"Peremennye Zvezdy",
Prilozhenie,
vol. 24, N 5 **(2024)**

New Solutions for a Dozen of Suspected Variable Stars

E. V. Kazarovets
Institute of Astronomy, Russian Academy of Sciences, Moscow, Russia

ISSN 2221–0474 **DOI:** 10.24412/2221-0474-2024-24-5

Received: 19.12.2024; accepted: 23.12.2024
(E-mail for contact: helene@inasan.ru)

#	Name	Other	Coord (J2000)	Type	Max	Min	System	Period	Epoch (JD)	type	Sp	Comment	L.Curve	Find.Chart	Data
1		USNO-A2.0 0225-25146241	16 20 50.239 -60 23 39.30	EA	15.79	17.4:	V	2.27848	2460502.541	min		Comm. 1	lc_01.jpg	ch_01.png	V01.txt
2		USNO-A2.0 0825-09406832	16 29 42.465 -00 08 13.32	BY:	16.58	17.09	zr	10.4036	2459142.0	max		Comm. 2	lc_02.jpg	ch_02.png	V02.txt
3		HD 322452	16 55 22.062 -40 47 00.36	EA	9.72	9.94	g	4.33614	2460090.843	min	B3	Comm. 3	lc_03.jpg	ch_03.png	V03.txt
4		HD 322453	16 56 05.054 -40 47 06.19	EA	9.16	9.34	V	4.88565	2460463.873	min	B8	Comm. 4	lc_04.jpg	ch_04.png	V04.txt
5		GSC 7872-00632	16 56 40.347 -40 34 48.30	BCEP	10.13	10.16	g	0.0782860	2460093.299	max	B2	Comm. 5	lc_05.jpg	ch_05.png	V05.txt
6		USNO-A2.0 0300-30148008	16 57 56.454 -55 29 32.63	ELL	13.74	13.82	g	1.34751	2460026.750	min		Comm. 6	lc_06.jpg	ch_06.png	V06.txt
7		USNO-A2.0 0300-30160054	16 58 09.493 -55 23 25.66	RRC	12.86	12.96	g	0.4567656	2460543.657	max		Comm. 7	lc_07.jpg	ch_07.png	V07.txt
8		USNO-A2.0 0975-09368728	17 33 24.345 +10 47 02.44	DSCT	17.99	18.14	zr	0.132871	2459411.737	max		Comm. 8	lc_08.jpg	ch_08.png	V08.txt
9		GSC 5082-01171	17 45 42.448 -00 21 35.45	GDOR	10.58	10.65	g	1.59750	2460500.45	max	F1	Comm. 9	lc_09.jpg	ch_09.png	V09.txt
10		GSC 5289-02696	17 50 59.670 -69 17 45.99	EA/RS	13.86	13.97	g	3.57813	2459717.844	min		Comm. 10	lc_10.jpg	ch_10.png	V10.txt
11		USNO-A2.0 0825-11856183	18 06 44.948 -00 52 19.17	M	15.21	19.01	zg	246.	2459690.	max		Comm. 11	lc_11.jpg	ch_11.png	V11.txt
12		GSC 5698-04058	18 27 11.406 -12 28 25.01	DSCTC	12.06	12.10	g	0.119269	2460504.921	max		Comm. 12	lc_12.jpg	ch_12.png	V12.txt

Comments:

1. = VAR TrA 07. Min II = 15.90 V, D = 0.12 P. The variability of unknown type was discovered by Colesanti et al. (2007). Wils (2007) informed about the type E: without period for this variable. The star was included in the ASAS-SN Variable Stars Database (Jayasinghe et al., 2018) with a type EA and P = 4.5571134 d.

2. = ATO J247.4269-00.1370. zg = 17.57 – 18.09. Type SRS is possible. The ZTF photometry in r and g bands, taken together, was used for period determination. Magnitudes in g were adjusted by -1 mag. The variability was discovered by the ATLAS team (Heinze et al., 2018) with P = 0.910 d and class NSINE (displaying noisy sinusoidal wave).

3. = CoD-40 10938 = CPD-40 7609 = PPM 762301 = GSC 7872-01227 = HW 226 and Braes 335 in Trumpler 24 = IDS 1648.4S4037. Min II = 9.73 g, D = 0.04 P; V = 9.66 – 9.87, Min II = 9.67 V. Night-to-night variability was discovered by Fu et al. (2003). The star was included in the ASAS-SN Variable Stars Database (Jayasinghe et al., 2018) with a type VAR and P = 735.8699358 d.

4. = CoD-40 10955 = CPD-40 7623 = SAO 227459 = PPM 322422 = GSC 7872-01743 = HW 265 and Braes 337 in Trumpler 24. Min II = 9.34 V, D = 0.05 P. Variability with P = 2.50

d without a type was discovered by Fu et al. (2003). The star was included in the ASAS-SN Variable Stars Database (Jayasinghe et al., 2018) with a type VAR and P = 370.2202783 d.

5. = CoD-40 10978 = CPD-40 7643 = PPM 762323 = LSS 3851 = Braes 908 in NGC 6231. Variability with P1 = 0.078 d and P2 = 0.080 d without a type was discovered by Fu et al. (2003).

6. = RafV040. Min II = 13.82 g; V = 13.54 – 13.59, Min II = 13.59 V. The variability was discovered by F. Hund in 2005 (RafV catalogue, 2005-2012; Paschke, 2007) without any type, period, or magnitudes.

7. = RafV039. M–m = 0.50 P; V = 12.51 – 12.61. The variability was discovered by F. Hund in 2005 (RafV catalogue, 2005-2012; Paschke, 2007) with a type EW:, but no period or magnitudes.

8. = Konkoly V21. M–m = 0.40 P; zg = 18.64 – 18.82. The variability was discovered by Csak et al. (2000) as pulsating?, no period.

9. = BD-00 3356. P1 is given in the Table (A1 = 0.036 g, 0.034 V), P2 = 1.58557 d (A2 = 0.030 g, 0.023 V), P3 = 1.57462 d (A3 = 0.027 g, 0.025 V); V = 10.24 – 10.29. The variability was discovered by Bernhard (2008) with P = 1.5974 d and unknown type.

10. = RafV072. Min II = 13.94 g, D = 0.03 P, Min II–Min I = 0.496 P. Distortion wave with P = 3.50 d. V = 13.49 – 13.60, Min II = 13.57 V. The variability was discovered by F. Hund in 2006 (RafV catalogue, 2005-2012; Paschke, 2007) without any type, period, or magnitudes.

11. = IRAS 18041-0052 = FASTT 1133 = HS 1133. zr = 12.83 – 15.58. The variability of LPV type was discovered by Henden and Stone (1998), P > 40 d. The star was included in the ZTF Variable Stars database (Bellm et al., 2019; Masci et al., 2019) with incorrect P = 228.6 d and in the ASAS-SN Variable Stars Database (Jayasinghe et al., 2018) with P = 239.6 d.

12. = comp. star c2 for WR 116. M–m = 0.41 P; V = 11.69 – 11.73. The variability of unknown type with P = 2.70 d was discovered by Marchenko et al. (1998).

Remarks:

I continue studying behavior of stars from my archive of suspected variables, accumulated since 1990s. For each of the archival stars, I do my best to determine variability types and light elements. Then I select stars confirmed as variable by myself in order to transfer them to the General Catalogue of Variable Stars (GCVS) (Samus et al., 2017) via the next Name-lists. In the current paper, I present another batch 12 stars from confirmed 550 stars that proved to be variable. The study of the presented variables was made using the publicly available electronic archives of CCD observations of the Sky Patrol All-Sky Automated Survey for Supernovae (ASAS-SN) project (Shappee et al., 2014; Kochanek et al., 2017), the Zwicky Transient Facility (ZTF) photometric data (Bellm et al., 2019; Masci et al., 2019) via the SNAD ZTF viewer (Malanchev et al., 2023) and the ASAS-3 project (Pojmanski, 2002). To find periods, I applied the WinEfk software provided by Dr. V.P. Goranskij and the online light curve analysis tool developed by Dr. K.V. Sokolovsky. The coordinates of the stars were drawn from the Gaia DR3 catalogue (Gaia Collaboration, 2023).

References:

Bellm, E.C., Kulkarni, S.R., Graham, M.J., et al., 2019, Publ. Astron. Soc. Pacific, 131, No. 995, id. 018002
Bernhard, K., 2008, BAV Rund., 57, nr. 1, 33
Colesanti, C., Pimentel, E., Napoleao, T., and Jacques, C., 2007, CBET No. 867
Csak, B., Kiss, L.L., Szabo, G., et al., 2000, Inform. Bull. Var. Stars, No. 4989
Fu, J.N., Sterken, C., Duerbeck, H.W., and Mennickent, R.E., 2003, Astron. Astrophys., 412, No. 1, 97
Gaia Collaboration, Vallenari, A., Brown, A.G.A., et al., 2023, Astron. Astrophys., 674, A1
Heinze, A.N., Tonry, J.L., Denneau, L., et al., 2018, Astron. J., 156, id. 241
Henden, A.A. and Stone, R.C., 1998, Astron. J., 115, No. 1, 296
Jayasinghe, T., Stanek, K.Z., Kochanek, C.S., et al., 2018, Mon. Not. Royal Astron. Soc., 486, No. 2, 1907
Kochanek, C.S., Shappee, B.J., Stanek, K.Z., et al., 2017, Publ. Astron. Soc. Pacific, 129, No. 980, id. 104502
Malanchev, K., Kornilov, M.V., Pruzhinskaya, M.V., et al., 2023, Publ. Astron. Soc. Pacific, 135, No. 1044, id. 024503
Marchenko, S.V., Moffat, A.F.J., Eversberg, T., et al., 1998, Mon. Not. Royal Astron. Soc., 294, No. 4, 642
Masci, F.J., Laher, R.R., Rusholme, B., et al., 2019, Publ. Astron. Soc. Pacific, 131, No. 995, id. 018003
Pojmanski, G., 2002, Acta Astron., 52, 397
Paschke, A., 2007, Open European J. on Var. Stars, 73, 1
RafV catalogue, 2005–2012, New variables discovered by Friedhelm Hund, Radek Dreveny and Anton Paschke
Samus, N.N., Kazarovets, E.V., Durlevich, O.V., Kireeva, N.N., Pastukhova, E.N., 2017, Astron. Rep. 61, No. 1, 80
Shappee, B.J., Prieto, J.L., Grupe, D., et al., 2014, Astrophys. J., 788, Issue 1, id. 48
Wils, P., 2007, AAVSO Special Notice, #36