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NEW R CrB-TYPE STAR HadV98

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HadV98 = CoD $-22°12017$ = GSC 6825.253 is a variable star discovered by K. Haseda (Haseda and Kato, 2001). The variable had been almost constant until 2001 April, when it suddenly started fading. The object was suspected to be an R CrB-type star, from the time of the discovery alert, based on its light behavior and its Tycho-2 moderate color ($B - V$ ~1.0). This star has been very recently confirmed to be a genuine R CrB-type variable from spectroscopy (Hasselbach et al., 2002).

We studied the variability of this object using Haseda's discovery material combined with the ASAS-3 survey data (Pojmanski, 2002). The light curve constructed from Haseda's observations and the ASAS-3 public data is presented in Figure 1. Haseda's observations were performed with a $D = 10$ cm f/4.0 telephoto lens and unfiltered T-Max 400 emulsions. The passband of observations covers the range of 400–650 nm. The photographic magnitudes were estimated using GSC stars. A 0.08 mag systematic correction was added to Haseda's photographic observations, in order to best match the ASAS-3 V magnitudes. The recorded range of variability in V was 10.7–13.4, but the true minimum seems to have been fainter.

The light curve shows a rapid decline and a slower recovery, which are characteristic to R CrB-type optical light curves (Clayton, 1996). The 2001–2002 fading was composed of at least two distinct minima (Figure 2), one lasting in 2001 May – 2001 July (JD 2452030–2452130) and another minimum suddenly starting from 2001 October (JD 2452190–), whose entire picture was not well observed because of the solar conjunction. Such an occurrence of closely spaced two minima is also sometimes seen in other R CrB-type fadings and other dust-forming objects (Kato et al., 2002).

We also searched for a pulsation signal, which is frequently seen in many R CrB stars, most notably recorded in RY Sgr and V854 Cen (cf. Clayton, 1996), using the ASAS-3 observations at maximum between JD 2452697 and 2452762 (20 measurements). No remarkable pulsation was found with an amplitude larger than 0.1 mag. This finding is consistent with the lack of remarkable variability in Haseda's observations before 2001. HadV98 apparently belongs to a group of R CrB stars showing less distinct pulsations at maximum.

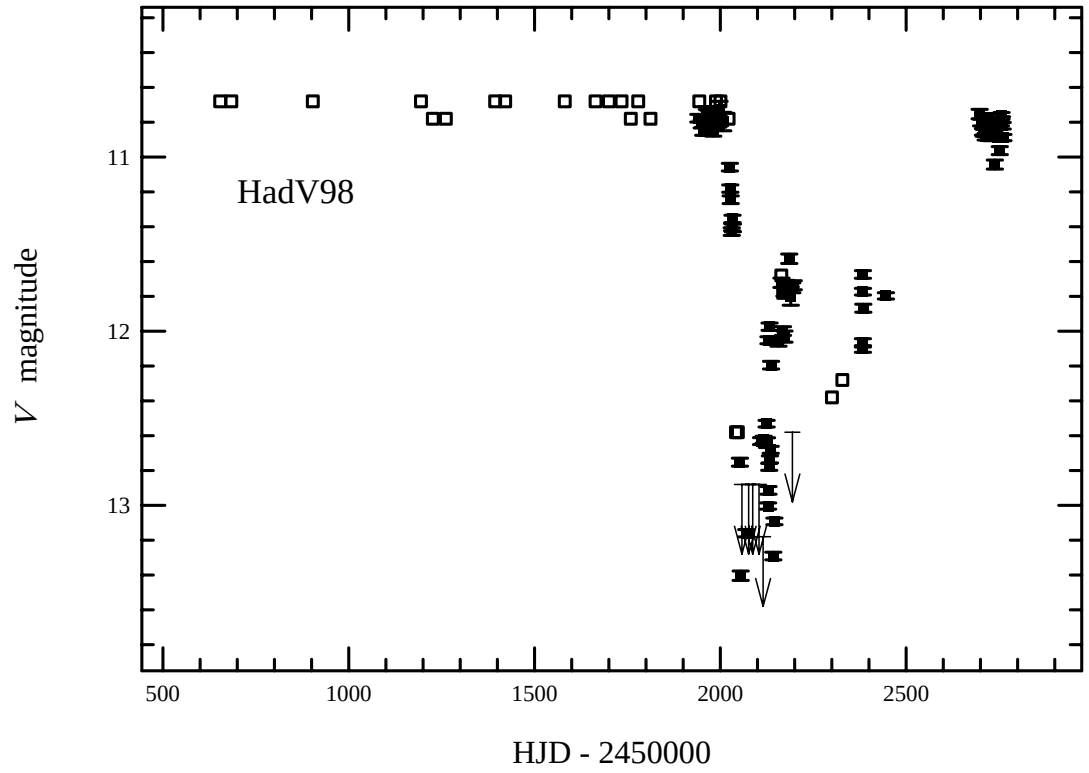

Figure 1. Light curve of HadV98 drawn from Haseda's photographic observations and the ASAS-3 V-band public data. The filled squares with error bars and open squares represent ASAS-3 data and Haseda's measurements, respectively. The arrows represent upper limit observations by Haseda.

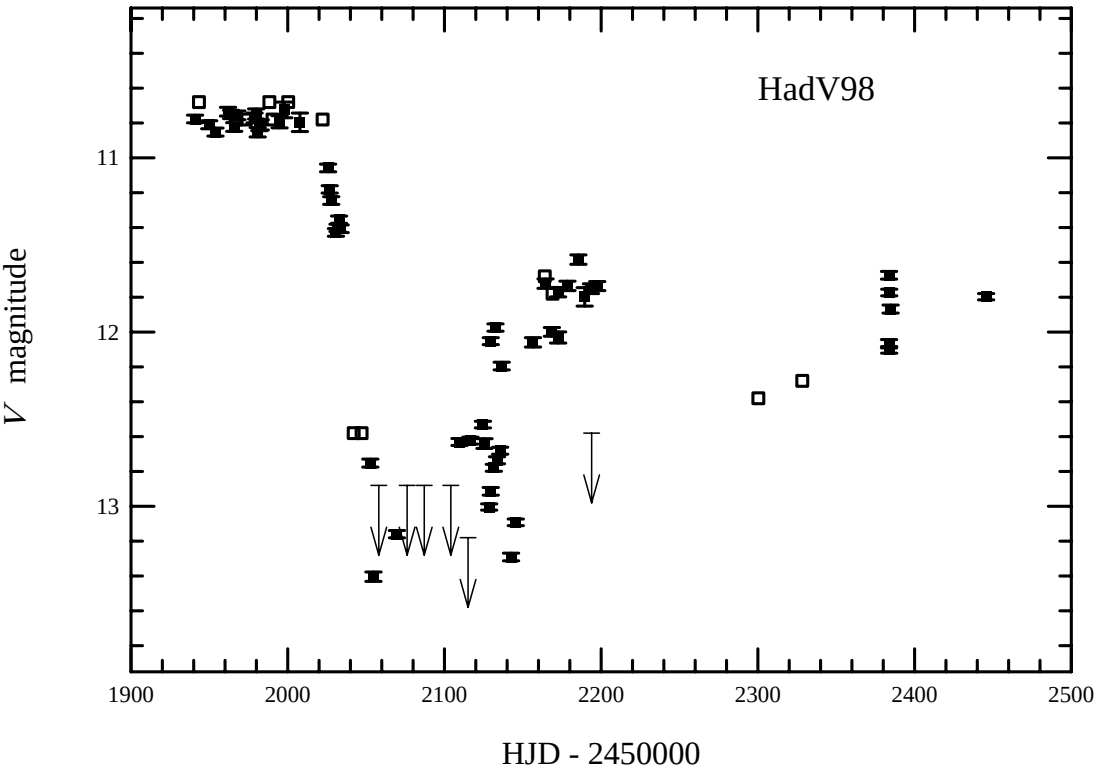

Figure 2. Enlargement of the fading starting in 2001 May. The symbols are the same as in Figure 1.

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