

PART B
SOLAR - GEOPHYSICAL DATA

ISSUED
JANUARY 1961

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

SOLAR - GEOPHYSICAL DATA

CONTENTS

Addition to Descriptive Text

I DAILY SOLAR INDICES

- (a) Relative Sunspot Numbers and 2800 Mc Solar Flux
- (b) Graph of Sunspot Cycle

II SOLAR CENTERS OF ACTIVITY

- (a) Calcium Plage and Sunspot Regions
- (b) Provisional Coronal Line Emission Indices - December 1960

III SOLAR FLARES

- (a-b) Optical Observations - December 1960
- (c) Flare Patrol Observations - December 1960
- (d) Subflares - November 1960
- (e-h) Optical Observations - September 1960
- (i) Flare Patrol Observations - September 1960
- (j) Ionospheric Effects (SWF) - November 1960
- (k) Ionospheric Effects (SEA-SCNA-Bursts) - November 1960

IV SOLAR RADIO WAVES

- (a) 2800 Mc - Outstanding Occurrences (Ottawa) December 1960
- (b-c) 108 Mc - Outstanding Occurrences (Boulder) December 1960
- (d) 169 Mc - Outstanding Occurrences (Nancay) December 1960
- (e-h) 25-580 Mc - Spectrum Observations (Ft. Davis) January - March 1960
- (i-j) 450-1000 Mc - Spectrum Observations (Owens Valley) November - December 1960
- (k-p) 9.1 cm - Spectroheliograms (Stanford) May 1960

V COSMIC RAY INDICES

- (a) Climax Neutron Monitor - November 1960
- (b-c) Deep River Neutron Monitor - November 1960

VI GEOMAGNETIC ACTIVITY INDICES

- (a) C, Kp, Ap, and Selected Quiet and Disturbed Days
- (b) Chart of Kp by Solar Rotations

VII RADIO PROPAGATION QUALITY INDICES

North Atlantic:

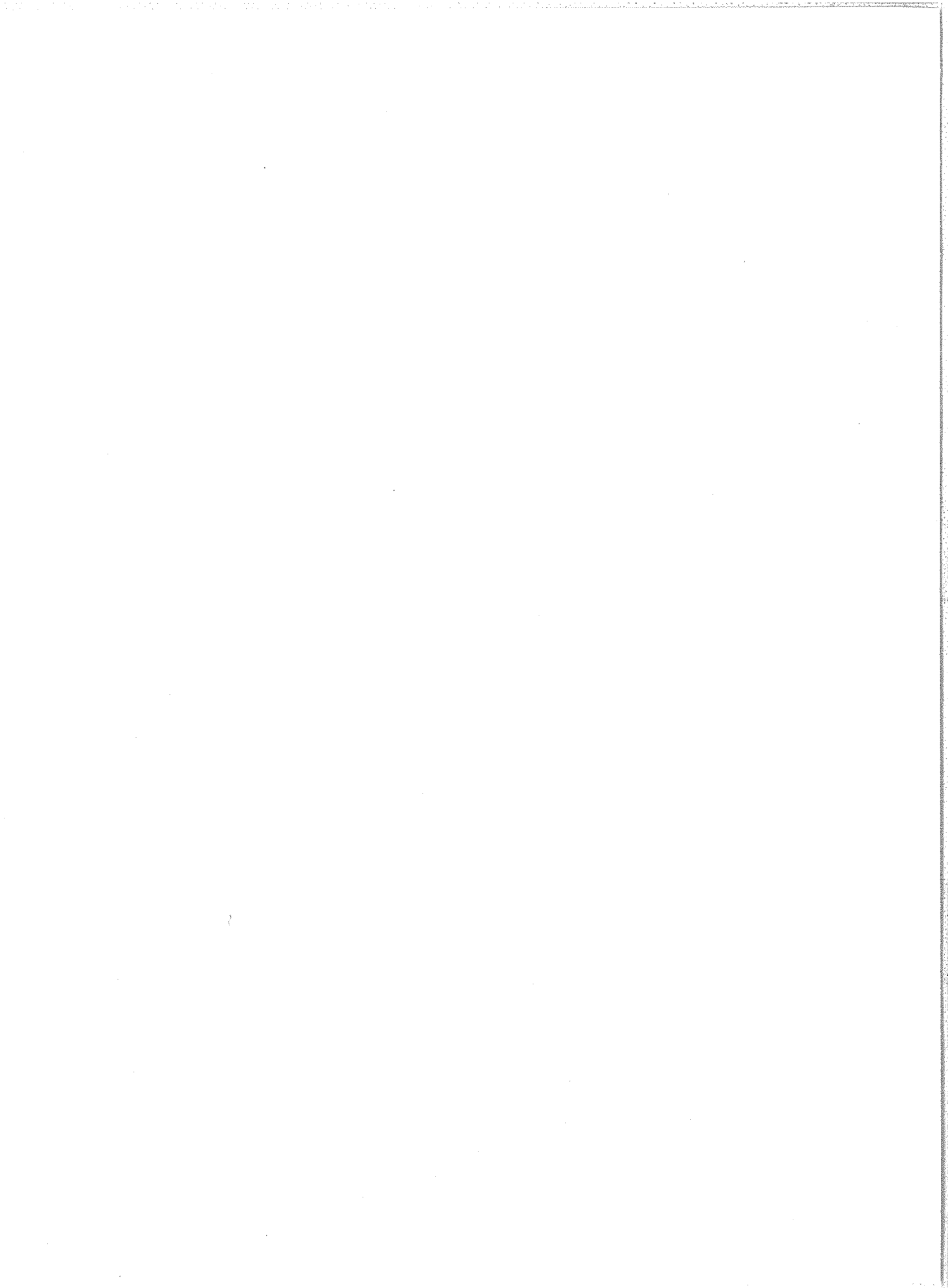
- (a) CRPL Quality Figures and Forecasts
- (b) Graphs Comparing Forecast and Observed Quality
- (c-d) Graphs of Useful Frequency Ranges

North Pacific:

- (e) CRPL Quality Figures and Forecasts
- (f) Graphs Comparing Forecast and Observed Quality

VIII ALERT PERIODS AND SPECIAL WORLD INTERVALS

- (a) 1960 Alerts and SWI



Spectrum Observations

Data are presented on solar radio emission in the spectral range 450-1000 Mc recorded by the Convair Radio Astronomy Project, C. L. Spencer, at Owens Valley Observatory, Bigpine, Calif. The equipment used is a swept frequency spectrum analyzer. The quiet sun can be seen above receiver noise level.

The types listed in the table are as described for the Ft. Davis spectrum observations. The intensities 1, 2, and 3 correspond roughly to 2, 4, and 8 times the quiet sun power of the day, at the frequency given for the activity. The symbols used in the table are:

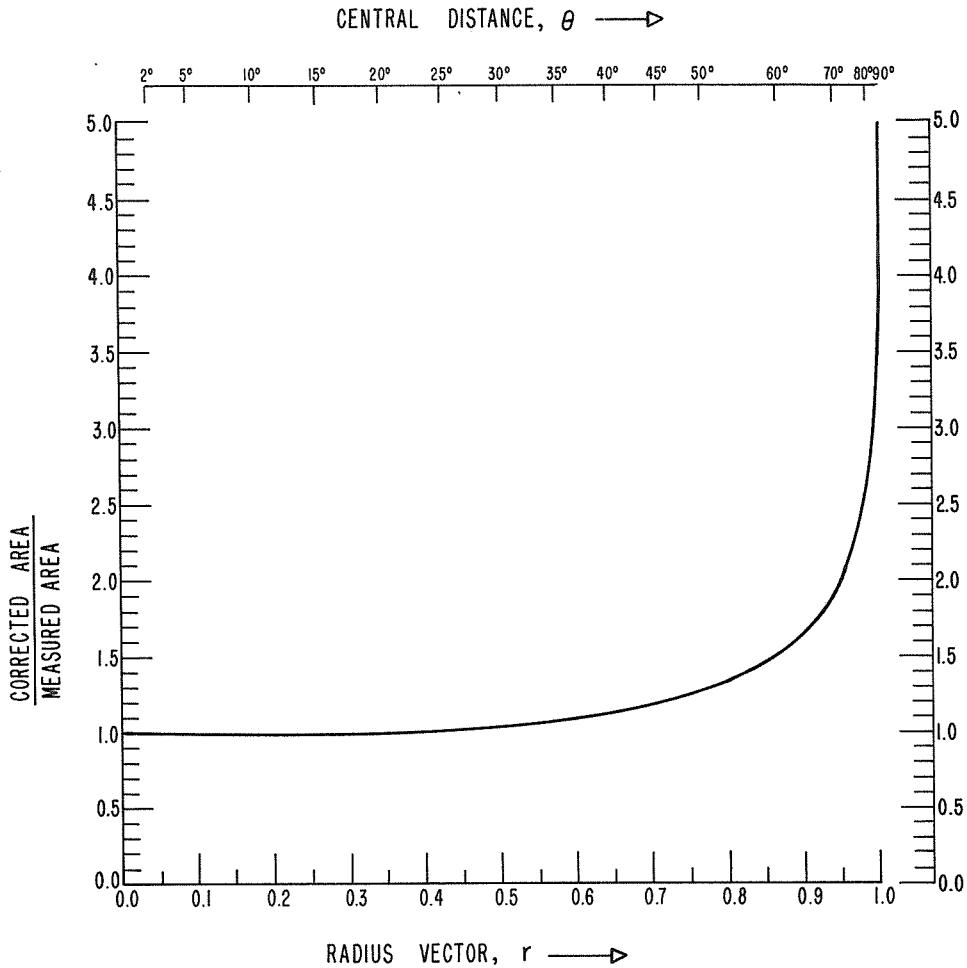
- b = single burst
- g = small group (<10) of bursts
- G = large group (\geq 10) of bursts

The times are given in Universal Time (UT) to the nearest half minute. The frequency range over which the activity was observed is also given. The remarks column gives further details.

FLARE AREA AND IMPORTANCE

(METHOD USED BY CLIMAX, HAWAII, LOCKHEED AND SACRAMENTO PEAK AS OF OCTOBER 1, 1960)

$$\text{CORRECTED AREA} = \frac{\text{MEASURED AREA}}{(\sqrt{1-r^2} + 0.2r)} = \frac{\text{MEASURED AREA}}{(\cos \theta + 0.2 \sin \theta)}$$



IMPORTANCE VALUES RECOMMENDED BY IAU

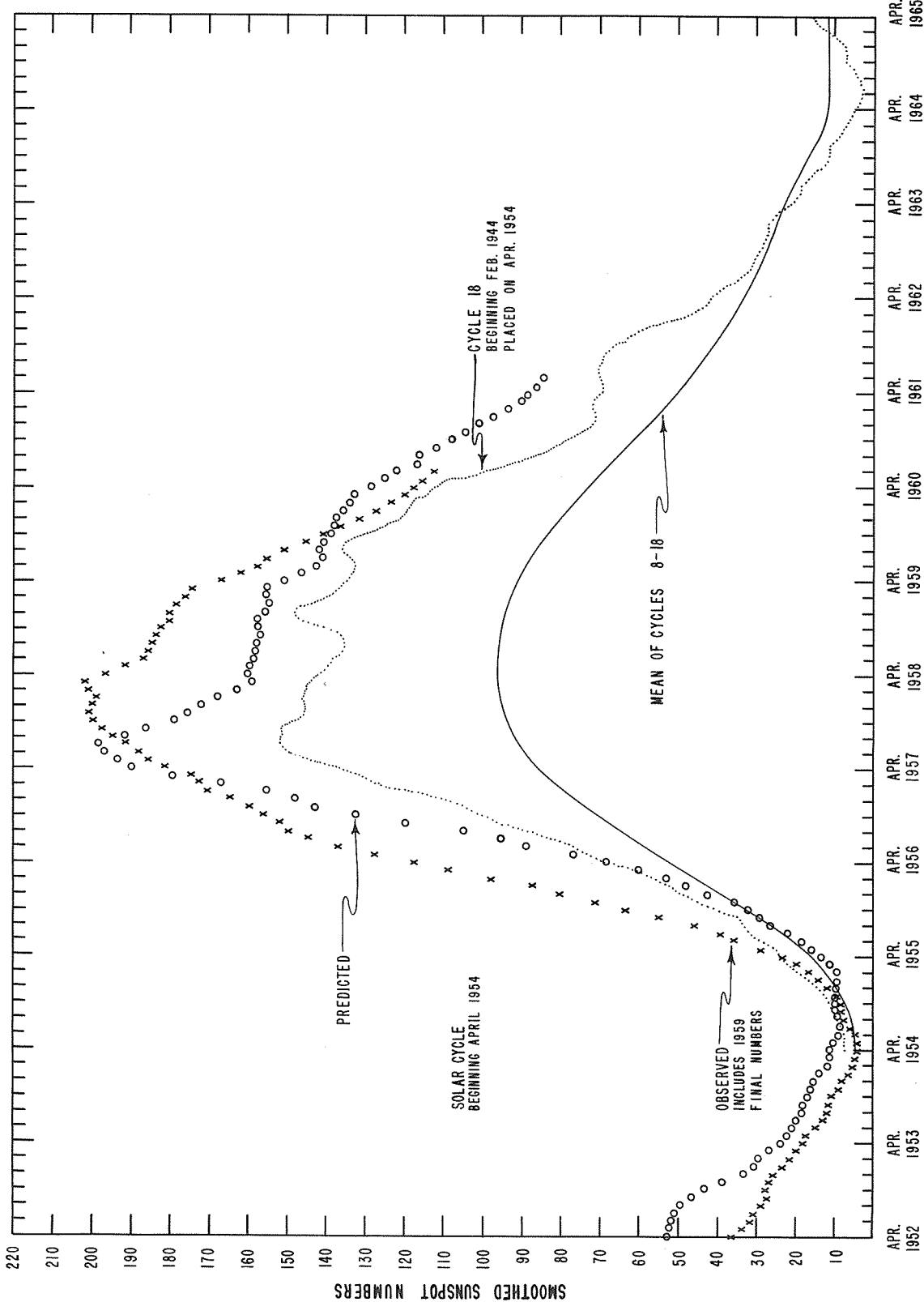
<u>AREA IN SQUARE DEGREES</u>	<u>AREA IN MILLIONTHS OF SOLAR HEMISPHERE</u>	<u>AREA IN MILLIONTHS OF SOLAR DISK</u>	<u>IMPORTANCE</u>
< 2.06	< 100	< 200	1-
2.06 - 5.15	100 - 250	200 - 500	1
5.15 - 12.4	250 - 600	500 - 1200	2
12.4 - 24.7	600 - 1200	1200 - 2400	3
> 24.7	> 1200	> 2400	3+

AREA IN SQUARE DEGREES = 0.020626 x AREA IN MILLIONTHS OF SOLAR HEMISPHERE
 = 0.010313 x AREA IN MILLIONTHS OF SOLAR DISK

The descriptive text was published separately, November 1960.

DAILY SOLAR INDICES

Nov. 1960	American Relative Sunspot Numbers R_A'	Dec. 1960	Zürich Provisional Relative Sunspot Numbers R_Z	Daily Values Solar Flux at 2800 Mc, Ottawa, Canada Flux
1	70	1	74	136
2	69	2	92	145
3	72	3	101	152
4	52	4	96	163
5	69	5	92	159
6	86	6	98	161
7	105	7	94	152
8	121	8	91	154
9	120	9	97	150
10	116	10	103	151
11	137	11	102	144
12	100	12	101	140
13	101	13	92	136
14	97	14	101	132
15	81	15	104	138
16	98	16	99	134
17	83	17	87	125
18	93	18	76	118
19	81	19	70	115
20	86	20	62	118
21	66	21	56	116
22	57	22	35	106
23	34	23	35	103
24	39	24	37	106
25	47	25	57	111
26	53	26	48	116
27	53	27	70	125
28	58	28	86	136
29	51	29	94	145
30	68	30	103	159
		31	130	163
Mean:	78.8	Mean:	83.3	135.8



COMMERCE - STANDARDS - BOULDER

PREDICTED AND OBSERVED SUNSPOT NUMBERS

CALCIUM PLAGE AND SUNSPOT REGIONS

DECEMBER 1960

CMP Dec. 1960	Lat	McMath Plage Number	Return of Region	Calcium Plage Data			Sunspot Data			
				CMP Values Area Int.		History, Age	CMP Values Area Count		History	
01.6	N10	5950	New	1700	3	ℓ — ℓ	1	50	1	b ^ d
02.8	N10	5951	5921	800	2	ℓ \ ℓ	5			
02.8	S17	5952	5920	1200	1.5	ℓ — ℓ	4,6			
04.2	S09	5953	New	3400	3	ℓ — ℓ	1	340	4	ℓ — ℓ
04.4	N15	5954	5921	2900	2.5	ℓ — ℓ	5	10	1	b ^ d
05.9	S17	5955	5923	1800	3	ℓ — ℓ	2			
08.0	N25	5956	5925	2100	2.5	ℓ — ℓ	2			
08.6	N08	5957	5936	600	2.5	ℓ — ℓ	2	10	1	b ^ d
09.3	S12	5958	5927	2300	3	ℓ — ℓ	7	160	2	ℓ — ℓ
10.5	N30	5959	5925	6800	3	ℓ — ℓ	2	120	3	ℓ — ℓ
11.9	N12	5963	New	300	2	b / ℓ	1			
12.8	N24	5968	New	200	1.5	b / ℓ	1	90	2	b ^ d
13.2	S12	5960	*	4800	3	ℓ — ℓ	1	320	4	ℓ — ℓ
14.2	N12	5961	5932	4500	3	ℓ — ℓ	7	160	5	ℓ \ d
14.9	S04	5969	New	400	3	b / ℓ	1	110	2	b / ℓ
15.8	N27	5962	5932	1700	2.5	ℓ \ ℓ	7	100	3	b ^ d
17.3	S17	5967	5935	800	2.5	ℓ / ℓ	5	100	2	b ^ d
18.6	N06	5965	5938	600	2	ℓ — ℓ	2			
19.0	N27	5966	5937	1000	1.5	ℓ \ ℓ	4			
20.2	N11	5970	New	1400	3	ℓ — ℓ	1	160	6	ℓ — ℓ
20.4	S20	5973	New	1300	3.5	b / ℓ	1	170	6	b / ℓ
23.0	S22	5972	5941	1200	2	ℓ \ ℓ	2			
25.8	N22	5974	5945	1300	2	ℓ \ ℓ	3			
25.8	N03	5975	5948	900	2	ℓ — ℓ	2			
27.4	N18	5976	5948	2500	3	ℓ — ℓ	2	140	2	ℓ \ ℓ
28.4	N13	5977	5950	200	2.5	ℓ / ℓ	2	20	1	b / ℓ
30.4	S14	5978	5953	1900	2.5	ℓ — ℓ	2	80	3	ℓ \ d

*New in position of 5931, 5934

PROVISIONAL CORONAL LINE EMISSION INDICES

DECEMBER 1960

CMP Dec. 1960	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)			
	G ₆	G ₁	R ₆	R ₁	G ₆	G ₁	R ₆	R ₁	G ₆	G ₁	R ₆	R ₁	G ₆	G ₁	R ₆	R ₁
1	79	149	x	x	40	58	x	x	x	60a	x	x	x	111a	x	x
2	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
3	87*	111	x	x	60	101	x	x	x	x	x	x	x	x	x	x
4	x	x	x	x	x	x	x	x	x	34	50	13	25	32	44	8
5	58*	84	x	x	54	135	x	x	x	x	x	x	x	x	x	x
6	49	59	42	57	50	87	25	52	x	x	x	x	x	x	x	x
7	x	x	x	x	x	x	x	x	x	91	91	x	x	85	160	x
8	x	x	x	x	x	x	x	x	x	136	7	12	81*	144	x	x
9	101	124	68	104	67	103	31	72	x	76	18a	32a	92*	170	16	38
10	202	252	x	x	60	82	x	x	x	x	x	x	x	x	37a	91a
11	48	60	9	20	26	36	5	9	x	70	8	12	105	144	11	32
12	64	80	13	18	29	40	7	15	x	30	x	x	37	64	x	x
13	68	100	x	x	39	60	x	x	x	85	x	x	69	92	x	x
14	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
15	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
16	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
17	x	x	x	x	x	x	x	x	x	58	x	x	x	48	x	x
18	20	40	10	17	4	6	7	10	x	31	31a	28a	42	52	22	46
19	x	x	x	x	x	x	x	x	x	28	12	20	40	46	25a	40a
20	x	x	x	x	x	x	x	x	x	80	3	4	26	80	13	23
21	x	x	x	x	28	40	x	x	x	46	22	36	24	32	8	13
22	25	32	9	11	38	58	5	7	x	39	7	12	25	36	26	44
23	25	36	24	30	23	42	18	28	x	32	15a	20a	26	33	12	18
24	x	x	x	x	x	x	3	4	x	30	4	13	24	30	7	33a
25	59	73	8	12	25	32	x	x	x	26	4	5	37	64	8	10
26	23	28	x	x	13	18	x	x	x	20	6	8	22	42	11	15
27	71	78	12	20	28	38	5	7	x	36	10	14	71	42	36	70
28	x	x	x	x	x	x	x	x	x	63	28	40	79	123	60	109
29	x	x	x	x	x	x	x	x	x	97	x	x	75	104	x	x
30	x	x	x	x	x	x	x	x	x	137	23	42	73	117	47	120
31	70*	109	18	28	63	114	27	72	x	92	24	68	75*	116	45	93

x = no observations

a = index computed from low weight data

* = yellow line observed

COMMERCE - STANDARDS - BOULDER

SOLAR FLARES

DECEMBER 1960

OBSERVATORY	DATE DEC 1960	OBSERVED UNIVERSAL TIME		MAX. PHASE	LOCATION			DURA- TION — MINUTES	INC. POR- TANCE	OBS. COND.	MEASUREMENTS				PROVISIONAL IONOSPHERIC EFFECT
		START	END		APPROX. LAT.	MER. DIST.	MCMATH PLACE REGION				TIME — U T	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hr.	
{ ARCETRI WENDEL	01	0832 E	0854 D		N26 E80		5956	22 D	1	2	0841	•60	2•00		
	01	0940	1038 D		N26 E90		5956	58 D	1+	2		5•00			
	01	1010 E	1018 D		N26 E80		5956	8 D	1	2	1135		3•00		
{ LOCARNO WENDEL	01	1124	1210		N10 W24		5948	46	1+	1			7•00		
	01	1124	1215		N09 W24		5948	51	1+	3	1143		2•40		2•30
	01	1130 E	1200		N10 W21		5948	30 D	1+	3	2026	2•20			
ONDRÉJOV CLIMAX	01	2009	2045		N17 E26		5954	36	1	2	0142	2•50	12•40		
	02	0142 E	0150 D		N35 E90		5959	8 D	2	1	1752	1•80	9•00		
HAWAII LOCARNO CLIMAX	02	1115	1135		N14 W32		5948	20	1	2					
	02	1746	1800		N43 E90		5959	24	2	2					
	03	1049	1106		N11 W26		5950	17	1	2	1049	1•00	1•00		
ZURICH LOCKHEED LOCKHEED	03	1954	2003		N30 E90		5959	9	1	2	1957	•60	3•00		10
	03	2308	2330		S07 W03		5953	22	1	1	2312	2•10	2•10		20
	04	0813	0836		N13 W36		5950	23	1+	3	0934	1•80	2•30		
ISTANBUL CAPRI S WENDEL	04	0919 E	0959 D		N05 W39		5950	40 D	1	1			3•00		
	04	1219 E	1234 D		N15 W60		5948	15 D	1	1	1955	1•20	2•20		10
	04	1930 U	2012 U		N41 E63		5959	42 D	1	1					
{ CAPRI S LOCKHEED HUANCAYO SAC PEAK HAWAII	05	1159 E	1237 D		N14 W70		5948	38 D	1	3	1159	1•40	4•20		
	05	1825	2350		N27 E68		5959	325	3+	2	1840	13•60	25•70		30
	05	1829	2037 D		N26 E70		5959	128 D	3+	2	1835	7•80	17•60		35
	05	1832	2158 D		N30 E90		5959	206 D	3+	3	2014	27•42	136•13		
	05	2012 E	2122		N20 E69		5959	70 D	1	2	2014	2•20	2•50		10
LOCKHEED ISTANBUL	05	2155	2220		N09 W80		5948	25	1	2	2205	•70	2•10		
	07	0805	0815		S09 W29		5953	10	1	2					
LOCARNO CLIMAX	12	1430	1455		S09 E02		5960	25	1	2	1514	3•70	4•10		
	12	1514 E	1615		N25 W27		5959	61 D	1	2					
WENDEL CAPRI S WENDEL WENDEL WENDEL	13	1335 E	1355 D		S11 W59		5958	20 D	1	2			3•00		
	14	1138 E	1240 D		N27 W43		5959	62 D	1	2	1145	2•90	4•40		
	14	1145 E	1236		N24 W46		5959	51 D	1+	2			6•00		
	14	1145 E	1240 D		N26 W50		5959	55 D	1+	2			7•00		
	14	1159	1238		N25 E55		5966	39	1	2			3•00		
ISTANBUL ISTANBUL CLIMAX SAC PEAK HUANCAYO	14	1312 E	1354		N26 W51		5959	42 D	2	2			10•00		
	15	0851	0925 D		N18 W10		5961	34 D	1	2	1532	5•90	6•50		24
	15	0855	0925 D		S03 W08		5969	30 D	1	2	1550	5•92	6•42		
	16	1517	1630		N18 W32		5961	73	2	3	1507	5•40	7•00		
	16	1520	1612		N20 W34		5961	52	2	2			3•00		
WENDEL MCMATH WENDEL	17	1258	1323 D		N13 E33		5970	25 D	1	1			2•50		
	17	1502 E	1519 D		N13 W50		5961	17 D	1	1			3•00		
	20	0841 E	0909		S18 W75		5960	28 D	2	1			10•00		

SOLAR FLARES

DECEMBER 1960

OBSERVATORY	DATE DEC 1960	OBSERVED TIME		LOCATION		DURA- TION - MINUTES	IN- FOR- TANCE	OBS. COND.	MEASUREMENTS			PROVISIONAL IONOSPHERIC EFFECT
		START	END	APPROX. LAT.	APPROX. LONG. REGION				MAX. PHASE	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	
CAPRI S	20	1221 E	1240 D	S17 W73	5960	19 D	1	2	2.00	4.26	15	
	20	1627	1647	N11 E90	5976	20	1	2	.85	4.10		
{ HAWAII	20	1852	1900 D	S16 W75	5960	8 D	1	2	.80	4.36	19	
	20	1853	1908	S16 W90	5960	15	1	2	.87	3.53	17	
{ SAC PEAK	20	2104	2113	S16 W90	5960	9	1	2	.71	2.10		
	20	2144 E	2150	S15 W90	5960	6 D	1	2	.40	2.10	10	
{ HAWAII	20	2145 E	2207	S15 W85	5960	22 D	1	1	.70	2.10	10	
	20	2202	2216	N15 W79	5961	14	1	1	.70	2.10	10	
LOCKHEED	21	1610 U	1657	S16 W90	5960	47 D	1	1	.60	3.00	10	
LOCKHEED	21	1612 E	1742 D	S05 W90	5969	90 D	1	1				
MC MATH	21	1857	1918	S16 W90	5960	21	1	1	.40	2.00	10	
{ LOCKHEED	21	1940	2019 D	S16 W90	5960	39 D	1	1	.40	2.00	10	
	21	1940	2019 D	S16 W90	5960	39 D	1	1	.40	2.00	10	
{ ARCTRI	24	0920 E	0945 D	N17 E38	5976	25 D	1	2		6.00		
	24	0931 E	0957	N16 E42	5976	26 D	1+			2.00		
{ WENDEL	24	2043	2049	N17 E50	5983	6	1	2	.40	2.00	10	
	24	2128	2143	S10 E90	5978	15	1	2	.50	2.50	10	
{ WENDEL	25	1219 E	1236	S09 W65	5973	17 D	1	2		3.00		
	25	1733	1750	N17 E87	5983	17	1	2	.70	2.10	20	
{ LOCKHEED	25	1740	1746	N16 E90	5983	6	1	1	.54	2.70	18	
	26	1033	1105	N15 E74	5983	32	1			4.00		
{ WENDEL	26	1407 E	1441 D	N18 E72	5983	34 D	1	2	2.08	2.70	15	
	27	1536	1544 D	N15 E53	5983	8 D	1	2				
SAC PEAK	28	1422	1440	N16 E44	5983	18	1+	3				
LOCARNO	29	1518	1532 D	N17 E32	5983	14 D	1	1	2.20	2.40	10	
{ CLIMAX	29	1852	1907	N16 E28	5983	38	1	1	2.00	2.10		
	29	1854	1956	N13 E29	5983	62	1	2	1.10	1.20		
WENDEL	30	1125 E	1144 D	N16 E20	5983	19 D	1			3.00		
	30	1329 E	1413 D	N15 E21	5983	44 D	1+			7.00		
{ CAPRI S	30	1341 E	1419 D	N13 E19	5983	38 D	1	3	2.80	3.10		
	30	1417 E	1443 D	N18 E19	5983	26 D	1+			6.00		
LOCARNO	30	1422	1500 D	S10 E44	5985	38 D	1	3				
WENDEL	30	1426	1443 D	S15 E59	5988	17 D	1			4.00		
{ LOCKHEED	30	1726	1757	S12 E43	5985	31	1	2	2.10	2.40	20	
	30	1826	1851	N16 E17	5983	25	1	2	2.00	2.00	30	
{ CLIMAX	30	1828	1845	N18 E18	5983	17	1		2.10	2.10		
	31	1407	1430	N14 E05	5983	23	1+	3				

COMMERCE - STANDARDS - BOULDER

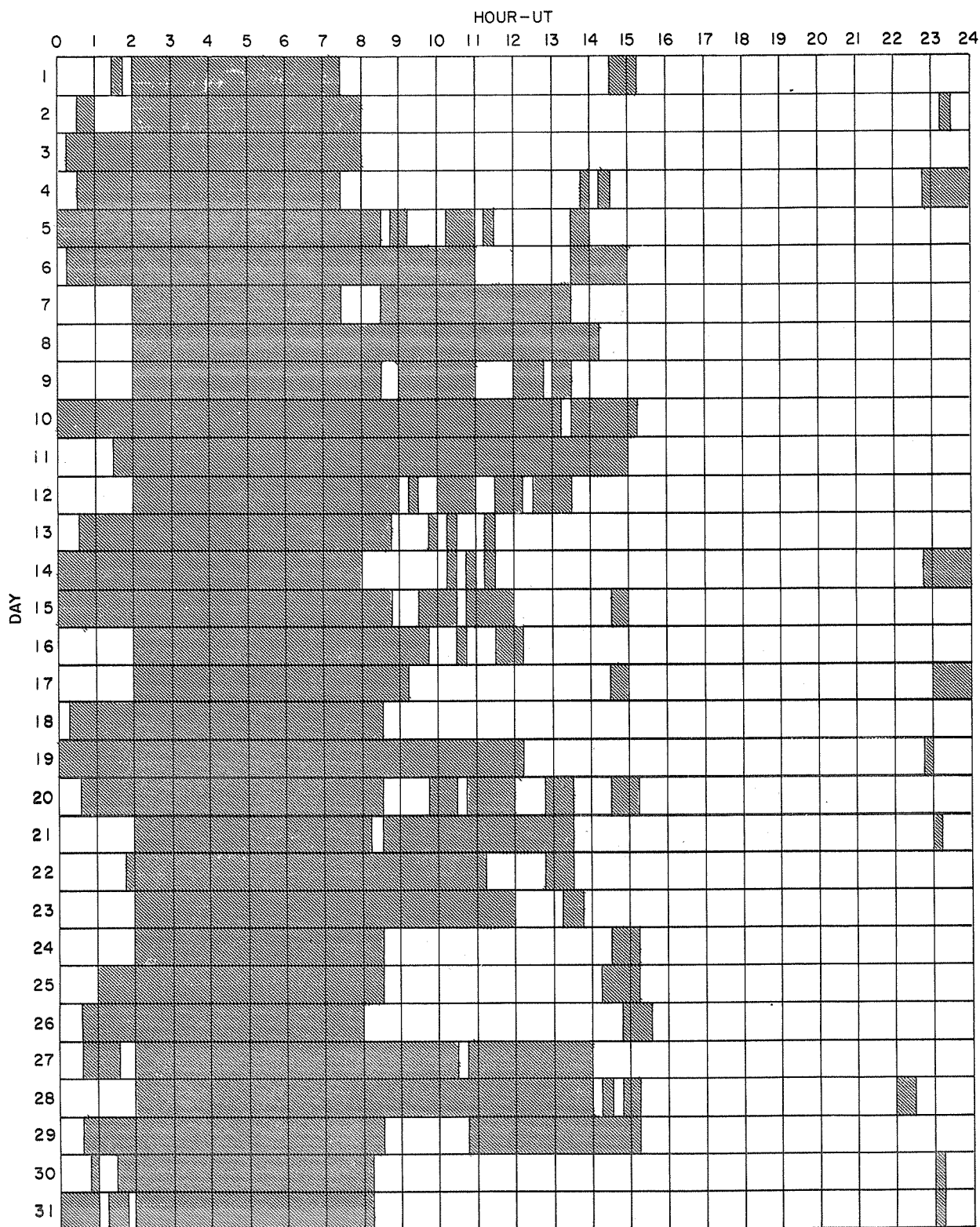
CAPRI G ANACAPRI - GERMAN
 CAPRI S ANACAPRI - SWEDISH
 GOOD HOPE ROYAL OBSERVATORY, CAPE OF GOOD HOPE
 KIEV* KIEV UNIVERSITY
 KODAIKANAL KODAIKANAL
 KRASNVA KRASNAYA PAKHRA
 LOCKHEED LOS ANGELES
 MC MATH MC MATH
 MOSCOW-G MOSCOW
 R O HERST ROYAL GREENWICH OBSERVATORY,
 HERSTMONCEUX
 SAC PEAK SACRAMENTO PEAK
 SCHAUNSLAND SCHAUNSLAND
 WENDEL WENDELSTEIN

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 1960 FOR DEFINITION OF CORR. AREA VALUES LISTED FOR CLIMAX, HAWAII, LOCKHEED AND SAC PEAK.

INTERVALS OF NO FLARE PATROL OBSERVATIONS

DECEMBER 1960



SEC-109-12

Stations Include:

COMMERCE - STANDARDS - BOULDER

- | | | | |
|--------------------|----------|----------------|-----------------------------|
| Anacapri (Swedish) | Hawaii | Lockheed | Royal Greenwich Observatory |
| Arcetri | Huancayo | McMath-Hulbert | Herstmonceux |
| Climax | Istanbul | Ondrejov | Sacramento Peak |
| | | | Wendelstein |

SUBFLARES

Noted as follows: Date-Universal Time - Coordinates

NOVEMBER 1960

LOCKHEED	01 1701	N21 E02	LOCKHEED	11 1835	N27 E09	LOCKHEED	18 2054	N19 W22
LOCKHEED	01 1710	N13 E73	LOCKHEED	11 1835	N27 E09	LOCKHEED	18 2129	N19 W22
LOCKHEED	01 1710	N13 E73	MCMATH	11 1842	N27 E09	* SAC PEAK	18 2208	N27 W90
LOCKHEED	01 1720	N19 E60	MCMATH	11 1851	N27 E09	HAWAII	18 2318	N19 W08
LOCKHEED	01 1738	N22 W18	LOCKHEED	11 1918	N26 E07			
LOCKHEED	01 1807	N22 W18	* SAC PEAK	11 1955	N18 E81	SAC PEAK	19 1512	N20 W32
LOCKHEED	01 1808	S07 E30	* MCMATH	11 1957	N16 E85	SAC PEAK	19 1556	N20 W32
LOCKHEED	01 1815	N21 E02	HAWAII	11 2052	N26 E13	LOCKHEED	19 1558	N20 W32
LOCKHEED	01 1820	N22 W18	LOCKHEED	11 2053	N27 E08	LOCKHEED	19 1605	N09 W24
LOCKHEED	01 1853	N17 W02	LOCKHEED	11 2145	N27 E04	* LOCKHEED	19 1637	N28 W90
LOCKHEED	01 1903	N19 W02	LOCKHEED	11 2145	N27 E04	SAC PEAK	19 1649	N19 W30
LOCKHEED	01 1943	S08 E26	LOCKHEED	11 2251	N27 E04	LOCKHEED	19 1658	N00 W32
LOCKHEED	01 1947	N19 W01	HAWAII	11 2256	E 007 E09	* SAC PEAK	19 1750	N28 W90
LOCKHEED	01 2050	N18 W02			* HAWAII	19 1750	E N28 W27	
HAWAII	01 2246	N11 E18	MCMATH	12 1608	E S07 W07	LOCKHEED	19 1913	N05 W39
LOCKHEED	01 2247	N01 W18	SAC PEAK	12 1609	S05 W05	LOCKHEED	19 1942	N20 W33
LOCKHEED	01 2334	N19 W05	SAC PEAK	12 1657	N30 W05	LOCKHEED	19 2017	N21 W22
			MCMATH	12 1722	S10 W07	LOCKHEED	19 2049	N22 W23
HAWAII	02 0114	E S08 F24	HAWAII	12 2026	N32 W02	SAC PEAK	19 2049	N32 W23
* CAPRI S	02 1226	E S06 E20	* SAC PEAK	12 2027	N31 W08	LOCKHEED	19 2145	N09 W39
LOCARNO	02 1247	S07 E15	HAWAII	12 2120	N08 E64	LOCKHEED	19 2145	N09 W39
HAWAII	02 1814	E S11 E14			LOCKHEED	19 2213	N20 W35	
HAWAII	02 1942	E N19 W12	MCMATH	13 1403	N29 W16	LOCKHEED	19 2220	N07 W37
SAC PEAK	02 1942	N20 W13	* MCMATH	13 1515	N30 W17	LOCKHEED	19 2220	N07 W37
			SAC PEAK	13 1636	N30 W18	LOCKHEED	19 2349	N20 W35
* CAPRI S	03 0831	E N13 W23	MCMATH	13 1637	N30 W18			
WENDEL	03 0840	E N14 W23	LOCKHEED	13 1639	E N30 W18	* CAPRI S	20 1107	E N23 W27
WENDEL	03 1214	E N14 W25	LOCKHEED	13 1655	S07 W21	CAPRI S	20 1209	E N08 W46
WENDEL	03 1403	E N15 W26	LOCKHEED	13 1701	N27 W12	WENDEL	20 1308	E N09 W47
SAC PEAK	03 1819	E N18 W29	MCMATH	13 1715	N27 W15	LOCARNO	20 1325	N07 W46
			LOCKHEED	13 1820	N20 F51	LOCARNO	20 1400	N14 W10
CAPRI S	04 0738	S07 W05	* MCMATH	13 1824	N20 E55	WENDEL	20 1408	E N15 W12
HAWAII	04 2252	E S05 W10	MCMATH	13 1841	N26 W18	MCMATH	20 1528	N15 W12
			LOCKHEED	13 1856	N27 W13	SAC PEAK	20 1532	N08 W49
HAWAII	05 0100	N10 E39	* LOCKHEED	13 1900	S08 W23	MCMATH	20 1534	N10 W50
CAPRI S	05 1031	E N13 E24	HAWAII	13 1904	E N11 W11	MCMATH	20 1547	N10 W50
HAWAII	05 1800	E S21 E44	* MCMATH	13 1934	N27 W14	SAC PEAK	20 1644	N24 W46
HAWAII	05 1826	S10 W34	HAWAII	13 2220	E N01 W27	LOCKHEED	20 1644	N23 W45
						LOCKHEED	20 1646	N25 W45
ISTANBUL	06 0845	N17 E21	HAWAII	14 0023	E S01 W29	LOCKHEED	20 1658	E N10 W52
WENDEL	06 0916	E N25 E70	HAWAII	14 0156	N32 W19	MCMATH	20 1730	N08 W52
HAWAII	06 1806	N15 E70	* CAPRI S	14 0957	E N25 W26	* LOCKHEED	20 1745	N09 W50
HAWAII	06 1807	N05 W66	WENDEL	14 1003	N06 W66	MCMATH	20 1831	N07 W52
HAWAII	06 1916	E N09 W62	CAPRI S	14 1020	E N25 W26	LOCKHEED	20 1857	N08 W52
HAWAII	06 1952	N05 W66	WENDEL	14 1110	E N29 W24	MCMATH	20 1858	E N09 W52
HAWAII	06 2322	E N14 E66	* WENDEL	14 1420	E N31 W25	HAWAII	20 1927	E N16 W51
			HAWAII	14 1484	E N33 W29	LOCKHEED	20 1927	N07 W52
ONDREJOV	07 0752	N24 E61	HAWAII	14 1852	E S05 W36	MCMATH	20 1936	N08 W53
* CAPRI S	07 0825	E S02 W75	HAWAII	14 2036	N26 W36	LOCKHEED	20 1955	N08 W52
CAPRI S	07 0923	E S02 W75	LOCKHEED	14 2138	S06 W39	LOCKHEED	20 2009	N18 W48
CAPRI S	07 0947	E S02 W75	* HAWAII	14 2300	E N33 W31	* SAC PEAK	20 2016	N07 W52
CAPRI S	07 1121	E S02 W75	* LOCKHEED	14 2340	N28 W31	LOCKHEED	20 2118	N28 W90
LOCKHEED	07 1550	S12 E18			LOCKHEED	20 2159	N07 W53	
LOCKHEED	07 1741	S11 E17	LOCKHEED	15 0007	N21 W36	LOCKHEED	20 2205	N22 W37
LOCKHEED	07 1920	E S03 W77	LOCKHEED	15 0018	N26 W37	LOCKHEED	20 2209	N08 W54
LOCKHEED	07 1920	E S03 W77	* CAPRI S	15 0744	E N28 W36	LOCKHEED	20 2233	N07 W54
HAWAII	07 2022	E N17 E46	WENDEL	15 0839	E N23 W39	HAWAII	20 2234	E N15 W54
			CAPRI S	15 1033	E N27 W41	LOCKHEED	20 2355	N06 W55
ISTANBUL	08 0747	N25 E48	WENDEL	15 1041	E N27 W40	LOCKHEED	20 2355	N06 W55
ISTANBUL	08 0755	N22 E41	WENDEL	15 1129	E N28 W40			
LOCARNO	08 1346	S02 W66	WENDEL	15 1155	E N22 W41	LOCKHEED	21 0014	N20 W39
SAC PEAK	08 1437	S02 E48	WENDEL	15 1217	E N28 W40	HAWAII	21 0016	E N28 W35
LOCKHEED	08 1630	N25 E50	WENDEL	15 1225	E N24 W68	WENDEL	21 0839	E N09 W60
SAC PEAK	08 1640	N14 W21	* WENDEL	15 1237	N27 W38	WENDEL	21 0858	E N17 W55
LOCKHEED	08 1644	N14 W21	WENDEL	15 1341	E N23 W68	CAPRI S	21 0928	E N24 W37
LOCKHEED	08 1656	N22 E46	LOCKHEED	15 1657	N26 W44	LOCKHEED	21 1632	N20 W64
LOCKHEED	08 1700	S10 E47	LOCKHEED	15 1708	E N21 W41	LOCKHEED	21 1728	S12 W62
LOCKHEED	08 1750	N21 E41	LOCKHEED	15 1716	S06 W55	LOCKHEED	21 1855	S11 W63
LOCKHEED	08 1800	S09 E47	LOCKHEED	15 1727	N26 W46	LOCKHEED	21 1920	N22 W60
HAWAII	08 1846	S17 E48	LOCKHEED	15 1814	N23 W70	HAWAII	21 1922	N28 W60
LOCKHEED	08 1847	S11 E46	LOCKHEED	15 1838	N17 E27	* MCMATH	21 1925	N21 W61
ONDREJOV	08 1847	S09 E49	LOCKHEED	15 1895	N23 W72	* LOCKHEED	21 2140	S04 W48
SAC PEAK	08 1858	S06 W77	LOCKHEED	15 1918	N18 E21	HAWAII	21 2304	N16 W66
LOCKHEED	08 1902	N16 W21	LOCKHEED	15 1924	N05 E74	LOCKHEED	21 2305	N09 W67
LOCKHEED	08 1923	S02 W36	LOCKHEED	15 1928	N23 W76			
LOCKHEED	08 1956	N21 E41	LOCKHEED	15 1943	N17 F22	SAC PEAK	22 1526	N04 W88
LOCKHEED	08 2000	N11 W25	LOCKHEED	15 2016	N15 E21	LOCKHEED	22 1615	S20 E34
LOCKHEED	08 2100	N21 E39	LOCKHEED	15 2048	N28 W19	SAC PEAK	22 1622	N04 W88
LOCKHEED	08 2130	N25 E48	LOCKHEED	15 2048	N16 W39	LOCKHEED	22 2036	N27 E35
LOCKHEED	08 2159	N11 W26	LOCKHEED	15 2052	S10 W47			
LOCKHEED	08 2300	S10 E43	LOCKHEED	15 2100	N20 E17	LOCKHEED	23 1629	N07 W33
LOCKHEED	08 2308	N12 W18	LOCKHEED	15 2120	N26 W49	* MCMATH	23 1714	E N08 W90
			LOCKHEED	15 2240	S26 W49	* MCMATH	23 1928	N08 W90
HAWAII	09 0140	N21 E29	LOCKHEED	15 2346	N26 E30	* LOCKHEED	23 2049	N07 W36
WENDEL	09 0728	E N32 E44			LOCKHEED	24 1832	S02 E50	
WENDEL	09 0937	E N31 E46	LOCARNO	16 1155	S10 W56	LOCKHEED	24 1945	S02 E50
* CAPRI S	09 1000	N24 E29	MCMATH	16 1442	E N16 W56	LOCKHEED	24 2009	E N07 E06
WENDEL	09 1020	E N25 E34	SAC PEAK	16 1544	N30 W57	LOCKHEED	24 2255	S05 E48
WENDEL	09 1149	E S10 E37	LOCKHEED	16 1751	S06 W67	LOCKHEED	24 2312	N09 E63
ONDREJOV	09 1153	E S09 E40	LOCKHEED	16 1751	S06 W67			
* CAPRI S	09 1247	E N11 W45	LOCKHEED	16 1816	S06 W69	HAWAII	25 0136	E S08 E48
SAC PEAK	09 1528	N28 E32	LOCKHEED	16 1829	S10 W58	LOCKHEED	25 1705	S04 E40
SAC PEAK	09 1621	N28 E33	LOCKHEED	16 1835	N22 E15	* LOCKHEED	25 1827	S06 E49
LOCKHEED	09 1701	N23 E35	LOCKHEED	16 1835	N30 E15	LOCKHEED	25 2034	S07 E37
LOCKHEED	09 1741	N25 E33	LOCKHEED	16 1955	N25 W90	HAWAII	25 2044	S07 E39
LOCKHEED	09 1818	S10 E33	LOCKHEED	16 2010	S04 W68	LOCKHEED	25 2157	S06 E37
LOCKHEED	09 2131	N25 E33	SAC PEAK	16 2141	N24 W90	LOCKHEED	25 2254	N11 E49
LOCKHEED	09 2248	N26 E33	LOCKHEED	16 2141	N25 W90			
LOCKHEED	09 2307	N26 E33	LOCKHEED	16 2142	N19 E07	* CAPRI S	26 1028	E N12 E48
HAWAII	09 2310	N20 E37	LOCKHEED	16 2330	N23 E17	* SAC PEAK	26 1556	E N32 W06
			LOCKHEED	16 2333	N28 W54	SAC PEAK	26 1740	S04 E23
WENDEL	10 0746	E S12 E21			MCMATH	26 1740	S03 E23	
WENDEL	10 0929	E N08 W56	LOCKHEED	17 1647	N17 W03	MCMATH	26 1804	N12 E40
* CAPRI S	10 1210	E N11 W55	LOCKHEED	17 1717	N29 W43	HAWAII	26 1804	N03 E39
MCMATH	10 1414	N10 W60	LOCKHEED	17 1736	N10 W08	MCMATH	26 1935	E S05 E90
SAC PEAK	10 1606	U S08 W00	SAC PEAK	17 1742	N10 W08	* HAWAII	26 2352	N05 E38
LOCKHEED	10 1630	U N13 W52	LOCKHEED	17 1750	N22 W05			
LOCKHEED	10 1630	S09 E17	HAWAII	17 1812	E N12 W05	CAPRI S	27 1331	E S05 E14
LOCKHEED	10 1648	S08 E17	LOCKHEED	17 1826	N19 W04			
LOCKHEED	10 1657	N26 E24	LOCKHEED	17 1828	N19 W05	CAPRI S	28 1036	E N09 E16
LOCKHEED	10 1657	N26 E24	LOCKHEED	17 1828	N30 W04	LOCKHEED	28 1730	S04 W02
SAC PEAK	10 1705	N26 E22	SAC PEAK	17 1849	N26 W50	LOCKHEED	28 1822	S07 E37
SAC PEAK	10 1757	N26 E24	SAC PEAK	17 1850	N29 W50	SAC PEAK	28 1852	N10 E13
MCMATH	10 1843	E S07 E19	HAWAII	17 1852	N37 W44	LOCKHEED	28 1852	N10 E13
LOCKHEED	10 1916	N23 E16	LOCKHEED	17 1915	N26 W69	SAC PEAK	28 1956	N10 E12
SAC PEAK	10 1918	N22 E13	LOCKHEED	17 1920	N29 W70	LOCKHEED	28 1956	N10 E13
HAWAII	10 1920	N18 E22	MCMATH	17 1921	E N26 W75			
LOCKHEED	10 2006	S17 E19	LOCKHEED	17 2032	N26 W73	HAWAII	29 0113	E N09 E99
SAC PEAK	10 2110	N26 E22	LOCKHEED	17 2109	N26 W70</			

SOLAR FLARES

SEPTEMBER 1960

OBSERVATORY	DATE SEPT 1960	OBSERVED UNIVERSAL TIME		MAX. PHASE	LOCATION		DURA- TION — MINUTES	IM- POR- TANCE	OBS. COND.	MEASUREMENTS				PROVISIONAL IONOSPHERIC EFFECT		
		START	END		APPROX. LAT.	MER. DIST.				MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH H _g	MAX. INT. %			
PIRCULI	01	0757	0954	0812 U	N22 W08	5822	117	1	1	2.94			50			
	01	0854	0902 D	0856 U	N16 E88	5835	8 D	1	1	.91			50			
	01	1001	1022	1005	N19 W09	5822	21	1+	1	1.84			91			
	{	01	1322	1329 D	1325	N19 W16	5822	7 D	1	1	2.40	2.40				
		01	1330	1515		N19 W14	5822	105	2	2	5.00	5.00			S-SWF	
	{	01	1501 E	1520		N18 W20	5822	19 D	1	2						
		01	1501 E	1516		S18 W45	5825	15 D	1	2						
	MITAKA	02	0231	0348	0247	N18 W25	5822	77	1	1	2.51	2.69	1.99	131		
		{	02	0243 E	0307	0244	S17 W58	5825	24 D	1	2	1.29	2.80		125	S-SWF
			02	0250 E	0321	0250	S18 W60	5825	31 D	1+	2	2.01	3.78	2.60	165	
{		02	0609 E	0629 D	0614	S10 W44	5830	20 D	1	1	2.674			67		
		02	0658 E	0606 D	0618	N18 W82	5818	8 D	1	1	1.56			60		
{		02	0618 E	0618	0618	N20 W80	5818	□	1	1	.90			59	Slow S-SWF	
		02	0620 E	0655	0636 U	N17 W74	5818	35 D	1	2	1.19			58		
{		02	0635 E	0653 D	0724	N19 W80	5818	18 D	1	2	12.69	14.10	2.70	84		
		02	0526	0906	0724	N18 W23	5822	220	2+	3						
{		02	0620 E	0855	0735	N18 W22	5822	155 D	3	2						
	02	0635 E	0820 D	0730 U	N18 W24	5822	105 D	2	2	11.93	15.00		166	S-SWF		
{	02	0652 E	0858	0721	N19 W22	5822	126 D	2+	2	7.40			60			
	02	0702 E	0705 D	0705 U	N18 W22	5822	3 D	1+	3	5.19			69			
{	02	0654	0710	0700	S16 W60	5825	16	1	3	.90			96			
	02	0700	0710	0703 U	S17 W59	5825	10	1+	2	1.29			66			
{	02	0748	0804	0751	S16 W62	5825	16	1	2	1.00						
	02	1226	1242	1229	S16 W62	5825	16	1	2	2.60	3.00					
{	02	1345 E	1412		N18 W25	5822	27 D	1	2	1.87			61			
	02	1355 E	1405 D	1356 U	N19 W26	5822	10 D	1	2	1.30	3.30					
{	02	1357 E	1405 B	1401	S16 W62	5825	8 D	1	1	1.56			62			
	02	1358 E	1420 D	1358 U	S17 W65	5825	22 D	1	1							
CAPRI G	03	0625 E	0643		N20 W30	5822	18 D	1	2							
	{	03	0716	0824	0742	N19 W37	5822	68	□	1	3.62	4.00			Slow S-SWF	
		03	0726	0817		S15 W70	5825	51	1	2						
	{	03	0724	0810	0749 U	S17 W70	5825	46	2	1	4.59			74		
		03	0727	0800	0741	N21 W35	5822	33	1	1	3.68			73		
	{	03	0724	0824	0742	S19 W80	5825	60	□	1	1.82	13.10				
		03	0725 E	0732 D	0732	S16 W73	5825	7 D	1	1	1.82			76		
	{	03	0732	0747		N20 W30	5822	15	1	2	5.00	5.00				
		03	0815 E	0833	0930 U	N18 W40	5822	28 D	1	2	4.00	4.00				
	{	03	0915	0940	0952 U	N15 W90	5818	14	1+	1	3.21			74		
03		0948	1002		N19 W41	5822	5 D	1	2	1.84			76			
{	03	1430 E	1435		N15 W90	5818	16 D	1	2							
	03	1502 E	1518		N20 W40	5822	17	1	2	4.00	4.00					
{	03	1544	1601		S17 W90	5825	18 D	1	1	.91			51			
	04	0700 E	0718	0706 U	N19 W49	5822	10 D	1	1	1.38			50			
{	04	0816 E	0826 D	0819 U	N18 W53	5822	10 D	1	1	1.19			51			
	04	0823 E	0835		N20 W50	5822	12 D	1	2	2.00						
{	04	0900 E	0935 D	0928	S18 W83	5825	35 D	1+	2	1.14	5.60	2.90				
	04	1015 E	1035 D	1023	S18 W83	5825	20 D	1+	2	1.14	5.60	3.40				

SOLAR FLARES

SEPTEMBER 1960

OBSERVATORY	DATE SEPT 1960	OBSERVED TIME		MAX. PHASE	LOCATION		DURA- TION — MINUTES	IM- POR- TANCE	OBS. COND.	MEASUREMENTS			PROVISIONAL IONOSPHERIC EFFECT	
		START	END		APPROX. LAT. MER. DIST.	MCNATH PLAGE REGION				MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH H _g		MAX. INT. %
{ CAPRI G KHARKOV KIEV KIEV	04	1031 E	1056		N20 W50	5822	25 D	1+	2	1040	6.00	2.10	61	S-SWF
	04	1036	1103 D		N19 W57	5822	27 D	1	1	1054	3.90			
	04	1052 E	1130 D		N20 W54	5822	38 D	2	1	1054	5.19			
	04	1050 D	1105 D		S18 W83	5825	15 D	1+	2	1054	5.60	3.70	45	
{ CAPRI G CAPRI G GOOD HOPE CAPRI G VOROSHILOV	04	1052 E	1115 D		S17 W90	5825	23 D	1	2	1052	2.08			
	04	1053	1107		S16 W90	5825	14	1	2		6.00			
	04	1249 E	1303		N20 W50	5822	14 D	2	2	1301	1.60			
	04	1301 E	1328		N20 W55	5822	27 D	1	2		2.60			
{ CAPRI G VOROSHILOV	04	1525	1536		N20 W55	5822	11	1	2		4.00			
	04	2211	2216	2214	N20 W59	5822	5	1	2		1.81		62	
CAPRI G	06	1458 E	1511 D		N15 E12	5835	13 D	2	2		8.00			
CAPRI G	07	0832	0844		S16 E61	5843	12	1	2		2.00			
CAPRI G	07	1106	1121		N16 E23	5837	15	1	2		4.00			
CAPRI G	07	1204	1230		N16 E23	5837	26	1	2		4.00			
{ PIRCULI CAPRI G	08	0617	0630 D	0622 U	S04 W03	5841	13 D	1	1		3.68		55	
{ CAPRI G	08	0626 E	0630 D		S06 W06	5841	4 D	1	2		2.00			
{ ABASTUMANI	08	0622 E	0638	0628	S16 E51	5843	16	1	1		1.36		69	
{ PIRCULI	08	0631 E	0632 D	0632 U	S16 E52	5843	1 D	1	1		3.30		65	
{ PIRCULI	08	0732 E	0748 D	0740 U	S04 W03	5841	16 D	1	1		3.85		60	
CAPRI G	08	0950 E	1008		S16 E46	5843	18 D	1	2		2.00			
{ KIEV SCHAUVINS	10	1245 E	1330 D	1310 U	N18 W15	5837	45 D	1+	1	1310	5.19		58	
{ CAPRI G	10	1300 E	1335 D	1310	N18 W11	5837	35 D	1	2		3.00			
{ CAPRI G	10	1322 E	1337		N18 W11	5837	15 D	2	2		6.00			
{ PIRCULI	11	0720 E	0732 D	0725 U	S03 E60	5847	12 D	1	1		1.56		57	
{ CAPRI G	11	0726 E	0740 D		S04 E58	5847	14 D	1	2		2.00			
SCHAUVINS	11	1210	1240 D	1210	N17 W25	5837	30 D	1+	2		3.00			
SIMEIZ	12	0642 E		0642	N18 E55	5848	□	1+	1	0642	9.07		53	
{ ABASTUMANI	12	0736	0809	0742	N20 E51	5848	33	2	1		4.53		86	
{ CAPRI G	12	0737 E	0817		N21 E51	5848	40 D	2	2		7.30			
{ SCHAUVINS	12	0740 E	0810 D	0800	N15 E50	5848	30 D	1	2		6.00			
{ GOOD HOPE	12	1126	1155	1131	N19 E21	5844	29 D	1	2	1131	3.00			
CAPRI G	12	1130 E	1207		N19 E07	5844	37 D	1+	2		2.40			
{ KIEV ABASTUMANI	13	0624 E	0635 D	0628 U	N20 E11	5844	11 D	1	1	0628	3.12		50	
{ SIMEIZ	13	0625	0714	0632 U	N20 E10	5844	49	1	2		2.25		63	
{ GOOD HOPE	13	0631 E	0649 D	0633	N19 E12	5844	18 D	1	1	0733	3.62		52	
{ ABASTUMANI	13	0754	0817	0806	N20 E11	5844	11 D	1	2	0636	2.10		66	
{ GOOD HOPE	13	0755	0842	0805	N21 E03	5844	23	1	2		2.72			
{ SIMEIZ	13	0800 E	0800	0805	N21 E02	5844	47	1	1	0805	2.50		53	
{ KHAUKOV	13	0800 E	0835 D	0815	N20 W00	5844	□	1	1	0800	7.25			
{ GOOD HOPE	13	0807 E	0838 D	0815	N18 E05	5844	35 D	1	2		3.00			
{ SCHAUVINS	13	1139	1225	1142	N20 E02	5844	31 D	1	2	1142	2.20			
{ GOOD HOPE	13	1150	1220 D	1200	N19 W56	5837	46	1	2		1.30			
{ GOOD HOPE	14	1238	1310	1245	N18 W21	5844	32	1	2	1245	1.00			

SOLAR FLARES

SEPTEMBER 1960

OBSERVATORY	DATE SEPT 1960	OBSERVED UNIVERSAL TIME		LOCATION		DURA- TION — MINUTES	IM- POR- TANCE	OBS. COND.	MEASUREMENTS			MAX. INT. % H _z	PROVISIONAL IONOSPHERIC EFFECT
		START	END	MAX. PHASE	APPROX. LAT.				MER. DIST.	MEAS. AREA Sq. Des.	COOR. AREA Sq. Des.		
GOOD HOPE VOROSHILOV	14	1304	1322 D	1306	N20 W06	18 D	1	2	2.30	2.40	2.40	76	
	14	2316	2335	2323	N19 W70	19	1		.81				
MITAKA	15	0540 E	0550	0445	N19 W77	10 D	1	1	2.01		4.75	134	
	15	0853	0912	0857	N16 E08	19	1	1	2.20			54	
PIRCULI	16	1212	1215	1213	N16 W38	3	1	3	1.04			50	
	17	0636 E	0643		S20 E52	7 D	1		1.40	2.60		53	
GOOD HOPE	17	1010	1039	1026	N24 W90	29	1		1.10				
	17	1224 E	1252 D		N27 E07	28 D	1	1	2.08				
VOROSHILOV	18	0033	0135 D	0056	N13 W30	62 D	1+	2	1.98			92	S-SWF
	18	1112	1132 D	1115	S22 E45	20 D	1	2	2.29	3.60	3.20	68	
{ KIEV	18	1112	1140 D	1114	S24 E45	28 D	1+	2	1.04				
	19	0030	0034	0227	S22 E38	4	1	1	.70	1.02	1.96	96	
MITAKA	19	0148 E	0244	0227	S22 E37	56 D	1+	1	4.02	5.87	2.49	113	S-SWF
MITAKA	19	0309	0342	0319	S22 E36	33	1	1	1.21	1.77	2.48	134	
MITAKA	19	0444	0451	0448	S23 E32	7	1	1	0.46	1.02	4.43	115	S-SWF
{ GOOD HOPE	19	0700	0755	0710	S18 E80	55	2	2	2.80				
{ KRASNAYA	19	0702	0738	0705	S20 E80	36	2	2	5.44	2.90		70	
{ GOOD HOPE	19	0731	0745	0734	S21 E32	14	1	1	2.20	2.50			
GOOD HOPE	19	0744	0812	0748	N28 W16	28	1		2.30	2.20			
GOOD HOPE	19	0902	0912	0904	S21 E34	10	1		1.60				
KHARKOV	19	1020 E	1038 D		N21 E86	18 D	1	1	1030		3.70		
KHARKOV	20	0525 E	0605 D	0605 D	S13 E76	40 D	1+	1	1.14	5.60		113	
	20	0929 E	0933 D	0933 D	S22 E18	4 D	1	1	.75	.81	1.65	102	
{ DUNSINK	20	0935 E	0956 D		S22 E14	21 D	1	1	0.948	3.30	1.50	100	S-SWF
{ KHARKOV	20	1213 E	1230 D	1216 U	N22 W31	17 D	1	1	1.56			50	
MITAKA	21	0134 E	0200		N21 E60	26 D	1	2	.80	1.66	1.98	113	
	21	0239 E	0242		S08 W26	3 D	1	2	1.01	1.16	1.96	102	
ABASTUMANI	21	0830	0848	0834	N21 E58	18	2	3	3.62	7.00		100	S-SWF
KHARKOV	21	1032	1045 D		S17 E42	13 D	1	2	.57	.90		60	
{ ABASTUMANI	22	0737	0749	0740	N22 E42	12	1	3	1.82	2.50		60	
	22	0738	0749	0740	N22 E41	11	1	1	1.60	2.20			
{ GOOD HOPE	22	0858	1004	0913	N20 W55	66	1+		8.16			75	
{ KRASNAYA	22	0859	0935	0902	N22 W56	36	1		1.90	3.40		50	
{ GOOD HOPE	22	0907 E			N22 W56	□	□	1	1.87				
{ KIEV	23	1129 E	1140 D	1130 U	S23 E13	11 D	1	2	1.04			61	
KIEV	24	0712	0727	0716	S22 W01	15	1	1	2.30	2.60		56	
GOOD HOPE	24	0924 E	0928 D		S21 E01	4 D	1	1	1.56				
{ KIEV	24	0924	0942 D		S20 W01	18 D	1	2	2.86	3.10	2.00		
{ KHARKOV	25	0759	0832	0804	N27 E11	33	1		2.40	2.60			
GOOD HOPE	25	1246	1311	1256	S15 W11	25	1		4.00	4.40			

SOLAR FLARES

SEPTEMBER 1960

OBSERVATORY	DATE SEPT 1960	OBSERVED UNIVERSAL TIME		LOCATION			DURA- TION - MINUTES	IM- POR- TANCE	OBS. COND.	TIME - U T	MEASUREMENTS			PROVISIONAL IONOSPHERIC EFFECT
		START	END	APPROX. LAT.	MER. DIST.	McMATH FLAGE REGION					MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hz	
{ MITAKA TASHKENT	26	0353 E	0406	S12 E07		5863	13 D	1	0357	1.51	1.62	1.67	115	Slow S-SWF
	26	0525	0605	S23 W65		5858	40	2	0538	6.15	16.90			
	26	0531 E	0604	S19 W64		5858	33 D	1	0537	6.78	15.32	4.41	165	
	26	1142	1144 D	S18 W71		5858	2 D	1	1144	.90				
GOOD HOPE	27	1000	1017	S23 W80		5858	17		1008	.90				
{ MITAKA TASHKENT	29	0500	0531	S23 W66		5863	31	1	0505	2.01	5.03	3.61	134	Slow S-SWF
	29	0508 E	0526 D	S22 W66		5863	18 D	1		1.29	3.60			

COMMERCE - STANDARDS - BOULDER

These flare reports are addenda to the September 1960 flares published in CRPL-F 194 Part B, October 1960.

CAPRI G ANACAPRI - GERMAN MOSCOW - G GAISH
 CAPRI S ANACAPRI - SWEDISH R O EDIN ROYAL OBSERVATORY, EDINBURGH
 GOOD HOPE ROYAL OBSERVATORY, CAPE OF GOOD HOPE R O HERST GREENWICH ROYAL OBSERVATORY, HERSTMONCEUX
 KIEV* KIEV UNIVERSITY SAC PEAK SACRAMENTO PEAK
 KODAIKANAL KODAIKANAL SCHAUTINS SCHAUTINSLAND
 KRASNAYA KRASNAYA PAKHRA UNITED STATES NAVAL RESEARCH LABORATORY
 LOCKHEED LOS ANGELES USNRL

SAC PEAK: ALL VALUES IN MAX. INT. COLUMN ARE ARBITRARY UNITS (0-40) NOT PERCENT OF CONTINUOUS SPECTRUM.

E - LESS THAN & - PLUS
 D - GREATER THAN - - MINUS
 U - APPROXIMATE □ - NOT REPORTED

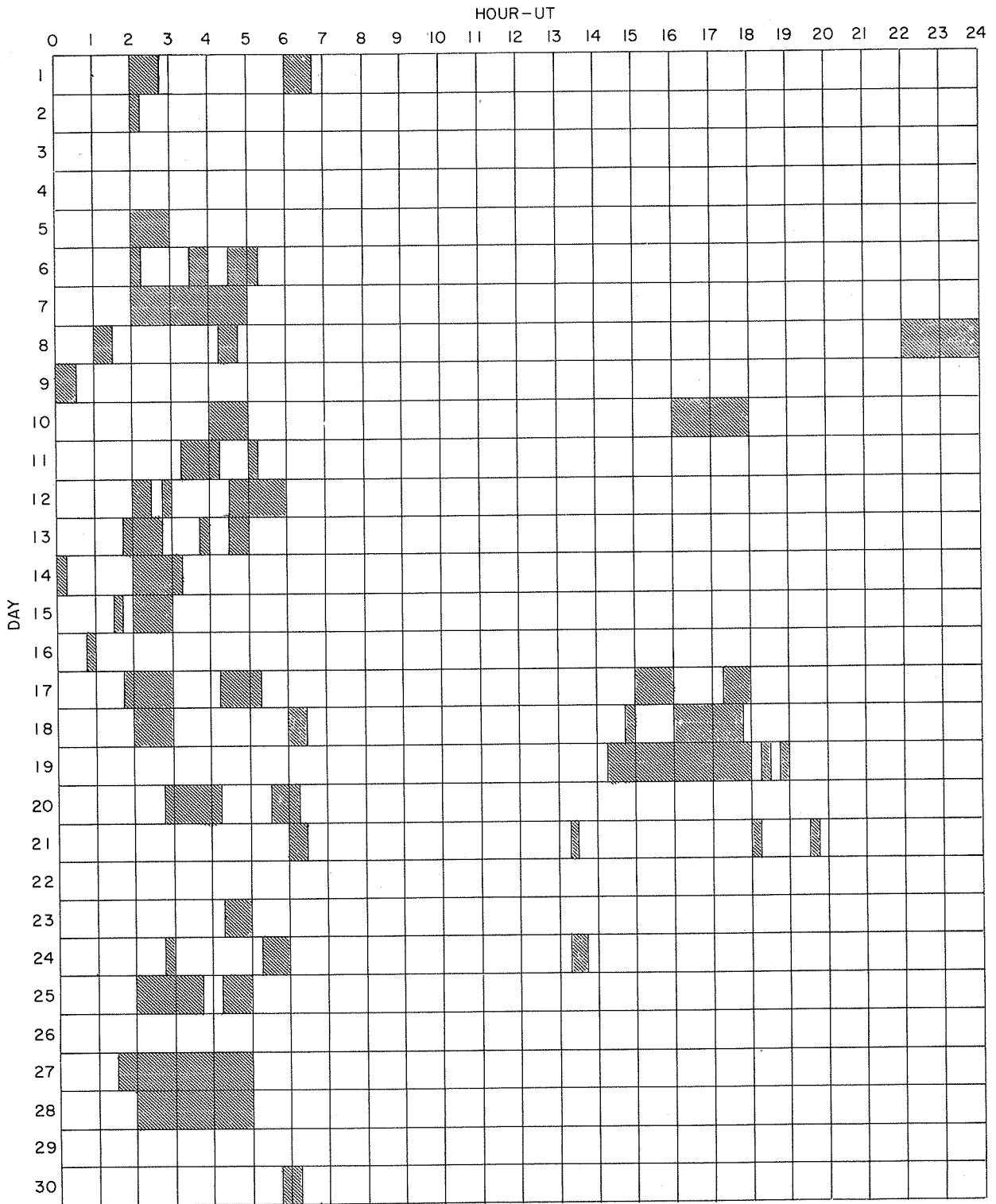
LOCKHEED OBSERVATIONS: ALL VALUES IN THE MAXIMUM INTENSITY COLUMN ARE ARBITRARY UNITS ON A SCALE OF 10 TO 40 - NOT PERCENT OF THE CONTINUOUS SPECTRUM.

ERRATA:

Page IIIb CRPL-F 196 Part B. Please correct the value in CORR. AREA column for the McMATH Nov. 12, 1960 flare at 1323 E UT to 14.00 sq. deg. through a punch card error the value was given incorrectly as 1.40 sq. deg.

INTERVALS OF NO FLARE PATROL OBSERVATIONS

SEPTEMBER 1960



COMMERCE - STANDARDS - BOULDER

Stations Include:

- | | | | | |
|--------------------|-----------|-----------------|-----------------------------|-----------------|
| Abastumani | Good Hope | Kodaikanal | Mitaka | Sacramento Peak |
| Alma Ata | Hawaii | Krasnaya Pakhra | Moscow-G | Simeiz |
| Anacapri (Swedish) | Istanbul | Lockheed | Ondrejov | Tashkent |
| Arcetri | Kharkov | McMath | Pirculi | Uccle |
| Dunsink | Kiev GAO | Meudon | Royal Greenwich Observatory | Voroshilov |
| | | | Herstmonceux | |

IONOSPHERIC EFFECTS OF SOLAR FLARES

IIIj

(SHORT-WAVE RADIO FADEOUTS)

NOVEMBER 1960

Nov. 1960	Start UT	End UT	Type	Wide Spread Index	Importance	Observation Stations	Known Flare, UT CREL-F
6	0118	0140	S-SWF	5	1	AD, <u>OK</u>	
6	0230	0317	Slow S-SWF	1	1	<u>OK</u>	0223
6	1708	1815	G-SWF	5	1	HU, <u>MC</u> , PR, WS	1752E
8	1430	1500	Slow S-SWF	4	1	<u>BE</u> , HU, PR **	1429E
10	1022	1152	S-SWF	4	2	NE, <u>SW</u> , CW ***	1009
11	0046	0123	Slow S-SWF	5	1+	CA, <u>OK</u>	0046E
11	0311	0616	S-SWF	5	3+	AD, CA, <u>OK</u> , TO, CW††	*
12	1326	1600	S-SWF	5	3+	<u>BE</u> , <u>BO</u> , FM, JU, MC, NE, PR, SW, CW ***	1323E
12	2118	2152	Slow S-SWF	5	1+	BO, PR, <u>WS</u>	2124
14	0010	0103	Slow S-SWF	5	2-	AD, NZ, <u>OK</u> , TO	0015E
14	0300	0500	Slow S-SWF	5	3	AD, NZ, <u>OK</u> , <u>TO</u> , CW††	0246
14	1542	1618	S-SWF	5	2	<u>BE</u> , HU, MC, PR	1605E
15	0217	0630	S-SWF	5	3+	AD, NZ, <u>OK</u> , TO, CW ††	0207
16	0143	0158	S-SWF	1	1	<u>OK</u>	0145E
20	1945	2022	S-SWF	5	1+	AN, FM, HU, <u>PR</u> , WS	2017
20	2023	2145	Slow S-SWF	5	3-	AD, AN, <u>BE</u> , BO, FM, HU, LA, MC, NZ, <u>PR</u> , WS	2106
27	1800	2015	G-SWF	5	1+	<u>BE</u> , FM, HU, MC, PR	

COMMERCE - STANDARDS - BOULDER

CA = Canberra, Australia
 JU = Juhlesruh, G. D. R.
 LA = Los Angeles, California
 NE = Nederhorst den Berg, Netherlands
 NZ = New Zealand Post and Telegraph Dept.
 SW = Enköping, Sweden

TO = Hiraio Radio Wave Observatory, Japan
 CW* = Cable and Wireless, Barbadoes
 CW** = Cable and Wireless, Somerton, England
 CW*** = Cable and Wireless, Brentwood, England
 CW† = Cable and Wireless, Hong Kong
 CW†† = Cable and Wireless, Singapore

IONOSPHERIC EFFECTS OF SOLAR FLARES

(Sudden Cosmic Noise Absorption
Sudden Enhancements Of Atmospherics)
Solar Noise Bursts At 18 Mc.

NOVEMBER | 1960,

Nov. 1960	CLASS			WIDESPREAD INDEX	TIME (UNIVERSAL TIME)			PERCENT ABSORPTION SCNA	OBSERVATION STATIONS
	SCNA	SEA	Burst		BEGIN	MAX.	END		
1		1+		3	2140	2147	2220		A1, A3
5		2		1	1109	1117	1145D		A12
*+ 5		1+		3	1539	1550			A1, A5, A10
*+ 5		1		3	1558	1603	1650D		A1, A5, A10
*+ { 5	1	2		5	1847	1851	1910	10	FO HA
5				5	1847	1900	1945		A1, A3, A5, A9, A10, FO, HA
6		1		1	0008	0012	0025		TY
6		1		1	0119	0125	0145		TY
6		1		1	0240	0245	0255		TY
6		1		1	0524	0528	0558		TY
6			1	5	2307		2309		FO, HA, MC
9		1+		1	0720	0730	0741		TY
10		1		5	1019		1044		A3, NE
11		2		1	0048	0108	0136		TY
11		1		1	0145	0157	0205		TY
11		1+		1	0220	0233	0300		TY
11		1+		1	0315	0320	0414		TY
11		1		1	0603	0612	0627		TY
12		2		1	0328	0337	0425		A11
12		2		5	1001		1031		A12, JU
{ 12	3	2+		1	1325	1350			MC
12				5	1325	1345	1530	A1, A3, A5, A10, A12 NE, PA	
13		3		5	1208	1237	1421		A1, A3, A5, A10, A12
13		2		5	1625	1635	1702		A1, A3, A5, A10, A12
13		1+		5	1825	1832	1850		A1, A3, A5, A10
{ 14	1	2		1	0007	0019	0048	20	HA
14				1	0009	0021	0053D		TY
14		2		1	0301	0327	0452D		TY
14		1		1	2259	2303	2315		TY
14		1		1	2348	2355	0006		TY
{ 15	3	2		1	0218	0223	0315	100	HA
15				5	0219	0245	0403		A11, HA, HO TY
16		1		1	0146	0150	0212		TY
16		1+		4	0620	0627	0659		A11, TY
16		2		1	1405	1410	1500		A12
{ 20	1	2		3	1938	1958		15	A1, A3, A5, A10
20				1	1945	1948	1948		HA
{ 20	3	2+		1	1945	1952	2004	80	FO
20				5	2023	2041	2140		A1, A3, A5, A10
{ 20	3	2		5	2028	2053	2340	80	BO, HA, MC
20				1	2042		2044		HA
28		2		3	1558	1620			A1, A5, A10

COMMERCE - STANDARDS - BOULDER

JU = Juhlesruh, G.D.R.

TY = Research Institute of Atmospherics, Toyokawa, Japan

* = Sudden Enhancement of Signal from 18 kc (NBA - Panama Canal Zone) observed by A5.

+ = Sudden Phase Anomaly of 18 kc (NPA) at Boulder, Colorado (NBA off air Nov. 7 to Nov. 28, 1960).

Notes: No usable McMath record for 13 and 15 November, 1960.

No usable Sacramento Peak record for November, 1960.

No usable Boulder record from 8-18 November, 1960.

Errata to Descriptive Text issued November 1960:

On page 8 lines 7 and 8 Hollandia should be in New Guinea and Paramaribo in Surinam (Dutch Guiana). The countries were mistakenly reversed in the text.

**SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES**

IVa

DECEMBER 1960

OTTAWA

2800 MC

Dec. 1960	Type*	Start UT	Duration Hrs:Mins	Maximum		Remarks
				Time UT	Peak Flux	
5	9 Precursor f	1728	1 00		10	
	6 Complex f	1828	27	1837.5	330	
6	4 Post Increase f		>2 00		45	
	1 Simple 1	1438	5	1439.5	4	
6	2 Simple 2	1616	5	1616.5	17	
12	3 Simple 3 f	1458	1 00	1520	5	
14	2 Simple 2	1322	2	1322.5	45	
16	3 Simple 3 A	1520	1 10	1550	9	
	1 Simple 1	1523	8	1527	6	
20	6 Complex f	1317	8	1319.7	35	
20	1 Simple 1	1658.2	5	1659.8	5	
27	1 Simple 1	1402	7	1404.5	4	

COMMERCE - STANDARDS - BOULDER

HOURS OF OBSERVATION: OCTOBER, NOVEMBER, DECEMBER 1960

OBSERVING PERIOD:

October 1200 UT - 2145 UT (approx.)

November 1300 UT - 2100 UT (approx.)

December 1320 UT - 2100 UT (approx.)

with the following exceptions:

(1) Observations commenced:

October 5 - 1315

October 28 - 1250

(2) Observations ended:

November 15 - 1940

November 16 - 2020

November 17 - 2020

(3) No observations:

October 4 - 1420-1610

(4) Interference obscuring portions of the records on:

October 4, 5, 14, 18, 24,

25, 27, 28, 31

November 1, 2, 4, 9, 10,

14, 18, 21

December 2, 8, 9, 11, 12

14, 16, 19, 21, 22,

26, 28, 29, 30.

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

DECEMBER 1960

BOULDER

108 MC

Dec. 1960	Type	Start UT	Time of Maximum UT	Duration Minutes	Intensity	Dec. 1960	Type	Start UT	Time of Maximum UT	Duration Minutes	Intensity
1	6	1408 E		160 D	1	16	8	1531.0	1532.6	4.5	3
1	3	1833.2	1833.7	0.6	2	16	3	1853.5	1853.9	0.4	2
3	3	1809.7	1810.1	0.4	1	17	3	2141.4	2141.6	0.2	1
3	2	1957.6	1958.0	2.4	1	18	9a	1431.5	1434.9	7	2
3	8	2042.5	2043.5	1.8	3	18	9b	1438.0	1439.9	4.5	2
3	3	2047.0	2047.6	0.6	1	18	3	1721.0	1721.6	0.6	2
3	3	2256.6	2257.7	1.1	2	18	3	1841.2	1841.8	0.6	1
3	3	2305.2	2306.1	1.2	1	18	3	1914.7	1915.1	1.6	2
4	3	1735.9	1736.3	0.3	1	18	3	1932.7	1932.9	1.3	2
4	3	1838.8	1839.1	0.3	2	18	3	2129.1	2129.5	0.4	2
4	3	1910.0	1910.5	1.3	2	18	8	2150.0	2153.5	4.5	2
4	7	2132.3	2244.5	102 D	2	18	2	2257.0	2300.5	6	2
5	3	1509.9	1511.6	2.0	3	19	3	1503.0	1504.5	1.6	3
5	9a	1832.0	1837.1	18	3	19	3	1537.5	1538.0	1.3	2
5	9b	1850.5	1853.8	9	2	19	2	1550.2	1557.5	12	2
5	2	1925.5	1925.7	1.9	2	19	3	1659.0	1659.6	1.8	2
5	2	2022.3	2024.0	2.2	2	19	2	1816.5	1819.0	2.6	2
6	2	1537.6	1541.0	3.4	3	19	3	1839.3	1840.3	1.7	3
6	2	1720.0	1727.2	8	2	19	2	2021.1	2026.6	6	2
6	2	1838.0	1842.5	5	1	19	2	2118.0	2119.7	4.2	1
6	3	1859.6	1900.4	1.0	3	19	8	2142.0	2145.2	4.8	3
6	8	2029.0	2030.0	3.4	3	19	3	2216.7	2217.0	0.4	2
6	2	2116.5	2118.6	3.0	1	19	3	2220.7	2220.8	0.3	2
7	3	1814.5	1815.0	1.1	2	19	2	2256.4	2258.5	2.1	2
7	3	1830.3	1831.0	0.7	2	20	3	1450.1	1450.5	0.4	2
7	3	1901.6	1902.5	0.9	3	20	3	2203.7	2204.2	0.5	2
7	3	1910.5	1911.0	0.3	2	21	7	1447		171	1
7	8	1955.0	1956.0	1.5	3	21	3	1848.6	1849.6	1.0	3
7	2	2028.0	2031.5	3.6	1	21	3	1945.0	1945.2	0.3	2
8	9	1604.3	1609.6	6	2	21	3	2137.5	2138.0	0.5	2
8	3	1838.4	1839.3	1.3	2	21	3	2240.0	2240.5	0.3	2
8	3	2039.2	2039.7	1.0	2	22	3	1749.2	1750.0	0.8	2
9	3	1748.9	1749.4	0.5	2	22	2	1859.2	1859.6	5	2
9	3	1842.0	1842.6	0.5	2	22	2	1932.5	1933.2	10	2
10	3	1612.8	1613.2	0.5	2	22	3	2033.2	2034.6	2.1	3
10	3	2241.6	2241.9	0.3	2	22	3	2222.5	2223.0	0.3	2
10	3	2243.8	2244.0	0.3	2	22	2	2258.8	2300.1	2.7	2
11	3	1553.7	1554.0	0.3	2	23	3	2104.3	2104.8	0.5	2
11	3	1610.1	1610.5	0.3	2	25	3	1705.8	1705.9	0.4	2
11	3	1829.6	1830.0	0.4	2	25	3	1842.3	1842.9	0.6	2
12	3	1442.4	1442.8	0.4	2	25	3	2250.8	2251.1	0.3	2
12	3	1559.0	1559.3	0.3	2	25	3	2257.5	2258.0	0.4	2
12	3	2035.4	2035.6	0.4	2	26	2	1447.0	1448.2	2.5	2
12	3	2225.7	2226.0	0.3	2	26	3	1532.3	1533.3	1.0	3
13	3	1449.1	1449.6	0.5	2	27	3	1708.8	1709.5	0.6	2
13	3	1516.0	1516.6	1.1	2	27	3	1804.3	1804.9	0.6	2
13	3	1541.1	1541.4	0.3	2	27	3	2019.8	2020.1	0.5	2
13	3	1628.3	1628.8	0.7	2	27	3	2030.7	2031.2	1.3	2
13	3	1643.5	1644.1	1.2	2	27	3	2142.1	2142.8	0.7	2
13	3	1955.5	1956.0	0.4	2	28	3	1512.8	1513.3	0.5	2
14	3	1447.0	1447.5	0.9	2	28	3	2153.8	2154.3	0.5	2
14	3	1512.8	1513.3	1.2	2	28	3	2231.0	2231.5	0.5	2
14	3	2116.2	2116.7	0.5	2	29	8	2312.5	2314.5	1.6	3
15	3	2214.6	2214.9	0.3	2	30	7	1725		347	2
15	3	2244.6	2244.8	0.2	2	31	3	1703.3	1704.9	1.7	2

NOMINAL TIMES OF OBSERVATION

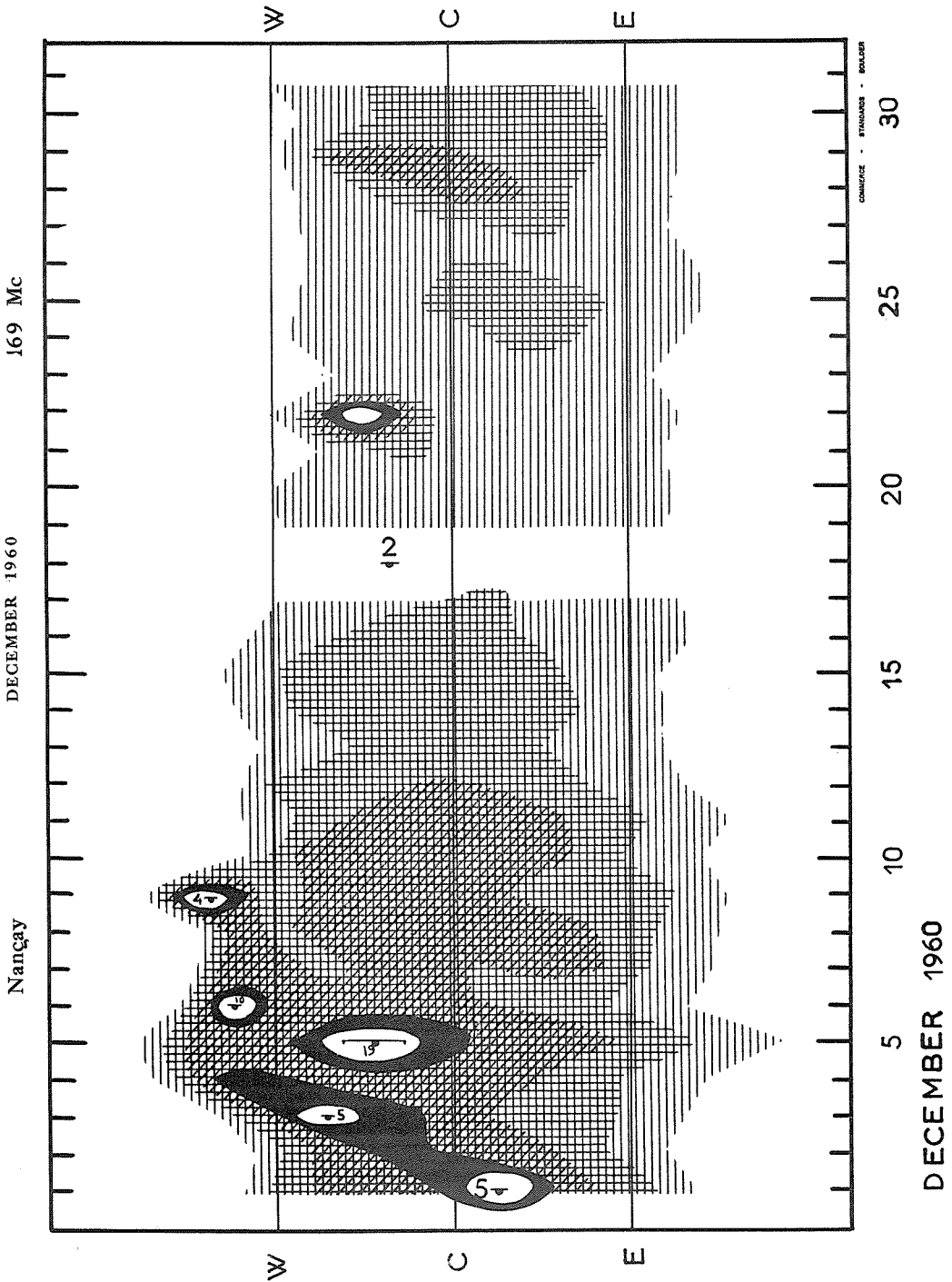
BOULDER

108 MC

Dec. 1960	U.T.		Dec. 1960	U.T.	
1	1408-2305	I 1715-1815; 2013-2042	15	1420-1653; 1730-2304	
2	1409-2303	I 1636-1703; 1804-1857; 1945-2145	16	1420-2304	
3	1410-2303		17	1421-2304	
4	1411-2303		18	1422-2305	
5	1412-2303		19	1422-2305	
6	1412-2242		20	1423-2306	
7	1705-2303		21	1423-2306	
8	1414-1744; 1812-2303		22	1423-2308	
9	1415-2303		23	1424-2307	
10	1416-2303		24	1425-2309	
11	1417-2303		25	1425-2308	
12	1418-2303		26	1425-2307	
13	1418-2303		27	1426-2311	
14	1419-2303	I 2039-2050; 2210-2300	28	1426-2310	
			29	1426-2315	
			30	1429-2312	
			31	1429-2314	

COMMERCE - STANDARDS - BOULDER

SOLAR RADIO EMISSION
INTERFEROMETRIC OBSERVATIONS



SOLAR RADIO EMISSION
SPECTRUM OBSERVATIONS

IVe

Fort Davis

JANUARY 1960

25-580 Mc.

Date 1960	Observing Hours	Important Bursts			Frequency Range	Remarks
		Type	Times U.T.	Int.		
Jan. 1	1415-2345					
Jan. 2	1415-2345					
Jan. 3	1415-2350	III G	1922-1925	2	350-25	
Jan. 4	1415-2350	III G	1658-1659	2	420-25	2024: Reverse slopes 580-320 Mc/s 2126: UNCL Resembles IV
		III G	1945-1948	2	180-25	
		III G	1955-2002	2	300-25	
		III G	2024-2034	3	580-25	
		UNCL	2126-2130	2	580-240	
		III G	2115-2117	2	180-25	
Jan. 5	1415-2350					
Jan. 6	1415-2350					
Jan. 7	1415-2350					
Jan. 8	1415-2350					Weak I throughout day
Jan. 9	1415-2350	III G	2012-2014	2	240-125	
Jan. 10	1415-2350	III G	1617-1619	2	580-320	
		III G	1836-1840	2	320-100	
		I	2100-2350	1-2	320-100	
Jan. 11	1430-2350	II	2103.3-2118	3	150-25	1430-2105 weak I Intensity of I in- creases with II
		IV	2105-2355	1-3	450-50	
		I	2105-2355	3	180-50	
Jan. 12	1430-2355	I	1430-2355	1-2	320-100	1653-2045 many III iso- lated in time. 100-25 Mc/s
		III G	1647-1649	3	490-100	
		II	1651.0-1654	2	150-60	
		IV	1653-1704	1-2	320-200	
Jan. 13	1430-2355	III G	1750-1803	1-3	280-25	1857-2048 many III iso- lated in time 100-25 Mc/s
		I	1900- 2318	1-2	320-50	
		I	2315-2355	3	320-100	
Jan. 14	1430-2355	I	1430-1900	2-3	320-100	
		I	1900-2220	2-3	250-50	
		I	2220-2355	1	250-50	
Jan. 15	1430-2355	III G	1856-1859	3	320-25	Weak I throughout day
		III G	1947-1950	2	320-25	Many III throughout day
Jan. 16	1430-2355	II	2243.8-2254	3	450-100	Weak I throughout day
		III G	2244-2251	2	580-150	
Jan. 17	1430-1915 2213-2355					
Jan. 18	1430-2355					
Jan. 19	1415-2400					
Jan. 20	1415-2400	III G	1713-1715	2	250-25	
Jan. 21	1415-2400					
Jan. 22	1415-2400					
Jan. 23	1418-2400					
Jan. 24	1557-2400					1715 Reverse slope IIIs 450-320 Mc/s
Jan. 25	1415-2400					
Jan. 26	1415-2400					
Jan. 27	1415-2400	III G	1417-1420	2	350-35	Many III and Weak I throughout day
		III G	2240-2243	2	180-25	
Jan. 28	1610-2400					
Jan. 29	No observations					
Jan. 30	No observations					
Jan. 31	2000-2400	III G	2239-2241	3	280-30	
		III G	2354-2356	2	350-100	
Feb. 1	0000-0005 1415-2400	III G	1415-1419	2	240-100	Many III throughout day
		III G	1553-1555	2	560-50	
		III G	2125-2126	3	200-25	
		III G	2205-2207	3	490-50	
Feb. 2	0000-0005 1415-2400	III G	1520-1522	2	430-125	
		III G	1739-1741	1	420-220	
		III G	1908-1911	3	420-25	
		III G	2111-2112	3	580-25	

SOLAR RADIO EMISSION
SPECTRUM OBSERVATIONS

FEBRUARY 1960

Fort Davis

25 -580 Mc.

Date 1960	Observing Hours	Important Bursts			Frequency Range	Remarks
		Type	Times U.T.	Int		
Feb. 3	0000-0005 1415-2400	III G	1708-1712	3	490-25	2101: reverse slopes 500-400 Mc/s Weak I and many III throughout day
		II	2022.2-2022.5			
			2022.8-2027	3	300-70	
		IV	2027-2032	2	450-180	
		III	2100-2102	2	500-200	
		III G	2209-2212	3	450-25	
		III G	2219-2220	1	300-165	
		III G	2317-2319	2	490-50	
		III G	2345-2347	3	490-50	
Feb. 4	0000-0005 1415-2400	III G	1636-1638	2	240-30	Weak I throughout day
		III G	1829-1835	2	350-25	
		III G	1927-1932	3+	560-25	
		III G	2036-2042	3	580-25	
		II	2046.4-2051			
			2052-2059	3	175-30	
		III G	2144-2147	2	580-170	
		IV	2149-2200	2-3	450-200	
Feb. 5	0000-0005 1415-2400	I	1415-2120	1-2	350-125	2122.7 UNCL has harmonic and resembles II
		III G	1856-1905	2	500-25	
		III G	1943-1950	3	350-25	
		II	1950.3-1954	2	250-120	
		III G	2117-2118	2	400-25	
		Uncl.	2122.7-2125	3	240-10	
		III G	2145-2146	3	200-25	
		III G	2148-2149	2	240-25	
		III G	2257-2259	3	420-30	
		III G	2345-2346	2	320-100	
		Feb. 6	0000-0005 1415-2400			
Feb. 7	0000-0005 1400-2400	I	1400-2400	1-2	320-100	
		II	1612.3-1619	2	175-90	
Feb. 8	0000-0005 1400-2400	I	1400-2400	1-2	320-100	
Feb. 9	0000-0005 1400-2400					
Feb. 10	0000-0005 1400-2400					Many III throughout day 100-25 Mc/s
Feb. 11	0000-0010 1400-2400	I	1400-2058	1	320-100	
		I	2058-2400	1-2	350-50	
Feb. 12	0000-0010 1400-2400	I	0000-0010	1-2	350-100	Many III throughout day 100-25 Mc/s Weak I throughout day
Feb. 13	0000-0010 1400-2400	III G	2002-2012	3	350-25	Weak I throughout day
		III G	2252-2253	3	350-110	
Feb. 14	0000-0010 1400-2400					
Feb. 15	0000-0010 1400-2400					
Feb. 16	0000-0010 1400-2400					
Feb. 17	0000-0010 1400-2400					
Feb. 18	0000-0010 1400-2400	III G	1507-1509	2	400-25	
Feb. 19	0000-0010 1400-2400					
Feb. 20	0000-0015 1400-2400					Weak I throughout day
Feb. 21	0000-0015 1400-2400	I	1400-1418	1-2	280-50	
Feb. 22	0000-0015 1356-2400	II	1357.8-1411	3	240-25	IV drifts from 580-100 1408 reverse slopes weak I throughout day
		IV	1356-1416	2	580->100	
Feb. 23	0000-0015 1356-2400					
Feb. 24	0000-0015 1356-2400					
Feb. 25	0000-0020 1356-2400					

SOLAR RADIO EMISSION
SPECTRUM OBSERVATIONS

IVg

MARCH 1960

25-580 Mc.
2100-3900 Mc

Fort Davis

Date 1960	Observing Hours	Important Bursts		Frequency Range	Remarks
		Type	Times U.T. Int.		
Feb. 26	0000-0025 1356-2400				
Feb. 27	0000-0025 1357-2400				
Feb. 28	0000-0025 1357-2400				
Feb. 29	0000-0025 1356-2400				
Mar. 1	0000-0025 1356-2400	II	1922.6-1933 3	450-60	
Mar. 2	0000-0025 1356-2400				
Mar. 3	0000-0025 1356-2400				
Mar. 4	0000-0025 1356-2400				
Mar. 5	0000-0030 1356-2400				
Mar. 6	0000-0030 1356-2400				
Mar. 7	0000-0030 1356-2400				
Mar. 8	0000-0030 1356-2400	III G	2014-2016 2	240-25	
Mar. 9	0000-0030 1345-2400	III G III G III G III G III G	0022-0025 3 1615-1618 2-3 1711-1712 3 1713-1717 3 2021-2023 2	580-50 240-25 200-25 200-25 200-25	Many III throughout day
Mar. 10	0000-0035 1345-2400	III G III G III G IV II III G III G	1643-1648 3 1649-1653 2 1717-1719 3+ 1718-1719 2 1720.2-1726 3 1947-1948 3 2344-2348 3	420-25 180-25 450-25 2100-3900 400-60 150-25 200-50	Many III throughout day
Mar. 11	0000-0035 1345-2400				
Mar. 12	0000-0035 1345-2400				
Mar. 13	0000-0035 1345-2400				
Mar. 14	0000-0035 1345-2400				
Mar. 15	0000-0035 1345-2400				
Mar. 16	0000-0035 1345-2400				
Mar. 17	0000-0040 1345-2400	I	~1900-2125 1-2	350-100	
Mar. 18	0000-0040 1345-2400				
Mar. 19	0000-0040 1345-2400	III G	2119-2120 3	170-50	
Mar. 20	0000-0040 1345-2400				
Mar. 21	0000-0045 1345-2400				
Mar. 22	0000-0045 1345-2400	I	1345-2400 1-2	280-100	
Mar. 23	0000-0045	I I	0000-0045 1 1330-2400 1	280-150 300-50	Many III throughout day 100-25 Mc/s

**SOLAR RADIO EMISSION
SPECTRUM OBSERVATIONS**

MARCH 1960

25-580 Mc.

Fort Davis

2100-3900 Mc

Date 1960	Observing Hours	Important Bursts			Frequency Range	Remarks
		Type	Times U.T.	Int.		
Mar. 24	0000-0045 1330-1552 1554-2400	I	0000-0045	1	240-150	
		I	1330-2400	1	220-60	
		III G	1454-1455	2	580-30	
		III G	1600-1602	3	350-25	
		III G	1622-1624	3	580-25	
		III G	1950-1953	3+	420-25	
		III G	2200.5-2202	3	320-25	
Mar. 25	0000-0045 1330-2400	I	0000-0036	1	200-100	
		III G	1406-1407	3	260-40	
		III G	2013-2015	1	220-30	
Mar. 26	0000-0045 1335-2400	III G	1710-1713	2	450-25	
Mar. 27	0000-0045 1335-2400	III G	1355-1357	2	200-50	
Mar. 28	0000-0050 1335-2400	II	2056.3-2112	3	150-25	2059 Weak I follows II burst
		IV	2050.5-2400	2-3	3000-60	
Mar. 29	0000-0050 1335-2400	IV	0000-0047	2	580-100	<u>Note</u> : 0047 Sunset
		I	1335-2400	2-3	240-25	
Mar. 30	0000-0050 1320-2400	I	0000-0050	1-2	240-50	~1730 Intensity of I increases
		I	1320-2400	1-3	300-50	
		II	1528.9-1540	3	160-25	
		IV	1526-2300	1-3+	3900-25	
		III	1553-1557	3	580-25	
Mar. 31	0000-0050 1320-2400	I	0000-0050	2	240-90	I Intensity 1- continues until sunset. Many III throughout day 100-25 Mc/s
		I	1320-~2300	1-2	300-50	
		III G	1357-1358	2	150-25	
		III G	1539-1544	3	580-25	
		III G	1751-1754	3	100-25	

Note: Frequency range 25-580 Mc January
25-580 February
25-580 and 2100-3900 March

COMMERCE - STANDARDS - BOULDER

SOLAR RADIO EMISSION SPECTRUM OBSERVATIONS

IVi

NOVEMBER - DECEMBER 1960

OWENS VALLEY, CALIFORNIA

450-1000 Mc

Date 1960	Observing Hours	Important Bursts			Frequency Range	Remarks
		Type	Times U.T.	Int.		
Nov. 1	1602-2148.5					No activity
Nov. 2	1602.5-2353					No activity
Nov. 3	1606-2345.5					No activity
Nov. 4	2001-2110.5					No activity
Nov. 8	1821-2333.5					No activity
Nov. 9	1618.5-2223.5 2226-2354					No activity
Nov. 10	1618.5-1720					No activity
Nov. 15	1623-2358					No activity
Nov. 16	1641-2355					No activity
Nov. 17	1639-2020 2022-2354	III g	1648.5	1-	500-1000	Very fast drift rate
Nov. 18	1604-2354					No activity
Nov. 19	1608-2355	I III G III g III g III g III g	1622.5 1623.5 1655-56 1656-57 1658 2237-38	1- 1 1- 1- 1 1-	650-1000 580-1000 750-950 700-900 900-1000 900-1000	Lasts five seconds Includes 2 reverse drifts
Nov. 20	1601.5-1854 1856-2342	III g I	2016 2017-2100	1 2	580-770 500-1000	Reverse drift Strong high frequency cut off formed at 690 Mc for several minutes; max. int. at 2018
Nov. 21	1606-2356					No activity
Nov. 22	1619-2356					No activity
Nov. 23	1627-2354	I	2301-2330	1	550-900	Max. int. at 2325
Nov. 24	1633-2354					No activity
Nov. 25	1611-2300					No activity
Nov. 28	1628-2354					No activity
Nov. 29	1615-2352					No activity
Nov. 30	1619-2218 2200-2353					No activity
Dec. 1	1615-2241					No activity
Dec. 2	1608-2351					No activity
Dec. 3	1640-2217					No activity
Dec. 4	1654-0001	I I III G	2258-59 2312-25 2320-21	1- 1- 1-	550-700 500-700 500-575	Intermediate drift rate
Dec. 5	1619-1903	I	1832-42	2	500-1000	In half minute groups, max. int. 1836 and 1837
Dec. 6	1619-2357	I I	2030-30.5 2031-31.5	1- 1-	500-1000 500-1000	
Dec. 7	1603-2351					No activity
Dec. 8	1615-2120					No activity
Dec. 9	1623-2051					No activity
Dec. 12	1739-2045					No activity
Dec. 13	1620-2351	III g pair III III g	2231-31.5 2232 2235-35.5	1- 1 1-	475-575 450-575 475-575	
Dec. 14	1615-2353					No activity
Dec. 15	1639-2230 2233-2352					No activity

**SOLAR RADIO EMISSION
SPECTRUM OBSERVATIONS**

DECEMBER 1960

OWENS VALLEY, CALIFORNIA

450-1000 Mc

Date	Observing Hours	Important Purses			Frequency Range	Remarks
		Type	Times U.T.	Int.		
Dec. 16	1619-2200	pair III III g	2114 2114.5	1- 1	600-750 580-650	Very fast drift Fast rate, reverse drift
Dec. 17	1645-2357					No activity
Dec. 18	1645-2350					No activity
Dec. 19	1626-2328					No activity
Dec. 20	1620-2041 2130-2353	III b III g III b	1809 1901 2000	1 1- 1-	625-700 850-950 550-640	Very fast drift Reverse drift
Dec. 21	1616-2352	III g	2238.5	1+	550-800	
Dec. 22	1638-2047	III g III b	2033.5 2033.5	1- 1-	500-550 450-550	U-burst, turning point 450 Mc
Dec. 23	1614-2322					No activity
Dec. 24	1734-2357					No activity

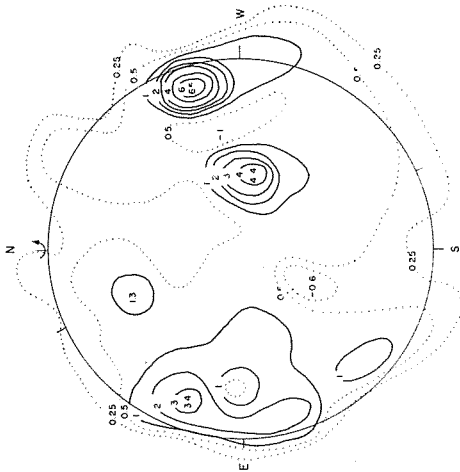
COMMERCE - STANDARDS - BOULDER

SOLAR RADIO EMISSION SPECTROHELIOGRAMS

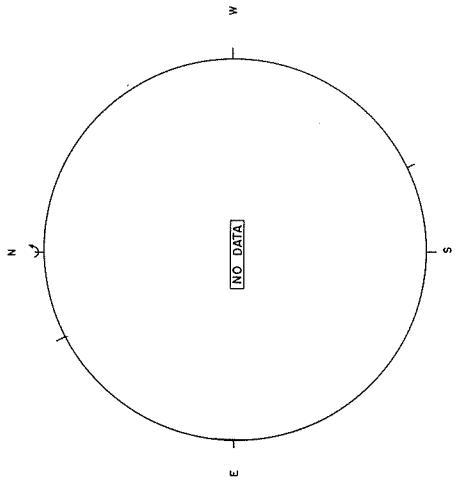
MAY 1960

STANFORD

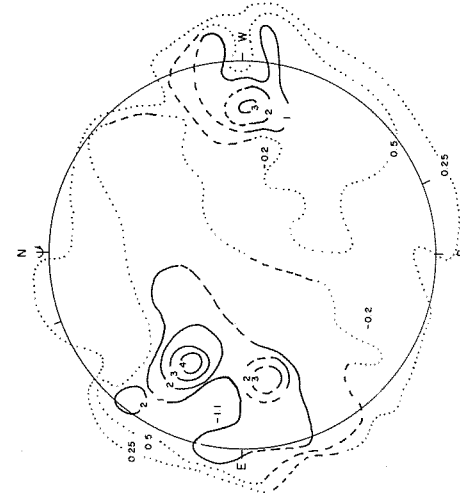
9.1 cm



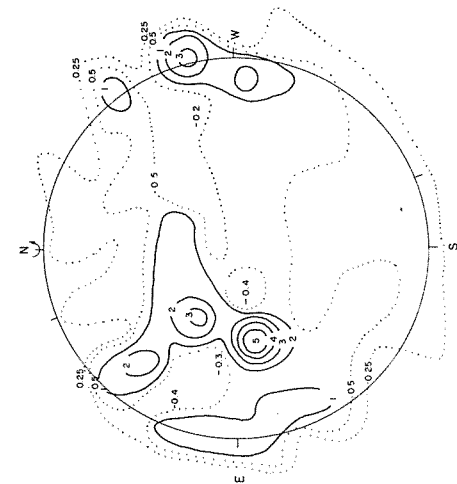
1960 MAY 1^d 19^h-20^h U.T.
CONTOUR BRIGHTNESS UNIT = 63,000* K



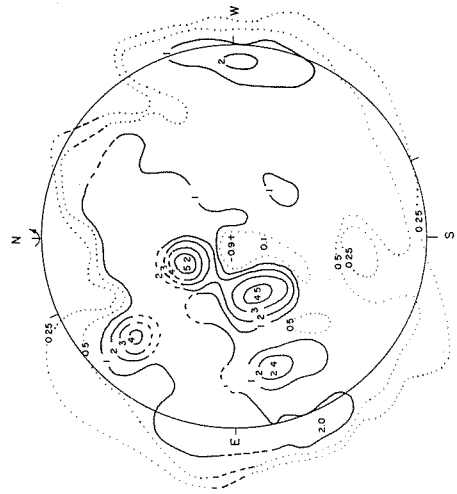
1960 MAY 2



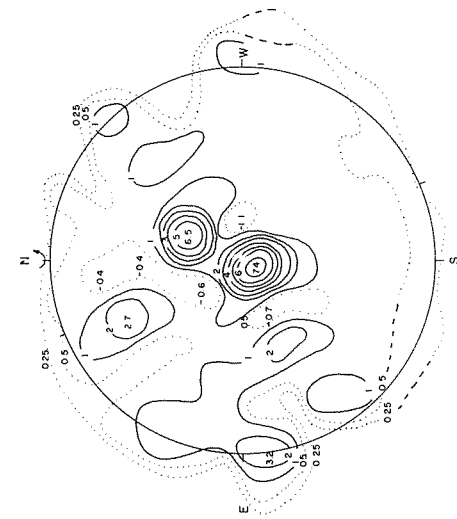
1960 MAY 3^d 19^h-20^h UT
CONTOUR BRIGHTNESS UNIT = 61,000* K



1960 MAY 4^d 19^h-20^h UT
CONTOUR BRIGHTNESS UNIT = 63,000* K



1960 MAY 5^d 19^h-20^h U.T.
CONTOUR BRIGHTNESS UNIT = 61,000* K



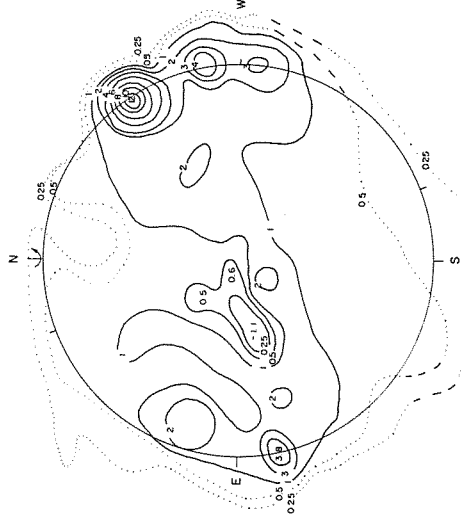
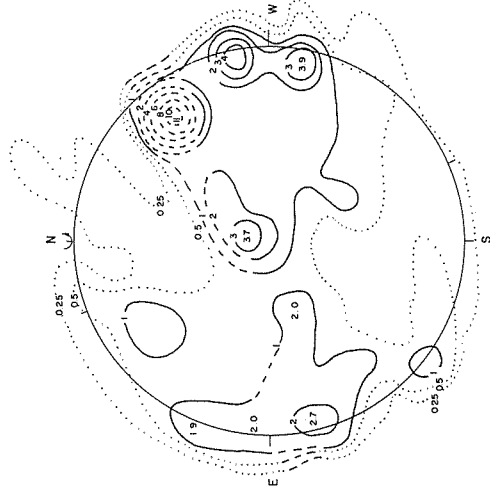
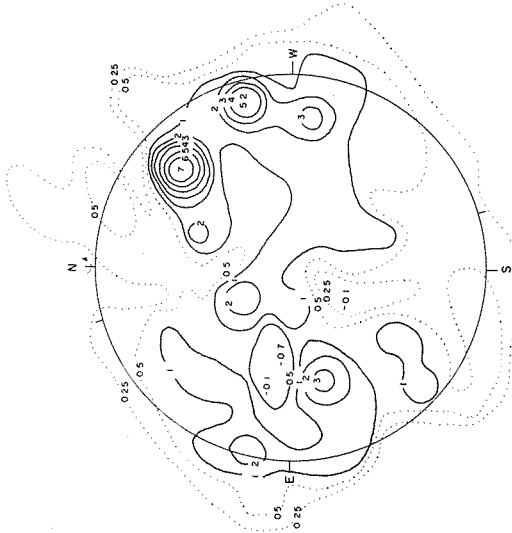
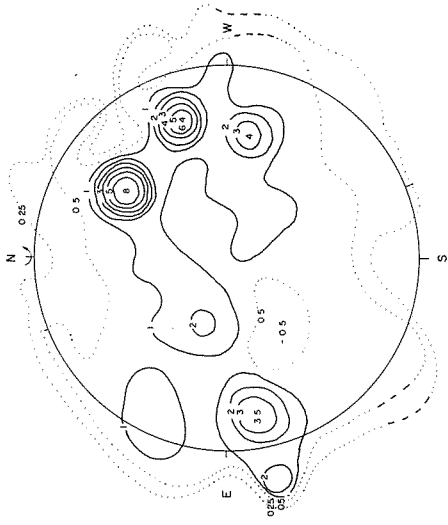
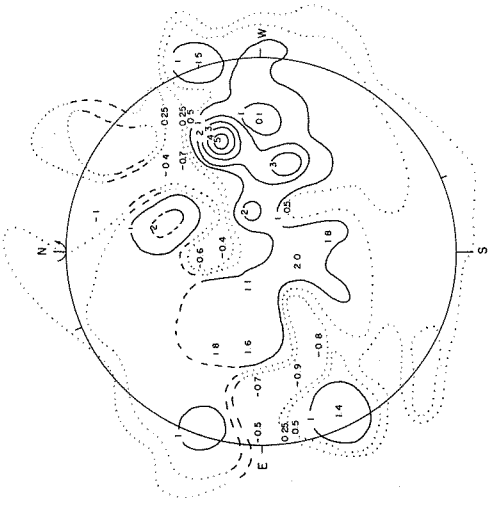
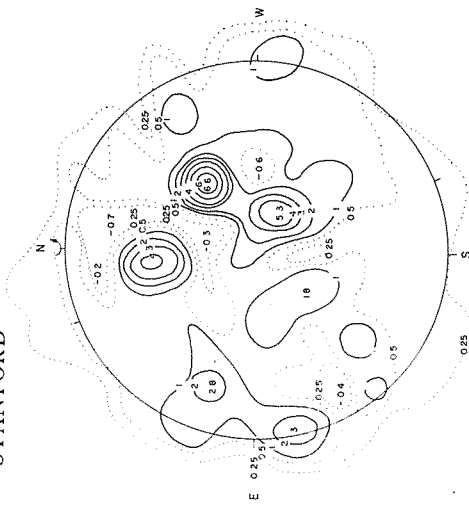
1960 MAY 6^d 19^h-20^h U.T.
CONTOUR BRIGHTNESS UNIT = 66,000* K

SOLAR RADIO EMISSION SPECTROHELIOGRAMS

MAY 1960

STANFORD

9.1 cm

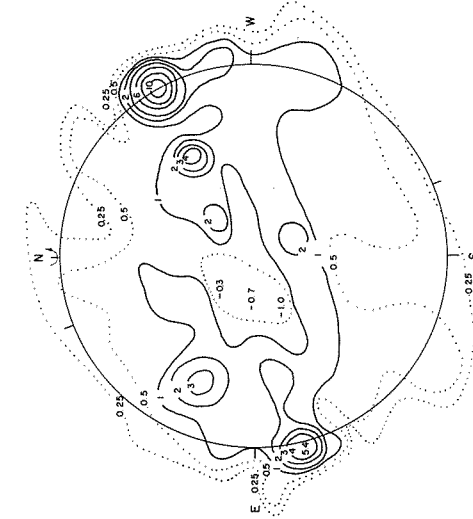


SOLAR RADIO EMISSION SPECTROHELIOGRAMS

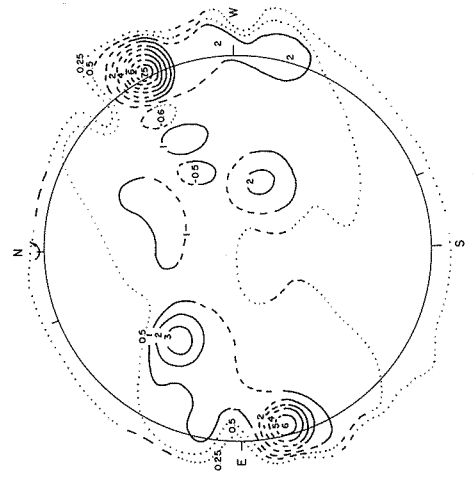
MAY 1960

9.1 cm

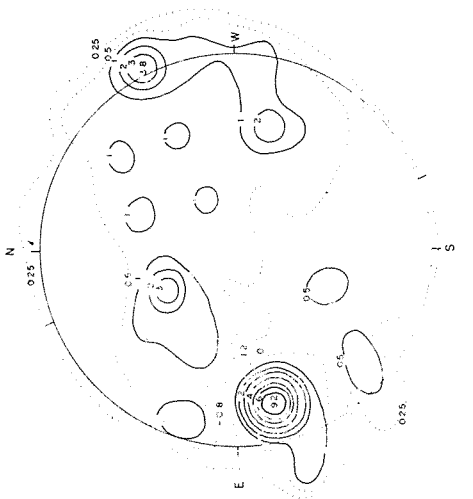
STANFORD



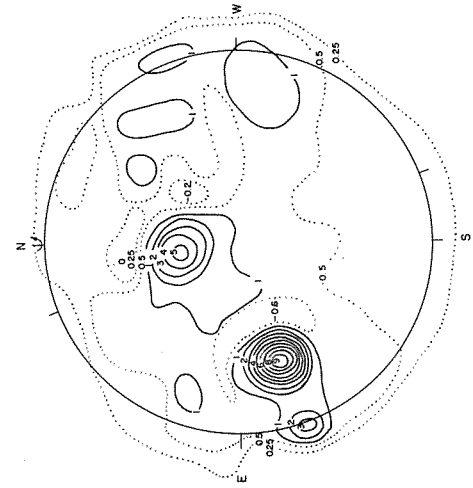
1960 MAY 13, 19^h-20^h U.T.
CONTOUR BRIGHTNESS UNIT = 64,000° K



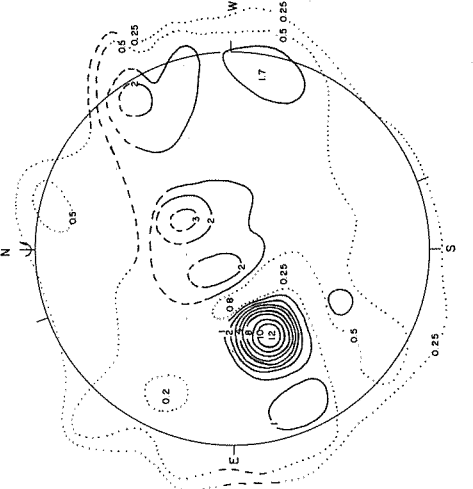
1960 MAY 14, 19^h-20^h U.T.
CONTOUR BRIGHTNESS UNIT = 81,000° K



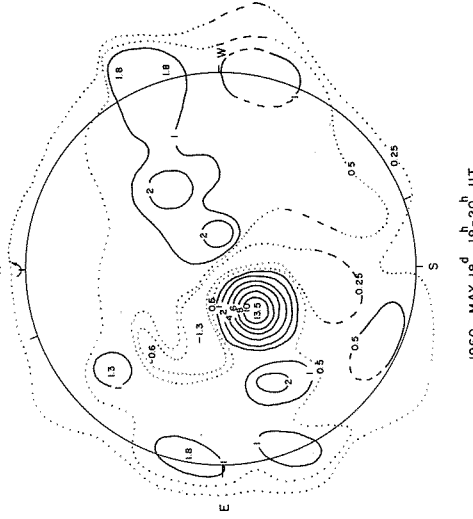
1960 MAY 15, 19^h-20^h U.T.
CONTOUR BRIGHTNESS UNIT = 80,000° K



1960 MAY 16, 19^h-20^h U.T.
CONTOUR BRIGHTNESS UNIT = 73,000° K



1960 MAY 17, 19^h-20^h U.T.
CONTOUR BRIGHTNESS UNIT = 70,000° K



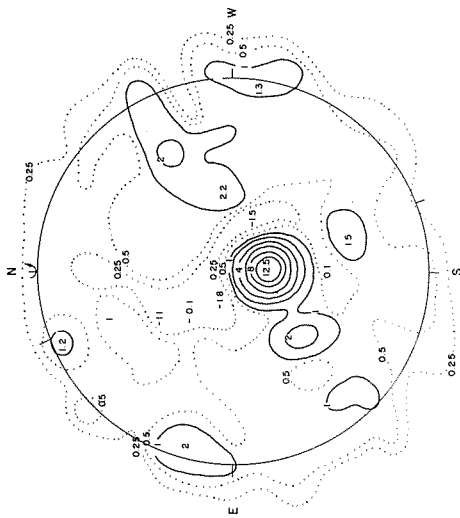
1960 MAY 18, 19^h-20^h U.T.
CONTOUR BRIGHTNESS UNIT = 76,000° K

SOLAR RADIO EMISSION SPECTROHELIOGRAMS

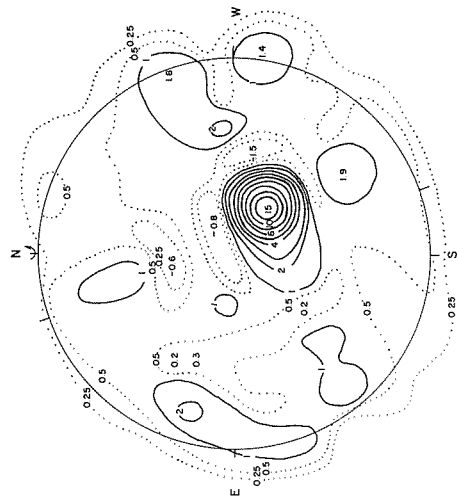
MAY 1960

STANFORD

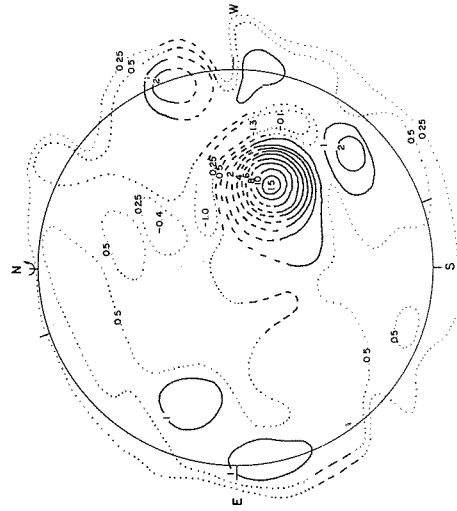
9.1 cm



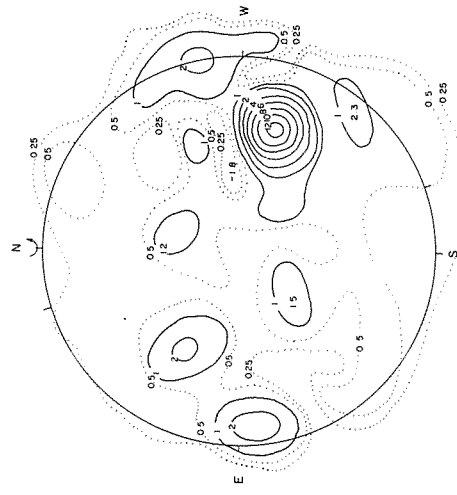
1960 MAY 19, 19^d 19^h-20^h UT
 CONTOUR BRIGHTNESS UNIT = 73,000*^oK



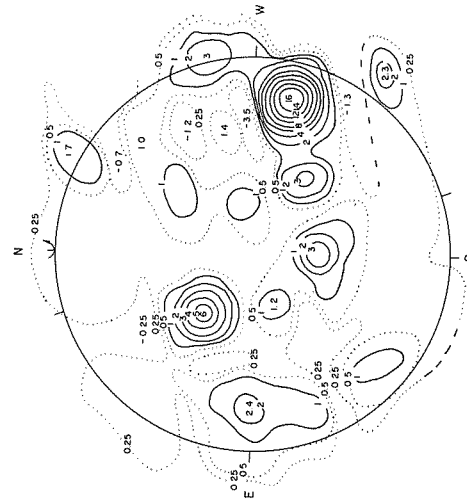
1960 MAY 20, 19^d 19^h-20^h UT
 CONTOUR BRIGHTNESS UNIT = 65,000*^oK



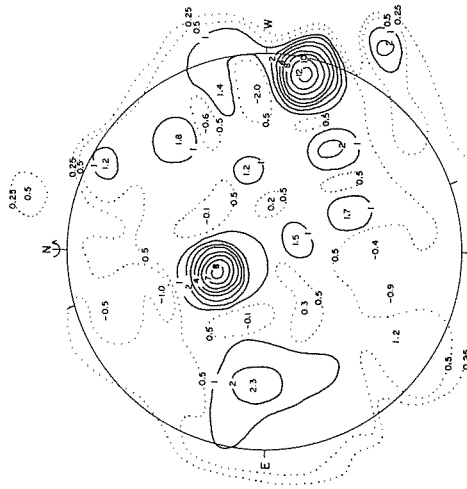
1960 MAY 21, 19^d 19^h-20^h UT
 CONTOUR BRIGHTNESS UNIT = 68,000*^oK



1960 MAY 22, 20^d 20^h-21^h UT
 CONTOUR BRIGHTNESS UNIT = 65,000*^oK



1960 MAY 23, 20^d 20^h-21^h UT
 CONTOUR BRIGHTNESS UNIT = 69,000*^oK



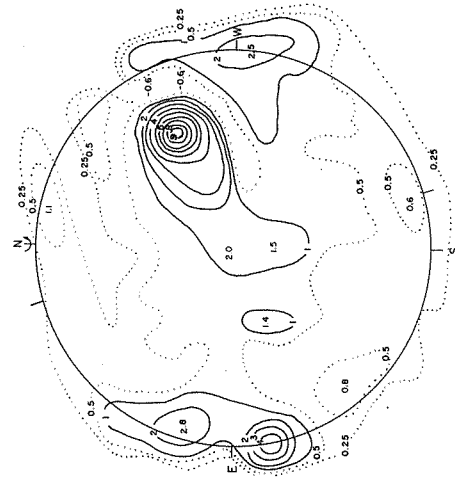
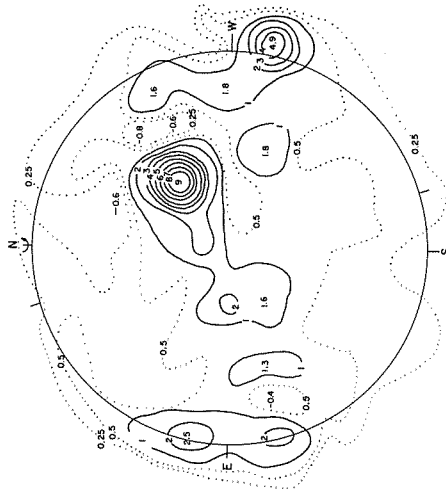
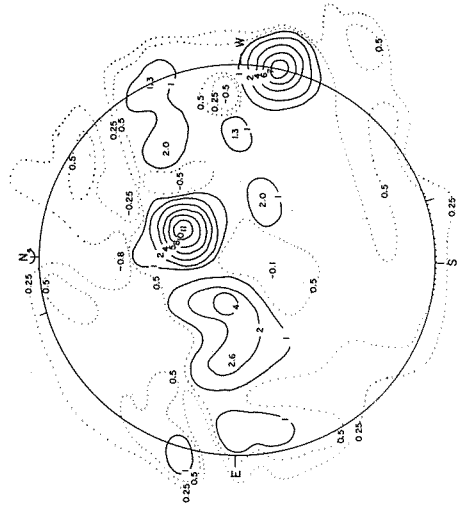
1960 MAY 24, 19^d 19^h-20^h UT
 CONTOUR BRIGHTNESS UNIT = 76,000*^oK

SOLAR RADIO EMISSION SPECTROHELIOGRAMS

MAY 1960

STANFORD

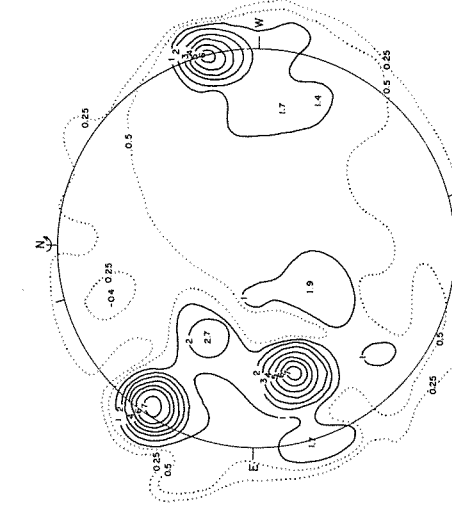
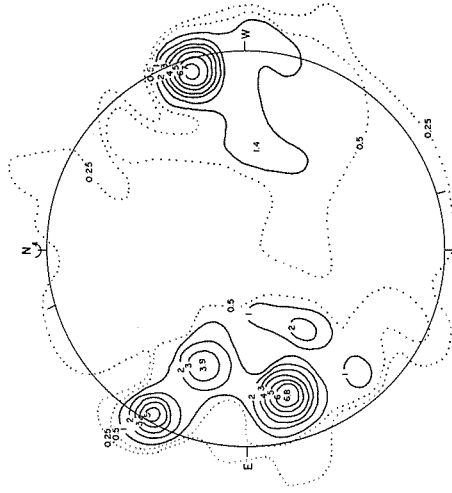
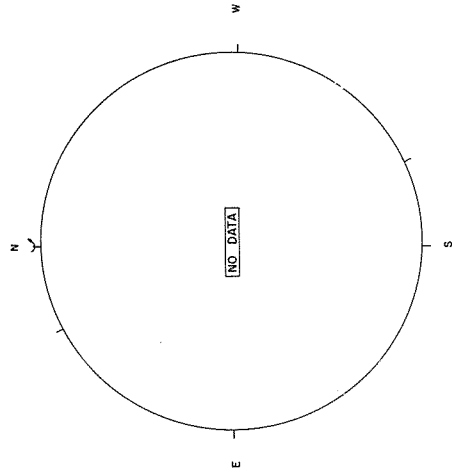
9.1 cm



1960 MAY 25^d 19^h-20^h UT
CONTOUR BRIGHTNESS UNIT = 61,000°K

1960 MAY 26^d 19^h-20^h UT
CONTOUR BRIGHTNESS UNIT = 72,000°K

1960 MAY 27^d 19^h-20^h UT
CONTOUR BRIGHTNESS UNIT = 72,000°K



1960 MAY 28

1960 MAY 29^d 19^h-20^h UT
CONTOUR BRIGHTNESS UNIT = 78,000°K

1960 MAY 30^d 19^h-20^h UT
CONTOUR BRIGHTNESS UNIT = 70,000°K

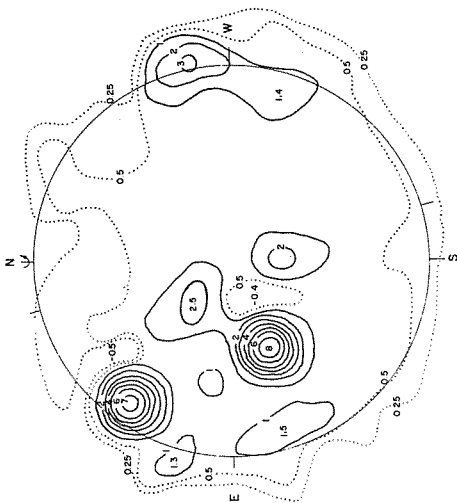
IV₀

COMMERCIAL - RADIATION - SERVICE

SOLAR RADIO EMISSION SPECTROHELIOGRAMS

MAY 1960

STANFORD



1960 MAY 31, 19^h 20^m UT
CONTOUR BRIGHTNESS UNIT = 70,000 °K

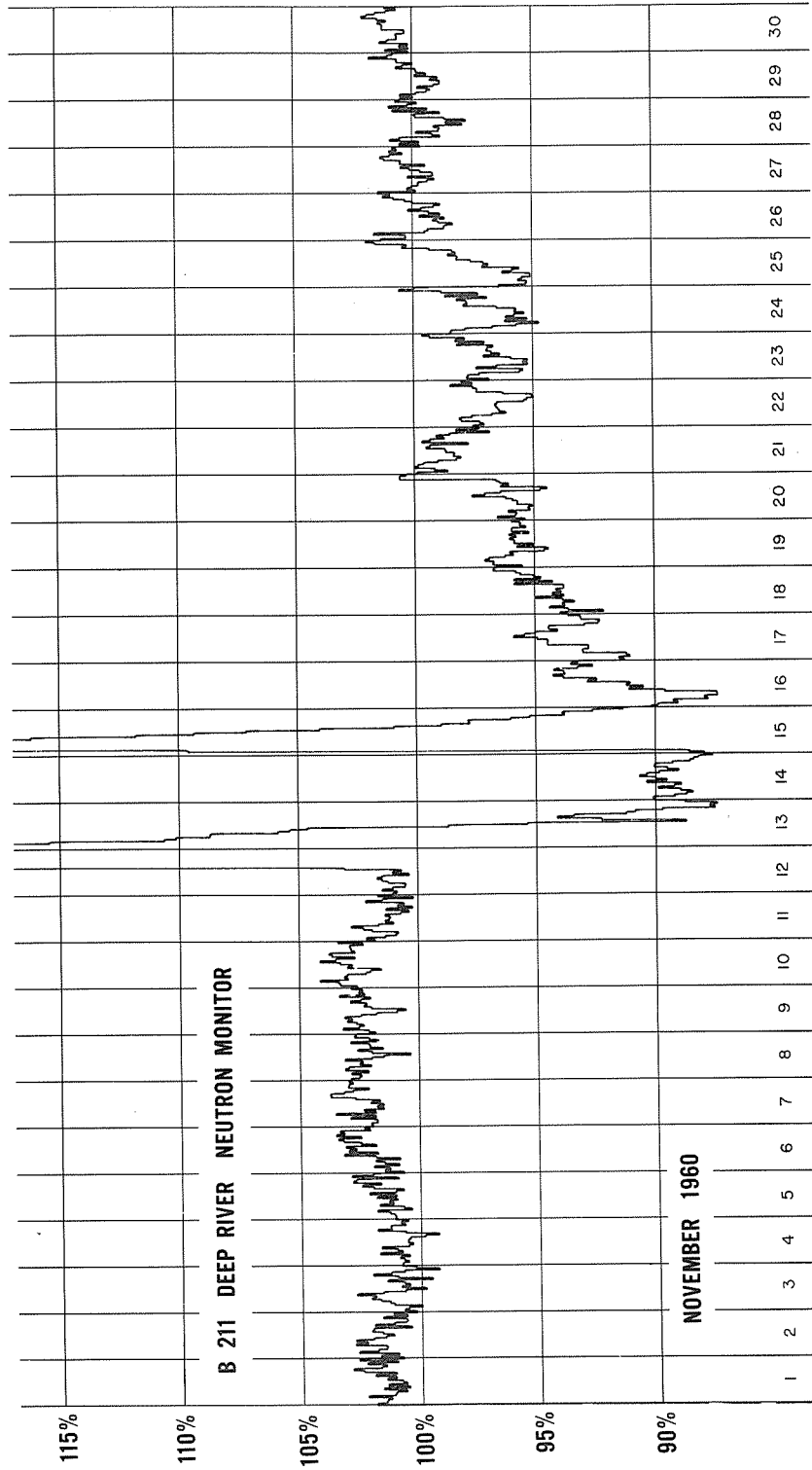
STANFORD UNIVERSITY - CALIFORNIA

COSMIC RAY INDICES
(Climax Neutron Monitor)

Nov. 1960	Daily average counts/hr	Nov. 1960	Daily average counts/hr
1	2888.2	16	2545.9
2	2877.9	17	2623.5
3	2860.1	18	2662.6
4	2881.7	19	2695.5
5	2878.6	20	2726.8
6	2896.1	21	2786.2
7	2917.4	22	2750.3
8	2922.0	23	2744.8
9	2930.8	24	2741.0
10	2927.2	25	2775.4
11	2888.2	26	2845.9
12	3093.7	27	2873.3
13	2724.6	28	2852.7
14	2502.9	29	2831.6
15	2608.2	30	2838.6

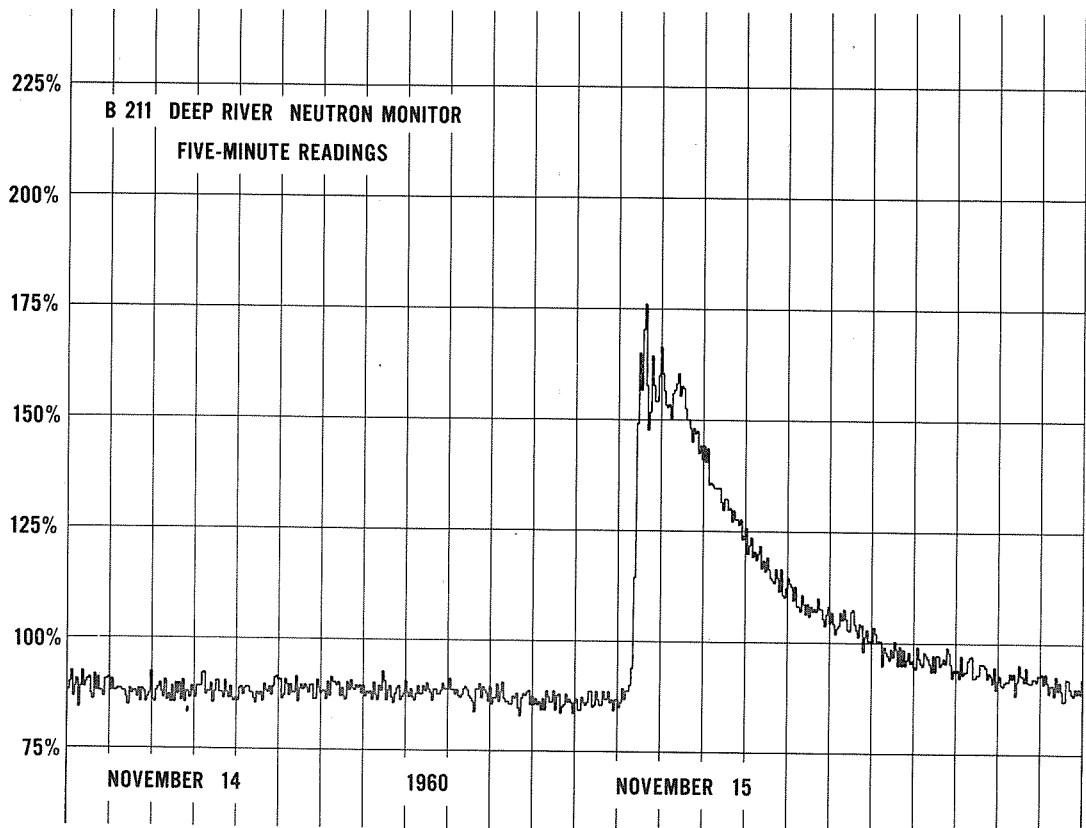
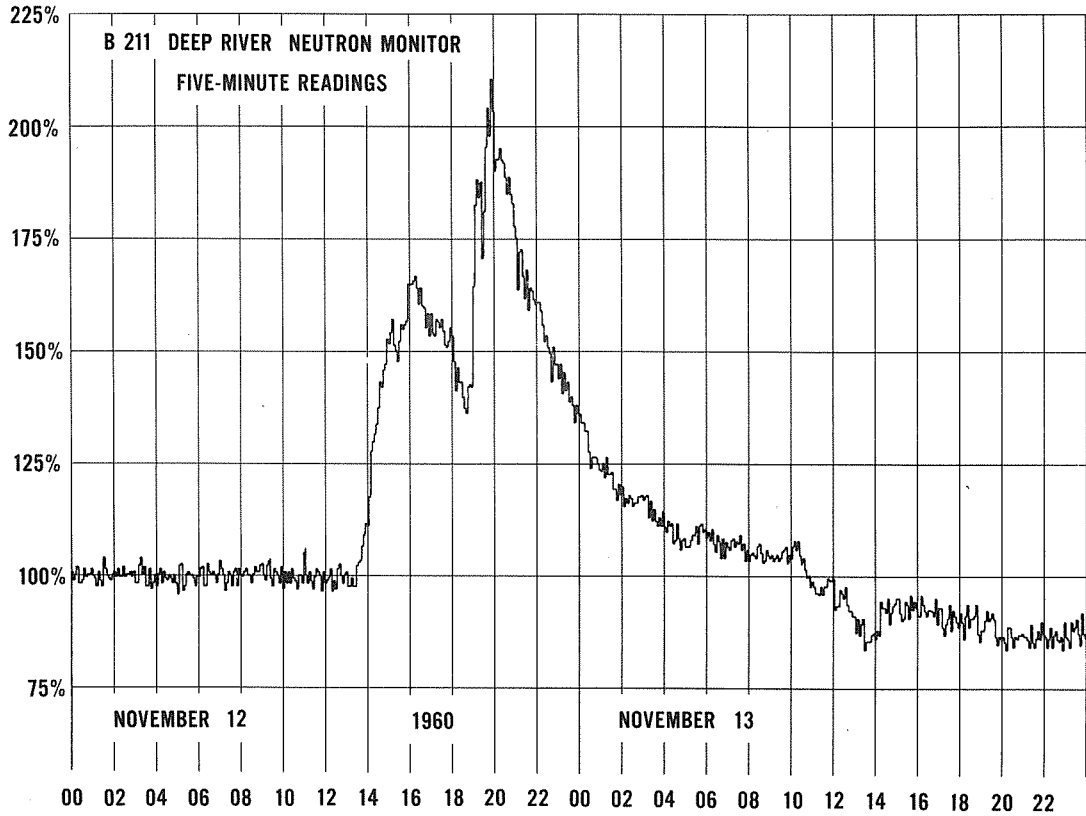
COMMERCE - STANDARDS - BOULDER

COSMIC RAY INDICES
(Pressure Corrected Hourly Totals)



COSMIC RAY INDICES
(Pressure Corrected Hourly Totals)

V c



GEOMAGNETIC ACTIVITY INDICES

NOVEMBER 1960

Nov. 1960	C	Values Kp								Sum	Ap	Final Selected Days	
		Three hour Gr. interval											
		1	2	3	4	5	6	7	8				
1	0.6	3-	3o	3o	2+	2+	2+	2-	3+	21-	12	Five Quiet	
2	0.8	3o	3-	4-	3o	3+	1+	3o	4-	24-	16		
3	1.0	4+	3-	3-	3+	3o	2o	3-	5-	25+	18		
4	1.5	6-	6-	6-	5-	5+	5+	4-	5-	41-	52		
5	0.5	4-	4o	2+	2o	3-	1o	0+	0+	16+	11		
6	0.2	0o	1o	2+	2+	2-	0+	2+	2o	12o	6	18	
7	0.2	3o	3-	3-	2-	1-	0+	0o	0o	11o	6	19	
8	0.1	0o	0o	2o	2-	1-	1-	0+	1+	7-	3		
9	0.1	2-	2o	2o	2+	2-	0+	0o	1o	11o	5		
10	0.3	0o	0o	2+	2+	3o	2+	1o	1-	12-	6		
11	1.0	2+	3+	4-	5-	3+	2o	3o	3-	25o	18	Five Disturbed	
12	1.7	2o	1o	2o	2-	5o	6o	8-	8o	33+	67		
13	2.0	9-	9-	9o	9o	9-	8+	8o	6+	67-	280		
14	1.6	7+	5-	5o	4o	3-	4+	5+	4o	37+	49		
15	1.7	5+	4o	4+	3o	6o	6o	6o	8-	42+	69		
16	1.6	8+	8+	6o	5+	6-	5-	3+	3+	45o	94	15	
17	1.0	4-	3o	3+	3o	3-	4-	4o	3-	26o	18	16	
18	0.2	3+	2o	1o	1+	1-	1-	0+	0o	9+	5		
19	0.4	0o	2o	1+	3-	3o	1-	0+	1+	11+	6		
20	0.6	2o	2+	2+	3-	3o	3-	1o	2-	18-	9		
21	1.5	1o	4+	6-	5-	5o	5o	6o	5-	36+	45	Ten Quiet	
22	1.3	6-	5+	5-	4-	3+	3-	2o	4-	31o	30		
23	0.5	3-	3-	4-	2+	2o	1o	2-	2o	18o	10		
24	0.9	4-	2+	3+	1o	2o	2o	3o	5o	22+	16		
25	1.4	4o	5-	5+	5+	5-	4+	4+	4+	37o	39		
26	0.9	3-	4+	4-	3+	4-	1+	3o	3-	25-	17	7	
27	1.2	3-	3o	3+	3o	3+	4o	5-	4-	28-	21	8	
28	1.0	5o	5-	4-	3+	4-	2o	1+	1o	25-	21	9	
29	0.4	3+	2+	2-	3-	2-	1+	2-	3-	17+	9	10	
30	1.0	2o	3o	2-	1o	2-	2-	4o	6-	21-	17	18	
												19	
												20	
												29	
Mean:	0.91									Mean:	32		

DAYS IN SOLAR ROTATION INTERVAL

ROT. #
NR.

1740

Aug 28

1741

Sep 24

1742

Oct 21

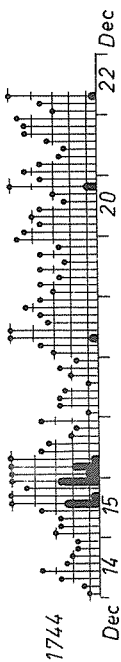
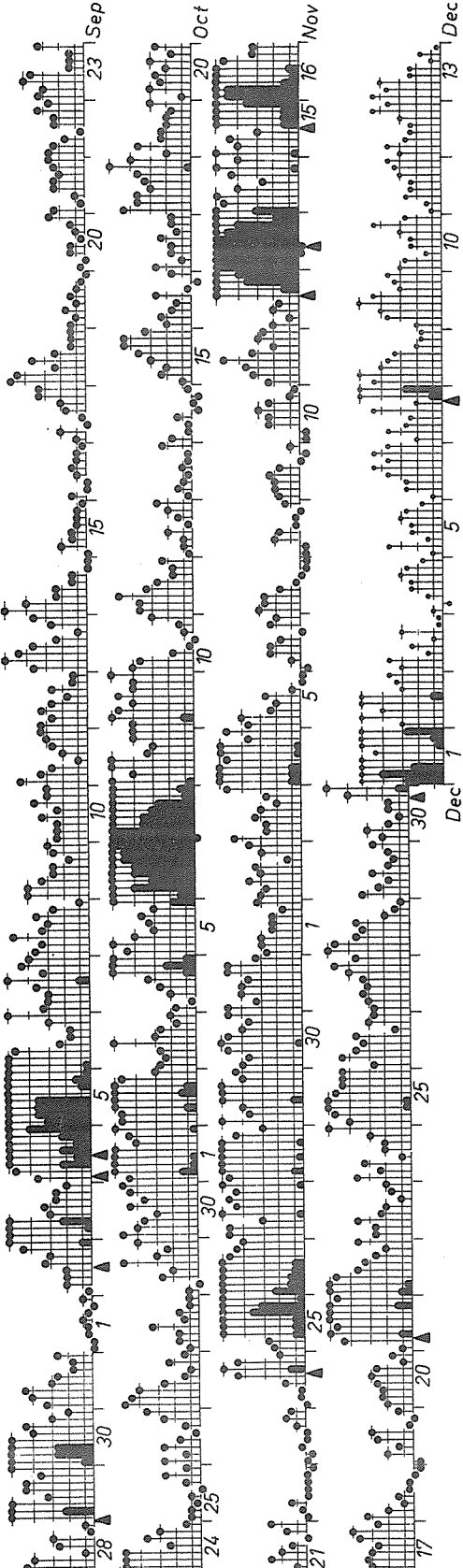
1743

Nov 17

1744

Dec 14

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27



KEY

0 + - 0 + - 2 - 3 + - 6 + - 6 + - 5 + - 6 + - 7 - 8 + - 8
 ▲ = sudden commencement

PLANETARY MAGNETIC
THREE-HOUR-RANGE INDICES

Kp till 1960 Nov. 30
(Ks from Wingst and Göttingen till Dec. 22)

CRPL RADIO PROPAGATION QUALITY FIGURES AND FORECASTS

NORTH ATLANTIC

NOVEMBER 1960

Nov. 1960	North Atlantic 6-hourly quality figures				Short-term forecasts issued about one hour in advance of:				Whole day index	Advance forecasts (J-reports) for whole day; issued in advance by:				Geomag- netic K _{Pr}	
	00 to 06	06 to 12	12 to 18	18 to 24	00	06	12	18		1-7 days Final	1-7 days Js	1-3 days SDW	1-7 days J	Half Day (1)	Day (2)
1	5+	5-	6+	6-	5	4	6	6	5+	3		3	3	1	
2	5o	5+	6o	6-	5	5	6	6	5+	3		3	3	3	
3	5o	5-	6o	5o	5	5	6	6	5+	6		6	3	3	
4	4-	4o	5+	4o	5	3	6	5	(4o)	6		6	(5)	(4)	
5	4o	4-	5o	5o	4	4	6	5	(4+)	6		6	3	1	
6	5o	5+	6o	5-	5	4	6	6	5+	6		6	2	1	
7	5-	5+	6+	6o	5	5	6	6	6-	7		7	3	0	
8	6-	6-	6o	6+	6	6	7	6	6o	7		7	1	1	
9	6-	6-	7-	6o	6	6	7	6	6o	7		7	2	1	
10	6o	6-	7-	7-	6	6	7	6	6+	6		6	1	2	
11	6+	6o	7-	7-	6	6	6	6	6+	6		6	3	3	
12	6+	6+	4+	2-	5	5	6	4	(4o)	4	4	6	1	(6)	
13	1+	1o	1+	2-	1	1	2	1	(1+)	4	4	6	(9)	(7)	
14	2-	2+	5o	3+	1	1	4	4	(3o)	5	5	6	(5)	(4)	
15	5-	4-	2o	1+	2	3	5	2	(3-)	3	3	6	3	(6)	
16	2-	2o	3+	3o	1	1	2	2	(2+)	4	4	6	(6)	(4)	
17	4o	5-	6o	4o	2	3	5	5	(4+)	3		3	(4)	3	
18	4+	5-	6o	6-	4	5	6	5	5o	3		3	2	0	
19	5+	5o	6o	6+	5	5	6	6	6-	5		5	1	2	
20	5o	5+	6o	6-	6	5	6	6	6-	5		5	2	2	
21	6-	4+	5o	4-	5	5	5	4	(4+)	6		6	(4)	(4)	
22	4o	3o	6o	5+	4	4	5	4	(4+)	3	3	6	(4)	3	
23	4+	4+	6+	4+	4	4	6	6	5-	4	4	6	3	2	
24	3+	5-	6+	5o	5	4	6	6	5-	6		6	3	3	
25	4-	3+	5+	3o	3	3	5	4	(4-)	6		6	(4)	(4)	
26	4-	3+	6-	4-	3	3	5	5	(4-)	4	4	6	3	3	
27	4+	4o	6+	3+	4	4	6	5	(4+)	5	5	6	3	3	
28	5-	3+	6-	5o	4	4	6	5	(4+)	5	5	6	(4)	2	
29	4+	4o	6o	5o	5	4	6	6	5-	5	5	6	3	2	
30	5-	5o	6+	4o	4	4	6	5	5-	5	5	5	2	3	
Score: Quiet Periods					P	10	10	18	9			4		3	
					S	5	5	8	8			9		10	
					U	1	1	0	0			3		3	
					F	0	0	0	0			0		0	
Disturbed Periods					P	6	7	0	1			3		0	
					S	6	7	2	9			4		1	
					U	2	0	1	2			3		0	
					F	0	0	1	1			4		13	

() represent disturbed values.

All times are Universal time (UT).

CRPL RADIO PROPAGATION QUALITY FIGURES AND FORECASTS

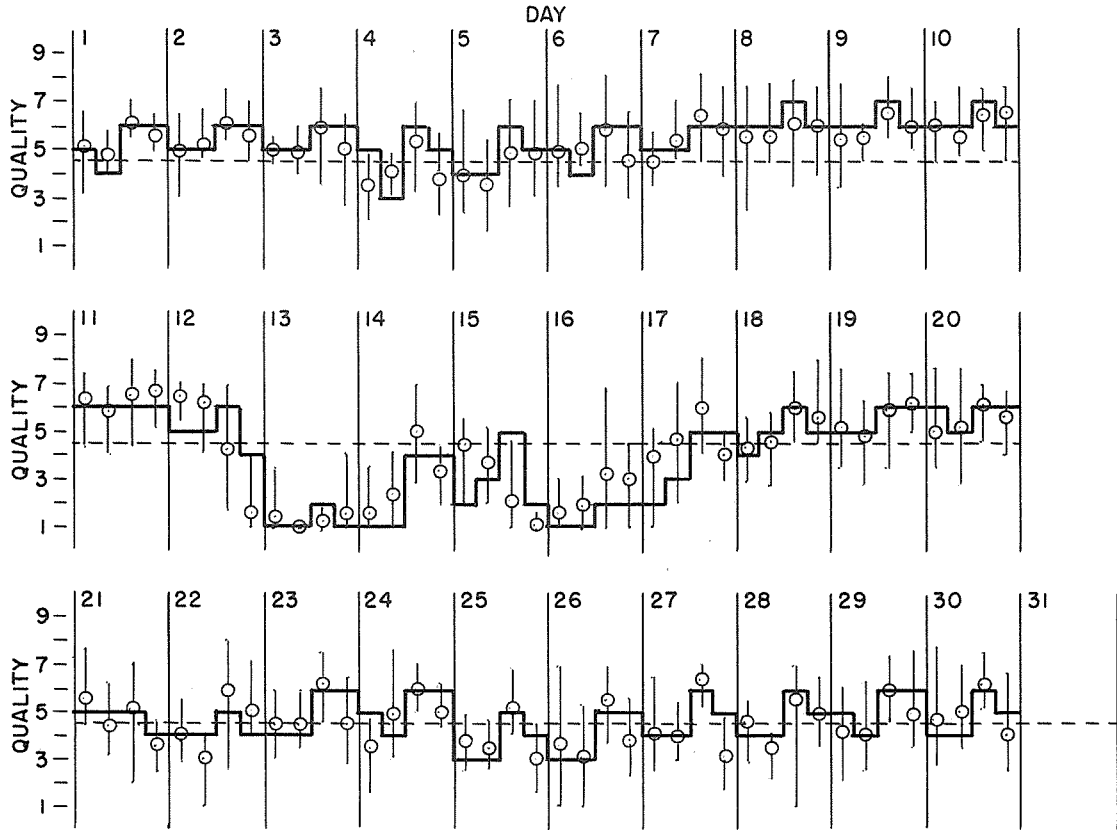
VIIb

NORTH ATLANTIC

NOVEMBER 1960

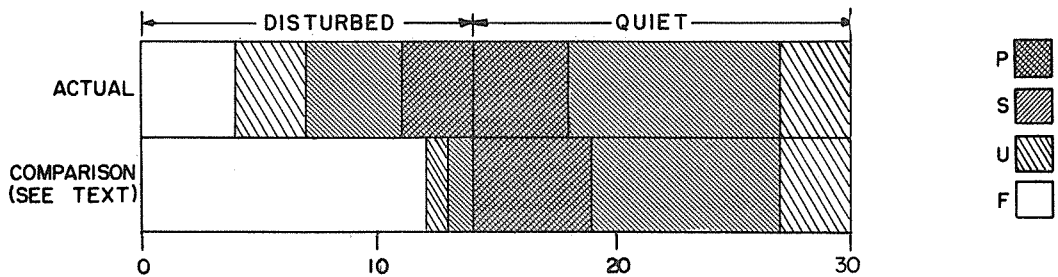
— Short-term forecast
 o Quality figure

| Range of reports



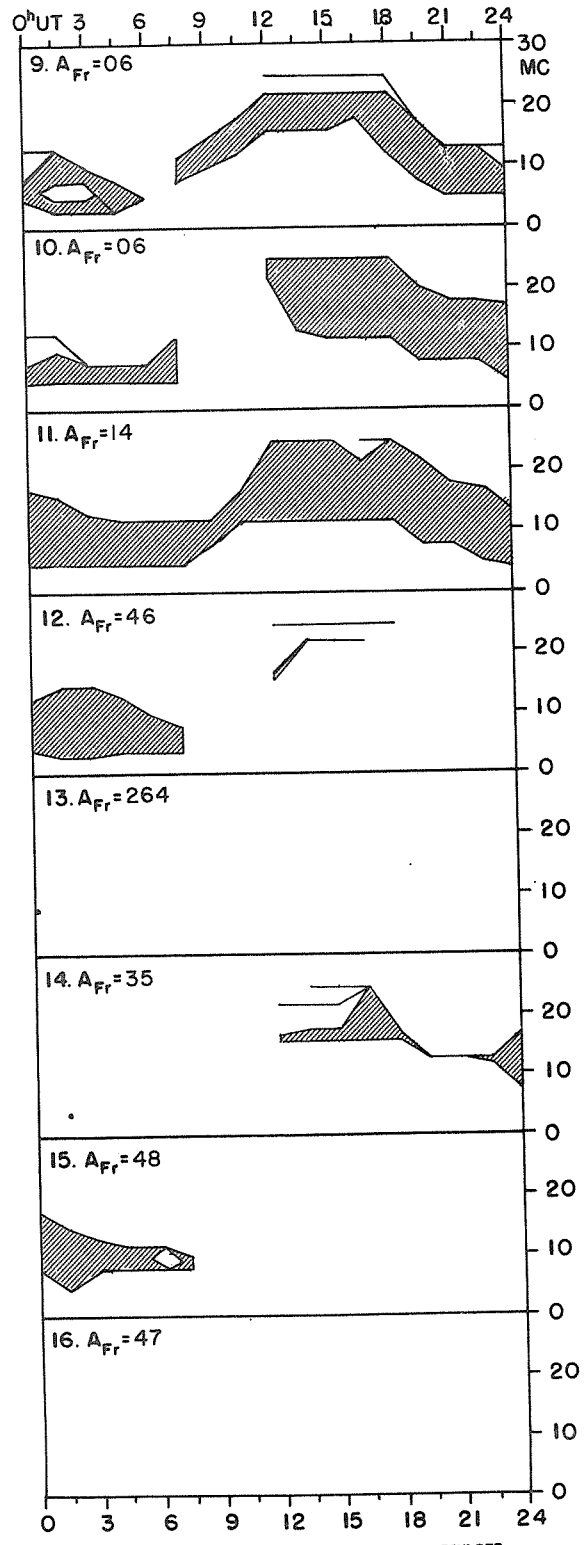
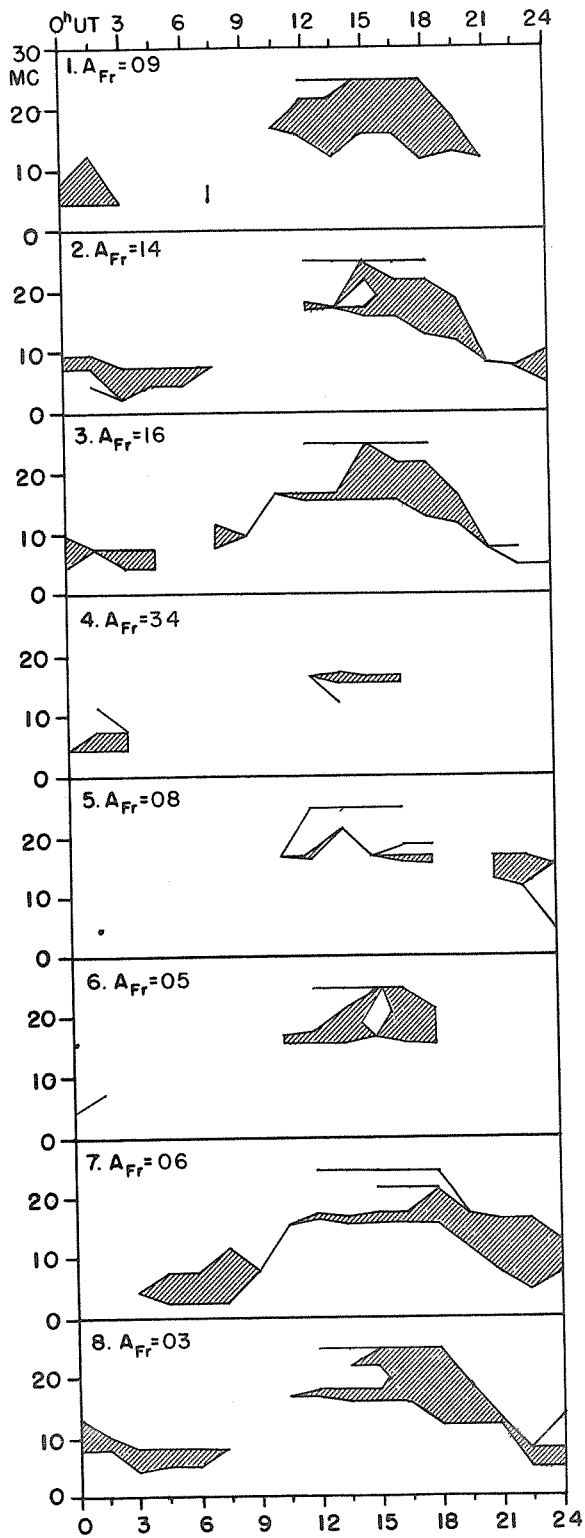
OUTCOME OF ADVANCED FORECASTS

FINAL ESTIMATE

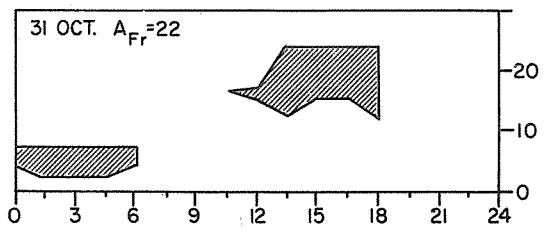
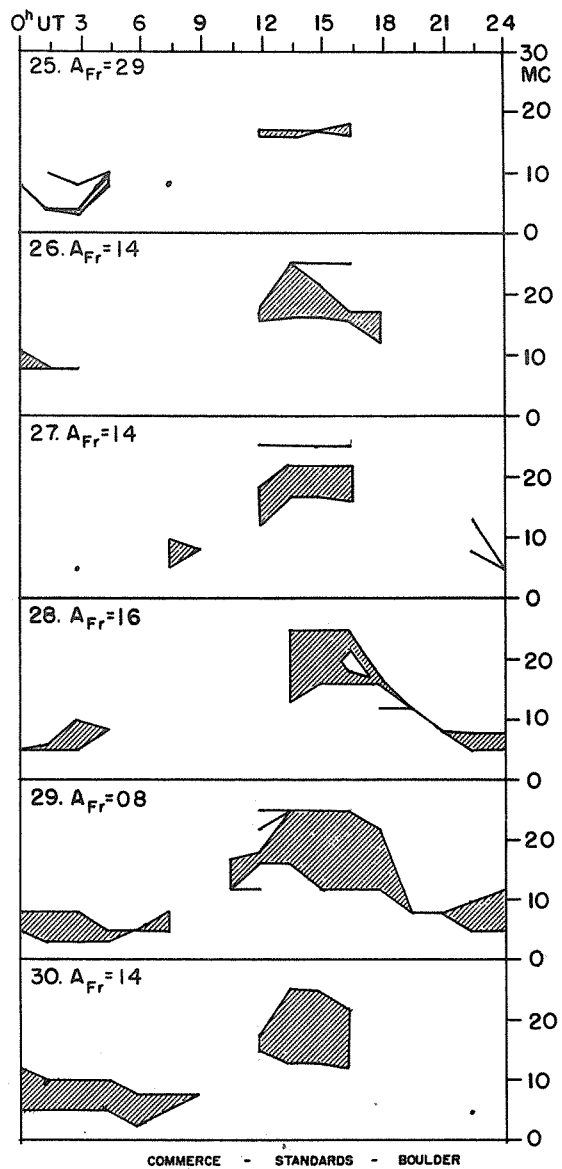
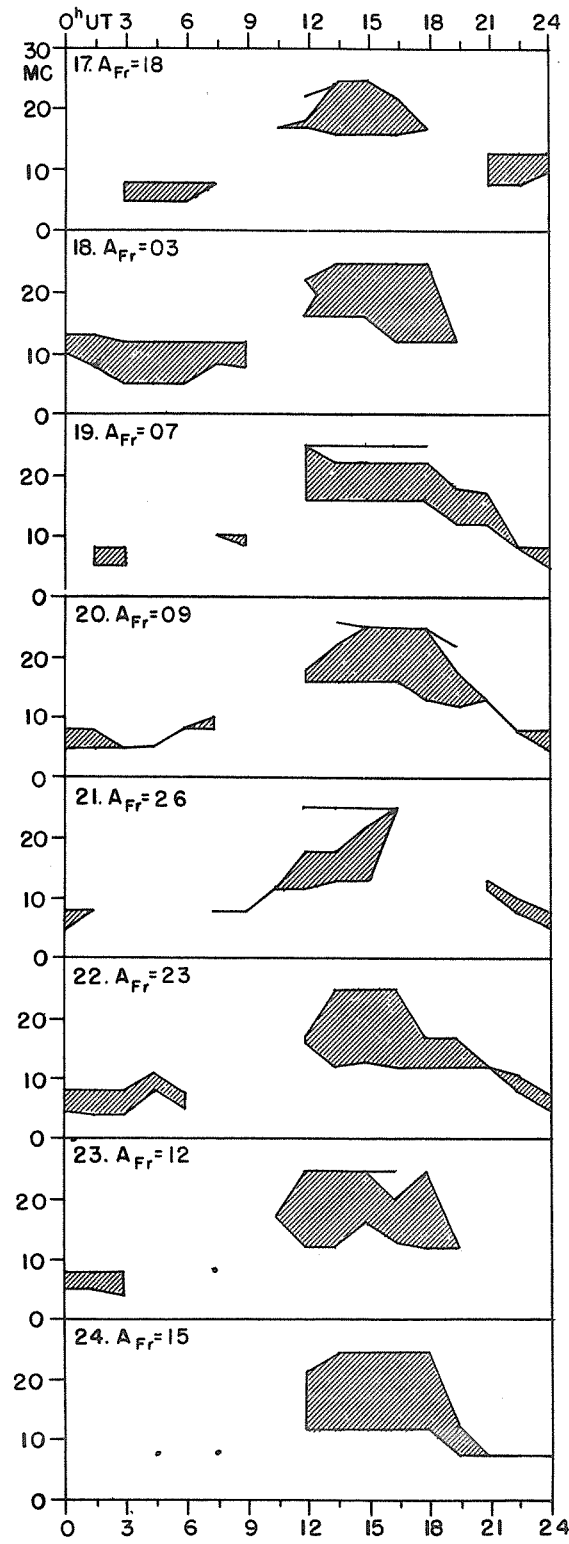


USEFUL FREQUENCY RANGES -- NORTH ATLANTIC PATH

NOVEMBER 1960



NOVEMBER 1960



Adapted from Observations by Deutsches Bundespost

CRPL RADIO PROPAGATION QUALITY FIGURES AND FORECASTS

NORTH PACIFIC

NOVEMBER 1960

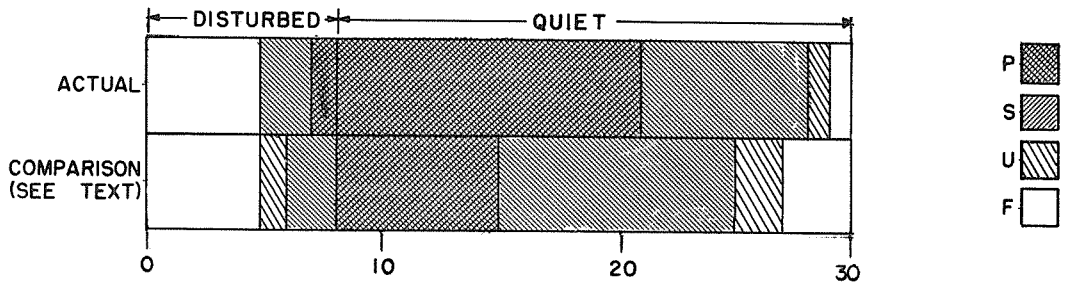
Nov. 1960	North Pacific 12-hourly quality figures		Short-term fore- casts issued at		Whole day index	Advance forecasts (Jp reports) for whole day; issued in advance by:				Geomag- netic K _{SI}	
	0700 to 1900	1900 to 0700	0600	1800		1-7 days Final	1-7 days Jps	1-3 days SDW	1-7 days Jp	Half Day (1) (2)	
1	5	5	5	6	6	6			6	3	2
2	6	6	4	6	6	4			4	3	2
3	7	5	6	7	6	6			6	3	2
4	6	6	4	5	5	6			6	(6)	(4)
5	6	6	5	6	6	6			6	2	2
6	6	5	6	7	6	6			6	1	2
7	6	6	5	6	6	6			6	2	0
8	6	6	6	7	6	7			7	1	0
9	6	6	5	6	6	7			7	1	1
10	6	6	6	6	6	7			7	1	1
11	7	6	7	7	7	7			7	3	2
12	6	2	6	3	5	7			7	1	(6)
13	2	3	1	2	(2)	7			7	(9)	(8)
14	5	5	3	6	(4)	6			6	(4)	3
15	3	2	5	2	(3)	6			6	(4)	(6)
16	3	5	2	4	(3)	6			6	(8)	(4)
17	5	6	5	5	5	4			4	3	3
18	5	5	6	6	5	5			5	2	0
19	5	5	5	6	6	5			5	1	0
20	5	5	6	6	5	5			5	2	2
21	4	4	4	3	(4)	3			3	(5)	(5)
22	4	6	3	5	(4)	4			4	(5)	2
23	5	5	6	6	5	5			5	2	2
24	5	5	5	6	5	5			5	2	2
25	4	5	4	4	(4)	6			6	(5)	(4)
26	4	5	4	5	(4)	3	3		6	(4)	3
27	5	5	5	4	5	4	4		7	3	(4)
28	5	6	4	5	5	5	5		7	(4)	2
29	5	6	5	6	5	5	5		6	2	2
30	5	5	5	6	5	5	5		5	2	2
Score:	Quiet Periods		P 12	7		13					
			S 8	17		7					
			U 1	2		1					
			F 2	0		1					
	Disturbed Periods		P 3	1		1					
			S 3	3		2					
			U 1	0		0					
			F 0	0		5					

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

NORTH PACIFIC

NOVEMBER 1960

OUTCOME OF ADVANCED FORECASTS FINAL ESTIMATE



VIIIa

ALERT PERIODS AND SPECIAL WORLD INTERVALS

INTERNATIONAL WORLD DAY SERVICE

DECEMBER 1960

Issued Day/Time UT Dec. 1960	Advance Geophysical Alert	No.	World-Wide Geophysical Alert	Special World Interval
01/0400	Ft. Belvoir, Magnetic Storm 30/1910Z Aurora Probable			
01/1600		103	Magnetic Storm 30/1910Z	
05/1925	Sacramento Peak, Solar Flare 05/1848Z			
08/1600		104	Magnetic Storm 07/1804Z	
16/0255	Ft. Belvoir, Magnetic Storm 15/07XXZ			
16/1600		105	Magnetic Storm 15/07XXZ	
27/1600		106	Magnetic Storm 27/03XXZ	

COMMERCE - STANDARDS - BOULDER