

# Comet astrometry made at the Skalnáté Pleso Observatory in the year 1985

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**Abstract.** The paper presents the results of position photographing of comets carried out at the Skalnáté Pleso Observatory in the year 1985. A total of 191 observations of 9 comets are given.

**Key words:** comets – astrometry

## 1. Introduction

The presented paper is a continuation of the previous papers which gave the results of positional observations of comets made at the Skalnáté Pleso Observatory (the last paper of this series: Svoreň; 1991) and contains positional comet observations made in the year 1985. The observations were made with a 0.3-m f/5 Zeiss astrograph. The reduction constants of the Skalnáté Pleso astrograph are as follows:

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

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

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

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

The comets were photographed on ORWO plates with ZU 21 emulsion, dimensions 24x24 and 9x12 cm, which roughly corresponds to fields of 8.5°x 8.5° and 3°x 4° 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) and from the special comet Halley and Giacobini-Zinner reference star catalogs (1984). The differences between independent determination of the equatorial coordinates, given for each position, provide some information about the accuracy of the measuring (but not about the accuracy of the object position).

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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 calculator EMG 666 and computer SM 4-20.

A total of 191 accurate positions of 9 comets, arranged according to the definitive designation of the objects, are given. The list of collaborators are 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 table 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 (in h,m,s),

$Decl._{1950}$  - declination for equinox 1950.0 (in  $^{\circ},',''$ ),

T - the exposure time in minutes,

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

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

Notes: N. 62 - poor image, N. 108 - trialed image, N. 189, 190, 191 - poor sky.

N	Date U.T.	$R.A._{1950}$	$Decl._{1950}$	T	A	B
Periodic Comet Arend-Rigaux (1984 XXI)						
1	1985 Jan. 20.81296	9 03 46.60	+19 42 53.2	20	0.9	0.3
2	1985 Jan. 21.79086	9 03 43.59	+20 14 22.5	15	0.0	0.1
3	1985 Jan. 21.83079	9 03 43.39	+20 15 41.5	15	0.4	0.1
4	1985 Jan. 29.03819	9 02 52.18	+23 56 47.5	20	0.4	0.3
5	1985 Jan. 29.09236	9 02 51.58	+23 58 22.2	20	0.2	0.6
6	1985 Feb. 25.94444	9 01 54.83	+33 03 46.0	30	0.0	1.0
7	1985 Feb. 26.01319	9 01 55.55	+33 04 24.0	30	0.5	0.3
Periodic Comet Schaumasee (1984 XXII)						
8	1985 Jan. 29.13958	15 24 26.78	- 4 45 10.8	15	0.5	0.3
9	1985 Jan. 29.17604	15 24 31.05	- 4 45 31.7	15	0.6	0.9

N	Date U.T.	<i>R.A.</i> <sub>1950</sub>	<i>Decl.</i> <sub>1950</sub>	T	A	B
Comet Levy-Rudenko (1984 XXIII)						
10	1985 Jan.	21.85961	17 43 06.58	+54 37 14.2	7	0.1 0.9
11	1985 Jan.	21.88762	17 43 00.80	+54 39 03.4	7	0.2 0.5
12	1985 Jan.	29.11354	17 05 36.54	+63 35 27.0	8	0.5 0.4
13	1985 Jan.	29.15417	17 05 17.51	+63 38 45.7	8	0.6 0.8
14	1985 Feb.	8.78333	14 01 10.41	+75 20 46.2	10	0.2 0.4
15	1985 Feb.	25.96944	8 53 02.45	+56 12 34.4	10	0.8 0.4

Comet Shoemaker (1985 II)						
16	1985 Jan.	20.79815	4 56 16.98	-18 23 54.2	10	0.1 0.7
17	1985 Jan.	20.82778	4 56 24.20	-18 23 48.0	10	0.5 0.5
18	1985 Jan.	21.72141	5 00 04.13	-18 20 57.3	10	1.1 0.4
19	1985 Jan.	21.74653	5 00 10.13	-18 20 51.0	10	1.2 1.1

Periodic Comet Giacobini-Zinner (1985 XIII)						
20	1985 May	24.97674	20 36 15.72	+29 33 58.8	35	1.1 1.6
21	1985 May	25.02674	20 36 20.73	+29 35 22.4	35	2.3 0.7
22	1985 June	11.98229	21 14 07.63	+38 56 16.2	20	0.7 0.6
23	1985 June	19.92639	21 34 12.41	+43 13 28.8	12	0.5 0.1
24	1985 June	19.97292	21 34 19.83	+43 14 58.9	12	0.4 0.5
25	1985 July	15.00557	23 09 59.81	+55 45 14.1	8	0.1 0.1
26	1985 July	15.03589	23 10 09.72	+55 46 00.0	6	0.3 1.1
27	1985 July	16.96448	23 20 58.06	+56 31 49.8	4	1.1 0.5
28	1985 July	16.98976	23 21 06.49	+56 32 23.6	4	0.5 0.1
29	1985 July	17.02616	23 21 19.06	+56 33 16.8	4	0.4 0.1
30	1985 July	19.91389	23 38 48.82	+57 35 09.4	4	0.9 0.2
31	1985 July	19.95035	23 39 02.79	+57 35 52.7	4	0.5 0.4
32	1985 July	19.98333	23 39 15.08	+57 36 33.5	4	0.5 0.3
33	1985 July	24.84514	0 12 28.38	+58 57 41.6	4	0.3 0.8
34	1985 July	24.86424	0 12 36.66	+58 57 59.7	3	0.8 1.4
35	1985 July	24.89427	0 12 49.56	+58 58 24.0	3	0.8 1.4
36	1985 July	24.92396	0 13 02.84	+58 58 47.6	3	0.8 1.4
37	1985 July	24.95382	0 13 15.79	+58 59 11.9	3	0.8 1.4
38	1985 July	24.98368	0 13 29.11	+58 59 35.3	3	0.8 1.3
39	1985 July	25.01215	0 13 41.70	+58 59 58.3	3	0.8 1.3
40	1985 July	26.84757	0 27 30.92	+59 20 52.3	2	0.7 0.1
41	1985 July	26.87986	0 27 46.04	+59 21 11.7	2	1.0 0.3
42	1985 July	26.90903	0 27 59.25	+59 21 33.5	2	1.0 0.3
43	1985 July	26.93819	0 28 12.45	+59 21 51.1	2	0.6 0.3

N	Date U.T.	<i>R.A.</i> <sub>1950</sub>	<i>Decl.</i> <sub>1950</sub>	T	A	B	
Periodic Comet Giacobini-Zinner (1985 XIII) - cont.							
44	1985 July	26.96597	0 28 25.53	+59 22 05.7	2	0.6	0.3
45	1985 July	26.99236	0 28 37.95	+59 22 23.2	2	0.6	0.3
46	1985 July	28.92187	0 43 53.27	+59 37 20.8	2	0.5	0.8
47	1985 July	28.95417	0 44 08.95	+59 37 34.3	3	0.0	0.2
48	1985 Aug.	3.83461	1 34 09.95	+59 33 41.8	2	0.1	0.6
49	1985 Aug.	3.84745	1 34 16.66	+59 33 35.3	2	0.2	0.6
50	1985 Aug.	4.84965	1 43 09.90	+59 24 33.2	2	0.9	0.0
51	1985 Aug.	4.87037	1 43 21.00	+59 24 17.6	2	0.9	0.0
52	1985 Aug.	5.84005	1 51 59.98	+59 12 58.0	2	0.2	0.1
53	1985 Aug.	5.86574	1 52 14.08	+59 12 33.5	2	0.3	0.2
54	1985 Aug.	12.91678	2 54 43.17	+56 28 47.8	2	0.5	0.2
55	1985 Aug.	12.97228	2 55 11.87	+56 26 57.9	2	0.4	0.2
56	1985 Aug.	13.83519	3 02 34.21	+55 56 35.5	2	0.1	0.8
57	1985 Aug.	13.85625	3 02 44.68	+55 55 50.9	2	0.2	0.0
58	1985 Aug.	14.85521	3 11 09.25	+55 17 56.6	2	0.8	0.2
59	1985 Aug.	14.89514	3 11 29.34	+55 16 22.8	2	0.7	0.8
60	1985 Aug.	15.84861	3 19 22.01	+54 37 17.7	2	0.5	0.4
61	1985 Aug.	15.88542	3 19 40.35	+54 35 46.5	2	0.3	0.4
62	1985 Aug.	16.88578	3 27 46.41	+53 51 51.3	3	1.5	0.5
63	1985 Aug.	23.89039	4 19 19.17	+47 26 39.6	2	0.0	0.1
64	1985 Aug.	23.93970	4 19 39.08	+47 23 32.1	2	0.0	0.2
65	1985 Sep.	14.02002	6 02 39.60	+19 37 56.5	4	0.9	0.8
66	1985 Sep.	14.07326	6 02 50.54	+19 33 28.3	4	0.8	0.7
67	1985 Sep.	15.04271	6 06 08.51	+18 12 49.0	3	0.1	0.7
68	1985 Sep.	15.09340	6 06 18.72	+18 08 34.9	3	0.2	0.9
69	1985 Sep.	16.00729	6 09 20.03	+16 53 05.1	4	0.4	0.8
70	1985 Sep.	16.04340	6 09 27.00	+16 50 08.3	4	0.1	0.2
71	1985 Sep.	19.01273	6 18 41.81	+12 49 23.5	4	0.8	0.3
72	1985 Sep.	19.06603	6 18 51.12	+12 45 09.1	4	0.3	0.2
73	1985 Sep.	19.98090	6 21 32.43	+11 32 41.6	5	0.3	0.6
74	1985 Sep.	20.01215	6 21 37.75	+11 30 09.4	5	0.5	0.5
75	1985 Sep.	20.99424	6 24 25.77	+10 13 21.4	6	0.6	1.0
76	1985 Oct.	18.07892	7 15 14.03	-17 23 51.3	10	1.2	0.9
77	1985 Oct.	18.12535	7 15 16.77	-17 25 56.1	10	0.6	0.4
78	1985 Oct.	21.03854	7 18 05.39	-19 33 54.5	10	0.1	0.0
79	1985 Oct.	21.06944	7 18 06.90	-19 35 13.3	10	0.9	0.3
80	1985 Oct.	22.11181	7 18 59.83	-20 18 59.2	12	0.7	0.4
81	1985 Oct.	22.13958	7 19 00.91	-20 20 06.0	12	0.7	0.1

N	Date U.T.	<i>R.A.</i> <sub>1950</sub>	<i>Decl.</i> <sub>1950</sub>	T	A	B	
Comet Ciffreo (1985 XVI)							
82	1985 Dec.	12.88090	4 09 16.86	+31 51 39.4	15	0.3	0.0
83	1985 Dec.	12.92917	4 09 15.30	+31 52 09.4	15	0.5	1.0
84	1985 Dec.	13.75903	4 08 46.49	+32 00 46.8	18	0.2	0.3
85	1985 Dec.	13.83958	4 08 43.66	+32 01 37.3	18	0.2	0.9
Comet Hartley-Good (1985 XVII)							
86	1985 Oct.	21.72118	19 55 47.70	- 4 48 55.7	5	0.1	0.1
87	1985 Oct.	21.76218	19 55 32.57	- 4 46 29.9	5	0.4	0.2
88	1985 Oct.	23.76285	19 43 58.20	- 2 52 24.8	6	0.8	0.2
89	1985 Oct.	23.80486	19 43 44.17	- 2 50 06.5	5	0.5	0.2
90	1985 Oct.	25.72848	19 33 33.28	- 1 07 14.9	4	0.8	0.2
91	1985 Oct.	25.78334	19 33 16.55	- 1 04 22.8	4	1.0	0.4
92	1985 Oct.	26.77049	19 28 22.99	- 0 14 13.8	3	0.4	0.1
93	1985 Oct.	26.80312	19 28 13.58	- 0 12 37.3	3	0.7	0.5
94	1985 Oct.	27.75937	19 23 41.43	+ 0 34 14.4	3	0.3	0.4
95	1985 Oct.	27.79965	19 23 29.99	+ 0 36 10.4	3	0.9	0.2
96	1985 Nov.	3.72986	18 55 21.49	+ 5 30 30.7	3	0.1	0.2
97	1985 Nov.	3.75868	18 55 15.54	+ 5 31 34.8	3	0.1	0.2
98	1985 Nov.	8.69097	18 38 55.15	+ 8 18 55.0	3	0.2	0.4
99	1985 Nov.	8.72407	18 38 48.99	+ 8 19 55.6	3	0.5	0.0
100	1985 Nov.	11.69931	18 29 55.68	+ 9 46 20.2	3	0.7	0.2
101	1985 Nov.	11.72951	18 29 50.57	+ 9 47 09.6	3	0.6	0.5
Comet Thiele (1985 XIX)							
102	1985 Nov.	8.70312	0 21 51.50	+38 51 35.5	6	0.9	0.3
103	1985 Nov.	8.73265	0 21 20.96	+38 49 54.9	6	1.2	0.1
104	1985 Nov.	16.78472	22 38 03.16	+29 18 58.9	8	0.0	0.3
105	1985 Nov.	16.82639	22 37 41.37	+29 16 03.2	8	0.0	0.2
106	1985 Nov.	17.90706	22 28 47.57	+28 02 06.0	4	0.5	0.4
107	1985 Nov.	17.93657	22 28 33.39	+28 00 08.0	4	0.5	0.6
Periodic Comet Halley (1986 III)							
108	1985 Aug.	24.03891	6 05 06.22	+19 13 58.7	60	0.8	0.5
109	1985 Sep.	14.04873	6 12 23.07	+19 34 26.6	60	0.6	0.7
110	1985 Sep.	15.07014	6 12 33.14	+19 35 40.6	60	1.5	0.6
111	1985 Sep.	15.98090	6 12 40.92	+19 36 47.7	45	0.3	0.7

N	Date U.T.	<i>R.A.</i> <sub>1950</sub>	<i>Decl.</i> <sub>1950</sub>	T	A	B
Periodic Comet Halley (1986 III) - cont.						
112	1985 Sep.	16.08090	6 12 41.72	+19 36 54.4	45	0.5 0.4
113	1985 Sep.	18.98976	6 12 58.61	+19 40 38.6	40	0.2 0.3
114	1985 Sep.	19.04781	6 12 58.75	+19 40 45.2	40	1.0 0.4
115	1985 Sep.	19.94792	6 13 01.21	+19 41 58.9	30	1.0 0.8
116	1985 Sep.	20.03125	6 13 01.40	+19 42 05.7	30	0.6 0.8
117	1985 Sep.	21.12367	6 13 02.50	+19 43 38.8	20	1.0 0.6
118	1985 Oct.	17.89074	5 57 21.19	+20 47 26.4	15	0.2 0.2
119	1985 Oct.	17.94282	5 57 16.18	+20 47 39.8	15	0.3 0.2
120	1985 Oct.	17.98368	5 57 12.64	+20 47 48.5	15	0.3 0.1
121	1985 Oct.	18.02396	5 57 09.03	+20 47 57.3	16	0.3 0.1
122	1985 Oct.	18.06424	5 57 05.65	+20 48 06.1	15	0.3 0.1
123	1985 Oct.	19.90451	5 54 06.99	+20 55 04.5	10	0.5 0.3
124	1985 Oct.	19.96181	5 54 01.06	+20 55 19.4	10	0.1 0.0
125	1985 Oct.	20.00417	5 53 56.75	+20 55 27.0	10	0.0 0.0
126	1985 Oct.	20.89410	5 52 21.60	+20 58 58.1	8	0.1 0.5
127	1985 Oct.	20.95556	5 52 14.39	+20 59 16.1	8	0.9 0.0
128	1985 Oct.	21.02361	5 52 07.39	+20 59 29.6	8	0.9 0.0
129	1985 Oct.	21.08056	5 52 00.46	+20 59 45.1	8	0.1 1.3
130	1985 Oct.	21.14687	5 51 53.34	+21 00 01.5	7	0.2 1.4
131	1985 Oct.	21.89306	5 50 27.51	+21 03 02.6	10	0.3 0.7
132	1985 Oct.	21.97083	5 50 18.03	+21 03 24.0	10	0.9 0.3
133	1985 Oct.	22.03125	5 50 11.04	+21 03 38.2	10	0.9 0.3
134	1985 Oct.	22.09375	5 50 03.80	+21 03 52.4	10	0.8 0.3
135	1985 Oct.	23.99271	5 46 01.69	+21 11 54.5	10	0.3 0.7
136	1985 Oct.	24.05000	5 45 53.79	+21 12 11.7	6	0.5 0.3
137	1985 Oct.	24.09028	5 45 48.18	+21 12 21.3	10	0.1 1.0
138	1985 Oct.	24.14583	5 45 40.67	+21 12 33.7	10	0.1 0.9
139	1985 Oct.	26.06494	5 41 00.79	+21 21 03.2	8	1.1 0.6
140	1985 Oct.	27.10455	5 38 13.70	+21 25 47.1	6	0.0 0.3
141	1985 Oct.	27.14583	5 38 06.79	+21 25 55.8	6	0.7 0.3
142	1985 Nov.	3.99653	5 09 44.54	+22 00 29.4	8	0.4 0.2
143	1985 Nov.	4.03472	5 09 33.85	+22 00 38.2	8	0.7 0.3
144	1985 Nov.	8.81296	4 43 53.13	+22 13 21.5	3	0.4 0.3
145	1985 Nov.	8.85475	4 43 37.48	+22 13 23.6	3	0.1 0.1
146	1985 Nov.	11.82604	4 23 24.64	+22 11 49.1	4	0.8 0.2
147	1985 Nov.	11.85382	4 23 12.30	+22 11 45.1	4	0.7 0.2
148	1985 Nov.	11.92222	4 22 41.59	+22 11 36.6	4	1.1 0.2

N	Date U.T.	<i>R.A.</i> <sub>1950</sub>	<i>Decl.</i> <sub>1950</sub>	T	A	B
Periodic Comet Halley (1986 III) - cont.						
149	1985 Nov.	12.03125	4 21 52.39	+22 11 18.3	4	1.2 0.4
150	1985 Nov.	12.08646	4 21 27.37	+22 11 09.6	4	0.6 0.1
151	1985 Nov.	12.12778	4 21 08.61	+22 11 02.3	4	0.8 0.1
152	1985 Nov.	12.15972	4 20 54.20	+22 10 56.1	4	0.4 0.4
153	1985 Nov.	16.07292	3 48 07.13	+21 45 38.6	3	0.2 0.4
154	1985 Nov.	16.11215	3 47 45.33	+21 45 12.7	3	0.2 0.8
155	1985 Nov.	16.14340	3 47 28.06	+21 44 52.0	3	0.2 0.7
156	1985 Nov.	16.77396	3 41 34.55	+21 37 30.8	3	0.5 0.3
157	1985 Nov.	16.81771	3 41 09.50	+21 36 58.9	3	1.2 0.6
158	1985 Nov.	16.87986	3 40 33.69	+21 36 11.0	3	0.6 0.0
159	1985 Nov.	16.93542	3 40 01.39	+21 35 28.5	3	0.8 0.5
160	1985 Nov.	16.97743	3 39 37.29	+21 34 56.0	3	0.6 0.0
161	1985 Nov.	17.01771	3 39 14.06	+21 34 24.8	3	0.6 0.3
162	1985 Nov.	17.06007	3 38 49.56	+21 33 50.2	3	1.0 0.1
163	1985 Nov.	17.10174	3 38 25.32	+21 33 17.4	3	0.9 0.1
164	1985 Nov.	17.15694	3 37 53.24	+21 32 30.8	3	1.4 0.1
165	1985 Nov.	17.91233	3 30 29.19	+21 21 35.1	2.5	0.6 0.5
166	1985 Nov.	17.96858	3 29 55.36	+21 20 42.2	2.5	0.6 0.2
167	1985 Nov.	18.02899	3 29 18.92	+21 19 44.3	2.5	0.6 0.2
168	1985 Nov.	18.08351	3 28 46.03	+21 18 50.6	2.5	0.5 0.9
169	1985 Nov.	18.14705	3 28 07.71	+21 17 48.9	2.5	0.7 0.2
170	1985 Dec.	1.73160	0 57 49.32	+13 03 02.4	3	0.2 0.5
171	1985 Dec.	1.76146	0 57 31.16	+13 01 32.6	3	0.5 0.2
172	1985 Dec.	3.70625	0 38 17.87	+11 25 26.8	2	0.8 0.2
173	1985 Dec.	3.77674	0 37 37.34	+11 21 58.8	3	0.2 0.8
174	1985 Dec.	4.86944	0 27 29.72	+10 28 55.5	2	0.4 0.6
175	1985 Dec.	4.89549	0 27 15.54	+10 27 39.7	2	0.2 0.7
176	1985 Dec.	12.67373	23 29 03.93	+ 4 56 35.5	2	0.1 0.4
177	1985 Dec.	12.71748	23 28 47.87	+ 4 54 57.9	2	0.3 0.1
178	1985 Dec.	12.75648	23 28 33.68	+ 4 53 35.0	2	0.2 0.8
179	1985 Dec.	12.79878	23 28 18.39	+ 4 52 04.4	1.5	0.4 0.4
180	1985 Dec.	12.83663	23 28 04.66	+ 4 50 41.1	1.5	0.3 0.1
181	1985 Dec.	13.66788	23 23 13.16	+ 4 21 32.5	1.5	0.1 0.7
182	1985 Dec.	13.73038	23 22 51.66	+ 4 19 23.5	1.5	0.1 0.8
183	1985 Dec.	13.77274	23 22 37.12	+ 4 17 56.3	1.5	0.3 0.4
184	1985 Dec.	13.81372	23 22 22.96	+ 4 16 33.3	1.5	0.3 0.7

N	Date U.T.	<i>R.A.</i> <sub>1950</sub>	<i>Decl.</i> <sub>1950</sub>	T	A	B
Periodic Comet Halley (1986 III) - cont.						
185	1985 Dec.	13.85052	23 22 10.47	+ 4 15 17.1	1.5	0.1 0.2
186	1985 Dec.	22.77083	22 41 59.01	+ 0 10 34.2	2	0.0 0.6
187	1985 Dec.	23.69861	22 38 45.38	- 0 09 09.4	2	0.1 0.5
188	1985 Dec.	23.74028	22 38 36.80	- 0 10 00.0	2	0.5 0.6
189	1985 Dec.	30.66738	22 18 19.02	- 2 13 22.6	2	0.2 0.1
190	1985 Dec.	30.70806	22 18 12.83	- 2 14 01.5	1	0.9 0.1
191	1985 Dec.	30.74983	22 18 06.37	- 2 14 39.6	1.5	1.1 0.4

### 3. Reference stars and dependences

Numbers of reference stars and dependences are not published here but they can be obtained from the author on request.

### 4. List of collaborators

Name	Exposures	Measurements	Reductions
P. Bendík	2	—	—
G. Červák	94	77	—
L. Kornoš	6	14	19
P. Rychtarčík	88	85	—
J. Svoreň	1	15	172

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