

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

Number 3217

Konkoly Observatory
Budapest
26 July 1988
HU ISSN 0374-0676

ECLIPSING BINARY SIGNATURES IN ZETA CAPRICORNI

Zeta Capricorni (ζ Cap=HD 204075) was shown to be a Barium line spectroscopic binary, possessing strong BaII line by Böhm-Vitense (1980), Smith et al. (1980), Culiver (1981) and Smith and Lambert (1984). ζ Cap is shown to have a white dwarf companion by Böhm-Vitense (1980), which is much fainter than ζ Cap. Photoelectric observations of ζ Cap are hardly available in the literature except for the color indices ($B-V=1.00$ and $U-B=0.59$, $Sp.=G5$) given by Eggen (1972),

ζ Cap was chosen as standard star during the observations of the programme star δ Cap, and was observed on the 38 cm reflector of the Uttar Pradesh State Observatory employing thermoelectrically cooled (-20°C) 1P21 photomultiplier, conventional UBV filters, and d.c. techniques. A total of three nights of observations were obtained between JD 2444163 to JD 2444908, using γ Cap (=HD 206088) as comparison and ϵ Cap (=HD 205637) as check star. The apparent graphical errors of U, B and V observations are on the average ± 0.06 , ± 0.02 and ± 0.02 respectively. The differential magnitude and the differential colour curves are shown in Figure 1, wherein the large scatter in U observations is apparent and, as such, U observations may not be taken for granted.

The colour indices nearly at the mid-points of these light curves are given as follows:

J.D.(Hel.)	B-V	U-B
2444163	1.07	0.71
2444554	0.31	0.94
2444908	0.94	0.85

If the two eclipses that are thought to be present in Figure 1 on JD 2444163 and JD 2444908, separated by nearly two years are real, it may be possible that ζ Cap is a long period (may be few years, at least 4 years or more) eclipsing binary, which is not improbable in the light of the suggestion by Culiver (1981) that the spectroscopic period is 2300d. Also, McLaure et al. (1979) thought ζ Cap to be existing in a binary system with a long period,

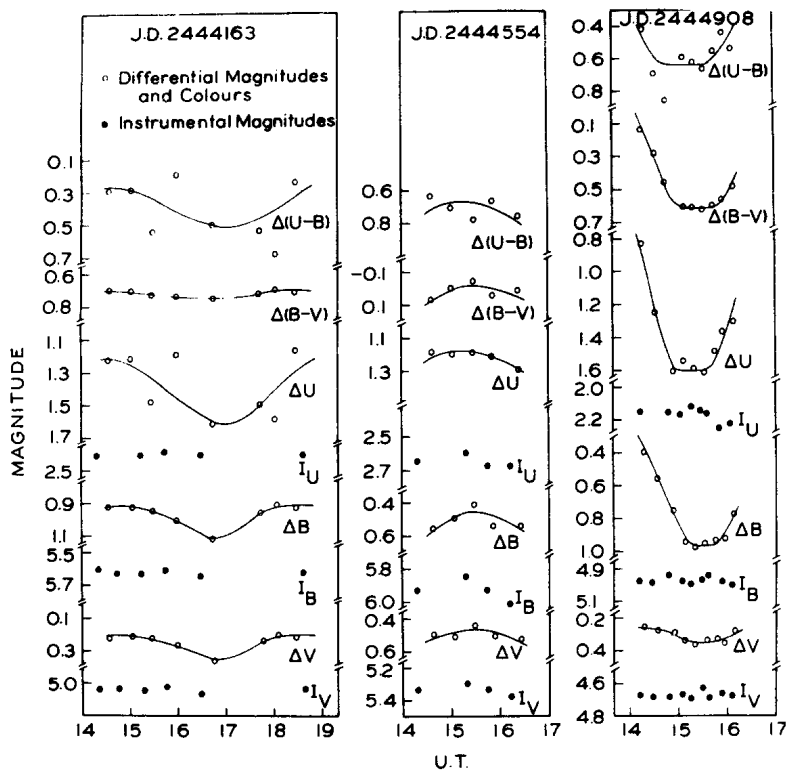


Figure 1

80 to 500 days at least. Although, the present observations are not sufficient to establish its eclipsing binary nature, yet they do point to the possibility of its being an eclipsing binary.

R.K. SRIVASTAVA

Uttar Pradesh State Observatory,
Manora Peak, Nainital - 263 129,
India

References:

- Böhm-Vitense, E., 1980. *Astrophys.J.*, 239. L79-L83.
 Culiver, R.B., 1981. *Bull.Am.Astron.Soc.*, 13, No. 4, 973.
 Eggen, O.J., 1972. *Mon.Not.R.Astron.Soc.*, 159, 403.
 Mc Laure, R.D., Fletcher, J.M., and Nemeč, J.M., 1979, preprint.
 Smith, V.V., and Lambert, D.L., 1984. *Publ.Astron.Soc. Pacific*, 96, 226.
 Smith, V.V., Sneden, C., and Pilachowski, C.A., 1980, *Publ.Astron.Soc.Pacific*, 92, 809.