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1988 LIGHT CURVES OF RX HERCULIS

RX Her (HD 170757, GC 25274) is a detached eclipsing binary with algal type light curves. It was listed by Popper (1959) as one of four early spectral type eclipsing binaries with well determined properties. Wood (1948) obtained one unfiltered light curve and determined a solution using the Russell-Merrill method. Other light curves obtained were never solved because no significant differences were noticed between new and old light curves (Popper, 1959). Olson (1975) and Hill and Hilditch (1975) observed the system at five different phases in Strömgren filters. From these observations the C index indicates a B9.5 spectral type, while the M index for both primary and secondary stars shows nothing peculiar in the metal abundance (Jeffreys, 1980). Jeffreys (1980) obtained a V light curve and determined a solution using Wood's (1971) WINK computer model. He found that RX Her is a binary system with similar components (B9.5 primary and AO secondary). He also found some asymmetry during ingress of the secondary due to a small eccentricity ($e = 0.022$).

We obtained new differential photoelectric observations in each U, B, V filters during May and August 1988. An EMI 9789QB photomultiplier attached to the 30 cm Maksutov telescope of the Ankara University Observatory has been used to secure the data. Differential observations in three colors were made with respect to the comparison star BD+12°3547. BD+11°3518 was used as the check star. The differential brightness measurements of the comparison with respect to the check star were found to be sensibly constant during the observations. The individual differential brightness determinations were corrected for differential atmospheric

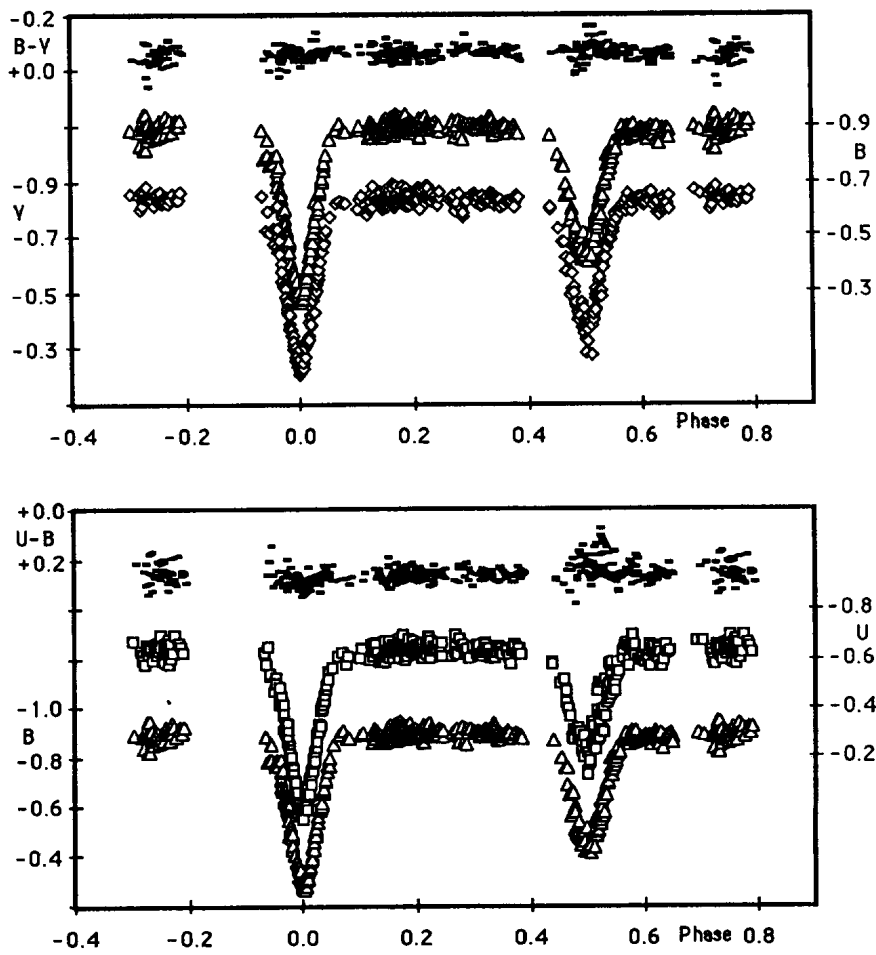


Figure 1. The UB observations of RX Herculis.

extinction. The observations in the sense variable minus comparison are plotted in Figure 1 together with color curves. The light elements used in phase calculation were given in GCVS 1985 as

$$\text{Hel. JD Min I} = 2433170.398 + 1^d.7785724 \cdot E.$$

Table 1. The new times of minima of RX Her

Hel. Min. 2447300+	No. of Obs.	Filter	E	O-C	Remark
39.3930 ± 0.0020	11	U	7966	-0.0020	Min. II
39.3947 ± 0.0009	16	B	7966	-0.0004	Min. II
39.3946 ± 0.0010	16	V	7966	-0.0004	Min. II
47.3989 ± 0.0006	15	U	7971	+0.0003	Min. I
47.3991 ± 0.0008	15	B	7971	+0.0005	Min. I
47.4003 ± 0.0013	13	V	7971	+0.0017	Min. I
71.4032 ± 0.0031	9	U	7984	-0.0062	Min. II
71.4072 ± 0.0002	9	B	7984	-0.0021	Min. II
71.4078 ± 0.0030	11	V	7984	-0.0015	Min. II
79.4139 ± 0.0004	32	U	7989	+0.0010	Min. I
79.4141 ± 0.0003	30	B	7989	+0.0012	Min. I
79.4139 ± 0.0005	32	V	7989	+0.0010	Min. I
88.3067 ± 0.0009	20	U	7994	+0.0009	Min. I
88.3059 ± 0.0005	20	B	7994	+0.0001	Min. I
88.3068 ± 0.0013	20	V	7994	+0.0010	Min. I

During the observations we secured three primary and two secondary minima. The new minimum times (see Table 1) confirm the apsidal motion and thus eccentric orbit of the system.

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