

Solar Bulletin

THE AMERICAN ASSOCIATION OF VARIABLE STAR OBSERVERS— SOLAR DIVISION

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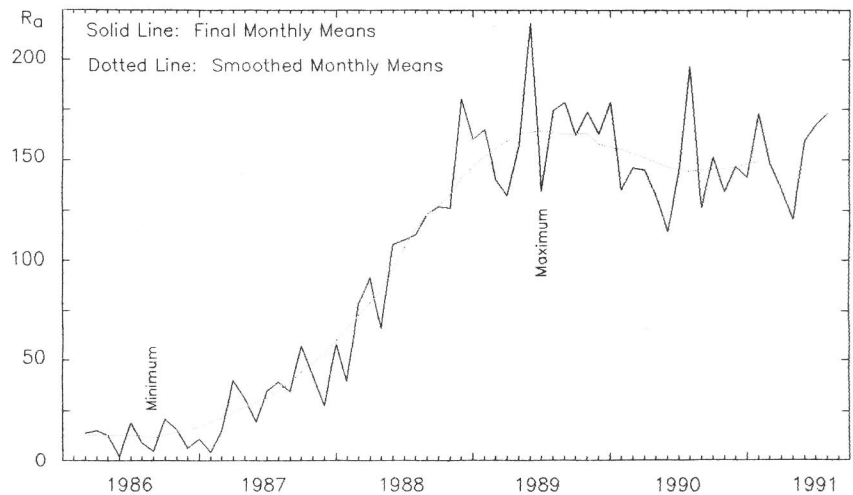
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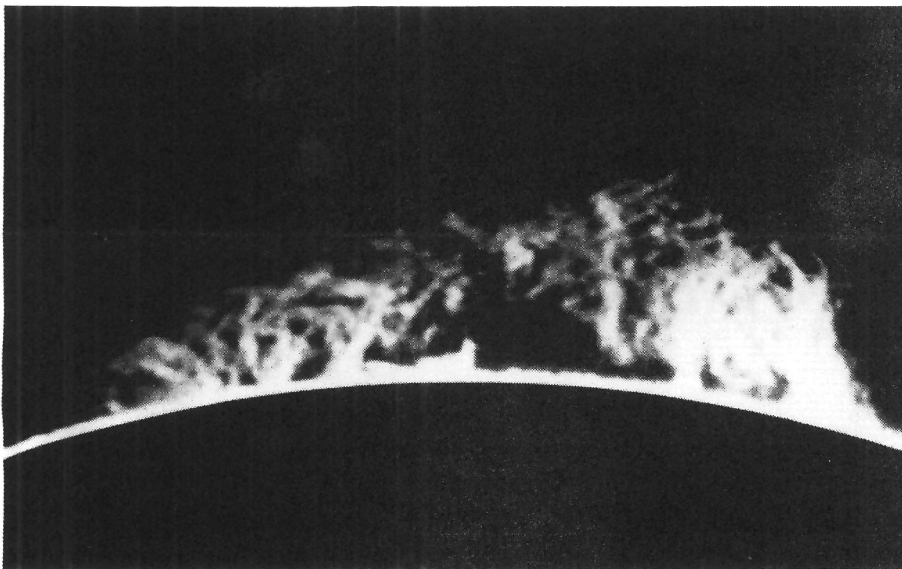
American Relative Sunspot Numbers for August

R _a Final		
1) 137	11) 85	21) 312
2) 140	12) 91	22) 295
3) 141	13) 126	23) 283
4) 124	14) 124	24) 242
5) 130	15) 165	25) 200
6) 119	16) 204	26) 164
7) 111	17) 246	27) 138
8) 101	18) 275	28) 144
9) 88	19) 292	29) 152
10) 75	20) 290	30) 168
	31) 166	

Mean: 171.9
 Number of reports: 102



Solar activity was mainly moderate during the first week of August. Two instances of high activity occurred, both linked to major flares in the largest spot-group on the visible hemisphere during the period, NOAA/USAF Region 6757 (N22, L246, EK1 on 3 August). These events included a X1.5/2B on the 2nd and a M7.4/2B late on the 3rd. Geomagnetic storm conditions early in the week were likely a response to the X2 flare which took place on 31 July. Later influences were attributed to coronal hole effects and the major flare of 3 August. The latter storm ended on the 7th. A giant, northern limb prominence which erupted on the 1st is shown below in this fine photograph by Jean Dragesco.



Low activity predominated from the 8th through the 15th; no solar flares reached class M intensity. A sudden impulse of 44 nanoTeslas followed by minor to major geomagnetic storm conditions was recorded at Boulder on the 11th. Although GOES-7 experienced brief magnetopause crossings on the following day, the source of the disturbance was un-certain. Space Environment Laboratory notes that similar, but somewhat varied conditions have occurred during each of the last five solar rotations.

The Sun became more active during the third week. However just one major flare was detected, a M6.7/1B on the 16th in Region 6786 (S09, L013, EA1 on 16 August). Sudden impulses were recorded at Boulder on the 18th and 20th, possibly caused by the many disappearing filaments during the period. Severe magnetic storm conditions were observed at some high-latitude stations following these events, along with

a small Forbush decrease which ended on the 21st. Other geomagnetic effects were attributed to recurrence.

Some of the highest daily sunspot numbers of solar cycle twenty-two occurred between the 17th and 24th. These high values were due more to the large number of sunspot groups on the visible hemisphere than to the spot counts of individual clusters. As many as twenty-four separate groups were present on the disk on some days, but none of these was particularly impressive. The largest group of the period, Region 6781 (S18, L029, EK1 on 23 August), attained a maximum area of 1210 millionths solar hemisphere on the 23rd.

Activity was moderate and high between the 22nd and 28th. The month's strongest solar flare, a X2.1/2B Tenflare, took place on the 25th in Region 6805 (N22, L245, DAO on 25 August). A satellite level proton event began on the 26th, reached maximum on the 27th, and ended on the 28th. This event, and its associated PCA which also reached maximum on the 27th, was a likely consequence of the X2 flare. A number of class M flares were also recorded during the week, although none were major events.

Solar activity was moderate during the remainder of August, with one class M flare recorded on each of the final three days of the month. The number of spot-groups dwindled to nine or ten, although the magnetic complexity of some clusters increased and the spot count rose slightly. The smoothed monthly-mean sunspot number for February 1991 increased slightly, to a value of 148.2. Severe geomagnetic storming at high latitudes on 31 August was linked to a strategically placed coronal hole.

The estimated mean American Relative Sunspot Number for 1-15 September is 135. Solar flare activity during this interval has been similar to that experienced during August. Two major events have been recorded, both class X flares in Southern Region 6818 (S12, L183, EKI on 7 September).
 [A portion of this information was obtained from the SELDADS data base.]

Sudden Ionospheric Disturbances (SES) Recorded During July 1991

Records were received from A1,3,9,19,40,50,52,59,61,62,63,64,65,66,67,68,69,70,71,72,73,74.

Day	Max	Imp	Def	Day	Max	Imp	Def	Day	Max	Imp	Def	Day	Max	Imp	Def
1	0206	3	5	6	0927	2+	5	14	1430	1-	5	24	0917	2	5
1	0847	1-	5	6	1302	1	4	14	1827	1+	5	24	1145	2+	5
1	0921	2	5	6	1552	1	5	14	1915	1-	5	24	1303	1-	5
1	1207	1	5	6	1701	2	5	14	1938	1+	5	24	1437	1-	5
1	1440	1+	5	6	1746	2+	5	14	2047	1-	5	24	1727	2+	5
1	1500	1-	4	6	1832	3	4	14	2303	1	5	25	0725	2	5
1	1516	1-	5	6	2114	1	5	15	1253	1	5	25	1623	1-	5
1	1658	1+	5	7	0109	1-	4	15	1324	3	5	25	1837	1-	5
1	1746	1-	5	7	0134	1+	5	15	1547	2	5	25	2050	2+	5
1	1801	1	5	7	0213	3	5	16	0435	2	5	26	0946	1+	5
1	1951	2+	5	7	1302	1-	5	16	0627	1	4	26	1127	1-	5
1	2016	1-	5	7	1624	1	5	16	0650	2+	5	26	1203	1-	5
1	2038	1-	4	8	1115	1-	5	16	1428	1	5	26	1232	1	5
1	2128	1+	5	8	1433	1+	5	16	1614	3	4	26	1631	1	5
2	0023	1	5	8	1950	2+	5	16	1706	2	4	26	1753	1	5
2	0048	2	5	8	2220	1	5	16	1901	1+	5	26	2011	2+	5
2	0600	1-	5	9	0152	2	5	17	0628	3	5	26	2158	1-	5
2	1052	1	5	9	1314	1	5	17	1310	1	5	26	2240	2	5
2	1333	1-	5	9	1502	2+	5	17	1459	2	5	27	0426	2	5
2	1355	1	5	9	1730	1	5	17	1538	2+	5	27	1105	1-	5
2	1615	1-	5	9	1833	1-	5	17	1740	1	5	27	1504	1-	5
2	1650	1	5	10	0237	1	5	17	2032	1-	5	28	0420	3+	5
2	1846	2	5	10	0338	1-	5	17	2120	2+	5	28	0631	1-	5
2	1937	2	5	10	0640	2+	5	17	2306	2+	5	28	0733	1+	5
2	2024	1+	5	10	1214	2+	5	18	0515	2+	5	28	1632	1+	5
2	2144	1-	5	10	1547	1+	5	18	1330	2	5	28	1836	1-	5
3	0528	1+	5	10	1917	1-	5	18	1435	2+	5	28	1918	1+	5
3	1008	1-	5	10	2006	2	5	18	1701	2	5	28	2136	1	5
3	1215	1-	5	10	2316	2	5	19	0103	2+	5	29	1521	2+	5
3	1528	2	5	11	0622	1+	5	19	1140	1	5	29	1725	1-	5
3	1608	1+	5	11	1018	2	5	19	1257	1+	5	29	1803	1+	5
3	1804	1-	5	11	1338	1-	5	19	1340	2	5	29	2226	1+	5
3	1817	1-	5	11	1454	1-	5	19	1438	1+	5	30	0615	2+	4
3	2131	1+	5	11	1546	2+	5	19	1512	1	5	30	0707	2+	5
4	0540	2	5	11	1643	1	5	19	1603	2	5	30	0839	1	5
4	1204	1+	5	11	1819	1-	5	19	1637	1+	5	30	0907	2	4
4	1308	1	5	11	2200	2+	5	19	1725	1+	5	30	1503	1-	5
4	1439	1	4	12	0945	1	5	19	2144	2+	5	30	1545	1-	5
4	1533	2	5	12	1222	1	5	19	2257	1+	5	30	1626	2+	5
4	1546	1+	5	12	1259	1	5	20	0139	2	5	30	1714	1-	5
4	1612	2+	5	12	1408	2	5	20	0651	2	5	30	1815	1	5
4	1745	2+	5	12	1521	1-	5	20	1915	1	5	30	1914	1+	5
5	0610	2	5	12	1638	1-	4	21	0042	2+	4	30	2000	1	5
5	0801	2	5	12	1736	2	5	21	0630	1-	5	30	2108	2	5
5	0844	3	5	12	1851	2	5	21	1708	1	5	30	2215	1-	5
5	1006	1-	5	12	2011	2+	5	21	1744	1-	5	31	0051	2+	5
5	1023	1+	5	12	2245	1-	5	21	2207	2	5	31	0406	2+	5
5	1300	2+	5	13	1046	1-	5	22	0829	1+	5	31	0557	2	5
5	1325	1-	5	13	1349	2	5	22	1000	2+	5	31	0820	2	5
5	1446	2	5	13	1425	1-	5	22	1428	1	5	31	1230	2	5
5	1558	2	4	13	1724	2	5	22	1508	1-	5	31	1300	1+	5
5	1632	2+	5	13	1839	2+	5	22	1536	1+	5	31	1432	1+	5
5	1645	2	5	13	1938	1-	5	22	2215	1-	5	31	1537	1	5
5	1759	1	5	13	2013	1-	5	23	0550	1	5	31	1659	1	5
5	1856	2+	5	13	2045	2	5	23	0702	1-	5	31	1817	1	5
5	2046	2+	5	13	2143	1	5	23	1318	2+	5	31	2014	1+	5
5	2228	2+	5	14	0504	1-	5	23	1758	2+	5	31	2042	1	5
5	2259	1-	5	14	0634	2+	5	23	2024	1+	5	31	2133	1+	5
5	2327	2	5	14	0730	2	5	24	0831	1-	5	31	2252	2+	5
6	0732	1	5	14	1150	2+	5	24	0846	1+	5				

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