

# Double Star Measures Using the Video Drift Method - X

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**Abstract:** Position angles and separations for 281 multiple star systems are presented using the video drift method.

## Introduction

This is Paper X in our continuing series on double star measurements using the video drift method first proposed by Nugent and Iverson 2011. We continue our practice of preferentially measuring multiple star systems listed the Washington Double Star Catalog (WDS) that have not been measured for a minimum of 10-15 years and have less than 10 measurements.

## Methodology

The methods used in this paper are the same as the methods used in our previous paper (Nugent and Iverson, 2016). All measurements were made with a pair of Meade 14-inch LX-200 telescopes (focal length 3556 mm at f/10, scale factor 0.6"/pixel). Astronomical video data collection systems require a onetime aspect ratio calibration. The reader is referred to our previous discussion of the problem and calibration procedure (Nugent and Iverson, 2014).

For systems in which either the primary and/or secondary star is faint, image enhancement techniques were employed. Co-author Iverson used a variation of the drift method employing an integrating video camera (Iverson and Nugent 2015) while co-author Nugent used a Collins I<sup>3</sup> image intensifier with a non-integrating camera. The faintest system measured in Table 1 had primary/secondary magnitudes of +11.51, +15.9. Nine systems had WDS magnitudes in the +14.0 to +15.9 range.

## Acknowledgements

This research makes use of the *Washington Double*

*Star Catalog* maintained at the US Naval Observatory.

## References

- Iverson, E. and Nugent, R., 2015, *Journal of Double Star Observations*, **11**(2), 91-97.
- Nugent, R. and Iverson, E., 2011, *Journal of Double Star Observations*, **7**(3), 185-194.
- Nugent, R. and Iverson, E., 2014, *Journal of Double Star Observations*, **10**(3), 214-222.
- Nugent, R. and Iverson, E., 2016, *Journal of Double Star Observations*, **12**(6), 511-518.

### Double Star Measures Using the Video Drift Method - X

Table 1. Results of 281 double stars using the video drift method.

Object	Designation	PA°	std. dev.	Sep"	std. dev.	Date	(x,y) pairs	Magnitudes		Drifts	Nights
06449+0728	J 2009	38.7	1.03	7.5	0.14	2017.208	3782	8.62	9.92	5	1
06004-2520	B 2596	324.1	1.28	10.7	0.25	2017.140	2482	9.6	11.1	3	1
06008-1209	GWP 728	268.5	0.63	13.9	0.41	2017.140	1492	8.5	9.4	2	1
06010-2232	ARA1635	24.7	3.36	8.7	0.46	2017.140	1676	12.28	13.8	2	1
06010-4128	HJ 3826AB,C	161.8	1.88	15.3	0.46	2017.140	2024	10.15	11.87	2	1
06025-2110	AOT 33	122.3	2.38	9.3	0.51	2017.140	1630	11.9	12.3	2	1
06027-1830	ARA 341	343.5	1.63	12.5	0.38	2017.140	1631	11.18	12.1	2	1
06038-1447	LDS 151	271.3	0.22	122.7	0.52	2017.140	1097	11.25	11.38	2	1
06055-3317	HJ 3832	149.8	1.79	12.8	0.41	2017.140	1830	10.03	10.34	2	1
06060-3203	SEE 60	98.5	1.33	23.5	0.60	2017.140	1676	8.63	13.44	2	1
06066+2620	EVS 4AB	27.5	1.38	13.7	0.31	2017.140	1682	9.9	12.6	2	1
06066+2620	EVS 4AC	348.4	2.41	11.2	0.42	2017.140	1695	9.9	14.2	2	1
06214-1146	FOX 146AC	273.6	0.14	56.3	0.21	2017.142	1298	5.55	11.56	2	1
06217-1424	HU 1241AC	3.1	1.30	13.1	0.35	2017.142	1552	9.19	13.36	2	1
06221-1435	HJ 3850	50.2	1.20	15.9	0.34	2017.142	1571	9.0	11.4	2	1
06225-3107	LDS5675	297.8	0.80	29.7	0.46	2017.142	1702	12.25	12.49	2	1
06225-3352	SEE 65	108.8	1.02	17.2	0.28	2017.142	1753	8.00	12.16	2	1
06226-1051	HJ 2316	93.2	1.45	7.4	0.27	2017.241	3087	10.99	11.5	5	2
06229-2107	ARA1288	58.9	2.02	8.2	0.27	2017.142	2431	13.3	13.4	2	1
06233-2213	ARA1644	250.3	3.13	6.9	0.37	2017.142	1632	11.4	12.4	2	1
06245-2129	ARA1289	337.0	1.28	12.7	0.30	2017.142	1642	10.13	12.80	2	1
06252-1056	FOX9025AC	301.5	0.20	123.7	0.45	2017.142	1100	7.94	12.39	2	1
06254-1406	GAL 402	165.5	1.75	12.3	0.40	2017.142	1573	10.08	12.6	2	1
06263-1536	WFC 35	352.9	1.87	7.7	0.34	2017.142	1580	9.78	10.87	2	1
06266-1914	LDS3705	215.9	0.27	137.0	0.57	2017.142	1288	13.72	14.63	2	1
06514+1840	GUI 11AC	319.4	0.39	26.8	0.19	2017.219	6132	9.13	12.11	2	1
06514+1840	STF 976AB	118.4	0.21	35.7	0.13	2017.219	3750	9.13	10.25	5	1
06589-2122	ARA1309	92.6	1.77	12.3	0.51	2017.145	1617	13.2	13.8	2	1
06593-1610	GAL 419	315.6	1.52	10.0	0.29	2017.145	1575	10.7	10.9	2	1
06596-2002	ARA 556	252.6	1.44	14.2	0.43	2017.145	1568	10.14	13.1	2	1

Table 1 continues on next page.

## Double Star Measures Using the Video Drift Method - X

Table 1 (continued). Results of 281 double stars using the video drift method.

Object	Designation	PA°	std. dev.	Sep"	std. dev.	Date	(x,y) pairs	Magnitudes		Drifts	Nights
07001-1906	ARA 352	27.9	1.23	14.7	0.28	2017.145	1615	12.2	12.7	2	1
07001-2434	CPD 3AB	152.3	1.66	10.6	0.33	2017.145	1692	10.2	10.6	2	1
07003-2207	SEE 74AC	359.4	0.19	124.1	0.47	2017.145	1614	6.52	10.72	2	1
07006-1955	HDO 95AB	46.6	2.25	12.5	0.51	2017.145	1596	9.19	13.	2	1
07006-1955	HDO 95AC	69.6	0.67	34.3	0.44	2017.145	1492	9.19	13.43	2	1
07008-2356	ARA2027	216.0	1.80	11.8	0.38	2017.145	1657	10.31	12.1	2	1
07009-2254	ARA1674	115.2	3.67	7.0	0.50	2017.145	1636	11.39	13.6	2	1
07014-1956	ARA 557	47.9	2.74	11.6	0.57	2017.145	1588	12.15	12.16	2	1
07016-1940	ARA 558	229.3	2.71	11.4	0.50	2017.145	1583	12.1	12.6	2	1
07016-2021	ARA 887AB	26.0	2.10	12.2	0.40	2017.145	1569	11.58	12.01	2	1
07016-2021	ABH 58AF	317.7	1.49	26.6	0.64	2017.145	1535	11.63	14.12	2	1
07016-2403	ARA2028	260.2	3.13	12.5	0.68	2017.145	1612	12.0	12.0	2	1
07026-2240	JAW 2	62.1	1.33	18.5	0.43	2017.145	1573	11.81	11.55	2	1
07050-1849	ARA 355	194.1	2.51	9.7	0.41	2017.140	1594	11.02	12.1	2	1
07054-2148	ARA1311	273.3	1.77	14.8	0.69	2017.140	1574	11.75	12.4	2	1
07055-2351	ARA2031	300.3	3.15	7.2	0.46	2017.140	1632	10.97	13.0	2	1
07060-2241	ARA1675	218.9	2.58	8.3	0.39	2017.140	1635	11.31	12.0	2	1
07060-2407	ARA2032	36.4	2.85	8.2	0.44	2017.140	1668	11.05	11.9	2	1
07064-1945	ARA 562	291.9	2.47	9.4	0.49	2017.140	1595	11.13	13.9	2	1
07064-2318	ARA2034	97.4	1.97	13.4	0.52	2017.140	1598	12.0	12.5	2	1
07066-2748	HJ 2363	320.7	1.63	11.9	0.37	2017.140	1692	11.02	12.0	2	1
07067-2216	ARA1676	111.8	2.73	13.1	0.68	2017.140	1589	12.0	12.0	2	1
07078-3053	CLL 7	121.2	0.55	44.1	0.46	2017.140	1596	10.06	11.59	2	1
07079+1053	SIN 121AC	166.0	1.12	53.4	1.01	2017.140	1159	8.89	14.7	2	1
07079+1053	SIN 121AH	84.9	0.33	165.8	0.83	2017.140	824	8.89	13.91	2	1
07079+1053	AG 329GI	54.1	1.08	19.2	0.50	2017.140	1358	9.14	10.87	2	1
07209-1625	ARA 34	87.6	1.37	13.5	0.55	2017.142	1560	11.60	12.4	2	1
07224-2050	ARA 915	169.8	2.79	8.9	0.50	2017.142	1634	9.95	11.9	2	1
07227-1743	ARA 185	257.0	1.60	14.1	0.40	2017.142	1576	10.28	12.2	2	1
07240-2117	ARA1335	286.5	2.24	17.1	0.71	2017.142	1580	12.8	12.8	2	1

Table 1 continues on next page.

### Double Star Measures Using the Video Drift Method - X

Table 1 (continued). Results of 281 double stars using the video drift method.

Object	Designation	PA°	std. dev.	Sep"	std. dev.	Date	(x,y) pairs	Magnitudes		Drifts	Nights
07242-2050	ARA 920	263.8	1.64	13.5	0.42	2017.142	1600	11.02	12.41	2	1
07313+1619	STF1106	34.2	0.71	10.7	0.12	2017.219	3987	9.40	9.47	5	1
07382+1752	HJ 2404AB	57.4	0.59	15.0	0.15	2017.219	6041	9.66	12.1	2	1
07382+1752	HJ 2404AC	187.0	0.14	48.5	0.14	2017.219	3990	9.66	9.28	5	1
07382+1752	HJ 2404AD	58.2	0.30	41.8	0.21	2017.219	6411	9.82	14.65	2	1
07382+1752	SLE 433AE	318.5	0.06	142.9	0.15	2017.219	6088	9.66	12.15	2	1
07495+0313	STF1149	41.3	0.31	21.7	0.13	2017.208	3678	7.81	9.19	5	1
07541-1820	HJ 4013CD	134.4	1.94	6.7	0.26	2017.140	1513	10.1	12.1	2	1
07583-3104	LDS 197	29.9	1.75	10.8	0.30	2017.145	2644	9.95	11.8	3	1
07584-2021	ARA1017	251.3	1.65	15.2	0.47	2017.145	1555	9.85	12.1	2	1
07590-1800	ARA 205	93.2	2.08	8.5	0.58	2017.145	1573	10.41	11.4	2	1
07594-0038	HJ 73AB	284.4	0.98	18.7	0.34	2017.247	1440	11.06	11.81	2	1
07594-0038	HJ 73AC	354.1	1.21	23.4	0.48	2017.247	1457	11.06	13.57	2	1
07594-1029	CUY 1AB,C	137.0	1.22	28.5	0.59	2017.247	1454	9.16	13.9	2	1
07594-1029	ARU 28AB,D	282.5	0.48	44.3	0.42	2017.247	1364	9.16	12.87	2	1
07598-1028	DAM 12AB	165.8	1.58	9.9	0.30	2017.241	2354	11.	12.0	2	1
07598-1028	DAM 12AC	221.3	3.49	5.7	0.32	2017.241	2295	11.	12.	2	1
07598-2011	ARA 626	305.1	1.52	12.6	0.36	2017.247	1598	10.35	12.1	2	1
08016-0916	A 3054AC	357.1	1.46	10.7	0.27	2017.247	1561	9.64	12.8	2	1
08018-3429	DAM 456AC	292.3	1.29	14.3	0.32	2017.247	1810	9.03	11.1	2	1
08094+3021	STF1188	201.1	0.47	16.5	0.11	2017.236	4364	8.71	9.34	5	1
08141-2213	ARA1436	330.4	1.31	13.7	0.33	2017.241	2459	11.6	12.2	3	1
08185+1937	HJ 444	96.3	0.17	37.3	0.12	2017.219	3713	8.53	10.27	5	1
08299+3123	STF1231	211.2	0.31	25.0	0.11	2017.236	4331	9.50	9.93	5	1
08314+3156	STF1236	110.2	0.20	38.3	0.09	2017.236	4101	8.92	9.34	5	1
08414-2407	ARA2132	131.3	2.97	8.8	0.44	2017.247	1667	13.0	13.6	2	1
08417-3142	PRO 70	100.1	1.56	13.1	0.36	2017.241	2620	11.68	11.35	2	1
08426+0653	SLE 472AC	123.6	0.30	62.3	0.37	2017.247	1312	10.39	11.05	2	1
08426+0653	SLE 472AD	271.8	0.73	54.0	0.91	2017.247	1307	10.39	14.90	2	1
08426+0653	SLE 472BC	104.9	0.51	38.7	0.37	2017.247	1401	11.72	11.05	2	1

Table 1 continues on next page.

## Double Star Measures Using the Video Drift Method - X

Table 1 (continued). Results of 281 double stars using the video drift method.

Object	Designation	PA°	std. dev.	Sep"	std. dev.	Date	(x,y) pairs	Magnitudes		Drifts	Nights
08442-1938	ARA 647	151.3	2.12	9.5	0.45	2017.247	1587	10.15	12.6	2	1
08450-0051	BAL 855	149.8	2.78	8.8	0.50	2017.247	1538	11.03	12.9	2	1
08456+0915	J 2063	114.0	2.13	7.6	0.31	2017.247	1528	12.63	12.74	2	1
08463+0039	HJ 3313	63.9	0.26	34.9	0.17	2017.208	3484	7.10	11.03	5	1
08468-0219	GWP1080AB	73.5	0.72	54.6	0.72	2017.247	1312	13.37	14.64	2	1
08498+3113	SEI 509	195.3	0.31	35.4	0.16	2017.236	4392	9.54	9.59	5	1
08499+1450	STF1283	123.2	0.41	16.5	0.11	2017.219	3871	7.66	8.45	5	1
08595-2310	DON1076	84.0	1.07	14.4	0.39	2017.241	2390	7.77	12.8	3	1
08599-0135	HJ 111	243.4	0.32	24.6	0.13	2017.208	3627	9.09	10.18	5	1
09032-0405	HJ 114AB	315.4	0.81	21.8	0.34	2017.241	1470	11.01	11.28	2	1
09032-0405	HJ 114AC	264.0	0.42	54.4	0.47	2017.241	1322	11.01	12.69	2	1
09033-3336	HJ 4166A,BC	152.6	1.47	13.3	0.36	2017.241	1786	7.10	7.93	2	1
09037-3811	HJ 4169	288.7	1.55	9.6	0.28	2017.241	2851	8.48	10.48	3	1
09039-1515	J 1538	65.2	2.57	7.6	0.34	2017.241	1582	9.7	11.0	2	1
09100-3731	COO 79	249.7	1.37	9.6	0.22	2017.241	2839	9.72	10.63	3	1
09108-2320	ARA1761	254.9	1.79	10.7	0.35	2017.241	1614	10.49	13.1	2	1
09134-3651	JSP 324AC	328.9	0.51	32.1	0.26	2017.241	2441	9.17	10.63	3	1
09171+0717	STTA 98AB	170.3	0.07	107.2	0.15	2017.208	3708	8.32	8.03	5	1
09171+0717	STTA 98BC	88.8	0.09	147.5	0.17	2017.208	8030	8.03	13.03	2	1
09200+0500	STF 1343	275.4	0.79	9.1	0.13	2017.249	7621	9.37	9.59	10	2
09217-1653	BRT 619	236.9	2.64	4.3	0.22	2017.241	1396	10.91	12.2	3	1
09291-0132	BAL 518	50.4	0.10	79.8	0.15	2017.258	3179	8.3	9.2	5	1
09306+1036	STF1360AB	242.3	0.52	13.8	0.13	2017.208	3806	8.95	8.86	5	1
09306+1036	STF1360AC	76.0	0.10	104.8	0.18	2017.208	7146	8.95	13.37	2	1
09306+1036	STF1360AD	60.8	0.06	176.4	0.18	2017.208	7153	8.95	11.79	2	1
09352+1405	STTA102	47.6	0.17	44.9	0.15	2017.219	5783	7.85	9.09	10	2
09397-1149	J 2070	247.8	2.83	6.3	0.34	2017.241	1375	11.56	12.8	3	1
09412-2104	ARA1078	58.1	1.96	7.0	0.24	2017.241	1436	11.7	12.0	3	1
09449-0745	J 3250	357.8	3.14	4.1	0.36	2017.241	1348	12.58	12.58	3	1
09509+1919	STTA103AB	129.9	0.10	79.9	0.13	2017.219	3443	8.43	9.64	5	1

Table 1 continues on next page.

## Double Star Measures Using the Video Drift Method - X

Table 1 (continued). Results of 281 double stars using the video drift method.

Object	Designation	PA°	std. dev.	Sep"	std. dev.	Date	(x,y) pairs	Magnitudes		Drifts	Nights
09509+1919	STTA103AC	178.6	0.10	105.1	0.20	2017.219	6041	8.43	12.60	2	1
09509+1919	STTA103BC	227.5	0.13	79.9	0.16	2017.219	6109	9.64	12.60	2	1
09522+0313	BAL2368	79.7	0.17	53.0	0.17	2017.249	3330	9.00	11.25	5	1
09529-2151	BRT1480	82.2	2.30	5.1	0.25	2017.241	1448	11.06	11.7	3	1
09537-1405	BRT1911	282.3	2.96	5.1	0.32	2017.241	1371	11.3	11.9	3	1
09570+1946	STF1399	175.5	0.23	30.8	0.14	2017.219	6452	7.65	8.36	10	2
10023-0951	HJ 826	313.1	1.17	17.2	0.36	2017.241	1474	9.51	13.4	2	1
10028-2701	B 9014AC	294.1	1.27	24.6	0.55	2017.241	1583	9.45	12.7	2	1
10029-0556	DAM 716AB,C	333.5	0.38	48.9	0.35	2017.241	1446	8.82	12.5	2	1
10064-2406	I 845AC	15.0	0.43	44.5	0.29	2017.247	1888	10.2	12.2	4	1
10189-3313	I 207AC	243.8	0.73	41.5	0.43	2017.323	1657	9.76	9.92	2	1
10221-3019	HJ 4309	186.1	1.28	19.3	0.39	2017.241	1745	11.50	11.72	2	1
10224-2323	ARA1779	81.2	1.30	12.7	0.31	2017.241	2410	10.62	12.3	2	1
10236-1721	GWP1359AB	294.5	0.49	33.8	0.34	2017.241	1475	9.50	11.51	2	1
10236-1721	UC 1922AC	359.7	0.84	50.5	0.99	2017.241	1427	9.50	15.9	2	1
10236-1721	UC 1922BC	38.3	0.96	46.4	0.69	2017.241	1315	11.51	15.9	2	1
10242-2029	ARA 669	149.6	2.82	13.5	0.64	2017.241	1627	12.6	13.3	2	1
10258-3412	HJ 4318AB	11.2	1.51	12.3	0.31	2017.241	1843	10.4	11.0	2	1
10258-3412	HJ 4318BC	6.0	1.33	22.5	0.45	2017.241	1843	11.0	13.0	2	1
10261-2609	I 1199AB	201.7	1.90	9.8	0.40	2017.321	1683	9.31	12.3	2	1
10266-2709	B 2242	332.7	2.57	8.4	0.37	2017.321	1712	9.89	12.9	2	1
10282-0450	DAM 776AB	233.0	0.84	13.1	0.22	2017.241	1485	9.5	13.8	2	1
10282-0450	DAM 776AC	61.6	0.55	34.2	0.34	2017.241	1411	9.5	12.4	2	1
10287-2346	UC 1936AB	109.6	1.29	20.5	0.48	2017.241	1570	9.8	14.2	2	1
10296-3036	H N 50	227.6	1.51	10.3	0.27	2017.321	1734	5.56	9.84	2	1
10298-0355	STF1440	345.2	0.55	14.8	0.14	2017.225	3832	7.81	9.17	5	1
10299+2835	STTA105	226.2	0.06	134.6	0.14	2017.258	3295	7.01	8.24	5	1
10304+1138	HO 372AB	83.6	0.96	14.5	0.23	2017.203	5045	8.83	12.8	2	1
10304+1138	HO 372AC	203.2	0.17	47.0	0.16	2017.203	3715	8.83	10.98	5	1
10304-2453	HJ 4322	104.8	1.85	13.6	0.43	2017.323	1632	8.83	13.8	2	1

Table 1 continues on next page.

## Double Star Measures Using the Video Drift Method - X

Table 1 (continued). Results of 281 double stars using the video drift method.

Object	Designation	PA°	std. dev.	Sep"	std. dev.	Date	(x,y) pairs	Magnitudes		Drifts	Nights
10312-4214	DUN 86AB	291.4	0.39	83.5	0.46	2017.323	1631	7.34	8.04	2	1
10312-4214	DUN 86AC	318.7	0.99	55.9	0.72	2017.323	1777	7.34	10.95	2	1
10312-4214	DUN 86BC	75.5	1.37	42.6	0.71	2017.323	1853	8.04	10.95	2	1
10320+2202	STF1442	156.7	0.41	13.3	0.09	2017.249	12276	8.18	8.54	15	3
10328-1307	SCA 63	218.6	0.23	39.1	0.16	2017.225	3716	9.49	11.00	5	1
10328-2050	ARA1087	144.1	2.79	9.9	0.48	2017.241	2457	12.4	13.7	3	1
10356-1300	SCA 77	47.8	0.09	122.7	0.21	2017.225	3004	7.68	10.05	5	1
10362-3737	B 2714A,BC	170.9	0.42	96.0	0.58	2017.323	1874	9.52	10.97	2	1
10375-2551	BRT2980	194.7	3.93	5.9	0.34	2017.321	1684	12.69	12.85	2	1
10395+3142	STF1458	216.6	0.40	18.0	0.11	2017.247	4386	9.39	9.39	5	1
10432-2552	B 2720A,BC	213.8	0.37	71.8	0.50	2017.323	1492	8.41	11.91	2	1
10440-3847	WFC 108	59.1	1.86	11.0	0.31	2017.321	1942	10.60	12.71	2	1
10442-3931	SWR 99	233.3	2.37	6.1	0.22	2017.241	2538	11.2	11.5	3	1
10451-4016	DAW 54AB,C	19.8	1.58	12.8	0.31	2017.241	3032	8.88	9.89	3	1
10463-2511	DON 434A,BC	150.2	1.14	18.3	0.35	2017.321	1677	9.68	11.0	2	1
10475-2221	SHY 218AC	339.8	0.13	230.9	0.55	2017.323	1333	8.44	10.10	2	1
10475-2846	HJ 4372	293.8	1.63	12.1	0.32	2017.321	1715	11.39	12.7	2	1
10475-4033	WG 136	58.5	3.26	10.4	0.53	2017.321	1957	10.99	10.86	2	1
10500-4057	I 1205AB	303.7	0.95	23.7	0.37	2017.241	2865	8.28	11.43	3	1
10500-4057	I 1205AC	280.2	0.98	29.2	0.41	2017.241	2804	8.28	12.0	3	1
10500-4057	I 1205BC	225.6	2.57	12.3	0.42	2017.241	2496	11.43	12.0	3	1
10516-2115	BU 1428	185.7	0.71	45.3	0.57	2017.323	1524	8.05	11.55	2	1
10522+0728	STF1482	305.0	0.57	12.0	0.13	2017.208	3809	8.25	9.20	5	1
10535+6951	ENG 44AB	59.5	0.08	214.8	0.12	2017.241	2945	6.03	9.21	3	1
10551-3100	OL 42AC	37.4	0.65	35.3	0.41	2017.323	1699	9.99	10.97	2	1
10553-3530	WHC 31AB,C	168.3	0.77	33.9	0.48	2017.323	1870	8.05	9.50	2	1
10571-2009	ARA 676AC	52.7	1.46	12.0	0.29	2017.241	2425	10.55	13.8	3	1
10582-3134	HJ 4389	336.1	1.56	9.9	0.27	2017.321	1810	8.50	9.63	2	1
11015-3701	HJ 4396AC	251.6	1.19	20.6	0.39	2017.321	1847	9.44	11.44	2	1
11029+3541	HO 47A,C	284.1	0.07	123.3	0.12	2017.258	3239	8.71	10.57	5	1

Table 1 continues on next page.

## Double Star Measures Using the Video Drift Method - X

Table 1 (continued). Results of 281 double stars using the video drift method.

Object	Designation	PA°	std. dev.	Sep"	std. dev.	Date	(x,y) pairs	Magnitudes		Drifts	Nights
11033-1726	ARA 64	305.7	1.80	6.8	0.25	2017.241	2375	9.49	11.7	3	1
11062-3827	HJ 4402AB	121.7	2.55	9.1	0.37	2017.241	2883	10.1	11.1	3	1
11063+3113	TDS7665AB	175.3	2.07	19.4	0.68	2017.323	1772	11.93	12.61	2	1
11076-1732	ARA 225AB	172.9	2.86	8.3	0.51	2017.323	1567	11.9	11.9	2	1
11080-2332	ARA2166AB	303.1	2.12	10.7	0.42	2017.323	1646	10.72	11.09	2	1
11080-2332	WNO 29AC	75.8	0.88	26.6	0.38	2017.323	1569	10.72	12.06	2	1
11111+3027	STT 231AB	261.9	0.22	34.1	0.10	2017.247	4052	8.86	9.98	5	1
11111+3027	STT 231AC	321.1	0.07	216.2	0.25	2017.247	6040	8.86	9.29	2	1
11111+3027	STT 231BC	329.5	0.07	200.9	0.25	2017.247	6043	9.98	9.29	2	1
11114-0921	STF3068	312.7	0.39	19.4	0.14	2017.225	3733	9.82	9.91	5	1
11144-2954	HJ 4418	255.4	1.97	7.4	0.30	2017.241	2604	10.09	10.5	3	1
11167-3007	HJ 4422AC	347.9	2.12	9.6	0.38	2017.323	1777	9.90	10.59	2	1
11170-0708	BU 600AC	99.2	0.18	53.2	0.17	2017.208	3377	6.15	8.22	5	1
11187+0250	STF1526	180.7	0.18	30.2	0.16	2017.208	3064	10.30	10.33	4	1
11188-2016	ARA 682	57.6	2.95	11.0	0.54	2017.323	1620	12.0	13.2	2	1
11197-0654	STF1530	313.4	1.05	7.6	0.14	2017.208	3854	8.56	8.91	5	1
11221+3705	STF1533A,BC	172.5	0.34	23.1	0.11	2017.247	4758	9.25	9.43	5	1
11247-2429	B 213AC	99.4	0.33	90.3	0.61	2017.323	1264	8.96	11.48	2	1
11247-2429	B 213CD	265.9	2.21	7.2	0.44	2017.323	1669	11.48	12.0	2	1
11250-3200	UC 2133AB	191.5	0.45	57.1	0.43	2017.323	1725	8.93	9.92	2	1
11367+2128	STF1558AB,C	276.4	0.12	43.3	0.09	2017.315	10924	9.92	9.89	15	3
11395-1958	UC 2187	332.2	2.92	9.0	0.49	2017.321	1627	11.5	13.5	2	1
11437+1331	HJ 2583	61.7	0.20	33.4	0.13	2017.249	3614	9.71	9.92	5	1
11475+2002	SHJ 130AB	30.3	0.11	71.0	0.12	2017.249	3674	7.52	9.94	5	1
11495-1937	LDS 368AB	87.3	1.59	8.9	0.41	2017.321	1615	12.1	12.9	2	1
11545+1925	LBU 14BC	350.0	0.14	79.6	0.19	2017.249	8084	8.49	12.83	2	1
11545+1925	LBU 14BD	313.6	0.10	116.5	0.19	2017.249	8150	8.49	13.48	2	1
11545+1925	STTA112AB	35.5	0.10	73.4	0.13	2017.249	3581	8.28	8.49	5	1
11574-2227	UC 2236	294.7	2.42	9.6	0.57	2017.321	1633	10.2	13.0	2	1
11585-2350	HLN 27AB,C	20.3	1.68	12.9	0.42	2017.321	1673	10.09	13.8	2	1

Table 1 continues on next page.



### Double Star Measures Using the Video Drift Method - X

Table 1 (continued). Results of 281 double stars using the video drift method.

Object	Designation	PA°	std. dev.	Sep"	std. dev.	Date	(x,y) pairs	Magnitudes		Drifts	Nights
12002+3644	STTA114	82.7	0.10	86.8	0.13	2017.249	3699	7.48	8.39	5	1
12015-0023	STF1591AB	351.0	0.16	51.3	0.17	2017.225	3765	8.43	8.95	5	1
12015-0023	STF1591AC	51.6	0.50	23.9	0.21	2017.225	6208	8.43	12.5	2	1
12019+0006	STTA116	176.4	0.12	72.8	0.19	2017.225	3792	7.81	8.49	5	1
12054-2636	RST2777AB	43.3	0.88	28.3	0.38	2017.321	1649	10.46	12.79	2	1
12054-2636	LDS 383AC	80.3	1.47	15.9	0.42	2017.321	1658	10.46	13.24	2	1
12116+3605	STF1607AB	27.7	0.24	26.7	0.10	2017.258	9122	8.89	9.83	10	2
12116+3605	STF1607AC	354.7	0.32	36.2	0.18	2017.258	8047	8.89	14.06	2	1
12117-3036	HJ 4505AB	275.8	1.26	10.1	0.18	2017.321	1752	7.78	10.75	2	1
12117-3036	KNP 2AC	115.9	0.38	37.3	0.23	2017.321	1588	7.78	12.61	2	1
12246+3744	STF1641AB	22.0	0.38	16.6	0.09	2017.334	21288	10.90	11.08	6	3
12246+3744	STF1641AC	211.8	0.17	76.4	0.18	2017.249	7871	10.90	9.50	2	1
12295+2931	BU 1324AC	180.7	0.10	75.8	0.12	2017.315	4370	9.78	9.44	5	1
12312+0120	SHJ 146AB	289.6	0.17	49.5	0.15	2017.225	3386	7.68	8.69	5	1
12325+2106	STF1652	177.6	1.15	6.1	0.13	2017.249	4114	10.12	10.40	5	1
12491+4213	ES 2643	45.7	0.19	44.7	0.11	2017.334	4752	8.60	8.81	5	1
12575+1842	BGH 5	221.6	0.10	82.0	0.13	2017.249	3436	9.06	9.83	5	1
12585+3817	STF1702	82.5	0.21	35.9	0.09	2017.258	8820	8.72	9.41	10	2
13006+1822	BU 112A, BC	359.6	0.06	137.8	0.16	2017.315	3921	6.25	10.14	5	1
13227+3556	HJ 530	49.0	0.23	39.0	0.13	2017.258	8654	8.93	10.48	10	2
13363+1959	HJ 2663	150.0	0.17	49.8	0.14	2017.249	3772	8.91	10.48	5	1
13394+3536	AG 191	299.2	1.08	9.3	0.14	2017.249	7133	9.82	10.09	2	1
13427-0517	HJ 1239	5.1	0.80	13.3	0.19	2017.332	3831	10.07	11.31	5	1
13453-1031	S 652AB	115.8	0.20	46.7	0.16	2017.332	3460	8.71	8.81	5	1
13453-1031	S 652AC	345.9	0.11	124.1	0.29	2017.332	8059	8.71	11.17	2	1
14016+0133	BU 1439AC	352.2	0.07	177.1	0.18	2017.334	6241	4.25	13.10	2	1
14016+0133	SHJ 171AB	288.8	0.10	82.4	0.17	2017.334	3016	4.25	9.41	5	1
14016+0133	SHJ 171BC	20.1	0.08	157.6	0.17	2017.334	6241	9.41	13.10	2	1
14020+1926	STF1797	158.3	0.31	20.8	0.10	2017.334	7936	9.61	9.98	10	2
14060-1304	HWE 30	7.4	0.64	13.5	0.15	2017.342	3912	9.17	9.81	5	1

Table 1 continues on next page.

### Double Star Measures Using the Video Drift Method - X

Table 1 (continued). Results of 281 double stars using the video drift method.

Object	Designation	PA°	std. dev.	Sep"	std. dev.	Date	(x,y) pairs	Magnitudes		Drifts	Nights
14086+0602	HJ 2701	37.2	0.63	12.3	0.16	2017.342	3794	9.80	9.95	5	1
14093+0439	BU 1109AC	348.0	0.16	55.8	0.19	2017.332	3718	9.50	10.34	5	1
14113-0320	STF1807	28.5	1.23	6.5	0.16	2017.342	3839	8.41	8.73	5	1
14257+2338	BU 1442AB	74.4	0.17	45.2	0.12	2017.249	3630	9.87	10.21	5	1
14257+2338	BU 1442AC	61.4	0.11	75.2	0.13	2017.249	3443	9.87	9.66	5	1
14257+2338	BU 1442CP	181.7	0.34	56.1	0.23	2017.249	8087	9.66	14.66	2	1
14287-1012	STF1847	270.5	0.14	37.5	0.15	2017.334	3524	9.01	10.00	5	1
14308+0446	BU 1443	195.3	0.18	55.7	0.22	2017.332	3646	6.17	10.62	5	1
14527+0746	FOX 186AC	42.4	0.11	98.7	0.23	2017.249	8119	8.05	13.77	2	1
14527+0746	HLD 120AB	224.1	0.61	16.1	0.17	2017.249	3757	8.05	10.84	5	1
14538-0024	STTA131AB	215.4	0.10	83.1	0.16	2017.315	3385	7.47	8.14	5	1
14538-0024	STTA131AC	220.4	0.05	269.5	0.22	2017.315	6731	7.47	11.09	2	1
14538-0024	STTA131BC	222.6	0.07	186.9	0.22	2017.315	6739	8.14	11.09	2	1
14573-0551	HJ 4720	212.3	0.66	12.9	0.15	2017.332	3786	10.41	10.57	5	1
15087-0059	STF3090AC	127.7	0.09	89.3	0.13	2017.315	3102	9.09	10.32	5	1
15117-0529	STF1914	334.4	0.27	30.8	0.18	2017.332	3717	8.33	9.59	5	1
15120+3840	STF1921	282.4	0.26	30.4	0.11	2017.334	4524	8.56	8.74	5	1
15193+0146	STF1930AB	35.7	0.78	11.1	0.18	2017.342	3744	5.06	10.11	5	1
15193+0146	STF1930AC	17.2	0.13	151.1	0.34	2017.342	6112	5.06	13.09	2	1
15227-0132	STF3093	155.9	0.30	22.7	0.13	2017.332	7431	8.75	9.73	10	2
15306+1303	STF1949	213.1	0.45	16.5	0.13	2017.334	3843	10.16	10.25	5	1
15555+1006	STF1986	93.4	0.50	14.7	0.14	2017.334	3742	8.86	9.85	5	1
15572+0324	STF1987	320.2	0.63	10.4	0.12	2017.332	7584	7.31	8.71	10	2
15598+1723	STF1993AB	42.9	0.37	20.0	0.15	2017.342	3884	8.59	8.88	5	1
15598+1723	STF1993AC	178.8	0.06	239.3	0.28	2017.342	3492	8.59	10.03	2	1
15598+1723	STF1994CD	337.0	0.69	17.1	0.19	2017.342	6626	10.03	12.48	2	1
16121+1433	STF2017	257.4	0.27	29.7	0.15	2017.342	3671	8.60	9.13	5	1
16163-0139	SKF 1CD	165.8	0.63	18.8	0.21	2017.332	8540	12.96	13.70	2	1
16163-0139	STF2031AB	228.9	0.51	20.9	0.18	2017.332	8031	7.18	11.0	2	1
16163-0139	STF2031AC	26.1	0.09	92.9	0.15	2017.332	16596	7.13	12.96	4	2

Table 1 concludes on next page.

### Double Star Measures Using the Video Drift Method - X

Table 1 (conclusion). Results of 281 double stars using the video drift method.

Object	Designation	PA°	std. dev.	Sep"	std. dev.	Date	(x,y) pairs	Magnitudes		Drifts	Nights
16182-0216	STF2033	174.3	0.65	10.8	0.15	2017.332	3844	9.12	9.17	5	1
16225-0415	BU 1453AB	22.3	0.10	120.6	0.26	2017.332	3404	7.41	8.53	5	1
16225-0415	BU 1453AC	348.8	0.14	83.6	0.20	2017.332	8085	7.41	12.68	2	1
16225-0415	BU 1453BC	244.3	0.18	68.7	0.22	2017.332	8210	8.53	12.68	2	1
16294+1036	STF2051	19.0	0.58	13.7	0.15	2017.342	3876	7.68	9.42	5	1
16396+2300	STF2079	91.5	0.34	16.8	0.16	2017.342	3981	7.56	8.13	5	1
17011-0413	AEI 16AC	85.0	0.04	221.0	0.18	2017.332	1610	4.99	8.75	5	1
17011-0413	ENG 59AB	67.6	0.10	100.4	0.18	2017.332	2863	4.99	9.71	5	1
17070+0648	STF2123	216.2	0.45	18.1	0.16	2017.342	3732	9.82	9.98	5	1
17184+0451	DAM 642AC	252.2	0.36	30.9	0.23	2017.342	6294	8.68	12.0	2	1
17184+0451	SCJ 14AB	337.9	0.37	23.2	0.13	2017.342	3745	8.68	9.45	5	1

#### Table 1 Notes:

1. All magnitudes taken from the WDS catalogue. All position angle/separation measurements are for the Equator and Equinox of date.
2. Column titled "**No. of (x,y) pairs**" is the total combined no. of (x,y) pairs (video frames) from all drift runs. All video frames were used, none were discarded.
3. The column "**drifts**" is the number of separate drifts made. "**Nights**" is the number of nights' drift runs were made for that system.

