Solar Bulletin

DEC 2 7 1972

THE AMERICAN ASSOCIATION OF VARIABLE STAR OBSERVERS — SOLAR DIVISION

540 NORTH CENTRAL AVENUE
RAMSEY, NEW JERSEY, U.S.A.

Volume 28 Number 11 November 1972

SOLAR ACTIVITY DURING NOVEMBER

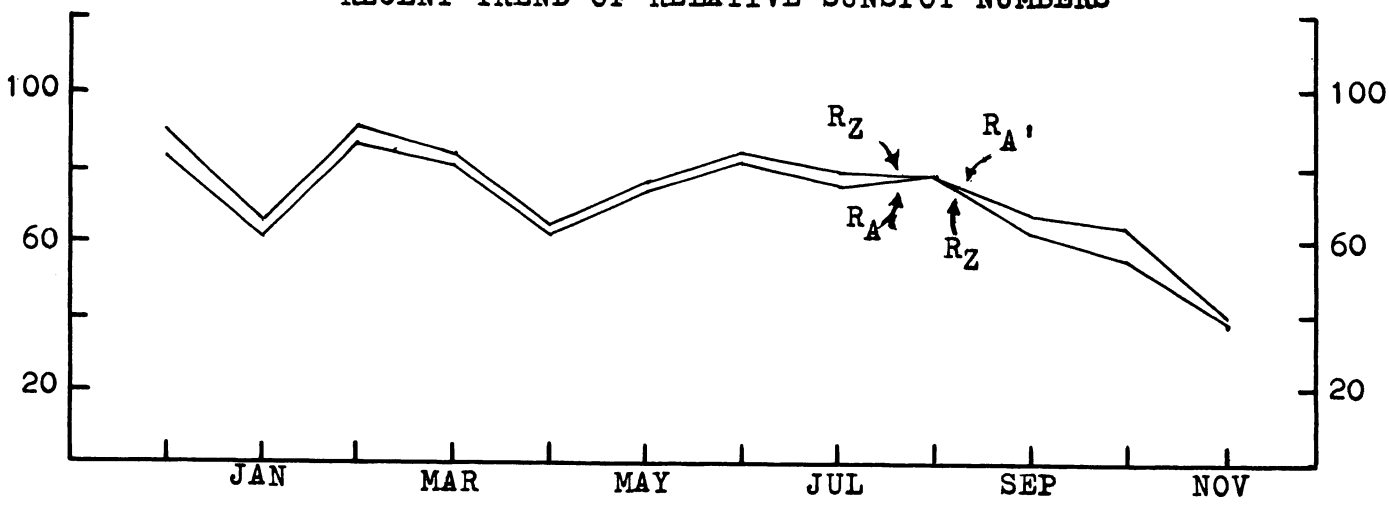
One minor ionospheric disturbance was recorded by the observers of the Solar Division during November that could be considered as being caused by a "Solar Flare". This indicates a great reduction in activity from the previous month and tends to confirm the overall general downward trend of the sun's activity during this 20th cycle.

The event of the 22 November is shown on page two as recorded by A33, Mr. Robert J. Woolsey, Glen Ellyn, Illinois by the SES (Sudden Enhancement of Signal) method. Clippings from larger charts of the same event are also shown. Several other ionospheric disturbances were recorded on the thirtythree recordings made by observers in twentytwo different locations, however these disturbances did not appear to have the characteristics of being caused by "Solar Flares". It has been noted that these ionospheric disturbances appear to become more numerous during the late fall and early winter months of the year in the northern hemisphere. The exact origin of these disturbances has not been definitely identified.

The mean of the American sunspot numbers fell considerably to 39.4 from 63.0 for last month.

November sunspots were more easily divided into groups with the lesser activity. A large single spot that came over the southeast limb on 11 November was almost certainly a return of the large spot which passed over to the invisible side of the sun on 27 October. On 19 November a spot came over the southeast limb which was a return of the large group which disappeared over the west limb on 4 November.

RECENT TREND OF RELATIVE SUNSPOT NUMBERS

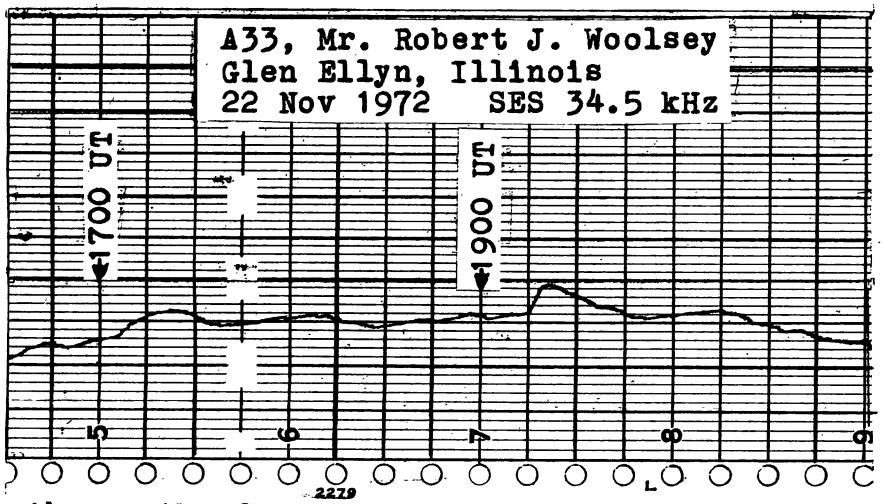


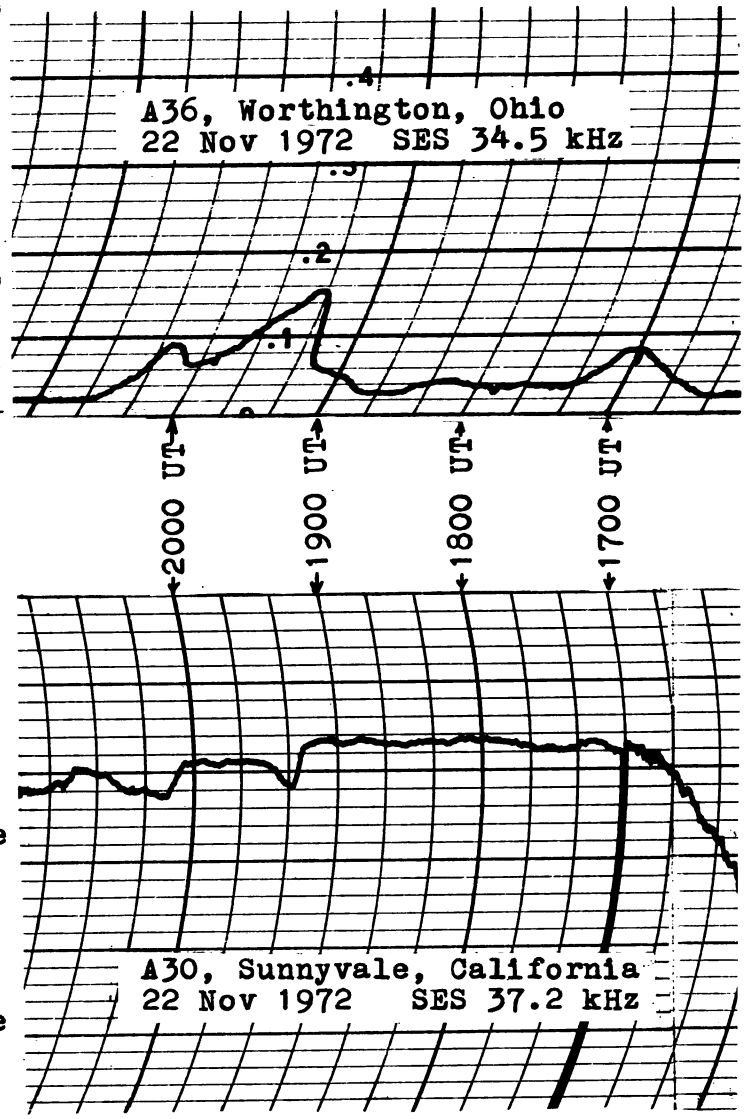
AMERICAN (R_A') AND ZURICH (R_Z) RELATIVE SUNSPOT NUMBERS, NOVEMBER 1972

DAY	R_A'	R_Z		DAY	R_A'	R_Z
1	79	70		16	22	25
2	62	67		17	27	32
3	39	49		18	26	21
4	25	26		19	38	36
5	26	19		20	63	54
6	13	16	Monthly Means	21	69	58
7	8	8		22	68	62
8	5	7	R_A' = 39.4	23	82	68
9	14	14		24	70	65
10	13	12	R_Z = 37.6	25	52	54
11	29	30		26	57	52
12	32	26		27	55	51
13	29	25		28	48	58
14	24	27		29	41	40
15	21	18		30	45	37

SUDDEN IONOSPHERIC DISTURBANCES RECORDED DURING NOVEMBER 1972

DAY	MAX	SEA	SES	DEF	OBSERVERS
22	1919		1-	5	A1,19,21,30,31,33,36,37





Above, the full chart of A33 shows the event of 22nd. To the right is shown small parts cut from much wider chart paper used by A30 and A36 for the same event. (Note time on A30 and A36 charts travels from right to left). A36 chart shows "enhancement" or increase in amplitude, while A30 chart shows decrease or "inverted" SES, which is normal over this path. Many observers recorded a rise near 1700 UT as did A33 and A36, some with very high amplitude. This is a definite ionospheric disturbance but lacks the characteristics to be classified as being caused by a "solar flare". Disturbance at about 2012 as seen on A30 and A36 charts has most of characteristics of being caused by a "solar flare" but was not counted as such due to its very small magnitude and lack of confirmation by other observers.