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V1493 AQL AN EXTREMELY DISTANT NOVA?

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Analysis of CCD photometry performed during 12 nights and the estimate of the distance based on the light curve is presented. The photometric data is modulated with a period of 3.7 h, which we interpret as the orbital period above the period gap distribution of cataclysmic variables. The VSNET light curve combined with data from IAU Circulars suggests a distance of 4.5 ± 0.4 kpc based on t_2/t_3 time estimates. Two spectra 11 days after the maximum were taken. The expansion velocity of the envelope was derived to be 1658 ± 62 km s^{-1}.

Nova Aql 1999 (V1493 Aql) was discovered by Akihiko Tago, Tsuyama on July 13th 1999 (Nakano et al. 1999). The nova reached a maximum of $\sim$ 8.8 mag in V. By Tomov et al. (1999) the expansion velocity is $\sim$ 1700 km s^{-1}. Bonifacio et al. (2000) derived $A_{\rm V}$ to be 1.04 ± 0.3 mag and they estimated the distance of the nova to be 18.8 ± 3.6 kpc. They concluded that in such an extreme case the nova should be on the boundary or outside our galaxy. By Arkhipova et al. (2002) $A_{\rm V} = 5.03 \pm 0.3$ mag and the distance is 4.2 kpc.

To estimate the distance we used the empirical formulas (MMRD) for times t_2 and t_3. Both time parameters were derived from the light curves based on the data published in IAUC and from the VSNET (Fig. 1). The mean value of derived distances is 4.5 ± 0.4 kpc. We suppose the extinction by Arkhipova et al. to be more realistic. Hence we do not agree with the interpretation of Bonifaccio et al. (2000).

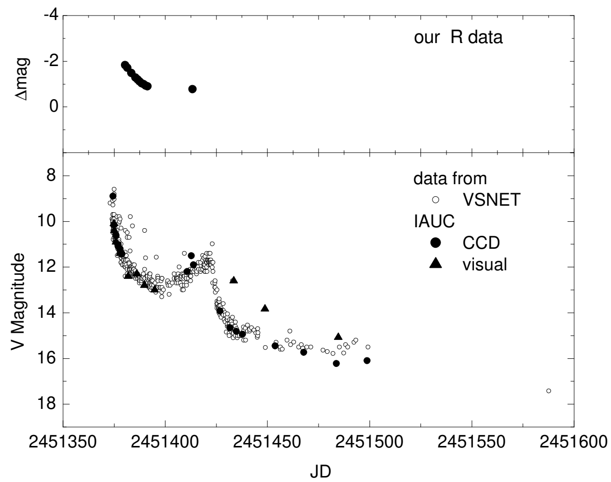

Fig. 1. The light curve of V1493 Aql in the R and V band. Upper panel: our data; Bottom panel: VSNET and IAUC data.

Our own photometry is made by CCD camera ST-7 in R filter at the Nicholas Copernicus Observatory and a single run was conducted with the 1.0-m telescope in I filter at Wise Observatory (WO) Israel, on 1999 Aug 1st. Spectroscopy of V1494 Aql was carried out at WO in July 24th 1999. These data are unsuitable to complete the used light curves. Our runs were used for period analysis. We have found a period of 3.7 h, which we interpret as the orbital period.

Besides the Balmer series He II 4686 is evident. The strongest Fe lines are Fe II 5019, 5169 and the forbidden line [Fe VII] 5721. The next probable forbidden line is [O I] 5580. Another Oxygen line is O I 7777. The spectrum shows the Na I 5890 doublet and probably a blend of O VI 5292 with [Ca V] 5309. No line shows P Cygni profile. The expansion velocity of the envelope was derived to be 1658 ± 62 km s^{-1}

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