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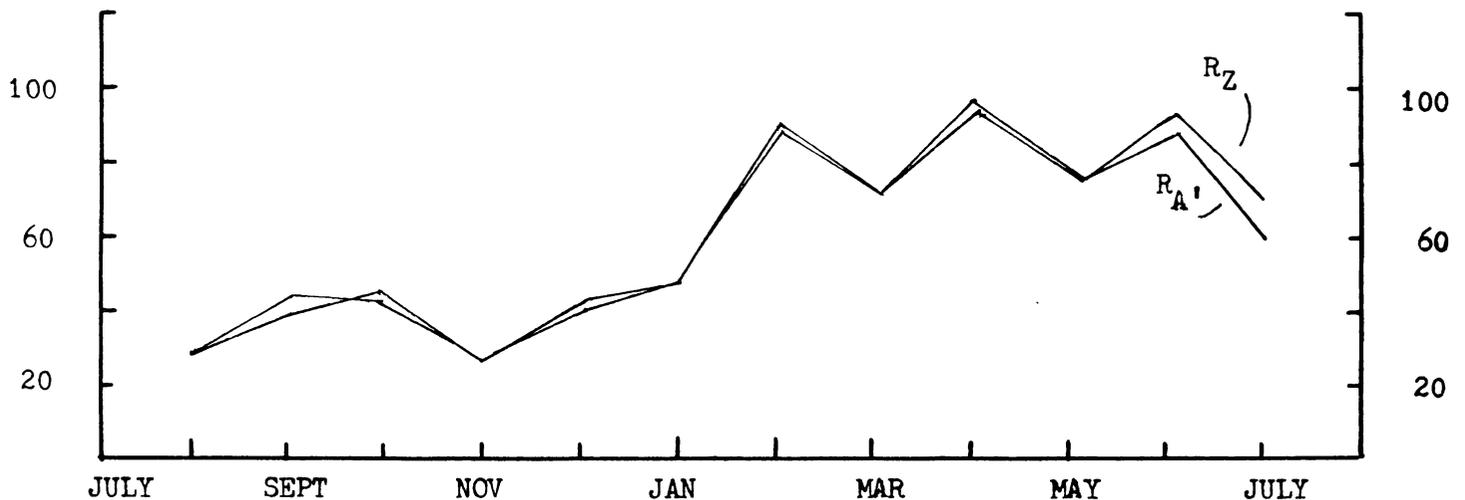
SUNSPOT ACTIVITY FOR JULY

The level of sunspot activity during July was lower than June. The mean of the American sunspot numbers fell to 58.1 from 88.0 last month. The sun was spotless on 26 - July. This was the first spotless day in over a year. The last spotless period was 15 - 18 July in 1977.

Although sunspot activity declined, the sun nevertheless produced a record number of ionospheric disturbances for the thirteen observers who sent charts for analysis. A summary of these eighty-nine events prepared by Bruce Ammons, Indirect Flare Patrol Coordinator, fills most of page-two. This, and the more comprehensive report sent to NOAA, required over forty-hours of analysis and preparation by our coordinator, who feels propagation paths used by the observers were of above sensitivity this month.

A-42 in England, A-43 in Tasmania and A-31 recording 22.3 KHZ in Australia provided 24-hour coverage for most of the month and this too contributed to the large number of events. Many of the eighty-nine events were apparently associated with rather small flares.

RECENT TREND OF RELATIVE SUNSPOT NUMBERS

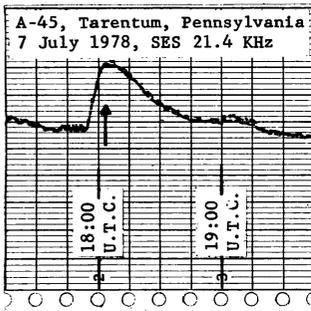
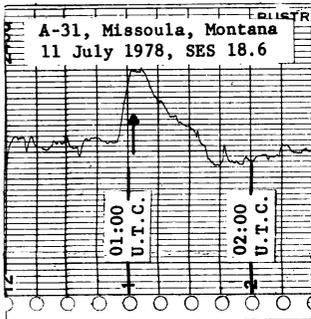


SUDDEN IONOSPHERIC DISTURBANCES RECORDED DURING JULY 1978

AMERICAN (R_A) And ZURICH
(R_Z) RELATIVE SUNSPOT
NUMBERS for JULY 1978

DAY	R _A	R _Z
1.	49	46
2.	39	61
3.	51	47
4.	40	34
5.	48	54
6.	58	57
7.	76	84
8.	91	105
9.	96	108
10.	101	115
11.	109	127
12.	90	111
13.	94	114
14.	94	109
15.	85	102
16.	87	110
17.	79	98
18.	68	78
19.	61	74
20.	63	76
21.	56	77
22.	36	48
23.	30	33
24.	28	38
25.	22	30
26.	0	13
27.	15	21
28.	31	31
29.	36	48
30.	36	35
31.	33	36
Mean	58.1	68.4

Day	Max.	SEA	SES	Def.	Observers	Day	Max.	SEA	SES	Def.	Observers
1	1351	1	1	5	A1,19,26,28,31,37,42,45,46	11	2030	1	1+	5	A1,3,19,26,28,31,34,37,45,46
1	1506	1-	1	5	A1,19,26,31,37,45,46	11	2036	1-	1-	5	A1,3,19,26,28,31,34,37,45,46
2	1418	1	1+	5	A1,19,26,28,31,37,45,46	11	2233	1	3	5	A1,3,19,28,31,34,37,45,46
2	2045		1	5	A1,3,45	12	0022	1	1+	5	A31,43
5	1806		1	5	A1,34,45,46	12	0116	1-	1	5	A31,43
6	1516	1	1+	5	A1,19,26,31,34,42,45,46	12	0300	2	2	5	A31,43
7	0543	1+	2	5	A31,43	12	1329	1	1	5	A1,19,26,34,37,45
7	1218		1	5	A1,3,19,26,34,45,46	12	1358		1	5	A1,19,26,31,34,37,45
7	1447	1	1	5	A1,3,19,26,31,34,37,45,46	12	1603	1-	1-	5	A1,19,26,28,31,34,45,46
7	1645		1-	5	A1,3,19,28,31,34,37,45,46	12	1615	1+	1+	5	A1,19,26,28,31,34,45,46
7	1659		1-	5	A1,3,19,31,34,37,45,46	12	1747		1-	4	A1,19,34,45,46
7	1808	1	2	5	A1,3,19,28,31,34,37,45,46	12	1805		1	5	A1,19,26,31,34,45
8	2000		3	5	A1,3,19,28,31,34,37,45,46	12	2100	1+	2+	5	A1,19,26,31,34,37,45,46
9	0716	1+		5	A42	14	1636	1	1	5	A1,3,19,31,34,45,46
9	0856	1+		5	A42	15	0059	2	1+	5	A19,31,43
9	1013	2		5	A42	15	1432	1	1+	5	A1,19,31,34,37,45,46
9	2030		2	4	A1,3,19,28,34,45,46	15	1523		1-	5	A1,19,37,45,46
9	1302		1	5	A1,3,19,28,31,34,37,45	15	1955		1	5	A1,19,34,45
9	1435		1	5	A1,3,19,31,34,37,45,46	17	1413		1-	5	A1,3,19,26,34,45,46
9	1653	2+	1+	5	A1,3,19,26,31,42,45,46	17	1431		1-	5	A1,3,19,26,34,45,46
9	1744		1	5	A1,3,19,31,45,46	17	2142	1	1+	5	A1,3,19,26,28,31,34,37,45,46
9	1819		1	5	A1,19,26,31,40,45,46	18	0029		1+	5	A31,37
9	1828		2+	5	A1,3,19,28,31,37,42,45,46	18	0901	3		5	A42
9	2232		1-	4	A19,31,34,37,45	18	1315		1	5	A1,19,26,34,37,46
9	2314		1-	5	A19,28,31,34,37,45	18	1540		1	5	A1,19,26,34,37,46
10	0145	1+	1+	5	A31,37,43	18	1729	1+	2	5	A1,19,28,31,34,37,42,46
10	0243	1	1-	5	A31,43	18	2000	1+	3	5	A1,3,19,26,28,31,34,37,45,46
10	0317	1	1	5	A31,43	18	2024		1-	5	A1,19,28,37,45
10	0615	2+	2	5	A31,42,43	20	0029	2	5	5	A31,37
10	1330	1	1+	5	A1,19,26,31,34,37,45	20	0323		1+	5	A31
10	1714	3	2+	5	A1,19,28,31,34,37,42,45,46	20	0546		1-	4	A31
10	1732		1	5	A1,19,28,31,41,45,46	20	0721		1-	4	A31
10	1923		1+	5	A1,19,28,31,34,37,45,46	20	1522	1	1	5	A1,3,19,26,34,45,46
10	2036		1+	5	A1,19,28,31,34,45,46	20	1615	1	1+	5	A1,3,19,26,31,34,37,45,46
10	2053		1-	5	A1,19,28,31,34,45,46	20	1709		1-	5	A1,34,37,45,46
10	2138		1-	5	A1,19,28,31,34,37,45	20	1906		1-	5	A1,34,45
10	2253		1	5	A31,34,37	21	1526	1-	1-	5	A1,3,19,31,34,45,46
11	0104	1	1+	5	A31,37,43	21	1554	1	2	5	A1,3,19,28,31,34,37,42,45,46
11	0406	1-	1-	5	A31,43	21	1847	3	1	5	A1,3,19,28,34,42,45,46
11	0435	1	2	5	A31,43	21	1900	1	2+	5	A1,3,19,28,31,34,37,45,46
11	0549	2	2	5	A31,42,43	21	1305	1-	1	5	A1,19,34,45,46
11	1058	2+	3	5	A1,3,19,26,28,34,42,45,46	21	1336	1	2	5	A1,19,26,34,37,45,46
11	1553		1-	5	A1,3,19,31,34,37,46	22	1707		3+	5	A1,19,31,34,45,46
11	1619		1-	5	A1,3,19,34,46						
11	1655		1	5	A1,3,19,26,28,31,34,37,46						



Charts from the following observers were received and analyzed:

A-1, 3, 19, 26, 28, 31, 34, 37, 40, 42, 43, 45, 46