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PERIODIC LIGHT CURVE VARIATIONS OF RT LACERTAE

The eclipsing binary RT Lac is one of the most interesting systems among the RS CVn-type binaries. The photometric studies made in visual region so far indicated the existence of distortions on the light curve. Milone (1976) observed the system in the infrared region and suggested that it has an infrared excess and UV deficiency. Besides, RT Lac is an active radio source (cf. Gibson et al., 1978). RT Lac is known as an eclipsing binary which has a sinusoidal distortion on its light curve. The distortion wave migrates towards decreasing orbital phase as in other RS CVn-type binaries. Hall and Haslag (1976) estimated a period of about 9.5 years for the migration wave. They also pointed out that the amplitude of the wave was variable ranging from 0.17 to 0.01 magnitude. The star spot cycle of about 30 years has been estimated from the amplitude variations.

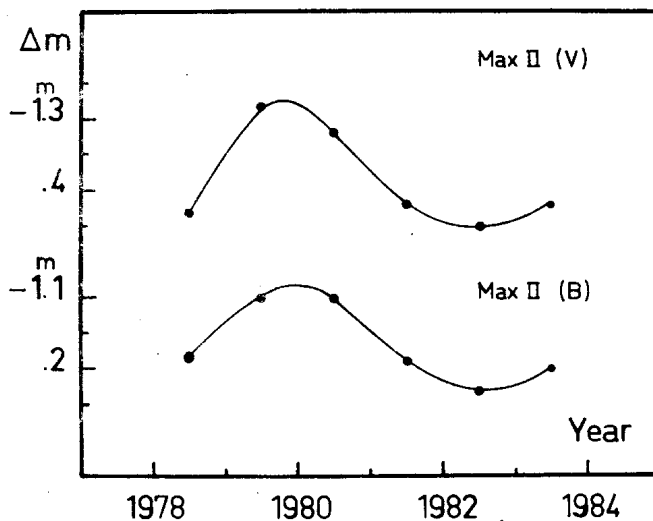


Figure 1

The variations of the brightness of the system at second quarter in yellow and blue light

The system has been observed photoelectrically in successive five years from 1978 to 1983 at the Ege University Observatory. The observations and the almost complete light curves obtained between 1978 and 1981 were published by Ibanoglu et al. (1980) and by Tunca et al. (1983). The orbital period of the system was found to be decreasing with an amount of 34 s/century and given in the last paper.

The brightness of the system at second quarter and in primary eclipse were plotted against the years in which the observations were carried out and are shown in Figure 1, and 2. The light variations at second quarter show a smooth

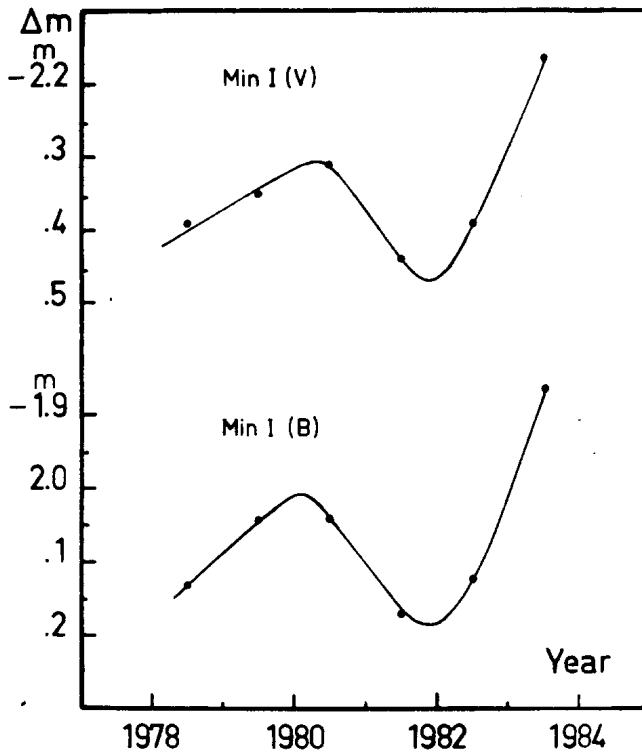


Figure 2

The variations of the brightness of the system at mid-primary in yellow and blue light

curve and produce a period of about five years. Similar variations are also seen in the brightness of the system at primary eclipse, but the period is

about four years. Both of the variations at second quarter and at primary eclipse are similar in the colours V and B. The observations of the system RT Lac obtained in successive five years suggest that the light curve variations are periodic with a period of about 4.5 years. This value is nearly the half of that proposed by Hall and Haslag (1976).

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