

## A Study of 38 Short-period Pulsating Variables from the NSV Catalog

**[E. V. Kazarovets](#), [E. N. Pastukhova](#)**

*Institute of Astronomy, Russian Academy of Sciences, Moscow, Russia*

Received: 28.10.2015; accepted: 25.12.2015

(E-mail for contact: [helene@inasan.ru](mailto:helene@inasan.ru), [pastukhova@sai.msu.ru](mailto:pastukhova@sai.msu.ru))

#	Name	Other	Coord (J2000)	Type	Max	Min	System	Period	Epoch (JD)	type	Sp	Comment	L.Curve	Find.Chart	Data
1	NSV 10086	361.1933	18 03 05.01, +11 39 24.1	RRAB	13.5	14.6	V	0.70346	2453831.875	max		<a href="#">Comm. 1</a>	<a href="#">10086lc.jpg</a>	<a href="#">10086ch.jpg</a>	<a href="#">ASAS 180305+1139.4</a>
2	NSV 10054	HV 7960	18 04 03.28, -54 09 55.6	RRAB	13.4	14.0	V	0.59352	2453550.820	max		<a href="#">Comm. 2</a>	<a href="#">10054lc.jpg</a>	<a href="#">10054ch.jpg</a>	<a href="#">ASAS 180403-5409.9</a>
3	NSV 10200	HV 7983	18 07 57.04, -56 55 04.5	RRAB	14.25	14.8	CV	0.645449	2456149.003	max		<a href="#">Comm. 3</a>	<a href="#">10200lc.jpg</a>	<a href="#">10200ch.jpg</a>	<a href="#">10200dat.txt</a>
4	NSV 10229	S 8788	18 08 34.21, -45 59 06.6	RRAB	13.5	14.3	V	0.684040	2453824.865	max		<a href="#">Comm. 4</a>	<a href="#">10229lc.jpg</a>	<a href="#">10229ch.jpg</a>	<a href="#">ASAS 180834-4559.1</a>
5	NSV 10343	HV 9784	18 13 13.34, -57 36 15.4	RRAB	14.25	15.15	CV	0.543073	2455692.182	max		<a href="#">Comm. 5</a>	<a href="#">10343lc.jpg</a>	<a href="#">10343ch.jpg</a>	<a href="#">10343dat.txt</a>
6	NSV 10361	BV 1126	18 15 42.81, -71 02 56.5	RRAB	13.5	14.8	V	0.459521	2455099.538	max		<a href="#">Comm. 6</a>	<a href="#">10361lc.jpg</a>	<a href="#">10361ch.jpg</a>	<a href="#">ASAS 181543-7102.9</a>
7	NSV 10414	HV 9805	18 16 01.61, -54 37 16.4	RRAB	15.14	15.92	CV	0.685899	2454762.910	max		<a href="#">Comm. 7</a>	<a href="#">10414lc.jpg</a>	<a href="#">10414ch.jpg</a>	<a href="#">10414dat.txt</a>
8	NSV 10427	HV 9807	18 16 05.02, -49 58 24.2	DSCT.	13.9	14.4	V	0.185352	2454763.558	max		<a href="#">Comm. 8</a>	<a href="#">10427lc.jpg</a>	<a href="#">10427ch.jpg</a>	<a href="#">ASAS 181605-4958.4</a>
9	NSV 10412	HV 9804	18 16 07.51, -55 43 56.3	CEP	14.23	15.05	CV	1.20058	2455773.044	max		<a href="#">Comm. 9</a>	<a href="#">10412lc.jpg</a>	<a href="#">10412ch.jpg</a>	<a href="#">10412dat.txt</a>
10	NSV 10461	HV 9823	18 17 29.29, -52 51 44.2	RRAB	14.47	15.06	CV	0.603458	2456175.916	max		<a href="#">Comm. 10</a>	<a href="#">10461lc.jpg</a>	<a href="#">10461ch.jpg</a>	<a href="#">10461dat.txt</a>
11	NSV 10518	HV 9845	18 19 42.07, -57 18 51.2	RRC	15.24	15.82	CV	0.310923	2455438.960	max		<a href="#">Comm. 11</a>	<a href="#">10518lc.jpg</a>	<a href="#">10518ch.jpg</a>	<a href="#">10518dat.txt</a>
12	NSV 10521	HV 9853	18 19 42.62, -54 32 51.3	RRAB	14.8	15.7	CV	0.595003	2454762.88	max		<a href="#">Comm. 12</a>	<a href="#">10521lc.jpg</a>	<a href="#">10521ch.jpg</a>	<a href="#">10521dat.txt</a>
13	NSV 10531	HV 9855	18 19 44.05, -53 35 45.7	RRC	16.05	16.45	CV	0.309565	2456098.978	max		<a href="#">Comm. 13</a>	<a href="#">10531lc.jpg</a>	<a href="#">10531ch.jpg</a>	<a href="#">10531dat.txt</a>
14	NSV 10544	HV 9856	18 19 51.85, -54 11 53.6	RRAB	13.6	13.9	CV	0.789222	2455773.043	max		<a href="#">Comm. 14</a>	<a href="#">10544lc.jpg</a>	<a href="#">10544ch.jpg</a>	<a href="#">10544dat.txt</a>
15	NSV 10611	HV 9863	18 20 40.23, -54 47 20.9	RRC	14.95	15.40	CV	0.372415	2455012.98	max		<a href="#">Comm. 15</a>	<a href="#">10611lc.jpg</a>	<a href="#">10611ch.jpg</a>	<a href="#">10611dat.txt</a>
16	NSV 10615	HV 9865	18 20 41.37, -53 12 04.1	RRAB	14.4	14.75	CV	0.69141	2455023.118	max		<a href="#">Comm. 16</a>	<a href="#">10615lc.jpg</a>	<a href="#">10615ch.jpg</a>	<a href="#">10615dat.txt</a>
17	NSV 10659	HV 9875	18 22 14.79, -54 08 27.3	RRC	14.75	15.15	CV	0.263017	2455012.999	max		<a href="#">Comm. 17</a>	<a href="#">10659lc.jpg</a>	<a href="#">10659ch.jpg</a>	<a href="#">10659dat.txt</a>
18	NSV 10763	S 10437	18 25 14.70, +35 05 33.4	RRAB	16.44	17.35	CV	0.608809	2456447.822	max		<a href="#">Comm. 18</a>	<a href="#">10763lc.jpg</a>	<a href="#">10763ch.jpg</a>	<a href="#">10763dat.txt</a>
19	NSV 10737	BV 1315	18 26 07.72, -62 57 48.5	RRAB	14.0	15.15	CV	0.417834	2455055.973	max		<a href="#">Comm. 19</a>	<a href="#">10737lc.jpg</a>	<a href="#">10737ch.jpg</a>	<a href="#">10737dat.txt</a>
20	NSV 10872	HV 9935	18 30 31.44, -59 51 17.8	RRC	14.85	15.25	CV	0.320150	2455012.981	max		<a href="#">Comm. 20</a>	<a href="#">10872lc.jpg</a>	<a href="#">10872ch.jpg</a>	<a href="#">10872dat.txt</a>
21	NSV 10954	HV 9955	18 32 53.55, -55 39 13.6	RRC	15.78	16.25	CV	0.257366	2456490.923	max		<a href="#">Comm. 21</a>	<a href="#">10954lc.jpg</a>	<a href="#">10954ch.jpg</a>	<a href="#">10954dat.txt</a>
22	NSV 10957	HV 9956	18 32 54.80, -53 23 43.9	RRC	15.22	15.64	CV	0.301027	2455104.953	max		<a href="#">Comm. 22</a>	<a href="#">10957lc.jpg</a>	<a href="#">10957ch.jpg</a>	<a href="#">10957dat.txt</a>

23	NSV 10983	S 7389	18 33 16.69, -48 07 08.5	RRC	13.6	14.2	V	0.284732	2454968.767	max		<a href="#">Comm. 23</a>	<a href="#">10983lc.jpg</a>	<a href="#">10983ch.jpg</a>	<a href="#">ASAS 183317-4807.1</a>
24	NSV 11025	HV 9972	18 34 48.28, -52 17 32.6	RRC	13.97	14.30	CV	0.289728	2455030.042	max		<a href="#">Comm. 24</a>	<a href="#">11025lc.jpg</a>	<a href="#">11025ch.jpg</a>	<a href="#">11025dat.txt</a>
25	NSV 11031	HV 9975	18 35 17.30, -52 54 47.7	RRC	14.41	14.88	CV	0.277219	2454246.185	max		<a href="#">Comm. 25</a>	<a href="#">11031lc.jpg</a>	<a href="#">11031ch.jpg</a>	<a href="#">11031dat.txt</a>
26	NSV 11108	HV 10001	18 38 41.01, -55 26 39.0	RRC	14.97	15.35	CV	0.308167	2455012.992	max		<a href="#">Comm. 26</a>	<a href="#">11108lc.jpg</a>	<a href="#">11108ch.jpg</a>	<a href="#">11108dat.txt</a>
27	NSV 11125	HV 10005	18 39 21.31, -55 37 41.2	RRAB	15.5	15.9	CV	0.64287	2455805.995	max		<a href="#">Comm. 27</a>	<a href="#">11125lc.jpg</a>	<a href="#">11125ch.jpg</a>	<a href="#">11125dat.txt</a>
28	NSV 11134	HV 10009	18 39 31.74, -49 28 17.8	RRC	14.15	14.62	CV	0.333292	2455104.937	max		<a href="#">Comm. 28</a>	<a href="#">11134lc.jpg</a>	<a href="#">11134ch.jpg</a>	<a href="#">11134dat.txt</a>
29	NSV 11153	HV 10016	18 40 22.20, -52 42 19.0	RRC	14.83	15.18	CV	0.344455	2455030.033	max		<a href="#">Comm. 29</a>	<a href="#">11153lc.jpg</a>	<a href="#">11153ch.jpg</a>	<a href="#">11153dat.txt</a>
30	NSV 11228	S 9325	18 41 09.48, +45 19 47.8	RRAB	16.1:	17.05	CV	0.504443	2455341.96	max			<a href="#">11228lc.jpg</a>	<a href="#">11228ch.jpg</a>	<a href="#">11228dat.txt</a>
31	NSV 11218	S 7410	18 42 59.07, -45 32 54.1	RRAB	13.8	14.8:	V	0.468098	2454724.642	max		<a href="#">Comm. 31</a>	<a href="#">11218lc.jpg</a>	<a href="#">11218ch.jpg</a>	<a href="#">ASAS 184259-4532.9</a>
32	NSV 11279	HV 10049	18 45 59.02, -54 09 15.2	RRC:	14.73	15.20	CV	0.39442	2453883.122	max		<a href="#">Comm. 32</a>	<a href="#">11279lc.jpg</a>	<a href="#">11279ch.jpg</a>	<a href="#">11279dat.txt</a>
33	NSV 11318	S 7427	18 47 01.95, -47 21 12.5	CWB	14.03	15.25	CV	1.007335	2455030.031	max		<a href="#">Comm. 33</a>	<a href="#">11318lc.jpg</a>	<a href="#">11318ch.jpg</a>	<a href="#">11318dat.txt</a>
34	NSV 11329	HV 10060	18 47 58.70, -52 35 55.3	RRAB	13.85	14.9	CV	0.56712	2454697.075	max		<a href="#">Comm. 34</a>	<a href="#">11329lc.jpg</a>	<a href="#">11329ch.jpg</a>	<a href="#">11329dat.txt</a>
35	NSV 11336	S 7429	18 48 05.82, -46 25 36.9	RRAB:	13.8	15.2:	V	0.43847:	2453100.861	max			<a href="#">11336lc.jpg</a>	<a href="#">11336ch.jpg</a>	<a href="#">ASAS 184806-4625.6</a>
36	NSV 11350	S 7124	18 49 54.97, -63 33 42.1	RRAB	15.13	16.17	CV	0.544815	2455104.977	max		<a href="#">Comm. 36</a>	<a href="#">11350lc.jpg</a>	<a href="#">11350ch.jpg</a>	<a href="#">11350dat.txt</a>
37	NSV 11449	HV 10087	18 54 08.14, -57 46 05.9	RRAB	15.02	15.90	CV	0.761690	2456490.919	max		<a href="#">Comm. 37</a>	<a href="#">11449lc.jpg</a>	<a href="#">11449ch.jpg</a>	<a href="#">11449dat.txt</a>
38	NSV 11419	HV 9534	18 54 48.33, -73 39 30.2	RRAB	16.1:	17.2	CV	0.498324	2454191.268	max		<a href="#">Comm. 38</a>	<a href="#">11419lc.jpg</a>	<a href="#">11419ch.jpg</a>	<a href="#">11419dat.txt</a>

**Comments:**

1.  $M-m = 0.13 P$ .
2.  $M-m = 0.2 P$ .
3.  $M-m = 0.22 P$ .
4.  $M-m = 0.2 P$ .
5.  $M-m = 0.14 P$ .
6.  $M-m = 0.1: P$ .
7.  $M-m = 0.16 P$ .
8.  $M-m = 0.5 P$ . EW type with a twice longer period is also possible.
9.  $M-m = 0.30 P$ .
10.  $M-m = 0.19 P$ .
11.  $M-m = 0.34 P$ .

12.  $M-m = 0.18$ : P.
13.  $M-m = 0.40$  P.
14.  $M-m = 0.27$  P.
15.  $M-m = 0.5$ : P. The period considerably varies.
16.  $M-m = 0.27$  P.
17.  $M-m = 0.37$  P.
18.  $M-m = 0.13$  P.
19.  $M-m = 0.16$ : P.
20.  $M-m = 0.43$  P.
21.  $M-m = 0.35$  P.
22.  $M-m = 0.4$  P.
23.  $M-m = 0.30$  P.
24.  $M-m = 0.45$  P. Combined brightness of two stars (probably the SE component of 3" pair is variable:  $J = 13.66$ ,  $J-K = 0.27$ ; the NW component:  $J = 14.31$ ,  $J-K = 0.71$ ).
25.  $M-m = 0.35$  P.
26.  $M-m = 0.45$  P.
27.  $M-m = 0.25$  P.
28.  $M-m = 0.35$  P.
29.  $M-m = 0.47$  P.
31.  $M-m = 0.2$ : P.
32. The elements are for JD 2453606–2454386. The period possibly varies.
33.  $M-m = 0.12$  P.
34.  $M-m = 0.15$ : P.
36.  $M-m = 0.14$  P.
37.  $M-m = 0.1$ : P.
38.  $M-m = 0.13$ : P.

**Remarks:**

We present light elements and types for 38 pulsating stars found in the process of improving coordinates of variables from the NSV catalog (Samus et al. 2007–2015). HV 9863, HV 9956, HV 10001, and HV 10053 were found, upon our request, by the late Dr. Martha L. Hazen in Harvard Observatory's logbooks. No finding charts were available for these variables before. We study the variables using publicly available electronic archives of CCD observations of the [ASAS-3](#) project (Pojmanski 2002) and the [Catalina Sky Survey](#) photometric data (Drake et al. 2009).

Acknowledgments: Our studies are supported by a grant from the Program "Transition and explosive processes in the Universe" of the Presidium of Russian Academy of Sciences and by the Russian Foundation for Basic Research grant 13-02-00664.

**References:**

Drake, A.J., Djorgovski, S.G., Mahabal, A., et al., 2009, *Astrophys. J.*, 696, 870

Pojmanski, G., 2002, *Acta Astron.*, 52, 397

Samus, N.N., Durlevich, O.V., Goranskij, V.P., Kazarovets, E.V., Kireeva, N.N., Pastukhova E.N., Zharova, A.V., 2007–2015, *General Catalogue of Variable Stars*, Centre de Données Astronomiques de Strasbourg, B/gcvs