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STATISTICS ON FLARE OBSERVATIONS OF UV Cet, YZ CMi AND AD Leo AT
THE UTTAR PRADESH STATE OBSERVATORY

The flare stars UV Ceti, YZ CMi and AD Leo were photoelectrically monitored between 27 Dec. 1970 and 10 Dec. 1975. The instrumental details, the individual flare characteristics along with the light curves and actual monitoring intervals have been published variously (Ref.1-11). A consolidated summary of the results obtained so far is given in Table I.

The observed flare events show a large range in total energy, flare magnitude, rise and decay rates, duration etc. But the following significant conclusions can be drawn:

- I. The mean energy per flare increases with increasing intrinsic quiescent luminosity of the parent star.
- II. Intrinsically brighter flare stars have more energetic but less frequent flares.
- III. The rise times become more rapid as the quiescent energy of the parent star decreases.
- IV. Most of the flare light curves are either combinations of spike and slow flares or else successive flare events are overlapped, supporting the view that energy can be added at various times during the development and decay of a flare event rather than its just being an abrupt rise to a maximum followed by slow and exponential decay.
- V. Flares with greater energy release occasionally last longer. It is not clear whether all of the energy lost during an event is lost by a few strong events or numerous weaker events. Observations with better time resolution can perhaps answer this question.

In addition to the above stars EV Lac ($dM4.5e$; $m_V=10.25$)

Table I

Star	Spectral type	m_V	Filter	Total nights of observing	Total monitoring interval (hours)	No. of flares detected	Mean inter-val between flares (hours)	Energy range of flare events 10^{30} ergs	Quiescent energy 10^{28} ergs/sec	Mean energy per flare 10^{30} ergs	Mean flare duration (min)	Mean rise time (min)
UV Ceti	dM5.5e	12.95	B	5	11.6	17	0.7	1.2-.07	0.73	0.26	5.6	0.5
YZ CMi	dM4.5e	11.24	B	36	103.8	20	5.2	22.0-0.8	20.6	8.2	9.5	0.8
AD Leo	dM3.5e	9.43	B	39	90.2	13	6.9	70.6-1.0	82.0	14.0	10.6	1.9
Total:				80	205.6	50						

too was monitored for a total of 16.6 hours, during which only two flares were recorded. Due to the paucity of flares of this star it would not be correct to base any conclusions on statistics pertaining to this star.

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