

# Solar Bulletin

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## SOLAR ACTIVITY DURING NOVEMBER

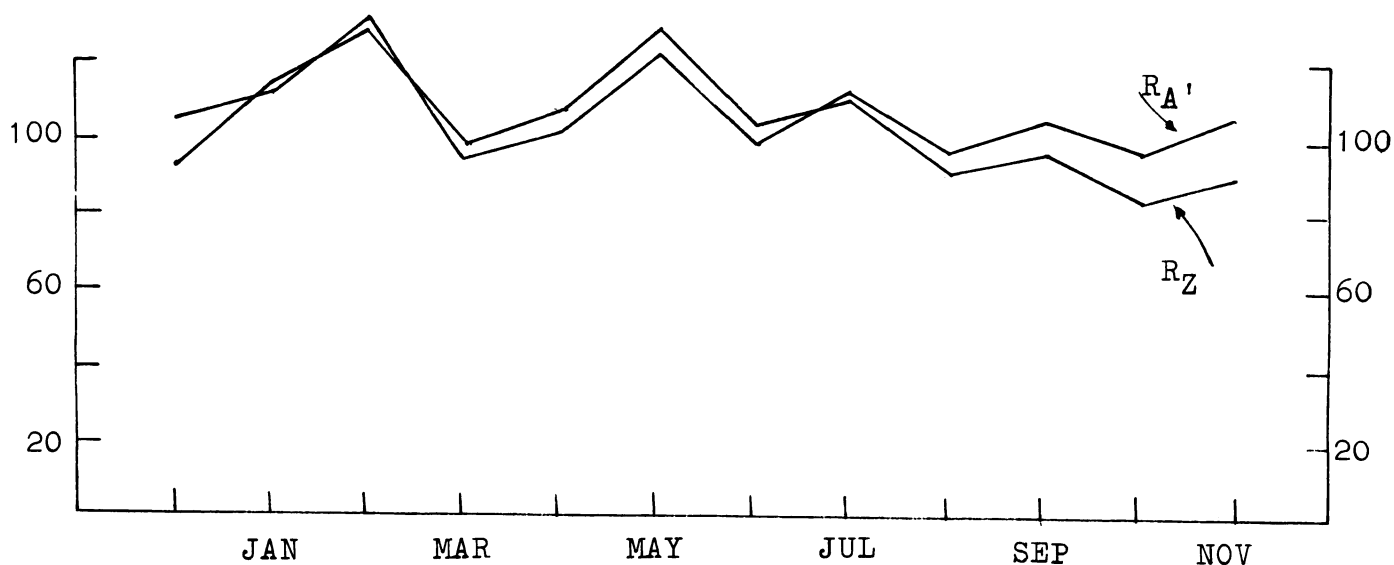
Forty separate ionospheric disturbances were recorded by the Solar Division observers during November. The significant increase in these events is in sharp contrast to the relatively quiet period that started in September and continued, with a slight increase, through October.

Starting on the 14th, many major and minor event were recorded, with events following one another so closely that the normal decay of one ionospheric disturbance often was not completed before the next event started. This high level of activity continued through the 17th with less frequent events during the remainder of the month. Many of the events of this month had a common characteristic of having a slower than average rise time, that is, from the start to the peak amplitude.

A reproduction of some of these events of the 14th as recorded by a new SES observer, Dr. Phyllis Richmond of Mayfield Village, Ohio, is shown on page two. The major event of the 15th as recorded by another new observer using SEA, Mr Andrew Clerkin of Lexington, Massachusetts, is reproduced, also.

The mean of the relative sunspot numbers rose slightly from last month. The higher sunspot counts, starting on the 14th, is in correlation with the ionospheric disturbance data.

## RECENT TREND OF RELATIVE SUNSPOT NUMBERS



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

DAY	$R_A$	$R_Z$	DAY	$R_A$	$R_Z$
1	79	79	16	166	126
2	86	75	17	168	128
3	77	72	18	189	128
4	83	76	19	187	125
5	90	61	20	155	126
6	111	87	21	114	112
7	102	84	22	118	103
8	66	67	23	98	94
9	81	75	24	71	75
10	88	76	25	68	60
11	84	95	26	70	63
12	89	87	27	72	72
13	116	98	28	78	87
14	141	108	29	100	76
15	165	118	30	114	101

Monthly Means

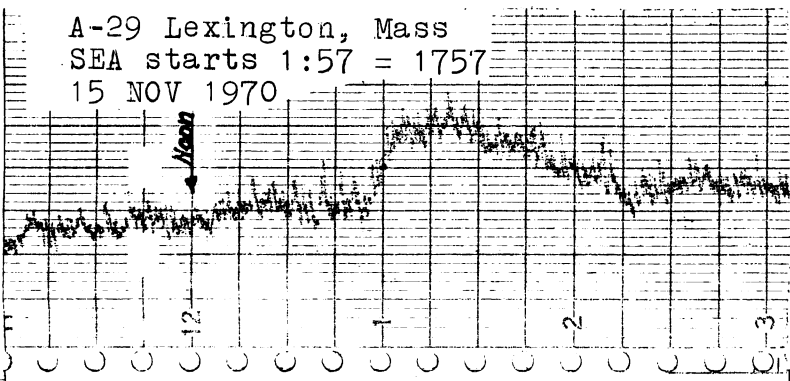
$R_A = 107.5$

$R_Z = 91.1$

SUDDEN IONOSPHERIC DISTURBANCES RECORDED DURING NOVEMBER 1970

DAY	MAX	SEA	SES	DEF	OBSERVERS	DAY	MAX	SEA	SES	DEF	OBSERVERS
3	1624	1-	1-	4	A-1,21	14	2023		1-	5	A-1,19,21,28
4	2152	1+	1-	5	A-1,21	15	1805	2+	3	5	A-1,6,19,22,29
4	2255		1	3	A-21	16	1229	2-		5	A-1,22
10	1727	1-	1-	5	A-1,6,19,21,22	16	1342	1-	1	4	A-1,21,22
11	1537	1-	1-	5	A-1,19,21,22,28	16	1803	1-	1	5	A-1,21,22
11	1836	1+	1+	5	A-1,6,19,21,22,28	16	1940	1-	1	5	A-1,21
13	1945		1-	4	A-1,19,21	16	2037		1	5	A-1,21
14	1237	1	1	5	A-1,19,28	16	2126	1-	1-	5	A-1,19,21
14	1408	1	1	5	A-1,6,19,21,28	16	2150	1	1	5	A-1,19,21
14	1513	1+	2	5	A-1,6,19,21,22,28	16	2225		1+	4	A-19,21
14	1516	1+	2-	5	A-1,6,19,21,22,28, & 29	17	1539	1-	1	5	A-1,19,21,22
14	1731	1	1	5	A-1,19,21,28	17	1759	2+	3-	5	A-1,6,19,21,22,26,29
14	1859	1-	1-	5	A-1,6,19,21,28	17	2011	1+	2-	5	A-1,6,19,21,26
14	1917	1-	1-	4	A-1,6,19,21	17	2025	1+	1	5	A-1,6,19,21,22,29
						17	2143	1	1	5	A-1,19,21
						17	2251		1	4	A-21
						18	1528	1-	1-	4	A-19,21,22
						18	1625	1-	1-	4	A-19,21,22
						19	1645	1	1	5	A-1,21,22,29
						21	1331		1-	4	A-1,21
						21	1532	1	1+	5	A-1,4,19,21,22
						21	1852		1-	4	A-4,21
						22	1642		1-	4	A-1,21
						22	2020		1-	4	A-1,19,21
						26	2109		1	5	A-1,4,19,21
						29	2056		1-	3	A-1,21

A-29 Lexington, Mass  
SEA starts 1:57 = 1757  
15 NOV 1970



A-28 Mayfield Village, Ohio  
SES, 24 kHz, NBA, Canal, Zone  
14 NOV 1970

