

## Updated Elements of Variable Stars in Sagittarius

**W. Lemke**  
United States, Brookhaven

ISSN 2221-0474

DOI: [10.24412/2221-0474-2023-4-1](https://doi.org/10.24412/2221-0474-2023-4-1)

Received: 11.09.2023; accepted: 14.12.2023  
(E-mail for contact: [potofcoppers@gmail.com](mailto:potofcoppers@gmail.com))

#	Name	Other	Coord (J2000)	Type	Max	Min	System	Period	Epoch (JD)	type	Sp	Comment	L.Curve	Find.Chart	Data
1	NSV 9658	Gaia DR3 4057523057001521664	17 46 45.222 -28 29 48.53	EW	13.33	13.74	G	0.63272	2457319.966	Min		<a href="#">Comm. 1</a>	<a href="#">lc_NSV_9658.png</a>	<a href="#">NSV_9658.png</a>	<a href="#">NSV9658.txt</a>
2		Gaia DR3 4042068248538862336	17 59 27.085 -34 49 06.06	SRB	14.1	15.0	V	138		Max		<a href="#">Comm. 2</a>	<a href="#">lc_Sgr_var2.png</a>	<a href="#">Sgr_var2.png</a>	<a href="#">Sgrvar2.txt</a>
3	DU Sgr	Gaia DR3 4143458583752376448	18 02 31.103 -18 39 00.89	EA	12.91	15.05	V	6.0888	2457680.764	Min	F1:	<a href="#">Comm. 3</a>	<a href="#">lc_DU_Sgr.png</a>	<a href="#">DU_Sgr.png</a>	<a href="#">DUSgr.txt</a>
4	NSV 10268	Gaia DR3 4037875329674243328	18 09 33.891 -36 50 06.48	RRAB	14.48	15.34	G	0.4533	2457788.764	Max		<a href="#">Comm. 4</a>	<a href="#">lc_NSV_10268.png</a>	<a href="#">NSV_10268.png</a>	<a href="#">NSV10268.txt</a>
5	FZ Sgr	Gaia DR3 4039706944245111424	18 11 34.298 -33 13 12.14	M	13.6	17.7	G	546	2457321	Max			<a href="#">lc_FZ_Sgr.png</a>	<a href="#">FZ_Sgr.png</a>	<a href="#">FZSgr.txt</a>
6	NSV 10401	Gaia DR3 4038337747395642496	18 14 53.469 -35 57 52.28	EB	14.32	14.81	V	0.52189	2457688.535	Min		<a href="#">Comm. 6</a>	<a href="#">lc_NSV_10401.png</a>	<a href="#">NSV_10401.png</a>	<a href="#">NSV10401.txt</a>
7	NSV 10417	Gaia DR3 4045852119139673856	18 15 15.357 -32 22 41.59	LB	13.52	13.87	V			other		<a href="#">Comm. 7</a>	<a href="#">lc_NSV_10417.png</a>	<a href="#">NSV_10417.png</a>	<a href="#">NSV10417.txt</a>
8	NSV 10739	Gaia DR3 4046086864845936896	18 24 43.455 -31 39 59.26	RRAB	15.69	16.23	V	0.72545	2458213.797	Max		<a href="#">Comm. 8</a>	<a href="#">lc_NSV_10739.png</a>	<a href="#">NSV_10739.png</a>	<a href="#">NSV10739.txt</a>
9	NSV 11005	Gaia DR3 6735023845659922560	18 33 34.021 -33 43 00.49	RRAB	15.24	15.77	G	0.623241	2457082.638	Max		<a href="#">Comm. 9</a>	<a href="#">lc_NSV_11005.png</a>	<a href="#">NSV_11005.png</a>	<a href="#">NSV11005.txt</a>
10	IR Sgr	Gaia DR3 4076214411158131968	18 33 39.502 -25 20 42.29	RRAB	13.56	14.47	G	0.49485	2457271.41	Max		<a href="#">Comm. 10</a>	<a href="#">lc_IR_Sgr.png</a>	<a href="#">IR_Sgr.png</a>	<a href="#">IRSgr.txt</a>
11	NSV 11070	Gaia DR3 4046707397335623424	18 36 18.307 -31 22 02.41	RRC	15.70	16.05	G	0.3174	2457883.105	Max		<a href="#">Comm. 11</a>	<a href="#">lc_NSV_11070.png</a>	<a href="#">NSV_11070.png</a>	<a href="#">NSV11070.txt</a>
12	NSV 11097	Gaia DR3 6736777154369209472	18 37 11.506 -32 01 03.73	RRAB	15.84	16.98	G	0.466854	2457676.685	Max		<a href="#">Comm. 12</a>	<a href="#">lc_NSV_11097.png</a>	<a href="#">NSV_11097.png</a>	<a href="#">NSV11097.txt</a>
13	NSV 11118	Gaia DR3 6736591023353594880	18 38 12.357 -32 44 41.51	DSCT	16.77	17.18	G	0.0497204	2457270.155	Max		<a href="#">Comm. 13</a>	<a href="#">lc_NSV_11118.png</a>	<a href="#">NSV_11118.png</a>	<a href="#">NSV11118.txt</a>
14	NSV 11136	Gaia DR3 6733977076218589440	18 39 03.181 -34 46 46.85	SRB	12.9	13.6	V	57.7		Max		<a href="#">Comm. 14</a>	<a href="#">lc_NSV_11136.png</a>	<a href="#">NSV_11136.png</a>	<a href="#">NSV11136.txt</a>
15	CR Sgr	Gaia DR3 4198633997056473728	19 05 35.970 -12 19 16.09	EA	15.67	16.96	zg	2.787	2459844.721	Min		<a href="#">Comm. 15</a>	<a href="#">lc_CR_Sgr.png</a>	<a href="#">CR_Sgr.png</a>	<a href="#">CRSgr.txt</a>
16	EF Sgr	Gaia DR3 4185081146148126208	19 12 43.078 -14 56 56.82	M	9.3	12.2	G	507	2457832	Max			<a href="#">lc_EF_Sgr.png</a>	<a href="#">EF_Sgr.png</a>	<a href="#">EFSgr.txt</a>

### Comments:

1. MinII = 13<sup>m</sup>.71.
2. = ASAS J175927-3449.0.
3. MinII = 13<sup>m</sup>.00. D = 0.14 P.
4. = [OGLE-BLG-RRLYR-57089](#). M-m = 0.20 P.
6. MinII=14<sup>m</sup>.55.
7. J=6<sup>m</sup>.744, H=5<sup>m</sup>.724, K=5<sup>m</sup>.276 (2MASS).
8. M-m = 0.23 P.

9. = [OGLE-BLG-RRLYR-62913](#). M-m = 0.20 P.

10. **Note from the editor.** Record in [remarks](#) to the [GCVS](#): "IR Sgr VB B (A 13.6m; B 10", 220deg)". Despite that the designation IR Sgr was initially believed to refer to the brighter star (Gaia DR3 4076214200618375936) in the pair, the genuine RRAB is the fainter star Gaia DR3 4076214411158131968. Verified using ZTF data.  
= PS1-3PI J183339.50-252042.2 = [OGLE-BLG-RRLYR-62935](#).  
M-m = 0.22 P.

11. = [OGLE-BLG-RRLYR-63720](#). M-m = 0.45 P.

12. M-m = 0.17 P.

13. = [OGLE-BLG-DSCT-14974](#).

14. J=6<sup>m</sup>.813, H=5<sup>m</sup>.880, K=5<sup>m</sup>.469 (2MASS).

15. MinII = 15<sup>m</sup>.92. D = 0.18 P.

### Remarks:

I present updated elements of 16 variable stars in the constellation of Sagittarius. Variability types of several stars were identified incorrectly in the [GCVS](#) (Samus et al., 2017) and the [VSX](#). Data was collected from the Zwicky Transient Facility (Bellm et al., 2019; Masci et al., 2019), the [ASAS-SN](#) (Kochanek et al., 2017), the ASAS database (Pojmanski et al., 2002), the Catalina survey (Drake et al., 2009) and the Gaia DR3 database (Gaia Collaboration et al., 2023). The observational series were analyzed using [Peranso](#) software to determine periods and light elements of the stars. Two new variables were discovered in the process and several suspected objects were confirmed to be variable. The coordinates are drawn from the Gaia DR3 (Gaia Collaboration et al., 2023).

Acknowledgements: This study became possible due to data from the databases including [ASAS-SN](#), Zwicky Transient Facility (ZTF), ASAS, Catalina, 2MASS (Skrutskie et al., 2006) and Gaia DR3.

### References:

- Bellm, E. C., Kulkarni, S. R., Graham, M. J., et al., 2019, Publ. Astron. Soc. Pacific, 131, 018002  
Drake, A. J., Djorgovski, S. G., Mahabal, A., et al., 2009, Astrophys. J., 696, 870  
Gaia Collaboration, Vallenari, A., Brown, A. G. A., et al., 2023, Astron. Astrophys., 674, A1  
Kochanek, C. S., Shappee, B. J., Stanek, K. Z., et al., 2017, Publ. Astron. Soc. Pacific, 129, No. 980  
Masci, F. J., Laher, R. R., Rusholme, B., et al., 2019, Publ. Astron. Soc. Pacific, 131, 995  
Pojmanski, G., et al., 2002, Acta Astron., 52, 397  
Samus, N. N., Kazarovets, E. V., Durlevich, O. V., Kireeva, N. N., and Pastukhova, E. N., 2017, Astron. Rep., 61, No. 1, 80  
Skrutskie, M. F., Cutri, R. M., Stiening, R., et al., 2006, Astron. J., 131, 1163