

COMMISSION 27 OF THE I. A. U.
INFORMATION BULLETIN ON VARIABLE STARS

Number 2950

Konkoly Observatory
Budapest
4 November 1986
HU ISSN 0374-0676

VARIABILITY OF Be STARS

Around 30 Be stars were monitored through red and near infra-red photometry during the observing season 1982-83 and we had noticed that the stars, HR 1508, HR 1789, HR 2538, HR 2996, HR 5193 and HD 45677 showed significant brightness fluctuations when compared with the earlier published data.

All programme stars including standard stars were observed with the standard RI passbands of the Johnson's system with a 20-seconds of arc diaphragm for 4 nights. A photoelectric photometer attached to the 1.2 meter reflecting telescope of the Japal-Rangapur Observatory, Hyderabad, India was used for the observations. A dry-ice cooled EMI 9558B photomultiplier tube was used as the detector and the photocurrent was recorded by means of a GR 1230A - DC amplifier and a Honey-Well Brown chart recorder.

The extinction coefficients for R and (R-I) were determined from the observation of standard stars, taken from the list given by Johnson (1966), and also from the observations of an early and a late spectral type star on each night and all the observations were corrected for atmospheric extinction. The instrumental magnitudes of a programme star were transformed to the standard system through normal procedure. Table I lists the observations of the above mentioned six stars and the columns are self-explanatory. The mean internal probable error of a single measurement in R and (R-I) is $\pm 0.02^m$ and $\pm 0.03^m$ respectively.

A few of the programme stars were observed earlier by Johnson (1965, 1966), Mendoza (1958) and Feinstein and Marraco (1979) on the standard RI system. The variable nature of HR 1508, HR 1789, HR 2538, HR 2996, HR 5193 and HD 45677 is shown in the figure. A detailed version of this paper will be published elsewhere.

Figure 1 - 4 Variability of Be Stars. Red magnitudes (Filled Circles),
 Infra-Red Magnitudes (Filled Triangles).

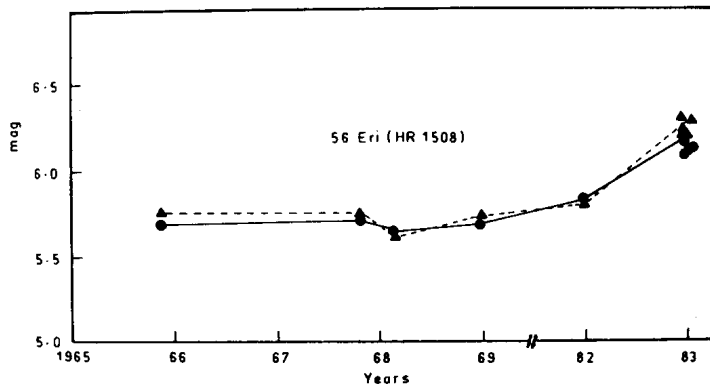


Figure 1

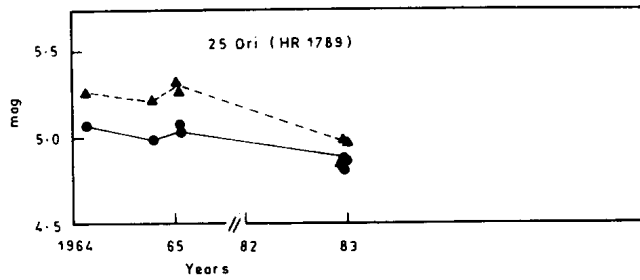


Figure 2

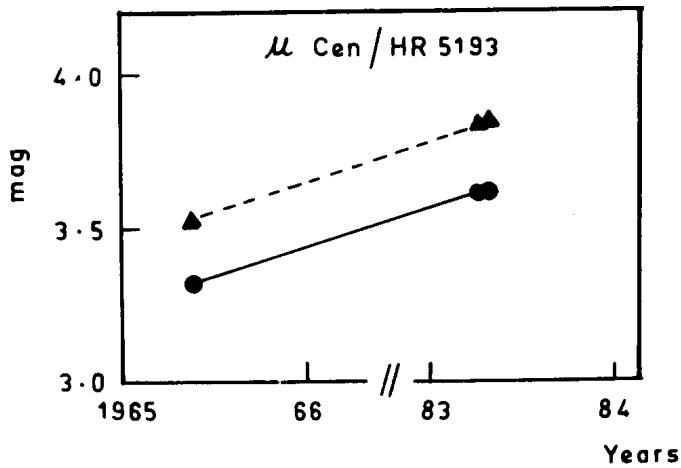


Figure 3

HR 1508 : This star suddenly became fainter by about 0.5^m in both R, I passbands even though it had maintained constant level of brightness since 1965 to early 1982.

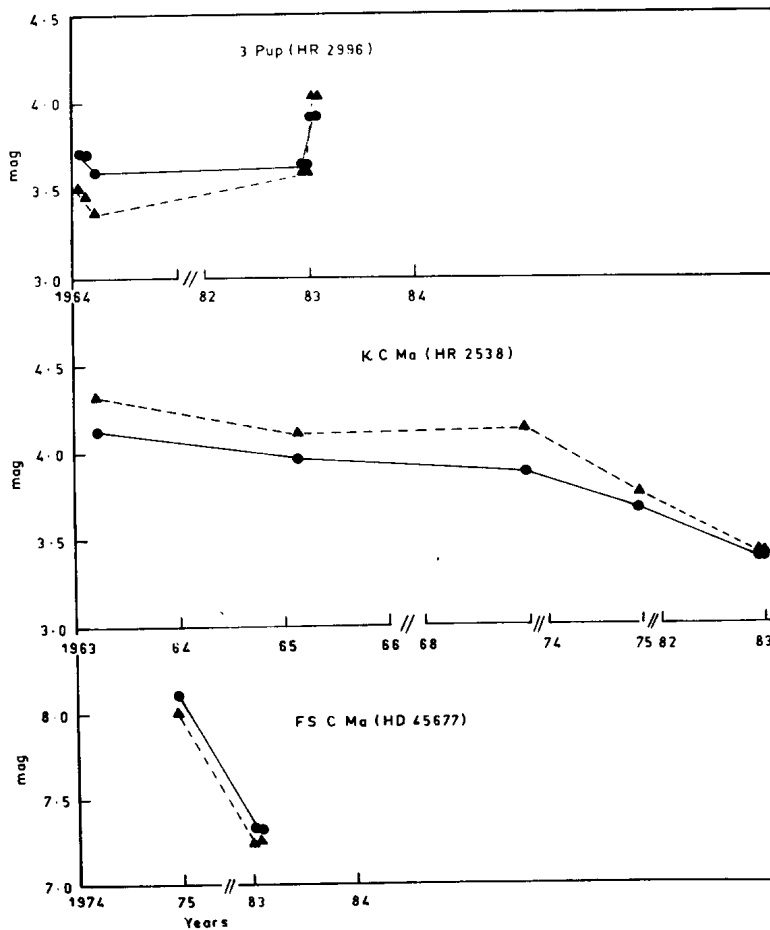


Figure 4

HR 1789 : Present observations show that this star is brighter in both R, I passbands but the brightness increase is much more predominant in I passband.

HR 2538 : The present data indicates that the star is brighter by almost 0.7^m in both R, I compared to that of 1963 observations. Dachs et al. (1986) showed that the star brightened by almost 0.5^m in V passband and its color index (B-V) increased from -0.23 to -0.09 during the period 1965-83.

HR 2996 : This star became fainter in both R, I passbands in the early part of 1983 even though it had maintained constant level of brightness from 1964 until late 1982.

Table I

Star	Sp.type	Heliocentric Date of observation (J.D. 2440000 +)	R	(R-I)
56 Ori HR 1508	B2Ve	5315.1876	6.19	-0.13
		5315.1883	6.17	-0.11
		5324.3049	6.10	-0.13
		5324.3056	6.11	-0.13
		5356.2545	6.13	-0.16
		5356.2552	6.13	-0.16
25 Ori HR 1789 HD 35439	B1VPe	5315.2984	4.81	-0.03
		5315.2991	4.81	-0.03
		5324.3155	4.88	-0.09
		5324.3160	4.88	-0.08
Kappa CMa HR 2538 HD 50013	B1.5 IVne	5324.4195	3.44	+0.02
		5324.4202	3.44	+0.02
3 Pup HR 2996 HD 62623	A3q	5324.4262	3.68	+0.08
		5324.4269	3.68	+0.09
		5356.3815	3.92	-0.11
		5356.3820	3.92	-0.11
μ Cen HR 5193 HD 120324	B2 IV-Ve	5437.3450	3.63	-0.22
		5437.3455	3.63	-0.22
FS CMa HD 45677	B3q	5356.3264	7.33	+0.08
		5356.3270	7.34	+0.07

HR 5193 : Both R,I magnitudes are fainter than that of early 1965 observations by about 0.3^m.

HD 45677 : The present observations show an increase in brightness by about 0.8 in both R,I passbands when compared with 1975 observations.

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