

New Variable Stars in Auriga: Area of $2^{\circ}.3 \times 2^{\circ}.3$, Centered at $\alpha=06^{\text{h}}00^{\text{m}}$, $\delta=29^{\circ}15'$

[E. G. Lapukhin](#)^{#1}, [S. A. Veselkov](#)^{#1}, [S. V. Antipin](#)^{#2,3}, [N. N. Samus](#)^{#3,2}

#1. Siberian State Aerospace University, Krasnoyarsk, Russia;

#2. Sternberg Astronomical Institute, Lomonosov Moscow State University, Moscow, Russia;

#3. Institute of Astronomy, Russian Academy of Sciences, Moscow, Russia

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(E-mail for contact: slovoktk@mail.ru)

#	Name	Other	Coord (J2000)	Type	Max	Min	System	Period	Epoch (JD)	type	Sp	Comment	L.Curve	Find.Chart	Data
1		USNO-A2 1200-04022129	05 54 38.37, +30 04 24.1	EB	13.01	<13.32		1.43388	2455589.905:	min			lc31459.png	ch31459.jpg	out31459.txt
2		USNO-A2 1200-04044784	05 55 23.18, +30 05 26.7	DSCT	13.07	13.12		0.084258	2455837.4367	max			lc31068.png	ch31068.jpg	out31068.txt
3		USNO-A2 1125-03013099	05 55 31.83, +28 21 28.4	EW	13.30	<13.75		0.322551	2455865.534:	min		Comm. 3	lc06577.png	ch06577.jpg	out06577.txt
4		USNO-A2 1125-03018904	05 55 44.43, +29 12 49.1	EW	13.10	13.17		0.265392	2455859.474	min		Comm. 4	lc22982.png	ch22982.jpg	out22982.txt
5		USNO-A2 1125-03025219	05 55 57.84, +28 50 33.3	HADS	14.98	15.32		0.089795	2455623.1051	max			lc15972.png	ch15972.jpg	out15972.txt
6		USNO-A2 1200-04074698	05 56 24.30, +30 03 58.1	EW	15.96	16.32		0.443236	2455590.336	min		Comm. 6	lc31908.png	ch31908.jpg	out31908.txt
7		USNO-A2 1125-03043287	05 56 35.88, +28 20 35.2	EB	15.97	16.48		0.409823	2455603.202	min			lc06284.png	ch06284.jpg	out06284.txt
8		USNO-A2 1125-03048010	05 56 46.14, +29 49 25.5	EB	14.26	14.93		0.732984	2455859.510	min		Comm. 8	lc36625.png	ch36625.jpg	out36625.txt
9		USNO-A2 1125-03053323	05 56 57.46, +29 47 07.7	DSCT	13.53	13.58		0.079948	2455603.1035	max		Comm. 9	lc37663.png	ch37663.jpg	out37663.txt
10		USNO-A2 1125-03053949	05 56 58.77, +28 41 08.4	EW	15.68	16.00		0.339583	2455622.974	min		Comm. 10	lc12834.png	ch12834.jpg	out12834.txt
11		USNO-A2 1125-03065630	05 57 22.78, +28 44 44.5	EB	14.29	14.71		0.409873	2455859.246	min		Comm. 11	lc13643.png	ch13643.jpg	out13643.txt
12		USNO-A2 1125-03073936	05 57 40.03, +29 22 50.2	EW	15.77	16.24		0.386096	2455626.219	min		Comm. 12	lc30866.png	ch30866.jpg	out30866.txt
13		USNO-A2 1125-03076968	05 57 46.12, +28 12 45.1	RRC	15.13	15.38		0.242193	2455603.067	max		Comm. 13	lc03282.png	ch03282.jpg	out03282.txt
14		USNO-A2 1125-03094082	05 58 20.22, +28 56 01.7	LB	12.14	12.67				other		Comm. 14	lc17089.png	ch17089.jpg	out17089.txt
15		USNO-A2 1125-03094481	05 58 20.99, +28 45 50.1	LB:	13.89	14.03				other		Comm. 15	lc10509.png	ch10509.jpg	out10509.txt
16		USNO-A2 1125-03109298	05 58 49.48, +28 40 19.2	DSCT	13.40	13.46		0.147890	2455859.3484	max			lc12129.png	ch12129.jpg	out12129.txt
17		USNO-A2 1125-03111957	05 58 54.45, +28 20 26.4	EA	12.85	13.24		1.01500	2455859.790	min		Comm. 17	lc05584.png	ch05584.jpg	out05584.txt
18		USNO-A2 1200-04150187	05 59 03.93, +30 09 05.2	LB	12.90	13.33				other		Comm. 18	lc28941.png	ch28941.jpg	out28941.txt
19		USNO-A2 1125-03126331	05 59 20.86, +28 23 34.6	DSCT	14.64	14.76		0.083490	2455859.3338	max			lc04935.png	ch04935.jpg	out04935.txt
20		USNO-A2 1125-03148822	05 59 59.42, +29 26 42.9	EA	13.17	13.63:		2.04133	2455623.531	min		Comm. 20	lc30044.png	ch30044.jpg	out30044.txt

21		USNO-A2 1125-03155114	06 00 10.17, +29 07 13.0	EW	15.58	15.88		0.295400	2455850.304	min		Comm. 21	lc20412.png	ch20412.jpg	out20412.txt
22		USNO-A2 1125-03187765	06 01 06.78, +28 58 21.2	EW:	12.05	12.14		0.778141	2455837.206	min		Comm. 22	lc12976.png	ch12976.jpg	out12976.txt
23		USNO-A2 1125-03196727	06 01 22.28, +29 33 21.5	EB	14.81	15.02		0.640319	2455590.239	min			lc40507.png	ch40507.jpg	out40507.txt
24		USNO-A2 1125-03198142	06 01 24.83, +29 21 21.6	EB:	13.71	13.87		0.788551	2455590.380	min			lc24572.png	ch24572.jpg	out24572.txt
25		USNO-A2 1125-03199311	06 01 26.83, +28 11 36.8	EW	14.10	14.22		0.372760	2455626.201	min		Comm. 25	lc02153.png	ch02153.jpg	out02153.txt
26		USNO-A2 1125-03200682	06 01 29.31, +29 27 45.9	DSCT	12.99	13.03		0.074645	2455623.0635	max			lc29904.png	ch29904.jpg	out29904.txt
27		USNO-A2 1125-03205765	06 01 38.36, +28 14 53.6	EA	14.59	15.14		2.20781:	2455603.344	min		Comm. 27	lc03107.png	ch03107.jpg	out03107.txt
28		USNO-A2 1125-03219321	06 02 02.42, +28 14 51.0	LB	13.00	13.43				other		Comm. 28	lc03055.png	ch03055.jpg	out03055.txt
29		USNO-A2 1125-03223853	06 02 10.49, +28 28 19.3	LB	14.71	14.89				other		Comm. 29	lc07542.png	ch07542.jpg	out07542.txt
30		USNO-A2 1125-03229035	06 02 19.62, +28 57 48.3	BY:	12.46	12.51		6.39:	2455606.3	max			lc16943.png	ch16943.jpg	out16943.txt
31		USNO-A2 1125-03234866	06 02 29.54, +29 31 34.2	EA	14.41	14.56		0.771178	2455623.037	min		Comm. 31	lc35236.png	ch35236.jpg	out35236.txt
32		USNO-A2 1200-04248717	06 02 46.28, +30 12 00.7	EW	15.53	16.06:		0.452628	2455859.696:	min		Comm. 32	lc28705.png	ch28705.jpg	out28705.txt
33		USNO-A2 1125-03248349	06 02 52.84, +28 25 13.9	EW	14.69	14.89		0.311954	2455865.368	min			lc06479.png	ch06479.jpg	out06479.txt
34		USNO-A2 1125-03254245	06 03 03.01, +29 35 27.1	EA:	14.78	15.09		0.764970	2455850.189	min			lc33638.png	ch33638.jpg	out33638.txt
35		USNO-A2 1200-04257136	06 03 06.08, +30 01 00.6	LB	13.25	13.40				other		Comm. 35	lc33321.png	ch33321.jpg	out33321.txt
36		USNO-A2 1200-04261352	06 03 16.40, +30 09 17.0	LB	12.20	12.25				other		Comm. 36	lc23189.png	ch23189.jpg	out23189.txt
37		USNO-A2 1125-03264288	06 03 19.70, +28 09 24.6	EW	12.75	12.91		0.394945	2455859.526	min		Comm. 37	lc00859.png	ch00859.jpg	out00859.txt
38		USNO-A2 1200-04263388	06 03 21.16, +30 10 05.3	EB	13.74	14.15		0.635326	2455590.071	min		Comm. 38	lc31076.png	ch31076.jpg	out31076.txt
39		USNO-A2 1200-04263538	06 03 21.48, +30 18 16.4	DSCT	13.27	13.33		0.128193	2455859.3551	max		Comm. 39	lc27058.png	ch27058.jpg	out27058.txt
40		USNO-A2 1125-03266559	06 03 23.47, +28 45 15.6	BY:	13.11	13.20		0.974680	2455618.058	max		Comm. 40	lc12859.png	ch12859.jpg	out12859.txt
41		USNO-A2 1125-03268086	06 03 25.98, +29 06 02.0	DSCT	14.30	14.43		0.102200	2455590.1185	max			lc19307.png	ch19307.jpg	out19307.txt
42		USNO-A2 1125-03275541	06 03 38.15, +28 19 58.9	EW	14.79	15.12:		0.332939	2455623.140:	min		Comm. 42	lc04644.png	ch04644.jpg	out04644.txt
43		USNO-A2 1125-03287185	06 03 57.55, +28 49 37.2	EW	16.05	16.60		0.361381	2455590.111	min		Comm. 43	lc14265.png	ch14265.jpg	out14265.txt
44		USNO-A2 1200-04279427	06 04 00.46, +30 07 45.1	BY:	13.81	14.05		2.8245	2455603.71	max		Comm. 44	lc31809.png	ch31809.jpg	out31809.txt
45		USNO-A2 1125-03304658	06 04 26.20, +28 57 45.1	EW	13.45	13.56		0.381514	2455859.224	min			lc16583.png	ch16583.jpg	out16583.txt

Comments:

3. $P = 0^d.3409505$ is also possible.

4. $\text{Min}_{II} = 13^m.15$. $B = 13.8$, $R = 13.1$ (USNO-A2.0). DSCT type with $P = 0^d.132695$ is possible.

6. $\text{Min}_{II} = 16^m.3$. $P = 0^d.362922$ is also possible.

8. $\text{Min}_{II} = 14^m.54$.

9. The one-day alias, $P = 0^{\text{d}}.086921$, is also possible.
10. $\text{Min}_{\text{II}} = 15^{\text{m}}.77$.
11. $\text{Min}_{\text{II}} = 14^{\text{m}}.42$.
12. $\text{Min}_{\text{II}} = 16^{\text{m}}.2$.
13. The one-day alias, $P = 0^{\text{d}}.195018$, is also possible.
14. $B = 17.0$, $R = 14.0$ (USNO-A2.0). $J = 7.249$, $H = 6.149$, $K = 5.660$ (2MASS).
15. $B = 15.7$, $R = 13.5$ (USNO-A2.0). $J = 11.737$, $H = 11.124$, $K = 10.877$ (2MASS).
17. $\text{Min}_{\text{II}} = 12^{\text{m}}.93$.
18. The star in the NSVS database: [NSVS ID 7023650](#) and [NSVS ID 7008698](#). The NSVS data confirm the star's type. $B = 17.5$, $R = 14.4$ (USNO-A2.0). $J = 8.456$, $H = 7.391$, $K = 6.934$ (2MASS).
20. $\text{Min}_{\text{II}} = 13^{\text{m}}.46$.
21. $\text{Min}_{\text{II}} = 15^{\text{m}}.85$.
22. The star in the NSVS database: [NSVS ID 7075110](#). The NSVS data confirm the star's type and period.
25. $\text{Min}_{\text{II}} = 14^{\text{m}}.2$.
27. $P = 2^{\text{d}}.20781$ is one of several possible periods. Additional CCD observations are needed to choose the true period.
28. $B = 16.4$, $R = 13.9$ (USNO-A2.0). $J = 9.155$, $H = 8.111$, $K = 7.676$ (2MASS).
29. X-ray source 1RXS J060210.7+282821, $\text{HR1} = 1.0$, $\text{HR2} = 0.57$, distance $3''.53$. $B = 14.6$, $R = 13.4$ (USNO-A2.0). $J = 12.231$, $H = 11.222$, $K = 10.140$ (2MASS).
31. $\text{Min}_{\text{II}} = 14^{\text{m}}.52$.
32. $\text{Min}_{\text{II}} = 15^{\text{m}}.9$.
35. $B = 14.0$, $R = 12.2$ (USNO-A2.0). $J = 10.265$, $H = 9.144$, $K = 8.783$ (2MASS).
36. The star in the NSVS database: [NSVS ID 7014088](#). The NSVS data confirm the star's type. $B = 15.1$, $R = 12.6$ (USNO-A2.0). $J = 8.741$, $H = 7.615$, $K = 7.250$ (2MASS).
37. $\text{Min}_{\text{II}} = 12^{\text{m}}.91$.
38. $\text{Min}_{\text{II}} = 14^{\text{m}}.06$, slight O'Connell effect.
39. The twice longer period with EW type is also not excluded.

40. J = 10.405, H = 9.466, K = 9.220 (2MASS).

42. Min_{II} = 15^m.07.

43. Min_{II} = 16^m.45.

44. B = 17.2, R = 14.3 (USNO-A2.0). J = 10.042, H = 8.827, K = 8.444 (2MASS).

Remarks:

Our observations of an area in Auriga were performed in the observatory of the Siberian State Aerospace University with a Hamilton telescope (D = 400 mm, F = 915 mm) equipped with an FLI ML9000 CCD chip (3056x3056 pixels, pixel size 12 μm). We obtained all unfiltered CCD observations during two time intervals: January 2011 – March 2011 and October 2011. Exposure times were 30 seconds for all frames. The size of the field is 2°.3 × 2°.3. The magnitudes were referred to red magnitudes of comparison stars from the USNO-A2.0 catalog (Monet et al. 1998). We used [VaST](#) (Sokolovsky & Lebedev 2005) software to search for new variable stars. To find periods, we applied WinEfk software provided by Dr. V.P. Goranskij. Observations for several stars can also be found in the ROTSE-I/NSVS survey (Wozniak et al. 2004).

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