

## New Variable Stars in the Field of Tau Aurigae

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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 1275-05493365	05 47 53.63, +39 01 40.7	EW	15.13	15.32		0.3043	2454457.4902	min			<a href="#">01.png</a>	<a href="#">01.jpg</a>	<a href="#">01.txt</a>
2		USNO-A2.0 1275-05503919	05 48 18.07, +38 57 09.2	EA	15.91	16.40		0.7077	2454473.5953	min		<a href="#">Comm. 2</a>	<a href="#">02.png</a>	<a href="#">02.jpg</a>	<a href="#">02.txt</a>
3		USNO-A2.0 1275-05506606	05 48 24.46, +39 05 37.5	EW	16.85	17.43		0.3309	2454430.0040	min		<a href="#">Comm. 3</a>	<a href="#">03.png</a>	<a href="#">03.jpg</a>	<a href="#">03.txt</a>
4		USNO-A2.0 1275-05512130	05 48 37.58, +39 10 27.8	EW	15.59	15.86		0.3956	2454429.6411	min		<a href="#">Comm. 4</a>	<a href="#">04.png</a>	<a href="#">04.jpg</a>	<a href="#">04.txt</a>
5		USNO-A2.0 1275-05525305	05 49 08.41, +39 12 36.5	EA	15.71	16.31		1.3130	2454429.7525	min		<a href="#">Comm. 5</a>	<a href="#">05.png</a>	<a href="#">05.jpg</a>	<a href="#">05.txt</a>
6		USNO-A2.0 1275-05529031	05 49 17.23, +39 20 12.2	EB	16.42	17.06		0.4105	2454429.4820	min		<a href="#">Comm. 6</a>	<a href="#">06.png</a>	<a href="#">06.jpg</a>	<a href="#">06.txt</a>
7		USNO-A2.0 1275-05551738	05 50 11.45, +39 10 26.2	EB	14.03	14.24		1.1958	2454405.7351	min		<a href="#">Comm. 7</a>	<a href="#">07.png</a>	<a href="#">07.jpg</a>	<a href="#">07.txt</a>
8		USNO-A2.0 1275-05552896	05 50 14.33, +39 19 36.1	EW	15.97	16.61		0.3459	2454429.5185	min		<a href="#">Comm. 8</a>	<a href="#">08.png</a>	<a href="#">08.jpg</a>	<a href="#">08.txt</a>
9		USNO-A2.0 1275-05554383	05 50 17.88, +39 07 12.4	EB	15.95	17.25		0.4652	2454429.7173	min		<a href="#">Comm. 9</a>	<a href="#">09.png</a>	<a href="#">09.jpg</a>	<a href="#">09.txt</a>
10		USNO-A2.0 1275-05558170	05 50 27.03, +39 13 15.0	EA	14.22	15.72		2.6333	2454412.4971	min		<a href="#">Comm. 10</a>	<a href="#">10.png</a>	<a href="#">10.jpg</a>	<a href="#">10.txt</a>
11		USNO-A2.0 1275-05565493	05 50 45.17, +39 21 21.7	EW	15.0	15.27		0.4509	2454429.8141	min		<a href="#">Comm. 11</a>	<a href="#">11.png</a>	<a href="#">11.jpg</a>	<a href="#">11.txt</a>
12		USNO-A2.0 1275-05572437	05 51 02.11, +39 15 15.8	unknown	15.71	15.91		0.5634	2454429.7349	max		<a href="#">Comm. 12</a>	<a href="#">12.png</a>	<a href="#">12.jpg</a>	<a href="#">12.txt</a>

### Comments:

2. We observed three primary minima, HJD 2454457.323, 2454461.557, 2454473.5953. A twice longer period is not excluded, P = 1.4155 days.

3. MinII = 17.36.

4. Min II = 15.83.

5. MinII = 15.99.
6. MinII = 16.75.
7. MinII = 14.22. We note a large scatter on the light curve, especially when analyzing data from the two telescopes together.
8. MinII = 16.59.
9. We observed one primary minimum, HJD 2454405.5296. MinII = 16.35.
10. We observed one primary minimum, HJD 2454412.4971.
11. MinII = 15.22.
12. A possible BY Dra variable, but we need more observations for a definite classification.

**Remarks:**

During observations of the field of Tau Aurigae, we discovered 12 new variable stars. Our observations were carried out in Astrotel-Caucasus observatory using a 300-mm Ritchey-Chretien telescope, equipped with an unfiltered SBIG STL-11000 CCD camera. In total, 295 images with 5-minute exposures were obtained on JD 2454429 - 2454481. Also we used a SkyWatcher 80ED refractor (D=80 mm, F=480 mm), equipped with a SBIG ST-2000 CCD camera without filters, for additional observations of several stars (Nos. 7, 9, 10; JD 2454405 - 2454412, a total of 67 images). Black dots on the light curves are the observations with Ritchey-Chretien telescope and red dots, with the 80-mm refractor. For basic reduction for dark current, flat fields and bias, we used the MaxIm DL software. For variable-star search and photometry of new variables, we applied VaST software by Sokolovsky and Lebedev (2005). The comparison star was USNO-A2.0 1275-05565083 (= USNO-B1 1291-0142214, 05:50:44.05, +39:09:32.9 (J2000); R1 = 13.22, R2 = 13.22). Unfiltered magnitudes were calibrated assuming  $R_{comp} = 13.22$ . The coordinates in the table are from the 2MASS catalogue.

**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