RevMexAA (Serie de Conferencias), **20**, 234–234 (2004)

TIME-SERIES PHOTOMETRY OF WZ SGE AFTER THE 2001 OUTBURST

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We present *R*-band CCD photometry of the eclipsing dwarf-nova WZ Sge from six epochs after its 2001 outburst, using the 1.2m telescope of the NOA in Greece.

WZ Sge ($i \sim 81^o$, $M_1 \sim 0.77$ $M_\odot$, $q \sim 0.04$, $P_{orb} \sim 81.6$ min; Patterson 1998) is a prototype among highly-evolved Cataclysmic Variables. Its outburst amplitude (8-9 mag) and recurrence time (∼22-33 years) are amongst the most extreme. The last outburst of WZ Sge was in summer 2001 (Patterson *et al.* 2002). Previous studies during its quiescent period (Patterson *et al.* 1998) indicate that the accretion disc is truncated and that the white dwarf dominates the light emitted. Here, we present photometric monitoring from six epochs after the 2001 outburst: *R*-band CCD time-series with a time resolution of 5-10 sec obtained with the 1.2m telescope at the Kryoneri station of the National Observatory of Athens (data reduction with MIDAS).

The light curves of the 6 epochs are shown in Fig. 1. The most characteristic light curves are those of 2 July 2002 and 14 August 2003. The shape of the light curve has changed between 2002 and 2003, from showing a double hump to a single hump. Eclipse maps of the accretion disc are shown in Fig. 2, for 2 July 2002 (left) and 14 August 2003 (right). The disc appears to have a different size between the two epochs as expected after the outburst. However, it appears to be elongated along the line-of-centres axis in both epochs and in particular, the light centre of both maps appears to be shifted towards the L1 point.

The dominant frequency of the combined 2002 data is found to be 35.281(6) d^{-1}, which is the first harmonic of the binary period (produced by the double humped shape of the light curve). Preliminary Fourier analysis of the 14 August 2003 data shows a broad peak around 14.072(8) d^{-1} (i.e. the frequency of the single humped shape of the light curve) which is consistent to the binary period. Fourier analysis of all epochs shows two clear peaks at the high frequency end of the Fourier power spectrum, corresponding to periods of ∼33.5 and ∼21 sec. Both frequencies are very close to the white dwarf spin period of ∼28 sec.

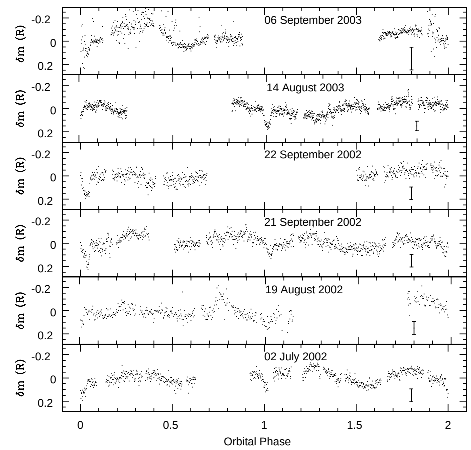

Fig. 1. Light curves at the six different epochs. The mean 3-σ errorbar for each epoch is included in each panel.

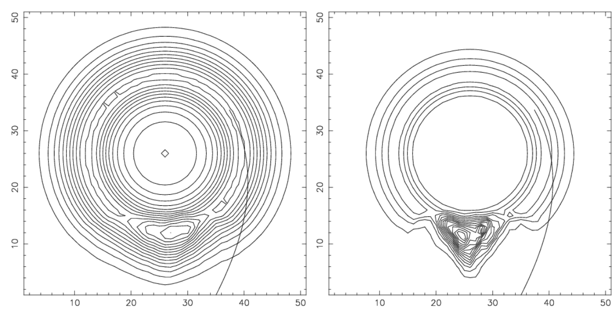

Fig. 2. Eclipse maps of the accretion disc for 2 July 2002 (**left**) and 14 August 2003 (**right**). The x,y scale is the same in both plots in arbitrary units.

Further analysis is under way to determine the disc contraction as well as the significance of the peaks in the Fourier power spectra.

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