

## THE FLARE ACTIVITY OF TWO INTERESTING RED DWARFS

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**ABSTRACT.** Photoelectric observations of flares on two low-active red dwarfs (Gliese 171.2A and CM Dra) are reported.

The analysis of many years of photographic observations of Gliese 171.2A has shown the largest amplitude long-term cyclic variation of brightness, which is attributable, as for BY Dra spotted stars, to solar-like cool surface structures (Hartmann et al., 1981). No flare activity of this star had been ever observed. Therefore, we carried out photoelectric observations of Gliese 171.2A in U band on 4 and 5 December 1983 at the 1.25 m telescope of Crimean Astrophysical Observatory using a one-channel photon-counting photometer. During the course of the first night, five flares were observed, while during the second night the star was quite inactive. The photoelectric recordings are shown in Figure 1. The cause of the light decrease close to 19h UT is not clear.

The red dwarf CM Dra is the least massive eclipsing binary and it is older than classical flare stars; on the other hand, the orbital period of the system is unusually short. The interest on CM Dra is due to the fact that these properties are known to have opposite effects on the flare activity level (Vilhu et al., in press). CM Dra was monitored concurrently with IUE on July 5, 1986. During the course of our optical monitoring the two partially overlapped flares shown in Figure 2 were detected.

Some characteristics of the observed flares are given in Table 1.

### REFERENCES

- Hartmann L., Bopp B.W., Dussault M., Noah P.V., Klimke A.: 1981, *Astrophys. J.* 249, 662.  
Vilhu O., et al.: 1988: submitted to *Astron. Astrophys.*

Table 1.

N	UT <sub>max</sub> h m	t <sub>b</sub>	t <sub>a</sub>	P	...m(U)
Gliese 171.2A (4 December 1983)					
1	16 53.1	0.4	1.0	0.3	0.7
2	16 54.6	0.8	2.1	1.9	2.0
3	18 24.0	1.5	1.5	0.1	0.3
4	18 38.3	0.9	0.1	0.04	0.2
5	19 12.0	1.4	3.6	1.0	0.8
CM Dra (5 July 1986)					
1	20 14.2	2.4	8.8	5.8	1.1
2	20 24.2	0.8	14.8	10.5	1.6

Legenda

- UT<sub>max</sub> : Universal Time at flare maximum.
- t<sub>b</sub>, t<sub>a</sub> : Flare durations before (t<sub>b</sub>) and after (t<sub>a</sub>) maximum, in minutes.
- P : Equivalent flare duration, in minutes.

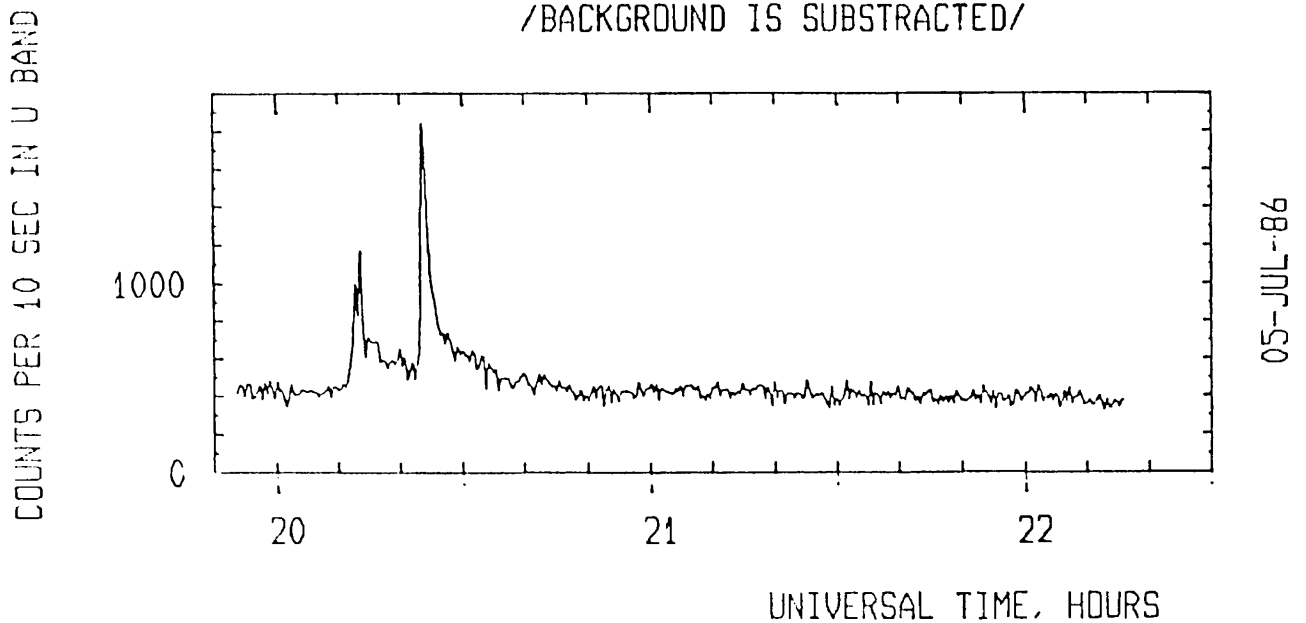


Figure 2. Photoelectric monitoring of CM Dra

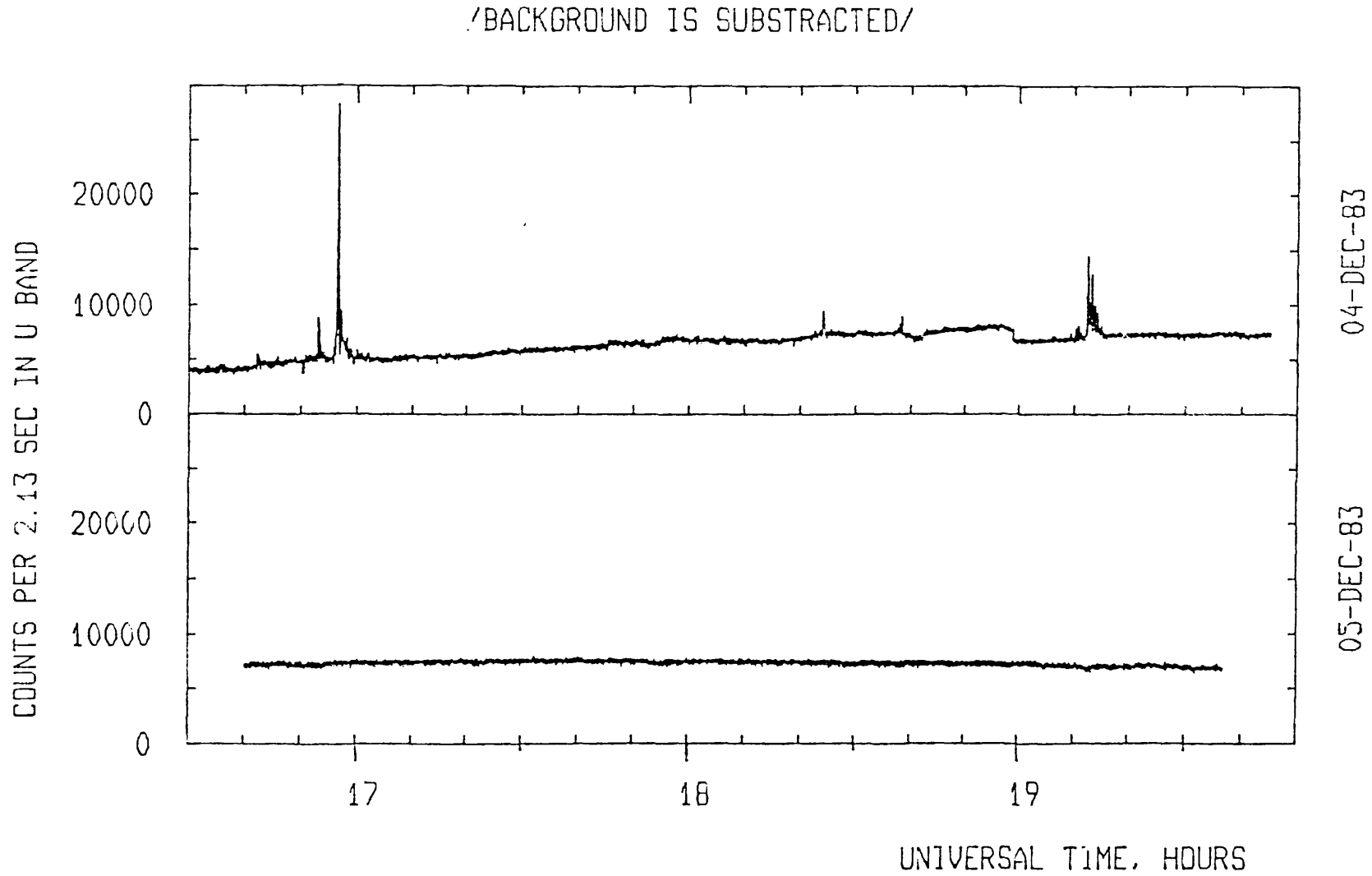


Figure 1. Photoelectric monitoring of Gliese 171.2A