

# Solar Bulletin

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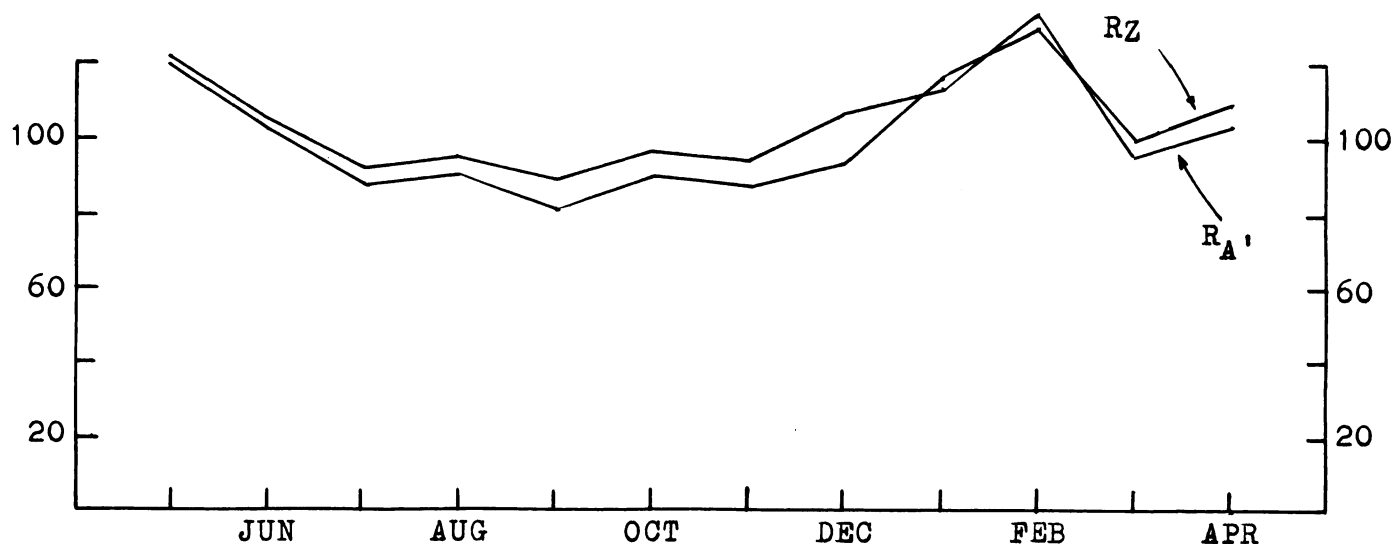
## SOLAR ACTIVITY DURING APRIL

Twenty seven separate ionospheric disturbances were recorded by the Solar Division observers during April. The activity continued at a high level throughout the month.

Two of the most widely recorded events are reproduced on page two. The event peaking at about 1830 UT on 19th was recorded by the AAVSO's newest observer, A-27, Mr. John Krall of Pleasant Unity, Pennsylvania. Mr. Krall's recording was made by use of the SEA (Sudden Enhancement of Atmospherics) method which is the oldest and perhaps the most dependable method of recording ionospheric disturbances caused by solar flares. Its dependability is based upon the fact that it uses atmospherics (lightning strokes) from distant thunderstorms as a signal source rather than depending upon man made signals which are subject to irregular operation and periods in which no signal is sent as during periods of maintenance or equipment failure. It is estimated that there are several thousand thunder storms in progress all over the world at any one particular time which gives a continuous signal source at 27 kHz since atmospherics at this frequency can be received from thunderstorms several thousand miles away. With these thunderstorms in progress near the equator of the earth at all times of the year, a natural signal source is provided.

The monthly mean of the American sunspot numbers rose slightly to 104.1 from a low of 98.3 recorded for March.

## RECENT TREND OF RELATIVE SUNSPOT NUMBERS



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

DAY	$R_A$	$R_Z$		DAY	$R_A$	$R_Z$
1	78	112		16	83	92
2	87	94		17	81	82
3	97	121		18	68	68
4	107	116		19	89	67
5	125	120		20	71	65
6	122	115	Monthly Means	21	65	64
7	140	123		22	64	57
8	177	147	$R_A = 104.1$	23	67	67
9	178	172		24	67	90
10	174	188	$R_Z = 109.1$	25	69	93
11	156	183		26	83	81
12	141	163		27	86	88
13	116	141		28	98	106
14	110	124		29	114	112
15	92	106		30	119	116

SUDDEN IONOSPHERIC DISTURBANCES RECORDED DURING APRIL 1970

DAY	MAX.	SEA	SES	DEF.	OBSERVERS	DAY	MAX.	SEA	SES	DEF.	OBSERVERS
1	1304	1+	2	4	A-1,22,26	12	1730	2	3	5	A-1,21,27
5	1354		2	5	A-21	13	2013	1	1+	5	A-1,6,21
5	1748		2+	5	A-21	13	2215		1	3	A-21
6	2005		3	5	A-1,21	17	2033		1+	4	A-21
7	1605		2+	5	A-1,21	18	1818	-1	1	5	A-19,21
7	2029		-1	2	A-21	18	1906	1+	2+	5	A-21,27
7	2227		-1	3	A-21	19	1206	1		3	A-17
8	1551		2	5	A-1,21	19	1830	2	3	5	A-1,6,21,22,27,19
8	1821		1	4	A-21	25	1936		1	3	A-21
8	1958	2	2+	5	A-1,21,22,27	26	1938	2	3	5	A-1,6,19,21,22,27
9	0015		1+	2	A-21						
9	1431	1		2	A-17	28	1818		2+	5	A-21
10	1637	2	3+	5	A-1,21,27	28	2124	-1	2	5	A-6,21
12	1232	1+		2	A-17	29	2000		-1	3	A-21

A-27, Pleasant Unity, Pa.  
19 April 1970

A-21, Littleton, Colorado  
26 April 1970

