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PHOTOELECTRIC OBSERVATIONS OF THE FLARE STAR EV Lac

The continuous photoelectric monitoring of the flare star EV Lac was carried out at the Crimean Astrophysical Observatory in the period of the international patrol, September 11-27, 1971. The observations were made with the 64-cm meniscus telescope in the photometric system B. The coverage, characteristics of the observed flares and their curves are given below. No reductions were made to exclude the light of the optical companion of EV Lac. The explanation of designations and symbols can be found in Ref.1. stars were presented by different authors. In order to study EV Lac from this point of view we made comparisons of it with the stars BD +43°4304 (a) and BD +43°4303 (b). The observations accumulated for three seasons, 1969-1971, show that the range of secondary variations is about 0^m.03 (in the B light). Observations obtained in June-September 1971 give some indication of a period of about 5 days in the changes of the undisturbed star brightness. But a periodicity is not confirmed from the observations obtained in October 1971.

The mean differences in the B magnitudes of EV Lac and the comparison star BD +43°4303 for 4 nights in the period of cooperative observations are: 1971 Sep. 11/12: +0.113, 22/23: +0.115, 26/27: +0.125, 27/28: +0.110. In order to show how this mean differences were obtained we give Figure 1 where the individual measurements of the magnitude difference are shown as points and the straight lines show the mean difference for each of 4 nights.

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Reference:

- (1) A.D.Andrews, P.F.Chugainov, R.E.Gershberg, V.S.Oskanian,
Comm.27 I.A.U. Inf.Bull.Var.Stars, No.326, 1969.

Date,
1971
Oct.

Coverage (U.T.)

11 17^h35^m-17^h47^m, 1750-1814, 1820-1842, 1847-1908, 1910-1932,
1934-2011, 2016-2044, 2047-2210, 2214-2243, 2247-2257,
2301-2313, 2316-2340, 2343-2400
12 0000-0001, 0004-0048, 0051-0125, 1730-1752, 1753-1807,
1812-1835, 1838-1847, 1853-1904, 1920-1926, 1928-1955,
1959-2005, 2103-2123, 2129-2142, 2210-2234, 2238-2304,
2312-2344, 2349-2400
13 0000-0001, 0002-0027, 0032-0044, 0046-0049, 0056-0104,
0109-0111
15 1741-1749, 1812-1928
17 1725-1759, 1805-1858, 1908-2023, 2027-2029
18 1749-1806, 1827-1921, 1925-1947, 1952-2022, 2025-2111
22 1719-1739, 1754-1836, 1840-1854, 1858-1951, 1955-2014,
2017-2034, 2037-2053, 2056-2116, 2119-2209, 2212-2322,
2331-2400
23 0000-0044, 0048-0105, 1715-1727, 1730-1750, 1752-1816,
1819-1835, 1837-1854, 1901-1925, 1929-2003, 2005-2024,
2029-2048
26 1645-1701, 1703-1722, 1724-1753, 1755-1810, 1838-1908,
1914-1935, 1940-2000, 2007-2031, 2035-2100, 2105-2142,
2149-2207, 2211-2226, 2228-2250, 2254-2255, 2257-2258,
2301-2302, 2307-2338, 2340-2400
27 0004-0005, 0008-0009, 0012-0013, 0016-0031, 0033-0037,
0040-0101, 0103-0105, 1648-1717, 1722-1751, 1754-1849,
1852-1949, 1955-2033, 2037-2119, 2124-2136, 2140-2141,
2145-2146, 2149-2150, 2153-2217, 2221-2222, 2225-2226,
2229-2230, 2234-2302, 2305-2321, 2325-2345, 2347-2400
28 0006-0030, 0033-0053, 0055-0111, 0114-0117

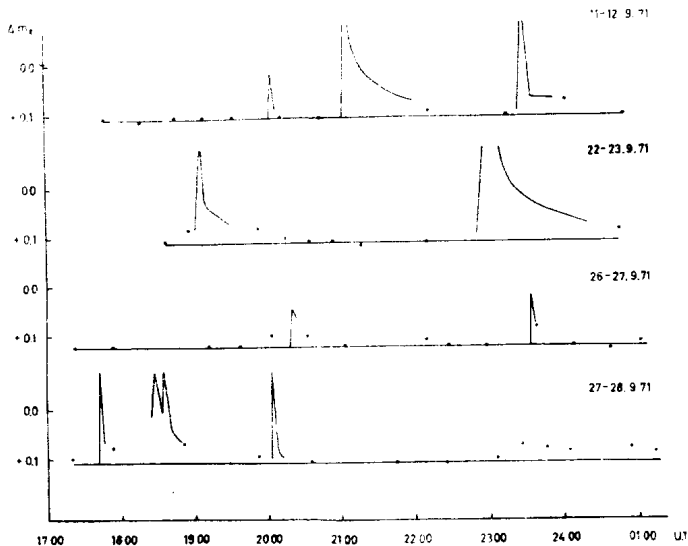


Figure 1

Characteristics of the flares observed

Date 1971 Sept.	U.T. maximum	t_b minutes	t_a minutes	$(I_f - I_0)/I_0$ maximum	σ/I_0	P_B minutes	Notes
11	20 04.8	0.5	4.1	0.09	± 0.010	0.14	
11	21 05.0	1.6	44.7	0.82	0.015	5.56	1
11	23 28.2	1.3	30.2	0.43	0.007	1.92	
12	22 51.7	0.9	10.1	0.14	-	0.77	2
16	18 52.8	0.6:	14.2:	0.4:	-	1.0:	3
22	19 06.3	0.5	27.9	0.36	0.015	1.86	
22	22 56.9	3.8	63.1	1.59	0.010	10.16	
26	20 21.3	1.6	7.9	0.08	0.015	0.40	
26	23 34.8	0.9	2.0	0.10	0.013	0.26	
27	17 43.5	1.0	7.5	0.30	0.014	0.47	
27	18 29.3	4.0	20.7	0.31	0.020	3.26	4
27	20 04.3	0.8	8.2	0.21	0.013	0.55	

Notes:

1. Secondary maximum at 21 07.7.
2. Interference of clouds; the light curve is not presented.
3. Complex event in the interval 18 52-19 07; interference of clouds; the light curve is not presented.
4. Secondary maximum at 18 35.8.

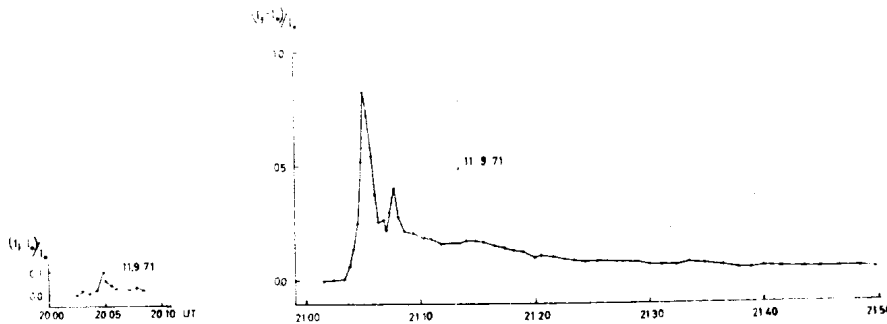


Figure 2

