

COMET OBSERVATIONS MADE AT THE SKALNATÉ PLESO OBSERVATORY IN THE YEARS 1983-1984

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ABSTRACT. The paper presents the results of position photographing of comets carried out at the Skalnaté Pleso Observatory in the years 1983-1984. 116 observations of 19 comets are given together with the list of reference stars and dependences.

## 1. INTRODUCTION

The presented paper is a continuation of previous papers which give the results of positional observations of comets made at the Skalnaté Pleso Observatory and contains positional comet observations made in the years 1983-1984. The reduction constants as well as method of observation and processing and all the other necessary data which need not be repeated here were given before (Pittich, Svoreň; 1989). A list of reference stars and dependences and a list of collaborators are also given, together with their share in photographing, measuring and reducing the positions.

## 2. POSITIONS OF COMETS

The data have been arranged according to individual comets in the order of their definitive designation. The individual columns of the tables contain the following:

N - ordinal number of observation,

Date U.T. - date and time of the middle of the exposure,

R.A.<sub>1950</sub> - right ascension for equinox 1950.0,

Decl.1950 - declination for equinox 1950.0,  
t - the exposure time in minutes,  
O - observer,  
M - measurer,  
R - reduction.

N	Date U.T.	R.A.1950	Decl.1950	t	O	M	R
Periodic Comet Churyumov-Gerasimenko (1982 VIII)							
1	1983 Jan.	11.93090	7 <sup>h</sup> 08 <sup>m</sup> 59.24 <sup>s</sup>	+40 <sup>o</sup> 04'00.7"	15	F	F S
2	Jan.	11.99410	7 08 58.37	+40 03 55.6	15	F	F S
Comet IRAS-Araki-Alcock (1983 VII)							
1	1983 May	10.85422	10 54 49.72	+65 14 48.7	3	F	F S
2	May	10.86181	10 53 06.37	+65 02 05.5	3	F	F S
3	May	10.91771	10 40 56.73	+63 23 52.0	1	F	F S
4	May	10.96042	10 32 21.43	+62 04 04.9	2	F	F S
Periodic Comet Tempel 2 (1983 X)							
1	1983 July	19.02951	2 00 36.33	- 0 10 27.7	10	F	R S
2	July	19.03750	2 00 37.60	- 0 10 27.7	10	F	F S
Periodic Comet Tempel 1 (1983 XI)							
1	1983 April	5.03507	12 56 50.49	+15 48 04.4	10	R	R S
2	April	5.04931	12 56 49.76	+15 48 08.2	10	R	R S
3	April	16.95350	12 46 04.31	+15 43 22.9	10	F	F S
4	April	16.97433	12 46 03.26	+15 43 18.4	10	F	F S
5	April	17.86319	12 45 16.72	+15 40 18.6	10	F	F S
6	April	17.89792	12 45 14.76	+15 40 10.4	10	F	F S
7	April	30.87500	12 35 42.40	+14 11 44.9	10	R	R S
8	May	14.87106	12 31 34.20	+11 08 09.2	10	R	R S
9	May	14.92546	12 31 33.99	+11 07 16.6	10	R	R S
10	June	7.88091	12 43 43.38	+ 3 17 09.4	12	R	R S
11	June	7.90567	12 43 44.58	+ 3 16 38.7	12	R	R S
12	June	8.91458	12 44 46.20	+ 2 53 58.9	10	R	R S
13	June	8.93455	12 44 47.49	+ 2 53 29.6	6	R	R S
Comet Āernis (1983 XII)							
1	1983 Aug.	16.02292	2 33 42.09	+ 4 46 23.6	10	F	F S
2	Aug.	16.05069	2 33 41.07	+ 4 45 48.2	10	F	F S
3	Sep.	8.98912	2 08 44.26	- 4 20 49.5	10	R	R S
4	Sep.	9.03681	2 08 40.07	- 4 22 05.5	10	R	R S
5	Oct.	14.97813	1 01 48.63	-20 22 49.0	10	F	R S
6	Oct.	15.00347	1 01 45.40	-20 23 23.3	10	F	F S

N	Date U.T.	R.A. 1950	Decl. 1950	t	O	M	R
Periodic Comet Kopff (1983 XIII)							
1	1983 May	14.96875	15 <sup>h</sup> 39 <sup>m</sup> 02.75 <sup>s</sup>	- 9 <sup>o</sup> 22'51.8"	10	R	R S
2	May	14.98958	15 39 02.12	- 9 22 49.4	10	R	R S
3	May	15.85972	15 38 32.24	- 9 21 01.8	6	R	R S
4	May	16.89722	15 37 55.58	- 9 19 01.4	10	R	R S
5	May	18.84722	15 37 21.71	- 9 17 18.8	12	R	R S
6	May	17.87500	15 37 20.75	- 9 17 15.0	12	R	R S
7	May	30.87431	15 29 30.97	- 9 10 52.2	10	F	F S
8	May	30.91771	15 29 29.33	- 9 10 55.7	8	F	F S
9	July	4.88333	15 27 24.34	-12 16 21.8	10	F	F S
10	July	8.87691	15 30 13.06	-12 54 47.4	10	R	R S
11	July	8.89965	15 30 13.96	-12 54 58.8	10	R	R S
12	July	31.85833	15 59 23.01	-17 08 25.3	8	F	R S
13	July	31.86528	15 59 23.69	-17 08 33.4	8	F	F S
14	Aug.	1.84271	16 01 04.93	-17 19 46.2	7	F	F S
15	Aug.	1.84896	16 01 05.96	-17 19 48.3	7	F	F S
Periodic Comet IRAS (1983 XIV)							
1	1983 Sep.	8.91273	1 08 15.92	+17 39 18.7	10	R	R S
2	Sep.	8.93750	1 08 12.53	+17 40 27.4	10	R	R S
3	Sep.	15.91979	0 50 27.11	+23 09 17.9	10	F	F S
4	Sep.	15.95174	0 50 21.47	+23 10 45.6	10	F	F S
5	Sep.	29.77847	0 07 26.28	+32 29 15.5	15	R	R S
6	Sep.	29.82604	0 07 17.20	+32 30 48.4	15	R	R S
7	Oct.	1.86505	0 00 36.28	+33 36 07.3	15	R	R S
8	Oct.	5.80417	23 47 52.71	+35 27 50.2	16	R	R S
9	Oct.	5.83738	23 47 46.25	+35 28 42.1	15	R	R S
10	Oct.	7.78381	23 41 39.18	+36 16 52.3	15	R	R S
11	Oct.	7.81701	23 41 33.00	+36 17 42.8	15	R	R S
12	Oct.	10.81157	23 32 28.15	+37 23 09.8	15	R	R S
13	Oct.	10.84618	23 32 22.00	+37 23 52.2	15	R	R S
14	Nov.	2.77326	22 44 16.55	+41 33 55.0	20	R	R S
15	Nov.	2.83773	22 44 11.91	+41 34 13.6	20	R	R S
16	Nov.	6.72338	22 40 15.72	+41 50 54.5	25	R	R S
17	Nov.	6.78368	22 40 12.67	+41 51 08.4	25	R	R S
18	Nov.	7.74618	22 39 25.02	+41 54 45.0	25	R	R S
19	Nov.	7.79421	22 39 22.64	+41 54 54.7	25	R	R S
20	Nov.	8.78044	22 38 38.40	+41 58 28.3	25	R	R S
21	Nov.	8.81703	22 38 36.54	+41 58 33.5	25	R	R S
Comet Shoemaker (1983 XV)							
1	1983 Sep.	29.79479	23 07 02.02	+11 03 38.9	10	R	R S
2	Sep.	29.84097	23 06 56.88	+11 02 25.3	10	R	R S
3	Oct.	1.83623	23 03 05.40	+10 06 48.8	15	R	R S

N	Date U.T.	R.A. <sub>1950</sub>	Decl. <sub>1950</sub>	t	O	M	R
4	1983 Oct.	1.87963	23 <sup>h</sup> 03 <sup>m</sup> 00.23 <sup>s</sup>	+10 <sup>o</sup> 05'35.2"	15	R	R S
5	Oct.	5.78345	22 55 42.86	+ 8 16 59.1	15	R	R S
6	Oct.	5.82211	22 55 38.66	+ 8 15 58.2	15	R	R S
7	Oct.	7.83345	22 52 02.39	+ 7 20 28.2	15	R	R S
8	Oct.	7.85764	22 51 59.54	+ 7 19 46.1	15	R	R S
9	Oct.	10.89479	22 46 45.63	+ 5 57 00.4	15	R	R S
10	Nov.	2.74502	22 16 42.05	- 3 08 39.7	15	R	R S
11	Nov.	2.79109	22 16 39.42	- 3 09 40.7	15	R	R S
Periodic Comet Russell 4 (1984 I)							
1	1984 March	31.99595	13 19 24.07	+ 1 54 27.4	20	R	R S
2	April	1.05625	13 19 21.64	+ 1 54 39.6	20	R	R S
Periodic Comet Crommelin (1984 IV)							
1	1984 Jan.	30.71586	23 19 25.74	+ 4 33 50.9	12	R	R S
2	Feb.	8.73565	0 01 16.77	+ 3 12 32.1	5	R	R S
Periodic Comet Takamizawa (1984 VII)							
1	1984 Aug.	3.86204	21 11 18.10	-19 40 04.2	20	R	R S
2	Aug.	3.92153	21 11 16.77	-19 40 50.5	20	N	N S
3	Aug.	4.92558	21 10 58.39	-19 53 54.5	15	R	R S
4	Aug.	4.95902	21 10 57.65	-19 54 19.3	15	N	N S
5	Aug.	21.87014	21 06 43.89	-22 56 08.2	12	N	N S
6	Aug.	21.90347	21 06 43.11	-22 56 24.8	12	N	N S
7	Aug.	22.91319	21 06 35.21	-23 04 35.9	25	N	N S
8	Aug.	28.88542	21 06 14.39	-23 46 03.7	30	N	N S
9	Aug.	28.92801	21 06 14.50	-23 46 17.6	30	N	E S
10	Aug.	29.90775	21 06 15.72	-23 51 58.2	30	N	N S
11	Sep.	30.81250	21 19 50.56	-24 28 04.5	20	E	N S
Comet Austin (1984 XIII)							
1	1984 Sep.	30.11076	7 34 55.74	+40 24 11.9	20	N	E S
2	Sep.	30.13785	7 34 47.14	+40 25 18.1	20	N	E S
3	Oct.	1.04410	7 30 03.07	+40 59 52.7	12	E	E S
4	Oct.	1.10405	7 29 43.40	+41 02 18.3	15	E	E S
5	Oct.	25.90313	3 36 18.27	+47 53 39.3	10	N	N S
Periodic Comet Wild 2 (1984 XIV)							
1	1984 Jan.	26.76956	3 51 08.14	+16 34 06.4	30	R	R S
2	Jan.	26.82685	3 51 08.23	+16 34 15.6	30	R	R S
Periodic Comet Shoemaker 1 (1984 XVI)							
1	1984 Oct.	25.87921	22 51 18.94	+20 47 12.8	40	N	E S
2	Oct.	25.92569	22 51 18.04	+20 47 25.5	40	E	N S

N	Date U.T.	R.A. 1950	Decl. 1950	t	O	M	R
3	1984 Oct. 31.96146	22 <sup>h</sup> 50 <sup>m</sup> 28.70 <sup>s</sup>	+21 <sup>o</sup> 17'12.1"	35	E	E	S
4	Dec. 14.73993	23 22 39.13	+24 56 28.1	35	E	E	S
5	Dec. 14.78993	23 22 42.66	+24 56 45.1	35	E	E	S
Periodic Comet Neujmin 1 (1984 XIX)							
1	1984 Nov. 13.70660	21 22 09.54	-11 56 58.6	20	N	N	S
Periodic Comet Arend-Rigaux (1984 XXI)							
1	1984 Nov. 22.01076	8 04 34.59	- 1 50 09.3	25	E	E	S
2	Nov. 22.07674	8 04 42.30	- 1 49 47.3	25	E	E	S
Periodic Comet Schaumasse (1984 XXII)							
1	1984 Oct. 29.14063	10 04 05.26	+16 40 52.8	15	N	E	S
Comet Levy-Rudenko (1984 XXIII)							
1	1984 Dec. 1.71713	18 40 43.00	+19 06 47.9	10	R	R	S
2	Dec. 1.73993	18 40 42.43	+19 07 31.5	10	R	R	S
3	Dec. 12.68681	18 35 20.09	+25 03 07.4	12	E	E	S
4	Dec. 12.71667	18 35 18.89	+25 04 05.3	12	E	E	S
5	Dec. 14.69757	18 34 09.82	+26 09 46.9	8	E	E	S
6	Dec. 14.71875	18 34 09.12	+26 10 26.8	8	E	E	S
Comet Shoemaker (1985 II)							
1	1984 Nov. 21.80278	2 06 17.58	+ 5 53 55.1	15	E	E	S
2	Dec. 1.76921	2 17 55.38	- 0 21 55.1	15	R	R	S
3	Dec. 1.80706	2 17 58.59	- 0 23 22.2	15	R	R	S
4	Dec. 14.76458	2 43 52.57	- 8 14 18.3	14	E	E	S
5	Dec. 14.81250	2 43 59.72	- 8 15 52.5	14	E	E	S

### 3. REFERENCE STARS AND DEPENDENCES

The individual columns of the table contain the following:

N - ordinal number of the observation in agreement with the Section 2,

Catalogue - the catalogue of the reference stars,

Numbers of stars and dependences,

A - the difference between independent determinations of R.A. in arc seconds,

B - the difference between independent determinations of Decl. in arc seconds,

c - notes.

N	Catalogue	Numbers of stars and dependences				A	B	C
Periodic Comet Churyumov-Gerasimenko (1982 VIII)								
1	SAO 1	41545 .30697	59854 .37710	41702 .31593				
		41575 .21826	59881 .43446	41642 .34728	0.6	0.6		
2	SAO 1	41545 .30748	59854 .37787	41702 .31465				
		41575 .21925	59881 .43666	41642 .34409	0.9	0.6		
Comet IRAS-Araki-Alcock (1983 VII)								
1	SAO 1	15271 .26298	15356 .30018	15401 .43684				
		15278 .31697	15356 .27183	15404 .41120	0.1	1.2		
2	SAO 1	15271 .31924	15356 .37165	15401 .30911				
		15278 .36626	15356 .35613	15404 .27761	0.3	0.7		
3	SAO 1	15216 .34800	15286 .32512	15318 .32688				
		15227 .26091	15270 .44406	15326 .29503	0.6	2.5		
4	SAO 1	15191 .38979	15222 .34801	15285 .26220				
		15182 .36740	15216 .34332	15304 .28928	0.4	1.1		
Periodic Comet Tempel 2 (1983 X)								
1	SAO 2,3	129613 .43676	110305 .28488	129714 .27836				
		110258 .35240	129647 .26059	110350 .38701	0.6	0.2		
2	SAO 2,3	129608 .21482	110282 .41260	129702 .37258				
		129623 .20234	110277 .35766	129695 .44000	0.6	0.4		
Periodic Comet Tempel 1 (1983 XI)								
1	SAO 2	100324 .40602	100385 .25966	100396 .33432				
		100310 .30279	100346 .29510	100412 .40211	0.3	0.6		
2	SAO 2	100324 .40727	100385 .25993	100396 .33280				
		100310 .30375	100346 .29500	100412 .40125	0.0	0.7		
3	SAO 2	100214 .32203	100261 .25265	100324 .42532				
		100228 .18176	100257 .33338	100302 .48486	0.6	0.5		
4	SAO 2	100214 .32350	100261 .25260	100324 .42390				
		100228 .18484	100257 .33213	100302 .48303	0.0	0.6		
5	SAO 2	100214 .38791	100261 .25402	100324 .35807				
		100228 .31698	100257 .28078	100302 .40224	0.7	0.4		
6	SAO 2	100214 .39068	100261 .25398	100324 .35534				
		100228 .32262	100257 .27851	100302 .39887	0.6	0.5		
7	SAO 2	100147 .38308	100199 .24590	100199 .37102				
		100163 .32538	100180 .47475	100231 .19987	1.0	0.2		
8	SAO 2	100128 .31257	119487 .46736	100178 .22007				
		100125 .32761	119487 .34070	100179 .33169	0.3	0.4		

N	Catalogue	Numbers of stars and dependences						A	B	C
9	SAO 2	100128	.31168	119487	.47335	100178	.21497	0.4	0.2	
		100125	.32660	119487	.34774	100179	.32566			
10	SAO 2	119560	.28319	119581	.33470	119596	.38211	0.1	0.6	
		119563	.27881	119581	.40005	119596	.32114			
11	SAO 2	119560	.27405	119581	.34523	119596	.38072	0.2	0.4	
		119563	.26978	119581	.40851	119596	.32171			
12	SAO 2	119560	.15808	119581	.59221	119633	.24971	0.3	0.4	
		119581	.70555	119596	.16355	119633	.13090			
13	SAO 2	119560	.14775	119581	.60320	119633	.24905	0.2	0.3	
		119581	.70916	119596	.15285	119633	.13799			
Comet Černis (1983 XII)										
1	SAO 2	110598	.33504	110631	.26174	110671	.40322	0.0	0.6	
		110612	.35963	110627	.33942	110682	.30095			
2	SAO 2	110598	.33212	110631	.27049	110671	.39739	0.6	0.9	
		110612	.35585	110627	.34715	110682	.29700			
3	SAO 3	129712	.21804	129721	.33751	129771	.44445	0.8	0.6	
		129683	.21649	129747	.39627	129767	.38724			
4	SAO 3	129712	.23165	129721	.33428	129771	.43407	0.5	0.9	
		129683	.22819	129747	.38022	129767	.39159			
5	SAO 3	166730	.35452	147590	.18410	166818	.46138	0.1	0.4	
		147556	.24712	166784	.49651	147631	.25637			
6	SAO 3	166742	.30867	166781	.39171	147618	.29962	0.6	0.0	
		147574	.29329	166764	.42434	166836	.28237			
Periodic Comet Kopff (1983 XIII)										
1	SAO 3	140657	.36224	159454	.42695	140755	.21081	1.0	0.2	
		140666	.25874	159454	.47197	140716	.26929			
2	SAO 3	140657	.36383	159454	.42593	140755	.21024	0.2	0.1	
		140666	.26094	159454	.47019	140716	.26887			
3	SAO 3	140657	.43562	159454	.37949	140755	.18489	0.7	0.5	
		140666	.36896	159454	.38558	140716	.24546			
4	SAO 3	140657	.41536	159454	.40142	140716	.18322	0.5	0.1	
		140666	.50149	159454	.28334	140716	.21517			
5	SAO 3	140657	.52086	159454	.21428	140713	.26486	0.1	0.2	
		140666	.57497	140703	.19922	140712	.22581			
6	SAO 3	140657	.51940	159454	.33503	140716	.14557	0.2	0.3	
		140666	.62728	159454	.18731	140716	.18541			

N	Catalogue	Numbers of stars and dependences						A	B	C
7	SAO 3	140546	.37339	140587	.33378	140666	.29283	0.3	0.1	
		140571	.29080	140589	.49115	140620	.21805			
8	SAO 3	140546	.37588	140587	.33394	140666	.29018	0.0	1.1	
		140571	.29936	140589	.48685	140620	.21379			
9	SAO 3	159252	.28338	159319	.36807	159326	.34855	0.9	0.6	
		159257	.32179	159279	.35542	159378	.32279			
10	SAO 3	159287	.30540	159351	.29375	159363	.40085	0.1	1.0	
		159306	.36640	159312	.19912	159372	.43448			
11	SAO 3	159287	.30258	159351	.29602	159363	.40140	0.5	0.0	
		159306	.36198	159312	.20100	159372	.43702			
12	SAO 3	159589	.25571	159650	.52416	159717	.22013	0.3	0.5	
		159582	.42104	159687	.25067	159708	.32829			
13	SAO 3	159620	.19564	159647	.48274	159659	.32162	0.9	0.3	
		159582	.31135	159659	.40673	159708	.28192			
14	SAO 3	159620	.22584	159647	.40489	159727	.36927	1.2	0.4	
		159647	.49235	159659	.27400	159708	.23365			
15	SAO 3	159620	.22297	159647	.40638	159727	.37065	1.0	0.8	
		159647	.48898	159659	.27369	159708	.23733			
Periodic Comet IRAS (1983 XIV)										
1	SAO 2	92267	.36184	92281	.34167	92339	.29649	0.0	0.5	
		92263	.41357	92287	.32403	92345	.26240			
2	SAO 2	92267	.36255	92281	.33617	92336	.30128	0.0	0.0	
		92265	.32269	92299	.51430	92341	.16301			
3	SAO 2	74300	.40918	74322	.35363	74427	.23719	0.2	0.9	
		74293	.34108	74353	.30518	74369	.35374			
4	SAO 2	74300	.43295	74322	.33665	74427	.23040	1.0	1.2	
		74293	.34965	74353	.33219	74369	.31816			
5	SAO 1	53632	.18573	53710	.32927	53698	.48500	0.2	0.4	
		53632	.21926	53688	.36994	53719	.41080			
6	SAO 1	53632	.21510	53710	.34167	53698	.44323	0.6	0.5	
		53632	.23488	53688	.38581	53719	.37931			
7	SAO 1	73628	.14209	53606	.24824	53615	.60967	0.3	1.0	
		73652	.27447	53606	.12798	53623	.59755			
8	SAO 1	73516	.38175	73552	.37477	73577	.24348	0.6	0.9	
		73527	.13853	73533	.70686	73614	.15461			
9	SAO 1	73516	.40887	73552	.36231	73577	.22882	0.0	1.0	
		73527	.17558	73533	.68522	73614	.13920			



N	Catalogue	Numbers of stars and dependences				A	B	C
10	SAO 1	73395 .19469	73455 .46039	73527 .34492				
		73432 .34111	73449 .26250	73516 .39639	0.4	0.6		
11	SAO 1	73395 .19664	73455 .47375	73527 .32961				
		73432 .35045	73449 .26879	73516 .38076	0.1	0.7		
12	SAO 1	73279 .24483	73319 .26474	73420 .49043				
		73279 .19039	73307 .41690	73455 .39271	1.1	0.3		
13	SAO 1	73279 .24236	73319 .28152	73420 .47612				
		73279 .18880	73307 .42697	73455 .38423	0.2	0.4		
14	SAO 1	52248 .18655	52324 .23835	52393 .57510				
		52302 .18253	52357 .44694	52368 .37053	0.8	0.9		
15	SAO 1	52248 .19640	52324 .23576	52393 .56784				
		52302 .20429	52357 .42815	52368 .36756	0.1	0.1		
16	SAO 1	52190 .30079	52247 .27447	52368 .42474				
		52130 .20096	52306 .48237	52357 .31667	0.2	0.3		
17	SAO 1	52190 .30656	52247 .27329	52368 .42015				
		52130 .20412	52306 .48459	52357 .31129	0.3	0.1		
18	SAO 1	52190 .39669	52247 .25465	52368 .34866				
		52130 .25348	52306 .51885	52357 .22767	1.0	0.6		
19	SAO 1	52190 .40120	52247 .25377	52368 .34503				
		52130 .25599	52306 .52025	52357 .23376	0.5	0.8		
20	SAO 1	52190 .48611	52247 .23460	52368 .27929				
		52130 .30117	52306 .55439	52357 .14444	1.2	0.3		
21	SAO 1	52190 .48939	52247 .23427	52368 .27634				
		52130 .30119	52306 .55514	52357 .14167	0.4	0.8		
Comet Shoemaker (1983 XV)								
1	SAO 2	108412 .39304	108421 .32634	108469 .28062				
		108367 .22426	108439 .45705	108456 .31869	0.6	0.3		
2	SAO 2	108412 .38905	108421 .34638	108469 .26457				
		108367 .24255	108439 .42647	108456 .33098	0.1	0.7		
3	SAO 2	108328 .42162	108414 .28717	128014 .29121				
		108328 .39291	127958 .19000	108442 .41709	0.6	0.5		
4	SAO 2	108328 .43659	108414 .26610	128014 .29731				
		108328 .39218	127958 .20724	108442 .40058	0.6	1.0		
5	SAO 2	127853 .53731	127869 .20091	127902 .26178				
		127853 .32506	127871 .55077	127892 .12417	0.1	0.2		
6	SAO 2	127853 .56095	127869 .18717	127902 .25188				
		127853 .36163	127871 .51414	127892 .12423	0.1	0.2		

N	Catalogue	Numbers of stars and dependences						A	B	C
7	SAO 2	127802	.30357	127822	.35362	127865	.34281	0.1	0.7	
		127822	.50967	127828	.36713	127888	.12320			
8	SAO 2	127802	.31261	127822	.35057	127865	.33682	0.2	0.5	
		127822	.50794	127828	.37645	127888	.11561			
9	SAO 2	127753	.15233	127770	.51993	127809	.32774	0.1	0.1	
		127757	.49256	127802	.27527	127801	.23217			
10	SAO 3	145979	.27378	145986	.25770	146060	.46852	1.0	0.1	
		145979	.35841	146030	.41918	146053	.22241			
11	SAO 3	145979	.26869	145986	.26972	146060	.46159	1.0	0.6	
		145979	.36086	146030	.43505	146053	.20409			
Periodic Comet Russell 4 (1984 I)										
1	SAO 2	119849	.49774	119885	.13323	119956	.36903	0.8	0.1	
		119827	.21284	119902	.49452	119932	.29264			
2	SAO 2	119849	.19026	119885	.21016	119912	.59958	0.0	0.1	
		119862	.27086	119902	.31413	119912	.41501			
Periodic Comet Crommelin (1984 IV)										
1	SAO 2	128028	.13635	128143	.41646	128164	.44719	0.4	1.3	
		128040	.27152	128168	.34484	128172	.38364			
2	SAO 2	128467	.31583	108990	.30881	109053	.37536	0.9	0.6	
		128511	.29468	128530	.23921	109026	.46611			
Periodic Comet Takamizawa (1984 VII)										
1	SAO 3	190067	.22930	164235	.41880	164276	.35190	0.2	0.9	
		190065	.25408	164235	.31331	164274	.43261			
2	SAO 3	190067	.23600	164235	.40912	164276	.35488	0.3	1.2	
		190065	.26147	164235	.30115	164274	.43738			
3	SAO 3	190067	.42139	164235	.23127	164327	.34734	1.0	0.2	
		190065	.32068	164235	.42088	190223	.25844			
4	SAO 3	190067	.42521	164188	.22825	164327	.34654	1.1	0.2	
		190065	.32440	164235	.41595	190223	.25965			
5	SAO 3	189994	.31512	190088	.18254	190113	.50234	0.8	0.4	
		190004	.18151	190068	.47620	190106	.34229			
6	SAO 3	189994	.31571	190088	.18846	190113	.49583	1.2	0.3	
		190004	.18590	190068	.47012	190106	.34398			
7	SAO 3	189994	.29768	190088	.37015	190113	.33217	0.8	0.1	
		190004	.26655	190068	.31104	190106	.42241			

N	Catalogue	Numbers of stars and dependences						A	B	C
8	SAO 3	190006	.21220	190053	.46370	190104	.32410	0.4	0.1	
		190043	.35435	190049	.29036	190088	.35529			
9	SAO 3	190006	.21351	190053	.46042	190104	.32607	0.5	0.1	
		190043	.35023	190049	.29460	190088	.35517			
10	SAO 3	190006	.24945	190053	.38131	190104	.36924	0.3	0.2	
		190043	.25698	190049	.39804	190088	.34498			
		189948	.30816	190068	.27624	190151	.41560			
		189943	.36839	190084	.24874	190171	.38287			
11	SAO 3	190224	.52818	190324	.18596	190353	.28586	0.3	0.6	
		190235	.19220	190273	.38565	190305	.42215			
Comet Austin (1984 XIII)										
1	SAO 1	60203	.20074	41889	.32350	41923	.47576	0.8	0.8	
		41869	.47815	60264	.31558	41941	.20627			
2	SAO 1	60203	.20761	41889	.36004	41923	.43235	0.8	0.1	
		41869	.50335	60264	.29248	41941	.20417			
3	SAO 1	41792	.27758	41873	.43896	41871	.28346	1.2	0.8	
		41816	.38947	41852	.29508	41889	.31545			
4	SAO 1	41792	.32429	41873	.40328	41871	.27243	0.9	0.7	
		41816	.41182	41852	.34188	41889	.24630			
5	SAO 1	38972	.39919	39025	.28704	39069	.31377	0.2	0.5	a
		38950	.31109	39025	.39298	39079	.29593			
Periodic Comet Wild 2 (1984 XIV)										
1	SAO 2	96332	.30851	93656	.56033	93734	.13116	0.4	0.2	
		93602	.28307	93663	.42215	93704	.29478			
2	SAO 2	96332	.30979	93656	.55843	93734	.13178	0.2	0.5	
		93602	.28205	93663	.42436	93704	.29359			
Periodic Comet Shoemaker 1 (1984 XVI)										
1	SAO 2	90825	.27113	90868	.38811	90879	.34076	0.5	0.1	
		90843	.44301	90851	.30309	90893	.25390			
2	SAO 2	90825	.27527	90868	.38397	90879	.34076	1.1	0.2	
		90843	.44255	90851	.30733	90893	.25012			
3	SAO 2	90825	.37560	90851	.32344	90879	.30096	0.1	0.7	
		90786	.36734	90863	.20644	90893	.42622			
4	SAO 2	91207	.50914	91272	.20374	91302	.28712	0.1	0.4	
		91226	.35505	91242	.42520	91302	.21975			
5	SAO 2	91205	.43892	91255	.22383	91299	.33725	0.3	0.4	
		91201	.51474	91263	.22815	91317	.25711			

N	Catalogue	Numbers of stars and dependences				A	B	C
Periodic Comet Neujmin 1 (1984 XIX)								
1	SAO 3	164334 .36759	164391 .45851	164404 .17390				
		164353 .34210	164359 .34820	164411 .30970	0.6	0.7		
Periodic Comet Arend-Rigaux (1984 XXI)								
1	SAO 3	135459 .45057	135552 .18464	135559 .36479				
		135489 .17252	135503 .46632	135550 .36116	0.3	0.3		
2	SAO 3	135459 .41898	135552 .19870	135559 .38232				
		135489 .13411	135503 .45469	135550 .41120	0.7	0.3		
Periodic Comet Schaumasse (1984 XXII)								
1	SAO 2	98930 .39472	98950 .19937	98974 .40591				
		98937 .25520	98944 .46023	98979 .28457	0.4	0.7		
Comet Levy-Rudenko (1984 XXIII)								
1	SAO 2	103968 .28053	104025 .49869	104076 .22078				
		103962 .29407	104036 .30232	104052 .40361	0.8	0.7		
2	SAO 2	103968 .28891	104025 .48276	104076 .22833				
		103962 .29407	104036 .31372	104052 .39221	0.6	0.5		
3	SAO 2	86201 .40805	86289 .29102	86300 .30093				
		86219 .33882	86229 .22963	86298 .43155	1.0	0.3		
4	SAO 2	86201 .41318	86289 .27629	86300 .31053				
		86219 .33082	86229 .24424	86298 .42494	1.1	0.4		
5	SAO 2	86183 .46623	86255 .19690	86300 .33687				
		86212 .46982	86229 .22907	86274 .30111	0.5	0.2		
6	SAO 2	86183 .46309	86255 .21100	86300 .32591				
		86212 .49616	86229 .19657	86274 .30727	0.6	0.9		
Comet Shoemaker (1985 II)								
1	SAO 2	110354 .24728	110365 .36090	110377 .39182				
		110334 .34044	110370 .33898	110400 .32058	0.1	0.4		
2	SAO 2,3	129809 .33422	129856 .41426	110495 .25152				
		110467 .25696	129823 .17636	129848 .56668	0.5	0.3		
3	SAO 2,3	129803 .29727	129846 .38095	110495 .32178				
		110467 .18537	129838 .48491	129857 .32972	0.6	0.2		
4	SAO 3	130067 .40153	130124 .40776	130128 .19071				
		130077 .50061	130107 .20746	130143 .29193	0.2	0.4		
5	SAO 3	130067 .38224	130124 .42796	130128 .18980				
		130077 .49669	130107 .18796	130143 .31535	0.2	0.6		

Note: a - poor sky.

#### 4. LIST OF COLLABORATORS

Name	Abbreviation	Exposures	Measurements	Reductions
G. Červák	E	16	19	-
J. Fabricius	F	25	22	-
L. Kornoš	N	14	11	-
P. Rychtarčík	R	61	64	-
J. Svoreň	S	-	-	116

#### REFERENCES

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Smithsonian Institution, 1966.