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FURTHER OBSERVATIONS OF UV CETI

Over the period 21st September - 23rd October 1974 the flare star UV Ceti [RA =  $01^{\text{h}}37^{\text{m}}12^{\text{s}}$ , declination  $-18^{\circ}08'$  (1966.0), visual magnitude 12.9, spectral type dM5.5e] was observed at Boyden Observatory with the 41cm Nishimura Reflector. The observations were made using a standard Johnson B. filter with a solid carbon-dioxide cooled EMI 6256A photomultiplier tube.

The table gives details of the observations over a total monitoring time of  $68^{\text{h}}38^{\text{m}}$ .

The level of activity over the period was quite high, thirty-one definite flares being recorded. As the table indicates there were others which were uncertain due to unfavourable observing conditions. Of particular interest is the extremely intense flare peaking at  $21^{\text{h}}16^{\text{m}}12^{\text{s}}$  Universal Time on 22nd September. This is the largest flare ever recorded at the Observatory, with a  $\frac{I_{\text{of}} - I_{\text{0}}}{I_{\text{0}}}$  value of approximately

420. The flares showed the typical characteristic flash phase followed by a gradual decline of UV Ceti type flare stars. They are similar to those recorded previously from UV Ceti by Jarrett and Eksteen.

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References:

1. Jarrett A.H. and Eksteen J.P. 1969, I.B.V.S. No.349
2. Jarrett A.H. and Eksteen J.P. 1969, I.B.V.S. No.406
3. Jarrett A.H. and Eksteen J.P. 1970, I.B.V.S. No.412
4. Jarrett A.H. and Eksteen J.P. 1970, I.B.V.S. No.434
5. Jarrett A.H. and Eksteen J.P. 1970, MNASSA, 29, p.115.

FLARE SUMMARY FOR UV CETI (September-October 1974)

Date	Total hours	Rise	U.T. max.	Ends	Comments	$\frac{I_{0+f}-I_0}{I_0}$
Sept. 21-22	7h06 <sup>m</sup>	21h41 <sup>m</sup> 16 <sup>s</sup>	21h41 <sup>m</sup> 17 <sup>s</sup>	21h41 <sup>m</sup> 20 <sup>s</sup>	End was possibly at 41 <sup>m</sup> 40 <sup>s</sup> . Spike? Noise?	0.46±0.15
		21 42 01	21 42 03	21 42 14	Flare. May be doubtful as dark reading was rather high.	0.62±0.15
		21 44 22	21 44 29	21 45 05	Small flare. Star drifted out of diaphragm at max, but brought back in immediately!	0.46±0.15
		00 38 40	00 38 47	-	Flare	≥1 ±0.12
		00 59 20	00 59 22	01 00 36	Small flare	0.67±0.21
		02 06 36	02 07 12	02 08 48	Flare	1.34±0.22
Monitoring Times (UT)		21h09 <sup>m</sup> 00 <sup>s</sup> - 23h46 <sup>m</sup> 00 <sup>s</sup>				
		23 51 30 - 00 38 48				
		00 56 48 - 03 02 00				
Sept. 22-23	6h07 <sup>m</sup>	21h14 <sup>m</sup> 42 <sup>s</sup>	21h14 <sup>m</sup> 58 <sup>s</sup>	-	Flare	1.29±0.24
		21 15 41	21 16 12	00h00 <sup>m</sup> 00 <sup>s</sup>	Enormous Flare (approximately)	420 ±80
		21 32 14	21 32 25	22 06 00	Flare	11.8
		23 02 30	23 03 26	23 15 00	Slow flare	≥2.2
Monitoring Times (UT)		20h48 <sup>m</sup> 00 <sup>s</sup> - 23h42 <sup>m</sup> 00 <sup>s</sup>				
		23 49 00 - 03 02 00 (dawn)				
Sept. 23-24	0h25 <sup>m</sup>	22h02 <sup>m</sup> 02 <sup>s</sup>	22h02 <sup>m</sup> 04 <sup>s</sup>	22h02 <sup>m</sup> 50 <sup>s</sup>	Possibly a flare as observations were moonlit cloud patches	0.56±0.07
Monitoring Times (UT)		21h39 <sup>m</sup> 06 <sup>s</sup> - 22h04 <sup>m</sup> 12 <sup>s</sup>				
Sept. 24-25	02h43 <sup>m</sup>	21h41 <sup>m</sup> 45 <sup>s</sup>	21h41 <sup>m</sup> 48 <sup>s</sup>	21h43 <sup>m</sup> 48 <sup>s</sup>	Flare	1.71±0.43
		00 05 35	00 05 42	00 06 06	Flare? Observed through variable clouds	0.38±0.17
Monitoring Times (UT)		20h59 <sup>m</sup> 30 <sup>s</sup> - 22h17 <sup>m</sup> 54 <sup>s</sup>				
		23 40 48 - 01 04 54				
Sept. 25-26	2h43 <sup>m</sup>	No clear cut flares				
Monitoring Times (UT)		00h12 <sup>m</sup> 48 <sup>s</sup> - 01h19 <sup>m</sup> 36 <sup>s</sup>				
		01 29 00 - 03 00 06				
Sept. 26-27	1h49 <sup>m</sup>	No clear cut flares				
Monitoring Times (UT)		01h13 <sup>m</sup> 48 <sup>s</sup> - 03h02 <sup>m</sup> 30 <sup>s</sup> (dawn)				
Oct. 2-3	0h43 <sup>m</sup>	21h48 <sup>m</sup> 06 <sup>s</sup>	21h48 <sup>m</sup> 48 <sup>s</sup>	21h50 <sup>m</sup> 06 <sup>s</sup>	Slow flare, moonlit cloud at time of observation	1.06±0.16

FLARE SUMMARY FOR UV CETI (September-October 1974) (cont.)

Date	Total hours	Rise	U.T. max.	Ends	Comments	$\frac{I_0 + f - I_0}{I_0}$
Oct. 2-3	0h43m	21h53m42s	21h53m48s	21h54m06s	Small flare	0.56±0.16
Monitoring Times (UT): 21h19m48s - 22h02m36s (all in moonlight. Signals were noisy)						
Oct. 6-7	5h37m	21h53m14s	21h53m29s	21h53m43s	Precursor Spike	2.78±0.15
		Obscured	21 54 10	21 57 42	Flare	1.46±0.15
		by preceding feature				
		21 54 17	21 54 27	21 54 45	Spike	5.05±0.15
		22 54 12	22 54 22	-	Flare.Max.lost.	11.5 ±0.14
		-	22 54 40	23 20 00	Flare.Max.lost.	14.5 ±2.4
		01 08 54	01 08 56	01 10 00	Flare	0.60±0.28
		01 43 18	01 43 42	01 44 06	Flare?	0.50±0.28
		02 03 02	02 03 08	02 04 12	Flare	1.00±0.31
		02 04 40	02 04 57	02 05 12	Flare	1.44±0.31
Monitoring Times (UT): 21h02m00s - 21h46m36s						
		21 52 30	-	23 40 48		
		23 53 18	-	02 50 42		
Oct. 8-9	4h52m	21h19m54s	21h19m56s	21h21m12s	Flare? varying clouds	1.28±0.29
		23 14 29	23 14 34	23 15 00	Flare? Trouble-some clouds.	0.38±0.18
		00 17 15	00 17 19	00 19 00	Flare.	0.60±0.19
Monitoring Times (UT): 21h09m42s - 22h39m12s						
		22 45 18	-	01 47 18		
		01 53 06	-	02 13 54		
Oct. 9-10	5h01m	22h34m24s	22h34m39s	22h34m54s	Flare.End uncertain as telescope in contact with pier	0.95±0.22
		01 55 20	01 55 27	01 55 42	Flare.	1.79±0.32
Monitoring Times (UT): 21h45m42s - 22h34m54s						
		22 38 12	-	02 49 42		
Oct. 10-11	5h43m	21h06m06s	21h06m13s	21h07m30s	Flare	1.03±0.27
		22 07 46	22 07 48	22 08 06	Flare	0.37±0.21
		23 30 30	23 30 36	23 31 00	Flare? Noisy signal	0.44±0.21
		00 27 54	00 28 18	00 30 24	Flare	1.74±0.21
		00 47 49	00 47 56	00 49 30	Flare	1.45±0.36
		01 06 00	01 06 06	01 06 42	Flare? Noisy signal	0.38±0.28
Monitoring Times (UT): 20h50m30s - 22h31m30s						
		22 36 00	-	02 38 18		
Oct. 11-12	5h28m	21h17m21s	21h17m23s	21h18m00s	Flare? Variable thin clouds	0.62±0.23
		22 42 43	22 43 16	22 49 48	Flare	12.55±0.21
Monitoring Times (UT): 21h00m36s - 22h27m24s						
		22 35 30	-	02 37 00		

FLARE SUMMARY FOR UV CETI (September-October 1974) (cont.)

Date	Total hours	Rise	U.T. max.	Ends	Comments	$\frac{I_{of}-I_o}{I_o}$
Oct. 12-13	5h28m	21h23m42s	21h23m50s	21h26m00s	Flare	1.00±0.23
		22 59 48	23 00 05	23 05 00	Flare complex	2.12±0.24
		00 15 48	00 16 07	-	First spike over slow flare	1.53±0.24
		-	00 16 42	-	Second Max.	1.79±0.24
		-	00 18 54	00 20 00	Third Feature, Noisy signal	0.47±0.24
		01 32 24	01 32 33	01 35 36	Flare	1.73±0.27
		Monitoring Times (UT): 21h01m36s- 22h23m36s 22 29 54 - 02 35 36				
Oct. 15-16	2h09m	01h11m30s	01h11m36s	01h13m24s	Flare? Noisy signal. Varying thin clouds.	1.42±0.30
		Monitoring Times (UT): 22h58m00s- 23h25m42s 23 50 06 - 01 31 25				
Oct. 16-17	3h55m	00h20m42s	00h20m52s	00h21m42s	Flare.	1.00±0.30
		00 57 48	00 58 00	00 59 30	Flare? Very noisy signal	0.58±0.37
		01 23 06	01 23 23	01 24 12	Flare	1.40±0.24
		Monitoring Times (UT): 22h34m24s - 02h29m12s				
Oct. 17-18	2h22m	23h06m24s	23h06m42s	23h08m48s	Flare	1.00±0.28
		Monitoring Times (UT): 21h19m00s- 21h41m00s 21 47 48 - 22 04 54 22 08 54 - 22 47 06 22 51 00 - 23 14 54 23 23 54 - 00 05 24				
Oct. 18-19	2h26m	23h47m45s	23h47m47s	23h48m24s	Flare? Noisy signal	2.00±0.26
		Monitoring Times (UT): 21h08m36s- 22h00m12s 22 05 36 - 22 21 18 22 37 48 - 23 56 36				
Oct. 21-22	1h33m	22h11m17s	22h11m18s	22h11m40s	Small Flare? Noisy signal, thin clouds and moonlight.	0.34±0.17
		Monitoring Times (UT): 21h24m42s- 21h48m24s 21 53 42 - 23 03 06				
Oct. 22-23	2h28m	Monitoring Times (UT): 21h25m18s- 21h44m24s 21 50 24 - 23 59 48				
Severe scintillation. No flares apparent.						