

STRENGTHENING OF THE EMISSION SPECTRUM
OF ζ TAURI

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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 \AA/mm at $H\gamma$, the line contours show P Cygni structure. The red emission wings are well visible at $H\beta$, $H\gamma$, and $H\delta$, 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 109γ or greater.

TABLE I
GEOMAGNETIC STORMS

Universal Time							
Beginning			Ending			Range in H	
1957	<i>d</i>	<i>h</i>	<i>m</i>	1957	<i>d</i>	<i>h</i>	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

SEPTEMBER				OCTOBER			
Day	No. of Groups	Day	No. of Groups	Day	No. of Groups	Day	No. of 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	..
		Mean 13.8				Mean 18.9	

NOTES FROM OBSERVATORIES

MAGNETIC CLASSIFICATIONS OF SUNSPOTS FOR

SEPTEMBER AND OCTOBER, 1957

No.	C. M. P.		Lat.	H	First Seen		Last Seen		Class
	Aug.	Sept.			Sept.	Sept.			
12592	30.2		-12°	(1)	Sept. 1		Sept. 1		dad
12593	2.5		+10	(1)	1		1		dad
12594	7.6		-11	11	1		9		lβpd
12595	3.3		-28	2	2		3		dβpd
12596	10.8		+11	26	3		17		lβyl
12597	6.8		-24	20	4		12		dβl
12598	4.1		-15	2	5		7		dapd
12599	8.1		-18	(1)	6		6		dad
12600	8.0		+31	2	7		13		dad
12601	10.5		-14	18	7		16		dβpl
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		dad
12606	11.4		-17	26	8		17		dβl
12607	14.5		-43	22	8		19		lβpl
12608	14.1		-20	20	8		19		lapl
12609	9.1		- 6	15	9		14		dβpl
12610	9.9		+ 9	2	9		9		dad
12611	12.2		+16	(1)	9		9		dβd
12612	12.3		-11	(2)	10		10		dad
12613	17.2		+15	15	10		23		lapl
12614	8.7		+12	(1)	11		11		dβd
12615	14.3		+25	15	11		20		dβpl
12616	16.6		-26	2	11		15		dβpd
12617	12.7		- 3	(2)	12		12		dad
12618	17.7		+12	21	12		23		dβpl
12619	17.7		-24	14	12		20		lapd
12620	15.3		-20	(1)	13		13		dad
12621	15.7		-18	(1)	13		14		dxd
12622	19.3		+23	36	13		26		dβyl
12623	20.2		+ 9	30	13		25		lβpl
12624	14.7		-35	(1)	14		14		dxd
12625	16.3		+40	3	14		15		dβd
12626	16.3		- 8	3	16		18		dβd
12627	15.1		-24	4	17		20		dβpl
12628	15.4		-16	3	17		20		dβd
12629	17.7		+ 8	5	17		20		dβpd
12630	20.0		-22	14	17		25		dβpl
12631	24.7		-18	9	18		28		lβd
12632	19.2		+17	5	20		22		dβpd
12633	19.3		-23	17	20		25		dβl
12634	21.3		+10	31	20		27		dβyl
12635	27.2		+14	25	20	Oct.	2		lβyl
12636	27.4		+19	30	20		2		lapl
12637	18.9		+18	6	21	Sept.	23		dβpd
12638	23.8		-10	7	21		24		dβfd
12639	24.3		+ 8	(1)	21		22		dxd
12640	27.1		+23	4	21		28		lapd

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No.	C. M. P.	Lat.	H	First Seen	Last Seen	Class
12641	Sept. 23.8	- 5°	1	Sept. 22	Sept. 25	dapd
12642	27.8	+24	26	22	Oct. 2	dβpd
12643	28.7	-27	16	22	4	lβpl
12644	28.7	+11	20	22	2	lβd
12645	22.2	+ 8	3	23	Sept. 24	dβd
12646	24.5	+11	2	23	26	dapd
12647	25.2	+13	2	23	29	dad
12648	30.8	+16	30	23	6	lβpl
12649	28.7	+30	(1)	24	24	dad
12650	22.1	-29	2	25	26	dβd
12651	24.3	-13	12	25	29	dβfd
12652	28.9	+25	13	25	Oct. 4	dβl
12653	22.2	+27	(2)	26	Sept. 27	dapd
12654	Oct. 2.7	+27	25	26	Oct. 7	lβpl
12655	Sept. 27.7	+45	(2)	27	Sept. 27	dxd
12656	30.8	+30	(1)	27	27	dxd
12657	Oct. 1.6	-29	(2)	27	29	dad
12658	2.8	-16	10	27	Oct. 7	dβpd
12659	4.4	-23	32	27	10	lapl
12660	Sept. 28.8	-15	(2)	28	Sept. 28	dxd
12661	Oct. 2.4	+ 9	(2)	28	28	dad
12662	Sept. 28.5	+27	(2)	29	29	dad
12663	Oct. 1.7	+19	4	29	30	dxd
12664	5.8	- 7	12	29	Oct. 9	lapd
12665	5.9	-16	18	29	10	lβp
12666	6.4	+40	11	30	12	dβfl
12667	1.4	-13	(1)	Oct. 1	1	dβd
12668	4.7	-27	16	1	10	dβfl
12669	8.2	-40	11	1	12	dβfd
12670	7.4	+11	4	1	6	dapd
12671	8.7	+31	2	2	6	lapd
12672	8.8	-16	20	2	14	lapl
12673	1.7	+ 9	(1)	4	6	dxd
12674	4.5	-16	4	4	5	dβpd
12675	11.1	+19	28	4	16	lβpl
12676	7.9	+14	16	6	12	dβl
12677	12.9	+ 7	8	6	14	lapd
12678	3.0	+36	3	7	9	dβpl
12679	7.4	+19	7	7	10	dβd
12680	8.9	+13	7	7	10	dβd
12681	7.1	-14	2	8	12	dal
12682	12.3	+25	17	8	18	dβpl
12683	11.1	-20	(1)	9	9	dapd
12684	15.3	-17	16	9	19	lβpl
12685	16.3	+21	(5)	9	18	lad
12686	14.9	- 9	(2)	10	10	dxd
12687	16.4	+ 9	13	10	18	dβd
12688	17.2	+24	12	10	19	lβpd
12689	17.8	-25	29	10	24	lβfl
12690	13.4	+12	2	12	19	dal
12691	14.5	+24	10	12	19	dβpl
12692	15.5	+ 6	2	12	16	dβd
12693	17.3	+40	(2)	12	16	dxd

NOTES FROM OBSERVATORIES

No.	C. M. P.	Lat.	H	First Seen	Last Seen	Class
12694	Oct. 18.4	-29°	17	Oct. 12	Oct. 24	lal
12695	18.1	+ 6	(2)	12	16	dxcd
12696	18.5	-23	15	12	19	lβpd
12697	12.3	-27	(3)	14	16	dacd
12698	17.8	+26	13	14	24	dβl
12699	20.2	-17	12	14	23	lapd
12700	16.0	+30	(2)	15	18	dacd
12701	18.6	+ 9	9	15	19	dβd
12702	21.9	-24	10	15	18	lapd
12703	13.5	+23	(5)	16	19	dal
12704	20.1	-21	9	16	18	dβd
12705	17.2	+14	2	17	17	dacd
12706	23.6	+23	12	18	28	dβd
12707	24.8	+13	13	18	30	lβl
12708	20.7	-26	(2)	19	19	dxcd
12709	21.8	-10	(2)	19	19	dacd
12710	25.7	+22	17	19	30	lβpl
12711	21.8	+25	7	22	27	dβl
12712	22.2	+16	14	22	27	dβl
12713	22.9	-24	10	22	26	dβd
12714	23.8	-11	7	22	24	dβfd
12715	23.8	- 7	(4)	22	28	dxcd
12716	25.7	+13	16	22	30	βpl
12717	25.9	-23	15	22	30	lβpl
12718	27.6	-12	17	22	Nov. 1	lβpl
12719	27.9	+14	14	22	Oct. 30	lapd
12720	28.7	+12	11	22	Nov. 1	lβp
12721	18.7	+ 8	2	23	Oct. 24	daf1
12722	25.0	+20	6	23	28	dβd
12723	30.2	+26	22	23	Nov. 5	lβpl
12724	26.0	-29	(2)	24	Oct. 25	dacd
12725	27.4	+15	(2)	24	30	dxcd
12726	30.2	+24	2	24	24	dapd
12727	30.4	+15	5	24	29	lapd
12728	28.4	-11	(2)	25	25	dacd
12729	31.5	+27	(2)	25	25	lxd
12730	31.7	-15	17	25	Nov. 5	lβfd
12731	Nov. 1.0	+14	2	25	Oct. 30	lβd
12732	1.0	-24	20	25	Nov. 6	lyl
12733	Oct. 27.5	+21	22	26	1	dβpl
12734	Nov. 1.8	-14	2	26	1	lad
12735	Oct. 26.4	+13	(2)	27	Oct. 27	dxcd
12736	26.4	-22	2	27	29	dxcd
12737	29.4	-13	12	28	Nov. 4	dβfl
12738	Nov. 1.1	+27	8	28	7	dβl
12739	4.0	+39	3	28	Oct. 30	lapd
12740	3.7	+14	14	28	Nov. 9	lapl
12741	Oct. 27.7	+38	2	29	Oct. 30	dβpd
12742	31.6	+41	2	29	30	dacd
12743	Nov. 5.3	+40	1	29	Nov. 1	lxd
12744	5.2	-14	15	30	11	lapl
12745	5.8	-17	16	30	11	lβpl

NOTES FROM OBSERVATORIES

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- 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 Not seen October 24.
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.