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TWX 710-320-6842 ASTROGRAM CAM ** Brian G. Marsden, Director
Telephone 617-495-7244/7440/7444 ** Conrad M. Bardwell, Associate Director

ERRATA.

MPC	Line				
12209	1 & 3	For	Vesale	read	Vesale
12210	7 & 9	For	Gretry	read	Gretry

* * * * *

CORRECTED OBSERVATIONS.

The following observations correct those previously published.

Object		Date	UT	R. A. (1950)	Decl.	Reference	Mag.	Obs.
1936 SO	*	1936 09	16.31597	00 03 52.70	+26 37 55.8	MPC12182	15.0	690
1936 SO		1936 09	25.35694	23 46 52.53	+28 09 31.6	MPC12182	14.0	690
1987 ND	*	1987 07	01.39728	20 22 53.23	-24 16 28.7	MPC12186	15.5	809
1987 ND		1987 07	01.40289	20 22 53.11	-24 16 30.9	MPC12186		809
1987 ND		1987 07	01.40845	20 22 52.97	-24 16 33.3	MPC12186		809
1987 NE		1987 07	02.31146	20 23 39.13	-22 43 24.4	MPC12186	17.5	809
1987 PA		1987 08	22.28819	21 55 17.6	+11 31 37	MPC12181		675
1987 PA		1987 08	22.34028	21 55 14.0	+11 32 52	MPC12181		675
197		1986 03	02.80866	05 55 26.55	+27 56 06.4	MPC11482		049
197		1986 03	02.85572	05 55 27.54	+27 56 07.7	MPC11482		049
197		1986 03	08.79575	05 57 56.39	+27 57 37.0	MPC11482		049
197		1986 03	08.81579	05 57 56.98	+27 57 36.7	MPC11482		049

* * * * *

IDENTIFICATION CHANGES.

Continuation to MPC 12165.

Object		Date	UT	R. A. (1950)	Decl.	Old desig.	Mag.	Obs.
1953 RR1	*	1953 09	05.94791	22 40 16.40	-04 00 56.2	1953 PY		024
1979 QH10	*	1979 08	26.80547	20 04 26.97	-19 14 24.2	1979 QA7	15.8	095
1981 AF4	*	1981 01	08.89722	05 11 42.57	+25 56 54.8	1980 YT		552
1981 AF4		1981 01	08.91181	05 11 41.77	+25 56 57.1	1980 YT		552

* * * * *

OBSERVATIONS OF COMETS.

Observations are published here for the following observatory codes:

046 Klet. Observers A. Mrkos and Z. Vavrova.
391 Sendai Observatory, Ayashi station. 0.20-m f/5.5 reflector. Observer M. Koishikawa. Communicated by T. Izumi.

392 JCPM Sapporo Station. 0.25-m reflector. Observer H. Kaneda.
399 Kushiro. 0.16-m reflector. Observer S. Ueda. Measured by H. Kaneda.
400 Kitami. Observers K. Endate and T. Fujii. Measured by K. Watanabe.
415 Canberra. Observer S. Crouch. Communicated by D. Herald.
494 Stakenbridge. Observer B. Manning. 0.26-m reflector. Communicated by G. M. Hurst.
657 Victoria. Observers D. D. Balam and J. Tatum.
675 Palomar. 1.2-m and 0.46-m Schmidt telescopes. Observers J. Gibson, E, Helin, A. Maury, J. Mueller and J. Phinney. Measured by J. Alu and J. Gibson.
691 University of Arizona, Kitt Peak. 0.91-m SPACEWATCH telescope, CCD in scanning mode. Observers T. Gehrels and J. Scotti.
695 Kitt Peak. Observers K. J. Meech and D. Jewitt.
801 Oak Ridge Observatory. Observers R. E. McCrosky, G. Schwartz and C.-Y. Shao.
807 Cerro Tololo. Observers K. J. Meech and D. Jewitt.

Object	Date	UT	R. A. (1950)	Decl.	Mag.	N	Obs.
		Comet Shoemaker (1984 XV)					
/1984 XV	1986	10 30.20057	22 57 39.93	-07 30 39.1			695
/1984 XV	1986	10 30.20490	22 57 39.82	-07 30 39.6			695
		Periodic Comet Neujmin 1					
/1984 XIX	1986	03 06.29127	05 50 55.48	+37 23 20.5			695
/1984 XIX	1986	03 06.29758	05 50 55.51	+37 23 20.5			695
/1984 XIX	1986	10 30.40473	08 23 17.34	+31 41 18.2			695
/1984 XIX	1986	10 30.42189	08 23 17.54	+31 41 21.4			695
/1984 XIX	1986	11 01.49657	08 23 27.43	+31 44 07.4			695
		Periodic Comet Arend-Rigaux					
/1984 XXI	1986	03 06.48199	16 07 45.60	-01 26 54.8			695
/1984 XXI	1986	03 06.48608	16 07 45.63	-01 26 53.4			695
		Comet Shoemaker (1985 XII)					
/1985 XII	1986	10 30.36053	05 26 42.82	-18 00 50.2			695
		Periodic Comet Giacobini-Zinner					
/1985 XIII	1987	03 31.29451	10 08 07.44	-11 03 32.6			695
/1985 XIII	1987	03 31.30194	10 08 07.16	-11 03 27.0			695
		Comet Hartley (1985 XIV)					
/1985 XIV	1987	04 30.26336	16 29 56.10	-58 22 57.4			807
/1985 XIV	1987	04 30.26951	16 29 55.71	-58 22 56.1			807
/1985 XIV	1987	05 01.36300	16 28 43.58	-58 19 36.7			807
/1985 XIV	1987	05 01.36604	16 28 43.48	-58 19 35.4			807
		Periodic Comet Ciffreo					
/1985 XVI	1986	03 06.30411	05 23 14.46	+36 53 13.3			695
/1985 XVI	1986	03 06.30727	05 23 15.09	+36 53 12.7		1	695
		Comet Thiele (1985 XIX)					
/1985 XIX	1987	04 03.43927	16 09 00.26	-17 42 01.4	23 T		695
/1985 XIX	1987	04 03.46354	16 08 59.16	-17 42 01.5			695
		Comet Shoemaker (1986b)					
/1986b	1986	10 30.45700	09 37 39.62	+18 56 31.2			695
/1986b	1986	10 30.46125	09 37 39.51	+18 56 31.3			695

Periodic Comet Forbes

/1986g	1987	09	01.44563	03	13	50.96	+18	42	43.4	18.6T	2 691
/1986g	1987	09	01.45191	03	13	51.00	+18	42	44.1	20.5N	691
/1986g	1987	09	01.46944	03	13	51.13	+18	42	46.3		691
/1986g	1987	09	01.47402	03	13	51.18	+18	42	46.7		691
/1986g	1987	09	01.47872	03	13	51.18	+18	42	47.5		691
/1986g	1987	09	19.44425	03	12	03.42	+19	03	52.3		691
/1986g	1987	09	20.37704	03	11	43.27	+19	04	03.4		691
/1986g	1987	09	20.44269	03	11	41.76	+19	04	03.4	18.8T	3 691

Periodic Comet Grigg-Skjellerup

/1986m	1987	08	21.04428	15	17	45.96	+07	00	46.9		801

Comet Sorrells (1986n)

/1986n	1987	07	25.95719	19	19	38.46	+00	09	25.5		494
/1986n	1987	07	25.97547	19	19	33.91	+00	09	01.0		494
/1986n	1987	08	03.32396	18	47	25.81	-02	57	43.7		657
/1986n	1987	08	12.22674	18	20	06.66	-05	50	51.1		657
/1986n	1987	08	17.26667	18	07	45.06	-07	15	20.4		657
/1986n	1987	08	17.83819	18	06	29.08	-07	24	15.1		046
/1986n	1987	08	17.84809	18	06	27.63	-07	24	24.0		046
/1986n	1987	08	18.23653	18	05	36.72	-07	30	27.3		657
/1986n	1987	08	19.26778	18	03	25.47	-07	46	10.6		657
/1986n	1987	08	20.90376	18	00	06.44	-08	10	26.7		046
/1986n	1987	08	20.91094	18	00	05.51	-08	10	34.0		046
/1986n	1987	08	21.11479	17	59	41.81	-08	13	29.1		801
/1986n	1987	08	21.22056	17	59	29.39	-08	15	04.6		657
/1986n	1987	08	21.83017	17	58	19.39	-08	23	47.8		046
/1986n	1987	08	21.83611	17	58	18.70	-08	23	51.6		046
/1986n	1987	08	22.83299	17	56	27.57	-08	37	52.8		046
/1986n	1987	08	22.83872	17	56	26.96	-08	37	57.6		046
/1986n	1987	08	26.11299	17	50	51.10	-09	21	45.5		801
/1986n	1987	08	31.20089	17	43	31.14	-10	23	38.2	14.9T	4 691
/1986n	1987	08	31.21640	17	43	29.92	-10	23	48.8	16.5N	691

Periodic Comet Howell

/1987h	1987	08	19.34347	01	22	53.71	-00	57	29.2		657
/1987h	1987	08	21.35667	01	22	54.70	-01	02	08.9		657
/1987h	1987	08	24.34754	01	22	39.08	-01	10	22.1		801
/1987h	1987	09	01.36250	01	20	24.49	-01	38	25.5	17.6N	691
/1987h	1987	09	01.36610	01	20	24.40	-01	38	26.5	15.4T	5 691
/1987h	1987	09	01.37069	01	20	24.28	-01	38	27.7		691

Periodic Comet Klemola

/1987i	1987	07	21.99273	23	51	56.32	+07	44	09.9		046
/1987i	1987	08	03.36979	00	07	19.11	+07	48	49.3		657
/1987i	1987	08	06.40156	00	10	28.86	+07	42	10.0		657
/1987i	1987	08	07.40632	00	11	28.46	+07	39	18.6		657
/1987i	1987	08	17.31354	00	19	40.52	+06	51	43.4		657
/1987i	1987	08	17.95278	00	20	05.84	+06	47	25.4		046
/1987i	1987	08	17.95590	00	20	05.92	+06	47	26.3		046
/1987i	1987	08	18.26222	00	20	18.16	+06	45	17.9		657
/1987i	1987	08	19.30910	00	20	57.79	+06	37	53.5		657
/1987i	1987	08	20.98380	00	21	56.83	+06	25	20.0		046
/1987i	1987	08	20.99097	00	21	57.02	+06	25	16.2		046
/1987i	1987	08	21.29347	00	22	07.19	+06	22	52.1		657
/1987i	1987	08	21.34051	00	22	08.39	+06	22	32.8		801
/1987i	1987	08	21.99161	00	22	29.83	+06	17	14.0		046
/1987i	1987	08	22.00150	00	22	30.10	+06	17	08.4		046

/1987i	1987	08	22.99184	00	23	00.73	+06	08	54.1		046
/1987i	1987	08	23.00174	00	23	00.98	+06	08	50.7		046
/1987i	1987	08	25.38722	00	24	07.22	+05	47	35.7		657
/1987i	1987	09	01.99375	00	26	30.52	+04	28	35.6		046
/1987i	1987	09	02.00799	00	26	30.74	+04	28	28.0		046
/1987i	1987	09	02.71701	00	26	38.99	+04	20	19.3		400
/1987i	1987	09	02.73090	00	26	38.97	+04	20	08.9		400
/1987i	1987	09	03.64097	00	26	48.96	+04	09	31.4		400
/1987i	1987	09	03.65556	00	26	49.06	+04	09	21.9		400

Periodic Comet Reinmuth 2

/1987l	1987	08	18.27125	20	05	55.33	-16	31	15.3		657
/1987l	1987	08	21.16937	20	04	32.64	-16	21	28.3		801
/1987l	1987	08	26.16200	20	02	44.99	-16	04	23.1		801
/1987l	1987	08	31.23240	20	01	45.13	-15	46	34.7	17.2N	691
/1987l	1987	08	31.24579	20	01	44.99	-15	46	31.4	15.7T	691

Periodic Comet Brooks 2

/1987m	1987	08	21.36159	00	28	55.98	+04	43	20.9		801
/1987m	1987	08	21.99161	00	29	13.97	+04	42	27.2		046
/1987m	1987	08	22.99184	00	29	41.10	+04	40	35.9		046
/1987m	1987	08	23.00174	00	29	41.32	+04	40	34.5		046
/1987m	1987	08	31.25811	00	32	24.85	+04	16	12.1	16.1T	691
/1987m	1987	08	31.26522	00	32	24.92	+04	16	10.4	17.8N 6	691
/1987m	1987	09	01.99375	00	32	45.20	+04	08	52.2		046
/1987m	1987	09	02.00799	00	32	45.29	+04	08	48.8		046
/1987m	1987	09	03.67361	00	33	00.98	+04	01	09.2		400
/1987m	1987	09	03.69097	00	33	00.93	+04	01	04.6		400

Comet Shoemaker (1987o)

/1987o	1987	08	21.06729	15	13	30.86	+14	28	06.6		801
/1987o	1987	08	26.09214	15	12	52.91	+14	21	30.5		801

Comet Bradfield (1987s)

/1987s	1987	09	04.46979	14	48	18.25	-17	46	09.1		415
/1987s	1987	09	04.48368	14	48	19.87	-17	45	57.7		415
/1987s	1987	09	11.38456	15	02	16.59	-16	12	56.2		415
/1987s	1987	09	12.41574	15	04	28.40	-15	58	52.2		415
/1987s	1987	09	12.42028	15	04	28.96	-15	58	49.1		415
/1987s	1987	09	13.39527	15	06	35.32	-15	45	23.6		415
/1987s	1987	09	20.41562	15	22	32.51	-14	06	25.0	8 T	399
/1987s	1987	09	20.41978	15	22	33.05	-14	06	21.5		399
/1987s	1987	09	23.41059	15	29	46.55	-13	22	12.2	8 T	392
/1987s	1987	09	23.41765	15	29	47.60	-13	22	06.6		392

Periodic Comet Jackson-Neujmin

/1987t	1987	09	19.49394	06	41	24.92	+08	58	12.8		691
/1987t	1987	09	19.50383	06	41	25.78	+08	58	09.4		691
/1987t	1987	09	20.48576	06	42	51.70	+08	51	43.4		691
/1987t	1987	09	20.49027	06	42	52.09	+08	51	41.5		691
/1987t	1987	09	20.49471	06	42	52.46	+08	51	39.3		691
/1987t	1987	09	20.49921	06	42	52.89	+08	51	38.1		691
/1987t	1987	09	20.50596	06	42	53.49	+08	51	35.6		691

Comet Rudenko (1987u)

/1987u	1987	08	24.89097	13	56	31.44	+32	46	29.1		494
/1987u	1987	08	24.90842	13	56	28.22	+32	46	08.9		494
/1987u	1987	08	27.87924	13	47	51.31	+31	48	53.2		494
/1987u	1987	08	27.89822	13	47	48.25	+31	48	31.6		494

/1987u	1987	08	29.17847	13	44	16.10	+31	24	01.2	675
/1987u	1987	08	29.20000	13	44	12.61	+31	23	36.8	675
/1987u	1987	08	30.15278	13	41	38.53	+31	05	22.2	675
/1987u	1987	08	30.16667	13	41	36.38	+31	05	04.5	675
/1987u	1987	08	31.23194	13	38	47.56	+30	44	40.1	657
/1987u	1987	09	01.44653	13	35	39.26	+30	21	30.4	391
/1987u	1987	09	01.45000	13	35	38.86	+30	21	27.8	391
/1987u	1987	09	01.45972	13	35	37.42	+30	21	16.4	391
/1987u	1987	09	01.46319	13	35	36.97	+30	21	11.0	391
/1987u	1987	09	03.45660	13	30	35.62	+29	43	12.7	400
/1987u	1987	09	03.46250	13	30	34.88	+29	43	06.9	400
/1987u	1987	09	03.46875	13	30	33.96	+29	42	56.7	400
/1987u	1987	09	03.47569	13	30	33.24	+29	42	53.1	400
/1987u	1987	09	05.85188	13	24	45.08	+28	57	33.5	494
/1987u	1987	09	05.86087	13	24	43.74	+28	57	23.9	494
/1987u	1987	09	06.44583	13	23	19.91	+28	46	13.4	400
/1987u	1987	09	06.44931	13	23	19.64	+28	46	10.3	400
/1987u	1987	09	06.45660	13	23	18.12	+28	46	03.1	400
/1987u	1987	09	06.46076	13	23	17.73	+28	45	56.0	400
/1987u	1987	09	12.42985	13	09	24.54	+26	50	18.7 9 T	399
/1987u	1987	09	12.43332	13	09	24.11	+26	50	14.0	399
			Periodic Comet Gehrels 1							
/1987v	1987	09	20.44997	04	25	47.29	+28	44	09.1	691
/1987v	1987	09	20.46050	04	25	47.63	+28	44	13.3	691
/1987v	1987	09	20.47855	04	25	48.19	+28	44	19.2	691
			Periodic Comet Helin							
/1987w	1987	08	24.43264	01	22	08.33	+04	01	59.5 16.5T	675
/1987w	1987	08	24.48472	01	22	09.06	+04	01	55.9	675
/1987w	1987	08	26.42361	01	22	37.22	+03	58	46.2	675
/1987w	1987	08	26.47222	01	22	37.74	+03	58	41.7	675
/1987w	1987	09	17.36458	01	22	04.41	+02	50	46.5	675
/1987w	1987	09	17.44097	01	22	03.36	+02	50	29.9	675
/1987w	1987	09	18.38889	01	21	48.24	+02	46	26.6	675
/1987w	1987	09	18.41667	01	21	47.82	+02	46	20.3	675
/1987w	1987	09	27.29340	01	18	43.98	+02	06	11.5	691
/1987w	1987	09	27.29675	01	18	43.92	+02	06	10.1 17.5T	691
/1987w	1987	09	27.31388	01	18	43.44	+02	06	05.8	691
/1987w	1987	09	27.37916	01	18	41.71	+02	05	47.4 7	691
			Periodic Comet West-Kohoutek-Ikemura							
/1987x	1987	09	27.47811	09	52	06.66	+26	53	05.9 17 T 8	691
/1987x	1987	09	27.49516	09	52	09.73	+26	53	05.3	691

Note 1: trailed stars. 2: tail 2′.9 long in p.a. 247 . 3: faint tail > 4′ long in p.a. 251 . 4: tail 3′.5 long in p.a. 90 ; coma diameter 62". 5: tail > 9′.6 long in p.a. 244 . 6: 5′.2 tail long in p.a. 248 . 7: faint tail 25" long in p.a. 257 . 8: tail 69" long in p.a. 291 .

* * * * *

OBSERVATIONS OF MINOR PLANETS.

The observations are listed separately for each observatory code. Alphabetic note codes shown with some of the observations are defined according to the scheme below. Numerical codes are defined in the headings for the individual observatories.

A earlier approximate position inferior
a sense of motion ambiguous
B black or dark plate
b bad seeing
C correction to earlier position
c crowded star field
D declination uncertain
d diffuse image
E at or near edge of plate
F faint image
G poor guiding
g no guiding
I involved with star
i inkdot measured
M measurement difficult
N near edge of plate, measurement uncertain
O image out of focus
o plate measured in one direction only
P position uncertain
p poor image
R right ascension uncertain
r outside reference star set
S poor sky
s streaked image
T time uncertain
t trailed image
U uncertain image
u unconfirmed image
V very faint image
W weak image
w weak solution

Object		Date	UT	R. A. (1950)	Decl.	Mag.	N	Obs.
010 Caussols								
J.-L. Heudier, CERGA Caussols, F-06460 Saint Vallier de Thiey, France								
Observers A. Barthelemy, R. Chemin, J.-L. Heudier, T. Laverge, C. Pollas								
0.9-m Schmidt telescope								
Observations in association with INAS								
1971 QP1		1987 08	30.07292	01 10 53.06	+17 41 44.5			010
1971 QP1		1987 08	30.09444	01 10 52.77	+17 41 49.8			010
1971 QP1		1987 08	30.10486	01 10 52.56	+17 41 53.0			010
1984 DV		1987 08	30.07292	01 05 16.32	+17 30 30.1			010
1984 DV		1987 08	30.09444	01 05 16.00	+17 30 35.1			010
1984 DV		1987 08	30.10486	01 05 15.78	+17 30 37.8			010
1985 AF		1987 08	31.05972	00 31 39.04	+12 33 54.8			010
1985 AF		1987 08	31.08056	00 31 38.42	+12 33 53.9			010
1985 AF		1987 08	31.09097	00 31 38.00	+12 33 53.4			010
1985 JF		1987 08	31.05972	00 38 40.74	+12 18 27.5			010
1985 JF		1987 08	31.09097	00 38 40.05	+12 18 20.3			010
1987 OZ	*	1987 07	28.96111	20 28 44.32	-22 14 37.3			010
1987 OZ		1987 07	28.98264	20 28 43.28	-22 14 46.0			010
1987 OZ		1987 07	28.99306	20 28 42.68	-22 14 49.1			010
1987 OA1	*	1987 07	28.96111	20 31 59.19	-19 39 09.7			010
1987 OA1		1987 07	28.98264	20 31 57.84	-19 39 18.3			010
1987 OA1		1987 07	28.99306	20 31 57.12	-19 39 22.5			010
1987 OB1	*	1987 07	28.96111	20 32 02.51	-19 52 17.6			010
1987 OB1		1987 07	28.98264	20 32 00.76	-19 52 16.5			010

1987	OB1		1987	07	28.99306	20	32	00.11	-19	52 15.9	010
1987	OC1	*	1987	07	28.96111	20	32	14.32	-23	30 33.2	010
1987	OC1		1987	07	28.98264	20	32	13.41	-23	30 43.0	010
1987	OC1		1987	07	28.99306	20	32	13.00	-23	30 48.9	010
1987	OD1	*	1987	07	28.96111	20	34	50.84	-20	13 02.2	010
1987	OD1		1987	07	28.99306	20	34	48.75	-20	13 16.1	010
1987	OE1	*	1987	07	28.96111	20	34	52.26	-20	23 46.0	010
1987	OE1		1987	07	28.98264	20	34	51.04	-20	23 53.4	010
1987	OE1		1987	07	28.99306	20	34	50.34	-20	23 57.7	010
1987	OF1	*	1987	07	28.96111	20	36	01.23	-21	34 14.8	010
1987	OF1		1987	07	28.98264	20	36	00.31	-21	34 18.4	010
1987	OF1		1987	07	28.99306	20	35	59.66	-21	34 21.0	010
1987	OG1	*	1987	07	28.96111	20	38	18.02	-20	04 15.9	010
1987	OG1		1987	07	28.99306	20	38	16.25	-20	04 25.1	010
1987	OH1	*	1987	07	28.96111	20	39	17.45	-19	16 03.4	010
1987	OH1		1987	07	28.99306	20	39	15.53	-19	16 10.8	010
1987	OJ1	*	1987	07	28.96111	20	39	59.71	-19	17 19.7	010
1987	OJ1		1987	07	28.98264	20	39	58.37	-19	17 23.3	010
1987	OJ1		1987	07	28.99306	20	39	57.71	-19	17 25.1	010
1987	OK1	*	1987	07	28.96111	20	43	59.36	-22	17 04.3	010
1987	OK1		1987	07	28.98264	20	43	58.45	-22	17 09.0	010
1987	OK1		1987	07	28.99306	20	43	57.93	-22	17 10.8	010
1987	OL1	*	1987	07	28.96111	20	45	19.11	-21	16 02.4	010
1987	OL1		1987	07	28.98264	20	45	18.18	-21	16 06.9	010
1987	OL1		1987	07	28.99306	20	45	17.60	-21	16 09.3	010
1987	OM1	*	1987	07	28.96111	20	45	38.62	-21	23 57.1	010
1987	OM1		1987	07	28.99306	20	45	36.87	-21	24 06.4	010
1987	ON1	*	1987	07	28.96111	20	46	08.04	-20	15 37.7	010
1987	ON1		1987	07	28.98264	20	46	07.01	-20	15 42.1	010
1987	ON1		1987	07	28.99306	20	46	06.37	-20	15 43.6	010
1987	OO1	*	1987	07	28.96111	20	48	31.17	-20	24 36.1	010
1987	OO1		1987	07	28.99306	20	48	29.29	-20	24 44.7	010
1987	QL3	*	1987	08	30.07292	00	51	43.18	+18	38 43.1	010
1987	QL3		1987	08	30.09444	00	51	42.70	+18	38 54.9	010
1987	QL3		1987	08	30.10486	00	51	42.47	+18	39 01.1	010
1987	QM3	*	1987	08	30.07292	00	59	12.75	+17	54 06.8	010
1987	QM3		1987	08	30.10486	00	59	12.19	+17	54 06.4	010
1987	QN3	*	1987	08	30.07292	01	02	10.27	+20	18 17.6	010
1987	QN3		1987	08	30.09444	01	02	09.83	+20	18 24.1	010
1987	QN3		1987	08	30.10486	01	02	09.72	+20	18 27.4	010
1987	QO3	*	1987	08	30.07292	01	04	26.08	+16	34 51.2	010
1987	QO3		1987	08	30.09444	01	04	25.77	+16	34 57.3	010
1987	QO3		1987	08	30.10486	01	04	25.62	+16	35 01.0	010
1987	QP3	*	1987	08	30.07292	01	04	54.96	+16	49 18.6	010
1987	QP3		1987	08	30.10486	01	04	54.47	+16	49 37.0	010
1987	QQ3	*	1987	08	30.07292	01	06	23.47	+16	22 36.8	010
1987	QQ3		1987	08	30.09444	01	06	23.08	+16	22 38.8	010
1987	QQ3		1987	08	30.10486	01	06	22.78	+16	22 39.8	010
1987	QR3	*	1987	08	30.07292	01	06	52.26	+16	16 45.0	010
1987	QR3		1987	08	30.09444	01	06	52.02	+16	16 45.8	010
1987	QS3	*	1987	08	30.07292	01	09	39.80	+16	01 52.2	010
1987	QS3		1987	08	30.10486	01	09	39.63	+16	02 03.7	010
1987	QT3	*	1987	08	30.07292	01	11	21.77	+18	18 17.8	010
1987	QT3		1987	08	30.09444	01	11	21.41	+18	18 23.2	010
1987	QT3		1987	08	30.10486	01	11	21.20	+18	18 26.4	010
1987	QU3	*	1987	08	30.07292	01	12	36.76	+18	01 25.5	010
1987	QU3		1987	08	30.09444	01	12	36.29	+18	01 25.8	010
1987	QU3		1987	08	30.10486	01	12	35.99	+18	01 35.4	010
1987	QV3	*	1987	08	30.07292	01	13	00.12	+16	54 00.7	010

1987	QV3		1987	08	30.09444	01	12	59.92	+16	54	06.3	010
1987	QV3		1987	08	30.10486	01	12	59.77	+16	54	09.4	010
1987	QW3	*	1987	08	31.05972	00	25	14.22	+13	44	26.0	010
1987	QW3		1987	08	31.08056	00	25	13.77	+13	44	19.7	010
1987	QW3		1987	08	31.09097	00	25	13.50	+13	44	15.7	010
1987	QX3	*	1987	08	31.05972	00	26	16.20	+10	24	09.9	010
1987	QX3		1987	08	31.08056	00	26	15.88	+10	24	04.5	010
1987	QX3		1987	08	31.09097	00	26	15.69	+10	24	00.4	010
1987	QY3	*	1987	08	31.05972	00	26	59.69	+14	40	22.3	010
1987	QY3		1987	08	31.08056	00	26	58.98	+14	40	21.9	010
1987	QY3		1987	08	31.09097	00	26	58.65	+14	40	21.7	010
1987	QZ3	*	1987	08	31.05972	00	27	36.40	+11	48	53.7	010
1987	QZ3		1987	08	31.09097	00	27	35.30	+11	48	50.9	010
1987	QA4	*	1987	08	31.05972	00	27	50.53	+11	44	29.4	010
1987	QA4		1987	08	31.09097	00	27	49.51	+11	44	30.3	010
1987	QB4	*	1987	08	31.05972	00	28	09.20	+10	29	42.9	010
1987	QB4		1987	08	31.08056	00	28	08.72	+10	29	36.9	010
1987	QB4		1987	08	31.09097	00	28	08.50	+10	29	34.0	010
1987	QC4	*	1987	08	31.05972	00	29	15.81	+11	20	37.6	010
1987	QC4		1987	08	31.08056	00	29	15.34	+11	20	37.6	010
1987	QC4		1987	08	31.09097	00	29	15.09	+11	20	37.6	010
1987	QD4	*	1987	08	31.05972	00	29	38.53	+10	33	50.6	010
1987	QD4		1987	08	31.08056	00	29	38.18	+10	33	44.4	010
1987	QD4		1987	08	31.09097	00	29	37.94	+10	33	41.9	010
1987	QE4	*	1987	08	31.05972	00	29	55.10	+14	24	26.7	010
1987	QF4	*	1987	08	31.05972	00	30	29.61	+11	12	20.0	010
1987	QF4		1987	08	31.08056	00	30	29.04	+11	12	25.1	010
1987	QF4		1987	08	31.09097	00	30	28.72	+11	12	27.4	010
1987	QG4	*	1987	08	31.05972	00	30	42.33	+12	51	37.1	010
1987	QG4		1987	08	31.08056	00	30	41.74	+12	51	40.4	010
1987	QG4		1987	08	31.09097	00	30	41.38	+12	51	42.2	010
1987	QH4	*	1987	08	31.05972	00	30	48.17	+11	36	29.3	010
1987	QH4		1987	08	31.09097	00	30	47.08	+11	36	26.8	010
1987	QJ4	*	1987	08	31.05972	00	30	54.49	+10	45	58.4	010
1987	QJ4		1987	08	31.08056	00	30	54.03	+10	45	55.1	010
1987	QJ4		1987	08	31.09097	00	30	53.69	+10	45	52.6	010
1987	QK4	*	1987	08	31.05972	00	30	56.20	+13	46	35.4	010
1987	QK4		1987	08	31.09097	00	30	54.87	+13	46	34.7	010
1987	QL4	*	1987	08	31.05972	00	31	17.18	+13	31	08.3	010
1987	QL4		1987	08	31.08056	00	31	16.60	+13	31	11.7	010
1987	QL4		1987	08	31.09097	00	31	16.26	+13	31	13.4	010
1987	QM4	*	1987	08	31.05972	00	31	28.37	+10	44	40.7	010
1987	QM4		1987	08	31.08056	00	31	27.78	+10	44	38.6	010
1987	QM4		1987	08	31.09097	00	31	27.49	+10	44	37.0	010
1987	QN4	*	1987	08	31.05972	00	31	38.13	+12	09	26.6	010
1987	QN4		1987	08	31.09097	00	31	37.33	+12	09	22.1	010
1987	QO4	*	1987	08	31.05972	00	32	30.59	+10	33	30.9	010
1987	QO4		1987	08	31.09097	00	32	29.40	+10	33	29.4	010
1987	QP4	*	1987	08	31.05972	00	33	12.29	+13	44	03.1	010
1987	QP4		1987	08	31.08056	00	33	11.79	+13	44	00.5	010
1987	QP4		1987	08	31.09097	00	33	11.51	+13	43	59.1	010
1987	QQ4	*	1987	08	31.05972	00	33	16.56	+12	16	49.3	010
1987	QQ4		1987	08	31.09097	00	33	15.96	+12	16	41.5	010
1987	QR4	*	1987	08	31.05972	00	33	24.12	+10	30	10.1	010
1987	QR4		1987	08	31.09097	00	33	23.68	+10	30	03.0	010
1987	QS4	*	1987	08	31.05972	00	34	12.04	+13	23	08.8	010
1987	QS4		1987	08	31.08056	00	34	11.44	+13	23	10.0	010
1987	QS4		1987	08	31.09097	00	34	11.09	+13	23	10.7	010
1987	QT4	*	1987	08	31.05972	00	34	49.04	+14	51	30.6	010

1987	QT4		1987	08	31.08056	00	34	48.23	+14	51	34.3	010
1987	QT4		1987	08	31.09097	00	34	47.81	+14	51	36.8	010
1987	QU4	*	1987	08	31.05972	00	36	01.42	+14	14	59.1	010
1987	QU4		1987	08	31.08056	00	36	01.18	+14	15	06.7	010
1987	QU4		1987	08	31.09097	00	36	01.07	+14	15	12.0	010
1987	QV4	*	1987	08	31.05972	00	36	34.79	+13	30	38.0	010
1987	QV4		1987	08	31.09097	00	36	33.91	+13	30	35.7	010
1987	QW4	*	1987	08	31.05972	00	37	16.03	+11	03	20.3	010
1987	QW4		1987	08	31.09097	00	37	15.36	+11	03	14.1	010
1987	QX4	*	1987	08	31.05972	00	37	21.43	+15	32	58.3	010
1987	QX4		1987	08	31.08056	00	37	20.94	+15	32	42.6	010
1987	QX4		1987	08	31.09097	00	37	20.71	+15	32	34.5	010
1987	QY4	*	1987	08	31.05972	00	39	14.55	+14	55	49.4	010
1987	QY4		1987	08	31.08056	00	39	13.80	+14	55	49.7	010
1987	QY4		1987	08	31.09097	00	39	13.39	+14	55	49.8	010
1987	QZ4	*	1987	08	31.05972	00	39	48.91	+11	53	41.3	010
1987	QZ4		1987	08	31.08056	00	39	48.30	+11	53	42.3	010
1987	QZ4		1987	08	31.09097	00	39	47.92	+11	53	43.1	010
1987	QA5	*	1987	08	31.05972	00	40	02.81	+12	39	14.1	010
1987	QA5		1987	08	31.09097	00	40	01.64	+12	39	13.2	010
1987	QB5	*	1987	08	31.05972	00	40	05.66	+12	36	06.7	010
1987	QB5		1987	08	31.09097	00	40	04.55	+12	36	08.6	010
1987	QC5	*	1987	08	31.05972	00	40	31.55	+13	26	28.6	010
1987	QC5		1987	08	31.08056	00	40	30.88	+13	26	28.9	010
1987	QC5		1987	08	31.09097	00	40	30.52	+13	26	29.1	010
1987	QD5	*	1987	08	31.05972	00	40	43.67	+11	13	03.1	010
1987	QD5		1987	08	31.08056	00	40	43.36	+11	13	00.4	010
1987	QD5		1987	08	31.09097	00	40	43.19	+11	12	58.5	010
1987	QE5	*	1987	08	31.05972	00	40	45.85	+11	35	48.6	010
1987	QE5		1987	08	31.09097	00	40	45.21	+11	35	39.8	010
1987	QF5	*	1987	08	31.05972	00	42	31.01	+14	21	59.5	010
1987	QF5		1987	08	31.09097	00	42	30.32	+14	21	59.5	010
1987	QG5	*	1987	08	31.05972	00	43	06.84	+12	11	45.2	010
1987	QG5		1987	08	31.09097	00	43	06.20	+12	11	41.7	010
1987	QH5	*	1987	08	31.05972	00	43	58.25	+13	08	23.2	010
1987	QH5		1987	08	31.09097	00	43	57.26	+13	08	32.6	010
1987	QJ5	*	1987	08	31.05972	00	44	19.65	+13	53	50.9	010
1987	QJ5		1987	08	31.09097	00	44	18.89	+13	54	02.6	010
462			1987	07	28.96111	20	42	19.97	-20	10	53.1	010
462			1987	07	28.98264	20	42	18.89	-20	10	58.6	010
462			1987	07	28.99306	20	42	18.20	-20	11	01.7	010
524			1987	07	28.96111	20	45	17.16	-22	47	06.5	010
524			1987	07	28.98264	20	45	16.14	-22	47	08.0	010
524			1987	07	28.99306	20	45	15.37	-22	47	08.5	010
552			1987	08	31.05972	00	28	36.21	+14	26	52.9	010
552			1987	08	31.08056	00	28	35.61	+14	26	51.1	010
552			1987	08	31.09097	00	28	35.20	+14	26	50.2	010
733			1987	08	31.05972	00	29	55.10	+14	24	26.7	010
733			1987	08	31.08056	00	29	54.33	+14	24	29.0	010
733			1987	08	31.09097	00	29	53.89	+14	24	30.2	010
1523			1987	07	28.96111	20	26	18.42	-22	50	47.0	010
1523			1987	07	28.98264	20	26	17.03	-22	50	50.4	010
1523			1987	07	28.99306	20	26	16.29	-22	50	50.9	010
1819			1987	07	28.96111	20	39	32.38	-21	08	49.3	010
1819			1987	07	28.98264	20	39	31.38	-21	09	06.1	010
1819			1987	07	28.99306	20	39	30.83	-21	09	15.3	010
2222			1987	07	28.96111	20	36	54.26	-20	33	08.6	010
2222			1987	07	28.98264	20	36	53.21	-20	33	12.1	010
2222			1987	07	28.99306	20	36	52.66	-20	33	14.4	010

2985		1987	07	28.96111	20	29	23.66	-23	23	45.0	010
2985		1987	07	28.98264	20	29	22.58	-23	23	49.9	010
2985		1987	07	28.99306	20	29	22.07	-23	23	51.1	010

033 Tautenburg
S. Marx, Karl Schwarzschild Observatorium, DDR-6901 Tautenburg, Democratic Republic of Germany
Observers F. Borngen, N. Richter, R. Ziener
Measurer F. Borngen
1.3-m Schmidt telescope
SAOC

1961	BC		1961	02	15.75347	05	07	06.17	+23	36	48.7	W 033
1961	BC		1961	02	15.80556	05	07	07.22	+23	36	56.8	18.5 033
1961	BC		1961	02	15.84722	05	07	07.69	+23	37	00.4	033
1961	CC1	*	1961	02	15.75347	05	02	02.14	+24	55	24.1	033
1961	CC1		1961	02	15.80556	05	02	04.18	+24	55	28.1	17.8 033
1961	CC1		1961	02	15.84722	05	02	05.60	+24	55	29.1	033
1961	CD1	*	1961	02	15.75347	05	04	10.33	+23	45	55.6	W 033
1961	CD1		1961	02	15.80556	05	04	12.63	+23	46	04.4	17.4 033
1961	CD1		1961	02	15.84722	05	04	14.40	+23	46	09.5	033
1961	CE1	*	1961	02	15.75347	05	08	18.34	+23	36	05.1	W 033
1961	CE1		1961	02	15.80556	05	08	19.78	+23	36	10.3	18.2 033
1961	CE1		1961	02	15.84722	05	08	20.80	+23	36	14.1	033
1987	OQ		1987	08	22.91424	21	31	13.80	+07	37	24.8	16.5 033
1987	OQ		1987	08	22.96771	21	31	11.04	+07	37	12.3	033
1987	QP	*	1987	08	21.98785	23	31	16.27	+02	40	40.8	17.1 033
1987	QP		1987	08	22.02604	23	31	15.39	+02	40	20.4	033
1987	QP		1987	08	23.02292	23	30	53.48	+02	31	08.1	033
1987	QQ	*	1987	08	21.98785	23	32	04.11	+01	55	47.6	19.0 033
1987	QQ		1987	08	22.02604	23	32	02.49	+01	55	40.9	033
1987	QQ		1987	08	23.02292	23	31	24.48	+01	52	56.1	033
1987	QR	*	1987	08	21.98785	23	33	55.95	+00	47	45.5	16.1 033
1987	QR		1987	08	22.02604	23	33	54.99	+00	47	36.0	033
1987	QR		1987	08	23.02292	23	33	32.34	+00	43	24.9	033
1987	QS	*	1987	08	21.98785	23	35	10.00	+02	05	21.5	18.2 033
1987	QS		1987	08	22.02604	23	35	08.24	+02	05	24.6	033
1987	QS		1987	08	23.02292	23	34	25.88	+02	06	53.4	033
1987	QT	*	1987	08	21.98785	23	40	12.63	+00	15	03.0	17.6 033
1987	QT		1987	08	22.02604	23	40	11.09	+00	15	11.8	033
1987	QT		1987	08	23.02292	23	39	33.85	+00	19	21.5	033
1987	QV	*	1987	08	22.91424	21	35	23.12	+06	54	46.6	16.1 033
1987	QV		1987	08	22.96771	21	35	20.40	+06	54	48.4	033
1987	QW	*	1987	08	22.91424	21	39	16.20	+05	45	06.5	18.2 033
1987	QW		1987	08	22.96771	21	39	13.76	+05	44	36.0	033
40			1961	02	15.75347	05	00	09.43	+23	21	36.4	033
40			1961	02	15.80556	05	00	11.45	+23	21	43.1	10.5 033
40			1961	02	15.84722	05	00	12.97	+23	21	46.2	033
1295			1987	07	21.95660	19	53	19.79	-17	12	03.4	16.6 033
1295			1987	07	21.97743	19	53	18.77	-17	12	06.1	033
1295			1987	07	23.98611	19	51	51.02	-17	16	37.3	033
1437			1977	03	20.80556	08	29	43.51	+19	16	22.9	15.9 033
1437			1977	03	20.83681	08	29	43.29	+19	16	20.1	033

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

1980	FF12		1987	08	21.92367	21	28	32.41	-17	30	57.9		046
1980	FF12		1987	08	21.93779	21	28	31.80	-17	30	59.7		046
1980	FF12		1987	08	22.92373	21	27	31.25	-17	33	44.3		046
1980	FF12		1987	08	22.93785	21	27	30.50	-17	33	46.7		046
1981	PQ		1987	08	21.88889	21	21	46.20	-12	20	11.2		046
1981	PQ		1987	08	21.90307	21	21	45.74	-12	20	14.0		046
1981	PQ		1987	08	22.89005	21	21	05.66	-12	25	20.2		046
1981	PQ		1987	08	22.90382	21	21	05.10	-12	25	24.7		046
1981	PQ		1987	08	30.92743	21	16	00.74	-13	05	11.6		046
1981	PQ		1987	08	30.94178	21	16	00.13	-13	05	14.0		046
1983	XS		1987	08	21.95787	22	03	15.14	-08	01	59.7		046
1983	XS		1987	08	21.97205	22	03	14.34	-08	02	02.9		046
1984	SR1		1987	09	01.95903	22	51	17.94	-04	22	59.7		046
1984	SR1		1987	09	01.97315	22	51	16.95	-04	23	05.0		046
1985	CV		1987	08	22.89005	21	20	58.16	-15	08	27.9		046
1985	CV		1987	08	22.90382	21	20	57.60	-15	08	35.0		046
1987	QZ	*	1987	08	21.88889	21	22	01.62	-11	15	03.9	16.6	046
1987	QZ		1987	08	21.90307	21	22	00.57	-11	14	54.4		046
1987	QA1	*	1987	08	21.92367	21	27	36.09	-17	45	55.5	17.0	046
1987	QA1		1987	08	21.93779	21	27	35.43	-17	45	58.5		046
1987	QB1	*	1987	08	21.92367	21	31	06.07	-15	56	18.7	17.0	046
1987	QB1		1987	08	21.93779	21	31	05.28	-15	56	19.7		046
1987	QB1		1987	08	22.92373	21	30	23.97	-15	55	12.9		046
1987	QB1		1987	08	22.93785	21	30	23.27	-15	55	10.4		046
1987	QC1	*	1987	08	21.92367	21	38	41.83	-18	35	08.7	16.4	046
1987	QC1		1987	08	21.93779	21	38	40.80	-18	35	03.7	d	046
1987	QC1		1987	08	22.92373	21	37	34.19	-18	27	54.9		046
1987	QC1		1987	08	22.93785	21	37	33.33	-18	27	48.8		046
1987	QC1		1987	08	30.89190	21	29	05.22	-17	26	16.9		046
1987	QC1		1987	08	30.90608	21	29	04.62	-17	26	08.1		046
1987	QD1	*	1987	08	21.93779	21	30	26.06	-15	30	32.2	16.5	046
1987	QD1		1987	08	22.92373	21	29	45.27	-15	37	22.9		046
1987	QD1		1987	08	22.93785	21	29	44.78	-15	37	29.7		046
1987	QD1		1987	08	30.89190	21	24	33.20	-16	30	15.6		046
1987	QD1		1987	08	30.90608	21	24	32.61	-16	30	22.7		046
1987	QE1	*	1987	08	21.95787	22	05	01.88	-09	05	34.3	16.8	046
1987	QE1		1987	08	21.97205	22	05	00.87	-09	05	45.6		046
1987	QE1		1987	09	01.92639	21	58	14.76	-11	47	58.1		046
1987	QE1		1987	09	01.94062	21	58	13.91	-11	48	02.5		046
1987	QF1	*	1987	08	21.95787	22	06	54.78	-08	01	34.3	16.9	046
1987	QF1		1987	08	21.97205	22	06	54.03	-08	01	33.5		046
1987	QG1	*	1987	08	21.95787	22	08	36.77	-05	29	17.1	16.6	046
1987	QG1		1987	08	21.97205	22	08	36.08	-05	29	15.1		046
1987	QG1		1987	08	22.95822	22	07	36.60	-05	25	42.7		046
1987	QG1		1987	08	22.97228	22	07	35.75	-05	25	40.4		046
1987	QH1	*	1987	08	21.95787	22	09	26.38	-07	53	17.3	17.0	046
1987	QH1		1987	08	21.97205	22	09	25.53	-07	53	13.8		046
1987	QJ1	*	1987	08	21.95787	22	16	15.90	-08	42	16.4	16.9	046
1987	QJ1		1987	08	21.97205	22	16	11.19	-08	42	13.8		046
1987	QJ1		1987	08	22.95822	22	15	12.29	-08	44	37.9		046
1987	QJ1		1987	08	22.97228	22	15	11.72	-08	44	43.8		046
1987	QK1	*	1987	08	22.95822	22	21	11.22	-06	52	50.7	16.7	046
1987	QK1		1987	08	22.97228	22	21	10.55	-06	52	49.3		046
1987	QL1	*	1987	08	22.95822	22	21	19.34	-05	29	56.6	16.6	046
1987	QL1		1987	08	22.97228	22	21	18.55	-05	29	57.2		046
1987	QM1	*	1987	08	30.82807	21	17	02.75	-09	56	42.8	16.9	046
1987	QM1		1987	08	30.84213	21	17	02.13	-09	56	39.8		046
1987	QN1	*	1987	08	30.89190	21	17	35.06	-15	26	34.8	16.7	046
1987	QN1		1987	08	30.90608	21	17	34.34	-15	26	33.2		046

1987	QO1	*	1987	08	30.92743	21	09	02.54	-15	52	30.4	16.4	046
1987	QO1		1987	08	30.94178	21	09	01.84	-15	52	34.3		046
1987	QP1	*	1987	08	30.92743	21	10	33.79	-15	24	28.2	16.9	046
1987	QP1		1987	08	30.94178	21	10	33.17	-15	24	27.0		046
1987	RA	*	1987	09	01.89136	21	56	23.16	-05	16	34.4		046
1987	RA		1987	09	01.90556	21	56	22.54	-05	16	37.0		046
1987	RB	*	1987	09	01.95903	22	45	20.87	-03	44	06.4	16.7	046
1987	RB		1987	09	01.97315	22	45	20.01	-03	44	13.4		046
1987	RC	*	1987	09	01.95903	22	46	06.73	-02	31	37.9	16.8	046
1987	RC		1987	09	01.97315	22	46	06.11	-02	31	43.6		046
1987	RD	*	1987	09	01.95903	22	46	18.05	-04	03	46.3	17.0	046
1987	RD		1987	09	01.97315	22	46	17.50	-04	03	47.5		046
1987	RE	*	1987	09	01.95903	22	51	57.97	-04	43	29.6	16.8	046
1987	RE		1987	09	01.97315	22	51	57.13	-04	43	32.7		046
1987	RF	*	1987	09	01.95903	22	58	35.14	-02	31	56.5	16.7	046
1987	RF		1987	09	01.97315	22	58	34.56	-02	32	04.4		046
111			1987	08	20.93194	21	27	31.31	-12	37	05.4		046
111			1987	08	20.94618	21	27	30.57	-12	37	07.7		046
111			1987	08	21.88889	21	26	39.30	-12	39	50.9		046
111			1987	08	21.90307	21	26	38.42	-12	39	52.9		046
111			1987	08	22.89005	21	25	44.82	-12	42	47.0		046
111			1987	08	22.90382	21	25	44.04	-12	42	49.5		046
123			1987	08	20.93194	21	22	03.94	-12	49	08.5		046
123			1987	08	20.94618	21	22	03.15	-12	49	10.7		046
123			1987	08	21.88889	21	21	12.29	-12	51	13.0		046
123			1987	08	21.90307	21	21	11.47	-12	51	14.8		046
123			1987	08	22.89005	21	20	18.19	-12	53	25.1		046
123			1987	08	30.92743	21	13	27.02	-13	09	42.4		046
123			1987	08	30.94178	21	13	26.42	-13	09	43.0		046
212			1987	08	22.95822	22	17	10.28	-08	30	18.8		046
212			1987	08	22.97228	22	17	09.60	-08	30	21.1		046
214			1987	09	01.92639	22	02	38.57	-13	00	27.8		046
214			1987	09	01.94062	22	02	37.80	-13	00	31.6		046
217			1987	09	01.95903	22	50	26.67	-06	19	34.0		046
217			1987	09	01.97315	22	50	26.16	-06	19	45.0		046
461			1987	08	22.89005	21	16	23.99	-15	14	20.2		046
461			1987	08	22.90382	21	16	23.45	-15	14	23.5		046
461			1987	08	30.92743	21	10	47.08	-15	42	38.5		046
461			1987	08	30.94178	21	10	46.46	-15	42	42.3		046
482			1987	09	01.99375	00	32	52.59	+03	37	59.6		046
482			1987	09	02.00799	00	32	52.27	+03	37	54.0		046
748			1987	08	21.88889	21	18	09.30	-13	11	29.3		046
748			1987	08	21.90307	21	18	08.78	-13	11	30.9		046
748			1987	08	22.89005	21	17	32.47	-13	14	16.3		046
748			1987	08	30.92743	21	12	49.82	-13	35	48.1		046
748			1987	08	30.94178	21	12	49.50	-13	35	48.9		046
808			1987	08	20.93194	21	31	02.35	-10	06	31.5		046
808			1987	08	20.94618	21	31	01.60	-10	06	36.7		046
1025			1987	08	31.89497	22	05	37.95	-03	14	34.7		046
1025			1987	08	31.90903	22	05	36.84	-03	14	53.8		046
1025			1987	09	01.89136	22	04	44.39	-03	38	25.9		046
1025			1987	09	01.90556	22	04	43.55	-03	38	46.0		046
1173			1987	08	31.89497	22	02	54.09	-04	49	24.9		046
1173			1987	08	31.90903	22	02	53.70	-04	49	29.0		046
1173			1987	09	01.89136	22	02	23.62	-04	51	50.5		046
1173			1987	09	01.90556	22	02	23.06	-04	51	50.6		046
1253			1987	08	21.92367	21	30	10.60	-16	55	22.9		046
1253			1987	08	21.93779	21	30	09.96	-16	55	27.1		046

1253	1987	08	22.92373	21	29	22.83	-16	58	59.3	046
1253	1987	08	22.93785	21	29	22.22	-16	59	01.5	046
1307	1987	08	30.82807	21	12	55.36	-08	59	03.9	046
1307	1987	08	30.84213	21	12	54.64	-08	59	09.4	046
1465	1987	09	01.95903	22	47	47.05	-05	45	25.5	046
1465	1987	09	01.97315	22	47	46.56	-05	45	31.9	046
1496	1987	09	01.95903	22	47	20.85	-03	38	03.3	046
1496	1987	09	01.97315	22	47	20.01	-03	38	08.7	046
1497	1987	09	01.95903	22	55	28.98	-05	40	29.4	046
1497	1987	09	01.97315	22	55	28.30	-05	40	34.1	046
1625	1987	08	22.95822	22	18	29.16	-06	42	44.4	046
1625	1987	08	22.97228	22	18	28.38	-06	42	44.6	046
1633	1987	08	21.92367	21	35	58.85	-16	09	51.1	046
1633	1987	08	21.93779	21	35	58.28	-16	09	54.9	046
1633	1987	08	22.92373	21	35	15.15	-16	13	50.1	046
1633	1987	08	22.93785	21	35	14.56	-16	13	54.0	046
1633	1987	08	30.89190	21	29	39.93	-16	43	28.6	046
1633	1987	08	30.90608	21	29	39.25	-16	43	31.6	046
1699	1987	09	01.95903	22	58	22.77	-02	15	06.0	046
1699	1987	09	01.97315	22	58	21.99	-02	15	09.7	046
1776	1987	09	01.95903	22	57	40.50	-02	55	19.2	046
1776	1987	09	01.97315	22	57	39.93	-02	55	26.4	046
1955	1987	09	01.99375	00	36	11.12	+05	29	32.7	046
1955	1987	09	02.00799	00	36	10.78	+05	29	30.7	046
2258	1987	08	22.89005	21	19	34.09	-15	01	53.9	046
2258	1987	08	22.90382	21	19	33.30	-15	01	57.5	046
2258	1987	08	30.92743	21	13	09.47	-15	28	03.3	046
2258	1987	08	30.94178	21	13	08.81	-15	28	07.0	046
2283	1987	08	31.89497	22	08	10.63	-03	17	39.9	046
2283	1987	08	31.90903	22	08	09.85	-03	17	46.6	046
2283	1987	09	01.89136	22	07	16.76	-03	25	39.4	046
2283	1987	09	01.90556	22	07	16.06	-03	25	46.5	046
2403	1987	08	21.95787	22	12	48.93	-06	53	59.8	046
2403	1987	08	21.97205	22	12	48.13	-06	54	03.1	046
2403	1987	08	22.95822	22	11	55.89	-06	57	12.6	046
2403	1987	08	22.97228	22	11	55.17	-06	57	15.9	046
2540	1987	08	21.88889	21	26	21.42	-13	32	41.0	046
2540	1987	08	21.90307	21	26	20.62	-13	32	46.1	046
2540	1987	08	22.89005	21	25	22.28	-13	38	06.0	046
2540	1987	08	22.90382	21	25	21.41	-13	38	10.1	046
2540	1987	08	30.89190	21	17	59.49	-14	18	52.1	046
2540	1987	08	30.90608	21	17	58.66	-14	18	56.9	046
2674	1987	08	21.88889	21	25	50.06	-13	37	48.4	046
2674	1987	08	21.90307	21	25	49.61	-13	37	49.0	046
2674	1987	08	22.89005	21	25	20.21	-13	40	21.1	046
2674	1987	08	22.90382	21	25	20.01	-13	40	24.4	046
3210	1987	08	21.92367	21	38	44.43	-19	23	02.6	046
3210	1987	08	21.93779	21	38	44.22	-19	23	10.6	046
3210	1987	08	22.92373	21	38	01.28	-19	29	39.4	046
3210	1987	08	22.93785	21	38	00.86	-19	29	42.3	046
3276	1987	08	22.92373	21	29	09.97	-18	51	01.9	046
3276	1987	08	22.93785	21	29	09.48	-18	51	01.2	046
3470	1987	09	01.95903	22	46	53.60	-03	24	44.4	046
3470	1987	09	01.97315	22	46	53.00	-03	24	50.8	046
3495	1987	08	21.92367	21	33	33.28	-15	45	16.2	16.2 046
3495	1987	08	21.93779	21	33	32.81	-15	45	20.5	046
3495	1987	08	22.92373	21	32	49.17	-15	49	23.6	046
3495	1987	08	22.93785	21	32	48.82	-15	49	27.2	046

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H. Hurnik, Astronomical Observatory, Adam Mickiewicz University,
Sloneczna 36, PL-60286 Poznan, Poland
Observer W. Naskrecki

12	1986	10	16.14653	05	12	26.40	+22	11	43.7	047
12	1986	10	17.12293	05	12	21.02	+22	08	26.3	047
12	1986	11	04.06615	05	05	05.67	+20	56	45.9	047
12	1986	11	06.97758	05	02	58.36	+20	43	17.1	047
12	1986	11	07.98842	05	02	10.60	+20	38	28.2	047
12	1986	11	12.08893	04	58	41.22	+20	18	24.4	047
12	1986	11	28.89906	04	41	13.71	+18	50	07.2	047
12	1986	11	29.89123	04	40	06.99	+18	44	48.2	047
12	1986	11	29.95644	04	40	02.55	+18	44	28.5	047
12	1986	11	30.98561	04	38	53.16	+18	38	58.0	047
12	1986	12	01.00060	04	38	52.20	+18	38	53.5	047
12	1987	01	02.89213	04	09	30.80	+16	19	22.5	047
14	1986	09	28.06840	03	28	45.17	+09	15	03.5	047
14	1986	10	14.10870	03	21	46.36	+08	35	38.1	047
14	1986	10	16.08773	03	20	29.50	+08	30	11.0	047
14	1986	10	24.97351	03	13	46.80	+08	05	21.7	047
14	1986	11	03.95256	03	04	47.55	+07	39	02.3	047
14	1986	11	06.88887	03	01	58.69	+07	32	10.3	047
14	1986	11	07.95991	03	00	56.39	+07	29	48.2	047
14	1986	11	25.90015	02	44	06.48	+07	05	22.1	047
14	1986	11	26.80703	02	43	20.38	+07	05	03.4	047
14	1986	11	28.85014	02	41	39.04	+07	04	44.7	047
14	1986	11	29.84431	02	40	51.35	+07	04	47.2	047
14	1986	12	01.94703	02	39	13.86	+07	05	15.4	047
14	1986	12	18.83738	02	29	41.22	+07	30	49.0	047
14	1987	01	04.75120	02	27	16.60	+08	32	30.1	047
14	1987	01	28.80680	02	35	53.83	+10	48	04.7	047
19	1986	10	14.00347	04	09	04.43	+20	22	22.5	047
19	1986	10	16.11532	04	08	48.75	+20	19	15.4	047
19	1986	10	25.06677	04	05	51.22	+20	00	09.5	047
19	1986	11	06.98848	03	56	57.92	+19	18	48.0	047
19	1986	11	07.97898	03	56	06.48	+19	15	04.9	047
19	1986	11	12.02087	03	52	26.03	+18	59	19.3	047
19	1986	11	25.90970	03	38	53.15	+18	01	53.7	047
19	1986	11	28.87866	03	36	05.49	+17	50	01.1	047
19	1986	11	29.87279	03	35	11.03	+17	46	07.9	047
19	1986	11	30.96970	03	34	11.80	+17	41	55.7	047
19	1986	12	01.99176	03	33	17.82	+17	38	04.9	047
19	1986	12	18.85066	03	22	20.39	+16	50	46.4	047
19	1987	01	02.87605	03	20	16.24	+16	41	27.4	047
19	1987	01	04.76352	03	20	33.89	+16	42	37.9	047
19	1987	01	28.81333	03	33	54.85	+17	34	47.2	047
19	1987	01	29.81825	03	34	49.14	+17	38	09.1	047
19	1987	02	01.78095	03	37	37.55	+17	48	25.8	047
22	1986	10	16.14653	05	07	13.20	+20	45	16.0	047
22	1986	10	16.15731	05	07	13.17	+20	45	18.0	047
22	1986	10	17.11235	05	07	13.07	+20	49	06.8	047
22	1986	10	17.12293	05	07	13.14	+20	49	10.6	047
22	1986	11	04.06615	05	02	05.27	+22	03	24.0	047
22	1986	11	06.97758	05	00	21.41	+22	15	43.7	047
22	1986	11	07.98842	04	59	42.14	+22	19	58.4	047
22	1986	11	12.08893	04	56	45.75	+22	37	14.4	047
22	1986	11	25.92671	04	44	11.52	+23	32	53.4	047
22	1986	11	28.90807	04	41	06.68	+23	44	00.8	047
22	1986	11	29.89667	04	40	04.39	+23	47	35.8	047

22	1986	11	30.99610	04	38	54.69	+23	51	32.2	047
22	1987	01	02.93229	04	09	22.77	+25	25	49.2	047
22	1987	01	28.80108	04	05	29.94	+26	32	57.3	047
22	1987	01	29.82884	04	05	46.01	+26	35	54.1	047
22	1987	02	01.79080	04	06	42.58	+26	44	36.6	047
22	1987	02	02.80821	04	07	05.45	+26	47	38.6	047
22	1987	02	23.73866	04	20	49.91	+27	54	45.6	047
22	1987	02	26.76598	04	23	39.13	+28	04	54.2	047
27	1986	09	28.05764	03	01	40.71	+14	38	38.6	047
27	1986	10	14.01507	02	56	00.61	+14	07	41.4	047
27	1986	10	14.09031	02	55	57.40	+14	07	26.8	047
27	1986	10	16.07685	02	54	40.83	+14	01	32.3	047
27	1986	10	24.95662	02	47	41.99	+13	30	40.0	047
27	1986	11	03.94078	02	38	08.52	+12	50	36.9	047
27	1986	11	06.87768	02	35	11.97	+12	38	41.2	047
27	1986	11	07.86602	02	34	12.49	+12	34	43.0	047
27	1986	11	11.92869	02	30	11.73	+12	18	55.0	047
27	1986	11	24.83818	02	19	04.21	+11	38	52.2	047
27	1986	11	25.82830	02	18	22.81	+11	36	42.4	047
27	1986	11	26.80022	02	17	43.09	+11	34	43.1	047
27	1986	11	28.84428	02	16	25.72	+11	31	02.8	047
27	1986	11	29.83834	02	15	50.96	+11	29	30.6	047
27	1986	12	01.93164	02	14	43.87	+11	26	50.1	047
27	1986	12	18.83238	02	11	24.49	+11	35	40.7	047
27	1987	01	28.78996	02	42	43.06	+15	02	49.8	047
46	1986	10	14.05056	03	53	29.64	+17	37	33.6	047
46	1986	10	14.11877	03	53	28.05	+17	37	21.8	047
46	1986	10	16.09793	03	52	44.14	+17	31	37.3	047
46	1986	10	25.02383	03	47	54.39	+17	01	24.2	047
46	1986	11	03.96131	03	40	00.89	+16	21	04.9	047
46	1986	11	06.89669	03	37	19.77	+16	08	21.3	047
46	1986	11	07.96907	03	36	19.13	+16	03	40.0	047
46	1986	11	11.99582	03	32	26.32	+15	45	59.7	047
46	1986	11	25.83719	03	19	12.11	+14	49	02.0	047
46	1986	11	28.85747	03	16	34.38	+14	38	22.4	047
46	1986	11	29.85035	03	15	44.76	+14	35	03.4	047
59	1986	12	29.97598	07	49	23.33	+09	22	22.8	047
59	1987	01	03.00684	07	45	59.56	+09	32	22.9	047
59	1987	01	28.88578	07	22	57.83	+11	19	53.4	047
59	1987	01	29.90385	07	22	09.90	+11	25	05.7	047
59	1987	02	01.89581	07	19	55.32	+11	40	39.5	047
67	1986	09	27.92708	01	13	47.32	+09	44	09.5	047
71	1986	11	29.02293	06	14	44.07	+49	38	17.6	047
71	1986	11	29.98084	06	13	41.05	+49	39	34.4	047
104	1986	11	07.07194	05	08	46.24	+24	40	19.3	047
104	1986	11	08.00114	05	08	18.47	+24	41	02.9	047
128	1986	10	16.12512	04	33	50.38	+18	10	24.2	047
128	1986	10	16.13572	04	33	50.14	+18	10	24.7	047
128	1986	10	17.13265	04	33	38.92	+18	11	12.4	047
128	1986	11	04.04828	04	25	08.60	+18	21	01.9	047
128	1986	11	06.99688	04	22	54.54	+18	21	54.6	047
128	1986	11	12.03285	04	18	39.00	+18	22	59.8	047
128	1986	11	25.91793	04	05	13.42	+18	24	30.6	047
128	1986	11	28.88681	04	02	15.20	+18	24	49.2	047
128	1986	11	29.87950	04	01	16.04	+18	24	56.6	047
128	1986	11	30.97604	04	00	10.94	+18	25	05.5	047
128	1987	01	02.88160	03	38	08.70	+18	53	27.8	047
145	1986	09	28.08128	03	58	59.82	+09	54	06.3	047
145	1986	10	14.03749	03	56	29.03	+09	52	55.7	047

145		1986	10	25.03891	03	50	29.17	+09	51	33.9	047
145		1986	11	03.97447	03	42	25.48	+09	52	59.2	047
145		1986	11	06.90456	03	39	40.59	+09	54	18.0	047
145		1986	11	12.00832	03	34	35.89	+09	57	57.3	047
145		1986	11	28.86347	03	17	10.95	+10	25	29.6	047
145		1986	11	29.85973	03	16	12.49	+10	27	59.1	047
145		1986	11	30.96469	03	15	08.45	+10	30	53.0	047
145		1986	12	01.96156	03	14	11.59	+10	33	36.7	047
145		1986	12	18.84259	03	01	26.53	+11	36	44.1	047
145		1987	01	04.75716	02	56	42.51	+13	10	09.2	047
409		1986	11	06.97758	05	08	00.01	+21	39	32.7	047
409		1986	11	07.98842	05	07	22.23	+21	34	50.5	047
409		1986	11	25.92671	04	52	37.20	+20	01	45.9	047
409		1986	11	28.89906	04	49	42.94	+19	45	07.9	047
409		1986	11	28.99506	04	49	37.08	+19	44	35.8	047
409		1986	11	29.89123	04	48	43.84	+19	39	32.1	047
409		1986	11	29.95644	04	48	39.94	+19	39	11.7	047
409		1986	12	01.00060	04	47	37.40	+19	33	17.2	047
409		1986	12	29.94106	04	21	40.57	+17	04	02.2	047
409		1987	01	02.93669	04	19	15.06	+16	48	27.2	047

071 Bulgarian National Observatory
V. Shkodrov, Dept. of Astronomy, Bulgarian Academy of Sciences,
72 Lenin Boulevard, BG-1784 Sofia, Bulgaria
Observers E. W. Elst, V. Shkodrov, V. Ivanova

1987	SB	*	1987	09	22.99624	00	36	44.49	-04	16	04.0	071
1987	SB		1987	09	23.01620	00	36	41.98	-04	16	15.2	071

095 Crimean Astrophysical Observatory
N. S. Chernykh, Crimean Astrophysical Observatory, P.O. Nauchnyj,
Crimea 334413, U.S.S.R.
Yu. V. Batrakov, Institute for Theoretical Astronomy,
Naberezhnaya Kutuzova 10, Leningrad 191187, U.S.S.R.
Observers N. S. Chernykh, L. I. Chernykh, L. G. Karachkina,
T. M. Smirnova, L. V. Zhuravleva
Report Nos. 57 and 58

1966	PG		1985	10	22.97631	03	29	41.48	+13	23	48.5	15.5		095
1966	PG		1985	11	09.02493	03	17	19.44	+11	09	39.3	15.5		095
1966	PG		1985	11	11.86382	03	15	00.01	+10	48	18.7	15.5		095
1966	PG		1985	11	20.94160	03	07	44.96	+09	46	28.1	15.5		095
1978	RS		1985	11	10.96352	04	11	33.71	+24	50	31.1		E	095
1978	RS		1985	11	20.01200	04	01	32.07	+24	22	52.2		E	095
1979	SQ11		1985	11	10.96352	04	24	40.77	+21	31	33.7	17.0		095
1979	SQ11		1985	11	20.01200	04	17	12.20	+21	15	15.7	17.0		095
1981	QP		1985	10	22.97631	03	28	24.29	+09	10	23.5	16.5	E	095
1981	QP		1985	11	09.02493	03	11	14.42	+08	58	58.6	16.5		095
1981	QP		1985	11	11.86382	03	08	09.34	+08	58	55.2	16.5		095
1981	QP		1985	11	20.94160	02	58	34.71	+09	04	06.0	16.5		095
1981	RF		1985	10	21.93463	03	01	37.10	+10	31	56.1		E	095
1981	XM2		1982	01	19.74660	05	14	13.64	+18	04	48.0	17.0	E	095
1981	XM2		1982	01	20.74292	05	13	54.30	+18	01	14.6	17.0	E	095
1981	YG		1982	01	20.74292	05	23	27.82	+23	11	34.0	16.5		095
1981	YS1		1982	01	19.88197	06	37	46.40	+16	02	26.8	16.0	E	095
1981	YA2		1982	01	19.88197	06	50	56.36	+24	07	59.2	16.0	E	095
1982	BM		1982	01	19.94788	07	57	07.30	+21	42	19.8	16.5		095
1982	BQ		1982	01	19.94788	08	20	29.72	+18	01	00.6	17.0	E	095
1982	BT		1982	01	20.80713	07	39	31.29	+34	46	30.1	17.0		095
1982	BU		1982	01	20.80713	07	46	04.61	+36	06	25.0	16.0		095
1982	BV		1982	01	20.80713	07	49	38.37	+35	09	23.2	17.0		095

1982	BW		1982	01	20.80713	07	55	13.46	+33	45	54.6		17.0		095
1982	BX		1982	01	20.80713	08	04	05.76	+34	37	31.0		17.0		095
1982	BG1		1982	01	20.94122	09	58	38.16	+08	47	16.8				095
1982	BH2		1982	01	19.94788	07	58	04.09	+20	14	08.0		17.0		095
1982	BH2		1982	01	20.87134	07	57	05.31	+20	15	57.4		17.0	E	095
1982	BJ2		1982	01	19.94788	08	01	13.94	+20	41	10.8		17.0		095
1982	BJ2		1982	01	20.87134	08	00	11.89	+20	44	14.7		17.0	E	095
1982	BN2		1982	01	20.87134	07	57	04.23	+13	06	45.4		17.2		095
1982	BP2		1982	01	19.94788	07	59	51.37	+17	02	18.8		17.3		095
1982	BP2		1982	01	20.87134	07	58	51.10	+17	04	28.3		17.3		095
1982	BQ2		1982	01	19.94788	08	08	37.14	+17	05	16.4		17.0		095
1982	BQ2		1982	01	20.87134	08	07	40.03	+17	10	58.6		17.0		095
1982	BS2		1982	01	19.94788	08	21	08.77	+18	22	09.5		17.5	E	095
1982	BL8	*	1982	01	19.74660	05	17	16.99	+24	44	18.4		17.0		095
1982	BL8		1982	01	20.74292	05	16	48.76	+24	47	33.2		17.0		095
1982	BM8	*	1982	01	19.74660	05	22	31.71	+20	25	37.0		16.0		095
1982	BM8		1982	01	20.74292	05	21	59.49	+20	32	19.7		16.0		095
1982	BN8	*	1982	01	19.74660	05	23	24.02	+21	21	35.7		17.0		095
1982	BN8		1982	01	20.74292	05	22	56.32	+21	23	42.2		16.8		095
1982	BO8	*	1982	01	19.74660	05	23	32.53	+22	15	23.3		16.5		095
1982	BO8		1982	01	20.74292	05	23	10.89	+22	15	44.8		16.5		095
1982	BP8	*	1982	01	19.74660	05	26	51.51	+20	55	59.2		17.0		095
1982	BP8		1982	01	20.74292	05	25	54.35	+20	46	28.1		17.0		095
1982	BQ8	*	1982	01	19.74660	05	27	12.32	+24	47	17.6		17.0		095
1982	BQ8		1982	01	20.74292	05	26	44.58	+24	43	00.0		16.5		095
1982	BR8	*	1982	01	19.74660	05	27	14.57	+20	17	46.7		17.0		095
1982	BR8		1982	01	20.74292	05	26	36.24	+20	21	29.8		17.5		095
1982	BS8	*	1982	01	19.74660	05	27	42.35	+23	52	02.7		16.5		095
1982	BS8		1982	01	20.74292	05	27	10.85	+23	52	23.7		16.5		095
1982	BT8	*	1982	01	19.81598	06	06	54.98	+17	32	39.9		17.0		095
1982	BU8	*	1982	01	19.81598	06	14	42.37	+19	58	16.4		17.0		095
1982	BU8		1982	01	23.73021	06	11	59.13	+19	36	28.2		17.0		095
1982	BV8	*	1982	01	19.81598	06	21	01.80	+23	48	24.6		17.0	E	095
1982	BW8	*	1982	01	19.81598	06	22	22.06	+19	05	28.5		16.7		095
1982	BW8		1982	01	23.73021	06	19	23.83	+19	36	15.2		16.7		095
1982	BX8	*	1982	01	19.81598	06	24	00.52	+17	15	26.2		17.0	M	095
1982	BX8		1982	01	23.73021	06	21	17.68	+17	27	00.0		16.7		095
1982	BY8	*	1982	01	19.81598	06	32	00.11	+20	41	48.6		17.0		095
1982	BZ8	*	1982	01	19.88197	06	40	17.62	+22	45	09.7		16.5		095
1982	BA9	*	1982	01	19.88197	06	55	54.70	+18	28	48.4		16.5		095
1982	BB9	*	1982	01	19.88197	06	56	33.18	+17	01	28.7		16.3		095
1982	BC9	*	1982	01	19.88197	06	56	49.10	+16	28	20.0		17.5		095
1982	BD9	*	1982	01	19.88197	06	58	39.64	+21	54	23.5		16.8		095
1982	BE9	*	1982	01	19.88197	06	58	50.12	+19	34	34.7		17.5		095
1982	BF9	*	1982	01	19.88197	07	02	11.65	+19	22	09.8		16.8		095
1982	BG9	*	1982	01	19.88197	07	03	22.13	+24	01	33.6		17.0	E	095
1982	BH9	*	1982	01	19.88197	07	03	46.98	+23	06	54.7		17.0	E	095
1982	BJ9	*	1982	01	19.88197	07	06	45.03	+20	32	57.4		17.5		095
1982	BK9	*	1982	01	19.88197	07	16	51.06	+20	34	40.6		16.5	E	095
1982	BL9	*	1982	01	19.94788	07	47	24.90	+18	30	06.0		17.5	E	095
1982	BM9	*	1982	01	19.94788	07	47	26.78	+18	23	48.8		17.0	E	095
1982	BM9		1982	01	20.87134	07	46	31.48	+18	27	38.9		17.0		095
1982	BN9	*	1982	01	19.94788	07	47	42.14	+18	12	21.6		17.5	E	095
1982	BN9		1982	01	20.87134	07	46	46.24	+18	15	01.4		17.5		095
1982	BO9	*	1982	01	19.94788	07	48	39.92	+23	51	36.5		16.0	E	095
1982	BP9	*	1982	01	19.94788	07	51	20.77	+18	51	48.7		17.8		095
1982	BQ9	*	1982	01	19.94788	07	51	22.09	+18	03	18.4		17.5		095
1982	BQ9		1982	01	20.87134	07	50	35.20	+18	05	34.4		17.5		095
1982	BR9	*	1982	01	19.94788	07	51	38.50	+19	35	12.2		18.0		095

1982	BS9	*	1982	01	19.94788	07	51	40.17	+19	30	15.7	18.0	095
1982	BS9		1982	01	20.87134	07	50	44.97	+19	34	36.5	18.0	M 095
1982	BT9	*	1982	01	19.94788	07	52	45.20	+22	21	57.2	16.8	095
1982	BU9	*	1982	01	19.94788	07	53	21.66	+18	54	22.4	18.0	095
1982	BU9		1982	01	20.87134	07	52	20.86	+18	59	08.1	18.0	095
1982	BV9	*	1982	01	19.94788	07	53	22.76	+18	02	20.5	18.0	095
1982	BV9		1982	01	20.87134	07	52	22.53	+18	08	19.6	18.0	095
1982	BW9	*	1982	01	19.94788	07	54	30.09	+20	20	19.8	17.0	095
1982	BX9	*	1982	01	19.94788	07	55	29.92	+23	10	37.4	16.8	E 095
1982	BY9	*	1982	01	19.94788	07	56	08.48	+18	50	37.4	18.0	095
1982	BZ9	*	1982	01	19.94788	07	57	04.27	+19	19	44.5	18.0	095
1982	BA10	*	1982	01	19.94788	07	57	17.48	+18	50	06.3	17.8	095
1982	BB10	*	1982	01	19.94788	07	57	21.79	+20	25	55.4	17.5	095
1982	BC10	*	1982	01	19.94788	07	57	24.50	+18	47	16.0	17.5	095
1982	BC10		1982	01	20.87134	07	56	24.30	+18	46	05.2	17.5	095
1982	BD10	*	1982	01	19.94788	07	57	28.33	+19	21	51.4	18.0	095
1982	BE10	*	1982	01	19.94788	07	57	43.62	+22	42	40.6	17.5	095
1982	BF10	*	1982	01	19.94788	07	58	50.24	+18	39	05.1	18.0	095
1982	BG10	*	1982	01	19.94788	07	59	57.24	+22	20	06.7	17.2	095
1982	BH10	*	1982	01	19.94788	08	01	54.60	+15	42	58.6	17.2	095
1982	BH10		1982	01	20.87134	08	01	02.72	+15	51	12.8	17.2	M 095
1982	BJ10	*	1982	01	19.94788	08	01	57.48	+16	17	40.0	17.2	095
1982	BJ10		1982	01	20.87134	08	01	03.88	+16	21	30.3	17.2	095
1982	BK10	*	1982	01	19.94788	08	02	09.67	+24	12	10.1	17.5	E 095
1982	BL10	*	1982	01	19.94788	08	02	28.62	+21	06	03.2	17.0	095
1982	BM10	*	1982	01	19.94788	08	03	06.92	+19	03	46.8	17.8	095
1982	BM10		1982	01	20.87134	08	02	14.82	+19	01	13.6	17.8	M 095
1982	BN10	*	1982	01	19.94788	08	03	36.46	+18	15	51.1	17.8	095
1982	BO10	*	1982	01	19.94788	08	04	33.89	+22	00	45.8	17.5	095
1982	BP10	*	1982	01	19.94788	08	04	56.92	+19	12	46.9	18.0	095
1982	BP10		1982	01	20.87134	08	04	01.48	+19	14	53.2	18.0	095
1982	BQ10	*	1982	01	19.94788	08	06	07.18	+17	38	32.3	17.5	095
1982	BQ10		1982	01	20.87134	08	05	04.30	+17	42	45.6	17.5	095
1982	BR10	*	1982	01	19.94788	08	06	11.14	+19	30	30.7	18.0	095
1982	BS10	*	1982	01	19.94788	08	06	43.68	+20	40	10.0	18.0	095
1982	BT10	*	1982	01	19.94788	08	09	00.25	+23	45	22.5	17.0	E 095
1982	BU10	*	1982	01	19.94788	08	10	56.26	+18	58	40.4	17.0	095
1982	BU10		1982	01	20.87134	08	10	08.67	+19	01	12.2	17.0	E 095
1982	BV10	*	1982	01	19.94788	08	11	58.09	+17	02	01.6	17.8	095
1982	BW10	*	1982	01	19.94788	08	12	07.72	+19	51	03.5	17.5	095
1982	BX10	*	1982	01	19.94788	08	12	38.81	+22	24	29.1	17.8	095
1982	BY10	*	1982	01	19.94788	08	15	40.54	+20	08	18.6	17.0	095
1982	BZ10	*	1982	01	19.94788	08	18	35.41	+17	36	46.7	17.5	095
1982	BA11	*	1982	01	19.94788	08	18	37.34	+14	56	48.0	17.5	E 095
1982	BB11	*	1982	01	19.94788	08	19	07.07	+20	53	08.5	17.5	095
1982	BC11	*	1982	01	20.02202	10	54	16.74	+05	10	42.8		E 095
1982	BD11	*	1982	01	20.74292	05	20	20.44	+21	19	56.6		095
1982	BE11	*	1982	01	20.74292	05	23	13.08	+24	45	07.4	17.0	095
1982	BF11	*	1982	01	20.74292	05	24	00.16	+20	38	53.4	17.0	095
1982	BG11	*	1982	01	20.74292	05	37	21.56	+24	46	42.6	16.0	E 095
1982	BH11	*	1982	01	20.80713	07	32	21.40	+34	45	42.5	17.3	E 095
1982	BJ11	*	1982	01	20.80713	07	32	25.33	+33	49	21.9	17.0	E 095
1982	BK11	*	1982	01	20.80713	07	41	06.95	+33	04	40.8	17.0	095
1982	BL11	*	1982	01	20.80713	07	41	26.31	+37	01	31.2	17.5	095
1982	BM11	*	1982	01	20.80713	07	42	33.88	+34	41	33.1	17.0	095
1982	BN11	*	1982	01	20.80713	07	44	48.40	+32	09	52.9	17.0	E 095
1982	BO11	*	1982	01	20.80713	07	52	38.61	+35	33	23.3	17.5	095
1982	BP11	*	1982	01	20.80713	07	54	13.30	+34	27	35.0	17.5	095
1982	BQ11	*	1982	01	20.80713	08	13	19.54	+36	07	14.4	17.0	E 095

1982	BR11*	1982	01	20.87134	07	39	18.98	+17	33	22.3		17.0	095
1982	BS11*	1982	01	20.87134	07	44	43.70	+19	15	22.1			095
1982	BT11*	1982	01	20.87134	07	44	49.72	+16	39	48.8		17.2	095
1982	BU11*	1982	01	20.87134	07	47	12.78	+18	39	04.8		17.0	095
1982	BV11*	1982	01	20.87134	07	54	27.60	+19	25	56.5		17.5	095
1982	BW11*	1982	01	20.87134	07	57	31.57	+12	36	42.9		17.5	095
1982	BX11*	1982	01	20.87134	07	57	41.56	+14	13	11.8		17.5	095
1982	BY11*	1982	01	20.87134	08	03	22.60	+19	12	17.8		18.0	095
1982	BZ11*	1982	01	20.87134	08	03	34.39	+19	10	03.1		18.0	095
1982	BA12*	1982	01	20.94122	09	58	23.16	+07	45	36.2		17.5	095
1982	BB12*	1982	01	20.94122	10	01	53.70	+07	41	39.6		17.5	095
1982	BC12*	1982	01	20.94122	10	02	34.82	+10	20	33.2		17.0	E 095
1982	BD12*	1982	01	20.94122	10	03	22.26	+08	15	51.0		17.0	095
1982	BE12*	1982	01	20.94122	10	04	25.64	+08	41	15.2		17.0	095
1982	BF12*	1982	01	20.94122	10	05	30.67	+04	38	45.3		17.0	095
1982	BG12*	1982	01	20.94122	10	06	33.74	+08	09	19.4		17.0	095
1982	BH12*	1982	01	23.73021	06	00	11.70	+22	00	57.2		16.5	095
1982	BJ12*	1982	01	23.73021	06	04	43.38	+15	41	48.1			095
1982	BK12*	1982	01	23.73021	06	13	11.68	+23	12	09.5		16.7	095
1982	BL12*	1982	01	23.73021	06	18	05.83	+21	46	36.3		16.0	095
1982	BM12*	1982	01	23.73021	06	21	26.12	+21	07	15.2			095
1982	BN12*	1982	01	23.73021	06	33	24.40	+17	56	13.2		17.0	095
1982	DY1	1982	01	20.02202	10	46	56.43	+12	37	27.0		17.0	095
1982	DY1	1982	01	21.02080	10	46	33.52	+12	41	00.2		17.0	095
1982	HL	1982	05	16.82318	13	27	34.29	-05	03	47.3		17.0	095
1982	MN *	1982	06	23.87636	17	56	31.63	-01	18	46.0		17.0	095
1982	MO *	1982	06	23.87636	17	59	20.33	-04	51	28.8		17.0	E 095
1982	MP *	1982	06	23.87636	18	08	50.04	-00	55	08.4		17.0	095
1982	MQ *	1982	06	23.94859	19	17	18.94	-02	57	16.5			E 095
1982	MR *	1982	06	23.94859	19	34	29.22	-04	16	12.3			095
1982	MS *	1982	06	23.94859	19	37	04.50	-06	09	21.5		17.0	095
1982	MT *	1982	06	26.92604	19	12	53.82	-03	48	28.6		17.0	E 095
1982	MU *	1982	06	26.92604	19	20	03.00	-03	31	10.0		17.0	095
1982	MV *	1982	06	26.92604	19	36	28.88	-02	20	19.0		17.0	E 095
1982	MW *	1982	06	26.98385	19	22	05.00	+10	10	34.8		17.0	E 095
1984	QE1	1982	01	20.80713	07	36	37.75	+33	00	06.9			095
1984	SX	1982	01	19.74660	05	17	22.55	+26	20	26.3		16.3	E 095
1984	SX	1982	01	20.74292	05	16	50.60	+26	18	20.6		16.3	E 095
1985	UY3 *	1985	10	21.93463	02	24	39.16	+04	56	02.5		16.5	E 095
1985	UZ3 *	1985	10	21.93463	02	24	47.47	+09	43	55.5		17.0	E 095
1985	UA4 *	1985	10	21.93463	02	26	09.96	+07	55	16.8		15.5	E 095
1985	UA4	1985	11	08.83892	02	06	46.91	+08	51	16.4		15.5	S 095
1985	UA4	1985	11	11.79021	02	03	43.62	+09	02	33.3		15.8	E 095
1985	UB4 *	1985	10	21.93463	02	30	30.41	+09	51	19.7		17.0	095
1985	UC4 *	1985	10	21.93463	02	30	57.78	+09	34	44.6		17.0	095
1985	UD4 *	1985	10	21.93463	02	43	19.22	+03	49	29.8		15.5	E 095
1985	UD4	1985	11	08.83892	02	29	46.56	+02	51	55.3		15.5	S 095
1985	UD4	1985	11	11.79021	02	27	31.64	+02	44	57.3		15.5	095
1985	UE4 *	1985	10	21.93463	02	44	24.29	+06	18	14.2		17.0	095
1985	UE4	1985	11	08.83892	02	29	19.46	+04	33	22.4		16.5	S 095
1985	UE4	1985	11	11.79021	02	26	49.05	+04	19	59.2		17.0	095
1985	UF4 *	1985	10	21.93463	02	48	17.21	+07	53	43.9		17.0	095
1985	UG4 *	1985	10	21.93463	02	48	28.36	+07	46	09.5			095
1985	UG4	1985	11	11.79021	02	30	25.67	+05	34	24.2			095
1985	UH4 *	1985	10	21.93463	02	48	29.90	+09	35	43.9		17.0	095
1985	UJ4 *	1985	10	21.93463	02	52	30.35	+07	08	31.4		17.0	095
1985	UK4 *	1985	10	21.93463	02	55	05.60	+05	19	57.2		15.5	095
1985	UK4	1985	11	08.83892	02	36	13.12	+06	03	03.0		15.5	S 095
1985	UK4	1985	11	11.79021	02	33	00.21	+06	13	44.9		15.5	095

1985	UL4	*	1985	10	21.93463	03	01	01.52	+07	05	47.5	17.0	E 095
1985	UM4	*	1985	10	22.97631	03	07	49.34	+14	49	26.2	17.0	E 095
1985	UM4		1985	11	09.02493	02	53	23.18	+13	19	50.2	17.5	E 095
1985	UM4		1985	11	11.86382	02	50	59.12	+13	06	28.3	17.0	E 095
1985	UN4	*	1985	10	22.97631	03	14	52.63	+12	19	39.8	17.0	095
1985	UO4	*	1985	10	22.97631	03	15	04.78	+14	18	18.2	16.5	095
1985	UO4		1985	11	09.02493	02	57	54.98	+14	17	43.0	16.5	E 095
1985	UO4		1985	11	11.86382	02	54	46.36	+14	17	28.6	16.5	E 095
1985	UP4	*	1985	10	22.97631	03	17	32.43	+14	13	24.6	16.5	095
1985	UP4		1985	11	09.02493	03	02	47.40	+12	16	47.0	16.5	095
1985	UP4		1985	11	11.86382	03	00	03.11	+11	57	23.2	16.0	095
1985	UP4		1985	11	20.94160	02	51	36.25	+11	00	38.8	16.0	095
1985	UQ4	*	1985	10	22.97631	03	18	05.36	+14	06	23.4	17.0	095
1985	UQ4		1985	11	09.02493	03	05	16.90	+13	12	23.2	17.0	095
1985	UQ4		1985	11	11.86382	03	02	59.78	+13	03	32.2	17.0	095
1985	UR4	*	1985	10	22.97631	03	22	28.62	+13	36	55.4	17.0	095
1985	US4	*	1985	10	22.97631	03	24	09.02	+10	50	00.2	17.5	095
1985	UT4	*	1985	10	22.97631	03	24	54.26	+15	07	08.0	16.5	095
1985	UT4		1985	11	09.02493	03	09	11.28	+13	41	31.2	17.0	095
1985	UT4		1985	11	11.86382	03	06	16.54	+13	27	17.7	17.0	095
1985	UT4		1985	11	20.94160	02	57	20.64	+12	46	30.2	17.0	095
1985	UU4	*	1985	10	22.97631	03	25	45.62	+18	14	05.2	16.5	E 095
1985	UV4	*	1985	10	22.97631	03	28	23.06	+09	21	09.2	17.0	E 095
1985	UV4		1985	11	09.02493	03	16	29.59	+07	09	49.3	16.5	E 095
1985	UV4		1985	11	11.86382	03	14	10.22	+06	49	42.8	17.0	E 095
1985	UV4		1985	11	20.94160	03	06	45.20	+05	53	24.6	16.5	E 095
1985	UW4	*	1985	10	22.97631	03	29	35.68	+09	35	38.6	16.5	E 095
1985	UW4		1985	11	11.86382	03	13	35.15	+08	48	21.2	16.5	095
1985	UW4		1985	11	20.94160	03	05	56.64	+08	35	16.6	16.5	095
1985	UX4	*	1985	10	22.97631	03	31	32.72	+13	40	25.6	17.0	095
1985	UY4	*	1985	10	22.97631	03	32	19.81	+08	43	21.4	16.5	E 095
1985	UY4		1985	11	11.86382	03	15	37.40	+06	39	09.2	16.5	E 095
1985	UY4		1985	11	20.94160	03	06	53.98	+05	58	32.6	16.0	E 095
1985	UZ4	*	1985	10	22.97631	03	33	11.45	+12	03	22.8	17.0	095
1985	UA5	*	1985	10	22.97631	03	33	39.00	+11	04	36.1	15.5	095
1985	UA5		1985	11	09.02493	03	16	15.42	+12	37	05.4	16.0	095
1985	UA5		1985	11	11.86382	03	12	58.24	+12	53	40.8	15.5	095
1985	UA5		1985	11	20.94160	03	02	33.15	+13	48	58.2	16.0	095
1985	UB5	*	1985	10	22.97631	03	36	03.08	+13	34	03.9	16.5	095
1985	UB5		1985	11	09.02493	03	24	00.68	+11	33	28.2	16.5	E 095
1985	UB5		1985	11	11.86382	03	21	45.08	+11	13	42.8	16.5	E 095
1985	UB5		1985	11	20.94160	03	14	32.29	+10	14	18.8	17.0	E 095
1985	UC5	*	1985	10	22.97631	03	36	41.78	+15	39	00.8	17.0	095
1985	UD5	*	1985	10	22.97631	03	37	35.61	+13	43	53.6	17.0	095
1985	UE5	*	1985	10	22.97631	03	39	06.83	+13	55	09.4	16.5	095
1985	UF5	*	1985	10	22.97631	03	39	07.79	+16	58	01.6	16.5	E 095
1985	UF5		1985	11	09.02493	03	27	20.60	+15	12	17.2	16.5	E 095
1985	UF5		1985	11	11.86382	03	24	52.34	+14	53	19.3	16.5	E 095
1985	UF5		1985	11	20.94160	03	16	48.72	+13	54	31.2	16.5	E 095
1985	UG5	*	1985	10	22.97631	03	39	59.20	+09	49	08.8	17.0	E 095
1985	UG5		1985	11	09.02493	03	24	16.68	+10	24	07.3	16.5	E 095
1985	UG5		1985	11	11.86382	03	21	08.40	+10	32	18.6	16.5	E 095
1985	UG5		1985	11	20.94160	03	11	01.49	+11	03	57.6	17.0	095
1985	UH5	*	1985	10	22.97631	03	40	13.81	+12	05	52.8	16.5	095
1985	UH5		1985	11	09.02493	03	24	06.16	+12	42	35.4	16.5	E 095
1985	UH5		1985	11	11.86382	03	20	53.61	+12	49	56.0	16.5	E 095
1985	UH5		1985	11	20.94160	03	10	36.18	+13	16	47.8	16.5	095
1985	VD		1985	10	22.97631	03	19	12.06	+09	35	53.6	16.5	E 095
1985	VD		1985	11	09.02493	03	05	56.48	+08	37	10.1	17.0	095

1985	VD		1985	11	11.86382	03	03	36.25	+08	28	50.9		17.0	095
1985	VE		1985	11	11.86382	03	05	54.10	+09	38	34.4		17.0	095
1985	VF		1985	10	22.97631	03	28	16.92	+09	38	26.5		17.0	E 095
1985	VF		1985	11	11.86382	03	07	02.80	+09	16	08.0		17.0	095
1985	VG		1985	11	11.86382	03	08	31.40	+12	19	43.8		17.0	095
1985	VH		1985	11	11.86382	03	10	11.08	+09	53	53.3		17.5	095
1985	VK		1985	10	22.97631	03	31	25.98	+10	37	12.4		16.5	095
1985	VK		1985	11	09.02493	03	17	19.15	+10	10	13.2		16.5	095
1985	VK		1985	11	11.86382	03	14	40.80	+10	06	59.3		17.0	095
1985	VK		1985	11	20.94160	03	06	18.33	+10	01	09.2		17.0	095
1985	VL		1985	11	11.86382	03	14	24.39	+10	28	14.0		17.5	095
1985	VN		1985	10	22.97631	03	32	33.25	+13	34	30.8		16.5	095
1985	VN		1985	11	09.02493	03	18	55.68	+10	18	07.4		16.5	095
1985	VN		1985	11	11.86382	03	16	25.30	+09	46	59.6		17.0	095
1985	VN		1985	11	20.94160	03	08	39.32	+08	16	00.6		16.5	095
1985	VR		1985	10	22.97631	03	31	43.92	+13	25	32.9		17.0	095
1985	VR		1985	11	09.02493	03	16	20.67	+12	38	30.1		17.0	095
1985	VR		1985	11	11.86382	03	13	29.24	+12	31	26.7		17.0	095
1985	VD2		1985	11	10.96352	04	24	25.30	+18	56	49.5		16.5	095
1985	VD2		1985	11	20.01200	04	18	15.63	+17	57	56.2		16.5	095
1985	VG2	*	1985	11	08.83892	02	14	42.34	+02	49	03.5		16.5	S 095
1985	VG2		1985	11	11.79021	02	12	07.18	+02	19	16.0		16.5	095
1985	VH2	*	1985	11	09.02493	02	51	06.45	+10	10	50.4		17.0	E 095
1985	VH2		1985	11	11.86382	02	48	31.96	+10	04	02.3		16.5	E 095
1985	VJ2	*	1985	11	09.02493	02	51	24.83	+13	50	27.0		17.0	E 095
1985	VJ2		1985	11	11.86382	02	49	02.68	+13	43	21.6		17.0	E 095
1985	VK2	*	1985	11	09.02493	02	55	17.68	+11	52	04.4		16.0	095
1985	VK2		1985	11	11.86382	02	53	26.44	+11	53	05.4		16.0	095
1985	VK2		1985	11	20.94160	02	47	38.03	+11	57	40.8		16.0	095
1985	VL2	*	1985	11	09.02493	03	02	16.98	+06	59	18.1		17.5	E 095
1985	VM2	*	1985	11	09.02493	03	02	39.60	+07	07	38.1		17.5	E 095
1985	VN2	*	1985	11	09.02493	03	03	28.20	+10	46	23.8		17.0	M 095
1985	VO2	*	1985	11	09.02493	03	04	06.80	+15	24	51.0		17.0	E 095
1985	VP2	*	1985	11	09.02493	03	06	59.70	+07	05	12.4		17.0	E 095
1985	VP2		1985	11	11.86382	03	04	13.93	+07	03	59.6		17.5	E 095
1985	VQ2	*	1985	11	09.02493	03	07	24.24	+15	14	22.7		17.5	E 095
1985	VQ2		1985	11	11.86382	03	05	07.51	+14	56	00.4		17.0	E 095
1985	VR2	*	1985	11	09.02493	03	09	42.84	+09	18	41.0		17.5	095
1985	VS2	*	1985	11	09.02493	03	11	49.95	+15	18	23.0		17.0	E 095
1985	VT2	*	1985	11	09.02493	03	14	39.20	+07	36	34.0		17.5	095
1985	VU2	*	1985	11	09.02493	03	17	25.52	+06	41	34.6		17.0	E 095
1985	VV2	*	1985	11	09.02493	03	23	15.94	+14	51	00.0		17.0	E 095
1985	VV2		1985	11	11.86382	03	20	16.98	+14	43	32.2		17.0	E 095
1985	VW2	*	1985	11	09.02493	03	23	45.74	+11	24	01.3		17.0	E 095
1985	VW2		1985	11	11.86382	03	21	30.80	+11	01	23.6		17.0	E 095
1985	VX2	*	1985	11	09.02493	03	24	29.24	+10	06	58.3		17.0	E 095
1985	VX2		1985	11	11.86382	03	21	10.84	+10	20	38.5		17.0	E 095
1985	VY2	*	1985	11	10.01538	04	56	10.53	+10	30	42.2		17.0	E 095
1985	VZ2	*	1985	11	10.01538	05	04	24.10	+08	21	25.0		17.0	095
1985	VA3	*	1985	11	10.01538	05	13	50.22	+07	29	51.5		16.0	095
1985	VB3	*	1985	11	10.01538	05	15	39.71	+08	30	17.5		17.5	095
1985	VC3	*	1985	11	10.01538	05	24	48.00	+09	42	58.5		17.0	095
1985	VD3	*	1985	11	10.96352	04	05	42.15	+23	43	37.9		17.0	E 095
1985	VE3	*	1985	11	10.96352	04	10	28.63	+19	55	17.2		17.0	095
1985	VE3		1985	11	20.01200	04	01	13.51	+19	48	05.2		17.0	E 095
1985	VF3	*	1985	11	10.96352	04	10	54.66	+19	24	06.9		17.5	095
1985	VG3	*	1985	11	10.96352	04	15	05.88	+18	35	52.7		17.0	095
1985	VG3		1985	11	20.01200	04	07	38.63	+18	22	04.8		16.5	095
1985	VH3	*	1985	11	10.96352	04	20	11.10	+24	04	49.6		17.0	095

1985	VJ3	*	1985	11	10.96352	04	20	22.64	+18	59	54.0		17.0	095
1985	VJ3		1985	11	20.01200	04	13	04.19	+18	38	02.4		17.0	095
1985	VK3	*	1985	11	10.96352	04	26	42.40	+20	01	28.2		16.5	095
1985	VK3		1985	11	20.01200	04	18	46.70	+19	03	21.4		17.0	095
1985	VL3	*	1985	11	10.96352	04	26	45.60	+22	05	10.7		17.0	095
1985	VL3		1985	11	20.01200	04	19	32.82	+21	52	41.5		17.0	095
1985	VM3	*	1985	11	10.96352	04	28	35.93	+18	18	41.2		17.0	095
1985	VN3	*	1985	11	10.96352	04	33	29.31	+17	42	14.8		17.0	E 095
1985	VN3		1985	11	20.01200	04	24	43.22	+16	56	05.7		17.5	E 095
1985	VO3	*	1985	11	10.96352	04	34	06.56	+17	25	45.9		17.5	E 095
1985	VP3	*	1985	11	10.96352	04	35	37.05	+21	59	59.7		17.0	095
1985	VP3		1985	11	20.01200	04	28	10.00	+21	48	32.2		17.0	095
1985	VQ3	*	1985	11	10.96352	04	38	07.59	+20	37	11.4		17.0	095
1985	VQ3		1985	11	20.01200	04	30	46.79	+20	50	03.6		17.0	095
1985	VR3	*	1985	11	11.79021	02	06	40.56	+02	23	46.7		17.0	E 095
1985	VS3	*	1985	11	11.79021	02	08	30.59	+08	44	29.8		16.5	E 095
1985	VT3	*	1985	11	11.79021	02	13	36.48	+08	27	07.8		17.0	095
1985	VU3	*	1985	11	11.79021	02	19	12.00	+06	50	34.6		17.5	095
1985	VV3	*	1985	11	11.79021	02	20	26.18	+05	44	10.6		17.5	095
1985	VW3	*	1985	11	11.79021	02	28	53.68	+08	22	02.5		17.0	095
1985	VX3	*	1985	11	11.79021	02	30	53.25	+07	50	43.7		17.0	095
1985	VY3	*	1985	11	11.79021	02	33	27.27	+08	14	17.2		17.2	M 095
1985	VZ3	*	1985	11	11.79021	02	35	55.51	+06	32	18.2		17.0	095
1985	VA4	*	1985	11	11.79021	02	38	23.32	+03	14	41.1		17.5	N 095
1985	VB4	*	1985	11	11.79021	02	40	38.01	+06	22	53.6		17.0	E 095
1985	VC4	*	1985	11	11.79021	02	41	55.39	+03	03	02.7		17.0	E 095
1985	VD4	*	1985	11	11.86382	02	48	53.38	+10	20	27.9		17.5	E 095
1985	VE4	*	1985	11	11.86382	02	52	40.78	+10	41	19.2		17.5	095
1985	VF4	*	1985	11	11.86382	02	55	00.88	+05	34	09.8		17.0	E 095
1985	VG4	*	1985	11	11.86382	02	56	16.38	+11	48	04.6		17.5	095
1985	VH4	*	1985	11	11.86382	03	00	42.14	+10	22	32.4		17.5	095
1985	VJ4	*	1985	11	11.86382	03	01	43.17	+13	14	11.2		17.5	095
1985	VK4	*	1985	11	11.86382	03	02	33.58	+13	38	51.8		17.0	095
1985	VL4	*	1985	11	11.86382	03	03	52.02	+10	22	18.9		17.5	095
1985	VM4	*	1985	11	11.86382	03	04	49.70	+09	28	02.2		17.5	095
1985	VN4	*	1985	11	11.86382	03	07	05.22	+11	49	35.2		17.5	095
1985	VO4	*	1985	11	11.86382	03	08	18.92	+13	11	41.7		17.0	095
1985	VP4	*	1985	11	11.86382	03	09	41.02	+06	44	12.0		17.5	E 095
1985	VQ4	*	1985	11	11.86382	03	10	51.70	+09	44	34.2		17.5	095
1985	VR4	*	1985	11	11.86382	03	11	00.00	+13	00	46.8		17.5	095
1985	VS4	*	1985	11	11.86382	03	12	19.13	+07	44	59.2		17.5	095
1985	VT4	*	1985	11	11.86382	03	12	45.34	+12	11	37.6		17.5	095
1985	VU4	*	1985	11	11.86382	03	13	48.55	+14	10	05.6		17.5	E 095
1985	VV4	*	1985	11	11.86382	03	13	58.54	+11	39	19.7		17.5	095
1985	VW4	*	1985	11	11.86382	03	14	47.59	+07	47	32.4		17.5	095
1985	VX4	*	1985	11	11.86382	03	15	10.98	+06	24	38.2		17.0	E 095
1985	VY4	*	1985	11	11.86382	03	16	13.20	+08	30	27.1		17.5	095
1985	VZ4	*	1985	11	11.86382	03	16	29.31	+07	46	37.6		17.5	M 095
1985	VA5	*	1985	11	11.86382	03	17	38.34	+07	45	24.1		17.5	095
1985	VB5	*	1985	11	11.86382	03	18	07.80	+07	45	36.5		17.5	095
1985	VC5	*	1985	11	11.86382	03	18	48.27	+11	18	12.6		17.5	095
1985	VD5	*	1985	11	11.86382	03	20	08.62	+06	05	00.8		17.0	E 095
1985	VE5	*	1985	11	11.86382	03	20	34.36	+11	00	23.6		17.5	E 095
1985	VF5	*	1985	11	11.86382	03	21	24.65	+12	05	29.9		17.0	E 095
1985	VG5	*	1985	11	11.86382	03	25	47.52	+14	42	40.4		17.0	E 095
1985	VH5	*	1985	11	11.97574	02	53	56.59	+32	31	10.9		16.5	E 095
1985	VJ5	*	1985	11	11.97574	03	05	01.13	+37	40	51.6		17.5	095
1985	VK5	*	1985	11	11.97574	03	18	36.45	+33	03	31.0		17.5	095
1985	VL5	*	1985	11	11.97574	03	23	03.52	+39	44	54.3		15.5	E 095

1985	VM5	*	1985	11	11.97574	03	23	20.66	+31	26	25.3	17.5	E 095
1985	VN5	*	1985	11	11.97574	03	24	51.78	+32	41	21.8	17.0	095
1985	VO5	*	1985	11	11.97574	03	24	55.75	+31	51	15.9	17.5	E 095
1985	VP5	*	1985	11	11.97574	03	31	15.70	+33	17	57.6	16.5	E 095
1985	VQ5	*	1985	11	12.07562	05	40	02.34	+28	56	08.3	17.0	095
1985	VR5	*	1985	11	12.07562	05	43	26.83	+31	59	12.1	16.5	E 095
1985	VS5	*	1985	11	12.07562	05	54	36.20	+27	55	34.1	16.5	095
1985	VT5	*	1985	11	12.07562	06	09	41.55	+28	08	11.4	16.5	E 095
1985	WD		1985	11	10.96352	04	12	14.32	+23	50	32.8	16.5	095
1985	WD		1985	11	20.01200	04	04	40.14	+22	25	50.1	17.0	095
1985	WL	*	1985	11	20.01200	04	15	20.39	+18	43	56.7	17.0	095
1985	WM	*	1985	11	20.01200	04	18	12.27	+25	30	48.4	17.0	E 095
1985	WN	*	1985	11	20.01200	04	26	35.73	+22	47	36.8	17.5	095
1985	WO	*	1985	11	20.01200	04	27	31.00	+22	16	40.6	17.5	095
1985	WP	*	1985	11	20.01200	04	30	49.42	+20	42	05.3	17.0	095
1985	WQ	*	1985	11	20.01200	04	31	13.94	+21	43	08.9	17.0	095
1985	WR	*	1985	11	20.01200	04	31	43.53	+17	23	43.5	17.5	E 095
1985	WS	*	1985	11	20.01200	04	35	18.17	+21	12	20.6	17.5	E 095
1985	WT	*	1985	11	20.94160	02	42	09.12	+12	31	48.8	16.5	E 095
1985	WU	*	1985	11	20.94160	03	07	44.78	+10	18	58.0	17.0	095
1986	EM2		1982	01	19.94788	07	45	53.84	+20	39	02.2	17.0	E 095
1986	EM2		1982	01	20.87134	07	44	55.85	+20	40	11.2	17.0	E 095
1986	JG		1982	01	19.94788	07	47	03.04	+21	49	49.4	17.3	E 095
1986	UL1		1982	01	20.74292	05	11	02.90	+21	18	56.2	17.0	095
1987	DS		1985	10	21.93463	02	25	50.90	+10	24	42.4	17.0	E 095
1987	DS		1985	11	11.79021	02	09	24.36	+09	05	18.5	16.5	E 095
1987	EB		1982	01	19.81598	06	08	28.74	+18	47	31.5	17.3	095
1987	EB		1982	01	23.73021	06	05	39.98	+18	57	15.9	17.0	095
1987	QF	*	1987	08	26.99718	23	57	51.75	-03	31	12.1	13	a 095
1987	QF		1987	08	27.05273	23	58	42.19	-03	37	23.5	13	a 095
3			1982	06	23.87636	18	07	40.76	-04	48	47.9		E 095
3			1982	06	26.86354	18	05	03.17	-04	50	52.2		E 095
8			1982	01	20.74292	05	22	03.68	+21	05	01.9		095
10			1982	01	19.94788	08	14	06.33	+18	09	44.8		095
21			1985	10	21.93463	02	52	03.37	+12	34	47.1		E 095
26			1985	11	12.07562	06	08	40.46	+26	07	05.4		E 095
33			1982	01	19.94788	08	09	33.22	+22	40	48.0		095
34			1982	01	19.88197	06	40	46.81	+14	26	31.1		E 095
40			1982	01	20.02202	10	58	32.09	+12	05	08.4		095
40			1982	01	21.02080	10	58	14.78	+12	10	00.2		095
47			1985	11	12.07562	06	12	14.31	+29	58	18.3		E 095
107			1982	05	16.82318	13	24	09.92	-00	34	56.4		E 095
110			1985	10	22.97631	03	29	19.02	+17	00	17.0		E 095
118			1982	01	20.80713	07	47	31.76	+34	49	46.1		095
201			1982	01	20.87134	07	42	13.74	+15	45	09.4		095
219			1985	11	10.01538	05	05	13.59	+09	57	39.3		095
222			1982	01	20.02202	11	08	51.00	+08	24	57.3		E 095
222			1982	01	21.02080	11	08	37.68	+08	27	17.0		095
222			1985	11	10.96352	04	25	27.50	+20	46	30.6		095
222			1985	11	20.01200	04	18	17.15	+20	32	42.6		095
241			1982	01	19.88197	06	50	06.99	+20	43	23.4		095
249			1982	01	20.80713	07	49	11.80	+31	32	45.4		E 095
270			1985	11	10.96352	04	16	23.46	+22	32	51.3		095
270			1985	11	20.01200	04	06	13.03	+21	54	32.7		095
288			1982	05	16.82318	13	32	58.14	-01	45	20.6		095
294			1982	01	20.87134	07	41	24.44	+18	24	32.4		095
310			1985	11	11.07359	05	22	19.00	+21	30	55.9		095
317			1985	11	11.07359	05	31	12.85	+20	25	20.9		E 095
326			1985	11	11.97574	03	24	38.52	+34	15	33.5		095

334	1982	05	16.82318	13	50	07.69	-04	48	19.8			095
336	1982	01	20.94122	10	21	26.34	+00	42	27.5		E	095
364	1982	01	19.94788	08	07	53.59	+23	05	05.1		E	095
411	1985	11	10.01538	05	17	58.59	+09	57	07.3			095
419	1982	01	19.88197	06	47	08.34	+18	16	28.6			095
432	1982	01	19.74660	05	22	33.20	+24	59	39.0			095
432	1982	01	20.74292	05	21	54.18	+25	02	18.0			095
442	1982	05	16.82318	13	36	23.37	+01	04	28.8		E	095
452	1982	01	19.81598	06	22	00.69	+24	15	31.6		E	095
452	1982	01	23.73021	06	19	08.10	+24	20	12.2		E	095
471	1982	01	19.74660	04	55	03.88	+25	46	01.1		E	095
471	1982	01	20.74292	04	54	50.18	+25	51	02.2		E	095
492	1982	01	20.02202	11	06	55.74	+07	49	03.8		E	095
492	1982	01	21.02080	11	06	37.36	+07	51	24.2			095
492	1985	11	10.96352	04	31	19.17	+22	33	19.9			095
492	1985	11	20.01200	04	23	38.37	+22	21	19.3			095
494	1985	11	10.96352	04	04	32.61	+24	30	15.1		E	095
515	1982	01	19.74660	05	15	01.30	+21	38	31.9			095
515	1982	01	20.74292	05	14	42.76	+21	39	16.0			095
518	1982	01	20.94122	10	00	36.48	+03	16	03.0			095
522	1985	10	22.97631	03	41	24.65	+13	50	00.6			095
536	1982	05	16.82318	13	50	51.07	+01	00	32.4		E	095
537	1982	01	19.81598	06	25	15.47	+19	08	38.0			095
537	1982	01	23.73021	06	22	33.55	+19	18	38.6			095
541	1982	01	19.81598	06	02	14.98	+21	38	28.6			095
541	1982	01	23.73021	05	59	39.92	+21	33	35.1		E	095
551	1982	01	19.94788	07	53	35.41	+21	29	44.1			095
554	1982	01	20.94122	10	10	22.48	+09	15	30.8		E	095
567	1985	10	22.97631	03	31	15.92	+16	35	11.1			095
580	1982	01	20.02202	11	06	24.70	+09	51	05.2		E	095
580	1982	01	21.02080	11	06	09.49	+09	54	15.0			095
583	1985	11	10.96352	04	30	46.31	+24	53	15.9		E	095
583	1985	11	20.01200	04	23	37.87	+24	20	47.4	17.0		095
602	1982	01	20.02202	10	53	32.17	+07	32	05.2			095
602	1982	01	21.02080	10	53	02.90	+07	32	13.8			095
611	1982	06	23.94859	19	20	05.13	-03	08	53.1			095
611	1982	06	26.92604	19	17	58.41	-03	08	01.4			095
618	1982	01	19.88197	06	42	28.40	+20	49	48.6			095
627	1982	05	16.82318	14	00	52.37	-02	28	08.0		E	095
652	1982	01	20.80713	07	52	55.25	+33	56	29.0			095
703	1982	01	19.88197	07	12	55.85	+17	52	36.4			095
707	1982	01	19.94788	08	00	28.40	+18	15	28.6			095
707	1982	01	20.87134	07	59	21.98	+18	16	40.4			095
710	1982	01	19.74660	05	07	06.06	+21	06	33.8			095
710	1982	01	20.74292	05	06	40.16	+21	06	35.4			095
721	1982	05	16.82318	13	36	42.64	-08	47	24.2		E	095
728	1985	11	10.96352	04	10	27.15	+17	44	47.5		E	095
728	1985	11	20.01200	04	00	43.81	+17	34	59.4		E	095
739	1982	06	23.94859	19	33	03.60	-04	59	28.9			095
739	1982	06	26.92604	19	30	46.10	-05	15	47.2			095
742	1982	05	16.82318	13	25	20.56	+00	23	23.6		E	095
753	1985	10	21.93463	02	42	32.92	+08	31	46.1			095
753	1985	11	08.83892	02	22	59.57	+08	00	06.2		S	095
753	1985	11	11.79021	02	19	51.92	+07	56	54.1			095
767	1982	01	20.02202	10	50	03.82	+10	34	28.2			095
767	1982	01	21.02080	10	49	40.68	+10	37	37.6			095
767	1985	10	22.97631	03	48	08.22	+18	06	11.0		E	095
790	1985	11	11.07359	05	22	11.79	+22	28	51.0			095
820	1982	01	20.02202	10	41	10.34	+12	22	05.6			095

820	1982	01	21.02080	10	40	48.10	+12	26	25.5			095
820	1985	10	22.97631	03	08	35.21	+08	58	56.9		E	095
820	1985	11	09.02493	02	55	28.94	+08	02	44.4			095
820	1985	11	11.86382	02	53	13.08	+07	54	44.8			095
820	1985	11	20.94160	02	46	14.81	+07	33	43.9			095
825	1982	01	19.94788	08	03	52.06	+22	17	48.1			095
826	1982	01	19.81598	06	18	19.00	+15	34	21.8		E	095
847	1982	01	19.81598	06	05	54.31	+22	45	41.8			095
847	1982	01	23.73021	06	03	26.00	+22	43	04.8			095
851	1982	01	19.81598	06	23	22.80	+20	51	37.6			095
851	1982	01	23.73021	06	20	10.76	+21	00	42.0			095
867	1985	11	10.96352	04	04	53.73	+22	42	05.5		E	095
914	1985	11	11.97574	03	11	28.30	+35	24	26.2			095
920	1982	06	26.92604	19	32	07.62	-04	11	16.8			095
924	1985	11	10.01538	05	31	37.70	+10	12	07.9		E	095
926	1985	11	10.96352	04	09	08.90	+25	37	11.4		E	095
962	1982	01	19.81598	05	58	59.94	+20	43	40.2			095
962	1982	01	23.73021	05	56	41.20	+20	48	06.4		E	095
977	1985	10	21.93463	02	59	03.90	+03	02	19.4		E	095
977	1985	11	08.83892	02	44	05.80	+02	45	24.8		S	095
977	1985	11	11.79021	02	41	32.34	+02	45	32.3		E	095
980	1982	01	20.87134	07	38	35.52	+17	11	09.6			095
985	1985	11	12.07562	05	42	42.84	+28	06	32.8			095
989	1982	06	26.92604	19	31	41.97	-06	00	31.5			095
996	1982	01	19.74660	05	32	57.65	+24	13	15.6			095
996	1982	01	20.74292	05	32	27.71	+24	12	37.8			095
997	1985	11	10.96352	04	12	42.67	+23	16	42.8			095
997	1985	11	20.01200	04	04	03.97	+22	25	53.3		E	095
1001	1982	01	19.81598	05	54	37.16	+18	57	26.8			095
1017	1985	11	08.83892	02	20	03.96	+01	11	41.0		S	095
1017	1985	11	11.79021	02	17	30.84	+01	03	53.8		E	095
1042	1985	10	22.97631	03	30	20.60	+15	36	41.5			095
1046	1982	01	20.80713	07	28	07.06	+33	43	27.8			095
1051	1982	06	26.98385	19	27	24.04	+11	01	12.8			095
1061	1982	01	19.94788	08	13	22.22	+21	46	21.2			095
1073	1982	01	19.94788	08	07	06.66	+22	27	45.0			095
1076	1982	01	19.88197	06	56	30.58	+19	30	40.4			095
1097	1982	01	19.94788	08	18	11.78	+19	11	59.0			095
1117	1985	10	22.97631	03	25	47.28	+11	18	54.8			095
1117	1985	11	09.02493	03	08	17.18	+09	52	23.3			095
1117	1985	11	11.86382	03	05	12.69	+09	39	33.0			095
1117	1985	11	20.94160	02	55	48.19	+09	04	45.4			095
1118	1985	11	11.97574	03	12	01.41	+38	25	58.0			095
1125	1982	05	16.82318	13	34	21.81	-05	46	19.2	16.0		095
1146	1982	05	16.82318	13	31	26.70	-08	41	00.6		E	095
1156	1982	05	16.82318	13	29	57.58	-07	23	49.3			095
1171	1982	01	19.81598	06	17	33.55	+21	49	04.5			095
1171	1982	01	23.73021	06	15	11.37	+21	55	29.6			095
1189	1982	01	19.74660	05	15	45.24	+23	44	45.0			095
1189	1982	01	20.74292	05	15	21.02	+23	41	09.7			095
1206	1982	01	20.02202	10	57	06.92	+04	51	31.1		E	095
1209	1982	01	19.74660	05	33	00.67	+23	51	15.4			095
1209	1982	01	20.74292	05	32	27.73	+23	52	03.2			095
1217	1982	01	19.88197	06	50	02.27	+17	39	36.2			095
1225	1985	11	11.07359	05	11	21.56	+27	19	08.5		E	095
1233	1982	01	19.94788	08	05	58.01	+18	57	58.4			095
1233	1982	01	20.87134	08	04	59.92	+18	59	01.8			095
1241	1982	01	20.80713	07	57	33.26	+35	56	40.3			095
1264	1982	06	26.98385	19	37	49.82	+11	56	37.6			095

1265	1985	11	11.97574	03	29	56.29	+33	42	26.6	E	095
1273	1982	01	19.94788	07	47	14.68	+21	09	15.2	E	095
1285	1982	01	19.94788	07	59	36.64	+23	36	25.0	E	095
1290	1982	01	19.94788	07	49	27.28	+22	51	39.5	E	095
1302	1985	11	11.86382	02	45	00.29	+12	56	23.6	E	095
1302	1985	11	20.94160	02	37	46.64	+12	31	57.4	E	095
1363	1982	01	19.94788	07	58	42.42	+19	00	52.6		095
1363	1982	01	20.87134	07	57	52.29	+19	03	16.1		095
1375	1985	11	11.07359	05	44	22.02	+26	23	16.1		095
1375	1985	11	12.07562	05	43	54.16	+26	26	45.9		095
1397	1985	10	21.93463	02	41	38.34	+12	02	00.1	E	095
1397	1985	11	08.83892	02	24	48.97	+10	57	52.5	S	095
1406	1982	01	20.80713	07	37	45.20	+34	28	27.1		095
1406	1985	11	11.97574	03	09	17.64	+38	50	32.1		095
1408	1985	10	22.97631	03	24	29.33	+13	39	25.4		095
1408	1985	11	09.02493	03	12	13.00	+11	59	25.6		095
1408	1985	11	11.86382	03	09	59.46	+11	43	03.2		095
1408	1985	11	20.94160	03	03	00.00	+10	54	00.0		095
1412	1985	10	21.93463	02	50	28.08	+11	38	23.2	E	095
1417	1985	11	11.79021	02	03	22.57	+01	31	16.3	E	095
1423	1982	01	20.02202	10	53	23.06	+11	24	30.6		095
1423	1982	01	21.02080	10	53	01.42	+11	27	50.0		095
1423	1985	11	11.07359	05	28	32.47	+24	10	55.9		095
1442	1982	01	19.94788	08	23	55.22	+17	27	34.0	E	095
1461	1982	01	19.88197	07	04	13.34	+24	27	10.8	E	095
1466	1982	06	23.87636	17	59	56.76	-00	42	06.2		095
1466	1982	06	26.86354	17	57	16.03	-00	57	55.8		095
1486	1982	01	19.74660	05	06	16.24	+22	58	32.6		095
1486	1982	01	20.74292	05	05	52.21	+22	57	59.2		095
1493	1982	01	20.02202	10	38	27.62	+08	55	17.0		095
1493	1982	01	21.02080	10	37	55.80	+08	57	48.2		095
1514	1982	01	20.02202	10	29	57.70	+09	08	40.0	E	095
1517	1985	11	10.96352	04	27	09.21	+21	24	12.3		095
1517	1985	11	20.01200	04	18	45.89	+21	20	44.0		095
1536	1985	11	10.96352	04	33	30.49	+19	49	17.4		095
1536	1985	11	20.01200	04	24	16.16	+19	18	21.5		095
1539	1985	11	11.07359	05	33	57.48	+20	55	16.1		095
1554	1982	06	26.92604	19	09	53.16	-03	03	46.2	E	095
1581	1982	01	19.81598	05	57	14.32	+23	03	12.9	E	095
1598	1982	01	19.94788	07	46	32.66	+21	29	14.2	E	095
1609	1982	01	19.81598	05	57	57.60	+20	35	22.6	E	095
1627	1982	01	20.02202	10	39	31.93	+10	59	55.0		095
1627	1982	01	21.02080	10	38	57.86	+11	07	02.2		095
1629	1982	01	19.94788	08	07	56.77	+16	30	01.8		095
1629	1982	01	20.87134	08	06	55.84	+16	37	14.2		095
1668	1982	01	19.81598	06	33	43.50	+17	27	50.4	E	095
1668	1982	01	23.73021	06	30	47.66	+17	37	14.6		095
1691	1985	11	11.07359	05	19	01.10	+21	35	08.3		095
1699	1982	01	19.74660	05	30	29.92	+23	04	46.2		095
1699	1982	01	20.74292	05	29	54.67	+23	03	35.6		095
1711	1982	01	20.87134	07	39	49.88	+16	00	32.4		095
1715	1982	01	20.80713	07	46	31.15	+38	49	35.2	15.5	095
1725	1985	11	10.96352	04	30	29.78	+17	46	44.9	E	095
1725	1985	11	20.01200	04	22	49.95	+17	30	52.7	E	095
1726	1982	01	19.88197	06	47	46.42	+18	40	39.4		095
1728	1982	01	20.74292	04	59	24.37	+17	40	14.8		095
1736	1982	01	20.02202	10	56	38.76	+04	51	50.9	E	095
1736	1982	01	21.02080	10	56	20.32	+04	55	29.6		095
1743	1982	05	16.82318	13	42	59.75	-04	42	15.1		095

1752	1982	01	19.88197	06	49	32.97	+18	28	17.1		095
1754	1982	01	20.94122	10	16	31.52	+06	05	08.4		095
1764	1982	01	19.81598	06	26	46.70	+20	57	41.5		095
1766	1982	01	19.81598	06	07	17.00	+15	41	13.1	E	095
1773	1985	11	11.07359	05	14	36.64	+22	14	37.5		095
1809	1982	01	19.81598	06	24	50.32	+23	36	58.4	E	095
1809	1982	01	23.73021	06	21	59.64	+23	41	37.2	E	095
1815	1982	01	19.74660	05	22	09.38	+22	01	03.4		095
1815	1982	01	20.74292	05	21	47.37	+22	02	03.6		095
1823	1985	11	12.07562	05	48	48.41	+27	03	18.1		095
1825	1982	01	19.81598	05	55	19.26	+24	19	22.2	E	095
1834	1982	01	19.74660	05	00	35.98	+22	43	28.4		095
1835	1982	01	19.94788	07	48	17.40	+21	07	36.0	E	095
1837	1985	11	12.07562	05	37	18.00	+26	21	19.1		095
1907	1982	01	19.88197	06	59	49.38	+19	16	26.4		095
1909	1982	01	19.88197	06	45	01.69	+20	37	16.4		095
1933	1985	11	09.02493	03	11	06.21	+05	51	19.7	E	095
1933	1985	11	11.86382	03	08	26.64	+05	35	00.8	E	095
1949	1982	01	19.74660	05	19	13.90	+21	59	22.4		095
1949	1982	01	20.74292	05	18	44.88	+21	57	41.8		095
1977	1982	01	21.02080	11	06	10.48	+05	55	57.1		095
1988	1982	01	19.94788	08	06	20.34	+21	59	55.7		095
1992	1985	11	10.01538	05	17	13.57	+09	31	19.8		095
2027	1985	11	10.96352	04	25	02.17	+23	29	17.3		095
2027	1985	11	20.01200	04	16	43.29	+23	48	20.9		095
2046	1985	11	11.07359	05	12	34.21	+22	38	42.4	E	095
2058	1982	01	19.94788	07	44	02.31	+22	31	35.2	E	095
2110	1985	10	22.97631	03	39	01.86	+17	21	02.8	E	095
2110	1985	11	20.94160	03	08	46.11	+15	25	31.4	E	095
2117	1982	01	20.02202	10	40	21.00	+12	45	07.2		095
2117	1982	01	21.02080	10	39	55.55	+12	48	43.3		095
2126	1985	11	11.97574	02	59	36.23	+33	25	08.4		095
2142	1982	01	19.74660	05	20	54.23	+22	20	49.6		095
2142	1982	01	20.74292	05	20	25.55	+22	20	37.4		095
2176	1982	01	19.74660	05	15	32.53	+23	10	16.3		095
2176	1982	01	20.74292	05	15	04.50	+23	10	29.4		095
2192	1985	10	21.93463	02	37	06.87	+11	23	31.7	E	095
2192	1985	11	08.83892	02	23	56.92	+09	25	54.8	S	095
2192	1985	11	11.79021	02	21	49.52	+09	07	50.2	E	095
2213	1982	01	19.81598	06	19	30.47	+20	02	09.6		095
2213	1982	01	23.73021	06	16	18.77	+20	16	00.4		095
2214	1982	06	23.87636	18	23	42.57	-00	24	34.6	E	095
2214	1982	06	26.86354	18	21	27.34	-00	21	02.6		095
2220	1982	01	19.74660	05	13	16.33	+22	49	03.3		095
2220	1982	01	20.74292	05	12	54.38	+22	49	26.8		095
2246	1985	11	11.79021	02	05	59.51	+05	03	16.2	E	095
2248	1982	01	20.02202	10	57	56.32	+08	53	05.1		095
2248	1982	01	21.02080	10	57	42.88	+08	54	52.8		095
2276	1985	11	10.96352	04	29	38.90	+20	07	04.2		095
2276	1985	11	20.01200	04	20	37.08	+19	38	03.9		095
2280	1982	01	20.74292	05	12	23.46	+22	01	12.1		095
2281	1982	01	19.74660	05	12	27.25	+20	52	43.6		095
2281	1982	01	20.74292	05	11	59.67	+20	52	40.4		095
2287	1982	01	19.74660	05	21	40.82	+23	25	57.5		095
2287	1982	01	20.74292	05	21	06.18	+23	27	11.0		095
2316	1982	01	19.81598	05	57	07.98	+21	25	51.1		095
2325	1985	10	22.97631	03	08	15.98	+14	31	47.6	E	095
2325	1985	11	09.02493	02	55	10.58	+13	31	16.4		095
2325	1985	11	11.86382	02	52	52.62	+13	21	14.8		095

2325	1985	11	20.94160	02	45	50.04	+12	51	49.8			095
2330	1982	01	19.88197	06	51	21.50	+16	13	20.0			095
2332	1982	01	20.80713	08	00	20.68	+37	59	04.2			095
2333	1982	05	16.82318	13	34	11.07	-08	38	44.5		E	095
2336	1982	01	19.88197	07	05	09.94	+24	15	34.9		E	095
2345	1982	01	19.94788	08	20	20.78	+20	10	07.3			095
2353	1985	11	12.07562	06	08	44.25	+28	46	56.2		E	095
2357	1982	01	20.94122	10	03	10.78	+09	59	37.4		E	095
2359	1982	01	19.88197	06	46	24.04	+16	21	20.8			095
2389	1985	11	11.97574	03	22	03.75	+31	42	55.4		E	095
2395	1982	01	19.94788	08	03	24.91	+20	34	28.8			095
2395	1982	01	20.87134	08	02	36.44	+20	36	46.4		E	095
2397	1985	11	10.01538	05	18	22.23	+07	41	55.3			095
2399	1985	11	11.86382	02	45	37.38	+06	37	34.2		E	095
2405	1982	01	19.74660	05	19	31.72	+21	18	16.7			095
2405	1982	01	20.74292	05	19	07.70	+21	18	54.9			095
2421	1985	11	10.96352	04	15	13.67	+16	42	17.4		E	095
2421	1985	11	20.01200	04	07	40.83	+16	42	57.2		E	095
2466	1985	10	22.97631	03	26	16.20	+10	51	20.0			095
2466	1985	11	09.02493	03	12	00.88	+09	24	17.0			095
2466	1985	11	11.86382	03	09	25.71	+09	11	26.2			095
2466	1985	11	20.94160	03	01	24.64	+08	36	42.0			095
2474	1982	01	20.87134	07	53	37.00	+10	54	06.9		E	095
2479	1985	11	10.96352	04	06	08.37	+26	20	18.6		E	095
2532	1982	01	20.02202	10	40	39.66	+10	43	22.4			095
2555	1982	01	19.74660	05	13	24.20	+23	16	14.9			095
2555	1982	01	20.74292	05	13	00.50	+23	15	27.4			095
2564	1982	01	19.94788	08	16	46.24	+17	38	40.6			095
2572	1985	11	11.86382	03	17	50.40	+14	02	41.8		E	095
2578	1982	01	20.80713	07	54	11.66	+34	49	51.4			095
2580	1982	01	19.94788	08	05	43.85	+20	19	21.4			095
2580	1982	01	20.87134	08	04	38.12	+20	23	13.5		E	095
2583	1985	10	21.93463	02	36	02.73	+11	45	26.2		E	095
2588	1985	11	10.96352	04	28	55.02	+21	57	24.7			095
2588	1985	11	20.01200	04	19	37.35	+21	25	32.8			095
2591	1982	01	19.94788	08	08	07.59	+22	09	22.1			095
2592	1982	01	19.74660	05	19	26.88	+21	28	56.3	17.5		095
2592	1982	01	20.74292	05	18	57.69	+21	28	41.7			095
2597	1982	01	19.81598	06	28	15.50	+22	50	44.2			095
2597	1982	01	23.73021	06	25	31.27	+22	54	12.2			095
2598	1985	11	08.83892	02	06	28.89	+07	32	38.1		S	095
2598	1985	11	11.79021	02	04	31.60	+07	10	13.8		E	095
2601	1982	01	20.94122	10	17	57.38	+02	01	56.4		E	095
2613	1985	11	11.97574	03	28	07.03	+32	30	26.6		E	095
2614	1982	01	19.74660	05	11	34.94	+20	50	56.6			095
2614	1982	01	20.74292	05	11	08.48	+20	53	40.7			095
2625	1982	01	21.02080	10	49	49.94	+09	34	46.0			095
2630	1982	01	19.94788	07	57	17.95	+23	21	51.4		E	095
2633	1982	01	19.74660	05	07	48.06	+25	27	43.5			095
2633	1982	01	20.74292	05	07	22.76	+25	27	25.0			095
2656	1982	01	20.02202	10	50	18.34	+11	36	04.6			095
2656	1982	01	21.02080	10	50	06.69	+11	40	14.2			095
2661	1985	11	11.97574	03	25	31.08	+34	30	19.2			095
2666	1985	10	22.97631	03	16	03.50	+10	03	14.0			095
2666	1985	11	09.02493	03	04	44.72	+07	25	23.3			095
2666	1985	11	11.86382	03	02	41.90	+07	00	57.8		E	095
2666	1985	11	20.94160	02	56	22.79	+05	50	23.7		E	095
2672	1982	01	20.87134	07	45	03.84	+16	45	46.2	17.5		095
2689	1982	05	16.82318	13	23	31.47	-03	42	52.6		E	095

2700	1982	01	19.81598	06	19	54.15	+20	02	14.8		095
2700	1982	01	23.73021	06	17	13.50	+20	07	09.0		095
2718	1985	11	10.96352	04	05	45.79	+21	23	16.6	E	095
2718	1985	11	20.01200	03	58	00.03	+21	05	05.0	E	095
2721	1985	10	22.97631	03	10	58.32	+15	21	56.8	E	095
2721	1985	11	09.02493	02	57	26.79	+14	34	56.9	E	095
2721	1985	11	11.86382	02	55	05.42	+14	26	58.8	E	095
2721	1985	11	20.94160	02	47	53.60	+14	03	22.6		095
2761	1985	11	12.07562	05	56	03.96	+26	40	21.8		095
2803	1985	11	11.07359	05	29	14.98	+24	47	28.3		095
2806	1982	01	20.02202	10	51	50.03	+09	08	19.2		095
2845	1985	11	11.86382	03	03	21.85	+06	54	07.6	E	095
2857	1985	10	21.93463	02	41	08.75	+06	19	00.9		095
2857	1985	11	08.83892	02	24	38.31	+04	34	26.1	S	095
2857	1985	11	11.79021	02	21	55.16	+04	20	34.3		095
2859	1985	11	11.86382	02	46	27.62	+10	19	14.2	E	095
2859	1985	11	20.94160	02	37	27.18	+09	33	51.7	E	095
2861	1985	10	22.97631	03	10	45.44	+13	55	51.5	E	095
2861	1985	11	09.02493	02	55	49.30	+12	15	29.2		095
2861	1985	11	11.86382	02	53	10.72	+11	59	05.4		095
2861	1985	11	20.94160	02	45	07.54	+11	11	20.4		095
2862	1985	11	10.96352	04	11	52.78	+19	49	16.1		095
2862	1985	11	20.01200	04	02	27.93	+19	03	04.5	E	095
2881	1985	10	22.97631	03	24	44.48	+12	22	53.0		095
2881	1985	11	11.86382	03	06	09.78	+10	18	38.8		095
2881	1985	11	20.94160	02	56	48.76	+09	27	48.2		095
2904	1985	11	09.83211	01	36	18.27	-10	59	37.2	E	095
2918	1982	01	19.74660	05	21	23.20	+21	13	54.7		095
2924	1982	01	20.02202	10	59	33.87	+09	21	14.6		095
2924	1982	01	21.02080	10	59	16.65	+09	24	27.9		095
2929	1985	11	09.83211	01	50	33.56	-09	04	34.9		095
2938	1982	01	19.88197	07	03	17.08	+23	32	15.2	N	095
2942	1982	01	19.94788	07	56	07.92	+21	06	35.7		095
2949	1982	01	20.94122	10	13	18.67	+07	51	47.0		095
2954	1982	01	20.94122	09	48	49.01	+09	32	45.0		095
2976	1982	06	26.92604	19	43	55.84	-07	35	55.2	E	095
2984	1982	01	20.74292	05	02	43.12	+23	56	30.3		095
2987	1985	11	11.86382	02	48	35.40	+14	51	05.5	E	095
3072	1985	11	11.86382	03	12	33.03	+08	08	07.1		095
3089	1982	01	19.74660	05	29	15.23	+25	03	16.1		095
3089	1982	01	20.74292	05	28	38.42	+25	05	33.6		095
3089	1985	11	09.83211	01	44	10.23	-11	15	47.7		095
3093	1982	01	19.88197	07	02	37.14	+18	56	14.2		095
3103	1982	01	20.02202	10	53	00.18	+11	07	27.8		095
3103	1982	01	21.02080	10	52	04.56	+11	50	19.2		095
3131	1982	01	20.02202	10	32	51.84	+12	49	24.1	E	095
3131	1982	01	21.02080	10	32	26.66	+12	52	40.0		095
3163	1985	10	22.97631	03	22	38.51	+15	51	09.2		095
3163	1985	11	11.86382	03	01	18.41	+13	51	55.5		095
3166	1985	10	22.97631	03	14	16.68	+13	33	01.7		095
3166	1985	11	09.02493	02	56	28.76	+12	46	37.0		095
3166	1985	11	11.86382	02	53	19.07	+12	38	58.0		095
3166	1985	11	20.94160	02	43	31.67	+12	17	15.6	E	095
3176	1985	11	10.96352	04	12	27.00	+24	25	08.6		095
3176	1985	11	20.01200	04	02	53.16	+24	59	15.6	E	095
3201	1982	01	19.74660	05	06	34.02	+21	41	12.5		095
3201	1982	01	20.74292	05	06	10.52	+21	42	39.5		095
3209	1982	01	20.02202	10	31	33.82	+11	10	59.4	E	095

3209		1982 01 21.02080	10 31 13.62	+11 16 59.6								095
3232		1985 10 21.93463	02 58 06.47	+09 55 05.1							E	095
3232		1985 11 11.79021	02 42 20.50	+07 46 35.4							E	095
3236		1982 01 20.94122	10 01 06.48	+10 00 34.6							E	095
3268		1982 06 26.92604	19 39 34.50	-10 26 04.5							E	095
3288		1982 06 23.87636	18 04 25.09	-04 19 01.1							E	095
3288		1982 06 26.86354	18 03 09.33	-04 33 14.4							E	095
3330		1982 01 20.80713	08 09 34.63	+33 38 49.0								095
3347		1982 01 20.87134	07 33 52.05	+14 38 47.1							E	095
3424		1982 01 20.02202	10 33 10.15	+07 55 42.3								095
3459		1982 01 19.94788	07 55 27.32	+23 35 20.0						17.0	E	095
3467		1985 11 08.83892	02 34 55.58	+08 07 07.8						16.5	S	095
3467		1985 11 11.79021	02 32 01.34	+07 58 08.1						17.0		095
3481		1982 01 20.94122	10 03 43.24	+04 03 32.2						16.5		095
3572		1982 01 19.81598	06 05 30.06	+19 23 01.2						17.0		095
3572		1982 01 23.73021	06 03 08.18	+19 23 45.4						17.0		095
3608		1985 11 10.96352	04 30 14.23	+17 40 44.8						17.0		095
3608		1985 11 20.01200	04 23 03.23	+17 43 05.6						17.0		095
3642		1982 01 19.88197	06 41 19.21	+14 21 50.6						16.0	E	095
3662		1982 01 20.80713	07 58 36.89	+37 06 27.6						17.5		095

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T. Seki, Kamimachi 2-9-35, Kochi, Japan
0.60-m reflector
Copied in part from Nihondaira Obs. Circ.

1983 QF		1987 09 16.67951	00 37 12.9	-06 01 41						17		372
1983 QF		1987 09 17.66319	00 36 37.4	-06 16 55								372
1983 QF		1987 09 18.63472	00 36 01.1	-06 32 03						16		372
1987 SE	*	1987 09 16.60972	23 45 12.4	+07 23 37						17		372
1987 SE		1987 09 17.63819	23 44 20.7	+07 20 54								372
1987 SE		1987 09 18.68090	23 43 28.7	+07 18 01								372
1987 SE		1987 09 19.66840	23 42 39.0	+07 15 19						16.5		372
1987 SF	*	1987 09 16.63576	23 56 35.1	-06 59 51						18		372
1987 SF		1987 09 17.61354	23 55 55.3	-07 08 48						17.5		372
1987 SF		1987 09 18.61389	23 55 13.8	-07 17 59								372
1987 SF		1987 09 19.69687	23 54 27.9	-07 27 47						17		372
1987 SG	*	1987 09 16.65938	00 23 30.7	+08 07 23						17.5		372
1987 SG		1987 09 17.68854	00 22 38.6	+08 01 58								372
1987 SG		1987 09 18.65729	00 21 48.6	+07 56 44						16.5		372
1987 SH	*	1987 09 17.63819	23 40 51.3	+07 31 27						16.5		372
1987 SH		1987 09 18.68090	23 39 54.4	+07 26 05								372
1987 SH		1987 09 19.66840	23 39 00.3	+07 20 54						16		372

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

1987 QA		1987 09 15.48397	02 35 46.73	-22 15 48.6						16	t	474
1987 QA		1987 09 15.50394	02 35 51.88	-22 18 25.2								474
1987 QA		1987 09 19.54105	02 56 15.14	-31 38 48.7						16		474
1981		1987 09 17.36889	12 13 22.84	-64 28 00.9						15	t	474
1981		1987 09 17.39001	12 14 31.47	-64 33 18.3							t	474
1981		1987 09 18.35458	13 23 23.51	-68 21 03.2						15	t	474
1981		1987 09 18.38166	13 25 54.56	-68 26 01.7							t	474
1981		1987 09 19.43721	15 27 36.71	-69 34 33.0						15	t	474
1981		1987 09 19.45284	15 29 38.66	-69 32 49.3							t	474

552 San Vittore
E. Colombini, Via S. Vittore 44, I-40136 Bologna, Italy
Observers C. Vacchi, G. Sassi
Measurers C. Vacchi, V. Goretti, E. Colombini
AGK3, SAOC

1981	EL19		1987	08	27.86806	21	29	14.43	-07 41 18.6		552
1981	EL19		1987	08	27.89375	21	29	13.39	-07 41 29.0		552
1985	YP		1987	08	26.85694	21	36	20.68	+25 53 32.0		552
1985	YP		1987	08	26.87986	21	36	18.57	+25 53 45.1		552
1987	MC		1987	08	16.84028	17	30	18.06	-12 13 48.1	17.2	552
1987	MC		1987	08	16.85972	17	30	18.98	-12 13 56.2		552
1987	MC		1987	08	20.83056	17	34	14.10	-12 49 11.0		552
1987	MC		1987	08	20.85139	17	34	15.26	-12 49 26.5		552
1987	QQ1	*	1987	08	29.92083	22	33	44.42	-05 01 17.9	16.0	552
1987	QQ1		1987	08	29.95903	22	33	39.95	-05 00 52.3		552
1987	QR1	*	1987	08	30.94236	22	56	52.34	+00 04 48.9	17.0	552
1987	QR1		1987	08	30.96319	22	56	50.91	+00 04 45.0		552

556 Reintal
F. Frevert, Dilichstrasse 1, D-6330 Wetzlar, Federal Republic of Germany
Observer F. Seiler
0.30-m f/6 reflector
AGK3

18		1987	04	23.93750	13	46	28.49	+03 08 42.2		556
18		1987	04	23.94444	13	46	28.11	+03 08 43.8		556
18		1987	04	23.95139	13	46	27.66	+03 08 46.1		556
26		1987	04	23.89583	12	21	02.77	+00 50 15.6		556
26		1987	04	23.90278	12	21	02.61	+00 50 16.8		556
26		1987	04	23.90972	12	21	02.22	+00 50 17.5		556
344		1987	04	23.85417	12	05	56.27	+19 33 15.1		556
344		1987	04	23.86111	12	05	55.92	+19 33 14.2		556
344		1987	04	23.86806	12	05	55.55	+19 33 09.8		556
354		1987	04	23.83333	11	47	11.97	+22 24 54.5		556
354		1987	04	23.84028	11	47	12.14	+22 24 54.4		556
354		1987	04	23.84722	11	47	12.08	+22 24 54.9		556
451		1987	04	23.87500	12	10	27.44	+21 23 26.9		556
451		1987	04	23.88194	12	10	27.21	+21 23 27.3		556
451		1987	04	23.88889	12	10	27.09	+21 23 25.0		556
511		1987	04	23.91667	13	04	52.22	+17 10 42.4		556
511		1987	04	23.92361	13	04	51.92	+17 10 41.4		556
511		1987	04	23.93056	13	04	51.63	+17 10 43.1		556

568 Mauna Kea Observatory
D. J. Tholen, Institute for Astronomy, 2680 Woodlawn Drive,
Honolulu, HI 96822, U.S.A.
Observers D. J. Tholen, W. K. Hartmann, C. E. Swift
2.24-m telescope encoders

1172		1987	06	25.60166	21	54	52.81	+07 00 54.6	15.4V	568
2363		1987	08	29.39306	21	23	59.72	+21 44 55.5	16.1V	568
2363		1987	08	30.32861	21	23	34.11	+21 40 07.7	16.1V	568

573 Eldagsen
W. Bonk, Nordstrasse 33, D-3257 Springe 3, Federal Republic of Germany
AGK3

849		1987	07	25.91319	21	06	52.63	+15 07 18.0		573
849		1987	07	25.91667	21	06	52.43	+15 07 18.5		573
849		1987	07	25.92465	21	06	52.10	+15 07 19.1		573
849		1987	08	21.85648	20	47	39.60	+13 58 48.5		573
849		1987	08	21.86065	20	47	39.36	+13 58 47.8		573

849	1987 08 21.86476	20 47 39.20	+13 58 46.3		573
849	1987 08 22.85428	20 47 02.03	+13 52 36.4		573
849	1987 08 22.85868	20 47 01.95	+13 52 34.7		573
849	1987 08 22.86285	20 47 01.74	+13 52 33.2		573

657 Victoria, Climenhaga Observatory
J. B. Tatum, Dept. of Physics, University of Victoria, P.O. Box 1700, Victoria, BC, V8W 2Y2, Canada
Observers J. B. Tatum, D. D. Balam

1927 UE	1987 08 25.28097	23 11 17.09	+09 01 18.0		657
1927 UE	1987 08 25.35597	23 11 14.13	+09 01 07.0		657
1927 UE	1987 09 01.32229	23 06 41.49	+08 37 04.9		657
1927 UE	1987 09 01.38271	23 06 38.76	+08 36 49.4		657
1970 NB	1987 08 19.28241	20 00 16.44	-25 21 52.8		657
1983 VP7	1987 08 21.30944	00 38 13.12	-01 57 45.3		657
1983 VP7	1987 08 21.37472	00 38 11.48	-01 57 34.1		657
1983 VP7	1987 08 25.32333	00 36 14.19	-01 45 09.2		657
1983 VP7	1987 08 25.40389	00 36 11.35	-01 44 57.6		657
1983 VP7	1987 08 31.39444	00 32 16.86	-01 28 49.2		657
1983 VP7	1987 09 21.30486	00 12 07.15	-00 49 38.4		657
302	1987 09 21.30486	00 12 53.06	+00 35 42.9		657
611	1987 08 17.26667	18 04 45.64	-06 24 14.9		657
871	1987 08 18.25146	20 09 41.79	-16 40 05.3		657
871	1987 08 21.28306	20 07 43.62	-16 55 49.6		657
1502	1987 08 21.29347	00 20 33.95	+05 26 44.9		657
1692	1987 08 18.25146	20 03 08.25	-16 35 36.4		657
1692	1987 08 18.27125	20 03 07.68	-16 35 37.1		657
1692	1987 08 21.28306	20 01 28.28	-16 44 24.9		657
1735	1987 08 21.30944	00 38 47.65	-01 40 21.4		657
1735	1987 08 21.37472	00 38 45.77	-01 40 20.2		657
1735	1987 08 25.32333	00 36 51.89	-01 39 16.3		657
1735	1987 08 25.40389	00 36 49.18	-01 39 14.6		657
2180	1987 08 25.28097	23 07 53.63	+08 45 34.6		657
2180	1987 08 25.35597	23 07 50.64	+08 45 20.2		657
2180	1987 09 01.38271	23 03 00.60	+08 16 18.0		657
2678	1987 08 25.32333	00 32 08.49	-01 57 24.1		657
2678	1987 08 25.40389	00 32 06.28	-01 57 40.3		657

675 Palomar
J. Gibson, ITT/Federal Electric Corporation and Jet Propulsion Laboratory, MS 238-332, Pasadena, CA 91109, U.S.A. (1)
E. Helin, MS 183-501, Jet Propulsion Laboratory, Pasadena, CA 91109, U.S.A. (2)
E. Bowell, Lowell Observatory, 1400 West Mars Hill Road, Flagstaff, AZ 86001, U.S.A. (6)
Observers J. Gibson, E. Helin, C, Kowal, A. Maury, J. Mueller, J. Phinney, S. Singer-Brewster, D. Schneeberger
Measurers J. Alu, E. Bowell, L. Fischer, J. Gibson, S. Singer-Brewster
1.5-m reflector, 1.2-m and 0.46-m Schmidt telescopes

1965 UA	1977 01 12.28785	07 18 09.04	+29 47 28.6	18.0	6	675
1965 UA	1977 01 13.20382	07 17 00.71	+29 48 20.4		6	675
1977 AH1	1977 01 12.28785	07 23 51.36	+29 05 54.0	16.5	6	675
1977 AH1	1977 01 13.20382	07 22 53.36	+29 13 04.3		6	675
1977 AL1	1977 01 12.28785	07 26 46.83	+30 43 39.3	17.5	6	675
1977 AL1	1977 01 13.20382	07 25 47.36	+30 47 54.7		6	675
1977 AZ1	1977 01 12.28785	07 36 59.47	+27 44 50.9	16.0	6	675
1977 AZ1	1977 01 13.20382	07 36 09.80	+27 49 56.7		6	675
1977 AC2	1977 01 12.28785	07 40 10.61	+30 43 10.0	16.2	6	675
1977 AC2	1977 01 13.20382	07 39 04.45	+30 40 12.2		6	675

1977	AV2	*	1977	01	12.28785	07	17	27.39	+28	19	37.6	16.8	6 675
1977	AV2		1977	01	13.20382	07	16	29.17	+28	23	18.5		6 675
1977	AW2	*	1977	01	12.28785	07	17	50.47	+26	36	21.1	17.8	6 675
1977	AW2		1977	01	13.20382	07	16	55.31	+26	37	17.9		6 675
1977	AX2	*	1977	01	12.28785	07	28	46.49	+28	09	04.4	18.0	6 675
1977	AX2		1977	01	13.20382	07	27	43.78	+28	07	32.6		6 675
1977	AY2	*	1977	01	12.28785	07	30	34.57	+25	44	35.1	19.0	6 675
1977	AY2		1977	01	13.20382	07	30	02.30	+25	46	11.2		6 675
1977	AZ2	*	1977	01	12.28785	07	30	40.28	+26	58	08.8	17.5	6 675
1977	AZ2		1977	01	13.20382	07	29	15.91	+26	45	13.9		6 675
1977	AA3	*	1977	01	12.28785	07	35	46.95	+28	53	38.2	18.5	6 675
1977	AA3		1977	01	13.20382	07	34	40.17	+28	54	05.5		6 675
1977	AB3	*	1977	01	12.28785	07	36	40.02	+25	55	16.6	17.0	6 675
1977	AB3		1977	01	13.20382	07	35	50.30	+25	59	34.4		6 675
1980	OF		1977	01	12.28785	07	32	11.55	+27	06	34.5	18.2	6 675
1980	OF		1977	01	13.20382	07	31	19.80	+27	06	28.3		6 675
1981	ES32		1977	01	12.28785	07	16	14.78	+25	24	22.2	20.0	6 675
1981	ES32		1977	01	13.20382	07	15	07.96	+25	22	17.5		6 675
1982	TQ2		1977	01	12.28785	07	38	13.90	+25	34	13.5	18.2	6 675
1982	TQ2		1977	01	13.20382	07	37	04.09	+25	34	56.9		6 675
1983	RC4		1987	08	24.21319	20	56	25.68	-15	01	41.0	16.2	2 675
1983	RC4		1987	08	27.24340	20	55	41.81	-15	35	19.6		2 675
1986	UL1		1977	01	12.28785	07	39	01.82	+27	15	31.8	17.0	6 675
1986	UL1		1977	01	13.20382	07	38	13.78	+27	19	31.3		6 675
1987	MO		1987	08	23.25382	20	44	25.06	+20	02	01.8	16.5	2 675
1987	MO		1987	08	23.27882	20	44	23.21	+20	02	06.3		2 675
1987	OC		1987	08	23.21528	19	44	33.81	+13	51	11.8	16.5	2 675
1987	OC		1987	08	25.24392	19	43	21.80	+13	54	44.7		2 675
1987	OY	*	1987	07	19.40417	22	04	30.63	+01	00	34.8	17.0	2 675
1987	OY		1987	07	19.45278	22	04	29.43	+01	00	53.5		2 675
1987	OY		1987	07	23.38194	22	02	50.41	+01	24	41.0		2 675
1987	OY		1987	07	23.42361	22	02	49.16	+01	24	53.9		2 675
1987	OY		1987	07	26.37431	22	01	18.22	+01	40	42.1		2 675
1987	OY		1987	07	26.42292	22	01	16.49	+01	40	56.7		2 675
1987	QA		1987	08	23.43958	01	22	12.76	+11	20	23.4	16.5	2 675
1987	QA		1987	08	23.49167	01	22	19.48	+11	18	05.8		2 675
1987	QA		1987	08	26.47917	01	29	27.65	+08	51	39.1		2 675
1987	QA		1987	08	26.49653	01	29	30.02	+08	50	45.0		2 675
1987	QA		1987	09	03.35833	01	50	49.25	+00	01	08.2		2 675
1987	QA		1987	09	03.37917	01	50	52.91	-00	00	33.6		2 675
1987	QA		1987	09	04.45833	01	54	10.2	-01	32	45		2 675
1987	QA		1987	09	04.50000	01	54	17.5	-01	36	22		2 675
1987	QB		1987	08	28.44583	22	55	37.91	-07	51	23.9		1 675
1987	QB		1987	08	29.22500	22	58	02.96	-07	55	04.6		1 675
1987	QB		1987	08	29.50799	22	58	48.98	-07	56	22.4		1 675
1987	QD		1987	08	26.39549	22	17	25.07	+15	48	56.5		2 675
1987	QD		1987	08	27.32743	22	17	07.36	+15	11	59.9		2 675
1987	QD		1987	08	29.42222	22	16	32.22	+13	47	08.1		2 675
1987	QD		1987	08	29.44722	22	16	31.83	+13	46	13.7		2 675
1987	QE	*	1987	08	24.34063	23	25	00.81	+09	12	27.6	16.0	2 675
1987	QE		1987	08	26.38125	23	24	20.65	+08	27	59.2		2 675
1987	QG	*	1987	08	23.26424	20	57	54.85	-24	31	14.8	16.0	2 675
1987	QG		1987	08	25.28802	20	55	33.27	-24	13	10.6		2 675
1987	QH	*	1987	08	25.27066	21	02	37.17	-14	39	03.5	16.0	2 675
1987	QH		1987	08	27.29514	21	01	15.14	-14	23	33.8		2 675
1987	QJ	*	1987	08	24.31979	23	14	48.85	-24	17	30.1	16.8	2 675
1987	QJ		1987	08	26.32535	23	13	41.85	-24	44	52.1		2 675
1987	QK	*	1987	08	24.31979	23	27	19.09	-21	59	17.1	16.5	2 675
1987	QK		1987	08	26.32535	23	26	10.36	-22	21	39.9		2 675

1987	QL	*	1987	08	24.33576	23	24	08.44	-04	20	12.6	16.5	2 675
1987	QL		1987	08	26.37708	23	22	54.28	-04	42	54.6		2 675
1987	QM	*	1987	08	25.38108	23	04	56.72	-02	43	43.2	16.5	2 675
1987	QM		1987	08	27.30799	23	02	47.50	-02	27	57.6		2 675
1987	QO	*	1987	08	24.27188	21	53	15.90	+00	48	39.2	16.8	2 675
1987	QO		1987	08	26.32101	21	51	42.86	+00	26	50.8		2 675
1987	QX	*	1987	08	24.43264	01	12	26.40	+03	19	01.9	17.0	2 675
1987	QX		1987	08	24.48472	01	12	28.08	+03	20	22.5		2 675
1987	QX		1987	08	26.42361	01	13	34.66	+04	10	44.6		2 675
1987	QX		1987	08	26.47222	01	13	35.96	+04	11	58.2		2 675
1987	QY	*	1987	08	24.43264	01	26	52.66	+06	45	45.4	17.0	2 675
1987	QY		1987	08	24.48472	01	26	55.26	+06	44	49.1		2 675
1987	QY		1987	08	26.42361	01	28	38.23	+06	07	44.2		2 675
1987	QY		1987	08	26.47222	01	28	40.34	+06	06	50.6		2 675
1987	QD6	*	1987	08	22.34722	23	12	57.19	+03	03	08.4	17.0	2 675
1987	QD6		1987	08	22.39931	23	12	55.35	+03	02	50.0		2 675
1987	QD6		1987	08	27.32708	23	09	57.65	+02	30	05.9		2 675
1987	QD6		1987	08	27.37569	23	09	55.74	+02	29	46.6		2 675
1987	QE6	*	1987	08	22.34722	23	20	18.24	+00	44	05.9	18.5	2 675
1987	QE6		1987	08	22.39931	23	20	17.02	+00	43	21.5		2 675
1987	QE6		1987	08	27.32708	23	17	42.80	-00	51	52.0		2 675
1987	QE6		1987	08	27.37569	23	17	41.21	-00	52	47.2		2 675
1987	QF6	*	1987	08	22.34722	23	26	45.60	+03	05	43.7	18.0	2 675
1987	QF6		1987	08	22.39931	23	26	44.19	+03	05	03.1		2 675
1987	QF6		1987	08	27.32708	23	24	15.69	+01	46	05.8		2 675
1987	QF6		1987	08	27.37569	23	24	14.10	+01	45	20.6		2 675
1987	QG6	*	1987	08	23.38194	00	12	07.76	-03	02	16.1		2 675
1987	QG6		1987	08	23.43403	00	12	09.10	-03	03	32.6		2 675
1987	RF		1987	09	18.31076	22	48	34.15	-05	40	26.3	16.5	2 675
1987	RF		1987	09	20.33264	22	47	33.97	-06	02	11.4		2 675
1987	SB		1987	09	20.39566	00	42	20.95	-03	50	03.0	17.0	2 675
1987	SB		1987	09	20.42431	00	42	17.12	-03	50	21.7		2 675
1987	SC	*	1987	09	20.40833	01	03	38.22	+18	09	12.1	16.5	2 675
1987	SC		1987	09	20.43767	01	03	37.22	+18	08	54.5		2 675
1987	SD	*	1987	09	18.36424	23	23	41.55	+02	20	53.9	16.8	2 675
1987	SD		1987	09	20.34340	23	22	38.83	+01	49	19.7		2 675
1987	SM	*	1987	09	18.39063	23	06	47.13	+10	04	31.5	15.5	2 675
1987	SM		1987	09	20.33837	23	05	32.69	+09	41	07.9		2 675
1987	SX	*	1987	09	18.30104	22	37	58.92	+00	05	17.8	16.0	2 675
1987	SX		1987	09	20.32344	22	35	56.56	+00	17	30.3		2 675
33			1977	01	12.28785	07	21	56.15	+24	50	34.4		6 675
33			1977	01	13.20382	07	21	00.71	+24	52	06.7		6 675
309			1977	01	12.28785	07	15	18.01	+27	31	40.5		6 675
309			1977	01	13.20382	07	14	21.00	+27	32	43.1		6 675
333			1977	01	12.28785	07	13	42.80	+27	29	51.9		6 675
333			1977	01	13.20382	07	12	51.24	+27	30	38.2		6 675
762			1977	01	12.28785	07	29	30.51	+27	18	55.2		6 675
762			1977	01	13.20382	07	28	35.12	+27	16	49.0		6 675
1464			1977	01	12.28785	07	35	51.81	+29	03	19.5		6 675
1464			1977	01	13.20382	07	34	59.50	+29	08	20.3		6 675
1480			1977	01	12.28785	07	41	36.84	+28	47	01.6		6 675
1480			1977	01	13.20382	07	40	32.77	+28	51	54.0		6 675
1968			1977	01	12.28785	07	39	23.12	+26	06	56.4		6 675
1968			1977	01	13.20382	07	38	28.02	+26	10	06.9		6 675
2200			1977	01	12.28785	07	34	06.62	+28	13	30.7		6 675
2200			1977	01	13.20382	07	33	01.34	+28	14	40.7		6 675
2515			1977	01	12.28785	07	34	47.38	+26	57	17.5		6 675
2515			1977	01	13.20382	07	33	55.77	+26	59	48.1		6 675
2943			1977	01	12.28785	07	27	11.22	+30	42	32.2		6 675

2943		1977 01 13.20382	07	26	01.68	+30	39	59.2			6	675
2994		1977 01 12.28785	07	23	56.08	+25	35	54.5			6	675
2994		1977 01 13.20382	07	22	54.56	+25	37	31.3			6	675
3031		1977 01 12.28785	07	29	02.16	+25	24	02.7			6	675
3031		1977 01 13.20382	07	27	54.34	+25	24	25.2			6	675

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

1982 VR4		1987 09 19.24072	23	48	00.20	-02	34	10.2		17.0		688
1982 VR4		1987 09 19.28365	23	47	58.10	-02	34	25.5				688
1987 SE		1987 09 19.21858	23	43	01.85	+07	16	36.4		16.8		688
1987 SE		1987 09 19.26197	23	42	59.50	+07	16	28.7				688
1987 SN	*	1987 09 19.21858	23	35	38.31	+07	30	11.6		16.8		688
1987 SN		1987 09 19.26197	23	35	35.39	+07	29	58.5				688
1987 SO	*	1987 09 19.21858	23	49	24.92	+10	46	17.2		16.2		688
1987 SO		1987 09 19.26197	23	49	22.36	+10	46	07.6				688
1987 SP	*	1987 09 19.24072	23	31	33.16	+00	09	49.5		16.8		688
1987 SP		1987 09 19.28365	23	31	31.02	+00	09	34.2				688
1987 SQ	*	1987 09 19.24072	23	33	17.47	+00	14	41.0		17.0		688
1987 SQ		1987 09 19.28365	23	33	15.52	+00	14	31.7				688
1987 SR	*	1987 09 19.24072	23	35	14.65	+01	26	56.8		16.5		688
1987 SR		1987 09 19.28365	23	35	12.70	+01	26	34.3				688
1987 SS	*	1987 09 19.24072	23	36	21.91	+03	51	48.3		16.8		688
1987 SS		1987 09 19.28365	23	36	19.81	+03	51	33.1				688
1987 ST	*	1987 09 19.24072	23	38	42.63	-01	20	13.8		17.0	D	688
1987 ST		1987 09 19.28365	23	38	39.44	-01	20	21.0			R	688
1987 SU	*	1987 09 19.24072	23	40	58.26	-01	10	34.6		16.8		688
1987 SU		1987 09 19.28365	23	40	55.57	-01	10	43.7				688
1987 SV	*	1987 09 19.24072	23	45	20.02	+03	46	53.0		16.2		688
1987 SV		1987 09 19.28365	23	45	17.35	+03	46	42.8				688
1987 SW	*	1987 09 19.24072	23	53	05.91	-04	13	31.0		16.8	R	688
1987 SW		1987 09 19.28365	23	53	03.97	-04	13	39.8				688
156		1987 09 19.21858	23	47	11.03	+12	19	51.7				688
156		1987 09 19.26197	23	47	08.85	+12	19	36.3				688
557		1987 09 19.24072	23	38	44.42	+01	38	42.0				688
557		1987 09 19.28365	23	38	42.08	+01	38	26.2				688
918		1987 09 19.21858	23	29	07.20	+06	33	25.2				688
918		1987 09 19.26197	23	29	04.62	+06	33	26.2				688
976		1987 09 19.21858	23	44	38.38	+08	52	02.1				688
976		1987 09 19.26197	23	44	36.55	+08	51	49.1				688
990		1987 09 19.24072	23	35	40.98	-02	27	33.8				688
990		1987 09 19.28365	23	35	38.35	-02	27	32.4				688
1100		1987 09 19.24072	23	27	18.47	-02	11	56.5				688
1100		1987 09 19.28365	23	27	16.49	-02	12	08.9				688
1277		1987 09 19.21858	23	43	36.06	+10	42	08.1				688
1277		1987 09 19.26197	23	43	33.90	+10	41	50.2				688
1486		1987 09 19.24072	23	37	59.08	-02	19	24.6				688
1843		1987 09 19.21858	23	41	49.96	+13	46	12.6		15.8		688
1843		1987 09 19.26197	23	41	47.77	+13	45	58.8				688
2026		1987 09 19.24072	23	40	21.02	+00	50	56.3				688
2174		1987 09 19.24072	23	43	14.82	-03	23	31.7		16.0		688
2174		1987 09 19.28365	23	43	12.17	-03	23	24.7				688

2579		1987	09	19.21858	23	52	24.42	+10 17 08.6	17.2	688
2579		1987	09	19.26197	23	52	21.58	+10 16 53.0		688
2964		1987	09	19.21858	23	33	03.53	+09 29 49.2	16.2	688
2964		1987	09	19.26197	23	33	00.47	+09 29 54.3		688
3481		1987	09	19.24072	23	35	00.91	-00 19 32.8		688
3481		1987	09	19.28365	23	34	58.42	-00 19 59.2		688
3485		1987	09	19.24072	23	34	35.60	-00 27 17.1		688
3485		1987	09	19.28365	23	34	33.14	-00 27 30.5		688

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

1959	LM	1987	09	19.15418	19	20	02.20	-19 32 55.8	18.2V	691
1959	LM	1987	09	19.16596	19	20	02.49	-19 32 54.9		691
1959	LM	1987	09	19.19403	19	20	03.14	-19 32 52.0		691
1982	FT	1987	09	20.22028	22	59	35.64	-04 51 16.8	17.6V	691
1982	FT	1987	09	20.23286	22	59	34.36	-04 51 13.9		691
1982	FT	1987	09	20.24604	22	59	33.01	-04 51 10.6		691
1986	GZ	1987	09	19.37851	04	08	30.84	+11 22 13.6	18.9V	691
1986	GZ	1987	09	19.39134	04	08	31.25	+11 22 01.9	19.2V	691
1986	GZ	1987	09	19.39848	04	08	31.47	+11 21 56.2		691
1986	GZ	1987	09	20.41162	04	09	05.90	+11 07 57.3		691
1986	GZ	1987	09	20.42954	04	09	06.43	+11 07 42.2	19.0V	691
1986	GZ	1987	09	20.43830	04	09	06.72	+11 07 35.1		691
1987	PA	1987	08	29.23858	21	48	53.99	+13 49 18.6		691
1987	PA	1987	08	29.24506	21	48	53.62	+13 49 24.6		691
1987	PA	1987	08	29.25690	21	48	52.99	+13 49 35.6	18.2V	691
1987	PA	1987	09	19.18323	21	41	46.86	+16 15 29.2	18.8V	691
1987	PA	1987	09	19.18838	21	41	46.88	+16 15 29.2		691
1987	PA	1987	09	19.29914	21	41	47.04	+16 15 34.2		691
1987	PA	1987	09	20.15625	21	41	53.89	+16 16 09.9		691
1987	PA	1987	09	20.20584	21	41	54.07	+16 16 11.4		691
1987	PA	1987	09	20.36604	21	41	54.73	+16 16 14.7		691
1987	QB	1987	09	27.25486	23	45	32.83	-08 37 03.1		691
1987	QB	1987	09	27.28250	23	45	33.97	-08 36 59.6	18.0V	691
1987	QB	1987	09	27.28536	23	45	34.07	-08 36 59.1		691
1981		1987	09	27.16375	20	43	31.95	-06 08 46.1	s	691
1981		1987	09	27.16862	20	43	33.81	-06 07 28.5	s	691
3362		1987	09	19.30519	01	21	16.54	-10 53 43.4		691
3362		1987	09	19.32277	01	21	12.72	-10 54 24.5	17.7V	691
3362		1987	09	19.32632	01	21	11.95	-10 54 32.6		691

801 Oak Ridge
R. E. McCrosky, Harvard-Smithsonian Center for Astrophysics,
60 Garden Street, Cambridge, MA 02138, U.S.A.
Observers R. E. McCrosky, C.-Y. Shao, G. Schwartz
1.5-m reflector
AC

1927	UE	1987	08	26.23763	23	10	42.34	+08 59 04.0		801
1973	UU4	1987	07	27.22594	20	30	29.77	-07 10 39.2		801
1973	UU4	1987	08	22.13611	20	09	04.46	-10 20 43.2		801
1974	SB3	1987	07	28.15639	20	38	35.33	-10 47 17.1		801
1974	SB3	1987	08	25.10556	20	12	13.98	-11 59 08.6		801
1980	FF12	1986	02	13.20765	08	30	29.78	+22 06 40.5		801
1980	FF12	1987	08	25.16292	21	25	16.26	-17 39 33.7		801

1981	DK3	1987	07	30.24865	22	46	24.61	-02	20	54.7	801
1981	DK3	1987	08	21.25549	22	29	57.68	-01	01	11.8	801
1981	EL19	1987	07	27.25048	21	51	09.27	-04	30	46.5	801
1981	EL19	1987	08	24.21243	21	31	47.64	-07	14	45.1	801
1981	JJ2	1987	08	24.17607	21	29	17.10	-01	50	14.4	801
1981	PQ	1987	07	24.24495	21	40	44.69	-10	04	11.9	801
1982	FT	1987	08	21.31913	23	53	07.03	-06	56	05.4	801
1982	RU	1987	07	24.20768	20	31	50.99	+00	15	27.0	801
1982	RU	1987	08	24.07872	20	11	18.62	-03	20	24.5	801
1983	EW	1987	08	21.29535	22	57	32.41	-05	22	27.9	801
1983	QD	1987	07	30.23014	22	17	51.16	-06	45	38.0	801
1983	QD	1987	08	22.27128	21	57	26.96	-06	48	03.4	S 801
1983	VP7	1987	08	24.36836	00	36	44.94	-01	47	59.8	801
1983	XS	1987	08	24.30396	22	01	26.49	-08	09	30.1	801
1984	SR1	1987	08	25.26840	22	58	41.31	-03	42	57.2	801
1984	SE3	1987	08	22.25509	21	42	22.80	-14	46	12.5	801
1984	UC2	1986	02	04.29425	10	16	12.90	+17	48	10.9	801
1984	UC2	1987	05	31.27062	16	49	38.81	-18	13	33.8	801
1984	UC2	1987	07	24.08296	16	13	54.89	-20	13	17.8	801
1984	YC	1987	08	21.19516	20	37	44.19	+06	35	41.6	801
1984	YC	1987	08	25.13852	20	34	15.31	+06	32	17.8	801
1985	CV	1987	07	28.19960	21	41	23.24	-11	07	23.1	801
1985	CV	1987	08	24.13071	21	19	57.38	-15	20	25.1	801
1985	DW	1986	06	09.17660	15	17	22.22	-12	06	22.3	801
1985	DW	1987	07	29.28397	21	44	18.95	-16	30	17.9	801
1985	DW	1987	08	22.21671	21	25	15.28	-18	43	59.6	801
1987	OD	1987	08	21.21399	20	40	17.81	+02	33	41.2	801
1987	PA	1987	08	24.28026	21	53	16.03	+12	17	20.4	801
1987	QB	1987	09	25.15370	23	43	41.47	-08	40	31.5	801
1987	QB	1987	09	26.22756	23	44	38.30	-08	38	55.5	801
2100		1987	08	22.05627	15	57	42.05	+12	49	11.6	801
3681		1987	07	24.10345	16	55	32.17	-18	15	28.0	801

809 European Southern Observatory
W. Landgraf, University Observatory, Geissmarlandstrasse 11, D-3400 Gottingen, Federal Republic of Germany (2)
H. Debehogne, Observatoire Royal de Belgique, Avenue Circulaire 3, B-1180 Brussels, Belgium (3)
E. Elst, Observatoire Royal de Belgique, Avenue Circulaire 3, B-1180 Brussels, Belgium (4)
Observers H. Debehogne, E. W. Elst, W. Landgraf, G. Pizarro, O. Pizarro
Measurers E. W. Elst, W. Landgraf, C. Leterme
0.4-m GPO astrograph and 1.0-m Schmidt telescope

1981	EH14	1987	08	26.11562	21	41	57.53	+08	12	02.8	16.5 4 809
1981	EH14	1987	08	26.22083	21	41	52.54	+08	11	06.2	4 809
1981	EL19	1987	08	29.11597	21	28	23.95	-07	50	13.7	17.3 4 809
1981	EL19	1987	08	29.12639	21	28	23.52	-07	50	18.8	4 809
1981	EL19	1987	08	29.13681	21	28	23.10	-07	50	22.3	4 809
1981	EL19	1987	08	31.19444	21	27	02.92	-08	05	20.2	17.0 4 809
1981	EL19	1987	08	31.20486	21	27	02.52	-08	05	24.5	4 809
1983	EW	1987	08	21.27292	22	57	33.44	-05	22	08.7	17.2 4 809
1983	EW	1987	08	21.28333	22	57	32.86	-05	22	13.1	4 809
1983	EW	1987	08	21.29375	22	57	32.40	-05	22	17.0	4 809
1983	EW	1987	08	26.31458	22	52	58.98	-06	00	05.4	17.5 4 809
1983	EW	1987	08	26.32500	22	52	58.39	-06	00	09.7	4 809
1983	EW	1987	08	26.34028	22	52	57.52	-06	00	16.5	4 809
1983	XS	1987	08	27.22569	21	59	12.31	-08	18	55.1	16.9 4 809
1983	XS	1987	08	27.23611	21	59	11.81	-08	18	57.0	4 809
1983	XS	1987	08	27.25208	21	59	11.07	-08	18	59.8	4 809

1983	XS		1987	08	30.21736	21	56	56.79	-08	28	37.5	17.1	4 809
1983	XS		1987	08	30.24028	21	56	55.81	-08	28	41.5		4 809
1983	XS		1987	08	30.25104	21	56	55.29	-08	28	43.3		4 809
1984	SE3		1987	08	21.24063	21	43	23.55	-14	39	05.3	17.1	4 809
1984	SE3		1987	08	21.25139	21	43	22.86	-14	39	09.3		4 809
1984	SE3		1987	08	21.26181	21	43	22.23	-14	39	13.3		4 809
1984	SE3		1987	08	25.16250	21	39	30.33	-15	05	53.4	17.0	4 809
1984	SE3		1987	08	25.17361	21	39	29.67	-15	05	58.3		4 809
1984	SE3		1987	08	25.18472	21	39	29.00	-15	06	02.9		4 809
1984	SE3		1987	08	27.18090	21	37	32.64	-15	19	17.3	17.2	4 809
1984	SE3		1987	08	28.14931	21	36	36.91	-15	25	32.6	17.0	4 809
1984	SE3		1987	08	28.16111	21	36	36.30	-15	25	36.9		4 809
1984	SE3		1987	08	28.17153	21	36	35.78	-15	25	41.1		4 809
1984	SE3		1987	08	29.18403	21	35	37.91	-15	32	11.7	17.0	4 809
1984	SE3		1987	08	29.20000	21	35	36.91	-15	32	17.1		4 809
1984	SE3		1987	08	29.21736	21	35	35.98	-15	32	23.1		4 809
1985	GX		1987	09	01.33785	00	52	03.69	-00	48	09.9	17.1	4 809
1985	GX		1987	09	01.34792	00	52	03.41	-00	48	14.5		4 809
1985	GX		1987	09	01.35833	00	52	03.22	-00	48	19.3		4 809
1985	GX		1987	09	01.36875	00	52	02.99	-00	48	24.1		4 809
1987	MK		1987	08	22.14687	21	44	32.25	-15	44	36.7	16.5	4 809
1987	MK		1987	08	22.15764	21	44	31.54	-15	44	35.5		4 809
1987	MK		1987	08	22.17014	21	44	30.72	-15	44	34.0		4 809
1987	MK		1987	08	25.12292	21	41	24.06	-15	37	16.8	16.9	4 809
1987	MK		1987	08	25.13507	21	41	23.35	-15	37	14.6		4 809
1987	MK		1987	08	25.14792	21	41	22.44	-15	37	13.1		4 809
1987	MK		1987	08	25.16250	21	41	21.47	-15	37	10.4	16.7	4 809
1987	MK		1987	08	25.17361	21	41	20.78	-15	37	08.3		4 809
1987	MK		1987	08	25.18472	21	41	20.07	-15	37	07.3		4 809
1987	MK		1987	08	27.18090	21	39	16.04	-15	31	50.4	16.5	4 809
1987	MK		1987	08	27.19583	21	39	15.19	-15	31	47.6		4 809
1987	MK		1987	08	27.21042	21	39	14.22	-15	31	45.0		4 809
1987	MK		1987	08	28.14931	21	38	17.07	-15	29	07.9	16.7	4 809
1987	MK		1987	08	28.16111	21	38	16.35	-15	29	05.9		4 809
1987	MK		1987	08	28.17153	21	38	15.73	-15	29	04.2		4 809
1987	NE		1987	07	02.30660	20	23	39.78	-22	43	23.2		2 809
1987	NE		1987	07	02.31632	20	23	38.93	-22	43	28.3		2 809
1987	NF		1987	07	01.39728	20	20	39.74	-23	02	36.2		2 809
1987	NF	*	1987	07	01.40289	20	20	39.34	-23	02	35.1	16.5	2 809
1987	NF		1987	07	01.40845	20	20	39.03	-23	02	35.5		2 809
1987	NG		1987	07	01.39728	20	21	43.66	-24	38	41.2		2 809
1987	NG	*	1987	07	01.40289	20	21	43.33	-24	38	42.6	15.9	2 809
1987	NG		1987	07	01.40845	20	21	43.07	-24	38	41.2		2 809
1987	NJ		1987	07	01.39728	20	21	57.42	-23	16	45.0		2 809
1987	NJ	*	1987	07	01.40289	20	21	57.27	-23	16	46.2	16.2	2 809
1987	NJ		1987	07	01.40845	20	21	57.05	-23	16	45.1		2 809
1987	NK		1987	07	01.39728	20	23	38.35	-22	45	04.8		2 809
1987	NK	*	1987	07	01.40289	20	23	38.11	-22	45	02.6	18.2	2 809
1987	NK		1987	07	01.40845	20	23	38.02	-22	45	01.6		2 809
1987	NL		1987	07	01.39728	20	24	20.45	-24	15	14.3		2 809
1987	NL	*	1987	07	01.40289	20	24	20.31	-24	15	15.9	18.1	2 809
1987	NL		1987	07	01.40845	20	24	20.12	-24	15	16.5		2 809
1987	NM		1987	07	01.39728	20	25	31.73	-24	35	31.1		2 809
1987	NM	*	1987	07	01.40289	20	25	31.40	-24	35	30.4	18.0	2 809
1987	NM		1987	07	01.40845	20	25	31.04	-24	35	30.7		2 809
1987	NN		1987	07	01.39728	20	26	44.17	-24	11	21.1		2 809
1987	NN	*	1987	07	01.40289	20	26	43.90	-24	11	20.8	17.3	2 809
1987	NN		1987	07	01.40845	20	26	43.65	-24	11	20.5		2 809
1987	NO		1987	07	01.39728	20	20	25.09	-23	56	00.5		2 809

1987	NO	*	1987	07	01.40289	20	20	24.82	-23	55	59.6	16.2	2	809
1987	NO		1987	07	01.40845	20	20	24.60	-23	56	00.0		2	809
1987	NO		1987	07	02.30660	20	19	44.40	-23	55	10.6		2	809
1987	NO		1987	07	02.31146	20	19	44.10	-23	55	11.8	16.7	2	809
1987	NO		1987	07	02.31632	20	19	43.55	-23	55	09.1		2	809
1987	NP		1987	07	01.39728	20	20	25.63	-23	55	52.3		2	809
1987	NP	*	1987	07	01.40289	20	20	25.45	-23	55	55.8	17.2	2	809
1987	NP		1987	07	01.40845	20	20	25.03	-23	55	55.5		2	809
1987	NQ		1987	07	01.39728	20	21	49.29	-24	10	07.7		2	809
1987	NQ		1987	07	01.40289	20	21	48.88	-24	10	09.7	17.4	2	809
1987	NQ		1987	07	01.40845	20	21	48.56	-24	10	12.2		2	809
1987	NQ		1987	07	02.30660	20	21	07.15	-24	12	25.2		2	809
1987	NQ	*	1987	07	02.31146	20	21	06.15	-24	12	22.6	17.7	2	809
1987	NQ		1987	07	02.31632	20	21	05.65	-24	12	17.1		2	809
1987	NR		1987	07	02.30660	20	21	08.21	-22	46	54.6		2	809
1987	NR	*	1987	07	02.31146	20	21	07.55	-22	47	00.3	16.9	2	809
1987	NR		1987	07	02.31632	20	21	06.98	-22	47	03.7		2	809
1987	NS		1987	07	01.39728	20	25	52.08	-22	44	20.6		2	809
1987	NS		1987	07	01.40289	20	25	51.69	-22	44	18.9	17.9	2	809
1987	NS		1987	07	01.40845	20	25	51.58	-22	44	18.3		2	809
1987	NS		1987	07	02.30660	20	25	16.70	-22	47	27.0		2	809
1987	NS	*	1987	07	02.31146	20	25	16.49	-22	47	27.9	18.0	2	809
1987	NS		1987	07	02.31632	20	25	16.11	-22	47	29.6		2	809
1987	NT		1987	07	02.30660	20	25	44.12	-22	43	10.3		2	809
1987	NT	*	1987	07	02.31146	20	25	44.02	-22	43	10.1	16.7	2	809
1987	NT		1987	07	02.31632	20	25	43.83	-22	43	10.8		2	809
1987	NU		1987	07	01.39728	20	26	33.89	-23	48	21.1		2	809
1987	NU		1987	07	01.40289	20	26	33.58	-23	48	24.4	16.9	2	809
1987	NU		1987	07	01.40845	20	26	33.11	-23	48	27.9		2	809
1987	NU		1987	07	02.30660	20	26	03.70	-23	51	30.7		2	809
1987	NU	*	1987	07	02.31146	20	26	03.20	-23	51	36.3	17.0	2	809
1987	NU		1987	07	02.31632	20	26	02.63	-23	51	41.4		2	809
1987	NV	*	1987	07	01.21875	19	50	51.54	-31	44	40.7	18.0	2	809
1987	NW	*	1987	07	01.21875	19	52	53.00	-30	05	31.9		2	809
1987	NX	*	1987	07	01.21875	19	55	14.54	-31	09	25.8	18.5	2	809
1987	NY	*	1987	07	01.21875	19	57	50.91	-30	43	01.8		2	809
1987	NZ	*	1987	07	01.39728	20	22	29.9	-22	42	39	18.5	2	809
1987	NA1		1987	07	01.39728	20	20	40.28	-23	46	23.3		2	809
1987	NA1	*	1987	07	01.40289	20	20	39.81	-23	46	25.7	18.0	2	809
1987	NA1		1987	07	01.40845	20	20	39.22	-23	46	26.8		2	809
1987	NB1		1987	07	01.39728	20	24	12.78	-22	38	41.4		2	809
1987	NB1	*	1987	07	01.40289	20	24	12.26	-22	38	42.3	18.0	2	809
1987	NB1		1987	07	01.40845	20	24	11.91	-22	38	43.8		2	809
1987	NC1		1987	07	02.30660	20	23	01.89	-22	48	49.9		2	809
1987	NC1	*	1987	07	02.31146	20	23	00.84	-22	48	52.3	17.6	2	809
1987	NC1		1987	07	02.31632	20	23	00.34	-22	48	52.8		2	809
1987	OQ		1987	08	19.26667	21	34	18.22	+07	50	10.7	17.2	4	809
1987	OQ		1987	08	19.27708	21	34	17.66	+07	50	09.4		4	809
1987	OQ		1987	08	19.28750	21	34	17.10	+07	50	08.1		4	809
1987	OQ		1987	08	26.11562	21	28	35.39	+07	23	48.3	16	4	809
1987	OQ		1987	08	26.22083	21	28	29.92	+07	23	19.3		4	809
1987	OT		1987	08	29.11597	21	29	17.28	-07	31	49.5	16.9	4	809
1987	OT		1987	08	29.12639	21	29	16.87	-07	31	54.5		4	809
1987	OT		1987	08	29.13681	21	29	16.51	-07	32	00.8		4	809
1987	QC		1987	08	27.22569	21	58	57.70	-08	01	25.2	15.5	4	809
1987	QC		1987	08	27.23611	21	58	57.18	-08	01	27.0		4	809
1987	QC		1987	08	27.25208	21	58	56.46	-08	01	30.3		4	809
1987	QC		1987	08	30.21736	21	56	52.36	-08	11	45.8	15.8	4	809
1987	QC		1987	08	30.24028	21	56	51.34	-08	11	49.9		4	809

1987	QC		1987	08	30.25104	21	56	50.79	-08	11	53.0	4 809
1987	QE		1987	09	17.21007	23	14	10.0	-00	53	08	3 809
1987	QN	*	1987	08	21.20694	21	40	42.38	-12	32	23.0	17.4 4 809
1987	QN		1987	08	21.21771	21	40	42.08	-12	32	26.3	4 809
1987	QN		1987	08	21.22847	21	40	41.83	-12	32	27.6	4 809
1987	QN		1987	08	25.19653	21	38	49.04	-12	51	52.6	17.5 4 809
1987	QN		1987	08	25.21250	21	38	48.66	-12	51	56.8	4 809
1987	QN		1987	08	25.22639	21	38	48.17	-12	51	59.4	4 809
1987	QV		1987	08	19.26667	21	38	21.77	+06	51	05.1	16.9 4 809
1987	QV		1987	08	19.27708	21	38	21.28	+06	51	06.0	4 809
1987	QV		1987	08	19.28750	21	38	20.74	+06	51	07.1	4 809
1987	QV		1987	08	26.11562	21	32	51.87	+06	55	00.9	16 4 809
1987	QV		1987	08	26.22083	21	32	46.60	+06	54	58.0	4 809
1987	QW		1987	08	26.11562	21	36	57.89	+05	13	17.6	18 4 809
1987	QW		1987	08	26.22083	21	36	53.08	+05	12	12.3	4 809
1987	QF1		1987	08	27.22569	22	02	48.38	-08	29	44.5	17.0 4 809
1987	QF1		1987	08	27.23611	22	02	47.87	-08	29	47.9	4 809
1987	QF1		1987	08	27.25208	22	02	47.11	-08	29	53.4	4 809
1987	QF1		1987	08	30.21736	22	00	30.96	-08	46	05.3	17.3 4 809
1987	QF1		1987	08	30.24028	22	00	29.97	-08	46	12.3	4 809
1987	QF1		1987	08	30.25104	22	00	29.40	-08	46	16.5	4 809
1987	QG1		1987	08	22.22431	22	08	20.60	-05	28	05.1	17.3 4 809
1987	QG1		1987	08	22.23472	22	08	19.98	-05	28	03.7	4 809
1987	QG1		1987	08	22.24514	22	08	19.25	-05	28	00.7	4 809
1987	QS1	*	1987	08	19.10486	19	49	56.99	-25	02	03.8	17.3 4 809
1987	QS1		1987	08	19.11597	19	49	56.57	-25	02	02.3	4 809
1987	QS1		1987	08	19.12708	19	49	56.17	-25	02	00.8	4 809
1987	QT1	*	1987	08	19.10486	19	54	08.42	-24	37	21.9	16.8 4 809
1987	QT1		1987	08	19.11597	19	54	08.10	-24	37	18.7	4 809
1987	QT1		1987	08	19.12708	19	54	07.82	-24	37	16.1	4 809
1987	QU1	*	1987	08	21.20694	21	41	27.07	-12	48	01.2	17.6 4 809
1987	QU1		1987	08	21.21771	21	41	26.57	-12	48	03.1	4 809
1987	QU1		1987	08	21.22847	21	41	25.89	-12	48	07.5	4 809
1987	QV1	*	1987	08	21.20694	21	42	07.47	-11	25	40.0	17.2 4 809
1987	QV1		1987	08	21.21771	21	42	06.82	-11	25	39.3	4 809
1987	QV1		1987	08	21.22847	21	42	06.18	-11	25	38.5	4 809
1987	QW1	*	1987	08	21.20694	21	43	06.12	-12	48	09.1	17.3 4 809
1987	QW1		1987	08	21.21771	21	43	05.54	-12	48	12.7	4 809
1987	QW1		1987	08	21.22847	21	43	05.07	-12	48	15.4	4 809
1987	QX1	*	1987	08	21.20694	21	43	25.43	-11	09	49.3	17.1 4 809
1987	QX1		1987	08	21.21771	21	43	24.85	-11	09	50.9	4 809
1987	QX1		1987	08	21.22847	21	43	24.35	-11	09	53.5	4 809
1987	QY1	*	1987	08	21.20694	21	43	43.76	-11	56	10.4	17.4 4 809
1987	QY1		1987	08	21.21771	21	43	43.22	-11	56	16.7	4 809
1987	QY1		1987	08	21.22847	21	43	42.81	-11	56	20.9	4 809
1987	QZ1	*	1987	08	21.20694	21	44	21.53	-12	20	50.8	17.3 4 809
1987	QZ1		1987	08	21.21771	21	44	20.78	-12	20	52.0	4 809
1987	QZ1		1987	08	21.22847	21	44	20.15	-12	20	53.0	4 809
1987	QZ1		1987	08	25.19653	21	40	19.45	-12	28	46.6	17.4 4 809
1987	QZ1		1987	08	25.21250	21	40	18.62	-12	28	47.2	4 809
1987	QZ1		1987	08	25.22639	21	40	17.67	-12	28	47.0	4 809
1987	QA2	*	1987	08	21.20694	21	44	53.88	-11	19	00.9	16.9 4 809
1987	QA2		1987	08	21.21771	21	44	53.43	-11	19	06.4	4 809
1987	QA2		1987	08	21.22847	21	44	52.99	-11	19	11.8	4 809
1987	QA2		1987	08	25.19653	21	42	04.33	-11	50	10.4	17.3 4 809
1987	QA2		1987	08	25.21250	21	42	03.59	-11	50	18.1	4 809
1987	QA2		1987	08	25.22639	21	42	03.01	-11	50	23.9	4 809
1987	QB2	*	1987	08	21.20694	21	46	12.71	-12	46	11.5	17.1 4 809
1987	QB2		1987	08	21.21771	21	46	12.21	-12	46	16.5	4 809

1987	QB2		1987	08	21.22847	21	46	11.81	-12	46	21.3	4 809
1987	QB2		1987	08	25.19653	21	43	22.60	-13	15	19.7	17.3 4 809
1987	QB2		1987	08	25.21250	21	43	21.91	-13	15	26.9	4 809
1987	QB2		1987	08	25.22639	21	43	21.26	-13	15	31.1	4 809
1987	QB2		1987	08	27.13750	21	42	02.52	-13	29	07.9	17.0 4 809
1987	QB2		1987	08	27.15000	21	42	02.01	-13	29	12.2	4 809
1987	QB2		1987	08	27.16111	21	42	01.53	-13	29	17.6	4 809
1987	QC2	*	1987	08	21.24063	21	41	34.20	-14	13	00.6	17.3 4 809
1987	QC2		1987	08	21.25139	21	41	33.87	-14	13	02.8	4 809
1987	QC2		1987	08	21.26181	21	41	33.36	-14	13	05.5	4 809
1987	QC2		1987	08	28.14931	21	36	35.45	-14	41	16.7	17.2 4 809
1987	QC2		1987	08	28.16111	21	36	34.98	-14	41	18.5	4 809
1987	QC2		1987	08	28.17153	21	36	34.55	-14	41	21.3	4 809
1987	QD2	*	1987	08	21.24063	21	42	30.61	-15	05	00.0	17.0 4 809
1987	QD2		1987	08	21.25139	21	42	30.14	-15	05	05.2	4 809
1987	QD2		1987	08	21.26181	21	42	29.63	-15	05	09.7	4 809
1987	QD2		1987	08	22.14687	21	41	51.80	-15	12	37.3	16.9 4 809
1987	QD2		1987	08	22.15764	21	41	51.29	-15	12	42.8	4 809
1987	QD2		1987	08	22.17014	21	41	50.73	-15	12	49.3	4 809
1987	QD2		1987	08	25.12292	21	39	44.69	-15	37	22.4	16.9 4 809
1987	QD2		1987	08	25.13507	21	39	44.15	-15	37	28.7	4 809
1987	QD2		1987	08	25.14792	21	39	43.57	-15	37	34.8	4 809
1987	QD2		1987	08	25.16250	21	39	42.95	-15	37	41.5	17.0 4 809
1987	QD2		1987	08	25.17361	21	39	42.49	-15	37	46.8	4 809
1987	QD2		1987	08	25.18472	21	39	42.04	-15	37	53.1	4 809
1987	QD2		1987	08	27.18090	21	38	18.53	-15	54	07.6	16.9 4 809
1987	QD2		1987	08	27.19583	21	38	17.88	-15	54	13.8	4 809
1987	QD2		1987	08	27.21042	21	38	17.30	-15	54	20.8	4 809
1987	QD2		1987	08	28.14931	21	37	38.83	-16	01	51.3	17.0 4 809
1987	QD2		1987	08	28.16111	21	37	38.35	-16	01	55.8	4 809
1987	QD2		1987	08	28.17153	21	37	37.85	-16	02	01.4	4 809
1987	QD2		1987	08	29.18403	21	36	56.38	-16	09	59.9	17.1 4 809
1987	QD2		1987	08	29.20000	21	36	55.66	-16	10	09.5	4 809
1987	QD2		1987	08	29.21736	21	36	54.99	-16	10	17.7	4 809
1987	QE2	*	1987	08	21.24063	21	43	06.56	-14	54	44.2	17.3 4 809
1987	QE2		1987	08	21.25139	21	43	05.84	-14	54	45.5	4 809
1987	QE2		1987	08	21.26181	21	43	05.06	-14	54	46.7	4 809
1987	QE2		1987	08	25.16250	21	38	55.75	-15	08	57.2	17.7 4 809
1987	QE2		1987	08	25.17361	21	38	55.15	-15	09	00.6	4 809
1987	QE2		1987	08	25.18472	21	38	54.44	-15	09	05.8	4 809
1987	QG2	*	1987	08	21.24063	21	45	05.02	-13	56	06.1	17.0 4 809
1987	QG2		1987	08	21.25139	21	45	04.21	-13	56	07.1	4 809
1987	QG2		1987	08	21.26181	21	45	03.42	-13	56	08.1	4 809
1987	QG2		1987	08	25.16250	21	40	53.29	-14	02	05.0	17.4 4 809
1987	QG2		1987	08	25.17361	21	40	52.64	-14	02	05.3	4 809
1987	QG2		1987	08	25.18472	21	40	51.87	-14	02	06.9	4 809
1987	QH2	*	1987	08	21.24063	21	45	53.24	-15	17	19.7	16.9 4 809
1987	QH2		1987	08	21.25139	21	45	52.54	-15	17	20.2	4 809
1987	QH2		1987	08	21.26181	21	45	51.78	-15	17	20.7	4 809
1987	QH2		1987	08	22.14687	21	44	56.64	-15	18	29.9	16.2 4 809
1987	QH2		1987	08	22.15764	21	44	55.95	-15	18	31.0	4 809
1987	QH2		1987	08	22.17014	21	44	55.13	-15	18	31.2	4 809
1987	QH2		1987	08	25.12292	21	41	51.40	-15	22	02.4	17.0 4 809
1987	QH2		1987	08	25.13507	21	41	50.61	-15	22	03.2	4 809
1987	QH2		1987	08	25.14792	21	41	49.81	-15	22	04.2	4 809
1987	QH2		1987	08	25.16250	21	41	48.72	-15	22	03.7	16.8 4 809
1987	QH2		1987	08	25.17361	21	41	48.15	-15	22	04.1	4 809
1987	QH2		1987	08	25.18472	21	41	47.43	-15	22	04.9	4 809
1987	QH2		1987	08	27.18090	21	39	45.22	-15	24	05.4	16.8 4 809

1987	QH2		1987	08	27.19583	21	39	44.29	-15	24	05.7	4 809
1987	QH2		1987	08	27.21042	21	39	43.42	-15	24	06.2	4 809
1987	QH2		1987	08	28.14931	21	38	47.07	-15	24	53.2	16.8 4 809
1987	QH2		1987	08	28.16111	21	38	46.39	-15	24	53.6	4 809
1987	QH2		1987	08	28.17153	21	38	45.70	-15	24	54.3	4 809
1987	QJ2	*	1987	08	21.24063	21	46	44.64	-15	06	08.6	17.0 4 809
1987	QJ2		1987	08	21.25139	21	46	43.87	-15	06	08.2	4 809
1987	QJ2		1987	08	21.26181	21	46	43.14	-15	06	07.5	4 809
1987	QJ2		1987	08	25.16250	21	42	26.46	-15	00	48.0	17.2 4 809
1987	QJ2		1987	08	25.17361	21	42	25.76	-15	00	48.8	4 809
1987	QJ2		1987	08	25.18472	21	42	25.00	-15	00	48.1	4 809
1987	QJ2		1987	08	28.14931	21	39	13.51	-14	56	03.2	17.0 4 809
1987	QJ2		1987	08	28.16111	21	39	12.76	-14	56	02.6	4 809
1987	QJ2		1987	08	28.17153	21	39	12.00	-14	56	01.1	4 809
1987	QK2	*	1987	08	21.24063	21	48	53.34	-14	14	51.6	17.4 4 809
1987	QK2		1987	08	21.25139	21	48	52.75	-14	14	52.7	4 809
1987	QK2		1987	08	21.26181	21	48	52.29	-14	14	55.3	4 809
1987	QL2	*	1987	08	21.27292	22	55	22.68	-05	40	58.5	17.4 4 809
1987	QL2		1987	08	21.28333	22	55	22.37	-05	41	05.2	4 809
1987	QL2		1987	08	21.29375	22	55	21.92	-05	41	12.3	4 809
1987	QN2	*	1987	08	22.08403	21	21	31.67	-13	13	13.7	17.5 4 809
1987	QN2		1987	08	22.09444	21	21	31.19	-13	13	17.6	4 809
1987	QN2		1987	08	22.10486	21	21	30.80	-13	13	19.7	4 809
1987	QO2	*	1987	08	22.08403	21	22	46.77	-13	32	12.8	17.4 4 809
1987	QO2		1987	08	22.09444	21	22	46.33	-13	32	11.3	4 809
1987	QO2		1987	08	22.10486	21	22	45.74	-13	32	09.0	4 809
1987	QP2	*	1987	08	22.08403	21	23	30.44	-13	58	42.9	17.6 4 809
1987	QP2		1987	08	22.09444	21	23	29.88	-13	58	43.9	4 809
1987	QP2		1987	08	22.10486	21	23	29.44	-13	58	45.2	4 809
1987	QQ2	*	1987	08	22.08403	21	24	05.22	-13	13	21.6	17.4 4 809
1987	QQ2		1987	08	22.09444	21	24	04.65	-13	13	23.5	4 809
1987	QQ2		1987	08	22.10486	21	24	04.30	-13	13	26.1	4 809
1987	QR2	*	1987	08	22.08403	21	24	15.73	-12	54	41.0	17.5 4 809
1987	QR2		1987	08	22.09444	21	24	15.29	-12	54	41.5	4 809
1987	QR2		1987	08	22.10486	21	24	14.96	-12	54	41.0	4 809
1987	QS2	*	1987	08	22.08403	21	24	28.09	-13	42	45.4	17.2 4 809
1987	QS2		1987	08	22.09444	21	24	27.51	-13	42	51.5	4 809
1987	QS2		1987	08	22.10486	21	24	27.10	-13	42	56.7	4 809
1987	QT2	*	1987	08	22.08403	21	24	58.83	-12	56	08.0	17.1 4 809
1987	QT2		1987	08	22.09444	21	24	58.22	-12	56	10.3	4 809
1987	QT2		1987	08	22.10486	21	24	57.78	-12	56	12.5	4 809
1987	QU2	*	1987	08	22.08403	21	24	59.50	-13	31	05.6	17.2 4 809
1987	QU2		1987	08	22.09444	21	24	58.90	-13	31	08.2	4 809
1987	QU2		1987	08	22.10486	21	24	58.49	-13	31	10.5	4 809
1987	QV2	*	1987	08	22.08403	21	27	22.60	-14	14	53.8	17.2 4 809
1987	QV2		1987	08	22.09444	21	27	21.99	-14	14	52.9	4 809
1987	QV2		1987	08	22.10486	21	27	21.24	-14	14	51.7	4 809
1987	QW2	*	1987	08	22.14687	21	38	27.10	-16	18	25.8	17.1 4 809
1987	QW2		1987	08	22.15764	21	38	26.57	-16	18	27.5	4 809
1987	QW2		1987	08	22.17014	21	38	25.99	-16	18	30.4	4 809
1987	QW2		1987	08	29.18403	21	33	17.03	-16	41	17.8	17.1 4 809
1987	QW2		1987	08	29.20000	21	33	16.31	-16	41	20.8	4 809
1987	QW2		1987	08	29.21736	21	33	15.57	-16	41	24.1	4 809
1987	QX2	*	1987	08	22.14687	21	39	11.91	-15	40	37.9	17.3 4 809
1987	QX2		1987	08	22.15764	21	39	11.37	-15	40	40.9	4 809
1987	QX2		1987	08	22.17014	21	39	10.74	-15	40	44.5	4 809
1987	QX2		1987	08	28.14931	21	34	29.08	-16	09	11.8	17.2 4 809
1987	QX2		1987	08	28.16111	21	34	28.52	-16	09	15.2	4 809
1987	QX2		1987	08	28.17153	21	34	28.08	-16	09	17.9	4 809

1987	QX2		1987	08	29.18403	21	33	41.70	-16	13	51.9	17.1	4	809
1987	QX2		1987	08	29.20000	21	33	40.95	-16	13	55.8		4	809
1987	QX2		1987	08	29.21736	21	33	40.20	-16	14	00.5		4	809
1987	QY2	*	1987	08	22.14687	21	43	46.13	-15	25	17.8	17.2	4	809
1987	QY2		1987	08	22.15764	21	43	45.57	-15	25	21.7		4	809
1987	QY2		1987	08	22.17014	21	43	44.89	-15	25	26.3		4	809
1987	QY2		1987	08	25.12292	21	41	02.87	-15	44	38.3	18.2	4	809
1987	QY2		1987	08	25.13507	21	41	02.21	-15	44	41.6		4	809
1987	QY2		1987	08	25.14792	21	41	01.69	-15	44	46.9		4	809
1987	QY2		1987	08	27.18090	21	39	13.01	-15	57	26.7	17.4	4	809
1987	QY2		1987	08	27.19583	21	39	12.31	-15	57	30.8		4	809
1987	QY2		1987	08	27.21042	21	39	11.58	-15	57	34.9		4	809
1987	QZ2	*	1987	08	22.14687	21	46	07.09	-16	41	46.9	17.2	4	809
1987	QZ2		1987	08	22.15764	21	46	06.55	-16	41	48.0		4	809
1987	QZ2		1987	08	22.17014	21	46	06.05	-16	41	50.1		4	809
1987	QZ2		1987	08	25.12292	21	43	47.34	-16	51	53.7	17.7	4	809
1987	QZ2		1987	08	25.13507	21	43	46.68	-16	51	55.5		4	809
1987	QZ2		1987	08	25.14792	21	43	46.10	-16	51	58.3		4	809
1987	QZ2		1987	08	27.18090	21	42	11.77	-16	58	29.7	17.6	4	809
1987	QZ2		1987	08	27.19583	21	42	11.15	-16	58	30.9		4	809
1987	QZ2		1987	08	27.21042	21	42	09.71	-16	58	37.6		4	809
1987	QA3		1987	08	25.12292	21	46	06.69	-16	31	24.1	16.8	4	809
1987	QA3		1987	08	25.13507	21	46	06.04	-16	31	25.0		4	809
1987	QA3		1987	08	25.14792	21	46	05.30	-16	31	25.5		4	809
1987	QA3	*	1987	08	27.18090	21	44	08.11	-16	32	46.2	16.8	4	809
1987	QB3	*	1987	08	27.22569	21	58	47.72	-07	40	39.9	17.2	4	809
1987	QB3		1987	08	27.23611	21	58	47.15	-07	40	43.5		4	809
1987	QB3		1987	08	27.25208	21	58	46.39	-07	40	49.7		4	809
1987	QC3	*	1987	08	27.22569	21	59	19.88	-07	31	23.7	17.2	4	809
1987	QC3		1987	08	27.23611	21	59	19.26	-07	31	24.9		4	809
1987	QC3		1987	08	27.25208	21	59	18.26	-07	31	27.0		4	809
1987	QD3	*	1987	08	27.22569	22	02	09.42	-08	32	37.8	17.2	4	809
1987	QD3		1987	08	27.23611	22	02	08.87	-08	32	42.4		4	809
1987	QD3		1987	08	27.25208	22	02	07.98	-08	32	49.2		4	809
1987	QD3		1987	08	30.21736	21	59	26.29	-08	55	06.7	17.4	4	809
1987	QD3		1987	08	30.24028	21	59	25.05	-08	55	18.1		4	809
1987	QD3		1987	08	30.25104	21	59	24.45	-08	55	22.6		4	809
1987	QE3	*	1987	08	27.22569	22	03	46.95	-07	04	33.5	17.0	4	809
1987	QE3		1987	08	27.23611	22	03	46.47	-07	04	38.3		4	809
1987	QE3		1987	08	27.25208	22	03	45.74	-07	04	43.8		4	809
1987	QF3	*	1987	08	28.33472	22	52	01.98	-11	18	33.0	17.3	4	809
1987	QF3		1987	08	28.33889	22	52	01.34	-11	18	39.2		4	809
1987	QF3		1987	08	28.34931	22	52	00.83	-11	18	43.3		4	809
1987	QG3	*	1987	08	28.33472	22	52	16.95	-09	38	11.0	14.0	4	809
1987	QG3		1987	08	28.33889	22	52	16.29	-09	38	12.0		4	809
1987	QG3		1987	08	28.34931	22	52	15.77	-09	38	13.5		4	809
1987	QG3		1987	09	03.35278	22	46	52.74	-09	49	34.3	15.0	4	809
1987	QG3		1987	09	03.36319	22	46	52.13	-09	49	34.7		4	809
1987	QG3		1987	09	03.37361	22	46	51.61	-09	49	35.8		4	809
1987	QH3	*	1987	08	28.33472	22	53	47.47	-11	12	05.9	17.2	4	809
1987	QH3		1987	08	28.33889	22	53	46.72	-11	12	06.9		4	809
1987	QH3		1987	08	28.34931	22	53	46.17	-11	12	08.0		4	809
1987	QK3	*	1987	08	29.11597	21	32	27.22	-08	05	58.7	16.9	4	809
1987	QK3		1987	08	29.12639	21	32	26.74	-08	06	00.2		4	809
1987	QK3		1987	08	29.13681	21	32	26.25	-08	06	01.9		4	809
1987	QK3		1987	08	31.19444	21	30	46.47	-08	12	53.5	16.9	4	809
1987	QK3		1987	08	31.20486	21	30	46.02	-08	12	55.6		4	809
1987	QK5	*	1987	08	22.18819	21	37	56.17	-17	50	35.4	17.0	4	809
1987	QK5		1987	08	22.20000	21	37	55.59	-17	50	42.1		4	809

1987	QK5		1987	08	22.21042	21	37	55.11	-17	50	47.3		4 809
1987	QL5	*	1987	08	22.18819	21	38	23.40	-18	37	57.4	17.0	4 809
1987	QL5		1987	08	22.20000	21	38	22.51	-18	37	52.4		4 809
1987	QL5		1987	08	22.21042	21	38	21.81	-18	37	48.1		4 809
1987	QM5	*	1987	08	22.18819	21	42	06.60	-17	44	36.0	17.6	4 809
1987	QM5		1987	08	22.20000	21	42	05.98	-17	44	39.5		4 809
1987	QM5		1987	08	22.21042	21	42	05.53	-17	44	42.9		4 809
1987	QN5	*	1987	08	25.16250	21	36	21.06	-14	59	22.2	18.0	4 809
1987	QN5		1987	08	25.17361	21	36	20.61	-14	59	26.0		4 809
1987	QN5		1987	08	25.18472	21	36	19.98	-14	59	28.6		4 809
1987	QO5	*	1987	08	25.16250	21	38	53.01	-15	04	13.9	17.5	4 809
1987	QO5		1987	08	25.17361	21	38	52.14	-15	04	16.5		4 809
1987	QO5		1987	08	25.18472	21	38	51.51	-15	04	17.3		4 809
1987	QO5		1987	08	29.18403	21	34	40.64	-15	12	47.5	17.2	4 809
1987	QO5		1987	08	29.20000	21	34	39.61	-15	12	49.7		4 809
1987	QO5		1987	08	29.21736	21	34	38.44	-15	12	52.4		4 809
1987	QP5	*	1987	08	25.16250	21	40	42.72	-14	29	18.0	17.4	4 809
1987	QP5		1987	08	25.17361	21	40	42.20	-14	29	21.3		4 809
1987	QP5		1987	08	25.18472	21	40	41.76	-14	29	24.2		4 809
1987	QQ5	*	1987	08	25.16250	21	41	00.81	-15	41	34.2	17.7	4 809
1987	QQ5		1987	08	25.17361	21	41	00.19	-15	41	38.0		4 809
1987	QQ5		1987	08	25.18472	21	40	59.50	-15	41	44.5		4 809
1987	QR5	*	1987	08	25.19653	21	45	39.46	-12	05	56.6	16.9	4 809
1987	QR5		1987	08	25.21250	21	45	38.42	-12	06	00.5		4 809
1987	QR5		1987	08	25.22639	21	45	37.58	-12	06	02.3		4 809
1987	QS5	*	1987	08	26.31458	22	52	17.43	-05	28	53.6	18.0	4 809
1987	QS5		1987	08	26.32500	22	52	16.88	-05	28	54.6		4 809
1987	QS5		1987	08	26.34028	22	52	15.76	-05	28	54.0		4 809
1987	QT5	*	1987	08	27.13750	21	46	04.67	-12	47	33.4	17.4	4 809
1987	QT5		1987	08	27.15000	21	46	03.99	-12	47	36.6		4 809
1987	QT5		1987	08	27.16111	21	46	03.31	-12	47	40.4		4 809
1987	QU5	*	1987	08	27.13750	21	47	48.50	-13	57	20.5	17.2	4 809
1987	QU5		1987	08	27.15000	21	47	48.00	-13	57	28.5		4 809
1987	QU5		1987	08	27.16111	21	47	47.36	-13	57	36.3		4 809
1987	QV5	*	1987	08	28.14931	21	32	22.36	-14	44	16.5	17.0	4 809
1987	QV5		1987	08	28.16111	21	32	21.81	-14	44	20.4		4 809
1987	QV5		1987	08	28.17153	21	32	21.33	-14	44	22.9		4 809
1987	QV5		1987	08	29.18403	21	31	37.58	-14	49	37.0	17.2	4 809
1987	QV5		1987	08	29.20000	21	31	36.83	-14	49	42.2		4 809
1987	QV5		1987	08	29.21736	21	31	36.13	-14	49	47.2		4 809
1987	QW5	*	1987	08	28.14931	21	32	25.25	-14	57	24.1	17.2	4 809
1987	QW5		1987	08	28.16111	21	32	24.68	-14	57	27.0		4 809
1987	QW5		1987	08	28.17153	21	32	24.19	-14	57	29.4		4 809
1987	QW5		1987	08	29.18403	21	31	39.79	-15	01	47.1	17.6	4 809
1987	QW5		1987	08	29.20000	21	31	39.06	-15	01	50.7		4 809
1987	QW5		1987	08	29.21736	21	31	38.26	-15	01	55.7		4 809
1987	QX5	*	1987	08	28.14931	21	32	29.73	-14	59	14.3	17.0	4 809
1987	QX5		1987	08	28.16111	21	32	29.24	-14	59	17.9		4 809
1987	QX5		1987	08	28.17153	21	32	28.74	-14	59	22.7		4 809
1987	QX5		1987	08	29.18403	21	31	44.26	-15	06	04.6	17.2	4 809
1987	QX5		1987	08	29.20000	21	31	43.54	-15	06	11.6		4 809
1987	QX5		1987	08	29.21736	21	31	42.71	-15	06	18.2		4 809
1987	QY5	*	1987	08	30.21736	22	01	46.36	-09	23	38.8	17.2	4 809
1987	QY5		1987	08	30.24028	22	01	45.30	-09	23	43.9		4 809
1987	QY5		1987	08	30.25104	22	01	44.66	-09	23	47.6		4 809
1987	QZ5	*	1987	08	30.21736	22	01	58.29	-09	03	06.9	17.1	4 809
1987	QZ5		1987	08	30.24028	22	01	57.04	-09	03	07.0		4 809
1987	QZ5		1987	08	30.25104	22	01	56.39	-09	03	07.0		4 809
1987	QA6	*	1987	08	30.26181	21	58	34.85	-10	17	41.4	17.8	4 809

1987	QA6		1987	08	30.27222	21	58	34.23	-10	17	39.8		4 809
1987	QA6		1987	08	30.28333	21	58	33.49	-10	17	39.1		4 809
1987	QB6	*	1987	08	30.26181	21	58	50.55	-11	00	38.6	17.3	4 809
1987	QB6		1987	08	30.27222	21	58	50.14	-11	00	46.8		4 809
1987	QB6		1987	08	30.28333	21	58	49.61	-11	00	55.6		4 809
1987	QC6	*	1987	08	30.26181	22	02	38.46	-11	02	16.2	17.5	4 809
1987	QC6		1987	08	30.27222	22	02	38.15	-11	02	25.2		4 809
1987	QC6		1987	08	30.28333	22	02	37.81	-11	02	35.1		4 809
1987	QH6	*	1987	08	26.11562	21	21	35.48	+06	58	59.1	19	4 809
1987	QH6		1987	08	26.22083	21	21	31.22	+06	58	09.6		4 809
1987	QJ6	*	1987	08	26.11562	21	22	20.25	+05	13	53.9	18.5	4 809
1987	QJ6		1987	08	26.22083	21	22	14.48	+05	13	33.8		4 809
1987	QK6	*	1987	08	26.11562	21	22	29.96	+05	48	26.3	18.5	4 809
1987	QK6		1987	08	26.22083	21	22	25.29	+05	48	06.7		4 809
1987	QL6	*	1987	08	26.11562	21	29	05.58	+05	16	59.1	18	4 809
1987	QL6		1987	08	26.22083	21	29	00.25	+05	16	25.1		4 809
1987	QM6	*	1987	08	26.11562	21	31	23.44	+06	33	32.1	18.5	4 809
1987	QM6		1987	08	26.22083	21	31	20.07	+06	33	19.2		4 809
1987	QN6	*	1987	08	26.11562	21	31	53.83	+06	47	15.0	18	4 809
1987	QN6		1987	08	26.22083	21	31	48.03	+06	46	54.7		4 809
1987	QO6	*	1987	08	26.11562	21	35	24.92	+05	37	56.6	18.5	4 809
1987	QO6		1987	08	26.22083	21	35	19.15	+05	37	33.3		4 809
1987	QP6	*	1987	08	26.11562	21	35	58.43	+05	43	20.6	19	4 809
1987	QP6		1987	08	26.22083	21	35	53.05	+05	42	55.7		4 809
1987	QQ6	*	1987	08	26.11562	21	36	31.40	+07	28	17.1	18	4 809
1987	QQ6		1987	08	26.22083	21	36	26.18	+07	27	41.1		4 809
1987	QR6	*	1987	08	26.11562	21	36	37.83	+07	49	14.5	19	4 809
1987	QR6		1987	08	26.22083	21	36	33.02	+07	48	24.1		4 809
1987	QS6	*	1987	08	26.11562	21	36	56.18	+08	29	29.4	19	4 809
1987	QS6		1987	08	26.22083	21	36	51.20	+08	29	23.1		4 809
1987	QT6	*	1987	08	26.11562	21	38	23.82	+05	14	41.1	18.5	4 809
1987	QT6		1987	08	26.22083	21	38	18.07	+05	14	26.1		4 809
1987	QU6	*	1987	08	26.11562	21	39	18.53	+08	20	07.1	16.5	4 809
1987	QU6		1987	08	26.22083	21	39	13.68	+08	19	43.8		4 809
1987	QV6	*	1987	08	26.11562	21	39	45.63	+04	50	02.1	16.5	4 809
1987	QV6		1987	08	26.22083	21	39	40.90	+04	49	27.1		4 809
1987	QW6	*	1987	08	26.11562	21	40	20.74	+06	43	13.8	19.5	4 809
1987	QW6		1987	08	26.22083	21	40	14.85	+06	42	17.6		4 809
1987	QX6	*	1987	08	26.11562	21	40	55.40	+06	53	25.0	19.5	4 809
1987	QX6		1987	08	26.22083	21	40	51.90	+06	51	58.5		4 809
1987	QY6	*	1987	08	22.22431	22	02	15.10	-04	41	24.2	17	4 809
1987	QY6		1987	08	22.23472	22	02	14.38	-04	41	22.6		4 809
1987	QY6		1987	08	22.24514	22	02	13.76	-04	41	20.8		4 809
1987	QZ6	*	1987	08	22.22431	22	04	24.45	-05	24	47.2	17.3	4 809
1987	QZ6		1987	08	22.23472	22	04	23.86	-05	24	49.0		4 809
1987	QZ6		1987	08	22.24514	22	04	23.10	-05	24	50.6		4 809
1987	QA7	*	1987	08	22.22431	22	04	44.40	-03	49	46.0	17.6	4 809
1987	QA7		1987	08	22.23472	22	04	43.74	-03	49	47.2		4 809
1987	QA7		1987	08	22.24514	22	04	43.01	-03	49	48.2		4 809
1987	QB7	*	1987	08	22.22431	22	09	32.38	-05	40	08.6	17.7	4 809
1987	QB7		1987	08	22.23472	22	09	31.86	-05	40	14.3		4 809
1987	QB7		1987	08	22.24514	22	09	31.16	-05	40	20.0		4 809
1987	QC7	*	1987	08	22.23472	22	02	33.32	-05	27	45.6		4 809
1987	QC7		1987	08	22.24514	22	02	32.61	-05	27	49.9		4 809
1987	RA		1987	08	22.22431	22	05	38.89	-05	08	00.2	16.8	4 809
1987	RA		1987	08	22.23472	22	05	38.32	-05	08	00.5		4 809
1987	RA		1987	08	22.24514	22	05	37.74	-05	08	01.0		4 809
1987	RB		1987	09	02.25625	22	45	07.86	-03	46	04.3	17.2	4 809
1987	RB		1987	09	02.26806	22	45	07.38	-03	46	08.2		4 809

1987	RB		1987	09	02.27847	22	45	06.93	-03	46	13.2	4 809
1987	RD		1987	09	02.25625	22	46	02.50	-04	04	12.2	17.2 4 809
1987	RD		1987	09	02.26806	22	46	01.94	-04	04	13.3	4 809
1987	RD		1987	09	02.27847	22	46	01.47	-04	04	14.1	4 809
1987	RE		1987	08	26.31458	22	58	01.40	-04	28	21.8	17.2 4 809
1987	RE		1987	08	26.32500	22	58	00.81	-04	28	23.1	4 809
1987	RE		1987	08	26.34028	22	57	59.98	-04	28	24.7	4 809
1987	RG	*	1987	09	01.33785	00	49	00.58	-00	16	25.8	17.0 4 809
1987	RG		1987	09	01.34792	00	49	00.30	-00	16	23.0	4 809
1987	RG		1987	09	01.35833	00	49	00.10	-00	16	20.7	4 809
1987	RG		1987	09	01.36875	00	48	59.89	-00	16	17.9	4 809
1987	RH	*	1987	09	01.33785	00	51	02.85	-00	51	37.8	17.4 4 809
1987	RH		1987	09	01.34792	00	51	02.53	-00	51	40.5	4 809
1987	RH		1987	09	01.35833	00	51	02.21	-00	51	42.8	4 809
1987	RH		1987	09	01.36875	00	51	01.89	-00	51	43.8	4 809
1987	RJ	*	1987	09	01.33785	00	52	07.47	-00	06	51.5	16.8 4 809
1987	RJ		1987	09	01.34792	00	52	07.24	-00	06	53.7	4 809
1987	RJ		1987	09	01.35833	00	52	07.01	-00	06	54.9	4 809
1987	RJ		1987	09	01.36875	00	52	06.82	-00	06	57.3	4 809
1987	RK	*	1987	09	01.33785	00	52	15.43	-00	14	07.4	17.1 4 809
1987	RK		1987	09	01.34792	00	52	15.23	-00	14	05.8	4 809
1987	RK		1987	09	01.35833	00	52	15.10	-00	14	03.1	4 809
1987	RK		1987	09	01.36875	00	52	15.02	-00	13	59.4	4 809
1987	RL	*	1987	09	01.33785	00	52	59.85	-00	51	24.2	17.2 4 809
1987	RL		1987	09	01.34792	00	52	59.49	-00	51	25.0	4 809
1987	RL		1987	09	01.35833	00	52	59.20	-00	51	25.5	4 809
1987	RL		1987	09	01.36875	00	52	58.91	-00	51	26.4	4 809
1987	RM	*	1987	09	01.33785	00	55	46.64	-01	14	14.9	17.4 4 809
1987	RM		1987	09	01.34792	00	55	46.48	-01	14	17.9	4 809
1987	RM		1987	09	01.35833	00	55	46.32	-01	14	21.3	4 809
1987	RM		1987	09	01.36875	00	55	46.19	-01	14	23.9	4 809
1987	RN	*	1987	09	02.25625	22	45	01.00	-04	37	08.5	17.6 4 809
1987	RN		1987	09	02.26806	22	45	00.39	-04	37	11.6	4 809
1987	RN		1987	09	02.27847	22	44	59.68	-04	37	16.0	4 809
1987	RO	*	1987	09	03.35278	22	46	48.69	-09	23	21.9	17.5 4 809
1987	RO		1987	09	03.36319	22	46	48.35	-09	23	27.6	4 809
1987	RO		1987	09	03.37361	22	46	48.00	-09	23	31.5	4 809
1987	RP	*	1987	09	03.35278	22	47	24.66	-08	49	10.8	17.5 4 809
1987	RP		1987	09	03.36319	22	47	24.29	-08	49	18.8	4 809
1987	RP		1987	09	03.37361	22	47	23.94	-08	49	27.7	4 809
1987	RQ	*	1987	09	03.35278	22	52	27.34	-09	07	14.3	17.5 4 809
1987	RQ		1987	09	03.36319	22	52	26.74	-09	07	18.8	4 809
1987	RQ		1987	09	03.37361	22	52	26.28	-09	07	24.0	4 809
1987	RR	*	1987	09	03.35278	22	52	41.51	-08	58	49.1	17.5 4 809
1987	RR		1987	09	03.36319	22	52	41.02	-08	58	54.6	4 809
1987	RR		1987	09	03.37361	22	52	40.69	-08	59	00.2	4 809
1987	RS	*	1987	09	03.35278	22	59	16.67	-09	03	57.5	17.5 4 809
1987	RS		1987	09	03.36319	22	59	16.22	-09	04	00.4	4 809
1987	RS		1987	09	03.37361	22	59	15.83	-09	04	02.8	4 809
1			1987	07	01.25243	17	41	05.40	-26	17	54.9	2 809
1			1987	07	01.25336	17	41	05.35	-26	17	55.0	2 809
1			1987	07	01.25428	17	41	05.30	-26	17	55.6	2 809
1			1987	07	01.25521	17	41	05.25	-26	17	55.4	2 809
1			1987	07	01.25799	17	41	05.07	-26	17	56.1	2 809
82			1987	08	28.33472	22	50	14.49	-10	38	48.4	14.5 4 809
82			1987	08	28.33889	22	50	13.92	-10	38	51.1	4 809
82			1987	08	28.34931	22	50	13.43	-10	38	53.8	4 809
161			1987	09	01.33785	00	51	15.01	-01	03	43.5	14.0 4 809
161			1987	09	01.34792	00	51	14.48	-01	03	43.0	4 809

161	1987	09	01.35833	00	51	14.09	-01	03	42.6		4 809
161	1987	09	01.36875	00	51	13.78	-01	03	42.5		4 809
203	1987	07	01.39728	20	22	06.99	-23	28	08.1		2 809
203	1987	07	01.40289	20	22	06.77	-23	28	08.8		2 809
203	1987	07	01.40845	20	22	06.54	-23	28	09.5		2 809
203	1987	07	02.30660	20	21	28.09	-23	30	20.0		2 809
203	1987	07	02.31146	20	21	27.87	-23	30	20.5	12.8	2 809
203	1987	07	02.31632	20	21	27.67	-23	30	21.3		2 809
217	1987	08	21.27292	22	56	23.00	-03	59	37.6		4 809
217	1987	08	21.28333	22	56	22.67	-03	59	44.1		4 809
217	1987	08	21.29375	22	56	22.35	-03	59	51.4		4 809
217	1987	08	26.31458	22	53	58.53	-04	58	21.5	15.0	4 809
217	1987	08	26.32500	22	53	58.17	-04	58	30.0		4 809
217	1987	08	26.34028	22	53	57.75	-04	58	40.7		4 809
499	1987	09	02.25625	22	43	12.33	-05	06	02.2	16.8	4 809
499	1987	09	02.26806	22	43	11.85	-05	06	05.0		4 809
499	1987	09	02.27847	22	43	11.42	-05	06	06.8		4 809
858	1987	07	01.37222	20	42	38.54	-29	00	32.4		2 809
858	1987	07	01.37778	20	42	38.38	-29	00	34.7		2 809
858	1987	07	01.38333	20	42	38.14	-29	00	37.5		2 809
875	1987	08	19.26667	21	33	35.95	+07	08	09.6	16.5	4 809
875	1987	08	19.27708	21	33	35.54	+07	08	04.1		4 809
875	1987	08	19.28750	21	33	35.02	+07	07	57.5		4 809
875	1987	08	26.11562	21	28	47.89	+05	55	17.6		4 809
875	1987	08	26.22083	21	28	43.37	+05	54	05.6		4 809
884	1987	08	31.19444	21	30	31.67	-09	54	11.0	16.6	4 809
884	1987	08	31.20486	21	30	31.36	-09	54	12.3		4 809
908	1987	07	01.37222	20	42	57.63	-28	58	38.0	15.9	2 809
908	1987	07	01.37778	20	42	57.40	-28	58	40.7		2 809
908	1987	07	01.38333	20	42	57.15	-28	58	44.1		2 809
1172	1987	08	19.26667	21	34	13.81	+07	42	20.7	16.5	4 809
1172	1987	08	19.27708	21	34	13.45	+07	42	19.5		4 809
1172	1987	08	19.28750	21	34	13.16	+07	42	17.9		4 809
1172	1987	08	26.11562	21	30	43.73	+07	24	52.6		4 809
1172	1987	08	26.22083	21	30	40.42	+07	24	34.2		4 809
1173	1987	08	22.22431	22	07	57.26	-04	27	06.8	16.5	4 809
1173	1987	08	22.23472	22	07	56.87	-04	27	08.6		4 809
1173	1987	08	22.24514	22	07	56.55	-04	27	09.8		4 809
1435	1987	09	02.25625	22	45	57.78	-04	31	23.0	17.3	4 809
1435	1987	09	02.26806	22	45	57.30	-04	31	26.9		4 809
1435	1987	09	02.27847	22	45	56.86	-04	31	29.0		4 809
1465	1987	08	21.27292	22	55	52.65	-04	26	55.8	17.0	4 809
1465	1987	08	21.28333	22	55	52.12	-04	26	59.8		4 809
1465	1987	08	21.29375	22	55	51.74	-04	27	03.2		4 809
1465	1987	08	26.31458	22	52	28.17	-05	00	03.3	17.3	4 809
1465	1987	08	26.32500	22	52	27.73	-05	00	07.4		4 809
1465	1987	08	26.34028	22	52	27.14	-05	00	13.8		4 809
1492	1987	09	01.33785	00	54	28.10	-01	07	58.7	17.2	4 809
1492	1987	09	01.34792	00	54	27.75	-01	08	02.3		4 809
1492	1987	09	01.35833	00	54	27.43	-01	08	06.6		4 809
1492	1987	09	01.36875	00	54	27.13	-01	08	11.2		4 809
1496	1987	09	02.25625	22	47	03.28	-03	39	07.3	16.0	4 809
1496	1987	09	02.26806	22	47	02.65	-03	39	09.8		4 809
1496	1987	09	02.27847	22	47	02.02	-03	39	12.5		4 809
1498	1987	08	26.11562	21	26	14.75	+05	12	21.9		4 809
1498	1987	08	26.22083	21	26	09.55	+05	12	11.6		4 809
1623	1987	08	28.33472	22	52	48.34	-09	53	17.4	16.5	4 809
1623	1987	08	28.33889	22	52	47.78	-09	53	20.7		4 809
1623	1987	08	28.34931	22	52	47.37	-09	53	23.5		4 809

1623	1987	09	03.35278	22	48	20.89	-10	24	14.3	16.6	4 809
1623	1987	09	03.36319	22	48	20.40	-10	24	16.8		4 809
1623	1987	09	03.37361	22	48	19.94	-10	24	19.8		4 809
1633	1987	08	29.18403	21	30	49.06	-16	37	19.4	16.9	4 809
1633	1987	08	29.20000	21	30	48.35	-16	37	22.9		4 809
1633	1987	08	29.21736	21	30	47.59	-16	37	26.1		4 809
1698	1987	09	03.35278	22	50	40.70	-09	02	58.7	16.8	4 809
1698	1987	09	03.36319	22	50	40.24	-09	03	01.3		4 809
1698	1987	09	03.37361	22	50	39.81	-09	03	03.6		4 809
1799	1987	09	03.35278	22	48	03.55	-08	49	54.1	16.0	4 809
1799	1987	09	03.36319	22	48	03.09	-08	50	00.2		4 809
1799	1987	09	03.37361	22	48	02.79	-08	50	05.5		4 809
1873	1987	08	26.11562	21	35	33.12	+07	00	17.3		4 809
1873	1987	08	26.22083	21	35	30.22	+06	59	51.4		4 809
1909	1987	08	30.21736	21	54	32.84	-09	34	17.3	16.9	4 809
1909	1987	08	30.24028	21	54	31.64	-09	34	23.6		4 809
1909	1987	08	30.25104	21	54	31.01	-09	34	27.0		4 809
2094	1987	08	29.11597	21	28	15.19	-08	31	46.3	17.0	4 809
2094	1987	08	29.12639	21	28	14.56	-08	31	47.9		4 809
2094	1987	08	29.13681	21	28	14.03	-08	31	50.0		4 809
2094	1987	08	31.19444	21	26	20.02	-08	39	46.7	16.6	4 809
2094	1987	08	31.20486	21	26	19.48	-08	39	48.7		4 809
2181	1987	09	01.33785	00	52	18.86	-00	30	53.5	16.9	4 809
2181	1987	09	01.34792	00	52	18.45	-00	30	53.7		4 809
2181	1987	09	01.35833	00	52	18.09	-00	30	54.0		4 809
2181	1987	09	01.36875	00	52	17.75	-00	30	54.6		4 809
2223	1987	08	26.11562	21	30	51.82	+05	22	10.8		4 809
2223	1987	08	26.22083	21	30	48.80	+05	21	50.1		4 809
2256	1987	08	27.13750	21	45	36.51	-13	55	29.4	16.8	4 809
2256	1987	08	27.15000	21	45	35.96	-13	55	31.6		4 809
2256	1987	08	27.16111	21	45	35.37	-13	55	34.5		4 809
2357	1987	08	21.20694	21	42	49.06	-11	45	05.1	16.5	4 809
2357	1987	08	21.21771	21	42	48.77	-11	45	05.9		4 809
2357	1987	08	21.22847	21	42	48.47	-11	45	07.9		4 809
2357	1987	08	25.19653	21	40	50.86	-11	56	23.7	16.8	4 809
2357	1987	08	25.21250	21	40	50.40	-11	56	25.4		4 809
2357	1987	08	25.22639	21	40	49.97	-11	56	26.9		4 809
2442	1987	08	29.11597	21	30	18.91	-08	02	51.8	16.7	4 809
2442	1987	08	29.12639	21	30	18.47	-08	02	55.5		4 809
2442	1987	08	29.13681	21	30	17.95	-08	03	00.4		4 809
2442	1987	08	31.19444	21	28	47.93	-08	17	58.8	16.6	4 809
2442	1987	08	31.20486	21	28	47.47	-08	18	02.8		4 809
2464	1987	08	28.14931	21	32	06.91	-15	30	18.1	17.0	4 809
2464	1987	08	28.16111	21	32	06.35	-15	30	20.1		4 809
2464	1987	08	28.17153	21	32	05.90	-15	30	22.1		4 809
2464	1987	08	29.18403	21	31	20.96	-15	33	47.2	16.9	4 809
2464	1987	08	29.20000	21	31	20.16	-15	33	50.6		4 809
2464	1987	08	29.21736	21	31	19.42	-15	33	53.7		4 809
2540	1987	08	22.08403	21	26	09.95	-13	33	35.5	17.6	4 809
2540	1987	08	22.09444	21	26	09.33	-13	33	38.7		4 809
2540	1987	08	22.10486	21	26	08.71	-13	33	42.0		4 809
2674	1987	08	22.08403	21	25	44.18	-13	38	14.7	16.5	4 809
2674	1987	08	22.09444	21	25	43.84	-13	38	15.9		4 809
2674	1987	08	22.10486	21	25	43.57	-13	38	17.9		4 809
2893	1987	07	01.39728	20	26	44.97	-22	36	28.9		2 809
2893	1987	07	01.40289	20	26	44.84	-22	36	29.7		2 809
2893	1987	07	01.40845	20	26	44.72	-22	36	31.0		2 809
2893	1987	07	02.30660	20	26	21.41	-22	39	46.1		2 809
2893	1987	07	02.31146	20	26	21.29	-22	39	46.9	15.7	2 809

2893		1987 07 02.31632	20 26 21.16	-22 39 48.1				2	809
3321		1987 08 21.27292	22 56 42.81	-04 56 23.1			16.8	4	809
3321		1987 08 21.28333	22 56 42.39	-04 56 28.4				4	809
3321		1987 08 21.29375	22 56 42.04	-04 56 33.6				4	809
3321		1987 08 26.31458	22 53 41.02	-05 42 39.9			16.8	4	809
3321		1987 08 26.32500	22 53 40.58	-05 42 46.2				4	809
3321		1987 08 26.34028	22 53 40.04	-05 42 54.1				4	809
3381		1987 08 22.22431	22 03 56.83	-03 49 50.7			16.8	4	809
3381		1987 08 22.23472	22 03 56.25	-03 49 53.2				4	809
3381		1987 08 22.24514	22 03 55.64	-03 49 54.7				4	809
3393		1987 08 30.26181	21 54 51.68	-10 56 52.3			16.9	4	809
3393		1987 08 30.27222	21 54 51.19	-10 56 58.9				4	809
3393		1987 08 30.28333	21 54 50.63	-10 57 04.8				4	809
3470		1987 09 02.25625	22 46 36.82	-03 26 18.8			17.3	4	809
3470		1987 09 02.26806	22 46 36.24	-03 26 22.0				4	809
3470		1987 09 02.27847	22 46 35.70	-03 26 25.5				4	809

881 Toyota
T. Urata, Planetarium Section, Tsukuba Expo Center, 9, 2, Chome,
Azuma, Sakura-mura, Niihari-gun, Ibaragi-ken, 305 Japan
Observers K. Suzuki, T. Urata
0.31-m f/5.7 reflector

1987 SJ	*	1987 09 18.60660	00 46 45.90	+07 04 14.2			15.5	881
1987 SJ		1987 09 18.62743	00 46 45.27	+07 04 03.9				881
1987 SK	*	1987 09 18.61701	00 46 52.09	+05 13 58.4			16.5	881
1987 SK		1987 09 18.63785	00 46 50.93	+05 13 53.5				881

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ORBITAL ELEMENTS OF ONE-OPPOSITION MINOR PLANETS.

The columns headed Arc and O give the time span in days covered by the observations and the number of observations utilized in the computation (0 = 10 or more). In the note column N, D means that there are double (or other multiple) designations, E means that the value of the eccentricity was assumed, F means both; the designations are listed at the end.

The orbit computers (column C) are B = C. M. Bardwell, G = D. W. E. Green, I = H. Oishi, K = G. R. Kastel', M = B. G. Marsden, N = S. Nakano.

Planet	H	Epoch	M	Peri.	Node	Incl.	e	a	Arc	O	N	C
1976 UG15	15.3	761029	15.44	227.36	137.57	2.86	0.2239	2.3856	27	6	D	I
1977 AH1	12.5	770117	150.26	221.24	96.51	19.64	0.0595	2.7086	9	4		M
1977 AL1	12.5	770117	120.31	255.23	79.69	11.40	0.1809	2.6216	9	4		M
1977 AZ1	11.0	770117	73.97	292.56	94.09	13.73	0.1074	3.1943	9	4		M
1977 AC2	13.0	770117	39.04	102.38	317.09	12.24	0.1641	2.6677	9	4		M
1981 XM2	13.0	811222	11.63	174.20	257.95	10.74	0.1094	2.5945	48	6	D	G
1981 YG	13.0	811222	325.15	215.67	276.98	14.83	0.1274	2.5850	32	5		G
1981 YS1	14.0	811222	2.65	298.10	152.60	4.64	0.2905	2.3702	28	4		G
1981 YA2	11.5	811222	38.30	299.56	105.30	17.88	0.2070	3.1581	30	3		G
1982 BU	13.5	820111	15.87	347.60	101.69	27.94	0.2105	2.4477	13	5		G
1982 BW	12.0	820111	19.13	26.01	66.53	10.85	0.0729	3.0230	13	5		G
1982 BH2	12.5	820111	177.34	5.89	292.54	2.86	0.1049	2.4754	4	8	E	G
1982 BJ2	15.0	820111	345.75	40.89	92.40	0.17	0.1188	2.1599	4	6		G
1982 BQ2	14.5	820111	29.28	293.05	142.74	3.89	0.1675	2.2827	8	9		G
1982 SW3	14.5	821018	14.93	176.26	201.86	5.82	0.2210	2.1592	46	6	D	N
1985 UA4	12.1	851101	335.50	26.45	46.06	15.55	0.2034	2.8128	21	3		K
1985 UD4	10.0	851101	277.01	38.90	107.12	8.62	0.2240	3.2968	21	3		K
1985 UE4	13.5	851101	329.42	294.19	149.21	5.53	0.1988	2.5657	21	3		K

1985 UK4	12.3	851101	334.96	12.65	61.92	13.97	0.1782	2.6229	21	3		K
1985 UM4	15.8	851101	23.01	170.20	181.74	1.99	0.3670	2.4953	20	3		K
1985 UO4	13.0	851022	303.76	57.72	55.86	8.27	0.1576	2.4562	20	3		M
1985 UQ4	12.4	851101	19.63	255.18	124.72	2.71	0.1285	3.2445	20	3		K
1985 UV4	13.9	851111	338.47	261.31	180.32	7.96	0.2118	2.7076	29	4		K
1985 UW4	11.5	851111	52.25	230.72	103.88	7.00	0.2039	3.1320	29	3		M
1985 UA5	13.0	851101	5.65	337.80	58.56	15.60	0.2025	2.6780	29	4		K
1985 UF5	14.1	851101	345.58	223.65	204.71	4.13	0.1977	2.4185	29	4		K
1985 VD	12.0	851022	49.51	210.64	126.85	5.67	0.1576	3.1236	24	5		M
1985 VE	13.5	851111	243.19	9.59	166.90	5.20	0.1285	2.3321	4	4		M
1985 VF	13.5	851022	62.88	231.29	80.85	8.36	0.2349	2.4134	24	5		M
1985 VG	14.0	851111	19.11	292.20	94.39	3.93	0.0609	2.3432	4	3		M
1985 VH	13.5	851111	241.89	6.85	176.90	5.94	0.1950	2.2958	4	4		M
1985 VK	13.0	851022	0.97	313.18	88.69	7.14	0.1207	2.7968	29	7		M
1985 VL	11.5	851111	177.17	17.55	214.17	20.07	0.2076	3.0702	4	4		M
1985 VN	13.0	851022	35.82	138.30	209.85	13.31	0.2235	2.5752	29	7		M
1985 VD2	14.5	851111	1.94	192.42	220.90	4.47	0.2934	2.5638	13	4		M
1985 WD	14.0	851111	346.90	192.31	245.10	9.98	0.2108	2.5594	9	3		M
1987 MC	14.0	870704	345.75	125.56	170.33	7.60	0.2398	2.3134	63	0		M
1987 MO	14.0	870724	3.11	33.81	275.52	20.43	0.1172	1.9198	56	5		B
1987 OC	13.5	870724	353.20	45.45	271.51	24.00	0.2082	2.3475	29	4		B
1987 OT	14.0	870724	10.88	123.57	172.45	8.83	0.2533	2.7220	41	7		N
1987 OY	13.0	870704	339.10	72.11	270.57	9.77	0.1907	2.6212	7	6		B
1987 QC	12.0	870813	353.48	75.39	262.97	2.47	0.2821	3.2271	4	7	E	M
1987 QD	15.5	870813	24.57	106.87	177.97	19.91	0.2503	1.8157	5	4		M
1987 QV	13.5	870813	1.91	51.95	269.37	10.95	0.2802	2.6086	7	7		G
1987 QC1	14.0	870813	346.85	11.93	332.58	14.44	0.2773	2.7181	9	6		G
1987 QD1	11.5	870813	33.18	140.91	140.24	11.18	0.0945	3.2039	9	5		G
1987 QF1	14.0	870813	354.72	134.75	199.53	2.37	0.1827	2.6949	8	8		M
1987 QB2	13.0	870813	36.24	111.47	148.23	8.10	0.2975	3.2031	6	9		M
1987 QD2	13.5	870813	336.85	219.95	139.70	7.91	0.2348	2.8934	7	0	E	M
1987 QH2	14.0	870813	319.93	42.63	335.06	5.08	0.1746	2.3146	7	0		M
1987 QX2	12.0	870813	178.08	17.04	126.98	3.53	0.0611	2.8345	7	9	E	M
1987 QY2	15.0	870813	24.75	164.26	127.85	2.70	0.0995	2.1773	5	7	E	M
1987 QZ2	13.0	870813	330.80	337.60	28.82	2.11	0.2042	3.1730	5	8	E	M
1987 RF	15.0	870902	11.88	146.50	175.96	6.06	0.2127	2.1776	18	4		M
1987 SE	13.0	870902	354.95	49.03	310.96	6.89	0.1498	2.9384	3	6	E	M
1987 SF	16.0	870902	332.88	257.61	134.14	3.83	0.2472	2.1514	3	4		M
1987 SG	12.5	870902	175.88	291.22	251.77	3.52	0.1359	2.4076	2	3	E	M
1987 SH	12.0	870902	175.75	255.33	281.73	5.79	0.1217	2.4486	2	3	E	M

1976 UG15 = 1976 WR (H. Oishi)
1981 XM2 = 1981 YK (S. Nakano, MPC 10752)
1982 SW3 = 1982 UN1 (S. Nakano)
1982 UN1 = 1982 VB10 = 1982 VT10 (C. M. Bardwell)

* * * * *

ORBITAL ELEMENTS BY E. GOFFIN, AGVA-GEVAERT N.V., MORTSEL, BELGIUM.

(65) Cybele
Epoch 1987 July 24.0 ET = JDE 2447000.5

M	256.00273	(1950.0)		P	Q
n	0.15477985	Peri.	110.13064	-0.07708609	+0.99669136
a	3.4355249	Node	155.40518	-0.93628122	-0.06348180
e	0.1045806	Incl.	3.54981	-0.34268821	-0.05075815
P	6.37	H	6.79	G	0.15

From 293 observations at 39 oppositions 1917-1986, mean residual 0".6.

(135) Hertha
Epoch 1987 July 24.0 ET = JDE 2447000.5

M	199.00318		(1950.0)		P	Q
n	0.26028067	Peri.	338.95689		+0.79312293	+0.60895552
a	2.4294508	Node	343.51374		-0.55289787	+0.71203375
e	0.2038954	Incl.	2.29536		-0.25546028	+0.34954415
P	3.79	H	8.21	G	0.19	

From 168 observations at 30 oppositions 1902-1987, mean residual 0".8.

(139) Juewa
Epoch 1987 July 24.0 ET = JDE 2447000.5

M	327.37313		(1950.0)		P	Q
n	0.21270544	Peri.	166.00210		-0.97641490	-0.21584078
a	2.7793953	Node	1.56120		+0.17529973	-0.80653328
e	0.1763885	Incl.	10.93328		+0.12603155	-0.55037881
P	4.63	H	7.79	G	0.15	

From 90 observations at 31 oppositions 1912-1986, mean residual 0".9.

(141) Lumen
Epoch 1987 July 24.0 ET = JDE 2447000.5

M	53.67840		(1950.0)		P	Q
n	0.22660411	Peri.	56.73264		+0.95321987	-0.26947930
a	2.6645520	Node	318.43491		+0.15901772	+0.83232183
e	0.2152264	Incl.	11.91151		+0.25707052	+0.48437722
P	4.35	H	8.56	G	0.15	

From 68 observations at 21 oppositions 1921-1986, mean residual 0".9.

(169) Zelia
Epoch 1987 July 24.0 ET = JDE 2447000.5

M	245.13786		(1950.0)		P	Q
n	0.27206697	Peri.	334.29271		+0.85488241	+0.51873833
a	2.3587695	Node	354.43261		-0.45789644	+0.74593775
e	0.1302521	Incl.	5.50481		-0.24394041	+0.41771690
P	3.62	H	9.60	G	0.25	

From 65 observations at 22 oppositions 1929-1987, mean residual 0".9.

(175) Andromache
Epoch 1987 July 24.0 ET = JDE 2447000.5

M	356.04788		(1950.0)		P	Q
n	0.17263321	Peri.	323.03790		+0.96114054	+0.27532433
a	3.1943794	Node	21.00770		-0.23792883	+0.86316278
e	0.2267637	Incl.	3.21955		-0.13999545	+0.42325705
P	5.71	H	8.43	G	0.15	

From 78 observations at 26 oppositions 1914-1984, mean residual 0".9.

(198) Ampella
Epoch 1987 July 24.0 ET = JDE 2447000.5

M	300.78900		(1950.0)		P	Q
n	0.25574435	Peri.	88.39671		+0.98507785	+0.06016999
a	2.4580951	Node	268.13269		-0.11931364	+0.91396933
e	0.2303775	Incl.	9.28437		+0.12403987	+0.40129743
P	3.85	H	8.54	G	0.37	

From 65 observations at 26 oppositions 1937-1984, mean residual 0".9.

(206) Hersilia
Epoch 1987 July 24.0 ET = JDE 2447000.5

M	204.79095		(1950.0)		P		Q
n	0.21737231	Peri.	301.33972		+0.06476108		-0.99718150
a	2.7394701	Node	144.88590		+0.93643615		+0.04761124
e	0.0404036	Incl.	3.77614		+0.34480915		+0.05798472
P	4.53	H	8.65	G	0.10		

From 103 observations at 26 oppositions 1906-1986, mean residual 0".9.

(209) Dido
Epoch 1987 July 24.0 ET = JDE 2447000.5

M	230.00173		(1950.0)		P		Q
n	0.17690231	Peri.	257.11894		-0.21693808		+0.97618506
a	3.1427781	Node	0.35459		-0.84003170		-0.18627640
e	0.0670200	Incl.	7.18866		-0.49727721		-0.11119277
P	5.57	H	8.21	G	0.15		

From 130 observations at 30 oppositions 1909-1985, mean residual 0".8.

(211) Isolda
Epoch 1987 July 24.0 ET = JDE 2447000.5

M	89.45192		(1950.0)		P		Q
n	0.18531142	Peri.	175.13852		+0.19782956		-0.97793610
a	3.0469683	Node	263.44017		+0.89701184		+0.20821719
e	0.1553127	Incl.	3.87371		+0.39526350		+0.01692894
P	5.32	H	7.84	G	0.03		

From 82 observations at 32 oppositions 1912-1987, mean residual 1".0.

(256) Walpurga
Epoch 1987 July 24.0 ET = JDE 2447000.5

M	137.07024		(1950.0)		P		Q
n	0.18895239	Peri.	50.39863		-0.60078275		+0.79933601
a	3.0076996	Node	182.74663		-0.78574904		-0.59300187
e	0.0630403	Incl.	13.32782		-0.14716839		-0.09700889
P	5.22	H	9.90	G	0.15		

From 21 observations at 12 oppositions 1909-1984, mean residual 1".1.

(276) Adelheid
Epoch 1987 July 24.0 ET = JDE 2447000.5

M	95.83039		(1950.0)		P		Q
n	0.17918788	Peri.	273.04849		-0.52172845		-0.83189600
a	3.1159965	Node	210.85535		+0.85252872		-0.51659755
e	0.0708987	Incl.	21.63265		-0.03153093		-0.20267217
P	5.50	H	8.57	G	0.15		

From 91 observations at 21 oppositions 1907-1987, mean residual 0".9.

(318) Magdalena
Epoch 1987 July 24.0 ET = JDE 2447000.5

M	121.82204		(1950.0)		P		Q
n	0.17220032	Peri.	305.00264		-0.28284897		-0.95731574
a	3.1997305	Node	161.15716		+0.92907080		-0.28886948
e	0.0767613	Incl.	10.62021		+0.23837766		-0.01004948
P	5.72	H	9.27	G	0.15		

From 77 observations at 21 oppositions 1908-1986, mean residual 0".9.

(372) Palma
Epoch 1987 July 24.0 ET = JDE 2447000.5

M	200.34335	(1950.0)	P	Q
n	0.17683732	Peri. 116.90422	+0.06704658	-0.97295573
a	3.1435480	Node 326.85699	+0.71006277	+0.20216926
e	0.2634278	Incl. 23.84773	+0.70093910	-0.11173512
P	5.57	H 7.3	G 0.25	

From 92 observations at 32 oppositions 1921-1985, mean residual 0".9.

(423) Diotima
Epoch 1987 July 24.0 ET = JDE 2447000.5

M	77.34270	(1950.0)	P	Q
n	0.18283440	Peri. 215.81479	+0.24966027	+0.95107404
a	3.0744265	Node 69.26266	-0.83690688	+0.30647817
e	0.0323049	Incl. 11.22250	-0.48708996	-0.03910631
P	5.39	H 7.33	G 0.15	

From 113 observations at 30 oppositions 1920-1985, mean residual 0".8.

(426) Hippo
Epoch 1987 July 24.0 ET = JDE 2447000.5

M	280.13383	(1950.0)	P	Q
n	0.20098985	Peri. 220.86558	-0.96203603	-0.10567724
a	2.8863787	Node 311.17745	+0.23677301	-0.78172501
e	0.1047128	Incl. 19.53108	-0.13573951	-0.61460421
P	4.90	H 8.56	G 0.15	

From 59 observations at 23 oppositions 1902-1985, mean residual 0".8.

(453) Tea
Epoch 1987 July 24.0 ET = JDE 2447000.5

M	320.92560	(1950.0)	P	Q
n	0.30551853	Peri. 219.61964	-0.63063636	+0.77584557
a	2.1832879	Node 11.32667	-0.68518749	-0.54510845
e	0.1092638	Incl. 5.55480	-0.36443914	-0.31767975
P	3.23	H 10.81	G 0.25	

From 68 observations at 19 oppositions 1902-1987, mean residual 0".9.

(466) Tisiphone
Epoch 1987 July 24.0 ET = JDE 2447000.5

M	309.18305	(1950.0)	P	Q
n	0.15961876	Peri. 244.51588	-0.94996813	-0.06055998
a	3.3657363	Node 290.73624	+0.20980320	-0.85048374
e	0.0715168	Incl. 19.12586	-0.23139398	-0.52250349
P	6.17	H 8.34	G 0.15	

From 56 observations at 19 oppositions 1901-1984, mean residual 0".9.

(479) Caprera
Epoch 1987 July 24.0 ET = JDE 2447000.5

M	35.36680	(1950.0)	P	Q
n	0.21962685	Peri. 268.30518	+0.70830024	-0.69807246
a	2.7206902	Node 135.94855	+0.69268245	+0.65867252
e	0.2176152	Incl. 8.67794	+0.13602133	+0.28079414
P	4.49	H 9.63	G 0.15	

From 56 observations at 22 oppositions 1901-1985, mean residual 1".0.

(516) Amherstia
Epoch 1987 July 24.0 ET = JDE 2447000.5

M 163.36751		(1950.0)	P	Q
n 0.22456206	Peri.	257.11958	-0.68161775	+0.72249377
a 2.6806809	Node	328.89901	-0.55375705	-0.61276086
e 0.2748584	Incl.	12.94996	-0.47827856	-0.32019818
P 4.39	H	8.25	G 0.25	

From 81 observations at 24 oppositions 1908-1986, mean residual 0".9.

(566) Stereoskopia
Epoch 1987 July 24.0 ET = JDE 2447000.5

M 304.31670		(1950.0)	P	Q
n 0.15785508	Peri.	295.72154	+0.95849499	-0.27230289
a 3.3907597	Node	80.17361	+0.28252202	+0.86730118
e 0.0926083	Incl.	4.91901	+0.03832310	+0.41670108
P 6.24	H	8.15	G 0.43	

From 66 observations at 26 oppositions 1907-1986, mean residual 0".9.

(586) Thekla
Epoch 1987 July 24.0 ET = JDE 2447000.5

M 151.16360		(1950.0)	P	Q
n 0.18609730	Peri.	247.81786	-0.44907363	-0.89324081
a 3.0383841	Node	228.88429	+0.82979016	-0.40809638
e 0.0699018	Incl.	1.62019	+0.33133240	-0.18862186
P 5.30	H	9.24	G 0.15	

From 93 observations at 27 oppositions 1906-1984, mean residual 0".9.

(623) Chimaera
Epoch 1987 July 24.0 ET = JDE 2447000.5

M 0.37855		(1950.0)	P	Q
n 0.25544731	Peri.	123.99300	+0.29177177	-0.93678807
a 2.4600003	Node	307.84804	+0.77688956	+0.34988690
e 0.1142716	Incl.	14.15663	+0.55795326	+0.00269707
P 3.86	H	10.87	G 0.25	

From 31 observations at 16 oppositions 1909-1986, mean residual 1".2.

(1507) Vaasa
Epoch 1987 July 24.0 ET = JDE 2447000.5

M 168.91763		(1950.0)	P	Q
n 0.27678848	Peri.	49.72472	+0.94338944	+0.29672552
a 2.3318684	Node	292.54930	-0.33152683	+0.82965074
e 0.2441996	Incl.	9.23555	-0.01031139	+0.47289917
P 3.56	H	13.5	G 0.25	

From 16 observations at 5 oppositions 1939-1987, mean residual 0".9.

(2064) Thomsen
Epoch 1987 July 24.0 ET = JDE 2447000.5

M 10.61013		(1950.0)	P	Q
n 0.30654584	Peri.	2.16836	+0.55802032	+0.82552841
a 2.1784074	Node	301.76160	-0.76280006	+0.47026540
e 0.3291320	Incl.	5.69399	-0.32672525	+0.31201490
P 3.22	H	13.7	G 0.25	

From 25 observations at 5 oppositions 1942-1986, mean residual 0".9.

(2119) Schwall
Epoch 1987 July 24.0 ET = JDE 2447000.5

M	340.25381	(1950.0)	P	Q
n	0.29176413	Peri. 19.17735	+0.29153828	+0.95422607
a	2.2513764	Node 267.81667	-0.88608478	+0.24310485
e	0.1555505	Incl. 3.83119	-0.36035981	+0.17422011
P	3.38	H 13.7	G 0.25	

From 17 observations at 6 oppositions 1930-1987, mean residual 1".0.

(2164) Lyalya
Epoch 1987 July 24.0 ET = JDE 2447000.5

M	279.63884	(1950.0)	P	Q
n	0.17378609	Peri. 185.36010	+0.51423164	+0.85665542
a	3.1802362	Node 115.59192	-0.78512844	+0.48959089
e	0.1375028	Incl. 2.62588	-0.34516539	+0.16261074
P	5.67	H 11.9	G 0.25	

From 28 observations at 8 oppositions 1953-1987, mean residual 1".0.

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ORBITAL ELEMENTS BY D. W. E. GREEN, SMITHSONIAN ASTROPHYSICAL OBSERVATORY.

Comet Shoemaker (1984 XV)
Epoch 1984 Sept. 17.0 ET = JDE 2445960.5
T 1984 Sept. 3.56034 ET

q	5.4891387	(1950.0)	P	Q
z	+0.0008782	Peri. 183.25435	+0.57683331	+0.81677927
	+/-0.0000067	Node 238.02591	+0.74972827	-0.52372676
e	0.9951794	Incl. 179.21532	+0.32430057	-0.24203699

From 44 observations 1984 Oct. 23-1986 Oct. 30, mean residual 0".7.

Comet Hartley (1985 XIV)
Epoch 1985 Sept. 12.0 ET = JDE 2446320.5
T 1985 Sept. 28.36397 ET

q	4.0002405	(1950.0)	P	Q
z	+0.0001050	Peri. 255.27229	+0.07838095	-0.34133746
	+/-0.0000077	Node 249.50967	+0.60689965	-0.72905558
e	0.9995798	Incl. 89.32893	-0.79090407	-0.59326782

From 35 observations 1984 Nov. 17-1987 May 1, mean residual 1".2.

Comet Shoemaker (1986b)
Epoch 1986 Mar. 31.0 ET = JDE 2446520.5
T 1986 Mar. 11.29390 ET

q	3.5938642	(1950.0)	P	Q
z	+0.0148087	Peri. 123.58702	-0.93976921	+0.13277721
	+/-0.0000110	Node 294.15920	+0.05509022	+0.96825827
e	0.9467797	Incl. 159.80585	+0.33734093	+0.21176908

From 30 observations 1986 Mar. 4-Dec. 27, mean residual 0".8.

(871) Amneris
Epoch 1987 July 24.0 ET = JDE 2447000.5

M	67.48719	(1950.0)	P	Q
n	0.29763389	Peri. 65.18542	-0.73250286	+0.68017852
a	2.2216781	Node 157.63779	-0.64828839	-0.68430564
e	0.1196783	Incl. 4.25471	-0.20775400	-0.26283640
P	3.31	H 12.6	G 0.25	

From 41 observations at 15 oppositions 1907-1987, mean residual 1".3.

(2223) Sarpedon
Epoch 1987 July 24.0 ET = JDE 2447000.5

M	46.55689	(1950.0)	P	Q
n	0.08426648	Peri. 56.20234	+0.09464856	+0.97926166
a	5.1526757	Node 220.43660	-0.98003231	+0.06004874
e	0.0147670	Incl. 16.03233	-0.17486657	+0.19349611
P	11.70	H 9.41	G 0.15	

From 27 observations at 7 oppositions 1977-1987, mean residual 1".2.

(3685)* 1981 EH14 = 1957 WK1

Discovered 1981 Mar. 1 by S. J. Bus at Siding Spring in the course of the Caltech-U.K. Schmidt Survey. The identification is by B. G. Marsden.

Epoch 1987 July 24.0 ET = JDE 2447000.5

M	312.76006	(1950.0)	P	Q
n	0.22668810	Peri. 182.87892	+0.90376472	-0.41611665
a	2.6638938	Node 202.55321	+0.39773028	+0.90299536
e	0.1777608	Incl. 15.15675	+0.15817696	+0.10698742
P	4.35	H 13.6	G 0.25	

Residuals in seconds of arc

571127	760	0.4-	1.5+	810308	413	0.1-	0.6+	810503	413	1.3+	0.6-
571127	760	0.3+	0.3+	810308	413	0.4+	0.2+	831011	688	0.7+	2.8-
770424	675	0.2+	1.0-	810312	413	1.9-	1.7+	831012	688	(4.7+	0.5-)
770425	675	0.4-	2.4-	810312	413	1.1+	0.3-	831012	688	1.2+	1.5+
810209	413	0.4+	0.5-	810406	413	0.6-	1.2+	831016	046	(4.3-	2.7-)
810212	413	0.2-	0.1-	810406	413	2.5+	1.1-	831016	046	(7.5-	4.2-)
810228	413	0.9-	1.1+	810408	413	1.5-	1.4+	831104	688	1.6-	1.0-
810228	413	0.2+	1.7+	810408	413	0.3+	0.3-	831104	688	0.4-	0.1-
810301	413	0.5+	0.4+	810409	413	0.3-	0.8+	870826	809	0.1+	1.5+
810306	413	1.7-	1.2+	810409	413	0.9+	0.3-	870826	809	0.6-	2.0+
810306	413	1.3+	0.9-	810501	413	0.9-	1.1-				

(3686)* 1987 EB = 1974 KF = 1978 EF = 1978 ET6 = 1979 OW14

Discovered 1987 Mar. 3 by T. Niijima and T. Urata at Ojima. The identifications are by T. Kobayashi (MPC 11744).

Epoch 1987 July 24.0 ET = JDE 2447000.5

M	341.35411	(1950.0)	P	Q
n	0.21714987	Peri. 78.24862	-0.83889845	+0.53959905
a	2.7413406	Node 134.35836	-0.53009369	-0.78026562
e	0.1467350	Incl. 5.72240	-0.12349114	-0.31625691
P	4.54	H 12.2	G 0.25	

Residuals in seconds of arc

740524	095	1.3+	0.8-	780312	049	0.4-	0.2-	870318	887	0.2+	0.1-
780306	095	0.8-	0.2-	790721	095	1.1-	0.4+	870318	887	1.4+	0.6-
780311	049	0.9+	3.2+	820119	095	0.7+	0.1-	870320	887	0.3+	0.1+
780311	049	0.0	0.6+	820123	095	0.4+	0.1-	870320	887	1.2-	0.5+
780311	049	0.4-	1.0-	870303	887	1.2-	0.0	870324	887	1.0-	0.4+
780311	049	0.8-	1.2-	870303	887	1.6+	0.0	870331	887	0.6-	0.3+
780312	049	0.4-	0.3-	870303	887	0.9+	0.2+	870331	887	0.2+	0.5-

1982 BP2 = 1976 MA = 1984 QQ1

The identifications are by D. W. E. Green.

Epoch 1987 July 24.0 ET = JDE 2447000.5

M	253.15839	(1950.0)	P	Q
n	0.26997320	Peri. 140.75414	+0.84302987	-0.53595713
a	2.3709494	Node 251.71151	+0.48067666	+0.78849589
e	0.1389771	Incl. 2.73362	+0.24135160	+0.30170215
P	3.65	H 14.0	G 0.25	

Residuals in seconds of arc

760620	095	0.1-	0.3-	820120	046	0.4-	1.6-	820127 046 (7.6+ 2.4-)
820119	095	2.3-	1.4+	820121	046	0.8-	1.7+	840821 675 0.3+ 0.2+
820120	046	1.2+	0.9-	820121	046	1.0+	0.5-	
820120	095	1.3+	1.6+	820127	046	(4.7+	4.6-)	

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

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

Periodic Comet Helin (1987w)
T 1987 Aug. 11.46480 ET

		(1950.0)	P	Q
q 2.5686217	Peri.	216.02331	+0.99868401	+0.01468119
n 0.06806347	Node	143.04226	+0.00272125	+0.94163251
a 5.9410062	Incl.	4.68815	-0.05121363	+0.33632228
e 0.5676453				

P 14.48
From 12 observations 1987 Aug. 24-Sept. 27.

Comet Rudenko (1987u)
T 1987 Oct. 9.52896 ET

		(1950.0)	P	Q
q 0.6024714	Peri.	143.84496	-0.59674979	+0.02431921
	Node	297.87098	+0.33546120	+0.91556392
e 1.0	Incl.	114.86463	+0.72894134	-0.40143653

From 38 observations 1987 Aug. 22-Sept. 12.

Comet Bradfield (1987s)
T 1987 Nov. 7.29661 ET

		(1950.0)	P	Q
q 0.8725175	Peri.	73.67784	+0.77965614	+0.27813780
	Node	267.25936	-0.50684943	+0.80644617
e 1.0	Incl.	34.17283	+0.36774986	+0.52180833

From 37 observations 1987 Aug. 12-Sept. 20.

(3687)* A908 TC = 1952 HM3 = 1970 GD2 = 1980 TX = 1980 TO8 = 1984 NC
Discovered 1908 Oct. 7 by A. Kopff at Heidelberg.
Epoch 1987 July 24.0 ET = JDE 2447000.5

		(1950.0)	P	Q
M 199.90172	Peri.	112.68295	+0.89902319	+0.39382499
n 0.21859718	Node	224.76058	-0.42909775	+0.87951059
a 2.7292271	Incl.	15.77809	+0.08736371	+0.26713856
e 0.1987503				

P 4.51 H 11.7 G 0.25
Residuals in seconds of arc

081007	024	2.4+	0.5+	700412	805	0.6+	0.6-	801013 095 1.8- 0.3-
081020	024	(4.6+	7.8+)	700412	805	0.7+	1.5-	840702 095 2.3+ 1.9+
081103	045	0.9-	3.5-	700412	805	0.4+	0.8-	870327 801 0.0 0.1+
520427	711	4.7-	1.2- Y	801003	033	1.3-	0.0	870427 801 2.1+ 0.8+
520427	711	(14.9-	13.0-)Y	801003	033	0.8+	0.4+	

(3688)* 1981 FD
Discovered 1981 Mar. 30 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory.

Epoch 1987 July 24.0 ET = JDE 2447000.5

M	41.45250	(1950.0)	P	Q	
n	0.16981216	Peri.	138.15692	-0.92430102	-0.38137672
a	3.2296604	Node	19.43932	+0.33727803	-0.83435810
e	0.4765868	Incl.	2.55102	+0.17863696	-0.39799290
P	5.80	H	15.0	G 0.25	

Residuals in seconds of arc

810209	413	0.6-	0.7-	810407	675	3.1+	0.8-	870616 675	0.1- 0.3+
810212	413	0.1+	0.3-	810407	675	0.8+	0.1+	870616 675	0.1- 0.3+
810213	413	0.1-	1.1-	810409	688	1.6-	0.0	870617 675	0.3- 0.4+
810302	413	0.3-	0.6-	810409	688	0.6-	0.8+	870617 675	0.0 0.3+
810302	413	0.2-	0.1-	810411	801	(0.5-	5.1+)	870620 474	0.4- 0.1-
810311	413	0.8-	0.8+	810411	801	(0.3+	4.5+)	870620 474	0.2+ 0.3-
810311	413	1.1-	2.0+	810423	801	1.0+	2.6+	870623 691	0.3- 0.5-
810315	413	0.6-	1.8+	810430	474	1.5-	0.3-	870623 691	0.4- 0.3-
810315	413	0.1-	3.0+	810430	474	0.9+	1.1-	870623 691	0.4- 0.6-
810330	688	0.5+	1.1-	810504	474	1.6-	0.2+	870623 691	0.4- 0.6-
810330	688	0.6+	1.8-	810504	474	1.9-	0.4-	870624 691	0.6- 0.2-
810401	688	0.5+	0.6-	810508	801	(6.4+	4.3+)	870624 691	0.3- 0.1-
810401	688	0.8+	0.8-	810601	801	(2.9-	3.9+)	870624 691	0.0 0.2-
810405	688	(3.7+	0.2+)	870507	474	1.6+	1.3+	870721 691	0.3+ 0.0
810406	675	0.2-	0.6-	870507	474	0.7+	1.1+	870721 691	0.4- 0.4-
810406	675	2.6+	1.3-	870530	413	0.1+	1.3+	870722 691	0.0 0.7-
810407	675	0.7-	0.9-	870530	413	0.3+	0.8-	870722 691	0.1+ 0.1+

(3689)* 1981 JJ2 = 1958 UD = 1963 TB1 = 1968 UA3 = 1973 UE2 = 1986 JY

Discovered 1981 May 5 by C. Shoemaker at Palomar. The key identification 1981 JJ2 = 1986 JY is by E. Bowell (MPC 10831).

Epoch 1987 July 24.0 ET = JDE 2447000.5

M	319.76278	(1950.0)	P	Q	
n	0.20175492	Peri.	163.63722	+0.99371693	-0.09390103
a	2.8790771	Node	202.02582	+0.07550786	+0.96412510
e	0.0825472	Incl.	9.34618	+0.08261488	+0.24828490
P	4.89	H	12.3	G 0.25	

Residuals in seconds of arc

581016	760	0.0	1.4-	810411	675	0.4-	0.4+	860608 688	0.9+ 0.8-
631015	760	0.9-	0.6+	810505	675	1.4-	2.8-	860608 688	1.6- 1.3+
631015	760	2.1+	0.5-	810510	675	0.3+	0.6-	870729 801	0.2- 0.2+
681023	095	1.4-	0.3+	810510	675	2.2+	0.7-	870729 801	0.2- 0.3+
731026	095	0.7+	1.8-	860513	688	1.0+	0.1-	870824 801	0.3+ 0.4+
810411	675	0.9-	1.2+	860513	688	0.8-	0.5-		

(3690)* 1981 PM = 1977 GW

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

Epoch 1987 July 24.0 ET = JDE 2447000.5

M	313.30866	(1950.0)	P	Q	
n	0.29295027	Peri.	34.42253	-0.01471654	+0.99731451
a	2.2452952	Node	234.83641	-0.93594648	-0.03898735
e	0.1650148	Incl.	5.03470	-0.35183462	+0.06199803
P	3.36	H	14.0	G 0.25	

Residuals in seconds of arc

770410	381	0.3+	0.0	810828	688	1.8-	2.8-	840531 491	1.3+ 1.2+
770410	381	0.1-	0.5+	810904	688	0.3-	0.2-	851216 801	0.4- 1.3-
810803	688	0.1-	0.2+	810904	688	1.8+	0.4-	870226 801	0.6- 0.5-
810803	688	0.5+	0.6+	840503	688	1.2-	0.5-	870327 801	0.8+ 1.9-
810828	688	1.1+	0.9+	840503	688	0.9-	1.3-		

(3691)* 1982 FT

Discovered 1982 Mar. 29 by L. E. Gonzalez at Cerro El Roble.

Epoch 1987 July 24.0 ET = JDE 2447000.5

M 74.09115		(1950.0)	P	Q
n 0.41706423	Peri.	234.44891	-0.72379393	+0.68640237
a 1.7741926	Node	348.31891	-0.46441825	-0.56019603
e 0.2837803	Incl.	20.38619	-0.51033130	-0.46371564
P 2.36	H 14.9	G 0.25		

Residuals in seconds of arc

820329	805	0.1-	0.8-		820722	474	2.3+	0.2+	851115	691	0.7+	0.9+
820330	805	0.4-	0.6+		820722	474	1.9+	0.2+	851115	691	3.3-	0.9-
820419	809	1.5+	1.3-	Y	820725	474	0.3-	0.8-	851115	691	0.3+	1.1+
820420	809	2.2+	0.6-	Y	820725	474	0.2+	0.8-	851116	691	0.5-	1.3+
820424	809	1.6-	1.7+	Y	820820	474	1.1+	0.7+	851116	691	0.1+	1.1+
820424	809	1.0-	2.2+	Y	820820	474	1.4+	0.3+	851116	691	0.6-	1.2+
820425	809	0.5-	0.2+		820921	474	0.5-	2.3-	870821	801	0.5+	1.6-
820527	474	0.7+	0.7+		820921	474	0.2-	1.6-	870920	691	0.2+	0.3+
820527	474	0.2-	0.6-		840124	675	0.7-	0.4-	870920	691	0.1+	0.1+
820623	474	0.9+	0.3+		840210	675	0.2-	0.2-	870920	691	0.0	0.2+
820623	474	0.8+	0.9+		840222	675	0.7+	0.1+				

(3692)* 1982 HF1 = 1937 JA = 1979 UC5

Discovered 1982 Apr. 25 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory. The identification 1982 HF1 = 1979 UC5 is by E. Bowell (MPC 10625).

Epoch 1987 July 24.0 ET = JDE 2447000.5

M 58.79088		(1950.0)	P	Q
n 0.21947683	Peri.	7.87739	-0.68037249	+0.72204738
a 2.7219298	Node	219.38394	-0.68268140	-0.68668644
e 0.1492326	Incl.	11.40426	-0.26653215	-0.08431670
P 4.49	H 13.4	G 0.25		

Residuals in seconds of arc

370510	053	(25.1+ | 1.0+)Y		820425	688	3.5+	0.2-	820526	688	1.7+	1.5-
370511	053	(6.7- | 9.6-)Y		820425	688	3.2+	3.4-	820526	688	1.3+	2.0-
370516	053	0.4+	3.7+	Y	820515	675	1.4-	1.6-	870625	801	0.4-	0.6+
370517	053	(11.6- | 7.2+)Y		820516	675	2.9-	0.8+	870724	801	0.5+	0.8-
791018	675	0.9-	0.5-		820516	675	3.1-	3.5+				
791018	675	0.8+	1.5+		820517	675	2.3-	1.2+				

(3693)* 1982 RU

Discovered 1982 Sept. 15 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory.

Epoch 1987 July 24.0 ET = JDE 2447000.5

M 318.29568		(1950.0)	P	Q
n 0.17659587	Peri.	187.53837	+0.99441514	-0.10531044
a 3.1464128	Node	178.45472	+0.10517322	+0.98334192
e 0.2026787	Incl.	14.92540	+0.00878203	+0.14814983
P 5.58	H 11.7	G 0.25		

Residuals in seconds of arc

820915	688	0.6+	2.2-		821017	688	1.9-	1.1-	840128	474	0.0	0.1-
820915	688	1.4+	0.1+		821021	688	0.4+	1.0-	840128	474	0.1+	0.3+
820922	688	0.5+	0.8+		821021	688	0.7-	0.4+	870724	801	0.6+	0.0
820922	688	0.1+	1.1+		821217	801	0.5-	3.0+	870824	801	0.7-	0.9+
821013	688	0.6+	0.1-		830117	801	0.3+	0.0				
821013	688	0.5-	0.7-		840103	474	0.1+	0.2-				

(3694)* 1984 SH5 = 1979 FJ1 = 1986 AX

Discovered 1984 Sept. 27 by A. Grossman at Palomar. The key identification 1984 SH5 = 1986 AX is by E. Bowell (MPC 10530).

Epoch 1987 July 24.0 ET = JDE 2447000.5
M 121.39364 (1950.0) P Q
n 0.12547542 Peri. 82.43510 +0.82991156 -0.55410516
a 3.9515148 Node 311.18859 +0.47176124 +0.75912772
e 0.1975307 Incl. 4.94870 +0.29780552 +0.34160295
P 7.85 H 10.4 G 0.25
Residuals in seconds of arc

790323 095	0.4-	0.7-	860111 688	0.2-	0.1-	870303 688	0.4-	0.4+
840927 675	0.7+	0.1+	860111 688	0.0	0.3-	870303 688	1.0+	1.4+
840927 675	0.5-	0.7-	870223 675	3.0-	0.1-	870402 801	1.8+	0.9-
841025 675	0.0	0.8+	870224 801	2.3+	0.1+			
841026 675	0.4-	0.9+	870227 675	0.9-	0.9+			

1961 CX = 1976 GT2 = 1977 RU1 = 1981 TY3 = 1987 HU1
The key identification 1976 GT2 = 1987 HU1 is by A. Lowe.
Epoch 1987 July 24.0 ET = JDE 2447000.5 (J-P)
M 161.25159 (1950.0) P Q
n 0.27216578 Peri. 301.85083 +0.19800865 -0.97976891
a 2.3582033 Node 136.69802 +0.91299333 +0.17355613
e 0.0220141 Incl. 2.42982 +0.35670122 +0.09965517
P 3.62 H 14.0 G 0.25
Residuals in seconds of arc

610215 033	1.4+	1.0-	760401 095	6.6-	5.1+	870428 046	2.4+	3.2-
610215 033	0.5+	0.6-	760404 095	7.4-	4.1+	870428 046	4.0+	4.4-
610217 033	0.2+	0.5-	770908 095	2.5+	0.5-	870429 046	0.4+	1.5+
610217 033	4.1+	2.0-	811007 095	3.6-	1.9-	870429 046	2.8+	1.3-

1972 RF = 1987 QE
Epoch 1987 July 24.0 ET = JDE 2447000.5 (J-P)
M 1.55083 (1950.0) P Q
n 0.26243482 Peri. 149.81922 +0.82293815 +0.56707366
a 2.4161429 Node 175.18333 -0.56777369 +0.82305239
e 0.2289732 Incl. 24.36801 -0.02014538 -0.03181555
P 3.76 H 13.0 G 0.25
Residuals in seconds of arc

720915 675	2.5+	3.0-	720918 675	0.8-	0.3-	870824 675	1.9+	0.2+
720916 675	1.3+	2.2-	720919 675	2.1-	1.6+	870826 675	4.2-	0.0
720917 675	1.0+	0.3-	720920 675	2.0-	2.8+	870917 809	2.2+	1.3+ Y

1979 SS = 1977 AA3
The identification is by E. Bowell.
Epoch 1987 July 24.0 ET = JDE 2447000.5 (J-P)
M 47.80864 (1950.0) P Q
n 0.26714123 Peri. 17.07538 +0.98854405 +0.14321509
a 2.3876810 Node 334.54406 -0.14816359 +0.86059914
e 0.1737725 Incl. 6.36435 -0.02877852 +0.48873158
P 3.69 H 14.5 G 0.25
Residuals in seconds of arc

770112 675	0.1+	0.1-	790926 046	0.4+	0.8-	791011 046	0.4+	0.3-
770113 675	0.0	0.1-	790926 046	0.4-	0.2-	791012 046	0.1-	0.6-
790923 095	1.5-	4.6+	790927 046	2.2+	0.7-	791012 046	1.0+	0.2+
790925 046	1.0-	1.1-	790927 046	0.6-	1.7-	791015 046	1.9+	0.5+
790925 046	1.7+	0.6-	791011 046	2.5-	0.4-	791015 046	1.0-	1.4+

1981 ES32

The 1977 observations were identified by E. Bowell.

Epoch 1987 July 24.0 ET = JDE 2447000.5 (J-P)

M	69.00029		(1950.0)		P		Q				
n	0.28418955	Peri.	97.77121		+0.75275830		-0.65018132				
a	2.2912097	Node	302.84879		+0.54520704		+0.70348261				
e	0.1150298	Incl.	7.04579		+0.36892307		+0.28701300				
P	3.47	H	16.0	G	0.25						

Residuals in seconds of arc

770112	675	1.3+	0.9+	810307	413	3.5-	2.0+	810312	413	2.7-	0.0
770113	675	1.6-	0.2+	810307	413	1.4+	0.2+	810409	413	0.6-	2.1-
810214	413	3.7+	0.1-	810310	413	4.4+	0.2-	810409	413	1.4-	0.9-

1981 RD5 = 1977 RL1 = 1985 UG4

The key identification 1981 RD5 = 1985 UG4 is by G. R. Kastel'.

Epoch 1987 July 24.0 ET = JDE 2447000.5 (J-P)

M	181.63564		(1950.0)		P		Q				
n	0.25829416	Peri.	208.69248		+0.96855548		-0.24755985				
a	2.4418962	Node	165.57656		+0.24301751		+0.91999663				
e	0.1328018	Incl.	5.71107		+0.05331759		+0.30384261				
P	3.82	H	13.0	G	0.25						

Residuals in seconds of arc

770908	095	0.1+	0.1-	811005	095	1.0-	1.1+	851111	095	0.0	0.6+
810908	095	1.0+	0.1+	811026	095	0.8+	1.4-				
810928	095	0.8-	0.1+	851021	095	0.0	0.5-				

1986 GZ

Epoch 1987 July 24.0 ET = JDE 2447000.5 (J-P)

M	29.82069		(1950.0)		P		Q				
n	0.27439759	Peri.	126.64670		+0.80546427		+0.57926539				
a	2.3453989	Node	198.99844		-0.58696960		+0.80891087				
e	0.2490433	Incl.	22.62118		+0.08181686		+0.10057247				
P	3.59	H	15.5	G	0.25						

Residuals in seconds of arc

860409	691	0.6+	1.2+	860506	691	1.5+	0.6+	860706	691	0.9+	0.4-
860409	691	0.3+	1.1+	860513	691	0.4+	1.2+	860706	691	0.6+	1.6-
860409	691	0.9+	0.7+	860513	691	0.1-	1.0+	860731	691	0.5-	0.6+
860410	691	0.4+	0.7+	860513	691	0.4+	1.0+	860731	691	0.0	1.1+
860410	691	0.4-	0.6+	860514	691	1.5-	0.5+	860731	691	0.0	0.9+
860410	691	0.1+	0.8+	860514	691	0.6-	1.0+	870919	691	0.2-	0.6+
860417	691	0.1-	2.5-	860514	691	0.7-	0.5+	870919	691	0.4-	0.6-
860417	691	0.3-	3.0-	860608	691	0.1+	2.6-	870919	691	0.7-	0.4-
860417	691	1.9-	3.3-	860608	691	0.1+	1.2-	870920	691	0.5+	0.1+
860506	691	1.0+	0.8+	860608	691	1.4-	1.1-	870920	691	0.2+	0.1-
860506	691	0.1-	1.1+	860706	691	0.5+	0.0	870920	691	0.5+	0.1+

1987 QA

Epoch 1987 Sept. 2.0 ET = JDE 2447040.5

M	318.38616		(1950.0)		P		Q				
n	0.46573184	Peri.	278.81007		-0.00362104		-0.99180679				
a	1.6483348	Node	168.71313		+0.95781332		+0.03325625				
e	0.4687867	Incl.	40.72551		-0.28736827		+0.12334227				
P	2.12	H	16.0	G	0.25						

From 11 observations 1987 Aug. 23-Sept. 19.

1987 QB
Epoch 1987 Sept. 2.0 ET = JDE 2447040.5

M	6.47583		(1950.0)		P		Q
n	0.20969668	Peri.	156.05239		+0.63093479		+0.77535237
a	2.8059182	Node	153.04192		-0.72118110		+0.59913645
e	0.5935591	Incl.	3.46333		-0.28604039		+0.19966026
P	4.70	H	19.0	G	0.25		

From 12 observations 1987 Aug. 25-Sept. 27.

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

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

(3695)* 1973 UU4 = 1973 UW4 = 1973 YF4 = 1980 RY3 = 1980 TM7

Discovered 1973 Oct. 21 by H. L. Giclas at the Anderson Mesa Station of the Lowell Observatory. The triple designation 1973 UU4 = 1973 UW4 = 1973 YF4 is by B. G. Marsden (MPC 9077).

Epoch 1987 July 24.0 ET = JDE 2447000.5

M	314.08820		(1950.0)		P		Q
n	0.27379338	Peri.	196.60508		+0.97313739		-0.23010233
a	2.3488435	Node	176.67045		+0.22319175		+0.93489432
e	0.2308318	Incl.	7.43806		+0.05647168		+0.27023235
P	3.60	H	14.0	G	0.25		

Residuals in seconds of arc

731021	688	0.9+	1.8-	731219	095	3.3-	5.1-	841121	801	0.9- 2.4+
731023	688	0.2+	2.6-	800906	095	1.4-	0.7+	841218	801	0.8+ 2.3+
731031	688	1.2+	0.9-	801010	095	2.6+	1.0+	870727	801	1.9- 3.8-
731101	688	1.7+	1.5+	801015	095	2.7-	3.2+	870822	801	2.5+ 1.7+

(3696)* 1980 OF

Discovered 1980 July 17 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory.

Epoch 1987 July 24.0 ET = JDE 2447000.5

M	98.46955		(1950.0)		P		Q
n	0.17984770	Peri.	17.51986		+0.86146679		+0.49078787
a	3.1083706	Node	312.35798		-0.48446672		+0.71734233
e	0.1600329	Incl.	10.16344		-0.15220697		+0.49451719
P	5.48	H	12.5	G	0.25		

Residuals in seconds of arc

770112	675	0.0	1.3-	800907	688	2.1+	0.4-	811230	801	0.2+ 0.5-
770113	675	0.9-	0.7-	800907	688	1.9+	1.5-	861030	801	1.1- 0.9+
800717	688	0.3+	0.6+	800917	688	0.1-	1.3-	861201	801	0.4+ 1.1+
800717	688	1.0-	0.7-	801002	688	0.1-	0.1+	861229	801	0.1- 0.0
800806	688	0.5-	0.1-	801004	688	1.6-	1.4+			

(3697)* 1984 EV = 1933 FM = 1982 VX6

Discovered 1984 Mar. 6 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory.

Epoch 1987 July 24.0 ET = JDE 2447000.5

M	325.61639		(1950.0)		P		Q
n	0.27052553	Peri.	187.21385		-0.99946886		-0.02714931
a	2.3677211	Node	351.17002		+0.03252909		-0.86449703
e	0.0441626	Incl.	6.74368		-0.00196534		-0.50190418
P	3.64	H	13.7	G	0.25		

Residuals in seconds of arc

330322	024	(7.3+	4.3-)	840305	809	0.5+	0.1+	840309	688	(3.4+	1.7+)
330324	024	0.4-	1.7-	840305	809	1.1+	0.0	840310	809	0.7-	0.5+
330328	024	0.2+	1.5+	840306	809	0.3+	0.0	840310	809	0.5-	0.5+
821109	095	0.2-	0.2+	840306	809	0.5+	0.0	840310	809	0.5-	0.5+
840227	809	0.1-	0.3-	840306	809	0.6+	0.0	840310	809	1.1-	0.4+
840227	809	0.0	0.2-	840306	688	(2.1+	3.2-)	840310	809	0.9-	0.9+
840227	809	0.0	0.2-	840306	688	1.4+	0.4-	840310	809	0.7-	0.5+
840228	809	1.0-	0.6-	840308	809	0.5-	0.1+	840311	809	0.1-	0.5+
840228	809	0.5-	0.5-	840308	809	0.1-	0.3+	840311	809	0.1+	0.4+
840228	809	0.2-	0.5-	840308	809	0.2+	0.2+	840311	809	0.3+	0.3+
840301	809	1.0-	0.6-	840308	809	(3.6-	1.2+)	840311	809	0.4-	0.3+
840301	809	1.0-	0.2-	840308	809	(3.0-	1.6+)	840311	809	0.1-	0.2+
840301	809	0.7-	0.5-	840308	809	(2.8-	1.5+)	840311	809	0.5-	0.1-
840303	809	0.2-	0.3+	840309	688	0.6+	0.9+	840314	809	0.2+	0.1+
840303	809	0.3+	0.4+	840309	809	0.3-	0.3-	840314	809	0.5+	0.2+
840303	809	0.7+	0.2+	840309	809	0.1-	0.2-	840314	809	0.6+	0.0
840304	809	0.4+	0.0	840309	809	0.3+	0.2-	840403	688	2.2+	1.6-
840304	809	0.8+	0.2-	840309	809	0.4+	0.4+	840403	688	2.3-	2.3-
840304	809	0.9+	0.2-	840309	809	0.2+	0.4+	861201	801	0.2-	0.6+
840305	809	0.2+	0.2+	840309	809	0.3+	0.4+	861229	801	0.4+	0.9-

(3698)* 1984 UA2 = 1957 UV = 1977 RL3 = 1983 FH

Discovered 1984 Oct. 29 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory.

Epoch 1987 July 24.0 ET = JDE 2447000.5

M	357.23028	(1950.0)	P	Q	
n	0.29300724	Peri.	180.37282	+0.67932741	+0.73242930
a	2.2450041	Node	132.41900	-0.67308831	+0.64654787
e	0.1912799	Incl.	3.52619	-0.29234638	+0.21336159
P	3.36	H	13.6	G 0.25	

Residuals in seconds of arc

571020	760	1.2-	0.6-	841020	095	(7.4-	1.3-)	841124	688	0.4+	0.5-
571020	760	1.2+	0.8+	841029	688	0.2-	0.1-	860209	801	1.2+	0.5+
770912	095	1.0-	2.7+	841029	688	0.1+	0.9-	870629	801	0.3+	1.3-
830316	688	0.4+	1.0-	841031	688	0.0	1.0-	870724	801	0.7+	1.6-
830316	688	2.2-	1.0-	841031	688	0.6+	1.5-				

(3699)* 1984 UC2 = 1950 NF = 1962 XW1 = 1968 HW = 1969 TJ3 = 1972 HA1 = 1980 TK8

Discovered 1984 Oct. 29 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory.

Epoch 1987 July 24.0 ET = JDE 2447000.5

M	318.38769	(1950.0)	P	Q	
n	0.26534741	Peri.	232.25711	+0.83460979	+0.54183240
a	2.3984250	Node	94.72758	-0.46885111	+0.79331091
e	0.1871975	Incl.	5.71363	-0.28914554	+0.27762463
P	3.71	H	13.0	G 0.25	

Residuals in seconds of arc

500706	078	(7.3-	47.2+)Y	720419	095	1.8-	1.2-	841124	688	1.6+	0.1-
621203	033	1.4-	0.5-	801012	095	0.9-	1.8+	860204	801	0.1-	2.6+
621204	033	0.1-	0.3-	841029	688	1.2-	0.3+	870531	801	1.3+	1.1+
621205	033	1.6+	0.4-	841029	688	1.3-	0.7+	870724	801	0.7-	0.0
680422	095	1.4+	0.3-	841031	688	1.9+	0.1+				
691009	095	0.4+	0.9-	841031	688	0.8-	0.2-				

(3700)* 1984 UL2 = 1973 YF2 = 1977 UJ

Discovered 1984 Oct. 23 by C. Shoemaker and E. Shoemaker at Palomar.

Epoch 1987 July 24.0 ET = JDE 2447000.5

M	230.72294	(1950.0)		P	Q
n	0.26280039	Peri.	153.19081	+0.12857613	-0.97158622
a	2.4138969	Node	288.87167	+0.86797658	+0.20717387
e	0.2254290	Incl.	12.12268	+0.47967158	-0.11445179
P	3.75	H	12.7	G	0.25

Residuals in seconds of arc

731220	095	0.0	0.1+	841023	675	0.3-	1.5-	841124 675	0.1+ 0.6+
771016	809	0.3+	0.5-	841023	675	1.2+	0.5+	870629 801	0.6- 1.0-
771017	809	1.9+	0.9-	841027	675	1.1-	0.1-	870724 801	0.7+ 0.7+
771020	809	2.5-	0.5+	841121	675	0.1-	0.9+		

(3701)* 1985 DW = 1952 BL = 1969 VU

Discovered 1985 Feb. 20 by A. Mrkos at Klet.

Epoch 1987 July 24.0 ET = JDE 2447000.5

M	272.20707	(1950.0)		P	Q
n	0.21069676	Peri.	298.66191	+0.58461579	-0.80761081
a	2.7970323	Node	115.35624	+0.77102560	+0.52336953
e	0.0941070	Incl.	4.91283	+0.25247556	+0.27175196
P	4.68	H	12.3	G	0.25

Residuals in seconds of arc

520130	760	0.9-	0.3+	850217	809	0.4-	0.5-	850224 809	0.3+ 0.0
520130	760	0.8+	1.3+	850218	809	0.7-	0.3-	850224 809	0.4+ 0.0
691111	095	1.1-	1.0-	850218	809	0.6-	0.2-	850225 809	0.4+ 0.7-
691113	095	0.2-	0.0	850218	809	0.4-	0.1-	850225 809	0.4+ 0.6-
691115	095	2.5+	0.6-	850219	809	0.1-	0.2-	850225 809	0.5+ 0.6-
850212	809	0.2+	0.7+	850219	809	0.1+	0.0	850226 809	0.8+ 0.6-
850212	809	0.5+	0.7+	850219	809	0.2+	0.2-	850226 809	1.0+ 0.7-
850212	809	0.5+	0.8+	850220	809	1.1+	0.1-	850226 809	1.1+ 0.7-
850214	809	1.0-	0.5+	850220	809	0.8+	0.1-	850227 809	0.2- 0.1-
850214	809	1.1-	0.1+	850220	809	1.0+	0.3-	850227 809	0.2- 0.0
850214	809	0.9-	0.0	850220	046	1.1-	0.2+	850228 809	0.2+ 0.4+
850216	809	0.5-	0.6+	850220	046	1.6-	0.7-	850228 809	0.3- 0.8+
850216	809	0.7-	0.6+	850221	809	0.1-	0.7-	860609 801	0.6+ 1.3-
850216	809	1.1-	0.6+	850221	809	0.2+	0.6-	870729 801	0.7+ 1.3-
850217	809	0.5-	0.2+	850221	809	0.7+	0.7-	870822 801	1.0- 1.0-
850217	809	0.2-	0.0	850224	809	0.2+	0.1-		

1953 UD = 1987 SM

Epoch 1987 July 24.0 ET = JDE 2447000.5 (J-P)

M	337.07771	(1950.0)		P	Q
n	0.23015869	Peri.	157.30389	+0.98797287	-0.10733275
a	2.6370518	Node	209.53499	+0.08253602	+0.97477441
e	0.1812802	Incl.	13.04969	+0.13075711	+0.19568986
P	4.28	H	12.5	G	0.25

Residuals in seconds of arc

531016	760	2.7-	2.0-	531106	760	0.9+	1.8+	870918 675	1.0- 0.2-
531016	760	1.3-	0.5-	531106	760	0.2-	2.5-	870920 675	0.2+ 0.8-
531105	760	2.1+	0.5-	531116	760	1.2-	2.5-		
531105	760	0.2+	0.7-	531116	760	2.7-	1.8-		

1983 RT3 = 1987 QJ2
Epoch 1987 July 24.0 ET = JDE 2447000.5 (J-P)

M	307.23060		(1950.0)	P	Q
n	0.24099155	Peri.	59.56496	+0.86404775	-0.49284485
a	2.5574218	Node	329.61271	+0.36350929	+0.75181543
e	0.1866333	Incl.	11.70174	+0.34825634	+0.43803825
P	4.09	H	14.0	G 0.25	

Residuals in seconds of arc

830902	809	0.4-	0.1-	830907	809	0.9-	0.2-	830914	809	0.4+	0.6-
830902	809	0.1-	0.1-	830907	809	0.3+	1.1+	830916	809	1.4-	0.6+
830902	809	0.2+	0.2-	830908	809	1.5+	0.9+	830916	809	1.4-	0.6+
830903	809	3.1-	0.3+	830908	809	1.8+	0.8+	870821	809	0.8+	0.6+
830903	809	0.1-	1.4+	830908	809	1.9+	0.7+	870821	809	0.4+	0.1+
830903	809	1.8-	0.0	830909	809	0.9-	0.3+	870821	809	0.1+	0.0
830904	809	0.3+	0.3-	830909	809	0.4-	1.6+	870825	809	0.1-	1.1+
830904	809	0.6+	0.2-	830909	809	0.2+	1.8+	870825	809	0.7+	0.7-
830904	809	0.6+	0.2-	830912	809	0.5+	0.1+	870825	809	0.7+	1.0-
830906	809	0.4+	0.2-	830912	809	0.7+	0.3-	870828	809	0.5-	1.7+
830906	809	0.6+	0.2-	830912	809	0.9+	0.7-	870828	809	0.0	1.1+
830906	809	0.7+	0.2-	830913	809	1.3+	0.8-	870828	809	1.0-	1.5+
830907	809	0.4-	1.0+	830914	809	0.3+	0.2-				

1985 UY4 = 1978 TK4 = 1978 VH12
Epoch 1987 July 24.0 ET = JDE 2447000.5 (J-P)

M	154.02999		(1950.0)	P	Q
n	0.28695515	Peri.	283.63233	+0.18899352	-0.98103806
a	2.2764646	Node	155.34779	+0.93603788	+0.16675379
e	0.1256265	Incl.	5.91199	+0.29684094	+0.09878008
P	3.43	H	13.5	G 0.25	

Residuals in seconds of arc

781004	095	0.5-	0.4+	851022	095	0.2-	1.8-	851120	095	0.9-	3.0+
781102	095	0.3+	0.4+	851111	095	1.2+	2.1-				

1985 UB5 = 1969 TQ
Epoch 1987 July 24.0 ET = JDE 2447000.5 (J-P)

M	142.58723		(1950.0)	P	Q
n	0.18879932	Peri.	173.01820	+0.94632116	-0.31312414
a	3.0093310	Node	205.67813	+0.28687258	+0.92793195
e	0.1098250	Incl.	10.66397	+0.14893081	+0.20222655
P	5.22	H	12.0	G 0.25	

Residuals in seconds of arc

691007	095	0.2+	0.7-	851022	095	0.2-	0.4+	851111	095	1.7+	0.4+
691016	095	0.3-	0.8+	851109	095	1.1+	0.7+	851120	095	2.7-	0.8-

1985 VK2 = 1951 XE1
Epoch 1987 July 24.0 ET = JDE 2447000.5 (J-P)

M	47.56610		(1950.0)	P	Q
n	0.08383012	Peri.	356.09307	+0.63393313	-0.71227543
a	5.1705513	Node	54.27269	+0.71921759	+0.39970020
e	0.1233617	Incl.	21.78781	+0.28434986	+0.57697786
P	11.76	H	9.0	G 0.25	

Residuals in seconds of arc

511205	711	1.5-	1.3-	Y	851109	095	0.4-	0.0	851120	095	0.8-	0.2-
511223	711	1.5+	1.3+	Y	851111	095	1.1+	0.3+				

1986 CL1 = 1980 YT = 1987 OD
Epoch 1987 July 24.0 ET = JDE 2447000.5 (J-P)

M	47.13110		(1950.0)	P	Q
n	0.23569737	Peri.	334.63885	-0.32854956	+0.89893294
a	2.5955761	Node	275.05704	-0.80935453	-0.42610891
e	0.1639729	Incl.	16.91283	-0.48682690	+0.10173875
P	4.18	H	12.5	G 0.25	

Residuals in seconds of arc

801230	552	0.1+	0.0	860206	809	0.3+	0.0	860212	809	0.6+	0.7+
801230	552	0.1-	0.1+	860207	809	1.5+	0.5-	860212	809	0.6+	0.6+
860201	809	0.1-	1.1-	860207	809	1.6+	0.8-	860213	809	1.2-	0.1-
860201	809	0.1+	1.0-	860207	809	1.7+	1.2-	860213	809	1.0-	0.0
860201	809	0.2-	0.9-	860208	809	2.2-	0.1+	860214	809	1.6-	0.6-
860202	809	0.2-	0.4-	860208	809	2.2-	0.0	860214	809	0.9-	0.4-
860202	809	0.1+	0.4-	860209	809	0.9-	0.5+	860215	809	1.2-	0.5-
860202	809	0.3+	0.4-	860209	809	0.3-	0.0	860215	809	0.7-	0.6-
860204	809	1.4+	0.8+	860209	809	0.0	0.1+	860216	809	0.4+	0.2+
860204	809	1.7+	1.0+	860210	809	0.3-	0.6+	860216	809	0.2+	0.1+
860204	809	1.9+	0.8+	860210	809	0.3-	0.6+	860217	809	0.1-	0.1-
860205	809	1.0+	0.0	860210	809	0.4-	0.6+	860217	809	0.3+	0.1-
860205	809	0.7+	0.1-	860211	809	0.6-	0.4+	870726	675	0.2-	0.8+
860205	809	0.6+	0.2-	860211	809	0.3-	0.4+	870726	675	0.1-	0.0
860206	809	0.1+	0.1-	860211	809	0.2-	0.4+	870821	801	0.3+	0.7-
860206	809	0.1+	0.0	860212	809	0.2+	0.8+				

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ORBITAL ELEMENTS BY S. NAKANO, SMITHSONIAN ASTROPHYSICAL OBSERVATORY.

The identifications are by S. Nakano unless otherwise stated.

(3702)* 1970 NB = 1975 XL = 1975 XZ4 = 1982 JB4

Discovered 1970 July 3 by L. I. Chernykh at the Crimean Astrophysical Observatory. The double designation 1975 XL = 1975 XZ4 is by O. Kippes (MPC 5973).

Epoch 1987 July 24.0 ET = JDE 2447000.5

M	312.12541		(1950.0)	P	Q
n	0.23253791	Peri.	254.65057	+0.93820213	-0.25482912
a	2.6190284	Node	119.60951	+0.31317811	+0.91310234
e	0.2388716	Incl.	15.62564	-0.14729640	+0.31828641
P	4.24	H	11.9	G 0.25	

Residuals in seconds of arc

700703	095	1.4+	1.9+	820523	095	1.6-	0.3-	870703	688	0.0	0.4+
700704	095	4.3+	0.6-	870619	657	0.0	0.8-	870703	688	0.7+	0.6-
700706	095	2.8-	1.9+	870626	657	(4.1-	1.0+)	870707	688	0.1+	0.2-
700714	095	2.2+	1.5+	870626	657	0.6+	0.9+	870707	688	0.5+	0.2+
700729	095	4.6-	1.1-	870629	293	0.5-	3.5+	870717	657	1.0-	0.8-
751203	095	2.2-	3.3-	870629	801	0.3+	0.6-	870728	657	0.2-	0.3-
751205	805	1.5+	2.0+	870629	293	2.5-	2.9-	870819	657	1.0+	2.6-
751207	805	0.6+	1.4+	870702	688	0.7+	0.3-				
820515	095	1.4+	0.9-	870702	688	0.0	0.7+				

(3703)* 1978 PU3 = 1977 EK6

Discovered 1978 Aug. 9 by L. I. Chernykh and N. S. Chernykh at the Crimean Astrophysical Observatory. The identification is by K. Hurukawa (JAM 1235).

Epoch 1987 July 24.0 ET = JDE 2447000.5

M	185.27224		(1950.0)		P		Q				
n	0.27682345	Peri.	151.47475		+0.80984665		+0.58644496				
a	2.3316720	Node	172.56450		-0.55804568		+0.77809730				
e	0.1335876	Incl.	6.74036		-0.18092380		+0.22504866				
P	3.56	H	14.4	G	0.25						

Residuals in seconds of arc

770312	381	1.3-	0.4+	780809	095	0.9+	0.5-	861203	675	0.2+	0.4-
770312	381	0.3-	0.6+	780831	095	0.5-	1.7+	861203	675	1.7+	0.7-
770314	381	0.7-	0.8+	780905	095	0.5-	0.6-	870130	010	1.0-	0.0
770314	381	2.5+	1.0-	850718	801	0.8-	0.6+	870130	010	0.8-	1.5+
770315	381	0.1-	0.5-	850814	801	0.8+	0.5-				

(3704)* 1981 YX1 = 1951 WH1 = 1957 HR = 1958 UB = 1972 HD = 1973 TR = 1977 TK7 = 1977 VH2 = 1979 FL1 = 1980 OJ

Discovered 1981 Dec. 20 at the Purple Mountain Observatory.

Epoch 1987 July 24.0 ET = JDE 2447000.5

M	343.02143		(1950.0)		P		Q				
n	0.26339438	Peri.	34.38172		-0.04398337		+0.99565316				
a	2.4102664	Node	233.23400		-0.93803666		-0.06943316				
e	0.0490385	Incl.	5.88226		-0.34373344		+0.06207910				
P	3.74	H	12.6	G	0.25						

Residuals in seconds of arc

511129	711(31.6+	0.1+)Y		771106	095	0.3+	0.5-	811223	330	4.3-	4.2+
570424	076(44.9+	13.1-)		790323	095	2.1+	3.7-	870430	801	0.6+	0.7-
581016	760	2.6-	5.1-	790329	095	2.1+	4.0-	870502	801	0.6-	0.0
581016	760	1.4+	5.3-	800717	095	1.6+	4.1+	870504	688	2.2-	0.2-
720418	095(17.3+	13.6-)		800721	095	(6.6+	7.1+)	870504	688	3.3-	0.6+
731001	095	4.9+	3.8+	811125	095	3.3-	0.3-				
771010	095	1.1+	2.8-	811220	330	1.4+	3.4+				

(3705)* 1984 ET1 = A921 WE = 1948 RG = 1954 WE = 1976 UG3 = 1978 EZ1 = 1981 QH3 = 1981 RG3

Discovered 1984 Mar. 4 by H. Debehogne at the European Southern Observatory. The identification 1984 ET1 = 1981 QH3 was independently suggested by W. Landgraf.

Epoch 1987 July 24.0 ET = JDE 2447000.5

M	346.48427		(1950.0)		P		Q				
n	0.17910578	Peri.	235.32576		+0.86889284		-0.49488791				
a	3.1169486	Node	154.33178		+0.46172575		+0.80262234				
e	0.1861902	Incl.	1.39496		+0.17842245		+0.33299149				
P	5.50	H	12.7	G	0.25						

Residuals in seconds of arc

211123	029 (6.4-	2.9-)X		810825	809	0.5+	0.0	840306	809	0.1-	0.4+
211127	029(21.3+	7.2-)X		810825	809	0.0	0.4+	840308	809	0.2+	0.8+
211201	029(65.4+	61.3-)X		810825	809	0.7+	0.1-	840308	809	0.2+	0.8+
480907	690	0.2+	1.5-	810902	095	2.4-	1.2-	840308	809	0.1-	1.0+
480908	690	2.1+	1.0-	840304	809	0.8-	0.2+	840309	809	0.5+	1.4-
480909	690	0.1-	1.0-	840304	809	1.1-	0.3+	840309	809	0.6+	1.8-
541116	760	2.2-	0.8-	840304	809	1.1-	0.6+	840309	809	0.4+	1.1-
541116	760	1.3-	0.3-	840305	809	0.7+	0.9+	840310	809	0.1+	1.4-
541117	760	1.9+	0.6+	840305	809	0.2-	1.6+	840310	809	0.1+	1.3-
541117	760	0.6+	0.5+	840305	809	0.4+	1.2+	840310	809	0.3-	1.4-
761026	095	2.0+	0.8-	840306	809	0.4-	0.9+	840311	809	0.3+	1.8-
780305	095	1.6-	0.7+	840306	809	0.2-	0.7+	840311	809	0.4+	1.6-

840311 809 0.3+ 1.7- 840313 809 0.3- 0.4- 840314 809 0.0 0.3-
840313 809 0.0 0.5- 840314 809 0.2+ 0.3-
840313 809 0.4- 0.4- 840314 809 0.2- 0.5-

(3706)* 1984 SE3 = 1950 BX = 1950 BT1 = 1973 FE = 1986 GH

Discovered 1984 Sept. 28 by B. A. Skiff at the Anderson Mesa Station of the Lowell Observatory. The identifications are by K. Hurukawa (MPC 10755). The identifications 1984 SE3 = 1950 BX = 1950 BT1 = 1986 GH and 1984 SE3 = 1986 GH were also found by B. Knudsen (MPC 10755) and O. Kippes, respectively.

Epoch 1987 July 24.0 ET = JDE 2447000.5

		(1950.0)	P	Q
M	239.84638			
n	0.30431576	Peri. 309.90444	+0.05976551	-0.99732587
a	2.1890369	Node 136.61245	+0.93347166	+0.04091179
e	0.0985650	Incl. 3.51050	+0.35363645	+0.06055851
P	3.24	H 13.8	G 0.25	

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

500125 012(0.03- 0.02+) 840928 809 0.7- 1.0+ 860409 688 (4.0- 0.7+)
500128 760 0.9+ 2.1- 840928 809 0.1+ 1.1+ 860409 688 1.4+ 1.6-
500128 760 1.0- 0.6+ 840928 809 0.5+ 1.4+ 860410 054 1.4+ 1.3-
730329 805 0.9- 0.6- 840928 688 0.8+ 1.3- 870821 809 0.4+ 1.5-
840922 809 0.4- 0.4+ 840928 688 1.6+ 1.0- 870821 809 0.1+ 1.1-
840922 809 0.2- 0.2+ 840928 809 0.9+ 0.3- 870821 809 0.4+ 0.8-
840922 809 0.1- 0.3+ 840928 809 0.6+ 0.7- 870822 801 0.3+ 0.1-
840923 809 0.7- 0.2+ 840928 809 1.0+ 1.1- 870825 809 0.0 0.5-
840923 809 0.4- 0.2+ 840929 809 0.6- 0.1- 870825 809 0.4+ 0.9-
840923 809 0.2- 0.4+ 840929 809 0.4- 0.0 870825 809 0.6+ 1.0-
840924 809 0.6- 0.1+ 840929 809 0.3- 0.0 870827 809 1.8+ 1.2-
840924 809 0.6- 0.3- 840930 809 0.0 0.1- 870828 809 0.6- 1.3+
840924 809 0.4- 0.3- 840930 809 0.0 0.1+ 870828 809 0.8+ 1.6+
840926 809 0.5- 0.0 840930 809 0.0 0.2- 870828 809 2.3+ 1.4+
840926 809 0.1+ 0.0 841001 809 0.2- 0.1- 870829 809 3.1- 0.2-
840926 809 0.3+ 0.2+ 841001 809 0.0 0.2- 870829 809 (3.9- 0.5+)
840927 809 0.1- 0.1+ 841001 809 0.4+ 0.3- 870829 809 2.6- 1.0+
840927 809 0.1+ 0.1+ 860403 054 1.9- 1.8+
840927 809 0.0 0.1- 860405 054 0.4- 1.1+

1973 SA2 = 1977 AY2

The identification is by E. Bowell.

Epoch 1987 July 24.0 ET = JDE 2447000.5 (J-P)

		(1950.0)	P	Q
M	11.84462			
n	0.08227903	Peri. 333.89598	+0.61606414	-0.78138972
a	5.2353311	Node 77.91220	+0.73930333	+0.53000519
e	0.0315999	Incl. 5.83878	+0.27183737	+0.32943072
P	11.98	H 11.5	G 0.25	

Residuals in seconds of arc

730919 675 1.3+ 0.4- 730929 675 0.7- 0.6+ 770112 675 0.6+ 0.3-
730920 675 0.5- 0.6- 730930 675 0.3- 0.2+ 770113 675 0.6- 0.3+
730924 675 0.6- 0.0 731004 675 0.2+ 0.0
730925 675 0.2+ 0.0 731005 675 0.3+ 0.3+

1977 CD = 1978 SH2 = 1986 SZ

Epoch 1987 July 24.0 ET = JDE 2447000.5 (J-P)

		(1950.0)	P	Q
M	359.50904			
n	0.36590604	Peri. 277.61193	-0.16491663	-0.98622098
a	1.9359339	Node 182.02469	+0.98590819	-0.16445852
e	0.0831755	Incl. 21.70247	+0.02806306	-0.01793256
P	2.69	H 13.5	G 0.25	

Residuals in seconds of arc

770213	808	0.1-	0.7+	770220	808	0.6+	0.7-	860929	010	2.7-	1.9-
770215	808	0.4+	1.1+	770220	808	0.3-	0.7-	860929	010	2.7+	1.9+
770218	808	0.5-	0.6-	780926	095	0.0	0.2-				

1981 EF2 = 1973 AO1 = 1986 RM3
Epoch 1987 July 24.0 ET = JDE 2447000.5 (J-P)

M	148.59456	(1950.0)		P	Q
n	0.26050883	Peri.	327.47469	-0.04348187	+0.99421788
a	2.4280369	Node	299.86125	-0.89064617	-0.08309960
e	0.0308877	Incl.	6.50070	-0.45261321	+0.06800926
P	3.78	H	13.0	G 0.25	

Residuals in seconds of arc

730101	095	0.0	0.1+	810308	809	0.2+	0.2-	810312	809	0.3+	0.2+
810305	809	0.5+	0.2-	810308	809	0.5-	0.0	810312	809	1.5+	0.2+
810305	809	0.0	0.5-	810308	809	0.9-	0.6-	810314	809	1.1+	0.4-
810305	809	0.1+	0.8-	810309	809	0.2+	0.1+	810314	809	1.4+	0.0
810306	809	0.8-	0.2+	810309	809	1.3+	0.2+	810314	809	0.7-	0.2+
810306	809	1.6-	0.2-	810309	809	0.2+	0.1-	860906	071	2.0-	3.6-
810306	809	0.8-	0.7+	810310	809	0.2-	0.6+	860906	071	1.4-	0.0
810307	809	0.6-	0.6+	810310	809	0.2+	0.1-	860907	071	1.6+	1.3+
810307	809	0.1-	0.1-	810310	809	0.7-	0.3-	860907	071	1.8+	2.2+
810307	809	0.6-	0.2+	810312	809	0.4+	0.2+				

1982 DY1 = 1937 AU = 1974 TJ1 = 1977 FJ1 = 1980 WF2
Epoch 1987 July 24.0 ET = JDE 2447000.5 (J-P)

M	107.96661	(1950.0)		P	Q
n	0.17712126	Peri.	319.15669	+0.89780395	-0.43696029
a	3.1401938	Node	66.83249	+0.41798136	+0.80620209
e	0.0884013	Incl.	3.42335	+0.13870705	+0.39887828
P	5.56	H	11.5	G 0.25	

Residuals in seconds of arc

370109	020	0.7-	7.5-	801210	095	0.9-	3.2+	820220	046	0.7-	0.9+
741012	808	0.0	0.8-	820120	095	0.1+	4.3+	820220	046	1.0+	0.8+
741012	808	0.2+	0.4+	820121	095	(1.0+	6.7+)	820221	046	1.8-	0.8+
770325	095	0.5+	1.4+	820216	046	2.3+	2.6-	820221	046	1.0-	0.8+
801130	095	0.3-	2.9+	820216	046	1.4+	2.0-				

1983 LM = 1978 JG1 = 1979 SB9 = 1979 TO
Epoch 1987 July 24.0 ET = JDE 2447000.5 (J-P)

M	342.15458	(1950.0)		P	Q
n	0.22970112	Peri.	72.25731	+0.33276648	+0.93343450
a	2.6405527	Node	218.03568	-0.92644942	+0.29708274
e	0.1664793	Incl.	12.56473	-0.17594868	+0.20110168
P	4.29	H	12.5	G 0.25	

Residuals in seconds of arc

780506	095	0.2+	1.3+	830613	675	0.6-	1.0+	830614	675	0.8-	0.5+
790928	095	0.5-	0.3+	830613	675	0.4+	0.6+	830713	688	0.0	1.1-
791014	095	0.0	1.6+	830614	675	1.1-	0.3+	830713	688	2.0+	1.9-

1985 UG5 = 1978 WT7
Epoch 1987 July 24.0 ET = JDE 2447000.5 (J-P)

M	169.47575	(1950.0)		P	Q
n	0.27870092	Peri.	340.73869	+0.58655510	-0.79462351
a	2.3211933	Node	73.04658	+0.76287596	+0.47712929
e	0.1653672	Incl.	9.42316	+0.27198049	+0.37539463
P	3.54	H	14.5	G 0.25	

Residuals in seconds of arc

781129	675	0.1-	0.0		851022	095	0.4-	1.4-		851111	095	1.4-	3.6+
781130	675	0.0	0.4+		851109	095	0.1+	0.9+		851120	095	1.9+	3.5-

1987 MK = 1978 PU4
Epoch 1987 July 24.0 ET = JDE 2447000.5 (J-P)

M	330.05334	(1950.0)		P	Q
n	0.22242698	Peri.	28.69042	+0.99425531	+0.00579538
a	2.6978136	Node	330.38955	-0.06511424	+0.82525556
e	0.1825691	Incl.	12.49222	+0.08495002	+0.56472974
P	4.43	H	13.0	G 0.25	

Residuals in seconds of arc

780806	323	(5.4+	7.8+)		870630	413	0.2-	0.2-		870825	809	0.7+	0.9-
780806	323	(6.0+	7.9+)		870822	809	0.1-	0.0		870827	809	1.9-	0.7-
780807	323	1.8-	0.3+		870822	809	0.0	0.3-		870827	809	0.3-	0.3-
780807	323	0.8-	1.3+		870822	809	0.1+	0.6-		870827	809	0.9-	0.1-
780809	323	0.7+	0.7-		870825	809	0.1+	0.9-		870828	809	0.4-	1.9+
780809	323	1.8+	0.9-		870825	809	1.3+	0.5-		870828	809	0.0	1.9+
780811	323	0.0	0.2+		870825	809	0.2+	1.0-		870828	809	0.6+	1.9+
780811	323	0.0	0.2+		870825	809	0.0	0.5-					
870630	413	0.8+	0.3+		870825	809	0.5+	0.1-					

1987 OQ = 1979 XR1
Epoch 1987 July 24.0 ET = JDE 2447000.5 (J-P)

M	318.97101	(1950.0)		P	Q
n	0.22882314	Peri.	135.22295	+0.94631175	-0.26736339
a	2.6473028	Node	241.09068	+0.20633987	+0.93226446
e	0.1774846	Incl.	11.97899	+0.24883312	+0.24372073
P	4.31	H	13.0	G 0.25	

Residuals in seconds of arc

791214	095	0.3-	1.0+		870819	809	0.5+	1.1-		870822	033	0.7-	0.2-
791218	095	0.3+	1.0-		870819	809	0.4+	0.5-		870826	809	1.2+	0.6+
870727	511	0.8-	1.9-		870819	809	0.3+	0.1+		870826	809	0.1-	1.1+
870727	511	0.1+	2.4+		870822	033	0.9-	0.3-					

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ORBITAL ELEMENTS BY H. OISHI, NIIZA, JAPAN.

The identifications are by H. Oishi.

(3707)* 1934 CC = 1975 XW2 = 1983 RF3

Discovered 1934 Feb. 5 by K. Reinmuth at Heidelberg. The identifications 1934 CC = 1983 RF3 and 1983 RF3 = 1975 XW2 were independently suggested by F. N. Bowman and by W. Landgraf, respectively (MPC 10402).
Epoch 1987 Jul. 24.0 ET = JDE 2447000.5

M	274.53053	(1950.0)		P	Q
n	0.23308000	Peri.	141.89126	+0.44268325	-0.87102449
a	2.6149660	Node	280.90824	+0.76017660	+0.49051175
e	0.1584431	Incl.	12.52519	+0.47556605	+0.02673108
P	4.23	H	13.1	G 0.25	

Residuals in seconds of arc

340205	024	3.4+	3.3+		830904	095	4.1+	0.9+		830930	095	4.6-	0.2+
340210	024	2.6-	1.5-		830905	095	3.2+	0.6-		831007	095	2.7-	1.4+
340214	024	1.0-	2.3-		830905	095	4.8+	0.6-		831007	095	3.2-	0.8+
751202	095	0.1-	0.1+		830912	095	1.9+	0.5-		831008	095	2.3-	2.1-
830902	095	(18.5-	6.7+)		830913	095	0.7-	1.2-		870724	801	0.8-	0.1+
830904	095	0.5+	1.8+		830915	095	0.2-	1.2-		870730	801	0.5-	0.9+

(3708)* 1974 FV1 = 1974 HN3 = 1930 XF = 1953 SG = 1965 TA = 1975 NQ
Discovered 1974 Mar. 21 at Cerro El Roble.
Epoch 1987 Jul. 24.0 ET = JDE 2447000.5

M	331.05484		(1950.0)	P	Q
n	0.08280159	Peri.	55.19509	+0.94810400	+0.23277335
a	5.2132706	Node	290.48929	-0.30953640	+0.83146886
e	0.1589686	Incl.	13.36936	+0.07270509	+0.50445624
P	11.90	H	10.1	G 0.25	

Residuals in seconds of arc

301126	690	1.0-	0.5-	651001	095	0.9-	0.5+	740424	805	0.3-	1.1+
301213	690	0.0	0.1+	651002	095	0.9-	0.6+	740425	805	0.6-	2.4-
301214	690	0.6+	1.0-	740321	805	1.4+	0.1+	750711	095	2.6-	1.1+
301216	690	0.4+	0.5-	740322	805	0.1-	0.4+	870629	801	1.0+	0.1+
530917	760	0.1+	1.6+	740421	805	0.5+	0.8-	870723	801	0.9+	1.3-
530917	760	1.9+	1.2-	740422	805	0.0	1.0+	870730	801	0.3+	0.4-

1981 QA3 = 1972 BC = 1972 CA = 1978 EE6
Epoch 1987 July 24.0 ET = JDE 2447000.5 (J-P)

M	259.82725		(1950.0)	P	Q
n	0.17081832	Peri.	80.69800	-0.31748540	-0.94812712
a	3.2169721	Node	27.82940	+0.85590432	-0.29381347
e	0.1575184	Incl.	1.97171	+0.40820439	-0.12136150
P	5.77	H	12.0	G 0.25	

Residuals in seconds of arc

720117	095	4.1+	0.9+	810826	809	0.0	0.6+	810901	809	0.4+	0.9+
720206	095	4.1-	0.8-	810826	809	0.7+	1.0+	810902	809	1.2+	0.0
780306	095	0.1-	0.4-	810827	809	1.1+	1.3+	810902	809	1.3+	0.4-
810824	809	2.0-	0.8-	810827	809	1.5+	1.2+	810902	809	1.0+	0.5-
810824	809	1.6-	0.6-	810827	809	1.7+	1.0+	810904	809	0.4-	0.1-
810824	809	1.8-	0.4-	810828	809	0.1-	0.7-	810904	809	0.2-	0.4-
810825	809	0.6-	1.3+	810828	809	0.0	0.7-	810904	809	0.4+	0.7-
810825	809	1.0-	1.3+	810828	809	0.5-	0.9-	810905	809	0.2-	0.7-
810825	809	0.8-	1.3+	810831	809	0.7+	0.7-	810905	809	0.1+	0.7-
810826	809	0.7-	0.1+	810831	809	1.0+	0.8-	810905	809	0.3+	0.6-
810826	809	0.4-	0.1+	810831	809	1.2+	0.9-	810906	809	0.5+	0.6-
810826	809	0.1-	0.2-	810901	809	2.9-	1.5+	810906	809	0.9+	0.6-
810826	809	0.8-	0.4+	810901	809	0.5+	1.2+	810906	809	0.2-	1.2-

1981 RU3 = 1953 PY = 1953 RR = 1958 TF
Epoch 1987 July 24.0 ET = JDE 2447000.5 (J-P)

M	145.88838		(1950.0)	P	Q
n	0.21353457	Peri.	123.12709	+0.61837781	+0.78584194
a	2.7722014	Node	185.09181	-0.74720201	+0.58482620
e	0.1022703	Incl.	5.06191	-0.24351187	+0.20107399
P	4.62	H	12.1	G 0.25	

Residuals in seconds of arc

530811	024	2.0-	0.5-	581009	024	0.1+	0.6-	811022	095	1.5+	3.1+
530909	760	1.0-	0.0	810903	095	0.5+	0.2+	811024	095	2.7+	0.6+
530909	760	2.9+	0.5+	811007	095	4.6-	3.2-				

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ORBITAL ELEMENTS BY T. KOBAYASHI, GUNMA, JAPAN.

1971 OH = 1928 QO = 1954 RM = 1980 WT = 1982 DW4 = 1984 QK1
The identifications are by T. Kobayashi.

Epoch 1987 July 24.0 ET = JDE 2447000.5

M 217.73582		(1950.0)	P	Q
n 0.22839821	Peri.	215.31473	+0.97829222	-0.18759971
a 2.6505800	Node	155.05607	+0.20257451	+0.95526955
e 0.2821675	Incl.	12.04932	-0.04367941	+0.22861854
P 4.32	H	13.0	G 0.25	

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

280820	094	(44.6-	11.5-)X	540906	760	(0.06+	0.01-)X	801130	095	0.5-	2.7+
280823	094	(25.9-	54.0-)X	710719	095	1.6+	0.7+	820222	010	0.2+	0.5+
280907	094	(0.34-	0.49-)X	710725	095	2.2-	6.9+	840827	046	1.8+	3.0-
280912	024	(0.01+	0.03-)X	710820	095	6.7+	2.6-	840827	046	1.0-	5.3-
280913	094	(0.04+	0.01+)X	710911	095	7.5-	5.1+				

1972 RQ = 1972 TG5 = 1934 RC1 = 1954 HF = 1966 CX = 1979 HW1 = 1979 JD = 1983 ET

The double designations 1972 RQ = 1972 TG5 and 1979 HW1 = 1979 JD are by B. G. Marsden (MPC 9064) and by O. Kippes (MPC 6630), respectively.

Epoch 1987 July 24.0 ET = JDE 2447000.5

M 189.82008		(1950.0)	P	Q
n 0.23352546	Peri.	180.86192	+0.98359149	+0.17514746
a 2.6116395	Node	168.76770	-0.16415732	+0.96833180
e 0.1227677	Incl.	12.83077	-0.07483423	+0.17792383
P 4.22	H	12.0	G 0.25	

Residuals in seconds of arc

340907	008	(22.2+	74.5-)X	721006	095	0.3-	2.9-	830310	688	0.5-	1.4-
540426	760	(31.3-	27.2-)X	790420	095	0.2-	0.9+	830316	688	0.7-	1.2-
660214	330	0.3+	2.4+	790425	095	1.0+	1.3-	830316	688	0.3-	2.4-
720907	095	0.1+	1.0-	790501	095	0.3-	0.3+				
720909	095	0.4+	1.8+	830310	688	0.3+	0.6+				

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

The double designation 1972 YR = 1973 AA1 is by C. M. Bardwell.

Epoch 1987 July 24.0 ET = JDE 2447000.5

M 269.24459		(1950.0)	P	Q
n 0.24700760	Peri.	121.90240	+0.56027328	-0.82744386
a 2.5157212	Node	293.97690	+0.74525386	+0.52349817
e 0.1820813	Incl.	2.37238	+0.36151147	+0.20319038
P 3.99	H	13.0	G 0.25	

Residuals in seconds of arc

650109	330	1.0+	2.4+	730102	095	0.8-	1.7-	790826	095	0.6+	1.3+
690115	095	0.5+	1.5-	730104	095	0.0	6.3-	810108	381	0.2-	0.4-
710726	095	1.7+	4.6-	750711	095	2.4-	1.7+	810108	381	0.2+	1.0-
721229	095	0.0	5.6+	750713	095	1.4-	1.0+				
730101	095	1.0-	2.0+	790719	095	1.7+	0.5-				

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ORBITAL ELEMENTS BY A. LOWE, CALGARY, ALBERTA.

The identifications are by A. Lowe.

1977 KL1 = 1987 DB

Epoch 1987 July 24.0 ET = JDE 2447000.5 (J-P)

M 354.55309		(1950.0)	P	Q
n 0.17671487	Peri.	117.99731	-0.98312693	-0.03842933
a 3.1450063	Node	60.30115	-0.05368863	-0.87400591
e 0.0538247	Incl.	11.88146	+0.17486843	-0.48439328
P 5.58	H	11.6	G 0.25	

Residuals in seconds of arc

770518	675	0.5+	0.1-	870222	054	(11.6+ | 1.2-)	870223	054	0.8+	0.9+
770519	675	0.5-	0.1+	870222	054	0.7-	0.9-				

1978 TP6 = 1984 WN1

Epoch 1987 July 24.0 ET = JDE 2447000.5 (J-P)

M	153.84621		(1950.0)	P	Q
n	0.17864225	Peri.	126.20648	-0.15204422	-0.98771188
a	3.1223443	Node	332.47266	+0.87979753	-0.11857837
e	0.1976765	Incl.	4.48781	+0.45037636	-0.10180579
P	5.52	H	12.7	G 0.25	

Residuals in seconds of arc

781002	095	0.2-	0.3-	841120	688	0.1-	0.8-	841127	010	0.4+	0.1+
781008	095	0.2+	0.3+	841120	688	0.3+	0.3-	841128	010	0.6-	0.9+

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ORBITAL ELEMENTS BY G. R. KASTEL', INSTITUTE FOR THEORETICAL ASTRONOMY.

1981 SE2 = 1985 VR

The identification is by G. R. Kastel'.

Epoch 1987 July 24.0 ET = JDE 2447000.5

M	193.95200		(1950.0)	P	Q
n	0.25961066	Peri.	253.58443	+0.99844090	+0.01166305
a	2.4336290	Node	105.72223	+0.01015808	+0.92363316
e	0.2095524	Incl.	3.25091	-0.05488695	+0.38310020
P	3.80	H	14.4	G 0.25	

Residuals in seconds of arc

810926	688	0.9+	1.7-	810928	095	0.8-	0.4+	851111	095	0.4-	2.8+
810926	688	1.2+	1.9-	811005	095	0.5-	1.6+	851115	054	2.6+	2.4-
810926	688	1.0+	1.4+	851022	095	0.6+	0.5-				
810926	688	1.9-	0.3+	851109	095	2.7-	0.1-				

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ORBITAL ELEMENTS BY T. A. VINOGRADOVA, INSTITUTE FOR THEORETICAL ASTRONOMY.

The identifications are by T. A. Vinogradova unless otherwise stated.

1978 SH1 = 1951 WJ = 1968 XC = 1985 UH5

The key identification 1978 SH1 = 1985 UH5 is by G. R. Kastel'. The identification 1978 SH1 = 1951 WJ is by B. G. Marsden.

Epoch 1987 July 24.0 ET = JDE 2447000.5

M	185.20468		(1950.0)	P	Q
n	0.28969573	Peri.	333.61069	+0.74222484	-0.65633933
a	2.2620801	Node	68.08941	+0.63773680	+0.62971179
e	0.1550282	Incl.	8.38901	+0.20589818	+0.41554994
P	3.40	H	14.2	G 0.25	

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

511127	020(0.07+	0.01-)X	781003	095	1.6+	0.9-	851109	095	1.6+	0.0
681213	095	0.4-	0.9+	781007	095	1.6+	1.0-	851111	095	1.7-	1.0+
780927	095	3.2-	1.6+	851022	095	0.4-	0.9+	851120	095	0.8+	2.4-

1978 TB2 = 1978 TQ4 = 1985 UP4

The identification 1978 TB2 = 1985 UP4 is by G. R. Kastel'. The double designation 1978 TB2 = 1978 TQ4 is by N. S. Chernykh (MPC 6287).

Epoch 1987 July 24.0 ET = JDE 2447000.5

M 156.03319	(1950.0)	P	Q	
n 0.28732553	Peri. 243.52969	+0.25188361	-0.96763403	
a 2.2745033	Node 191.91203	+0.91240077	+0.24277094	
e 0.1231431	Incl. 4.29558	+0.32261353	+0.06889596	
P 3.43	H 13.9	G 0.25		

Residuals in seconds of arc

780913	095	1.1-	2.5+	781001	049	0.3+	0.3-	851109	095	1.7+	3.1+
780927	095	1.5+	2.3-	781003	095	0.0	0.9-	851111	095	0.7+	0.4-
780930	049	0.1+	0.7-	781007	095	0.8-	2.8+	851120	095	1.7-	1.1-
780930	049	0.0	0.9-	851022	095	0.8-	1.6-				

1985 UT4 = 1972 TD1 = 1975 RO

The identifications were found independently by A. Pavenis.

Epoch 1987 July 24.0 ET = JDE 2447000.5

M 216.05917	(1950.0)	P	Q	
n 0.30566338	Peri. 206.18032	+0.97447226	-0.22434650	
a 2.1825981	Node 166.77578	+0.21195238	+0.90681206	
e 0.1414286	Incl. 2.13244	+0.07402703	+0.35687608	
P 3.22	H 14.6	G 0.25		

Residuals in seconds of arc

721007	095	0.6+	1.9-	851022	095	0.2+	0.9-	851120	095	0.3+	2.7+
750903	095	0.8+	0.2+	851109	095	0.5-	0.7+				
750906	095	1.2-	1.0+	851111	095	0.1-	1.1-				

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EPHEMERIDES.

Comet Bradfield (1987s) Elements MPC 12309

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	m1
1987 09	22	15 26.34	-13 43.2	1.454	1.201	54.9	43.1	7.6
1987 09	27	15 38.79	-12 27.4					
1987 10	02	15 51.98	-11 06.7	1.393	1.091	51.1	45.5	7.1
1987 10	07	16 05.90	-09 39.9					
1987 10	12	16 20.58	-08 06.0	1.319	0.995	48.5	48.7	6.6
1987 10	17	16 36.06	-06 24.0					
1987 10	22	16 52.39	-04 33.3	1.232	0.922	47.5	52.7	6.1
1987 10	27	17 09.62	-02 33.2					
1987 11	01	17 27.87	-00 23.5	1.136	0.880	48.3	57.3	5.7
1987 11	06	17 47.28	+01 55.8					
1987 11	11	18 08.06	+04 24.0	1.037	0.875	51.1	61.7	5.5
1987 11	16	18 30.49	+07 00.3					
1987 11	21	18 54.88	+09 42.9	0.946	0.908	56.0	64.4	5.5
1987 11	26	19 21.54	+12 29.4					
1987 12	01	19 50.70	+15 15.7	0.877	0.974	62.7	64.2	5.6
1987 12	06	20 22.41	+17 55.8					
1987 12	11	20 56.41	+20 22.2	0.845	1.064	70.7	60.8	5.9
1987 12	16	21 32.09	+22 27.3					
1987 12	21	22 08.48	+24 05.0	0.865	1.171	78.4	55.3	6.4
1987 12	26	22 44.43	+25 12.9					
1987 12	31	23 18.85	+25 52.5	0.939	1.289	84.2	49.3	7.0
1988 01	05	23 50.97	+26 08.3					
1988 01	10	00 20.36	+26 06.2	1.063	1.414	87.3	44.0	7.6
1988 01	15	00 46.96	+25 52.3					
1988 01	20	01 10.91	+25 31.3	1.227	1.542	87.7	39.6	8.3

1987 QB a,e,i = 2.81, 0.59, 3 Elements MPC 12314

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	09 22	23 40.67	-08 43.3	0.296	1.298	171.6	6.5	17.4
1987	10 02	23 49.40	-08 25.3					
1987	10 12	23 56.78	-07 45.8	0.447	1.421	157.6	15.6	18.8
1987	10 22	00 04.11	-06 48.7					
1987	11 01	00 12.14	-05 37.1	0.652	1.562	142.6	22.7	20.0
1987	11 11	00 21.15	-04 15.0					
1987	11 21	00 31.15	-02 45.4	0.913	1.710	128.2	27.0	21.0

Periodic Comet Helin (1987w) Elements MPC 12309

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	m1
1987	09 22	01 20.71	+02 30.6	1.633	2.590	157.7	8.5	16.2
1987	10 02	01 16.69	+01 44.1					
1987	10 12	01 11.84	+00 58.8	1.622	2.616	173.8	2.4	16.2
1987	10 22	01 06.98	+00 20.4					
1987	11 01	01 02.95	-00 05.9	1.713	2.651	156.2	8.7	16.4
1987	11 11	01 00.41	-00 16.7					
1987	11 21	00 59.76	-00 11.3	1.897	2.695	135.7	14.8	16.7
1987	12 01	01 01.18	+00 10.3					
1987	12 11	01 04.64	+00 46.1	2.153	2.747	117.2	18.6	17.1
1987	12 21	01 10.00	+01 34.1					
1987	12 31	01 17.06	+02 32.1	2.455	2.806	100.5	20.2	17.4
1988	01 10	01 25.60	+03 37.6					
1988	01 20	01 35.39	+04 48.8	2.780	2.871	85.3	20.0	17.8

1987 QA a,e,i = 1.65, 0.47, 41 Elements MPC 12313

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	09 22	03 10.58	-37 23.4	0.308	1.195	121.6	45.7	15.4
1987	09 27	03 45.45	-48 19.7					
1987	10 02	04 29.62	-57 16.9	0.338	1.126	102.8	60.1	15.8
1987	10 07	05 23.94	-63 40.7					
1987	10 12	06 25.79	-67 33.5	0.406	1.060	87.3	70.2	16.4
1987	10 17	07 28.42	-69 20.6					
1987	10 22	08 24.68	-69 38.5	0.487	1.000	76.4	75.4	16.9
1987	10 27	09 11.29	-69 01.2					
1987	11 01	09 48.74	-67 52.4	0.565	0.948	68.8	77.4	17.1
1987	11 06	10 19.03	-66 26.1					
1987	11 11	10 44.19	-64 49.4	0.634	0.908	63.7	77.6	17.3
1987	11 16	11 05.81	-63 06.0					
1987	11 21	11 24.99	-61 17.5	0.689	0.883	60.5	76.8	17.4
1987	11 26	11 42.51	-59 24.3					
1987	12 01	11 58.90	-57 26.5	0.727	0.876	59.2	75.3	17.4
1987	12 06	12 14.51	-55 24.1					
1987	12 11	12 29.56	-53 16.8	0.748	0.886	59.6	73.6	17.5

Comet Rudenko (1987u) Elements MPC 12309

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	m1
1987	10 12	12 00.90	+12 21.1	1.339	0.605	25.0	44.2	7.0
1987	10 17	11 49.94	+08 01.9					
1987	10 22	11 39.69	+02 54.5	1.204	0.662	33.3	55.8	7.1
1987	10 27	11 30.02	-03 05.3					
1987	11 01	11 20.56	-10 00.9	1.061	0.774	44.1	63.3	7.5
1987	11 06	11 10.69	-17 54.2					
1987	11 11	10 59.55	-26 41.4	0.951	0.915	56.2	64.1	8.0
1987	11 16	10 45.85	-36 09.5					
1987	11 21	10 27.55	-45 52.8	0.915	1.067	68.1	59.2	8.6
1987	11 26	10 01.21	-55 14.3					
1987	12 01	09 20.99	-63 29.5	0.970	1.224	77.5	51.9	9.3

1987 12 06	08 18.45	-69 47.9						
1987 12 11	06 50.1	-73 15.5	1.107	1.380	82.3	45.0	10.1	
1987 12 16	05 16.0	-73 32.0						
1987 12 21	04 03.9	-71 33.7	1.300	1.534	83.2	39.5	10.9	
1987 12 26	03 17.78	-68 38.0						
1987 12 31	02 49.25	-65 30.4	1.524	1.686	81.4	35.2	11.7	
1988 01 05	02 31.40	-62 29.5						
1988 01 10	02 20.09	-59 41.8	1.763	1.835	78.2	31.6	12.4	
1988 01 15	02 13.00	-57 08.7						
1988 01 20	02 08.75	-54 49.9	2.007	1.980	74.2	28.6	13.0	

Comet Torres (1987j) Elements MPC 12008

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	m1
1987 11 21	13 13.72	+00 14.4	4.833	4.142	41.3	9.0	17.6
1987 12 01	13 18.14	+01 13.9					
1987 12 11	13 21.76	+02 24.6	4.628	4.229	60.4	11.7	17.6
1987 12 21	13 24.41	+03 48.3					
1987 12 31	13 25.88	+05 27.0	4.369	4.321	80.7	13.0	17.6
1988 01 10	13 25.98	+07 21.9					
1988 01 20	13 24.50	+09 33.9	4.102	4.417	102.3	12.6	17.5
1988 01 30	13 21.27	+12 02.4					
1988 02 09	13 16.16	+14 45.1	3.886	4.517	124.4	10.4	17.5
1988 02 19	13 09.15	+17 37.7					
1988 02 29	13 00.32	+20 33.8	3.778	4.621	144.6	7.1	17.5
1988 03 10	12 49.97	+23 25.3					
1988 03 20	12 38.55	+26 04.1	3.822	4.727	152.4	5.6	17.7
1988 03 30	12 26.66	+28 23.3					
1988 04 09	12 14.98	+30 18.4	4.025	4.837	140.1	7.6	17.9
1988 04 19	12 04.10	+31 48.2					
1988 04 29	11 54.54	+32 53.8	4.356	4.949	120.8	10.1	18.1
1988 05 09	11 46.62	+33 38.2					
1988 05 19	11 40.47	+34 05.1	4.765	5.063	101.4	11.3	18.4
1988 05 29	11 36.12	+34 18.1					
1988 06 08	11 33.46	+34 20.8	5.200	5.179	83.2	11.2	18.7
1988 06 18	11 32.34	+34 16.2					
1988 06 28	11 32.59	+34 06.6	5.619	5.297	66.6	10.1	19.0
1988 07 08	11 34.03	+33 54.2					
1988 07 18	11 36.48	+33 40.6	5.989	5.417	51.6	8.5	19.2

Comet Shoemaker (1987o) Elements MPC 12008

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	m1
1987 11 21	15 32.08	+14 01.6	6.881	6.084	33.7	5.2	17.5
1987 12 01	15 35.78	+14 27.9					
1987 12 11	15 39.33	+15 03.1	6.824	6.148	43.6	6.3	17.6
1987 12 21	15 42.58	+15 47.8					
1987 12 31	15 45.39	+16 42.5	6.685	6.215	57.7	7.7	17.6
1988 01 10	15 47.62	+17 47.6					
1988 01 20	15 49.11	+19 03.2	6.491	6.285	73.6	8.6	17.5
1988 01 30	15 49.69	+20 28.8					
1988 02 09	15 49.21	+22 03.7	6.274	6.356	90.3	8.9	17.5
1988 02 19	15 47.53	+23 46.6					
1988 02 29	15 44.52	+25 35.5	6.076	6.430	106.6	8.5	17.5
1988 03 10	15 40.09	+27 27.3					
1988 03 20	15 34.21	+29 18.9	5.940	6.505	120.7	7.6	17.5
1988 03 30	15 26.92	+31 06.1					
1988 04 09	15 18.38	+32 44.9	5.900	6.583	129.5	6.7	17.5
1988 04 19	15 08.84	+34 11.4					
1988 04 29	14 58.65	+35 22.6	5.974	6.662	129.7	6.7	17.6
1988 05 09	14 48.22	+36 16.6					

1988 05 19	14 37.98	+36 52.7	6.159	6.743	121.5	7.3	17.7
1988 05 29	14 28.35	+37 11.6					
1988 06 08	14 19.64	+37 15.1	6.432	6.826	108.7	8.1	17.9
1988 06 18	14 12.11	+37 05.5					
1988 06 28	14 05.87	+36 45.5	6.760	6.910	94.2	8.4	18.0
1988 07 08	14 00.97	+36 17.8					
1988 07 18	13 57.39	+35 44.9	7.106	6.996	79.7	8.2	18.2
1988 07 28	13 55.04	+35 09.0					
1988 08 07	13 53.84	+34 32.1	7.436	7.083	65.9	7.5	18.4
1988 08 17	13 53.65	+33 55.8					
1988 08 27	13 54.34	+33 21.6	7.720	7.171	53.9	6.5	18.5

Periodic Comet Tempel 2 (1987g) Elements MPC 11522

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	m2
1987 12 11	13 59.36	-01 27.5	3.369	2.843	50.3	15.5	20.7
1987 12 21	14 13.46	-02 19.0					
1987 12 31	14 27.52	-03 03.2	3.025	2.727	63.2	18.8	20.4
1988 01 10	14 41.45	-03 39.4					
1988 01 20	14 55.16	-04 06.3	2.659	2.608	76.3	21.5	20.1
1988 01 30	15 08.48	-04 23.0					
1988 02 09	15 21.27	-04 28.5	2.284	2.485	89.8	23.4	19.7
1988 02 19	15 33.33	-04 21.9					
1988 02 29	15 44.39	-04 02.4	1.919	2.360	103.8	24.1	19.3
1988 03 10	15 54.18	-03 29.8					
1988 03 20	16 02.35	-02 43.9	1.579	2.233	118.5	23.1	18.7
1988 03 30	16 08.49	-01 45.6					
1988 04 09	16 12.22	-00 37.0	1.283	2.105	134.0	20.0	18.0
1988 04 19	16 13.10	+00 38.4					
1988 04 29	16 10.87	+01 53.8	1.045	1.978	149.0	15.2	17.3
1988 05 09	16 05.53	+03 00.1					
1988 05 19	15 57.48	+03 45.7	0.881	1.853	156.3	12.7	16.7
1988 05 29	15 47.77	+03 57.9					
1988 06 08	15 37.94	+03 27.3	0.793	1.733	146.5	18.8	16.5
1988 06 18	15 29.68	+02 09.7					
1988 06 28	15 24.58	+00 07.1	0.769	1.622	130.1	28.6	16.6
1988 07 08	15 23.63	-02 33.4					
1988 07 18	15 27.35	-05 43.5	0.786	1.526	115.2	37.0	16.7
1988 07 28	15 35.93	-09 13.9					
1988 08 07	15 49.27	-12 55.7	0.824	1.451	103.7	42.8	16.9
1988 08 17	16 07.29	-16 40.1					
1988 08 27	16 29.83	-20 17.5	0.879	1.401	95.5	45.9	17.0
1988 09 06	16 56.65	-23 37.7					
1988 09 16	17 27.43	-26 30.2	0.952	1.383	89.9	46.6	17.2
1988 09 26	18 01.59	-28 44.9					
1988 10 06	18 38.24	-30 13.7	1.052	1.399	85.9	45.5	17.4
1988 10 16	19 16.28	-30 52.2					
1988 10 26	19 54.49	-30 40.2	1.187	1.446	82.6	43.0	17.7
1988 11 05	20 31.76	-29 42.1					
1988 11 15	21 07.32	-28 04.8	1.361	1.520	78.9	39.7	18.0
1988 11 25	21 40.74	-25 57.3					
1988 12 05	22 11.89	-23 28.3	1.573	1.615	74.3	36.0	18.3
1988 12 15	22 40.87	-20 45.4					
1988 12 25	23 07.90	-17 55.0	1.820	1.724	68.6	32.1	18.7
1989 01 04	23 33.23	-15 02.1					
1989 01 14	23 57.14	-12 10.3	2.093	1.843	61.7	28.0	19.0
1989 01 24	00 19.84	-09 22.5					
1989 02 03	00 41.56	-06 40.7	2.379	1.968	54.0	23.9	19.3
1989 02 13	01 02.47	-04 06.0					
1989 02 23	01 22.71	-01 39.8	2.667	2.096	45.5	19.7	19.6

Periodic Comet Bus (1987f) Elements IAUC 4310

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	m1
1987	12 11	14 28.43	-13 54.0	2.875	2.193	38.6	16.3	19.7
1987	12 21	14 49.38	-15 23.2					
1987	12 31	15 10.22	-16 42.6	2.718	2.194	48.5	19.6	19.6
1988	01 10	15 30.85	-17 51.3					
1988	01 20	15 51.09	-18 48.7	2.544	2.204	58.9	22.5	19.5
1988	01 30	16 10.73	-19 34.6					
1988	02 09	16 29.59	-20 09.0	2.356	2.223	70.1	24.7	19.3
1988	02 19	16 47.40	-20 32.6					
1988	02 29	17 03.88	-20 45.9	2.159	2.250	82.2	25.9	19.2
1988	03 10	17 18.77	-20 50.4					
1988	03 20	17 31.75	-20 47.3	1.960	2.285	95.7	25.7	19.1
1988	03 30	17 42.49	-20 38.4					
1988	04 09	17 50.70	-20 25.5	1.772	2.327	111.0	23.7	18.9
1988	04 19	17 56.07	-20 10.2					
1988	04 29	17 58.40	-19 54.4	1.613	2.376	128.7	19.3	18.8
1988	05 09	17 57.65	-19 39.3					
1988	05 19	17 53.98	-19 25.8	1.507	2.430	148.9	12.4	18.7
1988	05 29	17 47.90	-19 14.6					
1988	06 08	17 40.26	-19 06.0	1.482	2.489	170.6	3.8	18.8
1988	06 18	17 32.08	-19 00.4					
1988	06 28	17 24.52	-18 58.5	1.557	2.552	165.0	5.9	19.0
1988	07 08	17 18.51	-19 00.6					
1988	07 18	17 14.67	-19 07.2	1.727	2.619	144.0	13.2	19.4
1988	07 28	17 13.32	-19 17.9					
1988	08 07	17 14.50	-19 32.0	1.974	2.687	125.0	18.0	19.8

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

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	09 22	23 04.51	+09 20.8	1.184	2.168	164.3	7.2	15.0
1987	10 02	22 59.21	+07 13.6					
1987	10 12	22 56.10	+05 08.3	1.249	2.161	147.9	14.2	15.4
1987	10 22	22 55.72	+03 16.4					
1987	11 01	22 58.27	+01 45.7	1.396	2.159	128.6	21.1	15.8
1987	11 11	23 03.63	+00 39.7					
1987	11 21	23 11.50	-00 01.3	1.599	2.161	111.2	25.2	16.2

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

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	09 22	23 11.93	-03 01.4	0.908	1.904	169.6	5.4	14.6
1987	10 02	23 08.44	-07 09.3					
1987	10 12	23 07.28	-10 34.8	1.022	1.932	145.9	16.8	15.3
1987	10 22	23 08.88	-13 09.3					
1987	11 01	23 13.33	-14 53.0	1.216	1.965	125.4	24.3	15.9
1987	11 11	23 20.40	-15 51.8					
1987	11 21	23 29.70	-16 13.0	1.457	2.004	108.5	27.9	16.4
1987	12 01	23 40.88	-16 03.4					
1987	12 11	23 53.55	-15 29.6	1.722	2.046	94.3	28.7	16.8

1981 QA3 a,e,i = 3.22, 0.16, 2 Elements MPC 12323

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	09 22	00 09.84	-00 20.1	2.293	3.295	175.6	1.3	16.6
1987	10 02	00 02.49	-01 03.1					
1987	10 12	23 55.51	-01 42.7	2.307	3.265	160.7	5.8	16.8
1987	10 22	23 49.56	-02 14.8					
1987	11 01	23 45.17	-02 36.3	2.429	3.236	138.1	11.8	17.1
1987	11 11	23 42.69	-02 45.3					

1987 11 21	23 42.24	-02 41.4	2.630	3.205	117.3	15.9	17.4
1987 12 01	23 43.82	-02 24.6					
1987 12 11	23 47.32	-01 55.9	2.877	3.175	98.5	17.9	17.6

(3705) 1984 ET1 a,e,i = 3.12, 0.19, 1 Elements MPC 12319

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987 09 22	02 37.55	+13 41.6	1.713	2.538	136.6	15.8	16.6
1987 10 02	02 34.72	+13 19.7					
1987 10 12	02 29.54	+12 47.2	1.582	2.537	158.4	8.3	16.2
1987 10 22	02 22.59	+12 06.9					
1987 11 01	02 14.79	+11 23.5	1.547	2.539	177.0	1.2	15.8
1987 11 11	02 07.23	+10 42.8					
1987 11 21	02 00.93	+10 10.2	1.620	2.545	154.0	9.8	16.3
1987 12 01	01 56.66	+09 50.1					
1987 12 11	01 54.88	+09 44.7	1.786	2.554	132.2	16.6	16.8
1987 12 21	01 55.69	+09 54.4					
1987 12 31	01 59.02	+10 18.1	2.017	2.567	113.0	20.6	17.2
1988 01 10	02 04.67	+10 54.0					
1988 01 20	02 12.35	+11 39.7	2.283	2.582	96.2	22.3	17.5

1981 EF2 a,e,i = 2.43, 0.03, 7 Elements MPC 12321

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987 10 12	06 49.72	+28 00.0	2.183	2.502	96.6	23.3	17.7
1987 10 22	06 57.41	+27 53.9					
1987 11 01	07 02.46	+27 49.4	1.935	2.503	113.6	21.3	17.3
1987 11 11	07 04.51	+27 47.2					
1987 11 21	07 03.26	+27 47.2	1.719	2.503	133.4	16.7	17.0
1987 12 01	06 58.58	+27 47.8					
1987 12 11	06 50.75	+27 46.6	1.570	2.503	156.2	9.2	16.5
1987 12 21	06 40.44	+27 40.3					
1987 12 31	06 28.88	+27 26.3	1.520	2.502	175.5	1.8	16.1
1988 01 10	06 17.58	+27 04.2					
1988 01 20	06 07.95	+26 35.7	1.584	2.500	153.0	10.3	16.6
1988 01 30	06 01.07	+26 04.2					
1988 02 09	05 57.47	+25 32.7	1.743	2.498	130.5	17.5	17.0
1988 02 19	05 57.22	+25 03.3					
1988 02 29	06 00.16	+24 36.6	1.964	2.496	110.9	21.8	17.4
1988 03 10	06 05.90	+24 12.1					
1988 03 20	06 14.06	+23 48.7	2.214	2.493	94.1	23.5	17.7

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

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987 10 12	07 15.07	+29 14.2	2.061	2.308	91.2	25.6	18.9
1987 10 22	07 25.04	+29 15.4					
1987 11 01	07 32.30	+29 20.9	1.854	2.347	107.2	23.8	18.7
1987 11 11	07 36.47	+29 31.9					
1987 11 21	07 37.20	+29 48.9	1.667	2.386	126.0	19.6	18.4
1987 12 01	07 34.21	+30 10.6					
1987 12 11	07 27.59	+30 33.5	1.534	2.425	147.9	12.5	18.0
1987 12 21	07 17.81	+30 52.8					
1987 12 31	07 05.95	+31 02.8	1.488	2.462	169.7	4.1	17.6
1988 01 10	06 53.55	+30 59.8					
1988 01 20	06 42.22	+30 43.5	1.554	2.498	159.2	8.1	17.9
1988 01 30	06 33.32	+30 16.5					
1988 02 09	06 27.64	+29 43.0	1.723	2.533	136.7	15.5	18.4
1988 02 19	06 25.41	+29 06.8					
1988 02 29	06 26.51	+28 30.1	1.965	2.567	116.6	20.2	18.9
1988 03 10	06 30.56	+27 54.1					
1988 03 20	06 37.14	+27 18.5	2.246	2.598	99.2	22.2	19.3

(3581) 1985 HC a,e,i = 2.77, 0.41, 29 Elements MPC 11735

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	11 21	09 19.29	-15 50.2	3.699	3.824	89.7	15.0	18.5
1987	12 01	09 20.43	-17 12.5					
1987	12 11	09 19.81	-18 27.8	3.460	3.846	105.8	14.3	18.3
1987	12 21	09 17.36	-19 32.9					
1987	12 31	09 13.09	-20 23.8	3.252	3.864	122.0	12.5	18.1
1988	01 10	09 07.20	-20 57.0					
1988	01 20	09 00.00	-21 09.2	3.109	3.879	136.1	10.1	18.0
1988	01 30	08 52.02	-20 58.6					
1988	02 09	08 43.87	-20 25.2	3.057	3.890	143.0	8.8	17.9
1988	02 19	08 36.20	-19 31.2					
1988	02 29	08 29.60	-18 20.7	3.108	3.899	137.8	9.8	18.0
1988	03 10	08 24.53	-16 59.1					
1988	03 20	08 21.23	-15 32.1	3.253	3.904	124.5	12.1	18.2
1988	03 30	08 19.82	-14 04.7					
1988	04 09	08 20.28	-12 41.4	3.467	3.906	108.8	14.0	18.4
1988	04 19	08 22.47	-11 25.1					
1988	04 29	08 26.26	-10 18.0	3.720	3.905	93.1	14.9	18.5

1982 HB2 a,e,i = 2.19, 0.07, 5 Elements MPC 9766

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	11 21	09 06.52	+22 15.3	1.709	2.185	105.0	25.9	17.9
1987	12 01	09 14.32	+22 15.4					
1987	12 11	09 19.29	+22 29.6	1.475	2.168	122.3	22.6	17.5
1987	12 21	09 20.96	+22 59.4					
1987	12 31	09 18.97	+23 44.4	1.284	2.151	142.7	16.1	17.0
1988	01 10	09 13.28	+24 41.0					
1988	01 20	09 04.26	+25 42.1	1.168	2.134	165.0	6.9	16.4
1988	01 30	08 53.02	+26 37.8					
1988	02 09	08 41.27	+27 18.5	1.151	2.117	164.1	7.3	16.4
1988	02 19	08 30.83	+27 38.9					
1988	02 29	08 23.28	+27 37.9	1.232	2.102	141.8	17.0	16.9
1988	03 10	08 19.47	+27 18.3					
1988	03 20	08 19.59	+26 43.8	1.384	2.087	121.6	24.0	17.3
1988	03 30	08 23.42	+25 57.2					
1988	04 09	08 30.46	+25 00.7	1.576	2.073	104.9	27.8	17.7
1988	04 19	08 40.18	+23 55.4					
1988	04 29	08 52.07	+22 41.5	1.784	2.061	90.8	29.2	18.0

1986 RJ a,e,i = 2.17, 0.20, 3 Elements MPC 11241

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	11 21	09 20.57	+13 47.9	2.228	2.580	99.4	22.2	18.2
1987	12 01	09 24.88	+13 14.6					
1987	12 11	09 26.66	+12 52.1	1.978	2.590	117.9	19.6	17.9
1987	12 21	09 25.64	+12 42.2					
1987	12 31	09 21.66	+12 46.1	1.769	2.596	139.4	14.3	17.5
1988	01 10	09 14.84	+13 03.4					
1988	01 20	09 05.60	+13 32.3	1.640	2.598	163.5	6.2	17.1
1988	01 30	08 54.80	+14 09.0					
1988	02 09	08 43.65	+14 48.3	1.620	2.597	169.9	3.8	16.9
1988	02 19	08 33.40	+15 25.5					
1988	02 29	08 25.18	+15 56.8	1.715	2.593	145.5	12.5	17.4
1988	03 10	08 19.70	+16 20.1					
1988	03 20	08 17.22	+16 34.4	1.897	2.586	123.6	18.7	17.8
1988	03 30	08 17.75	+16 39.5					
1988	04 09	08 21.01	+16 35.6	2.130	2.575	104.8	22.1	18.1
1988	04 19	08 26.68	+16 23.0					
1988	04 29	08 34.42	+16 01.6	2.380	2.560	88.5	23.2	18.4

1986 YA a,e,i = 3.10, 0.18, 17 Elements MPC 11633

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	11 21	09 19.93	+02 34.2	3.140	3.388	95.9	16.9	16.4
1987	12 01	09 21.97	+01 25.0					
1987	12 11	09 22.08	+00 22.6	2.890	3.414	114.2	15.2	16.2
1987	12 21	09 20.17	-00 31.0					
1987	12 31	09 16.27	-01 13.2	2.683	3.440	134.0	11.9	16.0
1988	01 10	09 10.57	-01 42.1					
1988	01 20	09 03.43	-01 56.3	2.557	3.464	153.2	7.4	15.7
1988	01 30	08 55.42	-01 55.4					
1988	02 09	08 47.25	-01 40.6	2.540	3.487	160.7	5.4	15.6
1988	02 19	08 39.62	-01 14.5					
1988	02 29	08 33.20	-00 40.6	2.639	3.508	146.5	9.0	15.9
1988	03 10	08 28.45	-00 03.0					
1988	03 20	08 25.62	+00 34.7	2.835	3.528	127.3	13.0	16.2
1988	03 30	08 24.81	+01 09.4					
1988	04 09	08 25.96	+01 38.9	3.096	3.547	108.7	15.5	16.5
1988	04 19	08 28.91	+02 01.7					
1988	04 29	08 33.48	+02 16.8	3.389	3.564	91.7	16.4	16.7

1986 RQ a,e,i = 2.31, 0.19, 9 Elements MPC 11342

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	11 21	09 19.18	+04 37.2	2.386	2.687	96.8	21.4	19.0
1987	12 01	09 23.08	+03 38.5					
1987	12 11	09 24.66	+02 49.3	2.140	2.704	114.7	19.3	18.7
1987	12 21	09 23.69	+02 12.5					
1987	12 31	09 20.09	+01 51.3	1.932	2.717	134.9	14.9	18.3
1988	01 10	09 13.99	+01 48.0					
1988	01 20	09 05.78	+02 03.9	1.799	2.728	156.1	8.4	18.0
1988	01 30	08 56.23	+02 38.2					
1988	02 09	08 46.34	+03 27.7	1.771	2.735	164.9	5.4	17.8
1988	02 19	08 37.19	+04 27.3					
1988	02 29	08 29.74	+05 31.0	1.856	2.740	146.9	11.4	18.1
1988	03 10	08 24.65	+06 33.0					
1988	03 20	08 22.20	+07 29.2	2.034	2.742	126.1	17.1	18.5
1988	03 30	08 22.46	+08 16.6					
1988	04 09	08 25.24	+08 53.6	2.270	2.741	107.3	20.4	18.9
1988	04 19	08 30.28	+09 19.6					
1988	04 29	08 37.27	+09 34.2	2.530	2.737	90.8	21.6	19.1

1984 EZ a,e,i = 2.66, 0.12, 13 Elements MPC 10034

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	11 21	09 13.20	+06 43.7	2.422	2.753	98.8	20.8	17.5
1987	12 01	09 18.25	+06 15.7					
1987	12 11	09 21.19	+05 59.5	2.140	2.728	116.7	18.8	17.2
1987	12 21	09 21.77	+05 58.1					
1987	12 31	09 19.85	+06 14.4	1.898	2.703	137.1	14.3	16.8
1988	01 10	09 15.47	+06 49.9					
1988	01 20	09 08.92	+07 44.5	1.732	2.677	159.6	7.4	16.3
1988	01 30	09 00.81	+08 55.8					
1988	02 09	08 52.10	+10 18.3	1.672	2.650	170.5	3.5	16.0
1988	02 19	08 43.84	+11 45.2					
1988	02 29	08 37.09	+13 09.4	1.726	2.624	148.8	11.3	16.4
1988	03 10	08 32.60	+14 25.2					
1988	03 20	08 30.79	+15 29.2	1.873	2.597	127.0	17.8	16.8
1988	03 30	08 31.81	+16 19.4					
1988	04 09	08 35.52	+16 55.4	2.077	2.571	108.1	21.7	17.1
1988	04 19	08 41.66	+17 17.4					
1988	04 29	08 49.95	+17 25.9	2.307	2.545	91.8	23.3	17.3

(3537) 1982 VT a,e,i = 2.59, 0.16, 15 Elements MPC 11503

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	11 21	09 28.18	+32 22.6	2.553	2.938	103.0	19.1	18.4
1987	12 01	09 32.89	+33 10.3					
1987	12 11	09 35.04	+34 10.8	2.320	2.952	121.1	16.6	18.2
1987	12 21	09 34.30	+35 22.4					
1987	12 31	09 30.50	+36 40.9	2.141	2.965	140.2	12.3	17.9
1988	01 10	09 23.71	+37 59.6					
1988	01 20	09 14.34	+39 10.4	2.050	2.975	155.8	7.8	17.6
1988	01 30	09 03.28	+40 04.6					
1988	02 09	08 51.75	+40 36.0	2.068	2.983	153.5	8.5	17.7
1988	02 19	08 41.10	+40 42.4					
1988	02 29	08 32.48	+40 25.3	2.191	2.990	136.6	13.1	18.0
1988	03 10	08 26.61	+39 49.0					
1988	03 20	08 23.76	+38 58.3	2.394	2.994	118.0	17.1	18.3
1988	03 30	08 23.91	+37 57.5					
1988	04 09	08 26.76	+36 49.9	2.644	2.996	100.7	19.2	18.5
1988	04 19	08 31.96	+35 37.7					
1988	04 29	08 39.12	+34 22.0	2.911	2.997	85.0	19.6	18.8

1981 XH2 a,e,i = 3.04, 0.25, 8 Elements MPC 11344

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	11 21	09 24.17	+07 06.3	2.734	3.009	96.4	19.0	17.4
1987	12 01	09 27.39	+06 14.7					
1987	12 11	09 28.47	+05 32.2	2.511	3.058	114.9	17.0	17.2
1987	12 21	09 27.30	+05 00.6					
1987	12 31	09 23.86	+04 41.8	2.328	3.107	135.5	12.8	17.0
1988	01 10	09 18.36	+04 36.7					
1988	01 20	09 11.20	+04 45.4	2.224	3.154	157.2	7.0	16.7
1988	01 30	09 03.02	+05 06.6					
1988	02 09	08 54.63	+05 37.5	2.230	3.201	167.8	3.7	16.6
1988	02 19	08 46.83	+06 14.5					
1988	02 29	08 40.37	+06 53.7	2.353	3.246	149.7	8.9	16.9
1988	03 10	08 35.74	+07 31.4					
1988	03 20	08 33.20	+08 04.8	2.574	3.290	128.8	13.7	17.3
1988	03 30	08 32.83	+08 32.0					
1988	04 09	08 34.50	+08 51.8	2.860	3.333	109.6	16.4	17.7
1988	04 19	08 38.04	+09 03.6					
1988	04 29	08 43.22	+09 07.1	3.179	3.374	92.4	17.4	18.0

1985 GO a,e,i = 2.25, 0.10, 4 Elements MPC 10029

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	11 21	09 13.37	+17 05.8	1.902	2.318	102.0	24.6	18.4
1987	12 01	09 20.65	+16 54.0					
1987	12 11	09 25.43	+16 55.8	1.645	2.296	119.5	21.9	18.0
1987	12 21	09 27.31	+17 13.8					
1987	12 31	09 25.96	+17 49.3	1.430	2.273	139.9	16.2	17.5
1988	01 10	09 21.31	+18 41.3					
1988	01 20	09 13.60	+19 45.9	1.288	2.249	163.4	7.2	17.0
1988	01 30	09 03.63	+20 55.7					
1988	02 09	08 52.77	+22 01.5	1.247	2.225	169.7	4.6	16.8
1988	02 19	08 42.58	+22 55.6					
1988	02 29	08 34.59	+23 32.9	1.310	2.201	145.7	14.7	17.2
1988	03 10	08 29.78	+23 52.3					
1988	03 20	08 28.58	+23 54.9	1.453	2.177	124.4	22.2	17.6
1988	03 30	08 30.96	+23 42.5					
1988	04 09	08 36.58	+23 16.8	1.640	2.153	106.7	26.5	18.0
1988	04 19	08 44.99	+22 39.2					
1988	04 29	08 55.73	+21 50.4	1.846	2.131	91.9	28.2	18.3

1985 VK2 a,e,i = 5.17, 0.12, 22 Elements MPC 12317

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987 11 21	09 24.02	+37 58.8	4.537	4.891	105.2	11.2	16.3
1987 12 01	09 26.14	+38 44.1					
1987 12 11	09 26.55	+39 35.3	4.298	4.909	123.4	9.6	16.2
1987 12 21	09 25.19	+40 30.4					
1987 12 31	09 22.07	+41 26.2	4.124	4.927	140.9	7.2	16.0
1988 01 10	09 17.36	+42 19.1					
1988 01 20	09 11.37	+43 05.3	4.046	4.945	153.2	5.1	15.9
1988 01 30	09 04.55	+43 41.3					
1988 02 09	08 57.49	+44 04.4	4.081	4.963	150.5	5.6	15.9
1988 02 19	08 50.79	+44 13.6					
1988 02 29	08 45.01	+44 09.0	4.223	4.981	135.8	8.0	16.1
1988 03 10	08 40.58	+43 51.9					
1988 03 20	08 37.76	+43 24.3	4.450	5.000	118.3	10.1	16.3
1988 03 30	08 36.70	+42 48.4					
1988 04 09	08 37.35	+42 06.3	4.732	5.019	100.9	11.3	16.5
1988 04 19	08 39.63	+41 19.5					
1988 04 29	08 43.38	+40 29.4	5.035	5.037	84.4	11.5	16.6

1981 RU3 a,e,i = 2.77, 0.10, 5 Elements MPC 12323

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987 11 21	09 23.71	+10 00.8	2.764	3.053	97.4	18.7	17.6
1987 12 01	09 27.57	+09 30.3					
1987 12 11	09 29.39	+09 09.5	2.492	3.055	116.0	16.8	17.3
1987 12 21	09 28.98	+09 00.2					
1987 12 31	09 26.27	+09 03.9	2.263	3.056	136.9	12.7	17.0
1988 01 10	09 21.37	+09 20.8					
1988 01 20	09 14.57	+09 50.2	2.113	3.055	159.7	6.4	16.6
1988 01 30	09 06.48	+10 29.7					
1988 02 09	08 57.90	+11 15.6	2.073	3.053	172.3	2.5	16.3
1988 02 19	08 49.72	+12 03.6					
1988 02 29	08 42.80	+12 49.4	2.150	3.050	150.2	9.3	16.7
1988 03 10	08 37.77	+13 29.7					
1988 03 20	08 34.99	+14 02.3	2.326	3.045	128.3	14.9	17.1
1988 03 30	08 34.59	+14 25.9					
1988 04 09	08 36.50	+14 40.3	2.564	3.040	108.8	18.2	17.4
1988 04 19	08 40.52	+14 45.3					
1988 04 29	08 46.42	+14 41.0	2.831	3.032	91.7	19.4	17.6

1975 VZ a,e,i = 2.45, 0.24, 3 Elements MPC 10829

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987 11 21	09 28.31	+13 27.7	1.924	2.275	97.5	25.5	18.2
1987 12 01	09 34.98	+12 58.7					
1987 12 11	09 38.92	+12 43.5	1.733	2.328	115.1	22.5	18.0
1987 12 21	09 39.87	+12 44.3					
1987 12 31	09 37.65	+13 02.4	1.575	2.381	135.8	16.7	17.7
1988 01 10	09 32.36	+13 36.9					
1988 01 20	09 24.43	+14 24.9	1.487	2.434	159.7	8.1	17.3
1988 01 30	09 14.72	+15 20.9					
1988 02 09	09 04.47	+16 17.9	1.501	2.485	174.8	2.0	17.1
1988 02 19	08 54.96	+17 09.5					
1988 02 29	08 47.36	+17 51.0	1.627	2.535	150.3	11.2	17.7
1988 03 10	08 42.38	+18 20.1					
1988 03 20	08 40.29	+18 36.7	1.843	2.584	128.5	17.5	18.2
1988 03 30	08 41.06	+18 41.1					
1988 04 09	08 44.43	+18 34.6	2.118	2.631	109.7	21.0	18.6
1988 04 19	08 50.04	+18 18.0					
1988 04 29	08 57.54	+17 52.1	2.420	2.676	93.4	22.1	19.0

1978 PO3 a,e,i = 2.44, 0.13, 1 Elements MPC 11504

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	11 21	09 32.85	+15 40.2	2.464	2.766	97.1	20.8	18.6
1987	12 01	09 37.98	+15 18.7					
1987	12 11	09 40.88	+15 08.2	2.195	2.764	115.4	18.8	18.3
1987	12 21	09 41.29	+15 10.0					
1987	12 31	09 39.00	+15 25.1	1.965	2.761	136.3	14.3	17.9
1988	01 10	09 34.05	+15 52.6					
1988	01 20	09 26.66	+16 30.2	1.811	2.755	159.8	7.1	17.4
1988	01 30	09 17.47	+17 13.7					
1988	02 09	09 07.42	+17 57.4	1.764	2.748	174.9	1.8	17.1
1988	02 19	08 57.65	+18 36.5					
1988	02 29	08 49.26	+19 06.7	1.832	2.738	150.4	10.3	17.6
1988	03 10	08 43.09	+19 26.1					
1988	03 20	08 39.58	+19 34.4	1.997	2.726	128.1	16.7	18.0
1988	03 30	08 38.90	+19 31.9					
1988	04 09	08 40.90	+19 19.5	2.220	2.713	108.7	20.5	18.3
1988	04 19	08 45.32	+18 58.0					
1988	04 29	08 51.86	+18 27.8	2.469	2.697	91.9	21.9	18.5

1980 TP a,e,i = 2.16, 0.19, 2 Elements MPC 8284

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	11 21	09 36.22	+12 57.6	2.056	2.365	95.5	24.6	19.5
1987	12 01	09 42.53	+12 25.0					
1987	12 11	09 46.30	+12 05.2	1.834	2.399	113.1	22.2	19.2
1987	12 21	09 47.21	+12 00.4					
1987	12 31	09 45.03	+12 12.3	1.643	2.430	133.8	17.0	18.9
1988	01 10	09 39.75	+12 41.0					
1988	01 20	09 31.65	+13 24.4	1.519	2.458	157.7	8.7	18.4
1988	01 30	09 21.48	+14 17.8					
1988	02 09	09 10.40	+15 14.7	1.498	2.483	176.4	1.4	18.0
1988	02 19	08 59.76	+16 08.3					
1988	02 29	08 50.82	+16 53.2	1.590	2.505	151.4	10.9	18.6
1988	03 10	08 44.48	+17 26.3					
1988	03 20	08 41.14	+17 46.9	1.776	2.523	128.9	17.9	19.1
1988	03 30	08 40.87	+17 55.0					
1988	04 09	08 43.43	+17 51.7	2.020	2.539	109.7	21.8	19.5
1988	04 19	08 48.48	+17 37.7					
1988	04 29	08 55.65	+17 13.9	2.289	2.551	93.1	23.2	19.9

1981 EH9 a,e,i = 2.34, 0.19, 3 Elements MPC 10381

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	11 21	09 11.64	+14 21.8	1.536	1.986	101.6	29.2	19.5
1987	12 01	09 22.34	+13 06.1					
1987	12 11	09 30.52	+11 56.9	1.308	1.959	116.7	26.7	19.1
1987	12 21	09 35.75	+10 57.6					
1987	12 31	09 37.61	+10 11.9	1.114	1.937	134.8	21.1	18.6
1988	01 10	09 35.89	+09 42.6					
1988	01 20	09 30.67	+09 31.7	0.978	1.920	156.2	11.9	18.0
1988	01 30	09 22.61	+09 38.6					
1988	02 09	09 13.07	+09 59.3	0.925	1.909	174.0	3.1	17.5
1988	02 19	09 03.75	+10 28.1					
1988	02 29	08 56.41	+10 57.6	0.965	1.904	153.6	13.4	18.0
1988	03 10	08 52.27	+11 21.7					
1988	03 20	08 51.88	+11 36.5	1.082	1.905	132.8	22.6	18.5
1988	03 30	08 55.27	+11 39.2					
1988	04 09	09 02.03	+11 28.7	1.251	1.911	115.6	28.2	19.0
1988	04 19	09 11.65	+11 04.9					
1988	04 29	09 23.63	+10 27.8	1.450	1.924	101.6	30.8	19.4

1986 VG a,e,i = 3.01, 0.06, 10 Elements MPC 11500

Date	ET	R. A. (1950)	Decl.	Delta	r	Variation		V
1987	11 21	09 37.17	+23 47.6	2.508	2.831	-1.34	+6.5	16.1
1987	12 01	09 42.86	+23 35.7					
1987	12 11	09 46.22	+23 33.8	2.256	2.837	-1.51	+7.5	15.9
1987	12 21	09 47.02	+23 42.3					
1987	12 31	09 45.08	+24 00.1	2.045	2.843	-1.71	+8.3	15.5
1988	01 10	09 40.43	+24 24.6					
1988	01 20	09 33.36	+24 51.6	1.912	2.851	-1.88	+8.6	15.1
1988	01 30	09 24.50	+25 15.6					
1988	02 09	09 14.82	+25 31.4	1.884	2.859	-1.90	+8.1	15.0
1988	02 19	09 05.43	+25 35.4					
1988	02 29	08 57.40	+25 25.9	1.970	2.868	-1.75	+7.2	15.3
1988	03 10	08 51.50	+25 03.7					
1988	03 20	08 48.14	+24 30.4	2.150	2.877	-1.53	+6.2	15.7
1988	03 30	08 47.46	+23 48.3					
1988	04 09	08 49.30	+22 58.9	2.393	2.888	-1.32	+5.6	16.0
1988	04 19	08 53.40	+22 03.7					
1988	04 29	08 59.47	+21 03.3	2.667	2.898	-1.14	+5.3	16.3

1979 WX3 a,e,i = 2.43, 0.18, 2 Elements MPC 9682

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	11 21	09 34.88	+14 04.7	2.003	2.326	96.2	25.0	17.8
1987	12 01	09 42.06	+13 34.9					
1987	12 11	09 46.69	+13 18.2	1.795	2.366	113.5	22.4	17.5
1987	12 21	09 48.46	+13 16.7					
1987	12 31	09 47.16	+13 32.0	1.618	2.406	133.8	17.2	17.1
1988	01 10	09 42.79	+14 03.4					
1988	01 20	09 35.65	+14 48.6	1.508	2.445	157.2	9.0	16.8
1988	01 30	09 26.46	+15 42.4					
1988	02 09	09 16.35	+16 37.8	1.498	2.483	177.4	1.0	16.4
1988	02 19	09 06.61	+17 28.3					
1988	02 29	08 58.47	+18 08.6	1.599	2.521	152.8	10.4	17.0
1988	03 10	08 52.78	+18 36.2					
1988	03 20	08 49.95	+18 50.7	1.794	2.557	130.7	17.2	17.5
1988	03 30	08 50.03	+18 52.4					
1988	04 09	08 52.81	+18 42.7	2.050	2.592	111.6	21.1	17.9
1988	04 19	08 57.96	+18 22.5					
1988	04 29	09 05.12	+17 52.8	2.337	2.626	95.1	22.5	18.3

(3523) 1975 TV2 a,e,i = 2.37, 0.14, 10 Elements MPC 11432

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	11 21	09 28.27	+25 13.5	1.997	2.392	101.1	23.9	16.7
1987	12 01	09 36.96	+25 33.3					
1987	12 11	09 43.28	+26 08.5	1.735	2.361	117.9	21.6	16.3
1987	12 21	09 46.78	+27 00.4					
1987	12 31	09 47.05	+28 08.7	1.514	2.331	136.9	16.8	15.8
1988	01 10	09 43.84	+29 29.6					
1988	01 20	09 37.16	+30 55.8	1.364	2.300	156.4	9.9	15.3
1988	01 30	09 27.59	+32 16.4					
1988	02 09	09 16.35	+33 19.5	1.311	2.269	161.7	7.8	15.2
1988	02 19	09 05.09	+33 56.5					
1988	02 29	08 55.55	+34 03.7	1.359	2.239	144.2	15.0	15.4
1988	03 10	08 49.04	+33 43.5					
1988	03 20	08 46.20	+33 00.6	1.486	2.210	124.7	21.7	15.8
1988	03 30	08 47.14	+32 00.3					
1988	04 09	08 51.54	+30 47.0	1.661	2.183	107.5	26.0	16.1
1988	04 19	08 58.92	+29 23.3					
1988	04 29	09 08.78	+27 51.0	1.856	2.156	92.9	27.8	16.4

1967 JP a,e,i = 3.12, 0.11, 4 Elements MPC 9416

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	11 21	09 37.27	+16 04.3	2.941	3.203	96.3	17.9	18.7
1987	12 01	09 41.83	+15 39.2					
1987	12 11	09 44.48	+15 22.8	2.643	3.182	114.6	16.3	18.4
1987	12 21	09 45.01	+15 16.1					
1987	12 31	09 43.28	+15 19.7	2.385	3.160	135.3	12.7	18.0
1988	01 10	09 39.33	+15 33.0					
1988	01 20	09 33.34	+15 54.3	2.204	3.139	158.1	6.7	17.6
1988	01 30	09 25.77	+16 20.7					
1988	02 09	09 17.36	+16 48.5	2.131	3.117	177.5	0.8	17.2
1988	02 19	09 08.96	+17 13.9					
1988	02 29	09 01.46	+17 33.7	2.176	3.095	153.6	8.2	17.6
1988	03 10	08 55.59	+17 45.6					
1988	03 20	08 51.85	+17 49.0	2.322	3.073	131.4	14.1	18.0
1988	03 30	08 50.45	+17 43.6					
1988	04 09	08 51.40	+17 29.7	2.536	3.051	111.6	17.8	18.3
1988	04 19	08 54.56	+17 07.7					
1988	04 29	08 59.70	+16 38.0	2.783	3.029	94.2	19.4	18.5

(3578) 1977 CC a,e,i = 3.20, 0.22, 21 Elements MPC 11734

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	11 21	09 45.61	+01 57.5	3.716	3.839	89.6	14.9	17.0
1987	12 01	09 47.76	+00 50.6					
1987	12 11	09 48.27	-00 10.8	3.431	3.852	108.1	14.1	16.8
1987	12 21	09 47.02	-01 05.2					
1987	12 31	09 43.97	-01 50.7	3.181	3.863	127.8	11.6	16.6
1988	01 10	09 39.20	-02 25.5					
1988	01 20	09 32.93	-02 48.2	3.004	3.873	147.9	7.7	16.3
1988	01 30	09 25.55	-02 58.0					
1988	02 09	09 17.59	-02 55.4	2.931	3.881	161.8	4.5	16.1
1988	02 19	09 09.67	-02 41.7					
1988	02 29	09 02.42	-02 19.5	2.979	3.887	152.9	6.7	16.3
1988	03 10	08 56.36	-01 52.1					
1988	03 20	08 51.85	-01 22.6	3.136	3.892	133.8	10.6	16.5
1988	03 30	08 49.13	-00 54.2					
1988	04 09	08 48.22	-00 29.4	3.371	3.895	114.5	13.5	16.8
1988	04 19	08 49.09	-00 09.9					
1988	04 29	08 51.60	+00 02.9	3.648	3.896	96.7	14.9	17.0

1980 FH5 a,e,i = 2.59, 0.16, 14 Elements MPC 12126

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	11 21	09 38.65	+29 50.6	1.838	2.235	100.2	25.8	17.6
1987	12 01	09 47.57	+29 42.1					
1987	12 11	09 53.49	+29 45.1	1.636	2.255	116.5	23.0	17.3
1987	12 21	09 55.96	+29 59.8					
1987	12 31	09 54.66	+30 24.1	1.470	2.278	135.4	17.6	16.9
1988	01 10	09 49.51	+30 52.9					
1988	01 20	09 40.82	+31 18.7	1.371	2.303	155.5	10.2	16.6
1988	01 30	09 29.56	+31 32.1					
1988	02 09	09 17.24	+31 25.7	1.367	2.330	163.6	6.9	16.5
1988	02 19	09 05.59	+30 56.3					
1988	02 29	08 56.16	+30 05.4	1.467	2.359	146.8	13.3	16.9
1988	03 10	08 49.87	+28 57.8					
1988	03 20	08 47.05	+27 39.0	1.653	2.390	127.1	19.4	17.3
1988	03 30	08 47.58	+26 13.2					
1988	04 09	08 51.06	+24 43.4	1.897	2.422	109.4	23.0	17.8
1988	04 19	08 57.02	+23 10.9					
1988	04 29	09 05.02	+21 36.2	2.169	2.454	94.0	24.2	18.1

1977 DN4 a,e,i = 3.14, 0.12, 3 Elements MPC 11153

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	11 21	09 31.44	+15 41.8	2.538	2.841	97.5	20.2	17.7
1987	12 01	09 37.65	+15 22.8					
1987	12 11	09 41.83	+15 14.4	2.263	2.826	115.2	18.4	17.4
1987	12 21	09 43.73	+15 18.3					
1987	12 31	09 43.18	+15 35.2	2.027	2.813	135.4	14.2	17.0
1988	01 10	09 40.17	+16 04.7					
1988	01 20	09 34.88	+16 44.7	1.865	2.801	157.9	7.6	16.6
1988	01 30	09 27.80	+17 31.2					
1988	02 09	09 19.74	+18 18.9	1.806	2.791	176.6	1.2	16.2
1988	02 19	09 11.69	+19 02.5					
1988	02 29	09 04.66	+19 37.3	1.860	2.783	153.6	9.1	16.6
1988	03 10	08 59.47	+20 00.8					
1988	03 20	08 56.64	+20 12.1	2.012	2.776	131.8	15.5	17.0
1988	03 30	08 56.38	+20 11.2					
1988	04 09	08 58.64	+19 59.1	2.228	2.771	112.5	19.5	17.3
1988	04 19	09 03.22	+19 36.6					
1988	04 29	09 09.85	+19 04.6	2.478	2.768	95.8	21.2	17.6

1981 WV1 a,e,i = 2.88, 0.07, 1 Elements MPC 10166

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	11 21	09 40.70	+14 33.5	2.816	3.065	95.0	18.7	18.0
1987	12 01	09 45.49	+14 08.7					
1987	12 11	09 48.29	+13 53.6	2.543	3.069	113.3	17.1	17.8
1987	12 21	09 48.90	+13 49.4					
1987	12 31	09 47.18	+13 56.9	2.307	3.072	133.9	13.3	17.4
1988	01 10	09 43.16	+14 15.5					
1988	01 20	09 37.05	+14 43.7	2.145	3.074	156.9	7.2	17.1
1988	01 30	09 29.33	+15 18.4					
1988	02 09	09 20.75	+15 55.4	2.089	3.076	178.6	0.4	16.6
1988	02 19	09 12.19	+16 30.5					
1988	02 29	09 04.57	+17 00.0	2.152	3.076	154.5	8.0	17.1
1988	03 10	08 58.61	+17 21.2					
1988	03 20	08 54.77	+17 33.3	2.318	3.076	132.1	13.9	17.5
1988	03 30	08 53.29	+17 35.7					
1988	04 09	08 54.15	+17 29.0	2.553	3.075	112.2	17.5	17.8
1988	04 19	08 57.17	+17 13.7					
1988	04 29	09 02.15	+16 50.1	2.822	3.073	94.7	19.1	18.0

1931 TU1 a,e,i = 2.89, 0.26, 7 Elements MPC 11742

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	11 21	09 45.04	+07 35.8	3.475	3.640	91.7	15.7	18.8
1987	12 01	09 48.29	+07 08.9					
1987	12 11	09 49.85	+06 50.6	3.174	3.637	110.5	14.7	18.5
1987	12 21	09 49.59	+06 42.4					
1987	12 31	09 47.42	+06 45.5	2.908	3.631	131.2	11.8	18.2
1988	01 10	09 43.40	+07 00.4					
1988	01 20	09 37.70	+07 26.9	2.715	3.623	153.6	6.9	17.9
1988	01 30	09 30.69	+08 03.6					
1988	02 09	09 22.95	+08 47.7	2.631	3.613	173.6	1.7	17.6
1988	02 19	09 15.12	+09 36.0					
1988	02 29	09 07.92	+10 24.6	2.670	3.600	156.5	6.3	17.8
1988	03 10	09 01.94	+11 10.0					
1988	03 20	08 57.62	+11 49.7	2.819	3.585	134.1	11.5	18.1
1988	03 30	08 55.22	+12 21.8					
1988	04 09	08 54.80	+12 45.5	3.046	3.568	113.6	14.9	18.4
1988	04 19	08 56.30	+13 00.4					
1988	04 29	08 59.60	+13 06.4	3.313	3.548	95.2	16.4	18.6

1986 UA a,e,i = 3.17, 0.19, 2 Elements MPC 11351

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	11 21	09 42.27	+13 35.4	2.870	3.105	94.3	18.5	17.6
1987	12 01	09 46.87	+13 15.5					
1987	12 11	09 49.48	+13 06.0	2.628	3.143	112.8	16.8	17.4
1987	12 21	09 49.93	+13 08.0					
1987	12 31	09 48.13	+13 21.9	2.423	3.181	133.5	13.0	17.1
1988	01 10	09 44.17	+13 47.2					
1988	01 20	09 38.29	+14 22.0	2.292	3.218	156.5	7.0	16.8
1988	01 30	09 30.99	+15 02.9					
1988	02 09	09 22.98	+15 45.8	2.268	3.254	179.2	0.3	16.4
1988	02 19	09 15.06	+16 26.6					
1988	02 29	09 08.05	+17 01.5	2.364	3.290	155.3	7.2	16.9
1988	03 10	09 02.58	+17 28.3					
1988	03 20	08 59.04	+17 45.8	2.565	3.325	133.0	12.6	17.3
1988	03 30	08 57.63	+17 53.7					
1988	04 09	08 58.32	+17 52.5	2.838	3.359	113.1	15.9	17.7
1988	04 19	09 00.97	+17 42.7					
1988	04 29	09 05.38	+17 25.0	3.148	3.393	95.3	17.2	17.9

1979 OK15 a,e,i = 2.22, 0.17, 5 Elements MPC 11147

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	11 21	09 40.55	+10 53.3	2.320	2.582	93.8	22.4	19.3
1987	12 01	09 47.03	+10 19.9					
1987	12 11	09 51.39	+09 57.8	2.044	2.570	111.2	20.9	19.0
1987	12 21	09 53.30	+09 49.5					
1987	12 31	09 52.49	+09 57.4	1.798	2.556	131.3	16.8	18.6
1988	01 10	09 48.83	+10 22.8					
1988	01 20	09 42.42	+11 05.3	1.616	2.539	154.3	9.7	18.1
1988	01 30	09 33.70	+12 02.1					
1988	02 09	09 23.56	+13 07.7	1.533	2.519	177.9	0.8	17.6
1988	02 19	09 13.18	+14 15.3					
1988	02 29	09 03.85	+15 17.7	1.564	2.496	154.8	9.7	18.0
1988	03 10	08 56.65	+16 09.7					
1988	03 20	08 52.25	+16 48.5	1.694	2.471	131.7	17.5	18.4
1988	03 30	08 50.94	+17 13.1					
1988	04 09	08 52.65	+17 23.7	1.886	2.444	111.9	22.3	18.8
1988	04 19	08 57.12	+17 21.2					
1988	04 29	09 04.02	+17 06.2	2.107	2.414	95.1	24.6	19.0

1981 QG1 a,e,i = 2.97, 0.31, 18 Elements MPC 10041

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	11 21	09 33.40	-02 26.2	2.116	2.351	91.0	24.8	17.5
1987	12 01	09 40.72	-03 27.5					
1987	12 11	09 45.70	-04 15.4	1.931	2.410	106.9	23.0	17.3
1987	12 21	09 48.12	-04 46.3					
1987	12 31	09 47.83	-04 55.7	1.768	2.471	125.4	18.9	17.0
1988	01 10	09 44.90	-04 40.3					
1988	01 20	09 39.58	-03 57.8	1.657	2.533	146.0	12.6	16.8
1988	01 30	09 32.51	-02 48.6					
1988	02 09	09 24.57	-01 17.0	1.635	2.597	163.6	6.2	16.6
1988	02 19	09 16.80	+00 29.7					
1988	02 29	09 10.20	+02 22.2	1.724	2.661	156.3	8.6	16.8
1988	03 10	09 05.52	+04 11.2					
1988	03 20	09 03.16	+05 50.1	1.916	2.725	136.4	14.6	17.3
1988	03 30	09 03.28	+07 14.4					
1988	04 09	09 05.73	+08 22.1	2.185	2.790	117.3	18.6	17.8
1988	04 19	09 10.30	+09 13.0					
1988	04 29	09 16.71	+09 47.9	2.499	2.853	100.1	20.3	18.2

1986 TJ4 a,e,i = 2.63, 0.25, 4 Elements MPC 11345

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	11 21	09 51.12	+09 23.5	2.693	2.883	90.9	20.0	18.8
1987	12 01	09 55.91	+08 40.4					
1987	12 11	09 58.61	+08 07.2	2.456	2.927	108.9	18.6	18.6
1987	12 21	09 59.02	+07 45.6					
1987	12 31	09 57.02	+07 37.0	2.247	2.970	129.4	14.8	18.3
1988	01 10	09 52.65	+07 42.2					
1988	01 20	09 46.11	+08 00.8	2.104	3.010	152.1	8.8	18.0
1988	01 30	09 37.91	+08 30.9					
1988	02 09	09 28.81	+09 09.1	2.064	3.047	173.9	2.0	17.7
1988	02 19	09 19.71	+09 51.2					
1988	02 29	09 11.51	+10 32.6	2.144	3.082	157.4	7.1	18.1
1988	03 10	09 04.96	+11 09.7					
1988	03 20	09 00.52	+11 39.7	2.331	3.115	134.9	13.1	18.5
1988	03 30	08 58.39	+12 01.2					
1988	04 09	08 58.55	+12 13.5	2.593	3.145	114.6	16.8	18.8
1988	04 19	09 00.84	+12 16.6					
1988	04 29	09 05.04	+12 10.6	2.893	3.172	96.7	18.4	19.1

(3529) 1981 EQ19 a,e,i = 2.38, 0.18, 3 Elements MPC 11436

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	11 21	09 46.16	+10 19.6	2.149	2.401	92.3	24.3	18.7
1987	12 01	09 53.22	+09 33.6					
1987	12 11	09 57.92	+08 59.2	1.931	2.441	109.4	22.4	18.4
1987	12 21	09 59.97	+08 39.0					
1987	12 31	09 59.16	+08 35.1	1.738	2.480	129.3	17.9	18.1
1988	01 10	09 55.43	+08 48.5					
1988	01 20	09 48.96	+09 18.9	1.606	2.518	152.1	10.5	17.7
1988	01 30	09 40.33	+10 03.6					
1988	02 09	09 30.50	+10 57.3	1.569	2.554	175.6	1.7	17.3
1988	02 19	09 20.62	+11 53.7					
1988	02 29	09 11.90	+12 46.5	1.646	2.588	157.2	8.5	17.8
1988	03 10	09 05.29	+13 30.8					
1988	03 20	09 01.29	+14 04.1	1.824	2.620	134.5	15.7	18.3
1988	03 30	09 00.11	+14 25.0					
1988	04 09	09 01.63	+14 33.8	2.070	2.651	114.8	20.1	18.7
1988	04 19	09 05.56	+14 30.9					
1988	04 29	09 11.61	+14 17.1	2.352	2.678	97.6	21.9	19.0

1982 UD7 a,e,i = 2.57, 0.21, 7 Elements MPC 11438

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	11 21	09 50.34	+05 32.2	2.814	2.978	89.7	19.4	18.7
1987	12 01	09 55.13	+04 46.0					
1987	12 11	09 57.98	+04 09.0	2.555	3.003	107.6	18.2	18.5
1987	12 21	09 58.68	+03 43.6					
1987	12 31	09 57.09	+03 31.6	2.323	3.025	127.6	14.9	18.2
1988	01 10	09 53.21	+03 34.7					
1988	01 20	09 47.22	+03 53.5	2.155	3.045	149.7	9.4	17.8
1988	01 30	09 39.55	+04 27.3					
1988	02 09	09 30.89	+05 13.2	2.086	3.063	170.0	3.2	17.5
1988	02 19	09 22.07	+06 07.3					
1988	02 29	09 14.02	+07 04.3	2.137	3.078	158.0	6.9	17.7
1988	03 10	09 07.46	+07 59.4					
1988	03 20	09 02.92	+08 48.6	2.296	3.090	136.0	12.9	18.1
1988	03 30	09 00.66	+09 29.3					
1988	04 09	09 00.70	+09 59.9	2.531	3.100	115.7	16.9	18.5
1988	04 19	09 02.91	+10 20.0					
1988	04 29	09 07.08	+10 29.4	2.808	3.107	97.7	18.7	18.7

1986 TW1 a,e,i = 2.27, 0.17, 6 Elements MPC 11426

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987 11 21	09 50.97	+19 14.4	2.378	2.641	94.2	21.9	17.9
1987 12 01	09 57.59	+19 11.5					
1987 12 11	10 01.99	+19 22.2	2.121	2.651	111.9	20.2	17.6
1987 12 21	10 03.84	+19 47.7					
1987 12 31	10 02.85	+20 28.6	1.897	2.659	132.1	15.9	17.3
1988 01 10	09 58.92	+21 22.9					
1988 01 20	09 52.12	+22 26.8	1.742	2.664	154.5	9.1	16.9
1988 01 30	09 42.94	+23 33.4					
1988 02 09	09 32.30	+24 34.8	1.688	2.666	170.4	3.5	16.6
1988 02 19	09 21.39	+25 23.7					
1988 02 29	09 11.52	+25 55.4	1.749	2.665	152.0	10.1	16.9
1988 03 10	09 03.74	+26 08.5					
1988 03 20	08 58.72	+26 04.4	1.908	2.661	130.1	16.6	17.3
1988 03 30	08 56.70	+25 45.4					
1988 04 09	08 57.59	+25 14.4	2.130	2.654	110.7	20.7	17.7
1988 04 19	09 01.13	+24 33.4					
1988 04 29	09 06.97	+23 43.9	2.380	2.645	93.8	22.3	17.9

1986 TP2 a,e,i = 2.17, 0.20, 5 Elements MPC 11427

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987 11 21	09 50.91	+10 37.0	2.370	2.589	91.3	22.4	18.4
1987 12 01	09 57.72	+10 03.1					
1987 12 11	10 02.47	+09 40.4	2.094	2.582	108.6	21.2	18.1
1987 12 21	10 04.86	+09 31.6					
1987 12 31	10 04.58	+09 39.0	1.843	2.573	128.4	17.4	17.7
1988 01 10	10 01.47	+10 03.9					
1988 01 20	09 55.54	+10 46.4	1.653	2.559	151.3	10.7	17.2
1988 01 30	09 47.15	+11 43.9					
1988 02 09	09 37.09	+12 51.2	1.558	2.543	176.3	1.4	16.7
1988 02 19	09 26.46	+14 01.2					
1988 02 29	09 16.57	+15 06.4	1.578	2.523	157.8	8.5	17.0
1988 03 10	09 08.54	+16 01.2					
1988 03 20	09 03.17	+16 42.3	1.700	2.500	134.3	16.6	17.4
1988 03 30	09 00.82	+17 08.6					
1988 04 09	09 01.50	+17 20.2	1.891	2.473	114.0	21.7	17.8
1988 04 19	09 04.99	+17 18.2					
1988 04 29	09 10.98	+17 03.5	2.113	2.444	96.7	24.2	18.1

1966 CL a,e,i = 2.38, 0.17, 3 Elements MPC 11624

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987 11 21	09 39.42	+13 42.4	2.129	2.424	95.0	24.0	18.6
1987 12 01	09 47.98	+13 07.6					
1987 12 11	09 54.53	+12 43.7	1.844	2.387	111.5	22.6	18.2
1987 12 21	09 58.71	+12 33.4					
1987 12 31	10 00.17	+12 39.4	1.589	2.350	130.5	18.6	17.7
1988 01 10	09 58.66	+13 03.1					
1988 01 20	09 54.09	+13 44.4	1.393	2.312	152.6	11.3	17.2
1988 01 30	09 46.76	+14 40.3					
1988 02 09	09 37.45	+15 44.6	1.288	2.274	177.0	1.3	16.5
1988 02 19	09 27.38	+16 49.2					
1988 02 29	09 18.04	+17 45.9	1.290	2.236	157.3	9.9	16.9
1988 03 10	09 10.77	+18 28.6					
1988 03 20	09 06.48	+18 54.5	1.385	2.200	134.4	18.9	17.3
1988 03 30	09 05.61	+19 03.1					
1988 04 09	09 08.12	+18 55.2	1.542	2.165	115.0	24.8	17.6
1988 04 19	09 13.73	+18 32.2					
1988 04 29	09 22.05	+17 55.2	1.728	2.131	98.9	27.8	17.9

(3530) 1981 EC20 a,e,i = 2.40, 0.22, 1 Elements MPC 11437

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	11 21	09 57.16	+11 33.3	2.644	2.826	90.2	20.5	19.2
1987	12 01	10 02.66	+10 58.5					
1987	12 11	10 06.11	+10 34.1	2.387	2.850	108.1	19.2	18.9
1987	12 21	10 07.27	+10 21.9					
1987	12 31	10 05.94	+10 23.2	2.156	2.872	128.4	15.6	18.6
1988	01 10	10 02.07	+10 38.5					
1988	01 20	09 55.78	+11 07.1	1.988	2.891	151.3	9.4	18.2
1988	01 30	09 47.50	+11 46.2					
1988	02 09	09 37.98	+12 31.8	1.921	2.906	176.0	1.4	17.8
1988	02 19	09 28.17	+13 18.6					
1988	02 29	09 19.10	+14 01.8	1.974	2.919	158.7	7.1	18.2
1988	03 10	09 11.65	+14 37.4					
1988	03 20	09 06.41	+15 03.2	2.134	2.928	135.5	13.8	18.6
1988	03 30	09 03.69	+15 18.3					
1988	04 09	09 03.48	+15 22.7	2.368	2.935	115.0	18.0	18.9
1988	04 19	09 05.63	+15 17.0					
1988	04 29	09 09.89	+15 01.7	2.640	2.938	97.0	19.9	19.2

1979 SA8 a,e,i = 2.27, 0.21, 5 Elements MPC 11430

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	11 21	09 56.45	+18 44.9	2.490	2.724	92.8	21.2	18.1
1987	12 01	10 02.98	+18 30.1					
1987	12 11	10 07.40	+18 27.1	2.210	2.715	110.4	19.9	17.8
1987	12 21	10 09.40	+18 37.5					
1987	12 31	10 08.68	+19 02.1	1.959	2.703	130.5	16.1	17.4
1988	01 10	10 05.07	+19 39.7					
1988	01 20	09 58.60	+20 27.6	1.773	2.687	152.9	9.6	16.9
1988	01 30	09 49.64	+21 20.4					
1988	02 09	09 38.99	+22 11.1	1.688	2.669	172.3	2.9	16.5
1988	02 19	09 27.80	+22 52.8					
1988	02 29	09 17.36	+23 20.3	1.718	2.647	154.5	9.3	16.8
1988	03 10	09 08.83	+23 31.4					
1988	03 20	09 02.95	+23 26.5	1.849	2.622	132.0	16.4	17.2
1988	03 30	09 00.09	+23 07.4					
1988	04 09	09 00.22	+22 36.5	2.046	2.595	112.1	21.0	17.5
1988	04 19	09 03.12	+21 55.5					
1988	04 29	09 08.47	+21 05.7	2.274	2.564	94.9	23.0	17.8

1979 SG10 a,e,i = 3.42, 0.05, 1 Elements MPC 10941

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	11 21	09 53.42	+12 04.4	3.231	3.399	91.2	16.9	17.5
1987	12 01	09 58.15	+11 35.4					
1987	12 11	10 01.15	+11 15.1	2.951	3.408	109.4	15.8	17.3
1987	12 21	10 02.26	+11 04.8					
1987	12 31	10 01.37	+11 05.3	2.704	3.417	129.7	12.8	17.0
1988	01 10	09 58.49	+11 16.6					
1988	01 20	09 53.77	+11 37.8	2.525	3.425	152.0	7.8	16.7
1988	01 30	09 47.55	+12 07.1					
1988	02 09	09 40.39	+12 41.2	2.450	3.434	175.6	1.3	16.3
1988	02 19	09 32.95	+13 16.6					
1988	02 29	09 26.00	+13 49.7	2.494	3.443	160.3	5.6	16.6
1988	03 10	09 20.17	+14 17.5					
1988	03 20	09 15.96	+14 38.0	2.648	3.451	137.8	11.2	16.9
1988	03 30	09 13.66	+14 50.0					
1988	04 09	09 13.35	+14 53.3	2.882	3.459	117.4	14.9	17.2
1988	04 19	09 14.99	+14 48.0					
1988	04 29	09 18.42	+14 34.3	3.162	3.468	99.1	16.7	17.5

1986 TG a,e,i = 2.19, 0.24, 8 Elements MPC 11843

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987 11 21	10 04.67	+17 49.0	2.483	2.683	90.7	21.6	18.5
1987 12 01	10 10.87	+17 22.6					
1987 12 11	10 14.89	+17 07.4	2.222	2.698	108.3	20.3	18.3
1987 12 21	10 16.41	+17 04.9					
1987 12 31	10 15.17	+17 15.7	1.986	2.709	128.5	16.5	17.9
1988 01 10	10 11.01	+17 39.1					
1988 01 20	10 03.99	+18 12.6	1.812	2.717	151.4	10.0	17.5
1988 01 30	09 54.52	+18 51.6					
1988 02 09	09 43.42	+19 30.1	1.738	2.721	173.9	2.2	17.1
1988 02 19	09 31.82	+20 02.1					
1988 02 29	09 21.00	+20 22.9	1.782	2.721	156.8	8.3	17.4
1988 03 10	09 12.05	+20 30.4					
1988 03 20	09 05.69	+20 24.7	1.931	2.717	133.7	15.4	17.8
1988 03 30	09 02.25	+20 07.0					
1988 04 09	09 01.69	+19 39.1	2.151	2.709	113.3	19.8	18.2
1988 04 19	09 03.79	+19 02.3					
1988 04 29	09 08.25	+18 17.8	2.404	2.697	95.7	21.8	18.5

1981 DM a,e,i = 2.36, 0.08, 7 Elements MPC 10537

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987 11 21	09 49.76	+08 04.3	2.219	2.441	90.7	23.9	19.7
1987 12 01	09 57.71	+06 46.3					
1987 12 11	10 03.64	+05 34.7	1.948	2.424	106.8	22.9	19.3
1987 12 21	10 07.21	+04 32.0					
1987 12 31	10 08.12	+03 41.1	1.701	2.406	125.2	19.5	18.9
1988 01 10	10 06.17	+03 05.0					
1988 01 20	10 01.30	+02 46.1	1.507	2.388	146.2	13.3	18.5
1988 01 30	09 53.81	+02 46.1					
1988 02 09	09 44.44	+03 04.2	1.398	2.370	167.0	5.4	18.0
1988 02 19	09 34.28	+03 37.5					
1988 02 29	09 24.68	+04 20.3	1.395	2.351	160.2	8.2	18.1
1988 03 10	09 16.88	+05 05.9					
1988 03 20	09 11.73	+05 48.4	1.491	2.332	138.5	16.4	18.5
1988 03 30	09 09.68	+06 22.9					
1988 04 09	09 10.77	+06 46.4	1.658	2.314	118.8	22.3	18.9
1988 04 19	09 14.78	+06 57.6					
1988 04 29	09 21.38	+06 55.6	1.863	2.295	102.0	25.4	19.2

(3586) 1978 SW6 a,e,i = 2.46, 0.12, 10 Elements MPC 11745

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987 11 21	10 02.07	+22 21.7	2.447	2.684	92.8	21.6	18.1
1987 12 01	10 09.64	+22 05.6					
1987 12 11	10 15.12	+22 01.0	2.168	2.667	109.8	20.3	17.8
1987 12 21	10 18.17	+22 09.0					
1987 12 31	10 18.47	+22 30.0	1.918	2.650	129.0	16.8	17.4
1988 01 10	10 15.80	+23 02.6					
1988 01 20	10 10.11	+23 43.2	1.730	2.631	150.4	10.6	17.0
1988 01 30	10 01.71	+24 26.0					
1988 02 09	09 51.36	+25 03.6	1.636	2.610	168.4	4.4	16.6
1988 02 19	09 40.16	+25 29.0					
1988 02 29	09 29.51	+25 37.1	1.655	2.589	155.3	9.2	16.8
1988 03 10	09 20.63	+25 26.6					
1988 03 20	09 14.37	+24 58.8	1.774	2.566	133.7	16.3	17.2
1988 03 30	09 11.17	+24 16.4					
1988 04 09	09 11.03	+23 22.5	1.962	2.542	114.2	21.1	17.5
1988 04 19	09 13.73	+22 19.5					
1988 04 29	09 18.93	+21 08.8	2.184	2.517	97.2	23.4	17.8

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

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	11 21	09 58.55	+06 46.9	2.442	2.606	88.2	22.3	18.5
1987	12 01	10 05.67	+05 53.8					
1987	12 11	10 10.82	+05 10.2	2.177	2.612	105.0	21.4	18.2
1987	12 21	10 13.72	+04 38.7					
1987	12 31	10 14.11	+04 22.0	1.933	2.615	124.1	18.1	17.8
1988	01 10	10 11.83	+04 22.4					
1988	01 20	10 06.89	+04 41.2	1.742	2.616	146.0	12.1	17.4
1988	01 30	09 59.58	+05 18.3					
1988	02 09	09 50.58	+06 10.8	1.640	2.615	169.1	4.1	17.0
1988	02 19	09 40.83	+07 13.7					
1988	02 29	09 31.51	+08 20.4	1.650	2.611	162.4	6.6	17.1
1988	03 10	09 23.68	+09 23.9					
1988	03 20	09 18.13	+10 19.0	1.767	2.605	139.4	14.4	17.5
1988	03 30	09 15.30	+11 02.3					
1988	04 09	09 15.25	+11 32.2	1.962	2.597	118.8	19.8	17.9
1988	04 19	09 17.85	+11 48.4					
1988	04 29	09 22.84	+11 51.2	2.198	2.586	101.0	22.5	18.2

1929 TK a,e,i = 2.25, 0.24, 3 Elements MPC 11439

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	11 21	09 42.65	+16 12.3	1.388	1.774	95.1	33.7	16.2
1987	12 01	09 56.13	+14 58.5					
1987	12 11	10 06.74	+13 55.5	1.228	1.808	109.1	31.0	15.9
1987	12 21	10 14.04	+13 07.0					
1987	12 31	10 17.59	+12 36.3	1.085	1.848	126.5	25.3	15.5
1988	01 10	10 17.09	+12 25.0					
1988	01 20	10 12.52	+12 33.0	0.985	1.893	148.0	16.0	15.1
1988	01 30	10 04.40	+12 56.9					
1988	02 09	09 53.96	+13 29.6	0.960	1.943	172.9	3.6	14.7
1988	02 19	09 42.92	+14 02.8					
1988	02 29	09 33.15	+14 28.9	1.030	1.995	161.8	8.9	15.1
1988	03 10	09 26.08	+14 42.8					
1988	03 20	09 22.43	+14 43.2	1.189	2.050	139.3	18.5	15.8
1988	03 30	09 22.35	+14 29.8					
1988	04 09	09 25.53	+14 03.9	1.412	2.105	120.5	24.2	16.4
1988	04 19	09 31.48	+13 26.6					
1988	04 29	09 39.72	+12 39.0	1.674	2.161	104.6	26.8	16.9

1981 ED14 a,e,i = 2.35, 0.14, 4 Elements MPC 10539

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	11 21	09 52.35	+14 44.1	2.146	2.399	92.4	24.3	20.1
1987	12 01	10 01.36	+13 52.1					
1987	12 11	10 08.38	+13 08.6	1.864	2.368	108.4	23.2	19.7
1987	12 21	10 13.04	+12 35.8					
1987	12 31	10 14.98	+12 16.2	1.607	2.335	127.0	19.7	19.2
1988	01 10	10 13.91	+12 11.0					
1988	01 20	10 09.68	+12 20.7	1.405	2.302	148.6	12.9	18.7
1988	01 30	10 02.47	+12 43.4					
1988	02 09	09 52.97	+13 15.0	1.287	2.269	173.0	3.0	18.1
1988	02 19	09 42.31	+13 49.4					
1988	02 29	09 32.00	+14 19.9	1.275	2.237	161.6	8.0	18.3
1988	03 10	09 23.47	+14 41.1					
1988	03 20	09 17.74	+14 50.1	1.361	2.205	138.2	17.5	18.7
1988	03 30	09 15.38	+14 45.5					
1988	04 09	09 16.42	+14 27.7	1.514	2.175	118.2	23.9	19.1
1988	04 19	09 20.64	+13 57.3					
1988	04 29	09 27.66	+13 14.7	1.702	2.146	101.7	27.4	19.4

1986 QN a,e,i = 2.56, 0.25, 5 Elements MPC 11639

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	11 21	10 01.63	+09 21.7	2.227	2.412	88.4	24.2	18.6
1987	12 01	10 09.69	+08 40.9					
1987	12 11	10 15.55	+08 12.6	2.020	2.466	105.0	22.7	18.4
1987	12 21	10 18.93	+07 59.2					
1987	12 31	10 19.60	+08 02.8	1.830	2.520	124.4	18.8	18.2
1988	01 10	10 17.45	+08 24.6					
1988	01 20	10 12.56	+09 04.3	1.693	2.573	146.7	12.1	17.8
1988	01 30	10 05.32	+09 59.0					
1988	02 09	09 56.51	+11 03.6	1.645	2.624	171.4	3.2	17.5
1988	02 19	09 47.12	+12 11.2					
1988	02 29	09 38.32	+13 14.9	1.710	2.675	163.4	6.1	17.7
1988	03 10	09 31.10	+14 08.8					
1988	03 20	09 26.11	+14 49.9	1.883	2.723	140.1	13.6	18.2
1988	03 30	09 23.70	+15 16.7					
1988	04 09	09 23.87	+15 29.5	2.134	2.770	119.6	18.3	18.7
1988	04 19	09 26.43	+15 29.3					
1988	04 29	09 31.11	+15 17.2	2.430	2.815	101.8	20.5	19.1

1985 RT2 a,e,i = 2.91, 0.06, 3 Elements MPC 11426

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	11 21	10 03.95	+13 23.9	2.924	3.074	89.3	18.7	18.1
1987	12 01	10 10.21	+13 01.1					
1987	12 11	10 14.71	+12 48.6	2.639	3.073	106.9	17.9	17.9
1987	12 21	10 17.22	+12 48.0					
1987	12 31	10 17.55	+13 00.4	2.381	3.071	126.6	14.9	17.5
1988	01 10	10 15.61	+13 25.8					
1988	01 20	10 11.43	+14 03.3	2.184	3.068	148.7	9.6	17.2
1988	01 30	10 05.27	+14 50.0					
1988	02 09	09 57.68	+15 41.5	2.084	3.064	172.2	2.5	16.8
1988	02 19	09 49.40	+16 32.8					
1988	02 29	09 41.33	+17 18.6	2.101	3.060	162.5	5.6	16.9
1988	03 10	09 34.35	+17 54.8					
1988	03 20	09 29.10	+18 19.2	2.228	3.055	139.6	12.2	17.3
1988	03 30	09 26.02	+18 31.0					
1988	04 09	09 25.26	+18 30.6	2.436	3.050	119.0	16.7	17.6
1988	04 19	09 26.77	+18 18.9					
1988	04 29	09 30.39	+17 56.9	2.689	3.043	100.8	19.0	17.9

1986 YB a,e,i = 3.00, 0.10, 9 Elements MPC 11522

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	11 21	10 07.99	+06 16.5	2.996	3.087	85.9	18.6	17.2
1987	12 01	10 13.59	+05 13.4					
1987	12 11	10 17.43	+04 17.5	2.728	3.104	103.1	18.0	17.0
1987	12 21	10 19.30	+03 30.4					
1987	12 31	10 19.04	+02 54.0	2.482	3.121	122.4	15.4	16.7
1988	01 10	10 16.60	+02 29.8					
1988	01 20	10 12.04	+02 19.1	2.290	3.137	143.7	10.7	16.4
1988	01 30	10 05.65	+02 22.0					
1988	02 09	09 57.96	+02 37.4	2.189	3.153	165.1	4.6	16.0
1988	02 19	09 49.67	+03 03.1					
1988	02 29	09 41.62	+03 35.4	2.204	3.168	164.1	4.9	16.1
1988	03 10	09 34.60	+04 10.1					
1988	03 20	09 29.21	+04 43.1	2.330	3.182	142.9	10.9	16.4
1988	03 30	09 25.85	+05 11.2					
1988	04 09	09 24.65	+05 32.2	2.545	3.196	122.5	15.3	16.8
1988	04 19	09 25.58	+05 44.6					
1988	04 29	09 28.50	+05 47.7	2.812	3.209	104.1	17.7	17.1

1981 EC16 a,e,i = 2.36, 0.21, 4 Elements MPC 7768

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987 11 21	10 01.92	+09 35.3	2.481	2.645	88.4	21.9	18.9
1987 12 01	10 09.52	+08 36.8					
1987 12 11	10 15.31	+07 45.6	2.177	2.610	104.9	21.4	18.6
1987 12 21	10 18.99	+07 04.2					
1987 12 31	10 20.24	+06 34.9	1.894	2.573	123.7	18.5	18.2
1988 01 10	10 18.82	+06 19.7					
1988 01 20	10 14.59	+06 20.4	1.663	2.534	145.1	12.8	17.7
1988 01 30	10 07.70	+06 37.3					
1988 02 09	09 58.68	+07 08.5	1.518	2.492	168.6	4.5	17.1
1988 02 19	09 48.45	+07 50.3					
1988 02 29	09 38.23	+08 36.7	1.481	2.449	164.0	6.4	17.1
1988 03 10	09 29.31	+09 21.4					
1988 03 20	09 22.67	+09 59.3	1.551	2.404	140.5	15.3	17.5
1988 03 30	09 18.96	+10 26.6					
1988 04 09	09 18.37	+10 41.5	1.696	2.358	119.7	21.6	17.8
1988 04 19	09 20.81	+10 43.2					
1988 04 29	09 26.02	+10 31.7	1.880	2.312	102.1	25.2	18.1

1986 RW2 a,e,i = 2.36, 0.17, 2 Elements MPC 11519

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987 11 21	10 08.33	+13 25.3	2.441	2.606	88.3	22.3	18.5
1987 12 01	10 15.74	+12 51.2					
1987 12 11	10 21.11	+12 28.5	2.194	2.631	105.3	21.2	18.2
1987 12 21	10 24.14	+12 19.0					
1987 12 31	10 24.58	+12 24.4	1.966	2.654	124.8	17.7	17.9
1988 01 10	10 22.27	+12 45.0					
1988 01 20	10 17.20	+13 19.9	1.793	2.674	147.2	11.5	17.5
1988 01 30	10 09.67	+14 06.1					
1988 02 09	10 00.36	+14 58.1	1.712	2.692	171.6	3.1	17.1
1988 02 19	09 50.24	+15 49.8					
1988 02 29	09 40.47	+16 34.9	1.746	2.707	162.6	6.3	17.3
1988 03 10	09 32.15	+17 08.8					
1988 03 20	09 26.04	+17 29.5	1.887	2.720	139.2	13.8	17.7
1988 03 30	09 22.58	+17 36.4					
1988 04 09	09 21.85	+17 30.5	2.107	2.731	118.5	18.8	18.1
1988 04 19	09 23.68	+17 12.9					
1988 04 29	09 27.83	+16 44.8	2.368	2.739	100.6	21.2	18.5

1983 VM7 a,e,i = 2.26, 0.15, 4 Elements MPC 9752

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987 11 21	10 02.37	+15 41.9	2.006	2.243	90.4	26.1	18.1
1987 12 01	10 11.98	+15 11.9					
1987 12 11	10 19.28	+14 55.2	1.791	2.276	106.6	24.5	17.9
1987 12 21	10 23.94	+14 54.5					
1987 12 31	10 25.60	+15 11.4	1.595	2.309	125.5	20.3	17.5
1988 01 10	10 24.05	+15 46.1					
1988 01 20	10 19.22	+16 36.7	1.451	2.341	147.5	13.0	17.1
1988 01 30	10 11.45	+17 38.1					
1988 02 09	10 01.55	+18 42.4	1.393	2.372	170.6	3.9	16.7
1988 02 19	09 50.75	+19 40.9					
1988 02 29	09 40.50	+20 25.9	1.444	2.401	160.6	7.9	17.0
1988 03 10	09 32.10	+20 53.2					
1988 03 20	09 26.40	+21 02.1	1.596	2.429	137.9	15.9	17.5
1988 03 30	09 23.78	+20 54.0					
1988 04 09	09 24.20	+20 31.3	1.819	2.455	118.0	21.1	18.0
1988 04 19	09 27.40	+19 56.2					
1988 04 29	09 33.01	+19 10.5	2.081	2.478	101.0	23.5	18.3

1986 VU a,e,i = 2.74, 0.13, 4 Elements MPC 11743

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	11 21	10 10.96	+13 03.1	2.777	2.908	87.6	19.8	17.4
1987	12 01	10 17.37	+12 24.2					
1987	12 11	10 21.89	+11 55.0	2.517	2.929	104.9	19.0	17.2
1987	12 21	10 24.29	+11 36.8					
1987	12 31	10 24.36	+11 31.0	2.278	2.950	124.6	15.9	16.9
1988	01 10	10 22.02	+11 37.8					
1988	01 20	10 17.29	+11 56.5	2.097	2.969	146.7	10.5	16.6
1988	01 30	10 10.47	+12 25.0					
1988	02 09	10 02.13	+12 59.5	2.009	2.987	170.8	3.0	16.2
1988	02 19	09 53.09	+13 35.6					
1988	02 29	09 44.30	+14 08.4	2.037	3.003	164.5	5.1	16.3
1988	03 10	09 36.66	+14 34.3					
1988	03 20	09 30.84	+14 50.8	2.177	3.019	141.2	11.9	16.7
1988	03 30	09 27.27	+14 57.0					
1988	04 09	09 26.07	+14 52.8	2.401	3.033	120.3	16.6	17.1
1988	04 19	09 27.16	+14 38.8					
1988	04 29	09 30.36	+14 15.5	2.672	3.045	102.0	18.9	17.4

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

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	11 21	10 05.73	+22 28.3	2.054	2.311	92.1	25.3	17.9
1987	12 01	10 15.59	+22 02.6					
1987	12 11	10 23.06	+21 49.2	1.841	2.340	108.0	23.6	17.6
1987	12 21	10 27.79	+21 49.7					
1987	12 31	10 29.43	+22 04.6	1.650	2.370	126.5	19.5	17.3
1988	01 10	10 27.77	+22 32.3					
1988	01 20	10 22.77	+23 09.1	1.513	2.401	147.5	12.7	17.0
1988	01 30	10 14.79	+23 48.5					
1988	02 09	10 04.71	+24 22.5	1.463	2.434	166.9	5.3	16.6
1988	02 19	09 53.75	+24 43.6					
1988	02 29	09 43.39	+24 46.9	1.520	2.467	158.2	8.6	16.9
1988	03 10	09 34.90	+24 31.2					
1988	03 20	09 29.09	+23 58.4	1.676	2.500	137.2	15.7	17.4
1988	03 30	09 26.32	+23 11.6					
1988	04 09	09 26.53	+22 14.0	1.905	2.534	117.9	20.4	17.8
1988	04 19	09 29.43	+21 08.1					
1988	04 29	09 34.67	+19 55.6	2.175	2.567	101.1	22.6	18.2

1973 UV5 a,e,i = 2.24, 0.13, 5 Elements MPC 11857

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	11 21	09 45.28	+07 46.0	1.649	1.947	91.7	30.5	17.2
1987	12 01	09 57.61	+06 14.5					
1987	12 11	10 07.75	+04 51.2	1.443	1.953	105.6	29.1	16.9
1987	12 21	10 15.31	+03 39.8					
1987	12 31	10 19.90	+02 44.9	1.254	1.963	122.1	25.1	16.5
1988	01 10	10 21.19	+02 10.7					
1988	01 20	10 19.00	+02 01.0	1.106	1.977	142.0	17.8	16.0
1988	01 30	10 13.52	+02 18.4					
1988	02 09	10 05.47	+03 01.4	1.026	1.993	164.4	7.7	15.5
1988	02 19	09 56.10	+04 04.7					
1988	02 29	09 47.03	+05 18.7	1.038	2.014	165.9	6.9	15.6
1988	03 10	09 39.80	+06 32.4					
1988	03 20	09 35.44	+07 37.0	1.144	2.036	144.1	16.7	16.1
1988	03 30	09 34.46	+08 26.3					
1988	04 09	09 36.82	+08 57.7	1.321	2.061	124.6	23.6	16.7
1988	04 19	09 42.21	+09 10.8					
1988	04 29	09 50.20	+09 06.2	1.542	2.088	108.2	27.3	17.1

1986 TX a,e,i = 2.35, 0.07, 3 Elements MPC 11350

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	11 21	10 04.91	+14 36.1	2.316	2.510	89.5	23.2	18.8
1987	12 01	10 13.58	+14 04.4					
1987	12 11	10 20.28	+13 44.2	2.052	2.507	105.9	22.2	18.5
1987	12 21	10 24.72	+13 37.6					
1987	12 31	10 26.55	+13 46.8	1.808	2.504	124.8	18.8	18.1
1988	01 10	10 25.55	+14 12.4					
1988	01 20	10 21.60	+14 53.7	1.618	2.499	146.6	12.5	17.7
1988	01 30	10 14.89	+15 47.3					
1988	02 09	10 06.03	+16 47.3	1.515	2.492	170.1	3.9	17.2
1988	02 19	09 55.99	+17 46.1					
1988	02 29	09 46.06	+18 36.1	1.521	2.485	162.7	6.8	17.3
1988	03 10	09 37.50	+19 11.9					
1988	03 20	09 31.27	+19 30.9	1.632	2.476	139.6	15.1	17.8
1988	03 30	09 27.92	+19 33.1					
1988	04 09	09 27.57	+19 19.9	1.818	2.467	119.2	20.8	18.2
1988	04 19	09 30.08	+18 53.0					
1988	04 29	09 35.14	+18 14.1	2.044	2.456	101.8	23.7	18.5

1981 EP20 a,e,i = 2.37, 0.22, 2 Elements MPC 9751

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	11 21	10 12.11	+13 52.5	2.176	2.352	87.6	24.8	19.1
1987	12 01	10 20.80	+13 11.7					
1987	12 11	10 27.26	+12 43.0	1.966	2.402	104.0	23.4	18.8
1987	12 21	10 31.17	+12 28.7					
1987	12 31	10 32.24	+12 30.5	1.771	2.451	123.1	19.6	18.6
1988	01 10	10 30.31	+12 48.7					
1988	01 20	10 25.36	+13 22.3	1.625	2.498	145.3	13.0	18.2
1988	01 30	10 17.71	+14 07.7					
1988	02 09	10 08.10	+14 59.0	1.566	2.543	169.7	4.0	17.8
1988	02 19	09 57.59	+15 49.4					
1988	02 29	09 47.49	+16 32.1	1.619	2.586	164.1	6.0	18.0
1988	03 10	09 38.93	+17 02.6					
1988	03 20	09 32.72	+17 18.9	1.779	2.627	140.8	13.9	18.5
1988	03 30	09 29.28	+17 21.0					
1988	04 09	09 28.63	+17 10.0	2.017	2.665	120.2	19.0	19.0
1988	04 19	09 30.58	+16 47.5					
1988	04 29	09 34.83	+16 14.9	2.300	2.701	102.4	21.4	19.4

(3619) 1981 EU35 a,e,i = 2.39, 0.24, 4 Elements MPC 11858

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	11 21	10 15.47	+08 40.6	2.748	2.837	85.0	20.3	19.3
1987	12 01	10 22.03	+08 04.1					
1987	12 11	10 26.74	+07 38.0	2.487	2.863	102.3	19.6	19.1
1987	12 21	10 29.37	+07 24.3					
1987	12 31	10 29.68	+07 25.1	2.243	2.885	121.8	16.8	18.8
1988	01 10	10 27.55	+07 41.3					
1988	01 20	10 22.97	+08 13.2	2.050	2.904	144.0	11.5	18.5
1988	01 30	10 16.17	+08 59.2					
1988	02 09	10 07.71	+09 55.7	1.947	2.921	168.4	3.9	18.1
1988	02 19	09 58.35	+10 57.6					
1988	02 29	09 49.10	+11 58.7	1.962	2.934	166.3	4.6	18.2
1988	03 10	09 40.91	+12 53.6					
1988	03 20	09 34.51	+13 38.3	2.091	2.943	142.4	11.9	18.6
1988	03 30	09 30.40	+14 10.6					
1988	04 09	09 28.74	+14 29.9	2.306	2.950	121.1	16.9	19.0
1988	04 19	09 29.47	+14 36.8					
1988	04 29	09 32.43	+14 31.8	2.569	2.953	102.4	19.5	19.3

(3517) 1976 SE1 a,e,i = 2.24, 0.10, 3 Elements MPC 11421

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	11 21	10 05.18	+08 33.9	2.145	2.319	87.3	25.2	18.6
1987	12 01	10 14.41	+07 35.6					
1987	12 11	10 21.59	+06 47.5	1.909	2.338	103.1	24.2	18.3
1987	12 21	10 26.41	+06 12.5					
1987	12 31	10 28.55	+05 53.6	1.688	2.356	121.5	20.8	18.0
1988	01 10	10 27.77	+05 53.1					
1988	01 20	10 23.97	+06 12.5	1.513	2.373	143.0	14.5	17.6
1988	01 30	10 17.36	+06 51.3					
1988	02 09	10 08.57	+07 46.1	1.417	2.389	167.1	5.3	17.1
1988	02 19	09 58.60	+08 50.9					
1988	02 29	09 48.78	+09 57.7	1.429	2.403	166.6	5.5	17.2
1988	03 10	09 40.37	+10 58.8					
1988	03 20	09 34.30	+11 48.7	1.546	2.416	142.9	14.4	17.7
1988	03 30	09 31.12	+12 24.0					
1988	04 09	09 30.92	+12 43.8	1.741	2.427	122.1	20.5	18.1
1988	04 19	09 33.54	+12 48.6					
1988	04 29	09 38.68	+12 39.0	1.982	2.436	104.4	23.6	18.5

1969 TR1 a,e,i = 2.27, 0.27, 2 Elements MPC 11341

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	11 21	10 19.57	+11 50.9	2.664	2.763	85.2	20.9	19.2
1987	12 01	10 26.24	+11 14.1					
1987	12 11	10 30.99	+10 48.0	2.407	2.790	102.4	20.2	19.0
1987	12 21	10 33.55	+10 34.3					
1987	12 31	10 33.67	+10 34.6	2.165	2.814	122.1	17.2	18.7
1988	01 10	10 31.20	+10 49.5					
1988	01 20	10 26.10	+11 18.6	1.975	2.834	144.5	11.6	18.4
1988	01 30	10 18.61	+11 59.6					
1988	02 09	10 09.31	+12 48.3	1.875	2.850	169.1	3.8	17.9
1988	02 19	09 59.04	+13 39.2					
1988	02 29	09 48.89	+14 26.4	1.893	2.862	165.4	5.0	18.0
1988	03 10	09 39.89	+15 05.0					
1988	03 20	09 32.84	+15 32.3	2.024	2.871	141.4	12.5	18.5
1988	03 30	09 28.25	+15 46.9					
1988	04 09	09 26.26	+15 49.2	2.240	2.875	120.1	17.5	18.9
1988	04 19	09 26.80	+15 39.9					
1988	04 29	09 29.65	+15 20.1	2.501	2.876	101.5	20.1	19.2

1980 DL5 a,e,i = 2.59, 0.10, 3 Elements MPC 11144

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	11 21	10 13.93	+14 19.6	2.657	2.792	87.3	20.7	18.2
1987	12 01	10 21.28	+13 48.5					
1987	12 11	10 26.77	+13 27.9	2.392	2.804	104.4	19.9	18.0
1987	12 21	10 30.13	+13 19.8					
1987	12 31	10 31.10	+13 25.3	2.147	2.814	123.7	16.9	17.7
1988	01 10	10 29.55	+13 44.6					
1988	01 20	10 25.41	+14 17.0	1.956	2.823	145.5	11.4	17.3
1988	01 30	10 18.93	+14 59.5					
1988	02 09	10 10.63	+15 47.2	1.856	2.830	169.1	3.8	16.9
1988	02 19	10 01.34	+16 34.6					
1988	02 29	09 52.10	+17 15.6	1.869	2.837	164.7	5.3	17.0
1988	03 10	09 43.94	+17 45.9					
1988	03 20	09 37.64	+18 03.3	1.993	2.841	141.6	12.6	17.4
1988	03 30	09 33.73	+18 07.0					
1988	04 09	09 32.36	+17 57.9	2.199	2.845	120.7	17.6	17.8
1988	04 19	09 33.47	+17 37.2					
1988	04 29	09 36.88	+17 06.1	2.453	2.846	102.5	20.2	18.1

1986 WC a,e,i = 3.17, 0.02, 6 Elements MPC 11512

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	11 21	10 09.65	+04 36.4	3.032	3.104	84.9	18.5	17.2
1987	12 01	10 16.08	+03 40.4					
1987	12 11	10 20.88	+02 51.9	2.750	3.104	101.8	18.1	17.0
1987	12 21	10 23.85	+02 12.9					
1987	12 31	10 24.81	+01 45.5	2.486	3.105	120.6	15.8	16.7
1988	01 10	10 23.67	+01 31.4					
1988	01 20	10 20.43	+01 32.1	2.274	3.105	141.5	11.4	16.4
1988	01 30	10 15.30	+01 48.0					
1988	02 09	10 08.73	+02 18.0	2.148	3.106	163.3	5.2	16.0
1988	02 19	10 01.34	+02 59.6					
1988	02 29	09 53.94	+03 48.5	2.133	3.107	167.1	4.1	15.9
1988	03 10	09 47.32	+04 39.7					
1988	03 20	09 42.14	+05 28.6	2.232	3.108	146.1	10.3	16.3
1988	03 30	09 38.87	+06 11.1					
1988	04 09	09 37.73	+06 44.5	2.421	3.110	125.3	15.2	16.6
1988	04 19	09 38.72	+07 07.5					
1988	04 29	09 41.75	+07 19.3	2.668	3.112	106.8	18.1	16.9

1985 QX a,e,i = 2.99, 0.11, 10 Elements MPC 10403

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	12 11	10 24.36	+00 48.4	2.996	3.315	100.2	17.0	18.2
1987	12 21	10 26.79	+00 19.4					
1987	12 31	10 27.32	+00 02.3	2.724	3.318	119.3	15.0	17.9
1988	01 10	10 25.87	-00 01.1					
1988	01 20	10 22.46	+00 10.7	2.502	3.319	140.3	10.9	17.6
1988	01 30	10 17.29	+00 38.0					
1988	02 09	10 10.75	+01 19.7	2.367	3.320	162.2	5.2	17.3
1988	02 19	10 03.43	+02 13.2					
1988	02 29	09 56.05	+03 14.3	2.346	3.320	167.4	3.7	17.2
1988	03 10	09 49.34	+04 17.8					
1988	03 20	09 43.92	+05 18.9	2.441	3.318	146.5	9.5	17.5
1988	03 30	09 40.25	+06 13.6					
1988	04 09	09 38.56	+06 58.9	2.632	3.315	125.5	14.2	17.8
1988	04 19	09 38.90	+07 33.4					
1988	04 29	09 41.19	+07 56.4	2.882	3.311	106.5	17.0	18.1
1988	05 09	09 45.27	+08 08.0					
1988	05 19	09 50.92	+08 08.6	3.157	3.306	89.4	17.8	18.3

(3623) 1981 TG2 a,e,i = 2.85, 0.09, 3 Elements MPC 11859

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	12 11	10 26.33	+10 57.2	2.659	3.044	103.6	18.3	17.7
1987	12 21	10 29.36	+10 50.5					
1987	12 31	10 30.25	+10 56.9	2.405	3.054	123.0	15.7	17.4
1988	01 10	10 28.88	+11 17.0					
1988	01 20	10 25.24	+11 50.1	2.206	3.063	144.8	10.7	17.0
1988	01 30	10 19.55	+12 34.3					
1988	02 09	10 12.28	+13 25.5	2.098	3.071	168.5	3.7	16.6
1988	02 19	10 04.11	+14 18.8					
1988	02 29	09 55.92	+15 08.8	2.105	3.077	166.6	4.3	16.7
1988	03 10	09 48.57	+15 50.8					
1988	03 20	09 42.77	+16 22.0	2.226	3.083	143.4	11.1	17.1
1988	03 30	09 39.01	+16 40.6					
1988	04 09	09 37.49	+16 46.8	2.434	3.088	122.3	15.9	17.4
1988	04 19	09 38.22	+16 41.1					
1988	04 29	09 41.05	+16 24.5	2.694	3.092	103.7	18.4	17.7
1988	05 09	09 45.76	+15 58.1					
1988	05 19	09 52.10	+15 22.9	2.974	3.095	87.2	19.1	18.0

1985 RE4 a,e,i = 3.01, 0.10, 11 Elements MPC 12200

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	12 11	10 24.88	+09 42.8	2.923	3.294	103.4	16.9	17.2
1987	12 21	10 27.60	+09 49.7					
1987	12 31	10 28.36	+10 10.3	2.654	3.297	123.2	14.5	16.9
1988	01 10	10 27.06	+10 44.8					
1988	01 20	10 23.73	+11 32.9	2.443	3.299	145.1	9.8	16.6
1988	01 30	10 18.55	+12 32.2					
1988	02 09	10 11.93	+13 39.0	2.326	3.299	168.6	3.4	16.2
1988	02 19	10 04.48	+14 48.1					
1988	02 29	09 56.96	+15 54.1	2.327	3.299	166.4	4.0	16.2
1988	03 10	09 50.14	+16 51.9					
1988	03 20	09 44.67	+17 38.3	2.445	3.297	143.3	10.4	16.6
1988	03 30	09 41.03	+18 11.6					
1988	04 09	09 39.43	+18 31.4	2.651	3.294	122.1	14.9	16.9
1988	04 19	09 39.92	+18 38.5					
1988	04 29	09 42.42	+18 33.7	2.910	3.291	103.3	17.3	17.2
1988	05 09	09 46.72	+18 18.4					
1988	05 19	09 52.63	+17 53.6	3.189	3.286	86.5	17.9	17.4

(3520) 1952 SG a,e,i = 2.26, 0.18, 5 Elements MPC 11429

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	12 11	10 31.51	+10 28.8	2.245	2.635	102.2	21.4	18.9
1987	12 21	10 35.50	+10 23.0					
1987	12 31	10 37.04	+10 33.2	1.999	2.647	121.3	18.5	18.6
1988	01 10	10 35.93	+11 00.5					
1988	01 20	10 32.06	+11 44.8	1.802	2.656	143.2	12.8	18.2
1988	01 30	10 25.58	+12 43.7					
1988	02 09	10 16.99	+13 52.2	1.691	2.663	167.4	4.6	17.7
1988	02 19	10 07.13	+15 03.4					
1988	02 29	09 57.14	+16 09.5	1.693	2.666	166.3	5.1	17.7
1988	03 10	09 48.18	+17 04.3					
1988	03 20	09 41.16	+17 43.9	1.807	2.666	142.5	13.2	18.2
1988	03 30	09 36.70	+18 06.9					
1988	04 09	09 35.01	+18 13.9	2.003	2.664	121.2	18.8	18.6
1988	04 19	09 36.01	+18 06.3					
1988	04 29	09 39.51	+17 45.7	2.245	2.658	102.9	21.7	18.9
1988	05 09	09 45.16	+17 13.8					
1988	05 19	09 52.65	+16 31.7	2.502	2.649	87.0	22.4	19.2

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

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	12 11	10 22.80	+22 29.5	1.634	2.155	108.2	25.7	17.3
1987	12 21	10 30.42	+23 07.9					
1987	12 31	10 35.00	+24 06.4	1.442	2.168	125.7	21.6	16.9
1988	01 10	10 36.17	+25 23.5					
1988	01 20	10 33.67	+26 54.9	1.303	2.183	145.0	15.0	16.5
1988	01 30	10 27.59	+28 31.3					
1988	02 09	10 18.64	+30 00.1	1.244	2.199	160.8	8.5	16.2
1988	02 19	10 08.03	+31 08.6					
1988	02 29	09 57.47	+31 47.4	1.283	2.217	154.1	11.2	16.4
1988	03 10	09 48.60	+31 53.5					
1988	03 20	09 42.56	+31 29.5	1.412	2.235	135.6	18.2	16.8
1988	03 30	09 39.92	+30 40.8					
1988	04 09	09 40.67	+29 33.5	1.607	2.254	117.7	23.2	17.3
1988	04 19	09 44.48	+28 12.4					
1988	04 29	09 50.92	+26 40.9	1.839	2.274	102.1	25.7	17.6
1988	05 09	09 59.48	+25 01.5					
1988	05 19	10 09.75	+23 15.8	2.087	2.295	88.4	26.2	17.9

1969 TL1 a,e,i = 3.07, 0.11, 3 Elements MPC 11743

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	12 11	10 31.77	+12 25.5	3.036	3.394	102.9	16.4	17.8
1987	12 21	10 34.42	+12 21.6					
1987	12 31	10 35.14	+12 29.3	2.754	3.384	122.4	14.2	17.6
1988	01 10	10 33.84	+12 48.7					
1988	01 20	10 30.48	+13 19.2	2.528	3.374	144.1	9.9	17.2
1988	01 30	10 25.23	+13 58.7					
1988	02 09	10 18.48	+14 43.8	2.394	3.363	167.2	3.7	16.8
1988	02 19	10 10.80	+15 30.1					
1988	02 29	10 02.93	+16 13.0	2.377	3.351	167.4	3.7	16.8
1988	03 10	09 55.64	+16 48.4					
1988	03 20	09 49.62	+17 13.7	2.476	3.337	144.5	10.0	17.2
1988	03 30	09 45.36	+17 27.4					
1988	04 09	09 43.13	+17 29.5	2.666	3.323	123.3	14.6	17.5
1988	04 19	09 42.99	+17 20.6					
1988	04 29	09 44.88	+17 01.4	2.911	3.308	104.4	17.2	17.7
1988	05 09	09 48.61	+16 33.1					
1988	05 19	09 53.99	+15 56.4	3.177	3.292	87.5	17.9	17.9

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

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	12 11	10 23.37	+18 18.1	1.466	1.988	106.8	28.3	17.4
1987	12 21	10 32.02	+18 06.4					
1987	12 31	10 37.54	+18 12.3	1.281	2.001	123.6	24.1	17.0
1988	01 10	10 39.55	+18 36.4					
1988	01 20	10 37.74	+19 17.1	1.139	2.018	143.7	16.8	16.6
1988	01 30	10 32.19	+20 09.0					
1988	02 09	10 23.58	+21 02.9	1.070	2.038	165.0	7.2	16.2
1988	02 19	10 13.15	+21 48.3					
1988	02 29	10 02.66	+22 15.5	1.094	2.062	162.9	8.1	16.3
1988	03 10	09 53.81	+22 19.8					
1988	03 20	09 47.80	+22 01.2	1.212	2.088	141.9	17.1	16.8
1988	03 30	09 45.24	+21 22.4					
1988	04 09	09 46.13	+20 27.4	1.399	2.116	122.8	23.4	17.3
1988	04 19	09 50.12	+19 19.7					
1988	04 29	09 56.77	+18 01.8	1.629	2.147	106.7	26.7	17.8
1988	05 09	10 05.58	+16 35.5					
1988	05 19	10 16.11	+15 02.1	1.881	2.178	92.8	27.6	18.1

1983 VG7 a,e,i = 2.27, 0.16, 5 Elements MPC 9825

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	12 11	10 33.37	+16 09.4	1.717	2.173	103.8	26.1	17.3
1987	12 21	10 39.80	+16 04.3					
1987	12 31	10 43.24	+16 17.0	1.528	2.210	121.8	22.2	17.0
1988	01 10	10 43.38	+16 48.0					
1988	01 20	10 40.05	+17 35.5	1.383	2.247	142.8	15.3	16.6
1988	01 30	10 33.40	+18 34.6					
1988	02 09	10 24.11	+19 37.1	1.316	2.284	165.3	6.3	16.2
1988	02 19	10 13.30	+20 33.6					
1988	02 29	10 02.48	+21 15.2	1.352	2.320	163.7	6.9	16.3
1988	03 10	09 53.12	+21 37.1					
1988	03 20	09 46.28	+21 38.3	1.490	2.355	141.8	15.2	16.9
1988	03 30	09 42.53	+21 20.6					
1988	04 09	09 41.92	+20 47.0	1.704	2.389	121.8	20.9	17.4
1988	04 19	09 44.23	+20 00.5					
1988	04 29	09 49.09	+19 03.4	1.962	2.421	104.6	23.7	17.8
1988	05 09	09 56.06	+17 57.7					
1988	05 19	10 04.76	+16 44.4	2.239	2.451	89.6	24.4	18.1

1981 JU2 a,e,i = 2.42, 0.07, 5 Elements MPC 11435

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	12 11	10 29.05	+03 30.4	2.186	2.551	100.2	22.3	17.7
1987	12 21	10 33.97	+02 36.3					
1987	12 31	10 36.58	+01 54.5	1.924	2.539	118.0	20.0	17.3
1988	01 10	10 36.63	+01 27.7					
1988	01 20	10 33.99	+01 18.3	1.705	2.527	138.5	15.0	16.9
1988	01 30	10 28.71	+01 28.2					
1988	02 09	10 21.20	+01 56.9	1.562	2.515	160.9	7.4	16.4
1988	02 19	10 12.22	+02 42.0					
1988	02 29	10 02.84	+03 38.3	1.521	2.501	169.1	4.3	16.2
1988	03 10	09 54.26	+04 38.6					
1988	03 20	09 47.50	+05 36.1	1.589	2.487	147.4	12.5	16.6
1988	03 30	09 43.26	+06 24.9					
1988	04 09	09 41.86	+07 01.5	1.744	2.472	126.3	19.1	17.0
1988	04 19	09 43.27	+07 24.2					
1988	04 29	09 47.31	+07 32.2	1.951	2.456	108.0	22.9	17.4
1988	05 09	09 53.66	+07 26.1					
1988	05 19	10 02.00	+07 06.6	2.180	2.441	92.3	24.5	17.6

(3645) 1981 QZ a,e,i = 2.70, 0.08, 7 Elements MPC 12002

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	12 11	10 35.77	+01 32.6	2.523	2.831	97.8	20.2	17.1
1987	12 21	10 39.55	+00 34.9					
1987	12 31	10 41.17	-00 11.8	2.271	2.844	116.1	18.1	16.8
1988	01 10	10 40.47	-00 45.1					
1988	01 20	10 37.37	-01 03.1	2.060	2.855	136.5	13.7	16.4
1988	01 30	10 32.02	-01 04.2					
1988	02 09	10 24.81	-00 48.4	1.926	2.866	158.3	7.3	16.1
1988	02 19	10 16.42	-00 17.4					
1988	02 29	10 07.72	+00 25.1	1.899	2.876	168.3	4.0	15.9
1988	03 10	09 59.69	+01 13.8					
1988	03 20	09 53.12	+02 03.1	1.985	2.885	149.1	10.2	16.3
1988	03 30	09 48.61	+02 47.9					
1988	04 09	09 46.45	+03 24.5	2.165	2.893	128.2	15.8	16.6
1988	04 19	09 46.66	+03 50.7					
1988	04 29	09 49.13	+04 05.2	2.405	2.900	109.5	19.1	17.0
1988	05 09	09 53.63	+04 08.0					
1988	05 19	09 59.90	+03 59.3	2.673	2.906	92.9	20.3	17.2

(3536) 1981 EV20 a,e,i = 2.34, 0.05, 7 Elements MPC 11503

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	12 11	10 34.65	+13 26.7	1.818	2.248	102.6	25.3	18.2
1987	12 21	10 41.01	+12 42.5					
1987	12 31	10 44.63	+12 11.5	1.595	2.255	120.1	22.2	17.8
1988	01 10	10 45.18	+11 55.0					
1988	01 20	10 42.44	+11 53.3	1.412	2.263	140.9	15.9	17.4
1988	01 30	10 36.46	+12 05.0					
1988	02 09	10 27.76	+12 26.2	1.305	2.271	164.6	6.6	16.9
1988	02 19	10 17.29	+12 51.3					
1988	02 29	10 06.47	+13 13.5	1.298	2.280	169.8	4.4	16.8
1988	03 10	09 56.78	+13 27.4					
1988	03 20	09 49.38	+13 29.5	1.396	2.290	145.9	14.1	17.3
1988	03 30	09 44.99	+13 18.7					
1988	04 09	09 43.82	+12 55.3	1.573	2.300	125.0	20.9	17.8
1988	04 19	09 45.71	+12 20.3					
1988	04 29	09 50.33	+11 34.4	1.799	2.310	107.4	24.6	18.2
1988	05 09	09 57.27	+10 39.0					
1988	05 19	10 06.13	+09 34.7	2.046	2.321	92.4	25.8	18.5

1986 RS2 a,e,i = 2.42, 0.21, 4 Elements MPC 11349

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	12 11	10 40.17	+05 04.2	2.368	2.691	98.2	21.2	18.9
1987	12 21	10 44.21	+04 36.6					
1987	12 31	10 45.94	+04 23.5	2.136	2.726	116.9	18.8	18.7
1988	01 10	10 45.17	+04 26.7					
1988	01 20	10 41.84	+04 47.2	1.945	2.759	138.4	13.7	18.3
1988	01 30	10 36.09	+05 24.7					
1988	02 09	10 28.35	+06 16.6	1.834	2.789	162.2	6.2	18.0
1988	02 19	10 19.37	+07 18.4					
1988	02 29	10 10.10	+08 23.8	1.833	2.817	171.9	2.8	17.8
1988	03 10	10 01.58	+09 26.2					
1988	03 20	09 54.65	+10 20.5	1.947	2.842	148.1	10.7	18.3
1988	03 30	09 49.91	+11 02.8					
1988	04 09	09 47.61	+11 31.5	2.155	2.864	126.4	16.4	18.7
1988	04 19	09 47.75	+11 46.6					
1988	04 29	09 50.18	+11 48.5	2.419	2.884	107.3	19.5	19.1
1988	05 09	09 54.64	+11 38.3					
1988	05 19	10 00.83	+11 17.0	2.707	2.900	90.6	20.4	19.4

1985 RG4 a,e,i = 2.65, 0.14, 14 Elements MPC 10837

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	12 11	10 27.87	+01 35.5	2.221	2.577	99.7	22.1	17.2
1987	12 21	10 33.96	+01 08.6					
1987	12 31	10 37.98	+00 57.9	1.942	2.547	117.3	20.1	16.9
1988	01 10	10 39.68	+01 06.6					
1988	01 20	10 38.87	+01 37.8	1.703	2.518	137.6	15.3	16.4
1988	01 30	10 35.54	+02 33.0					
1988	02 09	10 29.98	+03 51.5	1.538	2.490	160.5	7.6	15.9
1988	02 19	10 22.77	+05 28.9					
1988	02 29	10 14.88	+07 17.3	1.477	2.463	173.0	2.8	15.6
1988	03 10	10 07.43	+09 06.6					
1988	03 20	10 01.45	+10 47.3	1.525	2.437	149.6	12.0	16.0
1988	03 30	09 57.77	+12 12.0					
1988	04 09	09 56.80	+13 16.8	1.663	2.412	127.9	19.1	16.4
1988	04 19	09 58.62	+14 00.5					
1988	04 29	10 03.11	+14 23.7	1.857	2.388	109.4	23.4	16.7
1988	05 09	10 09.98	+14 27.8					
1988	05 19	10 18.91	+14 14.8	2.075	2.367	93.7	25.3	17.0

(3558) 1978 SQ2 a,e,i = 2.44, 0.07, 13 Elements MPC 11626

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	12 11	10 48.10	+15 59.2	2.219	2.585	100.4	22.0	17.2
1987	12 21	10 52.95	+15 24.0					
1987	12 31	10 55.31	+15 00.2	1.958	2.578	118.6	19.6	16.9
1988	01 10	10 54.90	+14 48.1					
1988	01 20	10 51.50	+14 47.2	1.740	2.569	139.5	14.4	16.5
1988	01 30	10 45.13	+14 55.5					
1988	02 09	10 36.17	+15 08.7	1.601	2.560	162.9	6.5	16.0
1988	02 19	10 25.41	+15 21.9					
1988	02 29	10 14.03	+15 29.5	1.569	2.550	169.9	3.9	15.8
1988	03 10	10 03.35	+15 27.2					
1988	03 20	09 54.52	+15 13.1	1.648	2.538	146.4	12.5	16.3
1988	03 30	09 48.33	+14 46.8					
1988	04 09	09 45.12	+14 09.3	1.816	2.526	124.9	19.0	16.7
1988	04 19	09 44.85	+13 22.0					
1988	04 29	09 47.32	+12 25.9	2.035	2.514	106.5	22.6	17.0
1988	05 09	09 52.18	+11 22.1					
1988	05 19	09 59.07	+10 11.0	2.276	2.500	90.6	23.9	17.3

1985 RY3 a,e,i = 3.15, 0.18, 1 Elements MPC 11509

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	12 11	10 42.93	+07 28.6	3.430	3.706	98.5	15.2	18.1
1987	12 21	10 45.25	+07 15.0					
1987	12 31	10 45.83	+07 12.0	3.149	3.714	118.1	13.5	17.8
1988	01 10	10 44.61	+07 20.2					
1988	01 20	10 41.57	+07 39.6	2.916	3.721	139.6	9.9	17.5
1988	01 30	10 36.85	+08 09.3					
1988	02 09	10 30.77	+08 47.2	2.772	3.726	162.8	4.5	17.2
1988	02 19	10 23.77	+09 30.2					
1988	02 29	10 16.47	+10 14.7	2.744	3.730	173.2	1.8	17.0
1988	03 10	10 09.50	+10 56.7					
1988	03 20	10 03.46	+11 33.2	2.838	3.732	149.8	7.7	17.4
1988	03 30	09 58.82	+12 01.5					
1988	04 09	09 55.86	+12 20.5	3.031	3.733	128.0	12.2	17.7
1988	04 19	09 54.69	+12 29.7					
1988	04 29	09 55.33	+12 29.2	3.291	3.732	108.3	14.8	18.0
1988	05 09	09 57.65	+12 19.5					
1988	05 19	10 01.50	+12 01.2	3.580	3.729	90.5	15.7	18.2

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

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	12 11	10 40.99	+04 50.2	2.386	2.704	97.9	21.1	18.7
1987	12 21	10 45.82	+04 11.2					
1987	12 31	10 48.47	+03 44.9	2.116	2.698	116.1	19.1	18.3
1988	01 10	10 48.73	+03 33.6					
1988	01 20	10 46.43	+03 38.9	1.887	2.690	136.8	14.5	17.9
1988	01 30	10 41.60	+04 01.7					
1988	02 09	10 34.56	+04 40.6	1.732	2.681	160.0	7.2	17.5
1988	02 19	10 25.93	+05 32.5					
1988	02 29	10 16.66	+06 31.9	1.683	2.669	173.3	2.5	17.2
1988	03 10	10 07.85	+07 31.9					
1988	03 20	10 00.47	+08 26.6	1.747	2.657	150.0	10.8	17.6
1988	03 30	09 55.28	+09 10.8					
1988	04 09	09 52.68	+09 42.0	1.904	2.642	128.1	17.4	18.0
1988	04 19	09 52.72	+09 58.9					
1988	04 29	09 55.31	+10 01.7	2.118	2.626	109.1	21.2	18.3
1988	05 09	10 00.18	+09 51.0					
1988	05 19	10 07.04	+09 27.8	2.357	2.609	92.7	22.8	18.6

1985 PM a,e,i = 2.72, 0.19, 6 Elements MPC 11350

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	12 11	10 48.97	+08 39.1	2.940	3.221	97.5	17.6	18.6
1987	12 21	10 52.21	+08 11.6					
1987	12 31	10 53.50	+07 54.8	2.648	3.211	116.6	15.9	18.3
1988	01 10	10 52.68	+07 49.8					
1988	01 20	10 49.65	+07 56.9	2.401	3.199	137.8	11.9	18.0
1988	01 30	10 44.49	+08 15.4					
1988	02 09	10 37.49	+08 43.5	2.235	3.185	161.2	5.7	17.6
1988	02 19	10 29.17	+09 18.0					
1988	02 29	10 20.29	+09 54.7	2.182	3.169	174.2	1.8	17.3
1988	03 10	10 11.71	+10 28.9					
1988	03 20	10 04.23	+10 57.1	2.248	3.151	150.2	9.1	17.7
1988	03 30	09 58.49	+11 16.3					
1988	04 09	09 54.86	+11 25.3	2.413	3.131	128.1	14.6	18.0
1988	04 19	09 53.47	+11 23.6					
1988	04 29	09 54.31	+11 11.4	2.639	3.109	108.5	17.9	18.3
1988	05 09	09 57.18	+10 49.2					
1988	05 19	10 01.89	+10 17.7	2.893	3.085	91.2	19.1	18.5

1953 TH a,e,i = 2.58, 0.13, 10 Elements MPC 11343

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	12 11	10 51.31	+12 01.7	2.202	2.538	98.3	22.6	16.7
1987	12 21	10 56.36	+11 16.6					
1987	12 31	10 58.93	+10 43.5	1.973	2.566	116.4	20.1	16.4
1988	01 10	10 58.79	+10 23.2					
1988	01 20	10 55.78	+10 16.0	1.783	2.593	137.2	14.9	16.1
1988	01 30	10 49.98	+10 20.8					
1988	02 09	10 41.80	+10 34.7	1.668	2.620	160.8	7.1	15.7
1988	02 19	10 31.99	+10 53.6					
1988	02 29	10 21.63	+11 12.3	1.660	2.647	174.0	2.3	15.4
1988	03 10	10 11.93	+11 26.3					
1988	03 20	10 03.87	+11 32.1	1.764	2.673	149.9	10.8	16.0
1988	03 30	09 58.17	+11 27.9					
1988	04 09	09 55.13	+11 13.3	1.961	2.698	128.2	17.0	16.4
1988	04 19	09 54.76	+10 48.6					
1988	04 29	09 56.86	+10 14.4	2.216	2.722	109.4	20.4	16.8
1988	05 09	10 01.14	+09 31.5					
1988	05 19	10 07.27	+08 40.6	2.499	2.745	93.0	21.6	17.1

1984 FA a,e,i = 2.69, 0.10, 7 Elements MPC 11431

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	12 11	10 40.43	+09 59.2	2.184	2.547	100.0	22.4	16.7
1987	12 21	10 46.53	+09 50.6					
1987	12 31	10 50.33	+09 58.3	1.953	2.567	118.1	19.8	16.4
1988	01 10	10 51.60	+10 23.7					
1988	01 20	10 50.19	+11 06.9	1.765	2.588	138.8	14.5	16.0
1988	01 30	10 46.15	+12 06.2					
1988	02 09	10 39.85	+13 16.9	1.653	2.609	161.9	6.8	15.6
1988	02 19	10 31.95	+14 32.1					
1988	02 29	10 23.46	+15 43.9	1.648	2.631	171.1	3.3	15.5
1988	03 10	10 15.47	+16 44.7					
1988	03 20	10 08.96	+17 29.7	1.752	2.653	148.5	11.3	15.9
1988	03 30	10 04.63	+17 56.5					
1988	04 09	10 02.80	+18 05.5	1.945	2.675	127.4	17.3	16.4
1988	04 19	10 03.51	+17 58.0					
1988	04 29	10 06.61	+17 35.9	2.195	2.697	109.0	20.7	16.8
1988	05 09	10 11.82	+17 01.3					
1988	05 19	10 18.83	+16 16.0	2.471	2.718	92.9	21.8	17.1

1981 ET7 a,e,i = 2.33, 0.09, 4 Elements MPC 10381

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	12 11	10 42.75	+06 21.9	1.815	2.183	98.1	26.5	19.5
1987	12 21	10 50.18	+05 11.4					
1987	12 31	10 55.05	+04 13.5	1.598	2.200	114.8	23.9	19.2
1988	01 10	10 57.04	+03 30.7					
1988	01 20	10 55.90	+03 05.6	1.415	2.218	134.5	18.5	18.8
1988	01 30	10 51.56	+02 59.9					
1988	02 09	10 44.37	+03 13.0	1.295	2.237	157.2	9.8	18.4
1988	02 19	10 35.10	+03 42.6					
1988	02 29	10 24.98	+04 23.0	1.269	2.257	174.2	2.5	18.0
1988	03 10	10 15.43	+05 06.8					
1988	03 20	10 07.71	+05 47.0	1.348	2.277	152.3	11.7	18.6
1988	03 30	10 02.69	+06 17.8					
1988	04 09	10 00.73	+06 36.0	1.514	2.298	130.9	19.2	19.1
1988	04 19	10 01.79	+06 40.3					
1988	04 29	10 05.63	+06 30.5	1.737	2.319	112.7	23.6	19.5
1988	05 09	10 11.87	+06 07.4					
1988	05 19	10 20.11	+05 31.9	1.988	2.340	97.1	25.4	19.9

1986 WM a,e,i = 3.21, 0.19, 2 Elements MPC 11512

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	12 11	10 49.71	+07 11.3	3.155	3.415	96.8	16.6	17.9
1987	12 21	10 52.87	+06 54.8					
1987	12 31	10 54.19	+06 49.8	2.900	3.447	116.0	14.9	17.7
1988	01 10	10 53.58	+06 57.0					
1988	01 20	10 51.02	+07 16.5	2.690	3.478	137.3	11.1	17.5
1988	01 30	10 46.62	+07 47.3					
1988	02 09	10 40.70	+08 27.2	2.563	3.508	160.4	5.4	17.2
1988	02 19	10 33.73	+09 12.8					
1988	02 29	10 26.36	+10 00.1	2.548	3.536	175.6	1.2	16.9
1988	03 10	10 19.28	+10 44.6					
1988	03 20	10 13.11	+11 23.0	2.653	3.564	152.0	7.5	17.4
1988	03 30	10 08.37	+11 52.4					
1988	04 09	10 05.36	+12 11.6	2.861	3.590	130.2	12.3	17.7
1988	04 19	10 04.19	+12 20.3					
1988	04 29	10 04.87	+12 18.6	3.137	3.615	110.5	15.1	18.0
1988	05 09	10 07.26	+12 07.2					
1988	05 19	10 11.19	+11 46.9	3.446	3.639	92.8	16.1	18.3

1986 TK2 a,e,i = 2.23, 0.16, 5 Elements MPC 11427

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	12 11	10 48.89	+09 09.2	2.260	2.584	97.7	22.2	18.3
1987	12 21	10 54.47	+08 56.4					
1987	12 31	10 57.77	+08 59.6	2.004	2.591	116.0	19.9	18.0
1988	01 10	10 58.55	+09 20.3					
1988	01 20	10 56.58	+09 59.4	1.787	2.595	137.0	15.0	17.6
1988	01 30	10 51.84	+10 55.8					
1988	02 09	10 44.61	+12 05.6	1.645	2.595	160.5	7.3	17.1
1988	02 19	10 35.52	+13 22.5					
1988	02 29	10 25.57	+14 38.2	1.608	2.594	172.3	2.9	16.9
1988	03 10	10 15.96	+15 44.7					
1988	03 20	10 07.79	+16 36.1	1.686	2.589	148.7	11.5	17.3
1988	03 30	10 01.91	+17 09.3					
1988	04 09	09 58.75	+17 24.0	1.854	2.581	126.8	18.1	17.7
1988	04 19	09 58.38	+17 21.5					
1988	04 29	10 00.69	+17 03.6	2.076	2.571	107.9	21.9	18.1
1988	05 09	10 05.36	+16 32.3					
1988	05 19	10 12.07	+15 49.4	2.321	2.558	91.6	23.3	18.3

1982 JE1 a,e,i = 2.26, 0.18, 5 Elements MPC 10938

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	12 11	10 52.32	+13 07.4	2.152	2.494	98.4	23.0	19.1
1987	12 21	10 58.05	+13 02.5					
1987	12 31	11 01.31	+13 14.2	1.925	2.524	116.7	20.4	18.8
1988	01 10	11 01.84	+13 43.2					
1988	01 20	10 59.45	+14 29.2	1.737	2.552	137.6	15.1	18.5
1988	01 30	10 54.13	+15 29.2					
1988	02 09	10 46.25	+16 37.6	1.626	2.577	160.5	7.3	18.1
1988	02 19	10 36.53	+17 46.7					
1988	02 29	10 26.09	+18 48.0	1.620	2.599	168.6	4.3	18.0
1988	03 10	10 16.17	+19 34.5					
1988	03 20	10 07.87	+20 02.5	1.727	2.618	146.9	12.0	18.4
1988	03 30	10 01.98	+20 11.0					
1988	04 09	09 58.86	+20 01.8	1.921	2.634	125.7	18.0	18.8
1988	04 19	09 58.52	+19 37.1					
1988	04 29	10 00.77	+18 59.5	2.170	2.648	107.2	21.3	19.2
1988	05 09	10 05.28	+18 11.0					
1988	05 19	10 11.73	+17 13.4	2.441	2.659	91.0	22.4	19.5