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PHOTOELECTRIC OBSERVATIONS OF THE FLARE STAR UV Cet IN 1983

Photoelectric monitoring of the flare star UV Cet has been carried out at the Stephanion Observatory ($\lambda = +22^{o}\ 49'\ 44''$, $\varphi = +37^{o}\ 45'\ 15''$, H=800 m) during the year 1983 using the 30-inch Cassegrain reflector of the Department of Geodetic Astronomy, University of Thessaloniki. Observations were made with a Johnson dual channel photoelectric photometer in the B colour of the international UBV system. The telescope and photometer used were described elsewhere (Mavridis et al., 1982). The transformation of our instrumental ubv system to the international UBV system is given by the following equations:

$$V = v_o + 2.722 - 0.104\ (b-v)_o$$
$$B-V = 0.448 + 1.084(b-v)_o \quad .$$

The monitoring intervals in UT as well as the total monitoring time for each night are given in Table I. Any interruption of more than one minute has been noted.

During the 6.25 hours of monitoring time one flare was observed, the characteristics of which are given in Table II. In this table following characteristics (Andrews et al., 1969) are given: a) the date and universal time of flare maximum, b) the duration before and after the maximum (t_b and t_a, respectively), as well as the total duration of the flare, c) the value of the ratio $(I_f-I_o)/I_o$ corresponding to flare maximum, where I_o is the intensity deflection less sky background of the quiet star and I_f is the total intensity deflection less sky background of the star plus flare, d) the integrated intensity of the flare over its total duration, including preflares, if present, $P = \int (I_f-I_o)/I_o dt$, e) the increase of the apparent magnitude of the star at flare maximum $\Delta\ m(b) = 2.5 \log (I_f/I_o)$, where b is the blue magnitude of the star in the instrumental system, f) the standard deviation of random noise fluctuations $\sigma(mag) = 2.5 \log (I_o+\sigma)/I_o$ during the quiet-state phase immediately preceding the beginning of the flare, and g) the air mass at flare maximum.

The light curve of the observed flare in the b colour is shown in Figure 1.

Table I

Date 1983 October	Monitoring Intervals (UT)	Total Monitoring Time
3-4	22^h00^m - 22^h 29^m, 22^h 35^m - 22^h 44^m ,	
	22 49 - 23 06 , 23 10 - 23 39 ,	
	23 43 - 00 07 , 00 21 - 00 36 ,	
	00 43 - 01 13 , 01 16 - 01 46	3^h 03^m
4	21 49 - 22 19 , 22 24 - 22 54 ,	
	22 58 - 23 37 .	1 39
5	21 54 - 22 23 , 22 27 - 23 00 ,	
	23 05 - 23 36 .	1 33
	Total	6^h 15^m

Table II

Characteristics of the flare observed

Date 1983 Oct.	U.T. max	t_b min	t_a min	Duration min	$(I_f-I_o)/I_o$ max	P min	Δm mag	σ mag	Air mass
4	00^h 21^m. 37	≧ 1.16	7.64	≧ 8.80	3.46	≧ 5.21	1.62	0.09	1.91

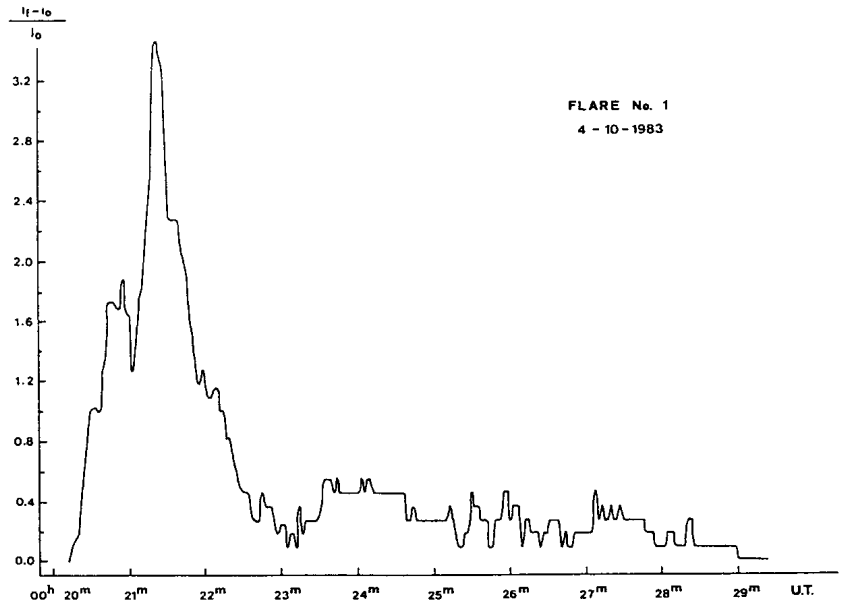

Figure 1

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