COMMISSIONS 27 AND 42 OF THE IAU
INFORMATION BULLETIN ON VARIABLE STARS
Number 3818

Konkoly Observatory
Budapest
9 December 1992
HU ISSN 0324 - 0676

UBV LIGHT CURVE OF RT And FOR 1991

The continuation of a long term project of photometry of the short period RS CVn system RT And is reported here.

Photometric observations for this star have been made previously by several authors listed by Dapergolas et al. (1988, 1991).

The star was observed photometrically for a total of 5 nights with the 1.2m Kryonerion telescope from 10 Sep. 1991 to 16 Sep. 1991 using a single-channel photon counting photometer described by Dapergolas and Korakitis (1987). The photometer employs a high gain 9789QB phototube and UBV conventional filters. Its output is fed directly to a microcomputer enabling rapid data access.

The data reduction method is the standard one. Comparison and check stars are BD +52°3384 and BD +52°3377 respectively and the accuracy of the observations presented here is ±0.015 mag for V, B and ±0.025 for U.

Table I lists the dates of observations and the corresponding phases covered.

The derived light curves for U, B, V colours are illustrated in Figures 1, 2, 3.

Table I

Date	Phase
10 September 1991	.77−.30
11 September 1991	.35−.89
12 September 1991	.92−.48
14 September 1991	.14−.67
16 September 1991	.49−.83

In Table II the times of minima and the O−C values are listed for the V, B, and U bands respectively. Times of minima are calculated using the method described by Kwee and van Woerden (1956) whereas the O−C values were determined from the linear ephemeris

$$T=2441141.88902+0^d.628929513\times E$$

given by Kholopov (1982).

From Figures 1, 2 and 3, it can be seen that the light curves show asymmetry in the secondary minima that gets larger in short wavelengths.

The variability in the levels of maxima noticed previously by Mancuso et al. (1979), Dapergolas et al. (1988, 1991) is also present here (see Figure 4), where the light curves for the years 1989, 1990 and 1991 in V are superimposed.

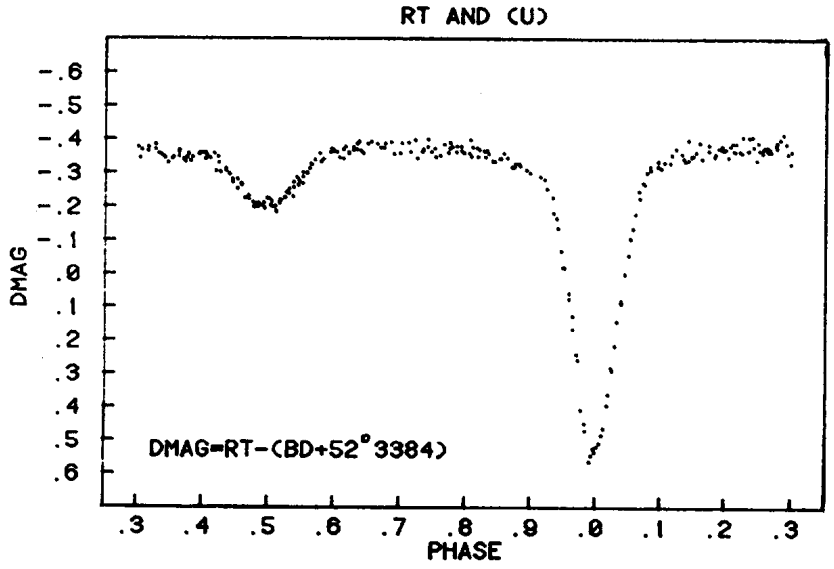

Figure 1

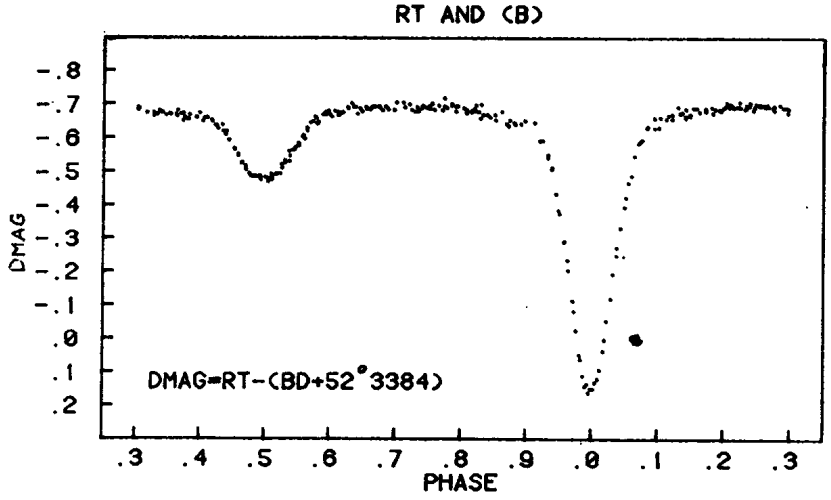

Figure 2

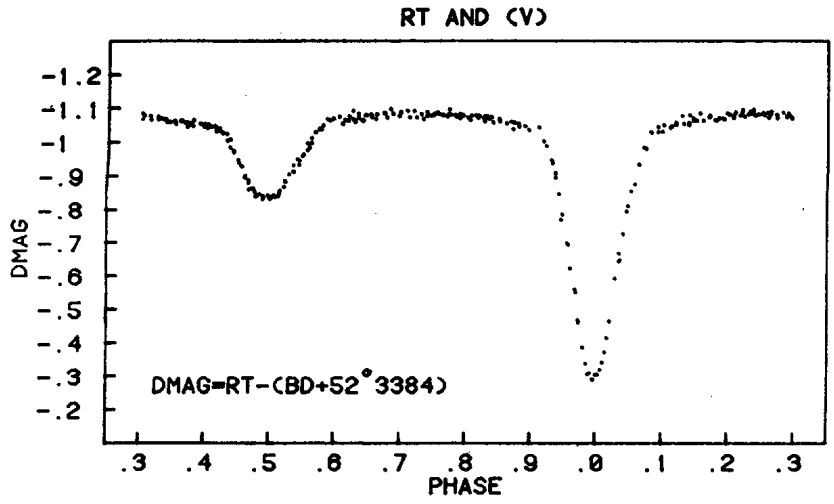

Figure 3

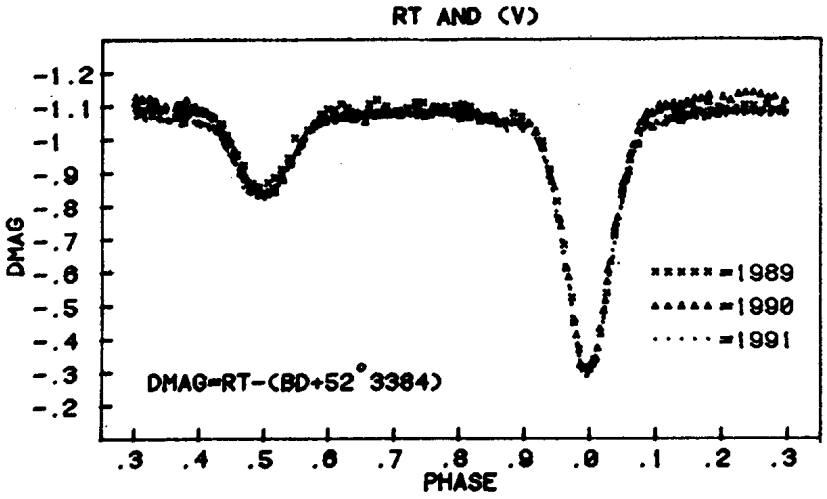

Figure 4

Table II

Date	Type	V colour Heliocen. J.D. 2440000+	O−C phase	B colour Heliocen. J.D. 2440000+	O−C phase	U colour Heliocen. J.D. 2440000+	O−C phase
10 Sep. 91	I	8510.4262 ±0.0001	0.998	8510.4262 ±0.0001	0.998	8510.4257 ±0.0002	0.998
11 Sep. 91	II	8511.3688 ±0.0003	0.497	8511.3696 ±0.0004	0.498	8511.3688 ±0.0007	0.497
12 Sep. 91	I	8512.3124 ±0.0001	0.998	8512.3126 ±0.0001	0.998	8512.3123 ±0.0001	0.997
14 Sep. 91	II	8514.5131 ±0.0004	0.497	8514.5137 ±0.0004	0.498	8514.5143 ±0.0005	0.499

This variability is probably due to the photospheric activity of the system as it is assumed by Dapergolas et al. (1988, 1991), Zeilik et al. (1989) and Gordon et al. (1990). This activity derived from the distortion in the light curve outside the eclipse is probably due to the presence of dark spots on the surface of the active star.

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References:

Dapergolas, A. and Korakitis, R.: 1987, Publ. Nat. Obs. of Athens, Ser. II, N28
Dapergolas, A., Kontizas, E. and Kontizas, M.: 1988, Inf. Bull. Var. Stars, No. 3267
Dapergolas, A., Kontizas, E. and Kontizas, M.: 1991, Inf. Bull. Var. Stars, No. 3661
Gordon, S., Hall, M., Ledlow, M., Mann, E. and Zeilik, M.: 1990, Inf. Bull. Stars, No. 3469
Kholopov, P. N.: 1982, "General Catalogue of Variable Stars", IVth edition, vol. I, p. 103
Kwee, K. K. and van Woerden, H.: 1956, *Bull. Astr. Inst. Netherlands*, **12**, 327
Mancuso, S., Milano, L. and Russo, G.: 1979, *Astron. Astrophys. Suppl. Ser.*, **36**, 415
Zeilik, M., Beckert, D., Cox, J., Dolby, M., Ledlow, M., Newberry, M. and Rhodes, M.: 1989, Inf. Bull. Var. Stars, No. 3301