

Solar Bulletin

THE AMERICAN ASSOCIATION OF VARIABLE STAR OBSERVERS— SOLAR DIVISION

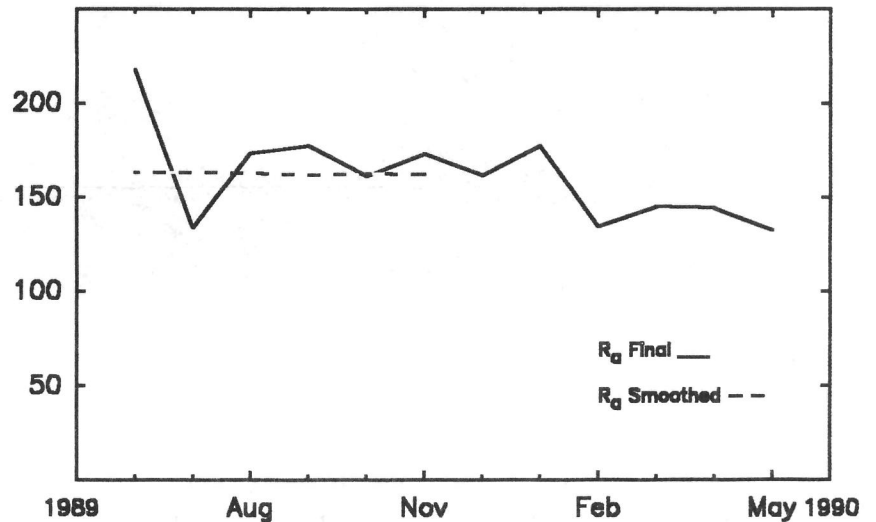


Volume 46 Number 5

May 1990

American Relative Sunspot Numbers for May

R _a Final		
1) 68	11) 127	21) 197
2) 55	12) 142	22) 179
3) 58	13) 141	23) 156
4) 84	14) 137	24) 151
5) 77	15) 152	25) 147
6) 106	16) 168	26) 131
7) 125	17) 177	27) 137
8) 135	18) 181	28) 118
9) 138	19) 190	29) 113
10) 128	20) 183	30) 100
		31) 106
Mean: 132.5		
Number of contributors: 102		



Solar activity was low between 1 and 7 May. No solar flares were detected which exceeded C-level, and on the 3rd the solar 10.7 centimeter radio flux dropped to 122; its lowest daily value since September 1988. On the 8th, SESC Region 6054 (S17, L032 DAO on 8 May) produced a M1.1/1B flare followed by a M3.3/SF event from Region 6049 (N18, L080, FAI on 8 May), and an optically un-correlated M1.2 event on the 9th. Activity entered the high range on the 10th after an X3.4 x-ray burst was recorded from behind the east limb. The event was associated with a 1200 s.f.u. tenflare and bright loop prominence, and was attributed to Region 6063 (N33, L322, EK1 on 15 May) after it rotated onto the visible hemisphere. Additional flares rated at M3.9 and M2.1 were also observed on the 10th.

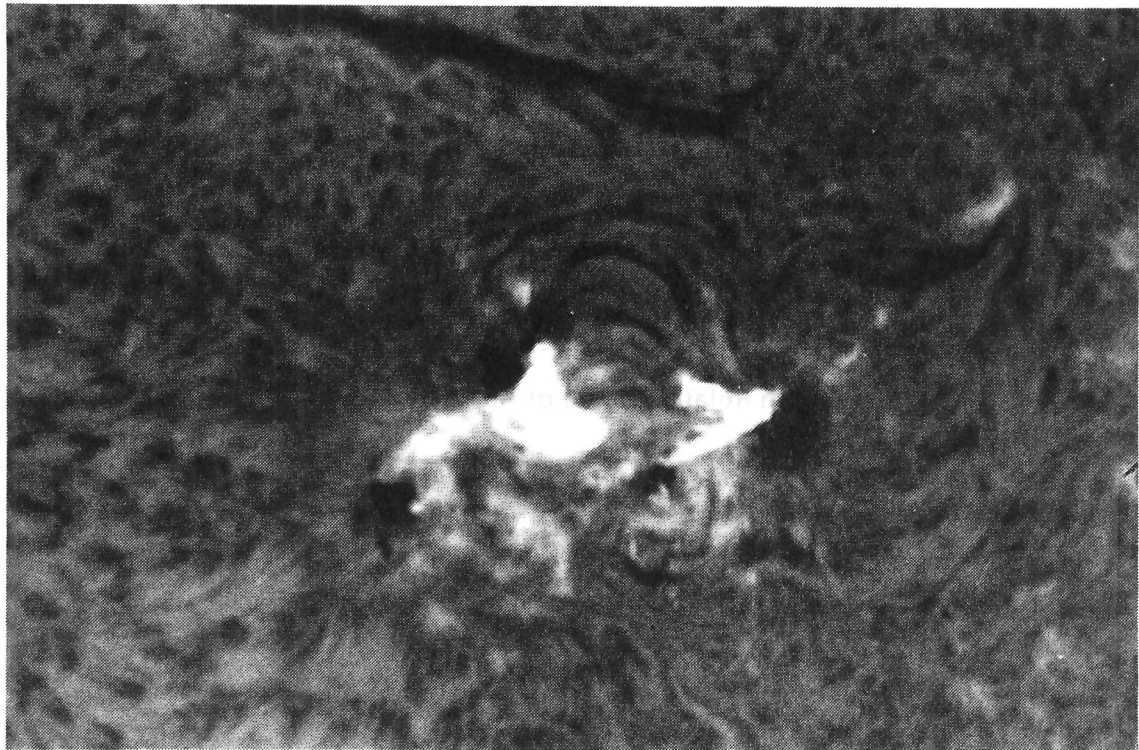
Solar activity was both moderate and high between 11 and 17 May. Four X-level, and eight M-class solar flares were recorded during the period. The first X-class event (X2.4) took place behind the northeast limb on the 11th, just prior to the appearance of Region 6063. This region followed with a second, and more powerful X-level flare (X3.6/3B) later on the 11th, and spawned a third (X1.2/2B) on the 12th. On 15 May, Region 6063 produced its fourth X-flare of the week, a X1.7/3B event. This spot group was located near the position of old Region 6022, which was also an active flare producer during its transit. According to SESC, during much of its May disk passage Region 6063 was a magnetically complex group (beta-gamma-delta) with a reversed polarity delta spot configuration. However, in spite of Region 6063's high level of flare production, the largest group on the disk during the month was Region 6064 (see page 2).

Activity was moderate and high between 18 and 24 May. Twelve M-level, and two X-class solar flares occurred during the period. Most of these events (including both X-level flares) were produced by Region 6063. The region spawned the first, an X5.5/2B, on the 21st, and the second and stronger event (X9.3/1B) as it neared the western limb on the 24th. The latter flare was accompanied by intense radio bursts and a strong Type IV sweep. A Polar Cap Absorption followed which began on the 24th at 2318 UT and dropped below event threshold later the same day. The solar 10.7 radio flux reached a high for May of 268 on the 19th, and then began a slow decline.

Solar activity was low and moderate with a brief entry into the high range between 25 and 31 May. One X-class, and three M-level solar flares occurred during the period. The single X-level event and corresponding high activity level took place on 26 May. The X1.4 flare was most likely associated with old Region 6063 which was then over a day past its transit over the western limb. The solar 10.7 radio flux and background x-radiation dropped to 140 and B4.5 as the month ended.

The estimated mean American sunspot number for 1-17 June is 115, with activity in the low to moderate range at the end of the period. Fourteen solar flares have attained M-level intensity during the first half of June.

Reference: SESC PRF, Numbers 765-71 (1990).



The photograph above shows among other phenomena, a typical example of the seven M-class solar flares which were produced by SESC Region 6064 (S15, L309, FKC on 18 May) during May. The event which is pictured, rated M2.0/2N, reached a maximum nearly fifty minutes before this photograph was taken at 13:50 UT on the 19th, while the corresponding Sudden Ionospheric Disturbance peaked at approximately 12:55 UT. Region 6064 was the largest spot-group on the visible disk during May, attaining a maximum area of 1840 millionths solar hemisphere (~5.6 billion km²) on the 18th. French collaborator, *Dr. Jean Dragesco*, secured this fine view of the flare while employing a thirty-five centimeter catadioptric telescope and narrow-band (0.6Å) H α filter.

Sudden Ionospheric Disturbances Recorded During April 1990

Records were received from A1,3,9,19,40,46,50,52,61,62,63,64,65,66,67,68,69.

Day	Max	Imp	Def	Day	Max	Imp	Def	Day	Max	Imp	Def	Day	Max	Imp	Def
1	0522	3	5	7	1618	2+	5	14	1231	1+	5	18	0827	1+	5
1	0600	1+	3	8	0415	3	5	14	1421	2+	4	18	1026	2	5
1	0819	1-	2	8	0705	2+	2	14	1621	2+	2	18	1745	1-	5
2	1344	1-	5	8	0847	2	2	14	1651	2+	5	19	1602	2+	5
2	1706	2	5	8	1315	1+	5	14	2058	1-	5	20	0623	2+	5
3	0519	2+	3	9	2106	1-	3	15	0240	2	5	20	0957	1	4
3	9750	2	5	10	0905	2+	4	15	0945	2	4	20	1822	2+	5
3	0835	2+	5	10	1200	2+	5	15	1154	2+	5	21	0650	2+	5
3	1320	1-	3	11	1201	2+	5	15	1238	2	5	21	0724	2+	5
3	1423	1-	5	11	1553	1+	4	15	1742	1+	5	21	1919	2+	5
3	1550	1	5	11	1628	1	5	15	1832	2+	5	23	1304	2+	5
3	1721	2+	5	11	1728	2	5	15	2100	2	5	24	0300	1	2
3	2036	1+	5	12	0302	1	2	15	2358	2	5	24	0607	1-	3
4	0720	1+	1	12	0440	2+	4	16	0636	2+	5	24	0638	2	3
4	0915	1+	1	12	0625	2+	4	16	0831	1-	4	24	0820	2	1
4	1007	2	1	12	2026	2	5	16	1502	1-	5	24	1119	2	5
4	1317	1-	5	13	1153	2+	5	17	1433	2	5	24	1455	1-	5
5	1031	1-	4	13	1840	2	5	17	1600	1	5	25	1717	1-	3
5	1105	1-	3	13	2125	2	5	17	1631	1	5	26	0650	3+	2
5	1346	2+	5	14	0242	1	2	18	0345	1	2	26	1545	3	5
7	1120	1	3	14	0359	1+	5	18	0403	1+	5	26	1946	2	5
7	1215	2	3	14	0657	1+	5	18	0550	1+	5	27	1358	1	5
7	1528	2+	5	14	1029	1	5								

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