Contributed paper

Intermediate and Narrow Band Photometry of Epsilon Aurigae

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Intermediate-band blue (4530A), far red (7790A) and H-alpha intermediate and narrow band photoelectric observations of the peculiar, 27 year eclipsing binary, Epsilon Aurigae were made from December 1981 through the present (December 1984). The observations were made with the 38 cm reflector at the Villanova University Observatory. BD +42 1170 served as the primary comparison star (instead of the more popular comparison star Lambda Aur) because of its angular proximity to the variable star. Using this comparison star reduced the uncertainty arising from differential atmospheric extinction corrections. The analysis of this data along with other available photometry was undertaken to study the characteristics of the low amplitude, semi-regular (roughly 80 - 120 days) light variations that appear inside and outside of eclipse. It appears that these short-term light variations arise from non-radial pulsations of the luminous F supergiant in the system. Furthermore, the semi-regular light variations found for Epsilon Aurigae are similar to those found for other luminous A-F supergiants. Also, the preliminary results from the analyses of the light variations produced by the eclipse of the F-supergiant by the mysterious cooler component will be discussed.

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