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PHOTOMETRY OF THE ECLIPSING STAR W CRUCIS

In I.B.V.S. Number 2524, Plavec (1984) made an appeal to southern observers for photoelectric observations of the puzzling eclipsing star W Crucis. In particular an update of the ephemeris of the time of primary minimum is necessary to plan future ultraviolet spectrum observations during or near totality.

At Auckland Observatory we have been making three colour UBV observations since 1984 March 8 following a suggestion from E. Budding of the Carter Observatory Wellington who has been corresponding with Plavec. We have successfully covered one primary and one secondary minimum for which times and details are presented below.

The equipment used was the Mark I photometer on the Edith Winstone-Blackwell 50cm Cassegrain telescope, described previously (Walker and Marino, 1978).

Light and colour curves during the secondary minimum show considerable complexity, with asymmetry suggesting a multiple eclipsing object, for example, a star plus a circumstellar shell, accretion disk and/or obscuring clouds. Ingress was well advanced when observations started, but we were able to determine a mid-eclipse time for the V data of J.D. 2445795.45 \pm 0^d.40. If a circular orbit is assumed the ephemeris quoted by Plavec yields an O-C = +1.34 days.

Primary eclipse is more regular in V and B and does not appear to total in V. The U observations, however, show similar complexity and asymmetry to that found at secondary minimum. From the observations to this date we have determined a V mid-eclipse time of J.D. 2445894.08 \pm 0^d.13. This yields an O-C = +0^d.70.

The data are summarised in Figure 1 as light and colour curves plotted against phase using the ephemeris from Plavec (1984).

Observations are continuing and will be presented elsewhere in greater detail when the present observing season ends.

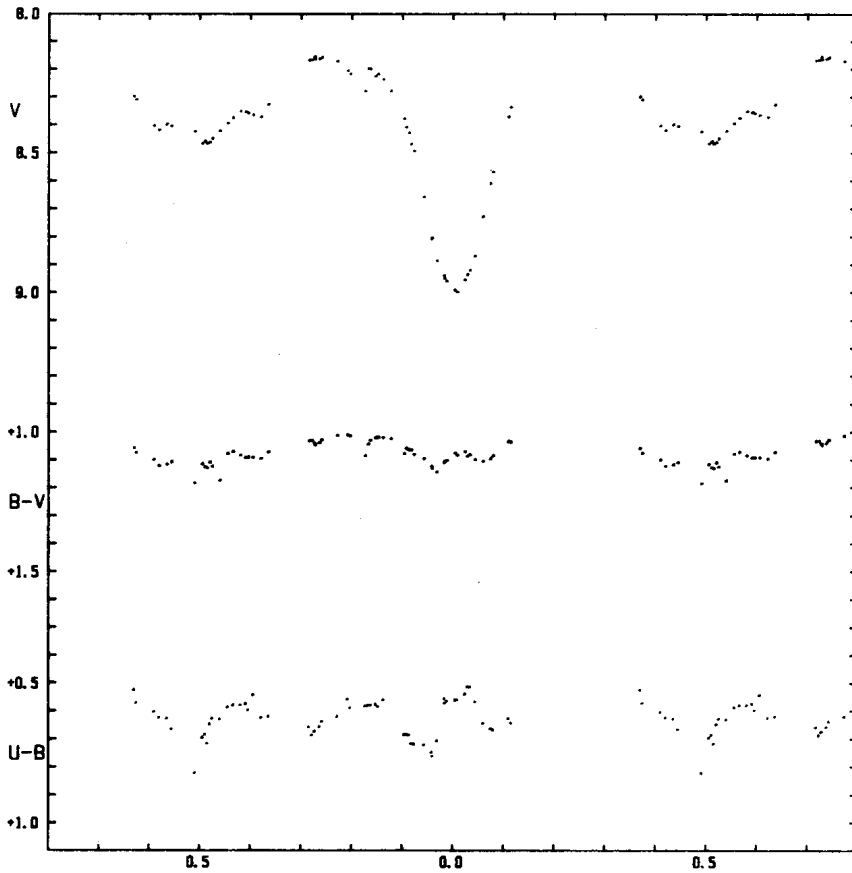


Figure 1. Three colour observations of W Crucis covering the interval JD 2445767 to JD 2445915. Phases are computed from
 $E = \text{JD } 2440731.6 + 198.53 \text{ d}$

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References :

- Plavec, M.J., 1984, I.B.V.S. Number 2524.
 Walker, W.S.G., and Marino, B.F., 1978 Publ No 6 (C78), V.S. Sect., Roy, Ast.
 Soc. N.Z.