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B AND MG BAND OBSERVATIONS OF AH Vir IN 1977

AH Vir (BD+12^o2437) is a frequently observed eclipsing binary of W Ursae Majoris type (e.g. Binnendijk, 1960; Bakos, 1977). It is known as an active system with well established period jumps and light curve changes. Its primary minimum is an occultation; so it belongs to Binnendijk's (1970) subclass "w", whose members are famous for their instabilities.

AH Vir has been observed on March 24 and 25, 1977 with the 61cm Bochum telescope at the European Southern Observatory (La Silla/Chile). The telescope was equipped with its standard photometer, but the observations have been made in B and two narrow band regions (512.5nm/4.5nm Hw., 517.0nm/4.0nm Hw.). The narrow band filters cover the Mg "b" triplet and a neighbouring line-poor region. Main comparison star has been BD+12^o2436.

Minima times have been determined as follows (epochs and O-C's according to JD 2442155.6164+0.^d40753162E, the most recent period given by Bakos):

JD hel.	2443227.6270	Ep.	2630.5	O-C	+0. ^d 0005
	2443227.8310		2631.0		+0. ^d 0007
	2443228.6445		2633.0		-0. ^d 0008
	2443228.8510		2633.5		+0. ^d 0019

Apparently the last period was still valid in 1977.

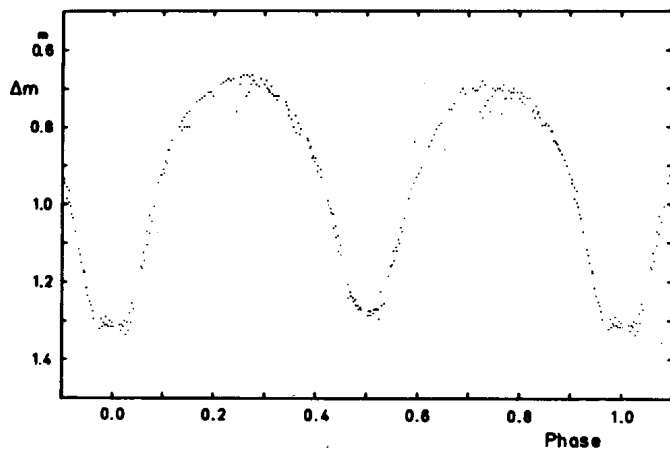


Fig. 1 Measurements of AH Vir in B

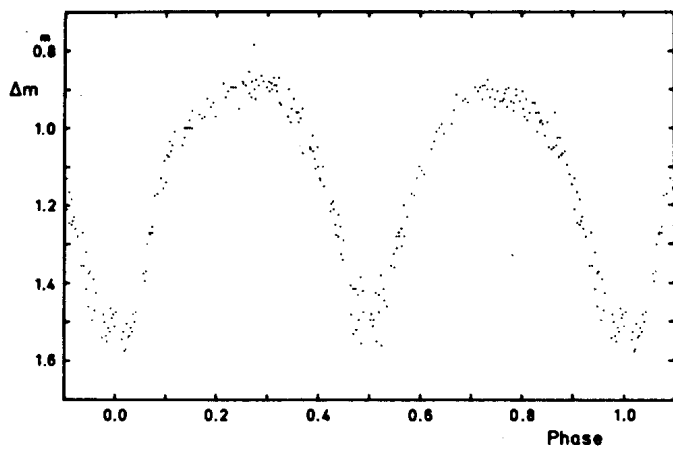


Fig. 2 Measurements of AH Vir at $\lambda 512.5\text{nm}$

Figs. 1, 2, and 3 show the measurements in the individual colours. The light curves exhibit only minor distortions. The minima have slightly declining slopes and there are marginal "shoulders" at phases 0.15 and 0.35 (external tangencies) - invisible in the "continuum" band, indicated in B, and better visible in the Mg "b" band. At these two latter phases the only deviations ($O^m O_2$) from a straight line in a plot of the Mg "b" minus continuum index, which is not shown here, could be found. From geometrical considerations the conclusion can be drawn that close to the inner Lagrangian point L_1 a region with lower temperature is facing the observer around $O^P 25$. On the other hand the second maximum is in general fainter than the first one. This has only a very small influence on the colour indices. From the present data alone an interpretation seems to be difficult.

The light outside the eclipses (phases 0.16...0.34, 0.66...0.84) can be described by

$$I_B = 0.9086 - 0.0141 \cos \theta - 0.0750 \cos 2\theta \\ + 0.0078 \sin \theta - 0.0065 \sin 2\theta$$

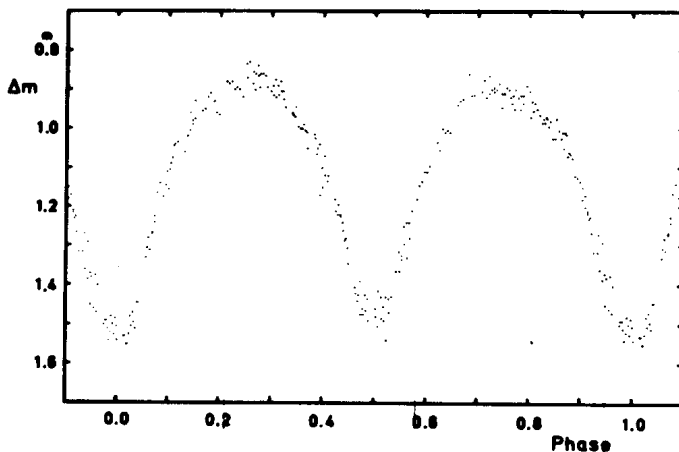


Fig. 3 Measurements of AH Vir at $\lambda 517.0nm$

No correction for the light of the secondary has been made. The negative $\sin 2\theta$ coefficient shows that the above mentioned asymmetry of the minima can be traced up to the maxima.

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