

# Solar Bulletin

THE AMERICAN ASSOCIATION OF VARIABLE STAR OBSERVERS— SOLAR DIVISION

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



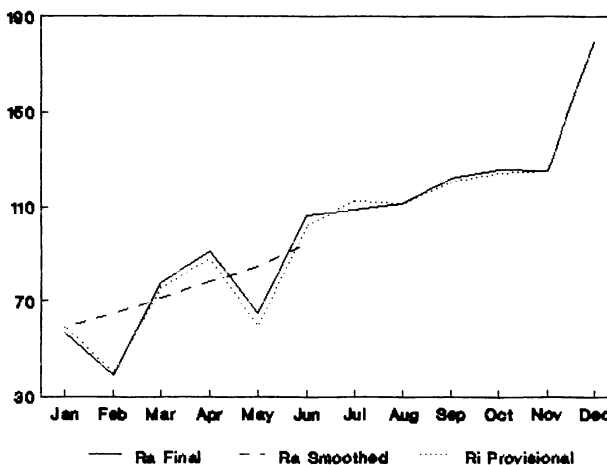
Volume 44 Number 12

December 1988

## Relative Sunspot Numbers for December

R <sub>a</sub> Final		
1) 121	11) 163	21) 215
2) 104	12) 170	22) 253
3) 121	13) 179	23) 244
4) 133	14) 215	24) 192
5) 139	15) 214	25) 186
6) 142	16) 221	26) 174
7) 145	17) 228	27) 167
8) 109	18) 239	28) 200
9) 125	19) 235	29) 193
10) 136	20) 233	30) 190
	31) 168	

Mean = 179.2



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 The smoothed mean American Relative Sunspot Number for June 1988 is 94.3.

One hundred and two members of the international network of American Sunspot Program contributors submitted reports for December. Sunspot numbers reached their highest level so far for sunspot cycle 22.

**Note:** The estimated mean American Sunspot Number for 1-18 January is 167. During this period, SESC Region 5312 (S31, L304, class FKC on 14 January) produced six X-level, x-ray flares. Single X-level flares occurred on 7, 10, 13 and 18 January, while two were recorded on the 14th. This magnetically complex (beta-gamma-delta) region is believed to be the return of old Region 5273 which also produced an X-level event during its transit. The 10cm solar flux attained its highest reading for the current cycle during January.

R <sub>i</sub> Provisional		
1) 128	11) 152	21) 218
2) 105	12) 175	22) 255
3) 139	13) 195	23) 235
4) 122	14) 213	24) 199
5) 139	15) 214	25) 183
6) 149	16) 216	26) 174
7) 144	17) 232	27) 175
8) 111	18) 229	28) 196
9) 122	19) 223	29) 194
10) 127	20) 234	30) 190
	31) 172	

Mean = 179.4

Sunspot Bulletin, 1988, 12.

Several readers have indicated an interest in submitting short articles, high quality photographs and similar materials to the Editor for possible inclusion in the Solar Bulletin. We will be happy to receive and review these materials. Please use recent issues as a guide to style and subject area. Articles should be no more than one-half page in length. We can usually prepare any required graphics from a contributor's accurate sketch.

## Predicted Smoothed American Sunspot Numbers

McNish - Lincoln Method:

July 100; August 109; September 116; October 123; November 128; December 133.

Solar Geophysical Data, 531, I, 14.

### Daily American Relative Sunspot Numbers for 1988

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1)	48	59	70	108	70	100	127	142	142	117	127	121
2)	33	69	70	105	81	94	134	149	142	120	103	104
3)	23	66	68	96	81	103	140	149	129	122	122	121
4)	26	62	72	80	93	110	127	141	142	128	113	133
5)	29	53	70	69	94	132	112	122	130	125	128	139
6)	43	42	63	69	78	146	100	129	105	120	132	142
7)	55	43	68	86	51	155	101	145	100	124	113	145
8)	57	44	69	98	68	165	93	160	89	120	98	109
9)	68	47	56	110	89	163	80	171	80	122	118	125
10)	66	40	34	112	91	137	80	153	88	149	137	136
11)	69	29	22	123	72	110	90	131	92	153	155	163
12)	63	10	45	125	61	81	97	145	89	160	167	170
13)	77	19	54	136	56	47	101	124	91	153	155	179
14)	94	24	58	139	52	56	108	129	100	134	142	215
15)	90	28	58	142	54	68	112	113	102	121	171	214
16)	85	32	82	144	58	89	117	80	109	118	181	221
17)	69	34	91	144	58	83	116	57	90	120	167	228
18)	60	58	97	135	45	69	138	47	102	135	165	239
19)	68	60	99	118	22	71	106	56	113	128	143	235
20)	64	53	87	89	27	74	106	52	138	133	103	233
21)	73	24	82	79	31	102	100	33	170	119	139	215
22)	61	19	79	66	35	98	103	24	169	121	130	253
23)	42	11	81	46	42	94	104	30	176	113	120	244
24)	39	21	89	38	51	100	79	56	163	123	113	192
25)	34	21	94	50	61	109	79	78	155	127	84	186
26)	41	19	98	46	67	113	76	93	149	119	67	174
27)	54	37	100	40	71	123	101	133	152	123	73	167
28)	68	48	111	40	80	128	112	144	141	118	86	200
29)	56	61	105	41	87	131	147	162	109	119	99	193
30)	54	--	110	54	89	140	144	158	109	111	108	190
31)	52	--	120	--	92	--	139	142	--	111	--	168
Mean:	56.8	39.1	77.5	90.9	64.7	106.4	108.7	111.2	122.2	126.0	125.3	179.2
Yearly Mean (1988): 100.7												

### Sudden Ionospheric Disturbances Recorded During November

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

Day	Max(UT)	Imp	Def	Day	Max(UT)	Imp	Def	Day	Max(UT)	Imp	Def
1	15:35	2	5	12	19:46	1+	5	16	20:02	2	5
1	21:46	1	5	13	13:15	1+	5	16	21:47	2+	5
2	16:49	2	5	13	13:58	1	5	17	13:05	1	5
3	13:15	1-	5	13	15:35	2	5	17	13:50	2	5
3	13:33	1	5	13	16:33	2+	5	18	17:06	1-	5
3	14:04	1-	5	13	20:23	1+	5	18	17:25	2	5
3	16:08	1+	5	13	21:05	2	5	18	19:47	1+	5
3	21:20	2	5	14	14:44	2	5	20	14:18	1-	5
4	16:50	1+	5	14	16:48	2+	5	20	16:46	1+	5
4	17:44	1	5	14	19:49	2+	5	21	13:41	1-	5
5	18:02	1-	5	15	14:41	1	5	21	13:50	1-	5
6	14:10	1	5	15	17:50	1+	5	21	14:16	1	5
6	18:15	2+	5	15	20:41	2	5	21	15:30	1-	5
7	14:02	1-	5	16	14:25	1-	5	21	16:58	1+	5
9	12:28	2	5	16	14:36	1	5	21	19:26	2	5
9	19:33	2	5	16	14:58	2	5	21	19:51	1	5
11	15:04	1-	5	16	16:43	1	5	22	15:04	2	5
11	15:20	2+	5	16	17:15	1-	5	24	22:13	2+	5
11	19:20	1	5	16	17:34	2	5	25	16:26	1	5
12	16:10	2+	5	16	19:12	1	5	27	22:17	2+	5

SID Analyst: Bruce R. Wingate

The American Relative Sunspot Numbers and related information are available through the CompuServe Information Service, INFOPLEX, MCI mail, and through domestic and international Telex and Fax. Contact the Editor for details.