

A Photometric Monitoring of Barium Stars*

A. Jorissen
 Institut d'Astronomie,
 d'Astrophysique et de Geophysique
 Universite Libre de Bruxelles

J. Manfroid+
 Institut d'Astrophysique
 Universite de Liege

An uvby photometric monitoring of a sample of 19 Ba II stars has been performed since July 1984 at ESO on the Danish and ESO 50 cm telescopes, as part of the "Long Term Program for Variable Stars" (Sterken, 1983). The sample contains southern Ba II stars with variable radial velocities (from McClure, 1983 and Jorissen and Mayor, 1988) as well as Ba II stars already monitored by Landolt (1983). The observations are done differentially, using two comparison giants of the same spectral type located within a few degrees of the Ba II star. The reduction to the standard uvby system is performed using the algorithm described in Manfroid and Heck (1983), taking into account all the measurements performed on the considered telescope since the beginning of the monitoring. With such a reduction procedure, the scatter in the magnitude difference between two comparison stars (of magnitude 5 to 7) can be as low as 0.003-0.004 mag rms.

There is only one star (HD 46407) in our sample that seems to show an irregular long term variation of small amplitude in y (≈ 0.01 mag), but of larger amplitude in u (≈ 0.05 mag). A few stars, however, display a jitter of 0.005 to 0.01 mag amplitude, which is greater than the photon noise for the considered stars. That jitter seems to be correlated to the position of these stars in the $(b-y, c1)$ diagram, since they are all located in the region $b-y > 1.0$ and $c1 < -0.1$. It is not yet clear whether such a jitter is an artifact, or whether it could be attributed to something like wind accretion in the binary system (as it is observed for Mira B; Warner, 1972).

References

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+Senior Research Associate, Belgian National Fund for Scientific Research.