SV SAGITTAE 1899 - 1979

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Abstract

The photographic light curve obtained from measurements of the Harvard plates and supplemented by visual estimates of the AAVSO is presented, and it confirms that this star is an R CrB variable.

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The variability of SV Sagittae was discovered photographically by V. Albitzky in 1928. His twenty published observations show the star varying from a minimum of $13^m.9$ in 1904 to a maximum of $11^m.6$ during 1926. Albitzky published a finder chart and magnitudes for the comparison stars with the discovery notice. He did not discuss the type of variation and due to a continuing paucity of observations, the classification of SV Sge remained in doubt, although C. P. and S. Gaposchkin included it, with reservations, in their list (1938) of R CrB candidates. The Third Supplement to the General Catalogue of Variable Stars (1976) lists SV Sge as an R CrB type variable. In private communication (1975), V. P. Tsesevich suggested to Janet A. Mattei, Director of the AAVSO, that it would be interesting to study this star on the Harvard plates.

Figure 1, the light curve of SV Sge, results from an examination of the available plates in the Harvard collection. There is reasonably good coverage of the star's activity from 1899 until the late 1940s, when the observations become intermittent. Useful coverage resumes in the 1970s with the Damon plate series. The author estimates that the plate measurements can be considered accurate within a mean error of approximately $\pm 0^m.10$.

The published photographic observations of V. Albitzky (1929), W. Wenzel (1963), and E. B. Vovchek (1971) are included in the light curve, as are visual observations from the AAVSO. Albitzky's comparison sequence was utilized by each of these investigators, and by the author.

In Figure 1, the visual estimates (reduced to 10 day means) have been adjusted to the photographic scale of the Harvard plates with the following equation:

$$m_{pg} = 6.564 + 0.469\ m_v \qquad (1)$$

The light curve of SV Sge exhibits the principal characteristics of a typical R CrB variable:

(a) The star remains constant (within approximately $0^m.5$) at maximum magnitude.

(b) There occurs, at irregular intervals, a decrease in brightness. This decrease generally takes place over a relatively short period of time.

(c) The time spent at minimum varies, but is usually on the order of several hundred days.

(d) The ascent to maximum is slow and interrupted by short-term variations.

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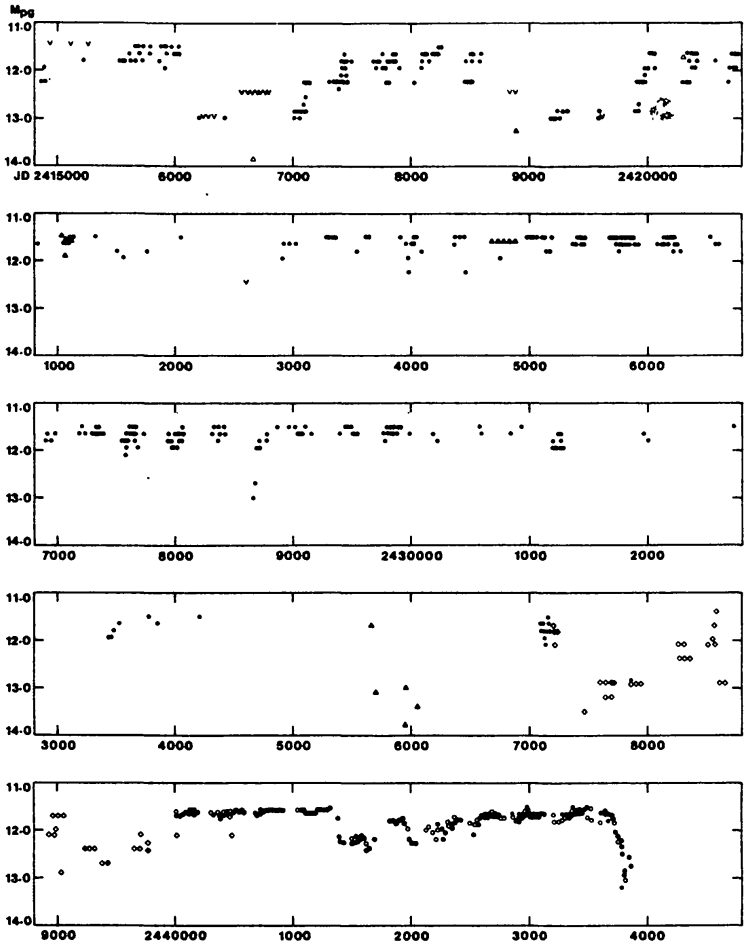

Figure 1. The photographic light curve of SV Sagittae. These symbols apply: ● Harvard plates; Δ V. Albitzky; ▲ W. Wenzel; ◇ E. B. Vovchek; o AAVSO visual estimates plotted as 10 day means, reduced to the photographic scale using equation (1) (see text).