

COMET OBSERVATIONS MADE AT THE SKALNATÉ PLESO OBSERVATORY IN THE YEARS 1977-1980

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Received 15 September 1988

ABSTRACT. The paper presents the results of position photographing of comets carried out at the Skalnaté Pleso Observatory in the years 1977-1980. 57 observations of 7 comets are given together with the list of reference stars and dependences.

НАБЛЮДЕНИЯ КОМЕТ НА ОБСЕРВАТОРИИ СКАЛНАТЕ ПЛЕСО В 1977-1980 ГГ. Работа приводит результаты фотографических положений комет наблюдаемых на обсерватории Скалнате Плесо в 1977-1980 гг. Работа содержит 57 наблюдений 7 комет вместе со списком опорных звезд и зависимостей.

POZOROVANIA KOMÉT NA OBSERVATÓRIU NA SKALNATOM PLESE V ROKOCH 1977-1980. V práci sú uvedené výsledky pozičných fotografování komét na observatóriu na Skalnatom Plese za roky 1977-1980. Je uvedených 57 pozorování 7 komét spolu so zoznamom referenčných hviezd a dependencií.

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 (the last paper of this series: Pittich, Svoreň; 1985) and contains positional comet observations made in the years 1977-1980. The observations were made with a 0.3-m f/5 Zeiss astrograph. The reduction constants of the Skalnaté Pleso astrograph are as follows:

$$\lambda = - 1^{\text{h}} 20^{\text{m}} 58.70^{\text{s}},$$

$$\varphi = + 49^{\circ} 11' 20.0'',$$

$$h = 1783 \text{ m m.s.l.},$$

$$\xi = 0.99836 \text{ of the equatorial radius of the Earth.}$$

The comets were photographed on ORWO plates with ZU 2 emulsion, dimensions 24x24 and 9x12 cm, which roughly corresponds to fields of $8.5^{\circ} \times 8.5^{\circ}$ and $3^{\circ} \times 4^{\circ}$ respectively. The reference stars required to compute positions using Schlesinger's method of dependences, from two independent triangles were selected from the Star Catalog of the Smithsonian Astrophysical Observatory (1966). The differences between independent determinations of the equatorial coordinates, given for each position in Section 3, provide some information about the accuracy of the measuring. The rectangular coordinates of the reference stars and the comets were measured with the aid of instruments for measuring coordinates produced by Zeiss (Koordinatenmessgerät and Ascoremat E-60). The measurements were reduced by means of table calculators Hewlett-Packard 9830 A and EMG 666 and computer SM 4-20.

A total of 57 accurate positions of 7 comets, arranged according to the definitive designation of the objects, is given. 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 containing the following:

N - ordinal number of observation,

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

R.A.₁₉₅₀ - 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
Comet Kohler (1977 XIV)							
1	1977 Sep.	24.75972	16 ^h 06 ^m 57.35 ^s	+22°18'37.2"	2	A	A S
2	Sep.	24.76389	16 06 58.09	+22 18 29.0	4	A	A A
3	Sep.	28.76050	16 17 47.90	+20 33 35.7	4	G	G P
4	Oct.	15.73606	17 13 26.28	+11 16 53.0	2	G	G P
5	Oct.	15.75690	17 13 30.92	+11 16 06.3	2	G	G P
6	Oct.	20.72707	17 33 00.92	+07 51 52.5	2	G	G P
7	Oct.	20.74789	17 33 05.99	+07 50 56.0	2	G	G P
8	Nov.	11.68472	19 17 06.37	-10 33 42.7	2	G	G P
9	Nov.	11.69514	19 17 09.75	-10 34 17.1	2	G	G P
Comet Meier (1978 XXI)							
1	1978 June	1.87118	8 06 19.28	+45 02 58.8	5	G	G P
2	1979 Sep.	19.83229	22 45 48.06	-18 34 51.1	25	J	R R
3	Sep.	19.90799	22 45 44.05	-18 34 49.8	25	J	J P
4	Sep.	26.89514	22 39 55.35	-18 24 38.9	22	G	R R
5	Sep.	26.95486	22 39 52.67	-18 24 35.1	22	G	G P
Comet Meier (1979 IX)							
1	1979 Nov.	22.95313	12 03 36.13	+53 46 13.9	35	J	R S
2	Nov.	23.01181	12 03 28.02	+53 46 05.0	20	J	J P
3	Nov.	23.92431	12 01 16.18	+53 41 14.7	20	G	N N
4	Nov.	26.08056	11 55 48.06	+53 30 24.5	20	G	E N
Comet Bradfield (1979 X)							
1	1980 Feb.	14.81736	3 32 27.19	+15 39 35.9	20	J	J P
Periodic Comet Stephan-Oterma (1980 X)							
1	1980 Nov.	2.02674	5 15 17.67	+ 7 13 50.1	15	J	R S
2	Nov.	2.11146	5 15 22.24	+ 7 15 18.6	15	J	R S
3	Nov.	2.93229	5 16 08.83	+ 7 29 52.4	15	J	R S
4	Nov.	3.02743	5 16 13.64	+ 7 31 37.2	15	J	R S
5	Nov.	8.92187	5 21 10.84	+ 9 27 25.9	15	G	R S
6	Nov.	8.95521	5 21 11.94	+ 9 28 07.1	15	G	R S
7	Nov.	11.11667	5 22 45.37	+10 15 24.1	10	G	G P
8	Nov.	11.13958	5 22 46.10	+10 15 56.0	10	G	G P
9	Nov.	11.86597	5 23 16.91	+10 32 29.0	10	G	G S
10	Nov.	13.91111	5 24 35.59	+11 20 41.7	10	J	J P
11	Nov.	13.97083	5 24 37.59	+11 22 08.9	10	J	J P
12	Nov.	18.03403	5 26 52.70	+13 05 09.7	12	J	J P
13	Dec.	2.93333	5 31 21.11	+20 33 22.3	8	J	F S
14	Dec.	2.99722	5 31 21.58	+20 35 29.1	8	J	J P
15	Dec.	3.89861	5 31 27.70	+21 05 05.6	8	J	J P
16	Dec.	3.96389	5 31 27.82	+21 07 19.2	8	J	E E

N	Date U.T.	R.A. 1950	Decl. 1950	t	O	M	R
17	1980 Dec. 12.91944	5 ^h 31 ^m 47.00 ^s	+26 ^o 06'23.3"	8	J	J	P
18	Dec. 12.97014	5 31 46.76	+26 08 00.9	8	J	J	P
19	Dec. 18.08831	5 31 42.56	+28 55 14.8	6	G	R	S
20	Dec. 18.12998	5 31 42.79	+28 56 31.3	6	G	R	S
21	Dec. 29.01736	5 32 17.59	+34 18 03.7	14	J	J	P
22	Dec. 29.06736	5 32 17.89	+34 19 26.5	14	J	F	S
23	Dec. 29.87778	5 32 26.10	+34 40 45.8	12	J	J	P
24	Dec. 29.92500	5 32 26.26	+34 42 02.2	12	J	J	P
25	Dec. 30.99167	5 32 37.20	+35 09 29.9	12	J	F	S
26	Dec. 31.05139	5 32 37.82	+35 10 59.2	12	J	J	P

Comet Meier (1980 XII)

1	1980 Dec. 31.18889	17 52 59.77	+23 23 02.4	10	J	J	P
2	Dec. 31.20278	17 52 59.56	+23 22 47.1	10	J	J	P

Periodic Comet Tuttle (1980 XIII)

1	1980 Nov. 2.05278	9 57 30.40	+42 46 44.3	10	J	E	E
2	Nov. 2.09722	9 57 35.90	+42 43 57.8	10	J	J	P
3	Nov. 3.04931	9 59 27.85	+41 44 18.1	10	J	E	S
4	Nov. 8.98958	10 10 31.34	+34 38 22.5	14	G	G	P
5	Nov. 9.02326	10 10 35.06	+34 35 39.2	15	G	G	P
6	Nov. 11.12882	10 14 16.32	+31 39 00.6	5	G	G	P
7	Nov. 12.06632	10 15 52.63	+30 15 25.7	5	G	G	P
8	Nov. 12.09236	10 15 55.50	+30 13 05.7	5	G	G	P
9	Nov. 14.06319	10 19 15.42	+27 06 44.6	6	J	J	P
10	Dec. 3.11910	10 50 09.71	-15 16 47.1	5	J	E	S

3. REFERENCE STARS AND DEPENDENCES

The individual columns of the tables containing the following:

N - ordinal number of the observations in agreement with the Section 2,
 Catalogue - the catalogue of reference stars,

Star numbers and dependences,

A - the difference between independent determination of the coordinates
 $\Delta \alpha \cos \delta$ in arc seconds,

B - the difference between independent determination of the coordinates
 $\Delta \delta$ in arc seconds,

C - notes.

N	Catalogue	Star numbers and dependences			A	B	C
Comet Kohler (1977 XIV)							
1	SAO 2	84208 .82147	84216 .08127	84245 .09726			
		84198 .38365	84209 .33912	84245 .27723	0.2	0.6	

N	Catalogue	Star numbers and dependences						A	B	C
2	SAO 2	84208 .81306	84216 .08789	84245 .09905						
		84198 .38487	84209 .33435	84245 .28078	0.2	1.5				
3	SAO 2	84291 .28687	84307 .37583	84318 .33730						
		84270 .28875	84318 .53186	84332 .17939	0.6	0.1				
4	SAO 2	102646 .20393	102669 .35577	102725 .44030						
		102648 .22228	102682 .33698	102723 .44074	0.6	0.5				
5	SAO 2	102646 .19985	102669 .34397	102725 .45618						
		102648 .20023	102682 .35020	102723 .44957	0.6	1.7				
6	SAO 2	122510 .43044	122548 .21037	122571 .35919						
		122512 .43755	122561 .41663	122568 .14582	0.3	0.2				
7	SAO 2	122510 .40797	122548 .20663	122571 .38540						
		122512 .40648	122561 .44025	122568 .15327	0.2	0.1				
8	SAO 3	162401 .39352	143267 .26397	162551 .34251						
		162401 .27512	143234 .30425	162551 .42063	0.3	0.7				
9	SAO 3	162401 .38867	143267 .25566	162551 .35567						
		162401 .27404	143234 .29460	162551 .43136	0.3	0.5				
Comet Meier (1978 XXI)										
1	SAO 1	42154 .34042	42197 .20420	42235 .45538						
		42138 .08718	42192 .39095	42216 .52187	0.4	3.0				
2	SAO 3	165256 .34962	165331 .28715	165333 .36323						
		165279 .54869	165311 .22395	165364 .22736	1.1	1.1				
3	SAO 3	165279 .29620	165312 .52030	165331 .18350						
		165286 .42489	165318 .22282	165323 .35229	1.7	0.9				
4	SAO 3	165224 .34893	165236 .32183	165279 .32924						
		165222 .55975	165252 .17892	165296 .26133	0.3	0.1				
5	SAO 3	165203 .27358	165251 .50330	165287 .22312						
		165193 .32069	165229 .30229	165312 .37702	1.2	0.5				
Comet Meier (1979 IX)										
1	SAO 1	28214 .28526	28239 .24176	28275 .47298						
		28220 .40118	28249 .30300	28300 .29582	0.3	0.1	a			
2	SAO 1	28214 .29685	28245 .25929	28271 .44386						
		28225 .44484	28259 .29064	28263 .26452	0.0	0.2				
3	SAO 1	28221 .34735	28220 .36935	28271 .28330						
		28214 .47557	28225 .23008	28288 .29435	0.7	0.3				
4	SAO 1	28180 .41298	28220 .43348	28221 .15354						
		28197 .34637	28203 .19147	28214 .46216	0.4	0.4				

N	Catalogue	Star numbers and dependences					A	B	C
Comet Bradfield (1979 X)									
1	SAO 2	93484 .17368	93486 .49827	93537 .32805					
		93477 .41719	93523 .54514	93542 .03767	0.4	1.5			
Periodic Comet Stephan-Oterma (1980 X)									
1	SAO 2	112571 .50470	112603 .19469	112684 .30061					
		112558 .28753	112609 .46947	112647 .24300	0.2	0.5			
2	SAO 2	112571 .48088	112603 .21461	112684 .30451					
		112558 .28070	112609 .45182	112647 .26748	0.1	1.3			
3	SAO 2	112571 .24145	112603 .41227	112684 .34628					
		112558 .20847	112609 .28009	112647 .51144	0.3	1.0			
4	SAO 2	112571 .21459	112603 .43600	112684 .34941					
		112558 .20245	112609 .25866	112647 .53889	0.1	0.3			
5	SAO 2	112623 .49499	94532 .18661	112854 .31840					
		112654 .48059	112728 .38975	94642 .12966	0.3	0.1			
6	SAO 2	112654 .48221	112728 .38508	94642 .13271					
		112623 .49141	94532 .19052	112854 .31807	0.7	1.9			
7	SAO 2	94496 .52712	94530 .11356	94602 .35932					
		94496 .55709	94557 .11840	94602 .32451	0.3	0.5			
8	SAO 2	94496 .52151	94530 .11962	94602 .35887					
		94496 .55302	94557 .12479	94602 .32219	0.2	0.1			
9	SAO 2	94496 .33147	94530 .30705	94602 .36148					
		94496 .41242	94557 .32025	94602 .26733	0.7	0.6	a		
10	SAO 2	94534 .55607	94578 .19162	94626 .25231					
		94532 .38792	94567 .39851	94615 .21357	1.4	0.2			
11	SAO 2	94534 .53938	94578 .21391	94626 .24671					
		94532 .39419	94567 .37878	94615 .22703	1.5	0.4			
12	SAO 2	94560 .31623	94599 .35410	94601 .32967					
		94561 .13008	94575 .41624	94624 .45368	0.2	0.1			
13	SAO 2	77196 .25860	77269 .34517	94710 .39623					
		77212 .38666	94616 .29658	77417 .31676	1.0	0.2			
14	SAO 2	77232 .35175	77269 .06091	77296 .58734					
		77235 .26842	77277 .59026	77293 .14132	0.7	0.7			
15	SAO 2	77232 .18360	77269 .52343	77296 .29297					
		77235 .31500	77277 .15234	77293 .53266	0.8	0.8			
16	SAO 2	77230 .25715	77264 .46969	77328 .27316					
		77212 .33215	77311 .46087	77324 .20698	1.1	0.1			
17	SAO 2	77244 .35815	77274 .31134	77316 .33051					
		77239 .21232	77271 .43722	77305 .35046	0.1	0.4			

N	Catalogue	Star numbers and dependences				A	B	C
18	SAO 2	77244 .33843	77274 .35688	77316 .30469				
		77239 .23693	77271 .37734	77305 .38573	0.1	0.6		
19	SAO 1,2	77208 .18931	77248 .45789	77356 .35280				
		77203 .30390	58185 .29748	77359 .39862	0.1	1.0		
20	SAO 1,2	77203 .29747	58185 .30778	77359 .39475				
		77208 .19611	77248 .44680	77356 .35709	0.0	0.1		
21	SAO 1	58187 .47693	58232 .32851	58264 .19456				
		58188 .54992	58209 .27142	58316 .17866	0.3	1.4		
22	SAO 1	58154 .42110	58264 .32899	58274 .24991				
		58188 .32894	58206 .44477	58274 .22629	0.3	1.2		
23	SAO 1	58162 .35208	58221 .24876	58276 .39916				
		58191 .40040	58217 .39688	58274 .20272	0.3	0.7		
24	SAO 1	58162 .34275	58221 .26868	58276 .38857				
		58191 .41207	58217 .37870	58274 .20923	0.9	0.2		
25	SAO 1	58191 .46286	58232 .37427	58291 .16287				
		58188 .32074	58215 .37079	58271 .30847	0.2	1.3		
26	SAO 1	58191 .47911	58232 .34363	58291 .17726				
		58188 .30292	58215 .39424	58271 .30284	0.2	1.0		
Comet Meier (1980 XII)								
1	SAO 2	85465 .21655	85549 .45249	85574 .33096				
		85478 .30192	85502 .33091	85616 .36717	0.3	0.7		
2	SAO 2	85465 .21806	85549 .44798	85574 .33396				
		85478 .30602	85502 .32666	85616 .36732	0.4	0.2		
Periodic Comet Tuttle (1980 XIII)								
1	SAO 1	43095 .19512	43145 .49146	43154 .31342				
		43089 .23396	43121 .39663	43203 .36941	0.9	0.1		
2	SAO 1	43098 .23184	43145 .36269	43161 .40547				
		43089 .32477	43121 .17829	43185 .49694	0.4	0.6		
3	SAO 1	43133 .42508	43135 .35194	43226 .22298				
		43105 .26289	43144 .21888	43187 .51823				
		43114 .21015	43161 .46180	43170 .32805				
		43121 .09348	43132 .44842	43185 .45810	1.1	0.7	a	
4	SAO 2	61890 .26509	61941 .37641	61960 .35850				
		61907 .33905	61941 .38081	61960 .28014	0.1	0.3		
5	SAO 2	61890 .26681	61941 .33984	61960 .39335				
		61907 .34134	61941 .34435	61960 .31431	0.4	0.1		

N	Catalogue	Star numbers and dependences				A	B	C
6	SAO 2	61951 .49780	61973 .37381	62008 .12839				
		61919 .32156	61973 .44078	62008 .23766	0.5	0.2		
7	SAO 2	81258 .34930	61969 .38917	81328 .26153				
		81258 .33152	61979 .48922	81328 .17926	0.2	0.5		
8	SAO 2	81258 .36489	61969 .36229	81328 .27282				
		81258 .34846	61979 .45539	81328 .19615	0.7	0.2		
9	SAO 2	81263 .23489	81320 .21617	81330 .54894				
		81290 .21358	81294 .12722	81325 .65920	0.8	0.4		
10	SAO 3	156253 .33940	156296 .34537	156334 .31523				
		156241 .17999	156270 .45008	156345 .36993	0.5	0.2	a	

Note: a - poor sky.

4. LIST OF COLABORATORS

Name	Abbreviation	Exposures	Measurements	Reductions
M. Antal	A	2	2	1
G. Červák	E	-	5	2
J. Fabricius	F	-	3	-
J. Klobušník	J	31	18	-
L. Kornoš	N	-	1	2
E.M. Pittich	P	-	-	34
P. Rychtarčík	R	-	11	2
P. Schalling	G	24	17	-
J. Svoreň	S	-	-	16

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