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5-HOUR LIGHT VARIATIONS OF HD 65953 (28 Mon) ?

Photoelectric UBV observations are presented of the K4 giant HD 65953. Used as one of several comparison stars for the study of variability of HD 67594 it turned out to be variable itself.

Between January 18 and January 31, 1977 14 observations were made of HD 65953 relative to HD 67594 using the Bochum University 61cm telescope at La Silla, Chile. HD 67594 remained constant to within the internal precision of the photometry, i.e. $0^m.003$. Reduction procedures were the same as those described by Stift (1978). Plotting the UBV magnitudes versus Julian Date seems to indicate semiregular behaviour on a time scale of about 5 days (Fig. 1). Amplitudes are $0^m.020$ in V, $0^m.025$ in B and $0^m.030$ in U.

A search for periodicity with the help of a 5 component Fourier least squares fit leads to a 5 hour period (Fig. 2). The curve is remarkably smooth and it appears most unlikely that it is due to chance only. The nightly observing interval of about 1/2 hour makes it impossible to confirm or discard the 5 hour period.

The observations lend further support to the conclusion of Maeder and Rufener (1972) who claim that all K-giants from K5 are variable. We may speculate whether such short-period variations are due to oscillations connected with mass loss in K-giants (Deutsch, 1960), but only spectroscopic observations can provide the necessary information.

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References:

- Deutsch, A.J.: 1960, The loss of mass from red giant stars, in Stellar Atmospheres, Ed. J.L. Greenstein, Univ. of Chicago Press, Chicago, p.543
Maeder, A. and Rufener, F.: 1972, Astron. Astrophys. 20, 437
Stift, M.J.: 1978, Astron. Astrophys. Suppl. 32, 343

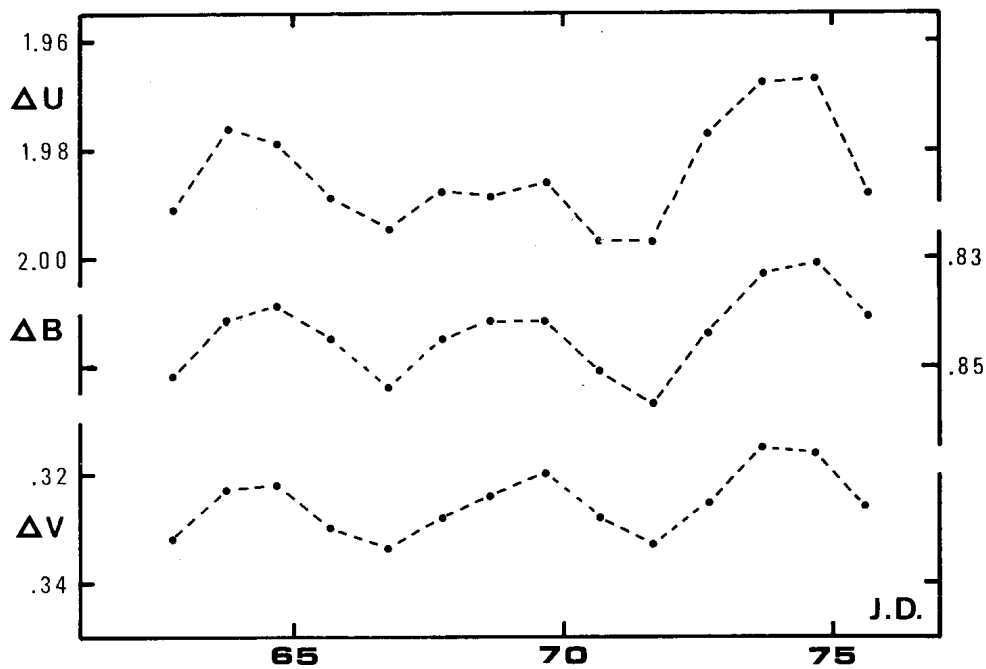


Figure 1: Observations of HD 65953 relative to HD 67594 plotted versus J.D. - 2443100.

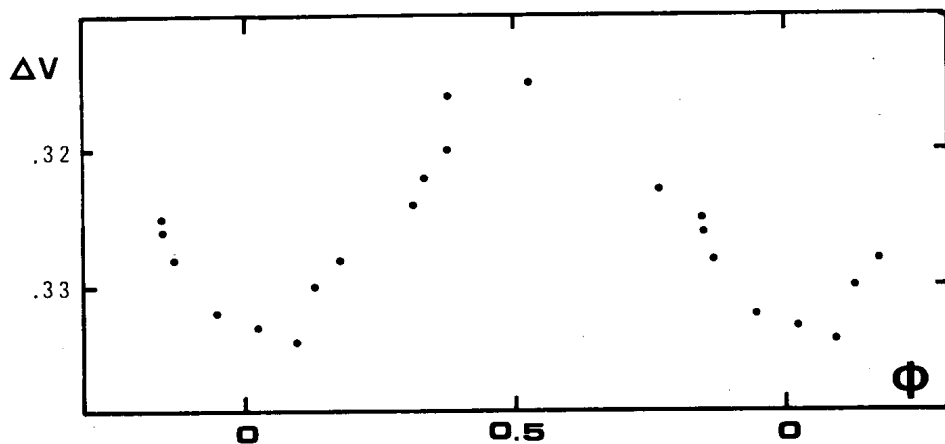


Figure 2: Observations of HD 65953 relative to HD 67594. The phases are given by $\phi = (\text{J.D.} - 2443100) 0.207878^{-1}$.