

Astrometry of minor planets made at the Skalnaté Pleso Observatory in the year 1981

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Abstract. The paper presents the results of position photographing of minor planets carried out at the Skalnaté Pleso Observatory in the year 1981. 73 observations of 11 minor planets are given together with the list of reference stars and dependences.

Key words: asteroids – astrometry

1. Introduction

The presented paper is a continuation of the previous papers which gave the results of positional observations of minor planets obtained at the Skalnaté Pleso Observatory (the last paper of this series: Svoreň, Pittich; 1993) and contains the observations made in the year 1981. The reference stars were selected from the Smithsonian Astrophysical Observatory Star Catalog(1966). The reduction constants as well as methods of observation and processing and all the other necessary data are not repeated here. They are given in the paper on astrometry of comets in this volume (Svoreň, 1994).

A total of 73 accurate positions of 11 minor planets are given. The list of collaborators is given, together with their share in photographing, measuring and reducing the positions.

2. Positions of minor planets

The data have been arranged according to serial numbers of minor planets. The individual columns of the table contain the following:

N - ordinal number of observation,

MP - number of minor planet,

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),

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*Decl.*₁₉₅₀ - declination for equinox 1950.0 (in °, ', ''),

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. 9, 10 - bad seeing, N. 13 - poor guiding.

N	MP	Date U.T.	<i>R.A.</i> ₁₉₅₀	<i>Decl.</i> ₁₉₅₀	A	B	
1	1	1981 Jan.	28.85347	7 15 25.67	+ 31 49 27.9	0.7	0.4
2	1	1981 Jan.	29.90486	7 15 22.86	+ 31 49 38.8	0.6	0.5
3	4	1981 Jan.	11.02708	10 55 49.92	+ 13 49 45.3	0.1	0.7
4	4	1981 Jan.	11.06458	10 55 49.88	+ 13 49 57.2	0.7	0.6
5	4	1981 Jan.	29.96389	10 51 04.55	+ 15 51 44.7	0.3	0.4
6	4	1981 Jan.	30.01736	10 51 02.72	+ 15 52 10.4	0.8	0.2
7	4	1981 Feb.	6.95521	10 46 00.91	+ 16 57 56.0	0.8	0.2
8	4	1981 Feb.	6.97465	10 46 00.01	+ 16 58 05.4	0.2	0.1
9	4	1981 Feb.	26.89375	10 28 14.86	+ 19 44 34.2	0.3	0.2
10	4	1981 Feb.	26.98056	10 28 09.50	+ 19 45 14.5	0.5	0.2
11	4	1981 Feb.	27.78785	10 27 22.88	+ 19 51 10.4	0.3	0.1
12	4	1981 Feb.	27.82361	10 27 20.77	+ 19 51 26.9	0.4	0.1
13	11	1981 July	31.95139	19 34 24.90	- 20 49 16.9	0.8	0.6
14	11	1981 Aug.	4.86111	19 31 20.07	- 21 07 22.0	0.2	1.0
15	11	1981 Aug.	4.92778	19 31 16.92	- 21 07 39.6	0.7	0.1
16	11	1981 Aug.	5.84792	19 30 36.32	- 21 11 45.0	0.9	0.6
17	11	1981 Aug.	5.91458	19 30 33.31	- 21 12 02.3	0.2	0.2
18	11	1981 Aug.	6.92222	19 29 50.20	- 21 16 26.2	0.1	0.6
19	11	1981 Aug.	6.95139	19 29 48.95	- 21 16 33.9	0.1	0.1
20	11	1981 Sep.	5.79896	19 22 18.93	- 22 46 06.5	0.2	0.1
21	11	1981 Sep.	5.83576	19 22 19.37	- 22 46 11.0	0.1	0.0
22	18	1981 June	28.98160	22 12 20.01	- 4 44 32.1	0.6	0.1
23	18	1981 June	29.00208	22 12 20.64	- 4 44 32.1	0.1	0.2
24	18	1981 Aug.	4.88403	22 13 50.96	- 7 49 52.3	0.6	0.4
25	18	1981 Aug.	4.94168	22 13 49.20	- 7 50 28.9	0.4	0.7
26	18	1981 Aug.	6.96944	22 12 48.29	- 8 12 22.2	0.5	0.1
27	18	1981 Aug.	7.01042	22 12 46.96	- 8 12 48.2	0.0	0.4
28	18	1981 Aug.	7.88819	22 12 19.01	- 8 22 36.7	0.5	0.4
29	18	1981 Aug.	7.94514	22 12 17.04	- 8 23 15.4	0.5	0.5
30	18	1981 Aug.	30.91771	21 56 23.13	- 13 21 47.9	0.6	0.8
31	18	1981 Aug.	30.96563	21 56 20.97	- 13 22 26.9	0.4	0.5
32	18	1981 Sep.	4.99271	21 52 54.27	- 14 28 28.6	1.1	0.9
33	18	1981 Sep.	5.98090	21 52 16.60	- 14 41 00.9	0.0	0.3
34	18	1981 Sep.	6.89792	21 51 42.65	- 14 52 32.1	0.9	0.3
35	18	1981 Sep.	6.92569	21 51 41.61	- 14 52 52.8	0.2	0.8
36	97	1981 Jan.	8.11493	8 22 19.89	+ 4 51 09.1	0.9	0.2

N	MP	Date U.T.		<i>R.A.</i> ₁₉₅₀	<i>Decl.</i> ₁₉₅₀	A	B
37	97	1981 Jan.	8.15139	8 22 18.25	+ 4 51 21.2	0.5	0.1
38	97	1981 Jan.	8.87199	8 21 44.83	+ 4 55 59.2	0.2	0.2
39	97	1981 Jan.	8.92153	8 21 42.37	+ 4 56 18.1	0.5	0.2
40	97	1981 Jan.	9.90590	8 20 55.36	+ 5 02 50.9	0.3	0.5
41	97	1981 Jan.	9.95347	8 20 52.98	+ 5 03 10.0	0.3	0.1
42	128	1981 Sep.	2.86528	0 35 59.29	- 7 09 22.0	0.1	0.6
43	128	1981 Sep.	2.89861	0 35 58.25	- 7 09 32.5	0.8	0.6
44	148	1981 June	9.97083	21 43 33.60	- 2 27 50.7	0.2	0.6
45	148	1981 June	10.00833	21 43 34.52	- 2 27 52.5	0.2	0.4
46	148	1981 June	29.00729	21 47 29.76	- 3 24 04.7	0.1	0.6
47	148	1981 Aug.	4.90382	21 32 35.61	- 9 19 15.8	0.2	0.4
48	148	1981 Aug.	4.95862	21 32 33.11	- 9 20 01.6	0.3	0.0
49	148	1981 Aug.	5.89722	21 31 51.46	- 9 32 57.5	0.3	0.0
50	148	1981 Aug.	5.98542	21 31 47.41	- 9 34 10.0	0.0	0.1
51	148	1981 Aug.	6.96181	21 31 03.59	- 9 47 43.1	0.0	0.7
52	148	1981 Aug.	7.00417	21 31 01.64	- 9 48 21.2	0.3	0.7
53	148	1981 Aug.	7.91111	21 30 20.37	- 10 01 11.3	0.4	0.2
54	148	1981 Aug.	7.95833	21 30 18.13	- 10 01 43.5	0.4	0.9
55	148	1981 Sep.	5.82604	21 09 02.24	- 16 56 16.0	1.0	0.1
56	148	1981 Sep.	5.84757	21 09 01.50	- 16 56 33.1	0.4	0.0
57	148	1981 Sep.	26.77361	21 02 26.58	- 20 48 29.8	0.9	0.6
58	148	1981 Sep.	26.80000	21 02 26.45	- 20 48 42.6	0.3	0.6
59	234	1981 Feb.	6.94549	9 22 58.32	+ 12 54 36.3	0.2	0.4
60	234	1981 Feb.	6.96771	9 22 56.92	+ 12 54 48.5	0.4	0.4
61	389	1981 Sep.	5.02257	5 54 00.47	+ 27 53 12.3	0.2	0.6
62	389	1981 Sep.	5.07813	5 54 04.77	+ 27 53 11.7	0.2	0.2
63	389	1981 Sep.	5.99236	5 55 17.80	+ 27 53 05.0	0.1	0.1
64	389	1981 Sep.	6.01389	5 55 19.48	+ 27 53 06.1	0.2	0.2
65	389	1981 Sep.	8.02431	5 57 57.58	+ 27 52 44.9	0.5	0.3
66	389	1981 Sep.	8.05208	5 57 59.80	+ 27 52 45.2	0.6	0.2
67	389	1981 Sep.	8.99306	5 59 12.85	+ 27 52 30.2	0.6	0.6
68	389	1981 Sep.	27.10069	6 20 09.60	+ 27 42 00.0	0.8	0.2
69	389	1981 Sep.	27.12847	6 20 11.18	+ 27 42 00.2	0.1	0.4
70	389	1981 Dec.	17.81215	6 17 58.87	+ 25 55 50.5	0.0	0.1
71	389	1981 Dec.	17.84410	6 17 56.75	+ 25 55 47.4	0.1	0.6
72	665	1981 Oct.	25.79514	22 04 10.68	+ 3 33 03.5	0.1	0.0
73	665	1981 Oct.	25.87847	22 04 11.05	+ 3 32 56.2	0.1	0.6

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,
 Numbers of reference stars and dependences (SAO catalogue of reference stars
 is used at all the calculations),

T - the exposure time in minutes.

N	Numbers of stars and dependences						T
1	59921	.42996	59974	.34821	60048	.22183	
	59916	.44366	59986	.26250	60022	.29384	
2	59921	.16930	59959	.36803	59985	.46267	
	59923	.21672	59949	.34714	59993	.43614	
3	99343	.19144	99374	.45387	99406	.35469	
	99343	.22254	99382	.46059	99406	.31687	
4	99343	.19063	99374	.45591	99406	.35346	
	99343	.22177	99382	.46267	99406	.31556	
5	99307	.19845	99352	.58046	99353	.22109	
	99333	.45921	99338	.32659	99377	.21420	
6	99307	.20409	99352	.57213	99353	.22378	
	99333	.46731	99338	.32313	99377	.20956	
7	99275	.34302	99290	.22272	99333	.43426	
	99267	.27200	99295	.31811	99335	.40989	
8	99275	.34427	99290	.22384	99333	.43189	
	99267	.27434	99295	.31711	99335	.40855	
9	99140	.38284	81386	.33902	99196	.27814	
	81360	.38784	99163	.41686	81444	.19530	
	81360	.29958	99152	.37682	99196	.32360	
	99142	.37791	81384	.36197	99200	.26012	
10	99140	.38407	81386	.35210	99196	.26383	
	81360	.40149	99163	.40993	81444	.18858	
	81360	.31392	99152	.37244	99196	.31364	
	99142	.38561	81384	.36658	99200	.24781	
11	81360	.43931	99152	.33303	99196	.22766	
	99142	.45095	81384	.40740	99200	.14165	
12	81360	.44506	99152	.33108	99196	.22386	
	99142	.45393	81384	.40928	99200	.13679	
13	188250	.29295	188355	.29218	188440	.41487	
	162746	.29481	188287	.26938	188468	.43581	
	188285	.27724	188345	.29323	188413	.42953	
	188293	.28808	188348	.45609	188447	.25583	

N	Numbers of stars and dependences						T
14	188219	.35244	188250	.32791	188422	.31965	10
	188233	.39238	188250	.32262	188433	.28500	
15	188219	.36261	188250	.32269	188422	.31470	10
	188233	.39847	188250	.32196	188433	.27957	
16	188219	.25634	188238	.33682	188348	.40684	10
	188234	.26585	188250	.39108	188346	.34307	
17	188235	.45698	188250	.24404	188361	.29898	10
	188206	.34550	188287	.48955	188382	.16495	
18	188205	.46326	188293	.41269	188355	.12405	4
	188205	.45519	188293	.40889	188346	.13592	
19	188205	.46659	188293	.41158	188355	.12183	4
	188205	.45863	188293	.40792	188346	.13345	
20	187994	.35915	188118	.41394	188229	.22691	5
	187994	.35964	188118	.40030	188216	.24006	
21	187994	.35856	188118	.41370	188229	.22774	5
	187994	.35907	188118	.40000	188216	.24093	
22	145932	.39528	145969	.36548	146022	.23924	3
	145944	.39751	145959	.30042	146001	.30207	
23	145932	.39432	145969	.36505	146022	.24063	4
	145944	.39558	145959	.29988	146001	.30454	
24	145938	.29798	145968	.27444	146023	.42758	10
	145949	.46649	146009	.21190	146017	.32161	
25	145938	.30730	145968	.26657	146023	.42613	10
	145949	.47304	146009	.20257	146017	.32439	
26	145905	.31296	145968	.30971	146032	.37733	4
	145905	.33382	145963	.26079	146032	.40539	
27	145905	.31740	145968	.30490	146032	.37770	4
	145905	.33800	145963	.25669	146032	.40531	
28	145926	.35742	145990	.38911	145992	.25347	10
	145921	.13267	145974	.16002	145975	.70731	
	145938	.38841	145983	.30142	145992	.31017	
	145905	.25566	145990	.36730	145992	.37704	
29	145926	.36364	145990	.38182	145992	.25454	10
	145921	.14022	145974	.15023	145975	.70955	
	145938	.39869	145983	.28884	145992	.31247	
	145905	.26009	145990	.35953	145992	.38038	
30	164722	.25250	164804	.26969	164813	.47781	5
	164736	.17180	164781	.38126	164812	.44694	

N	Numbers of stars and dependences						T
31	164722	.25832	164804	.26094	164813	.48074	5
	164736	.18195	164781	.37030	164812	.44775	
32	164673	.32318	164736	.37317	164837	.30365	3
	164673	.29379	164736	.37435	164826	.33186	
33	164673	.38041	164729	.27785	164826	.34174	5
	164673	.39468	164736	.28164	164826	.32368	
34	164692	.26781	164737	.32580	164750	.40639	4
	164692	.29220	164707	.31582	164774	.39198	
35	164692	.27045	164737	.32882	164750	.40073	4
	164692	.30006	164707	.30884	164774	.39110	
36	116582	.25178	116773	.39518	116787	.35304	3
	116582	.19887	116753	.41707	116787	.38406	
37	116582	.25434	116773	.39544	116787	.35022	3
	116582	.20135	116753	.41738	116787	.38127	
38	116664	.27103	116716	.41773	116781	.31124	3
	116637	.42364	116744	.25059	116810	.32577	
	116582	.30599	116773	.40387	116787	.29014	
	116582	.25186	116753	.42630	116787	.32184	
39	116664	.28041	116716	.41238	116781	.30721	4
	116637	.42970	116744	.24657	116810	.32373	
	116582	.30985	116773	.40435	116787	.28580	
	116582	.25567	116753	.42678	116787	.31755	
40	116664	.46865	116716	.29880	116781	.23255	3
	116637	.54968	116744	.16203	116810	.28829	
	116663	.42322	116704	.31983	116781	.25695	
	116664	.26125	116716	.43860	116735	.30015	
41	116664	.47793	116716	.29365	116781	.22842	3
	116637	.55570	116744	.15798	116810	.28632	
	116582	.38613	116773	.41698	116787	.19689	
	116582	.33022	116753	.44011	116787	.22967	
42	128858	.54292	128863	.19263	128915	.26445	30
	128848	.33490	128867	.49206	128937	.17304	
	128821	.18035	128870	.51995	128910	.29970	
	128844	.32340	128846	.30931	128920	.36729	
43	128848	.16939	128858	.51940	128915	.31121	30
	128863	.40997	128867	.48552	128937	.10451	
	128821	.18132	128870	.52224	128910	.29644	
	128844	.32388	128846	.31094	128920	.36518	
44	145618	.33215	145643	.35274	145691	.31511	10
	145615	.38603	145633	.15143	145686	.46254	

N	Numbers of stars and dependences						T
45	145618	.32987	145643	.35264	145691	.31749	
	145615	.38324	145633	.15182	145686	.46494	10
46	145651	.35216	145697	.39700	145736	.25084	
	145676	.46846	145686	.31113	145745	.22041	5
47	145484	.59555	145519	.16566	145548	.23879	
	145474	.43190	145491	.14718	145548	.42092	21
48	145484	.61550	145519	.13634	145548	.24816	
	145474	.45816	145491	.12329	145548	.41855	21
49	145455	.33276	145506	.42436	145539	.24288	
	145455	.24834	145491	.42981	164532	.32185	20
50	145455	.35393	145506	.40177	145539	.24430	
	145455	.27062	145491	.41165	164532	.31773	20
51	164399	.32773	145500	.34568	164555	.32659	
	164396	.32749	145500	.33712	164555	.33539	10
52	164399	.33249	145500	.34028	164555	.32723	
	164396	.33221	145500	.33160	164555	.33619	10
53	164423	.34761	145484	.34994	164519	.30245	
	164437	.30288	145474	.33360	164505	.36352	10
54	164423	.35588	145484	.34110	164519	.30302	
	164437	.31322	145474	.32711	164505	.35967	10
55	164156	.29013	164187	.41537	164287	.29450	
	164156	.28017	164187	.37296	164273	.34687	5
56	164169	.36127	164217	.36909	164246	.26964	
	164161	.24187	164201	.32409	164237	.43404	5
57	189908	.29067	164140	.25757	190042	.45176	
	189980	.39225	189999	.29245	190026	.31530	8
58	189908	.29139	164140	.25485	190042	.45376	
	189980	.39572	189999	.28726	190026	.31702	8
59	98515	.32265	98544	.25004	98607	.42731	
	98516	.34273	98544	.28797	98624	.36930	
	98515	.40037	98587	.41947	98622	.18016	
	98519	.43660	98587	.35200	98622	.21140	3
60	98515	.40232	98587	.42117	98622	.17651	
	98519	.43866	98587	.35340	98622	.20794	
	98515	.32173	98544	.25479	98607	.42348	
	98516	.34164	98544	.29248	98624	.36588	3
61	77708	.37662	77753	.43253	77853	.19085	
	77724	.44553	77768	.27230	77801	.28217	
	77619	.24187	77744	.33251	77845	.42562	
	77621	.25921	77744	.30190	77845	.43889	15

N	Numbers of stars and dependences						T
62	77708	.36685	77753	.43102	77853	.20213	15
	77724	.42536	77768	.26892	77801	.30572	
63	77711	.38422	77721	.25043	77909	.36535	10
	77711	.37912	77744	.29226	77909	.32862	
64	77711	.38130	77721	.25020	77909	.36850	10
	77711	.37629	77744	.29195	77909	.33176	
65	77734	.31470	77824	.40078	77988	.28452	10
	77708	.41645	77903	.39381	78032	.18974	
	77724	.33075	77830	.30819	77961	.36106	
	77753	.24043	77817	.31279	77909	.44678	
66	77734	.31251	77824	.39952	77988	.28797	10
	77708	.41382	77903	.39436	78032	.19182	
	77801	.35787	77830	.20153	77886	.44060	
	77783	.27809	77853	.45636	77886	.26555	
67	77734	.23739	77824	.35202	77988	.41059	10
	77708	.31874	77903	.41590	78032	.26536	
	77798	.37037	77883	.37640	77961	.25323	
	77837	.43736	77853	.39593	77987	.16671	
68	78239	.46147	78334	.30650	78377	.23203	10
	78241	.21295	78291	.55089	78377	.23616	
69	78239	.33137	78283	.32504	78377	.34359	10
	78241	.33184	78291	.43679	78410	.23137	
70	78209	.48187	78255	.35837	78412	.15976	7
	78224	.57411	78260	.30633	78415	.11956	
71	78209	.48567	78255	.35808	78412	.15625	7
	78224	.57892	78260	.30508	78415	.11600	
72	127271	.33853	127302	.34696	127323	.31451	30
	127271	.39991	127310	.37366	127314	.22643	
73	127271	.33463	127302	.35110	127323	.31427	30
	127271	.39741	127310	.37697	127314	.22562	

4. List of collaborators

Name	Exposures	Measurements	Reductions
G. Červák	—	17	—
J. Fabricius	15	18	—
J. Klobušník	3	2	—
E.M. Pittich	—	—	36
P. Rychtarčík	—	13	—
P. Schalling	45	15	—
J. Svoreň	10	8	37

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