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EDITORIAL NOTICE.

Further to the remarks on MPC 7791, it is evident that considerable energy is consistently being expended each month by several subscribers who independently search for identifications using the new one-opposition orbits published in the MPCs. Some of those who contribute identifications and double designations support their work with orbital computations, while others do not. If a contributor is not able to provide a reasonably detailed orbit solution, showing the residuals, it would be useful if he could at least give an indication as to whether he considers the identification is "definite", "probable", "possible" or "doubtful". A supposed identification linking a 2-day-arc e-assumed elliptical orbit with a single observation made several years earlier is too uncertain to be worth even mentioning. The more obvious identifications are sometimes being pointed out by as many as four contributors, several of whom also contribute supporting orbit computations. It frequently happens, however, that an individual contributor does not find all the identifications involving a particular object, and further observations may have been submitted to the Minor Planet Center but not yet published. The orbit published in the MPCs should link all known observations of the object, but the monthly cycle places some constraint on the preparation of an orbit computation for publication. The Minor Planet Center very much welcomes the receipt of suitably complete orbit computations and would be glad to cooperate with identifiers able to do the necessary computations by providing them with the additional identifications they may be missing. Assistance of this type is especially valuable when there are observations at enough oppositions to allow a minor planet to be numbered; in such a case it is necessary to incorporate perturbations by all the planets, including Mercury. If a minor planet does not yet qualify for numbering (i.e., there are fewer than three well-observed oppositions, or fewer than four or even more sporadically observed oppositions), it is generally sufficient to consider perturbations by the outer planets only, to refer the orbits to the barycenter of the sun and the inner planets, and to augment the Gaussian constant accordingly.

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ERRATA.

MPC	Line	
9069	-30	Add Schmadel also independently found the identification 1982 VZ4 = 1980 FA10.
9070	- 7	Add The identification 1933 SJ = 1962 SL (MPC 2807) is invalid.
9081	26	For Insititute read Institute

OBSERVATIONS OF COMETS.

Observations are published here for the following observatory codes:

010 Caussols. 0.9-m Schmidt. Communicated by J.-L. Heudier.
046 Klet. Observer A. Mrkos.
056 Skalnate Pleso. Observers T. Cisko, J. Fabricius, L. Petrik, P. Rychtarcik and J. Svoren. Measured and reduced by Fabricius, J. Klobusnik, E. M. Pittich, Rychtarcik and Svoren.
330 Purple Mountain Observatory. Observers J.-x. Yang and C.-Y. Shao.
372 Geisei. Observer T. Seki.
657 Victoria. Observer D. D. Balam.
675 Palomar. 1.2-m Schmidt. Observations of comet 1984n by C. Kowal. Observations of comet 1984o on Sept. 20 and 23 by E. Helin and R. S. Dunbar (measured by M. A. Barucci). Other observations by J. Gibson.
688 Lowell Observatory, Anderson Mesa Station. Observers B. A. Skiff and E. Bowell.
695 Kitt Peak. 4-m reflector. Observers H. Spinrad and S. Djorgovski.
707 Chamberlin Obervatory field station. Observer E. Everhart.
801 Oak Ridge Observatory. Observers R. E. McCrosky, G. Schwartz and C.-Y. Shao (assisted by C. M. Bardwell, D. W. E. Green and B. G. Marsden).
807 Cerro Tololo. 4-m reflector, prime-focus CCD detector. Observers J. T. Clarke, J. Brodie and P. McCarthy.
984 East Chinnock. Observer H. B. Ridley. Measured by P. Birtwhistle.
993 Woolston. Observers M. J. Hendrie and R. L. Waterfield. Measured by P. Birtwhistle.

Object	Date	UT	R. A. (1950)	Decl.	Mag.	N Obs.
		Comet Heck-Sause (1972 VIII)				
/1972 VIII	1973	01 26.92847	12 07 31.81	+21 55 15.9		056
/1972 VIII	1973	03 23.85972	09 28 34.66	+47 03 49.2		056
		Comet Kojima (1973 II)				
/1973 II	1972	11 30.98993	07 08 40.03	-23 54 44.3		056
/1973 II	1972	12 01.03229	07 08 29.49	-23 55 06.8		056
		Comet Bradfield (1974 III)				
/1974 III	1974	05 25.00451	14 13 03.53	+83 22 56.6		056
/1974 III	1974	05 25.02361	14 13 06.31	+83 22 15.7		056
		Comet Kobayashi-Berger-Milon (1975 IX)				
/1975 IX	1975	07 17.95067	20 07 31.60	+31 33 53.0		056
/1975 IX	1975	08 05.87431	12 51 14.62	+51 22 28.2		056
/1975 IX	1975	08 05.87917	12 51 11.91	+51 22 10.7		056
/1975 IX	1975	08 09.82292	12 22 03.75	+47 57 40.2		056
/1975 IX	1975	08 09.83194	12 22 00.94	+47 57 06.4		056
/1975 IX	1975	08 09.84097	12 21 58.30	+47 56 49.3		056
/1975 IX	1975	08 11.84549	12 10 43.70	+46 24 36.8		056
/1975 IX	1975	08 13.83368	12 01 02.88	+44 59 18.5		056
/1975 IX	1975	08 14.82639	11 56 37.38	+44 18 25.7		056
		Comet Suzuki-Saigusa-Mori (1975 X)				
/1975 X	1975	10 26.11458	12 22 18.88	+31 19 26.3		056
/1975 X	1975	10 26.12361	12 22 25.79	+31 17 51.7		056
		Comet Mori-Sato-Fujikawa (1975 XII)				
/1975 XII	1975	10 26.15556	08 34 43.71	-11 45 23.6		056

Comet Austin (1982 VI)

/1982 VI	1982	08	27.08571	11	46	47.47	+44	48	50.6		056
/1982 VI	1982	08	27.09826	11	46	52.43	+44	48	55.0		056
/1982 VI	1982	09	27.11007	12	50	32.83	+38	06	47.2		056

Periodic Comet Churyumov-Gerasimenko

/1982 VIII	1982	10	18.92049	05	12	09.86	+19	59	36.4		056
/1982 VIII	1982	11	11.87152	06	18	16.16	+27	48	25.1		056
/1982 VIII	1982	11	15.86123	06	27	37.25	+29	07	58.9		056
/1982 VIII	1982	11	23.08618	06	42	30.27	+31	28	58.2		056
/1982 VIII	1982	11	23.13750	06	42	35.64	+31	29	55.2		056
/1982 VIII	1982	11	23.88819	06	44	00.19	+31	44	09.5		056
/1982 VIII	1982	11	23.91771	06	44	03.11	+31	44	43.7		056
/1982 VIII	1982	12	13.73662	07	07	39.44	+37	10	49.4		330
/1982 VIII	1982	12	17.58104	07	09	26.18	+37	57	43.6		330
/1982 VIII	1982	12	17.61751	07	09	26.72	+37	58	10.8		330
/1982 VIII	1983	01	11.93090	07	08	59.24	+40	04	00.7		056
/1982 VIII	1983	01	11.99410	07	08	58.37	+40	03	55.6		056

Periodic Comet Gunn

/1982 X	1984	08	24.33310	02	59	33.18	+09	45	20.0		801
/1982 X	1984	08	27.31879	02	59	54.00	+09	45	04.9		801
/1982 X	1984	08	28.33058	02	59	59.00	+09	44	50.8	1	801

Periodic Comet Halley

/1982i	1984	09	22.80382	06	46	17.0	+13	02	48	20.5T	372
/1982i	1984	09	25.4972	06	46	23.82	+12	59	21.0	21.3N	695
/1982i	1984	09	26.79097	06	46	25.8	+12	57	45	20.5T	372
/1982i	1984	09	27.4903	06	46	26.07	+12	56	48.5	20.3N	695

Periodic Comet Tempel 1

/1982j	1983	04	05.03507	12	56	50.49	+15	48	04.4		056
/1982j	1983	04	05.04931	12	56	49.76	+15	48	08.2		056
/1982j	1983	04	16.95350	12	46	04.31	+15	43	22.9		056
/1982j	1983	04	16.97433	12	46	03.26	+15	43	18.4		056
/1982j	1983	04	17.86319	12	45	16.72	+15	40	18.6		056
/1982j	1983	04	17.89792	12	45	14.76	+15	40	10.4		056
/1982j	1983	05	13.95103	12	31	35.30	+11	22	44.7	2	993
/1982j	1983	06	07.88091	12	43	43.38	+03	17	09.4		056
/1982j	1983	06	07.90359	12	43	44.58	+03	16	38.7		056
/1982j	1983	06	08.91458	12	44	46.20	+02	53	58.9		056
/1982j	1983	06	08.93455	12	44	47.49	+02	53	29.6		056

Periodic Comet Kopff

/1982k	1983	05	30.87431	15	29	30.97	-09	10	52.2		056
/1982k	1983	05	30.91771	15	29	29.33	-09	10	55.7		056
/1982k	1983	07	04.88333	15	27	24.34	-12	16	21.8		056
/1982k	1983	07	08.87656	15	30	13.06	-12	54	47.4		056
/1982k	1983	07	08.89965	15	30	13.96	-12	54	58.8		056
/1982k	1983	07	31.86528	15	59	23.69	-17	08	33.4		056
/1982k	1983	08	01.84271	16	01	04.93	-17	19	46.2		056
/1982k	1983	08	01.84896	16	01	05.96	-17	19	48.3		056

Periodic Comet IRAS

/1983j	1983	10	07.78381	23	41	39.18	+36	16	52.3		056
/1983j	1983	10	07.81701	23	41	33.00	+36	17	42.8		056
/1983j	1983	10	10.81157	23	32	28.15	+37	23	09.8		056
/1983j	1983	10	10.84618	23	32	22.00	+37	23	52.2		056

Periodic Comet Crommelin

/1983n	1984	01	30.71586	23	19	25.74	+04	33	50.9		056
/1983n	1984	02	08.73565	00	01	16.77	+03	12	32.1		056

Comet Shoemaker (1983p)

/1983p	1983	11	02.74502	22	16	42.05	-03	08	39.7		056
/1983p	1983	11	02.79109	22	16	39.42	-03	09	40.7		056

Periodic Comet Giacobini-Zinner

/1984e	1984	07	21.02708	13	57	31.56	+04	43	48.1	3	807
/1984e	1984	07	21.08958	13	57	32.28	+04	43	38.2		807
/1984e	1984	07	22.01389	13	57	42.83	+04	41	18.9		807
/1984e	1984	07	22.05556	13	57	43.47	+04	41	10.3		807

Comet Shoemaker (1984f)

/1984f	1984	08	17.83984	15	24	06.71	+04	25	01.7	14.2T	046
/1984f	1984	08	17.85419	15	24	06.42	+04	24	56.7		046
/1984f	1984	08	20.83826	15	23	13.56	+03	55	56.3		046
/1984f	1984	08	20.85238	15	23	13.33	+03	55	49.5		046
/1984f	1984	08	24.03481	15	22	25.77	+03	24	54.6		801
/1984f	1984	08	27.03943	15	21	48.93	+02	55	45.1		801
/1984f	1984	08	29.03672	15	21	28.53	+02	36	21.4		801
/1984f	1984	08	29.13021	15	21	27.97	+02	35	26.9	4	688

Periodic Comet Wolf-Harrington

/1984g	1984	08	27.34758	06	31	11.14	+25	33	22.6		801
/1984g	1984	09	02.40943	06	49	06.11	+24	22	01.4		657
/1984g	1984	09	02.44138	06	49	11.86	+24	21	36.0		657

Periodic Comet Faye

/1984h	1984	08	27.36805	06	44	09.01	+17	11	36.0		801

Comet Austin (1984i)

/1984i	1984	09	04.81267	08	54	25.55	+26	38	57.0	7 T	372
/1984i	1984	09	17.36340	08	23	26.44	+32	54	19.3		801
/1984i	1984	09	27.49385	07	47	24.50	+38	45	19.0		657

Periodic Comet Takamizawa

/1984j	1984	08	02.02546	21	11	50.70	-19	15	38.9		010
/1984j	1984	08	02.05486	21	11	50.00	-19	16	06.5		010
/1984j	1984	08	02.09653	21	11	49.47	-19	16	34.4		010
/1984j	1984	08	05.98760	21	10	38.72	-20	07	32.1	5	993
/1984j	1984	08	17.87230	21	07	25.91	-22	20	39.8	12.0T	046
/1984j	1984	08	17.87531	21	07	25.95	-22	20	42.8		046
/1984j	1984	08	20.93861	21	06	51.57	-22	48	22.3		046
/1984j	1984	08	20.94162	21	06	51.71	-22	48	24.3		046
/1984j	1984	08	21.88716	21	06	43.34	-22	56	20.5		046
/1984j	1984	08	21.89023	21	06	43.41	-22	56	21.9		046
/1984j	1984	08	22.87530	21	06	35.62	-23	04	19.7		046
/1984j	1984	08	22.87837	21	06	35.65	-23	04	20.9		046
/1984j	1984	08	22.96944	21	06	34.88	-23	05	01.8		984
/1984j	1984	08	23.87663	21	06	28.91	-23	12	06.2		046
/1984j	1984	08	23.88109	21	06	28.93	-23	12	08.1		046
/1984j	1984	08	24.16919	21	06	26.87	-23	14	17.4		801
/1984j	1984	08	24.57014	21	06	24.97	-23	17	15.1	11.5T	372
/1984j	1984	08	26.10200	21	06	18.41	-23	28	12.3		801
/1984j	1984	08	27.12444	21	06	15.64	-23	35	02.9		801
/1984j	1984	08	27.19931	21	06	15.58	-23	35	32.6		707
/1984j	1984	08	28.11651	21	06	14.42	-23	41	23.2		801

/1984j	1984 09 03.26667	21 06 38.00	-24 13 30.3					4	688
/1984j	1984 09 03.31111	21 06 38.86	-24 13 41.4						688

Periodic Comet Arend-Rigaux

/1984k	1984 08 25.36312	04 31 07.05	+00 53 23.8						801

Periodic Comet Schaumasse

/1984m	1984 09 05.48613	06 43 01.85	+20 42 28.2		19	T			675
/1984m	1984 09 06.47909	06 46 10.85	+20 44 06.5						675

Periodic Comet Kowal-Mrkos (1984n)

/1984n	1984 04 23.29931	13 11 22.88	-11 49 00.8		15	T			675
/1984n	1984 04 23.32014	13 11 22.38	-11 48 55.1						675
/1984n	1984 04 30.25903	13 08 36.41	-11 14 24.1		15	T			675
/1984n	1984 04 30.27292	13 08 36.09	-11 14 19.0						675
/1984n	1984 05 02.88564	13 07 48.02	-11 02 12.1		16.0	T			046
/1984n	1984 05 02.89987	13 07 47.56	-11 02 07.9						046

Comet Meier (1984o)

/1984o	1984 09 18.15453	15 08 56.63	+11 14 14.6						675
/1984o	1984 09 19.00577	15 07 17.86	+10 37 53.2						801
/1984o	1984 09 19.12049	15 07 04.36	+10 32 56.2		12	T		4	688
/1984o	1984 09 19.16043	15 06 59.79	+10 31 19.4						675
/1984o	1984 09 20.00312	15 05 26.05	+09 56 44.0						801
/1984o	1984 09 20.12882	15 05 12.05	+09 51 31.8						675
/1984o	1984 09 21.00242	15 03 38.64	+09 17 00.0						801
/1984o	1984 09 22.00170	15 01 54.58	+08 38 41.7						801
/1984o	1984 09 22.13472	15 01 41.02	+08 33 36.7						688
/1984o	1984 09 22.14306	15 01 40.36	+08 33 16.0					4	688
/1984o	1984 09 23.13475	15 00 01.39	+07 56 58.5						675

Periodic Comet Tsuchinshan 1

/1984p	1984 09 04.75972	05 33 09.4	+15 44 20		20.5	N			372
/1984p	1984 09 05.49932	05 34 49.14	+15 46 11.4		20.5	N			675
/1984p	1984 09 06.50210	05 37 04.98	+15 48 43.1						675

Note 1: very weak. 2: remeasurement of position on MPC 8032; time originally given as 1984 05 13.94831. 3: re-reduction of position on MPC 9042. 4: position uncertain. 5: correction to MPC 9043; time originally given as 1984 08 05.99583.

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OBSERVATIONS MADE AT CAUSSOLS.
Contact: J.-L. Heudier, CERGA, Avenue Copernic, F-06130 Grasse, France.

Object	Date	UT	R. A. (1950)	Decl.	Obs.
1984 QA	1984 09 02.06180	00 12 36.84	-12 19 30.2		010
1984 QA	1984 09 02.08264	00 12 27.94	-12 21 04.1		010

OBSERVATIONS MADE AT KLET BY A. MRKOS AND Z. VAVROVA.
Plates with the 0.6-m Maksutov reflector. Contact: A. Mrkos, Department of Astronomy and Astrophysics, Charles University, Svedska 8, C-15000 Prague 5, Czechoslovakia.

Object	Date	UT	R. A. (1950)	Decl.	Mag.	N	Obs.
149	1984 08 22.99833	23 09 57.42	-05 20 59.7				046
149	1984 08 23.01373	23 09 56.55	-05 21 06.3				046
149	1984 08 24.00562	23 09 07.70	-05 26 51.3				046

149		1984	08	24.01975	23	09	06.88	-05	26	57.5	046
149		1984	08	27.94608	23	05	42.63	-05	50	51.7	046
149		1984	08	27.96025	23	05	41.92	-05	50	56.6	046
149		1984	08	27.98242	23	05	40.78	-05	51	06.1	046
149		1984	08	27.99660	23	05	40.05	-05	51	11.3	046
149		1984	08	28.94874	23	04	48.12	-05	57	12.2	046
149		1984	08	28.96292	23	04	47.42	-05	57	16.3	046
149		1984	08	28.98132	23	04	46.48	-05	57	24.7	046
149		1984	08	28.99544	23	04	45.70	-05	57	29.3	046
240		1984	08	21.94498	22	06	35.80	-13	44	18.4	046
240		1984	08	21.95962	22	06	35.04	-13	44	23.1	046
240		1984	08	22.96153	22	05	42.26	-13	50	02.5	046
240		1984	08	22.97986	22	05	41.51	-13	50	07.3	046
240		1984	08	23.96998	22	04	48.96	-13	55	42.5	046
240		1984	08	23.98427	22	04	48.19	-13	55	47.3	046
249		1984	08	21.94498	22	02	12.18	-14	23	21.6	046
249		1984	08	21.95962	22	02	11.22	-14	23	19.6	046
249		1984	08	22.96153	22	01	03.33	-14	21	09.1	046
249		1984	08	22.97986	22	01	02.34	-14	21	07.4	046
249		1984	08	23.96998	21	59	54.97	-14	18	53.7	046
249		1984	08	23.98427	21	59	53.94	-14	18	51.7	046
449		1984	08	21.90620	21	30	49.85	-18	50	11.7	046
449		1984	08	21.92044	21	30	49.03	-18	50	16.3	046
449		1984	08	22.89347	21	29	57.08	-18	54	29.0	046
449		1984	08	22.90788	21	29	56.37	-18	54	33.0	046
449		1984	08	22.92837	21	29	55.38	-18	54	35.6	046
449		1984	08	22.94313	21	29	54.53	-18	54	41.0	046
449		1984	08	23.90024	21	29	03.88	-18	58	48.8	046
449		1984	08	23.91442	21	29	03.20	-18	58	51.8	046
588		1984	08	21.97814	22	19	11.18	-06	21	39.3	046
588		1984	08	21.99231	22	19	10.82	-06	21	40.4	046
659		1984	08	28.01691	23	24	42.68	-04	11	28.3	046
659		1984	08	28.03103	23	24	42.30	-04	11	30.0	1 046
659		1984	08	29.02090	23	24	13.69	-04	13	54.6	046
659		1984	08	29.03514	23	24	13.18	-04	13	57.1	046
720		1984	08	22.92837	21	22	56.47	-18	57	57.1	046
720		1984	08	22.94313	21	22	55.67	-18	58	00.9	046
869		1984	08	22.99833	23	15	29.94	-06	05	50.5	046
869		1984	08	23.01373	23	15	29.24	-06	05	59.9	046
869		1984	08	27.98242	23	11	51.12	-06	48	35.3	046
869		1984	08	27.99660	23	11	50.42	-06	48	43.3	046
869		1984	08	28.98132	23	11	05.23	-06	57	17.5	046
869		1984	08	28.99544	23	11	04.70	-06	57	24.0	046
950		1984	08	22.84399	21	15	04.22	+07	28	07.4	046
950		1984	08	22.85875	21	15	03.48	+07	27	58.8	046
1029		1984	08	22.92837	21	24	33.72	-18	48	31.1	046
1029		1984	08	22.94313	21	24	32.87	-18	48	34.1	046
1076		1984	08	21.94498	22	01	21.18	-12	35	48.2	046
1076		1984	08	21.95962	22	01	20.32	-12	35	54.6	046
1076		1984	08	22.97986	22	00	25.22	-12	42	15.1	046
1076		1984	08	23.96998	21	59	31.41	-12	48	25.8	046
1076		1984	08	23.98427	21	59	30.55	-12	48	30.3	046
1120		1984	08	22.99833	23	08	30.69	-05	24	44.0	046
1120		1984	08	23.01373	23	08	30.06	-05	24	51.5	046
1120		1984	08	24.00562	23	07	50.55	-05	32	36.8	046
1120		1984	08	24.01975	23	07	49.92	-05	32	44.5	046
1120		1984	08	27.94608	23	05	02.14	-06	04	50.7	046
1120		1984	08	27.96025	23	05	01.48	-06	04	59.0	046

1120		1984	08	27.98242	23	05	00.53	-06	05	09.6	046
1120		1984	08	27.99660	23	04	59.80	-06	05	17.5	046
1120		1984	08	28.94874	23	04	16.52	-06	13	22.6	046
1120		1984	08	28.96292	23	04	15.96	-06	13	28.5	046
1120		1984	08	28.98132	23	04	15.21	-06	13	38.6	046
1120		1984	08	28.99544	23	04	14.53	-06	13	45.5	046
1159		1984	08	28.01691	23	21	40.32	-06	25	05.8	046
1159		1984	08	28.03103	23	21	39.33	-06	25	05.1	046
1269		1984	08	21.94498	22	04	04.15	-12	49	05.5	046
1269		1984	08	21.95962	22	04	03.53	-12	49	09.7	046
1269		1984	08	22.96153	22	03	27.15	-12	52	51.5	046
1269		1984	08	22.97986	22	03	26.61	-12	52	54.6	046
1269		1984	08	23.96998	22	02	50.37	-12	56	36.3	046
1269		1984	08	23.98427	22	02	49.92	-12	56	39.0	046
1523		1984	08	28.01691	23	18	47.97	-01	50	06.9	046
1523		1984	08	28.03103	23	18	46.98	-01	50	11.8	046
1523		1984	08	29.02090	23	17	50.88	-01	53	33.8	1 046
1523		1984	08	29.03514	23	17	49.91	-01	53	36.8	1 046
1691		1984	08	21.94498	21	54	55.29	-11	55	45.9	046
1691		1984	08	21.95962	21	54	54.60	-11	55	50.3	046
1691		1984	08	22.96153	21	54	08.95	-12	00	10.8	046
1691		1984	08	22.97986	21	54	08.28	-12	00	14.4	046
1728		1984	07	21.91666	20	22	42.39	-07	48	48.5	046
1728		1984	07	21.93089	20	22	41.59	-07	48	48.7	046
2046		1984	08	22.92837	21	24	59.65	-19	29	47.0	046
2046		1984	08	22.94313	21	24	59.00	-19	29	50.1	046
2356		1984	08	31.98657	23	58	56.19	+05	39	08.7	046
2356		1984	09	01.00081	23	58	55.66	+05	39	02.4	046
2571		1984	08	21.90620	21	41	19.16	-20	30	28.0	046
2571		1984	08	21.92044	21	41	18.43	-20	30	32.3	046
2571		1984	08	22.89347	21	40	27.51	-20	34	46.4	046
2571		1984	08	22.90788	21	40	26.71	-20	34	50.8	046
2571		1984	08	23.90024	21	39	35.13	-20	39	01.9	046
2571		1984	08	23.91442	21	39	34.49	-20	39	06.3	046
2571		1984	08	27.90898	21	36	13.36	-20	53	59.7	046
2571		1984	08	27.92333	21	36	12.83	-20	54	00.4	046
2571		1984	08	28.91396	21	35	25.40	-20	57	11.4	046
2571		1984	08	28.92808	21	35	24.72	-20	57	13.4	046
2718		1984	08	21.94498	21	57	15.12	-15	01	44.2	046
2718		1984	08	21.95962	21	57	14.37	-15	01	47.1	046
2718		1984	08	22.96153	21	56	27.80	-15	05	37.3	046
2718		1984	08	22.97986	21	56	27.06	-15	05	41.1	046
2718		1984	08	23.96998	21	55	41.12	-15	09	25.7	046
2718		1984	08	23.98427	21	55	40.36	-15	09	28.2	046
1942	RN	1984	08	29.02090	23	27	18.52	-02	46	29.6	046
1942	RN	1984	08	29.03514	23	27	17.86	-02	46	36.7	046
1979	SZ9	1984	08	21.94498	21	54	37.10	-12	52	19.8	046
1979	SZ9	1984	08	21.95962	21	54	36.37	-12	52	25.5	046
1979	SZ9	1984	08	22.96153	21	53	50.14	-12	56	22.7	046
1979	SZ9	1984	08	22.96882	21	53	49.46	-12	56	25.4	046
1984	OA	1984	07	30.90471	20	07	45.96	-14	56	53.0	046
1984	OA	1984	07	30.91912	20	07	45.28	-14	57	05.6	046
1984	OA	1984	07	31.90905	20	06	58.06	-15	10	49.6	046
1984	OA	1984	07	31.91773	20	06	57.65	-15	10	56.3	046
1984	OA	1984	08	20.87733	19	54	09.74	-19	39	10.4	046
1984	OA	1984	08	20.89266	19	54	09.34	-19	39	21.4	046
1984	OA	1984	08	21.85921	19	53	46.11	-19	51	14.0	2 046
1984	OA	1984	08	21.87368	19	53	45.68	-19	51	22.6	046

1984	OJ	*	1984	07	30.90471	20	13	49.99	-15	16	37.1	046
1984	OJ		1984	07	30.91912	20	13	49.19	-15	16	36.5	046
1984	OJ		1984	07	31.90905	20	12	51.36	-15	16	42.0	046
1984	OJ		1984	07	31.91773	20	12	50.83	-15	16	41.7	046
1984	PB		1984	08	21.94498	21	57	51.07	-15	20	18.3	046
1984	PB		1984	08	21.95962	21	57	50.37	-15	20	21.7	046
1984	PB		1984	08	22.96153	21	57	04.58	-15	24	43.3	046
1984	PB		1984	08	22.97986	21	57	03.80	-15	24	44.7	046
1984	PB		1984	08	23.96998	21	56	18.36	-15	29	05.7	046
1984	PB		1984	08	23.98427	21	56	17.69	-15	29	05.7	046
1984	QF	*	1984	08	21.90620	21	39	45.31	-18	54	27.8	16.7 046
1984	QF		1984	08	21.92044	21	39	44.62	-18	54	40.9	046
1984	QF		1984	08	22.89347	21	39	03.69	-19	06	19.3	046
1984	QF		1984	08	22.90788	21	39	03.02	-19	06	30.1	046
1984	QF		1984	08	23.90024	21	38	21.64	-19	18	13.0	046
1984	QF		1984	08	23.91442	21	38	21.05	-19	18	23.1	046
1984	QF		1984	08	28.91396	21	35	00.87	-20	15	05.1	046
1984	QF		1984	08	28.92808	21	35	00.49	-20	15	12.0	046
1984	QG	*	1984	08	21.94498	21	55	00.78	-13	02	17.1	16.8 046
1984	QG		1984	08	21.95962	21	55	00.16	-13	02	19.0	046
1984	QH	*	1984	08	21.94498	21	57	56.69	-15	33	13.6	17.0 046
1984	QH		1984	08	21.95962	21	57	56.03	-15	33	14.1	046
1984	QH		1984	08	22.96153	21	56	51.88	-15	33	29.5	046
1984	QH		1984	08	22.97986	21	56	50.96	-15	33	30.9	046
1984	QH		1984	08	23.96998	21	55	47.23	-15	33	44.2	046
1984	QH		1984	08	23.98427	21	55	46.74	-15	33	40.4	046
1984	QJ	*	1984	08	21.94498	22	01	58.97	-13	35	10.6	16.6 046
1984	QJ		1984	08	21.95962	22	01	58.24	-13	35	15.5	046
1984	QJ		1984	08	22.96153	22	01	13.44	-13	40	07.0	046
1984	QJ		1984	08	22.97986	22	01	12.94	-13	40	10.8	046
1984	QJ		1984	08	23.96998	22	00	28.34	-13	44	58.0	046
1984	QJ		1984	08	23.98427	22	00	27.43	-13	45	04.0	046
1984	QK	*	1984	08	22.99833	23	09	10.46	-03	44	11.2	16.8 046
1984	QK		1984	08	23.01373	23	09	09.95	-03	44	14.2	046
1984	QK		1984	08	24.00562	23	08	30.20	-03	48	56.2	046
1984	QK		1984	08	24.01975	23	08	29.55	-03	48	58.9	046
1984	QL	*	1984	08	22.99833	23	09	31.56	-05	32	49.1	17.0 046
1984	QL		1984	08	23.01373	23	09	30.93	-05	32	50.4	046
1984	QM	*	1984	08	24.00562	23	01	45.48	-04	05	24.6	17.0 046
1984	QM		1984	08	24.01975	23	01	44.79	-04	05	27.0	046
1984	QM		1984	08	27.94608	22	58	07.63	-04	14	45.4	046
1984	QM		1984	08	27.96025	22	58	06.69	-04	14	49.1	046
1984	QM		1984	08	28.94874	22	57	10.09	-04	17	24.9	046
1984	QM		1984	08	28.96292	22	57	09.21	-04	17	26.5	046
1984	QN	*	1984	08	28.01691	23	17	38.07	-03	04	03.1	16.5 046
1984	QN		1984	08	28.03103	23	17	37.10	-03	04	05.3	046
1984	QN		1984	08	29.02090	23	16	45.18	-03	05	04.7	046
1984	QN		1984	08	29.03514	23	16	44.39	-03	05	04.8	046
1984	QO	*	1984	08	28.01691	23	18	33.78	-04	49	25.5	046
1984	QO		1984	08	28.03103	23	18	33.06	-04	49	31.1	046
1984	QO		1984	08	29.02090	23	17	32.08	-04	48	41.3	046
1984	QO		1984	08	29.03514	23	17	31.17	-04	48	39.4	046
1984	QP	*	1984	08	28.01691	23	27	28.22	-03	19	32.7	16.5 046
1984	QP		1984	08	29.02090	23	26	37.68	-03	21	05.3	046
1984	QP		1984	08	29.03514	23	26	36.87	-03	21	06.4	046
1984	QQ	*	1984	08	31.98657	00	00	01.07	+06	31	01.3	16.0 046
1984	QQ		1984	09	01.00081	00	00	00.61	+06	30	57.4	046

Note 1: at edge of plate. 2: very faint.

OBSERVATIONS MADE AT BRORFELDE BY K. AUGUSTESEN, P. JENSEN AND H. J. FOGH OLSEN.

Plates taken with the 0.45-m (45/77/150-cm) Schmidt. Contact: H. J. Fogh Olsen, Copenhagen University Observatory, Brorfelde, DK-4340 Tollose, Denmark.

Object		Date	UT	R. A. (1950)	Decl.	Mag.	Obs.
896		1984 09	22.90972	00 26 55.21	+16 52 43.9	15.6	054
896		1984 09	24.95278	00 24 57.43	+16 38 50.4		054
896		1984 09	30.01458	00 20 03.68	+16 00 54.3		054
1984 SA	*	1984 09	22.90972	00 27 22.77	+15 49 16.5	16.2	054
1984 SA		1984 09	24.95278	00 25 43.81	+15 35 40.3		054
1984 SA		1984 09	30.01458	00 21 35.21	+14 57 21.2		054

OBSERVATIONS MADE AT SKALNATE PLESO.

Contact: J. Svoren, Astronomical Institute, Slovak Academy of Sciences, C-05960 Tatranska Lomnica, Czechoslovakia.

Object	Date	UT	R. A. (1950)	Decl.	Obs.
674	1983 10	07.84572	02 11 56.54	+00 39 30.5	056
674	1983 10	07.86701	02 11 55.52	+00 39 30.6	056

OBSERVATIONS MADE AT TURKU.

Plates taken mainly with the 0.50-m (500/1031 mm) anastigmatic reflector at Iso-Heikkila, measured by L. Oterma. SAO and AGK3 reference stars. Contact: L. Oterma, Sirkkalank 31, SF-20700 Turku, Finland.

Object	Date	UT	R. A. (1950)	Decl.	N	Obs.
120	1940 09	02.92862	23 36 33.31	-01 08 40.4		062
120	1940 09	02.96178	23 36 31.81	-01 08 44.6		062
120	1940 09	02.99578	23 36 30.27	-01 08 50.9		062
121	1942 04	18.96715	14 37 24.98	-08 39 51.9		062
121	1942 04	18.98914	14 37 24.10	-08 39 49.4		062
121	1942 04	19.97432	14 36 44.26	-08 37 13.0		062
142	1941 11	16.88803	03 09 30.84	+20 50 42.6		062
142	1941 11	16.92721	03 09 28.54	+20 50 34.6		062
142	1941 11	16.96419	03 09 26.14	+20 50 22.0		062
142	1941 11	17.00088	03 09 23.93	+20 50 12.5		062
146	1940 12	30.88074	08 13 58.67	+29 29 35.3	1	062
146	1940 12	30.91373	08 13 57.14	+29 29 47.5		062
146	1941 01	02.02118	08 12 12.37	+29 46 08.8		062
173	1943 03	07.86506	10 15 08.29	+13 38 40.5		062
173	1943 03	07.91216	10 15 06.19	+13 39 01.8		062
173	1943 03	07.95997	10 15 04.05	+13 39 23.9		062
174	1945 09	13.01772	00 45 10.93	+17 18 51.3		062
174	1945 09	13.05973	00 45 08.87	+17 18 52.7		062
174	1945 10	01.82044	00 28 50.46	+16 52 01.7		062
174	1945 10	01.85968	00 28 48.31	+16 51 55.8		062
186	1943 03	09.91403	11 01 32.55	+18 16 03.6		062
186	1943 03	09.94956	11 01 30.19	+18 16 07.7		062
186	1943 03	10.00558	11 01 26.38	+18 16 13.9		062
189	1942 04	18.96715	14 28 25.74	-12 57 22.5		062
189	1942 04	18.98914	14 28 24.63	-12 57 14.2		062
189	1942 04	19.97432	14 27 33.97	-12 50 46.7		062
192	1942 02	06.85561	09 14 25.55	+21 24 09.4		062
192	1942 02	06.86603	09 14 24.77	+21 24 11.6		062
192	1942 02	11.89940	09 08 45.29	+21 34 59.3		062
271	1942 03	11.93515	12 42 41.34	-07 16 05.1		062
271	1942 03	11.96212	12 42 40.13	-07 16 00.1		062
271	1942 03	14.04545	12 41 15.09	-07 09 24.4		062
283	1945 09	13.01772	00 47 15.79	+17 06 21.9		062
283	1945 09	13.05973	00 47 14.21	+17 06 22.0		062

283		1945	10	01.82044	00	32	58.29	+16	34	59.7	062
283		1945	10	01.85968	00	32	56.36	+16	34	51.4	062
311		1944	02	21.88183	09	49	58.71	+17	51	10.0	062
311		1944	02	21.93079	09	49	56.34	+17	51	23.3	062
313		1941	04	19.95664	14	37	47.82	-02	06	45.4	2 062
313		1941	04	19.98836	14	37	46.20	-02	06	26.7	062
313		1941	04	21.99241	14	36	03.42	-01	46	23.0	062
363		1939	03	18.00333	13	43	51.80	-03	43	30.1	062
363		1939	03	18.03736	13	43	50.67	-03	43	23.2	062
394		1942	02	11.91595	09	35	29.74	+23	12	52.8	062
394		1942	02	11.92984	09	35	28.92	+23	12	56.7	062
394		1942	02	17.88869	09	30	10.35	+23	37	38.7	062
408		1942	02	06.87720	09	11	23.29	+11	58	32.2	062
408		1942	02	06.88762	09	11	22.75	+11	58	33.9	062
431		1942	12	31.93170	07	58	52.86	+20	26	23.3	062
431		1942	12	31.97186	07	58	51.03	+20	26	30.2	062
431		1943	01	05.08793	07	55	37.19	+20	36	58.3	062
449		1942	04	18.96715	14	24	28.77	-09	56	40.9	062
449		1942	04	18.98914	14	24	27.64	-09	56	36.9	062
449		1942	04	19.97432	14	23	33.13	-09	52	46.1	062
514		1941	11	16.96419	03	20	51.45	+22	00	06.4	062
514		1941	11	17.00088	03	20	49.52	+21	59	56.7	062
528		1942	04	18.96715	14	38	41.71	-10	46	46.2	062
528		1942	04	18.98914	14	38	40.64	-10	46	46.3	062
528		1942	04	19.97432	14	37	56.07	-10	45	45.4	062
537		1941	04	19.95664	14	35	48.87	+00	37	54.1	062
537		1941	04	19.98836	14	35	47.44	+00	38	04.5	062
537		1941	04	21.99241	14	34	16.89	+00	47	48.4	062
561		1944	02	21.88183	09	53	13.72	+12	19	20.8	062
561		1944	02	21.93079	09	53	11.33	+12	19	34.5	062
561		1944	02	25.91488	09	50	09.18	+12	37	50.2	062
600		1944	02	25.90724	09	28	57.41	+16	36	01.8	062
620		1942	02	11.91595	09	16	51.05	+24	24	53.9	062
620		1942	02	11.92984	09	16	50.09	+24	24	54.9	062
620		1942	02	17.87909	09	10	32.37	+24	35	27.8	062
662		1944	02	21.88183	09	41	43.43	+15	10	28.3	062
662		1944	02	21.93079	09	41	40.86	+15	10	44.2	062
662		1944	02	25.90724	09	38	09.11	+15	32	16.6	062
708		1942	03	11.93515	12	46	42.68	-05	56	05.9	062
708		1942	03	11.96212	12	46	41.57	-05	56	03.0	062
708		1942	03	14.04545	12	45	11.52	-05	50	34.6	062
732		1940	09	02.92862	23	34	22.08	-01	01	43.6	062
732		1940	09	02.96178	23	34	20.48	-01	02	03.4	062
732		1940	09	02.99578	23	34	18.98	-01	02	22.8	062
734		1942	02	06.85561	09	25	42.31	+21	49	52.7	062
734		1942	02	06.86603	09	25	41.61	+21	49	54.0	062
734		1942	02	11.89940	09	21	17.08	+22	02	50.0	062
734		1942	02	11.91595	09	21	16.15	+22	02	54.4	062
734		1942	02	11.92984	09	21	15.53	+22	02	55.8	062
734		1942	02	17.87909	09	16	11.61	+22	15	13.5	062
734		1942	02	17.89865	09	16	10.77	+22	15	16.1	062
742		1940	03	30.94282	13	15	51.48	+05	32	54.4	062
742		1940	03	30.97002	13	15	50.37	+05	32	59.7	062
742		1940	04	04.88439	13	11	57.77	+05	50	17.6	062
766		1942	03	11.93515	12	52	22.31	-05	02	01.8	062
766		1942	03	11.96212	12	52	21.15	-05	01	57.4	062
766		1942	03	14.04545	12	50	50.68	-04	58	21.5	3 062
800		1944	02	25.91488	09	51	55.92	+12	21	44.2	062
838		1941	11	16.96419	03	27	53.94	+20	44	24.3	062

838		1941	11	17.00088	03	27	52.07	+20	44	09.0	062
845		1939	03	18.00333	13	58	45.87	-04	03	55.1	062
845		1939	03	18.03736	13	58	44.72	-04	03	52.2	062
882		1945	09	13.01772	01	17	18.23	+18	07	34.7	062
882		1945	09	13.05973	01	17	17.27	+18	07	35.8	062
946		1943	03	07.86506	10	04	28.43	+14	11	04.7	062
946		1943	03	07.91216	10	04	26.34	+14	11	15.0	062
946		1943	03	07.95997	10	04	24.30	+14	11	24.1	062
947		1940	04	03.92064	13	11	00.03	-02	00	57.2	062
947		1940	04	03.94841	13	10	58.63	-02	00	49.8	062
947		1940	04	04.89405	13	10	11.86	-01	57	04.4	062
953		1941	11	16.88803	02	58	35.69	+19	59	43.3	062
953		1941	11	16.92721	02	58	33.34	+19	59	38.0	062
974		1942	02	11.91595	09	33	39.47	+21	56	27.1	3 062
974		1942	02	11.92984	09	33	38.65	+21	56	31.5	062
974		1942	02	17.88869	09	27	53.74	+22	27	39.8	062
979		1945	09	11.82998	22	31	50.15	+06	41	13.7	062
979		1945	09	11.85972	22	31	48.81	+06	41	01.3	062
979		1945	09	12.87328	22	31	09.31	+06	34	11.0	062
983		1945	09	11.82998	22	38	23.75	+14	25	17.4	062
983		1945	09	11.85972	22	38	22.47	+14	25	05.9	062
983		1945	09	12.87328	22	37	40.02	+14	19	26.0	062
1003		1942	02	06.87720	09	17	27.82	+15	37	22.0	062
1003		1942	02	06.88762	09	17	27.24	+15	37	24.0	062
1007		1941	11	16.88803	03	03	38.25	+21	37	57.2	062
1007		1941	11	16.92721	03	03	36.05	+21	37	47.3	062
1102		1942	04	18.96715	14	31	21.99	-15	12	46.9	062
1102		1942	04	18.98914	14	31	21.02	-15	12	37.8	062
1102		1942	04	19.97432	14	30	39.70	-15	05	10.8	062
1108		1941	11	16.88803	03	11	00.90	+19	41	34.2	062
1108		1941	11	16.92721	03	10	58.44	+19	40	53.3	062
1108		1941	11	16.96419	03	10	56.19	+19	40	19.5	062
1108		1941	11	17.00088	03	10	53.87	+19	39	44.7	062
1111		1942	02	06.87720	09	11	28.65	+16	32	32.0	062
1111		1942	02	06.88762	09	11	28.10	+16	32	34.6	062
1113		1945	09	13.01772	00	52	57.69	+20	27	24.5	062
1113		1945	09	13.05973	00	52	56.02	+20	27	32.4	062
1113		1945	10	01.82044	00	37	49.19	+20	34	03.0	062
1113		1945	10	01.85968	00	37	47.07	+20	34	01.2	062
1115		1941	04	19.95664	14	33	06.67	+00	26	08.0	062
1115		1941	04	19.98836	14	33	05.02	+00	26	11.3	062
1115		1941	04	21.99241	14	31	22.01	+00	28	22.2	062
1117		1940	03	14.85852	11	08	23.61	+08	24	08.7	062
1117		1940	03	14.89602	11	08	21.39	+08	24	25.3	062
1118		1940	12	30.88074	08	23	51.46	+27	33	11.1	062
1118		1940	12	30.91373	08	23	49.96	+27	33	12.0	062
1118		1941	01	02.02118	08	22	08.30	+27	34	53.9	062
1119		1948	10	09.96698	01	42	52.88	+02	35	18.3	4 062
1119		1948	10	10.00402	01	42	50.76	+02	35	11.4	062
1121		1942	02	06.85561	09	27	36.70	+22	05	43.4	4 062
1121		1942	02	06.86603	09	27	35.99	+22	05	45.6	062
1121		1942	02	11.89940	09	22	12.92	+22	17	48.2	062
1121		1942	02	11.91595	09	22	11.82	+22	17	50.5	062
1121		1942	02	11.92984	09	22	10.81	+22	17	51.7	062
1121		1942	02	17.87909	09	16	03.87	+22	27	55.2	062
1121		1942	02	17.89865	09	16	02.75	+22	27	56.1	062
1123		1940	03	30.94282	13	17	14.10	+02	11	31.7	4 062
1123		1940	03	30.97002	13	17	12.47	+02	11	39.0	062
1123		1940	04	03.92064	13	13	15.48	+02	33	19.9	4 062

1123	1940 04 03.94841	13 13 13.76	+02 33 29.0			062
1123	1940 04 04.88439	13 12 16.97	+02 38 25.3		4	062
1123	1940 04 04.89405	13 12 16.34	+02 38 27.4		4	062
1129	1945 09 11.93495	23 43 58.35	+12 38 48.3		3	062
1129	1945 09 11.96134	23 43 57.07	+12 38 43.5			062
1129	1945 09 12.97015	23 43 11.58	+12 35 01.9			062
1137	1939 03 18.00333	13 59 14.99	-06 06 33.1			062
1137	1939 03 18.03736	13 59 14.04	-06 06 26.0			062
1148	1943 03 07.86506	10 04 59.57	+13 59 18.2			062
1148	1943 03 07.91216	10 04 57.73	+13 59 34.4			062
1148	1943 03 07.95997	10 04 55.60	+13 59 50.9			062
1159	1940 09 02.92862	23 47 41.87	-00 33 44.2		4	062
1159	1940 09 02.96178	23 47 39.79	-00 33 41.3			062
1159	1940 09 02.99578	23 47 37.58	-00 33 39.6			062
1159	1940 09 06.88880	23 43 28.06	-00 30 48.5			062
1159	1940 09 07.97625	23 42 16.08	-00 30 12.8		4	062
1169	1941 11 16.96419	03 20 52.27	+21 29 37.7			062
1169	1941 11 17.00088	03 20 50.04	+21 29 22.2			062
1171	1942 12 31.93170	08 05 09.69	+19 28 16.9			062
1171	1942 12 31.97186	08 05 07.82	+19 28 24.0			062
1171	1943 01 05.08793	08 01 50.35	+19 42 19.4			062
1173	1941 09 26.03079	01 06 42.35	+16 32 51.9			062
1173	1941 09 29.91725	01 04 43.91	+16 23 04.8			062
1173	1941 09 29.95324	01 04 42.84	+16 22 58.8			062
1180	1939 03 15.03686	13 49 38.57	-02 03 45.9			062
1180	1939 03 18.00333	13 48 27.46	-01 53 51.3		4	062
1180	1939 03 18.03736	13 48 26.54	-01 53 43.8			062
1182	1939 11 13.75983	01 33 47.93	+27 19 55.3			062
1182	1939 11 13.79686	01 33 45.99	+27 19 43.6			062
1182	1944 02 21.88183	09 44 46.47	+16 27 32.5			062
1182	1944 02 21.93079	09 44 42.98	+16 27 34.5			062
1182	1944 02 25.90724	09 40 13.26	+16 29 23.5		3	062
1182	1944 02 25.91488	09 40 12.89	+16 29 23.0		3	062
1184	1942 03 11.93515	12 41 04.87	-07 13 50.9			062
1184	1942 03 11.96212	12 41 03.53	-07 13 50.7			062
1184	1942 03 14.04545	12 39 18.64	-07 12 22.0			062
1186	1943 03 09.91403	11 00 06.52	+21 01 31.5			062
1186	1943 03 09.94956	11 00 04.77	+21 01 37.1			062
1186	1943 03 10.00558	11 00 01.95	+21 01 48.2			062
1186	1943 04 01.83625	10 43 22.33	+21 28 14.4			062
1186	1943 04 01.87109	10 43 21.13	+21 28 13.0			062
1189	1945 09 11.82998	22 47 05.24	+08 39 06.6			062
1189	1945 09 11.85972	22 47 03.79	+08 38 58.3			062
1189	1945 09 12.87328	22 46 15.50	+08 34 51.3			062
1256	1941 11 16.96419	03 30 21.71	+19 44 10.2			062
1256	1941 11 17.00088	03 30 20.17	+19 44 02.2			062
2231	1941 09 26.03079	01 05 20.82	+15 18 47.0			062
2231	1941 09 29.91725	01 01 57.86	+15 25 17.0			062
2231	1941 09 29.95324	01 01 55.89	+15 25 20.6			062

Note 1: broken plate. 2: poor double-point plate. 3: planet close to edge of plate. 4: planet close to edge of plate, transferred.

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Contact: V. Shkodrov, Department of Astronomy, Bulgarian Academy of Sciences, Sofia, Bulgaria.

Object	Date UT	R. A. (1950)	Decl.	Obs.
64	1984 03 25.89653	11 56 29.18	-01 31 56.6	071
64	1984 03 25.94167	11 56 26.54	-01 31 40.5	071

189	1984	04	04.89375	12	50	37.17	-06	51	06.4	071
189	1984	04	04.96736	12	50	33.54	-06	50	34.4	071
189	1984	04	05.01319	12	50	31.08	-06	50	13.4	071
189	1984	04	05.05972	12	50	28.81	-06	49	53.7	071
235	1984	05	22.89792	15	54	13.73	-18	59	09.8	071
235	1984	05	22.93542	15	54	11.72	-18	59	11.2	071
235	1984	05	22.97222	15	54	09.40	-18	59	13.8	071
235	1984	05	24.84028	15	52	24.43	-19	00	18.6	071
235	1984	05	24.85903	15	52	23.42	-19	00	19.1	071
235	1984	05	24.88889	15	52	21.67	-19	00	21.2	071
235	1984	05	24.90694	15	52	20.63	-19	00	21.2	071
235	1984	05	24.92396	15	52	19.64	-19	00	21.5	071
235	1984	05	24.94167	15	52	18.68	-19	00	22.6	071
235	1984	05	24.95833	15	52	17.62	-19	00	22.9	071
235	1984	05	24.97778	15	52	16.69	-19	00	23.0	071
235	1984	05	24.99514	15	52	15.51	-19	00	24.0	071
235	1984	05	25.88542	15	51	25.71	-19	00	56.1	071
235	1984	05	25.90417	15	51	24.69	-19	00	56.7	071
235	1984	05	25.92361	15	51	23.54	-19	00	57.2	071
235	1984	05	25.94028	15	51	22.60	-19	00	57.2	071
235	1984	05	25.95903	15	51	21.61	-19	00	58.4	071
235	1984	05	25.97708	15	51	20.42	-19	00	59.0	071
235	1984	05	25.99514	15	51	19.51	-19	00	59.9	071
243	1984	05	22.91806	15	51	18.45	-21	54	28.9	071
243	1984	05	22.93542	15	51	17.44	-21	54	25.4	071
243	1984	05	22.95486	15	51	16.42	-21	54	23.1	071
243	1984	05	22.97222	15	51	15.39	-21	54	20.1	071
243	1984	05	22.99167	15	51	14.35	-21	54	17.0	071
243	1984	05	24.85903	15	49	35.56	-21	49	08.8	071
243	1984	05	24.90694	15	49	32.87	-21	49	00.5	071
243	1984	05	24.95833	15	49	30.11	-21	48	52.2	071
278	1984	05	22.89792	15	53	05.03	-20	01	10.5	071
278	1984	05	22.91806	15	53	03.73	-20	01	10.5	071
278	1984	05	22.93542	15	53	02.82	-20	01	10.7	071
278	1984	05	22.95486	15	53	01.50	-20	01	13.2	071
278	1984	05	22.97222	15	53	01.04	-20	01	13.1	071
278	1984	05	22.99167	15	52	59.65	-20	01	15.0	071
278	1984	05	24.84028	15	51	11.72	-20	02	51.3	071
278	1984	05	24.85903	15	51	10.80	-20	02	52.4	071
278	1984	05	24.88889	15	51	08.72	-20	02	53.5	071
278	1984	05	24.90694	15	51	07.79	-20	02	54.0	071
278	1984	05	24.92396	15	51	06.80	-20	02	55.8	071
278	1984	05	24.94167	15	51	05.67	-20	02	56.0	071
278	1984	05	24.95833	15	51	04.68	-20	02	57.8	071
278	1984	05	24.97778	15	51	03.63	-20	02	57.0	071
278	1984	05	24.99514	15	51	02.44	-20	02	57.4	071
278	1984	05	25.88542	15	50	11.06	-20	03	44.9	071
278	1984	05	25.90417	15	50	10.04	-20	03	47.2	071
278	1984	05	25.92361	15	50	08.76	-20	03	46.3	071
278	1984	05	25.94028	15	50	07.85	-20	03	46.2	071
278	1984	05	25.97708	15	50	05.45	-20	03	49.5	071
278	1984	05	25.99514	15	50	04.51	-20	03	49.7	071
743	1984	05	22.89792	15	55	34.58	-18	48	55.1	071
743	1984	05	22.93542	15	55	32.63	-18	48	46.6	071
743	1984	05	22.97222	15	55	30.64	-18	48	38.3	071
743	1984	05	24.84028	15	53	53.50	-18	41	04.5	071
743	1984	05	24.85903	15	53	52.27	-18	40	54.2	071
743	1984	05	24.88889	15	53	50.64	-18	40	53.3	071
743	1984	05	24.90694	15	53	49.77	-18	40	48.5	071

743	1984	05	24.92396	15	53	48.83	-18	40	43.3	071
743	1984	05	24.94167	15	53	47.88	-18	40	39.2	071
743	1984	05	24.95833	15	53	47.03	-18	40	36.1	071
743	1984	05	24.97778	15	53	46.10	-18	40	30.2	071
743	1984	05	24.99514	15	53	45.06	-18	40	26.5	071
743	1984	05	25.88542	15	52	58.97	-18	36	50.3	071
743	1984	05	25.90417	15	52	58.03	-18	36	46.5	071
743	1984	05	25.92361	15	52	56.94	-18	36	42.3	071
743	1984	05	25.94028	15	52	56.35	-18	36	37.8	071
743	1984	05	25.95903	15	52	55.10	-18	36	33.5	071
743	1984	05	25.97708	15	52	54.05	-18	36	29.0	071
743	1984	05	25.99514	15	52	53.19	-18	36	24.0	071
1038	1984	05	22.91806	15	49	32.45	-20	30	07.1	071
1038	1984	05	22.93542	15	49	31.57	-20	30	06.5	071
1038	1984	05	22.95486	15	49	30.77	-20	30	07.1	071
1038	1984	05	22.97222	15	49	30.19	-20	30	04.8	071
1038	1984	05	22.99167	15	49	29.37	-20	30	04.5	071
1135	1984	04	04.89375	12	42	58.62	-07	32	53.2	071
1135	1984	04	05.01319	12	42	52.39	-07	32	22.2	071
1135	1984	04	05.05972	12	42	50.18	-07	32	12.1	071
1188	1984	04	04.89375	12	53	52.45	-07	15	01.7	071
1188	1984	04	04.96736	12	53	47.88	-07	14	41.8	071
1188	1984	04	05.01319	12	53	44.92	-07	14	28.6	071
1188	1984	04	05.05972	12	53	42.05	-07	14	17.2	071
1268	1984	04	04.89375	12	47	46.64	-07	37	05.5	071
1268	1984	04	05.01319	12	47	41.87	-07	36	40.9	071
1268	1984	04	05.05972	12	47	40.22	-07	36	33.1	071
1296	1984	05	25.90417	16	01	35.54	-18	45	51.1	071
1296	1984	05	25.95903	16	01	32.06	-18	45	39.8	071
1296	1984	05	25.99514	16	01	29.93	-18	45	29.3	071
1445	1984	05	22.89792	15	57	46.63	-18	54	02.3	071
1445	1984	05	22.93542	15	57	44.57	-18	53	59.1	071
1445	1984	05	22.97222	15	57	42.62	-18	53	55.3	071
1445	1984	05	24.84028	15	56	09.15	-18	50	11.8	071
1445	1984	05	24.85903	15	56	08.30	-18	50	10.2	071
1445	1984	05	24.88889	15	56	06.72	-18	50	06.6	071
1445	1984	05	24.90694	15	56	05.84	-18	50	04.4	071
1445	1984	05	24.92396	15	56	04.94	-18	50	01.2	071
1445	1984	05	24.94167	15	56	04.16	-18	50	00.3	071
1445	1984	05	24.95833	15	56	03.28	-18	49	56.7	071
1445	1984	05	24.97778	15	56	02.27	-18	49	54.3	071
1445	1984	05	24.99514	15	56	01.23	-18	49	52.3	071
1445	1984	05	25.88542	15	55	16.88	-18	48	07.5	071
1445	1984	05	25.92361	15	55	15.01	-18	48	01.6	071
1445	1984	05	25.94028	15	55	14.01	-18	48	00.1	071
1445	1984	05	25.97708	15	55	12.00	-18	47	57.4	071
1462	1984	05	22.91806	15	38	13.66	-20	19	12.2	071
1462	1984	05	22.95486	15	38	11.79	-20	19	06.4	071
1462	1984	05	22.99167	15	38	09.88	-20	19	01.2	071
1462	1984	05	27.88194	15	34	15.01	-20	06	55.9	071
1462	1984	05	27.93125	15	34	12.47	-20	06	47.8	071
1495	1984	04	04.89375	12	47	36.90	-05	29	58.2	071
1495	1984	04	04.96736	12	47	32.51	-05	29	54.2	071
1495	1984	04	05.01319	12	47	29.62	-05	29	51.7	071
1495	1984	04	05.05972	12	47	26.79	-05	29	48.6	071
1704	1984	05	22.91806	15	42	29.40	-20	20	05.9	071
1704	1984	05	22.93542	15	42	28.15	-20	20	01.8	071
1704	1984	05	22.95486	15	42	26.93	-20	19	56.5	071
1704	1984	05	22.97222	15	42	25.84	-20	19	53.6	071

1704			1984	05	22.99167	15	42	24.58	-20	19	49.6	071
1704			1984	05	27.88194	15	37	26.48	-20	00	08.6	071
1704			1984	05	27.93125	15	37	23.29	-19	59	55.3	071
1956			1984	05	22.89792	15	55	28.73	-18	15	09.3	071
1956			1984	05	22.93542	15	55	26.74	-18	15	02.6	071
1956			1984	05	22.97222	15	55	25.10	-18	14	58.3	071
2597			1984	05	22.89792	15	52	23.85	-18	50	50.2	071
2597			1984	05	22.93542	15	52	21.92	-18	50	46.7	071
2597			1984	05	22.97222	15	52	20.62	-18	50	50.5	071
2597			1984	05	25.90417	15	49	55.14	-18	43	36.9	071
2597			1984	05	25.95903	15	49	52.19	-18	43	27.7	071
2597			1984	05	25.99514	15	49	50.13	-18	43	24.3	071
3056			1984	04	04.89375	12	49	35.56	-05	48	50.6	071
3056			1984	04	04.96736	12	49	31.29	-05	48	33.9	071
3056			1984	04	05.01319	12	49	28.69	-05	48	25.1	071
3092			1984	04	04.89375	12	45	49.68	-06	11	57.0	071
3092			1984	04	04.96736	12	45	46.38	-06	11	45.9	071
3116			1984	05	24.88889	15	49	02.32	-16	44	31.0	071
3116			1984	05	24.94167	15	48	58.59	-16	44	28.9	071
3116			1984	05	24.99514	15	48	54.75	-16	44	25.9	071
3116			1984	05	25.92361	15	47	50.91	-16	43	33.1	071
3116			1984	05	25.97708	15	47	47.07	-16	43	30.3	071
1984	GA		1984	04	04.89375	12	50	17.52	-07	10	30.2	071
1984	GA		1984	04	04.96736	12	50	12.97	-07	10	11.8	071
1984	GB		1984	04	04.89375	12	53	24.33	-06	33	54.7	071
1984	GB		1984	04	04.96736	12	53	19.73	-06	33	40.7	071
1984	GB		1984	04	05.01319	12	53	16.99	-06	33	32.2	071
1984	GP	*	1984	04	04.89375	12	43	01.91	-05	23	48.3	071
1984	GP		1984	04	04.96736	12	42	57.65	-05	23	27.7	071
1984	GP		1984	04	05.01319	12	42	55.21	-05	23	15.0	071
1984	GQ	*	1984	04	04.89375	12	44	21.32	-04	13	53.8	071
1984	GQ		1984	04	04.96736	12	44	17.50	-04	13	11.0	071
1984	GR	*	1984	04	04.89375	12	51	58.72	-07	45	48.7	071
1984	GR		1984	04	04.96736	12	51	55.26	-07	45	30.9	071
1984	GR		1984	04	05.01319	12	51	53.12	-07	45	18.6	071
1984	GS	*	1984	04	04.89375	12	53	03.16	-04	26	34.7	071
1984	GS		1984	04	04.96736	12	52	59.44	-04	26	06.3	071
1984	GS		1984	04	05.01319	12	52	57.06	-04	25	48.0	071
1984	GS		1984	04	05.05972	12	52	54.94	-04	25	30.6	071
1984	KN	*	1984	05	22.89792	15	42	06.20	-21	22	42.3	071
1984	KN		1984	05	22.91806	15	42	05.45	-21	22	43.4	071
1984	KN		1984	05	22.93542	15	42	03.98	-21	22	46.9	071
1984	KN		1984	05	22.95486	15	42	02.62	-21	22	49.7	071
1984	KN		1984	05	22.97222	15	42	01.39	-21	22	50.9	071
1984	KN		1984	05	22.99167	15	42	00.27	-21	22	53.1	071
1984	KO	*	1984	05	22.89792	15	42	39.04	-18	43	31.4	071
1984	KO		1984	05	22.93542	15	42	36.55	-18	43	18.6	071
1984	KO		1984	05	22.97222	15	42	34.38	-18	43	09.4	071
1984	KP	*	1984	05	22.89792	15	47	52.76	-19	35	22.0	071
1984	KP		1984	05	22.91806	15	47	51.62	-19	35	19.7	071
1984	KP		1984	05	22.93542	15	47	50.81	-19	35	17.3	071
1984	KP		1984	05	22.95486	15	47	49.52	-19	35	13.2	071
1984	KP		1984	05	22.97222	15	47	49.08	-19	35	13.6	071
1984	KP		1984	05	22.99167	15	47	47.97	-19	35	10.5	071
1984	KP		1984	05	24.84028	15	46	17.06	-19	31	12.4	071
1984	KP		1984	05	24.85903	15	46	15.96	-19	31	10.4	071
1984	KP		1984	05	24.88889	15	46	14.41	-19	31	06.6	071
1984	KP		1984	05	24.90694	15	46	13.51	-19	31	05.4	071
1984	KP		1984	05	24.92396	15	46	12.76	-19	31	02.3	071

1984	KP		1984	05	24.94167	15	46	11.75	-19 30 59.5	071
1984	KP		1984	05	24.95833	15	46	10.82	-19 30 58.6	071
1984	KP		1984	05	24.97778	15	46	09.91	-19 30 55.6	071
1984	KP		1984	05	25.88542	15	45	25.44	-19 28 59.9	071
1984	KP		1984	05	25.92361	15	45	23.48	-19 28 53.6	071
1984	KP		1984	05	25.94028	15	45	22.73	-19 28 51.0	071
1984	KP		1984	05	25.97708	15	45	20.71	-19 28 46.8	071
1984	KQ	*	1984	05	22.91806	15	36	29.84	-20 11 20.4	071
1984	KQ		1984	05	22.95486	15	36	27.92	-20 11 13.8	071
1984	KQ		1984	05	22.99167	15	36	26.25	-20 11 08.9	071
1984	KR	*	1984	05	22.91806	15	40	33.03	-18 47 33.4	071
1984	KR		1984	05	22.95486	15	40	30.90	-18 47 21.9	071
1984	KR		1984	05	22.99167	15	40	28.84	-18 47 12.5	071
1984	KS	*	1984	05	22.91806	15	44	45.99	-21 16 49.6	071
1984	KS		1984	05	22.93542	15	44	44.58	-21 16 32.5	071
1984	KS		1984	05	22.95486	15	44	43.66	-21 16 19.5	071
1984	KS		1984	05	22.97222	15	44	42.22	-21 16 02.3	071
1984	KS		1984	05	22.99167	15	44	41.26	-21 15 48.4	071
1984	KT	*	1984	05	25.90417	16	00	20.56	-18 03 41.7	071
1984	KT		1984	05	25.95903	16	00	17.49	-18 03 37.1	071
1984	KT		1984	05	25.99514	16	00	15.62	-18 03 31.5	071
1984	KU	*	1984	05	25.90417	16	01	45.47	-19 33 28.0	071
1984	KU		1984	05	25.95903	16	01	41.89	-19 33 05.7	071
1984	KU		1984	05	25.99514	16	01	39.90	-19 32 52.0	071
1984	LE		1984	05	25.90417	16	00	08.89	-20 05 49.3	071
1984	LE		1984	05	25.95903	16	00	05.76	-20 05 18.8	071
1984	LE		1984	05	25.99514	16	00	03.72	-20 04 59.8	071
1984	LK		1984	05	24.84028	15	51	32.40	-19 23 42.7	071
1984	LK		1984	05	24.85903	15	51	31.52	-19 23 36.2	071
1984	LK		1984	05	24.88889	15	51	29.75	-19 23 25.0	071
1984	LK		1984	05	24.90694	15	51	28.78	-19 23 18.3	071
1984	LK		1984	05	24.92396	15	51	27.85	-19 23 11.5	071
1984	LK		1984	05	24.94167	15	51	26.77	-19 23 04.7	071
1984	LK		1984	05	24.97778	15	51	24.97	-19 22 44.8	071
1984	LK		1984	05	24.99514	15	51	23.89	-19 22 43.7	071
1984	LK		1984	05	25.88542	15	50	36.93	-19 17 10.2	071
1984	LK		1984	05	25.90417	15	50	35.97	-19 17 03.2	071
1984	LK		1984	05	25.92361	15	50	34.67	-19 16 53.5	071
1984	LK		1984	05	25.94028	15	50	33.97	-19 16 48.3	071
1984	LK		1984	05	25.95903	15	50	32.79	-19 16 41.4	071
1984	LK		1984	05	25.97708	15	50	31.72	-19 16 34.7	071
1984	LK		1984	05	25.99514	15	50	30.85	-19 16 27.9	071

OBSERVATIONS MADE AT THE PURPLE MOUNTAIN OBSERVATORY BY J.-X. YANG, S.-L. WEI, Q. WANG, Y.-L. GE AND J.-X. ZHANG.

Plates taken with the 0.40-m f/7.5 double astrograph. Comparison stars from the SAO Catalog. Assistance with identifications from D. W. E. Green and B. G. Marsden. Contact: J.-x. Zhang, Purple Mountain Observatory, Academia Sinica, Nanking, People's Republic of China.

Object	Date	UT	R. A. (1950)	Decl.	Obs.
10	1982 01	18.59638	08 15 15.45	+18 07 23.1	330
10	1982 01	27.64150	08 07 28.73	+18 23 45.8	330
11	1982 12	17.48243	05 21 16.89	+18 02 44.9	330
11	1982 12	17.51889	05 21 14.37	+18 02 48.0	330
14	1982 11	11.74631	04 08 19.27	+14 05 03.3	330
19	1982 10	08.59272	01 17 44.49	+08 57 04.6	330
19	1982 10	16.59719	01 10 57.07	+08 06 32.0	330
33	1982 01	18.59638	08 10 51.24	+22 37 04.1	330
33	1982 01	27.64150	08 02 13.17	+23 00 15.0	330

34	1982	01	16.65472	06	43	32.07	+14	18	05.4	330
34	1982	01	20.56859	06	40	12.88	+14	28	23.3	330
34	1982	01	27.55123	06	35	02.09	+14	48	43.6	330
35	1982	10	18.56036	02	30	47.23	+22	48	20.9	330
35	1982	11	10.55950	02	11	33.08	+21	45	10.9	330
35	1982	11	13.52962	02	09	09.33	+21	34	40.5	330
38	1982	12	19.69700	08	12	33.28	+21	41	58.8	330
41	1982	10	19.61661	01	51	47.46	+00	10	49.9	330
52	1982	12	19.72825	08	31	32.21	+15	55	10.9	330
55	1982	10	18.56036	02	25	33.30	+19	35	34.0	330
55	1982	11	10.55950	02	03	32.57	+19	03	54.8	330
58	1982	11	10.65395	03	14	52.25	+10	32	17.7	330
58	1982	11	17.62818	03	08	39.68	+10	03	32.9	330
64	1982	11	10.60672	02	33	48.90	+17	19	01.5	330
64	1982	11	17.53721	02	27	35.34	+16	47	53.5	330
76	1982	12	17.66160	07	49	17.24	+17	57	44.5	330
84	1982	12	19.79353	08	24	47.90	+28	11	54.8	330
88	1982	11	11.61714	03	14	03.71	+23	59	33.5	330
114	1982	12	16.76507	07	01	37.09	+15	15	29.5	330
116	1982	10	12.64444	02	25	07.18	+11	22	46.8	330
125	1982	12	06.62067	05	47	34.70	+16	30	25.9	330
125	1982	12	12.57619	05	42	05.94	+16	26	12.0	330
125	1982	12	17.48243	05	37	26.43	+16	23	52.4	330
125	1982	12	17.51889	05	37	24.65	+16	23	50.7	330
138	1982	10	12.59861	01	53	23.13	+08	35	05.7	330
145	1982	12	19.64978	07	29	36.34	+30	18	17.1	330
147	1982	11	13.62753	04	03	37.79	+21	15	05.1	330
158	1982	12	19.69700	08	15	58.22	+19	28	41.5	330
160	1982	10	08.59272	01	20	08.81	+09	42	07.1	330
160	1982	10	16.59719	01	13	01.72	+09	13	06.2	330
168	1982	10	18.60689	02	37	21.28	+14	15	22.3	330
189	1982	12	21.64178	04	39	13.91	+15	06	59.1	330
208	1982	10	08.50661	00	10	53.94	+01	18	25.1	330
237	1982	11	11.74631	04	16	45.92	+15	05	26.0	330
239	1982	12	21.64178	04	53	36.36	+12	31	28.0	330
239	1982	12	21.69005	04	53	34.38	+12	31	25.8	330
245	1982	12	19.79353	08	19	18.19	+25	21	59.3	330
257	1982	10	18.60689	02	27	49.63	+14	33	31.7	330
259	1982	10	19.61661	01	51	54.55	-02	52	34.3	330
268	1982	11	11.69839	03	52	32.37	+17	01	05.8	330
268	1982	11	17.58305	03	47	42.71	+16	46	28.3	330
270	1982	12	16.71715	07	01	04.40	+21	13	01.4	330
289	1982	01	20.56859	06	45	56.74	+13	18	43.1	330
289	1982	01	27.55123	06	40	56.83	+13	40	55.0	330
297	1982	12	19.64978	07	34	07.25	+29	27	45.6	330
305	1982	12	06.62067	06	07	23.64	+17	31	03.2	330
311	1982	12	17.53069	07	09	09.11	+23	58	39.6	330
316	1982	10	12.59861	01	40	31.11	+06	39	11.5	330
332	1982	11	13.62753	03	45	25.84	+21	44	48.6	330
335	1982	11	11.74631	04	26	34.23	+13	47	33.5	330
338	1982	12	13.55676	03	38	05.03	+25	36	10.7	330
347	1982	01	16.54882	05	53	30.39	+28	00	56.1	330
357	1982	01	18.64082	08	29	45.04	+13	22	07.2	330
362	1982	11	13.57545	02	46	56.63	+21	05	12.6	330
363	1982	11	11.69839	03	49	29.84	+18	28	26.9	330
363	1982	11	17.58305	03	43	45.99	+18	23	47.6	330
364	1982	01	18.59638	08	09	24.12	+22	54	52.2	330
379	1982	12	19.69700	08	21	47.54	+17	30	18.9	330
394	1982	12	19.79353	08	33	28.20	+25	07	52.3	330

395	1982	10	18.56036	02	27	07.82	+18	16	47.3	330
396	1982	01	18.64082	08	33	54.66	+15	37	58.4	330
403	1982	11	17.67610	04	39	22.47	+22	00	23.7	330
409	1982	12	06.62067	05	51	13.14	+17	12	52.1	330
409	1982	12	12.57619	05	45	22.49	+16	46	36.3	330
409	1982	12	17.48243	05	40	22.83	+16	25	57.8	330
409	1982	12	17.51889	05	40	20.96	+16	25	47.4	330
412	1982	12	21.69005	05	06	28.47	+13	47	08.3	330
416	1982	12	19.53936	05	14	47.92	+30	36	16.1	330
423	1982	11	10.65395	03	26	10.88	+13	21	10.9	330
423	1982	11	17.62818	03	19	57.69	+13	18	12.0	330
423	1982	12	06.57414	03	04	27.54	+13	20	42.8	330
423	1982	12	12.54598	03	00	35.96	+13	26	13.0	330
432	1982	01	15.55680	05	25	35.78	+24	48	08.9	330
447	1982	11	17.67610	04	34	41.18	+21	06	45.4	330
457	1982	11	13.62753	03	55	38.44	+24	46	14.9	330
513	1982	10	12.64444	02	25	13.77	+07	31	24.6	330
515	1982	01	15.55680	05	16	37.15	+21	35	47.8	330
517	1982	12	17.66160	07	59	53.48	+19	35	07.8	330
519	1982	10	08.57362	00	09	12.44	-12	27	13.6	330
525	1982	10	18.57911	02	32	51.03	+13	03	12.8	330
527	1982	12	13.50954	02	55	04.92	+03	24	16.8	330
530	1982	12	17.66160	08	00	06.47	+16	52	47.2	330
552	1982	11	11.61714	03	03	22.51	+24	14	03.9	330
555	1982	10	18.60689	02	42	24.85	+11	41	26.7	330
561	1982	12	17.63382	07	55	14.10	+18	59	19.3	330
566	1982	11	11.69839	03	52	35.23	+17	15	07.4	330
566	1982	11	17.58305	03	47	50.84	+17	07	05.3	330
570	1982	10	16.64441	02	07	16.80	+13	34	58.1	330
590	1982	12	06.62067	05	51	07.24	+16	33	51.4	330
590	1982	12	12.57619	05	45	48.90	+16	51	07.3	330
590	1982	12	17.48243	05	41	14.77	+17	06	46.5	330
590	1982	12	17.51889	05	41	13.06	+17	06	52.3	330
598	1982	12	17.53069	07	02	49.93	+24	22	02.2	330
598	1982	12	17.56611	07	02	48.00	+24	22	17.6	330
620	1982	10	19.67147	02	51	53.92	+25	09	35.6	330
620	1982	11	13.52962	02	24	47.94	+24	35	44.6	330
630	1982	12	21.69005	05	02	42.07	+13	14	12.9	330
632	1982	10	08.59272	01	15	43.54	+09	22	04.3	330
632	1982	10	16.59719	01	08	40.43	+08	44	18.7	330
639	1982	12	17.66160	07	47	54.53	+19	49	13.8	330
645	1982	12	17.58104	07	14	21.47	+33	14	20.9	330
645	1982	12	17.61751	07	14	19.86	+33	14	27.1	330
653	1982	01	18.64082	08	36	15.07	+15	56	49.5	330
669	1982	12	13.50954	02	51	11.62	+02	50	41.4	330
695	1982	12	12.64008	05	52	19.68	+27	43	38.8	330
703	1982	01	16.69535	07	16	26.12	+17	45	09.6	330
703	1982	01	18.54985	07	14	22.72	+17	49	26.8	330
703	1982	01	20.62137	07	12	08.36	+17	54	25.7	330
703	1982	01	27.59637	07	05	19.47	+18	10	50.2	330
707	1982	01	18.59638	08	02	06.38	+18	13	51.3	330
707	1982	01	27.64150	07	51	26.57	+18	25	09.5	330
731	1982	12	17.58104	07	12	44.17	+34	34	23.2	330
731	1982	12	17.61751	07	12	42.32	+34	34	33.1	330
769	1982	11	13.62753	04	02	19.75	+24	30	08.0	330
771	1982	11	10.65395	03	14	05.39	+12	26	01.8	330
771	1982	11	17.62818	03	08	36.73	+10	47	44.3	330
775	1982	01	18.64082	08	34	50.27	+17	11	51.6	330
779	1982	12	19.53936	05	13	56.16	+31	20	26.7	330

784		1982	11	11.61714	02	58	24.76	+26	53	01.1	330
792		1982	12	19.74561	08	43	24.79	+11	37	24.1	330
803		1982	12	16.71715	06	51	29.33	+17	36	53.1	330
818		1982	11	11.69839	04	00	43.90	+14	48	22.1	330
818		1982	11	17.58305	03	55	19.12	+14	58	57.1	330
822		1982	10	12.59861	01	47	41.68	+11	15	20.0	330
825		1982	01	18.59638	08	05	24.88	+22	10	42.4	330
825		1982	01	27.64150	07	55	06.51	+22	55	50.1	330
857		1982	11	17.67610	04	26	43.37	+18	20	10.0	330
866		1982	12	19.79353	08	27	00.16	+23	41	05.3	330
872		1982	11	10.65395	03	11	16.18	+11	25	12.4	330
872		1982	11	17.62818	03	05	15.88	+10	48	25.6	330
872		1982	12	06.57414	02	51	07.01	+09	30	31.8	330
872		1982	12	12.54598	02	47	53.66	+09	15	13.5	330
906		1982	10	12.64444	02	33	16.99	+12	28	07.0	330
906		1982	10	18.60689	02	28	07.57	+12	27	17.3	330
932		1982	10	18.56036	02	32	32.85	+20	03	29.5	330
932		1982	11	10.55950	02	07	43.09	+19	51	56.6	330
936		1982	11	17.67610	04	34	25.43	+22	12	14.7	330
940		1982	10	08.57362	00	09	38.74	-08	20	04.3	330
942		1982	10	19.61661	02	10	36.12	+00	53	35.7	330
949		1982	12	19.79353	08	18	39.98	+27	38	35.4	330
951		1982	11	13.57545	02	55	10.28	+20	24	28.0	330
976		1982	10	18.53258	02	46	34.56	+20	50	08.4	330
996		1982	01	15.55680	05	35	19.37	+24	15	50.2	330
1016		1982	10	18.56036	02	39	12.60	+20	56	16.9	330
1016		1982	11	10.55950	02	13	59.15	+20	46	40.3	330
1016		1982	11	13.52962	02	10	51.38	+20	40	51.6	330
1032		1982	12	12.61230	06	09	14.24	+26	15	38.3	330
1045		1982	11	13.62753	03	59	09.37	+20	49	16.5	330
1054		1982	03	01.61851	10	46	05.83	+23	45	45.1	330
1061		1982	01	18.59638	08	14	35.31	+21	41	35.6	330
1076		1982	01	16.69535	06	59	25.25	+19	19	21.3	330
1076		1982	01	20.62137	06	55	51.62	+19	33	18.6	330
1076		1982	01	27.59637	06	50	23.10	+19	57	22.3	330
1084		1982	12	17.63382	07	51	50.38	+15	28	57.0	330
1093		1982	11	11.69839	03	43	47.95	+19	41	15.0	330
1103		1982	12	16.71715	06	57	18.28	+18	32	18.3	330
1111		1982	12	16.71715	06	57	19.32	+19	29	04.0	330
1112		1982	12	19.69700	08	26	31.88	+21	38	42.7	330
1114		1982	10	12.59861	01	40	14.56	+07	56	15.8	330
1119		1982	11	10.60672	02	52	13.16	+13	57	47.9	330
1119		1982	11	17.53721	02	45	24.67	+13	47	19.5	330
1119		1982	12	06.52762	02	30	23.37	+13	32	39.2	330
1137		1982	11	11.69839	04	03	37.98	+17	55	48.3	330
1137		1982	11	17.58305	03	57	29.63	+17	49	42.8	330
1148		1982	10	08.57362	00	20	07.90	-09	42	40.0	330
1162		1982	11	10.57895	02	38	44.38	+15	38	59.5	330
1162		1982	11	17.50943	02	34	21.20	+15	20	19.3	330
1167		1982	11	17.67610	04	22	07.77	+18	59	45.9	330
1180		1982	11	11.69839	03	51	09.38	+15	05	58.9	330
1180		1982	11	17.55527	03	47	09.89	+14	58	05.4	330
1181		1982	10	18.56036	02	33	41.24	+22	42	11.4	330
1181		1982	11	10.55950	02	14	53.77	+20	16	04.5	330
1181		1982	11	13.52962	02	12	37.38	+19	53	29.4	330
1189		1982	01	15.55680	05	17	43.97	+24	00	23.5	330
1209		1982	01	15.55680	05	35	30.60	+23	47	45.5	330
1233		1982	01	18.59638	08	07	22.88	+18	56	32.0	330
1233		1982	01	27.64150	07	57	57.37	+19	05	58.2	330

1248	1982	11	17.58305	03	48	22.82	+14	17	58.8	330
1249	1982	12	17.66160	07	53	30.19	+17	20	20.9	330
1289	1982	10	18.60689	02	42	00.96	+14	42	55.7	330
1292	1982	11	10.55950	02	21	13.33	+16	52	53.8	330
1298	1982	11	11.61714	03	10	08.32	+26	00	04.3	330
1305	1982	11	13.62753	04	06	59.15	+20	43	09.6	330
1320	1982	11	11.74631	04	12	43.00	+15	02	41.4	330
1323	1982	10	12.61667	02	25	57.74	+07	40	28.4	330
1334	1982	01	18.64082	08	36	02.61	+15	56	31.7	330
1363	1982	01	18.59638	07	59	56.06	+18	57	29.6	330
1363	1982	01	27.61373	07	51	51.60	+19	20	12.2	330
1385	1982	12	17.48243	05	28	11.21	+17	24	33.7	330
1385	1982	12	17.51889	05	28	09.04	+17	24	38.8	330
1401	1982	12	19.69700	08	15	18.69	+17	31	32.0	330
1411	1982	12	16.64076	03	56	38.46	+27	25	26.7	330
1415	1982	12	12.61230	05	52	25.46	+28	45	49.4	330
1416	1982	10	08.50661	00	05	27.43	+04	53	05.6	330
1421	1982	10	12.59861	01	51	24.08	+06	57	17.2	330
1440	1982	11	13.57545	03	02	16.64	+17	22	38.4	330
1442	1982	01	18.64082	08	25	05.14	+17	23	41.9	330
1475	1982	11	11.69839	03	52	08.18	+15	02	36.1	330
1475	1982	11	17.58305	03	46	42.18	+14	25	39.5	330
1487	1982	11	10.57895	02	50	24.69	+13	29	19.3	330
1487	1982	12	06.52762	02	32	29.92	+12	23	00.3	330
1491	1982	12	19.53936	05	22	39.22	+27	46	17.2	330
1499	1982	11	17.64832	04	39	59.13	+20	12	15.6	330
1530	1982	10	19.67147	02	37	33.21	+24	43	43.0	330
1530	1982	11	13.52962	02	14	53.63	+22	09	37.2	330
1549	1982	11	17.64832	04	32	23.51	+17	49	15.7	330
1576	1982	12	19.69700	08	17	05.87	+18	33	03.7	330
1590	1982	01	18.64082	08	23	15.63	+12	19	24.1	330
1616	1982	10	12.61667	02	27	43.96	+10	41	49.2	330
1623	1982	10	16.64441	02	08	13.89	+08	47	48.2	330
1630	1982	11	17.64832	04	23	53.52	+22	37	25.0	330
1632	1982	10	12.59861	01	57	27.35	+10	52	06.6	330
1636	1982	12	19.49075	04	32	11.76	+13	14	48.1	330
1699	1982	01	15.52556	05	33	21.04	+23	09	52.0	330
1712	1982	10	19.67147	02	48	30.91	+24	24	12.4	330
1712	1982	11	13.52962	02	29	55.36	+21	32	58.9	330
1720	1982	10	16.64441	02	16	15.58	+12	09	37.0	330
1758	1982	12	16.76507	07	15	57.03	+18	43	39.2	330
1777	1982	12	12.61230	05	51	29.16	+28	12	16.9	330
1787	1982	12	19.53936	05	11	57.37	+32	17	27.3	330
1790	1982	11	10.55950	02	03	13.43	+18	27	28.3	330
1815	1982	01	15.55680	05	23	59.61	+21	57	02.2	330
1826	1982	12	17.63382	07	54	45.01	+17	56	44.0	330
1829	1982	12	19.69700	08	19	36.72	+21	02	20.8	330
1832	1982	12	19.79353	08	18	35.84	+24	15	39.4	330
1847	1982	12	06.62067	05	48	37.44	+16	04	18.3	330
1847	1982	12	12.57619	05	42	43.40	+16	21	16.1	330
1847	1982	12	17.48243	05	37	40.61	+16	36	45.3	330
1847	1982	12	17.51889	05	37	38.56	+16	36	52.0	330
1848	1982	10	08.50661	00	17	10.99	+03	17	09.0	330
1878	1982	11	17.64832	04	38	48.28	+19	50	39.6	330
1885	1982	10	19.67147	02	41	33.83	+26	53	58.7	330
1896	1982	11	10.65395	03	25	17.21	+15	15	45.1	330
1896	1982	11	17.60041	03	18	25.57	+14	42	41.5	330
1896	1982	12	06.54636	03	03	18.76	+13	38	34.6	330
1898	1982	11	10.57895	02	41	04.37	+14	08	15.7	330

1898			1982	11	17.50943	02	35	42.78	+13 42 32.3	330
1898			1982	12	06.52762	02	24	50.95	+12 52 11.3	330
1902			1982	10	19.61661	01	56	21.24	+01 43 59.1	330
1907			1982	01	16.69535	07	02	53.54	+19 07 40.9	330
1907			1982	01	20.62137	06	59	08.28	+19 18 29.6	330
1913			1982	11	10.60672	02	40	36.45	+17 31 37.6	330
1913			1982	11	17.53721	02	34	41.70	+17 06 16.5	330
1913			1982	12	06.52762	02	22	25.75	+16 07 45.7	330
1967			1982	12	17.53069	07	13	21.62	+27 00 49.9	330
1967			1982	12	17.56611	07	13	19.85	+27 00 58.9	330
1982			1982	10	12.64444	02	17	35.40	+09 58 46.6	330
1982			1982	10	16.64441	02	13	12.48	+09 56 42.5	330
1988			1982	01	18.59638	08	07	57.61	+21 52 14.3	330
2003			1982	11	10.57895	02	37	24.54	+14 18 38.5	330
2007			1982	12	19.51158	05	09	52.83	+27 31 12.7	330
2056			1982	12	06.62067	06	04	44.05	+18 59 45.0	330
2056			1982	12	12.57619	05	58	09.03	+18 45 20.6	330
2106			1982	01	18.54985	07	19	45.56	+13 58 06.3	330
2115			1982	01	20.56859	06	46	09.01	+13 37 57.0	330
2140			1982	12	19.74561	08	45	19.86	+14 18 27.4	330
2178			1982	11	11.58936	03	18	53.36	+22 25 10.0	330
2186			1982	11	13.62753	04	04	19.34	+23 45 37.3	330
2199			1982	10	19.58883	01	54	30.97	-01 52 09.9	330
2219			1982	11	10.65395	03	24	10.28	+14 09 10.1	330
2219			1982	11	17.62818	03	18	01.49	+14 03 38.1	330
2219			1982	12	06.57414	03	03	06.26	+13 59 45.8	330
2219			1982	12	12.54598	02	59	35.73	+14 03 45.3	330
2227			1982	12	19.49075	04	37	49.62	+11 51 21.7	330
2227			1982	12	21.64178	04	36	06.25	+11 51 09.1	330
2233			1982	11	13.57545	02	50	40.61	+18 34 51.4	330
2233			1982	12	06.52762	02	33	00.48	+16 15 19.9	330
2242			1982	11	13.57545	02	48	37.45	+21 01 26.4	330
2294			1982	12	12.61230	06	03	49.57	+27 30 21.1	330
2300			1982	11	13.57545	02	56	30.81	+17 55 22.0	330
2323			1982	11	13.57545	02	52	19.70	+21 34 22.8	330
2358			1982	10	19.67147	02	32	53.59	+27 41 16.8	330
2591			1982	01	18.59638	08	09	21.92	+22 05 53.8	330
2591			1982	01	27.61373	08	01	06.57	+22 27 31.0	330
2825			1982	12	13.55676	03	41	05.29	+26 49 02.7	330
2839			1982	11	13.62753	04	00	23.50	+22 44 43.9	330
2840			1982	11	11.69839	03	43	14.96	+18 29 09.2	330
2840			1982	11	17.58305	03	36	34.39	+18 31 01.2	330
2843			1982	12	13.66648	06	11	15.15	+21 25 32.4	330
3019			1982	11	11.67061	03	52	08.77	+16 19 51.3	330
3019			1982	11	17.55527	03	46	53.15	+16 06 50.2	330
3045			1982	10	16.59719	01	15	53.34	+06 33 14.0	330
3062			1982	12	21.69005	05	09	34.95	+14 32 29.5	330
3065			1982	11	11.58936	02	59	08.67	+23 44 26.0	330
1937	GG		1982	03	01.59073	10	49	21.29	+23 29 12.4	330
1982	AP	*	1982	01	15.60819	06	16	19.27	+28 38 59.2	330
1982	BJ8	*	1982	01	20.56859	06	33	09.90	+16 17 46.9	330
1982	BK8	*	1982	01	20.56859	06	40	45.84	+14 26 38.7	330
1982	BK8		1982	01	27.55123	06	35	36.99	+15 15 48.3	330
1982	TC2		1982	11	10.60672	02	36	23.01	+16 49 27.5	330
1982	TC2		1982	11	17.50943	02	30	41.56	+15 51 02.7	330
1982	TU2	*	1982	10	08.57362	00	25	15.02	-13 05 35.1	330
1982	UG6		1982	11	10.57895	02	43	45.45	+15 25 12.9	330
1982	UG6		1982	11	17.50943	02	37	41.36	+15 06 23.3	330

1982 UB7	1982 11 11.67061	03 49 44.34	+17 59 47.7		330
1982 UB7	1982 11 17.55527	03 45 03.83	+17 19 14.6		330
1982 VD1	1982 11 17.67610	04 33 50.02	+19 35 04.4		330
1982 VJ11*	1982 11 10.65395	03 22 12.92	+13 34 27.4		330
1982 VJ11	1982 11 17.62818	03 14 33.76	+13 27 59.6		330
1982 VK11*	1982 11 10.65395	03 26 44.76	+12 52 28.6		330
1982 VK11	1982 11 17.62818	03 20 22.05	+12 50 51.8		330
1982 VL11*	1982 11 11.58936	03 00 51.39	+27 09 07.4		330
1982 XV1	1982 12 06.54636	03 04 38.24	+12 58 22.8		330
1982 XV1	1982 12 12.54598	03 00 44.99	+13 05 49.5		330
1982 XR4 *	1982 12 06.49637	02 26 08.59	+14 35 40.7		330
1982 XS4 *	1982 12 06.57414	02 55 31.68	+09 33 24.2		330
1982 YX1 *	1982 12 19.49075	04 30 53.47	+10 36 34.9		330
1982 YY1 *	1982 12 19.51158	05 11 22.51	+28 51 26.9		330
1982 YZ1 *	1982 12 19.71784	08 26 57.18	+15 14 41.3		330
1984 BT	1982 11 10.65395	03 30 10.34	+12 20 37.4		330
1984 BT	1982 11 17.60041	03 24 18.82	+12 14 35.5		330

OBSERVATIONS MADE AT MAUNA KEA BY D. THOLEN.

Observations made using the encoders at the Infrared Telescope Facility. Contact: D. J. Tholen, Institute for Astronomy, 2680 Woodlawn Drive, Honolulu, HI 96822, U.S.A.

Object	Date	UT	R. A. (1950)	Decl.	Obs.
785	1984 02 28.41838	09 10 52.93	+37 16 27.3		568
1981 VB	1984 02 27.65110	14 48 54.58	-10 53 58.8		568
1981 VB	1984 02 28.63126	14 49 12.14	-10 52 23.3		568
1981 VB	1984 04 03.49723	14 44 46.04	-08 46 58.6		568
1981 VB	1984 04 04.49133	14 44 13.80	-08 41 44.3		568

OBSERVATIONS MADE AT VICTORIA BY D. D. BALAM.

Contact: J. B. Tatum, Dept. of Physics, P.O. Box 1700, Victoria, BC, V8W 2Y2, Canada.

Object	Date	UT	R. A. (1950)	Decl.	Obs.
1982 RA	1984 09 02.22368	22 14 22.64	-18 10 35.1		657
1982 RA	1984 09 19.17150	20 40 08.07	+11 07 22.0		657

OBSERVATIONS MADE AT PALOMAR BY C. SHOEMAKER AND E. SHOEMAKER.

Four-minute exposures with the 0.46-m Schmidt telescope. Film pairs scanned by C. Shoemaker with a stereomicroscope; measured by her with a comparator at the U.S. Geological Survey in Flagstaff. Reference stars from the SAO Catalog. Contact: C. Shoemaker, P.O. Box 984, Flagstaff, AZ 86002, U.S.A.

Object	Date	UT	R. A. (1950)	Decl.	Mag.	Obs.
1984 SC *	1984 09 26.26805	23 18 45.47	-11 49 42.5	16		675
1984 SC	1984 09 28.20903	23 20 56.44	-12 39 07.3			675
1984 SC	1984 09 28.44167	23 21 10.38	-12 44 48.5			675
1984 SC	1984 09 29.30417	23 22 10.27	-13 05 34.4			675

OBSERVATIONS MADE WITH THE 0.46-M SCHMIDT AT PALOMAR.

Observers E. Helin, S. R. Swanson, R. S. Dunbar and M. A. Barucci. Contact: E. Helin, Jet Propulsion Laboratory, Pasadena, CA 91109, U.S.A.

Object	Date	UT	R. A. (1950)	Decl.	Mag.	N	Obs.
1984 QA	1984 08 30.49444	00 31 22.29	-08 39 40.4				675
1984 QA	1984 08 31.44794	00 24 09.90	-10 05 52.4				675
1984 QA	1984 08 31.49097	00 23 50.02	-10 09 36.0				675
1984 QR *	1984 08 28.41389	00 04 27.39	+23 27 06.5		15.5	1	675
1984 QR	1984 08 28.45139	00 04 25.64	+23 27 52.8				675
1984 QR	1984 08 30.42674	00 02 42.54	+24 10 52.2				675

Note 1: discoverer Swanson.

OBSERVATIONS MADE WITH THE 1.2-M SCHMIDT AT PALOMAR.
Observers E. Helin and R. S. Dunbar. Measurer M. A. Barucci. Contact: Jet Propulsion Laboratory, Pasadena, CA 91109, U.S.A.

Object		Date	UT	R. A. (1950)	Decl.	Mag.	N	Obs.
1984 QA		1984 09	04.33576	23 57 44.65	-15 02 22.1			675
1984 QA		1984 09	20.20833	22 52 10.85	-24 20 05.4			675
1984 QA		1984 09	24.21111	22 43 35.86	-25 05 46.7			675
1984 QR		1984 09	01.34306	00 00 53.89	+24 51 54.4			675
1984 QR		1984 09	01.37083	00 00 52.19	+24 52 29.9			675
1984 QR		1984 09	02.36806	23 59 51.46	+25 13 34.3			675
1984 QR		1984 09	02.39583	23 59 49.71	+25 14 07.8			675
1984 RA	*	1984 09	01.29722	23 48 32.45	-21 46 35.0	17	1	675
1984 RA		1984 09	01.33889	23 48 31.04	-21 47 39.3			675
1984 RA		1984 09	03.34444	23 47 17.74	-22 42 09.0			675
1984 RA		1984 09	03.35833	23 47 17.26	-22 42 29.4			675
1984 RA		1984 09	04.39514	23 46 37.09	-23 10 22.0			675
1984 RA		1984 09	04.41597	23 46 36.31	-23 10 52.8			675
1984 RB	*	1984 09	02.27569	22 18 16.08	-11 16 02.8	17	2	675
1984 RB		1984 09	02.30347	22 18 14.61	-11 16 38.1			675
1984 RB		1984 09	03.32674	22 17 17.65	-11 39 39.9			675
1984 RB		1984 09	03.34063	22 17 16.98	-11 39 56.3			675
1984 RB		1984 09	04.37083	22 16 20.07	-12 03 00.6			675
1984 RB		1984 09	04.39167	22 16 18.95	-12 03 26.2			675
1984 RC	*	1984 09	01.29722	23 43 38.67	-23 01 24.0	17.5	2	675
1984 RC		1984 09	01.33889	23 43 35.29	-23 01 18.9			675
1984 RC		1984 09	03.34444	23 40 17.65	-22 56 03.9			675
1984 RC		1984 09	03.35833	23 40 16.45	-22 56 02.2			675
1984 RC		1984 09	04.39514	23 38 32.39	-22 52 49.0			675
1984 RC		1984 09	04.41597	23 38 30.58	-22 52 45.3			675
1984 RD	*	1984 09	02.32222	23 10 14.74	-19 22 38.3	17	2	675
1984 RD		1984 09	02.35000	23 10 11.70	-19 22 14.9			675
1984 RD		1984 09	03.37084	23 08 28.29	-19 09 16.9			675
1984 RE	*	1984 09	01.34306	00 19 09.79	+25 34 10.8	17.5	2	675
1984 RE		1984 09	01.37083	00 19 08.10	+25 34 56.5			675
1984 RE		1984 09	02.36806	00 18 06.07	+26 02 39.4			675
1984 RE		1984 09	02.39583	00 18 04.40	+26 03 22.8			675
1984 RE		1984 09	20.24931	23 52 10.79	+33 21 59.4			675
1984 RE		1984 09	21.16250	23 50 32.75	+33 40 08.2			675
1984 RE		1984 09	24.24167	23 44 58.72	+34 37 34.4			675

Note 1: discoverer Barucci. 2: discoverer Helin.

OBSERVATIONS MADE WITH THE 1.2-M SCHMIDT AT PALOMAR BY J. GIBSON.
Coordination with J. G. Williams and with the Minor Planet Center. AGK3 and SAO reference stars. Contact: J. Gibson, Jet Propulsion Laboratory, MS 264-781, Pasadena, CA 91109, U.S.A.

Object	Date	UT	R. A. (1950)	Decl.	Obs.
1983 TB	1984 09	05.45627	05 44 39.85	+33 30 30.3	675
1983 TB	1984 09	06.43752	05 45 53.55	+33 32 38.0	675
1984 QA	1984 09	06.37467	23 45 43.91	-17 05 16.4	675

OBSERVATIONS MADE AT THE LOWELL OBSERVATORY'S ANDERSON MESA STATION.
Plates with the 0.33-m photographic telescope. Observers E. Bowell, B. A. Skiff and N. G. Thomas. Measured by Bowell and Skiff using a PDS scanning microdensitometer. SAO reference stars, global solutions. Contact: E. Bowell, Lowell Observatory, P.O. Box 1269, Flagstaff, AZ 86002, U.S.A.

Object	Date	UT	R. A. (1950)	Decl.	Mag.	N	Obs.
118	1984 08	31.28611	22 38 02.87	-21 59 18.8			688
118	1984 08	31.32708	22 38 00.31	-21 59 29.6			688
118	1984 08	31.36042	22 37 58.23	-21 59 37.2			688

118	1984	08	31.36389	22	37	57.99	-21	59	37.8		688
279	1984	08	31.19514	21	13	29.10	-18	57	48.0		688
279	1984	08	31.24375	21	13	27.56	-18	57	53.8		688
355	1984	08	31.27118	22	32	11.35	-11	11	28.7		688
355	1984	08	31.30417	22	32	09.44	-11	11	35.0		688
355	1984	08	31.34583	22	32	06.99	-11	11	44.3		688
449	1984	08	31.19514	21	22	56.86	-19	27	08.3		688
449	1984	08	31.24375	21	22	54.41	-19	27	16.4		688
507	1984	09	03.28889	21	27	08.47	-06	34	32.2		688
507	1984	09	03.33333	21	27	06.57	-06	34	37.5		688
577	1983	11	29.32708	05	35	06.36	+30	10	06.0		688
577	1983	11	29.35833	05	35	04.63	+30	10	05.7		688
577	1983	12	09.25764	05	26	13.92	+30	04	57.2		688
577	1983	12	09.31042	05	26	10.93	+30	04	54.3		688
578	1983	11	29.32708	06	01	40.63	+30	25	23.3		688
578	1983	11	29.35833	06	01	38.93	+30	25	25.3		688
578	1983	12	09.25764	05	52	19.19	+30	40	51.7		688
578	1983	12	09.31042	05	52	15.95	+30	40	55.5		688
601	1984	09	03.28889	21	11	49.73	-05	52	46.0		688
601	1984	09	03.33333	21	11	48.33	-05	53	10.9		688
701	1984	08	31.38473	23	33	38.90	+07	55	06.4		688
701	1984	08	31.40556	23	33	38.04	+07	55	01.9		688
720	1984	08	31.19514	21	16	41.33	-19	20	43.3		688
720	1984	08	31.24375	21	16	39.16	-19	20	50.0		688
727	1984	08	31.28611	22	21	29.92	-19	55	06.4		688
727	1984	08	31.32708	22	21	27.92	-19	55	31.6		688
727	1984	08	31.36042	22	21	26.12	-19	55	53.8		688
727	1984	08	31.36389	22	21	25.96	-19	55	55.3		688
940	1983	11	29.32708	05	48	53.44	+25	14	50.3		688
940	1983	11	29.35833	05	48	51.94	+25	14	53.1		688
940	1983	12	09.25764	05	40	45.88	+25	26	46.7		688
940	1983	12	09.31042	05	40	43.08	+25	26	49.6		688
969	1983	11	29.32708	05	39	47.40	+25	32	08.6		688
969	1983	12	09.25764	05	29	11.61	+25	15	03.6		688
969	1983	12	09.31042	05	29	07.92	+25	14	57.1		688
1003	1984	08	31.19514	21	26	52.61	-15	18	04.5		688
1003	1984	08	31.24375	21	26	50.54	-15	18	16.0		688
1006	1984	09	03.28889	21	20	04.39	-04	51	58.4		688
1006	1984	09	03.33333	21	20	02.24	-04	51	57.2		688
1029	1984	08	31.19514	21	18	16.82	-19	11	05.1		688
1029	1984	08	31.24375	21	18	14.60	-19	11	11.1		688
1100	1983	11	29.32708	05	41	00.50	+24	27	16.9		688
1100	1983	12	09.25764	05	32	01.62	+24	21	04.3		688
1100	1983	12	09.31042	05	31	58.52	+24	21	02.0		688
1162	1983	11	29.32708	05	48	04.89	+25	03	52.7		688
1162	1983	11	29.35833	05	48	03.71	+25	03	53.5		688
1162	1983	12	09.25764	05	41	24.14	+25	04	30.9	1	688
1162	1983	12	09.31042	05	41	21.76	+25	04	30.2		688
1288	1983	11	29.35833	05	59	23.59	+30	12	37.9		688
1288	1983	12	09.25764	05	50	18.06	+30	00	33.5	3	688
1288	1983	12	09.31042	05	50	14.78	+30	00	26.3	2	688
1290	1984	08	31.38473	23	36	36.48	+04	59	21.7		688
1290	1984	08	31.40556	23	36	35.42	+04	59	21.9		688
1302	1984	08	31.19514	21	11	30.55	-19	11	24.1		688
1302	1984	08	31.24375	21	11	28.32	-19	11	33.2		688
1388	1983	11	29.32708	06	03	44.80	+31	10	48.5		688
1388	1983	11	29.35833	06	03	43.44	+31	10	53.9		688
1388	1983	12	09.25764	05	54	54.77	+31	43	49.7		688
1388	1983	12	09.31042	05	54	51.70	+31	44	00.1		688

1392		1984	09	03.31111	21	18	20.62	-27	26	03.6		688
1430		1983	11	29.32708	05	37	26.12	+28	04	07.3	1	688
1430		1983	11	29.35833	05	37	24.16	+28	04	05.4	1	688
1430		1983	12	09.25764	05	26	44.93	+27	56	40.4	3	688
1430		1983	12	09.31042	05	26	41.30	+27	56	39.2	1	688
1450		1983	12	09.25764	05	40	21.30	+24	24	31.5		688
1450		1983	12	09.31042	05	40	18.00	+24	24	40.0		688
1479		1984	08	31.28611	22	20	14.79	-18	53	47.8	16.8	688
1479		1984	08	31.32708	22	20	12.60	-18	53	54.5		688
1517		1984	09	03.31111	21	19	25.05	-24	11	26.2		688
1539		1984	08	31.19514	21	26	29.91	-15	12	59.0		688
1539		1984	08	31.24375	21	26	27.89	-15	13	10.5		688
1902		1983	11	29.32708	05	43	45.84	+29	40	17.7		688
1902		1983	11	29.35833	05	43	44.44	+29	40	21.4		688
1902		1983	12	09.25764	05	36	13.16	+29	57	59.5		688
1902		1983	12	09.31042	05	36	10.59	+29	58	04.0		688
2017		1984	08	31.19514	21	12	56.84	-11	54	04.8		688
2017		1984	08	31.24375	21	12	55.17	-11	54	28.2		688
2185		1983	11	29.32708	05	52	09.50	+28	25	32.0		688
2185		1983	11	29.35833	05	52	07.73	+28	25	38.7		688
2185		1983	12	09.31042	05	42	06.46	+28	55	03.6		688
2203		1984	08	31.27118	22	26	52.58	-12	29	17.4	16.2	688
2203		1984	08	31.30417	22	26	51.01	-12	29	23.5		688
2203		1984	08	31.34583	22	26	49.06	-12	29	34.2		688
2248		1984	08	31.27118	22	28	57.40	-11	38	47.0	16.8	688
2248		1984	08	31.30417	22	28	55.94	-11	38	54.1		688
2248		1984	08	31.34583	22	28	54.00	-11	39	03.9		688
2467		1983	11	29.32708	06	03	12.98	+30	43	52.2		688
2467		1983	12	09.25764	05	51	31.40	+30	34	30.4		688
2467		1983	12	09.31042	05	51	27.32	+30	34	25.2		688
2483		1984	08	31.38473	23	26	35.37	+03	03	12.7	17.0	688
2483		1984	08	31.40556	23	26	34.51	+03	03	10.0		688
2498		1983	11	29.32708	05	58	17.25	+25	08	24.0		688
2498		1983	11	29.35833	05	58	15.94	+25	08	22.7		688
2498		1983	12	09.25764	05	49	39.53	+25	07	51.3		688
2498		1983	12	09.31042	05	49	36.55	+25	07	48.5		688
2504		1983	11	29.32708	05	59	02.77	+29	19	47.4		688
2504		1983	11	29.35833	05	59	01.27	+29	19	48.8		688
2504		1983	12	09.25764	05	49	57.89	+29	31	38.3		688
2504		1983	12	09.31042	05	49	54.60	+29	31	40.2		688
2560		1984	08	31.27118	22	29	52.74	-10	49	45.0		688
2560		1984	08	31.30417	22	29	51.13	-10	49	56.5		688
2560		1984	08	31.34583	22	29	49.06	-10	50	14.2		688
2567		1984	08	31.27118	22	26	35.36	-13	29	45.9	15.5	688
2567		1984	08	31.30417	22	26	33.86	-13	30	02.0		688
2567		1984	08	31.34583	22	26	31.94	-13	30	24.6		688
2646		1984	09	03.31111	21	22	13.05	-22	31	46.8		688
2757		1983	11	29.32708	05	53	27.50	+24	27	32.2	15.8	688
2757		1983	11	29.35833	05	53	25.92	+24	27	33.6		688
2757		1983	12	09.31042	05	45	20.59	+24	27	46.4		688
2777		1983	12	09.25764	05	38	16.44	+29	31	09.9		688
2777		1983	12	09.31042	05	38	12.75	+29	31	16.7		688
2804		1984	09	03.31111	21	17	11.13	-25	40	43.8		688
3106		1984	09	03.31111	21	15	58.48	-24	14	08.4		688
1931	TY1	1984	08	22.28958	22	29	57.63	+04	09	31.1		688
1931	TY1	1984	08	22.32569	22	29	55.88	+04	09	29.5		688
1980	YH	1984	08	31.28611	22	20	35.51	-21	34	31.5	17.0	688
1980	YH	1984	08	31.32708	22	20	33.74	-21	34	49.3		688
1982	RA	1984	08	31.36042	22	26	00.10	-21	07	53.9		688

1982	RA		1984	08	31.36389	22	25	58.82	-21	07	34.9	688
1984	QC1	*	1984	08	31.27118	22	29	30.60	-13	34	41.0	15.5 4 688
1984	QC1		1984	08	31.30417	22	29	28.79	-13	34	51.8	688
1984	QC1		1984	08	31.34583	22	29	26.63	-13	35	11.6	688
1984	QD1	*	1984	08	31.27118	22	33	20.31	-16	47	31.9	16.0 4 688
1984	QD1		1984	08	31.30417	22	33	18.85	-16	48	20.1	2 688
1984	QD1		1984	08	31.34583	22	33	16.84	-16	49	24.3	2 688
1984	QE1	*	1984	08	31.27118	22	34	44.88	-12	30	47.5	16.5 4 688
1984	QE1		1984	08	31.30417	22	34	42.69	-12	30	43.6	688
1984	QE1		1984	08	31.34583	22	34	39.77	-12	30	40.8	688
1984	QF1	*	1984	08	31.27118	22	39	34.48	-13	44	37.2	16.2 4 688
1984	QF1		1984	08	31.30417	22	39	32.32	-13	44	37.8	688
1984	QF1		1984	08	31.34583	22	39	29.47	-13	44	39.5	688
1984	QG1	*	1984	08	31.28611	22	35	33.97	-21	35	49.2	16.2 5 688
1984	QG1		1984	08	31.32708	22	35	31.24	-21	35	56.9	688
1984	QH1	*	1984	08	31.38473	23	28	05.11	+00	45	38.2	17.0 5 688
1984	QH1		1984	08	31.40556	23	28	04.02	+00	45	38.1	688
1984	QJ1	*	1984	08	31.38473	23	35	52.21	+03	52	32.0	16.2 5 688
1984	QJ1		1984	08	31.40556	23	35	51.28	+03	52	24.0	688
2630	P-L		1983	11	29.32708	05	35	37.76	+27	20	36.0	17.5 1 688
2630	P-L		1983	11	29.35833	05	35	35.68	+27	20	35.6	1 688

Note 1: right ascension uncertain. 2: declination uncertain. 3 = 1 + 2. 4: discoverer Skiff. 5: discoverer Bowell.

OBSERVATIONS MADE AT OAK RIDGE OBSERVATORY BY R. E. McCROSKY, C.-Y. SHAO AND G. SCHWARTZ.

Plates with the 1.5-m reflector, reduced using the Astrographic Catalog. Coordination and verification by, and assistance with identifications from, C. M. Bardwell. Contact: R. E. McCrosky, Harvard-Smithsonian Center for Astrophysics, 60 Garden Street, Cambridge, MA 02138, U.S.A.

Object	Date	UT	R. A. (1950)	Decl.	Mag.	N	Obs.
120	1984	08 26.21023	23 29 17.43	-02 21 38.6			801
1961	1984	08 24.28469	23 32 16.97	-10 22 39.1			801
1961	1984	08 25.27262	23 31 38.54	-10 26 22.0			801
1961	1984	08 26.23069	23 31 00.72	-10 29 58.6			801
1961	1984	08 29.14389	23 29 01.45	-10 41 02.6			801
2401	1984	08 24.30313	23 58 55.86	-06 27 16.1	17.5	1	801
3106	1984	08 28.15518	21 20 06.85	-23 36 48.5		2	801
A908 AA	1984	08 25.20703	21 21 12.22	-02 16 36.4			801
A908 AA	1984	08 28.13623	21 19 36.10	-02 29 03.1			801
1931 TY1	1984	07 24.28794	22 41 59.69	+03 00 21.7			801
1931 TY1	1984	08 26.14004	22 27 00.02	+03 59 11.5			801
1937 AC	1984	07 25.33368	00 42 15.46	+15 03 47.7			801
1937 AC	1984	08 25.31744	00 38 49.17	+18 32 18.9			801
1940 WL	1984	08 24.30313	23 58 40.99	-06 08 10.2			801
1942 RN	1984	07 25.27446	23 39 53.71	+00 20 27.5			801
1942 RN	1984	08 26.21023	23 29 11.44	-02 24 07.8			801
1969 TP1	1983	05 13.22693	15 21 12.66	-12 14 29.6			801
1969 TP1	1984	07 24.26513	21 22 02.49	-00 42 05.6			801
1969 TP1	1984	08 25.18480	20 59 15.42	-03 00 46.0			801
1969 TP1	1984	08 27.10672	20 58 02.15	-03 12 33.6			801
1972 KG	1984	07 29.31813	01 04 34.34	+08 49 45.1			801
1972 KG	1984	08 26.29711	01 09 21.28	+07 51 21.3			801
1976 US2	1984	07 25.31324	00 29 29.73	+19 12 21.3			801
1976 US2	1984	08 27.26909	00 30 13.73	+20 07 06.1			801
1979 MK2	1984	07 31.29501	23 43 05.12	-08 14 07.9			801
1979 MK2	1984	08 24.28469	23 30 57.36	-10 37 03.9			801
1979 MK2	1984	08 26.23069	23 29 33.65	-10 50 11.9			801
1979 MK2	1984	08 28.22752	23 28 04.77	-11 03 40.2			801

1979 RZ		1984	08	24.13871	20	41	20.08	+01	57	43.7		801
1979 RZ		1984	08	26.08684	20	40	10.15	+01	46	03.6		801
1979 SA12		1984	07	25.25096	22	44	35.90	-08	37	26.6		801
1979 SA12		1984	08	25.22462	22	26	11.33	-10	22	09.5		801
1980 KL		1984	07	24.31437	22	50	52.37	+00	16	09.7		801
1980 KL		1984	08	24.24372	22	28	53.25	-01	27	12.9		801
1980 KL		1984	08	27.16121	22	26	06.43	-01	45	19.2		801
1980 LE		1984	07	29.29119	00	20	55.93	+06	36	14.8	3	801
1980 LE		1984	08	26.27182	00	15	13.18	+07	53	04.8		801
1980 TB5		1984	08	27.25163	00	22	09.73	+03	49	21.7	16.5	801
1980 UA		1984	08	27.08568	20	12	53.24	-23	34	54.6		801
1980 YH		1984	07	26.27445	22	42	06.11	-16	33	35.6		801
1980 YH		1984	08	26.16143	22	24	16.61	-20	54	07.8		801
1981 XF2		1984	07	31.32100	02	03	22.89	+07	46	27.6		801
1981 XF2		1984	08	25.33748	02	25	41.68	+09	07	14.3		801
1981 YO		1984	08	24.06857	17	24	01.14	-22	58	16.5	4	801
1982 BJ1		1984	08	26.18638	23	26	29.38	-13	29	57.9		801
1982 BM1		1984	07	29.24064	23	05	02.34	-09	23	27.9		801
1982 BM1		1984	08	24.26092	22	49	19.61	-11	07	10.0		801
1982 BM1		1984	08	27.20252	22	47	02.59	-11	20	32.6		801
1982 BM1		1984	08	28.20729	22	46	15.12	-11	25	05.1		801
1982 BM1		1984	08	29.12009	22	45	31.91	-11	29	11.6		801
1983 HF		1984	07	31.26866	22	45	02.56	+18	06	42.7		801
1983 HF		1984	08	27.17883	22	27	54.49	+16	23	49.7		801
1984 FO		1984	08	28.04676	15	42	50.75	+04	31	26.7		801
1984 QS	*	1984	08	24.26092	22	48	58.56	-11	02	48.0	17.5	801
1984 QS		1984	08	27.20252	22	46	49.19	-11	15	59.9		801
1984 QS		1984	08	28.20729	22	46	04.22	-11	20	29.3		801
1984 QS		1984	08	29.12009	22	45	23.38	-11	24	30.5		801
1984 QT	*	1984	08	24.26092	22	49	25.38	-11	13	33.6	17.5	801
1984 QT		1984	08	27.20252	22	46	32.80	-11	13	18.0		801
1984 QT		1984	08	28.20729	22	45	32.88	-11	13	09.8		801
1984 QT		1984	08	29.12009	22	44	38.49	-11	12	58.9		801
1984 QU	*	1984	08	24.26092	22	49	50.66	-11	14	21.8	17.8	801
1984 QU		1984	08	27.20252	22	47	08.47	-11	15	47.9		801
1984 QU		1984	08	28.20729	22	46	11.17	-11	16	15.5		801
1984 QU		1984	08	29.12009	22	45	18.78	-11	16	36.2		801
1984 QV	*	1984	08	24.28469	23	32	27.95	-10	28	07.1	17	801
1984 QV		1984	08	25.27262	23	31	45.44	-10	32	18.6		801
1984 QV		1984	08	26.23069	23	31	03.62	-10	36	25.5		801
1984 QV		1984	08	29.14389	23	28	46.89	-10	49	07.8	5	801
1984 QW	*	1984	08	24.21898	21	37	16.00	-17	42	33.8	17.5	801
1984 QX	*	1984	08	25.20703	21	21	04.38	-02	25	10.2	18	801
1984 QY	*	1984	08	26.25343	23	42	07.03	+07	30	50.9	17.5	801
1984 QZ	*	1984	08	26.25343	23	43	45.47	+07	22	57.2	17	801
1984 QA1	*	1984	08	27.22857	23	45	57.55	+00	01	38.2	18	801
1984 QB1	*	1984	08	27.25163	00	23	44.74	+04	05	54.7	17.5	801

Note 1: poor; at edge of plate. 2: poor measures. 3: poor focus. 4: doubtful. 5: very faint in poor sky.

OBSERVATIONS MADE AT THE EUROPEAN SOUTHERN OBSERVATORY BY H. DEBEHOGNE, G. HAHN AND C.-I. LAGERKVIST.

Plates taken with the 0.4-m f/10 GPO astrograph measured and reduced as described on MPC 8605. Reference stars from SAO Catalog. Mean errors 0".72 in R.A., 0".71 in Decl. Contact: C.-I. Lagerkvist, Astronomiska Observatoriet, Box 515, S-75120 Uppsala, Sweden.

Object	Date	UT	R. A. (1950)	Decl.	N Obs.
24	1983	09 02.18463	22 36 02.94	-09 48 05.5	809
24	1983	09 02.19017	22 36 02.75	-09 48 06.7	809

24	1983	09	02.19571	22	36	02.51	-09	48	08.0		809
24	1983	09	07.26586	22	32	21.78	-10	09	10.5		809
24	1983	09	07.27140	22	32	21.53	-10	09	11.9		809
24	1983	09	15.28972	22	26	46.65	-10	40	24.5	1	809
24	1983	09	15.29526	22	26	46.50	-10	40	25.5	1	809
24	1983	09	15.30080	22	26	46.33	-10	40	26.2	1	809
111	1983	09	03.23176	22	32	01.96	-04	40	37.9		809
111	1983	09	03.23730	22	32	01.69	-04	40	36.7		809
111	1983	09	03.24146	22	32	01.46	-04	40	39.9		809
111	1983	09	07.30672	22	28	24.07	-04	56	38.7		809
111	1983	09	07.31295	22	28	23.79	-04	56	40.3		809
111	1983	09	07.31918	22	28	23.54	-04	56	41.1		809
111	1983	09	09.30541	22	26	39.03	-05	04	33.1		809
111	1983	09	09.31372	22	26	38.73	-05	04	34.5		809
111	1983	09	09.32203	22	26	38.28	-05	04	36.8		809
206	1983	09	02.18463	22	39	22.68	-09	57	17.6		809
206	1983	09	02.19017	22	39	22.41	-09	57	19.4		809
206	1983	09	02.19571	22	39	22.14	-09	57	21.1		809
206	1983	09	03.20891	22	38	33.46	-10	03	34.3		809
206	1983	09	03.21445	22	38	33.27	-10	03	36.0		809
206	1983	09	03.21999	22	38	33.07	-10	03	38.1		809
206	1983	09	07.26032	22	35	19.81	-10	27	58.3		809
206	1983	09	07.26586	22	35	19.58	-10	27	59.3		809
206	1983	09	07.27140	22	35	19.31	-10	28	01.2		809
206	1983	09	11.28402	22	32	12.22	-10	51	18.9		809
206	1983	09	11.28957	22	32	11.88	-10	51	21.6		809
206	1983	09	11.29511	22	32	11.47	-10	51	22.4		809
288	1983	09	03.11333	22	21	11.41	-14	10	51.1		809
288	1983	09	03.11887	22	21	11.12	-14	10	52.8		809
288	1983	09	03.12441	22	21	10.95	-14	10	53.7		809
288	1983	09	03.15904	22	21	09.04	-14	11	06.2		809
288	1983	09	03.16458	22	21	08.76	-14	11	07.8		809
288	1983	09	03.17012	22	21	08.57	-14	11	09.7		809
288	1983	09	08.11353	22	17	13.98	-14	36	12.3		809
288	1983	09	08.12045	22	17	13.30	-14	36	16.2		809
288	1983	09	08.14123	22	17	12.75	-14	36	19.4		809
624	1983	09	02.18463	22	38	05.34	-10	41	15.7		809
624	1983	09	02.19017	22	38	05.25	-10	41	16.1		809
624	1983	09	02.19571	22	38	05.04	-10	41	16.2		809
624	1983	09	03.20891	22	37	31.27	-10	42	32.3		809
624	1983	09	03.21445	22	37	31.12	-10	42	32.3		809
624	1983	09	03.21999	22	37	30.97	-10	42	32.6		809
624	1983	09	07.26032	22	35	17.27	-10	47	26.3		809
624	1983	09	07.26586	22	35	17.19	-10	47	26.0		809
624	1983	09	07.27140	22	35	16.97	-10	47	26.2		809
624	1983	09	11.28402	22	33	06.30	-10	51	57.8		809
624	1983	09	11.28957	22	33	06.18	-10	51	57.6		809
624	1983	09	11.29511	22	33	06.01	-10	51	58.0		809
624	1983	09	15.28972	22	30	59.46	-10	56	00.4		809
624	1983	09	15.29526	22	30	59.35	-10	55	59.1		809
624	1983	09	15.30080	22	30	59.18	-10	56	00.0		809
641	1983	09	02.18463	22	41	36.23	-11	23	06.9		809
641	1983	09	02.19017	22	41	35.93	-11	23	07.8		809
641	1983	09	02.19571	22	41	35.61	-11	23	09.1		809
641	1983	09	03.20891	22	40	34.39	-11	28	39.0		809
641	1983	09	03.21445	22	40	34.03	-11	28	40.3		809
641	1983	09	03.21999	22	40	33.72	-11	28	41.8		809
1156	1983	09	06.29351	23	35	49.69	-05	17	40.7		809
1156	1983	09	06.29905	23	35	49.43	-05	17	42.4		809

1156	1983	09	06.30459	23	35	49.12	-05	17	44.3		809
1156	1983	09	08.38016	23	33	54.08	-05	30	53.2		809
1156	1983	09	08.38570	23	33	53.86	-05	30	54.4		809
1156	1983	09	09.36567	23	32	59.24	-05	37	06.7	2	809
1156	1983	09	09.37017	23	32	59.18	-05	37	08.6	2	809
1190	1983	09	03.28024	23	45	28.23	-05	15	06.6		809
1190	1983	09	03.28578	23	45	28.05	-05	15	07.1		809
1190	1983	09	03.29132	23	45	27.83	-05	15	08.5		809
1190	1983	09	06.29351	23	42	56.07	-05	28	48.8		809
1190	1983	09	06.29905	23	42	55.79	-05	28	49.6		809
1190	1983	09	06.30459	23	42	55.52	-05	28	51.6		809
1190	1983	09	08.38016	23	41	05.53	-05	38	33.1		809
1190	1983	09	08.38570	23	41	05.27	-05	38	34.0		809
1257	1983	09	03.25323	22	29	03.40	-03	48	07.4		809
1257	1983	09	03.25877	22	29	03.18	-03	48	07.5		809
1257	1983	09	03.26431	22	29	02.99	-03	48	10.0		809
1257	1983	09	07.28248	22	25	38.21	-04	13	47.6		809
1257	1983	09	07.28802	22	25	38.06	-04	13	49.8		809
1257	1983	09	07.29356	22	25	37.72	-04	13	50.7		809
1437	1983	09	08.06851	21	38	44.27	-07	46	07.8		809
1437	1983	09	08.07685	21	38	44.04	-07	46	07.3		809
1437	1983	09	08.08513	21	38	43.88	-07	46	07.6		809
1743	1983	09	03.23176	22	36	29.49	-03	25	31.9		809
1743	1983	09	03.23730	22	36	29.44	-03	25	32.4		809
1743	1983	09	03.24146	22	36	29.03	-03	25	35.4		809
1743	1983	09	07.30672	22	33	03.10	-03	54	57.1		809
1743	1983	09	07.31295	22	33	02.87	-03	54	59.7		809
1743	1983	09	07.31918	22	33	02.74	-03	55	01.5		809
1743	1983	09	09.30541	22	31	23.94	-04	09	27.5		809
1743	1983	09	09.31372	22	31	23.68	-04	09	31.1		809
1743	1983	09	09.32203	22	31	23.21	-04	09	34.7		809
1805	1983	09	03.28024	23	46	38.05	-05	15	30.1		809
1805	1983	09	03.28578	23	46	38.05	-05	15	29.2		809
1805	1983	09	03.29132	23	46	37.87	-05	15	31.2		809
1841	1983	09	03.28024	23	43	16.77	-04	59	53.9	3	809
1841	1983	09	03.28578	23	43	16.58	-04	59	54.1	3	809
1841	1983	09	03.29132	23	43	16.38	-04	59	55.9	3	809
1841	1983	09	06.29351	23	41	22.10	-05	11	56.8	4	809
1841	1983	09	06.29905	23	41	21.75	-05	11	58.1	4	809
1841	1983	09	06.30459	23	41	21.63	-05	11	58.9	4	809
1841	1983	09	08.38016	23	40	00.18	-05	20	25.2		809
1841	1983	09	08.38570	23	40	00.00	-05	20	25.7		809
2461	1983	09	03.11333	22	19	52.18	-13	05	28.8		809
2461	1983	09	03.11887	22	19	51.94	-13	05	29.5		809
2461	1983	09	03.12441	22	19	51.75	-13	05	31.0		809
2461	1983	09	06.12868	22	17	44.11	-13	19	19.4		809
2461	1983	09	06.13423	22	17	43.88	-13	19	20.3		809
2461	1983	09	06.13977	22	17	43.62	-13	19	21.2		809
2461	1983	09	08.21603	22	16	17.75	-13	28	29.3		809
2461	1983	09	08.22434	22	16	17.43	-13	28	30.9		809
2461	1983	09	08.23196	22	16	17.18	-13	28	32.3		809
2461	1983	09	11.20369	22	14	19.16	-13	40	52.9		809
2461	1983	09	11.20923	22	14	19.00	-13	40	54.0		809
2461	1983	09	11.21477	22	14	18.71	-13	40	54.8		809
2956	1983	09	03.11333	22	19	56.93	-13	38	26.0		809
2956	1983	09	03.11887	22	19	56.65	-13	38	27.5		809
2956	1983	09	03.12441	22	19	56.48	-13	38	28.5		809
2956	1983	09	06.12868	22	17	33.12	-13	53	16.7		809
2956	1983	09	06.13423	22	17	32.94	-13	53	18.4		809

2956		1983	09	06.13977	22	17	32.62	-13	53	18.3	809
2956		1983	09	08.11353	22	16	01.02	-14	02	36.9	809
2956		1983	09	08.12045	22	16	00.33	-14	02	40.5	809
2956		1983	09	08.14123	22	15	59.84	-14	02	43.1	809
2956		1983	09	08.21603	22	15	56.18	-14	03	05.0	809
2956		1983	09	08.22434	22	15	55.82	-14	03	06.5	809
2956		1983	09	08.23196	22	15	55.51	-14	03	08.0	809
2956		1983	09	11.20369	22	13	42.53	-14	16	19.2	809
2956		1983	09	11.20923	22	13	42.36	-14	16	19.9	809
2956		1983	09	11.21477	22	13	42.01	-14	16	20.8	809
2959		1983	09	03.15904	22	20	04.21	-14	44	07.5	809
2959		1983	09	03.16458	22	20	03.98	-14	44	08.8	809
2959		1983	09	03.17012	22	20	03.83	-14	44	10.2	809
2959		1983	09	08.11353	22	16	52.63	-15	06	31.1	809
2959		1983	09	08.12045	22	16	52.06	-15	06	34.6	809
2959		1983	09	08.14123	22	16	51.63	-15	06	37.7	809
3016		1983	09	02.18463	22	38	23.68	-10	55	43.8	809
3016		1983	09	02.19017	22	38	23.54	-10	55	44.4	809
3016		1983	09	02.19571	22	38	23.18	-10	55	46.6	809
3016		1983	09	03.20891	22	37	35.04	-11	01	20.5	809
3016		1983	09	03.21445	22	37	34.75	-11	01	21.9	809
3016		1983	09	03.21999	22	37	34.52	-11	01	24.0	809
3016		1983	09	11.28402	22	31	18.53	-11	43	58.6	3 809
3016		1983	09	11.28957	22	31	18.36	-11	43	59.6	3 809
3016		1983	09	11.29511	22	31	18.00	-11	44	02.2	3 809
3110		1983	09	07.26032	22	32	57.96	-09	44	02.1	809
3110		1983	09	07.26586	22	32	57.64	-09	44	02.9	809
3110		1983	09	07.27140	22	32	57.34	-09	44	05.1	809
3110		1983	09	15.28972	22	26	00.16	-10	15	33.2	809
3110		1983	09	15.29526	22	26	00.07	-10	15	38.2	809
3110		1983	09	15.30080	22	25	59.94	-10	15	39.0	809
1979	MV6	1983	09	03.25323	22	30	23.60	-03	07	29.9	809
1979	MV6	1983	09	03.25877	22	30	23.42	-03	07	29.6	809
1979	MV6	1983	09	03.26431	22	30	23.09	-03	07	33.3	809
1979	MV6	1983	09	07.28248	22	26	56.32	-03	32	45.1	809
1979	MV6	1983	09	07.28802	22	26	56.03	-03	32	46.7	809
1979	MV6	1983	09	07.29356	22	26	55.91	-03	32	48.9	809
1981	EM	1983	09	03.15904	22	17	57.57	-14	25	58.6	809
1981	EM	1983	09	03.16458	22	17	57.17	-14	25	58.6	809
1981	EM	1983	09	03.17012	22	17	56.92	-14	25	59.5	809
1981	EM	1983	09	08.11353	22	12	51.62	-14	34	12.7	809
1981	EM	1983	09	08.12045	22	12	50.79	-14	34	13.6	809
1981	EM	1983	09	08.14123	22	12	50.05	-14	34	13.4	809
1981	EX6	1983	09	02.18463	22	41	44.62	-10	01	41.1	3 809
1981	EX6	1983	09	02.19017	22	41	44.21	-10	01	41.4	3 809
1981	EX6	1983	09	02.19571	22	41	43.90	-10	01	37.6	3 809
1981	EX6	1983	09	07.26032	22	36	51.81	-09	54	44.7	809
1981	EX6	1983	09	07.26586	22	36	51.50	-09	54	42.8	809
1981	EX6	1983	09	07.27140	22	36	51.14	-09	54	43.4	809
1981	EX16	1983	09	03.28024	23	42	21.80	-04	40	53.3	809
1981	EX16	1983	09	03.28578	23	42	21.55	-04	40	52.1	809
1981	EX16	1983	09	03.29132	23	42	21.22	-04	40	51.3	809
1981	EX16	1983	09	06.29351	23	39	18.24	-04	35	22.1	809
1981	EX16	1983	09	06.29905	23	39	17.90	-04	35	21.4	809
1981	EX16	1983	09	06.30459	23	39	17.67	-04	35	20.5	809
1981	EX16	1983	09	08.38016	23	37	06.48	-04	31	36.8	809
1981	EX16	1983	09	08.38570	23	37	06.26	-04	31	35.5	809
1981	EX16	1983	09	09.36567	23	36	03.88	-04	29	51.9	2 809
1981	EX16	1983	09	09.37017	23	36	02.95	-04	30	02.4	2 809

1981	EX16	1983	09	15.35759	23	29	32.58	-04	19	05.1	5	809
1981	EX16	1983	09	15.36728	23	29	32.08	-04	19	02.1	5	809
1983	QJ	1983	09	07.32957	22	50	15.47	-18	34	45.8		809
1983	QJ	1983	09	07.33511	22	50	15.19	-18	34	47.2		809
1983	QJ	1983	09	07.34065	22	50	14.90	-18	34	47.5		809
1983	RL2	1983	09	03.15904	22	23	56.03	-14	38	37.4		809
1983	RL2	1983	09	03.16458	22	23	55.65	-14	38	37.5		809
1983	RL2	1983	09	03.17012	22	23	55.43	-14	38	39.2		809
1983	RL2	1983	09	08.11353	22	19	42.42	-14	49	49.1		809
1983	RL2	1983	09	08.12045	22	19	41.68	-14	49	51.1		809
1983	RL2	1983	09	08.14123	22	19	41.11	-14	49	52.2		809
1983	RH3	1983	09	08.06851	21	35	24.25	-07	14	56.7		809
1983	RH3	1983	09	08.07685	21	35	23.87	-07	14	54.3		809
1983	RH3	1983	09	08.08513	21	35	23.50	-07	14	52.2		809
1983	RK3	1983	09	02.18463	22	41	34.31	-10	45	51.8		809
1983	RK3	1983	09	02.19017	22	41	34.03	-10	45	52.7		809
1983	RK3	1983	09	02.19571	22	41	33.84	-10	45	53.9		809
1983	RK3	1983	09	03.20891	22	40	43.85	-10	50	19.8		809
1983	RK3	1983	09	03.21445	22	40	43.63	-10	50	22.6		809
1983	RK3	1983	09	03.21999	22	40	43.35	-10	50	23.0		809
1983	RL3	1983	09	03.23176	22	35	46.19	-03	49	18.2		809
1983	RL3	1983	09	03.23730	22	35	45.92	-03	49	18.6		809
1983	RL3	1983	09	03.24146	22	35	45.53	-03	49	20.1		809
1983	RL3	1983	09	07.30672	22	31	53.68	-04	04	27.2		809
1983	RL3	1983	09	07.31295	22	31	53.24	-04	04	27.0		809
1983	RL3	1983	09	07.31918	22	31	53.16	-04	04	28.3		809
1983	RL3	1983	09	09.30541	22	30	02.59	-04	12	07.8		809
1983	RL3	1983	09	09.31372	22	30	02.21	-04	12	08.3		809
1983	RL3	1983	09	09.32203	22	30	01.78	-04	12	15.3		809
1983	RM3	1983	09	03.23176	22	36	33.42	-03	36	09.5		809
1983	RM3	1983	09	03.23730	22	36	33.27	-03	36	09.2		809
1983	RM3	1983	09	03.24146	22	36	32.79	-03	36	11.0		809
1983	RM3	1983	09	07.30672	22	32	08.52	-03	48	19.6		809
1983	RM3	1983	09	07.31295	22	32	08.18	-03	48	20.8		809
1983	RM3	1983	09	07.31918	22	32	07.78	-03	48	18.9		809
1983	RM3	1983	09	09.30541	22	30	00.27	-03	54	31.5		809
1983	RM3	1983	09	09.31372	22	29	59.78	-03	54	31.3		809
1983	RM3	1983	09	09.32203	22	29	59.28	-03	54	33.9		809
1983	RN3	1983	09	03.23176	22	37	09.02	-03	52	41.1		809
1983	RN3	1983	09	03.23730	22	37	08.85	-03	52	41.2		809
1983	RN3	1983	09	03.24146	22	37	08.44	-03	52	42.5		809
1983	RN3	1983	09	07.30672	22	33	38.53	-04	00	55.5		809
1983	RN3	1983	09	07.31295	22	33	38.21	-04	00	56.9		809
1983	RN3	1983	09	07.31918	22	33	37.98	-04	00	54.2		809
1983	RN3	1983	09	09.30541	22	31	59.72	-04	05	13.9		809
1983	RN3	1983	09	09.31372	22	31	59.46	-04	05	10.2		809
1983	RN3	1983	09	09.32203	22	31	58.91	-04	05	12.6		809
1983	RO3	1983	09	03.11333	22	20	12.15	-13	02	03.0		809
1983	RO3	1983	09	03.11887	22	20	11.87	-13	02	03.7		809
1983	RO3	1983	09	03.12441	22	20	11.79	-13	02	04.2		809
1983	RO3	1983	09	06.12868	22	17	53.78	-13	14	27.8	4	809
1983	RO3	1983	09	06.13423	22	17	53.61	-13	14	29.1	4	809
1983	RO3	1983	09	06.13977	22	17	53.38	-13	14	30.9	4	809
1983	RO3	1983	09	08.21603	22	16	19.73	-13	22	43.9		809
1983	RO3	1983	09	08.22434	22	16	19.48	-13	22	45.7		809
1983	RO3	1983	09	08.23196	22	16	19.16	-13	22	46.4		809
1983	RP3	1983	09	03.11333	22	22	24.18	-12	44	13.9	3	809
1983	RP3	1983	09	03.11887	22	22	23.89	-12	44	16.4	3	809
1983	RP3	1983	09	03.12441	22	22	23.58	-12	44	12.3	3	809

1983 RP3	1983	09	08.21603	22	18	06.61	-13	15	29.0	809
1983 RP3	1983	09	08.22434	22	18	06.19	-13	15	32.0	809
1983 RP3	1983	09	08.23196	22	18	05.92	-13	15	33.9	809
1983 RP3	1983	09	11.20369	22	15	44.77	-13	32	20.4	3 809
1983 RP3	1983	09	11.20923	22	15	44.80	-13	32	20.6	3 809
1983 RP3	1983	09	11.21477	22	15	44.21	-13	32	21.9	3 809
1983 RS3	1983	09	03.23176	22	32	33.53	-04	34	52.4	809
1983 RS3	1983	09	03.23730	22	32	33.31	-04	34	48.9	809
1983 RS3	1983	09	03.24146	22	32	32.92	-04	34	53.3	809
1983 RS3	1983	09	09.30541	22	26	36.00	-04	53	50.3	809
1983 RS3	1983	09	09.31372	22	26	35.65	-04	53	51.7	809
1983 RS3	1983	09	09.32203	22	26	35.08	-04	53	52.6	809
1983 RT3	1983	09	03.23176	22	37	27.46	-04	41	06.7	809
1983 RT3	1983	09	03.23730	22	37	27.29	-04	41	05.2	809
1983 RT3	1983	09	03.24146	22	37	26.90	-04	41	06.3	809
1983 RT3	1983	09	07.30672	22	33	05.07	-04	36	29.9	809
1983 RT3	1983	09	07.31295	22	33	04.63	-04	36	30.7	809
1983 RT3	1983	09	07.31918	22	33	04.30	-04	36	28.9	809
1983 RT3	1983	09	09.30541	22	30	58.06	-04	34	23.2	809
1983 RT3	1983	09	09.31372	22	30	57.56	-04	34	21.4	809
1983 RT3	1983	09	09.32203	22	30	57.06	-04	34	20.6	809
1983 RU3	1983	09	03.15904	22	22	24.71	-14	19	34.6	809
1983 RU3	1983	09	03.16458	22	22	24.50	-14	19	35.9	809
1983 RU3	1983	09	03.17012	22	22	24.33	-14	19	39.3	809
1983 RU3	1983	09	08.11353	22	19	14.46	-15	02	56.8	809
1983 RU3	1983	09	08.12045	22	19	13.88	-15	03	04.6	809
1983 RU3	1983	09	08.14123	22	19	13.47	-15	03	09.6	809
1983 RW3	1983	09	15.35759	23	24	17.94	-04	28	10.6	4 809
1983 RW3	1983	09	15.36728	23	24	17.55	-04	28	09.7	4 809

Note 1: blended image. 2: poor plate. 3: very faint. 4: faint. 5: poor distribution of reference stars.

OBSERVATIONS MADE AT JCPM OI STATION BY K. SUZUKI AND T. URATA.
Contact: T. Urata, Nishitaka-cho 8-23, Shimizu, Shizuoka 424, Japan.

Object		Date	UT	R. A. (1950)	Decl.	Mag.	Obs.
1984 QD	*	1984 08 24.56389	23 12 25.5	-05 33 52		16	882
1984 QD		1984 08 24.60000	23 12 24.1	-05 33 44			882
1984 QE		1984 08 24.59167	23 15 34.13	-13 25 00.9		15	882
1984 QE		1984 08 24.62778	23 15 32.46	-13 25 14.4			882
1984 QE	*	1984 08 31.56875	23 10 12.01	-14 12 41.4		15	882
1984 QE		1984 08 31.60486	23 10 10.09	-14 12 54.7			882
1984 SB	*	1984 09 25.53611	01 13 03.32	+07 16 35.1		15	882
1984 SB		1984 09 25.58958	01 12 58.26	+07 17 01.2			882

OBSERVATIONS MADE AT KARASUYAMA BY K. INODA AND T. URATA.
Contact: T. Urata, Nishitaka-cho 8-23, Shimizu, Shizuoka 424, Japan.

Object		Date	UT	R. A. (1950)	Decl.	Mag.	Obs.
1984 SD	*	1984 09 24.52060	22 50 49.55	-15 46 24.3		16.5	889
1984 SD		1984 09 24.54369	22 50 47.55	-15 46 12.9			889
1984 SD		1984 09 24.57685	22 50 44.96	-15 45 56.4			889

* * * * *

ORBITAL ELEMENTS OF ONE-OPPOSITION MINOR PLANETS.

The orbit computers and authors of double designations are B = C. M. Bardwell, G = D. W. E. Green, M = B. G. Marsden. See also MPC 7828.

Planet	B(1,0)	Epoch	M	Peri.	Node	Incl.	e	a	Arc	O	N	C
1976 YW2	12.5	761228	347.24	1.17	101.70	17.57	0.0778	3.2342	35	3	1	M
1976 YN7	14.0	761228	58.18	274.85	100.01	13.41	0.1821	2.6870	31	7	1	M
1977 QD2	15.5	770914	1.90	359.29	349.86	5.60	0.1911	2.2997	49	4	1	M
1977 RB2	16.0	770914	349.73	223.57	150.62	6.64	0.2749	2.5202	29	3	1	M
1977 RJ3	14.5	770914	327.97	60.79	343.04	11.54	0.2911	2.6266	27	3	1	M
1977 TU3	13.0	771024	0.73	178.12	214.86	13.94	0.2008	3.0017	31	4	1	M
1982 UG6	14.5	821018	341.89	12.79	53.15	1.58	0.2349	2.5915	28	6		M
1982 UB7	12.5	821107	315.07	232.64	230.50	14.81	0.0375	3.1608	55	8	1	B
1982 XV1	12.5	821217	75.40	237.38	68.85	12.67	0.3056	3.1387	8	6		M
1984 AJ1	15.5	840121	3.26	135.16	347.17	6.66	0.1930	2.3915	27	6	1	M
1984 GB	16.0	840321	340.56	209.39	6.90	2.57	0.1743	2.2056	9	6	2	B
1984 KP		840520	336.61	208.22	75.08	0.86	0.3053	3.1907	3	0		G
1984 LK	14.0	840520	308.62	92.64	238.33	9.53	0.3502	3.1070	9	0	2	B
1984 OA	14.5	840808	338.42	206.83	133.12	16.62	0.2162	2.6399	31	0		M
1984 QF	14.5	840828	355.14	199.95	133.96	13.45	0.1808	2.6522	7	8		G
1984 QH	16.0	840828	334.78	24.35	341.27	5.75	0.1751	2.2321	2	6	2	M
1984 QJ	16.5	840828	341.17	265.65	99.73	0.73	0.2794	2.1705	2	6	2	M
1984 QM	15.5	840828	3.01	13.64	321.50	3.44	0.1220	2.1761	5	6		G
1984 QR	14.0	840828	332.93	82.72	322.95	21.48	0.3255	2.4647	5	7		M
1984 QS	15.5	840828	15.03	244.60	64.94	1.76	0.2771	2.9684	5	4		B
1984 QT	17.0	840828	16.96	318.15	351.38	4.95	0.2158	2.1725	5	4		B
1984 QU	17.0	840828	336.23	21.65	352.74	4.73	0.2331	2.1751	5	4	2	B
1984 QV	15.0	840828	314.44	18.60	32.49	4.65	0.2375	2.4009	5	4		B
1984 RA	15.5	840828	319.52	245.94	143.61	25.31	0.0720	2.0015	3	6		M
1984 RB	15.0	840828	252.02	298.60	155.08	26.14	0.1107	2.0074	2	6	2	M
1984 RC	16.0	840828	195.23	135.98	9.20	20.64	0.0344	1.8957	3	6		M
1984 RE	16.5	840917	347.40	57.55	329.85	23.35	0.2887	2.3205	23	7		B
1984 SA	15.0	840917	20.16	77.07	253.80	5.88	0.2235	2.2903	7	3		B

Note 1: double designations 1976 YW2 = 1977 AF (M); 1976 YN7 = 1977 AU (M); 1977 QD2 = 1977 TP2 (M); 1977 RB2 = 1977 TX2 (M); 1977 RJ3 = 1977 TE3 (M); 1977 TU3 = 1977 VQ (M); 1982 UB7 = 1982 XU3 (B); 1984 AJ1 = 1984 CK1 (M).
2: e assumed.

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ORBITAL ELEMENTS BY L. D. SCHMADEL, ASTRONOMISCHES RECHEN-INSTITUT.

(3118)* 1974 OD = 1974 QX2 = 1938 XH = 1951 AP = 1957 EM = 1969 OZ = 1978 ED8 = 1982 YF

Discovered 1974 July 19 at the El Leoncito Station of the Felix Aguilar Observatory. The double designation 1974 OD = 1974 QX2 is by B. G. Marsden (MPC 9064). The identifications are by L. D. Schmadel. The identification 1974 OD = 1951 AP was independently found by K. Hurukawa. The identifications 1974 OD = 1951 AP = 1957 EM = 1969 OZ were also found by T. Urata.

Epoch 1984 Oct. 27.0 ET = JDE 2446000.5

			(1950.0)	P	Q
M	47.82583				
n	0.18608754	Peri.	265.71914	-0.84072044	+0.50748962
a	3.0384903	Node	304.66867	-0.35911028	-0.78354279
e	0.0565691	Incl.	13.27058	-0.40525170	-0.35848985
P	5.30	B(1,0)	12.0		

Residuals in seconds of arc

381215	754	2.7+	1.4+		690808	095	2.9-	1.5-		780305	095	0.7+	1.6-
381216	754	1.0-	1.3-		690814	095	0.3+	0.3+		821216	688	1.0-	0.0
510109	760	2.4-	0.3-		740719	808	0.6-	0.1-		821216	688	1.5-	1.4-
510109	760	1.5+	2.2+		740719	808	1.0-	0.4-		830109	688	0.8-	1.3-
510113	711	0.6-	1.1+	Y	740724	808	0.4+	1.0-		830109	688	1.0+	1.1-
570308	839	1.4+	0.0		740818	808	0.5-	0.9+					
690717	095	5.7+	0.4+		740818	808	1.2-	0.1-					

ORBITAL ELEMENTS BY B. G. MARSDEN, SMITHSONIAN ASTROPHYSICAL OBSERVATORY.

The identifications are by B. G. Marsden unless otherwise stated.

Periodic Comet Kowal-Mrkos (1984n)
T 1984 May 16.03530 ET

q 2.0400028		(1950.0)	P	Q
n 0.13661198	Peri.	327.82159	-0.80862762	+0.58623868
a 3.7337353	Node	248.14792	-0.52782909	-0.76004166
e 0.4536295	Incl.	3.05423	-0.25984191	-0.28046547
P 7.21				

From 6 observations 1984 Apr. 23-May 2.

Comet Austin (1984i)
Epoch 1984 Aug. 8.0 ET = JDE 2445920.5
T 1984 Aug. 12.13733 ET

q 0.2912839		(1950.0)	P	Q
z +0.0005551	Peri.	353.12743	-0.99850853	+0.03328429
+/-0.0000217	Node	170.87733	+0.05313179	+0.77475606
e 0.9998383	Incl.	164.15982	-0.01255897	+0.63138356

From 22 observations 1984 July 8-Sept. 27, mean residual 1".1.

Comet Meier (1984o)
T 1984 Oct. 13.53469 ET

q 0.8544046		(1950.0)	P	Q
	Peri.	126.78306	-0.46744538	-0.87795728
	Node	10.56000	-0.87688288	+0.44565864
e 1.0	Incl.	145.66303	+0.11212144	-0.17486965

From 5 observations 1984 Sept. 18-23.

Comet Shoemaker (1984f)
Epoch 1985 Sept. 12.0 ET = JDE 2446320.5
T 1985 Sept. 4.62906 ET

q 2.6968060		(1950.0)	P	Q
z -0.0002160	Peri.	235.45836	-0.65101717	+0.34860183
+/-0.0000824	Node	48.98335	+0.12295378	+0.92500384
e 1.0005824	Incl.	116.66375	-0.74903872	-0.15114446

From 54 observations 1984 May 27-Aug. 29, mean residual 1".6.

(3119)* 1972 YX = 1982 UB

Discovered 1972 Dec. 30 by T. M. Smirnova at the Crimean Astrophysical Observatory. The identification is by H. Oishi (JAM 1292).
Epoch 1984 Oct. 27.0 ET = JDE 2446000.5

M 108.43343		(1950.0)	P	Q
n 0.18465644	Peri.	325.66293	+0.23651699	-0.96854128
a 3.0541691	Node	110.54946	+0.90892666	+0.19240635
e 0.2074086	Incl.	4.74017	+0.34338321	+0.15782137
P 5.34	B(1,0)	13.5		

Residuals in seconds of arc

721230 095	3.9+	2.8+	821027 372	0.8-	0.7-	840208 688	2.3-	1.9-
730103 095	2.9-	3.5-	821027 372	0.8-	0.5+	840209 801	4.0+	1.5+
730203 095	0.0	1.4+	821111 372	0.3+	0.5-	840301 688	1.8+	1.0-
821022 372	0.8+	2.1-	821111 372	0.8+	0.1-	840301 688	0.4-	0.9-
821022 372	0.8+	0.9+	821113 372	0.4-	0.4+	840301 801	1.3+	2.6+
821024 372	0.5-	1.0+	821113 372	0.6-	0.5-	840306 688	1.3-	1.1-
821025 372	0.3-	1.8+	840206 688	0.1-	0.0	840306 688	0.2+	1.1-
821025 372	0.6+	0.0	840208 688	2.6-	0.1+	840404 801	0.5-	2.0+

(3120)* 1979 RZ = 1979 TN = 1958 TN = 1969 UN2 = 1974 SC4 = 1978 KA

Discovered 1979 Sept. 14 by N. S. Chernykh at the Crimean Astrophysical Observatory. The double designation 1979 RZ = 1979 TN is by T. Furuta (JAM 1459). The identifications 1979 RZ = 1958 TN = 1969 UN2 = 1974 SC4 = 1978 KA and 1979 RZ = 1969 UN2 = 1974 SC4 = 1978 KA are by T. Urata and by W. Landgraf, respectively (MPC 8287). The identifications 1979 RZ = 1958 TN = 1969 UN2 = 1974 SC4 were also independently found by L. D. Schmadel.

Epoch 1984 Oct. 27.0 ET = JDE 2446000.5

M	344.06406		(1950.0)	P	Q
n	0.18709265	Peri.	132.60609	+0.98057595	+0.13197441
a	3.0275981	Node	220.45274	-0.16335022	+0.95897881
e	0.0951242	Incl.	12.92258	+0.10857033	+0.25088320
P	5.27	B(1,0)	13.0		

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

581013	760(0.04-	0.01-)X	790914	095	2.2-	1.2+	840703	801	0.9+	0.4-
691018	095	0.2-	1.2-	790928	095	0.6-	0.2-	840724	801	1.4+	0.3-
691105	095	1.3+	2.5+	791014	095	1.7-	0.9+	840824	801	0.7+	0.4-
740922	095	0.4+	1.1-	830506	688	0.3-	0.1+	840826	801	0.6+	0.5-
780530	095	0.0	1.7+	830506	688	0.3-	0.4+				

(3121)* 1981 EV = 1978 GW4

Discovered 1981 Mar. 2 by H. Debehogne and G. De Sanctis at the European Southern Observatory. The identification is by T. Furuta (JAM 943).

Epoch 1984 Oct. 27.0 ET = JDE 2446000.5

M	349.26456		(1950.0)	P	Q
n	0.29644528	Peri.	87.65532	-0.83599329	+0.54118890
a	2.2276127	Node	125.09523	-0.53714627	-0.77326727
e	0.0849562	Incl.	6.36580	-0.11220120	-0.33041231
P	3.32	B(1,0)	14.5		

Residuals in seconds of arc

780412	095	0.3-	0.2-	810306	809	0.4-	0.2+	810314	809	0.4+	0.8+
780505	095	0.2-	0.1+	810306	809	0.0	0.3+	810314	809	0.4+	1.1+
810302	809	0.5-	0.7-	810306	809	0.3+	0.2+	810314	809	0.4+	1.2+
810302	809	0.2+	0.7-	810307	809	0.3-	0.1-	820911	801	0.3+	0.5-
810302	809	1.1+	1.2-	810307	809	0.2-	0.1+	820912	801	0.3+	0.6+
810303	809	1.2-	0.2-	810307	809	0.0	0.1+	820918	801	2.5-	3.0-
810303	809	0.9-	0.1-	810308	809	0.2+	0.8-	821012	801	1.0+	0.7+
810303	809	0.4-	0.2-	810308	809	0.4+	0.6-	821015	801	1.9+	0.5+
810304	809	0.1-	0.3-	810308	809	0.7+	0.8-	831209	688	0.3+	1.9-
810304	809	0.0	0.4-	810309	809	0.8-	0.7+	831209	801	0.9-	1.1+
810304	809	0.2+	0.5-	810309	809	0.4-	0.9+	840105	688	1.3-	1.5+
810305	809	0.1+	0.1-	810309	809	0.2-	1.1+	840105	688	1.8+	2.1-
810305	809	0.1+	0.1-	810310	809	0.5+	0.3+	840109	801	0.0	0.8+
810305	809	0.2-	0.4-	810310	809	0.3+	0.0	840203	801	0.8-	1.3+

(3122)* 1981 ET3

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

Epoch 1984 Oct. 27.0 ET = JDE 2446000.5

M	3.28944		(1950.0)	P	Q
n	0.41904268	Peri.	27.41997	+0.98452898	-0.07974982
a	1.7686038	Node	335.59499	-0.04941779	+0.72789940
e	0.4223473	Incl.	22.18555	+0.16810878	+0.68103041
P	2.35	B(1,0)	15.5		

Residuals in seconds of arc

810209	413	1.7-	0.9-	810310	413	0.4+	0.8+	840401	474	1.0-	0.1-
810214	413	2.4-	0.9-	810310	413	1.8+	0.6-	840401	474	2.0-	0.5+
810214	413	0.6+	0.2-	810312	413	0.8-	0.3+	840526	474	0.0	0.2-
810302	413	1.6-	0.2+	820814	675	0.1-	0.9-	840526	474	0.8+	0.4-
810302	413	0.9+	0.6-	820815	675	0.8-	0.9-	840622	474	0.5+	0.1+
810307	413	0.9-	0.6+	830112	801	0.3+	0.4+	840622	474	0.5+	0.1+
810307	413	2.0+	0.5-	830214	801	1.4+	1.0+				

(3123)* 1981 QF2 = 1977 QL4

Discovered 1981 Aug. 30 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory. The identification is by T. Urata (NOC 1265).

Epoch 1984 Oct. 27.0 ET = JDE 2446000.5

			(1950.0)	P	Q
M	292.07064				
n	0.25504472	Peri.	222.72409	+0.96732524	+0.25184212
a	2.4625883	Node	122.66720	-0.22220599	+0.89772405
e	0.1335490	Incl.	1.99338	-0.12209167	+0.36147899
P	3.86	B(1,0)	14.0		

Residuals in seconds of arc

770818	095	0.3+	1.2+	811004	688	0.2-	1.2-	830120	372	0.0	2.6-
770906	095	0.5+	2.1+	811004	688	1.7+	2.1-	830120	372	1.4+	0.8-
810830	688	0.4+	1.0+	830114	801	0.2-	0.2-	840401	801	0.7-	2.2-
810830	688	0.4+	0.6+	830118	372	1.5-	1.4-	840501	801	1.5-	1.6-
810926	688	0.3+	3.1-	830118	372	1.0-	1.0-				

(3124)* 1981 VB

Discovered 1981 Nov. 3 by D. J. Tholen at the Steward Observatory's Kitt Peak Station.

Epoch 1984 Oct. 27.0 ET = JDE 2446000.5

			(1950.0)	P	Q
M	294.46196				
n	0.21663674	Peri.	169.98227	+0.87193455	+0.48843482
a	2.7456677	Node	160.66618	-0.45602218	+0.83546993
e	0.0802422	Incl.	5.90870	-0.17825237	+0.25183608
P	4.55	B(1,0)	14.0		

Residuals in seconds of arc

811103	691	3.5+	2.0-	811204	691	1.2+	0.2+	820401	691	0.1+	3.3-
811104	691	1.7-	2.4-	811204	691	1.4+	1.9-	820923	691	0.7+	0.2+
811104	691	0.1+	1.1-	811219	693	1.5+	0.7-	820923	691	0.6-	0.9+
811104	691	1.9+	1.6-	811219	693	0.7+	1.5-	821216	691	0.3-	1.1-
811104	691	0.5-	4.4-	811220	693	0.6+	0.7+	821216	691	0.3-	1.2+
811105	691	2.9+	0.4+	811221	693	0.5-	0.9+	840227	568	2.8-	2.3-
811105	691	1.0+	3.6-	811223	693	1.5+	4.2+	840228	568	1.3-	0.3-
811119	696	1.8-	0.7+	820123	693	3.0-	2.6+	840402	801	1.2-	0.5+
811119	696	1.2+	0.1+	820125	691	1.1-	0.2-	840403	568	0.9+	1.3-
811119	696	1.6+	2.3+	820125	691	0.2+	0.6-	840404	568	0.5+	1.3-
811126	693	0.1+	1.4+	820126	691	0.6+	1.8-	840503	801	2.0-	0.8-
811202	691	1.4+	1.9-	820126	691	1.6+	0.7-				
811202	691	0.0	0.7-	820401	691	1.8+	2.8-				

(3125)* 1982 BJ1 = 1965 AP = 1971 QS2

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

Epoch 1984 Oct. 27.0 ET = JDE 2446000.5

			(1950.0)	P	Q
M	242.57063				
n	0.23476239	Peri.	355.10659	-0.63190015	-0.75864551
a	2.6024579	Node	133.97235	+0.71833052	-0.65011032
e	0.1991288	Incl.	12.73254	+0.29103857	-0.04258585
P	4.20	B(1,0)	13.5		

Residuals in seconds of arc

650101	330	0.3-	0.7-		820216	046	1.4-	2.2+		820304	688	0.9+	2.6+
710819	808	1.3+	1.0-		820216	046	1.7-	0.8+		820321	688	0.9-	0.8-
820118	688	0.1-	0.8-		820219	046	1.3-	0.4-		820321	688	0.7-	2.0-
820124	688	0.6+	0.5-		820219	046	2.3-	0.4+		820413	688	1.3-	2.2-
820124	688	1.3+	1.9-		820220	688	0.9+	1.1-		820413	688	0.4-	1.4-
820130	688	0.8+	1.2-		820220	688	1.5+	0.4-		830711	801	0.4-	0.3-
820130	688	2.9+	1.8-		820228	688	0.0	0.9+		840729	801	0.4+	1.6-
820214	046	1.4-	3.2+		820228	688	0.6+	0.5+		840826	801	0.3-	2.0-
820214	046	0.9-	1.7+		820304	688	2.7+	2.4-					

1971 SC = 1984 SC

The identification is by C. M. Bardwell.

Epoch 1984 Oct. 27.0 ET = JDE 2446000.5

M	15.54503		(1950.0)	P	Q
n	0.30299794	Peri.	173.53288	+0.95813660	+0.28390792
a	2.1953795	Node	169.74240	-0.27110951	+0.94122006
e	0.3893621	Incl.	11.99905	-0.09205370	+0.18303299
P	3.25	B(1,0)	16.5		

Residuals in seconds of arc

710801	675	0.6+	0.4+		710927	808	0.6+	0.6-		711010	808	(0.7-	6.2+)
710925	808	1.3-	1.8+		710927	808	0.3-	0.7-		711013	808	0.8+	0.5-
710925	808	0.2-	0.8-		710927	808	0.1-	0.6-		840926	675	1.2-	1.2-
710925	808	0.1-	0.1+		710927	808	0.0	0.6-		840928	675	0.9+	0.5+
710926	805	0.5-	0.2+		710929	808	(0.7+	3.1-)		840928	675	0.8-	0.0
710926	805	0.0	0.3-		711002	808	0.3+	1.4+		840929	675	1.2+	0.3+
710927	808	0.2-	0.4-		711009	808	1.2+	0.1-					
710927	808	0.0	0.0		711009	808	0.6-	1.4+					

1973 QZ1 = 1934 RB1 = 1979 WM7 = 1984 PB

The identification 1973 QZ1 = 1976 GK (NOC 1053) is invalid.

Epoch 1984 Oct. 27.0 ET = JDE 2446000.5 (J-P)

M	348.28785		(1950.0)	P	Q
n	0.17566604	Peri.	276.67066	+0.99932341	-0.01633998
a	3.1575122	Node	84.26922	+0.02818598	+0.91577710
e	0.1837820	Incl.	1.89775	-0.02362787	+0.40135433
P	5.61	B(1,0)	13.0		

Residuals in seconds of arc

340909	078	1.2+	2.8-		840803	046	0.5+	1.7-		840822	046	2.1+	2.7+
730831	095	2.9-	0.3-		840804	046	0.5+	1.9-		840823	046	0.3-	2.3-
730905	095	1.8-	4.8+		840821	046	0.9-	1.6-		840823	046	0.2-	1.3+
730927	095	0.7+	4.4+		840821	046	0.6-	1.0-					
791117	095	1.1+	3.1-		840822	046	0.8+	0.7-					

1978 PA

Epoch 1984 Oct. 27.0 ET = JDE 2446000.5 (J-P)

M	100.03986		(1950.0)	P	Q
n	0.37385516	Peri.	255.80529	+0.89984091	-0.12746915
a	1.9083938	Node	110.13506	+0.23445858	+0.94779827
e	0.1100440	Incl.	26.38078	-0.36785257	+0.29228419
P	2.64	B(1,0)	15.0		

Residuals in seconds of arc

780811	809	0.0	1.2-		780815	809	0.5+	0.6-		830618	675	0.1+	1.7+
780811	809	1.2+	3.0-		780903	809	0.3+	0.4+		830619	675	1.4-	0.3-
780812	809	1.1+	2.3-		780904	809	0.1-	1.2-		830704	688	0.2+	0.6-
780812	809	0.7+	1.1-		780910	809	0.3+	0.0		830704	688	0.6+	3.1-
780813	809	0.8+	1.7-		780923	809	0.0	1.0-		830710	801	1.9-	1.1+
780814	809	0.6+	1.5-		820116	688	0.5+	1.7-					

1983 TB
Epoch 1984 Oct. 27.0 ET = JDE 2446000.5

M	290.38612	(1950.0)	P	Q
n	0.68759549	Peri. 321.67547	-0.64047823	+0.67091558
a	1.2712980	Node 265.04247	-0.57891983	-0.74153327
e	0.8902146	Incl. 22.03138	-0.50461813	-0.00082934
P	1.43	B(1,0) 16.0		

Residuals in seconds of arc

831012	675	2.2+ 0.4-	831027	675	0.0 0.4-	831130	675	3.3+ 0.3-
831012	675	0.4+ 0.8-	831029	675	0.3+ 0.1-	831130	675	3.0+ 1.9+
831014	688	2.6- 1.2+	831101	801	1.7- 0.3-	831203	801	1.8- 0.7+
831014	688	2.2- 0.6-	831106	675	0.4- 0.9-	831223	675	0.7+ 0.5-
831016	675	0.9+ 0.2-	831107	675	0.6- 0.2-	840102	801	2.8- 0.4-
831018	675	0.9+ 0.0	831107	381	0.8- 1.4+	840124	675	1.8- 0.2+
831018	675	0.2- 0.1+	831107	381	1.2+ 1.3-	840905	675	0.4+ 0.1+
831027	688	0.4+ 2.2+	831109	801	0.5- 0.6+	840906	675	0.4- 0.4-
831027	675	0.1- 0.3-	831129	675	0.4- 0.2+			

1984 QA
Epoch 1984 Oct. 27.0 ET = JDE 2446000.5

M	140.81780	(1950.0)	P	Q
n	1.00114080	Peri. 54.84459	-0.88615740	+0.45630727
a	0.9896294	Node 152.04546	-0.46103794	-0.85070613
e	0.4680737	Incl. 9.91011	-0.04657343	-0.26092671
P	0.98	B(1,0) 18.0		

From 22 observations 1984 Aug. 30-Sept. 24, mean residual 1".3.

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ORBITAL ELEMENTS BY C. M. BARDWELL, SMITHSONIAN ASTROPHYSICAL OBSERVATORY.

The identifications are by C. M. Bardwell unless otherwise stated.

(3126)* 1969 TP1 = 1971 BG2 = 1974 RF1 = 1979 RW

Discovered 1969 Oct. 8 by L. I. Chernykh at the Crimean Astrophysical Observatory. The key identification 1969 TP1 = 1974 RF1 is by T. Urata (NOC 1067).

Epoch 1984 Oct. 27.0 ET = JDE 2446000.5

M	335.78498	(1950.0)	P	Q
n	0.18913872	Peri. 159.24421	+0.99332567	-0.08834775
a	3.0057239	Node 206.16225	+0.06688385	+0.96496115
e	0.1021710	Incl. 9.68213	+0.09397163	+0.24707214
P	5.21	B(1,0) 12.5		

Residuals in seconds of arc

691008	095	0.4+ 1.9+	691113	095	0.6- 2.5+	840724	801	1.6+ 0.1-
691013	095	3.0+ 3.8-	710127	805	0.1- 0.2+	840825	801	0.8+ 2.0+
691016	095	4.2+ 0.8-	740912	095	4.2- 0.1+	840827	801	0.1- 0.4+
691104	095	2.6- 0.0	790914	095	4.6- 1.0-	840829	688	2.9+ 1.3-
691111	095	(0.2- 59.0-)	830513	801	0.7- 0.2-			

(3127)* 1973 ST4 = 1977 RU7 = 1981 OP

Discovered 1973 Sept. 27 by L. I. Chernykh at the Crimean Astrophysical Observatory. The identifications are by T. Urata (NOC 1398).

Epoch 1984 Oct. 27.0 ET = JDE 2446000.5

M	274.67235	(1950.0)	P	Q
n	0.23568172	Peri. 29.48404	+0.79736189	+0.59851492
a	2.5956858	Node 293.54818	-0.56889815	+0.70261762
e	0.2030310	Incl. 4.84458	-0.20141723	+0.38484849
P	4.18	B(1,0) 13.5		

Residuals in seconds of arc

730927	095	0.2+	2.4+		770919	095	0.4-	0.0		840306	688	1.3+	0.8+
730928	095	1.1+	3.4+		810730	033	0.1-	0.2-		840401	801	1.1+	2.3+
731001	095	0.5+	2.9-		810730	033	0.2-	0.4-		840403	688	1.9+	2.4-
731029	095	2.1-	2.4-		840301	688	0.4-	1.4-		840403	688	3.3-	0.6-
770912	095	2.4+	2.1-		840306	688	1.8-	1.8-					

(3128)* 1979 FJ2 = 1979 HS2 = 1976 YU4 = 1981 VG2

Discovered 1979 Mar. 23 by N. S. Chernykh at the Crimean Astrophysical Observatory. The identifications 1979 FJ2 = 1976 YU4 = 1981 VG2 are by T. Urata (NOC 1251 and 1449). The double designation 1979 FJ2 = 1979 HS2 is by H. Oishi (JAM 1459).

Epoch 1984 Oct. 27.0 ET = JDE 2446000.5

			(1950.0)	P	Q
M	272.53025				
n	0.17935490	Peri.	192.20229	+0.41149781	+0.91003093
a	3.1140617	Node	102.11376	-0.83179074	+0.39746527
e	0.1586859	Incl.	2.93908	-0.37255027	+0.11775001
P	5.50	B(1,0)	12.5		

Residuals in seconds of arc

761218	095	2.2-	0.5+		811103	033	0.3+	0.6-		840206	372	1.1+	1.3+
761220	095	2.0+	0.4+		840128	688	0.5-	0.7-		840206	372	1.5-	0.4+
790323	095	0.1+	0.1+		840202	801	0.7-	2.7+		840226	688	0.7-	0.0
790329	095	1.4-	0.2-		840205	688	1.5+	1.5-		840226	688	1.8+	1.4-
790420	095	0.3+	0.3+		840205	688	0.1-	2.2-		840303	801	1.1+	2.5+
790425	095	0.9+	0.8-		840205	688	0.4-	0.8+		840306	688	2.6-	1.0-
811103	033	0.2+	0.8-		840205	688	1.4+	1.6-		840306	688	0.6-	0.3+

(3129)* 1979 MK2 = 1943 GL = 1978 ES

Discovered 1979 June 25 by E. Helin and S. J. Bus at Siding Spring. The key identification 1979 MK2 = 1943 GL is by E. Bowell (MPC 8149).

Epoch 1984 Oct. 27.0 ET = JDE 2446000.5

			(1950.0)	P	Q
M	136.19235				
n	0.22248458	Peri.	82.76492	-0.91169265	+0.39755867
a	2.6973425	Node	120.61138	-0.40821175	-0.84774413
e	0.2153088	Incl.	6.92368	-0.04668705	-0.35110821
P	4.43	B(1,0)	13.5		

Residuals in seconds of arc

430406	062	0.4+	0.4+		790625	413	1.4-	1.2+		830419	688	1.0-	1.6-
430406	062	0.4+	0.2+		790721	095	0.7-	1.3+		840731	801	0.8-	0.5-
430408	062	0.4+	0.9+		790724	413	0.5+	0.1+		840824	801	0.9+	0.4+
780305	095	0.3-	1.2+		790727	675	2.1+	0.1-		840826	801	1.7+	1.3-
790623	413	1.7-	0.2+		790823	675	0.8+	0.0		840828	801	0.8-	0.6-
790624	413	0.7-	0.1+		830419	688	0.1+	2.4-					

(3130)* 1981 YO = 1969 TB = 1980 KO1

Discovered 1981 Dec. 20 by A. Mrkos at Klet.

Epoch 1984 Oct. 27.0 ET = JDE 2446000.5

			(1950.0)	P	Q
M	329.35872				
n	0.25443365	Peri.	244.35984	+0.99170514	+0.10826720
a	2.4665297	Node	109.36120	-0.07474076	+0.92422030
e	0.1991542	Incl.	4.21092	-0.10456928	+0.36618989
P	3.87	B(1,0)	14.0		

Residuals in seconds of arc

691008	056	0.1-	1.8+		811219	330	1.2+	0.6+		811228	046	2.2-	0.5-
691008	056	0.4-	1.0+		811220	046	0.9-	0.1-		811228	046	2.1-	0.8-
691017	095	0.6+	3.2-		811220	046	0.3+	0.5+		840630	801	0.8+	0.3+
800517	095	0.1-	0.6-		811222	330	5.2+	0.1-		840726	801	0.6-	0.1+
811201	330	0.3-	1.4+		811225	330	1.4-	0.6-		840824	801	0.5-	0.3-

(3131)* 1982 BM1 = A922 DC = 1975 XS2 = 1977 DB3 = 1979 QJ6

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

Epoch 1984 Oct. 27.0 ET = JDE 2446000.5

M	154.16934		(1950.0)		P		Q				
n	0.19732289	Peri.	147.41100		-0.97778157		+0.20753109				
a	2.9220282	Node	44.59744		-0.20021381		-0.88275654				
e	0.0434135	Incl.	2.41329		-0.06210990		-0.42151124				
P	4.99	B(1,0)	13.0								

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

220225	024(0.04-	0.02+)X	790819	095	0.7-	1.2+	820221	704	1.4-	1.1-
751202	095	0.1-	0.5+	820124	688	0.2-	0.7+	820222	704	1.7-	1.4+
770218	381	0.4+	1.0+	820124	688	0.2+	0.7-	840729	801	1.0+	0.1+
770218	381	0.5+	0.8+	820130	688	3.0+	2.3-	840824	801	0.9-	0.8-
770219	381	0.5-	1.1+	820130	688	0.8-	3.8-	840827	801	0.6+	1.1-
770219	381	1.5+	0.3-	820220	704	1.5-	2.6+	840828	801	0.5+	0.7-
770219	381	0.0	0.9+	820220	688	1.6+	1.5-	840829	801	0.3+	0.4-
770219	381	0.2-	0.5+	820220	688	1.8-	1.8-				

1964 UQ = 1950 JJ = 1951 RC1 = 1955 OB = 1981 UH8 = 1984 LE

The key identification 1964 UQ = 1984 LE is by E. Bowell.

Epoch 1984 Oct. 27.0 ET = JDE 2446000.5 (J-P)

M	345.82334		(1950.0)		P		Q				
n	0.23369476	Peri.	62.77143		+0.54632405		+0.81312932				
a	2.6103832	Node	241.76694		-0.82623566		+0.48387166				
e	0.1173604	Incl.	13.17935		-0.13734867		+0.32355667				
P	4.22	B(1,0)	13.5								

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

500513	760	0.7-	0.2-	641030	330	0.6+	0.1-	840525	071	0.5-	1.3+
500513	760	0.2-	4.7-	641111	330	1.7-	0.4+	840525	071	0.3-	0.7+
510901	094(65.5-	5.7+)X	641127	330	1.0+	1.7-	840601	688	0.0	0.5-	
510902	094(31.0-	18.5+)X	811030	381	0.4+	1.6-	840601	688	1.1+	1.9-	
510907	094(0.04-	0.00+)X	811030	381	0.0	1.9-					
550718	024	0.3+	0.9-	840525	071	0.4-	0.3+				

1979 MM5

Epoch 1984 Oct. 27.0 ET = JDE 2446000.5 (J-P)

M	81.55006		(1950.0)		P		Q				
n	0.25973341	Peri.	126.13588		+0.95365755		-0.29978566				
a	2.4328670	Node	251.32130		+0.26655996		+0.88150779				
e	0.1895789	Incl.	1.56083		+0.13958172		+0.36479112				
P	3.79	B(1,0)	16.5								

Residuals in seconds of arc

790623	413	1.1+	0.9+	790724	413	0.8-	1.1-	810201	801	0.8-	0.4+
790624	413	0.2-	0.1+	790725	675	0.2-	1.1+	810204	801	0.2+	0.1+
790625	413	0.7-	0.1-	790727	675	2.7+	1.6-	830905	801	1.3-	0.0
790629	413	0.4-	0.2-	790823	675	1.0-	1.1-	830909	801	1.0+	0.0
790724	675	0.6-	0.7+	810131	801	0.6+	0.8+	830912	801	0.7-	0.3-

1977 TO3 = 1977 UT1 = 1958 CB = 1982 AG

The double designation 1977 TO3 = 1977 UT1 is by B. G. Marsden.

Epoch 1984 Oct. 27.0 ET = JDE 2446000.5 (J-P)

M	342.34376		(1950.0)		P		Q				
n	0.28566866	Peri.	104.85398		+0.54567848		-0.83723358				
a	2.2832941	Node	312.01822		+0.74914144		+0.50647105				
e	0.0580663	Incl.	2.75476		+0.37552909		+0.20622074				
P	3.45	B(1,0)	14.0								

Residuals in seconds of arc

580211 330	0.2+	0.6+	820115 046	0.6-	0.7+	820118 046	2.3+	1.9-
771010 330	0.2+	1.3+	820115 046	0.6-	0.6-	820118 046	2.3+	0.0
771016 330	2.1+	1.4-	820116 046	2.2-	0.9+			
771020 069	2.4-	0.3+	820116 046	1.4-	0.4+			

1979 SY9 = 1975 TQ5 = 1975 VS7

Epoch 1984 Oct. 27.0 ET = JDE 2446000.5 (J-P)

M	67.23947	(1950.0)		P	Q
n	0.24023752	Peri.	21.68237	+0.72692809	-0.68669783
a	2.5627704	Node	21.68906	+0.62815180	+0.66218456
e	0.1853799	Incl.	0.72115	+0.27749030	+0.29992947
P	4.10	B(1,0)	15.0		

Residuals in seconds of arc

751014 095	1.5-	2.8-	791016 095	3.0-	1.0+	831005 688	2.4+	0.8-
751106 095	0.1+	1.8-	791111 095	2.8+	1.0-	831007 801	0.6-	0.7-
790922 095	2.7-	1.2+	791116 095	3.9+	0.1+	831012 688	0.8+	0.4+
790928 095	1.9-	1.7-	830902 801	2.0-	0.9+	831012 688	3.7+	2.6-

1980 RJ2 = 1972 TD4 = 1984 QP

The identification 1980 RJ2 = 1972 TD4 is by L. D. Schmadel.

Epoch 1984 Oct. 27.0 ET = JDE 2446000.5 (J-P)

M	322.68645	(1950.0)		P	Q
n	0.24133323	Peri.	81.44414	+0.42988507	-0.90228534
a	2.5550074	Node	342.97941	+0.77787950	+0.38860049
e	0.2660189	Incl.	6.44622	+0.45836917	+0.18673733
P	4.08	B(1,0)	13.5		

Residuals in seconds of arc

721005 095	0.4-	1.9+	801008 095	0.7-	0.5-	840829 046	0.6+	1.1+
800907 095	2.2+	1.3-	801012 095	0.2+	0.3-	840829 046	0.3-	1.4+
800908 095	1.3+	1.6-	840828 046	2.2-	0.4+			

1984 AF1 = 1962 CF = 1971 UV2 = 1982 TU2

The identification 1984 AF1 = 1982 TU2 is by D. W. E. Green.

Epoch 1984 Oct. 27.0 ET = JDE 2446000.5 (J-P)

M	124.20590	(1950.0)		P	Q
n	0.17699178	Peri.	297.02619	+0.91997884	-0.36281259
a	3.1417251	Node	84.55770	+0.39117266	+0.82572325
e	0.2715754	Incl.	8.56989	+0.02495772	+0.43191217
P	5.57	B(1,0)	12.5		

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

620204 760(0.04-	0.01-)X		840108 688	0.4+	0.0	840126 688	0.3-	0.3+
711021 095	0.4+	0.8-	840108 688	1.4-	1.4+	840204 688	1.0+	1.7-
821008 330	0.4-	0.7+	840108 688	1.2+	0.2-	840204 688	1.1+	1.2-
840108 688	2.1-	3.3+	840126 688	0.2+	1.0-			

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ORBITAL ELEMENTS BY S. NAKANO, TOKYO.

The following orbital elements are copied from JAM 1693.

A922 WB = 1969 AK = 1978 TF1

The identification A922 WB = 1978 TF1 was found independently by K. Hurukawa (JAM 1693) and E. Bowell. The identification A922 WB = 1969 AK is by S. Nakano (JAM 1693).

Epoch 1984 Oct. 27.0 ET = JDE 2446000.5 (J-P)

M 203.94562		(1950.0)	P	Q
n 0.27947007	Peri.	91.34483	+0.38764335	-0.91998061
a 2.3169325	Node	335.59248	+0.77996679	+0.36090094
e 0.0919813	Incl.	8.07386	+0.49130891	+0.15292541
P 3.53	B(1,0)	14.1		

Residuals in seconds of arc

221125	754	1.3+	0.2-	221214	024	1.9-	0.9+	690115	095	0.2-	1.1-
221129	754	3.6-	1.2+	221216	754	4.9+	0.8+	781002	095	0.4+	0.1-
221202	754	1.5-	0.3-	221221	024	0.9-	2.9-	781008	095	0.1+	0.5-
221210	754	0.0	0.0	221223	754	1.7+	1.8+				

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ORBITAL ELEMENTS BY K. HURUKAWA, TOKYO ASTRONOMICAL OBSERVATORY.

1973 SW4 = 1973 UJ4 = 1969 TY2

The double designation 1973 SW4 = 1973 UJ4 is by B. G. Marsden (MPC 9064). The identification 1973 SW4 = 1969 TY2 is by K. Hurukawa.

Epoch 1984 Oct. 27.0 ET = JDE 2446000.5 (J-P)

M 325.13447		(1950.0)	P	Q
n 0.25664352	Peri.	61.54754	+0.96937132	-0.24242665
a 2.4523552	Node	312.45273	+0.20251973	+0.87965406
e 0.1491040	Incl.	3.05728	+0.13895247	+0.40919195
P 3.84	B(1,0)	14.3		

Residuals in seconds of arc

691009	095	1.0-	0.7+	730927	095	2.5-	0.1-	731029	095	0.1-	0.3-
691011	095	1.1+	0.9-	730928	095	2.5+	0.7+				

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EPHEMERIDES.

(3122) 1981 ET3 a,e,i = 1.77, 0.42, 22 Elements MPC 9155

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984 10 07		18 17.08	-11 37.4	0.451	1.030	81.0	73.3	15.5
1984 10 12		18 32.40	-06 45.7					
1984 10 17		18 47.59	-01 53.7	0.454	1.022	80.1	73.9	15.5
1984 10 22		19 02.72	+02 54.7					
1984 10 27		19 17.92	+07 36.4	0.465	1.025	80.5	72.9	15.6
1984 11 01		19 33.30	+12 08.7					
1984 11 06		19 48.99	+16 29.5	0.483	1.040	82.0	70.6	15.6
1984 11 11		20 05.14	+20 37.1					
1984 11 16		20 21.93	+24 30.4	0.507	1.066	84.4	67.4	15.7
1984 11 21		20 39.55	+28 08.5					
1984 11 26		20 58.19	+31 31.1	0.536	1.102	87.4	63.5	15.8
1984 12 01		21 17.98	+34 37.6					
1984 12 06		21 39.03	+37 27.3	0.571	1.145	90.7	59.4	15.9
1984 12 11		22 01.41	+39 59.2					
1984 12 16		22 25.12	+42 12.3	0.612	1.194	93.9	55.3	16.1
1984 12 21		22 50.10	+44 05.7					
1984 12 26		23 16.17	+45 38.7	0.663	1.248	96.6	51.5	16.3
1984 12 31		23 43.04	+46 51.2					
1985 01 05		00 10.36	+47 43.1	0.723	1.304	98.5	48.2	16.5
1985 01 10		00 37.73	+48 15.3					
1985 01 15		01 04.77	+48 29.0	0.796	1.363	99.4	45.4	16.7
1985 01 20		01 31.16	+48 26.4					
1985 01 25		01 56.63	+48 09.8	0.882	1.423	99.2	43.1	17.0
1985 01 30		02 21.00	+47 41.6					

1985 02 04	02 44.16	+47 04.2	0.981	1.483	97.9	41.2	17.3
1985 02 09	03 06.08	+46 19.6					
1985 02 14	03 26.79	+45 29.6	1.091	1.543	95.7	39.5	17.5
1985 02 19	03 46.37	+44 35.9					
1985 02 24	04 04.88	+43 39.7	1.213	1.603	92.8	38.1	17.8
1985 03 01	04 22.43	+42 41.9					
1985 03 06	04 39.09	+41 43.2	1.344	1.661	89.3	36.7	18.1
1985 03 11	04 54.95	+40 44.2					
1985 03 16	05 10.08	+39 45.0	1.483	1.718	85.4	35.3	18.3
1985 03 21	05 24.58	+38 46.1					
1985 03 26	05 38.50	+37 47.4	1.628	1.773	81.1	33.8	18.6
1985 03 31	05 51.90	+36 49.2					
1985 04 05	06 04.84	+35 51.3	1.777	1.827	76.7	32.2	18.8
1985 04 10	06 17.34	+34 53.8					
1985 04 15	06 29.45	+33 56.6	1.927	1.878	72.0	30.5	19.0
1985 04 20	06 41.22	+32 59.6					
1985 04 25	06 52.66	+32 02.8	2.078	1.928	67.3	28.8	19.2
1985 04 30	07 03.81	+31 06.1					
1985 05 05	07 14.68	+30 09.5	2.227	1.976	62.5	26.9	19.3
1985 05 10	07 25.29	+29 12.9					
1985 05 15	07 35.66	+28 16.2	2.374	2.022	57.7	25.0	19.5

1971 SC a,e,i = 2.20, 0.39, 12 Elements MPC 9157

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984 10 07	23 31.28	-15 40.0	0.408	1.371	151.5	20.4	15.7
1984 10 17	23 44.03	-17 40.0					
1984 10 27	23 57.70	-18 18.4	0.526	1.420	136.1	29.0	16.5
1984 11 06	00 12.25	-17 51.6					
1984 11 16	00 27.48	-16 36.9	0.687	1.488	124.1	33.4	17.3
1984 11 26	00 43.27	-14 48.8					
1984 12 06	00 59.57	-12 38.4	0.886	1.568	113.8	35.1	18.0
1984 12 16	01 16.27	-10 15.0					
1984 12 26	01 33.34	-07 44.9	1.117	1.658	104.1	35.1	18.6
1985 01 05	01 50.76	-05 13.2					
1985 01 15	02 08.49	-02 43.7	1.376	1.754	94.5	34.0	19.2
1985 01 25	02 26.51	-00 19.1					
1985 02 04	02 44.82	+01 58.5	1.657	1.851	84.9	32.0	19.7
1985 02 14	03 03.38	+04 07.4					
1985 02 24	03 22.16	+06 06.6	1.950	1.949	75.3	29.4	20.1

Periodic Comet Tsuchinshan 2 Elements MPC 7658

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	m2
1984 10 07	02 20.83	+24 04.1	2.013	2.928	151.1	9.5	20.7
1984 10 17	02 13.51	+23 43.3					
1984 10 27	02 04.77	+23 05.8	1.841	2.824	169.5	3.7	20.3
1984 11 06	01 55.56	+22 14.0					
1984 11 16	01 46.96	+21 12.9	1.780	2.719	157.1	8.1	20.1
1984 11 26	01 39.96	+20 09.3					
1984 12 06	01 35.36	+19 10.5	1.823	2.613	134.9	15.5	20.0
1984 12 16	01 33.56	+18 22.6					
1984 12 26	01 34.71	+17 49.1	1.938	2.509	114.3	20.9	19.9
1985 01 05	01 38.75	+17 31.7					
1985 01 15	01 45.48	+17 30.1	2.088	2.406	96.4	24.0	19.9
1985 01 25	01 54.67	+17 43.0					
1985 02 04	02 06.11	+18 08.3	2.243	2.305	81.0	25.0	19.9
1985 02 14	02 19.56	+18 43.5					
1985 02 24	02 34.87	+19 26.1	2.385	2.208	67.7	24.5	19.8
1985 03 06	02 51.89	+20 13.2					
1985 03 16	03 10.48	+21 02.0	2.503	2.116	56.1	23.0	19.7

1985 03 26	03 30.56	+21 49.9					
1985 04 05	03 52.03	+22 34.1	2.594	2.032	46.1	20.8	19.6
1985 04 15	04 14.78	+23 11.9					
1985 04 25	04 38.71	+23 40.7	2.661	1.957	37.2	18.1	19.5
1985 05 05	05 03.68	+23 57.9					
1985 05 15	05 29.54	+24 01.5	2.708	1.894	29.4	15.2	19.4
1985 05 25	05 56.12	+23 49.7					

1983 TB a,e,i = 1.27, 0.89, 22 Elements MPC 9158

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984 10 07	06 18.20	+34 47.4	1.486	1.922	99.4	30.9	19.0
1984 10 12	06 21.84	+35 03.4					
1984 10 17	06 24.75	+35 21.5	1.278	1.845	107.7	31.0	18.6
1984 10 22	06 26.77	+35 42.2					
1984 10 27	06 27.67	+36 05.9	1.073	1.761	116.8	30.3	18.1
1984 11 01	06 27.16	+36 33.3					
1984 11 06	06 24.84	+37 05.0	0.872	1.668	126.9	28.4	17.5
1984 11 11	06 20.15	+37 41.2					
1984 11 16	06 12.25	+38 21.9	0.682	1.566	138.5	24.7	16.7
1984 11 21	05 59.87	+39 05.3					
1984 11 26	05 41.18	+39 46.4	0.507	1.455	152.2	18.5	15.8
1984 12 01	05 13.52	+40 11.5					
1984 12 06	04 33.56	+39 49.5	0.359	1.331	162.3	13.0	14.7
1984 12 11	03 38.81	+37 37.0					
1984 12 16	02 31.92	+32 06.1	0.262	1.195	139.3	32.5	14.2
1984 12 21	01 23.44	+22 46.8					
1984 12 26	00 24.43	+11 40.3	0.253	1.042	96.3	69.8	14.7
1984 12 31	23 38.17	+01 34.1					
1985 01 05	23 02.19	-06 24.4	0.324	0.868	60.1	101.0	15.6
1985 01 10	22 32.81	-12 27.0					
1985 01 15	22 06.96	-17 02.6	0.435	0.667	33.8	125.0	16.2

Comet Austin (1984i) Elements MPC 9154

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	m1
1984 10 07	06 52.36	+44 46.7	0.890	1.375	93.2	46.5	8.6
1984 10 12	06 10.35	+47 32.6					
1984 10 17	05 18.48	+49 15.7	0.820	1.555	117.4	34.7	9.0
1984 10 22	04 20.65	+49 15.6					
1984 10 27	03 24.55	+47 19.1	0.835	1.727	141.4	21.0	9.5
1984 11 01	02 36.93	+43 54.0					
1984 11 06	02 00.00	+39 48.3	0.950	1.893	154.2	13.2	10.2
1984 11 11	01 32.64	+35 41.7					
1984 11 16	01 12.72	+31 56.7	1.148	2.053	147.7	14.9	10.9
1984 11 26	00 47.91	+25 57.0					
1984 12 06	00 35.38	+21 48.2	1.685	2.358	121.8	20.8	12.4
1984 12 16	00 29.83	+19 01.4					
1984 12 26	00 28.53	+17 12.0	2.304	2.647	99.3	21.5	13.5
1985 01 05	00 29.98	+16 02.9					
1985 01 15	00 33.26	+15 22.3	2.935	2.922	79.6	19.3	14.5
1985 01 25	00 37.82	+15 02.5					
1985 02 04	00 43.24	+14 58.0	3.535	3.187	61.6	15.8	15.3
1985 02 14	00 49.27	+15 04.8					
1985 02 24	00 55.70	+15 20.0	4.076	3.442	44.6	11.6	15.9

1983 SA a,e,i = 4.23, 0.71, 31 Elements MPC 8678

Date ET	R. A. (1950)	Decl.	Delta	r	Variation		Mag.
1984 10 07	06 53.15	+55 19.9	4.080	4.265	-0.41	+1.3	21.0
1984 10 17	06 55.15	+56 27.0					

1984 10 27	06 54.24	+57 35.8	3.942	4.382	-0.45	+1.6	21.0
1984 11 06	06 50.10	+58 42.9					
1984 11 16	06 42.63	+59 44.2	3.845	4.495	-0.53	+1.6	20.9
1984 11 26	06 31.97	+60 34.2					
1984 12 06	06 18.69	+61 07.4	3.824	4.606	-0.62	+1.3	20.9
1984 12 16	06 03.87	+61 19.8					
1984 12 26	05 48.85	+61 09.6	3.900	4.713	-0.67	+0.8	21.0
1985 01 05	05 35.05	+60 38.2					
1985 01 15	05 23.54	+59 49.7	4.081	4.818	-0.64	+0.1	21.2
1985 01 25	05 14.94	+58 49.1					
1985 02 04	05 09.46	+57 42.1	4.354	4.919	-0.57	-0.2	21.4
1985 02 14	05 06.96	+56 33.4					
1985 02 24	05 07.14	+55 26.1	4.690	5.018	-0.50	-0.4	21.6
1985 03 06	05 09.64	+54 22.8					
1985 03 16	05 14.10	+53 24.5	5.058	5.114	-0.43	-0.3	21.8

Comet Meier (1984o) Elements MPC 9154

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	m1
1984 12 06	13 38.51	-17 39.8	1.776	1.280	44.8	32.8	13.8
1984 12 16	13 22.83	-20 57.1					
1984 12 26	13 01.25	-24 26.6	1.542	1.537	71.1	37.3	14.3
1985 01 05	12 30.73	-27 58.4					
1985 01 15	11 48.28	-31 01.7	1.321	1.799	101.6	32.4	14.7
1985 01 25	10 53.67	-32 37.4					
1985 02 04	09 53.50	-31 47.1	1.279	2.061	130.6	21.3	15.2
1985 02 14	08 59.08	-28 37.4					
1985 02 24	08 17.51	-24 19.3	1.521	2.317	133.6	18.0	16.1
1985 03 06	07 49.04	-20 01.8					
1985 03 16	07 30.80	-16 18.2	1.977	2.568	115.6	20.4	17.1
1985 03 26	07 19.85	-13 15.5					
1985 04 05	07 13.99	-10 50.6	2.528	2.813	96.0	20.7	18.0
1985 04 15	07 11.67	-08 57.6					
1985 04 25	07 11.87	-07 30.7	3.096	3.053	78.2	18.8	18.8
1985 05 05	07 13.85	-06 25.5					
1985 05 15	07 17.10	-05 38.3	3.635	3.286	62.1	15.8	19.5

Periodic Comet Smirnova-Chernykh Elements NK 445

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	m2
1984 12 06	14 38.08	-11 22.3	4.477	3.691	33.1	8.4	18.9
1984 12 16	14 49.66	-12 17.4					
1984 12 26	15 00.82	-13 07.2	4.302	3.709	47.5	11.3	18.9
1985 01 05	15 11.41	-13 51.5					
1985 01 15	15 21.31	-14 30.2	4.076	3.728	62.6	13.6	18.8
1985 01 25	15 30.35	-15 03.1					
1985 02 04	15 38.36	-15 30.3	3.813	3.747	78.7	14.9	18.6
1985 02 14	15 45.16	-15 52.0					
1985 02 24	15 50.57	-16 08.1	3.535	3.767	95.8	15.1	18.5
1985 03 06	15 54.40	-16 19.0					
1985 03 16	15 56.52	-16 24.9	3.268	3.788	114.4	13.8	18.4
1985 03 26	15 56.81	-16 26.2					
1985 04 05	15 55.25	-16 23.2	3.042	3.810	134.4	10.8	18.2
1985 04 15	15 51.94	-16 16.5					
1985 04 25	15 47.10	-16 06.9	2.892	3.832	155.8	6.2	18.1
1985 05 05	15 41.13	-15 55.3					
1985 05 15	15 34.52	-15 43.2	2.845	3.854	176.3	1.0	18.1
1985 05 25	15 27.85	-15 32.1					
1985 06 04	15 21.71	-15 23.8	2.913	3.878	159.0	5.4	18.2
1985 06 14	15 16.56	-15 19.8					
1985 06 24	15 12.76	-15 21.1	3.086	3.901	137.9	10.1	18.4

1985 07 04	15 10.56	-15 28.5						
1985 07 14	15 10.02	-15 42.0	3.339	3.925	118.4	13.2	18.6	
1985 07 24	15 11.14	-16 01.4						
1985 08 03	15 13.85	-16 26.2	3.638	3.949	100.4	14.6	18.8	
1985 08 13	15 18.03	-16 55.4						
1985 08 23	15 23.56	-17 28.2	3.956	3.973	83.7	14.7	19.0	
1985 09 02	15 30.30	-18 03.7						
1985 09 12	15 38.11	-18 40.8	4.265	3.998	68.0	13.5	19.2	
1985 09 22	15 46.88	-19 18.9						
1985 10 02	15 56.49	-19 56.9	4.546	4.023	52.9	11.4	19.3	
1985 10 12	16 06.81	-20 34.2						
1985 10 22	16 17.77	-21 10.0	4.782	4.048	38.2	8.8	19.5	

1982 RA a,e,i = 1.57, 0.28, 33 Elements MPC 9029

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984 12 06	20 10.73	+52 10.9	0.670	1.158	86.6	58.1	17.1
1984 12 16	20 33.57	+55 51.4					
1984 12 26	21 05.86	+59 48.2	0.698	1.207	90.1	54.6	17.2
1985 01 05	21 52.42	+63 50.2					
1985 01 15	23 00.28	+67 20.5	0.714	1.271	95.6	50.4	17.2
1985 01 25	00 33.08	+69 07.9					
1985 02 04	02 15.94	+67 58.8	0.755	1.346	100.4	46.1	17.4
1985 02 14	03 43.04	+63 57.1					
1985 02 24	04 46.95	+58 16.8	0.856	1.426	100.9	43.0	17.7

Comet Shoemaker (1984f) Elements MPC 9154

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	m1.
1984 12 26	15 59.77	-14 41.5	4.501	3.721	33.5	8.4	13.0
1985 01 05	16 04.08	-16 03.6					
1985 01 15	16 07.72	-17 28.2	4.125	3.590	51.1	12.3	12.6
1985 01 25	16 10.42	-18 56.8					
1985 02 04	16 11.80	-20 31.1	3.678	3.465	69.8	15.5	12.2
1985 02 14	16 11.45	-22 13.2					
1985 02 24	16 08.79	-24 05.1	3.193	3.344	90.1	17.2	11.8
1985 03 06	16 03.08	-26 08.6					
1985 03 16	15 53.45	-28 24.4	2.718	3.231	112.4	16.5	11.3
1985 03 26	15 38.83	-30 50.2					
1985 04 05	15 18.17	-33 18.6	2.320	3.125	136.7	12.7	10.8
1985 04 15	14 50.89	-35 34.8					
1985 04 25	14 17.59	-37 17.6	2.083	3.027	155.6	7.9	10.4
1985 05 05	13 40.76	-38 07.4					
1985 05 15	13 04.29	-37 58.2	2.063	2.940	143.9	11.7	10.3
1985 05 25	12 31.87	-37 02.3					
1985 06 04	12 05.50	-35 42.4	2.237	2.864	118.6	18.1	10.3
1985 06 14	11 45.40	-34 19.6					
1985 06 24	11 30.82	-33 07.9	2.519	2.801	95.3	21.2	10.5
1985 07 04	11 20.70	-32 14.7					
1985 07 14	11 14.02	-31 42.1	2.824	2.752	75.6	21.0	10.7
1985 07 24	11 09.94	-31 30.5					
1985 08 03	11 07.77	-31 39.1	3.092	2.718	59.4	18.7	10.8
1985 08 13	11 06.98	-32 06.4					
1985 08 23	11 07.15	-32 51.7	3.288	2.700	46.9	15.9	10.9
1985 09 02	11 07.89	-33 54.1					
1985 09 12	11 08.88	-35 13.0	3.394	2.698	39.8	13.8	11.0

Periodic Comet Schwassmann-Wachmann 1 Elements MPC 4830

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	m2
1985 01 15	16 21.19	-29 36.1	6.811	6.174	46.4	6.6	(19.6)
1985 01 25	16 28.08	-29 58.0					

1985 02 04	16 34.30	-30 18.7	6.544	6.168	63.5	8.2	(19.5)
1985 02 14	16 39.72	-30 38.2					
1985 02 24	16 44.23	-30 56.6	6.234	6.162	81.3	9.1	(19.4)
1985 03 06	16 47.69	-31 13.6					
1985 03 16	16 50.03	-31 29.2	5.909	6.157	99.8	9.2	(19.3)
1985 03 26	16 51.15	-31 42.9					
1985 04 05	16 51.02	-31 54.3	5.603	6.151	119.0	8.2	(19.1)
1985 04 15	16 49.63	-32 02.9					
1985 04 25	16 47.07	-32 08.1	5.351	6.145	138.9	6.2	(19.0)
1985 05 05	16 43.46	-32 09.2					
1985 05 15	16 39.04	-32 05.8	5.186	6.139	158.6	3.4	(19.0)
1985 05 25	16 34.07	-31 57.7					
1985 06 04	16 28.89	-31 45.2	5.132	6.133	169.9	1.7	(18.9)
1985 06 14	16 23.84	-31 28.7					
1985 06 24	16 19.24	-31 09.5	5.193	6.127	154.6	4.1	(18.9)
1985 07 04	16 15.39	-30 48.6					
1985 07 14	16 12.49	-30 27.4	5.360	6.121	135.0	6.7	(19.0)
1985 07 24	16 10.70	-30 07.2					
1985 08 03	16 10.10	-29 48.9	5.606	6.115	115.7	8.6	(19.1)
1985 08 13	16 10.69	-29 33.1					
1985 08 23	16 12.47	-29 20.4	5.900	6.109	97.1	9.5	(19.2)
1985 09 02	16 15.37	-29 10.9					
1985 09 12	16 19.31	-29 04.3	6.207	6.102	79.4	9.3	(19.3)
1985 09 22	16 24.22	-29 00.6					
1985 10 02	16 29.99	-28 59.2	6.497	6.096	62.3	8.4	(19.4)
1985 10 12	16 36.53	-28 59.8					
1985 10 22	16 43.73	-29 01.9	6.744	6.090	45.6	6.7	(19.5)

Periodic Comet Ashbrook-Jackson Elements TITA 18

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	m2
1985 01 15	17 34.34	-32 59.4	4.127	3.325	31.2	8.8	19.8
1985 01 25	17 50.78	-33 20.3					
1985 02 04	18 07.13	-33 37.5	3.884	3.249	44.1	12.2	19.6
1985 02 14	18 23.27	-33 51.4					
1985 02 24	18 39.06	-34 02.6	3.596	3.173	57.3	15.2	19.3
1985 03 06	18 54.38	-34 11.8					
1985 03 16	19 09.07	-34 19.9	3.278	3.097	70.8	17.7	19.0
1985 03 26	19 22.97	-34 28.1					
1985 04 05	19 35.89	-34 37.6	2.944	3.022	84.8	19.2	18.6
1985 04 15	19 47.66	-34 49.8					
1985 04 25	19 58.02	-35 06.1	2.611	2.947	99.4	19.7	18.3
1985 05 05	20 06.71	-35 27.8					
1985 05 15	20 13.46	-35 55.8	2.296	2.874	115.0	18.6	17.9
1985 05 25	20 17.94	-36 30.5					
1985 06 04	20 19.84	-37 11.1	2.022	2.803	131.9	15.6	17.5
1985 06 14	20 18.94	-37 55.5					
1985 06 24	20 15.14	-38 39.6	1.811	2.734	149.1	11.0	17.2
1985 07 04	20 08.66	-39 17.4					
1985 07 14	20 00.12	-39 42.7	1.685	2.667	161.0	7.1	16.9
1985 07 24	19 50.52	-39 49.4					
1985 08 03	19 41.19	-39 34.5	1.657	2.604	153.5	10.0	16.8
1985 08 13	19 33.42	-38 58.4					
1985 08 23	19 28.20	-38 04.2	1.718	2.546	136.1	16.0	16.7
1985 09 02	19 26.14	-36 56.5					
1985 09 12	19 27.36	-35 39.6	1.849	2.492	118.5	20.8	16.8
1985 09 22	19 31.75	-34 16.6					
1985 10 02	19 38.99	-32 49.3	2.023	2.443	102.5	23.6	16.9
1985 10 12	19 48.68	-31 18.3					
1985 10 22	20 00.45	-29 43.5	2.218	2.401	88.2	24.5	17.0

1985 11 01	20 13.90	-28 04.5						
1985 11 11	20 28.70	-26 20.6	2.418	2.366	75.1	23.9	17.2	
1985 11 21	20 44.57	-24 31.2						
1985 12 01	21 01.24	-22 36.0	2.613	2.339	63.1	22.1	17.3	
1985 12 11	21 18.52	-20 34.8						
1985 12 21	21 36.24	-18 27.6	2.794	2.320	51.9	19.5	17.4	
1985 12 31	21 54.24	-16 14.8						
1986 01 10	22 12.44	-13 56.9	2.957	2.309	41.2	16.3	17.5	
1986 01 20	22 30.75	-11 34.4						
1986 01 30	22 49.11	-09 08.3	3.096	2.307	30.9	12.7	17.6	

Periodic Comet Giacobini-Zinner (1984e) Elements MPC 8289

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	m2
1985 02 04	17 32.55	-01 50.6	3.103	2.664	55.0	17.7	20.6
1985 02 14	17 48.53	-00 44.9					
1985 02 24	18 04.65	+00 38.1	2.733	2.500	66.0	21.2	20.3
1985 03 06	18 20.86	+02 19.7					
1985 03 16	18 37.15	+04 21.5	2.358	2.331	76.2	24.5	19.9
1985 03 26	18 53.50	+06 45.0					
1985 04 05	19 09.92	+09 31.5	1.996	2.156	85.1	27.5	19.5
1985 04 15	19 26.44	+12 42.4					
1985 04 25	19 43.13	+16 18.6	1.663	1.976	92.2	30.6	19.0
1985 05 05	20 00.13	+20 20.0					
1985 05 15	20 17.69	+24 46.0	1.370	1.794	96.6	34.0	18.5
1985 05 25	20 36.16	+29 34.6					
1985 06 04	20 56.16	+34 41.6	1.123	1.610	97.7	38.6	17.9
1985 06 14	21 18.74	+40 01.4					
1985 06 24	21 45.50	+45 25.1	0.918	1.431	95.3	45.0	17.4
1985 07 04	22 19.21	+50 39.0					
1985 07 14	23 04.18	+55 20.9	0.745	1.266	90.6	53.4	17.0
1985 07 24	00 05.80	+58 47.7					
1985 08 03	01 26.24	+59 42.4	0.598	1.130	84.8	63.4	16.6
1985 08 13	02 54.98	+56 30.5					
1985 08 23	04 13.01	+48 28.1	0.492	1.045	80.1	72.3	16.2
1985 09 02	05 12.18	+36 26.8					
1985 09 12	05 55.35	+22 31.3	0.472	1.033	79.8	73.5	16.1
1985 09 22	06 27.13	+08 57.9					
1985 10 02	06 50.69	-02 48.4	0.547	1.096	84.8	65.4	16.4
1985 10 12	07 07.72	-12 28.2					
1985 10 22	07 18.83	-20 14.8	0.666	1.218	92.1	54.8	16.7
1985 11 01	07 24.27	-26 26.2					
1985 11 11	07 24.11	-31 16.1	0.788	1.375	100.7	45.0	17.0
1985 11 21	07 18.56	-34 49.0					
1985 12 01	07 08.41	-37 04.6	0.908	1.551	109.9	36.7	17.3
1985 12 11	06 55.10	-38 01.6					
1985 12 21	06 40.64	-37 41.1	1.040	1.734	117.9	30.1	17.7
1985 12 31	06 27.23	-36 11.3					
1986 01 10	06 16.45	-33 46.6	1.205	1.917	122.0	25.8	18.1
1986 01 20	06 09.21	-30 44.4					
1986 01 30	06 05.70	-27 22.5	1.422	2.098	120.2	23.9	18.6
1986 02 09	06 05.62	-23 55.8					
1986 02 19	06 08.52	-20 35.0	1.695	2.274	113.2	23.5	19.1
1986 03 01	06 13.89	-17 27.8					
1986 03 11	06 21.24	-14 38.1	2.018	2.445	103.2	23.3	19.7
1986 03 21	06 30.17	-12 08.1					
1986 03 31	06 40.32	-09 58.4	2.378	2.611	92.0	22.5	20.1
1986 04 10	06 51.41	-08 08.5					
1986 04 20	07 03.21	-06 37.6	2.757	2.771	80.3	20.9	20.5

Comet Shoemaker (1983p) Elements MPC 8387

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	m2
1985 02 04	19 47.64	-55 27.9	5.856	5.165	42.0	7.3	19.0
1985 02 14	19 53.40	-56 09.7					
1985 02 24	19 58.44	-57 01.4	5.794	5.293	55.3	8.8	19.1
1985 03 06	20 02.49	-58 03.5					
1985 03 16	20 05.23	-59 16.3	5.669	5.422	70.7	10.0	19.1
1985 03 26	20 06.26	-60 39.8					
1985 04 05	20 05.08	-62 13.3	5.513	5.552	87.0	10.4	19.2
1985 04 15	20 01.07	-63 55.0					
1985 04 25	19 53.45	-65 42.2	5.366	5.682	103.3	9.9	19.2
1985 05 05	19 41.28	-67 30.1					
1985 05 15	19 23.66	-69 12.1	5.270	5.814	118.0	8.8	19.3
1985 05 25	18 59.96	-70 39.6					
1985 06 04	18 30.49	-71 42.9	5.262	5.945	128.4	7.7	19.3
1985 06 14	17 57.10	-72 13.9					
1985 06 24	17 23.08	-72 09.0	5.364	6.078	130.9	7.3	19.5
1985 07 04	16 52.01	-71 30.8					
1985 07 14	16 26.24	-70 27.3	5.579	6.210	124.4	7.8	19.7
1985 07 24	16 06.53	-69 08.1					
1985 08 03	15 52.49	-67 41.9	5.889	6.343	112.2	8.5	19.9
1985 08 13	15 43.23	-66 15.7					
1985 08 23	15 37.84	-64 54.0	6.263	6.476	97.7	8.9	20.1
1985 09 02	15 35.47	-63 39.9					
1985 09 12	15 35.46	-62 34.9	6.664	6.609	82.5	8.7	20.3
1985 09 22	15 37.30	-61 39.8					
1985 10 02	15 40.55	-60 54.7	7.055	6.742	67.8	7.9	20.5

Comet Cernis (1983l) Elements MPC 8272

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	m2
1985 02 04	21 18.46	-57 31.9	6.688	5.981	41.1	6.2	18.9
1985 02 14	21 24.77	-57 33.0					
1985 02 24	21 30.91	-57 43.6	6.715	6.114	49.2	7.0	19.0
1985 03 06	21 36.68	-58 04.2					
1985 03 16	21 41.91	-58 35.4	6.666	6.248	61.2	8.0	19.1
1985 03 26	21 46.39	-59 17.3					
1985 04 05	21 49.88	-60 10.2	6.564	6.381	75.2	8.7	19.1
1985 04 15	21 52.12	-61 13.9					
1985 04 25	21 52.76	-62 27.8	6.437	6.515	90.0	8.9	19.2
1985 05 05	21 51.40	-63 50.8					
1985 05 15	21 47.55	-65 20.8	6.321	6.648	104.6	8.5	19.2
1985 05 25	21 40.63	-66 54.9					
1985 06 04	21 30.00	-68 28.9	6.252	6.782	117.6	7.6	19.3
1985 06 14	21 15.10	-69 57.6					
1985 06 24	20 55.60	-71 14.7	6.261	6.916	126.6	6.8	19.4
1985 07 04	20 31.81	-72 13.6					
1985 07 14	20 04.98	-72 49.0	6.368	7.049	128.8	6.5	19.5
1985 07 24	19 37.21	-72 58.2					
1985 08 03	19 10.97	-72 42.0	6.577	7.183	123.2	6.8	19.7
1985 08 13	18 48.23	-72 04.6					
1985 08 23	18 30.01	-71 12.0	6.874	7.316	112.2	7.4	19.8
1985 09 02	18 16.46	-70 10.2					
1985 09 12	18 07.17	-69 04.4	7.233	7.449	98.5	7.7	20.0
1985 09 22	18 01.53	-67 58.4					
1985 10 02	17 58.90	-66 55.0	7.622	7.582	83.9	7.5	20.2
1985 10 12	17 58.68	-65 56.1					
1985 10 22	18 00.40	-65 02.7	8.007	7.714	69.5	6.9	20.4
1985 11 01	18 03.64	-64 15.4					
1985 11 11	18 08.04	-63 34.5	8.356	7.846	56.1	6.0	20.6

1980 RJ2 a,e,i = 2.56, 0.27, 6 Elements MPC 9161

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984	09 17	23 08.26	-04 01.2	1.217	2.217	172.6	3.3	15.6
1984	09 27	22 58.60	-04 22.3					
1984	10 07	22 50.73	-04 35.3	1.243	2.161	148.8	13.9	16.0
1984	10 17	22 45.64	-04 35.9					
1984	10 27	22 43.83	-04 21.7	1.350	2.107	127.4	22.0	16.3
1984	11 06	22 45.43	-03 51.6					
1984	11 16	22 50.25	-03 05.9	1.505	2.057	109.4	27.0	16.6
1984	11 26	22 57.95	-02 05.4					
1984	12 06	23 08.17	-00 51.1	1.683	2.011	94.2	29.3	16.8
1984	12 16	23 20.53	+00 35.5					
1984	12 26	23 34.71	+02 13.2	1.864	1.970	81.2	29.6	17.0
1985	01 05	23 50.47	+04 00.3					
1985	01 15	00 07.58	+05 55.1	2.039	1.935	69.9	28.5	17.1
1985	01 25	00 25.89	+07 56.0					
1985	02 04	00 45.29	+10 00.8	2.203	1.908	59.8	26.5	17.2
1985	02 14	01 05.69	+12 07.6					
1985	02 24	01 27.03	+14 14.3	2.353	1.889	50.7	23.9	17.3

1977 TO3 a,e,i = 2.28, 0.06, 3 Elements MPC 9160

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984	09 17	02 48.03	+20 26.4	1.401	2.169	128.0	21.4	16.9
1984	09 27	02 46.74	+20 41.4					
1984	10 07	02 42.05	+20 39.5	1.246	2.163	148.7	13.9	16.5
1984	10 17	02 34.36	+20 19.5					
1984	10 27	02 24.60	+19 42.2	1.170	2.158	171.4	4.0	16.0
1984	11 06	02 14.22	+18 52.2					
1984	11 16	02 04.83	+17 57.4	1.194	2.154	161.3	8.5	16.2
1984	11 26	01 57.75	+17 06.6					
1984	12 06	01 53.85	+16 27.6	1.312	2.152	138.5	17.7	16.7
1984	12 16	01 53.39	+16 04.8					
1984	12 26	01 56.27	+15 59.4	1.499	2.151	118.6	23.7	17.1
1985	01 05	02 02.20	+16 10.7					
1985	01 15	02 10.78	+16 36.2	1.723	2.151	101.8	26.6	17.5
1985	01 25	02 21.65	+17 13.2					
1985	02 04	02 34.46	+17 58.7	1.962	2.153	87.3	27.2	17.8
1985	02 14	02 48.92	+18 49.7					
1985	02 24	03 04.82	+19 43.5	2.200	2.157	74.5	26.2	18.0

1979 MM5 a,e,i = 2.43, 0.19, 2 Elements MPC 9160

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984	12 06	10 17.19	+08 58.2	2.159	2.533	100.6	22.5	20.7
1984	12 16	10 21.33	+08 25.7					
1984	12 26	10 22.92	+08 07.2	1.942	2.571	119.4	19.5	20.4
1985	01 05	10 21.78	+08 04.5					
1985	01 15	10 17.85	+08 18.1	1.770	2.608	140.9	13.7	20.1
1985	01 25	10 11.34	+08 47.3					
1985	02 04	10 02.81	+09 28.9	1.679	2.644	165.0	5.5	19.8
1985	02 14	09 53.14	+10 18.0					
1985	02 24	09 43.43	+11 08.6	1.698	2.677	169.3	4.0	19.8
1985	03 06	09 34.82	+11 54.6					
1985	03 16	09 28.17	+12 31.9	1.829	2.708	145.4	12.0	20.3
1985	03 26	09 23.99	+12 58.0					
1985	04 05	09 22.49	+13 11.9	2.047	2.737	124.2	17.6	20.6
1985	04 15	09 23.55	+13 13.8					
1985	04 25	09 26.95	+13 04.3	2.317	2.764	105.7	20.5	21.0
1985	05 05	09 32.39	+12 44.2					
1985	05 15	09 39.54	+12 14.6	2.608	2.788	89.5	21.3	21.3

1979 SY9 a,e,i = 2.56, 0.19, 1 Elements MPC 9161

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984 12 06	11 03.40	+06 47.1	2.356	2.542	89.2	22.8	19.4
1984 12 16	11 10.75	+06 02.6					
1984 12 26	11 16.01	+05 30.8	2.128	2.582	106.2	21.5	19.2
1985 01 05	11 18.93	+05 13.8					
1985 01 15	11 19.30	+05 12.7	1.922	2.621	125.7	17.7	18.9
1985 01 25	11 16.97	+05 28.4					
1985 02 04	11 12.06	+05 59.9	1.771	2.659	148.0	11.3	18.6
1985 02 14	11 04.93	+06 44.3					
1985 02 24	10 56.27	+07 36.8	1.712	2.696	172.4	2.8	18.3
1985 03 06	10 47.08	+08 30.9					
1985 03 16	10 38.40	+09 20.0	1.765	2.731	162.8	6.2	18.5
1985 03 26	10 31.18	+09 59.3					
1985 04 05	10 26.07	+10 25.3	1.925	2.766	139.8	13.5	18.9
1985 04 15	10 23.38	+10 37.1					
1985 04 25	10 23.16	+10 34.8	2.163	2.798	119.5	18.2	19.3
1985 05 05	10 25.24	+10 19.4					
1985 05 15	10 29.38	+09 52.4	2.444	2.829	101.8	20.5	19.7

1978 PA a,e,i = 1.91, 0.11, 26 Elements MPC 9157

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984 12 26	11 25.63	+21 57.8	1.481	2.036	109.8	27.0	18.0
1985 01 05	11 34.59	+24 30.2					
1985 01 15	11 40.59	+27 35.4	1.313	2.055	126.4	22.6	17.7
1985 01 25	11 43.03	+31 08.2					
1985 02 04	11 41.42	+34 55.8	1.210	2.072	141.2	17.3	17.4
1985 02 14	11 35.62	+38 38.7					
1985 02 24	11 26.08	+41 54.2	1.196	2.087	145.3	15.7	17.3
1985 03 06	11 14.15	+44 21.9					
1985 03 16	11 01.87	+45 51.3	1.271	2.099	135.3	19.5	17.6
1985 03 26	10 51.33	+46 22.4					
1985 04 05	10 44.12	+46 02.8	1.414	2.108	120.7	24.1	17.9
1985 04 15	10 40.88	+45 04.0					
1985 04 25	10 41.58	+43 36.1	1.596	2.114	106.5	27.1	18.3
1985 05 05	10 45.78	+41 47.1					
1985 05 15	10 52.87	+39 43.1	1.793	2.118	93.9	28.4	18.6
1985 05 25	11 02.29	+37 27.7					
1985 06 04	11 13.52	+35 04.0	1.992	2.118	82.7	28.4	18.8

1984 AF1 a,e,i = 3.14, 0.27, 9 Elements MPC 9161

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1985 01 15	12 54.28	+04 25.1	3.508	3.856	103.4	14.4	18.5
1985 01 25	12 55.91	+04 40.8					
1985 02 04	12 55.83	+05 07.1	3.250	3.879	123.2	12.3	18.3
1985 02 14	12 53.98	+05 43.1					
1985 02 24	12 50.42	+06 26.8	3.052	3.899	144.3	8.5	18.1
1985 03 06	12 45.34	+07 15.2					
1985 03 16	12 39.09	+08 04.7	2.951	3.918	164.4	3.9	17.8
1985 03 26	12 32.13	+08 51.1					
1985 04 05	12 25.04	+09 30.4	2.966	3.934	163.1	4.2	17.9
1985 04 15	12 18.39	+09 59.6					
1985 04 25	12 12.66	+10 16.8	3.098	3.949	143.1	8.8	18.1
1985 05 05	12 08.23	+10 21.2					
1985 05 15	12 05.33	+10 13.2	3.320	3.962	122.9	12.4	18.4
1985 05 25	12 04.02	+09 53.7					
1985 06 04	12 04.31	+09 24.2	3.600	3.972	104.2	14.3	18.6
1985 06 14	12 06.09	+08 45.9					
1985 06 24	12 09.23	+08 00.3	3.902	3.981	87.0	14.8	18.8

1983 VW1 a,e,i = 2.53, 0.21, 21 Elements MPC 8534

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1985	01 15	12 58.34	-27 46.2	2.586	2.764	89.8	20.8	18.2
1985	01 25	13 03.40	-29 04.0					
1985	02 04	13 06.17	-30 09.6	2.361	2.801	106.2	19.8	18.1
1985	02 14	13 06.45	-30 59.7					
1985	02 24	13 04.07	-31 30.3	2.159	2.836	124.2	16.8	17.8
1985	03 06	12 59.14	-31 37.1					
1985	03 16	12 52.04	-31 16.7	2.014	2.869	142.7	12.1	17.6
1985	03 26	12 43.47	-30 27.1					
1985	04 05	12 34.41	-29 10.0	1.956	2.899	156.2	8.0	17.4
1985	04 15	12 25.89	-27 31.1					
1985	04 25	12 18.82	-25 38.8	2.004	2.927	151.4	9.5	17.6
1985	05 05	12 13.83	-23 43.1					
1985	05 15	12 11.20	-21 52.8	2.154	2.953	134.6	14.1	17.8
1985	05 25	12 10.97	-20 14.4					
1985	06 04	12 13.02	-18 51.8	2.380	2.976	116.7	17.7	18.2
1985	06 14	12 17.09	-17 46.7					
1985	06 24	12 22.95	-16 59.0	2.651	2.997	99.9	19.5	18.4

(2992) 2540 P-L a,e,i = 2.75, 0.19, 7 Elements MPC 8464

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1985	01 15	12 54.76	-07 37.3	2.236	2.576	98.7	22.2	18.8
1985	01 25	13 00.40	-07 55.7					
1985	02 04	13 03.75	-07 57.6	2.018	2.616	116.9	19.6	18.6
1985	02 14	13 04.63	-07 41.8					
1985	02 24	13 02.93	-07 07.6	1.840	2.656	137.6	14.6	18.3
1985	03 06	12 58.80	-06 16.0					
1985	03 16	12 52.65	-05 10.1	1.736	2.696	160.7	7.0	18.0
1985	03 26	12 45.15	-03 54.8					
1985	04 05	12 37.25	-02 37.5	1.737	2.735	174.8	1.9	17.8
1985	04 15	12 29.88	-01 25.4					
1985	04 25	12 23.84	-00 25.0	1.849	2.774	151.3	10.0	18.3
1985	05 05	12 19.73	+00 19.7					
1985	05 15	12 17.78	+00 47.1	2.053	2.813	130.1	16.0	18.7
1985	05 25	12 18.04	+00 57.1					
1985	06 04	12 20.41	+00 51.1	2.318	2.850	111.5	19.3	19.0
1985	06 14	12 24.65	+00 31.2					
1985	06 24	12 30.54	-00 00.9	2.614	2.887	95.1	20.5	19.4

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

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1985	01 15	12 57.79	-07 09.2	2.042	2.390	98.2	24.0	19.7
1985	01 25	13 04.83	-08 08.9					
1985	02 04	13 09.65	-08 56.3	1.791	2.383	115.2	22.0	19.4
1985	02 14	13 11.92	-09 30.0					
1985	02 24	13 11.36	-09 48.0	1.575	2.377	134.6	17.2	19.0
1985	03 06	13 07.90	-09 49.4					
1985	03 16	13 01.78	-09 34.0	1.425	2.372	156.8	9.5	18.6
1985	03 26	12 53.58	-09 03.7					
1985	04 05	12 44.36	-08 22.9	1.369	2.368	176.5	1.5	18.1
1985	04 15	12 35.34	-07 38.2					
1985	04 25	12 27.68	-06 56.7	1.416	2.365	154.6	10.5	18.6
1985	05 05	12 22.29	-06 24.9					
1985	05 15	12 19.61	-06 06.8	1.553	2.363	133.2	18.2	18.9
1985	05 25	12 19.76	-06 04.3					
1985	06 04	12 22.62	-06 17.7	1.750	2.362	114.8	22.9	19.3
1985	06 14	12 27.90	-06 45.8					
1985	06 24	12 35.32	-07 26.9	1.978	2.362	99.1	25.1	19.6