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COOPERATIVE OBSERVATIONS OF THE FLARE STAR V 1216 Sgr

According to the observing schedule prepared by the Working Group on Flare Stars (Andrews and Chugainov, 1969), the star V 1216 Sgr was observed at the Catania Astrophysical Observatory from June 26 to July 10. A photometer equipped with an EMI 6256 photomultiplier (spectral response S 13) and the Schott filters combination BG 12/1 + GG13/2 were used. The photometer was attached to the 91 cm. Cassegrain telescope.

In Table 1 the detailed coverage and in Table 2 the characteristics of the observed flares are presented.

Some observations made outside the suggested period are also included.

The accompanying figure shows the light curves of the observed flares, three of which are uncertain.

R. Barbagallo and F. Spinella have collaborated in the observations.

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Reference

Andrews, A. D., Chugainov, P. F. 1969, Comm. 27. IAU, Inf. Bull. Var. Stars, No. 416

Table 1.

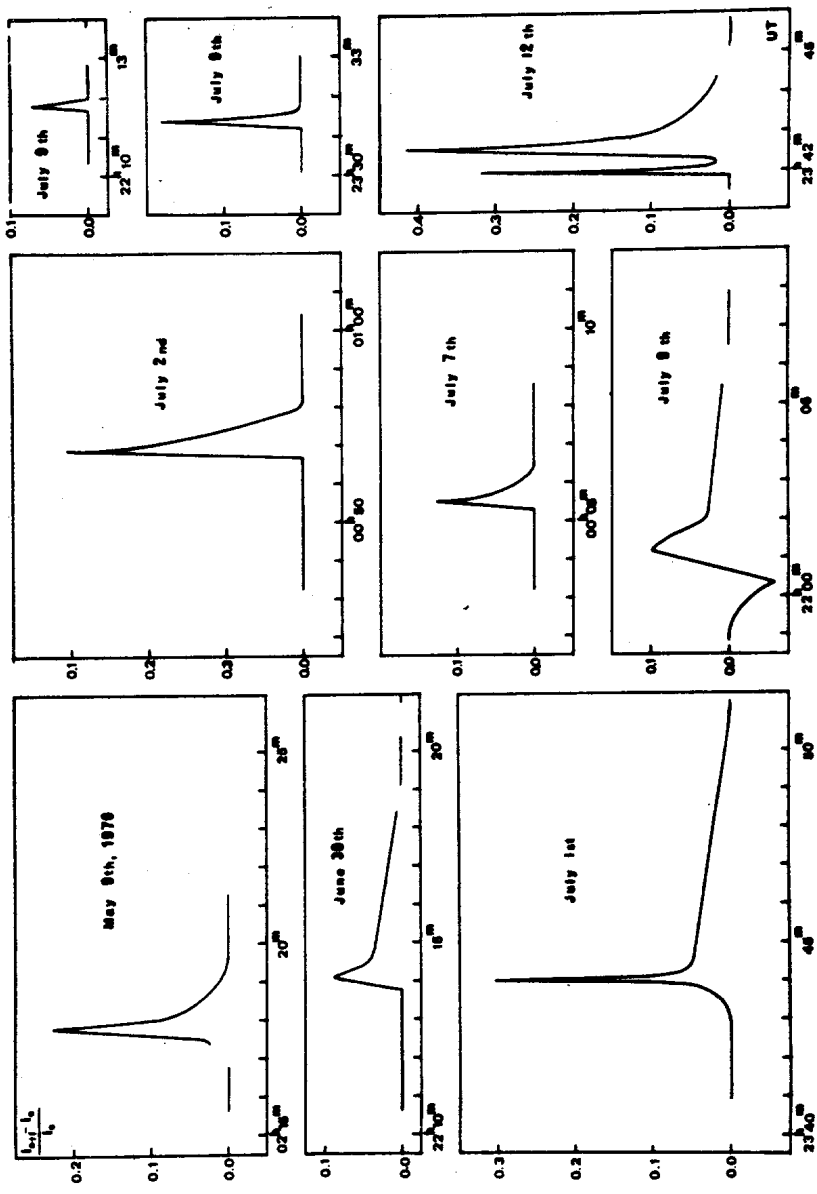
m	d	Coverage (U.T.)	TC	$\frac{m_{lim} - m_o}{magn.}$
1970				
May	9	02 <sup>h</sup> 17 <sup>m</sup> -02 <sup>h</sup> 35 <sup>m</sup> ; 0237-0242.	0 <sup>h</sup> 32 <sup>m</sup>	+ 4.22
June	27	2315-2400;		
	28	0000-0044; 0046-0056; 0102-0126.	2 03	4.1
	28	2131-2158;		
	29	0038-0042; 0049-0219.	2 01	3.5
	29	2200-2218; 2222-2400;		
	30	0000-0005; 0025-0032; 0034-0124; 0126-0208.	3 40	3.9
	30	2202-2336; 2340-2400;		

Table 1. (Cont.)

m	d	Coverage (U. T.)	TC	$\overline{m_{\text{lim}} - m_0}$ magn.
July	1	0000-0003; 0005-0100; 0103-0125; 0127-0210.	3 57	3.7
	1	2202-2220; 2224-2334; 2336-2349; 2354-2400;		
	2	0000-0020; 0030-0053; 0126-0150; 0153-0200; 0203-0213.	3 10	3.8
	2	2053-2123; 2130-2344;		
	3	0017-0207.	4 34	3.7
	3	2138-2203; 2206-2217; 2220-2236; 2239-2308; 2318-2334;		
	4	0011-0048; 0051-0200.	3 23	3.7
	4	2301-2317; 2322-2335; 2337-2348; 2353-2400;		
	5	0000-0056; 0114-0118.	1 47	3.8
	5	2137-2257; 2314-2341; 2343-2348;		
	6	0004-0058	2 46	4.0
	6	2215-2236; 2238-2315; 2320-2324; 2330-2334; 2338-2346; 2349-2351; 2353-2400;	2 26	3.6
	7	0000-0029; 0114-0148.		
	7	2121-2230; 2249-2322; 2330-2340; 2345-2400;		
	8	0000-0002; 0005-0009; 0017-0050; 0052-0104; 0149-0211.	3 20	3.5
	8	2112-2345;		
	9	0005-0009; 0011-0115; 0119-0128; 0155-0200.	3 55	3.7
	9	2020-2224; 2258-2345; 2347-2356;		
	10	0000-0012; 0015-0021; 0044-0053; 0059-0107; 0109-0119; 0121-0130; 0133-0210.	4 41	3.8
	10	2116-2220; 2224-2230; 2331-2322.	1 11	3.1
	12	2308-2400;		
	13	0000-0012; 0031-0129; 0131-0139; 0143-0224.	1 59	3.0
	16	2006-2212.	2 06	3.0
	20	2052-2120; 2122-2138; 2139-2154; 2156-2209; 2211-2216; 2218-2232.	1 31	3.0
	21	2018-2120; 2123-2211; 2215-2258; 2300-2314; 2316-2400.	3 31	3.1

m = month; d = day; TC = total coverage per night;

$\overline{m_{\text{lim}} - m_0} = -2.5 \log (3 \overline{\sigma} / I_0)$ , where  $\overline{\sigma}$  represents the standard deviation of the random noise fluctuation for a night, and  $I_0$  represents the mean intensity of the quiet star during the same night.



Flares of V1316 Sgr

Table 2.

no	t <sub>max</sub>	d <sub>b</sub>	d <sub>a</sub>	m <sub>lim</sub> -m <sub>o</sub> magn.	(m <sub>f</sub> -m <sub>o</sub> ) <sub>max</sub> magn.	P	M	a	b
1970									
1	May 9, 02 <sup>h</sup> 17.8 <sup>m</sup>	0.3 <sup>m</sup>	1.7 <sup>m</sup>	+4.22	+1.62	0.11 <sup>m</sup>	2.118	-	2
2	June 30, 22 14.1	0.3	4.9	+3.94	+2.66	0.11	2.214	1	1
3	July 1, 23 44.0	0.2	6.7	+3.84	+1.29	0.22	2.137	-	4
4	July 2, 00 56.9	0.2	1.2	+3.74	+1.30	0.14	2.512	-	4
5	July 7, 00 05.5	0.2	0.9	+3.75	+2.60	0.04	2.288	1	1
6	July 9, 22 01.2	0.5	5.3	+4.06	+2.50	0.14	2.143	4	0
7	July 9, 22 11.8	0.1	0.2	+4.06	+2.83	0.01	2.122	1	0
8	July 9, 23 31.4	0.2	0.3	+3.68	+1.86	0.03	2.190	-	0
9	July 12, 23 42.6	0.3	2.6	+3.34	+0.95	0.24	2.292	2	0

no. = order number; t<sub>max</sub> = date and U.T. at maximum of the flare; d<sub>b</sub> = duration of the flare before maximum; d<sub>a</sub> = duration of the flare after maximum including whatever post-maximum activity; m<sub>lim</sub>-m<sub>o</sub> = -2.5 log (3σ/I<sub>o</sub>) where σ and I<sub>o</sub> indicate the standard noise fluctuation and the mean intensity of the quiet star near the observed flare, respectively; (m<sub>f</sub>-m<sub>o</sub>)<sub>max</sub> = -2.5 log [(I<sub>o+f</sub> - I<sub>o</sub>)/I<sub>o</sub>]<sub>max</sub> where I<sub>o</sub> + f is the intensity deflection due to the quiet star (I<sub>o</sub>) plus that of flare (I<sub>f</sub>) at maximum; P = ∫(I<sub>o+f</sub> - I<sub>o</sub>)/I<sub>o</sub> dt, integrated intensity (in minutes); M = air masses to sea level; a = flare feature: 1 = uncertain, 2 = double, 3 = multiple, 4 = complex structure; b = sky conditions with the following standards; 0 = very clear, 1 = clear, 2 = with some cirrus, 3 = extended cirrus, 4 = with some clouds, 5 = cloudy;