

Moscow Digital Variables. II

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#	Name	Other	Coord (J2000)	Type	Max	Min	System	Period	Epoch (JD)	type	Sp	Comment	L.Curve	Find.Chart	Data
1		1275-14367376	20 56 40.51 +41 18 27.8	RRAB	16.0	16.6	pg	0.50659	2443671.605	max			1.gif	ch1.jpg	1.dat
2		1200-17828424	21 23 11.19 +35 52 09.4	RRAB	14.9	15.5	pg	0.59398	2443669.46	max			2.gif	ch2.jpg	2.dat
3		1200-17847254	21 23 42.69 +35 44 22.9	EW	15.0	15.8	pg	0.35262	2443670.235	min		Comm. 3	3.gif	ch3.jpg	3.dat
4		1200-17867515	21 24 16.40 +36 35 48.1	EA	16.0	16.5	pg	0.96244	2443670.51	min			4.gif	ch4.jpg	4.dat
5		1200-17892892	21 25 00.61 +36 03 28.3	EW	14.8	15.5	pg	0.35978	2444074.46	min		Comm. 5	5.gif	ch5.jpg	5.dat
6		1200-17949676	21 26 41.17 +35 46 40.0	LB	15.4	16.0	pg			other		Comm. 6	6.gif	ch6.jpg	6.dat
7		1200-17950241	21 26 42.12 +35 59 51.2	LB	15.2	16.0	pg			other		Comm. 7	7.gif	ch7.jpg	7.dat
8		1200-17747846	21 21 03.34 +36 26 12.8	EW	14.4	14.8	pg	0.565827	2443722.432	min		Comm. 8	8.gif	ch8.jpg	8.dat
9		1200-17751769	21 21 09.39 +36 41 35.9	CEP:	15.7	16.1	pg	1.0355:	2443670.42	max			9.gif	ch9.jpg	9.dat
10		1200-17767112	21 21 32.77 +36 49 30.8	RRAB	14.3	15.6	pg	0.66031	2444053.488	max			10.gif	ch10.jpg	10.dat
11		1200-17893884	21 25 02.37 +36 19 55.6	EW	16.1	16.5	pg	0.42731	2448542.235	min		Comm. 11	11.gif	ch11.jpg	11.dat
12		1200-17898316	21 25 09.85 +36 12 04.4	IN:	14.8	15.5	pg			other		Comm. 12	12.gif	ch12.jpg	12.dat
13		1200-17932273	21 26 10.20 +36 59 47.1	EW	15.3	15.9	pg	0.44373	2443670.453	min			13.gif	ch13.jpg	13.dat
14		1200-17995779	21 28 06.19 +36 54 15.5	RS	13.8	14.4	pg	5.98645	2441948.5	min		Comm. 14	14.gif	ch14.jpg	14.dat
15		1200-18017032	21 28 45.61 +37 04 34.0	EW	14.3	15.0	pg	0.38223	2444461.434	min		Comm. 15	15.gif	ch15.jpg	15.dat

Comments:

3. MinII 15.6.
5. MinII 15.5.
6. NSVS 8710529. NSVS data confirms variability.
7. NSVS 8710609. NSVS data confirms variability. Possibly SRB with a period about 90 days.
8. MinII 14.8.
11. MinII 16.4.
12. White. The presence of a small compact nebula can be suspected from Aladin images.
14. 1RXS J212806.5+365412 = GSC 2716-01758.
15. MinII 14.9.

Remarks:

We present the results of our second pilot project of variable-star search using scanned photographic plates. Two square 1.5-to-1.5-degree regions in Cygnus, centered at 21h24m44s, +36deg21'51" and 20h54m24s, +41deg05'38" (J2000), were studied. 175 photographic plates of these fields were taken with the 40-cm astrograph in Crimea, they cover 20 years between 1975 and 1995. The plates were scanned by one of the authors (D. Kolesnikova) at 2540 dpi resolution with the Sternberg Institute's CREO EverSmart Supreme II flatbed scanner. 16 bit-per-channel TIFF images produced by the scanner were converted to FITS format by means of custom software developed by A. Lebedev & K. Sokolovsky (available online at <ftp://scan.sai.msu.ru/pub/software/tiff2fits/>). Further analysis was done in VAST software (Sokolovsky, Lebedev, 2005) which is based on the well-known SExtractor by Bertin (2006). A total of 18 variable objects were detected, three of them were previously reported as variable stars by different authors. For V1219 Cyg (type IN, Hoffmeister, 1967) and NSVS 2122045+355634 (type L, Wozniak et al., 2004), our data is fully consistent with the existing classification, so we drop them from further consideration. The data is available upon request. The third star (GSC 03171-00761, Otero et. al., 2004) will be discussed in detail in a separate paper. Properties of 15 previously unreported variables are presented in the Table above. All magnitudes in this work were calibrated using photographic blue magnitudes of neighboring USNO-A2.0 stars (Monet et al., 1998). Time series analysis was done with WinEffect software, developed by V. Goranskij.

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References:

- Bertin, E., 2006, "SExtractor v2.5 User's manual" (http://terapix.iap.fr/rubrique.php?id_rubrique=91/)
- Hoffmeister, C., 1967, *Astronomische Nachrichten*, 290, 43
- Monet, D., Bird, A., Canzian, B., et al., 1998, USNO-A2.0, A Catalog of Astrometric Standards (U.S. Naval Observatory, Washington, DC)
- Otero, S.A., Wils, P., Dubovsky, P.A., 2004, *IBVS*, No. 5570
- Sokolovsky, K., Lebedev, A., 2005, in 12th Young Scientists' Conference on Astronomy and Space Physics, Kyiv, Ukraine, April 19-23, 2005, eds.: Simon, A.,

Golovin, A., p.79 (VAST: <http://saistud.sai.msu.ru/vast>)

Wozniak, P.R., Williams, S.J., Vestrand, W.T., Gupta, V., 2004, *Astronomical Journal*, 128, 2965