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NEW PHOTOMETRIC ACTIVITY IN U CEPHEI

Crawford and Olson (1979) have summarized photometric disturbances in primary eclipses of U Cep from 1974 to 1977. The frequency of photometrically disturbed eclipses gradually declined during this time. Eclipses of UT 1978 September 2 and 27 (observed with the 1 m Prairie Observatory reflector) were nearly free of contaminating light, and the eclipse of 1979 September 6 (observed with the No. 4 0.4 m Kitt Peak National Observatory reflector) just satisfied the Crawford-Olson criterion ($d > 0.075$ day) for an "undisturbed" eclipse. The eclipse of 1980 February 25 (KPNO) was the cleanest yet observed by the authors, from the ultraviolet to the infrared. We have been unable to observe any other primary minima this year.

Olson (1978) has discussed large light losses often present outside primary eclipse during active periods, particularly near orbital phase 0.6. We now report the sudden recurrence of such activity, as shown in Figures 1 (Strömgren-Crawford ultraviolet) and 2 (near-infrared transformed to the Kron I). The ultraviolet light on 1980 February 24 (triangles) was at its undisturbed level, while on 1979 September 7 (diamonds) some depression is evident (both KPNO nights were of marginal quality, accounting for the large scatter). Following the clean eclipse of 25 February, observations under photometric conditions at Prairie Observatory on 1980 March 15 and 22 (octagons and squares) showed a large dip in the light curve. This depression matches the most prominent dip seen earlier (see Figure 3b of Olson 1978). Features similar to the small "peak" at phase 0.55 have been observed many times before under depressed light conditions and were unquestionably real. The size of the light loss increased mono-

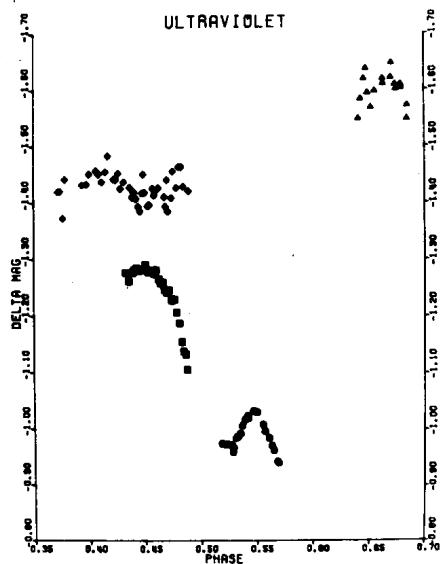


Figure 1 - Strömgren-Crawford U-observation of U Cep near phase 0.5. Diamonds, UT 1979 September 7; triangles, 1980 February 24; octagons, 1980 March 15; squares, 1980 March 22.

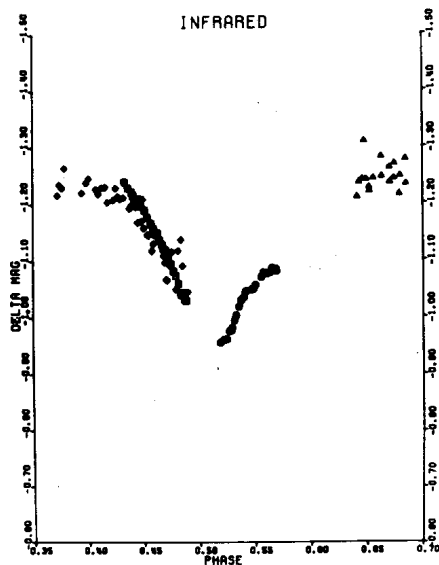


Figure 2 - Near-infrared observations of U Cep, transformed to the Kron system. Symbols are the same as in Figure 1.

tonically from infrared to ultraviolet where up to half of the light was lost, and the phenomenon was very similar to the earlier episodes. Past experience suggests that the dip can disappear on a time scale of about 5 days, and that new episodes of activity can reappear on a scale of months. Eclipse light curves can also be expected to vary significantly.

We urge observers to obtain multicolor photometry of this active Algol-like binary at all possible phases.

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