

Solar Bulletin

THE AMERICAN ASSOCIATION OF VARIABLE STAR OBSERVERS— SOLAR DIVISION

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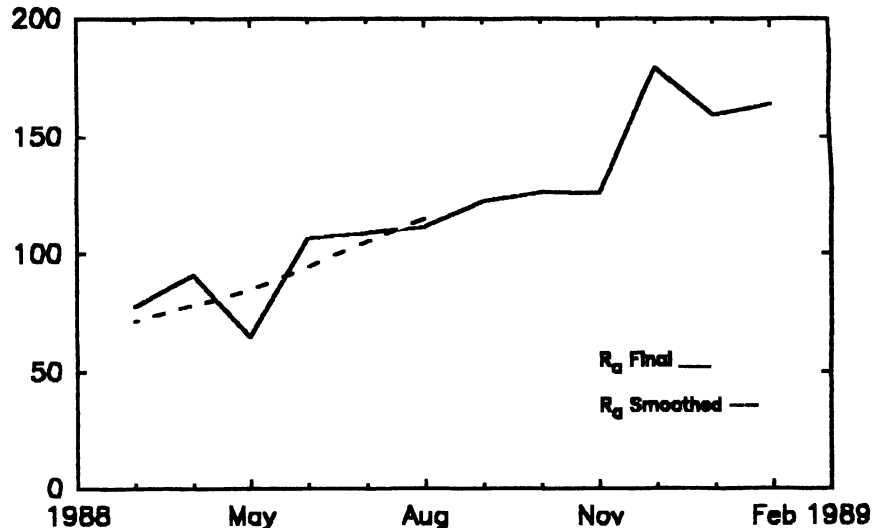
Volume 45 Number 2

February 1989

American Relative Sunspot Numbers for February

R_a Final		
1) 132	11) 201	21) 152
2) 148	12) 216	22) 132
3) 169	13) 207	23) 126
4) 152	14) 221	24) 163
5) 127	15) 187	25) 191
6) 127	16) 191	26) 169
7) 127	17) 192	27) 147
8) 150	18) 156	28) 121
9) 158	19) 152	
10) 200	20) 174	

Mean = 163.9



The smoothed mean American Relative Sunspot Number for August 1988 is

114.4. One hundred and two members of the international network of **American Sunspot Program** contributors submitted reports for February. Flare activity was lower during February than it was for January. Three X-level, and thirty-five M-level, x-ray flares were recorded during the month. SESC Region 5354 (N30, L286, class FK1 on 9 February) produced an X1 flare on the 4th and an M9 event on 8 February. Region 5355 (N22, L268, class CAO on 10 February) produced an X3 flare on 9 February, and an X1 flare on the 10th.

The estimated American Sunspot Number for 1-14 March is 137. On 6 March, Region 5395 (N34, L257, class FK1 on 12 March) produced the largest flare so far during cycle 22, a highly energetic event rated X15/3B. This event was followed by an X1 flare on the 7th, an X4/4B on the 9th, an X4/3B on the 10th, two X1 events on the 11th, and single X1 events on the 13th and 14th. This activity caused numerous communications disruptions, and aurora visible in near-equatorial latitudes. Region 5395 is also noteworthy for its location. It is unusual for a group of this size (3160 millionths solar hemisphere on the 13th) to be positioned so far North.

R_i Provisional

1) 141	11) 190	21) 149
2) 144	12) 216	22) 142
3) 164	13) 210	23) 134
4) 133	14) 208	24) 153
5) 127	15) 185	25) 189
6) 127	16) 195	26) 176
7) 132	17) 201	27) 147
8) 161	18) 163	28) 128
9) 172	19) 157	
10) 192	20) 169	

Mean = 164.5

Sunspot Bulletin, 1989, 2.

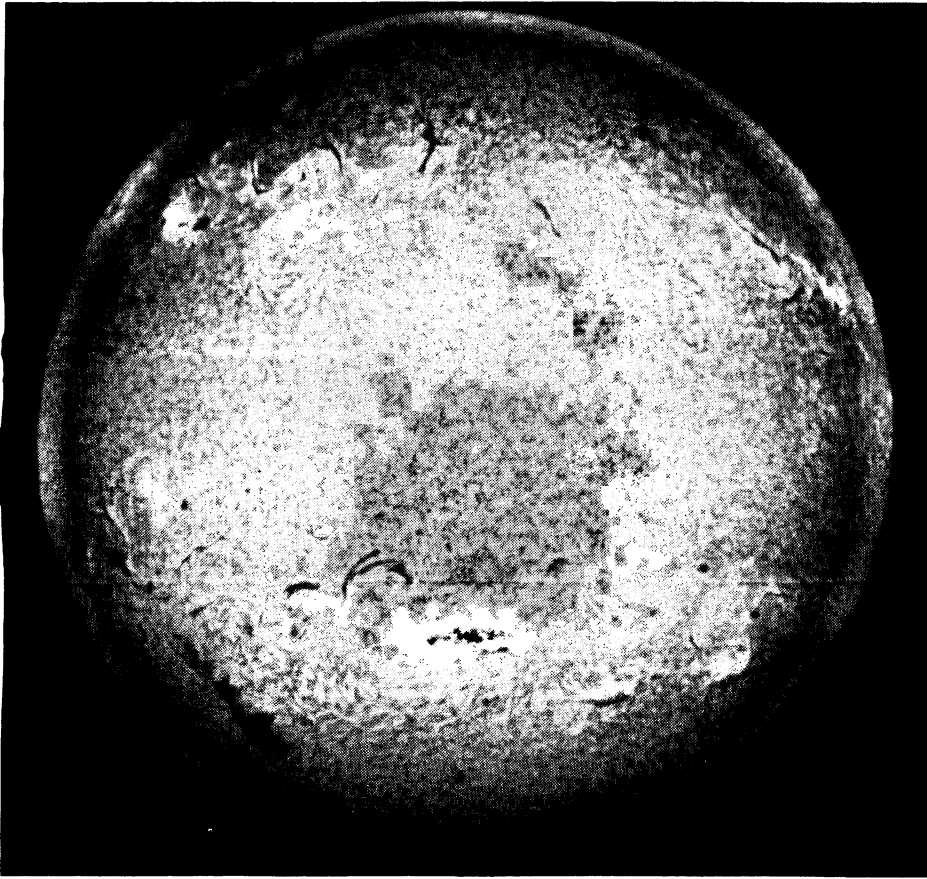
Predicted Smoothed American Sunspot Numbers

McNish - Lincoln Method:

September 119; October 126; November 132;
December 137; January 140; February 144.

Solar Geophysical Data, 533, I, 14.

The American Relative Sunspot Numbers and related information are available through the CompuServe Information Service, TELEMAIL, MCImail, and through domestic and international Telex and Fax.



SESC Region 5312

The H α photograph to the left was taken 13 January 21:22 Universal Time, by Robert Morris from the United States. Twelve groups were present on the 13th, and the relative sunspot number was 206. Mr. Morris used a 1500 millimeter f/30 refractor and exposure time of 1/250 second. In the photograph, North is to the top.

The large bright area near the center of the lower portion of the photo is SESC Region 5312 (S31, L308, class FKC on 8 January). This area is believed to be the return of old Region 5273 which produced an X-class flare on 18 December. During its latest passage, the group was responsible for six additional X-level flares and thirty-three M-class events. The strongest of these flares, rated X2.3 and X2.1, occurred 13 and 14 January.

At its maximum growth on the 15th, the area covered 1800 millionths solar hemisphere and was visible by naked-eye. Region 5312 was magnetic class *beta-gamma-delta* during most of its recent transit.

(Photograph supplied through the courtesy of Richard Hill, A.L.P.O. Solar Section.)

Sudden Ionospheric Disturbances Recorded During January

Records were received from A1,3,9,19,26,40,46,49,50,52,59,60.

Day	Max	Imp	Day	Max	Imp	Day	Max	Imp	Day	Max	Imp	Day	Max	Imp
1	06:26	2	8	06:56	2	12	06:19	1+	16	09:12	2+	25	17:23	1-
1	13:47	1	8	07:47	1-	12	15:42	1-	16	10:05	1+	25	17:40	2
1	15:17	2	8	08:34	2	12	17:47	1+	16	10:55	2+	26	04:32	2+
1	16:34	1+	8	15:01	1+	12	20:20	2+	16	15:10	2+	26	05:25	2
1	17:34	1	8	17:13	2+	13	03:56	2+	16	16:22	1+	26	06:42	2
1	18:05	1-	8	19:06	2	13	08:32	1-	16	16:59	2	26	14:14	2
1	18:22	1	8	19:55	2	13	09:43	2	16	17:58	2+	26	16:50	1
1	18:31	1	8	21:11	1	13	10:15	2+	16	19:00	2+	26	18:11	2+
1	18:50	1-	9	07:13	2+	13	14:18	1-	16	22:15	2	27	03:33	1+
1	19:22	1-	9	13:53	1	13	15:30	2	17	06:47	1-	27	15:24	1+
1	19:30	1-	9	15:45	2	13	16:17	1+	17	15:43	1	27	19:15	2+
2	17:22	1+	9	18:04	1	13	16:45	1-	17*	21:17	2+	27	21:50	1
2	19:01	2+	9	18:33	2	13	17:18	2+	18	05:13	2	28	08:13	1+
3	10:13	2	9	19:31	2+	13	19:33	1-	18	06:17	3+	28	08:56	1-
3	10:57	1-	10	05:05	2+	13	19:50	1+	18	08:54	2+	28	15:58	1-
3	13:46	2	10	06:30	1	13	20:28	2+	18	18:13	2+	28	17:56	1+
3	16:55	1	10	13:10	1	13	21:17	1	19	20:00	2	28	21:48	1-
3	17:36	1	10	17:50	2+	13	22:02	2+	20	04:17	1-	29	10:53	2
3	17:57	1+	10	19:13	2+	14	03:28	2	20	15:20	1-	29	13:13	1-
4	14:55	1+	10	20:27	2+	14	04:13	3	20	15:35	1+	29	16:08	1-
4	16:15	2	11	05:00	2+	14	13:55	1	20	15:55	2	30	03:51	1+
4	17:00	1	11	06:50	2+	14	14:33	1+	22	08:33	2+	30	21:05	2
4	18:02	1+	11	10:00	1	14	14:52	1+	22	09:52	2	31	16:18	1
4	21:00	2	11	15:32	2+	14	21:19	1+	22	14:06	2	31	16:57	1-
6	05:12	2	11	17:46	1-	14	22:35	2	22	19:04	2	31	17:43	2
6	18:01	2+	11	18:03	1-	15	07:58	1-	23	21:43	2	31	18:15	1
6	19:28	2	11	18:20	1+	15	14:00	1+	24	15:52	1-	31	19:07	1+
6	19:52	1-	11	19:46	1	15	15:26	2	24	17:30	1	31	20:15	1+
7	07:55	2+	11	20:51	2	15	15:51	2	24	18:15	2	31	21:00	1-
7	17:17	2+	11	22:33	2+	15	18:43	1+	25	07:12	1-	31	21:18	1+
7	19:46	1	12	04:00	2+	16	06:24	2	25	14:23	1	SID Analyst:		
8	06:00	2	12	05:00	1	16	08:33	1+	25	14:55	2	Bruce R. Wingate		

*Def = 4. Def = 5 for all other events.