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

Number 3382

Konkoly Observatory
Budapest
9 October 1989

HU ISSN 0374 - 0676

1989 BV PHOTOELECTRIC OBSERVATIONS OF BW Dra

BW Dra is a W UMa - type eclipsing system. Together with its companion, BV Dra, they form the visual binary ADS 9535. BW Dra is a short period variable and it was observed from 20 May through 29 May 1989 with the 1.2m Kryonerion telescope and a single channel photon counting photometer described by Dapergolas and Korakitis (1987). The photometer employs a high gain 9789QB phototube and conventional BV filters. Its output is fed directly to a microcomputer enabling rapid data access.

The data reduction method is the standard one. The comparison star is the BD $+62^{\circ}1395$ and the accuracy of the observations is ± 0.02 mag.

Table I lists the dates of observations and phases covered, whereas Figures 1 and 2 summarize the results for B and V colours.

Table I

Date	Phase
20 May 1989	.92 .23
	.43 .64
21 May 1989	.49 .24
25 May 1989	.95 .88
29 May 1989	.78 .25

In Table II the times of minima and the O-C values are listed for the V and B bands respectively. Times of minima are calculated using the method described by Kwee and van Woerden (1956) whereas the O-C values determined from the linear ephemeris $T=2442572^{d}.538 + 0^{d}.2921671E$ (Geyer et al., 1982).

From the Figures presented here it can be seen that BW Dra has symmetric light curves.

Considering all the O-C values found in literature (Wood (1970), Yamasaki (1979), Geyer et al. (1982), Rovithis and Rovithis-Livaniou (1987)), and those presented here it can be seen that there are large deviations which might be due to the variability of the individual light curves of the binary.

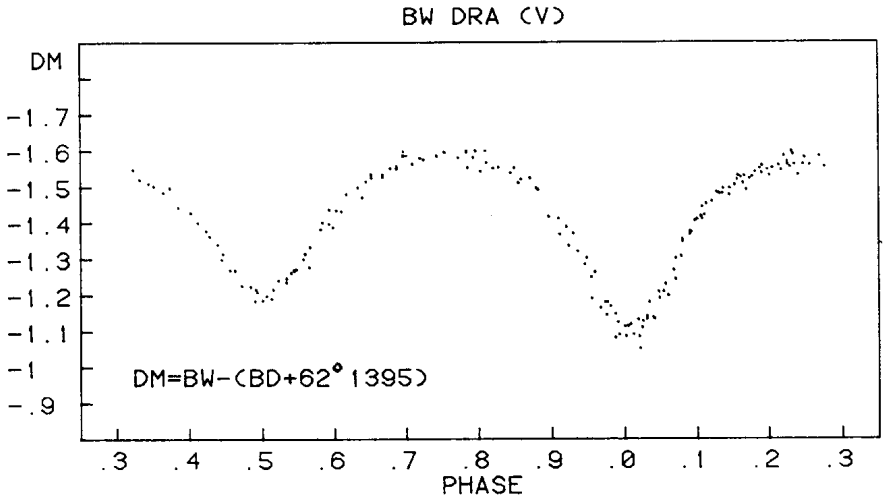

Figure 1

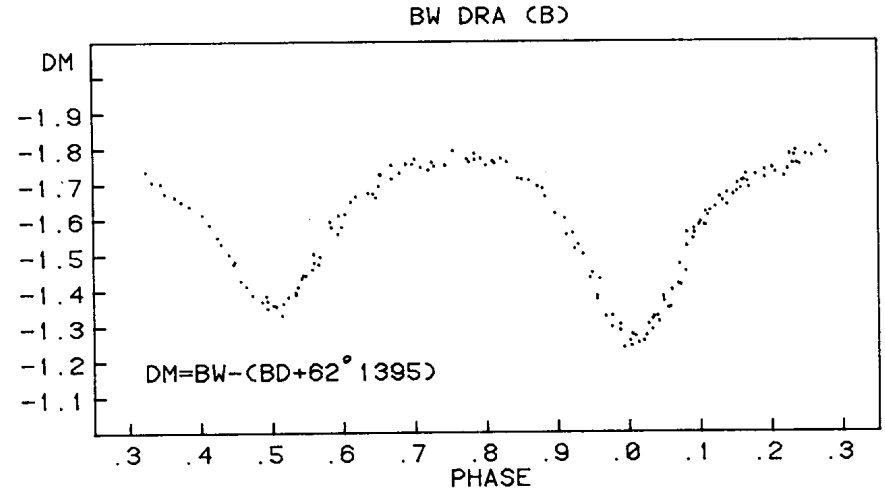

Figure 2

Table II

	V COLOUR		B COLOUR	
Type of minima	Heliocentric Jul. Day	(O-C) phase	Heliocentric Jul. Day	(O-C) phase
Primary	2447667.3488	0.003	2447667.3498	0.007
	±0.0004	±.001	±0.0007	±.002
Secondary	2447667.4988	0.516	2447667.4968	0.510
	±0.0010	±.003	±0.0004	±.001
Primary	2447668.5180	0.005	2447668.5175	0.003
	±0.0002	±.001	±0.0004	±.001
Primary	2447672.3171	0.008	2447672.3162	0.005
	±0.0004	±.001	±0.0003	±.001
Secondary	2447672.4611	0.501	2447672.4609	0.504
	±0.0002	±.001	±0.0004	±.002

From Figures 1 and 2 it can be also seen that the differences between the depths of the primary and the secondary minima are equal for both colours (~0.1 mag). The depth of the minima is variable up to 0.05 mag as it was reported previously by Geyer et al. (1982).

A. DAPERGOLAS and E. KONTIZAS
National Observatory of Athens
Astronomical Institute
P.O. Box 20048
GR Athens 118-10
Greece

M. KONTIZAS
University of Athens
Laboratory of Astrophysics
Panepistimiopolis
GR Athens 151-71
Greece

References:

Dapergolas, A. and Korakitis, R.: 1987, Publ. Nat. Obs. of Athens, Ser II, No.28.

Geyer, E.H., Hoffmann, M. and Karimie, M.T.: 1982, Astron. Astrophys. Suppl. Ser., 48, 85.

Kwee, K.K. and van Woerden, H.: 1956, Bull. Astr. Inst. Netherlands, 12, 327.

Rovithis, P. and Rovithis-Livaniou, H.: 1987, Astron. Astrophys. Suppl. Ser., 70, 63.

Wood, D.B.: 1970, Bull. American Astron. Soc., 2, 357.

Yamasaki, A.: 1979, Astrophys. Space Sci., 60, 173.