

SUPERHUMPS IN THE SU UMA STAR AK CNC

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Abstract. We have observed AK Cnc during the 1995 March superoutburst, by means of differential $V - U$ photometry. The observations were obtained at Las Campanas (Chile), Ouda Station (Kyoto, Japan) and in England. Superhumps with amplitude 0.2 mag appeared at least 4 d after maximum. They evolved from a single peak structure, developing a secondary peak during decline, until they reached a double-wave modulation with 0.05 mag amplitude, after 8 d. After removing linear trends in our data, the following ephemeris was found:

$$UT_{\max} (1995 \text{ March}) = 12.152(1) + 0.06749(1)N \text{ d.} \quad (1)$$

This superhump period was confirmed, independently, with our homogeneous set of 462 V magnitudes, obtained at LCO, then adding 63 U data points and finally considering all the dataset, consisting of 789 $V + U$ magnitudes. The superhump period is slightly larger than that reported by Kato (1995) during the 1992 January superoutburst (0.06735(5)d). Our results imply an orbital period $P_{\text{orb}} = 0.065(2)$ d, using the relationship given by Howell & Hurst (1994). The eruption duration was $\gtrsim 10$ d, and its amplitude > 6 mag. An abrupt and short luminosity decrease occurred ≈ 12 d after maximum. Eleven outbursts have been observed since 1992 January, being the minimum reported lag between successive eruptions: 40 d. More details will be given in a future publication.

References

- Howell, S., Hurst, G., 1994, IBVS, 4043
Kato, T., 1995, IBVS, 4136

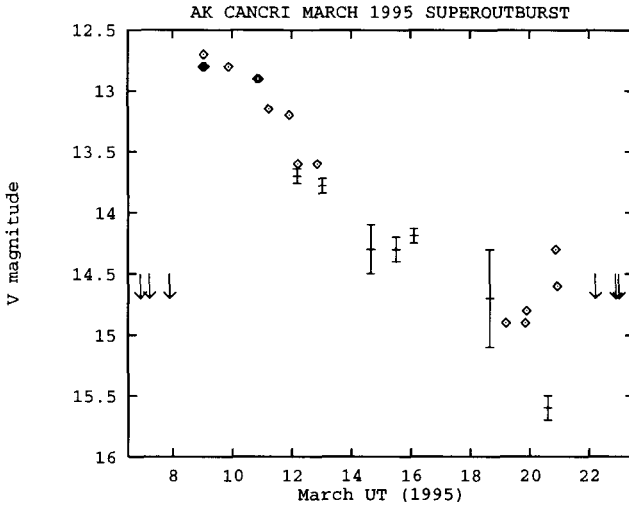


Figure 1. *V* light curve of AK Cnc during the 1995 March superoutburst. Data are from the British Astronomical Association Variable Star Section database (\diamond) and from our own observations (+). The reported quiescent magnitude is $V \approx 19$ mag. Note the sudden brightness drop on March 20.

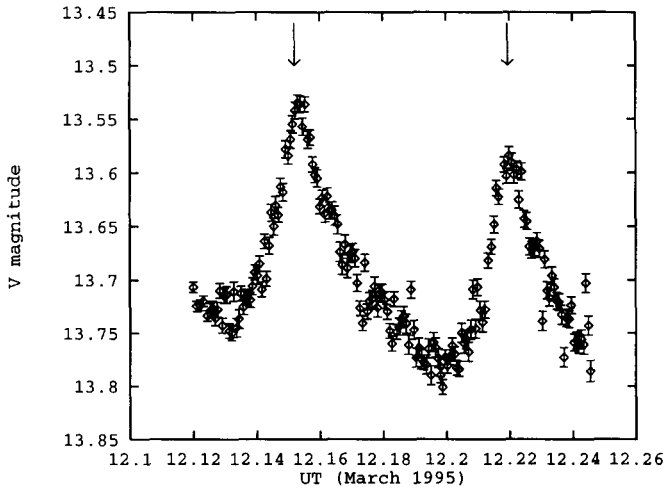


Figure 2. CCD *V* light curve of AK Cnc. Arrows indicate times of maximum derived from equation (1). The star is fading at rate 0.4 ± 0.1 mag d^{-1} . Note the quasi-periodic signal during decline (time-scale $T \approx 13.3$ m).