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

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Smithsonian Astrophysical Observatory
Cambridge, MA 02138, U.S.A.
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ERRATA.

MPC	Line	
15387	-15	For 1976 Nov. 11 read 1976 Nov. 20. The erratum given on MPC 15438 is incorrect.
15576	- 1	The last sentence should read: Name suggested and citation prepared by E. Goffin, who found the identifications involving this planet, and endorsed by the discoverer.
15893	8	Add Id. T. Kobayashi, F. N. Bowman (d)

* * * * *

CORRECTED OBSERVATIONS.

The following observations correct those previously published.

Object	Date	UT	R. A. (1950)	Decl.	Reference	Mag.	N	Obs.
A912 RA	1912 09	12.8312	21 55 37.02	-32 47.96	AN 193			078
1953 TJ2	1953 10	15.21700	00 35 06.68	+06 52 08.4	MPC 3201		3	760
1946 SO	1946 09	29.86152	23 10 27.25	+11 11 30.5	MPC 8954		H	012
1954 QC	1954 08	31.32948	00 28 19.88	-02 13 26.0	MPC 5484			760
1954 UD	1954 11	17.16656	02 32 10.23	+14 26 24.6	MPC 1399		4	760
1954 UD	1954 11	17.21447	02 32 07.04	+14 26 23.5	MPC 1399		4	760
1954 UN2	1954 11	17.16656	02 29 49.64	+12 41 40.9	MPC 1399		5	760
1954 UN2	1954 11	17.21447	02 29 47.35	+12 41 22.5	MPC 1399		5	760
1955 UE1	1955 10	25.29096	02 26 09.03	+21 32 32.9	MPC 9542			760
1955 UE1	1955 10	25.32708	02 26 06.73	+21 32 27.6	MPC 9542			760
1956 EW	1956 03	09.23657	11 05 37.80	+04 11 42.5	MPC 9944			760
1956 EX	1956 03	09.23657	11 04 24.86	+04 19 46.2	MPC 9944		6	760
1956 TR	1956 10	11.17130	00 35 35.55	+00 00 29.8	MPC 7442		7	760
1958 VH	1958 11	11.31806	03 29 28.77	+16 52 03.9	MPC 6668		8	760
1961 VU	1961 11	11.23230	04 00 11.98	+21 05 30.8	MPC12184			760
1961 VU	1961 11	11.27501	04 00 09.56	+21 05 04.3	MPC12184			760
1962 OB	1962 07	31.30443	21 43 28.06	-13 50 13.3	MPC 2642		9	760
1962 OB	1962 07	31.34818	21 43 25.36	-13 50 06.1	MPC 2642		9	760
1985 TB	1989 09	01.66496	00 28 28.84	-31 27 02.7	MPC15160	19.4		474
1985 TB	1989 09	01.71749	00 28 25.23	-31 27 20.0	MPC15160			474
1985 TB	1989 09	02.64347	00 27 14.39	-31 33 04.5	MPC15160			474
1985 TB	1989 09	02.68612	00 27 10.92	-31 33 20.7	MPC15160			474
1989 YC	1990 01	01.94792	06 58 25.20	+23 21 32.5	MPC15810			567
1989 YC	1990 01	01.96736	06 58 23.67	+23 21 42.2	MPC15810			567
1989 YE1	1990 01	21.60243	08 20 50.3	+21 08 47	MPC15842	17		887
104	1937 01	20.10810	06 10 54.86	+27 08 14.2	MPC 3205		A	020
104	1937 01	20.14323	06 10 53.35	+27 08 07.9	MPC 3205		A	020

108		1936	12	17.10750	06	45	20.30	+29	19	02.4	MPC	3205	B 020
108		1936	12	17.14316	06	45	18.54	+29	19	06.9	MPC	3205	B 020
120		1936	12	17.10750	06	57	54.77	+31	55	06.6	MPC	3206	B 020
120		1936	12	17.14316	06	57	52.93	+31	55	11.2	MPC	3206	B 020
224		1936	12	17.10750	06	59	17.20	+31	30	41.8	MPC	3208	B 020
224		1936	12	17.14316	06	59	15.02	+31	30	46.6	MPC	3208	B 020
263		1967	03	15.97528	11	47	03.52	+00	02	36.1	MPC	3332	A 020
263		1967	03	15.98913	11	47	02.84	+00	02	39.2	MPC	3332	A 020
266		1939	06	14.96600	18	10	07.0	-12	14	54	RI	2001 12.0	A 006
279		1968	11	20.88922	02	23	50.36	+12	34	44.7	MPC	3430	B 020
335		1966	10	14.01033	00	57	35.64	-00	51	01.6	MPC	3334	B 020
335		1966	10	14.02903	00	57	34.63	-00	51	09.6	MPC	3334	B 020
354		1968	01	28.01728	09	34	24.82	+11	55	00.2	MPC	3432	B 020
354		1968	01	28.03113	09	34	24.17	+11	55	06.3	MPC	3432	B 020
461		1968	01	28.01728	09	39	09.98	+13	13	31.7	MPC	3436	B 020
461		1968	01	28.03113	09	39	09.38	+13	13	35.5	MPC	3436	B 020
468		1968	01	28.01728	09	39	51.74	+14	34	33.6	MPC	3436	B 020
468		1968	01	28.03113	09	39	51.17	+14	34	34.6	MPC	3436	B 020
524		1968	01	28.01728	09	35	45.66	+17	04	06.1	MPC	3438	B 020
524		1968	01	28.03113	09	35	44.92	+17	04	09.8	MPC	3438	B 020
601		1979	09	17.05210	01	24	08.28	-00	29	32.1	MPC	5606	012
601		1979	09	17.06596	01	24	07.93	-00	29	36.6	MPC	5606	012
604		1948	07	30.851	21	01.2		-23	05		MPC	147 12.5	078
605		1951	04	29.87962	15	29	12.67	-46	07	00.9	MPC	741 13.0	078
607		1936	12	17.10750	06	42	24.48	+26	02	09.7	MPC	3217	A 020
607		1937	01	20.10810	06	09	58.74	+24	38	49.9	MPC	3217	A 020
608		1966	02	24.56392	07	39	45.19	+18	57	19.6	MPC	4959	330
614		1949	06	17.83108	17	33	52	-15	31	.3	MPC	272 14.0	078
615		1968	01	28.01728	09	42	05.34	+17	34	47.6	MPC	3440	B 020
615		1968	01	28.03113	09	42	04.73	+17	34	50.0	MPC	3440	B 020
618		1939	06	14.96600	18	14	15.0	-14	06	18	RI	2001 12.2	A 006
619		1969	07	08.86001	17	25	37.99	-01	25	02.9	MPC	3069	095
622		1939	06	14.96600	18	08	00.0	-12	16	36	RI	2001 13.5	A 006
622		1947	09	09.94	22	43.5		-14	22		MPC	96	990
626		1961	03	22.14991	11	04	25.14	-02	00	07.5	MPC	3148	839
629		1952	05	25.12431	13	33.7		+01	14		MPC	824 15.6	760
635		1967	03	15.97528	12	05	54.41	-01	45	05.0	MPC	3339	A 020
635		1967	03	15.98913	12	05	53.92	-01	44	57.0	MPC	3339	A 020
638		1961	05	12.91670	12	33	58.32	+08	55	05.1	MPC	3406	C 043
639		1969	04	18.90556	15	14	17.76	-28	15	38.7	MPC	3040 13.8	076
642		1941	09	26.931	23	41.9		-04	14		RI	2387 13.2	078
642		1969	08	17.94987	22	58	35.66	-12	54	25.7	MPC	3440	D 020
642		1969	08	17.97064	22	58	34.68	-12	54	20.8	MPC	3440	D 020
644		1966	12	15.02763	06	16	57.60	+22	47	27.5	MPC	3339	E 020
644		1966	12	15.04218	06	16	56.55	+22	47	29.0	MPC	3339	E 020
654		1979	08	30.85069	20	31	29.68	-00	04	05.6	MPC	5170	519
654		1979	08	30.85417	20	31	29.45	-00	04	05.4	MPC	5170	519
654		1979	08	30.86319	20	31	29.07	-00	04	07.6	MPC	5170	519
654		1979	08	30.86667	20	31	28.87	-00	04	07.8	MPC	5170	519
656		1953	02	05.90	07	49.7		+20	28		MPC	922	020
656		1968	11	20.88922	02	35	52.61	+14	47	45.1	MPC	3440	B 020
657		1937	01	13.11463	02	59	52.03	+27	26	00.1	RI	1559	754
657		1947	06	16.863	17	31.0		-32	50		MPC	5 13.5	078
657		1952	08	18.00131	22	46	35.42	+02	55	03.5	MPC	878	012
658		1944	07	23.913	21	01.5		-18	36		RI	2565 13.5	078
659		1962	12	03.24584	04	02	47.28	+26	09	34.0	MPC	2292	689
662		1966	10	14.01033	01	17	04.42	+01	06	15.6	MPC	3339	B 020
662		1966	10	14.02903	01	17	03.41	+01	06	05.3	MPC	3339	B 020
663		1955	02	19.10974	09	01	18.18	-11	50	30.3	MPC	1589	B 822

666		1948 03 07.90	11 38.4		-05 46		MPC 133					020
669		1956 12 10.00	03 42.3		+04 56		MPC 1676	14.8		F		020
675		1967 06 10.86086	17 42 14.91		-23 17 16.1		MPC 2842					095
677		1966 05 13.77569	14 13 37.00		-23 55 06.2		MPC 2716	14.5		G		076
678		1951 03 04.94907	12 57 52		-15 18.5		MPC 534	14.0				078
679		1974 11 08.08357	05 42 34.34		-09 48 32.8		MPC 4878				A	020
679		1974 11 08.08530	05 42 34.33		-09 48 32.5		MPC 4878				A	020
688		1971 08 04.99137	22 56 51.79		-00 36 43.1		MPC 5116					073
688		1971 08 04.99968	22 56 51.63		-00 36 46.4		MPC 5116					073
691		1944 06 25.914	19 20.5		-27 12		RI 2564	13.5				078
695		1947 01 19.012	08 34 07		+07 47.6		MPC 4				B	006
695		1961 08 16.54	20 49.3		+00 31		MPC 2549	12.0				388
773		1968 01 28.01728	09 39 31.93		+16 33 15.1		MPC 3443				B	020
773		1968 01 28.03113	09 39 31.18		+16 33 15.4		MPC 3443				B	020
816		1968 01 28.01728	09 36 00.82		+17 29 34.1		MPC 3443				B	020
816		1968 01 28.03113	09 36 00.30		+17 29 42.3		MPC 3443				B	020
845		1966 10 14.01033	01 19 09.73		-00 34 43.7		MPC 3342				B	020
845		1966 10 14.02903	01 19 08.71		-00 34 46.4		MPC 3342				B	020
912		1966 10 14.01033	01 14 36.62		-00 32 21.4		MPC 3343				B	020
912		1966 10 14.02903	01 14 35.61		-00 32 23.3		MPC 3343				B	020
1107		1966 10 14.01033	01 14 43.24		-03 12 24.6		MPC 3345				B	020
1107		1966 10 14.02903	01 14 42.19		-03 12 30.5		MPC 3345				B	020
1615		1956 03 09.19630	11 02 10.10		+06 44 17.6		MPC 1787					760
1615		1956 03 09.23657	11 02 08.17		+06 44 32.1		MPC 1787					760

Note 1: time slightly changed. 2: 1953 TJ2 = (4046). 3 = 1 + 2. 4: 1954 UD = (2538). 5: 1954 UN2 = (3959). 6: 1956 EX = (4124). 7: 1956 TR = (2721). 8: 1958 VH = (2582). 9: 1962 OB = (3961). A: date corrected by -1 day. B: corrected by +1 day. C: corrected by -10 days. D: corrected by +3 days. E: corrected by +1 month. F: corrected by +7 days. G: corrected by +2 months. H: corrected by +2 days.

* * * * *

DELETED OBSERVATIONS.

The following observations are to be deleted.

Object		Date	UT	R. A. (1950)	Decl.	Reference	Obs.
1943 GK		1943 04 07.94862	12 34 18.09	-03 27 44.4		MPC 6665	062
1957 ED	*	1957 03 01.05	07 52.3	+29 25		MPC 1687	760
1957 EE	*	1957 03 01.05	07 56.7	+24 30		MPC 1687	760
1957 EF	*	1957 03 01.05	07 50.3	+27 17		MPC 1687	760
1962 SA	*	1962 09 22.09	21 46.7	-01 48		MPC 2227	760
212		1973 02 05.80988	07 45 37.89	+22 33 51.5		MPC 5160	073
212		1973 02 05.82858	07 45 37.38	+22 33 46.3		MPC 5160	073
348		1952 08 05.84864	21 32 16.20	-25 26 01.8		MPC 865	078
601		1966 04 18.87722	12 56 36.13	+05 05 27.9		MPC 3338	020
601		1966 04 18.91196	12 56 35.49	+05 05 26.8		MPC 3338	020
601		1966 05 16.92092	12 44 45.44	+06 44 39.3		MPC 3338	020
601		1966 05 16.95831	12 44 44.30	+06 44 32.2		MPC 3338	020
601		1967 07 04.92062	18 24 50.31	+00 07 14.4		MPC 3338	020
601		1967 07 04.93447	18 24 49.63	+00 07 10.8		MPC 3338	020
604		1962 02 26.49	09 10.1	+21 22		MPC 2549	388
605		1942 11 08.84653	00 39 02.85	+28 25 10.7		RI 2419	028
608		1969 08 18.06967	23 45 35.67	+10 41 42.6		MPC 3439	020
608		1969 08 18.07694	23 45 35.50	+10 41 44.8		MPC 3439	020
608		1969 08 25.03673	23 40 32.50	+10 54 10.6		MPC 3440	020
608		1969 08 25.04366	23 40 32.08	+10 54 19.6		MPC 3440	020

608		1971	01	06.98830	06	41	38.43	+26	00	20.9	MPC 6376	020
608		1971	01	06.99557	06	41	38.12	+26	00	26.1	MPC 6376	020
611		1954	01	08.92847	06	42	55.45	+01	55	18.9	MPC 1144	990
611		1954	01	26.45556	06	30	58.05	+03	04	41.6	MPC 2298	388
614		1935	03	27.96012	13	42	11.17	-14	28	22.7	MPC 3217	020
614		1967	08	01.83666	19	01	49.67	-12	30	19.6	MPC 3338	020
614		1967	08	01.86228	19	01	49.08	-12	30	20.1	MPC 3338	020
616		1961	03	10.51	10	31.4		+16	57		MPC 2548	388
621		1960	08	23.94426	21	54	29.41	-16	14	00.4	MPC 2060	020
622		1939	06	14.96483	18	08	00.51	-12	13	28.2	MPC 3217	020
622		1939	06	15.00086	18	07	58.81	-12	13	27.4	MPC 3217	020
622		1970	12	21.94619	07	13	50.55	+11	04	30.4	MPC 5116	073
622		1970	12	21.95866	07	13	49.57	+11	04	32.5	MPC 5116	073
623		1961	02	08.53	08	53.7		+14	14		MPC 2548	388
623		1961	02	13.48	08	48.1		+13	59		MPC 2548	388
623		1970	06	29.86042	18	21	05.73	-35	39	45.6	MPC 3163	076
624		1955	03	18.56042	11	33	12.37	-02	56	49.0	MPC 2611	388
624		1955	03	18.58819	11	33	12.24	-02	56	49.5	MPC 2611	388
625		1973	08	06.89046	18	55	50.93	-18	48	12.1	MPC 4878	020
625		1973	08	06.90119	18	55	50.46	-18	48	06.5	MPC 4878	020
628		1961	03	10.45	10	19.3		+23	57		MPC 2548	388
629		1966	10	20.05344	03	02	50.63	+06	23	42.4	MPC 3339	020
629		1966	10	20.06730	03	02	49.52	+06	23	38.0	MPC 3339	020
631		1956	12	24.49792	04	01	17.32	+07	44	05.9	MPC 2645	388
632		1969	11	03.91593	01	12	02.14	+06	09	16.0	MPC 3440	020
632		1969	11	03.93324	01	12	01.19	+06	09	10.2	MPC 3440	020
633		1956	12	24.49792	03	50	36.26	+05	00	21.9	MPC 2645	388
634		1951	11	29.52639	02	31	00.45	-04	17	10.2	MPC 2158	388
643		1967	08	01.83666	19	05	13.03	-10	55	09.9	MPC 3339	020
643		1967	08	01.86228	19	05	12.36	-10	55	12.9	MPC 3339	020
643		1967	08	03.84245	19	03	54.01	-10	56	44.8	MPC 3339	020
643		1967	08	03.85769	19	03	53.38	-10	56	46.9	MPC 3339	020
643		1969	11	18.02868	03	43	42.24	+25	23	17.0	MPC 3440	020
644		1955	02	13.58819	10	23	40.71	+11	21	11.0	MPC 2611	388
644		1968	04	17.86173	12	11	14.62	+00	24	09.4	MPC 3440	020
644		1968	04	17.88597	12	11	23.70	+00	24	03.7	MPC 3440	020
644		1968	04	20.88251	12	09	12.07	+00	40	17.5	MPC 3440	020
644		1968	04	20.90052	12	09	10.76	+00	40	24.3	MPC 3440	020
645		1967	03	14.11286	13	23	04.12	-11	11	22.0	MPC 3339	020
645		1967	03	14.13295	13	23	03.59	-11	11	21.2	MPC 3339	020
649		1967	04	12.99921	12	51	07.30	-12	56	01.3	MPC 3339	020
649		1967	04	13.01582	12	51	06.25	-12	56	03.0	MPC 3339	020
650		1968	07	31.89619	19	05	49.66	-18	30	40.6	MPC 3440	020
650		1968	07	31.90935	19	05	48.59	-18	30	41.2	MPC 3440	020
650		1968	08	02.89482	19	04	30.95	-18	37	03.5	MPC 3440	020
650		1968	08	02.91421	19	04	30.63	-18	37	04.6	MPC 3440	020
655		1955	01	22.42569	05	44	26.01	+18	30	49.0	MPC 2299	388
657		1969	09	12.99558	23	05	52.58	+07	44	53.9	MPC 3440	020
657		1969	09	13.00285	23	05	52.00	+07	44	49.7	MPC 3440	020
659		1967	03	02.99718	11	43	58.08	+01	26	26.2	MPC 3339	020
659		1967	03	03.00619	11	43	57.47	+01	26	28.4	MPC 3339	020
659		1967	03	11.90342	11	39	28.91	+01	51	34.3	MPC 3339	020
659		1967	03	11.92005	11	39	28.12	+01	51	41.8	MPC 3339	020
659		1967	03	15.87070	11	38	34.80	+02	03	18.1	MPC 3339	020
659		1967	03	15.88424	11	38	33.82	+02	03	26.0	MPC 3339	020
659		1971	08	16.87875	20	37	45.31	-22	20	08.6	MPC 6377	020
659		1971	08	16.88775	20	37	44.61	-22	20	02.6	MPC 6377	020
660		1957	03	27.98819	12	10.6		+10	31		MPC 1621	990

661	1943	12	17.76956	06	03	42.51	+35	55	08.1	RI 2547	028
661	1943	12	18.74815	06	02	35.47	+35	53	30.5	RI 2547	028
661	1943	12	18.82685	06	02	31.33	+35	53	19.8	RI 2547	028
662	1971	12	17.11699	07	17	27.71	+19	01	31.3	MPC 6377	020
662	1971	12	17.12877	07	17	26.97	+19	01	34.6	MPC 6377	020
662	1972	02	07.76042	06	31	50.07	+20	33	17.3	MPC 3599	056
662	1972	02	07.80486	06	31	50.59	+20	34	14.8	MPC 3599	056
665	1973	02	05.80988	07	46	48.62	+20	45	34.5	MPC 5165	073
665	1973	02	05.82858	07	46	47.93	+20	45	36.7	MPC 5165	073
666	1961	05	13.90472	13	16	09.81	-08	59	31.1	MPC 2123	020
666	1961	05	13.93259	13	16	08.40	-08	59	24.2	MPC 2123	020
670	1969	08	20.04759	22	21	20.95	-04	41	00.5	MPC 3441	020
671	1968	09	18.95603	00	42	56.94	+05	54	55.2	MPC 3441	020
671	1968	09	18.96984	00	42	56.65	+05	54	59.3	MPC 3441	020
671	1968	09	22.95848	00	40	05.32	+05	50	20.3	MPC 3441	020
671	1968	09	22.97129	00	40	04.38	+05	50	23.4	MPC 3441	020
672	1969	09	10.97473	21	19	26.75	-20	24	57.2	MPC 3441	020
672	1969	09	10.98096	21	19	26.47	-20	25	03.0	MPC 3441	020
673	1969	09	01.92449	21	15	51.44	-11	22	16.3	MPC 3441	020
673	1969	09	01.93211	21	15	50.83	-11	22	16.1	MPC 3441	020
673	1969	09	05.92776	21	14	16.86	-11	36	12.6	MPC 3441	020
673	1969	09	05.93884	21	14	16.46	-11	36	10.6	MPC 3441	020
674	1966	06	07.95400	16	12	35.77	-25	00	11.9	MPC 3339	020
674	1966	06	07.97478	16	12	34.78	-25	00	06.3	MPC 3339	020
674	1966	06	22.92031	16	00	15.42	-25	01	34.5	MPC 3339	020
674	1966	06	22.94456	16	00	14.17	-25	01	17.4	MPC 3339	020
674	1973	11	16.75112	01	33	40.72	+00	17	14.1	MPC 5165	073
674	1973	11	16.79073	01	33	40.69	+00	17	13.5	MPC 5165	073
678	1940	08	01.87566	20	00	31.88	-16	53	56.8	RI 2154	028
679	1973	05	09.11645	16	58	43.83	+04	16	28.9	MPC 4878	020
679	1973	05	09.11888	16	58	43.70	+04	16	24.9	MPC 4878	020
683	1942	07	16.97591	20	13	37.79	-01	22	07.9	MPC 3218	020
685	1966	09	24.06	00	48.4		+11	12		MPC 2701	020
685	1966	10	06.93	00	36.9		+09	33		MPC 2701	020
685	1966	10	13.94	00	30.6		+08	36		MPC 2701	020
687	1966	04	18.97486	13	42	25.84	-29	41	49.3	MPC 3339	020
687	1966	04	18.99737	13	42	25.44	-29	41	42.6	MPC 3339	020
687	1966	04	21.93793	13	39	20.67	-29	32	46.1	MPC 3340	020
687	1966	04	21.97671	13	39	18.03	-29	32	34.0	MPC 3340	020
687	1966	04	26.89555	13	34	11.53	-29	09	11.6	MPC 3340	020
689	1967	01	14.03304	08	01	11.66	+12	52	02.4	MPC 3340	020
689	1967	01	14.04406	08	01	10.71	+12	52	08.4	MPC 3340	020
689	1967	02	01.87155	07	41	46.78	+14	28	16.8	MPC 3340	020
689	1967	02	01.91387	07	41	45.75	+14	28	22.3	MPC 3340	020
689	1972	06	07.83681	17	11	19.07	-12	34	22.7	MPC 3473	076
690	1961	01	22.56274	05	41	08	+17	10.4		MPC 2194	337
692	1966	06	07.95400	16	05	55.82	-23	05	14.6	MPC 3340	020
692	1966	06	07.97478	16	05	54.78	-23	05	07.0	MPC 3340	020
692	1966	06	22.92031	15	53	42.92	-23	36	58.5	MPC 3340	020
692	1966	06	22.94456	15	53	41.38	-23	36	44.4	MPC 3340	020
692	1972	06	07.89226	15	28	57.14	-16	35	38.3	MPC 5736	020
692	1972	06	07.90334	15	28	56.73	-16	35	37.4	MPC 5736	020
695	1966	12	21.08279	07	25	21.51	+19	37	09.6	MPC 3340	020
695	1969	08	12.91608	19	44	31.83	-08	05	25.6	MPC 3441	020
695	1969	08	12.92508	19	44	31.56	-08	05	21.9	MPC 3441	020
697	1940	03	09.93497	12	44	27.67	-00	12	12.4	MPC 3218	020
697	1940	03	09.97651	12	44	26.57	-00	12	06.5	MPC 3218	020
697	1950	04	12.00	13	10.4		-09	10		MPC 454	020

IDENTIFICATION CHANGES.

Continuation to MPC 15770.

Object		Date	UT	R. A. (1950)	Decl.	Old desig.	Mag.	Obs.
A901 UA	*	1901 10	16.94326	01 49 50.77	+17 57 38.9	613		024
A906 EB	*	1906 03	14.91243	09 39 23.45	+12 25 15.1	A906 DC		024
A908 CD	*	1908 02	02.89673	06 19 14.46	+10 40 18.2	A908 AD		024
A912 HH	*	1912 04	16.91817	13 40 11.44	-03 04 05.5	669		024
A912 KA	*	1912 05	21.92404	14 48 03.08	+01 44 46.8	634		024
A914 TK	*	1914 10	12.93076	23 20 56.29	+10 03 21.4	A914 SA		024
A917 KF	*	1917 05	26.93415	14 59 47.80	-02 09 09.7	688		024
A918 OA	*	1918 07	16.96276	19 25 02.57	-11 45 40.7	663		024
A919 AC	*	1919 01	06.95694	05 42 17.70	+12 31 52.8	625		024
A919 KB	*	1919 05	20.92560	15 58 20.51	-10 51 57.8	689		024
A922 SE	*	1922 09	21.91135	23 19 31.00	-11 12 44.9	655		024
1926 XH	*	1926 12	07.91472	05 29 23.77	-08 19 32.7	1051	14.2	024
1926 YB	*	1926 12	25.85430	05 16 36.80	-08 12 04.3	1926 XA		024
1927 BO	*	1927 01	26.75778	05 01.4	-05 44	1926 XA	16	024
1927 BO		1927 01	28.76889	05 01 02.13	-05 26 14.7	1926 XA	16	024
1928 VD	*	1928 11	07.75681	21 25 31.43	-15 54 32.2	684		024
1929 DD	*	1929 02	27.87334	09 32.9	+19 51.5	1929 CB		012
1929 DD		1929 03	01.91149	09 31.5	+19 56.2	1929 CB		012
1929 DD		1929 03	08.91671	09 26.4	+20 08.4	1929 CB		012
1929 WH1	*	1929 11	23.77548	23 51 47.00	+08 57 10.1	1929 RU		024
1929 XX	*	1929 12	02.74416	23 53 10.84	+09 15 14.4	1929 RU		024
1932 FH	*	1932 03	31.92507	12 35 13.81	+07 49 46.0	1932 FG		024
1939 ND	*	1939 07	10.92094	19 33.4	-11 22	633	12.5	022
1939 ND		1939 07	12.92289	19 31.8	-11 30	633	12.5	022
1939 ND		1939 07	15.93304	19 29.3	-11 46	633	12.5	022
1940 AT	*	1940 01	12.95546	07 17.7	+27 42	629	13.0	029
1940 PF	*	1940 08	10.85	21 05.9	-03 34	675	11.1	119
1940 SJ	*	1940 09	28.72	22 47.0	-07 26	668	12.6	119
1942 GC1	*	1942 04	10.87	13 24.2	+17 07	652	14.0	119
1942 GD1	*	1942 04	14.61496	14 15 58	+04 00.0	676	13.0	388
1942 XZ	*	1942 12	10.91578	03 58 06.97	+26 21 14.9	1942 XC		012
1946 JC	*	1946 05	01.923	15 26.3	-05 28	622	14.0	078
1946 YC	*	1946 12	25.00	06 10.0	+08 35	669		020
1947 FO	*	1947 03	20.90	11 49.6	+02 06	615		020
1947 GJ	*	1947 04	11.00	11 31.3	+03 16	615		020
1948 BF	*	1948 01	16.03	08 07.6	+15 59	387		020
1948 BG	*	1948 01	16.03	08 10.1	+15 51	673		020
1948 PG1	*	1948 08	12.89729	21 09.5	-22 09	604	12.1	094
1948 RR1	*	1948 09	05.98701	23 58.3	+13 56	657	14.3	094
1948 RS1	*	1948 09	10.12221	00 30 34.26	+21 01 49.7	690		012
1948 XQ	*	1948 12	05.98573	06 41 56.39	+12 14 05.9	640		012
1949 BS	*	1949 01	21.88	08 16.4	+31 54	602	12.1	020
1949 CP	*	1949 02	04.82300	07 29 18	+02 40.5	611		075
1949 FR1	*	1949 03	25.00	14 00.7	+04 03	634		020
1949 QL2	*	1949 08	29.88437	22 20.9	+02 26	607	12.9	094
1950 BV1	*	1950 01	19.89445	06 35 03.51	+25 29 16.2	608		012
1950 DN1	*	1950 02	19.83700	06 57 46.0	+12 37 18	690		086
1950 RP1	*	1950 09	02.99204	22 39 37.55	-09 14 56.7	660		006
1950 WG	*	1950 11	17.96475	03 09 41.20	+17 00 48.1	1950 VC	14.5	020
1951 EA3	*	1951 03	02.87360	09 44 13.07	+16 57 43.8	615		990
1951 PP	*	1951 08	06.24790	21 28 59.6	-17 40 08	632	16.0	711
1951 PP		1951 08	08.90	21 27.3	-17 48	632		020
1951 PP		1951 08	11.90	21 24.6	-17 59	632		020

1951	VH	*	1951	11	01.75000	23	49	55.27	-07	43	02.6	643			094
1952	DR3	*	1952	02	27.834	10	00.3		+21	06		131		12.1	094
1952	DS3	*	1952	02	27.834	10	09.9		+20	22		693		12.9	094
1952	FO1	*	1952	03	20.96875	13	36	34	-30	37.9		695		12.0	078
1952	KL1	*	1952	05	18.87222	16	43	04.34	-21	05	35.6	644		13.3	078
1953	AP	*	1953	01	13.52292	07	40	05.32	+27	36	51.5	684		13.7	388
1953	FS1	*	1953	03	17.99074	12	56	04.20	+03	49	58.4	622			012
1953	FT1	*	1953	03	25.16409	14	13	20.46	+16	25	50.7	692			012
1953	KE	*	1953	05	19.90208	15	07	57.61	-14	56	10.0	614		14.0	078
1954	RV	*	1954	09	03.92500	23	12.0		-09	49		676			990
1954	SQ1	*	1954	09	20.85128	21	59	27.56	-04	09	01.1	675			012
1954	SR1	*	1954	09	30.90	22	09.4		-15	57		693			020
1954	UL3	*	1954	10	23.11	23	31.2		-04	28		291		16.3	760
1955	ML1	*	1955	06	23.97466	19	51	28.47	-36	36	09.7	698		13.8	076
1955	SC3	*	1955	09	18.90	21	57.6		-08	29		669		14.0	020
1955	WM	*	1955	11	17.815	03	39.5		+39	06		693			210
1956	AF1	*	1956	01	06.86455	06	58	36.06	+29	40	06.3	604			057
1956	AG1	*	1956	01	13.18509	04	39	01.43	+11	02	52.2	664		16.9	760
1956	AG1		1956	01	13.22467	04	39	00.86	+11	02	52.4	664			760
1956	AH1	*	1956	01	13.19	04	33.4		+11	18		479		13.5	760
1956	HC	*	1956	04	17.94410	15	34	51.20	-32	05	37.8	661		12.8	076
1956	TE1	*	1956	10	10.91596	23	31	46.99	-02	55	20.7	656			024
1958	DM1	*	1958	02	21.18133	11	02	26.44	-02	05	58.8	668			839
1958	DM1		1958	02	21.20626	11	02	25.14	-02	05	55.9	668			839
1958	RR	*	1958	09	13.19	22	15.6		-15	04		645		13.2	760
1959	RG1	*	1959	09	02.89442	22	25.9		-12	59		321		14.2	024
1959	RH1	*	1959	09	10.02985	23	24	41.79	-18	42	45.1	651			024
1961	CF1	*	1961	02	09.94898	09	16	58.12	+09	52	22.7	608			020
1964	LC	*	1964	06	03.84160	17	02	30.78	+11	26	23.0	667			012
1964	XP	*	1964	12	10.77070	03	02	29.74	+30	07	42.6	648			095
1965	QF	*	1965	08	30.15561	20	06	41.88	-03	46	18.6	654			822
1965	QF		1965	08	30.17303	20	06	41.35	-03	46	19.1	654			822
1965	QF		1965	08	30.17779	20	06	41.18	-03	46	19.1	654			822
1965	QG	*	1965	08	30.15561	20	07	04.09	-03	48	14.6	695			822
1965	QG		1965	08	30.17303	20	07	03.40	-03	48	16.8	695			822
1965	QG		1965	08	30.17779	20	07	03.21	-03	48	17.5	695			822
1966	QV	*	1966	08	17.90139	23	00	53.37	-25	54	42.2	697		13.0	076
1967	LB	*	1967	06	06.95694	18	39	13.68	+00	24	33.0	601			056
1967	LB		1967	06	06.99861	18	39	11.88	+00	25	22.2	601			056
1968	OO1	*	1968	07	20.91250	20	10	19.04	-21	13	34.1	658		15.5	076
1970	CT	*	1970	02	10.23232	10	03	22.06	-02	03	00.9	675			805
1970	CT		1970	02	10.24271	10	03	21.54	-02	02	56.2	675			805
1970	CT		1970	02	10.25310	10	03	20.96	-02	02	51.9	675			805
1970	CU	*	1970	02	10.23232	10	09	33.43	-00	56	42.7	787			805
1970	CU		1970	02	10.24271	10	09	32.83	-00	56	43.5	787			805
1970	CU		1970	02	10.25310	10	09	32.24	-00	56	44.9	787			805
1970	TF	*	1970	10	09.07000	02	53	28.96	+31	48	32.9	693			095
1973	CM	*	1973	02	06.79097	11	39	11.54	-06	32	47.3	666			323
1973	PA	*	1973	08	01.06821	18	59	08.19	-18	02	40.3	249			839
1973	PB	*	1973	08	01.19616	22	21	14.80	-15	17	02.2	625			839
1978	QR3	*	1978	08	29.69653	00	23	24.45	-07	06	47.4	1978	PA5		323
1978	QR3		1978	08	29.71736	00	23	23.78	-07	06	56.8	1978	PA5		323
1989	SJ8	*	1989	09	28.12014	01	27	38.63	+01	09	39.3	1989	SG2		809
1989	SJ8		1989	09	28.13333	01	27	38.06	+01	09	34.7	1989	SG2		809
1989	SJ8		1989	09	28.14653	01	27	37.32	+01	09	29.2	1989	SG2		809
1989	SK8	*	1989	09	28.26111	01	43	59.11	+04	45	17.2	1989	SJ4		809
1989	SK8		1989	09	28.27431	01	43	58.53	+04	45	12.1	1989	SJ4		809
1989	SK8		1989	09	28.28750	01	43	57.91	+04	45	05.0	1989	SJ4		809
1989	TT13	*	1989	10	08.29167	01	37	38.75	+04	37	36.2	1989	TF5	19.6	809

1989 TT13 1989 10 08.30486 01 37 37.96 +04 37 32.0 1989 TF5 809
1989 TT13 1989 10 08.31806 01 37 37.33 +04 37 27.2 1989 TF5 809

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ERRONEOUS IDENTIFICATIONS.

The following identifications are erroneous:

	Note		Note		Note
A912 XB = (680)	1	A920 HH = (319)	2	1941 KA = (655)	2

Note 1: cf. MPC 1188-1189. 2: cf. MPC 6576-6577.

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IDENTIFICATIONS.

The following list of identifications with numbered minor planets, by G. V. Williams except as noted, continues that on MPC 15770.

	Note		Note		Note
A899 PE = (1027)		A899 PH = (1266)		A899 PJ = (987)	
A901 SB = (36)		A902 EA = (1269)		A902 TE = (1283)	
A903 HA = (334)		A906 DC = (1617)		A906 QC = (14)	
A906 SA = (1269)		A906 SG = (1606)		A906 UA = (1640)	
A906 VB = (978)	1	A907 GW = (1013)		A907 VQ = (1012)	2
A907 WB = (1269)		A908 CD = (1312)		A908 DC = (1241)	
A909 DF = (1650)		A909 GC = (877)		A909 UA = (1687)	
A909 UD = (602)		A911 WA = (963)		A912 GB = (1280)	
A912 RA = (1317)		A912 VO = (1529)		A913 YA = (951)	
A914 SA = (1625)		A914 SC = (1666)		A914 WF = (659)	
A915 WA = (1378)		A915 XC = (1687)		A916 NB = (1366)	
A916 OB = (1535)		A916 UF = (1315)		A917 SO = (1632)	
A918 EG = (1269)		A920 GA = (279)		A920 GE = (718)	
A920 HE = (319)	3	A922 SD = (1434)		A923 YA = (978)	
A924 BG = (1315)		A924 YE = (1534)		1926 FH = (1171)	
1926 GC1 = (1269)		1926 UA = (1687)		1926 VF = (1583)	
1926 XA = (1051)		1928 FH = (1321)		1928 FU = (1155)	
1928 QK = (1593)		1928 XH = (614)		1929 GE = (1319)	
1929 XX = (884)		1929 YA = (978)		1930 KH = (794)	
1930 QW = (390)		1930 UH1 = (1501)		1931 HA = (1434)	
1931 JU = (1247)		1931 PC = (1366)		1931 RK1 = (98)	
1931 VH1 = (1635)		1932 CF = (1345)		1932 CK1 = (1271)	
1932 FG = (463)		1933 KC = (431)		1933 OR = (879)	
1933 RK = (830)		1933 SV = (1599)		1933 SA1 = (1604)	
1934 GY = (235)		1936 PQ = (1437)		1936 WM = (589)	
1938 RD = (1434)		1938 SO1 = (1308)		1940 QN = (1537)	
1940 SJ = (688)		1940 XA = (1514)		1941 DQ = (1587)	
1941 MH = (901)		1941 YH = (1122)		1942 RL1 = (234)	
1942 XZ = (1048)		1943 GK = (682)	4	1943 PE = (954)	
1943 PF = (1142)		1943 WB = (220)		1944 RF = (1645)	
1946 JA = (1132)		1946 OF = (955)		1946 SO = (773)	
1947 BN = (497)		1947 BO = (1653)		1947 JB = (6)	
1947 KH = (488)		1947 OF = (861)		1948 BE = (1663)	
1948 BF = (673)		1948 BG = (387)		1948 EC = (1638)	
1948 EG1 = (1663)		1948 GM = (1331)		1948 NK = (374)	
1948 PB1 = (1263)		1948 PF1 = (506)		1948 VD = (624)	
1949 BN = (156)	9	1949 CO = (1587)		1949 EK = (1471)	

1949 FO1	= (1629)		1949 KD1	= (406)		1949 SV1	= (328)	
1950 FQ	= (308)		1950 KJ	= (897)		1950 PD1	= (351)	
1950 WG	= (991)		1951 EA3	= (462)		1951 PA	= (294)	
1951 RB2	= (501)	6	1951 TV	= (1295)		1951 TW	= (979)	
1951 WA	= (1132)		1951 XH1	= (720)		1952 BK2	= (90)	
1952 DM3	= (1385)		1952 DR3	= (693)		1952 DS3	= (131)	
1952 FN1	= (1572)		1952 QE1	= (1570)		1952 SJ	= (304)	
1952 SR	= (853)		1952 YG	= (1317)		1953 BE	= (727)	
1953 PJ	= (300)		1953 TL2	= (899)		1953 VP1	= (815)	
1953 VX3	= (1789)		1953 XO1	= (1739)		1954 JG	= (73)	
1954 LM	= (1511)		1954 UH1	= (839)		1954 UJ3	= (291)	
1954 UL3	= (1128)		1955 DL	= (1601)		1955 ML1	= (591)	
1955 SW2	= (774)		1956 AH1	= (664)		1956 EZ	= (405)	
1956 HC	= (573)		1956 PC	= (433)		1956 TD1	= (1642)	
1956 US	= (1642)		1957 EO	= (868)		1957 XA	= (1627)	7
1958 DM1	= (1787)		1958 GX	= (1675)		1958 OD	= (1385)	
1958 PF	= (1097)		1958 RR	= (462)		1959 CU	= (860)	
1959 LA	= (1847)		1959 LL	= (184)		1959 RS	= (321)	8
1959 RG1	= (1958)		1961 TO1	= (200)		1963 NA	= (505)	
1963 VB	= (1420)		1963 VC	= (2007)		1964 CH	= (2727)	
1964 HA	= (1109)		1965 JL	= (34)		1965 PD	= (2190)	
1965 QF	= (695)		1965 QG	= (654)		1966 QV	= (2245)	
1967 ED1	= (1938)		1967 EK1	= (994)		1968 FZ	= (2681)	
1970 CT	= (787)		1972 KO	= (119)		1972 YT1	= (1636)	
1973 PA	= (625)		1973 PB	= (249)		1974 LF	= (81)	
1974 TY1	= (1206)		1974 WH1	= (1583)		1977 LP1	= (1027)	
1978 NA8	= (1672)		1978 QR3	= (1455)		1980 RH5	= (1766)	
1981 GU1	= (229)		1982 FM3	= (1705)		1983 FW	= (1839)	
1984 EC2	= (803)		1984 HJ2	= (1879)		1984 JX	= (281)	
1984 MM	= (1237)		1984 OK	= (1039)		1985 WS	= (3936)	
1985 XE2	= (1535)		1986 EN5	= (56)		1987 QE4	= (733)	
1988 CR3	= (1682)		1988 CS3	= (1613)		1988 CK6	= (1178)	
1988 DU	= (1434)		1988 DB1	= (243)		1988 PA2	= (495)	

Note 1: contrary to Stracke's 'Identifizierungsnachweis'. 2: contrary to Strobel's 'Identifizierungsnachweis'; also see Heidelberg Veroff. 17, 97. 3: contrary to Beob. Zirk. 2, 28. 4: by L. D. Schmadel (A. Ap. Suppl. 49, 691). 5: contrary to MPC 4822. 6: the identification 1951 RB2 = 1979 HH3 (JAM 1901) is invalid. 7: accurate positions of 1957 XA were published as (1627) on MPC 3622. 8: by A. Bohrmann (see Heidelberg Veroff. 21, 27). 9 = 4 + 5.

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OBSERVATIONS OF COMETS.

Observations are published here for the following observatory codes:

026 Zimmerwald. 0.4-m Schmidt. 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 f/1.9 astrocamera. Observers I. I. Goroshchak, T. Yu. Galas and E. I. Skrip. From Kiev Komet Tsirk.
136 Engelhardt Observatory, Kasan. Observers S. S. Tokhtas'ev, L. A. Urasin and S. K. Fomin. From Kiev Komet. Tsirk.
168 Kourovskaya, Uralskij State University. Observers E. D. Kuznetsov, T. I. Levitskaya, V. V. Pestov, S. M. Timirshin, A. V. Tearo and A. R. Tearo. From Kiev Komet. Tsirk.
364 JCPM Kagoshima Station. Observer M. Mukai. Measured by M. Takeishi.

372 Geisei. Observer T. Seki.
385 Oohira. Observers W. Kakei, M. Kizawa and T. Urata.
391 Sendai Observatory, Ayashi Station. Observer M. Koishikawa.
400 Kitami. Observer K. Endate. Measured by K. Watanabe.
401 Oosato. Observer S. Hayakawa.
413 Siding Spring. Uppsala Southern Schmidt. Observer R. H. McNaught.
415 Kambah, near Canberra. Observer D. Herald.
474 Mt. John University Observatory. 0.6-m reflector. Observer A. C. Gilmore. Measured by P. M. Kilmartin.
568 Mauna Kea. Observer D. J. Tholen.
590 Metzerlen. 0.4-m Schmidt. Observer C. Trefzger. Measured by U. Hugentobler. Long. and Parallax = 7.46, -289, -313 (see MPC 11200).
657 Victoria. Observers J. Tatum and D. Balam.
675 Palomar. 0.46-m Schmidt and 1.5-m reflector + CCD. Observers J. Alu, J. Gibson, E. Helin, K. Lawrence and B. Roman.
685 Williams, AZ. 0.1-m f/2.6 Schmidt. Observer P. E. Roques. Measured by B. A. Skiff. Long. and Parallax 247.84, -348, -245 (see MPC 11200).
875 Yorii. Observer M. Ishikawa. Measured by S. Hayakawa.
877 Okutama. Observers T. Hioki and S. Hayakawa.
881 Toyota. Observers K. Suzuki and T. Urata.
887 Ojima. Observer T. Niijima. Measured by T. Urata.
889 Karasuyuma. Observer S. Inoda. Measured by T. Urata.
892 YGCO Hoshikawa and Nagano stations. Observer S. Hayakawa.
896 Yatsugatake South Base Observatory. Observers Y. Kushida, R. Kushida and O. Muramatsu.
897 YGCO Chiyoda Station. Observer T. Kojima.
898 Fujieda. Observer H. Shiozawa. Measured by M. Kizawa. Long. and Parallax 138.19, -350, -240 (see MPC 11200).
978 Conder Brow. Observer D. Buczynski. Communicated by G. M. Hurst.

Object	Date	UT	R. A. (1950)	Decl.	Mag.	N Obs.
		Comet Shoemaker-Holt (1988 III)				
/1988 III	1988	10 19.30397	19 36 56.43	+50 16 13.9		675
/1988 III	1988	10 19.30924	19 36 56.59	+50 16 11.2		675
/1988 III	1988	10 19.31530	19 36 56.83	+50 16 07.8		675
		Comet Shoenaker-Holt-Rodriquez (1988h)				
/1988h	1989	11 03.64593	09 58 45.93	-62 08 02.1		474
/1988h	1989	11 03.65530	09 58 45.44	-62 08 05.6		474
		Periodic Comet Brorsen-Metcalf				
/1989o	1989	08 13.86634	05 53 02.78	+41 51 34.0		136
/1989o	1989	08 15.90767	06 19 26.84	+41 23 41.1		136
/1989o	1989	08 15.92192	06 19 37.64	+41 23 25.1		136
/1989o	1989	08 15.93094	06 19 44.44	+41 23 15.1		136
/1989o	1989	08 16.05463	06 21 17.52	+41 20 56.6		061
/1989o	1989	08 16.05808	06 21 20.63	+41 20 46.5		061
/1989o	1989	08 16.05920	06 21 21.48	+41 20 46.4		061
/1989o	1989	08 16.06111	06 21 23.51	+41 20 43.1		061
/1989o	1989	08 16.91277	06 31 57.72	+41 01 59.4		136
/1989o	1989	08 16.92388	06 32 05.83	+41 01 44.1		136
/1989o	1989	08 17.07292	06 33 55.41	+40 58 06.6		061
/1989o	1989	08 17.07741	06 33 58.66	+40 57 58.1		061
/1989o	1989	08 17.07845	06 33 59.45	+40 57 57.2		061
/1989o	1989	08 17.07926	06 34 00.12	+40 57 56.8		061
/1989o	1989	08 17.91160	06 44 01.63	+40 35 42.7		136
/1989o	1989	08 17.91576	06 44 04.54	+40 35 36.3		136
/1989o	1989	08 19.93681	07 07 14.62	+39 29 53.2		136

/1989o	1989	08	19.94097	07	07	17.70	+39	29	44.6		136
/1989o	1989	08	19.95035	07	07	23.92	+39	29	24.3		136
/1989o	1989	09	03.94821	09	11	04.65	+26	53	22.9		168
/1989o	1989	09	03.96206	09	11	09.79	+26	52	34.8		168
/1989o	1989	09	04.95938	09	17	14.22	+25	55	15.1		168
/1989o	1989	09	04.96345	09	17	15.71	+25	54	57.9		168
/1989o	1989	09	04.96693	09	17	16.94	+25	54	47.2		168
/1989o	1989	09	06.97199	09	29	01.66	+23	58	33.5		168
/1989o	1989	09	06.97940	09	29	04.21	+23	58	07.6		168
/1989o	1989	09	07.98744	09	34	46.42	+22	59	18.9		168
/1989o	1989	09	07.98993	09	34	47.08	+22	59	11.3		168
/1989o	1989	09	08.98698	09	40	18.06	+22	00	50.3		168
/1989o	1989	09	08.99055	09	40	19.19	+22	00	37.8		168
/1989o	1989	09	09.98645	09	45	43.24	+21	02	12.9		168
/1989o	1989	09	09.99444	09	45	45.76	+21	01	47.6		168

Comet Okazaki-Levy-Rudenko (1989r)

/1989r	1989	09	02.89618	15	12	58.58	+33	26	15.2		978
/1989r	1989	09	02.92465	15	12	56.15	+33	26	03.5		978
/1989r	1989	09	04.91563	15	10	02.51	+33	14	18.6		978
/1989r	1989	09	24.83152	14	46	30.71	+31	20	28.4		978
/1989r	1989	09	24.83985	14	46	30.15	+31	20	28.5		978
/1989r	1989	09	29.83360	14	41	25.72	+30	53	42.6		978
/1989r	1989	09	29.84749	14	41	24.77	+30	53	37.5		978
/1989r	1989	10	02.81632	14	38	23.24	+30	37	35.1		978
/1989r	1989	10	02.82709	14	38	22.70	+30	37	29.9		978
/1989r	1989	10	05.80938	14	35	16.64	+30	20	53.8		978
/1989r	1989	10	05.85035	14	35	13.82	+30	20	38.1		978
/1989r	1989	11	26.84971	12	57	07.09	-17	56	17.4		897
/1989r	1989	11	26.85162	12	57	06.93	-17	56	39.9		897
/1989r	1989	11	26.85295	12	57	06.58	-17	56	55.6		897

Comet Helin-Roman (1989s)

/1989s	1989	10	24.41014	17	14	14.57	-39	19	50.2		474
/1989s	1989	10	24.42356	17	14	14.97	-39	20	02.1		474
/1989s	1989	10	29.43878	17	16	13.18	-40	29	19.6	1	413

Comet Helin-Roman-Alu (1989v)

/1989v	1989	11	24.38791	20	11	49.19	+35	55	52.2	12.5T	897
/1989v	1989	11	24.40179	20	11	46.60	+35	56	16.7		897
/1989v	1990	01	24.50313	17	29	28.21	+58	27	42.7		675
/1989v	1990	01	24.54358	17	29	19.24	+58	28	51.4		675

Comet Aarseth-Brewington (1989a1)

/1989a1	1989	11	22.25813	16	18	15.84	+24	33	04.8	2	978
/1989a1	1989	11	22.74269	16	18	21.65	+24	11	00.1		978
/1989a1	1989	11	22.76771	16	18	22.06	+24	09	51.8		978
/1989a1	1989	11	23.76493	16	18	35.07	+23	23	41.7		978
/1989a1	1989	11	23.78472	16	18	35.18	+23	22	44.6		978
/1989a1	1989	11	25.25604	16	18	55.08	+22	12	54.8		978
/1989a1	1989	11	25.26633	16	18	55.12	+22	12	24.7		978
/1989a1	1989	11	26.84109	16	19	16.2	+20	55	07		897

Comet Austin (1989c1)

/1989c1	1989	12	11.46042	00	44	40.19	-60	40	28.8		474
/1989c1	1989	12	24.50704	00	32	11.68	-55	48	25.7		415
/1989c1	1989	12	28.51290	00	30	21.03	-54	08	13.9		415
/1989c1	1989	12	29.48298	00	30	02.11	-53	43	18.7		415
/1989c1	1990	01	16.50259	00	31	22.32	-45	17	13.9		415

/1989c1	1990	01	18.52810	00	32	15.37	-44	15	17.2			415
/1989c1	1990	01	18.53132	00	32	15.33	-44	15	10.8			415
/1989c1	1990	01	26.44248	00	36	49.76	-40	03	15.7			474
/1989c1	1990	01	26.44583	00	36	49.94	-40	03	09.1			474
/1989c1	1990	01	28.46476	00	38	16.04	-38	56	07.9			415
/1989c1	1990	01	28.46813	00	38	16.12	-38	56	01.5			415
/1989c1	1990	01	30.41737	00	39	44.61	-37	50	11.9			474
/1989c1	1990	01	30.42015	00	39	44.79	-37	50	06.2			474
/1989c1	1990	01	30.45302	00	39	46.20	-37	49	01.2			415
/1989c1	1990	01	30.45589	00	39	46.41	-37	48	56.1			415
/1989c1	1990	01	31.44942	00	40	33.43	-37	14	55.9			413
/1989c1	1990	02	11.21950	00	50	23.87	-30	45	55.7			568
/1989c1	1990	02	13.45521	00	52	42.54	-29	19	46.6			413
/1989c1	1990	02	19.42847	00	59	17.37	-25	19	09.9			413

Comet Skorichenko-George (1989e1)

/1989e1	1989	12	23.37951	20	02	18.35	+26	06	38.8	12.0T		892
/1989e1	1989	12	27.76374	20	10	59.34	+26	41	28.7			978
/1989e1	1989	12	27.80679	20	11	04.63	+26	41	51.2			978
/1989e1	1989	12	28.37674	20	12	13.95	+26	46	41.8		3	892
/1989e1	1989	12	31.72119	20	19	15.73	+27	16	20.5			046
/1989e1	1989	12	31.72420	20	19	16.09	+27	16	24.0			046
/1989e1	1990	01	14.71966	20	52	05.69	+29	44	35.9			046
/1989e1	1990	01	14.72262	20	52	06.16	+29	44	37.3			046
/1989e1	1990	01	22.72884	21	13	39.68	+31	24	56.3			046
/1989e1	1990	01	22.73162	21	13	40.20	+31	24	58.5			046
/1989e1	1990	01	27.41111	21	27	18.99	+32	27	48.8	8.5T		364
/1989e1	1990	01	29.74792	21	34	26.41	+33	00	03.7			046
/1989e1	1990	01	29.75000	21	34	26.78	+33	00	06.4			046

Periodic Comet Wild 4

/1990a	1990	01	21.57532	09	34	47.30	+20	38	05.5	13.0T	4	875
/1990a	1990	01	21.65617	09	34	44.05	+20	38	22.6		4	875
/1990a	1990	01	21.68750	09	34	42.81	+20	38	31.6	14 T	4	887
/1990a	1990	01	21.71806	09	34	41.53	+20	38	39.9		4	887
/1990a	1990	01	21.98333	09	34	31.69	+20	39	39.5	13.8T	5	026
/1990a	1990	01	22.89236	09	33	56.70	+20	43	03.4		5	026
/1990a	1990	01	24.69340	09	32	43.34	+20	49	55.3	12 T	6	372
/1990a	1990	01	24.70382	09	32	42.96	+20	49	58.0			372
/1990a	1990	01	25.30522	09	32	17.4	+20	52	20	12.5T		685
/1990a	1990	01	25.46128	09	32	10.75	+20	52	56.4	14.0T		675
/1990a	1990	01	25.48073	09	32	09.82	+20	52	58.8			675
/1990a	1990	01	25.49930	09	32	09.58	+20	53	00.8	13.0T		892
/1990a	1990	01	25.51319	09	32	08.93	+20	53	05.0			892
/1990a	1990	01	25.57101	09	32	06.33	+20	53	17.7			385
/1990a	1990	01	25.57813	09	32	06.30	+20	53	22.1	13 T		875
/1990a	1990	01	25.58542	09	32	05.98	+20	53	22.6			875
/1990a	1990	01	25.58961	09	32	05.39	+20	53	23.9			401
/1990a	1990	01	25.59176	09	32	05.43	+20	53	25.4			889
/1990a	1990	01	25.60145	09	32	05.11	+20	53	27.0			385
/1990a	1990	01	25.61082	09	32	04.49	+20	53	27.5			401
/1990a	1990	01	25.61832	09	32	04.21	+20	53	31.1			889
/1990a	1990	01	25.63333	09	32	03.59	+20	53	34.9			385
/1990a	1990	01	25.66736	09	32	02.12	+20	53	41.9			887
/1990a	1990	01	25.68438	09	32	01.32	+20	53	45.3			887
/1990a	1990	01	25.71701	09	32	00.0	+20	53	52		7	896
/1990a	1990	01	25.72917	09	31	59.18	+20	53	55.6	14 T		372
/1990a	1990	01	25.75139	09	31	58.3	+20	54	00		8	896
/1990a	1990	01	26.21424	09	31	38.3	+20	55	47			685

/1990a	1990	01	26.46118	09	31	27.61	+20	56	44.2	13	T	372
/1990a	1990	01	26.50972	09	31	25.60	+20	56	54.2			892
/1990a	1990	01	26.52361	09	31	24.98	+20	57	01.9			892
/1990a	1990	01	26.54618	09	31	23.98	+20	57	03.4	13	T	400
/1990a	1990	01	26.55938	09	31	23.28	+20	57	05.2			400
/1990a	1990	01	26.58160	09	31	22.34	+20	57	11.9			400
/1990a	1990	01	26.64375	09	31	19.57	+20	57	28.3			896
/1990a	1990	01	26.66255	09	31	18.6	+20	57	33		1	898
/1990a	1990	01	26.73185	09	31	15.2	+20	57	47		1	898
/1990a	1990	01	26.83704	09	31	10.47	+20	58	10.4			877
/1990a	1990	01	26.85241	09	31	09.94	+20	58	13.9			877
/1990a	1990	01	26.98772	09	31	04.20	+20	58	44.6			494
/1990a	1990	01	27.51145	09	30	40.90	+21	00	49.1			898
/1990a	1990	01	27.51701	09	30	39.57	+21	00	52.9	13	T	400
/1990a	1990	01	27.54063	09	30	38.63	+21	00	56.5			400
/1990a	1990	01	27.62118	09	30	35.93	+21	01	13.4			896
/1990a	1990	01	27.65382	09	30	34.26	+21	01	21.9			896
/1990a	1990	01	27.68864	09	30	32.51	+21	01	29.7			898
/1990a	1990	01	27.72986	09	30	30.70	+21	01	39.2	13	T	391
/1990a	1990	01	27.74375	09	30	30.02	+21	01	41.8	13	T	391
/1990a	1990	01	28.22466	09	30	07.86	+21	03	33.1		9	685
/1990a	1990	01	28.25175	09	30	06.52	+21	03	40.9		9	685
/1990a	1990	01	30.82222	09	28	05.31	+21	13	30.2			026
/1990a	1990	01	30.88160	09	28	02.24	+21	13	43.8			590
/1990a	1990	01	30.91736	09	28	00.68	+21	13	52.0			026
/1990a	1990	02	01.85000	09	26	24.95	+21	21	10.7			026
/1990a	1990	02	04.88264	09	23	49.14	+21	32	18.3			026
/1990a	1990	02	05.84722	09	22	58.60	+21	35	43.1			026
/1990a	1990	02	07.06285	09	21	53.72	+21	39	56.7			026
/1990a	1990	02	09.80174	09	19	27.57	+21	48	59.4	13.2	T	026
/1990a	1990	02	14.22194	09	15	29.73	+22	02	02.1			657
/1990a	1990	02	14.23757	09	15	28.96	+22	02	03.7			657
/1990a	1990	02	17.50030	09	12	36.33	+22	10	13.1	13	T	898
/1990a	1990	02	17.51171	09	12	35.76	+22	10	14.9	13	T	898
/1990a	1990	02	17.52315	09	12	35.23	+22	10	15.9	13	T	898
/1990a	1990	02	17.57361	09	12	32.52	+22	10	24.3	13	T	881
/1990a	1990	02	17.57986	09	12	32.13	+22	10	25.0			881
/1990a	1990	02	17.59005	09	12	31.55	+22	10	26.3	13	T	887
/1990a	1990	02	17.61701	09	12	30.01	+22	10	30.1			887
/1990a	1990	02	20.56597	09	09	59.58	+22	16	32.7			887
/1990a	1990	02	20.57750	09	09	58.95	+22	16	33.8			887
/1990a	1990	02	21.48576	09	09	14.18	+22	18	09.8	14	T	385
/1990a	1990	02	21.51389	09	09	12.81	+22	18	13.0			385

Note 1: faint image. 2: correction to MPC 15443. 3: strongly condensed.
4: prediscovery observation. 5: fanshaped tail 1′ long to northwest.
6: 5′ tail in p.a. 290 . 7: right ascension uncertain. 8: poor sky.
9: 3′ tail in p.a. 288 .

* * * * *

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.
020 Nice							
B. Milet, Observatoire de Nice, BP 139, F-06003 Nice Cedex, France							
1145	1967	03 15.97528	11 51 12.23	-01 05 38.9			020
1145	1967	03 15.98913	11 51 11.42	-01 05 34.2			020
1605	1967	03 15.97528	11 49 23.09	+01 47 17.2			020
1605	1967	03 15.98913	11 49 22.43	+01 47 24.0			020
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							
1988 PM2	1989	12 26.03333	07 25 31.27	+17 14 7.6	18.8		033
1988 PM2	1989	12 26.09167	07 25 28.25	+17 14 16.5			033
1988 PM2	1989	12 26.95972	07 24 43.78	+17 16 38.6			033
1988 RU3	1989	12 25.95000	06 49 08.12	+19 16 58.4	19.3		033
1988 RU3	1989	12 26.00833	06 49 04.68	+19 17 04.5			033
1988 RU3	1989	12 26.93333	06 48 11.18	+19 18 30.0			033
1989 WM4 *	1989	11 28.88646	03 37 56.74	+24 22 09.4	18.0		033
1989 WM4	1989	11 28.91076	03 37 55.52	+24 22 02.4			033
1989 WM4	1989	11 29.90347	03 37 00.39	+24 18 10.4			033
1989 WM4	1989	11 29.98576	03 36 55.95	+24 17 53.3			033
1989 WN4 *	1989	11 28.88646	03 39 30.10	+23 01 09.2	17.8		033

1989	WN4		1989	11	28.91076	03	39	29.11	+23	01	00.3	033
1989	WN4		1989	11	29.90347	03	38	38.99	+22	54	46.8	033
1989	WN4		1989	11	29.98576	03	38	34.71	+22	54	15.9	V 033
1989	WO4	*	1989	11	28.88646	03	39	56.66	+24	04	50.4	17.6 033
1989	WO4		1989	11	28.91076	03	39	55.44	+24	04	48.1	033
1989	WO4		1989	11	29.90347	03	38	50.19	+24	03	58.5	033
1989	WO4		1989	11	29.98576	03	38	44.75	+24	03	54.8	033
1989	WP4	*	1989	11	28.88646	03	43	02.26	+22	54	46.4	17.7 033
1989	WP4		1989	11	28.91076	03	43	01.56	+22	54	36.1	033
1989	WP4		1989	11	29.90347	03	42	10.27	+22	41	07.1	033
1989	WP4		1989	11	29.98576	03	42	06.22	+22	40	04.2	033
1989	WQ4	*	1989	11	28.88646	03	43	05.94	+22	50	14.4	18.3 033
1989	WQ4		1989	11	28.91076	03	43	05.08	+22	50	05.1	033
1989	WQ4		1989	11	29.90347	03	42	14.67	+22	42	42.0	033
1989	WQ4		1989	11	29.98576	03	42	10.61	+22	42	06.2	033
1989	WR4	*	1989	11	28.88646	03	43	22.85	+25	21	01.3	17.8 033
1989	WR4		1989	11	28.91076	03	43	21.52	+25	20	58.9	033
1989	WR4		1989	11	29.90347	03	42	20.53	+25	19	56.8	033
1989	WR4		1989	11	29.98576	03	42	15.63	+25	19	51.4	033
1989	WR4		1989	12	03.93264	03	38	18.03	+25	15	17.9	033
1989	WS4	*	1989	11	28.88646	03	47	13.65	+24	37	32.7	18.0 033
1989	WS4		1989	11	28.91076	03	47	12.44	+24	37	23.0	033
1989	WS4		1989	11	29.90347	03	46	10.94	+24	29	48.0	033
1989	WS4		1989	11	29.98576	03	46	05.76	+24	29	12.0	033
1989	WS4		1989	12	03.93264	03	42	11.85	+23	58	45.1	033
1989	WT4	*	1989	11	28.88646	03	48	04.62	+24	36	42.2	17.0 033
1989	WT4		1989	11	28.91076	03	48	03.55	+24	36	32.5	033
1989	WT4		1989	11	29.90347	03	47	11.66	+24	29	44.8	033
1989	WT4		1989	11	29.98576	03	47	07.33	+24	29	12.3	033
1989	WT4		1989	12	03.93264	03	43	47.86	+24	02	00.8	033
1989	WU4	*	1989	11	28.88646	03	48	36.49	+23	13	38.6	17.7 033
1989	WU4		1989	11	28.91076	03	48	35.36	+23	13	32.7	033
1989	WU4		1989	11	29.90347	03	47	38.98	+23	09	06.7	033
1989	WU4		1989	11	29.98576	03	47	34.25	+23	08	45.6	033
1989	WU4		1989	12	03.93264	03	43	57.51	+22	51	04.0	033
1989	WV4	*	1989	11	28.88646	03	49	13.36	+24	30	10.5	18.1 033
1989	WV4		1989	11	28.91076	03	49	12.25	+24	30	06.9	033
1989	WV4		1989	11	29.90347	03	48	20.77	+24	26	46.1	033
1989	WV4		1989	11	29.98576	03	48	16.40	+24	26	29.1	033
1989	WV4		1989	12	03.93264	03	44	56.61	+24	12	52.3	033
1989	WW4	*	1989	11	28.88646	03	49	36.84	+22	46	49.1	17.9 033
1989	WW4		1989	11	28.91076	03	49	35.90	+22	46	44.6	033
1989	WW4		1989	11	29.90347	03	48	44.69	+22	43	22.3	033
1989	WW4		1989	11	29.98576	03	48	40.29	+22	43	05.9	033
1989	WW4		1989	12	03.93264	03	45	23.44	+22	29	43.9	033
1989	YA		1989	11	28.88646	03	44	34.39	+25	01	51.6	16.7 033
1989	YA		1989	11	28.91076	03	44	33.15	+25	01	51.5	033
1989	YA		1989	11	29.90347	03	43	35.38	+25	02	02.2	033
1989	YA		1989	11	29.98576	03	43	30.60	+25	02	03.3	033
1989	YA		1989	12	03.93264	03	39	47.92	+25	02	24.8	033
1989	YN		1989	12	26.03333	07	27	05.70	+18	35	00.6	15.9 033
1989	YN		1989	12	26.09167	07	27	02.16	+18	34	56.8	033
1989	YN		1989	12	26.95972	07	26	11.03	+18	34	02.0	033
1989	YT		1989	11	28.88646	03	38	55.52	+22	32	01.3	17.1 033
1989	YT		1989	11	28.91076	03	38	54.21	+22	31	57.2	033
1989	YT		1989	11	29.90347	03	37	52.16	+22	29	51.6	033
1989	YT		1989	11	29.98576	03	37	46.96	+22	29	42.1	033
1989	YT6	*	1989	12	25.95000	06	44	07.69	+20	09	36.8	19.4 033
1989	YT6		1989	12	26.00833	06	44	03.80	+20	09	27.7	I 033

1989	YT6		1989	12	26.93333	06	43	03.74	+20	06	47.0		033
1989	YU6	*	1989	12	25.95000	06	44	29.43	+20	00	07.2	19.6	033
1989	YU6		1989	12	26.93333	06	43	28.58	+20	02	48.1		033
1989	YV6	*	1989	12	25.95000	06	45	24.44	+17	55	33.1	19.5	033
1989	YV6		1989	12	26.00833	06	45	20.52	+17	55	45.3		033
1989	YV6		1989	12	26.93333	06	44	20.00	+17	58	57.0		033
1989	YW6	*	1989	12	25.95000	06	45	40.34	+19	12	16.9	18.2	033
1989	YW6		1989	12	26.00833	06	45	35.53	+19	11	41.8		033
1989	YW6		1989	12	26.93333	06	44	20.36	+19	02	08.4		033
1989	YX6	*	1989	12	25.95000	06	46	48.68	+20	10	51.9	17.3	033
1989	YX6		1989	12	26.00833	06	46	45.07	+20	11	11.1		033
1989	YX6		1989	12	26.93333	06	45	49.88	+20	16	08.4		033
1989	YY6	*	1989	12	25.95000	06	47	47.38	+20	43	42.8	19.3	033
1989	YY6		1989	12	26.00833	06	47	43.32	+20	43	41.9		033
1989	YY6		1989	12	26.93333	06	46	40.49	+20	43	21.4		033
1989	YZ6	*	1989	12	25.95000	06	49	56.81	+18	58	28.2	19.5	033
1989	YZ6		1989	12	26.00833	06	49	53.38	+18	58	23.0		033
1989	YZ6		1989	12	26.93333	06	48	59.15	+18	56	52.3		033
1989	YA7	*	1989	12	25.95000	06	50	02.45	+19	53	04.5	19.7	033
1989	YA7		1989	12	26.00833	06	49	58.80	+19	52	56.8		033
1989	YA7		1989	12	26.93333	06	49	01.70	+19	50	47.9		033
1989	YB7	*	1989	12	25.95000	06	50	28.85	+18	03	42.2	18.9	033
1989	YB7		1989	12	26.00833	06	50	25.02	+18	03	47.0		033
1989	YB7		1989	12	26.93333	06	49	24.34	+18	05	09.4		033
1989	YC7	*	1989	12	25.95000	06	53	14.24	+19	41	01.3	19.6	033
1989	YC7		1989	12	26.00833	06	53	10.38	+19	41	12.0		033
1989	YC7		1989	12	26.93333	06	52	10.25	+19	43	55.3		033
1989	YD7	*	1989	12	25.95000	06	53	27.13	+20	11	35.5	19.0	033
1989	YD7		1989	12	26.00833	06	53	23.89	+20	11	54.6		033
1989	YD7		1989	12	26.93333	06	52	32.69	+20	16	44.0		033
1989	YE7	*	1989	12	25.95000	06	54	13.92	+18	43	53.7	20.1	033
1989	YE7		1989	12	26.00833	06	54	10.07	+18	44	01.1		033
1989	YE7		1989	12	26.93333	06	53	09.80	+18	45	31.4	U	033
1989	YF7	*	1989	12	25.95000	06	54	35.19	+20	01	32.6	19.2	033
1989	YF7		1989	12	26.00833	06	54	31.78	+20	01	36.4		033
1989	YF7		1989	12	26.93333	06	53	38.80	+20	02	25.1		033
1989	YG7	*	1989	12	25.95000	06	54	37.48	+18	15	35.4	19.8	033
1989	YG7		1989	12	26.00833	06	54	34.31	+18	15	48.2		033
1989	YG7		1989	12	26.93333	06	53	43.63	+18	19	06.8		033
1989	YH7	*	1989	12	25.95000	06	55	27.97	+19	22	45.2	18.3 I	033
1989	YH7		1989	12	26.00833	06	55	24.62	+19	23	03.8		033
1989	YH7		1989	12	26.93333	06	54	31.91	+19	28	00.0		033
1989	YJ7	*	1989	12	25.95000	06	55	46.09	+19	36	50.3	19.7	033
1989	YJ7		1989	12	26.00833	06	55	42.59	+19	37	00.3		033
1989	YJ7		1989	12	26.93333	06	54	47.31	+19	39	38.0	U	033
1989	YK7	*	1989	12	26.03333	07	17	01.50	+16	37	12.3	18.9	033
1989	YK7		1989	12	26.09167	07	16	58.32	+16	37	11.0		033
1989	YK7		1989	12	26.95972	07	16	10.72	+16	36	48.9		033
1989	YL7	*	1989	12	26.03333	07	19	31.63	+17	57	58.7	19.7 I	033
1989	YL7		1989	12	26.09167	07	19	28.07	+17	57	54.5		033
1989	YL7		1989	12	26.95972	07	18	36.44	+17	56	34.5		033
1989	YM7	*	1989	12	26.03333	07	20	16.91	+15	51	32.9	19.2	033
1989	YM7		1989	12	26.09167	07	20	13.70	+15	51	27.5		033
1989	YM7		1989	12	26.95972	07	19	26.66	+15	50	57.7		033
1989	YN7	*	1989	12	26.03333	07	20	33.44	+17	41	19.4	19.1	033
1989	YN7		1989	12	26.09167	07	20	29.82	+17	41	27.7		033
1989	YN7		1989	12	26.95972	07	19	36.98	+17	43	32.9		033
1989	YO7	*	1989	12	26.03333	07	20	55.45	+18	34	16.2	17.9	033
1989	YO7		1989	12	26.09167	07	20	52.13	+18	34	16.3		033

1989	YO7		1989	12	26.95972	07	20	04.13	+18	34	30.5	033
1989	YP7	*	1989	12	26.03333	07	22	18.75	+18	19	20.6	19.1 033
1989	YP7		1989	12	26.09167	07	22	15.36	+18	19	24.0	033
1989	YP7		1989	12	26.95972	07	21	25.97	+18	20	25.7	033
1989	YQ7	*	1989	12	26.03333	07	22	27.56	+15	54	07.4	18.8 033
1989	YQ7		1989	12	26.09167	07	22	25.16	+15	54	04.6	033
1989	YQ7		1989	12	26.95972	07	21	48.76	+15	53	29.1	033
1989	YR7	*	1989	12	26.03333	07	22	31.19	+18	11	54.9	19.3 033
1989	YR7		1989	12	26.09167	07	22	27.56	+18	12	04.9	033
1989	YR7		1989	12	26.95972	07	21	35.03	+18	14	39.4	033
1989	YS7	*	1989	12	26.03333	07	22	39.52	+16	38	06.2	18.5 033
1989	YS7		1989	12	26.09167	07	22	36.06	+16	37	58.1	033
1989	YS7		1989	12	26.95972	07	21	45.24	+16	36	05.8	033
1989	YT7	*	1989	12	26.03333	07	23	32.08	+16	58	10.7	18.3 033
1989	YT7		1989	12	26.09167	07	23	28.91	+16	58	27.4	033
1989	YT7		1989	12	26.95972	07	22	43.20	+17	02	45.1	033
1989	YU7	*	1989	12	26.03333	07	24	20.06	+15	53	33.8	18.2 033
1989	YU7		1989	12	26.09167	07	24	16.59	+15	53	25.7	033
1989	YU7		1989	12	26.95972	07	23	26.66	+15	51	37.7	033
1989	YV7	*	1989	12	26.03333	07	24	27.31	+16	36	08.0	19.4 033
1989	YV7		1989	12	26.09167	07	24	23.60	+16	36	21.6	033
1989	YV7		1989	12	26.95972	07	23	29.33	+16	39	59.8	033
1989	YW7	*	1989	12	26.03333	07	26	10.49	+17	45	19.5	19.8 033
1989	YW7		1989	12	26.09167	07	26	07.19	+17	45	21.8	033
1989	YW7		1989	12	26.95972	07	25	18.64	+17	46	13.0	U 033
1989	YX7	*	1989	12	26.03333	07	26	19.56	+16	42	08.4	18.9 033
1989	YX7		1989	12	26.09167	07	26	16.07	+16	42	08.0	033
1989	YX7		1989	12	26.95972	07	25	25.09	+16	42	18.5	033
1989	YY7	*	1989	12	26.03333	07	26	30.56	+17	03	50.4	19.6 033
1989	YY7		1989	12	26.09167	07	26	26.92	+17	03	44.0	033
1989	YY7		1989	12	26.95972	07	25	33.24	+17	02	12.4	033
1989	YZ7	*	1989	12	26.03333	07	27	01.58	+18	32	06.4	19.0 033
1989	YZ7		1989	12	26.09167	07	26	58.24	+18	32	21.8	033
1989	YZ7		1989	12	26.95972	07	26	09.43	+18	36	19.5	033
1989	YA8	*	1989	12	26.03333	07	27	17.14	+17	26	46.7	18.6 033
1989	YA8		1989	12	26.09167	07	27	13.54	+17	26	53.9	033
1989	YA8		1989	12	26.95972	07	26	20.57	+17	28	48.0	033
4237	P-L		1989	11	28.88646	03	40	57.72	+23	12	31.2	18.4 033
4237	P-L		1989	11	28.91076	03	40	56.86	+23	12	28.7	V 033
4237	P-L		1989	11	29.90347	03	39	52.06	+23	08	35.7	V 033
4237	P-L		1989	11	29.98576	03	39	46.50	+23	08	16.5	033
315			1989	12	26.03333	07	25	09.69	+18	35	38.2	17.2 033
315			1989	12	26.09167	07	25	05.88	+18	35	46.0	033
315			1989	12	26.95972	07	24	10.10	+18	37	49.1	033
1232			1989	12	25.95000	06	43	47.54	+19	01	10.1	16.0 033
1232			1989	12	26.00833	06	43	44.52	+19	01	05.3	033
1232			1989	12	26.93333	06	42	56.88	+18	59	48.1	033
1806			1989	11	28.88646	03	48	42.39	+23	32	34.5	15.7 033
1806			1989	11	28.91076	03	48	40.91	+23	32	25.6	033
1806			1989	11	29.90347	03	47	36.51	+23	26	29.1	033
1806			1989	11	29.98576	03	47	31.02	+23	26	00.5	033
1806			1989	12	03.93264	03	43	23.65	+23	02	05.4	033
2844			1989	12	25.95000	06	50	08.49	+20	40	04.3	17.8 033
2844			1989	12	26.00833	06	50	04.44	+20	40	12.5	033
2844			1989	12	26.93333	06	49	00.94	+20	42	12.5	033
2960			1989	12	25.95000	06	47	00.77	+18	06	57.9	16.8 033
2960			1989	12	26.00833	06	46	56.94	+18	07	11.0	033
2960			1989	12	26.93333	06	45	57.56	+18	10	41.4	033
2962			1989	12	03.93264	03	46	51.65	+24	36	46.8	033

3727		1989	12	26.03333	07	16	34.84	+16	14	04.4	18.1	033
3727		1989	12	26.09167	07	16	32.24	+16	14	08.7		033
3727		1989	12	26.95972	07	15	53.82	+16	15	23.7		033
4233		1989	12	26.03333	07	24	05.89	+16	17	15.9	19.0	033
4233		1989	12	26.09167	07	24	02.48	+16	17	21.0		033
4233		1989	12	26.95972	07	23	12.24	+16	18	40.3		033

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1976	GL3		1990	01	30.95628	09	11	03.48	+16	23	28.4		046
1976	GL3		1990	01	30.96971	09	11	02.51	+16	23	32.9		046
1987	QD1		1990	01	29.87083	08	49	58.33	+15	28	50.3	16.7	046
1987	QD1		1990	01	29.88495	08	49	57.71	+15	28	55.4		046
1987	QD1		1990	01	30.92295	08	49	10.06	+15	34	05.2		046
1987	QD1		1990	01	30.93707	08	49	09.14	+15	34	09.0		046
1988	VW		1990	01	29.90486	09	03	26.57	+16	11	41.9		046
1988	VW		1990	01	29.91898	09	03	25.99	+16	11	46.2		046
1988	VW		1990	01	30.95628	09	02	34.92	+16	15	13.4		046
1988	VW		1990	01	30.96971	09	02	34.03	+16	15	17.6		046
1990	AD		1990	01	29.77014	07	21	02.62	+28	29	59.9	16.5	046
1990	AD		1990	01	29.78426	07	21	01.80	+28	30	04.4		046
1990	AE		1990	01	22.83336	07	38	28.61	+27	24	08.2	16.8	046
1990	AE		1990	01	22.84863	07	38	27.76	+27	24	13.2		046
1990	AE		1990	01	29.77014	07	32	22.62	+27	51	54.9		046
1990	AE		1990	01	29.78426	07	32	21.92	+27	51	57.5		046
1990	BO		1990	01	29.87083	08	56	10.04	+14	24	34.5	16.7	046
1990	BO		1990	01	29.88495	08	56	09.32	+14	24	33.8		046
1990	BO		1990	01	30.92295	08	55	11.34	+14	24	10.6		046
1990	BO		1990	01	30.93707	08	55	10.45	+14	24	12.8		046
1990	BJ2		1990	01	29.90486	09	07	13.23	+16	25	06.0	16.7	046
1990	BJ2		1990	01	29.91898	09	07	12.62	+16	25	08.9		046
1990	BJ2		1990	01	30.95628	09	06	23.52	+16	30	16.9		046
1990	BJ2		1990	01	30.96971	09	06	22.97	+16	30	20.6		046
1990	BQ2	*	1990	01	22.83336	07	30	00.34	+28	06	23.4	16.8	046
1990	BQ2		1990	01	22.84863	07	29	59.50	+28	06	27.8		046
1990	BQ2		1990	01	29.77014	07	23	09.08	+28	43	06.3		046
1990	BQ2		1990	01	29.78426	07	23	08.14	+28	43	10.0		046
1990	BR2	*	1990	01	29.87083	08	52	19.52	+17	00	52.3	16.7	046
1990	BR2		1990	01	29.88495	08	52	18.48	+17	01	01.3		046
1990	BR2		1990	01	30.92295	08	51	09.27	+17	07	22.6		046
1990	BR2		1990	01	30.93707	08	51	08.21	+17	07	29.7		046
1990	BS2	*	1990	01	29.87083	08	57	17.63	+16	43	25.3	16.7	046
1990	BS2		1990	01	29.88495	08	57	16.74	+16	43	25.4		046
1990	BS2		1990	01	30.92295	08	56	13.03	+16	44	14.3		046
1990	BS2		1990	01	30.93707	08	56	11.94	+16	44	16.2		046
1990	BT2	*	1990	01	29.90486	09	05	58.22	+16	38	53.8	16.6	046
1990	BT2		1990	01	29.91898	09	05	57.46	+16	38	51.6		046
1990	BT2		1990	01	30.95628	09	04	51.91	+16	37	05.9		046
1990	BT2		1990	01	30.96971	09	04	50.97	+16	37	04.0		046
1990	BU2	*	1990	01	29.90486	09	11	48.32	+15	35	57.6	16.7	046
1990	BU2		1990	01	29.91898	09	11	47.48	+15	35	57.4		046
1990	BU2		1990	01	30.95628	09	10	47.32	+15	35	55.0		046
1990	BU2		1990	01	30.96971	09	10	46.49	+15	35	53.8		046
1990	CA		1990	01	29.87083	08	45	54.94	+14	31	34.4	16.6	046
1990	CA		1990	01	29.88495	08	45	53.88	+14	31	37.6		046
1990	CA		1990	01	30.92295	08	44	42.29	+14	34	01.1		046

1990	CA	1990	01	30.93707	08	44	41.29	+14	34	05.8	046
2390	T-3	1990	01	30.88753	08	52	44.10	+29	36	08.0	046
2390	T-3	1990	01	30.90166	08	52	42.98	+29	36	09.5	046
169		1990	01	29.80486	07	08	23.63	+30	01	40.1	046
169		1990	01	29.81904	07	08	22.90	+30	01	39.6	046
169		1990	01	30.85281	07	07	24.84	+30	00	28.4	046
169		1990	01	30.86693	07	07	24.08	+30	00	27.8	046
199		1990	01	14.77684	06	49	38.26	+28	38	40.9	046
199		1990	01	14.79108	06	49	37.52	+28	38	45.6	046
259		1990	01	22.83336	07	30	32.15	+28	38	05.0	046
259		1990	01	22.84863	07	30	31.41	+28	38	08.1	046
259		1990	01	29.77014	07	24	43.32	+28	59	50.9	046
259		1990	01	29.78426	07	24	42.64	+28	59	53.2	046
309		1990	01	14.77684	06	51	04.81	+28	09	41.2	046
309		1990	01	14.79108	06	51	04.01	+28	09	42.0	046
309		1990	01	22.79655	06	43	31.09	+28	09	34.8	046
309		1990	01	22.81079	06	43	30.35	+28	09	38.9	046
499		1990	01	29.87083	08	53	40.20	+14	59	14.9	046
499		1990	01	29.88495	08	53	39.58	+14	59	17.1	046
499		1990	01	30.92295	08	52	54.74	+15	02	02.5	046
499		1990	01	30.93707	08	52	54.00	+15	02	04.9	046
621		1990	01	14.77684	06	49	03.62	+25	16	33.4	046
621		1990	01	14.79108	06	49	02.97	+25	16	34.9	046
621		1990	01	22.79655	06	42	37.75	+25	26	37.0	046
621		1990	01	22.81079	06	42	37.18	+25	26	38.6	046
677		1990	01	14.74125	05	29	31.48	+23	15	07.6	046
677		1990	01	14.75531	05	29	30.96	+23	15	05.9	046
822		1989	12	28.86061	04	30	10.01	+20	43	02.4	046
822		1989	12	28.87485	04	30	09.41	+20	43	01.9	046
839		1990	01	30.88753	08	44	29.67	+27	58	42.5	046
839		1990	01	30.90166	08	44	28.79	+27	58	42.7	046
1312		1990	01	29.90486	08	58	59.45	+18	25	28.7	046
1312		1990	01	29.91898	08	58	58.83	+18	25	35.9	046
1312		1990	01	30.95628	08	58	06.89	+18	35	42.0	046
1312		1990	01	30.96971	08	58	06.11	+18	35	50.7	046
1376		1990	01	29.87083	08	58	50.76	+14	06	25.7	046
1376		1990	01	29.88495	08	58	49.63	+14	06	31.0	046
1376		1990	01	30.92295	08	57	43.67	+14	12	05.4	046
1376		1990	01	30.93707	08	57	42.86	+14	12	09.4	046
1771		1990	01	22.83336	07	34	44.06	+30	00	52.6	046
1771		1990	01	22.84863	07	34	43.35	+30	00	57.1	046
1771		1990	01	29.77014	07	28	45.88	+30	28	07.2	046
1771		1990	01	29.78426	07	28	45.17	+30	28	10.5	046
2457		1990	01	29.87083	08	52	44.60	+15	45	59.3	046
2457		1990	01	29.88495	08	52	43.57	+15	46	05.4	046
2476		1990	01	14.77684	06	48	17.04	+29	05	05.3	046
2476		1990	01	14.79108	06	48	16.20	+29	05	09.6	046
2478		1989	12	28.86061	04	28	59.81	+17	43	21.9	046
2478		1989	12	28.87485	04	28	59.14	+17	43	19.5	046
2479		1990	01	29.90486	09	09	21.78	+16	38	30.0	046
2479		1990	01	29.91898	09	09	20.95	+16	38	30.3	046
2479		1990	01	30.95628	09	08	17.96	+16	40	27.6	046
2479		1990	01	30.96971	09	08	17.07	+16	40	28.9	046
2512		1990	01	30.88753	08	55	16.30	+28	28	47.9	046
2512		1990	01	30.90166	08	55	15.34	+28	28	52.3	046
2544		1990	01	29.80486	07	08	29.69	+29	34	27.7	046
2544		1990	01	29.81904	07	08	28.51	+29	34	18.3	046
2544		1990	01	30.85281	07	07	08.53	+29	23	22.1	046
2544		1990	01	30.86693	07	07	07.51	+29	23	14.9	046

2749		1990	01	29.90486	09	07	59.20	+16	49	39.6	046
2749		1990	01	29.91898	09	07	58.66	+16	49	42.3	046
2749		1990	01	30.95628	09	07	06.07	+16	53	25.8	046
2749		1990	01	30.96971	09	07	05.27	+16	53	28.8	046
2969		1990	01	29.87083	08	45	42.11	+15	42	46.3	046
2969		1990	01	29.88495	08	45	41.13	+15	42	49.5	046
2969		1990	01	30.92295	08	44	46.06	+15	46	50.0	046
2969		1990	01	30.93707	08	44	45.24	+15	46	53.9	046
3364		1990	01	29.83750	07	34	44.80	+17	27	45.7	046
3364		1990	01	29.85162	07	34	43.71	+17	27	50.8	046
3439		1990	01	29.80486	07	05	30.80	+29	08	16.3	046
3439		1990	01	29.81904	07	05	30.08	+29	08	15.3	046
3439		1990	01	30.85281	07	04	38.97	+29	08	07.3	046
3439		1990	01	30.86693	07	04	38.34	+29	08	05.7	046
3610		1989	12	28.86061	04	31	01.36	+19	47	08.9	046
3610		1989	12	28.87485	04	31	00.68	+19	47	08.6	046
3664		1990	01	29.87083	08	52	34.55	+13	01	50.0	046
3664		1990	01	29.88495	08	52	33.79	+13	01	54.7	046
3664		1990	01	30.92295	08	51	35.79	+13	04	56.8	046
3664		1990	01	30.93707	08	51	35.00	+13	04	59.6	046
3917		1990	01	29.90486	09	09	26.98	+16	03	23.1	046
3917		1990	01	29.91898	09	09	26.26	+16	03	26.1	046
3917		1990	01	30.95628	09	08	23.73	+16	09	20.4	046
3917		1990	01	30.96971	09	08	22.84	+16	09	24.8	046
3961		1990	01	22.83336	07	33	01.29	+28	52	23.7	046
3961		1990	01	22.84863	07	33	00.30	+28	52	25.3	046
3979		1990	01	14.77684	06	45	11.82	+26	57	33.0	046
3979		1990	01	14.79108	06	45	11.01	+26	57	35.8	046
3979		1990	01	22.79655	06	38	36.68	+26	56	00.0	046
3983		1990	01	29.90486	09	06	34.21	+18	00	32.3	046
3983		1990	01	29.91898	09	06	33.38	+18	00	34.6	046
3983		1990	01	30.95628	09	05	28.91	+18	03	50.3	046
3983		1990	01	30.96971	09	05	28.01	+18	03	53.7	046
4054		1990	01	29.80486	07	03	56.99	+29	47	53.6	046
4054		1990	01	29.81904	07	03	56.32	+29	47	53.7	046
4054		1990	01	30.85281	07	03	11.41	+29	47	10.1	046
4054		1990	01	30.86693	07	03	10.69	+29	47	09.5	046

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

1983	AA		1990	01	23.68819	08	30	53.3	+08	22	48	220
1983	AA		1990	01	24.87014	08	28	55.4	+07	57	22	220
1988	TG1		1990	01	23.65833	08	26	28.24	+09	59	10.7 14.9	220
1988	TG1		1990	01	23.68819	08	26	26.55	+09	59	12.1	220
1988	TG1		1990	01	24.87014	08	25	23.16	+10	00	11.6	220
1988	TG1		1990	01	26.68611	08	23	46.69	+10	01	55.9	220
1988	TG1		1990	01	26.79583	08	23	40.69	+10	02	02.5	220
1988	TG1		1990	01	30.69306	08	20	14.41	+10	06	35.5	220
1988	TG1		1990	01	30.73472	08	20	12.34	+10	06	38.7	220
1990	BC2	*	1990	01	23.65833	08	26	40.96	+08	37	46.3 15.8	220
1990	BC2		1990	01	23.68819	08	26	39.34	+08	37	51.4	220
1990	BC2		1990	01	24.87014	08	25	29.29	+08	42	22.1	220
1990	BC2		1990	01	26.68611	08	23	42.51	+08	49	39.7	220
1990	BC2		1990	01	26.79583	08	23	35.30	+08	50	10.2	220
1990	BC2		1990	01	30.69306	08	19	46.62	+09	07	11.4	220
1990	BC2		1990	01	30.73472	08	19	43.93	+09	07	22.8	220

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

1984 UA		1989 12 02.76667	07 49 20.65	+10 31 44.6				18		372
1984 UA		1989 12 02.78125	07 49 20.28	+10 31 40.8						372
1984 UA		1990 01 03.65833	07 25 59.35	+09 08 57.0				17.5		372
1984 UA		1990 01 03.67101	07 25 58.40	+09 08 57.0						372
1984 UA		1990 01 21.52535	07 08 45.69	+09 07 56.1				17.5		372
1984 UA		1990 01 21.53646	07 08 44.89	+09 07 57.3						372
1989 YZ1		1990 01 21.65382	08 32 14.70	+21 22 28.2				17		372
1989 YZ1		1990 01 21.66493	08 32 14.31	+21 22 32.3						372
1989 YZ1		1990 01 24.60035	08 29 39.78	+21 32 00.7				16.5		372
1989 YZ1		1990 01 24.61093	08 29 39.21	+21 32 02.4						372
1989 YO2		1990 01 21.65382	08 32 03.65	+21 51 40.5				18		372
1989 YO2		1990 01 21.66493	08 32 02.96	+21 51 45.8						372
1989 YP6		1990 01 17.55833	08 25 07.46	+22 01 51.5				18		372
1989 YP6		1990 01 17.57118	08 25 06.84	+22 01 54.6						372
1990 AF		1990 01 21.57465	08 18 35.78	+22 09 47.2				16		372
1990 AF		1990 01 21.58819	08 18 34.87	+22 09 51.7						372
1990 AF		1990 01 25.63125	08 14 01.54	+22 29 59.4				16		372
1990 AF		1990 01 25.64236	08 14 00.89	+22 30 04.4						372
1990 AF		1990 01 29.61354	08 09 37.25	+22 48 21.7				16.5		372
1990 AF		1990 01 29.62083	08 09 36.90	+22 48 22.4						372
1990 BZ	*	1990 01 21.65382	08 32 33.60	+21 43 00.0				17		372
1990 BZ		1990 01 21.66493	08 32 33.06	+21 42 58.9						372
1990 BZ		1990 01 24.60035	08 29 01.36	+21 35 45.6				16.5		372
1990 BZ		1990 01 24.61093	08 29 00.43	+21 35 44.4						372
1990 BA1	*	1990 01 21.70416	09 44 53.57	+30 08 08.5				18		372
1990 BA1		1990 01 21.71806	09 44 52.63	+30 08 14.5						372
1990 BA1		1990 01 24.64757	09 42 06.14	+30 18 44.2				18		372
1990 BA1		1990 01 24.65729	09 42 05.40	+30 18 48.1						372
1990 BB1	*	1990 01 21.70416	09 46 04.35	+29 24 54.7				17		372
1990 BB1		1990 01 21.71806	09 46 03.70	+29 25 01.7						372
1990 BB1		1990 01 25.67726	09 42 58.47	+29 46 58.2				17		372
1990 BB1		1990 01 25.68889	09 42 57.99	+29 47 02.7						372
1990 BW1	*	1990 01 25.70365	09 12 27.59	+18 15 49.2				16.5		372
1990 BW1		1990 01 25.71666	09 12 27.01	+18 15 55.9						372
1990 BW1		1990 01 29.82396	09 08 47.85	+19 01 05.9				16.5		372
1193		1990 01 03.63229	04 34 00.67	+33 07 46.2				18		372
1193		1990 01 03.64479	04 34 00.31	+33 07 46.7						372
1698		1990 01 24.71597	09 36 40.35	+16 33 27.8				16.5		372
1698		1990 01 24.72708	09 36 40.02	+16 33 30.4						372

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

1990 DA		1990 02 20.63854	08 30 01.44	+20 40 47.0						374
1990 DA		1990 02 20.64549	08 30 01.77	+20 41 10.9						374
1990 DA		1990 02 20.65243	08 30 02.09	+20 41 34.9						374

376 Uenohara
N. Kawasato, 3-51, Hana-Koganei, Kodaira, Tokyo 187, Japan
AGK3, SAOC

1985 RD4		1990 01 24.52813	08 27 17.16	+24 01 18.0						376
1985 RD4		1990 01 24.56771	08 27 14.10	+24 01 21.7						376

1988	TH2	1990 01 25.54410	08 47 50.87	+10 31 04.1					376
1988	TH2	1990 01 25.58438	08 47 48.58	+10 31 14.6					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

1988	RN	1990 02 21.49410	09 12 29.40	+16 07 31.7			15.5	r	385
1988	RN	1990 02 21.52257	09 12 27.44	+16 07 28.3				r	385
1989	YA4	1990 01 25.52257	08 42 50.40	+17 42 00.4			16.5	F	385
1989	YA4	1990 01 25.54479	08 42 48.90	+17 42 04.5				F	385
1990	DA	1990 02 20.51979	08 29 54.77	+20 33 58.3			13		385
1990	DA	1990 02 20.53229	08 29 55.48	+20 34 43.6					385
1990	DA	1990 02 21.46076	08 30 53.92	+21 26 56.5			13.5	t	385
1990	DA	1990 02 21.47674	08 30 54.85	+21 27 48.5				t	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 hyperboloid astrocamera

2562	P-L	1990 01 27.69965	08 55 41.81	+20 16 51.8					391
2562	P-L	1990 01 27.71458	08 55 40.81	+20 16 56.5					391
1215		1990 01 27.69965	08 57 21.08	+20 12 16.5					391
1215		1990 01 27.71458	08 57 20.24	+20 12 25.3					391

399 Kushiro
H. Kaneda, Taiyo MS 2-H, 2 chome 2-15, kawazoe 8 jo, Minami-ku,
Sapporo 005, Japan
Observer S. Ueda, M. Matsuyama
Measurer H. Kaneda, K. Watanabe
0.16-m f/3.8 Wright-Schmidt camera, 0.22-m f/3.3 Schmidt camera
AGK3

1973	SG4	1988 10 15.52888	00 16 11.80	+00 16 06.7			14.5		399
1973	SG4	1988 10 15.54201	00 16 11.30	+00 15 55.7					399
1973	SG4	1988 10 15.55312	00 16 10.87	+00 15 48.9					399
1985	UY4	1990 02 18.64589	10 57 51.81	+06 55 34.9			16.0		399
1985	UY4	1990 02 18.66667	10 57 50.52	+06 55 47.5					399
1987	QD1	1990 01 21.53837	08 56 14.54	+14 48 14.8			16.5		399
1987	QD1	1990 01 21.55347	08 56 13.68	+14 48 19.5					399
1987	QD1	1990 01 28.68241	08 50 52.54	+15 23 01.1			16.5		399
1987	QD1	1990 01 30.66354	08 49 21.73	+15 32 48.8			16.5		399
1987	QD1	1990 01 30.67813	08 49 21.02	+15 32 54.1					399
1988	RE	1988 10 13.58449	01 25 29.25	+09 48 23.6			15.5		399
1988	RE	1988 10 13.60179	01 25 28.23	+09 47 22.1					399
1988	RE	1988 10 13.62442	01 25 26.86	+09 46 09.2					399
1988	TG1	1990 01 23.55764	08 26 33.21	+09 59 08.2			15		399
1988	TG1	1990 01 23.57535	08 26 32.22	+09 59 07.3					399
1988	TG1	1990 01 23.59010	08 26 31.43	+09 59 08.7					399
1988	TH2	1990 02 01.60220	08 40 31.55	+10 58 49.1			16.5		399
1988	TH2	1990 02 01.61774	08 40 30.41	+10 58 55.2					399
1988	TH2	1990 02 01.63698	08 40 29.21	+10 58 59.0					399
1988	TH2	1990 02 02.66863	08 39 25.07	+11 03 20.3			16.5		399
1988	TH2	1990 02 02.68368	08 39 23.98	+11 03 24.1					399
1988	TC5	* 1988 10 13.58449	01 26 26.55	+09 24 12.7			16.5		399
1988	TC5	1988 10 13.60179	01 26 25.76	+09 24 06.3					399

1988	TC5		1988	10	13.62442	01	26	24.34	+09	23	54.1		399
1988	UX1	*	1988	10	16.57755	01	18	39.56	+09	31	49.0	17	399
1988	UX1		1988	10	16.59838	01	18	38.46	+09	31	52.9		399
1988	UX1		1988	10	16.61502	01	18	37.41	+09	31	50.6		399
1989	YA		1989	12	31.63681	03	22	03.35	+24	58	48.4	16.5	399
1989	YA		1989	12	31.65243	03	22	02.99	+24	58	46.8		399
1989	YA		1990	01	02.59132	03	21	31.82	+24	59	14.1	16.5	399
1989	YA		1990	01	02.60938	03	21	31.57	+24	59	13.8		399
1990	BH		1990	01	30.48345	08	53	43.67	+23	28	22.6	15.5	399
1990	BH		1990	01	30.49931	08	53	43.01	+23	29	04.6		399
1990	BH		1990	01	30.51424	08	53	42.26	+23	29	41.8		399
1990	BH		1990	02	02.70637	08	51	20.92	+25	48	39.4	15.5	399
1990	BH		1990	02	02.72083	08	51	20.17	+25	49	20.0		399
1990	BH		1990	02	02.73704	08	51	19.38	+25	50	03.8		399
1990	BN		1990	01	23.60903	08	44	50.51	+10	57	41.9	16.5	399
1990	BN		1990	01	23.62384	08	44	49.76	+10	57	48.9		399
1990	BN		1990	01	25.62847	08	43	09.28	+11	11	49.9	16.5	399
1990	BN		1990	01	25.64306	08	43	08.30	+11	11	54.8		399
1990	BN		1990	02	01.60220	08	37	13.97	+12	03	16.4	16.5	399
1990	BN		1990	02	01.61774	08	37	13.04	+12	03	23.5		399
1990	BN		1990	02	01.63698	08	37	11.90	+12	03	35.3		399
1990	BN		1990	02	02.66863	08	36	19.93	+12	11	22.1	16.5	399
1990	BN		1990	02	02.68368	08	36	18.89	+12	11	31.4		399
1990	BN		1990	02	14.50556	08	27	01.14	+13	42	21.6	16.5	399
1990	BN		1990	02	14.52083	08	27	00.45	+13	42	26.0		399
1990	BO		1990	01	28.68241	08	57	15.64	+14	25	00.0	16.5	399
1990	BO		1990	01	30.66354	08	55	25.44	+14	24	13.0	16.5	399
1990	BO		1990	01	30.67813	08	55	24.66	+14	24	15.0		399
1990	BO		1990	01	30.69444	08	55	23.77	+14	24	14.4		399
1990	BO		1990	02	01.65868	08	53	34.61	+14	23	34.3	16.5	399
1990	BO		1990	02	01.67431	08	53	33.75	+14	23	34.3		399
1990	BO		1990	02	01.69109	08	53	32.77	+14	23	34.1		399
1990	BO		1990	02	14.48854	08	42	08.79	+14	19	19.9	16.5	399
1990	BO		1990	02	14.50556	08	42	07.72	+14	19	20.6		399
1990	BO		1990	02	14.52083	08	42	07.12	+14	19	20.6		399
1990	BC1	*	1990	01	23.60903	08	54	54.49	+11	50	02.7	16.5	399
1990	BC1		1990	01	23.62384	08	54	53.76	+11	50	08.9		399
1990	BC1		1990	01	23.64028	08	54	52.99	+11	50	13.0		399
1990	BC1		1990	01	25.62847	08	53	19.54	+12	03	34.4	16.5	399
1990	BC1		1990	01	25.64306	08	53	18.76	+12	03	37.1		399
1990	BC1		1990	01	25.65851	08	53	17.77	+12	03	46.1		399
1990	BC1		1990	02	01.60220	08	47	43.66	+12	52	14.5	16.5	399
1990	BC1		1990	02	01.61774	08	47	42.82	+12	52	20.6		399
1990	BC1		1990	02	01.63698	08	47	41.80	+12	52	28.1		399
1990	BC1		1990	02	02.65139	08	46	52.81	+12	59	42.0	16.5	399
1990	BC1		1990	02	02.66863	08	46	51.89	+12	59	51.2		399
1990	BC1		1990	02	02.68368	08	46	51.16	+12	59	57.8		399
1990	BC1		1990	02	14.48854	08	37	48.38	+14	24	17.5	16.5	399
1990	BC1		1990	02	14.50556	08	37	47.64	+14	24	22.5		399
1990	BC1		1990	02	14.52083	08	37	46.86	+14	24	29.3		399
1990	BG1		1990	01	28.52535	09	21	51.02	+24	28	51.7	16	399
1990	BG1		1990	01	28.54340	09	21	50.22	+24	28	59.3		399
1990	BG1		1990	01	28.56111	09	21	49.21	+24	29	06.3		399
1990	BG1		1990	01	30.53472	09	20	08.51	+24	41	15.4	16.5	399
1990	BG1		1990	01	30.54931	09	20	07.68	+24	41	21.6		399
1990	BG1		1990	01	30.56736	09	20	06.78	+24	41	26.8		399
1990	BH1	*	1990	01	28.46701	09	03	39.98	+25	39	29.7	16.5	399
1990	BH1		1990	01	28.48368	09	03	39.18	+25	39	36.0		399
1990	BH1		1990	01	28.50289	09	03	37.78	+25	39	44.8		399

1990	BH1		1990	01	30.48345	09	01	44.38	+25	51	28.1	16.5	399
1990	BH1		1990	01	30.49931	09	01	43.07	+25	51	33.0		399
1990	BH1		1990	01	30.51424	09	01	42.24	+25	51	38.7		399
1990	BH1		1990	02	02.70637	08	58	36.06	+26	09	30.3	16.5	399
1990	BH1		1990	02	02.72083	08	58	35.17	+26	09	34.6		399
1990	BH1		1990	02	02.73704	08	58	34.37	+26	09	40.3		399
1990	BY1	*	1990	01	30.56788	09	33	03.78	+08	46	43.6	16.0	399
1990	BY1		1990	01	30.58767	09	33	02.49	+08	46	45.9		399
1990	BY1		1990	02	01.60729	09	31	11.63	+08	53	31.3	16.0	399
1990	BY1		1990	02	01.62813	09	31	10.38	+08	53	35.2		399
1990	BY1		1990	02	01.65017	09	31	09.23	+08	53	40.6		399
1990	BZ1	*	1990	01	30.56788	09	34	42.86	+09	24	45.0	16.0	399
1990	BZ1		1990	01	30.58767	09	34	41.70	+09	24	52.6		399
1990	BZ1		1990	02	01.65017	09	32	53.40	+09	33	10.6	16.0	399
1990	BZ1		1990	02	01.66910	09	32	52.48	+09	33	14.7		399
1990	BZ1		1990	02	16.60868	09	19	26.78	+10	41	44.1	16.0	399
1990	BZ1		1990	02	16.62300	09	19	25.80	+10	41	48.4		399
1990	BA2	*	1990	01	30.56788	09	36	11.33	+09	13	39.6	16.0	399
1990	BA2		1990	01	30.58767	09	36	10.42	+09	13	39.5		399
1990	BA2		1990	02	01.60729	09	34	21.94	+09	12	23.6	16.0	399
1990	BA2		1990	02	01.62813	09	34	20.56	+09	12	21.3		399
1990	BB2	*	1990	01	30.56788	09	38	23.54	+09	26	06.8	16.5	399
1990	BB2		1990	01	30.58767	09	38	22.25	+09	26	05.9		399
1990	BB2		1990	02	01.65017	09	36	16.37	+09	23	03.5	16.5	399
1990	BB2		1990	02	01.66910	09	36	15.24	+09	23	01.9		399
1990	BE2	*	1990	01	28.52535	09	09	15.38	+23	44	24.0	16.5	399
1990	BE2		1990	01	28.54340	09	09	14.25	+23	44	27.9		399
1990	BE2		1990	01	28.56111	09	09	13.23	+23	44	30.9		399
1990	BE2		1990	01	30.53472	09	07	09.02	+23	49	10.4	16.5	399
1990	BE2		1990	01	30.54931	09	07	07.98	+23	49	11.5		399
1990	BE2		1990	01	30.56736	09	07	06.77	+23	49	15.9		399
1990	BE2		1990	02	02.70637	09	03	47.10	+23	55	35.2	16.5	399
1990	BE2		1990	02	02.72083	09	03	46.03	+23	55	33.8		399
1990	BE2		1990	02	02.73704	09	03	44.71	+23	55	34.9		399
1990	BE2		1990	02	18.44167	08	48	29.93	+24	03	33.1	16.5	399
1990	BE2		1990	02	18.45764	08	48	29.21	+24	03	34.2		399
1990	BE2		1990	02	18.47535	08	48	28.09	+24	03	32.1		399
1990	BF2	*	1990	01	30.48345	08	54	04.69	+23	44	25.4	16	399
1990	BF2		1990	01	30.49931	08	54	03.49	+23	44	31.0		399
1990	BF2		1990	01	30.51424	08	54	02.62	+23	44	36.3		399
1990	BF2		1990	02	02.70637	08	50	28.91	+24	03	22.1	16.5	399
1990	BF2		1990	02	02.72083	08	50	28.10	+24	03	23.2		399
1990	BF2		1990	02	02.73704	08	50	27.17	+24	03	31.6		399
1990	BF2		1990	02	18.44167	08	34	31.02	+25	11	07.9	16.5	399
1990	BF2		1990	02	18.45764	08	34	30.37	+25	11	13.3		399
1990	BF2		1990	02	18.47535	08	34	29.43	+25	11	17.1		399
1990	BJ2		1990	01	23.66076	09	11	59.14	+15	54	48.5	16.5	399
1990	BJ2		1990	01	23.67535	09	11	58.31	+15	54	49.7		399
1990	BJ2		1990	01	23.69097	09	11	57.84	+15	54	55.5		399
1990	BJ2	*	1990	01	30.66354	09	06	37.24	+16	28	53.9	16.5	399
1990	BJ2		1990	01	30.67813	09	06	36.45	+16	28	57.1		399
1990	BJ2		1990	01	30.69444	09	06	35.65	+16	29	01.6		399
1990	BP2	*	1990	01	30.63819	09	51	44.93	+11	15	13.6	16.0	399
1990	BP2		1990	01	30.65764	09	51	43.78	+11	15	20.7		399
1990	BP2		1990	01	30.67847	09	51	42.50	+11	15	34.1		399
1990	BP2		1990	01	30.69670	09	51	41.75	+11	15	36.8		399
1990	BP2		1990	02	16.55260	09	35	14.74	+13	09	42.6	16.0	399
1990	BP2		1990	02	16.57220	09	35	13.55	+13	09	53.6		399
1990	DB	*	1990	02	16.60162	10	20	21.80	+09	57	19.9	16.5	399

1990	DB		1990	02	16.61597	10	20	20.97	+09	57	24.6		399
1990	DB		1990	02	16.63194	10	20	20.27	+09	57	27.6		399
1990	DB		1990	02	18.53762	10	18	52.29	+10	07	12.5	16.5	399
1990	DB		1990	02	18.55318	10	18	51.49	+10	07	16.9		399
1990	DB		1990	02	18.57187	10	18	50.64	+10	07	22.9		399
1990	DC	*	1990	02	16.60162	10	24	58.36	+08	47	33.2	16.5	399
1990	DC		1990	02	16.61597	10	24	57.79	+08	47	37.3		399
1990	DC		1990	02	16.63194	10	24	56.81	+08	47	45.9		399
1990	DC		1990	02	18.53762	10	23	17.72	+09	00	26.6	17	399
1990	DC		1990	02	18.55318	10	23	16.90	+09	00	31.2		399
1990	DC		1990	02	18.57187	10	23	15.85	+09	00	41.2		399
1990	DD	*	1990	02	16.60162	10	29	26.36	+09	30	51.2	15.5	399
1990	DD		1990	02	16.61597	10	29	25.10	+09	30	52.0		399
1990	DD		1990	02	16.63194	10	29	23.81	+09	30	52.0		399
1990	DD		1990	02	18.53762	10	27	09.18	+09	30	27.8	16	399
1990	DD		1990	02	18.55318	10	27	08.24	+09	30	26.9		399
1990	DD		1990	02	18.57187	10	27	06.55	+09	30	27.5		399
1990	DF	*	1990	02	16.60162	10	23	32.21	+10	13	13.3	16.5	399
1990	DF		1990	02	16.61597	10	23	31.47	+10	13	19.7		399
1990	DF		1990	02	16.63194	10	23	30.80	+10	13	24.7		399
1990	DF		1990	02	18.53762	10	21	51.55	+10	26	56.3	16.5	399
1990	DF		1990	02	18.57187	10	21	49.74	+10	27	08.6		399
97			1990	02	18.64589	11	07	26.43	+05	33	20.1	11.0	399
97			1990	02	18.66667	11	07	25.39	+05	33	31.6		399
167			1990	02	18.64589	10	57	48.18	+06	10	22.0	13.0	399
167			1990	02	18.66667	10	57	47.16	+06	10	26.9		399
846			1990	02	16.60162	10	19	40.92	+10	02	11.0	14	399
846			1990	02	16.61597	10	19	40.32	+10	02	13.9		399
846			1990	02	16.63194	10	19	39.51	+10	02	18.4		399
1526			1990	02	18.64589	10	58	00.70	+06	26	50.2	16.5	399
1526			1990	02	18.66667	10	57	59.38	+06	26	54.0		399
2498			1990	02	18.64589	11	07	57.81	+05	16	09.5	16.5	399
2498			1990	02	18.66667	11	07	56.95	+05	16	15.3		399
3918			1990	02	18.64589	11	07	29.35	+05	30	15.4	16.0	399
3918			1990	02	18.66667	11	07	28.48	+05	30	23.4		399
3986			1990	01	30.56788	09	32	43.67	+08	49	20.6	15.5	399
3986			1990	01	30.58767	09	32	42.47	+08	49	23.2		399
3986			1990	02	01.60729	09	30	35.02	+08	52	45.2	15.5	399
3986			1990	02	01.62813	09	30	33.53	+08	52	48.2		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, M. Yanai
Measurer K. Watanabe
0.20-m f/4.0 reflector
AGK3

1980	BB		1990	02	15.57149	10	15	56.87	+15	24	00.6	16.5	400
1980	BB		1990	02	15.58229	10	15	56.29	+15	24	06.0		400
1990	AE		1990	01	24.50521	07	36	54.17	+27	31	42.8	16.0	400
1990	AE		1990	01	24.52118	07	36	53.22	+27	31	49.6		400
1990	BX	*	1990	01	21.53715	08	51	30.12	+18	18	33.3	16.0	400
1990	BX		1990	01	21.55451	08	51	29.09	+18	18	40.2		400
1990	BX		1990	01	24.54618	08	48	50.94	+18	36	58.3	16.0	400
1990	BX		1990	01	24.56354	08	48	49.81	+18	37	06.0		400
1990	BX		1990	02	14.45833	08	30	36.98	+20	35	59.8	17	400
1990	BX		1990	02	14.47500	08	30	36.20	+20	36	06.4		400
1990	BE1	*	1990	01	24.61076	09	55	23.44	+17	02	07.7	16.5	400
1990	BE1		1990	01	24.63090	09	55	22.73	+17	02	20.6		400

1990	BE1		1990	01	27.58229	09	52	58.65	+17	33	07.6	16.5	400
1990	BE1		1990	01	27.59965	09	52	57.62	+17	33	21.2		400
1990	BF1	*	1990	01	24.61076	09	59	54.11	+14	30	02.6	16.0	400
1990	BF1		1990	01	24.63090	09	59	52.87	+14	30	04.1		400
1990	BF1		1990	01	27.59965	09	57	26.30	+14	34	16.8	16.5	400
1990	BF1		1990	01	31.53090	09	53	52.60	+14	40	43.4	16.5	400
1990	BF1		1990	01	31.54896	09	53	51.61	+14	40	44.2		400
1990	BF1		1990	02	14.52674	09	39	13.63	+15	06	05.8	16.0	400
1990	BF1		1990	02	14.54340	09	39	12.34	+15	06	06.1		400
1990	BG1	*	1990	01	26.55938	09	23	28.56	+24	16	33.6	16.0	400
1990	BG1		1990	01	26.58160	09	23	27.32	+24	16	41.3		400
1990	BG1		1990	01	27.51701	09	22	40.66	+24	22	45.7	16.5	400
1990	BG1		1990	01	27.54063	09	22	39.42	+24	22	51.6		400
1990	BG1		1990	02	14.49028	09	06	54.60	+25	58	40.0	16.0	400
1990	BG1		1990	02	14.50833	09	06	53.67	+25	58	44.5		400
1990	BT1	*	1990	01	27.64896	09	58	20.76	+21	54	44.2	16.5	400
1990	BT1		1990	01	27.66979	09	58	19.50	+21	54	53.9		400
1990	BT1		1990	01	31.56701	09	54	44.83	+22	31	41.1	16.0	400
1990	BT1		1990	01	31.58715	09	54	43.66	+22	31	54.9		400
1990	BT1		1990	02	14.55625	09	40	58.74	+24	30	05.3	16.5	400
1990	BT1		1990	02	14.57083	09	40	57.85	+24	30	10.4		400
1990	BX1	*	1990	01	27.58229	09	57	14.98	+13	29	41.6	17	400
1990	BX1		1990	01	27.59965	09	57	13.88	+13	29	54.4		400
1990	BX1		1990	01	31.53090	09	54	55.22	+14	05	00.1	16.5	400
1990	BX1		1990	01	31.54896	09	54	54.38	+14	05	12.9		400
749			1990	01	27.58229	09	56	42.73	+17	13	26.8	14.5	400
749			1990	01	27.59965	09	56	41.87	+17	13	35.1		400
1415			1990	01	27.58229	09	56	52.18	+13	47	05.9	14.5	400
1415			1990	01	27.59965	09	56	51.25	+13	47	08.5		400
1415			1990	01	31.53090	09	53	12.55	+13	58	47.4	14.5	400
1415			1990	01	31.54896	09	53	11.45	+13	58	52.3		400
1415			1990	02	14.52674	09	38	14.79	+14	45	16.7	14.5	400
1415			1990	02	14.54340	09	38	13.57	+14	45	20.3		400
1433			1990	02	14.45833	08	30	26.41	+21	04	15.4	16.0	400
1433			1990	02	14.47500	08	30	25.47	+21	04	14.1		400
1624			1990	01	31.49722	09	38	47.38	+14	21	00.9	15.5	400
1624			1990	01	31.51597	09	38	46.69	+14	21	05.9		400
1720			1990	02	14.52674	09	37	48.03	+14	33	39.7	15.0	400
1720			1990	02	14.54340	09	37	46.91	+14	33	45.7		400
1746			1990	01	31.49722	09	38	03.80	+14	37	05.4	16.0	400
1746			1990	01	31.51597	09	38	02.97	+14	37	08.1		400
2973			1990	01	31.49722	09	38	40.62	+15	01	17.4	15.5	400
2973			1990	01	31.51597	09	38	39.40	+15	01	22.8		400
3463			1990	01	27.58229	09	55	49.65	+18	21	29.5	15.5	400
3463			1990	01	27.59965	09	55	48.80	+18	21	33.6		400
3899			1990	02	15.55313	10	15	33.39	+14	51	43.1	16.0	400
3899			1990	02	15.57149	10	15	32.53	+14	51	46.5		400
3899			1990	02	15.58229	10	15	31.97	+14	51	50.1		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

1988	TF1		1990	01	21.62431	09	02	55.10	+10	52	30.4	16.0	402
1988	TF1		1990	01	21.64167	09	02	54.14	+10	52	33.0		402
1988	TF1		1990	02	01.60972	08	52	57.42	+11	21	26.9		402
1988	TF1		1990	02	01.62431	08	52	56.64	+11	21	30.2		402
1990	BO		1990	02	01.60972	08	53	37.55	+14	23	38.3	16.0	402

1990	BO		1990	02	01.62431	08	53	36.78	+14	23	36.8	402
1990	BO		1990	02	02.62986	08	52	40.56	+14	23	16.5	402
1990	BO		1990	02	02.64005	08	52	40.21	+14	23	16.1	402
1990	BO		1990	02	16.51944	08	40	28.55	+14	18	31.9	16.5 402
1990	BO		1990	02	16.53472	08	40	27.92	+14	18	33.4	402
1990	BT		1990	01	21.65417	08	50	28.33	+23	26	00.3	16.0 402
1990	BT		1990	01	21.67153	08	50	27.04	+23	26	02.2	402
1990	BV		1990	01	21.65417	08	51	21.26	+26	34	11.4	15.5 402
1990	BV		1990	01	21.67153	08	51	20.14	+26	34	27.3	402
1990	BC1		1990	01	21.62431	08	56	25.98	+11	37	05.7	16.0 402
1990	BC1		1990	01	21.64167	08	56	25.19	+11	37	12.0	402
1990	BC1		1990	02	01.60972	08	47	43.28	+12	52	18.8	402
1990	BC1		1990	02	01.62431	08	47	42.52	+12	52	24.8	402
1990	BN1	*	1990	01	21.59167	09	03	43.65	+03	34	16.6	16.5 402
1990	BN1		1990	01	21.60903	09	03	43.10	+03	34	19.8	402
1990	BN1		1990	01	27.77222	09	00	34.14	+03	54	41.5	16.0 402
1990	BN1		1990	01	27.79028	09	00	33.49	+03	54	48.8	402
1990	BO1	*	1990	01	21.62431	09	00	56.95	+11	22	34.4	16.5 402
1990	BO1		1990	01	21.64167	09	00	56.15	+11	22	41.6	402
1990	BO1		1990	02	01.60972	08	52	30.51	+12	31	57.3	402
1990	BO1		1990	02	01.62431	08	52	29.84	+12	32	02.7	402
1990	BO1		1990	02	02.62986	08	51	42.16	+12	38	42.1	17.0 402
1990	BO1		1990	02	02.64005	08	51	41.75	+12	38	45.8	402
1990	BQ1	*	1990	01	21.62431	09	06	14.33	+13	06	20.0	16.5 402
1990	BQ1		1990	01	21.64167	09	06	12.84	+13	06	16.2	402
1990	BQ1		1990	02	01.60972	08	53	25.64	+12	30	46.8	16.0 402
1990	BQ1		1990	02	01.62431	08	53	24.53	+12	30	46.9	402
1990	BQ1		1990	02	02.62986	08	52	13.42	+12	27	37.1	402
1990	BQ1		1990	02	02.64005	08	52	12.58	+12	27	33.2	402
1990	BQ1		1990	02	16.51944	08	36	33.90	+11	46	06.2	17.5 402
1990	BQ1		1990	02	16.53472	08	36	33.01	+11	46	05.8	402
1990	BR1	*	1990	01	21.62431	09	08	19.64	+10	34	49.1	15.5 402
1990	BR1		1990	01	21.64167	09	08	18.75	+10	34	59.8	402
1990	BR1		1990	02	01.60972	08	59	07.69	+12	20	32.8	402
1990	BR1		1990	02	01.62431	08	59	06.90	+12	20	43.0	402
1990	BR1		1990	02	02.62986	08	58	14.46	+12	30	50.5	15.5 402
1990	BR1		1990	02	02.64005	08	58	13.91	+12	30	55.5	402
1990	BR1		1990	02	16.51944	08	46	55.85	+14	48	44.0	16.5 402
1990	BR1		1990	02	16.53472	08	46	55.19	+14	48	52.2	402
1990	BS1	*	1990	01	21.71389	09	59	56.31	+25	33	35.5	15.5 402
1990	BS1		1990	01	21.73125	09	59	55.71	+25	33	47.4	402
1990	BS1		1990	02	01.71597	09	52	50.77	+27	35	28.9	15.5 402
1990	BS1		1990	02	01.73692	09	52	49.91	+27	35	43.2	402
1990	BD2	*	1990	01	21.62431	09	11	29.27	+10	42	54.5	17.0 402
1990	BD2		1990	01	21.64167	09	11	28.68	+10	42	58.5	402
1990	BD2		1990	02	02.62986	09	04	58.65	+11	12	47.8	402
1990	BD2		1990	02	02.64005	09	04	58.28	+11	12	51.1	402
1990	BF2		1990	01	21.65417	09	03	34.81	+22	47	26.9	16.5 402
1990	BF2		1990	01	21.67153	09	03	33.67	+22	47	33.3	402
1990	BN2		1990	01	21.68472	08	57	46.39	+32	20	12.3	16.5 402
1990	BN2		1990	01	21.70208	08	57	45.30	+32	20	25.1	402
1990	BV2	*	1990	01	21.68472	09	00	54.23	+33	10	42.0	16.0 402
1990	BV2		1990	01	21.70208	09	00	52.99	+33	10	44.1	402
1990	BV2		1990	02	16.61597	08	31	32.92	+32	48	03.7	17.0 402
1990	BV2		1990	02	16.62986	08	31	32.17	+32	48	01.8	402
1990	BV2		1990	02	17.57847	08	30	37.61	+32	44	26.2	402
1990	BV2		1990	02	17.59583	08	30	36.80	+32	44	24.3	402
1990	CA	*	1990	02	01.60972	08	42	47.38	+14	37	54.1	16.0 402
1990	CA		1990	02	01.62431	08	42	46.38	+14	37	55.6	402

1990	CA		1990	02	02.62986	08	41	37.76	+14	40	13.7		402
1990	CA		1990	02	02.64005	08	41	37.23	+14	40	17.0		402
1990	CA		1990	02	16.55799	08	26	26.49	+15	11	21.1	17.0	402
1990	CA		1990	02	16.57361	08	26	25.34	+15	11	20.3		402
1990	CB	*	1990	02	01.60972	08	48	05.22	+14	12	57.2	16.5	402
1990	CB		1990	02	01.62431	08	48	04.40	+14	13	00.7		402
1990	CB		1990	02	02.62986	08	46	55.79	+14	16	09.4		402
1990	CB		1990	02	02.64005	08	46	54.97	+14	16	12.8		402
1990	CB		1990	02	16.51944	08	32	01.70	+14	59	35.9	17.0	402
1990	CB		1990	02	16.53472	08	32	00.88	+14	59	39.0		402
1990	CB		1990	02	16.55799	08	31	59.67	+14	59	44.3		402
1990	CB		1990	02	16.57361	08	31	58.65	+14	59	45.1		402
1990	CC	*	1990	02	01.60972	08	50	33.65	+12	30	46.3	16.5	402
1990	CC		1990	02	01.62431	08	50	32.62	+12	30	42.9		402
1990	CC		1990	02	02.62986	08	49	58.57	+12	23	13.3		402
1990	CC		1990	02	02.64005	08	49	57.95	+12	23	09.7		402
1990	CD		1990	01	21.62431	09	09	27.48	+12	31	34.4	17.0	402
1990	CD		1990	01	21.64167	09	09	26.60	+12	31	36.6		402
1990	CD	*	1990	02	01.60972	08	57	38.18	+12	51	10.5	16.0	402
1990	CD		1990	02	01.62431	08	57	37.38	+12	51	14.8		402
1990	CD		1990	02	02.62986	08	56	29.49	+12	53	21.6		402
1990	CD		1990	02	02.64005	08	56	28.88	+12	53	23.7		402
1990	CD		1990	02	16.51944	08	41	28.07	+13	24	22.8	17.0	402
1990	CD		1990	02	16.53472	08	41	27.29	+13	24	24.3		402
1990	CE		1990	01	21.62431	09	10	08.69	+10	55	59.9	16.5	402
1990	CE		1990	01	21.64167	09	10	07.89	+10	56	06.3		402
1990	CE	*	1990	02	01.60972	08	59	59.92	+12	12	27.8	16.5	402
1990	CE		1990	02	01.62431	08	59	58.99	+12	12	34.3		402
1990	CE		1990	02	02.62986	08	59	00.15	+12	20	09.4		402
1990	CE		1990	02	02.64005	08	58	59.50	+12	20	14.7		402
1990	CE		1990	02	16.51944	08	46	11.13	+14	07	13.3	17.0	402
1990	CE		1990	02	16.53472	08	46	10.59	+14	07	19.5		402
1990	CF	*	1990	02	01.78472	10	04	26.68	+23	17	45.9	16.5	402
1990	CF		1990	02	01.80069	10	04	25.72	+23	17	57.0		402
1990	CF		1990	02	02.65000	10	03	47.18	+23	27	55.9		402
1990	CF		1990	02	02.67431	10	03	46.09	+23	28	14.2		402
1990	CF		1990	02	16.63996	09	51	55.24	+26	01	36.2	16.5	402
1990	CF		1990	02	16.65313	09	51	54.61	+26	01	43.5		402
1990	CG	*	1990	02	01.78472	10	20	47.89	+25	43	35.8		402
1990	CG		1990	02	01.80052	10	20	46.97	+25	43	45.5		402
1990	CG		1990	02	02.67431	10	19	59.59	+25	49	36.8		402
1990	DA	*	1990	02	16.55799	08	26	00.25	+16	27	55.9	13	402
1990	DA		1990	02	16.57361	08	26	00.98	+16	28	58.1		402
1990	DA		1990	02	17.43021	08	26	50.97	+17	25	19.2	13	402
1990	DA		1990	02	17.44549	08	26	51.86	+17	26	18.0		402
1990	DA		1990	02	17.53854	08	26	56.54	+17	32	21.7		402
1990	DA		1990	02	17.56146	08	26	57.66	+17	33	50.0		402
1990	DA		1990	02	17.76597	08	27	08.22	+17	46	53.7		402
1990	DA		1990	02	21.47535	08	30	54.78	+21	27	43.7	14	402
1990	DA		1990	02	21.49826	08	30	56.08	+21	28	59.7		402
1990	DE	*	1990	02	16.61597	08	31	39.26	+32	46	15.2	16.0	402
1990	DE		1990	02	16.62986	08	31	38.10	+32	46	03.9		402
1990	DE		1990	02	17.57847	08	30	20.74	+32	32	09.6		402
1990	DE		1990	02	17.59583	08	30	19.19	+32	31	51.7		402
4022			1990	02	01.60972	09	00	19.65	+12	09	50.5	16.5	402
4022			1990	02	01.62431	09	00	18.86	+12	09	53.3		402
4022			1990	02	02.62986	08	59	15.16	+12	12	48.5		402
4022			1990	02	02.64005	08	59	14.48	+12	12	51.5		402

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

1990 AF	1990 01 21.56910	08 18 36.12	+22 09 46.7			16.0		403
1990 AF	1990 01 21.57963	08 18 35.48	+22 09 49.2					403
1990 AF	1990 01 23.66262	08 16 14.22	+22 20 20.7					403
1990 BE	1990 01 26.54826	07 44 48.16	+25 25 30.8					403
1990 BE	1990 01 26.55938	07 44 47.41	+25 25 27.6					403
1990 BF	1990 01 26.54826	07 45 20.36	+24 44 06.2					403
1990 BF	1990 01 26.55938	07 45 19.72	+24 44 05.0					403

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

1954 UO2	1976 09 16.45347	20 51 40.50	-16 58 55.2			17	V E	413
1954 UO2	1976 09 16.49514	20 51 39.72	-16 59 00.8				E	413
1954 UO2	1988 11 03.49160	00 40 02.57	+02 14 20.8			16.5V		413
1954 UO2	1988 11 03.54368	00 40 01.06	+02 14 11.4					413
1954 UO2	1989 12 30.67459	09 03 52.10	+15 13 11.8			17.5V		413
1954 UO2	1989 12 30.71626	09 03 50.83	+15 13 17.2					413
1954 UO2	1989 12 31.63238	09 03 23.72	+15 15 20.9					413
1954 UO2	1989 12 31.66002	09 03 22.82	+15 15 26.5					413
1981 EX19	1989 12 31.64620	09 03 42.83	+15 05 51.6				V	413
1981 QZ2	1981 09 30.40385	21 58 42.20	-13 47 42.7			17	V	413
1981 QZ2	1981 09 30.47330	21 58 41.11	-13 47 50.6					413
1981 QZ2	1989 12 30.67459	08 39 32.92	+17 52 20.5					413
1981 QZ2	1989 12 30.71626	08 39 31.34	+17 52 25.4					413
1989 YO	1990 01 03.58290	04 43 52.92	-01 29 14.1				1	413
1989 YO	1990 01 03.59645	04 43 52.50	-01 29 10.7				1	413
1989 YP	1990 01 03.61300	04 54 05.45	+02 46 37.3				I	413
1990 BX	1989 12 31.63238	09 06 06.24	+16 24 11.8			17.5		413
1990 BX	1989 12 31.66002	09 06 05.44	+16 24 20.1					413
1990 DA	1990 02 19.43420	08 28 49.06	+19 30 40.9			14	V 1	413
1990 DA	1990 02 19.44005	08 28 49.39	+19 31 01.0				1	413
1990 DA	1990 02 19.44392	08 28 49.60	+19 31 15.3				1	413

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

1985 DD	1989 11 03.57845	03 08 08.84	-17 47 26.2			17.5		474
1985 DD	1989 11 03.59315	03 08 07.51	-17 47 24.1					474
1985 DD	1989 12 05.47802	02 27 09.66	-12 22 37.9			16.7		474
1985 DD	1989 12 05.50470	02 27 08.32	-12 22 12.5					474
1985 TB	1989 11 21.40648	22 38 37.69	-14 26 16.7					474
1985 TB	1989 11 21.42766	22 38 37.81	-14 25 38.4					474
1986 RC2	1989 11 22.62541	04 53 14.12	-24 14 59.1					474
1986 RC2	1989 11 22.63507	04 53 13.49	-24 15 07.0					474
1987 DD	1989 06 29.63991	00 29 10.20	-32 42 02.0			18.1		474
1987 DD	1989 06 29.66797	00 29 11.99	-32 42 15.6					474
1987 DD	1989 07 01.68192	00 31 18.42	-32 58 32.8			18.0		474
1987 DD	1989 07 01.70021	00 31 19.46	-32 58 41.5					474

1987 DD	1989 07 28.70441	00 51 41.81	-37 40 03.7		17.3		474
1987 DD	1989 07 28.71922	00 51 42.20	-37 40 14.7				474
1987 DD	1989 11 04.59708	23 51 14.22	-43 20 42.7		17.8		474
1987 DD	1989 11 04.61514	23 51 13.86	-43 20 28.5				474
1987 GG	1989 11 21.55972	03 46 10.19	-22 40 54.1		19.0		474
1987 GG	1989 11 21.60167	03 46 07.84	-22 40 58.9				474
1987 GG	1989 11 22.55417	03 45 16.70	-22 42 26.2		19.0		474
1987 GG	1989 11 22.59766	03 45 14.22	-22 42 30.4				474
1989 MD	1989 09 02.33821	16 40 33.85	-27 55 47.6		18.6		474
1989 MD	1989 09 02.35973	16 40 34.97	-27 55 47.7				474
1989 MD	1989 09 25.39876	17 06 11.76	-27 50 28.7				474
1989 MD	1989 09 25.42376	17 06 13.55	-27 50 29.8				474
1989 OL	1989 10 25.41247	20 22 28.84	-33 59 55.8				474
1989 OL	1989 10 25.44140	20 22 31.28	-33 59 37.7		18.5		474
1989 QO	1989 10 24.44984	21 26 59.21	-44 15 42.5		18.8		474
1989 QO	1989 10 24.47137	21 27 00.84	-44 15 30.1				474
1989 QT	1989 10 24.51170	21 28 50.20	-34 47 26.1		18.9		474
1989 QT	1989 10 24.53323	21 28 51.34	-34 47 12.5				474
1989 RA	1989 10 25.48885	22 37 54.35	-10 46 42.4				474
1989 RA	1989 10 25.51093	22 37 55.05	-10 46 44.8				474
1989 RC1	1989 10 24.60968	22 19 59.45	-32 16 26.0		17.1		474
1989 RC1	1989 10 25.59233	22 21 00.10	-32 07 10.7		16.6		474
1989 RC1	1989 10 25.61073	22 21 01.16	-32 06 59.3				474
1989 RD1	1989 09 30.60977	22 05 52.14	-33 42 59.9				474
1989 RD1	1989 11 21.45833	22 37 02.26	-25 16 50.1				474
1989 RD1	1989 11 21.47998	22 37 03.72	-25 16 33.7				474
1989 VA	1989 11 21.50625	01 31 07.58	-11 02 39.6		17.3		474
1989 VA	1989 11 21.51389	01 31 05.13	-11 03 14.5				474
1989 VA	1989 12 05.44411	00 45 51.93	-22 04 25.2				474
1989 VA	1989 12 05.45296	00 45 50.86	-22 04 38.8				474
1865	1989 12 05.59341	01 31 08.53	-62 58 35.6		16.8		474
1865	1989 12 05.60522	01 30 58.49	-62 59 42.1				474
1917	1989 11 22.48403	03 04 01.79	-56 32 23.3		14.1		474
1917	1989 11 22.49259	03 04 03.57	-56 32 12.8				474

552 San Vittore
E. Colombini, Via S. Vittore 44, I-40136 Bologna, Italy
Observers C. Vacchi, G. Sassi
Measurers C. Vacchi, V. Goretti, E. Colombini
AGK3, SAOC
0.45-m f/5 reflector and (1) 0.25-m f/2.5 Schmidt

1989 TG	1989 11 15.76806	23 29 08.32	+05 37 52.4		17.5		552
1989 TG	1989 11 15.81944	23 29 08.67	+05 37 53.9				552

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

1989 XA	1990 01 21.77014	03 41 44.47	+21 28 08.3				567
1989 XA	1990 01 21.79375	03 41 44.58	+21 28 09.1				567
1989 XA	1990 01 21.81736	03 41 44.71	+21 28 09.7				567
1989 YC	1990 01 21.86597	06 37 04.84	+25 40 36.4				567
1989 YC	1990 01 21.88264	06 37 03.99	+25 40 41.7				567
1082	1990 01 21.93958	07 55 56.34	+19 29 54.7		16.5		567
1082	1990 01 21.95625	07 55 55.40	+19 29 57.4				567
1082	1990 01 21.97569	07 55 54.45	+19 30 00.1				567

568 Mauna Kea Observatory
D. J. Tholen, Institute for Astronomy, 2680 Woodlawn Drive, Honolulu, HI 96822, U.S.A.
Observers D. J. Tholen, D. M. Griep, D. P. Cruikshank, W. K. Hartmann, J. Goldader
IRTF telescope encoders
AGK3, SAOC

1990 DA	1990 02 22.28056	08 31 46.13	+22 11 26.7		568
951	1990 02 22.47569	08 27 05.52	+12 48 49.4		568

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

1990 BA	1990 01 26.28194	06 35 53.57	+25 21 04.2	657
1990 BG	1990 01 26.29375	06 49 58.93	+34 57 34.9	657
1990 DA	1990 02 23.31049	08 32 51.79	+23 04 50.9	657
1990 DA	1990 02 23.33132	08 32 53.15	+23 05 56.5	657
79	1989 08 30.28410	23 25 46.47	+02 24 14.6	657
79	1989 08 30.36187	23 25 43.05	+02 23 48.3	657
811	1989 08 28.39618	23 24 52.71	-06 43 41.9	657
811	1989 08 28.42604	23 24 51.49	-06 43 54.9	657
811	1989 09 03.29722	23 20 38.44	-07 18 16.6	657
811	1989 09 04.27847	23 19 54.39	-07 24 04.6	657
811	1989 09 04.32361	23 19 52.48	-07 24 22.1	657
811	1989 09 06.29799	23 18 23.03	-07 36 02.4	657
811	1989 09 06.34868	23 18 20.70	-07 36 19.5	657
909	1989 08 09.32542	22 16 20.21	-11 01 29.4	657
909	1989 08 09.36431	22 16 18.95	-11 01 46.9	657
1825	1989 08 29.37437	23 25 00.74	+02 10 14.9	657
1825	1989 08 29.40424	23 24 59.22	+02 10 08.7	657
1825	1989 08 30.28410	23 24 18.90	+02 07 22.1	657
1825	1989 08 30.36187	23 24 15.18	+02 07 05.4	657
2697	1989 08 30.28410	23 24 47.42	+01 33 39.6	657
2697	1989 08 30.36187	23 24 44.38	+01 33 23.1	657
3301	1989 09 03.29722	23 26 01.87	-08 30 05.9	657
3301	1989 09 04.27847	23 25 08.14	-08 38 41.0	657
3301	1989 09 04.32361	23 25 05.68	-08 39 06.5	657
3301	1989 09 06.29799	23 23 16.32	-08 56 20.0	657
3301	1989 09 06.34868	23 23 13.37	-08 56 46.6	657

675 Palomar
J. Gibson, OAO Corporation and Jet Propulsion Laboratory, MS 238-332, Pasadena, CA 91109, U.S.A. (1)
E. Helin, MS 183-501, Jet Propulsion Laboratory, Pasadena, CA 91109, U.S.A. (2)
C. Shoemaker, P.O. Box 984, Flagstaff, AZ 86002, U.S.A. (3)
C. J. van Houten, Sterrewacht Leiden, Postbus 9513, NL-2300 RA Leiden, The Netherlands (4)
E. Bowell, Lowell Observatory, 1400 West Mars Hill Road, Flagstaff, AZ 86001, U.S.A. (6)
9 = 3 + 6
Observers J. Alu (2, S), T. Gehrels (4, L), J. Gibson (1, C), E. Helin (2, S), H. E. Holt (3, S), K. Lawrence (2, S), D. Levy (3, S), B. Roman (2, S), C. S. Shoemaker (3, S), E. M. Shoemaker (3, S)
Measurers J. Alu (2), E. Dyer (3), J. Gibson (1), E. Helin (2), K. Lawrence (2), B. Roman (2), C. S. Shoemaker (3), C. J. van Houten (4), I. van Houten-Groeneveld (4), A. Wisse (4)
1.5-m reflector + CCD (C), 1.2-m (L) and 0.46-m (S) Schmidt telescopes

1978	VG10		1989	11	29.20903	01	49	51.35	+10	09	21.5	16.5	2 675
1978	VG10		1989	12	01.19809	01	49	12.51	+10	06	16.6		2 675
1979	UQ		1989	09	27.35138	01	29	35.33	+14	09	08.2		9 675
1979	UQ		1989	09	28.36302	01	28	56.98	+14	04	45.4		9 675
1979	UQ		1989	09	29.40607	01	28	15.71	+14	00	00.5		9 675
1979	UQ		1989	09	29.44688	01	28	13.92	+13	59	49.6		9 675
1985	VN		1989	09	27.35138	01	31	02.29	+16	18	24.4		9 675
1985	VN		1989	09	28.36302	01	30	30.20	+16	06	31.9	16.7	9 675
1985	VN		1989	09	28.40034	01	30	28.88	+16	06	05.4		9 675
1985	VN		1989	09	29.40607	01	29	55.71	+15	54	01.1		9 675
1985	VN		1989	09	29.44688	01	29	54.23	+15	53	31.6		9 675
1986	AE		1989	07	31.44531	21	52	37.18	+18	21	03.4	17.2	3 675
1986	AE		1989	08	01.43420	21	51	32.66	+18	39	36.9		3 675
1986	AE		1989	08	29.27170	21	13	05.72	+25	09	15.5	17.0	3 675
1986	AE		1989	09	01.23663	21	08	49.80	+25	31	26.4		3 675
1987	SY		1988	12	20.40492	10	45	45.67	+10	30	02.6		1 675
1987	SY		1988	12	20.50853	10	46	00.06	+10	28	14.3		1 675
1987	SY		1988	12	24.51719	10	55	54.36	+09	13	51.2		1 675
1987	SY		1988	12	24.52468	10	55	55.44	+09	13	42.5		1 675
1987	SY		1989	01	17.51576	12	24	07.29	-03	28	32.6		1 675
1987	SY		1989	01	17.51888	12	24	08.35	-03	28	42.2		1 675
1987	SY		1989	01	17.52593	12	24	10.64	-03	29	04.0		1 675
1987	SY		1989	01	18.50894	12	29	54.17	-04	21	09.5		1 675
1987	SY		1989	01	18.51185	12	29	55.23	-04	21	18.8		1 675
1987	SY		1989	01	18.51444	12	29	56.08	-04	21	27.1		1 675
1988	MF		1990	01	21.47274	10	03	02.75	+32	45	26.1	16.0	2 675
1988	MF		1990	01	21.48976	10	03	02.02	+32	45	54.9		2 675
1988	MF		1990	01	24.46389	10	01	04.61	+34	13	24.7		2 675
1988	MF		1990	01	24.49098	10	01	03.38	+34	14	11.8		2 675
1988	PY		1989	09	03.45781	01	35	03.83	+18	26	58.1	18	3 675
1988	PY		1989	09	03.49688	01	35	03.31	+18	26	58.7		3 675
1988	PY		1989	09	27.35138	01	26	14.39	+18	14	36.0		9 675
1988	PY		1989	09	29.40607	01	25	13.22	+18	11	06.9		9 675
1988	PY		1989	09	29.44688	01	25	11.90	+18	11	00.6		9 675
1988	QE		1988	09	10.22500	21	34	05.62	-04	30	07.7	17.7	3 675
1988	QE		1988	09	12.19947	21	33	18.83	-04	35	51.2		3 675
1988	QE		1988	10	07.19435	21	26	47.84	-05	40	59.3	18	3 675
1988	QE		1989	09	27.29774	23	56	06.60	+08	33	32.0	17.5	3 675
1988	QE		1989	09	29.22517	23	55	10.92	+08	26	17.8		3 675
1988	RT		1989	09	27.35138	01	33	08.89	+18	41	15.7		9 675
1988	RT		1989	09	28.36302	01	32	41.52	+18	39	17.3	17.1	9 675
1988	RT		1989	09	28.40034	01	32	40.53	+18	39	13.0		9 675
1988	RT		1989	09	29.40607	01	32	12.84	+18	37	11.4		9 675
1988	RT		1989	09	29.44688	01	32	11.69	+18	37	05.9		9 675
1988	RM1		1989	09	03.45781	01	25	32.59	+13	39	38.5	18.3	3 675
1988	RM1		1989	09	03.49688	01	25	32.09	+13	39	34.9		3 675
1988	RM1		1989	09	27.35138	01	16	59.71	+12	38	05.7		9 675
1988	RM1		1989	09	28.36302	01	16	32.08	+12	34	38.7		9 675
1988	RM1		1989	09	28.40034	01	16	30.99	+12	34	31.1		9 675
1989	LW		1978	06	08.38785	17	29	04.60	+03	47	39.5		2 675
1989	LW		1978	06	08.40139	17	29	04.10	+03	47	50.3		2 675
1989	QH1	*	1989	08	29.27170	21	10	13.21	+25	20	13.2	16.8	3 675
1989	QH1		1989	09	01.23663	21	08	13.58	+24	34	38.6		3 675
1989	RJ2		1989	09	27.30590	22	53	44.33	+40	08	06.9	16.8	3 675
1989	RJ2		1989	09	29.25729	22	52	47.29	+39	44	00.9		3 675
1989	RJ2		1989	11	01.10833	22	59	38.74	+29	18	37.3	17.3	3 675
1989	RJ2		1989	11	02.11215	23	00	34.65	+28	57	05.2		3 675
1989	RU3	*	1989	09	05.26181	21	38	07.45	-36	23	55.5	17.0	2 675
1989	RU3		1989	09	05.28611	21	38	04.79	-36	23	45.0		2 675

1989	SH		1989	09	27.35138	01	22	28.64	+19	43	34.2	9 675
1989	SH		1989	09	28.36302	01	21	41.11	+19	43	52.9	15.5 9 675
1989	SH		1989	09	28.40034	01	21	39.27	+19	43	54.2	9 675
1989	SH		1989	09	29.40607	01	20	51.22	+19	44	02.4	9 675
1989	SH		1989	09	29.44688	01	20	49.14	+19	44	02.8	9 675
1989	SB1		1989	09	28.36302	01	39	37.95	+15	04	53.0	17.5 9 675
1989	SB1		1989	09	28.40034	01	39	35.81	+15	04	52.6	9 675
1989	SB1		1989	09	29.40607	01	38	42.91	+15	04	19.5	9 675
1989	SB1		1989	09	29.44688	01	38	40.71	+15	04	19.2	9 675
1989	SO7		1989	09	27.35138	01	07	55.44	+16	24	33.5	9 675
1989	SO7	*	1989	09	28.36302	01	06	58.76	+16	25	11.9	17.5 9 675
1989	SO7		1989	09	28.40034	01	06	56.52	+16	25	12.3	9 675
1989	SO7		1989	09	29.40607	01	05	59.02	+16	25	33.7	9 675
1989	SO7		1989	09	29.44688	01	05	56.58	+16	25	33.9	9 675
1989	SP7	*	1989	09	28.36302	01	10	02.82	+16	18	49.7	9 675
1989	SP7		1989	09	28.40034	01	10	01.74	+16	18	42.0	9 675
1989	SQ7	*	1989	09	28.36302	01	11	48.33	+14	19	33.7	9 675
1989	SQ7		1989	09	28.40034	01	11	46.48	+14	19	32.0	9 675
1989	SQ7		1989	09	29.40607	01	10	58.31	+14	18	24.4	9 675
1989	SQ7		1989	09	29.44688	01	10	56.34	+14	18	22.2	9 675
1989	SR7		1989	09	27.35138	01	14	26.69	+18	56	50.0	9 675
1989	SR7	*	1989	09	28.36302	01	13	54.49	+18	54	08.5	17.5 9 675
1989	SR7		1989	09	28.40034	01	13	53.03	+18	54	03.9	9 675
1989	SR7		1989	09	29.40607	01	13	19.56	+18	51	03.4	9 675
1989	SR7		1989	09	29.44688	01	13	17.98	+18	50	53.2	9 675
1989	SS7		1989	09	27.35138	01	14	46.56	+18	23	17.7	9 675
1989	SS7	*	1989	09	28.36302	01	14	01.80	+18	15	39.9	18.0 9 675
1989	SS7		1989	09	28.40034	01	14	00.14	+18	15	25.8	9 675
1989	SS7		1989	09	29.40607	01	13	14.97	+18	07	39.2	9 675
1989	SS7		1989	09	29.44688	01	13	12.94	+18	07	18.9	9 675
1989	ST7		1989	09	27.35138	01	15	35.84	+14	32	33.7	9 675
1989	ST7	*	1989	09	28.36302	01	14	41.98	+14	33	01.0	17.8 9 675
1989	ST7		1989	09	28.40034	01	14	39.81	+14	33	01.9	9 675
1989	ST7		1989	09	29.40607	01	13	44.90	+14	33	16.0	9 675
1989	ST7		1989	09	29.44688	01	13	42.44	+14	33	16.4	9 675
1989	SU7		1989	09	27.35138	01	15	49.93	+12	46	45.0	9 675
1989	SU7	*	1989	09	28.36302	01	14	50.04	+12	55	19.6	17.0 9 675
1989	SU7		1989	09	28.40034	01	14	47.67	+12	55	39.4	9 675
1989	SU7		1989	09	29.40607	01	13	46.48	+13	04	03.9	9 675
1989	SU7		1989	09	29.44688	01	13	43.77	+13	04	22.9	9 675
1989	SV7	*	1989	09	28.36302	01	14	52.04	+18	44	55.7	17.5 9 675
1989	SV7		1989	09	28.40034	01	14	49.84	+18	45	00.4	9 675
1989	SV7		1989	09	29.40607	01	13	53.51	+18	46	21.3	9 675
1989	SV7		1989	09	29.44688	01	13	51.14	+18	46	24.5	9 675
1989	SW7		1989	09	27.35138	01	18	51.33	+12	43	46.8	9 675
1989	SW7	*	1989	09	28.36302	01	18	11.18	+12	37	48.2	17.9 9 675
1989	SW7		1989	09	28.40034	01	18	09.72	+12	37	34.1	9 675
1989	SW7		1989	09	29.40607	01	17	28.99	+12	31	32.6	9 675
1989	SW7		1989	09	29.44688	01	17	27.07	+12	31	15.8	9 675
1989	SX7		1989	09	27.35138	01	22	06.26	+14	13	43.1	9 675
1989	SX7	*	1989	09	28.36302	01	21	16.07	+14	07	18.0	17.5 9 675
1989	SX7		1989	09	28.40034	01	21	14.09	+14	07	04.4	9 675
1989	SX7		1989	09	29.40607	01	20	23.11	+14	00	30.3	9 675
1989	SX7		1989	09	29.44688	01	20	20.92	+14	00	14.9	9 675
1989	SY7		1989	09	27.35138	01	22	41.67	+14	37	56.3	9 675
1989	SY7	*	1989	09	28.36302	01	21	54.40	+14	37	01.3	17.3 9 675
1989	SY7		1989	09	28.40034	01	21	52.54	+14	37	00.0	9 675
1989	SY7		1989	09	29.40607	01	21	04.69	+14	35	58.2	9 675
1989	SY7		1989	09	29.44688	01	21	02.67	+14	35	56.2	9 675

1989	SZ7		1989	09	27.35138	01	22	57.47	+12	44	27.9		9 675
1989	SZ7	*	1989	09	28.36302	01	21	59.32	+12	48	05.9	17.7	9 675
1989	SZ7		1989	09	28.40034	01	21	57.08	+12	48	13.2		9 675
1989	SZ7		1989	09	29.40607	01	20	57.89	+12	51	41.8		9 675
1989	SZ7		1989	09	29.44688	01	20	55.30	+12	51	50.6		9 675
1989	SA8		1989	09	27.35138	01	23	53.27	+15	44	42.7		9 675
1989	SA8	*	1989	09	28.36302	01	23	04.46	+15	42	53.9	17.9	9 675
1989	SA8		1989	09	28.40034	01	23	02.51	+15	42	49.9		9 675
1989	SA8		1989	09	29.40607	01	22	12.53	+15	40	47.5		9 675
1989	SA8		1989	09	29.44688	01	22	10.30	+15	40	42.2		9 675
1989	SB8		1989	09	27.35138	01	24	23.69	+15	45	28.6		9 675
1989	SB8	*	1989	09	28.36302	01	23	29.60	+15	40	20.2	17.2	9 675
1989	SB8		1989	09	28.40034	01	23	27.46	+15	40	09.7		9 675
1989	SB8		1989	09	29.40607	01	22	32.42	+15	34	48.9		9 675
1989	SB8		1989	09	29.44688	01	22	30.07	+15	34	35.2		9 675
1989	SC8		1989	09	27.35138	01	24	52.38	+17	23	55.2		9 675
1989	SC8	*	1989	09	28.36302	01	24	12.09	+17	22	56.3	17.6	9 675
1989	SC8		1989	09	28.40034	01	24	10.50	+17	22	53.3		9 675
1989	SC8		1989	09	29.40607	01	23	28.91	+17	21	38.7		9 675
1989	SC8		1989	09	29.44688	01	23	27.05	+17	21	34.4		9 675
1989	SD8		1989	09	27.35138	01	25	40.75	+15	51	38.2		9 675
1989	SD8	*	1989	09	28.36302	01	25	01.15	+15	52	43.6	17.9	9 675
1989	SD8		1989	09	28.40034	01	24	59.60	+15	52	46.5		9 675
1989	SD8		1989	09	29.40607	01	24	18.58	+15	53	37.3		9 675
1989	SD8		1989	09	29.44688	01	24	16.76	+15	53	38.8		9 675
1989	SE8		1989	09	27.35138	01	26	24.77	+16	40	11.6		9 675
1989	SE8	*	1989	09	28.36302	01	25	32.55	+16	38	34.5	17.6	9 675
1989	SE8		1989	09	28.40034	01	25	30.45	+16	38	35.8		9 675
1989	SE8		1989	09	29.40607	01	24	37.38	+16	36	44.3		9 675
1989	SE8		1989	09	29.44688	01	24	35.17	+16	36	39.7		9 675
1989	SF8		1989	09	27.35138	01	28	12.76	+12	45	30.2		9 675
1989	SF8	*	1989	09	28.36302	01	27	18.35	+12	42	07.3	17.2	9 675
1989	SF8		1989	09	28.40034	01	27	16.14	+12	42	00.5		9 675
1989	SF8		1989	09	29.40607	01	26	20.82	+12	38	27.4		9 675
1989	SF8		1989	09	29.44688	01	26	18.36	+12	38	21.3		9 675
1989	SG8		1989	09	27.35138	01	35	27.52	+15	25	55.1		9 675
1989	SG8	*	1989	09	28.36302	01	34	36.49	+15	31	19.9	17.2	9 675
1989	SG8		1989	09	28.40034	01	34	34.48	+15	31	32.5		9 675
1989	SG8		1989	09	29.40607	01	33	41.73	+15	36	43.0		9 675
1989	SG8		1989	09	29.44688	01	33	39.43	+15	36	55.1		9 675
1989	SH8	*	1989	09	28.36302	01	39	15.69	+16	23	32.5		9 675
1989	SH8		1989	09	28.40034	01	39	13.64	+16	23	31.5		9 675
1989	TW		1989	09	27.35138	01	27	40.54	+19	26	23.8		9 675
1989	TW		1989	09	28.36302	01	26	56.79	+19	24	34.6	17.5	9 675
1989	TW		1989	09	28.40034	01	26	55.13	+19	24	27.9		9 675
1989	TW		1989	09	29.40607	01	26	09.88	+19	22	23.6		9 675
1989	TW		1989	09	29.44688	01	26	07.79	+19	22	16.1		9 675
1989	TB11		1989	09	27.35138	01	15	21.26	+12	36	54.9		9 675
1989	TB11		1989	09	28.36302	01	14	32.96	+12	34	39.2	17.1	9 675
1989	TB11		1989	09	28.40034	01	14	31.06	+12	34	34.8		9 675
1989	TB11		1989	09	29.40607	01	13	42.06	+12	32	11.3		9 675
1989	TB11		1989	09	29.44688	01	13	39.97	+12	32	04.3		9 675
1989	UN2		1983	07	11.29757	17	51	21.79	+20	52	56.3	16.5	2 675
1989	UN2		1983	07	11.31979	17	51	20.93	+20	52	47.7		2 675
1989	YF1		1990	01	21.41979	08	21	48.75	+14	22	17.2	16.0	2 675
1989	YF1		1990	01	21.44722	08	21	46.73	+14	22	16.3		2 675
1989	YF1		1990	01	24.40399	08	18	36.03	+14	19	20.0		2 675
1989	YF1		1990	01	24.43125	08	18	34.17	+14	19	16.6		2 675
1990	BA		1990	01	24.21719	06	32	03.78	+25	49	32.4	15.5	2 675

1990	BA		1990	01	24.24306	06	32	06.06	+25	49	10.4		2 675
1990	BA		1990	01	25.18385	06	33	50.60	+25	36	20.3		2 675
1990	BW		1990	01	26.21892	08	01	05.38	+17	35	23.6	17.5	3 675
1990	BW		1990	01	26.25729	08	01	02.47	+17	36	10.5		3 675
1990	BW		1990	01	27.22743	07	59	49.19	+17	55	31.7		3 675
1990	BW		1990	01	27.27222	07	59	45.67	+17	56	26.6		3 675
1990	BJ1	*	1990	01	21.20069	05	25	55.57	+10	24	19.7	16.5	2 675
1990	BJ1		1990	01	21.22500	05	25	55.10	+10	24	28.1		2 675
1990	BJ1		1990	01	24.11944	05	25	07.33	+10	39	22.3		2 675
1990	BJ1		1990	01	24.14688	05	25	07.05	+10	39	32.7		2 675
1990	BK1	*	1990	01	21.37413	07	54	27.36	+02	39	01.1	16.0	2 675
1990	BK1		1990	01	21.39861	07	54	25.98	+02	39	10.7		2 675
1990	BK1		1990	01	25.34653	07	50	52.22	+03	05	01.7		2 675
1990	BK1		1990	01	25.37153	07	50	50.88	+03	05	14.0		2 675
1990	BL1	*	1990	01	21.37413	07	59	27.34	+01	39	33.2	16.0	2 675
1990	BL1		1990	01	21.39861	07	59	25.93	+01	39	42.3		2 675
1990	BL1		1990	01	25.34653	07	55	59.30	+02	08	37.5		2 675
1990	BL1		1990	01	25.37153	07	55	57.78	+02	08	46.7		2 675
1990	BM1	*	1990	01	22.25503	06	14	55.38	+12	22	45.8	15.7	2 675
1990	BM1		1990	01	22.27899	06	14	54.38	+12	23	23.2		2 675
1990	BM1		1990	01	24.22378	06	13	41.81	+13	13	39.9		2 675
1990	BM1		1990	01	24.25087	06	13	40.70	+13	14	20.4		2 675
1990	BU1	*	1990	01	23.19757	05	53	05.16	+43	49	10.8	16.5	2 675
1990	BU1		1990	01	23.22622	05	53	02.77	+43	49	26.4		2 675
1990	BU1		1990	01	25.16302	05	50	53.12	+44	05	20.3		2 675
1990	BV1		1990	01	29.26493	08	05	56.08	+00	10	20.4		3 675
1990	BV1		1990	01	29.30729	08	05	49.14	+00	08	56.3		3 675
1990	BV1	*	1990	01	30.27013	08	03	14.21	-00	23	28.7	17.5	3 675
1990	BV1		1990	01	30.30086	08	03	09.14	-00	24	31.0		3 675
1990	BG2	*	1990	01	21.47274	09	53	01.92	+36	08	34.0	16.5	2 675
1990	BG2		1990	01	21.48976	09	53	00.80	+36	08	37.5		2 675
1990	BG2		1990	01	24.46389	09	50	02.62	+36	18	31.0		2 675
1990	BG2		1990	01	24.49132	09	50	00.86	+36	18	34.4		2 675
1990	BH2	*	1990	01	21.46059	08	51	56.48	+05	03	44.8	16.0	2 675
1990	BH2		1990	01	21.47865	08	51	55.64	+05	03	49.9		2 675
1990	BH2		1990	01	24.45017	08	49	43.13	+05	15	39.5		2 675
1990	BH2		1990	01	24.47691	08	49	41.92	+05	15	45.5		2 675
1990	BK2	*	1990	01	21.36840	07	46	55.42	+13	23	18.5	15.7	2 675
1990	BK2		1990	01	21.39253	07	46	54.12	+13	23	28.9		2 675
1990	BK2		1990	01	24.38750	07	44	11.71	+13	43	15.5		2 675
1990	BK2		1990	01	24.41493	07	44	10.26	+13	43	25.5		2 675
1990	BL2	*	1990	01	21.36840	08	05	06.01	+13	56	58.3	16.0	2 675
1990	BL2		1990	01	21.39253	08	05	04.38	+13	57	05.9		2 675
1990	BL2		1990	01	24.38750	08	02	01.76	+14	13	35.1		2 675
1990	BL2		1990	01	24.41493	08	02	00.13	+14	13	44.5		2 675
1990	BM2	*	1990	01	22.46649	09	04	49.24	+19	09	26.9	16.2	2 675
1990	BM2		1990	01	22.48906	09	04	47.15	+19	09	17.9		2 675
1990	BM2		1990	01	25.42500	09	00	14.40	+18	51	43.6		2 675
1990	BM2		1990	01	25.45052	09	00	11.96	+18	51	34.0		2 675
1990	BN2	*	1990	01	21.46684	08	57	58.07	+32	17	51.9	16.5	2 675
1990	BN2		1990	01	21.48420	08	57	57.03	+32	18	02.9		2 675
1990	BN2		1990	01	24.45677	08	55	09.64	+32	49	33.9		2 675
1990	BN2		1990	01	24.48438	08	55	07.92	+32	49	52.4		2 675
1990	BO2	*	1990	01	21.41198	08	51	36.14	+26	31	32.9	16.0	2 675
1990	BO2		1990	01	21.43715	08	51	34.59	+26	31	49.3		2 675
1990	BO2		1990	01	24.44306	08	48	24.31	+27	03	30.9		2 675
1990	BO2		1990	01	24.47031	08	48	22.56	+27	03	46.4		2 675
1990	DA		1990	01	30.27760	08	12	28.83	-07	39	12.0	14.5	3 675
1990	DA		1990	01	30.30989	08	12	29.79	-07	36	14.0		3 675

2064	P-L	*	1960	09	24.45000	00	40	12.04	+09	27	38.1	19.2	4 675
2064	P-L		1960	09	26.37010	00	38	49.44	+09	20	05.4		4 675
2064	P-L		1960	09	28.36808	00	37	22.24	+09	11	59.7		4 675
2064	P-L		1960	09	28.45140	00	37	18.51	+09	11	38.2		4 675
2064	P-L		1960	09	29.44510	00	36	34.91	+09	07	31.0		4 675
2064	P-L		1960	10	17.30420	00	23	44.80	+07	47	13.2		4 675
2064	P-L		1960	10	22.27920	00	20	33.44	+07	24	52.8		4 675
2064	P-L		1960	10	25.37570	00	18	43.49	+07	11	30.4		4 675
2064	P-L		1960	10	26.36840	00	18	09.99	+07	07	19.6		4 675
2532	P-L	*	1960	09	24.46184	00	45	17.82	+05	32	50.2	17.7	4 675
2532	P-L		1960	09	26.37988	00	44	00.04	+05	16	23.0		4 675
2532	P-L		1960	09	28.43822	00	42	35.08	+04	58	35.3		4 675
2532	P-L		1960	09	29.39514	00	41	55.43	+04	50	16.6		4 675
2532	P-L		1960	10	17.31529	00	30	06.65	+02	20	29.8		4 675
2532	P-L		1960	10	22.26809	00	27	27.48	+01	44	39.5		4 675
2532	P-L		1960	10	25.30351	00	26	02.67	+01	24	37.2		4 675
2532	P-L		1960	10	26.35766	00	25	35.64	+01	18	01.6		4 675
2547	P-L	*	1960	09	24.46184	00	42	14.05	+00	25	03.4	18.0	4 675
2547	P-L		1960	09	26.37988	00	40	49.31	+00	16	30.7		4 675
2547	P-L		1960	09	28.43822	00	39	16.98	+00	07	23.7		4 675
2547	P-L		1960	09	29.39514	00	38	33.91	+00	03	11.5		4 675
2547	P-L		1960	10	17.31529	00	25	40.50	-01	05	20.1		4 675
2547	P-L		1960	10	22.26809	00	22	42.51	-01	18	30.0		4 675
2547	P-L		1960	10	25.30351	00	21	05.96	-01	24	55.3		4 675
2547	P-L		1960	10	26.35766	00	20	34.82	-01	26	51.2		4 675
2666	P-L	*	1960	09	24.43750	00	39	57.23	+00	57	54.7	18.5	4 675
2666	P-L		1960	09	24.46184	00	39	56.48	+00	57	41.5		4 675
2666	P-L		1960	09	26.35694	00	38	57.05	+00	40	09.5		4 675
2666	P-L		1960	09	26.37988	00	38	56.22	+00	39	56.8		4 675
2666	P-L		1960	09	28.41742	00	37	49.24	+00	20	53.8		4 675
2666	P-L		1960	09	28.43822	00	37	48.46	+00	20	42.3		4 675
2666	P-L		1960	09	29.37153	00	37	17.38	+00	11	57.9		4 675
2666	P-L		1960	09	29.39514	00	37	16.58	+00	11	44.6		4 675
2785	P-L	*	1960	09	26.37988	01	00	14.23	+02	25	27.9	19.2	4 675
2785	P-L		1960	09	28.43822	00	58	33.43	+02	14	40.7		4 675
2785	P-L		1960	09	29.39514	00	57	45.91	+02	09	38.5		4 675
2799	P-L	*	1960	09	24.43750	00	52	51.87	+03	09	37.7	19.0	4 675
2799	P-L		1960	09	24.46184	00	52	51.11	+03	09	07.6		4 675
2799	P-L		1960	09	26.35694	00	51	46.83	+02	33	38.6		4 675
2799	P-L		1960	09	26.37988	00	51	46.05	+02	33	13.3		4 675
2799	P-L		1960	09	28.41742	00	50	34.76	+01	54	54.5		4 675
2799	P-L		1960	09	28.43822	00	50	34.02	+01	54	30.7		4 675
2799	P-L		1960	09	29.39514	00	50	00.16	+01	36	30.5		4 675
4181	P-L	*	1960	09	24.37573	00	17	25.96	+04	29	54.0	19.3	4 675
4181	P-L		1960	09	25.39444	00	16	29.62	+04	26	10.9		4 675
4181	P-L		1960	09	25.42780	00	16	27.62	+04	26	03.5		4 675
4181	P-L		1960	09	26.30558	00	15	39.21	+04	22	50.1		4 675
4181	P-L		1960	09	26.32569	00	15	38.10	+04	22	46.0		4 675
4181	P-L		1960	09	28.32780	00	13	47.34	+04	15	20.0		4 675
4181	P-L		1960	09	28.36808	00	13	45.10	+04	15	11.6		4 675
4181	P-L		1960	09	28.38750	00	13	44.06	+04	15	08.2		4 675
4206	P-L	*	1960	09	24.37573	00	20	56.78	+08	52	33.4	17.3	4 675
4206	P-L		1960	09	25.39444	00	19	43.49	+08	54	15.6		4 675
4206	P-L		1960	09	25.42780	00	19	40.93	+08	54	17.6		4 675
4206	P-L		1960	09	26.30558	00	18	38.12	+08	55	38.0		4 675
4206	P-L		1960	09	26.32569	00	18	36.60	+08	55	40.7		4 675
4206	P-L		1960	09	28.36808	00	16	09.74	+08	58	23.2		4 675
4206	P-L		1960	09	28.38750	00	16	08.43	+08	58	25.5		4 675
4257	P-L	*	1960	09	24.37573	00	30	25.19	+09	19	38.6	19.0	4 675

4257	P-L		1960	09	25.42780	00	29	23.43	+09	17	52.2		4 675
4257	P-L		1960	09	26.30558	00	28	31.89	+09	16	18.7		4 675
4257	P-L		1960	09	28.36808	00	26	29.05	+09	12	12.6		4 675
6012	P-L	*	1960	09	24.31111	00	06	10.15	+05	31	45.5	20.0	4 675
6012	P-L		1960	09	24.33613	00	06	09.08	+05	31	38.4		4 675
6012	P-L		1960	09	26.25556	00	04	45.39	+05	21	48.5		4 675
6012	P-L		1960	09	26.27573	00	04	44.49	+05	21	42.9		4 675
6012	P-L		1960	09	28.30764	00	03	15.84	+05	11	09.9		4 675
6012	P-L		1960	09	28.32780	00	03	14.95	+05	11	03.5		4 675
6297	P-L	*	1960	09	24.31111	00	06	42.82	+01	39	07.6	19.6	4 675
6297	P-L		1960	09	24.33613	00	06	41.12	+01	39	07.5		4 675
6297	P-L		1960	09	25.29097	00	05	39.43	+01	39	18.7		4 675
6297	P-L		1960	09	25.32502	00	05	37.29	+01	39	19.1		4 675
6297	P-L		1960	09	26.25556	00	04	37.09	+01	39	28.2		4 675
6297	P-L		1960	09	26.27573	00	04	35.79	+01	39	28.8		4 675
6297	P-L		1960	09	28.30764	00	02	24.80	+01	39	48.7		4 675
6297	P-L		1960	09	28.32780	00	02	23.40	+01	39	49.8		4 675
6313	P-L	*	1960	09	24.31111	00	10	26.47	+04	20	09.4	19.6	4 675
6313	P-L		1960	09	24.33613	00	10	25.14	+04	20	02.6		4 675
6313	P-L		1960	09	25.29097	00	09	37.56	+04	15	36.4		4 675
6313	P-L		1960	09	25.32502	00	09	35.79	+04	15	25.6		4 675
6313	P-L		1960	09	26.25556	00	08	49.37	+04	11	03.0		4 675
6313	P-L		1960	09	26.27573	00	08	48.25	+04	10	56.3		4 675
6313	P-L		1960	09	28.30764	00	07	06.72	+04	01	15.7		4 675
6313	P-L		1960	09	28.32780	00	07	05.65	+04	01	09.6		4 675
6564	P-L	*	1960	09	24.35002	00	04	57.34	-03	02	17.6	17.1	4 675
6564	P-L		1960	09	26.28543	00	03	32.81	-03	12	18.6		4 675
6564	P-L		1960	09	27.34237	00	02	46.84	-03	17	40.3		4 675
6564	P-L		1960	09	28.33822	00	02	03.78	-03	22	41.4		4 675
6564	P-L		1960	10	17.28198	23	50	14.84	-04	39	16.7		4 675
6564	P-L		1960	10	22.16324	23	48	05.57	-04	51	23.3		4 675
6564	P-L		1960	10	22.23406	23	48	03.91	-04	51	32.9		4 675
6564	P-L		1960	10	24.23753	23	47	19.30	-04	55	24.9		4 675
6564	P-L		1960	10	26.27157	23	46	39.14	-04	58	42.4		4 675
9099	P-L	*	1960	10	17.21390	23	32	18.24	-02	04	49.8	19.5	4 675
9099	P-L		1960	10	22.15559	23	30	42.26	-02	36	13.8		4 675
9099	P-L		1960	10	24.18787	23	30	10.90	-02	47	58.9		4 675
9099	P-L		1960	10	26.26113	23	29	44.29	-02	59	19.2		4 675
9509	P-L	*	1960	10	22.16324	23	22	36.82	-03	33	53.7	18.9	4 675
9509	P-L		1960	10	24.23753	23	22	43.00	-03	47	27.9		4 675
9509	P-L		1960	10	26.27157	23	22	56.05	-03	59	40.4		4 675
1212	T-2	*	1973	09	29.25330	00	10	42.18	+05	05	01.1	16.7	4 675
1212	T-2		1973	09	29.31806	00	10	39.34	+05	04	28.9		4 675
1212	T-2		1973	09	30.21007	00	10	02.90	+04	56	52.0		4 675
1212	T-2		1973	09	30.27431	00	10	00.15	+04	56	20.6		4 675
1212	T-2		1973	10	04.28958	00	07	18.23	+04	21	59.3		4 675
1212	T-2		1973	10	04.35208	00	07	15.58	+04	21	26.4		4 675
1212	T-2		1973	10	05.31684	00	06	37.64	+04	13	13.8		4 675
1212	T-2		1973	10	05.37917	00	06	35.17	+04	12	42.3		4 675
2142	T-2		1973	09	19.19948	00	36	44.17	+05	28	39.8		4 675
2142	T-2		1973	09	19.25006	00	36	42.10	+05	28	04.3		4 675
2142	T-2		1973	09	20.26458	00	36	01.99	+05	15	57.0		4 675
2142	T-2		1973	09	24.36181	00	33	13.70	+04	26	19.9		4 675
2142	T-2		1973	09	24.42847	00	33	10.78	+04	25	29.6		4 675
2142	T-2		1973	09	25.25642	00	32	36.51	+04	15	21.6		4 675
2142	T-2		1973	09	25.32031	00	32	33.63	+04	14	35.3		4 675
2142	T-2		1973	09	29.26632	00	29	46.14	+03	26	01.1		4 675
2142	T-2	*	1973	09	29.33073	00	29	43.26	+03	25	12.9	17.8	4 675
2142	T-2		1973	09	30.22257	00	29	05.55	+03	14	16.3		4 675

2142	T-2		1973	09	30.28785	00	29	02.68	+03	13	28.6		4 675
2142	T-2		1973	10	04.30208	00	26	14.05	+02	24	49.0		4 675
2142	T-2		1973	10	04.36476	00	26	11.26	+02	24	04.9		4 675
2142	T-2		1973	10	05.32917	00	25	31.84	+02	12	34.4		4 675
2142	T-2		1973	10	05.39132	00	25	29.10	+02	11	51.5		4 675
2150	T-2		1973	09	19.19948	00	37	04.46	+07	17	51.4		4 675
2150	T-2		1973	09	19.25006	00	37	02.47	+07	17	19.9		4 675
2150	T-2		1973	09	20.26458	00	36	24.65	+07	06	14.7		4 675
2150	T-2		1973	09	24.36181	00	33	45.75	+06	20	27.9		4 675
2150	T-2		1973	09	24.42847	00	33	42.95	+06	19	43.0		4 675
2150	T-2		1973	09	25.25642	00	33	10.59	+06	10	13.4		4 675
2150	T-2		1973	09	25.32031	00	33	07.75	+06	09	28.5		4 675
2150	T-2		1973	09	29.26632	00	30	28.55	+05	23	58.5		4 675
2150	T-2	*	1973	09	29.33073	00	30	25.75	+05	23	14.3	17.0	4 675
2150	T-2		1973	09	30.22257	00	29	49.82	+05	12	48.7		4 675
2150	T-2		1973	09	30.28785	00	29	46.99	+05	12	03.0		4 675
2150	T-2		1973	10	04.30208	00	27	05.40	+04	25	28.4		4 675
2150	T-2		1973	10	04.36476	00	27	02.78	+04	24	46.3		4 675
2150	T-2		1973	10	05.32917	00	26	24.75	+04	13	39.2		4 675
2150	T-2		1973	10	05.39132	00	26	22.14	+04	12	55.6		4 675
2249	T-2		1973	09	19.19948	00	45	16.30	+04	22	56.3		4 675
2249	T-2		1973	09	19.25006	00	45	14.41	+04	22	41.6		4 675
2249	T-2		1973	09	20.26458	00	44	34.09	+04	17	55.8		4 675
2249	T-2		1973	09	24.36181	00	41	46.11	+03	58	13.3		4 675
2249	T-2		1973	09	24.42847	00	41	43.28	+03	57	54.0		4 675
2249	T-2		1973	09	25.25642	00	41	08.72	+03	53	46.2		4 675
2249	T-2		1973	09	25.32031	00	41	06.02	+03	53	27.6		4 675
2249	T-2		1973	09	29.26632	00	38	17.31	+03	33	44.2		4 675
2249	T-2	*	1973	09	29.33073	00	38	14.48	+03	33	22.9	18.0	4 675
2249	T-2		1973	09	30.22257	00	37	36.04	+03	28	51.1		4 675
2249	T-2		1973	09	30.28785	00	37	33.16	+03	28	30.4		4 675
2249	T-2		1973	10	04.30208	00	34	38.50	+03	08	06.7		4 675
2249	T-2		1973	10	04.36476	00	34	35.71	+03	07	48.8		4 675
2249	T-2		1973	10	05.32917	00	33	53.89	+03	02	53.9		4 675
2249	T-2		1973	10	05.39132	00	33	51.06	+03	02	33.9		4 675
3347	T-2		1973	09	19.21250	00	04	02.42	-05	11	35.8		4 675
3347	T-2		1973	09	19.26354	00	03	59.22	-05	11	57.7		4 675
3347	T-2		1973	09	24.37431	23	59	09.47	-05	43	05.2		4 675
3347	T-2		1973	09	24.44167	23	59	05.45	-05	43	29.1		4 675
3347	T-2	*	1973	09	25.26875	23	58	18.85	-05	48	22.3	19.7	4 675
3347	T-2		1973	09	25.33299	23	58	15.15	-05	48	45.5		4 675
5006	T-2		1973	09	19.29705	00	06	03.58	+12	52	40.5		4 675
5006	T-2		1973	09	20.21458	00	05	18.96	+12	50	39.6		4 675
5006	T-2		1973	09	20.29253	00	05	15.11	+12	50	27.8		4 675
5006	T-2		1973	09	24.40035	00	01	53.12	+12	39	56.5		4 675
5006	T-2		1973	09	24.47986	00	01	49.18	+12	39	43.2		4 675
5006	T-2	*	1973	09	25.29375	00	01	09.11	+12	37	20.3	18.0	4 675
5006	T-2		1973	09	25.35903	00	01	05.72	+12	37	09.0		4 675
5161	T-2		1973	09	20.29253	00	26	38.89	+13	26	25.9		4 675
5161	T-2		1973	09	24.40035	00	22	33.88	+13	29	41.0		4 675
5161	T-2		1973	09	24.47986	00	22	29.04	+13	29	43.9		4 675
5161	T-2	*	1973	09	25.29375	00	21	39.63	+13	30	00.9	17.9	4 675
5161	T-2		1973	09	25.35903	00	21	35.53	+13	30	01.5		4 675
5161	T-2		1973	09	29.24062	00	17	35.46	+13	29	53.6		4 675
5161	T-2		1973	09	29.30486	00	17	31.36	+13	29	52.7		4 675
5161	T-2		1973	09	30.19722	00	16	35.93	+13	29	30.4		4 675
5161	T-2		1973	09	30.35295	00	16	25.94	+13	29	25.3		4 675
5161	T-2		1973	10	04.27708	00	12	21.79	+13	26	27.3		4 675
5161	T-2		1973	10	04.33906	00	12	17.79	+13	26	22.0		4 675

5161	T-2		1973	10	05.36632	00	11	14.35	+13	25	15.8		4 675
5161	T-2		1973	10	05.42847	00	11	10.43	+13	25	11.2		4 675
1095	T-3		1977	10	07.24652	01	00	59.51	+14	50	49.0		4 675
1095	T-3		1977	10	07.25868	01	00	58.84	+14	50	47.2		4 675
1095	T-3		1977	10	11.26632	00	56	32.78	+14	51	54.6		4 675
1095	T-3		1977	10	11.27743	00	56	32.19	+14	51	54.3		4 675
1095	T-3		1977	10	11.33351	00	56	28.15	+14	51	56.4		4 675
1095	T-3		1977	10	11.34375	00	56	27.51	+14	51	53.9		4 675
1095	T-3		1977	10	12.26510	00	55	26.62	+14	51	53.3		4 675
1095	T-3		1977	10	12.27587	00	55	25.94	+14	51	51.3		4 675
1095	T-3		1977	10	12.33125	00	55	22.04	+14	51	51.5		4 675
1095	T-3		1977	10	12.34271	00	55	21.36	+14	51	50.9		4 675
1095	T-3		1977	10	16.25156	00	51	04.89	+14	50	45.8		4 675
1095	T-3		1977	10	16.31684	00	51	00.49	+14	50	46.3		4 675
1095	T-3	*	1977	10	17.25365	00	50	00.15	+14	50	16.8	20.0	4 675
1095	T-3		1977	10	17.32083	00	49	55.76	+14	50	15.3		4 675
2250	T-3		1977	10	07.25868	01	09	10.71	+11	22	32.3		4 675
2250	T-3		1977	10	11.27743	01	06	10.06	+11	01	55.4		4 675
2250	T-3		1977	10	11.34375	01	06	06.91	+11	01	34.7		4 675
2250	T-3		1977	10	12.27587	01	05	24.83	+10	56	39.5		4 675
2250	T-3		1977	10	12.34271	01	05	21.82	+10	56	17.5		4 675
2250	T-3	*	1977	10	16.26233	01	02	25.17	+10	35	11.2	19.6	4 675
2250	T-3		1977	10	16.32795	01	02	22.07	+10	34	51.7		4 675
2250	T-3		1977	10	17.26458	01	01	40.22	+10	29	47.9		4 675
2250	T-3		1977	10	17.33177	01	01	37.26	+10	29	26.3		4 675
2250	T-3		1977	10	21.40868	00	58	37.97	+10	07	08.2		4 675
2496	T-3		1977	10	07.25868	01	13	05.25	+12	32	58.2		4 675
2496	T-3		1977	10	11.27743	01	10	07.08	+12	05	01.9		4 675
2496	T-3		1977	10	11.34375	01	10	03.99	+12	04	32.7		4 675
2496	T-3		1977	10	12.27587	01	09	22.66	+11	57	53.3		4 675
2496	T-3		1977	10	12.34271	01	09	19.54	+11	57	24.8		4 675
2496	T-3	*	1977	10	16.26233	01	06	26.02	+11	29	06.1	18.8	4 675
2496	T-3		1977	10	16.32795	01	06	23.04	+11	28	37.4		4 675
2496	T-3		1977	10	17.26458	01	05	42.01	+11	21	51.1		4 675
2496	T-3		1977	10	17.33177	01	05	38.85	+11	21	20.9		4 675
2496	T-3		1977	10	21.40868	01	02	43.61	+10	51	30.9		4 675
2496	T-3		1977	10	21.46910	01	02	41.10	+10	51	05.4		4 675
2496	T-3		1977	10	22.41528	01	02	01.47	+10	44	09.8		4 675
2496	T-3		1977	10	22.46962	01	01	59.10	+10	43	45.7		4 675
3185	T-3		1977	10	11.28819	01	22	50.04	+04	52	38.0		4 675
3185	T-3		1977	10	11.35642	01	22	46.35	+04	52	16.7		4 675
3185	T-3		1977	10	12.28681	01	21	57.63	+04	47	40.3		4 675
3185	T-3		1977	10	12.35347	01	21	53.98	+04	47	21.1		4 675
3185	T-3	*	1977	10	16.27309	01	18	27.91	+04	28	20.2	18.9	4 675
3185	T-3		1977	10	16.33872	01	18	24.27	+04	28	02.0		4 675
3185	T-3		1977	10	17.27552	01	17	35.39	+04	23	36.4		4 675
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3185	T-3		1977	10	22.39844	01	13	12.58	+04	00	34.3		4 675
3185	T-3		1977	10	22.45920	01	13	09.44	+04	00	18.2		4 675
3241	T-3		1977	10	07.27031	01	23	12.43	+06	49	48.5		4 675
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3241	T-3		1977	10	12.28681	01	18	46.64	+06	36	07.4		4 675
3241	T-3		1977	10	12.35347	01	18	42.81	+06	35	56.8		4 675
3241	T-3	*	1977	10	16.27309	01	15	11.18	+06	25	16.5	16.5	4 675
3241	T-3		1977	10	16.33872	01	15	07.39	+06	25	06.3		4 675
3241	T-3		1977	10	17.27552	01	14	17.35	+06	22	37.5		4 675

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3241	T-3		1977	10	21.39792	01	10	41.50	+06	12	26.3		4 675
3241	T-3		1977	10	21.45799	01	10	38.39	+06	12	18.3		4 675
3241	T-3		1977	10	22.39844	01	09	51.34	+06	10	10.8		4 675
3241	T-3		1977	10	22.45920	01	09	48.19	+06	10	04.1		4 675
3474	T-3		1977	10	07.27031	01	13	16.25	+04	06	53.7		4 675
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3474	T-3		1977	10	12.35347	01	08	30.16	+03	41	35.5		4 675
3474	T-3	*	1977	10	16.27309	01	04	50.10	+03	22	41.2	19.6	4 675
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4081	T-3		1977	10	12.29826	01	17	45.15	+02	05	52.3		4 675
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711			1989	09	28.36302	01	33	38.26	+13	50	59.9	15.4 9 675
711			1989	09	28.40034	01	33	35.90	+13	50	58.7	9 675
711			1989	09	29.40607	01	32	34.70	+13	49	45.4	9 675
711			1989	09	29.44688	01	32	32.08	+13	49	42.2	9 675
3151			1989	09	27.35138	01	09	52.79	+16	23	05.3	9 675
3151			1989	09	28.36302	01	09	09.28	+16	13	55.5	17. 9 675
3151			1989	09	28.40034	01	09	07.63	+16	13	35.2	9 675
3151			1989	09	29.40607	01	08	23.75	+16	04	19.6	9 675
3151			1989	09	29.44688	01	08	21.93	+16	03	57.0	9 675
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3573			1989	09	28.40034	01	15	19.75	+12	59	41.7	9 675
3573			1989	09	29.40607	01	14	26.43	+12	54	47.2	9 675
3573			1989	09	29.44688	01	14	24.08	+12	54	34.7	9 675
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3800			1990	01	24.36684	07	20	02.85	+36	59	24.8	2 675
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4290			1989	09	29.44688	01	10	26.81	+17	45	41.7	9 675

685 Williams
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Observer P. E. Roques
Measurer B. A. Skiff
0.4-m f/4.5 reflector

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1990 BG    1990 02 03.11719  06 16 57.05  +39 58 41.8                      685
1990 BG    1990 02 03.13594  06 16 52.91  +39 59 14.8                      685
```

688 Lowell Observatory, Anderson Mesa Station
E. Bowell, Lowell Observatory, 1400 West Mars Hill Road,
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Observers S. J. Bus, B. A. Skiff
Measurers S. J. Bus, L. M. Sauter
1.8-m reflector + CCD

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3108 T-3 1989 11 29.19745 01 10 35.59 +07 11 42.0 688
3108 T-3 1989 11 29.20544 01 10 35.46 +07 11 41.6 688

691 Kitt Peak, Steward Observatory
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0.91-m SPACEWATCH telescope
SAOC 1984
See also MPC 9198, MPC 10373 and Astron. J. 91, 1242, 1986

1989 UP 1990 01 26.37858 11 48 40.32 +18 38 24.0 691
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1989 UP 1990 01 26.42405 11 48 35.95 +18 38 45.2 19.5V 691
1989 UP 1990 01 26.44554 11 48 33.88 +18 38 54.1 691

760 Goethe Link
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Measurer B. A. Skiff
0.25-m refractor
PDS scanning microdensitometer
AGK3 and Perth 70 secondary nets, global solutions

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261 1961 11 11.27501 03 54 19.75 +16 07 43.1 760
291 1954 08 31.29406 00 09 41.26 +00 25 43.5 760

291	1954	08	31.32948	00	09	39.54	+00	25	31.1		760
320	1954	11	17.16656	02	42	57.24	+14	09	30.3		760
320	1954	11	17.21447	02	42	55.20	+14	09	10.6		760
359	1956	03	09.19630	11	07	53.81	+09	22	48.8		760
382	1962	07	31.34818	21	45	06.74	-12	38	56.3		760
397	1958	11	11.31806	03	29	48.87	+17	31	18.5		760
440	1954	11	17.16656	02	18	34.02	+16	44	23.9		760
440	1954	11	17.21447	02	18	31.22	+16	44	07.4		760
449	1956	10	11.17130	00	49	43.48	+00	17	11.1		760
449	1956	10	11.21534	00	49	41.08	+00	16	59.3		760
492	1960	03	25.12847	10	05	20.77	+13	52	30.8		760
492	1960	03	25.22292	10	05	18.05	+13	52	45.8		760
643	1954	06	05.20648	15	58	56.07	-23	38	03.5	A	760
643	1954	06	05.25926	15	58	53.44	-23	37	47.2	A	760
738	1956	03	09.19630	11	22	04.79	+07	32	19.8		760
742	1958	11	11.26946	03	25	26.95	+14	30	57.1		760
742	1958	11	11.31806	03	25	24.19	+14	30	58.3		760
800	1955	10	25.29096	02	03	37.66	+20	44	26.6		760
800	1955	10	25.32708	02	03	35.10	+20	44	15.3		760
981	1961	11	11.23230	03	51	28.46	+20	41	55.1	A	760
981	1961	11	11.27501	03	51	26.02	+20	41	49.6	A	760
991	1954	06	05.20648	16	05	41.46	-21	02	03.5	I	760
991	1954	06	05.25926	16	05	38.65	-21	01	58.1		760
1099	1956	10	11.17130	00	38	43.70	-00	13	39.7		760
1099	1956	10	11.21534	00	38	41.24	-00	13	32.6		760
1100	1958	11	11.26946	03	30	45.44	+20	35	18.9		760
1100	1958	11	11.31806	03	30	42.79	+20	35	09.7		760
1119	1961	11	11.23230	03	44	11.73	+19	11	36.0		760
1119	1961	11	11.27501	03	44	08.98	+19	11	33.3		760
1128	1954	08	31.29406	00	07	37.04	-00	45	07.2		760
1128	1954	08	31.32948	00	07	35.57	-00	45	16.0		760
1133	1960	03	25.12847	10	19	51.07	+18	55	59.0		760
1133	1960	03	25.22292	10	19	47.24	+18	56	05.9		760
1194	1962	09	22.09090	21	46	27.94	-01	48	06.4		760
1194	1962	09	22.13465	21	46	26.42	-01	48	16.1		760
1199	1958	11	11.26946	03	22	35.64	+19	39	15.6		760
1199	1958	11	11.31806	03	22	33.12	+19	38	59.6		760
1241	1962	09	22.09090	21	46	57.24	-03	01	43.2		760
1241	1962	09	22.13465	21	46	55.49	-03	01	38.1		760
1255	1961	11	11.23230	03	59	39.83	+20	57	29.8		760
1255	1961	11	11.27501	03	59	37.52	+20	57	16.0		760
1305	1961	11	11.23230	03	42	21.16	+19	11	49.3		760
1305	1961	11	11.27501	03	42	18.84	+19	11	42.9		760
1308	1953	10	15.17047	00	43	42.04	+08	01	33.6		760
1308	1953	10	15.21700	00	43	39.60	+08	01	22.2	P	760
1353	1953	10	15.17047	00	36	41.93	+08	33	32.0		760
1353	1953	10	15.21700	00	36	39.83	+08	33	10.0		760
1354	1953	10	15.17047	00	56	08.50	+03	35	28.9		760
1354	1953	10	15.21700	00	56	06.25	+03	35	17.6	P	760
1364	1961	11	11.23230	03	53	47.53	+17	53	39.2		760
1364	1961	11	11.27501	03	53	45.10	+17	53	39.0		760
2158	1961	11	11.23230	04	03	11.91	+19	01	37.9		760
2158	1961	11	11.27501	04	03	09.58	+19	01	29.4		760
2230	1956	03	09.19630	11	03	55.52	+06	51	40.8		760
2230	1956	03	09.23657	11	03	53.79	+06	51	55.4		760
2721	1956	10	11.21534	00	35	33.69	+00	00	20.0		760
2811	1958	11	11.26946	03	07	35.38	+19	12	53.4		760
2811	1958	11	11.31806	03	07	32.72	+19	12	44.1		760

3068		1955	10	25.29096	02	23	38.95	+17	12	30.0	760
3068		1955	10	25.32708	02	23	36.52	+17	12	25.8	760
3068		1960	03	25.12847	10	19	38.86	+17	38	49.5	760
3068		1960	03	25.22292	10	19	35.23	+17	38	32.3	760
3409		1958	11	11.26946	03	11	15.74	+17	07	28.3	760
3409		1958	11	11.31806	03	11	12.99	+17	07	15.5	760
3955		1956	10	11.17130	00	46	29.39	+01	48	03.4	760
3955		1956	10	11.21534	00	46	27.00	+01	47	58.5	760

801 Oak Ridge
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1.5-m reflector + CCD
AC

1931	GC	1990	01	28.25884	08	03	32.32	+32	08	16.5	801
1931	GC	1990	01	28.27224	08	03	31.40	+32	08	16.7	801
1939	BM	1990	01	23.39115	12	19	30.04	+08	12	45.9	801
1939	BM	1990	01	23.42511	12	19	30.83	+08	12	56.1	801
1939	BM	1990	01	28.36937	12	21	08.18	+08	40	01.6	801
1939	BM	1990	01	28.40071	12	21	08.60	+08	40	12.6	801
1942	AC	1990	01	23.39724	11	57	34.10	+22	29	02.8	801
1942	AC	1990	01	23.43005	11	57	34.42	+22	29	23.9	801
1967	DB	1990	01	28.36044	11	55	00.00	+08	45	12.4	801
1967	DB	1990	01	28.38643	11	55	00.06	+08	45	25.0	801
1967	UQ	1990	01	28.32427	09	57	01.20	+18	52	45.3	801
1967	UQ	1990	01	28.34090	09	57	00.38	+18	52	51.6	801
1981	JH	1987	02	28.18103	09	19	38.75	+21	45	09.9	801
1982	KN1	1990	01	23.34119	10	56	56.04	+22	56	46.8	801
1982	KN1	1990	01	23.35829	10	56	55.79	+22	56	57.5	801
1982	KN1	1990	01	27.36873	10	55	47.93	+23	41	07.7	801
1982	KN1	1990	01	27.40521	10	55	47.11	+23	41	31.8	801
1983	GA2	1990	01	28.29582	09	13	57.95	+07	52	27.3	801
1983	GA2	1990	01	28.31155	09	13	57.00	+07	52	30.4	801
1985	RD4	1990	01	28.26796	08	22	52.09	+24	07	52.9	801
1985	RD4	1990	01	28.27914	08	22	51.30	+24	07	53.8	801
1985	TC	1988	06	18.26818	19	23	27.06	-17	24	48.7	801
1985	UY4	1990	01	27.37511	11	11	14.86	+04	13	14.9	801
1985	UY4	1990	01	27.41108	11	11	14.16	+04	13	26.2	801
1986	AO2	1990	01	23.32432	10	50	47.60	+14	11	03.4	801
1986	AO2	1990	01	23.35045	10	50	46.73	+14	11	07.9	801
1986	AO2	1990	01	27.36170	10	48	25.01	+14	18	31.5	801
1986	AO2	1990	01	27.39629	10	48	23.51	+14	18	38.1	801
1986	EO	1990	01	23.40921	12	21	46.05	+22	54	43.0	801
1986	EO	1990	01	23.43519	12	21	46.58	+22	54	56.6	801
1987	RX3	1990	01	28.33216	10	12	50.43	+07	50	44.2	801
1987	RX3	1990	01	28.34609	10	12	49.88	+07	50	46.0	801
1988	AK	1990	01	28.35573	11	29	13.73	+30	17	01.9	801
1988	AK	1990	01	28.39187	11	29	13.13	+30	17	14.7	801
1988	ND	1990	01	23.41979	13	08	26.70	+12	54	34.4	801
1988	ND	1990	01	23.43975	13	08	27.84	+12	54	51.2	801
1988	ND	1990	01	28.42555	13	13	09.26	+14	10	44.4	801
1988	ND	1990	01	28.43727	13	13	09.82	+14	10	55.8	801
1988	RN	1990	01	28.31629	09	39	45.97	+17	03	29.5	801
1988	RN	1990	01	28.33656	09	39	44.55	+17	03	26.9	801
1988	RP	1990	01	27.38063	11	12	40.61	+03	08	00.7	801
1988	TG1	1990	01	28.26370	08	22	22.36	+10	03	40.9	801
1988	TG1	1990	01	28.27574	08	22	21.70	+10	03	41.9	801

1988	VC	1990	01	23.31056	10	19	39.13	+13	43	44.0	801
1988	VC	1990	01	23.34533	10	19	37.67	+13	43	47.0	801
1989	FB	1990	01	28.41337	13	30	34.92	+32	19	50.3	801
1989	FB	1990	01	28.43100	13	30	34.41	+32	20	04.4	801
1989	WM	1990	01	23.23452	09	06	53.49	+26	45	22.9	801
1989	WM	1990	01	23.28741	09	06	55.66	+26	45	20.2	801
1989	WM	1990	01	28.29023	09	10	47.17	+26	38	26.8	801
1989	WM	1990	01	28.30617	09	10	47.69	+26	38	24.6	801
951		1990	01	23.22638	08	58	00.13	+10	57	33.5	801
951		1990	01	23.28224	08	57	56.30	+10	57	43.7	801
951		1990	01	28.28288	08	52	18.64	+11	14	00.9	801
951		1990	01	28.30264	08	52	17.26	+11	14	04.9	801
4197		1989	09	28.26492	00	56	46.87	+05	07	03.3	801
4197		1989	09	28.28764	00	56	43.53	+05	07	04.2	801

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Normal Gautier astrograph
AGK3, SAOC

1		1984	12	18.04954	02	42	30.33	+09	16	59.3	806
1		1984	12	18.05646	02	42	30.16	+09	17	01.4	806
1		1984	12	18.06339	02	42	29.99	+09	17	02.4	806
1		1985	01	23.04474	02	44	40.64	+12	12	10.5	806
1		1985	01	23.05166	02	44	40.89	+12	12	13.5	806
1		1985	01	23.05859	02	44	41.13	+12	12	15.5	806
2		1985	12	11.14960	06	10	17.52	-32	40	10.9	806
2		1985	12	11.15653	06	10	17.10	-32	40	14.0	806
2		1985	12	11.16345	06	10	16.76	-32	40	15.5	806
3		1985	05	30.01862	12	00	52.11	+07	15	19.1	806
3		1985	05	30.03247	12	00	52.24	+07	15	17.7	806
4		1985	06	06.99054	13	33	12.64	+00	24	19.8	806
4		1985	06	06.99747	13	33	12.66	+00	24	17.6	806
4		1985	06	07.00440	13	33	12.67	+00	24	15.5	806
7		1985	01	23.06967	05	03	37.66	+19	53	11.9	806
7		1985	01	23.07798	05	03	37.66	+19	53	11.0	806
7		1985	01	23.08491	05	03	37.71	+19	53	09.1	806
11		1984	05	15.02359	11	49	15.14	+07	31	27.6	806
11		1984	05	15.03051	11	49	15.26	+07	31	26.8	806
18		1984	07	24.01876	16	12	10.04	-07	51	46.2	806
18		1984	07	24.02568	16	12	09.91	-07	51	48.2	806
18		1984	07	24.03260	16	12	09.90	-07	51	49.7	806
18		1984	08	10.00212	16	15	34.21	-09	44	49.6	806
18		1984	08	10.00904	16	15	34.31	-09	44	51.4	806
18		1984	08	10.01663	16	15	34.57	-09	44	56.6	806
18		1984	08	21.00949	16	21	57.06	-11	04	44.2	806
18		1984	08	21.01641	16	21	57.27	-11	04	48.3	806
18		1984	08	21.02334	16	21	57.64	-11	04	50.8	806
25		1984	12	18.07447	02	53	07.71	+02	37	45.1	806
25		1984	12	18.08140	02	53	07.58	+02	37	43.1	806
25		1984	12	18.08832	02	53	07.43	+02	37	41.4	806
532		1985	12	11.12468	04	09	46.73	+04	52	58.7	806
532		1985	12	11.13160	04	09	46.37	+04	53	00.6	806
532		1985	12	11.13852	04	09	46.02	+04	53	01.5	806
704		1984	08	15.01547	18	12	07.51	-20	16	32.8	806
704		1984	08	15.02241	18	12	07.41	-20	16	32.0	806
704		1984	08	15.02933	18	12	07.30	-20	16	29.6	806

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Observers H. Bohnhardt, H. Debehogne, E. W. Elst, G. Pizzaro, O. Pizzaro
Measurers H. Debehogne, E. W. Elst, M. Geffert, R. Galas, P. Van den Eijnde
GPO 0.4-m astrograph and 1.0-m Schmidt

1975 YE	1989	10	03.18542	01	27	12.95	+04	21	39.4	16.5	4	809
1975 YE	1989	10	03.19861	01	27	12.43	+04	21	30.9		4	809
1975 YE	1989	10	03.21181	01	27	11.91	+04	21	21.7		4	809
1978 RK1	1989	09	26.08056	23	15	57.50	-09	13	54.4		3	809
1978 RK1	1989	09	26.09306	23	15	56.95	-09	13	57.3		3	809
1978 RK1	1989	09	26.10556	23	15	56.44	-09	14	00.1		3	809
1978 UL2	1989	10	03.22778	01	46	01.28	+06	49	16.6	18.2	4	809
1978 UL2	1989	10	03.24097	01	46	00.72	+06	49	12.9		4	809
1978 UL2	1989	10	03.25417	01	46	00.17	+06	49	09.2		4	809
1981 EP19	1989	09	24.06563	23	03	55.30	-06	46	07.3	17.2	3	809
1981 EP19	1989	09	24.08021	23	03	54.58	-06	46	13.1		3	809
1981 EP19	1989	09	24.09479	23	03	53.86	-06	46	18.6		3	809
1981 EP19	1989	09	25.01146	23	03	12.34	-06	52	39.1		3	809
1981 EP19	1989	09	25.02604	23	03	11.69	-06	52	45.3		3	809
1981 EP19	1989	09	25.04063	23	03	11.02	-06	52	51.3		3	809
1981 EB28	1989	10	03.22778	01	41	54.11	+07	20	03.3	19.2	4	809
1981 EB28	1989	10	03.24097	01	41	53.39	+07	19	58.6		4	809
1981 EB28	1989	10	03.25417	01	41	52.65	+07	19	52.7		4	809
1981 EW31	1989	10	03.18542	01	21	47.69	+01	05	53.2	18.6	4	809
1981 EW31	1989	10	03.19861	01	21	47.08	+01	05	46.3		4	809
1981 EW31	1989	10	03.21181	01	21	46.48	+01	05	39.7		4	809
1985 PG2	1989	10	03.18542	01	23	53.59	+02	48	27.9	17.6	4	809
1985 PG2	1989	10	03.19861	01	23	52.87	+02	48	24.8		4	809
1985 PG2	1989	10	03.21181	01	23	52.14	+02	48	21.7		4	809
1989 PT	1989	10	02.00451	22	43	38.25	-13	35	49.4	17.5	3	809
1989 PT	1989	10	02.01701	22	43	37.94	-13	35	52.6		3	809
1989 PT	1989	10	02.02951	22	43	37.64	-13	35	55.8		3	809
1989 PT	1989	10	02.99653	22	43	15.32	-13	40	04.9		3	809
1989 PT	1989	10	03.00903	22	43	15.04	-13	40	07.9		3	809
1989 PT	1989	10	03.02153	22	43	14.70	-13	40	11.0		3	809
1989 RB	1989	10	02.00451	22	44	26.09	-13	12	24.6	17.2	3	809
1989 RB	1989	10	02.01701	22	44	25.50	-13	12	10.9		3	809
1989 RB	1989	10	02.02951	22	44	24.92	-13	11	57.6		3	809
1989 RB	1989	10	02.99653	22	43	40.45	-12	54	01.6		3	809
1989 RB	1989	10	03.00903	22	43	39.88	-12	53	47.4		3	809
1989 RB	1989	10	03.02153	22	43	39.25	-12	53	34.5		3	809
1989 RB	1989	10	04.02778	22	42	55.48	-12	35	00.8		3	809
1989 RB	1989	10	04.03750	22	42	55.05	-12	34	50.4		3	809
1989 RB	1989	10	04.04722	22	42	54.62	-12	34	39.7		3	809
1989 RG1	1989	09	24.06563	23	07	52.27	-07	32	32.8		3	809
1989 RG1	1989	09	24.08021	23	07	51.59	-07	32	35.9	17.0	3	809
1989 RG1	1989	09	24.09479	23	07	50.91	-07	32	39.1		3	809
1989 RG1	1989	09	25.01146	23	07	13.03	-07	35	48.9		3	809
1989 RG1	1989	09	25.02604	23	07	12.41	-07	35	52.1		3	809
1989 RG1	1989	09	25.04063	23	07	11.78	-07	35	55.1		3	809
1989 SM1	1989	10	03.18542	01	18	36.70	+02	42	49.9	18.6	4	809
1989 SM1	1989	10	03.19861	01	18	36.05	+02	42	45.6		4	809
1989 SM1	1989	10	03.21181	01	18	35.42	+02	42	40.4		4	809
1989 SP1	1989	10	03.18542	01	19	35.37	+00	46	46.3	18.8	4	809

1989	SP1	1989	10	03.19861	01	19	34.66	+00	46	40.8		4 809
1989	SP1	1989	10	03.21181	01	19	33.95	+00	46	35.9		4 809
1989	SS1	1989	10	03.18542	01	19	23.81	+02	43	48.2	18.5	4 809
1989	SS1	1989	10	03.19861	01	19	23.03	+02	43	45.5		4 809
1989	SS1	1989	10	03.21181	01	19	22.21	+02	43	42.4		4 809
1989	ST1	1989	10	03.18542	01	19	57.03	+03	06	08.7	18.7	4 809
1989	ST1	1989	10	03.19861	01	19	56.27	+03	06	03.9		4 809
1989	ST1	1989	10	03.21181	01	19	55.49	+03	06	00.0		4 809
1989	SU1	1989	10	03.18542	01	19	04.94	+01	33	12.1	17.5	4 809
1989	SU1	1989	10	03.19861	01	19	04.15	+01	33	07.7		4 809
1989	SU1	1989	10	03.21181	01	19	03.27	+01	33	02.6		4 809
1989	SV1	1989	10	03.18542	01	21	18.46	+04	06	05.8	18.0	4 809
1989	SV1	1989	10	03.19861	01	21	17.85	+04	06	02.1		4 809
1989	SV1	1989	10	03.21181	01	21	17.28	+04	05	57.8		4 809
1989	SY1	1989	10	03.18542	01	21	54.63	+03	54	08.4	18.3	4 809
1989	SY1	1989	10	03.19861	01	21	54.03	+03	54	06.0		4 809
1989	SY1	1989	10	03.21181	01	21	53.48	+03	54	01.2		4 809
1989	SZ1	1989	10	03.18542	01	20	14.97	+03	41	13.6	18.2	4 809
1989	SZ1	1989	10	03.19861	01	20	14.12	+03	41	06.4		4 809
1989	SZ1	1989	10	03.21181	01	20	13.32	+03	41	00.2		4 809
1989	SA2	1989	10	03.18542	01	20	59.30	+00	17	26.8	19.0	4 809
1989	SA2	1989	10	03.19861	01	20	58.42	+00	17	23.4		4 809
1989	SA2	1989	10	03.21181	01	20	57.75	+00	17	22.3		4 809
1989	SC2	1989	10	03.18542	01	20	06.26	+01	54	03.7	18.0	4 809
1989	SC2	1989	10	03.19861	01	20	05.31	+01	54	07.1		4 809
1989	SC2	1989	10	03.21181	01	20	04.34	+01	54	10.3		4 809
1989	SE2	1989	10	03.18542	01	23	05.10	+01	20	48.0	18.2	4 809
1989	SE2	1989	10	03.19861	01	23	04.39	+01	20	44.1		4 809
1989	SE2	1989	10	03.21181	01	23	03.74	+01	20	40.7		4 809
1989	SF2	1989	10	03.18542	01	23	28.46	+01	40	48.0	18.7	4 809
1989	SF2	1989	10	03.19861	01	23	27.68	+01	40	45.6		4 809
1989	SF2	1989	10	03.21181	01	23	26.98	+01	40	42.2		4 809
1989	SH2	1989	10	03.18542	01	25	00.07	+02	04	38.1	18.4	4 809
1989	SH2	1989	10	03.19861	01	24	59.34	+02	04	29.8		4 809
1989	SH2	1989	10	03.21181	01	24	58.78	+02	04	22.9		4 809
1989	SK2	1989	10	03.18542	01	23	21.75	+00	23	23.8	18.4	4 809
1989	SK2	1989	10	03.19861	01	23	20.76	+00	23	29.0		4 809
1989	SK2	1989	10	03.21181	01	23	19.91	+00	23	34.1		4 809
1989	SL2	1989	10	03.18542	01	25	46.02	-00	10	46.9	18.5	4 809
1989	SL2	1989	10	03.19861	01	25	45.31	-00	10	52.3		4 809
1989	SL2	1989	10	03.21181	01	25	44.58	-00	10	57.7		4 809
1989	SM2	1989	10	03.18542	01	25	52.05	-00	29	12.8	19.3	4 809
1989	SM2	1989	10	03.19861	01	25	51.31	-00	29	15.7		4 809
1989	SM2	1989	10	03.21181	01	25	50.73	-00	29	17.6		4 809
1989	SN2	1989	10	03.18542	01	28	05.42	-00	10	09.9	18.8	4 809
1989	SN2	1989	10	03.19861	01	28	04.88	-00	10	19.4		4 809
1989	SN2	1989	10	03.21181	01	28	04.43	-00	10	27.8		4 809
1989	SO2	1989	10	03.18542	01	26	22.68	+03	41	29.8	18.7	4 809
1989	SO2	1989	10	03.19861	01	26	21.90	+03	41	25.9		4 809
1989	SO2	1989	10	03.21181	01	26	21.04	+03	41	20.5		4 809
1989	SP2	1989	10	03.18542	01	27	48.24	+01	02	29.0	18.6	4 809
1989	SP2	1989	10	03.19861	01	27	47.61	+01	02	24.0		4 809
1989	SP2	1989	10	03.21181	01	27	46.97	+01	02	19.7		4 809
1989	SQ2	1989	10	03.18542	01	28	08.96	+02	33	44.8	18.5	4 809
1989	SQ2	1989	10	03.19861	01	28	08.28	+02	33	41.0		4 809
1989	SQ2	1989	10	03.21181	01	28	07.69	+02	33	36.7		4 809
1989	SR2	1989	10	03.18542	01	28	25.92	+03	46	27.2	18.7	4 809
1989	SR2	1989	10	03.19861	01	28	25.28	+03	46	23.8		4 809
1989	SR2	1989	10	03.21181	01	28	24.68	+03	46	20.1		4 809

1989	SS2	1989	10	03.18542	01	27	53.98	+00	17	30.0	18.4	4 809
1989	SS2	1989	10	03.19861	01	27	53.23	+00	17	23.5		4 809
1989	SS2	1989	10	03.21181	01	27	52.51	+00	17	16.8		4 809
1989	ST2	1989	10	03.18542	01	27	35.14	-00	02	07.8	18.0	4 809
1989	ST2	1989	10	03.19861	01	27	34.18	-00	02	04.0		4 809
1989	ST2	1989	10	03.21181	01	27	33.27	-00	02	00.2		4 809
1989	SU2	1989	10	03.18542	01	29	49.56	+02	15	41.7	19.8	4 809
1989	SU2	1989	10	03.19861	01	29	48.83	+02	15	38.0		4 809
1989	SU2	1989	10	03.21181	01	29	48.04	+02	15	33.1		4 809
1989	SV2	1989	10	03.18542	01	30	10.86	+02	19	13.5	18.5	4 809
1989	SV2	1989	10	03.19861	01	30	10.18	+02	19	11.3		4 809
1989	SV2	1989	10	03.21181	01	30	09.63	+02	19	09.4		4 809
1989	SW2	1989	10	03.18542	01	30	35.62	+01	28	07.4	18.4	4 809
1989	SW2	1989	10	03.19861	01	30	34.97	+01	28	03.0		4 809
1989	SW2	1989	10	03.21181	01	30	34.30	+01	28	00.0		4 809
1989	SY2	1989	10	03.18542	01	31	43.27	+01	06	34.9	18.6	4 809
1989	SY2	1989	10	03.19861	01	31	42.70	+01	06	30.1		4 809
1989	SY2	1989	10	03.21181	01	31	42.09	+01	06	25.8		4 809
1989	SZ2	1989	10	03.18542	01	32	51.42	+03	15	18.4	18.0	4 809
1989	SZ2	1989	10	03.19861	01	32	50.89	+03	15	09.1		4 809
1989	SZ2	1989	10	03.21181	01	32	50.38	+03	14	58.8		4 809
1989	SA3	1989	10	03.18542	01	33	00.04	+00	55	01.1	17.8	4 809
1989	SA3	1989	10	03.19861	01	32	59.43	+00	54	58.6		4 809
1989	SA3	1989	10	03.21181	01	32	58.78	+00	54	56.0		4 809
1989	SB3	1989	10	03.18542	01	32	42.29	-00	03	05.0	17.5	4 809
1989	SB3	1989	10	03.19861	01	32	41.54	-00	03	11.0		4 809
1989	SB3	1989	10	03.21181	01	32	40.82	-00	03	17.1		4 809
1989	SC3	1989	10	03.18542	01	31	58.96	+00	46	24.9	18.2	4 809
1989	SC3	1989	10	03.19861	01	31	58.14	+00	46	22.9		4 809
1989	SC3	1989	10	03.21181	01	31	57.21	+00	46	21.7		4 809
1989	SD3	1989	10	03.18542	01	29	05.37	+04	29	35.0	18.3	4 809
1989	SD3	1989	10	03.19861	01	29	04.62	+04	29	33.1		4 809
1989	SD3	1989	10	03.21181	01	29	03.81	+04	29	32.0		4 809
1989	SE3	1989	10	03.18542	01	31	31.55	+04	06	48.6	18.3	4 809
1989	SE3	1989	10	03.19861	01	31	30.75	+04	06	47.6		4 809
1989	SE3	1989	10	03.21181	01	31	29.93	+04	06	45.4		4 809
1989	SF3	1989	10	03.18542	01	33	51.13	+03	52	48.0	18.5	4 809
1989	SF3	1989	10	03.19861	01	33	50.45	+03	52	46.9		4 809
1989	SF3	1989	10	03.21181	01	33	49.80	+03	52	45.6		4 809
1989	SF3	1989	10	03.22778	01	33	49.23	+03	52	44.8	18.6	4 809
1989	SF3	1989	10	03.24097	01	33	48.60	+03	52	42.9		4 809
1989	SF3	1989	10	03.25417	01	33	47.86	+03	52	42.6		4 809
1989	SL3	1989	10	03.22778	01	35	14.40	+05	01	24.1	18.6	4 809
1989	SL3	1989	10	03.24097	01	35	14.04	+05	01	17.7		4 809
1989	SL3	1989	10	03.25417	01	35	13.59	+05	01	10.4		4 809
1989	SM3	1989	10	03.18542	01	31	21.00	+02	58	54.9	19.2	4 809
1989	SM3	1989	10	03.19861	01	31	20.17	+02	58	51.2		4 809
1989	SM3	1989	10	03.21181	01	31	19.44	+02	58	50.2		4 809
1989	SO3	1989	10	03.18542	01	33	37.07	+04	12	42.8	18.0	4 809
1989	SO3	1989	10	03.19861	01	33	36.51	+04	12	35.4		4 809
1989	SO3	1989	10	03.21181	01	33	35.94	+04	12	28.5		4 809
1989	SO3	1989	10	03.22778	01	33	35.43	+04	12	18.8	18.2	4 809
1989	SO3	1989	10	03.24097	01	33	34.83	+04	12	11.9		4 809
1989	SO3	1989	10	03.25417	01	33	34.33	+04	12	04.6		4 809
1989	SP3	1989	10	03.22778	01	33	47.83	+05	21	24.6	18.6	4 809
1989	SP3	1989	10	03.24097	01	33	47.15	+05	21	12.0		4 809
1989	SP3	1989	10	03.25417	01	33	46.52	+05	21	00.8		4 809
1989	SQ3	1989	10	03.22778	01	34	32.99	+04	41	46.8	18.9	4 809
1989	SQ3	1989	10	03.24097	01	34	32.44	+04	41	43.5		4 809

1989	SQ3	1989	10	03.25417	01	34	31.81	+04	41	39.8		4 809
1989	SR3	1989	10	03.22778	01	35	35.43	+04	34	12.3	18.7	4 809
1989	SR3	1989	10	03.24097	01	35	34.87	+04	34	08.3		4 809
1989	SR3	1989	10	03.25417	01	35	34.31	+04	34	05.0		4 809
1989	ST3	1989	10	03.22778	01	35	13.43	+05	06	29.8	18.8	4 809
1989	ST3	1989	10	03.24097	01	35	12.81	+05	06	25.1		4 809
1989	ST3	1989	10	03.25417	01	35	12.13	+05	06	19.3		4 809
1989	SU3	1989	10	03.22778	01	35	56.36	+06	03	59.5	18.5	4 809
1989	SU3	1989	10	03.24097	01	35	55.79	+06	03	54.1		4 809
1989	SU3	1989	10	03.25417	01	35	55.31	+06	03	48.1		4 809
1989	SV3	1989	10	03.18542	01	36	27.27	+04	19	06.0	18.5	4 809
1989	SV3	1989	10	03.19861	01	36	26.74	+04	18	59.2		4 809
1989	SV3	1989	10	03.21181	01	36	26.20	+04	18	53.5		4 809
1989	SV3	1989	10	03.22778	01	36	25.45	+04	18	48.7	18.5	4 809
1989	SV3	1989	10	03.24097	01	36	24.88	+04	18	42.5		4 809
1989	SV3	1989	10	03.25417	01	36	24.35	+04	18	37.0		4 809
1989	SX3	1989	10	03.22778	01	35	10.13	+06	11	43.7	18.7	4 809
1989	SX3	1989	10	03.24097	01	35	09.40	+06	11	41.3		4 809
1989	SX3	1989	10	03.25417	01	35	08.80	+06	11	38.2		4 809
1989	SY3	1989	10	03.18542	01	35	04.56	+03	15	50.1	18.8	4 809
1989	SY3	1989	10	03.19861	01	35	03.86	+03	15	46.2		4 809
1989	SY3	1989	10	03.21181	01	35	03.10	+03	15	41.7		4 809
1989	SY3	1989	10	03.22778	01	35	02.23	+03	15	38.2	18.7	4 809
1989	SY3	1989	10	03.24097	01	35	01.51	+03	15	33.1		4 809
1989	SY3	1989	10	03.25417	01	35	00.70	+03	15	28.3		4 809
1989	SZ3	1989	10	03.18542	01	35	52.53	+02	42	49.0	18.0	4 809
1989	SZ3	1989	10	03.19861	01	35	51.77	+02	42	43.7		4 809
1989	SZ3	1989	10	03.21181	01	35	51.16	+02	42	40.2		4 809
1989	SZ3	1989	10	03.22778	01	35	50.47	+02	42	38.7	18.6	4 809
1989	SZ3	1989	10	03.24097	01	35	49.80	+02	42	34.5		4 809
1989	SZ3	1989	10	03.25417	01	35	49.14	+02	42	29.8		4 809
1989	SA4	1989	10	03.22778	01	36	11.16	+07	08	58.9	18.5	4 809
1989	SA4	1989	10	03.24097	01	36	10.53	+07	08	55.7		4 809
1989	SA4	1989	10	03.25417	01	36	09.87	+07	08	53.1		4 809
1989	SB4	1989	10	03.18542	01	36	05.66	+02	27	07.5	18.5	4 809
1989	SB4	1989	10	03.19861	01	36	04.95	+02	27	02.3		4 809
1989	SB4	1989	10	03.21181	01	36	04.27	+02	26	56.4		4 809
1989	SC4	1989	10	03.22778	01	37	19.71	+05	02	07.7	18.5	4 809
1989	SC4	1989	10	03.24097	01	37	19.17	+05	02	00.3		4 809
1989	SC4	1989	10	03.25417	01	37	18.69	+05	01	53.2		4 809
1989	SD4	1989	10	03.18542	01	35	37.49	+02	33	10.6	18.6	4 809
1989	SD4	1989	10	03.19861	01	35	36.64	+02	33	10.0		4 809
1989	SD4	1989	10	03.21181	01	35	35.85	+02	33	09.1		4 809
1989	SE4	1989	10	03.22778	01	38	36.27	+04	34	27.5	18.8	4 809
1989	SE4	1989	10	03.24097	01	38	35.75	+04	34	20.4		4 809
1989	SE4	1989	10	03.25417	01	38	35.25	+04	34	12.5		4 809
1989	SF4	1989	10	03.22778	01	37	13.24	+05	40	40.8	19.0	4 809
1989	SF4	1989	10	03.24097	01	37	12.65	+05	40	39.4		4 809
1989	SF4	1989	10	03.25417	01	37	11.97	+05	40	37.2		4 809
1989	SG4	1989	10	03.22778	01	36	43.02	+07	15	30.0	18.3	4 809
1989	SG4	1989	10	03.24097	01	36	42.26	+07	15	29.0		4 809
1989	SG4	1989	10	03.25417	01	36	41.50	+07	15	28.3		4 809
1989	SH4	1989	10	03.22778	01	38	37.71	+05	40	13.3	18.6	4 809
1989	SH4	1989	10	03.24097	01	38	36.97	+05	40	10.0		4 809
1989	SH4	1989	10	03.25417	01	38	36.18	+05	40	07.9		4 809
1989	SK4	1989	10	03.22778	01	41	22.12	+05	37	32.7	18.2	4 809
1989	SK4	1989	10	03.24097	01	41	21.56	+05	37	26.7		4 809
1989	SK4	1989	10	03.25417	01	41	20.99	+05	37	18.7		4 809
1989	SL4	1989	10	03.22778	01	41	38.23	+03	14	50.3	18.4	4 809

1989	SL4	1989	10	03.24097	01	41	37.54	+03	14	46.4		4 809
1989	SL4	1989	10	03.25417	01	41	36.96	+03	14	42.7		4 809
1989	SM4	1989	10	03.22778	01	41	33.11	+06	17	57.1	18.7	4 809
1989	SM4	1989	10	03.24097	01	41	32.52	+06	17	54.4		4 809
1989	SM4	1989	10	03.25417	01	41	31.97	+06	17	51.0		4 809
1989	SN4	1989	10	03.22778	01	41	17.58	+05	48	57.8	18.8	4 809
1989	SN4	1989	10	03.24097	01	41	16.97	+05	48	52.6		4 809
1989	SN4	1989	10	03.25417	01	41	16.41	+05	48	47.1		4 809
1989	SO4	1989	10	03.22778	01	41	03.25	+06	53	43.0	18.8	4 809
1989	SO4	1989	10	03.24097	01	41	02.56	+06	53	40.5		4 809
1989	SO4	1989	10	03.25417	01	41	01.90	+06	53	38.4		4 809
1989	SP4	1989	10	03.22778	01	41	42.74	+05	57	49.8	19.6	4 809
1989	SP4	1989	10	03.24097	01	41	42.04	+05	57	47.3		4 809
1989	SP4	1989	10	03.25417	01	41	41.27	+05	57	47.3		4 809
1989	SQ4	1989	10	03.22778	01	41	46.25	+04	40	54.7	18.7	4 809
1989	SQ4	1989	10	03.24097	01	41	45.53	+04	40	49.3		4 809
1989	SQ4	1989	10	03.25417	01	41	44.65	+04	40	44.5		4 809
1989	SR4	1989	10	03.22778	01	42	23.60	+06	28	31.2	18.7	4 809
1989	SR4	1989	10	03.24097	01	42	22.85	+06	28	29.6		4 809
1989	SR4	1989	10	03.25417	01	42	22.28	+06	28	28.4		4 809
1989	SS4	1989	10	03.22778	01	45	15.16	+06	48	40.9	18.7	4 809
1989	SS4	1989	10	03.24097	01	45	14.83	+06	48	38.2		4 809
1989	SS4	1989	10	03.25417	01	45	14.48	+06	48	34.3		4 809
1989	ST4	1989	10	03.22778	01	43	27.65	+05	48	42.8	18.7	4 809
1989	ST4	1989	10	03.24097	01	43	26.92	+05	48	40.2		4 809
1989	ST4	1989	10	03.25417	01	43	26.23	+05	48	38.0		4 809
1989	SU4	1989	10	03.22778	01	44	20.66	+03	34	04.5	18.6	4 809
1989	SU4	1989	10	03.24097	01	44	19.95	+03	33	58.5		4 809
1989	SU4	1989	10	03.25417	01	44	19.33	+03	33	54.2		4 809
1989	SX4	1989	10	03.22778	01	46	45.00	+04	05	08.7	18.3	4 809
1989	SX4	1989	10	03.24097	01	46	44.48	+04	04	58.4		4 809
1989	SX4	1989	10	03.25417	01	46	43.95	+04	04	48.3		4 809
1989	SY4	1989	10	03.22778	01	45	52.16	+03	58	25.2	18.6	4 809
1989	SY4	1989	10	03.24097	01	45	51.49	+03	58	24.1		4 809
1989	SY4	1989	10	03.25417	01	45	50.78	+03	58	22.6		4 809
1989	SZ4	1989	10	03.22778	01	44	41.15	+06	26	25.8	18.6	4 809
1989	SZ4	1989	10	03.24097	01	44	40.38	+06	26	22.5		4 809
1989	SZ4	1989	10	03.25417	01	44	39.63	+06	26	19.5		4 809
1989	SC5	1989	10	03.22778	01	48	12.02	+06	04	19.5	18.7	4 809
1989	SC5	1989	10	03.24097	01	48	11.50	+06	04	13.0		4 809
1989	SC5	1989	10	03.25417	01	48	11.02	+06	04	04.3		4 809
1989	SD5	1989	10	03.22778	01	47	39.06	+03	39	43.5	18.6	4 809
1989	SD5	1989	10	03.24097	01	47	38.38	+03	39	40.0		4 809
1989	SD5	1989	10	03.25417	01	47	37.76	+03	39	35.2		4 809
1989	SE5	1989	10	03.22778	01	47	54.26	+06	26	47.7	19.5	4 809
1989	SE5	1989	10	03.24097	01	47	53.61	+06	26	42.0		4 809
1989	SE5	1989	10	03.25417	01	47	53.10	+06	26	37.1		4 809
1989	SF5	1989	10	03.22778	01	49	16.61	+05	59	54.6	18.6	4 809
1989	SF5	1989	10	03.24097	01	49	15.86	+05	59	50.1		4 809
1989	SF5	1989	10	03.25417	01	49	15.25	+05	59	47.6		4 809
1989	SG5	1989	10	03.22778	01	49	29.03	+04	40	14.3	18.2	4 809
1989	SG5	1989	10	03.24097	01	49	28.39	+04	40	09.2		4 809
1989	SG5	1989	10	03.25417	01	49	27.76	+04	40	03.8		4 809
1989	SH5	1989	10	03.22778	01	50	32.42	+04	12	42.3	18.7	4 809
1989	SH5	1989	10	03.24097	01	50	31.68	+04	12	37.0		4 809
1989	SH5	1989	10	03.25417	01	50	31.06	+04	12	33.0		4 809
1989	SJ5	1989	10	03.22778	01	49	12.32	+05	29	55.5	18.5	4 809
1989	SJ5	1989	10	03.24097	01	49	11.54	+05	29	53.2		4 809
1989	SJ5	1989	10	03.25417	01	49	10.81	+05	29	50.4		4 809

1989	SQ5		1989	10	03.22778	01	45	21.60	+05	46	17.2	18.8	4 809
1989	SQ5		1989	10	03.24097	01	45	21.18	+05	46	10.9		4 809
1989	SQ5		1989	10	03.25417	01	45	20.48	+05	46	02.4		4 809
1989	SR5		1989	10	03.18542	01	27	09.51	+03	43	55.6	18.8	4 809
1989	SR5		1989	10	03.19861	01	27	08.86	+03	43	52.4		4 809
1989	SR5		1989	10	03.21181	01	27	08.24	+03	43	48.3		4 809
1989	SS5		1989	10	03.18542	01	34	12.86	+04	19	04.4	19.5	4 809
1989	SS5		1989	10	03.19861	01	34	12.14	+04	18	59.0		4 809
1989	SS5		1989	10	03.21181	01	34	11.52	+04	18	53.2		4 809
1989	SS5		1989	10	03.22778	01	34	10.87	+04	18	49.9	18.9	4 809
1989	SS5		1989	10	03.24097	01	34	10.28	+04	18	43.6		4 809
1989	SS5		1989	10	03.25417	01	34	09.57	+04	18	38.7		4 809
1989	SX5		1989	10	03.18542	01	25	30.58	+04	00	13.7	18.4	4 809
1989	SX5		1989	10	03.19861	01	25	29.90	+04	00	08.9		4 809
1989	SX5		1989	10	03.21181	01	25	29.18	+04	00	05.0		4 809
1989	SA6		1989	10	03.18542	01	37	33.24	+01	10	29.1	18.3	4 809
1989	SA6		1989	10	03.19861	01	37	32.69	+01	10	19.7		4 809
1989	SA6		1989	10	03.21181	01	37	32.18	+01	10	10.8		4 809
1989	SC6		1989	10	03.22778	01	44	24.35	+06	14	46.8	19.0	4 809
1989	SC6		1989	10	03.24097	01	44	23.74	+06	14	43.5		4 809
1989	SC6		1989	10	03.25417	01	44	23.12	+06	14	40.1		4 809
1989	SD6		1989	10	03.22778	01	45	18.19	+06	03	11.3	18.8	4 809
1989	SD6		1989	10	03.24097	01	45	17.66	+06	03	05.4		4 809
1989	SD6		1989	10	03.25417	01	45	17.08	+06	02	58.4		4 809
1989	SF6		1989	10	03.22778	01	48	05.70	+07	06	49.3	17.8	4 809
1989	SF6		1989	10	03.24097	01	48	05.07	+07	06	48.1		4 809
1989	SF6		1989	10	03.25417	01	48	04.47	+07	06	46.8		4 809
1989	SG6		1989	10	03.22778	01	47	32.76	+07	04	34.9	18.5	4 809
1989	SG6		1989	10	03.24097	01	47	32.04	+07	04	32.5		4 809
1989	SG6		1989	10	03.25417	01	47	31.21	+07	04	30.3		4 809
1989	SJ6		1989	10	03.22778	01	50	41.34	+04	09	29.1	18.7	4 809
1989	SJ6		1989	10	03.24097	01	50	40.63	+04	09	25.4		4 809
1989	SJ6		1989	10	03.25417	01	50	39.89	+04	09	20.8		4 809
1989	SQ6		1989	10	03.22778	01	35	09.40	+06	16	04.4	19.5	4 809
1989	SQ6		1989	10	03.24097	01	35	08.86	+06	16	02.1		4 809
1989	SQ6		1989	10	03.25417	01	35	08.23	+06	15	57.0		4 809
1989	ST6		1989	10	03.22778	01	45	26.75	+06	16	33.5	19.3	4 809
1989	ST6		1989	10	03.24097	01	45	26.35	+06	16	30.7		4 809
1989	ST6		1989	10	03.25417	01	45	25.96	+06	16	27.9		4 809
1989	SW6		1989	10	03.22778	01	46	57.74	+06	21	05.0	18.7	4 809
1989	SW6		1989	10	03.24097	01	46	57.02	+06	21	01.4		4 809
1989	SW6		1989	10	03.25417	01	46	56.29	+06	20	57.9		4 809
1989	SL8	*	1989	09	23.24167	23	07	39.16	-07	34	42.5	16.8	3 809
1989	SL8		1989	09	23.24688	23	07	38.92	-07	34	43.1		3 809
1989	SL8		1989	09	23.25208	23	07	38.69	-07	34	42.9		3 809
1989	SL8		1989	09	24.06563	23	06	58.45	-07	35	16.7		3 809
1989	SL8		1989	09	24.08021	23	06	57.74	-07	35	17.4		3 809
1989	SL8		1989	09	24.09479	23	06	57.09	-07	35	18.4		3 809
1989	SL8		1989	09	25.01146	23	06	12.23	-07	35	49.3		3 809
1989	SL8		1989	09	25.02604	23	06	11.54	-07	35	49.8		3 809
1989	SL8		1989	09	25.04063	23	06	10.84	-07	35	50.3		3 809
1989	SM8	*	1989	09	23.24167	23	08	56.12	-07	55	41.8	16.8	3 809
1989	SM8		1989	09	23.24688	23	08	55.91	-07	55	42.6		3 809
1989	SM8		1989	09	23.25208	23	08	55.70	-07	55	43.0		3 809
1989	SM8		1989	09	24.06563	23	08	20.39	-07	58	02.4		3 809
1989	SM8		1989	09	24.08021	23	08	19.73	-07	58	04.7		3 809
1989	SM8		1989	09	24.09479	23	08	19.07	-07	58	06.8		3 809
1989	SM8		1989	09	25.01146	23	07	39.81	-08	00	33.3		3 809
1989	SM8		1989	09	25.02604	23	07	39.16	-08	00	35.6		3 809

1989	SM8		1989	09	25.04063	23	07	38.52	-08	00	37.8	3 809
1989	SN8	*	1989	09	24.06563	23	05	34.84	-06	56	19.0	17.3 3 809
1989	SN8		1989	09	24.08021	23	05	34.00	-06	56	19.8	3 809
1989	SN8		1989	09	24.09479	23	05	33.16	-06	56	20.5	3 809
1989	SN8		1989	09	25.01146	23	04	45.70	-06	55	47.2	3 809
1989	SN8		1989	09	25.02604	23	04	44.93	-06	55	47.8	3 809
1989	SN8		1989	09	25.04063	23	04	44.16	-06	55	48.3	3 809
1989	SO8	*	1989	09	25.18993	23	13	32.00	-09	02	21.6	17.2 3 809
1989	SO8		1989	09	25.20451	23	13	31.33	-09	02	24.5	3 809
1989	SO8		1989	09	25.21910	23	13	30.71	-09	02	27.6	3 809
1989	SO8		1989	09	26.08056	23	12	56.18	-09	05	28.7	3 809
1989	SO8		1989	09	26.09306	23	12	55.67	-09	05	30.4	3 809
1989	SO8		1989	09	26.10556	23	12	55.16	-09	05	32.8	3 809
1989	SP8	*	1989	09	25.18993	23	14	13.12	-08	12	21.6	17.8 3 809
1989	SP8		1989	09	25.20451	23	14	12.20	-08	12	23.5	3 809
1989	SP8		1989	09	25.21910	23	14	11.28	-08	12	25.8	3 809
1989	SP8		1989	09	26.08056	23	13	23.09	-08	14	23.8	3 809
1989	SP8		1989	09	26.09306	23	13	22.40	-08	14	25.6	3 809
1989	SP8		1989	09	26.10556	23	13	21.71	-08	14	27.4	3 809
1989	SQ8	*	1989	09	25.18993	23	15	11.68	-09	18	44.4	17.2 3 809
1989	SQ8		1989	09	25.20451	23	15	10.87	-09	18	44.1	3 809
1989	SQ8		1989	09	25.21910	23	15	10.01	-09	18	43.2	3 809
1989	SQ8		1989	09	26.08056	23	14	26.35	-09	18	09.7	3 809
1989	SQ8		1989	09	26.09306	23	14	25.62	-09	18	09.3	3 809
1989	SQ8		1989	09	26.10556	23	14	24.97	-09	18	08.9	3 809
1989	SR8	*	1989	09	25.18993	23	16	42.36	-08	43	49.9	17.0 3 809
1989	SR8		1989	09	25.20451	23	16	41.59	-08	43	50.5	3 809
1989	SR8		1989	09	25.21910	23	16	40.89	-08	43	51.8	3 809
1989	SR8		1989	09	26.08056	23	16	01.53	-08	44	36.9	3 809
1989	SR8		1989	09	26.09306	23	16	00.89	-08	44	37.5	3 809
1989	SR8		1989	09	26.10556	23	16	00.28	-08	44	38.1	3 809
1989	SS8	*	1989	09	25.18993	23	17	42.00	-08	37	01.2	17.4 3 809
1989	SS8		1989	09	25.20451	23	17	41.29	-08	37	04.4	3 809
1989	SS8		1989	09	25.21910	23	17	40.55	-08	37	06.8	3 809
1989	SS8		1989	09	26.08056	23	16	58.57	-08	39	44.7	3 809
1989	SS8		1989	09	26.09306	23	16	57.93	-08	39	46.5	3 809
1989	SS8		1989	09	26.10556	23	16	57.28	-08	39	49.0	3 809
1989	ST8	*	1989	09	25.18993	23	19	11.45	-07	55	45.1	17.6 3 809
1989	ST8		1989	09	25.20451	23	19	10.82	-07	55	51.8	3 809
1989	ST8		1989	09	25.21910	23	19	10.11	-07	55	58.0	3 809
1989	ST8		1989	09	26.08056	23	18	34.63	-08	03	00.7	3 809
1989	ST8		1989	09	26.09306	23	18	34.05	-08	03	07.1	3 809
1989	ST8		1989	09	26.10556	23	18	33.53	-08	03	13.9	3 809
1989	SU8	*	1989	09	25.18993	23	19	50.33	-09	24	03.8	17.0 3 809
1989	SU8		1989	09	25.20451	23	19	49.33	-09	24	10.3	3 809
1989	SU8		1989	09	25.21910	23	19	48.34	-09	24	09.9	3 809
1989	SU8		1989	09	26.08056	23	18	57.52	-09	24	52.6	3 809
1989	SU8		1989	09	26.09306	23	18	56.80	-09	24	53.3	3 809
1989	SU8		1989	09	26.10556	23	18	56.06	-09	24	54.0	3 809
1989	TN		1989	10	03.18542	01	34	52.55	+02	51	28.5	17.8 4 809
1989	TN		1989	10	03.19861	01	34	51.81	+02	51	23.9	4 809
1989	TN		1989	10	03.21181	01	34	51.11	+02	51	20.2	4 809
1989	TN		1989	10	03.22778	01	34	50.45	+02	51	16.3	18.4 4 809
1989	TN		1989	10	03.24097	01	34	49.67	+02	51	12.4	4 809
1989	TN		1989	10	03.25417	01	34	48.88	+02	51	08.3	4 809
1989	TV2		1989	10	03.18542	01	33	58.70	-00	29	59.0	17.5 4 809
1989	TV2		1989	10	03.19861	01	33	57.43	-00	29	50.0	4 809
1989	TV2		1989	10	03.21181	01	33	56.04	-00	29	39.0	4 809
1989	TX2		1989	10	03.18542	01	25	59.46	+03	29	07.4	18.0 4 809

1989	TX2	1989	10	03.19861	01	25	58.88	+03	28	58.3		4 809
1989	TX2	1989	10	03.21181	01	25	58.29	+03	28	49.9		4 809
1989	TY2	1989	10	03.18542	01	27	26.77	+02	34	05.1	18.5	4 809
1989	TY2	1989	10	03.19861	01	27	25.99	+02	34	02.3		4 809
1989	TY2	1989	10	03.21181	01	27	25.36	+02	33	58.7		4 809
1989	TA3	1989	10	03.18542	01	27	14.43	+02	20	34.1	18.7	4 809
1989	TA3	1989	10	03.19861	01	27	13.92	+02	20	30.2		4 809
1989	TA3	1989	10	03.21181	01	27	13.36	+02	20	25.5		4 809
1989	TB3	1989	10	03.18542	01	27	18.48	+04	22	48.8	19.3	4 809
1989	TB3	1989	10	03.19861	01	27	17.93	+04	22	39.9		4 809
1989	TB3	1989	10	03.21181	01	27	17.34	+04	22	31.1		4 809
1989	TC3	1989	10	03.18542	01	27	33.10	+03	04	10.9	18.7	4 809
1989	TC3	1989	10	03.19861	01	27	32.54	+03	04	05.1		4 809
1989	TC3	1989	10	03.21181	01	27	31.92	+03	03	59.6		4 809
1989	TD3	1989	10	03.18542	01	28	21.83	+04	07	18.5	19.3	4 809
1989	TD3	1989	10	03.19861	01	28	21.19	+04	07	14.3		4 809
1989	TD3	1989	10	03.21181	01	28	20.58	+04	07	10.4		4 809
1989	TE3	1989	10	03.18542	01	28	10.07	+04	22	57.2	19.2	4 809
1989	TE3	1989	10	03.19861	01	28	09.41	+04	22	52.7		4 809
1989	TE3	1989	10	03.21181	01	28	08.89	+04	22	48.5		4 809
1989	TF3	1989	10	03.18542	01	29	21.35	+04	19	24.3	18.2	4 809
1989	TF3	1989	10	03.19861	01	29	20.52	+04	19	21.3		4 809
1989	TF3	1989	10	03.21181	01	29	19.75	+04	19	18.7		4 809
1989	TQ3	1989	10	03.18542	01	32	04.98	+00	59	30.4	19.0	4 809
1989	TQ3	1989	10	03.19861	01	32	04.10	+00	59	30.7		4 809
1989	TQ3	1989	10	03.21181	01	32	03.32	+00	59	30.8		4 809
1989	TR3	1989	10	03.18542	01	30	51.33	+02	16	20.2	20.0	4 809
1989	TR3	1989	10	03.19861	01	30	50.76	+02	16	14.9		4 809
1989	TR3	1989	10	03.21181	01	30	50.30	+02	16	09.7		4 809
1989	TV3	1989	10	03.18542	01	34	36.12	+00	38	13.4	18.0	4 809
1989	TV3	1989	10	03.19861	01	34	35.20	+00	38	13.8		4 809
1989	TV3	1989	10	03.21181	01	34	34.33	+00	38	15.6		4 809
1989	TW3	1989	10	03.18542	01	33	46.81	+01	59	33.4	18.7	4 809
1989	TW3	1989	10	03.19861	01	33	46.02	+01	59	26.5		4 809
1989	TW3	1989	10	03.21181	01	33	45.32	+01	59	21.1		4 809
1989	TZ3	1989	10	03.22778	01	34	37.35	+06	01	18.5	19.4	4 809
1989	TZ3	1989	10	03.24097	01	34	36.67	+06	01	14.3		4 809
1989	TZ3	1989	10	03.25417	01	34	35.87	+06	01	11.7		4 809
1989	TA4	1989	10	03.18542	01	34	36.98	+04	29	58.5	19.0	4 809
1989	TA4	1989	10	03.19861	01	34	36.29	+04	29	55.8		4 809
1989	TA4	1989	10	03.21181	01	34	35.59	+04	29	53.8		4 809
1989	TA4	1989	10	03.22778	01	34	34.89	+04	29	52.0	18.8	4 809
1989	TA4	1989	10	03.24097	01	34	34.26	+04	29	49.4		4 809
1989	TA4	1989	10	03.25417	01	34	33.68	+04	29	45.9		4 809
1989	TC4	1989	10	03.22778	01	35	01.17	+05	59	48.5	18.8	4 809
1989	TC4	1989	10	03.24097	01	35	00.50	+05	59	44.2		4 809
1989	TC4	1989	10	03.25417	01	34	59.91	+05	59	39.6		4 809
1989	TD4	1989	10	03.18542	01	35	25.57	+01	56	11.1	18.6	4 809
1989	TD4	1989	10	03.19861	01	35	24.93	+01	56	07.9		4 809
1989	TD4	1989	10	03.21181	01	35	24.20	+01	56	03.8		4 809
1989	TH4	1989	10	03.22778	01	36	17.35	+04	54	24.5	19.2	4 809
1989	TH4	1989	10	03.24097	01	36	16.68	+04	54	19.4		4 809
1989	TH4	1989	10	03.25417	01	36	16.13	+04	54	13.2		4 809
1989	TM4	1989	10	03.22778	01	36	54.41	+04	51	44.8	18.9	4 809
1989	TM4	1989	10	03.24097	01	36	53.84	+04	51	38.3		4 809
1989	TM4	1989	10	03.25417	01	36	53.15	+04	51	30.9		4 809
1989	TN4	1989	10	03.18542	01	37	41.53	+04	01	17.0	18.9	4 809
1989	TN4	1989	10	03.19861	01	37	40.76	+04	01	12.5		4 809
1989	TN4	1989	10	03.21181	01	37	40.04	+04	01	06.8		4 809

1989	TN4	1989	10	03.22778	01	37	39.21	+04	01	05.3		19.3	4 809
1989	TN4	1989	10	03.24097	01	37	38.40	+04	00	59.5			4 809
1989	TN4	1989	10	03.25417	01	37	37.67	+04	00	53.3			4 809
1989	TQ4	1989	10	03.18542	01	38	14.76	+02	32	20.9		20.2	4 809
1989	TQ4	1989	10	03.19861	01	38	13.94	+02	32	17.9			4 809
1989	TQ4	1989	10	03.21181	01	38	13.27	+02	32	15.6			4 809
1989	TQ4	1989	10	03.22778	01	38	12.60	+02	32	17.8		19.6	4 809
1989	TQ4	1989	10	03.24097	01	38	11.92	+02	32	16.7			4 809
1989	TQ4	1989	10	03.25417	01	38	11.23	+02	32	14.2			4 809
1989	TS4	1989	10	03.18542	01	38	31.06	+01	05	27.8		18.5	4 809
1989	TS4	1989	10	03.19861	01	38	30.37	+01	05	27.2			4 809
1989	TS4	1989	10	03.21181	01	38	29.78	+01	05	26.6			4 809
1989	TU4	1989	10	03.18542	01	38	42.37	+02	19	00.9		19.8	4 809
1989	TU4	1989	10	03.19861	01	38	41.68	+02	18	57.5			4 809
1989	TU4	1989	10	03.21181	01	38	41.01	+02	18	53.9			4 809
1989	TU4	1989	10	03.22778	01	38	40.29	+02	18	51.5		19.2	4 809
1989	TU4	1989	10	03.24097	01	38	39.55	+02	18	47.4			4 809
1989	TU4	1989	10	03.25417	01	38	38.93	+02	18	42.8			4 809
1989	TW4	1989	10	03.18542	01	39	27.40	+01	32	09.5		18.7	4 809
1989	TW4	1989	10	03.19861	01	39	26.67	+01	32	08.7			4 809
1989	TW4	1989	10	03.21181	01	39	25.93	+01	32	06.6			4 809
1989	TY4	1989	10	03.22778	01	39	40.46	+03	56	19.6		19.0	4 809
1989	TY4	1989	10	03.24097	01	39	39.72	+03	56	12.0			4 809
1989	TY4	1989	10	03.25417	01	39	38.95	+03	56	06.1			4 809
1989	TB5	1989	10	03.22778	01	40	32.06	+04	11	03.5		18.7	4 809
1989	TB5	1989	10	03.24097	01	40	31.45	+04	10	57.8			4 809
1989	TB5	1989	10	03.25417	01	40	30.93	+04	10	51.9			4 809
1989	TE5	1989	10	03.22778	01	41	40.79	+04	42	54.6		19.5	4 809
1989	TE5	1989	10	03.24097	01	41	40.00	+04	42	49.4			4 809
1989	TE5	1989	10	03.25417	01	41	39.40	+04	42	42.5			4 809
1989	TH5	1989	10	03.22778	01	41	08.97	+03	21	17.1		18.5	4 809
1989	TH5	1989	10	03.24097	01	41	08.52	+03	20	56.8			4 809
1989	TH5	1989	10	03.25417	01	41	08.17	+03	20	41.2			4 809
1989	TM5	1989	10	03.22778	01	42	43.16	+03	53	40.0		18.6	4 809
1989	TM5	1989	10	03.24097	01	42	42.40	+03	53	35.9			4 809
1989	TM5	1989	10	03.25417	01	42	41.67	+03	53	31.4			4 809
1989	TO5	1989	10	03.22778	01	42	45.84	+02	31	50.1		18.5	4 809
1989	TO5	1989	10	03.24097	01	42	45.16	+02	31	46.8			4 809
1989	TO5	1989	10	03.25417	01	42	44.45	+02	31	44.3			4 809
1989	TH6	1989	10	03.18542	01	19	45.42	+01	10	22.3		19.4	4 809
1989	TH6	1989	10	03.19861	01	19	44.63	+01	10	21.4			4 809
1989	TH6	1989	10	03.21181	01	19	43.81	+01	10	19.2			4 809
1989	TK6	1989	10	03.18542	01	19	37.05	+02	16	31.0		19.0	4 809
1989	TK6	1989	10	03.19861	01	19	36.38	+02	16	26.5			4 809
1989	TK6	1989	10	03.21181	01	19	35.58	+02	16	21.7			4 809
1989	TM6	1989	10	03.18542	01	22	19.07	+00	59	15.1		19.8	4 809
1989	TM6	1989	10	03.19861	01	22	18.39	+00	59	11.8			4 809
1989	TM6	1989	10	03.21181	01	22	17.78	+00	59	07.1			4 809
1989	TN6	1989	10	03.18542	01	23	31.68	+01	11	19.1		19.0	4 809
1989	TN6	1989	10	03.19861	01	23	30.96	+01	11	12.1			4 809
1989	TN6	1989	10	03.21181	01	23	30.30	+01	11	05.8			4 809
1989	TP6	1989	10	03.18542	01	23	48.06	+01	24	00.6		19.5	4 809
1989	TP6	1989	10	03.19861	01	23	47.40	+01	23	55.3			4 809
1989	TP6	1989	10	03.21181	01	23	46.59	+01	23	50.6			4 809
1989	TR6	1989	10	03.18542	01	24	02.77	+01	59	23.4		19.7	4 809
1989	TR6	1989	10	03.19861	01	24	02.07	+01	59	19.0			4 809
1989	TR6	1989	10	03.21181	01	24	01.49	+01	59	14.2			4 809
1989	TS6	1989	10	03.18542	01	25	29.75	+01	14	48.9		18.7	4 809
1989	TS6	1989	10	03.19861	01	25	28.91	+01	14	48.2			4 809

1989	TS6	1989	10	03.21181	01	25	28.15	+01	14	49.0		4 809
1989	TW6	1989	10	03.18542	01	27	29.01	+01	09	35.6	20.5	4 809
1989	TW6	1989	10	03.19861	01	27	28.32	+01	09	28.1		4 809
1989	TW6	1989	10	03.21181	01	27	27.69	+01	09	20.7		4 809
1989	TX6	1989	10	03.18542	01	27	45.34	+00	52	27.6	18.6	4 809
1989	TX6	1989	10	03.19861	01	27	44.66	+00	52	23.2		4 809
1989	TX6	1989	10	03.21181	01	27	44.02	+00	52	20.1		4 809
1989	TY6	1989	10	03.18542	01	30	50.80	+00	23	34.7	18.6	4 809
1989	TY6	1989	10	03.19861	01	30	49.98	+00	23	33.2		4 809
1989	TY6	1989	10	03.21181	01	30	49.09	+00	23	33.3		4 809
1989	TZ6	1989	10	03.18542	01	32	27.93	-00	10	46.3	18.9	4 809
1989	TZ6	1989	10	03.19861	01	32	27.10	-00	10	45.6		4 809
1989	TZ6	1989	10	03.21181	01	32	26.18	-00	10	44.2		4 809
1989	TP7	1989	10	03.18542	01	23	18.52	+00	30	36.3	18.7	4 809
1989	TP7	1989	10	03.19861	01	23	17.80	+00	30	30.0		4 809
1989	TP7	1989	10	03.21181	01	23	17.00	+00	30	24.2		4 809
1989	TQ7	1989	10	03.18542	01	23	44.09	-00	07	49.2	19.5	4 809
1989	TQ7	1989	10	03.19861	01	23	43.40	-00	07	54.1		4 809
1989	TQ7	1989	10	03.21181	01	23	42.69	-00	07	57.7		4 809
1989	TR7	1989	10	03.18542	01	24	58.07	-00	36	12.9	20.0	4 809
1989	TR7	1989	10	03.19861	01	24	57.28	-00	36	16.4		4 809
1989	TR7	1989	10	03.21181	01	24	56.63	-00	36	17.5		4 809
1989	TS7	1989	10	03.18542	01	26	42.13	+00	21	41.7	19.2	4 809
1989	TS7	1989	10	03.19861	01	26	41.48	+00	21	37.4		4 809
1989	TS7	1989	10	03.21181	01	26	40.86	+00	21	33.3		4 809
1989	TH8	1989	10	03.18542	01	30	45.09	+02	08	10.2	19.9	4 809
1989	TH8	1989	10	03.19861	01	30	44.41	+02	08	07.8		4 809
1989	TH8	1989	10	03.21181	01	30	43.81	+02	08	06.4		4 809
1989	TL8	1989	10	03.22778	01	41	26.41	+05	08	20.9	19.4	4 809
1989	TL8	1989	10	03.24097	01	41	25.78	+05	08	16.7		4 809
1989	TL8	1989	10	03.25417	01	41	25.19	+05	08	12.3		4 809
1989	TQ8	1989	10	03.22778	01	47	03.66	+03	08	03.7	18.8	4 809
1989	TQ8	1989	10	03.24097	01	47	02.89	+03	07	58.3		4 809
1989	TQ8	1989	10	03.25417	01	47	02.10	+03	07	52.4		4 809
1989	TS8	1989	10	03.22778	01	47	38.44	+04	31	02.4	18.9	4 809
1989	TS8	1989	10	03.24097	01	47	37.60	+04	31	02.6		4 809
1989	TS8	1989	10	03.25417	01	47	36.88	+04	31	02.3		4 809
1989	TW8	1989	10	03.18542	01	30	19.65	+03	45	57.6	19.5	4 809
1989	TW8	1989	10	03.19861	01	30	18.87	+03	45	52.1		4 809
1989	TW8	1989	10	03.21181	01	30	18.05	+03	45	50.1		4 809
1989	TY8	1989	10	03.18542	01	33	07.52	+04	12	21.8	20.0	4 809
1989	TY8	1989	10	03.19861	01	33	06.83	+04	12	17.5		4 809
1989	TY8	1989	10	03.21181	01	33	06.21	+04	12	12.6		4 809
1989	TZ8	1989	10	03.18542	01	34	23.83	+04	09	59.5	18.8	4 809
1989	TZ8	1989	10	03.19861	01	34	23.33	+04	09	56.0		4 809
1989	TZ8	1989	10	03.21181	01	34	22.81	+04	09	52.4		4 809
1989	TA9	1989	10	03.18542	01	38	29.78	+00	34	32.0	19.0	4 809
1989	TA9	1989	10	03.19861	01	38	28.98	+00	34	32.3		4 809
1989	TA9	1989	10	03.21181	01	38	28.13	+00	34	32.6		4 809
1989	TA10	1989	10	03.18542	01	28	43.76	+00	25	27.7	19.6	4 809
1989	TA10	1989	10	03.19861	01	28	42.94	+00	25	22.2		4 809
1989	TA10	1989	10	03.21181	01	28	42.18	+00	25	17.2		4 809
1989	TD10	1989	10	03.18542	01	31	33.88	-00	13	46.3	19.5	4 809
1989	TD10	1989	10	03.19861	01	31	33.15	-00	13	50.7		4 809
1989	TD10	1989	10	03.21181	01	31	32.53	-00	13	53.2		4 809
1989	TC12*	1989	10	03.18542	01	21	13.18	+01	30	25.2	20.0	4 809
1989	TC12	1989	10	03.19861	01	21	12.67	+01	30	22.5		4 809
1989	TC12	1989	10	03.21181	01	21	12.09	+01	30	19.6		4 809
1989	TD12*	1989	10	03.18542	01	22	19.07	+04	09	58.3	19.6	4 809

1989	TD12	1989	10	03.19861	01	22	18.21	+04	09	54.1		4	809
1989	TD12	1989	10	03.21181	01	22	17.38	+04	09	49.4		4	809
1989	TE12*	1989	10	03.18542	01	22	38.99	+04	15	39.3	19.5	4	809
1989	TE12	1989	10	03.19861	01	22	38.43	+04	15	30.1		4	809
1989	TE12	1989	10	03.21181	01	22	37.90	+04	15	19.3		4	809
1989	TF12*	1989	10	03.18542	01	23	35.27	+04	21	10.7	18.2	4	809
1989	TF12	1989	10	03.19861	01	23	34.58	+04	21	03.8		4	809
1989	TF12	1989	10	03.21181	01	23	33.92	+04	20	57.5		4	809
1989	TG12*	1989	10	03.18542	01	25	13.85	+01	05	19.9	18.7	4	809
1989	TG12	1989	10	03.19861	01	25	12.96	+01	05	23.0		4	809
1989	TG12	1989	10	03.21181	01	25	12.17	+01	05	23.7		4	809
1989	TH12*	1989	10	03.18542	01	29	18.92	+03	35	45.2	19.0	4	809
1989	TH12	1989	10	03.19861	01	29	18.18	+03	35	41.2		4	809
1989	TH12	1989	10	03.21181	01	29	17.40	+03	35	34.9		4	809
1989	TJ12*	1989	10	03.18542	01	29	20.81	+04	26	40.1	19.0	4	809
1989	TJ12	1989	10	03.19861	01	29	20.09	+04	26	30.2		4	809
1989	TJ12	1989	10	03.21181	01	29	19.55	+04	26	24.0		4	809
1989	TK12*	1989	10	03.18542	01	32	48.86	+03	15	37.5	19.0	4	809
1989	TK12	1989	10	03.19861	01	32	48.38	+03	15	26.5		4	809
1989	TK12	1989	10	03.21181	01	32	47.82	+03	15	13.9		4	809
1989	TL12*	1989	10	03.18542	01	33	07.69	-00	40	58.3	18.7	4	809
1989	TL12	1989	10	03.19861	01	33	07.11	-00	41	07.1		4	809
1989	TL12	1989	10	03.21181	01	33	06.57	-00	41	15.0		4	809
1989	TM12*	1989	10	03.18542	01	33	30.86	-00	15	03.6	18.8	4	809
1989	TM12	1989	10	03.19861	01	33	30.16	-00	15	06.1		4	809
1989	TM12	1989	10	03.21181	01	33	29.26	-00	15	09.2		4	809
1989	TN12*	1989	10	03.18542	01	34	03.79	-00	36	12.5	18.7	4	809
1989	TN12	1989	10	03.19861	01	34	03.04	-00	36	12.8		4	809
1989	TN12	1989	10	03.21181	01	34	02.30	-00	36	14.1		4	809
1989	TO12*	1989	10	03.18542	01	35	21.56	+00	14	09.3	19.8	4	809
1989	TO12	1989	10	03.19861	01	35	20.90	+00	14	02.4		4	809
1989	TO12	1989	10	03.21181	01	35	20.35	+00	13	57.9		4	809
1989	TP12*	1989	10	03.18542	01	36	15.75	-00	20	37.5	18.5	4	809
1989	TP12	1989	10	03.19861	01	36	15.08	-00	20	43.2		4	809
1989	TP12	1989	10	03.21181	01	36	14.43	-00	20	48.5		4	809
1989	TQ12*	1989	10	03.18542	01	37	32.02	+00	23	45.5	20.0	4	809
1989	TQ12	1989	10	03.19861	01	37	31.26	+00	23	42.9		4	809
1989	TQ12	1989	10	03.21181	01	37	30.62	+00	23	39.5		4	809
1989	TR12*	1989	10	03.18542	01	37	33.52	+00	01	40.2	18.4	4	809
1989	TR12	1989	10	03.19861	01	37	32.79	+00	01	39.9		4	809
1989	TR12	1989	10	03.21181	01	37	32.02	+00	01	38.9		4	809
1989	TS12*	1989	10	03.18542	01	38	25.05	+00	17	26.4	19.0	4	809
1989	TS12	1989	10	03.19861	01	38	24.16	+00	17	21.2		4	809
1989	TS12	1989	10	03.21181	01	38	23.42	+00	17	17.3		4	809
1989	TT12*	1989	10	03.18542	01	38	52.17	+01	48	51.9	18.8	4	809
1989	TT12	1989	10	03.19861	01	38	51.75	+01	48	51.3		4	809
1989	TT12	1989	10	03.21181	01	38	51.25	+01	48	50.8		4	809
1989	TU12*	1989	10	03.22778	01	37	26.88	+07	20	20.2	19.0	4	809
1989	TU12	1989	10	03.24097	01	37	26.30	+07	20	16.0		4	809
1989	TU12	1989	10	03.25417	01	37	25.65	+07	20	13.9		4	809
1989	TV12*	1989	10	03.22778	01	37	44.25	+07	28	57.7	18.5	4	809
1989	TV12	1989	10	03.24097	01	37	43.59	+07	28	55.2		4	809
1989	TV12	1989	10	03.25417	01	37	42.89	+07	28	53.1		4	809
1989	TW12*	1989	10	03.22778	01	40	37.77	+03	32	57.8	19.6	4	809
1989	TW12	1989	10	03.24097	01	40	36.59	+03	32	52.4		4	809
1989	TW12	1989	10	03.25417	01	40	35.54	+03	32	47.0		4	809
1989	TX12*	1989	10	03.22778	01	40	44.97	+03	16	28.7	20.5	4	809
1989	TX12	1989	10	03.24097	01	40	44.21	+03	16	24.5		4	809
1989	TX12	1989	10	03.25417	01	40	43.58	+03	16	18.4		4	809

1989	TY12*	1989	10	03.22778	01	42	34.73	+07	18	16.1	18.7	4 809
1989	TY12	1989	10	03.24097	01	42	34.23	+07	18	12.7		4 809
1989	TY12	1989	10	03.25417	01	42	33.64	+07	18	07.9		4 809
1989	TZ12*	1989	10	03.22778	01	43	16.31	+02	51	20.8	19.3	4 809
1989	TZ12	1989	10	03.24097	01	43	15.60	+02	51	08.8		4 809
1989	TZ12	1989	10	03.25417	01	43	14.96	+02	50	57.7		4 809
1989	TA13*	1989	10	03.22778	01	44	37.09	+06	48	26.2	18.9	4 809
1989	TA13	1989	10	03.24097	01	44	36.43	+06	48	17.6		4 809
1989	TA13	1989	10	03.25417	01	44	35.93	+06	48	11.3		4 809
1989	TB13*	1989	10	03.22778	01	44	55.22	+07	20	47.2	19.3	4 809
1989	TB13	1989	10	03.24097	01	44	54.65	+07	20	41.6		4 809
1989	TB13	1989	10	03.25417	01	44	53.99	+07	20	35.2		4 809
1989	TC13*	1989	10	03.22778	01	45	58.77	+07	20	20.8	19.0	4 809
1989	TC13	1989	10	03.24097	01	45	58.22	+07	20	18.4		4 809
1989	TC13	1989	10	03.25417	01	45	57.73	+07	20	14.8		4 809
1989	TD13*	1989	10	03.22778	01	47	21.83	+03	51	30.0	19.6	4 809
1989	TD13	1989	10	03.24097	01	47	21.25	+03	51	25.0		4 809
1989	TD13	1989	10	03.25417	01	47	20.64	+03	51	19.2		4 809
1989	TE13*	1989	10	03.22778	01	48	35.89	+07	05	16.7	19.4	4 809
1989	TE13	1989	10	03.24097	01	48	35.28	+07	05	14.5		4 809
1989	TE13	1989	10	03.25417	01	48	34.74	+07	05	10.7		4 809
1989	TF13*	1989	10	03.22778	01	49	21.89	+06	51	57.9	18.6	4 809
1989	TF13	1989	10	03.24097	01	49	21.24	+06	51	54.3		4 809
1989	TF13	1989	10	03.25417	01	49	20.50	+06	51	51.4		4 809
1989	TG13*	1989	10	03.22778	01	49	22.04	+04	41	40.7	20.0	4 809
1989	TG13	1989	10	03.24097	01	49	21.44	+04	41	36.7		4 809
1989	TG13	1989	10	03.25417	01	49	20.80	+04	41	32.6		4 809
1989	TH13*	1989	10	03.22778	01	49	40.68	+02	45	56.9	19.8	4 809
1989	TH13	1989	10	03.24097	01	49	39.87	+02	45	50.9		4 809
1989	TH13	1989	10	03.25417	01	49	39.12	+02	45	47.0		4 809
1989	TJ13*	1989	10	03.22778	01	49	49.40	+04	02	11.1	20.0	4 809
1989	TJ13	1989	10	03.24097	01	49	48.77	+04	02	06.7		4 809
1989	TJ13	1989	10	03.25417	01	49	48.10	+04	02	03.9		4 809
1989	TK13*	1989	10	03.22778	01	50	44.52	+07	11	22.8	19.2	4 809
1989	TK13	1989	10	03.24097	01	50	44.01	+07	11	19.3		4 809
1989	TK13	1989	10	03.25417	01	50	43.52	+07	11	17.0		4 809
1989	TL13*	1989	10	03.22778	01	50	48.07	+03	57	52.0	18.8	4 809
1989	TL13	1989	10	03.24097	01	50	47.33	+03	57	55.2		4 809
1989	TL13	1989	10	03.25417	01	50	46.48	+03	58	00.1		4 809
1989	TM13*	1989	10	03.22778	01	51	27.47	+03	36	17.0	19.0	4 809
1989	TM13	1989	10	03.24097	01	51	26.80	+03	36	11.3		4 809
1989	TM13	1989	10	03.25417	01	51	26.21	+03	36	04.5		4 809
1989	TN13*	1989	10	03.22778	01	51	41.24	+06	20	36.6	18.7	4 809
1989	TN13	1989	10	03.24097	01	51	40.56	+06	20	32.9		4 809
1989	TN13	1989	10	03.25417	01	51	39.86	+06	20	29.3		4 809
1989	TO13*	1989	10	03.22778	01	51	45.23	+03	48	01.0	18.2	4 809
1989	TO13	1989	10	03.24097	01	51	44.64	+03	47	56.4		4 809
1989	TO13	1989	10	03.25417	01	51	44.00	+03	47	51.5		4 809
1989	TP13*	1989	10	03.22778	01	52	02.65	+05	54	57.2	19.7	4 809
1989	TP13	1989	10	03.24097	01	52	01.89	+05	54	54.8		4 809
1989	TP13	1989	10	03.25417	01	52	01.25	+05	54	52.0		4 809
1989	TQ13*	1989	10	03.22778	01	52	52.92	+03	15	12.8	18.4	4 809
1989	TQ13	1989	10	03.24097	01	52	52.34	+03	15	14.0		4 809
1989	TQ13	1989	10	03.25417	01	52	51.78	+03	15	15.5		4 809
1989	TR13*	1989	10	03.22778	01	53	26.35	+05	02	49.3	18.7	4 809
1989	TR13	1989	10	03.24097	01	53	25.73	+05	02	43.5		4 809
1989	TR13	1989	10	03.25417	01	53	25.10	+05	02	36.7		4 809
1989	TS13*	1989	10	03.22778	01	53	30.49	+06	11	59.4	18.1	4 809
1989	TS13	1989	10	03.24097	01	53	29.97	+06	11	55.4		4 809

1989	TS13	1989	10	03.25417	01	53	29.46	+06	11	52.1		4 809
1989	TU13*	1989	10	02.00451	22	41	53.71	-13	14	20.2	17.4	3 809
1989	TU13	1989	10	02.01701	22	41	53.38	-13	14	24.0		3 809
1989	TU13	1989	10	02.02951	22	41	53.04	-13	14	28.0		3 809
1989	TU13	1989	10	02.99653	22	41	29.57	-13	19	24.0		3 809
1989	TU13	1989	10	03.00903	22	41	29.25	-13	19	28.3		3 809
1989	TU13	1989	10	03.02153	22	41	28.93	-13	19	32.7		3 809
1989	TV13*	1989	10	02.00451	22	43	51.73	-12	08	49.7	16.8	3 809
1989	TV13	1989	10	02.01701	22	43	51.32	-12	08	50.4		3 809
1989	TV13	1989	10	02.02951	22	43	50.92	-12	08	50.6		3 809
1989	TV13	1989	10	02.99653	22	43	20.40	-12	09	14.8		3 809
1989	TV13	1989	10	03.00903	22	43	20.00	-12	09	15.1		3 809
1989	TV13	1989	10	03.02153	22	43	19.58	-12	09	15.4		3 809
1989	TV13	1989	10	04.02778	22	42	49.13	-12	09	31.4		3 809
1989	TV13	1989	10	04.03750	22	42	48.85	-12	09	31.8		3 809
1989	TV13	1989	10	04.04722	22	42	48.57	-12	09	32.1		3 809
1989	TW13*	1989	10	02.00451	22	47	25.66	-12	02	47.5	17.2	3 809
1989	TW13	1989	10	02.01701	22	47	25.12	-12	02	47.7		3 809
1989	TW13	1989	10	02.02951	22	47	24.58	-12	02	48.0		3 809
1989	TW13	1989	10	02.99653	22	46	44.23	-12	03	02.0		3 809
1989	TW13	1989	10	03.00903	22	46	43.70	-12	03	02.5		3 809
1989	TW13	1989	10	03.02153	22	46	43.21	-12	03	02.8		3 809
1989	TX13*	1989	10	02.04375	22	45	27.92	-11	34	23.5	16.8	3 809
1989	TX13	1989	10	02.05625	22	45	27.55	-11	34	26.8		3 809
1989	TX13	1989	10	02.06875	22	45	27.16	-11	34	29.8		3 809
1989	TX13	1989	10	03.03542	22	44	59.82	-11	38	16.1		3 809
1989	TX13	1989	10	03.04792	22	44	59.48	-11	38	19.1		3 809
1989	TX13	1989	10	03.06416	22	44	59.15	-11	38	22.1		3 809
1989	TY13*	1989	10	02.04375	22	45	58.49	-10	54	40.8	17.2	3 809
1989	TY13	1989	10	02.05625	22	45	57.89	-10	54	38.1		3 809
1989	TY13	1989	10	02.06875	22	45	57.32	-10	54	35.4		3 809
1989	TY13	1989	10	03.03542	22	45	15.03	-10	51	07.0		3 809
1989	TY13	1989	10	03.04792	22	45	14.49	-10	51	04.3		3 809
1989	TY13	1989	10	03.06416	22	45	14.00	-10	51	01.7		3 809
1989	TZ13*	1989	10	02.04375	22	48	31.16	-10	41	46.9	17.0	3 809
1989	TZ13	1989	10	02.05625	22	48	30.60	-10	41	45.5		3 809
1989	TZ13	1989	10	02.06875	22	48	30.22	-10	41	44.1		3 809
1989	TZ13	1989	10	06.99375	22	46	15.38	-10	28	21.4		3 809
1989	TZ13	1989	10	07.00347	22	46	15.16	-10	28	19.5		3 809
1989	TZ13	1989	10	07.01319	22	46	14.93	-10	28	17.6		3 809
1989	TZ13	1989	10	07.99861	22	45	54.03	-10	25	04.9		3 809
1989	TZ13	1989	10	08.00833	22	45	53.83	-10	25	02.9		3 809
1989	TZ13	1989	10	08.01806	22	45	53.63	-10	25	00.5		3 809
1989	TA14*	1989	10	03.03542	22	40	11.10	-11	40	15.4	16.9	3 809
1989	TA14	1989	10	03.04792	22	40	10.72	-11	40	15.1		3 809
1989	TA14	1989	10	03.06416	22	40	10.20	-11	40	14.7		3 809
1989	TA14	1989	10	04.02778	22	39	37.81	-11	39	15.5		3 809
1989	TA14	1989	10	04.03750	22	39	37.37	-11	39	14.2		3 809
1989	TA14	1989	10	04.04722	22	39	37.04	-11	39	13.9		3 809
1989	TB14*	1989	10	01.21684	00	49	07.36	+05	07	20.94	18.0V	7 809
1989	TB14	1989	10	01.24222	00	49	05.70	+05	07	15.20		7 809
1989	TB14	1989	10	01.26959	00	49	03.99	+05	07	09.87		7 809
1989	TB14	1989	10	01.30631	00	49	01.55	+05	07	02.36		7 809
1989	TB14	1989	10	01.34530	00	48	59.19	+05	06	52.14		7 809
5565	P-L	1989	10	03.18542	01	21	26.32	+03	06	50.0	17.5	4 809
5565	P-L	1989	10	03.19861	01	21	25.48	+03	06	49.6		4 809
5565	P-L	1989	10	03.21181	01	21	24.58	+03	06	49.4		4 809
3306	T-2	1989	10	03.22778	01	34	35.13	+06	31	30.4	18.8	4 809
3306	T-2	1989	10	03.24097	01	34	34.39	+06	31	29.3		4 809

3306	T-2	1989	10	03.25417	01	34	33.57	+06	31	27.1		4 809
4094	T-3	1989	10	03.22778	01	45	45.69	+05	00	57.9	18.9	4 809
4094	T-3	1989	10	03.24097	01	45	45.00	+05	00	54.4		4 809
4094	T-3	1989	10	03.25417	01	45	44.22	+05	00	52.2		4 809
4271	T-3	1989	10	03.22778	01	41	36.33	+02	19	23.6	18.3	4 809
4271	T-3	1989	10	03.24097	01	41	35.86	+02	19	21.7		4 809
4271	T-3	1989	10	03.25417	01	41	35.47	+02	19	19.8		4 809
422		1989	10	04.02778	22	37	11.70	-11	24	32.4		3 809
422		1989	10	04.03750	22	37	11.36	-11	24	28.9		3 809
422		1989	10	04.04722	22	37	11.13	-11	24	25.8		3 809
526		1989	10	02.04375	22	42	41.60	-09	43	04.6		3 809
526		1989	10	02.05625	22	42	41.20	-09	43	07.1		3 809
526		1989	10	02.06875	22	42	40.79	-09	43	09.4		3 809
526		1989	10	06.99375	22	40	16.73	-09	58	05.5		3 809
526		1989	10	07.00347	22	40	16.46	-09	58	06.6		3 809
526		1989	10	07.01319	22	40	16.24	-09	58	08.4		3 809
526		1989	10	07.99861	22	39	50.15	-10	00	48.1		3 809
526		1989	10	08.00833	22	39	49.89	-10	00	49.9		3 809
526		1989	10	08.01806	22	39	49.63	-10	00	51.6		3 809
833		1989	09	23.24167	23	05	23.45	-06	35	36.0		3 809
833		1989	09	23.24688	23	05	23.23	-06	35	36.2		3 809
833		1989	09	23.25208	23	05	23.01	-06	35	36.4		3 809
833		1989	09	24.06563	23	04	43.53	-06	36	28.4		3 809
833		1989	09	24.08021	23	04	42.82	-06	36	29.3		3 809
833		1989	09	24.09479	23	04	42.08	-06	36	30.1		3 809
833		1989	09	25.01146	23	03	58.00	-06	37	24.6		3 809
833		1989	09	25.02604	23	03	57.31	-06	37	25.7		3 809
833		1989	09	25.04063	23	03	56.61	-06	37	26.6		3 809
1423		1989	10	02.00451	22	46	22.00	-12	16	23.1		3 809
1423		1989	10	02.01701	22	46	21.58	-12	16	24.3		3 809
1423		1989	10	02.02951	22	46	21.16	-12	16	25.8		3 809
1423		1989	10	02.99653	22	45	50.04	-12	18	08.0		3 809
1423		1989	10	03.00903	22	45	49.62	-12	18	09.5		3 809
1423		1989	10	03.02153	22	45	49.20	-12	18	11.0		3 809
1517		1989	10	03.18542	01	18	54.83	+01	35	51.7	16.5	4 809
1517		1989	10	03.19861	01	18	54.08	+01	35	47.9		4 809
1517		1989	10	03.21181	01	18	53.36	+01	35	44.7		4 809
2031		1989	10	03.18542	01	19	19.29	+03	38	26.4	16.0	4 809
2031		1989	10	03.19861	01	19	18.66	+03	38	18.8		4 809
2031		1989	10	03.21181	01	19	18.00	+03	38	11.4		4 809
2249		1989	10	02.04375	22	48	56.70	-09	46	29.5		3 809
2249		1989	10	02.05625	22	48	56.34	-09	46	32.0		3 809
2249		1989	10	02.06875	22	48	56.01	-09	46	35.2		3 809
2297		1989	10	06.99375	22	39	06.63	-09	37	14.8		3 809
2297		1989	10	07.00347	22	39	06.39	-09	37	16.1		3 809
2297		1989	10	07.01319	22	39	06.18	-09	37	17.4		3 809
2297		1989	10	07.99861	22	38	42.80	-09	39	42.4		3 809
2297		1989	10	08.00833	22	38	42.58	-09	39	44.2		3 809
2297		1989	10	08.01806	22	38	42.38	-09	39	45.5		3 809
2410		1989	10	03.22778	01	35	57.74	+05	48	25.6	17.2	4 809
2410		1989	10	03.24097	01	35	56.97	+05	48	20.2		4 809
2410		1989	10	03.25417	01	35	56.23	+05	48	15.3		4 809
2560		1989	10	03.18542	01	37	29.80	+02	26	49.1	17.6	4 809
2560		1989	10	03.19861	01	37	29.22	+02	26	43.8		4 809
2560		1989	10	03.21181	01	37	28.57	+02	26	38.6		4 809
2560		1989	10	03.22778	01	37	28.00	+02	26	37.1	17.9	4 809
2560		1989	10	03.24097	01	37	27.37	+02	26	31.8		4 809
2560		1989	10	03.25417	01	37	26.77	+02	26	26.6		4 809

2779	1989	10	03.22778	01	49	28.51	+05	07	40.6	17.9	4 809
2779	1989	10	03.24097	01	49	27.79	+05	07	36.5		4 809
2779	1989	10	03.25417	01	49	27.07	+05	07	32.7		4 809
2879	1989	10	02.00451	22	47	40.66	-12	52	55.9		3 809
2879	1989	10	02.01701	22	47	40.25	-12	52	58.7		3 809
2879	1989	10	02.02951	22	47	39.84	-12	53	01.5		3 809
2879	1989	10	02.99653	22	47	08.56	-12	57	40.4		3 809
2879	1989	10	03.00347	22	47	08.16	-12	57	43.8		3 809
2879	1989	10	03.01319	22	47	07.77	-12	57	46.9		3 809
3174	1989	09	25.18993	23	13	02.54	-08	47	18.3		3 809
3174	1989	09	25.20451	23	13	01.84	-08	47	21.9		3 809
3174	1989	09	25.21910	23	13	01.18	-08	47	25.1		3 809
3189	1989	10	03.22778	01	51	35.95	+05	51	31.2	18.3	4 809
3189	1989	10	03.24097	01	51	35.45	+05	51	25.7		4 809
3189	1989	10	03.25417	01	51	34.94	+05	51	19.8		4 809
3650	1989	10	03.18542	01	28	50.57	-00	11	03.0	17.2	4 809
3650	1989	10	03.19861	01	28	49.80	-00	11	03.6		4 809
3650	1989	10	03.21181	01	28	49.01	-00	11	03.8		4 809
3831	1989	10	02.00451	22	45	59.98	-11	41	12.1		3 809
3831	1989	10	02.01701	22	45	59.74	-11	41	14.8		3 809
3831	1989	10	02.02951	22	45	59.50	-11	41	17.8		3 809
3831	1989	10	02.04375	22	45	59.25	-11	41	21.0		3 809
3831	1989	10	02.05625	22	45	59.03	-11	41	24.3		3 809
3831	1989	10	02.06875	22	45	58.79	-11	41	27.5		3 809
3831	1989	10	02.99653	22	45	42.88	-11	45	09.9		3 809
3831	1989	10	03.00903	22	45	42.64	-11	45	13.2		3 809
3831	1989	10	03.02153	22	45	42.40	-11	45	16.3		3 809
3831	1989	10	03.03542	22	45	42.23	-11	45	19.1		3 809
3831	1989	10	03.04792	22	45	42.02	-11	45	22.2		3 809
3831	1989	10	03.06416	22	45	41.77	-11	45	24.6		3 809
4197	1989	10	01.21684	00	49	11.19	+05	08	16.36	14.7V	7 809
4197	1989	10	01.24222	00	49	06.83	+05	08	15.15		7 809
4197	1989	10	01.26959	00	49	02.14	+05	08	14.83		7 809
4197	1989	10	01.30631	00	48	55.74	+05	08	13.84		7 809
4197	1989	10	01.34530	00	48	49.00	+05	08	12.98		7 809
4265	1989	10	03.18542	01	33	17.88	+00	54	05.3	16.5	4 809
4265	1989	10	03.19861	01	33	17.25	+00	54	00.4		4 809
4265	1989	10	03.21181	01	33	16.65	+00	53	54.5		4 809
4273	1989	10	03.18542	01	19	49.77	+01	57	09.1	16.5	4 809
4273	1989	10	03.19861	01	19	49.14	+01	57	04.0		4 809
4273	1989	10	03.21181	01	19	48.48	+01	56	59.0		4 809

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

1985 VF1	1990	01	26.60833	08	02	06.58	+19	15	33.9	16.0	871
1985 VF1	1990	01	27.59270	08	01	05.82	+19	17	55.2	16.0	871
1985 VF1	1990	01	27.61006	08	01	04.91	+19	17	58.6		871
1989 YM	1990	01	25.59895	07	56	39.36	+19	51	15.4	16.0	871
1989 YM	1990	01	25.61631	07	56	38.03	+19	51	11.9		871

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

1990 BD1 *	1990	01	24.58819	09	29	51.94	+17	51	13.4	17	875
1990 BD1	1990	01	25.64375	09	28	57.74	+17	57	41.8	17	875

877 Okutama
S. Hayakawa, 1-31-33, Nagano, Gyoda-Shi, Saitama-Ken, 361 Japan
Observers T. Hioki, S. Hayakawa
Measurer S. Hayakawa
0.30-m f/3.8 hyperboloid astrocamera

1990 BT	1990 01 27.76013	08 42 59.89	+23 25 23.5					877
1990 BT	1990 01 27.81059	08 42 56.12	+23 25 18.9					877
1990 BV	1990 01 27.82538	08 44 46.26	+27 37 13.0					877
1990 BV	1990 01 27.84135	08 44 45.00	+27 37 19.0					877
4384	1990 01 27.58958	06 49 33.83	+31 56 07.1					877
4384	1990 01 27.61302	06 49 32.69	+31 56 00.1					877

881 Toyota
T. Urata, 6-1, Muramatsuhara 1 Chome, Shimizu, Shizuoka-Ken 424, Japan
Observers K. Suzuki, T. Urata
Measurer T. Urata
0.31-m f/5.7 reflector
AGK3

1990 BB	1990 02 20.57083	07 38 11.52	+14 09 12.3			17		881
1990 DA	1990 02 20.53681	08 29 55.71	+20 34 56.1			13	t	881
1990 DA	1990 02 20.55417	08 29 56.65	+20 35 58.9				t	881

886 Susono
T. Furuta, 17-2 Mitsuike, Kagiya, Tokai 477, Japan
Observers M. Akiyama, T. Furuta
Measurer T. Furuta

1985 RD4	1990 01 21.58524	08 30 45.50	+23 55 03.8					886
1985 RD4	1990 01 21.59670	08 30 44.60	+23 55 04.2					886
1990 AD	1990 01 18.60313	07 30 39.75	+27 19 40.1					886
1990 AD	1990 01 18.61597	07 30 39.12	+27 19 46.2					886
1990 AD	1990 01 21.49063	07 28 02.20	+27 39 23.2					886
1990 AD	1990 01 21.50313	07 28 01.39	+27 39 26.8					886

887 Ojima
T. Urata, 6-1, Muramatsuhara 1 Chome, Shimizu, Shizuoka-Ken 424, Japan
Observers T. Niijima, T. Urata
Measurer T. Urata
0.30-m f/5.8 reflector
AGK3

1978 SH1	1990 02 20.63877	11 12 44.57	+20 35 19.1			16		887
1978 SH1	1990 02 20.65243	11 12 43.85	+20 35 20.3					887
1989 YY	1990 01 24.56285	08 18 44.72	+20 50 36.9			17		887
1989 YY	1990 01 24.57350	08 18 44.20	+20 50 36.3					887
1989 YY	1990 01 25.60833	08 17 37.3	+20 56 03			17.5	V	887
1989 YY	1990 01 25.61771	08 17 36.7	+20 56 01				V	887
1989 YH1	1990 01 27.66169	08 17 39.71	+20 43 17.8			16		887
1989 YH1	1990 01 27.69410	08 17 37.71	+20 43 19.3					887
1989 YH1	1990 02 17.55266	07 58 39.90	+21 16 15.3			17	F	887
1989 YH1	1990 02 17.57523	07 58 38.79	+21 16 15.0				F	887
1990 AF	1990 01 24.60301	08 15 10.90	+22 25 02.3			16		887
1990 AF	1990 01 24.61910	08 15 09.90	+22 25 06.9					887
1990 AF	1990 01 27.63032	08 11 47.74	+22 39 26.8			16.5		887
1990 AF	1990 01 27.64491	08 11 46.68	+22 39 31.0					887
1990 BQ	1990 01 25.60833	08 16 00.17	+21 26 24.3			17		887
1990 BQ	1990 01 25.61771	08 15 59.59	+21 26 28.5					887
1990 DA	1990 02 20.59242	08 29 58.71	+20 38 09.0					887
1990 DA	1990 02 20.59618	08 29 58.95	+20 38 22.7					887
2400 T-3	1990 01 25.60833	08 16 25.43	+21 16 30.6			17		887
2400 T-3	1990 01 25.61771	08 16 24.64	+21 16 30.9					887

888 Gekko
Y. Oshima, Gekko Observatory, Kan-nami, Shizuoka 419-01, Japan
Observer Y. Oshima
0.16-m Hyperboloid Astro Camera, 0.50-m f/4.0 reflector

1976 GL3	1990 01 24.68750	09 16 14.02	+15 55 15.0		17.0		888
1976 GL3	1990 01 24.73194	09 16 11.77	+15 55 26.8				888
1977 QW2	1989 12 30.67465	06 45 30.40	+14 52 17.7		18.5		888
1978 RX5	1989 12 21.65174	05 57 25.40	+31 46 55.0		18.0		888
1978 RX5	1989 12 30.56632	05 46 22.76	+31 51 10.0		18.0		888
1978 RX5	1989 12 30.60312	05 46 20.02	+31 51 09.7				888
1980 FY4	1989 12 29.71319	07 42 06.70	+12 54 17.7		19.0		888
1980 FY4	1989 12 29.76389	07 42 03.34	+12 54 23.5				888
1981 JH	1989 12 29.69965	07 49 15.76	+26 19 56.5		18.0		888
1981 JH	1989 12 29.75035	07 49 12.40	+26 20 08.5				888
1987 EA	1989 12 21.59306	06 02 53.95	+28 05 02.9		17.5		888
1987 EA	1989 12 21.62639	06 02 51.40	+28 05 05.5				888
1987 EA	1989 12 30.55625	05 51 49.01	+28 11 48.8		17.0		888
1987 EA	1990 01 04.63819	05 45 53.36	+28 12 00.3		17.0		888
1987 EA	1990 01 04.68611	05 45 50.08	+28 11 58.9				888
1988 TP1	1989 12 29.72674	08 15 48.85	+20 54 31.6		17.5		888
1988 TP1	1989 12 29.77743	08 15 46.46	+20 54 40.9				888
1988 TP1	1990 01 05.70694	08 10 17.47	+21 16 14.7		17.5		888
1988 TP1	1990 01 05.74375	08 10 15.60	+21 16 21.7				888
1988 TP1	1990 01 25.58299	07 52 23.41	+22 17 13.4		17.0		888
1988 TP1	1990 01 25.63021	07 52 20.79	+22 17 21.3				888
1989 WB3	1989 12 20.61597	04 06 07.00	+21 57 19.3		18.0		888
1989 WB3	1989 12 20.64931	04 06 05.16	+21 57 24.2				888
2535 P-L	1989 12 30.65104	07 33 04.13	+20 13 44.9		18.0		888
2535 P-L	1989 12 30.69479	07 33 01.87	+20 13 50.5				888
2535 P-L	1990 01 25.55937	07 11 12.98	+21 09 40.6		18.0		888
2535 P-L	1990 01 25.60660	07 11 10.82	+21 09 46.1				888
4153 P-L	1989 12 21.57639	04 50 44.09	+36 59 20.6		17.5		888
4153 P-L	1989 12 21.60972	04 50 41.67	+36 59 13.4				888
4153 P-L	1989 12 30.53958	04 41 38.89	+36 18 57.9		17.5		888
4153 P-L	1989 12 30.57639	04 41 36.79	+36 18 45.6				888
658	1990 01 25.58299	07 52 34.78	+22 47 32.5		15		888
658	1990 01 25.63021	07 52 32.05	+22 47 37.6				888
3917	1990 01 24.68750	09 14 31.94	+15 34 13.1		17.0		888
3917	1990 01 24.73194	09 14 29.25	+15 34 27.4				888

889 Karasuyama
T. Urata, 6-1, Muramatsubara 1 Chome, Shimizu, Shizuoka-Ken 424, Japan
Observer S. Inoda
Measurers T. Urata
0.30-m f/5.0 reflector

1985 TC	1990 01 25.56763	09 03 11.98	+11 50 46.0		17		889
1985 TC	1990 01 25.60530	09 03 09.53	+11 50 56.6				889
1985 TC	1990 01 25.62909	09 03 08.07	+11 51 00.8				889
1990 BB	1990 01 25.55341	07 58 49.10	+14 54 51.0		16		889
1990 BB	1990 01 25.58204	07 58 47.55	+14 54 46.3				889
1990 BR1	1990 01 25.56763	09 05 08.26	+11 11 27.5		16		889
1990 BR1	1990 01 25.60530	09 05 06.16	+11 11 49.5				889
1990 BR1	1990 01 25.62909	09 05 05.12	+11 12 01.4				889
1636	1990 01 25.56763	09 02 42.32	+11 41 58.1		15		889
1636	1990 01 25.60530	09 02 40.00	+11 42 12.4				889
1636	1990 01 25.62909	09 02 38.56	+11 42 19.6				889

896 Yatsugatake South Base Observatory
O. Muramatsu, 119-1, 2-8 Sakurazutsumi, Musashino, Tokyo 180, Japan

Observers R. Kushida, Y. Kushida, O. Muramatsu, S. Izumikawa
Measurer O. Muramatsu
0.20-m f/4.0 reflector

1989 YK		1990 01 24.58438	06	40	28.83	+18	37	38.5		896
1990 BK		1990 01 26.60590	08	51	19.1	+20	32	29	w	896
1990 BK		1990 01 26.63021	08	51	17.77	+20	32	34.9		896
1990 BY	*	1990 01 21.58194	09	14	18.14	+20	06	35.3	16.0	896
1990 BY		1990 01 21.61736	09	14	16.24	+20	06	49.7		896
1990 BY		1990 01 24.65660	09	11	29.3	+20	27	35	E	896
1990 BY		1990 01 24.68646	09	11	27.5	+20	27	49	E	896
1990 BY		1990 01 25.64826	09	10	33.03	+20	34	19.3		896

* * * * *

ORBITAL ELEMENTS.

Orbital elements have been computed by the following contributors:

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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 Helin-Roman (1989s)
T 1989 Aug. 20.29104 ET Marsden
q 1.3245017 (1950.0) P Q
Peri. 154.90425 +0.76305189 -0.18068453
Node 127.90731 -0.64061971 -0.33885102
e 1.0 Incl. 128.13859 +0.08577997 -0.92332718
From 17 observations 1989 Sept. 5-Oct. 24.

Comet Austin (1989c1)
Epoch 1990 Apr. 19.0 ET = JDE 2448000.5
T 1990 Apr. 9.97610 ET Marsden
q 0.3499571 (1950.0) P Q
z -0.0010851 Peri. 61.55465 -0.31680629 -0.46188735
+/-0.0001564 Node 75.21319 +0.22893414 -0.88483155
e 1.0003797 Incl. 58.95961 +0.92044714 +0.06110001
From 35 observations 1989 Dec. 6-1990 Feb. 19, mean residual 0".8.

Periodic Comet Wild 4 (1990a)
T 1990 July 2.47602 ET Nakano
q 1.9876289 (1950.0) P Q
n 0.15999383 Peri. 170.53035 -0.97811525 +0.20671114
a 3.3604741 Node 21.44371 -0.19487612 -0.87027722
e 0.4085272 Incl. 3.71488 -0.07289626 -0.44708843
P 6.16
From 56 observations 1990 Jan. 21-Feb. 21.

One-opposition minor planets

Planet	H	Epoch	M	Peri.	Node	Incl.	e	a	Arc	O	N	C
1988 RU9	14.0	880916	300.34	242.16	167.08	16.07	0.0388	3.0908	7	5	D	N
1989 GH3	15.0	890404	30.43	299.36	216.73	7.48	0.1361	2.3793	9	9	D	N
1989 PT	14.0	890911	34.34	156.14	144.92	6.35	0.1234	2.2838	55	0		N
1989 QO	14.0	890911	288.40	307.66	107.39	24.15	0.1203	1.9181	59	0		W
1989 QT	14.0	890911	69.81	181.81	47.67	16.51	0.2290	2.3608	59	6		W
1989 RA	16.0	890911	357.94	171.34	175.64	9.19	0.2179	2.3559	54	0		W
1989 RC1	13.5	891001	346.37	256.62	114.33	14.14	0.2706	2.3679	50	0		W
1989 RG1	15.0	890911	14.22	266.80	59.86	0.90	0.1898	2.2054	22	9		N
1989 RJ2	14.0	891001	350.28	131.46	249.52	21.61	0.2550	2.3235	61	6		B
1989 SB1	13.0	891001	304.25	84.62	353.73	6.07	0.0392	2.2332	11	0		M
1989 SY1	14.0	891001	356.74	272.79	107.56	2.70	0.1808	3.1448	7	9		N
1989 SB3	15.0	891001	26.43	203.27	132.08	4.69	0.1907	2.1783	7	9		N
1989 SZ3	14.5	891001	26.02	235.05	111.92	4.06	0.0732	2.6072	12	0		N
1989 SA4	14.0	891001	49.53	256.11	61.28	2.60	0.1244	2.9965	7	9	E	N
1989 SD4	14.5	891001	259.24	90.60	33.99	15.20	0.0634	2.5756	12	0	D	N
1989 SG4	13.5	891001	242.28	112.78	28.13	10.83	0.0455	2.6445	7	9		N
1989 SM4	14.0	891001	317.26	322.91	106.83	2.59	0.0881	2.9898	7	9		N
1989 SO4	16.0	891001	7.93	319.84	45.94	3.51	0.1514	2.2951	7	9		N
1989 SP4	17.0	891001	19.18	303.76	41.45	5.21	0.2349	2.4690	7	9		N
1989 SR4	15.5	891001	356.22	338.13	44.63	4.52	0.1840	2.5159	7	9		N
1989 SS4	10.5	891001	359.79	190.87	193.22	16.77	0.0014	5.2787	7	9	E	N
1989 SX4	15.0	891001	348.90	211.70	182.32	12.60	0.1677	2.6159	7	9		N
1989 SZ4	15.5	891001	4.58	314.96	57.12	3.37	0.0705	2.1757	7	9		N
1989 SC5	15.0	891001	15.83	174.66	182.82	9.45	0.1553	2.7218	7	9		N
1989 SD5	15.0	891001	334.28	304.61	104.36	4.01	0.0890	2.4865	7	9		N
1989 SE5	16.0	891001	30.02	170.03	168.78	4.80	0.1456	2.4964	7	9		N
1989 SF5	15.0	891001	342.45	323.35	76.91	3.22	0.1058	2.4146	7	9		N
1989 SG5	13.5	891001	199.55	30.25	157.47	5.93	0.2133	2.3802	7	9		N
1989 SH5	16.0	891001	13.51	243.96	114.70	3.45	0.1619	2.3616	7	9		N
1989 SJ5	14.0	891001	251.02	115.07	41.95	9.63	0.2999	2.3685	7	9		N

1989	SR5	14.5	891001	288.03	358.00	102.31	3.31	0.1019	2.9301	9	9		N
1989	SS5	16.0	891001	331.47	275.40	137.83	3.19	0.1346	2.3779	10	0		N
1989	SX5	14.0	891001	281.63	14.77	93.76	2.91	0.1227	2.5814	12	8	D	N
1989	SC6	14.5	891001	334.37	339.27	76.90	3.18	0.1809	3.0771	7	9		N
1989	SD6	14.0	891001	57.48	127.29	184.09	10.37	0.1128	3.0521	7	9		N
1989	TG	12.5	891021	348.29	51.37	330.91	9.14	0.1070	3.0006	42	0		M
1989	TW	14.5	891001	0.53	92.29	283.50	4.67	0.1526	2.2213	11	8		M
1989	TY	14.3	891110	127.43	265.98	333.61	9.21	0.1364	2.9747	60	9		E
1989	TN2	16.2	891110	0.15	224.07	174.70	8.08	0.2954	2.3069	59	9		E
1989	TV2	15.5	891001	333.98	33.22	24.32	26.46	0.2638	2.4084	5	9	E	N
1989	TA3	14.5	891001	37.21	171.24	140.07	4.98	0.2995	3.5810	5	0		N
1989	TB3	17.0	891001	13.58	176.36	176.01	6.11	0.2213	2.2655	5	9		N
1989	TD3	15.0	891001	17.99	247.54	103.84	2.88	0.1599	2.9109	5	9		N
1989	TE3	15.0	891001	11.31	215.56	143.56	3.38	0.2009	3.0659	5	9		N
1989	TF3	16.0	891001	10.37	307.70	54.08	3.64	0.1061	2.1377	5	9		N
1989	TQ3	15.5	891001	10.76	320.18	40.03	10.60	0.1501	2.5253	5	0		N
1989	TR3	15.0	891001	58.39	140.48	165.96	8.65	0.1229	3.2707	5	9		N
1989	TV3	14.5	891001	310.86	39.08	30.11	22.50	0.0492	2.6452	5	0		N
1989	TZ3	17.0	891001	21.36	275.81	70.52	2.33	0.1660	2.4203	12	0	D	N
1989	TD4	16.5	891001	19.86	251.97	85.60	3.92	0.3002	2.6377	5	9		N
1989	TH4	15.0	891001	293.77	291.14	164.07	5.28	0.0987	2.7155	5	9		N
1989	TN4	15.0	891001	81.05	177.02	109.11	3.30	0.0872	2.3203	5	0		N
1989	TS4	15.5	891001	338.85	7.76	49.60	8.71	0.3192	3.0438	5	9		N
1989	TW4	16.5	891001	348.79	336.40	54.23	6.44	0.1558	2.2507	5	9		N
1989	TY4	15.5	891001	80.24	114.65	163.77	5.99	0.1626	2.2364	12	0	D	N
1989	TB5	14.5	891001	111.08	97.31	165.41	6.72	0.0494	2.6843	10	0	D	N
1989	TE5	15.5	891001	223.11	13.69	143.03	3.89	0.0216	2.3490	5	9		N
1989	TH5	15.5	891001	1.78	183.66	190.92	28.64	0.2302	2.7076	5	8		N
1989	TM5	16.5	891001	24.20	250.55	90.08	3.18	0.1890	2.2696	5	9		N
1989	TH6	15.0	891001	93.98	227.88	36.77	11.38	0.1416	2.5789	5	9		N
1989	TK6	17.0	891001	356.86	306.39	71.84	3.46	0.1860	2.5017	5	9		N
1989	TM6	15.0	891001	17.12	240.01	112.07	4.11	0.1311	2.6390	5	9		N
1989	TP6	17.0	891001	8.49	259.71	99.58	3.01	0.2215	2.2425	5	9		N
1989	TR6	17.0	891001	19.11	218.35	120.59	3.28	0.2855	2.6318	5	9		N
1989	TS6	16.0	891001	309.32	46.37	33.68	13.04	0.1499	2.5212	5	9		N
1989	TW6	16.5	891001	333.97	268.20	142.92	4.65	0.1765	2.2946	5	9		N
1989	TY6	16.5	891001	1.65	321.35	49.82	6.71	0.1788	2.2167	5	9		N
1989	TP7	15.0	891001	219.64	20.30	139.68	5.40	0.0715	2.2390	10	0	D	N
1989	TQ7	15.0	891001	328.33	325.94	84.18	5.35	0.0592	2.6127	5	9		N
1989	TR7	15.0	891001	9.34	310.61	51.99	9.46	0.1304	3.1121	5	9		N
1989	TS7	15.0	891001	87.49	183.22	99.15	4.95	0.0474	2.5020	5	9		N
1989	TL8	17.0	891001	330.42	290.29	129.72	2.78	0.1938	2.3874	5	9	D	N
1989	TB11	13.0	891001	356.85	42.55	337.00	4.17	0.1169	2.6754	7	7		M
1989	UP5	12.3	891110	196.73	94.83	97.93	2.09	0.0336	5.2306	58	5		E
1989	UQ5	12.1	891110	94.31	117.25	169.94	4.73	0.0616	5.1161	58	7		E
1989	WB3	12.5	891130	96.00	253.79	67.63	11.27	0.0918	2.9937	25	8		N
1989	WR4	13.0	891130	286.92	129.72	36.64	8.56	0.2702	2.9509	5	5	E	N
1989	WS4	15.5	891130	344.72	175.65	268.37	5.19	0.1438	2.2135	5	5		N
1989	WT4	12.5	891130	357.47	167.06	258.48	10.19	0.1036	2.9825	5	5		N
1989	WU4	14.0	891130	349.65	158.52	277.18	3.26	0.1086	2.7069	5	5		N
1989	WW4	13.5	891130	33.63	81.27	293.10	2.17	0.1873	3.1526	5	5		N
1989	YC	14.0	891220	48.78	280.06	100.42	10.32	0.2710	2.3956	27	0		M
1989	YM	12.5	900109	5.10	170.79	298.23	12.61	0.1229	2.6293	32	0		N
1989	YT	13.0	891220	58.64	299.37	35.19	3.86	0.2977	2.5819	34	0		N
1989	YY	14.5	900129	311.17	77.16	109.54	2.81	0.1406	2.3579	26	7		N
1989	YF1	13.0	900109	353.77	202.34	284.37	9.02	0.0802	2.5325	25	8		M
1989	YZ1	12.0	900109	46.49	14.70	46.12	1.65	0.1455	3.1480	25	8		N
1989	YO2	15.5	900109	42.93	312.62	109.66	6.54	0.1492	2.2438	22	6		N

1989 YA4	14.0	900109	312.86	288.38	259.26	0.34	0.1992	2.3088	26	6		N
1989 YP6	13.5	900109	53.39	7.96	31.84	1.71	0.2387	2.9794	19	0		N
1990 AD	11.5	900109	45.24	304.94	100.30	15.95	0.2117	3.1434	27	0		W
1990 AE	14.0	900109	23.41	350.47	81.91	4.79	0.2493	2.3425	28	0		W
1990 BB	12.5	900129	341.23	224.37	283.72	10.86	0.1518	2.7692	34	7		N
1990 BH	14.5	900129	336.47	55.72	124.96	24.85	0.3721	2.2520	11	0		N
1990 BK	11.0	900129	210.22	189.14	97.35	3.80	0.1594	2.9204	9	6		N
1990 BN	12.0	900129	354.59	342.77	152.52	9.84	0.1003	2.7837	24	0		N
1990 BO	11.0	900129	84.35	90.58	304.52	15.77	0.1051	3.1853	26	0		N
1990 BQ	13.5	900129	13.63	351.19	113.56	5.83	0.1636	2.7868	4	6		N
1990 BT	13.5	900129	42.51	96.28	329.76	6.62	0.2012	2.2945	6	8		N
1990 BV	13.5	900129	47.89	319.27	98.48	10.19	0.2155	2.3388	6	8		N
1990 BW	15.0	900109	200.96	151.34	125.44	23.41	0.0474	1.9256	6	7		M
1990 BX	12.5	900129	55.55	303.28	123.08	6.48	0.0662	2.7508	45	0		N
1990 BY	13.5	900129	29.03	348.79	91.99	3.22	0.2710	2.3737	4	5		N
1990 BG1	12.0	900129	344.16	80.23	74.97	6.09	0.1752	2.8913	19	0		N
1990 BO1	11.5	900129	241.78	114.85	145.69	14.02	0.1205	3.0578	12	6		N
1990 BQ1	12.0	900129	158.51	21.32	307.20	33.79	0.1571	2.7642	26	8		N
1990 BR1	12.5	900129	39.58	291.89	145.44	12.12	0.1705	2.6591	26	0		N
1990 BT1	12.0	900129	58.83	285.33	109.21	11.77	0.3868	2.7773	18	6		N
1990 BC2	12.5	900109	317.91	327.20	202.47	5.99	0.0824	2.4295	7	7		M
1990 BE2	13.5	900129	14.64	104.94	3.45	4.40	0.1941	2.4143	21	0		N
1990 BF2	13.0	900129	7.73	42.70	78.05	4.15	0.0401	2.2172	28	9		N
1990 BJ2	11.0	900109	267.32	112.14	133.55	6.29	0.2127	3.1979	7	0	E	W
1990 CA	12.5	900129	266.78	324.55	289.15	5.94	0.2896	2.3839	18	7		N
1990 CD	13.0	900129	257.76	318.83	286.60	5.53	0.1053	2.2821	26	8		N
1990 CE	14.0	900129	358.46	333.77	159.70	5.37	0.0967	2.2778	26	8		N
1990 CF	12.5	900129	30.36	348.99	113.71	14.42	0.0977	2.6170	15	6		N

1988 RU9 = 1988 RS11 (S. Nakano)
1989 GH3 = 1989 GA5 (S. Nakano)
1989 SD4 = 1989 TB4 (S. Nakano)
1989 SX5 = 1989 TT8 (S. Nakano)
1989 TZ3 = 1989 SS3 (S. Nakano)
1989 TY4 = 1989 SJ4 (S. Nakano)
1989 TB5 = 1989 SK8 (S. Nakano)
1989 TP7 = 1989 SJ8 (S. Nakano)
1989 TL8 = 1989 TT13 (S. Nakano)

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(37) Fides Obs. 244 M 115.91592 Peri. 61.57431
H 7.28 G 0.25 Opp. 34 n 0.22973666 Node 7.14494
rms res. 0".75 (M-P) 1901-1988 e 0.1780717 Incl. 3.07054

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(51) Nemausa Obs. 2541 M 159.06087 Peri. 2.42184
H 7.36 G 0.06 Opp. 41 n 0.27081363 Node 175.56778
rms res. 0".56 (M-P) 1907-1988 e 0.0658676 Incl. 9.96401

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(227) Philosophia Obs. 46 M 219.26392 Peri. 261.85002
H 8.97 G 0.15 Opp. 21 n 0.17723033 Node 327.49541
rms res. 1".27 (M-P) 1908-1988 e 0.2087291 Incl. 9.14148

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(239) Adrastea Obs. 41 M 227.39218 Peri. 207.93038
H 10.62 G 0.15 Opp. 18 n 0.19279300 Node 180.60316
rms res. 1".19 (M-P) 1915-1988 e 0.2342950 Incl. 6.17259

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(240) Vanadis Obs. 146 M 90.34775 Peri. 300.42977
H 8.99 G 0.13 Opp. 30 n 0.22679183 Node 114.73941
rms res. 1".02 (M-P) 1906-1990 e 0.2083318 Incl. 2.10696

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(244) Sita Obs. 46 M 37.30258 Peri. 165.75553
H 12.35 G 0.25 Opp. 16 n 0.30739922 Node 208.51717
rms res. 1".01 (M-P) 1900-1987 e 0.1367578 Incl. 2.84388

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(265) Anna Obs. 22 M 143.37135 Peri. 252.14489
H 11.36 G 0.25 Opp. 8 n 0.26175130 Node 334.99663
rms res. 0".94 (M-P) 1933-1986 e 0.2669454 Incl. 25.62252

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(272) Antonia Obs. 80 M 109.18492 Peri. 61.71744
H 10.79 G 0.15 Opp. 24 n 0.21298058 Node 37.10170
rms res. 1".01 (M-P) 1918-1988 e 0.0287988 Incl. 4.44324

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(294) Felicia Obs. 51 M 350.37091 Peri. 185.14369
H 10.11 G 0.15 Opp. 19 n 0.17756977 Node 135.73755
rms res. 1".03 (M-P) 1917-1988 e 0.2496965 Incl. 6.30771

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(308) Polyxo Obs. 140 M 199.85470 Peri. 114.04442
H 8.18 G 0.28 Opp. 33 n 0.21591776 Node 181.38038
rms res. 1".02 (M-P) 1902-1988 e 0.0369881 Incl. 4.35693

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Williams
(319) Leona Obs. 65 M 276.59528 Peri. 225.33314
H 10.2 G 0.25 Opp. 15 n 0.15930802 Node 186.20158
rms res. 1".08 (M-P) 1904-1988 e 0.2411838 Incl. 10.61731

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(322) Phaeo Obs. 62 M 147.48085 Peri. 114.16885
H 9.02 G 0.15 Opp. 19 n 0.21245169 Node 252.28337
rms res. 0".94 (M-P) 1911-1985 e 0.2462606 Incl. 8.02394

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(349) Dembowska Obs. 350 M 257.57766 Peri. 343.60904
H 5.98 G 0.32 Opp. 40 n 0.19706644 Node 32.15221
rms res. 0".75 (M-P) 1904-1989 e 0.0900523 Incl. 8.25824

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(361) Bononia Obs. 53 M 228.99637 Peri. 69.99598
H 8.27 G 0.15 Opp. 20 n 0.12566513 Node 18.60619
rms res. 1".05 (M-P) 1901-1987 e 0.2161738 Incl. 12.65865

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(366) Vincentina Obs. 79 M 76.00798 Peri. 318.61572
H 8.46 G 0.15 Opp. 18 n 0.17707412 Node 346.55196
rms res. 1".02 (M-P) 1906-1987 e 0.0639796 Incl. 10.58130

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(388) Charybdis Obs. 62 M 40.64098 Peri. 325.80546
H 8.41 G 0.15 Opp. 27 n 0.18921880 Node 354.23838
rms res. 1".12 (M-P) 1901-1985 e 0.0619650 Incl. 6.45760

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(394) Arduina Obs. 71 M 15.26564 Peri. 269.17016
H 9.75 G 0.28 Opp. 21 n 0.21475711 Node 66.99078
rms res. 1".07 (M-P) 1902-1986 e 0.2290001 Incl. 6.21650

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(399) Persephone Obs. 56 M 329.29925 Peri. 184.27079
H 9.14 G 0.15 Opp. 20 n 0.18463625 Node 346.27317
rms res. 1".17 (M-P) 1903-1988 e 0.0747554 Incl. 13.12876

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(402) Chloe Obs. 80 M 158.56502 Peri. 18.15529
H 9.05 G 0.16 Opp. 26 n 0.24087262 Node 129.13262
rms res. 0".78 (M-P) 1911-1987 e 0.1137358 Incl. 11.83115

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(420) Bertholda Obs. 88 M 220.81411 Peri. 206.68988
H 8.35 G 0.04 Opp. 27 n 0.15609241 Node 243.84436
rms res. 1".00 (M-P) 1902-1986 e 0.0473167 Incl. 6.69771

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(470) Kilia Obs. 62 M 357.12976 Peri. 45.43932
H 10.10 G 0.25 Opp. 18 n 0.26432669 Node 172.77622
rms res. 1".20 (M-P) 1901-1988 e 0.0931810 Incl. 7.24169

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(497) Iva Obs. 68 M 120.06952 Peri. 3.05591
H 10.01 G 0.11 Opp. 25 n 0.20448689 Node 6.17049
rms res. 1".22 (M-P) 1902-1987 e 0.2993327 Incl. 4.82895

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(500) Selinur Obs. 61 M 10.68273 Peri. 73.41237
H 9.37 G 0.15 Opp. 17 n 0.23336859 Node 289.79871
rms res. 0".92 (M-P) 1903-1988 e 0.1450664 Incl. 9.77352

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(501) Urhixidur Obs. 88 M 358.63876 Peri. 349.34432
H 9.02 G 0.15 Opp. 22 n 0.17591005 Node 357.10974
rms res. 0".92 (M-P) 1903-1984 e 0.1496438 Incl. 20.93479

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(513) Centesima Obs. 79 M 183.52236 Peri. 220.32187
H 9.72 G 0.25 Opp. 20 n 0.18849280 Node 184.36577
rms res. 1".01 (M-P) 1903-1987 e 0.0861826 Incl. 9.72334

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(514) Armida Obs. 124 M 94.93735 Peri. 121.89520
H 9.25 G 0.15 Opp. 34 n 0.18501588 Node 268.60208
rms res. 1".07 (M-P) 1903-1988 e 0.0424721 Incl. 3.87672

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(538) Friederike Obs. 101 M 73.99358 Peri. 225.94819
H 9.39 G 0.15 Opp. 27 n 0.17408515 Node 140.96719
rms res. 1".08 (M-P) 1904-1989 e 0.1499270 Incl. 6.48693

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(562) Salome Obs. 52 M 353.95307 Peri. 258.47340
H 10.02 G 0.36 Opp. 17 n 0.18792579 Node 70.53298
rms res. 1".12 (M-P) 1905-1986 e 0.1014107 Incl. 11.11794

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(601) Nerthus Obs. 25 M 44.42232 Peri. 151.93604
H 9.66 G 0.15 Opp. 17 n 0.17799068 Node 169.42102
rms res. 1".06 (M-P) 1906-1989 e 0.1110504 Incl. 16.12063

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Williams
(612) Veronika Obs. 62 M 52.15535 Peri. 118.59045
H 11.2 G 0.25 Opp. 9 n 0.17688402 Node 203.46709
rms res. 1".16 (M-P) 1906-1988 e 0.2703615 Incl. 20.76308

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(621) Werdandi Obs. 89 M 57.65123 Peri. 32.18683
H 10.60 G 0.15 Opp. 16 n 0.17951008 Node 66.96688
rms res. 1".07 (M-P) 1911-1988 e 0.1540185 Incl. 2.31968

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Williams
(624) Hektor Obs. 171 M 35.21488 Peri. 179.15697
H 7.47 G 0.15 Opp. 27 n 0.08351611 Node 342.08762
rms res. 1".05 (M-P) 1907-1984 e 0.0248254 Incl. 18.22895

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Williams
(633) Zelima Obs. 48 M 245.94312 Peri. 189.10591
H 9.94 G 0.25 Opp. 17 n 0.18832636 Node 147.02541
rms res. 1".28 (M-P) 1907-1987 e 0.0914464 Incl. 10.91672

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(637) Chrysothemis Obs. 61 M 316.91165 Peri. 170.28542
H 11.00 G 0.15 Opp. 16 n 0.17557507 Node 355.24589
rms res. 1".10 (M-P) 1907-1989 e 0.1438363 Incl. 0.28511

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(671) Carnegia Obs. 32 M 297.55793 Peri. 99.51495
H 10.35 G 0.15 Opp. 11 n 0.18117389 Node 0.27432
rms res. 0".90 (M-P) 1927-1985 e 0.0611558 Incl. 8.02725

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(708) Raphaela Obs. 71 M 44.64692 Peri. 198.69655
H 10.65 G 0.25 Opp. 23 n 0.22581829 Node 354.88246
rms res. 0".93 (M-P) 1907-1987 e 0.0840330 Incl. 3.48346

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(759) Vinifera Obs. 27 M 87.36655 Peri. 0.52844
H 10.55 G 0.15 Opp. 10 n 0.23287101 Node 318.02334
rms res. 0".83 (M-P) 1913-1988 e 0.2075543 Incl. 19.96631

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(761) Brendelia Obs. 86 M 3.59692 Peri. 297.16045
H 10.91 G 0.25 Opp. 18 n 0.20342860 Node 23.59211
rms res. 1".11 (M-P) 1918-1989 e 0.0646523 Incl. 2.16317

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(812) Adele Obs. 22 M 112.86986 Peri. 352.38711
H 11.3 G 0.25 Opp. 11 n 0.22697178 Node 6.86795
rms res. 1".10 (M-P) 1924-1989 e 0.1652603 Incl. 13.29602

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(834) Burnhamia Obs. 94 M 125.02218 Peri. 88.70601
H 9.33 G 0.15 Opp. 25 n 0.17558286 Node 183.20203
rms res. 1".05 (M-P) 1905-1988 e 0.2205461 Incl. 3.95167

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(954) Li Obs. 102 M 170.75277 Peri. 150.00561
H 9.94 G 0.15 Opp. 21 n 0.17579479 Node 162.98865
rms res. 0".93 (M-P) 1949-1988 e 0.1539679 Incl. 1.15537

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Williams
(978) Aidamina Obs. 55 M 259.81869 Peri. 134.30797
H 9.72 G 0.15 Opp. 14 n 0.17296489 Node 216.14737
rms res. 1".18 (M-P) 1906-1986 e 0.2389044 Incl. 21.67731

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Williams
(1269) Rollandia Obs. 137 M 97.50334 Peri. 24.97431
H 8.73 G 0.15 Opp. 32 n 0.12783969 Node 134.30671
rms res. 1".64 (M-P) 1902-1989 e 0.0985486 Incl. 2.76063

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Williams
(1632) Siebohme Obs. 65 M 358.57199 Peri. 125.90032
H 11.5 G 0.25 Opp. 19 n 0.22768558 Node 199.54622
rms res. 1".37 (M-P) 1917-1989 e 0.1359862 Incl. 5.71972

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Williams
(1640) Nemo Obs. 72 M 112.17018 Peri. 354.29963
H 13.5 G 0.25 Opp. 9 n 0.28424981 Node 355.02839
rms res. 1".34 (M-P) 1906-1981 e 0.3416371 Incl. 7.10326

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Williams
(1687) Glarona Obs. 15 M 134.58434 Peri. 318.81733
H 10.15 G 0.25 Opp. 21 n 0.17660414 Node 93.22583
rms res. 1".12 (M-P) 1909-1987 e 0.1861949 Incl. 2.64303

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(1803) Zwicky Obs. 34 M 153.00687 Peri. 253.69730
H 12.2 G 0.25 Opp. 8 n 0.27397526 Node 336.89953
rms res. 0".90 (M-P) 1931-1986 e 0.2497186 Incl. 21.54838

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(1822) Waterman Obs. 49 M 264.50111 Peri. 29.99042
H 13.04 G 0.25 Opp. 13 n 0.30812912 Node 220.64206
rms res. 0".95 (M-P) 1943-1988 e 0.1521867 Incl. 0.95407

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(1837) Osita Obs. 30 M 25.48957 Peri. 314.90841
H 13.47 G 0.25 Opp. 10 n 0.30085111 Node 280.52600
rms res. 0".94 (M-P) 1958-1984 e 0.0857345 Incl. 3.84492

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(1841) Masaryk Obs. 73 M 227.52397 Peri. 123.66389
H 11.37 G 0.15 Opp. 15 n 0.15521608 Node 45.09437
rms res. 0".83 (M-P) 1936-1986 e 0.0864493 Incl. 2.63060

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Williams
(1865) Cerberus Obs. 56 M 240.06280 Peri. 325.11063
H 16.91 G 0.25 Opp. 7 n 0.87794952 Node 212.37151
rms res. 0".98 (M-P) 1971-1989 e 0.4669598 Incl. 16.09216

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(1889) Pakhmutova Obs. 35 M 64.59235 Peri. 76.27124
H 10.7 G 0.25 Opp. 9 n 0.18156248 Node 55.49725
rms res. 0".87 (M-P) 1966-1988 e 0.1130312 Incl. 13.19136

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(1903) Adzhimushkaj Obs. 18 M 294.44053 Peri. 354.28304
H 10.7 G 0.25 Opp. 10 n 0.18976358 Node 134.99535
rms res. 0".96 (M-P) 1940-1989 e 0.0525055 Incl. 10.98839

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(1975) Pikelner Obs. 52 M 166.76026 Peri. 185.29306
H 12.1 G 0.25 Opp. 10 n 0.21020597 Node 169.91819
rms res. 0".83 (M-P) 1946-1988 e 0.1178280 Incl. 6.30756

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(2002) Euler Obs. 39 M 312.42545 Peri. 51.35118
H 12.2 G 0.25 Opp. 9 n 0.26231261 Node 178.24542
rms res. 0".97 (M-P) 1942-1988 e 0.0686446 Incl. 8.52231

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(2357) Phereclos Obs. 84 M 167.97207 Peri. 71.36179
H 8.99 G 0.15 Opp. 13 n 0.08365963 Node 178.72541
rms res. 1".03 (M-P) 1929-1989 e 0.0425324 Incl. 2.67565

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(2472) 1973 DG Obs. 19 M 75.08308 Peri. 159.35720
H 13.5 G 0.25 Opp. 5 n 0.28917728 Node 344.24049
rms res. 0".71 (M-P) 1973-1988 e 0.0942334 Incl. 5.11062

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(2599) Veseli Obs. 47 M 202.05494 Peri. 341.07420
H 12.27 G 0.15 Opp. 7 n 0.24426698 Node 353.09757
rms res. 0".87 (M-P) 1934-1988 e 0.1639756 Incl. 15.32657

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(2833) Radishchev Obs. 27 M 185.18731 Peri. 348.59259
H 12.15 G 0.25 Opp. 7 n 0.20197245 Node 336.52934
rms res. 1".00 (M-P) 1944-1988 e 0.0680982 Incl. 1.33680

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(2922) Dikan’ka Obs. 23 M 16.88197 Peri. 343.88412
H 13.8 G 0.25 Opp. 6 n 0.26997814 Node 187.47902
rms res. 0".86 (M-P) 1954-1988 e 0.1453538 Incl. 2.98217

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(2953) Vysheslavia Obs. 43 M 244.39573 Peri. 9.53781
H 11.68 G 0.15 Opp. 6 n 0.20694894 Node 250.89733
rms res. 0".76 (M-P) 1975-1988 e 0.0205854 Incl. 1.07158

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(3214) Makarenko Obs. 16 M 238.17125 Peri. 154.07446
H 11.0 G 0.25 Opp. 6 n 0.18789590 Node 100.16467
rms res. 1".22 (M-P) 1975-1988 e 0.0528880 Incl. 11.49603

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(3426) Seki Obs. 12 M 196.08880 Peri. 260.89595
H 12.8 G 0.25 Opp. 5 n 0.23233621 Node 5.12844
rms res. 0".97 (M-P) 1932-1989 e 0.0951317 Incl. 13.12617

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(3451) 1984 HA1 Obs. 101 M 99.63490 Peri. 130.66589
H 8.1 G 0.25 Opp. 5 n 0.08580837 Node 179.11314
rms res. 0".70 (M-P) 1983-1988 e 0.0691544 Incl. 24.70974

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(3613) 1982 VJ11 Obs. 12 M 334.15051 Peri. 79.88945
H 12.7 G 0.25 Opp. 6 n 0.27004969 Node 71.96555
rms res. 1".06 (M-P) 1949-1989 e 0.0764719 Incl. 7.41988

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(3668) Ilfpetrov Obs. 21 M 1.25083 Peri. 31.66353
H 13.3 G 0.25 Opp. 5 n 0.30452139 Node 193.54499
rms res. 0".90 (M-P) 1982-1988 e 0.1024252 Incl. 3.07465

(4388)* 1964 VE = 1982 UA
Discovered 1964 Nov. 3 at the Goethe Link Observatory.
Id. B. G. Marsden (MPC 7459), T. Urata (NOC 1376)
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Oishi
M 83.97477 (1950.0) P Q
n 0.27538646 Peri. 194.30526 +0.68620938 -0.69051962
a 2.3397762 Node 213.32672 +0.70156477 +0.71132554
e 0.2781904 Incl. 24.59778 +0.19215505 -0.13114357
P 3.58 H 13.5 G 0.25
Residuals in seconds of arc

641030	330	0.2+	0.7-	821021	010	0.0	0.7+	891009	888	0.1+	2.0+
641103	760	(0.8+	6.6-)	821021	010	0.3-	0.4-	891020	888	(0.3+	3.2+)
641103	760	(2.1-	3.4+)	821215	688	1.0+	0.2-	891025	888	0.0	0.1-
641103	330	0.4-	0.1-	821215	688	1.7+	1.4+	891025	888	0.1-	0.3-
641107	330	(3.1-	4.2+)	830114	801	2.6-	0.1+	891027	801	1.4+	0.3+
641109	330	1.5+	0.6+	870224	474	(0.2-	3.7+)	891030	801	1.0-	0.1+
641112	330	1.3-	2.7-	870224	474	0.5+	2.4+	891030	801	0.2-	0.1+
641225	330	(7.7-	0.1+)	870305	474	0.3+	0.2-	891104	888	0.0	0.4+
821016	010	(5.6+	8.8+)	890928	801	0.9+	0.3+	891104	888	0.5-	0.1-
821016	010	(4.4+	6.0+)	891001	801	1.0-	0.4-				
821020	010	1.1-	1.5-	891009	888	0.0	2.6+				

(4389)* 1976 GL3 = 1973 UV1 = 1986 HS = 1988 VW1
Discovered 1976 Apr. 1 by N. S. Chernykh at the Crimean Astrophysical Observatory.
Id. H. Oishi (MPC 14185)
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Oishi
M 190.46817 (1950.0) P Q
n 0.19832327 Peri. 220.69158 +0.99089264 +0.12974952
a 2.9121938 Node 131.81516 -0.10757396 +0.92363745
e 0.0775797 Incl. 2.76951 -0.08099146 +0.36063684
P 4.97 H 12.4 G 0.25
Residuals in seconds of arc

731026	095	0.8+	2.9-	881105	888	(2.0-	3.5-)	881112	046	0.8-	0.3-
760401	095	0.1-	1.9+	881105	046	(4.1-	0.6-)	881114	888	0.8+	2.9-
760402	095	1.1-	2.2-	881105	046	(5.6-	0.7+)	881114	888	0.4+	2.3-
760404	095	0.5+	1.8-	881106	888	0.4-	0.0	881130	888	0.3-	0.7+
760503	095	(1.1-	3.3-)	881106	888	0.4-	0.0	881130	888	0.2-	0.8+
860404	095	0.6-	1.6-	881107	888	0.4+	0.9+	881207	888	0.0	1.5+
860429	675	(6.6+	1.4+)	881107	888	0.5+	0.1-	881207	888	0.0	1.4+
860429	675	(3.7+	3.2+)	881110	888	0.7-	1.1+	900124	888	0.4+	0.3+
881104	046	1.0+	0.5-	881110	888	0.6-	0.5+	900124	888	0.3-	0.4+
881104	046	0.5-	0.4-	881111	046	1.6+	0.5-				
881105	888	(2.2-	2.9-)	881112	046	0.5-	0.3-				

(4390)* 1976 GO8 = 1984 SN5

Discovered 1976 Apr. 5 at the El Leoncito Station of the Felix Aguilar Observatory.

Id. B. G. Marsden (MPC 9593)

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell

M 293.63215	(1950.0)	P	Q	
n 0.26482636	Peri. 266.81596	-0.26182609	+0.96430807	
a 2.4015700	Node 347.78544	-0.79470205	-0.23861388	
e 0.2350100	Incl. 10.74886	-0.54762738	-0.11477525	
P 3.72	H 13.5	G 0.25		

Residuals in seconds of arc

760405	808	0.1+	0.4-	840923	809	1.6+	0.4+	840929	809	0.9-	0.2+
760405	808	0.8-	1.2-	840924	809	0.0	0.4+	840929	809	0.7-	0.1+
760423	808	0.2-	1.0+	840924	809	0.4-	0.4+	840929	809	0.9-	0.3+
760423	808	0.8-	2.7+	840924	809	0.7-	0.6+	840929	809	0.4-	0.3+
760426	808	0.5+	0.2-	840924	809	0.2-	0.3-	840929	809	0.4-	0.2+
760426	808	0.1-	0.2+	840924	809	0.3-	0.2-	840930	809	1.0-	0.2+
760427	808	1.1+	0.7-	840924	809	0.3-	0.1+	841001	809	2.0+	0.5-
760427	808	1.3+	0.3-	840926	809	0.1+	0.8+	841001	809	1.4+	0.8-
840918	809	0.4-	0.0	840926	809	0.2+	1.0+	841001	809	0.9+	0.7-
840918	809	0.1-	0.1+	840926	809	1.0+	0.5+	870225	801	0.0	0.7+
840918	809	0.4+	0.2+	840926	809	0.8-	0.7-	870331	887	0.5+	1.2-
840921	809	0.3-	0.2-	840926	809	0.7-	0.7-	870331	887	1.3-	0.4-
840921	809	0.5-	0.3-	840926	809	1.2-	0.8-	870331	887	0.0	0.2-
840921	809	0.4-	0.1-	840927	809	0.5+	0.5-	891228	511	0.4-	0.8+
840922	809	0.0	0.2-	840927	809	0.3+	0.1-	891228	511	0.0	1.1+
840922	809	0.2-	0.2-	840927	809	0.4+	0.1+	891229	511	1.2+	0.9-
840922	809	0.3-	0.1-	840928	809	0.1+	0.1-	891229	511	0.8-	0.2+
840923	809	1.7+	0.7+	840928	809	0.4-	0.2-				
840923	809	1.2+	0.5+	840928	809	0.1+	0.1-				

(4391)* 1977 QW2 = 1977 RR2 = 1980 GZ

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

Id. H. Oishi (MPC 10153)

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Oishi

M 235.54991	(1950.0)	P	Q	
n 0.26666262	Peri. 108.44194	+0.47272117	+0.88106840	
a 2.3905324	Node 189.81505	-0.83959500	+0.44483923	
e 0.2119429	Incl. 5.35564	-0.26760965	+0.16073744	
P 3.70	H 13.9	G 0.25		

Residuals in seconds of arc

770821	095	0.6-	0.8+	800416	805	0.2-	0.2-	881103	807	2.1+	0.3-
770823	095	0.4+	1.1-	880811	413	0.6-	0.2+	881105	807	1.3-	0.4-
770909	095	0.3+	0.2-	880811	413	0.1-	0.7+	891230	888	0.1-	0.0
800414	805	0.3-	0.2-	880813	801	0.2+	0.4-				
800415	805	0.4+	0.3-	880913	801	(2.8-	3.2+)				

(4392)* 1978 RX5 = 1970 GZ = 1985 SY6

Discovered 1978 Sept. 13 by N. S. Chernykh at the Crimean Astrophysical Observatory.

Id. H. Oishi (MPC 15248), W. Landgraf (ibid.), L. D. Schmadel (ibid.)

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Oishi

M 201.43879	(1950.0)	P	Q	
n 0.28118102	Peri. 293.77754	+0.81840474	+0.57215328	
a 2.3075195	Node 31.39927	-0.48278355	+0.73502595	
e 0.1242186	Incl. 5.88573	-0.31166284	+0.36383715	
P 3.51	H 14.1	G 0.25		

Residuals in seconds of arc

700410	805	0.2+	0.9+	781003	095	0.1-	0.9+	891125 888	0.2+ 0.0
700410	805	0.5+	0.3+	781007	095	0.8-	1.7+	891125 888	0.1+ 0.3+
700410	805	0.1+	0.3+	781101	049	0.0	0.4-	891221 888	0.3+ 0.1+
780913	095	0.1-	1.4+	781101	049	0.5+	0.4+	891230 888	0.1- 0.2-
780927	095	1.5-	0.1-	850922	095	1.4+	2.6-	891230 888	0.4- 0.2-

(4393)* 1978 VP8 = 1978 WU12 = 1969 FA = 1983 UL = 1986 EC3

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

Id. H. Oishi (d, JAM 2046), S. J. Bus (k, MPC 13043), B. G. Marsden (ibid.)

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Marsden

M	262.55657		(1950.0)	P	Q
n	0.17171555	Peri.	84.89141	-0.86640176	+0.49835498
a	3.2057499	Node	124.99626	-0.47199685	-0.79674794
e	0.1412493	Incl.	2.20155	-0.16299374	-0.34181140
P	5.74	H	12.5	G 0.25	

Residuals in seconds of arc

690323	095	0.6-	3.4-	781129	675	0.4-	0.7+	891023 033	1.5+ 0.8-
781105	675	0.1+	0.8+	781130	675	0.9-	0.5+	891023 033	0.6+ 0.4-
781106	675	0.3-	0.3-	831030	675	1.5-	2.0-	891025 033	0.7+ 0.9-
781107	675	0.1-	1.5+	831104	675	0.1+	0.4-	891025 033	1.8+ 0.5-
781108	675	0.1+	0.1+	860312	809	0.6-	0.8+	891027 033	0.2- 0.3-

(4394)* 1981 EB19 = 1975 RD1

Discovered 1981 Mar. 2 by S. J. Bus at Siding Spring in the course of the U.K. Schmidt-Caltech Asteroid Survey.

Id. K. Hurukawa (MPC 9751)

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Oishi

M	195.17733		(1950.0)	P	Q
n	0.29198113	Peri.	140.42361	+0.62581646	+0.77994767
a	2.2502608	Node	168.31444	-0.72281365	+0.58280550
e	0.2304662	Incl.	1.68323	-0.29307711	+0.22807758
P	3.38	H	15.3	G 0.25	

Residuals in seconds of arc

750903	095	0.1-	0.2+	810302	413	0.8-	1.3-	810329 413	1.6+ 1.6-
750906	095	0.5+	1.3-	810303	413	0.9-	0.5-	810408 413	(2.5+ 1.8-)
780510	675	0.4+	1.6+	810307	413	0.8-	0.8+	810411 413	(2.7- 1.1+)
810202	413	0.2-	1.8-	810307	413	(2.5+	1.8-)	810503 413	1.7+ 0.3+
810213	413	0.7-	0.6+	810311	413	1.3+	0.3-	891129 888	0.3- 0.6+
810302	413	1.8-	1.2+	810316	413	(2.2-	2.0+)	891129 888	0.1+ 0.8+

(4395)* 1981 EH41 = 1976 GU6 = 1983 VT = 1988 RJ2

Discovered 1981 Mar. 2 by S. J. Bus at Siding Spring in the course of the U.K. Schmidt-Caltech Asteroid Survey.

Id. K. Hurukawa (JAM 1901), L. D. Schmadel (MPC 13680), B. G. Marsden (ibid.)

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell

M	203.70394		(1950.0)	P	Q
n	0.18961750	Peri.	104.70411	+0.40148481	+0.91544971
a	3.0006621	Node	189.11363	-0.89295909	+0.38456784
e	0.0811974	Incl.	10.03507	-0.20355345	+0.11857234
P	5.20	H	12.3	G 0.25	

Residuals in seconds of arc

760404	095	1.3-	1.2-	810306	413	0.7-	0.3+	810405 413	0.6- 0.4+
810212	413	(2.0+	1.3+)	810306	413	1.7+	0.9-	810405 413	(3.0+ 2.7-)
810212	413	0.5-	1.4+	810311	413	0.1-	0.4-	810406 413	0.4- 0.4-
810302	413	0.6+	0.4+	810315	413	0.8+	0.2-	810407 413	0.2+ 1.5-
810302	413	1.0+	1.2-	810315	413	0.8-	0.2-	810407 413	0.3- 0.2+

810410	413	0.1+	0.0		880909	046	0.4+	1.7-	881106	807	0.7- 0.3-
810410	413	(2.5+	2.8-)		880909	046	1.2+	1.5-	891130	688	0.1- 0.4-
810501	413	1.0+	0.8-		880910	046	0.0	0.2+	891130	688	0.1- 0.5-
810501	413	1.6-	0.5-		880910	046	0.4+	1.0-	891201	688	0.1- 0.1-
810503	413	(0.5-	2.6-)		881008	807	0.1-	0.1-	891201	688	0.2- 0.1-
831109	801	0.8+	0.3+		881104	807	0.8-	0.2-			

(4396)* 1981 JH = 1955 QR = 1955 RJ = 1975 VR2 = 1978 OA

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

Id. T. Furuta (MPC 9683), S. Kanda (d, MPC 1453)

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Oishi

M	259.36048	(1950.0)	P	Q
n	0.29813120	Peri. 250.76660	+0.45703848	+0.88818115
a	2.2192068	Node 46.52400	-0.78948758	+0.42966083
e	0.1918962	Incl. 3.74797	-0.40966472	+0.16286752
P	3.31	H 13.7	G 0.25	

Residuals in seconds of arc

550823	760	0.5+	1.7-		751107	095	(3.0+	4.8+)	810505	675	1.7+ 0.8+
550913	760	0.5+	0.2+		780728	688	0.8+	0.2-	810506	675	0.7+ 0.5-
750930	675	0.2+	0.5-		780730	688	0.4+	1.4+	810506	675	0.0 0.3-
751001	675	0.2-	0.3-		810411	675	2.6-	0.7+	810510	675	1.7- 0.1-
751002	675	0.3+	0.7-		810411	675	1.3-	0.2-	851107	688	1.4- 1.8+
751015	675	0.2-	2.2-		810503	688	1.7+	1.4-	870228	801	0.3- 1.1-
751016	675	(2.5-	3.9-)		810503	688	(3.2+	1.7-)	891229	888	0.9+ 0.8-
751102	095	(4.6+	3.4+)		810505	675	1.1-	0.4-	891229	888	0.8+ 0.8-

(4397)* 1981 JS1 = 1981 KD = 1977 CX = 1988 KM

Discovered 1981 May 9 at the El Leoncito Station of the Felix Aguilar Observatory.

Id. T. Furuta (MPC 11747), S. Nakano (MPC 13447)

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Oishi

M	304.13786	(1950.0)	P	Q
n	0.28049247	Peri. 207.54311	-0.98501860	-0.16260005
a	2.3112943	Node 322.95769	+0.17049508	-0.86825862
e	0.1202749	Incl. 5.47172	+0.02588012	-0.46870908
P	3.51	H 13.9	G 0.25	

Residuals in seconds of arc

770213	675	0.5-	0.4+		880521	474	0.2+	2.3+	880611	474	0.4+ 0.9-
770214	675	0.5+	0.5-		880521	474	1.5+	1.4+	880714	474	0.0 0.2-
810509	808	0.5-	1.0-		880524	474	0.8-	0.2-	880714	474	0.9+ 0.3+
810509	808	0.4-	0.9-		880524	474	1.1-	1.3+	890828	888	0.8- 0.5+
810528	809	0.3+	0.3-		880605	474	0.2-	0.7-	890828	888	0.7+ 0.5-
810529	805	(6.3-	0.8-)		880605	474	0.6-	0.5-			
810529	805	(5.1+	2.3-)		880611	474	0.8+	0.9-			

(4398)* 1984 HC2 = 1929 CB = 1977 KJ = 1980 DA3

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

Id. H. Oishi (MPC 13297, unpub.); A909 BB = 1929 CB (JO 35, 160) is invalid

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Oishi

M	42.38828	(1950.0)	P	Q
n	0.27073646	Peri. 326.61123	+0.17686801	-0.98100638
a	2.3664912	Node 113.09069	+0.92087356	+0.13637238
e	0.0647642	Incl. 4.96731	+0.34743287	+0.13794585
P	3.64	H 13.0	G 0.25	

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

290203	012	(43.0+	11.8+)Y	840423	809	0.0	0.4-	890908 888	0.4-	0.8-
290204	012	(13.3-	2.7+)Y	840424	809	0.3-	0.0	890908 888	0.3+	0.4-
290212	012	(0.04-	0.08-)Y	840424	809	0.8+	0.7-	891023 888	1.4-	0.9+
290214	012	(0.01+	0.10-)Y	840430	809	0.5+	0.1-	891023 888	0.3+	1.0-
770523	095	0.0	0.2-	840430	809	0.9+	0.0	891029 888	0.4+	0.3-
800220	095	0.3-	0.7-	840506	809	0.0	0.1-	891029 888	1.6+	0.3-
840329	095	(8.6+	2.6-)	840506	809	0.7-	0.1-			
840423	809	1.5-	0.1+	890901	801	(3.3-	4.4+)			

(4399)* 1984 UA = 1970 EV2

Discovered 1984 Oct. 21 by T. Seki at Geisei.

Id. T. Kobayashi (MPC 13692)

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Nakano

M	243.30943		(1950.0)	P	Q
n	0.23862955	Peri.	52.38503	+0.42584489	+0.88492847
a	2.5742649	Node	243.82827	-0.88214981	+0.35973333
e	0.1730586	Incl.	12.12873	-0.20116620	+0.29579307
P	4.13	H	12.7	G 0.25	

Residuals in seconds of arc

700306	805	0.0	0.2-	841028	372	1.2+	2.1+	881006	372	(1.0- 3.2-)
700306	805	0.1-	0.3-	841031	372	0.8+	1.1-	891202	372	0.8+ 1.0-
700306	805	0.6-	0.8-	841031	372	0.5-	0.2+	891202	372	0.8+ 1.2-
841021	372	1.0-	0.6+	841102	372	1.5-	1.5+	900103	372	1.1+ 0.6+
841022	372	(1.8+	2.7+)	841103	372	0.8+	0.7+	900103	372	1.8- 1.3+
841025	372	0.9+	0.0	880913	372	0.0	0.7-	900121	372	0.9+ 0.6-
841025	372	0.1+	0.2-	880914	372	0.8+	2.0-	900121	372	1.6- 0.1+
841028	372	0.8-	0.8-	880915	372	0.6-	1.5-			

(4400)* 1985 QH4 = 1956 RD = 1978 SZ4

Discovered 1985 Aug. 24 at the Bulgarian National Observatory.

Id. K. Hurukawa (MPC 11351), L. D. Schmadel (ibid.)

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Oishi

M	113.86097		(1950.0)	P	Q
n	0.27034545	Peri.	26.51905	+0.94910844	-0.31476083
a	2.3687724	Node	351.80478	+0.27366016	+0.84131772
e	0.1390463	Incl.	4.38520	+0.15589514	+0.43944296
P	3.65	H	13.8	G 0.25	

Residuals in seconds of arc

560909	024	0.4+	2.8+	850914	809	0.4-	0.2+	850919	809	0.7- 0.3-
560914	024	1.7-	0.5-	850914	809	0.3-	0.3+	850920	809	1.4+ 0.7-
780927	095	0.0	0.7+	850914	809	0.4-	0.3+	850920	809	0.6+ 0.7-
850824	071	1.1-	0.7-	850915	809	0.0	0.4-	850920	809	0.1- 0.9-
850824	071	0.4-	0.2+	850915	809	0.5+	0.5-	850921	809	0.1+ 0.2-
850905	809	0.6-	0.2-	850915	809	0.4+	0.6-	850921	809	0.5- 0.5-
850905	809	0.0	0.0	850916	809	0.0	0.0	850921	809	1.4- 0.5-
850905	809	0.6+	0.2+	850916	809	0.2-	0.1-	891004	888	0.0 1.4-
850906	809	1.0-	0.5+	850916	809	0.6-	0.3-	891004	888	0.7- 0.7-
850906	809	0.3-	0.6+	850917	809	0.8+	0.0	891009	888	0.2+ 1.0+
850906	809	0.1-	0.7+	850917	809	0.2+	0.3-	891009	888	1.3- 1.1+
850911	809	0.6+	0.3+	850917	809	0.2-	0.4-	891023	888	0.7+ 0.5+
850911	809	1.2+	0.3+	850918	809	1.0+	0.6-	891028	801	0.0 1.3-
850911	809	1.5+	0.2+	850918	809	0.3+	0.7-	891028	801	1.2+ 2.0-
850912	809	0.5-	0.8+	850918	809	0.5-	1.0-	891101	888	0.0 0.6+
850912	809	0.1-	0.9+	850919	809	0.8+	0.8+	891101	888	0.0 1.0+
850912	809	0.5+	0.9+	850919	809	0.1+	0.2-			

(4401)* 1985 TB
Discovered 1985 Oct. 14 by C. S. Shoemaker at Palomar.

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5			Williams
M 61.83735	(1950.0)	P	Q
n 0.23877049	Peri. 67.00728	+0.03288259	-0.98331783
a 2.5732518	Node 23.35850	+0.66873780	-0.11137822
e 0.5684041	Incl. 26.82161	+0.74277082	+0.14380865
P 4.13	H 15.5	G 0.25	

Residuals in seconds of arc

851014	675	0.1-	0.4+	851117	675	1.8-	1.9+	860513	691	1.4+	0.3-
851014	675	1.0-	1.5+	851119	691	1.1+	0.1+	860513	691	1.1+	0.9+
851020	688	(3.3+	0.0)	851119	691	1.7+	0.1-	860513	691	0.9+	1.8+
851020	688	(4.1+	1.1-)	851119	691	1.3+	0.1-	860514	691	0.6+	1.6+
851022	801	(5.0-	16.4+)	851120	691	0.4+	0.5-	860514	691	0.4+	1.8+
851022	801	(1.3+	6.5+)	851120	691	0.6+	0.9-	860514	691	1.1+	1.1+
851024	801	(2.9+	5.0+)	851120	691	0.6+	0.7-	860607	691	0.6-	0.2-
851024	801	(10.8-	12.5+)	851216	801	0.8-	2.3-	860607	691	0.6-	0.7+
851107	675	1.1-	0.4-	860109	688	0.1+	0.5+	890901	474	1.2-	0.4-
851107	675	0.2+	1.4-	860109	688	0.2+	0.4+	890901	474	0.1+	0.1+
851108	801	0.8-	0.2-	860304	675	0.2+	0.1-	890902	474	1.2-	1.0+
851108	675	0.6-	0.7+	860304	675	0.2+	0.5-	890902	474	1.7-	0.2+
851108	675	0.1-	1.7+	860304	675	0.2+	0.4-	890923	474	1.6+	0.1-
851109	801	1.1-	0.6+	860413	801	2.2+	0.0	890923	474	0.1-	0.4-
851114	675	(43.3-	3.6+)	860414	801	0.1-	0.0	891121	474	1.4+	1.3+
851115	675	(1.1-	6.3+)	860414	801	(4.0-	2.5+)	891121	474	(0.5+	4.5+)

(4402)* 1987 DP = 1975 VA5 = 1975 XY3 = 1978 JD3 = 1979 SL1 = 1985 YC
Discovered 1987 Feb. 25 by T. Niijima and T. Urata at Ojima.

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5			Kaneda
M 28.49978	(1950.0)	P	Q
n 0.20050676	Peri. 227.23495	+0.70808686	-0.70610417
a 2.8910129	Node 177.66363	+0.68067753	+0.68048757
e 0.0205241	Incl. 7.70902	+0.18785926	+0.19584066
P 4.92	H 12.2	G 0.25	

Residuals in seconds of arc

751102	095	1.4-	0.5-	870302	809	0.7-	1.0-	870305	809	0.9+	0.0
751203	095	1.9+	1.4-	870302	809	0.5-	1.1-	870305	809	0.8+	0.0
780509	095	0.8-	0.4-	870303	809	0.1+	0.2-	870306	809	1.4+	0.3+
790921	808	0.4+	1.3+	870303	809	0.2+	0.2-	870306	809	1.4+	0.4+
790921	808	0.1-	0.2-	870303	809	0.2+	0.1-	870306	809	1.1+	0.4+
851216	801	0.9-	1.7+	870304	809	0.0	0.2+	870308	809	1.1-	0.7+
870225	887	0.2-	1.2- Y	870304	809	0.2+	0.3+	870308	809	0.9-	0.7+
870225	887	1.5-	0.1+	870304	809	0.2+	0.3+	870308	809	0.8-	0.8+
870302	809	0.7-	0.8-	870305	809	0.8+	0.4+				

(4403)* 1987 EA = 1967 GL = 1980 BK6 = 1984 JY
Discovered 1987 Mar. 2 by Y. Oshima at the Gekko Observatory.
Id. H. Oishi (MPC 11862)

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5			Oishi
M 18.99052	(1950.0)	P	Q
n 0.29343758	Peri. 141.53858	-0.99588620	-0.08557565
a 2.2428087	Node 33.58844	+0.06391741	-0.89647566
e 0.0941473	Incl. 3.08684	+0.06422810	-0.43475073
P 3.36	H 13.8	G 0.25	

Residuals in seconds of arc

670413	095	1.0-	2.4+		870303	888	1.4+	0.4-		870329	888	1.0+	1.8+
750930	675	1.8+	1.1-		870303	888	0.4+	0.0		870329	888	1.4+	2.1+
800122	095	3.3+	0.0		870304	888	0.6-	1.4+		891125	888	0.7-	1.0-
840503	688	0.5+	1.6-		870304	888	0.2+	0.5+		891125	888	0.3+	1.5-
840503	688	2.0-	2.6-		870320	888	1.0-	1.9-		891221	888	0.3-	0.0
870223	010	1.7-	0.4+		870320	888	2.0+	2.1-		891221	888	0.0	0.2+
870223	010	0.1-	0.0		870324	888	0.1-	1.8-		891230	888	1.5-	0.8-
870223	010	0.0	0.4-		870324	888	0.2+	1.5-		900104	888	1.7-	0.3+
870302	888	(3.7-	2.2-)		870326	888	0.2-	1.0+		900104	888	1.1-	0.1-
870302	888	(5.8-	1.1+)		870326	888	0.6-	0.3-					

(4404)* 1987 GG = 1979 QG

Discovered 1987 Apr. 2 by A. Maury at Palomar.

Id. C. M. Bardwell (MPC 11997)

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bardwell

M	299.15340	(1950.0)	P	Q	
n	0.22885396	Peri.	64.38193	-0.79937147	+0.52702546
a	2.6470598	Node	145.16909	-0.54070231	-0.84039786
e	0.3136783	Incl.	30.34248	+0.26200434	-0.12639466
P	4.31	H	12.8	G 0.25	

Residuals in seconds of arc

790822	675	0.5-	0.4-		870411	675	0.2+	0.4-		870627	675	0.4-	1.2+
790822	675	0.8-	1.1+		870413	675	0.1-	0.3+		881004	807	0.6-	0.3-
790823	809	(4.0+	2.6+)		870413	675	0.1-	0.1+		881005	807	0.3+	1.0+
790823	809	(4.4+	3.5+)		870507	675	0.0	0.6-		881007	807	0.4+	1.8+
790823	675	0.3+	2.0-		870507	675	0.1+	0.5-		881104	807	0.0	0.5-
790823	675	0.7+	0.0		870508	675	0.2+	0.2-		881107	807	0.6+	1.2-
870402	675	(11.5-	2.1+)		870508	675	0.2+	0.2-		891121	474	0.1-	0.1+
870402	675	(10.4-	0.2-)		870530	801	0.4-	0.3+		891121	474	0.8-	0.5-
870406	675	(1.1-	7.3+)		870601	801	0.4-	0.3-		891122	474	0.9+	0.4+
870406	675	(1.0-	4.7+)		870621	801	0.1+	0.9+		891122	474	0.4-	0.3-
870411	675	0.3+	0.3-		870626	675	(4.0-	1.6+)					

(4405)* 1987 QD1 = 1982 UL1 = 1982 VM9 = 1988 VX3

Discovered 1987 Aug. 21 by Z. Vavrova at Klet.

Id. B. G. Marsden (MPC 14196)

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Kaneda

M	185.62140	(1950.0)	P	Q	
n	0.17132168	Peri.	202.52947	+0.94926923	+0.29607355
a	3.2106613	Node	139.76311	-0.25767082	+0.92549591
e	0.1491036	Incl.	9.44170	-0.18026004	+0.23621552
P	5.75	H	11.3	G 0.25	

Residuals in seconds of arc

821024	688	0.4-	0.6-		870827	095	(1.1+	7.3+)		900121	399	1.3-	1.6-
821024	688	1.0-	0.5-		870830	046	1.2-	0.7-		900128	399	0.6-	1.4-
821110	095	1.4+	1.5+		870830	046	1.9-	2.4-		900129	046	(0.7+	4.3-)
870821	046	3.9+	0.5-		881112	675	0.5-	0.3+		900129	046	1.2+	3.4-
870822	046	2.5+	0.7-		881113	675	1.2-	0.6-		900130	399	0.5-	1.5-
870822	046	4.1+	1.6-		881206	675	0.6-	1.8+		900130	399	0.9-	0.5-
870826	046	3.7-	3.3-		881207	675	1.6+	1.2+		900130	046	1.4+	1.9-
870826	046	1.9-	2.7-		900121	399	1.4+	1.9-		900130	046	2.3-	2.3-

(4406)* 1987 YD1 = 1933 HF = 1978 GA5 = 1978 JJ3 = 1979 OD4 = 1983 CS5 = 1989 FN

Discovered 1987 Dec. 22 by F. Borngen at Tautenburg.

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Nakano

M	93.70641	(1950.0)	P	Q
n	0.17548314	Peri. 93.78093	-0.96985983	+0.24145826
a	3.1596996	Node 100.19381	-0.23465995	-0.88941691
e	0.1201759	Incl. 1.90443	-0.06562478	-0.38811786
P	5.62	H 12.9	G 0.25	

Residuals in seconds of arc

330424	024	1.0- 2.9-	871222	033	0.4- 0.2-	890327	046	1.1+ 0.7-
780411	095	0.6+ 1.1+	871225	033	0.8+ 1.1-	890327	046	0.5+ 0.1+
780505	095	0.8- 1.1+	871225	033	0.1- 0.4-	890328	046	0.3+ 0.0
790724	675	0.4- 0.5+	880111	033	0.6- 0.0	890328	046	0.2+ 0.2+
790724	413	0.2+ 1.2-	880111	033	0.3- 0.1-	890330	046	(2.8+ 5.4-)
790725	675	0.6+ 1.0+	890326	046	0.6- 0.1-	890330	046	0.3+ 1.4+
830214	381	1.3+ 1.1+	890326	046	1.7- 1.2-			

(4407)* 1988 TF1 = 1970 ST = 1979 WT4

Discovered 1988 Oct. 13 by M. Koishikawa at the Ayashi Station of the Sendai Astronomical Observatory.

Id. S. Nakano (MPC 13860)

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Nakano

M	202.94703	(1950.0)	P	Q
n	0.22075045	Peri. 89.60778	+0.96871588	+0.23491541
a	2.7114503	Node 256.80425	-0.24753602	+0.89153920
e	0.0605960	Incl. 4.71487	-0.01776114	+0.38726296
P	4.46	H 11.9	G 0.25	

Residuals in seconds of arc

700927	095	2.1+ 0.0	881018	391	(3.1+ 0.3+)	881108	391	0.7+ 0.6-
701001	095	1.4- 0.2+	881018	391	(4.5+ 2.9+)	881108	391	1.6+ 1.4-
791117	095	0.4- 3.5-	881018	391	(5.6+ 3.3+)	881109	391	1.6+ 2.0+
881013	391	2.3+ 0.8-	881018	391	(6.7+ 3.6+)	881114	391	0.1- 1.3-
881013	391	1.1- 1.8+	881019	391	0.8- 0.1+	881115	391	2.0+ 2.1-
881015	391	1.0+ 1.1+	881019	391	1.1- 0.1+	881115	391	1.0- 1.3-
881015	391	1.4- 1.6+	881031	391	1.3- 0.6-	900121	402	0.6+ 0.1-
881016	400	0.7- 1.6+	881031	391	(3.2- 0.2-)	900121	402	0.2+ 0.1+
881016	400	0.7+ 1.1+	881102	391	(1.1+ 2.9-)	900201	402	0.7- 0.0
881016	400	0.3+ 1.2+	881105	391	1.7- 0.7-	900201	402	0.1+ 0.7+
881018	391	0.4+ 1.2+	881106	391	1.3- 0.6+			
881018	391	1.8+ 0.8+	881106	391	1.6- 1.4-			

(4408)* 1988 TH2 = 1949 UE = 1949 UM1 = 1969 EM = 1970 PG = 1970 RW

Discovered 1988 Oct. 4 by A. Mrkos at Klet.

Id. S. Nakano (MPC 13861)

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Nakano

M	289.41324	(1950.0)	P	Q
n	0.27854086	Peri. 64.39898	+0.23846304	+0.96994783
a	2.3220778	Node 219.49476	-0.91601974	+0.20811488
e	0.1051006	Incl. 4.35883	-0.32255731	+0.12605318
P	3.54	H 12.9	G 0.25	

Residuals in seconds of arc

491022	024	1.5- 3.0+	881004	046	3.2+ 1.8-	900125	376	(3.8+ 1.1+)
491025	024	0.5+ 0.1+	881011	046	0.5- 0.0	900201	399	0.9+ 1.9-
690312	095	0.8- 3.0-	881011	046	1.9- 0.3-	900201	399	1.2- 0.3+
700803	095	0.5- 3.4-	881014	046	0.7+ 0.6-	900201	399	0.8- 0.7-
700901	095	1.6+ 1.2-	881014	046	0.0 0.5-	900202	399	1.0+ 0.3+
881004	046	(4.1+ 0.2+)	900125	376	0.0 0.5-	900202	399	0.9- 0.3+

(4409)* 1989 MD = 1964 VD2 = 1980 XR1 = 1985 VH1

Discovered 1989 June 30 by A. C. Gilmore and P. M. Kilmartin at Mt. John University Observatory.

Id. C. M. Bardwell (MPC 15253)
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bardwell

M	41.81462	(1950.0)	P	Q
n	0.18666584	Peri. 330.37660	+0.75961377	+0.65013031
a	3.0322115	Node 349.01721	-0.57677374	+0.66073792
e	0.0986231	Incl. 5.36664	-0.30053114	+0.37517461
P	5.28	H 12.4	G 0.25	

Residuals in seconds of arc

641111	330	1.4-	2.4+	890630	474	1.6+	0.2-	890901	474	0.0	1.5+
790814	413	0.6-	0.0	890630	474	1.1+	0.3-	890901	474	0.1+	1.1+
790814	413	1.4+	0.5-	890701	474	1.6-	0.1-	890902	474	0.5-	0.8+
801210	095	0.4-	2.7-	890701	474	1.5-	0.2+	890902	474	1.1-	0.1+
830417	413	1.0+	1.2-	890702	474	0.1-	0.5+	890925	474	1.3+	1.0-
830417	413	0.9-	0.6-	890702	474	0.7-	0.6+	890925	474	0.4-	2.5-
851107	688	0.7-	0.9-	890708	474	0.3-	0.4-				
851107	688	2.6+	0.3-	890708	474	0.7+	0.6-				

(4410)* 1989 YA = 1973 UN2 = 1973 YT = 1976 JK1 = 1978 UH = 1987 KS3
Discovered 1989 Dec. 17 by S. Ueda and H. Kaneda at Kushiro.
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Nakano

M	105.91140	(1950.0)	P	Q
n	0.18420030	Peri. 326.95941	+0.97343296	-0.18508284
a	3.0592091	Node 44.34856	+0.22844449	+0.82498085
e	0.0903039	Incl. 11.11912	-0.01553684	+0.53399527
P	5.35	H 11.5	G 0.25	

Residuals in seconds of arc

731027	095	1.5-	3.6+	891128	033	0.9+	1.9+	891218	399	2.2+	0.5-
731220	095	0.5+	0.9-	891129	033	2.3-	0.2-	891231	399	1.2+	0.4-
760502	095	0.3+	0.4-	891129	033	1.2-	0.0	891231	399	0.1+	2.1-
781028	688	0.9+	1.7- Y	891203	033	0.4-	0.8+	900102	399	0.2+	0.9+
870530	413	0.2+	0.0	891217	399	0.1-	1.0-	900102	399	0.5+	0.5+
870530	413	0.4-	0.4+	891217	399	1.4+	1.8-				
891128	033	1.9-	2.4+	891217	399	0.7+	1.5-				

(4411)* 1990 AF = 1973 YL3 = 1976 YP = 1979 TU2 = 1979 WZ7 = 1982 SF3
Discovered 1990 Jan. 3 by T. Seki at Geisei.
Id. T. Kobayashi (MPC 15900)
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Kaneda

M	108.15527	(1950.0)	P	Q
n	0.30902675	Peri. 9.98791	-0.13935056	-0.98946070
a	2.1667327	Node 88.03014	+0.90574646	-0.14342385
e	0.0925539	Incl. 2.25688	+0.40025588	-0.01992791
P	3.19	H 14.1	G 0.25	

Residuals in seconds of arc

731225	095	0.3-	1.0+	900105	372	0.8+	1.3-	900124	887	0.3-	1.5+
761216	095	(5.7-	1.6-)	900105	372	1.3+	2.1-	900124	887	1.7+	1.4+
761218	095	0.2-	0.3-	900117	372	(3.7+	1.3-)	900125	372	0.4+	1.5-
761220	095	2.0+	0.0	900117	372	(4.0-	1.5+)	900125	372	2.2+	0.3+
791014	095	2.1-	1.1+	900121	403	2.9-	0.8+	900127	887	0.7+	1.2+
791122	095	0.8-	0.2+	900121	372	2.5-	0.7-	900127	887	0.1+	1.4+
820924	033	0.7+	0.9-	900121	403	1.4-	0.0	900129	372	0.8-	0.5+
820924	033	1.0+	0.4-	900121	372	1.8-	0.4-	900129	372	1.2+	0.7-
900103	372	3.2+	0.7-	900123	403	2.0-	1.2-				

(4412)* 2535 P-L = 1980 FB5
Discovered 1960 Sept. 26 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Id. K. Hurukawa (MPC 9069)
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Oishi

M 152.51242	(1950.0)	P	Q	
n 0.17727271	Peri. 215.74625	+0.99048083	+0.13513848	
a 3.1383988	Node 136.46377	-0.11579832	+0.92085330	
e 0.1647280	Incl. 2.17806	-0.07442091	+0.36574142	
P 5.56	H 12.7	G 0.25		

Residuals in seconds of arc

600926	675	0.1+	0.4+	800317	809	0.6-	0.1-	881015	888	0.1+	2.5+
600928	675	0.3-	1.0+	800317	809	0.5+	0.7-	881105	888	0.2+	0.9-
600929	675	0.5+	0.0	800317	809	0.5-	0.2-	881105	888	0.8+	1.3-
601017	675	0.1+	0.4+	800317	809	0.3-	1.1-	881113	888	0.0	0.3-
601022	675	0.4-	0.0	881011	046	0.3+	1.0-	881113	888	0.7+	0.6-
601025	675	0.3+	0.3+	881011	046	0.0	1.4-	891230	888	0.2+	0.0
601026	675	0.6-	1.2-	881013	888	1.2-	0.0	891230	888	0.2-	0.1-
800316	809	0.1-	1.1-	881013	888	0.9-	1.0-	900125	888	0.5-	1.2+
800316	809	0.2-	0.8-	881014	046	0.8+	0.6-	900125	888	0.5+	1.3+
800316	809	0.2-	0.0	881014	046	0.4+	1.3-				
800316	809	0.3-	0.3-	881015	888	0.4+	1.6+				

(4413)* 4020 P-L = 1964 VV1 = 1971 UE2 = 1975 YM = 1982 UM10

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

Id. H. Oishi (MPC 11338)
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Oishi

M 72.86851	(1950.0)	P	Q	
n 0.27074355	Peri. 183.25637	+0.81744149	-0.57563246	
a 2.3664499	Node 211.91647	+0.52934368	+0.76502325	
e 0.0717362	Incl. 2.26527	+0.22712259	+0.28876754	
P 3.64	H 13.7	G 0.25		

Residuals in seconds of arc

600924	675	0.1-	0.3+	601026	675	0.4+	0.3+	891001	071	(5.0+	0.6+)
600925	675	0.5-	0.2+	641109	330	(18.4-	1.5+)	891002	071	(0.4+	5.5-)
600926	675	0.5+	0.3-	711021	095	1.8-	4.9-	891002	071	(1.5-	4.2-)
600928	675	0.9+	0.2+	751224	330	0.2-	0.8+	891004	888	0.3+	0.1-
601017	675	1.1-	0.8-	821024	095	1.2+	2.1+	891004	888	1.0+	0.4+
601022	675	0.1-	1.1+	890829	400	1.4-	0.2-				
601024	675	1.2+	0.6+	890829	400	0.4-	1.2+				

(4414)* 4153 P-L = 1971 VA1 = 1983 AE = 1987 ES

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

Id. H. Oishi (MPC 12585)
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Oishi

M 66.13676	(1950.0)	P	Q	
n 0.27646534	Peri. 119.67892	-0.34044891	-0.93997924	
a 2.3336851	Node 350.14244	+0.80926039	-0.28041906	
e 0.1182431	Incl. 7.75427	+0.47874018	-0.19443295	
P 3.57	H 14.1	G 0.25		

Residuals in seconds of arc

600924	675	0.4-	0.3-	601026	675	0.2+	0.2+	891127	888	1.0-	0.1+
600924	675	0.7+	0.2+	711111	095	(0.9+	9.2+)	891221	888	0.1-	0.3-
600925	675	0.2-	0.9+	830109	688	1.0-	0.4+	891221	888	0.4-	0.1+
600926	675	0.6-	0.2-	830109	688	1.0+	0.5-	891230	888	0.9+	0.5+
600928	675	0.4-	0.9-	870303	688	1.4-	0.3-	891230	888	0.0	0.3-
601022	675	0.3+	0.3-	870303	688	1.2+	0.1+				
601024	675	0.8+	0.1+	891127	888	0.6+	0.1+				

(4415)* 4237 P-L = 1980 FK3
Discovered 1960 Sept. 24 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.
Id. K. Hurukawa (MPC 9300)
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Nakano

M	20.25680	(1950.0)	P	Q
n	0.27577661	Peri. 174.15760	-0.79673846	-0.60404755
a	2.3375690	Node 328.65907	+0.55299580	-0.71652989
e	0.0657141	Incl. 2.01474	+0.24372826	-0.34887172
P	3.57	H 15.2	G 0.25	

Residuals in seconds of arc

600924	675	0.2-	0.4-	781004	675	0.6-	0.7-	800317	809	0.0	0.1-
600925	675	1.2+	1.0-	781005	675	1.1+	0.9-	800323	809	0.7-	0.2-
600926	675	0.6+	0.5-	800316	809	0.0	0.1-	891128	033	0.9-	2.3+
600928	675	0.2+	0.5+	800316	809	0.1+	0.1-	891128	033	(9.7+	5.3+)
601017	675	1.2-	0.3-	800316	809	0.7-	0.2+	891129	033	1.2+	0.7-
601022	675	0.7-	0.4+	800316	809	0.1-	0.8-	891129	033	0.4-	0.9-
601026	675	0.6+	0.4+	800317	809	0.6+	0.7-				

(4416)* 4530 P-L = 1979 TP1 = 1981 EX47
Discovered 1960 Sept. 24 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.
Id. K. Hurukawa (MPC 10030), O. Kippes (ibid.), H. Oishi (MPC 15904)
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell

M	184.45238	(1950.0)	P	Q
n	0.31197511	Peri. 163.06874	+0.98200154	-0.18863007
a	2.1530598	Node 207.80960	+0.17081414	+0.90859910
e	0.1728497	Incl. 1.17598	+0.08059474	+0.37264780
P	3.16	H 15.6	G 0.25	

Residuals in seconds of arc

600924	675	0.5+	0.2+	601026	675	0.3-	1.0-	810503	413	1.5-	0.6-
600926	675	0.5+	0.8-	791014	095	0.2+	0.5-	891230	413	0.6-	0.0
600927	675	0.1+	0.3-	810302	413	0.1+	1.0-	891230	413	0.5+	0.1+
600928	675	0.2+	1.2-	810311	413	1.3+	2.2-	891231	413	1.8+	0.3-
601017	675	1.0+	1.0-	810315	413	0.4+	1.4-	891231	413	1.5-	0.7+
601022	675	0.0	0.2+	810410	413	1.4-	0.3-				
601024	675	0.4-	0.1-	810501	413	2.1-	0.8-				

1941 UN = 1984 CT = 1987 WA5
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Kobayashi

M	227.86241	(1950.0)	P	Q
n	0.21456513	Peri. 48.61354	+0.52952736	-0.84801605
a	2.7633122	Node 9.48541	+0.73372257	+0.44504000
e	0.3327973	Incl. 7.55568	+0.42573696	+0.28776410
P	4.59	H 12.2	G 0.25	

Residuals in seconds of arc

410920	062	0.6-	1.0+	411015	062	1.1-	1.4-	871117	399	0.3-	0.3+
410925	062	1.1+	0.4-	411016	062	1.8+	1.4+	871117	399	0.2+	0.1-
410925	062	0.3-	0.9-	840206	688	0.0	1.4-	871117	399	0.5+	0.1+
410927	062	0.9-	0.4+	840206	688	0.1+	1.5+	871117	399	0.4-	0.3-

1952 HJ2 = 1952 HC4 = 1952 JQ = 1984 FC2
Id. S. Nakano (MPC 13050); 1952 HJ2 = 1954 UR2 (MPC 13050) is invalid
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell

M	7.48830	(1950.0)	P	Q
n	0.18286365	Peri. 201.99832	-0.17784338	+0.98394691
a	3.0740986	Node 57.76035	-0.90017698	-0.15657311
e	0.1456603	Incl. 1.00528	-0.39755897	-0.08563493
P	5.39	H 11.9	G 0.25	

Residuals in seconds of arc

520418 760	0.4+	0.3-	890129 046	2.0-	0.7-	890204 071	(4.8-	2.3+)
520418 760	0.4-	0.3+	890129 046	0.6+	0.5-	890205 071	(4.6-	3.2+)
520424 711	(2.1-	2.4-)Y	890130 046	0.9+	0.2+	890207 400	0.1+	0.1+
520514 760	(5.4-	1.0+)	890130 046	0.4-	1.0-	890207 400	(7.3-	0.9+)
520514 760	0.0	0.3-	890131 046	0.1+	0.2+	890207 400	0.4-	1.4-
840330 095	(4.8+	2.3+)	890131 046	0.5+	0.5+	890309 801	0.7+	2.7+
840403 095	0.0	0.0	890202 046	(3.0-	1.0+)			

1952 QW = 1952 SL = 1989 GO5
Id. S. Nakano (d, MPC 10817), T. Kobayashi
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Kobayashi

M	333.20028		(1950.0)	P	Q
n	0.28338787	Peri.	266.66893	+0.94868654	-0.30038215
a	2.2955242	Node	110.79334	+0.31546594	+0.87749427
e	0.3009377	Incl.	6.06747	+0.02179654	+0.37386410
P	3.48	H	14.9	G 0.25	

Residuals in seconds of arc

520828 760	1.6-	0.1+	520926 760	0.9+	1.7-	890403 474	0.4+	0.1+
520828 760	1.7+	0.5-	520926 760	0.2+	2.6-	890403 474	1.3-	0.4-
520924 760	1.2-	4.6+	890401 474	1.0-	0.3-	890404 474	0.4-	0.2+
520924 760	(0.3-	8.4+)	890401 474	0.4+	0.3+	890404 474	1.9+	0.1+

1961 BC = 1961 CE = 1982 HV1 = 1985 DO1 = 1986 VG5
Id. O. Kippes (d, MPC 2808), T. Kobayashi
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Kobayashi

M	154.34859		(1950.0)	P	Q
n	0.29728244	Peri.	193.01376	+0.29303571	+0.94469837
a	2.2234287	Node	94.17353	-0.86340662	+0.32761149
e	0.1925857	Incl.	8.48879	-0.41068124	-0.01468675
P	3.32	H	13.1	G 0.25	

Residuals in seconds of arc

610118 032	0.0	0.2+	610215 033	0.3-	1.6+	610217 033	0.9-	3.4-
610118 032	0.1-	0.5+	610215 032	1.6-	0.1+	820428 688	0.5-	0.6+
610215 033	2.1-	0.6+	610215 033	1.6-	1.6-	820428 688	0.3-	0.1+
610215 032	0.0	0.4+	610217 033	0.9+	1.2+	850225 688	1.4+	0.6+
610215 033	1.4+	1.4+	610217 032	1.4+	0.4+	850225 688	1.8-	0.1-
610215 032	1.8+	0.9+	610217 033	1.5+	1.5-	861105 688	1.5-	0.1-
610215 033	0.0-	0.9-	610217 032	0.1+	0.4-	861105 688	0.6+	0.2+

1967 GM1 = 1982 BG5 = 1983 GQ2
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Kaneda

M	122.69758		(1950.0)	P	Q
n	0.18844434	Peri.	169.27489	-0.28661278	+0.93764650
a	3.0131031	Node	83.85110	-0.89294362	-0.18707293
e	0.0579792	Incl.	11.40777	-0.34713803	-0.29295521
P	5.23	H	12.5	G 0.25	

Residuals in seconds of arc

670411 033	1.3+	0.3-	670415 033	0.4-	0.7+	820126 381	0.1+	0.1-
670411 033	0.1-	0.5+	820126 381	1.2-	0.7-	820128 381	1.4+	2.8-
670411 033	2.0-	0.2+	820126 381	0.9-	1.5+	820128 381	0.5-	0.2-
670411 033	1.3+	0.8-	820126 381	0.1-	0.1-	820128 381	0.6+	2.0+
670415 033	(6.3-	0.2+)	820126 381	0.6+	0.3+	830411 095	0.1-	0.2-

1977 DQ3 = 1975 VL4 = 1986 TC5 = 1986 UO1
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Kaneda

M 227.67868	(1950.0)		P	Q
n 0.17644580	Peri.	7.23839	+0.35446344	-0.93447256
a 3.1481965	Node	62.00593	+0.85595924	+0.30988077
e 0.1608406	Incl.	2.16889	+0.37641660	+0.17531385
P 5.59	H 13.2		G 0.25	

Residuals in seconds of arc

751102 095	0.8+	2.1-		770219 381	2.8-	0.8+		861001 010 (8.0+		2.3-)	
770218 381	0.1+	0.1+		770312 381	0.5+	0.1+		861027 010(14.7-		0.9+)	
770218 381	1.7+	0.1-		770312 381	1.3+	0.0		861027 010	2.0-	2.7+	
770219 381	0.7-	0.3-		861001 010	1.1+	2.1-		861027 010	0.1-	1.6+	

1977 EL = 1975 UQ
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Kaneda

M 323.33957	(1950.0)		P	Q
n 0.29822791	Peri.	121.57617	-0.30307725	+0.94947956
a 2.2187269	Node	130.55694	-0.90659827	-0.26094250
e 0.1477401	Incl.	6.15358	-0.29363882	-0.17434901
P 3.30	H 13.8		G 0.25	

Residuals in seconds of arc

751030 033	0.6+	0.3+		770213 675	1.6+	0.3-		770309 095	0.7+	0.1-	
751031 033	0.6-	0.3-		770214 675	1.8-	0.3+		770313 095	0.5-	0.1+	

1978 PX3 = 1988 PR3
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Kaneda

M 233.07669	(1950.0)		P	Q
n 0.29628717	Peri.	31.30011	+0.93955257	+0.33478672
a 2.2284051	Node	308.96749	-0.33012910	+0.83005051
e 0.2196832	Incl.	5.30048	-0.09086114	+0.44602018
P 3.33	H 15.1		G 0.25	

Residuals in seconds of arc

780809 095	0.2+	1.1+		880809 095	0.2-	0.4+		880811 413	2.2+	1.2-	
780831 095	1.9-	2.4+		880809 095	1.2-	0.4+					
780905 095	0.7+	1.3-		880811 413	0.3+	1.8-					

1978 RK1 = 1977 LQ = 1980 BX3
Id. E. Bowell (MPC 11050), B. G. Marsden (ibid.)
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 (J-P) Nakano

M 67.21464	(1950.0)		P	Q
n 0.17827473	Peri.	265.80982	+0.99890972	+0.00847004
a 3.1266341	Node	93.70046	+0.01035141	+0.91873631
e 0.1677033	Incl.	2.63681	-0.04552153	+0.39478075
P 5.53	H 13.0		G 0.25	

Residuals in seconds of arc

770612 675	0.1-	0.2-		780928 095	0.5-	0.8-		890926 809	0.3-	0.3+	
770613 675	0.0	0.4-		781004 095	0.4-	0.8-		890926 809	0.2-	0.3+	
780905 095	0.2+	0.0		800122 095	0.0	0.5-					
780907 095	1.2+	0.5+		890926 809	0.1+	0.3+					

1978 VL5 = 1974 OM = 1981 UF13
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Kaneda

M 300.80020	(1950.0)		P	Q
n 0.29612242	Peri.	53.13820	+0.74557823	+0.66161436
a 2.2292316	Node	265.29158	-0.63407240	+0.66739072
e 0.1708644	Incl.	4.59676	-0.20509823	+0.34184216
P 3.33	H 14.0		G 0.25	

Residuals in seconds of arc

740725 095	0.0	1.3+	781107 675	0.2-	1.1+	781130 675	2.4+	0.4+
781105 675	0.3+	0.9+	781108 675	0.7-	0.3+	811023 095	0.7+	1.4-
781106 675	0.2-	0.0	781129 675	1.2-	0.4-			

1978 VG11 = 1969 TE1 = 1987 YE6

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5			Kaneda
M 315.17591	(1950.0)	P	Q
n 0.22877552	Peri. 310.01027	+0.96608188	-0.23573235
a 2.6476649	Node 63.86014	+0.25786777	+0.85884318
e 0.2194981	Incl. 6.74466	+0.01378440	+0.45477318
P 4.31	H 14.8	G 0.25	

Residuals in seconds of arc

691008 095	0.9+	1.9-	781108 675	0.1-	0.4+	871224 010	0.7+	1.5-
781105 675	0.2-	0.2+	781129 675	0.9+	0.3+	871224 010	0.1-	0.7+
781106 675	1.3-	0.1+	781130 675	0.3+	0.2+			
781107 675	0.5-	1.6+	871224 010	1.1-	2.2-			

1980 FF3 = 4181 P-L

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5			Kaneda
M 128.74455	(1950.0)	P	Q
n 0.23099823	Peri. 247.74945	-0.52346819	+0.85182436
a 2.6306533	Node 350.61328	-0.73134585	-0.46087952
e 0.1565948	Incl. 6.83095	-0.43716620	-0.24896854
P 4.27	H 14.7	G 0.25	

Residuals in seconds of arc

600924 675	0.7-	0.4+	600928 675	0.7-	0.5-	800317 809	0.3-	0.6-
600925 675	1.0+	0.3-	600928 675	0.0	0.1+	800317 809	0.1+	0.2+
600925 675	0.6-	0.3-	600928 675	0.9+	1.0+	800317 809	0.1-	0.1-
600926 675	0.3-	0.4-	800316 809	0.1-	0.5+	800317 809	0.6+	0.5-
600926 675	0.2+	0.1-	800316 809	0.1+	0.3+	800323 809	0.4-	0.3+

1980 PW = 1950 TO = 1984 SE5

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5			Kaneda
M 229.04478	(1950.0)	P	Q
n 0.26154047	Peri. 53.83470	+0.99539173	-0.07973870
a 2.4216430	Node 310.67533	+0.04839016	+0.89723502
e 0.2157919	Incl. 4.02723	+0.08278704	+0.43429375
P 3.77	H 14.0	G 0.25	

Residuals in seconds of arc

501006 024	0.8-	0.4+	800814 046	0.6+	0.6+	840927 675	0.5-	0.8+
501006 024	0.5+	0.4+	800814 046	0.3+	0.9+	840927 675	1.3+	0.4-
800806 046	1.3+	0.0	800815 046	2.5-	1.6-	841026 675	0.6-	1.3-
800806 046	1.9+	0.6-	800815 046	0.6-	0.4-	841026 675	0.2+	0.2+
800807 046	2.9+	0.8+	800817 046	0.8-	0.9-			
800807 046	(8.0+	1.4-)	800817 046	2.8-	1.0+			

1980 VX1 = 1977 DG = 1977 DJ11

Id. H. Oishi (MPC 11747)

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5			Oishi
M 28.31218	(1950.0)	P	Q
n 0.21168449	Peri. 85.21020	+0.09764803	-0.99521934
a 2.7883248	Node 359.17938	+0.85517369	+0.08484333
e 0.2076167	Incl. 7.30885	+0.50906072	+0.04837424
P 4.66	H 13.4	G 0.25	

Residuals in seconds of arc

770217	801	0.6-	0.2-	801210	095	1.8-	0.6+	891025	888	1.2+	0.8+
770222	801	1.1+	1.0+	891004	888	0.6-	0.8-	891026	888	0.5-	1.9+
801106	330	1.8+	0.5-	891004	888	0.5-	1.1-	891026	888	1.4-	0.0
801110	330	0.3+	1.3-	891025	888	0.8+	1.2+				

1980 XZ = 1932 BE = 1983 GR2 = 1983 JJ1
Id. H. Kaneda, N. S. Chernykh (d)

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5				Kaneda	
M 72.09334		(1950.0)		P	Q
n	0.17879710	Peri.	200.72010	+0.18757240	+0.96060300
a	3.1205351	Node	80.53622	-0.86935462	+0.25953901
e	0.0565180	Incl.	11.99998	-0.45720798	-0.09940513
P	5.51	H	11.2	G 0.25	

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

320128	024	0.0	0.4+	801207	330	1.1+	0.6-	830411	095	1.7+	0.1+
320128	022(0.10-	0.00)X		801210	095	1.6-	0.4+	830515	095	2.1-	0.8-
801130	095	1.6-	0.2-	801212	330	2.4+	0.5-				

1982 FK3 = 1978 EN8 = 1986 GN1 = 1986 GA3

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5				Kaneda	
M 120.40446		(1950.0)		P	Q
n	0.25458888	Peri.	299.00067	-0.60151657	-0.79878680
a	2.4655270	Node	188.00442	+0.75732205	-0.56586950
e	0.2205758	Incl.	4.46372	+0.25424618	-0.20428252
P	3.87	H	14.0	G 0.25	

Residuals in seconds of arc

780305	095	0.1-	0.1-	820329	809	0.2+	0.2+	820331	809	0.3+	0.2+
820321	809	0.1+	0.3+	820329	809	0.1+	0.2-	820331	809	0.2+	0.1+
820321	809	0.1-	0.2-	820329	809	0.2-	0.2-	820331	809	1.1-	0.6+
820321	809	0.9+	0.6-	820329	809	0.0	0.8+	820331	809	0.5-	0.2-
820326	809	0.0	0.2+	820329	809	0.2-	1.4+	820331	809	0.5-	0.1+
820326	809	0.3+	0.2+	820329	809	0.0	1.0+	820401	809	0.2+	0.2-
820326	809	0.5+	0.3+	820330	809	0.3-	0.8-	820401	809	0.4+	0.2+
820327	809	0.1+	0.7-	820330	809	0.1-	0.7-	820401	809	0.6+	0.2-
820327	809	0.4-	0.3-	820330	809	0.1+	0.4-	820401	809	0.1+	0.1-
820327	809	0.6-	0.3-	820330	809	0.0	0.9-	820401	809	0.4+	0.1+
820328	809	0.5-	0.1-	820330	809	0.2-	0.3-	820401	809	0.1-	0.1+
820328	809	0.3-	0.1+	820330	809	0.3+	0.1+	860404	095	2.8-	1.0+
820328	809	0.1+	0.3+	820331	809	0.3+	0.3+	860413	801	2.5+	1.2-

1982 JR1 = 1983 VG1

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5				Kaneda	
M 250.01874		(1950.0)		P	Q
n	0.22487190	Peri.	258.00041	+0.94546870	+0.28882160
a	2.6782180	Node	85.06973	-0.20745532	+0.89036687
e	0.2347484	Incl.	8.69231	-0.25110004	+0.35189335
P	4.38	H	13.6	G 0.25	

Residuals in seconds of arc

820515	675	0.7+	0.9+	820518	675	0.4-	0.4+	831107	046	1.3+	0.0
820516	675	1.5+	0.9-	831106	046	0.9-	1.0-	831109	046	0.5-	0.4+
820516	675	0.9-	0.3+	831106	046	1.7-	1.0+	831109	046	0.6+	0.0
820517	675	0.9-	0.7-	831107	046	1.3+	0.4-				

1983 XH1 = 1975 BM1 = 1978 RV2 = 1978 TN3 = 1987 QE3
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Kaneda
M 160.78383 (1950.0) P Q
n 0.21061580 Peri. 265.79515 +0.18293128 -0.98301362
a 2.7977490 Node 173.60653 +0.94656949 +0.17202984
e 0.2059681 Incl. 7.66099 +0.26559811 +0.06395281
P 4.68 H 13.0 G 0.25
Residuals in seconds of arc

750116	330	0.6-	3.4-	870822	809	3.4-	0.8-	870828	809	2.3+	0.5-
780912	095	0.0	1.8+	870826	095	0.1-	0.2-	870829	809	0.3-	0.5-
781004	095	1.3-	3.8+	870827	809	1.0-	0.9-	870829	809	0.4+	0.3-
831207	323	1.4-	0.4-	870827	809	0.5-	1.4-	870829	809	0.1-	1.0-
831209	323	1.5+	0.0	870827	809	0.4+	0.4-	870901	095	2.3+	0.4-
831212	323	0.3+	0.9-	870828	809	2.2+	0.6-				
870822	809	3.6-	0.3-	870828	809	2.8+	0.8-				

1985 QP5 = 1965 UL2 = 1989 TY13
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 (J-P) Nakano
M 134.90705 (1950.0) P Q
n 0.24172795 Peri. 306.92847 +0.56926229 +0.82209770
a 2.5522252 Node 357.70274 -0.65503009 +0.44631625
e 0.0955341 Incl. 14.13524 -0.49686621 +0.35349283
P 4.08 H 13.5 G 0.25
Residuals in seconds of arc

651023	033	0.5-	0.1+	850915	095	2.7-	0.1-	891002	809	0.4-	1.2+
651023	033	0.5+	0.7+	850920	095	3.4+	2.6-	891003	809	1.4-	0.3-
651024	033	0.1-	0.4-	891002	809	0.3-	1.1+	891003	809	1.0-	0.3-
850823	095	0.7+	1.0+	891002	809	0.6-	1.2+	891003	809	2.5+	1.3-

1986 EZ = 1990 BV2
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 (J-P) Nakano
M 21.66516 (1950.0) P Q
n 0.22788892 Peri. 182.26026 -0.99697272 -0.07351012
a 2.6545329 Node 353.36280 +0.07432957 -0.80549283
e 0.0854223 Incl. 12.65965 +0.02281462 -0.58802855
P 4.32 H 12.5 G 0.25
Residuals in seconds of arc

860305	688	2.2-	0.8+	860408	046	1.0-	0.4-	900216	402	0.8-	0.3-
860305	688	(4.6-	1.5+)	860408	046	2.0-	0.3-	900216	402	0.3+	0.9+
860401	046	2.5+	0.5+	900121	402	0.0	0.2-	900217	402	0.7-	1.2-
860401	046	1.8+	0.0	900121	402	0.0	0.2-	900217	402	2.0+	0.9+
860402	046	0.8+	1.0-	900121	402	0.4-	0.1+				
860402	046	0.1+	0.2+	900121	402	0.4-	0.1+				

1986 RJ4 = 1977 DA3
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Kaneda
M 10.40202 (1950.0) P Q
n 0.27268402 Peri. 66.39329 +0.73645263 -0.64657278
a 2.3552097 Node 332.54609 +0.34624491 +0.61291795
e 0.2266264 Incl. 25.56466 +0.58116434 +0.45417532
P 3.61 H 14.3 G 0.25

Residuals in seconds of arc

770218 381	0.2+	0.4+	860906 809	1.4-	0.8+	860908 809	0.3+	0.1-
770218 381	0.8+	0.1+	860906 809	1.6-	0.7+	860908 071	0.4+	1.1-
770219 381	1.1-	0.0	860906 071	1.6-	0.9+	860908 071	2.7+	1.7-
770219 381	0.3+	0.1-	860906 071	2.8-	1.1-	860908 071	1.6+	2.1-
770219 381	(5.4-	1.7-)	860907 809	1.1-	0.9+	860910 809	0.8+	0.2+
860828 809	0.2+	0.6-	860907 809	0.6-	0.9+	860910 809	0.9+	0.3+
860828 809	0.9+	0.1-	860907 809	0.3-	0.9+	860910 809	1.0+	0.3+
860828 809	1.0+	0.2+	860908 809	0.3+	0.1-			
860906 809	1.1-	1.1+	860908 809	0.4+	0.1-			

1987 DD = 1964 VN2

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

M 11.44602		(1950.0)		P	Q
n 0.23063276	Peri.	0.05011	+0.09283521	-0.86390274	
a 2.6334369	Node	84.62978	+0.91330187	-0.12413208	
e 0.1028286	Incl.	29.81568	+0.39656186	+0.48812221	
P 4.27	H	12.5	G	0.25	

Residuals in seconds of arc

641111 330	0.8+	1.0-	870317 675	0.2-	0.3-	890629 474	0.4-	0.8-
870225 054	0.2-	0.2-	870317 675	0.8-	0.4-	890701 474	0.9+	1.8-
870225 054	1.5-	1.7+	870508 675	0.5+	1.3-	890701 474	0.0	1.4-
870227 054	0.9+	0.6+	870508 675	0.3+	1.1-	890728 474	0.9-	0.9+
870227 054	0.1+	1.1+	870509 675	0.8+	1.1-	890728 474	0.5-	0.8+
870301 054	(9.1+	6.3-)	870509 675	0.8+	1.3-	891104 474	1.4+	0.5+
870301 054	(7.9+	4.7-)	890629 474	0.8-	0.7-	891104 474	1.0+	0.7+

1987 DU6 = 1955 MS = 1971 GE = 1990 CB

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 (J-P) Nakano

M 292.41004		(1950.0)		P	Q
n 0.30180274	Peri.	11.05332	+0.32073990	+0.94484852	
a 2.2011761	Node	277.68006	-0.87398515	+0.26828011	
e 0.1361057	Incl.	3.83224	-0.36506967	+0.18784849	
P 3.27	H	13.0	G	0.25	

Residuals in seconds of arc

550623 076	0.9+	3.0-	870302 809	0.3+	1.1+	870308 809	0.5+	0.1-
710402 805	0.3+	3.0+	870302 809	0.4+	1.0+	870310 809	0.5+	0.9-
870224 809	(0.8-	2.6-)	870302 809	0.7+	1.0+	870310 809	0.3+	0.9-
870224 809	(1.3-	2.4-)	870303 809	0.7+	0.1-	870310 809	0.7+	1.0-
870224 809	(1.1-	2.3-)	870303 809	0.2+	0.0	900201 402	2.0-	0.8+
870226 809	1.4-	0.8-	870303 809	0.3+	0.2+	900201 402	0.9+	1.5+
870226 809	1.1-	0.8-	870304 809	0.1+	0.5-	900202 402	2.0-	2.5-
870226 809	0.9-	0.7-	870304 809	0.5+	0.4-	900202 402	(3.6-	1.1-)
870228 809	0.9-	0.7+	870304 809	0.6+	0.3-	900216 402	0.9-	0.6-
870228 809	0.7-	0.3+	870305 809	0.1-	0.5-	900216 402	0.6+	0.2-
870228 809	0.1-	0.3+	870305 809	0.0	0.4-	900216 402	(3.4+	1.0+)
870301 809	0.3-	0.4+	870305 809	0.0	0.6-	900216 402	2.3+	1.0-
870301 809	0.3-	0.4+	870308 809	0.1-	0.1+			
870301 809	0.2-	0.4+	870308 809	0.1+	0.3-			

1987 QS1 = 1990 BF1

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Kaneda

M 12.65669		(1950.0)		P	Q
n 0.25728530	Peri.	248.12025	-0.80107121	+0.59558721	
a 2.4482705	Node	328.34384	-0.49856998	-0.71908372	
e 0.1709835	Incl.	6.52868	-0.33122935	-0.35804257	
P 3.83	H	13.2	G	0.25	

Residuals in seconds of arc

870819	809	1.2+	0.2-	870822	809	0.2+	0.5-	900127	400	0.3+	1.0-
870819	809	1.5+	0.3-	870822	809	0.3+	0.3-	900131	400	0.1-	1.0+
870819	809	2.1+	0.4-	870824	809	3.7-	1.0+	900131	400	0.9+	0.1-
870821	809	0.7-	1.3+	870824	809	3.7-	0.2-	900214	400	0.2+	1.3+
870821	809	2.5+	0.2-	900124	400	2.3+	0.5-	900214	400	2.1-	0.2-
870821	809	(5.9+	2.0-)	900124	400	1.4-	0.6-				

1987 SO5 = 1982 UC9
Id. A. Lowe, S. Nakano
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 (J-P) Nakano

M	161.84098		(1950.0)	P	Q
n	0.18655926	Peri.	71.67271	+0.40596173	-0.91377786
a	3.0333722	Node	354.31395	+0.77433755	+0.35225141
e	0.0282812	Incl.	8.31097	+0.48538277	+0.20230909
P	5.28	H	12.5	G 0.25	

Residuals in seconds of arc

821021	095	0.1-	0.1+	870929	054	1.0+	0.3-	870930	054	0.9-	0.1+
821022	095	0.1+	0.1-	870930	054	0.7-	0.2+	871002	054	0.6+	0.0

1987 SQ17 = 1943 UD
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Kobayashi

M	342.94646		(1950.0)	P	Q
n	0.29054390	Peri.	0.69230	+0.96715910	+0.25293659
a	2.2576756	Node	344.58640	-0.23363691	+0.84592800
e	0.2046273	Incl.	5.40317	-0.10008534	+0.46949856
P	3.39	H	13.1	G 0.25	

Residuals in seconds of arc

431030	024	2.3-	0.3-	870917	095	0.3+	0.1-	871023	095	2.5-	2.3+
431103	024	2.9+	0.9-	870923	095	1.4+	1.2-				

1987 VT = 1980 DN4 = 1989 AQ3
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Kaneda

M	289.66462		(1950.0)	P	Q
n	0.21232280	Peri.	272.28387	+0.79507981	+0.55456122
a	2.7827336	Node	54.14012	-0.36166528	+0.75855374
e	0.1802785	Incl.	17.63891	-0.48687403	+0.34213753
P	4.64	H	12.5	G 0.25	

Residuals in seconds of arc

800221	095	0.2+	0.5+	871123	046	1.5-	0.0	890110	033	0.3+	0.4-
871115	046	1.7+	0.1+	871125	046	0.3-	0.7-	890114	033	0.7-	0.0
871115	046	0.5+	0.1+	871125	046	0.2-	0.9+	890114	033	0.0	0.0
871123	046	0.4-	0.3-	890109	033	0.2+	0.2-				

1987 VU = 1960 WA = 1969 TN6 = 1969 VD3
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Kaneda

M	251.31767		(1950.0)	P	Q
n	0.21948064	Peri.	322.41262	+0.88122749	-0.45122895
a	2.7218983	Node	64.97147	+0.46257343	+0.76189377
e	0.1686814	Incl.	8.94086	+0.09728274	+0.46466151
P	4.49	H	12.8	G 0.25	

Residuals in seconds of arc

601117	760	0.4-	1.4+	871115	046	0.6+	1.0+	871125	046	1.5-	1.6-
601117	760	0.7-	0.5+	871115	046	1.3+	0.4+	871125	046	0.8+	1.6-
691015	095	1.5+	0.7-	871123	046	0.3-	0.6+				
691104	805	0.7-	0.5-	871123	046	0.6-	0.3+				

1988 DR = 1971 DE1 = 1973 UV4 = 1973 YE = 1976 SH6
Id. H. Kaneda; 1973 UV4 = 1973 YF (MPC 9064) is invalid
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Kaneda

M 315.95107	(1950.0)	P	Q	
n 0.28862712	Peri. 283.35879	-0.19734755	-0.98032080	
a 2.2676601	Node 178.00254	+0.94582258	-0.19174123	
e 0.1746931	Incl. 8.26053	+0.25782474	-0.04697270	
P 3.41	H 13.6	G 0.25		

Residuals in seconds of arc

710218 095	1.3-	0.5+	760925 095	0.5-	1.5+	880313 220	3.1+	1.0- Y
710223 095	2.4+	4.2+	880216 220	1.5+	1.6- Y	880314 220	1.6+	0.0 Y
731021 688	0.1+	0.0	880217 220	0.9-	1.1- Y	880315 675	3.4-	1.3+
731023 688	1.2+	1.0-	880217 220	2.6-	1.4- Y			
731219 095	1.3-	1.6+	880312 675	(6.8+	1.3+)			

1988 MF
Id. J. Alu (1989 obs.)
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 (J-P) Marsden

M 141.82085	(1950.0)	P	Q	
n 0.38642225	Peri. 349.80423	-0.18003644	-0.89721949	
a 1.8667901	Node 109.63409	+0.92991554	-0.28888383	
e 0.0305046	Incl. 25.34757	+0.32069295	+0.33398101	
P 2.55	H 14.0	G 0.25		

Residuals in seconds of arc

880616 675	0.6-	1.0-	880712 675	0.8+	1.1-	900124 675	0.2+	0.1+
880616 675	1.3-	0.4-	880712 675	0.3-	0.8+	900124 675	0.8+	0.1-
880620 675	1.3+	0.6+	900121 675	0.1-	0.6+			
880620 675	0.1+	1.1+	900121 675	0.8-	0.5-			

1988 PY
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell

M 39.99581	(1950.0)	P	Q	
n 0.08392058	Peri. 64.38904	+0.96520883	-0.24346106	
a 5.1668247	Node 309.55068	+0.17257965	+0.86720220	
e 0.1241028	Incl. 7.10617	+0.19643876	+0.43438124	
P 11.74	H 10.3	G 0.25		

Residuals in seconds of arc

880813 675	1.0+	0.3-	880912 675	0.3+	0.7+	881009 675	0.0	0.2-
880814 511	0.6-	0.2+	880913 675	0.1-	0.4+	881105 675	1.2+	1.3-
880814 511	0.8+	1.4+	880916 511	(8.8+	6.0+)	881108 675	0.1-	0.1+
880814 675	(2.4+	0.8-)	880917 511	(5.8+	0.5+)	890903 675	0.3+	0.1+
880815 511	0.6-	0.1-	880917 511	1.1-	1.1-	890903 675	1.0+	0.6-
880816 511	0.8-	0.3+	880918 511	(1.8-	1.6-)	890927 675	0.7-	1.2+
880818 675	0.6-	0.4-	880918 511	(2.8-	1.1-)	890929 675	0.1+	0.7+
880910 675	0.0	0.3+	881007 675	0.8+	0.4-	890929 675	0.7-	1.1-

1988 PM2
Id. L. D. Schmadel (1989 obs.)
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Schmadel

M 131.19815	(1950.0)	P	Q	
n 0.21162927	Peri. 249.70403	+0.85679606	-0.51262601	
a 2.7888098	Node 141.07740	+0.50001641	+0.79947545	
e 0.0814521	Incl. 5.09665	+0.12603218	+0.31313508	
P 4.66	H 14.0	G 0.25		

Residuals in seconds of arc

880813 033	0.5+	0.0	880915 511	1.8-	0.6-	891226 033	0.7-	0.3+
880814 033	0.6+	0.4+	880915 511	0.5+	0.6-	891226 033	0.1-	0.1-
880814 033	1.0-	0.4-	880915 511	1.3+	1.2+	891226 033	0.8+	0.2-

1988 QE
Id. C. S. Shoemaker (1989 obs.)
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 (J-P) Bardwell
M 350.95309 (1950.0) P Q
n 0.08448912 Peri. 168.10491 +0.64840235 -0.75216543
a 5.1436298 Node 241.35101 +0.68699643 +0.64464241
e 0.0460922 Incl. 7.69884 +0.32804007 +0.13668695
P 11.67 H 10.0 G 0.25
Residuals in seconds of arc

880814 675	1.0+	0.7+	880819 675	0.1+	0.6-	881007 675	0.2+	0.4+
880817 675	1.6-	1.5+	880910 675	0.4+	0.4-	890927 675	0.0	0.8-
880818 675	0.2+	0.7-	880912 675	0.5+	0.6+	890929 675	0.1-	0.3+

1988 RT
Id. C. S. Shoemaker (1989 obs.)
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
M 32.66339 (1950.0) P Q
n 0.08074875 Peri. 102.96257 +0.91072283 -0.39541349
a 5.3012567 Node 280.43086 +0.31603194 +0.85312531
e 0.0603225 Incl. 6.96731 +0.26590928 +0.34033128
P 12.21 H 9.4 G 0.25
Residuals in seconds of arc

880911 675	0.5+	0.6-	881106 675	0.2+	0.2-	890928 675	0.7+	0.2-
880916 675	0.0	0.5-	881108 675	0.4-	0.8+	890929 675	0.2-	0.0
881008 675	0.5+	0.0	890927 675	0.2-	0.6+	890929 675	0.0	0.3-
881010 675	0.9-	0.6+	890928 675	0.2-	0.3-			

1988 RM1
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
M 65.88912 (1950.0) P Q
n 0.08552316 Peri. 122.59096 +0.95506010 +0.27930025
a 5.1020754 Node 221.43107 -0.29626746 +0.90994871
e 0.0493733 Incl. 8.62669 +0.00926272 +0.30656928
P 11.52 H 10.7 G 0.25
Residuals in seconds of arc

880815 675	0.1+	0.4-	880912 675	0.6+	1.0-	890903 675	0.4+	0.2-
880819 675	0.2+	0.2+	881007 675	0.1-	0.3+	890927 675	0.7-	1.1-
880910 675	(0.3-	3.3-)	881009 675	0.3-	0.5-	890928 675	0.8+	0.7+
880911 675	0.5-	1.3+	890903 675	0.9-	0.5-	890928 675	0.3+	1.0+

1988 RU3
Id. F. Borngen (1989 obs.)
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Schmadel
M 252.63726 (1950.0) P Q
n 0.22381405 Peri. 124.96022 +0.11520545 +0.99303101
a 2.6866504 Node 151.62454 -0.92752539 +0.11649024
e 0.0391448 Incl. 2.99631 -0.35556202 +0.01787291
P 4.40 H 14.4 G 0.25
Residuals in seconds of arc

880908 033	0.5-	0.6+	880918 807	1.4+	0.2+	881106 807	0.2-	0.4-
880909 033	0.5-	0.6+	881005 807	0.6+	0.3-	881107 807	0.1-	0.0
880909 033	0.1-	0.3+	881008 807	0.6+	1.4-	891225 033	0.5-	0.3-
880910 033	0.5-	0.1+	881104 807	0.4-	0.3+	891226 033	0.4-	0.4+
880910 033	0.8-	0.5-	881105 807	0.2+	0.5-	891226 033	0.9+	0.2+
880911 033	0.2+	0.8+						

1988 TP1 = 1973 UO3
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 (J-P) Oishi
M 166.45179 (1950.0) P Q
n 0.19834631 Peri. 268.21954 +0.99885010 +0.03531359
a 2.9119741 Node 89.75578 -0.01951547 +0.91726512
e 0.1029834 Incl. 1.85820 -0.04379066 +0.39670853
P 4.97 H 12.4 G 0.25
Residuals in seconds of arc

731029 095	0.3-	0.7+	881015 888	0.2-	2.4+	881105 888	0.6+	0.8+
881004 046	2.2-	0.6+	881019 888	0.2-	0.9-	881111 888	0.2-	0.7-
881004 046	2.3-	2.0-	881019 888	1.6+	1.0-	881111 888	1.0-	1.0-
881011 046	1.2+	0.2+	881102 888	(1.5+	3.6+)	891229 888	0.3+	0.2-
881011 046	0.9+	0.6+	881102 888	1.0-	1.1+	891229 888	0.8-	0.1+
881013 888	1.5-	1.7-	881102 888	1.8+	0.6-	900105 888	0.1+	0.6-
881013 888	0.2-	1.1-	881102 888	0.6+	0.8-	900105 888	0.7+	0.5-
881014 046	0.8-	0.3+	881105 888	1.0+	0.3+	900125 888	0.1-	0.6+
881014 046	0.0	0.6+	881105 888	1.5+	1.1+	900125 888	0.2-	0.8+
881015 888	0.3+	2.3+	881105 888	0.7+	1.1-			

1988 VD5 = 1975 TG4
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Kaneda
M 93.31834 (1950.0) P Q
n 0.22771791 Peri. 277.09873 -0.43114884 -0.89952530
a 2.6558564 Node 198.93077 +0.88957674 -0.41072155
e 0.1259867 Incl. 12.54407 +0.15087711 -0.14886920
P 4.33 H 12.5 G 0.25
Residuals in seconds of arc

751013 095	0.4+	1.0-	881104 046	1.9+	1.0+	881110 046	2.1-	0.2+
751106 095	0.4-	0.6+	881104 046	0.6+	0.2-	881110 046	1.6-	1.1+
881016 046	1.9-	1.6+	881105 046	2.1+	2.5-			
881016 046	(0.4-	13.5+)	881105 046	0.9+	0.7-			

1989 LW
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Nakano
M 109.13543 (1950.0) P Q
n 0.26905824 Peri. 90.45013 +0.64593756 +0.72001867
a 2.3763214 Node 223.52524 -0.76000197 +0.63780543
e 0.2744706 Incl. 21.61173 +0.07184480 +0.27345447
P 3.66 H 13.5 G 0.25
Residuals in seconds of arc

780608 675	(3.9-	5.7+)	880320 413	0.5-	2.3-	890701 675	0.5-	2.0-
780608 675	0.0	0.7+	890606 675	0.6-	0.2-	890701 675	0.7+	1.5-
850608 413	0.4-	2.2+	890606 675	0.9-	0.0	890806 801	0.0	1.8+
850608 413	1.0-	1.9+	890629 675	1.3+	0.9-			
880320 413	0.2+	1.4-	890629 675	1.2+	0.6-			

1989 OL
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Williams
M 115.21069 (1950.0) P Q
n 0.24383111 Peri. 249.38612 +0.41738161 +0.89390819
a 2.5375229 Node 46.39140 -0.72677778 +0.43634917
e 0.1370377 Incl. 13.04750 -0.54551503 +0.10260386
P 4.04 H 14.0 G 0.25
From 8 observations 1989 July 29-Oct. 25, mean residual 0".4.

1989 RD1
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Williams
M 86.37208 (1950.0) P Q
n 0.22558635 Peri. 260.91330 +0.94980869 +0.21239416
a 2.6725603 Node 86.57588 -0.10688778 +0.91034282
e 0.1920312 Incl. 13.30232 -0.29400416 +0.35519667
P 4.37 H 13.5 G 0.25
From 12 observations 1989 Sept. 5-Nov. 21, mean residual 0".8.

1989 SZ1 = 1985 JU
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 (J-P) Nakano
M 219.26525 (1950.0) P Q
n 0.30324131 Peri. 101.26304 -0.18010678 +0.98327740
a 2.1942091 Node 158.30472 -0.92850798 -0.16089769
e 0.1587575 Incl. 4.18302 -0.32470677 -0.08530816
P 3.25 H 14.5 G 0.25
Residuals in seconds of arc
850511 675 0.2+ 0.5- 890926 809 0.8+ 0.3- 891003 809 0.8+ 0.7+
850513 675 0.2- 0.5+ 890928 809 0.6+ 0.9+ 891003 809 0.0 0.2-
890926 809 0.0 0.2+ 890928 809 0.9- 1.0+ 891003 809 0.1- 0.2-
890926 809 0.1+ 0.6- 890928 809 1.4- 1.6-

1989 UA7 = 1949 OW = 1979 SH11 = 1979 TB2
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Kaneda
M 172.54205 (1950.0) P Q
n 0.29804672 Peri. 213.10335 +0.71590070 +0.69808654
a 2.2196261 Node 102.61742 -0.63769445 +0.66115971
e 0.2111779 Incl. 0.74587 -0.28430964 +0.27485090
P 3.31 H 15.0 G 0.25
Residuals in seconds of arc
490728 024 0.3+ 1.2+ 890907 033 0.7- 1.4+ 891025 033 0.8+ 0.1+
490730 024 0.3- 1.4- 890907 033 0.2- 1.5+ 891025 033 0.8+ 0.8+
790924 095 0.2+ 0.2+ 891023 033 0.0 1.0- 891027 033 1.3- 0.4+
791014 095 0.6+ 2.2- 891023 033 0.2- 0.5-

1989 VA
Epoch 1989 Nov. 10.0 ET = JDE 2447840.5 Williams
M 176.73692 (1950.0) P Q
n 1.58489521 Peri. 2.80439 -0.67643143 +0.65301037
a 0.7285662 Node 224.96239 -0.68473435 -0.72791755
e 0.5949364 Incl. 28.81726 -0.27125521 +0.20907772
P 0.62 H 17.0 G 0.25
From 14 observations 1989 Nov. 2-Dec. 5, mean residual 0".5.

1989 XF = 1952 YB = 1976 ON = 1982 BD9
Id. H. Kaneda; 1987 DH6 = 1982 BD9 (MPC 13307) is invalid
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Kaneda
M 129.02881 (1950.0) P Q
n 0.24029698 Peri. 255.14797 +0.97993670 -0.14210012
a 2.5623425 Node 112.86328 +0.18220615 +0.92289482
e 0.2062901 Incl. 8.72382 -0.08077734 +0.35787248
P 4.10 H 13.4 G 0.25
Residuals in seconds of arc
521216 760 0.1- 1.1+ 891205 403 0.8+ 1.1+ 891228 046 0.4- 0.6+
521216 760 0.4- 0.7+ 891205 403 0.9- 0.1+ 891228 046 0.1+ 0.0
760727 095 0.0 0.1- 891208 403 0.2- 0.7+ 891229 046 0.3+ 0.3-
820119 095 0.0 1.6+ 891208 403 1.9- 0.1- 891229 046 1.0+ 1.6-
891203 403 1.0- 0.7- 891218 403 2.3+ 0.1+ 891231 046 0.3+ 1.4-
891203 403 0.3- 0.7+ 891218 403 1.6+ 0.2- 891231 046 1.0- 2.5-

1989 XD1 = 1979 WS3 = 1982 RA3
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Kaneda
M 129.13068 (1950.0) P Q
n 0.29228066 Peri. 220.95303 +0.98172378 -0.18538082
a 2.2487232 Node 149.64945 +0.18913017 +0.92519657
e 0.1617228 Incl. 4.88622 +0.02117063 +0.33112727
P 3.37 H 15.1 G 0.25
Residuals in seconds of arc
791116 095 0.1- 0.8+ 891103 809 0.5- 0.9+ 891203 809 0.6+ 0.5-
820913 095 0.1+ 0.4- 891202 809 0.1+ 0.7- 891203 809 0.2+ 1.0-
891103 809 0.1+ 0.6+ 891202 809 0.1- 0.2+ 891203 809 0.1+ 1.2-
891103 809 0.2- 1.4+ 891202 809 0.1- 0.5-

1989 YO = 1976 SE4
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 (J-P) Marsden
M 99.51668 (1950.0) P Q
n 0.23506532 Peri. 226.90590 +0.67852752 -0.73457304
a 2.6002266 Node 180.37791 +0.72608699 +0.67103345
e 0.1345557 Incl. 14.81688 +0.11134666 +0.10058106
P 4.19 H 13.5 G 0.25
Residuals in seconds of arc
760924 095 0.6- 0.0 891221 413 1.7- 0.8+ 900103 413 0.0 0.3-
760929 095 0.6+ 0.1- 891226 413 1.0+ 0.1- 900103 413 0.2+ 0.7-
891221 413 0.0 0.5+ 891226 413 0.6+ 0.2-

1989 YP = 1927 DA = 1978 EF5 = 1982 DR
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 (J-P) Marsden
M 99.43684 (1950.0) P Q
n 0.23406571 Peri. 256.40824 +0.77151650 -0.61963316
a 2.6076245 Node 141.59031 +0.63552150 +0.74006008
e 0.2680523 Incl. 13.42851 +0.02957568 +0.26146858
P 4.21 H 13.0 G 0.25
Residuals in seconds of arc (or two decimals in units of degrees)
270223 024(0.20+ 0.05-)X 820228 688 0.7- 0.2- 891226 413 0.6+ 0.0
780306 095 0.0 0.3+ 820228 688 0.3+ 0.3- 891226 413 1.0+ 0.5-
820221 688 0.9+ 0.6- 891221 413 0.8- 0.3- 900103 413 1.3+ 1.1-
820221 688 0.5- 0.9+ 891221 413 2.0- 1.8+

1989 YH1 = 1979 FP1 = 1983 GK2
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Kaneda
M 43.86284 (1950.0) P Q
n 0.26476703 Peri. 201.44560 -0.96573151 -0.25899215
a 2.4019287 Node 323.53086 +0.24206027 -0.87526915
e 0.1468699 Incl. 1.62959 +0.09364547 -0.40844459
P 3.72 H 13.9 G 0.25
Residuals in seconds of arc
790323 095 0.4- 1.0- 891231 413 1.4+ 0.5+ 900127 887 (3.7- 2.0+)
830410 095 0.3+ 0.7+ 900121 403 0.9- 0.3- Y 900127 887 1.4- 1.0-
891230 413 0.9- 1.0+ 900121 403 0.6+ 1.1+ 900217 887 1.3+ 1.3+
891230 413 1.5+ 0.1+ 900123 403 0.4- 1.9- Y 900217 887 1.1- 0.2+
891231 413 0.9- 0.1+ 900123 403 1.1+ 0.3-

1990 BE = 1978 RG13 = 1985 TE2
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 (J-P) Ichikawa
M 87.96364 (1950.0) P Q
n 0.28906674 Peri. 148.38552 -0.36327945 -0.93005012
a 2.2653649 Node 322.83510 +0.83461251 -0.29858304
e 0.1350066 Incl. 5.23209 +0.41406520 -0.21413766
P 3.41 H 13.2 G 0.25

Residuals in seconds of arc

780906	809	0.3+	0.6-		900121	403	(4.0-	3.0+)Y	900123	403	0.9- 1.0+
851011	046	2.2-	1.0-		900121	403	0.8-	0.8+ Y	900126	403	1.2+ 0.3+
851011	046	1.9+	1.4+		900123	403	1.0-	0.5-	900126	403	1.4+ 1.8-

1990 BF = 1940 BB = 1958 DK1 = 1976 GE8 = 1976 GH8 = 1983 CU3
Id. K. Ichikawa, O. Kippes (d, MPC 6840), T. Urata (ibid.)
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 (J-P) Ichikawa

M	77.65574	(1950.0)	P	Q	
n	0.27594914	Peri.	155.96363	-0.49604758	-0.86707336
a	2.3365991	Node	323.72699	+0.78346080	-0.42408858
e	0.1027168	Incl.	4.46415	+0.37433404	-0.26140518
P	3.57	H	13.4	G 0.25	

Residuals in seconds of arc

400130	053(62.5-	29.7-)X		760404	808	0.5-	0.9-		900123	403	1.2- 1.4-
580218	760	1.2+	1.3+	760404	808	1.1-	0.8-		900123	403	0.5- 1.8-
580218	760	0.6+	2.7+	830208	330	2.2+	3.1+		900126	403	1.5- 0.3-
760401	808	1.2-	1.8-	900121	403	1.4+	1.0+	Y	900126	403	0.0 1.2-
760401	808	0.4+	0.2-	900121	403	0.2+	1.1-	Y			

1990 BG
Epoch 1990 Jan. 9.0 ET = JDE 2447900.5 Marsden

M	290.86415	(1950.0)	P	Q	
n	0.52857768	Peri.	135.49706	-0.27318037	+0.76526534
a	1.5149449	Node	109.97276	-0.96024996	-0.25307753
e	0.5787298	Incl.	38.32882	+0.05738035	-0.59187897
P	1.86	H	15.0	G 0.25	

From 8 observations 1990 Jan. 21-Feb. 3.

1990 BC1 = 1980 DC5 = 1985 DP3
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Kaneda

M	80.24251	(1950.0)	P	Q	
n	0.18901864	Peri.	310.43464	-0.14779713	-0.98378079
a	3.0069968	Node	147.63546	+0.95512533	-0.16865039
e	0.0823484	Incl.	10.94576	+0.25669363	+0.06109340
P	5.21	H	12.2	G 0.25	

Residuals in seconds of arc

800221	095	0.3+	1.0+	900125	399	1.7+	0.3+		900202	399	0.3+ 1.6-
850220	675	1.0-	0.8-	900125	399	0.7+	3.0-		900202	399	0.6- 0.2+
850222	675	0.6+	0.9-	900125	399	2.7-	0.2-		900202	399	0.4- 0.4+
900121	402	0.5+	1.1+	900201	399	1.4+	0.4+		900214	399	1.1- 2.0+
900121	402	0.9+	0.7+	900201	402	0.8+	0.8+		900214	399	1.0- 0.2-
900123	399	0.6+	0.6+	900201	399	0.5+	0.2-		900214	399	2.6- 0.2+
900123	399	0.3+	0.9+	900201	402	0.4+	0.6+				
900123	399	0.6+	1.5-	900201	399	0.4-	0.9-				

1990 BH1 = 1977 AV2 = 1980 XB2
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Kaneda

M	44.02734	(1950.0)	P	Q	
n	0.22992716	Peri.	86.91416	-0.91916152	-0.38286132
a	2.6388165	Node	70.55962	+0.31102532	-0.84962115
e	0.1516513	Incl.	5.63034	+0.24167199	-0.36271353
P	4.29	H	13.5	G 0.25	

Residuals in seconds of arc

770112	675	0.2+	0.3-	900128	399	2.3+	0.7-		900130	399	1.6- 0.3+
770113	675	0.2-	0.2+	900128	399	1.5-	1.0+		900202	399	0.4- 0.2-
801210	095	0.0	0.0	900130	399	2.5+	0.7+		900202	399	0.6- 0.5-
900128	399	0.1-	0.7-	900130	399	2.4-	0.1-		900202	399	1.7+ 0.2+

1990 BZ1 = 1971 TW1 = 1984 UM1
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Kaneda
M 97.95147 (1950.0) P Q
n 0.22790618 Peri. 227.27250 -0.00478764 -0.99944575
a 2.6543936 Node 223.03530 +0.93095845 +0.00757299
e 0.1631556 Incl. 2.76688 +0.36509373 -0.03241668
P 4.32 H 13.1 G 0.25
Residuals in seconds of arc

711012 095	0.5-	1.5+	841029 046	(4.2-	0.2+)	900130 399	0.8-	1.3+
841026 688	0.3+	2.7-	841029 046	2.3-	1.4+	900201 399	1.5-	0.6+
841026 688	0.7+	1.5-	841030 046	2.7-	0.8-	900201 399	0.3+	0.0
841028 046	0.5-	0.8+	841030 046	2.1+	0.6+	900216 399	2.2+	0.2-
841028 046	0.0	0.2+	841031 688	2.0+	0.2+	900216 399	0.8-	0.0
841029 688	1.3+	0.8+	841031 688	0.4+	0.3-			
841029 688	0.8-	0.2-	900130 399	0.7+	1.6-			

1990 DA
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Nakano
M 100.06547 (1950.0) P Q
n 0.30932646 Peri. 305.50541 -0.01421883 -0.96518666
a 2.1653329 Node 142.55888 +0.99855289 -0.02725524
e 0.4564822 Incl. 25.44236 +0.05186464 +0.26013818
P 3.19 H 15.0 G 0.25
From 26 observations 1990 Jan. 30-Feb. 23, mean residual 0".68.

2064 P-L = 1989 WV4
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 (J-P) Nakano
M 356.41200 (1950.0) P Q
n 0.17379083 Peri. 197.33671 -0.71941661 -0.69246303
a 3.1801847 Node 298.71081 +0.64433176 -0.63621460
e 0.1021208 Incl. 3.54122 +0.25937679 -0.34018514
P 5.67 H 13.5 G 0.25
Residuals in seconds of arc

600924 675	0.1-	0.4+	601017 675	0.7+	0.7+	891128 033	0.9+	0.5+
600926 675	0.2+	0.7-	601022 675	0.2+	0.6-	891129 033	0.2-	0.1+
600928 675	0.6-	0.5+	601025 675	0.2-	0.4-	891129 033	0.5-	0.2-
600928 675	0.3-	0.2-	601026 675	0.3-	0.6-	891203 033	1.3+	0.5+
600929 675	0.5+	0.8+	891128 033	1.6-	0.8-			

2532 P-L = 1987 QW9
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Kaneda
M 218.09693 (1950.0) P Q
n 0.18198508 Peri. 131.24887 +0.76233472 +0.64680548
a 3.0839845 Node 188.53190 -0.62935402 +0.73294073
e 0.2592386 Incl. 8.56711 -0.15086185 +0.21080929
P 5.42 H 13.2 G 0.25
Residuals in seconds of arc

600924 675	0.4-	1.2+	601017 675	0.9-	0.1+	870826 095	0.2-	0.4-
600926 675	0.2-	0.5-	601022 675	0.1+	0.4-	870901 095	0.2+	0.4+
600928 675	0.3+	0.5-	601025 675	0.5+	0.3+			
600929 675	0.7+	0.6-	601026 675	0.0	0.2+			

2547 P-L = 1989 UM7
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 (J-P) Ichikawa
M 109.05838 (1950.0) P Q
n 0.17155309 Peri. 265.42825 +0.94101169 +0.33571587
a 3.2077799 Node 74.95118 -0.29045271 +0.86557614
e 0.1856193 Incl. 2.51229 -0.17359213 +0.37158148
P 5.75 H 14.2 G 0.25

Residuals in seconds of arc

600924 675	1.4-	0.8-	601022 675	0.5+	1.2+	891025 033	0.2+	0.8-
600926 675	1.1-	0.8-	601025 675	1.3+	0.8+	891025 033	0.9+	0.3+
600928 675	0.3-	0.2-	601026 675	1.1+	0.3-	891027 033	0.0	0.3-
600929 675	0.2+	0.3+	891023 033	0.7-	0.5+			
601017 675	0.0	0.1+	891023 033	0.1+	0.4+			

2666 P-L = 4081 T-3

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5				Kaneda	
M 19.72281		(1950.0)	P	Q	
n 0.23206600	Peri.	227.51050	+0.80920951	-0.58725508	
a 2.6225777	Node	168.41482	+0.56150689	+0.76419260	
e 0.3208253	Incl.	5.04143	+0.17288719	+0.26672297	
P 4.25	H	16.4	G	0.25	

Residuals in seconds of arc

600924 675	0.0	0.1-	600929 675	0.8+	0.0	771016 675	0.4+	0.4+
600924 675	1.0+	0.1+	771007 675	0.7+	0.2+	771017 675	1.0+	0.2+
600926 675	0.0	0.5+	771011 675	0.3+	0.5-	771017 675	0.0	0.4-
600926 675	0.1-	0.6+	771011 675	0.0	0.5-	771021 675	1.4-	1.4+
600928 675	0.4-	0.5-	771012 675	0.9-	1.1-	771021 675	0.7+	0.7+
600928 675	0.8-	0.3-	771012 675	1.0-	0.4+	771022 675	0.3+	0.8-
600929 675	0.4-	0.0	771016 675	0.3-	1.0+	771022 675	0.4+	1.0-

2785 P-L = 3185 T-3

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5				Kaneda	
M 59.47737		(1950.0)	P	Q	
n 0.23273681	Peri.	251.58666	+0.96178304	+0.27117759	
a 2.6175360	Node	92.66547	-0.23470422	+0.88775943	
e 0.0996602	Incl.	2.17416	-0.14102243	+0.37194881	
P 4.23	H	15.4	G	0.25	

Residuals in seconds of arc

600926 675	1.1+	0.7-	771012 675	0.4-	0.2-	771017 675	0.7-	0.4-
600928 675	0.1-	0.0	771012 675	0.3-	0.3+	771021 675	0.8-	1.0+
600929 675	0.7-	0.2+	771016 675	1.0+	0.8-	771021 675	1.8-	0.5-
771011 675	1.0-	1.8+	771016 675	0.2+	0.3-	771022 675	1.8+	0.2-
771011 675	0.4-	0.8+	771017 675	0.7+	0.5-	771022 675	1.5+	0.7-

2799 P-L = 5180 T-3

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5				Kaneda	
M 138.76208		(1950.0)	P	Q	
n 0.17596789	Peri.	163.68499	+0.97815292	+0.20287258	
a 3.1538941	Node	185.28118	-0.19733427	+0.97477524	
e 0.2332957	Incl.	29.54158	+0.06539146	-0.09303734	
P 5.60	H	15.1	G	0.25	

Residuals in seconds of arc

600924 675	1.7-	1.6+	600929 675	0.9+	0.3-	771017 675	1.0+	0.0
600924 675	0.2-	1.2-	771012 675	0.3+	0.5+	771021 675	0.1-	1.1+
600926 675	0.1-	0.2-	771012 675	0.7-	0.7-	771021 675	1.4-	0.1+
600926 675	0.8+	0.3+	771016 675	0.4-	0.1+	771022 675	0.5+	0.2-
600928 675	0.2+	0.0	771016 675	0.6-	0.9-			
600928 675	0.7+	0.3-	771017 675	1.3+	0.2+			

4206 P-L = 1981 QQ3

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5				Kaneda	
M 235.16364		(1950.0)	P	Q	
n 0.28028775	Peri.	328.49817	+0.74586577	+0.66506996	
a 2.3124196	Node	349.56432	-0.56079530	+0.59704313	
e 0.1717706	Incl.	11.77466	-0.35943413	+0.44857715	
P 3.52	H	15.2	G	0.25	

Residuals in seconds of arc

600924	675	0.4-	0.2+	810831	809	0.7+	0.3+	810905	809	0.7-	0.6-
600925	675	0.1+	0.8+	810831	809	0.8+	0.2+	810905	809	0.7-	1.5-
600925	675	1.0-	0.3-	810831	809	0.9+	0.7+	810905	809	0.4-	0.0
600926	675	0.5-	0.6-	810902	809	0.5-	0.2-	810905	809	0.3-	0.5-
600926	675	0.7-	0.3+	810902	809	0.6+	0.4-	810905	809	0.9-	0.3+
600928	675	0.2+	0.7-	810902	809	0.9+	0.2-	810906	809	0.3+	1.5+
600928	675	2.3+	0.2+	810903	809	0.6-	0.4-	810906	809	0.7+	0.8+
810826	809	1.4-	0.2-	810903	809	0.2-	0.6-	810906	809	1.3+	1.2+
810826	809	0.5-	0.1+	810903	809	0.1-	1.0-	810906	809	0.9-	0.1+
810826	809	0.2-	0.3-	810904	809	0.9+	0.3+	810906	809	1.0-	0.4+
810827	809	0.1+	0.4+	810904	809	0.6+	0.2+	810906	809	0.0	0.1+
810827	809	0.4+	0.2+	810904	809	0.6+	0.4-				
810827	809	0.6+	0.1+	810905	809	1.2-	0.6-				

4257 P-L = 1978 RG8

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Kaneda

M	104.03298	(1950.0)	P	Q	
n	0.27135460	Peri.	32.40844	+0.98638938	-0.15942059
a	2.3628959	Node	336.66432	+0.12065632	+0.86813261
e	0.1363845	Incl.	5.83378	+0.11170518	+0.47003280
P	3.63	H	16.2	G 0.25	

Residuals in seconds of arc

600924	675	0.1-	0.0	780902	809	0.0	0.3-	780910	809	0.1+	1.8-
600925	675	0.5+	0.9-	780902	809	0.3+	0.0	780910	809	0.7+	0.1+
600926	675	0.6-	0.3+	780902	809	0.6-	0.6+	780910	809	0.6+	0.4-
600928	675	0.1+	0.6+	780902	809	0.5-	0.4+				
780902	809	0.2-	0.1-	780910	809	0.4-	1.4+				

6012 P-L = 2250 T-3

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Kaneda

M	49.80954	(1950.0)	P	Q	
n	0.17637083	Peri.	223.36356	-0.29841253	-0.95285550
a	3.1490886	Node	244.06792	+0.89147442	-0.25771104
e	0.1466885	Incl.	3.50126	+0.34091542	-0.16016061
P	5.59	H	14.8	G 0.25	

Residuals in seconds of arc

600924	675	1.2-	1.2-	771007	675	1.7+	0.0	771016	675	0.6-	1.3-
600924	675	0.3-	0.7-	771011	675	0.0	0.9+	771017	675	1.3-	0.6+
600926	675	0.1+	0.6-	771011	675	0.8-	1.1+	771017	675	0.7+	1.0+
600926	675	0.2+	0.1+	771012	675	1.5-	0.8+	771021	675	1.3+	0.1+
600928	675	0.5+	1.2+	771012	675	0.2+	0.1+				
600928	675	0.7+	1.1+	771016	675	0.3+	3.2-				

6297 P-L = 1095 T-3

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Kaneda

M	31.10568	(1950.0)	P	Q	
n	0.23392327	Peri.	24.82689	+0.91181494	-0.41059235
a	2.6086777	Node	359.39476	+0.32024799	+0.71530733
e	0.0468361	Incl.	14.95236	+0.25697225	+0.56546383
P	4.21	H	16.0	G 0.25	

Residuals in seconds of arc

600924	675	0.1-	0.2+	771007	675	0.1-	0.1-	771012	675	1.0-	0.3-
600924	675	0.6-	0.2-	771007	675	2.2+	2.4-	771012	675	0.5+	0.8-
600925	675	0.3-	0.3+	771011	675	1.1-	1.3+	771016	675	0.2-	1.7-
600925	675	1.7+	0.4+	771011	675	1.4+	0.9+	771016	675	0.6-	0.6+
600926	675	0.7-	0.3-	771011	675	1.5-	2.9+	771017	675	0.3-	1.0-
600926	675	0.0	0.0	771011	675	0.6-	0.4+	771017	675	0.8+	0.3-
600928	675	0.5+	0.6-	771012	675	0.1-	1.2+				
600928	675	0.5-	0.3+	771012	675	0.7+	0.8-				

6313 P-L = 1981 ED46

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5				Kaneda	
M 137.48947		(1950.0)		P	Q
n 0.21362883	Peri.	106.89030		+0.49904622	-0.86602998
a 2.7713804	Node	313.13180		+0.77813131	+0.46344309
e 0.0747909	Incl.	2.41412		+0.38139813	+0.18765013
P 4.61	H	15.3	G	0.25	

Residuals in seconds of arc

600924	675	0.6+	0.5-	600926	675	0.4+	0.6+	810302	413	0.0	0.2+
600924	675	0.1+	0.3-	600926	675	0.8-	0.4-	810307	413	0.3+	0.9-
600925	675	0.7+	1.2+	600928	675	0.6-	0.2-	810311	413	0.3-	0.7+
600925	675	0.6+	0.0	600928	675	1.0-	0.5-				

6564 P-L = 1971 QH = 1988 PR4

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5				Kaneda	
M 139.67013		(1950.0)		P	Q
n 0.17316194	Peri.	199.22559		+0.80858152	+0.58725532
a 3.1878736	Node	124.75790		-0.53382961	+0.75823966
e 0.1484138	Incl.	2.54142		-0.24743054	+0.28320276
P 5.69	H	12.4	G	0.25	

Residuals in seconds of arc

600924	675	0.8+	0.7-	601017	675	0.1-	0.3-	601026	675	0.4+	0.7+
600926	675	0.3-	0.6-	601022	675	1.6-	0.1+	710816	095	0.5-	1.6+
600927	675	0.4+	0.7+	601022	675	0.2+	0.5-	880808	095	0.3+	0.8-
600928	675	0.4-	0.0	601024	675	0.5+	0.6+	880808	095	0.1+	0.6-

9099 P-L = 4300 T-3

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5				Kaneda	
M 185.43057		(1950.0)		P	Q
n 0.17624438	Peri.	121.89884		+0.59176098	+0.80592878
a 3.1505947	Node	184.49925		-0.79374152	+0.57880956
e 0.1066578	Incl.	12.70665		-0.14068881	+0.12433138
P 5.59	H	13.8	G	0.25	

Residuals in seconds of arc

601017	675	1.0+	0.0	771012	675	0.6+	0.6-	771021	675	0.1-	1.3-
601022	675	1.0+	0.3-	771012	675	0.1+	0.4-	771021	675	0.6-	0.3-
601024	675	1.5-	1.2+	771016	675	1.0-	1.7+	771022	675	2.3-	1.8-
601026	675	0.6-	1.0-	771016	675	0.7-	1.5+	771022	675	0.9+	0.8+
771011	675	2.3+	0.2+	771017	675	0.5-	1.1+				
771011	675	1.9+	0.1+	771017	675	0.7-	0.9-				

9509 P-L = 2142 T-2

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5				Kaneda	
M 20.65149		(1950.0)		P	Q
n 0.22855428	Peri.	124.72836		+0.66743716	+0.74427960
a 2.6493732	Node	187.28616		-0.72998584	+0.64757446
e 0.2569259	Incl.	10.90365		-0.14713364	+0.16338664
P 4.31	H	15.1	G	0.25	

Residuals in seconds of arc

601022	675	0.3-	1.1-	730924	675	2.6-	1.4+	730930	675	0.4- 1.1-
601024	675	0.0	1.3+	730924	675	1.9-	0.1+	730930	675	0.6+ 0.9-
601026	675	0.3+	0.1+	730925	675	0.5-	1.5+	731004	675	0.6+ 0.5-
730919	675	1.4+	0.3-	730925	675	0.9-	2.2+	731004	675	0.0 0.4+
730919	675	1.4+	0.0	730929	675	0.3-	0.0	731005	675	1.2+ 0.7-
730920	675	0.8+	2.2-	730929	675	0.2+	0.8-	731005	675	0.4+ 0.6+

1212 T-2 = 1978 SX1 = 1989 UU6

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5

M	116.56148		(1950.0)	P	Q
n	0.18790269	Peri.	139.35972	+0.92077435	+0.38659387
a	3.0188907	Node	198.10517	-0.38704157	+0.88866891
e	0.1117974	Incl.	9.66097	-0.04871775	+0.24660242
P	5.25	H	12.6	G 0.25	

Kaneda

Residuals in seconds of arc

730929	675	0.3+	0.5-	731004	675	0.3+	1.5-	891021	364	0.6+	2.2- Y
730929	675	0.5-	0.4+	731005	675	0.6-	1.7-	891023	364	0.0	2.0+
730930	675	0.3-	0.6+	731005	675	0.5+	1.3-	891023	364	1.1-	3.0+
730930	675	0.4-	2.1+	780926	095	0.3-	1.3+	891102	046	0.1+	2.5-
731004	675	1.3+	0.6-	891021	364	0.5+	2.1+ Y	891102	046	0.3-	0.9-

2150 T-2 = 1968 ON = 1987 RQ3

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5

M	262.97299		(1950.0)	P	Q
n	0.21106543	Peri.	130.89354	+0.80192039	+0.59589596
a	2.7937742	Node	192.72574	-0.58972093	+0.77806586
e	0.2402912	Incl.	11.20308	-0.09567089	+0.19880023
P	4.67	H	13.6	G 0.25	

Kaneda

Residuals in seconds of arc

680722	095	0.0	0.2+	730925	675	1.2-	2.0-	731005	675	0.4+	0.7-
730919	675	1.3+	2.1+	730929	675	0.5+	1.9+	731005	675	0.1+	1.4-
730919	675	0.7+	3.3+	730929	675	0.1+	2.6+	870902	095	0.8+	2.3-
730920	675	0.6-	0.3+	730930	675	0.6+	1.0-	870917	095	0.1+	2.4-
730924	675	2.5-	1.1+	730930	675	0.1+	1.2-	870926	095	(0.8-	6.0+)
730924	675	2.5-	1.8+	731004	675	0.3+	1.4-				
730925	675	0.8+	0.9-	731004	675	0.6+	0.0				

2249 T-2 = 1981 CA1 = 1982 KB

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5

M	262.76602		(1950.0)	P	Q
n	0.17919333	Peri.	332.34654	-0.85968187	-0.51082714
a	3.1159334	Node	176.93301	+0.47416862	-0.79918251
e	0.0842598	Incl.	1.76841	+0.19002950	-0.31680112
P	5.50	H	12.6	G 0.25	

Kaneda

Residuals in seconds of arc

730919	675	0.0	0.3+	730929	675	0.5-	2.2+	731005	675	0.8-	1.3-
730919	675	2.2+	0.3-	730929	675	0.1+	0.4+	810205	688	0.9-	0.7-
730920	675	0.8+	1.3-	730930	675	0.4+	0.2-	810205	688	1.6+	0.1+
730924	675	1.1-	0.9+	730930	675	0.8+	1.1-	810208	688	1.9-	0.5+
730924	675	0.5-	1.3+	731004	675	0.8-	0.3-	810208	688	0.9+	0.7-
730925	675	0.3-	1.4-	731004	675	0.6-	0.9+	820521	688	0.4-	0.4-
730925	675	0.8+	1.0-	731005	675	0.0	0.2-	820521	688	0.1+	0.6-

3347 T-2 = 1989 AV5
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Kobayashi
M 147.82067 (1950.0) P Q
n 0.28023350 Peri. 76.53304 -0.96390369 -0.26085788
a 2.3127180 Node 88.32632 +0.21894773 -0.89054201
e 0.0630249 Incl. 3.05767 +0.15149777 -0.37267692
P 3.52 H 15.4 G 0.25
Residuals in seconds of arc

730919	675	1.6+	2.0+	730925	675	0.9-	0.9-	890110	413	0.2-	1.0-
730919	675	2.0-	0.7-	730925	675	0.3+	1.5-	890110	413	(7.7-	4.7+)
730924	675	0.4+	0.3+	890104	413	2.1-	1.9+				
730924	675	0.8-	0.2+	890104	413	1.7+	0.6-				

5006 T-2 = 1975 BM = 1979 WG2 = 1981 ED2
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Kaneda
M 331.07223 (1950.0) P Q
n 0.17660149 Peri. 125.93552 +0.28058380 -0.95189156
a 3.1463460 Node 307.30503 +0.82314333 +0.30464734
e 0.2100146 Incl. 8.90932 +0.49366770 +0.03305244
P 5.58 H 13.2 G 0.25
Residuals in seconds of arc

730919	675	(6.0+	1.0+)	810305	809	0.3-	0.9-	810308	809	0.8+	0.5-
730920	675	0.2+	0.8+	810305	809	0.8-	0.2-	810309	809	0.5-	0.4+
730920	675	0.9+	0.6-	810306	809	1.4-	0.5+	810309	809	0.0	0.1+
730924	675	0.9-	0.2-	810306	809	0.5+	0.5+	810309	809	0.4+	0.2-
730924	675	0.4+	0.4+	810306	809	0.8-	0.8+	810310	809	0.5+	0.5-
730925	675	0.2+	0.8-	810307	809	0.2+	0.7+	810310	809	0.1+	0.3+
730925	675	0.4-	0.5-	810307	809	0.8-	0.6+	810310	809	0.4+	0.9-
750117	095	0.1+	0.1+	810307	809	0.6+	0.3-	810312	809	0.8+	0.4-
791116	095	0.0	0.1+	810308	809	0.1+	0.4+	810312	809	0.1+	0.2-
810305	809	0.9-	0.4-	810308	809	0.4+	0.4-	810312	809	0.1+	0.1-

5161 T-2 = 1988 CG1 = 1988 EK2
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Kaneda
M 281.72959 (1950.0) P Q
n 0.22454918 Peri. 87.40927 +0.41034825 -0.90838413
a 2.6807834 Node 337.82023 +0.72901640 +0.37968570
e 0.1677860 Incl. 12.28541 +0.54785893 +0.17514862
P 4.39 H 13.8 G 0.25
Residuals in seconds of arc

730920	675	4.1+	2.4-	730929	675	0.8-	0.6+	731005	675	0.2-	0.6-
730924	675	0.8-	0.6+	730930	675	0.6-	0.2+	880213	054	0.1-	0.4+
730924	675	1.1+	1.9+	730930	675	0.3+	0.7-	880213	054	0.3-	0.6-
730925	675	0.6-	1.2+	731004	675	0.1-	0.1+	880312	054	0.2+	0.4+
730925	675	0.0	0.7+	731004	675	0.4-	1.3-	880312	054	0.1+	0.3-
730929	675	1.4-	0.3+	731005	675	0.5-	0.6-				

2496 T-3 = 1986 LV
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Kaneda
M 209.83809 (1950.0) P Q
n 0.19056546 Peri. 137.15290 +0.99368029 +0.06692440
a 2.9907028 Node 219.28109 -0.09065830 +0.95188033
e 0.0406055 Incl. 8.18285 +0.06618575 +0.29907352
P 5.17 H 13.0 G 0.25

Residuals in seconds of arc

771007	675	0.5+	2.4+	771016	675	2.0+	2.3-	771022	675	2.0-	0.1+
771011	675	0.9-	1.1+	771017	675	1.3+	1.3+	860609	046	0.3-	1.0+
771011	675	1.3-	0.1+	771017	675	0.3-	0.6+	860609	046	0.2+	0.0
771012	675	0.2-	1.7-	771021	675	0.1-	0.4+	860610	046	0.1+	1.0-
771012	675	0.7-	1.5-	771021	675	1.1+	1.6+	860610	046	(5.2-	1.4-)
771016	675	1.8+	2.3-	771022	675	1.0-	0.2+				

3241 T-3 = 1987 RM5 = 1987 WC3

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Kaneda

M	321.60661		(1950.0)	P	Q
n	0.29345403	Peri.	340.93206	+0.95321772	-0.30131649
a	2.2427248	Node	36.63246	+0.28232713	+0.85885779
e	0.2113227	Incl.	2.32186	+0.10801558	+0.41421210
P	3.36	H	14.6	G 0.25	

Residuals in seconds of arc

771007	675	0.1+	0.4-	771016	675	0.3+	0.9+	771022	675	1.7+	0.1+
771011	675	1.6-	0.3+	771017	675	0.8-	0.1-	870904	095	0.3+	0.4-
771011	675	2.0-	0.4+	771017	675	0.7-	0.2-	871117	010	1.4+	0.8+
771012	675	0.8+	0.8+	771021	675	1.1-	1.3-	871117	010	1.6-	0.4-
771012	675	1.4+	1.2+	771021	675	0.3+	0.7-				
771016	675	0.2+	0.6+	771022	675	1.3+	1.5-				

3474 T-3 = 1953 FB1

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Kaneda

M	348.11967		(1950.0)	P	Q
n	0.26207411	Peri.	140.21915	-0.94257815	+0.33049870
a	2.4183545	Node	59.14292	-0.31891301	-0.84783449
e	0.1609422	Incl.	3.21442	-0.09920148	-0.41466526
P	3.76	H	13.9	G 0.25	

Residuals in seconds of arc

530316	024	0.8+	1.8-	771011	675	1.7-	0.6+	771012	675	1.3+	1.6-
530320	024	0.7-	1.8+	771011	675	0.9-	0.6+	771016	675	0.4-	0.2-
771007	675	0.9+	1.3+	771012	675	1.7+	0.4-	771016	675	0.9-	0.1-

4092 T-3 = 1988 CM5

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Kaneda

M	204.23791		(1950.0)	P	Q
n	0.22559605	Peri.	355.15268	-0.99645927	-0.08407685
a	2.6724836	Node	180.02503	+0.08274843	-0.98050394
e	0.0979967	Incl.	13.17931	+0.01488706	-0.17760380
P	4.37	H	13.5	G 0.25	

Residuals in seconds of arc

771007	675	0.2+	0.4+	771017	675	0.5+	0.3+	880216	809	0.3-	0.5+
771011	675	1.7+	0.3-	771021	675	0.2-	0.2-	880216	809	0.5-	0.6+
771011	675	0.5+	1.0-	771021	675	0.3+	0.8+	880221	809	0.4+	1.1-
771012	675	1.1-	0.5-	771022	675	0.5+	0.2-	880221	809	0.3+	0.2-
771012	675	0.5-	0.4-	771022	675	0.1-	1.2-	880221	809	0.0	0.4-
771016	675	1.1-	1.8+	880213	809	0.6+	0.4-	880223	809	0.3+	0.3+
771016	675	0.8-	0.5+	880215	809	0.9-	0.4+	880223	809	0.2+	0.0
771017	675	0.0	0.1+	880216	809	0.8-	0.6+	880223	809	0.6+	0.3-

5041 T-3 = 1987 QA2

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Kaneda

M	264.15870		(1950.0)	P	Q
n	0.18547616	Peri.	117.14289	-0.01257800	+0.99524609
a	3.0451637	Node	151.63066	-0.97419650	+0.00956991
e	0.0961795	Incl.	11.72727	-0.22535080	-0.09692080
P	5.31	H	12.6	G 0.25	

Residuals in seconds of arc

771011	675	0.6-	1.9+	771021	675	0.3-	0.9+	870826	809	1.4-	2.1-
771011	675	1.3-	1.2+	771022	675	1.4-	2.7+	870826	809	0.7-	1.5-
771012	675	0.9+	0.2-	771022	675	0.3-	1.1-	870826	809	0.9-	0.9-
771012	675	0.7+	1.0-	870821	809	0.4-	1.2+	870828	809	0.9+	0.3-
771016	675	1.3+	1.2-	870821	809	0.1+	0.8+	870828	809	2.1+	0.1-
771016	675	0.3+	0.7-	870821	809	0.7+	0.4+	870828	809	0.4+	1.3-
771017	675	0.6+	1.6-	870825	809	0.2+	0.0	870831	809	1.0-	0.3+
771017	675	0.3+	1.1-	870825	809	0.4-	0.3-	870831	809	0.6-	1.5+
771021	675	0.2-	0.2+	870825	809	0.0	0.4+	870831	809	0.9+	2.0+

5111 T-3 = 1989 QP

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Kaneda

M	98.86771	(1950.0)	P	Q	
n	0.23839559	Peri.	278.21293	+0.81105036	+0.55198790
a	2.5759489	Node	48.53311	-0.38087099	+0.74956667
e	0.1331695	Incl.	14.97810	-0.44399843	+0.36532063
P	4.13	H	14.6	G 0.25	

Residuals in seconds of arc

771011	675	2.4-	0.1+	771017	675	1.4+	0.0	890826	413	0.2+	2.0-
771011	675	1.9-	0.9+	771017	675	1.2+	1.5-	890826	413	0.2+	0.3+
771012	675	1.0-	0.1-	771021	675	0.8+	0.6+	890826	413	0.1+	0.3-
771012	675	1.7-	0.1-	771021	675	0.2+	0.1+	890826	413	1.0+	0.1+
771016	675	2.2+	1.3-	771022	675	0.1+	2.4+	890903	413	1.2+	0.7-
771016	675	1.8+	0.8-	771022	675	0.7-	0.4-	890903	413	2.6-	2.6+

* * * * *

NEW NAMES OF MINOR PLANETS.

(2256) Wisniewski = 4519 P-L

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

Named in honor of Wieslaw W. Wisniewski, astronomer at the University of Arizona. Wisniewski is working on the lightcurves of comets and minor planets, especially earth-approaching objects. He is a leading authority on photometric standards and on photometry with CCDs as well as with photomultipliers.

(2289) McMillan = 6567 P-L

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

Named in honor of Robert S. McMillan, astronomer at the University of Arizona. McMillan heads the radial velocity program that searches for planets of other stars. He also works for Spacewatch, being instrumental in that project’s development for the discovery of asteroids and comets.

(2752) Wu Chien-Shiung = 1965 SP

Discovered 1965 Sept. 20 at the Purple Mountain Observatory.

Named in honor of Wu Chien-Shiung, born in China and currently Pupin Professor Emerita at Columbia University. She is renowned for her work in nuclear physics, particularly in the experimental study of the beta decay of radioactive atomic nuclei. The precision and elegance of her experiments have earned her the title of greatest living woman physicist. With coworkers she made her most famous contribution in 1956 with a critical experiment on polarized cobalt-60 beta decay. The result of this work, which substantiated the theory of Lee and Yang, shocked the world of physics and overthrew the concept of parity conservation in weak interactions.

(2790) Needham = 1965 UU1
Discovered 1965 Oct. 19 at the Purple Mountain Observatory.
Named in honor of Joseph Needham, a famous natural scientist and academician of the British Royal Academy of Sciences. For nearly half a century, he was diligent and unremitting in writing 'Science and Civilization in China', a monumental series that vividly elaborates the historical contributions of China to science and technology.

(2899) Runrun Shaw = 1964 TR2
Discovered 1964 Oct. 8 at the Purple Mountain Observatory.
Named in honor of Run Run Shaw, a famous entrepreneur of movie and television in Hong Kong. Public-spirited and wishing to perform social and welfare services, he has made important contributions to the development of Chinese education.

(2903) Zhuhai = 1981 UV9
Discovered 1981 Oct. 23 at the Purple Mountain Observatory.
Named for an important open city in southern China, located at the west coast of Zhujiang port in Guangdong province. With its fertile land and scenic beauty, Zhuhai is sometimes called a bright pearl of the South China Sea. It is a new city, developing especially in industry, but also in agriculture, fishing, animal husbandry, commerce and tourism.

(2963) Chen Jiageng = 1964 VM1
Discovered 1964 Nov. 9 at the Purple Mountain Observatory.
Named in memory of Chen Jiageng (1874-1961), a famous Chinese educator who devoted his life and finances to running schools, and who made brilliant contributions to the development of Chinese education.

(3282) Spencer Jones = 1949 DA
Discovered 1949 Feb. 19 at the Goethe Link Observatory, Indiana University.
Named in memory of Harold Spencer Jones (1890-1960), successively astronomical assistant at the Royal Greenwich Observatory, H.M. astronomer at the Cape of Good Hope, and Astronomer Royal (1933-1955). He also served as president of the IAU (1945-1948). His work was devoted to fundamental positional astronomy, and he conclusively demonstrated that the small residuals in the apparent motions of the planets were due to the irregular rotation of the earth. He led the worldwide effort to determine the length of the astronomical unit by triangulating the distance to (433) Eros when it passed near the earth in 1930-31. Name proposed by F. K. Edmondson. Citation prepared by J. S. Tenn.

(3325) TARDIS = 1984 JZ
Discovered 1984 May 3 by B. A. Skiff at the Anderson Mesa Station of the Lowell Observatory.
The acronym TARDIS stands for Time and Relative Dimensions In Space and derives from the long-running science-fiction television program 'Dr. Who'. It is the name of the vehicle The Doctor uses for travel through space-time. Whimsically, it has the outward appearance of a British police telephone box but is quite spacious inside. Name suggested and citation provided by C. J. Cunningham.

(3434) Hurless = 1981 VO
Discovered 1981 Nov. 2 by B. A. Skiff at the Anderson Mesa Station of the Lowell Observatory.
Named in memory of Carolyn J. Hurless, of Lima, Ohio. From 1959 until her death in 1987 she made over 79 000 observations of variable stars for the American Association of Variable Star Observers, which places her among

the ten most prolific observers in the AAVSO's history. Besides these observations, Hurless was also active in promoting variable-star observing among hundreds of amateur astronomers by means of a newsletter and other correspondence with observers worldwide. The amateur variable star observing community benefited greatly from her interest and enthusiasm. Name suggested and citation provided by P. L. Sventek.

(3814) Hoshi-no-mura = 1981 JA

Discovered 1981 May 4 by T. Furuta at Tokai.

Named for a small vocational training institute not far from the discoverer's home. The main purpose of the institute is to help mentally handicapped people obtain job opportunities and participate positively in various social activities. The name, which means "star village", was suggested by Youichi Hanaki, an amateur astronomer and one of the institute's leaders.

(3991) Basilevsky = 1987 SW3

Discovered 1987 Sept. 26 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory.

Named in honor of Alexandr T. Basilevsky, a planetary geologist at the Vernadsky Institute, Moscow. Basilevsky has worked for the U.S.S.R. Geological Survey on mapping the central part of the Russian platform, and for the Space Research Institute of the U.S.S.R. Academy of Sciences on potential landing sites for the Lunakhod 1 and 2 probes and the Luna 16, 20 and 24 probes, which returned lunar rock samples to the earth. He was involved in the photogeological analysis of television images from the Mars 4 and 5 and the Venera 9, 10, 13 and 14 missions. An expert on impact cratering, Basilevsky is a coauthor of the book "Impact Craters on the Moon and Planets". He has recently worked on the interpretation of Venera 15 and 16 images of Venus.

(4007) Euryalos = 1973 SR

Discovered 1973 Sept. 19 by C. J. van Houten at Leiden on Palomar Schmidt plates taken by T. Gehrels.

Named for the commander of the troops from Argos during the siege of Troy.

(4021) Dancey = 1981 QD2

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

Named in honor of Roy Dancey and Bruce D. Dancey, father and son, who successively headed the optical shop at the Dominion Astrophysical Observatory in Victoria from 1965 until 1986. Under their hands and direction, the primary and secondary mirrors for the 3.6-m Canada-France-Hawaii Telescope were figured and polished. They also produced new primary mirrors for the 1.8-m and 1.2-m telescopes at Victoria, as well as a host of smaller telescope optics, spectrograph optics and associated test optics. Bruce Dancey's career was tragically terminated by blindness in 1986. However, the Danceys' work has given the astronomers of Canada, France and Hawaii a superb eye with which to explore the mysteries of space. Name proposed by the discoverer, following a suggestion by the staff of the Dominion Astrophysical Observatory. Citation prepared by C. Aikman.

(4050) Mebailey = 1976 SF

Discovered 1976 Sept. 20 by C.-I. Lagerkvist and H. Rickman at Kvistaberg.

Named in honor of Mark E. Bailey, a British astronomer at the University of Manchester well known for his work on the origin of comets,

the dynamics of the Oort cloud and the capture of comets into short-period orbits.

(4051) Hatanaka = 1978 VP

Discovered 1978 Nov. 1 by K. Tomita at Caussols.

Named in memory of Takeo Hatanaka (1914-1963), professor of astrophysics at the University of Tokyo and on the staff of the Tokyo Astronomical Observatory. Hatanaka's theoretical work covered a wide variety of astrophysical problems, involving planetary nebulae, the solar atmosphere and stellar evolution. He also pioneered research on radio astronomy in Japan and wrote notable enlightening books. As a member of the Japanese Science Council he was very closely involved in the early development of the national space program. Name proposed by the discoverer, whose wife, Tomoko, worked for Hatanaka as a secretary before her marriage. Citation prepared by F. Moriyama.

(4068) Menestheus = 1973 SW

Discovered 1973 Sept. 19 by C. J. van Houten at Leiden on Palomar Schmidt plates taken by T. Gehrels.

Named for the commander of the troops from Athens during the siege of Troy.

(4122) Ferrari = 1986 OA

Discovered 1986 July 28 at the Osservatorio San Vittore.

Named in memory of Enzo Ferrari (1898-1988), world-famous Italian builder of racing cars and sports cars. After working some 20 years for Alfa Romeo, Ferrari built his factory at Maranello, near Modena, in 1940. A mechanical engineer 'honoris causa' at Bologna University, he produced racing cars that have won practically all the sporting competitions in the world. A benefactor, he gave medical apparatus to that university and to the hospital in Modena for research on muscular dystrophy.

(4134) Schutz = 1961 CR

Discovered 1961 Feb. 15 by F. Borngen at Tautenburg.

Named in memory of Heinrich Schutz (1585-1672), the greatest German composer of the seventeenth century, born in Kostritz, 22 km from Tautenburg, and a very important precursor to J. S. Bach. The epoch-making work of Schutz is principally documented in numerous pieces of sacred music.

(4138) Kalchas = 1973 SM

Discovered 1973 Sept. 19 by C. J. van Houten at Leiden on Palomar Schmidt plates taken by T. Gehrels.

Named for a prophet on the side of the Greeks during the Trojan war.

(4157) Izu = 1988 XD2

Discovered 1988 Dec. 11 by Y. Oshima at Gekko.

Named for the southeastern part of Shizuoka prefecture that consists mainly of the Izu Peninsula. With its many hot springs and resorts it is well known as part of the Fuji-Hakone-Izu National Park. Gekko Astronomical Observatory is located just at the base of the peninsula.

(4158) Santini = 1989 BE

Discovered 1989 Jan. 28 at the Osservatorio San Vittore.

Named in memory of Giovanni Santini (1786-1877), director of the Padua Observatory from 1817 to 1867, a great observer of minor planets and comets and an indefatigable computer of their orbits and perturbations. His two-volume textbook "Elementi di Astronomia" was used by virtually all the Italian astronomers of the nineteenth century.

(4169) Celsius = 1980 FO3

Discovered 1980 Mar. 16 by C.-I. Lagerkvist at the European Southern Observatory.

Named in memory of the Swedish astronomer Anders Celsius (1701-1744), renowned for devising the thermometric scale. A participant in the French expedition to Lapland to measure the curvature of the earth, he was also the first astronomer to try to determine stellar magnitudes by photometric methods. The year 1990 marks the 250th anniversary of his establishment of the Uppsala Observatory, the original building of which is still preserved in the center of Uppsala. The event will be celebrated at the Nordic-Baltic Astronomy Meeting to be held in Uppsala during 1990 June 17-21.

(4207) Chernova = 1986 RO2

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

Named in honor of Galina Pavlovna Chernova, a senior researcher at the Astrophysical Institute of the Tadjik Academy of Sciences, Dushanbe. An indefatigable observer of stars, comets and minor planets, Chernova has codiscovered a number of light-scattering effects in cometary atmospheres. She undertook an extensive program of photometric, polarimetric and astrometric observations of Comet Halley and is an active member of the Comets and Asteroids Working Groups of the U.S.S.R. Academy of Sciences. Citation prepared by D. F. Lupishko at the request of the discoverer.

(4208) Kiselev = 1986 RQ2

Discovered 1986 Sept. 6 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory.

Named in honor of Nikolaj Nikolaevich Kiselev, department head at the Astrophysical Institute of the Tadjik Academy of Sciences, Dushanbe. A pre-eminent observer of stars, comets and minor planets, Kiselev has carried out work that resulted in the discovery of a number of light-scattering effects in cometary atmospheres. He was leader of the Soviet program of polarimetric and photometric observations of Comet Halley and is one of the initiators of modern investigations of minor planets in the Soviet Union. Under his leadership the Sanglok Observatory, dark-sky site of the Astrophysical Institute, was built. Citation prepared by D. F. Lupishko at the request of the discoverer.

(4220) Flood = 1988 DN

Discovered 1988 Feb. 22 by R. H. McNaught at Siding Spring.

Named in memory of Thomas Flood (1919-1988), one of Scotland’s best-known and respected amateur astronomers. Despite little more than a basic education, poverty during the Depression and frequent ill-health, he was a well-read and cultured man of great integrity. He joined the British Astronomical Association in 1954 and was for a time involved in the Lunar Section. A founder member of the Dundee Astronomical Society in 1955, he served in every position of responsibility, including secretary, treasurer and chairman, with distinction. After enforced early retiral from clerking work due to ill health he was assistant curator of the Mills Observatory in Dundee from 1974 to 1982, then wrote a history of the observatory. Citation prepared by D. Gavine at the request of the discoverer.

(4221) Picasso = 1988 EJ

Discovered 1988 May 13 by J. Alu at Palomar.

Named for Pablo Picasso (1881-1973), the most prolific artist of all time. His career spanned the entire course of modern art. Picasso’s creativity in painting, drawing, sculpture, graphics and ceramic is filled with inventive powers, uncontrolled impulses, limitless ambition and a continuous drive for never ending discovery. Name endorsed by Eleanor F. Helin.

(4246) Telemann = 1982 SY2
Discovered 1982 Sept. 24 by F. Borngen at Tautenburg.
Named in memory of Georg Philipp Telemann (1681-1767), whose authority as a musician and composer of numerous and varied compositions was in his time comparable with the glory of Handel and surpassed the authority of Johann Sebastian Bach.

(4255) Spacewatch = 1986 GW
Discovered 1986 Apr. 4 by Spacewatch at Kitt Peak.
Named for the Spacewatch program and its many supporters. The program uses a 2048 x 2048 CCD in the scanning mode on the Spacewatch Telescope, which is the 0.91-m Newtonian reflector of the Steward Observatory of the University of Arizona on Kitt Peak, to discover and provide astrometric observations for minor planets and comets.

(4265) Kani = 1989 TX
Discovered 1989 Oct. 8 by Y. Mizuno and T. Furuta at Kani.
Named for the quiet, rural town where the first discoverer lives. It is situated about 30 km north of Nagoya, the third largest city in Japan. Kani is located on the banks of the beautiful river Kiso, which is said to resemble the Rhine in Germany.

(4285) Hulkower = 1988 NH
Discovered 1988 July 11 by E. F. Helin at Palomar.
Named in honor of Neal D. Hulkower, mathematician, scientist and good friend of the discoverer with a special interest in celestial mechanics. While at the Jet Propulsion Laboratory he developed a method of analyzing accessibility for spacecraft missions to near-earth asteriods and ranked them by energy requirements for rendezvous. His enthusiasm and expertise have helped in stimulating greater interest in these objects. Named by the discoverer. Name endorsed by R. Staehle and D. Bender.

(4292) Aoba = 1989 VO
Discovered 1989 Nov. 4 by M. Koishikawa at the Ayashi Station of the Sendai Astronomical Observatory.
Named for the castle Aoba-jo in Sendai. The castle was built in the early seventeenth century by Date Masamune, the feudal lord of the district. The name means "fresh leaves" and frequently represents the city of Sendai. In April 1989, Sendai became a "designated city". One of the five wards of the city is named Aoba-ku, and it is there that both the Sendai Astronomical Observatory and the Ayashi Station are located.

(4330) Vivaldi = 1982 UJ3
Discovered 1982 Oct. 19 by F. Borngen at Tautenburg.
Named for the great Italian violin virtuoso and baroque composer Antonio Vivaldi (1680-1743).

(4342) Freud = 1987 QO9
Discovered 1987 Aug. 21 by E. W. Elst at the European Southern Observatory.
Named in memory of Sigmund Freud (1856-1939), father of psychoanalysis. In 1885 he went to Paris and studied under the neurologist Jean Charcot, who stimulated him to investigate hysteria from a psychological point of view. This view was strengthened by Josef Breuer, who cured hysterical symptoms by putting the patient under hypnosis. Soon afterward Freud replaced hypnotism by the method of free association. Among his writings are "The Interpretations of Dreams" (1900) and "Moses and Monotheism" (1939), the latter an elucidation of a historical-cultural problem that had always fascinated him.

(4344) Buxtehude = 1988 CR1

Discovered 1988 Feb. 11 by E. W. Elst at the European Southern Observatory.

Named in memory of the great organist and composer Dietrich Buxtehude (1637-1707), undoubtedly the most eminent master of the organ before Johann Sebastian Bach. His inspired creative power is particularly evident in chorales such as "Wie schon leuchtet der Morgenstern". In 1668 he became the successor of Franz Tunder as organist at the Marienkirche in Lubeck, a position he held until his death.

(4345) Rachmaninoff = 1988 CM2

Discovered 1988 Feb. 11 by E. W. Elst at the European Southern Observatory.

Named in memory of the composer and pianist Sergei Rachmaninoff (1873-1943), considered to be the last great figure in the tradition of Russian Romanticism, and whose compositions embrace symphonies and piano concerti and preludes. Although his greatest productivity occurred in St. Petersburg and Moscow around the turn of the century, he composed the beautiful "Rhapsody on a Theme by Paganini" in the United States in 1934, during the exile in which he was principally a concert performer.

(4346) Whitney = 1988 DS4

Discovered 1988 Feb. 23 by A. J. Noymer at Siding Spring.

Named in honor of Charles A. Whitney, professor at Harvard University. Whitney has done seminal work on cepheid modeling, and he is the editor of the JAAVSO. He has brought astronomy to art history, using computer sky simulations to recreate, and hence date, the sky scenes of van Gogh. Recently he has worked on physics and astronomy textbooks for high schools and has served as a science consultant to the Children’s Television Workshop. Whitney is also the author of several astronomy books for the public, including ’The Discovery of our Galaxy’ and ’Whitney’s Star Finder’.

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EPHEMERIDES.

Comet Austin (1989c1) Elements MPC 16001

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	m1
1990	03 10	01 22.61	-10 40.0	1.545	0.869	31.5	36.6	5.3
1990	03 15	01 29.23	-05 56.1					
1990	03 20	01 35.66	-00 44.3	1.412	0.665	25.2	39.7	4.5
1990	03 25	01 41.46	+05 00.5					
1990	03 30	01 45.69	+11 22.1	1.255	0.468	20.1	47.3	2.8
1990	04 04	01 46.50	+18 14.8					
1990	04 09	01 40.86	+25 03.4	1.048	0.351	19.6	72.7	1.4
1990	04 14	01 26.76	+30 35.9					
1990	04 19	01 06.26	+34 04.9	0.810	0.434	24.9	103.5	1.6
1990	04 24	00 42.60	+35 43.6					
1990	04 29	00 16.84	+36 00.2	0.601	0.625	35.5	110.5	2.4
1990	05 04	23 47.93	+35 07.4					
1990	05 09	23 13.16	+32 54.6	0.418	0.830	53.2	103.0	2.6
1990	05 14	22 28.20	+28 34.7					
1990	05 19	21 27.99	+20 25.7	0.273	1.029	85.9	78.8	2.6
1990	05 24	20 11.62	+06 48.5					
1990	05 29	18 50.46	-09 09.8	0.249	1.219	141.8	30.9	3.0
1990	06 03	17 41.91	-20 54.8					
1990	06 08	16 52.58	-27 27.6	0.387	1.401	174.9	3.7	4.4

1990 BG a,e,i = 1.51, 0.58, 38 Elements MPC 16032

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 10	04 24.97	+52 18.6	0.737	1.190	85.5	56.3	16.6
1990	03 15	04 16.23	+53 26.1					
1990	03 20	04 08.58	+54 32.4	0.764	1.092	75.5	61.9	16.6
1990	03 25	04 01.56	+55 38.2					
1990	03 30	03 54.69	+56 43.5	0.775	0.994	66.8	67.5	16.6
1990	04 04	03 47.37	+57 46.9					
1990	04 09	03 38.94	+58 45.8	0.764	0.895	59.1	73.8	16.5
1990	04 14	03 28.71	+59 35.5					
1990	04 19	03 16.05	+60 08.6	0.731	0.802	52.2	81.7	16.5

1990 DA a,e,i = 2.17, 0.46, 25 Elements MPC 16033

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 10	08 51.31	+31 58.2	0.566	1.454	136.0	28.3	15.7
1990	03 20	09 06.03	+34 55.2					
1990	03 30	09 21.99	+36 15.9	0.802	1.569	120.8	33.2	16.7
1990	04 09	09 38.78	+36 30.9					
1990	04 19	09 55.99	+36 00.9	1.072	1.688	108.7	34.3	17.5
1990	04 29	10 13.35	+34 59.0					
1990	05 09	10 30.72	+33 34.7	1.361	1.807	98.3	33.6	18.2

Periodic Comet Wild 4 (1990a) Elements MPC 16001

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	m1
1990	03 10	08 58.71	+22 23.5	1.302	2.172	141.9	16.4	12.9
1990	03 20	08 56.28	+22 04.5					
1990	03 30	08 57.33	+21 30.1	1.409	2.116	122.1	23.6	13.0
1990	04 09	09 01.81	+20 41.6					
1990	04 19	09 09.37	+19 40.5	1.557	2.069	105.8	27.8	13.1
1990	04 29	09 19.60	+18 27.6					
1990	05 09	09 32.06	+17 03.5	1.724	2.032	92.3	29.8	13.3
1990	05 19	09 46.32	+15 28.9					
1990	05 29	10 02.03	+13 44.2	1.898	2.006	80.9	29.9	13.4
1990	06 08	10 18.89	+11 50.1					
1990	06 18	10 36.64	+09 47.8	2.072	1.991	71.1	28.9	13.6

(4179) 1989 AC a,e,i = 2.51, 0.64, 0 Elements MPC 15061

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 10	14 07.76	-12 19.1	2.986	3.750	134.6	10.9	20.0
1990	03 20	14 01.71	-11 45.6					
1990	03 30	13 54.16	-11 03.7	2.863	3.807	158.0	5.6	19.8
1990	04 09	13 45.64	-10 15.6					
1990	04 19	13 36.75	-09 24.8	2.855	3.859	177.6	0.6	19.5
1990	04 29	13 28.14	-08 34.9					
1990	05 09	13 20.42	-07 49.7	2.974	3.906	153.9	6.5	20.0

Comet Skorichenko-George (1989e1) Elements MPC 15857

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	m1
1990	03 30	01 43.04	+42 14.1	2.174	1.581	42.1	25.0	8.7
1990	04 09	02 30.01	+41 24.7					
1990	04 19	03 14.05	+39 49.0	2.285	1.574	35.2	21.6	8.8
1990	04 29	03 54.23	+37 37.6					
1990	05 09	04 30.31	+35 01.3	2.448	1.614	26.9	16.4	9.0

1989 FC a,e,i = 1.02, 0.36, 5 Elements MPC 15069

Date	ET	R. A. (1950)	Decl.	Delta	r	Variation		V
1990	03 30	05 26.41	+21 52.3	0.208	0.961	-5.14	-21.4	20.2
1990	04 04	06 23.79	+23 55.7					
1990	04 09	07 18.84	+24 37.8	0.220	1.024	-10.01	-11.7	19.8

1990 04 14	08 07.54	+24 11.6						
1990 04 19	08 48.48	+23 02.3	0.264	1.082	-11.39	+9.5	19.9	
1990 04 24	09 22.24	+21 31.7						
1990 04 29	09 50.17	+19 53.2	0.327	1.137	-9.98	+18.4	20.3	
1990 05 04	10 13.60	+18 13.8						
1990 05 09	10 33.63	+16 36.6	0.402	1.186	-7.98	+19.3	20.7	

1990 BA a,e,i = 1.68, 0.32, 2 Elements MPC 15900

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990 03 30		09 16.45	+11 08.9	0.374	1.270	129.5	37.4	17.2
1990 04 04		09 28.83	+10 10.0					
1990 04 09		09 40.95	+09 11.7	0.438	1.307	126.0	38.3	17.6
1990 04 14		09 52.82	+08 13.9					
1990 04 19		10 04.44	+07 16.4	0.510	1.348	122.3	39.0	18.1

Periodic Comet Shoemaker 1 (1984 XVI) Elements MPC 13046

Date	ET	R. A. (1950)	Decl.	Delta	r	Variation		m2
1990 03 30		14 29.52	-44 50.2	3.649	4.370	-1.11	+3.4	21.2
1990 04 09		14 21.88	-45 22.6					
1990 04 19		14 12.80	-45 37.7	3.443	4.302	-1.26	+4.0	21.0
1990 04 29		14 02.91	-45 33.9					
1990 05 09		13 53.02	-45 11.3	3.338	4.232	-1.33	+4.5	20.9
1990 05 19		13 43.92	-44 32.3					
1990 05 29		13 36.27	-43 41.0	3.336	4.159	-1.29	+4.7	20.8
1990 06 08		13 30.56	-42 42.5					
1990 06 18		13 27.02	-41 42.1	3.423	4.085	-1.17	+4.6	20.8
1990 06 28		13 25.71	-40 44.3					
1990 07 08		13 26.58	-39 52.7	3.573	4.009	-1.03	+4.2	20.8
1990 07 18		13 29.47	-39 09.7					
1990 07 28		13 34.21	-38 36.5	3.756	3.931	-0.92	+3.8	20.8
1990 08 07		13 40.63	-38 13.8					
1990 08 17		13 48.55	-38 01.3	3.942	3.850	-0.84	+3.4	20.8
1990 08 27		13 57.84	-37 58.4					
1990 09 06		14 08.36	-38 04.4	4.110	3.768	-0.79	+2.9	20.8

(4197) 1982 TA a,e,i = 2.30, 0.77, 12 Elements MPC 15225

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990 03 30		19 34.95	-33 39.9	1.524	1.650	78.7	36.4	18.2
1990 04 09		19 43.09	-34 42.7					
1990 04 19		19 47.24	-35 56.7	1.478	1.869	95.8	32.3	18.3
1990 04 29		19 46.86	-37 22.7					
1990 05 09		19 41.43	-38 58.2	1.420	2.070	115.8	26.0	18.3
1990 05 19		19 30.60	-40 36.0					
1990 05 29		19 14.49	-42 04.8	1.397	2.256	138.2	17.4	18.2
1990 06 08		18 54.13	-43 10.3					
1990 06 18		18 31.63	-43 41.4	1.458	2.428	157.3	9.3	18.2
1990 06 28		18 09.60	-43 34.6					
1990 07 08		17 50.49	-42 56.1	1.633	2.587	154.4	9.8	18.6
1990 07 18		17 35.69	-41 57.4					
1990 07 28		17 25.61	-40 50.1	1.912	2.735	136.1	14.9	19.2
1990 08 07		17 19.98	-39 43.0					
1990 08 17		17 18.18	-38 40.9	2.266	2.873	117.1	18.3	19.8
1990 08 27		17 19.58	-37 46.0					
1990 09 06		17 23.59	-36 58.5	2.663	3.001	99.6	19.3	20.3

Periodic Comet Gunn Elements MPC 11502

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	m2
1990 03 30		22 15.72	-18 58.4	3.396	2.710	40.1	13.7	17.0
1990 04 09		22 31.82	-17 50.0					

1990 04 19	22 47.09	-16 44.4	3.264	2.758	51.8	16.6	17.0
1990 04 29	23 01.47	-15 43.2					
1990 05 09	23 14.88	-14 47.8	3.099	2.809	64.1	18.9	16.9
1990 05 19	23 27.26	-13 59.5					
1990 05 29	23 38.48	-13 19.8	2.909	2.862	77.3	20.2	16.9
1990 06 08	23 48.42	-12 49.9					
1990 06 18	23 56.93	-12 31.1	2.705	2.917	91.7	20.4	16.8
1990 06 28	00 03.83	-12 24.5					
1990 07 08	00 08.92	-12 30.7	2.504	2.974	107.6	19.0	16.7
1990 07 18	00 12.05	-12 49.8					
1990 07 28	00 13.04	-13 21.4	2.328	3.031	125.4	15.9	16.7
1990 08 07	00 11.82	-14 03.4					
1990 08 17	00 08.47	-14 52.7	2.208	3.090	144.7	10.9	16.6
1990 08 27	00 03.19	-15 44.9					
1990 09 06	23 56.48	-16 34.3	2.175	3.150	162.3	5.6	16.7
1990 09 16	23 48.97	-17 15.4					
1990 09 26	23 41.43	-17 43.6	2.248	3.210	160.4	6.0	16.8
1990 10 06	23 34.62	-17 55.9					
1990 10 16	23 29.15	-17 51.6	2.427	3.270	141.9	10.8	17.1
1990 10 26	23 25.43	-17 31.4					
1990 11 05	23 23.66	-16 57.0	2.692	3.330	122.4	14.6	17.4
1990 11 15	23 23.85	-16 10.7					
1990 11 25	23 25.90	-15 14.5	3.012	3.389	104.0	16.4	17.7
1990 12 05	23 29.62	-14 10.4					
1990 12 15	23 34.80	-13 00.1	3.358	3.448	86.9	16.6	18.0
1990 12 25	23 41.24	-11 44.9					
1991 01 04	23 48.74	-10 25.9	3.703	3.507	70.9	15.4	18.3
1991 01 14	23 57.10	-09 04.3					
1991 01 24	00 06.19	-07 40.7	4.024	3.565	55.8	13.2	18.5

Periodic Comet Faye Elements MPC 13042

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	m2
1990 04 19	18 21.48	-14 08.6	3.997	4.479	112.5	12.0	20.6
1990 04 29	18 20.86	-13 44.5					
1990 05 09	18 18.64	-13 21.4	3.654	4.396	132.1	9.8	20.3
1990 05 19	18 14.83	-13 00.1					
1990 05 29	18 09.56	-12 41.5	3.386	4.310	152.4	6.2	20.0
1990 06 08	18 03.09	-12 26.3					
1990 06 18	17 55.79	-12 15.3	3.221	4.222	168.4	2.8	19.8
1990 06 28	17 48.14	-12 09.0					
1990 07 08	17 40.67	-12 07.8	3.174	4.131	157.3	5.4	19.8
1990 07 18	17 33.92	-12 11.9					
1990 07 28	17 28.32	-12 21.0	3.236	4.037	136.9	9.9	19.9
1990 08 07	17 24.23	-12 34.7					
1990 08 17	17 21.84	-12 52.3	3.379	3.940	116.8	13.3	20.0
1990 08 27	17 21.26	-13 13.0					
1990 09 06	17 22.49	-13 35.7	3.568	3.841	98.1	15.1	20.1
1990 09 16	17 25.46	-13 59.5					
1990 09 26	17 30.08	-14 23.3	3.768	3.739	80.7	15.3	20.2
1990 10 06	17 36.23	-14 46.1					
1990 10 16	17 43.77	-15 07.0	3.950	3.635	64.5	14.3	20.2
1990 10 26	17 52.59	-15 25.1					
1990 11 05	18 02.53	-15 39.4	4.092	3.527	49.3	12.3	20.2

(4341) 1987 KF a,e,i = 1.84, 0.68, 12 Elements MPC 15692

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990 04 19	20 06.20	-17 41.4	2.327	2.505	88.2	23.6	20.5
1990 04 29	20 09.97	-17 41.4					

1990 05 09	20 11.09	-17 50.8	2.133	2.606	106.5	21.8	20.4
1990 05 19	20 09.33	-18 11.0					
1990 05 29	20 04.45	-18 42.6	1.957	2.697	127.5	17.4	20.1
1990 06 08	19 56.44	-19 24.7					
1990 06 18	19 45.54	-20 14.9	1.842	2.776	151.3	10.1	19.8
1990 06 28	19 32.38	-21 08.9					
1990 07 08	19 17.98	-22 01.7	1.831	2.846	177.0	1.1	19.4
1990 07 18	19 03.62	-22 48.9					
1990 07 28	18 50.53	-23 28.2	1.943	2.907	157.4	7.7	19.9
1990 08 07	18 39.74	-23 58.9					
1990 08 17	18 31.78	-24 22.2	2.164	2.958	133.9	14.3	20.4

1989 PB a,e,i = 1.06, 0.48, 9 Elements MPC 15072

Date ET	R. A. (1950)	Decl.	Delta	r	Variation		V
1990 04 19	20 08.95	-31 18.8	1.181	1.557	-0.98	-9.2	19.9
1990 04 29	20 23.17	-31 21.9					
1990 05 09	20 34.56	-31 35.9	0.987	1.576	-1.30	-13.5	19.5
1990 05 19	20 42.45	-32 05.7					
1990 05 29	20 45.74	-32 56.6	0.790	1.572	-1.94	-19.3	18.9
1990 06 08	20 42.90	-34 11.8					
1990 06 18	20 31.89	-35 49.5	0.614	1.544	-3.15	-24.1	18.1
1990 06 28	20 10.34	-37 35.8					
1990 07 08	19 37.41	-38 55.7	0.493	1.494	-4.98	-17.8	17.2
1990 07 18	18 56.32	-39 02.1					
1990 07 28	18 15.28	-37 30.9	0.458	1.419	-5.35	-0.3	17.2
1990 08 07	17 42.59	-34 48.2					
1990 08 17	17 21.26	-31 42.5	0.494	1.319	-2.70	+0.8	17.7
1990 08 27	17 10.25	-28 46.7					
1990 09 06	17 07.09	-26 11.7	0.549	1.194	-0.15	-7.6	18.1
1990 09 16	17 09.27	-23 54.8					
1990 09 26	17 14.72	-21 48.0	0.576	1.042	+1.84	-16.4	18.3
1990 10 06	17 21.25	-19 42.0					
1990 10 16	17 26.11	-17 27.3	0.545	0.867	+4.52	-26.7	18.4

Periodic Comet Kopff Elements MPC 12123

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	m2
1990 04 19	23 32.88	-04 54.7	2.518	1.809	36.3	19.2	18.1
1990 04 29	23 54.98	-02 50.2					
1990 05 09	00 15.90	-00 52.6	2.493	1.906	44.3	21.7	18.3
1990 05 19	00 35.67	+00 56.7					
1990 05 29	00 54.27	+02 36.5	2.445	2.012	53.4	23.8	18.5
1990 06 08	01 11.64	+04 05.7					
1990 06 18	01 27.72	+05 23.7	2.369	2.124	63.7	25.4	18.6
1990 06 28	01 42.40	+06 29.7					
1990 07 08	01 55.54	+07 23.3	2.266	2.241	75.6	26.1	18.8
1990 07 18	02 06.98	+08 04.1					
1990 07 28	02 16.48	+08 31.6	2.141	2.359	89.4	25.5	18.9
1990 08 07	02 23.82	+08 45.7					
1990 08 17	02 28.76	+08 46.3	2.008	2.479	105.5	23.2	19.0
1990 08 27	02 31.07	+08 33.4					
1990 09 06	02 30.62	+08 07.5	1.892	2.598	124.4	18.7	19.0
1990 09 16	02 27.42	+07 30.1					
1990 09 26	02 21.69	+06 43.5	1.826	2.716	146.1	11.9	19.1
1990 10 06	02 13.96	+05 51.5					
1990 10 16	02 05.01	+04 59.1	1.849	2.833	168.4	4.0	19.4
1990 10 26	01 55.79	+04 11.5					
1990 11 05	01 47.27	+03 33.7	1.985	2.947	163.0	5.7	19.7
1990 11 15	01 40.19	+03 08.9					
1990 11 25	01 35.06	+02 58.6	2.230	3.059	140.8	11.8	20.1

Comet Aarseth-Brewington (1989a1) Elements MPC 15857

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	m1
1990	04 19	00 13.24	-12 26.6	3.078	2.295	32.5	13.6	12.0
1990	04 29	00 19.78	-11 13.9					
1990	05 09	00 25.11	-10 14.7	3.166	2.587	47.1	16.6	12.6
1990	05 19	00 29.14	-09 28.4					
1990	05 29	00 31.76	-08 54.8	3.166	2.865	63.7	18.5	13.1
1990	06 08	00 32.82	-08 34.1					
1990	06 18	00 32.15	-08 26.2	3.105	3.131	82.1	18.7	13.4
1990	06 28	00 29.59	-08 31.3					
1990	07 08	00 25.00	-08 48.7	3.018	3.388	102.6	17.0	13.7
1990	07 18	00 18.31	-09 17.7					
1990	07 28	00 09.54	-09 56.5	2.954	3.636	125.3	13.2	14.0

2496 T-3 a,e,i = 2.99, 0.04, 8 Elements MPC 16038

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	02 18	10 41.89	-02 56.5	2.150	3.106	162.2	5.6	17.5
1990	02 28	10 34.43	-02 06.1					
1990	03 10	10 27.03	-01 06.8	2.135	3.108	166.1	4.4	17.5
1990	03 20	10 20.45	-00 04.1					
1990	03 30	10 15.33	+00 56.4	2.233	3.110	145.8	10.4	17.8
1990	04 09	10 12.12	+01 49.9					
1990	04 19	10 11.00	+02 33.3	2.421	3.111	125.3	15.3	18.1

1988 VD5 a,e,i = 2.66, 0.13, 13 Elements MPC 16029

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	02 18	10 55.74	-07 24.3	1.455	2.394	156.5	9.5	15.8
1990	02 28	10 48.37	-06 02.3					
1990	03 10	10 40.79	-04 22.2	1.435	2.414	167.1	5.3	15.6
1990	03 20	10 34.13	-02 34.1					
1990	03 30	10 29.29	-00 48.7	1.521	2.435	149.5	12.0	16.0
1990	04 09	10 26.86	+00 45.1					
1990	04 19	10 27.05	+02 01.8	1.695	2.457	129.3	18.5	16.4
1990	04 29	10 29.80	+02 58.9					
1990	05 09	10 34.89	+03 35.8	1.929	2.481	111.3	22.3	16.8

1978 VL5 a,e,i = 2.23, 0.17, 5 Elements MPC 16021

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	02 18	12 01.94	-07 49.8	1.661	2.530	144.3	13.2	17.8
1990	02 28	11 54.86	-07 25.5					
1990	03 10	11 45.86	-06 41.6	1.530	2.508	166.8	5.2	17.3
1990	03 20	11 35.91	-05 42.4					
1990	03 30	11 26.18	-04 34.7	1.508	2.482	163.8	6.5	17.3
1990	04 09	11 17.86	-03 26.9					
1990	04 19	11 11.78	-02 26.7	1.590	2.455	141.2	14.8	17.7
1990	04 29	11 08.45	-01 39.5					
1990	05 09	11 08.01	-01 08.8	1.748	2.425	120.7	21.0	18.0

1980 PW a,e,i = 2.42, 0.22, 4 Elements MPC 16022

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	02 18	12 04.50	-04 36.2	2.057	2.925	145.5	11.0	18.5
1990	02 28	11 57.37	-04 07.2					
1990	03 10	11 48.77	-03 25.5	1.953	2.934	169.0	3.7	18.1
1990	03 20	11 39.53	-02 35.5					
1990	03 30	11 30.56	-01 42.8	1.965	2.940	164.8	5.1	18.2
1990	04 09	11 22.76	-00 53.2					
1990	04 19	11 16.79	-00 11.7	2.088	2.944	141.8	12.2	18.6
1990	04 29	11 13.01	+00 18.5					
1990	05 09	11 11.57	+00 35.5	2.294	2.944	121.0	17.1	18.9

1987 SO5 a,e,i = 3.03, 0.03, 8 Elements MPC 16026

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	02 18	12 56.14	-07 38.9	2.313	3.069	132.6	13.7	17.4
1990	02 28	12 52.28	-07 42.6					
1990	03 10	12 46.44	-07 34.4	2.146	3.074	154.9	7.9	17.1
1990	03 20	12 39.09	-07 16.0					
1990	03 30	12 30.90	-06 50.1	2.082	3.079	176.5	1.1	16.7
1990	04 09	12 22.71	-06 20.7					
1990	04 19	12 15.32	-05 52.4	2.132	3.084	157.4	7.2	17.1
1990	04 29	12 09.38	-05 29.2					
1990	05 09	12 05.36	-05 14.4	2.285	3.088	135.6	13.2	17.4

1971 QW1 a,e,i = 3.02, 0.08, 10 Elements MPC 15549

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 10	13 24.40	-12 40.4	2.362	3.221	144.2	10.4	16.8
1990	03 20	13 19.30	-11 52.6					
1990	03 30	13 12.88	-10 52.9	2.248	3.230	167.2	3.9	16.4
1990	04 09	13 05.80	-09 45.4					
1990	04 19	12 58.80	-08 35.5	2.247	3.238	168.5	3.5	16.4
1990	04 29	12 52.55	-07 28.6					
1990	05 09	12 47.66	-06 29.8	2.359	3.245	145.9	10.0	16.8
1990	05 19	12 44.49	-05 42.6					
1990	05 29	12 43.20	-05 09.1	2.561	3.251	125.1	14.8	17.1

1987 RP3 a,e,i = 2.74, 0.07, 4 Elements MPC 15248

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 10	13 27.96	-16 00.8	2.073	2.919	141.9	12.1	17.0
1990	03 20	13 22.30	-15 42.2					
1990	03 30	13 14.97	-15 08.3	1.943	2.916	164.0	5.4	16.7
1990	04 09	13 06.73	-14 21.9					
1990	04 19	12 58.48	-13 27.6	1.921	2.912	168.5	4.0	16.6
1990	04 29	12 51.08	-12 31.2					
1990	05 09	12 45.28	-11 38.9	2.009	2.907	146.9	10.9	16.9
1990	05 19	12 41.54	-10 55.4					
1990	05 29	12 40.05	-10 24.0	2.184	2.901	126.3	16.4	17.3

1984 SF1 a,e,i = 2.23, 0.19, 3 Elements MPC 9292

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 10	13 30.95	-14 12.4	1.463	2.328	142.1	15.2	17.4
1990	03 20	13 25.22	-13 57.4					
1990	03 30	13 16.92	-13 23.0	1.309	2.288	164.9	6.5	16.8
1990	04 09	13 06.98	-12 32.0					
1990	04 19	12 56.69	-11 30.4	1.253	2.246	168.3	5.2	16.6
1990	04 29	12 47.43	-10 26.7					
1990	05 09	12 40.40	-09 30.1	1.298	2.203	145.2	15.2	17.0
1990	05 19	12 36.31	-08 47.4					
1990	05 29	12 35.44	-08 22.6	1.418	2.160	124.5	22.7	17.4

(724) Hapag a,e,i = 2.46, 0.25, 12 Elements MPC 13999

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 10	13 30.67	-12 39.1	2.041	2.896	142.9	12.0	18.1
1990	03 20	13 24.53	-11 36.4					
1990	03 30	13 16.82	-10 20.0	1.945	2.926	166.7	4.5	17.7
1990	04 09	13 08.35	-08 55.4					
1990	04 19	13 00.01	-07 29.2	1.963	2.954	168.5	3.9	17.7
1990	04 29	12 52.63	-06 08.7					
1990	05 09	12 46.89	-04 59.6	2.093	2.978	145.2	11.2	18.2
1990	05 19	12 43.16	-04 05.8					
1990	05 29	12 41.60	-03 28.8	2.312	3.000	124.1	16.2	18.6

1988 VK4 a,e,i = 2.26, 0.09, 9 Elements MPC 14793

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 10	13 34.44	-04 51.4	1.220	2.110	144.7	15.8	16.3
1990	03 20	13 28.07	-04 55.8					
1990	03 30	13 18.86	-04 52.8	1.108	2.096	168.0	5.7	15.7
1990	04 09	13 07.95	-04 47.1					
1990	04 19	12 56.88	-04 44.0	1.093	2.083	166.7	6.3	15.7
1990	04 29	12 47.21	-04 48.9					
1990	05 09	12 40.18	-05 06.1	1.172	2.073	143.7	16.8	16.2
1990	05 19	12 36.41	-05 37.1					
1990	05 29	12 36.05	-06 22.4	1.321	2.065	123.9	24.0	16.7

(4261) 1989 BJ a,e,i = 2.79, 0.11, 3 Elements MPC 15398

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 10	13 29.32	-13 04.7	2.255	3.106	143.0	11.1	17.3
1990	03 20	13 23.74	-12 37.6					
1990	03 30	13 16.62	-11 58.3	2.125	3.102	165.8	4.5	16.9
1990	04 09	13 08.66	-11 10.0					
1990	04 19	13 00.66	-10 17.2	2.105	3.097	169.2	3.5	16.9
1990	04 29	12 53.41	-09 25.2					
1990	05 09	12 47.59	-08 39.2	2.197	3.091	146.6	10.4	17.2
1990	05 19	12 43.64	-08 02.8					
1990	05 29	12 41.76	-07 38.7	2.379	3.083	125.7	15.5	17.6

5485 T-2 a,e,i = 2.38, 0.09, 6 Elements MPC 15259

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 10	13 33.55	-18 44.0	1.644	2.483	139.3	15.1	17.8
1990	03 20	13 27.31	-18 39.1					
1990	03 30	13 18.90	-18 13.6	1.533	2.499	161.1	7.4	17.4
1990	04 09	13 09.30	-17 29.8					
1990	04 19	12 59.71	-16 33.0	1.524	2.515	167.7	4.9	17.3
1990	04 29	12 51.26	-15 30.5					
1990	05 09	12 44.90	-14 30.6	1.620	2.529	147.3	12.4	17.7
1990	05 19	12 41.11	-13 39.9					
1990	05 29	12 40.05	-13 02.8	1.799	2.542	127.1	18.5	18.1

1981 ED19 a,e,i = 2.67, 0.08, 2 Elements MPC 15407

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 10	13 29.88	-07 54.9	1.881	2.753	144.9	12.0	16.7
1990	03 20	13 24.60	-07 12.6					
1990	03 30	13 17.51	-06 19.7	1.754	2.739	168.1	4.3	16.2
1990	04 09	13 09.40	-05 21.5					
1990	04 19	13 01.20	-04 24.0	1.735	2.724	167.5	4.6	16.2
1990	04 29	12 53.84	-03 33.3					
1990	05 09	12 48.12	-02 54.8	1.822	2.708	144.6	12.5	16.6
1990	05 19	12 44.53	-02 31.5					
1990	05 29	12 43.30	-02 24.4	1.991	2.693	124.0	18.2	17.0

1978 SP5 a,e,i = 2.77, 0.11, 4 Elements MPC 15403

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 10	13 30.21	-08 41.6	2.218	3.081	144.5	10.8	17.8
1990	03 20	13 24.79	-07 57.2					
1990	03 30	13 17.87	-07 03.5	2.100	3.083	167.8	3.9	17.4
1990	04 09	13 10.13	-06 04.8					
1990	04 19	13 02.36	-05 06.4	2.094	3.084	168.1	3.8	17.4
1990	04 29	12 55.34	-04 13.7					
1990	05 09	12 49.73	-03 31.2	2.200	3.083	145.2	10.8	17.8
1990	05 19	12 45.95	-03 01.6					
1990	05 29	12 44.20	-02 46.3	2.393	3.082	124.4	15.7	18.1

(4086) 1985 VK2 a,e,i = 5.18, 0.12, 22 Elements MPC 14604

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 10	13 24.63	+10 56.4	4.743	5.610	148.0	5.4	16.5
1990	03 20	13 20.33	+11 23.4					
1990	03 30	13 15.41	+11 46.8	4.668	5.623	161.3	3.3	16.4
1990	04 09	13 10.17	+12 04.4					
1990	04 19	13 04.95	+12 14.4	4.709	5.635	155.0	4.3	16.5
1990	04 29	13 00.07	+12 15.7					
1990	05 09	12 55.83	+12 07.8	4.860	5.647	137.6	6.9	16.6
1990	05 19	12 52.42	+11 51.0					
1990	05 29	12 50.01	+11 25.7	5.098	5.658	118.9	9.0	16.8

1977 DY8 a,e,i = 2.16, 0.06, 3 Elements MPC 15403

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 10	13 36.15	-07 58.8	1.408	2.283	143.4	15.0	17.6
1990	03 20	13 29.67	-07 32.0					
1990	03 30	13 20.70	-06 53.1	1.301	2.286	167.2	5.6	17.1
1990	04 09	13 10.32	-06 07.4					
1990	04 19	12 59.87	-05 22.1	1.296	2.287	167.7	5.4	17.0
1990	04 29	12 50.68	-04 44.4					
1990	05 09	12 43.79	-04 20.2	1.390	2.287	144.2	15.0	17.5
1990	05 19	12 39.76	-04 12.5					
1990	05 29	12 38.76	-04 22.0	1.560	2.285	123.8	21.6	18.0

(4260) 1989 AX a,e,i = 2.84, 0.06, 3 Elements MPC 15398

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 10	13 31.80	-04 43.4	2.101	2.972	145.3	11.0	16.6
1990	03 20	13 26.31	-04 03.1					
1990	03 30	13 19.25	-03 16.7	1.997	2.981	168.0	4.0	16.2
1990	04 09	13 11.33	-02 29.2					
1990	04 19	13 03.41	-01 45.6	2.003	2.989	166.4	4.5	16.2
1990	04 29	12 56.27	-01 10.5					
1990	05 09	12 50.60	-00 47.7	2.118	2.996	144.2	11.4	16.6
1990	05 19	12 46.83	-00 38.7					
1990	05 29	12 45.15	-00 43.9	2.318	3.002	123.8	16.3	17.0

1989 AO6 a,e,i = 3.05, 0.09, 9 Elements MPC 15251

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 10	13 32.97	-20 25.4	2.496	3.306	138.5	11.5	16.7
1990	03 20	13 27.39	-20 26.1					
1990	03 30	13 20.30	-20 11.9	2.361	3.314	159.3	6.1	16.4
1990	04 09	13 12.37	-19 44.1					
1990	04 19	13 04.34	-19 05.5	2.334	3.321	167.3	3.8	16.3
1990	04 29	12 56.96	-18 20.4					
1990	05 09	12 50.91	-17 33.9	2.421	3.328	149.1	9.0	16.6
1990	05 19	12 46.62	-16 50.9					
1990	05 29	12 44.31	-16 15.1	2.601	3.333	129.0	13.7	16.9

1986 RB12 a,e,i = 3.19, 0.12, 15 Elements MPC 14789

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 10	13 31.26	-27 59.6	2.756	3.523	134.3	11.6	16.6
1990	03 20	13 26.17	-27 56.2					
1990	03 30	13 19.63	-27 34.7	2.592	3.512	153.2	7.4	16.3
1990	04 09	13 12.26	-26 55.2					
1990	04 19	13 04.75	-26 00.1	2.530	3.500	162.1	5.0	16.1
1990	04 29	12 57.83	-24 53.6					
1990	05 09	12 52.14	-23 41.4	2.581	3.487	149.3	8.5	16.3
1990	05 19	12 48.11	-22 29.4					
1990	05 29	12 45.99	-21 22.6	2.729	3.473	130.5	12.8	16.5

(4096) Kushiro a,e,i = 2.81, 0.15, 9 Elements MPC 14608

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 10	13 35.66	-08 54.3	2.175	3.029	143.2	11.3	16.8
1990	03 20	13 29.79	-08 43.9					
1990	03 30	13 22.15	-08 24.9	2.024	3.004	166.3	4.5	16.4
1990	04 09	13 13.42	-08 00.2					
1990	04 19	13 04.45	-07 33.6	1.983	2.977	169.6	3.5	16.3
1990	04 29	12 56.12	-07 09.3					
1990	05 09	12 49.22	-06 51.6	2.055	2.949	146.4	10.9	16.6
1990	05 19	12 44.27	-06 43.3					
1990	05 29	12 41.55	-06 46.4	2.214	2.920	125.4	16.4	16.9

(4209) 1986 TG4 a,e,i = 3.15, 0.09, 22 Elements MPC 15231

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 10	13 38.01	-34 17.9	2.657	3.372	129.1	13.2	16.3
1990	03 20	13 31.71	-35 08.7					
1990	03 30	13 23.52	-35 39.9	2.490	3.361	145.5	9.7	16.1
1990	04 09	13 14.09	-35 49.0					
1990	04 19	13 04.31	-35 36.1	2.419	3.348	153.6	7.7	15.9
1990	04 29	12 55.10	-35 03.6					
1990	05 09	12 47.32	-34 16.8	2.453	3.336	145.7	9.8	16.0
1990	05 19	12 41.57	-33 22.1					
1990	05 29	12 38.15	-32 26.0	2.579	3.322	129.9	13.5	16.2

(4150) 1984 QC1 a,e,i = 2.23, 0.17, 3 Elements MPC 14938

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 10	13 37.61	-05 10.5	1.550	2.424	143.8	14.0	16.6
1990	03 20	13 32.08	-04 18.0					
1990	03 30	13 24.14	-03 14.8	1.409	2.392	166.8	5.5	16.0
1990	04 09	13 14.65	-02 07.3					
1990	04 19	13 04.78	-01 03.8	1.371	2.359	166.1	5.9	16.0
1990	04 29	12 55.76	-00 12.0					
1990	05 09	12 48.68	+00 21.8	1.435	2.324	143.2	15.1	16.3
1990	05 19	12 44.21	+00 35.1					
1990	05 29	12 42.64	+00 27.6	1.575	2.287	122.7	21.9	16.7

1989 CX2 a,e,i = 3.06, 0.12, 9 Elements MPC 15716

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 10	13 34.34	-21 30.2	2.624	3.425	137.7	11.3	18.5
1990	03 20	13 29.16	-21 19.7					
1990	03 30	13 22.54	-20 53.9	2.478	3.427	158.5	6.1	18.2
1990	04 09	13 15.07	-20 14.2					
1990	04 19	13 07.47	-19 23.6	2.441	3.428	167.6	3.6	18.0
1990	04 29	13 00.45	-18 26.4					
1990	05 09	12 54.63	-17 28.0	2.517	3.428	150.0	8.5	18.3
1990	05 19	12 50.46	-16 33.4					
1990	05 29	12 48.16	-15 46.4	2.689	3.427	129.7	13.1	18.6

(4040) 1987 SN1 a,e,i = 2.67, 0.07, 2 Elements MPC 14339

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 10	13 36.93	-07 38.2	1.930	2.790	143.3	12.3	16.9
1990	03 20	13 31.60	-07 07.4					
1990	03 30	13 24.39	-06 27.2	1.798	2.778	166.4	4.9	16.5
1990	04 09	13 16.03	-05 42.0					
1990	04 19	13 07.45	-04 57.1	1.774	2.766	169.1	3.9	16.4
1990	04 29	12 59.59	-04 18.0					
1990	05 09	12 53.27	-03 49.6	1.858	2.754	146.1	11.8	16.8
1990	05 19	12 49.02	-03 34.5					
1990	05 29	12 47.11	-03 34.2	2.026	2.741	125.4	17.5	17.1

1980 SJ a,e,i = 2.41, 0.14, 5 Elements MPC 14015

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 10	13 38.40	-15 08.8	1.919	2.755	140.1	13.4	17.8
1990	03 20	13 32.78	-14 35.7					
1990	03 30	13 25.21	-13 46.2	1.785	2.756	163.1	6.1	17.4
1990	04 09	13 16.46	-12 43.8					
1990	04 19	13 07.52	-11 34.1	1.757	2.754	170.9	3.3	17.2
1990	04 29	12 59.36	-10 23.9					
1990	05 09	12 52.82	-09 20.3	1.841	2.750	148.1	11.2	17.6
1990	05 19	12 48.45	-08 28.5					
1990	05 29	12 46.48	-07 51.7	2.013	2.743	126.9	17.2	18.0

(3975) Verdi a,e,i = 2.90, 0.05, 1 Elements MPC 14172

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 10	13 36.61	-10 24.6	2.079	2.929	142.4	11.9	16.6
1990	03 20	13 31.61	-09 52.4					
1990	03 30	13 24.92	-09 09.4	1.962	2.939	165.4	4.9	16.2
1990	04 09	13 17.26	-08 19.7					
1990	04 19	13 09.47	-07 28.2	1.954	2.949	170.7	3.1	16.1
1990	04 29	13 02.36	-06 40.3					
1990	05 09	12 56.67	-06 00.9	2.055	2.959	147.8	10.5	16.5
1990	05 19	12 52.86	-05 33.3					
1990	05 29	12 51.15	-05 19.1	2.245	2.968	127.0	15.8	16.9

1978 VZ3 a,e,i = 2.85, 0.07, 2 Elements MPC 15551

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 10	13 37.89	-10 34.1	2.167	3.013	142.1	11.7	17.7
1990	03 20	13 32.58	-10 09.3					
1990	03 30	13 25.60	-09 34.4	2.046	3.022	165.1	4.9	17.3
1990	04 09	13 17.66	-08 52.7					
1990	04 19	13 09.56	-08 08.7	2.034	3.030	171.0	3.0	17.2
1990	04 29	13 02.12	-07 27.2					
1990	05 09	12 56.07	-06 53.1	2.134	3.037	148.0	10.1	17.6
1990	05 19	12 51.86	-06 29.3					
1990	05 29	12 49.73	-06 17.8	2.323	3.043	127.1	15.4	18.0

(4139) 1975 VE2 a,e,i = 3.14, 0.17, 2 Elements MPC 14934

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 10	13 36.06	-08 00.0	2.505	3.355	143.4	10.2	17.1
1990	03 20	13 31.30	-07 26.4					
1990	03 30	13 25.05	-06 44.8	2.347	3.326	166.2	4.1	16.7
1990	04 09	13 17.88	-05 58.7					
1990	04 19	13 10.47	-05 12.1	2.302	3.295	169.9	3.1	16.6
1990	04 29	13 03.51	-04 29.6					
1990	05 09	12 57.67	-03 55.2	2.370	3.264	147.2	9.7	16.9
1990	05 19	12 53.40	-03 31.7					
1990	05 29	12 50.98	-03 20.6	2.529	3.232	126.2	14.7	17.2

1987 VT a,e,i = 2.78, 0.18, 18 Elements MPC 16026

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 10	13 43.28	+07 40.0	2.243	3.100	143.8	10.9	17.3
1990	03 20	13 37.07	+08 18.2					
1990	03 30	13 29.08	+08 52.8	2.112	3.074	161.1	6.1	17.0
1990	04 09	13 19.98	+09 18.1					
1990	04 19	13 10.61	+09 29.5	2.091	3.046	158.0	7.1	17.0
1990	04 29	13 01.82	+09 24.2					
1990	05 09	12 54.39	+09 01.0	2.177	3.016	139.4	12.6	17.2
1990	05 19	12 48.84	+08 21.1					
1990	05 29	12 45.46	+07 26.3	2.346	2.985	120.0	17.1	17.5

1989 AP6 a,e,i = 3.02, 0.11, 11 Elements MPC 15894

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 10	13 39.63	+05 03.2	2.484	3.344	144.7	9.9	17.5
1990	03 20	13 34.80	+06 06.4					
1990	03 30	13 28.52	+07 08.7	2.374	3.339	162.2	5.2	17.2
1990	04 09	13 21.37	+08 04.6					
1990	04 19	13 14.03	+08 49.1	2.376	3.333	159.0	6.2	17.2
1990	04 29	13 07.19	+09 18.5					
1990	05 09	13 01.47	+09 30.9	2.485	3.325	140.4	11.2	17.5
1990	05 19	12 57.29	+09 26.3					
1990	05 29	12 54.91	+09 05.8	2.677	3.317	121.2	15.2	17.8

1986 PQ1 a,e,i = 3.16, 0.01, 3 Elements MPC 11148

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 10	13 41.59	-07 03.6	2.343	3.187	142.4	11.0	17.5
1990	03 20	13 36.96	-06 32.0					
1990	03 30	13 30.77	-05 53.2	2.215	3.190	164.9	4.7	17.1
1990	04 09	13 23.61	-05 11.0					
1990	04 19	13 16.20	-04 29.7	2.197	3.192	170.6	3.0	17.0
1990	04 29	13 09.28	-03 53.7					
1990	05 09	13 03.51	-03 26.6	2.291	3.194	148.3	9.6	17.4
1990	05 19	12 59.36	-03 11.0					
1990	05 29	12 57.09	-03 07.8	2.476	3.196	127.5	14.6	17.7

1988 VH1 a,e,i = 2.56, 0.30, 5 Elements MPC 14026

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 10	13 47.32	-15 26.4	2.173	2.986	138.0	12.9	18.2
1990	03 20	13 41.46	-14 54.6					
1990	03 30	13 33.84	-14 09.0	2.067	3.029	161.1	6.1	17.9
1990	04 09	13 25.20	-13 12.7					
1990	04 19	13 16.41	-12 10.4	2.070	3.070	173.0	2.3	17.7
1990	04 29	13 08.30	-11 08.0					
1990	05 09	13 01.61	-10 11.0	2.189	3.107	150.4	9.2	18.2
1990	05 19	12 56.80	-09 23.9					
1990	05 29	12 54.08	-08 49.3	2.403	3.141	129.0	14.5	18.6

1988 VZ2 a,e,i = 2.54, 0.22, 8 Elements MPC 14027

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 10	13 48.16	-22 04.5	2.030	2.818	134.7	14.5	17.0
1990	03 20	13 42.48	-21 53.8					
1990	03 30	13 34.81	-21 23.7	1.912	2.854	156.2	8.1	16.7
1990	04 09	13 25.92	-20 35.7					
1990	04 19	13 16.78	-19 33.9	1.896	2.889	169.0	3.8	16.5
1990	04 29	13 08.36	-18 24.2					
1990	05 09	13 01.50	-17 14.0	1.993	2.921	151.6	9.5	16.9
1990	05 19	12 56.71	-16 09.7					
1990	05 29	12 54.22	-15 16.1	2.185	2.950	131.0	15.0	17.3

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

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 10	13 48.36	-13 37.4	1.363	2.207	138.5	17.3	16.2
1990	03 20	13 43.46	-13 16.1					
1990	03 30	13 35.94	-12 36.9	1.272	2.242	161.5	8.1	15.8
1990	04 09	13 26.80	-11 44.2					
1990	04 19	13 17.35	-10 44.8	1.277	2.277	173.3	2.9	15.6
1990	04 29	13 08.89	-09 47.1					
1990	05 09	13 02.49	-08 58.9	1.382	2.313	150.2	12.5	16.2
1990	05 19	12 58.74	-08 25.2					
1990	05 29	12 57.81	-08 08.5	1.569	2.349	129.6	19.4	16.7

(4051) Hatanaka a,e,i = 2.79, 0.11, 3 Elements MPC 14465

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 10	13 45.50	-14 51.3	2.285	3.101	138.7	12.2	16.9
1990	03 20	13 40.56	-14 32.6					
1990	03 30	13 33.85	-14 01.1	2.135	3.097	161.2	6.0	16.5
1990	04 09	13 26.00	-13 19.0					
1990	04 19	13 17.80	-12 30.3	2.093	3.093	173.3	2.2	16.3
1990	04 29	13 10.05	-11 39.6					
1990	05 09	13 03.52	-10 52.4	2.164	3.086	151.0	9.1	16.7
1990	05 19	12 58.74	-10 13.0					
1990	05 29	12 55.99	-09 44.4	2.331	3.079	129.7	14.7	17.0

(4158) Santini a,e,i = 3.40, 0.02, 6 Elements MPC 14940

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 10	13 44.05	-12 44.9	2.515	3.336	139.8	11.1	16.6
1990	03 20	13 39.40	-12 38.0					
1990	03 30	13 33.20	-12 21.6	2.372	3.337	162.2	5.2	16.3
1990	04 09	13 26.00	-11 57.6					
1990	04 19	13 18.50	-11 29.1	2.338	3.338	173.6	1.9	16.1
1990	04 29	13 11.40	-10 59.7					
1990	05 09	13 05.37	-10 33.3	2.418	3.339	151.4	8.3	16.4
1990	05 19	13 00.88	-10 13.3					
1990	05 29	12 58.21	-10 01.8	2.593	3.340	130.4	13.4	16.8

(4332) 1983 RC a,e,i = 2.58, 0.32, 19 Elements MPC 15688

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 10	13 46.24	+02 25.2	2.526	3.372	143.0	10.2	17.2
1990	03 20	13 41.24	+03 54.0					
1990	03 30	13 34.69	+05 25.6	2.393	3.356	161.9	5.3	16.9
1990	04 09	13 27.13	+06 53.4					
1990	04 19	13 19.23	+08 11.4	2.376	3.337	160.0	5.9	16.9
1990	04 29	13 11.72	+09 14.4					
1990	05 09	13 05.24	+09 59.0	2.471	3.315	140.7	11.1	17.2
1990	05 19	13 00.29	+10 24.4					
1990	05 29	12 57.15	+10 31.2	2.653	3.290	120.9	15.3	17.4

1970 OB a,e,i = 2.26, 0.22, 5 Elements MPC 12456

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 10	13 50.21	-03 32.3	1.401	2.262	141.2	16.0	18.3
1990	03 20	13 46.01	-02 49.4					
1990	03 30	13 38.90	-01 56.5	1.237	2.211	163.0	7.6	17.7
1990	04 09	13 29.58	-01 00.2					
1990	04 19	13 19.23	-00 09.0	1.168	2.160	167.6	5.7	17.4
1990	04 29	13 09.26	+00 28.9					
1990	05 09	13 01.04	+00 46.9	1.197	2.108	145.6	15.7	17.8
1990	05 19	12 55.55	+00 42.2					
1990	05 29	12 53.27	+00 14.6	1.299	2.057	125.2	23.8	18.1

1981 VK a,e,i = 3.12, 0.19, 1 Elements MPC 14783

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 10	13 47.51	-11 00.6	2.799	3.614	139.7	10.2	18.1
1990	03 20	13 42.93	-10 36.2					
1990	03 30	13 36.90	-10 03.2	2.631	3.595	162.4	4.8	17.7
1990	04 09	13 29.89	-09 24.1					
1990	04 19	13 22.51	-08 42.1	2.575	3.575	174.2	1.6	17.5
1990	04 29	13 15.40	-08 01.0					
1990	05 09	13 09.17	-07 24.6	2.636	3.554	151.2	7.9	17.8
1990	05 19	13 04.29	-06 56.1					
1990	05 29	13 01.08	-06 37.5	2.795	3.531	129.8	12.7	18.1

1981 EX21 a,e,i = 2.65, 0.20, 12 Elements MPC 13157

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990 03 10	13 50.03	-05 04.8	2.324	3.157	140.9	11.5	18.4
1990 03 20	13 45.50	-03 56.5					
1990 03 30	13 39.26	-02 40.1	2.178	3.146	163.0	5.3	18.1
1990 04 09	13 31.87	-01 21.0					
1990 04 19	13 24.05	-00 05.2	2.144	3.134	168.1	3.8	17.9
1990 04 29	13 16.58	+01 01.4					
1990 05 09	13 10.17	+01 54.2	2.224	3.118	146.9	10.2	18.3
1990 05 19	13 05.35	+02 30.5					
1990 05 29	13 02.43	+02 49.6	2.396	3.101	126.0	15.3	18.6

(4082) Swann a,e,i = 2.39, 0.26, 10 Elements MPC 14602

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990 03 10	13 56.46	-25 39.0	2.232	2.981	131.2	14.5	17.7
1990 03 20	13 50.76	-25 47.2					
1990 03 30	13 42.90	-25 36.1	2.074	2.992	151.9	9.1	17.4
1990 04 09	13 33.58	-25 05.3					
1990 04 19	13 23.69	-24 16.6	2.015	2.999	165.7	4.8	17.2
1990 04 29	13 14.24	-23 14.3					
1990 05 09	13 06.13	-22 05.4	2.070	3.002	152.7	8.9	17.4
1990 05 19	13 00.02	-20 56.8					
1990 05 29	12 56.25	-19 54.7	2.223	3.003	132.5	14.4	17.7

1989 CL3 a,e,i = 2.80, 0.23, 7 Elements MPC 15562

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990 03 10	13 51.49	-17 40.2	2.648	3.434	136.1	11.6	18.0
1990 03 20	13 46.66	-17 16.9					
1990 03 30	13 40.24	-16 40.5	2.491	3.439	158.4	6.1	17.7
1990 04 09	13 32.76	-15 52.9					
1990 04 19	13 24.90	-14 57.4	2.443	3.443	173.7	1.8	17.4
1990 04 29	13 17.36	-13 58.2					
1990 05 09	13 10.82	-13 00.4	2.513	3.444	153.3	7.6	17.8
1990 05 19	13 05.76	-12 08.5					
1990 05 29	13 02.49	-11 25.7	2.684	3.443	131.8	12.7	18.1

1985 GM1 a,e,i = 2.99, 0.04, 10 Elements MPC 15884

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990 03 10	13 48.12	-12 01.8	2.050	2.876	139.2	13.0	16.8
1990 03 20	13 44.52	-11 09.8					
1990 03 30	13 39.06	-10 04.5	1.910	2.876	161.9	6.2	16.4
1990 04 09	13 32.37	-08 49.9					
1990 04 19	13 25.23	-07 32.1	1.876	2.877	174.2	2.0	16.2
1990 04 29	13 18.49	-06 17.7					
1990 05 09	13 12.92	-05 12.8	1.953	2.879	151.2	9.7	16.6
1990 05 19	13 09.07	-04 22.0					
1990 05 29	13 07.25	-03 47.5	2.122	2.881	130.1	15.6	17.0

(4026) 1982 BU1 a,e,i = 2.44, 0.12, 3 Elements MPC 14333

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990 03 10	13 53.53	-07 10.8	1.435	2.283	139.5	16.4	16.8
1990 03 20	13 49.36	-06 24.7					
1990 03 30	13 42.63	-05 27.4	1.337	2.307	162.1	7.7	16.3
1990 04 09	13 34.21	-04 25.2					
1990 04 19	13 25.27	-03 25.9	1.335	2.333	171.2	3.8	16.2
1990 04 29	13 17.03	-02 37.1					
1990 05 09	13 10.55	-02 04.6	1.435	2.359	149.1	12.7	16.7
1990 05 19	13 06.46	-01 50.9					
1990 05 29	13 05.02	-01 56.3	1.616	2.385	128.8	19.3	17.2

1981 UT7 a,e,i = 3.13, 0.20, 2 Elements MPC 14473

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 10	13 50.86	-09 16.7	2.795	3.608	139.5	10.3	18.1
1990	03 20	13 46.51	-08 46.5					
1990	03 30	13 40.68	-08 08.5	2.621	3.584	162.1	4.9	17.7
1990	04 09	13 33.82	-07 25.3					
1990	04 19	13 26.53	-06 40.6	2.559	3.559	173.9	1.7	17.5
1990	04 29	13 19.44	-05 58.1					
1990	05 09	13 13.18	-05 21.7	2.614	3.533	151.3	7.9	17.8
1990	05 19	13 08.22	-04 54.3					
1990	05 29	13 04.90	-04 37.7	2.767	3.505	129.9	12.8	18.1

(3969) 1978 TQ8 a,e,i = 2.22, 0.13, 2 Elements MPC 14169

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 10	13 57.03	-10 37.2	1.671	2.496	137.6	15.6	17.9
1990	03 20	13 52.16	-09 58.3					
1990	03 30	13 44.80	-09 05.4	1.534	2.499	160.8	7.5	17.5
1990	04 09	13 35.70	-08 02.9					
1990	04 19	13 25.93	-06 57.2	1.498	2.500	174.0	2.4	17.2
1990	04 29	13 16.64	-05 55.7					
1990	05 09	13 08.90	-05 05.4	1.571	2.498	150.2	11.6	17.7
1990	05 19	13 03.44	-04 30.8					
1990	05 29	13 00.60	-04 14.1	1.731	2.494	128.7	18.5	18.1

1986 TL a,e,i = 3.14, 0.22, 9 Elements MPC 15886

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 10	13 52.60	-23 45.6	2.788	3.540	132.9	11.9	17.7
1990	03 20	13 48.11	-23 52.2					
1990	03 30	13 41.91	-23 44.5	2.586	3.508	153.4	7.3	17.4
1990	04 09	13 34.50	-23 22.1					
1990	04 19	13 26.52	-22 46.5	2.487	3.474	167.3	3.6	17.1
1990	04 29	13 18.70	-22 00.5					
1990	05 09	13 11.76	-21 08.9	2.503	3.439	154.1	7.4	17.2
1990	05 19	13 06.26	-20 16.6					
1990	05 29	13 02.59	-19 28.2	2.621	3.403	133.9	12.4	17.5

1977 RW6 a,e,i = 2.89, 0.09, 2 Elements MPC 9754

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 10	13 54.91	-11 30.0	2.295	3.103	137.8	12.4	17.9
1990	03 20	13 50.50	-11 10.8					
1990	03 30	13 44.25	-10 41.4	2.136	3.095	160.4	6.2	17.5
1990	04 09	13 36.70	-10 04.5					
1990	04 19	13 28.61	-09 23.6	2.083	3.086	175.8	1.4	17.2
1990	04 29	13 20.76	-08 43.2					
1990	05 09	13 13.95	-08 08.0	2.144	3.076	152.6	8.7	17.6
1990	05 19	13 08.75	-07 41.6					
1990	05 29	13 05.51	-07 26.4	2.301	3.065	131.1	14.4	18.0

1971 QN a,e,i = 2.19, 0.20, 3 Elements MPC 9472

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 10	13 58.78	-16 25.2	1.556	2.366	135.1	17.2	18.1
1990	03 20	13 54.91	-16 14.9					
1990	03 30	13 48.13	-15 45.2	1.371	2.324	157.4	9.5	17.6
1990	04 09	13 39.04	-14 56.9					
1990	04 19	13 28.70	-13 54.0	1.278	2.281	175.1	2.2	17.0
1990	04 29	13 18.46	-12 43.4					
1990	05 09	13 09.69	-11 34.6	1.290	2.235	152.7	12.0	17.4
1990	05 19	13 03.41	-10 36.0					
1990	05 29	13 00.20	-09 53.8	1.387	2.188	130.8	20.5	17.8

1953 UD a,e,i = 2.64, 0.18, 13 Elements MPC 12316

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 10	13 57.33	-15 13.8	2.306	3.097	135.9	12.9	17.4
1990	03 20	13 53.16	-14 26.7					
1990	03 30	13 47.12	-13 24.8	2.135	3.087	158.7	6.7	17.0
1990	04 09	13 39.74	-12 11.0					
1990	04 19	13 31.78	-10 50.2	2.072	3.075	176.9	1.0	16.7
1990	04 29	13 24.02	-09 28.4					
1990	05 09	13 17.27	-08 12.1	2.125	3.061	153.4	8.5	17.1
1990	05 19	13 12.11	-07 06.5					
1990	05 29	13 08.90	-06 15.1	2.277	3.044	131.4	14.5	17.4

(4193) 1981 SM1 a,e,i = 3.14, 0.18, 2 Elements MPC 15224

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 10	13 56.36	-09 27.2	2.917	3.717	138.2	10.3	17.9
1990	03 20	13 52.10	-08 58.0					
1990	03 30	13 46.40	-08 21.3	2.757	3.714	160.6	5.1	17.5
1990	04 09	13 39.70	-07 40.0					
1990	04 19	13 32.56	-06 57.3	2.707	3.709	175.2	1.3	17.3
1990	04 29	13 25.58	-06 16.7					
1990	05 09	13 19.36	-05 41.8	2.776	3.703	152.8	7.2	17.6
1990	05 19	13 14.35	-05 15.2					
1990	05 29	13 10.86	-04 58.7	2.946	3.695	131.4	11.9	17.9

1986 CB a,e,i = 2.35, 0.35, 22 Elements MPC 13466

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 10	14 05.59	+17 45.2	1.855	2.668	137.0	14.7	18.2
1990	03 20	13 59.75	+19 51.5					
1990	03 30	13 51.68	+21 43.5	1.831	2.730	148.1	11.1	18.1
1990	04 09	13 42.24	+23 11.3					
1990	04 19	13 32.46	+24 08.2	1.906	2.788	144.9	11.9	18.3
1990	04 29	13 23.37	+24 31.8					
1990	05 09	13 15.82	+24 23.5	2.072	2.842	131.3	15.5	18.6
1990	05 19	13 10.36	+23 48.0					
1990	05 29	13 07.21	+22 50.7	2.308	2.892	115.5	18.4	19.0

1981 EH11 a,e,i = 2.64, 0.19, 14 Elements MPC 11838

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 10	14 04.79	-25 05.8	2.229	2.965	129.9	14.9	18.8
1990	03 20	13 59.88	-25 46.2					
1990	03 30	13 52.56	-26 11.1	2.031	2.938	150.0	9.8	18.4
1990	04 09	13 43.35	-26 18.2					
1990	04 19	13 33.08	-26 06.9	1.929	2.909	164.5	5.3	18.1
1990	04 29	13 22.80	-25 39.3					
1990	05 09	13 13.56	-25 00.2	1.938	2.879	153.9	8.9	18.3
1990	05 19	13 06.22	-24 16.0					
1990	05 29	13 01.31	-23 33.2	2.044	2.846	134.3	14.8	18.5

1987 SS3 a,e,i = 2.33, 0.21, 2 Elements MPC 14198

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 10	13 58.97	-09 24.3	1.360	2.198	137.6	17.8	17.2
1990	03 20	13 56.43	-08 59.2					
1990	03 30	13 50.85	-08 18.9	1.186	2.150	159.6	9.3	16.6
1990	04 09	13 42.79	-07 27.3					
1990	04 19	13 33.33	-06 30.7	1.102	2.104	174.9	2.4	16.1
1990	04 29	13 23.83	-05 37.7					
1990	05 09	13 15.78	-04 56.9	1.114	2.059	151.7	13.5	16.5
1990	05 19	13 10.27	-04 34.3					
1990	05 29	13 07.93	-04 33.2	1.205	2.016	130.5	22.5	16.9

1982 UD2 a,e,i = 2.92, 0.14, 3 Elements MPC 12707

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 10	14 01.06	-10 56.8	2.519	3.311	136.6	11.9	17.7
1990	03 20	13 56.77	-10 36.0					
1990	03 30	13 50.74	-10 06.3	2.353	3.306	159.1	6.2	17.4
1990	04 09	13 43.45	-09 30.0					
1990	04 19	13 35.55	-08 50.5	2.295	3.299	177.1	0.9	17.0
1990	04 29	13 27.79	-08 11.8					
1990	05 09	13 20.87	-07 38.1	2.353	3.290	154.0	7.7	17.4
1990	05 19	13 15.37	-07 12.6					
1990	05 29	13 11.65	-06 57.5	2.511	3.281	132.3	13.2	17.8

1972 RF a,e,i = 2.42, 0.23, 24 Elements MPC 12312

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 10	14 00.39	+00 41.9	1.843	2.675	139.3	14.0	17.2
1990	03 20	13 57.09	+02 57.3					
1990	03 30	13 51.48	+05 23.9	1.680	2.633	158.1	8.1	16.7
1990	04 09	13 44.09	+07 51.4					
1990	04 19	13 35.75	+10 08.0	1.627	2.589	158.9	8.0	16.6
1990	04 29	13 27.45	+12 03.1					
1990	05 09	13 20.20	+13 29.2	1.681	2.543	140.7	14.6	16.9
1990	05 19	13 14.79	+14 23.8					
1990	05 29	13 11.70	+14 47.9	1.814	2.495	121.3	20.3	17.2

1989 CM a,e,i = 3.08, 0.16, 1 Elements MPC 15562

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 10	14 02.51	-12 23.2	2.718	3.499	135.8	11.4	18.5
1990	03 20	13 58.32	-12 01.8					
1990	03 30	13 52.53	-11 31.3	2.566	3.513	158.2	6.0	18.2
1990	04 09	13 45.61	-10 54.0					
1990	04 19	13 38.16	-10 13.0	2.521	3.525	178.3	0.5	17.8
1990	04 29	13 30.85	-09 31.9					
1990	05 09	13 24.32	-08 54.8	2.594	3.536	155.2	6.9	18.3
1990	05 19	13 19.08	-08 24.6					
1990	05 29	13 15.45	-08 03.8	2.769	3.546	133.6	11.9	18.6

1974 SD3 a,e,i = 3.36, 0.10, 10 Elements MPC 11423

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 10	14 01.70	-20 55.5	2.958	3.702	132.5	11.4	17.3
1990	03 20	13 58.06	-20 40.1					
1990	03 30	13 52.88	-20 11.9	2.779	3.702	153.9	6.8	17.0
1990	04 09	13 46.60	-19 31.8					
1990	04 19	13 39.76	-18 42.0	2.703	3.701	172.0	2.2	16.7
1990	04 29	13 33.00	-17 46.0					
1990	05 09	13 26.93	-16 48.1	2.745	3.699	157.7	6.0	16.9
1990	05 19	13 22.04	-15 52.6					
1990	05 29	13 18.67	-15 03.2	2.893	3.696	136.6	10.9	17.2

1953 VX1 a,e,i = 2.30, 0.14, 4 Elements MPC 14011

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 10	14 08.95	-12 21.4	1.806	2.599	134.3	15.9	17.6
1990	03 20	14 04.87	-11 44.5					
1990	03 30	13 58.31	-10 53.3	1.659	2.608	157.1	8.6	17.2
1990	04 09	13 49.91	-09 51.3					
1990	04 19	13 40.58	-08 43.9	1.610	2.614	177.7	0.9	16.7
1990	04 29	13 31.41	-07 38.0					
1990	05 09	13 23.43	-06 40.7	1.673	2.618	154.1	9.7	17.3
1990	05 19	13 17.42	-05 56.8					
1990	05 29	13 13.80	-05 29.5	1.829	2.620	132.2	16.6	17.7

1949 PQ a,e,i = 2.17, 0.15, 1 Elements MPC 9583

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 10	14 06.49	-11 29.1	1.255	2.081	135.2	19.7	17.5
1990	03 20	14 04.53	-11 16.7					
1990	03 30	13 59.22	-10 47.5	1.090	2.047	156.9	11.0	16.8
1990	04 09	13 51.10	-10 04.3					
1990	04 19	13 41.28	-09 12.5	1.010	2.014	178.2	0.9	16.2
1990	04 29	13 31.24	-08 20.4					
1990	05 09	13 22.63	-07 37.2	1.025	1.983	154.4	12.7	16.7
1990	05 19	13 16.65	-07 10.0					
1990	05 29	13 14.00	-07 03.0	1.118	1.954	132.9	22.3	17.1

(3997) Taga a,e,i = 2.42, 0.17, 4 Elements MPC 14179

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 10	14 11.59	-08 25.5	2.034	2.824	134.8	14.4	17.8
1990	03 20	14 07.20	-07 53.7					
1990	03 30	14 00.56	-07 12.5	1.884	2.832	157.4	7.8	17.4
1990	04 09	13 52.23	-06 25.5					
1990	04 19	13 43.03	-05 37.6	1.836	2.838	174.8	1.8	17.1
1990	04 29	13 33.92	-04 54.0					
1990	05 09	13 25.82	-04 19.7	1.901	2.841	153.6	9.1	17.5
1990	05 19	13 19.44	-03 58.0					
1990	05 29	13 15.23	-03 50.8	2.063	2.841	131.9	15.4	17.9

1979 FU2 a,e,i = 3.12, 0.09, 14 Elements MPC 8908

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 10	14 10.47	-02 43.8	2.205	3.002	136.3	13.2	16.3
1990	03 20	14 06.39	-02 33.4					
1990	03 30	14 00.22	-02 19.7	2.039	2.987	157.7	7.3	15.9
1990	04 09	13 52.44	-02 06.2					
1990	04 19	13 43.79	-01 56.4	1.975	2.972	171.1	3.0	15.6
1990	04 29	13 35.11	-01 53.9					
1990	05 09	13 27.27	-02 01.5	2.024	2.957	152.6	9.0	15.9
1990	05 19	13 20.96	-02 20.6					
1990	05 29	13 16.63	-02 51.5	2.170	2.943	131.8	14.9	16.3

1948 KF a,e,i = 2.31, 0.28, 11 Elements MPC 8209

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 10	14 13.56	+01 50.4	1.323	2.152	136.1	18.7	16.1
1990	03 20	14 11.23	+02 24.8					
1990	03 30	14 05.47	+03 02.9	1.135	2.086	155.6	11.4	15.5
1990	04 09	13 56.65	+03 36.9					
1990	04 19	13 45.74	+03 57.9	1.032	2.020	165.2	7.3	15.1
1990	04 29	13 34.16	+03 57.4					
1990	05 09	13 23.64	+03 29.9	1.022	1.955	148.5	15.7	15.3
1990	05 19	13 15.58	+02 34.6					
1990	05 29	13 10.88	+01 13.8	1.088	1.893	128.6	24.7	15.6

(3967) 1976 YW2 a,e,i = 3.24, 0.07, 18 Elements MPC 14169

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 10	14 10.20	+11 59.3	2.431	3.227	136.8	12.2	16.4
1990	03 20	14 06.44	+13 04.9					
1990	03 30	14 00.87	+14 05.4	2.326	3.240	151.7	8.4	16.2
1990	04 09	13 53.99	+14 54.7					
1990	04 19	13 46.49	+15 27.5	2.322	3.253	153.7	7.9	16.2
1990	04 29	13 39.07	+15 40.5					
1990	05 09	13 32.47	+15 32.3	2.421	3.266	140.8	11.3	16.4
1990	05 19	13 27.21	+15 04.0					
1990	05 29	13 23.66	+14 17.8	2.604	3.279	123.9	14.9	16.7

1988 UB a,e,i = 2.25, 0.17, 1 Elements MPC 13862

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 10	14 17.61	-15 30.0	1.694	2.465	131.3	17.6	17.9
1990	03 20	14 13.49	-15 17.4					
1990	03 30	14 06.60	-14 49.2	1.558	2.494	153.8	10.2	17.5
1990	04 09	13 57.60	-14 07.2					
1990	04 19	13 47.50	-13 15.5	1.516	2.520	177.4	1.0	17.0
1990	04 29	13 37.49	-12 20.0					
1990	05 09	13 28.73	-11 27.9	1.584	2.544	157.1	8.9	17.6
1990	05 19	13 22.07	-10 45.0					
1990	05 29	13 17.97	-10 15.6	1.747	2.566	135.0	16.2	18.0

1940 ED a,e,i = 2.33, 0.15, 4 Elements MPC 9684

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 10	14 07.26	-11 27.8	1.232	2.058	135.0	20.0	16.9
1990	03 20	14 06.63	-10 51.5					
1990	03 30	14 02.81	-09 56.0	1.082	2.036	156.3	11.4	16.3
1990	04 09	13 56.35	-08 45.5					
1990	04 19	13 48.27	-07 27.7	1.015	2.018	176.5	1.7	15.7
1990	04 29	13 39.96	-06 12.8					
1990	05 09	13 32.91	-05 11.1	1.041	2.004	155.5	12.1	16.2
1990	05 19	13 28.23	-04 30.1					
1990	05 29	13 26.54	-04 13.2	1.147	1.993	134.6	21.2	16.7

1969 TX5 a,e,i = 3.21, 0.07, 22 Elements MPC 13453

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 10	14 20.01	-13 40.1	2.336	3.083	131.3	14.0	16.5
1990	03 20	14 15.53	-14 18.5					
1990	03 30	14 08.78	-14 50.0	2.146	3.071	153.3	8.4	16.1
1990	04 09	14 00.21	-15 14.4					
1990	04 19	13 50.50	-15 32.0	2.058	3.060	175.0	1.6	15.7
1990	04 29	13 40.53	-15 44.4					
1990	05 09	13 31.25	-15 53.9	2.087	3.050	158.6	6.9	16.0
1990	05 19	13 23.45	-16 03.6					
1990	05 29	13 17.67	-16 16.4	2.221	3.039	136.7	13.2	16.3

1975 TS3 a,e,i = 3.14, 0.24, 10 Elements MPC 11430

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 10	14 14.94	-09 30.0	2.871	3.629	133.8	11.4	17.7
1990	03 20	14 11.07	-09 18.2					
1990	03 30	14 05.47	-08 59.9	2.663	3.598	155.9	6.5	17.3
1990	04 09	13 58.52	-08 36.8					
1990	04 19	13 50.74	-08 11.4	2.561	3.565	177.0	0.9	16.9
1990	04 29	13 42.77	-07 46.7					
1990	05 09	13 35.29	-07 26.0	2.578	3.530	157.1	6.4	17.2
1990	05 19	13 28.89	-07 11.9					
1990	05 29	13 24.00	-07 06.5	2.700	3.494	135.2	11.8	17.5

(4144) 1981 SW6 a,e,i = 3.15, 0.05, 9 Elements MPC 14936

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 10	14 12.69	-07 01.2	2.533	3.309	134.9	12.3	16.9
1990	03 20	14 09.72	-06 11.6					
1990	03 30	14 04.98	-05 14.3	2.371	3.311	156.5	6.9	16.5
1990	04 09	13 58.90	-04 13.1					
1990	04 19	13 52.07	-03 12.4	2.314	3.312	172.2	2.4	16.3
1990	04 29	13 45.15	-02 17.0					
1990	05 09	13 38.84	-01 31.4	2.372	3.312	154.6	7.5	16.6
1990	05 19	13 33.70	-00 58.5					
1990	05 29	13 30.13	-00 39.8	2.530	3.312	133.7	12.8	16.9

1989 AK a,e,i = 3.09, 0.28, 4 Elements MPC 14205

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 10	14 18.59	-08 19.8	2.539	3.299	133.2	12.7	17.8
1990	03 20	14 14.64	-07 50.8					
1990	03 30	14 08.89	-07 15.0	2.414	3.348	155.4	7.1	17.5
1990	04 09	14 01.84	-06 35.4					
1990	04 19	13 54.10	-05 55.6	2.393	3.395	174.6	1.6	17.2
1990	04 29	13 46.38	-05 19.4					
1990	05 09	13 39.37	-04 50.3	2.489	3.440	156.7	6.7	17.6
1990	05 19	13 33.61	-04 30.9					
1990	05 29	13 29.46	-04 22.5	2.689	3.483	135.3	11.8	18.0

1984 EP a,e,i = 3.12, 0.08, 5 Elements MPC 14785

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 10	14 15.09	-09 10.2	2.100	2.878	133.8	14.4	16.6
1990	03 20	14 12.70	-08 32.1					
1990	03 30	14 08.20	-07 44.1	1.947	2.885	155.5	8.3	16.3
1990	04 09	14 02.06	-06 49.9					
1990	04 19	13 54.96	-05 54.3	1.892	2.893	174.5	1.9	15.9
1990	04 29	13 47.72	-05 02.6					
1990	05 09	13 41.19	-04 20.0	1.947	2.902	156.8	7.9	16.2
1990	05 19	13 36.04	-03 50.1					
1990	05 29	13 32.73	-03 35.0	2.100	2.912	135.7	14.1	16.6

(3959) 1954 UN2 a,e,i = 2.26, 0.19, 3 Elements MPC 14166

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 10	14 24.18	-15 02.6	1.869	2.619	129.9	16.9	18.4
1990	03 20	14 20.63	-14 36.2					
1990	03 30	14 14.46	-13 54.9	1.711	2.637	152.4	10.1	18.0
1990	04 09	14 06.19	-13 00.7					
1990	04 19	13 56.70	-11 57.9	1.649	2.652	176.8	1.2	17.6
1990	04 29	13 47.02	-10 52.3					
1990	05 09	13 38.25	-09 51.0	1.698	2.664	158.8	7.9	18.0
1990	05 19	13 31.24	-08 59.9					
1990	05 29	13 26.53	-08 22.9	1.847	2.673	136.3	15.2	18.4

1972 AU a,e,i = 2.60, 0.17, 13 Elements MPC 13602

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 10	14 25.44	-26 46.7	2.253	2.937	125.0	16.1	17.9
1990	03 20	14 21.89	-27 32.2					
1990	03 30	14 15.73	-28 03.5	2.040	2.914	144.9	11.4	17.5
1990	04 09	14 07.34	-28 17.6					
1990	04 19	13 57.41	-28 12.9	1.917	2.890	162.3	6.1	17.1
1990	04 29	13 46.94	-27 49.9					
1990	05 09	13 37.04	-27 12.2	1.901	2.864	158.2	7.5	17.2
1990	05 19	13 28.71	-26 25.9					
1990	05 29	13 22.64	-25 37.6	1.989	2.835	139.3	13.5	17.4

1982 UJ7 a,e,i = 3.09, 0.15, 3 Elements MPC 14348

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 10	14 19.71	-10 27.1	2.559	3.311	132.4	12.8	17.8
1990	03 20	14 16.34	-10 01.9					
1990	03 30	14 11.14	-09 28.5	2.406	3.335	154.4	7.4	17.5
1990	04 09	14 04.53	-08 49.5					
1990	04 19	13 57.13	-08 08.2	2.356	3.358	175.9	1.2	17.1
1990	04 29	13 49.61	-07 28.4					
1990	05 09	13 42.70	-06 53.9	2.421	3.381	158.5	6.3	17.5
1990	05 19	13 36.96	-06 28.0					
1990	05 29	13 32.80	-06 12.5	2.591	3.402	136.8	11.8	17.9

1981 SW7 a,e,i = 3.09, 0.19, 5 Elements MPC 10027

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 10	14 20.87	-20 54.9	2.863	3.567	128.5	12.6	17.9
1990	03 20	14 17.64	-20 55.8					
1990	03 30	14 12.58	-20 45.1	2.647	3.546	149.8	8.1	17.6
1990	04 09	14 06.02	-20 22.6					
1990	04 19	13 58.51	-19 49.5	2.530	3.524	170.4	2.7	17.2
1990	04 29	13 50.71	-19 08.3					
1990	05 09	13 43.33	-18 22.6	2.528	3.500	161.6	5.2	17.3
1990	05 19	13 37.01	-17 36.7					
1990	05 29	13 32.22	-16 54.8	2.635	3.475	140.3	10.7	17.6

(4005) 1972 TC2 a,e,i = 2.45, 0.15, 7 Elements MPC 14326

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 10	14 26.07	-06 22.0	1.937	2.702	131.8	15.9	17.1
1990	03 20	14 23.07	-05 55.3					
1990	03 30	14 17.51	-05 20.4	1.749	2.679	153.4	9.6	16.6
1990	04 09	14 09.78	-04 40.9					
1990	04 19	14 00.61	-04 01.4	1.656	2.654	172.1	3.0	16.2
1990	04 29	13 50.96	-03 27.4					
1990	05 09	13 41.92	-03 04.0	1.673	2.628	156.2	8.9	16.4
1990	05 19	13 34.41	-02 54.6					
1990	05 29	13 29.09	-03 00.9	1.786	2.600	134.6	16.1	16.8

1989 AD a,e,i = 2.45, 0.26, 6 Elements MPC 14204

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 10	14 29.99	-18 24.1	2.238	2.950	127.5	15.5	17.8
1990	03 20	14 25.89	-18 29.1					
1990	03 30	14 19.40	-18 21.6	2.073	2.977	149.6	9.8	17.5
1990	04 09	14 11.01	-18 01.7					
1990	04 19	14 01.45	-17 31.0	2.003	3.001	172.1	2.6	17.1
1990	04 29	13 51.64	-16 52.6					
1990	05 09	13 42.53	-16 11.4	2.048	3.022	161.3	6.1	17.4
1990	05 19	13 34.92	-15 32.4					
1990	05 29	13 29.33	-14 59.8	2.200	3.040	139.1	12.6	17.8

1988 RA a,e,i = 2.78, 0.47, 29 Elements MPC 14199

Date	ET	R. A. (1950)	Decl.	Delta	r	Variation		V
1990	03 10	14 41.49	-36 02.1	2.661	3.242	-1.17	+5.4	18.4
1990	03 20	14 35.33	-37 16.6					
1990	03 30	14 26.48	-38 14.7	2.523	3.318	-1.36	+5.8	18.2
1990	04 09	14 15.43	-38 52.1					
1990	04 19	14 03.05	-39 06.0	2.474	3.390	-1.54	+6.3	18.1
1990	04 29	13 50.39	-38 56.2					
1990	05 09	13 38.59	-38 25.9	2.533	3.458	-1.60	+6.8	18.2
1990	05 19	13 28.55	-37 41.2					
1990	05 29	13 20.85	-36 48.8	2.700	3.523	-1.51	+6.9	18.5

1986 EL a,e,i = 2.37, 0.25, 23 Elements MPC 15413

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 10	14 24.86	-02 27.5	1.394	2.194	132.8	19.4	16.8
1990	03 20	14 22.87	+00 16.8					
1990	03 30	14 17.90	+03 11.3	1.317	2.250	152.5	11.8	16.5
1990	04 09	14 10.67	+06 02.0					
1990	04 19	14 02.22	+08 34.2	1.337	2.307	160.1	8.5	16.5
1990	04 29	13 53.77	+10 35.8					
1990	05 09	13 46.46	+12 00.0	1.459	2.362	145.7	13.9	16.9
1990	05 19	13 41.11	+12 46.7					
1990	05 29	13 38.14	+12 59.4	1.663	2.417	127.4	19.4	17.4

1984 DY a,e,i = 3.14, 0.14, 1 Elements MPC 14191

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 10	14 23.84	-14 42.6	2.248	2.986	130.1	14.7	17.4
1990	03 20	14 21.12	-14 32.2					
1990	03 30	14 16.27	-14 10.8	2.094	3.012	151.9	9.0	17.0
1990	04 09	14 09.74	-13 40.0					
1990	04 19	14 02.18	-13 02.6	2.037	3.039	175.1	1.6	16.6
1990	04 29	13 54.40	-12 22.4					
1990	05 09	13 47.24	-11 44.1	2.092	3.066	161.5	6.0	16.9
1990	05 19	13 41.37	-11 11.7					
1990	05 29	13 37.27	-10 48.5	2.250	3.092	139.6	12.3	17.4

1981 DC2 a,e,i = 2.66, 0.20, 12 Elements MPC 15406

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 10	14 23.76	-20 13.4	2.112	2.835	128.1	16.0	17.6
1990	03 20	14 21.79	-19 48.7					
1990	03 30	14 17.41	-19 06.3	1.889	2.796	149.6	10.4	17.2
1990	04 09	14 10.96	-18 06.3					
1990	04 19	14 03.08	-16 51.0	1.757	2.756	172.5	2.7	16.7
1990	04 29	13 54.65	-15 25.3					
1990	05 09	13 46.68	-13 56.4	1.737	2.714	162.0	6.6	16.8
1990	05 19	13 40.06	-12 31.9					
1990	05 29	13 35.45	-11 18.5	1.820	2.672	139.4	14.3	17.1

1982 ST6 a,e,i = 2.83, 0.05, 1 Elements MPC 13675

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 10	14 25.83	-15 52.9	2.109	2.844	129.3	15.7	17.6
1990	03 20	14 23.56	-15 48.7					
1990	03 30	14 18.93	-15 32.3	1.919	2.833	150.8	9.9	17.2
1990	04 09	14 12.31	-15 04.5					
1990	04 19	14 04.37	-14 27.6	1.822	2.823	173.9	2.2	16.8
1990	04 29	13 55.97	-13 45.3					
1990	05 09	13 48.07	-13 02.9	1.834	2.812	162.1	6.3	17.0
1990	05 19	13 41.51	-12 25.2					
1990	05 29	13 36.89	-11 56.5	1.949	2.802	139.9	13.5	17.4

(4088) 1986 GG a,e,i = 2.45, 0.06, 7 Elements MPC 14605

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 10	14 31.39	-12 17.4	1.753	2.501	129.1	17.9	16.6
1990	03 20	14 29.00	-12 26.3					
1990	03 30	14 23.72	-12 25.0	1.570	2.489	150.7	11.3	16.2
1990	04 09	14 15.93	-12 14.6					
1990	04 19	14 06.39	-11 57.5	1.475	2.477	174.5	2.2	15.6
1990	04 29	13 56.17	-11 37.3					
1990	05 09	13 46.54	-11 18.9	1.487	2.465	161.2	7.6	15.9
1990	05 19	13 38.56	-11 06.9					
1990	05 29	13 33.00	-11 05.0	1.597	2.452	138.8	15.8	16.3

1981 DZ a,e,i = 2.68, 0.09, 9 Elements MPC 10819

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 10	14 24.67	-22 49.0	1.716	2.445	126.9	19.0	18.0
1990	03 20	14 23.81	-22 42.7					
1990	03 30	14 20.14	-22 16.0	1.545	2.447	147.5	12.7	17.5
1990	04 09	14 14.09	-21 28.4					
1990	04 19	14 06.46	-20 21.8	1.457	2.450	169.1	4.5	17.1
1990	04 29	13 58.31	-19 01.5					
1990	05 09	13 50.83	-17 35.4	1.471	2.455	163.4	6.7	17.2
1990	05 19	13 44.99	-16 12.5					
1990	05 29	13 41.44	-15 00.3	1.583	2.462	141.9	14.7	17.7

1982 JB3 a,e,i = 2.57, 0.20, 14 Elements MPC 14188

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 10	14 35.98	+01 21.0	1.767	2.527	130.5	17.4	16.1
1990	03 20	14 32.42	+01 55.3					
1990	03 30	14 26.14	+02 31.1	1.652	2.570	150.7	11.0	15.7
1990	04 09	14 17.68	+03 02.6					
1990	04 19	14 07.94	+03 23.9	1.630	2.612	164.6	5.8	15.6
1990	04 29	13 57.98	+03 30.6					
1990	05 09	13 48.89	+03 19.8	1.713	2.653	153.0	9.9	15.9
1990	05 19	13 41.51	+02 51.4					
1990	05 29	13 36.36	+02 07.1	1.892	2.693	133.6	15.8	16.3

1987 QW7 a,e,i = 2.44, 0.19, 2 Elements MPC 14620

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 10	14 31.14	-15 52.4	2.145	2.866	128.1	15.8	18.7
1990	03 20	14 28.37	-15 36.7					
1990	03 30	14 23.15	-15 08.0	1.944	2.853	150.0	10.1	18.3
1990	04 09	14 15.85	-14 27.2					
1990	04 19	14 07.14	-13 36.9	1.837	2.838	173.8	2.2	17.8
1990	04 29	13 57.87	-12 41.3					
1990	05 09	13 49.07	-11 46.2	1.843	2.820	162.0	6.4	18.0
1990	05 19	13 41.61	-10 57.1					
1990	05 29	13 36.12	-10 18.5	1.953	2.799	139.2	13.7	18.4

1977 RD7 a,e,i = 2.32, 0.03, 2 Elements MPC 12568

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 10	14 29.65	-17 38.9	1.508	2.258	127.8	20.3	17.0
1990	03 20	14 28.45	-17 46.7					
1990	03 30	14 24.07	-17 37.9	1.344	2.258	148.9	13.2	16.6
1990	04 09	14 16.89	-17 12.3					
1990	04 19	14 07.79	-16 32.1	1.261	2.260	171.9	3.6	16.1
1990	04 29	13 58.00	-15 41.8					
1990	05 09	13 48.92	-14 49.0	1.278	2.261	162.7	7.6	16.3
1990	05 19	13 41.75	-14 01.2					
1990	05 29	13 37.24	-13 24.8	1.388	2.264	140.5	16.5	16.8

1989 AE1 a,e,i = 2.43, 0.27, 10 Elements MPC 15562

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 10	14 33.92	-02 17.1	2.311	3.051	130.6	14.3	16.8
1990	03 20	14 30.19	-01 32.2					
1990	03 30	14 24.25	-00 42.3	2.147	3.063	151.6	8.9	16.4
1990	04 09	14 16.51	+00 08.1					
1990	04 19	14 07.63	+00 54.1	2.084	3.071	167.0	4.2	16.2
1990	04 29	13 58.39	+01 30.8					
1990	05 09	13 49.68	+01 54.2	2.135	3.076	154.2	8.2	16.4
1990	05 19	13 42.23	+02 02.2					
1990	05 29	13 36.55	+01 54.5	2.288	3.077	133.8	13.8	16.7

1987 SD4 a,e,i = 2.39, 0.22, 7 Elements MPC 12950

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 10	14 30.39	-25 39.3	1.807	2.507	124.5	19.1	18.1
1990	03 20	14 29.03	-26 12.1					
1990	03 30	14 24.64	-26 27.8	1.579	2.460	144.3	13.7	17.6
1990	04 09	14 17.43	-26 23.1					
1990	04 19	14 08.07	-25 55.7	1.431	2.412	163.9	6.6	17.1
1990	04 29	13 57.64	-25 06.3					
1990	05 09	13 47.53	-24 00.0	1.383	2.363	161.6	7.7	17.1
1990	05 19	13 39.04	-22 45.1					
1990	05 29	13 33.14	-21 31.1	1.433	2.313	141.3	15.9	17.4

1981 EB33 a,e,i = 2.64, 0.19, 12 Elements MPC 11841

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 10	14 34.69	-29 52.1	1.976	2.638	121.7	18.7	18.9
1990	03 20	14 33.19	-30 59.3					
1990	03 30	14 28.68	-31 52.4	1.750	2.598	140.3	14.2	18.5
1990	04 09	14 21.35	-32 26.9					
1990	04 19	14 11.80	-32 38.6	1.602	2.558	157.3	8.7	18.1
1990	04 29	14 01.06	-32 25.6					
1990	05 09	13 50.51	-31 49.9	1.552	2.518	158.4	8.5	18.0
1990	05 19	13 41.45	-30 57.7					
1990	05 29	13 34.88	-29 57.3	1.599	2.478	142.1	14.6	18.2

(4140) 1976 VA a,e,i = 3.00, 0.12, 8 Elements MPC 14934

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 10	14 31.51	-04 38.6	2.528	3.265	130.8	13.3	16.7
1990	03 20	14 29.13	-03 56.6					
1990	03 30	14 24.79	-03 08.4	2.334	3.248	151.6	8.4	16.3
1990	04 09	14 18.79	-02 17.4					
1990	04 19	14 11.67	-01 28.0	2.240	3.230	168.5	3.6	16.0
1990	04 29	14 04.07	-00 44.7					
1990	05 09	13 56.77	-00 11.7	2.258	3.212	157.0	7.1	16.2
1990	05 19	13 50.43	+00 08.1					
1990	05 29	13 45.56	+00 13.4	2.379	3.192	136.6	12.6	16.5

(4084) 1985 GM a,e,i = 2.91, 0.01, 3 Elements MPC 14603

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 10	14 34.14	-11 05.5	2.182	2.909	128.8	15.4	16.6
1990	03 20	14 32.19	-10 48.9					
1990	03 30	14 27.93	-10 22.8	1.996	2.906	150.2	9.8	16.2
1990	04 09	14 21.71	-09 49.6					
1990	04 19	14 14.14	-09 12.3	1.904	2.903	172.5	2.6	15.8
1990	04 29	14 05.99	-08 35.1					
1990	05 09	13 58.18	-08 02.4	1.922	2.900	162.4	6.1	15.9
1990	05 19	13 51.51	-07 38.3					
1990	05 29	13 46.57	-07 25.5	2.043	2.897	140.5	12.9	16.3

1981 DM1 a,e,i = 2.68, 0.14, 11 Elements MPC 15878

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 10	14 31.27	-17 20.7	1.631	2.371	127.6	19.4	15.8
1990	03 20	14 31.02	-16 35.6					
1990	03 30	14 27.94	-15 30.9	1.478	2.389	148.8	12.5	15.4
1990	04 09	14 22.44	-14 09.1					
1990	04 19	14 15.32	-12 35.5	1.410	2.409	172.2	3.2	14.9
1990	04 29	14 07.59	-10 57.9					
1990	05 09	14 00.40	-09 25.8	1.445	2.430	163.5	6.8	15.2
1990	05 19	13 54.72	-08 07.0					
1990	05 29	13 51.16	-07 07.0	1.579	2.454	141.4	14.9	15.7

(4076) Dorffel a,e,i = 2.85, 0.07, 1 Elements MPC 14600

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 10	14 36.79	-16 31.4	2.340	3.039	126.6	15.2	17.0
1990	03 20	14 34.55	-16 27.1					
1990	03 30	14 30.05	-16 11.7	2.149	3.043	148.1	10.0	16.6
1990	04 09	14 23.64	-15 46.0					
1990	04 19	14 15.90	-15 11.8	2.051	3.047	171.2	2.9	16.2
1990	04 29	14 07.58	-14 32.1					
1990	05 09	13 59.57	-13 51.5	2.064	3.050	165.0	4.9	16.4
1990	05 19	13 52.64	-13 14.2					
1990	05 29	13 47.39	-12 44.1	2.184	3.052	142.6	11.6	16.7

2285 T-2 a,e,i = 2.80, 0.13, 9 Elements MPC 15571

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 10	14 40.97	-19 39.1	2.460	3.133	124.6	15.1	18.7
1990	03 20	14 38.12	-19 58.2					
1990	03 30	14 32.98	-20 06.9	2.266	3.143	145.9	10.3	18.3
1990	04 09	14 25.87	-20 04.6					
1990	04 19	14 17.38	-19 51.6	2.164	3.153	168.0	3.8	18.0
1990	04 29	14 08.27	-19 29.7					
1990	05 09	13 59.44	-19 02.2	2.174	3.161	165.4	4.6	18.0
1990	05 19	13 51.69	-18 33.1					
1990	05 29	13 45.63	-18 06.6	2.293	3.167	143.6	10.9	18.4

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

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 10	14 36.84	-16 10.9	1.586	2.320	126.7	20.1	17.7
1990	03 20	14 36.19	-16 01.4					
1990	03 30	14 32.55	-15 36.4	1.447	2.352	147.7	13.1	17.3
1990	04 09	14 26.34	-14 57.4					
1990	04 19	14 18.38	-14 07.9	1.389	2.387	171.1	3.7	16.9
1990	04 29	14 09.75	-13 13.3					
1990	05 09	14 01.69	-12 20.5	1.433	2.423	165.0	6.2	17.1
1990	05 19	13 55.21	-11 35.8					
1990	05 29	13 50.98	-11 04.0	1.575	2.460	142.9	14.4	17.7

1986 QA4 a,e,i = 3.04, 0.12, 2 Elements MPC 14476

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 10	14 36.09	-12 31.3	2.496	3.204	127.9	14.1	17.7
1990	03 20	14 34.13	-12 13.3					
1990	03 30	14 30.08	-11 45.9	2.284	3.184	149.4	9.2	17.3
1990	04 09	14 24.25	-11 10.9					
1990	04 19	14 17.13	-10 30.7	2.166	3.163	172.0	2.5	16.9
1990	04 29	14 09.40	-09 48.9					
1990	05 09	14 01.84	-09 09.9	2.160	3.142	163.7	5.2	17.0
1990	05 19	13 55.20	-08 37.4					
1990	05 29	13 50.05	-08 14.7	2.262	3.120	141.6	11.6	17.4

1988 VZ3 a,e,i = 2.29, 0.18, 6 Elements MPC 14200

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 10	14 43.88	-23 49.7	1.917	2.589	122.4	18.9	18.3
1990	03 20	14 41.73	-23 58.7					
1990	03 30	14 36.65	-23 50.9	1.741	2.612	143.4	13.2	18.0
1990	04 09	14 29.03	-23 24.7					
1990	04 19	14 19.60	-22 40.6	1.648	2.632	165.5	5.5	17.6
1990	04 29	14 09.41	-21 41.3					
1990	05 09	13 59.67	-20 32.8	1.660	2.649	165.2	5.6	17.6
1990	05 19	13 51.44	-19 22.6					
1990	05 29	13 45.43	-18 18.0	1.779	2.663	143.6	13.0	18.0

1989 CL a,e,i = 3.15, 0.18, 3 Elements MPC 15251

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 10	14 39.17	-11 52.9	2.745	3.439	127.4	13.3	16.6
1990	03 20	14 36.65	-11 30.2					
1990	03 30	14 32.25	-10 59.5	2.572	3.467	149.0	8.5	16.3
1990	04 09	14 26.30	-10 22.7					
1990	04 19	14 19.31	-09 42.5	2.497	3.493	171.4	2.5	15.9
1990	04 29	14 11.89	-09 02.2					
1990	05 09	14 04.73	-08 25.5	2.537	3.518	163.9	4.6	16.1
1990	05 19	13 58.44	-07 55.5					
1990	05 29	13 53.48	-07 34.6	2.687	3.542	142.1	10.1	16.5

1973 SN6 a,e,i = 2.78, 0.01, 5 Elements MPC 14944

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 10	14 38.73	-12 08.5	2.058	2.776	127.4	16.5	17.1
1990	03 20	14 37.44	-11 38.7					
1990	03 30	14 33.71	-10 57.4	1.876	2.778	148.7	10.8	16.7
1990	04 09	14 27.87	-10 07.0					
1990	04 19	14 20.53	-09 11.3	1.784	2.780	171.0	3.2	16.3
1990	04 29	14 12.49	-08 15.2					
1990	05 09	14 04.72	-07 24.7	1.800	2.782	163.3	6.0	16.4
1990	05 19	13 58.05	-06 44.3					
1990	05 29	13 53.14	-06 17.6	1.919	2.784	141.4	13.1	16.8

1971 RA a,e,i = 2.20, 0.20, 5 Elements MPC 12142

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 10	14 42.45	-09 00.7	1.592	2.332	127.3	19.8	18.2
1990	03 20	14 41.88	-08 40.3					
1990	03 30	14 38.15	-08 08.3	1.381	2.290	148.1	13.3	17.7
1990	04 09	14 31.41	-07 27.4					
1990	04 19	14 22.23	-06 41.9	1.251	2.246	169.8	4.5	17.1
1990	04 29	14 11.65	-05 58.0					
1990	05 09	14 01.07	-05 23.0	1.221	2.201	161.4	8.4	17.2
1990	05 19	13 51.85	-05 02.7					
1990	05 29	13 45.07	-05 01.1	1.284	2.155	139.1	17.9	17.5

1975 LQ a,e,i = 2.43, 0.16, 5 Elements MPC 13602

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 10	14 39.19	-10 23.6	1.740	2.476	127.8	18.5	18.0
1990	03 20	14 38.80	-09 45.7					
1990	03 30	14 35.59	-08 53.9	1.533	2.441	148.6	12.3	17.5
1990	04 09	14 29.78	-07 51.1					
1990	04 19	14 21.95	-06 42.3	1.411	2.406	169.9	4.2	17.0
1990	04 29	14 13.02	-05 34.2					
1990	05 09	14 04.18	-04 34.8	1.392	2.371	161.4	7.8	17.1
1990	05 19	13 56.56	-03 50.3					
1990	05 29	13 51.05	-03 25.2	1.470	2.336	139.6	16.3	17.4

1977 QJ3 a,e,i = 2.27, 0.22, 4 Elements MPC 14343

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 10	14 46.41	-10 21.3	1.946	2.655	126.0	17.6	17.4
1990	03 20	14 44.73	-09 58.6					
1990	03 30	14 40.29	-09 25.1	1.728	2.625	147.4	11.8	16.9
1990	04 09	14 33.28	-08 43.0					
1990	04 19	14 24.29	-07 55.9	1.598	2.593	169.8	3.9	16.4
1990	04 29	14 14.18	-07 08.6					
1990	05 09	14 04.11	-06 27.2	1.576	2.557	162.6	6.8	16.5
1990	05 19	13 55.17	-05 56.9					
1990	05 29	13 48.22	-05 41.3	1.656	2.519	140.1	15.0	16.8

1984 UX1 a,e,i = 2.41, 0.12, 7 Elements MPC 10841

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 10	14 48.74	-13 25.0	1.923	2.619	124.7	18.2	17.8
1990	03 20	14 46.64	-13 29.5					
1990	03 30	14 41.73	-13 24.0	1.745	2.635	146.2	12.2	17.5
1990	04 09	14 34.33	-13 09.8					
1990	04 19	14 25.09	-12 48.6	1.654	2.649	169.9	3.8	17.0
1990	04 29	14 14.96	-12 23.6					
1990	05 09	14 05.10	-11 59.4	1.671	2.661	165.7	5.4	17.1
1990	05 19	13 56.52	-11 40.2					
1990	05 29	13 49.99	-11 29.6	1.793	2.672	142.8	13.3	17.6

1981 YS1 a,e,i = 2.38, 0.30, 5 Elements MPC 15553

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990 03 10	14 50.11	-11 09.1	1.864	2.566	125.0	18.5	17.8
1990 03 20	14 47.58	-10 30.9					
1990 03 30	14 42.27	-09 41.6	1.732	2.625	146.8	12.0	17.5
1990 04 09	14 34.63	-08 44.5					
1990 04 19	14 25.44	-07 44.2	1.687	2.681	169.4	3.9	17.2
1990 04 29	14 15.67	-06 46.5					
1990 05 09	14 06.41	-05 57.3	1.753	2.734	162.7	6.3	17.4
1990 05 19	13 58.56	-05 20.9					
1990 05 29	13 52.72	-04 59.9	1.923	2.783	140.7	13.3	17.9

1986 GD a,e,i = 2.46, 0.19, 7 Elements MPC 13858

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990 03 10	14 46.61	-10 59.1	1.322	2.067	125.8	22.9	17.1
1990 03 20	14 46.41	-11 21.5					
1990 03 30	14 42.62	-11 34.4	1.191	2.097	146.4	15.3	16.7
1990 04 09	14 35.60	-11 39.3					
1990 04 19	14 26.24	-11 38.6	1.135	2.131	169.7	4.8	16.3
1990 04 29	14 15.82	-11 35.5					
1990 05 09	14 05.90	-11 34.7	1.175	2.168	165.7	6.6	16.5
1990 05 19	13 57.81	-11 40.3					
1990 05 29	13 52.40	-11 55.3	1.308	2.206	143.5	15.9	17.1

1985 JJ a,e,i = 3.00, 0.12, 11 Elements MPC 14786

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990 03 10	14 39.91	-10 40.4	2.489	3.192	127.5	14.3	17.2
1990 03 20	14 38.44	-09 54.8					
1990 03 30	14 34.92	-08 58.8	2.278	3.174	148.7	9.4	16.8
1990 04 09	14 29.60	-07 54.9					
1990 04 19	14 22.98	-06 47.1	2.162	3.155	169.7	3.3	16.5
1990 04 29	14 15.69	-05 40.2					
1990 05 09	14 08.51	-04 39.5	2.159	3.135	162.2	5.6	16.5
1990 05 19	14 02.14	-03 49.5					
1990 05 29	13 57.17	-03 13.4	2.263	3.115	140.8	11.9	16.9

1981 EO8 a,e,i = 2.64, 0.16, 4 Elements MPC 10614

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990 03 10	14 46.78	-21 11.4	2.188	2.850	122.8	17.0	18.8
1990 03 20	14 44.82	-21 15.8					
1990 03 30	14 40.31	-21 06.7	2.010	2.878	143.9	11.8	18.4
1990 04 09	14 33.60	-20 43.8					
1990 04 19	14 25.32	-20 07.9	1.917	2.903	166.5	4.6	18.1
1990 04 29	14 16.30	-19 21.7					
1990 05 09	14 07.55	-18 29.9	1.934	2.927	167.3	4.3	18.1
1990 05 19	13 59.93	-17 37.8					
1990 05 29	13 54.11	-16 50.8	2.059	2.950	145.3	11.3	18.5

(3960) 1955 BG a,e,i = 2.64, 0.28, 14 Elements MPC 14166

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990 03 30	14 46.83	+03 04.8	1.829	2.712	145.5	12.0	16.2
1990 04 09	14 39.19	+03 45.7					
1990 04 19	14 30.03	+04 17.1	1.799	2.768	161.1	6.7	16.0
1990 04 29	14 20.27	+04 34.2					
1990 05 09	14 10.94	+04 33.7	1.874	2.823	155.2	8.6	16.2
1990 05 19	14 02.89	+04 15.1					
1990 05 29	13 56.73	+03 39.5	2.050	2.875	136.9	13.9	16.7
1990 06 08	13 52.78	+02 49.3					
1990 06 18	13 51.11	+01 47.5	2.302	2.925	118.4	17.8	17.1

1987 SO a,e,i = 2.29, 0.28, 5 Elements MPC 14620

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 30	14 43.98	-24 15.7	1.429	2.298	141.8	15.6	17.3
1990	04 09	14 38.21	-24 14.2					
1990	04 19	14 29.62	-23 52.0	1.255	2.235	163.1	7.5	16.7
1990	04 29	14 19.10	-23 08.3					
1990	05 09	14 08.10	-22 06.9	1.176	2.170	166.7	6.1	16.5
1990	05 19	13 58.18	-20 55.4					
1990	05 29	13 50.67	-19 43.8	1.193	2.105	145.1	16.0	16.8
1990	06 08	13 46.45	-18 41.6					
1990	06 18	13 45.85	-17 55.2	1.283	2.041	124.8	24.1	17.1

1984 EA1 a,e,i = 3.11, 0.02, 13 Elements MPC 14349

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 30	14 39.69	+01 52.9	2.294	3.181	147.4	9.7	16.4
1990	04 09	14 34.46	+02 59.0					
1990	04 19	14 27.95	+03 59.8	2.212	3.181	161.7	5.7	16.1
1990	04 29	14 20.78	+04 50.0					
1990	05 09	14 13.71	+05 25.1	2.239	3.182	154.7	7.8	16.2
1990	05 19	14 07.42	+05 42.8					
1990	05 29	14 02.46	+05 42.4	2.367	3.181	136.7	12.6	16.5
1990	06 08	13 59.22	+05 24.7					
1990	06 18	13 57.86	+04 51.9	2.569	3.181	118.4	16.3	16.8

1987 XC a,e,i = 2.56, 0.27, 17 Elements MPC 12801

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 30	14 47.82	-05 30.1	1.990	2.872	145.9	11.3	18.4
1990	04 09	14 40.61	-05 16.7					
1990	04 19	14 31.43	-05 03.9	1.838	2.825	167.0	4.6	17.9
1990	04 29	14 21.03	-04 55.2					
1990	05 09	14 10.42	-04 54.2	1.796	2.776	162.7	6.2	17.9
1990	05 19	14 00.61	-05 03.7					
1990	05 29	13 52.47	-05 25.4	1.863	2.725	140.9	13.6	18.2
1990	06 08	13 46.62	-05 59.9					
1990	06 18	13 43.34	-06 46.6	2.010	2.672	120.4	19.1	18.5

1970 WD a,e,i = 2.32, 0.12, 7 Elements MPC 14184

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 30	14 46.60	-24 01.8	1.743	2.599	141.3	13.9	17.5
1990	04 09	14 40.18	-23 34.9					
1990	04 19	14 31.65	-22 49.7	1.614	2.593	163.5	6.3	17.0
1990	04 29	14 21.93	-21 48.2					
1990	05 09	14 12.22	-20 35.6	1.588	2.585	168.1	4.6	16.9
1990	05 19	14 03.65	-19 19.5					
1990	05 29	13 57.10	-18 07.5	1.669	2.574	146.3	12.6	17.3
1990	06 08	13 53.14	-17 06.2					
1990	06 18	13 51.92	-16 19.6	1.833	2.562	125.7	18.8	17.7

3005 P-L a,e,i = 3.02, 0.07, 9 Elements MPC 14627

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 30	14 43.03	-28 23.8	2.056	2.892	139.9	12.9	18.5
1990	04 09	14 37.68	-28 16.9					
1990	04 19	14 30.54	-27 52.1	1.918	2.882	159.8	6.9	18.2
1990	04 29	14 22.38	-27 10.0					
1990	05 09	14 14.18	-26 13.7	1.882	2.872	165.9	4.9	18.0
1990	05 19	14 06.90	-25 09.0					
1990	05 29	14 01.32	-24 02.3	1.952	2.863	148.0	10.8	18.3
1990	06 08	13 57.95	-23 00.1					
1990	06 18	13 56.99	-22 07.0	2.110	2.854	128.4	16.2	18.7

(3952) 1986 EM2 a,e,i = 2.39, 0.16, 2 Elements MPC 14009

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 30	14 48.56	-19 19.5	1.568	2.439	142.9	14.3	17.3
1990	04 09	14 41.83	-18 55.2					
1990	04 19	14 33.01	-18 17.2	1.486	2.472	166.1	5.6	16.9
1990	04 29	14 23.15	-17 28.8					
1990	05 09	14 13.50	-16 35.6	1.506	2.504	168.8	4.5	16.9
1990	05 19	14 05.19	-15 44.5					
1990	05 29	13 59.05	-15 01.2	1.630	2.535	146.0	12.9	17.4
1990	06 08	13 55.53	-14 30.3					
1990	06 18	13 54.72	-14 13.4	1.835	2.564	125.7	18.8	17.9

2093 P-L a,e,i = 3.03, 0.06, 9 Elements MPC 15726

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 30	14 44.24	-16 08.2	2.104	2.977	144.9	11.1	17.7
1990	04 09	14 39.37	-15 18.4					
1990	04 19	14 32.93	-14 19.0	1.977	2.966	167.7	4.1	17.3
1990	04 29	14 25.60	-13 13.7					
1990	05 09	14 18.22	-12 07.9	1.959	2.955	168.7	3.8	17.2
1990	05 19	14 11.61	-11 06.9					
1990	05 29	14 06.43	-10 15.6	2.049	2.945	146.1	11.1	17.6
1990	06 08	14 03.17	-09 37.2					
1990	06 18	14 02.01	-09 13.4	2.225	2.935	125.6	16.3	17.9

1987 UF5 a,e,i = 2.76, 0.17, 6 Elements MPC 15250

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 30	14 49.17	-13 14.4	2.314	3.180	144.5	10.5	17.4
1990	04 09	14 43.14	-12 54.2					
1990	04 19	14 35.53	-12 28.4	2.179	3.167	167.4	4.0	17.0
1990	04 29	14 26.99	-11 59.6					
1990	05 09	14 18.33	-11 31.2	2.157	3.152	168.4	3.7	17.0
1990	05 19	14 10.35	-11 06.8					
1990	05 29	14 03.74	-10 49.5	2.246	3.135	145.7	10.5	17.3
1990	06 08	13 58.98	-10 41.6					
1990	06 18	13 56.32	-10 44.4	2.423	3.117	124.9	15.5	17.6

1979 MB2 a,e,i = 2.55, 0.27, 6 Elements MPC 14014

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 30	14 51.99	-08 21.4	2.034	2.907	144.6	11.5	18.5
1990	04 09	14 45.40	-07 30.1					
1990	04 19	14 37.25	-06 36.8	1.965	2.950	166.3	4.6	18.2
1990	04 29	14 28.31	-05 46.2					
1990	05 09	14 19.50	-05 03.2	2.006	2.990	164.4	5.2	18.3
1990	05 19	14 11.65	-04 31.5					
1990	05 29	14 05.39	-04 13.5	2.156	3.028	143.1	11.6	18.7
1990	06 08	14 01.13	-04 09.8					
1990	06 18	13 59.01	-04 19.8	2.389	3.062	123.0	16.2	19.1

1983 XH1 a,e,i = 2.80, 0.21, 8 Elements MPC 16024

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 30	14 51.15	-09 23.3	2.253	3.122	144.7	10.6	17.8
1990	04 09	14 45.44	-08 28.9					
1990	04 19	14 38.29	-07 31.5	2.167	3.152	166.3	4.3	17.5
1990	04 29	14 30.38	-06 35.4					
1990	05 09	14 22.49	-05 45.5	2.194	3.181	165.4	4.6	17.6
1990	05 19	14 15.36	-05 05.5					
1990	05 29	14 09.59	-04 38.0	2.330	3.208	144.2	10.6	18.0
1990	06 08	14 05.58	-04 24.4					
1990	06 18	14 03.52	-04 24.4	2.553	3.233	124.0	15.1	18.3

1980 BM a,e,i = 2.67, 0.21, 13 Elements MPC 14015

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 30	14 51.96	+01 28.6	2.237	3.105	144.5	10.8	17.1
1990	04 09	14 46.39	+02 34.9					
1990	04 19	14 39.23	+03 37.2	2.117	3.081	160.2	6.4	16.8
1990	04 29	14 31.09	+04 29.9					
1990	05 09	14 22.78	+05 07.8	2.106	3.055	155.9	7.7	16.8
1990	05 19	14 15.08	+05 27.8					
1990	05 29	14 08.69	+05 28.5	2.197	3.027	138.1	12.9	17.1
1990	06 08	14 04.09	+05 10.6					
1990	06 18	14 01.55	+04 36.1	2.365	2.997	119.4	17.2	17.3

1978 PY2 a,e,i = 2.69, 0.09, 2 Elements MPC 12443

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 30	14 52.60	-15 04.8	2.061	2.923	143.2	11.8	17.5
1990	04 09	14 47.06	-14 30.3					
1990	04 19	14 39.78	-13 47.6	1.939	2.924	166.2	4.7	17.1
1990	04 29	14 31.45	-13 00.1					
1990	05 09	14 22.99	-12 12.3	1.925	2.924	169.7	3.5	17.0
1990	05 19	14 15.27	-11 28.9					
1990	05 29	14 09.03	-10 54.1	2.020	2.922	146.9	10.9	17.5
1990	06 08	14 04.77	-10 30.8					
1990	06 18	14 02.73	-10 20.4	2.202	2.919	126.2	16.3	17.8

(4208) Kiselev a,e,i = 3.20, 0.09, 17 Elements MPC 15231

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 30	14 50.15	+04 42.3	2.605	3.466	144.3	9.7	16.8
1990	04 09	14 45.38	+05 53.1					
1990	04 19	14 39.32	+06 58.0	2.510	3.460	157.6	6.4	16.6
1990	04 29	14 32.51	+07 51.8					
1990	05 09	14 25.60	+08 30.4	2.523	3.453	153.0	7.6	16.7
1990	05 19	14 19.22	+08 51.3					
1990	05 29	14 13.90	+08 53.9	2.637	3.445	136.7	11.6	16.9
1990	06 08	14 10.06	+08 39.0					
1990	06 18	14 07.91	+08 08.7	2.829	3.437	118.9	15.0	17.2

(4006) 1972 YR a,e,i = 2.52, 0.18, 2 Elements MPC 14326

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 30	14 57.61	-20 16.9	2.093	2.933	140.5	12.5	17.3
1990	04 09	14 51.47	-19 57.5					
1990	04 19	14 43.48	-19 26.5	1.970	2.946	163.4	5.6	16.9
1990	04 29	14 34.37	-18 45.8					
1990	05 09	14 25.08	-17 59.3	1.954	2.956	171.5	2.9	16.8
1990	05 19	14 16.57	-17 11.6					
1990	05 29	14 09.59	-16 27.7	2.050	2.964	148.8	10.2	17.2
1990	06 08	14 04.69	-15 52.0					
1990	06 18	14 02.08	-15 27.0	2.237	2.970	127.8	15.7	17.6

1979 MC a,e,i = 2.43, 0.27, 12 Elements MPC 8277

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 30	14 55.27	+01 00.3	1.486	2.366	143.7	14.5	17.4
1990	04 09	14 50.98	+02 41.5					
1990	04 19	14 44.22	+04 22.0	1.340	2.305	158.8	9.1	17.0
1990	04 29	14 35.69	+05 51.5					
1990	05 09	14 26.52	+06 59.7	1.289	2.243	154.5	11.2	16.9
1990	05 19	14 17.95	+07 39.2					
1990	05 29	14 11.09	+07 46.8	1.328	2.181	136.9	18.5	17.1
1990	06 08	14 06.79	+07 23.2					
1990	06 18	14 05.42	+06 32.4	1.431	2.120	119.2	24.7	17.4

1975 VP a,e,i = 2.17, 0.12, 3 Elements MPC 13309

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 30	15 01.46	-12 09.2	1.570	2.434	141.8	14.7	17.6
1990	04 09	14 55.43	-11 23.6					
1990	04 19	14 47.01	-10 30.4	1.458	2.441	164.6	6.3	17.2
1990	04 29	14 37.08	-09 34.6					
1990	05 09	14 26.88	-08 42.5	1.448	2.445	168.3	4.8	17.1
1990	05 19	14 17.59	-08 00.2					
1990	05 29	14 10.22	-07 32.2	1.541	2.446	145.8	13.5	17.6
1990	06 08	14 05.39	-07 21.0					
1990	06 18	14 03.33	-07 26.8	1.714	2.445	125.2	19.8	18.0

1982 UP2 a,e,i = 2.89, 0.09, 1 Elements MPC 14474

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 30	14 56.80	-18 21.1	2.262	3.105	141.3	11.6	17.9
1990	04 09	14 51.58	-18 03.4					
1990	04 19	14 44.63	-17 36.4	2.119	3.096	163.9	5.2	17.5
1990	04 29	14 36.58	-17 02.1					
1990	05 09	14 28.26	-16 23.7	2.084	3.087	172.3	2.5	17.3
1990	05 19	14 20.50	-15 45.2					
1990	05 29	14 14.02	-15 10.8	2.160	3.076	149.5	9.6	17.7
1990	06 08	14 09.38	-14 44.0					
1990	06 18	14 06.84	-14 27.1	2.327	3.065	128.5	15.0	18.0

1980 PB2 a,e,i = 3.18, 0.10, 11 Elements MPC 14015

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 30	15 02.97	-10 45.9	2.302	3.147	141.6	11.4	16.9
1990	04 09	14 59.03	-09 49.1					
1990	04 19	14 53.43	-08 46.9	2.153	3.127	162.9	5.4	16.5
1990	04 29	14 46.69	-07 43.3					
1990	05 09	14 39.55	-06 43.3	2.112	3.108	168.5	3.7	16.4
1990	05 19	14 32.74	-05 51.4					
1990	05 29	14 26.95	-05 11.4	2.180	3.088	148.2	10.0	16.7
1990	06 08	14 22.73	-04 45.6					
1990	06 18	14 20.39	-04 34.8	2.339	3.069	127.9	15.2	17.0

1984 GR a,e,i = 3.17, 0.05, 2 Elements MPC 14785

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 30	15 07.11	-20 20.8	2.200	3.021	138.4	12.7	16.3
1990	04 09	15 02.85	-20 13.8					
1990	04 19	14 56.69	-19 57.0	2.052	3.016	160.4	6.4	15.9
1990	04 29	14 49.20	-19 31.5					
1990	05 09	14 41.20	-18 59.8	2.006	3.013	175.1	1.7	15.6
1990	05 19	14 33.56	-18 25.5					
1990	05 29	14 27.06	-17 52.7	2.070	3.010	153.2	8.7	16.0
1990	06 08	14 22.32	-17 25.3					
1990	06 18	14 19.68	-17 06.3	2.228	3.007	132.3	14.5	16.3

1984 QR a,e,i = 2.34, 0.31, 21 Elements MPC 14349

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 30	15 22.17	-45 59.9	2.399	3.065	123.5	15.8	18.1
1990	04 09	15 14.96	-46 55.6					
1990	04 19	15 04.77	-47 29.7	2.236	3.070	139.6	12.2	17.8
1990	04 29	14 52.36	-47 36.8					
1990	05 09	14 39.01	-47 14.2	2.158	3.071	149.5	9.6	17.7
1990	05 19	14 26.18	-46 23.4					
1990	05 29	14 15.17	-45 10.2	2.181	3.068	145.2	10.9	17.7
1990	06 08	14 06.92	-43 43.3					
1990	06 18	14 01.82	-42 11.8	2.298	3.061	130.9	14.5	18.0

1986 EZ1 a,e,i = 2.38, 0.17, 2 Elements MPC 14022

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 30	15 13.88	-20 44.1	1.504	2.334	136.8	17.0	16.5
1990	04 09	15 08.72	-20 30.6					
1990	04 19	15 00.88	-20 03.0	1.405	2.372	159.4	8.6	16.1
1990	04 29	14 51.25	-19 23.1					
1990	05 09	14 41.12	-18 35.3	1.401	2.409	175.2	2.0	15.9
1990	05 19	14 31.78	-17 45.6					
1990	05 29	14 24.30	-17 00.5	1.501	2.445	152.4	11.1	16.4
1990	06 08	14 19.39	-16 25.5					
1990	06 18	14 17.28	-16 03.3	1.687	2.480	131.4	17.9	16.9

1988 WB a,e,i = 2.21, 0.06, 2 Elements MPC 14356

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 30	15 13.29	-20 37.1	1.391	2.228	136.9	17.8	17.3
1990	04 09	15 08.63	-20 25.4					
1990	04 19	15 01.00	-19 58.7	1.272	2.241	159.4	9.1	16.8
1990	04 29	14 51.28	-19 18.2					
1990	05 09	14 40.80	-18 28.4	1.245	2.253	175.1	2.2	16.5
1990	05 19	14 31.04	-17 35.9					
1990	05 29	14 23.21	-16 48.0	1.319	2.264	152.1	12.1	17.0
1990	06 08	14 18.16	-16 10.9					
1990	06 18	14 16.19	-15 48.3	1.475	2.275	131.1	19.7	17.5

1979 UH a,e,i = 2.70, 0.30, 10 Elements MPC 15877

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 30	15 11.33	-04 05.0	2.312	3.144	140.0	11.8	18.4
1990	04 09	15 05.76	-03 11.6					
1990	04 19	14 58.56	-02 19.3	2.226	3.187	159.8	6.3	18.2
1990	04 29	14 50.33	-01 32.6					
1990	05 09	14 41.86	-00 55.6	2.248	3.228	163.2	5.2	18.2
1990	05 19	14 33.89	-00 31.5					
1990	05 29	14 27.07	-00 21.9	2.381	3.266	145.3	10.2	18.5
1990	06 08	14 21.90	-00 27.0					
1990	06 18	14 18.61	-00 45.5	2.603	3.301	125.7	14.5	18.9

1977 RG a,e,i = 2.79, 0.11, 9 Elements MPC 9765

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 30	15 07.31	-07 07.8	1.676	2.531	140.9	14.4	17.3
1990	04 09	15 04.00	-05 57.4					
1990	04 19	14 58.45	-04 43.1	1.547	2.517	160.7	7.6	16.9
1990	04 29	14 51.33	-03 31.4					
1990	05 09	14 43.57	-02 29.5	1.517	2.505	164.8	6.0	16.8
1990	05 19	14 36.22	-01 43.5					
1990	05 29	14 30.19	-01 17.3	1.587	2.495	146.5	12.9	17.2
1990	06 08	14 26.18	-01 12.3					
1990	06 18	14 24.54	-01 27.2	1.737	2.488	127.3	18.9	17.5

1989 BO a,e,i = 3.01, 0.06, 11 Elements MPC 14794

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 30	15 12.58	-02 14.3	2.043	2.877	139.7	13.0	15.6
1990	04 09	15 08.40	-01 33.4					
1990	04 19	15 02.27	-00 54.8	1.913	2.870	158.3	7.4	15.3
1990	04 29	14 54.74	-00 23.3					
1990	05 09	14 46.64	-00 03.5	1.884	2.864	162.7	6.0	15.2
1990	05 19	14 38.83	+00 01.6					
1990	05 29	14 32.11	-00 09.7	1.960	2.858	146.2	11.4	15.5
1990	06 08	14 27.11	-00 37.2					
1990	06 18	14 24.19	-01 19.4	2.121	2.853	127.2	16.5	15.8

1976 EB a,e,i = 2.24, 0.12, 5 Elements MPC 14185

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 30	15 22.30	-25 12.6	1.660	2.456	133.5	17.2	16.8
1990	04 09	15 17.08	-25 28.1					
1990	04 19	15 08.96	-25 28.5	1.524	2.472	155.2	9.8	16.4
1990	04 29	14 58.70	-25 12.5					
1990	05 09	14 47.52	-24 41.3	1.482	2.485	171.8	3.3	16.1
1990	05 19	14 36.76	-23 59.2					
1990	05 29	14 27.67	-23 12.6	1.546	2.497	154.0	10.2	16.5
1990	06 08	14 21.13	-22 28.7					
1990	06 18	14 17.53	-21 52.8	1.701	2.506	133.0	17.3	16.9

(4025) 1981 WU a,e,i = 2.25, 0.17, 3 Elements MPC 14333

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 30	15 19.87	-13 57.5	1.806	2.627	137.1	15.0	18.2
1990	04 09	15 14.94	-13 21.5					
1990	04 19	15 07.55	-12 37.6	1.657	2.622	159.6	7.7	17.8
1990	04 29	14 58.34	-11 48.8					
1990	05 09	14 48.31	-10 59.9	1.610	2.615	173.3	2.6	17.5
1990	05 19	14 38.58	-10 16.1					
1990	05 29	14 30.17	-09 42.3	1.671	2.605	151.1	10.8	17.9
1990	06 08	14 23.87	-09 21.9					
1990	06 18	14 20.11	-09 16.4	1.822	2.592	129.7	17.5	18.3

1981 EO14 a,e,i = 2.63, 0.17, 14 Elements MPC 11838

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 30	15 21.11	-36 49.3	1.858	2.601	128.6	17.5	19.2
1990	04 09	15 16.97	-37 59.6					
1990	04 19	15 09.64	-38 52.9	1.669	2.565	146.1	12.6	18.8
1990	04 29	14 59.65	-39 23.3					
1990	05 09	14 48.11	-39 26.7	1.567	2.529	157.5	8.8	18.5
1990	05 19	14 36.48	-39 03.1					
1990	05 29	14 26.29	-38 17.0	1.561	2.493	150.4	11.6	18.6
1990	06 08	14 18.76	-37 16.9					
1990	06 18	14 14.55	-36 12.1	1.644	2.458	133.7	17.4	18.8

(4195) 1982 SK8 a,e,i = 2.83, 0.07, 2 Elements MPC 15224

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 30	15 15.87	-16 14.9	2.218	3.031	137.5	12.9	17.0
1990	04 09	15 11.58	-15 49.1					
1990	04 19	15 05.35	-15 15.7	2.067	3.030	159.8	6.6	16.6
1990	04 29	14 57.70	-14 36.8					
1990	05 09	14 49.44	-13 55.7	2.020	3.027	175.9	1.4	16.3
1990	05 19	14 41.41	-13 16.4					
1990	05 29	14 34.40	-12 42.7	2.084	3.024	153.4	8.6	16.7
1990	06 08	14 29.04	-12 18.1					
1990	06 18	14 25.71	-12 04.3	2.244	3.020	132.1	14.5	17.1

1952 HJ2 a,e,i = 3.07, 0.15, 1 Elements MPC 16019

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 30	15 13.72	-17 26.0	1.897	2.721	137.7	14.3	16.2
1990	04 09	15 10.39	-17 14.9					
1990	04 19	15 04.82	-16 55.1	1.738	2.702	159.6	7.5	15.7
1990	04 29	14 57.57	-16 28.0					
1990	05 09	14 49.51	-15 56.9	1.676	2.685	177.2	1.1	15.3
1990	05 19	14 41.62	-15 25.5					
1990	05 29	14 34.85	-14 58.4	1.720	2.669	154.3	9.5	15.8
1990	06 08	14 29.96	-14 39.4					
1990	06 18	14 27.38	-14 31.1	1.855	2.656	133.3	16.2	16.1

(4083) Jody a,e,i = 2.60, 0.19, 13 Elements MPC 14603

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 30	15 17.58	-00 52.6	2.255	3.073	138.3	12.5	17.9
1990	04 09	15 12.79	+00 14.3					
1990	04 19	15 06.16	+01 19.0	2.138	3.084	156.3	7.5	17.6
1990	04 29	14 58.27	+02 16.2					
1990	05 09	14 49.86	+03 00.6	2.126	3.093	159.8	6.5	17.5
1990	05 19	14 41.75	+03 28.6					
1990	05 29	14 34.64	+03 38.5	2.221	3.099	144.0	11.1	17.8
1990	06 08	14 29.13	+03 30.2					
1990	06 18	14 25.53	+03 05.6	2.403	3.103	125.3	15.5	18.1

1984 UK1 a,e,i = 2.43, 0.13, 4 Elements MPC 14616

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 30	15 19.45	-19 30.1	1.612	2.430	135.9	16.6	17.2
1990	04 09	15 15.12	-19 00.8					
1990	04 19	15 08.18	-18 18.7	1.496	2.458	158.4	8.6	16.8
1990	04 29	14 59.38	-17 26.3					
1990	05 09	14 49.88	-16 28.3	1.476	2.485	177.4	1.0	16.5
1990	05 19	14 40.87	-15 30.6					
1990	05 29	14 33.39	-14 39.6	1.561	2.511	153.8	10.3	17.0
1990	06 08	14 28.19	-14 00.3					
1990	06 18	14 25.61	-13 35.2	1.736	2.536	132.6	17.2	17.5

(4199) 1983 RX2 a,e,i = 2.46, 0.14, 6 Elements MPC 15226

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 30	15 21.63	-13 12.9	1.838	2.655	136.8	14.9	17.4
1990	04 09	15 17.23	-12 58.2					
1990	04 19	15 10.33	-12 37.7	1.670	2.632	158.9	7.9	16.9
1990	04 29	15 01.49	-12 13.7					
1990	05 09	14 51.63	-11 49.7	1.602	2.608	174.3	2.2	16.5
1990	05 19	14 41.86	-11 29.5					
1990	05 29	14 33.24	-11 16.9	1.640	2.582	152.5	10.4	16.9
1990	06 08	14 26.63	-11 15.1					
1990	06 18	14 22.55	-11 25.5	1.770	2.555	131.1	17.4	17.3

1984 SX5 a,e,i = 2.32, 0.11, 7 Elements MPC 12579

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 30	15 23.29	-10 37.6	1.730	2.551	136.7	15.6	18.0
1990	04 09	15 19.01	-09 43.0					
1990	04 19	15 12.25	-08 42.5	1.598	2.558	158.3	8.4	17.6
1990	04 29	15 03.65	-07 40.9					
1990	05 09	14 54.21	-06 44.1	1.564	2.563	169.6	4.1	17.3
1990	05 19	14 45.02	-05 58.0					
1990	05 29	14 37.10	-05 26.9	1.636	2.566	150.4	11.2	17.7
1990	06 08	14 31.22	-05 13.1					
1990	06 18	14 27.79	-05 16.8	1.795	2.568	129.8	17.7	18.1

(4310) 1978 RJ7 a,e,i = 2.16, 0.05, 4 Elements MPC 15681

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 30	15 22.21	-15 02.0	1.232	2.072	136.3	19.4	16.4
1990	04 09	15 19.21	-14 19.5					
1990	04 19	15 12.97	-13 25.4	1.116	2.082	158.2	10.3	15.9
1990	04 29	15 04.25	-12 24.1					
1990	05 09	14 54.37	-11 22.8	1.085	2.092	174.1	2.8	15.5
1990	05 19	14 44.86	-10 29.3					
1990	05 29	14 37.08	-09 50.2	1.151	2.103	152.7	12.8	16.1
1990	06 08	14 32.00	-09 29.9					
1990	06 18	14 30.03	-09 29.3	1.295	2.115	132.1	20.9	16.6

1977 RF2 a,e,i = 2.25, 0.19, 5 Elements MPC 12202

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 30	15 23.32	-23 58.9	1.390	2.201	133.7	19.2	17.8
1990	04 09	15 20.58	-24 30.1					
1990	04 19	15 14.39	-24 48.0	1.206	2.156	154.5	11.6	17.2
1990	04 29	15 05.19	-24 49.9					
1990	05 09	14 54.11	-24 34.9	1.106	2.111	172.3	3.7	16.6
1990	05 19	14 42.73	-24 05.4					
1990	05 29	14 32.73	-23 27.5	1.102	2.066	155.2	11.9	16.9
1990	06 08	14 25.54	-22 49.6					
1990	06 18	14 21.92	-22 19.1	1.180	2.023	134.0	21.2	17.3

1979 MM8 a,e,i = 2.45, 0.13, 4 Elements MPC 13603

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 30	15 21.65	-15 00.6	1.732	2.551	136.4	15.7	18.5
1990	04 09	15 18.13	-14 25.0					
1990	04 19	15 12.04	-13 39.8	1.564	2.525	158.4	8.4	18.0
1990	04 29	15 03.92	-12 48.1					
1990	05 09	14 54.72	-11 54.6	1.491	2.498	174.7	2.2	17.6
1990	05 19	14 45.56	-11 04.7					
1990	05 29	14 37.54	-10 24.3	1.524	2.471	153.1	10.7	18.0
1990	06 08	14 31.56	-09 57.6					
1990	06 18	14 28.13	-09 46.6	1.646	2.443	131.8	18.1	18.3

2114 T-2 a,e,i = 2.38, 0.16, 3 Elements MPC 15727

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 30	15 24.88	-15 39.2	1.484	2.305	135.5	17.7	17.7
1990	04 09	15 20.89	-15 00.6					
1990	04 19	15 14.12	-14 12.2	1.380	2.341	157.9	9.3	17.3
1990	04 29	15 05.33	-13 17.8					
1990	05 09	14 55.71	-12 23.0	1.369	2.376	175.2	2.0	17.0
1990	05 19	14 46.52	-11 34.0					
1990	05 29	14 38.87	-10 56.2	1.461	2.411	153.6	10.8	17.5
1990	06 08	14 33.54	-10 33.1					
1990	06 18	14 30.88	-10 26.0	1.640	2.445	132.6	17.8	18.0

1987 UW a,e,i = 2.63, 0.17, 32 Elements MPC 12961

Date	ET	R. A. (1950)	Decl.	Delta	r	Variation		V
1990	03 30	15 25.03	-08 00.1	2.149	2.955	-0.89	-3.8	18.7
1990	04 09	15 21.12	-05 52.5					
1990	04 19	15 15.15	-03 36.0	1.985	2.933	-1.02	-4.0	18.3
1990	04 29	15 07.60	-01 18.0					
1990	05 09	14 59.23	+00 52.7	1.933	2.910	-1.10	-4.2	18.2
1990	05 19	14 50.90	+02 47.9					
1990	05 29	14 43.43	+04 21.3	1.995	2.885	-1.09	-4.4	18.4
1990	06 08	14 37.52	+05 29.6					
1990	06 18	14 33.59	+06 13.0	2.148	2.858	-1.02	-4.5	18.7

1969 TN4 a,e,i = 2.41, 0.17, 1 Elements MPC 14183

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 30	15 29.95	-20 17.1	1.874	2.660	133.3	15.9	17.7
1990	04 09	15 25.41	-20 01.4					
1990	04 19	15 18.36	-19 34.7	1.740	2.687	155.7	8.8	17.4
1990	04 29	15 09.44	-18 58.3					
1990	05 09	14 59.63	-18 15.0	1.703	2.712	178.8	0.4	16.9
1990	05 19	14 50.01	-17 29.1					
1990	05 29	14 41.61	-16 45.9	1.776	2.735	156.3	8.6	17.4
1990	06 08	14 35.20	-16 10.1					
1990	06 18	14 31.19	-15 44.8	1.946	2.756	134.5	15.2	17.9

(4308) 1978 PL4 a,e,i = 2.68, 0.20, 11 Elements MPC 15680

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990 03 30	15 30.72	-33 21.7	2.485	3.204	128.5	14.1	17.6
1990 04 09	15 26.21	-33 39.7					
1990 04 19	15 19.39	-33 43.2	2.297	3.196	148.4	9.5	17.3
1990 04 29	15 10.75	-33 30.1					
1990 05 09	15 01.11	-32 59.9	2.204	3.186	164.1	5.0	17.0
1990 05 19	14 51.43	-32 14.2					
1990 05 29	14 42.66	-31 17.3	2.221	3.174	156.2	7.4	17.1
1990 06 08	14 35.59	-30 15.1					
1990 06 18	14 30.73	-29 13.4	2.341	3.160	136.9	12.7	17.4

1982 FK3 a,e,i = 2.47, 0.22, 4 Elements MPC 16023

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990 03 30	15 30.36	-15 39.9	1.532	2.340	134.2	17.8	17.6
1990 04 09	15 26.44	-14 57.1					
1990 04 19	15 19.76	-14 05.1	1.435	2.390	156.5	9.6	17.2
1990 04 29	15 11.10	-13 07.8					
1990 05 09	15 01.57	-12 10.6	1.432	2.439	175.1	2.0	16.9
1990 05 19	14 52.41	-11 19.6					
1990 05 29	14 44.67	-10 39.8	1.533	2.487	154.8	10.0	17.5
1990 06 08	14 39.14	-10 14.7					
1990 06 18	14 36.15	-10 05.4	1.724	2.535	133.7	16.8	18.0

(3940) 1973 FE1 a,e,i = 1.99, 0.06, 23 Elements MPC 14005

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990 03 30	15 26.83	-06 21.1	1.103	1.950	136.1	20.8	15.4
1990 04 09	15 24.71	-02 50.3					
1990 04 19	15 19.21	+00 52.3	1.012	1.964	153.7	13.1	15.0
1990 04 29	15 11.13	+04 27.7					
1990 05 09	15 01.82	+07 34.8	1.015	1.977	155.3	12.3	15.0
1990 05 19	14 52.81	+09 58.2					
1990 05 29	14 45.45	+11 30.8	1.107	1.991	139.7	19.2	15.4
1990 06 08	14 40.72	+12 14.3					
1990 06 18	14 38.99	+12 16.1	1.264	2.005	122.7	25.2	15.8

1981 VC1 a,e,i = 2.20, 0.16, 3 Elements MPC 10831

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990 03 30	15 32.89	-18 16.1	1.686	2.478	133.1	17.1	17.9
1990 04 09	15 29.03	-18 10.9					
1990 04 19	15 22.22	-17 56.0	1.508	2.457	155.3	9.8	17.4
1990 04 29	15 12.94	-17 32.2					
1990 05 09	15 02.20	-17 01.6	1.423	2.432	179.6	0.2	16.7
1990 05 19	14 51.24	-16 28.2					
1990 05 29	14 41.36	-15 57.1	1.444	2.406	156.1	9.8	17.3
1990 06 08	14 33.66	-15 33.6					
1990 06 18	14 28.76	-15 21.2	1.557	2.377	133.8	18.0	17.7

(4029) Bridges a,e,i = 2.52, 0.13, 5 Elements MPC 14334

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990 03 30	15 23.63	-18 32.9	1.374	2.198	135.2	18.7	16.2
1990 04 09	15 22.06	-17 55.0					
1990 04 19	15 17.51	-17 02.5	1.235	2.193	156.6	10.5	15.7
1990 04 29	15 10.57	-15 58.4					
1990 05 09	15 02.33	-14 48.6	1.182	2.191	177.7	1.1	15.2
1990 05 19	14 54.11	-13 40.3					
1990 05 29	14 47.17	-12 41.4	1.226	2.192	156.2	10.8	15.7
1990 06 08	14 42.51	-11 58.0					
1990 06 18	14 40.64	-11 32.9	1.355	2.197	135.3	19.0	16.2

(4023) 1981 UN a,e,i = 2.23, 0.09, 2 Elements MPC 14332

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 30	15 31.97	-20 21.6	1.623	2.415	132.8	17.7	17.3
1990	04 09	15 28.59	-20 07.1					
1990	04 19	15 22.24	-19 39.9	1.458	2.405	154.8	10.2	16.8
1990	04 29	15 13.47	-19 00.8					
1990	05 09	15 03.30	-18 12.6	1.383	2.393	178.7	0.6	16.2
1990	05 19	14 53.01	-17 20.3					
1990	05 29	14 43.88	-16 30.1	1.414	2.379	156.8	9.7	16.7
1990	06 08	14 36.97	-15 48.4					
1990	06 18	14 32.84	-15 19.4	1.535	2.364	134.8	17.8	17.1

1987 QR a,e,i = 2.35, 0.22, 3 Elements MPC 15887

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 30	15 30.88	-17 00.2	1.776	2.571	133.9	16.3	18.0
1990	04 09	15 27.68	-16 31.8					
1990	04 19	15 21.73	-15 52.8	1.578	2.528	155.8	9.4	17.4
1990	04 29	15 13.47	-15 04.8					
1990	05 09	15 03.76	-14 11.5	1.475	2.483	177.0	1.2	16.9
1990	05 19	14 53.74	-13 17.9					
1990	05 29	14 44.60	-12 30.2	1.477	2.436	155.6	9.9	17.2
1990	06 08	14 37.38	-11 53.7					
1990	06 18	14 32.75	-11 31.9	1.573	2.388	133.5	18.0	17.6

1986 PV4 a,e,i = 2.80, 0.18, 7 Elements MPC 14475

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 30	15 26.83	-29 49.5	1.632	2.406	130.8	18.3	16.3
1990	04 09	15 25.05	-30 23.7					
1990	04 19	15 20.25	-30 42.0	1.456	2.380	150.2	12.1	15.8
1990	04 29	15 12.89	-30 41.2					
1990	05 09	15 03.96	-30 19.8	1.364	2.358	166.7	5.6	15.4
1990	05 19	14 54.75	-29 39.9					
1990	05 29	14 46.64	-28 46.8	1.369	2.338	157.7	9.5	15.6
1990	06 08	14 40.76	-27 48.4					
1990	06 18	14 37.80	-26 52.7	1.463	2.322	138.3	16.9	15.9

1984 UT3 a,e,i = 2.26, 0.20, 6 Elements MPC 15884

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 30	15 35.46	-27 23.7	1.807	2.564	129.9	17.4	17.8
1990	04 09	15 31.79	-27 45.3					
1990	04 19	15 25.06	-27 53.3	1.609	2.534	150.9	11.1	17.4
1990	04 29	15 15.71	-27 44.8					
1990	05 09	15 04.69	-27 19.0	1.502	2.502	169.7	4.1	16.9
1990	05 19	14 53.30	-26 37.7					
1990	05 29	14 42.90	-25 46.0	1.500	2.466	157.4	9.1	17.1
1990	06 08	14 34.67	-24 51.5					
1990	06 18	14 29.33	-24 01.3	1.593	2.429	136.0	16.9	17.4

(4067) 1966 TP a,e,i = 2.63, 0.19, 6 Elements MPC 14597

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 30	15 35.92	-27 36.4	2.363	3.098	129.8	14.3	18.1
1990	04 09	15 31.60	-27 48.0					
1990	04 19	15 24.98	-27 48.0	2.190	3.106	150.9	9.0	17.8
1990	04 29	15 16.54	-27 35.0					
1990	05 09	15 07.06	-27 09.3	2.113	3.112	169.8	3.3	17.5
1990	05 19	14 57.49	-26 33.0					
1990	05 29	14 48.74	-25 49.9	2.149	3.115	158.7	6.8	17.7
1990	06 08	14 41.62	-25 05.1					
1990	06 18	14 36.60	-24 23.4	2.289	3.116	137.7	12.7	18.0

1984 ED a,e,i = 3.02, 0.05, 11 Elements MPC 13302

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 30	15 32.52	-03 42.5	2.199	2.987	134.7	13.7	16.3
1990	04 09	15 29.29	-02 51.8					
1990	04 19	15 24.05	-02 01.7	2.063	2.997	153.8	8.5	16.0
1990	04 29	15 17.25	-01 16.7					
1990	05 09	15 09.61	-00 41.4	2.026	3.008	163.5	5.5	15.8
1990	05 19	15 01.91	-00 19.6					
1990	05 29	14 54.93	-00 13.4	2.095	3.018	150.3	9.6	16.1
1990	06 08	14 49.32	-00 23.5					
1990	06 18	14 45.52	-00 48.8	2.257	3.028	131.6	14.5	16.4

2108 T-2 a,e,i = 2.33, 0.11, 3 Elements MPC 15425

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 30	15 35.75	-17 51.8	1.518	2.313	132.5	18.5	18.4
1990	04 09	15 33.89	-17 25.9					
1990	04 19	15 28.96	-16 48.2	1.344	2.290	154.0	11.1	17.8
1990	04 29	15 21.41	-16 00.4					
1990	05 09	15 12.15	-15 06.3	1.257	2.266	176.6	1.5	17.3
1990	05 19	15 02.46	-14 11.7					
1990	05 29	14 53.67	-13 23.0	1.270	2.242	157.9	9.8	17.6
1990	06 08	14 46.95	-12 46.4					
1990	06 18	14 43.01	-12 25.5	1.372	2.219	136.1	18.5	18.1

1989 AX1 a,e,i = 2.23, 0.17, 6 Elements MPC 15893

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 30	15 43.55	-26 15.7	1.821	2.566	128.6	17.7	17.3
1990	04 09	15 40.02	-26 43.5					
1990	04 19	15 33.40	-26 59.8	1.630	2.548	149.7	11.5	16.8
1990	04 29	15 24.07	-27 02.1					
1990	05 09	15 12.95	-26 48.8	1.528	2.528	169.8	4.0	16.4
1990	05 19	15 01.30	-26 21.4					
1990	05 29	14 50.47	-25 43.8	1.532	2.505	159.1	8.3	16.5
1990	06 08	14 41.68	-25 02.6					
1990	06 18	14 35.69	-24 24.2	1.633	2.479	137.5	16.1	16.9

1977 PE1 a,e,i = 2.78, 0.18, 5 Elements MPC 9476

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 30	15 36.51	-20 14.0	2.334	3.091	131.8	13.9	18.5
1990	04 09	15 33.31	-19 53.8					
1990	04 19	15 27.92	-19 24.3	2.132	3.064	153.6	8.4	18.1
1990	04 29	15 20.73	-18 46.2					
1990	05 09	15 12.42	-18 01.5	2.027	3.035	177.0	1.0	17.6
1990	05 19	15 03.82	-17 13.6					
1990	05 29	14 55.79	-16 26.6	2.035	3.005	159.5	6.8	17.9
1990	06 08	14 49.13	-15 44.9					
1990	06 18	14 44.38	-15 12.0	2.145	2.974	137.4	13.4	18.2

1989 BT a,e,i = 2.81, 0.18, 4 Elements MPC 15419

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 30	15 39.45	-23 10.4	2.400	3.141	130.4	14.0	16.6
1990	04 09	15 35.65	-23 01.1					
1990	04 19	15 29.71	-22 42.0	2.243	3.166	152.2	8.5	16.3
1990	04 29	15 22.11	-22 13.4					
1990	05 09	15 13.56	-21 36.8	2.183	3.189	174.5	1.7	15.9
1990	05 19	15 04.91	-20 55.1					
1990	05 29	14 56.97	-20 12.0	2.238	3.211	160.6	6.0	16.2
1990	06 08	14 50.46	-19 31.6					
1990	06 18	14 45.81	-18 57.5	2.397	3.231	138.8	12.0	16.6

1987 SX17 a,e,i = 2.36, 0.25, 4 Elements MPC 15415

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990 03 30	15 38.57	-21 21.0	1.696	2.470	131.1	17.7	17.3
1990 04 09	15 36.48	-21 07.6					
1990 04 19	15 31.39	-20 41.3	1.480	2.416	152.5	11.1	16.8
1990 04 29	15 23.60	-20 01.7					
1990 05 09	15 13.91	-19 10.5	1.352	2.360	176.2	1.6	16.1
1990 05 19	15 03.51	-18 11.8					
1990 05 29	14 53.73	-17 11.7	1.328	2.304	159.2	9.0	16.4
1990 06 08	14 45.83	-16 17.6					
1990 06 18	14 40.65	-15 35.5	1.396	2.246	136.6	18.1	16.7

1986 ET a,e,i = 2.34, 0.13, 5 Elements MPC 14022

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990 03 30	15 45.80	-26 12.2	1.577	2.330	128.1	19.7	16.7
1990 04 09	15 42.81	-26 39.7					
1990 04 19	15 36.53	-26 54.1	1.440	2.358	149.1	12.6	16.3
1990 04 29	15 27.48	-26 52.8					
1990 05 09	15 16.75	-26 35.4	1.386	2.386	169.8	4.3	15.9
1990 05 19	15 05.75	-26 04.0					
1990 05 29	14 55.87	-25 23.9	1.435	2.414	160.3	8.1	16.2
1990 06 08	14 48.26	-24 42.0					
1990 06 18	14 43.54	-24 04.6	1.578	2.440	139.2	15.8	16.7

(4001) 1949 PV a,e,i = 2.29, 0.17, 5 Elements MPC 14324

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990 03 30	15 41.82	-11 18.4	1.612	2.399	132.1	18.0	17.5
1990 04 09	15 39.73	-10 40.1					
1990 04 19	15 34.66	-09 55.1	1.424	2.362	152.9	11.2	16.9
1990 04 29	15 26.96	-09 07.1					
1990 05 09	15 17.45	-08 21.2	1.323	2.324	170.3	4.2	16.5
1990 05 19	15 07.28	-07 43.2					
1990 05 29	14 57.73	-07 18.5	1.324	2.285	155.6	10.5	16.7
1990 06 08	14 50.00	-07 10.8					
1990 06 18	14 44.88	-07 21.4	1.413	2.246	134.6	18.8	17.1

1987 UJ a,e,i = 2.58, 0.14, 3 Elements MPC 12580

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990 03 30	15 45.04	-23 11.4	2.063	2.803	129.1	16.0	18.1
1990 04 09	15 42.30	-23 16.5					
1990 04 19	15 36.93	-23 11.9	1.862	2.780	150.5	10.3	17.6
1990 04 29	15 29.30	-22 56.7					
1990 05 09	15 20.13	-22 31.4	1.753	2.757	172.8	2.6	17.2
1990 05 19	15 10.42	-21 58.1					
1990 05 29	15 01.22	-21 20.6	1.751	2.732	161.7	6.7	17.3
1990 06 08	14 53.56	-20 43.8					
1990 06 18	14 48.10	-20 12.3	1.851	2.706	139.6	14.1	17.7

1984 HE1 a,e,i = 3.15, 0.09, 11 Elements MPC 11516

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990 03 30	15 39.26	-19 28.4	2.288	3.041	131.4	14.3	16.9
1990 04 09	15 37.08	-18 49.9					
1990 04 19	15 32.76	-18 01.3	2.096	3.024	152.8	8.7	16.5
1990 04 29	15 26.68	-17 04.2					
1990 05 09	15 19.48	-16 01.7	2.000	3.007	175.3	1.6	16.1
1990 05 19	15 11.94	-14 57.9					
1990 05 29	15 04.90	-13 57.5	2.016	2.991	160.6	6.4	16.3
1990 06 08	14 59.10	-13 05.2					
1990 06 18	14 55.07	-12 24.0	2.134	2.975	138.9	13.0	16.7

1987 SQ3 a,e,i = 2.42, 0.13, 7 Elements MPC 15249

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990 03 30	15 47.66	-29 52.6	1.942	2.661	126.6	17.5	17.4
1990 04 09	15 45.00	-30 20.9					
1990 04 19	15 39.35	-30 36.5	1.744	2.642	146.8	12.0	17.0
1990 04 29	15 31.06	-30 36.4					
1990 05 09	15 20.93	-30 18.5	1.631	2.621	166.0	5.4	16.5
1990 05 19	15 10.13	-29 43.7					
1990 05 29	14 59.94	-28 55.5	1.622	2.599	160.5	7.5	16.6
1990 06 08	14 51.54	-28 00.4					
1990 06 18	14 45.71	-27 05.6	1.712	2.576	140.1	14.7	16.9

1951 WH a,e,i = 2.23, 0.18, 5 Elements MPC 13049

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990 03 30	15 50.32	-19 21.2	1.849	2.595	128.9	17.4	17.7
1990 04 09	15 47.12	-19 26.9					
1990 04 19	15 40.99	-19 25.0	1.659	2.581	150.6	11.0	17.3
1990 04 29	15 32.26	-19 15.2					
1990 05 09	15 21.76	-18 58.3	1.558	2.565	174.6	2.1	16.7
1990 05 19	15 10.60	-18 36.6					
1990 05 29	15 00.02	-18 13.7	1.565	2.545	160.9	7.5	17.0
1990 06 08	14 51.19	-17 54.2					
1990 06 18	14 44.84	-17 41.9	1.673	2.523	138.2	15.6	17.4

1987 VU a,e,i = 2.72, 0.17, 9 Elements MPC 16026

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990 03 30	15 48.30	-15 45.7	2.418	3.154	130.0	14.0	17.9
1990 04 09	15 44.86	-15 42.9					
1990 04 19	15 39.22	-15 35.5	2.222	3.143	151.7	8.7	17.5
1990 04 29	15 31.70	-15 24.6					
1990 05 09	15 22.94	-15 11.6	2.124	3.130	174.3	1.8	17.1
1990 05 19	15 13.73	-14 58.5					
1990 05 29	15 04.92	-14 47.7	2.139	3.115	161.0	6.1	17.3
1990 06 08	14 57.31	-14 41.9					
1990 06 18	14 51.49	-14 43.0	2.260	3.098	138.9	12.5	17.7

1989 AN1 a,e,i = 2.74, 0.09, 2 Elements MPC 14358

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990 03 30	15 47.29	-19 46.7	1.940	2.687	129.5	16.7	16.9
1990 04 09	15 44.72	-19 45.4					
1990 04 19	15 39.55	-19 36.1	1.784	2.706	150.9	10.4	16.5
1990 04 29	15 32.20	-19 19.1					
1990 05 09	15 23.48	-18 55.9	1.719	2.725	174.2	2.1	16.1
1990 05 19	15 14.37	-18 29.3					
1990 05 29	15 05.91	-18 02.8	1.762	2.744	162.3	6.5	16.4
1990 06 08	14 59.00	-17 40.5					
1990 06 18	14 54.23	-17 25.5	1.905	2.763	140.3	13.6	16.8

1978 RN a,e,i = 2.70, 0.17, 7 Elements MPC 15700

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990 03 30	15 47.80	-12 40.6	2.407	3.148	130.5	14.0	18.8
1990 04 09	15 44.78	-12 00.8					
1990 04 19	15 39.66	-11 15.8	2.225	3.146	151.7	8.7	18.4
1990 04 29	15 32.80	-10 28.2					
1990 05 09	15 24.80	-09 41.3	2.141	3.141	170.5	3.0	18.1
1990 05 19	15 16.44	-08 59.0					
1990 05 29	15 08.48	-08 24.6	2.170	3.135	158.4	6.8	18.3
1990 06 08	15 01.68	-08 01.0					
1990 06 18	14 56.55	-07 49.7	2.303	3.127	137.4	12.7	18.6

(4078) 1983 AC a,e,i = 3.02, 0.11, 12 Elements MPC 14601

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 30	15 48.60	-09 30.4	2.214	2.963	130.6	14.8	16.0
1990	04 09	15 46.09	-09 18.3					
1990	04 19	15 41.29	-09 04.9	2.021	2.941	151.2	9.5	15.6
1990	04 29	15 34.52	-08 52.5					
1990	05 09	15 26.40	-08 44.0	1.921	2.919	169.5	3.6	15.2
1990	05 19	15 17.71	-08 41.7					
1990	05 29	15 09.35	-08 48.1	1.929	2.897	158.8	7.3	15.4
1990	06 08	15 02.17	-09 04.5					
1990	06 18	14 56.78	-09 31.4	2.038	2.876	138.1	13.6	15.7

1986 QY4 a,e,i = 3.10, 0.18, 2 Elements MPC 14788

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 30	15 48.74	-17 15.1	2.889	3.609	129.6	12.3	17.2
1990	04 09	15 45.74	-17 00.3					
1990	04 19	15 40.90	-16 40.3	2.683	3.596	151.2	7.7	16.9
1990	04 29	15 34.53	-16 15.9					
1990	05 09	15 27.14	-15 48.8	2.576	3.581	173.5	1.8	16.5
1990	05 19	15 19.34	-15 21.0					
1990	05 29	15 11.81	-14 55.1	2.584	3.564	162.6	4.9	16.7
1990	06 08	15 05.18	-14 33.6					
1990	06 18	14 59.96	-14 18.6	2.701	3.546	140.7	10.5	17.0

1979 MP1 a,e,i = 2.44, 0.12, 2 Elements MPC 13603

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 30	15 50.16	-18 03.3	1.742	2.496	129.1	18.1	19.0
1990	04 09	15 48.70	-17 47.7					
1990	04 19	15 44.33	-17 23.1	1.547	2.470	150.2	11.6	18.5
1990	04 29	15 37.35	-16 50.5					
1990	05 09	15 28.48	-16 12.2	1.438	2.443	173.2	2.8	18.0
1990	05 19	15 18.78	-15 31.8					
1990	05 29	15 09.47	-14 54.3	1.432	2.416	162.0	7.4	18.2
1990	06 08	15 01.71	-14 24.6					
1990	06 18	14 56.32	-14 06.5	1.522	2.389	139.8	15.9	18.6

1976 GX3 a,e,i = 2.30, 0.13, 4 Elements MPC 15239

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 30	15 46.12	-16 53.2	1.357	2.143	130.3	20.8	16.0
1990	04 09	15 46.30	-16 23.3					
1990	04 19	15 43.16	-15 41.5	1.182	2.116	150.7	13.4	15.5
1990	04 29	15 36.95	-14 50.1					
1990	05 09	15 28.50	-13 53.2	1.086	2.091	172.5	3.6	14.9
1990	05 19	15 19.06	-12 57.2					
1990	05 29	15 10.12	-12 09.1	1.083	2.067	160.9	9.2	15.1
1990	06 08	15 03.07	-11 35.4					
1990	06 18	14 58.82	-11 19.8	1.166	2.047	139.3	18.9	15.5

1981 EO7 a,e,i = 2.60, 0.11, 13 Elements MPC 8392

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 30	15 50.92	-12 41.1	2.127	2.871	129.8	15.5	18.7
1990	04 09	15 48.52	-11 36.6					
1990	04 19	15 43.79	-10 24.7	1.954	2.872	150.7	9.9	18.3
1990	04 29	15 37.09	-09 08.9					
1990	05 09	15 29.09	-07 54.4	1.876	2.872	168.5	4.0	18.0
1990	05 19	15 20.63	-06 46.4					
1990	05 29	15 12.60	-05 50.1	1.908	2.870	157.4	7.8	18.2
1990	06 08	15 05.82	-05 09.0					
1990	06 18	15 00.86	-04 44.8	2.040	2.867	136.9	14.0	18.5

1989 AE7 a,e,i = 2.84, 0.11, 3 Elements MPC 15894

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 30	15 53.13	-24 18.8	2.335	3.043	127.1	15.2	17.8
1990	04 09	15 50.38	-24 21.7					
1990	04 19	15 45.29	-24 15.4	2.159	3.059	148.3	9.9	17.5
1990	04 29	15 38.21	-23 59.6					
1990	05 09	15 29.81	-23 34.7	2.074	3.074	170.5	3.1	17.1
1990	05 19	15 20.94	-23 02.6					
1990	05 29	15 12.49	-22 26.3	2.100	3.088	164.3	5.1	17.2
1990	06 08	15 05.31	-21 49.9					
1990	06 18	14 59.96	-21 17.3	2.232	3.101	142.5	11.5	17.6

1981 WR a,e,i = 2.28, 0.09, 4 Elements MPC 14017

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 30	15 56.62	-14 13.3	1.645	2.394	128.2	19.1	17.3
1990	04 09	15 54.50	-13 51.5					
1990	04 19	15 49.33	-13 23.5	1.491	2.410	149.4	12.3	16.9
1990	04 29	15 41.51	-12 51.9					
1990	05 09	15 31.87	-12 19.9	1.422	2.424	171.0	3.7	16.5
1990	05 19	15 21.58	-11 51.7					
1990	05 29	15 11.87	-11 31.2	1.456	2.437	160.9	7.8	16.7
1990	06 08	15 03.86	-11 21.9					
1990	06 18	14 58.28	-11 25.5	1.587	2.448	139.2	15.7	17.2

3034 P-L a,e,i = 3.01, 0.12, 9 Elements MPC 15423

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 30	15 51.33	-22 26.3	2.454	3.167	127.9	14.4	17.5
1990	04 09	15 49.22	-22 03.5					
1990	04 19	15 44.93	-21 31.0	2.241	3.146	149.2	9.4	17.1
1990	04 29	15 38.74	-20 49.1					
1990	05 09	15 31.25	-19 59.4	2.122	3.125	172.1	2.5	16.7
1990	05 19	15 23.20	-19 04.7					
1990	05 29	15 15.42	-18 08.9	2.114	3.103	164.5	5.0	16.8
1990	06 08	15 08.70	-17 16.4					
1990	06 18	15 03.63	-16 31.1	2.214	3.080	142.2	11.7	17.1

1987 QZ1 a,e,i = 2.43, 0.15, 5 Elements MPC 15067

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 30	15 58.47	-27 55.8	2.102	2.796	124.9	17.0	18.6
1990	04 09	15 55.97	-28 13.2					
1990	04 19	15 50.64	-28 19.9	1.902	2.790	145.7	11.7	18.2
1990	04 29	15 42.81	-28 13.8					
1990	05 09	15 33.16	-27 53.6	1.789	2.781	166.8	4.8	17.8
1990	05 19	15 22.72	-27 20.2					
1990	05 29	15 12.63	-26 36.6	1.782	2.770	163.8	5.9	17.9
1990	06 08	15 03.97	-25 48.2					
1990	06 18	14 57.52	-25 00.8	1.880	2.757	142.5	13.0	18.2

1987 QS a,e,i = 2.35, 0.14, 7 Elements MPC 15414

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 30	15 55.56	-29 54.2	1.673	2.389	124.9	20.0	18.4
1990	04 09	15 54.86	-30 32.7					
1990	04 19	15 50.78	-30 59.4	1.466	2.357	144.5	14.3	17.9
1990	04 29	15 43.48	-31 10.2					
1990	05 09	15 33.67	-31 01.8	1.337	2.325	164.1	6.8	17.4
1990	05 19	15 22.57	-30 33.2					
1990	05 29	15 11.68	-29 47.0	1.305	2.292	162.5	7.6	17.4
1990	06 08	15 02.56	-28 50.2					
1990	06 18	14 56.26	-27 51.1	1.367	2.259	142.5	15.9	17.7

1978 VC6 a,e,i = 2.63, 0.34, 10 Elements MPC 15876

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990 03 30	15 52.75	-24 48.9	1.904	2.629	127.0	17.7	18.9
1990 04 09	15 51.89	-24 32.2					
1990 04 19	15 48.16	-24 01.4	1.650	2.556	147.8	12.1	18.4
1990 04 29	15 41.71	-23 15.1					
1990 05 09	15 33.11	-22 13.5	1.480	2.481	170.7	3.8	17.7
1990 05 19	15 23.33	-20 59.2					
1990 05 29	15 13.55	-19 37.6	1.414	2.406	164.4	6.5	17.7
1990 06 08	15 05.07	-18 16.5					
1990 06 18	14 58.85	-17 03.3	1.448	2.329	141.2	15.8	18.0

1974 QU1 a,e,i = 2.64, 0.24, 2 Elements MPC 8533

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990 03 30	15 58.77	-19 39.0	2.551	3.250	126.8	14.2	18.3
1990 04 09	15 55.91	-19 24.8					
1990 04 19	15 50.85	-19 03.7	2.343	3.241	148.4	9.3	17.9
1990 04 29	15 43.88	-18 36.2					
1990 05 09	15 35.56	-18 03.5	2.228	3.230	171.6	2.6	17.5
1990 05 19	15 26.63	-17 27.9					
1990 05 29	15 17.91	-16 52.4	2.228	3.217	164.7	4.8	17.6
1990 06 08	15 10.20	-16 20.3					
1990 06 18	15 04.09	-15 54.7	2.337	3.200	142.1	11.2	18.0

1981 DV a,e,i = 2.63, 0.05, 14 Elements MPC 11044

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990 03 30	15 56.25	-15 30.5	1.925	2.660	128.1	17.2	18.8
1990 04 09	15 54.76	-14 23.0					
1990 04 19	15 50.69	-13 05.6	1.758	2.670	149.1	11.2	18.5
1990 04 29	15 44.41	-11 41.6					
1990 05 09	15 36.60	-10 16.3	1.681	2.679	168.9	4.2	18.1
1990 05 19	15 28.19	-08 55.7					
1990 05 29	15 20.15	-07 46.1	1.712	2.688	160.1	7.4	18.3
1990 06 08	15 13.39	-06 52.0					
1990 06 18	15 08.54	-06 15.9	1.844	2.696	139.3	14.2	18.7

1974 ST a,e,i = 3.17, 0.23, 2 Elements MPC 7838

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990 03 30	15 52.95	-17 23.2	2.079	2.813	128.6	16.1	17.1
1990 04 09	15 52.05	-17 15.3					
1990 04 19	15 48.69	-17 01.1	1.859	2.770	149.3	10.7	16.6
1990 04 29	15 43.10	-16 41.5					
1990 05 09	15 35.81	-16 18.0	1.726	2.728	171.5	3.1	16.1
1990 05 19	15 27.64	-15 53.3					
1990 05 29	15 19.55	-15 30.5	1.698	2.688	164.5	5.8	16.2
1990 06 08	15 12.51	-15 13.2					
1990 06 18	15 07.30	-15 04.2	1.770	2.650	142.6	13.5	16.5

1989 CZ a,e,i = 2.26, 0.17, 3 Elements MPC 15716

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990 03 30	16 03.90	-22 48.7	1.922	2.626	125.0	18.1	18.2
1990 04 09	16 01.77	-22 59.7					
1990 04 19	15 56.65	-23 02.3	1.721	2.616	146.2	12.3	17.8
1990 04 29	15 48.78	-22 55.6					
1990 05 09	15 38.86	-22 39.0	1.605	2.604	169.4	4.1	17.3
1990 05 19	15 27.90	-22 13.7					
1990 05 29	15 17.14	-21 42.8	1.595	2.588	165.4	5.7	17.4
1990 06 08	15 07.79	-21 10.9					
1990 06 18	15 00.72	-20 43.1	1.689	2.571	142.6	13.9	17.8

4641 P-L a,e,i = 2.71, 0.05, 4 Elements MPC 14629

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 30	15 57.64	-14 22.7	1.851	2.588	127.9	17.7	18.2
1990	04 09	15 56.61	-13 57.6					
1990	04 19	15 52.89	-13 26.6	1.674	2.585	148.5	11.7	17.8
1990	04 29	15 46.76	-12 51.9					
1990	05 09	15 38.89	-12 16.6	1.583	2.582	169.5	4.1	17.4
1990	05 19	15 30.21	-11 44.6					
1990	05 29	15 21.77	-11 19.8	1.595	2.581	162.8	6.7	17.5
1990	06 08	15 14.58	-11 05.6					
1990	06 18	15 09.38	-11 03.7	1.705	2.580	141.6	14.2	17.9

1973 SC6 a,e,i = 2.74, 0.11, 4 Elements MPC 14943

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 30	15 59.21	-17 00.8	2.283	2.994	127.2	15.4	17.9
1990	04 09	15 57.26	-16 37.8					
1990	04 19	15 52.96	-16 08.2	2.080	2.982	148.3	10.2	17.5
1990	04 29	15 46.59	-15 33.1					
1990	05 09	15 38.73	-14 54.9	1.969	2.969	170.5	3.2	17.1
1990	05 19	15 30.15	-14 16.5					
1990	05 29	15 21.72	-13 41.3	1.967	2.955	164.1	5.4	17.2
1990	06 08	15 14.32	-13 12.8					
1990	06 18	15 08.60	-12 53.7	2.070	2.939	142.1	12.3	17.6

(4206) 1986 QL a,e,i = 2.86, 0.02, 1 Elements MPC 15230

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 30	15 58.51	-21 10.0	2.121	2.833	126.6	16.4	16.8
1990	04 09	15 57.05	-21 04.5					
1990	04 19	15 53.08	-20 50.9	1.930	2.830	147.6	11.0	16.4
1990	04 29	15 46.87	-20 29.4					
1990	05 09	15 39.05	-20 00.9	1.826	2.827	170.4	3.4	16.0
1990	05 19	15 30.46	-19 27.8					
1990	05 29	15 22.08	-18 53.3	1.829	2.824	166.2	4.9	16.0
1990	06 08	15 14.83	-18 21.4					
1990	06 18	15 09.42	-17 55.7	1.936	2.821	143.9	12.2	16.4

1976 YP1 a,e,i = 3.11, 0.18, 2 Elements MPC 9962

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 30	16 00.07	-21 53.0	2.978	3.657	126.1	12.7	18.3
1990	04 09	15 57.38	-21 50.7					
1990	04 19	15 52.78	-21 42.4	2.770	3.657	147.4	8.5	18.0
1990	04 29	15 46.54	-21 27.9					
1990	05 09	15 39.14	-21 07.9	2.657	3.655	170.0	2.8	17.7
1990	05 19	15 31.20	-20 43.8					
1990	05 29	15 23.39	-20 17.5	2.658	3.652	166.7	3.6	17.7
1990	06 08	15 16.37	-19 51.8					
1990	06 18	15 10.68	-19 29.1	2.772	3.647	144.6	9.3	18.1

1987 SJ1 a,e,i = 2.36, 0.22, 2 Elements MPC 15558

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 30	16 01.98	-19 51.3	1.879	2.596	126.1	18.1	19.3
1990	04 09	16 00.83	-19 40.0					
1990	04 19	15 56.76	-19 19.9	1.652	2.554	147.0	12.4	18.8
1990	04 29	15 49.93	-18 50.8					
1990	05 09	15 40.92	-18 14.1	1.509	2.510	170.3	3.9	18.2
1990	05 19	15 30.68	-17 32.1					
1990	05 29	15 20.39	-16 49.2	1.470	2.463	165.2	6.0	18.2
1990	06 08	15 11.32	-16 10.6					
1990	06 18	15 04.40	-15 40.9	1.531	2.415	142.1	15.0	18.6

6568 P-L a,e,i = 2.28, 0.12, 4 Elements MPC 12583

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 30	16 08.61	-25 16.8	1.801	2.494	123.4	19.5	18.6
1990	04 09	16 06.92	-25 38.5					
1990	04 19	16 02.02	-25 51.1	1.625	2.510	144.2	13.5	18.2
1990	04 29	15 54.19	-25 52.4					
1990	05 09	15 44.18	-25 41.4	1.530	2.523	166.7	5.3	17.8
1990	05 19	15 33.09	-25 18.4					
1990	05 29	15 22.25	-24 46.4	1.538	2.534	166.3	5.4	17.8
1990	06 08	15 12.93	-24 10.6					
1990	06 18	15 06.01	-23 36.4	1.649	2.543	144.3	13.5	18.3

1987 RD1 a,e,i = 2.67, 0.18, 2 Elements MPC 14352

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 30	16 06.20	-22 23.5	2.336	3.018	124.6	15.8	18.1
1990	04 09	16 03.73	-22 25.0					
1990	04 19	15 58.81	-22 19.2	2.155	3.040	145.9	10.7	17.8
1990	04 29	15 51.76	-22 05.7					
1990	05 09	15 43.18	-21 45.1	2.063	3.060	168.9	3.6	17.4
1990	05 19	15 33.89	-21 18.7					
1990	05 29	15 24.81	-20 49.3	2.081	3.078	167.1	4.2	17.5
1990	06 08	15 16.83	-20 20.2					
1990	06 18	15 10.58	-19 55.0	2.209	3.094	144.7	10.9	17.9

1063 T-2 a,e,i = 2.37, 0.18, 2 Elements MPC 15075

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 30	16 08.54	-19 47.8	1.909	2.609	124.6	18.4	18.8
1990	04 09	16 06.51	-19 33.1					
1990	04 19	16 01.62	-19 10.3	1.745	2.637	145.9	12.3	18.5
1990	04 29	15 54.18	-18 39.9					
1990	05 09	15 44.94	-18 03.6	1.665	2.664	169.3	4.0	18.1
1990	05 19	15 34.88	-17 24.3					
1990	05 29	15 25.12	-16 45.7	1.693	2.688	166.2	5.1	18.2
1990	06 08	15 16.71	-16 12.4					
1990	06 18	15 10.38	-15 47.6	1.825	2.710	143.5	12.9	18.6

1982 UT6 a,e,i = 2.84, 0.09, 2 Elements MPC 9032

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 30	16 03.93	-22 27.0	2.252	2.942	125.1	16.1	18.0
1990	04 09	16 02.51	-22 31.3					
1990	04 19	15 58.59	-22 28.2	2.040	2.926	145.9	11.1	17.6
1990	04 29	15 52.41	-22 17.3					
1990	05 09	15 44.50	-21 58.9	1.914	2.910	168.5	4.0	17.1
1990	05 19	15 35.66	-21 34.1					
1990	05 29	15 26.84	-21 05.5	1.895	2.893	167.6	4.3	17.1
1990	06 08	15 19.00	-20 36.7					
1990	06 18	15 12.88	-20 11.4	1.983	2.876	145.2	11.6	17.5

(4038) Kristina a,e,i = 2.37, 0.13, 6 Elements MPC 14338

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	03 30	16 08.86	-28 52.1	1.956	2.631	122.5	18.7	17.9
1990	04 09	16 07.61	-29 22.3					
1990	04 19	16 03.27	-29 42.9	1.746	2.616	142.6	13.5	17.5
1990	04 29	15 55.99	-29 51.1					
1990	05 09	15 46.40	-29 44.4	1.616	2.600	163.5	6.3	17.0
1990	05 19	15 35.51	-29 22.0					
1990	05 29	15 24.59	-28 45.7	1.588	2.582	165.5	5.6	17.0
1990	06 08	15 14.96	-28 00.6					
1990	06 18	15 07.60	-27 12.9	1.663	2.562	144.9	13.2	17.3

1936 NB a,e,i = 3.08, 0.25, 19 Elements MPC 14182

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	04 19	16 02.99	-46 50.0	1.695	2.496	133.6	16.9	15.9
1990	04 29	15 57.73	-47 16.2					
1990	05 09	15 49.57	-47 13.9	1.541	2.457	148.2	12.5	15.5
1990	05 19	15 39.67	-46 38.6					
1990	05 29	15 29.58	-45 29.5	1.469	2.421	153.8	10.6	15.3
1990	06 08	15 21.00	-43 52.0					
1990	06 18	15 15.15	-41 55.6	1.489	2.388	144.3	14.4	15.5
1990	06 28	15 12.70	-39 51.6					
1990	07 08	15 13.82	-37 50.2	1.589	2.361	128.6	19.7	15.7

1983 WG a,e,i = 2.81, 0.22, 11 Elements MPC 8540

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	04 19	16 05.22	-13 54.8	2.188	3.069	145.5	10.7	17.7
1990	04 29	15 58.24	-13 48.7					
1990	05 09	15 49.77	-13 42.7	2.111	3.104	167.6	4.0	17.4
1990	05 19	15 40.58	-13 38.4					
1990	05 29	15 31.52	-13 37.4	2.145	3.138	166.1	4.5	17.5
1990	06 08	15 23.42	-13 41.6					
1990	06 18	15 16.90	-13 52.0	2.289	3.170	144.4	10.8	17.9
1990	06 28	15 12.38	-14 09.4					
1990	07 08	15 10.03	-14 33.8	2.519	3.200	124.0	15.3	18.3

4657 P-L a,e,i = 3.02, 0.09, 1 Elements MPC 14206

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	04 19	16 01.67	-19 27.3	2.401	3.281	145.8	9.9	18.4
1990	04 29	15 55.79	-19 08.9					
1990	05 09	15 48.47	-18 46.0	2.279	3.274	168.4	3.5	18.1
1990	05 19	15 40.37	-18 20.2					
1990	05 29	15 32.25	-17 53.9	2.267	3.266	168.2	3.6	18.1
1990	06 08	15 24.90	-17 29.8					
1990	06 18	15 18.93	-17 10.6	2.366	3.257	145.9	10.1	18.4
1990	06 28	15 14.79	-16 58.2					
1990	07 08	15 12.72	-16 54.0	2.552	3.248	125.3	14.8	18.7

9521 P-L a,e,i = 2.28, 0.13, 2 Elements MPC 14480

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	04 19	16 07.43	-18 00.1	1.670	2.557	144.7	13.1	18.3
1990	04 29	16 00.40	-17 35.5					
1990	05 09	15 51.26	-17 06.0	1.565	2.561	167.8	4.8	17.9
1990	05 19	15 40.97	-16 34.0					
1990	05 29	15 30.69	-16 03.2	1.565	2.563	167.2	5.0	17.9
1990	06 08	15 21.61	-15 37.6					
1990	06 18	15 14.60	-15 20.6	1.668	2.562	144.3	13.4	18.3
1990	06 28	15 10.18	-15 14.4					
1990	07 08	15 08.58	-15 19.7	1.850	2.560	123.9	19.2	18.7

1984 SQ3 a,e,i = 2.23, 0.15, 5 Elements MPC 14192

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	04 19	16 06.63	-24 44.8	1.289	2.181	143.5	15.9	16.5
1990	04 29	16 00.52	-25 06.7					
1990	05 09	15 51.35	-25 17.7	1.154	2.147	165.6	6.7	15.9
1990	05 19	15 40.19	-25 16.2					
1990	05 29	15 28.59	-25 03.3	1.112	2.113	167.7	5.9	15.8
1990	06 08	15 18.31	-24 43.4					
1990	06 18	15 10.72	-24 22.7	1.163	2.081	145.4	16.1	16.2
1990	06 28	15 06.65	-24 07.0					
1990	07 08	15 06.42	-24 00.6	1.284	2.050	125.6	23.8	16.6

(4011) 1978 SC6 a,e,i = 2.20, 0.05, 1 Elements MPC 14328

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	04 19	16 08.49	-21 28.5	1.399	2.289	143.9	15.0	17.3
1990	04 29	16 01.63	-21 17.0					
1990	05 09	15 52.23	-20 56.7	1.299	2.294	167.2	5.6	16.8
1990	05 19	15 41.41	-20 29.0					
1990	05 29	15 30.59	-19 57.6	1.297	2.299	168.4	5.1	16.7
1990	06 08	15 21.21	-19 27.6					
1990	06 18	15 14.28	-19 03.8	1.393	2.302	145.3	14.5	17.2
1990	06 28	15 10.40	-18 49.9					
1990	07 08	15 09.74	-18 47.6	1.564	2.305	125.1	21.1	17.7

(4307) 1976 UK2 a,e,i = 2.41, 0.08, 5 Elements MPC 15680

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	04 19	16 07.67	-24 38.7	1.558	2.439	143.3	14.2	16.9
1990	04 29	16 01.26	-24 52.7					
1990	05 09	15 52.32	-24 56.6	1.431	2.421	165.6	6.0	16.4
1990	05 19	15 41.85	-24 50.0					
1990	05 29	15 31.13	-24 34.4	1.403	2.404	168.4	4.9	16.3
1990	06 08	15 21.58	-24 13.6					
1990	06 18	15 14.29	-23 52.7	1.474	2.386	146.2	13.7	16.7
1990	06 28	15 09.92	-23 36.3					
1990	07 08	15 08.77	-23 28.0	1.624	2.369	126.0	20.3	17.1

1982 UQ6 a,e,i = 2.89, 0.06, 1 Elements MPC 12941

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	04 19	16 06.02	-20 21.8	2.190	3.065	144.7	10.9	17.2
1990	04 29	16 00.19	-20 01.1					
1990	05 09	15 52.72	-19 34.9	2.070	3.063	167.3	4.1	16.8
1990	05 19	15 44.35	-19 04.9					
1990	05 29	15 35.90	-18 33.6	2.059	3.060	169.3	3.5	16.8
1990	06 08	15 28.27	-18 04.3					
1990	06 18	15 22.12	-17 40.0	2.156	3.057	146.8	10.5	17.2
1990	06 28	15 17.95	-17 23.1					
1990	07 08	15 16.01	-17 15.0	2.341	3.053	126.2	15.6	17.5

(4048) 1964 UC a,e,i = 2.24, 0.19, 3 Elements MPC 14463

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	04 19	16 13.12	-25 18.5	1.681	2.548	142.0	14.0	18.4
1990	04 29	16 06.28	-25 19.5					
1990	05 09	15 56.89	-25 09.6	1.535	2.522	164.6	6.1	17.9
1990	05 19	15 45.87	-24 48.4					
1990	05 29	15 34.47	-24 17.6	1.490	2.493	169.2	4.4	17.7
1990	06 08	15 24.06	-23 41.5					
1990	06 18	15 15.77	-23 05.7	1.550	2.461	146.4	13.2	18.1
1990	06 28	15 10.31	-22 35.4					
1990	07 08	15 08.01	-22 14.4	1.691	2.427	125.6	19.9	18.4

1977 AZ1 a,e,i = 3.21, 0.10, 11 Elements MPC 12448

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	04 19	16 07.61	-11 48.9	2.480	3.352	144.9	9.9	16.7
1990	04 29	16 01.84	-11 36.7					
1990	05 09	15 54.69	-11 26.0	2.381	3.369	165.7	4.2	16.4
1990	05 19	15 46.80	-11 18.6					
1990	05 29	15 38.87	-11 16.2	2.393	3.385	165.8	4.2	16.4
1990	06 08	15 31.60	-11 20.3					
1990	06 18	15 25.59	-11 31.6	2.515	3.401	145.4	9.8	16.7
1990	06 28	15 21.25	-11 50.6					
1990	07 08	15 18.81	-12 16.9	2.726	3.416	125.3	14.1	17.0

1981 UT a,e,i = 2.22, 0.10, 3 Elements MPC 14347

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	04 19	16 14.19	-25 20.2	1.557	2.426	141.7	14.9	16.6
1990	04 29	16 07.45	-25 21.7					
1990	05 09	15 58.09	-25 11.9	1.432	2.419	164.3	6.5	16.1
1990	05 19	15 47.10	-24 50.4					
1990	05 29	15 35.83	-24 19.3	1.406	2.410	169.4	4.4	16.0
1990	06 08	15 25.71	-23 43.3					
1990	06 18	15 17.86	-23 08.1	1.483	2.399	146.9	13.4	16.4
1990	06 28	15 12.95	-22 39.0					
1990	07 08	15 11.26	-22 19.4	1.639	2.386	126.3	20.1	16.8

1987 WA a,e,i = 2.67, 0.13, 6 Elements MPC 12961

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	04 19	16 11.21	-19 36.2	2.010	2.881	143.6	11.9	17.9
1990	04 29	16 05.10	-19 34.2					
1990	05 09	15 57.02	-19 27.8	1.870	2.861	166.3	4.8	17.5
1990	05 19	15 47.70	-19 17.8					
1990	05 29	15 38.10	-19 06.0	1.836	2.839	169.9	3.6	17.4
1990	06 08	15 29.25	-18 55.0					
1990	06 18	15 21.99	-18 47.5	1.909	2.816	147.0	11.3	17.8
1990	06 28	15 16.93	-18 46.1					
1990	07 08	15 14.40	-18 52.3	2.069	2.792	126.2	17.1	18.1

3019 T-3 a,e,i = 2.80, 0.16, 9 Elements MPC 12801

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	04 19	16 07.49	-12 33.9	1.842	2.726	145.0	12.2	17.1
1990	04 29	16 02.52	-11 35.6					
1990	05 09	15 55.63	-10 35.8	1.705	2.693	165.1	5.5	16.7
1990	05 19	15 47.57	-09 38.8					
1990	05 29	15 39.25	-08 49.6	1.671	2.660	164.0	6.0	16.7
1990	06 08	15 31.68	-08 12.5					
1990	06 18	15 25.67	-07 50.3	1.739	2.628	143.7	13.2	17.0
1990	06 28	15 21.82	-07 44.1					
1990	07 08	15 20.44	-07 53.4	1.885	2.596	124.2	18.9	17.3

1986 VT a,e,i = 3.10, 0.17, 1 Elements MPC 14619

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	04 19	16 11.99	-20 01.4	2.153	3.019	143.4	11.4	16.2
1990	04 29	16 07.02	-19 42.8					
1990	05 09	16 00.23	-19 19.1	1.997	2.986	165.6	4.8	15.7
1990	05 19	15 52.26	-18 51.5					
1990	05 29	15 43.95	-18 22.4	1.947	2.952	171.0	3.1	15.6
1990	06 08	15 36.20	-17 54.9					
1990	06 18	15 29.81	-17 32.1	2.005	2.919	148.5	10.5	15.9
1990	06 28	15 25.35	-17 16.6					
1990	07 08	15 23.18	-17 10.1	2.150	2.887	127.8	16.2	16.2

1984 SJ7 a,e,i = 2.24, 0.12, 8 Elements MPC 14350

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	04 19	16 19.74	-32 26.9	1.567	2.411	138.3	16.1	17.2
1990	04 29	16 13.64	-32 33.9					
1990	05 09	16 04.58	-32 23.2	1.420	2.390	158.9	8.7	16.7
1990	05 19	15 53.55	-31 52.2					
1990	05 29	15 41.94	-31 02.0	1.368	2.367	167.2	5.4	16.4
1990	06 08	15 31.36	-29 57.7					
1990	06 18	15 23.07	-28 47.2	1.416	2.343	148.4	13.1	16.8
1990	06 28	15 17.87	-27 39.0					
1990	07 08	15 16.12	-26 39.5	1.547	2.317	128.2	20.2	17.2

(4091) 1986 TL2 a,e,i = 3.19, 0.11, 12 Elements MPC 14606

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	04 19	16 15.05	-22 29.5	1.977	2.838	142.2	12.5	15.3
1990	04 29	16 09.55	-23 00.2					
1990	05 09	16 01.98	-23 26.2	1.848	2.833	164.2	5.6	14.9
1990	05 19	15 53.07	-23 46.5					
1990	05 29	15 43.77	-24 01.3	1.823	2.829	171.3	3.1	14.7
1990	06 08	15 35.15	-24 11.9					
1990	06 18	15 28.10	-24 20.5	1.905	2.827	149.4	10.6	15.1
1990	06 28	15 23.24	-24 29.9					
1990	07 08	15 20.93	-24 42.4	2.074	2.826	128.9	16.2	15.5

1981 ER6 a,e,i = 2.64, 0.19, 5 Elements MPC 10158

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	04 19	16 19.39	-26 18.8	1.682	2.538	140.4	14.6	18.4
1990	04 29	16 13.37	-26 00.0					
1990	05 09	16 05.10	-25 29.6	1.597	2.578	162.8	6.7	18.0
1990	05 19	15 55.58	-24 48.8					
1990	05 29	15 45.96	-24 00.8	1.611	2.618	171.8	3.2	17.9
1990	06 08	15 37.42	-23 10.5					
1990	06 18	15 30.84	-22 23.2	1.731	2.658	149.8	11.1	18.4
1990	06 28	15 26.73	-21 43.3					
1990	07 08	15 25.29	-21 13.5	1.936	2.697	129.3	17.0	18.9

1988 XL1 a,e,i = 2.72, 0.24, 5 Elements MPC 14203

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	04 19	16 19.14	-13 42.2	1.799	2.664	142.1	13.4	17.6
1990	04 29	16 12.95	-13 13.8					
1990	05 09	16 04.85	-12 45.8	1.731	2.715	163.8	5.9	17.3
1990	05 19	15 55.72	-12 21.0					
1990	05 29	15 46.54	-12 02.2	1.766	2.765	167.7	4.5	17.3
1990	06 08	15 38.31	-11 52.0					
1990	06 18	15 31.79	-11 51.6	1.907	2.814	146.9	11.4	17.8
1990	06 28	15 27.43	-12 01.6					
1990	07 08	15 25.45	-12 21.4	2.133	2.861	126.9	16.5	18.2

7571 P-L a,e,i = 2.48, 0.11, 7 Elements MPC 11522

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	04 19	16 22.31	-24 47.3	1.535	2.394	140.1	15.6	16.6
1990	04 29	16 16.21	-25 11.2					
1990	05 09	16 07.45	-25 26.1	1.436	2.417	162.3	7.3	16.2
1990	05 19	15 57.03	-25 31.0					
1990	05 29	15 46.23	-25 26.3	1.434	2.441	171.3	3.6	16.0
1990	06 08	15 36.48	-25 15.1					
1990	06 18	15 28.84	-25 01.7	1.535	2.465	149.6	12.0	16.5
1990	06 28	15 24.00	-24 50.5					
1990	07 08	15 22.24	-24 44.9	1.718	2.489	129.2	18.4	17.0

1987 SV3 a,e,i = 2.32, 0.16, 9 Elements MPC 13585

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	04 19	16 23.50	-32 47.7	1.497	2.337	137.4	16.9	18.5
1990	04 29	16 18.01	-33 41.6					
1990	05 09	16 09.15	-34 21.8	1.338	2.301	156.9	9.9	18.0
1990	05 19	15 57.77	-34 43.2					
1990	05 29	15 45.28	-34 42.5	1.270	2.264	164.7	6.8	17.7
1990	06 08	15 33.49	-34 21.6					
1990	06 18	15 23.97	-33 46.4	1.299	2.227	148.1	14.0	18.0
1990	06 28	15 17.82	-33 05.1					
1990	07 08	15 15.56	-32 25.6	1.406	2.191	128.7	21.2	18.4

1981 XH2 a,e,i = 3.05, 0.25, 8 Elements MPC 11344

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	04 19	16 19.43	-22 47.3	2.737	3.575	141.2	10.1	17.5
1990	04 29	16 14.19	-22 21.9					
1990	05 09	16 07.39	-21 50.1	2.564	3.544	163.5	4.6	17.1
1990	05 19	15 59.57	-21 12.9					
1990	05 29	15 51.39	-20 32.2	2.503	3.511	173.3	1.9	16.9
1990	06 08	15 43.60	-19 50.9					
1990	06 18	15 36.84	-19 11.9	2.556	3.476	150.5	8.3	17.2
1990	06 28	15 31.62	-18 38.0					
1990	07 08	15 28.29	-18 11.3	2.706	3.440	129.2	13.2	17.5

(4295) 6032 P-L a,e,i = 2.45, 0.16, 2 Elements MPC 15548

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	04 19	16 23.29	-25 08.8	1.676	2.528	139.8	14.9	17.6
1990	04 29	16 18.19	-25 06.5					
1990	05 09	16 10.43	-24 54.2	1.515	2.494	161.9	7.2	17.0
1990	05 19	16 00.78	-24 31.6					
1990	05 29	15 50.35	-24 00.0	1.451	2.460	172.7	3.0	16.7
1990	06 08	15 40.49	-23 23.0					
1990	06 18	15 32.38	-22 45.8	1.490	2.425	150.2	12.0	17.1
1990	06 28	15 26.88	-22 13.4					
1990	07 08	15 24.43	-21 49.8	1.613	2.389	129.2	19.3	17.5

1987 QL a,e,i = 2.26, 0.20, 7 Elements MPC 15246

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	04 19	16 18.18	-08 53.0	1.156	2.044	142.1	17.6	16.2
1990	04 29	16 14.95	-07 41.5					
1990	05 09	16 08.69	-06 31.5	1.021	2.001	160.3	9.8	15.6
1990	05 19	16 00.20	-05 30.8					
1990	05 29	15 50.78	-04 47.9	0.971	1.960	161.9	9.2	15.4
1990	06 08	15 42.02	-04 29.3					
1990	06 18	15 35.30	-04 37.6	1.005	1.923	144.1	18.1	15.8
1990	06 28	15 31.58	-05 11.9					
1990	07 08	15 31.39	-06 08.3	1.103	1.889	126.0	25.8	16.1

1983 PP a,e,i = 2.55, 0.13, 9 Elements MPC 14785

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	04 19	16 25.20	-09 16.9	1.805	2.657	140.4	13.9	16.6
1990	04 29	16 19.78	-08 24.7					
1990	05 09	16 12.32	-07 35.9	1.712	2.683	160.1	7.4	16.3
1990	05 19	16 03.59	-06 54.7					
1990	05 29	15 54.55	-06 24.9	1.720	2.708	163.8	6.0	16.3
1990	06 08	15 46.22	-06 09.6					
1990	06 18	15 39.40	-06 09.5	1.830	2.731	145.8	12.1	16.6
1990	06 28	15 34.65	-06 24.3					
1990	07 08	15 32.28	-06 52.2	2.024	2.753	126.5	17.3	17.0

1985 RW a,e,i = 1.96, 0.08, 19 Elements MPC 11996

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	04 19	16 32.46	-28 09.0	1.127	1.984	137.1	20.2	18.1
1990	04 29	16 26.82	-26 12.5					
1990	05 09	16 17.70	-23 49.9	1.021	2.002	160.7	9.6	17.6
1990	05 19	16 06.44	-21 07.4					
1990	05 29	15 54.77	-18 17.9	1.009	2.019	173.3	3.4	17.3
1990	06 08	15 44.50	-15 37.3					
1990	06 18	15 36.91	-13 19.0	1.098	2.035	148.7	15.0	18.0
1990	06 28	15 32.66	-11 30.9					
1990	07 08	15 31.91	-10 14.3	1.264	2.050	127.6	23.1	18.5

1969 TB3 a,e,i = 2.35, 0.15, 3 Elements MPC 15401

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	04 19	16 27.11	-23 30.3	1.576	2.427	139.3	15.7	17.2
1990	04 29	16 22.42	-23 13.3					
1990	05 09	16 14.92	-22 46.6	1.415	2.394	161.6	7.7	16.6
1990	05 19	16 05.37	-22 10.4					
1990	05 29	15 54.92	-21 27.1	1.349	2.360	174.2	2.5	16.3
1990	06 08	15 44.97	-20 41.2					
1990	06 18	15 36.76	-19 58.2	1.385	2.325	150.7	12.4	16.7
1990	06 28	15 31.19	-19 23.2					
1990	07 08	15 28.75	-18 59.7	1.504	2.290	129.5	20.0	17.1

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

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	04 19	16 42.64	-45 52.4	1.155	1.945	128.5	23.8	17.7
1990	04 29	16 37.54	-49 00.4					
1990	05 09	16 26.29	-51 50.5	1.035	1.929	141.3	19.1	17.4
1990	05 19	16 09.27	-54 04.1					
1990	05 29	15 48.62	-55 24.5	0.988	1.912	145.5	17.5	17.2
1990	06 08	15 28.21	-55 45.8					
1990	06 18	15 11.93	-55 16.6	1.017	1.896	137.8	21.1	17.3
1990	06 28	15 02.18	-54 14.2					
1990	07 08	14 59.61	-52 57.3	1.104	1.881	124.9	26.3	17.6

1972 HX a,e,i = 2.35, 0.15, 8 Elements MPC 13599

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	04 19	16 27.94	-09 14.2	1.155	2.028	139.8	18.7	16.2
1990	04 29	16 23.74	-08 53.4					
1990	05 09	16 16.49	-08 39.9	1.071	2.047	159.7	9.9	15.8
1990	05 19	16 07.22	-08 37.9					
1990	05 29	15 57.30	-08 50.5	1.071	2.070	166.3	6.7	15.7
1990	06 08	15 48.29	-09 19.0					
1990	06 18	15 41.41	-10 02.5	1.162	2.095	148.2	14.8	16.2
1990	06 28	15 37.43	-10 58.9					
1990	07 08	15 36.67	-12 05.1	1.327	2.123	129.4	21.7	16.7

(4079) 1983 CS a,e,i = 3.20, 0.10, 2 Elements MPC 14601

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	04 19	16 26.28	-20 41.7	2.438	3.271	140.0	11.4	17.2
1990	04 29	16 21.32	-20 33.8					
1990	05 09	16 14.67	-20 21.9	2.315	3.290	162.1	5.4	16.9
1990	05 19	16 06.93	-20 06.8					
1990	05 29	15 58.80	-19 49.9	2.297	3.308	174.8	1.6	16.7
1990	06 08	15 51.11	-19 33.3					
1990	06 18	15 44.52	-19 19.0	2.392	3.326	152.3	8.2	17.1
1990	06 28	15 39.56	-19 09.2					
1990	07 08	15 36.55	-19 05.2	2.583	3.343	131.4	13.2	17.5

1989 CO3 a,e,i = 2.38, 0.15, 6 Elements MPC 14623

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	04 19	16 31.78	-17 21.0	1.896	2.735	139.0	13.9	18.8
1990	04 29	16 26.47	-16 40.1					
1990	05 09	16 18.89	-15 54.8	1.754	2.729	161.2	6.9	18.3
1990	05 19	16 09.75	-15 07.8					
1990	05 29	15 59.98	-14 22.5	1.713	2.720	171.5	3.2	18.1
1990	06 08	15 50.67	-13 42.9					
1990	06 18	15 42.75	-13 12.4	1.781	2.709	149.9	10.8	18.5
1990	06 28	15 36.92	-12 53.4					
1990	07 08	15 33.59	-12 46.9	1.938	2.696	128.9	17.1	18.9

1941 UN a,e,i = 2.76, 0.33, 8 Elements MPC 16019

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	04 19	16 34.25	-29 34.3	2.889	3.681	136.3	10.9	17.9
1990	04 29	16 28.38	-29 45.5					
1990	05 09	16 20.73	-29 48.8	2.722	3.676	157.7	6.0	17.6
1990	05 19	16 11.83	-29 43.4					
1990	05 29	16 02.40	-29 29.1	2.664	3.669	171.0	2.5	17.4
1990	06 08	15 53.22	-29 07.4					
1990	06 18	15 45.04	-28 40.9	2.722	3.658	153.2	7.2	17.7
1990	06 28	15 38.41	-28 12.7					
1990	07 08	15 33.75	-27 46.0	2.883	3.644	132.2	11.9	17.9

1976 YY a,e,i = 2.42, 0.18, 3 Elements MPC 13597

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	04 19	16 35.51	-23 46.2	1.873	2.699	137.4	14.6	18.7
1990	04 29	16 30.45	-23 50.7					
1990	05 09	16 22.79	-23 48.4	1.701	2.671	159.6	7.6	18.3
1990	05 19	16 13.17	-23 38.9					
1990	05 29	16 02.57	-23 22.5	1.629	2.640	175.5	1.7	17.9
1990	06 08	15 52.20	-23 01.4					
1990	06 18	15 43.20	-22 39.2	1.664	2.608	152.6	10.3	18.3
1990	06 28	15 36.45	-22 19.8					
1990	07 08	15 32.48	-22 06.7	1.790	2.575	131.1	17.3	18.6

1981 TJ4 a,e,i = 3.03, 0.11, 11 Elements MPC 14947

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	04 19	16 33.52	-29 53.5	2.182	2.990	136.4	13.4	16.3
1990	04 29	16 28.72	-30 31.4					
1990	05 09	16 21.56	-31 01.5	2.013	2.968	156.9	7.7	15.9
1990	05 19	16 12.65	-31 21.2					
1990	05 29	16 02.84	-31 29.2	1.944	2.946	169.3	3.7	15.6
1990	06 08	15 53.22	-31 26.1					
1990	06 18	15 44.81	-31 14.5	1.983	2.924	152.8	9.1	15.9
1990	06 28	15 38.41	-30 58.4					
1990	07 08	15 34.56	-30 41.8	2.116	2.902	132.6	14.9	16.2

1987 OM a,e,i = 2.25, 0.23, 7 Elements MPC 12207

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	04 19	16 35.03	-12 45.9	1.567	2.411	138.3	16.1	18.2
1990	04 29	16 30.47	-12 22.3					
1990	05 09	16 23.00	-11 59.4	1.391	2.363	159.4	8.7	17.6
1990	05 19	16 13.26	-11 40.1					
1990	05 29	16 02.24	-11 27.8	1.309	2.312	169.2	4.7	17.3
1990	06 08	15 51.33	-11 25.7					
1990	06 18	15 41.84	-11 36.2	1.327	2.260	149.0	13.4	17.6
1990	06 28	15 34.80	-12 00.3					
1990	07 08	15 30.88	-12 37.6	1.427	2.206	128.2	21.2	17.9

1989 CU8 a,e,i = 2.89, 0.02, 2 Elements MPC 15563

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	04 19	16 32.68	-23 47.1	2.117	2.941	138.0	13.2	17.1
1990	04 29	16 28.00	-23 46.7					
1990	05 09	16 21.19	-23 40.0	1.974	2.943	160.0	6.7	16.8
1990	05 19	16 12.89	-23 27.0					
1990	05 29	16 03.94	-23 08.8	1.932	2.944	175.9	1.4	16.4
1990	06 08	15 55.33	-22 47.6					
1990	06 18	15 47.94	-22 26.2	2.000	2.945	153.7	8.8	16.9
1990	06 28	15 42.44	-22 07.7					
1990	07 08	15 39.24	-21 54.8	2.161	2.946	132.6	14.7	17.2

1976 SJ a,e,i = 2.39, 0.22, 2 Elements MPC 13584

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	04 19	16 35.46	-19 00.8	1.921	2.750	138.0	14.1	18.3
1990	04 29	16 30.43	-18 38.4					
1990	05 09	16 22.96	-18 11.3	1.748	2.720	160.3	7.2	17.8
1990	05 19	16 13.67	-17 40.8					
1990	05 29	16 03.49	-17 09.1	1.676	2.687	174.2	2.2	17.5
1990	06 08	15 53.53	-16 39.5					
1990	06 18	15 44.83	-16 15.3	1.713	2.651	151.5	10.5	17.9
1990	06 28	15 38.22	-15 59.5					
1990	07 08	15 34.21	-15 53.9	1.841	2.613	130.0	17.3	18.2

(3998) 1989 AB a,e,i = 2.28, 0.20, 6 Elements MPC 14180

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	04 19	16 41.86	-29 40.1	1.872	2.675	134.7	15.5	17.2
1990	04 29	16 35.76	-30 02.7					
1990	05 09	16 26.90	-30 14.7	1.736	2.691	156.3	8.7	16.9
1990	05 19	16 16.06	-30 13.8					
1990	05 29	16 04.35	-29 59.2	1.699	2.704	170.8	3.4	16.6
1990	06 08	15 53.13	-29 33.1					
1990	06 18	15 43.54	-28 59.8	1.770	2.714	152.8	9.8	17.0
1990	06 28	15 36.41	-28 24.8					
1990	07 08	15 32.20	-27 53.0	1.935	2.721	131.9	16.1	17.4

(4000) 1989 AV a,e,i = 2.59, 0.11, 3 Elements MPC 14180

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	04 19	16 36.85	-26 00.9	1.807	2.630	136.6	15.2	16.7
1990	04 29	16 31.83	-26 00.2					
1990	05 09	16 24.30	-25 50.6	1.687	2.653	158.6	8.0	16.3
1990	05 19	16 15.04	-25 31.6					
1990	05 29	16 05.10	-25 04.4	1.664	2.675	175.0	1.9	16.0
1990	06 08	15 55.67	-24 31.9					
1990	06 18	15 47.78	-23 58.3	1.748	2.697	153.8	9.6	16.5
1990	06 28	15 42.14	-23 27.8					
1990	07 08	15 39.15	-23 03.8	1.923	2.718	132.8	15.9	17.0

1982 SX5 a,e,i = 2.65, 0.20, 2 Elements MPC 14784

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	04 19	16 32.77	-25 16.3	1.582	2.421	137.7	16.2	16.2
1990	04 29	16 29.48	-25 19.2					
1990	05 09	16 23.32	-25 13.2	1.410	2.380	159.1	8.7	15.7
1990	05 19	16 14.91	-24 57.3					
1990	05 29	16 05.30	-24 32.3	1.330	2.342	175.4	2.0	15.2
1990	06 08	15 55.86	-24 00.8					
1990	06 18	15 47.88	-23 27.4	1.349	2.305	153.8	11.2	15.6
1990	06 28	15 42.38	-22 57.2					
1990	07 08	15 39.97	-22 34.5	1.453	2.270	132.9	19.2	15.9

1980 DO a,e,i = 2.82, 0.29, 4 Elements MPC 13685

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	04 19	16 33.12	-15 54.2	1.270	2.130	138.7	18.1	15.0
1990	04 29	16 29.67	-15 38.7					
1990	05 09	16 23.36	-15 22.8	1.197	2.173	160.0	9.1	14.6
1990	05 19	16 15.16	-15 09.1					
1990	05 29	16 06.31	-15 00.1	1.212	2.221	172.8	3.3	14.4
1990	06 08	15 58.20	-14 58.5					
1990	06 18	15 51.92	-15 05.9	1.322	2.273	152.7	11.8	15.0
1990	06 28	15 48.17	-15 23.0					
1990	07 08	15 47.27	-15 49.3	1.513	2.328	133.0	18.6	15.6

(4155) 1987 UB1 a,e,i = 2.43, 0.24, 6 Elements MPC 14939

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	04 19	16 40.39	-27 46.3	1.941	2.749	135.5	14.8	17.0
1990	04 29	16 35.39	-28 08.0					
1990	05 09	16 27.62	-28 21.7	1.750	2.708	157.0	8.4	16.5
1990	05 19	16 17.66	-28 25.3					
1990	05 29	16 06.47	-28 17.5	1.657	2.665	172.5	2.8	16.1
1990	06 08	15 55.30	-27 59.4					
1990	06 18	15 45.39	-27 34.3	1.671	2.619	153.3	10.0	16.4
1990	06 28	15 37.73	-27 07.0					
1990	07 08	15 32.97	-26 42.5	1.779	2.572	131.9	17.1	16.7

1989 AF a,e,i = 2.38, 0.02, 5 Elements MPC 14205

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	04 19	16 40.48	-20 49.0	1.590	2.421	136.6	16.6	16.5
1990	04 29	16 35.96	-20 56.5					
1990	05 09	16 28.57	-21 00.0	1.454	2.423	158.8	8.7	16.1
1990	05 19	16 19.04	-20 59.3					
1990	05 29	16 08.47	-20 54.9	1.412	2.425	177.3	1.1	15.6
1990	06 08	15 58.21	-20 48.9					
1990	06 18	15 49.48	-20 44.0	1.473	2.426	153.8	10.7	16.2
1990	06 28	15 43.20	-20 43.3					
1990	07 08	15 39.87	-20 49.0	1.622	2.427	132.5	18.0	16.6

1978 PS4 a,e,i = 2.57, 0.19, 12 Elements MPC 9473

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	04 19	16 42.54	-39 19.8	1.854	2.628	131.3	16.7	17.7
1990	04 29	16 38.32	-40 03.6					
1990	05 09	16 30.84	-40 32.2	1.667	2.588	149.5	11.4	17.3
1990	05 19	16 20.73	-40 40.5					
1990	05 29	16 09.10	-40 24.4	1.568	2.547	160.9	7.5	17.0
1990	06 08	15 57.51	-39 44.1					
1990	06 18	15 47.46	-38 44.2	1.567	2.506	151.2	11.3	17.1
1990	06 28	15 40.11	-37 32.4					
1990	07 08	15 36.14	-36 17.4	1.656	2.464	133.1	17.5	17.4

5482 T-2 a,e,i = 2.30, 0.21, 7 Elements MPC 15259

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	04 19	16 38.93	-33 19.4	1.356	2.178	134.2	19.3	17.7
1990	04 29	16 36.33	-33 52.2					
1990	05 09	16 30.02	-34 10.4	1.179	2.131	153.6	12.1	17.1
1990	05 19	16 20.58	-34 08.6					
1990	05 29	16 09.25	-33 43.4	1.084	2.085	167.5	6.0	16.7
1990	06 08	15 57.87	-32 55.7					
1990	06 18	15 48.25	-31 51.9	1.080	2.040	153.4	12.9	16.9
1990	06 28	15 41.82	-30 41.4					
1990	07 08	15 39.37	-29 33.9	1.156	1.998	133.6	21.6	17.2

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

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	04 19	16 37.06	-19 23.4	2.636	3.445	137.6	11.3	18.4
1990	04 29	16 32.51	-19 03.6					
1990	05 09	16 26.21	-18 40.5	2.463	3.427	159.5	5.9	18.0
1990	05 19	16 18.64	-18 14.8					
1990	05 29	16 10.44	-17 48.3	2.396	3.408	175.7	1.3	17.7
1990	06 08	16 02.36	-17 23.0					
1990	06 18	15 55.10	-17 01.2	2.444	3.387	154.1	7.5	18.1
1990	06 28	15 49.26	-16 44.7					
1990	07 08	15 45.24	-16 35.1	2.591	3.365	132.7	12.8	18.4

1970 PS a,e,i = 3.04, 0.09, 11 Elements MPC 14470

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	04 19	16 36.16	-07 36.5	2.517	3.327	137.5	11.8	17.2
1990	04 29	16 31.84	-06 56.9					
1990	05 09	16 25.85	-06 20.6	2.377	3.327	156.5	6.9	16.9
1990	05 19	16 18.68	-05 50.6					
1990	05 29	16 10.96	-05 29.6	2.340	3.325	163.9	4.8	16.8
1990	06 08	16 03.41	-05 19.6					
1990	06 18	15 56.70	-05 21.5	2.411	3.323	148.8	9.1	17.1
1990	06 28	15 51.36	-05 35.3					
1990	07 08	15 47.77	-06 00.2	2.577	3.319	129.6	13.6	17.3

1981 EU20 a,e,i = 2.60, 0.10, 1 Elements MPC 11840

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	04 19	16 39.56	-23 38.1	1.679	2.504	136.5	16.0	17.9
1990	04 29	16 36.03	-23 34.6					
1990	05 09	16 29.74	-23 23.9	1.518	2.484	158.1	8.7	17.4
1990	05 19	16 21.31	-23 05.8					
1990	05 29	16 11.74	-22 41.3	1.451	2.464	177.7	0.9	16.9
1990	06 08	16 02.30	-22 13.1					
1990	06 18	15 54.16	-21 45.1	1.486	2.445	155.0	10.1	17.4
1990	06 28	15 48.27	-21 21.4					
1990	07 08	15 45.21	-21 05.2	1.609	2.426	133.8	17.6	17.8

(4207) Chernova a,e,i = 3.02, 0.05, 9 Elements MPC 15230

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	04 19	16 39.34	-26 47.9	2.295	3.097	135.9	13.0	16.1
1990	04 29	16 34.99	-26 28.6					
1990	05 09	16 28.60	-26 00.7	2.147	3.104	157.7	7.1	15.8
1990	05 19	16 20.77	-25 24.5					
1990	05 29	16 12.27	-24 41.3	2.100	3.112	176.3	1.2	15.4
1990	06 08	16 04.02	-23 54.1					
1990	06 18	15 56.83	-23 06.5	2.165	3.119	155.8	7.7	15.8
1990	06 28	15 51.34	-22 22.2					
1990	07 08	15 47.95	-21 44.3	2.328	3.126	134.5	13.4	16.2

1989 BS1 a,e,i = 2.35, 0.13, 3 Elements MPC 15562

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	04 19	16 46.31	-26 03.9	1.845	2.648	134.5	15.7	18.2
1990	04 29	16 41.57	-26 07.6					
1990	05 09	16 34.07	-26 03.3	1.687	2.643	156.5	8.8	17.8
1990	05 19	16 24.48	-25 49.7					
1990	05 29	16 13.76	-25 27.1	1.624	2.636	175.8	1.6	17.3
1990	06 08	16 03.19	-24 57.4					
1990	06 18	15 53.92	-24 24.7	1.669	2.626	155.2	9.3	17.8
1990	06 28	15 46.85	-23 53.4					
1990	07 08	15 42.56	-23 27.6	1.808	2.615	133.6	16.4	18.1

1982 TK3 a,e,i = 2.77, 0.13, 9 Elements MPC 13687

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	04 19	16 45.10	-34 04.6	2.321	3.092	132.7	13.8	18.0
1990	04 29	16 40.40	-34 22.3					
1990	05 09	16 33.29	-34 29.0	2.146	3.079	152.9	8.6	17.6
1990	05 19	16 24.35	-34 22.5					
1990	05 29	16 14.42	-34 01.5	2.067	3.064	167.4	4.1	17.3
1990	06 08	16 04.57	-33 27.3					
1990	06 18	15 55.82	-32 43.3	2.098	3.048	154.8	8.2	17.5
1990	06 28	15 48.96	-31 54.3					
1990	07 08	15 44.53	-31 05.5	2.227	3.030	134.8	13.8	17.8

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

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	04 19	16 59.76	-30 46.7	1.984	2.746	130.7	16.1	17.4
1990	04 29	16 52.65	-32 07.1					
1990	05 09	16 42.41	-33 20.3	1.856	2.787	151.9	9.8	17.1
1990	05 19	16 29.71	-34 20.9					
1990	05 29	16 15.70	-35 04.2	1.829	2.824	166.3	4.9	16.9
1990	06 08	16 01.80	-35 29.0					
1990	06 18	15 49.40	-35 37.4	1.917	2.858	152.7	9.4	17.2
1990	06 28	15 39.51	-35 34.5					
1990	07 08	15 32.75	-35 26.3	2.103	2.888	132.4	15.1	17.7

1987 QW10 a,e,i = 2.31, 0.15, 5 Elements MPC 15247

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	04 19	16 44.41	-15 53.9	1.432	2.265	136.0	17.9	16.9
1990	04 29	16 41.48	-15 38.4					
1990	05 09	16 35.41	-15 22.0	1.267	2.231	157.1	10.1	16.3
1990	05 19	16 26.78	-15 06.8					
1990	05 29	16 16.57	-14 55.2	1.189	2.198	173.4	3.0	15.9
1990	06 08	16 06.21	-14 50.2					
1990	06 18	15 57.12	-14 54.3	1.208	2.166	153.8	12.0	16.2
1990	06 28	15 50.45	-15 09.3					
1990	07 08	15 46.94	-15 35.8	1.309	2.135	132.8	20.4	16.6

(4066) 1940 RG a,e,i = 2.24, 0.22, 5 Elements MPC 14597

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	04 19	16 43.61	-23 22.0	1.344	2.178	135.6	18.8	16.7
1990	04 29	16 41.46	-22 53.0					
1990	05 09	16 35.89	-22 12.5	1.159	2.125	157.0	10.7	16.0
1990	05 19	16 27.42	-21 20.7					
1990	05 29	16 17.09	-20 19.9	1.059	2.072	178.7	0.6	15.3
1990	06 08	16 06.48	-19 15.4					
1990	06 18	15 57.20	-18 14.2	1.054	2.021	154.9	12.3	15.8
1990	06 28	15 50.57	-17 23.3					
1990	07 08	15 47.46	-16 47.7	1.129	1.971	133.3	22.1	16.2

1984 SR2 a,e,i = 2.23, 0.16, 5 Elements MPC 15244

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	04 19	16 51.25	-29 35.8	1.692	2.485	132.7	17.3	17.9
1990	04 29	16 47.12	-29 49.1					
1990	05 09	16 39.78	-29 52.1	1.516	2.463	153.9	10.4	17.4
1990	05 19	16 29.83	-29 41.9					
1990	05 29	16 18.32	-29 17.0	1.430	2.438	172.2	3.3	17.0
1990	06 08	16 06.70	-28 38.9					
1990	06 18	15 56.41	-27 52.4	1.449	2.411	155.7	10.0	17.3
1990	06 28	15 48.58	-27 03.7					
1990	07 08	15 43.91	-26 19.1	1.559	2.383	134.3	17.8	17.7

1983 RQ4 a,e,i = 2.47, 0.15, 7 Elements MPC 14018

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	04 19	16 46.91	-15 04.7	1.996	2.802	135.4	14.6	17.7
1990	04 29	16 42.72	-14 21.6					
1990	05 09	16 36.19	-13 36.3	1.833	2.789	156.7	8.2	17.2
1990	05 19	16 27.87	-12 51.5					
1990	05 29	16 18.57	-12 10.3	1.769	2.774	170.7	3.4	16.9
1990	06 08	16 09.29	-11 36.3					
1990	06 18	16 00.99	-11 12.3	1.813	2.757	153.0	9.6	17.2
1990	06 28	15 54.45	-11 00.2					
1990	07 08	15 50.19	-11 00.6	1.950	2.738	132.1	16.0	17.6

1980 UC a,e,i = 3.14, 0.22, 3 Elements MPC 14782

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	04 19	16 44.10	-19 29.4	2.302	3.103	135.9	13.0	17.4
1990	04 29	16 40.56	-19 20.1					
1990	05 09	16 34.91	-19 07.9	2.102	3.059	157.5	7.3	17.0
1990	05 19	16 27.59	-18 53.4					
1990	05 29	16 19.26	-18 37.8	2.002	3.015	177.2	0.9	16.5
1990	06 08	16 10.79	-18 22.8					
1990	06 18	16 03.04	-18 10.4	2.013	2.971	156.2	7.9	16.9
1990	06 28	15 56.78	-18 02.9					
1990	07 08	15 52.56	-18 01.8	2.121	2.927	134.8	14.3	17.2

1989 CA a,e,i = 2.44, 0.16, 2 Elements MPC 14359

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	04 19	16 51.63	-21 28.5	2.013	2.806	134.0	14.9	18.0
1990	04 29	16 47.08	-21 12.7					
1990	05 09	16 40.07	-20 52.0	1.861	2.814	156.2	8.3	17.6
1990	05 19	16 31.20	-20 26.9					
1990	05 29	16 21.32	-19 58.7	1.807	2.821	178.5	0.5	17.1
1990	06 08	16 11.51	-19 29.8					
1990	06 18	16 02.74	-19 03.2	1.864	2.824	156.4	8.3	17.6
1990	06 28	15 55.82	-18 42.0					
1990	07 08	15 51.27	-18 28.2	2.018	2.826	134.6	14.8	18.0

1981 EB9 a,e,i = 2.61, 0.17, 13 Elements MPC 11837

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	04 19	16 50.79	-41 11.5	1.530	2.300	129.2	19.8	17.1
1990	04 29	16 48.95	-42 30.1					
1990	05 09	16 43.25	-43 34.3	1.366	2.273	145.7	14.5	16.7
1990	05 19	16 34.14	-44 16.5					
1990	05 29	16 22.77	-44 29.8	1.280	2.248	156.9	10.2	16.4
1990	06 08	16 10.99	-44 11.3					
1990	06 18	16 00.71	-43 24.5	1.282	2.226	151.0	12.8	16.4
1990	06 28	15 53.47	-42 17.7					
1990	07 08	15 50.17	-41 01.2	1.366	2.208	135.3	18.9	16.7

1989 BN1 a,e,i = 2.56, 0.17, 7 Elements MPC 14622

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	04 19	16 52.86	-13 29.9	2.112	2.900	133.9	14.4	18.1
1990	04 29	16 48.48	-12 58.7					
1990	05 09	16 41.89	-12 28.1	1.974	2.920	155.1	8.4	17.8
1990	05 19	16 33.65	-12 00.1					
1990	05 29	16 24.53	-11 37.2	1.935	2.938	170.1	3.4	17.6
1990	06 08	16 15.44	-11 21.8					
1990	06 18	16 07.27	-11 15.4	2.006	2.954	154.3	8.6	17.9
1990	06 28	16 00.72	-11 18.9					
1990	07 08	15 56.26	-11 32.3	2.173	2.968	133.7	14.3	18.3

1986 GC a,e,i = 2.36, 0.08, 7 Elements MPC 10840

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	04 19	16 54.69	-22 39.8	1.360	2.174	133.2	19.7	17.2
1990	04 29	16 52.11	-23 16.7					
1990	05 09	16 46.05	-23 51.4	1.225	2.179	154.4	11.6	16.8
1990	05 19	16 37.10	-24 21.6					
1990	05 29	16 26.37	-24 45.1	1.173	2.185	176.4	1.7	16.2
1990	06 08	16 15.42	-25 01.5					
1990	06 18	16 05.81	-25 12.3	1.219	2.194	158.0	10.0	16.7
1990	06 28	15 58.78	-25 20.8					
1990	07 08	15 55.08	-25 30.4	1.351	2.204	136.7	18.4	17.2

(4042) Okhotsk a,e,i = 2.42, 0.14, 4 Elements MPC 14339

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	04 19	16 57.29	-21 50.9	1.916	2.700	132.6	15.9	17.8
1990	04 29	16 53.01	-21 53.1					
1990	05 09	16 46.07	-21 51.6	1.767	2.714	154.7	9.2	17.4
1990	05 19	16 37.06	-21 45.9					
1990	05 29	16 26.84	-21 36.4	1.712	2.726	178.4	0.6	16.9
1990	06 08	16 16.54	-21 24.5					
1990	06 18	16 07.27	-21 12.3	1.767	2.736	157.9	8.0	17.4
1990	06 28	15 59.89	-21 02.7					
1990	07 08	15 54.99	-20 58.1	1.920	2.743	136.0	14.9	17.8

1985 CH2 a,e,i = 2.57, 0.07, 10 Elements MPC 10310

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	04 19	16 53.09	-08 40.1	1.848	2.642	133.5	16.0	18.2
1990	04 29	16 49.50	-07 52.0					
1990	05 09	16 43.49	-07 07.6	1.717	2.656	152.9	10.0	17.9
1990	05 19	16 35.63	-06 30.7					
1990	05 29	16 26.75	-06 05.1	1.678	2.669	164.5	5.8	17.7
1990	06 08	16 17.85	-05 53.9					
1990	06 18	16 09.90	-05 58.1	1.742	2.681	151.7	10.3	17.9
1990	06 28	16 03.67	-06 17.6					
1990	07 08	15 59.68	-06 50.5	1.897	2.692	132.7	16.1	18.3

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

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	04 19	16 51.11	-20 18.2	2.872	3.644	134.2	11.4	17.7
1990	04 29	16 47.24	-20 08.1					
1990	05 09	16 41.62	-19 55.4	2.678	3.622	155.9	6.5	17.4
1990	05 19	16 34.64	-19 40.4					
1990	05 29	16 26.83	-19 23.9	2.587	3.600	177.4	0.7	17.0
1990	06 08	16 18.87	-19 07.3					
1990	06 18	16 11.46	-18 52.2	2.611	3.575	158.4	6.0	17.3
1990	06 28	16 05.17	-18 40.3					
1990	07 08	16 00.49	-18 33.0	2.740	3.550	136.7	11.3	17.6

3538 P-L a,e,i = 2.26, 0.25, 4 Elements MPC 12690

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	04 19	16 58.13	-27 38.3	1.653	2.439	131.6	17.9	18.8
1990	04 29	16 55.27	-27 42.3					
1990	05 09	16 49.10	-27 37.3	1.446	2.389	152.8	11.1	18.3
1990	05 19	16 40.01	-27 21.1					
1990	05 29	16 28.87	-26 52.2	1.325	2.336	174.2	2.5	17.7
1990	06 08	16 17.08	-26 11.6					
1990	06 18	16 06.17	-25 23.5	1.307	2.281	158.0	9.6	17.9
1990	06 28	15 57.48	-24 33.9					
1990	07 08	15 51.95	-23 49.2	1.380	2.224	135.8	18.6	18.3

1989 AG a,e,i = 2.67, 0.14, 13 Elements MPC 14205

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	04 19	16 57.96	-12 02.9	1.950	2.732	132.6	15.7	16.9
1990	04 29	16 53.77	-12 01.0					
1990	05 09	16 47.15	-12 02.8	1.819	2.760	153.7	9.3	16.5
1990	05 19	16 38.66	-12 09.6					
1990	05 29	16 29.10	-12 22.5	1.782	2.787	170.7	3.4	16.3
1990	06 08	16 19.49	-12 42.4					
1990	06 18	16 10.79	-13 09.3	1.854	2.813	156.0	8.4	16.6
1990	06 28	16 03.81	-13 43.0					
1990	07 08	15 59.06	-14 22.9	2.023	2.837	135.3	14.6	17.0

1989 EV a,e,i = 2.80, 0.15, 10 Elements MPC 14479

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	04 19	16 58.13	-26 23.3	2.457	3.215	131.9	13.5	17.2
1990	04 29	16 53.84	-26 48.1					
1990	05 09	16 47.29	-27 08.6	2.278	3.212	153.3	8.1	16.8
1990	05 19	16 38.91	-27 23.3					
1990	05 29	16 29.40	-27 30.9	2.198	3.208	173.6	2.0	16.5
1990	06 08	16 19.66	-27 31.5					
1990	06 18	16 10.60	-27 26.5	2.232	3.201	158.9	6.6	16.7
1990	06 28	16 03.02	-27 18.3					
1990	07 08	15 57.50	-27 09.8	2.370	3.193	137.4	12.4	17.0

1986 QV2 a,e,i = 2.79, 0.16, 8 Elements MPC 12206

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	04 19	16 51.86	-10 38.0	1.531	2.343	134.0	18.0	16.1
1990	04 29	16 50.00	-10 03.0					
1990	05 09	16 45.37	-09 31.5	1.397	2.344	153.4	11.1	15.7
1990	05 19	16 38.53	-09 07.3					
1990	05 29	16 30.34	-08 54.3	1.349	2.348	167.2	5.5	15.4
1990	06 08	16 21.97	-08 55.1					
1990	06 18	16 14.57	-09 10.9	1.397	2.356	154.7	10.6	15.7
1990	06 28	16 09.07	-09 41.1					
1990	07 08	16 06.08	-10 24.0	1.531	2.367	135.5	17.5	16.1

1987 SN3 a,e,i = 2.31, 0.14, 7 Elements MPC 14476

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	04 19	16 56.39	-16 44.4	1.567	2.370	133.1	18.0	18.2
1990	04 29	16 54.03	-15 55.4					
1990	05 09	16 48.65	-15 01.7	1.391	2.340	153.9	10.9	17.7
1990	05 19	16 40.74	-14 06.0					
1990	05 29	16 31.14	-13 12.5	1.302	2.309	171.3	3.8	17.2
1990	06 08	16 21.12	-12 26.0					
1990	06 18	16 11.97	-11 51.0	1.313	2.277	155.6	10.6	17.5
1990	06 28	16 04.83	-11 30.9					
1990	07 08	16 00.46	-11 26.8	1.412	2.246	134.6	18.8	17.8

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

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	04 19	17 18.51	-23 57.5	1.243	2.019	127.6	23.2	15.5
1990	04 29	17 12.79	-26 07.3					
1990	05 09	17 02.69	-28 16.6	1.166	2.101	149.8	14.0	15.1
1990	05 19	16 49.00	-30 16.0					
1990	05 29	16 33.27	-31 55.5	1.179	2.183	169.1	5.0	14.9
1990	06 08	16 17.61	-33 09.5					
1990	06 18	16 03.99	-33 58.9	1.297	2.263	156.0	10.5	15.4
1990	06 28	15 53.79	-34 29.4					
1990	07 08	15 47.65	-34 48.7	1.506	2.342	135.4	17.7	16.0

1981 ET20 a,e,i = 2.63, 0.14, 9 Elements MPC 12785

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	04 19	17 01.26	-34 42.3	1.590	2.359	129.4	19.2	18.7
1990	04 29	16 58.56	-35 36.2					
1990	05 09	16 52.37	-36 18.9	1.463	2.384	148.6	12.7	18.4
1990	05 19	16 43.31	-36 45.4					
1990	05 29	16 32.48	-36 51.8	1.419	2.411	164.3	6.5	18.1
1990	06 08	16 21.45	-36 37.5					
1990	06 18	16 11.72	-36 06.1	1.472	2.438	156.7	9.5	18.3
1990	06 28	16 04.48	-35 23.9					
1990	07 08	16 00.42	-34 38.1	1.616	2.468	138.1	16.0	18.8

7068 P-L a,e,i = 2.68, 0.25, 8 Elements MPC 13693

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	04 19	16 56.88	-16 47.7	2.139	2.918	133.0	14.6	18.7
1990	04 29	16 53.70	-16 05.8					
1990	05 09	16 48.16	-15 20.3	1.929	2.871	154.1	8.8	18.2
1990	05 19	16 40.65	-14 32.9					
1990	05 29	16 31.83	-13 46.4	1.816	2.823	171.8	2.9	17.8
1990	06 08	16 22.62	-13 04.1					
1990	06 18	16 13.97	-12 29.5	1.812	2.773	156.4	8.4	18.0
1990	06 28	16 06.76	-12 05.2					
1990	07 08	16 01.66	-11 52.7	1.905	2.721	135.1	15.3	18.3

1988 WG a,e,i = 2.63, 0.29, 9 Elements MPC 14201

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	04 19	17 05.35	-23 45.5	2.063	2.822	130.6	15.7	16.6
1990	04 29	17 00.53	-24 08.2					
1990	05 09	16 53.14	-24 27.4	1.941	2.875	152.7	9.3	16.3
1990	05 19	16 43.77	-24 41.5					
1990	05 29	16 33.29	-24 49.6	1.915	2.926	175.4	1.6	15.9
1990	06 08	16 22.76	-24 52.1					
1990	06 18	16 13.23	-24 50.4	2.001	2.975	159.6	6.8	16.3
1990	06 28	16 05.48	-24 47.2					
1990	07 08	16 00.08	-24 45.1	2.190	3.021	137.7	13.1	16.8

1986 EZ4 a,e,i = 2.32, 0.18, 1 Elements MPC 14618

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	04 19	17 05.11	-23 53.1	1.591	2.371	130.6	18.7	17.7
1990	04 29	17 01.33	-23 53.4					
1990	05 09	16 54.40	-23 48.1	1.470	2.411	152.5	11.1	17.4
1990	05 19	16 44.97	-23 36.3					
1990	05 29	16 34.12	-23 18.1	1.437	2.450	176.2	1.6	16.9
1990	06 08	16 23.21	-22 55.5					
1990	06 18	16 13.55	-22 31.5	1.509	2.487	159.6	8.2	17.4
1990	06 28	16 06.11	-22 10.1					
1990	07 08	16 01.50	-21 54.5	1.676	2.522	137.6	15.8	17.9

1986 RF13 a,e,i = 2.91, 0.07, 3 Elements MPC 14949

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	04 19	16 57.10	-18 40.0	2.043	2.825	132.9	15.1	16.0
1990	04 29	16 54.35	-18 28.9					
1990	05 09	16 49.20	-18 15.9	1.869	2.811	154.1	9.0	15.6
1990	05 19	16 42.09	-18 01.8					
1990	05 29	16 33.74	-17 47.8	1.788	2.799	175.1	1.8	15.2
1990	06 08	16 25.07	-17 35.7					
1990	06 18	16 17.06	-17 27.2	1.813	2.787	159.2	7.4	15.5
1990	06 28	16 10.55	-17 24.2					
1990	07 08	16 06.18	-17 28.0	1.937	2.775	137.8	14.3	15.9

(4002) 1950 JB a,e,i = 2.52, 0.03, 15 Elements MPC 14324

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	04 19	17 00.52	-03 55.5	1.708	2.485	131.0	17.8	15.9
1990	04 29	16 57.61	-03 23.2					
1990	05 09	16 51.99	-02 59.6	1.558	2.480	149.2	12.0	15.5
1990	05 19	16 44.13	-02 49.4					
1990	05 29	16 34.84	-02 56.5	1.494	2.475	161.1	7.6	15.2
1990	06 08	16 25.22	-03 22.8					
1990	06 18	16 16.37	-04 08.1	1.528	2.470	151.7	11.2	15.4
1990	06 28	16 09.24	-05 10.2					
1990	07 08	16 04.54	-06 25.4	1.652	2.465	133.6	17.4	15.8

(4024) 1981 WQ a,e,i = 2.28, 0.15, 8 Elements MPC 14333

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	04 19	17 07.98	-23 55.2	1.578	2.353	130.0	19.1	16.7
1990	04 29	17 04.23	-24 27.5					
1990	05 09	16 57.15	-24 56.6	1.449	2.386	151.7	11.6	16.3
1990	05 19	16 47.34	-25 20.2					
1990	05 29	16 35.84	-25 36.0	1.407	2.418	174.5	2.3	15.9
1990	06 08	16 24.09	-25 43.7					
1990	06 18	16 13.51	-25 45.0	1.469	2.447	159.7	8.3	16.3
1990	06 28	16 05.21	-25 43.3					
1990	07 08	15 59.90	-25 42.3	1.626	2.476	137.8	16.0	16.8

(4098) Thraen a,e,i = 3.22, 0.13, 3 Elements MPC 14608

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	04 19	16 59.56	-20 32.1	2.825	3.578	132.2	12.0	18.7
1990	04 29	16 55.91	-20 26.4					
1990	05 09	16 50.46	-20 18.5	2.657	3.591	153.8	7.1	18.4
1990	05 19	16 43.60	-20 08.7					
1990	05 29	16 35.88	-19 57.6	2.590	3.602	176.0	1.1	18.0
1990	06 08	16 27.99	-19 46.2					
1990	06 18	16 20.60	-19 35.8	2.638	3.613	160.6	5.4	18.3
1990	06 28	16 14.30	-19 27.8					
1990	07 08	16 09.57	-19 23.7	2.793	3.622	139.0	10.6	18.6

1929 PB a,e,i = 2.35, 0.24, 4 Elements MPC 9205

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	04 19	17 00.51	-16 50.8	1.568	2.362	132.1	18.4	18.2
1990	04 29	16 58.80	-16 22.3					
1990	05 09	16 53.98	-15 51.0	1.365	2.309	152.8	11.5	17.6
1990	05 19	16 46.37	-15 18.6					
1990	05 29	16 36.70	-14 47.9	1.246	2.254	172.2	3.5	17.0
1990	06 08	16 26.20	-14 22.4					
1990	06 18	16 16.25	-14 05.6	1.226	2.200	157.6	10.1	17.2
1990	06 28	16 08.16	-14 00.4					
1990	07 08	16 02.91	-14 08.4	1.294	2.145	136.1	19.2	17.6

(4062) Schiaparelli a,e,i = 2.24, 0.15, 7 Elements MPC 14469

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	04 19	17 09.87	-32 37.9	1.824	2.568	128.2	17.9	18.1
1990	04 29	17 06.47	-33 09.8					
1990	05 09	16 59.75	-33 33.0	1.644	2.560	148.6	11.9	17.7
1990	05 19	16 50.15	-33 43.6					
1990	05 29	16 38.57	-33 38.1	1.551	2.549	167.1	5.1	17.3
1990	06 08	16 26.40	-33 15.6					
1990	06 18	16 15.09	-32 38.7	1.562	2.536	158.7	8.4	17.4
1990	06 28	16 05.91	-31 52.9					
1990	07 08	15 59.72	-31 04.8	1.670	2.520	138.1	15.6	17.8

1987 SR12 a,e,i = 2.28, 0.16, 4 Elements MPC 15888

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	04 19	16 57.40	-16 38.5	1.238	2.058	132.9	21.0	17.0
1990	04 29	16 57.26	-15 58.6					
1990	05 09	16 53.67	-15 14.8	1.077	2.028	152.8	13.2	16.5
1990	05 19	16 47.02	-14 30.5					
1990	05 29	16 38.19	-13 49.9	0.993	2.000	171.2	4.4	15.9
1990	06 08	16 28.62	-13 18.0					
1990	06 18	16 19.90	-12 59.2	0.998	1.977	157.9	11.2	16.2
1990	06 28	16 13.39	-12 56.5					
1990	07 08	16 10.06	-13 10.2	1.083	1.956	137.4	20.6	16.6