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PHOTOELECTRIC OBSERVATIONS OF UV Ceti

The flare star UV Ceti was observed photoelectrically with the 36-inch reflector of Steward Observatory in the period of co-operative observations 14-28 October, 1968.

The U magnitude of the star was measured continuously with an integration time of 15 seconds. V and B magnitudes were measured at the beginning and end of each series of observations. Several UBV standards were observed before and after the observations of UV Ceti.

The dates and times of coverage are given in Table I. Table II contains the characteristics of the observed flares which are obtained according to the proposals given in [1]. The columns give: 1) the date; 2) the time, UT, of flare maximum; 3) the flare intensity at maximum expressed in U magnitude scale; 4) the integrated intensity of the flare found by the formula: integrated intensity =

$$\int \frac{I_{0+f} - I_0}{I_0} dt,$$

where I_0 is the mean intensity of the star radiation just before and after the flare, and I_{0+f} is the intensity of the star radiation during the flare; 5) U_0 = the U magnitude corresponding to the intensity I_0 ; 6) U_{lim} = the limiting magnitude, i.e. magnitude of the imaginary flare which could be detected on the background of noise fluctuations. This value was found by the formula $U_{lim} = -2.5 \lg \frac{3\sigma}{I_0} + U_0$, where σ = the standard deviation of noise fluctuations expressed in the same units as I_0 . Finally, Col 7) gives the air mass, $M(z)$, corresponding to the flare maximum. The time intervals between the maximum of the flare and its beginning and end are not obtained from our observations because these might be distorted by the integration process. The light curves of the flares are given below in relative intensities $(I_{0+f} - I_0)/I_0$ (Figs. 1-8).

Note that U_0 and U_{lim} differ from one flare to another. This is due (except possibly for the flare 19.10.68), to the secondary variations of the star. The amplitude of these variations, as obtained from our observations, is about 0.7 in the V and B-bands and 1.5 in the U-band (see also [2]).

It is interesting to note that the largest of the observed flares (18.10.68) took place during the deep minimum of the slowly varying component of the star radiation. The flare of 19.10.68 may be erroneous because of possible interference of clouds before and after the flare.

Table I

Date	UT of coverage	Remarks
Oct 15	6h46m-6h54m, 7h00m-8h29m, 8h33m-8h40m	Clouds at horizon
16	7h32m-7h49m, 7h51m-8h06m, 8h12m-8h48m, 8h56m-9h24m	
17	7h44m-8h56m, 9h06m-10h01m	
18	6h32m-6h57m, 7h03m-7h27m, 7h30m-9h49m	
19	7h58m-9h50m, 9h52m-10h27m	Clouds at end
21	6h15m-7h05m, 7h11m-7h24m, 7h27m-7h30m, 7h33m-7h55m, 7h58m-8h00m, 8h03m-8h32m, 9h32m-10h13m	
23	6h13m-8h41m	

Fig.1

Fig.2

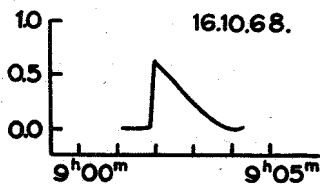
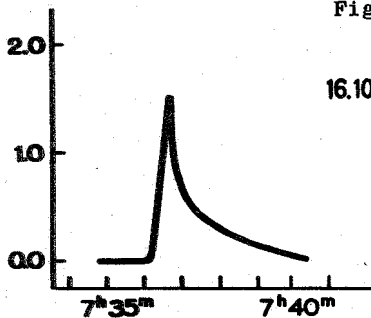


Fig.3

Fig.4

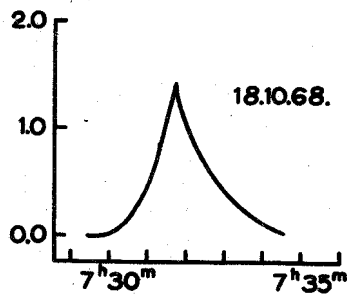
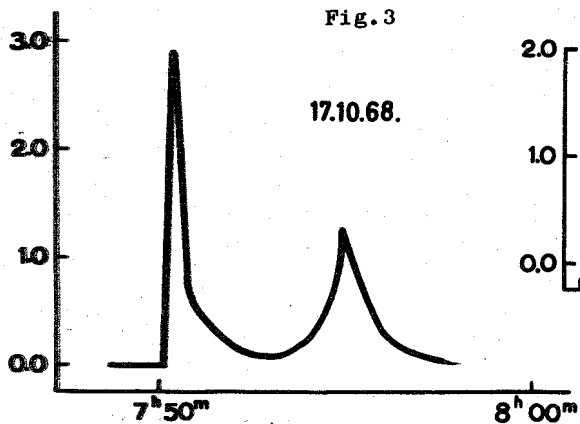


Fig.5

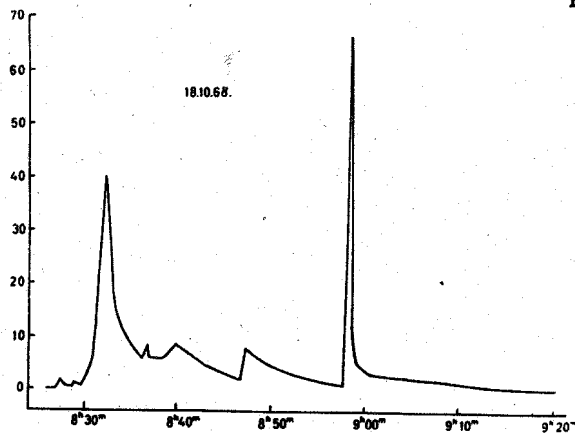
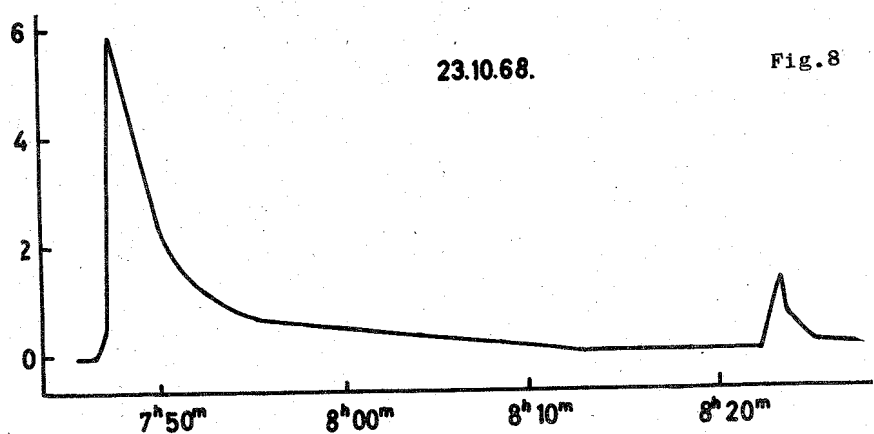
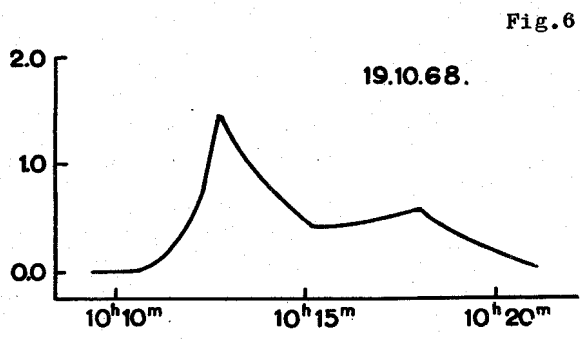
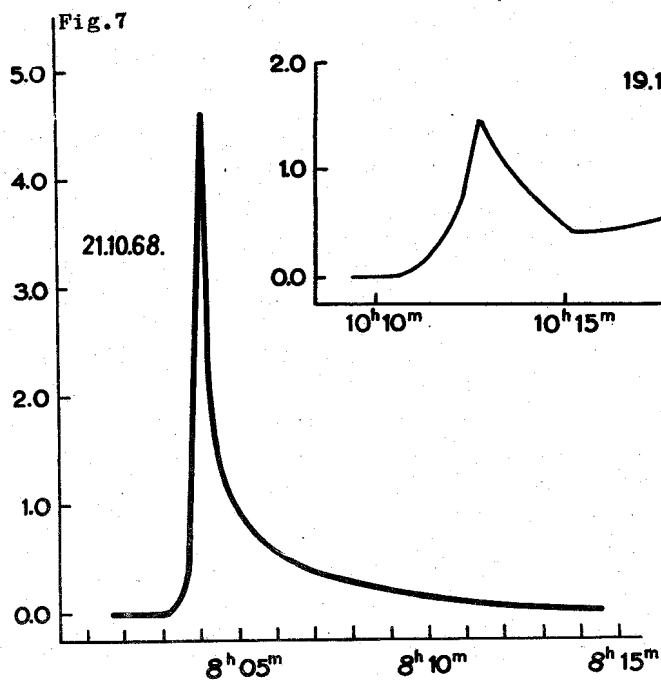


Table II

Date	UT	Flare Intensity at Maximum	Integr. Intensity, minutes	U_0	U_{lim}	$M(z)$
October 16	7 ^h 36 ^m 7	14.26	1.4	14.69	15.39	1.56
	9 02.0	15.48	0.6	14.75	15.35	1.76
17	7 50.4	13.53	3.1	14.73	15.77	1.58
	7 54.9*	14.45		14.73	15.77	1.58
18	7 31.7	14.81	2.1	15.22	15.92	1.56
	8 32.1	11.66		15.68	15.51	1.67
	8 58.3*	11.13	254.0	15.68	15.51	1.78
19	10 12.7	13.86	5.2	14.30	14.65	2.47
21	8 04.1	13.24	5.0	14.92	15.47	1.63
23	7 47.4	12.99	22.8	14.90	15.77	1.61
	8 23.0	14.67	1.4	14.90	15.77	1.71

* secondary maximum of previous flare



- REFERENCES:
- (1) A.D.Andrews, P.F.Chugainov, R.E.Gershberg, V.S.Oskanjan, I.B.V.S. No.326, 1969.
 - (2) W.E.Kunkel, I.B.V.S. No.315, 1968.

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