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PERIOD CHANGE OF AW URSAE MAJORIS

From a discussion of O-C for AW UMa, A-type contact binary, Woodward et al. (1980) found that the times of minimum light obtained in 1978 indicated a significant period shortening. To examine this change of period all published photoelectric times of minima were collected and used in calculations of elements (References 1-4, 8-10).

Two times of minima were determined recently in Cracow and analysed by the procedure developed by Kwee and van Woerden (1956) and listed in Table I. For this purpose, photoelectric observations in V colour were made using a 50 cm Cassegrain reflector equipped with an EMI 9789QB and standard Schott filters.

Table I

Times of minimum light for AW UMa

	J.D. hel		E_I	Observer
24	44292.5358	$\pm 0^d.0002$	6744.5	Kurpinska
	44294.5093	0.0002	6749	Kurpinska

In the behaviour of O-C diagram two linear parts were observed: one from the years 1963 to 1975 and second one from the period 1978-1980. For these two parts linear elements of light were determined by least-squares solutions:

I 1963-1975 JD_{hel}= 24 41333.51870+0.43873231·E 20phe obs.
± 20 ± 5

II 1978-1980 JD_{hel}= 24 43948.79280+0.43872687·E 7phe obs.
± 13 ± 19

Figure 1 presents the O-C diagram calculated according to the elements I. It can be seen in Fig.1 that the secondary minima show a larger dispersion than the primary ones which results from the asymmetry of the light curve, occasionally appearing near the secondary minimum (Dworak and Kurpinska 1975, Woodward 1980).

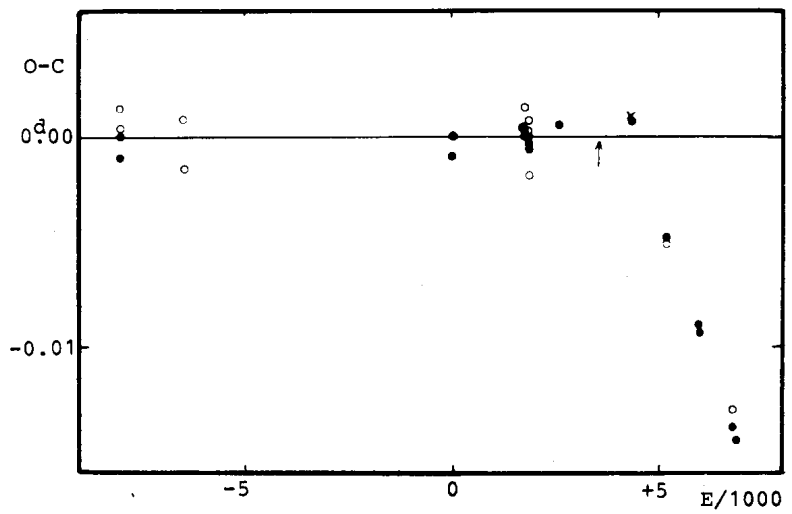

Figure 1. O-C diagram for AW UMa. Filled and open circles refer to primary and secondary minima, respectively. Cross and cross in circle denote mean visual primary and secondary minima. The arrow marks the visual observations of Locher with O-C≈+0d.04.

The decrease of period $\Delta P = 5^d.4 \times 10^{-6}$ and the extremely low mass ratio value q = 0.08, accepted by many authors, may be regarded as a possible proof for the relation ΔP - q presented by Kreiner (1977) for W UMa type stars. This relation seems to indicate that absolute period changes are increasing with the q values.

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