PART B

SOLAR - GEOPHYSICAL DATA

ISSUED
APRIL 1961

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

CRPL-F 200
PART B

NATIONAL BUREAU OF STANDARDS
CENTRAL RADIO PROPAGATION LABORATORY
BOULDER, COLORADO

Issued
30 April 1961

SOLAR-GEOPHYSICAL DATA

CONTENTS

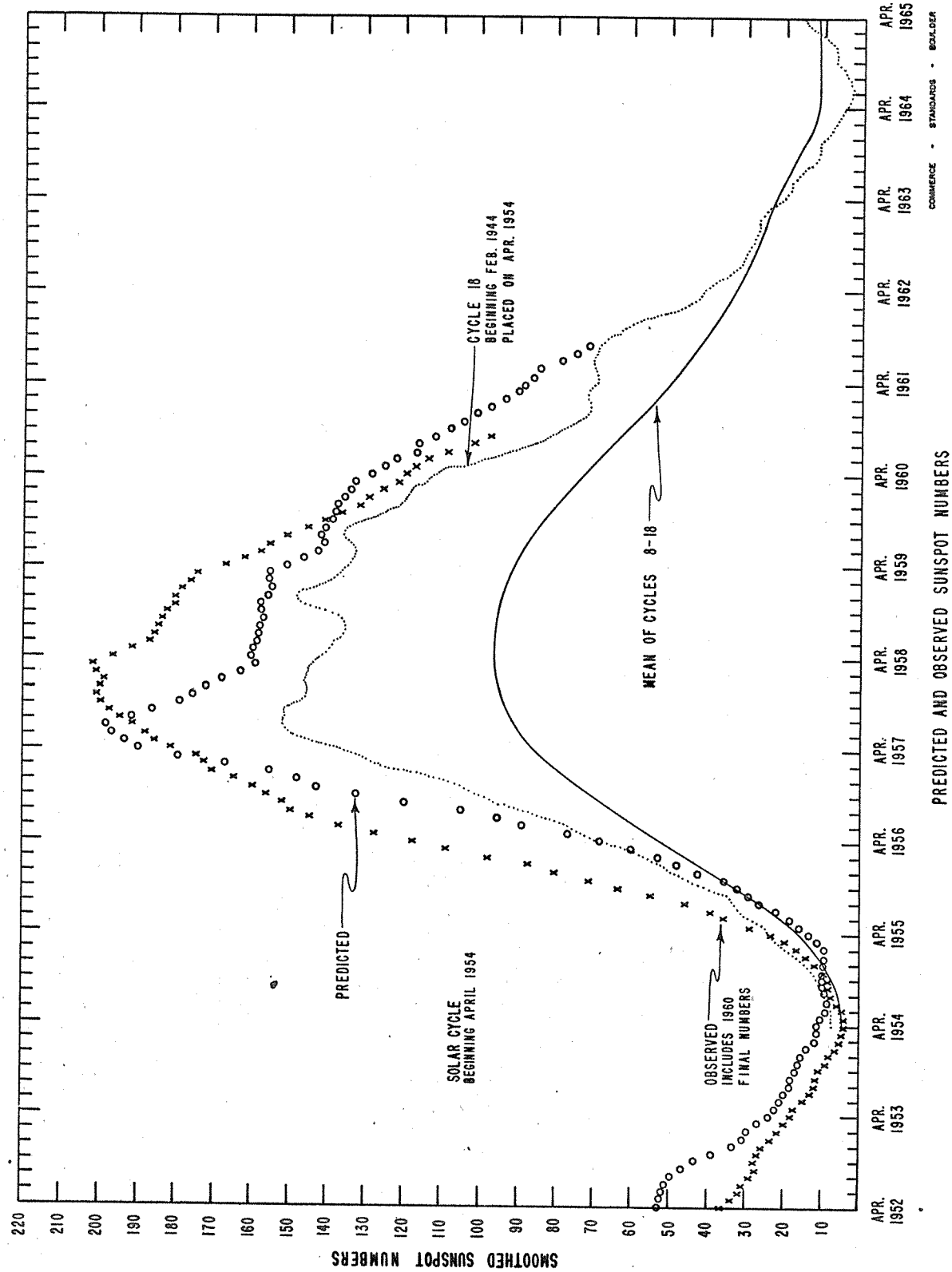
The descriptive text was published separately, November 1960.

DAILY SOLAR INDICES

Feb. 1961	American Relative Sunspot Numbers R_A'
1	61
2	48
3	57
4	60
5	59
6	40
7	42
8	50
9	58
10	48
11	30
12	28
13	20
14	20
15	10
16	13
17	15
18	24
19	24
20	19
21	35
22	43
23	44
24	51
25	45
26	38
27	23
28	18
Mean:	36.5

Mar. 1961	Zürich Provisional Relative Sunspot Numbers R_Z	Daily Values Solar Flux at 2800 Mc, Ottawa, Canada Flux
1	15	103
2	33	103
3	44	104
4	42	96
5	34	94
6	41	93
7	31	95
8	46	94
9	43	90
10	29	91
11	31	98
12	14	92
13	27	93
14	46	91
15	42	98
16	52	99
17	66	98
18	51	101
19	40	102
20	39	105
21	46	105
22	55	106
23	61	110
24	76	116
25	64	118
26	63	121
27	88	125
28	90	126
29	94	126
30	97	125
31	90	117
Mean:	51.3	104

COMMERCE - STANDARDS - BOULDER



PREDICTED AND OBSERVED SUNSPOT NUMBERS

CALCIUM PLAGE AND SUNSPOT REGIONS

MARCH 1961

CMP Mar. 1961	Lat	McMath Plage Number	Return of Region	Calcium Plage Data			Sunspot Data		
				CMP Values Area	Int.	History, Age	CMP Values Area	Count	History
03.2	N26	6043	*	1400	2.5	ℓ \ ℓ 5	40	4	b ∧ d
03.4	N10	6044	6027A	500	1.5	ℓ — ℓ 2			
04.4	S15	6045	6018	700	1.5	ℓ / ℓ 4			
05.9	N20	6046	6019	500	1	ℓ — ℓ 10			
07.8	S11	6048	6023	1300	3.5	ℓ — ℓ 8	100	8	ℓ — ℓ
07.9	N05	6049	6022	1900	3	ℓ — ℓ 2	190	16	ℓ — ℓ
09.2	S11	6050	6023	600	2.5	ℓ — ℓ 8			
09.6	N06	6051	6022	1600	2.5	ℓ / ℓ 2			
10.0	S16	6052	6025	400	2	ℓ / ℓ 2	40	1	ℓ ⌒ d
11.0	S17	6053	6025	400	2	ℓ — ℓ 2			
12.8	N22	6055	New	600	2.5	b ⌒ ℓ 1	30	2	b ⌒ ℓ
14.5	S06	6054	6026	1800	2.5	ℓ — ℓ 3	200	5	ℓ / ℓ
17.8	N18	6057	6030	1200	2.5	ℓ ⌒ d 5	10	1	ℓ ⌒ d
18.5	N04	6062	New	700	2.5	b ⌒ ℓ 1			
19.2	S23	6058	New	600	2	ℓ — ℓ 1	50	2	ℓ — ℓ
19.9	N05	6059	New	2600	2.5	ℓ — ℓ 1	90	1	ℓ / ℓ
21.7	N06	6061	6034	600	3.5	ℓ ⌒ d 3			
23.1	S13	6060	6036	2300	3	ℓ — ℓ 2			
24.3	N23	6063	**	1700	2	ℓ — ℓ 4			
24.8	S22	6064	New	1100	3.5	ℓ — ℓ 1			
26.1	N09	6065	***	3500	3	ℓ — ℓ 6 or 1	440	3	ℓ — ℓ
26.3	S11	6067	6042	500	2	ℓ / ℓ 2			
27.0	N18	6066	***	800	2	ℓ — ℓ 6 or 1			
27.1	N07	6068	****	2000	3	ℓ — ℓ -	70	3	ℓ — ℓ
28.6	N11	6072	New	100	2	b ⌒ ℓ 1			
31.4	S16	6069	New	3000	3	ℓ — ℓ 1	190	4	ℓ \ ℓ
31.7	N23	6073	New	500	1	b ⌒ ℓ 1			

*6016,6017
**6037,6038,6039
***Resurgence of 6041
****Merged with 6065

PROVISIONAL CORONAL LINE EMISSION INDICES

MARCH 1961

CMP Mar. 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)			
	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	54	72	7	12	24	28	5	6	28	38	14	16	41	53	14	19
2	x	x	x	x	x	x	x	x	21	24	9	10	38	50	15	33
3	44	58	13	32	23	32	4	6	x	x	x	x	x	x	x	x
4	44	58	21	38	37	50	4	5	x	x	x	x	x	x	x	x
5	x	x	x	x	x	x	x	x	22	38	10	19	23	29	6	14
6	43a	47a	x	x	31a	45a	x	x	42	62	26	43	52	84	26	72
7	31	52	x	x	16	29	x	x	38	88	11	23	49	101	14	41
8	30	43	6	7	36	63	17	27	x	x	x	x	x	x	x	x
9	47	73	13	23	45	105	27	38	x	x	x	x	x	x	x	x
10	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
11	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
12	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
13	40a	62a	9a	12a	43a	52a	11a	16a	x	x	x	x	x	x	x	x
14	x	x	x	x	x	x	x	x	31a	60a	28a	50a	15a	19a	16a	20a
15	22	28	19	28	32	73	24	36	17	26	9	10	15	18	9	11
16	25	33	13	20	11	13	26	33	10	12	6	7	13	18	7	9
17	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
18	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
19	63	110	19	49	37	55	8	10	x	x	x	x	x	x	x	x
20	64	95	31	72	36	60	11	15	x	x	x	x	x	x	x	x
21	64	94	14	26	45	101	8	15	42	57	10	18	35	60	8	35
22	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
23	63a	90a	x	x	56a	82a	x	x	58	87	x	x	49	78	x	x
24	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
25	x	x	x	x	x	x	x	x	46	57	11	23	59	81	12	33
26	x	x	x	x	x	x	x	x	25	40	13	23	46	65	14	28
27	x	x	x	x	x	x	x	x	23	31	8	14	38	59	12	18
28	47a	59a	13a	15a	17a	22a	11a	15a	14	19	6	10	21	24	9	12
29	38	42	7	9	15	23	10	14	25	36	24	44	25	31	14	26
30	36	48	8	10	38	68	15	37	x	x	x	x	x	x	x	x
31	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

x = no observations a = index computed from low weight data * = yellow line observed

COMMERCE - STANDARDS - BOULDER

SOLAR FLARES

MARCH 1961

OBSERVATORY	DATE MAR 1961	OBSERVED UNIVERSAL TIME			LOCATION			DURATION	IMPORTANCE	OBS. COND.	MEASUREMENTS					PROVISIONAL IONOSPHERIC EFFECT
		START	END	MAX. PHASE	APPROX. LAT.	APPROX. MER. DIST.	McMATH PLAGE REGION	MINUTES			TIME – UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hα	MAX. INT. %	
WENDEL	05	1156	1228		S08	E30	6048	32	1+				6.00			
WENDEL	06	0849	0914		N03	E13	6049	25	1				4.00			
WENDEL	06	1250	1312 D		S08	E17	6048	22 D	1				4.00			
UCCLE	06	1320	1336	1024	N01	E13	6049	16	1	4	1024	3.00	3.00			
LOCARNO	07	0740 E	0755		S10	E06	6048	15 D	1	1						
LOCARNO	07	0820	0839		S12	W32	6045	19	1	1						
UCCLE	09	1027	1045	1028	S08	E67	6054	18	1	3	1028	2.00	4.00			
ONDREJOV	09	1027 E	1045 D		S08	E68	6054	18 D	1	3	1028			2.80		
WENDEL	09	1028 E	1055		S07	E65	6054	27 D	1				4.00			
CAPRI S	09	1029 E	1115 D		S07	E66	6054	46 D	1	3	1030	1.20	3.30			
LOCARNO	11	1240	1300		S07	E40	6054	20	1	1						
WENDEL	11	1242	1301		S06	E40	6054	19	1				3.00			
AROSA	11	1251	1255		S07	E40	6054	4	1							
CAPRI S	14	0730 E	0820 D		N20	E46	6057	50 D	1	3	0730	2.00	3.00			
LOCARNO	14	1350	1405		N19	E42	6057	15	1	1						
WENDEL	16	1640 E	1700 D		N04	E35	6059	20 D	1				3.00			
ONDREJOV	18	0555 E	0614		N04	E15	6059	19 D	1	2	0652			2.40		
LOCARNO	18	1315 E	1330		S05	W60	6054	15 D	1	1						
MCMATH	18	1604	1715		N19	W13	6057	71	1	2	1615		2.20			
WENDEL	18	1608	1624 D		N20	W12	6057	16 D	1+				7.00			
LOCKHEED	18	1738	1810	1742	N06	E07	6059	32	1+	2	1742	2.30	2.30		30	
UCCLE	20	1043	1117	1046	S13	E28	6060	34	1	2	1046	3.00	3.00			
LOCKHEED	20	2044	2055	2047	N21	E85	6066	11	1	2	2047	.80	2.40		20	
LOCARNO	22	0845	0905		N10	E53	6065	20	1	3						
ARCETRI	22	0850 E	0900 D		N11	W52	6062	10 D	1	3						
LOCARNO	22	1451	1502		N10	E50	6065	11	1	3						
UCCLE	23	1202	1218	1205	N11	E34	6065	16	2	3	1205	8.00	9.60			
CAPRI S	23	1202 E	1218		N09	E33	6065	16 D	1+	3	1206	4.00	5.00			
AROSA	23	1203	1220		N14	E31	6065	17	1+							
ZURICH	23	1217 E	1236 D		N03	W29	6059	19 D	1	2	1219		3.00			
LOCARNO	24	0840 E	0850		N10	E25	6065	10 D	1	2						
UCCLE	24	0848	0919	0852	N12	E25	6065	31	1	2	0852	2.50	2.50			
LOCARNO	24	0851	0920		N12	E26	6065	29	1	2						
WENDEL	24	0854	0928		N10	E21	6065	34	1+				7.00			
ZURICH	24	0855	0917		N13	E23	6065	22	1	2	0855		2.00			
CAPRI S	24	0856	0917		N10	E25	6065	21	1	3	0904	3.00	3.50			
ARCETRI	24	0859 E	0915 D		N14	E23	6065	16 D	1	3						
AROSA	24	0900 E	0918		N12	E22	6065	18 D	1							
CAPRI S	25	0707 E	0732 D		N02	W52	6059	25 D	1	3	0711	1.50	2.60			

SOLAR FLARES

MARCH 1961

OBSERVATORY	DATE MAR 1961	OBSERVED UNIVERSAL TIME			LOCATION			DURATION — MINUTES	IMPORTANCE	OBS. COND.	MEASUREMENTS					PROVISIONAL IONOSPHERIC EFFECT
		START	END	MAX. PHASE	APPROX. LAT.	APPROX. MER. DIST.	McMATH PLAGE REGION				TIME — U T	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hα	MAX. INT. %	
ZURICH	25	0745	0807		S17	E88	6069	22	1	2	0745		4.00			
WENDEL	25	0739	0912		N20	E16	6066	93	1+				7.00			
ARCETRI	25	0815 E	0840 D		N19	E20	6066	25 D	1	3	0829	2.00	2.30			
AROSA	25	0818	0840		N16	E21	6066	22	1							
CAPRI S	25	0821 E	0842 D		N14	E18	6066	21 D	1	3	0837	3.50	4.00			
ZURICH	25	0953	1010		S18	E89	6069	17	1	2	0953		2.00			
ARCETRI	25	0953 E	1010 D		S14	E90	6069	17 D	1	3						
LOCARNO	25	1000 E	1015		S17	E85	6069	15 D	1	2						
WENDEL	25	1029 E	1051		S19	E87	6069	22 D	1+				5.00			
WENDEL	25	1205	1220		S13	E79	6069	15	1+				6.00			
WENDEL	25	1244	1300 D		N10	E19	6068	16 D	1+				5.00			
LOCARNO	25	1244	1305		N11	E19	6068	21	1	2						
WENDEL	25	1405	1418 D		S12	E77	6069	13 D	1				3.00			
WENDEL	25	1502 E	1531 D		N04	W56	6059	29 D	1				3.00			
LOCKHEED	25	1547	1605	1553	S20	E90	6069	18	1	1	1553	1.00	5.00		10	
LOCKHEED	25	1704	1725	1707	S16	E85	6069	21	1	1	1707	1.00	2.50		10	
ONDREJOV	26	1009 E	1130	1033	S17	E75	6069	81 D	3	3	1033			6.00		
CAPRI S	26	1012	1133 D		S16	E70	6069	81 D	2+	1	1045	3.00	9.00			
AROSA	26	1015	1025		S15	E73	6069	10	1							
LOCARNO	26	1015	1110 D	1040	S15	E72	6069	55 D	2+	1	1040		15.00			
WENDEL	26	1017	1150 D		S15	E71	6069	93 D	3				22.00			S-SWF
SCHAUINS	26	1022 E	1102 D	1045	S15	E72	6069	40 D	2+	1			10.00	3.30		
AROSA	26	1026	1115		S15	E73	6069	49	2							
NEDERHORST	26	1036 E	1042		S15	E76	6069	6 D	3							
UCCLE	26	1059 E	1114 D		S15	E85	6069	15 D	□	2						
WENDEL	26	1435 E	1502 D		N01	W76	6059	27 D	1				4.00			
LOCKHEED	26	1600	1630 U	1609 U	S19	E80	6069	30 U	1	1	1612	.80	2.00		10	
UCCLE	27	0910 E	0915 D		N05	W90	6059	5 D	□	3						
UCCLE	27	1416	1425		S13	E55	6069	9	1	3	1418	3.00	4.00			
CAPRI S	27	1416 E	1450 D		S15	E59	6069	34 D	1	3	1423	1.50	3.00			
SAC PEAK	27	1813 E	1941 D	1847	S16	E52	6069	88 D	2	2		5.78	7.84		25	
LOCKHEED	27	1836	1928	1850 U	S15	E50	6069	52	1	1	1850	2.00	2.50		20	
UCCLE	28	0954	1035	1001	N08	W21	6068	41	1	4	1001	2.00	2.00			
WENDEL	28	1000 E	1015 D		N07	W19	6068	15 D	1				3.00			
SAC PEAK	28	1416	1510	1423	S24	W53	6064	54	1	3		2.89	3.80		22	
UCCLE	28	1418	1449 D		S22	W56	6064	31 D	1	3	1430	3.50	4.80			
ZURICH	28	1429 E	1440		S25	W52	6064	11 D	1	2	1429		2.00			
SAC PEAK	28	1436	1512	1448	S13	E43	6069	36	1	3		2.02	2.33		21	
UCCLE	28	1449 E	1506		S12	E43	6069	17 D	1	3	1458	3.00	4.00			
SAC PEAK	28	1628	1655	1632	S17	E43	6069	27	1	3		1.94	2.23		25	
UCCLE	28	1629	1655	1633	S16	E43	6069	26	1+	3	1633	4.50	6.00			
LOCARNO	29	0720 E	0810		S14	E33	6069	50 D	1	1						
LOCARNO	29	0720 E	0830		S08	E64	6074	70 D	1+	1						
CAPRI S	29	1121 E	1230 D		S11	E28	6069	69 D	1	3	1159	3.00	3.50			
STOCKHOLM	29	1138 E	1210 D		S15	E30	6069	32 D	1	3	1200	5.00	6.00			
ZURICH	29	1255	1306		S12	E27	6069	11	1	2	1255		2.00			
LOCARNO	29	1430	1515		S12	E26	6069	45	1	1						

SOLAR FLARES

MARCH 1961

OBSERVATORY	DATE MAR 1961	OBSERVED UNIVERSAL TIME			LOCATION			DURATION — MINUTES	IMPORTANCE	OBS. COND.	MEASUREMENTS					PROVISIONAL IONOSPHERIC EFFECT
		START	END	MAX. PHASE	APPROX. LAT.	APPROX. MER. DIST.	McMATH PLAGE REGION				TIME — U T	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hα	MAX. INT. %	
CAPRI S	29	1557 E	1615 D		S13	E34	6069	18 D	1	3	1608	2.00	2.40			
HAWAII	29	2052	2320	2300	S13	E22	6069	148	1	3	2300	3.70	3.70			
LOCKHEED	29	2253	2323	2259	S11	E24	6069	30	1	2	2259	3.10	3.10		20	
MCMATH	30	1848	1930 D	1910	S13	E11	6069	42 D	1	2	1910		2.50			

COMMERCE - STANDARDS - BOULDER

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

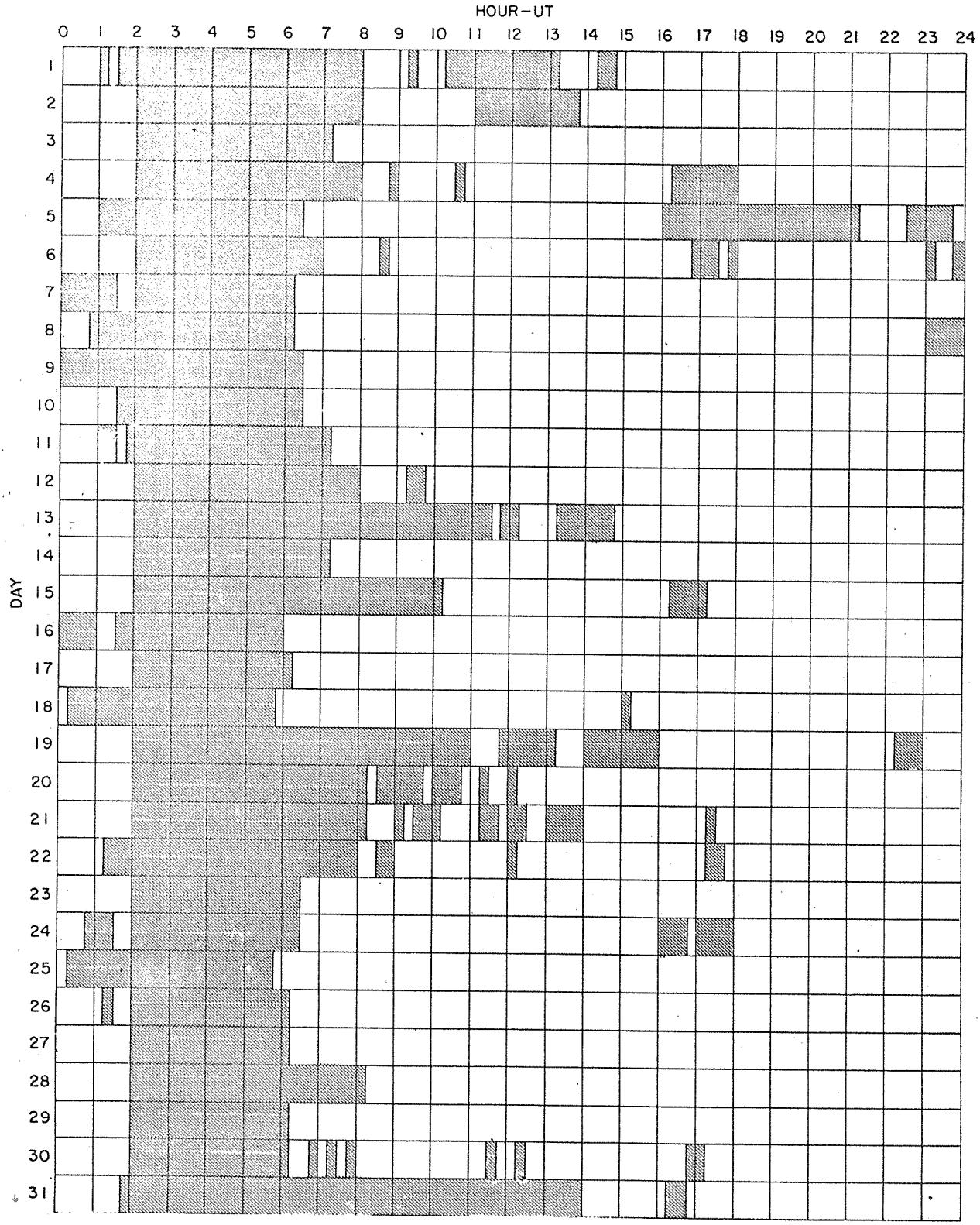
CAPRI G	ANACAPRI - GERMAN
CAPRI S	ANACAPRI - SWEDISH
GOOD HOPE	ROYAL OBSERVATORY, CAPE OF GOOD HOPE
KIEV*	KIEV UNIVERSITY
KODAIKNAL	KODAIKANAL
KRASNYA	KRASNAYA PAKHRA
LOCKHEED	LOS ANGELES
MCMATH	MCMATH-HULBERT
MOSCOW-G	MOSCOW - GAISH
R O HERST	ROYAL GREENWICH OBSERVATORY, HERSTMONCEUX
SAC PEAK	SACRAMENTO PEAK
SCHAUINS	SCHAUINSLAND
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

MARCH 1961



Stations Include:

Anacapri (Swedish)	Climax	Huancayo	McMath-Hulbert	Sacramento Peak
Arcetri	Hawaii	Lockheed	Ondrejov	Uccle

SUBFLARES

Noted as follows: Date-Universal Time-Coordinates

FEBRUARY 1961

	LOCKHEED	01	1902	N23 E17
	CLIMAX	01	2059	N04 W25
	LOCKHEED	01	2100	N06 W26
	CLIMAX	01	2129	N05 W26
	HAWAII	02	1850 E	N11 W34
	SAC PEAK	02	1851	N11 W34
*	HAWAII	02	2228	N12 W37
*	ABERFYE	03	0948 F	N01 E89
	LOCKHEED	03	1728	N13 W52
	LOCKHEED	03	1905	N13 W52
	LOCKHEED	03	1955	N13 W52
	LOCKHEED	03	2017	N13 W52
	LOCKHEED	03	2120	N13 W63
*	HAWAII	04	1759	S01 E69
	LOCKHEED	04	2034	N02 W59
	LOCKHEED	05	2105	N23 W37
	LOCARNO	06	1036	N24 W39
	WENDEL	06	1300 E	N03 E42
	WENDEL	06	1329 E	S10 E62
*	MCMATH	06	1413	N23 W47
*	HAWAII	06	1902 E	N27 W47
	LOCKHEED	07	2356	S09 E21
	HAWAII	07	2356	S09 E23
	ARCETRI	08	0822 E	S06 E43
	ARCETRI	08	0905 E	S06 E43
	LOCKHEED	08	1829	N03 E14
	LOCKHEED	08	1942	N03 E13
	UCCLE	09	1324	S10 E00
	MCMATH	09	1500	S08 E24
	MCMATH	09	1653	S08 E23
	LOCKHEED	09	1718	N03 E03
	MCMATH	09	1719	N03 E03
	SAC PEAK	09	2107	N03 E15
	LOCKHEED	10	2016	N05 W16
	LOCKHEED	12	1637	N02 W43
	LOCKHEED	12	1726	N05 W45
	LOCKHEED	12	1800	N02 W44
	LOCKHEED	12	2115 E	N05 W45
	LOCKHEED	12	2133	N02 W46
	LOCKHEED	12	2133	N02 W46
	LOCKHEED	12	2156	N05 W48
	ARCETRI	13	0752 E	S10 W30
*	CAPRI S	13	0949 E	N04 W53
*	ARCETRI	13	0952 F	N03 W56
	LOCKHEED	13	1610 E	N04 W57
	MCMATH	13	1657	N07 W58
	LOCKHEED	13	1805 U	N04 W57
	MCMATH	13	1841	N07 W58
	CLIMAX	13	2150	N03 W59
	LOCKHEED	13	2254 E	N04 W57
	LOCKHEED	13	2254 E	S08 W34
	LOCKHEED	13	2330	N04 W57
	LOCKHEED	13	2330	N04 W57
	LOCKHEED	14	0035	N03 W62
*	UCCLE	14	0905	S12 W75
	WENDEL	14	0944 E	N03 W64
	WENDEL	14	1126 E	S08 W69
	WENDEL	14	1214 E	N04 W66
	WENDEL	14	1339 E	N04 W67
	WENDEL	14	1449 E	S10 W74
*	SAC PEAK	14	1511	N04 W68
	LOCKHEED	14	1742	N03 W70
	SAC PEAK	14	1747	N03 W69
	LOCKHEED	14	1830	N03 W70
	LOCKHEED	14	1830	N03 W70
	LOCKHEED	14	2145	S13 W78
	LOCKHEED	14	2250	N04 W74
	LOCKHEED	14	2345	S13 W82
	WENDEL	15	0902 E	N04 W80
	STOCKHOLM	15	1223 E	S20 W85
	WENDEL	15	1344 E	S17 W55
	LOCKHEED	15	1627	N05 W87
	LOCKHEED	15	1742 U	S12 W90
*	SAC PEAK	15	2101	N08 W87
	LOCKHEED	15	2235 U	N05 W87
*	SAC PEAK	16	1553	N06 E80
	LOCKHEED	17	1840	N10 W65
	WENDEL	18	0908 E	N06 E50
*	SAC PEAK	18	1513	S10 E74
	LOCKHEED	18	1617	N10 E50
	SAC PEAK	18	1618	N09 E51
	LOCKHEED	18	1650	S10 E70
	SAC PEAK	18	1704	S10 E70
	LOCKHEED	18	1743	S10 E70
	LOCKHEED	18	1835	S10 E70
	LOCKHEED	18	1835	S10 E70
	LOCKHEED	18	1941	S10 E70
	LOCKHEED	18	2134	S10 E70
	LOCKHEED	19	0001	S12 E66
	CAPRI S	19	0945 E	S04 E27
	UCCLE	20	1325	S13 W45
	LOCARNO	20	1426	S13 E39
	UCCLE	20	1544	N03 E28
	SAC PEAK	20	1547 E	N02 E29
*	MCMATH	21	1818	S14 E80
*	LOCKHEED	21	1818	S14 E75
*	HAWAII	21	1818	S14 E75
	WENDEL	22	0853 E	S13 E68
	WENDEL	22	0907 F	S11 E22
	WENDEL	22	0951 F	S14 E07
	SAC PEAK	22	2132	S12 E45
	HAWAII	22	2136 E	S14 E43
	WENDEL	23	1142 E	N07 E46
	WENDEL	23	1508 E	N10 E44
	WENDEL	23	1522 E	S10 E05
	LOCKHEED	24	1816	S11 W14
	LOCKHEED	24	1816	S11 W14
	LOCKHEED	24	1918	S11 W14
	LOCKHEED	24	2006	S11 W14
	LOCKHEED	25	0008	S12 W17
	CLIMAX	25	0009	S12 W16
	HAWAII	25	0012 E	S12 W17
	WENDEL	25	0853 E	N03 E32
	WENDEL	25	1345 E	S11 E10
	LOCARNO	25	1345	S12 E09
	LOCKHEED	25	1942	S12 E07
	HAWAII	25	1952 E	S13 E05
	HAWAII	25	2220	S10 W28
	HAWAII	25	2342	S10 W28
	WENDEL	26	1317 E	S11 W06
	LOCKHEED	26	1834	S11 W42
	LOCKHEED	26	2045	S11 W43
	LOCKHEED	26	2202	S12 W45
	LOCKHEED	26	2251	S12 W45
	CAPRI S	27	0844 E	S10 W50
*	MCMATH	27	1411	S13 W54
	LOCKHEED	27	2002	S13 W54
	LOCKHEED	27	2105	S13 W54

*Rated as flare of importance ≥ 1 by other observatories, (See CRFL-F 199 Part B for March 1961).

SOLAR FLARES

DECEMBER 1960

OBSERVATORY	DATE DEC 1960	OBSERVED UNIVERSAL TIME START	OBSERVED UNIVERSAL TIME END	OBSERVED UNIVERSAL TIME MAX. PHASE	LOCATION APPROX. LAT.	LOCATION APPROX. MER. DIST.	LOCATION McMATH PLAGE REGION	DURATION — MINUTES	IMPORTANCE	OBS. COND.	MEASUREMENTS TIME — U T	MEASUREMENTS MEAS. AREA Sq. Deg.	MEASUREMENTS CORR. AREA Sq. Deg.	MEASUREMENTS MAX. WIDTH Hα	MEASUREMENTS MAX. INT. %	PROVISIONAL IONOSPHERIC EFFECT
MITAKA	01	0044 E	0056		N15	W12	5948	12 D	1	1	0046	3.44	3.65	2.08	107	
GOOD HOPE	01	1004	1020	1006	N26	E85	5956	16	1		1006	.60				
MITAKA	02	0156	0212	0158	N16	E21	5954	16	1	1	0158	1.47	1.67	2.18	102	
MITAKA	02	0301 E	0311		N16	W26	5948	10 D	1	1	0301	.98	1.15	1.95	134	
ALMA-ATA	02	0514	0520	0516	N21	W32	5948	6	1	1	0516	1.75			52	
MITAKA	02	0520 E	0527		N11	W30	5948	7 D	1	1	0522	.98	1.13	1.86	113	
ALMA-ATA	02	0547	0617	0552	N16	W28	5948	30	1	1	0552	2.68			52	
KIEV	02	1119 E	1130 D	1121	N15	W31	5948	11 D	1		1121	1.75			60	
SIMEIZ	03	0731 E	0750 D	0734	N09	W48	5948	19 D	1	1	0734	1.07			73	
GOOD HOPE	04	0913	0929	0919	N09	W60	5948	16	1		0919	1.10	2.40			
MEUDON	04	0920	1000	0929	N10	W40	5950	40	1				4.00			
GOOD HOPE	04	0921	0957	0926	N12	W38	5950	36	1		0926	1.80	2.40			
GOOD HOPE	04	1248	1305	1254	N09	W69	5948	17	1		1254	.90	2.50			
MEUDON	04	1250	1306	1256	N07	W78	5948	16	1							
VOROSHILOV	05	0154	0218	0200	N27	E66	5959	24	1	1		1.62			60	
ABASTUMANI	05	0618	0824	0621	N29	E80	5959	126	1+	3		2.25	9.40		66	
ABASTUMANI	05	0631	0643 D	0634	N27	E70	5959	12 D	1+	3		2.52	5.40		80	
GOOD HOPE	05	1120	1139	1127	N10	W78	5948	19	1		1127	1.10				
GOOD HOPE	05	1144	1234	1155	N09	W76	5948	50	2		1155	2.20				
GOOD HOPE	09	1142	1155	1144	S03	W87	5953	13	1		1146	1.40				
ABASTUMANI	10	0638	0649	0640	N25	E03	5959	11	1	3		1.80	2.10		62	
GOOD HOPE	14	1138	1252	1143	N27	W51	5959	74	1+		1143	2.60	4.80			
GOOD HOPE	14	1321	1346	1327	N27	W53	5959	27	2		1327	4.40	8.60			
MITAKA	15	0026	0049	0028	N27	W67	5959	23	1	2	0028	.98		2.63	120	
MITAKA	15	0323	0400	0327	N24	W61	5959	37	1+	2	0331	6.88	11.03	2.81	131	
MITAKA	17	0325 E	0329		N14	E40	5970	4 D	1	1	0325	1.47	2.12	2.17	134	
MITAKA	19	0234	0253	0238	S15	W20	5967	24	1	1	0238	1.47	1.58	3.03	165	
MITAKA	19	0620	0630		S15	W55	5960	10	1	1	0620	.79	2.09	1.44	113	
PIRCULI	19	0737	0748	0745	N19	W70	5961	11	1	2	0745	1.09	3.76		50	
PIRCULI	19	0745	0751	0747 U	S16	W56	5960	6	1	2	0747	1.73	3.42		50	
ABASTUMANI	20	0833	0918 D	0845	S17	W75	5960	12 D	2	3		2.70	8.80		92	
PIRCULI	20	0840	0900	0848	S16	W73	5960	20	2	2	0848	3.19	16.30		70	
GOOD HOPE	20	1158	1237	1203	S15	W78	5960	39	1		1203	.60				
MITAKA	21	0248	0315		N16	W90	5961	27	1	1						
PIRCULI	21	0808	0815	0812 U	S22	W09	5973	7	1	2	0812	2.66	2.95		52	
PIRCULI	22	1013	1023	1016 U	S21	W24	5973	10	1	2	1016	2.00	2.36		50	
PIRCULI	25	0922 E	0940 D	0924 U	N15	E81	5983	18 D	1	2	0924	.91	4.64		50	

COMMERCE - STANDARDS - BOULDER

SOLAR FLARES
DECEMBER 1960

OBSERVATORY	DATE DEC 1960	OBSERVED UNIVERSAL TIME START	END	MAX. PHASE	LOCATION APPROX. LAT.	MER. DIST.	McMATH PLAGE REGION	DURATION — MINUTES	IMPORTANCE	OBS. COND.	MEASUREMENTS TIME UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hα	MAX. INT. %	PROVISIONAL IONOSPHERIC EFFECT
MITAKA	26	0144 E	0147		N13	E82	5983	3 D	1	1	0144	.49		3.47		
PIRCULI	26	0828 E	0913 D	0842 U	N17	E72	5983	45 D	1+	2	0842	2.28	7.84		50	
MITAKA	27	0514 E	0539 D		N12	E61	5983	25 D	1	1	0514	.79	1.90	2.31	149	
PIRCULI	28	0734 E	0810 D	0744	N16	E47	5983	36 D	1	2	0744	1.37	2.14		51	
GOOD HOPE	28	0747	0759	0748	N19	E48	5983	12	1		0750	1.60	2.50			
PIRCULI	28	0755 E	0902 D	0836	N18	E48	5983	67 D	1	2	0836	2.73	4.39		53	
MEUDON	28	0800 E	0830		N15	E48	5983	30 D	1							
MITAKA	30	0141	0148		N14	E25	5983	7	1	1	0141	1.98	2.31	3.48	140	
MITAKA	30	0344	0400	0348	N15	E21	5983	16	1	1	0348	.98	1.17	2.17	149	
KODAIKNL	30	0352 E	0415 D	0406	N15	E23	5983	23 D	3	3	0406	19.30	22.00	1.88	122	
MITAKA	30	0403	0420	0406	N13	E25	5983	17	1	1	0404	1.47	1.75	2.06	149	
MITAKA	30	0424 E	0442		N18	E24	5983	18 D	1	1	0424	.49	.59	1.54	110	
MITAKA	30	0424 E	0444 D		N15	E23	5983	20 D	1	1	0424	.98	1.18	1.75	113	S-SWF
MITAKA	30	0424 E	0512	0445	N15	E21	5983	48 D	1	1	0445	1.97	2.34	2.27	122	
MITAKA	30	0424 E	0513		N14	E29	5983	49 D	1	1	0424	1.47	1.87	2.38	122	
ABASTUMANI	30	0616	0639	0622	S14	E50	5985	23	1	2		3.16	5.00		62	
GOOD HOPE	30	0656	0738	0703	N18	E28	5983	42	1		0703	2.70	3.30			

COMMERCE - STANDARDS - BOULDER

These flare reports are addenda to the December 1960 flares published in CRPL-F 197 Part B, January 1961.

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

CAPRI G	ANACAPRI - GERMAN
CAPRI S	ANACAPRI - SWEDISH
GOOD HOPE	ROYAL OBSERVATORY, CAPE OF GOOD HOPE
KIEV*	KIEV UNIVERSITY
KODAIKNAL	KODAIKANAL
KRASNYA	KRASNAYA PAKHRA
LOCKHEED	LOS ANGELES
MCMATH	MCMATH-HULBERT
MOSCOW-G	MOSCOW - GAISH
R O HERST	ROYAL GREENWICH OBSERVATORY, HERSTMONCEUX
SAC PEAK	SACRAMENTO PEAK
SCHAUINS	SCHAUINSLAND
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 CORRECTED AREA VALUES LISTED FOR CLIMAX, HAWAII, LOCKHEED AND SAC PEAK.

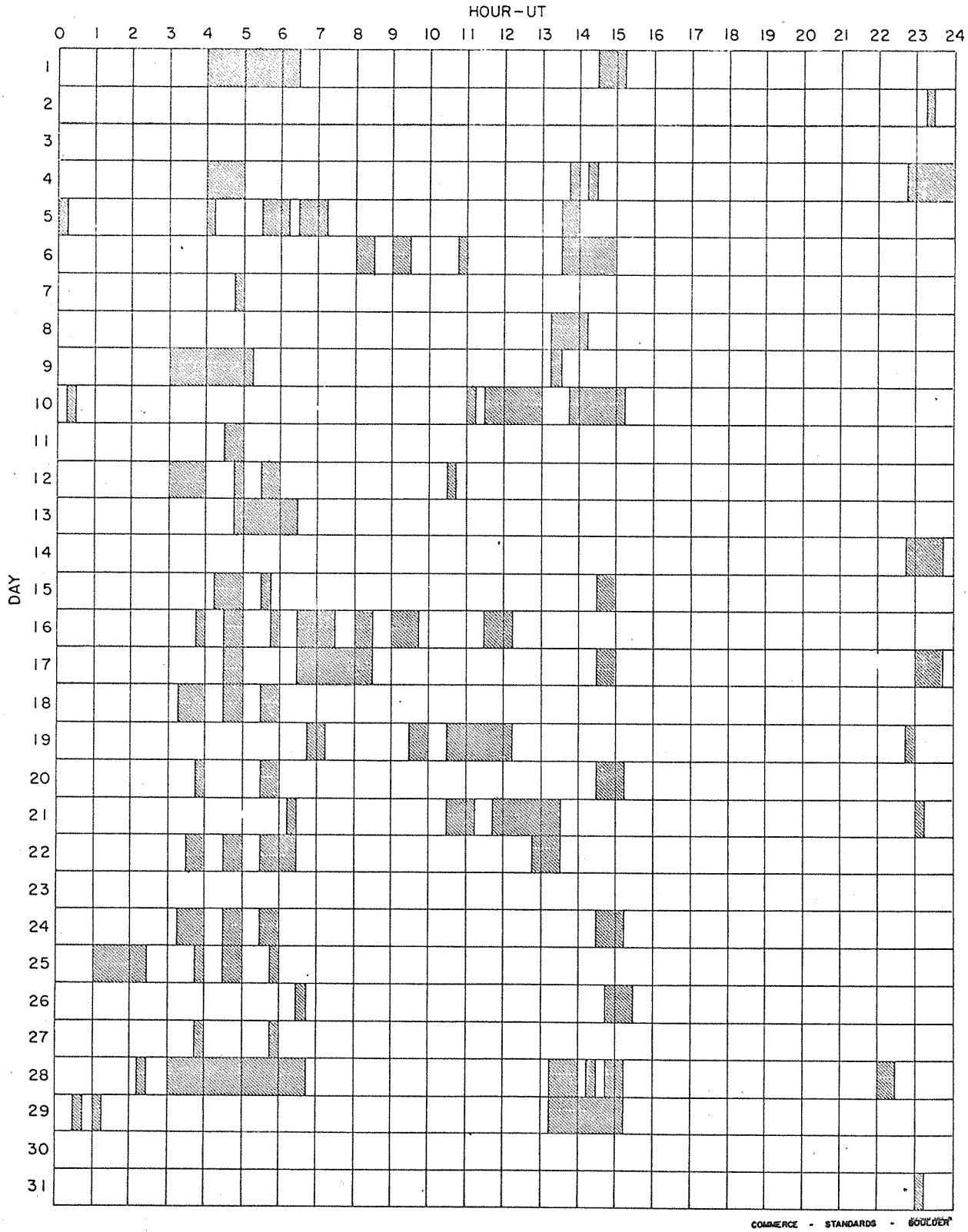
Errata:

For the flare observed at Sacramento Peak December 5, 1960 from 1832-2158D and published in CRPL-F 197 Part B, January 1961, page IIIa, areas should be changed as follows: Measured from 27.42 to 9.92 square degrees and the corrected from 136.13 to 18.75 square degrees.

In the table of "Intervals of No Flare Patrol" for August 1960 published in CRPL-F 196 Part B, December 1960, the following corrections should be made: August 30 hours should read from 0000-0300; August 31 should be added and left blank for all hours.

INTERVALS OF NO FLARE PATROL OBSERVATIONS

DECEMBER 1960



SOLAR FLARES

JUNE 1959

OBSERVATORY	DATE JUNE 1959	OBSERVED UNIVERSAL TIME			LOCATION			DURATION — MINUTES	IMPORTANCE	OBS. COND.	MEASUREMENTS					PROVISIONAL IONOSPHERIC EFFECT
		START	END	MAX. PHASE	APPROX. LAT.	APPROX. MER. DIST.	McMATH PLAGE REGION				TIME — U T	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hα	MAX. INT. %	
UCCLE	07	1101			S06	W44	5179	□	1	4						
UCCLE	19	1632	1656 D		N15	W30	5204	24 D	1+	2						S-SWF
UCCLE	22	1013	1125		N20	W67	5204	72	2	3						S-SWF
UCCLE	23	1103	1114		N20	E65	5228	11	1	2						S-SWF

COMMERCE - STANDARDS - BOULDER

These flares are addenda to the June 1959 flares published in CRPL-F 179 Part B, July 1959; F-182 Part B, October 1959 and F-185 Part B, January 1960.

(SHORT-WAVE RADIO FADEOUTS)

FEBRUARY 1961

(NONE OBSERVED)

IONOSPHERIC EFFECTS OF SOLAR FLARES

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

FEBRUARY 1961

(NONE OBSERVED)

IVa

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

MARCH 1961

OTTAWA

2800 MC

Mar. 1961	Type*	Start UT	Duration Hrs:Mins	Maximum			Remarks
				Times UT	Peak Flux	Mean Flux	
18	7 Period Irregular Activity	1738.5	8.5	1741.5	15	5	
	4 Post Increase		25		2	1	
28	1 Simple 1	1441	4	1442.5	5	1.7	
29	2 Simple 2	1831.8	1.2	1832.2	9	3.5	
29	1 Simple 1	2041	1	2041.5	2	1	
30	3 Simple 3	1607	20	1610	5	3	
30	2 Simple 2	1902	4	1903	13	7	
	4 Post Increase		10		2	1	

COMMERCE - STANDARDS - BOULDER

HOURS OF OBSERVATION: JANUARY, FEBRUARY, MARCH 1961

OBSERVING PERIOD:
January 1325 UT - 2125 UT (approx.)
February 1235 UT - 2200 UT (approx.)
March 1200 UT - 2245 UT (approx.)

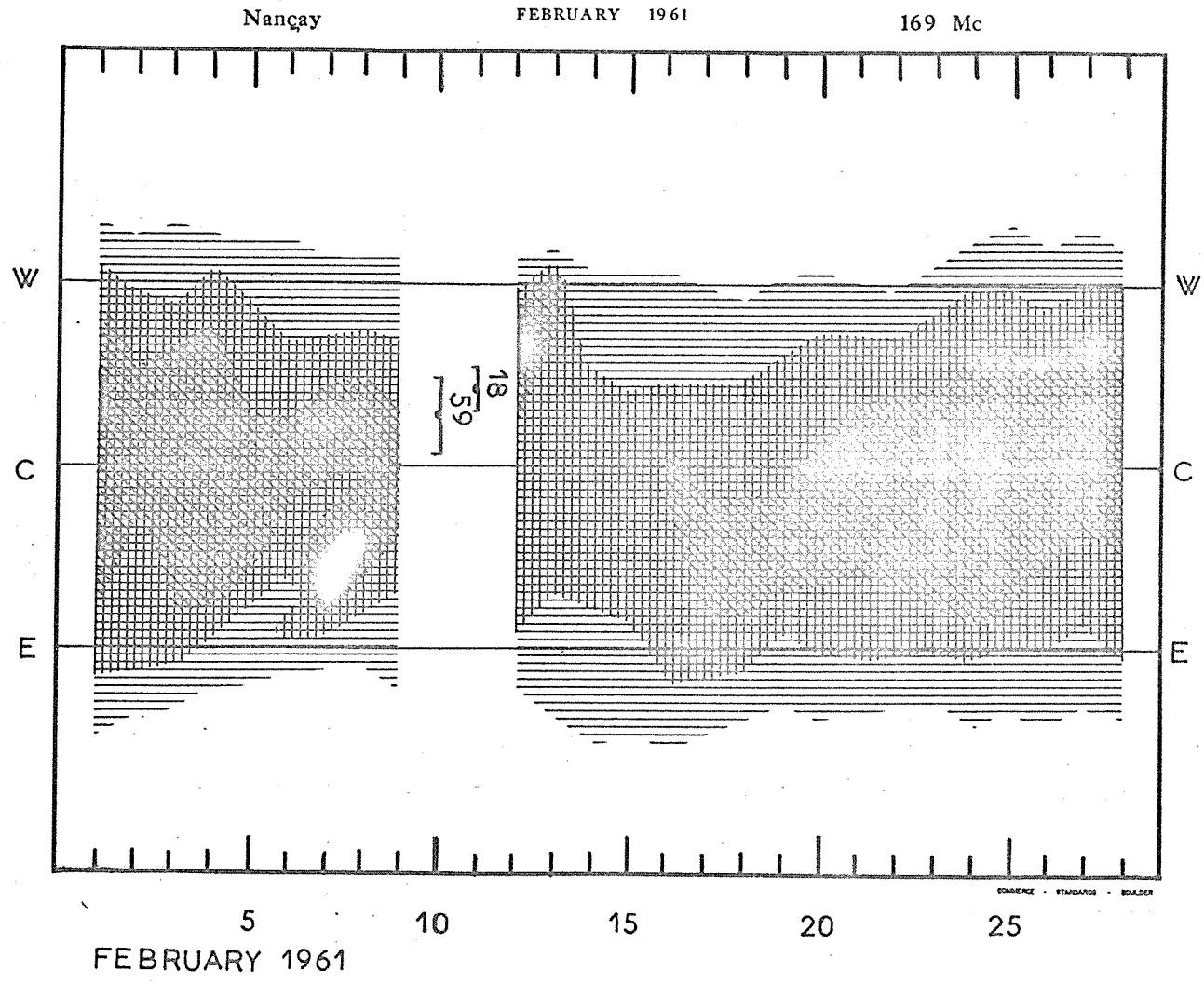
with the following exceptions:

(1) Observations commenced: March 4 - 1345
March 5 - 1240
March 25 - 1400
March 26 - 1240
March 27 - 1225

(2) Interference obscuring portions of the records on:

January 4, 6, 9, 16, 17, 18, 20, 23, 24, 25, 26, 27, 28, 30
February 1, 7, 8, 9, 10, 17, 19, 22
March 5, 6, 8, 9, 11, 16, 17, 18, 20, 21, 23, 24, 30

SOLAR RADIO EMISSION
INTERFEROMETRIC OBSERVATIONS



SOLAR RADIO EMISSION

OUTSTANDING OCCURRENCES

MARCH 1961

BOULDER

108 MC

Mar. 1961	Type	Start UT	Time of Maximum UT	Duration Minutes	Intensity
1	3	2007.7	2007.8	0.3	2
2	3	1429.9	1430.0	0.5	2
2	3	2258.6	2259.0	0.3	2
3	3	1926.0	1926.1	0.3	2
4	3	2349.8	2349.8	0.2	2
6	3	1558.6	1558.7	0.3	2
6	3	1911.3	1911.4	0.3	2
6	3	1928.6	1928.7	0.4	2
7	3	1741.1	1741.5	0.5	2
7	2	1858.0	1859.4	2.0	1
7	3	2241.0	2241.6	2.0	2
7	3	2355.8	2356.2	0.5	2
8	3	0026.2	0026.6	0.5	2
9	3	1732.6	1733.1	0.6	2
9	3	2314.7	2315.1	0.4	2
10	3	0039.6	0041.0	0.4	2
10	3	1447.5	1447.9	0.3	2
10	3	1821.2	1821.8	0.8	2
10	3	2308.5	2309.1	0.6	2
11	3	1407.2	1407.8	0.6	3
11	3	1727.5	1728.3	1.0	3
11	3	1807.2	1807.5	1.0	2
11	3	2040.1	2040.5	1.4	2
11	3	2312.5	2312.8	0.3	2
12	3	1945.2	1945.3	0.3	2
13	3	1939.5	1939.5	0.2	2
14	3	0015.7	0015.9	0.3	2
14	3	0024.6	0024.6	0.3	2
14	3	0026.7	0026.8	0.2	2
14	3	1412.5	1412.8	0.5	2
14	3	2001.8	2001.9	0.3	2
15	3	2218.9	2219.2	0.5	2
16	3	1642.8	1643.6	2.2	2
16	3	1738.5	1738.5	0.4	2
16	3	2231.0	2231.1	0.3	2
17	3	1911.2	1911.6	2.0	2
19	3	1808.7	1809.2	0.5	2
19	3	1931.5	1831.9	0.4	2
21	3	1414.5	1415.0	1.0	2
21	3	2006.1	2006.5	0.5	2
22	3	0011.5	0012.0	0.5	2
22	3	0029.0	0029.7	1.0	2
22	3	1850.0	1850.5	0.7	2
22	3	2027.5	2028.3	0.8	2
23	7	1315	1618	370	3
23	3	2301.5	2302.1	0.8	2
23	2	2315.5	2318.2	2.6	2
24	3	0025.4	0025.9	0.5	2
24	6	1304 E	1346	244 D	2
24	7	2113		219	2
25	2	1430.5	1433.6	4.5	2
25	3	1454.0	1454.5	0.5	2
25	3	1733.0	1734.1	1.1	2
25	3	2020.6	2021.3	1.0	2
26	3	0007.5	0008.1	0.7	2
26	2	1641.0	1704.5	36	1
26	3	2116.6	2117.1	0.6	2
26	2	2220.0	2236.8	22	1
26	3	2350.7	2351.2	0.5	2
27	7	0008.7	0038.0	44	2
27	3	1428.4	1429.0	1.2	2
27	3	2136.3	2136.6	0.6	2
28	3	1654.2	1654.5	0.5	2
28	3	2255.0	2255.2	0.3	2
29	3	1712.7	1713.0	0.4	2
29	3	2015.6	2015.9	0.5	3
30	7	1748	2007	187	1
30	2	2147.0	2150.6	3.7	1
30	3	2310.0	2310.2	0.4	2
31	3	0049.8	0050.8	1.2	2
31	3	1304.2	1304.5	0.3	3
31	2	2242.0		44	1

COMMERCE - STANDARDS - BOULDER

NOMINAL TIMES OF OBSERVATION

MARCH 1961

BOULDER

108 MC

Mar. 1961	U.T.		Mar. 1961	U.T.	
1	1340-0036		16	1317-0052	I 2333-0052
2	1338-0038		17	1315-0053	
3	1755-2340		18	1315-1404	
4	1506-0010		19	1602-0055	
5	1334-0042		20	1405-0001	
6	1332-0042		21	1308-1355;	
7	1331-0044			1405-0057	
8	1329-0044		22	1307-0058	
9	1328-1447;		23	1305-0059	
	1456-0046		24	1304-0100	
10	1326-1610;		25	1302-0102	
	1647-0046		26	1300-0102	
11	1325-0048		27	1259-0104	
12	1600-1650;		28	1553-2145;	
	1705-0050			2241-0104	
13	1321-0050		29	1255-0106	
14	1320-0052		30	1254-0106	
15	1318-0052		31	1252-0108	

COMMERCE - STANDARDS - BOULDER

SOLAR RADIO EMISSION
SPECTRUM OBSERVATIONS

OCTOBER 1960

Fort Davis

25-580 Mc

Date 1960	Observing Hours	Important Bursts Type	Times U.T.	Int.	Frequency Range	Remarks
Oct. 1	0000-0025					
	1320-2400					
Oct. 2	0000-0020					
	1320-2400					
Oct. 3	0000-0020	III G	1443-1446	1-	240-25	
	1320-2400	I	~1800-2400	1-	300-100	
Oct. 4	0000-0020	I	~2000-2400	1	180-320	
	1320-2400					
Oct. 5	0000-0020	I	0000-0010	1	300-180	
	1320-2400	I	~1800-~2400	1-	300-180	
Oct. 6	0000-0015	III G	1916-1918	2	350-25	
	1320-2400	III G	2014-2026	1-3	580-25	
		III G	2337-2340	2	180-50	
Oct. 7	0000-0015	III G	1944-1947	1	200-30	
	1320-2400	III G	1948-1951	3	350-25	~2300: Start of weak Type I.
		III G	2352-1354	2	320-50	
Oct. 8	0000-0015	I	1320-2400	2	320-50	Many III 100-25 Mc/s throughout day.
	1320-2400					
Oct. 9	0000-0015	I	0000-0010	1-	280-100	
	1320-2400	I	1320-2400	2	350-75	
		III G	1619-1621	2	580-25	
		III G	2136-2139	3	580-25	
		III G	2358-2400	1	200-100	
Oct.10	0000-0010	I	0000-0005	1-	300-150	2318: Reverse Slopes, 500-250 Mc/s.
	1330-2400	I	1330-2400	2	350-25	
		III G	1422-1433	1-3	500-25	
		III G	1448-1458	1-3	500-25	
		III G	1529-1539	1-2	580-25	
		III G	1842-1849	1-3	400-25	
		III G	1918-1933	1-3	500-25	
		III G	1954-1957	3	350-25	
		III G	2317-2319	2	580-240	
Oct.11	0000-0010	I	0000-0005	1	100-180	
	1330-2400	I	1330-~2100	1	300-100	~1600 Type I intensity decrease to 1-.
		III G	1631-1633	3	300-25	
		III G	1636-1641	2	300-25	
		III G	1752-1756	2	90-25	
		III G	1803-1806	3+	580-25	
		III G	1847-1849	3	300-25	
		III G	1939-1941	2-3	300-25	
		III G	1943-1945	2-3	500-25	
		III G	2004-2007	1-2	580-25	
		III G	2013-2014	2	240-25	
Oct.12	0000-0010	III G	1646-1649	1-2	200-25	Weak I throughout day.
	1330-2400	III G	1745-1749	2	580-50	
		II	1749.7-1751.2	2	280-180	
			1751.5-1802	3	280-40	
		IV^{xx}	1753-1759	3	400-150	IV^{xx}: Continuum with Type III structure.
Oct.13	0000-0005	II	1904.6-1906.5	2	180-50	
	1330-2400					
Oct.14	0000-0005	III G	1557-1559	2	350-150	
	1330-2400	III G	2117-2118	2	350-30	2119-2131
		Uncl.	2119-2120	2	180-50	Uncl. Resembles IV.
		Uncl.	2124-2131	1	400-50	
		III G	2341-2342	3	240-30	
Oct.15	1330-2400	III G	1414-1422	1-3	180-50	
Oct.16	1330-2400	III G	1408-1411	1-2	350-50	
		III G	1825-1826	1-3	580-220	Weak I during day.
		III G	1928-1930	3+	300-25	
		III G	2029-2032	1-3	580-25	

SOLAR RADIO EMISSION
SPECTRUM OBSERVATIONS
OCTOBER-NOVEMBER 1960

Fort Davis

25-580 Mc

Date 1960	Observing Hours	Important Bursts Type	Times U.T.	Int.	Frequency Range	Remarks
Oct.17	1330-2400	III G	1453-1455	1-3	500-25	
		III G	1704 1709	1-3	200-25	
Oct.18	1330-2400	III G	1625-1630	2	300-25	Many III throughout day.
		I	~1640-~1800	1	250-100	
		III G	1957-1959	2	240-25	
		III G	2148-2153	1	150-50	
		I	2158-~2330	1	180-50	
Oct.19	1330-2400	I	1330-2350	1-2	350-50	Many III 100-25 Mc/s throughout day.
		III G	1420-1429	1-2	350-25	
		III G	1608-~1840	1-3+	500-25	
Oct.20	1330-2400	III G	1446-1448	3	500-25	
		III G	1449-1452	1-2	500-25	
		III G	1453-1454	3+	580-25	
		III G	1714-1715	3+	350-25	Weak I, Many III throughout day.
Oct.21	1330-2400					Weak I, throughout day.
Oct.22	1330-2355	III G	1348-1353	2	280-50	Weak I throughout day.
		III G	1356-1401	2	450-50	
Oct.23	1330-2355	III G	2100-2104	1-2	580-200	
Oct.24	1330-2350	I	1330-~1825	1-	350-100	Weak I during day.
		III G	2008-2011	2	350-50	
		III G	2147-2156	1-2	300-50	
Oct.25	1330-2350					
Oct.26	1330-2350					
Oct.27	1330-2350					
Oct.28	1330-2350					
Oct.29	1345-2345	III G	1401-1405	2	450-50	Weak I throughout day~320-~100 Mc/s.
		III G	1528-1531	2	180-50	
		III G	1656-1706	1-3	400-25	
		III G	1710-1712	2	150-25	
		III G	1904-1907	1	180-35	
		III G	1939-1940	2	180-25	
		III G	2046-2052	1-3	350-25	
		III G	2054-2056	2	350-50	
Oct.30	1345-2345	III G	1533-1535	2	350-25	Weak I throughout day~320-~180 Mc/s.
		I	2020-~2100	1	350-100	
Oct.31	1345-2345	III G	2200-2202	1-3	280-25	
Nov. 1	1345-2345	I	1345-2337	1	320-100	
Nov. 2	1345-2345					
Nov. 3	1345-2340					
Nov. 4	1345-2340					
Nov. 5	1345-2340	III G	2123-2125	2	280-25	
		III G	2155-2159	3	280-25	
Nov. 6	1345-2340	II	1840.2-1840.6	2	50-40	~2130-2340 Weak I
			1843-1850	2	70-35	
Nov. 7	1345-2340					
Nov. 8	1345-2340					Weak I throughout day.
Nov. 9	1345-2340	III G	1350-1352	2	240-100	Weak I throughout day.
		III G	2225-2227	2-3	420-110	
Nov.10	1345-2340	I	1345-~2120	2-3	300-25	
		I	~2300-2335	1-2	300-100	
Nov.11	1345-2340	I	1345-2340	2-3	300-25	Many III 50-25 Mc/s throughout day.

COMMERCE - STANDARDS - BOULDER

SOLAR RADIO EMISSION
SPECTRUM OBSERVATIONS
NOVEMBER–DECEMBER 1960

Fort Davis

25–580 Mc

Date 1960	Observing Hours	Important Bursts Type	Times U.T.	Int.	Frequency Range	Remarks
Nov.12	1345-2335	IV^{xx}	1345-~1800	2-3	580-50	IV^{xx} continuum with Type III structure, degenerates into I at ~1700 2027: reverse slopes. 350-240 Mc/s.
		I	~1700-2335	2-3	300-25	
Nov.13	1345-2335	III G	1515-1516	2	560-100	
		III G	1637-1638	2	500-330	
Nov.14	1345-2335					
Nov.15	1345-2335					
Nov.16	1345-2335	III G	1545-1551	1-3	500-180	
		III G	1936-1937	1-2	240-90	
Nov.17	1345-2335	III G	1647-1648	2	320-25	
Nov.18	1345-2335					
Nov.19	1345-2335	III G	1453-1455	1	500-50	
		III G	1559-1602	2	280-25	
		IV^{xx}	1636-1653	2	400-200	IV^{xx} continuum with Type III structure.
		IV^{xx}	1659-1702	3	450-220	
		IV	1708-1723	1-2	320-220	
		III G	1659-1701	3	150-25	
		III G	1742-1754	1-2	300-40	
Nov.20	1345-2335	II	2028.4-2035	3	125-30	
		IV	2027-2046	2	580-60	2043: Reverse slopes 140-25 Mc/s Weak I throughout day.
		Uncl.	2041-2043	3+	60-25	
Nov.21	1345-2335					Weak I during day.
Nov.22	1345-2335					Weak I during day.
Nov.23	1345-2335	III G	1426-1429	2	280-50	Weak I during day.
		III G	1629-1632	1-3+	450-25	
		III G	1820-1828	1-3	500-25	
		III G	2053-2056	1-3	450-25	
Nov.24	1345-2335	III G	2048.5-2050	2	450-30	
Nov.25	1400-2335					Weak I during day.
Nov.26	1400-2335	III G	1603-1604	2	300-100	
		III G	1738-1744	1-2	300-25	
Nov.27	1400-2335	IV	1509-1513	3	580-150	
		II	1522.7-1526	3	75-50	
		Uncl.	1518-1520	1	80-60	
Nov.28	1400-2335					
Nov.29	1400-2335					
Nov.30	1400-2335					
Dec. 1	1400-2335	I	1400-2335	1-2	400-100	
		III G	2018-2020	2	320-100	
Dec. 2	1400-2335	III G	1608-1609	2	400-100	Weak I throughtout day.
Dec. 3	1400-2340	III G	2042-2044	3	400-25	
		III G	2047-2048	2	450-30	2047: Reverse slopes 350-280 Mc/s.
		III G	2305-2306	2	400-100	
Dec. 4	1400-2340	III G	1455-1457	1	300-50	
		I	~2120-2335	2-3	450-50	Weak I throughout day.
Dec. 5	1400-2340	III G	1510-1512	2	500-50	IV^{xx} continuum with Type III structure.
		II	1833.5-1850	3	125-25	
		IV^{xx}	1834-1858	3	580-25	
		III G	2021-2023	1	280-100	Weak I during day.
Dec. 6	1400-2340	III G	1722-1725	1-3	500-25	Weak I throughout day.
		III G	1837-1843	2-3	200-25	
		III G	2026-2032	1-3+	500-25	
		III G	2326-2328	2	350-50	

COMMERCE - STANDARDS - BOULDER

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SOLAR RADIO EMISSION
SPECTRUM OBSERVATIONS

DECEMBER 1960

Fort Davis

25–580 Mc

Date 1960	Observing Hours	Important Bursts Type	Times U.T.	Int.	Frequency Range	Remarks
Dec. 7	1400-2340	III G	1954.5-1956	3	350-25	Weak I throughout day.
		III G	2028-2030	2	350-25	
Dec. 8	1400-2340	II	1604.4-1610	2	170-35	Weak I throughout day.
Dec. 9	1400-2340					Weak I during day.
Dec.10	1636-2340					
Dec.11	1413-2340					
Dec.12	1400-2340					
Dec.13	1400-2340					
Dec.14	1400-2340					
Dec.15	1420-2340					
Dec.16	1420-2340	II	1531.5-1548	3	130-50	
Dec.17	1420-2340	III G	1721-1722	2	350-180	
Dec.18	1420-2340	III G	1432-1444	2-3	500-30	
		III G	1914-1916	2	300-25	
		III G	2152-2154	2	400-25	
		III G	2254.5-2302	1-3	320-25	
		III G	2308-2310	2	350-25	
Dec.19	1420-2340	III G	1551-1553	1-2	320-25	
		III G	1558-1601	1	300-50	
		III G	2025.5-2027	2	300-25	
		III G	2119-2120	2	450-25	
		III G	2142-2145	3	450-25	
		III G	2257-2259	2	400-45	
Dec.20	1420-2345					
Dec.21	1420-2155					Weak I throughout day.
Dec.22	1420-2345	III G	1932-1938	1-3+	450-25	
		III G	2034-2035	2-3+	500-25	
Dec.23	1420-2345					
Dec.24	1420-2345					
Dec.25	1420-2345					
Dec.26	1420-2345	III G	1447-1450	3	580-25	
Dec.27	1420-2345					
Dec.28	1420-2345					Weak I throughout day.
Dec.29	1420-2350					Weak I throughout day.
Dec.30	1420-2350	I	~1800-2345	1	50-250	
Dec.31	1420-2350					

COMMERCE - STANDARDS - BOULDER

COSMIC RAY INDICES

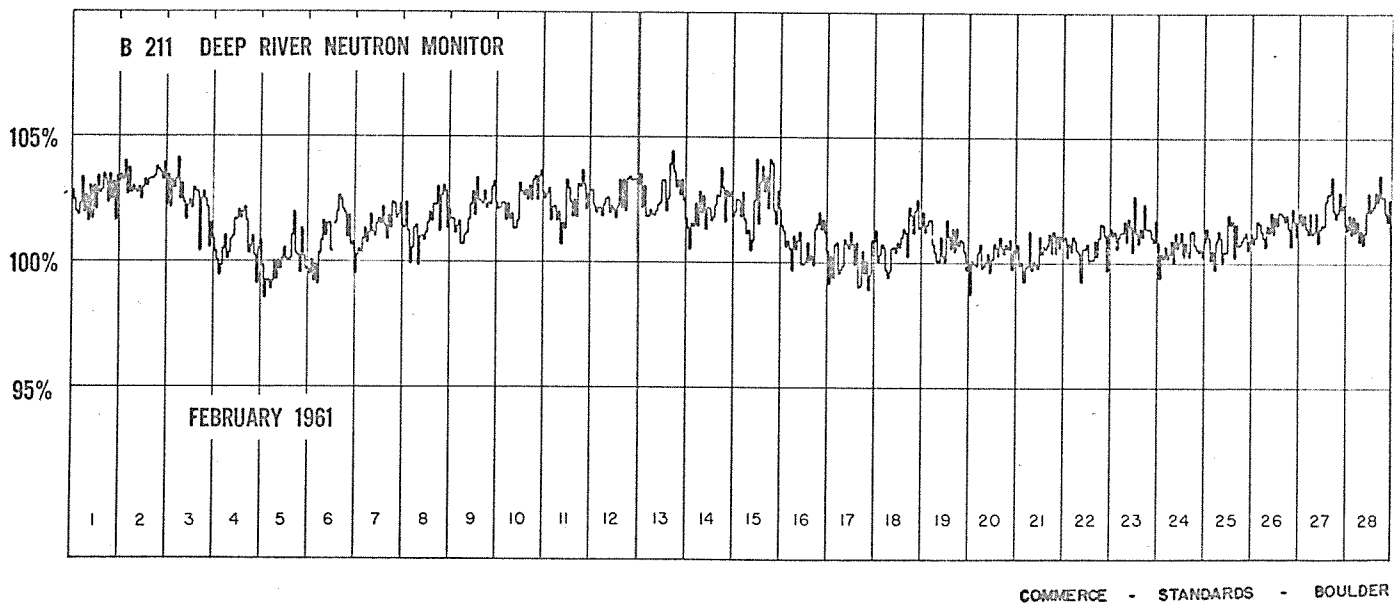
(Climax Neutron Monitor)

Feb. 1961	Daily average counts/hr		Feb. 1961	Daily average counts/hr
1	2983.3		15	2990.3
2	2982.0		16	2945.3
3	2969.7		17	2935.7
4	2960.8		18	2996.1
5	2945.9	12*	19	2966.7
6	2965.8	10*	20	2963.2
7	2965.7		21	2961.0
8	2971.6		22	2972.9
9	2973.5		23	2975.0
10	2961.9		24	2956.5
11	2955.8		25	2960.0
12	2980.0		26	2977.0
13	2997.2		27	2980.0
14	2977.9		28	2990.0

*Hours of A-section data plus hours of B-section data.

COSMIC RAY INDICES

(Pressure Corrected Hourly Totals)

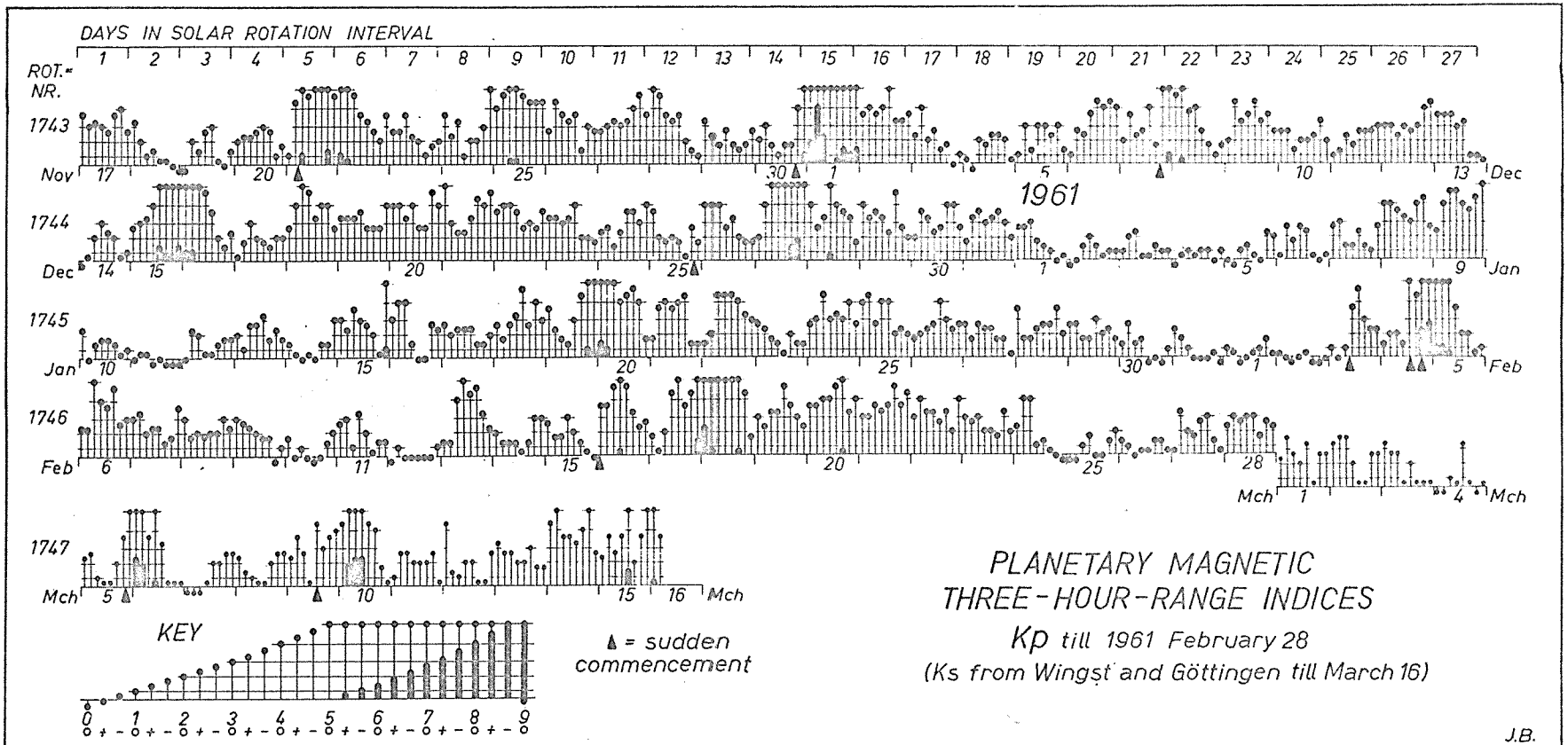


GEOMAGNETIC ACTIVITY INDICES

FEBRUARY 1961

Feb. 1961	C	Values Kp — Three hour Gr. interval 1 2 3 4	5 6 7 8	Sum	Ap	Final Selected Days
1	0.0	1o 1- 0o 0+	1- 1o 2- 1-	6o	3	Five
2	0.0	1- 0+ 0o 0+	1- 0o 0o 0+	2+	2	Quiet
3	0.9	1o 0+ 1o 4-	5- 3o 2+ 2+	18+	13	
4	1.5	1+ 2o 2o 1+	5o 4+ 7- 7o	30-	43	1
5	1.2	6- 6- 5+ 4-	2o 2o 1- 1o	26o	29	2
						12
6	1.2	2+ 2+ 5o 4o	4- 5- 3- 3o	28-	23	25
7	0.6	3o 3+ 2o 2+	2+ 1+ 2- 4-	20-	11	26
8	0.4	3o 2- 2o 2-	2o 2o 3o 2+	18-	9	
9	0.2	3o 3- 2+ 2o	2- 2- 0o 1o	14+	7	
10	0.0	2- 0+ 1o 0+	0o 0+ 1+ 2o	7o	4	
11	0.3	3- 3o 1o 3+	2o 1- 1+ 1+	15+	9	Five
12	0.0	0o 1o 0+ 0+	0+ 0+ 0+ 1o	4-	2	Disturbed
13	1.3	1+ 1+ 4o 5o	4+ 5- 3+ 2+	26+	23	
14	0.6	2o 1+ 1+ 1+	1- 1+ 3o 3o	14o	8	4
15	0.3	3- 2- 2- 3o	2o 1+ 1- 0+	13+	7	16
						17
16	1.2	4- 4- 5- 5+	5- 3+ 2+ 3-	30+	27	18
17	1.3	2- 1- 2o 4+	5o 4- 4+ 6o	28-	29	20
18	1.4	7- 5+ 5o 5o	5o 5+ 4+ 2-	38+	51	
19	1.0	3o 2+ 3+ 3+	5- 4- 3o 2+	26-	18	
20	1.2	4- 4- 4o 4o	5- 5+ 3+ 4o	33-	30	
21	1.1	3o 3o 4- 3+	4- 5- 4- 4+	29+	23	Ten
22	0.8	3o 4o 3+ 3+	3- 3+ 2o 4o	26-	18	Quiet
23	0.5	3o 3- 3o 2o	2o 2- 3+ 2o	20-	11	
24	0.3	2+ 4o 4o 1o	1+ 1- 0+ 0o	14-	10	1
25	0.1	0o 0o 1o 2-	0+ 0+ 1+ 2o	7-	3	2
						9
26	0.0	1+ 1o 0+ 1-	1- 1+ 1+ 1-	7+	4	10
27	0.3	1- 3+ 2o 2-	3- 3o 1+ 1-	15+	9	11
28	0.7	2+ 3o 3- 3o	3o 2- 3- 2+	21-	12	12
						14
						15
						25
						26
Mean:	0.66			Mean:	16	

COMMERCE - STANDARDS - BOULDER



COMMERCE - STANDARDS - BOULDER

CRPL RADIO PROPAGATION QUALITY FIGURES AND FORECASTS

NORTH ATLANTIC FEBRUARY 1961 NORTH PACIFIC

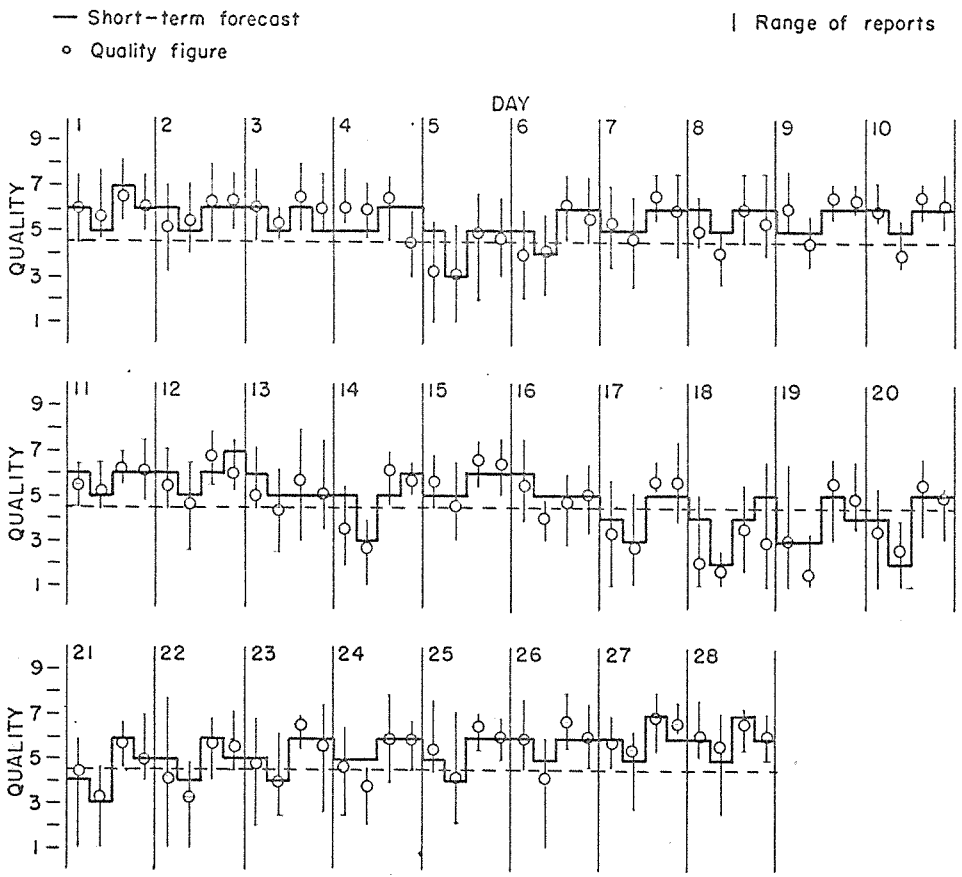
DATE FEB. 1961	NORTH ATLANTIC 6-HOURLY QUALITY FIGURES: 00 TO 06	06 TO 12	12 TO 18	18 TO 24	SHORT-TERM FORECASTS ISSUED ABOUT ONE HOUR IN ADVANCE OF: 00	06	12	18	WHOLE DAY INDEX	ADVANCE FORECASTS (J-REPORTS) FOR WHOLE DAY, ISSUED IN ADVANCE BY: 1-7 DAYS FINAL J_S	1-7 DAYS SDW	1-3 DAYS J	1-7 DAYS	GEOMAGNETIC K_{FR} HALF DAY (1)	(2)	NORTH PACIFIC 12-HOURLY QUALITY FIGURES: 0700 TO 1900	1900 TO 0700	SHORT-TERM FORECASTS ISSUED AT: 0600	1800	WHOLE DAY INDEX	ADVANCE FORECASTS (J_P-REPORTS) FOR WHOLE DAY, ISSUED IN ADVANCE BY: 1-7 DAYS FINAL J_{PS}	1-7 DAYS SDW	1-3 DAYS J_P	1-7 DAYS	GEOMAGNETIC K_{SI} HALF DAY (1)	DAY (2)
01	6o	6-	7-	6+	6	5	7	6	6o	6		6	1	1	5	6	5	5	6	6		6	0	0
02	5+	6-	6+	6+	6	5	6	6	6-	5		5	1	0	7	6	6	6	7	6		6	0	0
03	6o	5+	7-	6o	6	5	6	5	6o	5		5	2	3	8	7	6	7	7	6		6	1	3
04	6+	6o	6+	4+	5	5	6	6	6-	5		5	2	(5	6	5	7	5	6	6		6	2	(6)
05	3+	3+	5o	5-	5	3	5	5	(4-)	6		6	(4)	1	6	6	4	6	6	5		5	(5)	2
06	4o	4+	6+	6-	5	4	6	6	5-	6		6	3	3	6	6	6	6	6	5		5	(4)	(4)
07	5+	5-	7-	6o	5	5	6	6	6-	6		6	2	2	6	5	6	6	6	6		6	2	2
08	5o	4+	6o	5+	6	5	6	6	5o	6		6	2	2	5	5	5	6	5	6		6	2	2
09	6o	4+	7-	6+	5	5	6	6	6-	6		6	3	1	6	6	6	5	6	6		6	1	1
10	6o	4+	7-	6+	6	5	6	6	5+	6		6	0	1	5	7	6	6	6	6		6	2	1
11	6-	5+	6+	6+	6	5	6	6	6-	6		6	2	1	6	6	5	6	6	6		6	2	1
12	6-	5-	7-	6o	6	5	6	7	6-	6		6	0	0	6	7	5	6	6	6		6	0	0
13	6o	4+	6-	5o	6	5	5	5	5+	6		6	3	3	5	5	6	5	5	6		6	3	(4)
14	4-	3-	6+	6-	5	3	5	6	(4+)	5		5	2	2	4	3	5	5	(4)	6		6	1	2
15	6-	4+	7-	6+	5	5	6	6	6-	5		5	2	1	5	5	5	5	5	6		6	2	1
16	6-	4o	5-	5o	6	5	5	5	5-	6		6	(4)	3	5	4	5	5	5	5		5	(4)	(4)
17	3+	3-	6-	6-	4	3	5	5	(4o)	6		6	2	(4	5	4	5	5	(4)	5		5	2	(4)
18	2+	2-	4-	3o	4	2	4	5	(3-)	4	4	6	(5)	3	4	4	5	4	(4)	6		6	(6)	(4)
19	3+	2-	6-	5o	3	3	5	4	(3+)	5	5	6	3	3	5	5	5	5	5	6		6	3	3
20	3+	3-	6-	5o	4	2	5	5	(4-)	5	5	6	(4)	(4	4	4	5	5	(4)	6		6	(4)	(4)
21	4+	3+	6-	5o	4	3	6	5	(4+)	5	5	6	3	3	4	4	5	5	(4)	6		6	3	(4)
22	4+	3+	6-	6-	5	4	6	5	(4+)	5	5	6	3	3	4	4	5	5	(4)	6		6	3	3
23	5-	4o	7-	6-	5	4	6	6	5o	5		5	3	2	4	5	5	6	5	4		4	2	2
24	5-	4-	6o	6o	5	5	6	6	5o	5		5	3	1	5	6	5	5	5	5		5	2	0
25	6-	4+	7-	6o	5	4	6	6	5+	5		5	1	1	5	6	5	6	6	5		5	0	1
26	6o	4+	7-	6+	6	5	6	6	5+	6		6	1	1	5	6	6	6	6	6		6	0	1
27	6-	6-	7o	7-	6	5	7	6	6+	6		6	2	2	6	6	6	7	6	6		6	1	2
28	6+	6-	7-	6+	6	5	7	6	6+	6		6	3	2	6	6	7	6	6	6		6	3	3
Score: Quiet Periods P					13	4	13	19		10		10					12	12		12				
S					6	5	14	7		10		10					8	9		10				
U					0	0	0	0		0		0					1	0		0				
F					0	0	0	0		0		0					1	0		0				
Disturbed Periods P					2	8	1	0		0		0					0	1		0				
S					5	11	0	0		5		1					6	5		1				
U					2	0	0	1		1		0					0	1		0				
F					0	0	0	1		2		7					0	0		5				

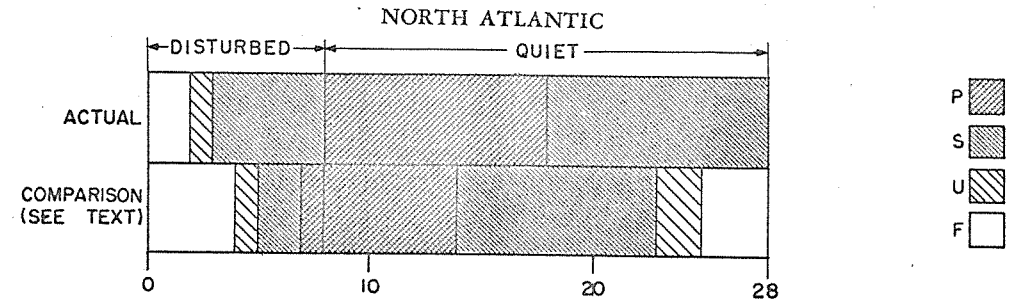
( ) Represent disturbed values.
All times are Universal Time (U.T.)

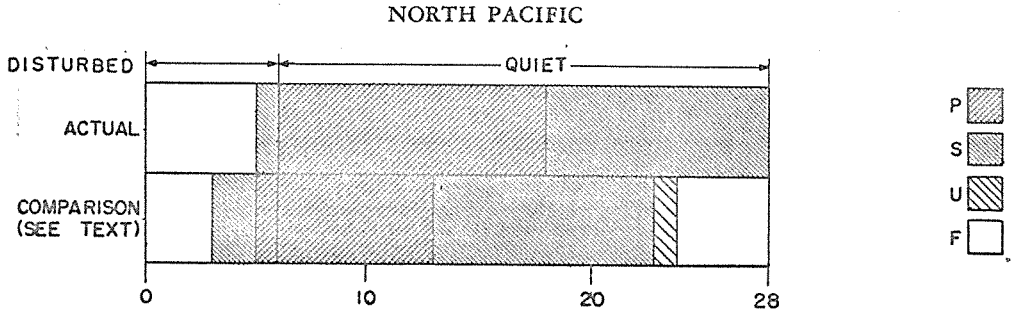
CRPL RADIO PROPAGATION QUALITY FIGURES AND FORECASTS

NORTH ATLANTIC

FEBRUARY 1961

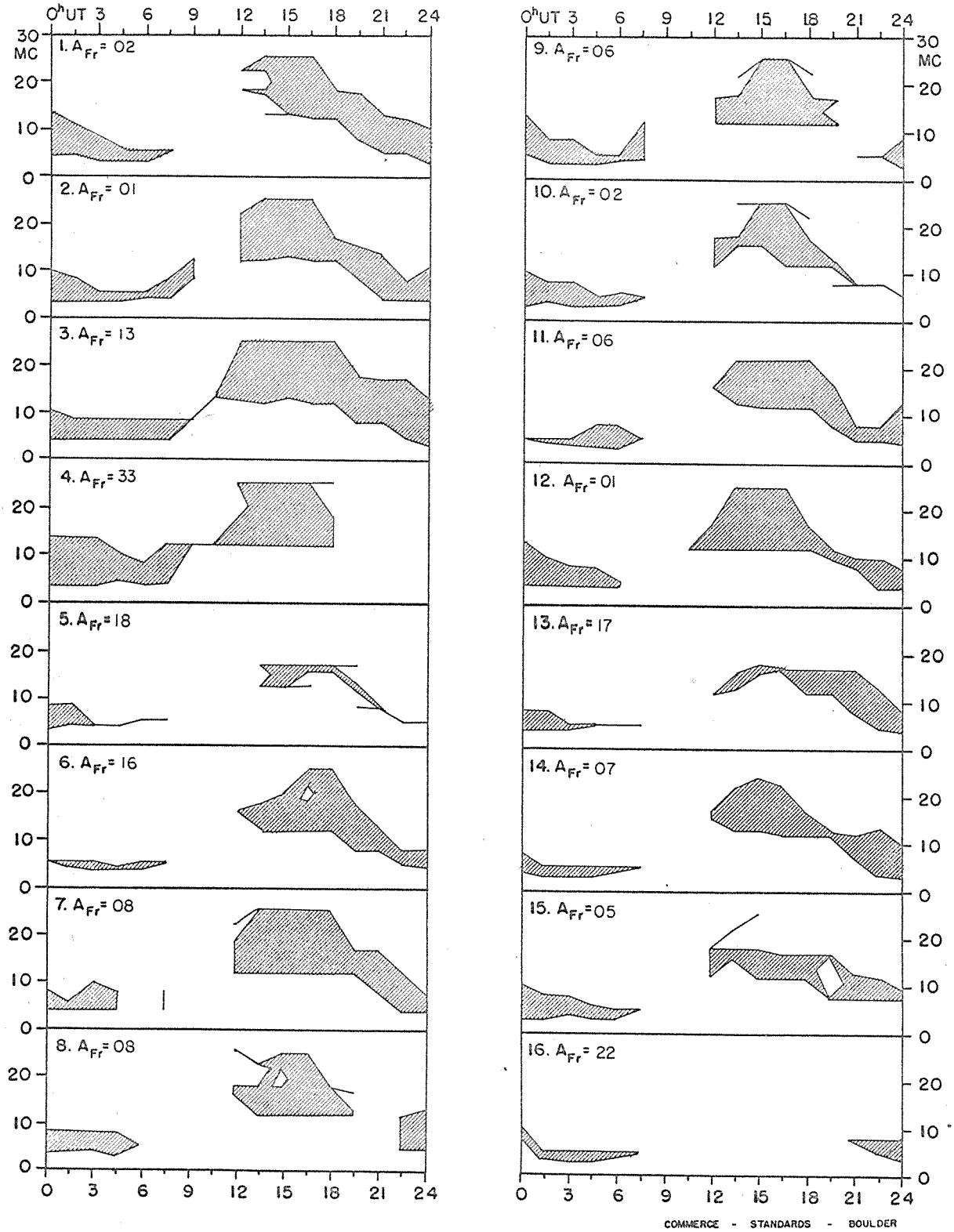


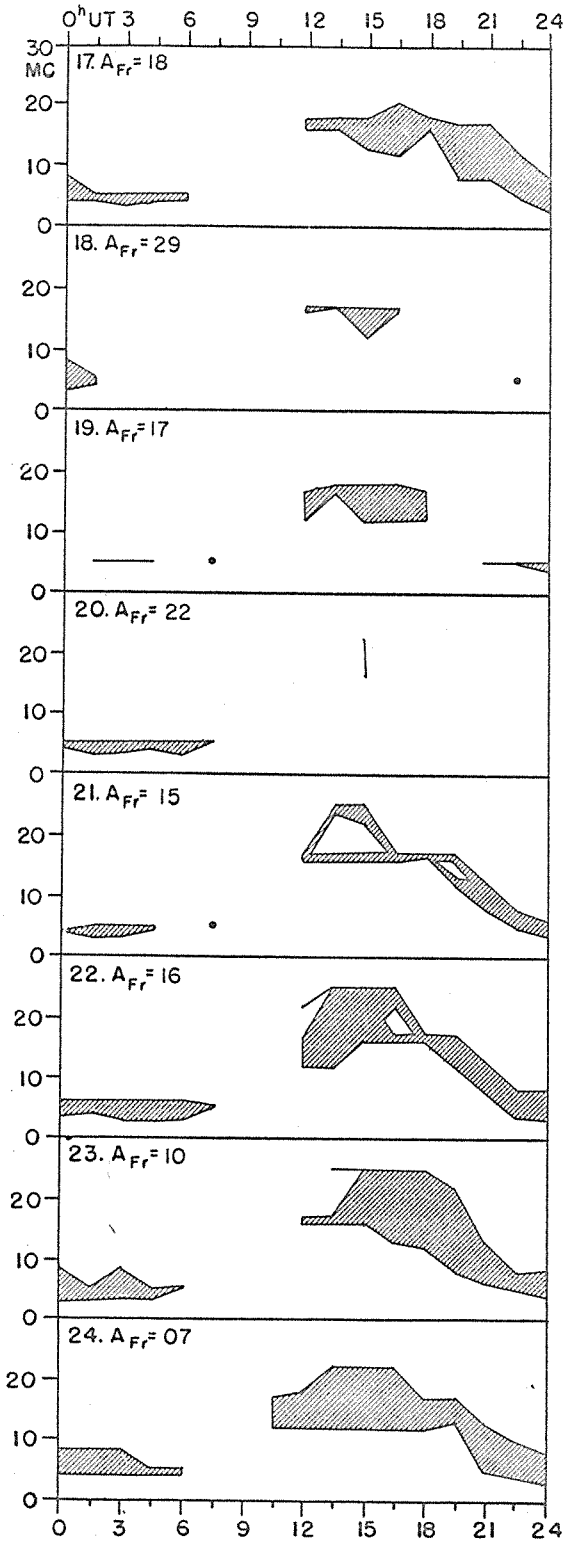


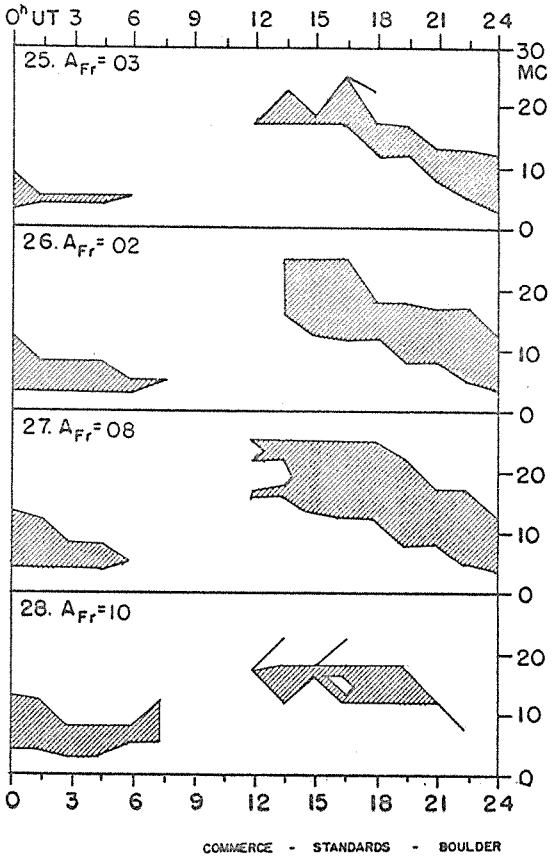


USEFUL FREQUENCY RANGES -- NORTH ATLANTIC PATH

FEBRUARY 1961







Adapted from Observations by Deutsches Bundespost

ALERT PERIODS AND SPECIAL WORLD INTERVALS

INTERNATIONAL WORLD DAY SERVICE

MARCH 1961

Issued Day/Time UT Mar. 1961	Advance Geophysical Alert	No.	World-Wide Geophysical Alert	Special World Interval
06/0255	Ft. Belvoir, Magnetic Storm 05/2100Z			
06/1600		110	Magnetic Storm 05/21XXZ	Start Special World Interval
07/1600		111		Finish Special World Interval
10/1015	Ft. Belvoir, Magnetic Storm 09/13XXZ			
10/1600		112	Magnetic Storm 09/1237Z	
19/1600		113	Magnetic Storm 19/04XXZ	
27/1600		114	Magnetic Storm 27/1505Z	Start Special World Interval
27/1600		115		Finish Special World Interval

COMMERCE - STANDARDS - BOULDER