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FLARE STARS IN THE PRAESEPE CLUSTER REGION

Examination of photographic material of the Praesepe cluster region from Tonantzintla Schmidt plates, covering the interval 1976-80 allowed us to find two new flare stars and 9 flare-ups of known stars. The total observational time is about 102 hours.

In Table 1 in first column we continue the Tonantzintla numbering of the Praesepe flare stars, then the equatorial coordinates, ultraviolet magnitude at minimum, the amplitude of flare event, the date of flare are given respectively.

Table 1
New flare stars in the Praesepe region

Ton	α_{1950}	δ_{1950}	U	ΔU	Date of flare
25	8 ^h 39 ^m 3	20°51'	15.6	0.6	14 March 1978
26	44.1	20 46	>17	>3.5	13 March 1978

In Table 2 data on repeated flare-ups of known flare stars which are non-members or probable non-members are given.

In the first column the Praesepe Flare Star Catalogue number is given (Tsvetkova et al. 1991).

Table 2
Repeated flares in the Praesepe region

PFSC	TON	U mag	ΔU mag	Date of flare
3*	12	13.9	3.5	16 March 1977
3	12	13.9	3.0	22 March 1977
3	12	13.9	2.0	13 March 1978
3**	12	13.9	2.0	16 April 1980
4	13	15.8	0.5	10 March 1978
4	13	15.8	1.9	01 April 1978
11	15	16.5	2.0	19 March 1980
53	23	17.0	0.8	04 March 1978

* Three images (15^m×3) before the fast flare-up were about 0.5 mag brighter than normal minimum. Star can be variable at minimum light.

** This flare-up was slow, rise time was longer than 30 minutes and total time of flare is 2^h15^m.

During 102 hours of observations only two new flare stars were found. From among 57 known flare stars of the Praesepe catalogue only 48 can be considered as members of the cluster. The total expected number of flare stars in the Praesepe cluster according to Ambartsumian's method (Ambartsumian et al., 1970) is about 160. The mean period of flare-ups of cluster flare stars is about 2000 hours. It confirms once more, that the Praesepe cluster is poor of flare stars and with the age of the cluster, the mean frequency of flare-ups increases.

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