

New Results of a Study of Twenty Suspected Variable Stars

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#	Name	Other	Coord (J2000)	Type	Max	Min	System	Period	Epoch (JD)	type	Sp	Comment	L.Curve	Find.Chart	Data
1		GSC 3253-00615, LD 330	00 36 22.72 +48 21 49.1	SR	12.93	13.39	zg	430.	2458540.	max		Comm. 1	lc1.jpg	ch1.png	var1.txt
2		GSC 2797-01241	00 44 45.40 +38 41 13.7	ELL	13.10	13.22	zg	0.285107	2459341.973	min		Comm. 2	lc2.jpg	ch2.png	var2.txt
3		GSC 3266-01510, LD 334, IRAS 00436+4725	00 46 24.80 +47 41 33.0	M	15.14	<17.61	zg	353.	2458787.	max	C-N	Comm. 3	lc3.jpg	ch3.png	var3.txt
4		USNO-B1.0 1167-0010239, CRTS J004807.2+264621	00 48 07.19 +26 46 21.3	UGSS	18.01	22.05	zg			other		Comm. 4	lc4.jpg	ch4.png	var4.txt
5		GSC 3663-00977, PIQ 42, Cze V4011	00 52 48.96 +56 39 08.5	EA	10.69	10.92	V	2.17442	2457756.808	min		Comm. 5	lc5.jpg	ch5.png	var5.txt
6		USNO-A2.0 0825-00248906, CRTS J010411.6-031342	01 04 11.61 -03 13 42.2	UGSS	15.84	21.26	zg			other		Comm. 6	lc6.jpg	ch6.png	var6.txt
7		GSC 3678-01834	01 31 27.98 +57 20 34.7	SR	14.07	15.47	zg	842.	2459063.	max		Comm. 7	lc7.jpg	ch7.png	var7.txt
8		USNO-A2.0 1200-00858449, RAT J0202+3409	02 02 22.31 +34 09 08.3	EW	16.95	17.22	zr	0.3363375	2459223.725	min		Comm. 8	lc8.jpg	ch8.png	var8.txt
9		USNO-A2.0 1200-00900127, RAT J0208+3610	02 08 04.01 +36 10 17.4	EA	19.01	19.56	zr	1.65548	2459110.947	min		Comm. 9	lc9.jpg	ch9.png	var9.txt
10		USNO-A2.0 1200-00904686, RAT J0208+3605	02 08 40.43 +36 05 30.5	EW	18.75	19.00	zr	0.274359	2459736.971	min		Comm. 10	lc10.jpg	ch10.png	var10.txt
11		GSC 4037-02277, Tmz V876, IRAS 02110+6212	02 14 48.43 +62 26 22.4	EA	13.64	13.71	g	1.59643	2459505.824	min	A2Ve	Comm. 11	lc11.jpg	ch11.png	var11.txt
12		GSC 3307-01656 N, Tmz V861, IRAS 02283+5209	02 31 46.93 +52 23 01.2	SR	16.1:	19.24	zg	427.	2459189.	max	C	Comm. 12	lc12.jpg	ch12.png	var12.txt
13		USNO-A2.0 0900-00778332, FBS 0319+003, IRAS 03199+0021	03 22 31.59 +00 31 47.9	M	11.46	18.62	zg	417.	2458484.	max	M5/6	Comm. 13	lc13.jpg	ch13.png	var13.txt
14		USNO-A2.0 0975-01021894, Konkoly V04	04 31 16.85 +13 06 42.1	EA	18.15	18.37	zg	7.10322	2458730.932	min		Comm. 14	lc14.jpg	ch14.png	var14.txt
15		GSC 4752-01101	05 15 59.31 -00 10 19.3	EA	12.66	12.99	g	2.43844	2458544.695	min		Comm. 15	lc15.jpg	ch15.png	var15.txt
16		GSC 0708-00095, Konkoly V14	05 26 30.89 +12 57 26.4	EW	12.87	12.96	zr	0.329614	2459195.856	min	G4	Comm. 16	lc16.jpg	ch16.png	var16.txt
17		GSC 4778-00001	05 32 29.18 -07 16 26.1	EA	12.55	13.09	g	3.99445	2459635.711	min		Comm. 17	lc17.jpg	ch17.png	var17.txt
18		HDE 292574, BD-00 1466 W, PPM 176489, GSC 4800-00923	06 52 01.89 -00 27 21.6	EA	10.72	10.91	V	1.17636	2457770.977	min	A2	Comm. 18	lc18.jpg	ch18.png	var18.txt
19		USNO-A2.0 0900-04338959, Cze V87	07 08 43.62 +00 41 43.9	EA	14.06	14.85	V	2.48991	2458005.109	min		Comm. 19	lc19.jpg	ch19.png	var19.txt
20		USNO-A2.0 1125-05143888, RAT J0727+2323	07 27 55.52 +23 23 24.4	EA	18.80	19.02	zr	0.891983	2459822.998	min		Comm. 20	lc20.jpg	ch20.png	var20.txt

Comments:

1. P1 is given in the table, P2 = 53.8 d. Variability was discovered by Dahlmarm (1999) with type SR and P = 440: d. The star was included in the ASAS-SN Catalog of Variable Stars (Jayasinghe et al., 2018) with a type L without period.
2. MinII = 13^m.19 zg; zr = 12.58 – 12.69, MinII = 12^m.67. The star was included in the ASAS-SN Catalog of Variable Stars (Jayasinghe et al., 2018) with the type DSCT and P = 0.142552 d.
3. Variability was discovered by Dahlmarm (1999) with a type LB. The star was included in the ASAS-SN Catalog of Variable Stars (Jayasinghe et al., 2018) with the type M and P = 334.3 d. From the ASAS-SN g-band photometry, I derived P = 350 d, JDMax = 2458088, g = 13^m.62 – <17^m.30.
4. zr = 18^m.21 – 22^m.01. Outbursts with possible cycles ~ 23 d and ~ 70 d. The transient was discovered by Drake et al. (2009) using Catalina Real Time Transient Survey (CRTS) photometry, CV = 18^m.6 – 21^m.0.
5. MinII = 10^m.80 V, D = 0.10 P, MinII – MinI = 0.435 P. Variability of this star was suspected by S. Piquard in 2001 (Vandenbroere 2002) using Tycho photometry and was recovered by M. Mazek in 2021 with the type EA and P = 2.173913 d (see [the entry at the Czech Variable Star Catalogue](#)).
6. zr = 16^m.09 – 21^m.17. Outbursts with a possible cycle ~ 48 d. The transient was discovered by Drake et al. (2009) using Catalina Real Time Transient Survey (CRTS) photometry, CV = 17^m.2 – 21^m.0.
7. P1 is given in the table, P2 = 105.8 d. Variability of this star with the type IB was discovered by Nicholson et al. (2006) using the NSVS (Northern Sky Variability Survey) photometric data (Woźniak et al., 2004). The star was included in the ZTF Catalog of Variable Stars (Chen et al., 2020) with the type SR and P = 389.5 d.
8. Min II = 17^m.22 zr; zg = 17^m.38 – 17^m.71, MinII = 17^m.70; zi = 16^m.82 – 17^m.09, MinII = 17^m.07. The star was discovered by Ramsay et al. (2005) as sinusoidal variable with P = 3.5: h (= 0.146 d).
9. Min II = 19^m.54 zr, D = 0.10 P; zg = 19^m.41 – 19^m.95, MinII = 19^m.90. The variability was suspected by Ramsay et al. (2005).
10. Min II = 18^m.99 zr; zg = 19^m.29 – 19^m.51, MinII = 19^m.49. The star was discovered by Ramsay et al. (2005) as sinusoidal variable with P = 4: h (= 0.167 d).
11. MinII = 13^m.67 g, D = 0.16 P. Reflection effect between the eclipses. IR excess. The star was discovered by K.Takamizawa (Kato, 2001) as semiregular variable with a range of 12^m.5 – 13^m.1 pg.
12. VB, N-component of 6" pair. The star was discovered by K.Takamizawa (Kato, 2001) as semiregular variable with a range of 11^m.0 - 11^m.8 pg and was recovered by I. Sergey, S. Dubrovski (Astrobloknod Team) and S. Otero in 2016 ([see the VSX record on the star](#)) using the NSVS photometric data (Woźniak et al., 2004) as possible Mira type variable without period and range of 12^m.8 – <14^m.8 R1. The star was included in the ZTF Catalog of Variable Stars (Chen et al., 2020) with the type SR and P = 398.7 d. The magnitude at maximum was extrapolated.
13. The obviously variable M-star was discovered by Gigoyan et al. (2001). The star was included in the ASAS-SN Catalog of Variable Stars (Jayasinghe et al., 2018) with the type M and P = 228.75 d.
14. Min II = 18^m.35 zg, D = 0.04 P, MinII – MinI = 0.403 P. The variability of this star was discovered by Csak et al. (2000a) without type and period.
15. Min II = 12^m.97 g, D = 0.04 P. The variability of this star was suspected by Doroshenko et al. (2005). Marked in the paper as star No. 9 in the vicinity of the galaxy Akn 120. The star was included in the ASAS-SN Catalog of Variable Stars (Jayasinghe et al., 2018) with the type EA and P = 1.2192376 d.
16. Min II = 12^m.95 zr. The variability type ELL is not excluded. The variability of this star was discovered by Csak et al. (2000b) with a possible type EW. The star was included in the ASAS-SN Catalog of Variable Stars (Jayasinghe et al., 2018) with the type DSCT and P = 0.1648052 d.
17. Min II = 13^m.00 g, D = 0.04 P. The variability of this star was discovered by Tzouganatos et al. (2016) as an eclipsing binary without ephemeris.
18. Min II = 10^m.78 V, D = 0.04 P. The variability of this star was discovered by Kim et al. (1997) as an eclipsing binary without ephemeris and independently by Hackstein et al. (2015) with a type VAR. The star was included in the ASAS-SN Catalog of Variable Stars (Jayasinghe et al., 2018) with a type VAR.

19. Min II = 14^m.77 V, D = 0.05 P. A twice shorter period is not quite excluded. The variability of this star was discovered by Zejda et al. (2006) with the type EW and P = 0.4019464 d.

20. Min II = 18^m.96 zr, D = 0.14 P. The variability was suspected by Ramsay et al. (2005).

Remarks:

I began studying behavior of stars from my archive of suspected variable stars, accumulated in 30 years, in order to create the Second Supplement to the NSV catalogue (Kazarovets et al., 2022). For each of the archival stars, I determine improved coordinates, identifications with different catalogues, variability types and light elements. Then I choose stars confirmed as variable by me in order to transfer them to the General Catalogue of Variable Stars (Samus et al., 2017) via the next Name-Lists. In the current paper, I present 20 stars from initially confirmed 250 stars that proved to be variable. The study of the 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) and the Zwicky Transient Facility (ZTF) photometric data (Bellm et al., 2019; Masci et al., 2019) via the [SNAD ZTF viewer](#) (Malanchev et al., 2023). To find periods, I applied the WinEfk software provided by Dr. V. P. Goranskij and the [online lightcurve analysis tool](#) developed by Dr. K. V. Sokolovsky.

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