

Solar Bulletin

THE AMERICAN ASSOCIATION OF VARIABLE STAR OBSERVERS— SOLAR DIVISION

Peter O. Taylor, Editor
P.O. Box 8115
Gainesville, FL 32605-8115 USA

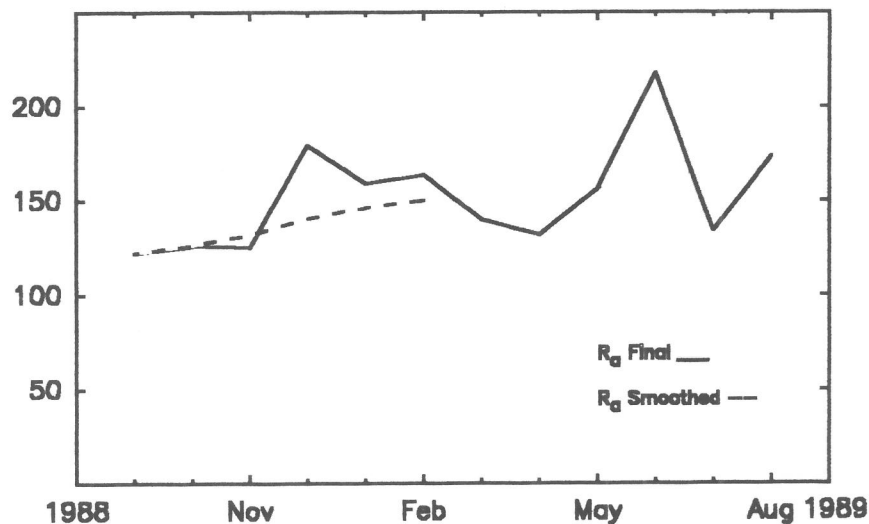


Volume 45 Number 8

August 1989

American Relative Sunspot Numbers for August

R _a Final		
1) 161	11) 218	21) 189
2) 184	12) 204	22) 156
3) 205	13) 204	23) 138
4) 219	14) 175	24) 147
5) 243	15) 187	25) 102
6) 244	16) 172	26) 82
7) 226	17) 189	27) 78
8) 222	18) 197	28) 68
9) 241	19) 210	29) 74
10) 205	20) 216	30) 97
		31) 125
Mean = 173.5		

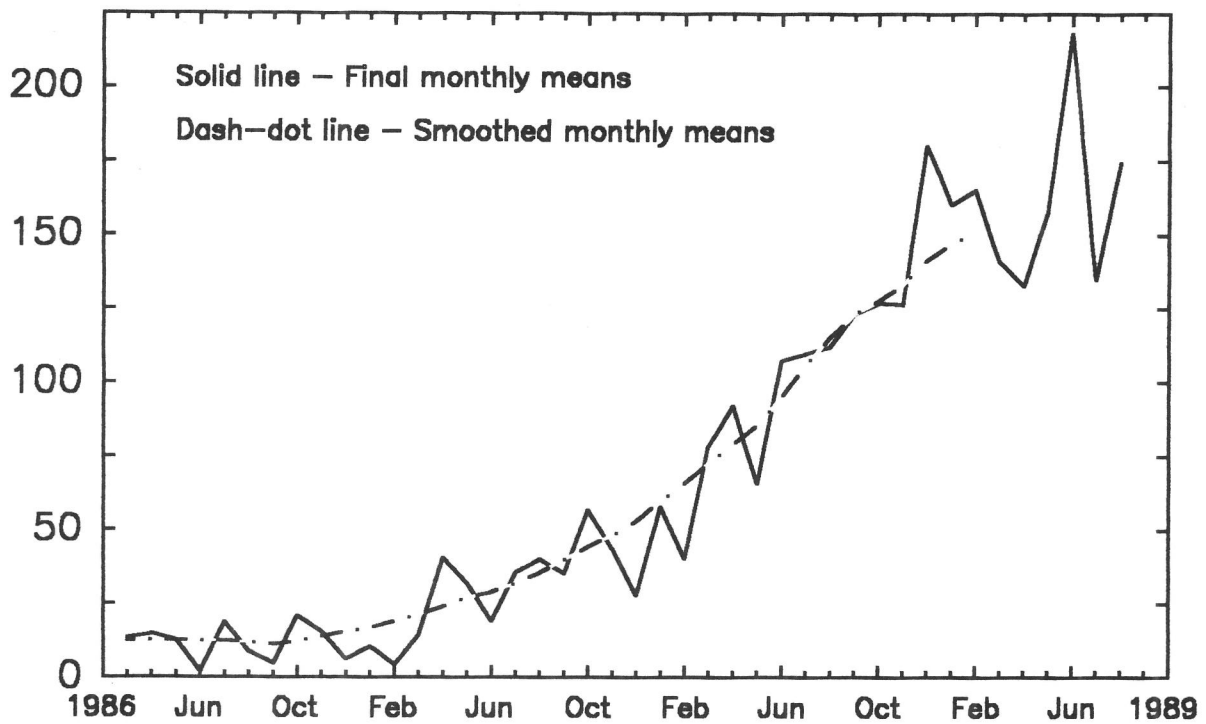


The smoothed-mean American Relative Sunspot Number for February 1989 is 149.8. One-hundred-seven members of the international network of **American Sunspot Program** contributors submitted reports for August. Solar activity increased sharply during the month; five X-level, and fifty-two M-class flares were recorded. SESC Region 5629 (S17, L076, EKC on 11 August) produced all of the X-level events. They occurred on the 12th (X2.6/2B); 14th (X3.5/3B); 15th (X1.0/3F); 16th [X20 (estimated)/2N] and 17th (X2.9/SF). The flare which occurred on 16 August had a duration of thirteen hours, and may have been the strongest flare ever detected by the *GOES* spacecraft. Its maximum activity level is estimated, as the *GOES* detectors saturate near the X12 threshold. The X-class flare which occurred on the 12th was followed on the 14th by aurora visible along the US/Canadian border. Region 5629 also yielded eighteen M-class flares during its disk passage. The region returned on 29 August (see below) and was renumbered 5669. This large, magnetically-complex (beta-gamma-delta) sunspot group spawned an additional eleven M-level events by month's end. On 31 August, the solar 10.7 radio flux and background radiation levels were at 205 and C1.6 respectively.

The *estimated* American Sunspot Number for 1-15 September is 240. Solar activity continued to be moderate and high during this period. Region 5671 (S19, L079, EKC on 1 September) was combined into Region 5669 in early September, resulting in one of the largest (~3.6 billion square-miles in area on 3 September) sunspot groups of cycle twenty-two. Five X-level, and forty-nine M-level x-ray flares have occurred thus far during September. All X-level flares, and thirty-two of the M-class events have been associated with Region 5669.

References: SESC PRE, Numbers 727-32, (1989); SESC SDF, Numbers 254-60, (1989).

Sunspot cycle twenty-two continues to be one of the strongest of record. As of 1 September, the smoothed-mean relative sunspot number was slightly behind that for cycle nineteen (the most intense recorded cycle) during a similar phase interval. However, the cycle shows every sign that it will attain a very high level of activity, and in fact has already exceeded the spot maxima of a majority of previously recorded cycles. Cycle twenty-two has also been active in its production of energetic events: fifty X-level solar flares have occurred through August 1989, as compared with thirty-five for a similar interval of cycle twenty-one.



Note: Minimum occurred September 1986

Predicted Smoothed Relative Sunspot Numbers

McNish - Lincoln Method:

March 150 (11); April 157 (15); May 163 (16);
 June 168 (20); July 171 (25); August 173 (29).

Solar-Geophysical Data, 539, I, 16.

Sudden Ionospheric Disturbances Recorded During July

Records were received from A1,3,9,19,50,52,59,61,62,63,64.

Day	Max	Imp	Day	Max	Imp	Day	Max	Imp	Day	Max	Imp	Day	Max	Imp
2 ¹	14:18	1+	5	15:18	2	19	21:29	1+	22	06:06	1-	27 ²	16:30	2
3	15:03	1	5	16:00	1	20	16:59	1+	22	18:47	1-	29	06:15	1-
4	05:30	2+	5	16:53	2	20	20:30	2+	23	06:48	1+	29	07:07	2
4	14:51	1	5	18:26	1	21	05:31	1	23	21:33	1-	29	15:07	2+
4	17:30	1+	9	01:27	2+	21	05:48	2	25	08:44	2+	31	18:00	1
4	19:54	1	16	14:10	2	21	12:51	1	25 ²	17:06	2	31	21:00	2
5	08:00	2	19	14:11	1	21 ²	16:26	2	26	05:15	2+	31	23:20	2
5	12:43	1	19	16:13	1	21	20:09	1+						

¹Def = 3. ²Def = 4. Def = 5 for all other events. **SID Analyst:** Bruce R. Wingate

SPAN: 9555::PTAYLOR **TELEX:** [3762848] **TO:** EASYPLEX:74270,1516 **FAX:** [USA] 904-373-2506
INTERNET: PTAYLOR%SELVAX.span.nasa.gov **TELEMAIL:** P.TAYLOR/ASP **COMPUSERVE:** 74270,1516

(Note: Network collaborators should utilize these reporting facilities whenever possible.)