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FLARE STARS IN THE COMA CLUSTER REGION

In accordance with the program of flare star investigation in stellar agregates accomplished at Byurakan Observatory, we have continued the observations of the Coma cluster region initiated by G. Haro (1).

Our plates centered at RA=$12^h18^m.5$, D=+26°24′ (1950.0) were obtained from April 1969 to March 1975. They present several series of multiple exposure patrol plates, which have been taken both Schmidt telescopes (21"/21" and 40"/52") of Byurakan Observatory.

The total effective observational time was about 153^h. Some of the plates (about 10^h of effective patrol time) have been put in our disposal by I. Jankovics from Konkoly Observatory.

Usually we used Orwo ZU2 or Kodak 103 aO photographic emulsions with ultraviolet filter Schott UG 1 on the 40"/52" telescope.

Data for new flare stars and new flare events on previously known flare stars are presented in chronological order in the Table.

Table 1

N	RA	D	m	Δm	UT		
T3	$12^h24^m.5$	+27°18′	16.7pg	3.7	19.03.71	5x10	76
B1*	17.0	25 30	(21 pg	>4.8	22.03.71	2x10	
B2	15.7	27 06	18.1pg	3.3	28.04.71	18x10	
B3	16.8	27 30	16.6pg	1.2	15.04.72	3x10	
B4	22.7	23 53	19.6pg	4.9	30.05.72	5x10	
T3	24.5	27 18	16.7pg	2.0	31.05.72	5x10.	76
T1	22.0	26 01	16.7 U	1.6	27.03.74	3x10	69
B5	29.4	25 26	16.6 U	1.3	27.03.74	3x10	
B6*	23.9	26 10	(21 pg	>5.5	14.06.74	2x 5	
B7	22.2	27 04	18.5 U	3.9	12.02.75	3x10	70
B7	22.2	27 04	18.5 U	2.6	16.02.75	2x10	70

* There is a very week star on the red copy of the POSS chart.

It contains the following data; serial number of flare stars discovered at Byurakan (B) or Tonantzintla (T) Observatories, position for 1950.0, approximate photographic or ultraviolet magnitude at minimum light, amplitude of flare event in the corresponding light, the date of observation and duration of each flare. The serial number of the star according to Sanduleak's (2) list is added in the last column. Taking into account the results of the papers (1), (3) and (4) the total number of known flare stars in the Coma cluster region is 14 and the number of flare-ups is 21. The total effective coverage is $337^{h}45^{m}$. Our data support G. Haro's conclusion (1) about the relatively low flare activity in the direction of the Coma cluster.

But it is necessary to remark that the observed number of flare stars, if they all are members of this cluster, already contradicts to the conclusion that the main sequence of the cluster is very poor and even terminates at about $V=11^{m}$ (5).

It is already known that not all flare stars are members of the Coma cluster. For instance, the T3 star is, according to its proper motion, doubtless a foreground star. The same can be said about FP Com (6). According to V. Ambartsumian's formula (7) the total number of flare stars in this region should be greater than 40.

On the other side, if we suppose that most of them are general field stars, then the number of flare stars in this particular direction is greater than in any other direction of the Galaxy.

In this connection it is interesting to note the coincidance of three flare stars with the stars from Sanduleak's list, of which 34 stars are situated in our region. It is known that this list was compiled by Sanduleak for detailed investigation of very red dwarfs near NGP, where their real excess - according to (2) - seems to be shown.

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L.K. ERASTOVA
Byurakan Astrophysical
Observatory

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