

New Variable Stars III

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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-B1.0 1076-0200842	08 58 42.80, +17 39 25.3	EA	17.35	17.81	CV	0.831806	2455201.1983	min		Comm. 1	1.PNG	chart1.PNG	MLS_data_1.txt
2		GSC 2986-00338	09 04 21.04, +41 55 12.9	BY	14.17	14.65	CV	13.101	2455008.1	max		Comm. 2	2.PNG	chart2.PNG	NSVS 4829404 CSS_data_2.txt 1SWASP_data_2.txt
3		TYC 3427 00673 1	09 06 29.00, +49 34 22.2	EW	11.58	11.78	WASP	0.512713	2454500.715	min		Comm. 3	3.PNG	chart3.PNG	NSVS 4851790 CSS_data_3.txt 1SWASP_data_3.txt
4		GSC 2987-01524	09 07 29.26, +42 28 05.5	RS	11.9	12.15	R	24.7	2451298	min		Comm. 4	4.PNG	chart4.PNG	NSVS 4830838 1SWASP_data_4.txt
5		TYC 2987 01505 1	09 08 47.09, +42 29 14.9	RS	10.67	10.81	WASP	4.948	2454504.0	max		Comm. 5	5.PNG	chart5.PNG	NSVS 4831470 1SWASP_data_5.txt
6		GSC 3424-01547	09 10 39.89, +45 57 01.6	EW	12.73	12.83	WASP	0.2623925	2454500.580	min		Comm. 6	6.PNG	chart6.PNG	NSVS 4831740 NSVS 4854277 1SWASP_data_6.txt
7		GSC 2987-00452	09 12 22.64, +40 25 30.7	BY	12.36	12.41	WASP	3.422	2454300.45	max		Comm. 7	7.PNG	chart7.PNG	NSVS 4833589 1SWASP_data_7.txt
8		GSC 3430-00829	09 13 22.83, +51 35 04.3	EB	12.35	12.62	WASP	0.915801	2454520.658	min		Comm. 8	8.PNG	chart8.PNG	NSVS 4854386 NSVS 2513647 NSVS 4866118 1SWASP_data_8.txt
9		TYC 3431 00222 1	09 18 21.28, +51 07 46.3	LB	11.39	11.65	WASP			other		Comm. 9	9.PNG	chart9.PNG	NSVS 4856655 NSVS 4867683 1SWASP_data_9.txt
10		TYC 2997 00619 1	09 21 40.84, +43 47 47.8	EB	11.84	11.99	WASP	0.931480	2454510.570	min		Comm. 10	10.PNG	chart10.PNG	NSVS 4837326 NSVS 4885786 1SWASP_data_10.txt
11		TYC 3429 01053 1	09 35 25.20, +49 38 29.4	EA/RS:	12.05	12.25	R	1.326503	2451452.76	min		Comm. 11	11.PNG	chart11.PNG	NSVS 4863877 NSVS 4873744 1SWASP_data_11.txt
12		TYC 3426 01518 1	09 42 05.19, +47 22 03.5	RS	10.19	10.38	R	40.7	2451579	min		Comm. 12	12.PNG	chart12.PNG	NSVS 4875978
13		GSC 2999-01120	09 47 50.50, +44 02 38.5	EW	13.85	14.15	CV	0.664905	2455000.935	min		Comm. 13	13.PNG	chart13.PNG	NSVS 4896685 CSS_data_13.txt
14		GSC 2999-01213	09 49 37.12, +42 33 59.7	BY	13.4	13.8	CV	19.208	2455005.0	max		Comm. 14	14.PNG	chart14.PNG	NSVS 4897261 CSS_data_14.txt 1SWASP_data_14.txt
15		TYC 2996 01179 1	09 49 57.51, +40 56 26.2	LB	11.15	11.35	R			other		Comm. 15	15.PNG	chart15.PNG	NSVS 4897238 1SWASP_data_15.txt
16		GSC 2999-00047	09 53 30.31, +44 17 01.0	BY	13.40	13.76	CV	6.3835	2455014.9	max		Comm. 16	16.PNG	chart16.PNG	NSVS 4898989 CSS_data_16.txt
17		GSC 3439-00987	09 54 22.20, +50 56 49.8	EW	13.57	13.77	CV	0.257242	2455000.572	min		Comm. 17	17.PNG	chart17.PNG	NSVS 4881097 CSS_data_17.txt
18		GSC 2999-00675	09 54 59.69, +43 36 27.1	EA/RS:	12.2	12.7	WASP	6.5983	2454120.555	min		Comm. 18	18.PNG	chart18.PNG	NSVS 4899538 1SWASP_data_18.txt
19		GSC 2999-00604	09 55 39.35, +43 19 17.9	EA/RS	12.48	12.90	WASP	3.70766	2454150.55	min		Comm. 19	19.PNG	chart19.PNG	NSVS 4899798 1SWASP_data_19.txt
20		GSC 2996-00414	09 56 00.66, +40 41 28.8	BY:	12.21	12.44	R	0.27179	2451500.863	max		Comm. 20	20.PNG	chart20.PNG	NSVS 4899795 1SWASP_data_20.txt
21		TYC 3434 00104 1	10 02 03.67, +46 05 04.4	ELL	10.38	10.46	R	0.394089	2451600.510	min		Comm. 21	21.PNG	chart21.PNG	NSVS 4883615 NSVS 4902224 1SWASP_data_21.txt
22		GSC 3434-00785	10 14 06.26, +46 27 01.4	EB	13.24	13.83	CV	0.411636	2455000.589	min		Comm. 22	22.PNG	chart22.PNG	NSVS 4906384 NSVS 4924202 CSS_data_22.txt
23		GSC 3004-00868	10 19 09.72, +41 46 11.0	EW	12.72	12.87	WASP	0.449414	2454150.825	min		Comm. 23	23.PNG	chart23.PNG	NSVS 4908487 1SWASP_data_23.txt
24		USNO-A2.0 1350-14178041	21 29 05.79, +50 20 07.0	EW	13.65	14.25	WASP	0.494673	2454330.512	min		Comm. 24	24.PNG	chart24.PNG	NSVS 5864781 NSVS 5966138 1SWASP_data_24.txt
25		USNO-B1.0 1036-0606316	21 55 07.26, +13 41 12.3	EA	15.30	17.42	CV	1.926081	2455001.837	min		Comm. 25	25.PNG	chart25.PNG	CSS_data_25.txt

Comments:

1. The twice longer period is not excluded. A bright close companion, variable CSS_J085842.7+173936 (type RRC, Drake et al. 2014), is in 12".

2. $J-K = 0.496$ (2MASS). From 1SWASP data, $14^m.35 - 14^m.6$; from ROTSE-I/NSVS data, $14^m.2 - 14^m.6$ in the R band. According to NSVS data, the light elements are: $JD(\max) = 2451504.2 + 13^d.2 \times E$. Combined brightness of three stars, GSC 2986-00338 and fainter ones, USNO-A2.0 1275-07437120 and USNO-A2.0 1275-07437162, was measured in the NSVS and 1SWASP, the tabulated amplitudes are considerably underestimated. The ROTSE data with photometric correction flags were kept for the analysis.

3. MinII = 11.76 (WASP). From CSS data, $11^m.6 - 11^m.85$ (CV); from ROTSE-I/NSVS data, $11^m.74 - 11^m.93$, MinII = $11^m.91$ in the R band.
4. X-ray sources 1WGA J0907.4+4228, 1RXP J090728+4227.8 and 2RXP J090729.3+422723. From 1SWASP data, $12^m.05 - 12^m.15$. According to 1SWASP data, the light elements are: $JD(\min) = 2454535. + 25^d.8 \times E$. The light curve shape and period vary. $J-K = 0.616$ (2MASS).
5. X-ray sources 1WGA J0908.7+4229, 1RXP J090847+4229.1 and 2RXP J090847.8+422904. From ROTSE-I/NSVS data, $10^m.75 - 10^m.87$ in the R band. $B-V = 0.718$ (Tycho2), $J-K = 0.411$ (2MASS). A star with a considerable proper motion (in the Tycho-2 catalog, $pmRA(\text{mas/yr}) = -65.8$; $pmDE(\text{mas/yr}) = -37.6$).
6. From 1SWASP data, $12^m.73 - 12^m.83$, MinII = 12.82; from ROTSE-I/NSVS data, $12^m.9 - 13^m.0$ in the R band. Combined brightness of two stars, GSC 3424-01547 and GSC 3424-00988, was measured in NSVS and 1SWASP, the tabulated amplitudes are possibly slightly underestimated. According to CSS data GSC 3424-00988 is constant star and GSC 3424-01547 is the variable star. Because of the large uncertainties the CSS data were rejected.
7. From ROTSE-I/NSVS data, $12^m.35 - 12^m.45$ in the R band. According to NSVS data, the light elements are: $JD(\max) = 2451453.65 + 3^d.427 \times E$. $J-K = 0.401$ (2MASS). The star has a faint close companion USNO-B1.0 1304-0198089.
8. MinII = $12^m.48$ (WASP). From ROTSE-I/NSVS data, $12^m.35 - 12^m.6$, MinII = $12^m.45$ in the R band.
9. From ROTSE-I/NSVS data, $10^m.5 - 10^m.7$ in the R band. The ROTSE data with photometric correction flags were kept for the analysis. Probably can be identified with IRAS F09148+5120. $B-V = 1.887$ (Tycho2), $J-K = 1.163$ (2MASS). Type SR is also not excluded.
10. MinII = 11.94 (WASP). From ROTSE-I/NSVS data, $12^m.29 - 12^m.43$, MinII = $12^m.38$ in the R band. The ROTSE data with photometric correction flags were kept for the analysis.
11. X-ray sources 1WGA J0935.4+4938, 1RXP J093525+4938.5, 2RXP J093525.3+493830 and 1RXS J093521.9+493822. $D = 0.14$ P. From 1SWASP data, $12^m.2 - 12^m.45$. $B-V = 0.328$ (Tycho2), $J-K = 0.554$ (2MASS). According to WASP data, shape of the light curve and the depth of minima are possibly subject to changes.
12. X-ray sources 1WGA J0942.0+4722, 1RXP J094206+4722.2, 2RXP J094205.6+472203. $B-V = 1.255$ (Tycho2), $J-K = 0.731$ (2MASS).
13. MinII = $14^m.10$ (CV). From ROTSE-I/NSVS data, $14^m.0 - 14^m.3$ in the R band. Combined brightness of two stars, GSC 2999-01120 (=var) and USNO-A2.0 1275-07588822, was measured in the NSVS, the tabulated amplitudes are possibly slightly underestimated.
14. From 1SWASP data, $13^m.9 - 14^m.1$; from ROTSE-I/NSVS data, $13^m.6 - 13^m.85$ in the R band. According to NSVS data, the light elements are: $JD(\max) = 2451507.3 + 19^d.2 \times E$; double wave in NSVS. $J-K = 0.718$ (2MASS).
15. From 1SWASP data, $11^m.55 - 11^m.7$. $B-V = 1.652$ (Tycho2), $J-K = 0.984$ (2MASS).
16. From ROTSE-I/NSVS data, $13^m.6 - 13^m.95$ in the R band. $P = 1.1858$ days is not excluded. $J-K = 0.700$ (2MASS).
17. MinII = $13^m.76$ (CV). From ROTSE-I/NSVS data, $13^m.7 - 13^m.9$ in the R band. The star has a faint close companion USNO-B1.0 1409-0212238.
18. $D = 0.07$ P. From ROTSE-I/NSVS data, $12^m.1 - 12^m.6$ in the R band.
19. $D = 0.08$ P. From ROTSE-I/NSVS data, $12^m.2 - 12^m.55$ in the R band. The light elements of the distortion wave: $JD(\max) = 2451451.6 + 3^d.697 \times E$. The ROTSE data with photometric correction flags were kept for the analysis.
20. From 1SWASP data, $12^m.56 - 12^m.64$. According to 1SWASP data, the light elements are: $JD(\max) = 2454150.570 + 0^d.27185 \times E$. $J-K = 0.618$ (2MASS).
21. The ROTSE data with photometric correction flags were kept for the analysis. The star's mean brightness variations were subtracted in the 1SWASP light curve. The star was independently discovered by Ivan Sergey.
22. MinII = $13^m.66$ (CV). From ROTSE-I/NSVS data, $13^m.5 - 13^m.9$ in the R band. In CSS data mean brightness varies. The star was independently discovered by Ivan Sergey, Sergei Dubrovski, and Astrobloknot Team.
23. MinII = $12^m.84$ (WASP). From ROTSE-I/NSVS data, $12^m.7 - 12^m.85$ in the R band.
24. MinII = $14^m.25$ (WASP). From ROTSE-I/NSVS data, $13^m.4 - 14^m.0$ in the R band. The ROTSE data with photometric correction flags were kept for the analysis.
25. MinII = 15.52 (CV); $D = 0.11$ P. A close companion, variable CSS_J215508.0+134117 (type RRC, Drake et al. 2014), is in $12''$ from the star.

Remarks:

I present a discovery of 25 new variable stars. My search for variables was carried out in the publicly available data of the Northern Sky Variability Survey ([NSVS](#), Woźniak et al. 2004). Besides, to improve classification and light elements, I analyzed all available observations of these stars from the [Catalina Surveys](#) (Drake et al. 2009) and [SuperWASP](#) (Butters et al. 2010). The sky area with RA between $08^h 45^m$ and $10^h 20^m$, Dec between $+40^\circ$ and $+52^\circ$ was searched. Three stars (No. 1, 24, 25) are not in the mentioned field. I discovered the variability of No. 1 and No. 25 while investigating stars of RRC type from Catalina Surveys catalog (Drake et al. 2014).

These observations were analyzed using the period-search software developed by Dr. V.P. Goranskij for Windows environment. The coordinates were drawn either from the Tycho-2 or from the 2MASS catalogs.

The SuperWASP observations are available as FITS tables, which were converted into ASCII tables using the [OMC2ASCII program](#) as described by Sokolovsky (2007).

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