CCD Double Star Measures: Jack Jones Observatory Report #2

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Abstract: This paper submits 44 CCD measurements of 41 multiple star systems for inclusion in the WDS. Observations were made during the calendar year 2008. Measurements were made using a CCD camera and an 11" Schmidt-Cassegrain telescope. Brief discussions of pertinent observations are included.

The past year was given over to moving to a new residence and constructing a new observatory. This resulted in a relatively modest observational program for 2008.

Method

The telescope was a Celestron 11-inch (28 cm) f/10 Schmidt-Cassegrain telescope with a Meade f/6.3 focal reducer/field flattener. The CCD camera was a SBIG ST-8XME with a non-antiblooming Kodak KAF-1603ME chip. This combination of equipment yields a pixel scale of approximately 0.94 arcsec/pixel.

Images were solved using Herbert Rabb's *Astrometrica*. PA and Sep (θ and ρ) were calculated from the resulting Right Ascension and Declination. The UCAC-2 catalog was used in most cases for image solution. Where UCAC-2 was unavailable or didn't provide an adequate number of reference stars, USNO-B1.0 was used. The precision of each observation is quantified and reported by calculating the standard deviation of θ and ρ for the image set. Each image set normally contains at least 5 images.

All observations were unfiltered and no photometry was attempted.

More detailed information regarding method can be found in reference [1].

Results and Discussion

Position Angle and Separation measurements are reported in columns θ and ρ respectively in Table 1. The precision of θ and ρ is reported in columns σ(ρ) and σ(θ) and refers to the standard deviation of θ and ρ for the image set. Column N indicates the number of nights that contributed to the measurement. NAME, RA DEC, and MAGS columns are taken from the WDS.

17067+3839 PTT 16 has been measured 3 times since it's discovery in 1916. It appears in the WDS without a Precise Coordinate. The author measured the position of the primary of PTT 16 as 170635.45+383848.98.

18257+2503 POU 3409 has been measured 4 times since it's discovery in 1902. The precise coordinate of POU 3409 is listed in the WDS as 182546.82+250158.7. According to the WDS, POU 3409 has magnitudes of 12.19 and 12.3. Theta and Rho are listed as 248 degrees and 12.2 arcsec and have not changed significantly since 1902.

According to my observations, there is a pair of stars located at the WDS Precise Coordinate (182546.82+250158.7) given for POU 3409. The approximate magnitudes of the pair (unfiltered and taken from *Astrometrica*) are estimated to be 12.2 and 16.1. Theta and Rho were measured as 281.0 degrees and 9.84 arcsec.

There is also a pair of stars at 182541.75+250755.08 of approximate magnitudes 12.6, 12.7. Theta and Rho are measured as 247.5 degrees and 12.18 arcsec. This pair appears to be composed of USNO-B1.0 1151-0287695 and 1151-

0287685.

Therefore it appears that this is the pair being measured as POU 3409 and the Precise Coordinate listed in the WDS is incorrect and should be upgraded to the USNO-B1.0 J2000 coordinates of 182541.71+250754.6.

17066+3215 SLE 77 has been measured twice since it's discovery in 1982. The magnitudes of this pair are listed in the WDS magnitudes as 10.54 and 15.5. Observation of SLE 77 yielded approximate magnitudes of 10.4 and 13.2 (Unfiltered and taken from Astrometrica). While these magnitudes are only estimates, it would seem that the secondary of SLE 77 is considerably brighter than 15.5.

Acknowledgements

This paper has made use of the Washington Double Star Catalog maintained at the U.S. Naval Observatory

References

1. Jones, James L., "CCD Double Star Measures: Jack Jones Memorial Observatory Report #1", *Journal of Double Star Observations*, **4,** 20-23, 2008.

NAME	RA DEC	MAGS	σ	σ(θ)	ρ	σ(ρ)	DATE	N	Notes
HJ 2248	05072+4721	9.53 11.7	333.5	0.05	15.10	0.04	2008.903	1	
HJ 2249	05101+4731	9.69 11.39	99.3	0.08	15.07	0.01	2008.903	1	
ES 574AB	05178+4720	10.14 10.79	67.2	0.06	34.40	0.05	2008.903	1	
GIC 55	05228+4755	9.23 13.09	265.0	0.07	77.39	0.05	2008.903	1	
ES 575	05246+4822	8.13 10.7	342.0	0.03	32.04	0.12	2008.903	1	
HJ 588	16578+3625	9.94 12.1	99.9	0.10	24.40	0.02	2008.380	1	
SLE 75	16595+3321	11.73 14.0	286.7	0.09	15.85	0.04	2008.380	1	
HO 66	17033+3236	9.70 12.8	250.9	0.09	14.14	0.03	2008.380	1	
HJ 2804AC	17046+3900	11.00 13.1	173.9	0.01	83.86	0.02	2008.380	1	
HJ 2804AD	17046+3900	11.00 12.6	138.5	0.04	93.82	0.02	2008.380	1	
SLE 77	17066+3215	10.54 15.5	268.1	0.11	19.67	0.02	2008.380	1	3
PTT 16	17067+3839	8.8 13.0	51.7	0.11	22.34	0.05	2008.380	1	1
LOS 2AB	17120+3158	11.34 13.30	42.7	0.18	11.71	0.06	2008.380	1	
GYL 5AC	17120+3158	11.34 12.36	320.5	0.07	16.85	0.03	2008.380	1	
ALI 137	17234+3545	11.64 12.51	162.4	0.04	12.99	0.01	2008.380	1	
BEM 27	17318+5349	11.53 11.7	24.7	0.01	13.02	0.03	2008.481	1	
MLR 605	17458+5326	9.65 12.7	43.1	0.09	11.04	0.008	2008.484	1	
BEM 30	17514+5007	12.2 12.6	113.6	0.10	14.52	0.08	2008.484	1	
STF2271AC	18003+5251	8.17 12.9	17.9	0.09	161.76	0.28	2008.481	1	
STI2369	18075+5514	12.3 12.6	188.4	0.02	15.23	0.02	2008.481	1	

Table continued on next page.

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NAME	RA DEC	MAGS	σ	σ(θ)	ρ	σ(ρ)	DATE	N	Notes
ES 644	18134+5230	9.00 14.5	26.0	0.38	9.25	0.02	2008.484	1	
SEI 563	18175+3403	9.4 10.7	94.0	0.04	13.28	0.03	2008.380	1	
POU3398	18231+2445	12.78 13.20	335.5	0.07	12.25	0.01	2008.484	1	
POU3401	18233+2439	10.22 12.0	123.8	0.02	12.27	0.07	2008.484	1	
POU3402	18234+2440	13.5 13.6	58.8	0.30	6.85	0.02	2008.484	1	
POU3409	18257+2503	12.19 12.3	247.5	0.04	12.18	0.007	2008.484	1	2
SLE 182	18298+3930	11.64 11.9	252.3	0.02	11.26	0.01	2008.484	1	
STI2379	18351+5521	12.2 12.8	357.9	0.15	14.41	0.001	2008.481	1	
AG 226	18496+3818	10.12 10.23	53.9	0.04	26.00	0.01	2008.380	1	
POU3599	18560+2422	11.2 11.4	34.2	0.18	13.40	0.02	2008.492	1	
POU3598AB	18561+2350	12.48 12.68	51.7	0.06	15.65	0.06	2008.492	1	
POU3597AC	18561+2350	12.48 14.12	221.2	0.06	19.26	0.11	2008.492	1	
ALI1105	18560+3941	11.57 11.94	345.1	0.08	12.65	0.01	2008.380	1	
POU3824	19268+2506	11.24 13.6	232.2	0.04	18.40	0.02	2008.460	1	
POU3849	19287+2506	14.82 14.27	89.6	0.03	15.29	0.01	2008.460	1	
POU3872	19304+2511	13.98 14.52	63.8	0.08	13.71	0.02	2008.460	1	
ARG 106	20054+5807	9.76 10.32	178.8	0.08	30.02	0.02	2008.933	1	
HJ 1522	20268+5900	10.64 13.6	88.3	0.02	22.55	0.01	2008.933	1	
SMA 119	20411+6116	10.03 12.5	354.9	0.07	13.98	0.02	2008.933	1	
ES 30	20461+4452	9.62 12.5	57.5	0.17	17.15	0.03	2008.933	1	
HJ 1588	20496+6256	10.29 12.3	32.9	0.02	17.32	0.02	2008.933	1	
STI 997	20504+6259	11.91 13.2	71.0	0.10	15.01	0.02	2008.933	1	
STI1000	20510+6154	11.16 11.31	163.8	0.15	15.54	0.08	2008.933	1	
CHE 340	22403+3312	10.61 13.0	255.8	0.17	27.51	0.06	2008.933	1	

Notes

1. Precise Coordinate missing. Primary coordinate measured as 170635.45+383848.98 See discussion.
2. Primary coordinate measured as 182541.76+250755.08. See discussion.
3. Secondary magnitude incorrect. See discussion.