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V597 SCORPII AND ITS NEIGHBOUR: A DOUBLE MIRA STAR?

SAMUS, N. N.[1]; HAZEN, M. L.[2]

[1] Institute of Astronomy, Russian Academy of Sciences, 48, Pyatnitskaya Str., Moscow 119017, Russia and Sternberg Astronomical Institute, University of Moscow, 13, University Ave., Moscow 119992, Russia
[samus@sai.msu.ru]

[2] Harvard College Observatory, 60, Garden Str., Cambridge, MA, 02138 USA
[mhazen@cfa.harvard.edu]

The variable star V597 Sco (HV 10835) was discovered by Swope (1943) who had classified it as a Mira variable, with the light elements Max = 2429460 + $216^{\rm d} \times E$ and the photographic range from $14\overset{\rm m}{.}5$ to fainter than $17\overset{\rm m}{.}0$, and published a low-quality photographic chart. During our work on the new version of the GCVS with improved coordinates (cf. Samus *et al.*, 2002, 2003), we found two variable objects near the published position of V597 Sco on images of the US Naval Observatory Image and Catalogue Archive. The existing finding chart did not permit us to decide which of the stars was the original Harvard variable, so we had to identify HV 10835 using the discoverer's notebooks and plates of the Harvard stacks.

The Figure shows the field of V597 Sco on two sky survey images in red light, retrieved from the USNO Image and Catalogue Archive. The variability of two stars is quite evident. Star 1 ($R = 10.7$, $V = 15.66$ in the GSC2.2 catalog) is the original V597 Sco = HV 10835. Star 2 ($R = 16.85$, $V = 17.06$) is the new variable. Their coordinates, based upon the GSC2.2 catalog, are the following.

V597 Sco = HV 10835	$17^{\rm h}02^{\rm m}28\overset{\rm s}{.}44$	$-35^\circ14'47\overset{''}{.}8$ (2000.0)
New variable	$17^{\rm h}02^{\rm m}28\overset{\rm s}{.}84$	$-35^\circ14'57\overset{''}{.}1$ (2000.0)

Thus, the two variables are only about $10''$ apart.

Note that, for the four red-light images (JD 2438559–2449097) available in the USNO Image and Catalog Archive, the phases computed with the light elements for V597 Sco from Swope (1943) are in a narrow range (0.912–0.125), whereas both stars exhibit strong variations of brightness (within 10.8–12.7 R for V597 Sco and 14.6–16.1 R for the new variable, roughly estimated using magnitudes of field stars from the GSC2.2 catalog). Thus, apparently the light elements are not quite valid for either of the stars.

Both stars are bright in the near-infrared range: in the 2MASS catalog, $K = 5.943$ for V597 Sco and $K = 5.348$ for the new variable. The new variable is also present in the IRAS Point Source Catalog (IRAS 16591–3510). Its colors make it a possible carbon star candidate.

In our opinion, both stars are probable Miras. The star associated with IRAS 16591–3510 seems to be too faint for Harvard plates, but it is not excluded that,

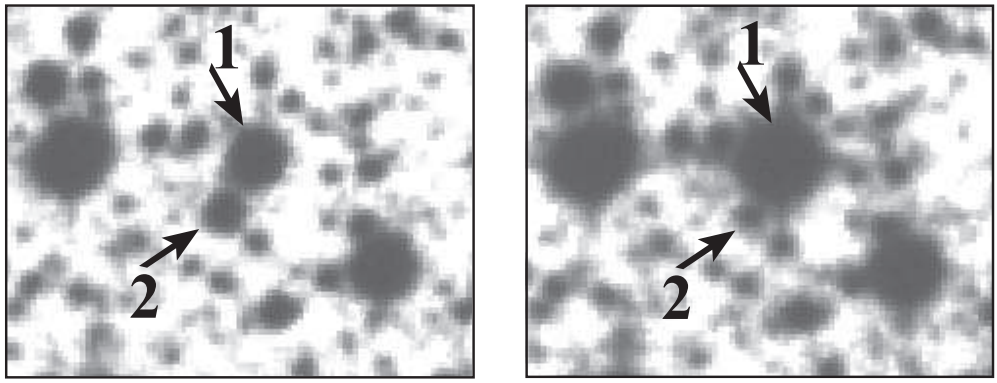

Figure 1. The field of V597 Sco on two sky survey images in red light from the USNO Image and Catalog Archive. Left panel: epoch 1986.2847; right panel: epoch 1993.2991. North is on top, east is to the left. The size of both images is $1'$ from north to south.

near epochs of its maximum, it could contaminate Swope's estimates for V597 Sco, thus causing insufficient accuracy of the light elements in Swope (1943) (or even leading to spurious elements).

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References:

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Swope, H.H., 1943, *Harvard Obs. Ann.*, **109**, No. 9

ERRATUM FOR IBVS 5422

Kazarovets, E.V., Kireeva, N.N., Samus, N.N., Durlevich. O.V.
The 77th Name-List of Variable Stars

The following corrections are needed to the list of identifications (Table 2).

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V1657 Aql: the USNO identification should be USNO-A2.0 900-17903132
LY Dra: the SAO identification should be SAO 018231
DU Lyn: the AFGL identification should be AFGL 1187
OX Vir: the SAO identification should be SAO 138579
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Thanks are due to Dr. F. Ochsenbein (Strasbourg) for turning our attention to the mistakes.