STRENGTHENING OF THE EMISSION SPECTRUM OF \$\(TAURI \)

MARGHERITA HACK Merate Observatory, Italy

That a notable intensification of the emission wings of lines in the spectrum of ζ Tauri has occurred is evident from spectrograms of this star taken by T. Tamburini at the Merate Observatory on January 8, 1958. On these plates, of dispersion 20 Å/mm at H γ , the line contours show P Cygni structure. The red emission wings are well visible at H β , H γ , and H δ , and at the strongest Fe II lines, $\lambda\lambda$ 4233, 4297, 4352, 4549, 4584, and 4924. All the Balmer lines show asymmetrical contours, being sharper on the red side.

SUMMARY OF MOUNT WILSON MAGNETIC OBSERVATIONS OF SUNSPOTS FOR SEPTEMBER AND OCTOBER, 1957

Solar activity was very high in September and October. The mean number of groups observed per day in October was 18.9, the highest ever recorded at Mount Wilson, the next highest being 16.8 in May 1947. The recent activity which was higher than that of September 1956 should place maximum in 1957 or later.

Seven more groups were seen on two or more days at a distance of 40° or more from the equator. This brings to twenty-two the total of such groups observed thus far in this cycle compared with twelve in the 75 years prior to 1953.

Table I lists the geomagnetic disturbances with a range of H greater than 100γ as recorded at Mount Wilson. The severe storm of September 13–14 was preceded by two crotchet-like deviations on September 12, but no solar observations were possible at Mount Wilson at that time. The September 21–22 disturbance was preceded by a crotchet ($\Delta H = 25\gamma$) on September 18 coincident with a class 3+ flare in group 12622. This was a large group at N 22°, E 7° with $\beta\gamma$ characteristics and an area in excess of 1000 millionths of a solar hemisphere on the 18th. The record for the storm of October 13–15 was incomplete due to a power failure but the range in H was 109 γ or greater.

TABLE I GEOMAGNETIC STORMS

		Universal	Time				
Beginn	Beginning			Endi	Ending		
1957	d	h	m	1957	d	h	γ
September	2	03	15*†	September	6	07	422
September	13	00	47*	September	14	16	494
September	21	10	05*	September	22	12	273
September	22	13	54*	September	24	14	283
September	29	01 +	†	October	1	04	287
October	13	20		October	15	01	109?

^{*} Began with a sudden commencement. † Series with an interval near 27 days.

NUMBER OF SUNSPOT GROUPS OBSERVED DAILY

	SEPTI	EMBER			OCTO	BER.	
	No. of		No. of		No. of		No. of
Day	Groups	Day	Groups	Day	Groups	Day	Groups
1	11	16	12	1	17	16	21
2	11	17	15	2	18	17	17
3	10	18	14	3		18	19
4	9	19	13	4	17	19	16
5	9	20	16	5	15	20	
6	8	21	15	6	16	21	
7	8	22	19	7	15	22	17
8	12	23	21	8	16	23	20
9	13	24	19	9	18	24	22
10	10	25	19	10	18	25	22
11	11	26	16	11		26	21
12	13	27	18	12	20	27	22
13	16	28	16	13	• •	28	22
14	16	29	16	14	19	29	22
15	13	30	14	15	19	30	23
						31	
		Mea	ın 13.8				
						Mean	18.9

NOTES FROM OBSERVATORIES

MAGNETIC CLASSIFICATIONS OF SUNSPOTS FOR

SEPTEMBER AND OCTOBER, 1957

No.	C. M. P.	Lat.	н	First Seen	Last Seen	Class
12592	Aug. 30.2	-12°	(1)	Sept. 1	Sept.	l dαd
12593	Sept. 2.5	+10	(i)	1		1 dad
12594	7.6	-11	ii	1		9 Iβpd
12595	3.3	-28	2	2		3 dβpd
12596	10.8	+11	26	3		7 Ιβγί
12597	6.8	-24	20	4		2 dβl
12598	4. 1	-15	2	5		7 dapd
12599	8.1	-18	(1)	6		6 dad
12600	8.0	+31	2	7		3 dad
12601	10.5	-14	18	7		6 ďβpl
12602	12.2	+26	(1)	7		8 dapd
12603	4. 1	+15	2	8.		9 dβpd
12604	7. 5	-16	(1)	8		8 dapd
12605	8.4	-17	(1)	8		9 da d
12606	11.4	-17	26	8		7 дрі
12607	14.5	-43	22	8		9 [βρ]
12608	14. 1.	-20	20	8		9 lapl
12609	9. 1	- 6	15	9		4 dβpl
12610	9.9	+ 9	2	9 9		9 dad
12611	12.2	+16	(1)			9 dβd 0 dαd
12612	12.3	-11	(2)	10 10		
12613	17.2	+15	15	11		3 lαpl 1 dβd
12614	8.7	+12	(1)	11		0 dβpl
12615 12616	14.3 16.6	+25 -26	15 2	11		5 dβ pd
12617	12.7	- 3	(2)	12		2 dαd
12618	17.7	+12	21	12		2 dβpl
12619	17.7	-24	14	12		0 lapd
12620	15.3	-20	(1)	13		3 dad
12621	15.7	-18	(i)	13		4 dxd
12622	19.3	+23	36	13		6 dβ γl
12623	20. 2	+ 9	30	13		5 lβpl
12624	14.7	- 35	(1)	14	1	4 dxd
12625	16.3	+40	3	14	1	5 dβd
12626	16.3	- 8	3	16	1	8 dβd
12627	15. 1	-24	` 4	1 <i>7</i>		lqqb 0
12628	15.4	-16	3	17	2	0 dβd
12629	1 7. 7	+ 8	5	17		0 dβpd
12630	20.0	-22	14	1 <i>7</i>		5 dβpl
12631	24.7	-18	9	18		B Iβd
12632	19.2	+17	5	20		2 dβpd
12633	19.3	-23	17	20		5 dβl
12634	21.3	+10	31	20		7 dβγl
12635	27. 2	+14	25	20		2 ΙβγΙ
12636	27. 4	+19	30	20		2 αpl
12637	18. 9	+18	6	21		3 dβpd
12638	23.8	-10	7	21		4 dβfd
12639	24.3	+ 8	(1)	21		2 dxd
12640	27. 1	+23	4	21	2	8 lapd

No. C. M. P. Lat. H Seen Seen Class 12641 Sept. 23.8 - 5° 1 Sept. 22 Sept. 25 dapd 12642 27.8 + 24 26 22 Oct. 2 dbpd 12643 28.7 -27 16 22 Cct. 2 dbpd 12644 28.7 +111 20 22 2 1 lbd 12645 22.2 + 8 3 23 Sept. 24 dbd 12646 24.5 +111 2 2 23 Sept. 26 dapd 12647 25.2 + 13 2 23 26 dapd 12648 30.8 +16 30 23 6 lbpl 12649 28.7 +30 (1) 24 24 dcd 12649 28.7 +30 (1) 24 24 dcd 12651 24.3 -13 12 25 Cct. 4 dbl 12651 24.3 -13 12 25 Cct. 4 dbl 12652 28.9 +25 13 25 Oct. 4 dbl 12653 22.2 +27 (2) 26 Sept. 27 dapd 12655 Sept. 27.7 +45 (2) 27 Sept. 27 dapd 12655 Sept. 27.7 +45 (2) 27 Sept. 27 dapd 12656 30.8 +30 (1) 27 Sept. 27 dapd 12657 Oct. 1.6 -29 (2) 27 Sept. 27 dapd 12658 2.8 -16 10 27 Oct. 7 dbpd 12659 4.4 -23 32 27 10 lopl 12650 Sept. 28.8 -15 (2) 28 Sept. 28 dad 12661 Oct. 2.4 +9 (2) 28 Sept. 28 dad 12661 Oct. 2.4 +9 (2) 28 Sept. 28 dad 12661 Oct. 2.4 +9 (2) 28 Sept. 28 dad 12663 Sept. 28.8 -15 (2) 28 Sept. 28 dad 12664 Sept. 28.8 -15 (2) 29 Qbd 12656 Sept. 28.8 -15 (2) 28 Sept. 28 dad 12666 6.4 +40 11 30 12 Gpd 12667 1.4 -13 (1) Oct. 1 1 dbl 12667 7.9 +14 16 6 11 1 0 dbl 12667 7.9 +14 16 6 12 Gbl 12669 8.2 -40 11 1 1 1 2 dbl 12667 7.9 +14 16 6 1 1 1 0 dbl 12667 7.9 +14 16 6 6 12 dbl 12667 7.9 +14 16 6 6 12 dbl 12667 7.9 +14 16 6 6 12 dbl 12668 1.7 1 -14 2 8 12 dcl 12669 8.2 -40 11 1 1 1 1 1 1 2 dbl 12669 8.2 -40 11 1 1 1 1 1 2 dbl 12669 8.2 -40 11 1 1 1 1 1 1 2 dbl 12667 7.9 +14 16 6 6 12 dbl 12667 7.9 +14 16 6 6 12 dbl 12667 7.9 +14 16 6 6 12 dbl 12668 1.7 1 -14 2 8 12 dcl 12669 8.2 1 3 +25 17 8 6 18 18 dbl 12669 8.2 1 3 +25 17 8 6 18 18 dbl 12669 8.3 -16 20 2 1 14 lopl 12669 8.7 +13 7 7 10 dbl 12669 8.9 +13 7 7 9 dbp 12669 8.9 +13 7 7 9 dbp 12689 1.5 1 4 9 13 10 10 dbl 12689 1.5 1 4 19 7 7 7 10 dbl 12689 1.5 1 4 19 7 7 7 10 dbl 12689 1.5 1 4 19 7 7 7 10 dbl 12689 1.5 1 4 19 7 7 7 10 dbl 12689 1.5 1 4 19 7 7 7 10 dbl 12689 1.5 1 4 19 7 7 7 10 dbl 12689 1.5 1 4 19 7 7 7 10 dbl 12689 1.5 1 4 19 10 12 19 dbl 12689 1.5 1 4 10 12 19 dbl	,	C 14 B		U	First		Last	CI.
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No.	C.M.	r.	Lat.	Н	36	en	Se	en	Class
12694	Oct. 1	8.4	-29°	1 <i>7</i>	Oct.	12	Oct.	24	lal
12695		8. 1	+ 6	(2)		12		16	dxd
12696		8.5	-23	15		12		19	lβpd
12697	1:	2.3	-27	(3)		14		16	dαd
12698		7. 8	+26	13		14		24	дβІ
12699		0.2	-17	12		14		23	lapd
12700	7	6.0	+30	(2)		15		18	dad
12701		8.6	+ 9	9		15		19	dβd
12702		1.9	-24	10		15		18	lapd
12703		3.5	+23	(5)		16		19 18	dαl dβd
12704 12705		0.1	-21	9 2		16 17		17	d a d
12705		7.2 3.6	+14 +23	12		18		28	dβd
12707		4.8	+13	13		18		30	ιβι
12708		0. <i>7</i>	-26	(2)		19		19	dxd
12709		1.8	-10	(2)		19		19	dad
12710		5.7	+22	17		19		30	lβpl
12711		1.8	+25	7		22		27	ďβİ
12712		2.2	+16	14		22		27	ďβI
12713	2	2.9	-24	10		22		26	ďβď
12714		3.8	-11	7		22		24	dβfd
12715		3.8	- 7	(4)		22		28	dxd
12716		5.7	+13	16		22		30	βpl
12717		5.9	-23	15		22		30	lβpl
12718		7.6	-12	17		22	Nov.	1	ļβpl
12719		7.9	+14	14		22	Oct.	30	lapd
12720		8.7	+12	11		22	Nov.	1	lβp
12721 12722		8. <i>7</i> 5.0	+ 8 +20	2 6		23 23	Oct.	24 28	dαfl dβd
12723		0.2	+26	22		23 23	Nov.	5	lβpl
12724		6. 0	-29	(2)		24	Oct.	25	dad
12725		7. 4	+15	(2)		24	O CI.	30	dxd
12726		0.2	+24	2		24		24	dapd
12727		0.4	+15	.2 5		24		29	lapd
12728		8. 4	-11	(2)		25		25	dad
12729		1.5	+27	(2)		25		25	lxd
12730	3	1.7	-15	1 <i>7</i>		25	Nov.	5	lβfd
12731		1.0	+14	2		25	Oct.	30	Iβd
12732		1.0	-24	20		25	Nov.	6	iγi
12733		7.5	+21	22		26		1	dβpl
12734		1.8	-14	2		26		1	lad
12735		6.4	+13	(2)		27	Oct.	27	dxd
12736		6.4	-22	2		27	N1	29	dxd
12737		9. 4 1. 1	-13 +27	12 8		28	Nov.	4 7	dβfl
12738 12739		1. 1 4. 0	+27	3		28 28	Oct.	30	dβl lαpd
12739		4. 0 3. 7	+14	14		28	Nov.	9	lapl
12741		7.7	+38	2		29	Oct.	30	dβpd
12742		1.6	+41	2		29	~ ÷1.	30	dad
12743		5. 3	+40	ī		29	Nov.	1	lxd
12744		5. 2	-14	15		30		11	lapl
12745		5.8	-1 <i>7</i>	16		30		11	lβpl
									-

NOTES

	2.022
12600	Not seen on September 11 and 12.
12613	A return of 12563 which was a return of 12503 with increased activity.
12619	Irregular polarities.
12631	Not seen September 26.
12636	A return of 12581.
12637	Irregular polarities.
12640	In the region of 12580 which was a return of 12516.
12642	Also in the region of 12580.
12643	A return of 12579, 12514, and 12449.
12647	Polarities suggest that 12647 may be the following member of 12646.
12650	Irregular polarities.
12652	Irregular polarities.
12659	A return of 12597.
12664	A return of 12609.
12666	Irregular polarities.
12672	A return of 12606.
12679	Irregular polarities.
12685	In the region of 12622.
12688	In the region of 12622.
12689	Possible return of 12633.
12690	Not seen on October 15 and 16.
12691	New spots in this region on October 17 and 18 could have been called a new
	group.
12696	Possible return of 12630.
12700	Not seen October 17.
12707	A return of 12635.
12715	
12719	A return of 12648.
12721	Same position as 12701.
12723	A return of 12654.
12725	Not seen October 28 and 29.
12732	In the region of 12659 (a return of 12597) and 12668.
12734	Polarity like that of following spots.
12735	Possible return of 12665.
12736	Polarity like that of following spots.
12739	Irregular polarity.
12740	A return of 12676.
12741	Irregular polarities.
12742	Polarity like that of following spots.
12743	Polarity like that of following spots, a return of 12666.

12744 A return of 12672 which was a return of 12606.