PHOTOELECTRIC OBSERVATIONS OF THE FLARE STAR EV LAC

Continous photoelectric monitoring of the flare star EV
Lac has been carried out at the Stephanion Astronomical Sta-
tion ($\alpha=-22^\circ 49'44"$ $\phi=+37^\circ 45'15"$) during the period of coop-
erative optical observations of this star proposed by the IAU
Working Group on Flare Stars i.e. September 11-27, 1971(Andrews
et.al. 1971) using the 30-inch Cassegrain reflector of the De-
partment of Geodetic Astronomy, University od Thessaloniki.Ob-
servations have been made with a Johnson dual channel photoe-
lectric photometer in the B color of the international UBV sys-
tem. The telescope and photometer will be described elsewhere.
Here we mention only that the transformation of our instrumen-
tal ubv system to the international UBV system is given by the
following equations:

$$V=v+2.094+0.022(b-v),$$
$$(B-V)=0.837+1.005(b-v),$$
$$(U-B)=-1.179+0.993(u-b),$$

The monitoring intervals in UT as well as the total moni-
toring time for each night are given in Table 1. Any interrup-
tion of more than one minute has been noted.

During the 5.9 hours of monitoring time 2 flares were ob-
served the characteristics of which are given in Table 2. For
each flare following characteristics(Andrews et.al.1969)are given:
a)the date and universal time of flare maximum, b) the duration
before and after maximum (t_b and t_a respectively) as well as the
total duration of the flare,c)the value of the ratio $(I_f-I_o)/I_o$
corresponding to flare maximum, where I_o is the intensity de-
flection less sky background of the quiet star and I_f is the
total intensity deflection less sky background of the star plus
flare, d)the integrated intensity of the flare over its total du-
ration, including pre-flares, if present, $P=\int (I_f-I_o)/I_o \, dt$, e)the

increase of the apparent magnitude of the star at flare maximum $\Delta m(b)=2,5 \log(I_f/I_o)$, where b is the blue magnitude of the star in our instrumental system, f the standard deviation of random noice fluctuation $\sigma (mag) = 2.5 \log (I_o+\sigma)/I_o$ and g) the air mass. The light curves of the observed flares in the b color are shown in Figs. 1-2.
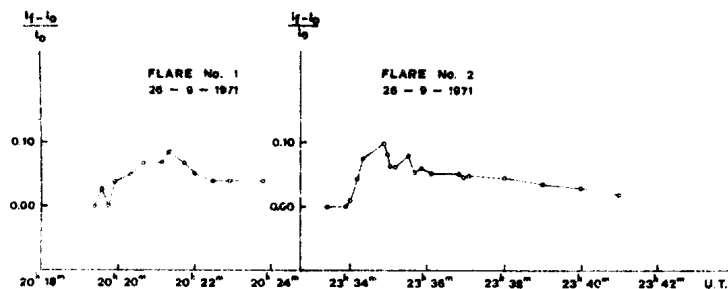

Table 1

Date 1971 Sep.	Monitoring intervals (UT)	Total monitoring time
26-27	$19^h 44^m - 20^h 25^m$, 2026-2048, 2058-2118, 2119-2200, 2208-2228, 2230-2250, 2251-2312, 2320-2341, 2342-2400, 0000-0023, 0032-0052, 0053-0113, 0114-0133	$5^h 6^m$
27	1852-1912, 1913-1934, 1935-1942	48^m
	Total	$5^h 54^m$

Table 2

Characteristics of the flares observed

Flare No.	Date 1971 Sep.	U.T. max.	t_b min.	t_a min.	Dura-tion min.	$\frac{I_f-I_o}{I_o}$ max.	P min.	Δm mag.	σ mag.	Air mass
1.	26	$20^h 21^m.3$	1.6	?	?	0.08	?	0.09	0.011	1.03
2	26	23 34.8	0.9	5.5	6.4	0.10	0.30	0.10	0.014	1.09

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References
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