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DECEMBER 1988 PHOTOMETRY ON AB DORADUS (HD36705)

We present (see Fig. 1) complete light curves in UBV colours and some Rc and Ic data for the fast rotating active chromosphere single star HD36705 (AB Dor). A cooled extended S-20 tube was used on the 0.6 m telescope at Siding Spring Observatory. The comparison and check stars used were HD35537 and HD37927. The phase was computed using epoch and period HJD 2444296.575 and 0.51479 in accordance with Innis et al. (1988). A summary of the V photometry on this star from 1978 is shown in Fig. 2.

The Dec. 1988 data were standardized from the instrumental values using a set of calibration equations previously obtained in August 1988 on the same instrument by Dr. D.W. Coates using the E region standards (Vogt et al. 1981). Unfortunately there was no U band calibration so these data are left as instrumental.

The scatter in the data particularly in u around phase 0.4 we believe is real and represents a change over two days of the stars magnitude at maximum.

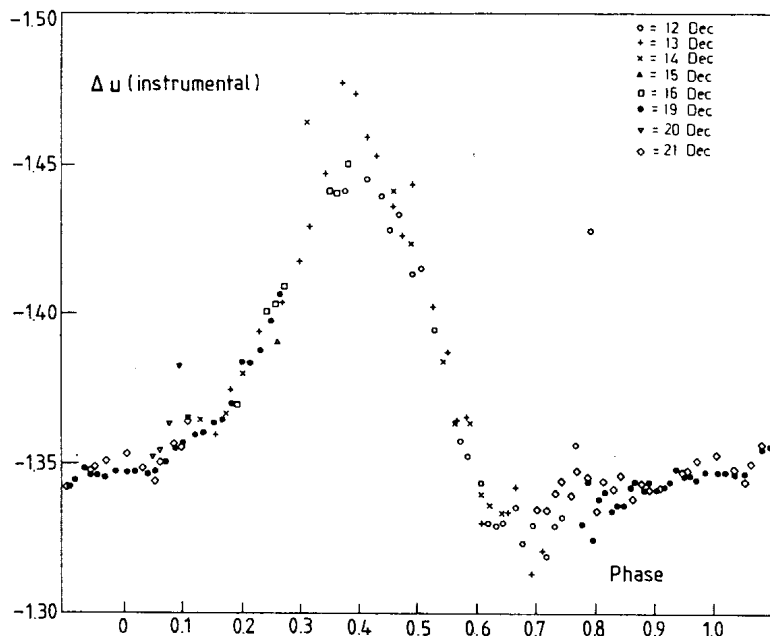


Fig. 1 (a)(b)(c)(d)(e): The light curve for AB Dor in December 1988 in  $\Delta u$  (instrumental),  $\Delta B$ ,  $\Delta V$ ,  $\Delta Rc$  and  $\Delta Ic$ . The phases are according to epoch 2444296.575 and period 0.51479 Innis et. al. (1988).

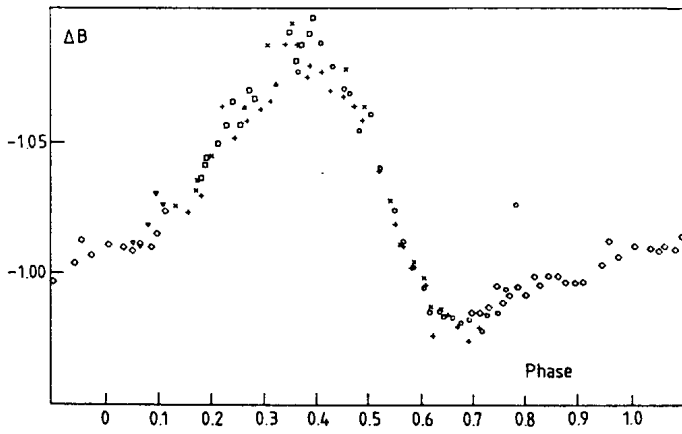


Fig.1(b)

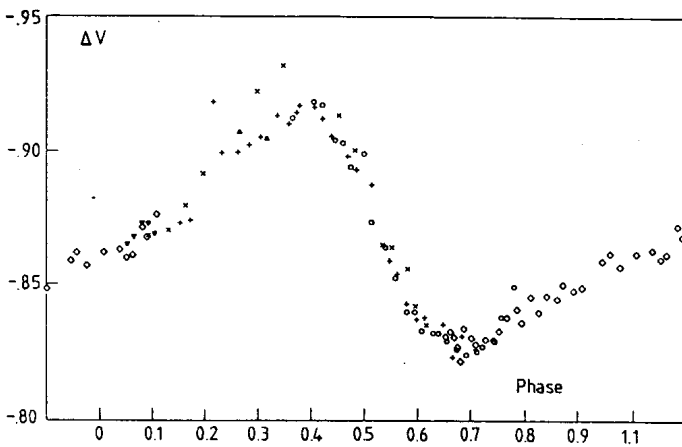


Fig.1(c)

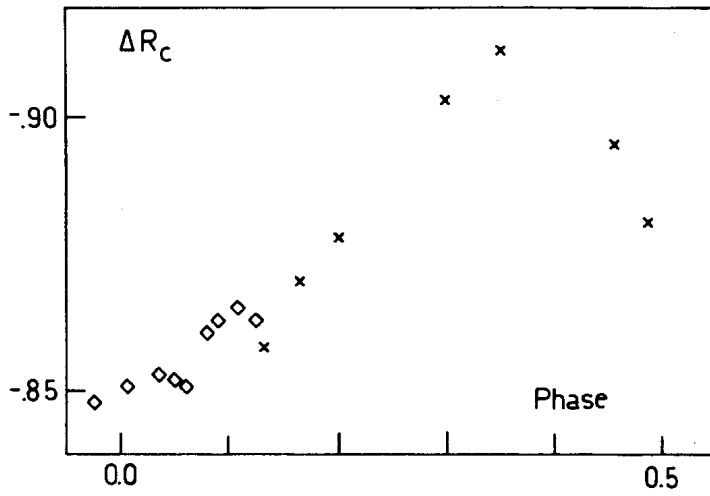


Fig.1(d)

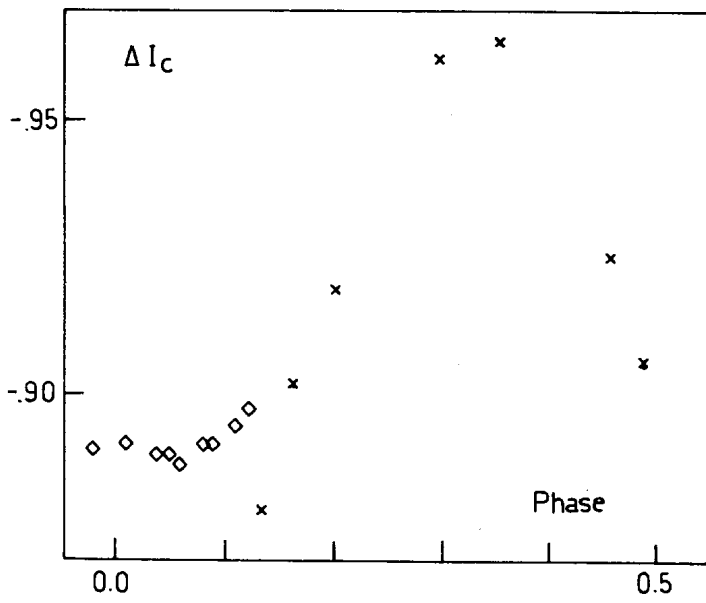


Fig.1(e)

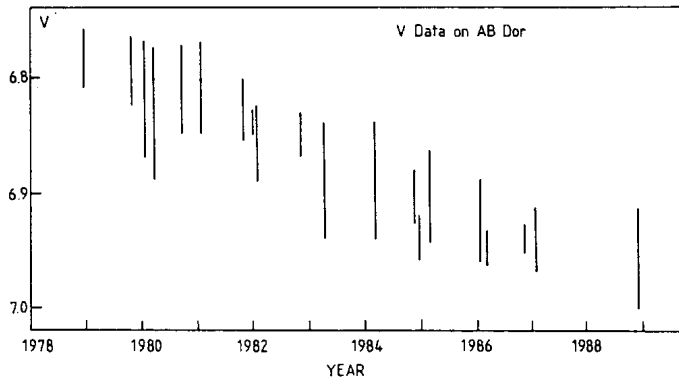


Fig. 2 The mean light level and variation of V for AB Dor from a wide variety of sources. For references see Innis et al. (1988). It is yet to be seen if this long term variation is part of a spot cycle on AB Dor.

There are two broadband flares, one at phase 0.09 on the 20 December and the larger at phase 0.78 on the 12 December. This latter flare occurred just at dawn was rising and only after a careful check on sky levels and sky subtractions is it believed to be real.

The flat portion of the curve from phase 0.65 to 0.15 indicates a spotted region rather than just two spots since they would be 0.5 phase apart. The night of the 15th was extremely poor photometrically and no great weight can be given to the odd data point which is noted on that night.

It is a pleasure to thank Dr. B. Carter for help on three of the observing nights.

K. THOMPSON\* and I. THOMPSON

\* Department of Physics, Monash University, Clayton 3168, Australia.

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