

NSVS 11075037 = Dauban V53: updated elements of a Mira variable in Hercules

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Abstract: Refined elements of a Mira variable in the constellation of Hercules are presented in the paper. The variability of NSVS 11075037 was detected in December of 2012 by I. Sergey, based on photometric data from the Northern Sky Variability Survey, as a part of the VS-COMPAS data mining project. Lately, by the time the star's data was finally analyzed in 2013, the object was identified as the Dauban V53 in the VSX catalog, with no period and classification specified. Thus, a revision with up-to-date data was submitted.

During the candidates selection process in the constellation of Hercules as a part of data mining activity performed by the VS-COMPAS project team in December of 2012, the source identified as NSVS 11075037 was considered a variable. The object was not on record in the AAVSO International Variable Star Index (VSX) then.

The photometric data of NSVS 11075037 was analyzed in 2013. By that time the object was submitted to the VSX as a result of the Dauban Survey activity. The Dauban Survey project is a collaboration between Francois Kugel and Jerome Caron (2012).

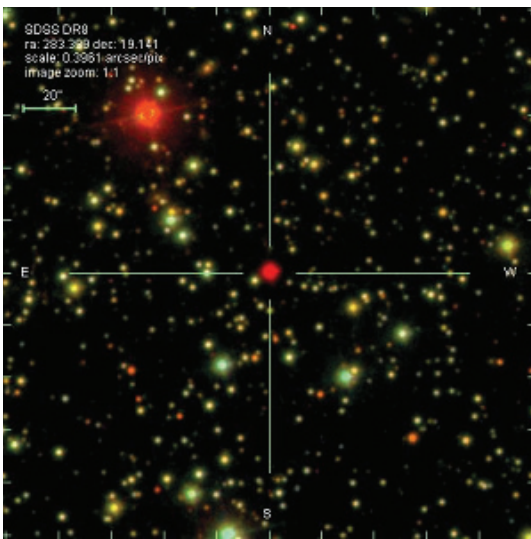


Figure 1. — NSVS 11075037 and Dauban V53 reference the same object

The Northern Sky Variability Survey (Woźniak et al., 2004) has a moderate resolution, so there are cases, where the identification remains uncertain, especially in crowded fields. NSVS 11075037 was later cross-identified with the Dauban V53, GSC2.3 N2CN079432 and UCAC4 546-080879, but the corresponding record in the VSX did not contain any information about the epoch, period and classification. The pictures made by the Dauban Survey clearly demonstrate that the variable object in the

area, which corresponds to NSVS 11075037, is the only variable source among its neighbors.

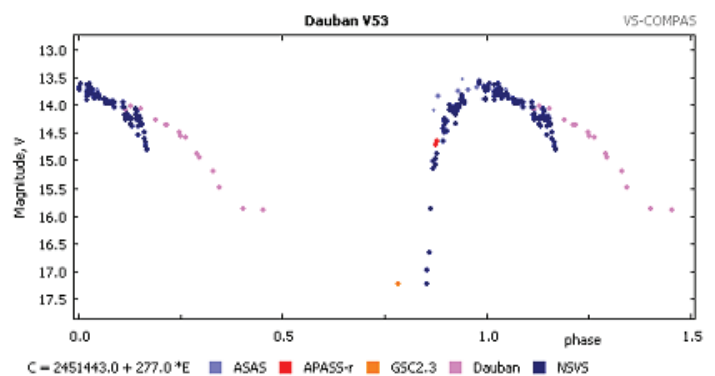


Figure 2. — Folded light curve for NSVS 11075037. The period is 277 days.

Detailed analysis was made by Siarhey Hadon in December 2013. Periodogram analysis revealed a peak corresponding to a period of 277 days. This value has a good match with the photometric data points gathered by Kugel and Caron.

The light curve data from the NSVS database was contaminated by several neighboring stars. Deblending of the light curve data allowed to find the real magnitude range. Taking into consideration other properties of the star and its color index, it was classified as a Mira variable. The revision has been submitted to the VSX.

Above, the folded light curve of NSVS 11075037 is presented. The light curve looks interesting and promising (cf. Figure 2), though no data is available for the faint phase around the minima. Further observations are required.

This research has made use of the SIMBAD and VizieR databases operated at the Centre de Données Astronomiques (Strasbourg) in France; of the International Variable Star Index (AAVSO), and of the Two Micron All Sky Survey (2MASS). Period search and analysis software is created by A. Prokopovich and I. Adamin, members of the VS-COMPAS data mining project.

NSVS 11075037 = Dauban V53	
AAVSO UID	306058
Constellation	Hercules
Other Names	2MASS J18533581+1908266 NSVS 11075037 AKARI-IRC-V1 J1853358+190826 IRAS R18514+1904

Coordinates	18 53 35.82 +19 08 26.7 (J2000.0)
Mag. range	13.7 - <17.2 V
Epoch	21 Sep 1999 (HJD 2451443)
Period	277 days
Var. type	M

Remarks

NSVS magnitudes are contaminated by: 2MASS J18533658+1908052 (J-K= 0.62, V= 16.1, sep. 24"), 2MASS J18533529+1907541 (J-K= 0.55, V= 16.9, sep. 33"), 2MASS J18533358+1908131 (J-K= 0.95, V= 16.4, sep. 35"), 2MASS J18533814+1908403 (J-K= 0.49, V= 15.7, sep. 36"), 2MASS J18533709+1907511 (J-K= 0.39, V= 14.3, sep. 40"), 2MASS J18533846 1908464 (J-K= 0.65, V= 14.4, sep. 42"), 2MASS J18533463+1909075 (J-K= 0.72, V= 16.8, sep. 44"), 2MASS J18533510+1909141 (J-K= 0.69, V= 16.3, sep. 49"), 2MASS J18533377+1907467 (J-K= 0.44, V= 14.0, sep. 49") and 2MASS J18533785+1909069 (J-K= 0.54, V= 15.9, sep. 50"). Range has been corrected. J-K= 1.44.

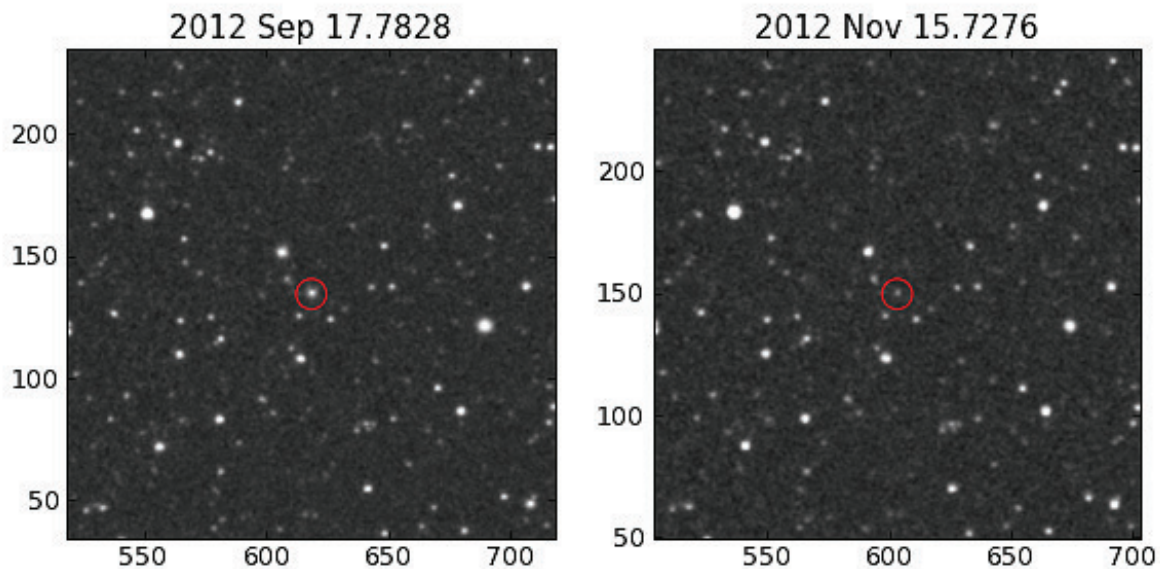


Figure 3. – Charts proving a variability of Dauban V53.
Image credit: http://www.aspylib.com/newsurvey/_data/V0053.html

References

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