

THE ONGOING PHOTOMETRIC CAMPAIGN ON BW VULPECULAE

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Abstract

We have been observing BW Vul several nights per season in order to monitor the changes in its period. This paper describes some of the work carried out in collaboration with amateur astronomers.

1. Introduction

BW Vul (HD 199140=HR 8007, B2III, $V=6.5$) has the largest known photometric and radial velocity amplitude amongst all β Cephei stars. The light variation of BW Vul is mono-periodic (the period is about 4.5 hours), and a typical characteristic of the light curve is the stillstand phenomenon, which precedes maximum light by about 30 to 40 minutes.

The star was the subject of an international worldwide campaign at 13 observatories in 1982 and 1983 (Sterken *et al.* 1986). The principal goal of that campaign was to monitor, at high temporal resolution, one or more sudden period-changes, which are

supposed to occur every couple of years (Tunca 1978; Chapellier 1985). In spite of more than 6,000 measurements covering more than 500 hours of observation, not a single such event has been observed during the 1982 campaign; moreover, the amplitudes of the light curves were remarkably stable. New observations, made by Chapellier and Garrido (1990) seem to indicate that a 0.28-sec period increase must have occurred just before the campaign of Sterken *et al.* (1986).

2. The Observations

The observations are being carried out at Jungfrauoch Observatory (Switzerland), at Bialkow Observatory (Wroclaw, Poland), and at Xinlong Observing Station (Beijing, China). All observations are being carried out differentially using the same comparison stars as those used by Sterken *et al.* (1986). For the measurements in Switzerland the V1 filter of the Geneva photometric system was used; all other measurements were obtained with a Stromgren y filter. Typically five to seven complete light curves are obtained each year.

3. Results

Figure 1 presents some of the light curves obtained at Jungfrauoch Observatory during the summer of 1989. The top and middle curves were obtained by Dumont, Ferrand, Misson, and Remis, the lower curve was obtained by Sterken and Busarello. A complete analysis of all results will be published elsewhere.

4. Conclusions

Figure 1 clearly indicates how contributions by a team of amateur astronomers substantially support the collection of valuable data. Minimal requirements include the availability of identical (or at least fully compatible) equipment, and coordination of observations and data-reduction procedures.

References

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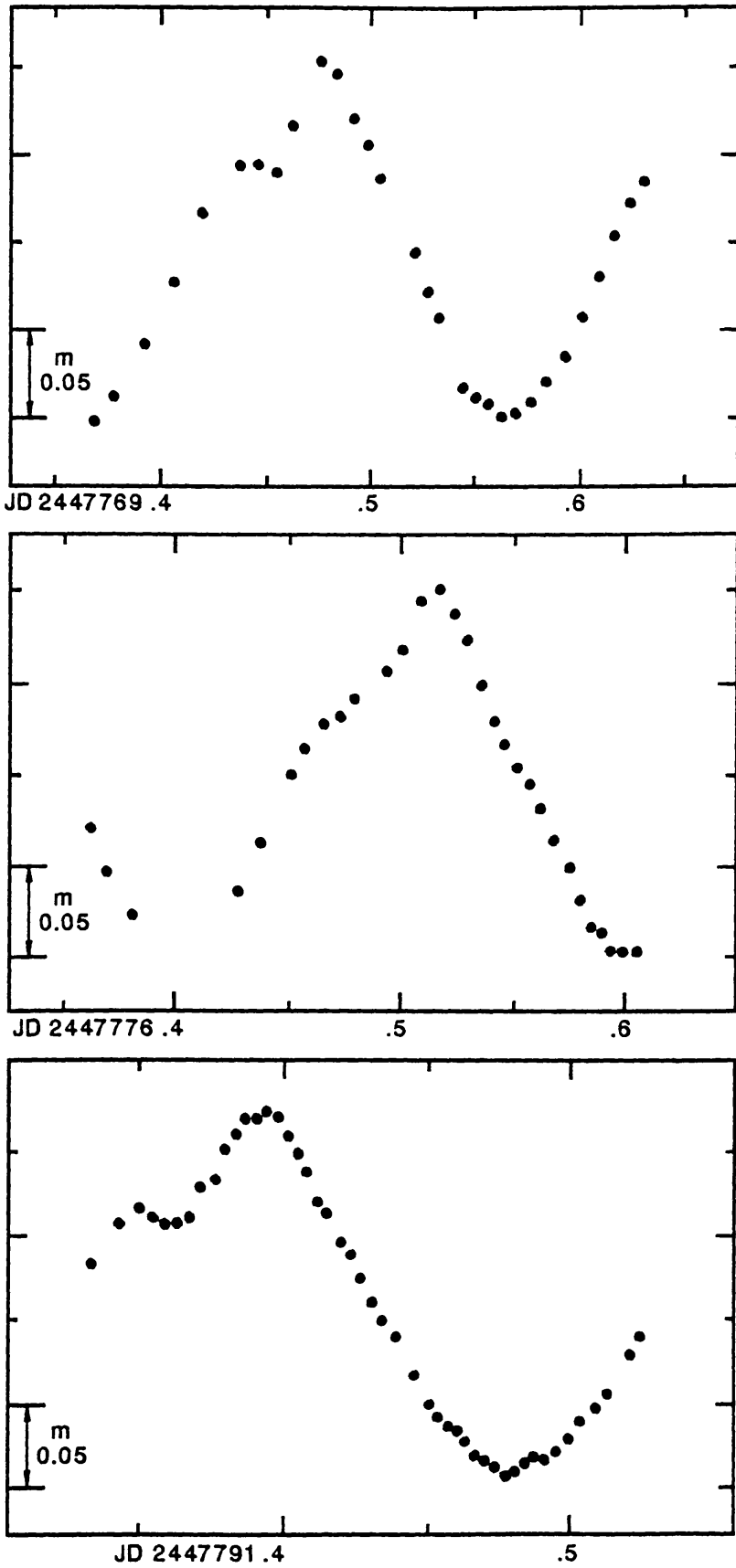


Figure 1. Three sample light curves obtained at Jungfrauoch Observatory. The scale on the X-axis of the bottom curve is slightly different from the scale on the top curves.