

COMMISSION 27 OF THE I. A. U.
 INFORMATION BULLETIN ON VARIABLE STARS
 NUMBER 498

Konkoly Observatory
 Budapest
 1970 December 18

PHOTOELECTRIC OBSERVATIONS OF AD Leo DURING THE
 1970 MARCH 1-15 INTERNATIONAL PATROL

The observations of AD Leo carried out during the above mentioned period, according to the observing schedule prepared by the I.A.U. Working Group on Flare Stars (Andrews and Chugainov, 1970), are presented. Within the 15.5 hours of patrol in b light (Table 2) four flares were observed. A Casségrain reflector of 91 cm aperture and a quasi-Casségrain reflector of 61 cm aperture referred to in Table 2 as 91 and 61 fed similar photometers equipped with EMI 6256 photomultipliers and the Schott filter combinations: BG 12/1 + GG 13/2 (b), GG 14/2 (v).

Table 1. Observed flares

No	Date 1970	t_{\max}	d_b	d_a	$m_{\lim} - m_o$	$(m_f - m_o)_{\max}$	P	Remarks
1	Mar 7	02 ^h 40.2 ^{min}	0.5 ^{min}	1.5 ^{min}	+4.95 ^m	+2.61 ^m	0.06	1
2	Mar 8	02 27.3	0.1	0.7	+5.34	+2.30	0.04	3 *
3	Mar 9	00 22.1	0.3	0.2	+5.36	+1.80	0.04	2 *
4	Mar 9	02 29.6	0.1	8.4	+5.07	+1.34	0.79	2

t_{\max} = U.T. of maximum intensity

d_b = rise-time, d_a = decay-time,

$m_{\lim} - m_o = -2.5 \log (3\sigma/I_o)$

where σ and I_o indicate the standard deviation of the random noise fluctuations and the mean intensity of the quiet star near the observed flare, respectively.

$(m_f - m_o)_{\max} = -2.5 \log [(I_{o+f} - I_o)/I_o]_{\max}$, where I_{o+f} is the intensity deflection due to the variable star (I_o) plus that of flare (I_f) at maximum; $P = \int_{t_b}^{t_e} [(I_{o+f} - I_o)/I_o] dt$ integrated intensity (in minutes).

Remarks: sky condition, 0 very clear, 2 clear with some thin layers, 3 extended thin stratus, * uncertain.

Table 2.

Date	Tel.	F	Coverage U.T. Coverage U.T.	TC	$m_{\text{lim}} - m_0$
1970					
March					
07	91	b	01 ^h 21 ^{min} -0340	139 ^{min}	+4.95 ^m
07	61	b	2233-2248, 2250-2308, 2311-2315, 2328-2354, 2357-2400.		
08			0000-0007, 0019-0048, 0100-0127, 0138-0220, 0224-0236, 0244-0251, 0254-0336.	230	+5.44
08	91	b	1857-1909, 1920-2126, 2219-2310, 2345-2400.		
09			0000-0042, 0044-0107, 0110-0120, 0124-0133, 0213-0216, 0222-0232, 0234-0257, 0305-0328.	347	+4.89
08	91	v	2147-2148, 2152-2154.	004	
09			0208-0209.	004	
09	91	b	1918-2007, 2014-2018, 2020-2022.	055	+4.91
10	91	b	1843-1910, 2027-2031, 2048-2050, 2052-2055, 2056-2059, 2101-2111.	049	+4.84
10	91	v	1943-1944, 1946-1949.	004	
12	91	b	1844-1846, 1854-1904.	012	+4.97
14	91	b	1908-2000.	054	+4.92
15	91	b	1908-1951, 2000-2001.	044	+4.95

Tel. = cm aperture telescope; F = Schott filters; u = UG1 (1 mm), b = BG12 (1 mm) + GG13 (2 mm), v = GG14 (2 mm);

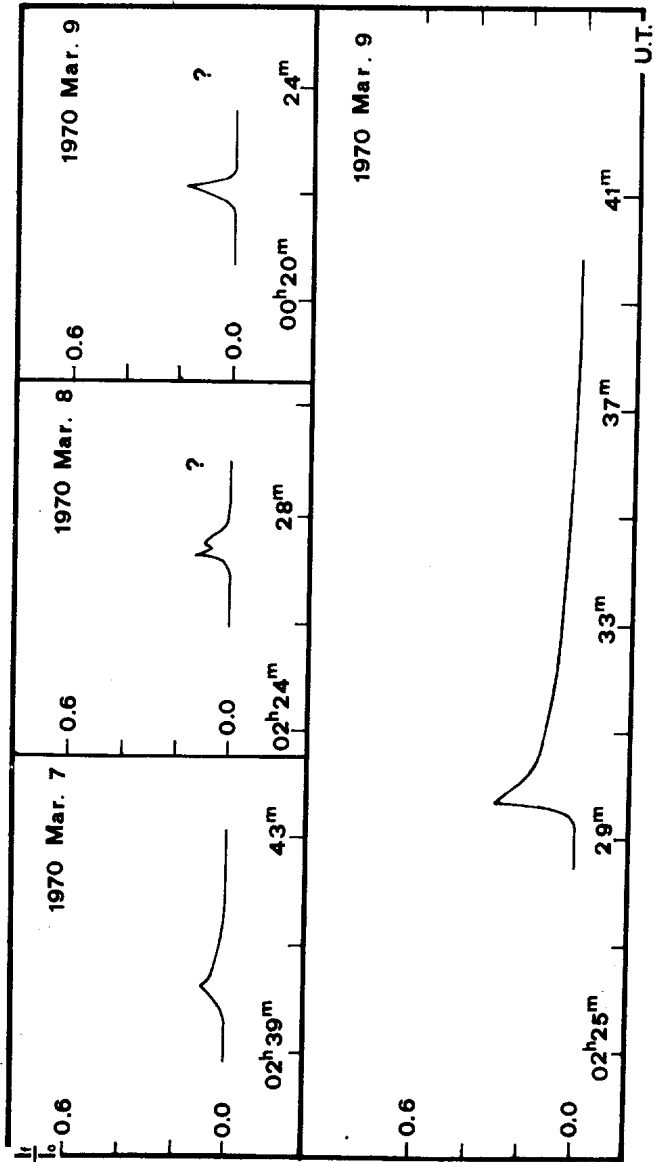
TC = total coverage per night; $m_{\text{lim}} - m_0 = -2.5 \log (3 \bar{\sigma} / \bar{I}_0)$, where $\bar{\sigma}$ represents the standard deviation of the random noise fluctuation for a night, and \bar{I}_0 represents the mean intensity of the quiet star during the same night.

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Reference

Andrews, A.D., Chugainov P.F. 1970. Comm. 27. IAU, Inf. Bull. var. Stars No. 416



Flares of AD Leo