

COMMISSION 27 OF THE I. A. U.  
INFORMATION BULLETIN ON VARIABLE STARS

Number 2143

Konkoly Observatory  
Budapest  
1982 May 13  
HU ISSN 0374-0676

PHOTOELECTRIC FLARE OBSERVATIONS OF GLIESE 867 B

The flare star Gliese 867 B was observed on 1 October 1981, as part of an international programme (Butler and Rodono 1981). The suggested interval for monitoring the star Gliese 867 B was from 17:30 to 20:00 UT. We were able to secure continuous observations of the star from 16:12 to 19:36 UT through the 104-cm Sampurnanand reflector equipped with thermo-electrically cooled EMI 6094S photomultiplier tube. The star was monitored through the U and B filters of Johnson and Morgan system. The monitoring interval through the U filter extended from 18:51 to 19:36 UT while through the B filter the intervals ranged from 16:12 to 16:31 UT and from 16:42 to 18:47 UT. Two flares were recorded during the observations through the U filter but no flare was present in the B filter observations. The stellar intensity was measured against sky background only without observing any comparison star.

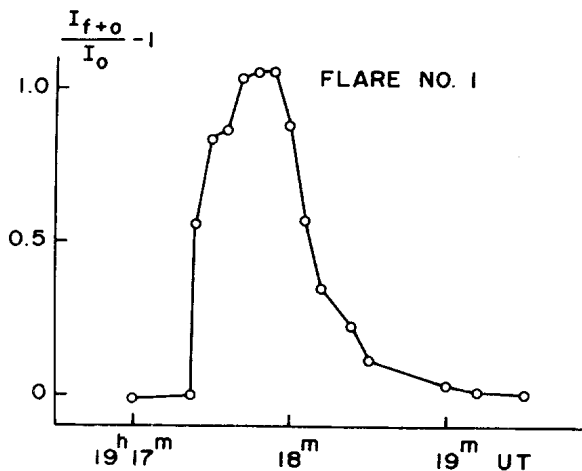


Figure 1

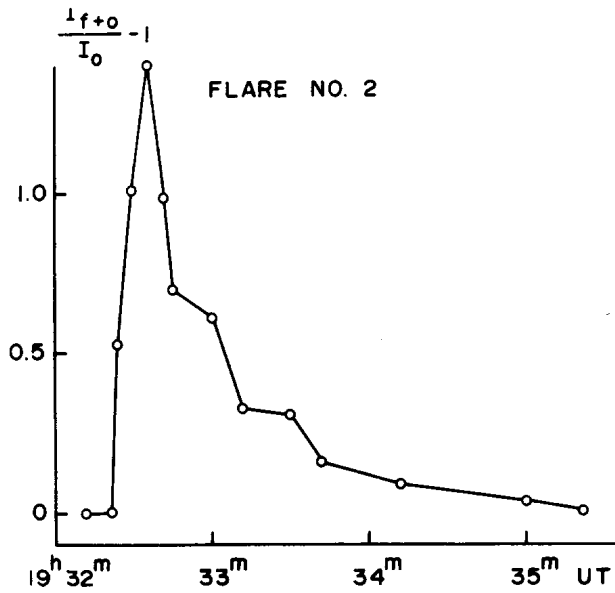


Figure 2

The light curves which represent the flow of excess radiation  $I_f$  radiated at a given moment expressed in units of flow  $I_0$  from the star in normal non-excited state, with time, are given in Figures 1 and 2 (flare No. 1 and 2). These light curves show that they are Type I (Gurzadyan, 1980) flare events and no spikes are associated with them. Flare 1 is unusual at its maximum and the rate of development is also slow as compared to usual UV Ceti type flares. The light curve and the rate of development of flare 2 is normal of its kind.

Table I

Characteristics of the flares on Gliese 867 B (dM 4e:  $V = 11^m.8$ ;  $B-V = 1^m.61$   
 $d = 8.3$  pc)

UT max	Flare duration (in minutes)		$\frac{I_{f+0}}{I_0}$	$\Delta m_U$	P (min)	F(z)	Energy released at flare max. $10^{29}$ ergs/s	Total emission during the event $10^{30}$ ergs/s
	Before max $t_b$	After max $t_a$						
19 <sup>h</sup> 17 <sup>m</sup> 9	0.50	1.6	2.05	0.78	0.82	2.22	0.45	1.08
19 <sup>h</sup> 32 <sup>m</sup> 6	0.25	2.8	2.40	0.95	0.89	2.40	0.52	1.17

Flare characteristics are given in Table I. The equivalent time of flare ( $P$ ) was planimetered as the area under the light curve, to derive the total energy radiated by the flare event.

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References:

Butler, J. and Rodono, M. 1981, Private Communication.  
Gurzadyan, G.A., 1980, p 9, Flare Stars, Pergamon Press.