

Variable Stars in the Field of GSC 4550-01669

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#	Name	Other	Coord (J2000)	Type	Max	Min	System	Period	Epoch (JD)	type	Sp	Comment	L.Curve	Find.Chart	Data
1		GSC 4550-01669	11 38 50.43, +75 31 43.1	RRAB	13.17	14.28		0.529831	2454510.5770	max		Comm. 1	1.png	1.jpg	1.dat
2		GSC 4550-02039	11 34 07.86, +75 16 42.9	EW	12.62	12.83		0.275820	2454533.5840	min		Comm. 2	2.png	2.jpg	2.dat
3		USNO-A2.0 1650-01539603	11 40 42.70, +75 36 15.0	EB	14.71	15.09		0.323163	2454504.5249	min		Comm. 3	3.png	3.jpg	3.dat

Comments:

1. From NSVS data (Wozniak et al., 2004), one of the authors (A. Khruslov) detected RR Lyrae-type variability of NSVS 833438 = NSVS 879914, but the ROTSE-I angular resolution is insufficient to determine which of the two stars, GSC 4550-01669 or GSC 4550-01661, varies. The ROTSE data with photometric correction flags (usually rejected) were kept for the analysis. In the case of NSVS 833438 and NSVS 879914, the use of these data considerably increases the number of available observations without deteriorating quality and allows us to determine the period more accurately. On the light curve based on the NSVS data, the observations with errors in excess of 0.1 mag were removed. Two maxima were observed: HJD 2454509.5197, 2454510.5770. $M-m = 0.14$ P.

2. A possible close visual binary star. Four observed primary minima: HJD 2454459.3848, 2454506.5540, 2454524.4833, 2454533.5840. $MinII = 12.80$. O'Connell effect.

3. Five observed primary minima: HJD 2454459.6075, 2454502.5862, 2454504.5249, 2454505.4968, 2454524.5596. $MinII = 15.00$. O'Connell effect.

Remarks:

During observations of the variable object NSVS 833438 = NSVS 879914, a close pair of the stars GSC 4550-01669 and GSC 4550-01661 (48" angular separation), we determined which star was variable and discovered two new variable stars. Our observations were carried out in Astrotel-Caucasus observatory using the 300-mm Ritchey-Chretien telescope, equipped with an unfiltered SBIG STL-11000 CCD camera. In total, we obtained 534 five-minute images on JD 2454459-54533. We used the MaxIm DL software for basic reductions for dark current, flat fields, and bias. For search for new variable stars, we applied VaST software by Sokolovsky and Lebedev (2005), and for photometry, CCD Soft V.5 (<http://www.bisque.com/Products/CCDSOft/>). The comparison star was GSC 4550-01695 (USNO-B1 1655-0064068; 11:37:45.29, +75:30:46.2 (J2000), $R1 = 12.71$, $R2 = 12.70$) assuming $R_{comp} = 12.71$. The check star was GSC 4550-01659.

References:

Sokolovsky, K., Lebedev, A., 2005, in 12th Young Scientists' Conference on Astronomy and Space Physics, Kyiv, Ukraine, April 19-23, 2005, eds.: Simon, A.; Golovin, A., p.79

Wozniak, P.R., Vestrand, W.T., Akerlof, C.W. et al., 2004, *Astron. J.*, 127, 2436