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FLARES OF BD +13°2618

In the course of our programme of photoelectrical monitoring of a set of dM, dMe and UV Ceti type stars we have observed two flares on BD +13°2618.

This star, CVS 6977 (1), spectral type dM2e, was observed earlier photographically by R. Weber (2) with the following results: $m_p \text{ max} = 10^m 3$; $m_p \text{ min} = 11^m 2$, type C (long-period cepheid). A.D. Andrews (3) observed this star photoelectrically as a suspected flare star with the following photometric results: $V = 9^m 56$; $B-V = 1^m 54$; $U-B = 1^m 20$; no flares were observed during a monitoring time of $1^h 12^m$.

Our photoelectric observations were made in the B-band with the 64 cm meniscus telescope. The time coverage is shown in Table 1. The total coverage was $3^h 36^m$. Table 2 contains the flare characteristics according to (4). The light curves of the flares have the relative intensities $(I_{0+f} - I_0)/I_0$ as ordinates and Universal Time as abscissae.

Dr. Vitrichenko obtained with the 122 cm reflector of the Crimean Astrophysical Observatory the spectrogram of this star with the dispersion of 130 Å/mm. The spectrum was taken during the photoelectrical monitoring when the star was in a quiet state. Only the H-alpha-line is visible in emission, its equivalent width is equal to 0.5Å.

Table 1.

Date 1969	Coverage U.T.
April 22	20h10m-15m; 21h04m-18m; 21h24m-38m
May 6	19h28m-40m; 19h44m-20h00m
10	18h51m-19h08m; 20h38m-50m; 20h54m-21h10m
16	19h17m-35m; 19h37m-20h00m; 20h39m-21h05m; 21h09m-54m; 21h58m-22h02m; 22h05m-20m; 22h28m-32m
18	19h35m-20h38m; 20h39m-21h03m; 21h13m-38m
23	19h00m-19m; 19h52m-20h30m; 20h57m-21h25m
27	19h25m-30m; 19h32m-20h04m; 20h07m-21h09m
30	19h34m-20h19m
June 1	19h00m-20m; 19h29m-36m
2	19h24m-20h06m; 20h12m-22h13m
5	19h42m-54m; 20h04m-21h46m
6	19h10m-20h00m; 20h18m-22h40m
8	20h05m-21h30m; 21h44m-59m
9	19h07m-51m; 20h10m-21h09m
11	19h16m-31m; 19h34m-20h04m; 20h16m-56m; 20h53m- 21h37m
12	19h04m-38m; 19h39m-49m
13	19h03m-34m; 19h37m-20h40m
17	19h14m-44m; 19h45m-20h20m; 20h30m-21h18m
19	19h32m-20h30m; 20h43m-21h00m
20	19h12m-45m; 19h46m-57m; 20h14m-21h05m

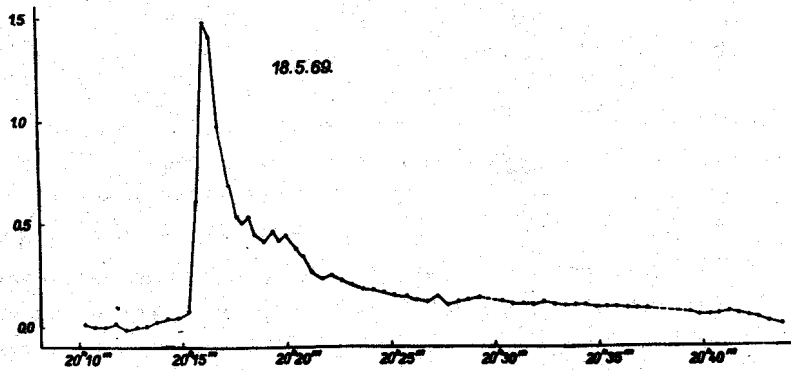
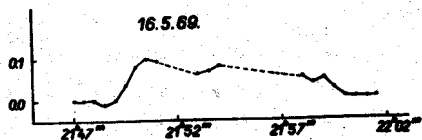


Table 2.

Date and U.T. of flare maximum 1969 May	Duration before after maximum (minutes)		Δm	Δm_{lim}	Integrated intensity, minutes	Air mass
	t_b	t_a				
18 21 ^h 50 ^m 45	1.5	9.5	0.710	0.03	0.63	1.57
18 20 ^h 16 ^m 40	2.0	27.5	0.98	0.03	6.10	1.30

References

- (1) B.V.Kukarkin, P.N.Kholopov, Yu.N.Efremov, N.E.Kurochkin, The Second Catalogue of Suspected Variable Stars. Moscow, 1965.
- (2) R.Weber, JO 42, 106, 1959.
- (3) A.D.Andrews, I.B.V.S. No.307, 1968.
- (4) A.D.Andrews, P.F.Chugainov, R.E.Gershberg, V.S.Oskanjan I.B.V.S. No.326, 1969.

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