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Brian G. Marsden, Director

ERRATA.

MPC	Line	
14530	-18	For I. Ivanova, S. Dicova, V. Shkodrov read V. Umlenski, V. Ivanova, A. Stoev, V. Shkodrov
14679	- 7	For I. Ivanova, S. Dicova, V. Shkodrov read V. Umlenski, V. Ivanova, A. Stoev, V. Shkodrov
14834	-19	For I. Ivanova, S. Dicova, V. Shkodrov read V. Umlenski, V. Ivanova, A. Stoev, V. Shkodrov
15456	15	For V. Ivanova, V. Shkodrov read V. Umlenski, V. Ivanova, A. Stoev, V. Shkodrov
16410	21	Add Id. S. Nakano (MPC 15555)

* * * * *

CORRECTED OBSERVATIONS.

The following observations correct those previously published.

Object		Date	UT	R. A. (1950)	Decl.	Reference	Mag.	N Obs.
1951 AU1	*	1951 01	06.28788	07 36 53.37	+35 11 27.8	MPC 4352	16.7	2 760
1951 AU1		1951 01	06.33302	07 36 50.17	+35 11 32.0	MPC 4352		2 760
1953 GA1		1953 04	05.21358	12 23 10.73	-00 38 52.1	MPC 6511		760
1953 GB1		1953 04	05.17259	12 31 44.12	-02 20 00.1	MPC 6511		760
1953 GB1		1953 04	05.21358	12 31 42.19	-02 19 41.8	MPC 6511		760
1953 GC1		1953 04	05.17259	12 29 58.01	-02 05 56.8	MPC 6511		760
1953 GC1		1953 04	05.21358	12 29 55.30	-02 05 43.6	MPC 6511		760
1953 GE1		1953 04	05.21358	12 19 46.26	+00 20 19.5	MPC 5484		760
1957 HO		1957 04	24.83247	14 34 14.30	-14 44 24.6	MPC 9944		3 076
1957 HO		1957 04	24.89774	14 34 11.35	-14 44 18.1	MPC 9944		3 076
1957 HU		1957 04	30.80584	14 31 13.76	-18 45 37.8	MPC 8323	15.4	5 076
1957 HU		1957 04	30.86580	14 31 10.37	-18 45 14.3	MPC 8323		4 076
1957 HB1	*	1957 04	24.83247	14 37 02.35	-19 11 33.2	MPC 2560	16.8	6 076
1957 HB1		1957 04	24.89774	14 36 58.35	-19 11 30.0	MPC 2560		6 076
1957 HB1		1957 04	30.80584	14 30 16.14	-19 05 46.7	MPC 2560	16.2	7 076
1957 HB1		1957 04	30.86580	14 30 11.91	-19 05 43.7	MPC 2560		6 076
1957 JD		1957 04	24.83247	14 36 59.05	-13 11 39.5	MPC 5634	16.7	8 076
1957 JD		1957 04	24.89774	14 36 55.72	-13 11 27.7	MPC 5634		8 076
1957 JP		1957 04	24.96366	15 52 01.99	-17 54 54.9	MPC 2931		1 076
1957 JP		1957 04	25.02315	15 51 59.12	-17 55 11.3	MPC 2931		1 076
1966 BC		1966 01	20.23663	07 58 29.49	+17 18 50.6	MPC 4467		9 760
1990 HJ	*	1990 04	18.64931	13 00 46.08	-02 39 13.7	MPC16322	17.5	372
1990 HJ		1990 04	18.66111	13 00 45.46	-02 39 10.9	MPC16322		372
12		1954 12	17.50417	05 13 22.94	+17 14 41.8	MPC 2294		1 388
85		1964 07	14.01944	19 43 14.63	+00 50 18.7	MPC 2408		A 012

104		1969	12	08.85497	02	55	32.25	+17	52	34.8	MPC 3424		A 020
104		1969	12	08.86813	02	55	31.79	+17	52	35.7	MPC 3424		A 020
223		1929	11	27.25556	04	45	30.47	+23	27	01.5	MPC 7441		690
223		1929	12	03.23610	04	40	02.52	+23	21	24.8	MPC 7441		1 690
256		1934	07	06.37431	20	50	33.96	-00	24	46.9	MPC 4494	13.2	B 690
256		1934	07	07.35903	20	50	01.89	-00	25	53.9	MPC 4494	13.2	B 690
256		1934	07	08.35417	20	49	28.33	-00	27	11.1	MPC 4494	13.2	B 690
287		1972	08	14.96910	22	12	43.71	-12	38	42.4	MPC 3599		A 056
287		1972	08	15.03125	22	12	40.57	-12	39	19.6	MPC 3599		A 056
332		1972	08	14.96910	22	19	15.55	-15	01	38.9	MPC 3599		A 056
332		1972	08	15.03125	22	19	12.59	-15	01	55.1	MPC 3599		A 056
337		1964	04	09.99141	13	06	35.61	-13	09	52.7	MPC 2652		A 012
357		1972	04	18.26760	13	50	51.58	+09	20	10.4	MPC 3322		C 774
357		1972	04	18.34433	13	50	48.30	+09	20	33.2	MPC 3322		C 774
441		1968	09	18.99893	00	46	26.30	+17	07	46.9	MPC 3435		B 020
441		1968	09	19.02109	00	46	25.30	+17	07	42.8	MPC 3435		B 020
442		1961	07	19.94653	20	01	56.71	-17	17	58.3	MPC 2161	13.8	D 076
442		1972	08	14.96910	22	18	16.78	-13	03	42.5	MPC 3599		A 056
442		1972	08	15.03125	22	18	13.42	-13	04	12.5	MPC 3599		A 056
701		1969	12	08.85497	02	43	42.94	+17	45	25.0	MPC 3441		A 020
701		1969	12	08.86813	02	43	42.46	+17	45	22.7	MPC 3441		A 020
702		1961	06	21.72944	19	28	47.02	-25	27	06.0	MPC 2220		1 330
702		1967	07	02.38334	21	01	55.44	-09	14	20.9	MPC 2824		E 669
702		1967	07	16.38959	20	52	01.74	-08	18	04.6	MPC 2824		E 669
704		1940	04	19.04265	12	34	00.66	-29	22	12.4	MPC 619		F 804
704		1963	07	16.33993	21	11	16.2	-02	34	28	MPC 2197		669
712		1934	07	06.37431	20	34	18.74	+00	21	38.1	MPC 4494	11.5	B 690
712		1934	07	07.35903	20	33	37.48	+00	24	33.7	MPC 4494	11.5	B 690
712		1934	07	08.35417	20	32	54.56	+00	27	22.4	MPC 4494	11.5	B 690
712		1951	11	02.52153	00	15	08.44	+13	19	01.7	MPC 2336		330
726		1964	07	14.01944	20	02	08.29	+04	35	44.0	MPC 2409		A 012
729		1956	12	28.13159	04	05	24.65	+00	04	25.5	MPC 1728	13.2	B 839
731		1950	10	07.63814	01	04	13	-03	28.8		MPC 651		377
731		1965	07	28.86910	21	23	50.81	-33	25	46.4	MPC 2557	13.8	076
735		1986	03	11.95152	09	50	05.00	+36	16	49.0	MPC11917		491
736		1943	02	06.04405	09	03	48.78	+16	37	46.3	MPC 3219		G 020
738		1938	11	14.91796	04	26	07.20	+16	49	51.7	MPC 3219		A 020
738		1938	11	14.95455	04	26	05.70	+16	50	00.6	MPC 3219		A 020
738		1952	06	24.87986	19	17	15.23	-19	42	01.8	MPC 866	13.5	078
738		1954	12	17.50417	04	56	46.81	+18	24	43.2	MPC 2299		1 388
739		1965	10	15.77986	01	22	58.97	-19	10	14.0	MPC 2557	14.3	H 076
740		1968	07	30.00000	20	21	13.63	-21	36	32.2	MPC 2937	13.8	076
745		1972	04	18.26760	13	49	06.49	+09	00	17.6	MPC 3322		C 774
745		1972	04	18.34433	13	49	03.52	+09	00	39.6	MPC 3322		C 774
746		1937	10	10.93749	00	20	12.93	+06	27	48.0	MPC 3219		I 020
746		1937	10	10.96877	00	20	10.97	+06	27	48.4	MPC 3219		I 020
751		1970	04	02.00734	14	12	03.58	+07	11	35.0	MPC 5116		A 073
751		1970	04	02.03296	14	12	02.38	+07	11	43.0	MPC 5116		A 073
754		1974	12	13.08194	03	37	15.74	-11	57	27.2	MPC 4295		B 839
754		1974	12	13.11111	03	37	14.67	-11	57	27.1	MPC 4295		B 839
756		1968	09	18.99893	00	46	33.11	+14	20	36.9	MPC 3442		B 020
756		1968	09	19.02109	00	46	32.11	+14	20	28.4	MPC 3442		B 020
758		1959	07	26.88091	20	59	05.96	-20	21	00.8	MPC 1989	11.5	076
760		1950	04	16.98824	12	25	49.32	-19	10	00.7	MPC 564		006
770		1931	02	21.21667	09	54	45.17	+21	06	27.1	MPC 3320		690
770		1955	05	18.65231	16	32	19	-24	27	.6	MPC 1413		377
774		1964	04	09.99141	13	28	32.57	-16	02	45.9	MPC 2652		A 012
783		1972	08	14.96910	22	21	17.78	-12	08	33.5	MPC 3600		A 056
783		1972	08	15.03125	22	21	15.38	-12	09	21.1	MPC 3600		A 056

785	1976	03	04.07760	13	03	53.50	+17 23 30.7	MPC 4317		J	012
785	1976	03	04.11223	13	03	52.65	+17 23 44.2	MPC 4317		J	012
787	1950	04	06.9	11	07	7.7	+02 38	MPC 454			020
787	1958	02	21.18133	10	56	30.38	-02 57 58.4	MPC 3149		K	839
787	1958	02	21.20626	10	56	29.18	-02 57 46.2	MPC 3149		K	839
797	1967	12	04.93845	05	46	02.59	+20 41 16.4	MPC 3341			020
797	1967	12	04.96959	05	46	00.60	+20 41 12.6	MPC 3341			020
800	1968	11	26.89865	01	44	24.19	+18 32 57.8	MPC 3443			020
800	1968	11	26.92566	01	44	23.49	+18 32 49.9	MPC 3443			020
800	1977	04	21.84306	13	41	32.30	-18 14 21.1	MPC 4423	14.8		076
953	1969	12	08.85497	02	55	24.80	+21 16 17.0	MPC 3445		A	020
953	1969	12	08.86813	02	55	24.29	+21 16 16.6	MPC 3445		A	020
1031	1968	09	18.99893	00	41	09.51	+17 55 06.6	MPC 3447		B	020
1031	1968	09	19.02109	00	41	08.75	+17 54 58.4	MPC 3447		B	020
1181	1969	12	08.85497	02	43	56.11	+19 42 23.4	MPC 8948		A	020
1181	1969	12	08.86813	02	43	55.80	+19 42 19.6	MPC 8948		A	020
1199	1968	09	18.99893	00	45	42.30	+14 55 24.1	MPC 3449		B	020
1199	1968	09	19.02109	00	45	41.34	+14 55 20.1	MPC 3449		B	020
1430	1957	04	30.80584	14	17	44.25	-19 17 23.8	MPC 3712	15.7	1	076
1430	1957	04	30.86580	14	17	40.88	-19 17 10.0	MPC 3712			076
1502	1954	05	10.34144	16	08	47.91	-17 27 52.0	MPC 1910			760
1551	1953	04	05.17259	12	16	17.89	+04 50 03.6	MPC 6511			760
1551	1953	04	05.21358	12	16	15.43	+04 50 21.3	MPC 6511			760
1708	1988	08	09.20000	21	31	37.08	-07 12 29.6	MPC13670			688
1708	1988	08	09.23680	21	31	35.10	-07 12 39.4	MPC13670			688
1716	1957	04	30.92685	14	45	54.84	-19 36 49.4	MPC 3168		1	076
1716	1957	04	30.98414	14	45	51.86	-19 36 31.3	MPC 3168			076
1782	1957	04	24.83247	14	24	12.50	-12 10 16.3	MPC 1787	16.2	1	076
1802	1990	02	23.86944	07	32	12.63	+20 39 26.0	MPC16128			033
1824	1957	04	24.83247	14	36	19.04	-16 32 19.5	MPC 3030		1	076
1891	1931	01	10.21701	07	40	18.35	+30 52 52.3	MPC 3243		1	690
1891	1931	01	11.22569	07	39	07.97	+30 51 58.3	MPC 3243			690
1891	1931	01	12.22396	07	38	00.07	+30 51 11.8	MPC 3243	15		690
2269	1929	11	27.25556	05	08	14.30	+25 24 59.1	MPC 5429			690
2269	1929	12	03.23610	05	02	25.42	+25 48 57.6	MPC 5429		1	690
2346	1957	04	30.80584	14	44	49.06	-19 45 38.5	MPC 6161	15.4	1	076
2803	1929	11	27.25556	04	46	29.00	+24 01 56.7	MPC 7441			690
2803	1929	12	03.23610	04	41	03.66	+23 54 55.8	MPC 7441		1	690
3132	1929	11	27.25556	05	02	50.28	+18 18 22.8	MPC 9342			690

Note 1: time originally in error. 2: 1951 AU1 = (3600). 3: 1957 HO = (3396). 4: 1957 HU = (2975). 5 = 4 + 1. 6: 1957 HB1 = (3068). 7 = 1 + 6. 8: 1957 JD = (2673). 9: 1966 BC = (2086). A: date changed by -1 day. B: date changed by +1 day. C: time changed by +10 hours. D: originally given as (422). E: time changed by -1 hour. F: time changed by -20 hours. G: date changed by +1 month. H: date changed by -2 days. I: year originally given as 1936. J: date changed by -1 month. K: month originally given as 09.

* * * * *

DELETED OBSERVATIONS.

The following observations are to be deleted.

Object		Date	UT	R. A. (1950)	Decl.	Reference	Obs.
1929 WS	*	1929 11	27.25555	04 52.34	+27 14.7	AN 271	690
1989 YC6		1989 12	31.04583	07 27 27.09	+13 17 07.9	MPC15807	511

416	1981	10	04.37778	01	35	12.69	-03	39	41.7	MPC 6499	688
416	1981	10	04.41181	01	35	10.90	-03	39	47.3	MPC 6499	688
701	1967	06	06.91236	15	54	25.89	-20	04	13.3	MPC 3340	020
701	1967	06	06.92154	15	54	25.61	-20	04	05.7	MPC 3340	020
704	1942	09	30.83835	23	42	01.31	+28	11	25.7	RI 2418	028
704	1942	10	02.86319	23	40	22.07	+28	00	31.7	RI 2418	028
704	1963	06	28.33708	21	22	09	-04	18.0		MPC 2197	669
707	1967	07	04.98398	17	01	39.58	-23	48	27.4	MPC 3340	020
707	1971	12	23.76408	03	17	45.15	+22	13	42.2	MPC 6378	020
707	1971	12	23.78970	03	17	44.38	+22	13	43.4	MPC 6378	020
708	1955	04	11.49306	11	30	43.99	+02	23	47.4	MPC 2612	388
708	1968	03	22.91809	10	49	34.09	+08	07	14.5	MPC 3441	020
708	1968	03	22.93125	10	49	33.23	+08	07	28.0	MPC 3441	020
710	1968	08	19.04330	21	07	32.03	-16	22	12.7	MPC 3441	020
710	1968	08	19.05440	21	07	31.72	-16	22	24.4	MPC 3441	020
711	1971	02	23.90711	09	23	48.76	+21	00	27.1	MPC 6378	020
711	1971	02	23.91473	09	23	48.49	+21	00	27.5	MPC 6378	020
712	1942	06	20.98802	18	46	26.47	-08	45	51.5	RI 2400	028
712	1942	06	21.96944	18	45	25.03	-08	41	51.7	RI 2400	028
712	1971	07	15.84148	18	48	43.85	-06	28	09.5	MPC 5116	073
712	1971	07	15.84910	18	48	43.63	-06	28	09.7	MPC 5116	073
712	1973	01	12.69647	04	42	42.24	+09	32	49.7	MPC 5166	073
712	1973	01	12.70963	04	42	42.20	+09	32	51.5	MPC 5166	073
713	1967	02	08.08771	10	56	48.91	-05	34	49.4	MPC 3340	020
713	1967	02	08.09671	10	56	48.29	-05	34	49.3	MPC 3340	020
714	1937	11	03.86963	03	14	23.99	+21	02	45.9	MPC 3218	020
714	1937	11	03.90079	03	14	21.90	+21	02	30.0	MPC 3218	020
714	1972	05	31.86573	17	26	04.56	-14	00	06.5	MPC 5166	073
714	1972	05	31.88305	17	26	04.43	-14	00	05.0	MPC 5166	073
715	1966	04	15.91346	13	23	00.08	+00	58	13.2	MPC 3340	020
717	1969	02	13.02731	08	43	47.53	+19	28	21.4	MPC 3441	020
717	1969	02	13.04185	08	43	46.50	+19	28	15.9	MPC 3441	020
717	1969	02	17.91603	08	40	04.63	+19	40	53.8	MPC 3441	020
717	1969	02	17.93058	08	40	03.39	+19	40	48.3	MPC 3441	020
718	1968	04	03.07110	13	59	37.55	-08	58	53.8	MPC 3442	020
718	1968	04	03.08565	13	59	37.30	-08	58	51.8	MPC 3442	020
718	1976	11	17.97431	03	29	55.72	+21	52	57.6	MPC 6233	020
718	1976	11	17.97864	03	29	55.64	+21	52	56.5	MPC 6233	020
722	1975	10	02.12610	02	18	58.51	+09	42	06.8	MPC 4879	020
722	1975	10	02.13709	02	18	57.42	+09	42	07.7	MPC 4879	020
723	1967	07	11.07166	20	58	21.10	-12	28	52.5	MPC 3340	020
723	1967	07	11.09521	20	58	20.61	-12	29	06.2	MPC 3340	020
731	1953	03	18.61436	11	26	52	+17	29.1		MPC 942	377
734	1967	08	03.96089	21	32	15.63	-21	33	37.3	MPC 3340	020
734	1967	08	03.97543	21	32	15.03	-21	33	40.1	MPC 3340	020
735	1957	11	26.98194	03	05.0		+24	46		MPC 1698	990
736	1951	09	28.91670	00	59	28.50	-01	38	50.6	MPC 763	990
736	1951	10	06.92710	00	52	44.47	-02	46	45.7	MPC 763	990
736	1956	01	10.65833	08	52	15.62	+15	51	58.7	MPC 2587	388
737	1941	11	12.85453	02	50	22.67	+02	28	56.0	RI 2320	028
738	1969	11	03.81205	00	24	46.36	-01	58	35.5	MPC 3442	020
738	1969	11	03.82936	00	24	45.43	-01	58	36.2	MPC 3442	020
739	1973	08	07.95698	19	19	24.76	-12	03	58.1	MPC 4879	020
739	1973	08	07.96078	19	19	24.68	-12	03	58.8	MPC 4879	020
740	1938	11	28.00037	05	39	40.72	+13	26	50.2	RI 1953	028
740	1961	03	10.45	10	19.5		+22	04		MPC 2548	388
741	1953	02	02.40694	06	35	10.23	+25	15	00.9	MPC 2205	388
741	1953	02	02.43472	06	35	09.59	+25	15	01.3	MPC 2205	388

741	1955	08	14.64235	21	46	59	-22	21.3	MPC 1491	377
742	1953	12	08.63264	04	40	00.72	+24	33 37.1	MPC 2299	388
742	1972	06	07.89226	15	27	59.87	-17	55 33.2	MPC 5736	020
742	1972	06	07.90334	15	27	59.20	-17	55 34.7	MPC 5736	020
743	1971	08	16.89977	22	18	49.37	-02	24 03.8	MPC 5116	073
743	1971	08	16.91016	22	18	48.86	-02	24 09.5	MPC 5116	073
744	1954	07	07.90	17	35.9		-14	29	MPC 1152	020
745	1968	08	17.04093	22	07	41.85	-18	33 14.6	MPC 3442	020
745	1968	08	17.04993	22	07	41.38	-18	33 06.7	MPC 3442	020
745	1968	08	19.07515	22	06	13.53	-18	48 56.3	MPC 3442	020
745	1968	08	19.10978	22	06	12.61	-18	48 52.9	MPC 3442	020
745	1968	08	30.92693	21	57	45.81	-20	06 22.0	MPC 3442	020
745	1968	08	30.94563	21	57	45.06	-20	06 25.7	MPC 3442	020
745	1971	01	07.05687	08	34	52.38	+16	28 49.9	MPC 6379	020
745	1971	01	07.06553	08	34	52.03	+16	28 55.1	MPC 6379	020
745	1972	05	16.79663	13	31	52.88	+09	47 36.3	MPC 5166	073
745	1972	05	16.81463	13	31	52.30	+09	47 42.5	MPC 5166	073
747	1967	07	08.88891	17	33	45.37	-06	45 55.0	MPC 3340	020
749	1967	06	29.87120	17	02	31.76	-18	28 26.1	MPC 3340	020
749	1967	06	29.89613	17	02	30.79	-18	28 30.7	MPC 3340	020
749	1967	06	30.89592	17	02	04.23	-18	32 01.5	MPC 3340	020
749	1967	06	30.90977	17	02	02.50	-18	32 12.0	MPC 3340	020
749	1967	07	05.90413	16	59	31.57	-18	56 49.8	MPC 3340	020
749	1967	07	05.92352	16	59	30.60	-18	56 56.0	MPC 3340	020
749	1968	11	26.99977	02	57	13.28	+09	25 48.5	MPC 3442	020
749	1968	11	27.02193	02	57	11.82	+09	25 50.7	MPC 3442	020
750	1968	09	19.06337	01	26	01.65	+03	20 48.9	MPC 3442	020
750	1968	09	19.07653	01	26	01.38	+03	20 51.5	MPC 3442	020
755	1971	06	24.94885	19	49	15.89	-16	32 38.2	MPC 5116	073
755	1971	06	24.96235	19	49	15.18	-16	32 34.4	MPC 5116	073
759	1967	03	11.87329	11	31	41.69	-17	49 51.7	MPC 3341	020
759	1967	03	11.88714	11	31	39.51	-17	49 50.8	MPC 3341	020
759	1967	03	15.94480	11	27	24.88	-17	47 21.0	MPC 3341	020
759	1967	03	15.95520	11	27	24.33	-17	47 11.9	MPC 3341	020
760	1968	08	25.87025	19	57	28.44	-28	41 55.9	MPC 3442	020
760	1968	08	25.89033	19	57	51.00	-28	41 56.4	MPC 3442	020
761	1954	02	06.55833	07	22	04.89	+25	15 03.0	MPC 2299	388
761	1969	02	17.97906	10	13	11.05	+13	49 09.3	MPC 3442	020
761	1969	02	17.99360	10	13	10.30	+13	49 13.9	MPC 3442	020
762	1955	01	22.62708	10	27	03.06	+03	04 00.8	MPC 2299	388
764	1956	05	04.49583	12	49	25.15	-17	22 42.1	MPC 2645	388
764	1956	05	04.52014	12	49	23.33	-17	22 36.9	MPC 2645	388
766	1968	03	27.88372	11	08	12.87	+10	03 38.5	MPC 3442	020
766	1968	03	27.90519	11	08	12.01	+10	03 48.8	MPC 3442	020
770	1944	01	15.80810	06	21	09.31	+30	50 46.5	RI 2547	028
770	1944	01	15.87523	06	21	06.08	+30	50 41.7	RI 2547	028
770	1969	10	03.91400	23	01	01.88	-12	53 57.5	MPC 3443	020
770	1969	10	03.93132	23	01	01.14	-12	54 00.9	MPC 3443	020
770	1969	10	06.89196	22	59	02.67	-12	49 21.8	MPC 3443	020
770	1969	10	06.90927	22	59	02.00	-12	49 28.7	MPC 3443	020
776	1956	06	08.63819	16	56	23.12	-20	37 08.3	MPC 2645	388
782	1969	05	23.98661	15	42	59.39	-15	58 00.7	MPC 3443	020
782	1969	05	24.00530	15	42	58.84	-15	57 57.9	MPC 3443	020
783	1967	01	14.03304	07	47	05.44	+14	42 31.9	MPC 3341	020
783	1967	01	14.04406	07	47	04.06	+14	42 42.6	MPC 3341	020
783	1967	02	01.87155	07	28	23.60	+16	06 27.9	MPC 3341	020
783	1967	02	01.91387	07	28	21.86	+16	06 30.6	MPC 3341	020
785	1969	09	22.05411	00	05	52.23	-19	31 18.2	MPC 3443	020
785	1969	09	22.07558	00	05	50.58	-19	31 11.7	MPC 3443	020

788	1971	11	11.68575	00	38	53.38	-02	48	32.8	MPC 5117	073
788	1971	11	11.69545	00	38	53.35	-02	48	31.4	MPC 5117	073
794	1967	01	14.03304	07	43	26.69	+16	03	45.8	MPC 3341	020
794	1967	02	01.87155	07	29	20.55	+16	52	10.1	MPC 3341	020
794	1967	02	01.91387	07	29	19.06	+16	52	21.7	MPC 3341	020
794	1968	02	27.93875	10	48	46.76	+07	13	25.7	MPC 3443	020
794	1968	02	27.95329	10	48	46.22	+07	13	32.6	MPC 3443	020
798	1969	04	23.98158	13	39	50.83	-11	45	48.9	MPC 3443	020
798	1969	04	23.99613	13	39	50.08	-11	45	42.1	MPC 3443	020
799	1969	09	01.92449	21	06	49.98	-13	21	47.8	MPC 3443	020
799	1969	09	01.93211	21	06	48.89	-13	21	53.1	MPC 3443	020
800	1955	11	11.45833	01	45	38.98	+19	02	03.7	MPC 2587	388

* * * * *

IDENTIFICATION CHANGES.

Continuation to MPC 16292-16293.

Object		Date	UT	R. A. (1950)	Decl.	Old desig.	Mag.	Obs.
A904 LA	*	1904 06	11.96965	14 35 54.54	-18 47 31.8	718		024
A913 EG	*	1913 03	11.83823	10 29 42.82	+20 24 31.7	745		024
A921 GF	*	1921 04	03.96155	14 01 23.20	-07 00 02.7	793		024
1928 YA	*	1928 12	31.80014	05 08 19.14	+38 34 50.1	784		024
1933 VG	*	1933 11	09.79130	01 43 46.75	+07 07 09.3	755	13.3	078
1935 FW	*	1935 03	30.03877	13 48 06.26	-08 01 51.7	721		020
1935 FW		1935 03	30.09209	13 48 04.35	-08 01 40.1	721		020
1935 FX	*	1935 03	30.03877	13 51 50.04	-07 59 11.9	62		020
1935 FX		1935 03	30.09209	13 51 48.12	-07 59 04.7	62		020
1939 LJ	*	1939 06	12.81	17 29.9	-17 35	790	11.7	119
1940 OB	*	1940 07	23.82	20 04.6	-02 58	714	11.6	119
1940 UE	*	1940 10	23.917	23 27.3	+26 54	790	12.5	031
1940 YR	*	1940 12	22.86	03 52.7	+03 29	745	13.6	012
1942 KD	*	1942 05	22.90	16 27.1	+00 04	727	13.3	119
1942 TK	*	1942 10	03.73	23 11.1	-04 51	761	13.7	186
1944 QN	*	1944 08	18.904	21 43.5	-12 59	716	13.8	078
1947 QH	*	1947 08	21.996	22 49 41	-17 16.3	727		006
1947 UL	*	1947 10	21.98580	02 26 27.02	+21 29 12.5	712		047
1948 FC	*	1948 03	31.85261	10 52 26.3	+19 46 02	745	12.7	085
1948 OK	*	1948 07	30.23905	21 39 26.14	-09 16 34.8	707		839
1948 OK		1948 07	30.28060	21 39 24.05	-09 16 37.7	707		839
1948 PK1	*	1948 08	05.95921	21 21 58.47	-20 03 19.3	709		839
1948 PK1		1948 08	05.99380	21 21 56.30	-20 03 12.3	709		839
1949 KG1	*	1949 05	20.84521	15 33 37	-43 52.8	702	12.0	078
1950 RS1	*	1950 09	11.95267	23 33 27.5	-03 33 06	717	12.3	085
1950 RS1		1950 09	14.93250	23 31 06.5	-03 42 59	717	12.3	085
1950 RS1		1950 09	19.86109	23 27 12.3	-03 59 20	717	12.0	085
1950 SX	*	1950 09	16.92393	23 20 47.03	-03 49 50.1	717		012
1951 VJ	*	1951 11	01.94236	04 08.5	+05 56	783	13.0	094
1951 YW2	*	1951 12	19.45833	03 51 24.84	+34 52 11.1	793		388
1952 FP1	*	1952 03	27.972	13 59 08.9	-08 26 16	718		075
1952 HK4	*	1952 04	18.0	15 21.9	-11 26	794		020
1952 HL4	*	1952 04	25.08170	15 23 04.13	-11 01 44.4	794		012
1952 QM1	*	1952 08	19.968	22 36.3	+01 18	760	12.0	094
1952 QN1	*	1952 08	24.82639	22 33 20.19	-11 15 54.4	708	14.0	078
1953 EY1	*	1953 03	09.98314	11 24 47.41	+03 43 05.1	717		012
1953 EY1		1953 03	16.96439	11 20 22.08	+04 18 42.0	717		012

1953	EZ1	*	1953	03	15.90	11	39.9	+07	46	744		056
1953	TR3	*	1953	10	06.75	01	18.8	+05	32	794		210
1953	XS1	*	1953	12	01.17916	02	38 19.33	+15	33 14.7	743	14.4	760
1953	XS1		1953	12	01.22499	02	38 17.73	+15	32 57.6	743		760
1953	XT1	*	1953	12	13.94750	04	25 06	+22	54.1	742		119
1954	MX	*	1954	06	24.96285	17	48 36.59	-14	32 07.7	744		024
1954	QW	*	1954	08	31.9	21	33.5	+04	25	789		020
1955	DX	*	1955	02	27.93657	09	09 17.76	+16	29 14.1	710		012
1956	KE	*	1956	05	18.00694	17	15 50.87	-19	38 06.6	776	12.0	076
1956	NF	*	1956	07	08.82292	18	04 58	-07	59	714		119
1959	GB1	*	1959	04	02.93889	14	32 11.78	-45	21 00.1	759	13.8	076
1959	OG	*	1959	07	31.92222	21	44 49.71	-46	11 16.1	705	13.3	076
1960	OJ	*	1960	07	29.96535	19	37 51.67	-17	00 01.2	744		024
1961	CG1	*	1961	02	13.69449	10	07 16.20	+09	46 57.7	709		334
1961	CG1		1961	02	16.57483	10	03 02.95	+09	50 02.2	709		330
1961	DO	*	1961	02	20.81508	12	19 50.74	+03	40 24.9	770		334
1961	PF	*	1961	08	08.90208	20	40 15.52	-35	19 34.9	733	15.0	076
1963	KK	*	1963	05	25.89931	16	55 47.50	-28	45 14.9	718	13.8	076
1963	KL	*	1963	05	25.89931	17	00 23.06	-28	58 30.5	769	13.5	076
1963	KM	*	1963	05	31.00972	17	42 20.05	-30	52 24.2	721	15.5	076
1964	CL	*	1964	02	12.52	09	42.7	+14	15	744	14.5	388
1964	CL		1964	02	12.55	09	42.5	+14	16	744	14.5	388
1968	MD	*	1968	06	19.88333	18	10 54.16	-42	56 29.2	706	14.8	076
1968	PB	*	1968	08	14.84444	21	16 34.60	-13	34 59.4	759	14.0	076
1969	PC1	*	1969	08	07.86667	21	17 54.76	-47	31 31.2	705	13.5	076
1970	VD	*	1970	11	01.78800	01	05 23.49	+09	45 58.0	708		095
1971	ND	*	1971	07	15.86111	20	27 10.23	-17	12 46.7	748	15.9	076
1972	CG	*	1972	02	13.88611	10	06 23.05	-01	49 43.6	777	15.3	076
1972	VF2	*	1972	11	11.13194	03	42 17.32	+01	06 26.2	787		788
1972	VF2		1972	11	11.17292	03	42 20.89	+01	06 45.3	787		788
1975	XM7	*	1975	12	07.00869	05	21 30.83	+28	32 18.0	708	15.0	026
1976	WD1	*	1976	11	17.97572	03	11 32.62	+16	51 24.1	712		057
1978	GH5	*	1978	04	07.92487	13	23 00.09	-04	09 27.6	1978 EM3	17.5	095
1980	TN15	*	1980	10	05.90469	00	59 53.50	+02	06 06.3	1980 TB1		046
1980	TN15		1980	10	05.91887	00	59 52.86	+02	06 00.4	1980 TB1		046
1989	VW1	*	1989	11	05.94684	03	14 17.48	+14	17 50.7	1989 UN3		494
1989	WX4	*	1989	11	17.42188	02	57 54.09	+11	57 26.3	1989 VS	16.0	400
1989	WX4		1989	11	17.43785	02	57 53.08	+11	57 30.6	1989 VS		400
1989	YH8	*	1989	12	31.04583	07	30 02.19	+14	52 13.0	1989 YE6		511
1989	YH8		1989	12	31.06806	07	30 00.95	+14	52 26.4	1989 YE6		511

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IDENTIFICATIONS.

The following list of identifications with numbered minor planets continues that on MPC 16293.

			Note				Note				Note
1928	YA	= (859)	1	1933	VG	= (680)	1	1935	FW	= (62)	1
1935	FX	= (721)	1	1944	QN	= (2084)	1	1950	RS1	= (35)	1
1950	SX	= (1672)	1	1951	VJ	= (256)	2	1952	HL4	= (799)	1
1952	QM1	= (762)	1	1952	QN1	= (1677)	1	1953	EZ1	= (210)	1
1953	XS1	= (378)	1	1954	MX	= (2375)	2	1960	OJ	= (2141)	1
1961	PF	= (161)	1	1962	WA1	= (3478)	2	1963	KK	= (769)	1
1963	KL	= (718)	1	1964	CL	= (1085)	1	1968	PB	= (465)	1
1972	CG	= (999)	1								

Note 1: identification by D. W. E. Green. 2: by G. V. Williams.

OBSERVATIONS OF COMETS.

Observations are published here for the following observatory codes:

010 Caussols. 0.9-m Schmidt. Observers A. Maury and Q. Wang. Measured by C. Pollas.
026 Zimmerwald. 0.4-m Schmidt telescope. Observers P. Wild and T. Schildknecht. Measured by U. Hugentobler and P. Wild.
046 Klet. Observers A. Mrkos and Z. Vavrova.
071 Rozhen. Observers V. G. Shkodrov, V. G. Ivanova, Ch. Dinev, V. I. Umlenski and A. Stoev. Measured by V. I. Umlenski.
076 Hartbeespoort. Observers J. A. Bruwer and T. Gehrels. Measured by B. A. Skiff.
293 Burlington remote site. Observer T. Handley.
372 Geisei. Observer T. Seki. From Orient. Astron. Assoc. Comet Bull.
381 Kiso. 1.05-m f/3.1 Schmidt telescope (+ CCD). Observers T. Aoki, M. Hamabe, S. Ichikawa, T. Nakamura, G. Sasaki and Y. Taniguchi. Measured by G. Sasaki.
385 Oohira. 0.31-m f/5.6 reflector. Observers W. Kakei, M. Kizawa and T. Urata. Measured by T. Urata.
392 JCPM Sapporo Station. 0.30-m f/2.7 Schmidt. Observer K. Watanabe.
400 Kitami. 0.20-m f/4.0 hyperboloid astrocamera. Observer K. Endate. Measured by K. Watanabe.
402 Dynic Astronomical Observatory. 0.6-m reflector. Observer A. Sugie.
404 Yamamoto. 0.2-m reflector. Observer S. Otomo. Measured by M. Koishikawa. Communicated by J. Ossaka.
413 Siding Spring. Anglo-Australian Telescope + CCD. Observers W. J. Couch and C. Pennypacker. Reduction by R. H. McNaught. Assistance from E. M. Sadler.
415 Kambah, near Canberra. Observer D. Herald.
503 Cambridge. Observer J. D. Shanklin.
657 Victoria. Observers J. Tatum, D. Balam and J. Belmas.
675 Palomar. 0.46-m Schmidt. Observers E. Helin, H. E. Holt, K. Lawrence, B. Roman, C. S. Shoemaker and E. M. Shoemaker.
691 University of Arizona, Kitt Peak. 0.91-m Spacewatch telescope, CCD in scanning mode. Observer J. V. Scotti.
801 Oak Ridge Observatory. 1.5-m reflector + CCD. Observers R. E. McCrosky, C.-Y. Shao and J. M. Zajac.
877 Okutama. 0.30-m f/3.8 hyperboloid astrocamera. Observer T. Hioki.
881 Toyota. 0.31-m f/5.7 reflector. Observers K. Suzuki and T. Urata.
885 JCPM Yakiimo Station. 0.16-m f/3.3 hyperboloid astrocamera. Observer A. Natori. Measured by T. Urata.
897 YGCO Chiyoda Station. 0.25-m f/3.4 Wright-Schmidt camera. Observer T. Kojima.
974 Genoa. Observers G. Conte, L. Maccarini and R. Alfano.

Object	Date	UT	R. A. (1950)	Decl.	Mag.	N Obs.
		Comet Wirtanen (1957 VI)				
/1957 VI	1957	04 30.92685	15 11 23.31	-21 24 21.9		076
/1957 VI	1957	04 30.98414	15 11 21.85	-21 23 57.6		076
		Periodic Comet Schwassmann-Wachmann 1				
/1974 II	1989	09 01.99670	23 52 46.00	+07 57 58.6		071
/1974 II	1989	09 02.04184	23 52 45.10	+07 57 54.8		071
/1974 II	1989	09 02.95741	23 52 22.50	+07 56 37.7		071
/1974 II	1989	09 02.99977	23 52 21.40	+07 56 34.0		071

Periodic Comet Russell 3

/1989d	1990	05	26.68958	16	04	01.60	-22	32	50.4			372
/1989d	1990	05	28.65660	16	02	41.90	-22	15	09.1	16	T	372

Comet Okazaki-Levy-Rudenko (1989r)

/1989r	1989	11	30.74690	12	47	54.56	-31	24	16.6			413
/1989r	1989	11	30.74818	12	47	54.36	-31	24	33.1			413
/1989r	1989	12	01.73012	12	45	30.15	-34	53	26.5			413
/1989r	1989	12	01.73149	12	45	29.95	-34	53	43.1			413

Comet Austin (1989c1)

/1989c1	1990	01	26.40122	00	36	48.29	-40	04	42.3		1	372
/1989c1	1990	04	23.37465	00	45	28.99	+35	33	55.6			293
/1989c1	1990	04	24.78941	00	38	29.23	+35	48	26.7			897
/1989c1	1990	04	24.79155	00	38	28.66	+35	48	27.1			897
/1989c1	1990	04	29.11921	00	16	00.25	+35	55	44.5	4.4	T	974
/1989c1	1990	04	29.12587	00	15	57.88	+35	55	42.6			974
/1989c1	1990	04	29.75442	00	12	32.64	+35	52	26.7			381
/1989c1	1990	04	29.77956	00	12	24.26	+35	52	18.9			381
/1989c1	1990	04	30.78472	00	06	48.10	+35	44	49.8			897
/1989c1	1990	05	03.09537	23	53	19.19	+35	16	54.4			046
/1989c1	1990	05	03.09641	23	53	18.81	+35	16	52.8			046
/1989c1	1990	05	04.09074	23	47	11.61	+35	00	08.7			046
/1989c1	1990	05	04.09144	23	47	11.29	+35	00	07.3			046
/1989c1	1990	05	05.73750	23	36	32.87	+34	25	30.7	5.0	T	392
/1989c1	1990	05	05.79510	23	36	09.61	+34	24	11.7	6	T	372
/1989c1	1990	05	05.80621	23	36	05.15	+34	23	55.8			372
/1989c1	1990	05	17.41067	21	49	10.29	+23	21	57.6			657
/1989c1	1990	05	20.02093	21	13	50.94	+17	52	43.1			046
/1989c1	1990	05	20.02162	21	13	50.28	+17	52	38.9			046
/1989c1	1990	05	20.83229	21	01	54.63	+15	51	34.6			413
/1989c1	1990	05	20.83442	21	01	52.71	+15	51	14.6			413
/1989c1	1990	05	21.69326	20	48	52.26	+13	31	34.9			381
/1989c1	1990	05	21.69584	20	48	49.82	+13	31	09.1			381
/1989c1	1990	05	21.69783	20	48	47.99	+13	30	48.9			381
/1989c1	1990	05	21.70098	20	48	45.02	+13	30	17.1			381
/1989c1	1990	05	21.72399	20	48	23.53	+13	26	25.9			381
/1989c1	1990	05	23.01962	20	27	59.75	+09	38	27.5			046
/1989c1	1990	05	23.04558	20	27	35.00	+09	33	41.8			503
/1989c1	1990	05	24.05017	20	11	19.06	+06	25	06.5			046
/1989c1	1990	05	24.05087	20	11	18.34	+06	24	56.6			046
/1989c1	1990	05	25.06201	19	54	43.17	+03	08	21.3			503
/1989c1	1990	05	25.67118	19	44	41.20	+01	08	28.1	5.5	T	392
/1989c1	1990	05	25.68322	19	44	29.33	+01	06	06.8			392
/1989c1	1990	05	26.03420	19	38	42.90	-00	03	04.9			046
/1989c1	1990	05	26.03524	19	38	41.82	-00	03	16.9			046
/1989c1	1990	05	26.34856	19	33	32.49	-01	04	48.7			801
/1989c1	1990	05	26.34971	19	33	31.34	-01	05	01.9			801
/1989c1	1990	05	26.66296	19	28	24.90	-02	06	13.4			897
/1989c1	1990	05	26.67463	19	28	13.16	-02	07	46.6			415
/1989c1	1990	05	26.67831	19	28	09.57	-02	08	29.9			415
/1989c1	1990	05	26.69942	19	27	48.84	-02	13	20.5			897
/1989c1	1990	05	26.70579	19	27	42.37	-02	14	35.0			897
/1989c1	1990	05	26.71534	19	27	32.70	-02	15	45.9			413
/1989c1	1990	05	26.71979	19	27	28.58	-02	17	17.8			402
/1989c1	1990	05	26.74323	19	27	05.52	-02	21	50.3	6	T	372
/1989c1	1990	05	26.74453	19	27	04.22	-02	22	06.0			372
/1989c1	1990	05	26.99743	19	22	58.09	-03	11	14.9			503
/1989c1	1990	05	27.02039	19	22	35.23	-03	15	40.6			046

/1989c1	1990	05	28.02815	19	06	22.34	-06	26	45.3			046
/1989c1	1990	05	28.02919	19	06	21.43	-06	26	55.8			046
/1989c1	1990	05	28.30678	19	01	57.25	-07	17	58.6			801
/1989c1	1990	05	28.31366	19	01	50.63	-07	19	14.2			801
/1989c1	1990	05	28.67002	18	56	15.69	-08	23	41.5	5.5	T	392
/1989c1	1990	05	28.67627	18	56	09.63	-08	24	49.0			392
/1989c1	1990	05	29.99898	18	36	01.62	-12	10	35.3			046
/1989c1	1990	05	30.00037	18	36	00.39	-12	10	48.3			046
/1989c1	1990	05	30.07156	18	34	56.85	-12	22	17.6			026
/1989c1	1990	06	01.03472	18	07	18.15	-17	11	08.5			026
/1989c1	1990	06	02.73149	17	45	45.92	-20	36	15.1	7	T	372
/1989c1	1990	06	05.72691	17	13	19.30	-25	09	15.6	7.5	T	372
/1989c1	1990	06	13.48785	16	17	02.96	-31	16	14.3			413
/1989c1	1990	06	14.56146	16	11	39.08	-31	44	31.0			413
/1989c1	1990	06	15.58984	16	06	54.36	-32	08	27.5			413

Periodic Comet Schwassmann-Wachmann 3

/1989d1	1990	03	22.38104	16	50	37.80	-00	46	58.7			801
/1989d1	1990	03	22.38505	16	50	39.22	-00	47	02.3			801
/1989d1	1990	03	22.38686	16	50	39.83	-00	47	04.6			801
/1989d1	1990	03	24.39159	17	01	49.49	-01	11	11.4			801
/1989d1	1990	03	26.39999	17	13	35.68	-01	37	03.8			801
/1989d1	1990	03	26.40282	17	13	36.55	-01	37	05.2			801
/1989d1	1990	03	29.36403	17	32	05.18	-02	18	24.9			801
/1989d1	1990	03	29.36639	17	32	06.08	-02	18	26.9			801
/1989d1	1990	04	23.36637	20	49	44.36	-08	53	20.5			801

Comet Skorichenko-George (1989e1)

/1989e1	1990	02	23.77049	23	04	43.75	+38	47	51.4			046
/1989e1	1990	02	24.75608	23	08	49.98	+39	00	07.3			046
/1989e1	1990	02	24.75764	23	08	50.23	+39	00	09.2			046
/1989e1	1990	05	15.46632	04	51	46.96	+33	08	29.2	15	T	372
/1989e1	1990	05	15.47014	04	51	47.64	+33	08	23.1			372

Periodic Comet Wild 4

/1990a	1990	03	22.09326	08	56	12.71	+21	58	32.9			801
/1990a	1990	03	27.11525	08	56	39.90	+21	41	31.7			801
/1990a	1990	04	12.83542	09	04	21.38	+20	19	37.5			046
/1990a	1990	04	12.84062	09	04	21.63	+20	19	35.8			046
/1990a	1990	04	13.82066	09	05	05.07	+20	13	41.6			046
/1990a	1990	04	13.82517	09	05	05.31	+20	13	39.9			046
/1990a	1990	04	14.84444	09	05	52.14	+20	07	23.3			026
/1990a	1990	04	17.84931	09	08	20.60	+19	48	11.8			046
/1990a	1990	04	17.85556	09	08	20.99	+19	48	08.5			046
/1990a	1990	04	19.84896	09	10	07.56	+19	34	50.4			026
/1990a	1990	04	23.06061	09	13	12.58	+19	12	23.1			801
/1990a	1990	04	23.06779	09	13	13.00	+19	12	19.9			801
/1990a	1990	04	23.50191	09	13	39.04	+19	09	13.1	13	T	897
/1990a	1990	04	23.52332	09	13	40.43	+19	09	03.3			897
/1990a	1990	04	24.02173	09	14	11.06	+19	05	25.9			801
/1990a	1990	04	24.04528	09	14	12.28	+19	05	14.2			801
/1990a	1990	04	28.87917	09	19	26.42	+18	28	40.8			026
/1990a	1990	04	29.60486	09	20	16.01	+18	22	57.9			372
/1990a	1990	04	29.84653	09	20	33.13	+18	21	03.0			026
/1990a	1990	05	15.50787	09	41	07.50	+16	03	22.1	13	T	897
/1990a	1990	05	16.92500	09	43	11.71	+15	49	34.7			026
/1990a	1990	05	21.87083	09	50	39.21	+15	00	06.2			026
/1990a	1990	05	25.89028	09	56	57.88	+14	18	03.8			026
/1990a	1990	05	26.49271	09	57	55.42	+14	11	39.9	15.5	T	372

Comet Cernis-Kiuchi-Nakamura (1990b)

/1990b	1990	03	19.44479	01	20	23.71	+45	47	15.9				372
/1990b	1990	03	19.46580	01	20	31.18	+45	47	57.1		8.5	T	372
/1990b	1990	03	25.43275	02	00	04.56	+48	49	09.1				877
/1990b	1990	03	25.43923	02	00	07.22	+48	49	20.9				877
/1990b	1990	03	26.00595	02	04	14.41	+49	04	15.7				801
/1990b	1990	03	26.00877	02	04	15.63	+49	04	19.9				801
/1990b	1990	03	26.45017	02	07	30.64	+49	15	42.7			2	372
/1990b	1990	03	26.45313	02	07	31.88	+49	15	46.7				372
/1990b	1990	03	27.99663	02	19	12.11	+49	53	16.9				801
/1990b	1990	03	28.00403	02	19	15.54	+49	53	28.0				801
/1990b	1990	03	31.85804	02	50	14.77	+51	09	11.0				503
/1990b	1990	04	12.81181	04	35	51.41	+51	35	48.7				046
/1990b	1990	04	13.80451	04	44	35.15	+51	22	40.1				046
/1990b	1990	04	13.80764	04	44	36.83	+51	22	37.7				046
/1990b	1990	04	16.45625	05	07	22.33	+50	36	46.1		16	T	372
/1990b	1990	04	17.83264	05	18	50.41	+50	07	02.7				046
/1990b	1990	04	17.83611	05	18	51.92	+50	06	58.6				046
/1990b	1990	04	23.45075	06	02	17.45	+47	30	47.1		13	T	897
/1990b	1990	04	23.49468	06	02	36.49	+47	29	22.8				897
/1990b	1990	05	15.53125	08	00	07.43	+33	15	23.1		17	T	372
/1990b	1990	05	26.48611	08	36	51.91	+26	21	33.7		17	T	372
/1990b	1990	05	26.51354	08	36	56.83	+26	20	34.8				372
/1990b	1990	05	28.07238	08	41	28.56	+25	25	27.6				801

Comet Levy (1990c)

/1990c	1990	05	21.74792	23	55	08.70	+27	35	32.8		11	T	372
/1990c	1990	05	21.78854	23	55	10.08	+27	35	40.2				372
/1990c	1990	05	22.47222	23	55	33.53	+27	37	47.0				675
/1990c	1990	05	22.68912	23	55	40.62	+27	38	26.9		10	T	404
/1990c	1990	05	22.7486	23	55	42.50	+27	38	37.4				404
/1990c	1990	05	22.75081	23	55	42.57	+27	38	38.9				404
/1990c	1990	05	23.03779	23	55	52.16	+27	39	32.6				046
/1990c	1990	05	23.03779	23	55	52.16	+27	39	32.6		11	T	046
/1990c	1990	05	23.04306	23	55	52.44	+27	39	33.7		11	T	046
/1990c	1990	05	23.04306	23	55	52.44	+27	39	33.7				046
/1990c	1990	05	23.10278	23	55	54.61	+27	39	44.8				010
/1990c	1990	05	24.06111	23	56	26.23	+27	42	43.7				046
/1990c	1990	05	24.74774	23	56	48.63	+27	44	52.5		11	T	372
/1990c	1990	05	25.06839	23	56	58.96	+27	45	49.9				503
/1990c	1990	05	25.46510	23	57	11.97	+27	47	06.8				675
/1990c	1990	05	25.65486	23	57	17.78	+27	47	40.8		11	T	400
/1990c	1990	05	25.66319	23	57	17.90	+27	47	42.4				400
/1990c	1990	05	25.67708	23	57	18.46	+27	47	44.5				400
/1990c	1990	05	25.71285	23	57	19.73	+27	47	53.5				402
/1990c	1990	05	25.72292	23	57	20.03	+27	47	55.4				402
/1990c	1990	05	26.04687	23	57	30.40	+27	48	55.6				046
/1990c	1990	05	26.33161	23	57	39.35	+27	49	50.8				801
/1990c	1990	05	26.33525	23	57	39.46	+27	49	51.4				801
/1990c	1990	05	26.33906	23	57	39.59	+27	49	52.3				801
/1990c	1990	05	26.34070	23	57	39.64	+27	49	52.7				801
/1990c	1990	05	26.40382	23	57	41.72	+27	50	03.9				657
/1990c	1990	05	26.40382	23	57	41.72	+27	50	03.9				657
/1990c	1990	05	26.47917	23	57	44.09	+27	50	17.5				675
/1990c	1990	05	26.66667	23	57	50.01	+27	50	53.7		10	T	400
/1990c	1990	05	26.68056	23	57	50.42	+27	50	55.5				400
/1990c	1990	05	26.73229	23	57	51.91	+27	51	05.5				402
/1990c	1990	05	26.73785	23	57	52.15	+27	51	06.9		10	T	897
/1990c	1990	05	26.73854	23	57	51.67	+27	51	09.2				877

/1990c	1990	05	26.74201	23	57	52.25	+27	51	08.5		402
/1990c	1990	05	26.74699	23	57	52.36	+27	51	09.1		897
/1990c	1990	05	26.74895	23	57	52.45	+27	51	10.6	10.5T	372
/1990c	1990	05	26.75972	23	57	52.80	+27	51	11.2		897
/1990c	1990	05	26.76429	23	57	52.36	+27	51	13.3		877
/1990c	1990	05	26.78420	23	57	53.54	+27	51	15.9		372
/1990c	1990	05	26.81968	23	57	54.62	+27	51	27.4		413
/1990c	1990	05	27.04204	23	58	01.58	+27	52	05.2		046
/1990c	1990	05	27.04308	23	58	01.68	+27	52	04.6		046
/1990c	1990	05	27.73507	23	58	23.14	+27	54	15.2		885
/1990c	1990	05	28.03787	23	58	32.30	+27	55	13.2		046
/1990c	1990	05	28.04100	23	58	32.34	+27	55	13.3		046
/1990c	1990	05	28.70174	23	58	52.29	+27	57	18.0	11 T	392
/1990c	1990	05	28.70938	23	58	52.49	+27	57	21.6		402
/1990c	1990	05	28.71042	23	58	52.75	+27	57	21.0		392
/1990c	1990	05	28.71736	23	58	52.76	+27	57	21.8		372
/1990c	1990	05	28.71840	23	58	52.83	+27	57	23.0		402
/1990c	1990	05	28.74149	23	58	53.28	+27	57	25.8		885
/1990c	1990	05	28.74896	23	58	53.55	+27	57	29.5		885
/1990c	1990	05	28.77414	23	58	54.44	+27	57	33.3		372
/1990c	1990	05	29.73316	23	59	22.79	+28	00	33.1		885
/1990c	1990	05	29.73733	23	59	22.91	+28	00	35.9		885
/1990c	1990	05	30.02988	23	59	31.63	+28	01	31.4		046
/1990c	1990	05	30.03301	23	59	31.71	+28	01	30.8		046
/1990c	1990	05	30.08403	23	59	33.16	+28	01	41.7		026
/1990c	1990	06	01.07222	00	00	29.50	+28	07	59.6		026
/1990c	1990	06	02.71076	00	01	13.79	+28	13	13.8	11 T	881
/1990c	1990	06	02.71771	00	01	13.98	+28	13	15.1		881
/1990c	1990	06	02.72396	00	01	14.11	+28	13	15.9		881
/1990c	1990	06	02.73837	00	01	14.64	+28	13	18.4	9.8T	372
/1990c	1990	06	02.74278	00	01	14.71	+28	13	19.2		372
/1990c	1990	06	02.78444	00	01	15.80	+28	13	27.8		372
/1990c	1990	06	05.73218	00	02	30.08	+28	22	45.5		897
/1990c	1990	06	05.74091	00	02	30.21	+28	22	47.5	9.0T	897
/1990c	1990	06	05.74722	00	02	30.34	+28	22	49.0		372
/1990c	1990	06	05.74913	00	02	30.40	+28	22	50.1		897
/1990c	1990	06	05.78701	00	02	31.35	+28	22	57.1		372
/1990c	1990	06	17.65278	00	06	05.83	+28	59	01.3		402
/1990c	1990	06	18.70150	00	06	16.98	+29	02	01.3		385
/1990c	1990	06	18.70521	00	06	16.93	+29	02	01.8		385
/1990c	1990	06	18.71424	00	06	16.99	+29	02	03.1		385

Periodic Comet Peters-Hartley

/1990d	1990	05	26.44271	11	51	27.91	-38	55	48.2	14 T	413
/1990d	1990	05	29.59606	11	58	22.56	-37	30	58.9		413
/1990d	1990	06	15.44177	12	39	39.96	-30	00	24.0		413

Periodic Comet Wolf-Harrington

/1990e	1990	06	14.38469	23	04	18.46	+14	56	06.5		691
/1990e	1990	06	14.40553	23	04	19.23	+14	56	19.7		691
/1990e	1990	06	14.41287	23	04	19.45	+14	56	24.6	3	691
/1990e	1990	06	14.42689	23	04	20.05	+14	56	33.8	19.3T	691
/1990e	1990	06	15.44332	23	04	59.59	+15	07	49.2		691
/1990e	1990	06	15.45372	23	04	59.96	+15	07	55.0		691

Periodic Comet Honda-Mrkos-Pajdusakova

/1990f	1990	06	17.41532	22	24	08.59	-13	46	48.4	19.5T	691
/1990f	1990	06	17.42138	22	24	09.44	-13	46	45.1		691
/1990f	1990	06	17.43484	22	24	11.41	-13	46	39.4		691

/1990f	1990 06 17.44745	22 24 13.28	-13 46 31.8			691
/1990f	1990 06 17.45575	22 24 14.48	-13 46 28.6			691
/1990f	1990 06 18.43567	22 26 43.36	-13 38 16.7			691
/1990f	1990 06 18.44252	22 26 44.51	-13 38 13.5		19.4T	691
/1990f	1990 06 18.44913	22 26 45.54	-13 38 10.7			691

Note 1: correction to MPC 16300. 2: correction to MPC 16302. 3: 10" tail in p.a. 250 .

* * * * *

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.

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

1989 UB8	1989 10 27.88889	02 33 40.37	+14 18 19.0		17.2	017
1989 UB8	1989 10 27.93472	02 33 38.25	+14 18 01.2			017

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

1986 CS1		1990 03 17.91493	11 27 54.84	+03 52 17.2			18.2		033
1989 YC6		1990 01 24.87014	07 01 12.19	+15 27 22.3			19.4		033
1989 YC6		1990 01 24.97083	07 01 06.71	+15 27 53.0					033
1989 YE6		1990 01 24.87014	07 02 35.03	+14 11 25.5			18.7		033
1989 YE6		1990 01 24.97083	07 02 29.28	+14 11 22.2					033
1990 FM2	*	1990 03 17.91493	11 30 41.88	+03 56 34.8			18.8		033
1990 FM2		1990 03 18.93438	11 29 59.53	+04 04 05.7					033
1990 FN2	*	1990 03 17.91493	11 31 01.28	+03 16 12.5			18.1		033
1990 FN2		1990 03 18.93438	11 30 16.06	+03 21 03.0					033
1990 FO2	*	1990 03 17.91493	11 31 26.05	+06 18 00.3			17.5		033
1990 FO2		1990 03 18.93438	11 30 29.72	+06 18 58.1					033
1990 FP2	*	1990 03 17.91493	11 32 46.14	+05 01 00.1			18.9		033
1990 FP2		1990 03 18.93438	11 31 50.21	+05 10 18.9					033
1990 FQ2	*	1990 03 17.91493	11 33 02.55	+05 58 47.2			19.1		033
1990 FQ2		1990 03 18.93438	11 31 59.20	+05 58 48.7					033
1990 FR2	*	1990 03 17.91493	11 33 40.00	+04 49 03.1			18.6		033
1990 FR2		1990 03 18.93438	11 32 48.02	+04 59 24.4					033
1990 FS2	*	1990 03 17.91493	11 33 56.83	+06 03 00.7			18.3		033
1990 FS2		1990 03 18.93438	11 33 12.49	+06 15 53.8					033
1990 FT2	*	1990 03 17.91493	11 34 00.31	+05 22 31.3			18.7		033
1990 FT2		1990 03 18.93438	11 33 02.37	+05 25 01.5					033
1990 FU2	*	1990 03 17.91493	11 34 15.79	+04 14 20.9			17.7		033
1990 FU2		1990 03 18.93438	11 33 23.53	+04 21 02.5					033
1990 FV2	*	1990 03 17.91493	11 34 20.55	+05 03 24.7			17.4		033
1990 FV2		1990 03 18.93438	11 33 13.52	+05 07 07.5					033
1990 FW2	*	1990 03 17.91493	11 35 04.58	+05 45 15.9			18.0		033
1990 FW2		1990 03 18.93438	11 34 02.16	+05 49 46.7					033
1990 FX2	*	1990 03 17.91493	11 35 46.29	+05 40 32.5			18.5		033
1990 FX2		1990 03 18.93438	11 35 01.49	+05 45 34.0					033
1990 FY2	*	1990 03 17.91493	11 35 50.62	+05 33 00.3			19.0		033
1990 FY2		1990 03 18.93438	11 34 36.97	+05 34 02.3					033
1990 FZ2	*	1990 03 17.91493	11 36 24.71	+03 55 17.0			18.8		033
1990 FZ2		1990 03 18.93438	11 35 36.24	+03 59 08.9					033
1990 FA3	*	1990 03 17.91493	11 37 02.90	+05 11 09.7			17.5		033
1990 FA3		1990 03 18.93438	11 36 17.81	+05 16 23.1					033
1990 FB3	*	1990 03 17.91493	11 39 08.42	+04 44 44.4			17.6		033
1990 FB3		1990 03 18.93438	11 38 16.12	+04 53 57.3					033
1990 GS		1990 03 17.91493	11 33 59.95	+04 31 40.4			18.0		033
1990 GS		1990 03 18.93438	11 32 57.16	+04 33 37.2					033
66		1990 03 17.91493	11 32 34.58	+04 10 45.6			14.3		033
66		1990 03 18.93438	11 31 40.46	+04 15 27.4					033
1707		1990 03 17.91493	11 32 06.23	+04 34 26.0			16.5		033
1707		1990 03 18.93438	11 31 01.88	+04 39 14.1					033
2017		1990 03 17.91493	11 33 37.94	+03 21 25.3			16.8		033
2017		1990 03 18.93438	11 32 39.44	+03 29 53.9					033
2890		1990 03 17.91493	11 27 59.35	+04 07 07.6			17.1		033
4117		1990 03 17.91493	11 34 13.69	+04 39 23.0			17.9		033
4117		1990 03 18.93438	11 33 28.30	+04 47 57.1					033

046 Klet
A. Mrkos, Dept. of Astronomy and Astrophysics, Charles University,
Svedska 8, C-15000 Prague 5, Czechoslovakia

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

1976	GX3		1990	05	17.91225	15	20	11.29	-13	03	26.9	046
1976	GX3		1990	05	17.92637	15	20	10.54	-13	03	23.7	046
1984	HE1		1990	05	17.94743	15	12	43.89	-15	04	34.2	046
1984	HE1		1990	05	17.96149	15	12	43.28	-15	04	26.1	046
1987	VT		1990	04	13.86944	13	15	19.33	+09	26	21.5	046
1987	VT		1990	04	13.88351	13	15	18.54	+09	26	21.9	046
1987	VT		1990	04	17.87708	13	11	34.29	+09	29	46.5	046
1987	VT		1990	04	17.89132	13	11	33.44	+09	29	48.4	046
1990	DQ1		1990	02	20.94844	09	52	07.91	+13	04	36.4	16.7 046
1990	DQ1		1990	02	20.96273	09	52	07.37	+13	04	48.0	046
1990	FK2	*	1990	03	18.90162	12	07	36.69	+05	20	42.1	17.0 046
1990	FK2		1990	03	18.91574	12	07	36.12	+05	20	49.8	046
1990	FK2		1990	03	23.93160	12	02	56.71	+05	41	07.7	046
1990	FK2		1990	03	23.94583	12	02	55.87	+05	41	12.4	046
1990	FL2	*	1990	03	19.91771	11	58	52.85	+05	59	40.9	16.7 046
1990	FL2		1990	03	19.93194	11	58	52.22	+05	59	42.0	046
1990	FL2		1990	03	23.93160	11	55	48.65	+06	30	32.4	046
1990	FL2		1990	03	23.94583	11	55	48.34	+06	30	43.9	046
1990	HA		1990	04	28.85625	13	34	57.77	+01	19	37.2	046
1990	HA		1990	04	28.86753	13	34	58.62	+01	19	22.7	046
1990	HA		1990	04	29.84531	13	36	09.83	+01	02	05.2	046
1990	HA		1990	04	29.85208	13	36	10.22	+01	01	59.0	046
1990	HA		1990	05	01.94450	13	38	26.47	+00	28	08.5	16.0 046
1990	HA		1990	05	01.95347	13	38	26.90	+00	27	59.4	046
1990	HA		1990	05	12.87446	13	47	33.09	-01	47	05.4	16.8 046
1990	HA		1990	05	12.89043	13	47	33.62	-01	47	15.7	046
1990	HA		1990	05	12.90171	13	47	34.21	-01	47	19.3	046
82			1990	05	14.93663	14	41	46.00	-17	29	56.5	046
82			1990	05	14.95110	14	41	45.43	-17	29	54.7	046
202			1990	04	27.05313	13	33	40.96	+03	24	30.2	046
202			1990	04	27.06667	13	33	40.42	+03	24	33.6	046
345			1990	05	17.91225	15	26	16.80	-12	23	41.8	046
345			1990	05	17.92637	15	26	15.89	-12	23	35.3	046
547			1990	05	14.86586	13	58	11.69	-02	16	05.3	046
547			1990	05	14.87998	13	58	11.00	-02	15	58.6	046
547			1990	05	16.86954	13	56	56.52	-02	05	31.8	046
547			1990	05	16.88366	13	56	55.93	-02	05	27.0	046
547			1990	05	17.87359	13	56	19.99	-02	00	25.8	046
547			1990	05	17.88771	13	56	19.54	-02	00	20.8	046
547			1990	05	19.90229	13	55	08.77	-01	50	37.0	046
547			1990	05	19.91667	13	55	08.29	-01	50	32.8	046
547			1990	05	20.87966	13	54	35.70	-01	46	05.1	046
547			1990	05	20.89442	13	54	35.29	-01	46	01.1	046
731			1990	05	14.93663	14	40	53.53	-15	39	07.9	046
731			1990	05	14.95110	14	40	53.04	-15	39	07.9	046
1004			1990	05	17.91225	15	16	24.99	-13	58	27.2	046
1004			1990	05	17.92637	15	16	24.49	-13	58	26.2	046
1004			1990	05	17.94743	15	16	23.68	-13	58	26.6	046
1004			1990	05	17.96149	15	16	23.13	-13	58	22.9	046
1111			1990	05	17.91225	15	17	17.89	-12	24	18.0	046
1111			1990	05	17.92637	15	17	17.20	-12	24	16.3	046
1120			1990	05	17.98366	16	09	17.58	-14	04	21.5	046
1120			1990	05	17.99581	16	09	16.78	-14	04	18.3	046
1120			1990	05	19.95368	16	07	14.92	-13	57	05.9	046
1120			1990	05	19.96792	16	07	13.65	-13	57	00.6	046
1120			1990	05	20.95000	16	06	11.96	-13	53	25.3	046
1120			1990	05	20.96424	16	06	11.16	-13	53	23.2	046

1541		1990 04 17.91528	13 04 47.85	-09 57 59.6				046
1541		1990 04 17.92951	13 04 47.12	-09 57 57.3				046
1857		1990 04 17.91528	13 09 37.60	-11 38 53.9				046
1857		1990 04 17.92951	13 09 36.71	-11 38 48.7				046
1952		1990 05 17.98366	16 08 36.11	-14 55 11.8				046
1952		1990 05 17.99581	16 08 35.45	-14 55 11.9				046
1952		1990 05 19.95368	16 06 58.32	-14 55 33.6				046
1952		1990 05 19.96792	16 06 57.69	-14 55 33.8				046
1952		1990 05 20.95000	16 06 08.64	-14 55 46.8				046
1952		1990 05 20.96424	16 06 07.79	-14 55 47.2				046
2287		1990 05 17.98366	16 11 05.40	-15 18 52.1				046
2287		1990 05 17.99581	16 11 04.24	-15 18 51.9				046
2287		1990 05 19.95368	16 09 03.69	-15 18 20.7				046
2287		1990 05 19.96792	16 09 02.90	-15 18 21.2				046
2287		1990 05 20.95000	16 08 01.29	-15 18 09.7				046
2287		1990 05 20.96424	16 08 00.40	-15 18 09.2				046
2582		1990 05 14.86586	13 55 17.79	-01 49 47.5				046
2582		1990 05 14.87998	13 55 17.12	-01 49 48.9				046
2582		1990 05 16.86954	13 53 50.76	-01 53 55.2				046
2582		1990 05 16.88366	13 53 50.07	-01 53 57.1				046
2582		1990 05 17.87359	13 53 08.52	-01 56 09.3				046
2582		1990 05 17.88771	13 53 07.90	-01 56 11.4				046
2582		1990 05 19.90229	13 51 45.81	-02 01 01.4				046
2582		1990 05 19.91667	13 51 45.27	-02 01 03.9				046
2582		1990 05 20.87966	13 51 07.44	-02 03 33.1				046
2582		1990 05 20.89442	13 51 06.84	-02 03 36.1				046
2939		1990 04 17.91528	13 10 34.68	-12 09 52.6				046
2939		1990 04 17.92951	13 10 33.82	-12 09 49.1				046
3485		1990 04 17.91528	13 14 07.07	-10 59 12.7				046
3485		1990 04 17.92951	13 14 06.33	-10 59 00.0				046

054 Brorfelde
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Observers B. Jensen, P. Jensen
Measurer P. Jensen
0.45-m Schmidt

1939	BM	1990 03 27.93210	11 54 42.88	+16 38 02.8			15.5	054
1939	BM	1990 03 27.94807	11 54 42.04	+16 38 08.0				054
424		1990 03 26.90988	12 10 30.94	+12 24 13.5				054
424		1990 03 26.92724	12 10 29.93	+12 24 18.1				054
424		1990 03 30.91196	12 07 15.63	+12 42 39.5				054
424		1990 03 30.92932	12 07 14.72	+12 42 43.2				054
4424		1990 03 29.87585	11 24 06.06	+18 45 14.0			16	054
4461		1990 03 29.87585	11 29 59.87	+19 58 11.2				054
4467		1990 03 26.90988	12 13 50.72	+11 53 07.4			16	054
4467		1990 03 26.92724	12 13 49.71	+11 53 08.2				054
4467		1990 03 30.91196	12 09 48.86	+11 56 23.3				054
4467		1990 03 30.92932	12 09 47.88	+11 56 22.5				054

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Observers V. G. Shkodrov, V. G. Ivanova, Ch. Dinev, V. I. Umlenski, A. Stoev
Measurer V. I. Umlenski

1972	TF	1989 09 01.97367	00 30 51.22	+04 20 39.4				071
1972	TF	1989 09 02.01944	00 30 50.29	+04 20 23.6				071

1972	TF		1989	09	02.05457	00	30	49.74	+04	20	12.4	071
1972	TF		1989	09	02.97708	00	30	34.28	+04	14	42.6	071
1972	TF		1989	09	03.01916	00	30	33.34	+04	14	25.8	071
1972	TF		1989	09	03.94705	00	30	16.13	+04	08	41.1	071
1972	TF		1989	09	03.98796	00	30	15.32	+04	08	24.8	071
1972	TF		1989	09	04.02361	00	30	14.50	+04	08	11.1	071
1972	TF		1989	09	04.04190	00	30	14.06	+04	08	03.1	071
1989	RM2		1989	09	01.99670	23	54	02.50	+07	24	44.8	071
1989	RM2		1989	09	02.04184	23	54	00.80	+07	24	40.3	071
1989	RM2		1989	09	02.95741	23	53	22.10	+07	22	58.7	071
1989	RM2		1989	09	02.99977	23	53	20.10	+07	22	53.9	071
1989	RL4	*	1989	09	01.97367	00	28	36.80	+01	50	29.1	071
1989	RL4		1989	09	02.01944	00	28	35.21	+01	50	10.9	071
1989	RL4		1989	09	02.05457	00	28	34.11	+01	49	57.7	071
1989	RL4		1989	09	02.97708	00	28	04.67	+01	43	49.6	071
1989	RL4		1989	09	03.01916	00	28	03.16	+01	43	32.4	071
1989	RL4		1989	09	03.94705	00	27	32.16	+01	37	12.9	071
1989	RL4		1989	09	03.98796	00	27	30.77	+01	36	57.6	071
1989	RL4		1989	09	04.02361	00	27	29.36	+01	36	40.9	071
1989	RL4		1989	09	04.04190	00	27	28.69	+01	36	33.2	071
1989	SB		1989	09	01.97367	00	21	39.82	+02	43	20.6	071
1989	SB		1989	09	02.05457	00	21	36.51	+02	43	20.3	071
1989	SB		1989	09	04.02361	00	20	18.09	+02	41	59.7	071
1989	SB		1989	09	04.04190	00	20	17.25	+02	41	58.7	071
1989	SC		1989	09	04.02361	00	17	39.33	+01	18	01.8	071
1989	SC		1989	09	04.04190	00	17	38.39	+01	18	01.3	071
1989	WC3		1989	12	21.86075	04	03	42.09	+19	25	30.1	071
1989	WC3		1989	12	22.89547	04	02	58.29	+19	22	00.4	071
1989	XG2	*	1989	12	01.02097	04	28	31.19	+21	39	14.1	071
1989	XG2		1989	12	01.05292	04	28	28.76	+21	39	12.2	071
1989	XG2		1989	12	01.95560	04	27	24.47	+21	38	26.0	071
1			1990	01	23.86757	05	21	06.32	+27	21	54.4	071
1			1990	01	23.92978	05	21	04.57	+27	22	01.4	071
1			1990	01	24.91875	05	20	39.80	+27	24	02.6	071
1			1990	01	24.94028	05	20	39.29	+27	24	04.6	071
1			1990	01	25.97558	05	20	15.34	+27	26	08.9	071
1			1990	01	25.99611	05	20	14.83	+27	26	10.3	071
21			1989	12	01.02097	04	28	12.73	+20	41	08.3	071
21			1989	12	01.05292	04	28	10.47	+20	41	06.7	071
21			1989	12	01.95560	04	27	10.38	+20	40	10.5	071
21			1989	12	21.86075	04	07	37.90	+20	21	15.2	071
21			1989	12	21.89779	04	07	36.15	+20	21	15.2	071
21			1989	12	22.89547	04	06	50.43	+20	20	36.6	071
21			1989	12	23.85583	04	06	08.02	+20	20	04.1	071
24			1989	09	01.97367	00	37	13.90	+03	22	45.2	071
24			1989	09	02.05457	00	37	11.45	+03	22	31.1	071
24			1989	09	02.97708	00	36	43.49	+03	19	34.0	071
24			1989	09	03.01916	00	36	42.10	+03	19	24.2	071
24			1989	09	03.94705	00	36	13.16	+03	16	22.2	071
24			1989	09	03.98796	00	36	11.86	+03	16	12.6	071
47			1989	09	01.97367	00	22	31.73	+01	19	47.1	071
47			1989	09	02.01944	00	22	29.96	+01	19	41.6	071
47			1989	09	02.05457	00	22	28.72	+01	19	01.5	071
47			1989	09	02.97708	00	21	53.59	+01	17	43.1	071
47			1989	09	03.01916	00	21	51.92	+01	17	38.6	071
47			1989	09	04.02361	00	21	12.13	+01	15	24.0	071
47			1989	09	04.04190	00	21	11.45	+01	15	21.5	071
77			1990	01	23.86757	05	32	40.44	+27	02	26.4	071
77			1990	01	23.92978	05	32	39.04	+27	02	21.0	071

77	1990	01	24.91875	05	32	20.03	+27	00	44.4	071
77	1990	01	24.94028	05	32	19.63	+27	00	41.4	071
77	1990	01	25.97558	05	32	01.68	+26	59	04.1	071
77	1990	01	25.99611	05	32	01.46	+26	59	02.8	071
146	1990	01	23.86757	05	16	18.19	+26	20	55.5	071
146	1990	01	23.92978	05	16	16.22	+26	21	01.2	071
146	1990	01	24.91875	05	15	49.58	+26	23	21.8	071
146	1990	01	24.94028	05	15	48.92	+26	23	24.6	071
146	1990	01	25.97558	05	15	23.16	+26	25	51.4	071
146	1990	01	25.99611	05	15	22.53	+26	25	53.7	071
299	1989	12	01.02097	04	35	07.21	+21	35	46.2	071
299	1989	12	01.05292	04	35	04.93	+21	35	40.1	071
299	1989	12	01.95560	04	34	07.16	+21	32	57.8	071
380	1989	12	01.02097	04	36	27.12	+17	48	28.8	071
380	1989	12	01.05292	04	36	25.00	+17	48	29.1	071
380	1989	12	01.95560	04	35	30.27	+17	48	32.4	071
380	1989	12	21.86075	04	16	57.60	+17	55	54.2	071
380	1989	12	21.89779	04	16	55.86	+17	55	56.9	071
380	1989	12	22.89547	04	16	09.73	+17	56	44.1	071
380	1989	12	23.85583	04	15	26.66	+17	57	33.7	071
425	1990	01	23.86757	05	22	11.09	+26	18	32.3	071
425	1990	01	23.92978	05	22	09.28	+26	18	29.5	071
425	1990	01	24.91875	05	21	45.17	+26	18	18.5	071
425	1990	01	24.94028	05	21	44.63	+26	18	17.5	071
425	1990	01	25.97558	05	21	21.10	+26	18	05.0	071
425	1990	01	25.99611	05	21	20.60	+26	18	05.0	071
568	1989	12	01.02097	04	36	57.23	+21	56	48.2	071
568	1989	12	01.05292	04	36	55.23	+21	56	25.9	071
568	1989	12	01.95560	04	36	03.83	+21	46	22.4	071
568	1989	12	21.86075	04	19	06.07	+18	11	29.2	071
568	1989	12	21.89779	04	19	04.48	+18	11	08.2	071
568	1989	12	22.89547	04	18	24.79	+18	01	21.5	071
568	1989	12	23.85583	04	17	48.09	+17	52	06.4	071
579	1990	01	24.91875	05	15	12.20	+25	35	22.2	071
579	1990	01	24.94028	05	15	11.67	+25	35	24.6	071
579	1990	01	25.97558	05	14	48.91	+25	36	56.5	071
579	1990	01	25.99611	05	14	48.31	+25	36	58.2	071
673	1989	12	01.02097	04	27	50.29	+20	05	35.8	071
673	1989	12	01.05292	04	27	48.36	+20	05	30.2	071
673	1989	12	01.95560	04	26	57.61	+20	02	47.0	071
673	1989	12	21.86075	04	09	58.25	+19	07	02.3	071
673	1989	12	21.89779	04	09	56.63	+19	06	56.9	071
673	1989	12	22.89547	04	09	14.98	+19	04	35.7	071
673	1989	12	23.85583	04	08	36.19	+19	02	24.8	071
895	1989	12	02.95917	06	28	02.79	+20	59	52.1	071
1142	1989	09	04.02361	00	19	16.14	+00	05	26.6	071
1142	1989	09	04.04190	00	19	15.40	+00	05	23.2	071
1162	1989	09	01.97367	00	37	20.80	+02	24	10.4	071
1162	1989	09	02.01944	00	37	19.54	+02	24	02.5	071
1162	1989	09	02.05457	00	37	18.62	+02	23	56.8	071
1162	1989	09	02.97708	00	36	53.63	+02	21	20.0	071
1162	1989	09	03.01916	00	36	52.41	+02	21	11.7	071
1162	1989	09	03.94705	00	36	26.74	+02	18	30.7	071
1162	1989	09	03.98796	00	36	25.66	+02	18	22.8	071
1229	1989	09	01.97367	00	24	09.00	+03	13	51.0	071
1229	1989	09	02.01944	00	24	07.63	+03	13	43.1	071
1229	1989	09	02.97708	00	23	39.19	+03	10	26.4	071
1229	1989	09	03.01916	00	23	37.87	+03	10	16.3	071
1229	1989	09	03.94705	00	23	09.29	+03	06	58.2	071

1229	1989	09	03.98796	00	23	08.21	+03	06	50.0	071
1229	1989	09	04.02361	00	23	06.81	+03	06	42.7	071
1229	1989	09	04.04190	00	23	06.19	+03	06	38.3	071
1250	1990	01	23.86757	05	32	56.97	+27	45	36.1	071
1250	1990	01	23.92978	05	32	55.32	+27	44	52.5	071
1250	1990	01	24.91875	05	32	30.57	+27	33	03.9	071
1250	1990	01	24.94028	05	32	29.87	+27	32	49.7	071
1250	1990	01	25.97558	05	32	06.58	+27	20	33.4	071
1250	1990	01	25.99611	05	32	06.27	+27	20	19.6	071
1295	1989	12	01.02097	04	30	59.31	+18	02	57.5	071
1295	1989	12	01.05292	04	30	57.68	+18	02	53.9	071
1295	1989	12	01.95560	04	30	13.63	+18	00	57.9	071
1295	1989	12	21.86075	04	15	10.65	+17	24	46.3	071
1295	1989	12	21.89779	04	15	09.18	+17	24	44.2	071
1295	1989	12	22.89547	04	14	31.29	+17	23	22.8	071
1295	1989	12	23.85583	04	13	55.78	+17	22	11.5	071
1303	1989	12	21.86075	04	02	54.93	+20	04	02.7	071
1303	1989	12	21.89779	04	02	53.14	+20	04	08.1	071
1303	1989	12	22.89547	04	02	07.18	+20	06	48.0	071
1303	1989	12	23.85583	04	01	23.72	+20	09	18.5	071
1340	1989	09	01.97367	00	35	56.06	+04	02	36.0	071
1340	1989	09	02.01944	00	35	54.83	+04	02	37.5	071
1340	1989	09	02.05457	00	35	53.53	+04	02	22.2	071
1340	1989	09	02.97708	00	35	24.67	+03	59	23.5	071
1340	1989	09	03.01916	00	35	23.25	+03	59	13.2	071
1340	1989	09	03.94705	00	34	53.49	+03	56	10.3	071
1340	1989	09	03.98796	00	34	53.06	+03	55	59.6	071
1381	1989	09	01.97367	00	22	37.37	+02	44	20.1	071
1381	1989	09	02.01944	00	22	35.71	+02	44	20.1	071
1381	1989	09	02.05457	00	22	34.46	+02	44	20.9	071
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1381	1989	09	03.98796	00	21	25.91	+02	43	54.3	071
1381	1989	09	04.02361	00	21	24.17	+02	43	52.8	071
1381	1989	09	04.04190	00	21	23.44	+02	43	52.1	071
1406	1989	09	01.99670	23	56	59.50	+07	19	05.4	071
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1535	1989	09	01.97367	23	47	04.80	+08	59	46.3	071
1535	1989	09	02.04184	23	47	03.20	+08	59	38.8	071
1535	1989	09	02.95471	23	46	25.90	+08	56	59.0	071
1535	1989	09	02.99977	23	46	24.00	+08	56	52.0	071
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2233	1989	12	01.02097	04	30	19.52	+21	37	45.3	071
2233	1989	12	01.05292	04	30	17.09	+21	37	36.7	071
2233	1989	12	01.95560	04	29	17.65	+21	33	25.5	071
2439	1989	12	02.95917	06	25	54.77	+23	07	13.9	071
2746	1989	09	01.97367	00	31	20.36	+03	24	43.5	071
2746	1989	09	02.01944	00	31	18.66	+03	24	29.0	071
2746	1989	09	02.05457	00	31	17.46	+03	24	16.7	071
2746	1989	09	02.97708	00	30	44.69	+03	19	00.8	071
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2746	1989	09	03.94705	00	30	08.84	+03	13	18.3	071
2746	1989	09	03.98796	00	30	07.24	+03	13	03.2	071
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2746	1989	09	04.04190	00	30	05.16	+03	12	44.5	071

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2870		1989	12	23.85583	04	02	45.52	+19	24	10.3	071
2912		1989	12	21.01839	04	17	35.05	+14	37	55.3	071
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3056		1989	09	01.97367	00	37	56.15	+01	08	15.2	071
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073 Bucharest
G. Bocsa, Center for Astronomy and Space Sciences, Cutitul de Argint 5, R-75212 Bucharest, Romania
0.38-m f/16 astrograph
SAOC

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 129       1986 08 26.79146  19 28 35.06  -18 37 22.7                    073
 129       1986 08 26.80427  19 28 34.90  -18 37 28.1                    073
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076 Hartbeespoort
E. Bowell, Lowell Observatory, 1400 West Mars Hill Road,
Flagstaff, AZ 86001, U.S.A.
Observer T. Gehrels
Measurer B. A. Skiff

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1957 HV    1957 04 30.86580  14 22 35.54  -18 33 08.0                    076
1957 HX    1957 04 30.92685  15 03 57.14  -19 17 43.7                    076
1957 HX    1957 04 30.98414  15 03 54.17  -19 17 29.4                    076
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 116       1957 04 24.96366  15 56 12.71  -19 06 50.8          11.9      076
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 127       1957 04 24.83247  14 29 21.09  -16 20 04.7          12.6      076
 127       1957 04 24.89774  14 29 17.29  -16 20 00.1                    076
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3224		1957	04	24.89774	14	06	59.31	-14 46 09.2		R	076

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

1990	KA	1990	05	28.93194	15	14	54.39	+07 08 59.6			091

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

1972	HL	1989	09	04.82998	21	34	33.56	+09 56 58.6	16.0V		095
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1981	EA7	1989	10	24.79514	00	29	59.01	+15 48 25.3	16.0V		095
1981	JG	1989	11	21.85417	03	16	29.77	+14 52 29.9		E	095
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1987	BC2	1989	10	24.77431	00	33	16.08	+12 01 29.7	16.0V	E	095
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1987	BC2		1989	10	26.77856	00	32	06.87	+11	47	46.3	16.0V	E 095
1987	BC2		1989	10	26.79862	00	32	06.16	+11	47	37.7	16.0V	E 095
1987	RR3		1990	03	30.83505	11	16	34.55	-06	12	19.6		E 095
1987	RR3		1990	03	30.84894	11	16	34.21	-06	12	19.0		E 095
1987	SB1		1990	03	30.91142	12	13	47.18	+04	14	08.1		095
1987	SB1		1990	03	30.92531	12	13	46.62	+04	14	14.4		095
1987	WS		1990	03	20.94488	12	40	55.68	-00	07	59.2		095
1987	WS		1990	03	20.96875	12	40	54.41	-00	08	00.7		095
1989	AL5		1990	03	30.91142	12	21	12.34	-01	35	24.6		095
1989	AL5		1990	03	30.92531	12	21	11.75	-01	35	20.1		095
1989	RV3	*	1989	09	04.82998	21	38	18.94	+07	14	26.1	16.3V	095
1989	RV3		1989	09	04.85069	21	38	18.32	+07	14	20.5	16.3V	095
1989	RW3	*	1989	09	04.82998	21	38	30.22	+06	17	24.0	15.7V	095
1989	RW3		1989	09	04.85069	21	38	29.31	+06	17	20.9	15.7V	095
1989	RX3	*	1989	09	04.82998	21	39	09.79	+05	50	07.1	16.5V	095
1989	RX3		1989	09	04.85069	21	39	09.40	+05	50	11.0	16.5V	095
1989	RY3	*	1989	09	04.82998	21	40	27.53	+05	37	44.5	16.5V	095
1989	RY3		1989	09	04.85069	21	40	27.21	+05	37	37.8	16.5V	095
1989	RZ3	*	1989	09	04.99178	00	44	42.68	+06	19	30.8	16.0V	095
1989	RB4	*	1989	09	08.88872	22	13	27.06	-08	54	58.8	16.0V	095
1989	RC4	*	1989	09	08.88872	22	14	58.92	-14	19	43.4	16.0V	095
1989	RD4	*	1989	09	08.88872	22	16	09.98	-08	56	33.8	15.8V	095
1989	RE4	*	1989	09	08.88872	22	16	15.83	-11	22	55.7	16.3V	095
1989	RF4	*	1989	09	08.88872	22	18	28.54	-13	57	55.6	16.3V	095
1989	RG4	*	1989	09	08.88872	22	19	51.16	-13	29	07.7	16.3V	095
1989	RH4	*	1989	09	08.88872	22	20	42.10	-11	22	43.6	16.3V	095
1989	RJ4	*	1989	09	08.88872	22	28	20.74	-12	49	17.1	16.0V	095
1989	RK4	*	1989	09	08.88872	22	35	58.14	-14	34	36.3	16.0V	095
1989	SB11		1989	10	30.80208	01	38	18.74	+09	53	38.9	15.5V	095
1989	SB11		1989	10	30.82293	01	38	17.74	+09	53	34.9	15.5V	095
1989	TR2		1989	11	21.75693	01	36	40.06	+04	11	16.0	16.0V	095
1989	TR2		1989	11	21.77777	01	36	39.33	+04	11	20.3	16.0V	095
1989	TG17		1989	09	04.99178	01	03	27.66	+05	18	18.3	15.5V	095
1989	TG17		1989	09	08.95833	01	02	01.62	+04	52	02.6	15.5V	095
1989	TG17		1989	09	08.98264	01	02	00.95	+04	51	47.9	15.5V	095
1989	US		1989	10	30.80208	01	48	26.26	+09	26	44.7	15.0V	095
1989	US		1989	10	30.82293	01	48	25.03	+09	26	43.1	15.0V	095
1989	US		1989	11	21.75693	01	32	15.15	+09	27	37.6	15.5V	095
1989	US		1989	11	21.77777	01	32	14.54	+09	27	38.7	15.5V	095
1989	UH1		1989	10	24.87326	02	48	50.66	+16	00	02.8	16.3V	095
1989	UH1		1989	10	24.89236	02	48	49.73	+15	59	55.6	16.3V	095
1989	UH1		1989	10	26.86978	02	47	11.76	+15	42	36.3	16.3V	095
1989	UH1		1989	10	26.88889	02	47	10.67	+15	42	24.1	16.3V	095
1989	UP1		1989	11	21.85417	02	39	03.78	+07	58	26.5	16.0V	E 095
1989	UP1		1989	11	21.86528	02	39	03.06	+07	58	24.5	16.0V	E 095
1989	US1		1989	10	24.87326	02	37	25.76	+18	08	48.2	15.0V	095
1989	US1		1989	10	24.89236	02	37	24.24	+18	08	59.7	15.0V	095
1989	US1		1989	10	26.86978	02	35	06.70	+18	19	26.0	15.0V	095
1989	US1		1989	10	26.88889	02	35	05.11	+18	19	35.4	15.0V	095
1989	UY1		1989	11	21.85417	03	15	11.80	+10	21	58.7	16.0V	E 095
1989	UY1		1989	11	21.86528	03	15	11.13	+10	21	57.2	16.0V	E 095
1989	UB3		1989	10	30.89583	03	16	39.95	+14	51	03.9	16.0V	095
1989	UB3		1989	10	30.92014	03	16	38.85	+14	51	01.4	16.0V	095
1989	UB3		1989	11	21.85417	02	55	49.18	+15	03	30.1	16.0V	E 095
1989	UB3		1989	11	21.86528	02	55	48.51	+15	03	27.6	16.0V	E 095
1989	UN3		1989	10	30.89583	03	18	20.33	+14	43	39.5	16.5V	095
1989	UN3		1989	10	30.92014	03	18	19.31	+14	43	32.4	16.5V	095
1989	UO3		1989	10	30.89583	03	04	56.49	+09	59	33.4	16.0V	095
1989	UO3		1989	10	30.92014	03	04	54.91	+09	59	22.2	16.0V	095

1989	UO3		1989	11	21.85417	02	44	03.48	+08	23	10.1	16.5V 095
1989	UO3		1989	11	21.86528	02	44	02.82	+08	23	06.2	16.5V 095
1989	US3		1989	10	24.87326	02	24	14.87	+14	14	02.3	16.3V 095
1989	US3		1989	10	24.89236	02	24	13.69	+14	13	54.6	16.3V 095
1989	US3		1989	10	26.86978	02	22	31.30	+14	03	38.9	16.3V 095
1989	US3		1989	10	26.88889	02	22	30.27	+14	03	32.2	16.3V 095
1989	UR4		1989	10	30.80208	01	58	14.63	+09	52	56.1	15.7V 095
1989	UR4		1989	10	30.82293	01	58	13.30	+09	52	51.5	15.7V 095
1989	UR4		1989	11	21.75693	01	40	49.89	+08	42	30.8	16.0V 095
1989	UR4		1989	11	21.77777	01	40	49.11	+08	42	27.4	16.0V 095
1989	UW5		1989	10	30.80208	01	47	10.78	+06	47	05.5	16.0V 095
1989	UW5		1989	10	30.82293	01	47	09.73	+06	47	04.7	16.0V 095
1989	UZ5		1989	10	30.80208	01	49	03.41	+09	35	19.7	16.0V 095
1989	UZ5		1989	10	30.82293	01	49	02.48	+09	35	18.1	16.0V 095
1989	UF6		1989	10	30.80208	01	53	53.66	+06	47	41.3	16.0V 095
1989	UF6		1989	10	30.82293	01	53	52.54	+06	47	36.0	16.0V 095
1989	UX7	*	1989	10	24.77431	00	19	08.00	+16	10	39.1	15.5V 095
1989	UX7		1989	10	24.79514	00	19	07.86	+16	10	11.0	15.5V 095
1989	UX7		1989	10	26.79862	00	18	46.43	+15	38	09.2	16.0V 095
1989	UY7	*	1989	10	24.77431	00	24	32.41	+15	19	53.0	16.0V 095
1989	UY7		1989	10	24.79514	00	24	31.23	+15	20	00.6	16.0V 095
1989	UY7		1989	10	26.77856	00	22	59.00	+15	15	42.7	16.5V 095
1989	UY7		1989	10	26.79862	00	22	58.06	+15	15	39.5	16.5V 095
1989	UZ7	*	1989	10	24.77431	00	36	18.34	+16	56	06.8	15.5V 095
1989	UZ7		1989	10	24.79514	00	36	17.64	+16	55	48.6	15.5V 095
1989	UZ7		1989	10	26.77856	00	35	18.00	+16	32	21.9	16.0V 095
1989	UZ7		1989	10	26.79862	00	35	17.32	+16	32	08.0	16.0V 095
1989	UA8	*	1989	10	24.77431	00	40	43.76	+14	47	05.8	15.0V 095
1989	UA8		1989	10	24.79514	00	40	42.86	+14	46	51.4	15.0V 095
1989	UA8		1989	10	26.77856	00	39	22.41	+14	27	25.6	15.5V 095
1989	UA8		1989	10	26.79862	00	39	21.54	+14	27	14.5	15.5V 095
1989	UB8	*	1989	10	24.87326	02	35	55.79	+14	35	56.2	16.0V 095
1989	UB8		1989	10	24.89236	02	35	54.85	+14	35	51.5	16.0V 095
1989	UB8		1989	10	26.86978	02	34	26.42	+14	24	21.5	16.0V 095
1989	UB8		1989	10	26.88889	02	34	25.53	+14	24	12.2	16.0V 095
1989	UC8	*	1989	10	24.87326	02	38	54.02	+13	16	40.9	16.0V 095
1989	UC8		1989	10	24.89236	02	38	53.10	+13	16	36.1	16.0V 095
1989	UC8		1989	10	26.86978	02	37	23.78	+13	08	52.0	16.0V 095
1989	UC8		1989	10	26.88889	02	37	22.86	+13	08	47.0	16.0V 095
1989	UD8	*	1989	10	24.87326	02	51	00.64	+18	38	19.4	16.0V 095
1989	UD8		1989	10	24.89236	02	50	59.56	+18	38	19.2	16.0V 095
1989	UD8		1989	10	26.86978	02	49	12.76	+18	35	29.7	16.0V 095
1989	UD8		1989	10	26.88889	02	49	11.68	+18	35	28.1	16.0V 095
1989	UE8	*	1989	10	26.96145	03	15	36.13	+12	44	04.0	16.0V 095
1989	UE8		1989	10	26.98263	03	15	34.63	+12	43	59.5	16.0V 095
1989	UE8		1989	10	30.89583	03	11	28.07	+12	30	35.7	16.0V 095
1989	UE8		1989	10	30.92014	03	11	26.49	+12	30	28.5	16.0V 095
1989	UE8		1989	11	21.85417	02	47	46.04	+11	26	39.8	16.0V 095
1989	UE8		1989	11	21.86528	02	47	45.16	+11	26	37.4	16.0V 095
1989	UF8	*	1989	10	30.89583	03	11	28.59	+12	31	05.4	16.3V 095
1989	UF8		1989	10	30.92014	03	11	37.34	+13	01	31.6	16.3V 095
1989	UF8		1989	11	21.85417	02	53	18.13	+12	07	48.4	16.0V 095
1989	UF8		1989	11	21.86528	02	53	17.48	+12	07	45.3	16.0V 095
1989	VM		1989	10	24.87326	02	55	14.62	+13	21	48.8	16.3V 095
1989	VM		1989	10	24.89236	02	55	13.51	+13	21	44.3	16.3V 095
1989	VM		1989	10	26.86978	02	53	50.64	+13	07	58.8	16.3V 095
1989	VM		1989	10	26.88889	02	53	49.77	+13	07	48.6	16.3V 095
1989	VQ		1989	10	30.80208	01	59	14.41	+09	14	32.1	15.5V 095
1989	VQ		1989	10	30.82293	01	59	13.07	+09	14	28.0	15.5V 095

1989	VQ	1989	11	21.75693	01	44	00.64	+08	46	47.7	16.0V	095
1989	VQ	1989	11	21.77777	01	44	00.22	+08	46	47.3	16.0V	095
1989	VX	1989	11	21.85417	02	52	57.91	+13	44	53.3	16.0V	095
1989	VX	1989	11	21.86528	02	52	57.23	+13	44	52.5	16.0V	095
1989	VS1	1989	10	30.89583	03	11	12.90	+10	59	25.0	16.0V	095
1989	VS1	1989	10	30.92014	03	11	11.65	+10	59	18.0	16.0V	095
1989	VS1	1989	11	21.85417	02	52	16.20	+10	00	50.8	16.0V	095
1989	VS1	1989	11	21.86528	02	52	15.62	+10	00	49.2	16.0V	095
1989	WH4	1989	11	21.85417	03	05	50.06	+07	19	02.4	16.0V	095
1989	WH4	1989	11	21.86528	03	05	49.49	+07	19	02.6	16.0V	095
1990	DV	1990	03	20.85816	10	45	24.77	-05	36	38.1	15.5V	095
1990	DV	1990	03	20.87853	10	45	23.98	-05	36	30.3	15.5V	095
1990	DX	1990	03	20.85816	11	07	37.59	-00	49	55.8	16.0V	095
1990	DX	1990	03	20.87853	11	07	36.22	-00	49	52.4	16.0V	095
1990	EV1	1990	03	20.85816	11	05	44.52	+00	42	49.3	16.3V	095
1990	EV1	1990	03	20.87853	11	05	43.52	+00	43	04.1	16.3V	095
1990	EM3	1990	03	20.85816	11	14	09.64	-00	21	25.6	16.0V	095
1990	EM3	1990	03	20.87853	11	14	08.50	-00	21	27.4	16.0V	095
1990	FD	1990	03	22.88206	11	52	22.60	-00	24	24.9	14.5V	095
1990	FD	1990	03	30.83505	11	38	52.84	-02	31	46.8	14.5V	095
1990	FD	1990	03	30.84894	11	38	51.64	-02	31	58.4	14.5V	095
1990	FW	1990	03	30.91142	12	16	36.74	-00	01	24.0	16.0V	095
1990	FW	1990	03	30.92531	12	16	35.88	-00	01	26.7	16.0V	095
1990	FW1	1990	03	22.88206	11	54	45.28	+04	45	29.7	16.8V	095
49		1990	03	20.87853	10	59	21.04	+02	10	09.9	E	095
56		1990	03	30.83505	11	23	58.99	+00	18	25.9		095
56		1990	03	30.84894	11	23	58.48	+00	18	31.6		095
68		1990	03	26.78819	10	11	00.77	+21	40	43.6		095
68		1990	03	26.79861	10	11	00.43	+21	40	43.9		095
74		1990	03	20.94488	12	35	52.20	-04	56	14.5		095
74		1990	03	20.96875	12	35	51.18	-04	56	06.1		095
76		1990	03	30.83505	11	40	29.06	+00	44	11.1		095
76		1990	03	30.84894	11	40	28.59	+00	44	14.7		095
83		1990	03	30.91142	12	09	16.76	+02	43	32.3		095
83		1990	03	30.92531	12	09	15.98	+02	43	34.5		095
108		1990	03	30.83505	11	30	31.87	+02	16	19.1	E	095
108		1990	03	30.84894	11	30	31.46	+02	16	20.1	E	095
124		1990	03	22.78895	09	52	04.51	+10	39	52.7	E	095
124		1990	03	22.80903	09	52	04.09	+10	39	58.3	E	095
140		1990	03	22.88206	12	06	17.72	+04	21	22.2		095
143		1990	03	30.83505	11	22	51.50	-05	02	02.8		095
143		1990	03	30.84894	11	22	50.76	-05	02	01.3		095
147		1990	03	30.83505	11	17	01.62	+01	46	12.1	E	095
147		1990	03	30.84894	11	17	01.42	+01	46	12.0	E	095
177		1990	03	22.88206	12	05	38.26	-01	08	59.0		095
203		1990	03	22.78895	10	23	00.54	+10	29	15.0	E	095
203		1990	03	22.80903	10	22	59.71	+10	29	18.2	E	095
213		1990	03	20.94488	13	03	32.93	+03	44	59.9	E	095
213		1990	03	20.96875	13	03	31.90	+03	45	08.0	E	095
239		1990	03	30.99341	14	34	07.09	-10	39	49.5		095
245		1990	03	30.99341	14	24	52.20	-10	38	10.3		095
249		1990	03	30.83505	11	39	14.72	-05	05	18.9		095
249		1990	03	30.84894	11	39	14.00	-05	05	14.1		095
256		1990	03	20.94488	12	52	23.48	-03	18	27.0		095
256		1990	03	20.96875	12	52	22.60	-03	18	13.9		095
257		1990	03	22.88206	12	06	48.07	+02	25	41.0		095
262		1990	03	20.94488	12	49	56.88	+01	26	06.4		095
262		1990	03	20.96875	12	49	55.62	+01	26	11.7		095
262		1990	03	30.91142	12	40	30.71	+02	05	07.6	E	095

262	1990	03	30.92531	12	40	29.72	+02	05	09.3	E	095
270	1990	03	22.78895	09	54	29.78	+08	50	43.4		095
270	1990	03	22.80903	09	54	29.06	+08	50	48.0		095
279	1990	03	20.94488	12	41	29.26	-01	27	09.0		095
279	1990	03	20.96875	12	41	28.51	-01	27	03.1		095
279	1990	03	30.91142	12	35	48.22	-00	51	31.3		095
279	1990	03	30.92531	12	35	47.61	-00	51	28.9		095
340	1990	03	22.88206	12	03	58.74	+03	05	07.0		095
373	1990	03	20.94488	12	32	09.59	-04	44	05.4	E	095
373	1990	03	20.96875	12	32	08.32	-04	44	04.8	E	095
385	1990	03	22.78895	10	23	25.46	+10	10	35.5	E	095
385	1990	03	22.80903	10	23	24.52	+10	10	33.1	E	095
392	1990	03	30.99341	14	17	13.70	-14	02	55.3	E	095
428	1990	03	20.94488	12	30	08.74	-00	51	29.6	E	095
428	1990	03	20.96875	12	30	07.33	-00	51	23.3	E	095
428	1990	03	30.91142	12	20	00.63	-00	08	44.0		095
428	1990	03	30.92531	12	19	59.71	-00	08	40.1		095
439	1990	03	30.99341	14	47	39.69	-10	27	58.4		095
446	1990	03	26.78819	10	32	00.44	+23	02	20.6		095
446	1990	03	26.79861	10	32	00.02	+23	02	21.2		095
477	1990	03	22.88206	11	48	26.52	+03	08	18.4	E	095
513	1990	03	20.94488	13	00	15.81	-04	44	34.2		095
513	1990	03	20.96875	13	00	14.85	-04	44	24.8		095
546	1990	03	20.94488	12	38	19.89	+04	19	58.9	E	095
546	1990	03	20.96875	12	38	18.31	+04	19	54.0	E	095
546	1990	03	30.91142	12	27	26.95	+04	16	56.6		095
546	1990	03	30.92531	12	27	25.90	+04	16	54.8		095
547	1990	03	30.99341	14	29	32.14	-07	34	23.3		095
555	1990	03	20.94488	12	46	32.86	-01	21	27.4		095
555	1990	03	20.96875	12	46	31.92	-01	21	19.6		095
555	1990	03	30.91142	12	39	15.29	-00	28	35.1	E	095
555	1990	03	30.92531	12	39	14.58	-00	28	32.0	E	095
578	1990	03	20.94488	12	47	32.36	-01	10	56.8		095
578	1990	03	20.96875	12	47	31.20	-01	10	52.7		095
578	1990	03	30.91142	12	38	49.80	-00	33	44.7	E	095
578	1990	03	30.92531	12	38	49.03	-00	33	42.9	E	095
588	1990	03	30.83505	11	28	55.45	-06	02	33.7		095
588	1990	03	30.84894	11	28	54.95	-06	02	31.9		095
624	1990	03	30.83505	11	33	10.61	-04	08	43.6		095
624	1990	03	30.84894	11	33	10.27	-04	08	43.0		095
708	1990	03	20.94488	12	31	29.08	-04	32	11.8	E	095
708	1990	03	20.96875	12	31	27.64	-04	32	07.7	E	095
795	1990	03	20.94488	12	55	33.46	-00	08	34.8		095
795	1990	03	20.96875	12	55	32.05	-00	08	36.8		095
805	1990	03	20.94488	12	42	40.17	+03	46	49.2	E	095
805	1990	03	20.96875	12	42	39.28	+03	46	58.9	E	095
805	1990	03	30.91142	12	36	06.60	+05	08	53.0		095
805	1990	03	30.92531	12	36	06.03	+05	08	59.6		095
806	1990	03	30.99341	14	44	16.94	-11	20	24.6		095
809	1990	03	20.94488	12	56	23.87	+00	45	10.1		095
809	1990	03	20.96875	12	56	22.66	+00	45	22.3		095
821	1990	03	30.83505	11	52	34.44	-03	33	06.3	E	095
821	1990	03	30.84894	11	52	33.81	-03	32	59.5	E	095
848	1990	03	20.94488	12	45	00.21	-05	20	47.7	E	095
875	1990	03	30.83505	11	30	26.77	-03	40	10.3		095
875	1990	03	30.84894	11	30	26.26	-03	40	00.7		095
901	1990	03	20.85816	11	07	43.70	-00	18	41.1		095
901	1990	03	20.87853	11	07	42.52	-00	18	34.3		095
918	1990	03	20.85816	11	17	41.02	-02	56	20.8	E	095

918	1990	03	20.87853	11	17	39.90	-02	56	17.4	E	095
947	1990	03	22.88206	12	23	59.00	+04	47	27.7		095
947	1990	03	30.91142	12	17	17.03	+05	21	13.3		095
947	1990	03	30.92531	12	17	16.37	+05	21	15.4		095
961	1990	03	20.94488	12	39	01.99	+02	35	01.8		095
961	1990	03	20.96875	12	39	00.67	+02	35	03.6		095
961	1990	03	30.91142	12	29	44.05	+03	01	07.7		095
961	1990	03	30.92531	12	29	43.06	+03	01	07.7		095
963	1990	03	26.78819	10	34	33.80	+22	49	29.3		095
963	1990	03	26.79861	10	34	33.24	+22	49	30.7		095
1014	1990	03	22.78895	10	14	18.01	+06	54	23.7		095
1014	1990	03	22.80903	10	14	17.34	+06	54	26.7		095
1030	1990	03	30.99341	14	49	07.90	-07	10	34.0		095
1043	1990	03	20.94488	12	44	56.85	+01	39	58.5		095
1043	1990	03	20.96875	12	44	55.94	+01	40	07.9		095
1043	1990	03	30.91142	12	38	07.52	+02	48	05.8		095
1043	1990	03	30.92531	12	38	06.83	+02	48	09.7		095
1044	1990	03	20.94488	12	59	03.78	-00	29	36.1		095
1044	1990	03	20.96875	12	59	02.60	-00	29	29.7		095
1047	1990	03	30.99341	14	30	02.79	-07	45	02.5		095
1062	1990	03	30.83505	11	29	32.36	+00	41	48.3		095
1062	1990	03	30.84894	11	29	31.91	+00	41	49.6		095
1114	1990	03	20.85816	10	44	41.55	+00	13	13.7		095
1114	1990	03	20.87853	10	44	40.73	+00	13	22.3		095
1143	1990	03	30.84894	11	17	21.26	+01	30	32.7	E	095
1157	1990	03	20.85816	11	10	51.60	+01	15	56.2		095
1157	1990	03	20.87853	11	10	50.60	+01	15	57.5		095
1202	1990	03	22.88206	12	03	43.16	+03	10	03.2		095
1242	1990	03	30.83505	11	23	50.23	+01	51	08.0	E	095
1242	1990	03	30.84894	11	23	49.87	+01	51	07.7	E	095
1249	1990	03	30.83505	11	36	10.32	-06	58	38.8	E	095
1249	1990	03	30.84894	11	36	09.64	-06	58	32.4	E	095
1262	1990	03	26.78819	10	04	35.99	+22	37	45.1	E	095
1262	1990	03	26.79861	10	04	35.91	+22	37	46.9	E	095
1273	1990	03	20.85816	11	04	08.22	-01	31	19.1		095
1273	1990	03	20.87853	11	04	07.05	-01	31	13.7		095
1288	1990	03	30.83505	11	20	38.92	-06	10	41.7		095
1288	1990	03	30.84894	11	20	38.52	-06	10	36.3		095
1305	1990	03	30.99341	14	32	25.43	-13	00	17.6		095
1318	1990	03	22.88206	11	52	53.30	-02	00	35.6	E	095
1318	1990	03	30.83505	11	39	03.42	-03	49	03.2		095
1318	1990	03	30.84894	11	39	02.00	-03	49	14.2		095
1341	1990	03	26.78819	10	28	44.19	+26	29	10.4		095
1341	1990	03	26.79861	10	28	43.82	+26	29	10.3		095
1409	1990	03	22.88206	12	04	54.61	+00	14	11.6		095
1410	1990	03	22.88206	11	56	51.26	+02	43	32.8		095
1413	1990	03	22.88206	12	20	44.63	-00	43	09.4		095
1413	1990	03	30.91142	12	15	07.07	+00	20	22.5		095
1413	1990	03	30.92531	12	15	06.52	+00	20	28.3		095
1416	1990	03	22.88206	11	52	06.56	-01	04	57.6		095
1416	1990	03	30.83505	11	45	34.39	-00	43	26.4		095
1416	1990	03	30.84894	11	45	33.83	-00	43	24.7		095
1489	1990	03	20.94488	12	30	54.06	-01	18	06.5	E	095
1489	1990	03	20.96875	12	30	53.01	-01	17	57.9	E	095
1489	1990	03	30.91142	12	23	46.77	-00	23	33.5		095
1489	1990	03	30.92531	12	23	46.09	-00	23	28.7		095
1551	1990	03	22.88206	11	57	06.54	+06	42	05.2	E	095
1553	1990	03	22.88206	12	15	47.54	+03	33	39.0		095
1553	1990	03	30.91142	12	09	30.38	+04	16	19.9		095

1553	1990	03	30.92531	12	09	29.81	+04	16	22.8		095
1623	1990	03	22.88206	12	26	40.68	+00	46	09.3	E	095
1623	1990	03	30.91142	12	20	43.12	+01	26	19.9		095
1623	1990	03	30.92531	12	20	42.50	+01	26	22.9		095
1639	1990	03	22.78895	09	49	32.36	+09	27	20.9	E	095
1639	1990	03	22.80903	09	49	31.91	+09	27	19.2	E	095
1671	1990	03	22.88206	11	56	38.39	+00	40	04.3		095
1671	1990	03	30.83505	11	49	56.15	+01	35	14.5	E	095
1671	1990	03	30.84894	11	49	55.46	+01	35	20.6	E	095
1717	1990	03	30.83505	11	19	41.97	+00	14	52.6		095
1717	1990	03	30.84894	11	19	41.57	+00	14	54.3		095
1722	1990	03	22.88206	11	54	09.15	+02	35	03.4		095
1754	1990	03	22.78895	10	02	20.05	+10	12	37.4		095
1754	1990	03	22.80903	10	02	19.76	+10	12	43.3		095
1796	1990	03	30.83505	11	45	28.45	-02	08	19.8		095
1796	1990	03	30.84894	11	45	28.00	-02	08	11.2		095
1823	1990	03	20.85816	11	07	58.58	+01	30	56.4		095
1823	1990	03	20.87853	11	07	57.28	+01	31	00.7		095
1829	1990	03	22.78895	10	11	24.45	+01	52	33.4	E	095
1829	1990	03	22.80903	10	11	23.70	+01	52	39.1	E	095
1888	1990	03	20.85816	10	58	21.42	-04	02	34.8		095
1888	1990	03	20.87853	10	58	20.47	-04	02	26.0		095
1889	1990	03	26.78819	10	37	24.36	+28	31	19.2		095
1889	1990	03	26.79861	10	37	23.98	+28	31	14.7		095
1898	1990	03	22.88206	11	51	48.08	+01	18	17.8		095
1929	1990	03	26.78819	10	39	45.90	+22	21	23.6		095
1929	1990	03	26.79861	10	39	45.45	+22	21	23.6		095
2032	1990	03	30.91142	12	10	44.99	-00	10	04.3		095
2032	1990	03	30.92531	12	10	44.44	-00	10	00.6		095
2107	1990	03	30.83505	11	25	09.78	-06	03	00.1		095
2107	1990	03	30.84894	11	25	09.15	-06	02	53.7		095
2113	1990	03	20.94488	12	55	41.64	-03	17	27.9		095
2113	1990	03	20.96875	12	55	40.29	-03	17	20.0		095
2119	1990	03	20.85816	11	07	55.85	-01	34	11.9		095
2119	1990	03	20.87853	11	07	54.56	-01	34	07.0		095
2138	1990	03	20.94488	13	08	22.84	+02	46	57.1	E	095
2138	1990	03	20.96875	13	08	21.69	+02	47	05.8	E	095
2144	1990	03	22.88206	11	56	44.22	+03	23	13.9		095
2159	1990	03	20.94488	12	32	48.01	-05	02	46.7	E	095
2159	1990	03	20.96875	12	32	46.50	-05	02	42.8	E	095
2209	1990	03	22.88206	11	54	16.28	+02	39	17.6		095
2230	1990	03	22.88206	11	59	52.01	+01	53	01.6		095
2254	1990	03	30.83505	11	29	03.09	+00	14	01.0		095
2254	1990	03	30.84894	11	29	02.34	+00	14	03.2		095
2258	1990	03	30.91142	12	05	42.79	-02	50	33.4	E	095
2258	1990	03	30.92531	12	05	42.18	-02	50	27.8	E	095
2268	1990	03	30.99341	14	23	03.08	-09	58	06.2		095
2354	1990	03	22.88206	12	03	50.18	+00	04	40.4		095
2496	1990	03	22.78895	10	21	01.45	+10	23	02.8	E	095
2496	1990	03	22.80903	10	21	00.42	+10	23	05.8	E	095
2505	1990	03	20.94488	12	38	48.95	-01	29	55.0		095
2505	1990	03	20.96875	12	38	47.92	-01	29	48.5		095
2505	1990	03	30.91142	12	31	18.64	-00	44	32.2		095
2505	1990	03	30.92531	12	31	17.88	-00	44	27.7		095
2525	1990	03	30.99341	14	17	16.36	-10	25	25.6		095
2526	1990	03	30.91142	12	14	27.55	-00	33	29.8		095
2526	1990	03	30.92531	12	14	26.93	-00	33	27.1		095
2573	1990	03	30.99341	14	26	57.04	-04	50	40.6	E	095
2707	1990	03	20.94488	12	45	10.80	-00	56	56.3		095

2707	1990	03	20.96875	12	45	09.90	-00	56	48.7			095
2766	1990	03	22.78895	10	09	23.02	+08	25	59.5			095
2766	1990	03	22.80903	10	09	22.37	+08	26	00.9			095
2829	1990	03	20.85816	11	01	34.35	-04	06	23.3			095
2829	1990	03	20.87853	11	01	33.29	-04	06	21.0			095
2854	1990	03	20.85816	10	44	15.84	-02	30	17.8			095
2854	1990	03	20.87853	10	44	14.50	-02	30	13.8			095
2881	1990	03	22.88206	12	17	21.86	-00	05	23.8			095
2926	1990	03	30.83505	11	30	46.76	-01	14	46.2			095
2926	1990	03	30.84894	11	30	46.22	-01	14	41.8			095
3024	1990	03	26.78819	10	33	56.71	+24	34	21.1			095
3024	1990	03	26.79861	10	33	56.21	+24	34	20.7			095
3049	1990	03	20.94488	12	43	38.09	-00	38	44.6			095
3049	1990	03	20.96875	12	43	37.14	-00	38	36.6			095
3049	1990	03	30.91142	12	36	16.86	+00	10	14.7			095
3049	1990	03	30.92531	12	36	16.14	+00	10	18.1			095
3063	1990	03	20.85816	10	46	27.59	-06	40	00.5		E	095
3063	1990	03	20.87853	10	46	27.12	-06	39	57.5		E	095
3128	1990	03	30.91142	12	12	16.60	+03	16	07.2			095
3128	1990	03	30.92531	12	12	16.05	+03	16	07.5			095
3412	1990	03	20.85816	11	06	17.93	+01	43	25.9			095
3412	1990	03	20.87853	11	06	16.93	+01	43	29.9			095
3502	1990	03	20.94488	13	04	18.24	-02	35	03.3			095
3502	1990	03	20.96875	13	04	17.13	-02	34	56.6			095
3543	1990	03	20.94488	12	43	32.30	-03	58	08.2			095
3543	1990	03	20.96875	12	43	31.32	-03	58	01.5			095
3622	1990	03	20.85816	11	05	38.62	-01	38	21.1			095
3622	1990	03	20.87853	11	05	37.88	-01	38	16.0			095
3675	1990	03	30.83505	11	27	27.63	-02	06	49.7			095
3675	1990	03	30.84894	11	27	27.19	-02	06	50.0			095
3709	1990	03	20.85816	10	46	56.42	-01	22	44.4			095
3709	1990	03	20.87853	10	46	56.04	-01	22	38.9			095
3726	1990	03	22.88206	12	01	48.42	+04	30	36.0			095
3734	1990	03	22.88206	12	00	04.49	+00	01	42.7			095
3962	1990	03	22.88206	11	50	37.36	+03	39	17.5			095
3996	1990	03	20.94488	12	37	25.72	+00	35	24.0			095
3996	1990	03	20.96875	12	37	24.39	+00	35	32.3			095
3996	1990	03	30.91142	12	28	03.55	+01	37	25.3			095
3996	1990	03	30.92531	12	28	02.73	+01	37	29.3			095
4060	1990	03	22.88206	11	59	14.26	+04	28	58.4			095
4088	1990	03	30.99341	14	23	02.69	-12	24	25.4			095
4264	1989	10	30.80208	01	33	25.93	+05	51	09.1	14.7V		095
4264	1989	10	30.82293	01	33	25.23	+05	51	01.9	14.7V		095
4321	1989	09	04.99178	01	11	50.00	+04	24	07.6	16.0V		095
4426	1990	03	30.83505	11	34	11.40	-00	08	26.4			095
4426	1990	03	30.84894	11	34	10.87	-00	08	22.5			095
4455	1990	03	20.85816	10	46	43.59	-06	46	14.4			095
4455	1990	03	20.87853	10	46	42.74	-06	46	06.1			095
4465	1990	03	22.88206	12	00	26.06	+04	55	24.4			095
4470	1989	09	08.88872	22	33	46.66	-11	46	11.0			095
4479	1990	03	20.94488	12	54	52.30	-01	02	13.1			095
4479	1990	03	20.96875	12	54	51.31	-01	02	02.2			095
4480	1989	10	30.80208	01	46	49.72	+08	52	07.2			095
4480	1989	10	30.82293	01	46	48.51	+08	52	04.3			095
4480	1989	11	21.75693	01	31	35.92	+08	29	32.8			095
4480	1989	11	21.77777	01	31	35.49	+08	29	33.3			095
4485	1990	03	20.85816	10	59	42.76	-03	07	17.1			095
4485	1990	03	20.87853	10	59	41.78	-03	07	12.3			095
4494	1990	03	30.83505	11	47	49.58	-03	27	30.3			095

4494		1990 03 30.84894	11 47 48.90	-03 27 25.6				095
4496		1990 03 22.88206	12 04 16.62	+02 04 03.2				095
4507		1990 03 22.88206	12 20 43.53	+00 51 18.0			15.5V	095
4507		1990 03 30.91142	12 14 11.66	+01 27 53.1			15.5V	095
4507		1990 03 30.92531	12 14 10.96	+01 27 56.6			15.5V	095

364 JCPM Kagoshima Station
M. Takeishi, Odori 4, Hamatonbetsu Esashigun, Hokkaido 098-57, Japan
Observer M. Mukai
Measurer M. Takeishi
0.25-m f/4.2 Wright Schmidt telescope
From JCPM Hamatonbetsu Station Report

1989 UR4		1989 11 25.53056	01 38 48.81	+08 36 13.0				364
1989 UR4		1989 11 25.54792	01 38 48.22	+08 36 10.1				364

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

1990 GA		1990 05 15.57326	12 45 30.43	-02 53 59.9			18	372
1990 GA		1990 05 15.58403	12 45 29.96	-02 53 57.8				372
1990 HJ		1990 04 02.70174	13 15 42.33	-03 29 29.6				372
1990 HJ		1990 04 02.74514	13 15 39.62	-03 29 21.7				372
1990 HK		1990 05 24.62222	13 54 40.85	-02 33 19.9				372
1990 HK		1990 05 25.58889	13 54 20.78	-02 28 34.4			16.5	372
1990 HK		1990 05 28.56979	13 53 26.95	-02 15 23.8				372
1990 KA		1990 05 24.68368	15 12 07.58	+08 46 39.7			16	372
1990 KA		1990 05 24.69167	15 12 07.81	+08 46 27.8				372
4046 T-3		1990 05 15.61701	14 08 33.86	-03 20 03.0			18	372
4046 T-3		1990 05 15.62743	14 08 33.54	-03 20 01.3				372
871		1990 05 28.64097	16 03 02.86	-11 52 08.0			15	372
3744		1990 04 30.68889	15 49 15.19	-19 30 31.9			18.5	372
3744		1990 04 30.73368	15 49 13.30	-19 30 21.7				372
4206		1990 05 05.73021	15 41 43.83	-20 10 51.6			18	372
4206		1990 05 05.74010	15 41 43.32	-20 10 51.0				372

392 JCPM Sapporo Station
K. Watanabe, 3-8-B203, Ashibetsu Chuo 3 Jo 4 Chome, Shiroishi-Ku,
Sapporo 005, Japan
0.30-m f/2.7 Schmidt camera

1990 KP	*	1990 05 16.48576	13 01 39.30	-24 12 33.1			16.0	392
1990 KP		1990 05 16.49219	13 01 39.13	-24 12 31.1				392
1990 KP		1990 05 25.50000	12 56 39.76	-23 47 02.5			16.5	392
1990 KP		1990 05 25.51771	12 56 39.50	-23 46 59.9				392
1990 KQ		1990 05 25.66163	16 57 08.01	-17 58 47.0			16.0	392

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

1976 SZ9		1988 12 16.62431	04 44 20.09	+27 47 01.6			16.5	399
1976 SZ9		1988 12 16.63889	04 44 19.45	+27 46 59.9				399
1976 SZ9		1988 12 16.65475	04 44 18.62	+27 46 59.6				399
1988 XX2		1988 12 07.63559	05 28 47.43	+23 42 28.3			16.5	399
1988 XX2		1988 12 07.65000	05 28 46.70	+23 42 29.7				399
1988 XX2		1988 12 07.66597	05 28 45.44	+23 42 32.0				399
1988 XX2		1988 12 07.68056	05 28 44.46	+23 42 31.7				399
1988 XX2		1988 12 11.54387	05 24 36.17	+23 47 05.2			16.5	399

1988 XX2		1988 12 11.55833	05	24	35.21	+23	47	04.2		399
1988 XX2		1988 12 11.57361	05	24	34.11	+23	47	05.6		399
1988 XX2		1988 12 11.58819	05	24	33.26	+23	47	08.1		399
1988 XY2		1988 12 11.64792	05	25	27.96	+25	14	49.5	16.5	399
1988 XY2		1988 12 11.66250	05	25	26.85	+25	14	50.4		399
1989 AE		1989 01 04.65104	07	16	17.65	+22	59	14.7	16.5	399
1989 AE		1989 01 04.66563	07	16	16.46	+22	59	14.9		399
1989 AE		1989 01 04.68090	07	16	15.44	+22	59	15.9		399
1989 AE		1989 01 04.69549	07	16	14.40	+22	59	16.3		399
1989 AE		1989 01 06.57118	07	14	09.55	+22	59	30.4	16.5	399
1989 AE		1989 01 06.58617	07	14	08.46	+22	59	31.4		399

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

1990 KP		1990 05 16.50347	13	01	38.52	-24	12	30.7	16.0	400
1990 KP		1990 05 16.52569	13	01	37.62	-24	12	27.4		400
1990 KP		1990 05 25.48958	12	56	40.24	-23	47	05.7	16.5	400
1990 KP		1990 05 25.51111	12	56	39.59	-23	47	03.7		400
1990 KP		1990 05 26.49306	12	56	15.15	-23	44	28.2	16.5	400
1990 KP		1990 05 26.51458	12	56	14.69	-23	44	21.2		400
1990 KQ	*	1990 05 16.55972	17	03	59.84	-17	11	44.0	15.5	400
1990 KQ		1990 05 16.58056	17	03	58.89	-17	11	50.0		400
1990 KQ		1990 05 16.59479	17	03	58.26	-17	11	54.0		400
1990 KQ		1990 05 25.55868	16	57	13.27	-17	58	14.3	15.5	400
1990 KQ		1990 05 25.57639	16	57	12.37	-17	58	18.8		400
1990 KQ		1990 05 26.54722	16	56	22.22	-18	03	40.5	15.5	400
1990 KQ		1990 05 26.56736	16	56	21.16	-18	03	47.6		400

413 Siding Spring
R. H. McNaught, Siding Spring Observatory, Coonabarabran, N.S.W. 2357, Australia
Observers J. Barton, P. Cass, J. A. Dawe, R. D. Eberst, A. Good, M. Hartley, T. G. Hawarden, S. M. Hughes, P. McKenzie, R. H. McNaught, D. H. Morgan, K. S. Russell, A. Savage, M. E. Sim, P. R. Standen, R. J. Smyth, K. P. Tritton, J. D. Waldron, F. G. Watson
Measurer R. H. McNaught
1.2-m U. K. Schmidt Telescope and Uppsala Southern Schmidt

1927 TC		1975 06 01.55494	16	33	07.96	-41	25	54.2	16 V	413
1927 TC		1975 06 01.57814	16	33	05.79	-41	25	55.5		413
1931 UD		1990 05 03.79451	20	40	40.05	-31	23	41.1	18 V	413
1931 UD		1990 05 04.77723	20	41	37.82	-31	22	44.8		413
1938 HA		1978 05 04.68190	17	31	12.74	-31	39	49.1	17.5V	413
1938 HA		1978 05 04.73745	17	31	11.85	-31	40	08.8		413
1938 HA		1984 08 17.65171	21	33	43.63	-32	56	06.0	16.5V	413
1968 OG1		1990 06 04.75145	21	34	23.15	-01	38	19.9	16.5V	413
1968 OG1		1990 06 04.81395	21	34	24.71	-01	38	05.7		413
1976 YD2		1990 04 27.77384	20	12	20.50	-20	49	54.2	18 V	413
1976 YD2		1990 04 30.78573	20	14	19.22	-20	39	15.2		413
1977 FN1		1990 05 29.70346	23	08	24.69	-13	28	49.6	18.5V V	413
1977 QD3		1990 05 29.68263	23	08	29.54	-15	47	39.1	18 V p	413
1977 QD3		1990 05 29.72429	23	08	33.36	-15	47	16.0	F	413
1977 RD2		1987 09 24.51771	23	02	42.00	-11	06	43.2	17.5V	413
1977 RD2		1987 09 24.56979	23	02	39.68	-11	06	51.3		413
1978 SE1		1990 05 29.68263	23	05	37.90	-12	38	56.2	18 V V	413

1978	SE1		1990	05	29.72429	23	05	42.27	-12	38	37.0		V	413
1978	VG8		1990	05	29.68263	23	03	03.49	-10	53	29.5	18 V	I	413
1978	VG8		1990	05	29.72429	23	03	07.80	-10	53	15.8		V	413
1979	QZ1		1990	05	29.76574	22	12	09.52	-11	40	15.7	18.5V	F	413
1979	QZ1		1990	05	29.80741	22	12	10.44	-11	40	06.6		F	413
1980	JC		1990	05	29.76574	21	55	26.50	-15	23	10.2	17.5V	t	413
1980	JC		1990	05	29.80741	21	55	29.70	-15	22	48.8		t	413
1980	RJ		1990	05	29.68263	22	48	59.45	-12	55	48.6	18 V	F	413
1980	RJ		1990	05	29.72429	22	49	01.98	-12	55	34.5		F	413
1982	QA4	*	1982	08	21.60514	22	43	59.70	-13	00	52.7	17.5V		413
1982	QA4		1982	08	21.64681	22	43	57.76	-13	01	04.8			413
1984	ER1		1987	09	24.51771	22	47	14.77	-08	41	07.1	17.5V		413
1984	ER1		1987	09	24.56979	22	47	12.80	-08	41	19.6			413
1985	GW		1990	05	29.76574	22	09	54.98	-15	34	16.9	18.5V	V	413
1985	GW		1990	05	29.80741	22	09	56.24	-15	34	13.3		V	413
1985	RZ2		1990	04	27.77384	20	01	19.26	-19	45	20.0		V	413
1985	RZ2		1990	04	30.77705	20	03	23.09	-19	41	00.2	18 V		413
1985	RZ2		1990	04	30.79441	20	03	23.63	-19	40	59.2			413
1985	RJ4		1990	04	30.78573	19	58	52.33	-23	02	15.1	18.5V		413
1986	PV4		1990	04	28.55812	15	13	16.54	-30	41	40.6			413
1986	PV4		1990	04	28.62063	15	13	13.36	-30	41	36.3			413
1986	PV4		1990	04	29.57617	15	12	25.40	-30	40	31.7			413
1986	PV4		1990	04	29.63867	15	12	22.22	-30	40	27.2			413
1986	VG		1990	05	03.79451	20	25	19.86	-29	56	59.3	17.5V		413
1986	VG		1990	05	04.77723	20	25	52.22	-29	57	35.6			413
1986	YB		1990	04	27.77384	20	07	28.38	-20	09	11.2	18.5V		413
1986	YB		1990	04	30.78573	20	09	18.88	-19	57	41.7			413
1987	QL		1987	09	24.51771	23	02	20.14	-10	05	11.6	17 V		413
1987	QL		1987	09	24.56979	23	02	18.23	-10	05	37.5			413
1987	QF6		1987	09	24.51771	23	03	32.78	-08	02	04.9	17 V		413
1987	QF6		1987	09	24.56979	23	03	30.32	-08	03	12.0			413
1987	RJ		1990	04	27.77384	20	01	12.44	-21	35	18.9	18 V	V	413
1987	RJ		1990	04	30.78573	20	04	41.80	-21	29	47.5			413
1987	RG1		1987	09	24.51771	22	53	01.62	-06	59	42.9	16.5V		413
1987	RG1		1987	09	24.56979	22	52	59.58	-06	59	51.4			413
1987	RQ2		1987	09	24.51771	22	56	22.01	-13	12	47.4	16.5V		413
1987	SC30	*	1987	09	24.51771	22	47	09.53	-08	27	22.5	18.5V		413
1987	SC30		1987	09	24.56979	22	47	06.36	-08	27	11.7			413
1987	SD30	*	1987	09	24.51771	23	11	03.25	-09	15	21.3	16 V		413
1987	SD30		1987	09	24.56979	23	11	01.22	-09	15	44.0			413
1987	SE13		1987	09	24.51771	23	11	35.13	-09	51	46.6	17.5V		413
1987	SE13		1987	09	24.56979	23	11	32.88	-09	51	58.7			413
1989	AT6		1990	04	27.77384	20	06	35.59	-19	17	19.9	18 V	F	413
1989	AT6		1990	04	30.77705	20	10	25.90	-19	07	27.5			413
1989	AT6		1990	04	30.79441	20	10	27.00	-19	07	24.5			413
1989	CT		1990	04	27.77384	20	13	55.30	-19	47	24.2	18 V	V	413
1989	CN1		1987	09	24.51771	22	58	30.10	-10	18	10.3	16.5V		413
1989	CN1		1987	09	24.56979	22	58	27.40	-10	18	20.1			413
1989	EF		1990	06	04.75145	21	34	17.17	-01	43	23.1	16 V		413
1989	EF		1990	06	04.81395	21	34	18.15	-01	43	11.9			413
1989	GP6		1990	05	29.76574	21	52	10.30	-10	24	23.9	18 V	t	413
1989	PB		1990	05	03.79451	20	29	00.38	-31	27	04.8		b	413
1989	PB		1990	05	04.77723	20	30	07.25	-31	28	28.1	20		413
1989	WN1		1983	06	12.73524	21	46	51.53	-25	44	37.6	17 V		413
1989	WN1		1983	06	12.77691	21	46	52.33	-25	44	47.2			413
1989	WL2		1978	10	24.50459	00	21	51.07	-38	00	28.0	16 V		413
1989	WL2		1978	10	24.55321	00	21	49.89	-38	00	28.9			413
1989	WL2		1983	04	17.75543	18	48	04.49	+04	31	28.3	18 V	F	413
1989	WL2		1983	04	17.79709	18	48	06.23	+04	31	47.6		F	413

1989	WL2		1986	08	01.67699	23	12	28.76	-11	56	11.8			413
1989	WL2		1986	08	01.72560	23	12	28.76	-11	57	15.9			413
1989	WL2		1988	08	14.42406	14	48	06.53	+07	20	32.5	18	V V	413
1989	YH1		1976	05	27.66279	19	02	29.18	-24	45	30.0	17	V	413
1989	YH1		1976	05	27.69057	19	02	28.37	-24	45	31.6			413
1989	YH1		1983	06	15.38361	13	29	54.50	-11	59	40.2	16.5	V	413
1989	YH1		1983	06	15.44611	13	29	55.73	-11	59	45.8			413
1990	EC		1990	03	25.53299	11	10	42.22	+12	16	49.9	17.5	V	413
1990	EC		1990	03	25.54734	11	10	41.69	+12	16	54.7			413
1990	EB5	*	1990	03	04.73045	14	45	54.51	-31	07	56.9	18	V F	413
1990	EB5		1990	03	04.77559	14	45	54.96	-31	08	11.2			413
1990	EB5		1990	03	07.71049	14	46	21.20	-31	26	02.3			413
1990	EB5		1990	03	07.75215	14	46	21.34	-31	26	17.1			413
1990	EC5	*	1990	03	04.73045	14	47	29.62	-32	07	21.4	18	V	413
1990	EC5		1990	03	04.77559	14	47	30.02	-32	07	35.2			413
1990	EC5		1990	03	07.71049	14	47	55.98	-32	24	45.3			413
1990	EC5		1990	03	07.75215	14	47	56.16	-32	24	57.9			413
1990	EE5	*	1990	03	04.73045	14	50	28.50	-31	30	42.5	17.5	V	413
1990	EE5		1990	03	04.77559	14	50	28.98	-31	30	54.2			413
1990	EE5		1990	03	07.71049	14	50	54.22	-31	43	49.0			413
1990	EE5		1990	03	07.75215	14	50	54.37	-31	43	57.8			413
1990	EF5	*	1990	03	04.73045	14	52	10.87	-34	35	38.8	17.5	V	413
1990	EF5		1990	03	04.77559	14	52	10.58	-34	35	54.6			413
1990	EF5		1990	03	07.75215	14	52	20.14	-34	15	27.4			413
1990	EG5	*	1990	03	04.73045	15	10	27.30	-33	25	34.2	19	V F	413
1990	EG5		1990	03	04.77559	15	10	28.69	-33	25	52.7		F	413
1990	EG5		1990	03	07.71049	15	12	05.08	-33	46	37.7		F	413
1990	EK5	*	1990	03	04.73045	15	14	31.42	-31	35	43.7	18	V	413
1990	EK5		1990	03	04.77559	15	14	32.05	-31	35	54.4			413
1990	EK5		1990	03	07.71049	15	15	16.21	-31	48	59.6			413
1990	EK5		1990	03	07.75215	15	15	16.74	-31	49	10.3			413
1990	FP		1990	05	26.41212	12	05	16.13	+21	49	25.2	17	V	413
1990	FP		1990	05	26.45409	12	05	17.26	+21	48	52.2			413
1990	FQ		1990	04	27.48676	12	15	54.06	+21	36	57.6	17	V p	413
1990	FQ		1990	04	27.54926	12	15	52.75	+21	36	28.4		p	413
1990	FQ		1990	04	29.46536	12	15	15.55	+21	18	59.7			413
1990	FQ		1990	04	29.50703	12	15	14.81	+21	18	38.8			413
1990	FQ		1990	05	26.41212	12	17	49.38	+16	02	12.3	17.5	V V	413
1990	FQ		1990	05	26.45409	12	17	50.27	+16	01	44.2		V	413
1990	FR		1990	04	29.52285	13	15	15.91	+21	18	55.4	15	V	413
1990	FR		1990	04	29.56451	13	15	14.79	+21	18	41.7			413
1990	FR		1990	04	30.51874	13	14	49.28	+21	12	31.5			413
1990	FR		1990	04	30.58124	13	14	47.64	+21	12	09.9			413
1990	FC1		1990	05	26.41212	12	21	08.03	+19	46	58.4	16.5	V	413
1990	FC1		1990	05	26.45409	12	21	08.31	+19	46	46.0			413
1990	FS1		1990	04	27.51801	12	02	59.90	+19	41	20.9	16.5	V	413
1990	FS1		1990	04	29.48619	12	02	22.69	+19	38	08.2			413
1990	FS1		1990	05	26.41242	12	03	14.68	+17	33	56.7	17.5	V	413
1990	FS1		1990	05	26.45409	12	03	15.42	+17	33	40.4			413
1990	FT1		1990	04	27.48676	12	12	23.08	+19	11	15.6	17	V p	413
1990	FT1		1990	04	27.54926	12	12	21.27	+19	11	10.9			413
1990	FT1		1990	04	29.46536	12	11	22.20	+19	07	19.6			413
1990	FT1		1990	04	29.50703	12	11	21.05	+19	07	14.3			413
1990	FT1		1990	05	26.41212	12	06	03.48	+17	04	59.7	18	V	413
1990	FT1		1990	05	26.45409	12	06	03.58	+17	04	46.8			413
1990	HF		1990	04	29.52285	13	20	57.26	+17	04	08.2	17	V	413
1990	HF		1990	04	29.56451	13	20	54.10	+17	03	22.3			413
1990	HF		1990	04	30.51874	13	19	44.33	+16	44	35.7		F	413
1990	HF		1990	04	30.58124	13	19	39.71	+16	43	27.7		F	413

1990	HK1	*	1990	04	28.55812	14	58	32.22	-33	19	23.7		17	V		413
1990	HK1		1990	04	28.62063	14	58	28.45	-33	19	31.2					413
1990	HK1		1990	04	29.57616	14	57	31.94	-33	21	36.4					413
1990	HK1		1990	04	29.62063	14	57	28.16	-33	21	43.9					413
1990	HL1	*	1990	04	28.55812	15	06	23.70	-32	07	35.7		16	V		413
1990	HL1		1990	04	28.62063	15	06	21.40	-32	06	13.5					413
1990	HL1		1990	04	29.57617	15	05	50.46	-31	44	32.3					413
1990	HL1		1990	04	29.63867	15	05	48.07	-31	43	06.3					413
1990	HP1	*	1990	04	27.48676	12	18	19.26	+20	08	37.1		17	V	p	413
1990	HP1		1990	04	27.54926	12	18	16.70	+20	08	14.8				p	413
1990	HP1		1990	04	29.46536	12	17	08.58	+19	55	12.8					413
1990	HP1		1990	04	29.50703	12	17	07.24	+19	54	57.4					413
1990	HQ1	*	1990	04	29.52285	13	05	29.98	+18	16	55.7		17.5	V		413
1990	HQ1		1990	04	29.56451	13	05	26.89	+18	15	49.8				F	413
1990	HQ1		1990	04	30.51874	13	04	17.43	+17	49	05.4				V	413
1990	HQ1		1990	04	30.58124	13	04	13.37	+17	47	34.1				V	413
1990	HS1	*	1990	04	27.48676	11	55	04.96	+18	25	15.5		18	V	V	413
1990	HS1		1990	04	29.48619	11	54	26.79	+18	22	37.7					413
1990	HT1	*	1990	04	27.48676	11	59	57.68	+19	11	02.9		17.5	V	F	413
1990	HT1		1990	04	27.54926	11	59	55.70	+19	10	50.7				F	413
1990	HT1		1990	04	29.48619	11	58	54.18	+19	03	44.9					413
1990	HU1	*	1990	04	27.48676	12	08	39.09	+16	48	50.9		18	V		413
1990	HU1		1990	04	27.54926	12	08	37.68	+16	48	55.7					413
1990	HU1		1990	04	29.48619	12	07	54.40	+16	51	04.6					413
1990	HU1		1990	05	26.41212	12	07	18.89	+15	50	18.3		18	V		413
1990	HU1		1990	05	26.45409	12	07	19.41	+15	50	09.1					413
1990	HV1	*	1990	04	27.48676	12	17	59.34	+17	39	56.2		17.5	V	F	413
1990	HV1		1990	04	27.54926	12	17	56.84	+17	39	36.2				V	413
1990	HV1		1990	04	29.46536	12	16	48.11	+17	28	36.2					413
1990	HV1		1990	04	29.50703	12	16	46.72	+17	28	23.3					413
1990	HW1	*	1990	04	27.48676	12	19	11.94	+18	32	56.4		17.5	V	p	413
1990	HW1		1990	04	27.54926	12	19	10.21	+18	32	59.2					413
1990	HW1		1990	04	29.48619	12	18	19.87	+18	33	33.7					413
1990	HW1		1990	05	26.41212	12	15	49.75	+17	11	32.9		18	V		413
1990	HW1		1990	05	26.45409	12	15	50.11	+17	11	23.7					413
1990	HX1	*	1990	04	27.51801	11	57	40.59	+17	31	33.4		18	V		413
1990	HX1		1990	04	29.48619	11	56	47.84	+17	30	20.9				I	413
1990	HY1	*	1990	04	27.51801	11	58	16.14	+17	44	01.9		18	V	V	413
1990	HY1		1990	04	29.48619	11	57	33.96	+17	40	41.7					413
1990	HZ1	*	1990	04	27.51801	12	08	26.62	+19	32	20.4		17.5	V		413
1990	HZ1		1990	04	29.48619	12	07	53.23	+19	30	26.2					413
1990	HZ1		1990	05	26.41212	12	08	46.10	+17	45	46.6		18	V		413
1990	HZ1		1990	05	26.45409	12	08	46.80	+17	45	32.0				p	413
1990	HA2	*	1990	04	27.51801	12	17	51.75	+19	09	28.7		18	V		413
1990	HA2		1990	04	29.48619	12	17	03.39	+19	09	09.8					413
1990	HA2		1990	05	26.41212	12	13	57.10	+17	46	46.0		18.5	V		413
1990	HA2		1990	05	26.45409	12	13	57.44	+17	46	37.2					413
1990	HB2	*	1990	04	27.54926	12	17	47.62	+17	25	05.0		18	V	F	413
1990	HB2		1990	04	29.48619	12	16	55.41	+17	26	09.9				F	413
1990	HB2		1990	05	26.41212	12	15	17.26	+15	59	21.2		18.5	V	V	413
1990	HB2		1990	05	26.45409	12	15	17.77	+15	59	09.1				V	413
1990	HC2	*	1990	04	27.76169	19	51	14.89	-21	24	19.0		18	V	V	413
1990	HC2		1990	04	27.78600	19	51	16.96	-21	24	16.0				V	413
1990	HC2		1990	04	30.77705	19	56	11.55	-21	12	19.4					413
1990	HD2	*	1990	04	27.76169	19	54	50.46	-21	06	51.8		18	V		413
1990	HD2		1990	04	27.78600	19	54	51.49	-21	06	46.6					413
1990	HD2		1990	04	30.77705	19	57	11.52	-20	55	29.4					413
1990	HD2		1990	04	30.79441	19	57	12.14	-20	55	25.2					413

1990	HE2	*	1990	04	27.76169	20	02	10.96	-20	46	13.4	17.5V	F	413
1990	HE2		1990	04	27.78600	20	02	12.46	-20	46	13.1		V	413
1990	HE2		1990	04	30.77705	20	05	39.81	-20	42	55.5			413
1990	HE2		1990	04	30.79441	20	05	40.84	-20	42	54.9			413
1990	HF2	*	1990	04	27.76169	20	04	58.26	-20	11	10.6	18 V		413
1990	HF2		1990	04	27.78600	20	04	58.88	-20	11	05.4			413
1990	HF2		1990	04	30.78573	20	06	30.64	-20	01	01.4			413
1990	HG2	*	1990	04	27.76169	20	06	04.71	-19	51	10.2	18 V	V	413
1990	HG2		1990	04	27.78600	20	06	06.31	-19	51	02.3		V	413
1990	HG2		1990	04	30.77705	20	09	41.14	-19	32	41.5			413
1990	HG2		1990	04	30.79441	20	09	42.13	-19	32	34.9			413
1990	HH2	*	1990	04	27.76169	20	06	27.52	-22	05	57.3	18 V		413
1990	HH2		1990	04	27.78600	20	06	29.76	-22	05	56.1		F	413
1990	HH2		1990	04	30.77705	20	11	23.98	-22	03	57.4			413
1990	HH2		1990	04	30.79441	20	11	25.53	-22	03	57.0			413
1990	HJ2	*	1990	04	27.76169	20	07	43.94	-20	34	39.4	18 V	F	413
1990	HJ2		1990	04	27.78600	20	07	45.08	-20	34	36.1		F	413
1990	HJ2		1990	04	30.77705	20	10	28.59	-20	27	46.8			413
1990	HJ2		1990	04	30.79441	20	10	29.32	-20	27	45.1			413
1990	HK2	*	1990	04	27.76169	20	08	31.25	-21	04	11.2	18 V	V	413
1990	HK2		1990	04	27.77384	20	08	32.06	-21	04	09.9		V	413
1990	HK2		1990	04	30.77705	20	10	39.44	-20	57	55.8			413
1990	HK2		1990	04	30.79441	20	10	40.01	-20	57	53.9			413
1990	HL2	*	1990	04	27.76169	20	11	46.70	-24	14	55.9	18 V	V	413
1990	HL2		1990	04	27.78600	20	11	47.72	-24	14	52.5		V	413
1990	HL2		1990	04	30.77705	20	14	14.14	-23	56	00.6			413
1990	HL2		1990	04	30.79441	20	14	14.71	-23	55	56.7			413
1990	HM2	*	1990	04	27.76169	20	13	05.91	-21	29	26.6	18 V		413
1990	HM2		1990	04	27.78600	20	13	07.44	-21	29	16.2			413
1990	HM2		1990	04	30.77705	20	16	24.19	-21	06	38.1			413
1990	HM2		1990	04	30.79441	20	16	25.12	-21	06	30.8			413
1990	HN2	*	1990	04	27.76169	20	13	07.52	-21	55	55.2	18 V		413
1990	HN2		1990	04	27.78600	20	13	08.45	-21	55	51.5			413
1990	HN2		1990	04	30.77705	20	15	18.82	-21	47	30.0			413
1990	HN2		1990	04	30.79441	20	15	19.35	-21	47	27.4			413
1990	HO2	*	1990	04	27.76169	20	13	43.33	-23	49	55.8	18 V		413
1990	HO2		1990	04	27.78600	20	13	44.78	-23	49	58.4		F	413
1990	HO2		1990	04	30.77705	20	16	28.26	-23	54	24.0			413
1990	HO2		1990	04	30.79441	20	16	29.04	-23	54	25.9			413
1990	HP2	*	1990	04	27.77384	19	53	41.74	-19	34	16.9	18 V		413
1990	HP2		1990	04	30.77705	19	56	45.27	-19	33	52.7			413
1990	HP2		1990	04	30.79441	19	56	46.15	-19	33	52.6			413
1990	HQ2	*	1990	04	27.77384	19	55	37.81	-20	34	39.6	18 V	V	413
1990	HQ2		1990	04	30.77705	19	59	21.31	-20	35	11.5		F	413
1990	HQ2		1990	04	30.79441	19	59	22.46	-20	35	11.5		F	413
1990	HR2	*	1990	04	27.77384	20	00	41.39	-20	21	02.2	18 V	V	413
1990	HR2		1990	04	30.78573	20	03	06.52	-20	13	02.6			413
1990	HS2	*	1990	04	27.77384	20	11	20.00	-21	05	32.1	18 V	V	413
1990	HS2		1990	04	30.77705	20	14	30.59	-20	52	30.4			413
1990	HS2		1990	04	30.79441	20	14	31.16	-20	52	26.9			413
1990	HT2	*	1990	04	28.55812	14	50	31.69	-30	38	19.4	18 V	V	413
1990	HT2		1990	04	29.57617	14	49	36.54	-30	36	49.1		V	413
1990	HT2		1990	04	29.63867	14	49	33.63	-30	36	44.7		V	413
1990	HU2	*	1990	04	28.55812	14	50	38.75	-30	25	53.2	17.5V		413
1990	HU2		1990	04	28.62063	14	50	34.30	-30	25	50.4		F	413
1990	HU2		1990	04	29.57617	14	49	27.50	-30	25	24.9		F	413
1990	HU2		1990	04	29.63867	14	49	23.04	-30	25	22.3		F	413
1990	HV2	*	1990	04	28.55812	14	53	38.03	-30	11	49.4	17.5V		413

1990	HV2		1990	04	28.62063	14	53	34.75	-30	11	38.8			F 413
1990	HV2		1990	04	29.57617	14	52	45.38	-30	09	12.8			F 413
1990	HV2		1990	04	29.63867	14	52	42.22	-30	09	02.9			F 413
1990	HW2	*	1990	04	28.55812	14	56	08.44	-34	44	01.1	18	V	V 413
1990	HW2		1990	04	28.62063	14	56	01.96	-34	42	49.3			V 413
1990	HW2		1990	04	29.63867	14	54	55.18	-34	29	27.7			F 413
1990	HX2	*	1990	04	28.55812	14	56	21.02	-34	53	07.1	17.5	V	413
1990	HX2		1990	04	28.62063	14	56	17.18	-34	53	03.3			413
1990	HX2		1990	04	29.57617	14	55	18.83	-34	52	08.0			413
1990	HX2		1990	04	29.62063	14	55	15.03	-34	52	04.1			413
1990	HY2	*	1990	04	28.55812	15	00	45.50	-32	35	09.8	17.5	V	F 413
1990	HY2		1990	04	28.62063	15	00	41.47	-32	34	03.3			V 413
1990	HY2		1990	04	29.57617	14	59	43.93	-32	17	07.0			413
1990	HZ2	*	1990	04	28.55812	15	01	22.69	-30	44	20.1	18	V	V 413
1990	HZ2		1990	04	29.57617	15	00	29.97	-30	42	11.4			V 413
1990	HZ2		1990	04	29.63867	15	00	25.91	-30	42	00.6			V 413
1990	HA3	*	1990	04	28.55812	15	08	48.39	-30	58	50.0	18	V	V 413
1990	HA3		1990	04	28.62063	15	08	45.04	-30	58	49.0			V 413
1990	HA3		1990	04	29.57617	15	07	51.00	-30	58	41.0			V 413
1990	HA3		1990	04	29.63867	15	07	47.48	-30	58	39.3			V 413
1990	HB3	*	1990	04	28.55812	15	09	25.89	-31	24	04.3	18	V	413
1990	HB3		1990	04	29.57617	15	08	33.90	-31	22	37.9			I 413
1990	HB3		1990	04	29.63867	15	08	30.60	-31	22	33.7			413
1990	HC3	*	1990	04	28.55812	15	10	50.65	-30	07	16.8	18	V	F 413
1990	HC3		1990	04	29.57617	15	09	57.05	-30	02	15.3			F 413
1990	HC3		1990	04	29.63867	15	09	53.85	-30	01	56.5			F 413
1990	HD3	*	1990	04	29.52285	13	01	39.62	+17	45	10.0	18	V	F 413
1990	HD3		1990	04	29.56451	13	01	38.18	+17	45	03.3			F 413
1990	HD3		1990	04	30.51874	13	01	01.46	+17	42	34.2			F 413
1990	HD3		1990	04	30.58124	13	00	59.15	+17	42	23.0			F 413
1990	HE3	*	1990	04	29.52285	13	04	42.07	+16	59	31.7	18	V	413
1990	HE3		1990	04	29.56451	13	04	40.66	+16	59	33.5			413
1990	HE3		1990	04	30.51874	13	04	07.35	+17	00	37.4			V 413
1990	HE3		1990	04	30.58124	13	04	05.45	+17	00	40.3			V 413
1990	HF3	*	1990	04	29.52285	13	07	12.08	+17	41	43.8	18	V	413
1990	HF3		1990	04	29.56451	13	07	10.38	+17	41	41.7			413
1990	HF3		1990	04	30.51874	13	06	35.15	+17	40	41.4			V 413
1990	HF3		1990	04	30.58124	13	06	32.73	+17	40	37.9			V 413
1990	HG3	*	1990	04	29.52285	13	09	00.75	+17	31	14.0	17	V	413
1990	HG3		1990	04	29.56451	13	08	59.23	+17	31	17.4			413
1990	HG3		1990	04	30.51874	13	08	23.26	+17	32	34.6			413
1990	HG3		1990	04	30.58124	13	08	20.93	+17	32	39.6			p 413
1990	HH3	*	1990	04	29.52285	13	12	05.14	+17	39	12.8	17.5	V	413
1990	HH3		1990	04	29.56451	13	12	03.55	+17	39	18.3			413
1990	HH3		1990	04	30.51874	13	11	26.11	+17	41	48.8			F 413
1990	HH3		1990	04	30.58124	13	11	23.91	+17	41	56.5			F 413
1990	HJ3	*	1990	04	29.52285	13	23	24.33	+18	12	21.4	18	V	F 413
1990	HJ3		1990	04	30.51874	13	22	37.87	+18	05	07.1			V 413
1990	HJ3		1990	04	30.58124	13	22	35.61	+18	04	48.5			V 413
1990	HK3	*	1990	04	29.52285	13	24	26.58	+17	58	10.7	18	V	413
1990	HK3		1990	04	29.56451	13	24	24.51	+17	58	13.2			413
1990	HK3		1990	04	30.54999	13	23	28.02	+17	58	36.4			V 413
1990	HL3	*	1990	04	29.51874	13	24	25.94	+17	07	46.9	17.5	V	V 413
1990	HL3		1990	04	30.51874	13	23	43.93	+17	05	43.9			V 413
1990	HL3		1990	04	30.58124	13	23	41.22	+17	05	39.2			V 413
1990	JA	*	1990	05	03.79451	20	20	18.40	-32	26	17.7			b 413
1990	JA		1990	05	04.77723	20	22	37.49	-32	23	05.9	17.5	V	413
1990	JB	*	1990	05	03.79451	20	17	05.52	-29	40	18.4	18	V	413

1990	JB		1990	05	04.77723	20	18	23.83	-29	44	13.2			413
1990	JC	*	1990	05	03.79451	20	19	01.73	-29	11	55.3	19	V	413
1990	JC		1990	05	04.77723	20	20	10.16	-29	12	54.5			413
1990	JD	*	1990	05	03.79451	20	19	14.83	-32	27	07.4	18.5	V	413
1990	JD		1990	05	04.77723	20	20	04.23	-32	29	36.1			413
1990	JE	*	1990	05	03.79451	20	23	07.13	-33	36	31.2	18	V	413
1990	JE		1990	05	04.77723	20	24	15.26	-33	35	25.9			413
1990	JF	*	1990	05	03.79451	20	23	29.94	-30	12	08.0	19	V V	413
1990	JF		1990	05	04.77723	20	24	13.58	-30	12	49.4			413
1990	JG	*	1990	05	03.79451	20	24	13.26	-32	12	00.6	17.5	V	413
1990	JG		1990	05	04.77723	20	25	14.01	-32	16	27.8			413
1990	JH	*	1990	05	03.79451	20	24	42.46	-32	12	19.8	18	V	413
1990	JH		1990	05	04.77723	20	25	35.63	-32	11	36.5			413
1990	JJ	*	1990	05	03.79451	20	24	47.42	-29	07	09.4	18.5	V	413
1990	JJ		1990	05	04.77723	20	26	00.09	-29	04	34.0			413
1990	JK	*	1990	05	03.79451	20	25	08.65	-30	29	49.0	17.5	V	413
1990	JK		1990	05	04.77723	20	26	31.59	-30	31	44.0		I	413
1990	JL	*	1990	05	03.79451	20	26	50.26	-33	12	37.7	18.5	V	413
1990	JL		1990	05	04.77723	20	27	45.09	-33	12	41.9			413
1990	JM	*	1990	05	03.79451	20	30	11.83	-33	52	44.4	18	V F	413
1990	JM		1990	05	04.77723	20	31	14.45	-33	41	16.0			413
1990	JN	*	1990	05	03.79451	20	30	53.83	-32	39	46.0	18	V	413
1990	JN		1990	05	04.77723	20	31	54.67	-32	30	41.0			413
1990	JO	*	1990	05	03.79451	20	31	00.65	-33	57	31.7	18.5	V	413
1990	JO		1990	05	04.77723	20	31	55.60	-34	03	18.4			413
1990	JP	*	1990	05	03.79451	20	31	55.31	-31	29	11.5	18.5	V F	413
1990	JP		1990	05	04.77723	20	32	26.59	-31	31	35.1			413
1990	JQ	*	1990	05	03.79451	20	32	16.46	-32	32	37.0	18	V I	413
1990	JQ		1990	05	04.77723	20	33	02.35	-32	35	17.0			413
1990	JR	*	1990	05	03.79451	20	32	52.45	-28	57	43.7	18	V	413
1990	JR		1990	05	04.77723	20	34	08.33	-28	58	43.9			413
1990	JS	*	1990	05	03.79451	20	34	28.33	-31	02	14.3	19	V	413
1990	JS		1990	05	04.77723	20	35	22.32	-31	03	14.5			413
1990	JT	*	1990	05	03.79451	20	34	39.55	-32	42	00.2	18	V	413
1990	JT		1990	05	04.77723	20	35	38.30	-32	42	25.2			413
1990	JU	*	1990	05	03.79451	20	35	06.36	-33	14	41.7	19.5	V F	413
1990	JU		1990	05	04.77723	20	36	05.74	-33	15	44.4			413
1990	JV	*	1990	05	03.79451	20	35	18.82	-29	39	27.4	19	V	413
1990	JV		1990	05	04.77723	20	36	20.42	-29	38	45.3			413
1990	JW	*	1990	05	03.79451	20	35	22.98	-28	40	25.6	18.5	V	413
1990	JW		1990	05	04.77723	20	36	23.62	-28	40	07.8			413
1990	JX	*	1990	05	03.79451	20	35	55.42	-31	58	02.3	19	V	413
1990	JX		1990	05	04.77723	20	36	34.69	-31	58	27.4			413
1990	JY	*	1990	05	03.79451	20	37	05.96	-30	01	19.5	19	V	413
1990	JY		1990	05	04.77723	20	38	05.26	-30	02	29.0			413
1990	JZ	*	1990	05	03.79451	20	37	19.02	-33	40	46.0	19	V	413
1990	JZ		1990	05	04.77723	20	38	13.98	-33	41	34.7			413
1990	JA1	*	1990	05	03.79451	20	38	11.23	-30	07	03.5	17.5	V	413
1990	JA1		1990	05	04.77723	20	39	48.37	-30	07	31.5			413
1990	JB1	*	1990	05	03.79451	20	38	16.33	-31	18	59.2	18.5	V	413
1990	JB1		1990	05	04.77723	20	39	31.43	-31	16	31.4			413
1990	JC1	*	1990	05	03.79451	20	39	09.41	-32	31	36.5	18.5	V	413
1990	JC1		1990	05	04.77723	20	40	16.29	-32	38	00.3			413
1990	JD1	*	1990	05	03.79451	20	40	15.82	-28	59	40.3	18	V	413
1990	JD1		1990	05	04.77723	20	41	17.65	-28	58	52.5			413
1990	JE1	*	1990	05	03.79451	20	42	19.68	-30	51	18.9	18	V	413
1990	JE1		1990	05	04.77723	20	43	02.39	-30	54	14.0			413
1990	JF1	*	1990	05	03.79451	20	42	25.04	-29	26	43.3	19	V F	413

1990	JF1		1990	05	04.77723	20	43	58.82	-29	30	46.7		413
1990	JG1	*	1990	05	03.79451	20	42	53.97	-29	28	12.0	19 V	413
1990	JG1		1990	05	04.77723	20	44	09.56	-29	31	40.7		413
1990	JH1	*	1990	05	03.79451	20	43	19.05	-29	42	41.1	18 V	413
1990	JH1		1990	05	04.77723	20	44	33.00	-29	42	45.7		413
1990	KA		1990	05	26.51991	15	13	16.51	+08	07	14.6	15.5V F	413
1990	KA		1990	06	14.51655	15	32	02.44	-01	37	40.5	F	413
1990	KA		1990	06	14.52315	15	32	03.05	-01	38	00.4	15 V	413
1990	KA		1990	06	15.52221	15	33	26.01	-02	15	05.4		413
1990	KB		1990	05	19.49463	15	26	28.79	+02	32	34.8	V	413
1990	KB		1990	05	19.61963	15	26	22.58	+02	33	15.5	V	413
1990	KB	*	1990	05	20.52300	15	25	37.78	+02	37	44.7	16.5V	413
1990	KB		1990	05	20.59591	15	25	34.27	+02	38	06.5		413
1990	KC		1990	05	19.49463	15	28	43.59	-02	39	41.9	V	413
1990	KC	*	1990	05	20.52300	15	27	51.09	-02	37	02.3	17.5V	413
1990	KC		1990	05	20.59591	15	27	47.50	-02	36	52.2		413
1990	KC		1990	05	26.54400	15	22	51.15	-02	25	01.1	17.5V	413
1990	KC		1990	05	26.58567	15	22	49.04	-02	24	58.2		413
1990	KD		1990	05	19.49463	15	35	20.04	+01	44	26.0	V	413
1990	KD		1990	05	19.61963	15	35	12.56	+01	43	53.2	F	413
1990	KD	*	1990	05	20.52300	15	34	21.00	+01	39	42.3	17 V I	413
1990	KD		1990	05	20.59591	15	34	16.64	+01	39	23.2		413
1990	KD		1990	05	26.54400	15	28	41.21	+01	05	08.9	17.5V	413
1990	KD		1990	05	26.58567	15	28	38.99	+01	04	53.1		413
1990	KD		1990	05	29.59745	15	25	56.51	+00	43	08.7		413
1990	KD		1990	05	29.63912	15	25	54.64	+00	42	52.1		413
1990	KE		1990	05	19.49463	15	37	54.39	-02	14	26.8	V	413
1990	KE		1990	05	19.61963	15	37	48.67	-02	13	43.4	V	413
1990	KE	*	1990	05	20.52300	15	37	02.68	-02	08	03.7	17 V	413
1990	KE		1990	05	20.59591	15	36	58.96	-02	07	36.3		413
1990	KE		1990	05	26.54400	15	32	01.89	-01	34	00.5	17.5V	413
1990	KE		1990	05	26.58567	15	31	59.88	-01	33	48.4		413
1990	KE		1990	05	29.59745	15	29	34.61	-01	19	15.1		413
1990	KE		1990	05	29.63912	15	29	32.55	-01	19	04.5		413
1990	KF		1990	05	19.49463	15	47	21.59	-01	28	24.2	V	413
1990	KF		1990	05	19.61963	15	47	15.01	-01	27	59.0	V	413
1990	KF	*	1990	05	20.52300	15	46	24.54	-01	25	06.5	17 V	413
1990	KF		1990	05	20.59591	15	46	20.55	-01	24	52.0	F	413
1990	KF		1990	05	26.54400	15	40	47.95	-01	09	24.2	17.5V	413
1990	KF		1990	05	26.58567	15	40	45.66	-01	09	19.9		413
1990	KF		1990	05	29.59745	15	38	00.12	-01	04	04.1		413
1990	KF		1990	05	29.63912	15	37	57.98	-01	04	01.0		413
1990	KG		1990	06	14.45405	15	40	12.36	+02	33	20.8	15 V	413
1990	KG		1990	06	14.51655	15	40	10.21	+02	32	44.2		413
1990	KG		1990	06	15.54156	15	39	34.97	+02	21	28.8		413
1990	KJ		1990	06	14.45405	15	34	57.55	+02	49	04.2	15 V	413
1990	KJ		1990	06	14.51655	15	34	53.81	+02	47	50.9		413
1990	KJ		1990	06	15.54156	15	33	57.87	+02	27	54.9		413
1990	KR		1990	06	14.45405	15	38	26.80	+01	17	59.5	16.5V F	413
1990	KR		1990	06	14.51655	15	38	25.06	+01	17	59.8	p	413
1990	KR		1990	06	15.50771	15	38	00.91	+01	17	43.3		413
1990	KC1	*	1990	05	20.52300	15	33	16.05	+01	49	24.2		413
1990	KC1		1990	05	20.59591	15	33	11.77	+01	49	17.6		413
1990	KC1		1990	05	26.54400	15	27	43.86	+01	35	46.4	17.5V	413
1990	KC1		1990	05	26.58567	15	27	41.76	+01	35	38.0		413
1990	KC1		1990	05	29.59745	15	25	04.15	+01	25	44.8		413
1990	KC1		1990	05	29.63912	15	25	02.28	+01	25	36.8		413
1990	KD1	*	1990	05	20.52300	15	35	41.31	-02	42	43.6		413
1990	KD1		1990	05	20.59591	15	35	37.83	-02	42	17.7	p	413

1990	KD1		1990	05	26.54400	15	30	44.17	-02	10	35.5	18	V	413
1990	KD1		1990	05	26.58567	15	30	42.16	-02	10	24.4			413
1990	KD1		1990	05	29.59745	15	28	21.44	-01	57	23.1		F	413
1990	KD1		1990	05	29.63912	15	28	19.66	-01	57	15.6		F	413
1990	KE1	*	1990	05	20.52300	15	40	54.33	-01	26	48.1		F	413
1990	KE1		1990	05	20.59591	15	40	51.11	-01	26	32.2		F	413
1990	KE1		1990	05	26.54400	15	36	29.69	-01	06	28.2	18	V	413
1990	KE1		1990	05	26.58567	15	36	27.94	-01	06	19.9			413
1990	KE1		1990	05	29.59745	15	34	19.26	-00	58	07.6		F	413
1990	KE1		1990	05	29.63912	15	34	17.67	-00	58	06.1		F	413
1990	KF1	*	1990	05	20.52300	15	44	17.10	-03	09	11.5		V	413
1990	KF1		1990	05	20.59591	15	44	13.66	-03	08	35.2		V	413
1990	KF1		1990	05	26.54400	15	39	27.09	-02	20	14.6	18	V	413
1990	KF1		1990	05	26.58567	15	39	25.12	-02	19	54.4			413
1990	KF1		1990	05	29.63912	15	37	04.06	-01	58	27.1		V	413
1990	KG1	*	1990	05	20.52300	15	44	21.38	+02	09	55.9		I	413
1990	KG1		1990	05	26.54400	15	38	31.11	+01	56	13.0	18	V	413
1990	KG1		1990	05	26.58567	15	38	28.71	+01	56	07.7			413
1990	KH1	*	1990	05	26.52300	15	38	34.97	+02	03	45.8	17.5	V	413
1990	KH1		1990	05	26.58567	15	38	31.27	+02	03	18.9			413
1990	KH1		1990	05	29.59745	15	34	05.13	+01	27	58.8		V	413
1990	KH1		1990	05	29.63912	15	34	01.68	+01	27	26.7		V	413
1990	KJ1	*	1990	05	26.54400	15	43	23.74	-03	01	46.2	18	V	413
1990	KJ1		1990	05	26.58567	15	43	21.60	-03	01	44.5			413
1990	KJ1		1990	05	29.59745	15	40	49.40	-03	00	19.0			413
1990	KJ1		1990	05	29.63912	15	40	46.71	-03	00	16.9			413
1990	KK1	*	1990	05	26.54400	15	47	22.05	-00	59	08.6	18	V	413
1990	KK1		1990	05	26.58567	15	47	19.77	-00	59	08.3			413
1990	KK1		1990	05	29.59745	15	44	32.66	-01	01	05.8		V	413
1990	LA	*	1990	06	14.45405	15	41	41.65	+01	59	02.5	15.5	V p	413
1990	LA		1990	06	14.51655	15	41	39.68	+01	59	00.3			413
1990	LA		1990	06	15.54156	15	41	06.70	+01	57	52.2			413
1990	LB	*	1990	06	14.45405	15	42	35.01	+00	28	50.5	16	V	413
1990	LB		1990	06	14.51655	15	42	32.95	+00	28	53.2			413
1990	LB		1990	06	15.55005	15	41	59.47	+00	29	21.8			413
1990	LC	*	1990	06	14.54825	17	37	05.46	-27	53	43.1	16.5	V	413
1990	LC		1990	06	15.73365	17	35	52.15	-27	53	04.9			413
4009	P-L		1990	04	30.77705	19	56	31.46	-22	59	32.3	18	V F	413
4009	P-L		1990	04	30.79441	19	56	32.71	-22	59	28.8			413
6547	P-L		1990	04	30.78573	20	05	29.26	-23	27	44.5	18.5	V F	413
4171	T-3		1990	05	29.70346	23	00	11.27	-13	07	05.7	18.5	V	413
20			1990	05	29.76574	22	08	20.36	-10	38	32.5		t	413
20			1990	05	29.80741	22	08	21.95	-10	38	18.3		t	413
40			1990	05	29.76574	21	48	55.08	-15	32	33.0		t	413
40			1990	05	29.80741	21	48	57.21	-15	32	23.0		t	413
51			1990	06	04.75145	21	39	16.75	-03	22	34.4			413
51			1990	06	04.81395	21	39	18.22	-03	22	19.6			413
104			1990	04	27.77384	19	50	49.63	-23	40	36.7			413
104			1990	04	30.78573	19	52	00.89	-23	40	29.6			413
128			1990	05	29.68263	23	00	36.91	-12	39	52.6			413
128			1990	05	29.72429	23	00	39.57	-12	39	42.2			413
191			1990	05	19.49463	15	28	05.70	-02	07	50.5			413
191			1990	05	19.61963	15	27	59.73	-02	07	26.4			413
191			1990	05	20.52300	15	27	17.41	-02	04	32.1			413
191			1990	05	20.59591	15	27	13.96	-02	04	18.0			413
191			1990	05	26.54400	15	22	40.89	-01	48	16.1			413
191			1990	05	26.58567	15	22	39.05	-01	48	10.7			413
237			1990	04	27.77384	20	09	40.47	-22	39	23.5			413
237			1990	04	30.78573	20	12	29.56	-22	42	19.5			413

271		1990	06	14.54825	17	35	40.47	-28	17	11.3			413
271		1990	06	15.73365	17	34	35.35	-28	16	18.3			413
281		1990	03	25.53299	11	04	06.88	+12	11	24.9			413
281		1990	03	25.54734	11	04	06.10	+12	11	26.4			413
311		1990	04	27.76169	19	53	13.42	-21	53	56.0			413
311		1990	04	30.78573	19	55	04.19	-21	52	14.2			413
364		1990	04	27.77384	19	55	17.17	-19	19	54.8			413
364		1990	04	30.78573	19	57	41.59	-19	16	56.3			413
426		1990	05	29.76574	22	04	28.26	-12	21	04.6		t	413
426		1990	05	29.80741	22	04	29.07	-12	20	46.8		t	413
437		1990	06	04.68514	18	07	23.15	-23	36	50.2			413
485		1990	06	04.75145	21	39	40.44	+01	14	58.3			413
485		1990	06	04.81395	21	39	41.22	+01	15	14.1			413
505		1990	04	27.77384	20	05	26.15	-22	14	21.8			413
505		1990	04	30.78573	20	07	06.54	-22	16	36.8			413
539		1990	04	27.76169	20	13	31.42	-19	18	08.1			413
539		1990	04	27.78600	20	13	32.63	-19	18	01.9			413
539		1990	04	30.78573	20	16	11.13	-19	03	09.6			413
715		1990	05	03.79451	20	16	59.47	-32	57	24.7			413
715		1990	05	04.77723	20	17	51.58	-33	01	43.9			413
721		1990	06	04.71963	18	48	21.78	-32	03	03.7			413
750		1990	04	27.77384	19	50	54.17	-22	55	00.4			413
750		1990	04	30.78573	19	52	46.92	-22	55	06.4			413
763		1990	05	29.76574	21	58	05.16	-11	28	14.2		t	413
763		1990	05	29.80741	21	58	07.65	-11	27	50.0		t	413
776		1990	05	26.43325	12	15	33.55	+19	57	04.0			413
778		1990	06	04.71963	18	58	48.43	-35	52	43.2			413
812		1975	06	01.55494	16	37	02.91	-41	25	31.0	16	V	413
812		1975	06	01.57814	16	37	01.18	-41	25	32.0			413
830		1990	04	27.77384	20	09	28.52	-23	47	50.3			413
830		1990	04	30.78573	20	11	07.46	-23	44	53.5			413
850		1990	05	29.76574	22	00	24.26	-13	52	34.4		t	413
850		1990	05	29.80741	22	00	25.85	-13	52	32.8		t	413
851		1990	05	29.76574	21	52	42.26	-11	53	26.9		t	413
851		1990	05	29.80741	21	52	43.81	-11	53	15.1		t	413
888		1990	04	27.48676	11	57	46.04	+18	39	36.2			413
888		1990	04	27.54926	11	57	44.64	+18	39	32.8			413
888		1990	04	29.48619	11	57	02.70	+18	37	45.1			413
888		1990	05	26.41242	11	55	41.42	+17	04	41.4			413
888		1990	05	26.45409	11	55	41.88	+17	04	28.5			413
949		1990	05	29.76574	22	14	16.63	-13	09	13.9		t	413
949		1990	05	29.80741	22	14	17.72	-13	08	59.3		t	413
969		1990	04	27.77384	19	50	32.54	-21	46	18.9			413
969		1990	04	30.78573	19	53	03.43	-21	38	24.3			413
970		1990	04	30.78573	19	49	14.50	-24	39	45.6			413
975		1990	04	27.77384	20	04	09.35	-22	55	52.4			413
975		1990	04	30.78573	20	06	07.04	-22	53	28.8			413
1046		1990	05	29.68263	23	05	23.48	-12	23	03.1			413
1046		1990	05	29.72429	23	05	25.60	-12	22	51.4			413
1068		1990	05	29.76574	22	05	36.25	-12	56	20.7		t	413
1068		1990	05	29.80741	22	05	37.56	-12	56	06.7		t	413
1092		1990	04	27.77384	19	53	33.29	-24	26	36.3			413
1092		1990	04	30.78573	19	55	45.41	-24	20	20.4			413
1141		1990	05	29.76574	21	56	37.93	-13	54	27.9		p	413
1141		1990	05	29.80741	21	56	40.67	-13	54	13.2		p	413
1161		1990	04	27.77384	20	03	25.01	-25	13	33.3			413
1238		1990	05	03.79451	20	22	08.85	-30	22	57.7			413
1238		1990	05	04.77723	20	22	45.94	-30	26	13.6			413
1239		1990	04	30.78573	19	52	44.44	-21	45	30.0			413

1261	1990	04	27.77384	19	59	53.02	-22	04	30.3		413
1261	1990	04	30.78573	20	01	20.04	-22	02	55.2		413
1287	1990	06	04.75145	21	27	12.57	-03	05	18.6		413
1287	1990	06	04.81395	21	27	13.01	-03	05	06.1		413
1294	1990	05	29.68263	23	05	05.59	-14	13	14.0		413
1294	1990	05	29.72429	23	05	08.77	-14	13	04.8		413
1332	1990	04	27.77384	20	08	41.79	-22	58	14.2		413
1332	1990	04	30.78573	20	10	55.38	-22	54	18.2		413
1339	1990	04	27.77384	19	52	51.07	-23	11	45.6		413
1339	1990	04	30.78573	19	54	15.08	-23	04	50.2		413
1351	1990	05	04.77723	20	14	55.66	-31	09	17.5		413
1461	1990	04	27.77384	20	02	00.76	-19	17	03.9		413
1461	1990	04	30.78573	20	03	38.77	-19	20	17.3		413
1516	1990	05	29.76574	22	00	19.47	-11	55	45.3	t	413
1516	1990	05	29.80741	22	00	21.17	-11	55	37.9	t	413
1547	1990	03	04.75302	15	07	09.25	-31	44	58.7		413
1547	1990	03	07.73132	15	07	29.01	-31	57	46.4		413
1610	1990	05	29.76574	22	00	53.89	-14	48	36.4	t	413
1610	1990	05	29.80741	22	00	56.91	-14	48	15.1	F	413
1643	1990	04	27.77384	20	04	18.50	-21	19	21.1		413
1643	1990	04	30.78573	20	07	05.43	-21	08	54.3		413
1652	1990	04	30.78573	19	52	22.70	-19	51	28.1		413
1688	1990	06	04.75145	21	35	12.49	-00	55	47.8		413
1688	1990	06	04.81395	21	35	15.15	-00	54	57.3		413
1713	1990	03	25.53299	11	00	39.87	+12	26	37.1	p	413
1713	1990	03	25.54734	11	00	39.06	+12	26	39.8		413
1732	1987	09	24.51771	23	05	35.55	-10	23	23.0		413
1732	1987	09	24.56979	23	05	33.59	-10	23	45.0		413
1732	1990	03	25.53299	11	03	42.69	+09	58	38.6		413
1732	1990	03	25.54734	11	03	42.19	+09	58	43.7		413
1750	1990	04	27.76169	19	55	25.00	-23	40	39.8		413
1750	1990	04	27.78600	19	55	26.51	-23	40	25.2		413
1750	1990	04	30.77705	19	58	36.32	-23	09	52.0		413
1750	1990	04	30.79441	19	58	37.25	-23	09	42.0		413
1775	1990	05	29.59745	15	23	06.98	-02	53	33.5		413
1775	1990	05	29.63912	15	23	05.19	-02	53	18.5		413
1894	1990	05	29.76574	22	10	45.34	-10	24	06.0	t	413
1894	1990	05	29.80741	22	10	46.90	-10	23	52.0	t	413
1939	1990	04	27.77384	20	04	17.25	-21	16	02.4		413
1939	1990	04	30.78573	20	06	25.55	-21	10	57.4		413
1946	1990	06	04.71963	18	55	31.87	-36	41	53.8		413
2065	1990	05	29.76574	22	06	34.67	-14	47	46.2	t	413
2065	1990	05	29.80741	22	06	36.67	-14	47	29.1	t	413
2066	1990	05	29.76574	22	11	24.92	-11	50	35.2	t	413
2066	1990	05	29.80741	22	11	27.06	-11	50	22.8	t	413
2142	1990	04	27.77384	20	09	54.87	-19	30	02.0		413
2142	1990	04	30.78573	20	11	39.01	-19	24	22.6		413
2143	1990	05	03.79451	20	36	08.10	-28	59	00.4		413
2143	1990	05	04.77723	20	37	30.57	-28	58	52.0		413
2171	1990	05	29.68263	23	05	16.96	-10	22	36.8		413
2171	1990	05	29.72429	23	05	21.16	-10	22	21.4		413
2186	1990	05	29.76574	21	53	34.48	-11	48	19.0	t	413
2186	1990	05	29.80741	21	53	35.78	-11	48	06.3	F	413
2195	1990	06	04.68514	17	55	40.34	-20	58	24.3		413
2208	1990	05	29.68263	23	07	19.42	-11	09	05.0		413
2208	1990	05	29.72429	23	07	21.30	-11	08	57.4		413
2231	1990	06	04.71963	18	43	19.30	-35	27	27.3		413
2245	1990	04	27.48676	11	58	01.88	+17	44	29.1		413
2245	1990	04	27.54926	11	58	00.37	+17	44	20.4	I	413

2245	1990	04	29.48619	11	57	09.91	+17	39	12.0		413
2267	1990	04	27.76169	19	54	22.81	-23	11	19.1		413
2267	1990	04	27.78600	19	54	24.54	-23	11	16.1		413
2267	1990	04	30.77705	19	58	38.34	-23	01	08.9		413
2267	1990	04	30.79441	19	58	39.62	-23	01	05.5		413
2280	1990	04	27.76169	19	53	19.01	-19	37	34.6		413
2280	1990	04	27.78600	19	53	20.57	-19	37	30.1		413
2280	1990	04	30.78573	19	56	35.92	-19	31	09.8		413
2303	1990	05	19.49463	15	27	37.42	-00	10	10.4		413
2303	1990	05	19.61963	15	27	31.79	-00	09	20.4		413
2303	1990	05	20.52300	15	26	51.85	-00	03	16.4		413
2303	1990	05	20.59591	15	26	48.63	-00	02	46.6		413
2303	1990	05	26.54400	15	22	33.48	+00	33	03.2		413
2303	1990	05	26.58567	15	22	31.77	+00	33	16.1		413
2310	1990	05	29.76574	22	07	01.93	-12	04	21.6	t	413
2310	1990	05	29.80741	22	07	02.89	-12	04	14.1	t	413
2334	1990	05	29.76574	22	09	58.18	-11	34	01.8	t	413
2334	1990	05	29.80741	22	10	00.60	-11	33	48.3	V	413
2364	1990	06	04.71963	19	02	24.60	-34	51	56.3		413
2378	1990	06	14.45405	15	42	54.56	-01	42	52.1		413
2378	1990	06	14.51655	15	42	52.28	-01	42	49.4		413
2378	1990	06	15.52742	15	42	16.21	-01	42	17.4		413
2407	1990	04	27.77384	19	48	52.58	-23	52	02.1		413
2407	1990	04	30.78573	19	51	17.69	-23	47	55.1		413
2433	1990	06	04.75145	21	33	46.64	-00	36	05.7		413
2433	1990	06	04.81395	21	33	48.89	-00	35	40.9		413
2470	1990	05	29.76574	21	55	41.97	-15	23	22.2	t	413
2470	1990	05	29.80741	21	55	43.24	-15	23	14.4	t	413
2597	1990	04	27.77384	20	12	04.88	-19	36	33.1		413
2597	1990	04	30.78573	20	14	01.59	-19	30	43.6		413
2630	1990	04	27.77384	20	09	02.32	-22	18	12.6		413
2630	1990	04	30.78573	20	10	58.95	-22	14	06.1		413
2666	1990	06	04.75145	21	41	04.86	+01	44	36.4		413
2739	1990	05	29.76574	21	56	28.57	-11	43	42.0	t	413
2739	1990	05	29.80741	21	56	30.92	-11	43	22.9	t	413
2810	1990	06	04.75145	21	18	51.37	-00	20	05.9		413
2810	1990	06	04.81395	21	18	51.95	-00	19	49.8		413
2837	1990	04	27.77384	20	08	25.86	-22	13	02.2		413
2837	1990	04	30.78573	20	10	21.85	-22	10	34.9		413
2878	1990	06	04.71963	18	53	02.50	-33	55	45.0		413
2964	1990	03	04.77559	15	08	00.33	-32	47	26.9		413
2964	1990	03	07.73132	15	08	21.02	-33	06	18.8	F	413
2983	1990	06	04.68514	18	03	54.07	-21	31	13.1		413
3065	1990	05	29.76574	21	52	40.00	-12	36	48.2	t	413
3065	1990	05	29.80741	21	52	41.05	-12	36	35.4	t	413
3086	1990	05	29.76574	22	00	56.14	-14	10	18.5	t	413
3086	1990	05	29.80741	22	00	58.14	-14	09	40.5	t	413
3135	1990	05	29.76574	22	07	38.55	-11	16	23.9	t	413
3201	1990	04	30.78573	19	55	08.16	-19	41	37.3		413
3229	1990	05	29.76574	21	57	34.55	-14	41	24.5	t	413
3229	1990	05	29.80741	21	57	37.05	-14	40	57.0	t	413
3276	1990	03	25.54734	11	10	10.60	+09	23	24.1		413
3284	1990	05	29.68263	23	11	21.39	-11	57	52.7		413
3284	1990	05	29.72429	23	11	27.01	-11	57	27.5		413
3339	1990	04	27.77384	19	54	12.55	-24	58	18.2		413
3339	1990	04	30.78573	19	56	17.77	-25	10	44.2		413
3417	1990	06	04.68514	17	54	32.59	-21	32	50.7		413
3448	1990	05	29.76574	22	06	06.92	-16	00	35.2	t	413
3448	1990	05	29.80741	22	06	09.36	-16	00	22.6	t	413

3470	1990	06	04.68514	18	05	48.29	-21	24	04.9			413
3503	1990	05	26.54400	15	36	03.36	-02	39	04.5			413
3503	1990	05	26.58567	15	36	01.35	-02	38	50.2			413
3503	1990	05	29.59745	15	33	36.57	-02	22	03.8			413
3503	1990	05	29.63912	15	33	34.56	-02	21	50.4			413
3503	1990	06	14.45405	15	23	07.49	-01	29	44.4			413
3503	1990	06	14.51655	15	23	05.55	-01	29	40.1			413
3509	1990	06	04.75145	21	20	02.72	+01	40	45.0			413
3509	1990	06	04.81395	21	20	04.44	+01	41	21.1			413
3565	1990	04	27.77384	20	05	34.75	-21	45	58.5			413
3565	1990	04	30.78573	20	07	02.61	-21	46	28.7			413
3596	1990	03	25.53299	11	04	49.74	+11	04	34.3			413
3596	1990	03	25.54734	11	04	49.29	+11	04	34.3			413
3623	1990	05	29.76574	22	09	07.27	-12	03	17.8		t	413
3623	1990	05	29.80741	22	09	09.04	-12	03	05.6		t	413
3702	1990	04	29.52285	13	07	59.81	+15	49	24.8			413
3702	1990	04	29.56451	13	07	58.02	+15	49	28.2			413
3702	1990	04	30.51874	13	07	17.74	+15	50	42.9			413
3702	1990	04	30.58124	13	07	14.88	+15	50	47.8			413
3707	1990	03	04.75302	14	48	24.18	-31	23	18.0			413
3707	1990	03	07.73132	14	48	32.71	-31	35	08.9			413
3711	1990	03	04.75302	14	55	39.72	-31	27	00.0			413
3711	1990	03	07.73132	14	55	51.54	-31	43	10.9			413
3718	1990	05	29.70346	22	49	41.47	-11	11	38.6		F	413
3738	1990	04	27.76169	19	52	37.04	-22	38	10.7			413
3738	1990	04	27.78600	19	52	39.06	-22	38	06.0			413
3738	1990	04	30.77705	19	57	10.33	-22	28	10.5			413
3738	1990	04	30.79441	19	57	11.74	-22	28	07.0			413
3749	1990	05	29.76574	22	02	45.27	-10	50	58.4		t	413
3749	1990	05	29.80741	22	02	46.99	-10	50	39.5		F	413
3774	1990	04	27.77384	20	03	29.00	-22	53	54.0			413
3774	1990	04	30.78573	20	05	18.29	-22	44	25.0			413
3779	1990	05	03.79451	20	16	40.84	-30	37	10.0			413
3779	1990	05	04.77723	20	17	18.31	-30	41	13.0			413
3791	1990	05	29.76574	21	53	51.72	-13	28	01.4		t	413
3791	1990	05	29.80741	21	53	53.18	-13	27	48.5		t	413
3827	1990	05	29.76574	22	06	28.36	-14	03	14.5		t	413
3827	1990	05	29.80741	22	06	30.28	-14	02	57.4		t	413
3847	1990	05	29.76574	22	03	21.40	-15	33	16.8		t	413
3847	1990	05	29.80741	22	03	22.64	-15	33	08.6		t	413
3887	1990	06	04.75145	21	43	22.32	-02	09	19.3			413
4014	1990	06	04.68514	17	58	22.71	-23	42	11.9			413
4081	1990	04	27.76169	20	08	40.80	-19	25	40.2			413
4081	1990	04	27.78600	20	08	42.38	-19	25	32.4		F	413
4081	1990	04	30.77705	20	12	12.30	-19	11	45.6			413
4081	1990	04	30.79441	20	12	13.35	-19	11	41.0			413
4103	1990	06	19.55397	17	06	50.31	-64	47	42.8	15	V	413
4103	1990	06	19.59078	17	06	45.25	-64	47	49.9			413
4104	1990	05	03.79451	20	17	01.81	-33	14	30.8			413
4104	1990	05	04.77723	20	18	11.93	-33	20	34.4			413
4113	1990	05	29.76574	22	01	59.23	-11	24	21.0		V	413
4113	1990	05	29.80741	22	02	01.10	-11	24	11.1		V	413
4163	1990	05	29.70346	22	54	37.90	-09	56	24.0		F	413
4213	1990	06	04.68514	17	57	24.96	-22	27	16.5			413
4234	1990	04	27.77384	19	53	50.90	-22	25	28.6			413
4234	1990	04	30.78573	19	56	16.79	-22	21	29.1			413
4258	1987	09	24.51771	23	11	29.08	-11	32	14.9			413
4258	1987	09	24.56979	23	11	26.72	-11	32	24.4			413
4308	1990	04	28.55812	15	11	10.36	-33	31	05.0			413

4308		1990	04	28.62063	15	11	06.91	-33	30	57.6	413
4308		1990	04	29.57617	15	10	13.49	-33	28	52.2	413
4308		1990	04	29.63867	15	10	10.00	-33	28	43.6	413
4342		1990	03	25.53299	10	58	17.78	+12	12	42.1	413
4464		1990	06	02.43851	15	38	52.45	-55	38	59.1	413
4506		1982	08	21.60514	22	48	48.76	-12	31	02.5	17.5V 413
4506		1982	08	21.64681	22	48	46.85	-12	31	14.7	413
4506		1987	09	24.51771	23	06	21.38	-10	28	30.6	17.5V 413
4506		1987	09	24.56979	23	06	19.11	-10	28	40.9	413
4506		1990	03	25.53299	11	04	07.02	+10	39	39.6	17 V 413
4506		1990	03	25.54734	11	04	06.37	+10	39	42.2	413

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1989	UN3	1989	11	05.94684	03	13	36.30	+14	22	24.5	494
1989	UN3	1989	11	22.94253	03	00	06.10	+13	26	28.9	494
1989	WY4	1989	11	25.91027	03	00	30.02	+12	37	15.9	494
1989	WY4 *	1989	11	29.89379	02	57	16.77	+12	20	51.6	16.5V 494
1989	WY4	1989	11	29.91236	02	57	15.85	+12	20	46.6	494

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Measurer E. W. Elst
0.6-m Schmidt

1975	TM2	1990	01	04.05764	06	29	21.55	+19	34	43.1	511
1975	TM2	1990	01	04.08056	06	29	19.84	+19	34	43.8	511
1983	VN7	1990	01	03.08819	06	55	06.13	+21	07	19.0	511
1983	VN7	1990	01	03.11250	06	55	04.71	+21	07	21.4	511
1983	VN7	1990	01	04.10208	06	54	10.01	+21	08	57.1	511
1983	VN7	1990	01	04.13194	06	54	08.17	+21	09	00.9	511
1985	UF5	1990	01	02.04653	07	22	44.56	+14	04	24.1	511
1985	UF5	1990	01	02.06944	07	22	43.19	+14	04	25.8	511
1985	UF5	1990	01	04.15417	07	20	37.96	+14	06	50.8	511
1985	UF5	1990	01	04.18611	07	20	35.96	+14	06	54.0	511
1987	GC	1989	11	28.85938	02	59	23.93	+04	35	30.1	17.6 511
1987	GC	1989	11	28.87674	02	59	23.27	+04	35	26.5	511
1987	GC	1989	11	28.89132	02	59	22.61	+04	35	21.2	511
1987	GC	1989	11	28.90868	02	59	22.04	+04	35	16.9	511
1988	BJ	1989	09	01.99826	22	36	51.06	+19	00	14.9	18.2 511
1988	BJ	1989	09	02.01215	22	36	49.93	+19	00	18.0	511
1988	BJ	1989	09	02.02604	22	36	48.88	+19	00	22.3	511
1988	BJ	1989	09	02.04931	22	36	46.32	+19	00	27.6	511
1988	BJ	1989	09	02.96875	22	35	20.61	+19	04	42.9	511
1988	BJ	1989	09	02.99097	22	35	18.18	+19	04	53.5	511
1988	PX2	1989	12	30.94792	05	04	10.55	+07	18	52.2	511
1988	PX2	1989	12	30.96944	05	04	09.64	+07	18	56.0	511
1988	PX2	1989	12	30.99097	05	04	08.69	+07	18	58.0	511
1988	PX2	1989	12	31.01181	05	04	08.06	+07	18	57.4	511
1989	YA5	1989	12	30.83958	06	13	07.88	+36	29	19.8	511
1989	YA5	1989	12	30.86597	06	13	06.14	+36	29	11.8	511
1989	YA5	1990	01	01.88264	06	10	51.88	+36	18	14.2	511
1989	YA5	1990	01	01.90347	06	10	50.61	+36	18	05.9	511
1989	YA5	1990	01	03.97014	06	08	35.25	+36	06	14.7	17.3 511
1989	YA5	1990	01	03.99097	06	08	34.07	+36	06	05.8	511
1989	YB5	1989	12	30.83958	06	17	26.66	+37	21	41.0	511
1989	YB5	1989	12	30.86597	06	17	24.89	+37	21	46.1	511
1989	YB5	1990	01	01.88264	06	15	19.56	+37	27	47.0	511

1989	YB5		1990	01	01.90347	06	15	18.17	+37	27	51.8	511
1989	YB5		1990	01	03.97014	06	13	10.87	+37	33	29.7	17.6 511
1989	YB5		1990	01	03.99097	06	13	09.81	+37	33	31.9	511
1989	YC5		1989	12	30.83958	06	22	04.82	+36	27	00.8	511
1989	YC5		1989	12	30.86597	06	22	02.97	+36	26	56.0	511
1989	YC5		1990	01	01.88264	06	19	52.81	+36	19	30.5	511
1989	YC5		1990	01	01.90347	06	19	51.58	+36	19	25.8	511
1989	YC5		1990	01	03.97014	06	17	40.45	+36	11	20.2	17.3 511
1989	YC5		1990	01	03.99097	06	17	39.37	+36	11	13.7	511
1989	YP5		1990	01	04.05764	06	24	13.05	+19	04	30.1	511
1989	YP5		1990	01	04.08056	06	24	11.67	+19	04	32.3	511
1989	YR5		1990	01	04.05764	06	30	40.83	+19	54	08.2	511
1989	YR5		1990	01	04.08056	06	30	39.57	+19	54	06.1	511
1989	YU5		1990	01	03.08819	06	54	50.59	+22	06	27.9	511
1989	YU5		1990	01	03.11250	06	54	48.68	+22	06	27.1	511
1989	YU5		1990	01	04.10208	06	53	35.14	+22	06	48.4	511
1989	YU5		1990	01	04.13194	06	53	33.03	+22	06	48.5	511
1989	YW5		1990	01	03.08819	07	03	28.15	+20	05	22.3	511
1989	YW5		1990	01	03.11250	07	03	26.91	+20	05	27.2	511
1989	YW5		1990	01	04.10208	07	02	32.51	+20	09	54.9	511
1989	YW5		1990	01	04.13194	07	02	30.87	+20	10	04.1	511
1989	YB6		1990	01	02.04653	07	24	17.97	+16	07	48.5	511
1989	YB6		1990	01	02.06944	07	24	16.81	+16	07	56.2	511
1989	YB6		1990	01	04.15417	07	22	30.89	+16	20	49.6	511
1989	YB6		1990	01	04.18611	07	22	29.47	+16	20	59.7	511
1989	YC6		1990	01	02.04653	07	25	04.11	+13	40	25.1	511
1989	YC6		1990	01	02.06944	07	25	02.63	+13	40	31.6	511
1989	YC6		1990	01	04.15417	07	22	45.67	+13	48	45.8	511
1989	YC6		1990	01	04.18611	07	22	43.44	+13	48	55.2	511
1989	YD6		1990	01	02.04653	07	25	47.46	+13	48	26.4	511
1989	YD6		1990	01	02.06944	07	25	46.07	+13	48	26.0	511
1989	YD6		1990	01	04.15417	07	23	38.98	+13	44	50.4	511
1989	YD6		1990	01	04.18611	07	23	36.99	+13	44	48.1	511
1989	YE6		1989	12	31.04583	07	29	34.58	+14	51	57.2	511
1989	YE6		1989	12	31.06806	07	29	33.08	+14	51	54.6	511
1989	YE6		1990	01	02.04653	07	27	24.10	+14	46	34.7	511
1989	YE6		1990	01	02.06944	07	27	22.67	+14	46	30.5	511
1989	YE6		1990	01	04.15417	07	25	03.19	+14	41	22.5	511
1989	YE6		1990	01	04.18611	07	25	01.19	+14	41	16.2	511
1989	YF6		1989	12	30.94792	04	55	08.80	+07	17	28.9	511
1989	YF6		1989	12	30.96944	04	55	07.99	+07	17	41.3	511
1989	YF6		1989	12	30.99097	04	55	06.92	+07	17	52.3	511
1989	YF6		1989	12	31.01181	04	55	06.25	+07	18	01.4	511
1989	YG6		1989	12	30.94792	05	02	59.74	+06	29	10.5	511
1989	YG6		1989	12	30.96944	05	02	59.04	+06	29	16.2	511
1989	YH6		1990	01	01.93125	05	47	07.30	+20	11	14.3	511
1989	YJ6		1990	01	01.93125	05	51	28.02	+19	49	01.4	511
1989	YH8		1989	12	29.10208	07	31	35.47	+14	33	46.0	511
1989	YH8		1989	12	29.12222	07	31	34.50	+14	33	58.3	18.0 511
1989	YH8		1990	01	04.15417	07	26	31.41	+15	33	15.6	511
1989	YH8		1990	01	04.18611	07	26	29.75	+15	33	34.2	511
1990	AH	*	1990	01	03.08819	06	52	47.68	+21	49	47.3	511
1990	AH		1990	01	03.11250	06	52	46.09	+21	49	56.9	17.7 511
1990	AH		1990	01	04.10208	06	51	41.60	+21	56	47.3	511
1990	AH		1990	01	04.13194	06	51	39.63	+21	57	00.1	511
1990	AJ	*	1990	01	03.08819	06	55	04.07	+21	33	23.6	511
1990	AJ		1990	01	03.11250	06	55	02.64	+21	33	24.9	17.6 511
1990	AJ		1990	01	04.10208	06	54	08.87	+21	34	47.0	511
1990	AJ		1990	01	04.13194	06	54	07.10	+21	34	50.7	511

1990	AK	*	1990	01	03.08819	07	01	21.90	+20	10	35.4	511
1990	AK		1990	01	03.11250	07	01	20.23	+20	10	42.7	17.6 511
1990	AK		1990	01	04.10208	07	00	15.28	+20	15	30.3	511
1990	AK		1990	01	04.13194	07	00	13.20	+20	15	38.7	511
347			1989	11	28.85938	02	49	10.43	+05	33	59.6	14.0 511
347			1989	11	28.87674	02	49	09.54	+05	34	01.4	511
347			1989	11	28.89132	02	49	08.76	+05	34	02.7	511
347			1989	11	28.90868	02	49	07.92	+05	34	03.9	511
358			1990	01	01.93125	05	48	37.08	+17	42	09.0	511
448			1989	12	30.83958	06	26	33.40	+38	38	55.7	511
448			1989	12	30.86597	06	26	31.62	+38	38	58.2	511
448			1990	01	01.88264	06	24	26.84	+38	41	44.7	511
448			1990	01	01.90347	06	24	25.54	+38	41	47.2	511
448			1990	01	03.97014	06	22	18.44	+38	44	01.3	16.8 511
448			1990	01	03.99097	06	22	17.32	+38	44	02.3	511
929			1990	01	02.04653	07	29	47.46	+16	21	57.4	511
929			1990	01	02.06944	07	29	45.90	+16	21	59.4	511
929			1990	01	04.15417	07	27	27.96	+16	23	57.7	511
929			1990	01	04.18611	07	27	25.97	+16	23	58.0	511
1247			1990	01	01.93125	05	54	29.66	+21	10	52.1	511
1319			1990	01	03.08819	07	04	11.25	+20	42	22.8	511
1319			1990	01	03.11250	07	04	09.93	+20	42	22.6	511
1319			1990	01	04.10208	07	03	14.63	+20	43	04.4	511
1319			1990	01	04.13194	07	03	12.86	+20	43	04.7	511
1438			1990	01	03.08819	06	57	00.77	+20	40	32.1	511
1438			1990	01	03.11250	06	56	59.51	+20	40	32.4	511
1438			1990	01	04.10208	06	56	05.33	+20	41	24.2	511
1438			1990	01	04.13194	06	56	03.61	+20	41	25.3	511
1938			1990	01	01.93125	05	58	47.65	+18	06	56.1	511
2191			1990	01	02.04653	07	19	13.79	+13	19	15.6	511
2191			1990	01	02.06944	07	19	12.55	+13	19	13.6	511
2191			1990	01	04.15417	07	17	20.10	+13	16	54.4	511
2191			1990	01	04.18611	07	17	18.41	+13	16	52.2	511
2400			1989	11	28.85938	02	45	00.50	+02	56	32.4	17.2 511
2400			1989	11	28.87674	02	44	59.97	+02	56	30.6	511
2400			1989	11	28.89132	02	44	59.42	+02	56	30.8	511
2400			1989	11	28.90868	02	44	58.84	+02	56	28.3	511
2843			1990	01	04.05764	06	15	06.70	+19	31	33.2	511
2843			1990	01	04.08056	06	15	05.08	+19	31	30.1	511
3016			1990	01	03.08819	06	50	05.71	+20	53	43.6	511
3016			1990	01	03.11250	06	50	04.08	+20	53	46.1	511
3016			1990	01	04.10208	06	49	07.19	+20	55	53.8	511
3016			1990	01	04.13194	06	49	05.51	+20	55	56.8	511
3370			1990	01	02.04653	07	30	32.29	+13	12	28.4	511
3370			1990	01	02.06944	07	30	30.89	+13	12	35.8	511
3370			1990	01	04.15417	07	28	24.11	+13	24	33.2	511
3370			1990	01	04.18611	07	28	22.04	+13	24	45.0	17.5 511
3652			1990	01	03.08819	06	59	08.96	+20	34	15.0	511
3652			1990	01	03.11250	06	59	07.31	+20	34	17.1	511
3652			1990	01	04.10208	06	58	01.48	+20	35	15.9	511
3652			1990	01	04.13194	06	57	59.34	+20	35	17.9	511
3673			1989	12	30.83958	06	18	49.87	+37	15	16.3	511
3673			1989	12	30.86597	06	18	47.96	+37	15	16.1	511
3673			1990	01	01.88264	06	16	20.67	+37	14	26.5	511
3673			1990	01	01.90347	06	16	19.14	+37	14	25.7	511
3673			1990	01	03.97014	06	13	52.22	+37	12	27.8	16.5 511
3673			1990	01	03.99097	06	13	50.96	+37	12	25.9	511
3862			1989	11	28.85938	02	52	25.63	+04	45	45.3	17.4 511
3862			1989	11	28.87674	02	52	24.99	+04	45	46.2	511

3862		1989 11 28.89132	02 52 23.97	+04 45 47.0					511
3862		1989 11 28.90868	02 52 23.34	+04 45 46.9					511
4227		1990 01 03.08819	07 04 20.88	+20 09 23.7					511
4227		1990 01 03.11250	07 04 19.31	+20 09 27.8					511
4227		1990 01 04.10208	07 03 15.96	+20 12 30.1					511
4227		1990 01 04.13194	07 03 14.10	+20 12 34.4					511
4380		1989 12 30.83958	06 16 41.00	+37 22 32.9					511
4380		1989 12 30.86597	06 16 39.36	+37 22 31.8					511
4380		1990 01 01.88264	06 14 31.79	+37 19 37.7					511
4380		1990 01 01.90347	06 14 30.49	+37 19 36.3					511
4380		1990 01 03.97014	06 12 22.01	+37 15 58.4			17.0		511
4380		1990 01 03.99097	06 12 20.87	+37 15 55.2					511
4387		1990 01 03.08819	06 49 31.48	+20 37 22.0					511
4387		1990 01 03.11250	06 49 29.84	+20 37 27.0					511
4387		1990 01 04.10208	06 48 25.88	+20 40 36.7					511
4387		1990 01 04.13194	06 48 23.95	+20 40 41.1					511
4390		1989 12 30.83958	06 18 27.75	+38 46 05.0					511
4390		1989 12 30.86597	06 18 25.68	+38 46 01.8					511
4390		1990 01 01.88264	06 15 49.93	+38 44 01.1					511
4390		1990 01 01.90347	06 15 48.35	+38 43 59.5					511
4438		1989 12 30.83958	06 15 58.92	+35 14 37.0			17.5		511
4438		1989 12 30.86597	06 15 57.45	+35 14 38.6					511
4438		1990 01 01.88264	06 13 54.59	+35 18 58.2					511
4438		1990 01 01.90347	06 13 53.32	+35 19 00.8					511

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

1988	VY1	1990 05 27.87500	12 41 31.23	-10 03 05.3			16.8		552
1988	VY1	1990 05 27.89375	12 41 31.45	-10 03 01.9					552
1989	BO	1990 05 16.89306	14 40 27.45	+00 01 31.5			16.0	1	552
1989	BO	1990 05 16.91319	14 40 26.49	+00 01 30.1				1	552
1989	BO	1990 05 27.91875	14 32 48.57	-00 07 58.3			16.5		552
1989	BO	1990 05 27.93889	14 32 47.71	-00 08 00.9					552
1990	DL	1990 03 19.85868	10 01 50.88	+11 19 37.3			17.2	1	552
1990	DL	1990 03 19.87813	10 01 50.03	+11 19 39.0				1	552

568 Mauna Kea Observatory
D. J. Tholen, Institute for Astronomy, 2680 Woodlawn Drive,
Honolulu, HI 96822, U.S.A.
Observer D. J. Tholen
2.24-m telescope encoders
AGK3

1990	KA	1990 06 19.29919	15 39 02.93	-04 38 27.3					568
951		1990 05 18.32792	09 04 23.15	+12 27 32.3					568

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

476		1990 03 29.85801	09 23 29.82	+02 37 01.0					587
476		1990 03 29.90487	09 23 28.91	+02 37 07.8					587
476		1990 03 30.83378	09 23 14.59	+02 39 39.2					587
476		1990 03 30.93959	09 23 12.87	+02 39 55.0					587

544	1990 03 30.92681	09 26 12.65	+07 18 28.9	587
544	1990 03 30.97952	09 26 11.92	+07 18 32.8	587
544	1990 03 31.87044	09 25 56.94	+07 20 00.5	587
729	1990 03 29.82760	09 56 21.19	+28 19 13.5	587
729	1990 03 29.89237	09 56 19.98	+28 19 23.3	587
729	1990 03 30.84897	09 56 05.58	+28 21 25.6	587
729	1990 03 30.95244	09 56 03.81	+28 21 37.1	587

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

355	1990 01 17.19868	06 56 17.83	+29 28 46.3	657
355	1990 01 17.22785	06 56 15.98	+29 28 46.5	657
355	1990 01 18.23062	06 55 14.95	+29 28 03.0	657
355	1990 01 18.25181	06 55 13.62	+29 28 00.6	657
753	1990 01 17.12854	04 23 38.04	+26 57 45.6	657
753	1990 01 17.15983	04 23 37.30	+26 57 45.2	657
753	1990 01 18.18826	04 23 13.11	+26 57 41.1	657
1086	1989 09 28.22646	23 12 18.59	+03 33 18.1	657
1086	1989 09 28.25215	23 12 17.40	+03 33 11.5	657
1126	1989 09 06.35701	00 06 20.26	-00 39 04.0	657
1126	1989 09 06.40076	00 06 17.87	-00 39 11.9	657
1258	1989 08 29.38132	23 29 37.02	+06 03 08.7	657
1258	1989 08 30.30146	23 28 58.62	+06 01 28.3	657
1258	1989 09 28.22646	23 07 40.30	+04 27 44.7	657
1258	1989 09 28.25215	23 07 39.12	+04 27 36.3	657
1284	1989 09 03.32569	22 25 27.02	+02 02 29.6	657
1284	1989 09 08.34306	22 20 37.88	+01 53 29.0	657
1399	1989 10 09.34670	01 59 40.66	+02 34 40.8	657
1399	1989 10 09.40851	01 59 37.89	+02 34 04.3	657
1406	1989 08 29.39660	23 59 49.02	+07 13 27.8	657
1406	1989 08 30.30771	23 59 07.79	+07 15 04.3	657
1406	1989 08 30.39382	23 59 03.55	+07 15 12.1	657
1726	1989 08 30.24451	22 35 40.27	-03 09 40.5	657
1726	1989 08 30.32229	22 35 36.54	-03 10 07.1	657
1785	1989 08 30.24451	22 30 18.80	-03 40 55.5	657
1785	1989 08 30.32229	22 30 14.06	-03 41 17.7	657
1984	1989 11 01.22229	03 06 19.49	+12 50 38.4	657
1984	1989 11 01.28965	03 06 16.30	+12 50 20.8	657
1984	1989 11 01.32646	03 06 14.43	+12 50 10.2	657
2312	1990 01 18.23062	07 01 59.98	+27 45 35.1	657
3063	1990 03 02.35250	10 56 02.41	-07 28 37.0	657
3063	1990 03 02.38444	10 56 01.41	-07 28 34.5	657
4455	1990 03 02.35250	11 00 23.19	-08 31 26.8	657
4455	1990 03 02.38444	11 00 21.82	-08 31 20.9	657

675 Palomar
J. Gibson, OAO Corporation and Jet Propulsion Laboratory, MS 238-332, Pasadena, CA 91109, U.S.A. (1)
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Measurers E. Dyer (3), J. Gibson (1), 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

1971	OV		1989	06	15.32545	18	55	07.20	-13	05	07.8		1 675
1971	OV		1989	06	15.32883	18	55	07.08	-13	05	07.0		1 675
1971	OV		1989	06	15.34667	18	55	06.50	-13	05	03.2		1 675
1971	OV		1989	06	15.35032	18	55	06.36	-13	05	02.5		1 675
1982	JB3		1990	05	19.21042	13	41	22.08	+02	50	39.8	16.7	2 675
1982	JB3		1990	05	19.24097	13	41	21.07	+02	50	33.9		2 675
1982	JB3		1990	05	22.18192	13	39	36.33	+02	38	55.2		2 675
1982	JB3		1990	05	22.20556	13	39	35.50	+02	38	48.5		2 675
1985	FC		1990	02	21.37100	11	51	19.35	+37	14	29.0	17.6	3 675
1985	FC		1990	02	21.42430	11	51	12.75	+37	14	23.5	17.6	3 675
1985	FC		1990	02	24.41059	11	45	30.44	+37	08	34.4		3 675
1985	FC		1990	02	24.41840	11	45	29.39	+37	08	33.0		3 675
1985	FC		1990	03	26.21597	10	46	36.38	+31	18	08.0	18.0	3 675
1985	FC		1990	04	01.26389	10	38	24.49	+29	13	49.5	18.1	3 675
1986	TS6		1990	01	26.47777	11	04	30.43	+08	24	01.1	18	3 675
1986	TS6		1990	01	28.45972	11	03	49.85	+08	26	28.5		3 675
1987	OW1	*	1987	07	26.37708	21	24	54.21	+01	46	46.6	16.2	2 675
1987	OW1		1987	07	26.40417	21	24	53.27	+01	46	34.5		2 675
1987	OW1		1987	07	28.40903	21	23	48.49	+01	30	12.8		2 675
1987	OW1		1987	07	28.43958	21	23	47.24	+01	29	54.1		2 675
1987	QL		1990	05	21.34387	15	56	01.89	-05	13	10.6	15.5	2 675
1987	QL		1990	05	21.36910	15	56	00.29	-05	13	03.0		2 675
1987	QL		1990	05	23.24497	15	54	14.46	-05	04	15.8		2 675
1987	QL		1990	05	23.26997	15	54	12.98	-05	04	09.7		2 675
1988	VO2		1977	12	07.41111	05	19	41.80	+30	50	22.1	15.0	2 675
1988	VO2		1977	12	07.42500	05	19	40.67	+30	50	18.0		2 675
1988	XO1		1990	05	19.18073	13	38	25.76	-02	08	16.3	16.3	2 675
1988	XO1		1990	05	19.20451	13	38	25.08	-02	08	10.5		2 675
1988	XO1		1990	05	22.19948	13	37	03.33	-01	56	29.4		2 675
1988	XO1		1990	05	22.22361	13	37	03.00	-01	56	20.7		2 675
1989	AL2		1990	02	21.37100	11	44	22.65	+40	58	32.7	17.8	3 675
1989	AL2		1990	02	24.41840	11	42	51.08	+41	15	39.1		3 675
1989	AL2		1990	04	01.28541	11	22	53.75	+43	01	30.7	18.1	3 675
1989	AL2		1990	04	01.31597	11	22	52.89	+43	01	32.4		3 675
1989	AL2		1990	04	20.23315	11	15	03.71	+42	40	00.8	18.3	3 675
1989	AL2		1990	04	20.27899	11	15	02.95	+42	39	54.6		3 675
1989	AM2		1990	02	22.46857	12	28	44.32	+34	39	48.3	17.5	3 675
1989	AM2		1990	02	22.50295	12	28	43.47	+34	39	57.9		3 675
1989	AM2		1990	04	01.34600	12	07	51.72	+36	33	36.6	17.7	3 675
1989	AM2		1990	04	01.37517	12	07	50.76	+36	33	37.3		3 675
1989	AN2		1990	01	26.47777	10	50	59.03	+04	30	30.7	18	3 675
1989	AN2		1990	01	28.45972	10	50	21.53	+04	35	38.2		3 675
1989	BO		1990	04	26.42118	14	56	48.61	-00	30	49.4	16.5	2 675
1989	BO		1990	04	26.44392	14	56	47.46	-00	30	43.8		2 675
1989	BO		1990	04	27.37604	14	56	03.73	-00	28	03.5		2 675
1989	BO		1990	04	27.39948	14	56	02.77	-00	27	59.2		2 675
1989	CQ1		1990	01	26.47777	10	58	11.52	+02	09	01.7	17.9	3 675
1989	CQ1		1990	01	28.45972	10	57	27.71	+02	09	19.9		3 675
1989	CQ1		1990	03	27.23159	10	28	43.66	+03	29	57.8	18	3 675
1989	CQ1		1990	03	27.27118	10	28	42.86	+03	30	03.6		3 675
1989	CQ1		1990	04	01.30069	10	26	42.57	+03	37	42.7		3 675
1989	CH2		1990	02	21.42430	11	43	59.09	+31	25	09.7	18.0	3 675
1989	CH2		1990	02	24.41059	11	42	37.76	+31	44	26.3		3 675
1989	EO11		1990	05	25.17960	11	19	02.85	+19	45	52.5	18.4	3 675
1989	EO11		1990	05	26.19079	11	19	11.82	+19	44	10.2		3 675

1989	PA		1989	08	30.15781	19	43	16.45	+03	23	46.6	16.5	3 675
1989	PA		1989	09	01.14219	19	41	57.68	+03	28	58.1		3 675
1990	DK		1990	03	27.23159	10	27	05.21	-00	05	29.9	18.2	3 675
1990	DK		1990	03	27.27118	10	27	04.53	-00	05	20.9		3 675
1990	FP		1988	12	06.29809	03	46	12.48	+07	03	08.4	16.3	2 675
1990	FP		1988	12	06.33750	03	46	10.11	+07	03	14.9		2 675
1990	FP		1988	12	07.33576	03	45	12.64	+07	06	13.0		2 675
1990	HA		1990	05	18.22708	13	51	19.67	-02	40	05.7	16.3	2 675
1990	HA		1990	05	18.25434	13	51	20.46	-02	40	23.6		2 675
1990	HE		1990	05	18.17917	12	52	03.67	-06	21	04.9	16.5	2 675
1990	HE		1990	05	18.20278	12	52	02.15	-06	21	22.5		2 675
1990	HE		1990	05	21.16910	12	49	13.42	-07	02	21.4		2 675
1990	HE		1990	05	21.19201	12	49	12.05	-07	02	38.4		2 675
1990	HG		1990	05	18.22708	13	46	28.73	-03	55	34.9	16.5	2 675
1990	HG		1990	05	18.25434	13	46	26.91	-03	55	55.1		2 675
1990	HG		1990	05	21.21458	13	43	24.89	-04	29	18.3		2 675
1990	HG		1990	05	21.25625	13	43	22.53	-04	29	44.3		2 675
1990	HP		1990	05	18.23404	14	01	08.96	-26	41	48.2	16.5	2 675
1990	HP		1990	05	18.26094	14	01	06.21	-26	42	01.6		2 675
1990	HP		1990	05	21.23316	13	56	36.08	-27	05	00.4		2 675
1990	HP		1990	05	21.26181	13	56	33.23	-27	05	15.5		2 675
1990	HW		1990	05	18.19115	13	18	35.26	+21	37	59.2	17.0	2 675
1990	HW		1990	05	18.21424	13	18	34.18	+21	37	31.9		2 675
1990	HW		1990	05	21.18038	13	16	36.69	+20	33	11.7		2 675
1990	HW		1990	05	21.20313	13	16	35.88	+20	32	40.6		2 675
1990	HY	*	1990	04	26.35347	14	24	47.84	+09	44	12.1	16.0	2 675
1990	HY		1990	04	26.39323	14	24	45.50	+09	44	13.0		2 675
1990	HY		1990	04	29.31580	14	21	53.61	+09	43	44.6		2 675
1990	HY		1990	04	29.35243	14	21	51.39	+09	43	43.9		2 675
1990	HY		1990	05	19.21701	14	04	07.29	+08	38	50.8	16.3	2 675
1990	HY		1990	05	19.24670	14	04	05.98	+08	38	40.1		2 675
1990	HY		1990	05	22.18872	14	02	00.97	+08	20	21.0		2 675
1990	HY		1990	05	22.21111	14	02	00.06	+08	20	12.8		2 675
1990	HZ	*	1990	04	26.35347	14	25	13.73	+09	04	53.4	16.5	2 675
1990	HZ		1990	04	26.39323	14	25	11.98	+09	05	06.8		2 675
1990	HZ		1990	04	29.31580	14	23	03.16	+09	19	40.9		2 675
1990	HZ		1990	04	29.35243	14	23	01.62	+09	19	50.4		2 675
1990	HZ		1990	05	22.19410	14	07	41.94	+10	12	06.1		2 675
1990	HZ		1990	05	22.21667	14	07	41.15	+10	12	06.3		2 675
1990	HA1	*	1990	04	26.35347	14	30	40.50	+08	13	40.1	16.5	2 675
1990	HA1		1990	04	26.39323	14	30	38.32	+08	13	58.3		2 675
1990	HA1		1990	04	29.31580	14	28	00.78	+08	34	30.6		2 675
1990	HA1		1990	04	29.35243	14	27	58.63	+08	34	44.8		2 675
1990	HA1		1990	05	19.22257	14	10	57.61	+09	57	04.7	16.7	2 675
1990	HA1		1990	05	19.25260	14	10	56.14	+09	57	08.8		2 675
1990	HC1	*	1990	04	26.36347	14	30	14.95	+11	50	03.2	16.5	2 675
1990	HC1		1990	04	26.39323	14	30	13.01	+11	50	30.7		2 675
1990	HC1		1990	04	29.31580	14	27	52.38	+12	24	57.1		2 675
1990	HC1		1990	04	29.35243	14	27	50.49	+12	25	21.7		2 675
1990	HC1		1990	05	19.22257	14	12	41.36	+15	12	53.5	16.5	2 675
1990	HC1		1990	05	19.25260	14	12	40.14	+15	13	02.9		2 675
1990	HC1		1990	05	22.19410	14	10	48.17	+15	26	56.8		2 675
1990	HC1		1990	05	22.21667	14	10	47.31	+15	27	02.3		2 675
1990	HD1	*	1990	04	27.33941	14	32	54.99	+23	45	36.9	15.7	2 675
1990	HD1		1990	04	27.35660	14	32	53.95	+23	46	04.9		2 675
1990	HD1		1990	04	29.27760	14	31	06.80	+24	36	13.7		2 675
1990	HD1		1990	04	29.30017	14	31	05.40	+24	36	48.4		2 675
1990	HE1	*	1990	04	27.38785	15	30	29.31	+03	21	35.8	15.5	2 675
1990	HE1		1990	04	27.41146	15	30	28.30	+03	21	41.6		2 675

1990	HE1		1990	04	29.36736	15	29	06.48	+03	28	50.1	2 675
1990	HE1		1990	04	29.38403	15	29	05.75	+03	28	53.1	2 675
1990	HE1		1990	05	18.28038	15	14	50.89	+04	09	35.6	15.3 2 675
1990	HE1		1990	05	18.30451	15	14	49.88	+04	09	36.1	2 675
1990	HE1		1990	05	21.27951	15	12	36.09	+04	10	39.6	2 675
1990	HE1		1990	05	21.30642	15	12	34.68	+04	10	40.4	2 675
1990	HF1	*	1990	04	27.43021	15	45	59.74	+12	40	27.5	15.5 2 675
1990	HF1		1990	04	27.45990	15	45	58.48	+12	40	34.0	2 675
1990	HF1		1990	04	29.41163	15	44	42.35	+12	49	44.8	2 675
1990	HF1		1990	04	29.43281	15	44	41.46	+12	49	51.8	2 675
1990	HF1		1990	05	21.33767	15	28	33.22	+13	38	36.1	16.3 2 675
1990	HF1		1990	05	21.36285	15	28	32.03	+13	38	34.9	2 675
1990	HF1		1990	05	23.18264	15	27	10.58	+13	37	41.8	2 675
1990	HF1		1990	05	23.20590	15	27	09.46	+13	37	42.0	2 675
1990	HG1	*	1990	04	26.42118	14	59	19.96	-00	07	16.7	16.0 2 675
1990	HG1		1990	04	26.44392	14	59	18.79	-00	07	02.7	2 675
1990	HG1		1990	04	27.37604	14	58	33.75	-00	01	14.2	2 675
1990	HG1		1990	04	27.39948	14	58	32.67	-00	01	26.5	2 675
1990	HH1	*	1990	04	26.42118	15	09	06.70	+02	07	53.4	16.0 2 675
1990	HH1		1990	04	26.44392	15	09	05.66	+02	08	07.3	2 675
1990	HH1		1990	04	27.37604	15	08	26.34	+02	16	25.2	2 675
1990	HH1		1990	04	27.39948	15	08	25.40	+02	16	38.7	2 675
1990	HH1		1990	05	21.33142	14	50	07.84	+04	47	45.4	15.7 2 675
1990	HH1		1990	05	21.35677	14	50	06.79	+04	47	48.8	2 675
1990	HH1		1990	05	23.17656	14	48	50.93	+04	53	07.0	2 675
1990	HH1		1990	05	23.20017	14	48	49.94	+04	53	10.2	2 675
1990	HJ1	*	1990	04	26.42118	15	14	35.09	+02	59	00.6	15.5 2 675
1990	HJ1		1990	04	26.44392	15	14	34.17	+02	59	15.3	2 675
1990	HJ1		1990	04	27.37604	15	13	59.44	+03	09	27.8	2 675
1990	HJ1		1990	04	27.39948	15	13	58.45	+03	09	43.8	2 675
1990	HJ1		1990	05	21.33142	14	57	53.92	+06	30	24.4	15.5 2 675
1990	HJ1		1990	05	21.35677	14	57	52.85	+06	30	30.2	2 675
1990	HJ1		1990	05	23.17656	14	56	45.82	+06	39	48.4	2 675
1990	HJ1		1990	05	23.20017	14	56	44.91	+06	39	55.8	2 675
1990	HL1		1990	05	18.29219	14	54	51.84	-23	20	50.4	16.2 2 675
1990	HL1		1990	05	18.31615	14	54	50.96	-23	20	08.7	2 675
1990	HL1		1990	05	19.23490	14	54	23.13	-22	53	11.4	2 675
1990	HL1		1990	05	19.37569	14	54	18.32	-22	49	03.4	2 675
1990	HL1		1990	05	23.29653	14	52	30.35	-20	54	23.2	2 675
1990	HL1		1990	05	23.32847	14	52	29.40	-20	53	26.3	2 675
1990	HR1	*	1990	04	20.24166	12	03	12.69	+36	28	41.4	18.2 3 675
1990	HR1		1990	04	22.19618	12	02	16.66	+36	29	10.6	3 675
1990	KA		1990	03	23.49115	14	35	15.46	+06	49	06.1	17.0 2 675
1990	KA		1990	03	23.50885	14	35	16.68	+06	49	17.9	2 675
1990	KA		1990	03	25.44201	14	37	23.09	+07	09	21.2	2 675
1990	KA		1990	03	25.46649	14	37	24.55	+07	09	36.2	2 675
1990	KA		1990	04	25.45972	15	00	14.25	+12	04	51.2	16.0 2 675
1990	KA		1990	04	25.47222	15	00	14.41	+12	04	54.2	2 675
1990	KA	*	1990	05	18.27396	15	08	52.65	+10	38	52.8	15.2 2 675
1990	KA		1990	05	18.29809	15	08	52.98	+10	38	29.5	2 675
1990	KA		1990	05	20.35382	15	09	49.43	+10	07	01.1	15.3 2 675
1990	KA		1990	05	20.36528	15	09	49.81	+10	06	55.5	2 675
1990	KA		1990	05	21.28559	15	10	17.95	+09	51	24.0	15.0 2 675
1990	KA		1990	05	21.41128	15	10	20.35	+09	49	11.0	2 675
1990	KA		1990	05	22.26528	15	10	48.51	+09	33	57.4	2 675
1990	KA		1990	05	23.21962	15	11	19.61	+09	15	59.5	2 675
1990	KA		1990	05	25.25955	15	12	29.57	+08	34	30.0	3 675
1990	KA		1990	05	25.28785	15	12	30.24	+08	33	52.5	3 675

1990	KG	*	1990	05	19.33698	16	01	19.68	+05	44	30.2	16.0	2 675
1990	KG		1990	05	19.36302	16	01	18.31	+05	44	24.4		2 675
1990	KG		1990	05	22.29635	15	58	38.24	+05	33	25.7		2 675
1990	KG		1990	05	22.31892	15	58	36.92	+05	33	19.7		2 675
1990	KH	*	1990	05	20.37865	15	57	14.72	-16	49	45.7	16.0	2 675
1990	KH		1990	05	20.40573	15	57	12.85	-16	49	19.1		2 675
1990	KH		1990	05	23.28247	15	54	06.37	-15	59	37.3		2 675
1990	KH		1990	05	23.31563	15	54	04.14	-15	59	03.3		2 675
1990	KJ	*	1990	05	20.39288	16	04	07.68	+09	06	01.9	16.0	2 675
1990	KJ		1990	05	20.41910	16	04	05.64	+09	05	46.5		2 675
1990	KJ		1990	05	23.23247	16	00	35.54	+08	36	32.2		2 675
1990	KJ		1990	05	23.25764	16	00	33.57	+08	36	15.3		2 675
1990	KK	*	1990	05	21.38802	16	20	24.62	-05	17	57.1	16.5	2 675
1990	KK		1990	05	21.41684	16	20	21.89	-05	18	17.0		2 675
1990	KK		1990	05	23.35382	16	17	23.53	-05	41	04.0		2 675
1990	KK		1990	05	23.38733	16	17	20.12	-05	41	30.5		2 675
1990	KL	*	1990	05	21.38802	16	29	19.75	-06	45	19.7	16.3	2 675
1990	KL		1990	05	21.41684	16	29	18.45	-06	45	03.9		2 675
1990	KL		1990	05	23.35382	16	27	54.98	-06	22	32.0		2 675
1990	KL		1990	05	23.38733	16	27	53.35	-06	22	07.1		2 675
1990	KM	*	1990	05	21.38802	16	30	00.88	-01	10	43.3	16.5	2 675
1990	KM		1990	05	21.41684	16	29	59.46	-01	10	17.0		2 675
1990	KM		1990	05	23.35382	16	28	18.01	-00	44	34.4		2 675
1990	KM		1990	05	23.38733	16	28	16.12	-00	44	07.9		2 675
1990	KN	*	1990	05	22.29097	15	48	24.68	+20	19	57.7	17.0	2 675
1990	KN		1990	05	22.31337	15	48	23.61	+20	20	28.5		2 675
1990	KN		1990	05	23.22587	15	47	47.14	+20	41	55.7		2 675
1990	KN		1990	05	23.25122	15	47	45.96	+20	42	31.8		2 675
1990	KO	*	1990	05	22.43368	17	11	33.40	-10	57	19.0	15.5	2 675
1990	KO		1990	05	22.45799	17	11	32.24	-10	56	42.7		2 675
1990	KO		1990	05	23.41137	17	10	48.08	-10	33	51.2		2 675
1990	KO		1990	05	23.43003	17	10	47.14	-10	33	25.7		2 675
1990	KR	*	1990	05	21.34387	15	53	56.10	-00	18	27.2	16.7	2 675
1990	KR		1990	05	21.36910	15	53	54.87	-00	18	16.2		2 675
1990	KR		1990	05	23.24497	15	52	30.68	-00	04	00.5		2 675
1990	KR		1990	05	23.26997	15	52	29.48	-00	03	50.2		2 675
1990	KS		1990	04	26.46302	17	15	24.33	-07	14	34.5	15.7	2 675
1990	KS		1990	04	26.48021	17	15	23.95	-07	14	43.2		2 675
1990	KS	*	1990	05	22.43368	16	49	17.04	-12	12	04.5	16.5	2 675
1990	KS		1990	05	22.45799	16	49	14.67	-12	12	27.2		2 675
1990	KS		1990	05	23.41128	16	47	47.77	-12	26	42.5		2 675
1990	KS		1990	05	23.43003	16	47	46.00	-12	26	58.2		2 675
1990	KT	*	1990	05	21.42240	16	43	21.90	+06	51	28.5		2 675
1990	KT		1990	05	23.40538	16	41	54.70	+07	25	16.5		2 675
1990	KT		1990	05	23.42413	16	41	53.90	+07	25	32.7		2 675
1990	KU	*	1990	05	21.38229	16	07	47.25	-17	21	34.3	16.5	2 675
1990	KU		1990	05	21.40538	16	07	45.96	-17	21	28.0		2 675
1990	KU		1990	05	23.34757	16	06	00.35	-17	14	31.8		2 675
1990	KU		1990	05	23.38003	16	05	58.36	-17	14	24.0		2 675
1990	KV	*	1990	05	21.38229	16	12	15.47	-18	07	11.6	16.0	2 675
1990	KV		1990	05	21.40538	16	12	14.32	-18	06	59.3		2 675
1990	KV		1990	05	23.34757	16	10	46.48	-17	48	20.2		2 675
1990	KV		1990	05	23.38003	16	10	44.84	-17	48	01.9		2 675
1990	KW	*	1990	05	21.38229	16	12	39.18	-13	13	28.0	16.7	2 675
1990	KW		1990	05	21.40538	16	12	37.73	-13	13	27.3		2 675
1990	KW		1990	05	23.34757	16	10	43.02	-13	15	02.5		2 675
1990	KW		1990	05	23.38003	16	10	40.91	-13	15	05.5		2 675
1990	KX	*	1990	05	21.38229	16	17	09.02	-13	29	15.9	15.7	2 675

1990	KX		1990	05	21.40538	16	17	07.60	-13	29	15.5	2 675
1990	KX		1990	05	23.34757	16	15	12.25	-13	29	47.6	2 675
1990	KX		1990	05	23.38003	16	15	10.14	-13	29	48.9	2 675
1990	KY	*	1990	05	22.42188	17	01	37.91	-02	27	10.9	16.5 2 675
1990	KY		1990	05	22.44583	17	01	36.78	-02	27	05.5	2 675
1990	KY		1990	05	23.41806	17	00	57.25	-02	22	47.3	2 675
1990	KY		1990	05	23.43559	17	00	56.57	-02	22	44.6	2 675
1990	KZ	*	1990	05	21.38802	16	27	38.56	-01	16	06.9	16.2 2 675
1990	KZ		1990	05	21.41684	16	27	37.10	-01	16	00.6	2 675
1990	KZ		1990	05	23.35382	16	25	53.91	-01	12	32.4	2 675
1990	KZ		1990	05	23.38733	16	25	51.96	-01	12	29.3	2 675
1990	KA1	*	1990	05	21.38802	16	33	25.43	-00	14	36.5	16.2 2 675
1990	KA1		1990	05	21.41684	16	33	24.00	-00	14	34.4	2 675
1990	KA1		1990	05	23.35382	16	31	55.08	-00	13	10.1	2 675
1990	KA1		1990	05	23.38733	16	31	53.36	-00	13	10.2	2 675
1990	KB1	*	1990	05	21.38802	16	35	17.66	-02	05	09.3	15.7 2 675
1990	KB1		1990	05	21.41684	16	35	16.18	-02	05	08.2	2 675
1990	KB1		1990	05	23.35382	16	33	41.75	-02	04	52.1	2 675
1990	KB1		1990	05	23.38733	16	33	39.91	-02	04	53.2	2 675
3553	P-L	*	1960	10	22.12083	00	27	35.95	+13	29	08.0	18.9 4 675
3553	P-L		1960	10	24.30972	00	25	58.82	+13	16	58.3	4 675
3553	P-L		1960	10	26.37951	00	24	31.57	+13	05	31.3	4 675
1167	T-2		1973	09	19.18611	00	15	42.68	+03	42	13.0	4 675
1167	T-2		1973	09	24.34688	00	11	30.12	+03	13	53.1	4 675
1167	T-2		1973	09	24.41597	00	11	26.61	+03	13	30.4	4 675
1167	T-2		1973	09	25.24375	00	10	46.12	+03	08	52.9	4 675
1167	T-2		1973	09	25.30729	00	10	42.57	+03	08	29.5	4 675
1167	T-2	*	1973	09	29.25330	00	07	27.12	+02	46	00.6	19.7 4 675
1167	T-2		1973	09	29.31806	00	07	23.76	+02	45	39.2	4 675
1167	T-2		1973	09	30.21007	00	06	39.99	+02	40	32.6	4 675
1167	T-2		1973	09	30.27431	00	06	36.80	+02	40	10.6	4 675
1167	T-2		1973	10	04.28958	00	03	21.98	+02	17	18.3	4 675
1167	T-2		1973	10	04.35208	00	03	18.98	+02	16	57.5	4 675
5447	T-2		1973	09	29.24062	00	22	40.45	+16	25	14.2	4 675
5447	T-2		1973	09	29.30486	00	22	36.00	+16	24	59.6	4 675
5447	T-2	*	1973	09	30.19722	00	21	38.23	+16	21	24.5	17.8 4 675
5447	T-2		1973	09	30.35295	00	21	27.74	+16	20	46.1	4 675
5447	T-2		1973	10	04.27708	00	17	16.72	+16	03	14.8	4 675
5447	T-2		1973	10	04.33906	00	17	12.52	+16	02	57.0	4 675
5447	T-2		1973	10	05.36632	00	16	08.45	+15	57	56.0	4 675
5447	T-2		1973	10	05.42847	00	16	04.48	+15	57	37.6	4 675
3453	T-3		1977	10	07.27031	01	14	13.11	+05	47	45.0	4 675
3453	T-3		1977	10	11.28819	01	10	31.70	+05	12	44.9	4 675
3453	T-3		1977	10	11.35642	01	10	27.78	+05	12	08.6	4 675
3453	T-3		1977	10	12.28681	01	09	36.77	+05	04	04.1	4 675
3453	T-3		1977	10	12.35347	01	09	32.95	+05	03	30.4	4 675
3453	T-3	*	1977	10	16.27309	01	05	59.28	+04	30	05.6	18.9 4 675
3453	T-3		1977	10	16.33872	01	05	55.61	+04	29	32.4	4 675
3453	T-3		1977	10	17.27552	01	05	05.37	+04	21	44.0	4 675
3453	T-3		1977	10	17.34236	01	05	01.74	+04	21	11.0	4 675
3453	T-3		1977	10	21.39792	01	01	30.47	+03	48	22.3	4 675
3453	T-3		1977	10	21.45799	01	01	27.24	+03	47	53.3	4 675
3453	T-3		1977	10	22.39844	01	00	40.35	+03	40	32.1	4 675
3453	T-3		1977	10	22.45920	01	00	37.17	+03	40	03.7	4 675
4208			1990	04	26.35347	14	34	21.55	+07	38	48.4	16.5 2 675
4208			1990	04	26.39323	14	34	19.87	+07	38	59.7	2 675
4208			1990	04	29.31580	14	32	18.00	+07	53	10.5	2 675
4208			1990	04	29.35243	14	32	16.35	+07	53	20.3	2 675

685 Williams
E. Bowell, Lowell Observatory, 1400 West Mars Hill Road,
Flagstaff, AZ 86001, U.S.A.
Observer P. E. Roques
Measurer B. A. Skiff
0.4-m f/4.5 reflector

1990 HA	1990 04 26.19091	13 31 16.33	+02 13 05.7					685
1990 HA	1990 04 26.20786	13 31 17.50	+02 12 46.0					685

690 Lowell Observatory
E. Bowell, Lowell Observatory, 1400 West Mars Hill Road,
Flagstaff, AZ 86001, U.S.A.
Observers E. C. Slipher, C. W. Tombaugh
Measurer B. A. Skiff, C. M. Olmstead
0.33-m photographic telescope and 0.12-m f/7 Brashear camera
PDS scanning microdensitometer
AGK3 and Perth 70 secondary nets, global solutions

1929 WO	1929 11 27.25556	04 38 52.45	+17 26 43.3					690
1929 WP	1929 11 27.25556	04 43 29.42	+20 56 54.3					690
1929 WQ	1929 11 27.25556	04 44 43.92	+23 31 00.2					690
1929 WQ	1929 12 03.23610	04 43 07.09	+23 29 09.3					690
1929 WT	1929 11 27.25556	04 55 25.55	+18 11 52.8					690
1929 WT	1929 12 03.23610	04 49 58.63	+18 18 36.0					690
1929 WW	1929 11 27.25556	05 14 37.27	+20 13 20.4					690
1929 WW	1929 12 03.23610	05 10 08.55	+20 04 38.0					690
1929 XN	1929 12 03.23610	04 39 47.62	+20 54 19.6					690
1931 AK	1931 01 10.21701	07 55 32.86	+26 50 31.9					690
1931 AK	1931 01 11.22569	07 54 37.69	+26 57 00.2				R	690
1931 AK	1931 01 12.22396	07 53 43.97	+27 03 18.3		14.5		R	690
1931 AL	1931 01 10.21701	08 09 33.11	+29 28 49.7				R	690
1931 AL	1931 01 11.22569	08 08 24.12	+29 33 57.9					690
1931 AL	1931 01 12.22396	08 07 15.21	+29 38 58.9		15			690
1	1929 11 27.25556	04 52 06.19	+19 31 45.0					690
1	1929 12 03.23610	04 46 03.89	+19 43 19.5					690
12	1929 11 27.25556	05 15 46.56	+18 52 33.1					690
12	1929 12 03.23610	05 09 12.08	+18 25 53.8					690
58	1929 11 27.25556	04 58 28.44	+14 51 00.6					690
58	1929 12 03.23610	04 52 52.94	+14 39 33.7					690
63	1931 01 10.21701	08 02 26.39	+26 57 58.0					690
63	1931 01 11.22569	08 01 18.30	+27 00 03.9					690
63	1931 01 12.22396	08 00 10.45	+27 02 03.6					690
73	1931 01 10.21701	07 55 14.73	+24 34 15.6				P	690
73	1931 01 11.22569	07 54 13.65	+24 36 58.2				I	690
73	1931 01 12.22396	07 53 12.81	+24 39 33.1					690
165	1906 12 17.34375	09 19 14.52	+15 43 21.0		12			690
165	1906 12 21.31250	09 18 09.97	+15 38 42.6					690
200	1931 01 10.21701	08 01 59.92	+26 27 01.6					690
200	1931 01 11.22569	08 00 55.98	+26 27 40.3					690
200	1931 01 12.22396	07 59 52.36	+26 28 13.7					690
307	1929 11 27.25556	04 43 49.47	+16 46 03.0					690
307	1929 12 03.23610	04 38 13.13	+16 48 57.0					690
366	1931 01 12.22396	08 17 48.16	+31 39 38.6		12			690
401	1929 11 27.25556	05 00 22.38	+27 29 23.4					690
401	1929 12 03.23610	04 55 14.70	+27 29 39.1					690
550	1929 11 27.25556	04 59 32.37	+27 53 01.4					690
550	1929 12 03.23610	04 52 59.46	+27 25 28.8					690
656	1929 11 27.25556	05 18 58.17	+22 29 29.8					690
656	1929 12 03.23610	05 13 56.08	+22 23 34.8					690
949	1931 01 11.22569	07 28 38.67	+30 57 08.4					690

958		1931	01	10.21701	07	59	59.82	+26	56	46.3		690
958		1931	01	11.22569	07	59	11.37	+26	58	12.3		690
958		1931	01	12.22396	07	58	23.48	+26	59	33.7		690
982		1931	01	10.21701	07	34	07.62	+24	49	07.4	f	690
982		1931	01	11.22569	07	33	12.31	+24	48	56.9	P	690
982		1931	01	12.22396	07	32	18.12	+24	48	35.8		690
1028		1931	01	10.21701	08	18	35.45	+30	37	06.6		690
1028		1931	01	11.22569	08	17	45.73	+30	42	02.6		690
1028		1931	01	12.22396	08	16	55.90	+30	46	50.5		690
1056		1929	11	27.25556	05	19	52.54	+18	29	12.8		690
1056		1929	12	03.23610	05	12	57.49	+18	32	43.2		690
1074		1929	11	27.25556	04	39	44.08	+22	52	09.1		690
1257		1929	11	27.25556	05	00	36.37	+18	55	23.3		690
1257		1929	12	03.23610	04	54	32.72	+18	38	01.4		690
1502		1929	11	27.25556	05	23	18.10	+18	10	59.9		690
1502		1929	12	03.23610	05	17	58.01	+17	55	42.2		690
1708		1929	11	28.27083	04	59	22.57	+12	56	11.1		690
1708		1929	12	04.19791	04	54	48.19	+12	29	29.3		690
1708		1929	12	05.26041	04	53	57.25	+12	25	09.2		690
2132		1929	11	27.25556	04	51	55.20	+20	27	34.7		690
2132		1929	12	03.23610	04	46	01.13	+20	31	45.5		690
2346		1929	11	27.25556	05	04	33.22	+21	38	01.3		690
2346		1929	12	03.23610	04	57	57.24	+21	09	30.5		690
3132		1929	12	03.23610	04	57	37.06	+18	16	08.5		690
4349		1931	01	10.21701	07	32	45.02	+27	27	40.0		690
4349		1931	01	11.22569	07	31	38.64	+27	33	52.9		690
4349		1931	01	12.22396	07	30	32.83	+27	39	52.1	14	690

691 Kitt Peak, Steward Observatory
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Rabinowitz, J. V. Scotti
0.91-m SPACEWATCH telescope and (1) 2.3-m reflector

1990 KA		1990	05	31.26389	15	16	40.69	+06	07	59.6	15.6V 1	691
1990 KA		1990	05	31.28125	15	16	41.21	+06	07	31.9	1	691
1990 KA		1990	05	31.29167	15	16	41.61	+06	07	16.7	1	691
1990 KA		1990	05	31.30208	15	16	41.94	+06	07	00.2	1	691
1990 KA		1990	05	31.31250	15	16	42.41	+06	06	42.5	1	691
1990 KA		1990	05	31.32292	15	16	42.72	+06	06	25.9	1	691
1990 KA		1990	05	31.33333	15	16	43.18	+06	06	09.5	1	691
1990 KA		1990	05	31.34387	15	16	43.47	+06	05	52.2	1	691
1990 KA		1990	05	31.35417	15	16	43.83	+06	05	32.4	1	691
1990 KA		1990	05	31.36458	15	16	44.37	+06	05	17.1	1	691
1990 KA		1990	05	31.37500	15	16	44.73	+06	04	59.9	1	691
1990 KA		1990	05	31.38542	15	16	45.08	+06	04	38.8	1	691
1990 KL1	*	1990	05	21.34928	15	53	28.10	-14	42	59.2	19.1V	691
1990 KL1		1990	05	21.36024	15	53	27.02	-14	43	08.2		691
1990 KL1		1990	05	22.27774	15	51	51.84	-14	55	52.6	19.1V	691
1990 KL1		1990	05	22.28826	15	51	50.58	-14	56	00.6		691
1990 KL1		1990	05	22.29797	15	51	49.57	-14	56	08.9		691
1990 KL1		1990	05	31.32667	15	36	05.15	-17	04	00.1	19.1V	691
1990 KL1		1990	05	31.35140	15	36	02.56	-17	04	20.2		691
1990 KL1		1990	05	31.36269	15	36	01.36	-17	04	29.9	19.5V	691
1990 KM1	*	1990	05	21.34943	15	53	41.17	-14	48	54.0	20.8V	691
1990 KM1		1990	05	21.36039	15	53	40.13	-14	49	01.1		691
1990 KM1		1990	05	22.27774	15	52	20.75	-14	58	53.6		691
1990 KM1		1990	05	22.28826	15	52	19.80	-14	59	00.2		691
1990 KM1		1990	05	22.29797	15	52	18.96	-14	59	06.1		691

1990	KM1		1990	06	01.24862	15	37	46.08	-16	50	26.3	20.8V	691
1990	KM1		1990	06	01.27042	15	37	44.12	-16	50	37.3	20.6V	691
1990	KM1		1990	06	01.34946	15	37	37.01	-16	51	33.9		691
1990	KM1		1990	06	01.36372	15	37	35.76	-16	51	43.6		691
1990	KN1	*	1990	05	31.32583	15	34	53.02	-17	09	49.3	18.7V	691
1990	KN1		1990	05	31.35058	15	34	51.51	-17	09	22.8		691
1990	KN1		1990	05	31.36187	15	34	50.76	-17	09	10.7		691
1990	KN1		1990	06	01.24600	15	33	59.01	-16	53	36.4		691
1990	KN1		1990	06	01.26780	15	33	57.69	-16	53	12.3	18.6V	691
1990	KN1		1990	06	01.29672	15	33	55.90	-16	52	42.8		691
1990	KN1		1990	06	01.32813	15	33	53.99	-16	52	08.6		691
1990	KN1		1990	06	05.25450	15	30	17.98	-15	44	59.0		691
1990	KN1		1990	06	05.27030	15	30	17.06	-15	44	43.8		691
1990	KN1		1990	06	05.29295	15	30	15.94	-15	44	20.3		691
1990	KN1		1990	06	14.21600	15	23	49.61	-13	27	18.8	18.9V	691
1990	KN1		1990	06	14.24546	15	23	48.49	-13	26	53.6		691
1990	KN1		1990	06	14.26902	15	23	47.60	-13	26	34.0		691

760 Goethe Link
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D. L. Rodgers, S. F. Strother, C. T. van Sant
Measurer C. M. Olmstead
0.25-m refractor
PDS scanning microdensitometer
AGK3 and Perth 70 secondary nets, global solutions

1953	GE1		1953	04	05.17259	12	19	47.46	+00	19	43.1		760
1962	WW		1962	11	26.20135	04	35	54.54	+13	45	10.9		760
1962	WW		1962	11	26.24834	04	35	51.53	+13	45	02.6		760
1962	WY		1962	11	26.20135	04	27	28.61	+11	58	24.1		760
1962	WY		1962	11	26.24834	04	27	26.05	+11	58	09.5		760
1962	WZ		1962	11	26.20135	04	26	08.70	+18	16	37.7		760
1962	WZ		1962	11	26.24834	04	26	05.76	+18	16	27.2		760
1962	WC1		1962	11	26.20135	04	23	09.51	+13	09	40.9		760
1962	WC1		1962	11	26.24834	04	23	06.22	+13	09	37.5		760
1962	WE1		1962	11	26.20135	04	16	28.00	+12	56	41.7		760
1962	WE1		1962	11	26.24834	04	16	25.73	+12	56	23.6		760
1962	XK1		1962	12	03.39127	05	26	06.74	+26	05	56.0		760
1962	XK1		1962	12	03.43537	05	26	04.36	+26	06	01.6		760
1965	UT		1965	10	30.25765	02	55	32.80	+22	49	26.4	15.6	760
1965	UT		1965	10	30.30279	02	55	29.86	+22	49	51.7	D	760
1965	UU		1965	10	30.25765	02	43	57.90	+22	55	01.4	15.5	760
1965	UU		1965	10	30.30279	02	43	55.24	+22	54	47.8		760
1966	BB		1966	01	20.18829	08	02	50.97	+18	08	32.9		760
1966	BB		1966	01	20.23663	08	02	47.92	+18	08	55.8		760
45			1962	11	26.20135	04	32	27.58	+12	00	22.9	11.9	760
45			1962	11	26.24834	04	32	24.90	+12	00	17.5		760
46			1962	11	26.20135	04	18	44.57	+17	43	49.8	11.7	760
46			1962	11	26.24834	04	18	41.56	+17	43	41.5		760
133			1965	10	30.25765	02	45	49.29	+26	31	46.5	13.9	760
133			1965	10	30.30279	02	45	46.84	+26	31	40.3		760
278			1951	01	06.28788	07	38	43.02	+30	33	27.2		760
278			1951	01	06.33302	07	38	40.21	+30	33	39.5		760
311			1962	12	03.39127	05	11	14.57	+22	32	10.4	14.4	760
311			1962	12	03.43537	05	11	12.27	+22	32	09.9		760
409			1965	10	30.25765	02	38	53.56	+22	09	40.8	11.8	760
409			1965	10	30.30279	02	38	51.05	+22	09	21.8		760
483			1953	04	05.17259	12	35	40.31	+03	18	39.8		760

483		1953	04	05.21358	12	35	38.76	+03	18	57.7	13.5	760
530		1966	01	20.18829	08	03	30.19	+18	24	14.6		760
530		1966	01	20.23663	08	03	27.93	+18	24	26.5		760
569		1962	12	03.39127	05	14	29.93	+24	45	00.3	12.9	760
569		1962	12	03.43537	05	14	27.43	+24	44	54.1		760
608		1966	01	20.18829	08	05	54.92	+18	59	42.6		760
608		1966	01	20.23663	08	05	52.14	+18	59	43.6		760
627		1966	01	20.18829	07	53	18.89	+16	50	24.1		760
627		1966	01	20.23663	07	53	16.28	+16	50	36.7		760
703		1966	01	20.18829	07	46	12.29	+16	36	53.3	I	760
703		1966	01	20.23663	07	46	08.80	+16	37	02.6		760
882		1962	12	03.39127	05	33	42.07	+23	20	13.1	14.6	760
882		1962	12	03.43537	05	33	39.69	+23	20	04.5		760
885		1953	04	05.17259	12	33	09.39	-00	23	16.7		760
885		1953	04	05.21358	12	33	07.61	-00	23	02.3	16.6	760
933		1962	11	26.20135	04	13	27.16	+11	35	41.9	15.6	760
933		1962	11	26.24834	04	13	23.96	+11	35	34.3		760
1115		1951	01	06.28788	07	28	39.87	+36	12	59.2		760
1115		1951	01	06.33302	07	28	37.08	+36	13	21.0		760
1240		1951	01	06.28788	07	32	09.72	+30	43	30.6		760
1240		1951	01	06.33302	07	32	06.85	+30	43	30.1		760
1268		1965	10	30.25765	02	55	25.13	+21	36	38.9	14.9	760
1268		1965	10	30.30279	02	55	23.24	+21	36	37.0		760
1375		1962	12	03.43537	05	15	11.20	+27	07	43.0		760
3302		1962	11	26.20135	04	18	40.08	+15	44	08.1		760
3302		1962	11	26.24834	04	18	37.04	+15	44	01.2		760
3478		1962	11	26.20135	04	24	17.75	+14	34	18.9	A	760
3478		1962	11	26.24834	04	24	14.56	+14	34	17.4	A	760
4353		1956	09	29.24932	23	29	38.48	-20	07	49.9		760
4353		1956	09	29.28544	23	29	36.58	-20	07	52.5		760

801 Oak Ridge
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1.5-m reflector + CCD

A917	SG	1990	03	27.35290	18	34	52.12	-12	09	51.1		801
A917	SG	1990	03	27.37826	18	34	53.66	-12	09	43.4		801
A917	SG	1990	05	28.25973	19	03	53.03	-06	05	58.9		801
A917	SG	1990	05	28.29292	19	03	52.48	-06	05	48.7		801
1930	XK	1990	02	27.30106	11	37	50.39	+05	39	46.4		801
1930	XK	1990	03	22.17433	11	15	07.11	+07	07	42.6		801
1930	XK	1990	03	22.20210	11	15	05.47	+07	07	48.0		801
1930	XK	1990	03	29.15033	11	08	40.86	+07	28	18.1		801
1930	XK	1990	03	29.17124	11	08	39.73	+07	28	21.3		801
1935	SP1	1990	03	22.25292	12	36	31.48	-09	50	28.9		801
1935	SP1	1990	03	22.27150	12	36	30.05	-09	50	31.7		801
1935	SP1	1990	03	27.24328	12	30	02.69	-10	01	59.1		801
1935	SP1	1990	03	27.27300	12	30	00.27	-10	02	02.7		801
1939	BM	1990	03	22.20768	11	59	10.49	+16	03	41.8		801
1939	BM	1990	03	22.22753	11	59	09.50	+16	03	49.7		801
1939	BM	1990	03	28.23633	11	54	28.91	+16	39	40.7	w	801
1939	BM	1990	03	28.25441	11	54	28.07	+16	39	46.4		801
1948	KF	1986	02	06.35182	10	12	48.66	+28	43	46.4		801
1948	KF	1990	05	20.08234	13	14	40.93	+02	28	41.1		801
1948	KF	1990	05	20.11764	13	14	39.55	+02	28	25.9		801
1969	GD	1990	03	29.18079	11	12	34.79	-14	53	26.5		801
1969	GD	1990	03	29.22364	11	12	32.82	-14	53	06.5		801
1969	UP1	1990	03	27.08426	08	15	08.43	+27	27	41.5		801

1969	UP1	1990	03	27.12519	08	15	09.66	+27	27	27.1	801
1969	UP1	1990	03	28.13981	08	15	42.39	+27	21	51.1	801
1969	UP1	1990	03	28.17103	08	15	43.38	+27	21	40.2	801
1971	QW1	1990	03	25.30963	13	16	10.70	-11	22	45.4	801
1971	QW1	1990	03	28.26834	13	14	13.34	-11	04	32.5	801
1971	QW1	1990	03	28.28956	13	14	12.45	-11	04	24.5	801
1972	HX	1990	04	27.27336	16	24	38.21	-08	56	28.3	801
1972	HX	1990	04	27.30678	16	24	37.07	-08	56	24.5	801
1972	HX	1990	05	25.21039	16	00	57.36	-08	43	40.4	801
1972	HX	1990	05	25.23487	16	00	55.84	-08	43	42.5	801
1973	SD6	1990	03	26.18164	11	36	48.23	+01	12	53.9	801
1973	SD6	1990	03	26.20414	11	36	46.96	+01	13	00.7	801
1973	SD6	1990	03	29.18683	11	34	09.34	+01	27	45.1	801
1973	SD6	1990	03	29.23436	11	34	06.81	+01	27	58.8	801
1973	SN6	1990	04	27.20171	14	13	57.41	-08	25	10.0	801
1973	SN6	1990	04	27.23002	14	13	55.99	-08	25	00.7	801
1973	UJ5	1990	03	26.11365	10	07	09.30	+10	17	39.7	801
1973	UJ5	1990	03	26.14501	10	07	08.37	+10	17	45.8	801
1973	UJ5	1990	03	27.15161	10	06	40.36	+10	21	06.4	801
1973	UJ5	1990	03	27.19940	10	06	39.02	+10	21	15.9	801
1975	SV	1990	03	22.22313	12	32	12.04	+00	07	00.8	801
1975	SV	1990	03	22.24047	12	32	10.95	+00	07	06.3	801
1975	SV	1990	03	25.22467	12	29	01.66	+00	22	45.0	801
1975	SV	1990	03	25.24279	12	29	00.45	+00	22	50.7	801
1975	TR4	1990	03	28.16197	08	42	51.60	-09	12	33.7	801
1975	TR4	1990	03	28.18499	08	42	51.61	-09	12	18.9	801
1975	TR4	1990	03	29.09180	08	42	57.24	-09	02	45.8	801
1975	TR4	1990	03	29.12091	08	42	57.39	-09	02	27.7	801
1975	TR4	1990	04	28.04967	08	56	55.31	-04	41	15.5	801
1975	TR4	1990	04	28.08906	08	56	57.10	-04	40	59.5	801
1976	GP3	1990	03	25.25375	12	40	25.99	+00	10	52.9	801
1976	GP3	1990	03	25.27433	12	40	24.91	+00	11	04.8	801
1976	GP3	1990	03	26.25308	12	39	35.64	+00	20	36.1	801
1976	GP3	1990	03	26.28145	12	39	34.14	+00	20	52.7	801
1976	GX3	1990	03	27.30970	15	45	34.25	-16	59	26.0	801
1976	GX3	1990	03	27.36565	15	45	35.04	-16	59	19.0	801
1976	GX3	1990	03	29.32514	15	46	03.09	-16	55	05.7	801
1976	GX3	1990	03	29.37457	15	46	03.60	-16	54	59.6	801
1976	GX3	1990	04	24.28139	15	40	18.36	-15	15	41.4	801
1976	GX3	1990	04	24.29807	15	40	17.69	-15	15	36.1	801
1977	DR1	1990	03	29.27794	12	28	32.74	-16	32	45.7	801
1977	DR1	1990	03	29.29878	12	28	31.40	-16	32	44.4	801
1977	QJ3	1990	04	27.21594	14	16	00.41	-07	16	47.1	801
1977	QJ3	1990	04	27.24108	14	15	58.75	-07	16	40.2	801
1977	QJ3	1990	05	20.16011	13	54	14.25	-05	54	15.8	801
1977	QJ3	1990	05	20.18623	13	54	12.99	-05	54	12.5	801
1977	QJ3	1990	05	25.13516	13	50	37.05	-05	45	23.8	801
1977	RD7	1990	05	25.10769	13	38	43.32	-13	37	53.0	801
1977	RD7	1990	05	25.14555	13	38	42.28	-13	37	44.8	801
1978	PT4	1990	05	28.25176	16	49	05.70	-04	11	17.6	801
1978	PT4	1990	05	28.28350	16	49	03.88	-04	11	18.5	801
1978	RH1	1990	04	24.16136	11	37	36.90	+03	23	38.1	801
1978	RH1	1990	04	24.19027	11	37	36.24	+03	23	45.1	801
1978	TW2	1990	03	25.21789	12	04	20.23	+01	51	27.0	801
1978	TW2	1990	03	25.23796	12	04	19.07	+01	51	36.0	801
1978	TW2	1990	03	29.20020	12	00	39.90	+02	20	08.9	801
1978	TW2	1990	03	29.25196	12	00	36.98	+02	20	30.9	801
1979	FU2	1990	03	22.31375	14	05	04.52	-02	29	53.4	801
1979	FU2	1990	03	22.35016	14	05	03.23	-02	29	50.6	801

1979	FU2	1990	03	26.30204	14	02	39.49	-02	24	25.3	801
1979	FU2	1990	03	26.33014	14	02	38.37	-02	24	22.9	801
1979	FU2	1990	04	23.22144	13	40	00.87	-01	53	41.0	801
1979	FU2	1990	04	23.24902	13	39	59.40	-01	53	40.6	801
1979	MC	1987	10	19.32168	03	16	16.00	-02	12	55.8	801
1979	MC	1990	05	28.13349	14	11	40.56	+07	47	10.3	801
1979	MC	1990	05	28.15983	14	11	39.54	+07	47	09.4	801
1980	BM	1990	04	23.27271	14	35	49.83	+04	01	11.7	801
1980	BM	1990	04	23.30105	14	35	48.44	+04	01	20.9	801
1980	BM	1990	04	24.26745	14	35	01.15	+04	06	29.2	801
1980	BM	1990	04	24.28642	14	35	00.19	+04	06	35.1	801
1980	BM	1990	05	20.17734	14	14	15.29	+05	28	48.7	801
1980	BM	1990	05	20.19700	14	14	14.45	+05	28	49.8	801
1980	BM	1990	05	25.15188	14	10	57.65	+05	30	26.7	801
1980	BM	1990	05	25.19145	14	10	56.12	+05	30	26.4	801
1980	FV1	1990	03	28.15727	08	39	31.91	+24	25	31.2	801
1980	FV1	1990	03	28.20034	08	39	31.94	+24	25	20.6	801
1980	FV1	1990	03	29.04615	08	39	33.65	+24	22	00.1	801
1980	FV1	1990	03	29.10044	08	39	33.73	+24	21	46.9	801
1981	DM1	1990	03	26.35485	14	29	25.40	-15	56	54.4	801
1981	DM1	1990	03	26.38070	14	29	24.89	-15	56	43.3	801
1981	DM1	1990	03	27.29245	14	29	05.31	-15	50	30.9	801
1981	DM1	1990	03	27.31915	14	29	04.67	-15	50	20.0	801
1981	RV4	1990	03	27.07941	08	07	53.35	+14	35	26.8	801
1981	RV4	1990	03	27.12977	08	07	54.00	+14	35	35.5	801
1981	RV4	1990	03	29.02325	08	08	24.35	+14	41	03.2	801
1981	RV4	1990	03	29.06215	08	08	24.98	+14	41	09.7	801
1982	JB3	1990	03	22.36715	14	31	09.60	+02	03	56.6	801
1982	JB3	1990	03	22.39056	14	31	08.78	+02	04	01.9	801
1982	JB3	1990	03	26.35848	14	28	42.47	+02	18	21.0	801
1982	JB3	1990	03	26.37698	14	28	41.71	+02	18	24.9	801
1982	JB3	1990	04	24.22483	14	02	41.25	+03	29	32.6	801
1982	JB3	1990	04	24.24883	14	02	39.77	+03	29	33.6	801
1982	KN1	1990	03	26.12636	10	14	26.64	+31	05	41.6	801
1982	KN1	1990	03	26.17337	10	14	25.23	+31	05	41.6	801
1982	KN1	1990	03	29.07240	10	13	11.49	+31	04	42.4	801
1982	KN1	1990	03	29.13039	10	13	10.05	+31	04	39.8	801
1982	RH	1990	04	23.34355	18	42	47.65	-05	53	32.7	801
1982	RH	1990	05	25.30079	18	50	21.27	-02	15	40.7	801
1982	RH	1990	05	25.33959	18	50	20.68	-02	15	28.1	801
1983	GR	1990	04	28.09710	11	20	41.62	+09	51	59.6	801
1983	GR	1990	04	28.14159	11	20	41.11	+09	51	49.8	801
1983	PP	1990	04	23.32183	16	23	09.94	-08	54	21.1	801
1983	PP	1990	04	23.35036	16	23	08.97	-08	54	12.2	801
1983	PP	1990	04	24.30990	16	22	37.96	-08	49	11.0	801
1983	PP	1990	04	24.33847	16	22	36.98	-08	49	02.0	801
1983	PP	1990	05	25.21698	15	57	57.87	-06	34	47.8	W 801
1983	RR4	1990	05	25.30692	18	08	03.81	-00	57	29.1	801
1983	RR4	1990	05	25.33010	18	08	02.98	-00	57	21.3	801
1984	AR	1990	03	29.11625	10	19	16.85	+11	33	56.2	801
1984	AR	1990	03	29.16162	10	19	15.66	+11	34	01.1	801
1984	ED	1990	03	27.30528	15	33	04.15	-03	56	00.2	801
1984	ED	1990	03	27.36198	15	33	03.50	-03	55	44.3	801
1984	ED	1990	03	28.32609	15	32	54.21	-03	51	01.4	801
1984	ED	1990	03	28.37229	15	32	53.68	-03	50	47.8	801
1984	ED	1990	04	23.27919	15	21	21.18	-01	41	49.2	801
1984	ED	1990	04	23.30974	15	21	19.90	-01	41	40.8	801
1984	ED	1990	04	24.27622	15	20	40.57	-01	37	17.9	801
1984	ED	1990	04	24.29468	15	20	39.78	-01	37	13.0	801

1984	EP	1990	03	26.32085	14	10	05.20	-08	02	47.7	801
1984	EP	1990	03	26.34219	14	10	04.55	-08	02	41.4	801
1984	EP	1990	03	28.28291	14	09	06.92	-07	52	59.8	801
1984	EP	1990	03	28.30248	14	09	06.29	-07	52	53.7	801
1984	EP	1990	04	23.22828	13	51	52.66	-05	31	46.3	801
1984	EP	1990	04	23.25416	13	51	51.48	-05	31	38.2	801
1984	EA1	1990	03	22.37167	14	42	32.16	+01	01	50.2	801
1984	EA1	1990	03	22.39458	14	42	31.72	+01	01	59.0	801
1984	EA1	1990	03	26.37009	14	41	11.79	+01	28	15.6	801
1984	EA1	1990	03	26.39061	14	41	11.35	+01	28	23.6	801
1984	EA1	1990	04	23.29386	14	24	55.97	+04	22	25.0	801
1984	EA1	1990	04	24.23470	14	24	15.42	+04	27	10.7	801
1984	EA1	1990	04	24.26289	14	24	14.18	+04	27	21.2	801
1984	GR	1990	05	28.14230	14	27	43.44	-17	56	07.0	801
1984	GR	1990	05	28.18002	14	27	42.09	-17	56	00.1	801
1984	UT	1990	03	26.07579	07	07	49.86	+02	39	58.5	801
1984	UT	1990	03	26.09045	07	07	50.66	+02	40	02.4	801
1984	UT	1990	03	29.02843	07	10	34.78	+02	53	16.6	801
1984	UT	1990	03	29.08595	07	10	37.99	+02	53	31.8	801
1984	YH1	1990	03	29.06787	09	41	40.89	+11	21	17.3	801
1984	YH1	1990	03	29.12540	09	41	39.81	+11	21	22.5	801
1985	GM1	1990	03	26.24811	13	41	21.68	-10	30	40.0	801
1985	GM1	1990	03	26.28858	13	41	20.26	-10	30	23.7	801
1985	GM1	1990	03	28.27283	13	40	10.85	-10	16	53.4	801
1985	GM1	1990	03	28.29402	13	40	10.06	-10	16	44.3	801
1985	GM1	1990	04	23.21154	13	22	21.59	-07	00	16.9	w 801
1985	GM1	1990	04	23.24105	13	22	20.57	-07	00	05.4	w 801
1985	GM1	1990	05	25.09947	13	07	45.71	-03	59	11.6	801
1985	GM1	1990	05	25.16429	13	07	45.01	-03	58	58.8	801
1985	JJ	1990	04	27.21004	14	16	58.93	-05	51	50.6	801
1985	JJ	1990	05	20.16910	14	01	27.27	-03	44	34.4	801
1985	JJ	1990	05	20.19153	14	01	26.46	-03	44	28.1	801
1985	JJ	1990	05	25.12595	13	58	52.67	-03	25	37.9	801
1985	JJ	1990	05	25.15814	13	58	51.72	-03	25	31.0	801
1985	UA	1990	03	26.18897	11	53	34.87	-02	52	57.5	801
1985	UA	1990	03	26.21103	11	53	33.45	-02	52	50.8	801
1985	UA	1990	03	28.23270	11	51	29.93	-02	42	34.1	801
1985	UA	1990	03	28.25082	11	51	28.79	-02	42	28.7	801
1985	UA	1990	04	24.13834	11	32	25.00	-00	57	32.9	801
1985	UA	1990	04	24.18597	11	32	24.02	-00	57	26.9	801
1986	AK	1990	03	27.33300	17	15	25.05	-19	28	41.2	801
1986	AK	1990	03	27.36960	17	15	26.21	-19	29	06.2	801
1986	AK	1990	03	29.33120	17	16	30.46	-19	50	43.9	801
1986	AO2	1990	03	26.10965	09	57	01.82	+15	25	58.5	801
1986	AO2	1990	03	26.14057	09	57	00.92	+15	25	54.7	801
1986	AO2	1990	03	27.14756	09	56	34.27	+15	23	44.2	801
1986	AO2	1990	03	27.18873	09	56	33.16	+15	23	38.5	801
1986	CL1	1990	03	28.08503	08	20	30.57	+01	05	27.9	801
1986	CL1	1990	03	28.18098	08	20	30.67	+01	05	42.7	801
1986	CL1	1990	03	29.00865	08	20	33.19	+01	07	47.4	801
1986	CL1	1990	03	29.09593	08	20	33.37	+01	08	00.3	801
1986	CQ1	1990	03	26.19277	11	58	11.22	-05	05	11.7	801
1986	CQ1	1990	03	26.21445	11	58	09.99	-05	05	01.4	801
1986	CQ1	1990	03	29.19118	11	55	31.38	-04	42	00.4	801
1986	CQ1	1990	03	29.24072	11	55	28.69	-04	41	37.5	801
1986	CQ1	1990	04	24.17240	11	38	25.62	-01	43	52.8	801
1986	CQ1	1990	04	24.19441	11	38	25.11	-01	43	45.9	801
1986	CQ1	1990	04	28.11926	11	37	11.97	-01	24	32.5	801
1986	CQ1	1990	04	28.14668	11	37	11.49	-01	24	25.0	801

1986	EL	1990	03	22.34542	14	21	57.14	+00	57	14.3	801
1986	EL	1990	03	22.35841	14	21	56.78	+00	57	27.8	801
1986	EL	1990	03	26.36614	14	20	00.99	+02	07	30.4	801
1986	EL	1990	03	26.37373	14	20	00.72	+02	07	38.4	801
1986	EL	1990	04	23.23219	13	58	34.59	+09	30	01.2	801
1986	EL	1990	04	23.25888	13	58	33.17	+09	30	21.0	801
1986	EJ1	1990	03	22.16919	10	47	43.61	+19	34	28.1	801
1986	EJ1	1990	03	22.19571	10	47	41.99	+19	34	23.6	801
1986	EJ1	1990	03	28.21267	10	42	03.01	+19	13	46.9	801
1986	EJ1	1990	03	28.24289	10	42	01.38	+19	13	39.4	801
1986	QV2	1990	03	22.37698	16	41	52.38	-12	04	31.8	801
1986	QV2	1990	03	22.39915	16	41	53.33	-12	04	28.8	801
1986	QV2	1990	05	25.26593	16	33	28.29	-08	57	41.7	801
1986	QV2	1990	05	25.29023	16	33	27.03	-08	57	40.1	801
1986	WQ2	1989	12	27.40299	08	33	46.78	+29	03	26.8	801
1986	WQ2	1989	12	27.41402	08	33	46.35	+29	03	42.4	801
1986	WQ2	1990	03	22.05276	07	32	52.86	+43	30	03.6	801
1986	WQ2	1990	03	22.07866	07	32	54.20	+43	29	59.6	801
1986	WQ2	1990	03	27.06568	07	37	52.89	+43	13	33.8	801
1986	WQ2	1990	03	29.04070	07	40	06.00	+43	06	03.1	801
1986	WQ2	1990	03	29.05756	07	40	07.23	+43	05	59.1	801
1987	DA6	1990	03	26.06465	06	45	12.75	+23	25	57.0	801
1987	DA6	1990	03	27.04498	06	46	21.88	+23	22	50.7	801
1987	QW10	1990	05	27.22261	16	18	42.94	-14	57	54.8	801
1987	QW10	1990	05	27.24151	16	18	41.76	-14	57	53.8	801
1987	RR3	1990	03	28.22497	11	18	14.12	-06	30	58.3	801
1987	RR3	1990	03	28.24683	11	18	13.24	-06	30	48.9	801
1987	RR3	1990	03	29.18365	11	17	36.98	-06	24	08.7	801
1987	RR3	1990	03	29.22906	11	17	35.18	-06	23	49.5	801
1987	RR3	1990	04	28.09689	11	06	18.92	-03	14	55.1	801
1987	RR3	1990	04	28.13653	11	06	18.72	-03	14	43.6	801
1987	SS3	1990	05	25.10352	13	08	25.59	-04	31	03.1	801
1987	SS3	1990	05	25.18393	13	08	24.48	-04	31	03.5	801
1987	SR12	1990	05	28.23695	16	38	52.92	-13	52	46.0	801
1987	SR12	1990	05	28.27144	16	38	50.87	-13	52	38.1	801
1987	WS	1990	03	22.25826	12	39	52.07	-00	04	59.6	801
1987	WS	1990	03	22.27611	12	39	51.12	-00	04	57.3	801
1987	WS	1990	03	27.26319	12	35	43.02	+00	06	28.6	801
1987	WS	1990	03	27.27739	12	35	42.26	+00	06	29.8	801
1988	RP1	1990	03	29.27274	12	21	27.42	-00	21	30.3	801
1988	RP1	1990	03	29.29035	12	21	26.31	-00	21	26.2	801
1988	SO2	1990	03	27.11107	09	12	14.55	+13	42	15.5	801
1988	SO2	1990	03	27.15682	09	12	14.83	+13	42	25.6	801
1988	SO2	1990	03	28.16658	09	12	24.49	+13	46	08.7	801
1988	SO2	1990	03	28.19549	09	12	24.75	+13	46	14.7	801
1988	VU1	1990	03	22.16410	10	41	21.17	-00	58	52.1	801
1988	VU1	1990	03	22.19123	10	41	19.95	-00	58	42.7	801
1988	VU1	1990	03	27.17733	10	37	58.21	-00	30	36.3	801
1988	VU1	1990	03	27.23421	10	37	56.01	-00	30	17.0	801
1988	VY1	1990	03	25.31382	13	12	20.32	-16	51	26.5	801
1988	VY1	1990	03	28.26471	13	10	06.94	-16	35	32.2	801
1988	VY1	1990	03	28.28652	13	10	05.90	-16	35	24.7	801
1988	VK4	1990	03	26.24255	13	22	38.64	-04	55	07.4	801
1988	VK4	1990	03	26.26823	13	22	37.09	-04	55	06.9	801
1989	AQ	1990	03	29.26709	12	20	21.55	+00	42	53.3	801
1989	AQ	1990	03	29.28400	12	20	20.81	+00	42	58.2	801
1989	AZ1	1990	03	25.26360	13	04	30.64	+12	40	08.6	801
1989	AZ1	1990	03	25.27930	13	04	29.88	+12	40	15.1	801
1989	BO	1990	03	26.34712	15	13	35.04	-02	29	13.6	801

1989	BO	1990	03	26.39414	15	13	34.35	-02	29	02.6	801
1989	BO	1990	03	27.30103	15	13	21.83	-02	25	26.2	801
1989	BO	1990	03	27.35808	15	13	20.93	-02	25	12.7	801
1989	BQ	1990	03	22.26666	12	56	07.99	+17	49	46.1	801
1989	BQ	1990	03	22.30807	12	56	06.71	+17	49	59.2	801
1989	BQ	1990	03	25.25843	12	54	37.45	+18	05	09.6	801
1989	BQ	1990	03	25.28382	12	54	36.65	+18	05	17.2	801
1989	FB	1990	03	22.17902	10	54	57.05	+35	40	09.1	801
1989	FB	1990	03	22.18636	10	54	55.43	+35	39	58.4	801
1989	FB	1990	03	26.13275	10	42	04.69	+33	59	35.8	801
1989	FB	1990	03	26.13602	10	42	04.09	+33	59	30.2	801
1989	FB	1990	04	24.08255	10	02	57.58	+19	47	54.6	801
1989	FB	1990	04	24.09356	10	02	57.46	+19	47	35.8	801
1989	WK2	1990	03	26.04825	06	04	16.15	+12	34	11.3	801
1989	WK2	1990	03	26.05901	06	04	17.30	+12	34	18.9	801
1990	BA	1990	03	23.09668	08	58	58.11	+12	27	20.2	801
1990	BA	1990	03	23.10225	08	58	59.03	+12	27	15.9	801
1990	BA	1990	03	27.10531	09	09	09.57	+11	39	01.9	801
1990	BA	1990	03	27.12005	09	09	11.70	+11	38	50.1	801
1990	BG	1990	03	22.02090	04	05	24.30	+55	03	34.7	801
1990	BG	1990	03	22.04789	04	05	21.84	+55	03	55.0	801
1990	BG	1990	03	27.02526	03	58	13.15	+56	09	31.2	801
1990	BG	1990	03	27.03862	03	58	12.00	+56	09	41.1	801
1990	BQ1	1990	03	22.06435	08	13	25.13	+10	11	16.3	801
1990	BQ1	1990	03	22.12806	08	13	24.01	+10	11	05.3	801
1990	BQ1	1990	03	27.13432	08	12	18.90	+09	56	31.1	801
1990	BT1	1990	03	26.09492	09	15	34.16	+26	44	59.7	801
1990	BT1	1990	03	26.16897	09	15	33.32	+26	44	58.1	801
1990	BT1	1990	03	28.11971	09	15	17.46	+26	44	03.4	801
1990	BT1	1990	03	28.25843	09	15	16.41	+26	43	57.0	801
1990	BT1	1990	04	24.06145	09	21	00.34	+25	42	51.1	801
1990	BT1	1990	04	24.09996	09	21	01.37	+25	42	43.4	801
1990	DA	1990	03	22.08782	09	09	14.80	+35	18	54.9	801
1990	DA	1990	03	22.10186	09	09	16.05	+35	19	03.7	801
1990	DA	1990	03	23.11791	09	10	51.85	+35	29	07.0	801
1990	DA	1990	03	23.13315	09	10	53.24	+35	29	15.5	801
1990	DA	1990	04	28.06386	10	11	43.71	+35	05	50.6	801
1990	DA	1990	04	28.07775	10	11	45.11	+35	05	44.6	801
1990	DA	1990	05	28.08955	11	03	29.31	+30	13	16.4	F 801
1990	DA	1990	05	28.10994	11	03	31.34	+30	13	02.8	F 801
1990	FV1	1990	05	25.07990	11	47	31.55	-01	07	59.2	801
1990	FV1	1990	05	25.09164	11	47	31.86	-01	08	16.2	801
1990	FV1	1990	05	28.10362	11	49	17.40	-02	23	01.3	W 801
1990	HA	1990	04	27.18317	13	32	43.17	+01	51	58.2	801
1990	HA	1990	04	27.19077	13	32	43.73	+01	51	48.4	801
1990	HA	1990	05	20.12327	13	52	38.49	-02	57	53.6	801
1990	HA	1990	05	20.13526	13	52	38.91	-02	58	00.5	801
1990	HA	1990	05	25.11219	13	56	09.39	-03	42	59.9	801
1990	HA	1990	05	25.12999	13	56	10.07	-03	43	09.5	801
1990	KA	1990	05	25.20039	15	12	26.66	+08	35	40.0	801
1990	KA	1990	05	25.22376	15	12	27.28	+08	35	10.0	801
1990	KA	1990	05	27.21061	15	13	42.67	+07	50	42.0	801
1990	KA	1990	05	27.23401	15	13	43.38	+07	50	08.9	801
2538	P-L	1990	03	25.30092	13	14	01.57	-03	51	52.5	801
2538	P-L	1990	03	25.32217	13	14	00.34	-03	51	51.1	801
2538	P-L	1990	03	26.29375	13	13	03.58	-03	50	32.4	801
2538	P-L	1990	03	26.31117	13	13	02.52	-03	50	30.4	801
6047	P-L	1990	03	22.13385	09	47	31.92	+07	29	41.4	801
6047	P-L	1990	03	22.15740	09	47	31.35	+07	29	50.2	801

6047	P-L	1990	03	27.14276	09	46	04.96	+07	59	13.6	801
6047	P-L	1990	03	27.18276	09	46	04.38	+07	59	26.8	801
1276	T-2	1990	03	26.16460	09	20	41.53	+19	19	52.0	801
1276	T-2	1990	03	28.12437	09	20	36.82	+19	15	54.3	801
1276	T-2	1990	03	28.20459	09	20	36.65	+19	15	43.6	801
3107	T-3	1990	03	29.11149	10	17	43.53	+13	31	53.6	801
3107	T-3	1990	03	29.15411	10	17	42.36	+13	31	56.4	801
887		1990	04	23.28496	14	31	05.46	+02	26	33.6	801
887		1990	04	23.31507	14	31	03.05	+02	26	40.4	801
887		1990	04	24.23977	14	29	50.92	+02	30	01.4	801
887		1990	04	24.25885	14	29	49.38	+02	30	05.4	801
951		1990	03	22.05768	08	18	59.90	+13	56	30.2	801
951		1990	03	23.07682	08	19	09.77	+13	57	41.7	801
951		1990	03	27.07513	08	20	06.45	+14	01	23.6	801
951		1990	03	27.13822	08	20	07.47	+14	01	26.2	801
951		1990	04	28.08373	08	41	43.17	+13	34	24.8	801
951		1990	05	28.06356	09	16	48.87	+11	42	42.0	801
951		1990	05	28.07672	09	16	49.90	+11	42	38.1	801
2060		1990	03	27.05034	06	41	49.77	+16	15	25.9	801
2060		1990	03	28.08022	06	41	54.71	+16	15	55.9	801
3361		1990	04	24.31819	18	25	02.83	-13	12	30.2	801
3361		1990	04	24.32198	18	25	01.89	-13	12	28.3	801
3361		1990	05	25.27168	16	27	11.83	-09	49	18.2	801
3361		1990	05	25.28578	16	27	09.26	-09	49	16.9	801
4257		1990	03	22.11255	08	42	16.79	+19	40	25.7	801
4257		1990	03	22.11527	08	42	17.51	+19	40	42.7	801
4257		1990	03	23.08219	08	46	41.83	+21	17	39.6	801
4257		1990	03	23.08444	08	46	42.40	+21	17	52.4	801
4419		1990	03	26.05422	06	15	10.79	+23	03	18.0	801
4419		1990	03	26.07015	06	15	11.81	+23	03	17.3	801
4419		1990	03	28.07548	06	17	22.52	+23	02	32.5	801
4419		1990	03	28.10030	06	17	24.16	+23	02	31.8	801
4430		1990	03	27.05598	06	59	21.51	+33	33	01.6	801
4430		1990	03	27.08934	06	59	23.27	+33	32	37.1	801
4430		1990	03	29.03487	07	01	15.64	+33	18	26.2	801
4430		1990	03	29.05152	07	01	16.61	+33	18	18.7	801
4435		1990	03	23.06741	08	12	18.18	+20	56	42.9	801
4435		1990	03	23.07198	08	12	18.36	+20	56	38.1	801
4435		1990	03	28.11153	08	15	53.82	+19	27	39.3	801
4435		1990	03	28.12937	08	15	54.62	+19	27	21.0	801
4437		1990	03	23.08978	08	38	10.09	+11	51	31.8	801
4437		1990	03	23.12812	08	38	10.13	+11	51	38.5	801
4437		1990	03	28.11554	08	38	49.78	+12	04	50.9	801
4437		1990	03	28.19163	08	38	50.67	+12	05	01.5	801
4467		1990	03	22.21333	12	18	39.12	+11	46	09.9	801
4467		1990	03	22.23164	12	18	37.97	+11	46	11.9	801
4479		1990	03	22.26189	12	53	57.69	-00	52	44.3	801
4479		1990	03	22.30451	12	53	55.82	-00	52	25.8	801
4485		1990	03	29.14610	10	53	37.14	-02	41	25.2	801
4485		1990	03	29.16788	10	53	36.22	-02	41	21.1	801
4494		1990	03	26.18504	11	51	57.23	-03	53	13.0	801
4494		1990	04	24.14778	11	33	50.02	-01	40	45.0	801
4494		1990	04	24.19886	11	33	49.23	-01	40	36.8	801
4496		1990	03	25.21283	12	02	28.63	+02	19	56.8	801
4496		1990	03	25.23382	12	02	27.62	+02	20	05.4	801
4496		1990	03	26.19646	12	01	43.24	+02	26	34.1	801
4496		1990	03	26.21823	12	01	42.21	+02	26	42.8	801
4497		1990	03	22.34137	14	29	00.07	-01	20	55.4	801
4497		1990	03	22.36238	14	28	59.37	-01	20	49.2	801

4497	1990	03	26.36208	14	26	39.67	-01	00	52.9	801
4497	1990	03	26.38380	14	26	38.84	-01	00	46.5	801
4497	1990	04	23.23656	14	03	43.12	+01	10	51.8	801
4497	1990	04	24.21966	14	02	48.49	+01	14	29.6	801
4497	1990	04	24.24397	14	02	47.14	+01	14	36.0	801
4500	1990	03	28.33762	14	33	06.21	-11	05	09.7	801
4500	1990	03	28.36779	14	33	05.28	-11	05	02.9	801
4503	1990	03	22.13836	09	51	01.41	+19	20	06.6	801
4503	1990	03	22.15363	09	51	02.36	+19	19	55.4	801

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Measurers J. F. Caldeira, E. W. Elst, E. R. Netto, G. Vieira
GPO 0.4-m astrograph and Danish 1.5-m reflector

1981	ED21	1990	04	15.99826	10	52	24.07	+03	50	42.0	18.5 4 809
1981	ED21	1990	04	16.01563	10	52	23.69	+03	50	41.2	4 809
1981	ED21	1990	04	16.03299	10	52	23.34	+03	50	40.4	4 809
1981	ED21	1990	04	16.98715	10	52	08.47	+03	49	48.4	4 809
1981	ED21	1990	04	17.00451	10	52	08.00	+03	49	47.4	4 809
1981	ED21	1990	04	17.02188	10	52	07.69	+03	49	45.9	4 809
1982	UE12	1984	02	25.18332	09	39	17.91	+14	12	59.1	3 809
1982	UE12	1984	02	25.19024	09	39	17.46	+14	12	59.4	3 809
1982	UE12	1984	02	25.19734	09	39	17.07	+14	13	01.8	3 809
1984	CP	1984	02	28.20352	10	17	12.39	+17	27	20.4	3 809
1984	CP	1984	02	28.20975	10	17	12.01	+17	27	22.8	3 809
1984	CP	1984	03	01.25069	10	15	23.40	+17	44	14.5	3 809
1984	CP	1984	03	01.25693	10	15	23.04	+17	44	18.0	3 809
1984	CP	1984	03	04.21272	10	12	49.22	+18	07	32.2	3 809
1984	CP	1984	03	04.21895	10	12	48.91	+18	07	35.2	3 809
1984	CP	1984	03	04.22519	10	12	48.60	+18	07	38.1	3 809
1984	CP	1984	03	05.21761	10	11	58.24	+18	15	05.9	3 809
1984	CP	1984	03	05.22384	10	11	57.91	+18	15	09.0	3 809
1984	CP	1984	03	06.21488	10	11	08.31	+18	22	24.6	3 809
1984	CP	1984	03	06.22111	10	11	08.00	+18	22	27.6	3 809
1984	CP	1984	03	06.22734	10	11	07.72	+18	22	30.5	3 809
1984	CP	1984	03	10.25555	10	07	56.09	+18	49	57.1	3 809
1984	CP	1984	03	10.26040	10	07	55.85	+18	49	58.5	3 809
1984	DN	1984	03	07.14774	09	28	24.89	+15	12	03.5	3 809
1984	DN	1984	03	07.15328	09	28	24.71	+15	12	05.9	3 809
1984	DN	1984	03	07.15882	09	28	24.54	+15	12	09.3	3 809
1984	DQ	1984	02	25.18332	09	40	27.95	+14	43	39.5	3 809
1984	DQ	1984	02	25.19024	09	40	27.51	+14	43	39.3	3 809
1984	DQ	1984	02	25.19734	09	40	26.95	+14	43	38.4	3 809
1984	DR	1984	02	25.18332	09	42	30.54	+15	15	50.4	3 809
1984	DR	1984	02	25.19024	09	42	30.17	+15	15	53.2	3 809
1984	DR	1984	02	25.19734	09	42	29.76	+15	15	56.2	3 809
1984	DR	1984	02	28.16404	09	39	54.65	+15	39	02.5	3 809
1984	DR	1984	03	07.14774	09	33	53.47	+16	33	39.2	3 809
1984	DR	1984	03	07.15328	09	33	53.23	+16	33	41.1	3 809
1984	DR	1984	03	07.15882	09	33	52.99	+16	33	43.0	3 809
1987	QT1	1990	04	15.99826	11	01	46.28	+00	45	57.4	18.6 4 809
1987	QT1	1990	04	16.01563	11	01	45.59	+00	45	59.6	4 809
1987	QT1	1990	04	16.03299	11	01	44.93	+00	46	01.6	4 809
1987	QT1	1990	04	16.98715	11	01	15.91	+00	47	58.8	4 809

1987	QT1	1990	04	17.00451	11	01	15.30	+00	48	01.3		4 809
1987	QT1	1990	04	17.02188	11	01	14.64	+00	48	02.7		4 809
1988	TP	1990	04	04.24792	10	58	37.52	+02	06	38.4	18.5	4 809
1988	TP	1990	04	04.26111	10	58	37.01	+02	06	42.7		4 809
1988	TP	1990	04	04.27431	10	58	36.51	+02	06	46.7		4 809
1988	TP	1990	04	15.99826	10	53	04.17	+03	05	03.5	18.7	4 809
1988	TP	1990	04	16.01563	10	53	03.69	+03	05	07.9		4 809
1988	TP	1990	04	16.03299	10	53	03.29	+03	05	11.3		4 809
1988	TP	1990	04	16.98715	10	52	45.04	+03	09	07.3		4 809
1988	TP	1990	04	17.00451	10	52	44.55	+03	09	11.3		4 809
1988	TP	1990	04	17.02188	10	52	44.14	+03	09	15.0		4 809
1990	EJ	1990	04	04.24792	11	14	57.47	+01	34	12.3	18.5	4 809
1990	EJ	1990	04	04.26111	11	14	56.80	+01	34	14.7		4 809
1990	EJ	1990	04	04.27431	11	14	56.14	+01	34	16.1		4 809
1990	EJ	1990	04	15.99826	11	08	34.28	+01	42	19.9	18.2	4 809
1990	EJ	1990	04	16.01563	11	08	33.70	+01	42	20.3		4 809
1990	EJ	1990	04	16.03299	11	08	33.18	+01	42	20.4		4 809
1990	EJ	1990	04	16.98715	11	08	10.40	+01	42	25.7		4 809
1990	EJ	1990	04	17.00451	11	08	09.85	+01	42	25.8		4 809
1990	EJ	1990	04	17.02188	11	08	09.39	+01	42	25.6		4 809
1990	EV1	1990	04	04.24792	10	58	06.02	+03	21	28.4	18.1	4 809
1990	EV1	1990	04	04.26111	10	58	05.72	+03	21	36.2		4 809
1990	EV1	1990	04	04.27431	10	58	05.45	+03	21	43.3		4 809
1990	EV1	1990	04	15.99826	10	56	05.43	+04	59	50.0	18.3	4 809
1990	EV1	1990	04	16.01563	10	56	05.36	+04	59	57.5		4 809
1990	EV1	1990	04	16.03299	10	56	05.30	+05	00	04.5		4 809
1990	EV1	1990	04	16.98715	10	56	06.86	+05	06	32.6		4 809
1990	EV1	1990	04	17.00451	10	56	06.72	+05	06	39.3		4 809
1990	EV1	1990	04	17.02188	10	56	06.63	+05	06	46.5		4 809
1990	ET2	1990	04	04.24792	11	04	41.15	+01	00	33.9	18.6	4 809
1990	ET2	1990	04	04.26111	11	04	40.65	+01	00	42.7		4 809
1990	ET2	1990	04	04.27431	11	04	40.13	+01	00	51.2		4 809
1990	ET2	1990	04	15.99826	10	59	58.48	+02	47	39.6	18.7	4 809
1990	ET2	1990	04	16.01563	10	59	58.18	+02	47	48.2		4 809
1990	ET2	1990	04	16.03299	10	59	57.86	+02	47	56.7		4 809
1990	ET2	1990	04	16.98715	10	59	43.85	+02	55	39.2		4 809
1990	ET2	1990	04	17.00451	10	59	43.48	+02	55	47.7		4 809
1990	ET2	1990	04	17.02188	10	59	43.11	+02	55	55.3		4 809
1990	EW2	1990	04	04.24792	10	59	48.08	+03	07	16.1	18.0	4 809
1990	EW2	1990	04	04.26111	10	59	47.60	+03	07	22.3		4 809
1990	EW2	1990	04	04.27431	10	59	47.18	+03	07	27.8		4 809
1990	EW2	1990	04	15.99826	10	55	37.84	+04	19	11.8	18.0	4 809
1990	EW2	1990	04	16.01563	10	55	37.57	+04	19	16.3		4 809
1990	EW2	1990	04	16.03299	10	55	37.24	+04	19	21.3		4 809
1990	EW2	1990	04	16.98715	10	55	27.26	+04	24	02.9		4 809
1990	EW2	1990	04	17.00451	10	55	26.98	+04	24	08.0		4 809
1990	EW2	1990	04	17.02188	10	55	26.70	+04	24	12.5		4 809
1990	EX2	1990	04	15.99826	10	56	07.57	+04	00	28.7	19.3	4 809
1990	EX2	1990	04	16.01563	10	56	07.19	+04	00	34.5		4 809
1990	EX2	1990	04	16.03299	10	56	06.68	+04	00	40.3		4 809
1990	EX2	1990	04	16.98715	10	55	47.62	+04	06	10.5		4 809
1990	EX2	1990	04	17.00451	10	55	47.20	+04	06	16.3		4 809
1990	EX2	1990	04	17.02188	10	55	46.73	+04	06	21.9		4 809
1990	EZ2	1990	04	15.99826	11	01	55.23	+04	16	58.5	18.6	4 809
1990	EZ2	1990	04	16.01563	11	01	54.91	+04	17	02.7		4 809
1990	EZ2	1990	04	16.03299	11	01	54.58	+04	17	06.3		4 809
1990	EZ2	1990	04	16.98715	11	01	39.98	+04	20	46.7		4 809
1990	EZ2	1990	04	17.00451	11	01	39.62	+04	20	50.5		4 809
1990	EZ2	1990	04	17.02188	11	01	39.29	+04	20	54.7		4 809

1990	EG3	1990	04	15.99826	10	55	12.57	+00	41	30.4	19.0	4 809
1990	EG3	1990	04	16.01563	10	55	12.11	+00	41	33.1		4 809
1990	EG3	1990	04	16.03299	10	55	11.77	+00	41	35.5		4 809
1990	EG3	1990	04	16.98715	10	54	58.54	+00	43	06.8		4 809
1990	EG3	1990	04	17.00451	10	54	58.17	+00	43	07.3		4 809
1990	EG3	1990	04	17.02188	10	54	57.83	+00	43	08.4		4 809
1990	EM3	1990	04	16.98715	10	56	42.24	+00	32	12.6	18.6	4 809
1990	EM3	1990	04	17.00451	10	56	41.63	+00	32	13.9		4 809
1990	EM3	1990	04	17.02188	10	56	41.17	+00	32	13.8		4 809
1990	EN3	1990	04	04.24792	11	02	25.15	+01	05	14.4	18.7	4 809
1990	EN3	1990	04	04.26111	11	02	24.69	+01	05	19.5		4 809
1990	EN3	1990	04	04.27431	11	02	24.00	+01	05	26.8		4 809
1990	EN3	1990	04	15.99826	10	57	20.70	+02	24	22.9	18.6	4 809
1990	EN3	1990	04	16.01563	10	57	20.35	+02	24	28.5		4 809
1990	EN3	1990	04	16.03299	10	57	19.96	+02	24	33.5		4 809
1990	EN3	1990	04	16.98715	10	57	06.43	+02	29	56.3		4 809
1990	EN3	1990	04	17.00451	10	57	06.08	+02	30	00.8		4 809
1990	EN3	1990	04	17.02188	10	57	05.74	+02	30	05.4		4 809
1990	ES3	1990	04	04.24792	11	00	25.54	+01	32	04.8	18.8	4 809
1990	ES3	1990	04	04.26111	11	00	24.88	+01	32	08.7		4 809
1990	ES3	1990	04	04.27431	11	00	24.20	+01	32	11.1		4 809
1990	ES3	1990	04	15.99826	10	53	01.47	+02	12	13.9	18.6	4 809
1990	ES3	1990	04	16.01563	10	53	00.94	+02	12	16.1		4 809
1990	ES3	1990	04	16.03299	10	53	00.37	+02	12	19.9		4 809
1990	ES3	1990	04	16.98715	10	52	34.48	+02	14	51.1		4 809
1990	ES3	1990	04	17.00451	10	52	33.93	+02	14	53.0		4 809
1990	ES3	1990	04	17.02188	10	52	33.28	+02	14	55.3		4 809
1990	EN4	1990	04	15.99826	11	06	21.36	+01	01	55.5	19.6	4 809
1990	EN4	1990	04	16.01563	11	06	20.84	+01	01	56.1		4 809
1990	EN4	1990	04	16.03299	11	06	20.30	+01	01	58.2		4 809
1990	EN4	1990	04	16.98715	11	05	57.24	+01	03	18.1		4 809
1990	EN4	1990	04	17.00451	11	05	56.68	+01	03	19.8		4 809
1990	EN4	1990	04	17.02188	11	05	56.27	+01	03	21.3		4 809
1990	EO4	1990	04	15.99826	11	08	01.04	+05	08	28.6	18.8	4 809
1990	EO4	1990	04	16.01563	11	08	00.54	+05	08	33.5		4 809
1990	EO4	1990	04	16.03299	11	08	00.10	+05	08	37.6		4 809
1990	EO4	1990	04	16.98715	11	07	37.15	+05	12	36.3		4 809
1990	EO4	1990	04	17.00451	11	07	36.72	+05	12	41.9		4 809
1990	EO4	1990	04	17.02188	11	07	36.18	+05	12	47.0		4 809
1990	EQ4	1990	04	04.24792	11	13	30.32	+03	17	25.0	18.8	4 809
1990	EQ4	1990	04	04.26111	11	13	29.71	+03	17	32.5		4 809
1990	EQ4	1990	04	04.27431	11	13	29.03	+03	17	39.4		4 809
1990	EQ4	1990	04	15.99826	11	07	36.03	+04	44	53.5	19.2	4 809
1990	EQ4	1990	04	16.01563	11	07	35.56	+04	45	00.4		4 809
1990	EQ4	1990	04	16.03299	11	07	35.18	+04	45	05.6		4 809
1990	EQ4	1990	04	16.98715	11	07	16.73	+04	51	00.1		4 809
1990	EQ4	1990	04	17.00451	11	07	16.32	+04	51	06.7		4 809
1990	EQ4	1990	04	17.02188	11	07	15.88	+04	51	12.8		4 809
1990	ES4	1990	04	15.99826	11	07	00.14	+03	08	10.2	19.5	4 809
1990	ES4	1990	04	16.01563	11	06	59.84	+03	08	13.9		4 809
1990	ES4	1990	04	16.03299	11	06	59.47	+03	08	15.1		4 809
1990	ES4	1990	04	16.98715	11	06	39.44	+03	11	17.7		4 809
1990	ES4	1990	04	17.00451	11	06	39.10	+03	11	22.0		4 809
1990	ES4	1990	04	17.02188	11	06	38.63	+03	11	24.5		4 809
1990	EU4	1990	04	15.99826	11	05	55.15	+02	36	16.5	18.7	4 809
1990	EU4	1990	04	16.01563	11	05	54.71	+02	36	17.8		4 809
1990	EU4	1990	04	16.03299	11	05	54.26	+02	36	18.9		4 809
1990	EU4	1990	04	16.98715	11	05	36.09	+02	37	10.3		4 809
1990	EU4	1990	04	17.00451	11	05	35.64	+02	37	11.5		4 809

1990	EU4		1990	04	17.02188	11	05	35.21	+02	37	12.7		4 809
1990	EA5		1990	04	15.99826	11	07	24.76	+02	46	52.3	20.0	4 809
1990	EA5		1990	04	16.01563	11	07	24.08	+02	46	52.4		4 809
1990	EA5		1990	04	16.03299	11	07	23.45	+02	46	53.6		4 809
1990	EA5		1990	04	16.98715	11	06	57.43	+02	47	46.9	20.0	4 809
1990	EA5		1990	04	17.00451	11	06	56.79	+02	47	47.3		4 809
1990	EA5		1990	04	17.02188	11	06	56.29	+02	47	47.9		4 809
1990	GC		1990	03	04.22639	11	22	35.35	-01	00	22.3	18.0	4 809
1990	GC		1990	03	04.23958	11	22	34.55	-01	00	16.6		4 809
1990	GC		1990	03	04.25278	11	22	33.79	-01	00	11.0		4 809
1990	GC	*	1990	04	15.99826	10	53	05.08	+03	49	34.5	18.5	4 809
1990	GC		1990	04	16.01563	10	53	04.74	+03	49	39.0		4 809
1990	GC		1990	04	16.03299	10	53	04.38	+03	49	42.0		4 809
1990	GC		1990	04	16.98715	10	52	51.73	+03	53	40.4		4 809
1990	GC		1990	04	17.00451	10	52	51.30	+03	53	45.1		4 809
1990	GC		1990	04	17.02188	10	52	51.02	+03	53	49.1		4 809
1990	GD	*	1990	04	15.99826	10	55	02.21	+04	47	23.8	18.8	4 809
1990	GD		1990	04	16.01563	10	55	01.72	+04	47	23.3		4 809
1990	GD		1990	04	16.03299	10	55	01.24	+04	47	22.7		4 809
1990	GD		1990	04	16.98715	10	54	39.48	+04	46	40.0		4 809
1990	GD		1990	04	17.00451	10	54	38.97	+04	46	39.8		4 809
1990	GD		1990	04	17.02188	10	54	38.45	+04	46	38.8		4 809
1990	GE		1990	04	04.24792	11	02	28.00	+05	22	51.9	18.5	4 809
1990	GE		1990	04	04.26111	11	02	27.41	+05	22	50.2		4 809
1990	GE		1990	04	04.27431	11	02	26.95	+05	22	48.1		4 809
1990	GE	*	1990	04	15.99826	10	57	18.80	+04	56	13.5	18.3	4 809
1990	GE		1990	04	16.01563	10	57	18.48	+04	56	10.7		4 809
1990	GE		1990	04	16.03299	10	57	18.09	+04	56	07.3		4 809
1990	GE		1990	04	16.98715	10	57	06.20	+04	53	02.9		4 809
1990	GE		1990	04	17.00451	10	57	05.85	+04	52	59.5		4 809
1990	GE		1990	04	17.02188	10	57	05.49	+04	52	56.5		4 809
1990	GF		1990	04	04.24792	11	04	25.04	+04	54	30.1	19.5	4 809
1990	GF		1990	04	04.26111	11	04	24.63	+04	54	32.9		4 809
1990	GF		1990	04	04.27431	11	04	24.15	+04	54	36.4		4 809
1990	GF	*	1990	04	15.99826	10	59	34.03	+05	31	07.9	18.7	4 809
1990	GF		1990	04	16.01563	10	59	33.74	+05	31	10.4		4 809
1990	GF		1990	04	16.03299	10	59	33.45	+05	31	12.7		4 809
1990	GF		1990	04	16.98715	10	59	18.21	+05	33	19.6		4 809
1990	GF		1990	04	17.00451	10	59	17.80	+05	33	23.1		4 809
1990	GF		1990	04	17.02188	10	59	17.39	+05	33	25.5		4 809
1990	GG	*	1990	04	15.99826	10	59	36.77	+03	17	44.0	19.2	4 809
1990	GG		1990	04	16.01563	10	59	36.32	+03	17	42.3		4 809
1990	GG		1990	04	16.03299	10	59	36.03	+03	17	41.1		4 809
1990	GG		1990	04	16.98715	10	59	21.01	+03	16	22.3	19.0	4 809
1990	GG		1990	04	17.00451	10	59	20.64	+03	16	20.8		4 809
1990	GG		1990	04	17.02188	10	59	20.35	+03	16	18.9		4 809
1990	GH	*	1990	04	15.99826	11	01	06.65	+01	10	17.8	18.2	4 809
1990	GH		1990	04	16.01563	11	01	06.31	+01	10	23.6		4 809
1990	GH		1990	04	16.03299	11	01	05.92	+01	10	28.6		4 809
1990	GH		1990	04	16.98715	11	00	54.20	+01	15	14.4		4 809
1990	GH		1990	04	17.00451	11	00	53.87	+01	15	19.7		4 809
1990	GH		1990	04	17.02188	11	00	53.56	+01	15	24.6		4 809
1990	GJ	*	1990	04	15.99826	11	01	16.11	+02	30	52.1	18.8	4 809
1990	GJ		1990	04	16.01563	11	01	15.77	+02	30	54.0		4 809
1990	GJ		1990	04	16.03299	11	01	15.32	+02	30	55.7		4 809
1990	GJ		1990	04	16.98715	11	00	55.35	+02	32	25.9	19.4	4 809
1990	GJ		1990	04	17.00451	11	00	54.89	+02	32	27.1		4 809
1990	GJ		1990	04	17.02188	11	00	54.41	+02	32	28.4		4 809
1990	GK	*	1990	04	15.99826	11	04	49.47	+05	40	49.4	18.8	4 809

1990	GK		1990	04	16.01563	11	04	48.79	+05	40	47.1	4 809
1990	GK		1990	04	16.03299	11	04	48.15	+05	40	46.3	4 809
1990	GK		1990	04	16.98715	11	04	37.35	+05	42	09.7	4 809
1990	GK		1990	04	17.00451	11	04	36.95	+05	42	11.4	4 809
1990	GK		1990	04	17.02188	11	04	36.50	+05	42	13.7	4 809
1990	GL	*	1990	04	15.99826	11	04	57.82	+05	39	58.2	18.4 4 809
1990	GL		1990	04	16.01563	11	04	57.36	+05	40	01.1	4 809
1990	GL		1990	04	16.03299	11	04	56.93	+05	40	02.7	4 809
1990	GL		1990	04	16.98715	11	04	20.21	+05	39	43.2	4 809
1990	GL		1990	04	17.00451	11	04	19.67	+05	39	42.1	4 809
1990	GL		1990	04	17.02188	11	04	19.09	+05	39	40.2	4 809
1990	GM	*	1990	04	15.99826	11	06	21.80	+04	29	04.7	19.4 4 809
1990	GM		1990	04	16.01563	11	06	21.34	+04	29	07.8	4 809
1990	GM		1990	04	16.03299	11	06	21.02	+04	29	12.4	4 809
1990	GM		1990	04	16.98715	11	06	03.03	+04	32	40.1	4 809
1990	GM		1990	04	17.00451	11	06	02.39	+04	32	43.6	4 809
1990	GM		1990	04	17.02188	11	06	01.60	+04	32	46.8	4 809
1990	GN		1990	04	04.24792	11	11	15.31	+05	01	38.5	18.4 4 809
1990	GN		1990	04	04.26111	11	11	14.84	+05	01	40.4	4 809
1990	GN		1990	04	04.27431	11	11	14.34	+05	01	42.3	4 809
1990	GN	*	1990	04	15.99826	11	06	51.80	+05	14	01.5	18.4 4 809
1990	GN		1990	04	16.01563	11	06	51.53	+05	14	02.0	4 809
1990	GN		1990	04	16.03299	11	06	51.33	+05	14	02.1	4 809
1990	GN		1990	04	16.98715	11	06	42.05	+05	13	53.4	4 809
1990	GN		1990	04	17.00451	11	06	41.85	+05	13	53.6	4 809
1990	GN		1990	04	17.02188	11	06	41.57	+05	13	53.8	4 809
1990	GO	*	1990	04	15.99826	11	06	52.70	+02	23	52.5	20.5 4 809
1990	GO		1990	04	16.01563	11	06	52.16	+02	23	52.9	4 809
1990	GO		1990	04	16.03299	11	06	51.62	+02	23	52.9	4 809
1990	GO		1990	04	16.98715	11	05	54.98	+02	20	52.3	4 809
1990	GO		1990	04	17.00451	11	05	54.50	+02	20	53.8	4 809
1990	GO		1990	04	17.02188	11	05	53.90	+02	20	55.3	4 809
1990	GP	*	1990	04	15.99826	11	07	54.59	+01	02	43.3	18.5 4 809
1990	GP		1990	04	16.01563	11	07	53.92	+01	02	43.0	4 809
1990	GP		1990	04	16.03299	11	07	53.20	+01	02	42.7	4 809
1990	GP		1990	04	16.98715	11	07	21.08	+01	02	11.7	4 809
1990	GP		1990	04	17.00451	11	07	20.35	+01	02	10.8	4 809
1990	GP		1990	04	17.02188	11	07	19.70	+01	02	10.0	4 809
1990	GQ	*	1990	04	15.99826	11	08	14.10	+02	57	38.5	19.7 4 809
1990	GQ		1990	04	16.01563	11	08	13.48	+02	57	43.0	4 809
1990	GQ		1990	04	16.03299	11	08	12.74	+02	57	46.7	4 809
1990	GQ		1990	04	16.98715	11	07	45.89	+03	00	56.1	4 809
1990	GQ		1990	04	17.00451	11	07	45.22	+03	00	59.4	4 809
1990	GQ		1990	04	17.02188	11	07	44.66	+03	01	02.8	4 809
1990	GR	*	1990	04	15.99826	11	08	59.20	+01	50	47.0	18.2 4 809
1990	GR		1990	04	16.01563	11	08	58.75	+01	50	54.2	4 809
1990	GR		1990	04	16.03299	11	08	58.16	+01	51	01.3	4 809
1990	GR		1990	04	16.98715	11	08	34.86	+01	57	25.2	4 809
1990	GR		1990	04	17.00451	11	08	34.36	+01	57	32.0	4 809
1990	GR		1990	04	17.02188	11	08	33.86	+01	57	39.2	4 809
1990	GS	*	1990	04	15.99826	11	09	20.87	+04	55	11.1	19.0 4 809
1990	GS		1990	04	16.01563	11	09	20.26	+04	55	10.4	4 809
1990	GS		1990	04	16.03299	11	09	19.56	+04	55	09.9	4 809
1990	GS		1990	04	16.98715	11	08	48.77	+04	54	25.0	4 809
1990	GS		1990	04	17.00451	11	08	48.16	+04	54	25.4	4 809
1990	GS		1990	04	17.02188	11	08	47.49	+04	54	23.7	4 809
1990	GT	*	1990	04	15.99826	11	09	41.20	+01	39	21.1	19.5 4 809
1990	GT		1990	04	16.01563	11	09	40.69	+01	39	25.8	4 809
1990	GT		1990	04	16.03299	11	09	40.26	+01	39	30.5	4 809

1990	GT		1990	04	16.98715	11	09	19.92	+01	43	22.6		4 809
1990	GT		1990	04	17.00451	11	09	19.42	+01	43	26.2		4 809
1990	GT		1990	04	17.02188	11	09	18.96	+01	43	30.6		4 809
1990	GU	*	1990	04	15.99826	11	12	13.80	+04	48	13.3	19.3	4 809
1990	GU		1990	04	16.01563	11	12	13.28	+04	48	17.9		4 809
1990	GU		1990	04	16.03299	11	12	12.89	+04	48	22.5		4 809
1990	GU		1990	04	16.98715	11	11	51.71	+04	52	30.9		4 809
1990	GU		1990	04	17.00451	11	11	51.32	+04	52	37.6		4 809
1990	GU		1990	04	17.02188	11	11	50.82	+04	52	42.3		4 809
1990	GW	*	1990	04	15.99826	11	12	26.35	+02	17	15.3	20.0	4 809
1990	GW		1990	04	16.01563	11	12	25.76	+02	17	13.5		4 809
1990	GW		1990	04	16.03299	11	12	25.22	+02	17	11.1		4 809
1990	GW		1990	04	16.98715	11	11	52.86	+02	15	08.1		4 809
1990	GW		1990	04	17.00451	11	11	52.19	+02	15	05.9		4 809
1990	GW		1990	04	17.02188	11	11	51.59	+02	15	03.6		4 809
9			1984	02	24.31071	12	27	56.58	+06	31	32.8		3 809
9			1984	02	24.31625	12	27	56.38	+06	31	34.0		3 809
9			1984	02	24.32179	12	27	56.16	+06	31	41.9		3 809
62			1984	02	23.32244	11	21	56.25	+06	14	29.7		3 809
62			1984	02	23.32867	11	21	56.02	+06	14	30.6		3 809
62			1984	02	23.33491	11	21	55.78	+06	14	33.0		3 809
64			1984	02	24.21167	12	19	52.50	-03	44	16.9		3 809
64			1984	02	24.21860	12	19	52.26	-03	44	15.9		3 809
64			1984	02	24.22552	12	19	52.03	-03	44	14.8		3 809
116			1984	02	26.21106	10	11	13.36	+17	42	12.9		3 809
116			1984	02	26.21729	10	11	13.00	+17	42	14.5		3 809
116			1984	02	26.22352	10	11	12.68	+17	42	15.7		3 809
133			1984	02	23.29751	11	36	02.22	-03	07	30.3		3 809
133			1984	02	23.30443	11	36	01.93	-03	07	29.4		3 809
133			1984	02	23.31136	11	36	01.64	-03	07	28.5		3 809
133			1984	03	02.29021	11	30	07.88	-02	52	28.8		3 809
133			1984	03	02.29644	11	30	07.61	-02	52	27.9		3 809
133			1984	03	02.30267	11	30	07.35	-02	52	27.2		3 809
135			1984	02	24.27816	12	49	26.66	-06	21	30.1		3 809
135			1984	02	24.28439	12	49	26.44	-06	21	29.0		3 809
135			1984	02	24.29062	12	49	26.34	-06	21	28.9		3 809
147			1990	04	04.24792	11	14	22.65	+02	05	25.1	16.8	4 809
147			1990	04	04.26111	11	14	22.02	+02	05	29.2		4 809
147			1990	04	04.27431	11	14	21.40	+02	05	33.8		4 809
147			1990	04	15.99826	11	08	46.71	+02	48	45.1	16.0	4 809
147			1990	04	16.01563	11	08	46.16	+02	48	49.0		4 809
147			1990	04	16.03299	11	08	45.70	+02	48	51.9		4 809
147			1990	04	16.98715	11	08	24.95	+02	51	45.9		4 809
147			1990	04	17.00451	11	08	24.48	+02	51	49.3		4 809
147			1990	04	17.02188	11	08	23.97	+02	51	52.6		4 809
193			1984	02	24.21167	12	22	01.46	-04	10	42.9		3 809
193			1984	02	24.21860	12	22	01.11	-04	10	43.0		3 809
193			1984	02	24.22552	12	22	00.75	-04	10	43.0		3 809
202			1984	02	28.15158	09	38	53.91	+16	41	20.0		3 809
202			1984	02	28.15781	09	38	53.63	+16	41	22.1		3 809
202			1984	02	28.16404	09	38	53.38	+16	41	24.7		3 809
297			1984	02	23.20540	11	04	30.67	+03	51	49.5		3 809
297			1984	02	23.21163	11	04	30.35	+03	51	50.7		3 809
297			1984	02	23.21786	11	04	30.10	+03	51	51.9		3 809
297			1984	02	26.26023	11	02	14.66	+04	00	51.0		3 809
297			1984	02	26.26646	11	02	14.34	+04	00	52.2		3 809
297			1984	02	26.27270	11	02	14.08	+04	00	53.5		3 809
327			1984	02	24.09325	09	48	49.01	+18	32	15.7		3 809
327			1984	02	24.09948	09	48	48.66	+18	32	16.9		3 809

327	1984	02	24.10571	09	48	48.28	+18	32	17.7	3 809
332	1984	02	24.09325	09	43	11.20	+17	45	10.4	3 809
332	1984	02	24.09948	09	43	10.93	+17	45	11.6	3 809
332	1984	02	24.10571	09	43	10.54	+17	45	13.0	3 809
394	1984	02	24.31071	12	28	33.20	+05	40	23.6	3 809
394	1984	02	24.31625	12	28	32.99	+05	40	24.8	3 809
394	1984	02	24.32179	12	28	32.78	+05	40	26.3	3 809
672	1984	02	24.09325	09	41	35.37	+19	21	24.4	3 809
672	1984	02	24.09948	09	41	35.02	+19	21	24.7	3 809
672	1984	02	24.10571	09	41	34.62	+19	21	25.3	3 809
733	1984	02	23.20540	11	05	37.92	+05	44	27.5	3 809
733	1984	02	23.21163	11	05	37.57	+05	44	27.8	3 809
733	1984	02	23.21786	11	05	37.23	+05	44	27.0	3 809
761	1984	02	26.36134	12	52	59.19	-04	29	08.9	3 809
761	1984	02	26.36757	12	52	59.05	-04	29	07.7	3 809
761	1984	02	26.37381	12	52	58.88	-04	29	06.9	3 809
765	1984	02	26.26023	11	05	26.31	+03	13	53.4	3 809
765	1984	02	26.26646	11	05	26.00	+03	13	55.3	3 809
765	1984	02	26.27270	11	05	25.56	+03	13	56.6	3 809
766	1984	02	26.36134	12	55	34.41	-04	40	21.6	3 809
766	1984	02	26.36757	12	55	34.26	-04	40	21.6	3 809
766	1984	02	26.37381	12	55	34.05	-04	40	21.3	3 809
781	1984	02	29.04843	08	44	26.97	+17	27	31.5	3 809
781	1984	02	29.05466	08	44	26.79	+17	27	33.1	3 809
781	1984	02	29.06089	08	44	26.56	+17	27	34.9	3 809
781	1984	03	02.06374	08	43	22.92	+17	39	40.5	3 809
781	1984	03	02.06998	08	43	22.68	+17	39	42.7	3 809
781	1984	03	02.07621	08	43	22.47	+17	39	44.4	3 809
799	1984	02	24.24838	12	30	07.92	-01	34	33.5	3 809
799	1984	02	24.25461	12	30	07.74	-01	34	31.6	3 809
799	1984	02	24.26084	12	30	07.52	-01	34	29.8	3 809
970	1984	03	07.16852	09	42	07.75	+10	44	57.7	3 809
970	1984	03	07.17544	09	42	07.43	+10	44	58.8	3 809
970	1984	03	07.18237	09	42	07.10	+10	44	59.8	3 809
970	1984	03	08.17341	09	41	21.28	+10	47	44.2	3 809
970	1984	03	08.17895	09	41	21.01	+10	47	44.9	3 809
970	1984	03	08.18449	09	41	20.75	+10	47	45.8	3 809
970	1984	03	09.23612	09	40	33.46	+10	50	33.2	3 809
970	1984	03	09.24097	09	40	33.22	+10	50	34.2	3 809
975	1984	02	24.24838	12	36	01.76	-01	13	33.4	3 809
975	1984	02	24.25461	12	36	01.58	-01	13	31.7	3 809
975	1984	02	24.26084	12	36	01.41	-01	13	29.9	3 809
1033	1984	02	23.30443	11	32	14.04	-02	54	14.8	3 809
1033	1984	02	23.31136	11	32	13.77	-02	54	12.2	3 809
1033	1984	03	02.29021	11	26	56.02	-02	03	13.2	3 809
1033	1984	03	02.29644	11	26	55.74	-02	03	11.0	3 809
1033	1984	03	02.30267	11	26	55.54	-02	03	08.6	3 809
1043	1984	02	25.21448	09	52	57.41	+10	31	04.7	3 809
1043	1984	02	25.22695	09	52	56.83	+10	31	09.5	3 809
1043	1984	02	28.17513	09	50	50.05	+10	49	37.4	3 809
1043	1984	02	28.18136	09	50	49.80	+10	49	39.4	3 809
1043	1984	02	28.18759	09	50	49.55	+10	49	41.7	3 809
1043	1984	02	29.17239	09	50	08.02	+10	55	47.1	3 809
1043	1984	02	29.17863	09	50	07.74	+10	55	49.4	3 809
1043	1984	02	29.18521	09	50	07.46	+10	55	52.1	3 809
1060	1984	02	22.12156	07	50	21.21	+12	07	31.0	3 809
1060	1984	02	22.12779	07	50	21.00	+12	07	32.8	3 809
1060	1984	02	22.13403	07	50	20.77	+12	07	34.5	3 809
1060	1984	02	23.05027	07	49	46.51	+12	11	12.4	3 809

1060	1984	02	23.05719	07	49	46.24	+12	11	13.8		3 809
1060	1984	02	23.06412	07	49	45.99	+12	11	15.2		3 809
1143	1990	04	04.24792	11	15	32.89	+01	44	18.9	17.5	4 809
1143	1990	04	04.26111	11	15	32.43	+01	44	22.3		4 809
1143	1990	04	04.27431	11	15	31.96	+01	44	25.4		4 809
1143	1990	04	15.99826	11	11	31.40	+02	16	49.7	17.5	4 809
1143	1990	04	16.01563	11	11	31.02	+02	16	51.9		4 809
1143	1990	04	16.03299	11	11	30.65	+02	16	55.3		4 809
1143	1990	04	16.98715	11	11	14.73	+02	19	13.8		4 809
1143	1990	04	17.00451	11	11	14.35	+02	19	16.6		4 809
1143	1990	04	17.02188	11	11	13.99	+02	19	18.7		4 809
1157	1990	04	04.24792	11	00	46.19	+01	54	05.7	17.5	4 809
1157	1990	04	04.26111	11	00	45.67	+01	54	08.0		4 809
1157	1990	04	04.27431	11	00	45.12	+01	54	10.1		4 809
1157	1990	04	15.99826	10	54	45.38	+02	16	25.8	16.5	4 809
1157	1990	04	16.01563	10	54	44.82	+02	16	27.0		4 809
1157	1990	04	16.03299	10	54	44.27	+02	16	28.5		4 809
1157	1990	04	16.98715	10	54	21.71	+02	17	48.5		4 809
1157	1990	04	17.00451	10	54	21.17	+02	17	49.7		4 809
1157	1990	04	17.02188	10	54	20.62	+02	17	50.9		4 809
1167	1984	02	22.12156	07	51	38.74	+13	21	59.3		3 809
1167	1984	02	22.12779	07	51	38.54	+13	22	00.2		3 809
1167	1984	02	22.13403	07	51	38.34	+13	22	01.2		3 809
1242	1990	04	15.99826	11	13	03.39	+02	22	11.3	17.0	4 809
1242	1990	04	16.01563	11	13	02.73	+02	22	12.9		4 809
1242	1990	04	16.03299	11	13	02.15	+02	22	14.9		4 809
1242	1990	04	16.98715	11	12	33.76	+02	23	20.0		4 809
1242	1990	04	17.00451	11	12	33.18	+02	23	21.3		4 809
1242	1990	04	17.02188	11	12	32.58	+02	23	22.5		4 809
1253	1984	02	25.18332	09	38	55.36	+16	01	12.2		3 809
1253	1984	02	25.19024	09	38	55.05	+16	01	13.6		3 809
1253	1984	02	25.19734	09	38	54.70	+16	01	14.8		3 809
1253	1984	02	28.15158	09	36	41.93	+16	11	12.8		3 809
1253	1984	02	28.15781	09	36	41.67	+16	11	13.8		3 809
1253	1984	02	28.16404	09	36	41.42	+16	11	14.9		3 809
1253	1984	03	07.14774	09	31	16.39	+16	34	28.0		3 809
1253	1984	03	07.15328	09	31	16.15	+16	34	29.0		3 809
1253	1984	03	07.15882	09	31	15.91	+16	34	29.8		3 809
1298	1984	02	29.04843	08	40	25.83	+16	05	19.5		3 809
1298	1984	02	29.05466	08	40	25.61	+16	05	19.9		3 809
1298	1984	02	29.06089	08	40	25.41	+16	05	20.4		3 809
1298	1984	03	02.06374	08	39	18.11	+16	08	12.0		3 809
1298	1984	03	02.06998	08	39	17.86	+16	08	12.4		3 809
1298	1984	03	02.07621	08	39	17.65	+16	08	13.4		3 809
1298	1984	03	04.03543	08	38	16.16	+16	10	48.5		3 809
1298	1984	03	04.04166	08	38	15.95	+16	10	49.1		3 809
1298	1984	03	06.08399	08	37	16.52	+16	13	14.9		3 809
1298	1984	03	06.09022	08	37	16.35	+16	13	15.4		3 809
1298	1984	03	06.09645	08	37	16.19	+16	13	15.8		3 809
1443	1984	02	23.20540	11	06	29.62	+05	03	16.7		3 809
1443	1984	02	23.21163	11	06	29.38	+05	03	18.8		3 809
1443	1984	02	23.21786	11	06	29.09	+05	03	20.5		3 809
1568	1984	02	26.21106	10	16	09.16	+15	53	54.2		3 809
1568	1984	02	26.21729	10	16	08.80	+15	53	58.8		3 809
1568	1984	02	28.20352	10	14	18.27	+16	19	49.7		3 809
1568	1984	02	28.20975	10	14	17.93	+16	19	54.4		3 809
1568	1984	03	01.24446	10	12	26.19	+16	45	46.3		3 809
1568	1984	03	01.25069	10	12	25.86	+16	45	50.9		3 809
1568	1984	03	01.25693	10	12	25.57	+16	45	55.3		3 809

1568	1984	03	04.21272	10	09	47.40	+17	22	15.3		3 809
1568	1984	03	04.22519	10	09	46.70	+17	22	23.6		3 809
1568	1984	03	05.21138	10	08	55.22	+17	34	08.5		3 809
1568	1984	03	05.21761	10	08	54.90	+17	34	12.1		3 809
1568	1984	03	05.22384	10	08	54.61	+17	34	16.0		3 809
1568	1984	03	06.21488	10	08	03.65	+17	45	53.3		3 809
1568	1984	03	06.22111	10	08	03.37	+17	45	57.8		3 809
1568	1984	03	06.22734	10	08	03.02	+17	46	02.2		3 809
1568	1984	03	10.25555	10	04	44.68	+18	31	07.4		3 809
1568	1984	03	10.26040	10	04	44.45	+18	31	10.6		3 809
1568	1984	03	10.26525	10	04	44.21	+18	31	14.0		3 809
1717	1990	04	15.99826	11	09	00.95	+00	44	51.9	17.2	4 809
1717	1990	04	16.01563	11	09	00.40	+00	44	52.5		4 809
1717	1990	04	16.03299	11	08	59.91	+00	44	53.6		4 809
1717	1990	04	16.98715	11	08	37.75	+00	45	38.0		4 809
1717	1990	04	17.00451	11	08	37.22	+00	45	39.6		4 809
1717	1990	04	17.02188	11	08	36.69	+00	45	39.8		4 809
1769	1984	02	24.15142	09	56	19.89	+12	01	43.3		3 809
1769	1984	02	24.15765	09	56	19.48	+12	01	44.9		3 809
1769	1984	02	25.21448	09	55	12.06	+12	07	01.7		3 809
1769	1984	02	25.22071	09	55	11.63	+12	07	03.9		3 809
1769	1984	02	25.22695	09	55	11.22	+12	07	06.2		3 809
1913	1984	02	28.15158	09	39	24.85	+15	17	55.1		3 809
1913	1984	02	28.15781	09	39	24.56	+15	17	56.2		3 809
1913	1984	02	28.16404	09	39	24.30	+15	17	57.1		3 809
1913	1984	03	07.14774	09	33	33.43	+15	41	52.9		3 809
1913	1984	03	07.15328	09	33	33.19	+15	41	53.8		3 809
1913	1984	03	07.15882	09	33	32.94	+15	41	54.6		3 809
1979	1984	02	27.33229	12	06	33.47	-05	52	26.2		3 809
1979	1984	02	27.34476	12	06	32.92	-05	52	22.0		3 809
1979	1984	02	29.33791	12	05	09.72	-05	40	34.8		3 809
1979	1984	02	29.35038	12	05	09.17	-05	40	30.6		3 809
2031	1984	02	28.17513	09	45	38.21	+10	49	12.6		3 809
2031	1984	02	28.18136	09	45	37.84	+10	49	15.0		3 809
2031	1984	02	29.17239	09	44	43.39	+10	56	22.6		3 809
2031	1984	02	29.17863	09	44	43.04	+10	56	25.6		3 809
2031	1984	03	03.09218	09	42	08.46	+11	16	51.2		3 809
2031	1984	03	03.09841	09	42	08.11	+11	16	53.7		3 809
2031	1984	03	03.10464	09	42	07.76	+11	16	56.2		3 809
2031	1984	03	07.17544	09	38	48.42	+11	44	01.3		3 809
2031	1984	03	07.18237	09	38	48.14	+11	44	04.0		3 809
2031	1984	03	08.17341	09	38	02.93	+11	50	22.4		3 809
2031	1984	03	08.17895	09	38	02.69	+11	50	24.5		3 809
2031	1984	03	08.18449	09	38	02.44	+11	50	26.6		3 809
2032	1984	02	25.19024	09	44	09.42	+15	37	08.8		3 809
2032	1984	02	25.19734	09	44	09.07	+15	37	10.5		3 809
2032	1984	02	28.15158	09	41	55.36	+15	47	27.6		3 809
2032	1984	02	28.16404	09	41	54.79	+15	47	30.4		3 809
2097	1984	02	26.26023	11	04	08.34	+03	21	17.1		3 809
2097	1984	02	26.26646	11	04	08.16	+03	21	20.5		3 809
2097	1984	02	26.27270	11	04	07.69	+03	21	21.3		3 809
2391	1984	02	23.20540	11	05	33.36	+05	33	07.6		3 809
2391	1984	02	23.21163	11	05	33.05	+05	33	10.5		3 809
2391	1984	02	23.21786	11	05	32.73	+05	33	13.0		3 809
2506	1984	02	26.36134	12	47	44.67	-04	11	01.7		3 809
2506	1984	02	26.36757	12	47	44.50	-04	11	00.4		3 809
2506	1984	02	26.37381	12	47	44.37	-04	10	58.7		3 809
2526	1984	02	24.09325	09	42	54.39	+17	49	38.7		3 809
2526	1984	02	24.09948	09	42	53.95	+17	49	40.0		3 809

2526	1984	02	24.10571	09	42	53.66	+17	49	40.3		3 809
2760	1984	02	24.21167	12	18	10.20	-03	33	23.1		3 809
2760	1984	02	24.21860	12	18	09.91	-03	33	22.9		3 809
2760	1984	02	24.22552	12	18	09.71	-03	33	23.2		3 809
2890	1990	04	04.24792	11	11	32.82	+04	58	39.1	18.1	4 809
2890	1990	04	04.26111	11	11	32.21	+04	58	41.6		4 809
2890	1990	04	04.27431	11	11	31.50	+04	58	43.0		4 809
2890	1990	04	15.99826	11	04	14.20	+05	12	59.2	18.2	4 809
2890	1990	04	16.01563	11	04	13.61	+05	12	59.3		4 809
2890	1990	04	16.03299	11	04	13.06	+05	12	59.8		4 809
2890	1990	04	16.98715	11	03	47.73	+05	13	19.2		4 809
2890	1990	04	17.00451	11	03	47.14	+05	13	19.6		4 809
2890	1990	04	17.02188	11	03	46.62	+05	13	19.4		4 809
3077	1984	02	26.26023	11	07	10.39	+03	40	21.8		3 809
3077	1984	02	26.26646	11	07	10.04	+03	40	23.9		3 809
3077	1984	02	26.27270	11	07	09.66	+03	40	26.0		3 809
3105	1984	02	25.18332	09	39	00.43	+15	19	32.3		3 809
3105	1984	02	25.19024	09	39	00.06	+15	19	35.4		3 809
3105	1984	02	28.15158	09	36	14.82	+15	39	20.4		3 809
3105	1984	02	28.15781	09	36	14.49	+15	39	24.1		3 809
3105	1984	03	07.14774	09	29	29.54	+16	27	26.1		3 809
3105	1984	03	07.15328	09	29	29.32	+16	27	28.1		3 809
3105	1984	03	07.15882	09	29	28.94	+16	27	29.8		3 809
3320	1984	02	27.33229	12	09	47.31	-06	09	42.6		3 809
3320	1984	02	27.33853	12	09	47.08	-06	09	40.8		3 809
3320	1984	02	27.34476	12	09	46.87	-06	09	39.5		3 809
3320	1984	02	29.33791	12	08	32.72	-06	01	06.4		3 809
3320	1984	02	29.34415	12	08	32.49	-06	01	04.6		3 809
3320	1984	02	29.35038	12	08	32.26	-06	01	02.7		3 809
3320	1984	03	05.34106	12	05	05.06	-05	36	13.5		3 809
3320	1984	03	05.35335	12	05	04.50	-05	36	09.4		3 809
3320	1984	03	09.36286	12	01	59.66	-05	13	03.7		3 809
3320	1984	03	09.36771	12	01	59.42	-05	13	01.8		3 809
3320	1984	03	09.37255	12	01	59.19	-05	13	00.1		3 809
3383	1984	02	26.22352	10	17	18.27	+16	41	26.3		3 809
3383	1984	02	28.19729	10	15	38.61	+17	01	20.9		3 809
3383	1984	02	28.20352	10	15	38.25	+17	01	24.3		3 809
3383	1984	02	28.20975	10	15	37.95	+17	01	27.9		3 809
3383	1984	03	01.24446	10	13	56.03	+17	21	30.4		3 809
3383	1984	03	01.25069	10	13	55.73	+17	21	34.1		3 809
3383	1984	03	01.25693	10	13	55.43	+17	21	37.4		3 809
3383	1984	03	04.21272	10	11	30.62	+17	49	42.6		3 809
3383	1984	03	05.21138	10	10	42.79	+17	58	54.1		3 809
3383	1984	03	05.21761	10	10	42.48	+17	58	57.6		3 809
3383	1984	03	05.22384	10	10	42.18	+17	59	01.2		3 809
3383	1984	03	06.21488	10	09	55.37	+18	07	57.2		3 809
3383	1984	03	06.22111	10	09	55.08	+18	08	00.8		3 809
3383	1984	03	06.22734	10	09	54.79	+18	08	04.4		3 809
3383	1984	03	10.25555	10	06	52.37	+18	42	41.5		3 809
3383	1984	03	10.26040	10	06	52.15	+18	42	44.1		3 809
3383	1984	03	10.26525	10	06	51.95	+18	42	46.6		3 809
3444	1990	04	04.24792	11	06	47.37	+03	09	14.2	18.0	4 809
3444	1990	04	04.26111	11	06	46.78	+03	09	15.9		4 809
3444	1990	04	04.27431	11	06	46.12	+03	09	18.5		4 809
3444	1990	04	15.99826	11	00	30.96	+03	30	26.6	18.2	4 809
3444	1990	04	16.01563	11	00	30.45	+03	30	27.7		4 809
3444	1990	04	16.03299	11	00	29.98	+03	30	28.7		4 809
3444	1990	04	16.98715	11	00	08.89	+03	31	28.0		4 809
3444	1990	04	17.00451	11	00	08.41	+03	31	28.6		4 809

3444	1990	04	17.02188	11	00	07.91	+03	31	29.8		4	809
3486	1984	02	28.19729	10	18	25.69	+16	12	53.1		3	809
3486	1984	02	28.20352	10	18	25.28	+16	12	54.9		3	809
3486	1984	02	28.20975	10	18	24.90	+16	12	56.7		3	809
3486	1984	03	04.21272	10	13	35.97	+16	33	19.6		3	809
3486	1984	03	04.21895	10	13	35.61	+16	33	20.3		3	809
3486	1984	03	04.22519	10	13	35.28	+16	33	21.1		3	809
3486	1984	03	05.21138	10	12	40.93	+16	36	55.6		3	809
3486	1984	03	05.21761	10	12	40.58	+16	36	56.7		3	809
3486	1984	03	05.22384	10	12	40.23	+16	36	58.0		3	809
3486	1984	03	06.21488	10	11	46.35	+16	40	23.8		3	809
3486	1984	03	06.22111	10	11	46.07	+16	40	25.1		3	809
3486	1984	03	06.22734	10	11	45.73	+16	40	25.9		3	809
3519	1984	02	25.18332	09	38	17.53	+15	05	41.3		3	809
3519	1984	02	25.19024	09	38	17.09	+15	05	42.9		3	809
3519	1984	02	25.19734	09	38	16.63	+15	05	45.7		3	809
3519	1984	02	28.15158	09	35	13.08	+15	20	25.0		3	809
3519	1984	02	28.15781	09	35	12.70	+15	20	26.6		3	809
3519	1984	03	07.15328	09	27	39.44	+15	55	16.8		3	809
3519	1984	03	07.15882	09	27	39.15	+15	55	18.0		3	809
3535	1984	02	29.17239	09	45	34.79	+10	41	56.2		3	809
3535	1984	02	29.17863	09	45	34.46	+10	41	57.5		3	809
3535	1984	02	29.18521	09	45	34.16	+10	41	59.9		3	809
3535	1984	03	03.09218	09	43	01.68	+10	55	44.7		3	809
3535	1984	03	03.09841	09	43	01.37	+10	55	46.4		3	809
3535	1984	03	03.10464	09	43	01.06	+10	55	48.1		3	809
3535	1984	03	04.14901	09	42	08.86	+11	00	33.4		3	809
3535	1984	03	04.15524	09	42	08.52	+11	00	35.3		3	809
3535	1984	03	04.16147	09	42	08.24	+11	00	37.2		3	809
3557	1990	04	04.24792	11	17	38.75	+02	55	18.8	18.6	4	809
3557	1990	04	04.26111	11	17	38.25	+02	55	22.6		4	809
3557	1990	04	04.27431	11	17	37.77	+02	55	26.2		4	809
3590	1984	02	28.19729	10	16	23.57	+16	37	41.8		3	809
3590	1984	02	28.20352	10	16	23.21	+16	37	45.4		3	809
3590	1984	02	28.20975	10	16	22.91	+16	37	48.3		3	809
3590	1984	03	01.24446	10	14	31.84	+16	55	25.2		3	809
3590	1984	03	01.25069	10	14	31.52	+16	55	28.1		3	809
3590	1984	03	01.25693	10	14	31.22	+16	55	30.8		3	809
3590	1984	03	04.21272	10	11	55.18	+17	19	43.4		3	809
3590	1984	03	04.21895	10	11	54.84	+17	19	46.6		3	809
3590	1984	03	04.22519	10	11	54.54	+17	19	49.6		3	809
3590	1984	03	05.21138	10	11	04.10	+17	27	29.0		3	809
3590	1984	03	05.21761	10	11	03.80	+17	27	31.8		3	809
3590	1984	03	05.22384	10	11	03.48	+17	27	34.4		3	809
3590	1984	03	06.21488	10	10	13.89	+17	35	04.4		3	809
3590	1984	03	06.22111	10	10	13.59	+17	35	07.7		3	809
3590	1984	03	06.22734	10	10	13.24	+17	35	10.8		3	809
3590	1984	03	10.25555	10	07	03.37	+18	03	18.6		3	809
3590	1984	03	10.26040	10	07	03.15	+18	03	20.2		3	809
3590	1984	03	10.26525	10	07	02.91	+18	03	22.5		3	809
3679	1984	03	02.06374	08	40	19.10	+17	02	11.3		3	809
3679	1984	03	02.06998	08	40	18.83	+17	02	11.4		3	809
3679	1984	03	02.07621	08	40	18.64	+17	02	12.2		3	809
3919	1984	02	24.15142	09	54	02.94	+11	44	35.3		3	809
3919	1984	02	24.15765	09	54	02.60	+11	44	37.5		3	809
3919	1984	02	25.22071	09	52	57.49	+11	52	03.8		3	809
3919	1984	02	25.22695	09	52	57.15	+11	52	06.0		3	809
3919	1984	02	28.17513	09	49	59.95	+12	12	31.0		3	809
3919	1984	02	28.18136	09	49	59.61	+12	12	33.1		3	809

3919	1984 02 29.17239	09 49 00.83	+12 19 18.8			3	809
3919	1984 02 29.17863	09 49 00.49	+12 19 20.9			3	809
4471	1990 04 04.24792	11 08 49.05	+01 41 28.3		18.5	4	809
4471	1990 04 04.26111	11 08 48.40	+01 41 30.3			4	809
4471	1990 04 04.27431	11 08 47.77	+01 41 32.3			4	809
4471	1990 04 15.99826	11 01 50.25	+01 55 56.9		18.5	4	809
4471	1990 04 16.01563	11 01 49.72	+01 55 58.1			4	809
4471	1990 04 16.03299	11 01 49.17	+01 55 58.5			4	809
4471	1990 04 16.98715	11 01 22.39	+01 56 40.0			4	809
4471	1990 04 17.00451	11 01 21.79	+01 56 40.5			4	809
4471	1990 04 17.02188	11 01 21.16	+01 56 40.8			4	809

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

1990 KA	1990 05 25.59652	15 12 41.37	+08 27 10.5		14.0	871

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

1986 YA	1990 05 28.60729	17 07 15.39	-25 53 48.5		16.5	881
1986 YA	1990 05 28.62326	17 07 14.16	-25 53 45.5			881
1989 AF	1990 05 26.55556	16 11 18.03	-20 57 11.0		16	881
1989 AF	1990 05 28.57743	16 09 08.51	-20 56 09.8		16	881
1989 AF	1990 05 28.59201	16 09 07.30	-20 56 08.3			881

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

1988 WG	1990 05 26.60278	16 35 51.6	-24 48 24		w	896
1988 WG	1990 05 26.63403	16 35 49.56	-24 48 27.4		t	896
1988 WG	1990 05 26.68299	16 35 46.38	-24 48 27.2			896

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

1990 HM1 *	1990 04 29.66032	14 03 35.05	-00 28 56.7		16.5	r	898
1990 HM1	1990 04 29.69416	14 03 33.52	-00 28 54.6			r	898
1990 HM1	1990 05 15.52666	13 53 00.53	-00 16 46.9		16		898
1990 HM1	1990 05 15.55104	13 52 59.22	-00 16 52.8				898
1990 HM1	1990 05 19.67177	13 49 38.7	-00 30 18		16.5	V	898
1990 HM1	1990 05 19.68353	13 49 38.4	-00 30 15		16.5	V	898
1990 JJ1 *	1990 05 15.52666	13 52 06.31	-00 25 42.7		16.5		898
1990 JJ1	1990 05 15.55104	13 52 05.35	-00 25 43.6				898
1990 JJ1	1990 05 19.67177	13 49 43.5	-00 31 54		17	V	898
1990 JJ1	1990 05 19.68353	13 49 43.2	-00 32 00		17	V	898

975 Valencia
A. Lopez, Observatorio Astronomico de Valencia, Avda. Blasco Ibanez 13,
E-46010 Valencia, Spain
Observers A. Lopez G., J. A. Lopez O., R. Lopez M., G. Perez A.
0.25-m f/15 refractor
SAOC

3	1987	11	18.79688	21	59	37.94	-13	19	25.1	975
3	1987	11	18.80109	21	59	38.22	-13	19	25.3	975
3	1987	11	18.80512	21	59	38.47	-13	19	25.2	975
3	1987	11	18.80704	21	59	38.86	-13	19	24.8	975
3	1987	11	18.81435	21	59	39.06	-13	19	23.6	975
3	1987	11	18.81782	21	59	39.33	-13	19	23.6	975
3	1987	11	21.78247	22	03	05.62	-13	14	43.1	975
3	1987	11	21.78623	22	03	05.83	-13	14	42.5	975
3	1987	11	21.78987	22	03	06.09	-13	14	42.2	975
4	1988	01	28.83840	08	08	38.63	+24	07	08.4	975
4	1988	01	28.84164	08	08	38.40	+24	07	09.6	975
4	1988	01	28.84457	08	08	38.23	+24	07	10.7	975
4	1988	01	28.84984	08	08	37.89	+24	07	13.1	975
4	1988	01	28.85211	08	08	37.55	+24	07	14.8	975
4	1988	01	28.85278	08	08	37.67	+24	07	13.8	975
4	1988	01	30.80196	08	06	33.24	+24	18	23.7	975
4	1988	01	30.80938	08	06	32.77	+24	18	25.6	975
4	1988	01	30.81250	08	06	32.54	+24	18	26.6	975
4	1988	01	30.81695	08	06	32.20	+24	18	27.9	975
4	1988	01	30.81990	08	06	32.05	+24	18	28.8	975
4	1988	01	30.82273	08	06	31.87	+24	18	30.1	975
4	1988	02	09.81871	07	56	38.16	+25	08	42.7	975
4	1988	02	09.82156	07	56	38.01	+25	08	42.4	975
4	1988	02	09.82440	07	56	37.88	+25	08	43.2	975
4	1988	02	09.82906	07	56	37.65	+25	08	44.1	975
4	1988	02	09.83204	07	56	37.49	+25	08	45.3	975
4	1988	02	09.83534	07	56	37.27	+25	08	46.0	975
4	1988	02	09.84081	07	56	37.00	+25	08	47.6	975
4	1988	02	09.84375	07	56	36.78	+25	08	48.6	975
4	1988	02	09.84688	07	56	36.63	+25	08	49.1	975
4	1988	02	12.87153	07	53	59.05	+25	21	25.0	975
4	1988	02	12.87465	07	53	58.88	+25	21	25.3	975
4	1988	02	12.87743	07	53	58.73	+25	21	26.8	975
4	1988	02	13.87369	07	53	09.69	+25	25	19.8	975
4	1988	02	13.87646	07	53	09.57	+25	25	20.3	975
4	1988	02	13.87923	07	53	09.43	+25	25	20.6	975
20	1988	02	12.81065	04	20	19.28	+20	36	19.3	975
20	1988	02	12.81520	04	20	19.54	+20	36	20.0	975
20	1988	02	12.81963	04	20	19.87	+20	36	19.9	975
20	1988	02	12.82938	04	20	20.37	+20	36	22.4	975
20	1988	02	12.83388	04	20	20.65	+20	36	22.9	975
20	1988	02	13.81883	04	21	22.82	+20	39	05.2	975
20	1988	02	13.82315	04	21	23.10	+20	39	06.3	975
20	1988	02	13.82691	04	21	23.32	+20	39	06.6	975
20	1988	02	13.83211	04	21	23.69	+20	39	06.9	975
20	1988	02	13.83597	04	21	23.94	+20	39	07.2	975
20	1988	03	07.81104	04	51	56.11	+21	45	09.7	975
20	1988	03	07.81551	04	51	56.47	+21	45	12.0	975
20	1988	03	07.82185	04	51	57.08	+21	45	12.5	975
20	1988	03	07.82625	04	51	57.52	+21	45	12.1	975
20	1988	03	08.81378	04	53	30.30	+21	47	55.4	975
20	1988	03	08.81881	04	53	30.74	+21	47	56.0	975
20	1988	03	08.82367	04	53	31.23	+21	47	56.1	975
20	1988	03	08.82798	04	53	31.65	+21	47	56.4	975
29	1988	02	12.84609	07	13	31.05	+30	13	55.8	975
29	1988	02	12.85035	07	13	30.87	+30	13	54.8	975
29	1988	02	12.85538	07	13	30.72	+30	13	54.2	975
29	1988	02	12.85903	07	13	30.58	+30	13	52.9	975
29	1988	02	12.86250	07	13	30.47	+30	13	53.1	975

29		1988 02 13.84897	07	12	59.42	+30	11	01.2	975
29		1988 02 13.85285	07	12	59.35	+30	11	00.2	975
29		1988 02 13.85623	07	12	59.24	+30	11	00.0	975
29		1988 02 13.86126	07	12	59.03	+30	10	58.7	975
29		1988 02 13.86467	07	12	58.96	+30	10	58.1	975
29		1988 03 07.84639	07	10	21.78	+28	46	33.3	975
29		1988 03 07.87173	07	10	21.79	+28	46	32.5	975
39		1987 11 16.82726	23	36	10.50	-11	09	06.9	975
39		1987 11 16.83148	23	36	10.65	-11	09	07.0	975
39		1987 11 16.83762	23	36	10.58	-11	09	05.5	975
39		1987 11 16.84340	23	36	10.70	-11	09	06.2	975
39		1987 11 18.83177	23	36	56.45	-11	04	39.8	975
39		1987 11 18.83692	23	36	56.52	-11	04	39.2	975
39		1987 11 21.81163	23	38	15.26	-10	56	41.6	975
39		1987 11 21.81612	23	38	15.41	-10	56	41.3	975
39		1987 11 21.82135	23	38	15.61	-10	56	41.1	975
39		1987 11 21.82581	23	38	15.68	-10	56	39.4	975
40		1987 11 16.85527	01	49	02.59	+04	43	17.3	975
40		1987 11 16.85949	01	49	02.41	+04	43	16.5	975
40		1987 11 18.85781	01	47	38.72	+04	41	54.7	975
40		1987 11 18.86192	01	47	38.55	+04	41	54.7	975
40		1987 11 21.83814	01	45	46.19	+04	41	17.6	975
40		1987 11 21.84236	01	45	46.06	+04	41	17.6	975
44		1988 03 06.84432	04	55	00.28	+20	39	34.9	975
44		1988 03 06.84845	04	55	00.57	+20	39	36.4	975
44		1988 03 06.85343	04	55	01.15	+20	39	37.2	975
44		1988 03 06.85774	04	55	01.55	+20	39	38.0	975
44		1988 03 07.84916	04	56	29.57	+20	43	58.3	975
44		1988 03 07.85350	04	56	30.02	+20	43	59.6	975
44		1988 03 08.83715	04	57	58.44	+20	48	16.6	975
44		1988 03 08.84123	04	57	58.81	+20	48	17.9	975

978 Conder Brow
G. M. Hurst, 16 Westminster Close, Kempshott Rise, Basingstoke, Hants. RG22 4PP, England
Observer D. G. Buczynski
Measurer D. G. Buczynski
0.55-m reflector
AGK3

1989	VW1	1989 11 06.03958	03	14	08.24	+14	17	10.3	978

* * * * *

ORBITAL ELEMENTS.

Orbital elements have been computed by the following contributors:

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T. Urata, 6-1, Muramatsubara 1 Chome, Shimizu, Shizuoka-Ken 424, Japan
G. V. Williams, Harvard-Smithsonian Center for Astrophysics, 60 Garden Street, Cambridge, MA 02138, U.S.A. (W)

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 Cernis-Kiuchi-Nakamura (1990b)

T 1990 Mar. 17.32636 ET				Nakano
q 1.0683395		(1950.0)	P	Q
	Peri.	100.62248	-0.04091413	-0.98657968
	Node	347.74558	+0.33272018	+0.13572196
e 1.0	Incl.	48.13601	+0.94213763	-0.09077494

From 58 observations 1990 Mar. 17-May 28.

Comet Austin (1989c1)

Epoch 1990 Apr. 19.0 ET = JDE 2448000.5				
T 1990 Apr. 9.96737 ET				Green
q 0.3497747		(1950.0)	P	Q
z -0.0006438	Peri.	61.56882	-0.31715192	-0.46159781
+/-0.0000021	Node	75.23072	+0.22865325	-0.88500314
e 1.0002252	Incl.	58.95528	+0.92039793	+0.06080219

From 100 observations 1989 Dec. 6-1990 June 15, mean residual 0".8.

Periodic Comet Wild 4 (1990a)

Epoch 1990 July 8.0 ET = JDE 2448080.5				
T 1990 July 2.52483 ET				Nakano
q 1.9887263		(1950.0)	P	Q
n 0.16016068	Peri.	170.48786	-0.97821432	+0.20623979
a 3.3581399	Node	21.45862	-0.19446463	-0.87037026
e 0.4077893	Incl.	3.71514	-0.07266533	-0.44712499
P 6.15				

From 143 observations 1990 Jan. 21-May 26, mean residual 0".90.

Comet Levy (1990c)
T 1990 Oct. 24.91340 ET Marsden
q 0.9386037 (1950.0) P Q
Peri. 242.75562 -0.04505113 -0.86848714
Node 138.72179 -0.41900447 +0.46502158
e 1.0 Incl. 131.55733 -0.90686584 -0.17171205
From 43 observations 1990 May 21-June 18.

One-opposition minor planets

Planet	H	Epoch	M	Peri.	Node	Incl.	e	a	Arc	O	N	C
1931 AK	12.0	301230	0.10	18.50	92.50	10.59	0.0975	3.0233	2	3	E	W
1931 AL	15.0	301230	356.11	75.82	38.51	4.79	0.0914	2.1727	2	3	E	W
1984 DR	14.0	840301	62.29	292.33	140.88	5.76	0.1344	2.2494	17	0		W
1987 QF6	14.5	870902	307.40	262.73	169.93	21.93	0.3184	2.3079	33	9		W
1987 RG1	13.5	870902	4.48	347.50	348.34	1.23	0.1861	2.4363	36	0		W
1987 RQ2	14.0	870902	350.37	298.55	59.75	3.03	0.2657	2.5241	24	4		W
1987 SE13	12.5	870902	320.06	305.83	96.47	2.86	0.1904	3.1609	29	0		W
1988 XX2	15.5	881205	355.03	11.55	73.48	2.31	0.1721	2.3130	6	0		N
1988 XY2	15.0	881205	25.47	338.02	59.73	2.64	0.2244	2.2527	2	4	E	N
1989 AE	13.7	890114	44.74	114.69	292.89	3.12	0.1746	2.4860	13	0		N
1989 AF7	13.5	890203	1.24	342.04	155.82	0.54	0.1141	3.1778	31	7	D	N
1989 RL4		890822	275.82	282.36	167.40	5.04	0.1198	2.2582	2	9		W
1989 SC	15.0	890911	41.00	297.59	354.37	6.88	0.2341	2.2188	27	0		W
1989 TR2	12.0	891021	317.33	30.99	51.46	13.84	0.1303	2.9004	50	5		W
1989 TG17	12.0	890911	8.86	175.50	179.32	10.18	0.1058	3.0134	35	0		W
1989 UH1	13.0	891110	18.28	162.26	217.07	6.93	0.1415	2.4087	40	0		W
1989 UP1	14.0	891021	6.64	304.80	81.27	6.72	0.2004	2.3277	25	0		W
1989 US1	13.5	891110	19.77	339.56	31.40	13.85	0.2331	2.6370	38	0		W
1989 UY1	12.5	891110	29.88	157.18	207.74	10.18	0.2112	2.8673	23	6		W
1989 UB3	13.5	891110	342.92	15.52	61.48	5.16	0.2559	2.5089	22	0		W
1989 UN3	12.0	891110	30.46	214.71	150.93	2.30	0.1732	3.2304	23	6		M
1989 US3	12.0	891021	135.58	36.91	214.79	2.95	0.1079	2.7085	9	0		W
1989 UT3	14.6	891110	18.05	319.90	52.50	2.70	0.3100	2.5472	4	6		E
1989 UW5	13.5	891021	347.29	348.99	59.96	4.12	0.2326	2.4456	2	4		W
1989 UZ5	12.5	891021	348.23	7.19	43.42	4.45	0.2801	3.0580	2	4	E	M
1989 UF6	12.0	891021	21.72	230.55	130.40	2.79	0.1348	2.8220	2	5		W
1989 VS1	13.0	891110	355.19	296.70	117.26	3.64	0.2037	2.6269	32	0		W
1989 WC3	14.0	891130	357.23	190.46	240.33	2.77	0.0694	2.1890	31	0		W
1989 WH4	13.5	891110	343.01	297.83	133.26	4.94	0.1500	2.2708	9	7		W
1989 YL2	13.5	900109	25.23	322.42	127.27	6.38	0.1313	3.4204	30	5	D	N
1989 YO3	15.0	900109	264.29	153.00	72.45	1.37	0.0762	2.3402	30	6	D	N
1989 YE4	15.0	900109	357.96	357.72	125.73	5.85	0.1015	2.2837	30	6	D	N
1989 YV4	15.5	900109	12.39	70.38	33.69	1.57	0.1319	2.4007	30	5	D	N
1989 YA5	12.5	891220	289.77	235.62	300.02	19.95	0.1261	3.1009	6	0		M
1989 YB5	11.5	891220	202.40	194.50	63.47	18.83	0.1465	3.0930	6	0		M
1989 YC5	12.0	891220	66.66	44.43	310.12	15.72	0.2746	3.2165	6	0	E	M
1989 YP5	13.0	891220	104.28	211.57	124.63	6.11	0.1374	2.5540	6	6		M
1989 YR5	11.5	891220	172.24	15.78	266.84	11.37	0.1606	2.9526	6	6		M
1989 YB6	13.0	891220	9.70	321.49	126.12	10.40	0.2042	3.0563	6	8		M
1989 YC6	16.0	900109	65.98	223.23	159.83	5.65	0.1715	2.2803	27	8		N
1989 YD6	14.0	891220	314.69	281.67	242.60	6.46	0.1742	2.4568	6	8		M
1989 YE6	15.5	900109	16.47	194.02	255.62	7.36	0.0783	2.2558	27	0		N
1989 YF6	13.0	891220	43.90	238.73	129.32	12.64	0.2786	2.6219	2	0	E	M
1989 YG6	14.0	891220	358.29	274.08	170.76	9.45	0.2580	2.9769	2	8	E	M
1989 YH8	16.0	891220	13.82	306.01	127.31	7.53	0.2814	2.2919	6	6		M
1990 BQ1	11.5	900218	162.60	21.45	307.20	33.80	0.1574	2.7644	65	0		B
1990 DL	13.0	900218	337.31	200.11	337.71	5.31	0.0592	2.2675	23	0		M
1990 DV	13.0	900310	8.92	265.39	248.23	7.04	0.2181	2.7326	20	7		N

1990	DQ1	14.0	900310	334.49	53.25	148.35	14.23	0.2910	2.5260	2	6	E	N
1990	EJ	13.0	900310	341.54	211.68	345.31	8.82	0.1466	3.1151	46	0		W
1990	EV1	14.5	900310	8.39	329.59	188.41	9.17	0.1337	2.3462	52	0		W
1990	ET2	14.0	900310	293.60	64.85	189.82	12.84	0.1570	2.6590	52	0		W
1990	EX2	13.5	900310	168.03	173.08	185.08	12.09	0.1968	2.5741	46	0		W
1990	EZ2	13.0	900310	49.74	284.08	187.69	6.80	0.0906	3.3703	46	0		W
1990	EG3	15.0	900310	52.05	135.44	319.69	5.65	0.2202	2.5713	46	4		M
1990	EM3	12.5	900310	289.00	272.54	334.46	10.16	0.0448	3.0039	46	0		M
1990	EN3	15.0	900310	291.52	39.19	209.46	5.17	0.0863	2.2587	46	0		W
1990	EP3	14.0	900310	315.44	252.79	331.18	5.50	0.0983	3.2034	46	0	D	N
1990	ES3	14.0	900310	241.67	342.50	322.62	4.92	0.1774	2.2515	46	0		W
1990	EN4	14.0	900310	52.68	139.54	336.81	7.96	0.0347	2.9831	46	0		W
1990	EO4	13.5	900310	163.19	182.78	181.47	5.37	0.1573	2.5456	46	0		W
1990	ES4	15.5	900310	306.19	343.73	258.09	1.45	0.1572	2.4235	46	0		W
1990	EU4	15.0	900310	14.29	177.37	337.40	3.97	0.0789	2.3225	46	0		W
1990	EA5	14.5	900310	255.48	351.90	302.57	1.86	0.1672	2.4642	46	0		W
1990	FQ	13.0	900419	29.72	58.64	85.03	13.42	0.2279	2.5466	64	0		W
1990	FW	11.0	900310	207.44	330.13	8.14	23.19	0.0746	3.2229	13	6		M
1990	FV1	15.0	900419	34.71	112.31	29.18	24.26	0.2125	1.8255	65	8		B
1990	GA	15.0	900419	332.84	188.31	50.43	3.26	0.1497	2.1328	43	6		N
1990	GE	15.0	900419	359.57	189.58	355.88	6.59	0.1654	2.3337	13	9		N
1990	GF	13.5	900419	331.94	1.36	214.77	0.99	0.1419	3.0220	13	9		N
1990	GN	15.0	900419	23.96	155.81	356.92	1.77	0.1583	2.3086	13	9		N
1990	HE	13.5	900419	286.82	255.83	34.98	24.78	0.1149	1.9399	26	8		M
1990	HF	13.5	900419	29.78	93.47	53.48	24.54	0.2834	2.3795	4	8		M
1990	HG	13.0	900509	1.08	166.49	48.56	23.77	0.0750	2.2831	25	8		M
1990	HJ	14.5	900419	35.64	103.76	49.43	3.97	0.1555	2.4124	22	5		N
1990	HK	12.5	900509	48.44	321.15	197.42	13.05	0.1154	2.5736	40	8		N
1990	HP	14.0	900509	5.36	187.72	31.60	21.58	0.0507	1.9416	25	8		M
1990	HW	13.5	900509	343.62	153.14	73.08	23.28	0.0596	1.9493	25	8		M
1990	HY	12.0	900509	332.17	160.06	87.42	16.36	0.0821	2.5946	26	8		M
1990	HC1	12.5	900509	283.53	142.30	176.10	25.39	0.2042	2.6099	26	8		M
1990	HH1	12.0	900509	324.61	112.71	161.41	12.78	0.1764	2.6582	27	8		M
1990	HL1	14.5	900509	353.01	1.04	239.65	22.09	0.2737	2.3935	25	0		B
1990	HU1	13.0	900509	285.50	128.96	141.54	14.39	0.0169	2.5671	29	5		W
1990	HW1	12.5	900509	108.08	305.75	135.15	15.25	0.0563	2.5619	29	5		W
1990	HZ1	12.5	900509	45.64	357.36	130.97	15.35	0.1904	3.0759	29	4		W
1990	HA2	12.5	900509	329.52	100.19	126.41	15.50	0.0592	3.0994	29	4		W
1990	HB2	13.5	900509	161.57	257.00	137.29	13.47	0.0332	2.2646	29	4		W
1990	KC	13.0	900509	266.61	190.87	142.42	10.01	0.0794	2.7126	7	5		W
1990	KD	14.5	900509	339.36	162.82	101.14	13.78	0.2465	2.5381	10	8		W
1990	KE	12.5	900509	242.09	173.40	189.25	14.95	0.1208	2.6226	9	6		W
1990	KF	13.0	900509	264.01	209.37	143.12	11.27	0.2114	2.5171	10	7		W
1990	KJ	13.0	900529	335.74	179.96	93.30	24.12	0.1783	2.3010	26	7		M
1990	KR	14.0	900529	345.42	83.67	181.34	11.68	0.2283	2.5384	25	7		M
1990	KC1	13.5	900509	59.42	47.67	110.72	14.49	0.1159	2.5745	9	6		W
1990	KD1	14.0	900509	52.27	345.60	185.67	12.46	0.0928	2.5489	9	6		W
1990	KE1	12.5	900509	209.86	215.24	172.65	13.86	0.0748	3.0868	9	6		W
1990	KF1	14.5	900509	348.15	50.87	197.84	14.45	0.1113	2.5669	9	5		W
1990	KL1	18.0	900529	278.91	267.87	65.48	22.37	0.0887	1.8678	10	8		S
1990	KM1	18.8	900529	311.68	242.49	66.51	20.56	0.1899	2.2050	11	9		S
1990	KN1	17.0	900529	98.24	255.35	239.58	19.51	0.0774	1.9389	14	0		S

1989 AF7 = 1989 CX5 (S. Nakano)
1989 YL2 = 1990 BY2 (S. Nakano)
1989 YO3 = 1990 BA3 (S. Nakano)
1989 YE4 = 1990 BF3 (H. Kaneda, S. Nakano)
1989 YV4 = 1990 BC3 (H. Kaneda, S. Nakano)
1990 EP3 = 1990 GJ (S. Nakano)

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(223) Rosa Obs. 81 M 47.57645 Peri. 59.20139
H 9.95 G 0.15 Opp. 28 n 0.18185146 Node 47.84669
rms res. 0".90 (M-P) 1904-1988 e 0.1309142 Incl. 1.94090

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(260) Huberta Obs. 70 M 110.17044 Peri. 171.22715
H 9.26 G 0.15 Opp. 23 n 0.15450148 Node 165.50177
rms res. 0".96 (M-P) 1931-1989 e 0.1258472 Incl. 6.40108

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(267) Tirza Obs. 47 M 124.41847 Peri. 194.80755
H 10.63 G 0.25 Opp. 18 n 0.21340015 Node 73.52745
rms res. 0".92 (M-P) 1909-1988 e 0.1001700 Incl. 6.00336

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(283) Emma Obs. 81 M 180.23227 Peri. 55.83094
H 8.73 G 0.15 Opp. 24 n 0.18578430 Node 303.91230
rms res. 0".96 (M-P) 1913-1988 e 0.1530877 Incl. 7.99720

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Williams
(307) Nike Obs. 65 M 104.83548 Peri. 323.06225
H 10.00 G 0.15 Opp. 27 n 0.19898964 Node 100.78411
rms res. 1".51 (M-P) 1911-1989 e 0.1441174 Incl. 6.12709

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(321) Florentina Obs. 67 M 32.06146 Peri. 36.32676
H 10.20 G 0.25 Opp. 26 n 0.20089178 Node 40.01246
rms res. 0".99 (M-P) 1913-1989 e 0.0470708 Incl. 2.59137

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(329) Svea Obs. 126 M 69.25414 Peri. 52.51203
H 9.66 G 0.15 Opp. 20 n 0.25282304 Node 177.93797
rms res. 0".97 (M-P) 1905-1989 e 0.0234974 Incl. 15.90165

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(416) Vaticana Obs. 85 M 80.91707 Peri. 197.03948
H 7.87 G 0.26 Opp. 20 n 0.21182285 Node 57.82463
rms res. 0".88 (M-P) 1902-1988 e 0.2213419 Incl. 12.91892

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(422) Berolina Obs. 64 M 124.68817 Peri. 334.90921
H 10.89 G 0.40 Opp. 22 n 0.29606033 Node 8.66946
rms res. 1".03 (M-P) 1906-1989 e 0.2137356 Incl. 4.99293

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Williams
(494) Virtus Obs. 65 M 155.50071 Peri. 211.58080
H 8.94 G 0.09 Opp. 32 n 0.19116014 Node 38.13314
rms res. 1".32 (M-P) 1902-1988 e 0.0629218 Incl. 7.08804

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(533) Sara Obs. 96 M 296.79398 Peri. 28.74379
H 9.71 G 0.25 Opp. 25 n 0.19129608 Node 180.03335
rms res. 1".12 (M-P) 1901-1989 e 0.0391647 Incl. 6.54781

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(570) Kythera Obs. 91 M 109.46968 Peri. 148.28129
H 8.87 G 0.15 Opp. 33 n 0.15463267 Node 224.95208
rms res. 0".99 (M-P) 1905-1989 e 0.1078309 Incl. 1.75357

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Williams
(656) Beagle Obs. 120 M 232.53376 Peri. 335.13035
H 9.64 G 0.25 Opp. 29 n 0.17642822 Node 183.81668
rms res. 1".16 (M-P) 1911-1987 e 0.1349394 Incl. 0.51443

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Williams
(752) Sulamitis Obs. 64 M 118.99038 Peri. 24.27703
H 10.22 G 0.25 Opp. 20 n 0.25509525 Node 84.71153
rms res. 1".35 (M-P) 1917-1986 e 0.0736698 Incl. 5.95049

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Williams
(754) Malabar Obs. 63 M 334.03686 Peri. 300.89047
H 9.18 G 0.15 Opp. 30 n 0.19088934 Node 179.72340
rms res. 1".33 (M-P) 1901-1989 e 0.0536532 Incl. 24.52504

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(826) Henrika Obs. 32 M 192.89492 Peri. 35.24389
H 11.63 G 0.15 Opp. 16 n 0.22030364 Node 230.09212
rms res. 0".94 (M-P) 1921-1989 e 0.2028982 Incl. 7.10593

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(867) Kovacia Obs. 16 M 284.65005 Peri. 73.93175
H 11.0 G 0.25 Opp. 8 n 0.18387311 Node 46.45129
rms res. 0".97 (M-P) 1917-1985 e 0.1308685 Incl. 5.97901

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(876) Scott Obs. 65 M 303.14092 Peri. 206.91421
H 10.95 G 0.25 Opp. 15 n 0.18870568 Node 150.86598
rms res. 0".72 (M-P) 1917-1989 e 0.1128285 Incl. 11.35594

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(890) Waltraut Obs. 40 M 220.94517 Peri. 82.27717
H 10.79 G 0.25 Opp. 12 n 0.18730451 Node 160.58883
rms res. 1".12 (M-P) 1951-1989 e 0.0544511 Incl. 10.85870

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Williams
(1028) Lydina Obs. 96 M 218.57213 Peri. 19.06134
H 9.41 G 0.15 Opp. 27 n 0.15797990 Node 63.88192
rms res. 0".98 (M-P) 1907-1989 e 0.1311540 Incl. 9.47546

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(1071) Brita Obs. 57 M 160.90892 Peri. 26.05033
H 10.10 G 0.15 Opp. 21 n 0.21026132 Node 52.27205
rms res. 1".11 (M-P) 1931-1987 e 0.1103527 Incl. 5.38018

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(1075) Helina Obs. 48 M 106.96537 Peri. 252.98781
H 10.21 G 0.25 Opp. 15 n 0.18788553 Node 100.57537
rms res. 0".96 (M-P) 1930-1989 e 0.1073966 Incl. 11.53792

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(1085) Amaryllis Obs. 49 M 145.62776 Peri. 121.54124
H 9.72 G 0.15 Opp. 23 n 0.17394877 Node 139.68064
rms res. 1".15 (M-P) 1921-1989 e 0.0589859 Incl. 6.64503

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(1102) Pepita Obs. 40 M 268.14867 Peri. 117.17900
H 9.69 G 0.15 Opp. 17 n 0.18383982 Node 216.31905
rms res. 0".99 (M-P) 1928-1989 e 0.1208482 Incl. 15.82074

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(1147) Stavropolis Obs. 43 M 329.27367 Peri. 15.35771
H 12.04 G 0.25 Opp. 14 n 0.28805743 Node 264.75506
rms res. 1".00 (M-P) 1953-1986 e 0.2318932 Incl. 3.88064

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(1201) Strenua Obs. 46 M 115.55913 Peri. 167.81190
H 11.50 G 0.15 Opp. 18 n 0.22211786 Node 202.76223
rms res. 1".01 (M-P) 1907-1989 e 0.0399373 Incl. 6.99047

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(1229) Tilia Obs. 40 M 74.82113 Peri. 154.28696
H 11.04 G 0.15 Opp. 11 n 0.16924315 Node 199.66037
rms res. 0".94 (M-P) 1931-1989 e 0.1485521 Incl. 0.97725

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(1242) Zambesia Obs. 78 M 165.27137 Peri. 52.51204
H 10.31 G 0.15 Opp. 16 n 0.21804679 Node 349.70162
rms res. 1".09 (M-P) 1940-1990 e 0.1920462 Incl. 10.16656

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(1257) Mora Obs. 78 M 36.96884 Peri. 16.62798
H 11.90 G 0.25 Opp. 18 n 0.25107625 Node 213.36456
rms res. 1".04 (M-P) 1928-1987 e 0.0818514 Incl. 3.91681

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(1277) Dolores Obs. 94 M 296.27002 Peri. 46.09984
H 11.12 G 0.15 Opp. 13 n 0.22270856 Node 246.97608
rms res. 0".67 (M-P) 1933-1988 e 0.2411643 Incl. 6.99766

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(1300) Marcelle Obs. 27 M 167.81436 Peri. 330.19190
H 11.11 G 0.15 Opp. 15 n 0.21250604 Node 82.64092
rms res. 0".99 (M-P) 1935-1989 e 0.0085126 Incl. 9.54826

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(1321) Majuba Obs. 74 M 20.43385 Peri. 343.71243
H 10.29 G 0.15 Opp. 22 n 0.19550073 Node 317.64900
rms res. 0".96 (M-P) 1908-1988 e 0.1699415 Incl. 9.51623

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(1340) Yvette Obs. 70 M 215.83991 Peri. 226.20490
H 11.32 G 0.15 Opp. 17 n 0.17459399 Node 345.28282
rms res. 0".99 (M-P) 1938-1989 e 0.1428664 Incl. 0.42036

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(1383) Limburgia Obs. 66 M 126.75025 Peri. 169.47511
H 11.77 G 0.15 Opp. 15 n 0.18175718 Node 190.98334
rms res. 0".91 (M-P) 1923-1990 e 0.1855254 Incl. 0.05033

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(1388) Aphrodite Obs. 36 M 236.35694 Peri. 260.46411
H 11.10 G 0.25 Opp. 14 n 0.18807899 Node 54.08951
rms res. 1".08 (M-P) 1935-1986 e 0.0947509 Incl. 11.18471

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(1404) Ajax Obs. 56 M 156.92718 Peri. 59.92032
H 9.1 G 0.25 Opp. 13 n 0.08125263 Node 332.26607
rms res. 0".89 (M-P) 1936-1989 e 0.1132728 Incl. 18.02338

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(1429) Pemba Obs. 27 M 0.93676 Peri. 296.84905
H 12.1 G 0.25 Opp. 10 n 0.24196747 Node 47.44486
rms res. 0".94 (M-P) 1937-1982 e 0.3408386 Incl. 7.72278

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(1458) Mineura Obs. 57 M 228.93487 Peri. 100.11647
H 11.64 G 0.15 Opp. 17 n 0.23141031 Node 181.22333
rms res. 0".98 (M-P) 1937-1988 e 0.1822658 Incl. 12.50812

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(1466) Mundleria Obs. 31 M 131.33460 Peri. 75.07203
H 12.9 G 0.25 Opp. 10 n 0.26899333 Node 154.53206
rms res. 0".96 (M-P) 1938-1987 e 0.1579154 Incl. 13.13291

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(1502) Arenda Obs. 54 M 141.88345 Peri. 272.00668
H 11.6 G 0.25 Opp. 19 n 0.21815386 Node 204.17611
rms res. 1".03 (M-P) 1906-1987 e 0.0865020 Incl. 4.08505

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(1508) Kemi Obs. 41 M 59.92561 Peri. 92.38433
H 11.90 G 0.25 Opp. 7 n 0.21399175 Node 14.20011
rms res. 1".22 (M-P) 1935-1984 e 0.4200313 Incl. 28.68435

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(1530) Rantaseppa Obs. 28 M 155.01764 Peri. 84.34369
H 13.4 G 0.25 Opp. 5 n 0.29237694 Node 285.47072
rms res. 1".15 (M-P) 1938-1982 e 0.1993627 Incl. 4.41770

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(1588) Descamisada Obs. 39 M 113.49947 Peri. 222.00342
H 11.0 G 0.25 Opp. 14 n 0.18684454 Node 98.50373
rms res. 0".92 (M-P) 1951-1986 e 0.0640685 Incl. 11.27689

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(1643) Brown Obs. 36 M 329.78556 Peri. 88.11861
H 12.6 G 0.25 Opp. 12 n 0.25089723 Node 288.10910
rms res. 0".88 (M-P) 1933-1990 e 0.1995735 Incl. 3.52557

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(1698) Christophe Obs. 77 M 42.17177 Peri. 117.92979
H 11.1 G 0.25 Opp. 14 n 0.17560469 Node 26.97718
rms res. 0".87 (M-P) 1934-1989 e 0.1143023 Incl. 1.51677

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(1708) Polit Obs. 24 M 76.77870 Peri. 247.14896
H 11.6 G 0.25 Opp. 10 n 0.19814692 Node 192.48984
rms res. 0".95 (M-P) 1929-1988 e 0.3053011 Incl. 6.06679

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(1716) Peter Obs. 22 M 168.36524 Peri. 315.61233
H 11.9 G 0.25 Opp. 11 n 0.21821412 Node 243.29357
rms res. 1".18 (M-P) 1930-1985 e 0.0936311 Incl. 5.72539

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(1720) Niels Obs. 70 M 137.14706 Peri. 308.43687
H 13.2 G 0.25 Opp. 15 n 0.30451338 Node 127.33971
rms res. 0".86 (M-P) 1935-1990 e 0.1042651 Incl. 0.73205

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5				Bowell	
(1734) Zhongolovich	Obs. 38	M	157.71934	Peri.	185.85871
H 11.4 G 0.25	Opp. 9	n	0.21304273	Node	181.72013
rms res. 0".95 (M-P)	1937-1988	e	0.2310339	Incl.	8.34164
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5				Bowell	
(1805) Dirikis	Obs. 57	M	292.56978	Peri.	87.29118
H 11.2 G 0.25	Opp. 12	n	0.17821857	Node	78.63208
rms res. 0".85 (M-P)	1955-1989	e	0.1277520	Incl.	2.52179
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5				Bowell	
(1806) Derice	Obs. 29	M	67.27382	Peri.	193.08988
H 12.7 G 0.25	Opp. 9	n	0.29470435	Node	270.62523
rms res. 1".04 (M-P)	1927-1989	e	0.1067355	Incl.	3.83967
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5				Bowell	
(1933) Tinchen	Obs. 37	M	159.69171	Peri.	213.72989
H 13.3 G 0.25	Opp. 7	n	0.27316892	Node	164.46216
rms res. 0".98 (M-P)	1956-1985	e	0.1238239	Incl.	6.89168
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5				Bowell	
(1938) Lausanna	Obs. 64	M	321.42247	Peri.	64.32620
H 12.7 G 0.25	Opp. 17	n	0.29471190	Node	171.22497
rms res. 0".94 (M-P)	1934-1989	e	0.1588802	Incl.	3.33654
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5				Bowell	
(1962) Dunant	Obs. 35	M	16.15909	Peri.	5.63813
H 12.2 G 0.25	Opp. 10	n	0.17191486	Node	15.37099
rms res. 0".98 (M-P)	1927-1989	e	0.2174651	Incl.	1.59135
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5				Bowell	
(2203) 1935 SQ1	Obs. 89	M	15.66593	Peri.	325.01962
H 12.01 G 0.15	Opp. 7	n	0.17918878	Node	50.14645
rms res. 0".95 (M-P)	1935-1987	e	0.1739701	Incl.	1.65144
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5				Bowell	
(2232) Altaj	Obs. 30	M	339.74604	Peri.	90.36289
H 12.0 G 0.25	Opp. 8	n	0.22626116	Node	218.09789
rms res. 1".00 (M-P)	1951-1987	e	0.1426445	Incl.	3.69677
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5				Bowell	
(2269) Efremiana	Obs. 21	M	329.43977	Peri.	42.72873
H 10.6 G 0.25	Opp. 6	n	0.17839952	Node	66.44081
rms res. 0".86 (M-P)	1929-1984	e	0.0862213	Incl.	15.39615
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5				Bowell	
(2385) Mustel	Obs. 22	M	136.69050	Peri.	190.11012
H 13.4 G 0.25	Opp. 8	n	0.29328590	Node	152.76364
rms res. 0".60 (M-P)	1915-1989	e	0.1604671	Incl.	4.08025
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5				Bowell	
(2430) Bruce Helin	Obs. 21	M	243.07104	Peri.	309.12392
H 12.2 G 0.25	Opp. 6	n	0.27147604	Node	45.44877
rms res. 1".02 (M-P)	1976-1987	e	0.2155981	Incl.	23.41602
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5				Bowell	
(2548) Leloir	Obs. 36	M	189.04924	Peri.	290.20158
H 12.7 G 0.25	Opp. 7	n	0.23077642	Node	299.27556
rms res. 1".00 (M-P)	1966-1988	e	0.1009977	Incl.	18.16876

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(2753) Duncan Obs. 38 M 143.65297 Peri. 124.50641
H 11.81 G 0.15 Opp. 9 n 0.21148762 Node 344.27494
rms res. 1".00 (M-P) 1966-1987 e 0.0365809 Incl. 6.86855

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(3055) Annapavlova Obs. 31 M 296.41657 Peri. 63.81702
H 12.6 G 0.25 Opp. 5 n 0.24044913 Node 2.89103
rms res. 1".04 (M-P) 1976-1986 e 0.1065968 Incl. 15.00911

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(3132) Landgraf Obs. 64 M 19.29954 Peri. 258.71840
H 11.72 G 0.15 Opp. 10 n 0.17610408 Node 113.14043
rms res. 0".67 (M-P) 1929-1989 e 0.1138681 Incl. 4.47110

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(3280) Gretry Obs. 21 M 308.38191 Peri. 359.64556
H 12.4 G 0.25 Opp. 7 n 0.23758379 Node 317.00975
rms res. 1".08 (M-P) 1933-1989 e 0.1755724 Incl. 2.21834

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(4027) 1982 DN Obs. 21 M 95.23112 Peri. 15.83839
H 13.6 G 0.25 Opp. 5 n 0.27181513 Node 193.35041
rms res. 0".87 (M-P) 1957-1989 e 0.1652140 Incl. 1.78315

(4509)* A917 SG = 1949 QZ1 = 1949 SX = 1972 TW4 = 1986 VG6
Discovered 1917 Sept. 23 by S. Beljavskij at Simeis.
Id. A. Patry (MPC 1450), O. Kippes (d, NAZ 12, 22), T. Kobayashi (MPC 15872)
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Nakano
M 337.56689 (1950.0) P Q
n 0.21474859 Peri. 174.69189 +0.99964894 +0.02281955
a 2.7617381 Node 184.07399 -0.02520091 +0.97579138
e 0.2727012 Incl. 10.92421 +0.00818030 +0.21750964
P 4.59 H 12.1 G 0.25
Residuals in seconds of arc (or two decimals in units of degrees)

170923	094	1.1-	0.1+	490831	094	(88.9+	41.7+)X	861106	688	0.9+	0.9+
170925	094	(7.2+	2.1-)	490921	760	2.2+	0.4+	900327	801	0.2+	0.8+
171011	094	1.0-	0.6+	490921	760	1.9+	0.4-	900327	801	0.2-	0.7+
171015	094	0.3+	0.6+	721006	095	3.1-	2.4-	900528	801	0.3-	0.4+
490825	094	(0.00-	0.03+)X	861106	688	0.1+	0.8+	900528	801	0.3-	0.5+

(4510)* 1930 XK = 1966 UC1 = 1977 TY3 = 1987 MJ1 = 1988 VP2
Discovered 1930 Dec. 13 by C. W. Tombaugh at the Lowell Observatory.
Id. T. Kobayashi (MPC 14778)
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Nakano
M 256.38320 (1950.0) P Q
n 0.27196379 Peri. 337.92797 +0.94480888 +0.32756022
a 2.3593661 Node 2.97327 -0.27924654 +0.81530520
e 0.1399488 Incl. 7.04486 -0.17134043 +0.47747433
P 3.62 H 13.1 G 0.25
Residuals in seconds of arc

301213	690	0.2-	0.7-	301216	690	4.0+	1.0-	771010	095	3.3-	0.4-
301214	690	1.8-	0.7-	661018	095	(7.7-	8.2-)	771013	330	1.4-	0.5-

870627	675	3.0+	2.1+		900316	046	1.1-	0.8-		900322	801	0.4+	0.7+
870629	675	(6.3+	3.9+)		900316	046	1.0+	0.3-		900322	801	0.7+	0.6+
881112	675	1.2+	0.3-		900318	046	2.2-	0.0		900329	801	0.6+	0.3+
881113	675	0.1-	2.7+		900318	046	0.8+	0.4-		900329	801	0.5+	0.2+
881201	054	1.6+	3.6+		900319	046	0.5-	0.5-					
900227	801	1.1-	3.0+		900319	046	0.4-	0.1-					

(4511)* 1935 SP1 = 1935 UK = 1975 ER3 = 1987 SA1

Discovered 1935 Sept. 28 by H. van Gent at Johannesburg.

Id. H. Hirose (d, MPC 834), B. G. Marsden (MPC 12442), L. D. Schmadel (ibid.)

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Marsden

M	334.52005		(1950.0)	P	Q
n	0.26526015	Peri.	302.91563	+0.54096887	+0.84104174
a	2.3989510	Node	359.82002	-0.58268894	+0.37375090
e	0.2537912	Incl.	22.74553	-0.60648683	+0.39109981
P	3.72	H	12.2	G 0.25	

Residuals in seconds of arc

350928	078	(2.5+	1.0+)	870926	809	0.2+	0.0	871002	809	0.2-	0.1+
351001	078	0.6+	1.5-	870926	809	0.1+	0.0	871002	809	0.4-	0.1-
351015	078	0.2-	0.9+	870927	809	0.2+	0.5+	871002	809	0.2-	0.3-
351018	078	(4.6+	29.7-)X	870927	809	0.3+	0.4+	871002	809	0.2-	0.6-
351027	078	(0.6+	0.1+)	870927	809	0.3+	0.4+	871003	809	0.2-	0.6-
750314	095	0.3-	1.3-	870928	809	0.0	0.1+	871003	809	0.0	0.5-
870902	095	1.1+	0.5-	870928	809	0.1+	0.1-	871003	809	0.2+	0.5-
870903	095	0.2+	1.5+	870928	809	0.1+	0.3-	871004	809	0.3-	0.2-
870920	095	1.1+	0.1-	870930	675	1.5-	0.1-	871004	809	0.2-	0.3+
870922	095	0.9-	0.1+	870930	809	0.1-	0.1-	871004	809	0.1+	0.2+
870924	809	0.4+	0.3+	870930	809	0.2+	0.0	900227	801	0.4-	0.2+
870924	809	0.7+	0.4+	870930	809	0.5+	0.1-	900227	801	0.1+	0.2+
870924	809	1.0+	0.6+	870930	809	0.1-	0.0	900322	801	0.0	0.2+
870924	675	1.7-	0.5+	870930	809	0.0	0.0	900322	801	0.2+	0.2+
870926	688	1.1-	0.1-	871001	809	0.1-	0.2-	900327	801	0.2-	0.2-
870926	688	0.0	0.9-	871002	809	0.1-	0.2-	900327	801	0.3-	0.2-
870926	809	0.6+	0.0	871002	809	0.1-	0.3-				

(4512)* 1939 BM = 1939 CE1 = 1979 WR7 = 1987 OE1

Discovered 1939 Jan. 20 by Y. Vaisala at Turku.

Id. O. Kippes (d, MPC 1375), T. Kobayashi (MPC 14182)

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Nakano

M	91.38527		(1950.0)	P	Q
n	0.21399139	Peri.	355.76812	-0.42343598	-0.89238642
a	2.7682492	Node	119.21797	+0.83629122	-0.45127000
e	0.2049174	Incl.	10.29912	+0.34830871	-0.00136481
P	4.61	H	11.8	G 0.25	

Residuals in seconds of arc

390120	062	0.2-	0.8-	870728	010	1.9-	1.0-	900327	054	0.6+	0.3-
390120	062	0.2+	0.6-	900123	801	0.1-	1.0-	900327	054	0.7-	0.2-
390208	062	1.5-	0.4+	900123	801	0.4+	0.8-	900328	801	0.1-	0.6+
390212	062	0.7+	0.4+	900128	801	0.2-	0.6+	900328	801	0.1+	0.7+
390212	062	0.7+	1.3+	900128	801	0.3-	0.4+	900329	657	0.3+	1.4-
791117	095	0.3+	0.8-	900322	801	0.1+	0.6+	900329	657	0.2-	0.3-
870728	010	1.7+	0.4+	900322	801	0.0	0.6+				
870728	010	0.3+	0.1-	900327	657	0.3-	1.0-				

(4513)* 1971 QW1 = 1989 CS3

Discovered 1971 Aug. 30 by T. M. Smirnova at the Crimean Astrophysical Observatory.

Id. S. Nakano (MPC 14470)

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Nakano

M	184.83172	(1950.0)	P	Q
n	0.18752351	Peri. 199.42985	+0.66855471	-0.73899590
a	3.0229588	Node 208.79972	+0.70307986	+0.66455040
e	0.0821293	Incl. 9.94319	+0.24230828	+0.11071511
P	5.26	H 11.7	G 0.25	

Residuals in seconds of arc

710830	095	0.1-	3.5+	871002	095	0.2+	0.8-	890207	809	0.6+	0.1-
710916	095	0.5-	2.9+	890205	809	0.6-	0.4+	900325	801	0.3+	0.4+
710927	095	(1.0+	10.7+)	890205	809	0.5+	0.4+	900328	801	0.1+	0.5+
711011	095	0.8-	1.5-	890205	809	0.4-	0.9+	900328	801	0.0	0.4+
870918	095	0.7+	2.2-	890207	809	0.4+	0.5+				
870920	095	0.4-	0.2+	890207	809	0.2-	0.2+				

(4514)* 1972 HX = 1972 KA = 1982 BR8 = 1986 CE = 1986 ER1

Discovered 1972 Apr. 19 by T. M. Smirnova at the Crimean Astrophysical Observatory.

Id. B. G. Marsden (d, MPC 9064), H. Oishi (MPC 13599)

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Oishi

M	77.22454	(1950.0)	P	Q
n	0.27434519	Peri. 88.09279	-0.94154832	+0.31064831
a	2.3456929	Node 109.98730	-0.33684102	-0.87387275
e	0.1507062	Incl. 7.97129	+0.00498933	-0.37395728
P	3.59	H 13.5	G 0.25	

Residuals in seconds of arc

720419	095	1.2+	1.7+	860210	675	0.1-	0.8+	900427	801	0.1+	0.1-
720419	095	(5.9+	6.2+)	860210	675	(3.5-	3.5-)	900525	801	0.1-	0.0
720517	095	0.9-	1.1-	860306	688	0.2-	0.1-	900525	801	0.0	0.0
820119	095	0.8+	0.1-	860306	688	0.2+	1.2-				
820120	095	0.9-	0.2+	900427	801	0.1-	0.1-				

(4515)* 1973 SD6 = 1962 WU = 1971 DQ = 1986 EP

Discovered 1973 Sept. 28 by N. S. Chernykh at the Crimean Astrophysical Observatory.

Id. T. Kobayashi (MPC 15874)

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Nakano

M	139.70591	(1950.0)	P	Q
n	0.26281738	Peri. 102.47396	+0.17133907	-0.98512575
a	2.4137928	Node 337.64765	+0.89002123	+0.16044916
e	0.1526114	Incl. 1.96580	+0.42249867	+0.06150876
P	3.75	H 13.3	G 0.25	

Residuals in seconds of arc

621126	760	0.9+	0.8+	730925	675	0.1-	0.1+	731005	675	0.0	0.8+
621126	760	1.0-	0.9+	730928	095	(3.7+	1.9+)	731005	675	0.9-	0.3-
710218	095	0.5-	0.1-	730929	675	0.2+	0.3-	860305	688	1.0+	1.3-
730919	675	0.0	0.9-	730929	675	1.5+	0.6-	860305	688	1.7-	0.5-
730919	675	0.9+	1.6-	730930	675	0.6-	0.3+	900326	801	0.3-	0.6-
730920	675	0.2+	1.4-	730930	675	0.9-	0.1-	900326	801	0.4-	0.6-
730924	675	0.2-	0.5-	731004	675	1.4+	0.5-	900329	801	0.3-	1.1-
730924	675	0.4-	0.3+	731004	675	1.2+	1.3-	900329	801	0.2-	1.2-

(4516)* 1973 SN6 = 1976 GE3 = 1982 RK2 = 1985 FQ1 = 1987 SH12

Discovered 1973 Sept. 28 by N. S. Chernykh at the Crimean Astrophysical Observatory.

Id. S. Nakano (MPC 14944)

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Nakano

M	136.75776	(1950.0)	P	Q
n	0.21289415	Peri. 303.46539	-0.46807509	-0.88365321
a	2.7777526	Node 174.42653	+0.83538850	-0.44539579
e	0.0098587	Incl. 4.67720	+0.28815233	-0.14415129
P	4.63	H 12.5	G 0.25	

Residuals in seconds of arc

730919	675	0.1-	0.3-	730930	675	1.0+	0.1+	760405 095	2.6- 1.7-
730919	675	1.6-	0.6-	730930	675	0.1-	0.3-	820912 095	2.4+ 3.3+
730920	675	0.2-	0.6+	731004	675	1.1-	1.0+	850322 688	1.4+ 1.0-
730924	675	0.3-	0.4-	731004	675	0.4-	1.1+	850322 688	0.3- 0.4+
730924	675	0.6-	0.6-	731005	675	1.3+	0.0	870921 071	0.4+ 1.8-
730925	675	2.2-	3.0-	731005	675	0.8+	0.3-	870921 071	1.1+ 2.3-
730925	675	1.2+	0.1-	760401	095	1.5+	0.5-	900330 095	2.7- 0.7-
730928	095	(6.8+	3.1+)	760402	095	0.4+	1.0-	900427 801	0.0 0.8+
730929	675	0.6+	1.2-	760404	095	0.5+	2.1-	900427 801	0.0 0.7+

(4517)* 1975 SV = 1975 VJ2 = 1977 DY4 = 1987 HZ

Discovered 1975 Sept. 30 by S. J. Bus at Palomar.

Id. T. Kobayashi (MPC 13474)

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Nakano

M	316.16990	(1950.0)	P	Q
n	0.31105483	Peri. 283.94857	+0.71391669	+0.69917406
a	2.1573044	Node 31.71785	-0.61086510	+0.64870860
e	0.1750676	Incl. 4.19438	-0.34229634	+0.30055414
P	3.17	H 13.5	G 0.25	

Residuals in seconds of arc

750930	675	0.6-	3.4-	870423	046	2.5-	1.8-	900322 801	0.0 0.5+
751001	675	0.5+	2.7-	870423	046	0.9-	2.0-	900322 801	0.5+ 0.5+
751002	675	0.6+	2.1-	870424	046	0.0	0.3+	900325 801	0.1+ 0.5+
751102	095	1.8+	4.4+	870424	046	0.6-	0.1-	900325 801	0.0 0.5+
751107	095	(0.1+	9.2+)	870427	046	(5.2+	1.5-)	900330 095	0.4- 0.2-
770218	381	0.3-	1.9-	870427	046	2.7+	0.9-	900330 095	(3.8- 1.5-)
770219	381	0.5-	0.9-	900320	095	(7.4-	0.5-)		
770219	381	0.8-	0.7-	900320	095	(5.2-	1.2+)		

(4518)* 1976 GP3 = 1976 HD1 = 1976 JO = 1952 QP = 4002 T-3

Discovered 1976 Apr. 1 by N. S. Chernykh at the Crimean Astrophysical Observatory.

Id. H. Oishi (d, JAM 2005), S. Nakano (MPC 12695), K. Hurukawa (unpublished)

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Nakano

M	355.34516	(1950.0)	P	Q
n	0.27944219	Peri. 97.86022	-0.07988558	+0.99645284
a	2.3170820	Node 167.46561	-0.95581938	-0.06904113
e	0.0989737	Incl. 7.00251	-0.28289150	-0.04811512
P	3.53	H 13.8	G 0.25	

Residuals in seconds of arc

520828	024	1.0+	0.7-	771011	675	0.8+	1.0-	900320 095	2.2- 0.8-
520828	024	0.2-	0.6+	771011	675	0.2+	1.2-	900325 801	0.9+ 0.3-
760401	095	1.6+	1.3+	771012	675	0.2-	0.6-	900325 801	0.8+ 0.4-
760402	095	2.5-	2.1-	771012	675	0.1+	0.8-	900326 801	0.7+ 0.6-
760423	095	1.6-	0.5+	771016	675	0.9-	0.7+	900326 801	0.6+ 0.6-
760503	095	0.9+	0.2-	771016	675	1.3-	1.1+	900330 095	0.5+ 1.4+
771007	675	1.1+	0.4-	900320	095	(3.3-	1.9-)	900330 095	0.3- 0.6-

(4519)* 1976 YO4 = 1969 QL = 1971 DN = 1979 SX7 = 1979 TK1

Discovered 1976 Dec. 18 by N. S. Chernykh at the Crimean Astrophysical Observatory.

Id. S. Nakano (MPC 13684), N. S. Chernykh (d, ibid.)

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Nakano
M 162.83417 (1950.0) P Q
n 0.30132456 Peri. 185.36400 +0.97602189 +0.21698896
a 2.2034998 Node 162.07553 -0.19755993 +0.91630053
e 0.0598609 Incl. 3.21034 -0.09138565 +0.33661421
P 3.27 H 13.4 G 0.25
Residuals in seconds of arc

690821	095	1.5+	0.4+	790923	095	2.2- 0.8+	891121	095 (4.4+ 3.1+)
710218	095	0.3-	1.3+	791014	095	1.7- 0.1+	891121	095 1.4- 0.1+
761218	095	0.9-	0.6-	891026	095	0.5+ 1.9-		
761220	095	1.8+	0.6+	891026	095	2.8+ 0.7+		

(4520)* 1977 QJ3 = 1960 WC = 1989 AW1

Discovered 1977 Aug. 22 by N. S. Chernykh at the Crimean Astrophysical Observatory.

Id. T. Kobayashi (MPC 14343)
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Nakano
M 297.78377 (1950.0) P Q
n 0.28741171 Peri. 257.70898 +0.98699045 +0.14263709
a 2.2740486 Node 94.05650 -0.10266021 +0.91423989
e 0.2203997 Incl. 4.26553 -0.12373655 +0.37923619
P 3.43 H 12.9 G 0.25
Residuals in seconds of arc

601117	760	0.3-	1.0+	890125	046	0.6- 0.9+	890131	046 0.8- 2.0-
601117	760	0.3+	1.0-	890126	046	0.0 1.2-	890201	046 2.3- 2.1+
770822	095	1.3+	0.8-	890126	046	0.3- 0.1+	890201	046 (0.4- 5.7+)
770824	095	1.0+	0.9+	890127	046	1.4- 0.6-	890203	400 1.8+ 1.3+
770907	095	0.3-	0.9-	890127	046	0.6- 1.2-	890203	400 (3.6+ 3.9+)
771003	095	1.5-	0.2+	890129	400	(1.3- 3.1+)	900427	801 0.6+ 0.3+
771006	095	0.0	0.6-	890129	400	1.7+ 2.4+	900427	801 0.4- 0.2+
890113	400	(3.1-	5.3+)	890129	400	(0.5- 4.6+)	900520	801 0.3- 0.5-
890113	400	(3.4-	1.4+)	890130	400	0.1+ 0.0	900520	801 0.1- 0.6-
890113	400	(4.4-	5.1+)	890130	400	1.2+ 1.2-	900525	801 0.2- 0.4-
890125	046	0.3-	1.2-	890131	046	1.4+ 1.0-		

(4521)* 1979 FU2 = 1976 YN6 = 1982 YH1

Discovered 1979 Mar. 29 by N. S. Chernykh at the Crimean Astrophysical Observatory.

Id. F. N. Bowman (k, MPC 8908), T. Furuta (k, ibid.), O. Kippes (k, ibid.), B. G. Marsden (ibid), S. Nakano (ibid.)
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Marsden
M 342.76792 (1950.0) P Q
n 0.17901808 Peri. 218.95989 -0.07210083 +0.98028294
a 3.1179666 Node 47.74408 -0.84155940 +0.03921063
e 0.0862563 Incl. 14.39261 -0.53533097 -0.19366951
P 5.51 H 11.5 G 0.25
Residuals in seconds of arc

761220	095	(6.9+	5.1-)	830106	095	0.5- 0.7-	900322	801 0.4- 0.3-
790329	095	0.1-	1.4+	830109	095	0.2- 0.9+	900326	801 0.0 0.4-
790425	095	1.3+	1.3+	830114	095	0.8- 0.5+	900326	801 0.0 0.4-
790430	095	0.1+	0.7-	871119	801	0.4- 0.5+	900423	801 0.3- 0.0
821223	095	(5.4+	4.6+)	871123	033	0.6- 0.5+	900423	801 0.1- 0.2-
821223	095	(3.1-	0.2-)	871123	033	0.6+ 0.1-		
821224	095	1.6+	1.2-	900322	801	0.3- 0.2-		

(4522)* 1980 BM = 1980 BK4 = 1980 CC = 1952 US1 = 1952 VH = 1960 MD
= 1978 TR1 = 1982 OQ

Discovered 1980 Jan. 22 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory.

Id. B. G. Marsden (d, MPC 9203), K. Ichikawa (MPC 14015), H. Oishi (ibid.)

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Ichikawa

M	274.44591	(1950.0)	P	Q
n	0.22595904	Peri. 227.92406	+0.98679519	-0.00401701
a	2.6696207	Node 131.62465	+0.04600733	+0.96546797
e	0.2056067	Incl. 12.51035	-0.15530156	+0.26049081
P	4.36	H 11.7	G 0.25	

Residuals in seconds of arc

521022	839	2.1+	1.7-	800122	095	1.3-	1.6-	900423	801	0.3-	0.0
521022	839	1.6+	2.4-	800211	688	0.4+	1.3-	900424	801	0.4-	0.1-
521113	839	2.1-	1.5+	800211	688	0.8+	1.9-	900424	801	0.4-	0.1-
521113	839	0.1-	0.4+	820721	372	(1.9+	3.9-)	900520	801	0.2+	0.3-
600624	839	0.0	0.4-	820721	372	1.8+	2.4-	900520	801	0.4+	0.2-
600624	839	1.5-	0.2-	890212	400	(4.8+	1.7+)	900525	801	0.3+	0.4-
781003	095	1.5-	0.7+	890212	400	(3.7+	3.1+)	900525	801	0.2+	0.3-
800122	688	1.1-	0.9-	890212	400	1.4+	2.3+				
800122	688	(5.0-	1.3-)	900423	801	0.7-	0.1-				

(4523)* 1981 DM1 = 1979 YR3

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

Id. T. Kobayashi (MPC 15878), L. D. Schmadel (ibid.), K. Hurukawa (ibid.)

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Nakano

M	80.69224	(1950.0)	P	Q
n	0.22412018	Peri. 316.45657	-0.96514316	-0.24368684
a	2.6842033	Node 209.83483	+0.25982979	-0.93592741
e	0.1360014	Incl. 11.06417	-0.03141907	-0.25427663
P	4.40	H 12.3	G 0.25	

Residuals in seconds of arc

791218	095	0.3+	1.2-	810312	413	0.6-	0.1-	860609	046	0.4+	1.2-
810209	413	1.1-	0.5+	810312	413	0.1-	1.0-	860609	046	0.3-	1.4-
810212	413	0.9-	0.6-	810406	413	0.2+	0.1-	900221	801	0.4+	0.2+
810228	413	1.0-	0.3-	810406	413	0.3+	0.8-	900221	801	0.3+	1.5+
810228	413	0.5-	1.1-	810408	413	0.5+	0.8+	900326	801	0.2-	0.6+
810306	413	0.5-	0.5+	810408	413	0.8+	0.2+	900326	801	0.8+	1.1+
810306	413	0.6-	1.3-	810409	413	0.6+	0.5+	900327	801	0.5-	0.4+
810308	413	0.0	0.4+	810409	413	0.6+	0.2-	900327	801	0.4-	0.2+
810308	413	0.7+	0.1-	810501	413	0.7+	0.7-				

(4524)* 1981 RV4 = 1935 SN = 1935 SC1 = 1973 FH = 1988 RR6

Discovered 1981 Sept. 8 by L. V. Zhuravleva at the Crimean Astrophysical Observatory.

Id. D. W. E. Green (MPC 14188)

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Green

M	235.87673	(1950.0)	P	Q
n	0.27889577	Peri. 149.02748	+0.82674821	+0.56252521
a	2.3201075	Node 176.71443	-0.53860107	+0.79518467
e	0.1334586	Incl. 7.28350	-0.16246936	+0.22637740
P	3.53	H 13.2	G 0.25	

Residuals in seconds of arc

350921	078	(78.5+	57.5-)X	810928	095	0.6+	1.2-	880907	809	0.1+	0.5-
350921	094	(37.0-	8.0+)X	811005	095	1.1+	1.1+	880907	809	0.4+	0.3-
350929	078	(60.9+	96.1-)X	811026	095	1.9-	0.6+	880907	809	0.8+	0.3-
730329	805	0.0	0.5+	880810	688	0.4+	0.1-	880908	809	0.7+	0.2+
810908	095	0.5+	1.2-	880810	688	1.1+	0.0	880908	809	1.0+	0.3+

880908 809 1.0+ 0.3+ 880914 809 (3.9- 0.5-) 900221 801 0.2+ 0.2-
880909 809 0.2+ 0.4- 880914 809 (3.8- 0.2-) 900221 801 0.5+ 0.1+
880909 809 0.3+ 0.7- 880915 807 (2.4+ 0.7-) 900227 801 0.1- 0.6-
880909 809 0.4+ 0.7- 880919 809 1.2- 0.3+ 900227 801 0.5- 0.2+
880911 809 1.9- 0.7+ 880919 809 1.6- 0.2+ 900327 801 0.1+ 0.1-
880911 809 1.8- 0.9+ 880919 809 1.4- 0.1+ 900327 801 0.1- 0.3-
880911 809 1.7- 0.9+ 880920 809 0.7+ 0.4+ 900329 801 0.0 0.2+
880914 807 1.3+ 0.6- 880920 809 0.5+ 0.2+ 900329 801 0.0 0.3+
880914 809 (4.0- 0.5-) 880920 809 0.4+ 0.0

(4525)* 1982 JB3 = 1951 YF = 1988 XX

Discovered 1982 May 15 by E. F. Helin, E. M. Shoemaker and P. D. Wilder at Palomar.

Id. D. W. E. Green (MPC 14188)

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Green

M 130.53654		(1950.0)	P	Q
n 0.23848428	Peri.	29.75247	-0.19896928	-0.95423190
a 2.5753102	Node	72.49430	+0.84652576	-0.28214016
e 0.1970214	Incl.	13.53976	+0.49376651	+0.09918876
P 4.13	H	12.8	G 0.25	

Residuals in seconds of arc

511222 711 2.5- 0.9- 881113 675 2.4+ 1.3- 900326 801 0.3- 0.4+
511222 711 0.6+ 3.2+ 881206 675 0.2+ 0.9- 900326 801 0.2- 0.3+
820515 675 0.7+ 0.2- 881207 675 0.6- 0.8- 900424 801 0.4+ 1.1+
820516 675 0.9+ 0.1+ 900322 801 0.5- 0.3+ 900424 801 0.4+ 1.2+
820516 675 0.5- 0.2+ 900322 801 0.4- 0.5+ 900519 675 2.4- 0.5+
820517 675 0.5- 0.2- 900323 675 1.6+ 1.6- 900519 675 0.5+ 1.4+
820518 675 0.5+ 0.4- 900323 675 0.8+ 1.3- 900522 675 0.8- 1.6-
881110 675 0.8+ 1.7- 900325 675 1.2- 2.1- 900522 675 0.8- 2.4-
881112 675 1.1+ 1.9- 900325 675 1.5- 1.7-

(4526)* 1982 KN1 = 1973 FR1 = 1986 HN

Discovered 1982 May 22 by H. Kosai and K. Hurukawa at Kiso.

Id. W. Landgraf (k, MPC 10828), C. M. Bardwell (ibid.)

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bardwell

M 18.18451		(1950.0)	P	Q
n 0.23100429	Peri.	101.69209	-0.89311956	+0.38035851
a 2.6306073	Node	101.03881	-0.44459936	-0.82753396
e 0.1145532	Incl.	14.16185	+0.06832908	-0.41293455
P 4.27	H	12.6	G 0.25	

Residuals in seconds of arc

730328 095 (8.3- 1.6-) 820523 095 0.6- 3.1- 900127 801 0.0 0.7-
730401 095 0.3- 3.6+ 820524 381 0.4+ 0.4- 900226 801 0.1+ 0.3-
730403 095(14.7- 6.1-) 820526 095 2.8- 1.0- 900302 657 0.1+ 2.6-
730404 095 2.4+ 5.1+ 860429 675 2.2+ 1.4+ 900302 657 1.2- 3.3-
820513 095 (4.9+ 4.2+) 860503 675 1.1- 0.3- 900326 801 0.2- 0.1+
820515 095 0.3- 3.3+ 860503 675 0.8- 0.1- 900326 801 0.2- 0.0
820522 381 1.4+ 0.8- 900123 801 0.2+ 0.0 900329 801 0.5- 0.3-
820522 381 0.3+ 0.5- 900123 801 0.3+ 0.4- 900329 801 0.5- 0.3-
820523 381 0.3+ 0.1- 900127 801 0.2+ 0.4-

(4527)* 1982 OK = 1985 KO

Discovered 1982 July 24 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory.

Id. A. Mrkos (MPC 10033)

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Marsden

M 171.38490	(1950.0)	P	Q
n 0.29430265	Peri. 171.68387	+0.73483563	+0.67695724
a 2.2384115	Node 145.59056	-0.62642449	+0.70101725
e 0.2105832	Incl. 4.23984	-0.26001723	+0.22428487
P 3.35	H 14.1	G 0.25	

Residuals in seconds of arc

820724 688 0.3+ 0.8-	820818 046 0.2- 1.0-	850514 675 (2.3- 3.9-)
820724 688 1.4+ 0.3-	820819 675 2.3+ 0.7+	850515 675 1.8+ 0.2-
820727 095 0.6- 2.7-	820819 675 0.9+ 0.2-	850524 046 1.7- 1.7+
820814 095 1.0- 1.2+	820819 046 1.1- 1.6-	850524 046 0.4+ 0.8+
820814 046 0.0 2.6-	820820 809 0.6- 1.0+	880409 054 1.0- 0.1-
820814 046 0.3- 2.8-	820820 809 0.2+ 1.3+	880409 054 1.4- 0.6-
820815 095 2.5- 0.2-	820820 809 0.6- 0.7+	880415 054 1.7+ 1.3-
820816 809 0.5+ 0.8+	820822 809 0.5- 0.3+	891121 095 0.3+ 2.0-
820816 809 0.7+ 0.8+	820822 809 0.5- 0.4+	891121 095 (2.4- 4.1-)
820816 809 0.6+ 0.7+	820822 809 0.9- 0.3+	891129 046 1.0+ 0.4+
820816 095 (1.1- 3.3+)	820913 675 1.2+ 0.7+	891129 046 0.0 2.4+
820818 809 0.4+ 1.5+	820913 675 1.5+ 0.1-	891130 046 0.8- 0.1+
820818 809 0.9+ 1.5+	820913 095 (4.1- 1.2+)	891130 046 0.6- 0.5-
820818 809 0.4+ 1.1+	820920 095 0.5- 0.2-	891201 046(50.5- 11.3-)
820818 046 1.4- 2.0-	850513 675 (2.9+ 4.2-)	891201 046(50.3- 9.2-)

(4528)* 1983 PP = 1978 NB4 = 1979 SU3 = 1981 DX3 = 1988 VF7

Discovered 1983 Aug. 13 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory.

Id. S. Nakano (MPC 14785)

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Nakano

M 149.20156	(1950.0)	P	Q
n 0.24175735	Peri. 316.30814	-0.46387322	-0.88454887
a 2.5520133	Node 161.16266	+0.84872054	-0.45956177
e 0.1329656	Incl. 8.71769	+0.25395881	-0.07985163
P 4.08	H 12.4	G 0.25	

Residuals in seconds of arc

780710 095 0.6- 0.8+	830902 688 0.3- 2.3-	900423 801 0.2- 0.6-
790924 095 0.9- 1.1+	830906 688 0.3- 0.2+	900423 801 0.6- 0.7-
810223 095 0.3+ 2.3-	830906 688 0.3+ 0.3+	900424 801 0.0 0.8-
830813 688 1.1+ 1.2-	881105 033 0.4- 0.7-	900424 801 0.1+ 0.8-
830813 688 1.2+ 1.1-	881106 033 0.4- 0.4-	900525 801 0.3+ 0.4-
830902 688 0.4+ 0.4-	881106 033 0.1+ 0.8-	

(4529)* 1984 ED = 1942 CK = 1986 PW2

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

Id. S. Nakano (MPC 13302); 1984 ED = 1942 CL (MPC 13302) is invalid.

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Nakano

M 117.43946	(1950.0)	P	Q
n 0.18807137	Peri. 4.92893	-0.72313648	-0.67580823
a 3.0170854	Node 131.48293	+0.62698981	-0.72892793
e 0.0515057	Incl. 10.97915	+0.28975404	-0.10930374
P 5.24	H 11.7	G 0.25	

Residuals in seconds of arc

420212 053 (2.9+ 54.7+)X	840309 688 1.2+ 1.0+	860801 675(10.2+ 2.2+)
840301 688 0.1+ 0.8-	840309 688 0.2+ 1.0-	860802 675 0.9- 0.4-
840301 688 1.0- 0.8-	840331 688 0.7- 0.2-	860802 675 0.9+ 0.7+
840306 688 0.3- 1.0-	840331 688 0.3- 1.5+	890204 801 0.4+ 0.8+
840306 688 0.3+ 0.5-	860801 675 (8.3+ 0.4+)	890311 801 0.3- 1.1+

900327 801 0.3+ 0.8+ 900328 801 0.7+ 0.5+ 900424 801 0.2+ 0.4-
900327 801 0.7- 0.1+ 900423 801 0.4- 0.2- 900424 801 0.1+ 0.5-
900328 801 0.6+ 0.5+ 900423 801 0.5- 0.2-

(4530)* 1984 EP = 1984 FZ1 = 1951 ES2 = 1979 HM4 = 1986 OJ
Discovered 1984 Mar. 1 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory.
Id. T. Furuta (d, JAM 2040), T. Kobayashi (MPC 14785)
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Nakano

M	61.85140	(1950.0)	P	Q
n	0.17834595	Peri. 13.10091	-0.99900476	-0.03768575
a	3.1257954	Node 164.67907	+0.02821446	-0.94822078
e	0.0847650	Incl. 5.18081	+0.03454600	-0.31536826
P	5.53	H 11.9	G 0.25	

Residuals in seconds of arc
510313 711 0.5+ 0.9+ Y 840403 095 2.1- 1.1+ 900326 801 0.1- 0.0
790424 095 0.5- 0.1+ 860727 413 0.6- 1.4+ 900328 801 0.0 0.1-
840301 688 1.9+ 0.9- 860801 413 1.2- 0.8- 900328 801 0.0 0.0
840301 688 0.0 1.0- 860801 413 1.5+ 0.7+ 900423 801 0.3+ 0.4-
840330 095 0.1- 1.7+ 900326 801 0.0 0.0 900423 801 0.1+ 0.5-

(4531)* 1985 FC = 1975 HD
Discovered 1985 Mar. 20 by C. S. Shoemaker at Palomar.
Id. W. Landgraf (MPC 11435)
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bardwell

M	95.84749	(1950.0)	P	Q
n	0.38788473	Peri. 142.86979	-0.91022631	-0.40134515
a	1.8620911	Node 14.54387	+0.20854428	-0.65711476
e	0.0405238	Incl. 23.97249	+0.35776716	-0.63806133
P	2.54	H 15.0	G 0.25	

Residuals in seconds of arc
750420 805 1.7+ 0.4+ 850416 691 0.0 2.5+ 850614 691 1.4+ 0.2-
850320 675 2.5- 0.3- 850418 691 0.3+ 0.4- 850614 691 1.5+ 0.4-
850324 675 0.2- 0.3+ 850418 691 0.0 0.7- 850614 691 1.1+ 0.4-
850325 675 0.5- 0.4+ 850418 691 0.4+ 0.6- 861030 801 1.5- 1.5+
850411 675 0.1+ 0.5- 850424 675 (3.3- 1.6-) 861201 801 1.3- 1.3+
850415 691 0.1- 0.8+ 850425 675 (2.4- 3.9-) 900221 675 2.9+ 0.1+
850415 691 0.4- 0.7+ 850515 691 0.0 1.0- 900221 675 2.5- 1.7-
850415 691 0.0 0.7+ 850515 691 0.1+ 1.1- 900224 675 0.8+ 0.1+
850415 675 0.5- 1.2- 850515 691 0.1+ 0.8- 900224 675 0.3- 0.0
850416 691 0.1- 2.2+ 850518 691 0.7+ 0.4- 900326 675 0.8- 0.2+
850416 691 0.0 2.4+ 850518 691 0.6+ 0.6- 900401 675 0.4- 1.6-
850416 691 0.1+ 2.3+ 850518 691 0.6+ 0.4-

(4532)* 1985 GM1 = 1959 GO = 1987 SZ25 = 1987 UC
Discovered 1985 Apr. 15 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory.
Id. H. Kaneda (MPC 15884)
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Kaneda

M	46.44004	(1950.0)	P	Q
n	0.19017886	Peri. 355.81271	-0.96347926	+0.26117818
a	2.9947545	Node 199.63762	-0.24028170	-0.94064092
e	0.0395096	Incl. 10.12977	-0.11820501	-0.21675015
P	5.18	H 12.0	G 0.25	

Residuals in seconds of arc
590416 760 2.2- 0.3- 850415 688 1.1+ 1.0+ 870924 095 (0.0 4.3-)
590416 760 1.8+ 1.8- 850513 675 2.0- 1.5+ 871020 688 1.4- 0.1-
850415 688 0.4+ 0.5+ 850515 675 1.1+ 0.7- 871020 688 1.2+ 1.0+

900326 801 0.6+ 0.3+ 900328 801 0.6+ 0.1+ 900525 801 0.5- 0.8-
900326 801 0.8+ 0.3+ 900423 801 2.5- 1.8+ 900525 801 0.6- 0.8-
900328 801 0.6+ 0.2- 900423 801 0.9+ 0.0

(4533)* 1986 EL = 1957 FA = 1977 RK2 = 1988 TW4
Discovered 1986 Mar. 7 by C. S. Shoemaker at Palomar.
Id. S. J. Bus (MPC 15413), B. G. Marsden (ibid.)
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Marsden
M 123.96056 (1950.0) P Q
n 0.27034803 Peri. 292.22037 -0.34908201 -0.93700169
a 2.3687574 Node 178.06317 +0.93692799 -0.34924727
e 0.2456908 Incl. 22.66282 +0.01754134 +0.00736042
P 3.65 H 12.9 G 0.25
Residuals in seconds of arc
570321 012 0.4+ 0.8- 860404 675 0.5+ 0.0 900323 675 1.8- 0.2-
770909 095 2.1- 3.2- 881004 807 0.7+ 1.0+ 900325 675 0.3- 0.0
860307 675 0.5- 1.5- 881005 807 0.9+ 1.0+ 900325 675 1.1- 0.5+
860307 675 0.0 1.0- 881008 807 0.6+ 0.1- 900326 801 0.6+ 0.2+
860308 675 0.1+ 1.6+ 900322 801 0.2+ 0.1- 900326 801 0.4+ 0.2+
860308 675 0.4- 0.5+ 900322 801 0.2+ 0.1- 900423 801 0.9+ 0.5+
860403 675 0.4+ 0.3- 900323 675 0.4- 1.0- 900423 801 1.0+ 0.4+

(4534)* 1986 PV4 = 1980 FR9 = 1982 UV8 = 1989 AK3
Discovered 1986 Aug. 6 at the Crimean Astrophysical Observatory.
Id. S. Nakano (MPC 14475)
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Nakano
M 14.06216 (1950.0) P Q
n 0.21071098 Peri. 311.38549 -0.09461223 +0.99122589
a 2.7969064 Node 312.93321 -0.87155466 -0.12728078
e 0.1792087 Incl. 7.24260 -0.48108316 +0.03564885
P 4.68 H 12.3 G 0.25
Residuals in seconds of arc
800316 095 0.5+ 0.2+ 890104 413 0.4- 0.9+ 890115 413 0.8+ 0.3+
821021 095 1.3- 1.8- 890104 413 0.6+ 1.0+ 890115 413 (3.0+ 0.0)
860806 095 0.1+ 0.7+ 890110 413 0.7+ 0.8+ 900428 413 0.8- 0.1-
860808 095 0.2- 0.0 890110 413 (3.5+ 1.4-) 900428 413 0.4+ 0.6+
860831 095 0.0 0.7+ 890113 413 0.5- 0.6- 900429 413 1.2- 0.1+
860908 095 0.2- 2.1+ 890113 413 0.8+ 0.0 900429 413 0.8+ 0.0

(4535)* 1986 QV2 = 1957 JB = 1966 CK = 1980 DJ4
Discovered 1986 Aug. 28 by H. Debehogne at the European Southern Observatory.
Id. T. Kobayashi (MPC 12206)
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Nakano
M 41.28917 (1950.0) P Q
n 0.21168251 Peri. 99.09134 -0.54509781 +0.83339479
a 2.7883422 Node 137.45912 -0.81238839 -0.49818767
e 0.1598117 Incl. 7.75405 -0.20710740 -0.23929516
P 4.66 H 12.6 G 0.25
Residuals in seconds of arc
570502 760 0.2- 1.1- 860901 809 1.4+ 0.3+ 860904 809 0.0 0.3+
570502 760 0.3- 0.8- 860901 809 1.5+ 0.0 860904 809 0.1- 0.1+
660213 330 (5.7- 2.2+) 860901 809 1.7+ 0.0 860904 809 0.3+ 0.2-
660214 330 0.2- 0.6- 860902 809 1.0+ 0.2- 860905 809 0.4- 0.3-
660225 330 (6.7- 0.1+) 860902 809 1.0+ 0.1- 860905 809 0.3- 0.4-
800220 095 0.5- 2.0- 860902 809 1.5+ 0.1- 860905 809 0.3- 0.3-
860828 809 0.7+ 0.1+ 860903 809 1.0+ 0.2+ 860906 809 0.3- 0.4-
860828 809 0.9+ 0.1- 860903 809 1.3+ 0.2+ 860906 809 0.2- 0.4-
860828 809 1.1+ 0.1- 860903 809 1.3+ 0.0 860906 809 0.2- 0.4-

860908 809 0.8- 0.6- 860910 809 1.6- 0.1- 900322 801 0.1- 0.8+
860908 809 0.5- 0.5- 860910 809 1.5- 0.2- 900322 801 0.0 0.6+
860908 809 0.3- 0.6- 860910 809 1.5- 0.1- 900525 801 0.2+ 0.3+
860908 809 1.1- 0.1- 860912 809 0.9- 0.3+ 900525 801 0.2+ 0.2+
860908 809 1.3- 0.1- 860912 809 0.9- 0.1+
860908 809 1.1- 0.1- 860912 809 0.9- 0.0

(4536)* 1987 DA6 = 1978 NE8 = 1979 VW1 = 1982 UO8 = 1982 VW6 = 1984 GF1 = 1985 SW

Discovered 1987 Feb. 22 by H. Debehogne at the European Southern Observatory.

Id. B. G. Marsden (MPC 13306)

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Marsden

M	14.97480	(1950.0)	P	Q
n	0.30308648	Peri. 236.44482	-0.98448021	+0.16725341
a	2.1949519	Node 313.12111	-0.12692967	-0.88774529
e	0.0828168	Incl. 4.17587	-0.12119228	-0.42887598
P	3.25	H 13.5	G 0.25	

Residuals in seconds of arc

780707 675 1.0- 1.3- 870225 809 0.8- 0.3+ 870303 809 0.6+ 0.7-
780708 675 0.4- 1.4- 870225 809 0.6- 0.4+ 870303 809 0.8+ 0.4-
780709 675 1.1+ 0.0 870225 809 0.4- 0.0 870303 809 1.0+ 0.4-
791114 095 0.3+ 2.4- 870226 809 0.0 0.4- 870304 809 0.4+ 0.1+
821021 095 1.0+ 0.5- 870226 809 0.0 0.3- 870304 809 0.3+ 0.2-
821109 095 (1.1- 2.7+) 870226 809 0.1+ 0.3- 870304 809 0.0 0.1-
840405 095 0.8+ 1.5- 870227 809 0.1- 0.0 870305 809 0.7- 0.4-
850919 046 (1.5- 13.2-) 870227 809 0.0 0.2+ 870305 809 0.5- 0.4-
850919 046 (2.5+ 1.8-) 870227 809 0.1- 0.1+ 870305 809 0.4- 0.0
870222 809 1.1- 1.1+ 870228 809 0.5+ 0.2+ 870306 809 1.6- 0.7-
870222 809 0.8- 1.1+ 870228 809 0.5+ 0.3- 870306 809 1.3- 0.8-
870222 809 1.2- 1.0+ 870228 809 0.6+ 0.2- 870306 809 1.1- 0.6-
870223 809 1.3- 0.9+ 870301 809 1.6+ 0.1- 870307 809 (3.6- 0.6-)
870223 809 1.0- 0.9+ 870301 809 1.6+ 0.1- 870307 809 (3.7- 0.6-)
870223 809 0.8- 0.9+ 870301 809 1.7+ 0.2- 870307 809 (3.6- 0.5-)
870224 809 0.6- 0.1- 870302 809 1.2+ 0.5- 900326 801 0.2- 0.4+
870224 809 0.4- 0.0 870302 809 1.2+ 0.5- 900327 801 0.3+ 0.1+
870224 809 0.5- 0.1+ 870302 809 1.5+ 0.6-

(4537)* 1987 RR3 = 1951 WB = 1960 OG = 1970 LR = 1980 JT

Discovered 1987 Sept. 2 by L. I. Chernykh at the Crimean Astrophysical Observatory.

Id. B. G. Marsden (MPC 15248)

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Marsden

M	55.91004	(1950.0)	P	Q
n	0.18878149	Peri. 294.68339	-0.94589769	-0.30416620
a	3.0095145	Node 227.82598	+0.32430104	-0.89734082
e	0.0271557	Incl. 8.76739	-0.01031461	-0.31978490
P	5.22	H 11.3	G 0.25	

Residuals in seconds of arc

511129 760 0.1+ 1.2+ 800510 095 1.1+ 7.4+ 900329 801 0.1+ 0.6-
511129 760 0.2- 1.4+ 870902 095 1.1- 0.2+ 900330 095 1.6- 2.9+
511203 760 1.4- 0.1+ 870917 095 0.0 1.3+ 900330 095 1.3+ 2.4-
511203 760 0.9+ 0.7+ 870926 095 0.2+ 0.7+ 900428 801 0.2- 0.7-
600723 839 0.4+ 0.4- 900328 801 0.1+ 0.4- 900428 801 0.0 0.7-
600723 839 0.9+ 1.4- 900328 801 0.1+ 0.3-
700611 095 0.8- 0.3- 900329 801 0.0 0.3-

(4538)* 1988 TP = 1969 TJ = 1971 DH1 = 1984 SF2
Discovered 1988 Oct. 10 by K. Suzuki at Toyota.
Id. H. Oishi (MPC 13859), B. G. Marsden (ibid.)
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Marsden

M	201.32757	(1950.0)	P	Q
n	0.26118734	Peri. 162.39221	+0.93232264	-0.35905695
a	2.4238252	Node 218.73682	+0.32294196	+0.88022908
e	0.1544088	Incl. 3.94421	+0.16273595	+0.31028192
P	3.77	H 13.4	G 0.25	

Residuals in seconds of arc

691007	095	1.4-	0.9+	881019	881	0.1-	1.1+	900302	809	1.9-	1.3-
691016	095	(6.2-	3.5-)	881029	881	0.6-	0.4+	900304	809	1.9-	0.1-
710218	095	(3.5+	1.0-)	881029	881	0.1-	0.2-	900304	809	1.5-	0.7-
710223	095	2.8+	2.6+	881102	888	1.1+	0.9-	900304	809	1.8-	1.0-
840925	688	0.5+	2.0-	881102	888	0.6+	1.3-	900404	809	1.3+	1.2-
840925	688	1.1+	1.6-	881107	881	0.2+	0.3+	900404	809	1.1+	1.4-
840928	688	0.6+	1.3-	881107	881	0.2-	0.9+	900404	809	1.0+	1.9-
840928	688	1.1+	2.3-	881112	881	0.0	0.9-	900415	809	1.4+	0.1-
881010	881	0.6-	0.1+	881112	881	(0.0	3.3+)	900416	809	0.1-	0.0
881010	881	0.6+	0.5+	881113	881	0.1+	0.0	900416	809	0.5-	1.0-
881014	881	0.3-	0.3+	881113	881	0.4+	1.5-	900416	809	1.9+	0.6+
881014	881	0.8-	0.3+	900302	809	1.4-	1.1-	900417	809	0.2-	0.4+
881019	881	0.2+	0.4+	900302	809	1.5-	1.3-	900417	809	1.1-	0.1-

(4539)* 1988 VU1 = 1979 ST10 = 1984 YH5
Discovered 1988 Nov. 8 by M. Koishikawa at the Ayashi Station of the Sendai Astronomical Observatory.
Id. T. Kobayashi (MPC 14200)
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Nakano

M	212.67544	(1950.0)	P	Q
n	0.22578191	Peri. 109.12897	+0.99170400	-0.08489149
a	2.6710168	Node 255.83158	+0.04296221	+0.92661495
e	0.0709358	Incl. 5.71331	+0.12115041	+0.36630339
P	4.37	H 12.4	G 0.25	

Residuals in seconds of arc

790929	095	0.2-	0.8+	881202	391	0.0	1.0-	881212	391	0.5+	2.1+
841228	095	0.0	0.1+	881202	391	0.3-	0.2-	881212	391	(0.3-	3.4+)
881108	391	(11.7-	2.5-)	881203	391	(4.3+	0.3-)	881214	391	1.1-	0.3-
881108	391	(10.2-	2.7-)	881203	391	(3.9+	0.9-)	881214	391	2.4+	1.5+
881109	391	(7.5-	2.8-)	881205	391	(3.2+	3.9+)	900221	801	0.5-	0.0
881109	391	(4.2-	0.7+)	881206	391	(0.3+	3.8-)	900221	801	0.3+	0.1+
881111	391	0.3-	0.2-	881206	391	(3.7+	0.5+)	900322	801	0.3+	0.1-
881111	391	0.4+	0.6+	881207	391	(4.4-	1.3-)	900322	801	0.0	0.0
881115	391	2.1-	0.4-	881207	391	1.5-	2.1-	900327	801	0.1-	0.0
881115	391	2.0+	0.9-	881211	391	0.0	0.2+	900327	801	0.2+	0.4+

(4540)* 1988 VY1 = 1962 XE1 = 1968 DF = 1975 WL = 1977 FH3
Discovered 1988 Nov. 6 at Osservatorio San Vittore.
Id. D. W. E. Green (MPC 14027), T. Kobayashi
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Green

M	85.95544	(1950.0)	P	Q
n	0.22589150	Peri. 259.57974	-0.82344454	-0.55822460
a	2.6701529	Node 246.41655	+0.55423301	-0.75298729
e	0.1714186	Incl. 6.36541	+0.12151073	-0.34841848
P	4.36	H 12.0	G 0.25	

Residuals in seconds of arc

621203	760	2.5-	0.1+	751128	095	0.4+	1.1+	881106	552	0.4+	0.1-
621203	760	0.7+	0.2-	751202	095	(2.0+	4.8+)	881106	552	0.8+	1.2+
680222	095	0.8+	0.6-	770326	095	1.0+	0.5+	881107	552	0.3-	0.3-

881107 552 0.6- 0.1- 881126 552 0.7+ 0.9+ 881213 552 0.7+ 1.9-
881107 552 (3.2- 1.4+) 881127 552 0.4+ 0.2+ 881214 372 0.0 1.6-
881107 552 2.7- 0.2+ 881127 552 0.4+ 0.4+ 890109 033 0.1- 0.7-
881112 888 (5.1- 1.6+) 881207 552 1.1- 0.5- 890109 033 0.4+ 0.7-
881112 888 (5.5- 0.9+) 881207 552 0.3- 0.4- 900325 801 1.0- 0.2+
881114 888 (1.8- 3.2+) 881211 372 (3.6- 3.4+) 900328 801 0.8- 0.4+
881114 888 1.5+ 0.6- 881211 372 (2.5- 3.1+) 900328 801 0.6- 0.5+
881114 888 0.8- 1.9+ 881213 372 0.5+ 0.0 900527 552 0.5+ 0.2-
881114 888 0.3+ 1.3- 881213 372 0.7+ 1.4+ 900527 552 0.7+ 0.3-
881126 552 0.8+ 1.3+ 881213 552 (2.4+ 1.8-)

(4541)* 1989 AF = 1951 WX1 = 1962 XD1 = 1986 GF1
Discovered 1989 Jan. 1 by K. Suzuki and T. Furuta at Toyota.
Id. K. Ichikawa (MPC 14205), S. Nakano (ibid.)
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Nakano

M	200.23166	(1950.0)	P	Q
n	0.26856371	Peri. 21.47752	+0.05126265	-0.99579595
a	2.3792377	Node 65.65061	+0.90366468	+0.01389133
e	0.0202467	Incl. 4.77962	+0.42516148	+0.09053980
P	3.67	H 12.6	G 0.25	

Residuals in seconds of arc
511129 711 0.0 2.9- Y 860415 046 1.4+ 0.4+ 890113 881 1.6- 0.6+
511129 711 1.7+ 1.4- Y 890101 881 1.5+ 1.2+ 890113 881 0.3+ 1.1+
621203 760 3.3- 1.6+ 890101 881 2.1+ 0.1+ 900526 881 1.1+ 2.8+
621203 760 1.7+ 1.5+ 890103 675 1.0- 0.6+ 900528 881 2.0+ 0.2+
860414 046 0.4- 2.0- 890104 881 0.3+ 1.6+ 900528 881 1.4- 1.3+
860414 046 1.6- 0.9- 890104 881 0.9+ 0.6+
860415 046 1.5- 0.9- 890105 675 1.7- 2.1-

(4542)* 1989 BO = 1952 BT = 1972 YJ = 1982 YR2
Discovered 1989 Jan. 30 at Osservatorio San Vittore.
Id. H. Oishi (MPC 14794)
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Oishi

M	4.49720	(1950.0)	P	Q
n	0.18863438	Peri. 150.66390	-0.25553135	+0.94791011
a	3.0110790	Node 103.98389	-0.92079891	-0.17865987
e	0.0572552	Incl. 11.30274	-0.29467457	-0.26371781
P	5.22	H 11.2	G 0.25	

Residuals in seconds of arc
520123 711 0.9+ 0.9- Y 890226 888 (8.9- 2.3+) 900326 801 1.0+ 0.8-
721229 095 1.7- 0.3+ 890227 888 0.8- 0.1+ 900327 801 1.0+ 0.5-
821222 095 0.2- 1.0+ 890227 888 0.7- 0.2+ 900327 801 1.2+ 0.7-
890130 552 (0.7- 4.5-) 890305 552 0.9- 1.3- 900426 675 1.5- 0.2-
890130 552 (0.7- 4.8-) 890305 552 0.0 0.5- 900426 675 2.4- 1.5+
890201 552 0.7- 1.4- 890309 888 1.4+ 0.9- 900427 675 (3.6- 1.2+)
890201 552 0.5+ 0.0 890309 888 1.3+ 0.7- 900427 675 0.9- 1.5+
890202 552 0.3- 1.5+ 890310 888 0.1- 0.3- 900516 552 1.1+ 0.6-
890202 552 1.2+ 2.1+ 890310 888 0.7- 0.1+ 900516 552 0.9+ 2.0-
890207 552 0.3- 0.1- 900227 801 0.2+ 0.1- 900527 552 0.1+ 1.7+
890207 552 1.0+ 0.7+ 900227 801 0.5+ 0.1+ 900527 552 1.3- 1.2+
890226 888 (9.1- 2.5+) 900326 801 1.1+ 0.6-

(4543)* 1989 CQ1 = 1930 DN = 1977 AP1
Discovered 1989 Feb. 2 by C. S. Shoemaker at Palomar.
Id. S. Nakano (MPC 14360, unpublished)

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Nakano

M	122.80808	(1950.0)	P	Q
n	0.08600012	Peri. 84.61787	+0.63274134	-0.76029223
a	5.0831939	Node 324.71512	+0.57058230	+0.58605344
e	0.0961135	Incl. 14.73775	+0.52352100	+0.28017330
P	11.46	H 9.9	G 0.25	

Residuals in seconds of arc

300222	024	(67.2- 6.7+)X	890114	675	0.1+ 0.0	900128	675	1.3+ 1.9+
770113	095	0.5- 2.0+	890202	675	0.5- 2.0-	900220	675	0.2- 0.0
770120	095	0.9+ 1.1-	890202	675	1.0- 1.1-	900222	675	0.0 1.2+
861003	095	0.4- 1.3+	890307	675	1.1- 0.7-	900327	675	(3.4- 2.0-)
890111	675	0.7- 1.0+	890309	675	0.3- 0.1+	900327	675	0.1+ 0.0
890114	675	1.6+ 0.7-	900126	675	0.3+ 0.1+	900401	675	0.6+ 0.4-

(4544)* 1989 FB

Discovered 1989 Mar. 31 by H. E. Holt and N. G. Thomas at Palomar.

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bardwell

M	23.87127	(1950.0)	P	Q
n	0.92626151	Peri. 333.54796	+0.99327303	+0.06272101
a	1.0422702	Node 23.47647	+0.00704304	+0.80632383
e	0.2503966	Incl. 14.14285	-0.11558154	+0.58813940
P	1.06	H 17.2	G 0.25	

Residuals in seconds of arc

890331	675	(3.4+ 2.7+)	890505	801	0.0 0.1+	900125	688	0.5+ 2.4+
890401	675	(0.1+ 3.6+)	890508	801	0.0 0.2-	900128	801	0.2+ 0.2+
890403	675	0.1- 0.1-	890605	568	2.3- 2.0+	900128	801	0.4- 0.4+
890404	675	0.2+ 0.4-	890728	474	(0.7- 8.1-)	900220	675	0.9+ 2.4-
890405	675	(3.8- 3.5+)	890728	474	(1.3- 7.4-)	900221	801	0.1- 0.1-
890406	675	1.1- 0.0	890729	474	(2.8- 6.4-)	900221	801	2.8+ 0.2-
890408	675	1.6- 1.1-	890729	474	(3.1- 5.4-)	900224	675	0.7- 0.0
890408	675	1.3- 1.2-	891109	675	0.1- 1.2-	900226	801	1.1+ 1.6+
890409	801	(3.5+ 1.5+)	891109	675	0.1+ 1.4-	900226	801	0.2- 0.7-
890410	801	1.1+ 1.2+	891109	675	0.1+ 1.4-	900322	801	0.7- 0.1+
890411	372	(3.7- 1.1-)	891110	675	0.2- 1.1-	900322	801	0.9- 0.0
890411	372	(4.2+ 2.2+)	891110	675	0.3- 0.9-	900326	801	0.2- 1.0+
890417	568	0.3+ 0.9+	891110	675	0.2- 1.1-	900326	801	0.0 0.7+
890429	675	0.2- 1.7-	891127	801	0.2- 1.3-	900326	675	(3.7- 1.1-)
890429	675	2.5+ 2.4-	891127	801	0.4+ 0.9-	900424	801	0.1- 0.7+
890501	675	0.1+ 0.5+	891127	801	0.4- 0.5-	900424	801	0.4- 0.5+
890501	675	1.6- 0.3-	900125	688	0.2+ 2.4+			

(4545)* 1989 SB11 = 1952 BG2 = 1969 EE2 = 1978 SV5 = 1978 UN3 = 1980 EP

Discovered 1989 Sept. 28 by H. Debehogne at the European Southern Observatory.

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Nakano

M	359.87995	(1950.0)	P	Q
n	0.17718579	Peri. 75.16824	-0.36689577	-0.93007314
a	3.1394250	Node 36.37370	+0.84083782	-0.34018068
e	0.1442641	Incl. 1.81148	+0.39796891	-0.13871214
P	5.56	H 11.6	G 0.25	

Residuals in seconds of arc

520129	711	(0.2+ 4.5+)Y	800315	095	0.1+ 0.0	890930	809	0.1+ 0.4-
520130	760	0.6+ 0.2-	890928	809	0.1- 0.1+	890930	809	0.6+ 0.1-
520130	760	0.2+ 0.1-	890928	809	0.0 0.1+	890930	809	0.9+ 0.3-
690313	095	0.6- 0.5+	890928	809	0.2+ 0.0	891030	095	0.3- 0.5+
780928	095	1.2- 1.0-	890929	809	0.1- 0.2+	891030	095	0.4- 1.2+
781028	675	0.1- 0.5-	890929	809	0.2+ 0.2+			
781029	675	0.5- 0.1-	890929	809	0.3+ 0.2+			

(4546)* 1990 EW2 = 1972 GE1 = 1977 RS2 = 1981 RH1 = 1981 WM6 = 1988 RR8

Discovered 1990 Mar. 2 by E. W. Elst at the European Southern Observatory.

Id. G. V. Williams, E. Goffin

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Williams

M	127.15875	(1950.0)	P	Q
n	0.27266967	Peri. 267.08155	-0.19554242	-0.98034448
a	2.3552924	Node 194.27648	+0.93669500	-0.17878159
e	0.0629655	Incl. 6.10522	+0.29045765	-0.08343769
P	3.61	H 13.8	G 0.25	

Residuals in seconds of arc

720412	095	2.4+	1.8+	881017	071	0.1+	0.8-	900404	809	0.6-	0.7-
770909	095	1.6-	3.6-	900302	809	0.2-	0.7-	900404	809	0.5-	0.8-
810903	033	1.0+	0.1-	900302	809	0.4-	0.3-	900415	809	1.5+	0.2+
810903	033	1.3+	0.9+	900302	809	0.0	0.8-	900416	809	1.0+	0.5-
811124	095	2.1-	0.2+	900304	809	0.6-	0.1+	900416	809	0.5-	0.7-
880912	071	1.0+	0.2+	900304	809	1.5-	0.7+	900416	809	1.1+	0.6+
880912	071	2.9+	1.9+	900304	809	0.8-	0.4-	900417	809	0.0	0.7+
881017	071	1.1-	0.1-	900404	809	0.2+	1.2-	900417	809	1.1-	0.2+

(4547)* 1990 KP = A909 BG = 1958 TW = 1960 ED = 1962 UF = 1974 TD = 1977 FB2 = 1979 UJ2 = 1985 DC2 = 1987 SP13

Discovered 1990 May 16 by K. Watanabe and K. Endate at Sapporo.

Id. H. Kaneda; 2050 P-L = 1977 FB2 (MPC 15570) is invalid, and 2050 P-L = 1975 WT is therefore suspect

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Kaneda

M	222.30208	(1950.0)	P	Q
n	0.23326604	Peri. 36.22059	+0.82561655	-0.56413111
a	2.6135755	Node 358.02692	+0.41701518	+0.62280625
e	0.0691157	Incl. 18.01774	+0.38007323	+0.54209637
P	4.23	H 11.3	G 0.25	

Residuals in seconds of arc

090129	024	1.1-	0.9-	770326	095	0.2-	2.1+	900516	400	0.7-	0.5+
581015	760	2.6+	1.5+	791027	033	1.3-	0.9-	900516	400	0.3-	0.1-
581015	760	2.3+	2.0+	791027	033	0.5-	0.4-	900525	400	2.8+	0.9-
600305	760	0.1+	0.5+	791028	033	1.6-	0.1+	900525	392	0.0	0.6+
600322	760	2.9-	2.2+	850222	675	0.4+	1.0+	900525	400	1.9+	2.4-
600322	760	(4.5+	1.1+)	850226	675	0.8-	1.0+	900525	392	3.0+	0.3+
621031	760	0.5-	2.2+	870922	095	0.6-	0.6+	900526	400	2.0+	2.3-
621031	760	0.8-	0.9+	870925	095	0.2-	0.5-	900526	400	(3.3+	1.2+)
741007	805	1.4-	1.1-	900516	392	0.4-	1.2+				
741008	805	1.4-	0.6+	900516	392	1.0+	2.0+				

(4548)* 2538 P-L = 1981 UB15 = 1981 WU5

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	32.60817	(1950.0)	P	Q
n	0.28529155	Peri. 201.44375	-0.68049986	+0.73006042
a	2.2853012	Node 25.80318	-0.64955776	-0.56142617
e	0.0635953	Incl. 8.28244	-0.33910862	-0.38963117
P	3.45	H 13.7	G 0.25	

Residuals in seconds of arc

600924	675	0.1-	0.5-	601022	675	0.4-	0.1+	881105	888	0.4-	0.3-
600926	675	0.2+	0.9-	601025	675	0.3+	0.0	881105	888	0.6+	0.2-
600928	675	0.3-	0.2+	601026	675	0.7+	0.1-	881202	888	1.0-	0.7-
600929	675	0.5-	0.9+	811023	095	(4.6+	0.2+)	881202	888	0.4-	0.5-
601017	675	0.2-	0.0	811124	095	1.4+	1.0+	881210	888	0.0	0.5+

881210 888 0.0 0.2+ 900326 801 0.2- 0.4- 900419 400 (2.8- 2.0-)
900325 801 0.0 0.3+ 900326 801 0.1- 0.2+
900325 801 0.7+ 0.0 900419 400 0.4- 0.3-

(4549)* 1276 T-2 = 1977 VG = 1986 AS1 = 1988 RG5

Discovered 1973 Sept. 29 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.
Id. T. Kobayashi (MPC 15079), S. Nakano (unpublished)

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Nakano

M	114.03775	(1950.0)	P	Q
n	0.25909820	Peri. 51.49222	+0.11147131	-0.99341888
a	2.4368368	Node 32.13705	+0.89561752	+0.08894685
e	0.1520335	Incl. 2.83678	+0.43063139	+0.07216228
P	3.80	H 14.0	G 0.25	

Residuals in seconds of arc

730919 675 (3.1- 1.5+) 730925 675 0.3+ 1.1+ 731005 675 1.6+ 1.1-
730919 675 0.5- 0.8- 730925 675 0.9- 0.2- 771111 805 1.5+ 1.6+
730919 675 (3.7- 2.1+) 730929 675 0.5+ 1.7- 771112 805 2.1- 0.1-
730919 675 (0.6- 4.4+) 730929 675 0.2- 0.7+ 860112 688 0.1+ 0.7+
730919 675 0.5- 0.7- 730929 675 0.4+ 0.0 860112 688 (4.4- 1.0+)
730920 675 (3.5- 1.0+) 730929 675 0.4- 1.3+ 880902 809 2.1- 0.5+
730920 675 1.4+ 2.1+ 730930 675 0.0 0.0 880902 809 0.3- 0.6+
730920 675 1.2- 0.2+ 730930 675 1.6+ 0.8+ 880902 809 1.3+ 1.3+
730924 675 1.1- 0.5- 730930 675 0.2- 1.2- 900227 801 0.2- 0.4+
730924 675 0.9+ 2.0+ 730930 675 0.4- 0.1+ 900227 801 0.1+ 0.0
730924 675 0.6+ 0.1- 731004 675 0.2+ 0.1+ 900228 801 0.1- 0.6+
730924 675 1.7- 0.1+ 731004 675 0.9+ 2.3- 900228 801 1.2+ 1.1-
730924 675 0.6+ 2.6+ 731004 675 1.0- 1.4- 900326 801 0.4- 0.0
730924 675 0.4+ 0.6+ 731004 675 1.2+ 1.3- 900328 801 0.3- 0.1+
730925 675 0.1+ 1.3+ 731005 675 0.6- 1.3- 900328 801 0.4- 0.2+
730925 675 1.5- 0.9- 731005 675 2.0+ 1.2-
730925 675 1.7- 1.4+ 731005 675 0.2+ 2.4-

1927 TC = 1990 JA
Id. S. Nakano (k), R. H. McNaught (1975 obs.)

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Nakano

M	16.70783	(1950.0)	P	Q
n	0.26563021	Peri. 6.73042	+0.95513721	+0.28890838
a	2.3967224	Node 336.16252	-0.27867546	+0.80224472
e	0.4490880	Incl. 9.27722	-0.10026418	+0.52243215
P	3.71	H 14.4	G 0.25	

Residuals in seconds of arc

271003 024 (5.2- 6.4+) 271021 024 1.1- 1.6- 750601 413 0.1- 0.9-
271004 024 1.6- 1.1+ 271026 024 1.7+ 0.5- 750601 413 0.1- 0.6-
271006 024 0.8+ 2.2+ 271028 024 1.5+ 0.4+ 900503 413 0.7+ 0.6-
271009 024 3.3- 1.3- 271029 024 0.4- 1.8- 900504 413 0.4- 0.3-
271016 024 0.8+ 0.3+ 271119 754 2.7+ 0.2+

1936 QE1 = 1986 RU1

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Kaneda

M	344.26265	(1950.0)	P	Q
n	0.23695067	Peri. 202.26503	+0.98612374	-0.15554998
a	2.5864103	Node 166.29683	+0.16321738	+0.97226121
e	0.1658279	Incl. 14.17260	-0.03033243	+0.17467781
P	4.16	H 12.9	G 0.25	

Residuals in seconds of arc

360828 024 0.7+ 1.0+ 860905 046 0.1- 0.0 860912 095 (5.2+ 8.2-)
360911 024 1.4- 3.3- 860906 046 0.0 0.7+
360917 024 0.7+ 2.2+ 860907 095 0.1+ 0.7-

1953 TR2 = 1989 YF8
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Lowe

M	37.50891	(1950.0)	P	Q
n	0.24949948	Peri. 318.93793	-0.55423230	-0.83212529
a	2.4989426	Node 164.68615	+0.78193962	-0.52868473
e	0.0567258	Incl. 4.31059	+0.28530158	-0.16751108
P	3.95	H 13.6	G 0.25	

Residuals in seconds of arc

531014	760	1.6+	0.2-	531031	760	1.8+	0.8+	891226 033 0.7- 1.3-
531014	760	1.6-	0.1-	891225	033	1.0+	0.5+	
531031	760	1.9-	0.6-	891225	033	0.3-	0.9+	

1977 DB1 = 1987 WX1 = 1988 AW
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Kaneda

M	266.56067	(1950.0)	P	Q
n	0.26352345	Peri. 330.69296	-0.33780761	-0.94061388
a	2.4094793	Node 139.02468	+0.87318912	-0.32653262
e	0.1738143	Incl. 2.94049	+0.35132148	-0.09285457
P	3.74	H 15.0	G 0.25	

Residuals in seconds of arc

770213	675	0.2-	0.1-	770219	381	0.0	0.1+	880111 033 0.1- 0.1+
770214	675	0.1+	0.1-	770219	381	0.2-	0.1-	880111 033 0.1+ 0.0
770218	381	0.1-	0.1+	871126	033	0.0	0.1-	
770218	381	0.4+	0.1+	871126	033	0.0	0.1+	

1978 QC3 = 1990 DN
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Lowe

M	123.07620	(1950.0)	P	Q
n	0.20607929	Peri. 292.36825	+0.39852212	-0.90302101
a	2.8386585	Node 133.11103	+0.90137437	+0.35331657
e	0.1593590	Incl. 12.69365	+0.16942362	+0.24437768
P	4.78	H 11.5	G 0.25	

Residuals in seconds of arc

780822	414	1.1+	0.4+	780823	414	0.0	0.6+	900227 403	1.1- 0.9-
780822	414	0.7-	0.2+	900224	403	1.2-	1.3+ Y	900227 403	1.5+ 0.6+
780823	414	0.3-	1.2-	900224	403	0.8+	1.0- Y		

1978 VZ2 = 1978 WV8 = 1982 XO1 = 1986 UR
Id. H. Oishi (MPC 11747; unpublished)
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 (J-P) Oishi

M	304.55134	(1950.0)	P	Q
n	0.23962069	Peri. 23.35886	-0.00592407	-0.99962504
a	2.5671665	Node 66.98939	+0.91277806	-0.01632428
e	0.0845635	Incl. 1.66437	+0.40841292	+0.02198410
P	4.11	H 14.5	G 0.25	

Residuals in seconds of arc

781105	675	0.1+	0.1-	781129	675	(4.7+	0.9+)	821214 381	0.3- 0.2-
781106	675	1.7+	0.4+	781130	675	0.2+	0.2+	821214 381	0.3- 0.4+
781107	675	1.5-	0.7-	821213	381	0.8-	0.7+	861028 046	0.1+ 0.4+
781129	675	0.4-	0.4-	821213	381	1.1+	0.2-	861028 046	0.0 0.4-

1979 FA3 = 1990 HJ1
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 (J-P) Marsden
M 35.12704 (1950.0) P Q
n 0.18531032 Peri. 42.10012 -0.72369763 +0.69005418
a 3.0469864 Node 181.62688 -0.68765984 -0.72219423
e 0.1569422 Incl. 19.17673 -0.05818664 -0.04754706
P 5.32 H 11.5 G 0.25
Residuals in seconds of arc
790331 095 0.5- 0.5+ 900426 675 0.6- 0.3- 900521 675 0.4+ 1.9-
790420 095 0.9- 0.5+ 900427 675 0.2+ 0.0 900523 675 0.2- 0.4+
790425 095 1.4+ 1.2- 900427 675 0.7- 0.7+ 900523 675 0.4- 0.9+
900426 675 0.1- 0.0 900521 675 1.5+ 0.4+

1979 MZ2 = 1984 UQ4 = 1990 FU2
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 (J-P) Nakano
M 101.68236 (1950.0) P Q
n 0.24443197 Peri. 327.93487 -0.53067681 -0.84739440
a 2.5333678 Node 154.10380 +0.78579661 -0.49961321
e 0.0819066 Incl. 2.29118 +0.31765675 -0.17974807
P 4.03 H 13.8 G 0.25
Residuals in seconds of arc
790623 413 2.3+ 0.3- 790724 675 (7.4- 1.0-) 790823 675 (6.7- 1.1+)
790624 413 2.2+ 0.8- 790724 413 4.4- 1.3- 841020 095 0.7+ 2.1-
790625 413 0.4+ 0.1- 790725 675 1.3+ 0.9+ 900317 033 0.4- 1.0-
790629 413 0.5+ 1.4+ 790727 675 1.6- 1.4- 900318 033 0.5- 1.3-

1980 RE1 = 1989 XZ
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Kaneda
M 141.02505 (1950.0) P Q
n 0.22915297 Peri. 148.26589 +0.85534558 +0.51805535
a 2.6447567 Node 180.54013 -0.50387121 +0.83119472
e 0.1428358 Incl. 9.85406 -0.12040658 +0.20182664
P 4.30 H 14.2 G 0.25
Residuals in seconds of arc
800903 046 1.0+ 0.4+ 800908 046 0.7+ 0.6+ 891202 809 0.1- 0.4-
800903 046 0.5+ 0.6+ 800908 046 0.2- 0.7- 891203 809 1.5+ 0.3+
800906 046 (4.4- 2.3-) 891202 809 0.6- 0.6+ 891203 809 0.2+ 0.0
800906 046 2.0- 1.0- 891202 809 0.5- 0.8+ 891203 809 0.5- 1.3-

1981 ER21 = 1982 JE3
Id. H. Oishi (MPC 10296)
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 (J-P) Oishi
M 36.43119 (1950.0) P Q
n 0.16969893 Peri. 216.63799 +0.97629807 -0.21245456
a 3.2311033 Node 155.53117 +0.21458330 +0.92531281
e 0.1229635 Incl. 5.72157 +0.02821485 +0.31410073
P 5.81 H 13.3 G 0.25
Residuals in seconds of arc (or two decimals in units of degrees)
810202 413 0.1+ 0.6- 810311 413 0.5+ 0.1+ 820515 675(0.12+ 0.02-)
810213 413 1.3- 0.2- 810316 413 (2.8- 1.1+) 820516 675 1.1- 0.9-
810302 413 0.5+ 0.7- 810329 413 1.6- 0.4+ 820517 675 0.6- 0.2+
810303 413 1.7- 0.5+ 810329 413 1.0+ 0.7- 820518 675 1.7+ 1.1+
810303 413 1.4+ 0.1- 810408 413 1.6- 0.8+ 860108 688 0.1+ 0.3+
810307 413 (3.3+ 0.1+) 810408 413 0.4- 0.6- 860108 688 0.0 0.3+
810307 413 1.7+ 0.7- 810426 413 1.6+ 0.2-
810311 413 0.4- 1.1+ 810502 413 0.1- 0.4+

1981 ET31 = 1952 OB = 1989 TN14
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Kaneda

M	20.09375	(1950.0)	P	Q
n	0.19087239	Peri. 268.00232	+0.06124236	-0.99811301
a	2.9874959	Node 178.46521	+0.96900953	+0.05838680
e	0.2350760	Incl. 9.56106	+0.23931131	+0.01901053
P	5.16	H 12.4	G 0.25	

Residuals in seconds of arc

520722 024	0.0	0.2+	810306 413	2.6+	0.8+	891002 809	0.4-	0.9+
810212 413	1.3+	0.1-	810311 413	0.8-	0.2+	891002 809	0.2+	1.0+
810212 413	0.7+	0.4-	810311 413	2.0-	0.3+	891003 809	0.5-	1.0+
810213 413	2.1+	1.7-	810315 413	0.9-	1.1+	891003 809	0.2-	1.1+
810302 413	(4.6+	2.5-)	810315 413	0.6+	0.9+	891003 809	0.1+	1.1+
810302 413	0.0	1.0+	810501 413	1.0-	1.7+			
810306 413	0.9-	2.1+	891002 809	0.6-	0.6+			

1982 DB
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bardwell

M	304.20481	(1950.0)	P	Q
n	0.54233555	Peri. 157.94283	-0.37395187	-0.92727679
a	1.4892148	Node 314.01159	+0.84712899	-0.33367986
e	0.3602817	Incl. 1.42023	+0.37753473	-0.16975130
P	1.82	H 18.5	G 0.25	

From 21 observations 1981 Sept. 30-1982 May 16, mean residual 1".5.

1982 SM7 = 1987 QZ2 = 1989 YS3
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 (J-P) Nakano

M	213.04066	(1950.0)	P	Q
n	0.18177042	Peri. 299.72868	+0.80559426	+0.59223438
a	3.0864182	Node 23.96759	-0.52843426	+0.73093076
e	0.0334730	Incl. 2.34527	-0.26790879	+0.33911453
P	5.42	H 12.5	G 0.25	

Residuals in seconds of arc

820918 095	1.2+	0.0	870825 809	1.9+	1.9-	891230 413	1.3-	0.6-
820920 095	0.5-	0.4+	870825 809	0.8+	1.2-	891230 413	0.3-	0.5+
820926 095	0.7-	0.4-	870825 809	1.4+	1.5-	891231 413	0.5-	0.8-
870822 809	1.7-	0.8-	870827 809	0.9-	1.2+	891231 413	2.1+	0.9+
870822 809	1.8-	0.4+	870827 809	0.4+	2.8+			
870822 809	0.2-	0.9+	870827 809	(10.3-	1.1-)			

1983 AO2 = 1950 CD = 1965 WU = 1990 HE1
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 (J-P) Marsden

M	150.13249	(1950.0)	P	Q
n	0.17833751	Peri. 342.16465	-0.25393007	-0.94031674
a	3.1259003	Node 121.98715	+0.91673620	-0.30866501
e	0.0449029	Incl. 15.49195	+0.30840600	+0.14328414
P	5.53	H 11.5	G 0.25	

Residuals in seconds of arc

500208 760	0.4-	1.1-	830111 675	1.0-	0.6+	900429 675	0.8+	0.6-
500208 760	1.2+	2.7-	830112 675	0.5+	0.1-	900518 675	0.7-	0.1+
651128 330	1.2-	2.0+	900427 675	0.4-	0.8+	900518 675	1.1+	0.3-
830106 095	0.4+	2.9+	900427 675	0.5-	1.3+	900521 675	1.2+	0.4+
830110 675	0.0	0.1-	900429 675	0.8+	0.1-	900521 675	1.5-	1.0+

1983 NL = 1967 GD1 = 1990 HA1

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5		(J-P)		Williams
M 314.49884		(1950.0)	P	Q
n 0.26023803	Peri.	187.23388	+0.89360102	+0.42649429
a 2.4297210	Node	146.38582	-0.39810255	+0.89705619
e 0.2200377	Incl.	14.64096	-0.20734410	+0.11572731
P 3.79	H	13.0	G 0.25	

Residuals in seconds of arc

670411 033	1.9-	0.4-	830713 688	(5.3-	0.1-)	900429 675	0.3+	0.9+
670411 033	1.5+	1.9-	830813 688	0.6+	0.2+	900429 675	1.1-	0.4+
830710 688	0.7-	0.6+	830813 688	1.2+	0.7+	900519 675	0.8+	0.2-
830710 688	1.4-	0.4-	900426 675	0.2+	0.5-	900519 675	0.2-	1.4+
830713 688	0.2+	1.9-	900426 675	0.6+	0.3+			

1983 QE = 1987 OW1

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5		(J-P)		Williams
M 293.27838		(1950.0)	P	Q
n 0.24305784	Peri.	139.00077	+0.63045616	+0.77506399
a 2.5429071	Node	169.83277	-0.76003489	+0.62749087
e 0.2065850	Incl.	13.91031	-0.15770857	+0.07437078
P 4.06	H	13.5	G 0.25	

Residuals in seconds of arc

830831 046	(1.5+	4.8-)	830904 095	(2.6-	10.2+)	870726 675	0.0	0.1+
830831 046	0.7-	0.6+	830904 046	0.5+	2.5+	870726 675	0.2-	0.7+
830901 046	0.3+	0.2+	830904 046	1.3+	1.0-	870728 675	1.2+	1.2+
830901 046	(3.0+	3.6+)	830906 095	(5.4-	0.4-)	870728 675	1.0-	1.9-
830903 046	0.8+	0.2+	830911 688	0.4-	0.3-			
830903 046	1.8-	2.4-	830911 688	0.1-	0.2+			

1984 UT

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5		(J-P)		Bardwell
M 86.62765		(1950.0)	P	Q
n 0.21252001	Peri.	201.83878	+0.29197199	-0.93088713
a 2.7810173	Node	231.88041	+0.91358201	+0.33938092
e 0.2310704	Incl.	16.20451	+0.28305526	-0.13516562
P 4.64	H	13.0	G 0.25	

Residuals in seconds of arc

841026 688	0.9-	0.5-	841121 675	0.2-	0.3-	850217 801	0.0	0.4+
841026 688	0.6+	0.8-	841124 675	0.0	0.7-	900227 801	0.0	0.4-
841030 046	1.1-	0.7+	841127 046	0.1-	0.6-	900227 801	0.0	1.2-
841031 046	0.4-	1.2+	841127 046	1.7+	0.1-	900326 801	0.2-	0.4+
841031 688	1.2+	2.0+	841128 046	0.7+	0.9-	900326 801	0.2+	0.2+
841031 688	0.1-	1.2-	841128 046	1.0+	1.4-	900329 801	0.2+	0.5+
841118 688	0.7+	1.1+	841130 046	1.0-	1.9+	900329 801	0.3-	0.7+
841118 688	0.4+	2.5-	841130 046	2.3-	2.1+			

1984 UC1 = 1982 BB12 = 1989 AJ2

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5		(J-P)		Nakano
M 181.43096		(1950.0)	P	Q
n 0.27534274	Peri.	221.43269	-0.40480862	-0.91340912
a 2.3400286	Node	252.48590	+0.85022572	-0.35884870
e 0.1247351	Incl.	2.55959	+0.33652074	-0.19212336
P 3.58	H	14.0	G 0.25	

Residuals in seconds of arc

820120 095	0.0	0.0	841029 046	0.5-	0.3+	890111 046	1.1+	0.4+
841028 046	(2.0+	8.2-)	841030 046	(4.4-	2.2-)	890112 046	1.4+	0.5-
841028 046	1.1-	2.2-	841030 046	0.1-	0.8+	890112 046	2.4-	0.0
841029 046	1.7+	1.1+	890111 046	0.1-	0.1+			

1985 DY1 = 1971 TD1 = 1979 WC7 = 1990 HJ2
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 (J-P) Nakano

M	321.05347	(1950.0)	P	Q
n	0.25163529	Peri. 288.39412	+0.98740421	-0.15689976
a	2.4847873	Node 80.63673	+0.15183566	+0.90346089
e	0.0522137	Incl. 1.18360	+0.04448435	+0.39892466
P	3.92	H 13.0	G 0.25	

Residuals in seconds of arc

711011	095	0.5+	1.2-	850221	809	0.2+	0.1+	850226	809	1.1+	0.2+
791117	095	0.2+	0.5-	850222	809	0.7-	0.2-	850226	809	1.3+	0.3+
850216	809	0.3-	0.2-	850222	809	0.5-	0.5-	850226	809	1.8+	0.3+
850216	809	0.2-	0.2-	850222	809	0.4-	0.5-	850228	809	0.3-	0.4-
850216	809	0.2-	0.1-	850223	809	0.1-	0.4-	850228	809	0.1+	0.4-
850220	809	0.6-	1.0+	850223	809	0.2-	0.3-	900427	413	0.7+	0.1-
850220	809	0.0	0.8+	850223	809	0.4-	0.3-	900427	413	2.0-	0.2-
850220	809	0.6+	0.5+	850224	809	0.8-	0.6-	900430	413	1.9+	0.4-
850221	809	0.4-	0.1+	850224	809	0.5-	0.5-	900430	413	0.3-	1.0-
850221	809	0.1-	0.1+	850224	809	0.4-	0.5-				

1985 DX2 = 1990 DQ
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 (J-P) Nakano

M	17.17976	(1950.0)	P	Q
n	0.18867118	Peri. 8.25395	-0.99625711	-0.07521713
a	3.0106934	Node 167.19736	+0.06417419	-0.97372362
e	0.0326075	Incl. 11.08189	+0.05790890	-0.21495278
P	5.22	H 11.5	G 0.25	

Residuals in seconds of arc

850224	675	(3.9-	1.1+)	850227	675	1.6+	0.7-	900218	399	0.8-	1.4-
850224	675	1.4-	0.4-	900218	399	0.3+	1.6+	900228	399	0.5+	0.2-
850227	675	0.2-	1.1+	900218	399	(5.1-	3.9-)	900228	399	(3.6+	5.5-)

1986 AA2 = 1978 JO1 = 1989 WX3
Id. A. Lowe (k), G. V. Williams
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 (J-P) Williams

M	333.85270	(1950.0)	P	Q
n	0.22083381	Peri. 54.03939	-0.98081736	-0.17256181
a	2.7107733	Node 115.86735	+0.12998090	-0.92558420
e	0.0228214	Incl. 5.78282	+0.14526621	-0.33692180
P	4.46	H 13.0	G 0.25	

Residuals in seconds of arc

780506	095	0.0	0.1-	860117	688	0.1-	0.1-	891202	033	1.6-	0.2+
860112	688	0.9+	0.6+	891128	033	2.6-	0.3+	891203	033	2.0+	0.6-
860112	688	0.8-	0.4-	891129	033	2.2+	0.1-				

1986 JQ = 1989 QH1
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Kaneda

M	193.10915	(1950.0)	P	Q
n	0.36707440	Peri. 72.96123	+0.34107342	+0.91372171
a	1.9318200	Node 219.31498	-0.93900888	+0.32017919
e	0.0737537	Incl. 20.40155	-0.04394592	+0.25019578
P	2.69	H 14.0	G 0.25	

Residuals in seconds of arc

860513	054	0.2+	1.6+	860604	675	1.0+	2.0-	890829	675	0.8-	0.5+
860514	054	0.9+	1.6-	860604	675	0.4-	0.2-	890901	675	0.8+	0.6-
860603	675	0.8-	1.3-	860608	675	0.3-	2.5+				
860603	675	0.6-	1.0+	860609	675	(1.3+	4.9+)				

1986 QJ2 = 1990 FZ2
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 (J-P) Nakano
M 313.65667 (1950.0) P Q
n 0.17904003 Peri. 272.65010 +0.13238064 +0.99117485
a 3.1177179 Node 4.97302 -0.87472984 +0.12010240
e 0.1374166 Incl. 4.57344 -0.46617923 +0.05610547
P 5.50 H 13.1 G 0.25
Residuals in seconds of arc

860828	809	0.9-	0.0	860903	809	0.4+	0.4+	860906 809	0.3-	0.2+
860828	809	0.5-	0.1+	860903	809	0.3+	0.4+	860907 809	0.2-	0.1-
860828	809	0.2-	0.2+	860904	809	0.1-	0.1-	860907 809	0.1+	0.1-
860830	809	0.6+	0.0	860904	809	0.1-	0.2-	860907 809	0.3+	0.1-
860830	809	0.5+	0.1-	860904	809	0.0	0.2-	860908 809	0.2+	0.2+
860830	809	0.6+	0.1-	860905	809	0.2-	0.0	860908 809	0.2+	0.2+
860902	809	0.2-	0.1-	860905	809	0.1-	0.2-	860908 809	0.1+	0.1+
860902	809	0.0	0.5-	860905	809	0.2-	0.3-	900317 033	0.6+	0.2+
860902	809	0.3+	0.5-	860906	809	0.6-	0.1+	900318 033	0.6-	0.2-
860903	809	0.4+	0.6+	860906	809	0.5-	0.1+			

1986 WQ2
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bardwell
M 265.97421 (1950.0) P Q
n 0.39352204 Peri. 227.86166 +0.75759574 +0.53310013
a 1.8442651 Node 96.48714 -0.42862556 +0.84149067
e 0.0445934 Incl. 22.27551 -0.49226905 +0.08773653
P 2.50 H 13.5 G 0.25
Residuals in seconds of arc

860727	413	1.6+	0.7-	861203	413	0.1-	0.7+	900322 801	0.0	0.1+
860727	413	1.5-	0.5-	861205	413	0.6+	0.9+	900322 801	0.0	0.8+
861121	413	1.2+	1.2+	861205	413	0.5-	0.6-	900327 801	0.3-	0.5+
861121	413	0.2+	2.5-	861205	413	1.3-	2.5-	900329 801	0.8-	0.2-
861123	413	0.3+	2.4+	891227	801	0.5-	1.2-	900329 801	0.3+	0.1-
861123	413	0.7-	1.4+	891227	801	0.8+	0.1+			

1987 QL = 1953 QL = 1970 QL
Id. S. Nakano (MPC 15246)
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Nakano
M 6.65450 (1950.0) P Q
n 0.29060352 Peri. 141.50452 +0.49220292 +0.86912884
a 2.2573668 Node 157.85273 -0.82708167 +0.48430707
e 0.1999578 Incl. 7.39022 -0.27142622 +0.10030812
P 3.39 H 13.5 G 0.25
Residuals in seconds of arc

530816	024	0.1+	4.8+	870826	675	0.8-	0.1-	900521 675	1.0-	0.6-
700828	095	0.2-	2.3-	870901	095	2.0+	0.3+	900523 675	0.1+	0.7+
700829	095	0.8-	3.0-	870922	095	0.9+	0.9+	900523 675	0.3+	0.1+
700831	095	(4.8-	11.1+)	870925	095	2.2-	0.5+			
870824	675	1.2+	1.2-	900521	675	0.4+	0.8-			

1987 ST11 = 1969 UQ2
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Kaneda
M 283.48693 (1950.0) P Q
n 0.27162493 Peri. 355.75152 +0.75810513 -0.64823452
a 2.3613279 Node 44.92762 +0.60122259 +0.65245752
e 0.1309035 Incl. 5.78589 +0.25260247 +0.39254452
P 3.63 H 14.1 G 0.25
Residuals in seconds of arc

691018	095	1.0-	0.8+	870923	809	(2.4-	0.1+)	870923 809	0.3+	1.0+
691105	095	0.8+	0.5-	870923	809	0.2+	1.0+	870924 809	0.3-	0.1+

870924	809	0.0	0.1+	870926	809	1.1-	0.9-	870930	809	0.7+	0.0
870924	809	0.1+	0.1+	870926	809	0.9-	0.9-	870930	809	0.9+	0.1+
870924	095	(6.1-	0.5-)	870926	809	1.0-	0.9-	870930	809	1.2+	0.1+

1987 YL1 = 1990 HZ

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5		(J-P)		Williams	
M 320.85407		(1950.0)		P	Q
n 0.17959739	Peri.	162.50640		+0.55761089	+0.81209243
a 3.1112643	Node	140.88998		-0.79045329	+0.58272069
e 0.1460140	Incl.	15.82069		-0.25348310	-0.03069991
P 5.49	H	12.0	G	0.25	

Residuals in seconds of arc

871217	809	0.9-	1.0+	871223	809	0.5-	0.1-	900429	675	0.6+	0.6+
871217	809	0.7+	0.4-	900426	675	0.0	1.2-	900522	675	0.1+	0.5-
871220	809	0.4+	0.5-	900426	675	0.8+	0.3-	900522	675	0.1-	0.0
871220	809	0.4+	0.1-	900429	675	1.4-	1.4+				

1988 AF1 = 1962 XK1 = 1984 BU

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

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5		(J-P)		Marsden	
M 261.89914		(1950.0)		P	Q
n 0.23702453	Peri.	21.61432		+0.28461268	-0.95758143
a 2.5858781	Node	51.87846		+0.87087988	+0.23860857
e 0.2940516	Incl.	3.28598		+0.40070420	+0.16156659
P 4.16	H	14.0	G	0.25	

Residuals in seconds of arc

621203	760	0.5+	0.6+	840204	046	1.3-	0.3-	880110	046	0.2+	1.2-
621203	760	0.5-	0.5-	840204	046	0.5+	1.3-	880110	046	0.6+	0.6+
840129	046	1.6-	1.4+	880109	046	0.0	0.5+	880112	046	0.0	0.3-
840129	046	2.5+	0.4+	880109	046	1.2-	0.4+	880112	046	0.4+	0.3-

1988 BJ

Id. E. W. Elst (1989 obs.)

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5		(J-P)		Marsden	
M 318.26453		(1950.0)		P	Q
n 0.36737542	Peri.	233.77108		-0.94971480	+0.08851604
a 1.9307684	Node	309.24933		+0.11278908	-0.79810796
e 0.0634076	Incl.	22.82024		-0.29209660	-0.59597700
P 2.68	H	15.0	G	0.25	

Residuals in seconds of arc

880122	511	2.4-	1.5-	880213	809	0.3-	0.3-	880216	809	0.1-	0.9-
880122	511	2.4+	0.0	880213	809	0.4+	0.0	880216	809	0.1+	0.5-
880122	303	0.9+	0.3+	880213	809	0.8-	0.7-	880216	809	0.6-	0.3+
880123	511	0.5-	0.3-	880214	809	0.2+	1.0+	880217	809	0.1+	1.4-
880123	511	2.7-	0.6-	880214	809	0.6+	0.7+	880217	809	0.2+	1.5-
880123	303	1.9+	1.5+	880214	809	1.9+	2.2+	880217	809	0.2-	1.9-
880211	809	1.3+	0.1+	880215	809	1.0-	0.0	890901	511	3.1-	0.3+
880212	809	3.1-	0.7-	880215	809	0.3+	0.1+	890902	511	0.2-	0.6-
880212	809	1.2+	0.6+	880215	809	1.3-	0.3+	890902	511	3.8+	0.2-
880212	809	0.0	1.6+	880215	809	1.7+	0.3+	890902	511	0.8-	1.6-
880212	809	0.5-	0.3+	880216	809	0.2+	0.7+	890902	511	2.2+	1.3-
880212	809	(5.9+	4.2+)	880216	809	0.2+	0.1+	890902	511	2.0-	3.4+
880212	809	0.2+	0.8+	880216	809	0.1-	0.4-				

1988 RR3 = 1978 RF5 = 1990 FW2
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 (J-P) Nakano

M	127.98033	(1950.0)	P	Q
n	0.29391596	Peri. 85.91469	-0.29295628	-0.95589407
a	2.2403789	Node 21.15707	+0.85241229	-0.27108822
e	0.0695301	Incl. 3.34369	+0.43309342	-0.11303851
P	3.35	H 14.7	G 0.25	

Residuals in seconds of arc

780906 095	0.5-	1.0+	880911 033	0.4+	0.5-	881105 807	0.2+	0.5+
880908 033	0.5+	0.4+	880918 807	1.9+	0.0	881106 807	0.1-	0.3+
880909 033	0.2-	0.2+	881004 807	1.5-	0.4-	881107 807	0.2-	0.5-
880909 033	0.7+	0.4-	881005 807	0.1-	0.3-	900317 033	0.8-	0.1-
880910 033	0.0	0.3+	881008 807	0.9-	1.3-	900318 033	0.3+	0.8-
880910 033	0.2+	0.2-	881104 807	0.1+	0.1+			

1988 RB11 = 1990 AJ
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 (J-P) Williams

M	89.31889	(1950.0)	P	Q
n	0.17333046	Peri. 247.01528	+0.65211587	-0.75810254
a	3.1858133	Node 162.28049	+0.70145513	+0.60083797
e	0.2017681	Incl. 0.94940	+0.28758582	+0.25352370
P	5.69	H 14.0	G 0.25	

Residuals in seconds of arc

880914 807	0.1+	0.1+	881103 807	0.3-	0.0	900103 511	0.7-	0.0
880915 807	0.0	0.2-	881104 807	0.7+	0.2+	900104 511	1.0+	1.0-
881005 807	0.6-	0.0	881106 807	0.6-	0.0	900104 511	0.6-	0.4+
881008 807	0.5+	0.2-	900103 511	0.3+	0.6+			

1988 SH1 = 1981 WD9 = 1990 GC
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 (J-P) Nakano

M	151.14946	(1950.0)	P	Q
n	0.26575954	Peri. 218.85793	+0.45142047	-0.89168015
a	2.3959496	Node 204.36228	+0.83760620	+0.43641048
e	0.1668668	Incl. 4.66612	+0.30762871	+0.12021813
P	3.71	H 14.0	G 0.25	

Residuals in seconds of arc

811125 095	0.0	0.2+	881007 807	0.7+	0.7-	900416 809	0.6+	0.4-
880914 807	0.7+	0.1-	881103 807	1.5+	0.9-	900416 809	0.6-	1.9-
880915 807	0.1+	0.3-	881105 807	1.2+	0.9-	900416 809	2.1+	1.0-
880920 809	0.9-	0.5-	900304 809	0.5-	0.2-	900417 809	0.6-	0.6-
880920 809	0.7-	0.6-	900304 809	1.4-	0.2-	900417 809	1.0-	0.8-
880920 809	0.6-	0.8-	900304 809	1.6-	0.4-			
881005 807	0.3+	0.7-	900415 809	1.5+	0.5-			

1988 VS4 = 1990 KH
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bardwell

M	109.10381	(1950.0)	P	Q
n	0.35722158	Peri. 313.50634	-0.96630144	+0.10652637
a	1.9671807	Node 233.98676	-0.05281446	-0.97303170
e	0.0386315	Incl. 16.84027	-0.25193681	-0.20460070
P	2.76	H 14.0	G 0.25	

Residuals in seconds of arc

881007 675	0.0	1.0-	881109 675	0.1-	0.6+	900523 675	0.1-	0.8+
881008 675	0.2-	0.1-	900520 675	0.0	1.4+	900523 675	0.3+	0.7+
881104 675	0.4+	2.1-	900520 675	0.3-	0.3-			

1989 AH = 1982 YB4 = 1990 FE1
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 (J-P) Nakano
M 242.63418 (1950.0) P Q
n 0.17336802 Peri. 243.64001 +0.87934149 +0.27983150
a 3.1853532 Node 98.03054 -0.15884421 +0.93514664
e 0.0416180 Incl. 22.89923 -0.44891766 +0.21724433
P 5.69 H 11.5 G 0.25
Residuals in seconds of arc

821223 095	0.2-	0.4+	890105 372	2.2-	1.5-	900322 675	0.4+	0.2-
890103 372	0.2+	1.3+	890105 372	0.8-	0.5-	900324 675	1.3-	0.2+
890103 372	2.6-	1.7+	890112 372	0.6+	0.6-	900324 675	1.0+	0.2+
890104 372	1.0+	1.6-	890115 372	1.1+	2.3+			
890104 372	2.7+	1.5-	900322 675	0.0	0.1-			

1989 AM = 1990 KS
Id. E. F. Helin, C. M. Bardwell
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bardwell
M 333.20147 (1950.0) P Q
n 0.36571514 Peri. 265.31174 +0.84894765 +0.30672458
a 1.9366037 Node 76.33113 -0.09095532 +0.88698654
e 0.0771122 Incl. 26.28918 -0.52059103 +0.34521718
P 2.70 H 13.0 G 0.25
Residuals in seconds of arc

890103 675	0.9-	0.8+	890209 675	1.7+	2.9-	900522 675	0.0	0.1-
890105 675	1.2+	0.2-	900426 675	1.3-	0.0	900523 675	0.5-	0.4-
890207 675	2.8-	2.8+	900426 675	0.6+	0.4-	900523 675	0.3-	0.8+
890207 675	0.4+	0.1-	900522 675	1.5+	1.0+			

1989 AL2 = 1975 XN5
Id. C. S. Shoemaker (1990 obs.), C. M. Bardwell
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 (J-P) Bardwell
M 155.40934 (1950.0) P Q
n 0.08175498 Peri. 279.14325 +0.76632820 -0.31798144
a 5.2576793 Node 101.07940 +0.50967927 +0.82989236
e 0.0919442 Incl. 34.66934 -0.39111141 +0.45843917
P 12.06 H 9.5 G 0.25
Residuals in seconds of arc

751204 095	0.0	0.1-	890308 675	0.8-	1.3-	900401 675	0.5+	0.5+
890108 675	0.2+	0.2+	900221 675	0.6-	0.5+	900420 675	0.5-	0.5-
890111 675	1.0+	0.1-	900224 675	0.5+	1.1-	900420 675	0.8+	0.0
890307 675	0.4-	0.1+	900401 675	0.5-	0.8-			

1989 AN2 = 1985 TK3
Id. C. S. Shoemaker (1990 obs.), C. M. Bardwell
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 (J-P) Bardwell
M 92.01710 (1950.0) P Q
n 0.08274230 Peri. 272.48843 +0.13435867 -0.99052822
a 5.2157709 Node 169.66021 +0.96025118 +0.12309081
e 0.0444911 Incl. 9.07583 +0.24467413 +0.06084808
P 11.91 H 10.0 G 0.25
Residuals in seconds of arc

851014 675	0.7+	0.2-	890201 675	1.4-	0.2-	900126 675	0.5+	0.4-
851014 675	0.7-	0.1+	890202 675	1.3+	0.5-	900128 675	0.6-	0.6+
890109 675	0.2+	0.7+	890307 675	0.2-	2.0-			
890109 675	0.2+	1.4+	890308 675	0.0	0.7-			

1989 CH2
Id. C. S. Shoemaker (1990 obs.)

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

M	74.39420		(1950.0)		P		Q	
n	0.08287760	Peri.	353.22322		-0.33998937		-0.82633688	
a	5.2100930	Node	115.79312		+0.88450601		-0.44315277	
e	0.0274188	Incl.	29.91077		+0.31946258		+0.34753845	
P	11.89	H	10.0	G	0.25			

Residuals in seconds of arc

890111	675	0.9- 0.2+	890201	675	0.5+ 0.1-	900221	675	0.3+ 0.0
890111	675	0.2- 0.3-	890307	675	0.2+ 0.9+	900224	675	0.3- 0.1-
890201	675	1.2+ 0.1+	890308	675	0.9- 0.7-			

1989 PB

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Williams

M	336.00619		(1950.0)		P		Q	
n	0.89910289	Peri.	121.19149		+0.05884460		-0.99434504	
a	1.0631547	Node	325.09762		+0.85519715		+0.09589493	
e	0.4832049	Incl.	8.88801		+0.51495160		-0.04562998	
P	1.10	H	17.0	G	0.25			

Residuals in seconds of arc

890801	675	0.4+ 2.1+	890815	413	0.7+ 0.0	890822	376	(2.0- 4.4-)
890802	675	0.4- 0.3+	890815	413	0.3+ 0.9+	890822	413	0.2- 0.8-
890802	675	1.0- 2.8-	890815	413	0.6+ 1.3+	890822	413	0.6+ 0.2-
890808	657	0.1- 1.6-	890815	413	0.2+ 1.3+	890822	413	0.3- 0.1-
890808	657	0.7- 1.9-	890817	503	0.3+ 0.7+	890822	413	0.8- 0.2-
890809	675	1.2+ 0.7-	890817	494	0.0 1.0+	890823	568	2.4- 0.3-
890810	675	(0.7+ 4.4+)	890817	494	0.6- 0.1+	890823	897	0.9+ 0.8+
890811	675	2.2- 0.2+	890817	809	1.9- 2.9-	890823	897	0.2+ 0.7-
890811	675	1.3- 0.7-	890817	809	1.0- 0.9+	890823	897	(1.7+ 6.7+)
890812	657	0.7- 2.6-	890817	413	0.3+ 0.2+	890823	897	0.4+ 1.3-
890812	413	0.1+ 0.5+	890817	413	0.2- 0.2+	890823	897	1.1+ 0.9+
890812	413	0.5+ 0.8+	890817	474	0.3- 1.0+	890823	504	0.9- 0.9+
890812	413	0.2- 0.2-	890817	474	0.4- 1.3+	890823	504	0.0 0.4-
890813	413	0.6- 1.4+	890817	413	1.3+ 1.3-	890823	504	0.2- 0.4-
890814	413	0.3+ 0.4+	890818	474	0.3+ 1.9-	890823	091	0.7- 2.3+
890814	413	0.7+ 0.8+	890818	474	0.0 1.6-	890824	657	0.6+ 1.6+
890814	413	0.5+ 0.0	890818	474	0.3+ 1.4-	890824	657	0.0 0.1-
890814	413	0.3- 0.8+	890818	474	0.1+ 1.7-	890824	657	0.1+ 0.1+
890814	413	0.2- 1.0+	890818	413	0.2+ 0.8-	890824	392	(1.3+ 3.7+)
890814	413	0.3+ 0.9+	890820	474	0.3+ 0.2+	890824	392	(2.6- 4.4-)
890814	413	0.8+ 0.6+	890820	474	1.4+ 0.7+	890825	657	0.8+ 0.8-
890814	413	0.7+ 0.5+	890820	474	1.5+ 0.1+	890825	657	1.1- 0.7-
890814	413	0.1+ 0.7+	890820	413	0.9+ 1.3-	890825	010	(20.3+ 7.4+)
890814	413	0.9+ 0.7+	890820	413	0.4- 0.2+	890826	010	(13.5+ 3.7+)
890815	568	0.1- 0.3+	890821	413	0.2- 0.5+	900503	413	0.3- 0.3-
890815	413	0.1+ 0.4+	890821	413	0.0 1.0-	900504	413	0.3+ 0.3+
890815	413	0.4- 0.9+	890822	376	0.7- 0.4-			

1989 UR4 = 1939 BE = 1952 DA1 = 1985 YQ1

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

M	26.48451		(1950.0)		P		Q	
n	0.22954757	Peri.	43.20062		-0.33528067		-0.94142569	
a	2.6417301	Node	66.41863		+0.85324564		-0.31968422	
e	0.1659572	Incl.	2.25859		+0.39944805		-0.10732977	
P	4.29	H	12.6	G	0.25			

Residuals in seconds of arc

390119	062	1.4+ 0.8+	851217	010	1.0+ 1.0-	891023	046	0.2+ 1.4+
390120	062	1.2- 0.2-	851219	010	0.1+ 1.7+	891023	046	1.6+ 2.9+
520217	711	0.3+ 1.4+ Y	891022	046	0.6- 1.9+	891024	046	2.6- 1.4+
851217	010	0.7- 2.2-	891022	046	0.9- 1.8+	891024	046	1.2- 1.0+

891028 046 (3.0+ 4.9+) 891121 095 0.8+ 0.2- 891125 364 0.5+ 3.0-
891030 095 1.0+ 1.8- 891121 095 0.5+ 1.2-
891030 095 1.1- 1.3- 891125 364 1.3+ 1.6-

1989 UB8 = 1978 UP3
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 (J-P) Nakano
M 68.69573 (1950.0) P Q
n 0.17918871 Peri. 182.72023 +0.81580638 -0.57647036
a 3.1159930 Node 212.62195 +0.53218476 +0.77963382
e 0.1725648 Incl. 4.92482 +0.22636107 +0.24464879
P 5.50 H 12.7 G 0.25
Residuals in seconds of arc
781028 675 0.1+ 0.2- 891024 095 0.2- 0.7+ 891027 017 0.3+ 0.3+
781029 675 0.1- 0.2+ 891026 095 0.8- 2.1+ 891027 017 0.7+ 1.4-
891024 095 0.7+ 1.2- 891026 095 0.8- 0.5-

1989 UE8 = 1989 VS = 1935 ME = 1955 KP = 1978 EM3 = 1984 BM = 1988 GC
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 (J-P) Williams
M 179.65764 (1950.0) P Q
n 0.29479554 Peri. 217.13935 +0.68065999 +0.73000810
a 2.2359202 Node 95.84600 -0.65637265 +0.64500498
e 0.1733901 Incl. 3.54808 -0.32538733 +0.22595740
P 3.34 H 13.0 G 0.25
Residuals in seconds of arc
350622 078(26.4- 2.8+)X 840129 046 (5.8+ 0.5-) 891030 095 0.6+ 1.6-
550527 076 0.8+ 0.7- 840129 046 (4.2+ 2.1-) 891102 400 1.5- 0.2+
780306 095 5.2- 3.2+ 880407 675 1.9+ 1.3- 891102 400 2.9+ 0.8+
840126 046 2.1+ 2.6- 880410 675 1.2+ 0.7- 891121 095 1.8+ 0.7+
840126 046 (5.0+ 1.4-) 891026 095 0.3- 0.4- 891121 095 1.4- 0.4-
840127 046 0.3- 0.5- 891026 095 2.6- 0.5-
840127 046 0.4- 2.1+ 891030 095 0.1- 0.7+

1989 VQ = 1974 VE
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Nakano
M 121.17018 (1950.0) P Q
n 0.26170349 Peri. 291.26971 +0.99644220 +0.07308799
a 2.4206372 Node 64.55925 -0.04910144 +0.90814507
e 0.2208070 Incl. 2.66359 -0.06849807 +0.41222650
P 3.77 H 13.7 G 0.25
Residuals in seconds of arc
741112 095 0.9- 2.7+ 891101 364 1.7+ 0.9- 891121 095 2.1- 2.6+
741117 095 1.7+ 4.9- 891101 364 0.5+ 0.8- 891121 095 0.4- 1.7+
891030 095 1.0+ 0.4+ 891104 364 0.2- 0.1-
891030 095 1.1- 0.4- 891104 364 0.6- 0.3-

1989 WL2
Id. R. H. McNaught (1978, 1983, 1986 and 1988 obs.)
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Williams
M 145.47213 (1950.0) P Q
n 0.36611420 Peri. 264.54024 +0.67816114 -0.68596540
a 1.9351962 Node 138.36377 +0.72570702 +0.68168535
e 0.1128202 Incl. 23.38653 -0.11596024 +0.25447310
P 2.69 H 14.0 G 0.25
Residuals in seconds of arc
781024 413 0.5- 0.9+ 860801 413 0.5+ 0.5+ 891125 413 1.2+ 0.7-
781024 413 1.1+ 0.7- 880814 413 2.4+ 3.2- 891206 413 0.1+ 0.4-
830417 413 1.5- 0.1- 891124 413 0.6- 0.8- 891206 413 0.5+ 0.3+
830417 413 3.0- 0.8- 891124 413 0.4- 1.1- 891227 413 0.2- 0.3-
860801 413 0.8+ 0.6- 891125 413 0.5- 0.1+

1989 YF5 = 1982 BN2 = 1983 LE = 1985 YS
Id. K. Ichikawa, H. Kaneda
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Kaneda

M 173.75390	(1950.0)	P	Q	
n 0.23709708	Peri. 58.12583	+0.89724870	+0.37073328	
a 2.5853455	Node 279.14693	-0.44022202	+0.79286539	
e 0.1290615	Incl. 14.05679	+0.03390202	+0.48365412	
P 4.16	H 12.3	G 0.25		

Residuals in seconds of arc

820119	046	1.1+	0.1+	830607	474	2.8-	0.3+	891229	511	0.2-	1.3-
820119	046	0.4-	0.8-	830607	474	2.9+	0.3-	891229	511	1.3+	1.1-
820120	046	0.7-	0.9-	851218	688	2.0+	0.1+	900103	511	0.6-	0.5-
820120	046	2.1-	1.0-	851218	688	1.1-	1.1-	900103	511	0.2-	0.4+
820120	095	0.1+	1.9+	891228	511	0.6+	0.5+	900104	511	2.5-	1.2+
820121	046	1.0+	1.1+	891228	511	0.4-	1.0+	900104	511	0.7+	2.3+
820121	046	0.5+	0.1-	891229	511	0.8+	1.9-				

1990 DA
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bardwell

M 100.16799	(1950.0)	P	Q
n 0.30964335	Peri. 305.50485	-0.01420780	-0.96521835
a 2.1638553	Node 142.56121	+0.99854556	-0.02727650
e 0.4561382	Incl. 25.43165	+0.05200863	+0.26001833
P 3.18	H 15.0	G 0.25	

From 73 observations 1990 Jan. 30-May 28, mean residual 1".0.

1990 FP
Id. E. Helin (1988 obs.)
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 (J-P) Marsden

M 33.83001	(1950.0)	P	Q
n 0.24127155	Peri. 112.95509	-0.86901792	+0.40763464
a 2.5554429	Node 92.08770	-0.48992078	-0.78816865
e 0.1241864	Incl. 16.29708	+0.06917713	-0.46111189
P 4.09	H 12.0	G 0.25	

Residuals in seconds of arc

881206	675	0.5+	0.3+	900325	675	0.4-	0.7+	900427	675	0.1-	0.1-
881206	675	0.2+	0.0	900325	675	0.1+	0.5-	900526	413	0.8-	0.1-
881207	675	0.7-	0.2-	900426	675	0.0	0.3+	900526	413	0.8+	0.1+
900323	675	0.0	0.4+	900426	675	0.2+	0.2-				
900323	675	0.1+	0.8-	900427	675	0.1+	0.2+				

1990 FS = 1970 JC = 1981 UK17
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Kaneda

M 339.15691	(1950.0)	P	Q	
n 0.29152017	Peri. 118.02676	+0.08297479	+0.99551873	
a 2.2526323	Node 156.60092	-0.94969883	+0.09278456	
e 0.1847758	Incl. 6.55873	-0.30197238	-0.01826139	
P 3.38	H 13.0	G 0.25		

Residuals in seconds of arc

700508	095	0.2+	0.7+	900218	399	0.3+	1.6+	900322	399	1.8+	0.4+
811024	095	0.1-	0.4+	900316	399	0.5-	1.9+	900322	399	0.8-	2.0-
900218	399	(5.6-	3.2+)	900316	399	1.5-	0.2+	900322	399	0.6+	2.4-

1990 FP1 = 1942 ES = 1958 GM = 1982 HD1
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Kaneda

M 78.15643		(1950.0)	P	Q
n 0.24722168	Peri.	175.11296	-0.99495271	-0.10032966
a 2.5142686	Node	359.12314	+0.08775311	-0.86151778
e 0.0481368	Incl.	6.56075	+0.04866712	-0.49771585
P 3.99	H 13.0	G 0.25		

Residuals in seconds of arc

420311 062	1.0-	1.6-	820425 688	3.0-	0.4+	900425 675	0.3-	0.7-
420312 062	0.5+	0.3-	820425 688	0.1-	0.0	900425 675	1.4-	0.5-
420312 062	0.3-	1.2+	900324 675	0.4+	1.6+	900428 675	0.8+	0.9-
580408 760	1.1+	0.7-	900324 675	0.1-	1.1+	900428 675	2.0+	0.4-
580408 760	0.1+	0.2+	900325 675	1.2+	0.6+			

1990 FT1 = A915 DB = 1951 YP2 = 1980 XE3 = 1984 YA3
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 (J-P) Williams

M 181.62440		(1950.0)	P	Q
n 0.23856603	Peri.	302.08320	+0.75056333	-0.61821535
a 2.5747269	Node	97.18874	+0.65730802	+0.66223390
e 0.1936423	Incl.	13.60490	+0.06782957	+0.42338641
P 4.13	H 13.0	G 0.25		

Residuals in seconds of arc

150216 029(78.2+	5.4+)X		900323 675	1.8-	1.2+	900427 413	3.0+	0.1-
511228 711	0.6+	3.3- Y	900323 675	0.5-	0.1+	900429 413	0.3-	0.3-
801210 095	0.0	2.5+	900325 675	1.7+	1.2+	900429 413	1.7+	0.1-
841223 095	0.4-	0.6+	900325 675	0.3-	1.0+	900526 413	0.5-	2.2-
841227 095(16.0-	13.1+)		900427 413	1.1-	2.2-	900526 413	1.7-	1.2+

1990 FW1 = 1975 JL
Id. H. Kaneda
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 (J-P) Marsden

M 18.72188		(1950.0)	P	Q
n 0.25915228	Peri.	165.27118	-0.65051155	+0.75860657
a 2.4365027	Node	64.13424	-0.70085676	-0.58093796
e 0.1243569	Incl.	2.34091	-0.29263379	-0.29500365
P 3.80	H 14.0	G 0.25		

Residuals in seconds of arc

750507 808	1.1-	1.0-	900316 046	0.4-	0.1-	900319 046 (3.6+		1.4-)
750507 808	0.5+	0.2+	900317 046	0.5-	1.2+	900319 046	2.0+	0.2+
750511 808	0.5-	0.2-	900317 046	0.4+	0.4+	900322 095	2.3-	1.5-
750511 808	1.1+	1.0+	900318 046	0.9+	1.0+			
900316 046	0.4-	0.7-	900318 046	0.3+	0.5-			

1990 GS = 1974 HZ = 1974 HK1
Id. S. Nakano, C. M. Bardwell (d, MPC 5347)
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 (J-P) Nakano

M 288.42623		(1950.0)	P	Q
n 0.24430596	Peri.	308.74069	+0.60849374	+0.79354624
a 2.5342388	Node	358.71496	-0.65262852	+0.49723705
e 0.0635309	Incl.	11.42568	-0.45145473	+0.35077014
P 4.03	H 14.5	G 0.25		

Residuals in seconds of arc

740422 805	0.8+	0.2-	900317 033	0.1+	0.2+	900416 809	0.7-	0.7-
740424 805	0.4+	0.8-	900318 033	0.2-	0.0	900416 809	0.5+	0.2+
740424 805	0.1+	0.3+	900415 809	0.8+	1.0-	900417 809	0.0	1.5+
740425 805	1.3-	0.8+	900416 809	0.7+	0.9-	900417 809	1.4-	0.7+

1990 HA
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Marsden
M 60.56350 (1950.0) P Q
n 0.23965462 Peri. 307.74396 -0.67302457 -0.73960048
a 2.5669191 Node 184.56816 +0.69807372 -0.63279338
e 0.6921218 Incl. 3.88156 +0.24439929 -0.22926770
P 4.11 H 17.0 G 0.25
From 19 observations 1990 Apr. 26-May 25, mean residual 1".2.

1990 HF1 = 1983 ET2 = 1984 HV
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 (J-P) Marsden
M 278.28793 (1950.0) P Q
n 0.17358819 Peri. 212.23879 +0.91745599 +0.26601395
a 3.1826592 Node 129.35393 -0.23210658 +0.96181472
e 0.0118875 Incl. 22.49319 -0.32311148 +0.06441294
P 5.68 H 10.5 G 0.25
Residuals in seconds of arc

830305	095	0.0	1.5-	900427	675	0.8-	0.3-	900521 675	0.6- 1.0-
840427	675	0.3-	1.9+	900427	675	2.0-	2.4-	900523 675	0.1- 0.1+
840427	675	0.1-	1.1+	900429	675	1.5+	1.1-	900523 675	0.9- 1.2+
840429	675	0.1+	2.9+	900429	675	1.2+	0.2+		
840429	675	1.2+	2.3+	900521	675	0.3-	0.3-		

1990 HM1 = 1978 EO3 = 1979 HL5 = 1982 VG1
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 (J-P) Urata
M 99.38451 (1950.0) P Q
n 0.17584158 Peri. 54.64682 -0.64743980 -0.73995571
a 3.1554105 Node 76.76826 +0.62416365 -0.65219483
e 0.1273037 Incl. 10.80247 +0.43731161 -0.16464342
P 5.61 H 11.5 G 0.25
Residuals in seconds of arc

780306	095	0.0	1.6-	821115	688	5.5-	2.1+	900515 898	1.2+	2.0-
790425	095	0.4-	0.3+	821115	688	4.6+	0.0	900515 898	1.0+	1.7-
790428	095	1.3-	2.2-	900429	898	0.3+	1.8+	900519 898	2.5-	0.4- Y
790430	095	1.2+	1.2+	900429	898	2.2+	1.5+	900519 898	0.9-	3.6+ Y

1990 KA
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Williams
M 44.97222 (1950.0) P Q
n 0.30233570 Peri. 146.52044 -0.31018626 +0.94214200
a 2.1985842 Node 105.12951 -0.89853338 -0.24687492
e 0.4327208 Incl. 7.56540 -0.31051934 -0.22676249
P 3.26 H 16.0 G 0.25
From 40 observations 1990 Mar. 23-June 19, mean residual 1".32.

1990 KG = 1985 BJ
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 (J-P) Marsden
M 48.53628 (1950.0) P Q
n 0.22860985 Peri. 107.31597 -0.71893900 +0.64508002
a 2.6489492 Node 113.69437 -0.69503499 -0.66328968
e 0.2060432 Incl. 16.41957 -0.00728492 -0.37936600
P 4.31 H 12.5 G 0.25
Residuals in seconds of arc

850116	046	0.3-	0.5+	900519	675	1.7-	1.0+	900614 413	0.3-	1.8-
850116	046	3.0-	2.0+	900519	675	0.0	0.3+	900614 413	2.6+	2.2+
850118	046	1.6+	0.9-	900522	675	0.1+	0.9-	900615 413	0.3-	0.7+
850118	046	1.7+	1.3-	900522	675	0.3-	1.2-			

1990 KQ = 1972 LU = 1978 WL12 = 1981 LC
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Kaneda

M 25.80162		(1950.0)	P	Q
n 0.21844288	Peri.	183.20781	-0.07365274	+0.98050774
a 2.7305122	Node	82.62261	-0.91080715	+0.00826128
e 0.2404664	Incl.	10.58382	-0.40620882	-0.19630670
P 4.51	H 13.3		G 0.25	

Residuals in seconds of arc

720609 095	1.1-	1.7-	810624 688	0.2-	0.3-	900525 400	0.0	1.2+
720615 095	0.5-	2.5+	810624 688	0.7+	0.1+	900525 392	2.5+	1.2+
781129 675	0.2+	0.7+	900516 400	3.2+	0.6-	900526 400	4.7-	0.8+
781130 675	0.5-	0.5+	900516 400	1.7+	0.4-	900526 400	4.2-	0.5+
810604 688	1.9+	1.0-	900516 400	1.0+	0.2-			
810604 688	0.9+	0.8-	900525 400	0.6-	0.2-			

3553 P-L = 1990 ED1
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Kaneda

M 78.46456		(1950.0)	P	Q
n 0.21273582	Peri.	191.16323	-0.65330879	-0.75051569
a 2.7791307	Node	299.71226	+0.70311618	-0.55269518
e 0.1681630	Incl.	6.58289	+0.28074055	-0.36229028
P 4.63	H 14.2		G 0.25	

Residuals in seconds of arc

601022 675	0.5+	0.3+	900224 809	0.4+	0.2-	900302 809	0.3+	0.2+
601024 675	1.0-	0.6-	900224 809	0.3-	0.0	900304 809	0.2-	0.3-
601026 675	0.5+	0.3+	900302 809	0.5+	0.3+	900304 809	0.2-	0.4-
900224 809	0.3-	0.1-	900302 809	0.7+	0.9+	900304 809	0.7-	0.4-

1167 T-2 = 1978 VA7
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Kaneda

M 246.66210		(1950.0)	P	Q
n 0.22340322	Peri.	198.00261	+0.21927869	-0.97545081
a 2.6899431	Node	239.33508	+0.89798740	+0.20991794
e 0.0402179	Incl.	1.35312	+0.38149114	+0.06655964
P 4.41	H 15.3		G 0.25	

Residuals in seconds of arc

730919 675	1.4+	1.5+	730929 675	0.2-	0.3-	731004 675	1.7+	1.6-
730924 675	0.5-	0.1+	730929 675	0.9-	0.5+	781105 675	1.9-	0.3-
730924 675	0.1-	0.7+	730930 675	0.9-	0.1-	781106 675	1.9+	0.1+
730925 675	(3.2+	3.0+)	730930 675	0.3+	0.1-	781107 675	0.2-	0.8+
730925 675	1.1-	1.1+	731004 675	0.3+	2.0-	781108 675	0.2+	0.3-

5447 T-2 = 1990 EH2
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Kaneda

M 334.03509		(1950.0)	P	Q
n 0.27531576	Peri.	334.28511	+0.31292186	+0.94386997
a 2.3401768	Node	313.74660	-0.84413157	+0.22533513
e 0.2316284	Incl.	8.41995	-0.43534102	+0.24152341
P 3.58	H 14.7		G 0.25	

Residuals in seconds of arc

730929 675	0.4+	0.3+	731005 675	0.8+	0.4-	900302 809	0.5+	0.3-
730929 675	0.9-	0.5+	731005 675	1.1+	0.1+	900302 809	0.6+	0.1+
730930 675	0.1-	0.1+	900224 809	0.0	0.1+	900304 809	0.5-	0.0
730930 675	0.2+	0.4-	900224 809	0.5-	0.2+	900304 809	0.2-	0.3+
731004 675	0.3+	0.1-	900224 809	0.2-	0.2+	900304 809	0.7-	0.3-
731004 675	1.7-	0.0	900302 809	1.0+	0.3-			

3453 T-3 = 1990 EQ4
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 (J-P) Williams

M 356.29462	(1950.0)	P	Q
n 0.27955027	Peri. 72.64574	-0.18058291	+0.98345749
a 2.3164893	Node 186.99661	-0.94079571	-0.17691948
e 0.1505420	Incl. 6.68682	-0.28686799	-0.03886990
P 3.53	H 15.0	G 0.25	

Residuals in seconds of arc

771007	675	1.7-	0.1-	771021	675	0.8-	1.0+	900404	809	0.6+	1.4-
771011	675	0.7-	0.8+	771022	675	(3.5+	0.1-)	900404	809	1.5-	1.2-
771011	675	0.8-	0.0	771022	675	2.4+	0.2-	900415	809	1.5+	0.5+
771012	675	1.0+	1.3-	900302	809	0.1+	0.4+	900416	809	0.3+	0.8+
771012	675	0.9+	0.5-	900302	809	0.3-	0.6+	900416	809	0.4+	0.5-
771016	675	0.5+	0.6-	900302	809	0.1-	0.6-	900416	809	0.1+	0.9+
771016	675	0.6+	0.7-	900304	809	0.0	0.1+	900417	809	0.7-	1.2+
771017	675	1.7-	0.0	900304	809	0.1-	0.5+	900417	809	1.9-	0.9+
771017	675	0.6-	0.3+	900304	809	0.0	0.2+				
771021	675	0.9+	1.5+	900404	809	1.6+	2.2-				

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NEW NAMES OF MINOR PLANETS.

(2319) Aristides = 7631 P-L
Discovered 1960 Oct. 17 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.
Named for the Athenian politician Aristides (fl. c. 500 B.C.), famous for his just determination of the contribution from Athens' allies.

(2339) Anacreon = 2509 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 for the Greek poet Anacreon (fl. c. 550 B.C.), whose poems celebrate wine, love and friendship.

(2663) Miltiades = 6561 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 for the commander of the Athenian troops who conquered the Persian army in the battle near Marathon in 490 B.C.

(2782) Leonidas = 2605 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 for the king of Sparta who defended the Thermophylae pass against the Persians in 480 B.C.

(2798) Vergilius = 2009 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 for the Roman poet Virgil (70-18 B.C.), author of the poems Bucolica, Georgica and Aeneis.

(2800) Ovidius = 4585 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 for the Roman poet Ovid (43 B.C.-A.D. 18), whose collections of poems include Ars Amatoria, Metamorphoses, Tristia and Fasti.

(2818) Juvenalis = 2580 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 for the Roman satirical poet Juvenal (fl. c. A.D. 100).

(3226) Plinius = 6565 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 for Pliny (62-114), the Roman author who described the A.D. 79 eruption of Vesuvius.

(3244) Petronius = 4008 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 for Petronius (fl. c. A.D. 60), Roman author whose main work is the novel Satryricon.

(3251) Eratosthenes = 6536 P-L
Discovered 1960 Sept. 24 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.
Names for the Greek scholar Erathosthenes, who lived in Alexandria around 250 B.C. and was the first person to determine the size of the earth correctly.

(3279) Solon = 9103 P-L
Discovered 1960 Oct. 17 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.
Named for the Athenian legislator who lived around 600 B.C.

(3377) Lodewijk = 4122 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 Lodevijk Woltjer, former editor of the Astronomical Journal and former director of the European Southern Observatory, well known for his studies on the Crab nebula. Name proposed by J. H. Oort.

(3538) Nelsonia = 6548 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 Elisabeth Nelson, former secretary of the Landessternwarte and the Max Planck Institut fur Astronomie, both at Heidelberg. She took care of the investigators of the Palomar-Leiden Survey during the blinking of the survey plates in Heidelberg.

(3664) Anneres = 4260 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 Anna Theresia ("Anneres") Schmadel. She is the wife of Lutz D. Schmadel, a senior staff astronomer at the Astronomisches Rechen-Institut in Heidelberg.

(3722) Urata = 1927 UE
Discovered 1927 Oct. 29 by K. Reinmuth at Heidelberg.
Named in honor of Takeshi Urata (1947-), one of the most active amateur astronomers in Japan and the director of the minor planet section of the Oriental Astronomical Association. Well known for both his astrometric observations and his orbital computations for both comets and minor planets, he pioneered the contributions by Japanese amateur astronomers in both the discovery and the identification of minor planets. His discovery of (2090)

Mizuho in 1978 was the first to be made of a minor planet by an amateur astronomer anywhere in more than half a century. He also discovered periodic comet Urata-Niijima in 1986. Details of his work are included in the Nihondaira Observatory Circular, of which some 1700 issues have appeared since he established this publication in 1967. He is also an editor of the Japanese Ephemerides of Minor Planets. Name proposed and citation prepared by S. Nakano, who found the identifications involving this planet, and who has been his best friend for many years.

(3871) Reiz = 1982 DR2

Discovered 1982 Feb. 18 by R. M. West at the European Southern Observatory.

Named in honor of Anders Reiz (1915-), professor emeritus at the Copenhagen University Observatory and highly esteemed teacher and friend of the discoverer. He obtained a doctorate in astronomy from the Lund University Observatory in 1941 and worked there until 1958, when he became a full professor in Copenhagen and director of the university observatories in Copenhagen and Brorfelde. With remarkable skills as teacher and administrator, he contributed substantially to the rapid progress in theoretical and observational astrophysics in Denmark that commenced in the early 1960s. In particular, his persistent efforts soon provided the young generation of astronomers with better tools and research opportunities, from the first digital GIER computer at the observatory in 1961 and several medium-size instruments at the Brorfelde observatory, to the large telescopes at La Silla when Denmark became a member of ESO in 1967. He took the initiatives for the construction of the national Danish 1.5-m telescope on La Silla and the 2.5-m Nordic Optical Telescope on La Palma, two first-class instruments which serve astronomers from Scandinavia and beyond. His research interests have ranged from galaxies to stellar evolution, including the first models of red giants in 1947 and of metal-deficient subdwarfs in 1953, as well as the perfection of associated numerical methods. He made more than 30 000 visual observations with the meridian circle in Lund during the war and recently returned to high-precision astrometry with the Danish 1.5-m telescope at ESO. He early conceived the idea of a joint European professional astronomy journal and was instrumental to the mergers that led to the launch of "Astronomy and Astrophysics" in 1968.

(4040) Purcell = 1987 SN1

Discovered 1987 Sept. 21 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory.

Named for Henry Purcell (1659-1695), English composer, a prolific and immensely gifted writer of many forms of music. Purcell’s astonishing fantasias for viols, written when he was barely out of his teens, have had a great influence on the discoverer.

(4079) Britten = 1983 CS

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

Named for Benjamin Britten (1913-1976), English composer. Best known for his operas and other vocal music, Lord Britten was also an accomplished pianist and conductor. His music is imbued with a rare beauty of line and limpidity of texture.

(4081) Tippett = 1983 RC2

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

Named for Sir Michael Tippett (1905-), English composer. Tippett’s music, particularly that for voice, is marked by a compassionate humanity.

(4087) Part = 1986 EM1
Discovered 1986 Mar. 5 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory.
Named for Arvo Part (1935-), Estonian-born composer. Until 1968, Part composed mainly serially. Since that year his music has evolved into what he terms a "tintinnabular" style, which is much influenced by medieval plainsong and organum. The calmness and linear clarity of the composer's recent music, which is often compared to that of Benjamin Britten, have much affected the discoverer.

(4152) Weber = 1985 JF
Discovered 1985 May 15 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory.
Named for Carl Maria von Weber (1786-1826), German composer. Although Weber did not invent German Romantic opera, he was strongly influential in setting its course, both as a composer and conductor. Similarly, he was a primary builder of the nineteenth-century Romantic movement in music. His operas and overtures are often performed, but his symphonies, most of his concerti and his piano works have fallen into unjust neglect.

(4155) Watanabe = 1987 UB1
Discovered 1987 Oct. 25 by S. Ueda and H. Kaneda at Kushiro.
Named in honor of Kazuro Watanabe (1955-), known for his positional measurements of comets, minor planets and meteors. An astronomical specialist in the Sapporo Youth Science Museum, he is responsible for passing astronomical information to the public and is known throughout Hokkaido as a popular leader of astronomical activities. He is also involved in the preparations of maps. Name suggested by S. Nakano.

(4223) Shikoku = 1988 JM
Discovered 1988 May 7 by T. Seki at Geisei.
Named for Japan's fourth largest island, the one on which the Geisei Station is located. "Shikoku" means "the island that has four local counties". Three long bridges straddle the Seto Inland Sea and connect Shikoku to Honshu, the largest island.

(4260) Yanai = 1989 AX
Discovered 1989 Jan. 4 by S. Ueda and H. Kaneda at Kushiro.
Named in honor of Masayuki Yanai (1959-), who has since 1987 been an active observer and discoverer of minor planets. He lives in Kitami and works for the Nippon Telephone and Telegram Company.

(4278) Harvey = 1982 SF
Discovered 1982 Sept. 22 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory.
Named in honor of G. Roger Harvey, instructor in astronomy at the University of North Carolina in Charlotte. Using handcrafted Newtonian reflectors of up to 74-cm aperture, Harvey has visually observed more than 2600 different minor planets, far surpassing previous efforts. His observations have at times proved scientifically valuable for determining rotation periods and identifying wayward objects. Name suggested and citation provided by J. U. Gunter, who sparked Harvey's interest in minor planets; name endorsed by B. G. Marsden.

(4282) Endate = 1987 UQ1
Discovered 1987 Oct. 28 by S. Ueda and H. Kaneda at Kushiro.
Named in honor of Kin Endate (1960-), another very active amateur astronomer who has been observing and discovering minor planets during the

past few years. He lives in Bihoro and works for the Endate Craft Company, where he makes wooden crafts, trays, cylinders, sugar pots, vessels, etc., along with the help of his family.

(4294) Horatius = 4016 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 for the Roman poet Horatio (65-8 B.C.), whose main poems are collected in Sermones, Carmina and Epistolae.

(4295) Wisse = 6032 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 Marijke Wisse-Schouten, who as a staff member of the Leiden Observatory performed the photometry for the three Palomar-Leiden Trojan surveys.

(4325) Guest = 1982 HL

Discovered 1982 Apr. 18 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory.

Named in honor of John E. Guest, reader in Planetary Studies at University College, London, and a colleague of the discoverer's at the University of London Observatory during the latter's postgraduate days. A leading British planetary geologist and a specialist in vulcanology, Guest has worked on the geological mapping of the moon, Mars and many of the atmosphereless satellites of the major planets. He was a principal investigator on the Soviet Phobos missions and is currently a team member on the Magellan radar-mapping mission to Venus. Guest has not neglected research on terrestrial vulcanology, however, as witness his book on Etna. Citation provided by D. McNally at the request of the discoverer.

(4326) McNally = 1982 HS1

Discovered 1982 Apr. 26 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory.

Named in honor of Derek McNally, Director of the University of London Observatory (University College London). A teacher of the discoverer while he was an undergraduate student, McNally's main astronomical research areas are theoretical modeling of star formation and interstellar spectroscopy using both groundbased observations and data from the International Ultraviolet Explorer satellite. He also takes a keen interest in astronomical education. Currently, he is general secretary of the International Astronomical Union. Citation provided by J. E. Guest at the request of the discoverer.

(4347) Reger = 1988 PK2

Discovered 1988 Aug. 13 by F. Borngen at Tautenburg.

Named in memory of Max Reger (1873-1916), chief conductor and general music director of the renowned court orchestra in Meiningen during 1911-1914 and professor of composition and counterpoint in Leipzig until his death. Reger is well known for his monumental organ compositions and for his chamber and orchestra music.

(4354) Euclides = 2142 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 for the Greek mathematician Euclid, who lived in Alexandria about 300 B.C.

(4399) Ashizuri = 1984 UA

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

Named for a famous promontory in the southwestern part of Shikoku island. Many tourists visit the promontory for its beautiful ocean view, but it is often subjected to summer typhoons.

(4404) Enirac = 1987 GG

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

Named in honor of the discoverer's spouse Carine, herself an amateur astronomer. Always wanting to share her interest in astronomy with others, she founded an astronomy club in Nice in 1978 and has presided over summer astronomy camps for teenagers during several subsequent summers. Married since 1982 and now the mother of two, she has long been and continues to be a support to her husband's activities.

(4457) van Gogh = 1989 RU

Discovered 1989 Sept. 3 by E. W. Elst at Haute Provence.

Named in memory of the famous Dutch painter Vincent van Gogh (1853-1890) on the 100th anniversary of his death in Auvers sur Oise by his own hand. Deeply concerned with human suffering, van Gogh went in 1879 to the Borinage, a poor mining district in southern Belgium, to do some missionary work. It was there that he discovered his true vocation, not as a preacher but as a painter. This first great spiritual crisis in his life is testified by his early dark realistic pictures, which bear a social-critical message. In 1886 he went to Paris, where he met the "pointillists". In his later works color acquired a special function, providing a vision that influenced the upcoming expressionistic generation in the twentieth century. During his period in the Provence his landscapes expressed more and more his inner emotions. The colors become extremely vivid, although he was always in search of rest and harmony. Citation prepared by Kristina Leterme, at the request of the discoverer.

(4460) Bihoro = 1990 DS

Discovered 1990 Feb. 28 by K. Endate and K. Watanabe at Kitami.

Named for the city, home of the first discoverer, at the junction of the Bihoro and Abashiri rivers, the latter running near the Kitami station. Some 30 km from the sea of Okhotsk, the city has a population of approximately 26 000, and its main industries are beets and potatoes. The Bihoro pass, 525 m above sea level, is in the Akan national park 20 km from the nearest town and is renowned for its grand panorama that includes the Kussharo lake.

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EPHEMERIDES.

1990 KA a,e,i = 2.20, 0.43, 8 Elements MPC 16588

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990 07	08	16 15.05	-16 14.3	0.324	1.280	139.5	31.0	15.3
1990 07	13	16 26.64	-18 55.9					
1990 07	18	16 38.80	-21 21.1	0.366	1.306	136.6	32.3	15.6
1990 07	23	16 51.45	-23 28.8					
1990 07	28	17 04.48	-25 18.7	0.420	1.339	133.3	33.5	16.0
1990 08	02	17 17.79	-26 51.0					
1990 08	07	17 31.25	-28 06.7	0.486	1.377	129.8	34.5	16.4
1990 08	12	17 44.75	-29 07.0					
1990 08	17	17 58.24	-29 53.2	0.564	1.419	126.1	35.2	16.8
1990 08	22	18 11.65	-30 26.6					
1990 08	27	18 24.96	-30 48.6	0.652	1.466	122.2	35.7	17.2

1990 09 01	18 38.12	-31 00.3						
1990 09 06	18 51.09	-31 03.0	0.752	1.515	118.1	35.9	17.6	
1990 09 11	19 03.84	-30 57.8						
1990 09 16	19 16.37	-30 45.5	0.861	1.567	113.9	35.9	18.0	
1990 09 21	19 28.67	-30 26.9						
1990 09 26	19 40.76	-30 02.8	0.981	1.620	109.6	35.7	18.3	

1989 PB a,e,i = 1.06, 0.48, 9 Elements MPC 16584

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990 07 08	19 37.35	-38 55.9	0.493	1.494	162.3	11.9	17.0	
1990 07 13	19 17.40	-39 10.8						
1990 07 18	18 56.26	-39 02.2	0.464	1.460	159.2	14.3	16.9	
1990 07 23	18 35.12	-38 28.2						
1990 07 28	18 15.23	-37 30.9	0.458	1.419	146.2	23.4	17.0	
1990 08 02	17 57.52	-36 15.4						
1990 08 07	17 42.55	-34 48.2	0.470	1.372	131.6	33.5	17.3	
1990 08 12	17 30.48	-33 15.6						
1990 08 17	17 21.23	-31 42.5	0.495	1.319	118.0	42.6	17.5	
1990 08 22	17 14.59	-30 12.3						
1990 08 27	17 10.24	-28 46.8	0.523	1.260	106.1	50.4	17.8	
1990 09 01	17 07.86	-27 26.7						
1990 09 06	17 07.09	-26 11.9	0.549	1.194	95.5	57.2	17.9	
1990 09 11	17 07.66	-25 01.6						
1990 09 16	17 09.28	-23 55.0	0.568	1.121	86.1	63.5	18.1	
1990 09 21	17 11.73	-22 50.9						
1990 09 26	17 14.74	-21 48.3	0.576	1.042	77.4	69.9	18.1	
1990 10 01	17 18.03	-20 45.8						
1990 10 06	17 21.28	-19 42.3	0.569	0.957	69.0	77.3	18.2	
1990 10 11	17 24.14	-18 36.6						
1990 10 16	17 26.16	-17 27.8	0.545	0.867	60.3	86.6	18.2	

1927 TC a,e,i = 2.40, 0.45, 9 Elements MPC 16574

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990 07 08	22 41.55	-23 34.8	0.549	1.436	130.6	32.6	15.1	
1990 07 13	22 49.95	-22 14.2						
1990 07 18	22 57.68	-20 44.9	0.481	1.401	135.4	30.6	14.7	
1990 07 23	23 04.64	-19 06.1						
1990 07 28	23 10.74	-17 17.0	0.424	1.371	140.9	27.9	14.3	
1990 08 02	23 15.92	-15 16.8						
1990 08 07	23 20.11	-13 05.3	0.379	1.348	147.1	24.1	13.9	
1990 08 12	23 23.27	-10 43.1						
1990 08 17	23 25.35	-08 11.2	0.345	1.331	154.2	19.4	13.6	
1990 08 22	23 26.37	-05 31.6						
1990 08 27	23 26.43	-02 47.0	0.324	1.322	161.7	13.9	13.3	
1990 09 01	23 25.70	-00 01.2						
1990 09 06	23 24.38	+02 41.7	0.318	1.321	168.1	9.1	13.0	
1990 09 11	23 22.69	+05 17.1						
1990 09 16	23 20.90	+07 40.8	0.326	1.327	168.9	8.4	13.1	
1990 09 21	23 19.29	+09 49.9						
1990 09 26	23 18.15	+11 43.1	0.348	1.340	163.6	12.2	13.4	
1990 10 01	23 17.70	+13 19.9						
1990 10 06	23 18.08	+14 41.1	0.384	1.361	156.7	16.9	13.8	
1990 10 11	23 19.37	+15 47.9						
1990 10 16	23 21.59	+16 42.3	0.432	1.387	149.9	21.1	14.2	
1990 10 21	23 24.77	+17 26.4						
1990 10 26	23 28.88	+18 02.4	0.492	1.420	143.5	24.6	14.6	
1990 10 31	23 33.84	+18 32.3						
1990 11 05	23 39.57	+18 57.7	0.564	1.458	137.5	27.3	15.1	
1990 11 10	23 45.97	+19 19.8						

1990 11 15	23 52.97	+19 39.8	0.647	1.500	131.8	29.4	15.5
1990 11 20	00 00.51	+19 58.8					
1990 11 25	00 08.52	+20 17.4	0.741	1.546	126.3	31.0	15.9
1990 11 30	00 16.92	+20 36.1					
1990 12 05	00 25.66	+20 55.3	0.847	1.595	120.9	32.0	16.3
1990 12 10	00 34.67	+21 15.1					
1990 12 15	00 43.92	+21 35.6	0.962	1.646	115.5	32.7	16.6
1990 12 20	00 53.38	+21 57.1					
1990 12 25	01 03.03	+22 19.3	1.087	1.699	110.2	32.9	17.0

1982 DB a,e,i = 1.49, 0.36, 1 Elements MPC 16577

Date ET	R. A. (1950)	Decl.	Delta	r	Variation		V
1990 07 08	23 36.75	-02 08.4	1.245	1.871	-1.75	-12.0	21.5
1990 07 18	23 42.59	-01 20.0					
1990 07 28	23 45.47	-00 48.4	0.999	1.809	-2.33	-16.0	20.8
1990 08 07	23 44.71	-00 37.8					
1990 08 17	23 39.61	-00 52.7	0.792	1.737	-3.14	-21.4	20.0
1990 08 27	23 29.66	-01 36.5					
1990 09 06	23 15.13	-02 48.2	0.649	1.655	-3.87	-26.5	19.0
1990 09 16	22 57.41	-04 19.9					
1990 09 26	22 39.11	-05 56.5	0.591	1.563	-3.81	-26.4	19.0
1990 10 06	22 23.39	-07 19.9					
1990 10 16	22 12.56	-08 17.8	0.606	1.464	-2.94	-21.0	19.4

Comet Levy (1990c) Elements MPC 16552

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	m1
1990 07 08	00 03.76	+29 40.3	1.692	1.993	91.3	30.7	8.1
1990 07 13	00 00.42	+29 40.5					
1990 07 18	23 55.32	+29 32.7	1.379	1.868	101.4	32.2	7.4
1990 07 23	23 47.88	+29 12.7					
1990 07 28	23 37.23	+28 33.6	1.067	1.742	113.5	32.3	6.6
1990 08 02	23 22.13	+27 23.4					
1990 08 07	23 00.74	+25 20.7	0.772	1.618	129.3	29.0	5.5
1990 08 12	22 30.41	+21 46.8					
1990 08 17	21 47.99	+15 37.8	0.528	1.495	150.6	19.4	4.4
1990 08 22	20 51.70	+05 47.1					
1990 08 27	19 45.40	-06 56.1	0.431	1.375	141.8	27.0	3.6
1990 09 01	18 39.82	-18 39.6					
1990 09 06	17 44.85	-26 42.3	0.554	1.262	104.0	50.8	3.7
1990 09 11	17 03.09	-31 32.6					
1990 09 16	16 32.31	-34 26.6	0.784	1.158	79.6	58.7	4.1
1990 09 21	16 09.41	-36 16.4					
1990 09 26	15 51.88	-37 30.2	1.035	1.067	63.1	57.0	4.4

Periodic Comet Smirnova-Chernykh Elements NK 520

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	m2
1990 07 08	04 33.47	+20 28.1	5.036	4.247	35.3	7.9	19.8
1990 07 18	04 43.83	+20 53.2					
1990 07 28	04 53.78	+21 15.0	4.811	4.223	49.5	10.5	19.7
1990 08 07	05 03.19	+21 33.9					
1990 08 17	05 11.93	+21 49.9	4.535	4.199	64.4	12.6	19.5
1990 08 27	05 19.85	+22 03.5					
1990 09 06	05 26.79	+22 15.2	4.225	4.174	80.3	13.8	19.3
1990 09 16	05 32.58	+22 25.4					
1990 09 26	05 37.03	+22 34.5	3.900	4.150	97.4	13.9	19.1
1990 10 06	05 39.97	+22 43.1					
1990 10 16	05 41.24	+22 51.5	3.588	4.125	116.1	12.5	18.9
1990 10 26	05 40.72	+22 59.8					
1990 11 05	05 38.38	+23 08.0	3.322	4.101	136.7	9.5	18.7

1990 11 15	05 34.30	+23 15.8				
1990 11 25	05 28.70	+23 22.7	3.139	4.076	159.1	5.0	18.6
1990 12 05	05 22.00	+23 28.3				
1990 12 15	05 14.74	+23 32.3	3.068	4.051	177.4	0.6	18.5
1990 12 25	05 07.57	+23 34.8				
1991 01 04	05 01.11	+23 36.6	3.120	4.027	154.0	6.1	18.5
1991 01 14	04 55.90	+23 38.5				
1991 01 24	04 52.33	+23 41.5	3.280	4.002	131.6	10.6	18.6
1991 02 03	04 50.62	+23 46.4				
1991 02 13	04 50.83	+23 53.5	3.515	3.978	111.0	13.4	18.7
1991 02 23	04 52.94	+24 03.0				
1991 03 05	04 56.82	+24 14.4	3.788	3.954	92.3	14.5	18.9
1991 03 15	05 02.31	+24 27.3				
1991 03 25	05 09.26	+24 40.8	4.064	3.930	75.2	14.2	19.0
1991 04 04	05 17.47	+24 54.4				
1991 04 14	05 26.80	+25 07.0	4.318	3.906	59.5	12.8	19.1
1991 04 24	05 37.08	+25 18.2				
1991 05 04	05 48.16	+25 27.1	4.531	3.883	44.9	10.6	19.2
1991 05 14	05 59.93	+25 33.2				
1991 05 24	06 12.25	+25 36.1	4.692	3.860	31.1	7.8	19.2

Periodic Comet Arend-Rigaux Elements MPC 13040

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	m2
1990 07 28	21 49.40	-20 32.3	2.871	3.842	160.3	5.1	20.9
1990 08 07	21 42.20	-21 41.3					
1990 08 17	21 34.13	-22 49.3	2.737	3.739	170.7	2.5	20.6
1990 08 27	21 25.79	-23 52.1					
1990 09 06	21 17.89	-24 45.6	2.722	3.633	150.5	7.8	20.7
1990 09 16	21 11.07	-25 27.4					
1990 09 26	21 05.89	-25 56.4	2.810	3.524	128.6	12.8	20.9

1984 UC1 a,e,i = 2.34, 0.12, 3 Elements MPC 16578

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990 07 08	17 12.52	-21 51.3	1.645	2.597	153.9	9.9	17.7
1990 07 18	17 06.06	-21 37.6					
1990 07 28	17 02.40	-21 28.3	1.813	2.608	132.5	16.7	18.2
1990 08 07	17 01.66	-21 24.1					
1990 08 17	17 03.72	-21 24.8	2.041	2.617	113.6	20.8	18.5

1987 ST11 a,e,i = 2.36, 0.13, 6 Elements MPC 16580

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990 07 08	18 15.53	-31 08.9	1.498	2.496	166.0	5.6	17.4
1990 07 18	18 05.19	-31 15.0					
1990 07 28	17 57.12	-31 10.9	1.572	2.471	144.5	13.8	17.7
1990 08 07	17 52.15	-30 59.9					
1990 08 17	17 50.56	-30 45.1	1.725	2.444	124.4	20.0	18.1
1990 08 27	17 52.36	-30 28.7					
1990 09 06	17 57.32	-30 11.6	1.925	2.416	106.7	23.6	18.4

1985 DY1 a,e,i = 2.48, 0.05, 1 Elements MPC 16579

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990 07 08	20 12.07	-21 07.0	1.450	2.445	164.4	6.4	16.2
1990 07 18	20 02.84	-21 40.4					
1990 07 28	19 53.03	-22 11.9	1.424	2.434	171.8	3.4	16.0
1990 08 07	19 43.96	-22 37.8					
1990 08 17	19 36.75	-22 56.0	1.499	2.423	148.9	12.5	16.5
1990 08 27	19 32.21	-23 05.9					
1990 09 06	19 30.75	-23 07.9	1.656	2.413	128.2	19.2	16.9

(4134) Schutz a,e,i = 2.30, 0.10, 4 Elements MPC 14932

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	07 08	21 36.15	-13 16.0	1.400	2.295	143.0	15.4	17.3
1990	07 18	21 30.47	-14 03.2					
1990	07 28	21 22.46	-15 02.7	1.320	2.317	165.8	6.2	16.8
1990	08 07	21 13.06	-16 08.0					
1990	08 17	21 03.51	-17 11.6	1.335	2.339	170.0	4.3	16.8
1990	08 27	20 55.07	-18 07.1					
1990	09 06	20 48.83	-18 49.9	1.451	2.360	146.9	13.5	17.4
1990	09 16	20 45.38	-19 18.3					
1990	09 26	20 44.97	-19 32.2	1.646	2.381	126.3	19.8	17.8

1989 EF a,e,i = 2.64, 0.11, 14 Elements MPC 14623

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	07 08	21 33.06	-01 22.6	1.938	2.781	138.3	14.1	16.4
1990	07 18	21 27.96	-01 55.4					
1990	07 28	21 21.16	-02 47.3	1.828	2.799	158.7	7.6	16.0
1990	08 07	21 13.35	-03 55.5					
1990	08 17	21 05.34	-05 15.2	1.818	2.815	167.5	4.5	15.9
1990	08 27	20 58.03	-06 40.2					
1990	09 06	20 52.19	-08 04.2	1.917	2.831	149.3	10.5	16.3
1990	09 16	20 48.39	-09 21.6					
1990	09 26	20 46.92	-10 28.8	2.107	2.845	128.8	15.9	16.6

(4159) 1989 GK a,e,i = 2.55, 0.07, 15 Elements MPC 14941

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	07 08	21 38.37	-28 17.1	1.660	2.561	145.1	13.1	14.8
1990	07 18	21 33.40	-30 03.5					
1990	07 28	21 25.96	-31 49.4	1.562	2.545	161.5	7.3	14.5
1990	08 07	21 16.85	-33 24.6					
1990	08 17	21 07.20	-34 40.1	1.564	2.530	157.6	8.8	14.5
1990	08 27	20 58.33	-35 30.4					
1990	09 06	20 51.44	-35 53.9	1.662	2.514	139.3	15.1	14.8
1990	09 16	20 47.31	-35 53.2					
1990	09 26	20 46.35	-35 31.8	1.833	2.499	120.7	20.2	15.2

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

Date	ET	R. A. (1950)	Decl.	Delta	r	Variation		V
1990	07 08	21 44.81	-15 05.2	1.403	2.289	-1.52	-15.6	15.3
1990	07 18	21 39.12	-14 25.7					
1990	07 28	21 30.76	-13 51.9	1.277	2.270	-1.73	-16.9	14.8
1990	08 07	21 20.61	-13 21.7					
1990	08 17	21 09.92	-12 53.5	1.246	2.253	-1.79	-16.8	14.5
1990	08 27	21 00.09	-12 25.5					
1990	09 06	20 52.38	-11 56.2	1.314	2.240	-1.65	-15.5	15.0
1990	09 16	20 47.59	-11 25.0					
1990	09 26	20 46.08	-10 50.7	1.462	2.230	-1.42	-13.9	15.5

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

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	07 08	21 42.03	-03 14.2	2.162	2.991	137.4	13.3	17.7
1990	07 18	21 36.85	-03 40.3					
1990	07 28	21 30.08	-04 21.5	2.066	3.033	158.4	7.1	17.4
1990	08 07	21 22.33	-05 15.4					
1990	08 17	21 14.36	-06 17.8	2.072	3.074	169.8	3.3	17.3
1990	08 27	21 06.95	-07 24.0					
1990	09 06	21 00.81	-08 28.7	2.190	3.113	151.5	8.9	17.7
1990	09 16	20 56.45	-09 28.0					
1990	09 26	20 54.17	-10 18.9	2.404	3.150	130.6	14.0	18.1

1985 RE4 a,e,i = 3.01, 0.10, 11 Elements MPC 15710

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990 07 08	21 38.60	-11 29.3	1.864	2.736	141.8	13.3	15.8
1990 07 18	21 34.82	-12 24.6					
1990 07 28	21 29.16	-13 32.8	1.742	2.731	163.8	6.0	15.4
1990 08 07	21 22.24	-14 49.2					
1990 08 17	21 14.88	-16 07.5	1.720	2.728	172.9	2.6	15.2
1990 08 27	21 07.98	-17 21.4					
1990 09 06	21 02.46	-18 25.5	1.806	2.726	150.1	10.6	15.7
1990 09 16	20 58.93	-19 16.5					
1990 09 26	20 57.79	-19 52.8	1.980	2.726	129.1	16.6	16.0

1979 SD9 a,e,i = 3.20, 0.25, 3 Elements MPC 15702

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990 07 08	21 41.51	-17 49.8	2.022	2.900	143.1	12.1	17.4
1990 07 18	21 37.28	-18 20.3					
1990 07 28	21 31.09	-18 57.4	1.859	2.851	164.6	5.4	16.9
1990 08 07	21 23.50	-19 36.5					
1990 08 17	21 15.29	-20 13.1	1.798	2.803	170.8	3.3	16.7
1990 08 27	21 07.41	-20 42.8					
1990 09 06	21 00.81	-21 02.3	1.843	2.755	148.8	10.9	17.0
1990 09 16	20 56.20	-21 10.1					
1990 09 26	20 54.07	-21 06.0	1.975	2.709	127.9	17.0	17.3

(4343) 1988 AC a,e,i = 2.79, 0.17, 7 Elements MPC 15692

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990 07 08	21 42.79	-03 54.0	2.434	3.257	137.6	12.2	17.0
1990 07 18	21 37.72	-04 01.0					
1990 07 28	21 31.12	-04 20.9	2.295	3.260	158.2	6.6	16.7
1990 08 07	21 23.51	-04 52.2					
1990 08 17	21 15.54	-05 32.4	2.260	3.261	169.4	3.3	16.5
1990 08 27	21 07.94	-06 18.0					
1990 09 06	21 01.42	-07 04.8	2.338	3.260	151.6	8.5	16.8
1990 09 16	20 56.50	-07 49.2					
1990 09 26	20 53.55	-08 28.5	2.513	3.257	130.8	13.5	17.1

1987 UF1 a,e,i = 2.20, 0.19, 4 Elements MPC 12944

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990 07 08	21 39.98	-16 58.1	1.034	1.946	143.3	18.2	16.3
1990 07 18	21 37.59	-17 56.6					
1990 07 28	21 31.98	-19 11.1	0.911	1.909	164.4	8.2	15.7
1990 08 07	21 23.93	-20 32.8					
1990 08 17	21 14.80	-21 50.6	0.870	1.875	169.6	5.6	15.5
1990 08 27	21 06.33	-22 53.4					
1990 09 06	21 00.23	-23 34.0	0.913	1.845	147.6	17.0	15.9
1990 09 16	20 57.61	-23 50.1					
1990 09 26	20 58.99	-23 42.4	1.022	1.821	128.1	25.7	16.4

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

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990 07 08	21 42.55	-01 45.3	1.450	2.297	136.5	17.7	15.9
1990 07 18	21 38.87	-01 35.0					
1990 07 28	21 32.64	-01 47.1	1.280	2.247	156.1	10.6	15.4
1990 08 07	21 24.43	-02 22.3					
1990 08 17	21 15.24	-03 18.1	1.197	2.197	167.6	5.7	15.0
1990 08 27	21 06.31	-04 29.0					
1990 09 06	20 59.00	-05 46.7	1.209	2.147	151.0	13.2	15.2
1990 09 16	20 54.30	-07 02.9					
1990 09 26	20 52.85	-08 10.8	1.303	2.099	130.6	21.3	15.6

1936 QE1 a,e,i = 2.59, 0.17, 14 Elements MPC 16574

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	07 08	21 39.32	+00 13.1	1.478	2.320	136.1	17.7	16.4
1990	07 18	21 36.53	-00 17.0					
1990	07 28	21 31.44	-01 14.9	1.325	2.290	155.9	10.4	15.9
1990	08 07	21 24.67	-02 39.5					
1990	08 17	21 17.13	-04 25.5	1.261	2.262	168.8	5.0	15.5
1990	08 27	21 09.96	-06 24.3					
1990	09 06	21 04.33	-08 24.7	1.295	2.237	152.3	12.1	15.8
1990	09 16	21 01.08	-10 17.1					
1990	09 26	21 00.76	-11 54.2	1.416	2.215	131.9	19.7	16.3

(4130) Ramanujan a,e,i = 3.05, 0.04, 10 Elements MPC 14777

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	07 08	21 41.64	-04 16.9	2.203	3.036	138.0	12.9	16.8
1990	07 18	21 37.43	-04 39.7					
1990	07 28	21 31.61	-05 17.2	2.076	3.045	158.8	6.9	16.5
1990	08 07	21 24.74	-06 07.1					
1990	08 17	21 17.49	-07 05.9	2.049	3.053	170.9	3.0	16.3
1990	08 27	21 10.62	-08 08.8					
1990	09 06	21 04.89	-09 11.0	2.133	3.062	152.5	8.8	16.6
1990	09 16	21 00.83	-10 08.2					
1990	09 26	20 58.80	-10 57.2	2.312	3.071	131.6	14.1	17.0

(4127) Kyogoku a,e,i = 2.87, 0.04, 2 Elements MPC 14776

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	07 08	21 44.55	-12 15.8	1.949	2.811	140.8	13.2	16.3
1990	07 18	21 40.19	-12 42.2					
1990	07 28	21 33.91	-13 19.1	1.819	2.805	162.6	6.2	15.9
1990	08 07	21 26.32	-14 02.8					
1990	08 17	21 18.22	-14 48.8	1.789	2.798	174.0	2.2	15.6
1990	08 27	21 10.54	-15 32.4					
1990	09 06	21 04.17	-16 09.3	1.866	2.792	151.2	10.0	16.1
1990	09 16	20 59.75	-16 37.0					
1990	09 26	20 57.70	-16 54.0	2.034	2.786	130.0	16.0	16.4

1983 HJ a,e,i = 3.17, 0.14, 2 Elements MPC 12959

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	07 08	21 45.49	-14 04.2	2.575	3.427	141.2	10.7	17.3
1990	07 18	21 40.73	-14 34.1					
1990	07 28	21 34.52	-15 10.6	2.462	3.446	163.1	4.9	17.0
1990	08 07	21 27.36	-15 50.3					
1990	08 17	21 19.87	-16 29.9	2.457	3.465	173.9	1.8	16.8
1990	08 27	21 12.75	-17 06.0					
1990	09 06	21 06.64	-17 35.7	2.565	3.483	151.3	8.0	17.2
1990	09 16	21 02.04	-17 57.6					
1990	09 26	20 59.27	-18 10.7	2.770	3.500	130.0	12.7	17.6

1989 CY1 a,e,i = 2.38, 0.16, 2 Elements MPC 14478

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	07 08	21 51.77	-10 40.7	1.601	2.457	138.5	15.9	16.7
1990	07 18	21 46.55	-11 11.1					
1990	07 28	21 39.02	-11 55.1	1.508	2.489	160.9	7.7	16.4
1990	08 07	21 29.98	-12 47.8					
1990	08 17	21 20.46	-13 43.4	1.511	2.521	174.7	2.1	16.1
1990	08 27	21 11.58	-14 35.9					
1990	09 06	21 04.39	-15 20.3	1.620	2.551	151.4	10.9	16.7
1990	09 16	20 59.57	-15 53.6					
1990	09 26	20 57.48	-16 14.6	1.817	2.579	130.1	17.3	17.2

1987 SK a,e,i = 2.17, 0.13, 1 Elements MPC 12456

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	07 08	21 49.50	-15 23.2	1.078	1.972	140.6	19.1	16.6
1990	07 18	21 46.44	-15 40.2					
1990	07 28	21 40.10	-16 10.5	0.959	1.950	162.0	9.2	16.0
1990	08 07	21 31.29	-16 48.3					
1990	08 17	21 21.36	-17 26.0	0.922	1.932	173.7	3.3	15.6
1990	08 27	21 11.99	-17 56.1					
1990	09 06	21 04.85	-18 12.9	0.973	1.917	150.7	14.9	16.2
1990	09 16	21 01.00	-18 14.3					
1990	09 26	21 00.93	-18 00.0	1.096	1.905	130.4	23.6	16.7

1989 FO a,e,i = 2.40, 0.04, 4 Elements MPC 14625

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	07 08	21 49.87	-14 24.9	1.439	2.314	140.3	16.3	16.4
1990	07 18	21 45.89	-15 07.7					
1990	07 28	21 39.33	-16 03.2	1.325	2.312	162.2	7.7	15.9
1990	08 07	21 30.93	-17 05.4					
1990	08 17	21 21.75	-18 06.8	1.303	2.312	173.4	2.9	15.7
1990	08 27	21 13.08	-19 00.4					
1990	09 06	21 06.16	-19 40.7	1.381	2.312	150.5	12.4	16.2
1990	09 16	21 01.81	-20 05.3					
1990	09 26	21 00.49	-20 13.9	1.541	2.313	129.6	19.5	16.6

1989 CH4 a,e,i = 2.39, 0.17, 2 Elements MPC 15252

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	07 08	21 55.45	-13 32.7	1.653	2.508	138.7	15.5	17.3
1990	07 18	21 49.88	-13 56.6					
1990	07 28	21 41.98	-14 30.6	1.559	2.541	161.2	7.4	17.0
1990	08 07	21 32.54	-15 10.1					
1990	08 17	21 22.59	-15 49.6	1.563	2.573	174.8	2.1	16.7
1990	08 27	21 13.26	-16 24.1					
1990	09 06	21 05.61	-16 49.9	1.673	2.602	151.3	10.7	17.3
1990	09 16	21 00.32	-17 05.2					
1990	09 26	20 57.75	-17 09.4	1.872	2.630	129.9	17.0	17.8

1975 VZ a,e,i = 2.46, 0.23, 3 Elements MPC 13447

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	07 08	21 49.44	-12 08.6	1.365	2.238	139.6	17.1	17.2
1990	07 18	21 46.69	-12 34.2					
1990	07 28	21 41.15	-13 16.3	1.201	2.186	161.0	8.7	16.6
1990	08 07	21 33.40	-14 10.9					
1990	08 17	21 24.39	-15 11.7	1.125	2.136	175.4	2.2	16.1
1990	08 27	21 15.48	-16 10.9					
1990	09 06	21 08.12	-17 00.8	1.145	2.088	151.8	13.2	16.6
1990	09 16	21 03.43	-17 36.7					
1990	09 26	21 02.11	-17 55.9	1.243	2.043	130.7	21.9	17.0

1969 TJ2 a,e,i = 3.08, 0.28, 4 Elements MPC 14470

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	07 08	21 50.39	-14 32.5	2.506	3.351	140.2	11.2	18.2
1990	07 18	21 46.09	-15 06.1					
1990	07 28	21 40.09	-15 47.8	2.322	3.302	162.0	5.5	17.8
1990	08 07	21 32.81	-16 34.1					
1990	08 17	21 24.86	-17 21.2	2.243	3.252	174.4	1.7	17.5
1990	08 27	21 16.99	-18 05.0					
1990	09 06	21 09.98	-18 41.9	2.278	3.201	151.7	8.6	17.8
1990	09 16	21 04.47	-19 09.5					
1990	09 26	21 00.95	-19 26.6	2.409	3.148	129.9	14.1	18.1

1976 DK a,e,i = 3.22, 0.06, 19 Elements MPC 13453

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990 07 08	21 49.80	+12 11.7	2.686	3.394	126.8	13.9	17.0
1990 07 18	21 45.71	+12 45.9					
1990 07 28	21 40.13	+13 01.8	2.530	3.395	142.9	10.4	16.8
1990 08 07	21 33.50	+12 57.6					
1990 08 17	21 26.38	+12 33.5	2.461	3.396	153.4	7.7	16.6
1990 08 27	21 19.41	+11 51.0					
1990 09 06	21 13.25	+10 54.2	2.493	3.397	148.9	8.8	16.7
1990 09 16	21 08.44	+09 47.9					
1990 09 26	21 05.36	+08 37.6	2.623	3.397	134.0	12.3	16.9

1985 GU1 a,e,i = 2.67, 0.21, 15 Elements MPC 14948

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990 07 08	22 03.96	-37 53.4	1.259	2.133	138.9	18.2	15.0
1990 07 18	21 58.83	-38 39.3					
1990 07 28	21 50.09	-39 11.2	1.195	2.149	153.0	12.4	14.7
1990 08 07	21 38.92	-39 18.1					
1990 08 17	21 27.07	-38 53.2	1.212	2.171	154.6	11.5	14.7
1990 08 27	21 16.39	-37 55.5					
1990 09 06	21 08.39	-36 29.7	1.315	2.196	141.5	16.6	15.1
1990 09 16	21 03.84	-34 43.7					
1990 09 26	21 02.90	-32 45.0	1.493	2.225	125.1	21.6	15.5

1989 FW a,e,i = 2.67, 0.15, 12 Elements MPC 15253

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990 07 08	21 55.33	-20 03.4	1.691	2.558	140.4	14.7	16.9
1990 07 18	21 51.24	-21 30.2					
1990 07 28	21 44.83	-23 03.4	1.608	2.590	161.2	7.3	16.6
1990 08 07	21 36.79	-24 34.7					
1990 08 17	21 28.07	-25 55.9	1.624	2.622	167.4	4.8	16.5
1990 08 27	21 19.79	-27 00.1					
1990 09 06	21 13.00	-27 43.8	1.745	2.653	147.9	11.6	17.0
1990 09 16	21 08.42	-28 06.9					
1990 09 26	21 06.46	-28 10.8	1.951	2.685	127.8	17.2	17.4

1977 RD3 a,e,i = 2.21, 0.19, 4 Elements MPC 15240

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990 07 08	21 52.51	-19 52.6	1.012	1.912	141.1	19.5	16.3
1990 07 18	21 51.05	-20 41.5					
1990 07 28	21 46.10	-21 42.2	0.891	1.880	161.0	10.1	15.7
1990 08 07	21 38.35	-22 45.6					
1990 08 17	21 29.08	-23 40.7	0.847	1.852	169.6	5.7	15.4
1990 08 27	21 20.08	-24 17.3					
1990 09 06	21 13.17	-24 29.4	0.887	1.830	149.7	16.1	15.8
1990 09 16	21 09.62	-24 16.6					
1990 09 26	21 10.01	-23 41.1	0.995	1.813	130.4	24.9	16.3

1985 VP a,e,i = 3.23, 0.04, 15 Elements MPC 14196

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990 07 08	22 01.02	-25 55.7	2.496	3.340	140.0	11.3	17.0
1990 07 18	21 55.84	-26 20.5					
1990 07 28	21 48.82	-26 44.8	2.366	3.336	159.5	6.1	16.7
1990 08 07	21 40.49	-27 04.1					
1990 08 17	21 31.57	-27 14.5	2.339	3.332	166.3	4.1	16.6
1990 08 27	21 22.89	-27 13.2					
1990 09 06	21 15.25	-26 59.3	2.424	3.327	148.8	9.0	16.9
1990 09 16	21 09.28	-26 33.2					
1990 09 26	21 05.39	-25 56.4	2.603	3.322	128.5	13.7	17.2

1986 RF a,e,i = 2.59, 0.16, 12 Elements MPC 13606

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	07 08	21 55.54	+04 27.4	1.484	2.279	130.4	19.9	16.5
1990	07 18	21 52.80	+04 30.5					
1990	07 28	21 47.68	+04 06.0	1.372	2.303	149.2	13.1	16.2
1990	08 07	21 40.82	+03 13.8					
1990	08 17	21 33.14	+01 57.2	1.340	2.330	164.1	6.8	15.9
1990	08 27	21 25.72	+00 23.2					
1990	09 06	21 19.65	-01 18.6	1.405	2.359	155.4	10.2	16.2
1990	09 16	21 15.72	-02 58.7					
1990	09 26	21 14.39	-04 29.4	1.562	2.390	136.4	16.8	16.6

2041 P-L a,e,i = 2.67, 0.05, 15 Elements MPC 14959

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	07 08	22 10.82	-30 09.2	1.684	2.533	138.0	15.6	18.4
1990	07 18	22 05.53	-30 41.6					
1990	07 28	21 57.37	-31 10.3	1.575	2.538	156.2	9.3	18.1
1990	08 07	21 47.11	-31 27.6					
1990	08 17	21 35.90	-31 27.2	1.560	2.543	162.2	7.0	17.9
1990	08 27	21 25.10	-31 05.6					
1990	09 06	21 16.01	-30 23.1	1.646	2.550	146.8	12.5	18.3
1990	09 16	21 09.48	-29 23.0					
1990	09 26	21 05.98	-28 09.5	1.817	2.557	127.7	18.1	18.7

1988 AF a,e,i = 2.59, 0.13, 13 Elements MPC 14791

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	07 08	22 06.12	-04 41.7	2.029	2.820	132.8	15.3	16.5
1990	07 18	22 01.50	-04 10.3					
1990	07 28	21 54.68	-03 51.2	1.854	2.799	153.4	9.3	16.1
1990	08 07	21 46.14	-03 44.5					
1990	08 17	21 36.61	-03 49.1	1.775	2.777	170.0	3.6	15.8
1990	08 27	21 27.01	-04 02.5					
1990	09 06	21 18.37	-04 21.2	1.804	2.754	155.6	8.7	16.0
1990	09 16	21 11.48	-04 41.4					
1990	09 26	21 06.95	-04 59.4	1.931	2.730	134.5	15.2	16.3

(4502) 1989 KG a,e,i = 2.64, 0.10, 13 Elements MPC 16418

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	07 08	22 01.52	-01 28.9	2.110	2.893	132.3	15.1	16.5
1990	07 18	21 57.95	-01 55.0					
1990	07 28	21 52.44	-02 39.5	1.953	2.895	153.1	9.1	16.1
1990	08 07	21 45.46	-03 40.5					
1990	08 17	21 37.67	-04 54.7	1.892	2.896	171.1	3.1	15.8
1990	08 27	21 29.88	-06 16.4					
1990	09 06	21 22.96	-07 39.4	1.941	2.895	157.0	7.8	16.0
1990	09 16	21 17.60	-08 57.6					
1990	09 26	21 14.31	-10 06.5	2.092	2.893	135.5	14.1	16.4

1989 GP6 a,e,i = 3.05, 0.08, 13 Elements MPC 14957

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	07 08	22 00.89	-11 54.0	2.013	2.841	136.9	14.2	16.5
1990	07 18	21 58.00	-12 54.8					
1990	07 28	21 53.14	-14 08.6	1.883	2.852	158.5	7.5	16.1
1990	08 07	21 46.78	-15 30.4					
1990	08 17	21 39.60	-16 54.1	1.852	2.864	176.8	1.1	15.8
1990	08 27	21 32.44	-18 13.1					
1990	09 06	21 26.20	-19 21.5	1.931	2.876	154.9	8.6	16.2
1990	09 16	21 21.55	-20 15.9					
1990	09 26	21 19.00	-20 54.4	2.107	2.889	133.4	14.6	16.6

1981 EE35 a,e,i = 2.49, 0.19, 7 Elements MPC 10772

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990 07 08	21 58.74	-04 33.8	1.197	2.042	134.4	20.8	18.3
1990 07 18	21 58.40	-04 51.5					
1990 07 28	21 55.24	-05 35.5	1.062	2.026	154.3	12.6	17.8
1990 08 07	21 49.75	-06 43.8					
1990 08 17	21 42.83	-08 10.8	1.005	2.015	174.4	2.8	17.3
1990 08 27	21 35.74	-09 46.8					
1990 09 06	21 29.91	-11 20.4	1.038	2.010	158.3	10.7	17.7
1990 09 16	21 26.41	-12 41.9					
1990 09 26	21 25.94	-13 44.9	1.154	2.010	137.4	19.7	18.2

(4146) 1982 DD2 a,e,i = 2.26, 0.11, 5 Elements MPC 14936

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990 07 08	22 10.85	-07 02.1	1.694	2.498	132.8	17.4	17.7
1990 07 18	22 07.38	-07 24.2					
1990 07 28	22 01.38	-08 04.0	1.541	2.495	154.3	10.2	17.3
1990 08 07	21 53.35	-08 58.8					
1990 08 17	21 44.08	-10 03.6	1.479	2.490	176.3	1.5	16.8
1990 08 27	21 34.64	-11 12.0					
1990 09 06	21 26.21	-12 16.7	1.523	2.483	157.3	9.0	17.2
1990 09 16	21 19.75	-13 12.3					
1990 09 26	21 15.89	-13 54.9	1.662	2.474	135.0	16.7	17.7

1975 SS a,e,i = 3.01, 0.06, 11 Elements MPC 14184

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990 07 08	22 07.63	+00 51.2	2.430	3.179	129.8	14.2	17.6
1990 07 18	22 04.51	+00 47.7					
1990 07 28	21 59.66	+00 28.3	2.260	3.178	149.7	9.3	17.3
1990 08 07	21 53.45	-00 06.8					
1990 08 17	21 46.42	-00 55.6	2.181	3.176	167.1	4.1	17.0
1990 08 27	21 39.26	-01 54.7					
1990 09 06	21 32.70	-02 59.3	2.213	3.174	159.0	6.5	17.2
1990 09 16	21 27.37	-04 04.4					
1990 09 26	21 23.77	-05 05.2	2.349	3.171	138.6	12.1	17.5

1980 FH5 a,e,i = 2.59, 0.16, 14 Elements MPC 15702

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990 07 08	22 18.59	-24 16.6	1.960	2.781	135.8	14.8	17.2
1990 07 18	22 14.03	-24 43.2					
1990 07 28	22 06.85	-25 12.3	1.794	2.752	155.9	8.7	16.8
1990 08 07	21 57.53	-25 38.0					
1990 08 17	21 46.90	-25 54.4	1.725	2.723	167.8	4.5	16.5
1990 08 27	21 36.05	-25 56.5					
1990 09 06	21 26.21	-25 41.9	1.763	2.692	151.5	10.3	16.8
1990 09 16	21 18.35	-25 11.0					
1990 09 26	21 13.13	-24 25.8	1.895	2.661	130.8	16.6	17.1

(4114) 1982 QB1 a,e,i = 2.54, 0.20, 7 Elements MPC 14772

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990 07 08	22 11.96	-13 46.1	1.344	2.184	135.0	19.2	17.0
1990 07 18	22 09.88	-13 21.9					
1990 07 28	22 04.71	-13 07.6	1.183	2.149	155.5	11.3	16.4
1990 08 07	21 56.91	-13 00.8					
1990 08 17	21 47.37	-12 58.0	1.105	2.117	178.6	0.7	15.8
1990 08 27	21 37.45	-12 55.0					
1990 09 06	21 28.66	-12 47.5	1.121	2.090	157.7	10.5	16.2
1990 09 16	21 22.26	-12 32.9					
1990 09 26	21 19.05	-12 09.7	1.223	2.066	136.2	19.6	16.7

3016 P-L a,e,i = 2.65, 0.09, 11 Elements MPC 15902

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	07 08	22 09.00	+05 16.5	1.773	2.521	127.2	18.7	18.1
1990	07 18	22 06.63	+06 00.0					
1990	07 28	22 01.92	+06 22.8	1.602	2.504	145.1	13.4	17.7
1990	08 07	21 55.28	+06 22.3					
1990	08 17	21 47.38	+05 57.6	1.511	2.487	160.2	7.9	17.4
1990	08 27	21 39.17	+05 10.9					
1990	09 06	21 31.73	+04 07.6	1.515	2.472	156.3	9.4	17.4
1990	09 16	21 25.97	+02 55.3					
1990	09 26	21 22.59	+01 41.5	1.613	2.457	138.7	15.6	17.7

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

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	07 08	22 09.68	-04 39.7	1.758	2.553	132.0	17.2	17.1
1990	07 18	22 07.36	-04 30.8					
1990	07 28	22 02.71	-04 38.3	1.596	2.539	152.2	10.7	16.6
1990	08 07	21 56.16	-05 01.6					
1990	08 17	21 48.40	-05 38.1	1.520	2.527	171.7	3.3	16.2
1990	08 27	21 40.38	-06 23.6					
1990	09 06	21 33.17	-07 12.1	1.547	2.516	159.5	8.1	16.4
1990	09 16	21 27.65	-07 58.0					
1990	09 26	21 24.46	-08 36.8	1.669	2.507	138.3	15.4	16.9

(4113) Rascana a,e,i = 2.26, 0.10, 6 Elements MPC 14771

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	07 08	22 15.44	-11 47.5	1.594	2.410	133.5	17.8	17.3
1990	07 18	22 12.30	-12 36.6					
1990	07 28	22 06.47	-13 41.6	1.464	2.424	155.3	10.1	16.9
1990	08 07	21 58.46	-14 57.2					
1990	08 17	21 49.14	-16 16.0	1.425	2.437	177.0	1.2	16.5
1990	08 27	21 39.64	-17 29.9					
1990	09 06	21 31.21	-18 31.6	1.491	2.448	156.3	9.5	17.0
1990	09 16	21 24.82	-19 17.0					
1990	09 26	21 21.11	-19 44.4	1.650	2.457	134.3	17.0	17.4

1989 GO4 a,e,i = 2.43, 0.12, 2 Elements MPC 14796

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	07 08	22 16.63	-10 20.7	1.859	2.656	132.7	16.3	18.2
1990	07 18	22 12.79	-10 35.0					
1990	07 28	22 06.56	-11 02.0	1.717	2.669	154.4	9.5	17.9
1990	08 07	21 58.44	-11 38.8					
1990	08 17	21 49.18	-12 20.8	1.668	2.680	177.8	0.8	17.4
1990	08 27	21 39.79	-13 03.0					
1990	09 06	21 31.32	-13 40.2	1.728	2.690	158.1	8.0	17.8
1990	09 16	21 24.63	-14 08.8					
1990	09 26	21 20.31	-14 26.8	1.886	2.698	135.9	15.0	18.3

1976 GJ2 a,e,i = 2.68, 0.18, 11 Elements MPC 9765

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	07 08	22 12.66	+05 20.3	1.638	2.385	126.4	20.1	17.3
1990	07 18	22 10.48	+05 37.4					
1990	07 28	22 05.90	+05 29.7	1.515	2.418	145.1	13.9	17.0
1990	08 07	21 59.42	+04 56.1					
1990	08 17	21 51.82	+03 58.4	1.469	2.453	162.1	7.3	16.7
1990	08 27	21 44.06	+02 41.5					
1990	09 06	21 37.22	+01 13.4	1.522	2.488	158.8	8.4	16.9
1990	09 16	21 32.13	-00 17.2					
1990	09 26	21 29.36	-01 42.6	1.670	2.525	140.3	14.7	17.3

1982 VC3 a,e,i = 2.60, 0.28, 6 Elements MPC 11518

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990 07 08	22 05.08	-20 43.6	1.055	1.936	138.3	20.4	16.9
1990 07 18	22 06.44	-21 42.2					
1990 07 28	22 04.49	-22 53.4	0.934	1.910	156.7	12.1	16.4
1990 08 07	21 59.67	-24 08.0					
1990 08 17	21 52.93	-25 14.6	0.889	1.892	168.3	6.3	16.1
1990 08 27	21 45.73	-26 01.7					
1990 09 06	21 39.75	-26 21.6	0.926	1.883	153.4	13.9	16.4
1990 09 16	21 36.30	-26 12.7					
1990 09 26	21 36.16	-25 36.7	1.036	1.882	134.9	22.2	16.9

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

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990 07 08	22 19.18	-17 02.7	1.998	2.803	134.2	15.1	18.0
1990 07 18	22 15.84	-17 59.2					
1990 07 28	22 10.16	-19 05.8	1.848	2.803	155.4	8.7	17.6
1990 08 07	22 02.53	-20 17.0					
1990 08 17	21 53.67	-21 26.2	1.795	2.801	171.9	2.9	17.3
1990 08 27	21 44.49	-22 26.6					
1990 09 06	21 36.05	-23 12.9	1.852	2.797	154.8	8.8	17.6
1990 09 16	21 29.23	-23 42.4					
1990 09 26	21 24.66	-23 54.7	2.005	2.791	133.4	15.1	18.0

1988 EF a,e,i = 2.40, 0.37, 21 Elements MPC 13054

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990 07 08	22 18.74	+12 46.9	2.213	2.870	120.9	17.7	18.3
1990 07 18	22 15.92	+13 10.7					
1990 07 28	22 10.88	+13 12.3	1.967	2.809	138.5	13.9	17.9
1990 08 07	22 03.85	+12 47.8					
1990 08 17	21 55.33	+11 54.8	1.797	2.744	154.1	9.3	17.5
1990 08 27	21 46.07	+10 33.6					
1990 09 06	21 37.08	+08 48.7	1.727	2.675	154.9	9.2	17.4
1990 09 16	21 29.31	+06 47.9					
1990 09 26	21 23.59	+04 40.8	1.762	2.602	138.9	14.7	17.5

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

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990 07 08	22 20.93	-09 10.6	1.762	2.551	131.3	17.4	18.6
1990 07 18	22 18.38	-09 18.4					
1990 07 28	22 13.27	-09 40.9	1.584	2.527	152.3	10.8	18.1
1990 08 07	22 05.94	-10 15.9					
1990 08 17	21 57.07	-10 59.6	1.492	2.503	175.5	1.8	17.6
1990 08 27	21 47.64	-11 46.5					
1990 09 06	21 38.83	-12 30.5	1.506	2.478	160.2	7.9	17.8
1990 09 16	21 31.68	-13 06.7					
1990 09 26	21 26.97	-13 31.5	1.616	2.452	137.7	16.0	18.3

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

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990 07 08	22 18.18	-11 09.5	2.599	3.372	132.7	12.8	17.9
1990 07 18	22 15.12	-11 27.3					
1990 07 28	22 10.27	-11 54.5	2.409	3.350	153.8	7.7	17.5
1990 08 07	22 03.94	-12 28.9					
1990 08 17	21 56.65	-13 07.4	2.316	3.327	176.5	1.1	17.1
1990 08 27	21 49.01	-13 46.2					
1990 09 06	21 41.79	-14 21.4	2.337	3.303	160.3	5.9	17.3
1990 09 16	21 35.64	-14 50.1					
1990 09 26	21 31.11	-15 10.0	2.463	3.279	138.1	11.8	17.7

1984 HL a,e,i = 2.79, 0.11, 6 Elements MPC 13455

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	07 08	22 22.32	-07 32.0	2.326	3.083	130.4	14.6	17.0
1990	07 18	22 19.51	-07 56.9					
1990	07 28	22 14.74	-08 34.9	2.157	3.088	151.6	9.0	16.6
1990	08 07	22 08.36	-09 24.0					
1990	08 17	22 00.90	-10 20.3	2.082	3.092	174.3	1.9	16.2
1990	08 27	21 53.07	-11 19.3					
1990	09 06	21 45.70	-12 15.8	2.120	3.094	161.9	5.8	16.5
1990	09 16	21 39.48	-13 05.6					
1990	09 26	21 35.01	-13 45.5	2.263	3.095	139.5	12.2	16.9

2630 P-L a,e,i = 2.42, 0.19, 3 Elements MPC 8144

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	07 08	22 23.76	-15 01.9	1.544	2.354	132.6	18.5	18.6
1990	07 18	22 22.36	-15 24.7					
1990	07 28	22 18.03	-16 01.1	1.360	2.311	153.1	11.5	18.1
1990	08 07	22 11.06	-16 46.7					
1990	08 17	22 02.09	-17 35.6	1.259	2.268	173.9	2.7	17.5
1990	08 27	21 52.23	-18 20.2					
1990	09 06	21 42.89	-18 53.1	1.257	2.226	158.6	9.5	17.8
1990	09 16	21 35.37	-19 10.1					
1990	09 26	21 30.64	-19 09.2	1.345	2.185	136.6	18.4	18.2

1985 FH a,e,i = 2.48, 0.14, 9 Elements MPC 14617

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	07 08	22 24.42	-04 15.4	1.878	2.634	128.5	17.6	17.8
1990	07 18	22 21.87	-04 44.7					
1990	07 28	22 16.99	-05 32.5	1.732	2.659	149.7	11.1	17.4
1990	08 07	22 10.17	-06 36.6					
1990	08 17	22 02.07	-07 52.5	1.675	2.682	172.4	2.9	17.0
1990	08 27	21 53.58	-09 13.7					
1990	09 06	21 45.69	-10 33.0	1.725	2.703	162.3	6.5	17.3
1990	09 16	21 39.28	-11 44.2					
1990	09 26	21 34.98	-12 42.7	1.879	2.723	139.8	13.8	17.7

1967 JP a,e,i = 3.13, 0.11, 4 Elements MPC 9416

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	07 08	22 26.70	-10 25.6	2.315	3.074	130.5	14.6	18.0
1990	07 18	22 23.77	-10 32.5					
1990	07 28	22 18.87	-10 49.5	2.166	3.096	151.5	9.0	17.7
1990	08 07	22 12.36	-11 14.5					
1990	08 17	22 04.80	-11 44.1	2.109	3.118	174.2	1.9	17.3
1990	08 27	21 56.90	-12 14.7					
1990	09 06	21 49.48	-12 42.3	2.164	3.140	162.6	5.5	17.6
1990	09 16	21 43.23	-13 03.9					
1990	09 26	21 38.71	-13 17.3	2.323	3.162	140.5	11.6	18.0

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

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	07 08	22 30.64	-07 16.7	1.675	2.440	128.4	19.1	17.9
1990	07 18	22 28.26	-06 57.3					
1990	07 28	22 23.12	-06 52.3	1.501	2.428	148.9	12.5	17.5
1990	08 07	22 15.54	-07 00.8					
1990	08 17	22 06.19	-07 20.6	1.410	2.416	171.3	3.6	17.0
1990	08 27	21 56.09	-07 47.6					
1990	09 06	21 46.50	-08 16.4	1.421	2.402	162.8	7.1	17.1
1990	09 16	21 38.55	-08 42.2					
1990	09 26	21 33.09	-09 00.9	1.530	2.388	140.3	15.6	17.6

1987 UU4 a,e,i = 2.31, 0.16, 7 Elements MPC 15250

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990 07 08	22 32.30	-19 25.7	1.790	2.581	131.8	17.1	17.6
1990 07 18	22 29.77	-20 12.9					
1990 07 28	22 24.43	-21 10.4	1.615	2.557	152.1	10.7	17.2
1990 08 07	22 16.57	-22 12.3					
1990 08 17	22 06.86	-23 11.1	1.530	2.531	168.9	4.4	16.8
1990 08 27	21 56.34	-23 59.1					
1990 09 06	21 46.29	-24 29.8	1.549	2.503	155.7	9.5	17.0
1990 09 16	21 37.90	-24 40.6					
1990 09 26	21 32.04	-24 31.4	1.663	2.472	134.6	16.8	17.4

(4085) Weir a,e,i = 2.61, 0.11, 14 Elements MPC 14604

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990 07 08	22 32.64	-29 12.6	1.879	2.680	133.3	16.0	16.3
1990 07 18	22 29.93	-30 38.9					
1990 07 28	22 24.43	-32 07.4	1.772	2.702	150.5	10.7	16.0
1990 08 07	22 16.57	-33 29.4					
1990 08 17	22 07.13	-34 35.9	1.756	2.723	158.4	7.9	15.9
1990 08 27	21 57.21	-35 19.7					
1990 09 06	21 48.05	-35 37.2	1.840	2.743	147.3	11.5	16.1
1990 09 16	21 40.65	-35 29.0					
1990 09 26	21 35.75	-34 58.0	2.013	2.762	129.6	16.2	16.5

1988 DD3 a,e,i = 2.98, 0.04, 9 Elements MPC 13681

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990 07 08	22 30.61	+00 37.1	2.394	3.090	124.9	15.6	18.1
1990 07 18	22 28.08	+01 03.3					
1990 07 28	22 23.59	+01 15.5	2.210	3.094	144.6	11.0	17.8
1990 08 07	22 17.43	+01 13.1					
1990 08 17	22 10.09	+00 56.7	2.111	3.096	163.8	5.2	17.5
1990 08 27	22 02.23	+00 28.3					
1990 09 06	21 54.63	-00 08.5	2.119	3.098	163.3	5.4	17.5
1990 09 16	21 48.02	-00 49.4					
1990 09 26	21 43.02	-01 30.0	2.234	3.100	143.8	11.0	17.8

6035 P-L a,e,i = 2.65, 0.19, 11 Elements MPC 15074

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990 07 08	22 36.54	-23 26.1	1.335	2.149	131.7	20.7	17.2
1990 07 18	22 35.00	-23 32.5					
1990 07 28	22 29.99	-23 43.5	1.216	2.160	150.8	13.3	16.8
1990 08 07	22 21.98	-23 52.2					
1990 08 17	22 11.95	-23 51.4	1.176	2.176	167.7	5.7	16.4
1990 08 27	22 01.29	-23 35.3					
1990 09 06	21 51.60	-23 00.8	1.230	2.196	157.6	10.1	16.7
1990 09 16	21 44.13	-22 09.1					
1990 09 26	21 39.67	-21 02.9	1.373	2.220	137.7	17.7	17.2

1974 VG a,e,i = 3.17, 0.08, 10 Elements MPC 9354

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990 07 08	22 32.15	-23 51.3	2.449	3.227	132.7	13.4	17.2
1990 07 18	22 29.70	-24 39.3					
1990 07 28	22 25.14	-25 32.1	2.280	3.211	151.8	8.6	16.8
1990 08 07	22 18.76	-26 24.5					
1990 08 17	22 11.09	-27 11.1	2.206	3.195	165.0	4.7	16.6
1990 08 27	22 02.85	-27 46.5					
1990 09 06	21 54.91	-28 06.8	2.240	3.179	154.3	7.9	16.8
1990 09 16	21 48.06	-28 10.3					
1990 09 26	21 42.95	-27 57.2	2.374	3.163	134.9	13.0	17.0

1985 HL a,e,i = 2.56, 0.25, 7 Elements MPC 14617

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	07 08	22 34.28	-04 06.2	2.204	2.922	126.2	16.3	18.8
1990	07 18	22 31.38	-04 26.6					
1990	07 28	22 26.35	-05 02.5	2.053	2.960	147.4	10.7	18.5
1990	08 07	22 19.55	-05 52.1					
1990	08 17	22 11.54	-06 52.1	1.993	2.995	170.1	3.3	18.2
1990	08 27	22 03.07	-07 57.5					
1990	09 06	21 55.00	-09 02.7	2.044	3.028	164.8	5.0	18.3
1990	09 16	21 48.09	-10 02.5					
1990	09 26	21 42.94	-10 53.0	2.203	3.058	142.2	11.6	18.8

3109 P-L a,e,i = 2.95, 0.05, 11 Elements MPC 14628

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	07 08	22 32.84	-00 34.8	2.080	2.791	125.0	17.4	18.6
1990	07 18	22 30.61	+00 08.5					
1990	07 28	22 26.15	+00 37.9	1.902	2.791	144.4	12.2	18.3
1990	08 07	22 19.74	+00 52.3					
1990	08 17	22 11.93	+00 51.8	1.806	2.792	163.7	5.9	17.9
1990	08 27	22 03.48	+00 37.9					
1990	09 06	21 55.31	+00 14.1	1.813	2.794	163.3	5.9	17.9
1990	09 16	21 48.29	-00 15.3					
1990	09 26	21 43.11	-00 45.5	1.924	2.797	143.8	12.2	18.3

1984 YU1 a,e,i = 2.27, 0.08, 3 Elements MPC 14474

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	07 08	22 37.69	-12 39.0	1.619	2.390	128.7	19.4	16.8
1990	07 18	22 35.58	-12 58.7					
1990	07 28	22 30.56	-13 32.5	1.472	2.403	149.6	12.4	16.4
1990	08 07	22 23.00	-14 16.5					
1990	08 17	22 13.61	-15 05.0	1.408	2.415	172.3	3.2	15.9
1990	08 27	22 03.44	-15 51.2					
1990	09 06	21 53.80	-16 28.3	1.447	2.425	162.0	7.4	16.2
1990	09 16	21 45.83	-16 52.3					
1990	09 26	21 40.35	-17 01.1	1.583	2.435	139.6	15.5	16.7

(4070) 1980 RS2 a,e,i = 2.25, 0.17, 4 Elements MPC 14598

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	07 08	22 29.31	-03 40.8	1.246	2.029	127.2	23.5	16.4
1990	07 18	22 30.23	-02 57.9					
1990	07 28	22 28.02	-02 34.3	1.073	1.996	145.8	16.6	15.8
1990	08 07	22 22.80	-02 31.9					
1990	08 17	22 15.13	-02 50.9	0.967	1.966	166.4	6.9	15.2
1990	08 27	22 06.08	-03 28.2					
1990	09 06	21 57.19	-04 16.8	0.948	1.939	165.2	7.6	15.2
1990	09 16	21 49.99	-05 08.1					
1990	09 26	21 45.67	-05 53.6	1.013	1.917	143.9	17.9	15.7

1980 JC a,e,i = 2.15, 0.16, 2 Elements MPC 15406

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	07 08	22 31.71	-12 06.0	0.990	1.818	129.9	25.4	15.6
1990	07 18	22 33.10	-11 53.1					
1990	07 28	22 30.72	-11 58.2	0.874	1.821	149.1	16.6	15.1
1990	08 07	22 24.87	-12 18.4					
1990	08 17	22 16.40	-12 48.0	0.822	1.830	171.7	4.6	14.5
1990	08 27	22 06.79	-13 18.8					
1990	09 06	21 57.88	-13 42.3	0.854	1.844	164.2	8.6	14.8
1990	09 16	21 51.25	-13 52.6					
1990	09 26	21 47.93	-13 47.0	0.966	1.863	142.4	19.2	15.4

1987 UM1 a,e,i = 2.25, 0.10, 3 Elements MPC 15415

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	07 08	22 40.08	-04 28.7	1.749	2.477	125.1	19.6	16.6
1990	07 18	22 38.46	-04 22.8					
1990	07 28	22 34.15	-04 34.3	1.569	2.473	145.5	13.5	16.1
1990	08 07	22 27.39	-05 02.7					
1990	08 17	22 18.73	-05 45.7	1.468	2.467	168.0	4.9	15.7
1990	08 27	22 09.08	-06 38.7					
1990	09 06	21 59.61	-07 35.0	1.469	2.459	166.0	5.7	15.7
1990	09 16	21 51.42	-08 28.1					
1990	09 26	21 45.44	-09 12.5	1.572	2.449	143.2	14.2	16.1

3006 T-3 a,e,i = 2.22, 0.11, 7 Elements MPC 13476

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	07 08	22 40.10	-19 56.1	1.314	2.117	130.1	21.5	16.1
1990	07 18	22 40.34	-20 31.2					
1990	07 28	22 37.13	-21 18.8	1.155	2.092	149.2	14.4	15.6
1990	08 07	22 30.60	-22 12.6					
1990	08 17	22 21.40	-23 03.5	1.070	2.069	166.9	6.4	15.2
1990	08 27	22 10.74	-23 41.1					
1990	09 06	22 00.31	-23 57.1	1.076	2.047	158.3	10.5	15.3
1990	09 16	21 51.72	-23 47.9					
1990	09 26	21 46.16	-23 14.3	1.168	2.027	138.0	19.3	15.7

(4187) 1978 GR3 a,e,i = 3.05, 0.12, 1 Elements MPC 15221

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	07 08	22 38.04	-07 43.7	2.512	3.226	126.9	14.6	17.7
1990	07 18	22 35.82	-07 57.3					
1990	07 28	22 31.70	-08 22.6	2.341	3.245	147.6	9.6	17.4
1990	08 07	22 25.95	-08 57.8					
1990	08 17	22 19.03	-09 39.9	2.260	3.262	170.2	3.0	17.0
1990	08 27	22 11.53	-10 25.1					
1990	09 06	22 04.21	-11 09.1	2.290	3.279	166.6	4.1	17.1
1990	09 16	21 57.75	-11 47.9					
1990	09 26	21 52.72	-12 18.7	2.430	3.295	144.0	10.3	17.5

1933 OB a,e,i = 2.43, 0.19, 2 Elements MPC 14612

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	07 08	22 31.20	-05 42.7	1.257	2.043	127.6	23.2	16.5
1990	07 18	22 32.93	-05 24.5					
1990	07 28	22 31.64	-05 27.0	1.095	2.021	146.4	16.1	16.0
1990	08 07	22 27.46	-05 50.4					
1990	08 17	22 20.93	-06 32.5	1.001	2.003	168.1	6.0	15.4
1990	08 27	22 13.07	-07 27.6					
1990	09 06	22 05.30	-08 27.0	0.995	1.991	167.4	6.3	15.4
1990	09 16	21 59.02	-09 21.7					
1990	09 26	21 55.34	-10 04.2	1.075	1.983	145.3	16.7	15.9

2145 T-2 a,e,i = 2.64, 0.16, 13 Elements MPC 16242

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	07 08	22 31.74	+05 51.3	1.709	2.409	122.1	21.0	18.4
1990	07 18	22 32.35	+06 07.3					
1990	07 28	22 30.53	+05 59.2	1.507	2.378	140.3	15.8	17.9
1990	08 07	22 26.42	+05 23.9					
1990	08 17	22 20.45	+04 20.6	1.373	2.349	159.6	8.6	17.5
1990	08 27	22 13.36	+02 51.7					
1990	09 06	22 06.21	+01 04.2	1.333	2.322	165.3	6.3	17.3
1990	09 16	22 00.08	-00 51.8					
1990	09 26	21 55.92	-02 45.6	1.392	2.298	146.9	13.8	17.6

1989 EG a,e,i = 2.19, 0.09, 4 Elements MPC 14479

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	07 08	22 44.90	-04 11.7	1.621	2.345	123.9	21.1	17.3
1990	07 18	22 43.44	-03 55.5					
1990	07 28	22 39.09	-03 57.0	1.458	2.357	144.1	14.6	16.9
1990	08 07	22 32.11	-04 16.1					
1990	08 17	22 23.10	-04 50.8	1.370	2.367	166.6	5.7	16.5
1990	08 27	22 13.02	-05 36.5					
1990	09 06	22 03.14	-06 26.6	1.382	2.375	166.9	5.5	16.5
1990	09 16	21 54.65	-07 14.6					
1990	09 26	21 48.49	-07 54.7	1.495	2.382	144.2	14.2	17.0

1978 RY5 a,e,i = 2.57, 0.15, 10 Elements MPC 11344

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	07 08	22 45.23	-19 20.3	1.871	2.631	128.8	17.5	17.8
1990	07 18	22 43.66	-19 43.6					
1990	07 28	22 39.32	-20 15.8	1.677	2.598	148.6	11.7	17.3
1990	08 07	22 32.41	-20 52.4					
1990	08 17	22 23.44	-21 27.3	1.567	2.565	167.6	4.9	16.9
1990	08 27	22 13.30	-21 53.8					
1990	09 06	22 03.21	-22 06.2	1.561	2.532	160.2	7.8	17.0
1990	09 16	21 54.33	-22 01.4					
1990	09 26	21 47.66	-21 38.9	1.653	2.499	139.1	15.2	17.3

(4106) Nada a,e,i = 2.75, 0.18, 10 Elements MPC 14611

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	07 08	22 46.39	-22 52.1	1.826	2.593	129.3	17.7	16.2
1990	07 18	22 44.44	-23 43.3					
1990	07 28	22 39.72	-24 41.2	1.711	2.631	148.5	11.6	15.9
1990	08 07	22 32.60	-25 39.1					
1990	08 17	22 23.77	-26 29.4	1.682	2.670	164.0	6.0	15.7
1990	08 27	22 14.21	-27 05.2					
1990	09 06	22 05.09	-27 21.8	1.756	2.709	156.2	8.6	15.9
1990	09 16	21 57.41	-27 17.9					
1990	09 26	21 51.92	-26 54.8	1.926	2.747	137.2	14.4	16.3

1986 QZ2 a,e,i = 2.57, 0.16, 10 Elements MPC 12134

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	07 08	22 48.25	-20 37.7	1.524	2.298	128.4	20.3	17.1
1990	07 18	22 46.66	-20 59.1					
1990	07 28	22 41.87	-21 28.6	1.404	2.329	148.1	13.3	16.8
1990	08 07	22 34.27	-22 00.2					
1990	08 17	22 24.64	-22 26.7	1.364	2.361	166.7	5.6	16.4
1990	08 27	22 14.16	-22 41.3					
1990	09 06	22 04.23	-22 39.0	1.423	2.395	159.9	8.3	16.7
1990	09 16	21 56.02	-22 18.8					
1990	09 26	21 50.39	-21 42.0	1.577	2.430	139.6	15.5	17.2

1981 EW17 a,e,i = 2.40, 0.15, 2 Elements MPC 15064

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	07 28	22 41.10	-05 20.9	1.604	2.499	144.3	13.7	18.7
1990	08 07	22 35.48	-05 49.6					
1990	08 17	22 27.78	-06 32.7	1.471	2.467	166.7	5.4	18.2
1990	08 27	22 18.78	-07 26.2					
1990	09 06	22 09.56	-08 23.4	1.438	2.434	168.4	4.8	18.1
1990	09 16	22 01.27	-09 17.6					
1990	09 26	21 54.93	-10 02.8	1.508	2.401	145.2	13.8	18.5
1990	10 06	21 51.24	-10 34.9					
1990	10 16	21 50.49	-10 52.0	1.657	2.366	124.3	20.4	18.9

1989 JG a,e,i = 2.56, 0.14, 10 Elements MPC 14796

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	07 28	22 42.25	-17 53.7	2.012	2.921	147.7	10.7	16.9
1990	08 07	22 36.26	-19 08.1					
1990	08 17	22 28.61	-20 24.1	1.924	2.920	167.1	4.4	16.6
1990	08 27	22 19.99	-21 34.7					
1990	09 06	22 11.34	-22 33.3	1.946	2.917	161.0	6.5	16.7
1990	09 16	22 03.58	-23 15.5					
1990	09 26	21 57.50	-23 39.4	2.072	2.912	140.0	12.8	17.1
1990	10 06	21 53.64	-23 45.0					
1990	10 16	21 52.21	-23 34.1	2.277	2.905	119.9	17.3	17.4

1989 GA a,e,i = 2.25, 0.11, 4 Elements MPC 14625

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	07 28	22 46.30	-10 28.7	1.573	2.475	145.0	13.6	17.1
1990	08 07	22 39.60	-10 57.8					
1990	08 17	22 30.74	-11 35.6	1.466	2.465	168.0	4.9	16.7
1990	08 27	22 20.58	-12 16.5					
1990	09 06	22 10.33	-12 53.9	1.460	2.454	167.3	5.2	16.6
1990	09 16	22 01.18	-13 22.6					
1990	09 26	21 54.16	-13 39.0	1.557	2.440	143.9	14.0	17.1
1990	10 06	21 49.92	-13 41.2					
1990	10 16	21 48.65	-13 29.5	1.733	2.425	123.0	20.2	17.5

1985 RT2 a,e,i = 2.92, 0.06, 3 Elements MPC 13159

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	07 28	22 40.34	-11 52.4	1.835	2.742	146.8	11.7	16.1
1990	08 07	22 35.28	-12 38.9					
1990	08 17	22 28.54	-13 32.1	1.741	2.741	168.8	4.1	15.7
1990	08 27	22 20.85	-14 26.4					
1990	09 06	22 13.14	-15 15.6	1.751	2.742	166.6	4.9	15.8
1990	09 16	22 06.31	-15 54.7					
1990	09 26	22 01.16	-16 20.4	1.865	2.743	144.4	12.3	16.2
1990	10 06	21 58.21	-16 31.2					
1990	10 16	21 57.68	-16 27.4	2.061	2.745	124.0	17.5	16.6

(4105) Tsia a,e,i = 2.70, 0.19, 6 Elements MPC 14611

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	07 28	22 40.90	+00 50.9	1.501	2.380	141.2	15.5	15.8
1990	08 07	22 35.82	+00 23.0					
1990	08 17	22 28.92	-00 25.0	1.432	2.416	162.4	7.3	15.5
1990	08 27	22 21.06	-01 28.6					
1990	09 06	22 13.32	-02 40.7	1.458	2.454	168.6	4.6	15.4
1990	09 16	22 06.71	-03 53.4					
1990	09 26	22 02.05	-04 59.6	1.586	2.494	148.1	12.3	15.9
1990	10 06	21 59.82	-05 53.9					
1990	10 16	22 00.16	-06 33.5	1.797	2.534	127.8	18.1	16.4

1969 TL1 a,e,i = 3.08, 0.11, 3 Elements MPC 11743

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	07 28	22 40.55	-12 48.9	1.854	2.762	147.0	11.5	16.2
1990	08 07	22 35.43	-13 30.4					
1990	08 17	22 28.69	-14 17.1	1.774	2.774	168.8	4.1	15.8
1990	08 27	22 21.07	-15 03.6					
1990	09 06	22 13.49	-15 44.2	1.798	2.787	166.3	4.9	15.9
1990	09 16	22 06.82	-16 14.6					
1990	09 26	22 01.82	-16 32.0	1.925	2.802	144.4	12.0	16.3
1990	10 06	21 58.98	-16 35.4					
1990	10 16	21 58.48	-16 25.1	2.135	2.818	124.1	17.0	16.7

1985 PG1 a,e,i = 3.00, 0.10, 10 Elements MPC 10943

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	07 28	22 38.59	+01 55.2	1.910	2.775	141.1	13.3	16.8
1990	08 07	22 34.31	+01 25.4					
1990	08 17	22 28.45	+00 37.1	1.781	2.761	161.7	6.6	16.4
1990	08 27	22 21.61	-00 26.9					
1990	09 06	22 14.64	-01 41.1	1.753	2.748	168.5	4.2	16.2
1990	09 16	22 08.39	-02 59.1					
1990	09 26	22 03.62	-04 14.0	1.830	2.736	148.6	11.0	16.6
1990	10 06	22 00.90	-05 19.8					
1990	10 16	22 00.50	-06 12.9	1.996	2.726	128.0	16.8	17.0

1982 FA a,e,i = 2.27, 0.15, 2 Elements MPC 14615

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	07 28	22 47.18	-10 12.5	1.660	2.558	144.7	13.3	17.8
1990	08 07	22 40.61	-10 59.8					
1990	08 17	22 32.07	-11 55.9	1.572	2.571	167.8	4.8	17.4
1990	08 27	22 22.40	-12 54.5					
1990	09 06	22 12.72	-13 48.4	1.589	2.582	167.3	4.9	17.4
1990	09 16	22 04.12	-14 32.2					
1990	09 26	21 57.50	-15 02.0	1.710	2.590	144.1	13.1	17.9
1990	10 06	21 53.45	-15 16.2					
1990	10 16	21 52.14	-15 15.2	1.912	2.596	123.2	18.8	18.3

1980 TH a,e,i = 2.99, 0.07, 10 Elements MPC 16228

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	07 28	22 44.22	-09 43.5	2.233	3.122	145.2	10.7	17.1
1990	08 07	22 38.24	-09 54.2					
1990	08 17	22 30.76	-10 11.0	2.113	3.110	167.7	4.0	16.7
1990	08 27	22 22.38	-10 30.7					
1990	09 06	22 13.92	-10 49.5	2.102	3.097	168.9	3.6	16.7
1990	09 16	22 06.16	-11 04.2					
1990	09 26	21 59.83	-11 12.1	2.201	3.084	146.0	10.5	17.0
1990	10 06	21 55.46	-11 11.4					
1990	10 16	21 53.28	-11 01.5	2.390	3.071	124.9	15.4	17.4

1988 AL a,e,i = 2.79, 0.17, 9 Elements MPC 13450

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	07 28	22 44.91	-04 07.7	2.367	3.235	142.9	10.9	17.0
1990	08 07	22 39.68	-04 52.4					
1990	08 17	22 33.09	-05 48.1	2.255	3.244	165.2	4.6	16.7
1990	08 27	22 25.67	-06 51.0					
1990	09 06	22 18.15	-07 56.2	2.253	3.252	170.6	2.9	16.6
1990	09 16	22 11.24	-08 58.6					
1990	09 26	22 05.57	-09 53.8	2.365	3.257	147.8	9.4	17.0
1990	10 06	22 01.63	-10 38.6					
1990	10 16	21 59.67	-11 11.3	2.570	3.261	126.3	14.3	17.3

3083 P-L a,e,i = 2.43, 0.15, 7 Elements MPC 15902

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	07 28	22 50.06	+02 22.2	1.384	2.248	138.5	17.4	17.1
1990	08 07	22 44.35	+02 34.4					
1990	08 17	22 36.44	+02 24.8	1.304	2.278	159.0	9.2	16.7
1990	08 27	22 27.23	+01 55.3					
1990	09 06	22 17.97	+01 11.1	1.315	2.310	167.6	5.4	16.6
1990	09 16	22 09.86	+00 19.4					
1990	09 26	22 03.88	-00 32.1	1.425	2.342	149.0	12.7	17.1
1990	10 06	22 00.63	-01 16.9					
1990	10 16	22 00.27	-01 50.8	1.617	2.374	129.0	19.0	17.6

(4099) 1988 AB5 a,e,i = 2.57, 0.08, 16 Elements MPC 14609

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	07 28	22 46.29	-12 28.1	1.727	2.628	145.6	12.6	16.4
1990	08 07	22 41.81	-14 07.4					
1990	08 17	22 35.39	-15 56.7	1.616	2.612	167.0	5.0	16.0
1990	08 27	22 27.69	-17 47.5					
1990	09 06	22 19.67	-19 29.9	1.611	2.596	164.6	5.9	16.0
1990	09 16	22 12.37	-20 55.9					
1990	09 26	22 06.72	-22 00.2	1.710	2.580	142.7	13.6	16.4
1990	10 06	22 03.41	-22 40.9					
1990	10 16	22 02.72	-22 59.1	1.889	2.564	122.3	19.2	16.8

1950 TF a,e,i = 2.24, 0.15, 5 Elements MPC 14942

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	07 28	22 50.54	-04 32.4	1.203	2.098	141.8	17.4	16.6
1990	08 07	22 45.67	-04 21.4					
1990	08 17	22 38.00	-04 26.8	1.075	2.065	163.4	8.0	16.0
1990	08 27	22 28.37	-04 46.0					
1990	09 06	22 18.15	-05 13.8	1.034	2.035	170.5	4.7	15.8
1990	09 16	22 08.88	-05 43.2					
1990	09 26	22 01.95	-06 07.7	1.085	2.007	147.9	15.4	16.2
1990	10 06	21 58.29	-06 21.7					
1990	10 16	21 58.24	-06 22.2	1.210	1.981	127.4	23.6	16.7

1983 HB1 a,e,i = 3.14, 0.16, 13 Elements MPC 14947

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	07 28	22 45.14	-19 19.0	1.766	2.677	147.2	11.9	15.5
1990	08 07	22 41.02	-20 49.0					
1990	08 17	22 35.10	-22 19.7	1.699	2.689	164.8	5.6	15.2
1990	08 27	22 28.11	-23 42.7					
1990	09 06	22 20.99	-24 50.4	1.734	2.704	160.2	7.3	15.3
1990	09 16	22 14.69	-25 37.6					
1990	09 26	22 10.02	-26 02.3	1.868	2.721	140.9	13.4	15.7
1990	10 06	22 07.55	-26 05.2					
1990	10 16	22 07.49	-25 48.5	2.079	2.740	121.9	18.0	16.1

1985 PL1 a,e,i = 2.88, 0.06, 12 Elements MPC 13449

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	07 28	22 45.07	+04 35.6	1.868	2.711	138.3	14.4	18.2
1990	08 07	22 40.99	+04 05.8					
1990	08 17	22 35.23	+03 15.1	1.743	2.711	158.5	7.9	17.9
1990	08 27	22 28.40	+02 06.0					
1990	09 06	22 21.34	+00 43.8	1.716	2.712	168.5	4.2	17.7
1990	09 16	22 14.93	-00 44.3					
1990	09 26	22 09.96	-02 10.7	1.796	2.714	150.4	10.5	18.0
1990	10 06	22 07.01	-03 28.6					
1990	10 16	22 06.37	-04 33.5	1.967	2.716	129.8	16.4	18.4

(4121) 1986 JH a,e,i = 2.37, 0.26, 23 Elements MPC 14774

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	07 28	23 02.01	-59 11.4	0.942	1.783	131.2	25.4	14.8
1990	08 07	22 56.25	-60 42.7					
1990	08 17	22 44.68	-61 21.5	0.932	1.771	131.1	25.5	14.7
1990	08 27	22 30.11	-60 54.5					
1990	09 06	22 16.47	-59 18.5	0.968	1.768	127.0	27.1	14.8
1990	09 16	22 06.76	-56 41.0					
1990	09 26	22 02.25	-53 15.2	1.048	1.775	120.0	29.3	15.1
1990	10 06	22 02.81	-49 16.1					
1990	10 16	22 07.55	-44 57.1	1.171	1.792	111.2	31.3	15.4

1986 QL1 a,e,i = 2.53, 0.16, 5 Elements MPC 12133

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990 07 28	22 54.58	-12 38.4	1.895	2.780	143.7	12.5	17.3
1990 08 07	22 48.83	-13 12.2					
1990 08 17	22 41.06	-13 52.2	1.762	2.755	165.8	5.2	16.8
1990 08 27	22 31.95	-14 33.5					
1990 09 06	22 22.45	-15 10.0	1.733	2.728	168.3	4.3	16.7
1990 09 16	22 13.57	-15 37.1					
1990 09 26	22 06.26	-15 51.2	1.812	2.700	145.7	12.1	17.1
1990 10 06	22 01.22	-15 51.0					
1990 10 16	21 58.78	-15 36.7	1.976	2.670	124.5	17.9	17.4

1982 UG6 a,e,i = 2.61, 0.23, 2 Elements MPC 14784

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990 07 28	22 52.40	-09 50.0	1.676	2.564	143.4	13.7	16.9
1990 08 07	22 47.70	-10 25.2					
1990 08 17	22 40.79	-11 11.2	1.520	2.513	165.5	5.8	16.3
1990 08 27	22 32.26	-12 03.1					
1990 09 06	22 23.13	-12 54.0	1.463	2.462	169.9	4.1	16.1
1990 09 16	22 14.51	-13 37.5					
1990 09 26	22 07.52	-14 08.3	1.510	2.411	146.7	13.2	16.5
1990 10 06	22 02.99	-14 23.1					
1990 10 16	22 01.34	-14 21.4	1.638	2.361	125.6	20.1	16.8

(3946) Shor a,e,i = 3.09, 0.14, 1 Elements MPC 14007

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990 07 28	22 51.52	-07 11.9	2.153	3.023	142.6	11.8	16.8
1990 08 07	22 46.47	-07 40.2					
1990 08 17	22 39.91	-08 17.3	2.062	3.050	164.9	5.0	16.5
1990 08 27	22 32.43	-08 59.3					
1990 09 06	22 24.81	-09 41.5	2.076	3.078	171.8	2.7	16.4
1990 09 16	22 17.83	-10 19.7					
1990 09 26	22 12.17	-10 50.0	2.202	3.104	149.0	9.6	16.8
1990 10 06	22 08.32	-11 10.1					
1990 10 16	22 06.52	-11 19.0	2.419	3.131	127.8	14.6	17.2

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

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990 07 28	22 47.82	+03 37.5	1.082	1.960	138.3	20.2	17.4
1990 08 07	22 45.22	+03 26.9					
1990 08 17	22 39.93	+02 45.1	0.965	1.942	158.2	11.2	16.9
1990 08 27	22 32.72	+01 33.8					
1990 09 06	22 24.89	+00 00.6	0.928	1.928	169.7	5.4	16.5
1990 09 16	22 17.93	-01 42.8					
1990 09 26	22 13.16	-03 23.0	0.978	1.918	151.1	14.6	17.0
1990 10 06	22 11.49	-04 48.7					
1990 10 16	22 13.25	-05 53.2	1.104	1.913	131.1	23.1	17.5

1985 QR a,e,i = 3.02, 0.10, 10 Elements MPC 10403

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990 07 28	22 50.24	-05 54.4	2.108	2.978	142.4	12.0	17.4
1990 08 07	22 46.24	-06 47.5					
1990 08 17	22 40.61	-07 53.0	1.970	2.958	164.6	5.2	17.0
1990 08 27	22 33.88	-09 06.4					
1990 09 06	22 26.79	-10 21.6	1.937	2.938	172.0	2.7	16.8
1990 09 16	22 20.14	-11 32.5					
1990 09 26	22 14.70	-12 33.7	2.014	2.919	148.9	10.2	17.2
1990 10 06	22 11.06	-13 21.2					
1990 10 16	22 09.57	-13 53.4	2.182	2.900	127.6	15.8	17.6

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

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	07 28	22 57.37	-07 39.2	1.661	2.536	141.5	14.4	18.5
1990	08 07	22 51.88	-08 01.1					
1990	08 17	22 44.29	-08 33.9	1.558	2.546	164.0	6.3	18.1
1990	08 27	22 35.33	-09 13.0					
1990	09 06	22 26.06	-09 52.6	1.554	2.556	172.0	3.1	18.0
1990	09 16	22 17.55	-10 27.1					
1990	09 26	22 10.76	-10 52.0	1.655	2.566	148.7	11.7	18.5
1990	10 06	22 06.36	-11 04.6					
1990	10 16	22 04.62	-11 04.0	1.843	2.574	127.5	17.9	18.9

(4119) 1983 BE a,e,i = 2.88, 0.13, 13 Elements MPC 14773

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	07 28	22 55.95	-17 34.5	2.253	3.135	144.4	10.9	17.0
1990	08 07	22 51.10	-18 51.6					
1990	08 17	22 44.65	-20 10.9	2.168	3.153	163.8	5.1	16.7
1990	08 27	22 37.16	-21 26.0					
1990	09 06	22 29.40	-22 30.6	2.191	3.169	163.1	5.3	16.8
1990	09 16	22 22.16	-23 20.2					
1990	09 26	22 16.17	-23 52.2	2.322	3.184	143.4	10.8	17.1
1990	10 06	22 11.98	-24 06.2					
1990	10 16	22 09.87	-24 03.5	2.540	3.197	123.2	15.1	17.5

1989 EX1 a,e,i = 2.34, 0.16, 10 Elements MPC 15252

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	07 28	22 58.88	-09 33.3	1.520	2.401	141.8	15.2	17.0
1990	08 07	22 53.87	-10 56.8					
1990	08 17	22 46.65	-12 31.7	1.445	2.436	164.3	6.4	16.7
1990	08 27	22 38.02	-14 09.5					
1990	09 06	22 29.10	-15 40.1	1.472	2.469	169.0	4.5	16.6
1990	09 16	22 21.01	-16 55.6					
1990	09 26	22 14.74	-17 50.8	1.602	2.501	146.5	12.8	17.2
1990	10 06	22 10.93	-18 24.1					
1990	10 16	22 09.81	-18 36.3	1.816	2.531	125.7	18.7	17.7

(4346) Whitney a,e,i = 3.02, 0.09, 10 Elements MPC 15693

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	07 28	22 54.36	+07 53.6	1.983	2.790	134.4	15.1	16.7
1990	08 07	22 50.37	+07 52.4					
1990	08 17	22 44.67	+07 30.5	1.858	2.802	153.7	9.2	16.4
1990	08 27	22 37.81	+06 48.9					
1990	09 06	22 30.61	+05 50.8	1.827	2.816	165.8	5.0	16.2
1990	09 16	22 23.88	+04 41.8					
1990	09 26	22 18.42	+03 28.7	1.902	2.830	152.6	9.4	16.5
1990	10 06	22 14.82	+02 18.2					
1990	10 16	22 13.39	+01 15.8	2.071	2.844	132.8	14.9	16.9

4113 P-L a,e,i = 2.43, 0.14, 2 Elements MPC 8145

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	07 28	23 00.15	-04 00.2	1.885	2.736	139.4	14.0	18.8
1990	08 07	22 55.14	-04 29.3					
1990	08 17	22 48.13	-05 12.3	1.744	2.724	161.7	6.7	18.3
1990	08 27	22 39.70	-06 05.7					
1990	09 06	22 30.74	-07 03.9	1.705	2.710	173.8	2.3	18.1
1990	09 16	22 22.22	-08 00.8					
1990	09 26	22 15.08	-08 50.6	1.776	2.693	150.3	10.6	18.5
1990	10 06	22 10.04	-09 29.0					
1990	10 16	22 07.49	-09 53.7	1.938	2.675	128.5	17.0	18.9

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

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	07 28	22 59.15	+02 37.1	1.577	2.416	136.4	16.8	17.7
1990	08 07	22 54.80	+02 38.6					
1990	08 17	22 48.13	+02 19.5	1.435	2.400	157.1	9.4	17.2
1990	08 27	22 39.79	+01 40.6					
1990	09 06	22 30.77	+00 46.4	1.384	2.383	170.2	4.1	16.9
1990	09 16	22 22.22	-00 16.7					
1990	09 26	22 15.27	-01 20.7	1.435	2.366	151.8	11.5	17.3
1990	10 06	22 10.73	-02 18.2					
1990	10 16	22 09.04	-03 03.9	1.573	2.350	130.9	18.7	17.7

1957 UK1 a,e,i = 2.85, 0.06, 2 Elements MPC 13050

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	07 28	22 57.59	-05 16.7	1.975	2.833	140.5	13.2	17.4
1990	08 07	22 53.30	-05 45.1					
1990	08 17	22 47.20	-06 25.7	1.840	2.822	162.5	6.2	17.0
1990	08 27	22 39.81	-07 14.8					
1990	09 06	22 31.96	-08 07.3	1.805	2.810	174.0	2.2	16.7
1990	09 16	22 24.53	-08 57.6					
1990	09 26	22 18.35	-09 40.5	1.880	2.798	150.8	10.1	17.2
1990	10 06	22 14.08	-10 12.3					
1990	10 16	22 12.09	-10 31.0	2.045	2.787	129.4	16.1	17.5

1975 SA1 a,e,i = 2.99, 0.06, 10 Elements MPC 13683

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	07 28	23 03.82	-19 45.5	2.060	2.934	142.8	12.1	17.0
1990	08 07	22 58.52	-20 25.0					
1990	08 17	22 51.35	-21 04.5	1.966	2.945	162.0	6.1	16.7
1990	08 27	22 42.94	-21 38.1					
1990	09 06	22 34.19	-22 00.5	1.975	2.957	164.0	5.4	16.7
1990	09 16	22 26.00	-22 08.3					
1990	09 26	22 19.19	-22 00.1	2.091	2.969	145.1	11.2	17.1
1990	10 06	22 14.38	-21 36.2					
1990	10 16	22 11.85	-20 58.6	2.294	2.980	125.1	15.9	17.4

(4266) 1940 YE a,e,i = 3.18, 0.17, 16 Elements MPC 15538

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	07 28	23 03.63	-00 28.1	2.765	3.576	137.0	11.2	17.5
1990	08 07	22 58.45	-00 16.9					
1990	08 17	22 51.82	-00 15.4	2.596	3.556	158.2	6.1	17.1
1990	08 27	22 44.13	-00 22.8					
1990	09 06	22 36.00	-00 37.0	2.534	3.535	172.1	2.3	16.9
1990	09 16	22 28.06	-00 55.3					
1990	09 26	22 20.98	-01 14.6	2.588	3.512	153.3	7.4	17.2
1990	10 06	22 15.31	-01 31.8					
1990	10 16	22 11.41	-01 44.2	2.745	3.489	131.8	12.3	17.5

1986 PX5 a,e,i = 2.55, 0.24, 5 Elements MPC 14787

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	07 28	22 59.31	-11 35.4	1.261	2.156	142.3	16.7	16.5
1990	08 07	22 57.24	-12 34.0					
1990	08 17	22 52.46	-13 47.3	1.122	2.111	163.0	8.1	15.9
1990	08 27	22 45.54	-15 07.5					
1990	09 06	22 37.58	-16 23.9	1.071	2.070	169.5	5.1	15.6
1990	09 16	22 29.93	-17 26.1					
1990	09 26	22 23.98	-18 06.3	1.111	2.033	148.2	15.0	16.0
1990	10 06	22 20.78	-18 20.7					
1990	10 16	22 20.83	-18 09.6	1.225	2.002	128.3	23.0	16.4

1989 EL1 a,e,i = 2.66, 0.23, 13 Elements MPC 14624

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	07 28	23 04.60	+00 21.6	1.985	2.809	136.4	14.4	16.9
1990	08 07	23 00.10	-00 32.8					
1990	08 17	22 53.83	-01 44.0	1.885	2.852	158.6	7.4	16.6
1990	08 27	22 46.36	-03 07.7					
1990	09 06	22 38.50	-04 37.5	1.888	2.894	175.2	1.7	16.4
1990	09 16	22 31.10	-06 06.1					
1990	09 26	22 24.93	-07 26.9	2.004	2.934	153.1	8.9	16.9
1990	10 06	22 20.59	-08 34.8					
1990	10 16	22 18.36	-09 27.3	2.218	2.971	131.2	14.6	17.3

1982 FC a,e,i = 2.33, 0.14, 11 Elements MPC 14347

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	07 28	23 14.27	-20 26.2	1.583	2.452	140.5	15.3	17.7
1990	08 07	23 07.95	-21 14.9					
1990	08 17	22 59.08	-22 03.0	1.504	2.479	160.0	8.0	17.4
1990	08 27	22 48.49	-22 42.4					
1990	09 06	22 37.43	-23 05.7	1.523	2.505	163.2	6.7	17.3
1990	09 16	22 27.17	-23 08.8					
1990	09 26	22 18.83	-22 51.0	1.645	2.529	144.5	13.3	17.8
1990	10 06	22 13.15	-22 14.2					
1990	10 16	22 10.39	-21 21.8	1.849	2.551	124.6	18.8	18.2

1979 SS a,e,i = 2.39, 0.17, 6 Elements MPC 12312

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	07 28	23 07.16	-07 35.3	1.123	2.005	139.2	19.3	17.1
1990	08 07	23 03.82	-07 12.2					
1990	08 17	22 57.40	-07 01.6	1.007	1.990	160.4	9.8	16.6
1990	08 27	22 48.60	-07 00.6					
1990	09 06	22 38.78	-07 04.2	0.973	1.980	175.8	2.2	16.1
1990	09 16	22 29.51	-07 06.7					
1990	09 26	22 22.27	-07 03.0	1.031	1.975	152.6	13.5	16.7
1990	10 06	22 18.10	-06 49.2					
1990	10 16	22 17.42	-06 23.7	1.165	1.976	132.0	22.0	17.2

1982 BW a,e,i = 3.02, 0.06, 11 Elements MPC 13056

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	07 28	23 06.35	-22 39.4	2.175	3.044	142.5	11.7	16.2
1990	08 07	23 01.93	-23 43.3					
1990	08 17	22 55.62	-24 46.7	2.063	3.032	159.6	6.7	15.9
1990	08 27	22 47.94	-25 42.9					
1990	09 06	22 39.71	-26 25.5	2.053	3.020	160.0	6.5	15.9
1990	09 16	22 31.81	-26 50.2					
1990	09 26	22 25.09	-26 55.0	2.148	3.008	142.9	11.6	16.2
1990	10 06	22 20.22	-26 40.2					
1990	10 16	22 17.57	-26 07.9	2.327	2.997	123.7	16.1	16.5

1984 DF1 a,e,i = 2.68, 0.12, 4 Elements MPC 9474

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	07 28	23 08.43	-07 02.4	2.146	2.985	138.7	13.0	18.2
1990	08 07	23 03.57	-07 26.1					
1990	08 17	22 56.86	-07 59.5	2.012	2.987	160.9	6.4	17.8
1990	08 27	22 48.84	-08 39.1					
1990	09 06	22 40.26	-09 20.0	1.981	2.987	175.4	1.5	17.5
1990	09 16	22 31.98	-09 57.7					
1990	09 26	22 24.81	-10 27.9	2.063	2.986	152.0	9.1	18.0
1990	10 06	22 19.42	-10 47.6					
1990	10 16	22 16.17	-10 55.5	2.241	2.983	130.2	14.8	18.3

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

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	07 28	23 08.75	-01 18.6	1.989	2.812	136.3	14.5	18.5
1990	08 07	23 04.22	-01 41.4					
1990	08 17	22 57.81	-02 18.8	1.872	2.837	158.1	7.6	18.1
1990	08 27	22 50.07	-03 07.8					
1990	09 06	22 41.80	-04 03.5	1.854	2.861	175.5	1.6	17.8
1990	09 16	22 33.89	-05 00.3					
1990	09 26	22 27.15	-05 52.5	1.948	2.883	154.0	8.8	18.3
1990	10 06	22 22.24	-06 35.6					
1990	10 16	22 19.52	-07 06.9	2.138	2.904	132.2	14.7	18.7

2160 T-2 a,e,i = 3.21, 0.19, 1 Elements MPC 14965

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	07 28	23 05.37	-07 16.6	2.140	2.986	139.5	12.8	18.2
1990	08 07	23 01.79	-07 41.5					
1990	08 17	22 56.37	-08 16.6	1.974	2.950	161.1	6.4	17.8
1990	08 27	22 49.58	-08 58.6					
1990	09 06	22 42.09	-09 42.8	1.909	2.915	175.6	1.5	17.4
1990	09 16	22 34.73	-10 24.1					
1990	09 26	22 28.33	-10 58.0	1.952	2.880	152.6	9.2	17.8
1990	10 06	22 23.59	-11 20.9					
1990	10 16	22 20.96	-11 30.9	2.090	2.846	131.1	15.3	18.1

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

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	07 28	23 15.02	-15 56.4	1.424	2.294	139.6	16.7	16.4
1990	08 07	23 10.55	-16 37.2					
1990	08 17	23 03.13	-17 24.6	1.287	2.266	160.2	8.7	15.8
1990	08 27	22 53.38	-18 10.8					
1990	09 06	22 42.48	-18 46.8	1.243	2.238	167.6	5.5	15.6
1990	09 16	22 31.85	-19 05.6					
1990	09 26	22 22.93	-19 03.1	1.297	2.209	147.5	14.1	16.0
1990	10 06	22 16.78	-18 38.8					
1990	10 16	22 13.92	-17 55.2	1.431	2.181	126.9	21.4	16.4

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

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	07 28	23 10.76	-10 35.2	1.202	2.080	139.3	18.6	17.3
1990	08 07	23 07.98	-11 10.0					
1990	08 17	23 02.16	-11 58.7	1.073	2.055	160.5	9.5	16.8
1990	08 27	22 53.87	-12 54.6					
1990	09 06	22 44.32	-13 48.2	1.029	2.032	172.5	3.7	16.4
1990	09 16	22 35.02	-14 30.1					
1990	09 26	22 27.46	-14 53.5	1.077	2.012	150.7	14.1	16.9
1990	10 06	22 22.78	-14 55.1					
1990	10 16	22 21.52	-14 35.0	1.201	1.994	130.0	22.5	17.3

1981 VS a,e,i = 2.78, 0.29, 9 Elements MPC 11629

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	07 28	23 04.90	+05 59.5	1.605	2.418	133.4	17.8	16.8
1990	08 07	23 02.89	+06 01.3					
1990	08 17	22 58.57	+05 39.4	1.411	2.358	152.9	11.3	16.2
1990	08 27	22 52.30	+04 52.4					
1990	09 06	22 44.89	+03 42.8	1.302	2.300	169.1	4.8	15.7
1990	09 16	22 37.37	+02 16.7					
1990	09 26	22 30.92	+00 43.2	1.292	2.244	155.8	10.5	15.9
1990	10 06	22 26.56	-00 47.3					
1990	10 16	22 24.96	-02 06.5	1.371	2.192	135.0	18.8	16.2

1976 WC a,e,i = 2.36, 0.35, 22 Elements MPC 13038

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	07 28	23 11.84	+01 26.7	1.755	2.569	134.3	16.4	18.5
1990	08 07	23 08.87	+00 10.3					
1990	08 17	23 03.50	-01 34.3	1.536	2.498	156.5	9.3	18.0
1990	08 27	22 56.06	-03 44.8					
1990	09 06	22 47.26	-06 13.6	1.416	2.423	177.8	0.9	17.3
1990	09 16	22 38.13	-08 49.4					
1990	09 26	22 29.86	-11 18.9	1.409	2.346	152.8	11.3	17.7
1990	10 06	22 23.56	-13 30.5					
1990	10 16	22 20.00	-15 17.1	1.499	2.266	129.3	19.9	18.0

1984 FS a,e,i = 2.64, 0.11, 14 Elements MPC 12965

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	07 28	23 12.20	-08 04.6	2.079	2.916	138.2	13.4	17.1
1990	08 07	23 08.64	-09 16.7					
1990	08 17	23 03.16	-10 41.4	1.934	2.906	160.1	6.8	16.7
1990	08 27	22 56.18	-12 13.1					
1990	09 06	22 48.44	-13 44.7	1.893	2.896	172.9	2.5	16.4
1990	09 16	22 40.78	-15 08.6					
1990	09 26	22 34.04	-16 18.7	1.964	2.883	151.2	9.6	16.8
1990	10 06	22 28.98	-17 11.1					
1990	10 16	22 26.03	-17 44.3	2.130	2.870	129.5	15.5	17.2

1931 UE a,e,i = 2.39, 0.19, 10 Elements MPC 10829

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	07 28	23 19.87	-00 28.3	1.643	2.454	133.4	17.5	17.3
1990	08 07	23 15.79	+00 01.1					
1990	08 17	23 09.04	+00 16.1	1.461	2.414	154.4	10.5	16.8
1990	08 27	23 00.04	+00 16.8					
1990	09 06	22 49.67	+00 05.0	1.369	2.372	172.9	3.0	16.3
1990	09 16	22 39.10	-00 15.3					
1990	09 26	22 29.64	-00 38.7	1.380	2.330	155.4	10.3	16.6
1990	10 06	22 22.40	-00 59.3					
1990	10 16	22 18.07	-01 12.5	1.484	2.288	133.5	18.4	17.0

(4163) 1941 HC a,e,i = 3.02, 0.05, 11 Elements MPC 15054

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	07 28	23 12.51	-11 46.0	2.328	3.167	139.2	12.1	16.1
1990	08 07	23 09.03	-12 49.2					
1990	08 17	23 03.83	-14 00.2	2.194	3.165	160.3	6.2	15.7
1990	08 27	22 57.32	-15 14.0					
1990	09 06	22 50.16	-16 24.3	2.164	3.162	170.3	3.1	15.5
1990	09 16	22 43.08	-17 25.6					
1990	09 26	22 36.83	-18 13.4	2.247	3.159	150.6	9.0	15.9
1990	10 06	22 32.05	-18 45.1					
1990	10 16	22 29.14	-19 00.2	2.425	3.155	129.6	14.1	16.2

(4095) Ishizuchisan a,e,i = 2.12, 0.12, 3 Elements MPC 14607

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	07 28	23 14.21	-00 09.8	1.022	1.879	134.5	22.7	16.5
1990	08 07	23 12.68	+00 06.0					
1990	08 17	23 07.86	-00 02.6	0.906	1.873	154.8	13.3	15.9
1990	08 27	23 00.32	-00 34.7					
1990	09 06	22 51.30	-01 24.8	0.864	1.870	174.5	3.0	15.4
1990	09 16	22 42.40	-02 23.9					
1990	09 26	22 35.25	-03 21.1	0.908	1.871	156.5	12.3	15.9
1990	10 06	22 31.07	-04 06.9					
1990	10 16	22 30.41	-04 35.5	1.030	1.876	135.6	21.8	16.5

(4488) 1987 UK a,e,i = 2.18, 0.14, 4 Elements MPC 16413

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	07 28	23 15.08	+02 35.6	1.214	2.047	133.0	21.3	16.8
1990	08 07	23 13.60	+02 44.0					
1990	08 17	23 09.13	+02 27.1	1.060	2.015	153.1	13.1	16.2
1990	08 27	23 02.06	+01 44.4					
1990	09 06	22 53.39	+00 39.7	0.982	1.985	172.5	3.8	15.7
1990	09 16	22 44.49	-00 38.9					
1990	09 26	22 36.89	-02 00.1	0.995	1.958	157.1	11.5	16.0
1990	10 06	22 31.89	-03 12.7					
1990	10 16	22 30.22	-04 08.6	1.090	1.933	135.7	21.1	16.4

4060 P-L a,e,i = 2.65, 0.04, 2 Elements MPC 14960

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	07 28	23 19.59	-01 53.1	1.935	2.741	134.1	15.4	18.9
1990	08 07	23 16.04	-02 09.4					
1990	08 17	23 10.38	-02 40.5	1.789	2.743	155.6	8.8	18.5
1990	08 27	23 03.08	-03 23.8					
1990	09 06	22 54.87	-04 14.8	1.737	2.744	177.4	1.0	18.0
1990	09 16	22 46.68	-05 07.9					
1990	09 26	22 39.41	-05 57.1	1.795	2.745	157.0	8.2	18.5
1990	10 06	22 33.87	-06 37.4					
1990	10 16	22 30.53	-07 05.5	1.950	2.746	134.8	14.9	18.9

(4097) Tsurugisan a,e,i = 2.24, 0.14, 4 Elements MPC 14608

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	07 28	23 20.19	-10 39.6	1.057	1.929	137.1	21.0	16.1
1990	08 07	23 18.40	-10 53.2					
1990	08 17	23 13.21	-11 19.8	0.947	1.923	157.7	11.5	15.5
1990	08 27	23 05.23	-11 53.4					
1990	09 06	22 55.71	-12 25.0	0.915	1.921	174.4	2.9	15.1
1990	09 16	22 46.29	-12 46.1					
1990	09 26	22 38.58	-12 50.4	0.971	1.923	154.0	13.2	15.6
1990	10 06	22 33.80	-12 35.2					
1990	10 16	22 32.48	-12 01.0	1.104	1.931	133.5	22.0	16.2

1988 AJ5 a,e,i = 3.18, 0.16, 1 Elements MPC 13450

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	07 28	23 19.73	-04 00.6	2.420	3.219	134.9	12.9	18.1
1990	08 07	23 16.03	-04 26.3					
1990	08 17	23 10.69	-05 02.6	2.296	3.250	156.6	7.1	17.8
1990	08 27	23 04.12	-05 46.7					
1990	09 06	22 56.92	-06 34.3	2.273	3.281	179.6	0.1	17.4
1990	09 16	22 49.79	-07 21.1					
1990	09 26	22 43.42	-08 02.8	2.363	3.311	157.2	6.7	17.9
1990	10 06	22 38.38	-08 35.8					
1990	10 16	22 35.06	-08 58.1	2.557	3.340	135.2	12.1	18.3

(4167) 1978 TQ7 a,e,i = 2.58, 0.09, 15 Elements MPC 15056

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	07 28	23 18.13	-01 10.4	1.629	2.447	134.1	17.3	16.0
1990	08 07	23 15.93	-02 24.0					
1990	08 17	23 11.43	-03 59.2	1.504	2.464	156.0	9.6	15.6
1990	08 27	23 05.11	-05 50.5					
1990	09 06	22 57.81	-07 48.8	1.473	2.481	178.9	0.4	15.1
1990	09 16	22 50.51	-09 43.8					
1990	09 26	22 44.23	-11 25.8	1.551	2.500	155.9	9.4	15.7
1990	10 06	22 39.81	-12 47.7					
1990	10 16	22 37.73	-13 46.5	1.723	2.519	133.9	16.6	16.2

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

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990 07 28	23 21.94	-13 52.8	2.636	3.454	137.6	11.4	17.4
1990 08 07	23 17.99	-14 30.1					
1990 08 17	23 12.40	-15 12.1	2.495	3.456	158.2	6.2	17.1
1990 08 27	23 05.54	-15 54.8					
1990 09 06	22 58.01	-16 33.6	2.459	3.457	170.3	2.8	16.9
1990 09 16	22 50.47	-17 04.5					
1990 09 26	22 43.60	-17 24.3	2.537	3.457	152.4	7.7	17.2
1990 10 06	22 38.02	-17 31.4					
1990 10 16	22 34.12	-17 25.4	2.715	3.456	131.4	12.5	17.5

1981 UT15 a,e,i = 2.85, 0.08, 2 Elements MPC 15410

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990 07 28	23 22.02	-05 29.1	1.831	2.648	135.0	15.7	17.2
1990 08 07	23 19.13	-05 45.1					
1990 08 17	23 14.03	-06 13.8	1.682	2.641	156.3	8.9	16.8
1990 08 27	23 07.12	-06 52.1					
1990 09 06	22 59.19	-07 34.9	1.627	2.635	178.9	0.4	16.2
1990 09 16	22 51.16	-08 16.5					
1990 09 26	22 44.00	-08 51.4	1.677	2.630	157.0	8.6	16.7
1990 10 06	22 38.59	-09 15.0					
1990 10 16	22 35.43	-09 25.2	1.823	2.626	135.1	15.5	17.1

(4087) Part a,e,i = 2.18, 0.12, 4 Elements MPC 14604

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990 07 28	23 27.25	-10 56.2	1.059	1.920	135.5	21.7	15.7
1990 08 07	23 25.55	-11 13.2					
1990 08 17	23 20.33	-11 43.3	0.952	1.922	156.1	12.3	15.2
1990 08 27	23 12.16	-12 20.2					
1990 09 06	23 02.29	-12 54.4	0.922	1.927	173.7	3.3	14.7
1990 09 16	22 52.36	-13 17.1					
1990 09 26	22 44.02	-13 22.0	0.980	1.936	154.9	12.7	15.2
1990 10 06	22 38.55	-13 06.4					
1990 10 16	22 36.53	-12 31.2	1.117	1.948	134.1	21.6	15.8

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

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990 07 28	23 26.89	-05 49.0	1.986	2.788	134.0	15.2	17.9
1990 08 07	23 23.45	-06 22.3					
1990 08 17	23 17.88	-07 08.0	1.849	2.803	155.6	8.6	17.5
1990 08 27	23 10.63	-08 02.2					
1990 09 06	23 02.42	-08 59.4	1.809	2.816	177.3	1.0	17.1
1990 09 16	22 54.13	-09 53.5					
1990 09 26	22 46.67	-10 39.0	1.879	2.828	156.8	8.0	17.5
1990 10 06	22 40.83	-11 11.7					
1990 10 16	22 37.08	-11 29.9	2.048	2.839	134.7	14.5	17.9

1986 TD7 a,e,i = 2.66, 0.20, 12 Elements MPC 11733

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990 07 28	23 31.61	-23 20.8	1.259	2.115	136.7	19.2	16.0
1990 08 07	23 29.13	-23 59.2					
1990 08 17	23 23.31	-24 36.4	1.163	2.120	153.9	12.1	15.6
1990 08 27	23 14.78	-25 02.7					
1990 09 06	23 04.80	-25 08.4	1.150	2.130	161.6	8.6	15.5
1990 09 16	22 54.88	-24 47.9					
1990 09 26	22 46.51	-23 59.7	1.226	2.145	148.3	14.2	15.8
1990 10 06	22 40.79	-22 47.2					
1990 10 16	22 38.22	-21 15.6	1.382	2.165	130.3	20.6	16.3

1979 WE2 a,e,i = 3.20, 0.14, 2 Elements MPC 12438

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	07 28	23 23.89	-03 13.8	2.029	2.827	133.7	15.1	16.5
1990	08 07	23 21.73	-03 31.9					
1990	08 17	23 17.56	-04 03.6	1.861	2.810	154.6	8.9	16.1
1990	08 27	23 11.71	-04 46.5					
1990	09 06	23 04.83	-05 36.2	1.787	2.794	177.4	0.9	15.6
1990	09 16	22 57.71	-06 27.4					
1990	09 26	22 51.20	-07 14.3	1.820	2.780	159.3	7.3	16.0
1990	10 06	22 46.12	-07 51.8					
1990	10 16	22 42.99	-08 16.8	1.952	2.768	137.3	14.1	16.4

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

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	07 28	23 31.96	-07 54.1	1.258	2.091	133.5	20.6	16.5
1990	08 07	23 29.98	-07 45.1					
1990	08 17	23 24.71	-07 49.0	1.100	2.059	154.2	12.3	15.9
1990	08 27	23 16.46	-08 02.8					
1990	09 06	23 06.18	-08 20.5	1.022	2.029	177.0	1.5	15.3
1990	09 16	22 55.32	-08 35.5					
1990	09 26	22 45.50	-08 41.3	1.038	2.001	157.4	11.1	15.7
1990	10 06	22 38.19	-08 33.3					
1990	10 16	22 34.25	-08 09.5	1.138	1.976	135.3	20.8	16.2

1986 VW6 a,e,i = 2.70, 0.14, 4 Elements MPC 12584

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	07 28	23 27.66	-07 56.7	1.657	2.477	134.5	17.0	17.0
1990	08 07	23 25.97	-08 32.7					
1990	08 17	23 21.80	-09 22.8	1.496	2.453	155.3	9.9	16.5
1990	08 27	23 15.49	-10 22.5					
1990	09 06	23 07.78	-11 25.0	1.425	2.430	174.5	2.3	16.0
1990	09 16	22 59.68	-12 22.4					
1990	09 26	22 52.30	-13 07.6	1.456	2.410	156.7	9.5	16.4
1990	10 06	22 46.66	-13 35.4					
1990	10 16	22 43.44	-13 44.0	1.579	2.391	135.1	17.1	16.8

1988 CJ5 a,e,i = 2.61, 0.16, 14 Elements MPC 13160

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	07 28	23 22.71	+05 02.1	1.501	2.291	130.2	19.8	16.1
1990	08 07	23 22.53	+04 22.9					
1990	08 17	23 19.89	+03 15.3	1.332	2.268	150.4	12.7	15.6
1990	08 27	23 15.08	+01 40.3					
1990	09 06	23 08.82	-00 16.6	1.244	2.248	172.7	3.3	15.0
1990	09 16	23 02.07	-02 25.5					
1990	09 26	22 56.00	-04 33.8	1.258	2.231	161.3	8.3	15.2
1990	10 06	22 51.66	-06 29.2					
1990	10 16	22 49.76	-08 03.2	1.366	2.217	138.9	17.2	15.7

(4148) McCartney a,e,i = 2.24, 0.10, 5 Elements MPC 14937

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	07 28	23 37.74	-00 53.0	1.664	2.439	129.6	18.7	16.5
1990	08 07	23 34.32	-00 47.9					
1990	08 17	23 28.21	-00 59.1	1.513	2.448	150.9	11.6	16.1
1990	08 27	23 19.82	-01 25.1					
1990	09 06	23 09.98	-02 02.0	1.450	2.454	174.0	2.4	15.6
1990	09 16	22 59.79	-02 44.4					
1990	09 26	22 50.45	-03 25.6	1.492	2.459	160.2	7.9	15.9
1990	10 06	22 43.02	-03 59.8					
1990	10 16	22 38.16	-04 22.6	1.633	2.462	137.5	15.9	16.4

1979 SQ11 a,e,i = 3.19, 0.17, 0 Elements MPC 10761

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	07 28	23 28.38	-04 06.1	1.938	2.733	133.0	15.8	16.4
1990	08 07	23 26.54	-04 19.9					
1990	08 17	23 22.56	-04 47.0	1.770	2.716	153.8	9.5	16.0
1990	08 27	23 16.77	-05 25.0					
1990	09 06	23 09.80	-06 09.4	1.693	2.700	176.5	1.3	15.5
1990	09 16	23 02.49	-06 54.8					
1990	09 26	22 55.74	-07 35.5	1.722	2.687	160.2	7.3	15.8
1990	10 06	22 50.41	-08 06.3					
1990	10 16	22 47.09	-08 24.2	1.850	2.677	138.2	14.4	16.2

1982 FV2 a,e,i = 3.06, 0.21, 3 Elements MPC 11736

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	07 28	23 31.06	-06 29.5	2.564	3.343	133.2	12.8	18.3
1990	08 07	23 28.11	-06 58.9					
1990	08 17	23 23.38	-07 38.4	2.367	3.309	154.5	7.6	17.9
1990	08 27	23 17.15	-08 25.3					
1990	09 06	23 09.93	-09 15.4	2.268	3.274	175.7	1.3	17.5
1990	09 16	23 02.36	-10 04.1					
1990	09 26	22 55.18	-10 46.6	2.284	3.238	158.6	6.5	17.8
1990	10 06	22 49.08	-11 19.3					
1990	10 16	22 44.59	-11 39.7	2.405	3.201	136.3	12.4	18.1

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

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	07 28	23 37.80	-12 24.3	1.495	2.314	133.5	18.6	17.5
1990	08 07	23 35.33	-13 11.1					
1990	08 17	23 29.89	-14 09.9	1.352	2.305	153.9	11.1	17.1
1990	08 27	23 21.87	-15 13.8					
1990	09 06	23 12.13	-16 13.9	1.296	2.295	169.8	4.5	16.7
1990	09 16	23 01.92	-17 01.2					
1990	09 26	22 52.59	-17 28.8	1.340	2.284	154.0	11.1	17.0
1990	10 06	22 45.35	-17 33.5					
1990	10 16	22 40.93	-17 15.9	1.473	2.272	132.9	18.8	17.5

3236 T-2 a,e,i = 2.28, 0.14, 7 Elements MPC 14969

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	07 28	23 41.57	-11 39.0	1.724	2.522	132.4	17.3	18.0
1990	08 07	23 37.95	-12 18.7					
1990	08 17	23 31.65	-13 08.4	1.592	2.538	153.5	10.3	17.6
1990	08 27	23 23.10	-14 02.3					
1990	09 06	23 13.17	-14 52.9	1.552	2.552	170.9	3.6	17.3
1990	09 16	23 02.93	-15 33.1					
1990	09 26	22 53.58	-15 57.7	1.619	2.564	155.2	9.5	17.6
1990	10 06	22 46.10	-16 03.8					
1990	10 16	22 41.13	-15 51.7	1.782	2.574	133.6	16.3	18.1

2092 T-2 a,e,i = 2.65, 0.10, 5 Elements MPC 15082

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	07 28	23 33.92	+00 08.6	2.158	2.917	130.0	15.5	18.7
1990	08 07	23 31.20	-00 15.6					
1990	08 17	23 26.44	-00 55.4	1.987	2.916	151.3	9.6	18.4
1990	08 27	23 19.96	-01 48.9					
1990	09 06	23 12.36	-02 51.9	1.909	2.914	174.3	2.0	17.9
1990	09 16	23 04.42	-03 59.0					
1990	09 26	22 56.97	-05 03.9	1.943	2.911	161.4	6.3	18.2
1990	10 06	22 50.83	-06 00.8					
1990	10 16	22 46.56	-06 45.7	2.081	2.906	138.7	13.1	18.6

(4340) 1986 JZ a,e,i = 2.39, 0.23, 25 Elements MPC 15691

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	07 28	23 46.27	-44 03.8	1.248	2.067	131.6	21.6	16.6
1990	08 07	23 44.19	-46 45.6					
1990	08 17	23 37.60	-49 02.3	1.256	2.117	137.5	18.8	16.6
1990	08 27	23 27.31	-50 38.7					
1990	09 06	23 15.09	-51 24.5	1.333	2.168	135.3	19.1	16.8
1990	09 16	23 03.11	-51 17.3					
1990	09 26	22 53.30	-50 21.6	1.474	2.221	126.4	21.3	17.1
1990	10 06	22 46.91	-48 46.6					
1990	10 16	22 44.27	-46 42.8	1.668	2.274	114.8	23.5	17.5

4247 P-L a,e,i = 2.42, 0.13, 1 Elements MPC 14960

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	07 28	23 39.23	-00 19.7	1.869	2.629	129.0	17.5	18.8
1990	08 07	23 36.23	-00 32.4					
1990	08 17	23 30.85	-01 01.4	1.720	2.648	150.3	10.9	18.4
1990	08 27	23 23.48	-01 44.7					
1990	09 06	23 14.82	-02 37.9	1.661	2.665	173.7	2.4	18.0
1990	09 16	23 05.80	-03 35.3					
1990	09 26	22 57.44	-04 30.2	1.711	2.681	161.7	6.8	18.3
1990	10 06	22 50.65	-05 16.7					
1990	10 16	22 46.03	-05 50.9	1.863	2.695	138.9	14.1	18.7

1982 UU5 a,e,i = 2.59, 0.12, 4 Elements MPC 14784

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	07 28	23 36.12	+03 32.0	1.580	2.346	128.0	19.9	16.7
1990	08 07	23 34.24	+03 48.3					
1990	08 17	23 29.74	+03 44.9	1.445	2.366	148.1	13.1	16.3
1990	08 27	23 23.02	+03 21.9					
1990	09 06	23 14.87	+02 42.2	1.389	2.387	169.3	4.5	15.9
1990	09 16	23 06.31	+01 51.2					
1990	09 26	22 58.51	+00 56.1	1.434	2.410	162.7	7.1	16.2
1990	10 06	22 52.47	+00 04.5					
1990	10 16	22 48.82	-00 37.7	1.576	2.434	141.1	14.9	16.6

(4072) 1981 UJ4 a,e,i = 2.14, 0.06, 2 Elements MPC 14599

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	07 28	23 41.19	-04 40.4	1.490	2.281	130.2	19.9	16.9
1990	08 07	23 38.84	-04 57.3					
1990	08 17	23 33.53	-05 30.9	1.338	2.279	151.4	12.3	16.5
1990	08 27	23 25.61	-06 18.0					
1990	09 06	23 15.89	-07 12.5	1.269	2.275	175.0	2.2	15.9
1990	09 16	23 05.58	-08 06.5					
1990	09 26	22 56.02	-08 52.2	1.302	2.270	159.7	8.8	16.3
1990	10 06	22 48.44	-09 23.3					
1990	10 16	22 43.63	-09 36.8	1.430	2.263	136.9	17.5	16.8

1989 CB1 a,e,i = 2.20, 0.15, 5 Elements MPC 14955

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	07 28	23 37.69	-05 11.3	1.199	2.019	131.2	22.2	16.4
1990	08 07	23 36.47	-06 03.4					
1990	08 17	23 32.04	-07 16.2	1.101	2.052	152.3	13.2	15.9
1990	08 27	23 24.88	-08 43.3					
1990	09 06	23 16.03	-10 14.0	1.082	2.087	174.0	2.9	15.5
1990	09 16	23 06.84	-11 36.9					
1990	09 26	22 58.75	-12 41.9	1.159	2.123	158.2	10.1	16.0
1990	10 06	22 52.93	-13 23.3					
1990	10 16	22 49.99	-13 39.8	1.323	2.159	136.5	18.5	16.6

2318 T-3 a,e,i = 2.71, 0.23, 3 Elements MPC 14632

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	07 28	23 39.41	+02 04.6	1.988	2.732	127.9	17.1	18.0
1990	08 07	23 36.40	+01 52.4					
1990	08 17	23 31.22	+01 23.6	1.860	2.778	149.1	10.8	17.7
1990	08 27	23 24.25	+00 40.0					
1990	09 06	23 16.20	-00 14.5	1.822	2.823	171.7	3.0	17.3
1990	09 16	23 07.91	-01 14.4					
1990	09 26	23 00.27	-02 13.7	1.894	2.867	162.9	5.9	17.6
1990	10 06	22 54.07	-03 06.4					
1990	10 16	22 49.83	-03 48.5	2.071	2.909	140.4	12.6	18.1

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

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	07 28	23 35.44	-13 30.9	1.188	2.032	134.3	21.0	16.6
1990	08 07	23 35.78	-14 32.4					
1990	08 17	23 32.82	-15 50.2	1.037	1.994	153.3	13.2	16.1
1990	08 27	23 26.72	-17 16.1					
1990	09 06	23 18.27	-18 38.0	0.963	1.958	167.0	6.7	15.6
1990	09 16	23 08.82	-19 42.6					
1990	09 26	23 00.02	-20 19.4	0.977	1.926	153.1	13.6	15.9
1990	10 06	22 53.46	-20 23.2					
1990	10 16	22 50.12	-19 55.1	1.069	1.897	133.3	22.5	16.3

(4164) 1969 UR a,e,i = 2.64, 0.15, 13 Elements MPC 15055

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	07 28	23 38.31	+13 33.0	1.943	2.630	122.4	19.0	16.7
1990	08 07	23 37.32	+13 52.7					
1990	08 17	23 34.04	+13 50.1	1.733	2.598	141.0	14.2	16.3
1990	08 27	23 28.66	+13 22.3					
1990	09 06	23 21.69	+12 28.6	1.597	2.567	159.6	7.9	15.9
1990	09 16	23 13.94	+11 11.3					
1990	09 26	23 06.39	+09 36.7	1.561	2.535	162.4	6.9	15.7
1990	10 06	23 00.06	+07 53.7					
1990	10 16	22 55.75	+06 12.3	1.627	2.503	144.0	13.5	16.0

(4101) Ruikou a,e,i = 2.70, 0.11, 9 Elements MPC 14609

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	07 28	23 46.18	-02 00.9	1.642	2.405	128.1	19.4	16.4
1990	08 07	23 44.13	-01 33.3					
1990	08 17	23 39.37	-01 19.1	1.492	2.414	148.5	12.7	16.0
1990	08 27	23 32.22	-01 17.8					
1990	09 06	23 23.42	-01 26.5	1.424	2.425	171.3	3.6	15.6
1990	09 16	23 13.98	-01 41.4					
1990	09 26	23 05.09	-01 57.3	1.458	2.438	164.1	6.5	15.8
1990	10 06	22 57.83	-02 09.2					
1990	10 16	22 52.93	-02 13.1	1.591	2.453	141.7	14.6	16.3

1986 VC a,e,i = 2.67, 0.09, 11 Elements MPC 14950

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	07 28	23 52.82	-09 32.1	1.746	2.513	129.1	18.3	16.5
1990	08 07	23 50.83	-09 30.1					
1990	08 17	23 46.11	-09 37.4	1.573	2.498	149.5	11.9	16.1
1990	08 27	23 38.89	-09 50.8					
1990	09 06	23 29.83	-10 05.4	1.484	2.485	171.0	3.6	15.6
1990	09 16	23 19.90	-10 16.0					
1990	09 26	23 10.27	-10 17.5	1.500	2.473	161.9	7.2	15.8
1990	10 06	23 02.11	-10 06.6					
1990	10 16	22 56.24	-09 42.0	1.615	2.462	139.7	15.2	16.2

5066 T-2 a,e,i = 2.63, 0.13, 12 Elements MPC 15259

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	07 28	23 46.25	+15 11.3	1.914	2.575	119.9	20.0	17.3
1990	08 07	23 45.91	+15 46.0					
1990	08 17	23 43.19	+15 59.2	1.703	2.547	137.9	15.5	16.9
1990	08 27	23 38.24	+15 47.2					
1990	09 06	23 31.50	+15 08.1	1.563	2.519	156.3	9.3	16.5
1990	09 16	23 23.75	+14 03.0					
1990	09 26	23 15.99	+12 36.7	1.516	2.491	162.6	6.9	16.3
1990	10 06	23 09.30	+10 57.8					
1990	10 16	23 04.53	+09 16.3	1.572	2.465	146.4	12.9	16.6

(4442) 1985 RB1 a,e,i = 3.00, 0.25, 15 Elements MPC 16219

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	07 28	23 55.14	+17 21.2	3.106	3.679	116.9	14.3	18.5
1990	08 07	23 52.34	+17 56.6					
1990	08 17	23 47.83	+18 17.9	2.903	3.694	135.5	11.1	18.3
1990	08 27	23 41.82	+18 23.2					
1990	09 06	23 34.71	+18 11.7	2.780	3.708	153.2	7.0	18.0
1990	09 16	23 27.01	+17 43.9					
1990	09 26	23 19.36	+17 02.2	2.761	3.719	159.9	5.3	17.9
1990	10 06	23 12.40	+16 10.4					
1990	10 16	23 06.66	+15 13.5	2.855	3.728	146.6	8.5	18.1

1988 BN a,e,i = 2.66, 0.23, 32 Elements MPC 15559

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	07 28	00 06.25	+26 06.3	2.776	3.264	109.9	17.0	18.1
1990	08 07	00 02.61	+27 46.2					
1990	08 17	23 56.62	+29 12.5	2.559	3.261	126.2	14.5	17.8
1990	08 27	23 48.41	+30 20.4					
1990	09 06	23 38.37	+31 05.4	2.412	3.256	140.7	11.3	17.6
1990	09 16	23 27.20	+31 24.3					
1990	09 26	23 15.81	+31 16.4	2.359	3.247	147.2	9.6	17.5
1990	10 06	23 05.23	+30 44.6					
1990	10 16	22 56.31	+29 54.8	2.409	3.237	140.0	11.4	17.6

(4132) Bartok a,e,i = 2.41, 0.29, 23 Elements MPC 14778

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	07 28	23 42.26	+08 45.4	1.485	2.219	124.1	22.3	15.5
1990	08 07	23 44.37	+07 44.9					
1990	08 17	23 43.94	+06 05.9	1.250	2.153	143.9	16.1	14.9
1990	08 27	23 40.91	+03 44.6					
1990	09 06	23 35.61	+00 43.0	1.091	2.087	167.5	6.0	14.2
1990	09 16	23 28.80	-02 48.8					
1990	09 26	23 21.62	-06 32.7	1.034	2.022	166.3	6.7	14.0
1990	10 06	23 15.48	-10 06.1					
1990	10 16	23 11.58	-13 10.3	1.080	1.960	141.3	18.5	14.5

1988 CJ a,e,i = 2.75, 0.04, 3 Elements MPC 12952

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	08 17	23 50.91	+03 55.2	1.933	2.812	143.6	12.3	16.8
1990	08 27	23 45.28	+03 30.4					
1990	09 06	23 38.11	+02 52.0	1.832	2.819	165.7	5.1	16.4
1990	09 16	23 30.11	+02 03.5					
1990	09 26	23 22.17	+01 10.2	1.836	2.826	168.6	4.0	16.4
1990	10 06	23 15.16	+00 18.5					
1990	10 16	23 09.81	-00 26.6	1.949	2.833	146.2	11.3	16.8
1990	10 26	23 06.58	-01 00.7					
1990	11 05	23 05.69	-01 21.4	2.150	2.839	125.1	16.6	17.2

(4172) 1982 FC3 a,e,i = 2.27, 0.09, 2 Elements MPC 15058

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	08 17	23 55.89	+00 24.9	1.582	2.474	144.1	13.9	17.7
1990	08 27	23 49.33	-00 06.3					
1990	09 06	23 40.79	-00 50.4	1.487	2.480	167.3	5.1	17.2
1990	09 16	23 31.17	-01 42.6					
1990	09 26	23 21.59	-02 35.8	1.494	2.484	168.0	4.8	17.2
1990	10 06	23 13.21	-03 22.9					
1990	10 16	23 06.91	-03 58.6	1.606	2.486	144.4	13.5	17.7
1990	10 26	23 03.24	-04 19.3					
1990	11 05	23 02.39	-04 23.7	1.799	2.486	123.3	19.5	18.1

1986 RU4 a,e,i = 2.64, 0.12, 12 Elements MPC 14789

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	08 17	23 56.53	+16 57.4	2.152	2.955	134.8	14.1	15.7
1990	08 27	23 50.74	+17 07.9					
1990	09 06	23 43.30	+16 57.5	2.014	2.950	153.5	8.8	15.4
1990	09 16	23 34.85	+16 26.2					
1990	09 26	23 26.24	+15 36.6	1.974	2.944	162.0	6.0	15.2
1990	10 06	23 18.38	+14 34.1					
1990	10 16	23 12.04	+13 25.6	2.042	2.936	148.1	10.3	15.5
1990	10 26	23 07.78	+12 18.0					
1990	11 05	23 05.88	+11 17.7	2.204	2.926	128.5	15.4	15.8

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

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	08 17	23 53.84	-02 56.7	1.199	2.115	145.8	15.6	16.2
1990	08 27	23 49.82	-03 40.5					
1990	09 06	23 43.35	-04 38.2	1.090	2.087	168.0	5.8	15.6
1990	09 16	23 35.33	-05 42.7					
1990	09 26	23 27.04	-06 43.9	1.072	2.062	167.4	6.1	15.5
1990	10 06	23 19.92	-07 32.5					
1990	10 16	23 15.11	-08 01.8	1.145	2.041	144.6	16.4	16.0
1990	10 26	23 13.32	-08 08.5					
1990	11 05	23 14.80	-07 52.5	1.288	2.025	124.7	23.7	16.5

1977 RB7 a,e,i = 2.69, 0.03, 2 Elements MPC 12941

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	08 17	23 55.87	+02 25.5	1.848	2.727	143.2	12.9	16.7
1990	08 27	23 50.55	+01 58.4					
1990	09 06	23 43.50	+01 18.0	1.733	2.721	165.6	5.3	16.3
1990	09 16	23 35.44	+00 28.1					
1990	09 26	23 27.26	-00 25.6	1.723	2.715	169.8	3.7	16.2
1990	10 06	23 19.94	-01 16.6					
1990	10 16	23 14.26	-01 59.4	1.820	2.710	146.8	11.6	16.6
1990	10 26	23 10.77	-02 29.9					
1990	11 05	23 09.73	-02 45.8	2.004	2.704	125.6	17.4	17.0

(4283) 1988 BZ a,e,i = 2.35, 0.17, 24 Elements MPC 15544

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	08 17	00 06.87	+17 42.3	1.835	2.627	132.5	16.5	16.9
1990	08 27	23 58.88	+19 00.0					
1990	09 06	23 48.39	+19 57.5	1.677	2.600	150.2	11.1	16.5
1990	09 16	23 36.16	+20 30.7					
1990	09 26	23 23.32	+20 38.2	1.617	2.572	157.4	8.6	16.3
1990	10 06	23 11.27	+20 23.1					
1990	10 16	23 01.20	+19 52.0	1.664	2.542	144.4	13.2	16.5
1990	10 26	22 53.97	+19 13.2					
1990	11 05	22 50.00	+18 35.5	1.797	2.510	125.8	18.7	16.8

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

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	08 17	00 09.41	-17 06.3	1.814	2.703	144.5	12.6	17.6
1990	08 27	00 00.83	-17 35.4					
1990	09 06	23 49.78	-17 59.7	1.666	2.646	162.8	6.5	17.2
1990	09 16	23 37.11	-18 11.9					
1990	09 26	23 24.03	-18 06.0	1.628	2.586	158.2	8.3	17.1
1990	10 06	23 11.90	-17 38.7					
1990	10 16	23 01.87	-16 50.2	1.697	2.522	137.4	15.5	17.4
1990	10 26	22 54.69	-15 43.1					
1990	11 05	22 50.71	-14 20.7	1.846	2.456	116.6	21.2	17.7

(4222) 1988 EK1 a,e,i = 2.37, 0.30, 4 Elements MPC 15237

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	08 17	23 55.13	+04 27.6	1.158	2.055	142.4	17.5	14.9
1990	08 27	23 52.03	+04 05.8					
1990	09 06	23 46.21	+03 19.3	0.999	1.987	163.8	8.1	14.2
1990	09 16	23 38.36	+02 10.9					
1990	09 26	23 29.70	+00 48.2	0.926	1.922	170.5	4.9	13.8
1990	10 06	23 21.85	-00 36.8					
1990	10 16	23 16.26	-01 51.9	0.942	1.861	147.3	16.8	14.2
1990	10 26	23 13.97	-02 47.3					
1990	11 05	23 15.50	-03 17.4	1.028	1.805	126.7	26.1	14.6

2572 P-L a,e,i = 2.24, 0.10, 3 Elements MPC 14627

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	08 17	00 02.95	-01 33.5	1.502	2.391	143.2	14.7	18.7
1990	08 27	23 57.03	-02 05.0					
1990	09 06	23 48.80	-02 48.9	1.383	2.374	166.2	5.8	18.2
1990	09 16	23 39.11	-03 39.6					
1990	09 26	23 29.10	-04 30.0	1.364	2.356	169.0	4.7	18.1
1990	10 06	23 20.08	-05 12.5					
1990	10 16	23 13.11	-05 41.4	1.448	2.337	145.2	14.1	18.6
1990	10 26	23 08.88	-05 53.5					
1990	11 05	23 07.68	-05 47.6	1.612	2.317	124.0	20.8	19.0

1986 WM3 a,e,i = 2.63, 0.24, 13 Elements MPC 14791

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	08 17	00 07.57	+04 12.1	1.526	2.391	139.8	15.9	15.1
1990	08 27	00 00.29	+04 34.1					
1990	09 06	23 50.93	+04 40.9	1.463	2.442	162.1	7.3	14.7
1990	09 16	23 40.48	+04 34.7					
1990	09 26	23 30.11	+04 19.8	1.500	2.493	170.0	4.0	14.7
1990	10 06	23 21.04	+04 01.8					
1990	10 16	23 14.11	+03 46.0	1.643	2.545	148.2	11.9	15.2
1990	10 26	23 09.84	+03 36.8					
1990	11 05	23 08.37	+03 37.2	1.872	2.596	127.3	17.7	15.7

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

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	08 17	00 08.63	-07 52.1	1.121	2.027	143.7	17.2	16.1
1990	08 27	00 02.89	-07 35.9					
1990	09 06	23 54.44	-07 23.3	1.056	2.047	165.4	7.1	15.6
1990	09 16	23 44.41	-07 09.2					
1990	09 26	23 34.30	-06 48.9	1.080	2.073	168.7	5.4	15.6
1990	10 06	23 25.66	-06 18.6					
1990	10 16	23 19.55	-05 37.1	1.198	2.104	146.7	15.1	16.2
1990	10 26	23 16.59	-04 44.3					
1990	11 05	23 16.85	-03 40.8	1.393	2.141	126.9	21.7	16.8

(4110) Keats a,e,i = 3.09, 0.13, 2 Elements MPC 14770

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	08 17	00 01.94	+01 33.6	2.152	3.016	142.2	11.9	16.4
1990	08 27	23 57.12	+00 58.9					
1990	09 06	23 50.83	+00 13.6	2.058	3.042	164.6	5.1	16.1
1990	09 16	23 43.67	-00 38.5					
1990	09 26	23 36.39	-01 32.2	2.071	3.067	171.8	2.7	16.0
1990	10 06	23 29.77	-02 22.1					
1990	10 16	23 24.46	-03 03.7	2.196	3.093	148.8	9.6	16.4
1990	10 26	23 20.92	-03 33.7					
1990	11 05	23 19.41	-03 50.4	2.414	3.118	127.4	14.6	16.8

1986 QX3 a,e,i = 2.48, 0.16, 4 Elements MPC 14619

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	08 17	00 09.34	-03 52.2	1.384	2.272	142.5	15.8	16.7
1990	08 27	00 04.48	-04 48.6					
1990	09 06	23 57.35	-05 54.9	1.317	2.304	164.7	6.6	16.4
1990	09 16	23 48.86	-07 03.2					
1990	09 26	23 40.16	-08 04.7	1.346	2.338	168.8	4.8	16.3
1990	10 06	23 32.48	-08 51.7					
1990	10 16	23 26.76	-09 19.8	1.476	2.372	146.5	13.4	16.9
1990	10 26	23 23.57	-09 27.4					
1990	11 05	23 23.12	-09 15.1	1.687	2.407	126.0	19.5	17.4

1986 RH12 a,e,i = 2.48, 0.18, 14 Elements MPC 14790

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	08 17	00 00.00	+16 59.6	1.213	2.051	134.2	20.7	15.4
1990	08 27	23 58.16	+16 25.2					
1990	09 06	23 53.89	+15 12.9	1.095	2.048	153.7	12.6	14.9
1990	09 16	23 47.96	+13 24.5					
1990	09 26	23 41.50	+11 08.0	1.058	2.049	167.8	5.9	14.6
1990	10 06	23 35.87	+08 37.8					
1990	10 16	23 32.17	+06 10.3	1.117	2.056	153.0	12.7	15.0
1990	10 26	23 31.13	+03 59.7					
1990	11 05	23 33.05	+02 15.4	1.262	2.067	132.8	20.6	15.5

1985 RC4 a,e,i = 2.90, 0.07, 3 Elements MPC 13475

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	08 17	00 06.53	-01 20.3	1.870	2.742	142.3	13.1	17.2
1990	08 27	00 02.15	-02 02.8					
1990	09 06	23 55.98	-02 55.5	1.766	2.751	164.5	5.6	16.8
1990	09 16	23 48.69	-03 53.6					
1990	09 26	23 41.09	-04 50.8	1.765	2.760	171.3	3.2	16.7
1990	10 06	23 34.13	-05 40.6					
1990	10 16	23 28.58	-06 18.3	1.872	2.771	148.4	10.9	17.2
1990	10 26	23 25.00	-06 40.9					
1990	11 05	23 23.70	-06 47.1	2.067	2.782	127.2	16.5	17.6

1980 XZ a,e,i = 3.12, 0.06, 12 Elements MPC 16023

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	08 17	00 09.15	-17 32.5	2.152	3.034	144.5	11.2	15.9
1990	08 27	00 04.30	-18 36.9					
1990	09 06	23 57.81	-19 37.9	2.076	3.044	160.2	6.4	15.6
1990	09 16	23 50.28	-20 28.9					
1990	09 26	23 42.52	-21 04.3	2.105	3.054	157.3	7.3	15.7
1990	10 06	23 35.37	-21 20.3					
1990	10 16	23 29.55	-21 16.0	2.236	3.065	139.6	12.2	16.0
1990	10 26	23 25.57	-20 52.3					
1990	11 05	23 23.71	-20 11.4	2.449	3.076	120.6	16.1	16.3

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

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	08 17	00 10.38	-08 48.4	2.479	3.347	143.4	10.4	17.7
1990	08 27	00 05.52	-09 59.0					
1990	09 06	23 59.26	-11 12.9	2.392	3.372	163.7	4.8	17.4
1990	09 16	23 52.10	-12 24.4					
1990	09 26	23 44.70	-13 27.9	2.417	3.395	164.6	4.5	17.4
1990	10 06	23 37.78	-14 18.7					
1990	10 16	23 31.95	-14 54.0	2.556	3.416	144.3	9.8	17.8
1990	10 26	23 27.67	-15 12.5					
1990	11 05	23 25.22	-15 14.7	2.785	3.434	123.6	13.9	18.1

1979 QE10 a,e,i = 2.39, 0.21, 3 Elements MPC 11739

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	08 17	00 11.12	+04 02.5	1.108	1.987	139.1	19.5	16.6
1990	08 27	00 07.43	+03 25.1					
1990	09 06	00 01.07	+02 26.0	1.043	2.024	161.3	9.2	16.2
1990	09 16	23 53.00	+01 12.0					
1990	09 26	23 44.59	-00 06.7	1.065	2.065	174.2	2.8	16.0
1990	10 06	23 37.26	-01 19.1					
1990	10 16	23 32.09	-02 16.4	1.182	2.109	150.9	13.3	16.7
1990	10 26	23 29.73	-02 53.4					
1990	11 05	23 30.36	-03 08.3	1.378	2.155	130.2	20.6	17.3

1975 TC6 a,e,i = 2.44, 0.18, 9 Elements MPC 13305

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	08 17	00 17.05	-06 27.4	2.002	2.863	141.3	12.8	17.5
1990	08 27	00 11.11	-07 00.9					
1990	09 06	00 03.19	-07 39.9	1.875	2.855	163.3	5.8	17.0
1990	09 16	23 53.92	-08 19.4					
1990	09 26	23 44.17	-08 53.9	1.854	2.844	168.6	4.0	16.9
1990	10 06	23 34.95	-09 18.1					
1990	10 16	23 27.15	-09 28.7	1.946	2.832	146.5	11.2	17.3
1990	10 26	23 21.41	-09 24.2					
1990	11 05	23 18.10	-09 04.6	2.128	2.816	125.0	16.8	17.7

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

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	08 17	00 17.58	-19 37.8	1.791	2.666	142.5	13.4	17.1
1990	08 27	00 12.26	-20 41.0					
1990	09 06	00 04.61	-21 40.0	1.670	2.631	157.7	8.3	16.7
1990	09 16	23 55.33	-22 26.2					
1990	09 26	23 45.40	-22 52.0	1.649	2.596	155.7	9.1	16.7
1990	10 06	23 36.04	-22 52.3					
1990	10 16	23 28.27	-22 26.4	1.726	2.561	138.6	14.9	17.0
1990	10 26	23 22.87	-21 36.0					
1990	11 05	23 20.23	-20 25.0	1.881	2.525	119.8	19.9	17.3

1985 TZ1 a,e,i = 2.97, 0.20, 7 Elements MPC 15710

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	08 17	00 12.16	+12 23.0	1.638	2.457	134.6	17.1	15.9
1990	08 27	00 08.71	+12 15.3					
1990	09 06	00 03.18	+11 45.0	1.535	2.485	155.0	9.9	15.6
1990	09 16	23 56.27	+10 53.9					
1990	09 26	23 48.89	+09 46.9	1.522	2.516	169.9	4.0	15.3
1990	10 06	23 42.10	+08 31.7					
1990	10 16	23 36.77	+07 16.8	1.614	2.549	154.3	9.8	15.7
1990	10 26	23 33.56	+06 09.8					
1990	11 05	23 32.77	+05 16.4	1.798	2.584	133.6	16.1	16.2

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

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	08 17	00 18.53	+10 23.1	1.601	2.420	134.4	17.4	16.7
1990	08 27	00 13.86	+10 36.8					
1990	09 06	00 06.80	+10 30.3	1.474	2.426	155.2	10.0	16.3
1990	09 16	23 58.02	+10 04.1					
1990	09 26	23 48.56	+09 21.6	1.439	2.433	170.2	4.0	16.0
1990	10 06	23 39.62	+08 29.3					
1990	10 16	23 32.29	+07 35.0	1.509	2.440	153.2	10.6	16.4
1990	10 26	23 27.36	+06 46.2					
1990	11 05	23 25.22	+06 08.8	1.669	2.447	132.1	17.5	16.9

1989 GP4 a,e,i = 2.33, 0.08, 6 Elements MPC 14956

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	08 17	00 17.68	+07 52.8	1.497	2.333	135.8	17.6	18.0
1990	08 27	00 13.63	+07 16.6					
1990	09 06	00 07.21	+06 18.4	1.387	2.351	157.9	9.3	17.6
1990	09 16	23 59.14	+05 02.0					
1990	09 26	23 50.44	+03 34.6	1.369	2.370	174.9	2.2	17.3
1990	10 06	23 42.34	+02 06.1					
1990	10 16	23 35.87	+00 45.8	1.457	2.388	152.8	11.0	17.8
1990	10 26	23 31.77	-00 19.1					
1990	11 05	23 30.40	-01 04.4	1.635	2.405	131.0	18.1	18.3

7604 P-L a,e,i = 2.42, 0.05, 4 Elements MPC 12584

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	08 17	00 19.37	-04 31.0	1.668	2.530	140.2	14.8	17.9
1990	08 27	00 14.85	-05 19.2					
1990	09 06	00 08.04	-06 17.1	1.546	2.524	162.0	7.1	17.4
1990	09 16	23 59.61	-07 18.2					
1990	09 26	23 50.50	-08 15.2	1.523	2.517	170.0	4.0	17.2
1990	10 06	23 41.86	-09 00.6					
1990	10 16	23 34.69	-09 29.4	1.606	2.509	148.1	12.1	17.7
1990	10 26	23 29.76	-09 39.0					
1990	11 05	23 27.48	-09 29.3	1.776	2.500	126.8	18.5	18.1

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

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	08 17	00 17.31	+14 17.6	1.321	2.140	132.5	20.4	18.1
1990	08 27	00 14.48	+14 44.2					
1990	09 06	00 08.93	+14 43.9	1.194	2.136	151.8	12.9	17.7
1990	09 16	00 01.31	+14 15.7					
1990	09 26	23 52.73	+13 21.9	1.147	2.136	166.9	6.1	17.4
1990	10 06	23 44.58	+12 10.3					
1990	10 16	23 38.14	+10 51.5	1.194	2.138	154.6	11.5	17.7
1990	10 26	23 34.35	+09 36.4					
1990	11 05	23 33.67	+08 34.1	1.328	2.144	134.7	19.2	18.1

(4176) 1987 DS a,e,i = 3.10, 0.14, 3 Elements MPC 15059

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	08 17	00 17.57	-01 19.8	2.442	3.280	139.7	11.5	16.9
1990	08 27	00 13.58	-01 55.9					
1990	09 06	00 07.99	-02 40.8	2.284	3.256	161.5	5.6	16.6
1990	09 16	00 01.23	-03 31.0					
1990	09 26	23 53.93	-04 21.8	2.233	3.232	173.8	1.9	16.3
1990	10 06	23 46.83	-05 08.2					
1990	10 16	23 40.60	-05 45.9	2.297	3.207	151.3	8.6	16.7
1990	10 26	23 35.84	-06 11.6					
1990	11 05	23 32.94	-06 23.6	2.458	3.182	129.4	13.9	17.0

1982 UA7 a,e,i = 2.59, 0.19, 14 Elements MPC 11431

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	08 17	00 23.25	-23 52.0	1.282	2.163	140.8	17.2	16.0
1990	08 27	00 19.87	-25 11.5					
1990	09 06	00 13.44	-26 21.2	1.194	2.142	153.1	12.3	15.7
1990	09 16	00 04.76	-27 08.9					
1990	09 26	23 55.13	-27 24.0	1.189	2.125	151.6	13.0	15.7
1990	10 06	23 46.14	-27 01.2					
1990	10 16	23 39.12	-26 01.7	1.267	2.113	137.6	18.6	16.0
1990	10 26	23 34.96	-24 30.4					
1990	11 05	23 34.03	-22 34.5	1.413	2.105	121.3	23.7	16.3

1973 UB5 a,e,i = 3.21, 0.16, 0 Elements MPC 15698

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	08 17	00 18.45	+02 12.9	1.846	2.686	138.2	14.6	15.3
1990	08 27	00 15.22	+01 53.2					
1990	09 06	00 10.04	+01 20.7	1.719	2.687	159.8	7.5	14.9
1990	09 16	00 03.43	+00 38.6					
1990	09 26	23 56.18	-00 07.9	1.689	2.691	177.0	1.1	14.5
1990	10 06	23 49.23	-00 52.7					
1990	10 16	23 43.43	-01 30.2	1.767	2.697	153.8	9.4	15.0
1990	10 26	23 39.46	-01 56.2					
1990	11 05	23 37.72	-02 07.8	1.938	2.706	132.3	15.7	15.5

(4409) 1989 MD a,e,i = 3.03, 0.10, 5 Elements MPC 16016

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	08 17	00 23.09	+02 55.7	1.946	2.772	136.8	14.5	16.8
1990	08 27	00 19.01	+02 50.5					
1990	09 06	00 12.96	+02 33.3	1.821	2.784	158.6	7.6	16.4
1990	09 16	00 05.49	+02 06.7					
1990	09 26	23 57.38	+01 34.7	1.794	2.796	177.3	1.0	16.0
1990	10 06	23 49.57	+01 02.5					
1990	10 16	23 42.91	+00 34.9	1.877	2.809	154.4	8.8	16.5
1990	10 26	23 38.06	+00 16.1					
1990	11 05	23 35.44	+00 08.8	2.057	2.824	132.6	15.0	17.0

1987 DC6 a,e,i = 3.13, 0.14, 7 Elements MPC 13307

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	08 17	00 19.28	-00 37.3	2.242	3.079	139.0	12.4	16.8
1990	08 27	00 15.98	-01 25.0					
1990	09 06	00 10.96	-02 23.5	2.083	3.052	160.8	6.2	16.4
1990	09 16	00 04.65	-03 28.8					
1990	09 26	23 57.69	-04 35.5	2.027	3.026	174.0	2.0	16.1
1990	10 06	23 50.87	-05 37.3					
1990	10 16	23 44.92	-06 28.9	2.084	3.000	151.8	9.0	16.5
1990	10 26	23 40.49	-07 06.4					
1990	11 05	23 38.00	-07 27.5	2.237	2.974	130.1	14.8	16.8

1988 BE5 a,e,i = 2.62, 0.13, 12 Elements MPC 15416

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	08 17	00 22.04	+15 08.8	2.132	2.900	131.1	15.3	18.2
1990	08 27	00 18.34	+14 53.2					
1990	09 06	00 12.70	+14 16.5	1.957	2.883	151.5	9.6	17.8
1990	09 16	00 05.58	+13 19.3					
1990	09 26	23 57.70	+12 04.4	1.876	2.865	168.5	4.0	17.5
1990	10 06	23 49.96	+10 37.7					
1990	10 16	23 43.20	+09 06.7	1.906	2.845	155.9	8.2	17.7
1990	10 26	23 38.16	+07 39.5					
1990	11 05	23 35.29	+06 22.7	2.039	2.824	134.5	14.5	18.0

1986 JA1 a,e,i = 2.34, 0.23, 25 Elements MPC 12960

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	08 17	00 25.57	+35 44.6	1.481	2.143	117.3	24.8	16.0
1990	08 27	00 22.31	+35 55.1					
1990	09 06	00 16.16	+35 23.9	1.376	2.197	133.7	19.4	15.8
1990	09 16	00 07.96	+34 06.6					
1990	09 26	23 58.96	+32 03.6	1.334	2.251	148.7	13.4	15.6
1990	10 06	23 50.63	+29 23.0					
1990	10 16	23 44.16	+26 19.3	1.382	2.305	151.0	12.1	15.7
1990	10 26	23 40.36	+23 10.0					
1990	11 05	23 39.52	+20 11.2	1.529	2.358	137.5	16.5	16.1

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

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	08 17	00 20.92	+04 47.5	1.417	2.262	136.5	17.9	15.8
1990	08 27	00 18.53	+03 58.6					
1990	09 06	00 13.78	+02 50.4	1.333	2.300	158.3	9.3	15.5
1990	09 16	00 07.37	+01 28.4					
1990	09 26	00 00.27	+00 01.3	1.339	2.341	178.0	0.9	15.1
1990	10 06	23 53.64	-01 21.2					
1990	10 16	23 48.42	-02 30.6	1.448	2.387	154.5	10.4	15.8
1990	10 26	23 45.32	-03 21.4					
1990	11 05	23 44.68	-03 51.1	1.646	2.435	133.2	17.3	16.3

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

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	08 17	00 25.77	-13 03.3	2.169	3.019	140.3	12.4	15.8
1990	08 27	00 21.91	-14 12.0					
1990	09 06	00 16.23	-15 22.1	2.069	3.030	158.5	7.0	15.5
1990	09 16	00 09.25	-16 27.1					
1990	09 26	00 01.66	-17 20.4	2.073	3.041	161.8	5.9	15.5
1990	10 06	23 54.31	-17 56.8					
1990	10 16	23 47.97	-18 13.6	2.183	3.052	144.8	10.8	15.8
1990	10 26	23 43.25	-18 10.2					
1990	11 05	23 40.52	-17 47.9	2.381	3.063	125.3	15.3	16.2

1973 SO4 a,e,i = 2.27, 0.20, 4 Elements MPC 13474

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	08 17	00 26.04	+06 01.6	1.153	2.000	134.8	21.0	16.7
1990	08 27	00 24.28	+06 29.7					
1990	09 06	00 19.32	+06 38.5	1.001	1.962	155.2	12.5	16.1
1990	09 16	00 11.60	+06 27.5					
1990	09 26	00 02.18	+05 59.7	0.926	1.927	174.7	2.8	15.5
1990	10 06	23 52.64	+05 22.1					
1990	10 16	23 44.64	+04 43.7	0.942	1.896	155.9	12.4	15.9
1990	10 26	23 39.50	+04 13.8					
1990	11 05	23 38.00	+03 59.3	1.036	1.870	134.5	22.2	16.4

1938 HA a,e,i = 3.14, 0.21, 11 Elements MPC 15873

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	08 17	00 33.60	-08 58.2	2.199	3.027	137.8	13.0	15.6
1990	08 27	00 28.90	-09 31.4					
1990	09 06	00 22.37	-10 07.4	2.109	3.069	158.3	7.0	15.3
1990	09 16	00 14.55	-10 41.6					
1990	09 26	00 06.17	-11 08.8	2.122	3.110	168.0	3.8	15.2
1990	10 06	23 58.07	-11 24.9					
1990	10 16	23 50.99	-11 27.6	2.247	3.151	150.1	9.1	15.6
1990	10 26	23 45.53	-11 15.7					
1990	11 05	23 42.04	-10 50.0	2.469	3.191	129.3	13.9	16.0

(4178) 1988 EO1 a,e,i = 3.18, 0.18, 1 Elements MPC 15060

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	08 17	00 29.22	+02 17.3	2.879	3.672	135.7	11.1	18.2
1990	08 27	00 25.25	+01 51.6					
1990	09 06	00 19.84	+01 17.1	2.734	3.685	157.5	6.0	17.9
1990	09 16	00 13.40	+00 36.2					
1990	09 26	00 06.41	-00 07.6	2.695	3.697	179.0	0.3	17.6
1990	10 06	23 59.50	-00 50.4					
1990	10 16	23 53.24	-01 28.5	2.774	3.708	156.1	6.3	18.0
1990	10 26	23 48.14	-01 58.7					
1990	11 05	23 44.55	-02 18.9	2.961	3.717	133.8	11.1	18.3

1986 QO a,e,i = 2.43, 0.18, 2 Elements MPC 15885

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	08 17	00 32.77	+06 42.1	1.229	2.058	133.0	21.1	16.7
1990	08 27	00 30.58	+06 39.2					
1990	09 06	00 25.43	+06 14.6	1.129	2.082	154.1	12.2	16.3
1990	09 16	00 17.97	+05 30.9					
1990	09 26	00 09.31	+04 34.0	1.109	2.110	176.2	1.8	15.8
1990	10 06	00 00.87	+03 33.1					
1990	10 16	23 53.93	+02 37.5	1.185	2.141	157.7	10.2	16.4
1990	10 26	23 49.45	+01 55.0					
1990	11 05	23 47.92	+01 30.1	1.350	2.175	136.0	18.5	17.0

1986 PX4 a,e,i = 2.44, 0.21, 1 Elements MPC 14619

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	08 17	00 31.10	+01 50.3	1.067	1.924	135.4	21.7	16.0
1990	08 27	00 30.11	+01 46.3					
1990	09 06	00 25.91	+01 23.9	0.967	1.932	156.1	12.2	15.5
1990	09 16	00 19.14	+00 47.1					
1990	09 26	00 10.93	+00 03.1	0.944	1.946	178.9	0.6	14.9
1990	10 06	00 02.84	-00 38.5					
1990	10 16	23 56.31	-01 09.3	1.011	1.967	156.9	11.5	15.6
1990	10 26	23 52.40	-01 23.2					
1990	11 05	23 51.64	-01 17.5	1.159	1.993	135.8	20.3	16.2

2017 P-L a,e,i = 2.23, 0.22, 2 Elements MPC 7461

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	08 17	00 32.78	+08 10.3	0.942	1.788	132.4	24.7	17.1
1990	08 27	00 31.81	+08 22.7					
1990	09 06	00 27.33	+08 07.8	0.861	1.816	152.7	14.7	16.7
1990	09 16	00 20.06	+07 27.6					
1990	09 26	00 11.33	+06 28.5	0.850	1.851	174.3	3.1	16.3
1990	10 06	00 02.87	+05 21.7					
1990	10 16	23 56.23	+04 19.0	0.926	1.890	158.6	11.1	16.8
1990	10 26	23 52.47	+03 30.5					
1990	11 05	23 52.05	+03 01.9	1.082	1.933	137.5	20.3	17.5

3040 P-L a,e,i = 2.64, 0.22, 8 Elements MPC 9299

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	08 17	00 32.55	+16 17.2	1.269	2.057	128.3	22.7	17.2
1990	08 27	00 31.26	+17 19.4					
1990	09 06	00 26.99	+17 56.1	1.148	2.065	146.5	15.6	16.8
1990	09 16	00 20.22	+18 03.7					
1990	09 26	00 11.97	+17 41.9	1.100	2.080	163.1	8.1	16.5
1990	10 06	00 03.65	+16 55.4					
1990	10 16	23 56.66	+15 53.1	1.142	2.101	158.2	10.1	16.7
1990	10 26	23 52.10	+14 46.3					
1990	11 05	23 50.60	+13 45.5	1.271	2.126	139.7	17.6	17.2