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Astrometry of comets made at the Skalnaté Pleso Observatory in the year 2003

J. Svoreň

Astronomical Institute of the Slovak Academy of Sciences
059 60 Tatranská Lomnica, The Slovak Republic

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Abstract. The paper presents the results of CCD astrometry of comets carried out at the Skalnaté Pleso Observatory in 2003. A total of 233 observations of 21 comets are given.

Key words: comets – astrometry

1. Introduction

This paper is a continuation of the previous papers which gave the results of positional observations of comets made at the Skalnaté Pleso Observatory (the last paper of this series being Svoreň, 2013) and contains positional comet observations made in the year 2003.

The article contains the cometary positions obtained by a 0.61-m f/4.2 mirror telescope of the Skalnaté Pleso Observatory equipped with a CCD camera SBIG ST-8. The CCD camera is placed at the Newton focus and the size of the observed sky area is 13×19 minutes of arc.

The reduction constants of the Skalnaté Pleso 0.61-m telescope are as follows:
$\lambda = -\ 1^h\ 20^m\ 58.70^s$,
$\varphi = +49^\circ\ 11'\ 20.0''$,
h = 1783 m a.s.l.,
$\rho = 0.99836$ of the equatorial radius of the Earth.

The reference stars were selected from the USNO-A V2.0 Star Catalogue (Monet et al., 1998). The method of plate constants and the computer programme Astrometrica (Raab, 1993) were used for reduction of obtained frames.

2. Positions of comets

The data have been arranged according to the new system designation. A list of collaborators is given, together with their share in photographing, measuring and reducing the positions.

The individual columns of the table contain the following:
N – ordinal number of observation
Date U.T. – date and time of the middle of the exposure

$R.A._{2000}$ – right ascension for equinox 2000.0 (in h, m, s)
$Decl._{2000}$ – declination for equinox 2000.0 (in °, ′, ″)
Magn. – R magnitude of the comet
Ref. st. – number of reference stars used to calculate the plate constants and photometric calibration of an image
dα – the mean residual in R.A. (in s)
dδ – the mean residual in Decl. (in ″)
dmag – the mean residual in mag.

N	Date U.T.		$R.A._{2000}$ dα	$Decl._{2000}$ dδ	Magn. dmag	Ref. st.
			Periodic Comet 67P/Churyumov - Gerasimenko			
001	2003 Mar.	27.80923	11 05 24.68	+16 16 31.8	15.6	9
			0.02	0.3	0.2	
002	2003 Mar.	30.77050	11 03 14.46	+16 17 05.0	15.6	8
			0.02	0.2	0.3	
003	2003 Apr.	01.79890	11 01 53.16	+16 16 29.6	15.9	6
			0.01	0.1	0.2	
004	2003 Apr.	04.99741	10 59 57.62	+16 14 04.1	15.8	11
			0.01	0.2	0.3	
			Periodic Comet P/2002 T5 LINEAR			
005	2003 Jan.	20.76427	04 03 55.79	-09 05 53.1	16.2	8
			0.01	0.2	0.1	
006	2003 Jan.	20.77096	04 03 55.91	-09 05 49.3	16.1	8
			0.02	0.2	0.2	
			Periodic Comet P/2003 O2 LINEAR			
007	2003 Oct.	17.86404	04 34 42.07	+48 49 25.1	16.8	9
			0.01	0.3	0.2	
008	2003 Oct.	17.88226	04 34 42.81	+48 49 44.4	16.7	9
			0.01	0.3	0.2	
009	2003 Oct.	19.78119	04 35 55.98	+49 21 26.1	16.2	10
			0.02	0.1	0.2	
010	2003 Oct.	25.88400	04 38 16.75	+50 53 25.0	16.0	8
			0.02	0.1	0.3	
011	2003 Dec.	02.82236	04 12 39.91	+53 00 28.6	16.2	6
			0.01	0.1	0.1	
			Periodic Comet P/2003 S1 NEAT			
012	2003 Oct.	19.88021	00 19 56.07	+09 18 59.2	16.5	8
			0.01	0.1	0.3	
013	2003 Oct.	19.89940	00 19 55.48	+09 18 52.5	16.4	8
			0.01	0.1	0.3	

N	Date U.T.		$R.A._{2000}$ dα	$Decl._{2000}$ dδ	Magn. dmag	Ref. st.
014	2003 Nov.	22.77896	00 13 17.22	+06 49 48.5	17.0	7
			0.02	0.2	0.2	
			Periodic Comet P/2003 S2 NEAT			
015	2003 Oct.	19.92728	01 45 39.10	-01 14 48.5	16.2	8
			0.01	0.1	0.3	
016	2003 Oct.	19.94306	01 45 38.42	-01 14 50.1	16.0	8
			0.01	0.2	0.3	
017	2003 Oct.	24.93587	01 42 07.54	-01 21 50.6	16.2	7
			0.01	0.1	0.2	
018	2003 Oct.	24.94721	01 42 07.06	-01 21 51.3	16.2	7
			0.01	0.2	0.2	
019	2003 Oct.	27.90228	01 40 05.24	-01 24 15.1	16.7	8
			0.01	0.1	0.3	
020	2003 Nov.	20.80551	01 28 05.44	-00 48 38.6		6
			0.01	0.2		
021	2003 Nov.	20.81483	01 28 05.31	-00 48 35.9		6
			0.01	0.1		
			Comet 2000 SV74 LINEAR			
022	2003 Apr.	04.94243	14 13 47.80	+44 35 12.1	15.0	10
			0.01	0.1	0.2	
023	2003 May	05.84089	13 33 07.88	+41 45 27.1	14.9	6
			0.02	0.2	0.3	
024	2003 May	07.94508	13 30 48.55	+41 26 27.1	15.8	9
			0.01	0.2	0.2	
025	2003 May	07.95456	13 30 47.94	+41 26 22.4	15.9	9
			0.02	0.3	0.2	
026	2003 May	30.84980	13 11 15.67	+37 20 27.0	15.4	7
			0.02	0.2	0.1	
027	2003 May	30.85934	13 11 15.26	+37 20 19.1	15.5	7
			0.02	0.2	0.1	
028	2003 June	03.85021	13 08 56.82	+36 32 23.7	15.4	9
			0.01	0.1	0.2	
029	2003 June	08.90626	13 06 28.53	+35 30 30.2	15.9	10
			0.01	0.2	0.2	
			Comet 2001 RX14 LINEAR			
030	2003 Mar.	30.85823	11 07 22.53	+29 28 32.9	12.6	8
			0.01	0.3	0.2	
031	2003 Mar.	30.86722	11 07 22.11	+29 28 20.7	12.6	7
			0.02	0.2	0.2	
032	2003 Apr.	01.81662	11 06 01.30	+28 42 35.8	13.0	7
			0.02	0.3	0.3	

N	Date U.T.	$R.A._{2000}$ dα	$Decl._{2000}$ dδ	Magn. dmag	Ref. st.
033	2003 Apr. 01.83279	11 06 00.56	+28 42 13.4	13.0	7
		0.02	0.3	0.2	
034	2003 Apr. 04.96751	11 04 06.75	+27 28 19.0	13.1	9
		0.02	0.3	0.1	
035	2003 May 04.80103	11 01 34.81	+16 15 01.2	14.0	7
		0.02	0.2	0.3	
036	2003 May 04.80913	11 01 34.92	+16 14 51.5		7
		0.02	0.2		
037	2003 May 05.81131	11 01 54.56	+15 54 05.8		6
		0.02	0.2		
038	2003 May 05.82135	11 01 54.74	+15 53 53.0		6
		0.02	0.1		
039	2003 May 06.80411	11 02 15.37	+15 33 39.2		6
		0.01	0.2		
040	2003 May 06.81296	11 02 15.57	+15 33 28.2		6
		0.01	0.1		
041	2003 May 07.96154	11 02 40.95	+15 10 02.4	14.0	9
		0.02	0.2	0.3	
042	2003 May 07.96958	11 02 41.12	+15 09 51.7	14.0	9
		0.01	0.2	0.3	
043	2003 May 08.86323	11 03 02.27	+14 51 46.6		10
		0.01	0.2		
044	2003 May 08.87410	11 03 02.49	+14 51 32.9	14.0	10
		0.01	0.2	0.2	
045	2003 May 17.85068	11 07 24.79	+11 55 51.3	13.9	6
		0.02	0.1	0.2	
046	2003 May 31.85204	11 16 46.07	+07 43 16.6	14.1	6
		0.01	0.2	0.2	
047	2003 May 31.85881	11 16 46.39	+07 43 09.9	14.2	6
		0.01	0.2	0.2	
048	2003 June 03.87103	11 19 07.18	+06 51 52.5	14.4	8
		0.02	0.1	0.2	
049	2003 June 03.88138	11 19 07.66	+06 51 42.3	14.4	8
		0.01	0.1	0.2	
	Comet 2002 CE10 LINEAR				
050	2003 Sep. 18.81999	21 45 26.83	+03 13 17.8	15.3	8
		0.01	0.2	0.1	
051	2003 Sep. 18.82673	21 45 25.37	+03 12 57.3	15.4	8
		0.01	0.1	0.1	
052	2003 Sep. 19.77929	21 42 02.74	+02 25 04.3	15.9	7
		0.01	0.2	0.1	
053	2003 Sep. 19.78819	21 42 00.88	+02 24 37.7	15.6	7
		0.01	0.2	0.1	

N	Date U.T.		$R.A._{2000}$ dα	$Decl._{2000}$ dδ	Magn. dmag	Ref. st.
054	2003 Sep.	19.79243	21 41 59.98	+02 24 25.2	15.7	7
			0.01	0.1	0.1	
			Comet 2002 O7 LINEAR			
055	2003 Mar.	27.09115	15 20 58.64	+39 06 10.6	15.4	9
			0.01	0.2	0.1	
056	2003 Mar.	27.10296	15 20 57.33	+39 06 20.4	15.5	9
			0.02	0.2	0.2	
057	2003 Apr.	04.98102	15 01 50.44	+41 02 01.4	14.5	9
			0.02	0.3	0.2	
058	2003 Apr.	04.98870	15 01 49.28	+41 02 06.3	14.7	10
			0.03	0.2	0.3	
059	2003 May	06.81981	13 13 30.08	+42 10 18.2	14.5	8
			0.02	0.2	0.2	
060	2003 May	06.83012	13 13 27.73	+42 10 12.2	14.3	7
			0.02	0.2	0.3	
061	2003 May	07.97615	13 09 08.23	+41 56 25.3	14.8	10
			0.02	0.3	0.2	
062	2003 May	07.98367	13 09 06.53	+41 56 21.0	14.6	10
			0.02	0.1	0.3	
063	2003 May	08.88181	13 05 44.93	+41 44 42.4	14.8	10
			0.02	0.2	0.1	
064	2003 May	08.88936	13 05 43.28	+41 44 36.1	15.0	10
			0.02	0.1	0.1	
065	2003 May	17.83414	12 34 06.11	+39 10 13.0	14.9	8
			0.02	0.3	0.3	
066	2003 May	17.83821	12 34 05.21	+39 10 08.8	14.9	8
			0.01	0.2	0.2	
067	2003 May	30.87231	11 56 39.35	+33 48 06.3	14.6	6
			0.01	0.1	0.1	
068	2003 May	30.89361	11 56 36.22	+33 47 31.1	14.6	6
			0.01	0.1	0.2	
069	2003 May	31.83934	11 54 20.55	+33 21 05.6	14.9	8
			0.02	0.2	0.3	
070	2003 May	31.84534	11 54 19.77	+33 20 54.3	14.9	8
			0.02	0.1	0.3	
071	2003 June	03.83444	11 47 35.14	+31 55 37.4	14.1	6
			0.01	0.1	0.2	
072	2003 June	03.84469	11 47 33.82	+31 55 20.5	14.1	6
			0.02	0.1	0.1	
			Comet 2002 R3 LONEOS			
073	2003 Oct.	17.83336	22 02 49.15	+10 48 55.0	16.2	11
			0.02	0.2	0.2	

N	Date U.T.		$R.A._{2000}$ dα	$Decl._{2000}$ dδ	Magn. dmag	Ref. st.
074	2003 Oct.	17.84796	22 02 47.99	+10 48 43.1	15.8	11
			0.01	0.1	0.2	
075	2003 Oct.	19.82063	22 00 08.44	+10 23 51.7	15.6	8
			0.02	0.3	0.2	
076	2003 Oct.	19.83381	22 00 07.41	+10 23 41.7	15.7	8
			0.02	0.2	0.2	
077	2003 Oct.	25.70814	21 52 55.84	+09 12 42.7	16.7	11
			0.02	0.2	0.1	
078	2003 Oct.	25.73874	21 52 53.72	+09 12 23.4	16.2	11
			0.02	0.2	0.1	
079	2003 Nov.	23.72495	21 31 37.34	+04 44 59.2	16.4	6
			0.01	0.3	0.1	
			Comet 2002 T7 LINEAR			
080	2003 Jan.	01.76534	05 02 58.13	+28 27 11.7	15.7	8
			0.01	0.1	0.1	
081	2003 Jan.	01.78466	05 02 57.01	+28 27 10.7	15.7	8
			0.01	0.1	0.1	
082	2003 Jan.	05.89411	04 59 01.52	+28 22 51.6	15.8	9
			0.01	0.2	0.2	
083	2003 Jan.	05.94390	04 58 58.67	+28 22 48.2	15.9	9
			0.01	0.1	0.2	
084	2003 Jan.	06.77498	04 58 12.06	+28 21 51.8	14.6	9
			0.02	0.1	0.2	
085	2003 Jan.	06.78737	04 58 11.31	+28 21 50.8	14.9	9
			0.01	0.1	0.2	
086	2003 Jan.	25.84694	04 42 12.15	+27 56 03.7		10
			0.01	0.2		
087	2003 Jan.	25.86713	04 42 11.26	+27 56 02.0	15.5	10
			0.01	0.2	0.3	
088	2003 Jan.	26.83206	04 41 29.65	+27 54 36.5	15.1	8
			0.01	0.1	0.1	
089	2003 Jan.	26.84199	04 41 29.21	+27 54 35.8	15.3	8
			0.01	0.1	0.1	
090	2003 Jan.	30.89757	04 38 42.68	+27 48 37.7	15.4	10
			0.01	0.2	0.1	
091	2003 Jan.	30.90698	04 38 42.33	+27 48 36.9	15.3	10
			0.01	0.2	0.2	
092	2003 Feb.	01.79924	04 37 29.51	+27 45 51.7	15.6	7
			0.01	0.2	0.1	
093	2003 Feb.	01.80939	04 37 29.11	+27 45 50.7	15.6	7
			0.01	0.1	0.1	
094	2003 Feb.	02.81061	04 36 51.83	+27 44 23.8	15.4	8
			0.01	0.1	0.1	

N	Date U.T.		$R.A._{2000}$ dα	$Decl._{2000}$ dδ	Magn. dmag	Ref. st.
095	2003 Feb.	02.81773	04 36 51.57	+27 44 23.2	15.4	8
			0.01	0.1	0.1	
096	2003 Oct.	19.86101	05 17 23.27	+35 37 40.5	11.8	10
			0.01	0.1	0.2	
097	2003 Oct.	19.86932	05 17 22.54	+35 37 44.2	11.7	10
			0.01	0.1	0.2	
098	2003 Oct.	24.89416	05 09 01.51	+36 11 09.2	11.6	11
			0.01	0.1	0.2	
099	2003 Nov.	16.93349	04 05 00.32	+37 48 45.6	11.4	10
			0.03	0.3	0.2	
100	2003 Nov.	16.94215	04 04 58.34	+37 48 45.2	11.4	10
			0.03	0.3	0.2	
101	2003 Nov.	24.72122	03 33 47.96	+37 24 40.7	11.3	7
			0.02	0.2	0.2	
102	2003 Nov.	24.72900	03 33 46.10	+37 24 37.3	11.3	7
			0.02	0.2	0.2	
103	2003 Dec.	18.69940	01 53 17.32	+31 14 51.8	10.6	8
			0.01	0.3	0.2	
			Comet 2002 U2 LINEAR			
104	2003 Feb.	02.18507	17 01 20.61	+23 23 31.1	15.4	10
			0.01	0.1	0.1	
105	2003 Feb.	02.19954	17 01 20.54	+23 23 14.3	15.1	10
			0.01	0.1	0.2	
106	2003 Feb.	03.15392	17 01 22.69	+23 03 42.3	16.0	10
			0.02	0.2	0.2	
107	2003 Feb.	03.16213	17 01 22.66	+23 03 32.0	15.9	10
			0.02	0.2	0.2	
108	2003 Mar.	28.11887	16 00 30.81	+04 09 35.6	16.3	10
			0.01	0.1	0.3	
109	2003 Mar.	28.13009	16 00 29.00	+04 09 16.8		9
			0.01	0.2		
			Comet 2002 V1 NEAT			
110	2003 Jan.	01.74906	00 58 35.11	+12 42 22.7	12.3	7
			0.02	0.1	0.2	
111	2003 Jan.	01.75641	00 58 32.99	+12 42 17.3	12.2	7
			0.02	0.2	0.2	
112	2003 Jan.	05.86862	00 39 19.09	+11 56 43.9	12.0	8
			0.01	0.2	0.2	
113	2003 Jan.	05.88650	00 39 14.26	+11 56 32.4	12.0	7
			0.01	0.2	0.2	
114	2003 Jan.	06.75876	00 35 22.11	+11 47 06.3	11.8	7
			0.01	0.3	0.2	

N	Date U.T.	$R.A._{2000}$ dα	$Decl._{2000}$ dδ	Magn. dmag	Ref. st.
115	2003 Jan. 06.76529	00 35 20.45 0.01	+11 47 01.4 0.1	11.6 0.1	6
116	2003 Jan. 11.79426	00 14 18.36 0.01	+10 54 25.4 0.1		6
117	2003 Jan. 11.81159	00 14 14.39 0.02	+10 54 16.1 0.1	10.9 0.3	6
118	2003 Jan. 17.74633	23 51 49.76 0.01	+09 55 27.8 0.2		6
119	2003 Jan. 17.76112	23 51 46.56 0.01	+09 55 20.3 0.2		6
120	2003 Jan. 18.75182	23 48 13.49 0.01	+09 45 39.6 0.1	10.0 0.3	6
121	2003 Jan. 18.75645	23 48 12.44 0.01	+09 45 36.2 0.1	9.7 0.3	6
122	2003 Jan. 19.75096	23 44 41.33 0.01	+09 35 51.7 0.2		8
123	2003 Jan. 19.75691	23 44 39.92 0.01	+09 35 46.4 0.3	10.3 0.3	8
124	2003 Jan. 20.78233	23 41 04.14 0.01	+09 25 37.8 0.3	10.4 0.2	10
125	2003 Jan. 20.78812	23 41 02.88 0.02	+09 25 35.7 0.2	10.2 0.2	10
126	2003 Jan. 25.76840	23 23 54.49 0.01	+08 33 49.3 0.2	9.1 0.3	9
127	2003 Jan. 25.77916	23 23 52.29 0.02	+08 33 41.9 0.3	9.1 0.3	8
128	2003 Feb. 02.76120	22 55 40.90 0.02	+06 44 54.6 0.1		6
129	2003 Feb. 02.76559	22 55 39.81 0.01	+06 44 49.7 0.3		6
	Comet 2002 X1 LINEAR				
130	2003 Jan. 30.92736	08 22 28.51 0.02	+28 45 01.8 0.2	14.8 0.2	9
131	2003 Jan. 30.93979	08 22 25.72 0.02	+28 45 06.2 0.2	14.8 0.2	9
132	2003 Feb. 01.84133	08 15 16.33 0.01	+28 55 45.6 0.1	14.9 0.2	8
133	2003 Feb. 01.85065	08 15 14.27 0.02	+28 55 48.5 0.2	15.0 0.2	8
134	2003 Feb. 02.79579	08 11 40.35 0.02	+29 00 26.0 0.2	15.1 0.2	9
135	2003 Feb. 02.80597	08 11 37.99 0.02	+29 00 28.8 0.2	15.0 0.2	8

N	Date U.T.		$R.A._{2000}$ dα	$Decl._{2000}$ dδ	Magn. dmag	Ref. st.
136	2003 Feb.	25.79667	06 52 17.81	+28 47 38.5	15.4	9
			0.01	0.3	0.2	
137	2003 Feb.	25.81907	06 52 13.89	+28 47 32.2	15.6	9
			0.01	0.3	0.1	
138	2003 Feb.	26.79108	06 49 28.99	+28 42 51.3	15.3	10
			0.01	0.2	0.1	
139	2003 Feb.	26.80031	06 49 27.47	+28 42 48.7	15.4	10
			0.01	0.2	0.2	
140	2003 Oct.	17.93861	03 45 34.61	-01 13 26.2	14.8	9
			0.01	0.2	0.2	
141	2003 Oct.	19.91531	03 38 39.94	-01 58 49.0	14.7	7
			0.02	0.1	0.2	
142	2003 Oct.	24.87530	03 20 44.22	-03 51 43.8	14.5	8
			0.02	0.3	0.2	
143	2003 Nov.	16.77936	01 59 14.79	-10 45 05.6	15.0	10
			0.02	0.2	0.2	
144	2003 Nov.	16.78580	01 59 13.58	-10 45 11.0	15.2	10
			0.01	0.1	0.2	
145	2003 Nov.	20.83617	01 47 01.48	-11 30 09.4	15.1	6
			0.01	0.1	0.3	
146	2003 Nov.	21.80482	01 44 15.41	-11 39 36.5		6
			0.01	0.1		
147	2003 Nov.	21.81558	01 44 13.57	-11 39 43.6		6
			0.01	0.1		
148	2003 Dec.	02.78909	01 17 04.01	-12 55 40.1	15.5	7
			0.02	0.2	0.2	
			Comet 2002 X5 Kudo-Fujikawa			
149	2003 Jan.	06.21637	18 43 02.34	+21 20 34.6	9.9	9
			0.02	0.3	0.3	
150	2003 Jan.	06.23113	18 43 07.76	+21 19 17.6	9.9	8
			0.02	0.2	0.2	
			Comet 2002 Y1 Juels-Holvorcem			
151	2003 Feb.	02.15130	15 27 07.14	+44 23 51.1	12.7	8
			0.02	0.3	0.2	
152	2003 Feb.	02.16502	15 27 12.96	+44 24 52.4	12.8	9
			0.02	0.3	0.2	
153	2003 Feb.	03.12094	15 34 06.35	+45 34 57.0	13.1	8
			0.02	0.3	0.2	
154	2003 Feb.	03.12935	15 34 10.11	+45 35 33.9	13.1	8
			0.02	0.2	0.3	
155	2003 Feb.	25.83383	20 34 00.23	+59 55 12.4	11.9	9
			0.03	0.3	0.1	

N	Date U.T.	$R.A._{2000}$ dα	$Decl._{2000}$ dδ	Magn. dmag	Ref. st.
156	2003 Feb. 25.85466	20 34 17.70 0.02	+59 54 44.4 0.2	12.0 0.2	9
		Comet 2003 F1 LINEAR			
157	2003 May 05.89551	16 54 49.32 0.02	+53 08 24.9 0.2	16.2 0.2	8
158	2003 May 06.83652	16 53 42.53 0.01	+53 06 40.3 0.2	16.1 0.2	8
159	2003 June 07.92647	16 13 22.22 0.01	+49 28 58.1 0.1	16.2 0.2	11
160	2003 June 07.94035	16 13 21.24 0.01	+49 28 47.7 0.3	16.2 0.2	11
161	2003 July 02.97661	15 50 21.82 0.02	+43 15 58.5 0.2	16.4 0.1	9
162	2003 July 02.99273	15 50 21.19 0.02	+43 15 41.5 0.3	16.1 0.2	9
163	2003 July 15.92458	15 43 58.93 0.02	+39 17 19.4 0.2	16.2 0.3	10
164	2003 July 15.93471	15 43 58.72 0.02	+39 17 06.7 0.2	16.7 0.2	10
165	2003 July 20.94360	15 42 31.10 0.01	+37 40 09.3 0.3	16.5 0.2	9
166	2003 July 20.95600	15 42 30.92 0.01	+37 39 54.2 0.3	16.8 0.2	9
		Comet 2003 G1 LINEAR			
167	2003 June 22.90367	17 07 54.05 0.02	+09 42 13.4 0.1	15.4 0.1	8
168	2003 June 22.91372	17 07 53.67 0.01	+09 42 17.0 0.1	15.3 0.1	7
169	2003 June 28.90023	17 04 21.01 0.01	+10 20 16.4 0.2	16.1 0.2	12
170	2003 July 02.92193	17 02 06.46 0.02	+10 42 44.1 0.3	15.1 0.2	11
171	2003 July 02.93411	17 02 06.07 0.01	+10 42 47.6 0.3	15.0 0.2	11
172	2003 July 15.91589	16 55 51.61 0.02	+11 39 08.9 0.2	15.6 0.3	10
173	2003 July 20.92458	16 53 55.89 0.01	+11 54 47.5 0.1	15.2 0.1	9
174	2003 July 20.93317	16 53 55.68 0.02	+11 54 48.6 0.3	15.4 0.2	9
175	2003 Aug. 03.88432	16 50 11.13 0.01	+12 22 56.5 0.1	15.3 0.1	8

N	Date U.T.		$R.A._{2000}$ dα	$Decl._{2000}$ dδ	Magn. dmag	Ref. st.
176	2003 Aug.	03.91148	16 50 10.84	+12 22 58.2	15.2	8
			0.01	0.1	0.2	
177	2003 Aug.	15.82738	16 48 59.78	+12 32 41.6	16.8	8
			0.01	0.1	0.2	
178	2003 Aug.	17.85907	16 48 58.81	+12 33 21.3	15.7	9
			0.01	0.2	0.1	
179	2003 Aug.	20.84410	16 49 03.16	+12 33 51.9	16.2	9
			0.01	0.3	0.1	
180	2003 Aug.	20.85005	16 49 03.17	+12 33 52.1	16.7	9
			0.01	0.2	0.1	
181	2003 Sep.	18.75661	16 55 23.95	+12 22 58.6	17.1	8
			0.01	0.3	0.2	
182	2003 Sep.	18.76457	16 55 24.04	+12 22 59.3	16.4	8
			0.01	0.3	0.2	
183	2003 Sep.	19.75378	16 55 47.13	+12 22 24.5	15.5	7
			0.02	0.2	0.2	
184	2003 Sep.	19.77281	16 55 47.52	+12 22 24.2	15.7	7
			0.02	0.2	0.2	
185	2003 Sep.	20.77645	16 56 11.49	+12 21 50.0	15.6	7
			0.02	0.2	0.2	
186	2003 Sep.	20.78437	16 56 11.69	+12 21 49.1	15.5	7
			0.02	0.2	0.2	
			Comet 2003 H1 LINEAR			
187	2003 May	31.88348	17 12 26.55	+24 10 09.7	14.7	8
			0.01	0.2	0.1	
188	2003 May	31.89196	17 12 25.41	+24 10 11.0	14.8	8
			0.01	0.2	0.1	
189	2003 June	07.96244	16 56 08.44	+24 18 24.4	15.0	10
			0.02	0.2	0.2	
190	2003 June	08.92281	16 53 52.76	+24 18 03.0		11
			0.02	0.3		
191	2003 June	22.88735	16 20 46.53	+23 32 22.8	15.0	8
			0.01	0.2	0.2	
192	2003 June	22.89307	16 20 45.71	+23 32 20.7	15.0	8
			0.02	0.3	0.3	
			Comet 2003 H3 NEAT			
193	2003 June	22.92599	19 32 20.24	+01 07 43.1	14.5	9
			0.01	0.1	0.2	
194	2003 June	29.03477	19 27 38.88	+02 45 07.5	15.3	9
			0.02	0.2	0.3	
195	2003 July	20.97810	19 09 49.07	+07 25 30.8	15.2	10
			0.01	0.1	0.3	

N	Date U.T.		$R.A._{2000}$ dα	$Decl._{2000}$ dδ	Magn. dmag	Ref. st.
196	2003 July	25.93010	19 06 09.16	+08 11 27.3	15.0	9
			0.01	0.2	0.2	
197	2003 July	25.94062	19 06 08.70	+08 11 32.5	15.0	9
			0.01	0.2	0.2	
198	2003 July	27.87029	19 04 47.96	+08 27 39.9	15.4	8
			0.01	0.3	0.2	
199	2003 July	27.87941	19 04 47.59	+08 27 44.5	15.4	8
			0.01	0.2	0.1	
200	2003 Aug.	01.94343	19 01 31.14	+09 05 25.4	16.4	10
			0.01	0.2	0.2	
201	2003 Aug.	01.88620	19 01 33.22	+09 05 02.5	16.1	10
			0.01	0.2	0.2	
202	2003 Aug.	05.87564	18 59 16.43	+09 30 17.1	14.9	9
			0.02	0.1	0.2	
203	2003 Aug.	05.89787	18 59 15.71	+09 30 24.4	15.6	9
			0.02	0.1	0.2	
204	2003 Aug.	07.89660	18 58 13.66	+09 41 38.6	15.1	10
			0.01	0.1	0.2	
205	2003 Aug.	07.90591	18 58 13.36	+09 41 40.8	15.1	10
			0.01	0.2	0.3	
			Comet 2003 K4 LINEAR			
206	2003 June	29.90155	20 55 45.15	+31 52 36.1		6
			0.02	0.2		
207	2003 July	20.98454	20 34 44.07	+32 42 44.8	16.1	10
			0.01	0.1	0.3	
208	2003 July	20.99426	20 34 43.34	+32 42 46.2	16.2	10
			0.01	0.1	0.3	
209	2003 July	25.87814	20 29 10.33	+32 43 11.9	15.7	11
			0.01	0.3	0.2	
210	2003 July	25.89105	20 29 09.42	+32 43 12.0	15.6	11
			0.01	0.3	0.2	
211	2003 July	28.90771	20 25 38.76	+32 41 05.5	16.0	9
			0.01	0.2	0.3	
212	2003 July	28.92430	20 25 37.58	+32 41 04.7	16.0	9
			0.01	0.2	0.3	
213	2003 Aug.	01.85538	20 20 59.13	+32 35 30.3	15.7	10
			0.01	0.2	0.3	
214	2003 Aug.	01.86181	20 20 58.64	+32 35 29.7	15.7	10
			0.01	0.2	0.3	
215	2003 Aug.	04.92009	20 17 20.04	+32 28 56.6	15.9	8
			0.01	0.1	0.2	
216	2003 Aug.	04.93479	20 17 19.00	+32 28 54.6	16.0	8
			0.01	0.2	0.2	

N	Date U.T.		$R.A._{2000}$	$Decl._{2000}$	Magn.	Ref. st.
			dα	dδ	dmag	
217	2003 Aug.	05.85197	20 16 13.36	+32 26 33.4	15.7	10
			0.01	0.2	0.2	
218	2003 Aug.	06.94012	20 14 55.28	+32 23 32.7	15.7	8
			0.02	0.1	0.1	
219	2003 Aug.	06.94966	20 14 54.55	+32 23 32.0	15.6	8
			0.02	0.1	0.1	
220	2003 Aug.	07.87708	20 13 48.07	+32 20 46.5	15.8	10
			0.03	0.2	0.3	
221	2003 Aug.	07.88672	20 13 47.40	+32 20 44.8		10
			0.02	0.2		
222	2003 Aug.	18.83177	20 00 51.35	+31 35 02.6	16.3	7
			0.01	0.2	0.2	
223	2003 Aug.	18.84103	20 00 50.64	+31 34 59.6	16.5	7
			0.02	0.2	0.2	
224	2003 Aug.	24.79213	19 54 05.14	+31 00 26.1		8
			0.02	0.1		
225	2003 Aug.	24.80292	19 54 04.37	+31 00 21.6		8
			0.02	0.1		
226	2003 Sep.	19.74079	19 29 33.43	+27 29 14.9	14.6	7
			0.02	0.1	0.2	
227	2003 Sep.	19.74608	19 29 33.17	+27 29 11.8	14.6	7
			0.02	0.1	0.2	
228	2003 Nov.	21.71825	19 15 32.62	+18 13 43.0	14.6	7
			0.01	0.1	0.2	
229	2003 Nov.	21.72549	19 15 32.71	+18 13 40.3	14.6	7
			0.01	0.1	0.3	
230	2003 Nov.	23.71824	19 16 00.97	+18 01 09.5	14.5	6
			0.01	0.1	0.3	
231	2003 Dec.	02.69068	19 18 37.79	+17 10 32.4	15.0	7
			0.01	0.1	0.3	
232	2003 Dec.	02.69912	19 18 37.98	+17 10 29.5	15.0	7
			0.02	0.1	0.3	
233	2003 Dec.	03.70785	19 18 58.42	+17 05 24.7	15.2	7
			0.01	0.2	0.2	

3. List of collaborators

Name	Exposures	Measurements	Reductions
G. Červák	47	40	–
M. Husárik	36	36	–
M. Jakubík	11	–	–
M. Kamenický	18	10	–
Z. Kaňuchová	7	–	–
L. Neslušan	6	–	–
P. Rychtarčík	108	82	–
J. Svoreň	–	65	233

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