PART B

SOLAR - GEOPHYSICAL DATA

ISSUED
MARCH 1960

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

CRPL-F 187
PART B

NATIONAL BUREAU OF STANDARDS
CENTRAL RADIO PROPAGATION LABORATORY
BOULDER, COLORADO

Issued
31 March 1960

SOLAR - GEOPHYSICAL DATA

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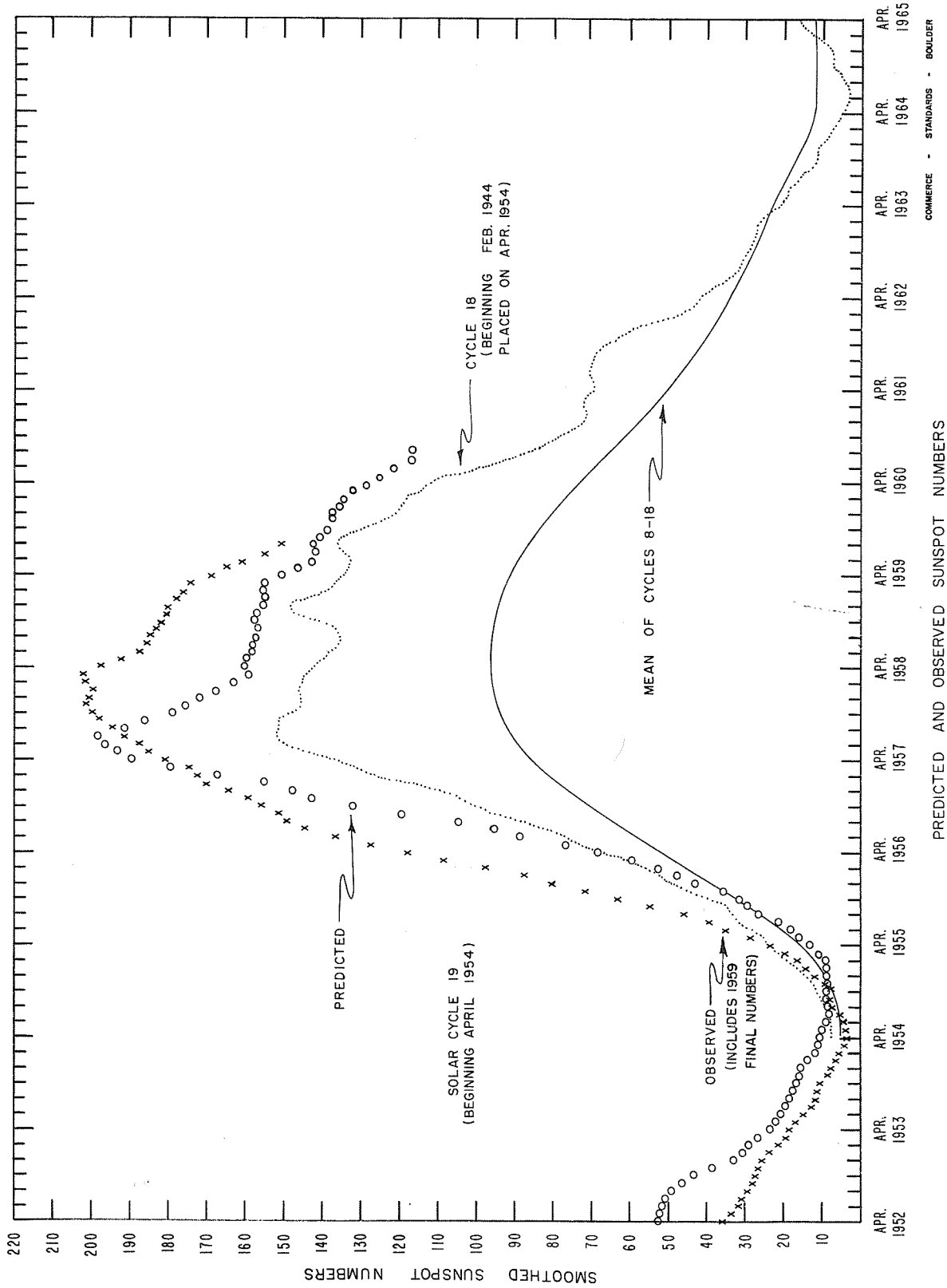
INTRODUCTION

The descriptive text is published quarterly or whenever context of the report is changed. The last issue in which the text appeared was CRPL-F186 Part B issued February 1960.

DAILY SOLAR INDICES

Jan. 1960	American Relative Sunspot Numbers R_A'
1	113
2	112
3	134
4	157
5	197
6	191
7	196
8	182
9	148
10	158
11	132
12	127
13	124
14	121
15	118
16	121
17	120
18	94
19	87
20	94
21	105
22	135
23	111
24	153
25	171
26	164
27	195
28	184
29	199
30	194
31	193
Mean:	146.1

Feb. 1960	Zürich Provisional Relative Sunspot Numbers R_Z	Daily Values Solar Flux at 2800 Mc, Ottawa, Canada Flux
1	173	225
2	191	213
3	184	215
4	152	209
5	142	209
6	145	192
7	123	187
8	116	183
9	143	183
10	143	178
11	115	175
12	116	166
13	97	167
14	114	167
15	94	160
16	84	158
17	73	153
18	60	151
19	50	-
20	49	142
21	46	156
22	50	149
23	56	143
24	74	140
25	80	147
26	82	147
27	89	147
28	82	140
29	78	140
Mean:	103.5	169.4


PREDICTED AND OBSERVED SUNSPOT NUMBERS
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 19 (BEGINNING APRIL 1954)
OBSERVED (INCLUDES 1959 FINAL NUMBERS)
COMMERCE - STANDARDS - BOULDER

ZURICH FINAL RELATIVE SUNSPOT NUMBERS

1959

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
1	221	141	158	243	120	152	147	194	290	65	136	170
2	225	141	151	242	112	133	118	210	256	76	121	165
3	229	140	151	174	113	152	138	213	202	89	97	160
4	231	137	146	159	105	166	158	225	161	101	103	163
5	243	128	152	124	112	162	136	212	148	115	91	142
6	238	114	148	108	138	180	127	207	152	128	98	147
7	247	124	150	107	156	181	120	179	135	130	114	141
8	246	90	155	136	188	192	131	175	136	115	131	145
9	245	87	164	161	238	188	129	170	157	103	136	94
10	224	100	156	177	262	160	127	155	141	91	142	89
11	218	100	148	197	287	172	133	180	155	87	153	82
12	203	101	126	189	276	176	135	160	170	81	154	75
13	192	106	159	178	257	165	160	125	148	78	149	73
14	128	129	173	193	227	170	180	139	151	102	137	88
15	120	133	216	174	204	158	176	144	161	96	127	123
16	143	144	225	153	182	172	190	157	130	116	113	113
17	168	170	228	126	187	161	193	166	87	107	83	107
18	179	170	230	114	198	174	195	174	100	116	73	117
19	202	175	234	117	185	182	184	182	120	111	69	134
20	240	160	238	135	187	173	160	180	149	108	65	133
21	255	163	230	128	151	162	132	200	143	111	70	131
22	278	171	208	138	145	170	94	204	157	129	110	126
23	270	186	194	186	149	188	113	205	143	135	131	122
24	261	190	178	186	143	157	108	217	155	143	151	116
25	255	181	199	203	178	180	118	212	132	137	162	121
26	252	176	190	204	188	184	134	220	110	126	161	124
27	263	163	178	175	177	186	156	231	102	128	157	132
28	239	186	173	172	132	160	181	274	91	129	151	127
29	213		217	160	99	158	182	301	87	129	161	136
30	167		233	141	106	147	193	292	86	131	175	127
31	143		248		131		190	284		141		153
Mean	217.4	143.1	185.7	163.3	172.0	168.7	149.6	199.6	145.2	111.4	124.0	125.0

COMMERCE - STANDARDS - BOULDER

CALCIUM PLAGE AND SUNSPOT REGIONS

FEBRUARY 1960

CMP Feb. 1960	Lat	McMath Plage Number	Return of Region	Calcium Plage Data				Sunspot Data		
				CMP Values		History, Age		CMP Values		History
				Area	Int.			Area	Count	
01.6	N25	5553	New	800	2	ℓ / ℓ	1			
01.7	N09	5552	5517	2000	2	ℓ — ℓ	6	270	3	ℓ — ℓ
02.5	N20	5555	5520	2800	3	ℓ — ℓ	2	290	7	ℓ — ℓ
03.2	S17	5554	5515	1000	2	ℓ — ℓ	5			
04.1	N24	5556	5520	2400	3	ℓ — ℓ	2	100	1	ℓ — ℓ
04.1	S03	5558	5523	600	1.5	ℓ \ ℓ	2			
04.9	S19	5560	New	1000	3	ℓ / ℓ	1	170	8	b ⌜ ℓ
05.5	N24	5559	5520	(500)	(1)	ℓ ⌝\ d	2			
06.4	N10	5565	New	700	2	b⌜ ℓ	1			
06.5	S15	5562	5525	4500	3	ℓ — ℓ	2	580	8	ℓ — ℓ
06.6	S26	5561	5522	1500	2	ℓ — ℓ	2			
08.4	N17	5563	5527	4800	2.5	ℓ — ℓ	3	310	5	ℓ — ℓ
09.3	S12	5564	New	(1900)	(1.5)	ℓ ⌝\ d	1			
11.9	N21	5566	New	3100	2.5	ℓ / ℓ	1	1210	3	ℓ \ ℓ
12.5	S21	5567	*	1800	3	ℓ — ℓ	2	120	1	ℓ \ d
12.6	N10	5569	5534	400	1.5	ℓ — ℓ	5			
15.0	S24	5572	New	1800	2.5	ℓ — ℓ	1	120	1	ℓ \ d
15.2	N18	5570	5538	3800	3.5	ℓ — ℓ	2	1700	27	ℓ — ℓ
15.2	S08	5571	New	900	2	ℓ — ℓ	1			
17.5	N11	5574	5540	4200	2.5	ℓ \ ℓ	4			
19.0	N19	5575	5539	1600	2.5	ℓ — ℓ	4			
20.6	N30	5576	5542	1000	1.5	ℓ — ℓ	2			
21.1	N13	5577	5546	1600	2	ℓ — ℓ	11			
22.2	S10	5578	5547	700	1	ℓ — ℓ	3			
22.6	N23	5582	New	800	2	b ⌜ ℓ	1	100	2	b ∧ d
24.1	N14	5579	5550	4500	3	ℓ — ℓ	4			
24.9	S21	5580	New	1300	3.5	ℓ — ℓ	1	220	2	ℓ — ℓ
25.7	N05	5581	5550	6100	3	ℓ — ℓ	4	440	10	ℓ \ d
28.0	S12	5583	5551	2700	2.5	ℓ — ℓ	7	50	1	b ∧ d
28.1	N11	5584	5552	2800	2.5	ℓ — ℓ	7	280	2	ℓ — ℓ

* Formed in 5536 during last rotation.

CORONAL LINE EMISSION INDICES

FEBRUARY 1960

CMP Feb 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	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
2	171	229	26	43	149	231	45	75	x	x	x	x	x	x	x	x
3	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
4	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
5	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
6	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
7	x	x	27a	48a	x	x	70a	100a	x	x	x	x	x	x	x	x
8	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
9	x	x	x	x	x	x	x	x	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	56	81	x	x	106	151	x	x
12	x	x	x	x	x	x	x	x	x	x	x	x	x	x	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	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	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	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
20	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
21	x	x	x	x	x	x	x	x	37a	70a	13a	16a	120a	148a	11a	17a
22	x	x	x	x	x	x	x	x	34	56	11	13	78	94	18	23
23	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
24	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
25	195	320	x	x	57	86	x	x	48	83	18	23	132	213	23	39
26	x	x	x	x	x	x	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	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

FEBRUARY 1960

OBSERVATORY	DATE FEB 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
ARCETRI	01	1002	1016 D		S16	E73	5562	14 D	1	3						
ARCETRI	02	1220 E	1235 D		N09	W48	5550	15 D	1	3						
LOCKHEED	02	1850	1935	1855	N12	W15	5552	45	1	2	1855	2.50			20	
WENDEL	03	0818 E	0908 D		S14	W35	5551	50 D	2				10.00			S-SWF
ARCETRI	03	0823 E	0902 D		S15	W38	5551	39 D	2	3	0839	4.13	5.24			
ARCETRI	03	0943 E	1014 D		N10	W25	5552	31 D	1	3						
WENDEL	03	0945 E	1015 D		N09	W22	5552	30 D	1				7.00			
WENDEL	03	1007 E	1046 D		S16	W37	5551	39 D	1				4.00			
WENDEL	03	1102 E	1120 D		S15	W39	5551	18 D	1				4.00			
WENDEL	03	1210 E	1306	1229	N11	W24	5552	56 D	2+				14.00			S-SWF
ARCETRI	03	1235 E	1254 D		N10	W25	5552	19 D	2	2						
MCMATH	03	1708	1850		S13	W40	5551	102	2	1	1729		6.00			Slow S-SWF
MCMATH	03	2015	2043 D	2025	N10	W32	5552	28 D	1+	1	2025		4.00			Slow S-SWF
SAC PEAK	03	2150 E	2155 D	2150 E	N18	W28	5555	5 D	2	1		5.77			18	
MCMATH	04	1336 E	1423		S15	W48	5551	47 D	1	1	1357		3.00			Slow S-SWF
MCMATH	04	1600	1635	1615	S14	W53	5551	35	1	1	1615		2.00			S-SWF
HUANCAYO	04	1615 E	1641	1616	S15	W48	5551	26 D	1	1	1616	2.00	3.00	2.60		
SAC PEAK	04	1636	1652 D	1650 U	S15	E23	5562	16 D	1	2		2.80			16	
MCMATH	04	1636	1830	1650	S15	E25	5562	114	1+	1	1710		5.00			S-SWF
HUANCAYO	04	1641	1718	1643	S14	E24	5562	37	1	1	1643	3.10	3.40	3.30		
LOCKHEED	04	1725 E	1750	1725 E	S14	E24	5562	25 D	1	1	1725	2.60			10	
MCMATH	04	1927	1948	1929	N09	W42	5552	21	1	1	1929		2.00			
LOCKHEED	05	1731	1805	1737	S25	E15	5561	34	1	2	1738	2.40			40	
LOCKHEED	05	1943 U	2007 D	1949 U	N12	W53	5552	24 D	1	1	1949	1.90			30	
HAWAII	05	1946	1958 D		N07	W60	5552	12 D	1	2	1950	1.10				
LOCKHEED	05	2045 U	2059 U	2048 U	S15	W13	5560	14 D	1	1	2048	1.80			40	
SAC PEAK	05	2112	2140	2122	N12	W57	5552	28	1+	2		4.74			27	
HAWAII	05	2122 E	2154		N08	W60	5552	32 D	1+	2	2124	2.00				
SAC PEAK	05	2114	2204	2118	S18	W68	5551	50	1	2		3.20			18	
HAWAII	05	2154	2204 D	2158	S14	E10	5562	10 D	1	2	2158	1.20				
HAWAII	05	2320	2410	2336	S14	E16	5562	50	1	3	2336	1.80				
HAWAII	06	0130	0146	0132	S16	W17	5560	16	1	2	0132	1.00				
ARCETRI	06	0805 E			S13	E01	5562		1	2						
DUNSINK	06	1227 E	1233 D	1227	N06	W65	5552	6 D	1	1	1227	1.25	2.96	3.70		
HAWAII	06	2010	2024	2013	S13	W05	5562	14	1	3	2013	1.50				
SAC PEAK	06	2054	2126	2110	N13	W65	5552	32	1	1		2.24			14	
WENDEL	07	0910 E	1007 D		N09	W76	5552	57 D	1+				5.00			
WENDEL	07	0932 E	0956 D		N18	W67	5555	24 D	1				3.00			
WENDEL	07	1022 E	1128 D		N09	W77	5552	66 D	1				4.00			
WENDEL	07	1022 E	1135 D		S13	W12	5562	73 D	1+				7.00			
WENDEL	07	1117	1137 D		N19	E20	5563	20 D	1				3.00			
WENDEL	07	1133	1148		N09	W78	5552	15	1+				5.00			
WENDEL	07	1154 E	1222		N09	W78	5552	28 D	1				3.00			
WENDEL	07	1312	1328 D		N19	E16	5563	16 D	1				3.00			
WENDEL	07	1331 E	1358 D		S19	E68	5567	27 D	1				3.00			
WENDEL	07	1450 E	1502 D		N10	W75	5552	12 D	1				3.00			
WENDEL	08	0914 E	0920 D		S27	E85	5572	6 D	1				4.00			

SOLAR FLARES

FEBRUARY 1960

OBSERVATORY	DATE FEB 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
WENDEL	08	1020 E	1058 D		S18	W22	5562	38 D	1				4.00			
ARCETRI	08	1021 E	1028 D		S19	W24	5562	7 D	1	1						
WENDEL	08	1247 E	1313 D		S27	E83	5572	26 D	1				3.00			
HUANCAYO	08	1602 E	1624		S15	W26	5562	22 D	1	2	1604	3.50	3.90	2.60		
HAWAII	09	0028	0200 D	0028	S17	W35	5562	92 D	1	3	0128	1.20				
WENDEL	09	1039	1122		S14	W45	5562	43	1+				7.00			
WENDEL	09	1140 E	1158 D		S19	W38	5562	18 D	1				3.00			
WENDEL	09	1332	1359 D		N02	W21	5563	27 D	1				3.00			
WENDEL	09	1443 E	1510 D		S13	W46	5562	27 D	1				3.00			
HUANCAYO	09	1947 E	2026 D	2004	S14	W42	5562	39 D	1	2	2004	3.40	4.60			
HUANCAYO	09	2150	2159	1652	S25	E75	5572	9	1	2	1652	1.20	4.00	5.00		
WENDEL	10	0832	0853		N18	E20	5566	21	1				3.00			
WENDEL	10	1115 E	1127 D		S12	W56	5562	12 D	1				3.00			
WENDEL	10	1517 E	1533 D		S14	W57	5562	16 D	1				3.00			
HAWAII	13	1940 E	1946		N15	E08	5570	6 D	1	2	1940	1.20				
SAC PEAK	13	2002	2022	2012	N09	E46	5574	20	1	1		3.53			25	
LOCKHEED	13	2002	2050	2007	N10	E45	5574	48	1	2	2007	2.50			30	Slow S-SWF
HAWAII	13	2006 E	2028		N13	E45	5574	22 D	1	2	2014	1.40				
WENDEL	14	1119 E	1148		N11	E12	5570	29 D	1				3.00			
WENDEL	14	1218	1237		N14	E41	5574	19	1				3.00			
WENDEL	14	1357 E	1417 D		N12	E10	5570	20 D	1				3.00			
LOCKHEED	14	1746	1815	1751	S24	E07	5572	29	1	2	1751	1.90			20	
HAWAII	15	2248 E	2306		S26	W10	5572	18 D	1	1	2300	1.60				
HAWAII	17	2112	2200	2118	N10	W02	5574	48	1+	3	2118	3.70				
LOCKHEED	19	2104	2150	2110	N12	W63	5570	46	1	2	2110	2.00			20	
LOCKHEED	19	2104	2150	2122	N12	W63	5570	46	1	2	2122	2.00			20	
WENDEL	21	1354 E	1413 D		N17	W70	5570	19 D	1				4.00			
WENDEL	21	1421 E	1435 D		S18	E46	5580	14 D	1				3.00			
MCMATH	22	1424 E	1517 D		N08	E42	5581	53 D	2+	1	1428		9.00			S-SWF
SAC PEAK	22	1429	1520	1429	N07	E41	5581	51	2	2		7.89			18	
ARCETRI	24	0854 E	0908 D		S20	E05	5580	14 D	1	2						
WENDEL	24	1440 E	1458 D		N06	E16	5581	18 D	1				4.00			
WENDEL	24	1511 E	1523 D		N10	E17	5581	12 D	1				3.00			
MEUDON	25	0704	0800	0714	S18	W05	5580	56	2+							
HAWAII	26	0122	0138	0128	N13	E15	5584	16	1	3	0128	1.80				
ARCETRI	26	0855 E	0858 D		S10	E75	5587	3 D	1	1						
HAWAII	26	2130 E	2202 D		N11	E14	5584	32 D	2+	2	2130	2.90				
MEUDON	27	1116	1215		S20	W35	5580	59	1							
WENDEL	28	1019	1043 D		N12	W07	5584	24 D	1				3.00			

SOLAR FLARES

FEBRUARY 1960

OBSERVATORY	DATE FEB 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
MEUDON	28	1020	1035		N15	W12	5584	15	1							
ARCETRI	28	1035 E			N12	W09	5584		1	2						
HAWAII	29	0140	0200 D		S32	W56	5580	20 D	2	3	0200	3.20				
WENDEL	29	1330 E	1400 D		N23	E08	5586	30 D	1				4.00			
SAC PEAK	29	1522	1632	1546	N23	E04	5586	70	1	2		3.43			18	
HUANCAYO	29	1524	1635	1546	N22	E07	5586	71	1	2	1546	4.30	4.90	4.70		

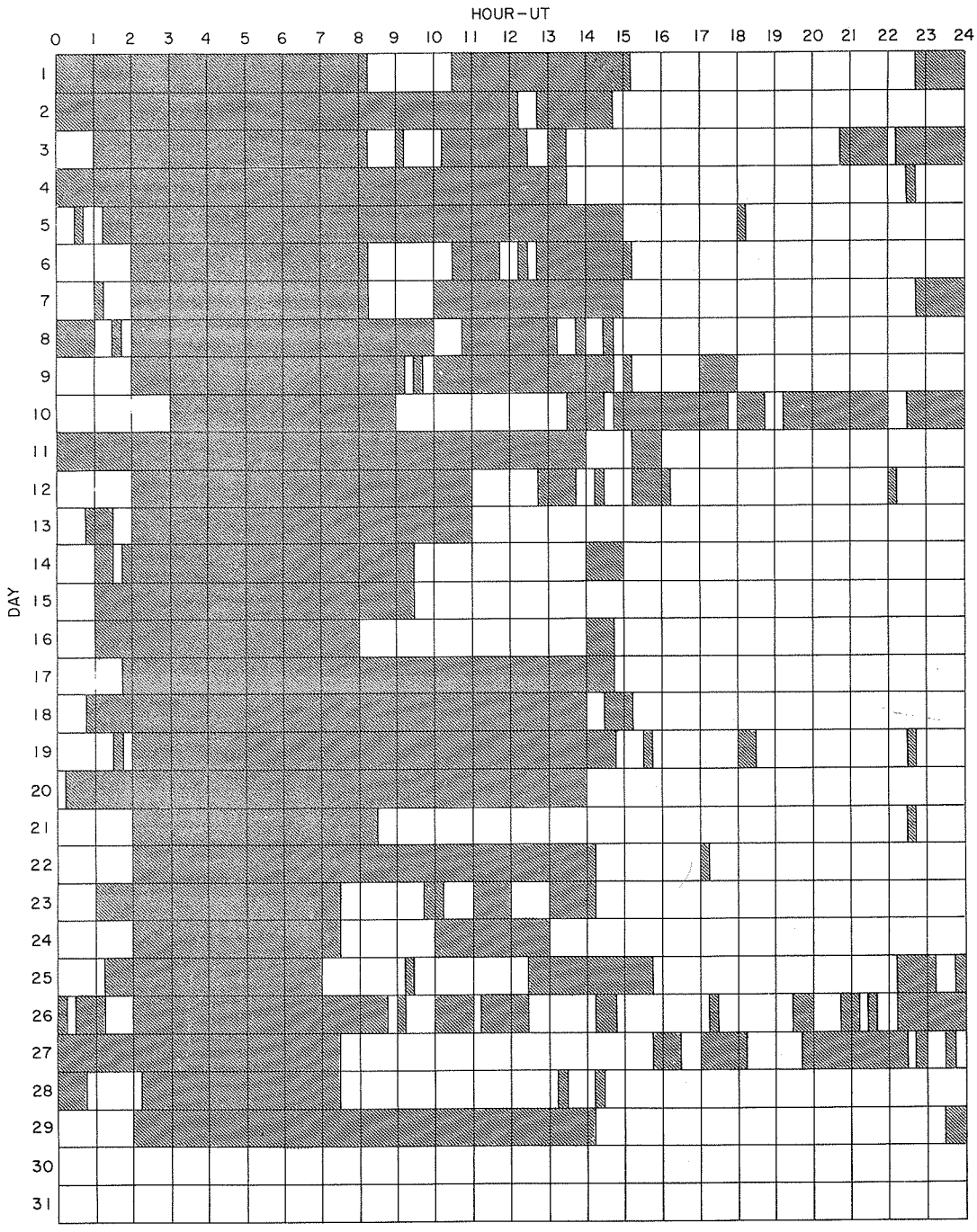
CAPRI G ANACAPRI - GERMAN
CAPRI S ANACAPRI - SWEDISH
GOOD HOPE ROYAL OBSERVATORY, CAPE OF GOOD HOPE
KIEV* KIEV UNIVERSITY
KODAIKNAL KODAIKANAL
KRASNYA KRASNAYA PAKHRA
LOCKHEED LOS ANGELES
MOSCOW-G MOSCOW - GAISH
R O EDIN ROYAL OBSERVATORY, EDINBURGH
R O HERST GREENWICH ROYAL OBSERVATORY, HERSTMONCEUX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

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.

INTERVALS OF NO FLARE PATROL OBSERVATIONS

FEBRUARY 1960



Stations include:

Arcetri Hawaii Lockheed Meudon
Dunsink Huancayo McMath Sacramento Peak

SUBFLARES

Noted as follows: Date-Universal Time-Coordinates

JANUARY 1960

MCMATH	01	1607	S24	E90
MCMATH	01	1618	S26	E90
MCMATH	01	1623	N13	W73
LOCKHEED	01	1635 U	N12	W76
LOCKHEED	01	1700	N12	W76
MCMATH	01	1701	N13	W73
LOCKHEED	01	1708	S24	E90
MCMATH	01	1710	S25	E90
LOCKHEED	01	1738	S23	E90
LOCKHEED	01	1738	S23	E90
LOCKHEED	01	1804	N09	E36
LOCKHEED	01	1821	N23	E75
LOCKHEED	01	1833	S23	E90
LOCKHEED	01	1851	S23	E90
MCMATH	01	1910	N22	E76
MCMATH	01	1911	S25	E90
LOCKHEED	01	1915	S23	E90
MCMATH	01	1927	N15	W78
LOCKHEED	01	1937	N10	E80
LOCKHEED	01	1945	S23	E90
LOCKHEED	01	1945	S23	E90
LOCKHEED	01	1945	S23	E90
LOCKHEED	01	2011	S13	E71
LOCKHEED	01	2038	N15	W77
LOCKHEED	01	2114	S23	E90
LOCKHEED	01	2148	S23	E90
LOCKHEED	01	2148	S23	E90
LOCKHEED	01	2234	N10	E77
LOCKHEED	01	2246	S23	E90
LOCKHEED	01	2323	S23	E90
LOCKHEED	01	2341	N15	W85
WENDEL	02	1037 E	S18	E50
WENDEL	02	1308 E	S21	E55
LOCKHEED	02	1732	S19	E57
LOCKHEED	02	1811	S17	E90
LOCKHEED	02	1836	S24	E90
SAC PEAK	02	1838	S16	E90
LOCKHEED	02	1845	S17	E90
LOCKHEED	02	1845	S17	E90
LOCKHEED	02	1845	S17	E90
LOCKHEED	02	1858	N11	W90
LOCKHEED	02	1915	S23	E90
LOCKHEED	02	1955	S17	E90
LOCKHEED	02	1955	S17	E90
LOCKHEED	02	2004	N11	E39
LOCKHEED	02	2004	N11	E39
LOCKHEED	02	2030	S02	E85
LOCKHEED	02	2048	S24	E88
LOCKHEED	02	2105	S17	E90
LOCKHEED	02	2115	S02	E85
LOCKHEED	02	2152	N20	W90
LOCKHEED	02	2158	S17	E90
LOCKHEED	02	2310 E	S17	E90
HAWAII	03	0132	S24	E83
CAPRI S	03	1059 E	S02	E71
LOCKHEED	04	1620	S24	E61
LOCKHEED	04	1630	N08	W34
LOCKHEED	04	1630	N08	W34
LOCKHEED	04	1745	N09	W35
LOCKHEED	04	1825	N09	W35
LOCKHEED	04	1850	S14	E73
LOCKHEED	04	1915	N09	W35
* LOCKHEED	04	1938	N08	W37
* LOCKHEED	04	1938	N08	W37
* MCMATH	04	1950	N07	W37
LOCKHEED	04	1951	S19	E72
LOCKHEED	04	2016	S19	E72
LOCKHEED	04	2017	N12	E11
LOCKHEED	04	2031	S16	E26
LOCKHEED	04	2114	N07	W38
HAWAII	04	2116	N07	W39
LOCKHEED	04	2148	S17	E73
LOCKHEED	04	2208	S14	E73
LOCKHEED	04	2240	N11	E09
LOCKHEED	04	2313	S02	E54
LOCKHEED	04	2316	N11	E09
LOCKHEED	04	2317	N10	W35
LOCKHEED	04	2342	N26	E03
ARCETRI	05	0847 E	N06	W46
ARCETRI	05	0849 E	N26	E23
ARCETRI	05	0849 E	N29	E34
ARCETRI	05	0909 E	N04	W45
ARCETRI	05	0918 E	N33	E41
WENDEL	05	1016 E	S12	E58
WENDEL	05	1024 E	S14	E66
WENDEL	05	1122 E	S01	E46
WENDEL	05	1126 E	N04	W46
WENDEL	05	1228 E	S10	E61
WENDEL	05	1247 E	N08	W17
CAPRI S	05	1411 E	N07	W17
MCMATH	05	1525	S22	E48
HUANCAYO	05	1533 E	N08	W42
HUANCAYO	05	1620 E	N08	W42
LOCKHEED	05	1623 E	N07	W47
LOCKHEED	05	1645	N07	W47
LOCKHEED	05	1725	S13	E58
LOCKHEED	05	1752	N22	W50
LOCKHEED	05	1754	N15	W68
LOCKHEED	05	1816	N10	W60
MCMATH	05	1820	N08	W50
LOCKHEED	05	1844	S16	E60
LOCKHEED	05	2000	S02	E42
HAWAII	05	2048 E	N07	W23
HAWAII	05	2112	S17	E13
LOCKHEED	05	2148	N12	W04
LOCKHEED	05	2151	N26	E23
HAWAII	05	2152	N12	W02
HAWAII	05	2232	N07	W23
LOCKHEED	05	2232	N26	E20
HAWAII	05	2238	N31	E16
HAWAII	05	2340 E	N07	W54
LOCKHEED	05	2357	N22	W54
LOCKHEED	06	0004	N06	W53
HAWAII	06	0006	N07	W57
CAPRI S	06	1223	N26	E08
LOCKHEED	06	1620	N06	W59
LOCKHEED	06	1620	N06	W59
LOCKHEED	06	1634	S13	W46
LOCKHEED	06	1655	S17	E51
SAC PEAK	06	1658	S18	E51
LOCKHEED	06	1706	N06	W61
LOCKHEED	06	1720	S18	E03
LOCKHEED	06	1752	S20	E39
LOCKHEED	06	1755	N06	W61
LOCKHEED	06	1755	N06	W61
LOCKHEED	06	1838	S16	E49
SAC PEAK	06	1842	S18	E50
HAWAII	06	1846	S17	E51
LOCKHEED	06	1846	N01	E25
LOCKHEED	06	1940	N07	W64
LOCKHEED	06	1940	N07	W64
LOCKHEED	06	1948	S17	E49
SAC PEAK	06	1952	S19	E50
LOCKHEED	06	1954	S03	E28
LOCKHEED	06	2008	S12	E43
SAC PEAK	06	2012	S15	E42
HAWAII	06	2014	S13	E43
LOCKHEED	06	2030	N07	W64
LOCKHEED	06	2135	N26	E08
LOCKHEED	06	2140	N07	W64
LOCKHEED	06	2203	S17	E48
SAC PEAK	06	2204	S18	E49
LOCKHEED	06	2218	N08	W67
LOCKHEED	06	2245	N06	W66
LOCKHEED	06	2300	S17	E49
HAWAII	06	2304 E	S19	E51
LOCKHEED	07	0005	N07	W66
ARCETRI	07	0950 E	N08	W71
* SAC PEAK	07	1516 E	N08	W80
* LOCKHEED	07	1534 E	N07	W80
LOCKHEED	07	1619	N07	W80
SAC PEAK	07	1624	N07	W80
LOCKHEED	07	1703	N15	W27
SAC PEAK	07	1710	N07	W85
SAC PEAK	07	1710	S18	E37
LOCKHEED	07	1710	S17	E38
LOCKHEED	07	1710	N07	W80
LOCKHEED	07	1727	S16	W12
LOCKHEED	07	1808	N07	W80
LOCKHEED	07	1808	N07	W80
LOCKHEED	07	1839	N06	W50
LOCKHEED	07	1908	N08	W86
LOCKHEED	07	1908	N08	W86
SAC PEAK	07	1918	N07	W85
LOCKHEED	07	1952	N08	W86
LOCKHEED	07	1954	S17	W13
LOCKHEED	07	2007	S18	E36
SAC PEAK	07	2012	S17	E26
LOCKHEED	07	2012	S17	E25
LOCKHEED	07	2012	N08	W80
SAC PEAK	07	2014	N08	W80
LOCKHEED	07	2022	N08	W86
LOCKHEED	07	2048	N08	W86
LOCKHEED	07	2057	S18	E35
SAC PEAK	07	2112	N07	W85
LOCKHEED	07	2112	N08	W86
HAWAII	07	2116 E	N08	W90
SAC PEAK	07	2132	N14	W87
LOCKHEED	07	2153	S15	W16
SAC PEAK	07	2156	S16	W14
LOCKHEED	07	2231	N08	W80
LOCKHEED	07	2325	N08	W86
HAWAII	07	2356 E	N08	W90
HAWAII	08	0056	S20	W17
LOCKHEED	08	1705	N09	W90
LOCKHEED	08	1705	S18	E13
SAC PEAK	08	1720	N05	W90
LOCKHEED	08	1726	S22	W01
LOCKHEED	08	1727	S22	W02
LOCKHEED	08	1735	S20	E23
SAC PEAK	08	1738	S21	E22
* SAC PEAK	08	1742	S26	W35
LOCKHEED	08	1953	S15	E13
LOCKHEED	08	2003	N08	W39
SAC PEAK	08	2132	S03	E13
LOCKHEED	08	2210	N24	E56
SAC PEAK	09	1652	N09	W80
* HAWAII	09	2108	N22	E19
SAC PEAK	10	1616	N22	E19
WENDEL	11	0937 E	S06	E70
WENDEL	11	1135 E	N21	E01
WENDEL	11	1305 E	N24	E13
LOCKHEED	11	1729 U	N01	W38
LOCKHEED	11	1733	S11	W90
LOCKHEED	11	1734 U	N22	E10
LOCKHEED	11	2143	S13	E16
LOCKHEED	11	2156 U	S11	W90
LOCKHEED	11	2216	N17	W09
HAWAII	11	2220	N18	W09
* LOCKHEED	11	2349 E	N18	W08
LOCKHEED	12	1852	N21	W10
LOCKHEED	12	2008	N10	W03
LOCKHEED	12	2042	N25	W53
LOCKHEED	12	2049	N07	E90
LOCKHEED	12	2105	N25	W53
SAC PEAK	12	2110	N26	W54
LOCKHEED	12	2124	S18	W90
LOCKHEED	12	2150 E	N25	W53
SAC PEAK	12	2152	N24	W10
LOCKHEED	12	2153	N23	W11
LOCKHEED	12	2209	N07	E90
SAC PEAK	12	2210	N06	E90
LOCKHEED	12	2231	N07	E90
LOCKHEED	12	2330 U	S22	W33
LOCKHEED	13	1628	S23	W41
LOCKHEED	13	1645	S11	W07
LOCKHEED	13	1732	S18	W75
LOCKHEED	13	1754	S03	E36
LOCKHEED	13	1756	S22	W42
LOCKHEED	13	1756	N18	E82
LOCKHEED	13	1824	N07	E76
LOCKHEED	13	1828	S23	W41
LOCKHEED	13	1847	S17	W90
LOCKHEED	13	1905	S47	W50
LOCKHEED	13	1906	S18	W75
LOCKHEED	13	2012	S23	W43
LOCKHEED	13	2054	S21	W52
LOCKHEED	13	2147	S10	E29
LOCKHEED	13	2154	S03	E34
LOCKHEED	13	2355	S03	E33
CAPRI S	14	0826 E	N20	W34
SAC PEAK	14	1830	S22	W57
LOCKHEED	15	1549 E	S21	W69
* SAC PEAK	15	1646	S06	E09
* HUANCAYO	15	1653 E	S05	E11
* SAC PEAK	15	1728	N10	E80
SAC PEAK	15	1812	N24	W47
LOCKHEED	15	1827 E	N02	W47
SAC PEAK	15	1914	S12	W35
HAWAII	15	2048	S13	W37
SAC PEAK	15	2048	S12	W36
WENDEL	16	0955 E	S18	E26
WENDEL	16	1149 E	N17	W59
WENDEL	16	1215 E	N27	E73
WENDEL	16	1244 E	S20	W79
CAPRI S	16	1308	N26	E72
WENDEL	16	1308 E	S17	W71
LOCKHEED	16	1639 E	N22	W59
LOCKHEED	16	1759	N28	E65
LOCKHEED	16	1906	N26	E66
LOCKHEED	16	1952	N16	E84
LOCKHEED	16	2026	N24	E71
* LOCKHEED	16	2108	N28	E63
LOCKHEED	16	2116	N16	E84
LOCKHEED	16	2152	N10	E69
LOCKHEED	16	2207	N21	E72
LOCKHEED	16	2328	N10	E63
LOCKHEED	16	2339	N15	E76
* LOCKHEED	17	0030	N09	E66
WENDEL	17	0921 E	N27	E58
WENDEL	17	1119 E	N31	E57
SAC PEAK	18	1726	N16	E59
SAC PEAK	18	1810	N10	E60
SAC PEAK	18	1938	N04	E05
HAWAII	18	1940	N06	E04
SAC PEAK	18	2206	N14	E56
HAWAII	19	0028 E	N09	W24
WENDEL	19	1136 E	N17	E48
WENDEL	19	1252 E	N17	E49
SAC PEAK	19	1834	N24	E18
SAC PEAK	19	1842	N09	E27
LOCKHEED	19	2016	N29	E25
WENDEL	20	0801 E	N09	W56
WENDEL	20	0828 E	N09	W56
WENDEL	20	0855 E	N09	W56
WENDEL	20	0927 E	N07	W57
WENDEL	20	1159 E	S14	W55
WENDEL	20	1251 E	N08	W11
WENDEL	20	1350 E	N07	E76
SAC PEAK	20	1714	N17	W03
SAC PEAK	20	1748	N17	W03
LOCKHEED	20	1748	N17	W04
LOCKHEED	20	1802	N17	W04
LOCKHEED	20	1802	N17	W04
LOCKHEED	20	1933	N13	E24
SAC PEAK	20	1936	N12	E27
LOCKHEED	20	2004	N13	E24
SAC PEAK	20	2030	N11	E27
LOCKHEED	20	2040	N12	E26
SAC PEAK	20	2146	N12	E25
LOCKHEED	20	2155	N18	W06
* LOCKHEED	20	2258	N12	E25
SAC PEAK	21	1552	N28	E20
SAC PEAK	21	1604	N19	E88
SAC PEAK	21	1700	N17	W31
SAC PEAK	21	2156	N27	E03
SAC PEAK	22	1648	N08	E90
SAC PEAK	22	2150	N08	E90
SAC PEAK	22	2210	N10	W04
HAWAII	22	2214	N12	W05
SAC PEAK	23	1518 U	N27	W22
LOCKHEED	23	1700 U	N10	W64
LOCKHEED	23	1810	N10	E48
LOCKHEED	23	1843	N10	E80
SAC PEAK	23	1852 U	N09	E49
LOCKHEED	23	1854	N10	E48
LOCKHEED	23	1904	N02	E70
LOCKHEED	23	1914	N10	E80
SAC PEAK	23	1914 U	N10	E85
LOCKHEED	23	1948	N10	E80
LOCKHEED	23	2009	N09	W67
* LOCKHEED	23	2029	N09	E46
* SAC PEAK	23	2038 U	N08	E47
SAC PEAK	23	2100 U	N09	E90
LOCKHEED	23	2112	N09	W67
LOCKHEED	23	2112	N09	W67
LOCKHEED	23	2112	N09	W67
LOCKHEED	23	2202	N06	E71
LOCKHEED	23	2202	N06	E71
SAC PEAK	23	2210 U	N05	E79
LOCKHEED	23	2308	N07	E80
WENDEL	24	1444 E	N19	E39
LOCKHEED	24	1745	N08	E34
LOCKHEED	24	1752	N09	E34
SAC PEAK	24	1756	N09	E35
SAC PEAK	24	1842	N10	W84
LOCKHEED	24	1842	N11	W82
LOCKHEED	24	1848	N09	E34
LOCKHEED	24	1909	N12	E63
LOCKHEED	24	1909	N12	E63
LOCKHEED	24	1923	N09	E34
LOCKHEED	24	1930	N11	W82
SAC PEAK	24	1938	N10	W84
LOCKHEED	24	1953	N09	E33
LOCKHEED	24	1953	N06	E51
HAWAII	24	1954	N13	E32
SAC PEAK	24	1954	N09	E33
LOCKHEED	24	2017	N11	W82
HAWAII	24	2030 E	N07	W90
LOCKHEED	24	2043	N09	E33
LOCKHEED	24	2050	N09	E57
LOCKHEED	24	2050	N07	E64
HAWAII	24	2054	N07	E50
SAC PEAK	24	2056	N07	E65
LOCKHEED	24	2103	N09	W82
LOCKHEED	24	2113	S17	E82
LOCKHEED	24	2113	N23	E39
SAC PEAK	24	2124	N07	E63
LOCKHEED	24	2159	N12	E63
HAWAII	24	2200	N04	E67
SAC PEAK	24	2200	N10	E65
LOCKHEED	24	2208	N10	W34
LOCKHEED	24	2208	N10	W34
SAC PEAK	24	2216	N07	E62
LOCKHEED	24	2230	N06	E59
SAC PEAK	25	1604 E	N06	E54
SAC PEAK	25	2112	N08	E15
HAWAII	25	2118	N12	E51
HAWAII	25	2120	N09	E14
SAC PEAK	25	2216	N09	E90
SAC PEAK	26	1454	N02	E27
HUANCAYO	26	1502 E	N00	E28
SAC PEAK	26	1522	N07	E86
SAC PEAK	26	1640	N06	E33
SAC PEAK	26	1722	S16	E68
SAC PEAK	26	1812	N06	E38
SAC PEAK	26	1844	N09	E90
SAC PEAK	26	1930	N20	E13
SAC PEAK	26	2010	N11	E12
HUANCAYO	27	1415	N08	E32
CAPRI S	27	1448	N08	E16
SAC PEAK	27	1454 E	N03	E14
SAC PEAK	27	1514	N10	E20
SAC PEAK	27	1714	N06	E28
LOCKHEED	27	1740 U	N13	E62
LOCKHEED	27	1833	N10	E39
LOCKHEED	27	1848	N09	E29
LOCKHEED	27	1911	S09	E59
LOCKHEED	27	1940	S14	E60
LOCKHEED	27	1954	N10	E23
SAC PEAK	27	2000	N08	E23
LOCKHEED	27	2104	N10	E70
LOCKHEED	27	2110	N11	E23
LOCKHEED	27	2134	S16	E62
LOCKHEED	27	2138	N06	E09
LOCKHEED	27	2155	N10	E70
LOCKHEED	27	2155	N10	E70
LOCKHEED	27	2241	N08	E67
LOCKHEED	27	2245	N09	E19
LOCKHEED	27	2245	N09	E19

SUBFLARES

Noted as follows: Date-Universal Time-Coordinates

JANUARY 1960

	LOCKHEED	27	2327	N22 W03
	LOCKHEED	28	0019	N08 E27
	LOCKHEED	28	0043	N10 E22
	CAPRI S	28	1423 E	N10 E13
	HUANCAYO	28	1455	N12 E11
	SAC PEAK	28	1513 E	N12 E10
	LOCKHEED	28	1639	N18 W11
	SAC PEAK	28	1640	N17 W12
	HUANCAYO	28	1651 E	N17 W08
	SAC PEAK	28	1732	N07 E08
	SAC PEAK	28	1804	N33 W90
	SAC PEAK	28	1904	S15 E37
	LOCKHEED	28	1905	S14 E37
	LOCKHEED	28	1910	N13 E07
	SAC PEAK	28	1912	N12 E07
	SAC PEAK	28	1932	S11 E48
	LOCKHEED	28	1933	S10 E48
*	LOCKHEED	28	2034	S01 W06
*	LOCKHEED	28	2034	S01 W06
	HUANCAYO	28	2049	N07 E01
	SAC PEAK	28	2056	N23 E21
	LOCKHEED	29	1639	N09 E37
	LOCKHEED	29	1639	N09 E37
	SAC PEAK	29	1650	N07 W38
	LOCKHEED	29	1651	N07 W38
	LOCKHEED	29	1652	S18 E57
	SAC PEAK	29	1702	S19 E58
	LOCKHEED	29	1737	N12 E00
	SAC PEAK	29	1740	N11 E00
*	SAC PEAK	29	1740	N04 W17
	LOCKHEED	29	1745	N13 E09
	LOCKHEED	29	1745	N13 E09
	LOCKHEED	29	1815	N08 E36
	LOCKHEED	29	1820	S14 E24
*	LOCKHEED	29	1820	S18 E57
	LOCKHEED	29	1942 U	S18 E57
	LOCKHEED	29	1942 U	S18 E57
	SAC PEAK	29	1952	S18 E56
	HUANCAYO	29	1957 E	S18 E59
	LOCKHEED	29	2015	N22 E48
	SAC PEAK	29	2044	N09 E11
	LOCKHEED	29	2050	N18 E11
	LOCKHEED	29	2135	N07 W04
	LOCKHEED	29	2157	S14 E22
	LOCKHEED	29	2159	S18 E54
	LOCKHEED	29	2206	N10 E41
	SAC PEAK	29	2206	N09 E42
	HAWAII	29	2210 E	N12 E42
	WENDEL	30	1127 E	N08 E25
	WENDEL	30	1128 E	N08 W15
	WENDEL	30	1128 E	N08 W11
	WENDEL	30	1134 E	N15 W02
*	SAC PEAK	30	1506 E	N10 E34
	SAC PEAK	30	1658	N21 E38
	LOCKHEED	30	1700 E	N21 E38
	LOCKHEED	30	1710	N08 W27
	LOCKHEED	30	1724	N11 W02
	LOCKHEED	30	1812	S17 E90
	LOCKHEED	30	1850	N11 W03
	SAC PEAK	30	1944	S18 E45
	LOCKHEED	30	2000	S18 E90
	SAC PEAK	30	2006	S18 E90
	LOCKHEED	30	2035	S18 E90
	LOCKHEED	30	2047	N12 W10
	SAC PEAK	30	2054 E	N11 W09
	LOCKHEED	30	2106	N11 W28
	LOCKHEED	30	2119	N13 W08
	SAC PEAK	30	2120	N12 W07
	LOCKHEED	30	2127	N13 W90
	SAC PEAK	30	2142	N08 E28
	LOCKHEED	30	2143	N09 E27
	LOCKHEED	30	2143	N23 E32
	SAC PEAK	30	2148	N12 W08
	LOCKHEED	30	2149	N13 W08
	LOCKHEED	30	2202	S14 E12
	LOCKHEED	30	2209	N24 E18
	LOCKHEED	30	2236	N23 E30
	LOCKHEED	30	2300	N10 W30
	LOCKHEED	30	2315	N22 E34
	LOCKHEED	30	2343	N23 E30
	LOCKHEED	30	2352	S17 E90
	LOCKHEED	31	0003	N22 E29
	LOCKHEED	31	0039	N10 E26
	CAPRI S	31	1042 E	N12 E24
	CAPRI S	31	1312 E	N08 E17
	LOCKHEED	31	1750	N10 W41
	LOCKHEED	31	1824	S16 E04
	LOCKHEED	31	1846	N11 E17
	LOCKHEED	31	1900	S17 W01
	LOCKHEED	31	1945	N09 W41
	LOCKHEED	31	1949	N08 E11
	LOCKHEED	31	2059	S18 W10
	LOCKHEED	31	2117	N22 E24
	LOCKHEED	31	2122	N09 W42
	SAC PEAK	31	2214	S18 W02
	LOCKHEED	31	2215 U	S17 W04
	LOCKHEED	31	2235 U	N09 W42
	SAC PEAK	31	2238	N09 W43

*Rated as flare of importance ≥ 1 by other observatories (See CRPL-F 186 Part B).

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OBSERVATORY	DATE NOV 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. %	
GOOD HOPE	02	1010	1030	1013	N23	E47	5446	20	1		1013	2.40	3.70			
GOOD HOPE	02	1314	1330	1317	N23	E43	5446	16	1		1317	1.60	2.30			
VOROSHILOV	03	0237	0254		N23	E35	5446	17	1	1	0247	2.17	4.51		68	
SYDNEY	03	0311	0320	0315	N05	W82	5437	9	2	1	0315	1.50	6.00			
SIMEIZ	03	0825 E	0832 D		N13	W65	5439	7 D	1	1	0826	.90	1.90			
SIMEIZ	03	0838 E	0838 D		N27	E34	5446		1	1	0838	1.82	2.40			
CAPRI G	03	1052 E	1057 D		N18	W26	5441	5 D	1	2	1055		3.00			
GOOD HOPE	03	1115	1135	1118	N23	E30	5446	20	1		1118	1.80	2.10			
CAPRI G	03	1356 E	1400 D		N13	W60	5439	4 D	1	2	1358		4.00			
VOROSHILOV	03	2250	2312	2302	N16	W70	5439	22	1+	3	2302	2.53	6.87		62	
TASHKENT	04	0606	0630	0609	N27	E15	5446	24	1	1	0613	3.03	3.00	2.40	80	
GOOD HOPE	04	1010	1024	1012	N13	W76	5439	14	1		1012	1.20				
GOOD HOPE	04	1148	1219	1156	N13	W82	5439	31	1		1156	2.10				
CAPRI G	04	1159 E	1213		N13	W80	5439	14 D	1	3	1201		5.00			
GOOD HOPE	04	1322	1349	1334	N12	W84	5439	27	1		1334	1.60				
CAPRI G	04	1334 E	1352 D		N12	W80	5439	18 D	2	3	1335		9.00			
SYDNEY	04	2243	2254	2250	S17	E88	5452	11		2	2250	1.50				
SYDNEY	05	0055	0102	0059	S17	E87	5452	7		2	0059	1.00				
SYDNEY	05	0149	0200	0157	S17	E86	5452	11		2	0157	.25				
LOCKHEED	05	1655	1830	1700	N26	E03	5446	95	1	2	1735	2.60			30	
LOCKHEED	05	2015	2050	2030	N26	E03	5446	35	1	2	2030	2.00			10	
VOROSHILOV	06	0130	0224	0139	N25	W00	5446	54	2	1	0139	7.59	8.10		80	G-SWF
ATHENS	06	0714 E	0725		S17	E70	5452	11 D	1+	3		1.70	4.40			
LOCKHEED	06	1611	1720	1618	N26	W09	5446	69	1	2	1618	2.60			40	
LOCKHEED	06	1740	1844	1752	S20	E61	5452	64	1	1	1752	2.00			20	
VOROSHILOV	07	0241	0302	0255	S18	E57	5452	21	1	1	0255	1.71	3.23		78	
ABASTUMANI	07	0741 E	0829 D	0743	N27	W16	5446	48 D	1	2		2.53	2.90		67	
ABASTUMANI	07	0756 E	0829 D	0803	N24	W22	5446	33 D	1	2		3.18	3.60		65	
LOCKHEED	07	1614 E	1850	1734	S17	E50	5452	156 D	1	2	1734	2.10			30	
LOCKHEED	07	1912	2055	1945	S17	E50	5452	103	1	2	1945	2.00			20	
SYDNEY	07	2248	2254	2250	N20	E83	5457	6	1	2	2250	.75	3.00			
LOCKHEED	07	2310	2410	2345	S17	E50	5452	60	1	1	2345	2.00			20	
SYDNEY	08	0308	0428	0354	S20	E34	5452	80	1	2	0254	2.00	3.00			
LOCKHEED	08	2344	2410	2354	S17	E29	5452	26	1	1	2354	2.00			40	
KRASNYA	09	0900	0910	0902	N22	W90	5441	10	1+	2	0902	.90	4.50		90	
CAPRI G	09	1158 E	1212 D		S16	E51	5454	14 D	2	3	1206		7.00			
CAPRI G	09	1243 E	1310 D		S19	E21	5452	27 D	2	3	1247		8.00			
VOROSHILOV	10	0046	0056		S18	E18	5452	10	1	2	0052	1.90	2.12		63	
NEDERHORST	10	1104 E	1117 D		S23	E11	5452	13 D	2	3						S-SWF
CAPRI G	10	1118 E	1152 D		S18	E11	5452	34 D	2	3	1122		7.00			
CAPRI G	10	1226 E	1305 D		S17	E10	5452	39 D	1	3	1231		3.00			
LOCKHEED	10	1635	1721	1640	S16	E06	5452	46	1	2	1640	3.00			40	S-SWF
LOCKHEED	10	1820	2015	1904	S16	E06	5452	115	2	2	1904	4.80			40	Slow S-SWF
LOCKHEED	10	2324	2433 D	2350	S16	E02	5452	69 D	1	1	2350	2.20			10	
VOROSHILOV	11	0100	0111	0109	S17	E06	5452	11	1+	1	0109	3.79	4.04		80	

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KRASNYA	11	0851	0912	0854	S18	W04	5452	21	1	2	0854	.90	.50		80	
KRASNYA	11	0921	0929	0925	N09	E74	5458	8	1	2	0925	.90	1.30		85	
LOCKHEED	11	2037	2130	2045	S14	E20	5454	53	2	3	2045	5.20			30	
GOOD HOPE	12	0717 E	0755	0721	S15	W13	5452	38 D	1		0721	2.30	2.50			
KRASNYA	12	0845	0916	0850	S24	W15	5452	31	1	2	0850	2.72	1.46		85	
CAPRI G	12	1422 E	1442 D		S17	E01	5454	20 D	1	2	1424		4.00			
VOROSHILOV	12	2303	2353	2304	S16	W22	5452	50	1	2	2304	3.07	3.52		62	
VOROSHILOV	13	0010	0037	0012	S14	W04	5454	27	1+	2	0012	2.89	3.05		80	
KRASNYA	13	0821	0844	0834	S13	W27	5452	23	1	2	0844	5.44	3.20		60	
KRASNYA	13	0924	1017	0944	S16	W11	5454	53	1	2	0944	4.53	2.40		60	
VOROSHILOV	14	0151	0234	0158	S19	W47	5452	43	1+	2	0158	4.34	6.70		69	
VOROSHILOV	14	0203	0258	0212	S18	W34	5452	55	1	2	0212	1.63	2.07		63	S-SWF
CAPRI G	14	0737 E	0745		N16	W03	5457	8 D	1	3	0738		3.00			
KRASNYA	14	0823	0910	0848	S11	W23	5454	47	1	2	0848	1.82	1.00		96	
CAPRI G	14	0832 E	0915 D		S11	W20	5454	43 D	1	3	0844		3.00			
CAPRI G	14	1219 E	1231 D		S16	W38	5452	12 D	1	3	1221		4.00			
GOOD HOPE	14	1219	1234	1221	S17	W38	5452	15	1		1221	1.70	2.30			
CAPRI G	14	1335 E	1352 D		S20	W25	5454	17 D	1	3	1337		5.00			
CAPRI G	14	1431 E	1452 D		S18	W43	5452	21 D	1	2	1432		3.00			
TASHKENT	15	0638	0714	0651	S17	W54	5452	36	1	2	0647	4.13	7.00	2.30	65	
GOOD HOPE	15	0700 E	0740		S17	W52	5452	40 D	1		0700	2.30	4.20			
ATHENS	15	0733			S13	W35	5454		2	3		7.00	8.70			
GOOD HOPE	15	0733	0817	0744	S12	W36	5454	44	2		0744	4.80	6.00			
TASHKENT	15	0734	0808	0742	S10	W32	5454	34	1	2	0743	6.24	8.00	2.70	70	
GOOD HOPE	15	0909	0932	0911	S18	W51	5452	23	1		0911	1.60	2.80			
VOROSHILOV	15	2256	2312	2257	S15	W65	5452	16	1+	3	2257	1.35	3.08		105	
VOROSHILOV	15	2330 E	2336		N07	E71	5463	6 D	1	3	2330	1.27	3.65		69	
VOROSHILOV	16	0015	0120	0043	N14	E49	5461	65	1+	2	0043	5.33	8.12		58	
TASHKENT	16	0508	0546	0515	N07	E75	5463	38	1	2	0516	1.84	6.00	2.40	70	
GOOD HOPE	16	0647 E	0652		S18	W63	5452	5 D	1		0648	.90	2.10			
CAPRI G	16	0933 E	1020 D		N03	E05	5458	47 D	1	3	0935		4.00			
CAPRI G	16	1025 E	1032 D		S14	W66	5452	7 D	1	3	1030		4.00			
CAPRI G	16	1129 E	1138 D		N07	E70	5464	9 D	1	3	1132		5.00			
VOROSHILOV	17	0111	0123	0115	N03	W02	5458	12	1+	2	0115	2.17	2.16		80	
VOROSHILOV	17	0128 U	0130	0128	S20	W90	5452	2 U	1+	2	0128	.46	3.09		95	
GOOD HOPE	17	0925 E	1004	0938	S17	W52	5454	39 D	1		0938	2.10	3.60			
NEDERHORST	17	0933	0950 D		S16	W55	5454	17 D	2	3						
CAPRI G	17	0938 E	1003		S16	W50	5454	25 D	2	3	0942		8.00			
CAPRI G	17	1110 E	1230		N18	E90	5466	80 D	1	3	1120		4.00			
GOOD HOPE	17	1303	1313 D	1309	S18	W88	5452	10 D	1		1309	.40				
LOCKHEED	18	1614	1631 D	1622	N21	W60	5457	17 D	1	1	1622	2.40			20	
LOCKHEED	18	2322	2435 D	2335	N18	W66	5457	73 D	2	1	2335	5.40			40	Slow S-SWF
CAPRI G	19	0738 E	0805 D		N31	E02	5460	27 D	1	3	0740		4.00			
CAPRI G	19	0804 E	0910 D		N17	E81	5468	66 D	1	3	0805		4.00			
CAPRI G	19	0825 E	0835 D		N26	E85	5468	10 D	1	3	0826		5.00			

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CAPRI G	19	1046 E	1051 D		N24	E31	5464	5 D	1	2	1048		3.00			
KHARKOV	20	1132	1140		N07	E45	5466	8	1	2	1133	1.71	2.60	1.80		
CAPRI G	20	1134 E	1137 D		N04	E43	5466	3 D	1	2	1135		3.00			
SYDNEY	20	2237 E	2307		S15	E79	5467	30 D	1	3	2243	.50	2.00			
VOROSHILOV	21	0014	0048	0019	N22	E67	5468	34	1	2	0019	1.00	2.50		63	
SYDNEY	21	0014 E	0105	0034	N27	E67	5468	51 D	1	2	0034	2.00	4.00			
LOCKHEED	21	2316	2327	2321	N19	E47	5468	11	1	1	2322	2.30			10	
SYDNEY	21	2318	2326	2323	N20	E46	5468	8	2	3	2323	3.00	5.00			
SYDNEY	23	0345	0359	0347	N24	E80	5471	14	1	1	0347	.75	3.00			
TASHKENT	23	0654	0713	0659	N26	E86	5471	19	1	3	0659	1.84		5.00	65	
GOOD HOPE	23	0654	0715	0657	N24	E90	5471	21	1		0657	.50				
GOOD HOPE	23	0936	1004	0941	N24	E90	5471	28	1		0941	.50				
VOROSHILOV	25	0117	0120	0118	N03	E90	5476	3	1	2	0118	.45	3.09		72	
GOOD HOPE	25	1135	1212	1142	N11	E78	5476	37	1+		1142	2.00				
ATHENS	26	0748	0824		N12	E66	5476	36	2+	5		4.30	9.70			Slow S-SWF
GOOD HOPE	26	0749 E	0826		N12	E70	5476	37 D	2		0750	1.20				
KRASNYA	26	0827	0835	0831	N10	E71	5476	8	1+	2	0831	1.82	2.50		100	
GOOD HOPE	26	0828	0840	0831	N12	E75	5476	12	1		0831	1.00				
GOOD HOPE	26	0923	1110	0938	S15	W18	5467	107	2		0938	6.80	7.50			
KRASNYA	26	0924	1045	0931	S13	W10	5467	81	2+	2	0931	21.76	11.90		155	S-SWF
KRASNYA	26	0924	1045	0948	S13	W10	5467	81	2+	2		21.76	11.90		130	
KHARKOV	26	1010 E	1045 D		S17	W16	5467	35 D	1+	1	1012	6.86	8.00	2.00		
CAPRI G	27	0831 E	0845		N11	E64	5476	14 D	1	3	0832		4.00			
KRASNYA	27	0921	0940	0831 U	N11	E68	5476	19	1	2	0831	1.82	2.30		70	
CAPRI G	27	0939 E	1002 D		N04	E61	5476	23 D	1	3	0941		4.00			
CAPRI G	27	1108 E	1155		N11	E63	5476	47 D	1	3	1110		3.00			
GOOD HOPE	27	1134	1147	1138	N12	E65	5476	13	1		1138	1.50	3.50			
CAPRI G	27	1144 E	1155		S14	W35	5467	11 D	1	3	1146		3.00			
GOOD HOPE	27	1220	1322 D	1233	N19	E30	5471	62 D	2		1233	6.10	7.40			
CAPRI G	27	1225 E	1337 D		N18	E35	5471	72 D	2	3	1231		10.00			
CAPRI G	27	1225 E	1304		N11	E62	5476	39 D	1	3	1227		3.00			
GOOD HOPE	27	1244	1302	1250	N12	E65	5476	18	1		1250	1.50	3.50			
CAPRI G	27	1330 E	1337 D		N09	E47	5476	7 D	1	3	1332		3.00			
CAPRI G	27	1353 E	1507 D		N11	E61	5476	74 D	1	3	1355		4.00			
CAPRI G	27	1342 E	1412 D		N19	W20	5468	30 D	1	3	1344		6.00			
CAPRI G	27	1432 E	1507 D		N18	W22	5468	35 D	2	3	1438		9.00			
SIMEIZ	28	0732 E	0835 D	0746	N10	E37	5476	63 D	1	1	0747	1.35	1.90	1.80	79	
GOOD HOPE	28	0733	0828	0736	N11	E37	5476	55	1		0736	.80	1.00			
ATHENS	28	0735 E	0820		N12	E35	5476	45 D	1	4		2.00	2.40			
CAPRI G	28	0946 E	1008 D		S18	W48	5467	22 D	1	2	0948		3.00			
GOOD HOPE	28	1213	1335		N12	E37	5476	82	2		1224	4.60	5.80			Slow S-SWF
CAPRI G	28	1235 E	1252 D		N11	E34	5476	17 D	2	1	1236		9.00			
GOOD HOPE	28	1335 E	1340 D	1338	S17	W46	5467	5 D	2		1338	4.20	6.20			
LOCKHEED	28	2006	2130	2017	N10	E30	5476	84	3	2	2017	13.00			40	Slow S-SWF
LOCKHEED	29	0010	0035 D	0022	N23	E03	5471	25 D	1	1	0022	2.00			20	

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SYDNEY	29	0056	0111	0107	N13	E28	5476	15	1	2	0107	3.00	3.00			
VOROSHILOV	29	0253	0321	0256	N10	E28	5476	28	2	1	0256	4.96	5.64		86	
GOOD HOPE	29	0634 E	0701		N11	E26	5476	27 D	1		0638	2.10	2.40			
GOOD HOPE	29	0809 E	0933	0831	N11	E23	5476	84 D	1+		0831	3.80	4.20			
ATHENS	29	0820	0900 D		N09	E22	5476	40 D	2+	4		10.00	10.60			
SIMEIZ	29	0822 E	0910 D		N09	E20	5476	48 D	1	1	0842	2.72	3.20	2.40		
GOOD HOPE	29	1221 E	1238 D		N12	E22	5476	17 D	1		1223	4.10	4.60			
GOOD HOPE	29	1335 E	1500 D	1346	N10	E19	5476	85 D	2		1346	6.90	7.40			Slow S-SWF
CLIMAX	29	1820	1925 D	1839	N09	E16	5476	65 D	2		1839	10.50				S-SWF
LOCKHEED	29	1826	2002	1847	N07	E18	5476	96	2+	3	1847	6.50			40	
SIMEIZ	30	0909 E	0923 D		N10	E15	5476	14 D	1	1	0912	2.26	2.60	3.20		
GOOD HOPE	30	1111	1150	1117	N10	E07	5476	39	2		1117	6.00	6.20			
GOOD HOPE	30	1148	1220	1153	N22	E35	5477	32	1		1153	2.00	2.60			
LOCKHEED	30	1604	1655	1611	N10	E10	5476	51	1	2	1611	2.00			20	
LOCKHEED	30	1722	1850 D	1732	N09	E07	5476	88 D	3	2	1742	12.60			40	S-SWF
CLIMAX	30	1731 E	1838	1742	N03	E02	5476	67 D	3		1742	12.60				
LOCKHEED	30	2053	2145	2100	N13	E13	5476	52	1	1	2100	2.50			30	

COMMERCE - STANDARDS - BOULDER

These flare reports are addenda to the November 1959 flares published in CRPL-F 184 Part B, December 1959.

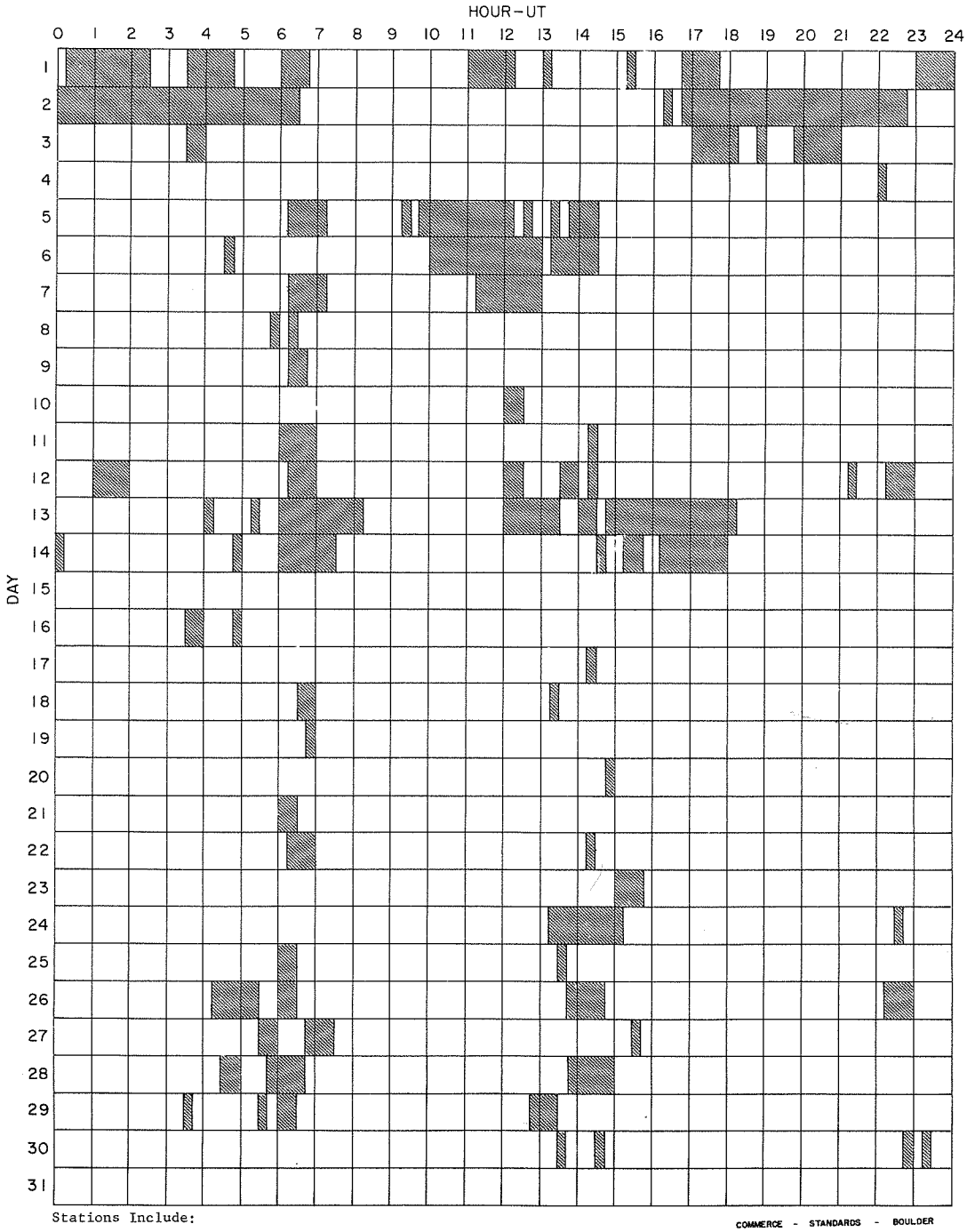
Errata: On page IIIo of CRPL-F 185B, "These flare reports are addenda to the September 1959 flares published in CRPL-F 182B." On page IIIk of CRPL-F 186B, "These flare reports are addenda to the October 1959 flares published in CRPL-F 183B."

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
MOSCOW-G MOSCOW - GAISH
R O EDIN ROYAL OBSERVATORY, EDINBURGH
R O HERST GREENWICH ROYAL OBSERVATORY, HERSTMONCEUX
SAC PEAK SACRAMENTO PEAK
SCHAUINS SCHAUINSLAND
USNRL UNITED STATES NAVAL RESEARCH LABORATORY

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.

INTERVALS OF NO FLARE PATROL OBSERVATIONS
NOVEMBER 1959



Stations Include:

Abastumani
Anacapri (Swedish)
Arcetri
Athens
Climax
Dunsink
Good Hope
Hawaii
Huancayo
Kharkov
Kiev GAO
Kodaikanal
Krasnaya Pakhra
Locarno
Lockheed
McMath
Meudon
Mitaka
Moscow Gaish
Nederhorst
Nizamiah
Ondrejov
Royal Greenwich Observatory
Herstmonceux
Sacramento Peak
Simeiz
Sydney
Tashkent
Voroshilov
Zurich

IONOSPHERIC EFFECTS OF SOLAR FLARES

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

OCTOBER 1959

Oct. 1959	CLASS SCNA	SEA	Burst	Wide Spread Index	TIME (UNIVERSAL TIME) BEGIN	MAX.	END	PERCENT ABSORPTION SCNA	OBSERVATION STATIONS
2			1	3	1748		1752		BO, SP
2			1	5	1752		1758		BO, RE, SP
2			1	3	1839		1841		BO, SP
3			1	1	2246		2249		HA
6		1+		4	0003	0015	0050		A1, A5, A6
6		1+		3	1422		1443		KU, NE
6		1+		3	1730	1746	1815		A1, A2, A3, A5
6	1			5	2012	2015	2040	30	BO, HA, MC, RE
6		1		5	2015	2025	2050		A6, BO, HA, SP
6			1	1	2244		2308		HA
6			1	1	2345		2348		HA
7		1		1	1328		1348		NE
7	1			1	1428	1432	1440	30	RE
7		1+		3	1430		1459		NE, PU
8			1	5	2117		2122		HA, RE
9			1	1	0035		0038		HA
18			1	3	1829		1833		BO, SP
20		1+		3	1335	1400D	1430		A1, A5
21		2		3	1145	1201	1225		A1, A5
21		1		3	1235	1240	1300		A1, A5
22		2		3	1200	1215	1235		A1, A3, A5
22		2		3	1240	1250	1330U		A1, A3, A5
22		1+		3	1406	1425			A1, A5
24		2		3	1445	1450			A1, A3
24		2		3	2028	2047	2103		A1, A5
24		2+		3	2103	2125	2147		A1, A5
24		2-		3	2147	2205	2230		A1, A5, A6
26		3		4	1059	1120	1220		A1, A3, A5
26			1	3	2004		2008		BO, SP

NOVEMBER 1959

Nov. 1959	CLASS SCNA	SEA	Burst	Wide Spread Index	TIME (UNIVERSAL TIME) BEGIN	MAX.	END	PERCENT ABSORPTION SCNA	OBSERVATION STATIONS
1	1			1	1255	1307	1400		MC
3			1	1	1148	1152	1200		RE
3			1	1	1524	1630	1640		RE
3			1	3	1704		1707		BO, SP
4		2		5	2045	2100	2200		A5, BO, SP
4	1			5	2050	2058	2112	15	BO, HA, RE
9		2		3	1238		1310		NE, PU
10		2+		5	1106		1141		NE, PA, PU
10		2-		3	1412	1428D	1450		A1, A5
10	1			5	1638	1645	1730	25	BO, RE, SP
10		1		3	1640	1654	1740		BO, SP
10	1			5	1900	1907	1940	25	BO, MC, SP
10		1		3	1900	1915			BO, SP
12			1	1	1140	1147	1150		RE
13		2+		3	0958	1013	1048		A3, A5
14		1		5	1712	1725			A3, A5, BO, SP
14	1			5	1714	1725	1745	25	BO, MC, SP
15		1		5	1940	1948			A3, A5, BO
15	1			5	1942	1944	1947	10	BO, HA, SP
26		2		3	0931		0943		NE, PU
28		2		1	1223		1323		NE
28	2			5	2014	2021	2105	40	BO, HA, MC, RE, SP
28		2+		5	2015	2030	2115		A1, A3, A5, BO, SP
29		2+		5	1348	1407	1450		A3, A5, NE
29		3		5	1835	1857	2035		A1, A3, A5, A6, BO, SP
29	2			5	1843	1857	1950	50	BO, HA, MC, RE, SP
30		2		1	1115				NE
30		3-		5	1726	1745	1915		A1, A2, A3, A5, BO, NE, SP
30	3			5	1738	1741	1845	100	BO, HA, MC, RE, SP

COMMERCE - STANDARDS - BOULDER

IONOSPHERIC EFFECTS OF SOLAR FLARES

(SHORT-WAVE RADIO FADEOUTS)

JANUARY 1960

Jan. 1960	Start UT	End UT	Type	Wide Spread Index	Importance	Observation Stations	Known Flare, UT CRPL-F 186
7	0008	0030	S-SWF	5	1	AD, OK	*
7	0419	0442	S-SWF	1	1+	OK	*
7	1505	1535	Slow S-SWF	5	1	BE, FM, HU, MC, PR	1504E
11	2100	2124	Slow S-SWF	5	2-	AN, HU, LA, MC, PR, WS	2040U
13	1850	1930	Slow S-SWF	5	1+	AD, AN, HU, MC, PR, WS	
15	0430	0500	Slow S-SWF	1	1+	OK	*
15	1312	1322	S-SWF	4	1-	KU, PR	
15	1340	1425	Slow S-SWF	4	1+	HU, MC, NE, PR	1334
15	1732	1800	Slow S-SWF	5	1+	AN, HU, MC, PR, WS	1730D
16	2245	2319	Slow S-SWF	5	2-	AD, AN, HU, LA, OK, TO, WS	2239
17	1618	1710	Slow S-SWF	5	2-	BE, FM, MC, PR, WS	*
19	1932	2029	G-SWF	5	2-	FM, HU, LA, PR, WS	1928
22	1650	1723	Slow S-SWF	5	1	BE, HU, MC, PR, WS	
24	0218	0257	Slow S-SWF	1	1+	OK	*
25	1718	1743	S-SWF	5	2	BE, FM, HU, MC, PR, WS	*
30	2027	2050	G-SWF	4	1	AD, AN, FM, PR, WS	

KU = Kuhlungsborn, G.D.R.
LA = Los Angeles, Calif.
TO = Hiraiso Radio Wave Observatory, Japan

*No known flare patrol.

COMMERCE - STANDARDS - BOULDER

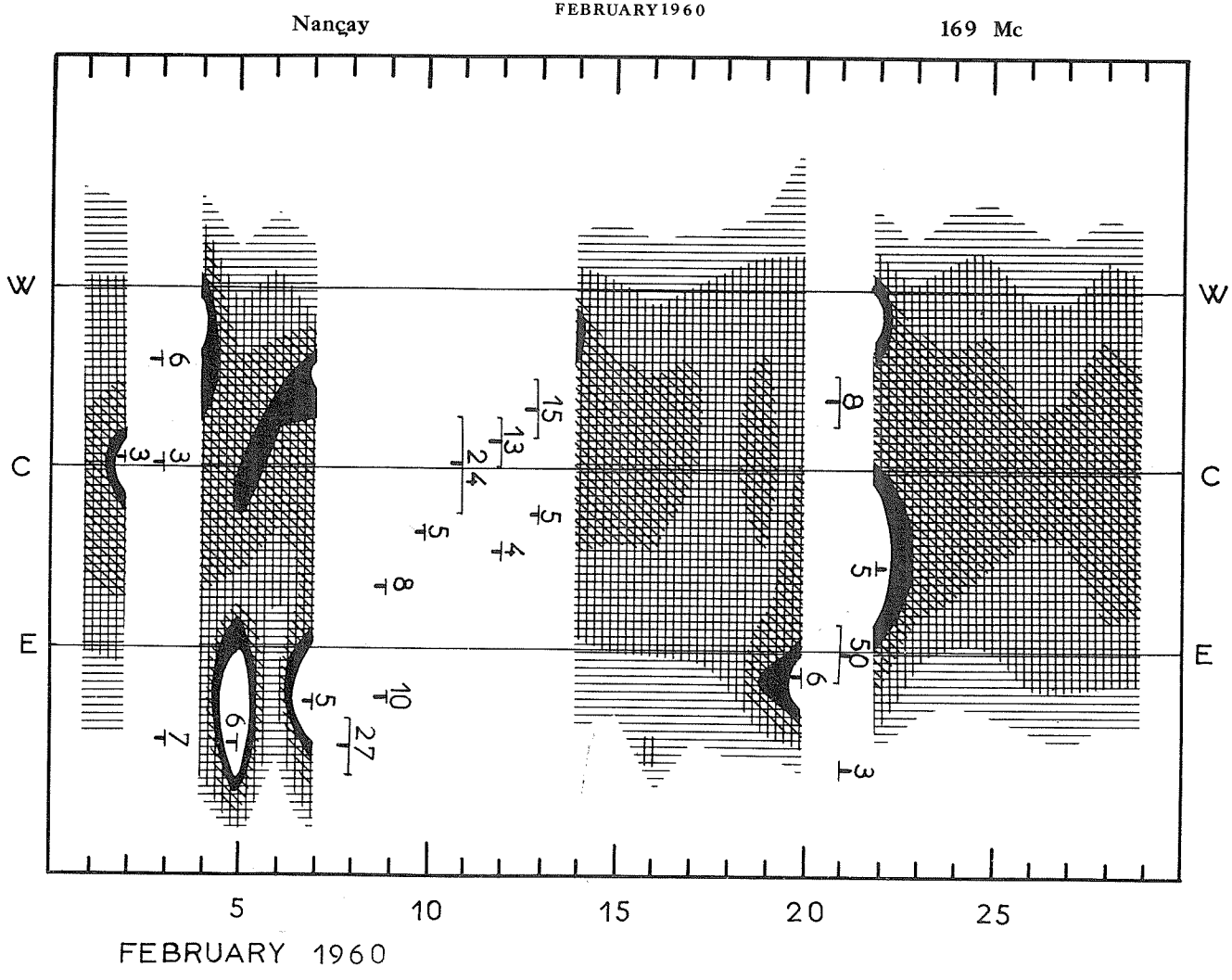
SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

Ottawa — FEBRUARY 1960 — **2800 Mc**

Feb. 1960	Type*	Start UT	Duration Hrs:Mins	Maximum Time UT	Maximum Peak Flux	Remarks
1	2 Simple 2	2124.5	3	2125.5	16	
2	2 Simple 2	1519.5	2.5	1520.3	30	
	4 Post Increase		10		6	
2	2 Simple 2	2111	1	2111.3	35	
3	2 Simple 2	1538	2	1539	15	
	4 Post Increase		5		5	
3	3 Simple 3 A	1708.5	1 30	1720	18	
	2 Simple 2 f	1708.5	5.5	1710	60	
3	3 Simple 3 A	2019	50	indet.	7	
	6 Complex f	2024	13	2026	25	
	2 Simple 2	2100.5	4	2101.5	14	
4	8 Group (2)	1312.5	8.5			In sunrise oscillations
	2 Simple 2	1312.5	2.5	1313	65	In sunrise oscillations
	2 Simple 2	1316	5	1317.3	18	In sunrise oscillations
	6 Complex f	1642	28	1655.5	35	
	4 Post Increase		1 50		9	
4	2 Simple 2	1927.5	3.5	1928.5	85	
	4 Post Increase A		40		6	
	2 Simple 2	1931.5	2.5	1932.5	10	
4	2 Simple 2 f	2037	9	2040	125	
	4 Post Increase		30		5	
5	2 Simple 2	1348.5	2.5	1349	50	In sunrise oscillations
6	2 Simple 2	1349	5	1351	12	In sunrise oscillations
13	2 Simple 2	2003	6	2004.5	13	
19	2 Simple 2	2106	5	2106.5	10	
22	3 Simple 3 A	1335	1 55	1430	20	
	6 Complex f	1353.5	28	1359	340	

COMMERCE - STANDARDS - BOULDER

SOLAR RADIO EMISSION
INTERFEROMETRIC OBSERVATIONS
FEBRUARY 1960



SOLAR RADIO EMISSION

OUTSTANDING OCCURRENCES

FEBRUARY 1960

BOULDER — 167 MC

Feb. 1960	Type	Start UT	Time of Maximum UT	Duration Minutes	Intensity
1	2	1415.9	1416.0	1.6	2*
1	2	1446	1446.7	6	2*
1	2	1452.9	1454.0	1.2	2*
1	3	1454.8	1454.9	0.7	3*
1	3	1522.8	1522.8	0.3	2
1	3	1529.3	1529.5	0.6	2
1	3	1547.1	1547.1	0.2	2
1	3	1554.5	1554.5	0.9	2
1	2	1647.0	1647.7	1.2	2
1	2	2205.0	2206.5	2.0	3
2	3	1555.5	1555.5	0.2	2
2	3	1708.0	1708.0	0.2	2
2	2	1908.2	1909.5	2.4	2
2	3	2047.7	2047.7	0.1	2
2	3	2111.0	2111.2	2.0	3
2	3	2152.0	2152.0	0.4	3
2	3	2153.9	2153.9	0.3	2
3	3	1455.0	1455.0	0.1	2
3	3	1521.1	1521.1	0.1	1
3	3	1549.1	1549.2	0.9	2
3	8	1708.0	1709.7	4.0	3
3	3	1840.1	1840.1	0.3	1
3	3	2021.9	2021.9	0.1	2
3	8	2023.8	2024.1	2.2	3
3	3	2337.9	2337.9	0.2	1**
4	6	1408 E		198 D	2
4	3	1829.0	1829.5	1.0	3
4	2	1831.5	1832.8	3.5	2
4	3	1929.0	1929.0	1.0	2
4	3	1932.5	1932.5	0.2	2
4	8	2037.6	2038.1	3.9	3
4	3	2046.5	2046.9	2.3	3
4	3	2112.2	2112.2	0.1	1
4	3	2141.6	2141.6	0.3	2
4	3	2146.3	2146.3	0.3	2
4	7	2232		100 D	1
5	6	1405 E		441 D	2
5	3	1943.5	1943.5	0.2	3
5	3	1945.0	1946.0	2.0	3
5	3	2145.0	2145.3	1.0	2
5	3	2148.2	2148.3	0.8	2
5	3	2257.0	2257.3	1.6	3
5	3	2325.6	2325.6	0.3	2
5	3	2331.9	2331.9	0.4	2
6	6	1405 E		610 D	1

Feb. 1960	Type	Start UT	Time of Maximum UT	Duration Minutes	Intensity
7	6	1403 E		198	1
7	7	1940		275 D	1
8	6	1404 E		611 D	2
9	6	1402 E		616 D	2
10	6	1400 E	2210	618 D	2
11	6	1358 E		623 D	2
11	3	1617.5	1617.5	0.3	3
11	3	1812.0	1812.0	0.2	3
12	6	1355 E		625 D	2
13	6	1355 E		627 D	2
14	3	1838.5	1838.5	0.2	3
14	3	1917.0	1917.0	0.2	3
14	3	2206.9	2206.9	0.3	3
16	3	1623.6	1623.6	0.1	1
16	3	1743.4	1743.4	0.2	1
17	3	0006.3	0007.2	1.3	2**
17	3	0013.2	0013.2	0.1	2**
17	2	0015.5	0015.9	1.5	1**
17	3	0019.1	0019.5	0.9	1**
17	3	0022.3	0022.3	0.3	1**
18	2	1507.0	1507.1	2.0	2
18	3	2129.0	2129.0	1.0	2
19	3	1516.8	1516.8	0.3	2
19	3	1548.5	1548.5	0.2	2
19	7	2132	2147	64	2
20	3	1421.5	1421.5	0.3	2*
20	3	1505.9	1506.1	0.7	2
20	3	1513.0	1513.0	0.1	1
20	3	1610.0	1610.4	0.8	2
20	7	1637	2213	473 D	2
21	3	1353.7	1353.7	0.2	2*
21	3	1358.2	1358.2	0.3	2*
22	6	1517 E		208 D	1
22	3	1935.5	1935.5	0.4	2
22	3	2034.1	2034.3	0.9	2
23	3	0024.0	0024.0	0.3	1**
23	3	1428.0	1428.0	0.1	2**
23	3	2100.0	2100.0	0.2	2
25	3	1427.2	1427.8	0.8	1**
25	3	1911.8	1911.8	0.2	1
25	3	2050.4	2050.4	0.3	2

* On sunrise pattern
** On sunset pattern

TIMES OF OBSERVATION

Feb. 1960	U.T.	Feb. 1960	U.T.
1	1410-0007	18	1351-0026 I 1645-1930
2	1409-0010	19	1415-0029
3	1407-0010	20	1347-0030
4	1408-0012	21	1346-1626
5	1405-0012		1718-1755
6	1405-0015		1759-1905
7	1403-0015		1942-2142
8	1404-0015		2230-2253
9	1402-0018		2333-0030
10	1400-0018	22	1517-0031
11	1358-0021	23	1400-0032
12	1355-0020	24	1343-0032
13	1355-0022	25	1341-0033
14	1355-0022	26	1339-0034
15	1353-0022	27	1337-0036
16	1354-0024	28	1336-0037
17	1352-0025	29	1335-0037

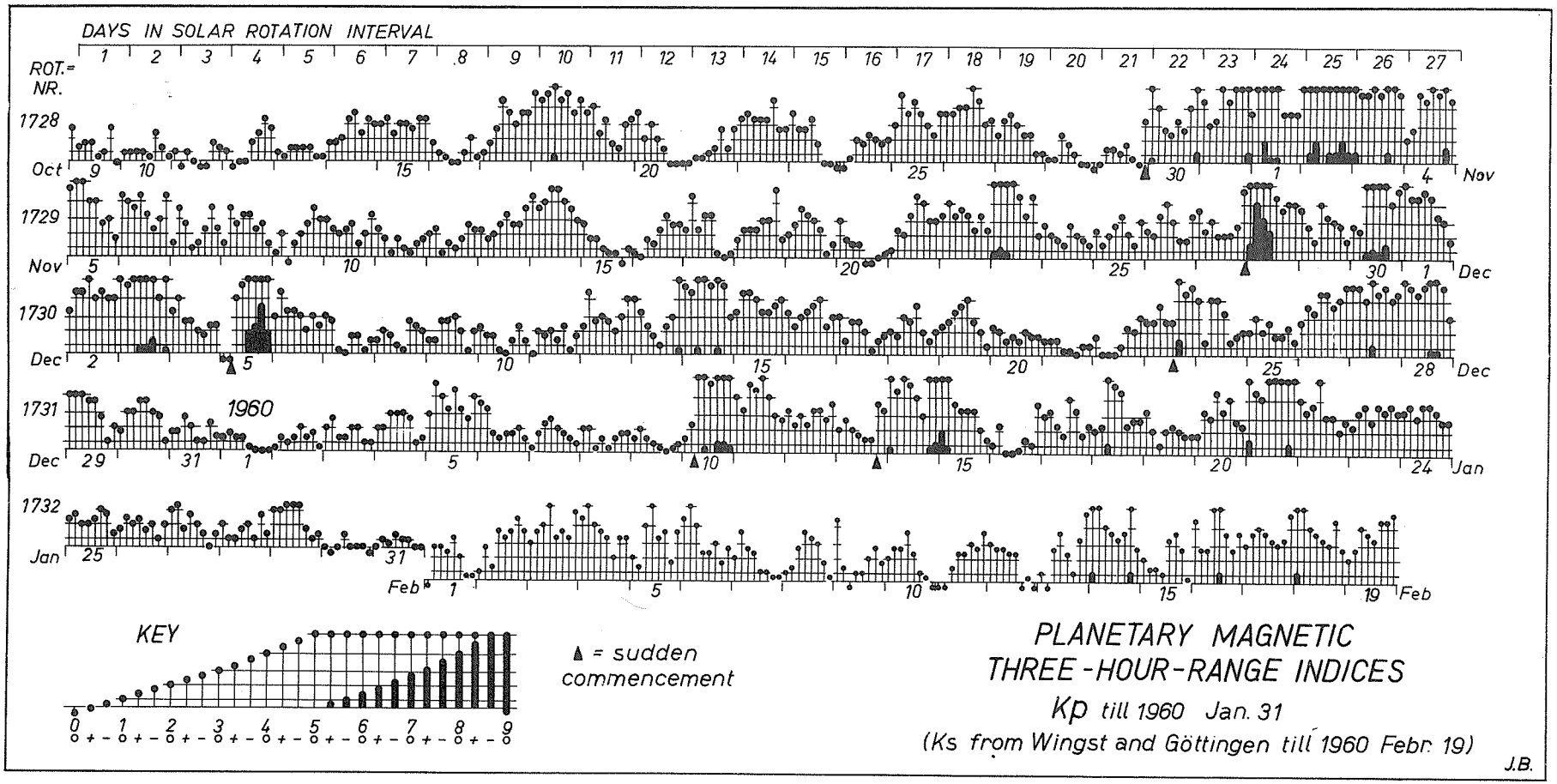
COMMERCE - STANDARDS - BOULDER

GEOMAGNETIC ACTIVITY INDICES

JANUARY 1960

Jan. 1960	C	Values Kp — Three hour Gr. interval 1 2 3 4	5 6 7 8	Sum	Ap	Final Selected Days
1	0.0	1+ 2- 1+ 1+	1- 0+ 0+ 0+	7+	4	Five
2	0.1	1- 1+ 1o 1+	2o 1+ 2- 1-	10o	5	Quiet
3	0.1	2o 3- 1+ 1+	2o 2o 1o 1o	13+	6	
4	0.6	2o 2o 3o 3o	3o 3- 1o 1+	18o	10	1
5	1.1	3o 5- 4o 3+	4+ 3+ 3- 4o	29+	24	2
						9
6	0.5	4- 3+ 2- 1+	2- 2- 2o 1+	17-	9	30
7	0.2	1- 2- 2+ 3-	2o 2- 1+ 1o	13+	6	31
8	0.2	2o 2o 1- 1+	1- 1+ 2- 2-	11+	5	
9	0.1	1+ 2o 1+ 1o	1- 0+ 1- 1o	8+	4	
10	1.6	1+ 2+ 5o 5+	5- 6- 6- 5+	35+	43	
11	1.2	4o 3+ 5- 4+	5o 4o 3o 3-	31o	27	Five
12	1.0	3+ 2+ 3o 2+	3+ 3+ 3- 4-	24o	15	Disturbed
13	0.8	2o 3- 2o 2-	1+ 1+ 4- 3+	18o	10	
14	1.6	5+ 4+ 5o 5-	4o 3o 5+ 6-	37+	42	10
15	1.2	6+ 5+ 4- 3+	3+ 3+ 2o 1+	29-	30	11
						14
16	0.5	1o 2+ 0+ 0+	1- 1+ 1o 4-	11-	6	15
17	0.9	3o 3+ 2+ 2-	4o 3+ 2- 2+	22-	14	21
18	1.2	2o 2+ 6- 5-	4+ 2+ 3- 3-	27-	23	
19	0.5	3+ 2o 1o 2o	2+ 2o 2- 2-	16o	8	
20	1.1	2- 3+ 3o 4+	3+ 4o 3- 2+	25-	17	
21	1.7	6o 4+ 4o 5o	5o 5o 6- 5o	40o	50	Ten
22	1.1	4o 3+ 4- 5o	3o 3o 2o 3-	27-	20	Quiet
23	1.0	2+ 3+ 4- 3-	4- 3+ 4- 3+	26o	18	
24	0.9	3+ 4- 3o 4-	4- 3+ 3- 3-	26o	18	1
25	0.6	2+ 3- 2o 2o	2+ 3o 3- 1+	18+	10	2
						3
26	0.2	2- 2+ 2o 2+	2- 2o 1o 2o	15o	7	7
27	0.3	3o 3+ 2- 3-	2o 1+ 0+ 1+	16-	9	8
28	0.2	2o 1o 1o 2-	2o 1o 3- 1+	13-	6	9
29	0.7	3o 3o 3+ 3+	3+ 2- 1o 1+	20o	12	16
30	0.0	0+ 0o 0+ 1+	0+ 0+ 0+ 0o	3o	2	28
31	0.1	0+ 1o 1- 1+	1o 1o 0+ 0+	6o	3	30
						31
Mean:	0.69			Mean:	15	

COMMERCE - STANDARDS - BOULDER


DAYS IN SOLAR ROTATION INTERVAL
ROT.= NR.
1728
Oct
Nov
1729
Nov
Dec
1730
Dec
Dec
1731
1960
Dec
Jan
1732
Jan
Feb
KEY
▲ = sudden commencement
PLANETARY MAGNETIC
THREE-HOUR-RANGE INDICES
Kp till 1960 Jan. 31
(Ks from Wingst and Göttingen till 1960 Febr. 19)
J.B.

CRPL RADIO PROPAGATION QUALITY FIGURES AND FORECASTS
NORTH ATLANTIC

JANUARY 1960

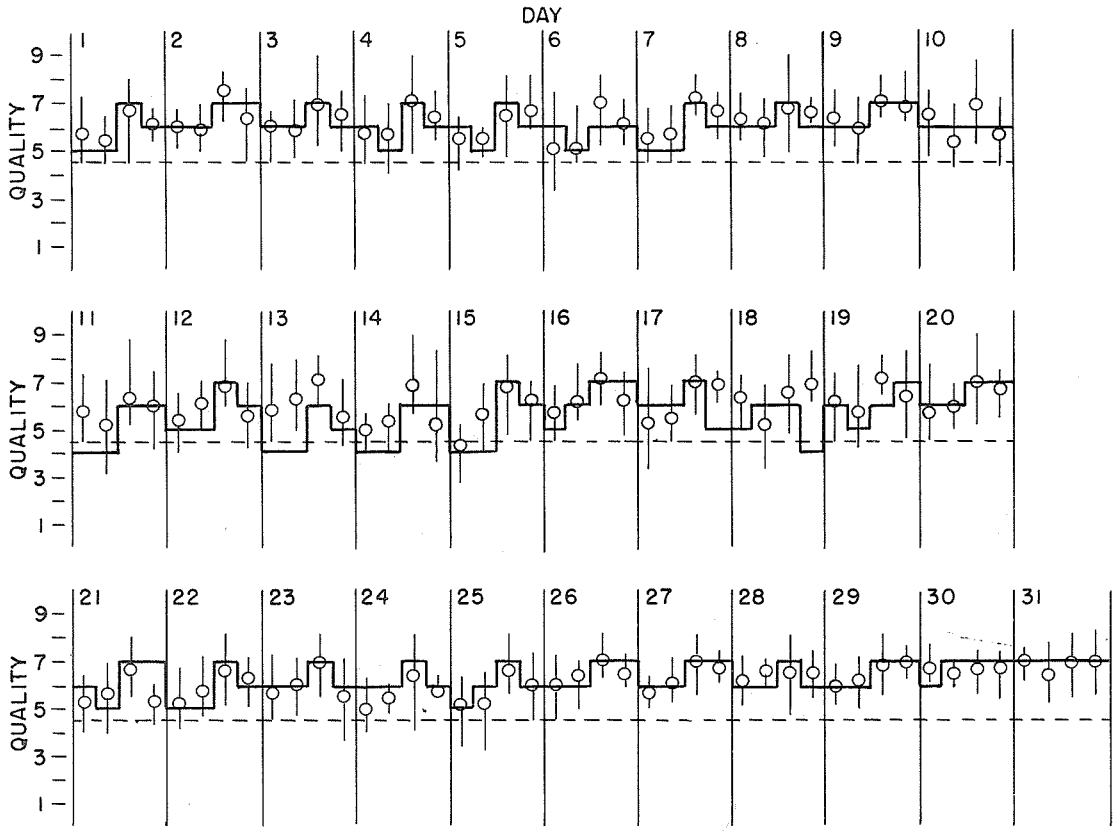
Jan. 1960	North Atlantic 6-hourly quality figures				Short-term forecasts issued about one hour in advance of:				Whole day index	Advance forecasts (J-reports) for whole day; issued in advance by:				Geomag-netic K_{Fr}	
	00 to 06	06 to 12	12 to 18	18 to 24	00	06	12	18		1-7 days Final	1-7 days Js	1-7 days SDW	1-7 days J	Half Day (1)	(2)
1	6-	5+	7-	6+	5	5	7	6	6o	6			6	2	0
2	6o	6o	7+	6+	6	6	7	7	6+	6			6	1	1
3	6o	6-	7o	6+	6	6	7	6	6+	6			6	2	1
4	6-	6-	7o	6+	6	5	7	6	6+	6			6	2	2
5	5+	6-	6+	7-	6	5	7	6	6o	6			6	3	3
6	5+	5o	7o	6+	6	5	6	6	6o	6			6	2	1
7	5+	6-	7+	7-	5	5	7	6	6+	6			6	2	2
8	6+	6+	7-	7-	6	6	7	6	7-	6			6	1	1
9	6+	6o	7o	7-	6	6	7	7	7-	6			6	1	0
10	7-	5+	7o	6-	6	6	6	6	6o	5			5	3	(5)
11	6-	5o	6+	6o	4	4	6	6	6-	5			5	(4)	3
12	5+	6o	7-	6-	5	5	7	6	6o	5			5	2	3
13	6-	6+	7o	6-	4	4	6	5	6o	4		4	6	2	2
14	5o	5+	7o	5o	4	4	6	6	6-	4		3	4	(4)	(4)
15	4+	6-	7-	6o	4	4	7	6	5+	5		5	5	(4)	2
16	6-	6o	7o	6+	5	6	7	7	6+	6			6	1	1
17	5+	6-	7o	7o	6	6	7	5	6+	6			6	2	3
18	6+	5o	7-	7o	5	6	6	4	6+	6			6	(4)	3
19	6+	6-	7+	6+	6	5	6	7	6+	6			6	2	2
20	6-	6o	7o	7-	6	6	7	7	6+	6			6	3	3
21	5+	6-	7-	5+	6	5	7	7	6-	7			7	(5)	(4)
22	5+	6o	7-	6+	5	5	7	6	6o	6			6	(4)	3
23	6-	6o	7o	6-	6	6	7	6	6o	5			5	2	3
24	5o	6-	6+	6o	6	6	7	6	6-	5			5	3	3
25	5+	5+	7-	6o	5	6	7	6	6-	5			5	2	2
26	6+	6+	7o	7-	6	6	7	7	7-	6			6	2	2
27	6-	6+	7o	7-	6	6	7	7	6+	6			6	2	1
28	6+	7-	7-	7-	6	6	7	6	7-	7			7	1	2
29	6o	6+	7o	7o	6	6	7	7	7-	7			7	3	2
30	7-	7-	7o	7o	6	7	7	7	7-	5			5	0	0
31	7o	6+	7o	7o	7	7	7	7	7-	5			5	0	1
Score: Quiet Periods					P 17	15	23	19		17			18		
					S 11	14	8	9		10			10		
					U 0	0	0	2		2			2		
					F 2	2	0	1		2			1		
Disturbed Periods					P 1	0	0	0		0			0		
					S 0	0	0	0		0			0		
					U 0	0	0	0		0			0		
					F 0	0	0	0		0			0		

( ) represent disturbed values.

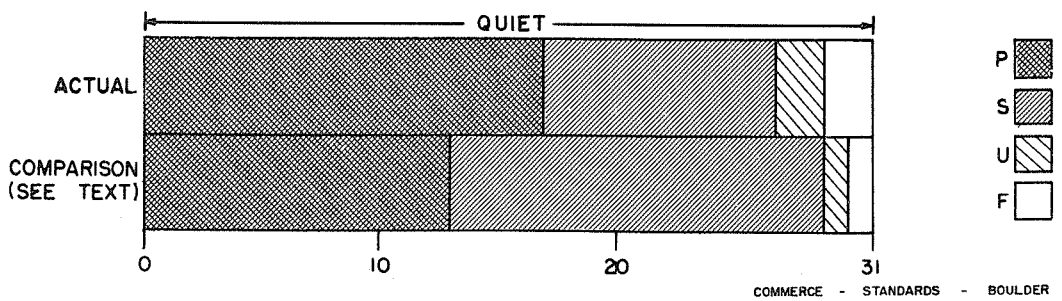
CRPL RADIO PROPAGATION QUALITY FIGURES AND FORECASTS
NORTH ATLANTIC

JANUARY 1960

— Short-term forecast
| Range of reports
o Quality figure



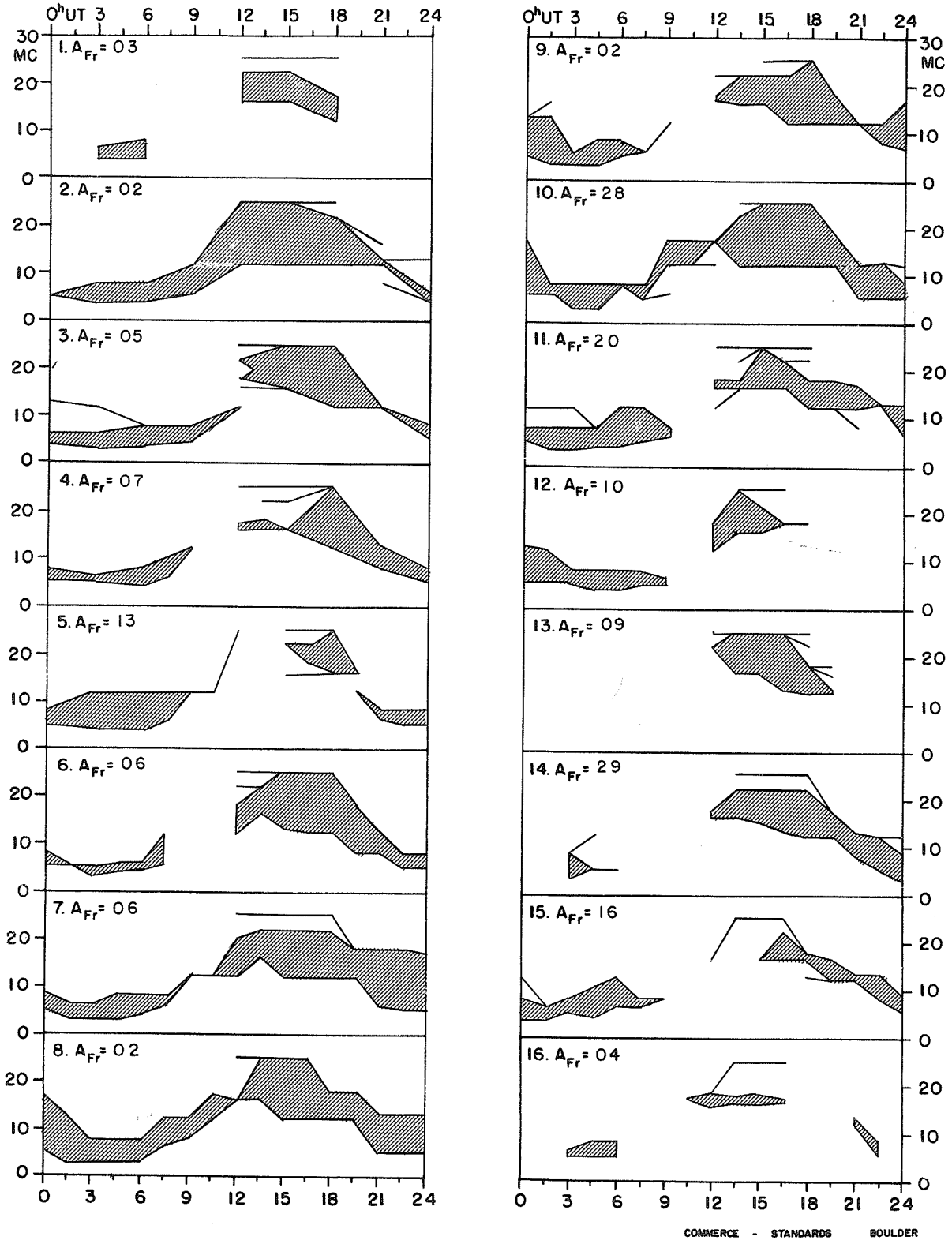
OUTCOME OF ADVANCED FORECASTS FINAL ESTIMATE

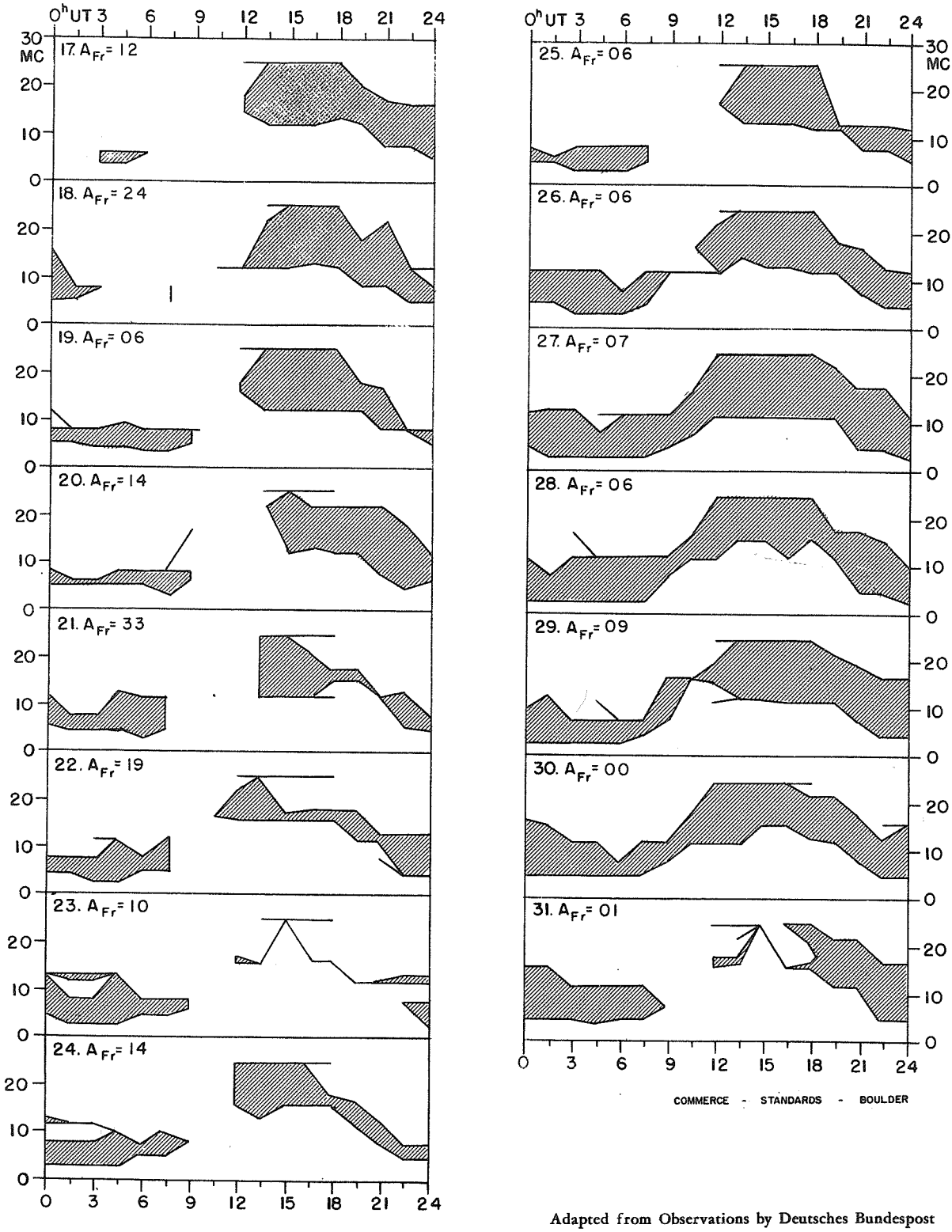


COMMERCE - STANDARDS - BOULDER

USEFUL FREQUENCY RANGES -- NORTH ATLANTIC PATH

JANUARY 1960





Adapted from Observations by Deutsches Bundespost

CRPL RADIO PROPAGATION QUALITY FIGURES AND FORECASTS

NORTH PACIFIC

JANUARY 1960

Jan. 1960	North Pacific 12-hourly quality figures		Short-term forecasts issued at		Whole day index	Advance forecasts (Jp reports) for whole day; issued in advance by:				Geomagnetic K_{Si}	
	0700 to 1900	1900 to 0700	0600	1800		1-7 days Final Jps	1-7 days	1-7 days SDW	1-7 days Jp	Half (1)	Day (2)
1	5	6	6	6	6	6			6	1	0
2	6	6	6	6	6	6			6	1	2
3	7	7	6	6	7	6			6	1	2
4	7	6	6	6	7	6			6	2	1
5	6	7	6	6	6	6			6	(4)	(4)
6	7	7	5	6	8	6			6	2	2
7	6	6	6	6	7	6			6	2	2
8	6	6	6	6	6	6			6	1	1
9	7	6	6	6	7	6			6	1	0
10	5	6	6	5	5	5			5	(4)	(5)
11	6	7	5	6	6	5			5	(4)	(4)
12	7	6	6	6	6	5			5	2	2
13	6	4	5	4	6	4		4	6	2	2
14	5	4	3	5	(4)	3		3	4	(4)	(4)
15	6	5	4	5	6	5		5	5	(5)	3
16	5	5	5	6	5	6			6	0	2
17	6	6	5	6	6	6			6	2	2
18	6	6	5	6	6	6			6	(4)	(4)
19	6	7	5	6	6	6			6	2	2
20	7	7	6	6	7	6			6	3	3
21	6	4	6	4	5	6			6	(5)	(6)
22	7	7	5	6	7	6			6	(4)	2
23	7	6	6	5	7	5			5	3	3
24	6	6	6	6	6	4			4	3	2
25	7	5	7	6	7	5			5	2	2
26	7	6	6	7	7	6			6	2	2
27	7	6	7	6	7	6			6	2	1
28	8	7	6	6	7	6			6	1	2
29	8	7	7	7	8	6			6	2	1
30	7	8	7	7	7	6			6	0	0
31	7	6	7	6	8	5			5	0	0

Score:				
Quiet Periods	P	11	14	8
	S	15	14	15
	U	4	0	4
	F	1	0	3
Disturbed Periods	P	0	2	0
	S	0	1	1
	U	0	0	0
	F	0	0	0

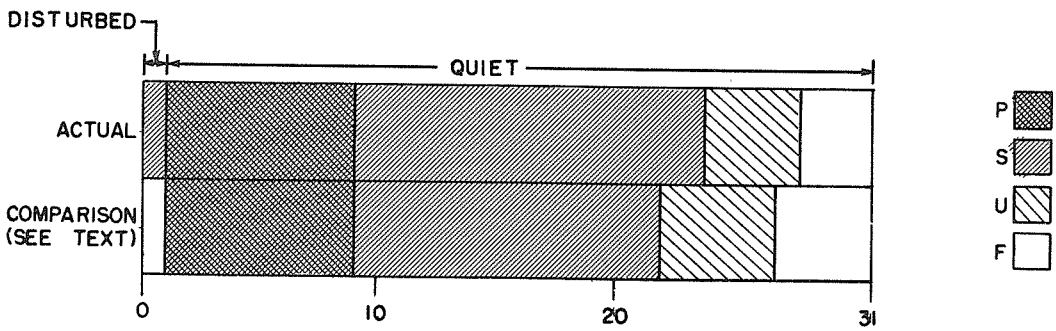
( ) represent disturbed values.

COMMERCE - STANDARDS - BOULDER

NORTH PACIFIC

JANUARY 1960

OUTCOME OF ADVANCED FORECASTS FINAL ESTIMATE



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ALERT PERIODS AND SPECIAL WORLD INTERVALS

INTERNATIONAL WORLD DAY SERVICE

FEBRUARY 1960

Issued Day/Time UT Feb. 1960	Advance Geophysical Alert	No.	Worldwide Geophysical Alert	Special World Interval
03/1900	McMath, Solar Flare 03/1715Z			
05/1600		48	Magnetic Storm 05/06XXZ	Start Special World Interval
06/1600		49		Finish Special World Interval
14/1600		50	Magnetic Storm 13/19XXZ	
16/1600		51	Magnetic Storm 16/09XXZ	
22/1600	Sacramento Peak, Solar Flare 22/1425Z			
27/1600	Honolulu, Solar Flare 26/2130Z			

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