

# Solar Bulletin

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## SOLAR ACTIVITY DURING DECEMBER

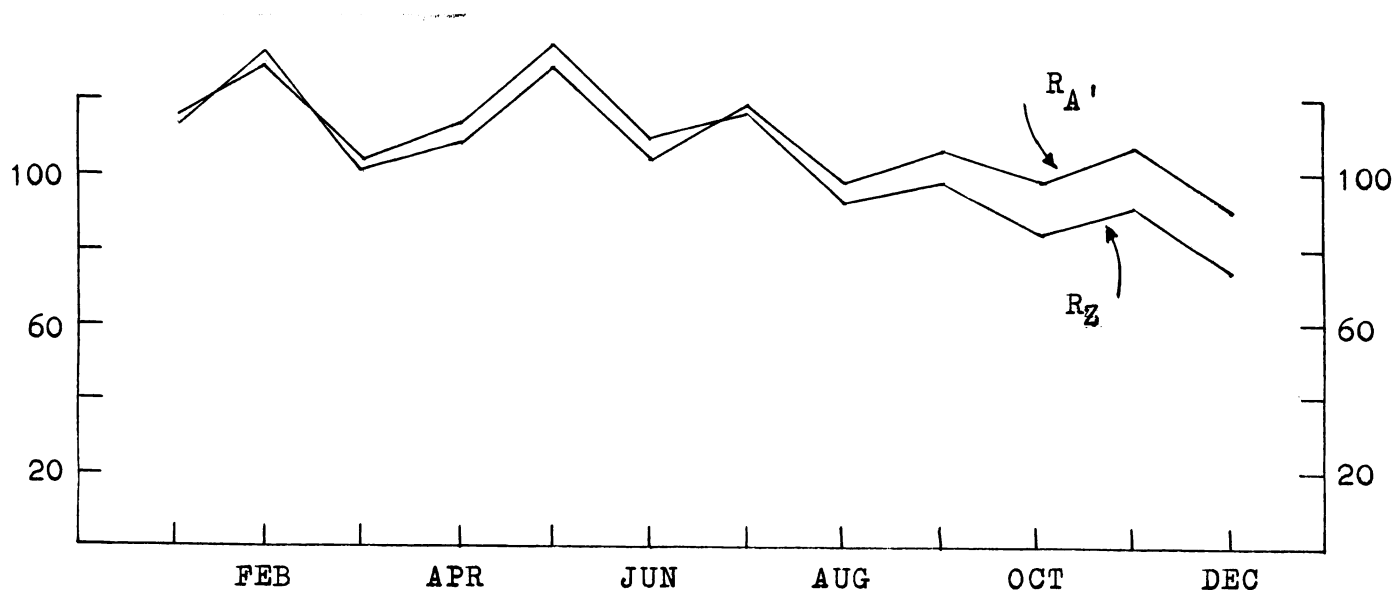
Sixteen separate ionospheric disturbances were recorded by the Solar Division observers during December. This decrease from last month's very high number of events is in agreement with the general trend of the sun's activities as indicated by the sunspot count with the 20th cycle in a downward slope.

The month's ionospheric disturbances appeared to peak near the 12th when four events were recorded in rapid sequence. A reproduction of these four events is shown on page two. The first event apparently was a minor event, however in this particular recording it was perhaps "squeezed" smaller than normal since the signal path was still under the "sunrise effect" that tends to often distort events recorded early in the day.

The mean of the American sunspot numbers for December decreased to 90.4 from a level of 107.5 recorded during November.

A southern group that reached the central meridian on 6 December appeared to be two groups. Despite its length, magnetic data showed it to be one long simple bipolar group. On 7 December a pair of groups came over the east limb, a single spot and a growing group, showing signs of rapid growth. These failed to develop in keeping with first appearances and in fact, neither group survived west limb passage.

## RECENT TREND OF RELATIVE SUNSPOT NUMBERS



AMERICAN ( $R_A$ ) AND ZURICH ( $R_Z$ ) RELATIVE SUNSPOT NUMBERS, DECEMBER 1970

DAY	$R_A$	$R_Z$	DAY	$R_A$	$R_Z$
1	98	88	16	77	65
2	89	69	17	59	60
3	80	75	18	80	70
4	84	65	19	108	88
5	100	85	20	115	101
6	112	79	21	115	93
7	111	88	22	107	90
8	119	97	23	93	76
9	114	87	24	82	63
10	128	95	25	68	68
11	129	101	26	49	61
12	103	95	27	47	50
13	88	71	28	47	47
14	80	82	29	68	50
15	81	81	30	93	71
			31	78	65

Monthly Means

$R_A = 90.4$

$R_Z = 76.6$

SUDDEN IONOSPHERIC DISTURBANCES RECORDED DURING DECEMBER 1970

DAY	MAX	SEA	SES	DEF	OBSERVERS	DAY	MAX	SEA	SES	DEF	OBSERVERS
2	1609	2	2	5	A-1,19,21,27	12	1500	1	2	5	A-1,8,19,21,27
4	1429	1	1	3	A-19,21	12	1617	1	2	5	A-1,8,19,21,27
6	1820	1	1	5	A-1,19,21	12	1845	2	2	5	A-1,4,19,21,27
9	1548			3	A-1	13	1300	1	1	4	A-1,8
9	1756	1	1+	5	A-1,19,27,29	13	1834	1+	2	5	A-1,4,19,21,27
10	1922	1-	1-	5	A-6,19,21,27,29	18	1740	1	1	5	A-4,19,21,27
11	1436	1	1	4	A-1,21	22	1259		1	5	A-1,4
12	1439		1-	5	A-1,21	22	1519	2	2	5	A-1,4,19,21,27

ERRATUM: November SOLAR BULLETIN listed event on 14th as MAX at 1516, it should have been listed to read MAX at 1616.

