

# Solar Bulletin

THE AMERICAN ASSOCIATION OF VARIABLE STAR OBSERVERS— SOLAR DIVISION

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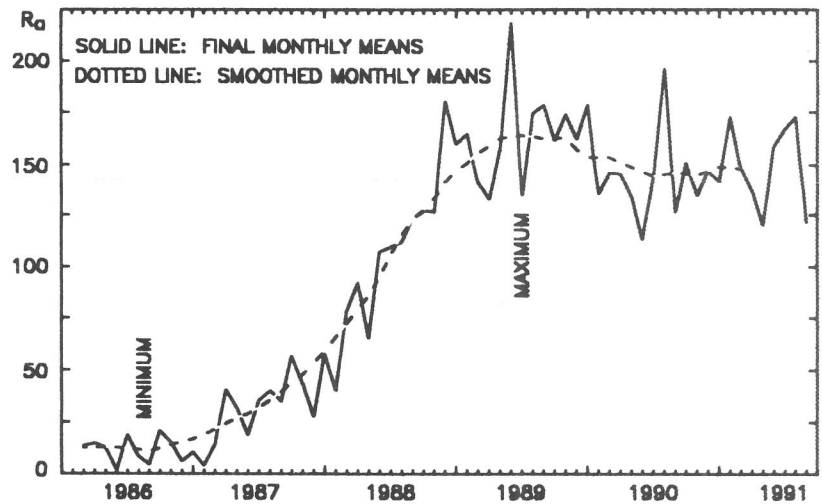
September 1991

## American Relative Sunspot Numbers for September

R <sub>a</sub> Final		
1) 162	11) 118	21) 112
2) 145	12) 128	22) 130
3) 127	13) 144	23) 124
4) 141	14) 138	24) 111
5) 134	15) 115	25) 102
6) 124	16) 91	26) 110
7) 120	17) 96	27) 116
8) 133	18) 97	28) 125
9) 123	19) 90	29) 136
10) 110	20) 89	30) 131

Mean: 120.7

Number of reports: 99



Activity was low until the 4th when NOAA/USAF Region 6805 (N23, L232, DK1 on 4 September) spawned two small class M flares. Earlier major to severe geomagnetic storm conditions at high latitudes were associated with coronal hole effects. Moderate and high activity dominated between the 5th and 11th. Region 6818 (S12, L183, EK1 on 7 September) produced two class X flares; a X3.3/2B Tenflare on the 7th and X1.0/1N on the 8th. This spot-group also spawned six of the fourteen class M flares which were recorded during this interval. A slight proton enhancement at satellite altitude took place early in the period, but its source was unclear and (according to Space Environment Laboratory) the event was probably not flare-related.

Activity was predominately low from the 12th through the 22nd, with one day at the moderate level. This in response to the lone class M flare of the period, a M1.3/SN on the 17th in Region 6832 (N07, L342, DAO on 17 September). On the 23rd, a M1.0/SN X-ray flare developed in Region 6841 (S12, L342, DSO on 23 September). Activity increased to moderate, then to high on the 24th when Region 6848 (S07, L204, DSO on 24 September) followed suit with a M6.1/1N Tenflare accompanied by bright limb surging.

Low activity returned for the remainder of the month with the exceptions of the 26th when three class M events occurred, and the 29th when the fourth and final major flare of September, a M7.3/4B Tenflare, erupted in Region 6853 (S19, L173, DAI on 29 September). Related brightening was reported in the largest spot-group (~1500 millionths solar hemisphere) to appear during September, nearby Region 6850 (S11, L183, FKC on 27 September). The > 10 MeV proton flux was enhanced on the final day of September due to an influx of particles from the major flare. A severe geomagnetic storm at high latitudes on the 27th was ascribed to a coronal hole; several disappearing filaments may also have played a role. The final smoothed mean American Relative Sunspot Number for March 1991 declined to 147.0.

The estimated mean American Relative Sunspot Number for 1-14 October is 147. Solar flare activity during this interval has been similar to that experienced during September. Three major flares have been recorded thus far during October, all class M events.

[A portion of this information was obtained from the SELDADS data base.]

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## Sudden Ionospheric Disturbances (SES) Recorded During August 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	De
1	0633	2	5	7	1421	1+	5	18	1313	1-	5	24	2135	1	5
1	0917	1	5	7	1833	1	5	18	1445	2+	5	25	0055	3+	5
1	1101	1-	5	7	1907	2+	5	18	1544	2	5	25	0514	2	5
1	1109	1	5	8	0622	1-	5	18	1740	1+	5	25	0930	1-	4
1	1151	2	5	8	0858	1+	5	18	1817	1+	5	25	0942	2	4
1	1451	1+	5	8	1409	2	5	18	1833	2	5	25	1310	2	5
1	1517	2+	5	8	1800	1	5	18	1937	1-	5	25	1443	2	5
1	1819	2	5	9	1035	1-	5	18	2011	2	5	25	1538	1+	5
1	1914	1-	5	10	1926	1-	4	19	0659	1-	5	25	1609	1+	5
1	1922	2	5	11	1304	1	5	19	1329	2	5	25	1701	1+	5
1	2155	2+	5	11	1520	2+	5	19	1443	1-	5	25	1744	2	5
2	0315	1+	5	11	1642	1	4	19	1622	1+	5	25	1827	2+	5
2	0444	2	5	11	1718	1-	4	19	1805	1-	5	25	2332	2+	5
2	0526	2+	5	12	1914	1+	5	19	1845	1-	5	26	0649	1	5
2	1030	2+	5	12	2012	2	5	20	1052	1+	5	26	0800	1	5
2	1232	1-	5	13	1524	1-	5	20	1217	1-	5	26	0913	2	5
2	1322	1-	5	13	1914	2+	5	20	1232	2+	5	26	1017	2	5
2	1400	2	5	13	2115	1	5	20	1545	1-	5	26	1200	2	5
2	1833	1-	5	14	1152	1-	5	20	1609	1-	5	26	1426	2	5
3	0123	2	5	14	1320	1	5	20	2000	2	4	26	1553	2+	5
3	1157	1	5	14	1417	1+	5	20	2104	1-	5	26	1945	1-	5
3	1348	1	5	14	1511	1	5	20	2119	1+	5	26	2016	2	5
3	1421	1-	5	14	1844	1	5	20	2228	1+	5	27	0456	1+	5
3	1550	1+	5	15	0735	1+	5	21	1131	1-	4	27	0558	1-	5
3	1723	3	5	15	1344	1+	5	21	1438	1-	4	27	1414	1	5
3	1843	2+	5	15	1618	1-	5	21	1731	1	5	27	1436	1	4
3	2040	2+	5	15	1801	2	5	22	0558	1	5	27	1619	1	5
3	2218	1-	5	15	2304	1+	5	22	1525	1	5	27	1804	1	5
3	2234	2+	5	16	0051	2+	5	22	1715	1	5	27	2313	1	5
4	0947	1-	5	16	0620	2+	5	22	1910	1+	5	28	0633	1	5
4	1340	1-	4	16	1102	1	5	22	2230	2	5	28	1223	1	5
4	1515	1	5	16	1315	1	5	23	1158	1+	5	28	1524	2	5
4	1800	1-	5	16	1434	1-	5	23	1238	2	5	28	1600	2	5
4	1814	2+	5	16	1603	2+	5	23	1737	1	5	28	1652	2	5
4	1930	2	5	16	1806	2	5	23	1850	1	5	28	1721	1	5
4	2145	2	5	16	1904	1	5	23	1938	2	5	28	1949	1	5
4	2246	1	4	16	1948	1+	5	23	2143	1	5	29	0506	2+	5
5	1404	1	5	16	2136	2+	5	24	0034	2+	5	29	1317	2	5
5	1524	1	5	17	0032	2	5	24	1000	1	4	29	1357	2	4
5	1831	1	5	17	1428	1-	5	24	1201	1	5	29	1630	2+	5
5	2214	1-	5	17	1743	1	5	24	1221	2	5	29	2015	1+	5
5	2244	1	5	17	1919	1-	5	24	1305	1	5	29	2055	1	5
5	2300	1+	5	17	1930	1	4	24	1319	1	5	29	2146	1	5
6	0046	2	5	17	2131	1	5	24	1345	1+	5	30	0120	1+	5
6	0443	2+	5	17	2206	1	5	24	1420	2	5	30	1321	1+	5
6	0807	2	5	17	2345	1	5	24	1636	2	5	30	1422	1	5
6	1415	1+	5	18	0945	1-	5	24	1726	1-	5	30	2232	1-	5
6	1928	1+	5	18	1023	1	5	24	1736	2+	5	31	0204	2+	5
6	2239	1	5	18	1140	1+	5	24	1822	2	5	31	1215	1	5
7	0643	1-	5	18	1236	1-	5	24	1934	2	5	31	1806	1-	5
7	1150	1-	5	18	1251	1+	5	24	2040	2	5	31	2123	1-	5

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