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New Variable Stars in Ophiuchus III

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#	Name	Other	Coord (J2000)	Type	Max	Min	System	Period	Epoch (JD)	type	Sp	Comment	L.Curve	Find.Chart	Data
1		USNO-A2.0 0975-08685299	16 56 39.55, +11 26 32.9	EW	16.03	16.27		0.28252	2455720.3404	Min		Comm. 1	01_PC-R.png	01_chart.jpg	01_data.txt
2		USNO-A2.0 0975-08692082	16 57 09.87, +11 25 35.7	BY:	15.27	15.54		4.646	2455635.30	Max		Comm. 2	02_PC-R.png	02_chart.jpg	02_data.txt
3		USNO-A2.0 0975-08693471	16 57 16.18, +11 47 53.4	EW	15.10	15.36		0.33831	2455649.5475	Min		Comm. 3	03_PC-R.png	03_chart.jpg	03_data.txt
4		USNO-A2.0 0975-08695412	16 57 24.72, +12 00 41.1	BY:	15.17	15.29		4.403	2455633.9	Max		Comm. 4	04_PC-R.png	04_chart.jpg	04_data.txt
5		USNO-A2.0 0975-08705799	16 58 09.90, +11 31 53.2	EW	14.95	15.10		0.40390	2455632.621	Min		Comm. 5	05_PC-R.png	05_chart.jpg	05_data.txt
6		USNO-A2.0 0975-08707421	16 58 16.76, +11 23 14.5	BY:	13.38	13.49		36	2455732.7	Max		Comm. 6	06_PC-R.png	06_chart.jpg	06_data.txt
7		USNO-A2.0 0975-08711689	16 58 36.02, +12 03 46.0	EW	17.68	18.37		0.27195	2455676.432	Min		Comm. 7	07_PC-R.png	07_chart.jpg	07_data.txt
8		USNO-A2.0 0975-08716242	16 58 54.55, +11 46 19.5	EW	13.54	13.63		0.30042	2455633.101	Min		Comm. 8	08_PC-R.png	08_chart.jpg	08_data.txt

Comments:

1. Minimum: HJD(TT) 2455720.3404±0.0009.

2. Infrared colors J–H = 0.591, H–K = 0.159, J–K = 0.750 (2MASS) are consistent with the K spectral type (Bessell and Brett 1988) and BY: classification.

3. O'Connell effect. Primary minima:

HJD(TT)	±
2455649.5475	0.0004
2455723.2995	0.0006

$Min_{II}=15^{m}.33$.

4. Infrared colors J–H = 0.544, H–K = 0.272, J–K = 0.816 (2MASS) are consistent with the K or M spectral type (Bessell and Brett 1988) and BY: classification.

5. O'Connell effect. $Min_{II}=15^m.06$.

6. Infrared colors J–H = 0.676, H–K = 0.108, J–K = 0.784 (2MASS) are consistent with the K spectral type (Bessell and Brett 1988) and BY: classification.

7. Primary minima:

HJD(TT)	±
2455676.432	0.001
2455679.424	0.001

$Min_{II}=18^m.37$.

8. $Min_{II}=13^m.61$.

Remarks:

During observations of a field in Ophiuchus, we discovered eight new variable stars. Our observations were carried out at the Astrotel-Caucasus observatory, located at the Astronomical station of the Kazan Federal university, using the 300-mm Ritchey-Chretien telescope, equipped with an unfiltered Apogee Alta U9000 CCD camera. A total of 326 images with 5-minute exposures were obtained on JD 2455632–2455749. For basic reductions for dark current, flat fields and bias we used IRAF routines. For search and photometry of new variable stars, we applied VaST software by Sokolovsky and Lebedev (2005). The comparison star was USNO-A2.0 0975-08679115 = USNO-B1.0 1020-0315967 ($\alpha=16^h56^m12^s.11$, $\delta=+12°04' 04''.5$ (J2000, 2MASS)), $R_1=14^m.63$, $R_2=14^m.78$ (USNO-B1.0). Unfiltered magnitudes were calibrated using the comparison star, assuming $R_{comp}=14^m.705$. The coordinates of the variable stars in the table were drawn from the 2MASS catalogue (Skrutskie et al. 2006). For search for periods and epochs of extrema, we use Peranso software (www.peranso.com).

References:

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