PART B

SOLAR - GEOPHYSICAL DATA

ISSUED
MAY 1961

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

CRPL-F 201
PART B

NATIONAL BUREAU OF STANDARDS
CENTRAL RADIO PROPAGATION LABORATORY
BOULDER, COLORADO

Issued
31 May 1961

SOLAR - GEOPHYSICAL DATA

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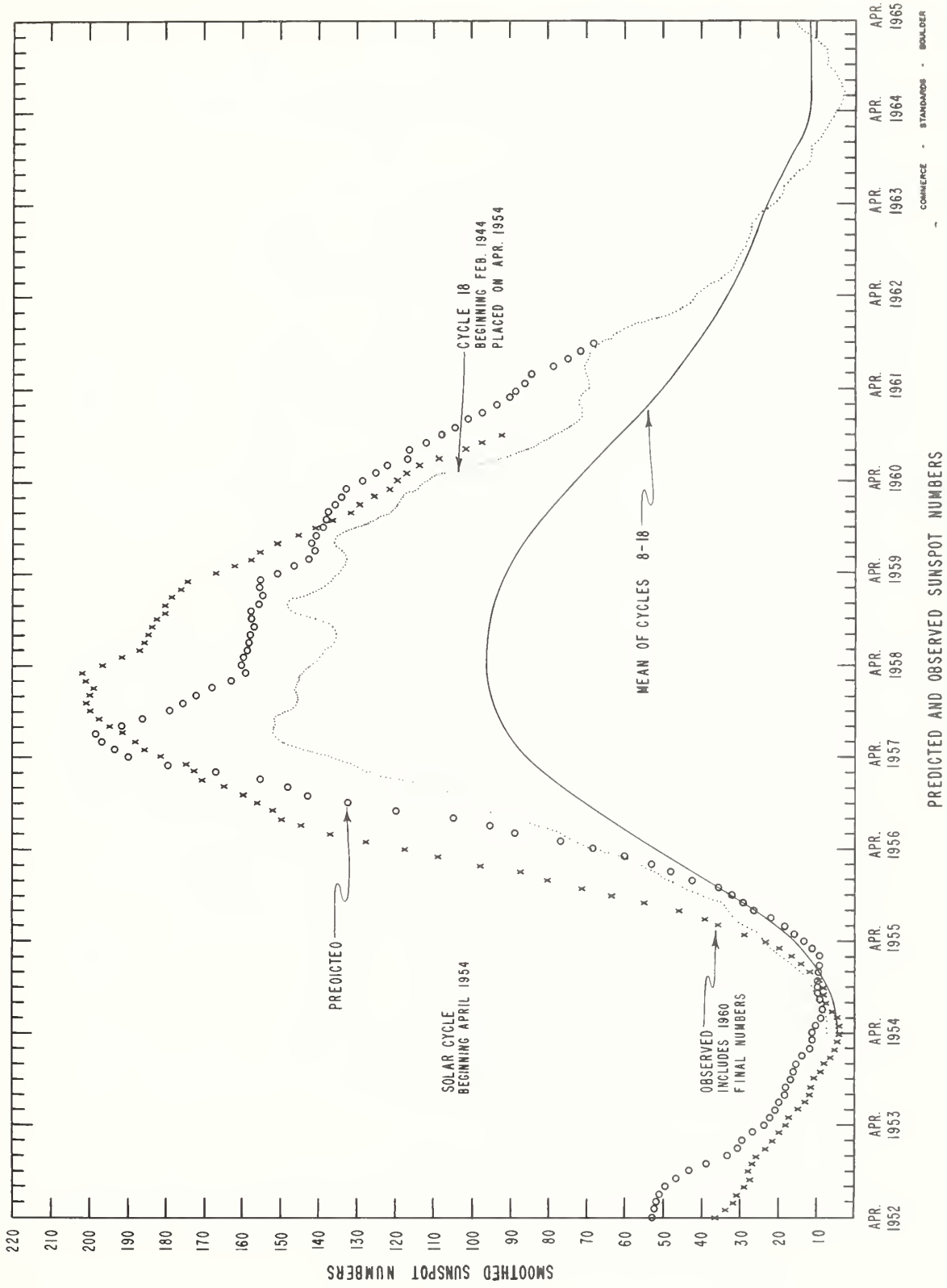
The descriptive text was published separately, November 1960.

Mar. 1961	American Relative Sunspot Numbers R_A'
1	12
2	22
3	33
4	24
5	28
6	31
7	33
8	41
9	33
10	20
11	17
12	13
13	18
14	44
15	40
16	55
17	52
18	39
19	31
20	33
21	50
22	53
23	60
24	71
25	67
26	70
27	70
28	85
29	90
30	102
31	98
Mean:	46.3

Apr. 1961	Zürich Provisional Relative Sunspot Numbers R_Z	Daily Values Solar Flux at 2800 Mc, Ottawa, Canada Flux
1	87	113
2	60	105
3	55	101
4	73	103
5	86	107
6	82	106
7	64	98
8	66	104
9	49	96
10	48	93
11	47	92
12	42	89
13	40	88
14	41	93
15	53	98
16	60	103
17	78	105
18	72	107
19	65	105
20	56	103
21	52	104
22	47	103
23	41	105
24	36	111
25	48	111
26	60	126
27	82	120
28	74	114
29	92	121
30	99	122
Mean:	61.8	104.9

COMMERCE - STANDARDS - BOULDER


SMOOTHED SUNSPOT NUMBERS
220
210
200
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
APR. 1952
APR. 1953
APR. 1954
APR. 1955
APR. 1956
APR. 1957
APR. 1958
APR. 1959
APR. 1960
APR. 1961
APR. 1962
APR. 1963
APR. 1964
APR. 1965
CYCLE 18
BEGINNING FEB. 1944
PLACED ON APR. 1954
MEAN OF CYCLES 8-18
PREDICTED
SOLAR CYCLE
BEGINNING APRIL 1954
OBSERVED
INCLUDES 1960
FINAL NUMBERS
PREDICTED AND OBSERVED SUNSPOT NUMBERS
COMMERCE - STANDARDS - BOULDER

CALCIUM PLAGE AND SUNSPOT REGIONS

APRIL 1961

CMP Apr. 1961	Lat	McMath Plage Number	Return of Region	Calcium Plage Data				Sunspot Data		
				CMP Values		History, Age		CMP Values		History
				Area	Int.			Area	Count	
01.8	S19	6071	New	2200	3	ℓ — ℓ	1	210	1	ℓ — ℓ
02.6	N11	6070	6049	1200	2	ℓ \ ℓ	3			
03.4	S15	6074	6048	3200	3	ℓ — ℓ	2	70	3	ℓ / ℓ
04.3	N17	6076	New	(200)	(1)	ℓ ⌝ d	1			
04.6	N02	6075	6051	1200	2	ℓ — ℓ	3			
06.1	N16	6077	New	1700	3	b / ℓ	1	290	15	b / ℓ
07.4	S20	6081	6053	500	1.5	b ⌜ ℓ	3			
08.3	N13	6078	New	400	1	ℓ — ℓ	1			
09.2	S04	6079	6054	800	2	ℓ — ℓ	4	100	1	ℓ — ℓ
10.9	S05	6080	6054	1300	2	ℓ \ ℓ	4			
14.0	N04	6082	6062	1800	3	ℓ \ ℓ	2	20	1	b ⌜ ℓ
14.2	N17	6083	6062	1100	2.5	ℓ — ℓ	2			
15.2	S26	6088	6058	1200	3	ℓ — ℓ	2	40	3	b ∧ d
15.4	N08	6084	6059	500	2	ℓ — ℓ	2			
16.6	S07	6085	New	300	2.5	ℓ ⌝ d	1			
16.7	N12	6086	New	1400	3	ℓ / ℓ	1	190	10	ℓ \ ℓ
17.6	N02	6087	New	1200	2.5	ℓ — ℓ	1	220	1	ℓ ⌝ d
19.0	S13	6089	6060	900	2	ℓ \ ℓ	3	10	1	b ∧ d
21.6	N30	6090	6063	900	2.5	ℓ \ ℓ	5			
22.8	S11	6091	6067	3000	3	ℓ \ ℓ	3	20	1	ℓ ⌝ d
22.9	N08	6092	*	2800	3	ℓ \ ℓ	2	210	1	ℓ — ℓ
27.5	S14	6093	6069	1300	2	ℓ — ℓ	2			
27.7	N05	6094	New	400	2	ℓ — ℓ	1			
29.3	S07	6096	New	700	3	ℓ — ℓ	1			
30.4	N05	6097	New	2000	3	ℓ / ℓ	1	490	11	b / ℓ
30.7	S13	6098	6074	8200	3	ℓ — ℓ	3	400	10	ℓ \ ℓ

*6065, 6066, 6068.

Correction for March plage table: Region 6048 is New instead of return of 6023.

PROVISIONAL CORONAL LINE EMISSION INDICES

APRIL 1961

CMP Apr 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	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
2	x	x	x	x	x	x	x	x	84	119	22	35	35	46	11	18
3	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
4	44	57	7	14	29	58	7	15	x	x	x	x	x	x	x	x
5	42a	64a	x	x	25a	53a	x	x	13	20	6	7	39	64	15	30
6	21	22	x	x	11	18	x	x	10	14	6	7	34	52	11	28
7	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
8	32	65	7	9	15	21	6	14	17	21	13	19	24	26	8	12
9	24	32	12	15	27	71	14	28	20	23	9	17	23	25	10	14
10	20	31	8	11	30	80	9	20	x	x	x	x	x	x	x	x
11	16	20	9	13	28	53	9	22	x	x	x	x	x	x	x	x
12	17	24	30	61	14	26	13	15	9a	12a	x	x	37a	60a	x	x
13	x	x	x	x	x	x	x	x	x	x	x	x	x	x	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	41	64	x	x	84	123	x	x
16	56	90	11	22	29	52	6	8	x	x	x	x	x	x	x	x
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	49	69	8	11	41	69	8	10
19	37	47	6	7	39	49	5	6	x	x	x	x	x	x	x	x
20	47	60	4	5	60	70	5	8	56	91	x	x	50	61	x	x
21	x	x	x	x	x	x	x	x	56	104	x	x	39	48	x	x
22	93	120	12	25	56	87	15	23	56a	96a	13a	20a	67a	87a	14a	18a
23	58	81	10	16	59	126	12	25	x	x	x	x	x	x	x	x
24	58	90	x	x	32	44	x	x	19	25	x	x	28	31	x	x
25	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
26	32	36	x	x	26	31	x	x	x	x	x	x	x	x	x	x
27	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
28	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
29	50	73	x	x	98	162	x	x	x	x	x	x	x	x	x	x
30	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

COMMERCE - STANDARDS - BOULDER

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

SOLAR FLARES

APRIL 1961

OBSERVATORY	DATE APR 1961	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
WENDEL	01	0816 E	0827 D		S12	W12	6069	11 D	1				3.00			
WENDEL	01	1116 E	1150 D		S12	W13	6069	34 D	1+				6.00			
STOCKHOLM	01	1119 E	1143 D		S10	W12	6069	24 D	1	3	1122	2.00	2.10			
WENDEL	03	1711	1725 D		S11	W42	6069	14 D	1+				6.00			
WENDEL	04	0743 E	0755 D		N12	E27	6077	12 D	1				3.00			
WENDEL	04	1349	1400		N13	E23	6077	11	1				3.00			
SAC PEAK	04	1400 E	1413	1400 U	S11	W54	6069	13 D	1	3		1.90	2.48		23	
WENDEL	04	1400	1416		S13	W50	6069	16	1				3.00			
WENDEL	04	1414	1438		N13	E23	6077	24	1				4.00			
SAC PEAK	04	1648	1726	1705	S08	W26	6074	38	1	3		2.06	2.08		22	
LOCKHEED	04	2233	2306	2240	N14	E17	6077	33	1	2	2240	2.00	2.00		30	
WENDEL	05	0717	0735		N13	E15	6077	18	1				3.00			
ONDREJOV	05	0829 E	0850		N13	E14	6077	21 D	1	3	0830			2.40		
WENDEL	05	0830	0909	0841	N13	E13	6077	39	1+				7.00			
SCHAUINS	05	0840 E	0850		N12	E12	6077	10 D	1	2		2.00	2.00	2.50		
WENDEL	05	1117	1230		N13	E10	6077	73	1+				6.00			
ONDREJOV	05	1222	1242		N13	E08	6077	20	1	3	1225			2.30		
HUANCAYO	05	1335	1435	1353	N13	E18	6077	60	1	2	1353	2.00	2.20	3.30		
WENDEL	05	1341	1423	1349	N13	E11	6077	42	1+				5.00			
WENDEL	05	1555	1647	1629	N13	E08	6077	52	1+				5.00			
HUANCAYO	05	1556	1635	1600	N12	E19	6077	39	1	2	1600	1.40	1.50	2.30		S-SWF
HUANCAYO	05	1556	1635	1625	N12	E19	6077	39	1	2	1625	2.30	2.50	3.00		
SAC PEAK	05	2051	2149	2059	N12	E03	6077	58	1	1		2.17	2.17		26	
ONDREJOV	06	0716	0726		N14	W07	6077	10	1+	3	0719			4.40		
WENDEL	06	0716	0726		N14	W08	6077	10	1				4.00			
WENDEL	06	0915 E	0945		N13	E01	6077	30 D	1				3.00			
WENDEL	06	1114	1135		N13	W01	6077	21	1				4.00			
WENDEL	06	1318 E	1405		N13	W04	6077	47 D	2				10.00			
HUANCAYO	06	1350	1359	1355	N13	W04	6077	9	1	2	1355	2.30	2.40	2.40		
WENDEL	06	1423	1440		N14	W04	6077	17	1				3.00			
SAC PEAK	06	2131	2223	2140	N13	W09	6077	52	1	2		4.39	4.39		26	
HUANCAYO	06	2144 E	2153 D	2144	N13	W08	6077	9 D	1	1	2144	4.40	4.60	2.40		
ONDREJOV	07	1001 E	1024		N14	W16	6077	23 D	1+	3	1002			2.50		
ONDREJOV	08	1034 E	1051		N14	W26	6077	17 D	1	1	1039			1.07		
MEUDON	08	1050	1130		N05	E35	6080	40	1							
SAC PEAK	09	1356	1417	1402	S09	W90	6074	21	1	3		.72	3.61		17	
SAC PEAK	09	1502	1510	1508	S09	W90	6074	8	1	3		.97	4.89		20	
WENDEL	09	1532	1541		N13	W41	6077	9	1				3.00			
WENDEL	10	0833	0859		N13	W57	6077	26	1+				5.00			
ONDREJOV	13	0605 E	0615		N12	W90	6077	10 D	1+	3	0605			4.00		
LOCKHEED	20	0022	0100	0036	S12	E30	6091	38	1	1	0036	2.00	2.10		10	

SOLAR FLARES

APRIL 1961

OBSERVATORY	DATE APR 1961	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	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg	MAX. WIDTH Hα	MAX. INT. %	PROVISIONAL IONOSPHERIC EFFECT
WENDEL	22	0531 E	0553		S14	E02	6091	22 D	1				4.00			
LOCKHEED	23	2017	2032	2025	S12	E90	6098	15	1	2	2025	.50	2.50		10	
LOCKHEED	24	0035	0145	0050	S12	E90	6098	70	1	1	0050	.50	2.50		10	
LOCKHEED	24	0035	0145	0130	S12	E90	6098	70	1	1	0050	.50	2.50		10	
LOCKHEED	24	2228	2300	2233	S07	E75	6098	32	1	2	2233	1.10	2.30		20	
WENDEL	25	1211 E	1235 D		S07	E71	6098	24 D	1				4.00			
LOCKHEED	25	2003	2030	2010	S11	E64	6098	27	1	2	2010	2.00	3.20		10	
SAC PEAK	25	2008	2018	2012	S11	E65	6098	10	1	2		1.32	2.12		17	
LOCKHEED	25	2052	2120	2059	S13	E69	6098	28	1	2	2059	1.90	3.40		20	
SAC PEAK	25	2053	2120	2106	S15	E68	6098	27	1	2		1.32	2.29		16	
LOCKHEED	25	2343	0030	2347	S11	E62	6098	47	1	1	2347	1.80	2.80		10	
LOCKHEED	26	0116	0140 D	0130 U	S06	E61	6098	24 D	1	1	0130	2.20	3.30		20	
STOCKHOLM	26	1037	1240 D		S16	E57	6098	123 D	2	3	1127	3.50	7.00			
STOCKHOLM	26	1247	1334 D		S16	E57	6098	47 D	1	3	1310	1.50	3.00			
SAC PEAK	26	1424	1627 U	1458	S12	E55	6098	123 U	2	3		9.10	12.15		24	Slow S-SWF
ONDREJOV	26	1604 E	1636 D		S11	E56	6098	32 D	1	3	1617			2.10		
SAC PEAK	26	1646	1920 U	1701	S12	E55	6098	154 U	3	3		15.88	21.20		30	Slow S-SWF
LOCKHEED	26	1648	1945	1718	S11	E53	6098	177	2	2	1718	8.10	10.70		30	
HUANCAYO	26	1755 E	1834 D	1758	S10	E52	6091	39 D	2+	1	1758	5.70	9.00	2.50		
HUANCAYO	26	2209	2222	2213	S08	E50	6098	13	1	1	2213	1.60	2.50	2.50		
KYOTO	27	0245 E	0310	0250	S09	E50	6098	25 D	2		0250	16.50			120	G-SWF
STOCKHOLM	27	1224	1240 D		S07	E40	6098	16 D	1	3	1227	3.00	3.90			
KYOTO	28	0220 E	0240 D	0225	S07	E35	6098	20 D	1		0225	3.09			110	
WENDEL	28	0646	0710 D		S09	E35	6098	24 D	1				4.00			
ONDREJOV	28	0649 E	0712		S10	E35	6098	23 D	1+	3	0653			2.20		
CAPRI S	28	1201	1239 D		S05	E30	6098	38 D	1	3	1224	3.00	3.50			
STOCKHOLM	28	1202 E	1230		S04	E25	6098	28 D	1	3	1220	3.50	3.90			
WENDEL	28	1202	1237		S05	E30	6098	35	1+				8.00			
SAC PEAK	28	2250	2324 D	2256	S09	E23	6098	34 D	1	2		2.58	2.58		18	
KYOTO	30	0528	0533 D		S07	E05	6098	5 D	1		0528	2.06		1.42	100	

COMMERCE - STANDARDS - BOULDER

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

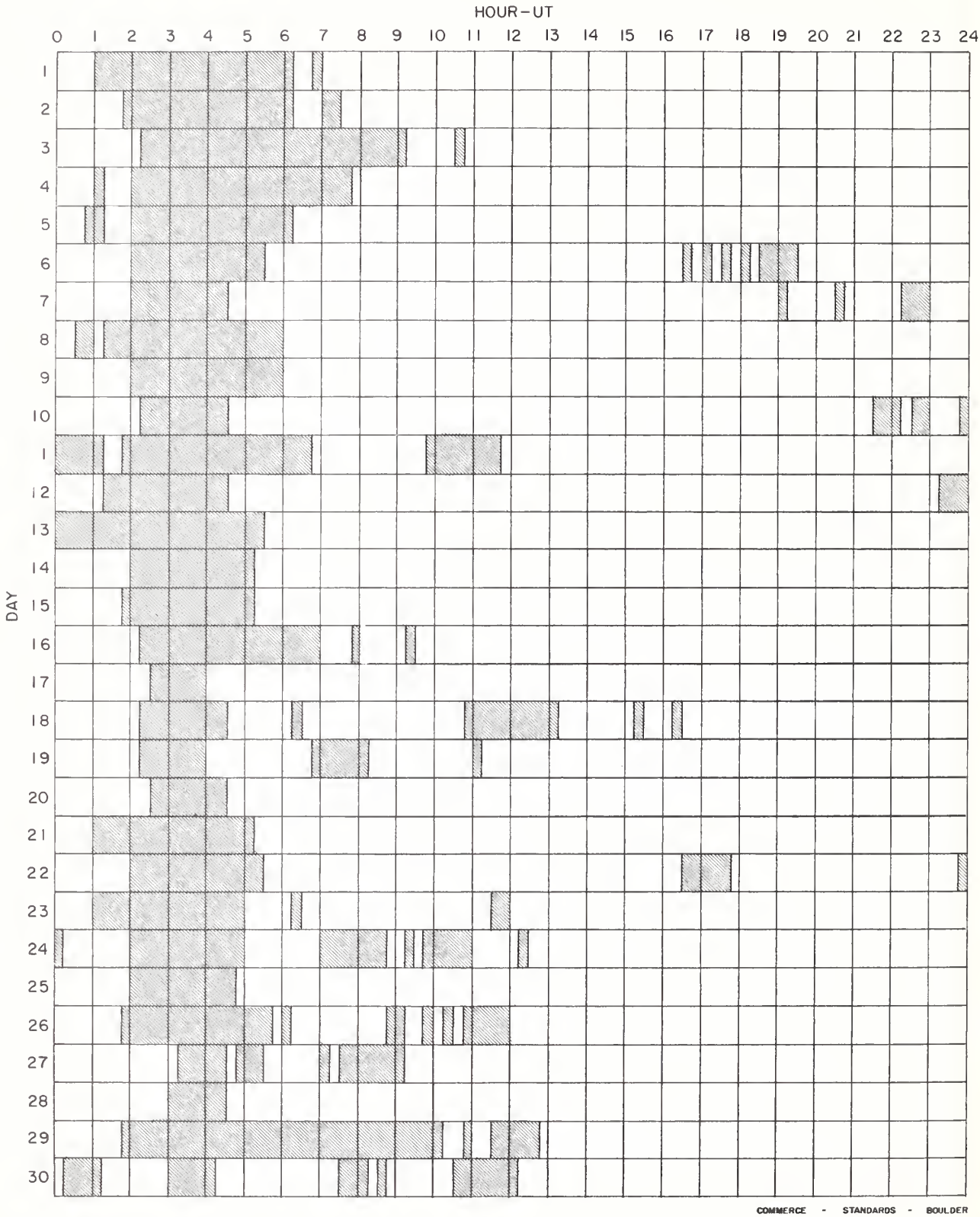
CAPRI G	ANACAPRI - GERMAN
CAPRI S	ANACAPRI - SWEDISH
GOOD HOPE	ROYAL OBSERVATORY, CAPE OF GOOD HOPE
KIEV*	KIEV UNIVERSITY
KODAIKNAL	KODAIKANAL
KRASNYA	KRASNAYA PAKHRA
LOCKHEED	LOS ANGELES
MCMATH	MCMATH-HULBERT
MOSCOW-G	MOSCOW - GAISH
R O HERST	ROYAL GREENWICH OBSERVATORY, HERSTMONCEUX
SAC PEAK	SACRAMENTO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

APRIL 1961



Stations Include:

Arcetri	Huancayo	McMath-Hulbert	Royal Greenwich Observatory	Schauinsland
Climax	Kyoto	Meudon	Herstmonceux	Uccle
Hawaii	Lockheed	Ondrejov	Sacramento Peak	Wendelstein

SUBFLARES

Noted as follows: Date-Universal Time-Coordinates

MARCH 1961

	LOCKHEED	02	0040 E	S12 W29
	LOCKHEED	02	0040 E	N23 E03
	SAC PEAK	02	1846	N07 E05
	HAWAII	04	2334	S12 E39
	UCCLE	05	1012	S09 E33
	WENDEL	05	1309 E	S09 E30
*	CAPRI S	06	0854 E	N02 E13
*	ARCETRI	06	0856 E	N05 E14
	UCCLE	06	1023	N22 W54
	UCCLE	06	1342	N01 E13
	WENDEL	07	0819 E	N05 W31
*	UCCLE	07	0831 E	S12 W40
	UCCLE	07	0954	N22 W65
	UCCLE	07	1353	N22 W68
	WENDEL	07	1357 E	S09 E00
	HAWAII	07	1854	S07 E90
	WENDEL	08	1123 E	N03 W20
	UCCLE	08	1404	S10 E85
	ARCETRI	09	0859 E	N05 W30
	SAC PEAK	09	2249	S07 E61
	LOCKHEED	09	2250	S06 E62
	UCCLE	10	1152	N06 W46
	LOCKHEED	10	1720	S06 E50
	MCMATH	10	1729	S08 E50
	HAWAII	10	2012	S10 E52
	LOCKHEED	10	2013	S06 E50
	MCMATH	10	2017	S08 E50
	LOCARNO	11	0945	S06 E42
	LOCKHEED	11	1558 E	S07 E40
	LOCKHEED	13	1827	N21 E53
	LOCKHEED	13	1927	N21 E53
	HAWAII	13	1934 E	N19 E54
	LOCKHEED	13	2048	N21 E53
	LOCKHEED	13	2105	N20 E53
	LOCKHEED	13	2300	N22 W16
	LOCKHEED	13	2343	N04 E70
	HAWAII	13	2346	N01 E70
	UCCLE	14	1007	N21 E45
	UCCLE	14	1128	N21 E42
	LOCKHEED	14	1722	N20 E42
	SAC PEAK	14	2040	S03 W04
	UCCLE	15	1237	N20 E30
	UCCLE	15	1426	N23 W37
	UCCLE	15	1446	S17 E45
	UCCLE	15	1456	N11 E70
	UCCLE	15	1515	N24 W39
	UCCLE	15	1540	N03 E50
	HAWAII	15	1754 E	S02 W17
	LOCKHEED	16	1915	N24 W51
	HAWAII	16	2142	S25 E28
	WENDEL	17	1048 E	N03 E15
	WENDEL	17	1513 E	S24 E21
*	SAC PEAK	18	1605	N20 W14
*	LOCKHEED	18	1608	N21 W14
	SAC PEAK	18	1739 E	N35 E08
*	HAWAII	18	1744 E	N04 E07
	LOCKHEED	18	1814	N03 E08
	LOCKHEED	18	1827	S24 E02
	HAWAII	18	1842	S25 E07
	LOCKHEED	18	1842	S25 E07
	LOCKHEED	18	1907	S26 E03
	LOCKHEED	19	1920	N09 E25
	LOCKHEED	19	2315	N07 W10
	HAWAII	19	2330 E	N06 W09
	HAWAII	19	2350	S14 E31
	UCCLE	20	0827	N08 W15
	UCCLE	20	1000	S13 E28
	LOCKHEED	20	1805	N08 E13
	LOCKHEED	20	1805	N08 E13
*	HAWAII	20	2044	N19 E78
*	MCMATH	20	2045	N21 E88
	LOCKHEED	20	2210	N21 E85
	SAC PEAK	20	2229	N09 E70
	LOCKHEED	20	2229	N11 E72
	LOCKHEED	20	2331	N21 E80
	HAWAII	20	2336	N20 E77
	SAC PEAK	20	2338 E	N21 E79
	LOCKHEED	21	1830	N09 W05
	LOCKHEED	21	1903	N09 W05
	LOCKHEED	21	2008	N09 W05
	LOCKHEED	21	2020	N08 E53
	SAC PEAK	21	2020	N08 E53
*	STOCKHOLM	22	0850	N09 E51
	HAWAII	22	1740 E	N10 E48
	HAWAII	22	1846	N08 E46
	CLIMAX	22	1847	N09 E47
	HAWAII	22	2100 E	N08 W17
	LOCKHEED	22	2110	N09 E41
	UCCLE	23	1044	S05 W27
	UCCLE	23	1101	N05 W27
	HAWAII	23	1842 E	N09 E31
	HAWAII	23	1842 E	N12 W28
	HAWAII	23	2022 E	N08 W30
	WENDEL	24	1313 E	N04 W43
	HAWAII	24	1816 E	N04 W47
	HAWAII	24	1906 F	N04 W47
	ARCETRI	25	0826 E	S05 W56
	WENDEL	25	1024 E	N03 W52
	WENDEL	25	1205 E	N03 W53
*	SAC PEAK	25	1409 E	S15 E90
	SAC PEAK	25	1409 E	N04 W57
	SAC PEAK	25	1430	S20 E90
	MCMATH	25	1438	S20 E90
	SAC PEAK	25	1458	S15 E85
*	SAC PEAK	25	1545	S20 E90
*	MCMATH	25	1547	S20 E90
	LOCKHEED	25	1612	S20 E90
	LOCKHEED	25	1650	N02 W58
	SAC PEAK	25	1657	N03 W60
*	SAC PEAK	25	1704	S20 E90
*	MCMATH	25	1705	S20 E90
	ONDREJOV	26	1001 E	N03 W68
*	WENDEL	26	1111 E	S12 E66
	WENDEL	26	1120 E	N04 W68
	WENDEL	26	1155 E	S17 E73
	ONDREJOV	26	1213	N02 W65
	LOCKHEED	26	1559	N08 E08
	LOCKHEED	26	1600	N05 W71
	MCMATH	26	1604	N08 E08
	HAWAII	26	1800 E	S20 E82
	LOCKHEED	26	1825 U	S15 E65
	LOCKHEED	26	1825 U	S15 E65
	LOCKHEED	26	1828	N02 W72
	HAWAII	26	1830	S15 E66
	HAWAII	26	2000 E	S21 E80
	SAC PEAK	26	2042 E	S19 E80
	LOCKHEED	26	2125	N09 W03
	LOCKHEED	26	2157	S15 E65
	SAC PEAK	26	2215 E	S14 E64
	HAWAII	27	0012	S11 E52
	LOCKHEED	27	0014	S12 E53
	CAPRI S	27	0835 E	N09 W80
	UCCLE	27	1027	S04 E85
	CAPRI S	27	1305 E	S15 E56
*	SAC PEAK	27	1359 E	S15 E57
*	HUANCAYO	27	1414	S16 E60
	UCCLE	27	1518	N08 W08
	SAC PEAK	27	1652 E	S15 E56
	SAC PEAK	27	1714	N08 W11
*	HAWAII	27	1846 E	S15 E53
	LOCKHEED	27	2108	N07 W13
	SAC PEAK	27	2126	S17 E56
	LOCKHEED	27	2206	N08 W13
	UCCLE	28	1228	S19 E81
	UCCLE	28	1230	S08 E75
	SAC PEAK	28	1402 E	S19 E85
*	HUANCAYO	28	1420 E	S30 W50
*	CAPRI S	28	1420 E	S24 W52
*	CAPRI S	28	1443 E	S14 E44
	SAC PEAK	28	1518	S16 E44
*	SAC PEAK	28	1654	S13 E42
	SAC PEAK	28	1707	S08 E76
	SAC PEAK	28	1715	N12 E68
	SAC PEAK	28	1835	S13 E41
	HAWAII	28	1908	S16 E41
	HUANCAYO	28	2006	S07 E78
	HAWAII	28	2016	S10 E72
	SAC PEAK	28	2108	S13 E39
	HAWAII	28	2114	S15 E40
	SAC PEAK	28	2140	S09 E73
	HAWAII	28	2144 E	S11 E41
	SAC PEAK	28	2214	S13 E36
	SAC PEAK	28	2314	S16 E38
	HAWAII	29	0108	N09 W23
	HAWAII	29	0127 E	S13 E37
	LOCARNO	29	0720 F	N06 W45
	LOCARNO	29	0725	N06 W28
*	CAPRI S	29	0754 E	S11 E68
	LOCARNO	29	0900	N06 W29
	LOCARNO	29	1000	N06 W29
*	SAC PEAK	29	1422	S13 E30
	SAC PEAK	29	1445	N08 W33
	SAC PEAK	29	1641	S12 E25
	LOCKHEED	29	1721	S12 E26
	LOCKHEED	29	1742	N07 W36
	LOCKHEED	29	1831	S11 E25
	HAWAII	29	1832	S13 E25
	SAC PEAK	29	1832	S12 E25
	LOCKHEED	29	1951	S11 E24
	HAWAII	29	1958	N10 W40
	LOCKHEED	29	1959	N09 W38
	SAC PEAK	29	2003 E	N18 W38
	LOCKHEED	29	2039	S11 E23
*	HAWAII	29	2040	S13 E21
*	LOCKHEED	29	2107	S11 E22
*	LOCKHEED	29	2150	S11 E22
	SAC PEAK	29	2233	S23 E38
	HAWAII	29	2330	S12 E21
	LOCKHEED	29	2330	S11 E23
	LOCKHEED	30	0005	S11 E22
	LOCKHEED	30	0023	N07 W39
	HAWAII	30	0128	S13 E21
	MCMATH	30	1608	N09 W54
	MCMATH	30	1838	N07 W66
*	HAWAII	30	1848	S14 F11
	HAWAII	30	1958	N08 W50
	HUANCAYO	30	2016	S17 E12
	MCMATH	30	2047	S07 E10
	LOCKHEED	30	2047	S16 E11
	HAWAII	30	2048	S17 E08
	HAWAII	30	2134	S20 E27
	LOCKHEED	30	2135	S17 E26
	MCMATH	30	2137	S09 E26
	LOCKHEED	30	2246	N07 W52
	LOCKHEED	31	0035	S15 E11
	HAWAII	31	0038	S17 E09
	LOCKHEED	31	0057	N09 W55
	SAC PEAK	31	1456	S10 W67
	SAC PEAK	31	1752	S09 W73
	HAWAII	31	1940	S12 W03
	SAC PEAK	31	2349	S18 W01

*Rated as flare of importance ≥ 1 by other observatories (See CRPL-F 200 Part B, for April 1961).

SOLAR FLARES

JANUARY 1961

OBSERVATORY	DATE JAN 1961	OBSERVED UNIVERSAL TIME START	END	MAX. PHASE	LOCATION APPROX. LAT.	MER DIST	McMATH PLAGE REGION	DURATION — MINUTES	IMPORTANCE	OBS. COND.	MEASUREMENTS TIME — U.T.	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hα	MAX. INT. %	PROVISIONAL IONOSPHERIC EFFECT
MITAKA	01	0121	0212	0140	N09	W40	5977	51	1	2	0134	1.57	2.72	2.27	118	
KYOTO	01	0150 E	0213 D		N13	W03	5983	23 D	2		0150	5.16			120	
VOROSHILOV	01	0151	0205	0160	N16	E00	5983	14	1+	2		2.87			155	
MITAKA	01	0200 E	0217	0202	N15	W01	5983	17 D	1	2	0202	2.95	3.01	2.81	120	
MITAKA	01	0352	0404	0356	N15	W02	5983	12	1+	1	0355	2.95	3.10	4.98	176	
TASHKENT	01	0522	0546	0530	N15	W03	5983	24	1	1	0530	1.55	2.00			
TASHKENT	01	0558	0605	0600	N15	W03	5983	7	1	1	0600	.83	1.00			
TASHKENT	01	0737	0755	0742	N15	W04	5983	18	1	1	0742	2.37	2.00			
VOROSHILOV	02	0058	0106	0059	N16	W16	5983	8	1	3		1.89			78	
MITAKA	02	0116	0123	0119	N22	E61	5991	7	1	2	0116	1.28	2.89	2.17	107	
VOROSHILOV	02	0116	0131	0118	N20	E60	5991	15	1	3		1.53			73	
MITAKA	02	0538	0552	0544	N22	E59	5991	14	1	1	0544	.98	2.21	2.71	107	
KYOTO	02	0552	0602		N16	W17	5983	10	1		0552	3.71			100	
MEUDON	02	0830	0844	0833	N17	W17	5983	14	1							
GOOD HOPE	02	0836	0855	0840	N19	W18	5983	19	1		0840	2.80	3.10			
SIMEIZ	02	0836 E	0855 D	0840 U	N17	W19	5983	19 D	1	1	0840	3.15			87	
GOOD HOPE	02	0913	0928	0914	N22	E58	5991	15	1		0914	1.50	3.00			
GOOD HOPE	02	1137	1209	1139	N22	E58	5991	32	1		1139	1.40	2.80			
KYOTO	03	0025	0043 D		N16	W26	5983	18 D	2		0025	14.44		1.33	100	
MITAKA	03	0224 E	0240	0225	S15	E36	5990	16 D	1	1	0225	1.67	2.10	2.06	115	
VOROSHILOV	04	0058	0112	0110	N19	W42	5983	14	1+	2		3.59			85	
VOROSHILOV	04	0206	0220	0208	N19	W42	5983	14	2	2		4.04			117	S-SWF
KYOTO	05	0130 E	0140 D		N12	W53	5983	10 D	1		0130	1.44			80	
MEUDON	05	0835	0910	0842	N22	E17	5991	35	1							
MEUDON	05	0936	0950	0937	N22	E17	5991	14	1							
MEUDON	05	1143	1210	1146	N20	E15	5991	27	1+							
MEUDON	05	1312	1335	1320	N20	E14	5991	23	1							
VOROSHILOV	06	0032	0050	0036	N24	E05	5991	18	1+	2		2.52			99	
MITAKA	07	0041	0052	0046	N24	W05	5991	11	1	2	0047	1.67	1.75	1.76	120	
KYOTO	07	0150 E	0155 D		N20	W18			1−		0150	1.44			80	
PIRCULI	07	0630 E	0737 D	0728 U	S11	E62	5995	67 D	1	2	0728	2.28	5.29		61	
KYOTO	08	0045 E	0106 D		N13	W90	5983	21 D	2		0048	10.31		5.82	120	
PIRCULI	08	0649 E	0752 D	0705 U	S09	E51	5997	63 D	1	2	0705	1.37	2.19		54	
PIRCULI	09	1050 E	1106 D	1104 U	N22	W42	5991	16 D	1	2	1104	1.19	1.83		50	
ALMA ATA	11	0753	0805 D	0755	S13	E36	5998	12 D	1	2	0755	1.65			56	
MITAKA	16	0222 E	0246		S09	W31	5998	24 D	1	1	0222	2.16	2.50	1.96	134	
PIRCULI	19	0730 E	0747 D	0742 U	S04	E49	6005	17 D	1	1	0742	2.09	3.24		63	
MITAKA	20	0347	0459		N10	E90	6011	72	1	1	0400	3.93		3.75		
TASHKENT	25	0522	0600	0533	N18	E38	6011	38	1	2	0533	5.01	7.00			

SOLAR FLARES

JANUARY 1961

OBSERVATORY	DATE JAN 1961	OBSERVED UNIVERSAL TIME START	END	MAX. PHASE	LOCATION APPROX. LAT.	MER. DIST.	McMATH PLAGE REGION	DURATION — MINUTES	IMPORTANCE	OBS. COND.	MEASUREMENTS TIME — U T	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hα	MAX. INT. %	PROVISIONAL IONOSPHERIC EFFECT
PIRCULI	25	0825 E	0844 D	0827 U	N09	E80	6013	19 D	1	2	0827	1.19	6.06		54	
PIRCULI	26	1038	1045	1043 U	N10	E60	6013	7	1	2	1043	1.73	3.70		53	
HUANCAYO	27	1739 E	1748	1741	N08	E42	6013	9 D	1	2	1741	2.00	2.70	2.20		
MEUDON	28	1045	1058	1047	N09	E32	6013	13	1							
KIEV	29	1004 E	1012 D	1008	N17	E14	6013	8 D	1	2		1.55			68	
CAPRI G	29	1008 E	1012		N13	E19	6013	4 D	1	2		3.00				
MEUDON	29	1517	1533	1523	N09	E19	6013	16	1							
VOROSHILOV	30	0159	0212	0201	N10	E13	6013	13	1+	2		3.59			88	
SIMEIZ	30	0629	0645	0631	N11	E10	6013	16	1+	3	0631	3.15			129	
GOOD HOPE	30	1424	1440	1425	N12	E05	6013	16	1		1425	2.40	2.50			S-SWF
HUANCAYO	30	2000	2013	2004	N12	E03	6013	13	1	2	2005	2.00	2.10	5.00		
MITAKA	31	0337	0348		N05	W05	6013	11	1	1	0337	1.47	1.58	2.29	120	
PIRCULI	31	0743	0802	0754	N12	W05	6013	19	1	3	0754	2.09	2.26		58	
MEUDON	31	1500	1518	1507	N09	W09	6013	18	1							S-SWF
OTTAWA	31	1511	1531	1513	N11	W11	6013	20	1		1513	2.70	2.70			

COMMERCE - STANDARDS - BOULDER

These flare reports are addenda to the January 1961 flares published in CRPL-F 198 Part B, February 1961

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

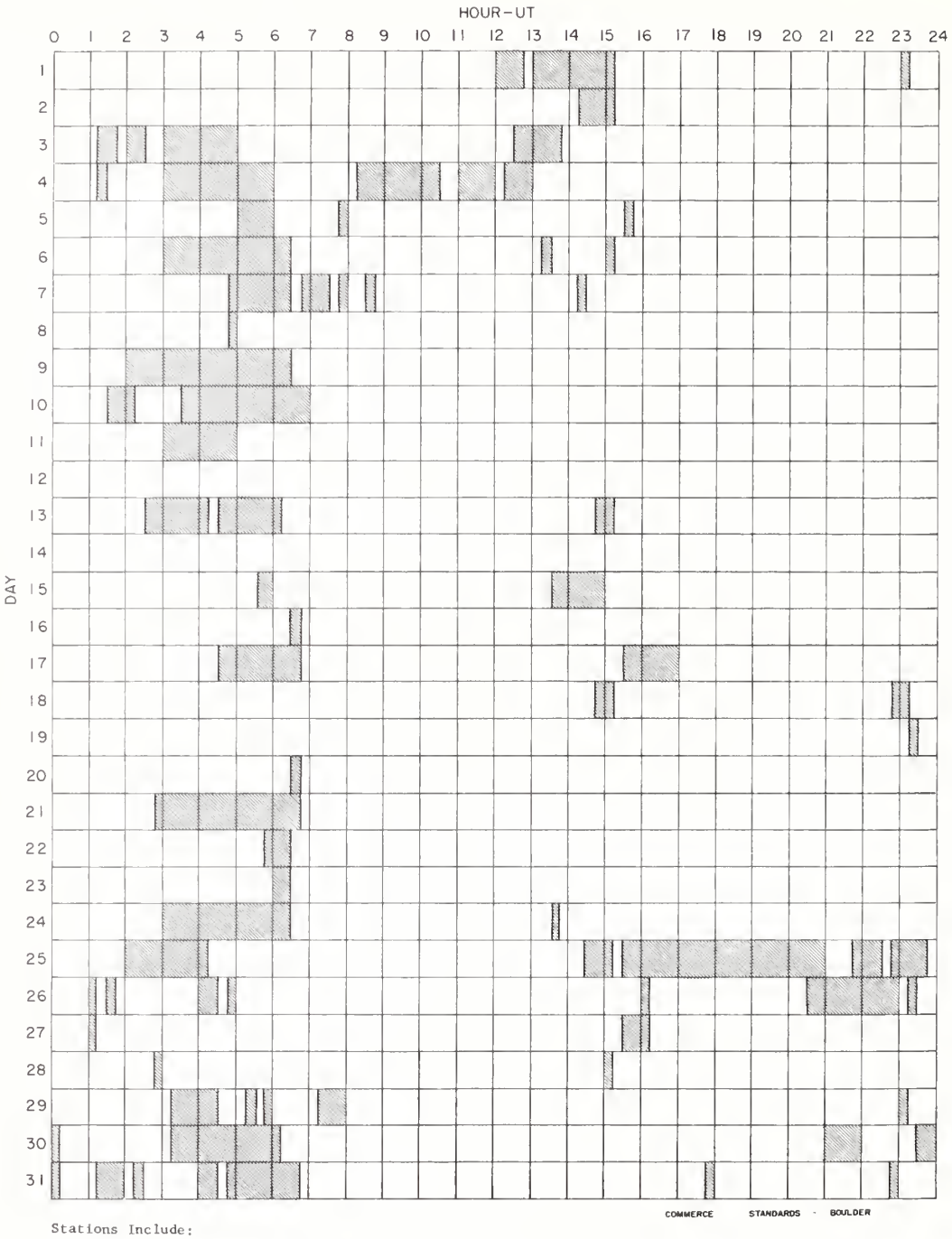
CAPRI G	ANACAPRI - GERMAN
CAPRI S	ANACAPRI - SWEDISH
GOOD HOPE	ROYAL OBSERVATORY, CAPE OF GOOD HOPE
KIEV*	KIEV UNIVERSITY
KODAIKNAL	KODAIKANAL
KRASNYA	KRASNAYA PAKHRA
LOCKHEED	LOS ANGELES
MCMATH	MCMATH-HULBERT
MOSCOW-G	MOSCOW - GAISH
R O HERST	ROYAL GREENWICH OBSERVATORY, HERSTMONCEUX
SAC PEAK	SACRAMENTO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

INTERVALS OF NO FLARE PATROL OBSERVATIONS

JANUARY 1961



Stations Include:

Alma Ata
Anacapri (Swedish)
Arcetri
Climax
Good Hope
Hawaii
Huancayo
Istanbul
Kiev GAO
Kharkov
Krasnaya Pakhra
Kyoto
Lockheed
McMath-Hulbert
Meudon
Mitaka
Ondrejov
Ottawa
Pirculi
Royal Greenwich Observatory
Herstmonceux
Sacramento Peak
Simeiz
Tashkent
Uccle
Voroshilov
Wendelstein

Errata:

The following footnote should have been included with the chart "Intervals of No Flare Patrol" for December 1960 published in CRPL-F 200 for April 1961, page III h.

Stations Include:

Abastumani
Alma Ata
Anacapri (Swedish)
Arcetri
Climax
Good Hope
Hawaii
Huancayo
Istanbul
Kodaikanal
Kiev GAO
Lockheed
McMath-Hulbert
Meudon
Mitaka
Moscow-Gaish
Ondrejov
Pirculi
Royal Greenwich Observatory
Herstmonceux
Sacramento Peak
Simeiz
Tashkent
Uccle
Voroshilov
Wendelstein

SOLAR FLARES

MAY DECEMBER 1960

OBSERVATORY	DATE 1960	OBSERVED UNIVERSAL TIME START	END	MAX. PHASE	LOCATION APPROX. LAT.	MER. DIST.	McMATH PLAGE REGION	DURATION — MINUTES	IMPORTANCE	OBS. COND.	MEASUREMENTS TIME — U T	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Ha	MAX. INT. %	PROVISIONAL IONOSPHERIC EFFECT
KYOTO	May 23	2245	2310 D		N12	E18	5669	25 D	1		2245	5•16			110	
KYOTO	June 06	0457 E	0520 D	0505	N08	E10	5688	23 D	1		0505	1•44			110	S-SWF
KYOTO	08	2350 E	0145 D	0035	S10	E90	5695	115 D	1		0035			3•02	100	
KYOTO	20	0522	0545 D		S12	W60	5695	23 D	1+		0522	2•89		2•27	130	
KYOTO	July 11	0400 E	0450 D	0425	S17	W67	5734	50 D	1		0425	1•44			100	
KYOTO	14	0600 E	0620 D		N15	W51	5740	20 D	1		0600	2•27			90	
KYOTO	17	0209 E	0228 D		N20	W02	5749	19 D	1+		0213	3•71		1•49	120	
KYOTO	19	0430	0435		N20	W26	5749	5	1		0430	4•13				
KYOTO	20	0520 E	0555 D	0523	N20	W37	5749	35 D	1		0523	2•89			100	
KYOTO	22	0051 E	0105 D		N12	W45	5752	14 D	1		0053	11•34		1•00	100	
KYOTO	28	0204 E	0215		N26	E26	5774	11 D	1		0204	1•03		1•00	100	
KYOTO	28	0232	0238 D		S11	W68	5764	6 D	1		0232	5•36		1•16	100	
KYOTO	29	0144 E	0155 D		N07	E20	5775	11 D	1		0150	4•33		1•32	110	Slow S-SWF
KYOTO	29	0408 E	0430 D		S10	W80	5764	22 D	1		0415	1•44			90	
KYOTO	29	0523	0546 D		S10	W80	5764	23 D	1		0525	1•65		1•00	100	
KYOTO	31	0500	0505 D		N09	W12	5775	5 D	1		0500	3•30		1•32	120	
KYOTO	Aug 01	0007	0014 D		N08	W17	5775	7 D	1		0007				100	
KYOTO	02	0037	0045		N09	W22	5775	8	2		0037	4•13		1•16	120	
KYOTO	02	0525 E	0530 D		N06	W24	5775	5 D	1		0525	1•44			80	
KYOTO	08	0450 E	0525 D	0455	N19	E72	5794	35 D	1		0500	2•68			100	S-SWF
KYOTO	18	0142 E	0215 D	0155	N16	E25	5802	33 D	1+		0155	4•33		1•32	130	
KYOTO	18	0423 E	0450 D		S09	E10	5801	27 D	1		0430				100	
KYOTO	18	0425 E	0505 D	0430	N19	W59	5794	40 D	1+		0430	4•95			120	
KYOTO	18	0615 E	0649 D	0620	S09	W28	5798	34 D	2		0620	7•22		1•50	130	
KYOTO	18	0649			S10	E07	5801		1		0649	3•09			120	
KYOTO	20	0409 E	0416 D		S14	W68	5798	7 D	1		0410	3•09		1•33	80	
KYOTO	26	0450 E	0545 D	0510	S05	W35	5809	55 D	1		0510	2•89			100	
KYOTO	Sept 02	0021 E	0025 D		N18	W18	5822	4 D	1		0023	3•09			110	
KYOTO	02	0140 E	0210 D	0155	N18	W18	5822	30 D	1		0155	4•33			90	
KYOTO	03	2353	0016 D		N16	W90	5818	23 D	1		2355				100	
KYOTO	21	0133	0145 D		S13	E62	5863	12 D	1+		0135	1•65		1•66	120	

SOLAR FLARES

MAY DECEMBER 1960

OBSERVATORY	DATE 1960	OBSERVED UNIVERSAL TIME START	END	MAX. PHASE	LOCATION APPROX. LAT.	MER. DIST.	McMATH PLAGE REGION	DURATION — MINUTES	IMPORTANCE	OBS. COND.	MEASUREMENTS TIME — U T	MEAS AREA Sq. Deg.	CORR AREA Sq. Deg.	MAX. WIDTH Ha	MAX INT. °₀	PROVISIONAL IONOSPHERIC EFFECT
KYOTO	26 Oct	0535 E	0603		S20	W58	5858	28 D	2		0535	4.95		2.34	150	Slow S-SWF
KYOTO	12	0218 E	0230		S15	W44	5880	12 D	1+		0218	4.33		1.68	120	
KYOTO	13	0526	0532 D		S15	E38	5893	6 D	1		0526	3.71			100	
KYOTO	19	0030 E	0110 D	0055	N18	E28	5901	40 D	1		0055	2.48		1.51	110	
KYOTO	19	0549	0606 D		N18	E25	5901	17 D	1		0550	3.30		1.66	120	
KYOTO	20	0205 E	0235		N18	E15	5901	30 D	1		0210	2.27		1.00	90	
KYOTO	26	0109	0114 D		N20	E68	5909	5 D	1		0110	1.44			100	
KYOTO	Nov 06	0523	0533 D		N22	E76	5925	10 D	1+		0523	2.68		2.68	120	
KYOTO	14	0018	0046 D		N26	W20	5925	28 D	2		0018	9.28		2.34	120	Slow S-SWF
KYOTO	15	0034			N27	W35	5925	D	1		0034	1.03			110	
KYOTO	21	0007	0014 D		N06	W53	5932	7 D	1		0007				100	
KYOTO	21	0014 E	0020 D	0016	N19	W35	5932	6 D	1		0016	2.06		1.66	100	
KYOTO	Dec 02	0551 E	0608 D		N15	W23	5948	17 D	1		0551	2.89		1.66	100	
KYOTO	08	0045 E	0104 D		S08	W58	5953	19 D	1		0045	2.06			120	
KYOTO	21	0141 E	0152 D		S21	W05	5973	11 D	1		0141	1.44			100	

These flares are addenda to the May thru December 1960 flares published in CRPL-F 191 July 1960 thru CRPL-F 200 Part B for April 1961.

COMMERCE - STANDARDS - BOULDER

(SHORT-WAVE RADIO FADEOUTS)

MARCH 1961

Mar. 1961	Start UT	End UT	Type	Wide Spread Index	Importance	Observation Stations	Known Flare, UT CRPL-F 200
26	1019	1100	S-SWF	5	3	DA, JU, NE, PU, SW, CW**, CW***	1009E

DA = Darmstadt, G.F.R.
JU = Juhlesruh, G.D.R.
NE = Nederhorst den Berg, Netherlands
PU = Prague, Czechoslovakia
SW = Enköping, Sweden

CW** = Cable and Wireless, Somerton, England
CW*** = Cable and Wireless, Brentwood, England

COMMERCE - STANDARDS - BOULDER

IONOSPHERIC EFFECTS OF SOLAR FLARES

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

MARCH 1961

Mar. 1961	CLASS SCNA	CLASS SEA	CLASS Burst	WIDESPREAD INDEX	TIME (UNIVERSAL TIME) BEGIN	TIME (UNIVERSAL TIME) MAX.	TIME (UNIVERSAL TIME) END	PERCENT ABSORPTION SCNA	OBSERVATION STATIONS
18			1	1	1724		1730		BO
18			1	5	1728		1748		BO, MC, RE
18		1		3	1740	1743	1755		A1, A3
22			1	4	1751		1754		BO, MC
24			1	5	1300		2300		BO, HA, MC (Noise Storm)
25			1	5	1300		2300		BO, HA, MC (Noise Storm)
26		2+		3	1019	1037	1127		DU, NE

COMMERCE - STANDARDS - BOULDER

NE = Nederhorst den Berg, Netherlands.

SOLAR RADIO EMISSION

OUTSTANDING OCCURRENCES

APRIL 1961

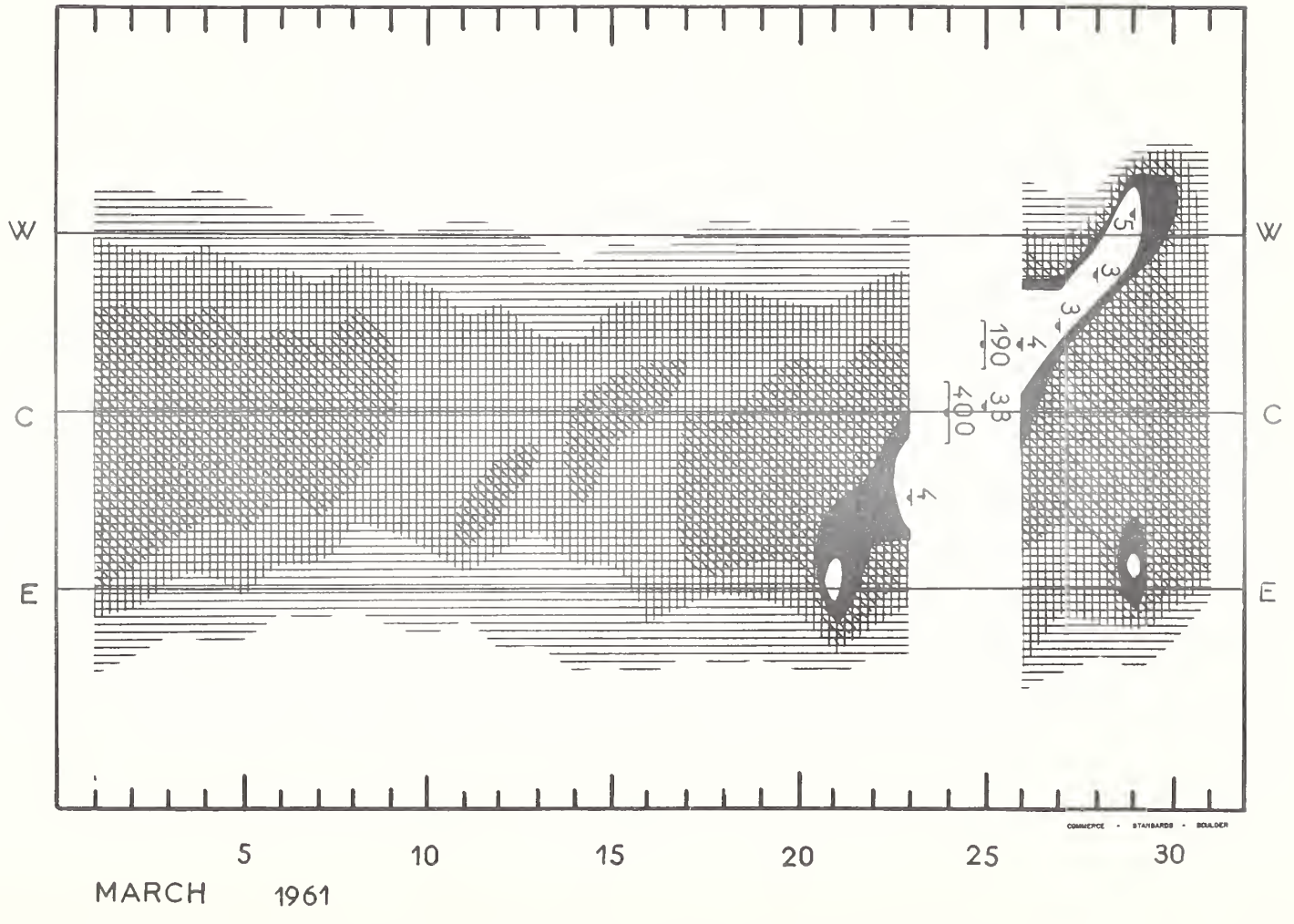
OTTAWA 2800 MC

Apr. 1961		Type	Start UT	Duration Hrs:Mins	Maximum Time UT	Maximum Peak Flux	Maximum Mean Flux	Remarks
3	2	Simple 2 f	1711	1.5	1711.8	35	8	
4	8	Group (2)	1412.5	16.5				
	2	Simple 2 f	1412.5	3	1413.3	14	5	
	2	Simple 2 f	1421	8	1422.8	12	5	
4	6	Complex f	2232.5	11	2237.7	25	8	
5	6	Complex	1623.5	4	1625.5	14	7	
5	3	Simple 3 A	2056	45	Indet.	3	1.5	
	2	Simple 2 f	2101.8	8	2104	105	22	
6	3	Simple 3	1747	1 40	1753	4	2.2	
6	3	Simple 3 A	2130	1 00	Indet.	3	2	
	1	Simple 1	2132	1.5	2132.7	4	2	
10	2	Simple 2 f	1829	5	1831	14	7.3	
	4	Post Increase		15		1.8	.8	
10	1	Simple 1	1925.5	1	1925.8	3	1.3	
11	3	Simple 3 A	1808	1 00	1810.5	4	1.5	
	1	Simple 1	1819.5	2	1820	3	1.5	
24	3	Simple 3 A	1714	40	Indet.	2.1	1	
	1	Simple 1	1723.3	1.4	1724.3	6.2	1.7	
24	2	Simple 2 f	2227	5.5	2230	9.3	3.5	
25	2	Simple 2	1204.5	3.5	1206.3	11.7	5	
	4	Post Increase		11.5		2.9	1.7	
25	1	Simple 1	1739	1.7	1740	2	1	
25	2	Simple 2	2007.3	2.4	2008.2	10.7	4	
25	1	Simple 1	2028.5	2.5	2029.5	2	1	
25	1	Simple 1	2206	1.5	2206.4	2.7	2	
26	3	Simple 3 f	1247	1 13	1250	8	4	
26	9	Precursor	1418	8.5		3.5	2	
26	2	Simple 2 f	1426.5	9.5	1432	28.4	18.9	
	4	Post Increase		1 51		13.7	5.9	
26	3	Simple 3 A	1640	3 57	Indet.	32	11.3	
	6	Complex	1656.8	8	1702	18.3	9.6	
27	7	Period of irregular activity	1600	4 10		5.1	2.4	
27	1	Simple 1	1934.3	1	1934.7	3.8	3	
27	1	Simple 1	2255	.5	2255.3	7.1	4.7	
28	3	Simple 3 A	1205	30	Indet.	5.3	2.2	
	2	Simple 2	1211.7	2.3	1212.9	8.9	5.1	
28	1	Simple 1	2245.3	.7	2245.7	5.2	3	
30	2	Simple 2 f	1444	4.3	1447	10.6	5.7	
	4	Post Increase		42.7		4.6	2.5	

COMMERCE - STANDARDS - BOULDER

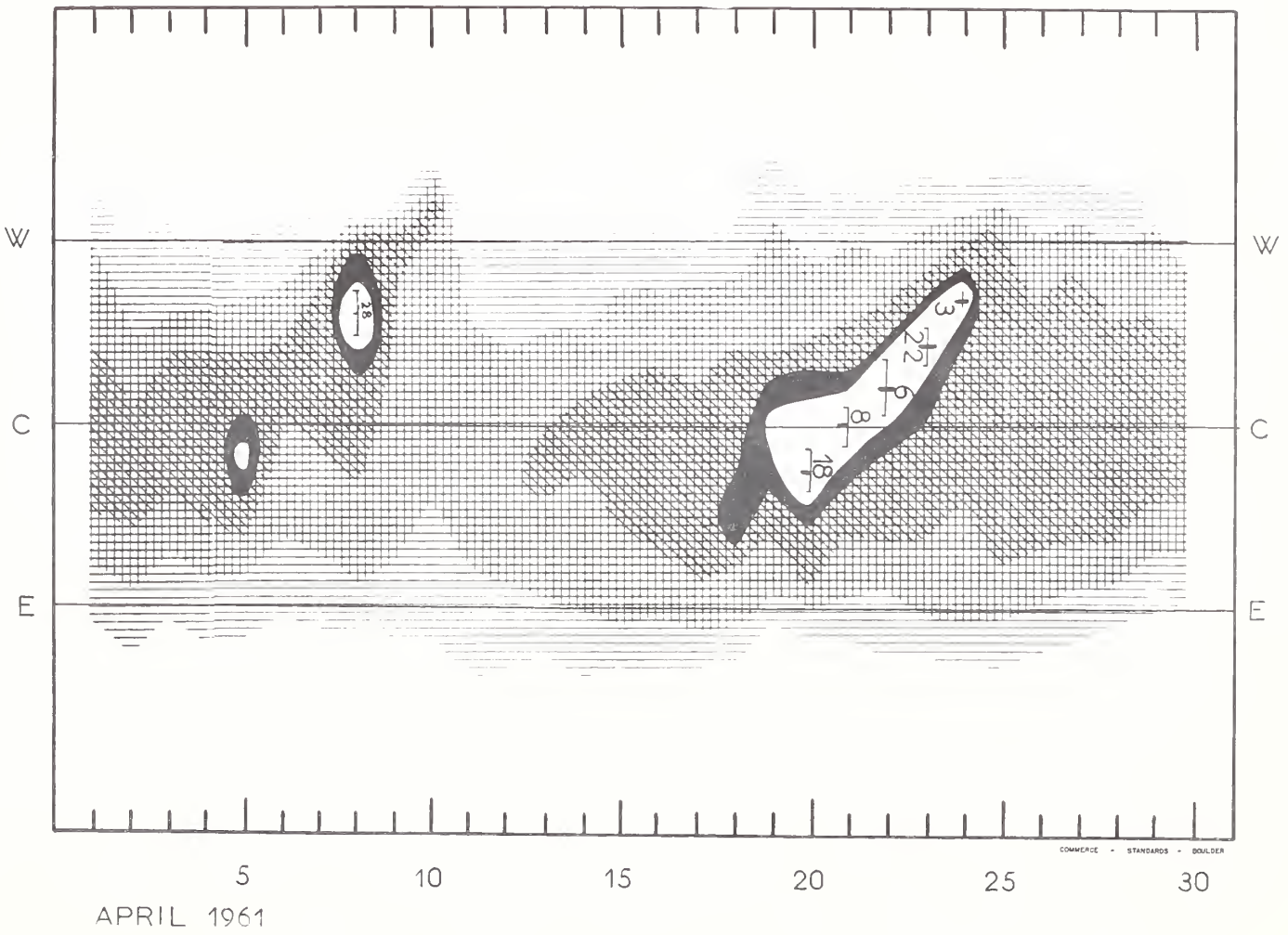
SOLAR RADIO EMISSION
INTERFEROMETRIC OBSERVATIONS

Nançay MARCH 1961 169 Mc



SOLAR RADIO EMISSION
INTERFEROMETRIC OBSERVATIONS

Nançay APRIL 1961 169 Mc



SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES
APRIL 1961

BOULDER

108 Mc.

Apr. 1961	Type	Start UT	Time of Maximum UT	Duration Minutes	Intensity
1	3	1754.5	1755.0	0.7	2
2	3	1752.2	1752.4	0.5	2
2	3	2253.6	2254.0	0.4	2
3	3	0014.5	0014.6	0.5	2
3	3	1751.2	1751.9	0.7	2
3	3	2344.2	2344.6	0.6	2
4	3	0042.0	0042.3	0.5	2
4	3	1301.8	1302.2	0.5	2
4	3	2336.5	2337.1	0.7	2
5	3	1603.7	1604.2	0.7	2
5	3	1815.2	1816.0	1.0	2
5	3	1957.8	1958.4	0.7	2
5	2	2059.0	2059 9	9	2
5	3	2235.1	2236.0	0.8	3
6	8	0016.6	0020.0	6.0	3
6	2	1536.0	1537.5	6	2
6	3	1650.4	1650.6	0.3	2
7	3	0037.0	0037.2	0.3	2
7	3	1803.8	1803.9	0.6	2
7	3	2330.5	2330.9	0.5	2
8	3	1526.6	1527.1	0.5	3
8	3	1946.4	1946.9	0.5	2
8	3	2046.3	2046.6	0.3	2
8	3	2120.2	2120.8	0.6	2
9	3	1646.5	1647.0	1.0	2
9	3	2004.5	2004.6	0.3	2
9	3	2104.5	2104.9	0.4	2
9	3	2242.2	2242.4	0.3	2
10	3	1925.1	1926.5	1.5	3
11	3	1302.9	1303.0	0.3	2
11	3	1307.6	1308.0	0.4	2
11	3	1336.5	1337.0	1.2	2
11	3	1438.6	1439.0	0.4	2
11	3	2038.3	2038.6	0.3	2
12	3	1316.0	1316.4	0.4	3
12	3	1532.6	1533.2	1.0	2
12	3	1630.5	1631.4	1.3	2
12	3	1651.9	1652.5	0.6	3
12	3	1717.6	1718.2	0.6	3
12	3	1726.9	1727.2	0.5	2
12	3	2123.5	2123.9	0.4	2
12	3	2221.2	2221.8	0.9	3
13	3	1255.6	1256.1	0.5	2
13	3	1303.7	1304.0	0.4	3
13	3	1327.4	1327.8	0.5	2
13	3	1339.1	1339.8	1.2	2
13	3	1416.7	1417.0	0.6	2
13	3	1505.5	1505.9	0.5	2
13	3	1509.2	1509.6	0.9	2
13	3	1846.2	1846.5	0.4	2
13	3	2339.8	2340.1	0.5	2
14	3	1254.7	1255.0	0.8	2
14	3	1312.0	1312.2	0.3	2
14	3	1333.0	1333.1	0.3	2
14	3	1451.5	1451.6	0.3	2

Apr. 1961	Type	Start UT	Time of Maximum UT	Duration Minutes	Intensity
14	3	1705.5	1705.6	0.3	2
14	3	2112.3	2112.6	1.6	2
15	3	1416.0	1416.1	0.2	2
15	3	1424.0	1424.1	0.2	2
15	3	1624.9	1625.0	0.2	2
15	3	1743.2	1743.3	0.7	2
15	3	1921.7	1922.0	0.5	2
16	3	1614.4	1614.7	0.6	2
16	3	1700.8	1701.2	0.4	3
16	3	2037.5	2037.7	0.5	2
17	3	1254.5	1255.2	0.8	2
17	3	1326.5	1327.0	0.6	2
17	3	1603 2	1603.6	0.4	2
17	3	1918.0	1918.0	0.3	2
17	3	2340.3	2341.0	1.5	2
18	3	1230.6	1231.3	0.5	3
18	3	1321.5	1322.5	0.7	3
18	3	1357.0	1357.4	0.5	2
18	3	1418.2	1418.6	0.4	2
18	3	1440.1	1440.6	0 5	2
18	2	1649.0	1649.4	0.5	2
18	7	1838		62	1
18	7	2145		43	1
19	3	1241.0	1241.5	1.0	2
19	3	1246.0	1246.7	0.8	2
19	3	1327.0	1327.3	0.8	2
19	2	1331.7	1335.1	6	2
19	7	1745		92	1
19	7	2353		45	1
20	2	1226.2	1228.3	2.2	2
20	2	1254.9	1255.1	0.4	2
20	3	1309.9	1310.1	0.3	2
20	3	1313.3	1313.8	0.4	2
20	3	1331.6	1332.0	0.4	2
20	3	1351.6	1352.1	0.5	3
20	3	1413.3	1413.9	0.5	3
20	3	1559.4	1559 6	0.3	2
20	3	1700.9	1701.3	1.0	2
20	3	1828.5	1828.9	1.0	2
20	7	2131		104	1
21	7	0012		63	2
21	3	1239.7	1240.1	1.1	2
21	3	1247.2	1248.2	1.5	2
21	3	1300.1	1301 8	1.8	2
21	3	1319.7	1320.1	0.5	2
21	3	1324.6	1325 1	0.6	2
21	3	1559.0	1559.1	0.7	2
21	3	1721.0	1721.5	0.5	2
21	3	1813.0	1813.4	0.5	2
21	3	1816.5	1817.0	0.5	2
21	3	2201.5	2201.9	0.5	3
22	3	0014.5	0015.0	0.5	2
22	3	1338.9	1339.3	0.6	2
22	3	1349.0	1349.4	0.5	2
22	3	1547.5	1548.4	1.9	2

COMMERCE - STANDARDS - BOULDER

SOLAR RADIO EMISSION

OUTSTANDING OCCURRENCES

APRIL 1961

BOULDER

108 Mc.

Apr. 1961	Type	Start UT	Time of Maximum UT	Duration Minutes	Intensity
22	3	1558.3	1559.2	1.1	3
22	3	1605.5	1606.0	0.5	2
22	2	1621.0	1623.0	3.0	2
22	3	1630.6	1631.4	0.8	2
22	3	1714.2	1715.0	1.0	2
22	3	1826.2	1826.5	0.6	2
22	3	1902.8	1903.3	0.5	2
22	3	2320.8	2321.4	0.6	3
23	3	1715.6	1716.2	0.8	2
23	3	1729.5	1729.9	0.5	2
23	3	1856.8	1857.0	0.4	2
23	3	1900.5	1901.0	0.5	3
24	3	1240.0	1240.4	0.6	2
24	3	1413.5	1413.9	0.6	2
24	3	1603.0	1604.0	1.1	2
24	3	1724.2	1726.0	2.0	2
24	3	1845.6	1846.0	0.5	2
24	3	1935.0	1935.6	0.7	2
24	3	2346.0	2346.5	0.5	2
25	3	1234.7	1235.0	0.4	2
25	3	1317.1	1317.5	0.4	2
25	3	1423.3	1423.8	0.6	2
25	3	1636.2	1636.9	0.7	2
25	3	1651.5	1652.1	0.6	2
25	3	2044.2	2044.5	0.5	2
26	3	0001.0	0001.5	0.6	2
26	3	1219.5	1220.6	1.2	2
26	3	1307.5	1307.9	0.4	2
26	3	1321.0	1321.5	0.5	2
26	3	1339.0	1339.8	0.8	3

	Type	Start UT	Time of Maximum UT	Duration Minutes	Intensity
26	3	1647.5	1648.0	0.6	2
27	3	1301.2	1301.8	0.6	3
27	3	1316.2	1316.6	0.6	2
27	3	1328.0	1329.2	1.2	3
27	3	1916.0	1916.5	0.5	2
28	3	1303.5	1303.9	0.5	2
28	3	1342.3	1342.9	0.6	3
28	3	1346.5	1346.9	0.5	2
28	3	1507.6	1508.0	0.5	2
28	3	1533.7	1534.4	0.7	2
28	3	1646.4	1647.0	0.6	2
28	3	1733.4	1733.9	0.5	2
28	3	1945.1	1946.0	0.9	2
29	3	0003.2	0003.5	0.5	2
29	3	1333.0	1333.6	0.6	3
29	3	1336.0	1336.5	0.5	3
29	3	1348.4	1348.9	0.5	3
29	3	1530.4	1530.8	0.7	2
29	3	1634.5	1635.5	1.0	3
29	3	1709.8	1710.1	0.4	2
29	3	1755.5	1756.3	0.9	2
29	3	1823.6	1824.0	0.5	2
29	3	1839.4	1841.2	2.0	2
29	3	2217.7	2218.4	0.7	3
30	3	1538.0	1538.6	0.6	2
30	3	1602.1	1602.6	0.5	2
30	3	1729.5	1730.0	0.5	2
30	3	1810.5	1810.7	0.5	2
30	3	1812.3	1812.6	0.5	2
30	3	1917.0	1917.5	0.5	2

COMMERCE - STANDARDS - BOULDER

NOMINAL TIMES OF OBSERVATION

APRIL 1961

BOULDER

108 MC

Apr. 1961	U.T.		Apr. 1961	U.T.
1	1251-2117		15	1229-0120
2	1516-0108		16	1227-0121
3	1247-0109		17	1226-0122
4	1246-0110		18	1224-0123
5	1431-0111		19	1223-0124
6	1243-0112		20	1221-0125
7	1241-0113		21	1220-0126
8	1240-0114		22	1219-0127
9	1238-0115		23	1217-0128
10	1236-0116	I 2008-2207	24	1216-0128
11	1235-0116		25	1214-0130
12	1233-0118		26	1213-0130
13	1232-0118		27	1212-0131
14	1230-1833; 2006-0120		28	1210-0132
			29	1209-0133
			30	1208-0134

COMMERCE - STANDARDS - BOULDER

SOLAR RADIO EMISSION
SPECTRUM OBSERVATIONS

FEBRUARY 1961

OWENS VALLEY, CALIFORNIA — 500-1000 Mc

Date 1961	Observing Hours	Important Bursts Type	Important Bursts Times U.T.	Important Bursts Int.	Frequency Range	Remarks
Feb. 1	1634-2410					No activity
Feb. 2	1631-1953					No activity
Feb. 3	1650-2353					No activity
Feb. 6	1658-2350					No activity
Feb. 7	1639-1738					No activity
Feb. 7	1816-2331					No activity
Feb. 8	1757.5-1754.5					No activity
	1757.5-2358	I	2142	1-	950-1000	3 spots for 5 seconds Continuum
Feb. 9	1659-2106					No activity
Feb.10	1755-2014					No activity
Feb.14	1630-2422					No activity
Feb.20	1656.5-2420					No activity

COMMERCE - STANDARDS - BOULDER

COSMIC RAY INDICES

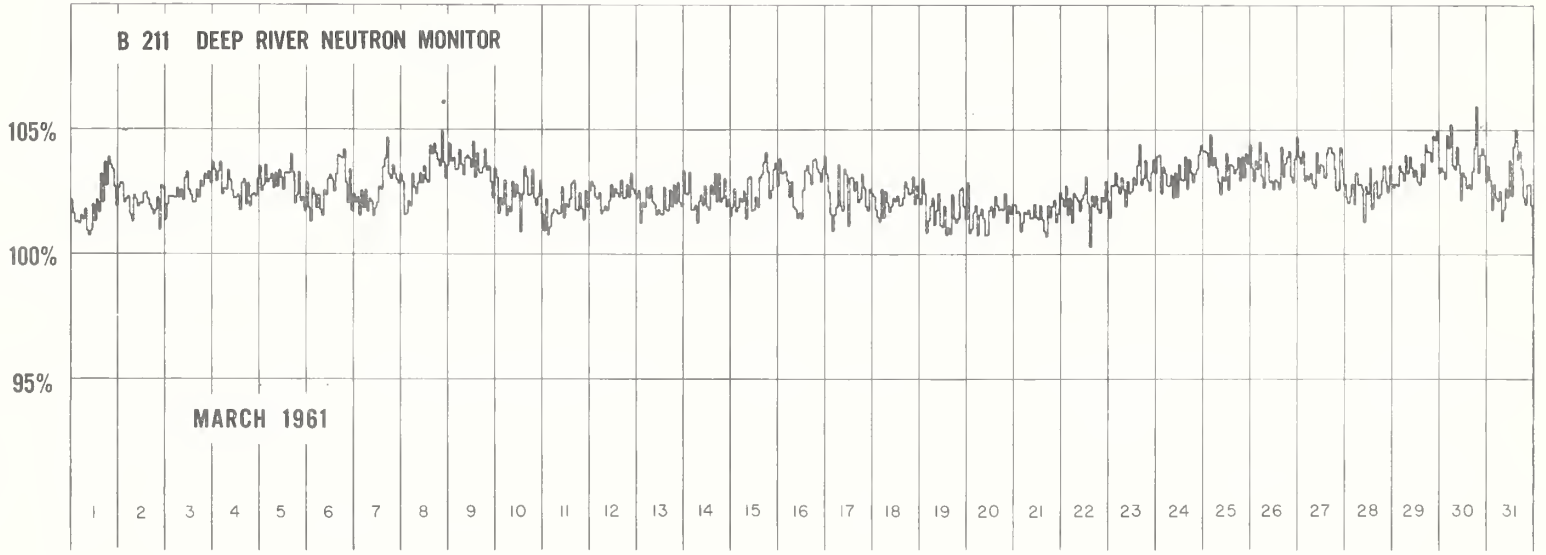
(Climax Neutron Monitor)

Mar. 1961	Daily average counts/hr		Mar. 1961	Daily average counts/hr	
1	2978.6		17	2992.7	
2	2964.4		18	3000.2	
3	2988.8		19	2978.4	
4	2995.1		20	2982.2	(10)
5	3014.3	(31)	21	2959.1	
6	3034.8		22	2967.7	
7	3011.1		23	2984.0	
8	3004.7		24	2994.0	
9	2996.5		25	2997.0	
10	2987.9		26	2998.0	
11	2981.1		27	2984.6	
12	2987.6		28	2954.4	
13	2982.0		29	2965.8	
14	2972.3		30	2959.3	
15	2975.1		31	2930.3	
16	2995.5				

COMMERCE - STANDARDS - BOULDER

COSMIC RAY INDICES

(Pressure Corrected Hourly Totals)



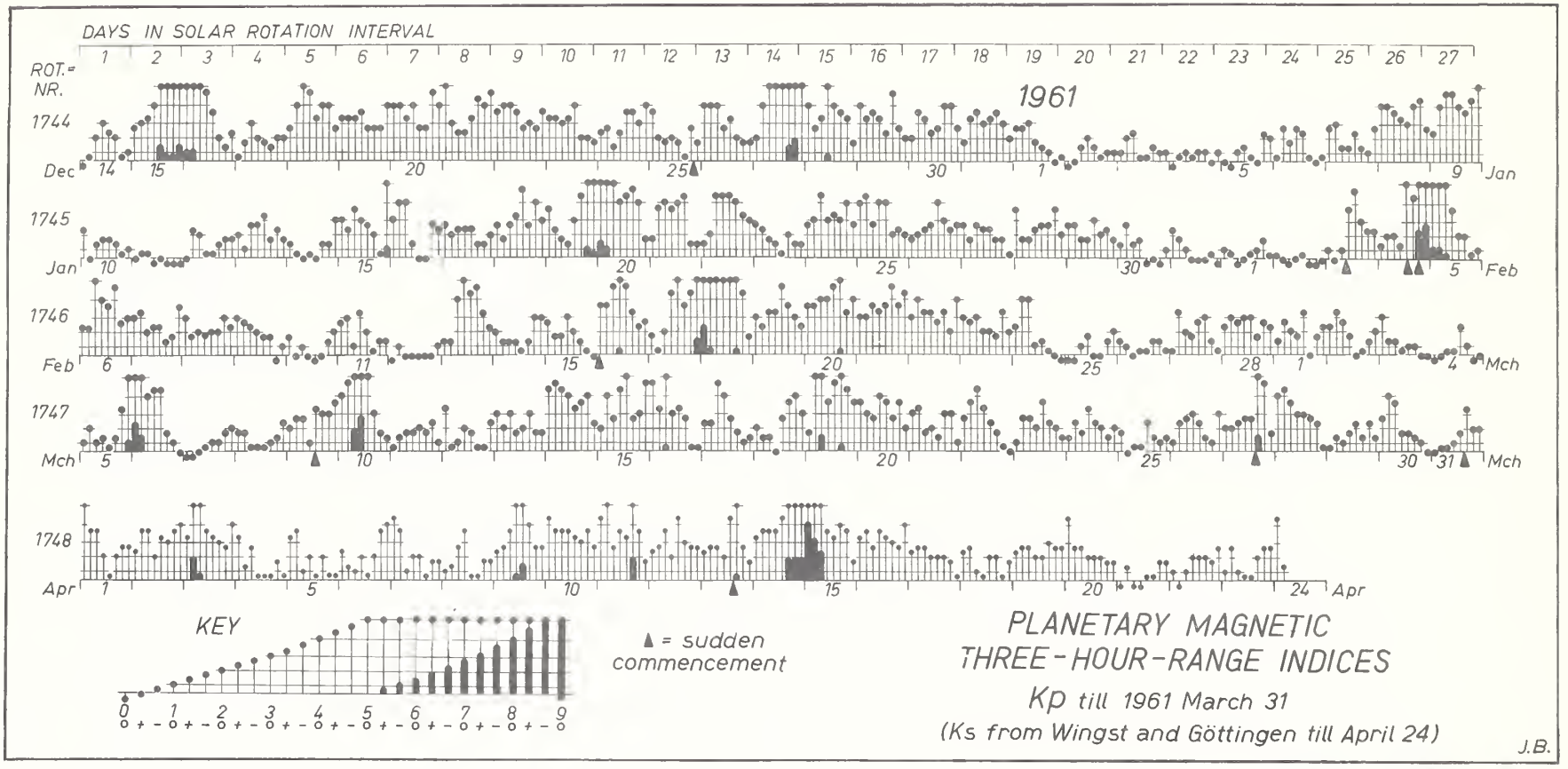
COMMERCE - STANDARDS - BOULDER

GEOMAGNETIC ACTIVITY INDICES

MARCH 1961

Mar. 1961	C	Values Kp Three hour Gr. interval 1 2 3 4	5 6 7 8	Sum	Ap	Final Selected Days
1	0.3	1+ 3- 2o 2-	3+ 0+ 2- 2+	15+	8	Five
2	0.2	2+ 3+ 3- 2-	0+ 1- 1+ 2o	14+	8	Quiet
3	0.1	3o 1+ 1+ 1-	1o 1o 0+ 0+	9o	5	
4	0.1	0o 0+ 1- 1-	2+ 1o 0o 0+	5+	3	3
5	0.9	1o 2o 1o 1+	1- 1+ 3+ 6-	16+	14	4
						7
6	1.3	7- 6o 4o 4+	4+ 2- 1o 0+	28+	37	8
7	0.2	0o 0o 0+ 1-	1o 1o 2- 2o	7-	3	25
8	0.2	2- 2- 1- 1-	1- 1o 1+ 2+	10o	5	
9	0.9	2o 3- 3- 1o	3+ 3o 3o 4-	21+	13	
10	1.4	4o 5- 6+ 7o	5o 3o 2- 1+	33o	46	
11	0.3	1- 1+ 2- 2-	2o 2- 2+ 1o	12+	6	Five
12	0.2	3+ 1- 1o 2o	2- 1- 1- 2+	12+	7	Disturbed
13	0.4	3o 2o 3o 2-	2o 3o 2- 2-	18o	10	
14	1.2	4+ 5- 4+ 4o	3+ 4- 4o 2+	31-	26	6
15	1.2	2o 4o 3- 4+	5o 3- 3o 5-	28+	24	10
						14
16	1.1	5- 3+ 5+ 3o	3+ 3- 1- 1-	24-	20	15
17	0.6	2+ 2+ 5- 4o	3- 2- 1o 1+	20o	14	19
18	0.8	2o 1+ 1+ 0+	3- 4- 4o 3o	18+	12	
19	1.3	2- 5o 6o 4-	5- 5+ 4+ 4-	34+	38	
20	0.9	4- 3o 3- 4o	4- 3- 4- 2o	25+	17	
21	0.6	3o 3+ 2- 2o	1+ 3o 3o 1o	18+	11	Ten
22	0.7	3- 4- 4+ 3+	2+ 2- 1- 0+	19o	13	Quiet
23	0.6	1o 3- 3- 2o	4- 2+ 2o 1+	18-	10	
24	0.4	1+ 2+ 2- 3+	2+ 2o 1+ 2o	16+	8	2
25	0.1	2- 0+ 1- 1-	2+ 1+ 1o 1+	9+	5	3
						4
26	0.5	1o 2+ 3- 3o	2+ 1+ 1o 3o	17-	9	7
27	1.2	2o 2o 2+ 3-	3- 6o 5- 2-	24o	22	8
28	1.0	4o 4+ 4- 3o	3o 3- 2+ 1-	24-	17	11
29	0.4	1- 1+ 1o 2-	2+ 1+ 2+ 1+	12o	6	12
30	0.6	3- 4o 4- 2-	2- 1+ 1o 0+	16+	10	25
31	0.4	0+ 1- 1- 1o	2- 3+ 2o 2o	12-	6	29
						31
Mean:	0.65			Mean:	14	

COMMERCE A- STANDARDS ↖ BOULDER



COMMERCE - STANDARDS - BOULDER

CRPL RADIO PROPAGATION QUALITY FIGURES AND FORECASTS

NORTH ATLANTIC — MARCH 1961 — NORTH PACIFIC

DATE	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:				GEOMAGNETIC K_{FR}	
MAR 1961	00 TO 06	06 TO 12	12 TO 18	18 TO 24	00	06	12	18		1-7 DAYS FINAL J_S	1-7 DAYS J_{SDW}	1-3 DAYS	1-7 DAYS J	HALF (1)	DAY (2)
01	6-	5o	7-	6+	6	4	7	7	6o	6	6			2	2
02	6-	5-	7-	6+	6	5	7	7	6-	6	6			2	1
03	6o	5+	7-	6+	6	5	7	6	6o	5	5			1	1
04	6+	6-	7o	7-	6	5	7	6	6+	5	5			0	1
05	6+	6o	7-	6-	6	6	7	7	6+	5	5			1	3
06	3-	3-	5o	5-	5	2	5	5	(3+)	5	5			(4)	2
07	3-	3-	6o	6o	4	3	6	5	(4-)	4	4	6		0	2
08	6o	5-	6+	6+	4	4	6	6	6-	5	5	6		1	1
09	6-	6-	6o	6+	6	5	7	6	6o	6	6			2	3
10	5+	4o	5-	5-	5	5	5	4	5-	6	6			(5)	3
11	3-	3o	6o	7-	4	3	6	5	(4o)	4	4	6		1	2
12	6-	5-	7-	7-	5	5	6	6	6-	5	5	6		2	2
13	5o	5-	6+	6+	6	4	6	6	6-	5	5	5		3	2
14	4+	3+	5+	4+	5	4	6	5	(4+)	5	5	5		(4)	3
15	4-	3+	5+	5+	3	3	5	4	(4o)	4	4	4		3	3
16	4+	3-	6-	6o	4	4	5	5	(4+)	4		4		(4)	2
17	5+	4-	6-	6-	5	4	5	5	5-	4		4		3	2
18	6-	5-	6+	6+	5	5	6	6	6-	4		4		1	3
19	6o	3o	5+	6-	5	3	5	4	(4+)	5		5		(4)	(4)
20	5+	3+	5+	7-	4	4	5	5	5-	5		5		3	2
21	6o	4+	7-	6+	6	4	6	6	5+	5		5		3	2
22	6+	4o	6+	6+	6	5	6	6	5+	6		6		(4)	1
23	6o	5+	6+	6+	6	5	6	6	6o	6		6		2	2
24	6o	5o	7-	6+	6	5	6	6	6o	6		6		3	2
25	7-	6-	6+	7-	6	5	7	6	6+	6		6		1	2
26	7-	6-	7-	7-	6	6	6	7	6+	6		6		2	2
27	7-	6o	7-	7-	7	6	7	4	7-	6		6		2	(4)
28	5o	4o	6+	7-	4	3	6	7	5+	4	4	6		(4)	2
29	6+	6o	7o	6+	6	5	7	7	6+	4	4	6		1	2
30	6-	5o	7-	7-	7	5	7	6	6o	7		7		3	2
31	6+	6o	7-	7-	7	6	7	6	6+	7		7		1	3 3

Score: Quiet Periods	P	14	11	22	12		9		12							
	S	10	7	9	14		13		11							
	U	0	0	0	2		0		0							
	F	1	0	0	2		2		1							
Disturbed Periods	P	1	6	0	0		4		2							
	S	4	7	0	1		2		2							
	U	1	0	0	0		1		1							
	F	0	0	0	0		0		2							

DATE	NORTH PACIFIC 12-HOURLY QUALITY FIGURES		SHORT-TERM FORECASTS ISSUED AT		WHOLE DAY INDEX	ADVANCE FORECASTS (J_P-REPORTS) FOR WHOLE DAY, ISSUED IN ADVANCE BY				GEOMAGNETIC K_{SI}	
MAR 1961	0700 TO 1900	1900 TO 0700	0600	1800		1-7 DAYS FINAL J_{PS}	1-7 DAYS J_{PSDW}	1-3 DAYS	1-7 DAYS J_P	HALF (1)	DAY (2)
01	6	6	6	7	6	6	6			2	2
02	7	5	6	7	6	6	6			2	0
03	6	7	6	6	6	5	5			1	0
04	6	7	7	7	6	5	5			0	1
05	6	5	7	7	6	5	5			0	2
06	5	7	4	6	6	6	6			(6)	3
07	5	6	7	6	5	6	6			0	1
08	5	6	5	6	5	6	6			2	1
09	6	6	5	6	6	5	5			2	2
10	4	5	6	4	5	6	6			(6)	3
11	4	3	5	6	(3)	4	4	6		1	2
12	4	5	5	6	(4)	5	5	6		1	2
13	5	6	5	6	5	6	6	6		3	2
14	4	5	5	5	5	6	6	6		(4)	3
15	5	5	5	6	5	5	5	5		(4)	(4)
16	5	6	4	6	5	4		4		(4)	2
17	5	6	6	6	5	4		4		3	2
18	5	4	6	5	5	4		4		0	3
19	4	5	5	4	(4)	5		5		(4)	(4)
20	4	5	5	5	(4)	5		5		(4)	3
21	5	5	5	5	5	6		6		2	2
22	6	6	6	6	5	6		6		(4)	2
23	6	5	6	6	6	5		5		2	3
24	6	5	6	6	6	6		6		2	2
25	7	5	6	6	6	6		6		0	1
26	7	6	7	7	7	6		6		3	1
27	7	5	7	3	7	5		5		2	(4)
28	6	6	4	6	6	4	4	5		(4)	2
29	7	6	6	7	7	4	4	6		1	1
30	7	7	7	6	7	7		7		3	0
31	7	6	7	6	7	6		6		0	2

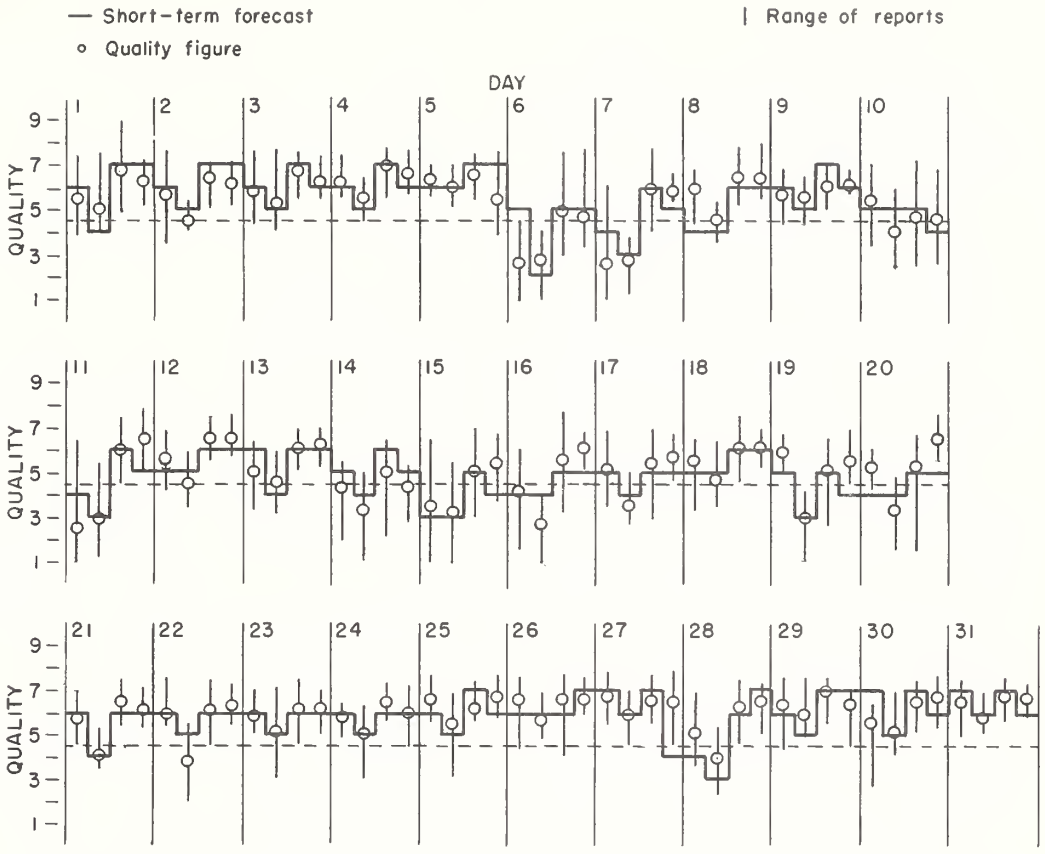
Score: Quiet Periods	P	13	13	7
	S	10	13	17
	U	1	3	1
	F	1	0	2
Disturbed Periods	P	0	0	0
	S	5	1	4
	U	0	0	0
	F	1	1	0

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

CRPL RADIO PROPAGATION QUALITY FIGURES AND FORECASTS

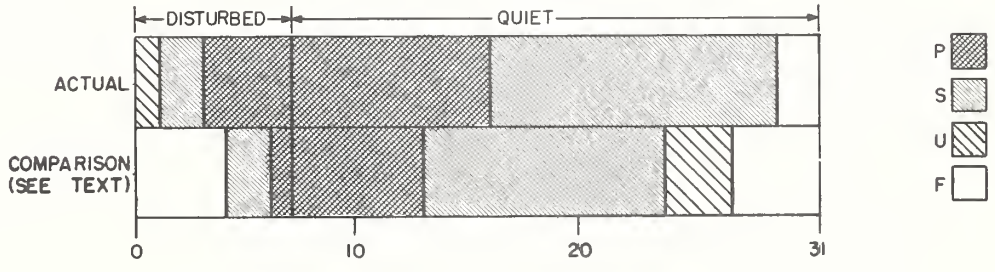
NORTH ATLANTIC

MARCH 1961

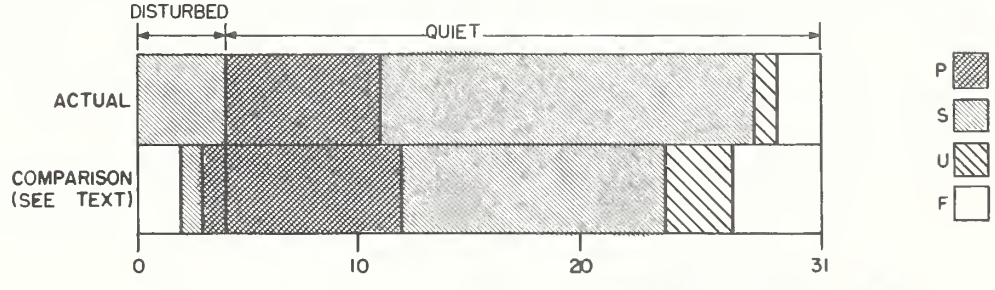


OUTCOME OF ADVANCED FORECASTS FINAL ESTIMATE

NORTH ATLANTIC

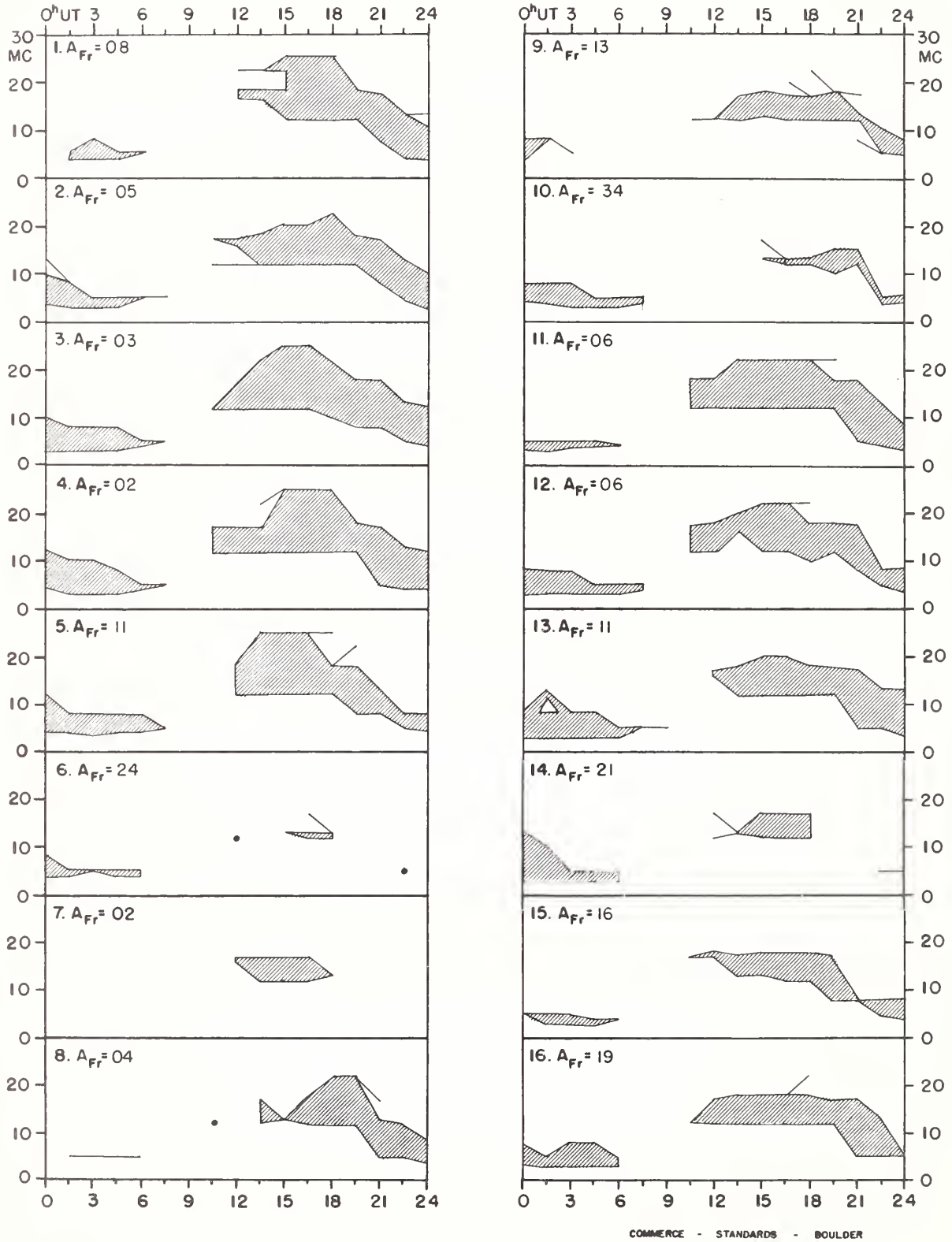


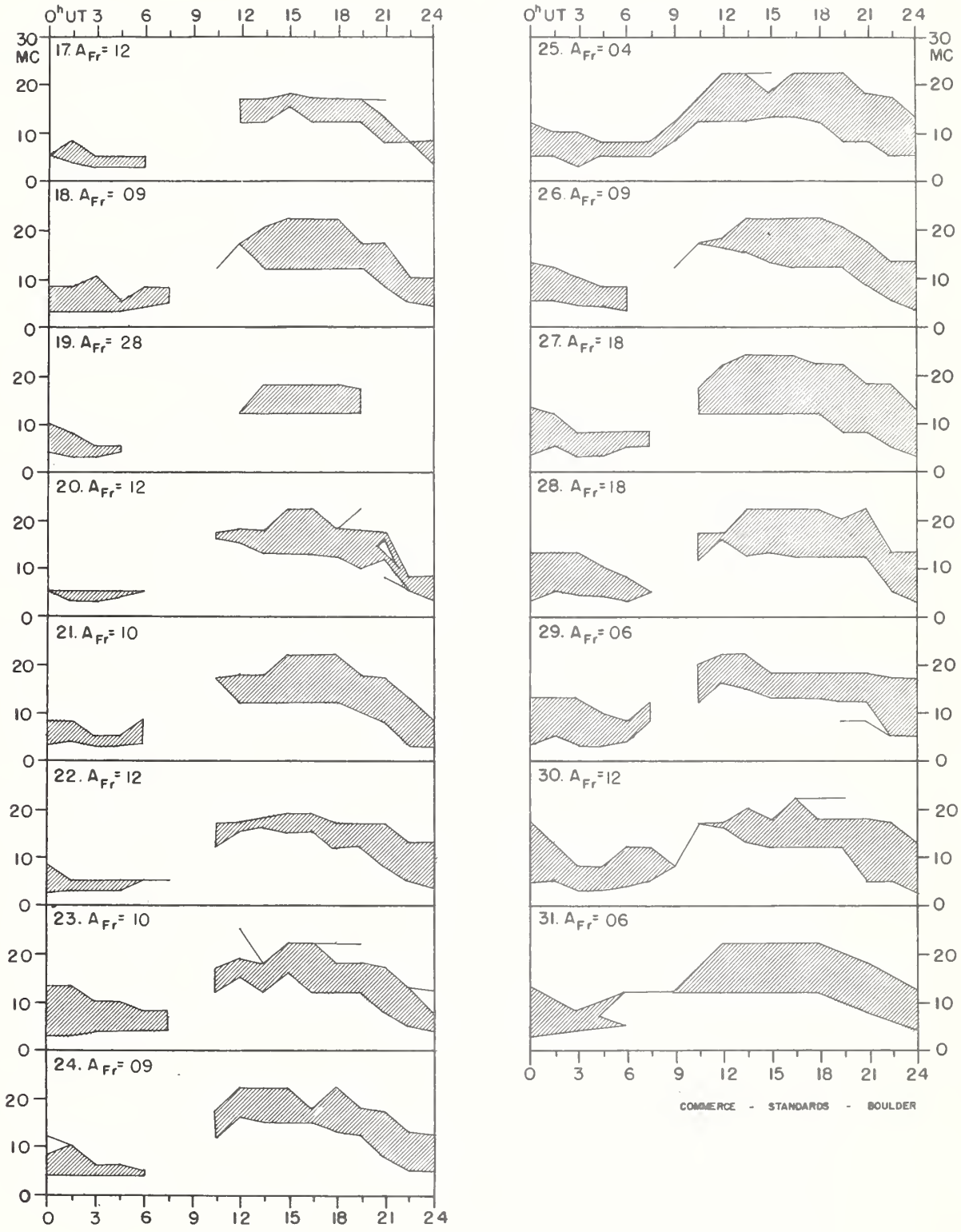
NORTH PACIFIC



USEFUL FREQUENCY RANGES -- NORTH ATLANTIC PATH

MARCH 1961




0h UT 3 6 9 12 15 18 21 24
30 MC
17. AFr= 12
18. AFr= 09
19. AFr= 28
20. AFr= 12
21. AFr= 10
22. AFr= 12
23. AFr= 10
24. AFr= 09
25. AFr= 04
26. AFr= 09
27. AFr= 18
28. AFr= 18
29. AFr= 06
30. AFr= 12
31. AFr= 06
0 3 6 9 12 15 18 21 24
COMMERCE - STANDARDS - BOULDER

ALERT PERIODS AND SPECIAL WORLD INTERVALS

INTERNATIONAL WORLD DAY SERVICE

APRIL 1961

Issued Day/Time UT Apr. 1961	Advance Geophysical Alert	No.	World-Wide Geophysical Alert	Special World Interval
03/0410	Ft. Belvoir, Magnetic Storm 31/1338Z*			
03/1600		116	Magnetic Storm 02/20XXZ*	
09/1600		117	Magnetic Storm 09/07XXZ	
13/2030	Ft. Belvoir, Magnetic Storm 13/1452Z			
14/1600		118	Magnetic Storm 13/1452Z	
26/1945	Burbank, Solar Flare 26/1655Z			

COMMERCE - STANDARDS - BOULDER

*Increase in geomagnetic activity was thought to be continuation of very minor disturbance which began March 31. Further examination, however, indicated the beginning of a new disturbance April 02.