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PHOTOELECTRIC OBSERVATIONS OF THE FLARE STAR EV Lac

Photoelectric monitoring of the flare star EV Lac has been carried out at the Prairie Observatory of the University of Illinois in the period of the international patrol, September 11-27, 1971, as well as on dates outside of this period. The observations were made with the 102-cm reflector and a single channel photoelectric photometer. The photocell was an EMI 62568, cooled to -20°C . The filter employed was a Corning No. 5030 cemented to a Schott GG13 of 2mm. thickness, corresponding to the photometric system B. The observations were recorded on a Keithley chart recorder, model 360. Total monitoring time was 27hr 12m, and two flares were observed. Stars BD +43 $^{\circ}$ 4303 and BD +43 $^{\circ}$ 4304 were monitored as comparison stars. All observations of EV Lac included its close optical companion and thus the observed increase in brightness during the flares refers to the combined light of EV Lac and its companion.

Table 1 gives the times of coverage and the standard deviation of the random noise, σ , in magnitudes. Interruptions of less than one minute are not noted. The sampling time used in the calculation of the noise levels was one minute.

Table 2 gives the photometric data for the observed flares. All quantities listed are those of IBVS No. 326. It should be noted that the random noise levels listed in Table 2 are applicable just before the flares and do not necessarily correspond to the typical values for the night.

The light curves of the two flares, in relative intensity units, are also presented.

We owe a large debt to Dr. Edward G. Olson and Dr. Kenneth M. Yoss for their many efforts on behalf of the flare star program. Miss Grace Nothdurft has given her valuable assistance in obtaining the observations.

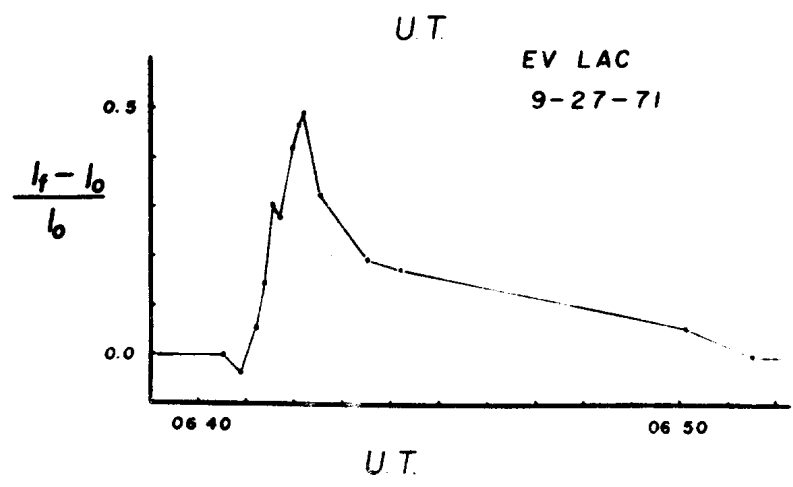
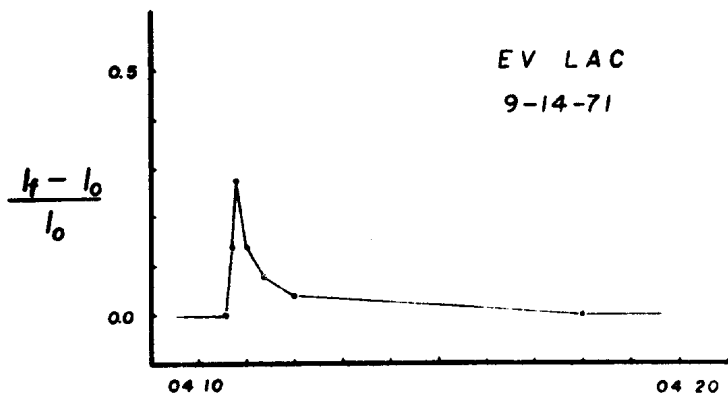
Table 1
Dates and Times of Coverage

Date UT 1971	Monitoring UT								σ
Sept. 11	04 ^h 47 ^m .0-06 ^h 00 ^m .4,06	11.0-07	03.1,07	14.1-07	40.4	.05			
Sept. 12	03 18.0-04 10.3,04	20.9-05	13.5,05	19.7-06	00.7, .03				
	06 09.3-07 15.5,07	22.6-07	24.7,07	26.7-08	16.5,				
	08 26.0-08 30.0,								
Sept. 13	03 01.0-03 59.6,04	10.2-05	02.1,05	04.3-06	02.3, .04				
	06 18.8-06 56.0,06	57.2-07	10.4,07	15.8-07	52.0,				
	07 54.3-08 00.0								
Sept. 14	03 45.0-04 27.8,04	31.1-05	30.1,05	31.7-06	15.2	.03			
Sept. 27	01 14.0-01 24.4,01	27.4-01	41.5,01	43.4-02	31.3, .03				
	02 51.1-02 59.4,03	00.4-03	19.9,03	21.7-03	46.3,				
	03 48.0-04 40.0,04	06.2-04	57.6,04	59.3-05	29.2,				
	05 31.0-06 18.4,06	21.3-06	47.3,06	48.3-06	52.2,				
	06 57.3-07 04.1,07	07.4-07	15.8						
Sept. 28	01 03.0-01 49.6,01	51.5-02	45.5,02	47.7-03	28.3, .04				
	03 29.4-04 10.2,04	11.2-04	34.3,04	37.3-05	42.8,				
	05 44.3-06 36.8,06	38.4-07	13.0						
Oct. 19	05 28.0-05 34.8,05	36.7-06	15.2,06	16.8-06	30.9, .04				
	06 32.1-06 41.2,06	42.3-06	50.0						
Nov. 13	03 38.0-03 43.7,03	45.5-04	01.8,04	03.4-04	13.3, .03				
	04 15.1-04 26.4,04	29.1-04	38.0						

Total monitoring time = 27hours 12minutes

Table 2
Photometric Data for Flares Observed

Date	UT maximum	Duration before max. (min.)	after max. (min.)	$\frac{I_f - I_o}{I_o}$	σ (magn.)	P_b (min.)	air mass
9-14-71	04 ^h 10 ^m .8	0.25	7.45	0.27	.03	0.27	1.04
9-27-71	06 42.2	1.30	9.30	0.49	.03	1.47	1.15



Urbana, Illinois
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