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PHOTOELECTRIC OBSERVATIONS OF V1285 Aql

The patrol observations of V1285 Aql, carried out in 1990 and in 1991 were a part of the programme for investigation of fast (several seconds) flares and short-time scale variations on late spectral classes stars at the Department of Astronomy of the Bulgarian Academy of Sciences. They were made in U-color of the standard UBV system and in u-color of the uvby system, using two identical single channel photon-counting photoelectric photometers, attached to 60 cm Cassegrain telescopes in the National Astronomical Observatory Rozhen and in the Belogradchik Astronomical Observatory. The photometers have been described by Panov et al.(1982) and Antov et al.(1991).

The altitude above the sea level is 1750 m at Rozhen and 650 m at Belogradchik. The integration time was 1 sec.

BD+8°3899 was used as a comparison star for all the observations. $du(\text{mag})$ is the difference between the variable star and the comparison star in the instrumental system.

The data processing has been made by Kirov, Antov and Genkov's program system (Kirov et al.,1991).

The data about the monitoring intervals in U.T. are given in Table 1 in the following order:

- monitoring intervals;
- filter;
- observatory, where the observations were carried out;
- the standard deviation of random noise fluctuation

σ_{mag} . It was calculated when the intensity of the star in impulses was lessened with the sky background.

Table 1

Monitoring intervals	F	O	σ_{mag}	Monitoring intervals	F	O	σ_{mag}
16/17 July 1990				22/23 September 1990			
22 ^h 48 ^m 14 ^s -23 ^h 06 ^m 29 ^s	U	R	0.3	21 ^h 27 ^m 11 ^s -21 ^h 52 ^m 52 ^s	u	B	0.5
23 17 28 -23 35 58	U	R	0.3	20 57 36 -22 09 52	u	B	0.4
17/18 July 1990				22 10 43 -2 21 24	u	B	0.6
21 15 09 -21 24 50	U	R	0.09	22 22 29 -22 31 51	u	B	0.7
21 25 34 -21 44 54	U	R	0.07	22 37 06 -22 49 10	u	B	0.4
21 50 06 -22 17 11	U	R	0.09	22 50 00 -22 58 36	u	B	0.7
22 20 08 -22 51 10	U	R	0.09	23/24 September 1990			
00 21 23 -00 23 14	U	R	0.1	20 10 54 -20 19 47	u	B	0.3
00 31 55 -01 09 51	U	R	0.1	20 24 05 -20 35 28	u	B	0.5
18/19 July 1990				14/15 June 1991			
01 39 14 -02 13 16	U	R	0.2	23 36 24 -00 00 38	U	R	0.08
02 15 58 -02 34 21*	U	R	0.2	00 07 16 -00 30 39	U	R	0.08
23/24 July 1990*				15/16 June 1991			
22 08 53 -22 22 10	U	R	0.05	23 37 27 -00 00 51	U	R	0.1
22 24 50 -22 39 51	U	R	0.03	00 03 33 -00 30 04	U	R	0.1
22 47 41 -23 26 23	U	R	0.05	00 32 14 -00 57 29	U	R	0.1
23 36 34 -23 57 15	U	R	0.05	14/15 July 1991			
24/25 July 1990				23 03 16 -23 28 37	U	R	0.1
22 20 16 -22 34 26	U	R	0.1	23 36 11 -23 50 34	U	R	0.1
22 36 35 -22 48 54	U	R	0.1	23 54 38 -00 08 33	U	R	0.1
22 54 59 -23 08 19	U	R	0.1	9/10 September 1991			
26/27 August 1990				19 24 59 -19 41 07	U	B	0.2
19 45 50 -20 02 23	u	B	0.35	19 45 40 -20 01 42	U	B	0.2
20 08 42 -20 27 12	u	B	0.4	20 12 22 -20 25 31	U	B	0.2
20 37 21 -20 52 14	u	B	0.5	20 29 52 -20 41 41	U	B	0.2
20 56 24 -21 07 36	u	B	0.5	10/11 September 1991			
21 13 18 -21 25 02	u	B	0.5	19 31 23 -19 41 57	U	B	0.1
21 33 47 -21 43 50	u	B	0.7	19 48 16 -20 00 17	U	B	0.1
27/28 August 1990				20 04 32 -20 17 52	U	B	0.2
20 45 01 -21 00 46	u	B	0.35	20 20 12 -20 30 56	U	B	0.2
21 06 27 -21 18 30	u	B	0.4	11/12 September 1991			
21 19 57 -21 31 00	u	B	0.4	19 23 38 -19 39 35	U	B	0.1
21/22 September 1990				19 40 38 -19 51 29	U	B	0.1
20 18 42 -20 32 43	u	B	0.5	19 55 30 -20 11 03	U	B	0.2
20 36 20 -20 39 28	u	B	0.7	20 12 25 -20 19 43	U	B	0.15

Total monitoring time: 15^h22^m37^s

* - integration time 10 s; R - Rozhen; B - Belogradchik;
F - filter; O - observatory.

One fast flare was detected during 10^h04^m08^s total monitoring time in 1990 and 5^h18^m29^s total monitoring time in 1991. Data for it are given in Table 2 in the following form:

- date;
- U.T. of the beginning;
- U.T. of the maximum;
- the duration of the flare;

- the amplitude of the flare Δm_u , where m_u is the magnitude in u-band of the uvby system. Δm_u was calculated regarding the quiet state phase of the star immediately before flare;

- the standard deviation of random noise fluctuation $\sigma_{mag} = 2.5 \log(I_0 + \sigma) / I_0$, where I_0 is the intensity in impulses of the quiet star, lessened with the sky background, and σ is the standard deviation of random noise fluctuation in impulses. All these values were taken during the quiet state phase immediately preceding the beginning of the flare.

Table 2

Date	U.T. beginning	U.T. max	duration	Δm_u	σ_{mag}
26 Aug 1990	20 ^h 22 ^m 13 ^s	20 ^h 22 ^m 15 ^s	15 ^s	2.2	0.4

The light curve of the observed flare is shown in Fig.1 and 1a.

In the same night when the flare was observed two fast events with durations 1^s ($\Delta m_u = 2.8$) and 2^s ($\Delta m_u = 2.5$) were detected. The question whether they have been caused by the equipment, the atmosphere or the star remains open.

Further, we intend to use a part of this observational material in searches for quasi-periodic modulation in V1285 Aql.

At last, we would like to thank to Dr.Chugainov from Crimean Astrophysical Observatory, USSR for directing our attention to this star.

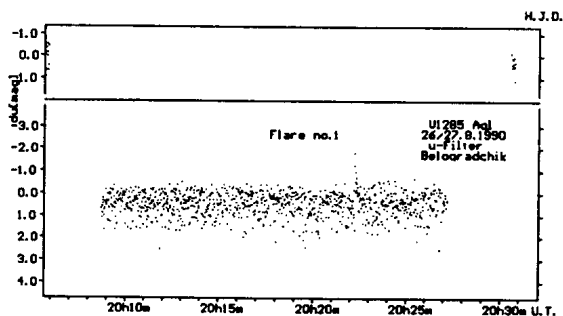


Fig. 1

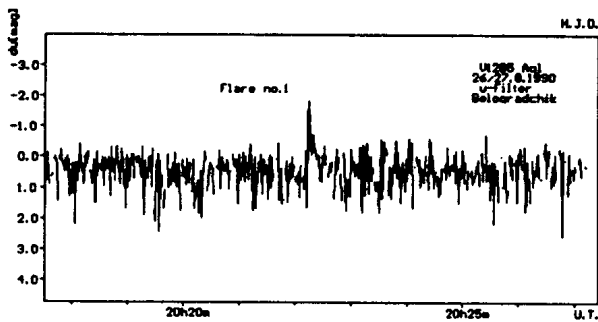


Fig. 1a

R. K. Konstantinova-Antova
Bulgarian Academy of Sciences
Department of Astronomy
72 Lenin blvd.
1784 Sofia, BULGARIA

B. B. Kourdova
University of Sofia
Department of Astronomy
5 Anton Ivanov str.
Sofia, BULGARIA

A. P. Antov
Bulgarian Academy of Sciences
Department of Astronomy
72 Lenin blvd.
1784 Sofia, BULGARIA

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