

Solar Bulletin

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THE AMERICAN ASSOCIATION OF VARIABLE STAR OBSERVERS — SOLAR DIVISION

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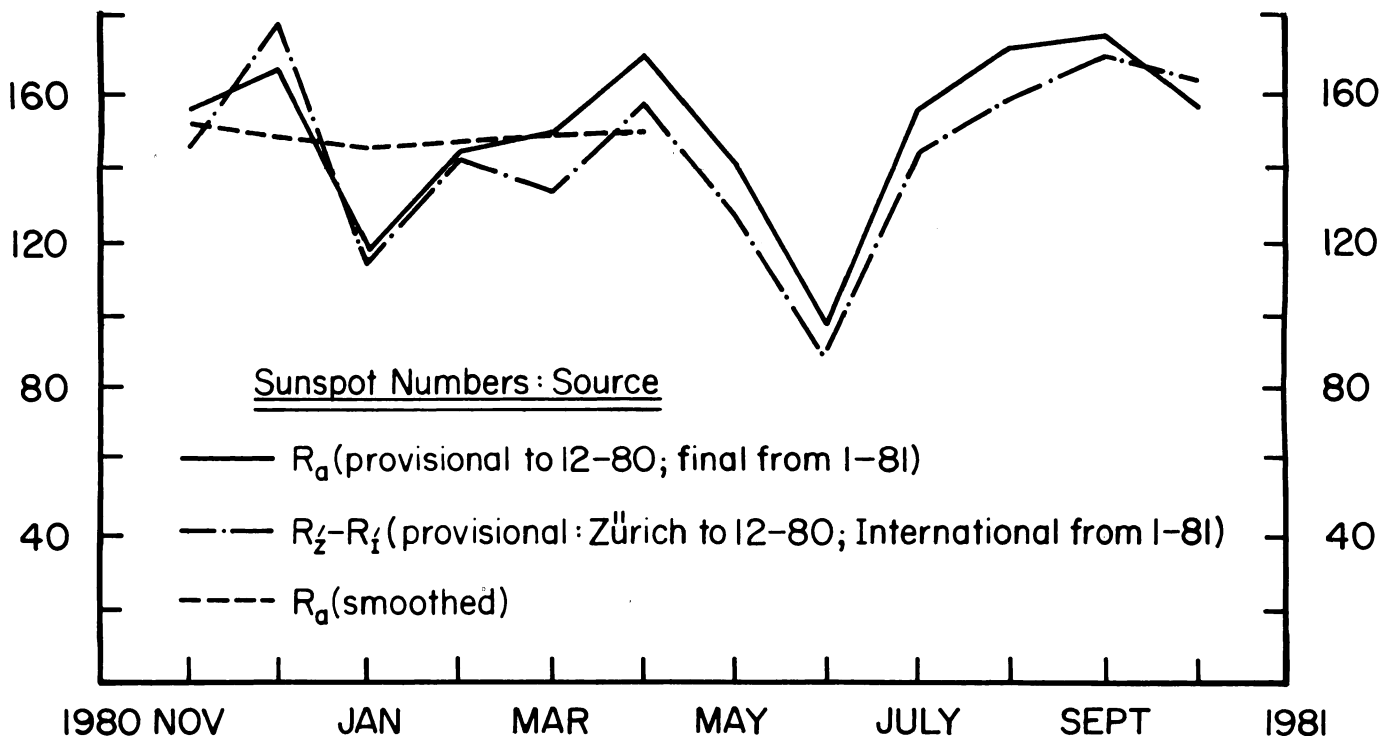
Number 10

October 1981

SOLAR ACTIVITY DURING OCTOBER 1981

Sunspot data are given in the graph at the bottom of this page and the table of sunspot numbers (R_a and R'_I) by days on page 2. Overall sunspot activity was lower during October 1981, with the monthly mean of AAVSO sunspot numbers falling from the 174.5 for September 1981 to 157.0 for October. The smoothed mean continued its rise, increasing to 150.0 for April 1981 from 149.2 for March. The highest final daily AAVSO number was 215 on the 16th, while the lowest was 73 on the 27th. Activity began at an elevated level, with 10 to 12 small groups visible, as well as 5 or 6 groups with 10+ spots each. After a general decline through the 11th, activity increased greatly to the 16th, as 2 complex regions rotated onto the disc. By the 16th each contained one group of over 80 individual spots, with several companion groups of 20+ spots. From the peak activity of the 16th, there was a gradual decrease as several groups rotated around the west limb, and spot activity in the large groups decayed. The decline was partly offset by appearance of small groups around the east limb, and was reversed during the last four days of the month as a large, complex group rotated onto the disc.

Observers in the AAVSO Indirect Solar Flare Patrol detected 153 high-certainty Sudden Enhancements of VLF radio Signals (SEs) in October, as listed in summary form on page 2. The slight increase from September's 149 events is offset by a decrease in Importance 3 and 4 events from 17 in September to 12 in this month. SEs were detected on every day but the 3rd, with greatest numbers on the 10th (11), 11th (10), and 13th (11). These peak levels are much lower than those in September (16 and 15).



SUDDEN IONOSPHERIC DISTURBANCES (SESs) RECORDED DURING OCTOBER 1981

Records were received from A1, 9, 19, 26, 28, 31, 37, 40, 43, 46, 48, 50, 51, 52, 54, 55, 56, 57

Day	Max	Imp	Def	Observers	Day	Max	Imp	Def	Observers	Day	Max	Imp	Def	Observers
1	08:13	1-	5	A52	13	03:12	1+	5	A31,52,55,56	30	22:00	1-	5	A31
1	20:02	2+	5	A1,19,26,28,31,46,50,51,54,55,56,57	13	04:29	2	5	A52,55,56	30	22:17	1-	5	A31
2	03:44	1-	5	A43	13	07:19	3	5	A31,52,55,56	31	06:12	3	5	A43,52
2	07:36	2	5	A52	13	18:13	1-	5	A19,31,37,46	31	07:28	2	5	A52
2	13:11	1-	5	A19,54	13	18:24	3+	5	A1,19,31,37,46,50,54,55,56					
2	16:19	1+	5	A1,9,19,28,31,37,46,50,51,54,55	13	21:30	1-	5	A9,31,37,46,50,56					
2	16:39	3	5	A1,19,28,31,37,46,50,51,54,55,56	13	22:04	1-	4	A31,56					
2	19:00	1	5	A1,9,19,28,31,37,46,50,51,54,55,56	13	22:53	3	5	A31,46,50,55,56					
2	19:39	1-	5	A9,19,31,37,46,50	14	04:29	2	5	A31,55,56					
2	21:01	1+	5	A1,9,19,28,31,37,46,50,51,54,55,56	14	14:49	1+	5	A1,19,28,48,50,51					
2	05:11	1-	5	A43,52	14	16:48	1	5	A1,9,19,26,28,31,37,46,48,50,51,55,56					
4	20:06	1-	5	A1,9,31,50,55	14	17:12	3+	5	A1,9,19,26,28,31,37,46,48,50,51,54,55,56					
4	20:49	1-	5	A1,9,31,50,55	14	19:27	1-	5	A1,9,19,31,50,56					
5	05:57	1+	5	A43,52	14	21:01	1	5	A1,9,19,31,37,56					
5	06:15	2+	5	A43,52	15	04:49	1	5	A55,56					
6	06:42	1-	5	A52	15	06:03	3	5	A31,55,56					
6	07:23	1-	5	A52	15	06:45	1	5	A31,55,56					
6	07:33	2+	5	A43,52,55,56	15	16:39	1	5	A19,48					
6	09:05	1-	5	A52	15	20:26	1-	5	A9,19,26,31,46					
7	05:36	1-	5	A52	15	20:48	1+	5	A9,19,26,31,46,55,56					
7	06:35	1-	5	A52	15	23:09	1-	5	A31,55,56					
7	08:45	1	5	A52	16	17:37	1-	5	A19,31,50					
7	16:40	1	5	A1,9,19,26,28,31,46,50,51	16	18:53	1-	5	A9,19,31					
7	18:14	2+	5	A1,9,19,26,28,31,37,50,51,54,55,56	16	20:45	1+	5	A1,9,19,26,31,46,48,50,55,56					
7	18:25	1-	5	A31	16	20:55	1-	5	A9,31,46,56					
7	22:30	1	5	A31,55,56	16	22:39	1+	5	A9,31,37,46,50,56					
7	22:47	1-	5	A31,37,43,55,56	17	10:46	1-	5	A52					
7	23:03	3+	5	A31,37,43,54,55,56	17	16:20	1+	5	A1,19,26,28,31,37,48,50,51,54,55					
8	06:51	1-	5	A52	17	18:06	1+	5	A1,19,26,28,31,37,46,48,50,51,54,55,56					
8	16:13	1	5	A1,9,19,26,28,31,51,54,55,56	17	18:40	1+	5	A1,19,26,28,31,46,48,50,51,54,55,56					
9	00:15	1	5	A43	18	07:46	2+	5	A52					
9	03:06	1-	5	A43	18	11:13	1+	5	A52					
9	07:02	1	5	A43,52	18	16:10	1-	5	A1,19,31,37,48,50					
9	09:07	1	5	A52	18	17:31	1-	5	A19,28,31,37,46,48					
9	18:32	1-	5	A1,9,19,26,31,37,46,50,55,56	18	10:21	1	5	A52					
9	19:17	1-	5	A1,9,19,31,37,46,50	19	16:02	1-	5	A1,48,50					
9	21:20	1	5	A1,9,19,31,37,46,50,55	19	19:22	1-	5	A31,37,50					
10	05:58	3+	5	A31,43,52,55,56	20	03:34	2+	5	A31,43,52,55,56					
10	07:30	1	5	A52	20	07:27	1	5	A52					
10	09:44	1+	5	A52	20	14:51	1-	5	A50					
10	12:56	1	5	A1,19,48,51,52,54	20	19:28	1	5	A1,31,37,50,55					
10	14:06	1-	5	A1,19,31,48	20	23:25	1+	5	A31,37,43,55,56					
10	14:28	1+	5	A1,19,26,31,48,50,51,54	21	07:26	1+	5	A43					
10	15:33	1	5	A1,19,26,46,50	21	01:54	1-	5	A43,55,56					
10	17:04	1-	5	A19,31,46	21	05:48	1+	5	A52					
10	20:47	1-	5	A31,46,56	21	06:20	2+	5	A43,52					
10	21:02	1	5	A1,9,19,26,28,31,43,46,48,50,51,55,56	21	07:06	1	4	A52					
10	23:52	2	5	A43	21	07:43	1+	5	A43,52					
11	03:45	2	5	A43,52	21	13:45	1-	5	A1,26,28,48					
11	04:43	1+	5	A43,52	21	17:29	1+	5	A1,19,26,28,31,46,48,51,55,56					
11	05:58	1	5	A43,52	21	23:11	2	5	A31,37,43,50,55,56					
11	07:55	2	5	A43,52	22	06:46	2+	5	A31,43,52,55,56					
11	08:32	2+	5	A52	22	15:00	1	4	A1					
11	10:36	1+	5	A52	23	02:42	1	5	A43,52					
11	14:33	1-	5	A1,19,26,48	23	07:36	1+	4	A55					
11	15:15	1-	5	A1,19,26,48,50	23	15:00	1-	5	A19,26,28,48,50					
11	16:06	2	5	A1,9,19,26,31,37,48,50,54	23	17:19	1+	5	A19,31,55,56					
11	19:23	1-	5	A9,31,56	23	21:00	1+	4	A1,31,55,56					
12	08:40	2	5	A31,56	23	22:30	2	5	A31,56					
12	10:47	1+	5	A52	24	16:43	1+	5	A31,56					
12	11:03	1	5	A52	24	17:57	1	4	A56					
12	14:49	2+	5	A1,9,19,26,28,31,46,48,50,51,54,56	24	23:50	2	5	A31,37,43,55,56					
12	17:12	1	5	A1,9,19,26,28,31,37,46,48,50,51,54,55,56	25	14:51	1-	5	A1,19,26,48					
12	17:36	1-	5	A1,9,19,31,46,48,50	25	21:31	1	5	A19,31,55					
12	18:15	1	5	A1,9,19,26,28,31,46,48,50,51,54,56	26	16:00	2+	5	A1,19,31,55,56					
12	20:53	1+	5	A1,9,19,26,31,37,46,50,51,55,56	27	18:42	1+	5	A19,31,37,50,55,56					
12	22:19	1+	5	A9,31,37,43,50,55,56	27	22:35	3+	5	A31,55,56					
13	00:30	1-	5	A31,55,56	28	04:18	1+	5	A31,43,55,56					
13	00:52	1-	5	A31,55,56	28	07:30	1+	5	A31,55,56					
13	01:13	1-	5	A31,55,56	28	15:03	2+	5	A1,31,48					
					28	15:53	2+	5	A31					
					28	19:22	1+	5	A31,56					
					28	20:58	3+	5	A1,31,37,48,50,56					
					29	08:49	2	5	A52					
					29	20:13	1	5	A1,26,31,56					
					30	14:24	1	4	A31					
					30	15:14	4	5	A1,19,31,48,51					
					30	19:28	1+	5	A31					
					30	21:15	1-	4	A31					

October 1981		
RELATIVE SUNSPOT NUMBERS (R):		
AAVSO (a), INTERNATIONAL (I)		
Day	R _a (final)	R _I (prov)
1	203	216
2	193	206
3	200	219
4	179	189
5	187	195
6	165	169
7	141	171
8	169	185
9	174	177
10	143	144
11	130	131
12	148	114
13	180	183
14	190	187
15	204	212
16	215	223
17	205	219
18	209	214
19	170	189
20	170	183
21	145	151
22	132	130
23	124	107
24	107	109
25	100	101
26	93	92
27	73	63
28	94	92
29	133	131
30	144	152
31	148	144
Mean	157.0	161.2