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THE LIGHT CURVE OF FG Vul IN 1983

The M5II-star FG Vul, which is one of the oldest members ($\log \tau \approx 9.19$) of the old open cluster NGC 6940 (Götz, 1981) was measured in B (ORWO ZU21+GG13 + BG12) on 18 plates from 17 nights obtained with the 50/70/172 cm Schmidt camera of Sonneberg Observatory covering the time interval between 7 June 1983 and 15 December 1983.

The used sequence of comparison stars in B is listed in Table I.

Star	m_B	Star	m_B
100	11.03	161	11.98
164	11.31	174	12.02
179	11.64	140	12.02
136	11.76	90	12.12
175	11.78	102	12.28
152	11.91	97	12.73

In Table I the star numbers are those given by Vasilevskis and Rach (1957).

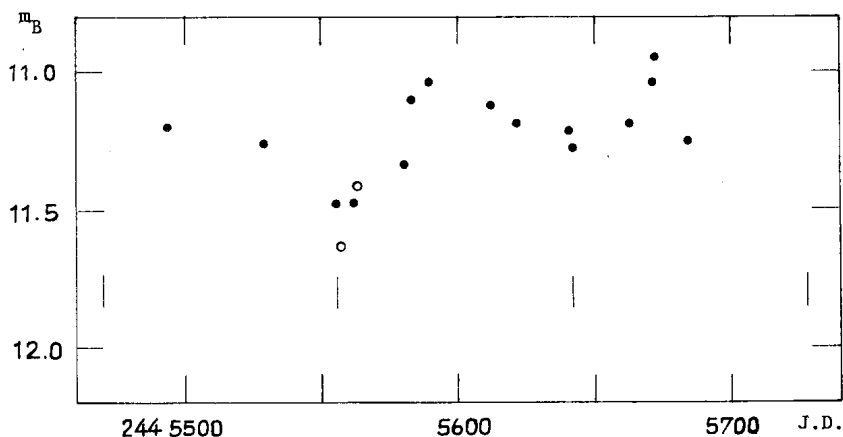


Figure 1

The apparent magnitudes m_B were obtained by linking to the UBV sequence of the cluster given by Walker (1958). In each individual case the magnitude of FG Vul was determined by measuring and considering the full sequence of comparison stars.

The light curve of FG Vul in 1983 is given in Figure 1. There can be seen that the small changes in brightness are characterized by well defined minima of different amplitudes. Taking into account the photoelectric observations of Walker (1958) ($n = 13$) and Eggen (1973) ($n = 5$) the following preliminary elements were derived:

$$\text{Min.} = \text{J.D. } 243\,6095.8 + 86^{\text{d}}_0 \cdot E$$

Min. J.D. 24...	m_B	E	O-C	Author
3 6095.8	$11^{\text{m}}.13$	0	0^{d}_0	Walker
6173.7+	11.24	1	-8.1+	Walker
4 1520	10.90	63	+6.2	Eggen
5558.9	11.48	110	+3.1	Götz
5642.2	11.28	111	+0.4	Götz

The dates of minima which follow from the elements for the present time are marked in Figure 1. Doubtful observations are plotted there by circles.

The individual observations of FG Vul obtained in 1983 are listed in Table II.

Table II

J.D. 244....	m_B	J.D. 244....	m_B	J.D. 244....	m_B
5493.5	$11^{\text{m}}.20$	5580.4	$11^{\text{m}}.34$	5642.2	$11^{\text{m}}.28$
5528.5	11.26	5583.4	11.10	5663.2	11.19
5555.5	11.48	5589.4	11.04	5671.2	11.04
5556.4	11.64::	5612.3	11.13	5672.2	10.95
5561.4	11.48	5621.4	11.19	5684.19	11.27
5562.4	11.42::	5641.3	11.22	5684.20	11.25

FG Vul shows an amplitude of about $\Delta m_B \approx 0^{\text{m}}.5$ in the given series of observations and belongs to the group of semiregular variables.

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