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EDITORIAL NOTICE.

Contributors of perturbed orbital elements are advised that use of the Epoch 1987 July 24.0 ET (rather than 1986 June 19.0 ET) will become effective FOLLOWING the 1986 Oct. 17 batch of MPCs.

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CORRECTED OBSERVATIONS.

The following observations correct those previously published.

Object		Date	UT	R. A. (1950)	Decl.	Reference	Mag.	Obs.
1975 CC	*	1975 02	04.94306	08 23 21.94	+28 00 23.5	MPC 4249	16	026
1975 CC		1975 02	07.01944	08 21 14.56	+28 06 08.3	MPC 4249		026

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IDENTIFICATION CHANGES.

Continuation to MPC 10990.

Object		Date	UT	R. A. (1950)	Decl.	Old desig.	Mag.	Obs.
1964 WO1	*	1964 11	30.59062	04 36 32.42	+18 57 11.9	1964 VU2		330
1966 PE1	*	1966 08	12.79670	21 10 03.80	-20 39 13.7	1966 PA1		074
1966 PE1		1966 08	12.80709	21 10 03.24	-20 39 13.9	1966 PA1		074
1966 PF1	*	1966 08	12.80189	21 10 34.79	-20 33 47.2	1966 PZ		074
1966 PF1		1966 08	16.81971	21 06 58.37	-20 40 59.8	1966 PZ		074
1977 BA1	*	1977 01	20.83936	05 58 17.37	+17 57 38.8	1977 AD1	17.5	095

* * * * *

MAGNITUDE PARAMETERS FOR THE NUMBERED MINOR PLANETS.

The following listing of mean absolute magnitudes H and slope parameters G has been prepared in accordance with the resolution of IAU Commission 20 last November and the remarks on MPC 10193-10194. The values have for the most part been determined by E. Tedesco, Jet Propulsion Laboratory, using the precepts discussed by him in the "IRAS Asteroid and Comet Survey" (edited by D. Matson, 1986). The data are essentially of three quality classes. The 237 sets of highest quality make use of extensive photometric data and least-squares fits for both H and G, H being given here to 0.01 mag and G in units of 0.01. The 1898 sets of medium quality also involve the direct use of photometric data, but constraints were placed on the slope parameter, principally from albedo or taxonomic considerations; here H is again given to 0.01 mag, and the three adopted values of G are indicated as 0.15 = X, 0.25 = Y, 0.40 = Z.

The remaining sets, with H given to 0.1 mag, were mainly derived from the old absolute magnitudes B(1,0). The most important difference between this listing and that published with the IRAS asteroid data products is that the values of H given here are on the Johnson V system, whereas the IRAS values are on the Johnson B system. A second difference is that the 79 values of G in the IRAS listing outside the range 0.00-0.50 have been replaced by whichever of 0.15, 0.25 and 0.40 is appropriate and new solutions made for H. Thirdly, the single value G = 0.25 has been adopted for all the data of lowest quality. Finally, many of the lowest-quality values of H in the IRAS listing have been improved by B. G. Marsden using actual observations, and the data have been extended from the IRAS cutoff at (3318) to all the minor planets numbered as of this time.

No.	H	G	No.	H	G	No.	H	G	No.	H	G	No.	H	G
1	3.32	11	2	4.13	15	3	5.31	30	4	3.16	34	5	6.91	Y
6	5.70	24	7	5.56	Y	8	6.48	33	9	6.32	29	10	5.37	X
11	6.62	27	12	7.23	24	13	6.71	X	14	6.27	09	15	5.22	20
16	5.98	22	17	7.77	13	18	6.41	17	19	7.09	10	20	6.52	26
21	7.33	16	22	6.49	22	23	7.07	37	24	7.07	10	25	7.78	09
26	7.61	Z	27	7.07	Y	28	7.17	22	29	5.84	21	30	7.74	41
31	6.53	X	32	7.50	11	33	8.43	24	34	8.37	03	35	8.54	X
36	8.35	X	37	7.28	25	38	8.31	05	39	6.16	Y	40	7.14	31
41	7.34	X	42	7.50	Y	43	8.01	Y	44	7.05	44	45	7.27	X
46	8.38	11	47	7.86	13	48	6.92	X	49	7.91	39	50	9.20	X
51	7.36	06	52	6.29	X	53	8.75	X	54	7.70	15	55	7.68	35
56	8.30	X	57	6.95	07	58	8.79	X	59	7.72	01	60	8.68	33
61	7.66	08	62	8.24	Y	63	7.52	Y	64	7.65	37	65	6.79	X
66	9.39	X	67	8.36	25	68	6.84	11	69	7.10	15	70	7.99	X
71	7.26	37	72	9.00	23	73	9.00	Y	74	8.84	X	75	9.02	Y
76	8.08	44	77	8.57	26	78	8.11	08	79	7.83	18	80	8.10	30
81	8.49	X	82	8.51	34	83	8.89	30	84	9.26	X	85	7.56	05
86	8.51	11	87	6.95	28	88	7.05	17	89	6.57	14	90	8.37	26
91	8.79	X	92	6.74	33	93	7.73	X	94	7.55	08	95	7.83	08
96	7.97	X	97	7.70	25	98	8.92	X	99	9.42	X	100	7.79	Y
101	8.45	50	102	9.23	X	103	7.59	11	104	8.31	20	105	8.89	29
106	7.42	17	107	7.09	X	108	8.27	Y	109	8.87	11	110	7.79	18
111	7.89	04	112	9.80	X	113	8.63	26	114	8.24	10	115	7.51	14
116	7.86	Y	117	8.18	48	118	9.01	Y	119	8.44	Y	120	7.73	17
121	7.39	15	122	7.68	Y	123	8.93	Y	124	8.13	31	125	9.06	36
126	9.31	Y	127	8.48	X	128	7.55	X	129	7.05	37	130	7.06	X
131	9.99	Y	132	9.35	12	133	8.05	24	134	8.67	06	135	8.21	19
136	9.71	Y	137	8.04	10	138	9.04	Y	139	7.79	X	140	8.20	X
141	8.56	X	142	10.26	15	143	9.24	X	144	7.87	08	145	8.05	01
146	8.15	13	147	8.76	X	148	7.60	13	149	10.90	Y	150	8.32	X
151	9.34	Y	152	8.58	Y	153	7.46	03	154	7.09	X	155	11.34	X
156	8.61	X	157	11.2	Y	158	9.49	Y	159	8.07	X	160	9.04	X
161	9.22	Y	162	8.84	Y	163	9.51	X	164	8.60	01	165	7.49	X
166	9.85	X	167	9.16	Y	168	7.93	15	169	9.60	Y	170	9.42	Y
171	8.39	24	172	8.80	Y	173	7.79	12	174	8.40	Y	175	8.43	X
176	8.32	X	177	9.54	X	178	9.41	Y	179	8.20	Y	180	10.39	Y
181	7.77	05	182	9.30	30	183	9.78	Y	184	8.43	Y	185	7.73	27
186	9.08	29	187	8.16	13	188	9.31	Y	189	9.51	Y	190	7.67	X
191	8.98	X	192	7.13	03	193	9.80	X	194	7.66	X	195	9.05	X
196	6.64	47	197	9.44	Y	198	8.54	37	199	8.80	X	200	8.20	06
201	8.48	14	202	7.83	Y	203	9.08	X	204	9.00	Y	205	9.04	X
206	8.65	10	207	9.96	X	208	9.05	Y	209	8.21	X	210	9.32	X
211	7.84	03	212	8.22	X	213	8.83	X	214	9.45	48	215	9.62	Y
216	7.53	25	217	9.87	X	218	8.68	Y	219	9.43	Y	220	11.14	Y
221	7.68	16	222	9.42	X	223	9.95	X	224	8.71	Y	225	8.62	X

226	9.84	X	227	8.97	X	228	12.67	Y	229	9.29	Y	230	7.47	35
231	9.40	X	232	10.27	X	233	8.30	17	234	8.97	04	235	8.76	Y
236	8.29	19	237	9.43	Y	238	8.10	X	239	10.62	X	240	8.99	13
241	7.50	04	242	9.61	X	243	10.02	20	244	12.35	Y	245	7.92	39
246	8.74	Z	247	8.00	07	248	10.14	X	249	11.22	Y	250	7.54	Y
251	10.06	X	252	9.53	X	253	10.30	X	254	12.08	Y	255	10.35	X
256	9.90	X	257	9.18	Y	258	8.47	46	259	7.86	X	260	9.26	X
261	9.50	Y	262	11.72	Y	263	10.52	Y	264	8.40	Y	265	11.36	Y
266	8.52	X	267	10.63	Y	268	8.40	X	269	9.84	X	270	8.79	Y
271	9.77	X	272	10.79	X	273	10.35	X	274	10.12	Y	275	8.82	X
276	8.57	15	277	9.96	Y	278	9.38	X	279	8.57	X	280	10.87	X
281	12.08	40	282	10.98	Y	283	8.73	X	284	10.06	X	285	10.78	X
286	9.10	X	287	8.32	29	288	10.08	44	289	9.60	Z	290	12.1	Y
291	11.48	Y	292	10.28	X	293	9.95	X	294	10.11	X	295	10.23	Y
296	12.63	Y	297	9.43	X	298	11.24	Y	299	11.72	Y	300	9.83	X
301	10.03	X	302	10.94	X	303	8.88	X	304	9.76	09	305	9.02	Y
306	9.05	Y	307	10.00	X	308	8.18	28	309	10.49	X	310	10.47	X
311	10.09	Y	312	8.93	Y	313	8.86	05	314	9.77	X	315	13.43	Y
316	11.52	X	317	10.18	Z	318	9.27	X	319	10.2	Y	320	10.63	Y
321	10.20	Y	322	9.02	X	323	9.67	Y	324	6.82	10	325	9.00	Y
326	9.35	X	327	10.23	X	328	9.11	Y	329	9.66	X	330	12.7	Y
331	9.63	X	332	9.24	X	333	9.51	X	334	7.48	X	335	8.96	14
336	9.78	17	337	8.76	Y	338	8.54	Y	339	9.34	25	340	10.38	Y
341	10.96	Y	342	10.15	X	343	11.55	X	344	8.11	17	345	8.75	X
346	7.42	Y	347	9.03	Y	348	9.50	X	349	5.98	32	350	8.48	X
351	9.12	Y	352	10.11	Y	353	11.22	X	354	6.32	32	355	10.49	X
356	8.17	X	357	8.71	X	358	9.06	X	359	9.29	Y	360	8.41	X
361	8.27	X	362	8.95	10	363	8.97	X	364	9.85	Y	365	9.27	30
366	8.46	X	367	10.95	Y	368	9.99	X	369	8.55	22	370	10.69	Y
371	8.79	Y	372	7.3	Y	373	9.17	X	374	8.95	Y	375	7.43	23
376	9.41	Y	377	8.98	31	378	9.99	Y	379	9.08	Y	380	9.43	X
381	8.50	X	382	8.86	Y	383	9.98	24	384	9.68	Y	385	7.46	18
386	7.42	23	387	7.48	24	388	8.41	X	389	7.88	Y	390	10.25	X
391	11.1	Y	392	9.79	X	393	8.40	X	394	9.75	28	395	10.42	26
396	9.77	X	397	9.36	22	398	10.46	X	399	9.14	X	400	10.00	Y
401	9.35	X	402	9.05	16	403	9.34	Y	404	9.05	19	405	8.43	12
406	10.38	X	407	8.92	X	408	9.61	X	409	7.60	28	410	8.26	08
411	9.06	X	412	9.19	X	413	10.24	Y	414	9.55	X	415	9.38	32
416	7.87	26	417	9.31	Y	418	9.84	Y	419	8.39	15	420	8.35	04
421	11.87	Y	422	10.89	Z	423	7.33	X	424	9.63	X	425	9.83	X
426	8.56	X	427	9.41	X	428	11.93	Y	429	9.77	X	430	10.40	X
431	8.97	Y	432	9.09	Y	433	10.74	Y	434	11.47	38	435	10.23	X
436	9.91	X	437	10.44	Y	438	9.97	X	439	9.72	X	440	11.82	Y
441	8.40	Y	442	9.97	X	443	10.23	Y	444	7.85	23	445	9.25	X
446	8.82	Y	447	9.25	X	448	10.39	24	449	9.66	X	450	10.37	Y
451	6.65	20	452	12.3	Y	453	10.81	Y	454	9.06	X	455	8.96	X
456	9.90	X	457	11.19	X	458	9.51	Y	459	10.46	Y	460	10.76	X
461	10.54	X	462	9.27	Y	463	11.73	Y	464	9.55	X	465	9.77	X
466	8.34	X	467	10.86	X	468	9.60	X	469	8.89	X	470	10.10	Y
471	6.61	29	472	9.15	Y	473	10.0	Y	474	10.52	Y	475	11.86	X
476	8.71	X	477	10.25	Y	478	7.99	14	479	9.63	X	480	8.71	47
481	8.75	X	482	9.09	Y	483	8.45	Y	484	10.09	X	485	8.69	X
486	11.03	Y	487	8.21	08	488	7.83	X	489	8.36	X	490	8.32	X
491	8.81	X	492	10.26	Y	493	10.6	Y	494	8.94	09	495	10.97	Y
496	11.89	Y	497	10.01	11	498	8.95	X	499	9.64	42	500	9.37	X
501	9.02	X	502	10.76	Y	503	8.98	X	504	10.08	X	505	8.80	X
506	8.82	11	507	9.48	X	508	8.30	X	509	8.51	Y	510	9.71	X
511	6.17	02	512	10.79	Y	513	9.72	Y	514	9.25	X	515	11.23	X
516	8.25	Y	517	9.38	22	518	11.44	X	519	9.24	Y	520	10.93	Y

521	8.51	X	522	9.28	36	523	9.62	X	524	9.81	X	525	12.55	Y
526	10.36	Y	527	10.31	X	528	9.10	X	529	10.15	Y	530	9.27	X
531	11.1	Y	532	5.78	25	533	9.71	Y	534	9.81	Y	535	9.50	X
536	8.08	X	537	8.79	X	538	9.39	X	539	9.85	X	540	10.75	Y
541	10.22	X	542	9.22	Y	543	9.57	X	544	10.18	X	545	8.70	X
546	9.68	X	547	9.73	X	548	11.43	Y	549	11.04	Y	550	9.21	Y
551	9.54	X	552	9.76	X	553	12.41	Y	554	8.89	X	555	10.53	X
556	9.32	Y	557	12.21	Y	558	9.07	Y	559	9.44	X	560	10.60	X
561	11.49	Y	562	10.02	36	563	8.61	Y	564	10.42	X	565	11.05	Y
566	8.15	43	567	9.33	X	568	9.40	X	569	10.10	09	570	8.87	X
571	11.69	Y	572	10.91	Y	573	9.42	Y	574	12.6	Y	575	11.22	Y
576	9.93	X	577	9.84	X	578	9.51	X	579	7.78	05	580	9.83	X
581	9.57	X	582	9.03	Y	583	9.16	X	584	8.74	34	585	10.34	X
586	9.24	X	587	12.4	Y	588	8.59	X	589	9.06	X	590	10.14	43
591	10.74	X	592	9.63	X	593	9.33	07	594	12.6	Y	595	8.09	X
596	8.89	X	597	9.33	X	598	9.65	X	599	8.48	Y	600	10.24	X
601	9.66	X	602	8.41	31	603	12.96	X	604	9.36	X	605	9.4	Y
606	10.40	X	607	9.79	X	608	10.69	Y	609	10.04	X	610	12.1	Y
611	9.36	Y	612	11.2	Y	613	9.83	X	614	10.93	X	615	10.37	X
616	10.75	Y	617	8.17	X	618	8.24	X	619	10.20	46	620	11.37	Z
621	10.60	X	622	10.30	Y	623	10.87	Y	624	7.47	X	625	10.40	X
626	8.99	X	627	10.10	X	628	9.18	Y	629	9.67	X	630	11.3	Y
631	8.77	Y	632	11.74	X	633	9.94	Y	634	9.9	Y	635	9.06	X
636	9.66	X	637	11.00	X	638	9.75	X	639	8.35	43	640	8.97	X
641	12.5	Y	642	10.06	Y	643	9.83	31	644	10.91	Y	645	10.00	Y
646	13.1	Y	647	11.49	Y	648	9.72	X	649	12.30	X	650	13.03	X
651	10.02	03	652	11.47	Y	653	9.31	Y	654	8.43	05	655	10.16	X
656	9.64	Y	657	10.92	X	658	10.56	Y	659	8.80	X	660	9.45	Y
661	9.64	Y	662	10.46	X	663	9.23	X	664	9.99	X	665	8.52	X
666	10.80	X	667	9.12	X	668	12.13	X	669	10.24	Y	670	9.33	X
671	10.35	X	672	11.41	X	673	10.27	Y	674	7.43	Y	675	8.05	Y
676	9.46	X	677	9.74	X	678	8.69	X	679	9.01	X	680	9.41	X
681	10.73	Y	682	12.4	Y	683	8.55	X	684	10.92	Y	685	11.78	Y
686	9.75	Y	687	11.72	X	688	10.51	X	689	12.19	X	690	7.66	X
691	9.35	X	692	9.08	Y	693	9.21	Y	694	9.01	X	695	9.03	Y
696	9.32	X	697	9.61	X	698	10.7	Y	699	11.99	Z	700	11.43	Y
701	9.33	X	702	7.23	13	703	12.5	Y	704	6.00	02	705	8.46	X
706	10.9	Y	707	12.90	Y	708	10.65	Y	709	9.00	X	710	11.14	X
711	12.10	Y	712	8.35	06	713	8.90	X	714	9.09	Y	715	9.97	X
716	10.81	Y	717	11.04	X	718	9.76	X	719	15.7	Y	720	9.79	Y
721	9.28	X	722	12.17	Y	723	9.99	X	724	13.6	Y	725	11.69	X
726	10.78	X	727	9.87	X	728	12.7	Y	729	9.36	Y	730	13.6	Y
731	9.50	X	732	10.76	Y	733	9.07	X	734	10.03	X	735	9.57	X
736	11.55	Y	737	8.84	Y	738	9.96	X	739	8.72	X	740	9.02	X
741	10.39	X	742	9.59	Y	743	10.22	X	744	10.19	X	745	10.38	X
746	9.77	X	747	7.68	X	748	8.99	X	749	11.85	Y	750	12.13	X
751	8.64	X	752	10.22	Y	753	10.34	Y	754	9.18	X	755	9.84	Y
756	10.1	Y	757	10.36	Y	758	8.39	X	759	10.55	X	760	8.23	Y
761	10.91	Y	762	8.58	50	763	12.39	Y	764	9.49	X	765	12.29	X
766	9.99	Y	767	10.41	X	768	10.19	X	769	8.84	X	770	10.93	Y
771	10.33	Y	772	8.32	X	773	9.34	X	774	8.86	X	775	10.44	Y
776	7.68	34	777	10.02	X	778	9.58	01	779	8.6	Y	780	8.99	X
781	9.44	X	782	11.53	Y	783	10.98	Y	784	9.13	X	785	9.58	Y
786	8.71	X	787	10.2	Y	788	8.23	X	789	11.09	X	790	8.05	X
791	9.33	X	792	10.13	X	793	10.17	X	794	11.20	X	795	9.81	X
796	9.11	X	797	10.45	Y	798	9.64	24	799	10.35	X	800	11.60	Y
801	11.39	X	802	12.4	Y	803	9.69	X	804	7.87	22	805	9.72	X
806	10.81	X	807	10.62	30	808	9.62	X	809	12.08	Y	810	13.0	Y
811	10.82	Y	812	11.3	Y	813	12.27	Y	814	8.79	X	815	10.82	X

816	10.25	X	817	10.80	X	818	9.35	X	819	12.09	Y	820	10.38	X
821	11.84	X	822	12.18	X	823	11.46	Y	824	10.46	Y	825	11.79	Y
826	11.63	X	827	12.98	Y	828	10.26	X	829	11.07	X	830	9.36	Y
831	12.4	Y	832	11.20	Y	833	11.1	Y	834	9.33	X	835	11.12	X
836	13.2	Y	837	11.9	Y	838	10.13	X	839	10.77	Y	840	9.4	Y
841	13.02	Y	842	10.6	Y	843	13.1	Y	844	9.67	X	845	10.46	X
846	10.47	X	847	10.27	Y	848	11.09	X	849	8.19	Y	850	9.53	X
851	11.75	Y	852	10.16	Y	853	11.68	Y	854	12.41	Y	855	12.05	Y
856	10.62	Y	857	11.38	Y	858	10.17	Y	859	9.91	X	860	10.36	Y
861	9.91	X	862	10.1	Y	863	9.13	Z	864	12.98	Y	865	12.10	Y
866	9.42	X	867	11.0	Y	868	10.17	X	869	12.1	Y	870	11.8	Y
871	12.6	Y	872	9.95	Y	873	11.39	X	874	9.77	X	875	11.75	Y
876	10.95	Y	877	10.94	40	878	15.4	Y	879	11.6	Y	880	11.45	X
881	12.4	Y	882	10.61	X	883	12.86	Y	884	8.89	X	885	10.83	X
886	8.52	X	887	14.20	Y	888	9.52	Y	889	11.58	Y	890	10.79	Y
891	10.23	X	892	9.45	X	893	9.75	X	894	9.80	X	895	8.6	Y
896	11.79	Y	897	10.40	Y	898	12.3	Y	899	10.17	X	900	11.94	Y
901	11.79	Y	902	12.4	Y	903	9.6	Y	904	10.2	Y	905	11.80	Y
906	9.98	X	907	9.64	X	908	10.89	Y	909	8.81	X	910	10.17	X
911	7.88	X	912	9.12	X	913	12.6	Y	914	8.82	X	915	11.97	Y
916	11.55	Y	917	11.51	Y	918	10.84	X	919	11.33	X	920	11.19	X
921	10.03	X	922	11.94	X	923	11.6	Y	924	9.39	X	925	8.41	Y
926	10.5	Y	927	9.31	X	928	10.10	X	929	12.42	Y	930	11.4	Y
931	9.26	Y	932	10.05	X	933	12.60	Y	934	10.3	Y	935	13.27	Y
936	10.08	Y	937	11.70	Y	938	11.2	Y	939	12.06	Y	940	9.33	X
941	11.55	X	942	10.4	Y	943	9.73	Y	944	10.75	X	945	10.09	Y
946	10.51	X	947	10.17	X	948	11.42	X	949	9.59	X	950	11.3	Y
951	11.67	Y	952	9.12	X	953	10.40	X	954	9.94	X	955	11.5	Y
956	12.61	Y	957	9.85	X	958	10.73	X	959	10.7	Y	960	13.12	Y
961	11.39	X	962	11.61	Y	963	12.55	Y	964	10.94	X	965	10.23	X
966	10.02	Y	967	12.56	Y	968	10.05	Y	969	12.59	X	970	12.3	Y
971	9.91	X	972	9.50	X	973	9.86	X	974	10.40	Y	975	10.38	Y
976	9.35	X	977	9.74	X	978	9.72	X	979	10.03	X	980	7.76	06
981	10.84	X	982	10.27	X	983	9.58	X	984	9.23	X	985	13.08	Y
986	9.43	X	987	9.46	X	988	11.3	Y	989	12.2	Y	990	11.61	X
991	11.35	X	992	10.88	X	993	12.02	Y	994	10.28	X	995	10.37	X
996	11.00	Y	997	11.9	Y	998	11.0	Y	999	10.79	X	1000	10.2	Y
1001	9.73	X	1002	10.9	Y	1003	10.57	X	1004	9.82	X	1005	9.73	X
1006	11.64	X	1007	11.52	X	1008	10.56	X	1009	14.1	Y	1010	10.76	X
1011	12.85	Y	1012	12.33	X	1013	9.83	X	1014	11.92	X	1015	9.10	X
1016	12.22	Y	1017	11.1	Y	1018	11.01	X	1019	12.73	24	1020	12.06	X
1021	8.89	04	1022	10.1	Y	1023	9.73	X	1024	10.58	X	1025	12.87	Z
1026	13.4	Y	1027	10.7	Y	1028	9.41	X	1029	10.95	34	1030	10.42	X
1031	9.56	X	1032	9.90	X	1033	11.12	Y	1034	12.6	Y	1035	10.6	Y
1036	9.42	31	1037	13.24	Y	1038	10.82	X	1039	11.22	X	1040	10.01	X
1041	10.01	X	1042	10.21	X	1043	9.84	Y	1044	10.87	X	1045	13.09	Y
1046	10.41	X	1047	12.00	Y	1048	9.68	X	1049	10.6	Y	1050	12.7	Y
1051	9.87	X	1052	12.02	Y	1053	12.56	X	1054	10.49	X	1055	12.10	Y
1056	11.62	Y	1057	11.06	X	1058	11.99	Y	1059	10.56	X	1060	13.2	Y
1061	12.07	X	1062	10.10	X	1063	11.41	Y	1064	11.1	Y	1065	12.7	Y
1066	12.34	Y	1067	10.83	X	1068	10.58	X	1069	9.6	Y	1070	10.91	X
1071	10.10	X	1072	10.87	X	1073	11.46	X	1074	10.16	X	1075	10.21	Y
1076	12.51	50	1077	12.8	Y	1078	11.61	Y	1079	11.25	Y	1080	12.32	X
1081	11.65	X	1082	10.41	X	1083	12.8	Y	1084	10.69	X	1085	9.72	X
1086	9.55	X	1087	9.80	Y	1088	11.45	Y	1089	11.78	Y	1090	12.9	Y
1091	10.8	Y	1092	10.61	X	1093	8.82	X	1094	12.02	X	1095	10.59	Y
1096	10.20	X	1097	11.71	X	1098	10.60	X	1099	10.04	X	1100	11.25	Y
1101	10.9	Y	1102	9.69	X	1103	12.49	Z	1104	12.4	Y	1105	10.20	Y
1106	11.8	Y	1107	8.96	X	1108	11.88	X	1109	10.04	X	1110	12.16	Y

1111	10.74	X	1112	10.15	Y	1113	9.52	X	1114	9.72	X	1115	9.31	X
1116	9.65	X	1117	12.13	Y	1118	9.79	X	1119	11.51	X	1120	12.2	Y
1121	11.4	Y	1122	11.6	Y	1123	11.62	Y	1124	10.79	X	1125	12.01	X
1126	12.6	Y	1127	10.92	X	1128	10.79	X	1129	10.04	Y	1130	12.1	Y
1131	14.2	Y	1132	11.07	X	1133	12.30	Y	1134	13.66	X	1135	10.37	X
1136	11.00	X	1137	11.16	Y	1138	11.1	Y	1139	12.55	Y	1140	10.33	Y
1141	13.4	Y	1142	10.48	X	1143	8.43	X	1144	10.12	X	1145	11.10	Y
1146	9.80	X	1147	12.04	Y	1148	10.10	Y	1149	10.29	X	1150	13.3	Y
1151	13.7	Y	1152	11.1	Y	1153	12.26	Y	1154	10.50	X	1155	11.81	Y
1156	12.8	Y	1157	10.09	X	1158	11.03	Y	1159	11.54	Y	1160	11.14	Y
1161	11.14	X	1162	9.58	Y	1163	10.62	X	1164	13.16	Y	1165	10.65	X
1166	11.5	Y	1167	9.94	X	1168	12.41	X	1169	13.2	Y	1170	12.52	Y
1171	9.84	X	1172	8.26	X	1173	8.91	X	1174	11.7	Y	1175	10.41	X
1176	11.1	Y	1177	9.25	X	1178	11.82	X	1179	13.9	Y	1180	9.15	X
1181	11.5	Y	1182	11.44	Y	1183	11.96	Y	1184	11.39	X	1185	12.11	Y
1186	9.52	Y	1187	11.35	X	1188	12.11	Y	1189	9.98	X	1190	12.1	Y
1191	10.5	Y	1192	12.93	Y	1193	12.1	Y	1194	10.62	X	1195	13.4	Y
1196	10.36	X	1197	10.15	X	1198	15.6	Y	1199	10.49	Y	1200	10.68	X
1201	11.50	X	1202	10.2	Y	1203	11.76	X	1204	12.27	Y	1205	14.1	Y
1206	9.48	X	1207	11.22	Y	1208	9.00	X	1209	10.4	Y	1210	10.08	Y
1211	10.94	X	1212	9.38	X	1213	11.0	Y	1214	11.01	X	1215	11.39	Z
1216	12.73	Y	1217	13.4	Y	1218	13.08	Y	1219	12.11	Y	1220	11.1	Y
1221	18.0	Y	1222	12.1	Y	1223	10.66	Y	1224	11.47	Y	1225	12.5	Y
1226	12.1	Y	1227	10.28	X	1228	11.6	Y	1229	11.04	X	1230	13.5	Y
1231	11.6	Y	1232	10.21	X	1233	11.2	Y	1234	10.77	Y	1235	12.96	X
1236	11.92	Y	1237	10.85	X	1238	11.9	Y	1239	12.6	Y	1240	9.80	X
1241	9.45	X	1242	10.31	X	1243	9.80	X	1244	11.41	Y	1245	10.05	49
1246	10.77	X	1247	10.64	X	1248	9.84	X	1249	11.77	Y	1250	12.26	X
1251	10.71	Z	1252	10.97	Y	1253	12.1	Y	1254	10.92	X	1255	10.41	X
1256	9.69	X	1257	11.90	Y	1258	10.53	X	1259	10.83	Y	1260	11.8	Y
1261	10.7	Y	1262	10.18	X	1263	10.48	X	1264	9.7	Y	1265	10.80	Y
1266	9.42	X	1267	12.27	Y	1268	9.17	X	1269	8.73	X	1270	12.73	Y
1271	10.52	X	1272	12.4	Y	1273	13.05	Y	1274	11.89	Y	1275	10.72	X
1276	10.7	Y	1277	11.12	X	1278	11.05	Y	1279	12.57	Y	1280	10.30	X
1281	11.51	X	1282	10.07	X	1283	10.8	Y	1284	10.23	X	1285	10.2	Y
1286	10.67	Y	1287	11.06	Y	1288	11.33	X	1289	10.64	Y	1290	12.6	Y
1291	10.36	Y	1292	11.41	X	1293	14.0	Y	1294	10.51	X	1295	10.5	Y
1296	11.5	Y	1297	11.3	Y	1298	10.90	X	1299	11.91	X	1300	11.11	X
1301	10.7	Y	1302	10.8	Y	1303	9.3	Y	1304	9.19	X	1305	10.49	X
1306	9.62	Y	1307	12.33	Y	1308	10.76	X	1309	10.24	X	1310	11.55	Y
1311	12.7	Y	1312	11.02	X	1313	11.8	Y	1314	12.73	Y	1315	9.95	X
1316	13.7	Y	1317	9.93	X	1318	12.0	Y	1319	10.6	Y	1320	10.8	Y
1321	10.29	X	1322	13.0	Y	1323	10.26	X	1324	12.5	Y	1325	12.1	Y
1326	10.96	Y	1327	12.17	X	1328	10.35	X	1329	10.80	Y	1330	10.18	X
1331	10.35	Y	1332	10.2	Y	1333	11.71	X	1334	10.01	X	1335	13.8	Y
1336	10.93	Y	1337	11.00	X	1338	12.91	Y	1339	10.84	Y	1340	11.32	X
1341	10.59	X	1342	11.45	Y	1343	11.42	X	1344	13.00	Y	1345	9.74	X
1346	11.29	X	1347	11.73	X	1348	11.20	X	1349	10.66	X	1350	10.62	Y
1351	10.05	X	1352	11.25	X	1353	10.00	Y	1354	10.32	X	1355	13.18	Y
1356	10.26	X	1357	11.03	X	1358	12.52	Y	1359	10.53	X	1360	11.3	Y
1361	11.40	X	1362	11.10	X	1363	11.60	Y	1364	10.97	Y	1365	12.23	Y
1366	10.39	X	1367	13.1	Y	1368	10.96	X	1369	10.69	X	1370	13.8	Y
1371	11.2	Y	1372	11.6	Y	1373	13.1	Y	1374	13.6	Y	1375	11.88	Y
1376	12.48	Y	1377	13.1	Y	1378	12.25	Y	1379	10.96	X	1380	12.0	Y
1381	11.96	Y	1382	12.26	Y	1383	11.77	X	1384	11.7	Y	1385	10.92	X
1386	13.6	Y	1387	13.2	Y	1388	11.10	Y	1389	11.64	Y	1390	9.21	X
1391	12.08	Y	1392	11.72	X	1393	12.28	Y	1394	11.89	Y	1395	11.6	Y
1396	11.87	Y	1397	11.49	X	1398	10.31	Y	1399	14.1	Y	1400	11.8	Y
1401	12.29	Y	1402	12.94	X	1403	11.29	X	1404	9.1	Y	1405	12.52	Y

1406	11.3	Y	1407	11.22	X	1408	10.9	Y	1409	10.57	X	1410	11.32	Y
1411	10.88	X	1412	12.5	Y	1413	11.41	Y	1414	12.6	Y	1415	12.43	Y
1416	10.47	Y	1417	11.19	X	1418	12.01	Y	1419	11.47	Y	1420	11.7	Y
1421	10.36	X	1422	13.43	Y	1423	11.23	Y	1424	9.48	X	1425	11.7	Y
1426	10.9	Y	1427	10.72	X	1428	10.36	X	1429	12.1	Y	1430	12.1	Y
1431	11.4	Y	1432	12.26	Y	1433	11.7	Y	1434	10.42	Y	1435	12.76	X
1436	10.70	X	1437	8.30	X	1438	11.22	X	1439	10.65	X	1440	11.7	Y
1441	13.0	Y	1442	11.62	Y	1443	11.2	Y	1444	11.0	Y	1445	11.85	X
1446	13.18	Y	1447	11.12	X	1448	13.2	Y	1449	12.6	Y	1450	11.79	X
1451	12.7	Y	1452	11.9	Y	1453	12.58	Y	1454	13.1	Y	1455	13.3	Y
1456	10.92	X	1457	11.3	Y	1458	11.64	X	1459	10.8	Y	1460	12.6	Y
1461	10.07	Y	1462	11.0	Y	1463	10.9	Y	1464	11.14	Y	1465	11.0	Y
1466	12.9	Y	1467	8.55	X	1468	13.49	Y	1469	9.77	X	1470	11.1	Y
1471	11.3	Y	1472	12.63	Y	1473	12.4	Y	1474	12.61	X	1475	13.0	Y
1476	13.7	Y	1477	11.59	X	1478	12.75	Y	1479	11.71	X	1480	13.38	Y
1481	10.47	X	1482	10.97	Y	1483	11.70	X	1484	11.1	Y	1485	11.4	Y
1486	13.47	Y	1487	10.53	X	1488	10.9	Y	1489	11.47	X	1490	12.15	Y
1491	11.5	Y	1492	12.98	Y	1493	11.91	X	1494	13.16	Y	1495	11.72	X
1496	12.46	Y	1497	11.8	Y	1498	11.9	Y	1499	11.44	X	1500	13.12	Y
1501	12.43	X	1502	11.6	Y	1503	10.64	X	1504	11.89	Y	1505	11.39	X
1506	12.04	X	1507	13.5	Y	1508	11.90	Y	1509	12.74	Y	1510	11.40	X
1511	13.0	Y	1512	9.59	X	1513	13.40	Y	1514	12.4	Y	1515	12.8	Y
1516	12.04	X	1517	11.0	Y	1518	12.42	Y	1519	11.2	Y	1520	10.37	X
1521	12.1	Y	1522	12.54	Y	1523	12.54	Y	1524	10.74	X	1525	12.5	Y
1526	13.6	Y	1527	12.07	Y	1528	12.4	Y	1529	10.04	X	1530	13.4	Y
1531	11.9	Y	1532	11.01	Y	1533	10.92	Y	1534	11.88	X	1535	11.7	Y
1536	13.07	Y	1537	12.0	Y	1538	14.4	Y	1539	11.12	X	1540	10.7	Y
1541	11.30	X	1542	10.40	X	1543	12.4	Y	1544	11.89	Y	1545	11.60	X
1546	10.6	Y	1547	10.75	X	1548	11.7	Y	1549	12.5	Y	1550	11.80	X
1551	12.54	Y	1552	11.5	Y	1553	11.6	Y	1554	11.57	X	1555	11.55	X
1556	10.57	X	1557	11.25	Y	1558	10.29	X	1559	12.0	Y	1560	11.82	X
1561	10.9	Y	1562	11.80	Y	1563	12.7	Y	1564	10.87	X	1565	12.6	Y
1566	16.65	Y	1567	9.57	X	1568	12.0	Y	1569	12.09	X	1570	12.07	Y
1571	12.0	Y	1572	10.05	X	1573	12.6	Y	1574	10.4	Y	1575	12.6	Y
1576	11.07	Y	1577	14.1	Y	1578	10.33	X	1579	10.69	X	1580	14.55	02
1581	10.88	Y	1582	10.93	X	1583	8.66	X	1584	10.81	Y	1585	10.46	X
1586	12.4	Y	1587	11.7	Y	1588	11.0	Y	1589	12.13	Y	1590	11.87	Y
1591	11.91	Y	1592	11.62	X	1593	13.50	Y	1594	12.3	Y	1595	11.94	X
1596	10.7	Y	1597	12.2	Y	1598	13.2	Y	1599	11.01	X	1600	13.1	Y
1601	12.50	Y	1602	12.56	Y	1603	10.94	X	1604	10.58	24	1605	10.21	Y
1606	11.99	X	1607	11.76	X	1608	12.62	Y	1609	10.72	X	1610	13.6	Y
1611	10.7	Y	1612	11.0	Y	1613	11.75	X	1614	10.45	X	1615	11.36	Y
1616	11.1	Y	1617	10.9	Y	1618	11.6	Y	1619	12.21	Y	1620	15.82	Y
1621	11.64	Y	1622	12.3	Y	1623	10.7	Y	1624	11.24	X	1625	10.32	X
1626	11.40	Y	1627	12.88	Y	1628	10.06	X	1629	12.9	Y	1630	11.4	Y
1631	12.5	Y	1632	11.5	Y	1633	10.4	Y	1634	12.94	Y	1635	11.6	Y
1636	12.3	Y	1637	10.2	Y	1638	11.7	Y	1639	10.97	X	1640	13.5	Y
1641	10.68	Y	1642	11.2	Y	1643	12.6	Y	1644	12.01	Y	1645	11.5	Y
1646	12.05	Y	1647	10.2	Y	1648	12.63	Y	1649	11.6	Y	1650	11.56	X
1651	12.3	Y	1652	12.6	Y	1653	11.6	Y	1654	10.9	Y	1655	11.03	X
1656	13.1	Y	1657	12.79	Y	1658	11.41	Y	1659	10.1	Y	1660	13.0	Y
1661	12.9	Y	1662	11.9	Y	1663	13.7	Y	1664	12.6	Y	1665	11.88	Y
1666	12.91	Y	1667	11.95	Y	1668	12.4	Y	1669	10.75	X	1670	11.22	X
1671	12.40	X	1672	11.9	Y	1673	11.0	Y	1674	11.05	X	1675	12.0	Y
1676	13.0	Y	1677	12.2	Y	1678	10.9	Y	1679	10.4	Y	1680	11.3	Y
1681	11.60	Y	1682	12.89	Y	1683	11.7	Y	1684	10.85	X	1685	13.96	03
1686	10.8	Y	1687	10.15	Y	1688	12.2	Y	1689	11.73	Y	1690	10.7	Y
1691	10.95	X	1692	11.3	Y	1693	11.03	X	1694	12.13	X	1695	11.9	Y
1696	13.2	Y	1697	12.1	Y	1698	11.1	Y	1699	13.2	Y	1700	12.49	Y

1701	10.4	Y	1702	11.03	X	1703	13.1	Y	1704	12.7	Y	1705	13.1	Y
1706	12.8	Y	1707	12.61	Y	1708	11.6	Y	1709	12.98	Y	1710	13.4	Y
1711	11.04	Y	1712	9.9	Y	1713	13.1	Y	1714	11.6	Y	1715	12.1	Y
1716	11.9	Y	1717	12.44	Y	1718	13.6	Y	1719	11.4	Y	1720	13.2	Y
1721	10.6	Y	1722	12.53	X	1723	10.10	Y	1724	11.29	X	1725	11.1	Y
1726	11.9	Y	1727	13.1	Y	1728	11.6	Y	1729	12.4	Y	1730	11.6	Y
1731	9.9	Y	1732	10.8	Y	1733	13.0	Y	1734	11.4	Y	1735	9.6	Y
1736	12.2	Y	1737	11.0	Y	1738	12.6	Y	1739	13.53	Y	1740	13.25	X
1741	11.5	Y	1742	11.88	Y	1743	12.31	Y	1744	13.8	Y	1745	12.1	Y
1746	9.91	X	1747	13.38	Y	1748	10.52	X	1749	10.1	Y	1750	13.52	Y
1751	12.2	Y	1752	13.5	Y	1753	11.1	Y	1754	9.74	X	1755	10.81	Y
1756	12.8	Y	1757	13.45	Y	1758	10.7	Y	1759	13.15	X	1760	11.5	Y
1761	11.5	Y	1762	11.7	Y	1763	13.1	Y	1764	11.2	Y	1765	9.92	X
1766	11.97	X	1767	12.26	Y	1768	12.45	X	1769	12.7	Y	1770	12.39	Y
1771	10.1	Y	1772	12.93	X	1773	11.42	Y	1774	12.2	Y	1775	12.2	Y
1776	11.0	Y	1777	11.8	Y	1778	11.8	Y	1779	14.3	Y	1780	10.69	Y
1781	12.7	Y	1782	10.85	X	1783	11.94	X	1784	11.81	Y	1785	12.8	Y
1786	11.0	Y	1787	11.3	Y	1788	11.7	Y	1789	12.54	Y	1790	12.61	Y
1791	12.0	Y	1792	12.05	X	1793	12.6	Y	1794	11.08	X	1795	11.9	Y
1796	9.66	X	1797	12.8	Y	1798	12.6	Y	1799	11.3	Y	1800	12.7	Y
1801	11.2	Y	1802	11.7	Y	1803	12.2	Y	1804	12.3	Y	1805	11.2	Y
1806	12.7	Y	1807	12.7	Y	1808	12.2	Y	1809	11.7	Y	1810	12.8	Y
1811	11.1	Y	1812	11.6	Y	1813	12.5	Y	1814	13.1	Y	1815	11.36	X
1816	13.6	Y	1817	12.2	Y	1818	14.1	Y	1819	10.7	Y	1820	13.5	Y
1821	13.7	Y	1822	13.04	Y	1823	13.0	Y	1824	11.7	Y	1825	11.8	Y
1826	11.84	X	1827	12.41	X	1828	11.1	Y	1829	12.6	Y	1830	12.53	Y
1831	12.84	Y	1832	11.28	X	1833	11.97	X	1834	11.6	Y	1835	11.6	Y
1836	11.5	Y	1837	13.47	Y	1838	10.8	Y	1839	11.6	Y	1840	11.7	Y
1841	11.37	X	1842	12.75	Y	1843	11.5	Y	1844	11.2	Y	1845	11.8	Y
1846	13.5	Y	1847	10.7	Y	1848	11.41	Y	1849	11.1	Y	1850	13.1	Y
1851	12.0	Y	1852	10.7	Y	1853	10.5	Y	1854	12.89	X	1855	12.7	Y
1856	12.3	Y	1857	12.6	Y	1858	11.7	Y	1859	10.84	X	1860	11.5	Y
1861	11.8	Y	1862	16.23	12	1863	15.81	Z	1864	15.02	Y	1865	16.91	Y
1866	13.2	Y	1867	8.60	X	1868	9.6	Y	1869	11.2	Y	1870	10.8	Y
1871	11.2	Y	1872	10.2	Y	1873	10.6	Y	1874	11.0	Y	1875	12.2	Y
1876	14.7	Y	1877	11.3	Y	1878	11.88	Y	1879	13.0	Y	1880	12.13	X
1881	11.0	Y	1882	11.0	Y	1883	13.2	Y	1884	13.2	Y	1885	13.6	Y
1886	11.6	Y	1887	11.53	Y	1888	12.0	Y	1889	10.7	Y	1890	11.2	Y
1891	11.7	Y	1892	12.28	Y	1893	11.3	Y	1894	12.3	Y	1895	12.34	X
1896	13.7	Y	1897	13.79	Y	1898	12.2	Y	1899	12.7	Y	1900	12.2	Y
1901	11.2	Y	1902	9.49	X	1903	10.7	Y	1904	11.7	Y	1905	13.54	Y
1906	12.7	Y	1907	12.1	Y	1908	11.2	Y	1909	12.3	Y	1910	10.6	Y
1911	10.11	X	1912	12.0	Y	1913	11.2	Y	1914	12.5	Y	1915	19.05	16
1916	15.03	Y	1917	15.2	Y	1918	11.2	Y	1919	13.77	Z	1920	14.34	Z
1921	14.5	Y	1922	11.8	Y	1923	13.5	Y	1924	13.2	Y	1925	12.2	Y
1926	12.1	Y	1927	11.8	Y	1928	12.95	Y	1929	12.2	Y	1930	11.2	Y
1931	13.4	Y	1932	13.5	Y	1933	13.3	Y	1934	12.7	Y	1935	13.3	Y
1936	11.2	Y	1937	12.2	Y	1938	12.7	Y	1939	10.7	Y	1940	11.2	Y
1941	11.2	Y	1942	13.1	Y	1943	15.83	Y	1944	13.7	Y	1945	12.2	Y
1946	12.7	Y	1947	10.2	Y	1948	12.2	Y	1949	13.5	Y	1950	13.84	Y
1951	14.5	Y	1952	10.59	X	1953	11.8	Y	1954	12.1	Y	1955	12.08	Y
1956	11.7	Y	1957	11.53	Y	1958	11.0	Y	1959	12.7	Y	1960	11.85	X
1961	11.2	Y	1962	12.2	Y	1963	10.89	X	1964	13.4	Y	1965	12.3	Y
1966	14.0	Y	1967	12.15	Y	1968	11.7	Y	1969	11.5	Y	1970	12.20	X
1971	12.3	Y	1972	13.2	Y	1973	11.7	Y	1974	12.0	Y	1975	12.1	Y
1976	13.49	Y	1977	11.3	Y	1978	13.1	Y	1979	13.6	Y	1980	14.07	Y
1981	16.9	Y	1982	12.90	Y	1983	12.7	Y	1984	11.2	Y	1985	11.2	Y
1986	12.0	Y	1987	11.8	Y	1988	13.6	Y	1989	12.2	Y	1990	13.15	Y
1991	13.5	Y	1992	12.1	Y	1993	12.2	Y	1994	12.2	Y	1995	12.6	Y

1996	12.1	Y	1997	13.3	Y	1998	12.50	Y	1999	10.7	Y	2000	11.36	Y
2001	12.96	Y	2002	12.2	Y	2003	11.8	Y	2004	12.8	Y	2005	12.2	Y
2006	13.0	Y	2007	11.7	Y	2008	10.1	Y	2009	11.0	Y	2010	11.54	Y
2011	12.7	Y	2012	13.2	Y	2013	12.1	Y	2014	12.54	Y	2015	12.3	Y
2016	11.2	Y	2017	12.71	Y	2018	14.5	Y	2019	12.2	Y	2020	11.49	Y
2021	13.6	Y	2022	12.14	X	2023	11.6	Y	2024	13.3	Y	2025	10.7	Y
2026	13.2	Y	2027	11.7	Y	2028	14.1	Y	2029	13.2	Y	2030	13.6	Y
2031	13.3	Y	2032	11.6	Y	2033	13.7	Y	2034	12.7	Y	2035	12.78	Z
2036	12.7	Y	2037	13.7	Y	2038	12.2	Y	2039	12.7	Y	2040	11.7	Y
2041	12.5	Y	2042	12.9	Y	2043	11.0	Y	2044	13.2	Y	2045	12.3	Y
2046	11.0	Y	2047	13.7	Y	2048	13.79	Z	2049	15.1	Y	2050	12.79	Y
2051	11.7	Y	2052	10.53	Y	2053	12.14	X	2054	12.5	Y	2055	13.5	Y
2056	12.2	Y	2057	14.7	Y	2058	10.7	Y	2059	14.7	Y	2060	6.62	Y
2061	16.7	Y	2062	16.96	Y	2063	17.6	Y	2064	13.7	Y	2065	12.2	Y
2066	13.0	Y	2067	10.49	X	2068	11.7	Y	2069	11.2	Y	2070	13.6	Y
2071	13.2	Y	2072	12.64	Y	2073	12.7	Y	2074	13.8	Y	2075	13.7	Y
2076	14.2	Y	2077	13.2	Y	2078	12.7	Y	2079	12.2	Y	2080	13.6	Y
2081	12.13	X	2082	12.7	Y	2083	13.33	Y	2084	12.5	Y	2085	11.85	X
2086	11.9	Y	2087	13.2	Y	2088	12.48	Y	2089	11.25	Y	2090	11.02	Y
2091	10.4	Y	2092	11.6	Y	2093	13.2	Y	2094	12.79	Y	2095	12.8	Y
2096	13.2	Y	2097	11.7	Y	2098	12.1	Y	2099	15.44	Y	2100	16.12	17
2101	18.2	Y	2102	16.3	Y	2103	10.63	X	2104	9.9	Y	2105	12.4	Y
2106	11.7	Y	2107	11.5	Y	2108	11.5	Y	2109	11.91	X	2110	13.6	Y
2111	10.53	Y	2112	12.6	Y	2113	13.23	Y	2114	10.9	Y	2115	11.1	Y
2116	12.3	Y	2117	11.7	Y	2118	11.87	X	2119	13.7	Y	2120	10.6	Y
2121	12.5	Y	2122	12.1	Y	2123	11.05	Y	2124	12.05	Y	2125	12.71	X
2126	12.4	Y	2127	11.56	X	2128	14.0	Y	2129	14.0	Y	2130	14.1	Y
2131	12.97	Z	2132	11.2	Y	2133	13.5	Y	2134	13.0	Y	2135	18.0	Y
2136	11.6	Y	2137	11.1	Y	2138	11.6	Y	2139	12.81	X	2140	11.0	Y
2141	11.4	Y	2142	11.7	Y	2143	14.1	Y	2144	11.54	Y	2145	10.5	Y
2146	10.4	Y	2147	11.6	Y	2148	11.1	Y	2149	11.8	Y	2150	13.4	Y
2151	10.7	Y	2152	10.4	Y	2153	11.9	Y	2154	12.6	Y	2155	12.4	Y
2156	12.67	Y	2157	11.5	Y	2158	11.4	Y	2159	12.16	Y	2160	11.96	Y
2161	12.2	Y	2162	12.7	Y	2163	11.6	Y	2164	11.9	Y	2165	11.5	Y
2166	14.3	Y	2167	11.7	Y	2168	12.9	Y	2169	12.1	Y	2170	13.5	Y
2171	13.3	Y	2172	11.5	Y	2173	11.4	Y	2174	13.3	Y	2175	14.5	Y
2176	12.2	Y	2177	11.7	Y	2178	13.5	Y	2179	11.7	Y	2180	11.1	Y
2181	12.2	Y	2182	10.3	Y	2183	11.4	Y	2184	11.6	Y	2185	11.34	X
2186	12.4	Y	2187	13.48	X	2188	12.0	Y	2189	12.4	Y	2190	13.58	Y
2191	11.2	Y	2192	11.4	Y	2193	10.96	X	2194	12.6	Y	2195	12.6	Y
2196	10.24	X	2197	11.28	X	2198	14.5	Y	2199	13.1	Y	2200	12.7	Y
2201	15.41	Y	2202	16.3	Y	2203	12.01	X	2204	12.80	X	2205	11.7	Y
2206	11.6	Y	2207	8.87	X	2208	10.96	X	2209	10.9	Y	2210	14.4	Y
2211	13.9	Y	2212	14.0	Y	2213	13.8	Y	2214	11.7	Y	2215	11.6	Y
2216	10.9	Y	2217	11.20	X	2218	11.7	Y	2219	10.8	Y	2220	12.0	Y
2221	13.1	Y	2222	11.6	Y	2223	9.41	X	2224	11.9	Y	2225	12.0	Y
2226	11.75	Y	2227	13.8	Y	2228	11.85	X	2229	13.2	Y	2230	12.0	Y
2231	12.5	Y	2232	12.0	Y	2233	12.69	Y	2234	12.2	Y	2235	11.26	X
2236	12.4	Y	2237	11.2	Y	2238	12.3	Y	2239	11.46	X	2240	11.9	Y
2241	8.66	X	2242	13.9	Y	2243	12.9	Y	2244	12.2	Y	2245	11.4	Y
2246	10.71	X	2247	13.6	Y	2248	11.06	X	2249	11.40	X	2250	11.6	Y
2251	11.6	Y	2252	12.85	X	2253	13.1	Y	2254	12.5	Y	2255	11.6	Y
2256	11.9	Y	2257	13.1	Y	2258	11.7	Y	2259	12.8	Y	2260	8.95	X
2261	13.43	Y	2262	12.7	Y	2263	11.0	Y	2264	10.59	X	2265	13.3	Y
2266	10.81	X	2267	13.7	Y	2268	11.9	Y	2269	10.6	Y	2270	10.81	X
2271	11.4	Y	2272	14.04	Y	2273	13.34	Y	2274	12.70	Y	2275	13.60	Y
2276	13.0	Y	2277	12.11	X	2278	14.27	X	2279	12.97	X	2280	14.14	Y
2281	13.5	Y	2282	13.4	Y	2283	12.70	Y	2284	12.7	Y	2285	13.7	Y
2286	13.2	Y	2287	13.1	Y	2288	11.3	Y	2289	13.4	Y	2290	12.16	X

2291 10.61 Y	2292 11.8 Y	2293 10.8 Y	2294 11.4 Y	2295 12.2 Y
2296 11.4 Y	2297 11.1 Y	2298 12.9 Y	2299 13.4 Y	2300 11.76 Y
2301 11.5 Y	2302 12.20 41	2303 11.5 Y	2304 12.22 X	2305 11.8 Y
2306 12.42 X	2307 11.19 X	2308 11.87 X	2309 11.4 Y	2310 12.1 Y
2311 10.55 X	2312 10.24 X	2313 13.12 X	2314 12.8 Y	2315 10.4 Y
2316 12.57 Y	2317 13.46 X	2318 13.85 Y	2319 12.15 Y	2320 10.7 Y
2321 11.7 Y	2322 12.6 Y	2323 11.1 Y	2324 11.64 X	2325 12.05 X
2326 10.61 X	2327 13.76 Y	2328 12.6 Y	2329 15.1 Y	2330 11.3 Y
2331 12.37 Y	2332 10.64 X	2333 11.88 X	2334 13.5 Y	2335 13.1 Y
2336 11.44 X	2337 12.05 X	2338 11.9 Y	2339 13.55 X	2340 20.2 Y
2341 12.7 Y	2342 11.97 X	2343 13.6 Y	2344 12.0 Y	2345 10.80 Y
2346 12.1 Y	2347 11.42 X	2348 12.5 Y	2349 11.58 X	2350 13.5 Y
2351 13.1 Y	2352 10.79 X	2353 11.9 Y	2354 11.4 Y	2355 11.5 Y
2356 10.67 X	2357 8.99 X	2358 11.2 Y	2359 12.93 Y	2360 12.43 X
2361 11.91 X	2362 13.6 Y	2363 8.8 Y	2364 10.77 X	2365 11.96 X
2366 13.95 Y	2367 13.75 Y	2368 15.6 Y	2369 12.00 X	2370 12.8 Y
2371 12.72 Y	2372 11.8 Y	2373 12.6 Y	2374 11.21 X	2375 10.71 X
2376 10.78 X	2377 12.44 Y	2378 10.59 X	2379 10.93 X	2380 13.2 Y
2381 12.2 Y	2382 11.5 Y	2383 13.47 Y	2384 12.40 30	2385 13.4 Y
2386 12.2 Y	2387 11.58 Y	2388 12.97 Y	2389 13.1 Y	2390 12.33 X
2391 12.5 Y	2392 13.39 Y	2393 10.6 Y	2394 11.49 X	2395 12.4 Y
2396 11.36 X	2397 11.25 X	2398 13.58 Y	2399 13.27 Y	2400 12.43 Y
2401 12.3 Y	2402 13.30 Y	2403 12.4 Y	2404 11.14 X	2405 12.09 Y
2406 13.6 Y	2407 10.77 X	2408 12.6 Y	2409 13.04 Y	2410 12.99 Y
2411 12.98 Y	2412 11.9 Y	2413 10.63 Y	2414 10.9 Y	2415 12.13 X
2416 11.0 Y	2417 12.25 X	2418 12.6 Y	2419 13.45 Y	2420 11.8 Y
2421 10.82 X	2422 13.6 Y	2423 13.7 Y	2424 13.0 Y	2425 11.72 Y
2426 11.55 X	2427 13.2 Y	2428 11.3 Y	2429 12.33 Y	2430 12.2 Y
2431 12.8 Y	2432 13.08 Y	2433 11.88 33	2434 11.61 X	2435 14.9 Y
2436 12.2 Y	2437 13.5 Y	2438 13.69 Y	2439 11.5 Y	2440 13.6 Y
2441 13.7 Y	2442 12.73 Y	2443 10.47 Y	2444 11.86 X	2445 12.94 Y
2446 12.99 Y	2447 13.05 X	2448 10.85 X	2449 14.47 Z	2450 11.55 X
2451 12.02 X	2452 12.02 X	2453 11.09 Y	2454 13.68 Y	2455 11.78 X
2456 9.6 Y	2457 12.9 Y	2458 11.59 X	2459 12.1 Y	2460 11.96 Y
2461 11.4 Y	2462 13.98 Y	2463 12.2 Y	2464 11.92 X	2465 12.4 Y
2466 12.1 Y	2467 12.65 Y	2468 12.8 Y	2469 12.1 Y	2470 11.7 Y
2471 11.66 X	2472 13.5 Y	2473 13.51 Y	2474 11.8 Y	2475 11.1 Y
2476 10.99 Y	2477 12.01 X	2478 12.54 Y	2479 13.1 Y	2480 13.49 Y
2481 13.93 X	2482 12.4 Y	2483 11.18 X	2484 13.5 Y	2485 12.54 X
2486 12.98 Y	2487 13.2 Y	2488 14.0 Y	2489 12.00 X	2490 12.19 X
2491 13.74 Y	2492 11.16 X	2493 12.8 Y	2494 10.70 X	2495 15.6 Y
2496 13.5 Y	2497 13.28 X	2498 12.03 X	2499 12.25 X	2500 12.84 Y
2501 12.15 Y	2502 11.56 X	2503 14.1 Y	2504 11.93 X	2505 11.31 X
2506 11.86 Y	2507 11.63 X	2508 13.5 Y	2509 13.15 X	2510 12.28 Y
2511 12.82 Y	2512 12.8 Y	2513 13.5 Y	2514 12.95 X	2515 12.34 X
2516 13.76 Y	2517 11.75 X	2518 13.69 Y	2519 11.40 X	2520 11.73 X
2521 11.7 Y	2522 11.5 Y	2523 11.58 Y	2524 11.08 X	2525 10.76 X
2526 12.1 Y	2527 13.04 X	2528 11.6 Y	2529 13.1 Y	2530 11.8 Y
2531 11.01 Y	2532 12.7 Y	2533 11.76 X	2534 10.67 X	2535 12.64 33
2536 13.11 Y	2537 12.8 Y	2538 13.76 34	2539 14.39 Y	2540 13.2 Y
2541 12.1 Y	2542 11.47 14	2543 11.8 Y	2544 13.1 Y	2545 13.21 Y
2546 11.7 Y	2547 13.7 Y	2548 12.7 Y	2549 12.8 Y	2550 11.34 X
2551 12.40 43	2552 14.98 Y	2553 11.1 Y	2554 12.91 13	2555 12.03 31
2556 13.70 Y	2557 12.49 Y	2558 13.87 Y	2559 12.5 Y	2560 11.81 X
2561 13.12 Y	2562 10.56 Y	2563 11.42 X	2564 13.53 Y	2565 14.6 Y
2566 12.71 Y	2567 11.75 X	2568 13.4 Y	2569 11.34 X	2570 12.21 X
2571 13.21 Y	2572 13.4 Y	2573 11.3 Y	2574 12.56 Y	2575 12.8 Y
2576 11.22 X	2577 12.7 Y	2578 11.70 Y	2579 13.1 Y	2580 13.49 Y
2581 13.3 Y	2582 10.8 Y	2583 13.12 Y	2584 13.65 Y	2585 12.6 Y

2586	13.10 Y	2587	11.19 X	2588	13.43 X	2589	12.05 Y	2590	12.84 Y
2591	11.58 X	2592	11.7 Y	2593	14.01 Y	2594	11.7 Y	2595	12.37 X
2596	12.9 Y	2597	11.74 X	2598	12.59 X	2599	12.27 X	2600	11.29 Y
2601	11.30 X	2602	13.08 Y	2603	11.98 X	2604	13.0 Y	2605	12.7 Y
2606	11.42 X	2607	13.47 Y	2608	17.57 Y	2609	13.27 Y	2610	13.5 Y
2611	11.96 X	2612	11.20 X	2613	11.38 X	2614	13.3 Y	2615	12.9 Y
2616	12.4 Y	2617	10.66 X	2618	12.2 Y	2619	12.6 Y	2620	12.61 Y
2621	10.75 X	2622	11.6 Y	2623	13.3 Y	2624	10.6 Y	2625	13.4 Y
2626	11.9 Y	2627	11.93 X	2628	12.7 Y	2629	14.76 Y	2630	11.68 X
2631	11.79 X	2632	11.5 Y	2633	13.02 Y	2634	10.36 X	2635	13.25 Y
2636	11.46 X	2637	13.3 Y	2638	12.4 Y	2639	13.34 Y	2640	13.31 Y
2641	13.16 Y	2642	12.5 Y	2643	14.8 Y	2644	13.86 Y	2645	12.3 Y
2646	11.7 Y	2647	12.80 Y	2648	13.02 Y	2649	11.79 X	2650	11.7 Y
2651	12.4 Y	2652	11.8 Y	2653	12.2 Y	2654	12.6 Y	2655	11.30 X
2656	13.84 Y	2657	11.93 X	2658	12.6 Y	2659	11.15 X	2660	12.09 X
2661	11.6 Y	2662	14.4 Y	2663	13.86 Y	2664	13.9 Y	2665	13.34 Y
2666	11.8 Y	2667	11.9 Y	2668	13.52 Y	2669	12.77 X	2670	10.70 X
2671	13.7 Y	2672	12.34 X	2673	12.5 Y	2674	9.05 X	2675	12.45 Y
2676	12.7 Y	2677	11.87 X	2678	12.6 Y	2679	12.0 Y	2680	13.5 Y
2681	12.58 X	2682	13.76 Y	2683	11.97 X	2684	11.79 X	2685	12.36 X
2686	11.6 Y	2687	12.07 X	2688	11.84 X	2689	13.87 Y	2690	11.0 Y
2691	13.61 Y	2692	12.33 X	2693	13.22 Y	2694	13.94 Y	2695	12.10 X
2696	12.1 Y	2697	10.62 X	2698	12.15 X	2699	12.0 Y	2700	12.31 Y
2701	12.4 Y	2702	11.5 Y	2703	13.46 Y	2704	12.93 Y	2705	13.7 Y
2706	11.9 Y	2707	11.6 Y	2708	11.98 32	2709	13.44 Y	2710	13.43 X
2711	11.88 Y	2712	14.4 Y	2713	11.68 Y	2714	12.86 Y	2715	12.24 X
2716	13.5 Y	2717	12.76 Y	2718	11.9 Y	2719	13.5 Y	2720	14.0 Y
2721	12.0 Y	2722	12.27 X	2723	12.93 X	2724	12.32 X	2725	10.69 X
2726	12.4 Y	2727	12.4 Y	2728	12.59 X	2729	11.62 Y	2730	11.71 X
2731	10.90 X	2732	12.27 X	2733	13.39 33	2734	11.5 Y	2735	14.41 Y
2736	12.98 Y	2737	11.8 Y	2738	12.0 Y	2739	12.55 Y	2740	11.9 Y
2741	11.6 Y	2742	12.0 Y	2743	12.35 X	2744	15.09 Y	2745	13.37 Y
2746	13.68 Y	2747	11.5 Y	2748	13.0 Y	2749	12.26 X	2750	12.85 Y
2751	12.9 Y	2752	11.4 Y	2753	11.81 X	2754	13.6 Y	2755	11.9 Y
2756	13.19 X	2757	11.56 X	2758	13.85 X	2759	9.77 X	2760	10.04 X
2761	12.08 X	2762	13.69 Y	2763	12.43 Y	2764	13.48 Y	2765	11.7 Y
2766	12.2 Y	2767	11.60 Y	2768	12.79 Y	2769	12.12 X	2770	13.1 Y
2771	13.03 X	2772	13.43 Y	2773	13.24 Y	2774	11.08 X	2775	13.5 Y
2776	12.62 Y	2777	13.40 Y	2778	13.06 Y	2779	13.53 Y	2780	13.3 Y
2781	12.03 X	2782	12.5 Y	2783	13.2 Y	2784	13.1 Y	2785	12.0 Y
2786	12.1 Y	2787	11.4 Y	2788	13.0 Y	2789	13.7 Y	2790	12.85 X
2791	11.5 Y	2792	13.00 Y	2793	11.0 Y	2794	13.1 Y	2795	13.19 Y
2796	12.51 50	2797	8.51 X	2798	13.0 Y	2799	14.6 Y	2800	12.9 Y
2801	12.31 X	2802	10.7 Y	2803	11.7 Y	2804	11.9 Y	2805	12.3 Y
2806	13.2 Y	2807	12.6 Y	2808	11.44 Y	2809	13.69 Y	2810	12.3 Y
2811	12.11 Y	2812	13.51 Y	2813	11.09 X	2814	12.44 Y	2815	13.12 Y
2816	11.87 X	2817	13.91 Y	2818	13.89 Y	2819	12.3 Y	2820	13.1 Y
2821	13.4 Y	2822	12.53 X	2823	13.3 Y	2824	13.58 Y	2825	13.4 Y
2826	11.60 X	2827	12.2 Y	2828	13.7 Y	2829	11.08 X	2830	12.55 Y
2831	12.15 Y	2832	12.5 Y	2833	12.15 Y	2834	12.0 Y	2835	11.9 Y
2836	11.1 Y	2837	11.94 Y	2838	14.27 Y	2839	12.7 Y	2840	12.96 Y
2841	12.8 Y	2842	11.9 Y	2843	12.94 Y	2844	13.61 Y	2845	13.51 Y
2846	10.6 Y	2847	12.6 Y	2848	11.50 X	2849	12.5 Y	2850	12.0 Y
2851	12.36 Y	2852	12.2 Y	2853	13.61 Y	2854	13.0 Y	2855	13.1 Y
2856	11.2 Y	2857	12.7 Y	2858	13.8 Y	2859	13.5 Y	2860	13.02 Y
2861	12.73 Y	2862	13.57 Y	2863	12.31 X	2864	12.68 X	2865	11.50 Y
2866	11.79 X	2867	12.81 Y	2868	13.22 X	2869	12.37 X	2870	12.92 Y
2871	12.75 Y	2872	12.62 X	2873	13.13 39	2874	13.58 Y	2875	12.39 X
2876	12.68 X	2877	12.1 Y	2878	11.57 X	2879	11.7 Y	2880	12.7 Y

2881	13.64	Y	2882	12.03	22	2883	13.19	Y	2884	12.1	Y	2885	14.2	Y
2886	13.5	Y	2887	13.07	Y	2888	13.2	Y	2889	11.50	Y	2890	12.96	Y
2891	11.11	X	2892	10.3	Y	2893	8.99	X	2894	12.2	Y	2895	9.23	X
2896	12.85	Y	2897	13.79	Y	2898	12.7	Y	2899	13.57	Y	2900	12.9	Y
2901	12.28	Y	2902	14.43	Y	2903	12.1	Y	2904	11.70	X	2905	11.99	X
2906	10.0	Y	2907	11.6	Y	2908	11.65	X	2909	11.49	Y	2910	13.91	Y
2911	11.4	Y	2912	12.8	Y	2913	12.5	Y	2914	13.95	Y	2915	13.39	X
2916	13.5	Y	2917	11.89	X	2918	12.1	Y	2919	12.09	X	2920	8.83	X
2921	13.4	Y	2922	13.8	Y	2923	13.3	Y	2924	11.9	Y	2925	14.2	Y
2926	13.6	Y	2927	12.23	X	2928	11.67	Y	2929	11.70	43	2930	12.52	X
2931	11.82	Y	2932	11.8	Y	2933	11.64	X	2934	11.2	Y	2935	13.03	X
2936	12.43	X	2937	13.09	Y	2938	11.44	X	2939	12.69	Y	2940	14.1	Y
2941	13.54	Y	2942	13.49	Y	2943	12.74	Y	2944	12.6	Y	2945	12.1	Y
2946	13.24	Y	2947	12.9	Y	2948	12.9	Y	2949	13.69	Y	2950	12.08	X
2951	10.0	Y	2952	14.2	Y	2953	11.68	X	2954	13.83	Y	2955	13.19	Y
2956	12.40	X	2957	10.6	Y	2958	12.2	Y	2959	11.09	X	2960	13.9	Y
2961	13.0	Y	2962	11.39	X	2963	12.50	Y	2964	12.4	Y	2965	13.7	Y
2966	13.58	Y	2967	11.18	X	2968	14.9	Y	2969	12.63	Y	2970	12.76	X
2971	13.6	Y	2972	14.13	Y	2973	12.53	Y	2974	13.9	Y	2975	12.8	Y
2976	10.88	X	2977	12.73	X	2978	11.7	Y	2979	11.75	X	2980	13.2	Y
2981	11.83	X	2982	12.00	Y	2983	11.12	X	2984	13.16	18	2985	12.29	Y
2986	12.04	X	2987	11.83	X	2988	11.9	Y	2989	13.05	Y	2990	13.3	Y
2991	13.77	Y	2992	13.0	Y	2993	12.67	X	2994	14.2	Y	2995	12.5	Y
2996	11.87	X	2997	13.16	X	2998	14.4	Y	2999	13.36	18	3000	13.2	Y
3001	12.40	Y	3002	12.8	Y	3003	11.38	X	3004	14.4	Y	3005	13.88	Y
3006	13.61	Y	3007	12.76	Y	3008	11.88	X	3009	13.82	Y	3010	12.43	X
3011	11.9	Y	3012	11.1	Y	3013	13.54	Y	3014	13.18	Y	3015	11.15	X
3016	12.22	X	3017	11.99	X	3018	12.92	Y	3019	11.95	X	3020	12.17	X
3021	11.93	X	3022	13.5	Y	3023	13.75	43	3024	10.74	X	3025	11.6	Y
3026	11.99	X	3027	12.9	Y	3028	10.9	Y	3029	13.2	Y	3030	14.4	Y
3031	13.14	Y	3032	11.38	X	3033	12.51	Y	3034	12.28	Y	3035	12.62	X
3036	9.9	Y	3037	11.33	X	3038	13.45	Y	3039	12.6	Y	3040	14.7	Y
3041	12.52	12	3042	13.6	Y	3043	13.75	Y	3044	12.1	Y	3045	11.45	X
3046	12.9	Y	3047	12.91	X	3048	13.75	Y	3049	11.48	X	3050	14.65	Y
3051	12.9	Y	3052	13.2	Y	3053	12.53	Y	3054	11.27	X	3055	12.6	Y
3056	12.69	Y	3057	13.48	Y	3058	14.4	Y	3059	13.63	Y	3060	13.3	Y
3061	11.92	X	3062	10.96	X	3063	8.6	Y	3064	13.13	X	3065	12.09	X
3066	11.39	X	3067	13.2	Y	3068	13.3	Y	3069	13.9	Y	3070	14.11	Y
3071	11.9	Y	3072	13.57	Y	3073	13.57	Y	3074	13.60	Y	3075	14.0	Y
3076	13.84	Y	3077	12.96	40	3078	11.47	X	3079	13.22	X	3080	11.67	X
3081	14.07	Y	3082	12.38	X	3083	13.95	Y	3084	13.54	Y	3085	13.39	Y
3086	13.60	Y	3087	12.9	Y	3088	11.63	X	3089	10.9	Y	3090	12.1	Y
3091	13.8	Y	3092	10.68	X	3093	11.6	Y	3094	11.9	Y	3095	11.5	Y
3096	12.49	X	3097	12.31	X	3098	14.8	Y	3099	11.16	X	3100	14.0	Y
3101	13.4	Y	3102	16.04	Y	3103	14.7	Y	3104	11.17	X	3105	13.0	Y
3106	10.81	X	3107	13.8	Y	3108	13.9	Y	3109	11.7	Y	3110	12.96	X
3111	14.0	Y	3112	13.55	Y	3113	13.17	Y	3114	14.13	Y	3115	11.37	Y
3116	12.34	Y	3117	12.31	X	3118	11.03	X	3119	12.24	X	3120	11.86	X
3121	13.62	Y	3122	14.3	Y	3123	13.36	X	3124	13.24	X	3125	12.11	01
3126	12.30	X	3127	12.16	X	3128	11.34	X	3129	12.51	X	3130	12.9	Y
3131	12.03	X	3132	11.72	X	3133	13.53	Y	3134	10.34	X	3135	14.1	Y
3136	11.7	Y	3137	13.4	Y	3138	13.07	Y	3139	10.3	Y	3140	10.96	35
3141	10.3	Y	3142	12.43	X	3143	12.6	Y	3144	13.7	Y	3145	14.4	Y
3146	13.06	Y	3147	14.2	Y	3148	12.6	Y	3149	13.75	Y	3150	10.97	X
3151	11.99	X	3152	11.4	Y	3153	13.11	Y	3154	12.62	X	3155	12.4	Y
3156	11.56	X	3157	11.67	X	3158	12.54	X	3159	12.53	X	3160	13.71	40
3161	12.29	X	3162	11.46	15	3163	13.7	Y	3164	11.7	Y	3165	13.0	Y
3166	12.8	Y	3167	11.5	Y	3168	11.88	X	3169	12.32	X	3170	12.1	Y
3171	10.6	Y	3172	13.36	Y	3173	13.3	Y	3174	11.9	Y	3175	13.9	Y

3176	10.9	Y	3177	12.12	X	3178	11.9	Y	3179	11.9	Y	3180	14.6	Y
3181	13.0	Y	3182	12.3	Y	3183	12.7	Y	3184	12.90	X	3185	13.8	Y
3186	12.52	X	3187	13.2	Y	3188	13.4	Y	3189	13.1	Y	3190	13.01	X
3191	12.39	X	3192	13.8	Y	3193	13.26	15	3194	12.1	Y	3195	12.61	X
3196	12.4	Y	3197	11.88	33	3198	13.53	Y	3199	15.03	Y	3200	14.65	Y
3201	13.7	Y	3202	10.4	Y	3203	14.17	Y	3204	12.29	X	3205	13.22	X
3206	13.6	Y	3207	12.64	X	3208	12.17	X	3209	13.50	Y	3210	11.28	X
3211	12.8	Y	3212	13.89	Y	3213	12.28	X	3214	11.0	Y	3215	12.3	Y
3216	13.87	02	3217	14.5	Y	3218	13.6	Y	3219	11.8	Y	3220	13.3	Y
3221	13.28	Y	3222	11.42	X	3223	11.37	X	3224	11.35	X	3225	13.40	Y
3226	13.2	Y	3227	12.8	Y	3228	12.5	Y	3229	12.4	Y	3230	11.8	Y
3231	13.1	Y	3232	11.82	X	3233	13.0	Y	3234	12.8	Y	3235	13.1	Y
3236	13.81	Y	3237	10.7	Y	3238	13.1	Y	3239	14.66	Y	3240	9.9	Y
3241	12.09	X	3242	12.2	Y	3243	11.6	Y	3244	14.1	Y	3245	13.0	Y
3246	11.47	X	3247	13.01	Y	3248	10.97	X	3249	13.56	Y	3250	11.1	Y
3251	12.2	Y	3252	12.14	X	3253	13.51	Y	3254	10.99	X	3255	13.72	30
3256	12.38	X	3257	13.50	Y	3258	13.36	Y	3259	9.9	Y	3260	12.79	Y
3261	11.77	X	3262	10.83	X	3263	13.11	Y	3264	12.32	X	3265	13.25	49
3266	13.50	Y	3267	12.90	Y	3268	13.4	Y	3269	12.74	X	3270	14.7	Y
3271	16.9	Y	3272	13.6	Y	3273	11.8	Y	3274	12.2	Y	3275	13.59	Y
3276	12.01	X	3277	11.27	X	3278	11.3	Y	3279	13.78	Y	3280	12.4	Y
3281	12.8	Y	3282	13.5	Y	3283	12.9	Y	3284	12.84	X	3285	12.39	X
3286	13.06	X	3287	14.3	Y	3288	15.34	Y	3289	14.2	Y	3290	11.5	Y
3291	12.2	Y	3292	12.2	Y	3293	13.7	Y	3294	12.6	Y	3295	12.9	Y
3296	13.04	X	3297	12.52	X	3298	13.6	Y	3299	13.4	Y	3300	10.5	Y
3301	13.2	Y	3302	12.9	Y	3303	11.8	Y	3304	13.0	Y	3305	12.4	Y
3306	12.6	Y	3307	13.5	Y	3308	11.72	X	3309	13.9	Y	3310	10.8	Y
3311	12.2	Y	3312	11.5	Y	3313	12.2	Y	3314	14.02	Y	3315	12.50	X
3316	11.6	Y	3317	8.4	Y	3318	11.0	Y	3319	12.4	Y	3320	13.4	Y
3321	13.0	Y	3322	12.1	Y	3323	13.6	Y	3324	12.1	Y	3325	11.9	Y
3326	12.8	Y	3327	12.0	Y	3328	11.2	Y	3329	11.9	Y	3330	11.2	Y
3331	13.4	Y	3332	11.8	Y	3333	11.7	Y	3334	12.1	Y	3335	12.5	Y
3336	14.5	Y	3337	12.5	Y	3338	14.5	Y	3339	11.2	Y	3340	13.8	Y
3341	12.6	Y	3342	12.4	Y	3343	13.3	Y	3344	12.9	Y	3345	11.8	Y
3346	11.1	Y	3347	11.7	Y	3348	11.9	Y	3349	12.8	Y	3350	14.4	Y
3351	12.9	Y	3352	15.9	Y	3353	13.7	Y	3354	13.0	Y	3355	13.8	Y
3356	13.3	Y	3357	11.4	Y	3358	12.4	Y	3359	14.1	Y	3360	16.4	Y
3361	19.9	Y	3362	18.0	Y	3363	12.0	Y	3364	13.1	Y	3365	12.2	Y
3366	11.5	Y	3367	12.1	Y	3368	11.2	Y	3369	12.2	Y	3370	14.2	Y
3371	11.9	Y	3372	12.3	Y	3373	13.7	Y	3374	12.9	Y	3375	13.8	Y
3376	12.4	Y	3377	12.5	Y	3378	13.2	Y	3379	13.3	Y	3380	12.1	Y
3381	13.6	Y	3382	13.3	Y	3383	12.6	Y	3384	13.9	Y	3385	12.8	Y
3386	12.8	Y	3387	12.8	Y	3388	13.2	Y	3389	12.6	Y	3390	13.6	Y
3391	10.3	Y	3392	14.3	Y	3393	12.8	Y	3394	13.4	Y	3395	11.8	Y
3396	11.2	Y	3397	14.3	Y	3398	13.7	Y	3399	12.4	Y	3400	14.3	Y
3401	13.0	Y	3402	15.4	Y	3403	13.0	Y	3404	12.9	Y	3405	12.2	Y
3406	11.6	Y	3407	12.4	Y	3408	13.4	Y	3409	12.2	Y	3410	13.5	Y
3411	13.5	Y	3412	13.6	Y	3413	13.5	Y	3414	13.8	Y	3415	10.6	Y
3416	14.2	Y	3417	13.8	Y	3418	12.2	Y	3419	11.1	Y	3420	11.6	Y
3421	13.7	Y	3422	12.4	Y	3423	12.3	Y	3424	12.7	Y	3425	10.9	Y
3426	12.8	Y	3427	13.6	Y	3428	12.2	Y	3429	13.9	Y	3430	12.4	Y
3431	9.9	Y	3432	11.6	Y	3433	13.0	Y	3434	13.1	Y	3435	13.0	Y
3436	12.2	Y	3437	13.4	Y	3438	11.5	Y	3439	12.6	Y	3440	12.3	Y
3441	12.0	Y	3442	11.7	Y	3443	13.5	Y	3444	12.8	Y	3445	12.2	Y
3446	13.5	Y	3447	12.9	Y	3448	13.2	Y	3449	12.7	Y	3450	12.6	Y
3451	8.1	Y	3452	13.4	Y	3453	11.8	Y	3454	13.8	Y	3455	12.8	Y
3456	13.9	Y	3457	11.9	Y	3458	12.7	Y	3459	13.0	Y	3460	12.3	Y
3461	13.3	Y	3462	13.3	Y	3463	13.2	Y	3464	13.6	Y	3465	13.5	Y
3466	13.4	Y	3467	13.0	Y	3468	11.8	Y	3469	11.2	Y	3470	13.2	Y

3471	11.3	Y	3472	13.9	Y	3473	13.7	Y	3474	12.8	Y	3475	11.4	Y
3476	12.0	Y	3477	13.4	Y	3478	12.9	Y	3479	11.6	Y	3480	13.2	Y
3481	13.6	Y	3482	12.3	Y	3483	13.6	Y	3484	12.6	Y	3485	12.9	Y
3486	13.5	Y	3487	12.9	Y	3488	12.9	Y	3489	13.4	Y	3490	13.3	Y
3491	12.4	Y	3492	11.5	Y	3493	13.4	Y	3494	12.9	Y	3495	11.5	Y

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OBSERVATIONS OF COMETS.

Observations are published here for the following observatory codes:

012 Uccle. 0.4-m double astrograph. Observer T. Pauwels.
026 Zimmerwald. Observer P. Wild.
046 Klet. Observer A. Mrkos.
095 Crimean Astrophysical Observatory. Observers N. S. Chernykh and T. M. Smirnova.
114 Engelhardt Observatory, Zelenchukskaya Station. Observers V. N. Kitkin and K. I. Churyumov.
293 Burlington remote site. Observer T. Handley.
312 Tsingtao field station, Xisha Islands. 0.15-m f/5 photographic refractor. Observers S. S. Sun, Y. J. Shao, C. Z. Dong, Y. Q. Huei and B. L. Zhang. Long. and Parallax 112.33, -408, -123 (see MPC 7759).
323 Perth Observatory, Bickley. Observers M. P. Candy, P. Jekabsons, A. Johns, M. Kempin and A. McGrath.
372 Geisei. 0.60-m reflector. Observer T. Seki.
376 Uenohara. 0.20-m reflector. Observer N. Kawasato.
381 Tokyo Observatory, Kiso Station. Observers H. Kosai and K. Hurukawa.
391 Sendai Observatory, Ayashi Station. 0.20-m reflector and 0.3-m telephoto lens. Observer M. Koishikawa.
392 JCPM Sapporo Station. 0.25-m reflector. Observer H. Kaneda.
397 Sapporo Science Center. 0.60-m reflector. Observer K. Watanabe.
399 Kushiro. 0.16-m reflector. Observer S. Ueda. Measured by H. Kaneda.
425 Taylor Range Observatory, Brisbane. 0.40-m and 0.09-m telescopes. Observer P. Anderson. Communicated by D. Herald. Long. and Parallax 152.93, -382, +189 (see MPC 7759).
494 Stakenbridge. Observer B. Manning.
552 Osservatorio S. Vittore. Observers C. Vacchi and G. Sassi. Measured by V. Goretti, C. Vacchi and E. Colombini.
573 Eldagsen. Observer W. Bonk.
575 La Chaux de Fonds. Observers A. and R. Behrend.
576 Burwash. 0.57-m reflector. Observer A. Young. Measured by D. L. King at the Royal Greenwich Observatory.
586 Pic du Midi. 0.60-m telescope. Observers P. Martinez and E. Laffont. Reduced by C. Pollas. Communicated by R. Chemin. Long. and Parallax 0.14, -313, -289 (see MPC 7759).
656 Victoria. Observer J. Newton. Measured by J. B. Tatum.
657 Climenhaga Observatory, Victoria. Observers J. B. Tatum, D. D. Balam and T. B. Lowe.
675 Palomar. Observations of comet 1976 XVI by C. Kowal with the 1.2-m Schmidt, measured by B. A. Skiff. Other observations by J. Gibson with the 1.5-m reflector + CCD.
688 Lowell Observatory, Anderson Mesa Station. Observer B. A. Skiff.
691 University of Arizona, Kitt Peak. 0.91-m reflector, CCD in scanning mode. Observer T. Gehrels. Reduced by J. V. Scotti.
792 Quonochontaug. 0.24-m Schmidt. Observer W. S. Penhallow.

801 Oak Ridge Observatory. Observers R. E. McCrosky, G. Schwartz and C.-Y. Shao.
883 Shizuoka. 0.13-m f/3.5 hyperboloid astro-camera. Observer W. Kakei. Measured by T. Urata. From Nihondaira Obs. Circ. No. 1562.
893 Sendai Observatory. 0.41-m reflector. Observer K. Kurosu. Measured by T. Tsumagari.
980 Lancaster. 0.5-m Canon f/8 mirror lens. Observer G. Waddington. Communicated by G. M. Hurst.

Object	Date	UT	R. A. (1950)	Decl.	Mag.	N	Obs.
		Periodic Comet Skiff-Kosai					
/1976 XVI	1977	02 13.42639	10 22 06.84	+14 56 37.9	17.5T		675
/1976 XVI	1977	02 13.47847	10 22 04.62	+14 56 52.3			675
/1976 XVI	1977	02 18.63486	10 18 26.56	+15 19 48.7	17.5T	1	381
/1976 XVI	1977	02 18.66889	10 18 25.11	+15 19 57.8		1	381
/1976 XVI	1977	02 19.57305	10 17 46.45	+15 23 52.6	17.5T	1	381
/1976 XVI	1977	02 19.60701	10 17 44.97	+15 24 01.2		1	381
/1976 XVI	1977	03 12.54736	10 03 56.85	+16 36 56.9	17 T		381
/1976 XVI	1977	03 12.57583	10 03 55.90	+16 37 00.1			381
		Periodic Comet Wild 2					
/1978 XI	1978	05 27.88611	08 39 02.17	+19 47 53.5			026
/1978 XI	1978	05 30.88125	08 47 56.85	+19 18 39.8			026
/1978 XI	1978	05 30.90903	08 48 01.77	+19 18 22.2			026
/1984 XIV	1986	09 02.26564	22 19 11.44	-11 49 12.9	19.5T		691
/1984 XIV	1986	09 02.27027	22 19 11.13	-11 49 13.4			691
/1984 XIV	1986	09 02.27487	22 19 10.90	-11 49 14.4			691
/1984 XIV	1986	09 02.29539	22 19 10.14	-11 49 19.1			691
/1984 XIV	1986	09 02.29948	22 19 09.86	-11 49 19.3			691
/1984 XIV	1986	09 02.30483	22 19 09.75	-11 49 20.5			691
/1984 XIV	1986	09 03.21529	22 18 34.75	-11 52 56.5			691
		Comet Meier (1978 XXI)					
/1978 XXI	1978	05 27.90208	07 58 46.95	+46 19 24.8			026
/1978 XXI	1978	05 30.89583	08 03 17.92	+45 33 31.4			026
/1978 XXI	1979	08 29.01667	23 07 37.00	-18 38 17.8			026
/1978 XXI	1979	08 30.97569	23 05 31.34	-18 39 40.4			026
		Periodic Comet Halley					
/1982i	1985	02 18.86736	05 00 54.76	+13 13 03.6			586
/1982i	1985	02 19.83056	05 00 22.51	+13 15 03.5			586
/1982i	1985	12 28.73502	22 23 24.61	-01 42 34.4			980
/1982i	1985	12 29.73687	22 20 43.32	-01 58 50.7			980
/1982i	1986	02 25.76582	20 32 07.80	-15 12 27.4		2	425
/1982i	1986	02 26.76616	20 30 24.97	-15 32 26.3		2	425
/1982i	1986	02 27.77517	20 28 40.76	-15 53 02.8		2	425
/1982i	1986	03 16.89255	19 52 35.72	-23 45 31.9			312
/1982i	1986	03 18.90157	19 46 13.36	-25 07 20.5			312
/1982i	1986	03 19.88212	19 42 45.53	-25 50 30.2			312
/1982i	1986	03 22.83524	19 30 37.21	-28 15 37.2			312
/1982i	1986	03 29.86402	18 44 02.23	-35 54 18.8			312
/1982i	1986	03 30.88623	18 33 50.96	-37 15 08.5			312
/1982i	1986	04 01.86505	18 10 19.61	-39 58 20.8			312
/1982i	1986	04 04.88307	17 22 02.58	-44 03 11.8			312
/1982i	1986	04 07.76604	16 19 20.10	-46 52 36.3			312
/1982i	1986	04 08.80909	15 53 05.51	-47 21 02.9			312
/1982i	1986	04 09.77227	15 27 53.98	-47 26 12.7			312

/1982i	1986	04	10.77330	15	01	22.01	-47	08	28.9		312
/1982i	1986	04	10.83480	14	59	44.43	-47	06	35.4		312
/1982i	1986	04	11.73927	14	36	07.85	-46	29	12.4		312
/1982i	1986	04	12.68383	14	12	22.18	-45	30	56.8		312
/1982i	1986	04	26.86910	11	11	32.33	-22	32	37.9	3	575
/1982i	1986	04	26.87188	11	11	31.50	-22	32	25.6	3	575
/1982i	1986	05	30.84702	10	23	52.39	-06	43	02.5		552
/1982i	1986	07	16.47153	10	41	22.07	-05	14	15.9	4	323

Periodic Comet Smirnova-Chernykh

/1984 V	1984	02	26.95215	11	49	55.42	+11	00	12.6		095
/1984 V	1984	03	29.84090	11	30	34.70	+12	58	15.4		095
/1984 V	1984	04	03.84524	11	27	51.76	+13	08	21.8		095
/1984 V	1984	04	05.82744	11	26	51.88	+13	11	28.2		095
/1984 V	1984	05	04.84294	11	18	56.14	+12	59	06.0		095

Periodic Comet Encke

/1984 VI	1986	08	31.30354	23	54	53.97	+05	42	20.1	19.5T	691
/1984 VI	1986	08	31.31297	23	54	53.37	+05	42	18.7		691
/1984 VI	1986	08	31.32117	23	54	52.85	+05	42	16.6		691
/1984 VI	1986	09	01.37154	23	53	49.10	+05	37	41.7		691
/1984 VI	1986	09	01.37889	23	53	48.66	+05	37	40.7		691
/1984 VI	1986	09	02.31584	23	52	51.10	+05	33	28.0		691
/1984 VI	1986	09	02.33536	23	52	49.86	+05	33	22.7		691
/1984 VI	1986	09	02.34067	23	52	49.56	+05	33	21.0		691

Periodic Comet Takamizawa

/1984 VII	1984	08	19.90104	21	07	02.29	-22	39	20.5		026

Comet Shoemaker (1984 XV)

/1984 XV	1986	08	31.32837	23	39	57.18	-03	04	03.5	19.0N	691
/1984 XV	1986	08	31.33316	23	39	57.05	-03	04	03.9		691
/1984 XV	1986	08	31.33800	23	39	56.71	-03	04	04.7		691
/1984 XV	1986	08	31.34582	23	39	56.52	-03	04	07.3		691
/1984 XV	1986	08	31.36242	23	39	55.60	-03	04	13.2		691
/1984 XV	1986	08	31.36711	23	39	55.38	-03	04	13.4		691
/1984 XV	1986	08	31.37167	23	39	55.16	-03	04	14.9		691
/1984 XV	1986	09	03.38179	23	37	34.90	-03	19	31.2		691
/1984 XV	1986	09	03.41025	23	37	33.52	-03	19	40.5		691
/1984 XV	1986	09	03.41876	23	37	33.22	-03	19	43.7		691

Comet Levy-Rudenko (1984 XXIII)

/1984 XXIII	1984	12	11.73507	18	35	51.54	+24	31	48.8		026
/1984 XXIII	1984	12	12.72917	18	35	18.25	+25	04	32.8		026

Periodic Comet Giacobini-Zinner

/1984e	1985	07	11.95486	22	54	14.65	+54	26	48.5		026
/1984e	1985	07	12.07569	22	54	50.24	+54	30	06.3		026
/1984e	1985	07	23.01806	23	59	25.85	+58	31	05.9		026
/1984e	1985	07	28.07639	00	37	06.88	+59	31	44.1		026
/1984e	1985	08	12.00486	02	46	49.45	+56	58	16.6		026
/1984e	1985	08	22.09201	04	06	59.53	+49	17	59.5		026
/1984e	1985	09	12.06233	05	55	41.28	+22	22	10.6		026
/1984e	1985	09	12.07604	05	55	44.12	+22	21	04.3		026
/1984e	1985	09	13.13611	05	59	33.53	+20	51	56.0		026
/1984e	1985	09	17.15208	06	12	59.63	+15	19	25.7		026
/1984e	1985	09	18.15556	06	16	06.31	+13	58	10.0		026
/1984e	1985	09	22.14028	06	27	35.29	+08	44	58.0		026

Periodic Comet Singer Brewster

/1986d	1986	06	06.32674	14	40	16.50	-02	53	43.9	5	675
/1986d	1986	09	06.12876	16	21	57.24	-11	32	01.7		691
/1986d	1986	09	06.13711	16	21	58.13	-11	32	03.1		691
/1986d	1986	09	06.14189	16	21	58.58	-11	32	06.9		691

Periodic Comet Machholz

/1986e	1986	06	03.97361	20	22	15.68	+42	43	11.9		552
/1986e	1986	06	03.99306	20	21	57.89	+42	42	12.9		552
/1986e	1986	08	15.19965	16	12	13.47	-13	00	46.2	19 T	675
/1986e	1986	08	15.20833	16	12	13.67	-13	00	52.0		675
/1986e	1986	08	16.21889	16	12	37.85	-13	12	59.1		675
/1986e	1986	08	16.22750	16	12	38.05	-13	13	05.5		675
/1986e	1986	09	05.13590	16	24	14.67	-16	29	20.2		691
/1986e	1986	09	05.14519	16	24	15.20	-16	29	25.9	19.8T	691
/1986e	1986	09	05.15014	16	24	15.41	-16	29	27.4		691
/1986e	1986	09	05.15490	16	24	15.66	-16	29	30.5		691

Periodic Comet Holmes

/1986f	1986	06	09.45579	02	04	13.41	+25	20	34.2		675
/1986f	1986	06	09.46169	02	04	14.11	+25	20	39.5		675
/1986f	1986	06	10.44817	02	06	07.34	+25	35	21.2		675
/1986f	1986	06	10.45347	02	06	07.95	+25	35	26.0		675
/1986f	1986	06	11.45347	02	08	02.76	+25	50	15.5		675
/1986f	1986	06	11.46306	02	08	03.88	+25	50	24.2		675

Comet Churyumov-Solodovnikov (1986i)

/1986i	1986	08	01.32749	21	14	10.15	-23	15	56.7		688
/1986i	1986	08	01.34063	21	14	08.08	-23	16	24.6		688
/1986i	1986	08	01.71736	21	13	11.30	-23	30	13.3		323
/1986i	1986	08	02.96493	21	10	01.57	-24	15	55.0	14.0T	046
/1986i	1986	08	02.97639	21	09	59.75	-24	16	18.7		046
/1986i	1986	08	03.97326	21	07	26.81	-24	52	19.1		046
/1986i	1986	08	03.97917	21	07	26.07	-24	52	28.8		046
/1986i	1986	08	04.22419	21	06	48.38	-25	01	17.5		801
/1986i	1986	08	05.54792	21	03	23.82	-25	48	18.3	14 T	376
/1986i	1986	08	05.89866	21	02	29.12	-26	00	42.4		114
/1986i	1986	08	05.93604	21	02	23.11	-26	02	01.1		114
/1986i	1986	08	06.88889	20	59	54.94	-26	35	16.8		095
/1986i	1986	08	06.90002	20	59	53.10	-26	35	38.3		114
/1986i	1986	08	06.90278	20	59	52.88	-26	35	48.7		095
/1986i	1986	08	06.96030	20	59	43.91	-26	37	45.1		046
/1986i	1986	08	06.96759	20	59	42.76	-26	37	56.1		046
/1986i	1986	08	07.87146	20	57	21.13	-27	09	07.1		095
/1986i	1986	08	07.88014	20	57	20.13	-27	09	24.3		095
/1986i	1986	08	07.88177	20	57	19.96	-27	09	29.4		114
/1986i	1986	08	07.91220	20	57	14.82	-27	10	32.1		114
/1986i	1986	08	08.87128	20	54	44.57	-27	43	02.2		114
/1986i	1986	08	09.87485	20	52	07.28	-28	16	29.6		114
/1986i	1986	08	10.85978	20	49	32.51	-28	48	48.6		114
/1986i	1986	08	11.65972	20	47	27.32	-29	14	32.0		323
/1986i	1986	08	13.66944	20	42	12.53	-30	17	39.9		323
/1986i	1986	08	26.64375	20	09	56.65	-35	59	27.1		323

Periodic Comet Comas Sola

/1986j	1986	07	28.41181	00	59	31.98	-08	39	27.2		675
/1986j	1986	07	28.43750	00	59	32.28	-08	39	30.1		675
/1986j	1986	08	31.37926	00	56	37.12	-10	33	31.2		691
/1986j	1986	08	31.38375	00	56	37.02	-10	33	32.7	6	691

/1986j	1986	08	31.39978	00	56	36.61	-10	33	37.1		6	691
/1986j	1986	08	31.43329	00	56	35.72	-10	33	46.1		6	691
/1986j	1986	09	02.34839	00	55	46.98	-10	42	47.1			691
/1986j	1986	09	02.36824	00	55	46.40	-10	42	52.1			691
/1986j	1986	09	02.37507	00	55	46.20	-10	42	54.4			691

Comet Wilson (1986l)

/1986l	1986	08	13.70556	22	07	06.90	+24	16	29.3			323
/1986l	1986	08	14.92301	22	04	46.19	+24	06	11.7		7	494
/1986l	1986	08	14.93550	22	04	44.69	+24	06	05.5		7	494
/1986l	1986	08	15.24167	22	04	08.74	+24	03	28.2			792
/1986l	1986	08	15.72743	22	03	12.2	+23	59	12	11.0T		372
/1986l	1986	08	15.96823	22	02	43.78	+23	56	58.6			576
/1986l	1986	08	17.28090	22	00	07.97	+23	44	40.6			657
/1986l	1986	08	18.23056	21	58	14.04	+23	35	24.2			657
/1986l	1986	08	21.25278	21	52	04.66	+23	03	04.2			657
/1986l	1986	08	22.34028	21	49	49.40	+22	50	27.9			657
/1986l	1986	08	22.89271	21	48	40.36	+22	43	51.9			576
/1986l	1986	08	23.47407	21	47	27.51	+22	36	45.8			392
/1986l	1986	08	23.48495	21	47	26.15	+22	36	38.0			392
/1986l	1986	08	24.47847	21	45	20.52	+22	24	13.1			883
/1986l	1986	08	24.48958	21	45	19.35	+22	24	03.6			883
/1986l	1986	08	24.86319	21	44	31.80	+22	19	10.6			573
/1986l	1986	08	24.86944	21	44	31.04	+22	19	05.9			573
/1986l	1986	08	24.88750	21	44	28.83	+22	18	52.5			573
/1986l	1986	08	24.89375	21	44	28.06	+22	18	47.8			573
/1986l	1986	08	25.21603	21	43	47.35	+22	14	42.7			656
/1986l	1986	08	25.54514	21	43	05.54	+22	10	22.8			323
/1986l	1986	08	25.60494	21	42	57.79	+22	09	30.9			399
/1986l	1986	08	25.61351	21	42	56.65	+22	09	24.1			399
/1986l	1986	08	25.71875	21	42	43.49	+22	08	05.4			323
/1986l	1986	08	26.21708	21	41	39.87	+22	01	16.5			657
/1986l	1986	08	26.47060	21	41	07.50	+21	57	51.5			399
/1986l	1986	08	27.21187	21	39	32.71	+21	47	38.0			657
/1986l	1986	08	27.51215	21	38	54.25	+21	43	28.2			376
/1986l	1986	08	27.51771	21	38	53.41	+21	43	23.7			376
/1986l	1986	08	27.53507	21	38	51.22	+21	43	08.3			376
/1986l	1986	08	27.54965	21	38	49.25	+21	42	55.1			376
/1986l	1986	08	27.83333	21	38	13.28	+21	38	53.2			573
/1986l	1986	08	27.83958	21	38	12.48	+21	38	48.0			573
/1986l	1986	08	27.84583	21	38	11.68	+21	38	42.8			573
/1986l	1986	08	27.85208	21	38	10.87	+21	38	37.5			573
/1986l	1986	08	27.85764	21	38	10.16	+21	38	32.8			573
/1986l	1986	08	27.86319	21	38	09.44	+21	38	28.2			573
/1986l	1986	08	28.48507	21	36	49.06	+21	29	33.5			376
/1986l	1986	08	28.49965	21	36	47.18	+21	29	19.9			376
/1986l	1986	08	28.51771	21	36	45.04	+21	29	04.8			376
/1986l	1986	08	31.18819	21	31	00.19	+20	48	46.2			293
/1986l	1986	08	31.60260	21	30	06.73	+20	42	12.4			399
/1986l	1986	08	31.94896	21	29	22.04	+20	36	42.5			576
/1986l	1986	09	01.46146	21	28	16.01	+20	28	28.2	10.5T		397
/1986l	1986	09	01.50035	21	28	10.97	+20	27	51.4			397
/1986l	1986	09	01.54479	21	28	04.96	+20	27	08.0			397
/1986l	1986	09	01.56528	21	28	02.42	+20	26	48.1			397
/1986l	1986	09	03.37535	21	24	08.25	+19	56	45.4			657
/1986l	1986	09	03.52396	21	23	49.34	+19	54	15.3			883
/1986l	1986	09	03.53125	21	23	48.21	+19	54	09.1			883
/1986l	1986	09	04.22785	21	22	18.33	+19	42	10.6			657
/1986l	1986	09	05.23340	21	20	08.85	+19	24	38.7			657

/1986l	1986 09 05.50069	21 19 34.21	+19 19 57.1	11.5T	391
/1986l	1986 09 05.50979	21 19 33.20	+19 19 49.4		391
/1986l	1986 09 05.62083	21 19 18.83	+19 17 49.5	12 T	893
/1986l	1986 09 05.63125	21 19 17.43	+19 17 38.6		893
/1986l	1986 09 05.63993	21 19 16.43	+19 17 28.8		893
/1986l	1986 09 06.27229	21 17 55.29	+19 06 06.9		657
/1986l	1986 09 06.62153	21 17 10.42	+18 59 49.1	11.5T	391
/1986l	1986 09 06.63194	21 17 09.22	+18 59 38.7		391
/1986l	1986 09 06.64306	21 17 07.58	+18 59 26.2		391
/1986l	1986 09 07.49188	21 15 19.33	+18 43 55.9	10.5T	397
/1986l	1986 09 07.57451	21 15 08.67	+18 42 24.6		397
/1986l	1986 09 08.46215	21 13 15.77	+18 25 51.5		397
/1986l	1986 09 08.49757	21 13 11.25	+18 25 10.3		397
/1986l	1986 09 08.53312	21 13 06.71	+18 24 31.9		397
/1986l	1986 09 08.58819	21 12 59.65	+18 23 28.7	11.5T	391
/1986l	1986 09 08.59514	21 12 58.81	+18 23 21.6		391
/1986l	1986 09 08.60208	21 12 57.74	+18 23 14.3		391
/1986l	1986 09 08.96528	21 12 11.94	+18 16 21.6		012
/1986l	1986 09 11.60625	21 06 39.82	+17 25 15.4	11.0T	391
/1986l	1986 09 11.63889	21 06 35.73	+17 24 37.2		391

Note 1: observations originally published on MPC 5587 under the designation 1977 DV3. 2: comet image dense, difficult to measure. 3: no central condensation. 4: correction to MPC 10997. 5: correction to MPC 10893. 6: tail 20" long in p.a. 257 . 7: possible extension of coma near p.a. 70 .

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OBSERVATIONS MADE AT CAUSSOLS.

Plates taken by A. Barthelemy, J. Ciffreo, T. Laverge and C. Pollas with the 0.9-m Schmidt in association with the International Near-Earth Asteroid Survey (INAS). Measured by R. Chemin, J.-L. Heudier and A. Barthelemy. Contact: J.-L. Heudier, CERGA Caussols, F-06460 Saint Vallier de Thiey, France.

Object	Date	UT	R. A. (1950)	Decl.	Obs.
88	1986 07 10.01940	22 43 33.51	-02 18 38.3		010
88	1986 07 10.05416	22 43 33.68	-02 18 29.1		010
129	1986 07 29.92290	19 41 39.17	-15 07 09.6		010
129	1986 07 29.95420	19 41 37.58	-15 07 32.4		010
190	1986 07 29.92290	19 30 26.18	-14 51 19.4		010
190	1986 07 29.95420	19 30 25.81	-14 51 24.6		010
331	1984 12 25.95040	06 02 51.77	+31 50 33.1		010
331	1984 12 25.96080	06 02 50.49	+31 50 32.6		010
402	1986 07 29.92290	19 36 27.83	-17 46 51.9		010
402	1986 07 29.95420	19 36 26.17	-17 47 07.4		010
496	1986 07 29.92290	19 33 03.80	-15 05 49.4		010
496	1986 07 29.95420	19 33 01.76	-15 05 58.8		010
623	1986 07 10.01940	22 43 56.39	-02 35 45.8		010
623	1986 07 10.04028	22 43 56.35	-02 35 36.7		010
791	1986 07 29.92290	19 41 12.14	-16 13 03.3		010
791	1986 07 29.95420	19 41 10.72	-16 13 25.4		010
976	1986 07 29.95420	19 32 11.39	-13 11 00.6		010
1770	1984 12 25.95040	06 04 40.30	+32 05 36.5		010
1770	1984 12 25.96080	06 04 40.05	+32 05 35.9		010
2785	1984 12 23.01190	07 10 42.29	+24 14 41.1		010
2785	1984 12 23.05380	07 10 41.05	+24 14 42.9		010
2819	1984 12 23.01190	07 05 47.53	+26 21 04.3		010
2819	1984 12 23.05380	07 05 44.96	+26 21 05.2		010

3332			1986	07	29.92290	19	37	32.23	-13	06	02.1	010
3332			1986	07	29.95420	19	37	30.47	-13	06	19.7	010
1984	YS4		1984	12	23.01190	07	03	33.95	+22	40	28.0	010
1984	YS4		1984	12	23.05380	07	03	31.91	+22	40	07.9	010
1984	YV4		1984	12	23.01190	07	04	28.25	+22	38	33.3	010
1984	YV4		1984	12	23.05380	07	04	25.64	+22	38	51.6	010
1984	YA5		1984	12	23.01190	07	11	36.97	+22	14	33.3	010
1984	YA5		1984	12	23.05380	07	11	34.89	+22	14	56.8	010
1984	YC5		1984	12	23.01190	07	12	38.33	+22	15	37.2	010
1984	YC5		1984	12	23.05380	07	12	36.64	+22	15	50.2	010
1984	YO5		1984	12	23.01190	07	21	53.85	+22	24	36.0	010
1984	YO5		1984	12	23.05380	07	21	51.59	+22	24	32.7	010
1984	YD6	*	1984	12	23.01190	07	03	00.50	+25	47	35.2	010
1984	YD6		1984	12	23.05380	07	02	57.32	+25	47	29.3	010
1984	YE6	*	1984	12	23.01190	07	05	13.24	+24	31	16.8	010
1984	YE6		1984	12	23.05380	07	05	11.76	+24	31	09.3	010
1984	YF6	*	1984	12	23.01190	07	09	10.44	+25	48	34.1	010
1984	YF6		1984	12	23.05380	07	09	07.60	+25	48	14.8	010
1984	YG6	*	1984	12	23.01190	07	12	14.11	+25	45	12.6	010
1984	YG6		1984	12	23.05380	07	12	11.35	+25	45	26.2	010
1984	YH6	*	1984	12	23.01190	07	13	34.83	+24	33	13.2	010
1984	YH6		1984	12	23.05380	07	13	31.96	+24	33	34.0	010
1984	YJ6	*	1984	12	23.01190	07	14	16.44	+25	37	03.4	010
1984	YJ6		1984	12	23.05380	07	14	13.63	+25	37	02.1	010
1984	YK6	*	1984	12	23.01190	07	20	03.24	+26	02	54.5	010
1984	YK6		1984	12	23.05380	07	20	01.02	+26	03	05.2	010
1984	YL6	*	1984	12	23.01190	07	20	49.95	+25	53	05.1	010
1984	YL6		1984	12	23.05380	07	20	48.22	+25	53	11.9	010
1984	YM6	*	1984	12	25.95040	05	49	55.98	+31	49	44.1	010
1984	YM6		1984	12	25.96080	05	49	55.01	+31	49	41.9	010
1985	DD2	*	1985	02	24.15830	14	03	12.36	-15	21	20.8	010
1985	DD2		1985	02	24.20000	14	03	10.78	-15	21	16.6	010
1985	DE2	*	1985	02	24.15830	14	06	29.84	-17	57	51.2	010
1985	DE2		1985	02	24.20000	14	06	27.83	-17	57	48.6	010
1985	DF2	*	1985	02	24.15830	14	06	47.03	-16	58	31.8	010
1985	DF2		1985	02	24.20000	14	06	46.92	-16	58	20.2	010
1985	DG2	*	1985	02	24.15830	14	09	04.54	-15	59	23.0	010
1985	DG2		1985	02	24.20000	14	09	03.78	-15	59	15.2	010
1985	DH2	*	1985	02	24.15830	14	09	05.02	-16	16	52.5	010
1985	DH2		1985	02	24.20000	14	09	04.79	-16	16	37.5	010
1985	DJ2	*	1985	02	24.15830	14	13	48.67	-17	15	42.9	010
1985	DJ2		1985	02	24.20000	14	13	48.28	-17	15	40.3	010
1985	DK2	*	1985	02	24.15830	14	17	41.42	-16	30	59.0	010
1985	DK2		1985	02	24.20000	14	17	41.44	-16	30	50.0	010
1985	XJ3	*	1985	12	14.91320	05	54	17.37	+30	52	52.8	010
1985	XJ3		1985	12	14.99960	05	54	19.49	+30	51	22.2	010
1986	OC	*	1986	07	29.92290	19	27	57.89	-15	51	22.2	010
1986	OC		1986	07	29.95420	19	27	56.17	-15	52	04.9	010
1986	OD	*	1986	07	29.92290	19	31	57.66	-17	21	39.1	010
1986	OE	*	1986	07	29.92290	19	32	29.04	-14	01	09.3	010
1986	OE		1986	07	29.95420	19	32	27.77	-14	01	16.9	010
1986	RA		1986	09	02.89514	21	11	07.45	+18	35	10.4	010
1986	RA		1986	09	02.91667	21	11	11.78	+18	33	55.2	010
1986	RA		1986	09	02.92292	21	11	13.33	+18	33	31.6	010
1986	RA		1986	09	02.92986	21	11	14.52	+18	33	09.3	010
1986	RA		1986	09	03.92083	21	14	48.93	+17	32	53.3	010
1986	RA		1986	09	03.94167	21	14	53.03	+17	31	40.9	010
1986	RA		1986	09	03.94861	21	14	54.81	+17	31	09.5	010
1986	RA		1986	09	03.95208	21	14	55.26	+17	31	01.1	010

OBSERVATIONS MADE AT HOHER LIST BY M. GEFFERT, H.-J. TUCHOLKE AND R.-J. DETTMAR.

Plates taken with the 0.30-m f/5 astrograph. Copied from Astron. Nachr. 307, 213, 1986. Contact: M. Geffert, Observatorium Hoher List, D-5568 Daun/Eifel, Federal Republic of Germany.

Object	Date	UT	R. A. (1950)	Decl.	N	Obs.
24	1984 10	30.94826	02 41 21.19	+15 47 23.8		017
24	1984 10	30.96563	02 41 20.35	+15 47 20.1		017
50	1985 04	19.93472	13 26 05.89	-06 47 31.1		017
50	1985 04	19.95278	13 26 05.00	-06 47 25.5		017
50	1985 04	19.98263	13 26 03.49	-06 47 16.0		017
50	1985 04	20.00278	13 26 02.51	-06 47 09.7		017
51	1985 02	10.92465	07 28 56.90	+08 47 12.9	1	017
51	1985 02	10.94688	07 28 56.04	+08 47 23.5	1	017
51	1985 02	10.96493	07 28 55.34	+08 47 32.1	1	017
51	1985 02	10.99132	07 28 54.33	+08 47 44.4	1	017
51	1985 02	11.87257	07 28 22.52	+08 54 42.2	1	017
51	1985 02	11.91146	07 28 21.07	+08 55 00.4	1	017
51	1985 02	12.90660	07 27 46.61	+09 02 52.7	1	017
51	1985 02	12.95104	07 27 45.04	+09 03 13.8	1	017
51	1985 02	12.97604	07 27 44.16	+09 03 25.6	1	017
51	1985 02	13.00313	07 27 43.21	+09 03 38.3	1	017
51	1985 02	15.93368	07 26 12.59	+09 26 51.5	1	017
51	1985 02	15.94826	07 26 12.15	+09 26 58.4	1	017
51	1985 02	15.96701	07 26 11.59	+09 27 07.2	1	017
51	1985 02	15.98090	07 26 11.19	+09 27 13.7	1	017
51	1985 02	16.83472	07 25 48.06	+09 33 59.2	1	017
51	1985 02	16.85347	07 25 47.53	+09 34 08.0	1	017
51	1985 02	16.88264	07 25 46.71	+09 34 28.0	1	017
51	1985 02	16.89514	07 25 46.37	+09 34 21.8	1	017
51	1985 02	18.84167	07 24 58.61	+09 49 49.2	1	017
51	1985 02	18.86944	07 24 57.96	+09 50 02.0	1	017
51	1985 02	18.88750	07 24 57.52	+09 50 10.6	1	017
51	1985 02	18.90625	07 24 57.05	+09 50 19.4	1	017
51	1985 03	22.80034	07 29 42.08	+13 24 50.6	1	017
51	1985 03	22.83507	07 29 43.36	+13 25 01.1	1	017
51	1985 03	22.87674	07 29 44.92	+13 25 13.9	1	017
51	1985 03	22.89497	07 29 45.60	+13 25 19.2	1	017
91	1985 04	19.93472	13 19 54.24	-09 19 19.3		017
91	1985 04	19.95278	13 19 53.25	-09 19 14.0		017
91	1985 04	19.98263	13 19 51.66	-09 19 05.7		017
91	1985 04	20.00278	13 19 50.58	-09 19 00.7		017
122	1985 02	16.94618	09 26 30.17	+13 34 08.3		017
122	1985 02	16.98785	09 26 28.23	+13 34 17.3		017
122	1985 02	17.01424	09 26 26.94	+13 34 24.5		017
122	1985 02	18.99144	09 24 56.60	+13 42 35.0		017
122	1985 02	19.00521	09 24 56.01	+13 42 36.9		017
123	1985 02	16.94618	09 32 48.51	+11 25 57.9		017
123	1985 02	16.98785	09 32 46.05	+11 26 04.0		017
123	1985 02	17.01424	09 32 44.54	+11 26 07.1		017
123	1985 02	18.99144	09 30 52.45	+11 30 28.6		017
123	1985 02	19.00521	09 30 51.66	+11 30 30.3		017
232	1985 02	16.94618	09 27 07.74	+13 13 35.9		017
232	1985 02	16.98785	09 27 05.43	+13 13 53.9		017
232	1985 02	17.01424	09 27 03.97	+13 14 06.4		017
232	1985 02	18.99144	09 25 19.51	+13 29 43.8		017
232	1985 02	19.00521	09 25 18.78	+13 29 49.5		017
244	1985 02	16.94618	09 23 08.21	+10 38 36.8		017
244	1985 02	16.98785	09 23 05.62	+10 38 51.3		017

244	1985	02	17.01424	09	23	03.77	+10	39	01.4	017
244	1985	02	18.99144	09	21	02.26	+10	50	49.8	017
244	1985	02	19.00521	09	21	01.32	+10	50	56.3	017
262	1984	10	31.04236	02	51	31.44	+17	21	39.8	017
262	1984	10	31.06597	02	51	29.93	+17	21	41.4	017
284	1984	10	30.94826	02	39	30.74	+18	41	23.7	017
284	1984	10	30.96563	02	39	29.59	+18	41	14.4	017
292	1984	10	30.94826	02	36	18.11	+13	35	11.3	017
292	1984	10	30.96563	02	36	16.98	+13	35	12.7	017
344	1984	11	26.96701	02	39	51.08	+16	26	56.1	017
392	1985	04	19.98263	13	30	24.23	-10	46	38.1	017
392	1985	04	20.00278	13	30	23.30	-10	46	28.6	017
644	1985	04	19.93472	13	31	45.04	-07	55	24.0	017
644	1985	04	19.95278	13	31	44.13	-07	55	18.5	017
644	1985	04	19.98263	13	31	42.61	-07	55	09.6	017
644	1985	04	20.00278	13	31	41.55	-07	55	04.2	017
673	1984	10	30.94826	02	38	45.91	+15	59	10.7	017
673	1984	10	30.96563	02	38	44.96	+15	59	05.6	017
735	1984	10	30.94826	02	49	27.14	+15	03	47.1	017
735	1984	10	30.96563	02	49	25.85	+15	03	55.9	017
735	1984	10	31.04236	02	49	19.85	+15	04	31.3	017
735	1984	10	31.06597	02	49	17.96	+15	04	41.3	017
755	1984	10	31.04236	03	05	48.83	+14	01	30.5	017
755	1984	10	31.06597	03	05	47.72	+14	01	23.6	017
852	1985	04	19.93472	13	21	50.54	-06	49	52.4	017
852	1985	04	19.95278	13	21	48.96	-06	49	55.9	017
852	1985	04	19.98263	13	21	46.39	-06	50	01.5	017
852	1985	04	20.00278	13	21	44.65	-06	50	05.3	017
905	1984	10	31.04236	02	54	18.30	+17	37	38.0	017
905	1984	11	26.96701	02	26	57.40	+17	30	42.8	017
1219	1985	04	19.93472	13	34	57.62	-07	44	12.3	017
1219	1985	04	19.95278	13	34	56.53	-07	44	09.4	017
1219	1985	04	19.98263	13	34	54.61	-07	44	01.2	017
1219	1985	04	20.00278	13	34	53.31	-07	43	56.8	017
1283	1985	02	16.94618	09	28	54.08	+11	30	39.1	017
1283	1985	02	16.98785	09	28	52.47	+11	30	51.7	017
1283	1985	02	17.01424	09	28	51.17	+11	31	00.9	017
1311	1984	10	31.04236	02	51	22.91	+18	20	47.7	017
1311	1984	10	31.06597	02	51	21.69	+18	20	38.9	017
1382	1985	04	19.93472	13	27	59.13	-11	09	45.9	017
1382	1985	04	19.95278	13	27	58.06	-11	09	40.4	017
1382	1985	04	19.98263	13	27	56.29	-11	09	32.5	017
1382	1985	04	20.00278	13	27	55.04	-11	09	26.4	017
1466	1985	02	18.99144	09	16	45.85	+10	59	34.2	017
1466	1985	02	19.00521	09	16	45.31	+10	59	42.6	017
1624	1985	04	19.93472	13	39	33.15	-07	15	55.6	017
1624	1985	04	19.95278	13	39	32.40	-07	15	50.6	017
1624	1985	04	19.98263	13	39	31.05	-07	15	44.2	017
1624	1985	04	20.00278	13	39	30.13	-07	15	36.3	017
2504	1985	04	19.93472	13	28	21.80	-11	19	55.5	017
2504	1985	04	19.95278	13	28	20.93	-11	19	49.0	017
2504	1985	04	19.98263	13	28	19.27	-11	19	42.9	017
2504	1985	04	20.00278	13	28	18.17	-11	19	38.4	017

Note 1: plates taken with the 0.30-m f/17 double refractor.

OBSERVATIONS MADE AT ZIMMERWALD.

Contact: P. Wild, Astronomisches Institut der Universitat, Sidlerstrasse 5, CH-3012 Berne, Switzerland.

Object	Date	UT	R. A. (1950)	Decl.	Mag.	N	Obs.
74	1978 10	28.89062	01 16 32.58	+06 44 51.2	12		026
74	1978 11	08.01233	01 11 14.79	+05 48 00.5			026
98	1985 11	07.87257	01 55 38.62	+30 44 53.8	13.5		026
105	1985 10	09.85208	00 04 36.00	+01 03 50.5			026
105	1985 10	13.93125	00 01 49.13	+00 09 14.4	12.5		026
153	1984 07	01.05521	21 24 31.62	-04 35 47.7			026
153	1984 07	20.94792	21 15 51.35	-04 38 19.3	13.2		026
187	1986 03	05.93472	09 34 51.35	+29 11 19.3	12.5		026
197	1986 01	04.88889	06 17 19.33	+26 56 26.1	14		026
197	1986 03	05.86181	05 56 36.72	+27 56 57.4	15.2		026
279	1985 09	12.01736	00 24 01.78	-00 31 31.0	15.2		026
279	1985 09	16.98125	00 21 23.54	-00 48 56.5			026
279	1985 09	18.92708	00 20 19.24	-00 55 55.6			026
279	1985 09	22.04444	00 18 34.76	-01 07 05.3			026
279	1985 09	25.10417	00 16 50.79	-01 18 03.5			026
279	1985 10	12.89236	00 06 59.28	-02 17 19.8	15.8		026
281	1985 09	12.03542	01 21 11.26	+03 42 25.4			026
281	1985 09	22.01042	01 14 42.74	+03 29 53.1	14.8		026
281	1985 09	25.04861	01 12 09.57	+03 24 18.0			026
283	1984 01	02.91458	06 03 34.25	+29 20 56.7	13.2		026
312	1979 08	30.99444	23 28 30.52	-09 26 46.3	13.2		026
312	1979 09	16.91389	23 12 49.57	-10 03 07.8			026
312	1979 09	18.94031	23 10 59.18	-10 06 11.7	13.8		026
434	1984 04	21.87361	11 08 26.17	+13 22 27.2	14.5		026
434	1984 04	24.84028	11 08 28.55	+13 54 05.9			026
466	1984 07	01.05521	21 26 32.12	-05 52 02.0	14.8		026
466	1984 07	20.94792	21 14 47.68	-05 01 10.8	14.5		026
756	1979 08	28.97708	22 45 47.05	+13 49 30.2	16		026
914	1985 07	23.08333	02 45 46.28	+36 20 45.7	15		026
914	1985 07	24.09479	02 47 24.70	+36 28 20.5			026
914	1985 12	05.79965	02 48 43.37	+29 29 48.6			026
914	1985 12	05.89792	02 48 39.23	+29 28 19.1			026
914	1985 12	10.90833	02 45 44.76	+28 14 05.3	13		026
914	1985 12	15.99377	02 43 35.92	+27 02 18.7			026
915	1979 02	27.92083	07 47 34.60	+28 44 18.5	17	1	026
953	1978 10	28.89062	01 20 37.33	+05 49 15.0			026
953	1978 11	08.01233	01 12 42.12	+05 39 10.5	15		026
1071	1978 10	28.89062	01 25 09.41	+04 53 27.9	14.5		026
1071	1978 11	08.01233	01 17 18.90	+04 33 42.5			026
1142	1978 10	28.89062	01 15 35.45	+05 08 23.1	16		026
1142	1978 11	08.01233	01 09 20.94	+04 32 10.9			026
1168	1979 08	29.03333	23 40 03.20	+17 55 52.6			026
1168	1979 09	11.85833	23 32 27.75	+16 14 28.7			026
1168	1979 09	12.87917	23 31 49.26	+16 04 12.9			026
1168	1979 09	15.88542	23 29 54.75	+15 31 53.9			026
1259	1979 08	28.99444	23 22 26.59	-07 47 34.2	16		026
1259	1979 08	30.99444	23 21 01.77	-07 57 03.7			026
1259	1979 09	11.87569	23 12 15.80	-08 52 50.2			026
1259	1979 09	12.90486	23 11 29.48	-08 57 29.4			026
1259	1979 09	15.86806	23 09 18.09	-09 10 33.6			026
1259	1979 09	16.91389	23 08 32.02	-09 15 03.8			026
1259	1979 09	18.89792	23 07 05.80	-09 23 22.8	16		026
1267	1985 09	12.01736	00 27 47.37	-01 06 26.5	15.2		026
1267	1985 09	20.00573	00 20 21.52	-01 35 15.8			026
1267	1985 10	09.85208	00 01 42.09	-02 37 01.6			026
1267	1985 10	13.93125	23 58 28.76	-02 44 47.2	15.8		026
1308	1978 11	08.03750	01 36 34.33	+15 44 03.5			026
1308	1978 11	24.83576	01 26 17.15	+14 49 13.6	15.8		026

1339	1985	07	24.05660	20	51	13.28	-13	45	05.5	16.2	026
1339	1985	07	25.05139	20	50	24.49	-13	45	53.4		026
1347	1984	08	28.99167	21	48	02.69	+06	41	15.0	15.8	026
1347	1984	08	31.97847	21	45	38.86	+06	21	30.7		026
1483	1985	10	13.91319	01	01	27.17	+00	36	32.6	17	026
1483	1985	10	16.94306	00	58	53.62	+00	23	38.1		026
1573	1985	07	24.00764	18	09	06.04	+17	16	50.0	16	026
1573	1985	07	24.97222	18	08	24.83	+17	11	07.4		026
1628	1979	05	29.01944	16	22	40.23	+04	03	31.4		026
1628	1979	05	30.98194	16	21	10.93	+04	10	27.7		026
1628	1979	06	25.92882	16	04	07.97	+04	30	03.7		026
1634	1979	08	29.07170	01	02	44.78	-07	38	01.9		026
1637	1985	12	10.90833	02	49	09.14	+28	22	47.0		026
1637	1985	12	15.99377	02	46	06.96	+28	11	38.2	16	026
1668	1985	09	12.03542	01	19	17.30	+04	34	16.1	15.5	026
1668	1985	09	22.01042	01	14	39.70	+03	30	53.2		026
1668	1985	09	25.04861	01	12	50.34	+03	09	39.2		026
1668	1985	10	12.93264	01	00	07.68	+01	02	27.1		026
1668	1985	10	13.91319	00	59	24.63	+00	55	59.9		026
1668	1985	10	16.94306	00	57	14.25	+00	36	44.2	16	026
1747	1985	07	09.90694	19	24	52.03	+00	44	51.6	1	026
1747	1985	07	24.02812	19	03	18.31	+05	30	58.4	15	026
1747	1985	07	24.99028	19	02	03.10	+05	45	17.3		026
1750	1985	11	07.93229	04	06	59.01	+49	51	54.5	15.5	026
1750	1985	12	02.81493	03	36	34.46	+41	01	51.0	15	026
1759	1985	07	24.05660	20	53	38.93	-12	31	21.4	16.2	026
1759	1985	07	25.05139	20	52	56.94	-12	36	20.0		026
1797	1979	08	28.99444	23	26	55.25	-08	07	12.7	16.2	026
1797	1979	08	30.99444	23	25	07.19	-08	17	03.9		026
1797	1979	09	11.87569	23	13	33.26	-09	15	16.8		026
1797	1979	09	12.90486	23	12	31.32	-09	20	01.8		026
1797	1979	09	15.86806	23	09	34.80	-09	33	10.8		026
1797	1979	09	16.91389	23	08	32.87	-09	37	38.4		026
1797	1979	09	18.89792	23	06	37.50	-09	45	40.6	16.5	026
1860	1985	08	18.97569	22	55	40.29	-14	02	32.0	14.5	026
1860	1985	08	22.02917	22	53	40.84	-14	37	12.4		026
1860	1985	09	18.95069	22	34	22.76	-18	57	54.7		026
1860	1985	09	22.96111	22	32	21.94	-19	20	22.9	15.5	026
1866	1985	05	17.08125	15	57	51.36	-09	07	30.1	15	026
1866	1985	05	23.90208	15	38	25.33	-11	12	51.2	14.8	026
1866	1985	06	17.91319	14	17	56.32	-20	21	52.1	2	026
1866	1985	12	01.79583	00	37	47.72	-12	40	27.9		026
1866	1985	12	02.75417	00	38	48.14	-08	25	56.3		026
1866	1985	12	03.77685	00	39	50.64	-04	10	10.3		026
1866	1985	12	05.83056	00	41	54.14	+03	30	38.0		026
1866	1985	12	10.87431	00	47	01.65	+17	41	54.5		026
1866	1985	12	15.96319	00	52	34.92	+27	00	53.2		026
1866	1985	12	19.79184	00	57	09.32	+31	56	08.4		026
1866	1985	12	21.79722	00	59	40.84	+34	01	22.4		026
1866	1986	01	04.86771	01	20	17.56	+43	19	22.2	14.5	026
1892	1979	10	19.02847	02	05	54.32	+38	09	15.0	15.5	026
1951	1985	06	17.93333	17	38	12.76	+56	39	33.5	16	026
1951	1985	07	13.96528	16	57	13.43	+38	10	18.2		026
1951	1985	07	22.95903	16	51	43.15	+27	44	51.5		026
1951	1985	07	25.01181	16	51	09.03	+25	08	09.6	15.2	026
2001	1985	11	07.91667	03	47	16.98	+55	50	42.6	16.5	026
2081	1985	09	22.01042	01	23	38.22	+02	55	48.0	16.2	026
2081	1985	09	25.04861	01	21	08.44	+02	41	55.4		026
2081	1985	10	12.93264	01	04	24.38	+01	19	39.9		026

2081		1985	10	13.91319	01	03	28.28	+01	15	36.9		16	026
2081		1985	10	16.94306	01	00	37.08	+01	03	39.3			026
2081		1985	11	06.85729	00	44	57.22	+00	16	22.7			026
2081		1985	11	07.78299	00	44	29.36	+00	15	57.8		16.2	026
2081		1985	11	07.89167	00	44	26.23	+00	15	54.0			026
2151		1979	05	28.89169	10	39	15.93	+17	21	41.4		16	3 026
2151		1985	08	19.09792	00	55	02.49	-07	55	59.8		15.5	026
2151		1985	09	13.00972	00	39	17.28	-08	43	22.1			026
2151		1985	09	17.00625	00	35	29.83	-08	50	54.3			026
2151		1985	09	18.98264	00	33	32.24	-08	54	17.0			026
2151		1985	09	22.06667	00	30	23.45	-08	58	54.8		15.2	026
2151		1985	09	25.08611	00	27	14.31	-09	02	35.0			026
2199		1985	07	24.05660	20	43	05.11	-11	00	44.4		14.8	026
2199		1985	07	25.05139	20	42	22.70	-11	11	15.3			026
2293		1985	09	20.00573	00	17	08.71	+01	31	43.2		16.2	026
2293		1985	09	22.04444	00	15	41.67	+01	22	33.0			026
2293		1985	10	12.89236	00	01	05.42	-00	09	25.7		16.5	026
2293		1985	10	13.93125	00	00	25.58	-00	13	32.7			026
2368		1980	08	06.89792	17	44	05.02	-18	22	41.3		15.5	026
2507		1985	09	13.00972	00	35	33.37	-09	06	13.9		17	026
2507		1985	09	17.00625	00	32	45.93	-09	36	59.6			026
2700		1985	09	16.98125	00	23	24.31	+01	47	28.0			026
2700		1985	09	18.92708	00	22	00.09	+01	36	40.2		16.8	026
2700		1985	09	21.95833	00	19	45.70	+01	19	32.8			026
2700		1985	09	22.97708	00	18	59.36	+01	13	41.2			026
2912		1985	09	17.00625	00	35	09.58	-08	52	00.1		16.8	026
2912		1985	09	18.98264	00	33	26.28	-09	07	08.8			026
2912		1985	09	22.06667	00	30	39.31	-09	30	08.4			026
2912		1985	09	25.08611	00	27	51.76	-09	51	44.8		16.5	026
2942		1983	07	10.02986	19	39	27.99	-19	53	05.8		15.2	026
2942		1983	07	11.98542	19	37	40.81	-20	09	11.1			026
3181		1985	07	24.05660	20	43	56.65	-10	57	46.2		16.5	026
3181		1985	07	25.05139	20	42	57.19	-11	01	04.7			026
3328		1985	10	12.91319	00	18	54.29	-13	34	58.6			026
3328		1985	10	13.89306	00	18	09.32	-13	34	36.3			026
3328		1985	11	06.90938	00	05	21.30	-12	27	47.2			026
3328		1985	11	07.85347	00	05	06.60	-12	23	04.6		17.2	026
3329		1985	09	18.92708	00	22	26.79	-00	33	42.0			026
3329		1985	09	20.00573	00	21	32.61	-00	35	59.4		16.2	026
3329		1985	09	22.97708	00	19	00.63	-00	42	25.0			026
3329		1985	10	09.85210	00	04	35.69	-01	15	20.0		16.5	5 026
3329		1985	10	13.93125	00	01	23.44	-01	20	57.7			026
3329		1985	10	14.83681	00	00	42.56	-01	22	01.6			026
3329		1985	11	03.78403	23	49	25.07	-01	24	00.4			026
3329		1985	11	06.82778	23	48	26.25	-01	20	15.2		17	026
3330		1985	09	18.92708	00	29	26.00	+00	57	48.7			026
3330		1985	09	20.00573	00	28	29.93	+00	56	45.1			026
3330		1985	09	22.97708	00	25	52.95	+00	53	41.2			026
3330		1985	10	09.85210	00	11	07.13	+00	37	52.5			4 026
3330		1985	10	13.93125	00	07	54.99	+00	35	52.3			026
3330		1985	10	14.83681	00	07	14.48	+00	35	35.0		15.8	026
3330		1985	11	02.79306	23	56	57.33	+00	47	11.5			026
3330		1985	11	03.78403	23	56	38.89	+00	48	48.9			026
3330		1985	11	06.82778	23	55	51.44	+00	54	31.0		16.2	026
3366		1985	10	16.87153	00	54	07.45	+01	04	23.7			026
3451		1985	04	18.09097	15	30	54.25	+03	59	32.8		15.8	026
3451		1985	04	20.05938	15	30	08.13	+04	10	15.8			026
1980	LH1 *	1980	06	04.96944	15	45	05.79	-09	01	46.1		16.5	026
1985	RS1	1985	09	18.92708	00	20	30.73	-00	31	05.3			026

1985	RS1		1985	09	22.97708	00	16	59.66	-00	44	29.0		026
1985	RS1		1985	10	09.85210	00	02	51.50	-01	31	27.7	4	026
1985	RS1		1985	10	13.93125	00	00	05.12	-01	38	00.6		026
1985	RS1		1985	10	14.83681	23	59	31.84	-01	39	06.1		026
1985	RS1		1985	11	06.82778	23	53	46.56	-01	16	59.5	17	026
1985	SC1		1985	09	19.04861	00	21	45.57	+01	37	10.6		026
1985	SC1		1985	09	22.04444	00	19	24.68	+01	25	53.4		026
1985	TB3	*	1985	10	12.93264	01	03	07.76	+03	26	04.3		026
1985	TB3		1985	10	13.91319	01	02	18.77	+03	17	45.5	16.8	026
1985	TB3		1985	10	14.00625	01	02	14.16	+03	16	58.5		026
1985	TB3		1985	10	16.94306	00	59	50.53	+02	52	47.6		026
1985	TC3	*	1985	10	12.93264	01	10	03.91	+00	43	58.5		026
1985	TC3		1985	10	13.91319	01	09	08.59	+00	38	49.1	17.2	026
1985	TC3		1985	10	14.00625	01	09	03.27	+00	38	20.9		026

Note 1: time uncertain. 2: image diffuse. 3: near edge of film. 4: clouds. 5 = 1 + 4.

OBSERVATIONS MADE AT TAUTENBURG BY F. BORNGEN, N. B. RICHTER AND R. ZIENER.
Plates taken with the 1.34-m (134/200/400 cm) Schmidt. Reductions by Borngen, using the SAO Catalog. Contact: S. Marx, Karl Schwarzschild Observatorium, DDR-6901 Tautenburg, Democratic Republic of Germany.

Object			Date	UT	R. A. (1950)	Decl.	Mag.	Obs.
73			1961 02	17.77083	03 47 23.95	+22 31 57.4	13.0	033
73			1961 02	17.78125	03 47 24.54	+22 31 59.8		033
73			1961 02	17.81250	03 47 26.34	+22 32 03.8		033
210			1961 02	14.81771	03 46 48.90	+24 40 45.4		033
210			1961 02	17.77083	03 50 04.13	+24 48 50.9	14.0	033
210			1961 02	17.78125	03 50 04.83	+24 48 52.6		033
210			1961 02	17.81250	03 50 06.82	+24 48 57.6		033
373			1965 11	23.84062	02 22 37.59	+31 56 00.2	14.0	033
561			1986 08	07.97500	22 15 27.43	-10 18 46.3	16.7	033
561			1986 08	08.03750	22 15 24.91	-10 19 00.8		033
1232			1960 11	24.88924	03 46 55.42	+25 23 30.9	15.4	033
1233			1961 02	17.77083	03 40 47.62	+22 49 59.7	17.0	033
1233			1961 02	17.78125	03 40 48.22	+22 50 01.0		033
1233			1961 02	17.81250	03 40 49.86	+22 50 01.7		033
1737			1986 08	07.97500	22 11 33.19	-11 41 17.9	16.1	033
1737			1986 08	08.03750	22 11 30.19	-11 41 24.1		033
1900			1961 12	26.80451	03 49 19.34	+25 16 26.7		033
1900			1961 12	26.83090	03 49 18.79	+25 16 15.0		033
2758			1986 08	07.97500	22 11 26.35	-12 19 41.3	16.9	033
2758			1986 08	08.03750	22 11 23.27	-12 19 52.5		033
3179			1986 08	07.97500	22 10 13.82	-09 49 16.8	17.9	033
3179			1986 08	08.03750	22 10 11.17	-09 49 31.4		033
1960	WX	*	1960 11	24.88924	03 38 12.29	+24 05 53.2	17.6	033
1960	WY	*	1960 11	24.88924	03 40 44.17	+24 51 24.4	17.8	033
1960	WZ	*	1960 11	24.88924	03 41 08.79	+22 40 39.7	17.5	033
1960	WA1	*	1960 11	24.88924	03 41 26.27	+24 34 11.1	19.0	033
1960	WB1	*	1960 11	24.88924	03 41 55.61	+23 46 57.6	17.3	033
1960	WC1	*	1960 11	24.88924	03 43 13.81	+24 51 51.3	19.3	033
1960	WD1	*	1960 11	24.88924	03 43 19.20	+23 01 45.9	16.2	033
1960	WE1	*	1960 11	24.88924	03 46 16.62	+25 30 27.2	16.7	033
1960	WF1	*	1960 11	24.88924	03 46 50.22	+24 39 33.0	19.2	033
1960	WG1	*	1960 11	24.88924	03 49 30.41	+23 13 42.2	16.4	033
1960	WH1	*	1960 11	24.88924	03 49 45.85	+24 11 41.9	16.6	033
1960	WJ1	*	1960 11	24.88924	03 51 13.84	+24 15 56.5	18.4	033
1961	CN	*	1961 02	14.81771	03 45 50.66	+25 18 14.7	16.5	033
1961	XA1	*	1961 12	14.88299	03 39 46.96	+23 03 15.4	17.0	033
1961	XA1		1961 12	14.90312	03 39 45.86	+23 03 32.7		033

1961	XA1		1961	12	14.97951	03	39	42.01	+23	04	35.9		033
1962	AF	*	1962	01	02.95937	03	48	47.88	+24	37	55.9		033
1962	AF		1962	01	03.81701	03	48	44.64	+24	35	46.5	17.3	033
1965	UH2	*	1965	10	23.95000	02	17	55.80	+33	04	16.2	16.3V	033
1965	UH2		1965	10	23.97222	02	17	54.29	+33	04	13.0		033
1965	UH2		1965	10	24.01389	02	17	51.55	+33	04	06.1		033
1965	UJ2	*	1965	10	23.95000	02	18	01.06	+30	09	03.5	17.2V	033
1965	UJ2		1965	10	23.97222	02	17	59.94	+30	08	57.1		033
1965	UJ2		1965	10	24.01389	02	17	57.72	+30	08	40.8		033
1965	UK2	*	1965	10	23.95000	02	30	28.58	+32	42	15.0	17.0V	033
1965	UK2		1965	10	23.97222	02	30	26.73	+32	42	22.8		033
1965	UK2		1965	10	24.01389	02	30	23.86	+32	42	32.8		033
1965	UL2	*	1965	10	23.95000	02	30	59.53	+30	47	40.1	16.6V	033
1965	UL2		1965	10	23.97222	02	30	58.04	+30	47	42.1		033
1965	UL2		1965	10	24.01389	02	30	55.05	+30	47	43.3		033
1969	TG8	*	1969	10	10.02382	02	58	00.08	-07	50	24.3	18.0	033
1969	TG8		1969	10	10.04465	02	57	59.36	-07	50	34.5		033
1981	VW1		1986	08	07.97500	22	12	14.70	-10	52	47.6	16.4	033
1981	VW1		1986	08	08.03750	22	12	12.24	-10	53	04.2		033
1986	PY		1986	08	07.97500	22	06	45.87	-09	50	44.9	16.2	033
1986	PY		1986	08	08.03750	22	06	44.31	-09	51	31.9		033
1986	PX3		1986	08	07.97500	22	06	10.91	-11	21	17.4	17.1	033
1986	PX3		1986	08	08.03750	22	06	07.54	-11	21	13.1		033
1986	PH4	*	1986	08	07.97500	22	07	20.14	-10	36	11.8	17.5	033
1986	PH4		1986	08	08.03750	22	07	16.91	-10	36	36.6		033
1986	PJ4	*	1986	08	07.97500	22	08	01.99	-12	03	22.5	16.6	033
1986	PJ4		1986	08	08.03750	22	07	58.99	-12	03	52.1		033
1986	PK4	*	1986	08	07.97500	22	15	18.07	-09	30	04.6	19.7	033
1986	PK4		1986	08	08.03750	22	15	15.39	-09	30	16.6		033

OBSERVATIONS MADE AT KLET BY A. MRKOS, Z. VAVROVA AND M. TICHY.

Plates with the 0.6-m Maksutov reflector. Contact: A. Mrkos, Department of Astronomy and Astrophysics, Charles University, Svedska 8, C-15000 Prague 5, Czechoslovakia.

Object	Date	UT	R. A. (1950)	Decl.	Mag.	Obs.
20	1986 07	18.01875	20 14 29.22	-18 42 57.1		046
20	1986 07	18.03287	20 14 28.24	-18 43 00.1		046
76	1986 07	14.94237	20 29 00.58	-16 09 30.3		046
76	1986 07	14.95696	20 28 59.95	-16 09 32.1		046
76	1986 07	15.94306	20 28 20.19	-16 11 46.2		046
76	1986 07	15.95764	20 28 19.53	-16 11 47.4		046
76	1986 07	16.95972	20 27 38.72	-16 14 04.9		046
76	1986 07	16.97402	20 27 38.07	-16 14 06.8		046
129	1986 07	17.98264	19 51 06.53	-13 28 38.8		046
129	1986 07	17.99676	19 51 05.85	-13 28 45.7		046
202	1986 07	30.93058	20 35 40.30	-16 22 56.0		046
202	1986 07	30.94551	20 35 39.55	-16 23 02.0		046
232	1986 07	30.89516	20 37 45.82	-14 11 31.2		046
232	1986 07	30.90937	20 37 44.98	-14 11 36.4		046
232	1986 07	30.93058	20 37 43.59	-14 11 45.7		046
232	1986 07	30.94551	20 37 42.70	-14 11 51.7		046
275	1986 07	30.96848	20 53 57.73	-16 54 49.0		046
275	1986 07	30.98266	20 53 57.05	-16 54 53.6		046
286	1986 08	06.93027	21 24 22.95	-09 53 51.0		046
286	1986 08	06.94439	21 24 22.32	-09 53 57.7		046
286	1986 08	07.93686	21 23 41.25	-10 02 02.9		046
286	1986 08	07.94815	21 23 40.80	-10 02 07.7		046
305	1986 08	06.93027	21 28 24.57	-08 48 07.9		046
305	1986 08	06.94439	21 28 23.88	-08 48 11.3		046

305	1986	08	07.93686	21	27	40.28	-08	51	47.3	046
305	1986	08	07.94815	21	27	39.81	-08	51	49.7	046
342	1986	08	06.89612	21	30	41.60	-02	43	34.8	046
342	1986	08	06.90995	21	30	40.93	-02	43	37.6	046
402	1986	07	17.98264	19	47	14.51	-16	31	55.2	046
402	1986	07	17.99676	19	47	13.88	-16	31	59.1	046
441	1986	07	16.04653	20	07	12.27	-11	22	38.7	046
441	1986	07	16.05926	20	07	11.72	-11	22	37.4	046
441	1986	07	16.99201	20	06	23.43	-11	23	06.9	046
441	1986	07	17.00625	20	06	22.91	-11	23	07.7	046
496	1986	07	17.98264	19	45	27.16	-14	30	51.2	046
496	1986	07	17.99676	19	45	25.98	-14	30	51.2	046
517	1986	07	18.01875	20	16	41.73	-17	41	45.2	046
517	1986	07	18.03287	20	16	40.90	-17	41	46.5	046
530	1986	08	03.00347	21	15	50.22	-17	11	22.4	046
530	1986	08	03.01771	21	15	49.61	-17	11	29.2	046
530	1986	08	03.99363	21	15	09.41	-17	18	43.7	046
530	1986	08	04.00775	21	15	08.81	-17	18	50.3	046
530	1986	08	06.98617	21	13	04.12	-17	41	00.4	046
530	1986	08	07.00081	21	13	03.47	-17	41	07.6	046
552	1986	07	11.94481	18	59	00.44	-19	09	04.8	046
552	1986	07	11.95894	18	58	59.69	-19	09	03.5	046
625	1986	07	14.94237	20	33	12.58	-15	31	32.2	046
625	1986	07	14.95696	20	33	11.92	-15	31	41.5	046
625	1986	07	15.94306	20	32	34.95	-15	42	01.1	046
625	1986	07	15.95764	20	32	34.42	-15	42	09.8	046
625	1986	07	16.95972	20	31	55.55	-15	52	50.4	046
625	1986	07	16.97402	20	31	54.97	-15	53	00.1	046
683	1986	07	14.97918	20	10	20.61	-01	59	18.9	046
683	1986	07	14.99203	20	10	19.90	-01	59	17.5	046
683	1986	07	15.97789	20	09	32.18	-01	57	16.1	046
683	1986	07	15.99236	20	09	31.34	-01	57	14.1	046
764	1986	07	15.01564	20	21	50.95	-09	29	34.3	046
764	1986	07	15.02976	20	21	50.26	-09	29	33.7	046
764	1986	07	16.01319	20	21	05.66	-09	29	30.6	046
764	1986	07	16.02278	20	21	05.03	-09	29	33.7	046
764	1986	07	17.02471	20	20	19.49	-09	29	33.7	046
764	1986	07	17.03895	20	20	18.99	-09	29	33.4	046
791	1986	07	17.98264	19	50	25.84	-14	23	00.5	046
791	1986	07	17.99676	19	50	25.20	-14	23	07.4	046
791	1986	07	28.90764	19	41	58.13	-16	03	35.0	046
797	1986	08	02.93345	21	11	22.91	-08	38	06.4	046
797	1986	08	02.94757	21	11	22.14	-08	38	09.3	046
797	1986	08	03.94375	21	10	28.43	-08	41	27.7	046
797	1986	08	03.95799	21	10	27.61	-08	41	30.4	046
803	1986	08	06.89612	21	23	21.82	-02	39	47.3	046
803	1986	08	06.90995	21	23	21.23	-02	39	48.3	046
1020	1986	08	06.93027	21	28	42.99	-10	26	44.4	046
1020	1986	08	06.94439	21	28	42.56	-10	26	45.7	046
1043	1986	07	30.89516	20	38	10.74	-11	14	39.8	046
1043	1986	07	30.90937	20	38	10.15	-11	14	44.6	046
1136	1986	07	14.97918	20	06	44.20	-02	55	52.2	046
1136	1986	07	14.99203	20	06	43.38	-02	55	52.9	046
1136	1986	07	15.97789	20	05	55.52	-02	55	33.2	046
1136	1986	07	15.99236	20	05	54.78	-02	55	33.2	046
1289	1986	08	02.90069	20	57	55.22	-14	50	31.4	046
1289	1986	08	02.91493	20	57	54.55	-14	50	35.2	046
1289	1986	08	03.91111	20	57	04.83	-14	54	19.3	046
1289	1986	08	03.92535	20	57	04.13	-14	54	22.9	046

1289		1986	08	05.88605	20	55	26.39	-15	01	50.5		046
1289		1986	08	05.90023	20	55	25.27	-15	01	53.5		046
1289		1986	08	07.90127	20	53	45.69	-15	09	28.5		046
1289		1986	08	07.91609	20	53	45.06	-15	09	32.6		046
1289		1986	08	09.88681	20	52	07.23	-15	17	01.4		046
1289		1986	08	09.90104	20	52	06.54	-15	17	06.8		046
1384		1986	07	15.01564	20	19	53.37	-09	33	35.7		046
1384		1986	07	15.02976	20	19	52.51	-09	33	40.1		046
1384		1986	07	16.01319	20	19	04.92	-09	38	24.2		046
1384		1986	07	16.02778	20	19	04.43	-09	38	29.7		046
1384		1986	07	17.02471	20	18	15.68	-09	43	23.2		046
1384		1986	07	17.03895	20	18	15.02	-09	43	23.7		046
1411		1986	07	30.89516	20	40	28.58	-13	13	41.7		046
1411		1986	07	30.90937	20	40	27.87	-13	13	42.4		046
1576		1986	07	30.93058	20	36	26.15	-17	40	43.5		046
1576		1986	07	30.94551	20	36	25.39	-17	40	48.3		046
1832		1986	08	02.90069	20	57	11.42	-13	41	26.7		046
1832		1986	08	02.91493	20	57	10.79	-13	41	26.1		046
1832		1986	08	03.91111	20	56	17.84	-13	40	41.9		046
1832		1986	08	03.92535	20	56	17.10	-13	40	41.4		046
1832		1986	08	05.88605	20	54	32.67	-13	39	17.3		046
1832		1986	08	05.90023	20	54	31.86	-13	39	20.2		046
1832		1986	08	07.90127	20	52	45.38	-13	37	56.5		046
1832		1986	08	07.91609	20	52	44.96	-13	37	55.8		046
1832		1986	08	09.88681	20	51	00.39	-13	36	39.4		046
1832		1986	08	09.90104	20	50	59.60	-13	36	39.5		046
2257		1986	08	02.93345	21	12	11.11	-05	48	38.5		046
2257		1986	08	02.94757	21	12	10.38	-05	48	39.9		046
2257		1986	08	03.94375	21	11	21.08	-05	50	25.5		046
2257		1986	08	03.95799	21	11	20.31	-05	50	27.0		046
2378		1986	07	14.97918	20	11	37.84	-01	34	41.1		046
2378		1986	07	14.99203	20	11	37.20	-01	34	43.2		046
2528		1986	07	30.96848	20	57	19.11	-16	47	03.7		046
2528		1986	07	30.98266	20	57	18.53	-16	47	05.6		046
2551		1986	08	03.00347	21	19	28.02	-16	27	43.1		046
2551		1986	08	03.01771	21	19	27.45	-16	27	47.4		046
2551		1986	08	03.99363	21	18	41.51	-16	31	14.4		046
2551		1986	08	04.00775	21	18	41.09	-16	31	17.5		046
2665		1986	08	02.91493	20	54	12.68	-12	14	33.9		046
2665		1986	08	03.92535	20	53	08.71	-12	16	56.7		046
2665		1986	08	05.88605	20	51	04.57	-12	21	35.8		046
2665		1986	08	05.90023	20	51	03.93	-12	21	38.3		046
2716		1986	08	02.93345	21	05	53.46	-05	27	09.0		046
2716		1986	08	02.94757	21	05	52.75	-05	27	10.0		046
2716		1986	08	03.94375	21	04	58.19	-05	30	46.4		046
2716		1986	08	03.95799	21	04	57.59	-05	30	48.2		046
1970	QA1	1986	08	03.00347	21	13	45.09	-17	16	25.4	15.5	046
1970	QA1	1986	08	03.01771	21	13	44.26	-17	16	25.4		046
1970	QA1	1986	08	03.99363	21	12	46.85	-17	16	17.7		046
1970	QA1	1986	08	04.00775	21	12	46.11	-17	16	18.6		046
1970	QA1	1986	08	06.98617	21	09	49.03	-17	15	52.6		046
1970	QA1	1986	08	07.00081	21	09	47.96	-17	15	53.6		046
1981	EW3	1986	08	02.93345	21	09	19.21	-07	25	08.8	16.0	046
1981	EW3	1986	08	02.94757	21	09	18.42	-07	25	08.7		046
1981	EW3	1986	08	03.94375	21	08	23.20	-07	24	40.3		046
1981	EW3	1986	08	03.95799	21	08	22.43	-07	24	39.9		046
1986	NB1 *	1986	07	14.94237	20	24	18.50	-13	28	34.1	16.9	046
1986	NB1	1986	07	14.95696	20	24	17.64	-13	28	32.3		046
1986	NC1 *	1986	07	14.94237	20	28	40.40	-16	49	16.5	17.0	046

1986	NC1		1986	07	14.95696	20	28	39.63	-16	49	19.2	046
1986	ND1	*	1986	07	14.94237	20	29	55.82	-14	44	35.5	046
1986	ND1		1986	07	14.95696	20	29	54.85	-14	44	36.5	046
1986	NE1	*	1986	07	15.01564	20	23	22.29	-09	31	29.1	16.9 046
1986	NE1		1986	07	15.02976	20	23	21.75	-09	31	26.2	046
1986	NE1		1986	07	16.01319	20	23	28.91	-09	25	33.5	046
1986	NE1		1986	07	16.02778	20	23	28.43	-09	25	31.3	046
1986	OF	*	1986	07	28.90764	19	42	13.31	-16	16	11.0	16.9 046
1986	OG	*	1986	07	30.98266	20	52	20.57	-18	23	07.7	16.7 046
1986	PB4	*	1986	08	02.90069	21	01	08.86	-13	12	16.9	16.5 046
1986	PB4		1986	08	02.91493	21	01	08.29	-13	12	19.7	046
1986	PB4		1986	08	03.91111	21	00	20.33	-13	16	56.9	046
1986	PB4		1986	08	03.92535	21	00	19.57	-13	17	02.5	046
1986	PB4		1986	08	05.88605	20	58	45.00	-13	26	18.6	046
1986	PB4		1986	08	05.90023	20	58	44.37	-13	26	21.1	046
1986	PB4		1986	08	07.90127	20	57	07.11	-13	36	07.5	046
1986	PB4		1986	08	07.91609	20	57	06.28	-13	36	12.4	046
1986	PB4		1986	08	09.88681	20	55	31.74	-13	45	53.1	046
1986	PB4		1986	08	09.90104	20	55	30.86	-13	45	58.5	046
1986	PC4	*	1986	08	02.96493	21	11	56.53	-24	17	38.3	16.8 046
1986	PC4		1986	08	02.97639	21	11	55.80	-24	17	31.4	046
1986	PD4	*	1986	08	03.94375	21	09	45.57	-06	09	54.6	16.8 046
1986	PD4		1986	08	03.95799	21	09	44.63	-06	09	47.0	046
1986	PE4	*	1986	08	06.89612	21	33	27.33	-04	27	52.7	16.5 046
1986	PE4		1986	08	06.90995	21	33	26.58	-04	27	55.8	046
1986	PF4	*	1986	08	06.93027	21	32	46.28	-10	45	57.8	16.0 046
1986	PF4		1986	08	06.94439	21	32	45.58	-10	45	54.4	046
1986	PF4		1986	08	07.93686	21	31	52.16	-10	41	56.3	046
1986	PF4		1986	08	07.94815	21	31	51.48	-10	41	53.8	046
1986	PG4	*	1986	08	07.93686	21	23	54.28	-10	45	27.8	16.8 046
1986	PG4		1986	08	07.94815	21	23	53.51	-10	45	50.4	046

OBSERVATIONS MADE AT THE BULGARIAN NATIONAL OBSERVATORY BY E. W. ELST, V. G. IVANOVA AND V. SHKODROV.

Measurements and reductions by V. Ivanova. Contact: E. W. Elst, Royal Observatory, B-1180 Brussels, Belgium.

Object	Date	UT	R. A. (1950)	Decl.	Mag.	Obs.
173	1986 08	06.94391	21 52 43.26	-09 41 25.1		071
173	1986 08	06.96683	21 52 42.37	-09 41 39.4		071
676	1986 08	06.94391	22 03 10.34	-09 24 07.9		071
676	1986 08	06.96683	22 03 09.58	-09 24 20.2		071
1256	1986 08	06.94391	22 04 55.36	-05 48 40.0		071
1256	1986 08	06.96683	22 04 54.60	-05 48 43.5		071
1466	1986 08	06.94391	21 56 05.54	-07 15 44.2		071
1466	1986 08	06.96683	21 56 04.50	-07 15 58.2		071
1942	1986 09	03.89502	22 38 51.80	-16 44 15.1		071
1942	1986 09	03.93391	22 38 47.71	-16 43 44.3		071
1942	1986 09	04.89109	22 37 10.36	-16 31 09.6		071
1942	1986 09	04.90940	22 37 08.26	-16 30 55.1		071
1942	1986 09	04.92263	22 37 06.97	-16 30 44.3		071
1942	1986 09	05.93036	22 35 24.95	-16 17 20.8		071
1942	1986 09	05.94054	22 35 23.86	-16 17 12.7		071
2694	1986 08	06.94391	21 59 39.31	-09 24 43.0		071
2694	1986 08	06.96683	21 59 38.17	-09 24 47.9		071
2785	1986 04	08.88977	13 02 48.52	-08 19 08.6		071
1986 PW	* 1986 08	06.94391	22 05 06.72	-07 17 43.6	17	071
1986 PW	1986 08	06.96683	22 05 05.50	-07 17 47.1		071
1986 PX	* 1986 08	06.94391	22 05 12.73	-06 19 59.5	17	071
1986 PX	1986 08	06.96683	22 05 11.80	-06 20 06.4		071

1986 PY	*	1986 08 06.94391	22 07 06.10	-09 37 46.2		17	071
1986 PY		1986 08 06.96683	22 07 05.68	-09 38 02.3			071

OBSERVATIONS MADE AT THE BURLINGTON REMOTE SITE BY T. HANDLEY.
Contact: T. Handley, 13 Linden Avenue, Burlington, NJ 08016, U.S.A.

Object	Date	UT	R. A. (1950)	Decl.	Obs.
221	1986 01	12.24028	07 05 56.69	+13 43 25.8	293
221	1986 01	12.25625	07 05 55.87	+13 43 29.8	293
3125	1986 01	12.24028	07 08 40.04	+12 16 03.1	293
3125	1986 01	12.25625	07 08 39.03	+12 16 12.6	293

OBSERVATIONS MADE AT THE PERTH OBSERVATORY.
Plates taken by A. McGrath with the 0.3-m astrograph. Measured by M. Kempin. Contact: M. P. Candy, Perth Observatory, Bickley, WA 6076, Australia.

Object	Date	UT	R. A. (1950)	Decl.	Obs.
1986 RA	1986 09	08.58056	21 32 29.07	+12 25 48.2	323
1986 RA	1986 09	11.59861	21 44 32.32	+08 49 21.4	323

OBSERVATIONS MADE AT YEBES BY M. DE PASCUAL, J. GARCIA, C. CABANAS AND F. SANCHEZ.
Contact: M. de Pascual M., Observatorio Astronomico de Madrid, Alfonso XII, 3, Madrid, Spain.

Object	Date	UT	R. A. (1950)	Decl.	N	Obs.
11	1984 04	26.87410	11 52 53.29	+07 33 13.0		491
11	1984 04	26.87826	11 52 53.18	+07 33 14.5		491
11	1984 04	26.88241	11 52 53.06	+07 33 14.1		491
11	1984 05	31.88935	11 53 08.76	+06 38 45.4		491
11	1984 05	31.89558	11 53 08.95	+06 38 44.8		491
11	1984 05	31.90181	11 53 09.08	+06 38 43.2		491
148	1984 04	26.89141	13 09 30.08	+22 49 09.3		491
148	1984 04	26.89834	13 09 29.77	+22 49 11.3		491
148	1984 04	26.90527	13 09 29.52	+22 49 12.7		491
230	1984 05	30.97394	13 34 51.30	-14 18 04.0		491
230	1984 05	31.99980	13 34 37.00	-14 11 37.3		491
270	1984 05	30.97394	13 35 37.20	-11 59 56.1	1	491
270	1984 05	31.99980	13 35 16.89	-11 56 17.7	1	491
822	1984 04	27.15181	14 38 08.69	-15 12 55.2		491
1073	1984 05	31.92812	14 48 10.36	-16 46 10.7		491
1377	1984 05	31.92812	14 40 24.58	-13 03 58.1		491
1397	1984 05	31.92812	14 45 45.89	-13 34 09.0		491
2197	1984 05	31.92812	14 36 41.49	-14 51 13.4		491
2352	1984 05	31.92812	14 42 46.52	-16 06 26.1	1	491
2531	1984 04	26.97348	13 16 04.69	+09 25 14.6		491
3089	1984 06	01.09849	17 45 04.73	-19 05 51.1		491
1981 PM	1984 05	31.92812	14 42 44.31	-15 24 08.0		491
1984 JA1	1984 05	30.93189	14 49 05.73	-17 04 21.7		491
1984 JA1	1984 05	31.92812	14 48 36.20	-16 57 34.0		491

Note 1: image irregular in shape.

OBSERVATIONS MADE AT THE OSSERVATORIO S. VITTORE.
Plates taken by C. Vacchi and G. Sassi; blinked by Vacchi; measured by Vacchi, V. Goretti and E. Colombini. Reduced by Colombini from least-squares plate-constants solutions with five or more AGK3 or SAO reference stars. Contact: E. Colombini, Via S. Vittore 44, I-40136 Bologna, Italy.

Object	Date	UT	R. A. (1950)	Decl.	Mag.	N	Obs.
1983 RD	1986 08	07.86042	19 20 31.81	+08 10 06.3	16.5		552
1983 RD	1986 08	07.87917	19 20 30.92	+08 09 55.9			552

1983 RD	1986 08 07.89722	19 20 30.11	+08 09 50.7							552
1986 OA	1986 08 01.85972	20 36 05.84	-01 41 53.4					16.5		552
1986 OA	1986 08 01.89167	20 36 03.99	-01 41 52.3							552
1986 OA	1986 08 01.91389	20 36 02.59	-01 41 53.7							552
1986 OA	1986 08 03.90556	20 34 08.49	-01 42 22.9					16.5		552
1986 OA	1986 08 03.92778	20 34 07.21	-01 42 23.2							552
1986 OA	1986 08 03.95000	20 34 05.90	-01 42 24.2							552
1986 OA	1986 08 06.90278	20 31 18.59	-01 44 18.5					16.5		552
1986 OA	1986 08 06.92431	20 31 17.30	-01 44 20.9							552
1986 OA	1986 08 10.89028	20 27 39.09	-01 48 58.1					16.5		552
1986 OA	1986 08 10.90625	20 27 38.24	-01 48 57.3						1	552
1986 OA	1986 08 11.86944	20 26 46.79	-01 50 27.8					16.5		552
1986 OA	1986 08 11.88472	20 26 45.94	-01 50 27.9							552
1986 OA	1986 08 12.88542	20 25 52.99	-01 52 06.0					16.5	1	552
1986 OA	1986 08 12.90000	20 25 52.31	-01 52 06.9							552

Note 1: position of center of composite image of minor planet and faint stars; position uncertain.

OBSERVATIONS MADE AT ELDAGSEN BY W. BONK.

Contact: W. Bonk, Nordstrasse 33, D-3257 Springe 3, Federal Republic of Germany.

Object	Date	UT	R. A. (1950)	Decl.	Obs.
978	1986 08 27.87153	22 41 04.61	+22 47 39.1		573
978	1986 08 27.87778	22 41 04.38	+22 47 36.8		573
978	1986 08 27.88333	22 41 04.16	+22 47 34.9		573
978	1986 08 27.88958	22 41 03.92	+22 47 32.6		573
978	1986 08 27.89583	22 41 03.68	+22 47 30.4		573
978	1986 08 27.90139	22 41 03.47	+22 47 28.4		573

OBSERVATIONS MADE AT THE CLIMENHAGA OBSERVATORY, VICTORIA, BY D. D. BALAM AND J. B. TATUM.

For details see MPC 10595. Contact: J. B. Tatum, Dept. of Physics, University of Victoria, P.O. Box 1700, Victoria, BC, V8W 2Y2, Canada.

Object	Date	UT	R. A. (1950)	Decl.	N	Obs.
1833	1986 08 06.33340	21 17 10.15	-08 57 06.0		1	657
1833	1986 08 07.33236	21 16 23.92	-09 05 35.6			657
1833	1986 08 08.35528	21 15 36.33	-09 14 26.6			657
3199	1986 08 26.30146	00 13 35.83	-02 36 09.1		2	657
3199	1986 08 27.30493	00 09 46.57	-00 52 39.6			657
3224	1985 05 15.30610	15 00 26.29	-16 45 36.3			657
A919 SD	1986 08 14.37889	23 23 45.10	-00 29 46.9			657
1971 QU	1986 08 01.31604	21 48 15.75	-05 14 31.7			657
1971 QU	1986 08 01.38479	21 48 12.78	-05 14 38.9			657
1971 QU	1986 08 09.35910	21 42 18.04	-05 34 48.3			657
1985 FE	1986 08 06.33340	21 13 44.90	-06 56 10.0			657
1985 FE	1986 08 06.36674	21 13 43.11	-06 56 14.2			657
1986 RA	1986 09 06.24375	21 23 27.22	+15 04 10.4			657

Note 1: edge of plate. 2: uneven star trails.

OBSERVATIONS MADE WITH THE 1.5-m REFLECTOR AND CCD AT PALOMAR BY J. GIBSON.

Coordination with J. G. Williams and with the Minor Planet Center. AGK3 and SAO reference stars, reduction using Palomar Sky Survey prints. Contact: J. Gibson, Jet Propulsion Laboratory, MS 138-307, Pasadena, CA 91109, U.S.A.

Object	Date	UT	R. A. (1950)	Decl.	Mag.	Obs.
3199	1986 08 15.42403	00 42 21.98	-16 45 49.7			675
3199	1986 08 15.42812	00 42 21.50	-16 45 35.4			675
3199	1986 08 15.43507	00 42 20.70	-16 45 11.0			675
1985 JA	1986 08 16.44208	03 44 04.70	+37 15 46.1		19	675

1985 JA	1986 08 16.45118	03 44 05.70	+37 15 46.4			675
1986 JK	1986 07 18.46479	03 10 35.84	+12 53 28.7			675
1986 JK	1986 07 18.48312	03 10 37.45	+12 53 38.4			675
1986 JK	1986 07 19.46724	03 12 09.09	+13 01 58.8			675
1986 JK	1986 07 19.47847	03 12 10.09	+13 02 04.9			675
1986 JK	1986 07 24.46042	03 19 43.79	+13 42 19.0			675
1986 JK	1986 07 24.46431	03 19 44.19	+13 42 20.9			675
1986 JK	1986 07 26.45903	03 22 40.11	+13 57 28.9			675
1986 JK	1986 07 26.46708	03 22 40.81	+13 57 32.9			675
1986 JK	1986 07 28.46826	03 25 33.16	+14 12 10.1			675
1986 JK	1986 07 28.48073	03 25 34.18	+14 12 15.2			675
1986 JK	1986 08 15.47340	03 46 45.43	+15 54 53.3			675
1986 JK	1986 08 15.47764	03 46 45.63	+15 54 54.6			675

OBSERVATIONS MADE WITH THE 1.2-m SCHMIDT AT PALOMAR.

Plates taken by C. Wilson, E. Helin and G. Carlson (assisted by R. Day and J. Mueller) in the course of Palomar Sky Survey II. Measured by S. Gerhart, K. Sangster, S. Singer-Brewster and M. Rudnyk. Contact: E. Helin, Jet Propulsion Laboratory, MS 183-501, Pasadena, CA 91109, U.S.A.

Object		Date	UT	R. A. (1950)	Decl.	Mag.	N	Obs.
1986 RA		1986 08 11.30486		20 11 39.70	+31 59 38.9		1	675
1986 RA		1986 08 11.34653		20 11 43.37	+31 59 04.1		1	675
1986 RA	*	1986 09 02.23472		21 08 47.06	+19 14 10.5	14	2	675
1986 RA		1986 09 02.29722		21 08 59.47	+19 10 32.6			675
1986 RB	*	1986 09 01.29306		22 42 49.14	-01 39 05.7	13	2	675
1986 RB		1986 09 01.34560		22 42 43.54	-01 38 10.3			675
1986 RB		1986 09 02.38727		22 40 51.97	-01 19 25.6			675
1986 RB		1986 09 02.40810		22 40 49.72	-01 19 01.6			675

Note 1: ends of a strong, trailed, prediscovery image, possibly with a diffuse margin. 2: discoverer A. Maury.

OBSERVATIONS MADE WITH THE 1.2-m SCHMIDT AT PALOMAR BY C. T. KOWAL.

Plates scanned by S. J. Bus and E. Bowell, measured by Bus. Contact: S. J. Bus, Lowell Observatory, 1400 West Mars Hill Road, Flagstaff, AZ 86001, U.S.A.

Object	Date	UT	R. A. (1950)	Decl.	Mag.	Obs.
492	1978 06 10.30764		16 43 33.41	-23 28 32.6		675
492	1978 06 10.35972		16 43 30.85	-23 28 29.2		675
2125	1978 07 07.37431		19 36 36.46	-22 52 45.5		675
2125	1978 07 08.36493		19 35 43.17	-22 54 12.5		675
2125	1978 07 09.38455		19 34 47.69	-22 55 40.8		675
2259	1977 02 12.37743		09 37 11.59	+08 44 25.9		675
2282	1977 02 11.34427		09 24 42.25	+06 12 51.6		675
2282	1977 02 12.37743		09 23 39.77	+06 19 37.9		675
2462	1978 07 08.36493		19 53 08.45	-21 58 18.7		675
2462	1978 07 09.38455		19 52 08.02	-22 02 09.9		675
2605	1977 02 11.34427		09 32 33.67	+07 38 52.2		675
2605	1977 02 12.37743		09 31 47.07	+07 44 48.8		675
2914	1977 02 11.34427		09 29 24.57	+12 32 56.0		675
3148	1978 07 07.37431		19 43 57.82	-22 22 20.5		675
3148	1978 07 08.36493		19 43 09.44	-22 24 20.1		675
3148	1978 07 09.38455		19 42 19.10	-22 26 22.5		675
3375	1978 06 10.30764		16 40 16.20	-20 09 27.0		675
3375	1978 06 10.35972		16 40 12.77	-20 09 22.1		675
3425	1978 07 07.37431		19 53 11.38	-20 41 12.9		675
3425	1978 07 08.36493		19 52 21.07	-20 41 03.1		675
3425	1978 07 09.38455		19 51 28.78	-20 40 52.7		675
1948 WF	1978 07 07.37431		19 45 19.70	-18 48 23.9	16.2	675
1948 WF	1978 07 08.36493		19 44 30.87	-18 58 23.9		675

1948	WF		1978	07	09.38455	19	43	39.21	-19	08	50.7		675
1973	QD2		1978	07	07.37431	19	38	07.04	-22	24	17.0	16.2	675
1973	QD2		1978	07	08.36493	19	37	22.26	-22	27	32.5		675
1973	QD2		1978	07	09.38455	19	36	35.50	-22	30	53.6		675
1977	CR		1977	02	11.34427	09	25	13.21	+12	07	07.0	19.2	675
1977	CR		1977	02	12.37743	09	24	41.59	+12	12	25.9		675
1977	CG1	*	1977	02	11.34427	09	19	22.79	+07	08	24.9	20.0	675
1977	CG1		1977	02	12.37743	09	18	50.26	+07	11	13.5		675
1977	CH1	*	1977	02	11.34427	09	19	25.10	+07	18	06.0	17.5	675
1977	CH1		1977	02	12.37743	09	18	35.20	+07	29	02.7		675
1977	CJ1	*	1977	02	11.34427	09	21	58.62	+10	32	56.5	18.8	675
1977	CJ1		1977	02	12.37743	09	21	26.91	+10	37	11.7		675
1977	CK1	*	1977	02	11.34427	09	22	08.01	+11	20	42.8	17.8	675
1977	CK1		1977	02	12.37743	09	21	19.70	+11	28	11.5		675
1977	CL1	*	1977	02	11.34427	09	23	53.79	+08	03	58.7	17.5	675
1977	CL1		1977	02	12.37743	09	22	54.36	+08	09	42.7		675
1977	CM1	*	1977	02	11.34427	09	24	25.16	+11	00	08.4	18.5	675
1977	CM1		1977	02	12.37743	09	23	39.20	+11	06	07.5		675
1977	CN1	*	1977	02	11.34427	09	34	51.93	+12	00	12.4	20.5	675
1977	CN1		1977	02	12.37743	09	34	12.19	+12	03	47.5		675
1977	CO1	*	1977	02	11.34427	09	35	44.50	+09	11	53.7	18.2	675
1977	CO1		1977	02	12.37743	09	34	57.55	+09	15	57.0		675
1978	LY	*	1978	06	10.30764	16	22	51.55	-19	13	41.0	18.0	675
1978	LY		1978	06	10.35972	16	22	49.01	-19	13	39.0		675
1978	LZ	*	1978	06	10.30764	16	25	04.35	-20	20	28.0	20.0	675
1978	LZ		1978	06	10.35972	16	25	01.26	-20	20	36.2		675
1978	LA1	*	1978	06	10.30764	16	25	41.53	-20	26	29.2	19.2	675
1978	LA1		1978	06	10.35972	16	25	38.32	-20	26	39.8		675
1978	NN		1978	07	08.36493	19	53	09.14	-23	12	28.5	18.2	675
1978	NN		1978	07	09.38455	19	51	38.23	-22	59	17.4		675
1978	NX7	*	1978	07	07.37431	19	30	44.75	-22	34	58.8	18.2	675
1978	NX7		1978	07	08.36493	19	29	56.90	-22	38	30.9		675
1978	NX7		1978	07	09.38455	19	29	07.21	-22	42	09.3		675
1978	NY7	*	1978	07	07.37431	19	32	28.61	-22	44	38.4	17.2	675
1978	NY7		1978	07	08.36493	19	31	41.35	-22	47	35.6		675
1978	NY7		1978	07	09.38455	19	30	52.19	-22	50	37.6		675
1978	NZ7	*	1978	07	07.37431	19	34	41.55	-21	10	10.4	17.5	675
1978	NZ7		1978	07	08.36493	19	33	50.27	-21	16	56.6		675
1978	NZ7		1978	07	09.38455	19	32	56.78	-21	23	56.7		675
1978	NA8	*	1978	07	07.37431	19	39	47.41	-20	07	06.6	18.0	675
1978	NA8		1978	07	08.36493	19	39	01.86	-20	08	55.0		675
1978	NA8		1978	07	09.38455	19	38	14.56	-20	10	46.8		675
1978	NB8	*	1978	07	07.37431	19	40	50.82	-23	50	37.1	17.8	675
1978	NB8		1978	07	08.36493	19	40	04.20	-23	53	16.4		675
1978	NB8		1978	07	09.38455	19	39	15.61	-23	55	59.4		675
1978	NC8	*	1978	07	07.37431	19	41	31.09	-23	15	01.3	18.0	675
1978	NC8		1978	07	08.36493	19	40	32.97	-23	19	59.3		675
1978	NC8		1978	07	09.38455	19	39	32.66	-23	25	03.6		675
1978	ND8	*	1978	07	07.37431	19	43	01.90	-22	13	48.2	17.5	675
1978	ND8		1978	07	08.36493	19	42	09.09	-22	12	40.2		675
1978	ND8		1978	07	09.38455	19	41	14.26	-22	11	28.7		675
1978	NE8	*	1978	07	07.37431	19	43	45.89	-24	28	20.8	17.8	675
1978	NE8		1978	07	08.36493	19	42	38.50	-24	29	02.3		675
1978	NE8		1978	07	09.38455	19	41	28.56	-24	29	40.1		675
1978	NF8	*	1978	07	07.37431	19	44	04.32	-24	03	36.6	16.8	675
1978	NF8		1978	07	08.36493	19	43	15.88	-24	09	50.4		675
1978	NF8		1978	07	09.38455	19	42	25.44	-24	16	13.4		675
1978	NG8	*	1978	07	07.37431	19	46	49.62	-23	09	43.4	18.2	675
1978	NG8		1978	07	08.36493	19	45	52.95	-23	11	27.6		675

1978	NG8		1978	07	09.38455	19	44	54.16	-23	13	13.0		675
1978	NH8	*	1978	07	07.37431	19	47	00.99	-19	37	36.9	17.2	675
1978	NH8		1978	07	08.36493	19	46	14.02	-19	39	53.0		675
1978	NH8		1978	07	09.38455	19	45	25.19	-19	42	14.3		675
1978	NJ8	*	1978	07	07.37431	19	51	16.11	-23	08	29.8	19.5	675
1978	NJ8		1978	07	08.36493	19	49	45.38	-22	54	54.9		675
1978	NJ8		1978	07	09.38455	19	48	11.51	-22	40	51.9		675
1979	SP9		1978	07	07.37431	19	44	03.89	-23	51	03.8	18.2	675
1979	SP9		1978	07	08.36493	19	43	17.24	-23	53	27.6		675
1979	SP9		1978	07	09.38455	19	42	28.62	-23	55	55.3		675
1981	DN		1977	02	11.34427	09	27	47.88	+10	57	49.0		675
1981	DN		1977	02	12.37743	09	26	42.94	+10	56	39.5		675
1981	DS1		1978	07	07.37431	19	45	15.95	-22	22	50.9		675
1981	DS1		1978	07	08.36493	19	44	16.56	-22	21	47.7		675
1981	DS1		1978	07	09.38455	19	43	14.69	-22	20	40.8		675
1981	EE1		1978	07	07.34826	19	47	57.03	-18	27	43.4	19.0	675
1981	EE1		1978	07	08.36493	19	46	58.77	-18	31	00.5		675
1981	EE1		1978	07	09.38455	19	45	59.62	-18	34	20.7		675
1981	EK8		1978	07	07.37431	19	42	57.47	-20	04	35.3		675
1981	EK8		1978	07	08.36493	19	41	59.06	-20	02	48.5		675
1981	EK8		1978	07	09.38455	19	40	58.32	-20	01	00.0		675
1981	EY8		1978	07	07.37431	19	32	31.93	-24	46	33.3		675
1981	EY8		1978	07	08.36493	19	31	33.24	-24	46	22.5		675
1981	EY8		1978	07	09.38455	19	30	32.25	-24	46	08.2		675
1981	EB15		1978	07	07.34826	19	52	25.56	-18	38	13.3		675
1981	EB15		1978	07	08.36493	19	51	30.25	-18	39	54.2		675
1981	EB15		1978	07	09.38455	19	50	34.39	-18	41	36.8		675
1981	EU15		1978	06	10.30764	16	24	24.20	-18	53	03.9		675
1981	EU15		1978	06	10.35972	16	24	21.00	-18	52	51.8		675
1981	EY17		1978	06	10.30764	16	28	19.28	-18	17	58.4		675
1981	EY17		1978	06	10.35972	16	28	16.16	-18	17	53.6		675
1981	EC20		1978	06	10.30764	16	17	48.69	-21	47	29.9		675
1981	EC20		1978	06	10.35972	16	17	45.55	-21	47	19.0		675
1981	EK23		1977	02	11.34427	09	28	15.15	+11	28	56.8		675
1981	EK23		1977	02	12.37743	09	27	13.97	+11	34	39.9		675
1981	EJ25		1977	02	11.34427	09	33	17.64	+11	46	25.5		675
1981	EJ25		1977	02	12.37743	09	32	15.93	+11	52	27.3		675
1981	EB28		1978	07	07.37431	19	27	43.82	-19	41	20.0		675
1981	EB28		1978	07	08.36493	19	26	46.14	-19	44	46.9		675
1981	EG28		1977	02	11.34427	09	25	34.72	+08	53	16.3		675
1981	EG28		1977	02	12.37743	09	24	33.73	+08	59	33.5		675
1981	EM30		1978	07	07.37431	19	33	27.64	-19	34	46.5		675
1981	EM30		1978	07	08.36493	19	32	34.06	-19	37	36.6		675
1981	EM30		1978	07	09.38455	19	31	38.33	-19	40	33.0		675
1981	EM31		1978	07	07.37431	19	37	55.36	-19	31	55.5		675
1981	EM31		1978	07	08.36493	19	37	00.12	-19	34	26.2		675
1981	EM31		1978	07	09.38455	19	36	02.67	-19	37	03.3		675
1981	EU33		1977	02	11.34427	09	18	37.03	+06	12	29.6		675
1981	EU33		1977	02	12.37743	09	17	35.97	+06	17	28.0		675
1981	EU33		1978	06	10.30764	16	22	35.36	-18	20	05.2		675
1981	EU33		1978	06	10.35972	16	22	31.86	-18	19	46.7		675
2808	P-L		1978	07	07.37431	19	34	16.31	-18	37	30.8	20.2	675
2808	P-L		1978	07	08.36493	19	33	17.85	-18	39	49.1		675
2808	P-L		1978	07	09.38455	19	32	16.92	-18	42	12.8		675
4113	P-L		1977	02	11.34427	09	26	26.45	+11	43	14.8	17.8	675
4113	P-L		1977	02	12.37743	09	25	28.38	+11	48	39.0		675
4260	P-L		1978	07	07.37431	19	43	18.49	-18	30	37.6	17.5	675
4260	P-L		1978	07	08.36493	19	42	26.68	-18	31	35.2		675
4260	P-L		1978	07	09.38455	19	41	32.75	-18	32	36.1		675

OBSERVATIONS MADE WITH THE 1.2-m SCHMIDT AT PALOMAR.
Plates taken by E. Helin, measured by M. Rudnyk, L. Civalleri and S. Gerhart. Contact: E. Helin, Jet Propulsion Laboratory, MS 183-501, Pasadena, CA 91109, U.S.A.

Object	Date	UT	R. A. (1950)	Decl.	Mag.	N	Obs.
159	1985 12	14.45347	07 20 36.57	+17 00 29.6			675
159	1985 12	14.51250	07 20 34.66	+17 00 36.8			675
160	1986 08	01.35902	22 09 35.96	-16 01 40.9	13.5		675
160	1986 08	01.40069	22 09 34.13	-16 01 50.2			675
160	1986 08	02.39514	22 08 50.54	-16 05 32.8	13.5		675
160	1986 08	02.41597	22 08 49.75	-16 05 36.4			675
160	1986 08	04.47013	22 07 17.68	-16 13 16.8	13.5		675
160	1986 08	04.48750	22 07 16.93	-16 13 21.0			675
268	1986 08	01.35902	22 10 36.30	-12 40 35.7	14.2		675
268	1986 08	01.40069	22 10 34.46	-12 40 46.9			675
268	1986 08	02.39514	22 09 56.73	-12 44 56.8	14.2		675
268	1986 08	02.41597	22 09 55.93	-12 45 01.4			675
297	1986 08	01.35902	21 53 52.09	-15 35 25.6	13.7		675
297	1986 08	01.40069	21 53 50.37	-15 35 27.2			675
297	1986 08	02.39514	21 53 05.93	-15 36 39.5	13.5		675
297	1986 08	02.41597	21 53 05.08	-15 36 39.9			675
755	1985 12	14.45347	07 23 00.45	+17 45 22.3			675
755	1985 12	14.51250	07 22 58.81	+17 45 25.4			675
765	1986 08	01.35902	22 03 09.27	-13 18 43.5	12.5		675
765	1986 08	01.40069	22 03 07.17	-13 18 45.9			675
765	1986 08	02.39514	22 02 21.17	-13 19 49.6	16		675
765	1986 08	02.41597	22 02 20.23	-13 19 50.4			675
935	1986 08	01.35902	22 08 15.96	-15 04 26.8	16		675
935	1986 08	01.40069	22 08 14.00	-15 04 33.9			675
935	1986 08	02.39514	22 07 26.24	-15 07 27.2	16.1		675
935	1986 08	02.41597	22 07 25.27	-15 07 30.0			675
1097	1985 12	14.45347	07 27 18.68	+20 49 35.4			675
1097	1985 12	14.51250	07 27 15.92	+20 49 42.6			675
1478	1986 08	02.39514	22 02 14.39	-11 16 59.7	16.8		675
1478	1986 08	02.41597	22 02 13.43	-11 17 00.3			675
1489	1986 08	01.35902	21 51 57.71	-12 06 24.0	16.5		675
1489	1986 08	01.40069	21 51 56.03	-12 06 32.4			675
1489	1986 08	02.39514	21 51 13.85	-12 10 18.0	16.5		675
1489	1986 08	02.41597	21 51 13.12	-12 10 21.9			675
1545	1986 08	01.35902	22 01 54.57	-16 27 46.1	17.5		675
1545	1986 08	01.40069	22 01 52.58	-16 27 56.0			675
1545	1986 08	02.39514	22 01 09.36	-16 32 20.9	17.4		675
1545	1986 08	02.41597	22 01 08.66	-16 32 25.3			675
1545	1986 08	04.47013	21 59 35.96	-16 41 25.1	17.4		675
1545	1986 08	04.48750	21 59 35.34	-16 41 28.5			675
1615	1986 08	01.35902	22 02 17.65	-11 30 23.3	16.2		675
1615	1986 08	01.40069	22 02 15.87	-11 30 32.9			675
1615	1986 08	02.39514	22 01 38.34	-11 34 26.5	16.2		675
1615	1986 08	02.41597	22 01 37.54	-11 34 30.8			675
2756	1986 08	02.39514	22 04 36.84	-17 14 47.3	17		675
2756	1986 08	02.41597	22 04 36.03	-17 14 48.6			675
2923	1986 08	01.35902	22 09 24.62	-13 38 24.5	17.5		675
2923	1986 08	01.40069	22 09 22.52	-13 38 35.8			675
1978 RW	1985 12	14.45347	07 23 38.64	+21 02 12.4	18		675
1978 RW	1985 12	14.51250	07 23 36.44	+21 02 17.5			675
1981 RV3	1986 08	01.35902	21 47 28.09	-14 30 38.0	16		675
1981 RV3	1986 08	01.40069	21 47 26.43	-14 30 47.5			675
1981 RV3	1986 08	02.39514	21 46 45.67	-14 35 17.7	16		675
1981 RV3	1986 08	02.41597	21 46 44.84	-14 35 21.5			675

1981	RV3		1986	08	04.47013	21	45	17.01	-14	44	42.0	16	675
1981	RV3		1986	08	04.48750	21	45	16.18	-14	44	45.3		675
1984	CO1		1986	08	02.39514	22	05	49.93	-17	12	24.8	19	675
1984	CO1		1986	08	02.41597	22	05	49.11	-17	12	26.4		675
1985	XP1	*	1985	12	14.45347	07	13	58.07	+18	17	01.4	1	675
1985	XP1		1985	12	14.51250	07	13	56.83	+18	17	02.6		675
1985	XQ1	*	1985	12	14.45347	07	14	22.40	+18	43	19.5	17.5 1	675
1985	XQ1		1985	12	14.51250	07	14	20.29	+18	43	22.0		675
1985	XR1	*	1985	12	14.45347	07	15	27.44	+18	56	05.9	19.5 1	675
1985	XR1		1985	12	14.51250	07	15	24.70	+18	56	02.9		675
1985	XS1	*	1985	12	14.45347	07	17	18.99	+18	24	08.4	1	675
1985	XS1		1985	12	14.51250	07	17	16.86	+18	24	01.4		675
1985	XT1	*	1985	12	14.45347	07	21	49.41	+19	14	33.8	18.2 1	675
1985	XT1		1985	12	14.51250	07	21	47.21	+19	14	30.0		675
1985	XU1	*	1985	12	14.45347	07	21	51.83	+22	08	19.9	1	675
1985	XU1		1985	12	14.51250	07	21	49.01	+22	08	40.2		675
1985	XV1	*	1985	12	14.45347	07	21	58.60	+18	29	56.4	1	675
1985	XV1		1985	12	14.51250	07	21	56.59	+18	30	06.1		675
1985	XW1	*	1985	12	14.45347	07	22	15.85	+21	08	01.0	17.8 2	675
1985	XW1		1985	12	14.51250	07	22	13.54	+21	08	04.5		675
1985	XX1	*	1985	12	14.45347	07	22	37.17	+19	30	32.4	18.5 1	675
1985	XX1		1985	12	14.51250	07	22	35.39	+19	30	35.1		675
1985	XY1	*	1985	12	14.45347	07	22	48.35	+18	35	41.4	18.5 1	675
1985	XY1		1985	12	14.51250	07	22	45.82	+18	35	43.8		675
1985	XZ1	*	1985	12	14.45347	07	22	49.17	+22	37	43.2	18.2 1	675
1985	XZ1		1985	12	14.51250	07	22	46.47	+22	37	53.5		675
1985	XA2	*	1985	12	14.45347	07	23	22.21	+18	01	31.8	18.8 1	675
1985	XA2		1985	12	14.51250	07	23	20.14	+18	01	38.7		675
1985	XB2	*	1985	12	14.45347	07	23	46.05	+22	38	38.6	17.5 3	675
1985	XB2		1985	12	14.51250	07	23	43.35	+22	38	42.0		675
1985	XC2	*	1985	12	14.45347	07	23	47.49	+19	02	45.8	17 1	675
1985	XC2		1985	12	14.51250	07	23	44.86	+19	02	50.8		675
1985	XD2	*	1985	12	14.45347	07	24	20.82	+19	06	19.8	1	675
1985	XD2		1985	12	14.51250	07	24	18.43	+19	06	26.0		675
1985	XE2	*	1985	12	14.45347	07	24	48.34	+19	38	49.3	16.5 1	675
1985	XE2		1985	12	14.51250	07	24	46.19	+19	38	50.2		675
1985	XE2		1985	12	17.44514	07	22	44.40	+19	38	58.1	16.5	675
1985	XE2		1985	12	17.46597	07	22	43.81	+19	38	59.3		675
1985	XF2	*	1985	12	14.45347	07	25	09.87	+18	40	08.6	18.5 1	675
1985	XF2		1985	12	14.51250	07	25	07.92	+18	40	13.3		675
1985	XG2	*	1985	12	14.45347	07	25	25.14	+22	19	10.3	1	675
1985	XG2		1985	12	14.51250	07	25	23.17	+22	19	05.2		675
1985	XH2	*	1985	12	14.45347	07	25	43.00	+21	15	53.4	1	675
1985	XH2		1985	12	14.51250	07	25	40.34	+21	16	03.8		675
1985	XJ2	*	1985	12	14.45347	07	26	07.54	+21	00	32.2	17.5 1	675
1985	XJ2		1985	12	14.51250	07	26	05.23	+21	00	39.7		675
1985	XK2	*	1985	12	14.45347	07	29	26.25	+18	25	17.2	1	675
1985	XK2		1985	12	14.51250	07	29	23.79	+18	25	20.1		675
1985	XK2		1985	12	17.44514	07	26	57.82	+18	27	40.1		675
1985	XK2		1985	12	17.46597	07	26	57.07	+18	27	40.1		675
1985	XL2	*	1985	12	14.45347	07	31	04.44	+19	08	35.0	1	675
1985	XL2		1985	12	14.51250	07	31	01.54	+19	08	35.0		675
1985	XM2	*	1985	12	14.45347	07	33	47.28	+18	24	07.7	1	675
1985	XM2		1985	12	14.51250	07	33	44.87	+18	24	11.7		675
1985	XM2		1985	12	17.44514	07	30	46.53	+18	27	35.9		675
1985	XM2		1985	12	17.46597	07	30	44.24	+18	27	35.0		675
1985	XN2	*	1985	12	14.45347	07	34	08.59	+19	22	24.8	1	675
1985	XN2		1985	12	14.51250	07	34	06.39	+19	22	31.0		675
1985	XN2		1985	12	17.44514	07	30	54.76	+19	22	12.3		675

1985	XN2		1985	12	17.46597	07	30	53.97	+19	22	13.8		675
1985	XO2	*	1985	12	14.45347	07	22	01.70	+17	32	38.2	1	675
1985	XO2		1985	12	14.51250	07	21	59.29	+17	32	43.5		675
1985	XQ2	*	1985	12	14.45347	07	23	15.76	+18	55	14.2	1	675
1985	XQ2		1985	12	14.51250	07	23	13.35	+18	55	13.4		675
1985	XR2	*	1985	12	14.45347	07	23	42.83	+17	33	12.4	1	675
1985	XR2		1985	12	14.51250	07	23	40.94	+17	33	07.5		675
1985	XS2	*	1985	12	14.45347	07	23	52.48	+17	06	57.1	1	675
1985	XS2		1985	12	14.51250	07	23	49.88	+17	06	50.2		675
1985	XT2	*	1985	12	14.45347	07	24	10.79	+19	37	36.6	1	675
1985	XT2		1985	12	14.51250	07	24	08.12	+19	37	30.8		675
1985	XU2	*	1985	12	14.45347	07	24	28.58	+19	11	49.4	1	675
1985	XU2		1985	12	14.51250	07	24	26.19	+19	11	50.3		675
1985	XV2	*	1985	12	14.45347	07	24	58.69	+18	52	59.2	1	675
1985	XV2		1985	12	14.51250	07	24	56.59	+18	53	10.1		675
1985	XW2	*	1985	12	14.45347	07	26	08.89	+19	00	34.5	1	675
1985	XW2		1985	12	14.51250	07	26	07.78	+19	00	40.6		675
1985	XX2	*	1985	12	14.45347	07	26	49.17	+17	07	30.0	1	675
1985	XX2		1985	12	14.51250	07	26	47.31	+17	07	30.5		675
1985	XZ2	*	1985	12	14.45347	07	28	49.34	+17	03	32.5	1	675
1985	XZ2		1985	12	14.51250	07	28	47.39	+17	03	40.9		675
1985	XB3	*	1985	12	14.45347	07	29	46.02	+17	42	14.0	1	675
1985	XB3		1985	12	14.51250	07	29	43.87	+17	42	15.6		675
1985	XC3	*	1985	12	14.45347	07	30	13.08	+17	59	23.8	1	675
1985	XC3		1985	12	14.51250	07	30	10.38	+17	59	28.9		675
1985	XG3	*	1985	12	14.45347	07	34	11.42	+16	46	42.7	1	675
1985	XG3		1985	12	14.51250	07	34	09.41	+16	46	53.0		675
1985	XH3	*	1985	12	14.45347	07	34	35.89	+19	54	29.6	1	675
1985	XH3		1985	12	14.51250	07	34	33.90	+19	54	41.4		675
1985	YQ		1985	12	14.45347	07	24	07.34	+18	07	16.6	17.5	675
1985	YQ		1985	12	14.51250	07	24	05.86	+18	07	19.1		675
1985	YR		1985	12	14.45347	07	25	43.16	+17	16	49.3		675
1985	YR		1985	12	14.51250	07	25	40.69	+17	16	56.2		675
1985	YM2	*	1985	12	17.44514	07	30	24.01	+19	21	09.3	1	675
1985	YM2		1985	12	17.46597	07	30	23.31	+19	21	10.0		675
1985	YN2	*	1985	12	17.44514	07	32	00.72	+24	09	35.2	1	675
1985	YN2		1985	12	17.46597	07	31	59.61	+24	10	16.2		675
1986	PO	*	1986	08	01.35902	21	58	27.22	-14	22	50.3	16 1	675
1986	PO		1986	08	01.40069	21	58	24.97	-14	22	56.3		675
1986	PO		1986	08	02.39514	21	57	37.69	-14	25	39.8	16	675
1986	PO		1986	08	02.41597	21	57	36.76	-14	25	42.1		675
1986	PO		1986	08	04.47013	21	55	51.65	-14	31	28.7	16	675
1986	PO		1986	08	04.48750	21	55	50.51	-14	31	32.0		675
1986	PP	*	1986	08	01.35902	21	59	02.15	-13	51	43.7	16.5 1	675
1986	PP		1986	08	01.40069	21	59	00.74	-13	51	55.9		675
1986	PP		1986	08	02.39514	21	58	23.00	-13	57	26.9	16.5	675
1986	PP		1986	08	02.41597	21	58	22.52	-13	57	33.3		675
1986	PQ	*	1986	08	01.35902	22	02	02.75	-13	24	19.0	16 1	675
1986	PQ		1986	08	01.40069	22	02	00.80	-13	24	35.6		675
1986	PQ		1986	08	02.39514	22	01	17.65	-13	31	00.0	16	675
1986	PQ		1986	08	02.41597	22	01	16.81	-13	31	07.1		675
1986	PR	*	1986	08	01.35902	22	02	42.79	-13	53	15.9	16 1	675
1986	PR		1986	08	01.40069	22	02	41.03	-13	53	25.1		675
1986	PR		1986	08	02.39514	22	01	58.45	-13	57	03.7	16.1	675
1986	PR		1986	08	02.41597	22	01	57.79	-13	57	07.0		675
1986	PS	*	1986	08	01.35902	22	05	29.32	-13	12	20.0	16.5 1	675
1986	PS		1986	08	01.40069	22	05	27.52	-13	12	28.6		675
1986	PS		1986	08	02.39514	22	04	50.42	-13	16	00.9	16.8	675
1986	PS		1986	08	02.41597	22	04	49.67	-13	16	04.4		675

1986	PS		1986	08	04.47013	22	03	31.13	-13	23	34.1	16.8	675
1986	PS		1986	08	04.48750	22	03	30.46	-13	23	39.1		675
1986	PC1	*	1986	08	01.35902	21	57	07.71	-11	38	25.5	16	1 675
1986	PC1		1986	08	01.40069	21	57	05.88	-11	38	35.3		675
1986	PC1		1986	08	04.47013	21	55	04.83	-11	51	16.6	16	675
1986	PC1		1986	08	04.48750	21	55	03.92	-11	51	22.0		675
1986	PD1	*	1986	08	01.35902	22	01	47.31	-12	37	12.4	17	1 675
1986	PD1		1986	08	01.40069	22	01	45.54	-12	37	37.5		675
1986	PD1		1986	08	02.39514	22	01	06.13	-12	48	30.1	17	675
1986	PD1		1986	08	02.41597	22	01	05.70	-12	48	37.2		675
1986	PE1	*	1986	08	01.35902	22	04	51.11	-12	19	10.2	17	1 675
1986	PE1		1986	08	01.40069	22	04	49.13	-12	19	32.1		675
1986	PE1		1986	08	02.39514	22	04	06.38	-12	27	46.8	17	675
1986	PF1	*	1986	08	01.35902	22	09	18.76	-11	50	00.1	17	1 675
1986	PF1		1986	08	01.40069	22	09	16.90	-11	50	11.3		675
1986	PF1		1986	08	02.39514	22	08	46.32	-11	55	27.2	17.5	675
1986	PF1		1986	08	02.41597	22	08	45.47	-11	55	33.8		675
1986	PG1	*	1986	08	01.35902	22	09	49.61	-13	57	30.9	16	1 675
1986	PG1		1986	08	01.40069	22	09	47.16	-13	57	37.1		675
1986	PG1		1986	08	02.39514	22	09	01.03	-13	59	46.3	16	675
1986	PG1		1986	08	02.41597	22	09	00.00	-13	59	48.9		675
1986	PH1	*	1986	08	01.35902	22	10	15.06	-13	39	14.3	17.5	1 675
1986	PH1		1986	08	01.40069	22	10	13.72	-13	39	16.9		675
1986	PH1		1986	08	02.39514	22	09	30.57	-13	40	41.1	17.5	675
1986	PH1		1986	08	02.41597	22	09	29.82	-13	40	42.6		675
1986	PH1		1986	08	04.47013	22	07	53.37	-13	43	50.3	17.2	675
1986	PH1		1986	08	04.48750	22	07	52.45	-13	43	54.3		675
1986	PJ1	*	1986	08	01.35902	22	10	52.01	-12	47	03.9	17.2	1 675
1986	PJ1		1986	08	01.40069	22	10	51.40	-12	47	21.8		675
1986	PJ1		1986	08	02.39514	22	10	17.92	-12	54	31.3	17.2	675
1986	PJ1		1986	08	02.41597	22	10	17.14	-12	54	39.1		675
1986	PJ1		1986	08	04.47013	22	09	07.09	-13	09	43.3	17.2	675
1986	PJ1		1986	08	04.48750	22	09	06.39	-13	09	51.5		675
1986	PK1	*	1986	08	01.35902	21	56	33.03	-11	09	15.5	18.5	1 675
1986	PK1		1986	08	01.40069	21	56	31.14	-11	09	39.3		675
1986	PL1	*	1986	08	01.35902	21	58	13.94	-14	34	18.8	16.5	1 675
1986	PL1		1986	08	01.40069	21	58	12.44	-14	34	32.0		675
1986	PL1		1986	08	02.39514	21	57	36.57	-14	40	25.2	16.5	675
1986	PL1		1986	08	02.41597	21	57	35.95	-14	40	31.6		675
1986	PL1		1986	08	04.47013	21	56	19.64	-14	52	51.8	16.5	675
1986	PL1		1986	08	04.48750	21	56	18.89	-14	52	57.5		675
1986	PM1	*	1986	08	01.35902	21	58	47.11	-14	33	15.4	17.5	1 675
1986	PM1		1986	08	01.40069	21	58	45.24	-14	33	24.5		675
1986	PM1		1986	08	02.39514	21	58	01.24	-14	35	54.5	17.5	675
1986	PM1		1986	08	02.41597	21	58	00.43	-14	35	56.5		675
1986	PM1		1986	08	04.47013	21	56	27.70	-14	41	16.3	17.5	675
1986	PM1		1986	08	04.48750	21	56	26.91	-14	41	21.8		675
1986	PN1	*	1986	08	01.35902	21	59	15.69	-10	53	39.8	16.2	1 675
1986	PN1		1986	08	01.40069	21	59	13.70	-10	53	30.3		675
1986	PO1	*	1986	08	01.35902	21	59	49.40	-11	25	14.5	17	1 675
1986	PO1		1986	08	01.40069	21	59	47.94	-11	25	30.9		675
1986	PO1		1986	08	02.39514	21	59	21.23	-11	32	28.0	17	675
1986	PO1		1986	08	02.41597	21	59	20.64	-11	32	34.9		675
1986	PP1	*	1986	08	01.35902	21	59	57.78	-11	11	11.9	16.5	1 675
1986	PP1		1986	08	01.40069	21	59	57.21	-11	11	01.1		675
1986	PQ1	*	1986	08	01.35902	22	00	28.88	-15	19	38.6	18	4 675
1986	PQ1		1986	08	01.40069	22	00	27.90	-15	19	45.5		675
1986	PQ1		1986	08	02.39514	21	59	48.00	-15	24	02.2	18	675
1986	PQ1		1986	08	02.41597	21	59	46.84	-15	24	08.4		675

1986	PQ1		1986	08	04.47013	21	58	24.72	-15	32	57.0	18	675
1986	PQ1		1986	08	04.48750	21	58	24.17	-15	32	58.8		675
1986	PR1	*	1986	08	01.35902	22	03	06.80	-15	14	59.9	17.5	2 675
1986	PR1		1986	08	01.40069	22	03	05.91	-15	15	13.4		675
1986	PR1		1986	08	02.39514	22	02	26.61	-15	25	38.9	17.5	675
1986	PR1		1986	08	02.41597	22	02	25.81	-15	25	50.1		675
1986	PR1		1986	08	04.47013	22	01	03.77	-15	47	20.0	17.5	675
1986	PR1		1986	08	04.48750	22	01	02.94	-15	47	27.7		675
1986	PS1	*	1986	08	01.35902	22	05	12.83	-15	36	31.6	17.2	1 675
1986	PS1		1986	08	01.40069	22	05	10.71	-15	36	40.5		675
1986	PS1		1986	08	02.39514	22	04	20.16	-15	40	38.5	17.2	675
1986	PS1		1986	08	02.41597	22	04	19.10	-15	40	44.2		675
1986	PS1		1986	08	04.47013	22	02	31.18	-15	49	06.3	17.2	675
1986	PS1		1986	08	04.48750	22	02	30.16	-15	49	08.8		675
1986	PT1	*	1986	08	01.35902	22	06	23.01	-13	17	17.5	17.2	1 675
1986	PT1		1986	08	01.40069	22	06	21.62	-13	17	34.6		675
1986	PT1		1986	08	02.39514	22	05	58.28	-13	24	55.9	17.2	675
1986	PT1		1986	08	02.41597	22	05	57.71	-13	25	10.6		675
1986	PU1	*	1986	08	01.35902	22	07	32.55	-15	28	38.3	17.5	1 675
1986	PU1		1986	08	01.40069	22	07	31.61	-15	28	45.5		675
1986	PU1		1986	08	02.39514	22	06	50.49	-15	32	25.3	17.5	675
1986	PU1		1986	08	02.41597	22	06	49.82	-15	32	29.3		675
1986	PV1	*	1986	08	01.35902	22	07	55.56	-14	59	08.9	16.5	1 675
1986	PV1		1986	08	01.40069	22	07	53.51	-14	59	17.0		675
1986	PV1		1986	08	02.39514	22	07	01.66	-15	01	43.9	16.5	675
1986	PV1		1986	08	02.41597	22	07	00.83	-15	01	45.3		675
1986	PV1		1986	08	04.47013	22	05	10.57	-15	07	00.1	16.5	675
1986	PV1		1986	08	04.48750	22	05	09.52	-15	07	03.3		675
1986	PW1	*	1986	08	01.35902	22	04	10.32	-16	36	47.3	18.2	1 675
1986	PW1		1986	08	01.40069	22	04	08.80	-16	36	45.9		675
1986	PW1		1986	08	02.39514	22	03	18.70	-16	38	19.9	18.2	675
1986	PW1		1986	08	02.41597	22	03	18.06	-16	38	20.1		675
1986	PW1		1986	08	04.47013	22	01	35.33	-16	41	21.7	18.2	675
1986	PW1		1986	08	04.48750	22	01	34.54	-16	41	26.6		675
1986	PX1	*	1986	08	01.35902	22	08	54.02	-16	20	07.1	16.5	2 675
1986	PX1		1986	08	01.40069	22	08	52.55	-16	20	11.8		675
1986	PX1		1986	08	02.39514	22	08	12.42	-16	22	21.6	16.5	675
1986	PX1		1986	08	02.41597	22	08	11.70	-16	22	22.6		675
1986	PX1		1986	08	04.47013	22	06	46.95	-16	26	47.5	16.5	675
1986	PY1	*	1986	08	01.35902	22	10	21.06	-15	38	37.9	18	2 675
1986	PY1		1986	08	01.40069	22	10	20.33	-15	38	42.5		675
1986	PY1		1986	08	02.39514	22	09	36.18	-15	39	25.3	18	675
1986	PY1		1986	08	02.41597	22	09	35.37	-15	39	28.6		675
1986	PZ1	*	1986	08	01.35902	22	05	39.24	-14	44	17.7	17.2	1 675
1986	PZ1		1986	08	01.40069	22	05	37.85	-14	44	20.0		675
1986	PZ1		1986	08	02.39514	22	05	00.14	-14	45	46.2	17.2	675
1986	PZ1		1986	08	02.41597	22	04	59.37	-14	45	46.8		675
1986	PZ1		1986	08	04.47013	22	03	35.80	-14	49	03.0	17.2	675
1986	PZ1		1986	08	04.48750	22	03	35.07	-14	49	03.2		675
1986	PA2	*	1986	08	01.35902	21	46	27.28	-13	15	27.2	17	1 675
1986	PA2		1986	08	01.40069	21	46	25.61	-13	15	34.7		675
1986	PA2		1986	08	02.39514	21	45	43.75	-13	19	11.6	17	675
1986	PA2		1986	08	02.41597	21	45	43.14	-13	19	14.2		675
1986	PB2	*	1986	08	01.35902	21	48	38.63	-15	46	42.9	18	1 675
1986	PB2		1986	08	01.40069	21	48	37.34	-15	46	53.6		675
1986	PC2	*	1986	08	01.35902	21	48	52.72	-13	14	11.4	18	1 675
1986	PC2		1986	08	01.40069	21	48	50.97	-13	14	26.0		675
1986	PC2		1986	08	02.39514	21	48	10.14	-13	21	34.4	18	675
1986	PC2		1986	08	02.41597	21	48	09.50	-13	21	41.3		675

1986	PD2	*	1986	08	01.35902	21	48	55.75	-11	10	44.3	18.2	1 675
1986	PD2		1986	08	01.40069	21	48	53.96	-11	10	47.7		675
1986	PD2		1986	08	02.39514	21	48	07.63	-11	13	22.7	18.2	675
1986	PD2		1986	08	02.41597	21	48	06.65	-11	13	24.4		675
1986	PE2	*	1986	08	01.35902	21	49	06.94	-13	47	47.6	18.2	1 675
1986	PE2		1986	08	01.40069	21	49	04.90	-13	48	00.0		675
1986	PE2		1986	08	02.39514	21	48	22.00	-13	53	21.8	18.2	675
1986	PE2		1986	08	02.41597	21	48	21.16	-13	53	27.9		675
1986	PF2	*	1986	08	01.35902	21	49	14.19	-12	35	41.0	16.8	1 675
1986	PF2		1986	08	01.40069	21	49	11.87	-12	35	45.6		675
1986	PF2		1986	08	02.39514	21	48	12.11	-12	38	22.1	16.8	675
1986	PF2		1986	08	02.41597	21	48	11.10	-12	38	23.5		675
1986	PG2	*	1986	08	01.35902	21	50	13.40	-11	11	51.9	17.8	1 675
1986	PG2		1986	08	01.40069	21	50	11.84	-11	11	57.4		675
1986	PG2		1986	08	02.39514	21	49	29.70	-11	15	40.9	17.8	675
1986	PG2		1986	08	02.41597	21	49	29.00	-11	15	43.7		675
1986	PH2	*	1986	08	01.35902	21	50	13.58	-13	50	40.5	17.2	1 675
1986	PH2		1986	08	01.40069	21	50	11.73	-13	50	36.2		675
1986	PH2		1986	08	02.39514	21	49	26.57	-13	49	29.7	17.2	675
1986	PH2		1986	08	02.41597	21	49	25.77	-13	49	29.0		675
1986	PH2		1986	08	04.47013	21	47	48.78	-13	47	19.0	17.2	675
1986	PH2		1986	08	04.48750	21	47	47.39	-13	47	11.5		675
1986	PJ2	*	1986	08	01.35902	21	50	14.54	-13	17	42.7	17.2	1 675
1986	PJ2		1986	08	01.40069	21	50	12.75	-13	17	49.9		675
1986	PJ2		1986	08	02.39514	21	49	32.92	-13	21	14.0	17.2	675
1986	PJ2		1986	08	02.41597	21	49	32.28	-13	21	16.9		675
1986	PK2	*	1986	08	01.35902	21	50	25.79	-11	35	25.0	17.8	1 675
1986	PK2		1986	08	01.40069	21	50	24.13	-11	35	31.2		675
1986	PK2		1986	08	02.39514	21	49	41.61	-11	38	54.9	17.8	675
1986	PK2		1986	08	02.41597	21	49	40.90	-11	38	58.2		675
1986	PK2		1986	08	04.47013	21	48	09.30	-11	46	01.6	17.8	675
1986	PK2		1986	08	04.48750	21	48	08.05	-11	46	05.6		675
1986	PL2	*	1986	08	01.35902	21	52	18.70	-15	33	40.3	14.2	1 675
1986	PL2		1986	08	01.40069	21	52	17.18	-15	33	55.1		675
1986	PL2		1986	08	02.39514	21	51	36.38	-15	40	46.6	14.2	675
1986	PL2		1986	08	02.41597	21	51	35.60	-15	40	53.8		675
1986	PM2	*	1986	08	01.35902	21	52	42.76	-13	22	54.0	18.5	1 675
1986	PM2		1986	08	01.40069	21	52	40.68	-13	23	09.4		675
1986	PN2	*	1986	08	01.35902	21	53	06.91	-11	35	26.8	16.2	1 675
1986	PN2		1986	08	01.40069	21	53	05.35	-11	35	21.9		675
1986	PN2		1986	08	02.39514	21	52	24.04	-11	42	58.6	16.2	675
1986	PN2		1986	08	02.41597	21	52	23.18	-11	43	07.0		675
1986	PO2	*	1986	08	01.35902	21	53	08.17	-11	27	22.0	15.2	1 675
1986	PO2		1986	08	01.40069	21	53	07.13	-11	27	44.6		675
1986	PO2		1986	08	02.39514	21	52	42.16	-11	38	35.9	15.2	675
1986	PO2		1986	08	02.41597	21	52	41.68	-11	38	46.4		675
1986	PP2	*	1986	08	01.35902	21	53	17.28	-13	45	06.1	17.5	1 675
1986	PP2		1986	08	01.40069	21	53	15.33	-13	45	20.6		675
1986	PP2		1986	08	02.39514	21	52	34.42	-13	51	22.6	17.5	675
1986	PP2		1986	08	02.41597	21	52	33.38	-13	51	29.9		675
1986	PQ2	*	1986	08	01.35902	21	53	29.52	-14	01	24.5	17.8	1 675
1986	PQ2		1986	08	01.40069	21	53	28.11	-14	01	42.5		675
1986	PQ2		1986	08	02.39514	21	52	53.91	-14	10	44.7	17.8	675
1986	PQ2		1986	08	02.41597	21	52	53.33	-14	10	52.1		675
1986	PR2	*	1986	08	01.35902	21	54	43.27	-13	34	40.6	17	1 675
1986	PR2		1986	08	01.40069	21	54	42.39	-13	34	22.8		675
1986	PS2	*	1986	08	01.35902	21	54	43.50	-15	39	50.5	17.8	1 675
1986	PS2		1986	08	01.40069	21	54	41.87	-15	39	57.6		675
1986	PS2		1986	08	02.39514	21	54	00.66	-15	43	48.6	17.8	675

1986	PS2		1986	08	02.41597	21	54	00.01	-15	43	51.8		675
1986	PS2		1986	08	04.47013	21	52	30.59	-15	51	49.4	17.8	675
1986	PS2		1986	08	04.48750	21	52	29.80	-15	51	52.4		675
1986	PT2	*	1986	08	01.35902	21	54	44.72	-15	18	28.3	18 1	675
1986	PT2		1986	08	01.40069	21	54	42.91	-15	18	31.7		675
1986	PT2		1986	08	02.39514	21	53	55.48	-15	21	02.5	18	675
1986	PT2		1986	08	02.41597	21	53	54.32	-15	21	03.9		675
1986	PU2	*	1986	08	01.35902	21	55	23.58	-14	03	42.7	17.2 2	675
1986	PU2		1986	08	01.40069	21	55	21.84	-14	03	52.9		675
1986	PU2		1986	08	02.39514	21	54	41.90	-14	08	29.2	17.2	675
1986	PU2		1986	08	02.41597	21	54	40.93	-14	08	34.4		675
1986	PV2	*	1986	08	01.35902	21	56	15.32	-14	01	05.1	17.8 2	675
1986	PV2		1986	08	01.40069	21	56	13.41	-14	01	08.8		675
1986	PW2	*	1986	08	01.35902	21	56	21.02	-15	08	33.6	16 1	675
1986	PW2		1986	08	01.40069	21	56	19.49	-15	08	48.3		675
1986	PW2		1986	08	02.39514	21	55	40.21	-15	15	25.9	16	675
1986	PW2		1986	08	02.41597	21	55	39.49	-15	15	33.0		675
1986	PX2	*	1986	08	01.35902	21	59	06.60	-16	49	06.9	17.8 1	675
1986	PX2		1986	08	01.40069	21	59	05.10	-16	49	22.7		675
1986	PY2	*	1986	08	01.35902	22	00	06.05	-16	20	55.8	17.2 1	675
1986	PY2		1986	08	01.40069	22	00	04.22	-16	21	00.2		675
1986	PY2		1986	08	02.39514	21	59	14.83	-16	23	17.5	17.2	675
1986	PY2		1986	08	02.41597	21	59	13.94	-16	23	19.9		675
1986	PY2		1986	08	04.47013	21	57	29.78	-16	28	05.2	17.2	675
1986	PY2		1986	08	04.48750	21	57	28.92	-16	28	07.1		675
1986	PZ2	*	1986	08	01.35902	22	02	38.41	-14	43	48.0	18 1	675
1986	PZ2		1986	08	01.40069	22	02	36.71	-14	44	04.0		675
1986	PA3	*	1986	08	01.35902	22	02	46.11	-16	22	57.8	17.5 2	675
1986	PA3		1986	08	01.40069	22	02	44.93	-16	23	26.4		675
1986	PA3		1986	08	02.39514	22	02	12.77	-16	36	54.1	17.5	675
1986	PA3		1986	08	02.41597	22	02	12.18	-16	37	06.7		675
1986	PB3	*	1986	08	01.35902	22	06	14.69	-16	03	05.7	18 1	675
1986	PB3		1986	08	01.40069	22	06	13.37	-16	03	28.2		675
1986	PC3	*	1986	08	01.35902	22	08	09.05	-16	31	43.6	17.8 1	675
1986	PC3		1986	08	01.40069	22	08	07.43	-16	31	57.5		675
1986	PD3	*	1986	08	01.35902	21	44	54.06	-13	38	12.8	16 2	675
1986	PD3		1986	08	01.40069	21	44	52.11	-13	38	10.9		675
1986	PE3	*	1986	08	01.35902	21	45	09.42	-11	46	30.7	17.5 1	675
1986	PE3		1986	08	01.40069	21	45	07.32	-11	46	35.1		675
1986	PF3	*	1986	08	01.35902	21	47	11.98	-14	49	27.3	18.2 2	675
1986	PF3		1986	08	01.40069	21	47	10.45	-14	49	30.6		675
1986	PF3		1986	08	02.39514	21	46	22.05	-14	52	25.5	18.2	675
1986	PF3		1986	08	02.41597	21	46	21.34	-14	52	26.8		675
1986	PG3	*	1986	08	01.35902	21	48	11.33	-13	34	04.3	17.5 1	675
1986	PG3		1986	08	01.40069	21	48	09.19	-13	34	15.5		675
1986	PG3		1986	08	02.39514	21	47	20.23	-13	40	01.0	17.5	675
1986	PG3		1986	08	02.41597	21	47	19.15	-13	40	06.3		675
1986	PH3	*	1986	08	01.35902	21	49	01.14	-16	31	43.9	16.5 1	675
1986	PH3		1986	08	01.40069	21	48	58.82	-16	31	39.7		675
1986	PH3		1986	08	02.39514	21	48	00.68	-16	30	16.3	16.5	675
1986	PH3		1986	08	02.41597	21	47	59.66	-16	30	14.2		675
1986	PH3		1986	08	04.47013	21	45	56.42	-16	27	21.6	16.5	675
1986	PH3		1986	08	04.48750	21	45	55.57	-16	27	17.7		675
1986	PJ3	*	1986	08	01.35902	21	51	28.48	-16	43	19.8	16.8 1	675
1986	PJ3		1986	08	01.40069	21	51	26.99	-16	43	27.8		675
1986	PJ3		1986	08	02.39514	21	50	50.57	-16	47	59.2	16.8	675
1986	PJ3		1986	08	02.41597	21	50	49.94	-16	48	02.8		675
1986	PK3	*	1986	08	01.35902	21	51	34.61	-16	06	59.7	17.5 1	675
1986	PK3		1986	08	01.40069	21	51	32.85	-16	07	03.3		675

1986	PK3		1986	08	02.39514	21	50	53.92	-16	09	03.3	17.5		675
1986	PK3		1986	08	02.41597	21	50	53.17	-16	09	05.0			675
1986	PL3	*	1986	08	01.35902	21	54	19.33	-10	56	52.6	17	1	675
1986	PL3		1986	08	01.40069	21	54	17.44	-10	56	45.6			675
1986	PM3	*	1986	08	01.35902	21	54	34.19	-16	42	30.7	17.8	1	675
1986	PM3		1986	08	01.40069	21	54	32.84	-16	42	43.8			675
1986	PM3		1986	08	02.39514	21	53	51.96	-16	49	42.1	17.8		675
1986	PM3		1986	08	02.41597	21	53	51.34	-16	49	46.4			675
1986	PM3		1986	08	04.47013	21	52	20.48	-17	04	12.8	17.8		675
1986	PM3		1986	08	04.48750	21	52	19.86	-17	04	19.8			675
1986	PN3	*	1986	08	01.35902	21	55	55.31	-11	04	30.1	18	1	675
1986	PN3		1986	08	01.40069	21	55	53.56	-11	04	52.4			675
1986	PO3	*	1986	08	01.35902	21	56	38.01	-14	28	58.8	16.8	1	675
1986	PO3		1986	08	01.40069	21	56	36.46	-14	29	09.7			675
1986	PO3		1986	08	02.39514	21	55	51.09	-14	34	15.5	16.8		675
1986	PO3		1986	08	02.41597	21	55	50.17	-14	34	22.5			675
1986	PP3	*	1986	08	01.35902	21	46	50.06	-12	04	47.1	17.2	2	675
1986	PP3		1986	08	01.40069	21	46	48.09	-12	04	58.6			675
1986	PP3		1986	08	02.39514	21	45	58.60	-12	11	10.4	17.2		675
1986	PP3		1986	08	02.41597	21	45	57.86	-12	11	14.1			675
1986	PQ3	*	1986	08	01.35902	21	48	46.34	-16	05	14.9	18	1	675
1986	PQ3		1986	08	01.40069	21	48	44.91	-16	05	37.4			675
1986	PS3	*	1986	08	01.35902	21	52	27.73	-15	49	06.3	18.2	1	675
1986	PS3		1986	08	01.40069	21	52	26.42	-15	49	12.2			675
1986	PT3	*	1986	08	01.35902	21	55	20.73	-12	27	15.6	17.2	2	675
1986	PT3		1986	08	01.40069	21	55	19.31	-12	27	17.1			675
1986	PU3	*	1986	08	01.35902	21	56	13.77	-12	26	55.4	17	2	675
1986	PU3		1986	08	01.40069	21	56	11.60	-12	27	01.6			675
1986	PU3		1986	08	02.39514	21	55	18.61	-12	29	51.9	17		675
1986	PU3		1986	08	02.41597	21	55	17.68	-12	29	53.6			675
1986	PV3	*	1986	08	01.35902	21	58	11.71	-17	03	12.1	16.5	1	675
1986	PV3		1986	08	01.40069	21	58	10.21	-17	03	29.0			675
1986	PV3		1986	08	02.39514	21	57	31.32	-17	11	34.9	16.5		675
1986	PV3		1986	08	02.41597	21	57	30.69	-17	11	42.8			675
1986	PW3		1986	08	02.39514	22	09	33.13	-12	55	21.8	17.8		675
1986	PW3		1986	08	02.41597	22	09	32.11	-12	55	23.2			675
1986	PW3	*	1986	08	04.47013	22	08	15.34	-13	00	03.0	17.8	1	675
1986	PW3		1986	08	04.48750	22	08	14.49	-13	00	06.1			675
1986	PX3	*	1986	08	04.47013	22	08	55.68	-11	25	24.0	16	4	675
1986	PX3		1986	08	04.48750	22	08	54.80	-11	25	22.3			675
1986	PY3		1986	08	02.39514	22	11	19.80	-14	59	46.5	16.2		675
1986	PY3		1986	08	02.41597	22	11	18.96	-14	59	55.6			675
1986	PY3	*	1986	08	04.47013	22	09	52.57	-15	16	53.0	16.2	4	675
1986	PY3		1986	08	04.48750	22	09	51.82	-15	17	00.9			675
1986	PZ3	*	1986	08	04.47013	22	10	01.18	-15	45	20.3	17.2	4	675
1986	PZ3		1986	08	04.48750	22	09	59.85	-15	45	19.1			675
1986	PA4	*	1986	08	02.39514	21	46	47.74	-10	55	00.5	16.5	4	675
1986	PA4		1986	08	02.41597	21	46	46.74	-10	55	09.6			675
7633	P-L		1985	12	14.45347	07	22	47.32	+21	24	48.7	18.5		675
7633	P-L		1985	12	14.51250	07	22	44.36	+21	24	56.3			675

Note 1: discoverer E. Helin. 2: discoverer M. Rudnyk. 3: discoverer S. Gerhart. 4: discoverer L. Civalleri.

OBSERVATIONS MADE WITH THE 0.46-m SCHMIDT AT PALOMAR.

Films taken in the course of the International Near-Earth Asteroid Survey (INAS) by S. Singer-Brewster, assisted by D. Schneeberger, K. Sangster and S. Gerhart, under the guidance of E. Helin. Measured by K. Sangster.

Contact: E. Helin, MS 183-501, Jet Propulsion Laboratory, Pasadena, CA 91109, U.S.A.

Object		Date	UT	R. A. (1950)	Decl.	Mag.	Obs.
1986 PT	*	1986 08	02.35833	21 35 03.39	-15 23 31.0	16.5	675
1986 PT		1986 08	04.34271	21 33 26.02	-15 39 59.5		675
1986 PT		1986 08	06.33090	21 31 44.64	-15 56 42.6		675
1986 PU	*	1986 08	02.35833	21 36 16.57	-14 10 04.4	16.0	675
1986 PU		1986 08	04.34271	21 34 44.80	-14 21 04.3		675
1986 PU		1986 08	06.33090	21 33 09.89	-14 32 14.8		675
1986 PV	*	1986 08	02.36909	21 04 52.22	-25 29 13.9	15.5	675
1986 PV		1986 08	02.39166	21 04 51.22	-25 29 26.4		675
1986 PV		1986 08	04.33055	21 03 24.29	-25 47 28.9		675

OBSERVATIONS MADE WITH THE 0.33-m PHOTOGRAPHIC TELESCOPE AT THE LOWELL OBSERVATORY'S ANDERSON MESA STATION.

Observations made by B. A. Skiff, measured by B. A. Skiff and S. J. Bus, using a PDS scanning microdensitometer. See also MPC 9533. Contact: E. Bowell, Lowell Observatory, 1400 W. Mars Hill Road, Flagstaff, AZ 86001, U.S.A.

Object	Date	UT	R. A. (1950)	Decl.	Mag.	N	Obs.
44	1986 08	02.24387	20 42 58.97	-17 56 02.7			688
44	1986 08	02.27633	20 42 57.03	-17 56 12.6			688
156	1986 06	10.20139	16 13 10.55	-18 12 22.7			688
156	1986 06	10.26035	16 13 07.89	-18 11 55.7			688
296	1986 06	10.20139	16 03 43.86	-18 21 45.7			688
296	1986 06	10.26035	16 03 40.06	-18 21 39.0			688
517	1986 07	31.23767	20 05 50.49	-18 05 58.8			688
517	1986 07	31.29045	20 05 47.89	-18 06 03.6			688
566	1986 06	10.20139	16 03 26.44	-19 10 32.7			688
566	1986 06	10.26035	16 03 23.86	-19 10 29.6			688
776	1986 06	10.20139	16 11 48.75	-15 48 26.2			688
776	1986 06	10.26035	16 11 45.52	-15 48 33.5			688
808	1986 06	10.20139	16 07 03.24	-14 22 21.1			688
808	1986 06	10.26035	16 07 00.38	-14 22 13.3			688
1175	1986 06	10.20139	16 13 08.77	-16 11 09.4			688
1295	1986 06	10.20139	15 52 52.81	-16 46 50.8			688
1295	1986 06	10.26035	15 52 50.39	-16 46 44.5			688
1494	1986 06	10.20139	16 17 51.23	-17 44 19.4			688
1494	1986 06	10.26035	16 17 47.31	-17 44 08.4			688
1528	1986 07	31.23767	20 04 24.27	-16 14 22.1			688
1528	1986 07	31.29045	20 04 21.17	-16 14 41.7		3	688
1528	1986 08	01.22365	20 03 30.33	-16 21 08.6		3	688
1528	1986 08	01.27862	20 03 27.00	-16 21 30.4			688
1800	1986 08	02.24387	20 38 07.03	-19 21 48.1			688
1800	1986 08	02.27633	20 38 05.18	-19 22 03.3			688
1913	1986 08	02.24387	20 46 56.15	-19 52 28.3			688
1913	1986 08	02.27633	20 46 54.42	-19 52 37.7			688
2180	1986 06	10.20139	16 08 53.07	-17 10 39.3			688
2180	1986 06	10.26035	16 08 50.38	-17 10 23.0			688
2209	1986 06	10.20139	16 00 55.40	-16 42 48.4			688
2209	1986 06	10.26035	16 00 52.52	-16 42 42.7			688
2257	1986 08	02.26051	21 12 44.21	-05 47 27.5			688
2257	1986 08	02.29241	21 12 42.70	-05 47 30.9			688
2426	1986 06	10.20139	15 55 45.98	-17 48 55.8			688
2426	1986 06	10.26035	15 55 43.37	-17 48 37.5			688
2710	1986 06	10.26035	15 58 46.75	-15 07 19.9			688
2727	1986 06	10.20139	16 08 55.76	-16 54 14.8			688
2727	1986 06	10.26035	16 08 53.04	-16 54 05.2		1	688
2728	1986 06	10.20139	16 10 24.29	-17 17 30.6			688
2728	1986 06	10.26035	16 10 20.98	-17 17 20.8			688
3026	1986 06	10.20139	16 17 57.39	-13 13 44.8			688
3026	1986 06	10.26035	16 17 54.78	-13 13 28.2			688

3103		1986	08	01.36771	01	17	37.27	-09	52	26.5	688
3103		1986	08	01.36076	01	17	31.64	-09	51	48.7	1 688
3389		1986	07	31.23767	19	59	39.36	-15	22	13.4	688
3389		1986	07	31.29045	19	59	36.57	-15	22	27.2	688
3409		1986	07	31.29045	20	10	06.36	-17	51	06.4	688
3409		1986	08	01.22365	20	09	18.28	-17	53	44.8	1 688
3409		1986	08	01.27862	20	09	15.51	-17	53	53.9	1 688
1982	UX	1986	06	10.20139	16	17	20.25	-19	46	15.1	16.0 688
1982	UX	1986	06	10.26035	16	17	17.45	-19	46	13.5	688
1983	PW	1986	06	10.20139	15	58	48.70	-16	45	25.1	16.5 688
1983	PW	1986	06	10.26035	15	58	44.82	-16	45	06.6	688
1983	RD	1986	07	31.21875	19	26	09.72	+08	39	40.8	16.8 688
1983	RD	1986	07	31.27164	19	26	06.81	+08	39	37.9	688
1984	AP	1986	07	31.29045	20	04	33.70	-16	58	24.3	16.8 688
1984	AP	1986	08	01.22365	20	03	41.02	-16	57	49.1	17.0 688
1984	AP	1986	08	01.27862	20	03	37.59	-16	57	47.6	688
1985	FE	1986	08	02.26051	21	17	18.90	-06	49	29.3	16.8 688
1985	FE	1986	08	02.29241	21	17	17.22	-06	49	31.1	688
1986	OB *	1986	07	31.23767	20	10	27.40	-17	39	54.1	16.8 4 688
1986	OB	1986	07	31.29045	20	10	23.52	-17	40	13.1	688
1986	PZ *	1986	08	01.31447	20	58	16.50	-02	54	23.5	17.0 4 688
1986	PA1 *	1986	08	02.24387	20	37	29.00	-17	35	15.6	16.8 4 688
1986	PA1	1986	08	02.27633	20	37	27.41	-17	35	23.2	688
1986	PB1 *	1986	08	02.24387	20	40	15.10	-16	39	51.0	17.0 4 688
1986	PB1	1986	08	02.27633	20	40	13.02	-16	39	45.7	688
1986	RA	1986	09	05.18785	21	19	29.42	+16	13	09.7	688
1986	RA	1986	09	05.19479	21	19	30.90	+16	12	43.7	688
1986	RA	1986	09	05.20174	21	19	32.44	+16	12	15.6	688
1986	RA	1986	09	11.25701	21	43	08.91	+09	13	40.2	688
1986	RA	1986	09	11.26743	21	43	11.12	+09	12	55.7	688

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

OBSERVATIONS MADE WITH THE SPACEWATCH CAMERA 0.91-m TELESCOPE ON KITT PEAK.

Observations made by T. Gehrels with a CCD in scanning mode. Reduced by J. V. Scotti and C. Lykins using reference stars from the SAO 1984 catalog. For further details see MPC 9198 and 10373. Contact: T. Gehrels, Space Sciences Building, University of Arizona, Tucson, AZ 85721, U.S.A.

Object	Date	UT	R. A. (1950)	Decl.	Mag.	N	Obs.
1986 LA	1986	08 31.24380	17 25 52.05	+31 09 41.1			691
1986 LA	1986	08 31.25023	17 25 53.80	+31 09 41.1			691
1986 LA	1986	08 31.25975	17 25 56.38	+31 09 41.7			691
1986 PA	1986	09 02.15515	18 18 15.31	-14 13 45.0		1	691
1986 PA	1986	09 02.16300	18 18 14.06	-14 14 00.8		1	691
1986 PA	1986	09 02.17082	18 18 12.74	-14 14 15.9			691
1986 PA	1986	09 03.14652	18 15 46.99	-14 46 10.8			691
1986 PA	1986	09 03.16194	18 15 44.53	-14 46 40.6			691
1986 PA	1986	09 03.17755	18 15 42.01	-14 47 11.5			691

Note 1: image involved with star.

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

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

Object	Date	UT	R. A. (1950)	Decl.	Mag.	N	Obs.
3199	1986	08 06.30619	00 52 58.01	-23 51 55.2		1	801
A919 SD	1986	08 06.28361	23 26 30.65	-00 54 21.4			801

A919	SD	1986	08	10.31174	23	25	25.35	-00	40	21.9		801
1941	SW	1986	08	04.20012	19	40	05.86	-07	26	58.1		801
1977	RC	1986	08	10.33152	01	21	49.12	-23	40	56.2	1	801
1981	EF17	1986	07	10.13910	18	08	15.46	-01	39	12.5		801
1981	EF17	1986	08	06.06278	17	56	45.89	-04	15	35.4		801
1981	EQ27	1986	07	10.27957	20	29	36.18	-15	54	45.3	2	801
1981	EQ27	1986	08	05.18332	20	06	10.49	-17	30	12.4		801
1981	VW1	1986	08	06.22919	22	13	19.30	-10	44	57.2		801
1982	UX	1986	06	04.19296	16	22	13.75	-19	50	21.6		801
1983	PW	1986	09	08.02337	16	48	45.00	-18	15	36.1		801
1983	RD	1986	08	04.18074	19	23	06.63	+08	30	23.9		801
1983	RD	1986	08	09.17767	19	19	40.28	+07	59	56.0		801
1984	AP	1986	08	05.16290	20	00	01.03	-16	55	20.1		801
1984	CO1	1986	08	10.23463	21	59	31.16	-17	27	06.8		801
1984	WB	1986	08	05.20920	21	14	29.17	+25	37	24.4		801
1984	YV	1986	07	04.30723	22	17	09.67	+08	20	22.3		801
1984	YV	1986	08	04.25931	21	53	18.57	+15	17	35.0		801
1984	YV	1986	08	10.21965	21	45	33.19	+16	05	41.8		801
1985	FE	1986	07	10.29359	21	33	43.33	-06	52	41.9		801
1985	FE	1986	08	04.23789	21	15	35.23	-06	52	29.2		801
1986	LA	1986	08	05.10814	15	49	56.85	+27	13	25.1		801
1986	PA	1986	09	02.05451	18	18	30.57	-14	10	26.9		801
1986	PL4 *	1986	08	06.26741	23	00	23.43	-03	52	00.3	17.5	801

Note 1: weak image. 2: questionable image.

OBSERVATIONS MADE AT THE EUROPEAN SOUTHERN OBSERVATORY.
Plates taken by E. Elst with the GPO astrograph, measured by Elst.
Reduced by Elst and by M. Geffert, Hoher List. SAO reference stars.
Contact: E. Elst, Royal Observatory, B-1180 Brussels, Belgium.

Object		Date	UT	R. A. (1950)			Decl.			Mag.	Obs.
300		1986	06 02.04825	14	27	35.04	-14	42	08.1		809
300		1986	06 02.06910	14	27	34.35	-14	42	04.6		809
300		1986	06 03.00382	14	27	06.36	-14	39	56.4		809
300		1986	06 03.02292	14	27	05.77	-14	39	53.6		809
300		1986	06 04.02639	14	26	36.66	-14	37	40.7		809
300		1986	06 04.04097	14	26	36.21	-14	37	38.4		809
300		1986	06 07.03993	14	25	15.55	-14	31	28.6		809
300		1986	06 07.05208	14	25	15.23	-14	31	27.4		809
1985	FA2	1986	06 03.20035	18	15	11.33	-16	32	09.0	17	809
1985	FA2	1986	06 03.22326	18	15	10.26	-16	32	13.0		809
1985	FA2	1986	06 04.32813	18	14	24.21	-16	35	05.6		809
1985	FA2	1986	06 06.32500	18	12	58.33	-16	40	31.3		809
1985	FA2	1986	06 06.33785	18	12	57.75	-16	40	33.1		809
1985	FA2	1986	06 08.29688	18	11	29.76	-16	46	06.8		809
1986	LK1 *	1986	06 03.20035	18	15	58.16	-15	09	20.7	17	809
1986	LK1	1986	06 03.22326	18	15	57.16	-15	09	27.7		809
1986	LK1	1986	06 04.32813	18	15	06.01	-15	14	37.2		809
1986	LK1	1986	06 07.21458	18	12	46.03	-15	28	41.7		809
1986	LK1	1986	06 07.22951	18	12	45.23	-15	28	43.9		809
1986	LK1	1986	06 08.23229	18	11	54.00	-15	33	52.9		809
1986	LL1 *	1986	06 02.04825	14	28	03.90	-14	35	00.8	17	809
1986	LL1	1986	06 02.06910	14	28	03.16	-14	34	58.7		809
1986	LL1	1986	06 03.00382	14	27	33.50	-14	33	26.5		809
1986	LL1	1986	06 03.02292	14	27	32.94	-14	33	24.6		809
1986	LL1	1986	06 04.02639	14	27	02.27	-14	31	51.8		809
1986	LL1	1986	06 04.04097	14	27	01.85	-14	31	50.7		809
1986	LL1	1986	06 07.03993	14	25	38.12	-14	27	45.5		809
1986	LL1	1986	06 07.05208	14	25	37.78	-14	27	45.2		809

OBSERVATIONS MADE AT TOYOTA BY K. SUZUKI AND T. URATA.

From Nihondaira Obs. Circ. No. 1562. Contact: T. Urata, 1-8-303, 1 Chome, Dobayashi, Shimizu, Shizuoka 424, Japan.

Object		Date	UT	R. A. (1950)	Decl.	Mag.	Obs.
1986 PH		1986 08	13.62604	21 11 30.75	-11 23 24.4	16.5	881
1986 PH		1986 08	13.65035	21 11 29.65	-11 23 35.2		881
1986 PK		1986 08	13.62604	21 10 54.80	-10 52 21.4	16.5	881
1986 PK		1986 08	13.65035	21 10 53.43	-10 52 34.3		881
1986 RC	*	1986 09	05.60868	23 37 23.75	+02 12 26.1	15	881
1986 RC		1986 09	05.62951	23 37 22.68	+02 12 15.7		881

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ORBITAL ELEMENTS OF ONE-OPPOSITION MINOR PLANETS.

The orbit computers and authors of double designations are G = D. W. E. Green, I = H. Oishi, M = B. G. Marsden, N = S. Nakano. For further details see MPC 10375.

Planet	H	Epoch	M	Peri.	Node	Incl.	e	a	Arc	O	N	C
1966 PA1	12.3	660803	174.00	163.79	334.02	8.99	0.2352	2.7434	6	3	1	I
1978 NN	14.5	780711	30.49	317.39	293.32	33.80	0.1527	2.6982	6	7		M
1978 NX7	13.5	780621	317.88	237.99	103.14	5.15	0.1561	3.2004	2	3	2	M
1978 NZ7	13.5	780621	308.53	253.23	110.49	11.00	0.2553	2.8766	2	3		M
1978 NA8	14.5	780621	357.12	101.31	188.25	0.78	0.2393	3.1412	2	3	2	M
1978 NB8	14.0	780621	357.00	229.07	60.24	1.79	0.2383	3.0721	2	3	2	M
1978 NE8	15.0	780621	49.59	260.34	317.27	3.29	0.1609	2.1847	2	3	2	M
1978 NF8	13.0	780621	19.96	156.19	99.35	8.75	0.1987	3.0095	2	3		M
1978 NG8	14.5	780621	37.76	249.22	331.17	1.69	0.2895	2.8213	2	3		M
1978 NJ8	16.5	780621	38.27	300.57	292.32	25.06	0.1547	2.2749	2	3		M
1978 RH9		780909	32.69	149.57	148.86	4.17	0.1442	2.2136	8	7	1	N
1979 MO1	16.5	790706	329.22	114.57	214.21	1.48	0.1111	2.1470	32	6	1	N
1979 MA2	17.0	790706	14.05	24.79	249.18	6.15	0.1125	2.2347	33	6	1	N
1984 JA1	12.0	840430	338.80	24.40	238.06	8.42	0.2615	3.1757	29	4		M
1985 TB3	15.0	851002	357.09	201.75	175.26	3.68	0.1512	2.1753	4	4	2	M
1986 LK1	13.5	860530	15.86	134.90	107.71	11.54	0.1081	2.4994	5	6	2	M
1986 LL1	12.0	860530	89.22	72.56	50.53	2.97	0.1500	2.8355	5	8	2	G
1986 OA	12.0	860729	94.14	307.57	262.36	13.40	0.0520	2.5591	15	0		M
1986 PO	13.5	860729	359.50	335.96	340.27	2.26	0.1211	2.1506	3	5	2	M
1986 PS	12.0	860729	358.65	271.88	50.48	0.88	0.1432	3.2010	3	6	2	M
1986 PT	14.0	860729	327.25	225.71	129.34	4.73	0.1270	2.1602	4	3	2	M
1986 PU	14.5	860729	20.99	139.49	136.24	1.26	0.2633	2.1680	4	3	2	M
1986 PH1	15.0	860729	359.45	341.05	336.33	3.27	0.1459	2.1572	3	4	2	M
1986 PJ1	12.0	860729	16.86	164.39	138.41	12.32	0.0730	3.2136	3	5	2	M
1986 PL1	12.0	860729	358.86	192.89	127.88	6.26	0.1441	3.2046	3	6	2	M
1986 PM1	11.5	860729	181.80	166.84	332.77	7.55	0.1795	2.9480	3	6	2	M
1986 PR1	12.5	860729	184.64	1.12	135.12	19.70	0.0416	2.7621	3	5	2	M
1986 PS1	12.5	860729	177.97	144.84	356.65	3.94	0.1524	2.3757	3	6	2	M
1986 PV1	12.0	860729	178.34	165.50	336.21	8.05	0.1293	2.4225	3	6	2	M
1986 PW1	12.0	860729	181.96	168.66	331.37	19.53	0.2949	2.8363	3	4	2	M
1986 PZ1	15.5	860729	359.28	329.32	346.79	2.38	0.2059	2.1647	3	6	2	M
1986 PH2	15.5	860729	359.09	355.60	319.30	3.94	0.2132	2.1574	3	5	2	M
1986 PK2	15.5	860729	358.84	76.56	240.28	0.69	0.1766	2.2986	3	6	2	M
1986 PS2	15.0	860729	358.62	284.39	33.24	1.44	0.1959	2.4844	3	5	2	M
1986 PY2	11.5	860729	175.35	169.09	334.09	12.01	0.2521	2.6978	3	6	2	M

1986 PH3 12.5 860729 303.65 65.32 324.83 14.40 0.1642 2.6569 3 6 M
1986 PM3 15.5 860729 359.58 212.97 102.16 3.10 0.1530 2.1777 3 4 2 M
1986 PB4 14.5 860729 350.53 141.52 182.71 2.09 0.2090 2.3158 7 0 M
Note 1: double designations 1966 PA1 = 1966 PF1 (I, JAM 2017); 1978 RH9 = 1978 RG16 (N); 1979 MO1 = 1979 OX (N); 1979 MA2 = 1979 OQ8 (N).
2: e assumed.

* * * * *

ORBITAL ELEMENTS BY H. OISHI, NIIZA, JAPAN.

The following orbital elements are from JAM 2018-2020. The identifications are by H. Oishi unless otherwise stated.

1969 TP2 = 1979 HS3 = 1984 QR1
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M	130.12836	(1950.0)		P	Q
n	0.25858147	Peri.	284.47296	+0.82758960	-0.55874821
a	2.4400870	Node	109.52286	+0.53448104	+0.75507448
e	0.1965874	Incl.	3.27314	+0.17153855	+0.34302036
P	3.81	H	13.7	G 0.25	

Residuals in seconds of arc

691008	095	0.8+	1.6-	691111	095	1.9-	0.9+	840831 688	0.5-	0.2-
691013	095	1.7+	2.5-	691113	095	2.6-	0.4+	840831 688	0.4+	0.7+
691016	095	2.6+	0.0	790425	095	1.0-	2.7-			
691104	095	0.2+	0.2+	840831	688	0.3-	0.5+			

1978 RM2 = 1985 DB2
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M	258.49368	(1950.0)		P	Q
n	0.21686508	Peri.	166.56413	+0.99867472	+0.04897527
a	2.7437456	Node	190.66645	-0.05146223	+0.94623128
e	0.0060487	Incl.	4.90278	-0.00067300	+0.31976209
P	4.54	H	13.2	G 0.25	

Residuals in seconds of arc

780901	095	0.5+	0.4-	850222	809	0.2-	0.2+	850225 809	0.4-	0.1-
780912	095	2.1-	0.0	850222	809	0.2+	0.0	850226 809	1.5-	0.4+
780928	095	1.2+	1.4+	850222	809	0.4+	0.2+	850226 809	1.1-	0.8+
781004	095	0.0	0.2-	850224	809	0.1-	0.3-	850226 809	1.1-	0.6+
781009	095	0.3+	0.8-	850224	809	0.1-	0.5-	850227 809	0.3+	0.7+
850220	809	1.2+	0.5-	850224	809	0.2-	0.5-	850227 809	0.2+	0.1+
850220	809	1.4+	0.4-	850225	809	0.4-	0.2-			
850220	809	1.6+	0.3-	850225	809	0.2-	0.1-			

1978 SW6 = 1969 EZ1 = 1974 SR = 1981 KL1 = 1982 UE8 = 1982 VR6
The double designation 1982 UE8 = 1982 VR6 was independently suggested by C. M. Bardwell.
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M	90.98202	(1950.0)		P	Q
n	0.25551991	Peri.	260.87618	-0.05046921	+0.99854869
a	2.4595392	Node	6.32247	-0.83606644	-0.03194613
e	0.1190210	Incl.	9.82865	-0.54630190	-0.04335858
P	3.86	H	13.2	G 0.25	

Residuals in seconds of arc

690314	095	0.8-	1.6-		781003	675	0.6+	0.4+		810528	809	0.7-	1.7-
740919	095	1.8-	2.6-		781004	675	0.3+	0.6+		821021	095	0.1+	4.2-
780926	095	2.1+	1.5+		781008	095	0.6-	2.0+		821109	095	0.8-	1.0-
781002	095	1.8+	1.8+		781101	095	0.2-	1.4-		821111	095	(6.2-	7.7+)

1978 VB5 = 1943 ES = 1980 JM
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M	248.89792		(1950.0)	P	Q
n	0.26876208	Peri.	137.28499	-0.87359370	+0.47149274
a	2.3780715	Node	71.21466	-0.47375236	-0.76727594
e	0.1052469	Incl.	7.31457	-0.11132270	-0.43472086
P	3.67	H	13.7	G 0.25	

Residuals in seconds of arc

430309	062	0.7+	0.1-		781129	675	0.9-	0.9-		800513	046	1.5-	0.1+
430309	062	1.6+	0.3-		781130	675	1.7+	0.7-		800513	046	0.5-	0.5-
430310	062	2.0-	1.0+		781130	675	1.1-	0.7-		800514	046	0.4+	3.0-
781105	675	0.2-	0.1+		800511	046	1.3-	0.1+		800514	046	1.0-	0.7+
781106	675	2.1+	0.6-		800511	046	1.8+	1.8+		830113	801	0.0	0.2+
781107	675	0.1+	0.5+		800512	046	2.4-	0.8-		830214	801	(12.8+	1.4+)
781108	675	1.1-	0.5+		800512	046	3.6+	0.0					

1986 EQ2 = 1982 KM2
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M	161.43251		(1950.0)	P	Q
n	0.19919307	Peri.	195.16671	+0.96061073	-0.27789699
a	2.9037158	Node	180.96849	+0.25809235	+0.89285233
e	0.0811163	Incl.	1.78857	+0.10303085	+0.35438395
P	4.95	H	13.3	G 0.25	

Residuals in seconds of arc

820516	675	1.0-	1.2-		860304	809	1.0+	0.5+		860310	809	2.4-	0.8+
820516	675	1.0-	0.6+		860304	809	2.4+	0.1-		860310	809	3.5-	1.1+
820517	675	0.6+	0.5-		860305	809	1.4-	1.3+		860314	809	1.6+	2.9-
820518	675	1.4+	1.1+		860305	809	2.1+	0.2+		860314	809	0.1+	0.9-

* * * * *

ORBITAL ELEMENTS BY T. KOBAYASHI, TOKYO.

The identifications are by T. Kobayashi unless otherwise stated.

1931 TW = 1973 AZ3 = 1977 FJ3
Epoch 1986 June 19.0 ET = JDE 2446600.5

M	23.48804		(1950.0)	P	Q
n	0.29235048	Peri.	81.44792	+0.23473880	-0.97204343
a	2.2483652	Node	354.96613	+0.86578686	+0.21160279
e	0.0936305	Incl.	3.53494	+0.44193983	+0.10176363
P	3.37	H	13.0	G 0.25	

Residuals in seconds of arc

311005	024	1.7+	1.4+		311103	024	4.1+	0.9-		770326	095	0.3+	0.5+
311007	024	5.4-	1.6-		730102	095	0.4-	0.0					
311012	024	0.2-	1.6+		730104	095	0.4+	0.5+					

1978 JT1 = 1978 LS = 1949 GL = 1977 DS1

The double designation 1978 JT1 = 1978 LS is by B. G. Marsden (MPC 9203).

Epoch 1986 June 19.0 ET = JDE 2446600.5

M	117.56374	(1950.0)		P	Q
n	0.17233311	Peri.	230.42228	+0.06553180	+0.99764569
a	3.1980867	Node	43.34829	-0.90619646	+0.06798184
e	0.1725029	Incl.	1.68762	-0.41774820	+0.00903082
P	5.72	H	12.5	G 0.25	

Residuals in seconds of arc

490404	760	0.2-	0.5-	770219	381	0.5+	0.0	780606	119	0.2+	0.6-
490404	760	0.2+	0.7+	770219	381	0.3-	0.0	780606	119	0.7+	0.8-
770218	381	0.5-	0.8-	780506	095	0.8+	0.1-				
770218	381	0.3+	0.6+	780509	095	1.6-	1.3+				

1980 DL5 = 1980 FX4 = 1965 UJ1

The double designation 1980 DL5 = 1980 FX4 is by B. G. Marsden (MPC 9203).

Epoch 1986 June 19.0 ET = JDE 2446600.5

M	15.35726	(1950.0)		P	Q
n	0.23695559	Peri.	311.98005	+0.96066596	+0.27629886
a	2.5863745	Node	32.00987	-0.23664942	+0.86710912
e	0.1006816	Incl.	3.01994	-0.14532019	+0.41446436
P	4.16	H	13.0	G 0.25	

Residuals in seconds of arc

651018	330	1.5+	0.6-	800316	809	0.6+	0.2+	800317	809	0.6+	0.9-
651021	330	1.5-	0.5+	800316	809	0.3-	1.3+	800317	809	0.9+	1.9-
800221	095	0.9+	0.2-	800316	809	0.7-	1.1+	800317	809	0.4+	1.0+
800316	809	0.9+	0.3-	800316	095	2.6-	0.3+	800317	809	0.5-	0.7-

1982 DD2 = 1938 GM = 1979 HT4 = 1984 YL2

Epoch 1986 June 19.0 ET = JDE 2446600.5

M	116.40833	(1950.0)		P	Q
n	0.29043277	Peri.	320.42804	-0.64040310	-0.76788977
a	2.2582515	Node	169.36430	+0.72378470	-0.60997987
e	0.1075296	Incl.	4.70477	+0.25694275	-0.19562683
P	3.39	H	13.5	G 0.25	

Residuals in seconds of arc

380405	062	1.7+	2.0-	820216	046	1.1+	0.2+	820221	046	2.6-	4.2+
380405	062	1.6-	2.4-	820216	046	0.2+	0.9+	820221	704	2.3+	5.9-
380405	062	1.1-	1.5+	820220	704	2.2-	0.5-	820221	046	0.8+	0.3-
790425	095	0.2-	2.2+	820220	046	1.1-	1.9+	820222	704	2.1+	0.5+
790430	095	0.7+	0.3-	820220	046	0.0	0.8+	841223	095	0.0	0.0

1983 TE1 = 1979 SD12

Epoch 1986 June 19.0 ET = JDE 2446600.5

M	245.33284	(1950.0)		P	Q
n	0.25347691	Peri.	175.40615	+0.90644425	-0.41931706
a	2.4727324	Node	209.54736	+0.38413282	+0.86811074
e	0.1513105	Incl.	5.85654	+0.17550159	+0.26562558
P	3.89	H	12.5	G 0.25	

Residuals in seconds of arc

790918	675	0.2-	0.9-	831005	046	0.8-	2.1+	831013	046	0.8-	0.4-
790918	675	1.5+	0.7+	831005	046	0.8+	2.4+	831013	046	3.0-	1.1-
790919	675	1.4-	0.7-	831007	046	1.9+	0.1+	831014	046	1.6+	1.1+
790919	675	0.2+	0.7+	831007	046	0.8-	3.0-	831014	046	1.0+	1.0-

ORBITAL ELEMENTS BY S. NAKANO, SMITHSONIAN ASTROPHYSICAL OBSERVATORY.

The identifications are by S. Nakano unless otherwise stated.

1966 PM = 1975 EE2 = 1978 TL2 = 1979 YZ7 = 1986 ER
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M	27.47565	(1950.0)		P	Q
n	0.18048151	Peri.	100.73636	-0.88745832	-0.45980882
a	3.1010952	Node	51.89646	+0.40563208	-0.81170258
e	0.1277896	Incl.	2.29574	+0.21881579	-0.36015936
P	5.46	H	12.5	G 0.25	

Residuals in seconds of arc

660807 074	1.1-	1.7+	660812 074	1.8+	0.1+	791223 095	0.3-	1.3+
660808 074	0.8+	0.6-	660812 074	0.5+	0.1+	860305 688	0.5+	0.4-
660808 074	1.6-	0.1+	750308 095	0.1+	0.4-	860305 688	0.4-	0.7+
660809 074	0.9-	0.6-	781003 095	0.0	0.9-			
660810 074	0.3-	0.4+	781007 095	0.7+	0.3+			

1968 QE = 1972 TU4 = 1972 VS
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M	292.78660	(1950.0)		P	Q
n	0.26670785	Peri.	68.67021	+0.91298115	+0.40707642
a	2.3902668	Node	267.29986	-0.38376760	+0.83395231
e	0.2172477	Incl.	1.57546	-0.13852026	+0.37257527
P	3.70	H	14.0	G 0.25	

Residuals in seconds of arc

680824 095	0.7+	2.1+	680828 095	3.2+	0.6-	721005 095	0.4-	2.8+
680826 095	3.3-	0.5-	680831 095	0.5-	1.5-	721108 095	0.4+	2.3-

1969 OW = 1976 QC2 = 1976 SW6 = 1983 TC2
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M	352.90684	(1950.0)		P	Q
n	0.28920704	Peri.	116.69453	+0.38977908	+0.92090676
a	2.2646322	Node	176.24495	-0.85399732	+0.36216173
e	0.1596616	Incl.	1.51529	-0.34461696	+0.14411667
P	3.41	H	13.5	G 0.25	

Residuals in seconds of arc

690717 095	0.8+	1.5+	831006 046	0.2+	1.8-	831013 046	0.9+	2.3+
690808 095	2.3-	0.9+	831006 046	1.0-	1.5-	831014 046	0.7-	0.4+
690814 095	1.3+	1.9-	831007 046	2.3-	2.6-	831014 046	2.3+	3.2+
760828 675	0.6-	1.2-	831007 046	0.5+	2.0-	831015 046	0.8+	0.6-
760925 095	0.9+	0.9+	831013 046	2.6-	0.2+	831015 046	1.6+	2.7+

1969 TD5 = 1975 GJ1 = 1982 AC
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M	56.29740	(1950.0)		P	Q
n	0.25892614	Peri.	63.77215	-0.41419051	-0.90910368
a	2.4379211	Node	50.76834	+0.81321862	-0.39156032
e	0.1317736	Incl.	3.29048	+0.40880522	-0.14216545
P	3.81	H	14.0	G 0.25	

Residuals in seconds of arc

691014 095	5.5+	2.7+	750420 805	0.0	0.1+	820116 046	0.8+	4.7+
691015 095	6.1-	1.9-	820115 046	0.8+	0.4-	820118 046	1.0-	2.2-
691017 095	0.7+	0.9-	820115 046	0.8+	0.1-	820118 046	0.0	1.8-
750415 805	0.0	0.1-	820116 046	1.5-	0.2-			

1970 NB = 1975 XL = 1975 XZ4 = 1982 JB4

The double designation 1975 XL = 1975 XZ4 is by O. Kippes (MPC 5973).

Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M 219.18139		(1950.0)	P	Q
n 0.23244582	Peri.	254.57525	+0.93850646	-0.25375168
a 2.6197253	Node	119.61890	+0.31211037	+0.91347279
e 0.2386478	Incl.	15.62374	-0.14762364	+0.31808418
P 4.24	H	11.5	G 0.25	

Residuals in seconds of arc

700703 095	1.3+	1.3+	700729 095	4.6-	1.8-	820515 095	1.4+	0.4-
700704 095	4.2+	1.2-	751203 095	2.2-	3.3-	820523 095	1.5-	0.2+
700706 095	2.9-	1.3+	751205 805	1.5+	2.1+			
700714 095	2.1+	0.8+	751207 805	0.6+	1.4+			

1970 OF = A917 SC = 1939 PD = 1979 QV8

Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M 191.39377		(1950.0)	P	Q
n 0.22242144	Peri.	30.34232	+0.98708817	+0.14470844
a 2.6978584	Node	321.14880	-0.15992065	+0.86603937
e 0.3106083	Incl.	6.28528	-0.00907359	+0.47857630
P 4.43	H	13.5	G 0.25	

Residuals in seconds of arc

170923 024	2.8-	4.9+	700731 095	0.2+	2.7-	790820 095	1.2-	4.6-
170924 024	(20.2+ 21.7+)Y		700804 095	3.8-	5.2+	790828 095	4.0+	1.7-
390811 020	(14.8+ 63.7+)X		700811 095	2.4-	0.9+			
700730 095	1.1+	1.2-	700828 095	5.1+	0.9-			

1977 SN = 1955 QS1 = 1981 UG18

Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M 183.41605		(1950.0)	P	Q
n 0.27043501	Peri.	212.12043	+0.44589780	+0.89119289
a 2.3682541	Node	84.47946	-0.80244680	+0.43927634
e 0.2362730	Incl.	4.80458	-0.39655300	+0.11318805
P 3.64	H	13.0	G 0.25	

Residuals in seconds of arc

550825 420	0.1+	0.5-	770922 095	0.5-	0.0	771017 095	0.4-	0.5-
770918 095	0.9+	0.9+	771007 095	0.4-	0.2+	811024 095	0.2+	0.4-

1978 NY7 = 1979 WQ7 = 1982 DB4 = 1982 DB6

The double designation 1982 DB4 = 1982 DB6 is by F. N. Bowman (MPC 7830).

Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M 126.34561		(1950.0)	P	Q
n 0.17294367	Peri.	217.54339	+0.68701927	+0.72508541
a 3.1905616	Node	95.90576	-0.65453448	+0.64590895
e 0.1956966	Incl.	2.73677	-0.31557747	+0.23885724
P 5.70	H	12.5	G 0.25	

Residuals in seconds of arc

780707 675	0.0	0.0	820220 033	0.2+	0.0	820221 033	0.3-	0.2-
780708 675	0.2+	0.1-	820220 033	1.6+	0.8-	820227 010	0.6-	0.3+
780709 675	0.1-	0.5-	820220 033	0.6-	0.0			
791117 095	0.2+	0.5-	820221 033	0.4-	0.1+			

1979 OK15 = 1985 FP1 = 1985 HA
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M	45.86615		(1950.0)	P	Q
n	0.29711601	Peri.	131.93419	+0.28439812	+0.95805762
a	2.2242634	Node	154.52434	-0.90203553	+0.27986358
e	0.1685446	Incl.	4.70220	-0.32473006	+0.06166012
P	3.32	H	14.5	G 0.25	

Residuals in seconds of arc

790721 095	0.0	0.1-	850322 688	1.2-	1.9+	850418 691	0.1-	0.3-
790730 095	0.4+	0.9+	850322 688	1.3+	1.7-	850418 691	0.1+	0.4-
790820 095	0.4-	0.9-	850418 691	0.2-	0.4+			

1980 VM1 = 1952 VB = 1963 UG = 1971 FE1
The identifications were found independently by L. D. Schmadel.
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M	332.95105		(1950.0)	P	Q
n	0.17753802	Peri.	31.08905	-0.10507389	-0.99151338
a	3.1352776	Node	65.03872	+0.89413191	-0.12788916
e	0.2311341	Incl.	4.84398	+0.43530174	+0.02335761
P	5.55	H	12.0	G 0.25	

Residuals in seconds of arc

521112 760	0.6+	0.3+	631018 760	0.8-	0.1-	801113 330	0.7+	0.8-
521112 760	0.6-	1.4+	631022 760	0.9+	0.1-	801207 330	2.1+	2.5-
521114 760	2.5-	0.0	631022 760	0.7-	0.2-	801210 330	1.3+	0.9+
521114 760	1.5+	1.1+	710319 095	0.3+	0.8+	801227 330	5.1-	0.8+
631018 760	0.4+	0.5-	801018 095	1.2+	0.2+			

1981 DE = 1972 TG4 = 1972 VL = 1977 AD1
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M	223.48514		(1950.0)	P	Q
n	0.26753528	Peri.	190.44437	+0.27167922	-0.95855812
a	2.3853359	Node	243.83574	+0.88967995	+0.28413751
e	0.0768692	Incl.	5.48375	+0.36696048	+0.02078937
P	3.68	H	14.0	G 0.25	

Residuals in seconds of arc

721005 095	2.6-	2.8+	810302 809	0.3+	0.6-	810306 809	0.6+	0.8-
721108 095	2.8+	3.7-	810302 809	0.8+	0.7-	810307 809	0.3-	0.6-
770113 095	0.0	1.8+	810303 809	0.8-	0.7+	810307 809	0.3-	0.5-
810226 809	0.6+	0.6+	810303 809	0.6-	0.7+	810307 809	0.4-	0.4-
810226 809	0.3+	0.3+	810303 809	0.4-	0.7+	810308 809	0.3-	0.0
810226 809	0.5+	0.0	810304 809	0.2-	0.7+	810308 809	0.3-	0.1+
810228 809	0.8+	0.3+	810304 809	0.2-	0.7+	810308 809	0.6-	0.1+
810228 809	0.8+	0.2+	810304 809	0.1-	0.6+	810309 809	0.7-	0.6-
810228 809	0.8+	0.1-	810306 809	0.0	0.5-	810309 809	0.6-	0.7-
810302 809	0.1-	0.2-	810306 809	0.3+	0.4-	810309 809	0.4-	0.6-

1986 JK
Epoch 1986 June 19.0 ET = JDE 2446600.5

M	357.29785		(1950.0)	P	Q
n	0.21016609	Peri.	232.40866	+0.41653777	+0.90851799
a	2.8017387	Node	62.23835	-0.82184708	+0.39183866
e	0.6797186	Incl.	2.13951	-0.38866908	+0.14511213
P	4.69	H	19.0	G 0.25	

From 43 observations 1986 May 4-Aug. 15, mean residual 1".1.

1986 PQ1 = 1979 HR
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M	241.15878	(1950.0)	P	Q
n	0.17529871	Peri. 347.62050	+0.26737021	-0.96259886
a	3.1619216	Node 86.85942	+0.88773454	+0.22839755
e	0.0205455	Incl. 2.51293	+0.37475399	+0.14573260
P	5.62	H 12.5	G 0.25	

Residuals in seconds of arc

790419 807 0.2- 1.1+	860801 675 4.2+ 1.7+	860802 675 (6.6- 0.4-)
790426 807 1.5+ 1.2-	860801 675(14.2+ 5.3+)	860804 675 2.3- 2.4-
790426 807 1.3- 0.0	860802 675 2.1- 0.6+	860804 675 0.2+ 0.2+

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

The identifications are by D. W. E. Green unless otherwise stated. The 1977-1978 Palomar observations of the 1981 UCAS objects were found by S. J Bus.

1981 DN
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M	148.84282	(1950.0)	P	Q
n	0.25699534	Peri. 210.26098	-0.91412649	-0.39300878
a	2.4501166	Node 306.26452	+0.39231071	-0.79547354
e	0.2134753	Incl. 7.09457	+0.10229889	-0.46126559
P	3.84	H 16.0	G 0.25	

Residuals in seconds of arc

770211 675 0.5- 0.2-	810306 413 1.5+ 0.5-	810408 413 1.0- 0.7+	
770212 675 0.2+ 0.3-	810308 413 0.8- 0.3+	810408 413 1.7+ 0.1-	
810209 413 1.0- 1.3-	810308 413 1.5+ 0.2-	810409 413 1.4- 0.2-	
810214 413 2.0+ 0.7+	810312 413 1.0- 0.9+	810409 413 0.4+ 0.3-	
810228 413 1.3- 0.4+	810312 413 1.9+ 0.6+	810501 413 0.7+ 0.3-	
810228 413 (4.1+ 1.3+)	810407 413 0.4- 0.5+	810502 413 1.6- 0.5-	
810306 413 1.7- 0.5+	810407 413 0.9- 0.3-	810503 413 1.6+ 0.8-	

1981 DS1
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M	255.76605	(1950.0)	P	Q
n	0.24006439	Peri. 88.95438	+0.90627441	-0.40015094
a	2.5640024	Node 294.62153	+0.30303503	+0.83969299
e	0.1105560	Incl. 8.61554	+0.29468027	+0.36714427
P	4.11	H 15.0	G 0.25	

Residuals in seconds of arc

780707 675 0.5- 0.4+	810306 413 1.0+ 0.8-	810409 413 2.2- 1.7+	
780708 675 0.3+ 0.1-	810308 413 1.3- 0.1+	810409 413 1.2+ 0.2+	
780709 675 0.2+ 0.3-	810308 413 0.7+ 1.0-	810501 413 0.8- 0.2-	
810209 413 0.4+ 0.2+	810312 413 0.7- 0.5-	810502 413 (3.0- 1.1-)	
810212 413 0.9+ 0.5-	810312 413 1.5+ 1.2-	810503 413 1.3+ 0.4-	
810228 413 1.1- 1.3+	810408 413 0.6- 0.2-		
810306 413 1.0- 1.2+	810408 413 0.7+ 0.1+		

1981 EK8
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M	76.85656	(1950.0)	P	Q
n	0.27110365	Peri. 353.83828	+0.11091537	+0.98960127
a	2.3643586	Node 282.50317	-0.90772332	+0.06335524
e	0.1424671	Incl. 5.38259	-0.40464326	+0.12913341
P	3.64	H 15.5	G 0.25	

Residuals in seconds of arc

780707	675	0.2+	0.5-	810307	413	0.1+	0.3+	810406	413	0.4- 0.2+
780708	675	0.4-	0.1+	810307	413	1.4+	0.1+	810406	413	1.8+ 1.6-
780709	675	0.3+	0.1+	810311	413	0.6-	0.6+	810407	413	0.7+ 0.8-
810202	413	0.1-	0.3-	810311	413	0.4+	0.9-	810407	413	(5.1+ 2.5-)
810214	413	0.5-	0.4-	810315	413	0.1+	0.1-	810410	413	0.9- 1.4+
810301	413	0.1+	0.3+	810315	413	1.8-	1.5+	810429	413	0.0 1.2-
810301	413	1.3+	0.9-	810405	413	1.6-	1.3+			

1981 EB15

Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M	152.43802		(1950.0)		P		Q
n	0.23897835	Peri.	216.06735		-0.39237844		-0.91875578
a	2.5717646	Node	257.07150		+0.85406160		-0.34619972
e	0.1391036	Incl.	2.58142		+0.34149369		-0.18982510
P	4.12	H	16.5	G	0.25		

Residuals in seconds of arc

780707	675	3.9-	1.1+	810301	413	0.7+	0.5+	810408	413	2.1- 0.2+
780708	675	0.9-	0.3+	810306	413	0.5-	0.8+	810409	413	1.5- 0.0
780709	675	4.5+	0.3-	810306	413	0.9+	0.1-	810409	413	0.7+ 1.1-
810212	413	0.2+	0.7+	810308	413	0.9+	0.6+	810501	413	0.5- 1.1-
810212	413	0.9+	0.7+	810312	413	2.1-	0.7+	810503	413	1.2+ 1.3-
810301	413	0.2-	0.1-	810312	413	1.8+	0.3-			

1981 EC20 = 1975 XG1

The identification was also suggested by L. D. Schmadel.

Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M	356.39652		(1950.0)		P		Q
n	0.26504061	Peri.	74.82850		+0.92335593		+0.38340486
a	2.4002804	Node	262.62336		-0.35965993		+0.84517463
e	0.2250133	Incl.	1.17638		-0.13438217		+0.37239838
P	3.72	H	14.0	G	0.25		

Residuals in seconds of arc

751201	095	0.5-	1.9+	810302	413	(4.3+	0.9-)	810329	413	1.6- 1.0+
780610	675	1.4-	0.6+	810303	413	2.0+	1.4-	810329	413	0.8+ 0.4-
780610	675	1.7+	1.3+	810307	413	(2.5-	1.1+)	810408	413	0.4+ 0.2+
810209	413	0.6+	0.1-	810307	413	0.2-	0.2+	810408	413	1.1+ 0.4-
810213	413	0.3+	0.5+	810311	413	0.9-	1.2+	810430	413	1.1- 0.1-
810302	413	0.7-	0.8+	810316	413	0.6-	0.2-	810502	413	0.1+ 0.8-

1981 EJ25

Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M	106.81333		(1950.0)		P		Q
n	0.26105122	Peri.	45.60119		-0.69515284		+0.71886192
a	2.4246726	Node	180.35973		-0.67086058		-0.64886618
e	0.1693456	Incl.	2.40381		-0.25828009		-0.24941976
P	3.78	H	17.0	G	0.25		

Residuals in seconds of arc

770211	675	1.8+	0.4-	810302	413	0.5-	1.2-	810315	413	1.4+ 1.3-
770212	675	1.7-	0.8+	810306	413	1.9-	1.1+	810406	413	0.2+ 0.8+
810209	413	0.8+	0.6-	810306	413	1.5+	1.0-	810406	413	1.2- 0.3+
810213	413	0.0	1.5+	810311	413	0.9-	0.8-	810426	413	1.3+ 0.2-
810302	413	(3.0-	1.5+)	810311	413	0.5-	0.4+	810501	413	0.3- 0.7+

1981 EG28 = 1968 UH2 = 1979 YP4

The identification 1981 EG28 = 1968 UH2 was also suggested by W. Landgraf.

Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M	6.71443		(1950.0)	P	Q
n	0.27558150	Peri.	156.69615	+0.97806057	+0.20766072
a	2.3386768	Node	191.35612	-0.20191066	+0.92538266
e	0.1353006	Incl.	4.82717	-0.05127980	+0.31708668
P	3.58	H	15.0	G 0.25	

Residuals in seconds of arc

681023	095	0.5+	1.6-	810306	413	0.6-	0.6+	810406	413	1.6-	0.5-
770211	675	0.1+	0.6+	810306	413	0.8+	1.0+	810407	413	2.1-	0.9+
770212	675	0.3-	0.1-	810311	413	0.6+	1.0-	810410	413	0.2-	0.8-
791218	095	0.0	0.1-	810315	413	0.8-	0.6-	810410	413	2.1+	2.3-
810212	413	0.4-	0.3-	810315	413	1.3+	0.5-	810501	413	0.2+	0.6-
810302	413	0.4+	2.4+	810405	413	2.0-	0.5+	810503	413	0.3-	1.8-
810302	413	0.7-	2.6+	810405	413	2.5+	2.1-				

1981 EM30

Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M	207.31488		(1950.0)	P	Q
n	0.21508162	Peri.	235.52668	+0.97523904	-0.21891640
a	2.7588921	Node	137.09467	+0.21499469	+0.90524255
e	0.2498384	Incl.	2.64153	+0.05182763	+0.36415867
P	4.58	H	14.0	G 0.25	

Residuals in seconds of arc

780707	675	0.9+	0.3+	810213	413	0.2-	0.9-	810307	413	0.8+	0.5+
780708	675	0.4-	0.2-	810302	413	1.9-	1.0+	810311	413	0.3+	1.2-
780709	675	0.5-	0.1-	810303	413	1.3+	0.1-	810426	413	0.8+	0.5-
810209	413	0.7+	0.6-	810307	413	1.3-	0.9+	810502	413	0.5-	0.8+

1981 EM31

Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M	35.77213		(1950.0)	P	Q
n	0.26378097	Peri.	139.94825	+0.53021035	+0.84783676
a	2.4079157	Node	162.06790	-0.78361522	+0.49319308
e	0.1117440	Incl.	1.31357	-0.32376561	+0.19476504
P	3.74	H	16.5	G 0.25	

Residuals in seconds of arc

780707	675	0.8+	0.1-	810302	413	0.9-	0.8+	810405	413	0.1-	1.9+
780708	675	0.4-	0.2-	810302	413	1.9+	1.7-	810405	413	(3.5+	1.3-)
780709	675	0.3-	0.3-	810311	413	0.6-	0.6-	810410	413	0.0	0.7-
810209	413	1.3+	0.2-	810311	413	1.4+	0.3+	810426	413	0.3+	1.1-
810213	413	1.7-	1.0+	810315	413	0.7-	0.0	810501	413	0.9-	0.3+

1981 EU33

Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M	8.24287		(1950.0)	P	Q
n	0.27272778	Peri.	105.12874	+0.92847372	+0.36268824
a	2.3549625	Node	233.66969	-0.36732310	+0.86494566
e	0.1363193	Incl.	5.69626	-0.05486606	+0.34688073
P	3.61	H	16.0	G 0.25	

Residuals in seconds of arc

770211	675	1.7-	1.0+	810202	413	0.2+	0.4+	810307	413	0.0	0.9-
770212	675	1.8+	1.0-	810214	413	1.0-	0.4-	810307	413	1.3-	0.2+
780610	675	2.3+	1.3-	810301	413	1.3-	1.4+	810311	413	2.4+	1.6-
780610	675	2.3-	1.5+	810301	413	1.6+	0.1+	810315	413	0.7-	1.0+

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

The identifications are by C. M. Bardwell.

1982 YP1 = A913 QA = 1953 CK = 1953 EB1 = 1986 PX1
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M	160.88997	(1950.0)		P	Q
n	0.16119510	Peri.	171.61917	-0.88690303	-0.45762323
a	3.3437646	Node	340.75738	+0.41193412	-0.72161087
e	0.1171050	Incl.	11.04146	+0.20907722	-0.51947929
P	6.11	H	11.5	G 0.25	

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

130826	024(0.02-	0.03-)Y	530310	760	0.4-	0.3-	860801	675	2.0-	1.6+
130827	024(0.03-	0.03-)Y	821223	095	1.9+	0.4+	860801	675	1.5+	2.2+
130907	024(93.1-	96.7-)Y	821224	095	5.2+	0.3+	860802	675	0.5-	2.0-
530214	760	1.6-	1.7+	830106	095	4.3-	0.5-	860802	675	1.7+	0.4-
530214	760	3.3+	1.0-	830109	095	0.6-	0.2-	860804	675	0.5+	3.3-
530310	760	1.9-	1.2-	830114	095	2.3-	0.0				

1983 DE = 1957 EE = 1978 YF = 1985 TC3
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M	22.74719	(1950.0)		P	Q
n	0.26747203	Peri.	344.79901	+0.18657508	-0.98069521
a	2.3857119	Node	94.42172	+0.90734202	+0.14915916
e	0.1884317	Incl.	3.36591	+0.37672297	+0.12644548
P	3.68	H	13.5	G 0.25	

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

570301	760(0.04-	0.01+)X	830309	688	0.9+	0.1-	851012	026	1.6-	0.6-
781223	330	0.1+	0.2+	830309	688	0.6-	0.6-	851013	026	0.4-	0.2-
830219	688	1.5-	0.1-	830316	688	(5.8+	2.9+)	851014	026	1.9+	0.7+
830219	688	1.4+	1.2+	830316	688	0.2-	0.1-				

1984 YV
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M	161.21811	(1950.0)		P	Q
n	0.37011009	Peri.	224.48021	-0.79478611	-0.49223169
a	1.9212460	Node	282.83743	+0.60670554	-0.65884074
e	0.0768581	Incl.	21.35208	-0.01494736	-0.56889089
P	2.66	H	13.5	G 0.25	

Residuals in seconds of arc

841223	511	1.2+	0.5-	850124	511	1.5+	1.5-	850221	511	0.5+	0.1-
841223	511	0.6-	0.0	850124	511	1.3+	0.3-	850317	511	0.7-	0.5+
841226	511	0.1-	1.6-	850124	511	0.8+	3.0+	850320	801	0.8+	1.3-
841228	511	0.6-	0.8+	850129	511	0.1-	0.1+	860704	801	1.6-	0.4+
841229	511	0.5-	2.8+	850130	511	1.2-	0.3+	860804	801	0.9+	0.3-
841230	511	1.3-	0.4-	850219	801	0.2+	0.0	860810	801	0.1+	0.7+
850118	675	1.2-	1.4-	850221	511	0.7+	0.9+				

1985 RS1 = 1970 PW
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M	85.98762	(1950.0)		P	Q
n	0.26471637	Peri.	311.94427	+0.92758934	+0.37302962
a	2.4022400	Node	26.17313	-0.32739903	+0.83827318
e	0.2164121	Incl.	2.68491	-0.17996635	+0.39767699
P	3.72	H	14.5	G 0.25	

Residuals in seconds of arc

700810	095	0.0	0.7-	850916	026	0.5-	0.4+	850921	809	0.2+	0.8-
700828	095	0.1+	0.5+	850918	809	0.1-	0.2-	850921	809	0.3+	0.8-
850911	809	0.1+	0.4+	850918	809	0.4+	0.2-	850921	809	0.6+	0.8-
850911	809	0.3+	0.4+	850918	809	0.7+	0.1-	850922	026	0.7+	0.5-
850911	809	0.4+	0.4+	850918	026	0.1+	0.1-	850922	809	0.4-	0.4+
850912	026	0.7-	0.9-	850919	026	1.0-	0.6-	850922	809	0.2-	0.0
850914	809	0.0	0.2+	850919	809	0.2-	0.1+	850922	026	3.2-	0.3+
850914	809	0.4+	0.3+	850919	809	0.1-	0.2+	850925	026	1.4+	1.0+
850914	809	0.7+	0.3+	850919	809	0.2+	0.1+	851009	026	0.3-	0.1+
850915	809	0.0	0.1+	850920	809	0.0	0.4+	851012	026	1.8+	1.1+
850915	809	0.3-	0.1+	850920	809	0.2+	0.4+	851013	026	0.2-	0.3+
850915	809	0.9-	0.2-	850920	809	0.2+	0.4+	851014	026	0.3+	0.6+
850916	809	1.3-	0.2-	850921	809	0.5-	0.8-	851016	026	0.1+	0.5+
850916	809	0.2-	0.1+	850921	809	0.3-	0.8-	851106	026	0.1-	1.7-
850916	809	0.5+	0.3+	850921	809	0.0	0.7-				

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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 Skiff-Kosai (1976 XVI)
Epoch 1976 Aug. 10.0 ET = JDE 2443000.5
T 1976 Aug. 4.06253 ET

q	2.8493930	(1950.0)	P	Q
n	0.13064384	Peri. 26.44064	-0.28542530	-0.95682067
a	3.8465977	Node 80.18456	+0.86908516	-0.28259677
e	0.2592433	Incl. 3.20060	+0.40400913	-0.06806819
P	7.54			

From 8 observations 1977 Feb. 13-Mar. 12, mean residual 0".3.

Comet Shoemaker (1984 XV)
Epoch 1984 Sept. 17.0 ET = JDE 2445960.5
T 1984 Sept. 3.56632 ET

q	5.4891922	(1950.0)	P	Q
z	+0.0008692	Peri. 183.25528	+0.57684275	+0.81677260
	+/-0.0000104	Node 238.02618	+0.74972225	-0.52373522
e	0.9952286	Incl. 179.21529	+0.32429769	-0.24204121

From 44 observations 1984 Oct. 23-1986 Sept. 3, mean residual 1".0.

Periodic Comet Hartley 2 (1986c)
Epoch 1986 Feb. 27.0 ET = JDE 2446488.5
T 1985 June 5.22807 ET

q	0.9507312	(1950.0)	P	Q
n	0.15702309	Peri. 174.87817	+0.75385833	-0.64672629
a	3.4027265	Node 226.12299	+0.59693274	+0.74788187
e	0.7205972	Incl. 9.25603	+0.27453402	+0.14972579
P	6.28			

From 15 observations 1986 Mar. 15-June 7, mean residual 0".5.

Periodic Comet Machholz (1986e)
Epoch 1986 May 10.0 ET = JDE 2446560.5
T 1986 Apr. 23.51688 ET

q	0.1267757	(1950.0)	P	Q
n	0.18780389	Peri. 14.52781	-0.18940523	-0.46639946
a	3.0199493	Node 93.80454	+0.79207808	-0.59263711
e	0.9580206	Incl. 59.99330	+0.58029128	+0.65669841
P	5.25			

From 65 observations 1986 May 13-Sept. 5, mean residual 1".0.

Comet Churyumov-Solodovnikov (1986i)
T 1986 May 6.46386 ET

q	2.6420172	(1950.0)	P	Q
		Peri. 157.73488	+0.75695236	-0.01815919
		Node 133.91846	-0.64666466	-0.16470482
e	1.0	Incl. 114.92854	+0.09406350	-0.98617573

From 32 observations 1986 July 15-Aug. 26.

Periodic Comet Singer Brewster (1986d)
Epoch 1986 June 19.0 ET = JDE 2446600.5
T 1986 June 8.96863 ET

q	1.9554229	(1950.0)	P	Q
n	0.15650737	Peri. 45.35640	-0.53064353	+0.84684446
a	3.4101974	Node 192.73423	-0.81621181	-0.52188683
e	0.4265954	Incl. 9.31095	-0.22850761	-0.10241382
P	6.30			

From 40 observations 1986 May 3-Sept. 6, mean residual 1".1.

Comet Wilson (1986l)
T 1987 Apr. 20.85874 ET

q	1.2000927	(1950.0)	P	Q
		Peri. 238.26801	-0.47946040	-0.71642394
		Node 110.92592	-0.50117862	+0.69761327
e	1.0	Incl. 147.13946	-0.72037332	-0.00851218

From 89 observations 1986 Aug. 5-Sept. 11.

1977 DN4 = 1975 WS = 1978 LY

The identifications 1977 DN4 = 1975 WS and 1977 DN4 = 1978 LY are by L. D. Schmadel and S. J. Bus, respectively.

Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M	234.88403	(1950.0)	P	Q
n	0.17744337	Peri. 58.25801	-0.94531345	-0.32228320
a	3.1363924	Node 102.89981	+0.27911664	-0.87890182
e	0.1179541	Incl. 2.94966	+0.16874945	-0.35166053
P	5.55	H 12.5	G 0.25	

Residuals in seconds of arc

751128 095	0.2+	0.9-	770219 381	0.5+	0.5-	770315 381	0.2-	1.2-
770218 381	0.2+	0.0	770312 381	0.2-	0.2-	780610 675	0.0	0.2+
770218 381	0.1+	1.9+	770312 381	0.1-	0.5-	780610 675	0.1-	0.9-
770219 381	0.2-	0.6+	770315 381	0.1-	0.1-			

1979 SL9 = 1977 FX2 = 1978 NH8

The key identification 1979 SL9 = 1978 NH8 is by S. J. Bus. The identication 1979 SL9 = 1977 FX2 was suggested by T. Furuta (JAM 1230), C. M. Bardwell and L. D. Schmadel, who found it independently.

Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M	181.37727	(1950.0)		P	Q
n	0.17694054	Peri.	97.50059	-0.27589384	+0.96114195
a	3.1423316	Node	156.47755	-0.89087872	-0.25202107
e	0.1529794	Incl.	1.35244	-0.36085688	-0.11265669
P	5.57	H	11.5	G 0.25	

Residuals in seconds of arc

770326	095	0.2+	0.4+	780709	675	0.1-	0.1+	791016 095	0.7+	0.9+
780707	675	0.2+	0.2-	790922	095	0.3-	1.3+	791111 095	0.1-	0.3-
780708	675	0.1-	0.0	790928	095	0.8-	0.1-	791116 095	0.6+	1.4-

1982 RK1 = 1978 ND8

The identification is by E. Bowell.

Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M	36.67502	(1950.0)		P	Q
n	0.26439280	Peri.	10.90055	+0.58688608	+0.80754056
a	2.4041995	Node	295.06126	-0.74760949	+0.51265183
e	0.2087575	Incl.	3.71394	-0.31087743	+0.29166136
P	3.73	H	14.5	G 0.25	

Residuals in seconds of arc

780707	675	1.3+	0.0	820914	046	0.4+	1.3+	820915 046	1.2+	0.6-
780708	675	2.0-	0.2-	820914	046	3.1-	2.4+	820916 046	2.3+	1.4-
780709	675	0.7+	0.2+	820915	046	1.3-	0.1+	820916 046	0.7+	1.8-

1983 PW = 1941 ST1 = 1964 WO1

The recently published (JAM 2017) identification 1986 CQ1 = 1941 ST1 seems not to be valid (and the identification 1986 CQ1 = 1981 WS8 is therefore very doubtful).

Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M	316.34233	(1950.0)		P	Q
n	0.30348623	Peri.	95.56408	+0.73367432	+0.67806853
a	2.1930284	Node	221.75407	-0.64668590	+0.67684414
e	0.2106970	Incl.	3.79731	-0.20861289	+0.28653984
P	3.25	H	14.0	G 0.25	

Residuals in seconds of arc

410930	062	2.2-	3.4+	830901	095	1.0-	2.7-	860610 688	2.1+	2.2+
410930	062	0.2+	3.2+	830905	095	1.2-	0.9-	860610 688	3.5-	2.8+
641130	330	0.5+	0.3-	830908	095	1.2-	0.5+	860908 801	5.9+	0.8+
830804	095	1.9-	0.2+	830908	095	4.9+	1.0-			
830806	095	0.0	2.1-	830911	095	1.5+	0.6+			

1985 GW = 1978 NC8

The identification is by E. Bowell.

Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M	163.05067	(1950.0)		P	Q
n	0.25389973	Peri.	35.29596	-0.72273807	-0.67838260
a	2.4699913	Node	101.41499	+0.59904566	-0.71021361
e	0.1362639	Incl.	7.74425	+0.34466501	-0.18813210
P	3.88	H	13.5	G 0.25	

Residuals in seconds of arc

780707	675	0.6+	1.3+	850415	688	2.2+	0.3-	850424 688	0.1-	0.7-
780708	675	0.1-	0.4+	850415	688	1.4-	0.3-	850515 688	1.4+	0.1+
780709	675	0.5-	0.5+	850424	688	0.6-	1.1+	850515 688	0.5+	0.4-

1986 GW = 1977 CN1

The identification is by S. J. Bus.

Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M 322.84099		(1950.0)	P	Q
n 0.12499258	Peri.	78.66867	-0.13527316	+0.99080430
a 3.9616925	Node	183.56058	-0.92586612	-0.12742385
e 0.1621703	Incl.	2.61330	-0.35280745	-0.04549736
P 7.89	H	13.5	G 0.25	

Residuals in seconds of arc

770211 675	1.0-	0.5+	860415 691	0.5+	0.8+	860517 691	0.5-	0.1-
770212 675	1.0+	0.7-	860415 691	0.5+	1.1+	860517 691	0.2-	0.2+
860404 691	0.6-	0.5-	860501 691	0.3+	0.4+	860607 691	0.3-	0.4-
860404 691	1.1-	0.6-	860501 691	0.6-	0.0	860607 691	0.2+	0.6+
860404 691	0.4-	1.1-	860501 691	0.7-	0.1-	860607 691	0.1-	0.0
860409 691	0.2+	0.3+	860514 691	0.1+	0.4-	860608 691	0.3-	0.4-
860409 691	0.4+	0.9+	860514 691	0.1-	0.6-	860608 691	0.3+	0.1+
860409 691	1.1+	0.1+	860514 691	0.1+	1.1-	860608 691	0.2+	0.5-
860415 691	0.8+	0.8+	860517 691	0.1+	0.6+			

1986 LA

Epoch 1986 June 19.0 ET = JDE 2446600.5

M 328.97639		(1950.0)	P	Q
n 0.51345938	Peri.	86.52271	+0.70503295	+0.69483501
a 1.5445382	Node	229.39855	-0.70193182	+0.65520050
e 0.3166377	Incl.	10.77082	-0.10109529	+0.29650736
P 1.92	H	18.5	G 0.25	

From 24 observations 1986 June 4-Aug. 31, mean residual 1".0.

1986 PA

Epoch 1986 Aug. 18.0 ET = JDE 2446660.5

M 265.44007		(1950.0)	P	Q
n 0.90362374	Peri.	296.38026	-0.07439268	-0.99447129
a 1.0596057	Node	157.51304	+0.96999559	-0.08941047
e 0.4438806	Incl.	11.17289	+0.23146118	+0.05506918
P 1.09	H	18.0	G 0.25	

From 13 observations 1986 Aug. 2-Sept. 3.

1986 RA

Epoch 1986 Aug. 18.0 ET = JDE 2446660.5

M 356.98379		(1950.0)	P	Q
n 0.16681607	Peri.	161.11996	+0.93022475	+0.36665491
a 3.2682162	Node	177.21866	-0.36434476	+0.92779817
e 0.6236341	Incl.	18.86172	-0.04398640	+0.06895461
P 5.91	H	15.5	G 0.25	

From 18 observations 1986 Aug. 11-Sept. 11.

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NEW NAMES OF MINOR PLANETS.

(2210) Lois = 9597 P-L

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

Named in honor of Lois J. Baldwin, spouse of Ralph B. Baldwin, author of several books, including the pioneering studies "The Face of the Moon" and "The Measure of the Moon".

(2473) Heyerdahl = 1977 RX7
Discovered 1977 Sept. 12 by N. S. Chernykh at the Crimean Astrophysical Observatory.
Named in honor of Thor Heyerdahl, outstanding Norwegian ethnographer and archaeologist, brave traveller and prominent writer, famous for his expeditions along ancient sea routes.

(2507) Bobone = 1976 WB1
Discovered 1976 Nov. 18 at the El Leoncito Station of the Felix Aguilar Observatory.
Named in memory of Jorge Bobone (1901-1958), some time director of the Cordoba Observatory, well known for his work on the orbits of comets, minor planets and the satellites of Jupiter. His investigation on the orbit of P/Halley for the 1986 return was unfinished at his death. He also participated in astrometric programs and recovered P/Encke and P/Kopff at their returns in 1931 and 1932, respectively.

(2519) Annagerman = 1975 VD2
Discovered 1975 Nov. 2 by T. M. Smirnova at the Crimean Astrophysical Observatory.
Named in memory of Anna German (1936-1982), a popular Polish variety singer.

(2548) Leloir = 1975 DA
Discovered 1975 Feb. 16 at the El Leoncito Station of the Felix Aguilar Observatory.
Named in honor of the outstanding Argentinian biochemist Luis Federico Leloir, recipient of the Nobel prize in chemistry in 1970 and many other international honors. Born in France, he worked for several years in the United States. He has served as Extraordinary Research Professor at the Universidad Nacional de Buenos Aires and as director of the Instituto de Investigaciones Bioquimicas. As a member of the board of directors of the Consejo Nacional de Investigaciones Cientificas y Tecnicas during 1958-1964 he had an important influence on scientific research in Argentina.

(2550) Houssay = 1976 UP20
Discovered 1976 Oct. 21 at the El Leoncito Station of the Felix Aguilar Observatory.
Named in memory of the remarkable Argentinian scientist and teacher Bernardo A. Houssay (1887-1971), one of the most influential researchers and teachers in medicine in Latin America, recipient of the Nobel prize for medicine in 1947 and many other international honors. Known in particular for his work in physiology and pharmacology, he wrote extensively on nutrition, internal secreting glands, experimental pathology and toxicology.

(2605) Sahade = 1974 QA
Discovered 1974 Aug. 16 at the El Leonicito Station of the Felix Aguilar Observatory.
Named in honor of Jorge Sahade, current president of the International Astronomical Union, well-known Argentinian astrophysicist who has served as director of the Cordoba and La Plata Observatories and was the first director of the Instituto de Astronomia y Fisica del Espacio. During the 1960s he initiated the process that led to the acquisition of the 2.15-m reflector in the Complejo Astronomica El Leoncito.

(2697) Albina = 1969 TC3
Discovered 1969 Oct. 9 by B. Burnasheva at the Crimean Astrophysical Observatory.

Named in honor of Albina Alekseevna Serova, Moscow astronomer, friend of the discoverer.

(2757) Crisser = 1977 VN
Discovered 1977 Nov. 11 by S. Barros at Cerro El Roble.
The name is formed from the first halves of the first names of the discoverer's wife, Cristina, and himself, Sergio.

(2784) Domeyko = 1975 GA
Discovered 1975 Apr. 15 by C. Torres at Cerro El Roble.
Named in memory of Ignacio Domeyko (1802-1889), a Polish scientist who moved to Chile in 1838 as a teacher of chemistry and mineralogy in La Serena. In 1846 he became professor of mineralogy and later rector at the University of Chile in Santiago. In recognition of his extensive geological investigations throughout the country, the government offered him Chilean nationality.

(2792) Ponomarev = 1977 EY1
Discovered 1977 Mar. 13 by N. S. Chernykh at the Crimean Astrophysical Observatory.
Named in memory of Nikolaj Georgievich Ponomarev (1900-1942), designer of astronomical instruments.

(2809) Vernadskij = 1978 QW2
Discovered 1978 Aug. 31 by N. S. Chernykh at the Crimean Astrophysical Observatory.
Named in memory of Academician Vladimir Ivanovich Vernadskij (1863-1945), distinguished naturalist, mineralogist and crystallographer, founder of the geochemical and radiogeological investigation of the terrestrial biosphere.

(2859) Paganini = 1978 RW1
Discovered 1978 Sept. 5 by N. S. Chernykh at the Crimean Astrophysical Observatory.
Named for the great Italian violinist and composer Niccolo Paganini (1782-1840).

(2862) Vavilov = 1977 JP
Discovered 1977 May 15 by N. S. Chernykh at the Crimean Astrophysical Observatory
Named in memory of Academician Nikolaj Ivanovich Vavilov (1887-1943), prominent botonist and geneticist, who organized and participated in many botanical expeditions to the various parts of the globe. He established the Soviet collection of plant cultures that includes more than 300 000 samples. The planet also honors his brother, Academician Sergej Ivanovich Vavilov (1891-1951), president of the U.S.S.R. Academy of Sciences from 1945 until his death, renowned for his work in the field of physical optics.

(2867) Steins = 1969 VC
Discovered 1969 Nov. 4 by N. S. Chernykh at the Crimean Astrophysical Observatory.
Named in memory of Karlis Augustovich Steins (1911-1983), director of the Latvian University's Astronomical Observatory from 1959, well known for his work on cometary cosmogony. He also studied the rotation of the earth and designed astronomical instruments.

(2887) Krinov = 1977 QD5
Discovered 1977 Aug. 22 by N. S. Chernykh at the Crimean Astrophysical Observatory.

Named in memory of Evgenij Leonidovich Krinov (1906-1984), celebrated Soviet meteoriticist, recipient of the Leonard medal of the American Meteoritical Society.

(2922) Dikan'ka = 1976 GY1
Discovered 1976 Apr. 1 by N. S. Chernykh at the Crimean Astrophysical Observatory.
Named for the Ukrainian village mentioned in Gogol's novel "Evenings at the Farmstead near Dikan'ka".

(2953) Vysheslavia = 1979 SV11
Discovered 1979 Sept. 24 by N. S. Chernykh at the Crimean Astrophysical Observatory.
Named in honor of Leonid Nikolaevich Vysheslavskij, Soviet writer, author of "Stellar Sonnets" and numerous other poetical works.

(2954) Delsemme = 1982 BT1
Discovered 1982 Jan. 30 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory.
Named in honor of Armand H. Delsemme, professor of astrophysics at the University of Toledo (Ohio), recognized for his extensive investigations of the chemical, physical, dynamical and evolutionary processes of comets, including studies of elemental abundances and the origin of comets. In 1952 he proposed, with P. Swings, that cometary nuclei contain clathrate hydrates of gases, a theory that has been popular ever since. In 1976 he organized and edited the proceedings of the Lyons IAU colloquium "Comets, Asteroids and Meteorites". Citation prepared by Z. Sekanina.

(2955) Newburn = 1982 BX1
Discovered 1982 Jan. 30 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory.
Named in honor of Ray L. Newburn, astronomer at the Jet Propulsion Laboratory, recognized for his development of physical models of comets based on spectrophotometric observations and for his adroit leadership of the International Halley Watch during the apparition of that comet that began in 1982. Citation prepared by S. J. Edberg.

(2956) Yeomans = 1982 HN1
Discovered 1982 Apr. 28 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory.
Named in honor of Donald K. Yeomans, celestial mechanician at the Jet Propulsion Laboratory and discipline specialist for the astrometric team of the International Halley Watch. Well known for his orbit determinations that take account of the nongravitational forces acting on comets, he has made a detailed study of the motion of Halley's Comet back to the year -1404 and has analyzed the orbits of meteor showers and their relation to the orbits of parent comets. Citation prepared by S. J. Edberg and Z. Sekanina.

(2983) Poltava = 1981 RW2
Discovered 1981 Sept. 2 by N. S. Chernykh at the Crimean Astrophysical Observatory.
Named for the city in the Ukrainian S.S.R.

(2995) Taratuta = 1978 QK
Discovered 1978 Aug. 31 by N. S. Chernykh at the Crimean Astrophysical Observatory.
Named in honor of Evgeniya Aleksandrovna Taratuta, Soviet writer and literary scholar.

(2998) Berendeya = 1975 TR3
Discovered 1975 Oct. 3 by L. I. Chernykh at the Crimean Astrophysical Observatory.
Named for the wonderland in Ostrovskij's fairy tale "The Snow-Maiden".

(3010) Ushakov = 1978 SB5
Discovered 1978 Sept. 27 by L. I. Chernykh at the Crimean Astrophysical Observatory.
Named in memory of the Russian admiral and sea captain Fedor Fedorovich Ushakov (1744-1817).

(3013) Dobrovoleva = 1979 SD7
Discovered 1979 Sept. 23 by N. S. Chernykh at the Crimean Astrophysical Observatory.
Named in honor of Oleg Vail'evich Dobrovol'skij, head of the Cometary Astronomy Department of the Institute of Astrophysics of the Tadjik S.S.R. Academy of Sciences in Dushanbe, well known for his research on the physics of comets.

(3027) Shavarsh = 1978 PQ2
Discovered 1978 Aug. 8 by N. S. Chernykh at the Crimean Astrophysical Observatory.
Named in honor of Shavarsh Vladimirovich Karapetyan, Armenian sportsman, eleven times the world champion in underwater sports. Also known for heroic deeds, he saved twenty persons in a trolley bus submerged in water from a dam in Erevan.

(3052) Herzen = 1976 YJ3
Discovered 1976 Dec. 16 by L. I. Chernykh at the Crimean Astrophysical Observatory.
Named in memory of Aleksandr Ivanovich Herzen (1812-1870), revolutionary, writer and philosopher, founder of the free Russian press abroad.

(3071) Nesterov = 1973 FT1
Discovered 1973 Mar. 28 by T. M. Smirnova at the Crimean Astrophysical Observatory.
Named in honor of Petr Nikolaevich Nesterov (1887-1914), the Russian airman who was the first to carry out a number of piloting maneuvers, among them the loop.

(3091) van den Heuvel = 6081 P-L
Discovered 1960 Sept. 24 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.
Named in honor of E. P. J. van den Heuvel, professor of astronomy at the municipal university of Amsterdam, well known for his studies on the structure and evolution of neutron stars. The name also honors Julia Edith van den Heuvel, niece of the astronomer, for her lively interest in astronomy.

(3092) Herodotus = 6550 P-L
Discovered 1960 Sept. 24 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.
Named for the Greek historian who lived in the fifth century B.C. and is known as the "Father of Historiography".

(3097) Tacitus = 2011 P-L
Discovered 1960 Sept. 24 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.
Named for the Roman historian who lived in the first century A.D.

(3114) Ercilla = 1980 FB12
Discovered 1980 Mar. 19 by C. Torres at Cerro El Roble.
Named in memory of Don Alonso de Ercilla y Zuniga (1533-1594), Spanish poet and soldier who distinguished himself in the campaign in Chile against the Araucanians. He returned to Spain in 1562, taking with him the first fifteen cantos of "La Araucana", his epic poem about the early part of the 300-year-long war between Spanish soldiers and Chilean Indians. He can be considered the first chronicler of the history of Chile.

(3126) Davydov = 1969 TP1
Discovered 1969 Oct. 8 by L. I. Chernykh at the Crimean Astrophysical Observatory.
Named in memory of Denis Vasil'evich Davydov (1784-1839), officer, writer and poet, hero of the war of 1812 in Russia.

(3127) Bagration = 1973 ST4
Discovered 1973 Sept. 27 by L. I. Chernykh at the Crimean Astrophysical Observatory.
Named in memory of Petr Ivanovich Bagration (1765-1812), Russian general, hero of the war of 1812.

(3147) Samantha = 1976 YU3
Discovered 1976 Dec. 16 by L. I. Chernykh at the Crimean Astrophysical Observatory.
Named in memory of Samantha Smith (1971-1985), the American girl who dreamed about the friendship of people all over the world.

(3190) Aposhanskij = 1978 SR6
Discovered 1978 Sept. 26 by L. V. Zhuravleva at the Crimean Astrophysical Observatory.
Named in memory of Vladimir Mikhailovich Aposhanskij (1910-1943), Soviet poet and journalist.

(3197) Weissman = 1981 AD
Discovered 1981 Jan. 1 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory.
Named in honor of Paul R. Weissman, cometary physicist at the Jet Propulsion Laboratory who has made studies of the dynamics of the Oort cloud and of the thermal properties of cometary nuclei.

(3216) Harrington = 1980 RB
Discovered 1980 Sept. 4 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory.
Named in honor of Robert S. Harrington, astronomer at the U.S. Naval Observatory in Washington and director of the program to determine parallaxes and proper motions of faint nearby stars. A leading investigator on the orbital characteristics of Pluto's satellite and the mass of Pluto, he has made observational and theoretical studies of the motions of the planets and satellites and likely evolutions leading to the current distribution of the planets. He has also investigated the possible existence of another principal planet in the solar system.

(3217) Seidelmann = 1980 RK
Discovered 1980 Sept. 2 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory.
Named in honor of P. Kenneth Seidelmann, director of the Nautical Almanac Office of the U.S. Naval Observatory, currently vice president of IAU Commission 4, and a past chairman and secretary of the Division on Dynamical Astronomy of the American Astronomical Society. Seidelmann has

played an important role in the introduction of new constants, theories, timescales and reference frames into the astronomical ephemerides, particularly a new theory of nutation. He has also explored the use of new techniques for obtaining astrometric data on minor planets and satellites.

(3224) Irkutsk = 1977 RL6
Discovered 1977 Sept. 11 by N. S. Chernykh at the Crimean Astrophysical Observatory.
Named for the Siberian city on the occasion of its 300th anniversary.

(3291) Dunlap = 1982 VX3
Discovered 1982 Nov. 14 by H. Kosai and K. Hurukawa at the Kiso Station of the Tokyo Astronomical Observatory.
Named in honor of Larry Dunlap, research assistant at the Lunar and Planetary Laboratory who has published lightcurves of asteroids and is now teaching high-school and other students the beauty of astronomy at the Flandrau planetarium. Named in accordance with a proposal by T. Gehrels that naming rights for (3291) and the Palomar discovery (3290) be interchanged, so that this and the following three names can be in sequence.

(3292) Sather = 2631 P-L
Discovered 1960 Sept. 24 by C. J. van Houten and I. van Houten-Groeneveld on plates taken by T. Gehrels at Palomar.
Named in honor of Lunar and Planetary Laboratory research assistant and high-school teacher Bob Sather, who has published lightcurves of asteroids and discovered a new method of determining the orientation of asteroidal rotational axes in space.

(3293) Rontaylor = 4650 P-L
Discovered 1960 Sept. 24 by C. J. van Houten and I. van Houten-Groeneveld on plates taken by T. Gehrels at Palomar.
Named in honor of Ron Taylor, internationally known expert in the determination of asteroid shapes, sense of rotation, and orientation of rotational axes in space. A research specialist at the Lunar and Planetary Laboratory, he is also a dedicated high-school teacher.

(3294) Carlvesely = 6563 P-L
Discovered 1960 Sept. 24 by C. J. van Houten and I. van Houten-Groeneveld on plates taken by T. Gehrels at Palomar.
Named in honor of Carl Vesely, high-school teacher and research assistant at the Lunar and Planetary Laboratory who published lightcurves of asteroids. He also assisted G. Van Biesbroeck in his comet observations and participated extensively in the completion of Van Biesbroeck’s work for publication after the latter’s death in 1974.

(3318) Blixen = 1985 HB
Discovered 1985 Apr. 23 by P. Jensen at Brorfelde.
Named in memory of the celebrated Danish writer Karen Blixen (1885-1962) on the hundredth anniversary of her birth. Among her best known writings are "Seven Gothic Tales" (1934) and the memory-novel "Out of Africa" (1937). An American screen version of the latter was produced in 1985.

(3369) Freuchen = 1985 UZ
Discovered 1985 Oct. 18 by K. Augustesen and P. Jensen at Brorfelde.
Named in memory of the well-known Danish polar explorer and writer Peter Freuchen (1886-1957) on the hundredth anniversary of his birth. He participated in several arctic expeditions to Greenland, and in 1910 he was co-founder of the Thule trading station, which he led until 1919. Name proposed by the second discoverer.

(3449) Abell = 1978 VR9

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

Named in memory of George O. Abell (1927-1984), astronomer at the University of California at Los Angeles, noted author, lecturer, educator, popularizer of astronomy and long-time director of the Summer Science Program of Thacher School in Ojai, California. As a graduate student, he took a large fraction of the plates for the Palomar-National Geographic Sky Survey, and his analysis of them produced the Abell catalogue of rich clusters of galaxies. In addition, he discovered a new class of planetary nebulae and showed that planetary nebulae represent a normal phase in the evolution of solar-mass stars in the disks of galaxies. Name proposed by the first discoverer following a suggestion from D. A. Pierce.

(3454) Lieske = 1981 WB1

Discovered 1981 Nov. 24 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory.

Named in honor of Jay Henry Lieske, astronomer at the Jet Propulsion Laboratory, well known for his work on the Galilean satellites, ephemerides and astronomical constants, the precessional formulation in the J2000 system and for an accurate determination of the solar parallax from the motion of (433) Eros. Name proposed by the discoverer following a suggestion from L. D. Schmadel, who also prepared the citation.

(3455) Kristensen = 1985 QC

Discovered 1985 Aug. 20 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory.

Named in honor of Leif Kahl Kristensen, teacher in theoretical physics at the University of Aarhus, who has extensively discussed the orbit of (51) Nemausa and has thereby derived equinox and equator corrections to the FK4 system. In addition, he has worked on the recovery of long-lost minor planets, on orbit determinations and identifications. Name proposed by the discoverer following a suggestion by L. D. Schmadel, who also prepared the citation.

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EPHEMERIDES.

1986 PA a,e,i = 1.06, 0.44, 11 Elements MPC 11155

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986 09 07		18 06.86	-16 49.5	0.329	1.153	107.9	56.3	17.7
1986 09 17		17 48.16	-21 52.5					
1986 09 27		17 33.33	-26 34.5	0.347	1.008	81.0	79.1	18.3
1986 10 07		17 17.91	-31 03.8					
1986 10 17		16 55.19	-35 16.3	0.343	0.846	54.7	106.0	19.1
1986 10 27		16 16.59	-38 21.5					
1986 11 06		15 21.07	-38 10.0	0.348	0.688	24.1	143.9	22.4
1986 11 16		14 30.40	-33 23.5					
1986 11 26		14 08.88	-27 00.4	0.489	0.593	26.9	131.3	21.1
1986 12 06		14 15.68	-22 17.8					
1986 12 16		14 39.06	-19 41.4	0.750	0.631	39.9	90.5	19.4
1986 12 26		15 09.64	-18 24.1					
1987 01 05		15 42.14	-17 41.9	0.976	0.770	46.3	67.3	19.5
1987 01 15		16 14.09	-17 08.8					
1987 01 25		16 44.52	-16 32.3	1.117	0.934	52.3	56.5	19.9
1987 02 04		17 13.04	-15 46.6					
1987 02 14		17 39.51	-14 49.8	1.176	1.088	59.6	51.5	20.2
1987 02 24		18 03.91	-13 41.4					
1987 03 06		18 26.22	-12 22.0	1.168	1.221	68.3	49.0	20.4

1987 03 16	18 46.36	-10 52.5					
1987 03 26	19 04.30	-09 14.1	1.105	1.330	78.3	47.3	20.4
1987 04 05	19 19.85	-07 28.0					
1987 04 15	19 32.77	-05 36.0	0.998	1.415	89.9	45.2	20.3
1987 04 25	19 42.73	-03 39.5					
1987 05 05	19 49.17	-01 41.4	0.865	1.476	103.7	41.6	20.0

Comet Wilson (1986l) Elements MPC 11153

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	m1
1986 09 07	21 16.37	+18 53.0	2.425	3.295	144.1	10.3	10.6
1986 09 17	20 55.72	+15 35.1					
1986 09 27	20 37.19	+11 57.1	2.383	3.080	125.9	15.3	10.3
1986 10 07	20 21.62	+08 14.5					
1986 10 17	20 09.40	+04 40.6	2.486	2.862	101.8	19.9	10.0
1986 10 27	20 00.44	+01 23.8					
1986 11 06	19 54.49	-01 32.6	2.657	2.641	78.3	21.6	9.8
1986 11 16	19 51.15	-04 08.2					
1986 11 26	19 50.02	-06 24.8	2.819	2.420	56.6	19.9	9.6
1986 12 06	19 50.71	-08 25.2					
1986 12 16	19 52.87	-10 12.3	2.911	2.198	36.4	15.4	9.2

1986 RA a,e,i = 3.27, 0.62, 19 Elements MPC 11155

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986 09 07	21 26.33	+14 14.0	0.252	1.230	149.0	25.0	14.0
1986 09 17	22 06.81	+02 08.1					
1986 09 27	22 47.67	-09 14.7	0.274	1.259	156.7	18.4	14.0
1986 10 07	23 24.28	-17 17.4					
1986 10 17	23 54.89	-21 44.5	0.394	1.331	142.3	27.2	15.2
1986 10 27	00 19.86	-23 31.8					
1986 11 06	00 40.60	-23 33.7	0.576	1.436	130.9	31.4	16.3
1986 11 16	00 58.59	-22 28.4					
1986 11 26	01 14.88	-20 42.0	0.802	1.564	121.6	32.5	17.2
1986 12 06	01 30.25	-18 30.8					
1986 12 16	01 45.20	-16 06.0	1.068	1.706	112.3	32.3	18.0
1986 12 26	02 00.01	-13 35.6					
1987 01 05	02 14.87	-11 04.8	1.371	1.854	102.7	31.2	18.7
1987 01 15	02 29.88	-08 37.4					
1987 01 25	02 45.06	-06 16.1	1.703	2.006	92.6	29.4	19.3
1987 02 04	03 00.45	-04 02.5					
1987 02 14	03 16.03	-01 58.1	2.056	2.157	82.2	27.0	19.8
1987 02 24	03 31.78	-00 03.5					
1987 03 06	03 47.67	+01 40.7	2.418	2.307	71.6	24.1	20.2
1987 03 16	04 03.67	+03 14.1					
1987 03 26	04 19.73	+04 36.7	2.777	2.453	61.0	20.8	20.6
1987 04 05	04 35.82	+05 48.5					
1987 04 15	04 51.89	+06 49.5	3.120	2.596	50.3	17.3	20.8

(3288) Seleucus a,e,i = 2.03, 0.46, 6 Elements MPC 9829

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986 09 07	03 01.53	+18 13.0	2.383	2.959	115.4	17.9	20.4
1986 09 17	02 59.92	+17 57.9					
1986 09 27	02 55.70	+17 30.1	2.141	2.950	136.5	13.5	20.0
1986 10 07	02 48.90	+16 49.2					
1986 10 17	02 39.87	+15 55.5	1.977	2.935	160.3	6.6	19.6
1986 10 27	02 29.31	+14 51.6					
1986 11 06	02 18.15	+13 42.0	1.925	2.913	174.1	2.0	19.3
1986 11 16	02 07.52	+12 32.7					
1986 11 26	01 58.37	+11 30.3	1.996	2.885	148.6	10.3	19.7
1986 12 06	01 51.42	+10 39.9					

1986 12 16	01 47.06	+10 04.8	2.168	2.851	125.2	16.4	20.1
1986 12 26	01 45.37	+09 45.8					
1987 01 05	01 46.25	+09 42.5	2.398	2.811	104.5	19.8	20.4
1987 01 15	01 49.48	+09 53.5					
1987 01 25	01 54.79	+10 16.5	2.646	2.764	86.4	20.8	20.6
1987 02 04	02 01.95	+10 49.6					
1987 02 14	02 10.71	+11 30.7	2.881	2.710	70.2	20.0	20.7

1986 JK a,e,i = 2.80, 0.68, 2 Elements MPC 11147

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986 09 07	03 55.21	+16 50.0	0.628	1.305	103.3	48.7	20.2
1986 09 17	03 50.32	+16 47.7					
1986 09 27	03 39.79	+16 28.0	0.661	1.494	126.5	32.6	20.2
1986 10 07	03 24.35	+15 50.8					
1986 10 17	03 05.89	+14 59.2	0.728	1.683	154.5	14.8	20.2
1986 10 27	02 47.04	+14 00.8					
1986 11 06	02 30.27	+13 05.6	0.879	1.869	176.3	2.0	20.3
1986 11 16	02 17.29	+12 22.9					
1986 11 26	02 08.66	+11 57.3	1.128	2.048	151.1	13.4	21.5

1981 EC20 a,e,i = 2.40, 0.23, 1 Elements MPC 11149

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986 09 07	01 36.82	+12 20.1	1.038	1.901	136.6	21.3	16.4
1986 09 17	01 34.28	+12 10.2					
1986 09 27	01 28.54	+11 39.0	0.962	1.929	158.2	11.1	15.9
1986 10 07	01 20.53	+10 50.3					
1986 10 17	01 11.74	+09 52.1	0.966	1.962	176.7	1.7	15.6
1986 10 27	01 03.78	+08 54.7					
1986 11 06	00 57.96	+08 07.5	1.063	2.000	153.6	12.7	16.3
1986 11 16	00 55.12	+07 37.5					
1986 11 26	00 55.50	+07 27.5	1.239	2.042	132.7	20.8	16.9
1986 12 06	00 58.96	+07 37.2					
1986 12 16	01 05.19	+08 05.0	1.473	2.088	114.9	25.3	17.5
1986 12 26	01 13.76	+08 47.6					
1987 01 05	01 24.30	+09 42.1	1.740	2.135	99.5	27.0	17.9
1987 01 15	01 36.48	+10 45.7					
1987 01 25	01 50.00	+11 55.4	2.024	2.185	85.8	26.7	18.3
1987 02 04	02 04.65	+13 09.0					
1987 02 14	02 20.24	+14 24.2	2.310	2.236	73.3	25.0	18.6

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

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986 09 07	02 26.37	+09 30.8	1.400	2.153	126.1	22.2	17.8
1986 09 17	02 25.19	+08 47.6					
1986 09 27	02 20.73	+07 49.3	1.283	2.193	147.1	14.4	17.5
1986 10 07	02 13.37	+06 39.8					
1986 10 17	02 04.01	+05 26.3	1.244	2.232	169.6	4.6	17.1
1986 10 27	01 53.95	+04 17.4					
1986 11 06	01 44.56	+03 21.6	1.309	2.270	161.4	8.0	17.4
1986 11 16	01 37.08	+02 45.0					
1986 11 26	01 32.22	+02 30.2	1.471	2.307	138.9	16.3	17.9
1986 12 06	01 30.31	+02 36.8					
1986 12 16	01 31.31	+03 02.5	1.704	2.343	118.9	21.6	18.4
1986 12 26	01 34.96	+03 44.0					
1987 01 05	01 40.95	+04 38.1	1.978	2.377	101.4	23.9	18.8
1987 01 15	01 48.95	+05 41.9					
1987 01 25	01 58.63	+06 52.4	2.268	2.410	86.1	24.1	19.2
1987 02 04	02 09.76	+08 07.5					
1987 02 14	02 22.10	+09 25.1	2.554	2.440	72.2	22.7	19.4

1978 SW6 a,e,i = 2.46, 0.12, 10 Elements MPC 11142

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	09 07	03 10.06	+23 02.6	2.042	2.595	112.1	21.1	17.7
1986	09 17	03 10.68	+23 53.2					
1986	09 27	03 08.36	+24 34.8	1.844	2.616	131.3	16.7	17.4
1986	10 07	03 03.01	+25 04.9					
1986	10 17	02 54.91	+25 21.0	1.709	2.636	152.9	9.9	17.0
1986	10 27	02 44.74	+25 21.4					
1986	11 06	02 33.59	+25 06.2	1.672	2.655	170.4	3.6	16.7
1986	11 16	02 22.77	+24 38.7					
1986	11 26	02 13.50	+24 04.7	1.748	2.672	154.4	9.2	17.1
1986	12 06	02 06.65	+23 30.7					
1986	12 16	02 02.71	+23 02.5	1.923	2.688	132.5	15.7	17.5
1986	12 26	02 01.75	+22 44.1					
1987	01 05	02 03.63	+22 37.1	2.166	2.702	112.7	19.6	17.9
1987	01 15	02 08.07	+22 42.0					
1987	01 25	02 14.75	+22 57.6	2.443	2.714	95.1	21.2	18.2
1987	02 04	02 23.38	+23 22.5					
1987	02 14	02 33.67	+23 55.0	2.726	2.725	79.5	20.9	18.5

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

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	09 07	03 02.64	+16 45.3	1.765	2.381	115.6	22.4	17.1
1986	09 17	03 04.65	+17 04.8					
1986	09 27	03 03.68	+17 13.6	1.582	2.396	134.7	17.3	16.7
1986	10 07	02 59.65	+17 10.9					
1986	10 17	02 52.86	+16 57.0	1.463	2.412	157.0	9.3	16.3
1986	10 27	02 44.04	+16 33.4					
1986	11 06	02 34.28	+16 03.3	1.439	2.430	178.3	0.7	15.8
1986	11 16	02 24.92	+15 31.9					
1986	11 26	02 17.14	+15 04.7	1.523	2.449	154.1	10.1	16.4
1986	12 06	02 11.78	+14 46.7					
1986	12 16	02 09.29	+14 40.9	1.700	2.469	131.9	17.3	16.9
1986	12 26	02 09.71	+14 48.3					
1987	01 05	02 12.90	+15 08.4	1.941	2.489	112.5	21.4	17.3
1987	01 15	02 18.58	+15 39.8					
1987	01 25	02 26.43	+16 20.4	2.215	2.510	95.6	23.0	17.7
1987	02 04	02 36.14	+17 07.9					
1987	02 14	02 47.46	+18 00.4	2.497	2.532	80.6	22.6	18.0

1982 RK1 a,e,i = 2.40, 0.21, 4 Elements MPC 11154

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	09 07	03 10.76	+23 00.4	1.642	2.224	112.0	24.9	18.3
1986	09 17	03 13.20	+23 28.9					
1986	09 27	03 12.28	+23 43.6	1.486	2.271	130.8	19.5	18.0
1986	10 07	03 07.92	+23 42.3					
1986	10 17	03 00.48	+23 23.5	1.387	2.319	152.8	11.3	17.6
1986	10 27	02 50.78	+22 47.2					
1986	11 06	02 40.09	+21 56.4	1.378	2.366	173.7	2.6	17.3
1986	11 16	02 29.91	+20 57.4					
1986	11 26	02 21.52	+19 58.3	1.477	2.412	156.1	9.5	17.8
1986	12 06	02 15.77	+19 06.5					
1986	12 16	02 13.08	+18 27.5	1.671	2.458	133.9	16.8	18.4
1986	12 26	02 13.40	+18 03.6					
1987	01 05	02 16.52	+17 54.8	1.933	2.502	114.2	21.0	18.8
1987	01 15	02 22.12	+17 59.8					
1987	01 25	02 29.82	+18 16.5	2.230	2.545	97.0	22.6	19.2
1987	02 04	02 39.31	+18 42.3					
1987	02 14	02 50.32	+19 15.0	2.538	2.586	81.7	22.2	19.5

1981 EG28 a,e,i = 2.34, 0.14, 5 Elements MPC 11150

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986 09 07	03 21.90	+16 47.5	1.485	2.073	111.1	27.0	18.5
1986 09 17	03 27.74	+16 36.2					
1986 09 27	03 30.34	+16 09.8	1.314	2.093	128.8	21.9	18.1
1986 10 07	03 29.41	+15 28.6					
1986 10 17	03 25.02	+14 34.3	1.194	2.116	150.0	13.6	17.7
1986 10 27	03 17.69	+13 30.3					
1986 11 06	03 08.44	+12 22.5	1.154	2.141	172.6	3.4	17.3
1986 11 16	02 58.74	+11 18.8					
1986 11 26	02 50.09	+10 27.0	1.215	2.168	159.6	9.1	17.6
1986 12 06	02 43.68	+09 52.7					
1986 12 16	02 40.23	+09 38.6	1.370	2.196	137.2	17.7	18.2
1986 12 26	02 39.94	+09 44.1					
1987 01 05	02 42.70	+10 06.8	1.591	2.226	117.7	23.0	18.7
1987 01 15	02 48.23	+10 43.4					
1987 01 25	02 56.15	+11 30.3	1.851	2.256	101.0	25.4	19.1
1987 02 04	03 06.12	+12 24.2					
1987 02 14	03 17.84	+13 22.3	2.125	2.286	86.4	25.5	19.5

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

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986 09 07	03 34.52	+16 03.9	2.845	3.304	108.4	16.8	18.2
1986 09 17	03 36.42	+16 04.0					
1986 09 27	03 36.25	+15 57.3	2.577	3.284	127.4	14.0	17.8
1986 10 07	03 33.90	+15 43.7					
1986 10 17	03 29.46	+15 23.9	2.370	3.264	148.8	9.1	17.5
1986 10 27	03 23.20	+14 59.0					
1986 11 06	03 15.62	+14 30.7	2.259	3.243	171.6	2.5	17.1
1986 11 16	03 07.46	+14 01.8					
1986 11 26	02 59.52	+13 35.5	2.264	3.222	163.2	5.1	17.2
1986 12 06	02 52.60	+13 14.8					
1986 12 16	02 47.33	+13 02.6	2.382	3.200	140.1	11.4	17.5
1986 12 26	02 44.10	+13 00.2					
1987 01 05	02 43.09	+13 08.2	2.585	3.177	118.8	15.7	17.8
1987 01 15	02 44.30	+13 26.3					
1987 01 25	02 47.62	+13 53.2	2.835	3.155	99.7	17.9	18.1
1987 02 04	02 52.87	+14 27.7					
1987 02 14	02 59.86	+15 08.2	3.101	3.132	82.7	18.2	18.3

1978 JT1 a,e,i = 3.20, 0.17, 2 Elements MPC 11144

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986 09 07	04 51.24	+22 57.0	3.475	3.608	89.4	16.2	18.8
1986 09 17	04 55.87	+23 08.0					
1986 09 27	04 58.73	+23 16.2	3.203	3.627	107.1	15.3	18.6
1986 10 07	04 59.61	+23 21.7					
1986 10 17	04 58.40	+23 24.2	2.958	3.645	126.9	12.6	18.3
1986 10 27	04 55.08	+23 23.7					
1986 11 06	04 49.78	+23 19.5	2.777	3.661	148.8	8.1	18.0
1986 11 16	04 42.85	+23 11.4					
1986 11 26	04 34.83	+22 59.5	2.696	3.676	172.4	2.0	17.7
1986 12 06	04 26.42	+22 44.5					
1986 12 16	04 18.39	+22 28.0	2.736	3.690	163.4	4.4	17.9
1986 12 26	04 11.43	+22 12.0					
1987 01 05	04 06.07	+21 58.5	2.893	3.702	140.1	9.8	18.2
1987 01 15	04 02.65	+21 49.1					
1987 01 25	04 01.30	+21 44.9	3.139	3.713	118.7	13.5	18.5
1987 02 04	04 01.99	+21 46.2					
1987 02 14	04 04.62	+21 52.6	3.436	3.723	99.2	15.2	18.8

1979 SL9 a,e,i = 3.14, 0.15, 1 Elements MPC 11154

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986 10 17	07 12.53	+21 04.1	3.353	3.595	95.9	16.0	17.7
1986 10 27	07 16.06	+20 55.1					
1986 11 06	07 17.68	+20 49.3	3.057	3.586	114.6	14.6	17.4
1986 11 16	07 17.24	+20 47.4					
1986 11 26	07 14.66	+20 49.7	2.804	3.575	135.5	11.2	17.1
1986 12 06	07 10.00	+20 56.0					
1986 12 16	07 03.52	+21 05.4	2.630	3.563	158.4	5.8	16.8
1986 12 26	06 55.69	+21 16.6					
1987 01 05	06 47.17	+21 28.3	2.567	3.550	177.0	0.8	16.4
1987 01 15	06 38.78	+21 39.3					
1987 01 25	06 31.27	+21 49.0	2.628	3.535	153.3	7.2	16.8
1987 02 04	06 25.30	+21 57.1					
1987 02 14	06 21.31	+22 03.9	2.795	3.519	130.7	12.3	17.1
1987 02 24	06 19.50	+22 09.5					
1987 03 06	06 19.92	+22 14.1	3.033	3.502	110.2	15.4	17.4
1987 03 16	06 22.45	+22 17.3					
1987 03 26	06 26.92	+22 19.0	3.304	3.484	91.9	16.6	17.6

1980 VM1 a,e,i = 3.14, 0.23, 5 Elements MPC 11147

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986 10 17	07 32.03	+23 46.5	2.170	2.417	91.8	24.3	16.6
1986 10 27	07 43.28	+23 44.2					
1986 11 06	07 52.44	+23 47.0	1.925	2.412	107.2	23.1	16.3
1986 11 16	07 59.16	+23 57.3					
1986 11 26	08 03.10	+24 16.7	1.706	2.411	125.0	19.6	15.9
1986 12 06	08 03.98	+24 46.2					
1986 12 16	08 01.68	+25 24.7	1.538	2.415	145.6	13.3	15.5
1986 12 26	07 56.41	+26 09.0					
1987 01 05	07 48.76	+26 54.3	1.453	2.424	168.0	4.8	15.1
1987 01 15	07 39.84	+27 34.5					
1987 01 25	07 31.00	+28 04.9	1.473	2.437	164.8	6.1	15.2
1987 02 04	07 23.59	+28 23.1					
1987 02 14	07 18.65	+28 29.0	1.596	2.455	142.6	14.1	15.7
1987 02 24	07 16.74	+28 24.4					
1987 03 06	07 17.99	+28 11.2	1.796	2.477	122.6	19.7	16.1
1987 03 16	07 22.22	+27 50.9					
1987 03 26	07 29.07	+27 24.3	2.045	2.502	105.4	22.6	16.5

1978 NY7 a,e,i = 3.19, 0.20, 3 Elements MPC 11146

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986 11 06	08 43.74	+19 01.6	3.548	3.758	94.5	15.2	18.9
1986 11 16	08 46.93	+18 55.4					
1986 11 26	08 48.33	+18 56.5	3.266	3.770	113.6	13.9	18.6
1986 12 06	08 47.82	+19 05.4					
1986 12 16	08 45.34	+19 22.0	3.024	3.781	134.6	10.7	18.4
1986 12 26	08 40.96	+19 45.6					
1987 01 05	08 34.90	+20 14.4	2.863	3.791	157.6	5.7	18.1
1987 01 15	08 27.60	+20 45.9					
1987 01 25	08 19.65	+21 17.3	2.815	3.799	177.6	0.6	17.7
1987 02 04	08 11.73	+21 45.9					
1987 02 14	08 04.56	+22 09.6	2.891	3.805	154.3	6.5	18.1
1987 02 24	07 58.72	+22 27.3					
1987 03 06	07 54.60	+22 38.7	3.075	3.810	131.9	11.2	18.5
1987 03 16	07 52.44	+22 43.8					
1987 03 26	07 52.26	+22 43.2	3.334	3.813	111.4	14.1	18.7
1987 04 05	07 53.99	+22 37.3					
1987 04 15	07 57.48	+22 26.4	3.629	3.815	93.0	15.2	18.9

1977 JD a,e,i = 2.30, 0.10, 7 Elements MPC 10940

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986 11 26	09 59.00	+20 31.5	2.170	2.508	98.1	22.9	18.6
1986 12 06	10 06.22	+20 28.8					
1986 12 16	10 11.10	+20 40.2	1.909	2.496	115.5	20.8	18.3
1986 12 26	10 13.29	+21 07.0					
1987 01 05	10 12.47	+21 49.4	1.684	2.483	135.4	16.1	17.9
1987 01 15	10 08.46	+22 44.7					
1987 01 25	10 01.41	+23 47.7	1.531	2.468	157.2	8.9	17.4
1987 02 04	09 51.85	+24 50.5					
1987 02 14	09 40.88	+25 43.9	1.478	2.451	167.6	4.9	17.2
1987 02 24	09 29.89	+26 20.3					
1987 03 06	09 20.31	+26 35.6	1.533	2.433	148.2	12.4	17.5
1987 03 16	09 13.28	+26 29.7					
1987 03 26	09 09.39	+26 05.2	1.677	2.414	127.1	19.2	17.9
1987 04 05	09 08.77	+25 25.3					
1987 04 15	09 11.27	+24 33.1	1.876	2.394	108.7	23.4	18.2
1987 04 25	09 16.50	+23 30.8					
1987 05 05	09 24.06	+22 20.0	2.097	2.373	92.9	25.1	18.5

1980 CT a,e,i = 2.35, 0.19, 10 Elements MPC 8793

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986 11 26	09 50.37	+26 38.4	1.475	1.937	101.9	29.9	17.4
1986 12 06	10 01.95	+26 36.5					
1986 12 16	10 10.36	+26 49.7	1.302	1.960	117.3	26.5	17.1
1986 12 26	10 15.10	+27 18.8					
1987 01 05	10 15.71	+28 02.5	1.162	1.987	135.6	20.3	16.7
1987 01 15	10 12.00	+28 55.2					
1987 01 25	10 04.24	+29 47.4	1.082	2.019	155.2	11.8	16.3
1987 02 04	09 53.43	+30 27.0					
1987 02 14	09 41.31	+30 43.0	1.090	2.054	162.7	8.2	16.3
1987 02 24	09 29.92	+30 30.1					
1987 03 06	09 20.97	+29 49.4	1.192	2.092	146.4	15.2	16.7
1987 03 16	09 15.53	+28 46.2					
1987 03 26	09 13.85	+27 27.3	1.373	2.132	127.5	21.8	17.3
1987 04 05	09 15.70	+25 57.8					
1987 04 15	09 20.60	+24 21.4	1.605	2.174	110.8	25.6	17.7
1987 04 25	09 27.99	+22 40.3					
1987 05 05	09 37.35	+20 55.4	1.866	2.216	96.3	26.9	18.1

1980 DS a,e,i = 2.32, 0.10, 6 Elements MPC 10292

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986 11 26	09 55.48	+09 53.7	2.032	2.340	95.3	24.8	17.9
1986 12 06	10 02.96	+09 22.9					
1986 12 16	10 08.08	+09 06.4	1.804	2.362	112.4	22.7	17.6
1986 12 26	10 10.53	+09 07.0					
1987 01 05	10 10.05	+09 26.9	1.606	2.383	132.5	17.7	17.2
1987 01 15	10 06.58	+10 06.7					
1987 01 25	10 00.30	+11 04.9	1.472	2.403	155.6	9.7	16.8
1987 02 04	09 51.82	+12 16.7					
1987 02 14	09 42.16	+13 34.5	1.435	2.423	179.0	0.4	16.3
1987 02 24	09 32.61	+14 49.7					
1987 03 06	09 24.41	+15 55.1	1.510	2.441	154.1	10.2	16.9
1987 03 16	09 18.54	+16 45.5					
1987 03 26	09 15.51	+17 19.2	1.679	2.458	131.7	17.6	17.4
1987 04 05	09 15.44	+17 36.4					
1987 04 15	09 18.18	+17 38.0	1.910	2.474	112.5	22.0	17.8
1987 04 25	09 23.41	+17 25.7					
1987 05 05	09 30.77	+17 00.8	2.170	2.488	96.1	23.8	18.1

1978 QJ2 a,e,i = 3.15, 0.16, 1 Elements MPC 9291

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986 11 26	10 02.88	+13 14.6	3.348	3.568	94.8	16.0	17.6
1986 12 06	10 06.55	+12 57.6					
1986 12 16	10 08.49	+12 50.1	3.042	3.553	113.7	14.7	17.4
1986 12 26	10 08.55	+12 52.9					
1987 01 05	10 06.63	+13 06.3	2.777	3.537	134.5	11.4	17.1
1987 01 15	10 02.76	+13 29.7					
1987 01 25	09 57.15	+14 01.4	2.590	3.519	157.4	6.2	16.7
1987 02 04	09 50.18	+14 38.6					
1987 02 14	09 42.44	+15 17.6	2.513	3.500	177.9	0.6	16.3
1987 02 24	09 34.65	+15 54.5					
1987 03 06	09 27.54	+16 26.1	2.558	3.480	154.6	7.0	16.7
1987 03 16	09 21.75	+16 49.6					
1987 03 26	09 17.70	+17 04.1	2.708	3.459	132.3	12.3	17.0
1987 04 05	09 15.66	+17 08.9					
1987 04 15	09 15.68	+17 04.4	2.930	3.436	112.1	15.7	17.3
1987 04 25	09 17.66	+16 51.1					
1987 05 05	09 21.46	+16 29.5	3.188	3.413	94.1	17.1	17.5

1979 SO11 a,e,i = 3.15, 0.20, 1 Elements MPC 10830

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986 11 26	10 05.73	+11 17.7	3.346	3.545	93.5	16.1	19.1
1986 12 06	10 09.15	+10 59.4					
1986 12 16	10 10.81	+10 50.9	3.079	3.572	112.4	14.8	18.9
1986 12 26	10 10.58	+10 53.1					
1987 01 05	10 08.40	+11 06.3	2.850	3.597	133.4	11.4	18.7
1987 01 15	10 04.35	+11 29.9					
1987 01 25	09 58.66	+12 02.3	2.698	3.621	156.4	6.3	18.4
1987 02 04	09 51.73	+12 41.0					
1987 02 14	09 44.16	+13 22.2	2.656	3.643	179.5	0.1	18.0
1987 02 24	09 36.63	+14 02.3					
1987 03 06	09 29.80	+14 38.1	2.737	3.664	155.7	6.4	18.4
1987 03 16	09 24.24	+15 06.9					
1987 03 26	09 20.35	+15 27.3	2.926	3.683	133.4	11.4	18.8
1987 04 05	09 18.30	+15 38.9					
1987 04 15	09 18.16	+15 41.5	3.190	3.701	113.1	14.4	19.1
1987 04 25	09 19.81	+15 35.6					
1987 05 05	09 23.13	+15 21.8	3.493	3.717	94.9	15.7	19.3

1980 FG12 a,e,i = 2.42, 0.26, 23 Elements MPC 10952

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986 11 26	10 04.01	-10 31.5	2.938	3.036	86.2	18.9	19.1
1986 12 06	10 08.67	-11 45.5					
1986 12 16	10 11.50	-12 51.7	2.655	3.023	102.4	18.5	18.9
1986 12 26	10 12.30	-13 47.0					
1987 01 05	10 10.88	-14 27.3	2.391	3.007	120.1	16.4	18.6
1987 01 15	10 07.20	-14 48.2					
1987 01 25	10 01.40	-14 45.6	2.177	2.987	138.5	12.6	18.2
1987 02 04	09 53.84	-14 16.1					
1987 02 14	09 45.21	-13 18.7	2.049	2.964	153.2	8.6	17.9
1987 02 24	09 36.34	-11 55.8					
1987 03 06	09 28.17	-10 12.9	2.028	2.938	151.4	9.3	17.9
1987 03 16	09 21.53	-08 18.3					
1987 03 26	09 16.98	-06 20.7	2.114	2.908	135.2	14.0	18.1
1987 04 05	09 14.83	-04 27.8					
1987 04 15	09 15.16	-02 45.5	2.282	2.876	116.7	18.2	18.4
1987 04 25	09 17.83	-01 17.2					
1987 05 05	09 22.65	-00 04.7	2.497	2.840	99.3	20.5	18.6

1982 WB a,e,i = 2.36, 0.21, 4 Elements MPC 10625

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	11 26	09 55.59	+09 37.7	1.667	2.013	95.2	29.2	18.3
1986	12 06	10 04.88	+08 16.3					
1986	12 16	10 11.43	+07 06.2	1.483	2.052	110.9	26.6	18.0
1986	12 26	10 14.92	+06 10.6					
1987	01 05	10 15.04	+05 32.8	1.324	2.094	129.8	21.2	17.6
1987	01 15	10 11.70	+05 15.2					
1987	01 25	10 05.16	+05 18.6	1.219	2.139	151.9	12.5	17.2
1987	02 04	09 56.14	+05 41.5					
1987	02 14	09 45.89	+06 19.2	1.201	2.185	172.9	3.2	16.9
1987	02 24	09 35.89	+07 04.7					
1987	03 06	09 27.54	+07 50.4	1.287	2.231	156.4	10.2	17.4
1987	03 16	09 21.86	+08 29.9					
1987	03 26	09 19.28	+08 59.1	1.463	2.279	134.8	18.1	17.9
1987	04 05	09 19.82	+09 16.1					
1987	04 15	09 23.23	+09 20.0	1.703	2.326	116.1	22.8	18.4
1987	04 25	09 29.11	+09 11.3					
1987	05 05	09 37.04	+08 50.5	1.977	2.372	100.1	24.7	18.9

7607 P-L a,e,i = 2.36, 0.21, 3 Elements MPC 8386

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	11 26	09 47.43	+14 32.2	1.523	1.937	98.8	30.2	19.0
1986	12 06	09 58.41	+13 59.4					
1986	12 16	10 06.59	+13 42.5	1.344	1.967	114.4	27.1	18.7
1986	12 26	10 11.60	+13 44.7					
1987	01 05	10 13.06	+14 08.1	1.193	2.001	133.4	20.9	18.3
1987	01 15	10 10.82	+14 52.5					
1987	01 25	10 05.10	+15 53.7	1.100	2.039	156.0	11.3	17.9
1987	02 04	09 56.63	+17 04.3					
1987	02 14	09 46.79	+18 13.5	1.095	2.080	175.2	2.3	17.5
1987	02 24	09 37.20	+19 11.3					
1987	03 06	09 29.40	+19 51.0	1.189	2.124	153.6	12.0	18.1
1987	03 16	09 24.46	+20 10.2					
1987	03 26	09 22.81	+20 09.9	1.368	2.169	132.3	19.9	18.7
1987	04 05	09 24.41	+19 52.2					
1987	04 15	09 28.95	+19 19.6	1.605	2.216	114.4	24.4	19.3
1987	04 25	09 35.95	+18 34.6					
1987	05 05	09 44.96	+17 38.7	1.873	2.263	99.1	26.1	19.7

1981 EP13 a,e,i = 2.15, 0.12, 5 Elements MPC 10159

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	11 26	10 06.52	+12 03.9	2.103	2.377	93.5	24.5	19.5
1986	12 06	10 13.55	+11 09.7					
1986	12 16	10 18.22	+10 25.9	1.856	2.387	110.6	22.7	19.2
1986	12 26	10 20.21	+09 54.8					
1987	01 05	10 19.20	+09 38.4	1.636	2.394	130.4	18.2	18.8
1987	01 15	10 15.05	+09 37.6					
1987	01 25	10 07.89	+09 51.8	1.478	2.399	153.5	10.6	18.3
1987	02 04	09 58.24	+10 18.8					
1987	02 14	09 47.13	+10 53.4	1.415	2.402	177.4	1.1	17.8
1987	02 24	09 35.90	+11 29.6					
1987	03 06	09 25.92	+12 01.9	1.463	2.402	155.5	9.9	18.3
1987	03 16	09 18.33	+12 25.6					
1987	03 26	09 13.73	+12 38.6	1.609	2.399	132.6	17.8	18.7
1987	04 05	09 12.32	+12 39.9					
1987	04 15	09 13.95	+12 29.7	1.817	2.394	113.1	22.7	19.1
1987	04 25	09 18.30	+12 08.3					
1987	05 05	09 24.99	+11 36.3	2.053	2.387	96.4	24.8	19.5

1981 EO27 a,e,i = 2.14, 0.20, 7 Elements MPC 8288

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986 11 26	10 06.54	+04 57.6	2.346	2.561	91.0	22.7	19.8
1986 12 06	10 13.15	+04 05.1					
1986 12 16	10 17.73	+03 23.0	2.066	2.549	108.0	21.5	19.5
1986 12 26	10 19.98	+02 54.2					
1987 01 05	10 19.61	+02 41.8	1.811	2.532	127.5	17.9	19.1
1987 01 15	10 16.44	+02 48.4					
1987 01 25	10 10.53	+03 15.8	1.613	2.513	149.7	11.4	18.7
1987 02 04	10 02.22	+04 03.7					
1987 02 14	09 52.32	+05 08.7	1.509	2.490	171.6	3.3	18.2
1987 02 24	09 41.94	+06 24.6					
1987 03 06	09 32.34	+07 43.5	1.517	2.463	157.6	8.8	18.4
1987 03 16	09 24.67	+08 57.4					
1987 03 26	09 19.67	+10 00.7	1.627	2.434	134.6	17.0	18.8
1987 04 05	09 17.70	+10 49.7					
1987 04 15	09 18.76	+11 23.0	1.805	2.401	114.5	22.3	19.1
1987 04 25	09 22.63	+11 40.7					
1987 05 05	09 28.99	+11 43.2	2.015	2.366	97.3	25.0	19.4

1973 QD2 a,e,i = 3.07, 0.27, 2 Elements MPC 11057

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986 11 26	10 14.63	+12 34.5	3.739	3.898	91.9	14.7	18.5
1986 12 06	10 17.87	+12 23.2					
1986 12 16	10 19.51	+12 21.2	3.429	3.892	111.0	13.7	18.3
1986 12 26	10 19.43	+12 29.1					
1987 01 05	10 17.55	+12 47.3	3.157	3.883	131.9	10.9	18.0
1987 01 15	10 13.88	+13 15.1					
1987 01 25	10 08.59	+13 50.9	2.960	3.873	154.6	6.2	17.7
1987 02 04	10 01.98	+14 32.1					
1987 02 14	09 54.57	+15 15.3	2.873	3.860	177.3	0.7	17.3
1987 02 24	09 46.96	+15 56.8					
1987 03 06	09 39.79	+16 33.3	2.911	3.845	157.3	5.7	17.6
1987 03 16	09 33.65	+17 02.3					
1987 03 26	09 28.98	+17 22.3	3.060	3.828	134.7	10.7	17.9
1987 04 05	09 26.05	+17 32.9					
1987 04 15	09 24.98	+17 34.2	3.288	3.809	114.1	13.9	18.2
1987 04 25	09 25.72	+17 26.8					
1987 05 05	09 28.18	+17 11.2	3.557	3.788	95.4	15.4	18.4

(3399) 1979 SZ9 a,e,i = 3.10, 0.18, 0 Elements MPC 10525

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986 11 26	10 13.48	+11 07.9	3.357	3.526	91.6	16.2	18.5
1986 12 06	10 17.35	+10 46.3					
1986 12 16	10 19.48	+10 34.4	3.080	3.544	110.3	15.1	18.3
1986 12 26	10 19.76	+10 33.0					
1987 01 05	10 18.07	+10 42.7	2.837	3.561	131.1	12.0	18.1
1987 01 15	10 14.46	+11 03.1					
1987 01 25	10 09.12	+11 32.9	2.666	3.576	153.8	7.0	17.8
1987 02 04	10 02.39	+12 09.6					
1987 02 14	09 54.84	+12 49.8	2.603	3.590	177.8	0.6	17.4
1987 02 24	09 47.16	+13 29.6					
1987 03 06	09 40.01	+14 05.5	2.662	3.602	158.2	5.9	17.7
1987 03 16	09 34.04	+14 34.6					
1987 03 26	09 29.67	+14 55.3	2.832	3.613	135.7	11.1	18.1
1987 04 05	09 27.16	+15 06.9					
1987 04 15	09 26.58	+15 09.1	3.080	3.622	115.2	14.5	18.4
1987 04 25	09 27.85	+15 02.5					
1987 05 05	09 30.86	+14 47.6	3.369	3.630	96.8	16.0	18.6

1982 SL a,e,i = 2.20, 0.20, 3 Elements MPC 7470

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986 11 26	10 11.65	+08 07.8	2.074	2.312	91.0	25.3	18.9
1986 12 06	10 19.07	+07 13.7					
1986 12 16	10 24.10	+06 32.0	1.858	2.353	107.8	23.5	18.7
1986 12 26	10 26.47	+06 05.1					
1987 01 05	10 25.89	+05 55.7	1.664	2.393	127.5	19.0	18.4
1987 01 15	10 22.26	+06 05.3					
1987 01 25	10 15.74	+06 33.8	1.525	2.429	150.3	11.6	18.0
1987 02 04	10 06.83	+07 19.0					
1987 02 14	09 56.50	+08 15.7	1.479	2.464	174.2	2.3	17.5
1987 02 24	09 46.00	+09 16.9					
1987 03 06	09 36.59	+10 15.4	1.546	2.495	158.4	8.4	17.9
1987 03 16	09 29.31	+11 05.1					
1987 03 26	09 24.76	+11 42.7	1.714	2.523	135.5	16.1	18.4
1987 04 05	09 23.13	+12 06.5					
1987 04 15	09 24.33	+12 16.5	1.950	2.549	115.5	20.8	18.9
1987 04 25	09 28.05	+12 13.4					
1987 05 05	09 33.95	+11 58.2	2.222	2.571	98.4	22.8	19.2

(3431) Nakano a,e,i = 3.10, 0.04, 12 Elements MPC 10630

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986 11 26	10 16.50	+10 12.1	3.036	3.202	90.6	18.0	15.7
1986 12 06	10 21.05	+09 19.0					
1986 12 16	10 23.76	+08 33.6	2.752	3.205	108.6	16.9	15.4
1986 12 26	10 24.45	+07 57.0					
1987 01 05	10 22.97	+07 30.3	2.500	3.209	128.8	13.8	15.1
1987 01 15	10 19.32	+07 14.2					
1987 01 25	10 13.63	+07 08.5	2.315	3.211	151.0	8.5	14.8
1987 02 04	10 06.29	+07 12.1					
1987 02 14	09 57.92	+07 22.9	2.231	3.214	173.3	2.1	14.4
1987 02 24	09 49.29	+07 38.1					
1987 03 06	09 41.23	+07 54.3	2.266	3.216	159.8	6.1	14.6
1987 03 16	09 34.50	+08 08.3					
1987 03 26	09 29.60	+08 17.9	2.411	3.217	137.4	12.1	15.0
1987 04 05	09 26.81	+08 21.2					
1987 04 15	09 26.23	+08 17.2	2.635	3.218	117.1	16.1	15.3
1987 04 25	09 27.74	+08 05.4					
1987 05 05	09 31.17	+07 45.7	2.902	3.219	99.1	18.0	15.6

1972 RU3 a,e,i = 2.20, 0.15, 5 Elements MPC 8785

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986 11 26	10 16.53	+16 24.8	2.184	2.440	92.8	23.8	19.1
1986 12 06	10 24.20	+16 04.8					
1986 12 16	10 29.58	+15 58.7	1.944	2.459	109.9	22.1	18.8
1986 12 26	10 32.35	+16 08.1					
1987 01 05	10 32.20	+16 34.2	1.730	2.476	129.7	17.8	18.5
1987 01 15	10 28.95	+17 15.8					
1987 01 25	10 22.65	+18 09.7	1.578	2.491	152.2	10.6	18.1
1987 02 04	10 13.73	+19 10.1					
1987 02 14	10 03.10	+20 08.5	1.521	2.503	172.2	3.1	17.7
1987 02 24	09 52.03	+20 57.2					
1987 03 06	09 41.86	+21 30.2	1.577	2.512	155.2	9.5	18.0
1987 03 16	09 33.77	+21 44.8					
1987 03 26	09 28.45	+21 41.7	1.732	2.519	132.9	16.8	18.5
1987 04 05	09 26.19	+21 22.7					
1987 04 15	09 26.91	+20 50.4	1.951	2.523	113.4	21.4	18.9
1987 04 25	09 30.31	+20 06.9					
1987 05 05	09 36.04	+19 14.0	2.203	2.525	96.5	23.4	19.2

1982 TQ2 a,e,i = 2.18, 0.15, 5 Elements MPC 10292

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986 11 26	10 18.84	+11 40.0	2.225	2.443	90.6	23.8	19.2
1986 12 06	10 26.08	+10 48.0					
1986 12 16	10 31.08	+10 06.6	1.978	2.461	107.5	22.4	18.9
1986 12 26	10 33.56	+09 38.0					
1987 01 05	10 33.19	+09 24.1	1.755	2.476	127.1	18.5	18.5
1987 01 15	10 29.82	+09 25.6					
1987 01 25	10 23.50	+09 42.2	1.587	2.488	149.8	11.5	18.1
1987 02 04	10 14.61	+10 11.6					
1987 02 14	10 04.02	+10 48.8	1.513	2.498	174.9	2.0	17.6
1987 02 24	09 52.93	+11 28.2					
1987 03 06	09 42.63	+12 03.5	1.552	2.505	159.5	8.0	17.9
1987 03 16	09 34.31	+12 30.3					
1987 03 26	09 28.66	+12 45.8	1.693	2.509	136.1	16.0	18.4
1987 04 05	09 26.00	+12 49.2					
1987 04 15	09 26.30	+12 40.5	1.905	2.510	115.9	21.1	18.8
1987 04 25	09 29.29	+12 20.5					
1987 05 05	09 34.64	+11 49.9	2.151	2.509	98.6	23.4	19.1

1981 YY1 a,e,i = 2.79, 0.21, 8 Elements MPC 10758

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986 11 26	10 07.48	+09 53.6	2.155	2.410	92.6	24.2	17.6
1986 12 06	10 15.81	+09 31.3					
1986 12 16	10 21.93	+09 23.8	1.941	2.450	109.4	22.3	17.3
1986 12 26	10 25.58	+09 33.5					
1987 01 05	10 26.52	+10 02.2	1.754	2.492	128.9	17.9	17.0
1987 01 15	10 24.67	+10 50.2					
1987 01 25	10 20.18	+11 55.3	1.627	2.535	151.4	10.7	16.7
1987 02 04	10 13.47	+13 12.8					
1987 02 14	10 05.38	+14 35.3	1.594	2.579	175.2	1.8	16.3
1987 02 24	09 56.97	+15 54.4					
1987 03 06	09 49.33	+17 02.8	1.673	2.624	159.1	7.8	16.7
1987 03 16	09 43.42	+17 55.4					
1987 03 26	09 39.82	+18 30.3	1.854	2.668	136.7	14.9	17.2
1987 04 05	09 38.77	+18 47.7					
1987 04 15	09 40.25	+18 49.1	2.106	2.713	117.0	19.2	17.6
1987 04 25	09 44.02	+18 36.3					
1987 05 05	09 49.79	+18 11.1	2.398	2.758	100.0	21.1	18.0

1984 QN a,e,i = 2.77, 0.21, 7 Elements MPC 10517

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986 11 26	10 23.38	+13 05.3	3.149	3.302	90.1	17.4	18.4
1986 12 06	10 28.07	+12 34.8					
1986 12 16	10 31.00	+12 13.5	2.843	3.288	108.3	16.5	18.1
1986 12 26	10 31.96	+12 02.4					
1987 01 05	10 30.77	+12 02.4	2.566	3.272	128.6	13.6	17.8
1987 01 15	10 27.38	+12 13.1					
1987 01 25	10 21.86	+12 33.5	2.356	3.254	151.2	8.4	17.4
1987 02 04	10 14.53	+13 01.2					
1987 02 14	10 05.94	+13 32.4	2.248	3.233	175.2	1.5	17.0
1987 02 24	09 56.88	+14 03.1					
1987 03 06	09 48.18	+14 29.3	2.261	3.211	160.0	6.1	17.2
1987 03 16	09 40.68	+14 48.0					
1987 03 26	09 34.97	+14 57.3	2.385	3.187	136.9	12.4	17.6
1987 04 05	09 31.42	+14 56.7					
1987 04 15	09 30.16	+14 46.1	2.588	3.161	116.1	16.6	17.8
1987 04 25	09 31.11	+14 26.3					
1987 05 05	09 34.12	+13 57.7	2.831	3.132	97.8	18.6	18.1

(3375) 1981 JY1 a,e,i = 2.17, 0.03, 1 Elements MPC 10394

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	11 26	10 03.73	+10 54.8	1.821	2.128	93.8	27.6	17.8
1986	12 06	10 13.91	+09 57.6					
1986	12 16	10 21.87	+09 11.9	1.585	2.124	109.3	25.9	17.5
1986	12 26	10 27.25	+08 40.6					
1987	01 05	10 29.64	+08 27.1	1.373	2.121	127.6	21.5	17.0
1987	01 15	10 28.75	+08 33.6					
1987	01 25	10 24.50	+09 00.7	1.211	2.119	149.4	13.7	16.5
1987	02 04	10 17.18	+09 46.6					
1987	02 14	10 07.67	+10 45.3	1.132	2.117	174.1	2.7	16.0
1987	02 24	09 57.34	+11 48.3					
1987	03 06	09 47.77	+12 46.3	1.155	2.116	160.5	9.0	16.3
1987	03 16	09 40.41	+13 31.8					
1987	03 26	09 36.13	+14 00.8	1.270	2.115	137.5	18.6	16.8
1987	04 05	09 35.29	+14 11.9					
1987	04 15	09 37.80	+14 05.7	1.449	2.115	118.1	24.7	17.2
1987	04 25	09 43.30	+13 43.6					
1987	05 05	09 51.36	+13 06.8	1.661	2.116	102.1	27.8	17.6

1978 TU7 a,e,i = 2.38, 0.23, 9 Elements MPC 7608

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	11 26	10 23.74	+17 16.1	2.216	2.450	91.5	23.7	18.7
1986	12 06	10 31.83	+17 16.9					
1986	12 16	10 37.64	+17 33.7	2.003	2.498	108.6	21.9	18.4
1986	12 26	10 40.87	+18 08.0					
1987	01 05	10 41.23	+19 00.2	1.815	2.544	128.3	17.7	18.1
1987	01 15	10 38.57	+20 08.2					
1987	01 25	10 32.96	+21 27.3	1.688	2.588	150.0	11.0	17.8
1987	02 04	10 24.78	+22 50.3					
1987	02 14	10 14.89	+24 07.5	1.658	2.630	167.3	4.7	17.6
1987	02 24	10 04.46	+25 10.5					
1987	03 06	09 54.72	+25 53.3	1.740	2.669	154.5	9.2	17.9
1987	03 16	09 46.80	+26 13.7					
1987	03 26	09 41.37	+26 13.2	1.922	2.706	133.5	15.5	18.3
1987	04 05	09 38.73	+25 54.7					
1987	04 15	09 38.86	+25 21.5	2.172	2.740	114.2	19.5	18.7
1987	04 25	09 41.49	+24 36.6					
1987	05 05	09 46.32	+23 42.4	2.457	2.772	97.3	21.2	19.1

3524 P-L a,e,i = 2.57, 0.04, 14 Elements MPC 9299

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	11 26	10 27.00	+19 41.1	2.387	2.609	91.7	22.2	17.9
1986	12 06	10 34.53	+18 59.5					
1986	12 16	10 39.93	+18 27.7	2.116	2.600	108.4	21.0	17.6
1986	12 26	10 42.89	+18 06.7					
1987	01 05	10 43.07	+17 57.0	1.872	2.591	127.6	17.5	17.2
1987	01 15	10 40.27	+17 57.8					
1987	01 25	10 34.48	+18 06.5	1.686	2.582	149.4	11.2	16.8
1987	02 04	10 26.00	+18 19.0					
1987	02 14	10 15.58	+18 29.6	1.592	2.573	171.3	3.3	16.3
1987	02 24	10 04.36	+18 32.9					
1987	03 06	09 53.64	+18 24.8	1.612	2.564	159.2	7.9	16.6
1987	03 16	09 44.65	+18 03.6					
1987	03 26	09 38.19	+17 29.7	1.735	2.554	136.7	15.5	17.0
1987	04 05	09 34.68	+16 44.8					
1987	04 15	09 34.14	+15 50.4	1.931	2.545	116.7	20.6	17.4
1987	04 25	09 36.34	+14 48.2					
1987	05 05	09 40.97	+13 39.1	2.166	2.536	99.5	23.1	17.7

1976 GM7 a,e,i = 3.24, 0.06, 11 Elements MPC 10613

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986 11 26	10 15.87	+03 16.8	2.915	3.049	88.3	18.9	17.6
1986 12 06	10 22.25	+02 36.8					
1986 12 16	10 26.94	+02 06.9	2.634	3.047	105.4	18.1	17.3
1986 12 26	10 29.76	+01 49.3					
1987 01 05	10 30.54	+01 46.1	2.377	3.045	124.6	15.4	17.0
1987 01 15	10 29.21	+01 59.2					
1987 01 25	10 25.84	+02 29.1	2.177	3.044	146.1	10.4	16.7
1987 02 04	10 20.68	+03 15.5					
1987 02 14	10 14.26	+04 15.4	2.070	3.044	168.5	3.7	16.3
1987 02 24	10 07.27	+05 24.4					
1987 03 06	10 00.51	+06 36.8	2.077	3.045	164.6	5.0	16.4
1987 03 16	09 54.77	+07 46.5					
1987 03 26	09 50.64	+08 48.5	2.195	3.046	142.4	11.5	16.7
1987 04 05	09 48.51	+09 39.4					
1987 04 15	09 48.53	+10 17.3	2.398	3.048	121.8	16.2	17.1
1987 04 25	09 50.66	+10 41.6					
1987 05 05	09 54.76	+10 52.7	2.652	3.051	103.6	18.7	17.4

4237 P-L a,e,i = 2.34, 0.07, 2 Elements MPC 9300

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986 11 26	10 10.86	+12 17.9	1.914	2.193	92.6	26.7	19.7
1986 12 06	10 21.07	+11 16.8					
1986 12 16	10 29.13	+10 25.8	1.673	2.189	108.1	25.3	19.3
1986 12 26	10 34.70	+09 47.6					
1987 01 05	10 37.39	+09 24.8	1.456	2.186	126.2	21.3	18.9
1987 01 15	10 36.92	+09 19.2					
1987 01 25	10 33.18	+09 31.3	1.289	2.184	147.6	14.0	18.4
1987 02 04	10 26.41	+09 59.3					
1987 02 14	10 17.39	+10 38.3	1.203	2.185	171.9	3.7	17.9
1987 02 24	10 07.34	+11 21.5					
1987 03 06	09 57.75	+12 01.0	1.219	2.187	163.0	7.6	18.1
1987 03 16	09 50.05	+12 30.5					
1987 03 26	09 45.15	+12 46.2	1.331	2.190	139.9	17.0	18.6
1987 04 05	09 43.49	+12 46.8					
1987 04 15	09 45.07	+12 32.4	1.511	2.195	120.3	23.2	19.1
1987 04 25	09 49.57	+12 04.1					
1987 05 05	09 56.62	+11 22.8	1.731	2.202	103.9	26.4	19.5

(3418) 1973 QZ1 a,e,i = 3.16, 0.18, 2 Elements MPC 10611

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986 11 26	10 28.72	+11 15.4	3.421	3.530	88.2	16.2	18.4
1986 12 06	10 33.31	+10 55.2					
1986 12 16	10 36.26	+10 44.8	3.146	3.554	106.6	15.4	18.2
1986 12 26	10 37.42	+10 45.2					
1987 01 05	10 36.65	+10 57.0	2.898	3.576	126.9	12.7	17.9
1987 01 15	10 33.95	+11 19.8					
1987 01 25	10 29.44	+11 52.4	2.716	3.598	149.2	8.1	17.6
1987 02 04	10 23.38	+12 32.4					
1987 02 14	10 16.27	+13 16.1	2.636	3.617	172.7	2.0	17.3
1987 02 24	10 08.72	+13 59.6					
1987 03 06	10 01.42	+14 38.9	2.676	3.636	162.8	4.6	17.5
1987 03 16	09 55.01	+15 10.9					
1987 03 26	09 50.01	+15 33.7	2.831	3.653	140.1	10.1	17.8
1987 04 05	09 46.73	+15 46.3					
1987 04 15	09 45.32	+15 48.7	3.072	3.668	119.2	13.8	18.2
1987 04 25	09 45.77	+15 41.6					
1987 05 05	09 47.96	+15 25.5	3.362	3.682	100.5	15.6	18.4

(3364) 1984 GF a,e,i = 2.20, 0.10, 6 Elements MPC 10388

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	11 26	10 15.83	+08 43.5	2.091	2.316	90.2	25.2	17.5
1986	12 06	10 25.61	+07 58.3					
1986	12 16	10 33.53	+07 25.1	1.821	2.296	106.0	24.3	17.2
1986	12 26	10 39.26	+07 06.8					
1987	01 05	10 42.42	+07 06.8	1.571	2.274	124.2	21.0	16.8
1987	01 15	10 42.69	+07 27.9					
1987	01 25	10 39.90	+08 11.3	1.370	2.251	145.5	14.3	16.3
1987	02 04	10 34.11	+09 16.0					
1987	02 14	10 25.86	+10 37.0	1.249	2.228	169.9	4.5	15.7
1987	02 24	10 16.18	+12 05.7					
1987	03 06	10 06.44	+13 31.5	1.232	2.204	164.4	7.0	15.7
1987	03 16	09 58.11	+14 44.5					
1987	03 26	09 52.31	+15 38.7	1.315	2.180	140.5	16.9	16.2
1987	04 05	09 49.69	+16 11.3					
1987	04 15	09 50.42	+16 22.5	1.469	2.155	120.2	23.7	16.6
1987	04 25	09 54.30	+16 14.0					
1987	05 05	10 00.99	+15 47.7	1.659	2.131	103.3	27.4	16.9

(3382) 1948 RD a,e,i = 2.24, 0.18, 6 Elements MPC 10397

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	11 26	10 36.19	+13 38.6	2.419	2.570	87.4	22.6	18.2
1986	12 06	10 43.75	+12 59.1					
1986	12 16	10 49.27	+12 31.2	2.167	2.591	104.2	21.6	18.0
1986	12 26	10 52.46	+12 16.5					
1987	01 05	10 53.02	+12 16.4	1.933	2.609	123.6	18.3	17.6
1987	01 15	10 50.74	+12 31.1					
1987	01 25	10 45.57	+12 59.5	1.751	2.624	145.7	12.2	17.3
1987	02 04	10 37.75	+13 38.3					
1987	02 14	10 27.92	+14 22.2	1.658	2.635	169.8	3.8	16.8
1987	02 24	10 17.08	+15 04.7					
1987	03 06	10 06.43	+15 39.5	1.679	2.644	163.3	6.2	17.0
1987	03 16	09 57.17	+16 02.3					
1987	03 26	09 50.14	+16 10.9	1.808	2.650	139.9	14.0	17.4
1987	04 05	09 45.84	+16 05.4					
1987	04 15	09 44.38	+15 46.8	2.016	2.653	119.0	19.3	17.8
1987	04 25	09 45.60	+15 16.7					
1987	05 05	09 49.23	+14 36.2	2.267	2.652	101.1	21.9	18.1

(3460) 1973 QB2 a,e,i = 3.18, 0.22, 2 Elements MPC 10837

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	11 26	10 38.21	+10 48.6	3.434	3.504	85.9	16.3	18.5
1986	12 06	10 43.20	+10 27.0					
1986	12 16	10 46.57	+10 15.4	3.168	3.538	104.0	15.7	18.3
1986	12 26	10 48.18	+10 14.7					
1987	01 05	10 47.88	+10 25.6	2.924	3.570	124.1	13.2	18.1
1987	01 15	10 45.64	+10 47.9					
1987	01 25	10 41.56	+11 20.3	2.740	3.600	146.2	8.7	17.8
1987	02 04	10 35.85	+12 00.7					
1987	02 14	10 28.97	+12 45.4	2.654	3.629	169.6	2.8	17.5
1987	02 24	10 21.50	+13 30.5					
1987	03 06	10 14.11	+14 11.9	2.688	3.657	165.7	3.9	17.6
1987	03 16	10 07.47	+14 46.1					
1987	03 26	10 02.11	+15 11.0	2.838	3.683	142.9	9.4	17.9
1987	04 05	09 58.38	+15 25.5					
1987	04 15	09 56.47	+15 29.4	3.079	3.708	121.9	13.3	18.3
1987	04 25	09 56.38	+15 23.4					
1987	05 05	09 58.05	+15 08.2	3.374	3.731	102.9	15.3	18.5

1978 RW a,e,i = 3.21, 0.21, 1 Elements MPC 10951

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	12 16	10 49.90	+07 48.8	3.544	3.876	102.3	14.4	18.4
1986	12 26	10 51.39	+07 42.8					
1987	01 05	10 51.18	+07 47.3	3.259	3.876	122.4	12.4	18.2
1987	01 15	10 49.23	+08 02.6					
1987	01 25	10 45.57	+08 28.1	3.031	3.874	144.3	8.5	17.9
1987	02 04	10 40.38	+09 02.5					
1987	02 14	10 34.04	+09 43.2	2.900	3.870	167.7	3.1	17.5
1987	02 24	10 27.01	+10 26.9					
1987	03 06	10 19.90	+11 09.9	2.888	3.865	168.4	3.0	17.5
1987	03 16	10 13.31	+11 48.6					
1987	03 26	10 07.77	+12 20.3	2.996	3.858	145.3	8.5	17.8
1987	04 05	10 03.67	+12 43.3					
1987	04 15	10 01.26	+12 56.6	3.199	3.850	123.9	12.5	18.1
1987	04 25	10 00.58	+13 00.2					
1987	05 05	10 01.63	+12 54.4	3.461	3.839	104.5	14.7	18.3
1987	05 15	10 04.28	+12 39.8					
1987	05 25	10 08.38	+12 17.1	3.745	3.828	87.0	15.3	18.5

(3336) 1971 UX a,e,i = 2.32, 0.19, 1 Elements MPC 10299

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	12 16	10 53.84	+05 59.1	2.214	2.585	100.7	22.0	19.2
1986	12 26	10 57.73	+05 30.7					
1987	01 05	10 59.15	+05 17.2	1.985	2.614	119.6	19.1	18.9
1987	01 15	10 57.91	+05 20.3					
1987	01 25	10 53.96	+05 40.5	1.800	2.641	141.3	13.5	18.6
1987	02 04	10 47.47	+06 16.7					
1987	02 14	10 38.96	+07 05.8	1.697	2.665	165.6	5.3	18.2
1987	02 24	10 29.30	+08 02.3					
1987	03 06	10 19.55	+08 59.6	1.706	2.686	169.0	4.0	18.1
1987	03 16	10 10.84	+09 51.2					
1987	03 26	10 04.02	+10 32.3	1.827	2.705	145.0	12.2	18.6
1987	04 05	09 59.63	+11 00.4					
1987	04 15	09 57.88	+11 14.3	2.034	2.721	123.7	17.9	19.0
1987	04 25	09 58.67	+11 14.5					
1987	05 05	10 01.81	+11 01.9	2.291	2.734	105.2	20.9	19.4
1987	05 15	10 07.00	+10 37.5					
1987	05 25	10 13.92	+10 02.7	2.568	2.744	89.0	21.7	19.7

1984 SH5 a,e,i = 3.95, 0.20, 5 Elements MPC 10530

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	12 16	10 53.05	+05 20.9	3.853	4.150	100.7	13.5	17.7
1986	12 26	10 54.32	+05 02.2					
1987	01 05	10 54.02	+04 52.7	3.593	4.181	120.6	11.7	17.5
1987	01 15	10 52.13	+04 52.9					
1987	01 25	10 48.74	+05 02.4	3.390	4.212	142.2	8.2	17.3
1987	02 04	10 44.01	+05 20.4					
1987	02 14	10 38.28	+05 45.3	3.280	4.241	165.0	3.4	17.0
1987	02 24	10 32.00	+06 14.6					
1987	03 06	10 25.65	+06 45.5	3.288	4.271	170.8	2.1	17.0
1987	03 16	10 19.74	+07 15.3					
1987	03 26	10 14.73	+07 41.3	3.418	4.299	148.4	7.0	17.3
1987	04 05	10 10.93	+08 01.6					
1987	04 15	10 08.57	+08 15.1	3.647	4.327	127.1	10.7	17.6
1987	04 25	10 07.70	+08 20.9					
1987	05 05	10 08.33	+08 19.1	3.941	4.354	107.6	12.8	17.8
1987	05 15	10 10.36	+08 09.6					
1987	05 25	10 13.66	+07 52.9	4.266	4.380	89.7	13.4	18.0

1977 QW2 a,e,i = 2.39, 0.21, 5 Elements MPC 10153

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	12 16	10 52.71	+02 22.1	2.485	2.821	99.6	20.1	19.1
1986	12 26	10 56.65	+01 50.1					
1987	01 05	10 58.46	+01 31.6	2.196	2.799	118.2	18.0	18.8
1987	01 15	10 57.93	+01 29.0					
1987	01 25	10 54.93	+01 43.8	1.952	2.774	139.4	13.4	18.3
1987	02 04	10 49.52	+02 16.8					
1987	02 14	10 42.06	+03 06.7	1.787	2.746	162.8	6.1	17.9
1987	02 24	10 33.22	+04 09.8					
1987	03 06	10 23.92	+05 20.4	1.733	2.716	170.4	3.5	17.7
1987	03 16	10 15.24	+06 31.1					
1987	03 26	10 08.11	+07 35.4	1.792	2.683	146.8	11.7	18.0
1987	04 05	10 03.22	+08 28.3					
1987	04 15	10 00.94	+09 06.9	1.940	2.647	125.1	18.1	18.4
1987	04 25	10 01.30	+09 30.0					
1987	05 05	10 04.18	+09 37.9	2.142	2.610	106.2	21.8	18.7
1987	05 15	10 09.34	+09 31.3					
1987	05 25	10 16.49	+09 11.2	2.363	2.570	89.9	23.2	18.9

1981 SN a,e,i = 2.48, 0.16, 5 Elements MPC 10309

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	12 16	10 54.89	+00 51.5	2.381	2.708	98.5	21.1	19.0
1986	12 26	10 58.84	+00 09.9					
1987	01 05	11 00.53	-00 17.8	2.142	2.733	117.0	18.7	18.7
1987	01 15	10 59.77	-00 29.4					
1987	01 25	10 56.52	-00 23.3	1.944	2.756	138.0	13.8	18.3
1987	02 04	10 50.91	+00 01.3					
1987	02 14	10 43.41	+00 43.1	1.825	2.777	161.0	6.7	18.0
1987	02 24	10 34.73	+01 38.6					
1987	03 06	10 25.83	+02 42.2	1.813	2.796	170.3	3.4	17.8
1987	03 16	10 17.71	+03 47.1					
1987	03 26	10 11.19	+04 47.2	1.916	2.813	148.2	10.8	18.3
1987	04 05	10 06.83	+05 37.7					
1987	04 15	10 04.89	+06 15.6	2.110	2.828	126.9	16.5	18.7
1987	04 25	10 05.36	+06 39.8					
1987	05 05	10 08.09	+06 50.2	2.362	2.841	108.0	19.7	19.0
1987	05 15	10 12.84	+06 47.4					
1987	05 25	10 19.30	+06 32.5	2.639	2.852	91.5	20.8	19.3

1985 SE1 a,e,i = 2.26, 0.23, 5 Elements MPC 10390

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	12 16	10 58.51	+04 20.6	2.368	2.704	99.0	21.1	18.9
1986	12 26	11 02.38	+03 59.7					
1987	01 05	11 03.94	+03 54.0	2.121	2.724	118.0	18.6	18.6
1987	01 15	11 02.99	+04 05.5					
1987	01 25	10 59.46	+04 34.7	1.916	2.741	139.6	13.5	18.3
1987	02 04	10 53.45	+05 21.3					
1987	02 14	10 45.39	+06 22.1	1.792	2.754	163.8	5.7	17.9
1987	02 24	10 36.05	+07 31.8					
1987	03 06	10 26.41	+08 43.6	1.781	2.764	170.7	3.3	17.7
1987	03 16	10 17.54	+09 50.2					
1987	03 26	10 10.32	+10 46.3	1.884	2.771	146.4	11.5	18.2
1987	04 05	10 05.38	+11 28.3					
1987	04 15	10 02.98	+11 54.8	2.078	2.773	124.6	17.3	18.6
1987	04 25	10 03.11	+12 06.2					
1987	05 05	10 05.62	+12 03.3	2.324	2.773	105.7	20.5	18.9
1987	05 15	10 10.24	+11 47.5					
1987	05 25	10 16.66	+11 20.1	2.591	2.769	89.2	21.5	19.2

1981 QP a,e,i = 2.43, 0.13, 9 Elements MPC 10308

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	12 16	10 58.05	+16 58.1	2.348	2.755	103.8	20.3	17.9
1986	12 26	11 02.54	+17 20.4					
1987	01 05	11 04.66	+17 59.3	2.101	2.758	122.6	17.5	17.6
1987	01 15	11 04.18	+18 54.0					
1987	01 25	11 00.97	+20 02.2	1.906	2.760	143.4	12.3	17.3
1987	02 04	10 55.12	+21 18.9					
1987	02 14	10 47.07	+22 36.6	1.800	2.759	162.9	6.0	16.9
1987	02 24	10 37.61	+23 46.6					
1987	03 06	10 27.78	+24 41.1	1.804	2.756	159.7	7.2	16.9
1987	03 16	10 18.76	+25 15.0					
1987	03 26	10 11.49	+25 26.7	1.916	2.752	139.5	13.6	17.3
1987	04 05	10 06.63	+25 17.5					
1987	04 15	10 04.46	+24 50.0	2.106	2.745	119.6	18.5	17.6
1987	04 25	10 04.93	+24 07.7					
1987	05 05	10 07.85	+23 13.2	2.342	2.736	102.0	21.1	17.9
1987	05 15	10 12.93	+22 08.9					
1987	05 25	10 19.84	+20 56.5	2.593	2.725	86.5	21.8	18.2

1978 QX a,e,i = 2.20, 0.14, 1 Elements MPC 8910

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	12 16	10 49.67	+07 25.8	1.894	2.312	102.3	24.6	18.2
1986	12 26	10 56.14	+06 42.7					
1987	01 05	11 00.20	+06 13.6	1.629	2.282	119.8	22.0	17.8
1987	01 15	11 01.48	+06 01.2					
1987	01 25	10 59.71	+06 07.1	1.405	2.252	140.2	16.3	17.3
1987	02 04	10 54.79	+06 32.1					
1987	02 14	10 47.04	+07 13.9	1.254	2.220	163.8	7.1	16.7
1987	02 24	10 37.25	+08 07.4					
1987	03 06	10 26.70	+09 04.8	1.203	2.187	170.7	4.2	16.4
1987	03 16	10 16.92	+09 57.2					
1987	03 26	10 09.24	+10 37.7	1.253	2.155	146.2	14.9	16.9
1987	04 05	10 04.59	+11 01.7					
1987	04 15	10 03.34	+11 07.7	1.381	2.122	125.0	22.8	17.3
1987	04 25	10 05.43	+10 56.0					
1987	05 05	10 10.60	+10 27.7	1.554	2.090	107.4	27.4	17.6
1987	05 15	10 18.42	+09 44.0					
1987	05 25	10 28.48	+08 46.5	1.743	2.059	92.8	29.4	17.9

1981 TC3 a,e,i = 2.37, 0.19, 2 Elements MPC 10296

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	12 16	10 58.53	+03 49.8	2.465	2.791	98.8	20.4	18.4
1986	12 26	11 02.61	+03 13.6					
1987	01 05	11 04.53	+02 50.1	2.183	2.777	117.4	18.3	18.0
1987	01 15	11 04.05	+02 41.4					
1987	01 25	11 01.07	+02 48.8	1.944	2.760	138.5	13.7	17.6
1987	02 04	10 55.60	+03 12.9					
1987	02 14	10 47.99	+03 52.3	1.784	2.740	162.0	6.4	17.2
1987	02 24	10 38.91	+04 43.3					
1987	03 06	10 29.30	+05 40.7	1.732	2.717	171.8	3.0	16.9
1987	03 16	10 20.23	+06 37.7					
1987	03 26	10 12.68	+07 28.5	1.794	2.692	148.0	11.3	17.3
1987	04 05	10 07.35	+08 08.5					
1987	04 15	10 04.61	+08 35.3	1.948	2.665	126.1	17.7	17.7
1987	04 25	10 04.52	+08 47.8					
1987	05 05	10 06.95	+08 46.3	2.155	2.635	107.1	21.5	18.0
1987	05 15	10 11.67	+08 31.3					
1987	05 25	10 18.37	+08 04.0	2.384	2.603	90.8	22.9	18.2

(3458) 1985 RT3 a,e,i = 2.45, 0.15, 2 Elements MPC 10835

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986 12 16	10 42.70	+06 59.0	1.611	2.077	103.7	27.4	16.4
1986 12 26	10 51.13	+06 13.5					
1987 01 05	10 56.94	+05 45.0	1.402	2.079	120.3	24.1	16.0
1987 01 15	10 59.78	+05 36.2					
1987 01 25	10 59.44	+05 49.2	1.232	2.086	140.1	17.6	15.6
1987 02 04	10 55.87	+06 24.1					
1987 02 14	10 49.53	+07 17.5	1.131	2.096	163.3	7.8	15.1
1987 02 24	10 41.35	+08 22.4					
1987 03 06	10 32.65	+09 29.5	1.123	2.110	171.9	3.8	14.9
1987 03 16	10 24.93	+10 28.8					
1987 03 26	10 19.37	+11 13.2	1.213	2.127	148.3	14.3	15.5
1987 04 05	10 16.71	+11 38.6					
1987 04 15	10 17.18	+11 44.3	1.381	2.148	127.9	21.6	16.0
1987 04 25	10 20.62	+11 31.3					
1987 05 05	10 26.69	+11 01.5	1.598	2.172	110.9	25.7	16.4
1987 05 15	10 35.01	+10 16.8					
1987 05 25	10 45.13	+09 19.5	1.841	2.198	96.4	27.2	16.8

1982 UP a,e,i = 2.18, 0.14, 2 Elements MPC 10040

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986 12 16	11 00.44	+03 47.0	1.973	2.330	98.4	24.7	18.8
1986 12 26	11 06.22	+03 03.0					
1987 01 05	11 09.48	+02 34.6	1.750	2.355	116.2	22.0	18.5
1987 01 15	11 09.93	+02 24.3					
1987 01 25	11 07.39	+02 33.8	1.562	2.378	137.0	16.4	18.1
1987 02 04	11 01.90	+03 03.7					
1987 02 14	10 53.88	+03 52.0	1.445	2.399	160.7	7.8	17.7
1987 02 24	10 44.18	+04 53.7					
1987 03 06	10 33.95	+06 01.5	1.431	2.418	172.9	2.9	17.5
1987 03 16	10 24.53	+07 06.9					
1987 03 26	10 17.01	+08 02.8	1.526	2.434	148.8	12.2	18.0
1987 04 05	10 12.09	+08 44.4					
1987 04 15	10 10.08	+09 09.7	1.708	2.448	127.2	19.0	18.5
1987 04 25	10 10.91	+09 18.7					
1987 05 05	10 14.36	+09 12.0	1.943	2.460	108.7	22.8	18.9
1987 05 15	10 20.07	+08 51.1					
1987 05 25	10 27.70	+08 17.6	2.202	2.469	92.8	24.2	19.2

(3379) 1931 TJ1 a,e,i = 2.35, 0.13, 3 Elements MPC 10396

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986 12 16	10 50.54	+06 34.4	1.686	2.118	101.7	27.1	17.1
1986 12 26	10 58.28	+05 57.6					
1987 01 05	11 03.35	+05 38.7	1.484	2.139	118.8	23.8	16.8
1987 01 15	11 05.41	+05 40.3					
1987 01 25	11 04.28	+06 03.7	1.321	2.163	139.1	17.3	16.4
1987 02 04	10 59.96	+06 48.7					
1987 02 14	10 52.93	+07 50.9	1.226	2.189	162.7	7.7	15.9
1987 02 24	10 44.11	+09 03.0					
1987 03 06	10 34.81	+10 15.5	1.229	2.216	172.0	3.6	15.8
1987 03 16	10 26.47	+11 18.6					
1987 03 26	10 20.21	+12 05.8	1.334	2.244	148.2	13.6	16.4
1987 04 05	10 16.75	+12 33.9					
1987 04 15	10 16.31	+12 42.3	1.519	2.272	127.4	20.5	16.9
1987 04 25	10 18.75	+12 32.6					
1987 05 05	10 23.77	+12 06.6	1.755	2.302	109.8	24.3	17.3
1987 05 15	10 30.99	+11 26.4					
1987 05 25	10 40.00	+10 34.1	2.016	2.331	94.8	25.7	17.7

1984 HX a,e,i = 2.30, 0.10, 6 Elements MPC 10161

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	12 16	11 00.28	+04 38.8	1.848	2.222	98.7	26.0	18.1
1986	12 26	11 06.68	+03 27.0					
1987	01 05	11 10.45	+02 28.0	1.633	2.244	115.9	23.2	17.8
1987	01 15	11 11.28	+01 44.4					
1987	01 25	11 08.98	+01 18.2	1.454	2.268	136.1	17.5	17.4
1987	02 04	11 03.56	+01 11.0					
1987	02 14	10 55.46	+01 22.2	1.342	2.291	159.0	8.9	17.0
1987	02 24	10 45.55	+01 49.1					
1987	03 06	10 35.09	+02 26.3	1.328	2.315	172.2	3.3	16.7
1987	03 16	10 25.49	+03 06.6					
1987	03 26	10 17.90	+03 43.2	1.420	2.338	150.1	12.3	17.3
1987	04 05	10 13.06	+04 11.0					
1987	04 15	10 11.27	+04 26.5	1.597	2.360	128.9	19.3	17.7
1987	04 25	10 12.40	+04 28.8					
1987	05 05	10 16.21	+04 17.5	1.829	2.382	110.8	23.3	18.2
1987	05 15	10 22.33	+03 53.3					
1987	05 25	10 30.36	+03 17.2	2.088	2.403	95.3	24.8	18.5

1949 PL a,e,i = 2.49, 0.04, 2 Elements MPC 8212

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	12 16	10 56.10	+06 00.7	2.124	2.495	100.2	22.8	17.1
1986	12 26	11 02.18	+05 27.0					
1987	01 05	11 06.00	+05 07.9	1.867	2.485	118.0	20.4	16.7
1987	01 15	11 07.29	+05 05.6					
1987	01 25	11 05.86	+05 21.5	1.651	2.475	138.5	15.3	16.3
1987	02 04	11 01.70	+05 55.5					
1987	02 14	10 55.13	+06 45.3	1.509	2.466	161.8	7.2	15.8
1987	02 24	10 46.83	+07 45.9					
1987	03 06	10 37.83	+08 50.0	1.468	2.456	173.3	2.7	15.5
1987	03 16	10 29.35	+09 49.7					
1987	03 26	10 22.46	+10 38.5	1.536	2.447	149.2	12.0	16.0
1987	04 05	10 17.94	+11 12.0					
1987	04 15	10 16.19	+11 28.5	1.691	2.438	127.8	19.0	16.4
1987	04 25	10 17.23	+11 28.1					
1987	05 05	10 20.90	+11 11.9	1.899	2.430	109.5	23.0	16.8
1987	05 15	10 26.88	+10 41.3					
1987	05 25	10 34.85	+09 58.0	2.133	2.421	93.8	24.7	17.1

1983 NK a,e,i = 3.14, 0.11, 13 Elements MPC 11053

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	12 16	11 02.71	-07 22.8	3.138	3.343	93.4	17.1	17.4
1986	12 26	11 05.90	-08 35.1					
1987	01 05	11 07.31	-09 39.3	2.843	3.327	111.2	16.0	17.1
1987	01 15	11 06.79	-10 32.9					
1987	01 25	11 04.27	-11 13.5	2.586	3.310	130.3	13.1	16.8
1987	02 04	10 59.82	-11 38.5					
1987	02 14	10 53.71	-11 46.0	2.401	3.292	149.7	8.7	16.5
1987	02 24	10 46.41	-11 35.4					
1987	03 06	10 38.58	-11 07.6	2.316	3.273	161.7	5.5	16.3
1987	03 16	10 30.99	-10 25.9					
1987	03 26	10 24.37	-09 35.2	2.344	3.254	151.2	8.5	16.4
1987	04 05	10 19.30	-08 40.9					
1987	04 15	10 16.18	-07 48.4	2.472	3.234	132.4	13.2	16.7
1987	04 25	10 15.14	-07 02.0					
1987	05 05	10 16.21	-06 24.6	2.671	3.214	113.9	16.7	17.0
1987	05 15	10 19.25	-05 58.3					
1987	05 25	10 24.07	-05 43.6	2.908	3.193	97.0	18.3	17.2

(3489) 1983 AT2 a,e,i = 2.41, 0.10, 6 Elements MPC 11048

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	12 16	11 03.75	+13 15.4	1.922	2.323	101.2	24.6	17.7
1986	12 26	11 10.18	+12 51.2					
1987	01 05	11 13.98	+12 42.4	1.705	2.344	118.9	21.5	17.3
1987	01 15	11 14.84	+12 49.7					
1987	01 25	11 12.56	+13 12.4	1.529	2.365	139.4	15.7	16.9
1987	02 04	11 07.18	+13 47.8					
1987	02 14	10 59.12	+14 30.4	1.427	2.386	162.3	7.2	16.5
1987	02 24	10 49.27	+15 12.8					
1987	03 06	10 38.86	+15 47.5	1.427	2.408	168.8	4.6	16.4
1987	03 16	10 29.26	+16 08.3					
1987	03 26	10 21.61	+16 12.4	1.533	2.429	146.6	13.1	16.9
1987	04 05	10 16.61	+15 59.3					
1987	04 15	10 14.56	+15 30.6	1.723	2.450	125.9	19.4	17.4
1987	04 25	10 15.35	+14 48.4					
1987	05 05	10 18.74	+13 54.8	1.964	2.470	108.0	22.9	17.8
1987	05 15	10 24.37	+12 51.5					
1987	05 25	10 31.86	+11 40.0	2.230	2.489	92.5	24.0	18.1

1981 PM a,e,i = 2.24, 0.17, 5 Elements MPC 9072

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	12 16	10 58.38	+00 15.6	2.094	2.427	97.5	23.7	18.0
1986	12 26	11 04.73	-00 50.1					
1987	01 05	11 08.91	-01 44.2	1.815	2.396	114.5	21.9	17.6
1987	01 15	11 10.59	-02 23.7					
1987	01 25	11 09.51	-02 45.4	1.570	2.362	134.0	17.4	17.2
1987	02 04	11 05.51	-02 46.1					
1987	02 14	10 58.80	-02 24.2	1.390	2.327	156.0	9.9	16.6
1987	02 24	10 49.96	-01 40.5					
1987	03 06	10 40.01	-00 39.0	1.306	2.291	171.2	3.8	16.2
1987	03 16	10 30.32	+00 32.7					
1987	03 26	10 22.16	+01 45.3	1.327	2.253	151.4	12.2	16.5
1987	04 05	10 16.55	+02 50.4					
1987	04 15	10 14.05	+03 41.7	1.435	2.215	129.8	20.4	16.9
1987	04 25	10 14.77	+04 16.0					
1987	05 05	10 18.55	+04 32.1	1.598	2.177	111.3	25.6	17.2
1987	05 15	10 25.07	+04 30.2					
1987	05 25	10 33.95	+04 11.4	1.785	2.139	95.8	28.1	17.5

1985 RK a,e,i = 2.37, 0.14, 7 Elements MPC 10293

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	12 16	11 09.56	+07 46.9	2.099	2.436	97.8	23.6	18.5
1986	12 26	11 14.95	+06 59.3					
1987	01 05	11 17.84	+06 24.9	1.873	2.465	115.8	21.0	18.2
1987	01 15	11 17.98	+06 05.3					
1987	01 25	11 15.20	+06 01.1	1.684	2.493	136.6	15.7	17.9
1987	02 04	11 09.52	+06 12.0					
1987	02 14	11 01.37	+06 35.5	1.568	2.519	160.3	7.6	17.5
1987	02 24	10 51.52	+07 07.2					
1987	03 06	10 41.07	+07 41.6	1.555	2.544	174.5	2.1	17.2
1987	03 16	10 31.27	+08 12.5					
1987	03 26	10 23.19	+08 35.2	1.654	2.568	150.1	11.2	17.7
1987	04 05	10 17.53	+08 46.6					
1987	04 15	10 14.64	+08 45.5	1.844	2.590	128.4	17.7	18.2
1987	04 25	10 14.47	+08 32.0					
1987	05 05	10 16.85	+08 06.7	2.091	2.609	109.7	21.3	18.6
1987	05 15	10 21.45	+07 30.5					
1987	05 25	10 27.94	+06 44.6	2.364	2.628	93.4	22.6	18.9

(3372) 1976 SP4 a,e,i = 2.69, 0.14, 3 Elements MPC 10393

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	12 16	11 07.25	+08 58.9	2.416	2.745	98.8	20.8	17.3
1986	12 26	11 11.89	+08 36.1					
1987	01 05	11 14.27	+08 26.9	2.180	2.773	117.4	18.4	17.0
1987	01 15	11 14.21	+08 32.4					
1987	01 25	11 11.63	+08 52.3	1.986	2.800	138.4	13.5	16.7
1987	02 04	11 06.59	+09 25.0					
1987	02 14	10 59.50	+10 07.2	1.872	2.827	161.8	6.3	16.3
1987	02 24	10 51.03	+10 53.6					
1987	03 06	10 42.06	+11 38.5	1.866	2.852	172.6	2.6	16.2
1987	03 16	10 33.61	+12 16.2					
1987	03 26	10 26.55	+12 42.9	1.973	2.876	149.3	10.2	16.6
1987	04 05	10 21.49	+12 56.4					
1987	04 15	10 18.77	+12 56.2	2.174	2.900	127.8	15.9	17.1
1987	04 25	10 18.41	+12 43.2					
1987	05 05	10 20.29	+12 18.4	2.434	2.922	108.9	19.1	17.4
1987	05 15	10 24.19	+11 43.1					
1987	05 25	10 29.82	+10 58.5	2.722	2.942	92.3	20.1	17.7

(3378) A922 WB a,e,i = 2.32, 0.09, 8 Elements MPC 10396

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	12 16	11 07.59	+08 41.3	1.861	2.232	98.6	25.8	17.3
1986	12 26	11 14.25	+07 38.5					
1987	01 05	11 18.27	+06 48.1	1.642	2.252	115.8	23.1	17.0
1987	01 15	11 19.33	+06 12.1					
1987	01 25	11 17.18	+05 51.4	1.458	2.272	136.1	17.5	16.6
1987	02 04	11 11.80	+05 46.2					
1987	02 14	11 03.57	+05 54.6	1.342	2.293	159.5	8.7	16.2
1987	02 24	10 53.32	+06 12.8					
1987	03 06	10 42.32	+06 35.3	1.324	2.313	175.0	2.1	15.8
1987	03 16	10 32.02	+06 55.7					
1987	03 26	10 23.65	+07 09.2	1.413	2.334	150.7	12.1	16.4
1987	04 05	10 18.02	+07 12.2					
1987	04 15	10 15.49	+07 03.3	1.589	2.354	129.1	19.3	16.9
1987	04 25	10 15.96	+06 42.3					
1987	05 05	10 19.18	+06 09.7	1.820	2.374	110.9	23.4	17.3
1987	05 15	10 24.78	+05 26.1					
1987	05 25	10 32.37	+04 32.7	2.077	2.393	95.3	24.9	17.7

1978 VB5 a,e,i = 2.38, 0.11, 7 Elements MPC 11143

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	12 16	10 55.44	+15 40.3	1.839	2.286	104.0	24.7	17.8
1986	12 26	11 03.45	+15 42.0					
1987	01 05	11 09.04	+16 01.6	1.593	2.263	121.1	21.8	17.4
1987	01 15	11 11.83	+16 40.4					
1987	01 25	11 11.49	+17 37.3	1.392	2.242	140.6	16.2	16.9
1987	02 04	11 07.89	+18 48.9					
1987	02 14	11 01.27	+20 07.3	1.265	2.222	160.8	8.4	16.5
1987	02 24	10 52.39	+21 21.9					
1987	03 06	10 42.48	+22 21.5	1.235	2.203	163.1	7.5	16.3
1987	03 16	10 33.10	+22 57.3					
1987	03 26	10 25.62	+23 05.5	1.302	2.186	143.5	15.8	16.7
1987	04 05	10 20.99	+22 46.9					
1987	04 15	10 19.65	+22 04.7	1.443	2.170	124.0	22.5	17.1
1987	04 25	10 21.52	+21 03.4					
1987	05 05	10 26.34	+19 46.6	1.630	2.157	107.3	26.5	17.5
1987	05 15	10 33.68	+18 17.2					
1987	05 25	10 43.12	+16 37.5	1.836	2.146	93.2	28.1	17.8

1982 DU a,e,i = 2.98, 0.21, 18 Elements MPC 7224

Date	ET	R. A. (1950)	Decl.	Delta	r	Variation		V
1986	12 16	11 11.75	+14 41.4	1.977	2.356	-1.66	+13.8	17.3
1986	12 26	11 17.78	+13 30.4					
1987	01 05	11 21.14	+12 28.4	1.750	2.366	-1.76	+15.7	17.0
1987	01 15	11 21.53	+11 35.8					
1987	01 25	11 18.76	+10 52.3	1.562	2.382	-1.92	+17.5	16.6
1987	02 04	11 12.83	+10 16.7					
1987	02 14	11 04.17	+09 46.7	1.447	2.401	-2.05	+18.7	16.2
1987	02 24	10 53.66	+09 19.2					
1987	03 06	10 42.50	+08 51.2	1.434	2.424	-2.03	+18.5	15.9
1987	03 16	10 32.09	+08 19.7					
1987	03 26	10 23.59	+07 43.2	1.532	2.450	-1.81	+16.9	16.5
1987	04 05	10 17.73	+07 01.0					
1987	04 15	10 14.83	+06 12.5	1.720	2.480	-1.49	+14.9	17.0
1987	04 25	10 14.81	+05 18.1					
1987	05 05	10 17.43	+04 17.7	1.967	2.512	-1.19	+13.0	17.4
1987	05 15	10 22.33	+03 11.4					
1987	05 25	10 29.15	+01 59.5	2.243	2.547	-0.93	+11.4	17.8

1983 AN a,e,i = 2.41, 0.12, 7 Elements MPC 7829

Date	ET	R. A. (1950)	Decl.	Delta	r	Variation		V
1986	12 16	11 02.25	+13 21.5	1.816	2.233	-1.55	+6.8	16.6
1986	12 26	11 10.15	+13 23.4					
1987	01 05	11 15.45	+13 44.4	1.610	2.256	-1.82	+8.4	16.2
1987	01 15	11 17.82	+14 25.4					
1987	01 25	11 17.03	+15 25.4	1.445	2.280	-2.18	+10.0	15.9
1987	02 04	11 13.03	+16 40.4					
1987	02 14	11 06.20	+18 02.7	1.352	2.305	-2.54	+10.8	15.5
1987	02 24	10 57.36	+19 22.2					
1987	03 06	10 47.71	+20 28.3	1.358	2.331	-2.63	+10.0	15.4
1987	03 16	10 38.67	+21 12.9					
1987	03 26	10 31.45	+21 32.7	1.467	2.358	-2.39	+8.3	15.9
1987	04 05	10 26.83	+21 28.1					
1987	04 15	10 25.15	+21 02.0	1.656	2.384	-2.02	+6.8	16.4
1987	04 25	10 26.33	+20 18.2					
1987	05 05	10 30.12	+19 20.1	1.895	2.411	-1.68	+5.9	16.8
1987	05 15	10 36.15	+18 10.4					
1987	05 25	10 44.04	+16 51.5	2.159	2.437	-1.40	+5.5	17.1

1981 RF a,e,i = 2.43, 0.19, 3 Elements MPC 8908

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	12 16	11 13.02	+07 01.8	2.510	2.802	96.8	20.4	19.1
1986	12 26	11 17.69	+06 46.8					
1987	01 05	11 20.23	+06 46.4	2.258	2.822	115.4	18.4	18.9
1987	01 15	11 20.41	+07 01.8					
1987	01 25	11 18.12	+07 33.3	2.044	2.840	136.5	13.8	18.5
1987	02 04	11 13.36	+08 19.6					
1987	02 14	11 06.46	+09 17.6	1.907	2.855	159.9	6.8	18.1
1987	02 24	10 58.01	+10 21.9					
1987	03 06	10 48.85	+11 26.0	1.879	2.867	173.7	2.2	17.9
1987	03 16	10 39.99	+12 23.2					
1987	03 26	10 32.34	+13 08.5	1.968	2.877	150.4	9.9	18.3
1987	04 05	10 26.60	+13 39.0					
1987	04 15	10 23.18	+13 53.7	2.152	2.884	128.4	15.8	18.7
1987	04 25	10 22.16	+13 53.3					
1987	05 05	10 23.48	+13 39.1	2.396	2.889	109.2	19.3	19.1
1987	05 15	10 26.91	+13 12.6					
1987	05 25	10 32.20	+12 35.3	2.668	2.891	92.3	20.5	19.3

1979 SU9 a,e,i = 3.12, 0.17, 0 Elements MPC 10761

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	12 16	11 18.78	+04 36.2	3.049	3.276	94.5	17.4	17.8
1986	12 26	11 22.66	+04 11.4					
1987	01 05	11 24.71	+03 58.2	2.791	3.305	113.3	15.9	17.6
1987	01 15	11 24.78	+03 57.6					
1987	01 25	11 22.83	+04 09.8	2.572	3.333	134.1	12.2	17.3
1987	02 04	11 18.91	+04 34.5					
1987	02 14	11 13.29	+05 09.7	2.429	3.360	157.0	6.6	17.0
1987	02 24	11 06.42	+05 52.4					
1987	03 06	10 58.91	+06 38.5	2.394	3.385	179.0	0.3	16.6
1987	03 16	10 51.52	+07 23.3					
1987	03 26	10 44.90	+08 02.6	2.478	3.410	155.3	7.0	17.1
1987	04 05	10 39.64	+08 33.4					
1987	04 15	10 36.11	+08 53.6	2.667	3.434	133.3	12.3	17.5
1987	04 25	10 34.47	+09 02.5					
1987	05 05	10 34.72	+09 00.3	2.928	3.456	113.5	15.5	17.8
1987	05 15	10 36.78	+08 47.4					
1987	05 25	10 40.45	+08 24.9	3.227	3.477	95.7	16.8	18.0

1982 UG7 a,e,i = 2.15, 0.19, 2 Elements MPC 10309

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	12 16	11 20.34	+01 43.0	2.294	2.543	93.0	22.7	19.3
1986	12 26	11 26.41	+00 58.2					
1987	01 05	11 30.35	+00 26.8	2.032	2.550	110.6	21.2	19.0
1987	01 15	11 31.85	+00 11.1					
1987	01 25	11 30.69	+00 13.3	1.799	2.553	130.7	17.0	18.6
1987	02 04	11 26.73	+00 34.7					
1987	02 14	11 20.15	+01 15.1	1.630	2.553	153.7	9.9	18.2
1987	02 24	11 11.45	+02 11.8					
1987	03 06	11 01.48	+03 19.4	1.558	2.549	177.2	1.1	17.6
1987	03 16	10 51.43	+04 30.2					
1987	03 26	10 42.44	+05 36.5	1.601	2.543	155.6	9.3	18.1
1987	04 05	10 35.47	+06 31.7					
1987	04 15	10 31.10	+07 11.7	1.742	2.532	132.8	16.9	18.5
1987	04 25	10 29.53	+07 35.1					
1987	05 05	10 30.69	+07 41.8	1.947	2.519	113.0	21.6	18.9
1987	05 15	10 34.35	+07 32.7					
1987	05 25	10 40.18	+07 09.4	2.182	2.502	96.1	23.7	19.2

1985 TE1 a,e,i = 2.46, 0.11, 1 Elements MPC 10391

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	12 16	11 18.05	+03 55.5	2.257	2.530	94.4	22.8	18.2
1986	12 26	11 24.45	+03 14.3					
1987	01 05	11 28.66	+02 47.0	2.018	2.553	111.9	20.9	18.0
1987	01 15	11 30.43	+02 35.5					
1987	01 25	11 29.56	+02 41.3	1.810	2.575	132.0	16.5	17.6
1987	02 04	11 25.98	+03 04.8					
1987	02 14	11 19.94	+03 44.6	1.667	2.596	154.9	9.3	17.2
1987	02 24	11 11.97	+04 37.0					
1987	03 06	11 02.93	+05 36.2	1.623	2.615	179.4	0.2	16.7
1987	03 16	10 53.94	+06 34.9					
1987	03 26	10 46.02	+07 26.6	1.692	2.634	155.8	8.9	17.3
1987	04 05	10 40.03	+08 06.2					
1987	04 15	10 36.45	+08 30.9	1.858	2.651	133.5	15.9	17.7
1987	04 25	10 35.43	+08 40.2					
1987	05 05	10 36.90	+08 34.4	2.091	2.667	114.1	20.2	18.1
1987	05 15	10 40.63	+08 14.8					
1987	05 25	10 46.33	+07 42.9	2.357	2.681	97.3	22.0	18.4

1980 RU2 a,e,i = 2.65, 0.17, 13 Elements MPC 10942

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986 12 16	11 29.70	+08 31.3	2.890	3.110	93.5	18.4	17.6
1986 12 26	11 33.77	+07 55.3					
1987 01 05	11 35.91	+07 29.8	2.601	3.106	112.0	17.1	17.3
1987 01 15	11 35.90	+07 15.4					
1987 01 25	11 33.59	+07 12.3	2.347	3.101	132.7	13.5	17.0
1987 02 04	11 28.94	+07 20.0					
1987 02 14	11 22.15	+07 36.6	2.166	3.093	155.7	7.5	16.6
1987 02 24	11 13.66	+07 59.1					
1987 03 06	11 04.17	+08 23.5	2.092	3.083	177.7	0.7	16.2
1987 03 16	10 54.58	+08 45.3					
1987 03 26	10 45.78	+09 00.7	2.137	3.071	155.2	7.8	16.6
1987 04 05	10 38.53	+09 07.0					
1987 04 15	10 33.35	+09 02.6	2.288	3.057	132.6	14.0	16.9
1987 04 25	10 30.45	+08 47.5					
1987 05 05	10 29.86	+08 21.9	2.508	3.041	112.6	17.8	17.2
1987 05 15	10 31.44	+07 46.3					
1987 05 25	10 34.98	+07 01.9	2.762	3.023	95.0	19.5	17.5

1948 WF a,e,i = 2.25, 0.27, 9 Elements MPC 9685

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986 12 16	11 26.18	+09 23.4	2.511	2.770	94.7	20.7	18.6
1986 12 26	11 31.53	+09 28.2					
1987 01 05	11 34.77	+09 49.6	2.259	2.795	113.1	18.9	18.3
1987 01 15	11 35.66	+10 28.4					
1987 01 25	11 34.00	+11 24.5	2.043	2.817	133.9	14.6	18.0
1987 02 04	11 29.75	+12 35.8					
1987 02 14	11 23.10	+13 57.6	1.902	2.835	156.5	8.0	17.7
1987 02 24	11 14.59	+15 23.2					
1987 03 06	11 05.00	+16 44.3	1.868	2.848	169.4	3.7	17.4
1987 03 16	10 55.38	+17 53.0					
1987 03 26	10 46.74	+18 44.0	1.950	2.858	150.1	10.0	17.8
1987 04 05	10 39.89	+19 14.8					
1987 04 15	10 35.36	+19 25.6	2.130	2.864	128.5	15.9	18.2
1987 04 25	10 33.30	+19 18.3					
1987 05 05	10 33.69	+18 55.5	2.371	2.866	109.3	19.4	18.5
1987 05 15	10 36.32	+18 19.6					
1987 05 25	10 40.93	+17 32.8	2.638	2.865	92.3	20.7	18.8

1984 GA a,e,i = 2.15, 0.05, 3 Elements MPC 9019

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986 12 16	11 12.83	+07 36.4	1.798	2.153	97.0	27.0	18.0
1986 12 26	11 21.87	+06 39.0					
1987 01 05	11 28.63	+05 54.7	1.554	2.140	113.1	25.0	17.6
1987 01 15	11 32.72	+05 25.9					
1987 01 25	11 33.75	+05 14.5	1.339	2.127	132.0	20.1	17.2
1987 02 04	11 31.43	+05 21.9					
1987 02 14	11 25.78	+05 47.0	1.181	2.115	154.3	11.7	16.6
1987 02 24	11 17.28	+06 26.0					
1987 03 06	11 06.94	+07 12.3	1.111	2.103	178.5	0.7	16.0
1987 03 16	10 56.29	+07 56.8					
1987 03 26	10 46.89	+08 31.5	1.142	2.091	155.6	11.4	16.5
1987 04 05	10 40.02	+08 50.7					
1987 04 15	10 36.42	+08 51.7	1.260	2.081	133.4	20.5	17.0
1987 04 25	10 36.25	+08 34.5					
1987 05 05	10 39.33	+08 00.3	1.433	2.071	114.9	26.2	17.4
1987 05 15	10 45.29	+07 10.8					
1987 05 25	10 53.67	+06 07.8	1.635	2.062	99.6	29.0	17.8

1969 TE2 a,e,i = 2.53, 0.12, 3 Elements MPC 7227

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986 12 16	11 15.41	+01 45.8	2.054	2.341	94.1	24.8	17.8
1986 12 26	11 23.30	+00 53.4					
1987 01 05	11 28.99	+00 15.4	1.828	2.363	110.8	22.9	17.5
1987 01 15	11 32.18	-00 05.6					
1987 01 25	11 32.64	-00 07.4	1.631	2.387	130.1	18.4	17.2
1987 02 04	11 30.25	+00 11.5					
1987 02 14	11 25.21	+00 50.5	1.492	2.411	152.4	10.9	16.8
1987 02 24	11 18.02	+01 46.6					
1987 03 06	11 09.57	+02 54.0	1.446	2.436	176.3	1.5	16.3
1987 03 16	11 01.02	+04 04.6					
1987 03 26	10 53.50	+05 10.0	1.507	2.462	158.3	8.6	16.8
1987 04 05	10 47.91	+06 03.6					
1987 04 15	10 44.80	+06 41.3	1.665	2.487	136.1	16.2	17.3
1987 04 25	10 44.34	+07 01.7					
1987 05 05	10 46.44	+07 05.1	1.891	2.513	116.9	21.0	17.7
1987 05 15	10 50.86	+06 52.5					
1987 05 25	10 57.27	+06 25.8	2.154	2.539	100.3	23.1	18.1

1979 QC2 a,e,i = 2.95, 0.10, 2 Elements MPC 10307

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986 12 16	11 22.27	+03 34.3	2.719	2.944	93.3	19.5	18.9
1986 12 26	11 27.69	+03 03.9					
1987 01 05	11 31.20	+02 46.1	2.462	2.964	111.3	18.0	18.6
1987 01 15	11 32.62	+02 42.4					
1987 01 25	11 31.82	+02 53.6	2.238	2.984	131.6	14.3	18.3
1987 02 04	11 28.79	+03 19.8					
1987 02 14	11 23.73	+03 59.4	2.083	3.003	154.1	8.2	18.0
1987 02 24	11 17.07	+04 49.3					
1987 03 06	11 09.48	+05 44.8	2.030	3.022	178.2	0.6	17.5
1987 03 16	11 01.78	+06 40.1					
1987 03 26	10 54.81	+07 29.7	2.093	3.040	157.8	7.1	18.0
1987 04 05	10 49.25	+08 09.5					
1987 04 15	10 45.58	+08 36.6	2.260	3.058	135.6	13.3	18.4
1987 04 25	10 44.00	+08 50.3					
1987 05 05	10 44.53	+08 50.4	2.500	3.076	115.8	17.2	18.7
1987 05 15	10 47.07	+08 37.9					
1987 05 25	10 51.39	+08 14.0	2.780	3.093	98.3	18.9	19.0

(3429) 1974 SU1 a,e,i = 2.34, 0.19, 1 Elements MPC 10629

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986 12 16	11 26.81	+02 48.3	2.554	2.768	91.9	20.8	19.0
1986 12 26	11 32.42	+02 12.4					
1987 01 05	11 36.04	+01 49.5	2.284	2.776	109.8	19.5	18.8
1987 01 15	11 37.42	+01 41.2					
1987 01 25	11 36.37	+01 49.0	2.043	2.781	130.1	15.7	18.4
1987 02 04	11 32.80	+02 13.7					
1987 02 14	11 26.84	+02 54.2	1.866	2.783	153.0	9.3	18.0
1987 02 24	11 18.94	+03 47.8					
1987 03 06	11 09.82	+04 49.4	1.790	2.781	177.7	0.8	17.5
1987 03 16	11 00.46	+05 52.4					
1987 03 26	10 51.88	+06 50.2	1.830	2.778	157.4	7.9	17.9
1987 04 05	10 44.94	+07 37.4					
1987 04 15	10 40.22	+08 10.6	1.974	2.771	134.5	15.0	18.3
1987 04 25	10 37.96	+08 28.6					
1987 05 05	10 38.19	+08 31.5	2.187	2.761	114.4	19.4	18.7
1987 05 15	10 40.74	+08 20.0					
1987 05 25	10 45.35	+07 55.6	2.434	2.748	97.0	21.5	18.9

(3478) 1979 XG a,e,i = 2.24, 0.16, 4 Elements MPC 10947

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	12 16	11 22.91	+05 28.4	2.009	2.296	93.9	25.3	17.2
1986	12 26	11 30.68	+04 58.3					
1987	01 05	11 36.11	+04 45.0	1.791	2.331	110.9	23.2	17.0
1987	01 15	11 38.89	+04 50.4					
1987	01 25	11 38.77	+05 16.0	1.601	2.365	130.9	18.4	16.6
1987	02 04	11 35.62	+06 01.6					
1987	02 14	11 29.60	+07 04.5	1.471	2.397	153.8	10.5	16.2
1987	02 24	11 21.28	+08 19.0					
1987	03 06	11 11.60	+09 36.7	1.437	2.428	175.9	1.7	15.8
1987	03 16	11 01.83	+10 48.2					
1987	03 26	10 53.17	+11 46.0	1.513	2.456	155.5	9.7	16.3
1987	04 05	10 46.60	+12 25.2					
1987	04 15	10 42.67	+12 44.4	1.685	2.482	133.2	17.1	16.8
1987	04 25	10 41.53	+12 44.6					
1987	05 05	10 43.06	+12 27.5	1.919	2.505	114.0	21.6	17.2
1987	05 15	10 46.99	+11 55.6					
1987	05 25	10 52.98	+11 11.1	2.186	2.527	97.5	23.4	17.6

1982 VD5 a,e,i = 2.28, 0.15, 3 Elements MPC 10943

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	12 16	11 16.70	+00 36.9	1.792	2.095	93.4	28.0	18.5
1986	12 26	11 25.80	-00 36.5					
1987	01 05	11 32.50	-01 35.4	1.591	2.128	109.2	25.9	18.2
1987	01 15	11 36.47	-02 16.9					
1987	01 25	11 37.39	-02 38.0	1.412	2.161	127.9	21.1	17.8
1987	02 04	11 35.10	-02 36.0					
1987	02 14	11 29.73	-02 10.3	1.284	2.196	149.9	13.0	17.4
1987	02 24	11 21.85	-01 22.6					
1987	03 06	11 12.46	-00 18.3	1.242	2.230	173.1	3.1	17.0
1987	03 16	11 02.95	+00 54.0					
1987	03 26	10 54.62	+02 04.4	1.304	2.265	159.4	8.9	17.4
1987	04 05	10 48.53	+03 04.7					
1987	04 15	10 45.27	+03 49.4	1.460	2.299	137.2	17.2	17.9
1987	04 25	10 44.94	+04 16.1					
1987	05 05	10 47.41	+04 24.6	1.682	2.333	118.1	22.4	18.4
1987	05 15	10 52.35	+04 16.1					
1987	05 25	10 59.37	+03 52.5	1.941	2.366	101.8	24.8	18.8

(3370) 1934 CU a,e,i = 2.22, 0.11, 7 Elements MPC 10393

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	12 16	11 13.19	+04 12.9	1.715	2.059	95.6	28.4	18.0
1986	12 26	11 23.35	+03 40.2					
1987	01 05	11 31.18	+03 26.6	1.507	2.080	111.6	26.1	17.7
1987	01 15	11 36.30	+03 35.1					
1987	01 25	11 38.39	+04 08.2	1.326	2.103	130.5	20.8	17.3
1987	02 04	11 37.18	+05 06.9					
1987	02 14	11 32.78	+06 28.6	1.200	2.127	152.9	12.2	16.9
1987	02 24	11 25.68	+08 06.6					
1987	03 06	11 16.86	+09 50.2	1.162	2.152	174.9	2.4	16.4
1987	03 16	11 07.72	+11 26.7					
1987	03 26	10 59.69	+12 45.3	1.227	2.177	156.2	10.6	16.9
1987	04 05	10 53.87	+13 39.6					
1987	04 15	10 50.93	+14 07.5	1.381	2.202	134.4	19.0	17.5
1987	04 25	10 51.00	+14 10.8					
1987	05 05	10 53.93	+13 52.4	1.595	2.227	115.8	24.1	17.9
1987	05 15	10 59.40	+13 15.6					
1987	05 25	11 06.99	+12 23.6	1.840	2.252	100.2	26.3	18.3

(3433) 1963 TJ1 a,e,i = 2.39, 0.19, 5 Elements MPC 10753

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	12 16	11 32.77	+03 46.8	2.142	2.372	91.0	24.5	17.5
1986	12 26	11 40.06	+02 47.0					
1987	01 05	11 45.09	+02 00.2	1.924	2.414	107.8	22.8	17.3
1987	01 15	11 47.57	+01 28.1					
1987	01 25	11 47.25	+01 12.3	1.729	2.455	127.4	18.6	17.0
1987	02 04	11 44.00	+01 13.7					
1987	02 14	11 37.97	+01 31.8	1.590	2.494	149.9	11.5	16.6
1987	02 24	11 29.66	+02 04.1					
1987	03 06	11 19.91	+02 45.9	1.543	2.532	174.5	2.2	16.2
1987	03 16	11 09.90	+03 30.9					
1987	03 26	11 00.78	+04 12.4	1.607	2.569	160.4	7.5	16.6
1987	04 05	10 53.51	+04 45.1					
1987	04 15	10 48.70	+05 05.3	1.773	2.603	137.6	15.1	17.1
1987	04 25	10 46.55	+05 11.8					
1987	05 05	10 47.00	+05 04.6	2.011	2.636	117.7	19.8	17.5
1987	05 15	10 49.83	+04 44.2					
1987	05 25	10 54.72	+04 12.1	2.288	2.667	100.6	21.9	17.9

1976 GO8 a,e,i = 2.40, 0.24, 11 Elements MPC 9593

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	12 16	11 28.31	+08 28.4	2.181	2.452	93.8	23.6	19.1
1986	12 26	11 36.17	+07 23.9					
1987	01 05	11 42.08	+06 27.9	1.876	2.400	110.2	22.6	18.7
1987	01 15	11 45.69	+05 42.1					
1987	01 25	11 46.61	+05 07.4	1.599	2.347	129.0	19.0	18.2
1987	02 04	11 44.48	+04 45.0					
1987	02 14	11 39.17	+04 34.4	1.380	2.293	150.8	12.1	17.6
1987	02 24	11 30.88	+04 34.2					
1987	03 06	11 20.26	+04 40.9	1.249	2.239	175.3	2.1	16.9
1987	03 16	11 08.58	+04 49.2					
1987	03 26	10 57.31	+04 53.7	1.223	2.185	159.3	9.3	17.2
1987	04 05	10 47.93	+04 49.4					
1987	04 15	10 41.50	+04 33.0	1.293	2.132	136.1	19.1	17.6
1987	04 25	10 38.50	+04 03.2					
1987	05 05	10 38.99	+03 19.7	1.426	2.081	116.5	25.7	17.9
1987	05 15	10 42.75	+02 22.8					
1987	05 25	10 49.38	+01 13.5	1.588	2.032	100.4	29.4	18.2

1985 PB a,e,i = 2.23, 0.18, 5 Elements MPC 10166

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	12 16	11 29.06	+02 35.2	2.082	2.324	91.3	25.0	18.4
1986	12 26	11 37.01	+01 58.7					
1987	01 05	11 42.75	+01 38.2	1.861	2.361	108.2	23.3	18.2
1987	01 15	11 45.96	+01 36.1					
1987	01 25	11 46.38	+01 54.3	1.663	2.397	127.8	18.9	17.9
1987	02 04	11 43.85	+02 33.6					
1987	02 14	11 38.50	+03 32.6	1.521	2.430	150.6	11.5	17.5
1987	02 24	11 30.76	+04 47.1					
1987	03 06	11 21.49	+06 09.9	1.471	2.461	175.3	1.9	17.0
1987	03 16	11 11.85	+07 31.8					
1987	03 26	11 03.04	+08 44.0	1.533	2.490	159.1	8.2	17.4
1987	04 05	10 56.07	+09 40.1					
1987	04 15	10 51.57	+10 16.9	1.695	2.517	136.3	16.0	17.9
1987	04 25	10 49.78	+10 34.1					
1987	05 05	10 50.64	+10 32.8	1.925	2.540	116.5	20.8	18.3
1987	05 15	10 53.92	+10 15.2					
1987	05 25	10 59.31	+09 43.4	2.191	2.561	99.5	23.0	18.7

1981 SC7 a,e,i = 2.53, 0.24, 9 Elements MPC 10836

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	12 16	11 39.94	+11 51.0	2.541	2.765	92.5	20.8	18.6
1986	12 26	11 45.73	+11 39.1					
1987	01 05	11 49.40	+11 41.6	2.310	2.808	110.4	19.2	18.4
1987	01 15	11 50.70	+11 58.9					
1987	01 25	11 49.47	+12 30.4	2.109	2.849	130.6	15.2	18.1
1987	02 04	11 45.63	+13 14.2					
1987	02 14	11 39.37	+14 06.0	1.975	2.888	152.5	9.1	17.8
1987	02 24	11 31.14	+15 00.1					
1987	03 06	11 21.71	+15 49.9	1.943	2.924	169.2	3.6	17.6
1987	03 16	11 12.04	+16 29.0					
1987	03 26	11 03.12	+16 53.2	2.027	2.957	154.2	8.4	17.9
1987	04 05	10 55.77	+17 00.5					
1987	04 15	10 50.54	+16 51.1	2.213	2.988	132.9	14.2	18.3
1987	04 25	10 47.63	+16 26.8					
1987	05 05	10 47.05	+15 49.6	2.469	3.016	113.5	17.9	18.7
1987	05 15	10 48.63	+15 01.7					
1987	05 25	10 52.14	+14 05.1	2.761	3.041	96.2	19.3	19.0

1981 UC1 a,e,i = 2.36, 0.21, 2 Elements MPC 10757

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	12 16	11 35.73	+04 45.9	2.627	2.816	90.7	20.5	18.7
1986	12 26	11 41.96	+04 13.6					
1987	01 05	11 46.35	+03 53.7	2.332	2.801	108.3	19.5	18.4
1987	01 15	11 48.63	+03 48.0					
1987	01 25	11 48.55	+03 57.7	2.065	2.782	128.1	16.2	18.1
1987	02 04	11 45.95	+04 23.4					
1987	02 14	11 40.85	+05 04.1	1.858	2.761	150.5	10.1	17.6
1987	02 24	11 33.54	+05 56.9					
1987	03 06	11 24.63	+06 56.8	1.748	2.737	174.4	2.0	17.1
1987	03 16	11 15.04	+07 57.1					
1987	03 26	11 05.83	+08 50.9	1.753	2.710	159.6	7.4	17.4
1987	04 05	10 57.98	+09 32.8					
1987	04 15	10 52.24	+09 59.2	1.863	2.681	136.5	14.9	17.7
1987	04 25	10 49.00	+10 09.1					
1987	05 05	10 48.37	+10 02.7	2.045	2.649	116.2	20.0	18.0
1987	05 15	10 50.24	+09 41.2					
1987	05 25	10 54.38	+09 06.4	2.263	2.614	98.6	22.5	18.3

1964 TG2 a,e,i = 2.60, 0.16, 3 Elements MPC 10391

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	12 16	11 35.72	+02 35.7	2.440	2.628	89.8	22.0	18.5
1986	12 26	11 42.39	+01 45.1					
1987	01 05	11 47.03	+01 06.7	2.202	2.661	107.0	20.7	18.2
1987	01 15	11 49.39	+00 42.3					
1987	01 25	11 49.27	+00 33.1	1.988	2.693	126.6	17.1	17.9
1987	02 04	11 46.57	+00 40.1					
1987	02 14	11 41.40	+01 02.7	1.831	2.725	148.9	10.8	17.6
1987	02 24	11 34.18	+01 38.7					
1987	03 06	11 25.58	+02 24.0	1.767	2.755	173.1	2.5	17.2
1987	03 16	11 16.57	+03 12.9					
1987	03 26	11 08.14	+03 59.4	1.817	2.784	162.2	6.3	17.4
1987	04 05	11 01.18	+04 38.0					
1987	04 15	10 56.28	+05 05.1	1.973	2.811	139.4	13.4	17.9
1987	04 25	10 53.72	+05 18.9					
1987	05 05	10 53.55	+05 19.1	2.205	2.837	119.2	18.1	18.3
1987	05 15	10 55.61	+05 06.2					
1987	05 25	10 59.66	+04 41.3	2.481	2.861	101.5	20.3	18.6

1976 SJ4 a,e,i = 2.77, 0.31, 6 Elements MPC 10165

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	12 16	11 28.39	-02 48.8	2.042	2.257	89.4	25.9	16.4
1986	12 26	11 37.01	-03 51.9					
1987	01 05	11 43.35	-04 40.0	1.856	2.321	105.5	24.1	16.2
1987	01 15	11 47.15	-05 10.3					
1987	01 25	11 48.19	-05 20.4	1.688	2.386	124.3	19.9	15.9
1987	02 04	11 46.38	-05 08.3					
1987	02 14	11 41.88	-04 33.6	1.570	2.453	146.1	13.0	15.6
1987	02 24	11 35.19	-03 38.0					
1987	03 06	11 27.10	-02 26.3	1.538	2.520	169.4	4.1	15.3
1987	03 16	11 18.70	-01 06.2					
1987	03 26	11 11.05	+00 13.7	1.614	2.586	163.7	6.2	15.5
1987	04 05	11 05.04	+01 25.6					
1987	04 15	11 01.24	+02 23.8	1.794	2.653	141.4	13.6	16.1
1987	04 25	10 59.83	+03 05.6					
1987	05 05	11 00.80	+03 30.2	2.052	2.718	121.5	18.4	16.6
1987	05 15	11 03.93	+03 38.4					
1987	05 25	11 08.94	+03 31.8	2.356	2.782	104.1	20.7	17.0

1978 SN4 a,e,i = 3.20, 0.18, 2 Elements MPC 11051

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	12 16	11 41.05	+03 52.0	3.658	3.773	89.1	15.1	18.4
1986	12 26	11 45.03	+03 30.6					
1987	01 05	11 47.51	+03 19.1	3.354	3.772	107.8	14.4	18.2
1987	01 15	11 48.33	+03 18.5					
1987	01 25	11 47.40	+03 29.1	3.080	3.769	128.2	11.8	18.0
1987	02 04	11 44.70	+03 50.7					
1987	02 14	11 40.34	+04 22.2	2.874	3.764	150.4	7.4	17.6
1987	02 24	11 34.60	+05 01.4					
1987	03 06	11 27.91	+05 45.2	2.771	3.758	173.6	1.7	17.3
1987	03 16	11 20.82	+06 29.6					
1987	03 26	11 13.96	+07 10.7	2.789	3.751	162.2	4.7	17.5
1987	04 05	11 07.88	+07 45.1					
1987	04 15	11 03.08	+08 10.2	2.920	3.742	139.7	10.0	17.8
1987	04 25	10 59.84	+08 24.8					
1987	05 05	10 58.32	+08 28.4	3.136	3.732	119.1	13.7	18.0
1987	05 15	10 58.54	+08 21.3					
1987	05 25	11 00.40	+08 04.1	3.401	3.720	100.4	15.5	18.3

1977 SN a,e,i = 2.37, 0.24, 5 Elements MPC 11146

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	12 16	11 36.83	+07 41.4	2.571	2.778	91.6	20.7	18.2
1986	12 26	11 43.69	+07 20.0					
1987	01 05	11 48.76	+07 12.0	2.265	2.746	108.9	19.8	17.8
1987	01 15	11 51.75	+07 19.3					
1987	01 25	11 52.38	+07 42.9	1.987	2.711	128.5	16.5	17.4
1987	02 04	11 50.41	+08 23.0					
1987	02 14	11 45.82	+09 17.7	1.770	2.673	150.4	10.5	17.0
1987	02 24	11 38.82	+10 23.1					
1987	03 06	11 29.96	+11 32.8	1.648	2.633	171.3	3.3	16.5
1987	03 16	11 20.19	+12 38.5					
1987	03 26	11 10.61	+13 32.7	1.639	2.590	157.8	8.4	16.6
1987	04 05	11 02.34	+14 09.7					
1987	04 15	10 56.23	+14 26.8	1.731	2.544	135.3	16.1	17.0
1987	04 25	10 52.75	+14 23.9					
1987	05 05	10 52.05	+14 02.6	1.892	2.496	115.3	21.4	17.3
1987	05 15	10 54.06	+13 24.9					
1987	05 25	10 58.50	+12 33.2	2.087	2.447	98.2	24.2	17.5

1985 TX a,e,i = 2.40, 0.10, 2 Elements MPC 10391

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	12 16	11 33.97	+00 20.4	2.248	2.443	89.3	23.7	17.2
1986	12 26	11 41.92	-00 37.8					
1987	01 05	11 47.85	-01 23.4	2.008	2.464	105.8	22.6	16.9
1987	01 15	11 51.48	-01 54.1					
1987	01 25	11 52.54	-02 07.9	1.788	2.485	124.8	19.0	16.6
1987	02 04	11 50.85	-02 02.9					
1987	02 14	11 46.44	-01 38.5	1.620	2.504	146.6	12.5	16.2
1987	02 24	11 39.66	-00 56.1					
1987	03 06	11 31.17	+00 00.6	1.539	2.522	170.6	3.7	15.8
1987	03 16	11 22.01	+01 04.9					
1987	03 26	11 13.32	+02 09.3	1.566	2.540	163.9	6.2	15.9
1987	04 05	11 06.10	+03 06.5					
1987	04 15	11 01.12	+03 50.8	1.698	2.556	140.9	14.3	16.4
1987	04 25	10 58.69	+04 19.6					
1987	05 05	10 58.88	+04 31.8	1.905	2.571	120.7	19.7	16.8
1987	05 15	11 01.53	+04 28.0					
1987	05 25	11 06.35	+04 09.5	2.156	2.584	103.3	22.4	17.2

1980 SD a,e,i = 2.59, 0.18, 13 Elements MPC 7779

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	12 16	11 45.71	+12 24.3	2.748	2.942	91.4	19.5	19.4
1986	12 26	11 51.79	+12 00.4					
1987	01 05	11 56.04	+11 48.5	2.449	2.920	108.9	18.6	19.1
1987	01 15	11 58.16	+11 49.3					
1987	01 25	11 57.93	+12 02.7	2.179	2.896	128.4	15.4	18.7
1987	02 04	11 55.14	+12 27.6					
1987	02 14	11 49.81	+13 01.3	1.972	2.870	149.9	9.9	18.3
1987	02 24	11 42.21	+13 39.2					
1987	03 06	11 32.90	+14 15.5	1.862	2.842	169.0	3.8	17.9
1987	03 16	11 22.80	+14 44.0					
1987	03 26	11 12.94	+14 59.4	1.866	2.812	157.2	7.9	18.1
1987	04 05	11 04.33	+14 58.9					
1987	04 15	10 57.73	+14 41.6	1.974	2.780	135.5	14.6	18.4
1987	04 25	10 53.57	+14 08.6					
1987	05 05	10 51.99	+13 21.7	2.157	2.748	115.6	19.3	18.7
1987	05 15	10 52.90	+12 22.9					
1987	05 25	10 56.07	+11 14.1	2.377	2.713	98.2	21.7	19.0

1982 UM7 a,e,i = 2.19, 0.10, 3 Elements MPC 10529

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	12 16	11 18.90	+01 24.5	1.840	2.135	93.2	27.4	17.1
1986	12 26	11 29.44	+00 13.3					
1987	01 05	11 38.09	-00 45.8	1.585	2.111	108.3	26.3	16.7
1987	01 15	11 44.48	-01 29.5					
1987	01 25	11 48.22	-01 54.7	1.353	2.088	125.8	22.5	16.2
1987	02 04	11 48.93	-01 57.8					
1987	02 14	11 46.43	-01 36.6	1.168	2.066	146.6	15.3	15.7
1987	02 24	11 40.88	-00 51.2					
1987	03 06	11 32.87	+00 15.3	1.060	2.045	170.4	4.7	15.0
1987	03 16	11 23.64	+01 34.7					
1987	03 26	11 14.68	+02 55.8	1.048	2.026	164.1	7.8	15.1
1987	04 05	11 07.45	+04 07.5					
1987	04 15	11 03.05	+05 01.1	1.127	2.009	141.0	18.3	15.6
1987	04 25	11 01.96	+05 32.5					
1987	05 05	11 04.23	+05 40.7	1.272	1.994	121.5	25.6	16.1
1987	05 15	11 09.60	+05 26.9					
1987	05 25	11 17.65	+04 53.3	1.452	1.981	105.6	29.5	16.4

1982 TR a,e,i = 2.19, 0.06, 4 Elements MPC 10040

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	12 16	11 36.51	+01 58.7	1.928	2.155	89.4	27.2	18.2
1986	12 26	11 46.31	+00 36.2					
1987	01 05	11 54.01	-00 35.4	1.700	2.170	104.7	26.0	17.9
1987	01 15	11 59.25	-01 33.5					
1987	01 25	12 01.68	-02 15.9	1.490	2.184	122.6	22.3	17.5
1987	02 04	12 00.95	-02 40.2					
1987	02 14	11 56.98	-02 44.8	1.324	2.199	143.7	15.4	17.1
1987	02 24	11 49.98	-02 29.5					
1987	03 06	11 40.64	-01 56.6	1.235	2.214	167.5	5.6	16.6
1987	03 16	11 30.17	-01 11.7					
1987	03 26	11 20.00	-00 22.7	1.247	2.228	166.0	6.2	16.6
1987	04 05	11 11.48	+00 22.4					
1987	04 15	11 05.59	+00 56.6	1.358	2.241	142.9	15.7	17.2
1987	04 25	11 02.76	+01 16.2					
1987	05 05	11 03.03	+01 19.5	1.542	2.254	122.8	22.1	17.6
1987	05 15	11 06.16	+01 06.6					
1987	05 25	11 11.80	+00 38.6	1.769	2.266	105.9	25.5	18.0

(3384) 1974 SB1 a,e,i = 2.38, 0.21, 3 Elements MPC 10398

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	12 16	11 44.51	+02 23.6	2.297	2.462	87.7	23.5	18.6
1986	12 26	11 52.44	+01 43.2					
1987	01 05	11 58.31	+01 17.1	2.073	2.506	104.5	22.3	18.4
1987	01 15	12 01.87	+01 07.2					
1987	01 25	12 02.85	+01 15.0	1.866	2.549	123.8	18.7	18.1
1987	02 04	12 01.08	+01 41.3					
1987	02 14	11 56.62	+02 25.1	1.711	2.589	145.9	12.3	17.8
1987	02 24	11 49.78	+03 23.5					
1987	03 06	11 41.21	+04 31.2	1.644	2.627	170.2	3.7	17.4
1987	03 16	11 31.89	+05 40.7					
1987	03 26	11 22.91	+06 44.3	1.689	2.663	164.3	5.8	17.6
1987	04 05	11 15.24	+07 36.0					
1987	04 15	11 09.64	+08 11.6	1.841	2.697	141.2	13.5	18.1
1987	04 25	11 06.44	+08 30.0					
1987	05 05	11 05.73	+08 31.6	2.071	2.728	120.7	18.5	18.5
1987	05 15	11 07.37	+08 17.7					
1987	05 25	11 11.12	+07 50.4	2.347	2.756	102.9	21.0	18.9

1976 SN3 a,e,i = 3.95, 0.22, 3 Elements MPC 10527

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	01 05	11 59.41	+00 59.9	3.363	3.727	104.1	14.8	17.7
1987	01 15	12 01.20	+00 56.8					
1987	01 25	12 01.28	+01 05.2	3.125	3.766	124.1	12.5	17.5
1987	02 04	11 59.63	+01 25.2					
1987	02 14	11 56.36	+01 55.6	2.948	3.806	145.8	8.4	17.3
1987	02 24	11 51.71	+02 34.6					
1987	03 06	11 46.04	+03 19.3	2.867	3.845	168.8	2.9	17.0
1987	03 16	11 39.88	+04 06.0					
1987	03 26	11 33.78	+04 50.8	2.904	3.884	167.6	3.2	17.0
1987	04 05	11 28.27	+05 30.2					
1987	04 15	11 23.82	+06 01.4	3.057	3.923	145.3	8.4	17.4
1987	04 25	11 20.71	+06 22.7					
1987	05 05	11 19.12	+06 33.4	3.302	3.962	124.5	12.1	17.7
1987	05 15	11 19.09	+06 33.5					
1987	05 25	11 20.57	+06 23.6	3.606	4.000	105.7	14.1	18.0
1987	06 04	11 23.45	+06 04.6					
1987	06 14	11 27.59	+05 37.3	3.936	4.038	88.4	14.6	18.2

1985 TC a,e,i = 2.27, 0.19, 3 Elements MPC 10402

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	01 05	12 04.28	-03 25.4	2.237	2.613	101.2	21.7	18.8
1987	01 15	12 07.93	-03 55.1					
1987	01 25	12 09.20	-04 09.1	1.999	2.634	120.1	18.9	18.5
1987	02 04	12 07.86	-04 05.4					
1987	02 14	12 03.89	-03 43.0	1.805	2.652	141.8	13.3	18.1
1987	02 24	11 57.49	-03 02.5					
1987	03 06	11 49.16	-02 06.2	1.695	2.667	165.7	5.3	17.7
1987	03 16	11 39.79	-00 59.5					
1987	03 26	11 30.41	+00 10.5	1.695	2.679	168.5	4.3	17.6
1987	04 05	11 22.06	+01 16.4					
1987	04 15	11 15.58	+02 11.9	1.805	2.688	144.9	12.4	18.1
1987	04 25	11 11.45	+02 53.0					
1987	05 05	11 09.86	+03 17.9	2.001	2.694	123.7	18.1	18.5
1987	05 15	11 10.74	+03 26.4					
1987	05 25	11 13.89	+03 19.7	2.246	2.697	105.3	21.2	18.8
1987	06 04	11 19.04	+02 59.0					
1987	06 14	11 25.91	+02 26.0	2.511	2.697	89.3	22.1	19.1

1977 RH7 a,e,i = 2.39, 0.20, 5 Elements MPC 9960

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	01 05	12 09.87	+02 29.5	2.355	2.739	102.3	20.5	18.4
1987	01 15	12 13.94	+02 05.6					
1987	01 25	12 15.80	+01 55.3	2.070	2.712	121.0	18.1	18.1
1987	02 04	12 15.17	+01 59.7					
1987	02 14	12 11.93	+02 18.9	1.833	2.683	142.3	13.0	17.6
1987	02 24	12 06.13	+02 51.5					
1987	03 06	11 58.12	+03 34.6	1.679	2.652	165.9	5.2	17.1
1987	03 16	11 48.66	+04 22.7					
1987	03 26	11 38.75	+05 09.5	1.633	2.618	168.5	4.4	17.0
1987	04 05	11 29.50	+05 48.6					
1987	04 15	11 21.92	+06 15.0	1.697	2.582	144.8	13.0	17.4
1987	04 25	11 16.68	+06 25.9					
1987	05 05	11 14.11	+06 20.4	1.845	2.544	123.5	19.3	17.7
1987	05 15	11 14.24	+05 59.2					
1987	05 25	11 16.91	+05 23.5	2.040	2.505	105.2	23.0	18.0
1987	06 04	11 21.88	+04 34.7					
1987	06 14	11 28.85	+03 34.5	2.253	2.464	89.5	24.3	18.2

1975 BF a,e,i = 3.16, 0.16, 1 Elements MPC 10756

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	01 05	12 07.45	-01 04.9	2.735	3.085	101.4	18.2	18.0
1987	01 15	12 10.63	-01 23.6					
1987	01 25	12 11.79	-01 28.9	2.498	3.117	120.7	15.8	17.7
1987	02 04	12 10.83	-01 20.2					
1987	02 14	12 07.77	-00 57.5	2.311	3.149	142.1	11.1	17.4
1987	02 24	12 02.84	-00 22.4					
1987	03 06	11 56.43	+00 22.5	2.211	3.180	165.3	4.5	17.1
1987	03 16	11 49.19	+01 12.8					
1987	03 26	11 41.85	+02 03.7	2.223	3.212	170.7	2.9	17.0
1987	04 05	11 35.16	+02 50.0					
1987	04 15	11 29.75	+03 27.6	2.350	3.242	147.7	9.5	17.5
1987	04 25	11 26.02	+03 54.0					
1987	05 05	11 24.20	+04 07.8	2.569	3.273	126.7	14.3	17.8
1987	05 15	11 24.32	+04 08.9					
1987	05 25	11 26.27	+03 58.0	2.846	3.302	107.9	17.0	18.2
1987	06 04	11 29.90	+03 36.1					
1987	06 14	11 35.02	+03 04.3	3.152	3.331	91.1	17.8	18.4

1978 SU5 a,e,i = 2.31, 0.05, 6 Elements MPC 10536

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	01 05	11 58.23	-07 07.6	1.800	2.211	101.1	25.9	18.5
1987	01 15	12 05.20	-08 13.1					
1987	01 25	12 09.76	-09 02.7	1.570	2.209	117.9	23.2	18.2
1987	02 04	12 11.54	-09 32.8					
1987	02 14	12 10.35	-09 40.0	1.377	2.208	137.4	17.6	17.7
1987	02 24	12 06.20	-09 21.9					
1987	03 06	11 59.49	-08 37.7	1.251	2.208	159.5	9.1	17.2
1987	03 16	11 51.11	-07 30.9					
1987	03 26	11 42.29	-06 08.8	1.219	2.209	170.6	4.3	17.0
1987	04 05	11 34.37	-04 41.6					
1987	04 15	11 28.50	-03 20.5	1.288	2.212	149.5	13.3	17.5
1987	04 25	11 25.35	-02 13.4					
1987	05 05	11 25.18	-01 25.5	1.438	2.215	128.9	20.7	17.9
1987	05 15	11 27.92	-00 58.4					
1987	05 25	11 33.27	-00 51.5	1.640	2.220	111.4	25.1	18.3
1987	06 04	11 40.91	-01 03.3					
1987	06 14	11 50.47	-01 31.5	1.869	2.226	96.5	27.0	18.7

1978 UO2 a,e,i = 3.13, 0.24, 15 Elements MPC 10516

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	01 05	12 16.48	+12 40.9	3.386	3.755	104.5	14.7	18.0
1987	01 15	12 18.30	+12 54.2					
1987	01 25	12 18.33	+13 18.0	3.094	3.735	124.0	12.6	17.8
1987	02 04	12 16.44	+13 51.1					
1987	02 14	12 12.65	+14 31.2	2.864	3.712	144.5	8.9	17.5
1987	02 24	12 07.12	+15 14.6					
1987	03 06	12 00.16	+15 57.0	2.728	3.687	162.8	4.6	17.2
1987	03 16	11 52.31	+16 33.7					
1987	03 26	11 44.22	+17 00.3	2.709	3.661	159.7	5.4	17.2
1987	04 05	11 36.55	+17 13.8					
1987	04 15	11 29.95	+17 12.8	2.804	3.633	140.4	10.1	17.4
1987	04 25	11 24.83	+16 57.2					
1987	05 05	11 21.49	+16 28.2	2.986	3.604	120.5	14.0	17.7
1987	05 15	11 20.03	+15 47.3					
1987	05 25	11 20.40	+14 56.4	3.221	3.573	102.1	16.1	17.9
1987	06 04	11 22.49	+13 57.1					
1987	06 14	11 26.14	+12 50.7	3.476	3.540	85.3	16.6	18.0

1982 UJ2 a,e,i = 2.28, 0.18, 4 Elements MPC 8901

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	01 05	12 02.12	+04 56.7	1.405	1.912	105.0	29.8	16.8
1987	01 15	12 10.80	+04 08.3					
1987	01 25	12 16.49	+03 37.6	1.228	1.934	121.5	25.7	16.4
1987	02 04	12 18.75	+03 26.0					
1987	02 14	12 17.32	+03 33.5	1.089	1.960	141.4	18.3	16.0
1987	02 24	12 12.29	+03 57.7					
1987	03 06	12 04.22	+04 33.4	1.017	1.991	164.5	7.6	15.5
1987	03 16	11 54.35	+05 12.4					
1987	03 26	11 44.24	+05 45.6	1.036	2.024	169.2	5.3	15.5
1987	04 05	11 35.50	+06 05.6					
1987	04 15	11 29.33	+06 07.8	1.148	2.060	146.5	15.6	16.1
1987	04 25	11 26.29	+05 51.5					
1987	05 05	11 26.48	+05 17.6	1.333	2.098	126.7	22.7	16.7
1987	05 15	11 29.65	+04 28.3					
1987	05 25	11 35.37	+03 26.2	1.564	2.137	110.2	26.4	17.2
1987	06 04	11 43.26	+02 13.3					
1987	06 14	11 52.93	+00 51.6	1.821	2.178	96.1	27.6	17.6

1976 GU3 a,e,i = 3.19, 0.14, 2 Elements MPC 10613

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987 01 05	12 06.53	+01 45.1	2.498	2.880	102.8	19.4	17.1
1987 01 15	12 11.18	+01 21.3					
1987 01 25	12 13.83	+01 10.6	2.222	2.859	121.2	17.1	16.8
1987 02 04	12 14.27	+01 14.0					
1987 02 14	12 12.41	+01 31.3	1.996	2.839	141.9	12.4	16.4
1987 02 24	12 08.36	+02 01.3					
1987 03 06	12 02.44	+02 41.2	1.852	2.821	164.6	5.3	16.0
1987 03 16	11 55.29	+03 26.3					
1987 03 26	11 47.72	+04 11.0	1.815	2.804	170.9	3.2	15.8
1987 04 05	11 40.65	+04 49.7					
1987 04 15	11 34.89	+05 17.5	1.886	2.789	148.1	11.0	16.2
1987 04 25	11 31.02	+05 31.7					
1987 05 05	11 29.35	+05 31.1	2.046	2.775	127.3	16.8	16.6
1987 05 15	11 29.98	+05 15.7					
1987 05 25	11 32.80	+04 46.7	2.262	2.764	109.1	20.3	16.9
1987 06 04	11 37.62	+04 05.3					
1987 06 14	11 44.22	+03 13.0	2.505	2.755	93.2	21.6	17.1

(3408) 1977 QG4 a,e,i = 2.37, 0.23, 3 Elements MPC 10533

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987 01 05	12 21.28	-00 23.5	2.584	2.898	98.5	19.6	18.6
1987 01 15	12 25.46	-00 38.3					
1987 01 25	12 27.60	-00 38.9	2.300	2.888	117.3	17.6	18.3
1987 02 04	12 27.46	-00 23.9					
1987 02 14	12 24.90	+00 06.9	2.059	2.874	138.5	13.2	17.9
1987 02 24	12 19.99	+00 52.6					
1987 03 06	12 12.98	+01 50.6	1.897	2.857	161.9	6.2	17.5
1987 03 16	12 04.49	+02 55.9					
1987 03 26	11 55.34	+04 02.2	1.845	2.836	172.3	2.7	17.2
1987 04 05	11 46.51	+05 02.7					
1987 04 15	11 38.91	+05 51.6	1.907	2.813	148.7	10.7	17.6
1987 04 25	11 33.21	+06 25.3					
1987 05 05	11 29.81	+06 42.1	2.062	2.787	126.9	16.8	18.0
1987 05 15	11 28.84	+06 42.2					
1987 05 25	11 30.20	+06 26.8	2.274	2.758	107.8	20.5	18.3
1987 06 04	11 33.72	+05 57.4					
1987 06 14	11 39.17	+05 15.7	2.508	2.726	91.2	21.9	18.5

1972 KM a,e,i = 2.54, 0.25, 9 Elements MPC 7613

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987 01 05	12 16.98	+07 28.9	2.387	2.772	102.5	20.3	18.5
1987 01 15	12 22.47	+07 41.5					
1987 01 25	12 25.94	+08 10.9	2.087	2.724	120.7	18.1	18.1
1987 02 04	12 27.10	+08 57.8					
1987 02 14	12 25.72	+10 01.2	1.835	2.674	140.8	13.5	17.6
1987 02 24	12 21.76	+11 17.9					
1987 03 06	12 15.41	+12 42.3	1.665	2.623	160.9	7.1	17.2
1987 03 16	12 07.22	+14 05.7					
1987 03 26	11 58.10	+15 19.1	1.601	2.569	162.4	6.7	17.0
1987 04 05	11 49.13	+16 14.2					
1987 04 15	11 41.43	+16 45.7	1.641	2.514	142.8	14.0	17.3
1987 04 25	11 35.81	+16 52.1					
1987 05 05	11 32.77	+16 34.5	1.762	2.458	122.7	20.2	17.6
1987 05 15	11 32.50	+15 55.7					
1987 05 25	11 34.88	+14 59.0	1.929	2.402	105.2	24.0	17.8
1987 06 04	11 39.71	+13 47.2					
1987 06 14	11 46.72	+12 23.0	2.112	2.345	90.1	25.7	18.0

1981 PG a,e,i = 2.25, 0.19, 2 Elements MPC 6945

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	01 05	12 21.77	-05 17.0	2.324	2.624	96.5	21.9	18.4
1987	01 15	12 27.16	-06 04.2					
1987	01 25	12 30.44	-06 38.7	2.041	2.605	114.3	20.1	18.0
1987	02 04	12 31.29	-06 58.3					
1987	02 14	12 29.51	-07 00.9	1.793	2.584	134.6	15.8	17.6
1987	02 24	12 25.03	-06 45.3					
1987	03 06	12 18.04	-06 11.1	1.615	2.560	157.5	8.5	17.1
1987	03 16	12 09.16	-05 20.8					
1987	03 26	11 59.31	-04 19.1	1.538	2.533	175.1	1.9	16.7
1987	04 05	11 49.64	-03 13.2					
1987	04 15	11 41.28	-02 11.1	1.571	2.503	152.3	10.7	17.1
1987	04 25	11 35.09	-01 19.4					
1987	05 05	11 31.55	-00 42.7	1.697	2.471	130.2	18.2	17.4
1987	05 15	11 30.83	-00 23.3					
1987	05 25	11 32.80	-00 21.1	1.881	2.436	111.1	22.8	17.8
1987	06 04	11 37.25	-00 35.4					
1987	06 14	11 43.88	-01 04.7	2.090	2.399	94.8	24.9	18.0

1981 JD3 a,e,i = 2.16, 0.18, 4 Elements MPC 9755

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	01 05	12 23.61	-02 27.4	2.228	2.546	97.2	22.5	19.1
1987	01 15	12 29.40	-02 51.8					
1987	01 25	12 33.02	-03 00.4	1.962	2.542	115.2	20.5	18.8
1987	02 04	12 34.15	-02 51.1					
1987	02 14	12 32.57	-02 22.9	1.733	2.536	135.8	15.7	18.4
1987	02 24	12 28.24	-01 35.5					
1987	03 06	12 21.38	-00 31.1	1.574	2.526	159.2	8.0	17.9
1987	03 16	12 12.61	+00 45.2					
1987	03 26	12 02.91	+02 05.9	1.518	2.513	175.0	2.0	17.5
1987	04 05	11 53.41	+03 22.4					
1987	04 15	11 45.25	+04 26.5	1.573	2.497	150.8	11.3	18.0
1987	04 25	11 39.25	+05 13.0					
1987	05 05	11 35.87	+05 39.7	1.719	2.477	128.7	18.5	18.4
1987	05 15	11 35.26	+05 46.3					
1987	05 25	11 37.25	+05 34.5	1.920	2.455	109.8	22.8	18.7
1987	06 04	11 41.64	+05 06.3					
1987	06 14	11 48.12	+04 23.9	2.145	2.430	93.6	24.7	19.0

1979 SJ11 a,e,i = 3.12, 0.14, 4 Elements MPC 10627

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	01 05	12 23.02	-07 03.4	2.752	3.010	95.5	19.0	17.9
1987	01 15	12 27.36	-07 47.2					
1987	01 25	12 29.75	-08 19.0	2.505	3.038	113.8	17.3	17.7
1987	02 04	12 30.02	-08 37.2					
1987	02 14	12 28.11	-08 40.7	2.295	3.066	134.1	13.4	17.4
1987	02 24	12 24.12	-08 29.0					
1987	03 06	12 18.34	-08 02.4	2.160	3.094	156.3	7.4	17.1
1987	03 16	12 11.34	-07 23.3					
1987	03 26	12 03.81	-06 35.4	2.127	3.122	174.3	1.8	16.8
1987	04 05	11 56.55	-05 43.7					
1987	04 15	11 50.30	-04 53.7	2.210	3.149	155.2	7.7	17.2
1987	04 25	11 45.60	-04 10.1					
1987	05 05	11 42.79	-03 36.4	2.393	3.176	133.8	13.2	17.6
1987	05 15	11 41.99	-03 14.5					
1987	05 25	11 43.15	-03 05.1	2.647	3.203	114.5	16.7	17.9
1987	06 04	11 46.13	-03 08.0					
1987	06 14	11 50.77	-03 22.5	2.939	3.229	97.3	18.2	18.2

1985 RP a,e,i = 2.29, 0.23, 8 Elements MPC 10293

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	01 05	12 28.81	-03 14.6	2.293	2.583	95.7	22.3	19.3
1987	01 15	12 34.32	-03 26.9					
1987	01 25	12 37.60	-03 22.3	2.060	2.620	114.0	20.1	19.0
1987	02 04	12 38.39	-02 59.2					
1987	02 14	12 36.54	-02 16.8	1.863	2.654	134.9	15.3	18.7
1987	02 24	12 32.12	-01 16.1					
1987	03 06	12 25.40	-00 00.2	1.738	2.685	158.4	7.8	18.3
1987	03 16	12 17.06	+01 25.2					
1987	03 26	12 07.99	+02 52.3	1.718	2.713	175.0	1.8	18.0
1987	04 05	11 59.21	+04 12.9					
1987	04 15	11 51.69	+05 19.8	1.813	2.738	151.7	10.0	18.5
1987	04 25	11 46.09	+06 09.2					
1987	05 05	11 42.80	+06 39.1	2.003	2.760	129.8	16.3	19.0
1987	05 15	11 41.91	+06 50.1					
1987	05 25	11 43.30	+06 44.1	2.254	2.778	110.7	19.9	19.4
1987	06 04	11 46.78	+06 22.9					
1987	06 14	11 52.08	+05 48.9	2.533	2.793	93.9	21.3	19.7

(3396) A915 TE a,e,i = 3.36, 0.21, 8 Elements MPC 10524

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	01 05	12 33.10	+03 25.1	3.817	4.060	97.3	13.9	17.8
1987	01 15	12 35.41	+03 19.7					
1987	01 25	12 36.17	+03 23.9	3.519	4.059	116.8	12.5	17.6
1987	02 04	12 35.28	+03 37.9					
1987	02 14	12 32.73	+04 00.7	3.269	4.055	137.8	9.4	17.4
1987	02 24	12 28.61	+04 30.8					
1987	03 06	12 23.15	+05 05.8	3.104	4.050	159.9	4.8	17.1
1987	03 16	12 16.72	+05 42.7					
1987	03 26	12 09.81	+06 17.9	3.054	4.044	171.9	2.0	16.9
1987	04 05	12 02.97	+06 48.2					
1987	04 15	11 56.72	+07 10.6	3.124	4.036	151.7	6.8	17.1
1987	04 25	11 51.51	+07 23.5					
1987	05 05	11 47.66	+07 25.8	3.298	4.027	130.5	11.0	17.4
1987	05 15	11 45.36	+07 17.4					
1987	05 25	11 44.63	+06 59.1	3.542	4.016	110.9	13.6	17.7
1987	06 04	11 45.46	+06 31.4					
1987	06 14	11 47.75	+05 55.5	3.821	4.003	92.9	14.7	17.8

1978 RS a,e,i = 2.25, 0.19, 2 Elements MPC 10390

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	01 05	12 32.04	-04 45.0	2.408	2.669	94.4	21.6	19.0
1987	01 15	12 37.31	-05 27.7					
1987	01 25	12 40.46	-05 57.5	2.144	2.677	112.3	19.9	18.7
1987	02 04	12 41.20	-06 12.7					
1987	02 14	12 39.35	-06 11.8	1.912	2.682	132.7	15.7	18.3
1987	02 24	12 34.87	-05 54.1					
1987	03 06	12 27.96	-05 19.9	1.748	2.684	155.8	8.7	17.9
1987	03 16	12 19.22	-04 32.0					
1987	03 26	12 09.50	-03 35.1	1.685	2.682	177.6	0.9	17.4
1987	04 05	11 59.86	-02 35.6					
1987	04 15	11 51.36	-01 40.8	1.737	2.678	154.6	9.2	17.9
1987	04 25	11 44.80	-00 56.1					
1987	05 05	11 40.65	-00 25.4	1.886	2.670	132.2	16.2	18.3
1987	05 15	11 39.08	-00 10.3					
1987	05 25	11 40.00	-00 10.9	2.099	2.659	112.7	20.6	18.6
1987	06 04	11 43.23	-00 26.3					
1987	06 14	11 48.49	-00 55.1	2.342	2.646	95.8	22.5	18.9