COMMISSION 27 OF THE I. A. U.
INFORMATION BULLETIN ON VARIABLE STARS
Number 1186

Konkoly Observatory
Budapest
1976 October 12

ULTRAVIOLET MONITORING OF BY Dra STARS

The BY Dra stars AU Mic, AT Mic, CC Eri, HD216803 and HDE319139 were monitored photoelectrically in the period August--September 1974, in order to study their flare activity.The observations were carried out at Cerro Tololo Interamerican Observatory, using a 60 cm telescope, in the U-band. The data were reduced following the precepts of Kunkel (1973),and are presented in Tables 1 to 9. A detailed analysis will be published elsewhere.

Tables 1 to 5 give the coverage in universal time. All breaks greater than 1 minute were considered.

The flare data are listed in Tables 6 to 9. The columns contain, respectively: Julian Date of flare maximum; secant of zenith distance; U-magnitude of peak light, after subtraction of quiescent component; flare durations T_q in minutes measured at q=0.5, 0.2 and 0.1 peak light. The meaning of symbols in column labelled "obs" is as follows:

D - double peak
C - complex light curve
L - peak intensity close to Kunkel's weak-event threshold
I - incomplete record. Usually the peak was lost during a sky measure.

The symbol "u" following a quantity means that it was obtained with a precision less than that given below:

JD - 0.001 day (about 1 min.)
U - 0.1 magnitude
T_q - 20 percent.

We should note that HDE319139, a dK5e star (Bidelman 1954), was formerly not known to be a flare star, but was included in the program due to its BY Dra nature. The star HD216803 (TW PsA) showed quiescent variability, but no flares were detected on it.

Table 1

JD 2442000.+	Coverage AU Mic (U.T.)	JD 2442000.+	Coverage AU Mic (U.T.)
270.5	$04^h14^m.3 - 06^h17^m.3$	283.5	$02^h12^m.0 - 02^h38^m.3$
271.5	03 04.5 - 04 51.0		03 11.0 - 03 26.0
272.5	01 56.5 - 03 54.0		04 05.5 - 04 30.0
	04 51.5 - 06 06.7	285.5	01 53.0 - 03 25.5
273.5	04 45.0 - 07 01.0		03 44.2 - 05 25.0
274.5	03 14.5 - 03 47.5	294.5	04 10.0 - 05 16.0
	04 48.0 - 06 16.0	295.5	02 28.5 - 02 55.7
275.5	02 19.7 - 03 00.0		02 58.0 - 03 28.5
	03 09.5 - 04 20.0	296.5	02 57.0 - 04 26.0
	05 03.0 - 06 16.0	297.5	05 35.0 - 06 05.5
277.5	02 09.5 - 04 38.0	304.5	03 17.0 - 04 04.5
278.5	02 52.5 - 05 21.3	311.5	03 11.5 - 04 31.5
279.5	03 00.7 - 03 29.0	316.5	03 30.5 - 04 04.5
280.5	02 47.5 - 04 21.5	319.5	03 48.0 - 04 33.0

Table 2

JD 2442000.+	Coverage HDE319139 (U.T.)	JD 2442000.+	Coverage HDE319139 (U.T.)
270.5	$01^h19^m.0 - 02^h47^m.3$	284.5	$23^h50^m.0 - 24^h00^m.0$
272.5	00 30.5 - 01 20.7	285.5	00 00.0 - 00 30.5
273.5	00 39.5 - 01 14.0		00 33.0 - 01 12.5
	01 17.5 - 02 12.5	294.5	02 38.5 - 02 48.0
274.5	00 14.5 - 02 06.0	295.5	00 38.5 - 01 31.2
	02 18.5 - 02 25.7	296.5	01 39.0 - 02 31.0
275.5	00 00.0 - 00 27.2	297.5	01 00.0 - 02 06.2
	00 33.0 - 01 20.5	304.5	01 02.0 - 02 31.0
277.5	00 25.8 - 01 27.0	316.5	01 43.5 - 01 59.0
278.5	00 10.0 - 01 50.2		02 01.5 - 02 51.2
279.5	00 09.0 - 01 25.0	319.5	00 37.3 - 03 10.5
280.5	00 07.5 - 01 52.5	320.5	01 47.0 - 02 35.0
282.5	23 52.5 - 24 00.0		02 40.3 - 03 20.0
283.5	00 00.0 - 01 06.2		

Table 3

JD 2442000.+	Coverage CC Eri (U.T.)	JD 2442000.+	Coverage CC Eri (U.T.)
270.5	$09^h13^m.0 - 10^h03^m.2$	280.5	$09^h54^m.5 - 10^h02^m.8$
271.5	07 55.2 - 09 28.5	294.5	07 10.6 - 09 01.5
272.5	08 31.2 - 09 28.3		09 21.0 - 09 49.3
	09 45.0 - 10 12.0	295.5	05 50.0 - 06 12.5
273.5	08 11.0 - 09 28.7		06 15.0 - 06 39.2
274.5	08 06.5 - 09 34.0	296.5	07 38.5 - 08 19.0
	09 54.0 - 10 07.0	297.5	07 28.2 - 07 51.8
275.5	08 36.0 - 09 32.0		07 54.5 - 08 15.0
	09 46.5 - 10 00.0	304.5	06 40.0 - 07 53.0
277.5	07 39.3 - 09 28.0	316.5	06 18.0 - 08 07.3
278.5	07 33.7 - 09 37.1	318.5	05 10.0 - 06 15.5
	09 51.7 - 10 05.5	319.5	05 57.0 - 06 59.5
280.5	08 16.5 - 08 29.0	320.5	05 50.5 - 06 29.2
	08 41.0 - 09 49.0		

Table 4

JD 2442000.+	Coverage HD216803 (U.T.)	JD 2442000.+	Coverage HD216803 (U.T.)
270.5	$06^h41^m.5 - 08^h27^m.8$	278.5	$06^h00^m.5 - 07^h29^m.2$
271.5	05 52.0 - 07 39.0	279.5	05 41.5 - 06 12.0
272.5	06 43.0 - 08 16.8	280.5	06 38.5 - 07 39.0
273.5	07 21.0 - 07 56.5	285.5	06 15.0 - 07 29.5
274.5	06 47.0 - 07 55.5	294.5	05 50.0 - 06 27.0
275.5	06 34.0 - 07 55.0	297.5	06 36.0 - 06 51.0
277.5	06 27.3 - 07 31.0		

Table 5

JD 2442000.+	Coverage AT Mic (U.T.)
295.5	$03^h47^m.0 - 04^h30^m.5$
296.5	04 38.0 - 06 41.2
297.5	02 46.7 - 05 03.5

Table 6

Flares AU Mic

JD 2442000.+	secz	U	$T_{0.5}$	$T_{0.2}$	$T_{0.1}$	Obs.
271.643	1.01	14.61u	21.0u			D
271.683	1.00	13.25	3.8	9.2u		
272.584	1.11	14.16	1.0u			
272.608u	1.06	13.67	3.4	13.0		D
272.704	1.02	9.90	> 4.0 >	30.0	62.0	I
272.711	1.04	13.98	0.4u			
275.600	1.05	13.93u	2.0u			
275.634	1.01	11.33	0.8	6.7	13.4	
275.658u	1.00	13.45	10.7			D
277.605u	1.04	13.06	16.3	28.5		C,I
278.665u	1.00	14.80	3.8u			
278.697	1.03	13.32	5.3	10.9		
278.711	1.05	11.41	1.5	4.4	13.3u	
280.639	1.00	12.17	1.3	21.2	28.0	C
283.599	1.02	14.50u	6.4			
285.632u	1.00	13.90	1.7	7.8u		
285.707	1.09	12.83	0.6u	2.8		
294.632	1.07	14.40u >	3.0			I
294.713	1.19	14.16u	1.0			L
296.624	1.01	12.30 >	16.0			I
296.658u	1.05	14.64u	3.3			L
296.674u	1.08	13.36	8.0			C

Table 7

Flares HDE319139

JD 2442000.+	secz	U	$T_{0.5}$	$T_{0.2}$	$T_{0.1}$	Obs.
274.549	1.00	11.46	10.1	43.1	72.4	
277.544u	1.00	15.56u	7.0u			
285.493	1.02	13.50	> 0.8 >	4.5 >	8.0	I
295.543u	1.03	15.40u	2.7u			L
297.549u	1.12	15.20u	7.0u			
297.542	1.03	15.67u >	2.0			I
319.579	1.39	15.14	10.0			

Table 8

Flares CC Eri

JD 2442000.+	secz	U	$T_{0.5}$	$T_{0.2}$	$T_{0.1}$	Obs.
271.838	1.11	13.82	1.5	12.7	14.6	I
272.908	1.03	11.24	>4.0 >	25.0		I
274.866	1.05	13.38	0.8u			
275.876u	1.04	13.60	4.8u			
278.819u	1.11	14.08	8.2			I
278.843	1.06	14.10	5.7	20.0u		D,C
294.809u	1.05	14.73u	1.5			L
294.846	1.03	14.60u	1.8			
296.827	1.03	10.51	1.2	19.5	29.2u	C
316.777	1.03	15.00u	7.1u			
318.717	1.09	13.33	0.5			L
319.783	1.03	14.10	5.0	11.3		D

Table 9

Flares AT Mic

JD 2442000.+	secz	U	$T_{0.5}$	$T_{0.2}$	$T_{0.1}$	Obs.
295.670	1.07	13.02	0.3u	0.5	1.7u	
295.675	1.08	13.52	1.0	3.5		
296.694	1.14	14.68	4.9u			
296.706	1.18	13.98	1.1u	14.6u		D
296.755	1.47	14.84u	1.2			
296.766	1.57	14.82u	1.3			

I.C. BUSKO*
C.A.O. TORRES*
Observatorio Nacional-Brazil

*Visiting Astronomers, Cerro Tololo Interamerican Observatory (Operated by Association of Universities for Research in Astronomy, Inc, under contract with the National Science Foundation)

References:

Bidelman, W.P. 1954, Ap.J. Suppl. 1, 175
Kunkel, W.E. 1973, Ap.J. Suppl. 25, 1