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STELLAR FLARES IN TAURUS

Systematic multi-exposed photographic observations of the aggregate in Taurus (see Hojaev, 1983) have been continued. The observations were carried out with the 21" and 40" Schmidt telescopes of the Byurakan Astrophysical Observatory in January-December 1982. We utilized ORWO ZU-21 plates without filter. The effective time of the patrol is equal to 284.9 hours.

The data concerning our observations are presented in Table I : the telescope used, the number of plates and exposures, effective time of observations and limiting magnitude of the plates.

Table I
 Data concerning the observations

Telescope	Number of plates	Number of exposures	t_{eff}	m_{pg} lim.
21"	218	1253 (1188 x10 ^m +65x7 ^m)	205 ^h 35 ^m	17.0
40"	148	855 (2x15 ^m +2x10 ^m +119x7 ^m +6x6 ^m +715x5 ^m +11x3 ^m)	75 ^h 27 ^m	17.5
Total	366	2108	281 ^h 02 ^m	

In addition, eleven direct plates of the observed region were also used ($T_{\text{eff}} = 03^{\text{h}}52^{\text{m}}$).

Using these observations 32 flare stars and 37 suspected flares have been discovered the data on which are given in Tables II and III : Byurakan designation, coordinates for 1950.0, photographic magnitudes m_{pg} at minimum brightness, photographic amplitude of the observed flare Δm_{pg} , date of flare event, moment of maximum brightness (UT) and telescope. The stars showing brightness augmentation on two or more consecutive images (expositions) on our plates and having amplitudes more than 3σ (often not less than 5σ for the first of flare events) should be considered as certain flare stars. On the

other hand the red dwarfs showing brightness augmentation of about 3 σ , or a strong brightness augmentation on one exposition only are considered as suspected flare stars.

Table II. New flare stars

B No	R.A.	Decl.	m_{pg}	Δm_{pg}	Date	UT _{max}	Telescope
12	4 ^h 34 ^m .8	+24 ^o 47'	15 ^m .5	1.4	19. I.82	21 ^h 28 ^m	21"
13*	38.9	+25 18	17.1	2.3	24. I.82	19 28	21
14	32.4	+26 36	18.5	3.2	10. II.82	16 59	21
15	40.8	+26 24	18.7	2.9	13. II.82	15 37	21
16	33.6	+26 36	16.6	1.9	21. II.82	17 45	21
17	24.3	+22 11	15.6	1.4	22. II.82	18 24	21
18	35.5	+22 00	16.2	1.1	25. II.82	16 13	21
19	31.4	+22 22	16.1	1.4	27. II.82	17 14	21
20	39.7	+23 23	17.1	1.6	14. III.82	17 35	21
21	31.5	+22 19	15.9	1.1	15. IX.82	22 24	21
22	30.4	+22 29	16.7	1.1	17. IX.82	23 59	21
23	21.2	+22 48	20.5	4.2	18. IX.82	00 53	21
24	31.1	+25 15	19.1	3.9	24. IX.82	20 34	21
25	27.1	+25 43	17.3	1.4	24. IX.82	23 47	21
26	23.5	+26 28	18.6	2.4	28. IX.82	22 37	21
27	39.4	+24 44	17.2	1.2	30. IX.82	00 41	21
28	30.7	+22 36	19.8	4.1	17. X.82	22 18.5	21
29	22.2	+21 56	16.2	1.4	22. X.82	20 57	21
30	23.3	+22 53	16.4	1.5	23. X.82	00 52	21
31	37.8	+22 46	17.2	3.6	25. X.82	21 17	40
32	23.8	+25 13	16.9	1.6	26. X.82	22 09	40
33	30.3	+24 16	17.2	1.2	26. X.82	23 31	40
34	24.6	+23 28	16.6	1.3	12. XI.82	22 23	40
35	33.8	+25 44	17.7	1.5	13. XI.82	22 28	40
36	26.8	+23 00	16.7	2.1	14. XI.82	20 22	40
37	25.6	+24 38	17.9	1.8	15. XI.82	00 35	40
38	27.8	+22 24	18.8	2.7	15. XI.82	00 45	40
39	23.6	+22 14	17.0	1.7	15. XI.82	02 10	40
40	31.3	+25 25	19.2	2.3	15. XI.82	20 16	40
41**	27.3	+25 03	16.0	1.5	15. XI.82	21 01	40
42	36.8	+23 49	17.3	1.3	17. XI.82	19 36	40
43	37.7	+22 57	16.4	1.3	18. XI.82	02 05	40

Remarks to Table II:

* LkH_α 332/ G2 - (Cohen and Kuhl, 1979) member Trapezium type Triplet (Hojaev, 1984)

** Star had another flare (see Table IV) during our observations.

Table III. Suspected flare stars

SB No	RA	Decl.	m_{pg}	Δm_{pg}	Date	UT _{max}	Telescope
12	4 ^h 31. ^m 4	+23°56'	16. ^m 5	0. ^m 9	18. I.82	18 ^h 23 ^m	21*
13	34.1	+26 30	15.8	0.9	19. I.82	21 38	21
14	31.7	+22 24	16.5	0.8	23. I.82	16 32	21
15	34.5	+24 01	16.9	1.9	23. I.82	18 05	21
16	22.2	+24 22	16.2	0.7	24. I.82	19 18	21
17	35.1	+23 54	16.0	0.8	13.II.82	15 52	21
18	31.1	+24 55	16.2	0.7	21.II.82	17 02	21
19	33.8	+25 51	16.7	1.3	22.II.82	18 44	21
20	37.4	+24 17	16.5	1.4	22.II.82	19 04	21
21	23.7	+24 45	16.0	0.7	24.II.82	18 11	21
22	30.4	+22 29	17.5	1.0	16.IX.82	00 40	21
23*	29.2	+23 46	16.7	0.5	16.IX.82	22 10	21
24	32.5	+26 03	17.2	0.6	17.IX.82	01 05	21
25	28.6	+25 27	17.3	0.7	18.IV.82	00 53	21
26	39.8	+25 59	16.4	0.8	20.IX.82	22 51	21
27	39.4	+24 17	16.8	1.0	24.IX.82	23 57	21
28	22.1	+23 58	17.2	1.0	28.IX.82	22 53	21
29	28.6	+25 24	16.6	1.1	28.IX.82	23 29	21
30	25.8	+24 21	16.7	0.8	12. X.82	20 44	21
31	25.9	+22 29	17.3	0.9	13. X.82	00 26	21
32	22.3	+23 49	16.6	1.1	13. X.82	21 46	21
33	30.5	+24 10	17.0	1.0	14. X.82	00 59	21
34	31.2	+23 30	17.3	0.6	17. X.82	21 27.5	21
35**	28.4	+25 39	17.3	0.9	12.XI.82	22 02	40
36	37.4	+24 37	16.1	0.6	13.XI.82	02 09	40
37	37.5	+23 16	15.6	0.7	13.XI.82	18 07	40
38	25.7	+24 58	16.7	1.0	13.XI.82	23 36	40
39	34.7	+23 49	15.2	0.5	14.XI.82	00 12	40
40	30.4	+23 22	16.2	0.9	14.XI.82	23 50	40
41	30.6	+24 23	16.0	0.9	15.XI.82	17 30	40
42	31.8	+23 44	16.3	1.0	15.XI.82	20 11	40
43	30.8	+24 42	16.5	0.8	15.XI.82	22 53	40
44**	35.8	+22 08	16.5	1.5	15.XI.82	23 45	40
45	28.2	+22 42	16.6	0.6	18.XI.82	00 31	40
46	26.7	+25 42	16.0	0.9	6.XII.82	16 11	40
47***	29.7	+24 51	14.2	0.8	7.XII.82	16 10	40
48	35.8	+23 20	16.4	1.0	8.XII.82	17 20	40

Remarks to Table III:

* Southern Component of the variable star SVS 2159

** May be variable

*** Star No. 5 from Landolt's (1967) UBV standard sequence.

During our observations five repeated flares of known and above mentioned flare stars were detected, the data of which are given in Table IV. In the last column of Table IV the reference to the designation is given.

Star	m_{pg}	Δm_{pg}	Table IV. Repeated flares			References
			Date	UT _{max}	Tel.	
B4	20.0 ^m	7.7 ^m	17. I.82.	16 ^h 54 ^m 21"		Hojaev, 1983
FH	16.2	1.3	26.III.82.	17 30 21"		Haro and Chavira, 1955 Huang et al., 1979
EZ	17.7	2.2	22. X.82.	23 40 21"		Haro and Chavira, 1955 Erastova, 1970
FI	17.8	1.4	25. X.82.	21 31 40"		Haro and Chavira, 1955
B41	16.0	1.8	7.XII.82.	17 34 40"		present paper

A more detailed analysis of our results will be published elsewhere.

Erratum : in the previous paper (Hojaev, 1983) the coordinates of the flare star B11 were given erroneously. The correct coordinates are as follows : R.A. = 4^h31^m.4, Decl. = 21^o54'(1950.0)

A.S. HOJAEV

Byurakan Astrophysical Observatory
Armenia, USSR

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