

New Variable Stars in Ursa Major: Area of $2^{\circ}.3 \times 4^{\circ}.6$, Centered at $\alpha=12^{\text{h}}00^{\text{m}}$, $\delta=54^{\circ}30'$

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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 1425-07730275	11 52 11.03 +55 48 08.4	RRC	16.14	16.61		0.3375	2456410.36	Max		Comm. 1	lc02440.png	ch02440.png	out02440.txt
2		USNO-A2.0 1425-07730877	11 52 24.41 +57 03 04.2	RRAB	16.19	16.78		0.5947	2456400.297	Max		Comm. 2	lc00274.png	ch00274.png	out00274.txt
3		USNO-A2.0 1425-07732585	11 53 04.45 +56 11 41.3	EA	12.66	12.92		1.2607	2456410.285	Min			lc01401.png	ch01401.png	out01401.txt
4		USNO-A2.0 1350-08023794	11 54 14.11 +52 19 20.5	BY:	13.94	14.08		2.113	2456377.276	Max		Comm. 4	lc00843.png	ch00843.png	out00843.txt
5		USNO-A2.0 1425-07735907	11 54 26.71 +52 41 36.8	EA	13.84	14.71		1.3069	2456374.909	Min			lc01383.png	ch01383.png	out01383.txt
6		USNO-A2.0 1425-07744258	11 57 53.90 +53 02 48.2	RRC	13.64	13.93		0.20228	2456374.079	Max		Comm. 6	lc01792.png	ch01792.png	out01792.txt
7		USNO-A2.0 1425-07747819	11 59 23.03 +53 00 21.4	EA	14.98	15.75		2.239:	2456374.118	Min		Comm. 7	lc01730.png	ch01730.png	out01730.txt
8		USNO-A2.0 1350-08038347	11 59 27.09 +52 12 24.2	RRC	15.02	15.5		0.38858	2456377.047	Max		Comm. 8	lc00606.png	ch00606.png	out00606.txt
9		USNO-A2.0 1425-07749499	12 00 01.51 +56 13 52.7	BY	13.92	13.99		3.72:	2456410.9	Max			lc01418.png	ch01418.png	out01418.txt
10		USNO-A2.0 1425-07756005	12 02 38.57 +52 30 08.6	EA	14.63	14.95		1.8556:	2456373.877	Min			lc00993.png	ch00993.png	out00993.txt
11		USNO-A2.0 1425-07758087	12 03 29.73 +53 34 09.5	RRAB	14.87	15.98		0.55016	2456377.211	Max		Comm. 11	lc03014.png	ch03014.png	out03014.txt
12		USNO-A2.0 1425-07760594	12 04 33.02 +55 36 04.3	RRAB	15.32	16.06		0.62425	2456409.281	Max		Comm. 12	lc03051.png	ch03051.png	out03051.txt
13		USNO-A2.0 1425-07765707	12 06 37.45 +55 06 22.6	EW	14.97	15.39		0.29736	2456410.355	Min		Comm. 13	lc02306.png	ch02306.png	out02306.txt

Comments:

1. The star is present in the database of the Catalina Surveys, CSS_J115211.0+554808. The Catalina data confirm the star's type and period. Independently discovered by Palaversa et al. (2013), listed as LINEAR 2681145.

2. Independently discovered by Palaversa et al. (2013), listed as LINEAR 2686769.

4. J = 12.576, H = 12.039, K = 11.947 (2MASS).

6. Twice longer period and EW type are also possible.
7. We observed one minimum only, on $JD_{\min} = 2456374.118$.
8. The star is present in the database of the Catalina Surveys, CSS_J115927.1+521224. Independently discovered by Palaversa et al. (2013), listed as LINEAR 2672279. The Catalina data confirm the star's type and period.
11. This star was discovered together with pupils of school for deaf children (Achinsk city). Independently discovered by Palaversa et al. (2013), listed as LINEAR 2992494.
12. The star is present in the database of the Catalina Surveys, CSS_J120433.0+553604. The Catalina data confirm the star's type and period. Independently discovered by Palaversa et al. (2013), listed as LINEAR 2997346.
13. Independently discovered by Palaversa et al. (2013), listed as LINEAR 3001254.

Remarks:

In March and April, 2013, we observed two adjacent fields in Ursa Major. Our observations were performed in the observatory of the Siberian State Aerospace University, in the city of Krasnoyarsk, with a Hamilton telescope ($D = 400$ mm, $F = 915$ mm), equipped with a FLI ML9000 CCD chip (3056×3056 pixels, pixel size $12 \mu\text{m}$). The exposure time was 30 seconds for each frame. The size of the two fields taken together is $2^{\circ}.3 \times 4^{\circ}.6$.

All our CCD observations were obtained without a filter. The magnitudes were referred to red magnitudes of comparison stars from the USNO-A2.0 catalog (Monet et al. 1998).

We used the [VaST](#) software (Sokolovsky & Lebedev 2005) to search for new variable stars. We discovered 13 new variable stars. Periods were derived using the WinEfk software provided by Dr. V.P. Goranskij. The coordinates in the Table are from the USNO-A2.0 catalog (Monet et al. 1998). Observations for several stars can also be found in the Catalina Surveys (Drake et al. 2009).

From the editorial board: The discoveries from the LINEAR team (Palaversa et al. 2013) were reported in the [VSX](#) in August, 2014, i.e. after the submission of the present paper.

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References:

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