

43 New 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 4340-00382	04 07 54.55, +74 28 18.6	EW	14.1	14.7	R	0.8379	2451500.548	min		Comm. 1	1.PNG	chart1.PNG	NSVS 448794 NSVS 521159 NSVS 481968
2		GSC 4514-01055	04 18 59.85, +77 38 48.1	EW	13.3	13.5	R	0.5664	2451500.717	min		Comm. 2	2.PNG	chart2.PNG	NSVS 444953 NSVS 487191
3		GSC 4523-00187	04 42 12.70, +82 06 07.6	RS	11.9	12.1	R	4.464	2451405.95	max		Comm. 3	3.PNG	chart3.PNG	NSVS 83612 NSVS 492918 NSVS 438209 NSVS 572261
4		TYC 4342 00685 1	04 53 46.52, +68 28 26.5	DSCT(B)	11.55	12.0	R	(see Comments)	(see Comments)	max		Comm. 4	4.PNG	chart4.PNG	NSVS 538745 NSVS 535362
5		GSC 4525-01418	06 34 05.55, +76 31 32.7	EW	14.0	14.4	R	0.37744	2451500.812	min		Comm. 5	5.PNG	chart5.PNG	NSVS 597934 NSVS 632377
6		GSC 2520-01874	11 12 46.94, +32 46 38.8	EW	14.5	15.2	R	0.28678	2451500.733	min		Comm. 6	6.PNG	chart6.PNG	NSVS 7574833
7		GSC 2522-01232	11 12 59.42, +34 26 08.2	EW	12.9	13.2	R	0.36206	2451500.688	min		Comm. 7	7.PNG	chart7.PNG	NSVS 7574799
8		GSC 2520-00413	11 14 03.80, +31 24 56.2	EW	12.6	12.9	R	0.34582	2451500.541	min		Comm. 8	8.PNG	chart8.PNG	NSVS 7559971 NSVS 7575440
9		GSC 4407-01163	13 10 58.05, +72 53 05.1	EW	14.6	15.3	R	0.31045	2451450.809	min		Comm. 9	9.PNG	chart9.PNG	NSVS 896343 NSVS 963016
10		GSC 4402-01937	13 20 53.66, +68 39 50.7	EW	13.05	13.22	R	0.27832	2451450.695	min		Comm. 10	10.PNG	chart10.PNG	NSVS 901783 NSVS 961980 NSVS 2692435 NSVS 2709556
11		GSC 4405-01821	13 22 26.53, +70 20 28.5	RS	12.45	12.7	R	1.3533	2451312.75	max		Comm. 11	11.PNG	chart11.PNG	NSVS 900677 NSVS 963414
12		GSC 4170-00672	13 22 58.31, +65 24 58.3	EA/RS	13.0	13.5	R	6.5778	2451408.83	min		Comm. 12	12.PNG	chart12.PNG	NSVS 2693937 NSVS 2708392
13		USNO-A2.0 1500-05675870	13 24 55.48, +64 33 16.1	EW	14.3	14.7	R	0.72054	2451400.794	min		Comm. 13	13.PNG	chart13.PNG	NSVS 2694668 NSVS 2708404
14		GSC 4170-00207	13 41 32.74, +65 43 37.3	EB	14.4	14.9	R	0.4126	2451450.906	min		Comm. 14	14.PNG	chart14.PNG	NSVS 2698307 NSVS 2712638
15		GSC 4405-00129	13 42 53.41, +70 01 49.6	EW	14.4	15.1	R	0.25876	2451450.812	min		Comm. 15	15.PNG	chart15.PNG	NSVS 904809 NSVS 967761
16		TYC 4177 00901 1	13 49 56.21, +66 28 28.0	EW	9.72	9.85	R	0.23659	2451400.536	min	G0	Comm. 16	16.PNG	chart16.PNG	NSVS 2699879 NSVS 2714726 NSVS 967975
17		GSC 4177-00780	13 54 35.00, +65 12 07.6	EA	14.3	15.0	R	1.8115	2451402.677	min		Comm. 17	17.PNG	chart17.PNG	NSVS 2701549 NSVS 2715455
18		GSC 4176-00033	14 39 24.64, +64 59 30.0	EA	12.55	13.9	R	1.02921	2451353.834	min		Comm. 18	18.PNG	chart18.PNG	NSVS 2761425 NSVS 2778378
19		GSC 4179-00004	14 40 33.87, +65 27 24.2	EW	12.8	13.05	R	0.366854	2451400.585	min		Comm. 19	19.PNG	chart19.PNG	NSVS 2761633 NSVS 2778741
20		GSC 4176-00396	14 42 52.57, +63 12 25.3	RRC:	14.4	14.9	R	0.30786	2451400.600	max		Comm. 20	20.PNG	chart20.PNG	NSVS 2762628
21		GSC 3860-00653	14 43 39.06, +53 47 36.9	EW	13.3	13.8	R	0.33168	2451400.639	min		Comm. 21	21.PNG	chart21.PNG	NSVS 2744437 NSVS 5123808 NSVS 5134069
22		GSC 4410-01361	14 47 44.66, +68 38 37.2	EW	13.65	14.0	R	0.31483	2451450.649	min		Comm. 22	22.PNG	chart22.PNG	NSVS 982796 NSVS 2762779 NSVS 2782192
23		TYC 4183 00523 1	14 54 53.90, +64 38 43.9	SRD	12.15	12.4	R	25.9	2451610.	max		Comm. 23	23.PNG	chart23.PNG	NSVS 2765621 NSVS 2781389
24		TYC 3868 00441 1	15 21 13.92, +54 23 15.2	EW	12.45	12.6	R	0.6362	2451400.756	min		Comm. 24	24.PNG	chart24.PNG	NSVS 2804164 NSVS 5181746 NSVS 2756324
25		GSC 4415-01792	15 31 13.67, +70 26 51.8	EW	13.5	13.75	R	0.35839	2451400.839	min		Comm. 25	25.PNG	chart25.PNG	NSVS 992327 NSVS 1061427
26		USNO-A2.0 1575-03550770	15 34 20.51, +72 25 26.8	EW	15.0	15.7	R	0.31572	2451400.522	min		Comm. 26	26.PNG	chart26.PNG	NSVS 991406 NSVS 1063861

27	TYC 4412 01513 1	15 38 49.19, +69 00 50.1	RS	12.25	12.38	R	0.59538	2451450.585	max	Comm. 27	27.PNG	chart27.PNG	NSVS 995447 NSVS 1061998 NSVS 2793604
28	TYC 4418 00512 1	15 42 23.94, +72 30 17.2	SRD	11.95	12.15	R	138	2451520	max	Comm. 28	28.PNG	chart28.PNG	NSVS 992981 NSVS 1065664
29	TYC 4415 00328 1	15 43 46.30, +70 18 24.8	RS	12.05	12.3	R	22.55	2451603.0	max	Comm. 29	29.PNG	chart29.PNG	NSVS 995440 NSVS 1064222
30	GSC 4188-00762	15 45 16.12, +65 49 46.8	EW	13.8	14.2	R	0.36053	2451400.662	min	Comm. 30	30.PNG	chart30.PNG	NSVS 2794621 NSVS 2778003 NSVS 1061153
31	TYC 4418 01129 1	15 54 59.21, +72 57 36.1	ELL:	11.25	11.35	R	1.6662	2451404.72	min	Comm. 31	31.PNG	chart31.PNG	NSVS 995126 NSVS 1068859
32	TYC 4422 01970 1	16 08 19.45, +70 03 46.8	RS	10.95	11.1	R	5.20	2451463.0	max	Comm. 32	32.PNG	chart32.PNG	NSVS 1070297 NSVS 1000924
33	TYC 4422 02221 1	16 11 41.42, +70 47 26.2	SRA	10.85	11.15	R	50	2451525	max	Comm. 33	33.PNG	chart33.PNG	NSVS 1000809 NSVS 1071559
34	GSC 4195-01697	16 16 26.94, +66 31 17.1	EW	12.15	12.3	R	0.44926	2451400.668	min	Comm. 34	34.PNG	chart34.PNG	NSVS 2846433 NSVS 2868113
35	GSC 4419-02282	16 17 59.55, +67 55 36.1	BY	13.9	14.2	R	13.8	2451402.60	max	Comm. 35	35.PNG	chart35.PNG	NSVS 1071999 NSVS 2846590 NSVS 2869632
36	GSC 4192-01226	16 21 13.75, +64 09 44.1	SR	13.6	14.0	R	58.5	2451454.	max	Comm. 36	36.PNG	chart36.PNG	NSVS 2848383 NSVS 2867633
37	GSC 4195-00714	16 21 48.30, +65 30 05.3	EW	14.3	15.0	R	0.28908	2451400.529	min	Comm. 37	37.PNG	chart37.PNG	NSVS 2848219 NSVS 2868746
38	GSC 4193-01122	16 24 57.16, +63 40 57.9	EW:	13.2	13.4	R	0.49144:	2451400.656	min	Comm. 38	38.PNG	chart38.PNG	NSVS 2849718 NSVS 2868279
39	GSC 0397-01250	16 55 32.42, +06 30 55.9	EW	14.2	14.8	R	0.2744756	2451400.515	min	Comm. 39	39.PNG	chart39.PNG	NSVS 13579336 ASAS 165532+0630.9
40	GSC 0397-01030	16 55 38.05, +06 45 14.8	EW	13.7	14.2	V	0.3406925	2454000.511	min	Comm. 40	40.PNG	chart40.PNG	NSVS 13579448 ASAS 165538+0645.2
41	GSC 0987-00739	16 56 27.26, +14 03 24.6	EW	13.4	14.2	V	0.359937	2453800.573	min	Comm. 41	41.PNG	chart41.PNG	NSVS 10759036 ASAS 165628+1403.4
42	GSC 0976-02373	17 02 05.00, +09 08 39.3	EB	13.7	14.2	R	0.747795	2453800.367	min	Comm. 42	42.PNG	chart42.PNG	NSVS 10764825 NSVS 13660858 ASAS 170205+0908.6
43	GSC 0410-02114	17 04 25.63, +06 19 32.4	EW	13.05	13.35	V	0.724916	2453900.910	min	Comm. 43	43.PNG	chart43.PNG	NSVS 13663686 ASAS 170426+0619.6

Comments:

1. MinII = 14.7. The ROTSE data with photometric correction flags were kept for the analysis.

2. MinII = 13.45.

3. J-H = 0.434 (2MASS). 1RXS J044210.0+820616.

4. B-V = 0.433 (Tycho2), J-H = 0.164 (2MASS). The period ratio of the first overtone and fundamental modes is $P_1/P_0 = 0.7666$. The star has a faint close companion GSC 4342-00692. The ROTSE data with photometric correction flags were kept for the analysis.

TYC 4342 00685 1 = NSVS 538745

Mode	Frequency, c/d	Semi-amplitude, R mag	Period, days	Epoch, JD
f_1	7.46347	0.087	0.133986	2451450.634
f_0	5.72171	0.078	0.174773	2451450.731
$f_1 - f_0$	1.74171	0.028	0.57415	2451450.92
$f_1 + f_0$	13.1850	0.020	0.075844	2451450.672

5. MinII = 14.35. The star has a faint close companion 2MASS 06340683+7631274. Perhaps a blend of the two stars is in the NSVS. The variability amplitude can be underestimated.

6. MinII = 15.0. The ROTSE data with photometric correction flags were kept for the analysis.

7. MinII = 13.1.

8. MinII = 12.9.

9. MinII = 15.2.
10. MinII = 13.18. Period 0.24432 days is not excluded. 1RXS J132056.1+683954.
11. J-H = 0.552 (2MASS). 1RXS J132230.2+702035 . The variability amplitude changes with time.
12. MinII = 13.25, D = 0.07 P. 1RXP J132257.9+652507, 1WGA J1322.9+6525.
13. MinII = 14.7. Type RRC is not excluded, with the elements: $JD(\max) = 2451400.606 + 0.36027 \times E$. J-H = 0.244 (2MASS).
14. MinII = 14.65.
15. MinII = 14.9. The ROTSE data with photometric correction flags were kept for the analysis.
16. BD+67 803. MinII = 9.85. Period 0.21157 days is not excluded.
17. D = 0.14 P.
18. MinII = 12.75. D = 0.13 P.
19. MinII = 13.05.
20. M-m = 0.40 P. J-H = 0.234 (2MASS).
21. MinII = 13.8. The ROTSE data with photometric correction flags were kept for the analysis.
22. MinII = 14.0. The ROTSE data with photometric correction flags were kept for the analysis.
23. J-H = 0.587 (2MASS). The color index B-V = 1.798 (Tycho2) is probably wrong.
24. MinII = 12.55. A companion, GSC 3868-00445, can somewhat influence the NSVS photometry.
25. MinII = 13.75. The star has a faint close companion 2MASS 15311122+7026546.
26. MinII = 15.6.
27. Period 0.37323 days is not excluded. 1RXS J153850.8+690048. B-V = 1.468 (Tycho2), J-H = 0.529 (2MASS).
28. B-V = 0.142 (Tycho2), J-H = 0.506 (2MASS). The ROTSE data with photometric correction flags were kept for the analysis.
29. B-V = 0.991 (Tycho2), J-H = 0.602 (2MASS). 1RXS J154346.4+701828.
30. MinII = 14.2. The star has a faint close companion 2MASS 15451752+6549551.
31. B-V = 0.266 (Tycho2), J-H = 0.121 (2MASS).
32. B-V = 0.790 (Tycho2), J-H = 0.432 (2MASS). 1RXS J160820.6+700353.
33. B-V = 1.606 (Tycho2), J-H = 0.907 (2MASS). IRAS F16120+7054. The ROTSE data with photometric correction flags were kept for the analysis.
34. MinII = 12.27. Type ELL is not excluded.
35. J-H = 0.587 (2MASS).
36. J-H = 0.871 (2MASS).

37. MinII = 14.9.

38. All observations with the errors $> 0.05m$ were rejected. Along with the light curves, we reproduce the power spectra (Deeming's method) for each of the two NSVS entries. The frequency corresponding to a twice shorter period is labeled "f". $J-H = 0.172$ (2MASS).

39. MinII = 14.5. (14.1–14.8 in the V band from the ASAS data).

40. MinII = 14.1. (13.75–14.15, MinII = 14.0 in the R band).

41. MinII = 13.95. (13.5–14.2, MinII = 14.0 in the R band).

42. MinII = 14.05. (13.5–13.95, MinII = 13.75 in the V band from the ASAS data). The ROTSE data with photometric correction flags were kept for the analysis.

43. MinII = 13.30. (13.15–13.5; MinII = 13.35 in the R band).

Remarks:

I present a discovery of 43 new variable stars. My search for variables was carried out in the publicly available data of the Northern Sky Variability Survey ([NSVS](#), Wozniak et al. 2004). They were appended, when possible, with ASAS-3 data (Pojmanski 2002). 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 2MASS catalogs.

References:

Pojmanski, G., 2002, Acta Astronomica, 52, 397

Wozniak, P.R., Vestrand, W.T., Akerlof, C.W., et al., 2004, Astron. J., 127, 2436