

LONG TERM TRENDS IN THE 3.5μ LIGHT CURVE OF RX PUPPIS

Patricia A. Whitelock and R.M. Catchpole
South African Astronomical Observatory

SAAO photometry of RX Pup at 3.5μ between 1972 and 1981 shows a very well defined period of 580 days with an amplitude of 0.35 mag, which is attributed to a Mira variable component. The infrared variability of RX Pup was demonstrated by Feast, Robertson and Catchpole (1977), who also pointed out that the infrared colours were indicative of the presence of a Mira variable with a dust excess. Further evidence for the Mira comes from the observations of H_2O in the infrared spectrum by Barton, Phillips and Allen (1979).

In addition to the 580^d period, secular variations are also evident in the 3.5μ data. Between 1972 and 1980 RX Pup brightened steadily at a rate of 0.09 mag per year. The more recent results do not follow this trend and in fact RX Pup got fainter by $0^m.15$ between 1980 and 1981. The origins of this variation are not obvious but could be associated with changes in the conditions of the dust cloud, the nature of which may become clear when these observations are compared with those at other wavelengths. It is obviously of considerable importance to continue observations of this and other symbiotic objects over long time-periods and at all wavelengths in order to clarify the nature of the secular changes. The observations discussed here are to be published in full elsewhere. We are indebted to SAAO colleagues for use of data in advance of publication.

REFERENCES

- Barton, J.R., Phillips, B.A., Allen, D.A.: 1979, Mon. Not. R. astr. Soc. 187, 813
Feast, M.W., Robertson, B.R.C., Catchpole, R.: 1977, Mon. Not. R. astr. Soc. 179, 499

DISCUSSION ON RX PUPPIS

Swings: I wish to discuss the spectrum of RX Pup in the 1970's (B[e] - type), and its evolution from March to December 1979. RX Pup seems indeed to be returning rapidly to the conditions exhibited four decades ago; the strong and broad emission lines of HeII, NIII, OII, [OIII] that appeared in that short period indicate an appreciable increase of the degree of excitation. The Balmer continuum is now strongly present in emission. For details see Klutz and Swings (1981, Astr. Astrophys. 96, 406).

McCarthy: How do the trends of the H, J, and K magnitudes for RX Pup compare with that shown with time by the L magnitudes?

Whitelock: The trends are similar but there is no sign of the long term variation.

Viotti: I think that the model on RX Pup based on the UV observations is quite reddening dependent. Did you determine $E(B-V)$ from the strength of the 2200 Å interstellar band?

Kafatos: The continuum changes a bit when you go from $E(B-V) = 0.3$ to $E(B-V) = 0.7$; for values outside this range you get unreasonable looking UV continua.