SOLAR AND MAGNETIC DATA, JULY TO SEPTEMBER, 1941, MOUNT WILSON OBSERVATORY

The great magnetic storm of July 4-7, 1941, described in the September number of the JOURNAL,[1] began when sunspot-group No. 7218 was in longitude 25° west. Because of the tendency for magnetic storms to reoccur at intervals of one synodic solar rotation, 27 days, a magnetic storm was to be expected on August 1, when this group would again be 25° west. Although the group returned (No. 7241) and was nearly twice as large as on July 5, only very minor magnetic disturbances occurred on August 1.

Magnetic storms

Greenwich mean time						Range hor. int., H
Beginning			Ending			
1941	h	m	d	h	m	γ
July 4	18	..	7	12	..	445
Aug. 4	1	29*	5	5	..	190
Aug. 25	18	..	30	10	..	145
Sept. 13	8	00*	16	13	..	135
Sept. 18	4	12	21	18	..	530

*Sudden commencement.

The magnetic storm of August 4-5 was probably associated with Group 7244, which was 27° east, 10° north when the storm began. By that time Group 7241 was 54° west and had diminished greatly in area.

The Earth's magnetic field was disturbed from August 25-30, 52 days (almost two solar rotations) after the great storm of July 4-7. The storm of August 25-30 may have been associated with Group 7264, which was in the region where Group 7241 had been. The polarities of No. 7264 indicated, however, that it was a new group, not a return of No. 7241.

The two magnetic storms in September were associated with a large active group, No. 7281, which crossed the central meridian of the Sun on September 16.9. At the beginning of the storm of September 13-16 the group was 48° east of the central meridian, at the beginning of the storm of September 18-21 it was 17° west. For further details of the group and related phenomena see "The sunspot-group associated with the magnetic storm of September 18, 1941" by R. S. Richardson, pages 459-460.

[1]Terr. Mag., 46, 364-366 (1941).

Solar and magnetic data

Day	July 1941						August 1941						September 1941					
	K_2		$H\alpha$ bright	$H\alpha$ dark	No. groups	Mag'c char.	K_2		$H\alpha$ bright	$H\alpha$ dark	No. groups	Mag'c char.	K_2		$H\alpha$ bright	$H\alpha$ dark	No. groups	Mag'c char.
	Whole disk	Central zone					Whole disk	Central zone					Whole disk	Central zone				
1	3	3	3[d]	1	6	0.5	3	3	3	2	7	0.5	3	2	3	2	6	0.5
2	3	3	3	1	8	0	3	2	3	2	9	1	3	2	3	1	6	0.5
3	3	3	3[c]	2	6[f]	0.5	3	2	3	2	7	0.5	3	2	3	1	4	0
4	3	2	3	2	4	1	3	3	4	2	7	1.5	2	3	3	1	5	0
5	3	2	3	3	4	2	..	..	..	..	..	0.5	..	..	3	1	3	0
6	2	2	3	3	5	0.5	3	3	3	2	9[e]	0.5	3	3	2	2	3	0
7	2	2	3	3	4	1	4	4	4	2	7	0.5	2	3	3	1	3	0.5
8	3	2	3[d]	3	6	0.5	4	3	3	1	6	0	2	1	2	2	4	0
9	2	2	2	3	7	0.5	3	3	3	2	6	0	2	1	2	1	3	0
10	2	2	2	3	5	0.5	..	..	..	..	..	0	2	1	2	1	5	0
11	2	2	3	3	3	0.5	3	3	3	1	6	0	2	1	2	2	6[b]	0
12	2	2	2[c]	3	3[e]	0.5	2	2	2	1	6	0	2	1	3	1	5	0
13	2	1	3	3	3	0	2	1	2	1	6	0	2	2	2	1	5	1
14	2	2	2	2	3	0	1	1	2	1	3	0	3	2	3	1	5	1
15	2	2	2	1	1	0	..	..	..	..	1	0	3	3	4	2	4	1
16	2	1	2	1	3	0.5	2	1	2	1	3	0	3	4	4	2	5[e, g]	0.5
17	2	0	2	1	5[a]	0	2	1	2	2	1	0	3	4	4	2	6	0
18	2	0	2	1	5	0	2	2	2	1	2	0	3	3	4[c]	2	6	2
19	2	1	2	1	5	0	2	2	3	1	5	0.5	3	2	..	..	6	2
20	2	1	2	1	6	0.5	2	2	2	2	5	0	3	3	4	2	5	1
21	2	1	2	1	7	1	2	4	3	2	6	0.5	3	3	3	2	6	1
22	2	2	2	1	7	1	3	3	3	2	6	0	3	3	3	2	6	0
23	3	3	2	1	6	0.5	3	3	3	2	6	0	2	2	2	2	5	0.5
24	..	..	..	..	..	0.5	4	4	4	2	6	0.5	2	2	2	2	6	1
25	3	3	3	2	7	0.5	4	4	4	3	5	0	2	1	2	3	8	0.5
26	3	3	3	2	6	0	4	4	4	3	8[e]	0.5	2	1	2	3	6	0
27	4	4	4	2	6[f]	0	4	4	4	3	8	1.5	2	1	2	3	5	0.5
28	3	3	3	2	7	0	3	3	3	2	5	1	2	1	3	3	3	0
29	3	3	3	2	6	0	3	2	3	2	4	1	2	1	3	3	3	0.5
30	4	3	4	2	6	0	3	2	3	2	3	0.5	3	2	4	3	3	0.5
31	3	3	3	2	7[f]	0	3	3	3	2	5	0.5						
Mean	2.5	2.1	2.6	1.9	5.2	0.4	2.9	2.6	3.0	1.8	5.4	0.4	2.5	2.1	2.8	1.9	4.9	0.5

NOTE—For an explanation of these tables see this JOURNAL, 35, 47-49 (1930).

The character-figures of solar phenomena are estimated from the spectroheliograms which are made with a 2-inch solar image, usually in the early morning. Very bright chromospheric eruptions are reported in these notes if observed at any time during the day.

[a, b] Formation of a new group which later developed to average size or larger; (*a*) less than 30° from the center of the disk, (*b*) more than 30° from the center of the disk.

[c, d] Very bright chromospheric eruptions; (*c*) less than 30° from the center of the disk, (*d*) more than 30° from the center of the disk.

[e, f, g, h, i, j, k, l] Passage of a large or active group across the central meridian within 5°, 10°, 15°, 20°, 25°, 30°, 35°, 40° of the center of the disk, respectively.

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