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INFRARED PHOTOMETRY OF R CrB

R CrB is the prototype of a class of irregular variables that are characterized by an overabundance of carbon and undergo sudden decreases in visual brightness at irregular intervals. During the minima the decrease in brightness in the near infrared is less than that in the visible. In the L band (3.4 μm) R CrB shows variations unrelated to the sudden visual drops. Strecker (1975) found L magnitude variations for R CrB on a time scale of about 1100 days. However, whether these variations are periodic is not known.

We have observed R CrB in the J, H, K, L bands (at 1.2, 1.6, 2.2, 3.4 μm , respectively) on three occasions including one (March 6, 1984) during the current minimum. Observations were made with the 104 cm telescope of the Uttar Pradesh State Observatory at Nainital using a liquid nitrogen cooled InSb photometer. The measured J, H, K, L magnitudes are listed in Table I, wherein the measurements by Glass (1978) and Shenavrin et al. (1979) are also given.

Table I
 R CrB: Infrared photometry

Date	J	H	K	L	visual phase	References
Feb. 1 to 12, 1975	5.04	4.82	4.26	2.62	bright	Glass (1978)
June 1, 1977	-	7.22	5.27	2.91	faint	Shenavrin et al. (1979)
Feb. 18, 1980	5.10	4.80	4.10	2.20	bright	present work
March 25, 1980	5.10	4.80	4.10	2.30	bright	present work
March 6, 1984	8.15	6.61	4.93	-	faint	present work

The four new measurements in the L band made subsequent to the observations of Strecker (1975) do not fit a periodic extrapolation of the L light curve for R CrB given by Strecker (1975). It is not clear whether the low L brightness during the 1977 visual minimum is related to the drop in the visible light or is a part of an independent long term variation in the L band.

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