

Double Star Measures Using a DSLR Camera #2

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Abstract: This article contains measures made with a DSLR camera. The images used for the measures were taken in the period between 2007.249—2007.268. The result is 190 positive and 3 negative measures.

Continuing the measures of my photos taken in 2007, the next results to come are from the measuring period between 1 Apr – 8 Apr 2007. The photographic equipment used and the processing and measuring methods are the same as those detailed in my previous article (Berkó, 2008). Therefore, I would only like to note that I was working with a Canon 350D digital camera with a 35.5 cm Newtonian telescope at a focal length of 4200 mm. The pictures were measured with Florent Losse's program (Reduc 3.62). I used approximately 1424 photos for the present publication. My results include the data of 2022 independent measures of 193 pairs.

A table contains the results of the measures, followed by the notes. In the first three columns of the table, the WDS coordinates and names of the doubles as well as the components' brightness can be found. I determined the brightness of the components on the basis of WDS, although it seems contradictory sometimes. When there is an Anon. component, I gave the GSC or USNO "R" brightness or, if not available, I provided the brightness I estimated on the basis of the photo.

This is followed by the position angle (PA) and the separation (Sep) measured and calculated by me. In both cases, the value of the standard deviation is also indicated (+/-). The column (epoch) gives the times the images were taken. Finally, in every row, the number of individual measures (n.), the reference number to the description (notes), and the reference number of

the image belonging to the measures (img) can be seen.

In the descriptions (notes), is found the GSC number of the primary star of those doubles I measured; in case it appears in the GSC catalogue. Also, my personal notes about the given double starts can be read here. One problem encountered was the 10-character identification coordinates of WDS. In many cases it is different from the real position of the double. Although WDS contains more precise coordinates for most of the pairs, at times the double cannot be found at these locations. For the doubles measured by me, I give suggestions regarding these closest coordinates in the form of (xxxxx+xxxx!).

I have also attached images of some of the doubles I measured, with captions provided. The complete image archive of the article and the table referring to the photos can be accessed at http://csillag.bacska.hu/dcam/JDSO/2009_1/.

Acknowledgements

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References

- Berkó, Erno, "Double Star Measures Using a DSLR Camera", *JDSO*, 4, 144-155, 2008.

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WDS	Discoverer	m1	m2	PA	+/-	Sep	+/-	Epoch	n	Notes	Image
05136+3542	DOO 32	8.36	12.17	173.67	0.05	22.05	0.02	2007.249	12	1	1
05175+3630	SEI 153	11.0	11.0	54.76	0.12	27.9	0.04	2007.249	12	2	
05176+3629	SEI 157	10.0	11.0	320.85	0.26	7.38	0.05	2007.249	12	3	
05177+3628	Anon. 1	13.0	13.5	105.86	0.13	8.68	0.1	2007.249	4	4	
05182+3602	SEI 166	11.46	12.13	156.47	0.09	27.94	0.05	2007.249	15	5	
05187+3624	SEI 175	11.0	11.0	91.63	0.11	27.23	0.06	2007.249	10	6	
05189+3612	SEI 178	8.3	11.7	199.34	0.2	25.59	0.04	2007.249	10	7	
05192+3549	Anon. 2	12.0	12.5	334.11	0.34	6.25	0.05	2007.249	12	8	
05192+3548	SEI 179	9.20	9.2	222.49	0.11	24.74	0.05	2007.249	11	9	
05194+3550	Anon. 3	11.9	13.0	233.85	0.27	12.68	0.06	2007.249	10	10	
05198+3546	SEI 191	10.3	12.0	65.79	0.11	22.73	0.06	2007.249	5	11	
05199+3624	SEI 192	10.5	11.0	145.04	0.24	28.4	0.09	2007.249	5	12	
05199+3545	Anon. 4	12.7	13.1	143.54	0.37	8.89	0.05	2007.249	7	13	
05210+3620	SEI 204	10.4	10.8	65.91	0.13	14.77	0.05	2007.249	12	14	
05219+3416	TOB 29	11.8	11.9	226.42	0.17	18.65	0.05	2007.249	12	15	
05375+3147	WZ 10	9.75	11.04	255.66	0.27	9.45	0.03	2007.254	11	16	2
05380+3145	SEI 359	10.5	11.0	42.87	0.18	17.3	0.06	2007.254	15	17	
05387+3229	ARA2323	8.02	10.80	260.59	0.15	51.68	0.07	2007.254	11	18	
05391+3239	SEI 365	10.71	10.88	322.45	0.12	30.58	0.04	2007.254	14	19	
05401+3722	Anon. 5	12.8	13.6	120.56	0.34	9.74	0.06	2007.268	10	20	
05403+3721	SEI 366 AB	10.5	11.0	228.27	0.14	28.38	0.08	2007.268	16	21	
05403+3721	Anon. 6 Ax	10.5	14.0	71.38	0.28	6.9	0.06	2007.268	5	21	
05406+3544	SEI 368	10.4	12.1	284.61	0.38	16.52	0.06	2007.268	10	22	
05409+3734	SEI 369	11.8	12.3	69.43	0.37	5.75	0.07	2007.268	11	23	
05413+2929	STF 764	6.38	7.08	13.93	0.11	26.04	0.05	2007.254	18	24	
05414+3223	SEI 372	11.90	11.73	112.47	0.21	15.18	0.05	2007.254	13	25	
05418+3727	SEI 373	11.3	11.6	179.48	0.15	5.28	0.06	2007.268	12	26	
05421+3245	HJ 369	10.5	12.0	326.37	0.32	15.44	0.06	2007.254	13	27	2
05423+3247	HJ 370	11.08	11.74	258.95	0.19	12.88	0.05	2007.254	14	28	2
05427+3735	SEI 379	11.0	11.0	46.95	0.14	24.16	0.05	2007.268	16	29	
05428+3322	STF 773 AB	9.2	10.7	219.47	0.06	27.17	0.02	2007.254	10	30	
05428+3322	STF 773 AC	9.2	12.4	256.39	0.31	18.83	0.07	2007.254	7	30	
05430+3319	HO 509	6.8	11.8	203.78	0.65	8.22	0.06	2007.254	3	31	
05434+3334	SEI 380	8.8	11.3	51.99	0.21	28.92	0.07	2007.254	10	32	
05446+3234	SEI 381	10.5	11.0	53.6	0.08	28.05	0.05	2007.268	20	33	
05450+3618	SEI 382	11.0	11.0	134.25	0.35	7.03	0.03	2007.268	17	34	
05453+3224	STF 781	9.23	10.4	121.38	0.16	15.23	0.07	2007.268	13	35	
05458+3149	Anon. 7 AB	13.2	13.3	258.88	0.31	14.91	0.06	2007.254	8	36	
05458+3149	Anon. 7 BC	13.3	13.3	317.84	0.44	5.23	0.05	2007.254	6	37	

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WDS	Discoverer	m1	m2	PA	+/-	Sep	+/-	Epoch	n	Notes	Image
05459+3726	SEI 383	8.95	12.29	241.32	0.18	24.83	0.06	2007.268	17	38	
05460+3717	BLL 16	7.36	11.0	89.82	0.11	72.24	0.04	2007.268	6	39	4
05463+3152	SEI 384	10.0	10.7	354.42	0.28	13.92	0.06	2007.254	12	40	
05464+3659	MLB 824	10.0	11.0	14.68	0.23	9.15	0.06	2007.268	13	41	
05467+3153	Anon. 8	11.2	12.0	317.71	0.16	16.51	0.05	2007.254	11	42	
05468+3700	ALI 309	11.7	11.8	338.71	0.25	6.7	0.02	2007.268	16	43	
05468+3658	MLB 825	11.69	11.8	97.31	0.25	5.63	0.1	2007.268	8	44	
05476+2155	Anon. 9	13.2	13.5	224.37	0.39	5.36	0.06	2007.263	9	45	
05476+2155	Anon.10	14.0	14.2	103.73		3.21		2007.263	1	46	
05477+2157	SLE 280	10.8	11.9	231.4	0.15	11.85	0.06	2007.263	14	47	
05478+2156	Anon.11	13.5	14.1	157.31	0.28	10.49	0.07	2007.263	10	48	
05496+3128	Anon.12	10.5	11.5	154.64	0.42	9.12	0.07	2007.254	11	49	
05497+3146	SEI 390 AB	9.0	9.8	224.25	0.31	5.52	0.06	2007.254	14	50	
05497+3146	SEI 391 AC	9.0	10.2	140.56	0.08	27.53	0.04	2007.254	18	50	
05498+3258	S 500	8.57	8.85	90.26	0.05	60.18	0.05	2007.254	13	51	
05498+3127	SEI 392	9.2	10.5	308.19	0.27	8.77	0.06	2007.254	13	52	
05499+3147	STF 796 AB	7.24	8.23					2007.254		53	
05499+3147	STF 796 AC	7.24	10.20	324.91	0.07	209.93	0.06	2007.254	9	54	
05501+3258	Anon.13	11.5	12.0	202.64		4.12		2007.254	1	55	
05514+3306	SEI 395	10.20	11.16	167.48	0.24	19.09	0.05	2007.254	10	56	
05518+2827	STF 805	8.41	8.87	49.41	0.13	12.13	0.06	2007.268	16	57	
05520+3750	SEI 397	8.1	10.6	120.24	0.04	9.29	0.07	2007.268	2	58	5
05520+3137	SEI 400 AB	11.24	11.86	10.66	0.17	12.81	0.02	2007.254	15	59	
05520+3137	SEI 400 AC	11.24	12.16	30.17	0.07	29.48	0.03	2007.254	15	59	
05520+3137	ABH 32 AD	11.61	12.29	44.78	0.04	49.51	0.03	2007.254	15	59	
05520+3137	ABH 32 AE	11.61	13.87	254.85	0.05	44.54	0.07	2007.254	13	59	
05520+3137	ABH 32 AF	11.61	12.16	178.66	0.03	97.96	0.04	2007.254	15	60	
05520+3137	SEI 400 BC	11.86	12.16	43.98	0.1	17.93	0.03	2007.254	15	59	
05520+3136	Anon.14	11.25	11.9	297.42	0.03	83.43	0.04	2007.254	15	61	
05524+3752	SEI 402	11.3	12.0	180.37	0.1	7.03	0.06	2007.268	5	62	5
05535+3217	SEI 431 AB	9.3	10.5	199.29	0.15	20.79	0.05	2007.254	15	63	
05535+3217	Anon.15 Bx	11.0	12.0	156.21	0.23	19.99	0.07	2007.254	15	64	
05539+3027	TOB 41 AB	10.22	11.34	102.4	0.07	18.23	0.03	2007.263	14	65	
05539+3027	TOB 41 AC	10.22	11.06	66.67	0.06	33.29	0.04	2007.263	14	65	
05542+3029	STF 811	8.0	9.3	234.05	0.23	4.7	0.05	2007.263	12	66	
05558+3708	SEI 438	10.5	11.0	118.55	0.28	13.05	0.06	2007.268	15	67	
05559+3104	SEI 442	9.5	10.5	186.24	0.1	25.21	0.04	2007.263	14	68	
05561+3719	SEI 441	11.0	12.37	213.03	0.25	11.15	0.04	2007.268	17	69	
05565+3707	SEI 443	11.0	11.0	74.69	0.19	26.19	0.07	2007.268	14	70	

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WDS	Discoverer	m1	m2	PA	+/-	Sep	+/-	Epoch	n	Notes	Image
05567+3711	Anon.16	14.3	14.9	185.97	0.28	9.64	0.08	2007.268	6	71	
05568+3710	SEI 446	10.5	11.0	123.4	0.25	15.69	0.05	2007.268	14	72	
06046+3014	STF 834	8.61	9.38	308.65	0.11	22.88	0.03	2007.249	15	73	
06051+3016	Anon.17	12.0	12.5	176.39		11.77		2007.249	1	74	
06064+2931	STT 129	6.24	10.49	208.7	1.24	9.4	0.44	2007.249	10	75	6
06592+1843	BU 899 AB	9.03	9.85					2007.268		76	
06592+1843	BU 899 AC	8.7	9.7	175.41	0.14	24.18	0.06	2007.268	17	77	
06592+1843	BU 899 AD	8.76	9.21	45.77	0.06	41.75	0.06	2007.268	17	77	
06592+1843	ABH 55 AE	8.55	13.83	92.25	0.06	109.34	0.08	2007.268	7	77	
07039+2122	SLE 395	10.72	11.02	343.55	0.32	11.27	0.05	2007.265	12	78	
07043+2102	SLE 397	10.9	11.8	15.83	0.24	13.67	0.07	2007.265	12	79	
07045+2122	SMA 71							2007.265		80	
07046+2117	J 1989 AB	11.4	11.6	256.02	0.23	38.56	0.05	2007.265	11	81	
07046+2117	BRT2368 BC	11.6	11.6	106.2		4.3		2007.265	1	81	
07053+2102	SLE 399	10.8	12.0	231.56	0.26	11.88	0.06	2007.265	8	82	
07072+1650	STF1017	9.32	10.25	254.15	0.26	12.72	0.04	2007.268	15	83	
07081+2016	SLE 401	11.0	11.9	212.51	0.17	11.23	0.1	2007.268	6	84	
07081-0146	BAL 408	9.0	11.2	339.16	0.92	5.72	0.09	2007.265	3	85	
07082-0151	J 2781 AB	10.0	10.2	9.1	0.2	25.79	0.07	2007.265	3	86	
07082-0151	BAL 409 BC	10.3	10.9	267.01	0.29	5.08	0.15	2007.265	3	86	
07083-0120	BAL 410	11.2	11.2	166	0.32	10.88	0.07	2007.263	9	87	
07084-0119	BAL 411	11.2	11.5	252.87	0.19	17.78	0.06	2007.263	10	88	
07084-0119	BAL 412 AB	13.54	12.9	198.62	0.22	15.59	0.07	2007.263	9	89	
07084-0119	BKO 23 AC	13.54	13.84	227.84	0.14	29.73	0.06	2007.263	8	89	
07085-0125	BAL 414	11.2	11.4	7.3	0.3	13.09	0.06	2007.263	8	90	7
07085-0144	BAL 413	12.2	14.0	82.52	0.29	18.96	0.06	2007.265	8	91	
07088+1655	STF1027	8.47	8.69	356.02	0.33	6.5	0.08	2007.265	10	92	
07092-0142	BAL 415 AB	11.2	11.5	165.09	0.32	17.1	0.07	2007.263	12	93	
07092-0142	Anon.18 Bx	11.5	13.5	90.56		5.03		2007.263	1	94	
07095-0139	BAL 416	11.1	11.5	81.56	0.26	15.93	0.06	2007.263	12	95	
07095-0140	Anon.19	13.7	15.0	85.67	0.45	10.5	0.07	2007.263	11	96	
07096-0132	BAL 418	11.3	11.4	295.6	0.37	10.33	0.05	2007.263	12	97	
07096-0137	BAL 417	8.9	11.5	247.96	0.2	20.63	0.05	2007.263	12	98	
07098-0127	BAL 419	11.0	11.0	132.7	0.25	15.88	0.04	2007.263	16	99	
07098-0135	BAL 420	11.3	11.4	60.16	0.23	16.93	0.05	2007.263	11	100	
07108-0135	BAL 427	10.6	11.4	161.71	0.37	10.65	0.08	2007.265	8	101	

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WDS	Discoverer	m1	m2	PA	+/-	Sep	+/-	Epoch	n	Notes	Image
07108-0144	BAL 428	11.4	11.4	150.66	0.35	9.52	0.04	2007.265	10	102	
07109-0027	BAL 771	11.2	11.5	357.93	0.31	8.89	0.06	2007.263	7	103	
07109-0201	BAL 430	12.83	12.84	99.65	0.34	8.14	0.07	2007.265	9	104	8
07110-0200	BAL 431	9.8	11.4	132.86	0.3	16.16	0.05	2007.265	11	105	8
07111+2132	FAL 19	9.08	12.38	218.18	0.21	10.5	0.08	2007.268	8	106	
07111-0139	BAL 432	11.2	11.3	54.88	0.47	4.09	0.07	2007.265	3	107	
07111-0207	BAL 434	11.1	11.5	21.87	0.35	17.59	0.06	2007.263	8	108	
07112-0136	BAL 433	10.7	11.5	58.77	0.12	15.28	0.05	2007.265	13	109	
07112-0208	BAL 436	11.4	11.5	33.38	0.24	18.19	0.07	2007.263	11	110	
07112-0209	BAL 435	9.96	11.15	302.93	0.15	20.79	0.03	2007.263	14	111	
07114-0035	BAL 773	11.3	11.3	155.65	0.16	16.59	0.03	2007.263	12	112	
07115-0025	BAL 774	10.0	11.3	252.41	0.34	9.69	0.06	2007.263	10	113	
07116-0132	BAL 439	11.4	11.5	288.95	0.29	19.1	0.04	2007.265	5	114	
07116-0158	BAL 438	9.74	11.15	74.91	0.35	11.29	0.07	2007.265	5	115	
07116-0211	BAL 153	11.3	11.4	254.49	0.32	17.29	0.07	2007.263	9	116	
07117-0206	BAL 440	10.4	10.8	195.56	0.14	15.64	0.05	2007.263	14	117	
07118-0130	Anon. 20	13.9	14.0	106.16	0.29	9.44	0.04	2007.265	6	118	
07119-0130	BAL 441	8.8	9.5	33.44	0.12	14.34	0.04	2007.265	16	119	
07119-0132	Anon. 21	14.0	14.4	171.27	0.42	5.87	0.05	2007.265	4	120	
07119-0207	BAL 443	10.0	11.2	227.8	0.2	16.55	0.04	2007.263	4	121	
07122-0205	BAL 444	9.6	11.2	299.43	0.18	14.08	0.05	2007.263	14	122	
07123-0029	BAL 776 AB	10.8	11.3	236.08	0.11	17.25	0.04	2007.263	12	123	
07123-0029	BKO 24 AC	10.8	11.0	203.78	0.02	110.55	0.05	2007.263	12	123	
07123-0029	BKO 24 CD	11.0	11.5	72.58	0.32	8.45	0.05	2007.263	12	123	
07124-0139	Anon. 22	13.6	13.8	273.97	0.37	8.48	0.07	2007.265	10	124	
07125-0141	BAL 445	10.6	11.5	41.7	0.21	20.37	0.07	2007.265	13	125	
07125-0204	BAL 446	11.2	11.3	126.06	0.15	17.37	0.04	2007.263	15	126	
07126-0147	BAL 448	10.8	11.0	224.6		3.84		2007.265	1	127	
07128-0204	BAL 450	11.2	11.3	98.83	0.35	12.66	0.04	2007.263	6	128	
07138+1746	STF1041	9.1	12.1	266.26	0.08	25.92	0.04	2007.268	12	129	
07160+1644	DUF 2	9.24	9.34	112.51	0.11	41.39	0.05	2007.265	14	130	
07247+2019	Anon. 23 AB	10.85	12.0	27.64	0.32	13.33	0.04	2007.263	16	131	
07247+2019	Anon. 23 BC	12.0	13.0	294.8		3.12		2007.263	1	131	
07247+2008	Anon. 24	13.5	14.5	155.09	0.24	9.52	0.06	2007.263	7	132	
07248+2003	Anon. 25	12.5	12.6	241.37	0.16	10.34	0.05	2007.263	17	133	
07255+2016	Anon. 26	12.7	12.9	159.78	0.27	7.14	0.06	2007.263	14	134	

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WDS	Discoverer	m1	m2	PA	+/-	Sep	+/-	Epoch	n	Notes	Image
07256+2030	STF1083	7.32	8.13	45.01	0.2	6.34	0.05	2007.263	14	135	
07265+1831	STF1090 AB	7.27	8.17	97.84	0.07	60.88	0.05	2007.263	16	136	
07265+1831	STF1090 AC	7.27	9.48	79.22	0.12	49.96	0.05	2007.263	14	136	
07266+1834	XMI 62 AB	11.53	12.15	273.68	0.2	14.62	0.04	2007.263	16	137	
07266+1834	Anon.27 Ax	11.53	14.0	73.86	0.17	13.44	0.08	2007.263	8	137	
07273+2017	GRV 734	10.33	11.39	48.12	0.05	36.39	0.03	2007.263	16	138	
07375+1728	SLE 431	11.8	12.1	54.76	0.3	11.89	0.06	2007.263	11	139	
07382+1752	HJ 2404 AB	10.0	11.0	56.48	0.36	15.09	0.08	2007.263	6	140	
07382+1752	HJ 2404 AC	9.82	9.36	186.9	0.06	48.67	0.03	2007.263	9	140	
07382+1752	HJ 2404 AD	10.0	13.5	56.94	0.04	41.98	0.01	2007.263	2	140	
07382+1752	SLE 433 AE	10.0	11.8	318.35	0.09	143.73	0.04	2007.263	4	141	
07585+3215	SEI 484	10.4	11.7	257.11	0.17	26.53	0.04	2007.265	7	142	
07596+3211	SEI 485	10.71	11.07	88.7	0.1	20.7	0.02	2007.265	16	143	
08097+2533	WRH 27	7.61	8.69	97.41	0.09	29.06	0.06	2007.265	15	144	
08100+3017	Anon.28	11.0	11.6	86.42	0.16	18.99	0.05	2007.263	14	145	
08102+2551	BUP 111 AB	6.58	9.32	48.47	0.04	81.13	0.07	2007.265	8	146	
08102+2551	ARN 2 AC	6.6	8.0	21.67	0.04	188.68	0.05	2007.265	9	147	
08511+1153	BKO 35	12.0	13.5	144.24	0.31	6.97	0.05	2007.265	6	148	9
08512+1149	CHE 118 AB	9.80	10.52	62.09	0.35	23.84	0.07	2007.265	13	149	
08512+1149	BKO 36 AC	9.8	14.2	29.66	0.06	32.6	0.05	2007.265	8	149	
08513+1151	BKO 37	11.0	13.0	206.13	0.22	8.1	0.06	2007.265	4	150	
08513+1149	BKO 38	12.2	14.5	74.52	0.16	10.37	0.1	2007.265	5	151	
08513+1148	BKO 39	11.9	13.2	233.77	0.19	12.62	0.04	2007.265	8	152	
08513+1146	CHE 119 AB	9.45	10.48	300.61	0.23	13.38	0.03	2007.265	13	153	
08513+1146	CHE 119 AC	9.45	10.65	13.47	0.07	32.54	0.1	2007.265	10	153	
08513+1146	BKO 40 AD	9.45	14.9	334.61	0.14	21.61	0.05	2007.265	6	153	
08514+1147	BKO 41 A-BC	13.0	13.0	144.52	0.23	7.24	0.04	2007.265	6	154	
08515+1154	CHE 120	9.70	10.56	144.65	0.23	31.41	0.06	2007.265	10	155	
08515+1152	CHE 121 AB	9.33	10.54	37.39	0.05	31.17	0.07	2007.265	17	156	
08515+1152	CHE 121 AC	9.3	11.0	74.69	0.09	27.23	0.07	2007.265	16	156	
08515+1152	BKO 42 AD	9.3	13.0	118.77	0.21	14.29	0.06	2007.265	4	156	
08515+1149	BKO 43	11.0	11.0	95.39	0.13	9.24	0.05	2007.265	8	157	
08515+1149	BKO 44	11.5	13.0	155.43		3.88		2007.265	1	158	
08515+1148	BKO 45	12.0	12.0	355.77	0.21	8.8	0.05	2007.265	8	159	
08516+1152	CHE 123 AB	9.59	10.48	220.61	0.04	39.45	0.03	2007.265	12	160	
08516+1152	BKO 46 AC	9.59	12.5	183.79	0.13	16.24	0.08	2007.265	7	160	

Table continued on next page.

Double Star Measures Using a DSLR Camera #2

WDS	Discoverer	m1	m2	PA	+/-	Sep	+/-	Epoch	n	Notes	Image
08517+1151	CHE 124	10.43	10.67	273.09	0.13	26.91	0.05	2007.265	19	161	
08517+1151	CHE 125	10.37	10.68	174.34	0.25	15.84	0.07	2007.265	16	162	
08517+1147	CHE 126 AB	10.39	10.83	121.67	0.19	22.95	0.07	2007.265	15	163	
08517+1147	BKO 47 AC	10.39	10.70	72.74	0.08	31.75	0.05	2007.265	14	163	
08518+1150	CHE 127 AB	9.31	10.45	51.17	0.15	24.65	0.08	2007.265	11	164	
08518+1150	CHE 127 AC	9.31	10.70	14.74	0.12	28.84	0.07	2007.265	15	164	
10285+1309	STF1438 AB	9.5	11.1	244.84	0.32	9.81	0.05	2007.263	18	165	

Table Notes

1. A=GSC 2401 1002 (05141+3541!). Far from the specified location (6,5'). Only GSC shows it in the given location, DSS does not.
2. A=GSC 2402 646
3. A=GSC 2402 474 (05177+3628!).
4. (051742+362731), A, B do appear in USNO.
5. A=GSC 2402 1162 (05182+3601!).
6. A=GSC 2402 1266
7. A=GSC 2402 94
8. AB=GSC 2402 992 non star.
9. A=GSC 2402 756
10. A=GSC 2402 1336
11. A=GSC 2402 1094
12. A=GSC 2402 868
13. A=GSC 2402 766 non star.
14. A=GSC 2402 690 (05211+3620!).
15. A=GSC 2398 1490
16. A=GSC 2404 775 1
17. A=GSC 2404 695
18. A=GSC 2408 1103. The difference is significant compared to the previous measure.
19. A=GSC 2408 875
20. A, B do appear in USNO. (054009+372211).
21. Ax=GSC 2416 218 non star (05402+3721!).
22. A=GSC 2416 857 (05407+3550!). Far from the specified location (6').
23. AB=GSC 2911 1626 non star.
24. A=GSC 1873 934
25. A=GSC 2408 585
26. A=GSC 2416 468
27. A=GSC 2409 1003
28. A=GSC 2409 792 (05422+3247!).
29. A=GSC 2911 1592
30. A=GSC 2409 1637 (05435+3317!). Far from the specified location (10').
31. A=GSC 2409 1929. Uncertain measures due to DM.
32. A=GSC 2409 1645
33. A=GSC 2405 91 (05446+3133!).

Double Star Measures Using a DSLR Camera #2

34. A=GSC 2417 409 non star (05446+3623!). Far from the specified location (7').
35. A=GSC 2409 1327
36. A=GSC 2405 1793
37. BC=GSC 2405 645 non star.
38. A=GSC 2417 1044
39. A=GSC 2417 368 The primary star has significant proper motion according to the Hipparcos catalog: pmRA: 488,1 mas/y; pmD: -509,5 mas/y. At my request, György Vaskúti made calculations on the basis of the double's available measures (1880; 1908; 1954; 1991; 2007). He determined there's a systematic difference between the calculated and the measured values, therefore it can be supposed that the B component has its own proper motion. On the basis of the first and the last measures, its value is pmRA: -11 mas/y; pmD: -33 mas/y.
40. GSC 2405 179
41. A=GSC 2417 1102 non star (05465+3659!).
42. A=GSC 2409 425
43. AB=GSC 2417 854 non star.
44. AB=GSC 2417 726 non star.
45. A=GSC 1311 1823 non star.
46. A=GSC 1311 1761 non star.
47. A=GSC 1311 51 non star. The difference is significant compared to the previous measure.
48. A=GSC 1311 2030 non star.
49. AB=GSC 2405 1889 non star.
50. A=GSC 2405 471 (05497+3147!).
51. A=GSC 2409 154
52. AB=GSC 2405 417 non star.
53. A=GSC 2405 1905 1. AB is visible but cannot be measured.
54. A=GSC 2405 1905 1
55. AB=GSC 2409 110 non star.
56. A=GSC 2410 157
57. A=GSC 1875 2587
58. A=GSC 2912 1185. Uncertain measures. Significant difference compared to the previous measures and GSC. Measuring the DSS image also showed different values.
59. A=GSC 2406 1020 (05520+3136!).
60. A=GSC 2406 1020 (05520+3136!). Only this star can be found in the given direction. The difference from the values indicated is significant.
61. A=GSC 2406 1020. Similar parameters to ABH 32 AF, but with a 90 degree difference.
62. A=GSC 2912 1667
63. A=GSC 2410 719
64. B=GSC 2410 1722 non star. Could this be the original SEI 431 AB?
65. A=GSC 2406 2086
66. A=GSC 2406 1864 1 (05542+3030!).
67. A=GSC 2418 520 (05558+3707!).
68. A=GSC 2406 1175
69. A=GSC 2418 773 non star (05562+3719!).
70. A=GSC 2418 562
71. A=GSC 2418 808
72. A=GSC 2418 1004

Double Star Measures Using a DSLR Camera #2

73. A=GSC 2419 1293
74. A=GSC 2419 1127
75. A=GSC 1876 1774. Uncertain measures due to DM.
76. AB=GSC 1348 3. AB are not separated.
77. AB=GSC 1348 3
78. A=GSC 1356 1898
79. A=GSC 1357 467
80. According to its data, it is the same as BRT 2368. There is no other similar double in the vicinity.
81. A=GSC 1357 1093
82. A=GSC 1357 1859
83. A=GSC 1345 1966
84. A=GSC 1353 127 (07084+2013!). The difference is significant, but there is nothing else nearby.
85. A=GSC 4815 2707 (07080-0146!).
86. A=GSC 4815 2431 (07082-0152!).
87. A=GSC 4815 3231 non star (07083-0121!).
88. A=GSC 4815 3235 (07084-0120!). = BAL 412 BC.
89. A=GSC 4815 3111 (07084-0120!).
90. A=GSC 4815 3750
91. A=GSC 4815 3019 non star (07086-0145!).
92. A=GSC 1349 488 1
93. A=GSC 4815 2777 (07091-0141!).
94. x=GSC 4815 2211 blended object.
95. A=GSC 4815 2521
96. A=GSC 4815 2929
97. A=GSC 4815 2911 non star.
98. A=GSC 4815 2885
99. A=GSC 4815 2467 non star (07097-0127!).
100. A=GSC 4815 3025 (07097-0134!).
101. A=GSC 4815 1208 non star (07108-0134!).
102. A=GSC 4815 1740 non star.
103. A=GSC 4815 1561 blended object.
104. A=GSC 4819 3768 blended object.
105. A=GSC 4819 3487
106. A=GSC 1357 2052
107. AB=GSC 4815 982 non star (07110-0139!).
108. A=GSC 4819 2738
109. A=GSC 4815 889 (07111-0136!).
110. A=GSC 4819 3250 (07113-0208!). Could the 1998 measure be BAL 434?
111. A=GSC 4819 2836
112. A=GSC 4815 1389 (07114-0034!).
113. A=GSC 4815 182 blended object.
114. A=GSC 4815 2345 non star.
115. A=GSC 4819 3734 (07115-0158!).
116. A=GSC 4819 3472
117. A=GSC 4819 2876

Double Star Measures Using a DSLR Camera #2

- 118.A=GSC 4815 1464 non star.
119.A=GSC 4815 988 non star (07119-0129!).
120.AB=GSC 4815 1536
121.A=GSC 4819 3526
122.A=GSC 4819 2776 non star.
123.A=GSC 4815 419 (07123-0030!).
124.A=GSC 4815 970 non star.
125.A=GSC 4815 568 (07124-0141!).
126.A=GSC 4819 3172 non star.
127.A=GSC 4815 1612
128.A=GSC 4819 3038
129.A=GSC 1350 740
130.A=GSC 1346 253
131.A=GSC 1355 1102
132.(072442+200750), A does appear in USNO.
133.A=GSC 1355 836. Since the beginning of the 1980s, amateur astronomer György Vaskúti has been taking notes on all the doubles he visually observes and which do not appear in public catalogs. His list contains nearly 300 double stars. In the meantime, a greater portion of these doubles has been catalogued in WDS on the basis of other astronomers' measures. This double star cannot be found in WDS yet; György Vaskúti found it in 1990, and it appears in his list by his own "VGY 215" marking.
134.A=GSC 1355 444 non star.
135.A=GSC 1355 162 1
136.A=GSC 1351 1053
137.A=GSC 1351 238
138.A=GSC 1355 744
139.A=GSC 1365 960 non star.
140.A=GSC 1365 968
141.A=GSC 1365 968. Very different data, but there is no better star in the vicinity.
142.A=GSC 2472 393 (07585+3214!).
143.A=GSC 2472 538 (07596+3210!).
144.A=GSC 1931 841 (08097+2543!).
145.A=GSC 2469 550. This double star cannot be found in WDS yet; György Vaskúti found it in 1990, and it appears in his list by his own "VGY 88" marking.
146.A=GSC 1931 1927
147.A=GSC 1931 1927. The difference is significant, the DSS image shows a PA of about 21 degrees, too.
148.AB=GSC 814 1351 non star.
149.A=GSC 814 1769 (08511+1148!).
150.A=GSC 814 1763
151.A=GSC 814 1323
152.A=GSC 814 1647 non star.
153.A=GSC 814 2331 (08513+1145!).
154.A=GSC 814 1527 non star. BC is visible but cannot be measured.
155.A=GSC 814 1025 (08514+1154!).
156.A=GSC 814 1205
157.A=GSC 814 2089
158.A=GSC 814 2079

Double Star Measures Using a DSLR Camera #2

- 159.A=GSC 814 1537 non star.
- 160.A=GSC 814 1315 (08516+1151!).
- 161.A=GSC 814 1981 (08517+1150!).
- 162.A=GSC 814 1007 (08517+1150!).
- 163.A=GSC 814 1737
- 164.A=GSC 814 2047 (08518+1149!).
- 165.A=GSC 844 681 (10292+1309!). Far from the specified location (10,6').

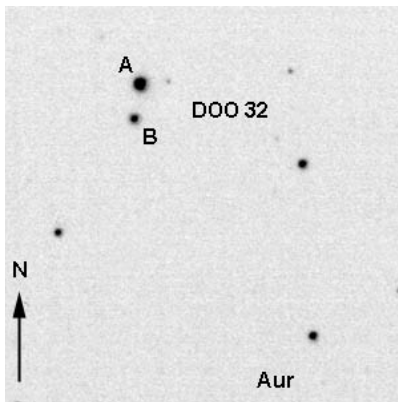


Figure 1: DOO 32

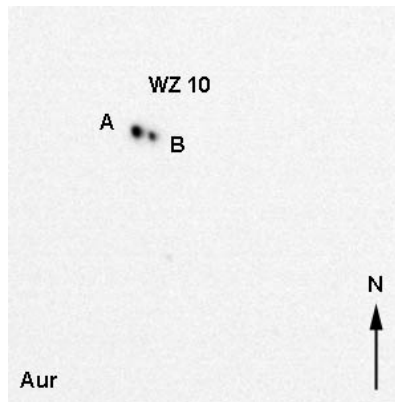


Figure 2: WZ 10

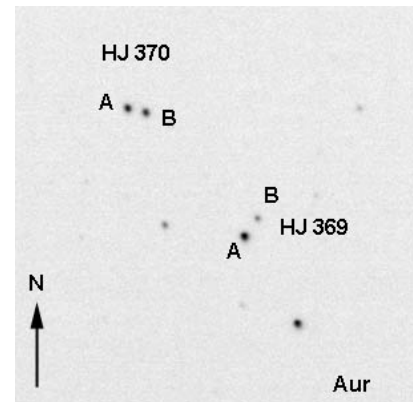


Figure 3: HJ 370 and HJ 369

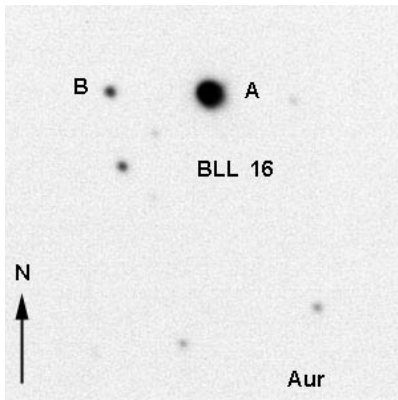


Figure 4: BLL 16



Figure 5: SEI 402 and SEI 397

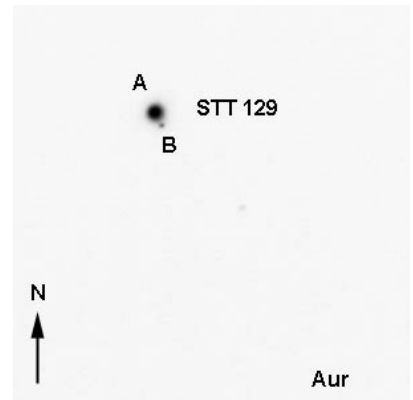


Figure 6: STT 129

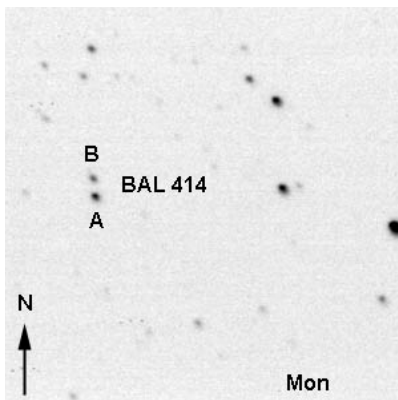


Figure 7: BAL 414

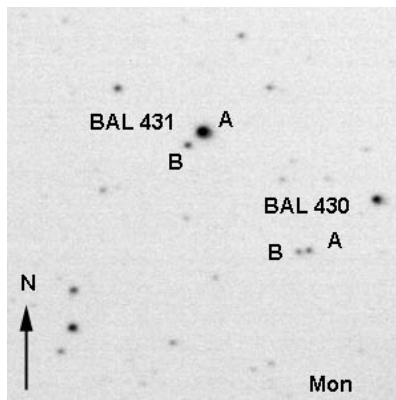


Figure 8: BAL 431 and BAL 430

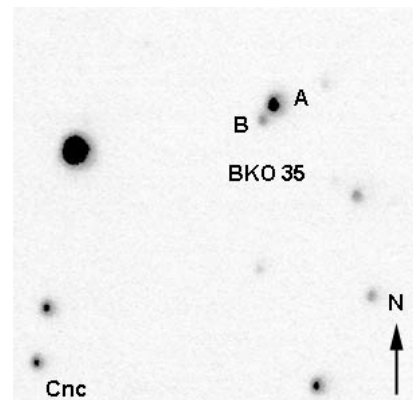


Figure 9: BKO 35