

**CRPL-F 209 PART B**

**FOR OFFICIAL USE**

**PART B**  
**SOLAR - GEOPHYSICAL DATA**

**ISSUED**  
**JANUARY 1962**

**U. S. DEPARTMENT OF COMMERCE**  
**NATIONAL BUREAU OF STANDARDS**  
**CENTRAL RADIO PROPAGATION LABORATORY**  
**BOULDER, COLORADO**

## SOLAR - GEOPHYSICAL DATA

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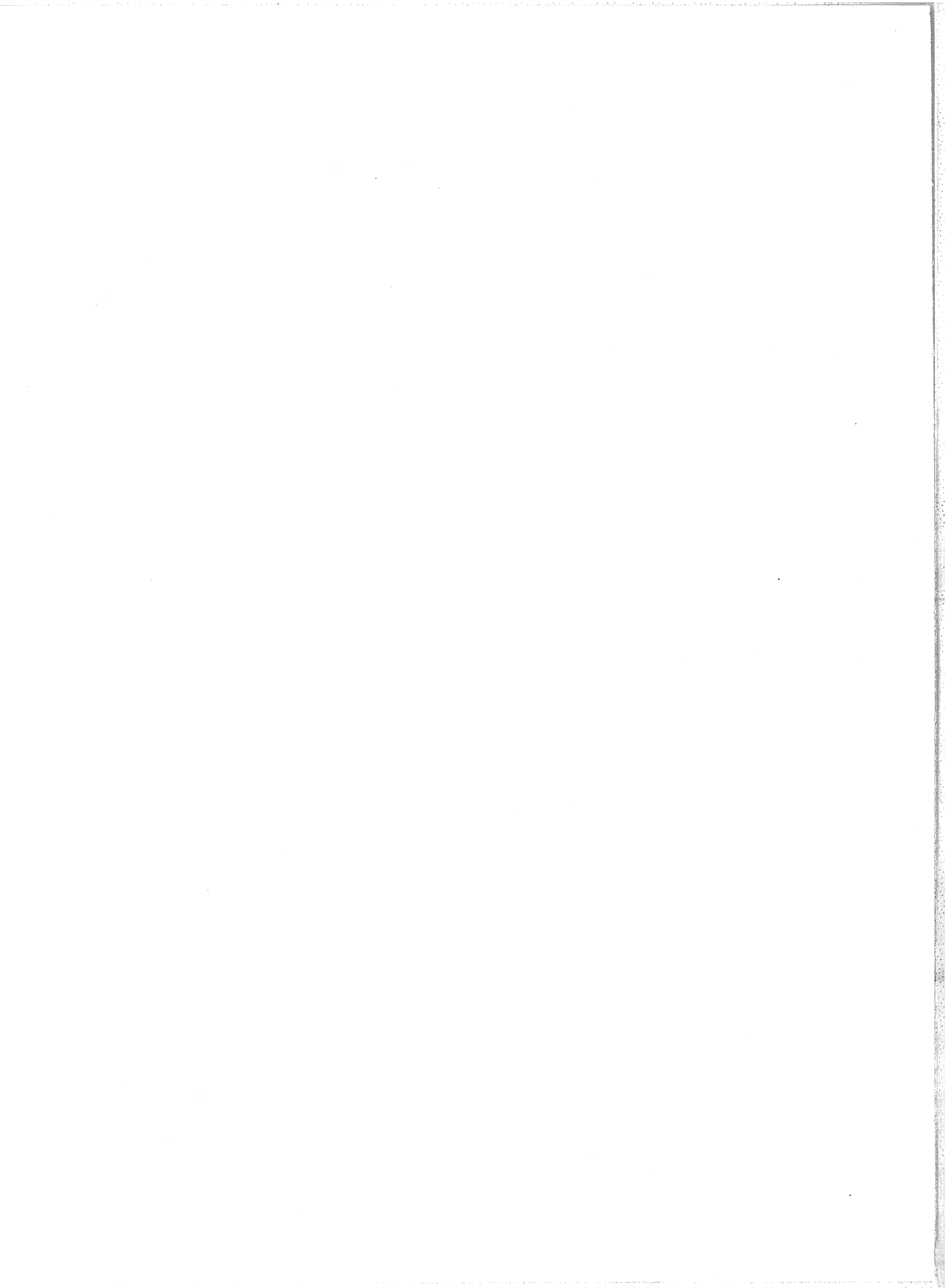
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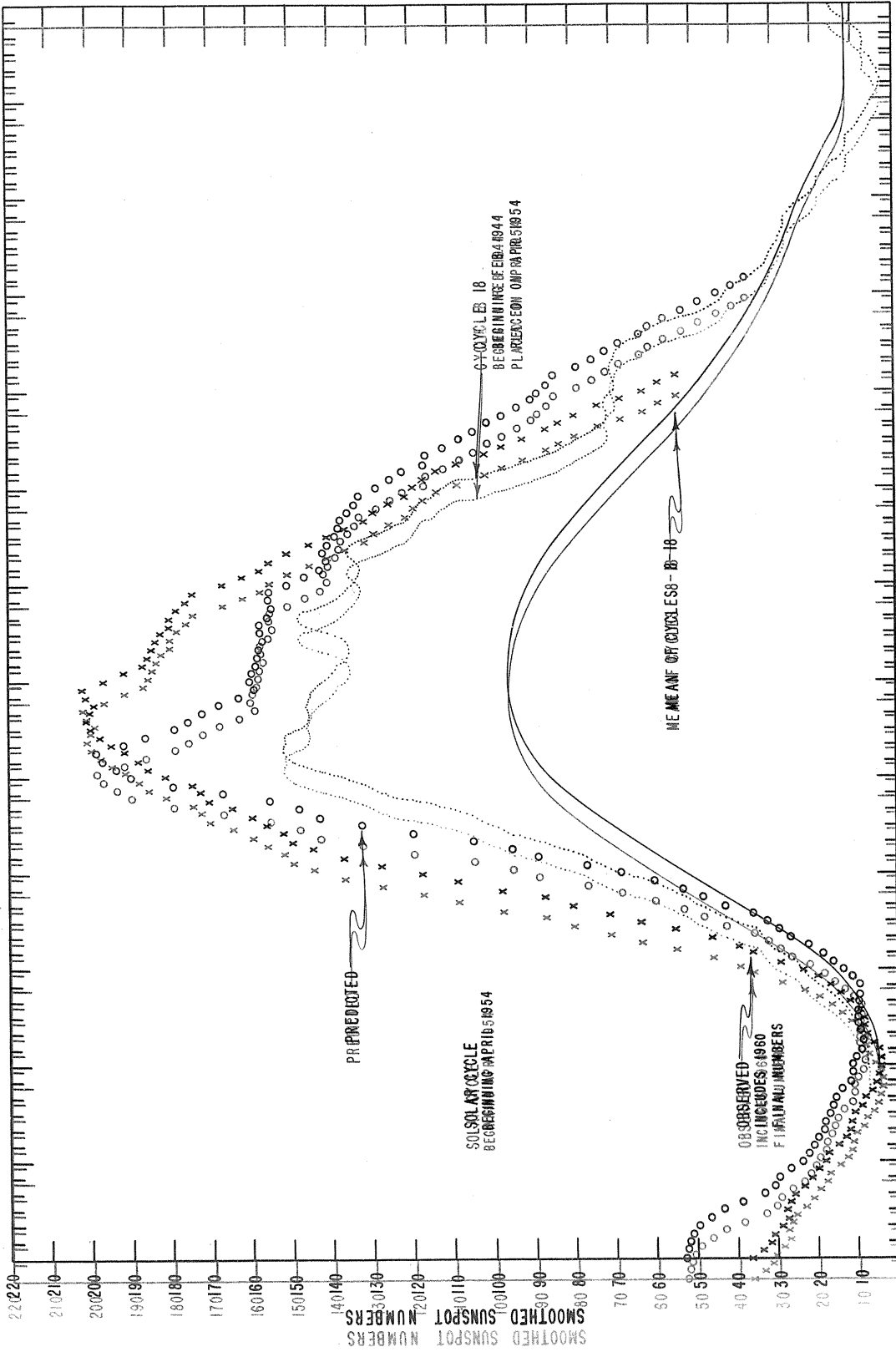


The descriptive text was republished November 1961.

## DAILY SOLAR INDICES

Nov. 1961	American Relative Sunspot Numbers $R_A'$
1	0
2	0
3	0
4	11
5	17
6	26
7	49
8	58
9	68
10	49
11	50
12	47
13	52
14	40
15	32
16	15
17	13
18	13
19	12
20	9
21	16
22	20
23	8
24	23
25	21
26	18
27	30
28	29
29	43
30	48
Mean:	27.2

Dec. 1961	Zürich Provisional Relative Sunspot Numbers $R_Z$	Daily Values Solar Flux at 2800 Mc, Ottawa, Canada Flux
1	76	105
2	75	108
3	74	111
4	60	105
5	54	101
6	22	101
7	29	94
8	30	96
9	27	92
10	13	87
11	0	82
12	0	78
13	0	82
14	10	81
15	8	81
16	7	81
17	7	79
18	7	81
19	7	82
20	21	88
21	21	90
22	47	99
23	56	101
24	77	104
25	94	-
26	80	102
27	70	103
28	74	98
29	55	98
30	38	94
31	30	93
Mean:	37.7	93.2



APR.	APR.	APR.	APR.	APR.	APR.	APR.	APR.	APR.	APR.	APR.	APR.	APR.	APR.
1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965

COMMERCE 67A STANDARDS BUILDING

PREDICTED AND OBSERVED SUNSPOT NUMBERS

## CALCIUM PLAGE AND SUNSPOT REGIONS

DECEMBER 1961

CMP Dec. 1961	Lat	McMath Plage Number	Return of Region	Calcium Plage Data				Sunspot Data		
				CMP Values Area Int.		History, Age		CMP Values Area Count		History
01.7	N06	6281	6265	2800	3	<i>l — l</i>	3			
02.9	S11	6282	New	1400	3.5	<i>l — l</i>	1			
03.3	N12	6284	New	1000	3	<i>l — l</i>	1			
05.1	N15	6285	New	2800	3	<i>l — l</i>	1	410	23	<i>l — l</i>
05.1	S12	6286	6266	900	2	<i>l — l</i>	4			
07.7	N21	6287	6270	1300	2	<i>l — l</i>	2			
09.9	N21	6288	6268	900	2	<i>l — l</i>	3			
11.3	N20	6289	6268	800	2.5	<i>l — l</i>	3			
11.6	N08	6290	6271	1000	2	<i>l \ l</i>	3			
13.3	S04	6294	New	300	2.5	<i>b / l</i>	1			
14.0	N07	6291	6273	1100	3	<i>l — l</i>	4			
17.2	N16	6297	6274	1000	2	<i>l — l</i>	3			
18.3	S09	6295	New	(900)	(3)	<i>l \ d</i>	1			
21.2	N15	6298	New	1000	3	<i>l — l</i>	1			
21.4	N02	6296	New	1300	3	<i>l — l</i>	1			
23.4	N15	6299	6278	1600	3	<i>l — l</i>	4	110	2	<i>l / l</i>
26.6	S03	6300	New	1000	2.5	<i>l — l</i>	1	510	4	<i>l — l</i>
27.4	S04	6301	New	2100	3.5	<i>l — l</i>	1			
28.3	N09	6302	6281	2800	3	<i>l — l</i>	4			
28.4	N21	6303	New	1700	3.5	<i>l — l</i>	1	390	6	<i>l — l</i>
30.4	S10	6304	6282	1400	2.5	<i>l \ l</i>	2			
30.8	N10	6305	6284	700	2	<i>l — l</i>	2			

COMMERCE - STANDARDS - BOULDER

# PROVISIONAL CORONAL LINE EMISSION INDICES

DECEMBER 1961

CMP Dec 1961	North East Quadrant (observed 7 days earlier)			South East Quadrant (observed 7 days earlier)			South West Quadrant (observed 7 days later)			North West Quadrant (observed 7 days later)					
	G6	G1	R1	G6	G1	R6	R1	G6	G1	R6	R1	G6	G1	R6	R1
1	110a	168a	14a	25a	112a	5a	5a	x	x	x	x	x	x	x	x
2	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
3	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
4	43a	67a	20a	30a	76a	40a	40a	x	x	x	x	x	x	x	x
5	34	48	10a	14a	31	7a	10a	37	56	19	40	55	95	23	36
6	x	x	x	x	x	x	x	14	20	20	28	35	59	21	28
7	x	x	x	x	x	x	x	11	17	12	18	40	76	9	12
8	31a	56a	15a	25a	8a	10a	15a	4	6	x	x	38	56	x	x
9	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
10	x	x	x	x	x	x	x	8	12	21	35	26	40	18	37
11	72	118	8a	12a	28	8a	10a	x	x	x	x	x	x	x	x
12	38a	56a	21a	50a	8a	16a	25a	x	x	x	x	x	x	x	x
13	56	123	31a	88a	20	15a	20a	11	22	33	47	32	78	49	115
14	40	59	29	60	11	16	20	17	26	17	22	29	60	11	15
15	x	x	x	x	x	x	x	15	17	10a	14a	29	34	15a	32a
16	x	x	x	x	x	x	x	19	22	12a	26a	23	28	3a	4a
17	x	x	x	x	x	x	x	21	42	18a	28a	21	31	4a	10a
18	x	x	x	x	x	x	x	14	20	24a	28a	24	28	5a	10a
19	42	53	16	26	33	33	56	14	26	x	x	15	20	x	x
20	37	39	59	120	25	22	26	47	140	x	x	22	39	x	x
21	41	53	25	44	45	15	20	18	40	15	30	23	49	16	30
22	28	42	x	x	28	x	x	13	24	15	22	30	56	17	45
23	x	x	x	x	x	x	x	13	20	11	12	27	52	11	20
24	25	40	33	55	14	24	30	30	45	8	12	30	45	5	6
25	x	x	x	x	x	x	x	x	x	25a	40a	x	x	7a	14a
26	x	x	x	x	x	x	x	x	x	18a	28a	x	x	18a	25a
27	122	200	42	65	165	43	60	x	x	24	32	x	x	42	78
28	x	x	x	x	x	x	x	14	28	4	5	22	38	7	15
29	62	81	16	28	81	14	32	x	x	x	x	x	x	x	x
30	71	115	27a	44a	84	13a	36a	x	x	x	x	x	x	x	x
31	70	112	20a	40a	59	15a	22a	x	x	x	x	x	x	x	x

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x = no observations

a = index computed from low weight data

\* = yellow line observed



# SOLAR FLARES

DECEMBER 1961

OBSERVATORY	DATE	OBSERVED UNIVERSAL TIME		LOCATION			DURATION MINUTES	IM-PORTANCE	OBS. COND.	TIME U T	MEASUREMENTS			PROVISIONAL IONOSPHERIC EFFECT
		START	END	APPROX. LAT.	MGR. DIST.	MCMATH PLACE REGION					MEAS. AREA Sq. Degs.	CORR. AREA Sq. Degs.	MAX. WIDTH Hg	
CLIMAX SAC PEAK	02	1920	1942 D	N12	W22	6280	22 D	1	2		2.40	2.70		
	02	1920	1950	N12	W30	6280	30	1	2		3.18	3.30	30	
	02	2136	2214 D	N06	W20	6281	38 D	1	2		3.47	3.42	20	
CAPRI S ONDREJOV SAC PEAK	03	0916 E	0947 D	N13	W37	6280	31 D	1	3	0927	1.80	2.30	2.50	
	03	0917	0950	N12	W37	6280	33	1	3	0923				
	03	1447 E	1514 U	N11	W42	6280	27 D	1	2		2.17	2.76	23	
CLIMAX LOCKHEED	03	2014	2051	N15	E15	6285	37	1	1		4.50	4.50	20	
	03	2040 E	2153 E	N14	E14	6285	73 D	1	1	2045	2.50	2.50	20	
	04	1735	1820	N15	E02	6285	45	1			2.10	2.10		
MCMATH	05	1949 E	2000 D	S09	W40	6282	11 D	1	1	1955		2.00		
SAC PEAK	10	1434	1450	N09	W90	6284	16	1+	3		1.73		28	
	10	1855 U	1916	N07	E62	6291	21 U	1	3		1.96	2.93	18	
	16	1714	1730	N14	E90	6299	16	1	2	1719	.50	2.50	20	
LOCKHEED	16	1739	1752	N14	E90	6299	13	1	1	1744	.40	2.00	10	
	16	1945	2016	N14	E90	6299	31	1	2	1955	.90	4.50	20	
	20	1927	1955	S07	E90	6301	28	1	2	1934	.70	3.50	10	
WENDEL KODAIKNL	22	0821	0858	S05	E59	6300	37	1			3.00		20	
	22	1012 E	1102 D	S03	E65	6301	50 D	1+			5.00		32	
	22	1015	1019 D	S03	E65	6301	4 D	1	1		1.30	3.20	10	
WENDEL MCMATH SAC PEAK	22	1017 E	1043 D	S05	E57	6300	26 D	1	2		4.00		24	
	22	1501	1536 D	S05	E60	6300	35 D	1	2	1523	2.30	2.30	22	
	22	1514 E	1612 U	S06	E60	6300	58 D	1	2		2.17	3.26		
LOCKHEED	23	1856	2350	S06	E42	6300	294	1	3	2005	3.20	3.70	20	
	23	1856	2350	S06	E42	6300								
	23	1858	2204 D	S08	E44	6300	186 D	3	3		10.93	12.66	32	
SAC PEAK	23	2100	2140	S07	E90	6304	40	1	2	2120	.90	4.50	10	
	23	2138 U	2202 D	N12	W13	6299	24 D	1	3		2.17	2.15	24	
	23	2209	2225	S12	E90	6304	16	1	3	2214	.80	4.00	10	
LOCKHEED	23	2320	2340	S13	E90	6304	20	1	2	2330	1.00	5.00	10	
	23	2353	0010	S13	E90	6304	17	1	1	2358	.50	2.50	10	
	24	1218 E	1253 D	S02	E31	6300	35 D	1+	3	1227	6.00	6.00		
WENDEL ONDREJOV	24	1226 E	1234 D	N01	E42	6301	8 D	1+	3			3.30		
	25	0413	0420	N21	E42	6303	7	1	2	0417	2.10	3.10	114	
	25	1246	1312	N22	E35	6303	26	1	3	1252		2.40		
SAC PEAK	25	2007	2150	S06	E17	6300	103	2	2	2055	5.40	5.30	20	
	25	2028	2140	S07	E14	6300	72	2	3		7.07	6.95	28	
	25	2146	2204 D	N13	W40	6299	18 D	1	3	2158	2.89	3.32	30	
LOCKHEED	25	2148	2300	N13	W39	6299	72	1	2	2158	3.20	3.70	20	
	26	0343	0352	N14	W45	6299	9	1	2	0343	2.80	4.10	114	
	27	1656	1838	S07	W12	6300	102	2	3		6.56	6.44	25	

# SOLAR FLARES

## DECEMBER 1961

OBSERVATORY	DATE	OBSERVED UNIVERSAL TIME		LOCATION			DURA-TION MINUTES	IM-POR-TANCE	OBS. COND.	TIME	MEASUREMENTS			PROVISIONAL IONOSPHERIC EFFECT
		START	END	APPROX. LAT.	MER. DIST.	MCMATH PLAGE REGION					MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hr	
	DEC 1961													
→ LOCKHEED	27	1658	1750	S07 W13		6300	52	1	1	1705	4.10	4.00		30
□ LOCKHEED	27	2127	2228	N12 E52		6306	61	1	2	2208	1.50	2.00		20
LOCKHEED	27	2127	2228	N12 E52		6306	61	1	2	2208	1.50	2.00		20
WENDEL	28	0847	0905	N20 E30		6305	18	1				3.00		
WENDEL	28	0952	1010	S04 W28		6300	18	D				3.00		
SAC PEAK	28	1710	1724	N13 E02		6302	14	1	3		2.17	2.12		22
SAC PEAK	28	1822	1842	N22 W00		6303	20	1	3		3.36	3.36		20
WENDEL	29	1207	1215	S05 W43		6300	8	D	1			3.00		

COMMERCE - STANDARDS - BOULDER

ATHENS, GREECE	HONOLULU, HAWAII, USA	NERA
BAKOU, USSR	IKOMASAN, JAPAN	NEDERHORST den BERCH, NETHERLANDS
CAPETOWN, ROYAL OBSERVATORY, CAPE OF GOOD HOPE	KIEV KO, USSR	KRASNAYA PAKHRA, USSR
CAPRI F, ITALY (GERMAN)	KIEV KY, USSR	SACRAMENTO PEAK, N. MEX. USA
CAPRI S, ITALY (SWEDISH)	LOCKHEED, LOS ANGELES, CALIF., USA	STOCKHOLM, SWEDEN
CRIMEE, SIMEIZ, USSR	MCMATH, MCMATH-HULBERT	SCHAUTINS, SCHAUTINSLAND, GFR
HERSTMONCEU, ROYAL GREENWICH OBSERVATORY, HERSTMONCEUX, ENGLAND	MOSCOW, MOSCOW-GAISH, USSR	TASHKENT, TASHKENT, USSR
		WENDEL, WENDELSTEIN, GFR

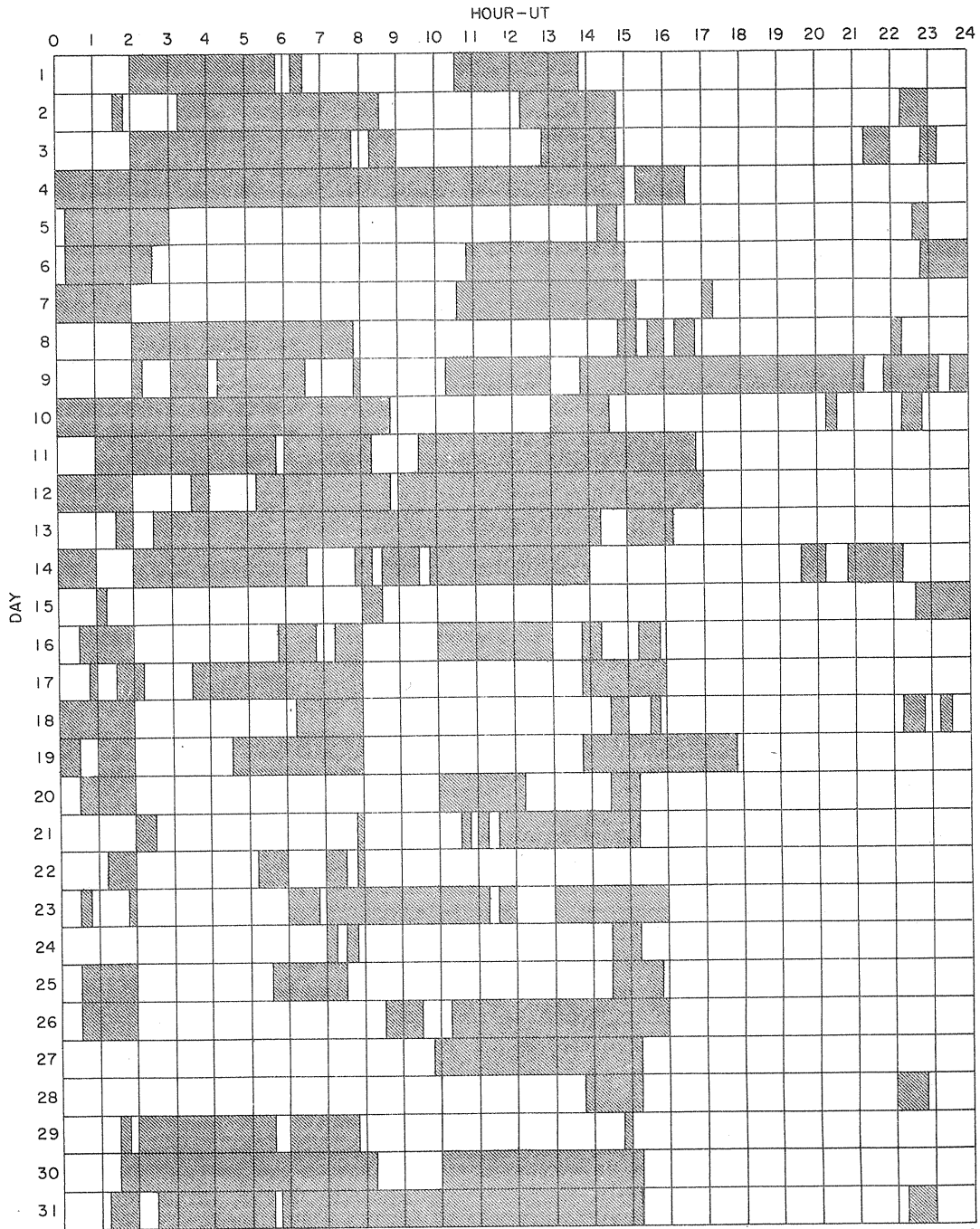
ALL VALUES IN THE MAXIMUM INTENSITY COLUMN FOR SAC PEAK ARE ARBITRARY UNITS (0-40) AND FOR LOCKHEED ARE ARBITRARY UNITS (10-40), NOT PERCENT OF CONTINUOUS SPECTRUM.

SEE DESCRIPTIVE TEXT PUBLISHED NOVEMBER 1961 FOR DEFINITION OF CORRECTED AREA VALUES LISTED FOR CLIMAX, HAWAII, LOCKHEED AND SACRAMENTO PEAK.

E = LESS THAN D = GREATER THAN U = APPROXIMATE □ = NOT REPORTED.

INTERVALS OF NO FLARE PATROL OBSERVATIONS

DECEMBER 1961



COMMERCE - STANDARDS - BOULDER 350MM NBS 88

Stations Include:

- |         |            |                |              |                 |
|---------|------------|----------------|--------------|-----------------|
| Arcetri | Honolulu   | Lockheed       | Ondrejov     | Sacramento Peak |
| Climax  | Kodaikanal | McMath-Hulbert | Herstmonceux | Wendelstein     |

# SUBFLARES

III d

Noted as follows: Date-Universal Time-Coordinates

NOVEMBER 1961

<table border="0" style="width: 100%;"> <tr><td>LOCKHEED</td><td>03</td><td>2129</td><td>S07 E00</td></tr> <tr><td>SAC PEAK</td><td>04</td><td>1600</td><td>N11 W12</td></tr> <tr><td>MCMATH</td><td>04</td><td>1601</td><td>N09 W12</td></tr> <tr><td>MCMATH</td><td>04</td><td>1759</td><td>N09 W15</td></tr> <tr><td>HONOLULU</td><td>04</td><td>1800 E</td><td>S06 E38</td></tr> <tr><td>MCMATH</td><td>04</td><td>1922</td><td>N09 W16</td></tr> <tr><td>HONOLULU</td><td>04</td><td>1930 E</td><td>N01 W14</td></tr> <tr><td>MEUDON</td><td>05</td><td>1308</td><td>N10 W23</td></tr> <tr><td>MCMATH</td><td>05</td><td>1325 E</td><td>N09 W26</td></tr> <tr><td>MCMATH</td><td>05</td><td>1505</td><td>N09 W27</td></tr> <tr><td>MCMATH</td><td>05</td><td>1610</td><td>N09 W29</td></tr> <tr><td>MCMATH</td><td>05</td><td>1655</td><td>N09 W29</td></tr> <tr><td>MCMATH</td><td>05</td><td>2000 E</td><td>N09 W29</td></tr> <tr><td>MCMATH</td><td>07</td><td>1845</td><td>N05 W40</td></tr> <tr><td>LOCKHEED</td><td>07</td><td>2040 D</td><td>N12 W56</td></tr> <tr><td>LOCKHEED</td><td>07</td><td>2150</td><td>N12 W56</td></tr> <tr><td>LOCKHEED</td><td>07</td><td>2327</td><td>N12 W56</td></tr> <tr><td>HONOLULU</td><td>08</td><td>2138</td><td>N24 W30</td></tr> <tr><td>LOCKHEED</td><td>08</td><td>2224 U</td><td>N13 W18</td></tr> <tr><td>LOCKHEED</td><td>08</td><td>2357</td><td>N23 W33</td></tr> <tr><td>HONOLULU</td><td>09</td><td>0000 E</td><td>N23 W32</td></tr> <tr><td>HONOLULU</td><td>09</td><td>0126</td><td>N22 W33</td></tr> <tr><td>CAPRI S</td><td>09</td><td>1213 E</td><td>N19 E11</td></tr> <tr><td>MCMATH</td><td>09</td><td>1311</td><td>N10 W82</td></tr> <tr><td>MCMATH</td><td>09</td><td>1321</td><td>N18 E09</td></tr> <tr><td>MCMATH</td><td>09</td><td>1334</td><td>N10 W85</td></tr> <tr><td>LOCKHEED</td><td>09</td><td>1702</td><td>N12 W85</td></tr> <tr><td>MCMATH</td><td>09</td><td>1703</td><td>N11 W88</td></tr> <tr><td>SAC PEAK</td><td>10</td><td>1454</td><td>N10 W90</td></tr> <tr><td>MCMATH</td><td>10</td><td>1525</td><td>N18 W05</td></tr> <tr><td>SAC PEAK</td><td>10</td><td>1526</td><td>N19 W06</td></tr> <tr><td>SAC PEAK</td><td>10</td><td>1758</td><td>N17 W08</td></tr> <tr><td>LOCKHEED</td><td>10</td><td>1758</td><td>N09 W90</td></tr> <tr><td>LOCKHEED</td><td>10</td><td>1850</td><td>N09 E62</td></tr> <tr><td>HONOLULU</td><td>10</td><td>1926</td><td>N19 W09</td></tr> <tr><td>SAC PEAK</td><td>10</td><td>2202</td><td>N18 W10</td></tr> <tr><td>KODAIKNL</td><td>11</td><td>0235</td><td>N17 W13</td></tr> <tr><td>WENDEL</td><td>11</td><td>0754 E</td><td>N18 W14</td></tr> <tr><td>WENDEL</td><td>11</td><td>0837 E</td><td>N18 W14</td></tr> <tr><td>WENDEL</td><td>11</td><td>1157 E</td><td>N18 W15</td></tr> <tr><td>CAPRI S</td><td>11</td><td>1230 E</td><td>N04 E49</td></tr> <tr><td>WENDEL</td><td>11</td><td>1307 E</td><td>N17 W13</td></tr> <tr><td>MCMATH</td><td>11</td><td>1346</td><td>N18 W13</td></tr> <tr><td>WENDEL</td><td>11</td><td>1347 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W29	MCMATH	05	1655	N09 W29	MCMATH	05	2000 E	N09 W29	MCMATH	07	1845	N05 W40	LOCKHEED	07	2040 D	N12 W56	LOCKHEED	07	2150	N12 W56	LOCKHEED	07	2327	N12 W56	HONOLULU	08	2138	N24 W30	LOCKHEED	08	2224 U	N13 W18	LOCKHEED	08	2357	N23 W33	HONOLULU	09	0000 E	N23 W32	HONOLULU	09	0126	N22 W33	CAPRI S	09	1213 E	N19 E11	MCMATH	09	1311	N10 W82	MCMATH	09	1321	N18 E09	MCMATH	09	1334	N10 W85	LOCKHEED	09	1702	N12 W85	MCMATH	09	1703	N11 W88	SAC PEAK	10	1454	N10 W90	MCMATH	10	1525	N18 W05	SAC PEAK	10	1526	N19 W06	SAC PEAK	10	1758	N17 W08	LOCKHEED	10	1758	N09 W90	LOCKHEED	10	1850	N09 E62	HONOLULU	10	1926	N19 W09	SAC PEAK	10	2202	N18 W10	KODAIKNL	11	0235	N17 W13	WENDEL	11	0754 E	N18 W14	WENDEL	11	0837 E	N18 W14	WENDEL	11	1157 E	N18 W15	CAPRI S	11	1230 E	N04 E49	WENDEL	11	1307 E	N17 W13	MCMATH	11	1346	N18 W13	WENDEL	11	1347 E	N17 W15	CAPRI S	11	1349 E	N14 W11	MCMATH	21	1415	N09 W61	UCCLE	21	1416	N11 W58	UCCLE	21	1509	N10 W60	MCMATH	21	1511	N09 W62	HUANCAYO	21	1512 E	N10 W59	LOCKHEED	21	1818	N19 W67	LOCKHEED	21	1856	N11 E57	ONDREJOV	22	0931 E	N11 W70	WENDEL	22	1029 E	N13 W70	UCCLE	22	1031	N07 W70	CAPRI S	22	1140 E	N07 W73	UCCLE	22	1306	N07 W71	SAC PEAK	22	1642	N12 E41	SAC PEAK	22	1952	N08 W80	LOCKHEED	22	1952	N08 W80	LOCKHEED	22	2158	N05 E50	LOCKHEED	22	2217	N09 W80	CLIMAX	23	1745	N05 E90	LOCKHEED	23	1746	N06 E90	LOCKHEED	23	1815	N06 E90	CLIMAX	23	1930	N06 E90	LOCKHEED	23	2010	N06 E90	LOCKHEED	23	2010	N06 E90	LOCKHEED	23	2010	N06 E90	<table border="0" style="width: 100%;"> <tr><td>LOCKHEED</td><td>23</td><td>2042</td><td>N07 E04</td></tr> <tr><td>LOCKHEED</td><td>23</td><td>2046</td><td>N05 E05</td></tr> <tr><td>MCMATH</td><td>24</td><td>1853 E</td><td>N07 E80</td></tr> <tr><td>MCMATH</td><td>24</td><td>1909</td><td>N07 E23</td></tr> <tr><td>WENDEL</td><td>26</td><td>0945 E</td><td>N06 E03</td></tr> <tr><td>WENDEL</td><td>26</td><td>1002 E</td><td>N06 E03</td></tr> <tr><td>MCMATH</td><td>26</td><td>1536</td><td>N09 E63</td></tr> <tr><td>WENDEL</td><td>28</td><td>1121 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E80	MCMATH	24	1909	N07 E23	WENDEL	26	0945 E	N06 E03	WENDEL	26	1002 E	N06 E03	MCMATH	26	1536	N09 E63	WENDEL	28	1121 E	N09 E22	LOCKHEED	28	1905	N15 E90	UCCLE	29	1028	N11 E53	UCCLE	29	1100	N15 E76	UCCLE	29	1103	S10 E50	UCCLE	29	1107	N06 W40	HONOLULU	29	2010 E	N10 E13	HONOLULU	30	0038	N09 E12	HONOLULU	30	0042	N08 E07	CLIMAX	30	1816	N12 E02	HUANCAYO	30	1817 E	N09 W00	HONOLULU	30	1820 E	N09 E02	SAC PEAK	30	1826 E	N11 E02	HONOLULU	30	2340 E	N10 W08	WENDEL	11	1428 E	N18 W19	MCMATH	11	1526	N18 W18	SAC PEAK	11	1540	N18 W14	MCMATH	11	1542	N18 W15	CLIMAX	13	1626	N17 W35	MCMATH	13	1721	N18 W34	CLIMAX	13	1721	N17 W35	HUANCAYO	13	1723	N15 W29	HONOLULU	13	2034 E	N19 W25	CLIMAX	13	2252	N17 W38	LOCKHEED	15	1921	N20 W80	LOCKHEED	15	1928	N18 W77	SAC PEAK	16	1536	N20 W87	SAC PEAK	17	1456	N08 W08	MEUDON	17	1457	N13 W02	WENDEL	19	1145 E	N11 W62	LOCKHEED	19	1615 E	N10 W70	LOCKHEED	19	2041	N10 W70	WENDEL	20	0842 E	N08 W71	UCCLE	20	0854	N09 W44	UCCLE	20	0933	N09 W44	WENDEL	20	1222 E	N09 W44	WENDEL	20	1235 E	N07 W75	MCMATH	20	1318 E	N08 W80	UCCLE	20	1354	N10 W78	UCCLE	20	1402	N07 W78	SAC PEAK	20	1630	N11 W80	MCMATH	20	1803 E	N08 W50	KODAIKNL	21	0410	N06 W55	WENDEL	21	0733 E	N09 W54	UCCLE	21	0919	N10 W55	UCCLE	21	0958	N10 W56	UCCLE	21	1013	N10 W56	UCCLE	21	1039	N10 W56	UCCLE	21	1140	N08 W56	WENDEL	21	1152 E	N09 W53	WENDEL	21	1201 E	N09 W53	UCCLE	21	1209	N11 W54	WENDEL	21	1215 E	N10 W51	UCCLE	21	1201	N10 W57	UCCLE	21	1325	N11 W57	MCMATH	21	1325 E	N08 W61	UCCLE	21	1349	N11 W58	MCMATH	21	1349	N09 W60	UCCLE	21	1358	N10 W60
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MCMATH	20	1803 E	N08 W50																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
KODAIKNL	21	0410	N06 W55																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
WENDEL	21	0733 E	N09 W54																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
UCCLE	21	0919	N10 W55																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
UCCLE	21	0958	N10 W56																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
UCCLE	21	1013	N10 W56																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
UCCLE	21	1039	N10 W56																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
UCCLE	21	1140	N08 W56																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
WENDEL	21	1152 E	N09 W53																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
WENDEL	21	1201 E	N09 W53																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
UCCLE	21	1209	N11 W54																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
WENDEL	21	1215 E	N10 W51																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
UCCLE	21	1201	N10 W57																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
UCCLE	21	1325	N11 W57																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
MCMATH	21	1325 E	N08 W61																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
UCCLE	21	1349	N11 W58																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
MCMATH	21	1349	N09 W60																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
UCCLE	21	1358	N10 W60																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										

COMMERCE - STANDARDS - BOULDER

\*Rated as flare of importance  $\geq 1$  by other observatories (see CRPL-F 208 Part B for December 1961).

IONOSPHERIC EFFECTS OF SOLAR FLARES

SHORT WAVE RADIO FADEOUTS  
 SUDDEN COSMIC NOISE ABSORPTION  
 SUDDEN ENHANCEMENTS OF ATMOSPHERICS  
 SUDDEN PHASE ANOMALIES  
 SOLAR NOISE BURSTS AT 18 Mc

NOVEMBER 1961

NOVEMBER 1961	UNIVERSAL TIME			SWF TYPE	IMPORTANCE					WIDE SPREAD INDEX	STATIONS	KNOWN FLARE	
	START	END	MAX		IMP	ABS	SCNA	SEA	SPA				BUR
[ 01	2031	2152		SL 2							5	BE FM HU MC PR	+
01	2035	2215	2100		50	1+					3	RE MC	
* 05	1339	1528		S 3+							5	BE FM MC PR	
06	1210	1230	1227							1	1	RE	+
06	1232	1252	1247							2	1	RE	+
06	1307	1314								1	1	RE (Group)	+
[ 07	2018	2130	2037					50				BO+	
07	2027	2130	2041		83	2					3	RE MC	
07	2034						3				1	MC	
08	1250	1450	1317		43	2-					1	RE	
[ 10	1432	1730	1445					60				BO	
10	1433										3	RE MC	
* 10	1435		1456			1+					3	A5 A3	1434
10	1436	1534		SL 2+			2				5	BE BO FM HU MC NE PR	
[ 10	1445	1516									1	RE (Group)	
11	0327	0448		SL 3-							1	OK	+
* 16	1537	1630		SL 1+							4	HU MC PR	1602
19	0026	0028									1	HA	+
22	0237	0300		SL 1-							1	OK	0239
[ 22	1850	2000	1916					40				BO+	
22	2015	2045	2018		25	1					5	HA BO MC	2012
22	2016	2115	2025				1+				5	BO A1 A3 A5 A9HA MC	

COMMERCE - STANDARDS - BOULDER

\*Sudden Enhancement of Signal from 18 kc (Panama Canal Zone) observed by A5.  
 +No known flare patrol at time of event.

SOLAR RADIO EMISSION  
OUTSTANDING OCCURRENCES

IVa

DECEMBER 1961

OTTAWA

2800 MC

Dec. 1961	TYPE	START UT	DURATION HRS:MIN	MAXIMUM			REMARKS
				TIME UT MAX	PEAK FLUX	NEAR FLUX	
1	2 Simple 2	1817	1.5	1817.5	8	4	
	4 Post Increase		23.5		2	1.5	
2	2 Simple 2 f	1920.5	11.5	1924	26	13	
	4 Post Increase		45		6	3.5	
3	2 Simple 2 f	1443.7	4.3	1446	8	5	
	4 Post Increase		1 05		4	2.5	
3	3 Simple 3	1809	57	1825	4	2	
7	7 Period of Irreg. Activity	1838.5	9.5	1841	5	2.5	
23	- Record Incomplete	1900	> 1 15	Indet.	13*		*Peak during this period.
27	3 Simple 3	1657	1 03	1702	5	1.7	
28	3 Simple 3	1822	41	1832	3	1.7	

COMMERCE - STANDARDS - BOULDER

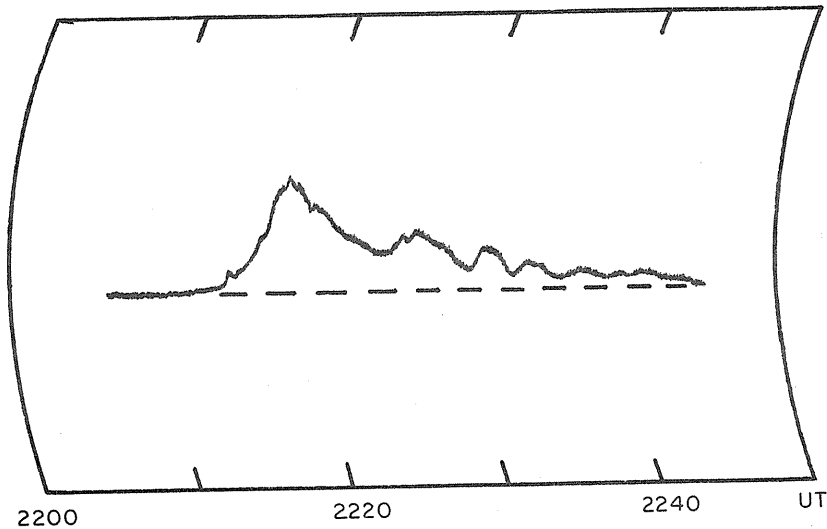
HOURS OF OBSERVATION: OCTOBER, NOVEMBER, DECEMBER 1961

OBSERVING PERIOD:

October 12:00 UT - 22:00 UT (approx)  
November 12:30 UT - 21:20 UT (approx)  
December 13:15 UT - 21:00 UT (approx)

Interference obscured portion of the records  
on 42 days during this quarter.

SEPTEMBER 28, 1961  
 2800 MC/S SOLAR NOISE BURST  
 OTTAWA, CANADA

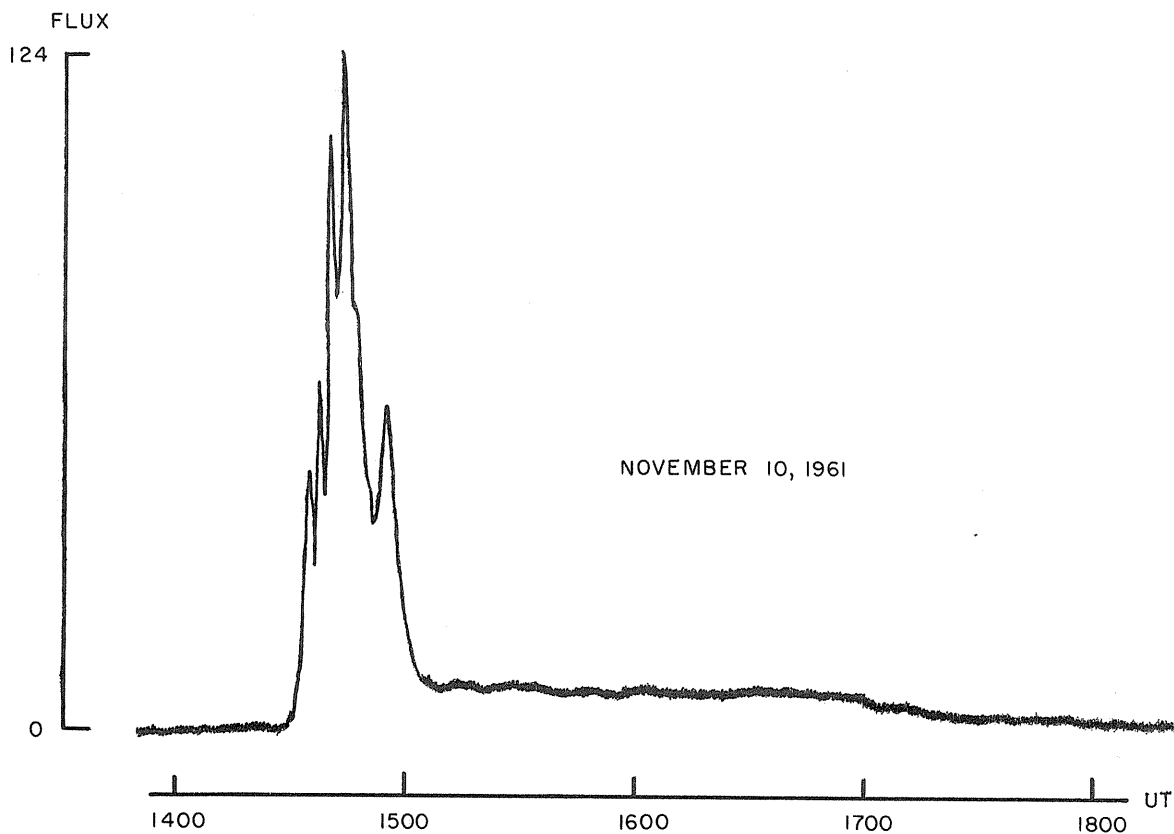


Time of start            22<sup>h</sup>11<sup>m</sup> U.T.  
 Time of maximum        22<sup>h</sup>18<sup>m</sup> U.T.  
 Duration                    30<sup>m</sup>  
 Peak flux                 800 X 10<sup>-22</sup> watts/m<sup>2</sup> /cps

## NOTE:

- a. Time of maximum was taken from the low gain channel shown above. Time of start was taken from a slow speed, high gain channel. Error in both quoted times could be as large as one minute.
- b. Peak flux was estimated from low gain channel record shown above, and could be in error by as much as 15%.
- c. The portion of the above record from 2221 to 2230 U.T. has been reconstructed from the logarithmic record of the burst obtained at another station, as this portion of the original record was obscured by local interference.

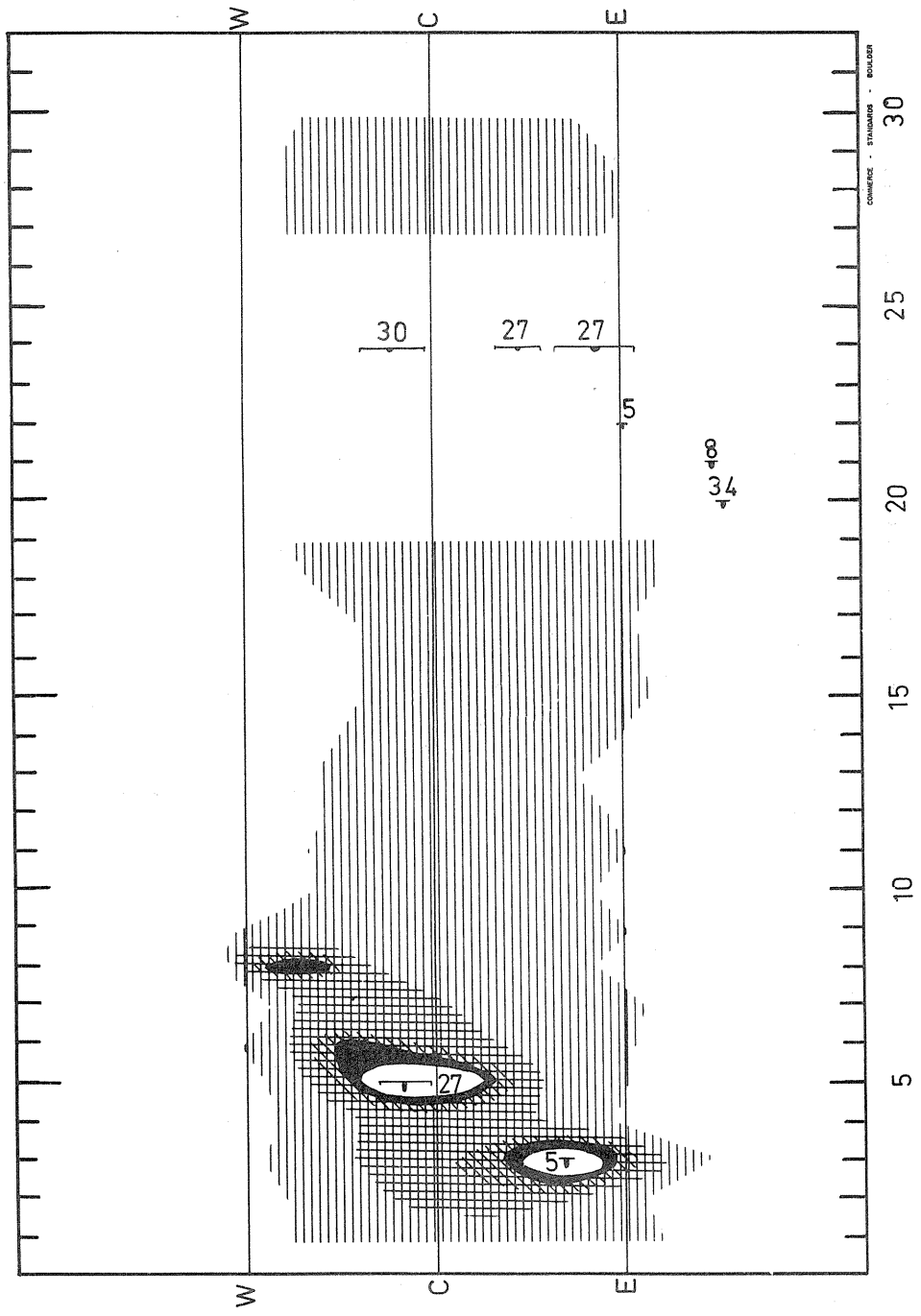
SELECTED 2800 MC/S SOLAR NOISE BURST  
OTTAWA, CANADA





# SOLAR RADIO EMISSION INTERFEROMETRIC OBSERVATIONS

Nançay                      DECEMBER 1961                      169 Mc



# SOLAR RADIO EMISSION

IVc

DECEMBER 1961

BOULDER

108 Mc.

Dec. 1961	Type	Start UT	Time of Maximum UT	Duration Minutes	Intensity
2	8	1921.6	1922.3	5.8	3
2	3	2112.0	2113.3	1.3	2
3	6	1409		491 D	2
4	4	1824.7	1825.1	1.1	3
4	3	1922.8	1923.4	2.7	2
22	1	1538		474	2
23	7	2013	2040	185	2
24	7	1433		270	2

COMMERCE - STANDARDS - BOULDER

No record December 29-31, 1961.

## NOMINAL TIMES OF OBSERVATION

DECEMBER 1961

BOULDER

108 Mc.

Dec. 1961	U.T.	Dec. 1961	U.T.
1	1407-2320	16	1420-2320
2	1408-2320	17	1421-2320
3	1409-2319	18	1422-2321
4	1410-2319	19	1422-2321
5	1411-2319	20	1423-2321
6	1412-2319	21	1423-2322
7	1413-2319	22	1423-2322
8	1414-2319	23	1424-2323
9	1415-2319	24	1425-2323
10	1416-2319	25	1425-2324
11	1417-2319	26	1425-2325
12	1417-2319	27	1426-2325
13	1418-2320	28	1426-2326
14	1419-2320		
15	1420-2320		

COMMERCE - STANDARDS - BOULDER

**SOLAR RADIO EMISSION  
SPECTRUM OBSERVATIONS**

OCTOBER 1961

Fort Davis

25-580, 2100-3900 Mc.

1961 <small>USCAR-1954-6</small>	OBSERVING HOURS	IMPORTANT BURSTS			FREQUENCY RANGE MC.	REMARKS
		TYPE	TIMES U.T.	INT.		
Oct. 1	1317-2400					
Oct. 2	1317-2400					
Oct. 3	1317-2400					
Oct. 4	1317-2400					
Oct. 5	1316-2400					
Oct. 6	1316-2400					
Oct. 7	1316-2400					
Oct. 8	1317-2400					
Oct. 9	1316-2400					
Oct. 10	1331-2400					
Oct. 11	1331-2400	IIIG	2304-2306	3	420-50	Weak I throughout day
Oct. 12	1332-2400					Weak I throughout day
Oct. 13	1332-2400					Weak I throughout day
Oct. 14	1331-2400	I	~ 2240-2355	1	300-100	Weak I throughout day
Oct. 15	1331-2400					Weak I throughout day
Oct. 16	1331-2400					
Oct. 17	1332-2400					
Oct. 18	1332-2400					
Oct. 19	1331-2400					Weak I throughout day
Oct. 20	1332-2355					Weak I throughout day
Oct. 21	1331-2355					
Oct. 22	1332-2355					
Oct. 23	1332-2350					
Oct. 24	1331-2350					
Oct. 25	1331-2350					
Oct. 26	1422-2350					
Oct. 27	1337-2345					
Oct. 28	1337-2345	IIIG	2125-2126	2	350-25	
Oct. 29	1337-2345					
Oct. 30	1337-2345					
Oct. 31	1337-2345					

NOVEMBER-DECEMBER 1961

Fort Davis

25-580 Mc. IVg

1961 <small>USNM-NSA</small>	OBSERVING HOURS	IMPORTANT BURSTS			FREQUENCY RANGE MC.	REMARKS
		TYPE	TIMES U. T.	INT.		
Nov. 1	1337-2345					
Nov. 2	1337-2245					
Nov. 3	1337-2340					
Nov. 4	1337-2340					
Nov. 5	1352-2340					
Nov. 6	1351-2340					
Nov. 7	1352-2340					
Nov. 8	1351-2340	IIIG	1430-1431	2	260-25	
Nov. 9	1351-2335					
Nov. 10	1351-2229 2235-2340	IIIG II	1432-1437 1433-1437 1438.5-1502	3 3 3	220-45 150-50 150-25	
Nov. 11	1350-2340	IIIG IIIG	1350-1352 1542-1545	3 3+	580-25 580-25	
Nov. 12	1351-2340	IIIG	2309-2312	2	350-50	
Nov. 13	1351-2340					
Nov. 14	1351-2340					Many weak III 100-25 Mc throughout day
Nov. 15	1351-2340					
Nov. 16	1350-2300					
Nov. 17	1351-2335					
Nov. 18	1351-2335					
Nov. 19	1351-2335	IIIG	1610-1613	3	200-25	
Nov. 20	1351-2335	IIIG	2132-2133	1	140-50	
Nov. 21	1351-2335					
Nov. 22	1351-2335					
Nov. 23	1351-2335					
Nov. 24	1351-2335					
Nov. 25	1405-2257 2259-2335					
Nov. 26	1403-2335					
Nov. 27	1405-2335					
Nov. 28	1404-2235 2245-2335					
Nov. 29	1409-2335					
Nov. 30	1408-2335					
Dec. 1	1408-2335					
Dec. 2	1408-2340	IIIG IIIG IIIG	1922-1925 1926-1929 2112-2113	3+ 3 2	400-25 240-25 580-25	
Dec. 3	1408-2340	IIIG IIIG	1442-1449 2056-2101	2-3 2	240-25 180-25	Weak I throughout day
Dec. 4	1408-2340	IIIG IIIG	1923-1925 2022-2025	1-3 1	200-25 200-25	
Dec. 5	1408-2340					
Dec. 6	1408-2340					
Dec. 7	1408-2340					
Dec. 8	1408-2340					
Dec. 9	1408-2340					
Dec. 10	1408-2340					
Dec. 11	1408-2340					
Dec. 12	1408-2340					
Dec. 13	1408-2340					
Dec. 14	1408-2340					

IVh

**SOLAR RADIO EMISSION  
SPECTRUM OBSERVATIONS**

DECEMBER 1961

Fort Davis

25-580 Mc.

1961 <small>USCAR 145-18</small>	OBSERVING HOURS	IMPORTANT BURSTS			FREQUENCY RANGE MC.	REMARKS
		TYPE	TIMES U.T.	INT.		
Dec. 15	1421-2340					
Dec. 16	1414-2340					
Dec. 17	1414-2340					
Dec. 18	1414-2340					
Dec. 19	1414-2340					
Dec. 20	1414-2345					
Dec. 21	1414-2345					Weak I throughout day
Dec. 22	1414-2345					Weak I throughout day
Dec. 23	1414-2345	I I IIIG	2016-2033 2033- 2200 2033-2110	1 2 2-3	200-100 580-25 580-100	Weak I throughout day
Dec. 24	1624-2345					Weak I throughout day
Dec. 25	1414-2345					Weak I throughout day
Dec. 26	1414-2345					Weak I throughout day
Dec. 27	1414-2345	IIIG IIIG IIIG IIIG	1503-1505 1613-1614 1850-1851 2309-2311	1-2 2 2 2	580-240 300-25 280-180 580-260	
Dec. 28	1414-2350	IIIG IIIG IIIG IIIG	1532-1533 1624-1628 1711-1717 2134-2137	1 1 2 2	400-160 580-175 500-90 580-190	
Dec. 29	1414-2350					
Dec. 30	1414-2350					
Dec. 31	1414-2350					

COMMERCE - STANDARDS - BOULDER

SOLAR RADIO EMISSION  
SPECTRUM OBSERVATIONS

DECEMBER 1961

HAO BOULDER

7.6-41 MC

Date 1961	Bursts			Frequency Range (mc)	Date 1961	Bursts			Frequency Range (mc)	
	Type	Time (U.T.)	Inten- sity			Type	Time (U.T.)	Inten- sity		
1 <sup>x</sup> Dec 2 <sup>xm</sup>	III	1922-1925	1+	16 - 41	19 Dec	III	2009.15-2009.45	1-	23 - 38	
	III	1925.30-1927.45	1	16 - 41	21	III	2148-2148.30	1-	24 - 36	
	III	2112-2113.30	1+	12 - 41	22	III	1746.15-1746.30	1-	21 - 34	
	3	II	1441.30-1457	2	24 - 41	23	III	1656.45-1657.15	1	24 - 41
		III	1448.30-1449	1+	24 - 41	24 <sup>x</sup> 25 <sup>xo</sup>	III	1541.15-1541.30	1-	27 - 34
	II	1507-1511	1-	33 - 41 <sup>f</sup>	III		1728.15-1730	1-	25 - 37	
	III	1612.15-1612.30	1	29 - 41	III		2003-2023	1	22 - 41 <sup>e</sup>	
	III	1713.30-1713.45	1-	21 - 36	IV		2022-2225	2	20 - 41 <sup>em</sup>	
	III	2016-2016.45	1-	21 - 38						
	4	III	2017.15-2017.45	1	19 - 40	26	III	1528-1528.30	1-	22 - 41
III		2018-2018.45	1	21 - 38	III	1528.45-1529.30	1+	19 - 41		
continuum		2055-2103.30	2	22 - 41	III	1531.15-1531.45	1	18 - 36		
III		2100-2101	2	22 - 41	III	1756.45-1757.15	1-	22 - 37		
III		2102-2102.30	1+	16 - 41	III	1900.30-1901	1+	22 - 41		
III		2104.30-2105	1+	22 - 41	III	1903.45-1904.15	1	21 - 41		
III		1558-1558.30	1	20 - 41	III	1942.45-1943	1-	28 - 41		
III		1708.45-1709.15	1+	21 - 41	III	2025.30-2026	1	21 - 41		
III		1802.30-1803	1	20 - 41	III	2038.30-2038.45	1-	22 - 38		
III		1844.45-1845	1-	23 - 41	III	2143-2143.30	1+	23 - 41		
9	III	1922.30-1924.45	1+	17 - 41	27	III	1457.15-1458	1-	21 - 41	
	III	1930-1931.15	1+	20 - 41	III	1613.15-1614.30	1+	22 - 41		
	continuum	2015-2025.30	1	22 - 41 <sup>c</sup>	III	1628.30-1629	1	20 - 41		
	III	2017.30-2019.45	1+	18 - 41	III	1743.15-1744	1-	23 - 41		
	III	2021.30-2022	1+	18 - 41	III	1946-1946.45	1	21 - 38		
	III	2027-2029.30	1	27 - 41	28	III	1626.15-1627	1	20 - 41	
	III	2030.45-2031	1-	24 - 40	III	1816-1816.45	1+	21 - 38		
	III	2048.45-2049.30	1+	21 - 41	29	III	1520-1520.15	1	32 - 41	
	III	2101-2101.15	1-	29 - 41	III	2148.30-2148.45	1	22 - 41		
	III	2210.30-2211	1-	26 - 41	III	2152.30-2152.45	1	24 - 41		
15	III	1613.45-1614.15	1-	24 - 41	30	III	2107.15-2107.45	1-	21 - 41	
	III	1615.45-1616	1	28 - 41	31 <sup>x</sup>					
	III	1618.15-1619	1+	26 - 41						
	III	1829.45-1830	1	23 - 33						

COMMERCE - STANDARDS - BOULDER

<sup>x</sup> = no observations

<sup>c</sup> = many faint type III's not reported

<sup>xm</sup> = no observations before 1858

<sup>e</sup> = many short duration narrow band bursts superimposed

<sup>xn</sup> = no observations before 1811

<sup>em</sup> = many short duration narrow band bursts superimposed after 2102

<sup>xo</sup> = no observations before 2236

<sup>f</sup> = amorphous structure

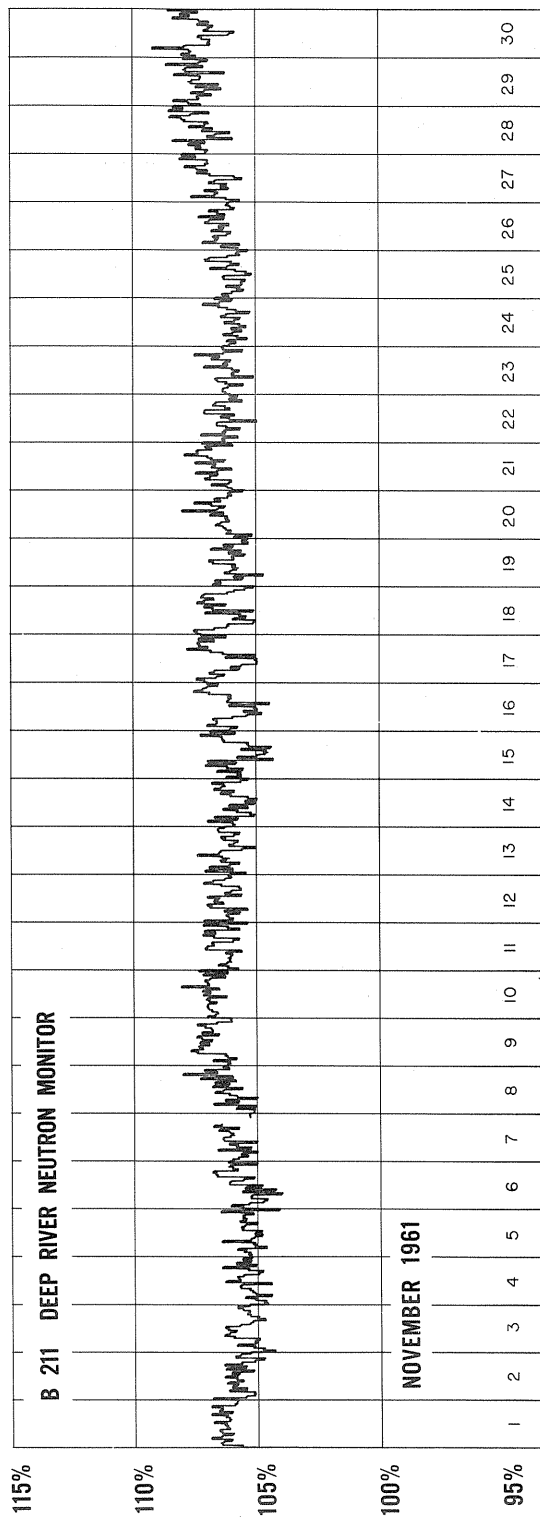
Va

COSMIC RAY INDICES  
(Climax Neutron Monitor)

The November 1961 indices will be published with the December 1961 data next month.

### COSMIC RAY INDICES

(Pressure Corrected Hourly Totals)



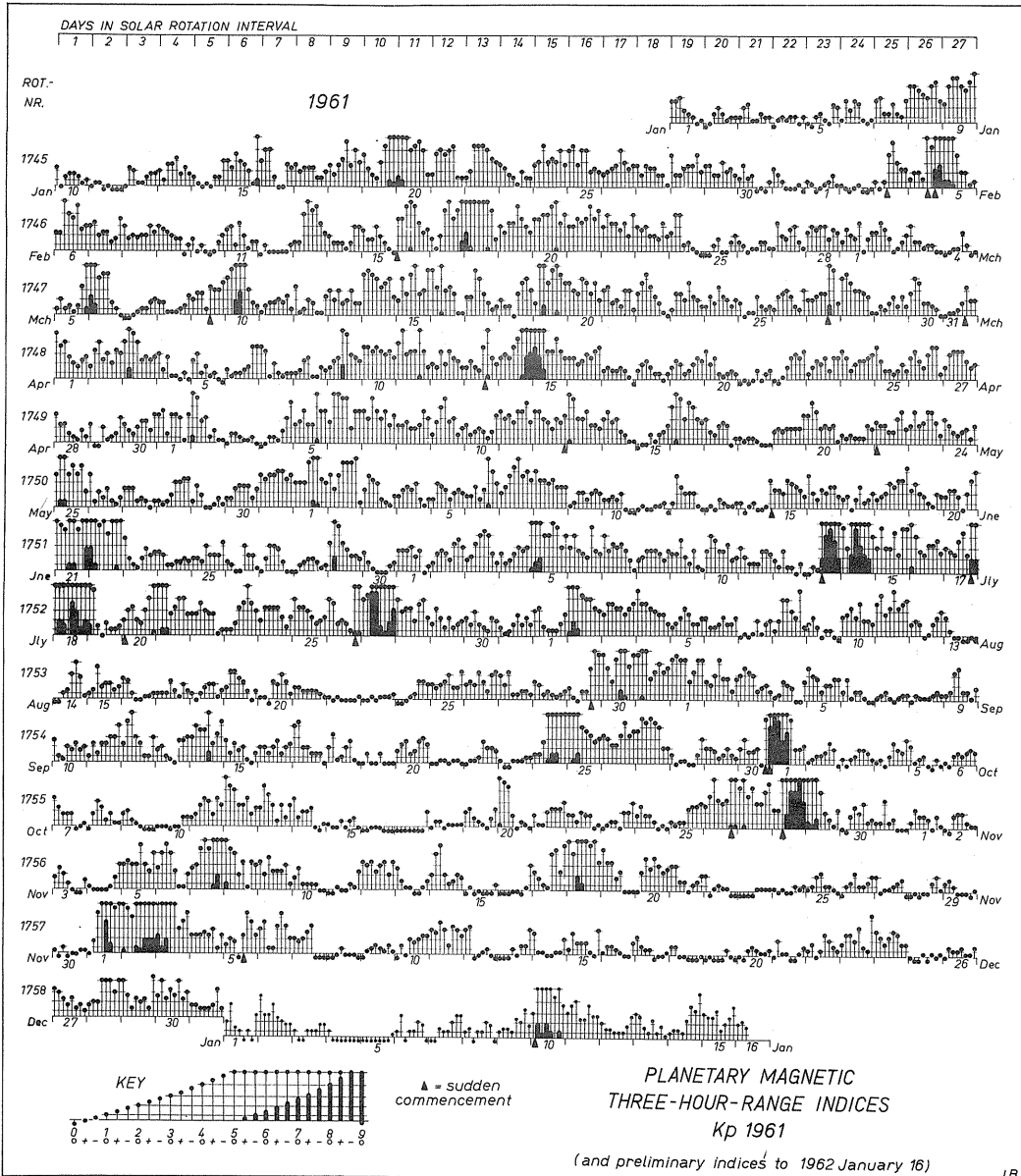
COMMERCE - STANDARDS - BOULDER



GEOMAGNETIC ACTIVITY INDICES

NOVEMBER 1961

Nov. 1961	C	Values Kp								Sum	Ap	Final Selected Days	
		Three hour Gr. interval											
		1	2	3	4	5	6	7	8				
1	0.3	1o	2+	2-	2-	1+	0+	2-	1-	11-	5	Five Quiet	
2	0.1	0+	0o	2-	2o	2o	1o	1-	1-	8+	4		
3	0.2	2-	3-	2o	1o	0+	0o	0o	1+	9o	4		
4	0.3	1-	0+	0+	0+	0+	1-	2-	3o	7+	4		
5	1.1	3o	3+	3o	3o	5-	3o	2+	4o	26+	19		
6	0.8	3-	4o	5-	4o	2+	1-	1-	2o	21o	16	22	
7	1.6	3-	3o	4+	5o	4+	5+	6+	5o	36o	42	23	
8	1.1	6-	4+	4o	2o	3+	1-	3+	3o	26+	23	24	
9	0.6	3+	2o	4-	2+	2+	2+	3o	1o	20o	12	24	
10	0.1	2-	3-	1o	1o	1o	1o	0+	0+	9o	5	30	
11	0.1	0o	0o	1-	0+	0+	1o	1-	2+	5+	3	Five Disturbed	
12	0.9	3+	3o	3+	2+	3o	3+	2o	3+	24-	15		
13	0.0	3-	1+	1-	1-	0o	0o	1-	1+	7+	4		
14	0.7	2o	4o	5-	2o	1o	1+	2o	2-	19-	13		5
15	0.0	0o	1-	0o	0+	0o	0o	0o	1o	2o	1		7
16	0.2	0o	0o	0o	0+	0+	0o	1-	3o	4+	3	8	
17	1.0	2+	2-	1o	1-	4o	4+	2+	5-	21o	16	17	
18	1.5	5o	4o	6+	6-	5o	5-	5o	3+	39o	49	18	
19	0.5	4+	3+	3+	2-	2+	0+	0+	0+	16o	11		
20	0.8	0+	2+	4-	3-	4-	3o	2+	3-	21-	13		
21	0.4	3o	3o	1+	1+	0+	1o	1+	2o	13+	7	Ten Quiet	
22	0.1	2o	0o	1-	1o	1-	1-	0o	0o	5o	2		
23	0.0	0o	0o	0o	0o	1-	1-	1-	1-	3-	2		
24	0.0	1-	0+	1-	0+	0+	1o	1-	1o	5o	3		11
25	0.1	1-	1o	2o	2+	1o	1o	1-	0+	9o	4		15
26	0.2	0o	1o	1+	2+	1o	1o	1+	2o	10o	5	16	
27	0.1	2o	0+	1-	1-	1o	1+	2-	0o	8-	4	22	
28	0.1	0o	0+	0o	0+	0+	1+	2o	1-	5o	3	23	
29	0.0	1+	2-	1o	0+	0+	0+	0o	1-	6-	3	24	
30	0.0	1-	0o	1o	0o	0+	0+	1-	1-	4-	2	27	
												28	
												29	
												30	
Mean:	0.43									Mean:	10		



CRPL RADIO PROPAGATION QUALITY FIGURES AND FORECASTS

NOVEMBER 1961

NORTH PACIFIC

NORTH ATLANTIC

DATE NOV. 1961	NORTH ATLANTIC 6-HOURLY QUALITY FIGURES				SHORT-TERM FORECASTS ISSUED ABOUT ONE HOUR IN ADVANCE OF:		WHOLE DAY INDEX	ADVANCE FORECASTS (LJ-REPORTS) FOR WHOLE DAY, ISSUED IN ADVANCE BY:		GEOMAGNETIC K <sub>Fr</sub>	NORTH PACIFIC 12-HOURLY QUALITY FIGURES	SHORT-TERM FORECASTS ISSUED AT:		WHOLE DAY INDEX	ADVANCE FORECASTS (LJ-REPORTS) FOR WHOLE DAY, ISSUED IN ADVANCE BY:		GEOMAGNETIC K <sub>S1</sub>			
	00 TO 06	06 TO 12	12 TO 18	18 TO 24	00 TO 06	06 TO 12		12 TO 18	18 TO 24			1-7 FINAL	1-7 J-S		1-7 SDW	1-7 J-P		0600	1800	1-7 FINAL
01	4+	4+	6+	6+	4	3	6	5	5-	2	1	1	1	6	6	6	6	6	2	1
02	4+	3+	6-	6+	4	4	6	5	5-	1	1	1	1	5	5	5	5	5	2	1
03	6-	5-	7-	6+	5	4	6	6	6-	2	0	0	0	6	6	6	6	6	2	0
04	6+	5	7-	6+	5	5	6	6	6+	2	2	3	3	6	6	6	6	6	0	1
05	6+	4+	6+	7-	6	5	6	6	5+	3	3	3	3	6	6	6	6	6	2	(4)
06	6-	4+	6+	6+	6	4	6	6	5+	3	2	2	2	6	6	6	6	6	(4)	1
07	5+	4+	6+	6+	6	4	6	5	(4+)	(4)	(5)	(5)	(5)	6	6	6	6	6	(4)	(5)
08	4-	4-	6-	3+	3	3	6	5	(4)	(4)	2	2	2	6	6	6	6	6	(4)	2
09	4+	5-	7-	5-	4	4	6	5	5-	2	2	2	2	6	6	6	6	6	2	2
10	4+	4+	6+	6+	5	4	6	5	(4+)	2	1	1	1	6	6	6	6	6	2	0
11	5-	4+	6+	6-	4	4	6	5	5+	0	1	1	1	6	6	6	6	6	0	0
12	5+	5-	6+	5+	5	5	7	6	5+	3	2	2	2	6	6	6	6	6	3	3
13	4+	4+	6+	6-	5	4	6	5	5+	1	1	1	1	6	6	6	6	6	0	0
14	5+	4+	6+	6+	5	4	6	6	5+	3	2	2	2	6	6	6	6	6	3	1
15	4+	5+	6+	6+	5	4	6	5	5+	0	1	1	1	6	6	6	6	6	0	0
16	6-	6-	6+	6+	5	5	7	6	6+	0	1	1	1	6	6	6	6	6	0	1
17	6-	6-	7-	6+	6	5	7	6	6+	1	3	3	3	6	6	6	6	6	0	3
18	5+	4-	4-	4-	6	4	5	3	(4+)	(5)	(4)	(4)	(4)	6	6	6	6	6	(5)	(4)
19	3+	3+	6+	5+	4	2	5	4	(4+)	3	1	1	1	6	6	6	6	6	(4)	1
20	4+	3+	6-	4-	4	4	6	6	(4+)	2	2	2	2	6	6	6	6	6	2	3
21	4-	4-	6+	5-	4	3	6	4	(4+)	2	1	1	1	6	6	6	6	6	2	0
22	4+	3+	6-	5+	4	4	6	4	(4+)	1	1	1	1	6	6	6	6	6	0	0
23	4+	4+	6+	6-	4	3	6	4	5-	0	1	1	1	6	6	6	6	6	0	0
24	6-	5+	6+	5+	4	4	6	6	6-	0	1	1	1	6	6	6	6	6	0	0
25	6-	4+	6-	6-	4	4	6	6	5+	2	1	1	1	6	6	6	6	6	2	0
26	5+	4+	6+	6+	5	4	6	6	5+	1	1	1	1	6	6	6	6	6	1	1
27	6-	5+	6+	6+	5	5	7	6	6-	1	1	1	1	6	6	6	6	6	1	1
28	6-	4+	7-	6+	6	5	6	6	5+	0	1	1	1	6	6	6	6	6	0	0
29	5-	5+	6+	6+	5	5	7	6	6-	1	0	0	0	6	6	6	6	6	1	0
30	6+	6-	6+	6+	5	6	7	6	6+	1	0	0	0	6	6	6	6	6	1	0
Score: Quiet Periods		P	8	5	17	13	7	7	7	7	12	14	16	16	16	16	16	16	16	16
Score: Disturbed Periods		S	8	6	12	12	14	14	14	14	10	10	9	9	9	9	9	9	9	9
Score: F		F	2	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0
Score: P		P	7	8	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1
Score: S		S	5	11	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2
Score: U		U	0	0	0	0	2	2	2	2	0	0	0	0	0	0	0	0	0	0
Score: F		F	0	0	0	1	7	7	7	7	0	1	1	1	1	1	1	1	1	1

COMMERCE - STANDARDS - BOULDER

( ) Represent disturbed values  
All times are Universal Time (U.T.)

CRPL RADIO PROPAGATION QUALITY FIGURES AND FORECASTS

NORTH ATLANTIC

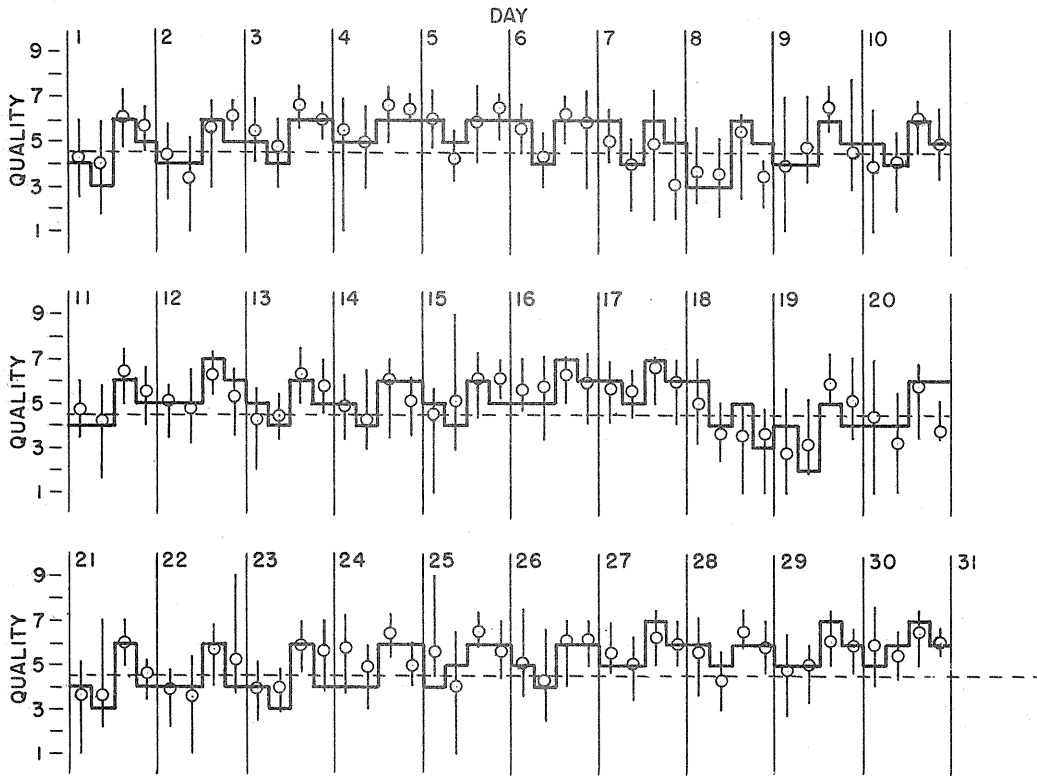
VIIb

NOVEMBER 1961

— Short-term forecast

| Range of reports

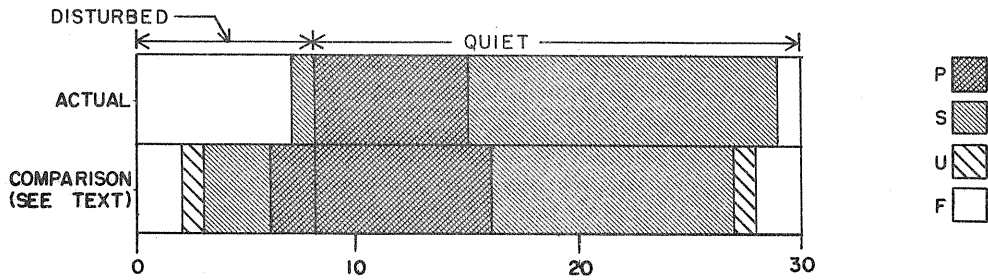
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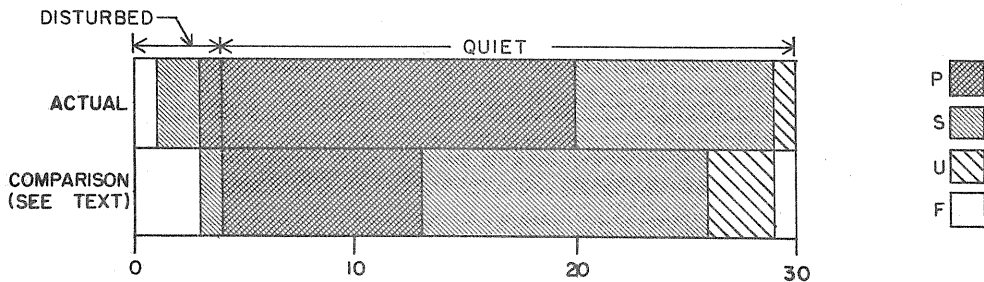
OUTCOME OF ADVANCED FORECASTS

FINAL ESTIMATE

NORTH ATLANTIC

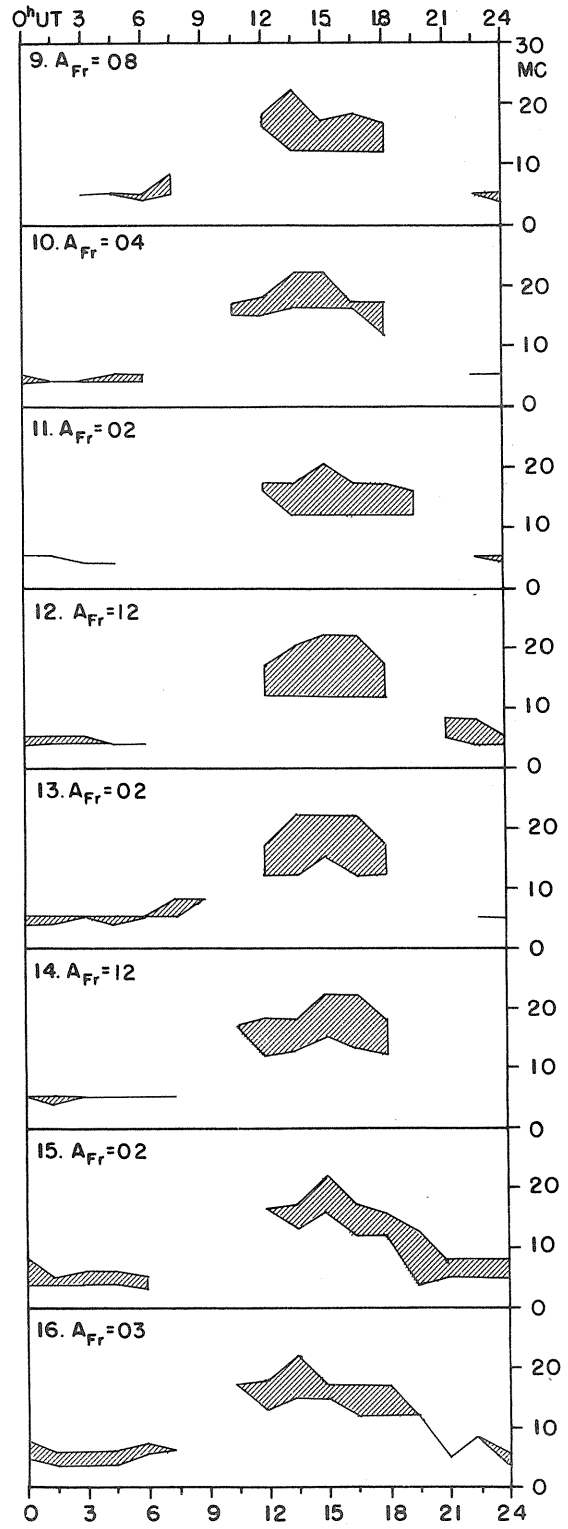
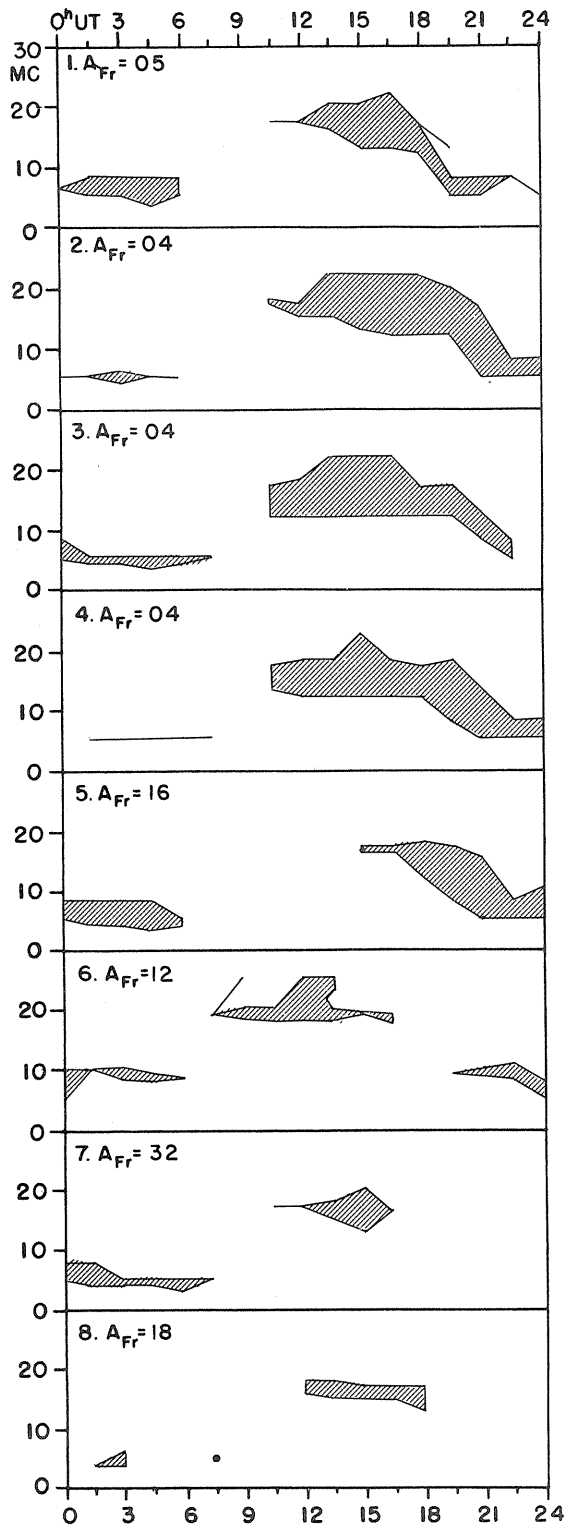


NORTH PACIFIC



USEFUL FREQUENCY RANGES -- NORTH ATLANTIC PATH

NOVEMBER 1961

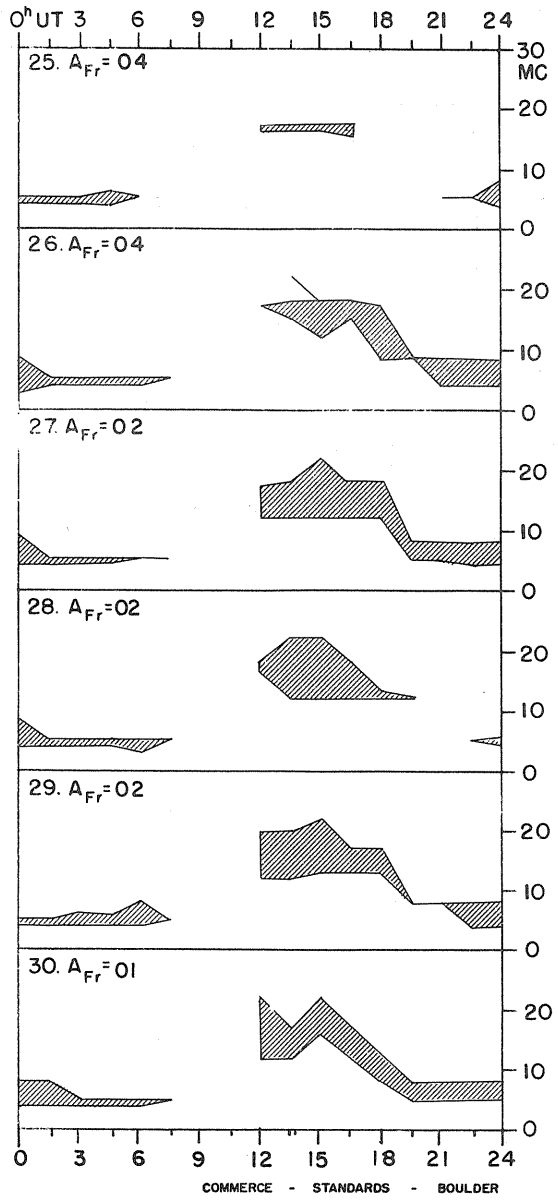
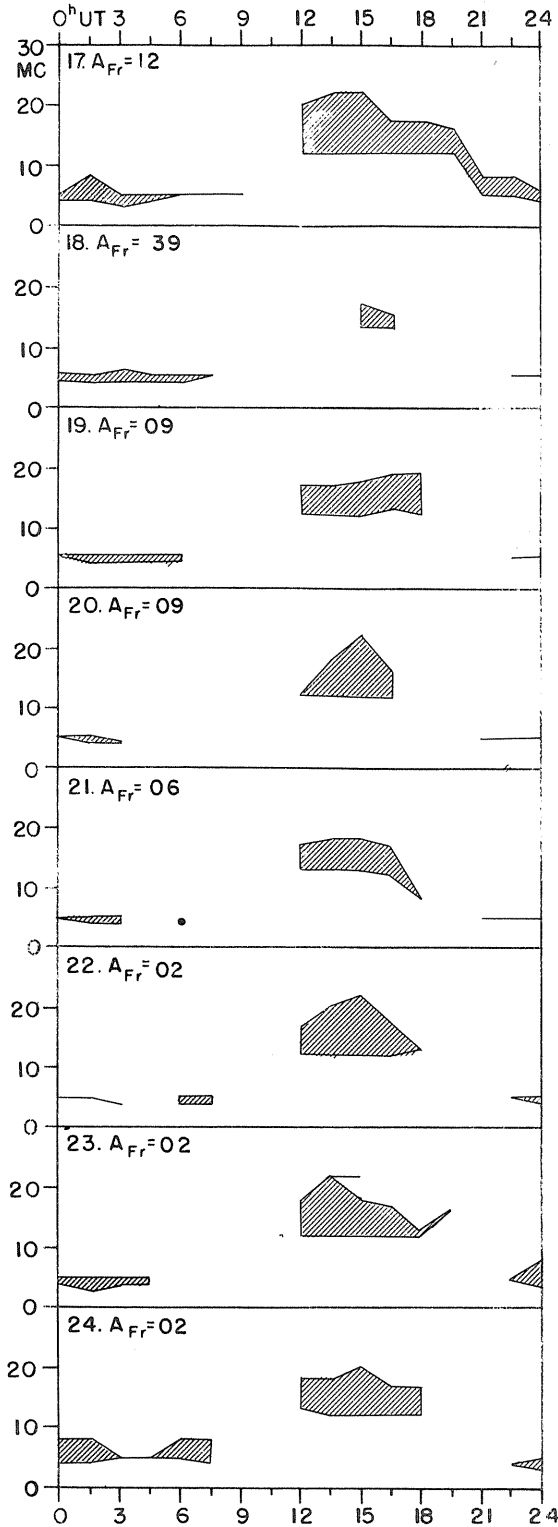


COMMERCE - STANDARDS - BOULDER

USEFUL FREQUENCY RANGES -- NORTH ATLANTIC PATH

VIII d

NOVEMBER 1961



COMMERCE - STANDARDS - BOULDER

Adapted from Observations by Deutsches Bundespost

VIIIa

ALERT PERIODS AND SPECIAL WORLD INTERVALS

INTERNATIONAL WORLD DAY SERVICE

DECEMBER 1961

Issued December 1961 Day/Time U.T.	Advance Geophysical Alert	No.	World-Wide Geophysical Alert	Special World Interval
01/1400	Ft. Belvoir, Magnetic Storm 01/0703Z			
01/1600		155	Magnetic Storm, Aurora Probable 01/07XXZ	Start
02/1600		156		Continue
03/1530	Sac Peak, Solar Flare, Two 03/1447Z			
03/1600		157		Finish
09/1733	Lockheed, Solar Flare 09/1635Z			
23/2015	Lockheed Solar Flare, Two 23/1915Z			
	Sack Peak, Solar Flare, Two 23/1945Z			
25/2115	Sac Peak, Solar Flare, Two 25/2040Z			

COMMERCE - STANDARDS - BOULDER