

PART B
SOLAR - GEOPHYSICAL DATA

ISSUED
MARCH 1960

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

SOLAR - GEOPHYSICAL DATA

CONTENTS

INTRODUCTION

I DAILY SOLAR INDICES

- (a) Relative Sunspot Numbers and 2800 Mc Solar Flux
- (b) Graph of Sunspot cycle
- (c) Zurich Final Relative Sunspot Numbers

II SOLAR CENTERS OF ACTIVITY

- (a) Calcium Plage and Sunspot Regions
- (b) Coronal Line Emission Indices - August 1959

III SOLAR FLARES

- (a-d) Optical Observations - February 1960
- (e) Flare Patrol Observations - February 1960
- (f,g) Subflares - January 1960
- (h-j) Optical Observations - November 1959
- (k) Flare Patrol Observations - November 1959
- (l) Ionospheric Effects (SEA-SCNA-Bursts) - October 1959
- (m) Ionospheric Effects (SWF) - January 1960

IV SOLAR RADIO WAVES

- (a) 2800 Mc -- Outstanding Occurrences (Ottawa) February 1960
- (b) 169 Mc -- Outstanding Occurrences (Nançay) February 1960
- (c) 167 Mc -- Outstanding Occurrences (Boulder) February 1960

V GEOMAGNETIC ACTIVITY INDICES

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

VI RADIO PROPAGATION QUALITY INDICES

North Atlantic:

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

North Pacific:

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

VII ALERT PERIODS AND SPECIAL WORLD INTERVALS

- (a) IGC 1959 Alerts and SWI

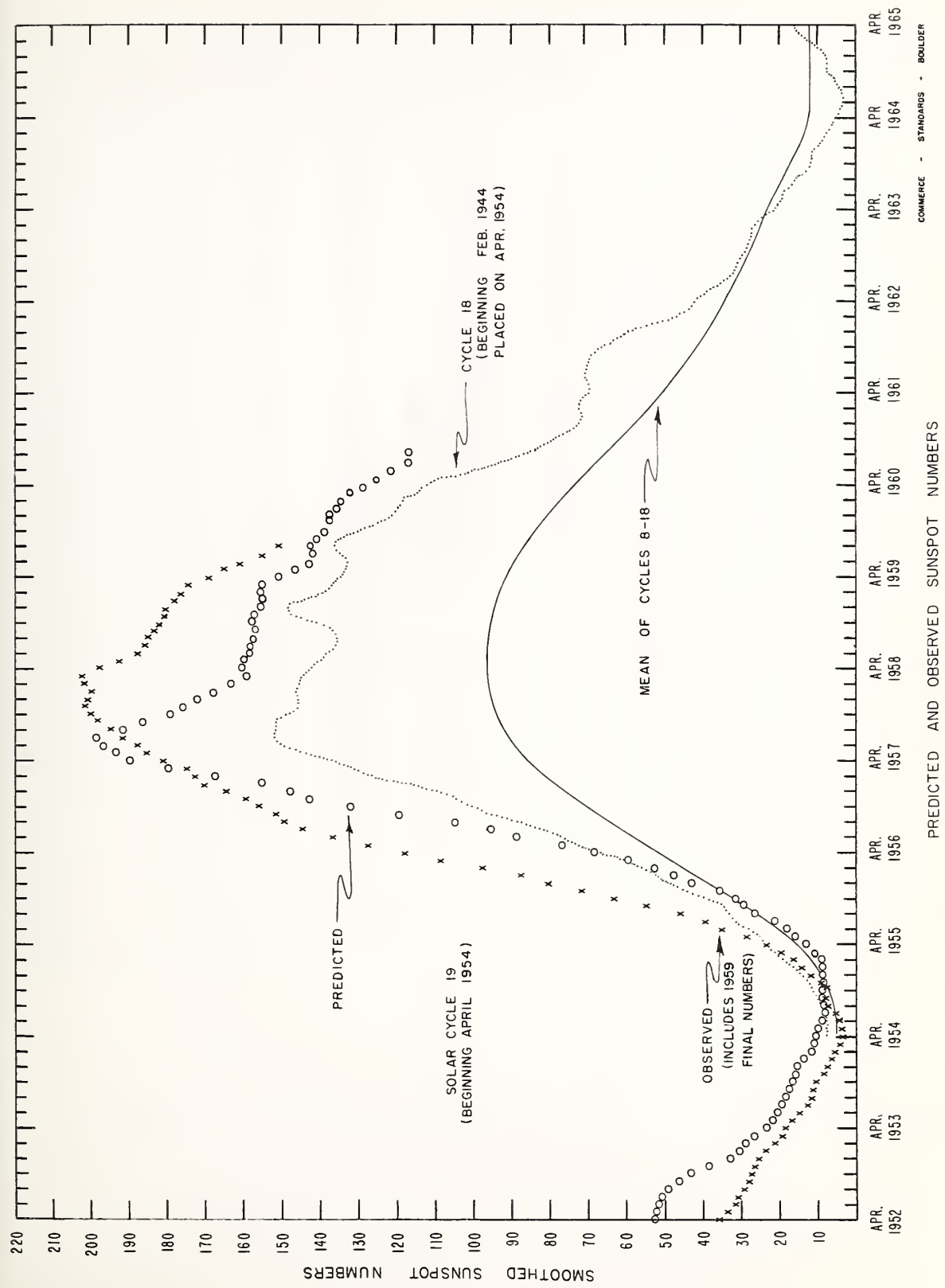
INTRODUCTION

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



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

CALCIUM PLAGE AND SUNSPOT REGIONS

11a

FEBRUARY 1960

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

* Formed in 5536 during last rotation.

COMMERCE - STANDARDS - BOULDER

CORONAL LINE EMISSION INDICES

116

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.

SOLAR FLARES

FEBRUARY 1960

OBSERVATORY	DATE FEB 1960	OBSERVED UNIVERSAL TIME		LOCATION			DURA- TION — MINUTES	IM- POR- TANCE	OBS. COND.	MEASUREMENTS				PROVISIONAL IONOSPHERIC EFFECT	
		START	END	APPROX. LAT.	APPROX. MER. DIST.	PLAZA REGION				TIME — U T	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH H ₃₀		MAX. INT. %
ARCTURI	01	1002	1016 D	S16	E73	5562	14 D	1	3						
ARCETRI	02	1220 E	1235 D	N09	W48	5550	15 D	1	3					20	S-SWF
LOCKHEED	02	1850	1935	N12	W15	5552	45	1	2	1855	2.50				
{ WENDEL	03	0818 E	0908 D	S14	W35	5551	50 D	2	3	0839	4.13	10.00			
{ ARCTRI	03	0823 E	0902 D	S15	W38	5551	39 D	2				5.24			
{ ARCTRI	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 D	N11	W24	5552	56 D	2+	2			14.00			S-SWF
ARCTRI	03	1235 E	1254 D	N10	W25	5552	19 D	2							
MC MATH	03	1708	1850	S13	W40	5551	102	2	1	1729		6.00			Slow S-SWF
MC MATH	03	2015	2043 D	N10	W32	5552	28 D	1+	1	2025	5.77	4.00			Slow S-SWF
SAC PEAK	03	2150 E	2155 D	N18	W28	5555	5 D	2	1					18	
MC MATH	04	1336 E	1423	S15	W48	5551	47 D	1	1	1357		3.00			Slow S-SWF
{ MC MATH	04	1600	1635	S14	W53	5551	35	1	1	1615		2.00			S-SWF
{ HUANCAYO	04	1615 E	1641	S15	W48	5551	26 D	1	1	1616		3.00	2.60		
{ SAC PEAK	04	1636	1652 D	S15	E23	5562	16 D	1	2		2.80			16	
{ MC MATH	04	1636	1830	S15	E25	5562	114	1+	1	1710		5.00			S-SWF
{ HUANCAYO	04	1641	1718	S14	E24	5562	37	1	1	1643	3.10	3.40	3.30	10	
LOCKHEED	04	1725 E	1750	S14	E24	5562	25 D	1	1	1725	2.60	2.00			
MC MATH	04	1927	1948	N09	W42	5552	21	1	1	1929					
LOCKHEED	05	1731	1805	S25	E15	5561	34	1	2	1738	2.40			40	
{ LOCKHEED	05	1943 U	2007 D	N12	W53	5552	24 D	1	2	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	S15	W13	5560	14 D	1	2	2048	1.80			40	
{ SAC PEAK	05	2112 E	2140	N12	W57	5552	28	1+	1		4.74			27	
{ HAWAII	05	2122 E	2154	N08	W60	5552	32 D	1+	2	2124	2.00				
SAC PEAK	05	2114	2204	S18	W68	5551	50	1	2		3.20			18	
HAWAII	05	2154	2204 D	S14	E10	5562	10 D	1	2	2158	1.20				
HAWAII	05	2320	2410	S14	E16	5562	50	1	3	2336	1.80				
HAWAII	06	0130	0146	S16	W17	5560	16	1	2	0132	1.00				
ARCTRI	06	0805 E		S13	E01	5562		1	2						
DUNSHINK	06	1227 E	1233 D	N06	W65	5552	6 D	1	1	1227	1.25	2.96	3.70	14	
HAWAII	06	2010	2024	S13	W05	5562	14	1	3	2013	1.50				
SAC PEAK	06	2054	2126	N13	W65	5552	32	1	1		2.24				
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	1			3.00			
WENDEL	07	1312	1328 D	N19	E16	5563	16 D	1	1			3.00			
WENDEL	07	1331 E	1358 D	S19	E68	5567	27 D	1	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		LOCATION			DURA- TION — MINUTES	IM- POR- TANCE	OBS. COND.	MEASUREMENTS				PROVISIONAL IONOSPHERIC EFFECT
		START	END	APPROX. LAT. MCR. DIST.	MC-MATH PLAGE REGION	TIME — UT				MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH H _z	MAX. INT. %	
{ WENDEL ARCETRI WENDEL HUANCAYO	08	1020 E	1058 D	S18 W22	5562	38 D	1	1			4.00			
	08	1021 E	1028 D	S19 W24	5562	7 D	1							
	08	1247 E	1313 D	S27 E83	5572	26 D	1		1		3.00			
	08	1602 E	1624	S15 W26	5562	22 D	1	2	1604	3.50	3.90	2.60		
HAWAII WENDEL WENDEL WENDEL	09	0028	0200 D	S17 W35	5562	92 D	1	3	0128	1.20				
	09	1039	1122	S14 W45	5562	43	1+				7.00			
	09	1140 E	1158 D	S19 W38	5562	18 D	1				3.00			
	09	1332	1359 D	N02 W21	5563	27 D	1				3.00			
WENDEL HUANCAYO HUANCAYO	09	1443 E	1510 D	S13 W46	5562	27 D	1				3.00			
	09	1947 E	2026 D	S14 W42	5562	39 D	1	2	2004	3.40	4.60			
	09	2150	2159	S25 E75	5572	9	1	2	1652	1.20	4.00	5.00		
	10	0832	0853	N18 E20	5566	21	1				3.00			
WENDEL WENDEL HAWAII SAC PEAK LOCKHEED HAWAII	10	1115 E	1127 D	S12 W56	5562	12 D	1				3.00			
	10	1517 E	1533 D	S14 W57	5562	16 D	1				3.00			
	13	1940 E	1946	N15 E08	5570	6 D	1	2	1940	1.20				
	13	2002	2022	N09 E46	5574	20	1	1		3.53			25	
WENDEL WENDEL LOCKHEED	13	2002	2050	N10 E45	5574	48	1	2	2007	2.50			30	
	13	2006 E	2028	N13 E45	5574	22 D	1	2	2014	1.40				
	14	1119 E	1148	N11 E12	5570	29 D	1				3.00			
	14	1218	1237	N14 E41	5574	19	1				3.00			
HAWAII HAWAII LOCKHEED HAWAII	14	1357 E	1417 D	N12 E10	5570	20 D	1				3.00			
	14	1746	1815	S24 E07	5572	29	1	2	1751	1.90			20	
	15	2248 E	2306	S26 W10	5572	18 D	1	1	2300	1.60				
	17	2112	2200	N10 W02	5574	48	1+	3	2118	3.70				
{ LOCKHEED LOCKHEED	19	2104	2150	N12 W63	5570	46	1	2	2110	2.00			20	
	19	2104	2150	N12 W63	5570	46	1	2	2122	2.00			20	
	21	1354 E	1413 D	N17 W70	5570	19 D	1				4.00			
	21	1421 E	1435 D	S18 E46	5580	14 D	1				3.00			
{ MCMATH SAC PEAK	22	1424 E	1517 D	N08 E42	5581	53 D	2+	1	1428	7.89	9.00		18	
	22	1429	1520	N07 E41	5581	51	2	2						
	24	0854 E	0908 D	S20 E05	5580	14 D	1	2						
	24	1440 E	1458 D	N06 E16	5581	18 D	1				4.00			
WENDEL WENDEL MEUDON HAWAII	24	1511 E	1523 D	N10 E17	5581	12 D	1				3.00			
	25	0704	0800	S18 W05	5580	56	2+							
	26	0122	0138	N13 E15	5584	16	1	3	0128	1.80				
	26	0855 E	0858 D	S10 E75	5587	3 D	1	1						
HAWAII HAWAII MEUDON WENDEL	26	2130 E	2202 D	N11 E14	5584	32 D	2+	2	2130	2.90				
	27	1116	1215	S20 W35	5580	59	1							
	28	1019	1043 D	N12 W07	5584	24 D	1				3.00			

COMMERCE - STANDARDS - BOULDER

SOLAR FLARES

FEBRUARY 1960

OBSERVATORY	DATE FEB 1960	OBSERVED UNIVERSAL TIME		LOCATION			DURA- TION — MINUTES	IM- POR- TANCE	OBS. COND.	MEASUREMENTS					PROVISIONAL IONOSPHERIC EFFECT
		START	END	APPROX. LAT.	MER. DIST.	MAGNETH PLAGE REGION				TIME — U T	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Ha	MAX. INT. %	
{ MEUDON ARCETRI	28	1020	1035	N15 W12	5584	5584	15	1	2						
	28	1035 E		N12 W09	5584			1							
HAWAII WENDEL	29	0140	0200 D	S32 W56	5580		20 D	2	3	0200	3.20				
	29	1330 E	1400 D	N23 E08	5586		30 D	1				4.00			
{ SAC PEAK HUANCAYO	29	1522	1632	N23 E04	5586		70	1	2		3.43			18	
	29	1524	1635	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
KODAIKANAL KODAIKANAL
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
SCHLAUS SCHLAUS
USNRL UNITED STATES NAVAL RESEARCH LABORATORY

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

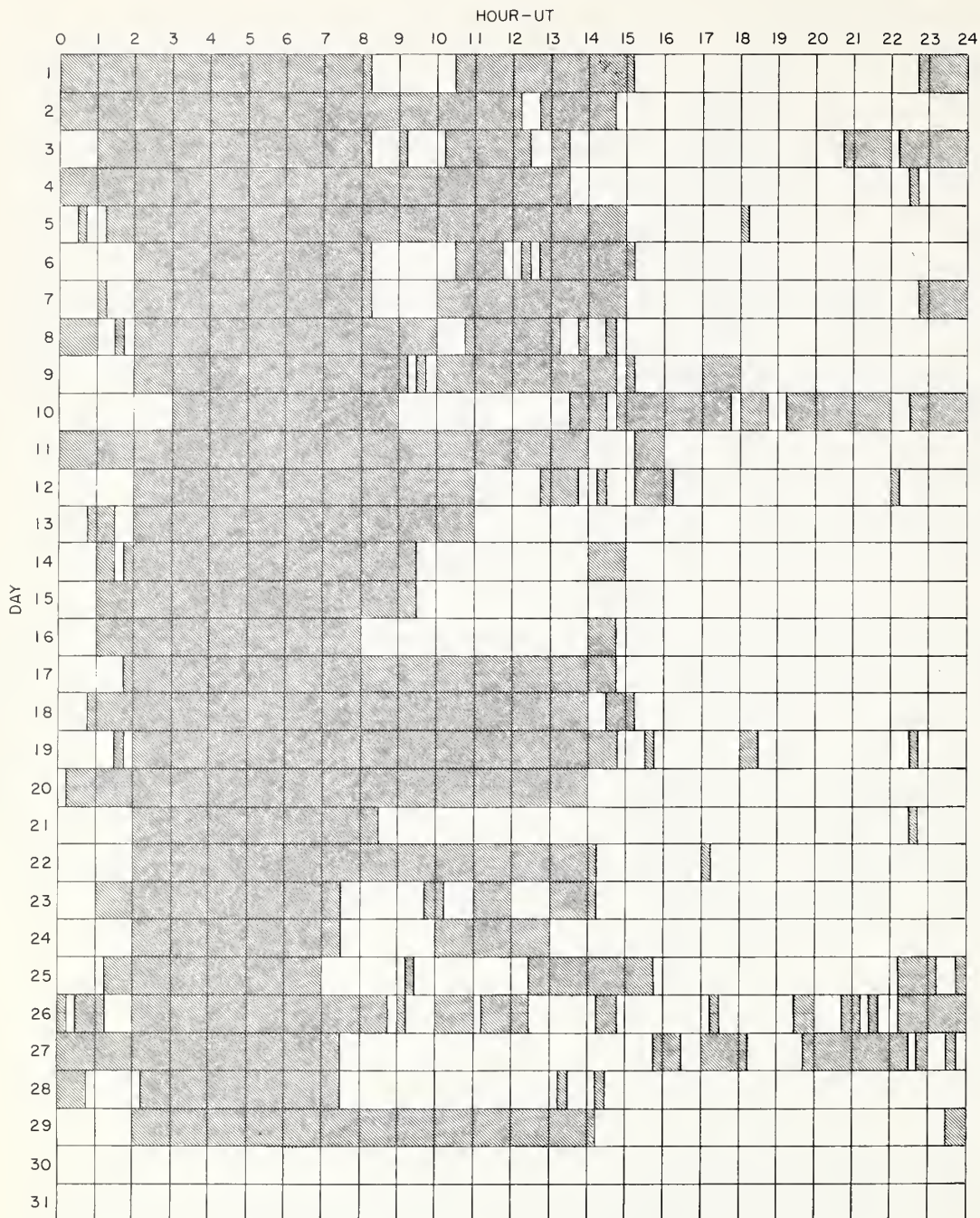
E - LESS THAN
D - GREATER THAN
U - APPROXIMATE

□ - NOT REPORTED

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

COMMERCE - STANDARDS - BOULDER

INTERVALS OF NO FLARE PATROL OBSERVATIONS FEBRUARY 1960



Noted as follows: Date-Universal Time - Coordinates

JANUARY 1960

MCNATH	01	1607	S24 E90	LOCKHEED	06	2030	N07 W64	* LOCKHEED	17	0030	N09 E66
MCNATH	01	1618	S26 E90	LOCKHEED	06	2135	N26 E08	WENDEL	17	0921 E	N27 E58
MCNATH	01	1623	N13 W73	LOCKHEED	06	2140	N07 W64	WENDEL	17	1119 E	N31 E57
LOCKHEED	01	1635	N12 W76	LOCKHEED	06	2203	S17 E48				
LOCKHEED	01	1700	N12 W76	SAC PEAK	06	2204	S18 E49	SAC PEAK	18	1726	N16 E59
MCNATH	01	1701	N13 W73	LOCKHEED	06	2218	N08 W67	SAC PEAK	18	1810	N10 E60
LOCKHEED	01	1708	S25 E90	LOCKHEED	06	2220	N07 W66	SAC PEAK	18	1938	N04 E65
MCNATH	01	1710	S25 E90	LOCKHEED	06	2300	S17 E49	HAWAII	18	1940	N06 E04
LOCKHEED	01	1738	S23 E90	HAWAII	06	2304 E	S19 E51	SAC PEAK	18	2206	N14 E56
LOCKHEED	01	1738	S23 E90								
LOCKHEED	01	1804	N09 E36	LOCKHEED	07	0005	N07 W66	HAWAII	19	0028 E	N09 W24
LOCKHEED	01	1821	N23 E75	ARCETR1	07	0950 E	N08 W71	WENDEL	19	1136 E	N17 E48
LOCKHEED	01	1833	S23 E90	* SAC PEAK	07	1516 E	N08 W80	WENDEL	19	1252 E	N17 E49
LOCKHEED	01	1851	S23 E90	* LOCKHEED	07	1594 E	N07 W80	SAC PEAK	19	1834	N20 E10
MCNATH	01	1910	N22 E76	SAC PEAK	07	1619	N07 W80	SAC PEAK	19	1842	N09 E27
MCNATH	01	1911	S25 E90	SAC PEAK	07	1624	N07 W80	LOCKHEED	19	2016	N29 E25
LOCKHEED	01	1915	S23 E90	LOCKHEED	07	1703	N15 W27				
MCNATH	01	1927	N15 W78	SAC PEAK	07	1722	N07 W85	WENDEL	20	0801 E	N09 W56
LOCKHEED	01	1937	N10 E80	SAC PEAK	07	1710	S18 E37	WENDEL	20	0828 E	N09 W56
LOCKHEED	01	1945	S23 E90	LOCKHEED	07	1710	S17 E38	WENDEL	20	0855 E	N09 W56
LOCKHEED	01	1945	S23 E90	LOCKHEED	07	1710	N07 W80	WENDEL	20	0927 E	N07 W57
LOCKHEED	01	1945	S23 E90	LOCKHEED	07	1727	S16 W12	WENDEL	20	1159 E	S14 W55
LOCKHEED	01	2011	S13 E71	LOCKHEED	07	1808	N07 W80	WENDEL	20	1251 E	N08 W11
LOCKHEED	01	2038	N15 W77	LOCKHEED	07	1808	N07 W80	WENDEL	20	1350 E	N07 E76
LOCKHEED	01	2114	S23 E90	LOCKHEED	07	1839	N06 W50	SAC PEAK	20	1714	N17 W03
LOCKHEED	01	2148	S23 E90	LOCKHEED	07	1908	N08 W86	SAC PEAK	20	1748	N17 W03
LOCKHEED	01	2148	S23 E90	LOCKHEED	07	1908	N08 W86	LOCKHEED	20	1748	N17 W04
LOCKHEED	01	2234	N10 E77	SAC PEAK	07	1918	N07 W85	LOCKHEED	20	1802	N17 W04
LOCKHEED	01	2246	S23 E90	LOCKHEED	07	1927	N08 W86	LOCKHEED	20	1806	N17 E34
LOCKHEED	01	2323	S23 E90	LOCKHEED	07	1954	S17 W13	LOCKHEED	20	1933	N13 E24
LOCKHEED	01	2341	N15 W85	LOCKHEED	07	2007	S18 E36	SAC PEAK	20	1936	N12 E27
				SAC PEAK	07	2012	S17 E26	LOCKHEED	20	2004	N13 E24
WENDEL	02	1037 E	S18 E50	LOCKHEED	07	2012	S17 E25	SAC PEAK	20	2030	N11 E27
WENDEL	02	1308 E	S21 E55	LOCKHEED	07	2012	N08 W80	LOCKHEED	20	2040	N12 E26
LOCKHEED	02	1732	S19 E57	SAC PEAK	07	2014	N08 W80	SAC PEAK	20	2146	N12 E25
LOCKHEED	02	1811	S17 E59	LOCKHEED	07	2022	N08 W86	LOCKHEED	20	2155	N18 W04
LOCKHEED	02	1836	S24 E90	LOCKHEED	07	2048	N08 W86	* LOCKHEED	20	2258	N12 E25
SAC PEAK	02	1838	S16 E90	LOCKHEED	07	2057	S18 E35				
LOCKHEED	02	1845	S17 E90	SAC PEAK	07	2112	N07 W85	SAC PEAK	21	1552	N28 E20
LOCKHEED	02	1845	S17 E90	SAC PEAK	07	2117	N08 W86	SAC PEAK	21	1604	N19 E88
LOCKHEED	02	1845	S17 E90	HAWAII	07	2116 E	N08 W90	SAC PEAK	21	1700	N17 W31
LOCKHEED	02	1858	N11 W90	SAC PEAK	07	2132	N14 W87	SAC PEAK	21	2156	N27 E03
LOCKHEED	02	1915	S23 E90	LOCKHEED	07	2133	S15 W16				
LOCKHEED	02	1955	S17 E90	SAC PEAK	07	2156	S16 W14	SAC PEAK	22	1648	N08 E90
LOCKHEED	02	1955	S17 E90	LOCKHEED	07	2231	N08 W80	SAC PEAK	22	2150	N08 E90
LOCKHEED	02	2004	N11 E39	LOCKHEED	07	2325	N08 W86	SAC PEAK	22	2210	N10 W04
LOCKHEED	02	2004	N11 E39	HAWAII	07	2356 E	N08 W90	HAWAII	22	2214	N12 W05
LOCKHEED	02	2030	S02 E85					SAC PEAK	23	1518 U	N27 W22
LOCKHEED	02	2048	S24 E88	HAWAII	08	0056	S20 W17	LOCKHEED	23	1700 U	N10 W84
LOCKHEED	02	2055	S17 E90	LOCKHEED	08	0175	N17 W50	LOCKHEED	23	1810	N10 E48
LOCKHEED	02	2115	S02 E85	LOCKHEED	08	1705	S18 E13	LOCKHEED	23	1843	N10 E80
LOCKHEED	02	2152	N20 W90	SAC PEAK	08	1720	N05 W90	LOCKHEED	23	1852 U	N09 E49
LOCKHEED	02	2158	S17 E90	LOCKHEED	08	1726	S22 W01	SAC PEAK	23	1853	N12 E34
LOCKHEED	02	2310 E	S17 E90	LOCKHEED	08	1727	S22 W02	LOCKHEED	23	1904	N02 E70
				LOCKHEED	08	1735	S20 E23	LOCKHEED	23	1914	N10 E80
				* SAC PEAK	08	1738	S21 E22	SAC PEAK	23	1914 U	N10 E85
HAWAII	03	0132	S24 E83	SAC PEAK	08	1742	S26 W35	SAC PEAK	23	1948	N10 E80
CAPRI S	03	1059 E	S02 E71	LOCKHEED	08	1953	S15 E13	LOCKHEED	23	2009	N09 W67
				LOCKHEED	08	2003	N08 W39	* LOCKHEED	23	2029	N09 E46
LOCKHEED	04	1620	S24 E61	SAC PEAK	08	2132	S03 E13	* SAC PEAK	23	2038 U	N08 E80
LOCKHEED	04	1630	N08 W34	LOCKHEED	08	2210	N24 E56	SAC PEAK	23	2100 U	N09 E90
LOCKHEED	04	1630	N08 W34					LOCKHEED	23	2112	N09 W67
LOCKHEED	04	1745	N09 W35	SAC PEAK	09	1652	N09 W80	LOCKHEED	23	2122	N09 W67
LOCKHEED	04	1825	N09 W35	* HAWAII	09	2108	N22 E19	LOCKHEED	23	2122	N09 W67
LOCKHEED	04	1850	S14 E73	SAC PEAK	10	1616	N22 E19	LOCKHEED	23	2202	N06 E71
LOCKHEED	04	1915	N09 W35					SAC PEAK	23	2210 U	N07 E80
* LOCKHEED	04	1938	N08 W37	WENDEL	11	0937 E	S06 E70	LOCKHEED	24	1444 E	N19 E39
LOCKHEED	04	1938	N08 W37	WENDEL	11	1135 E	N21 E01	LOCKHEED	24	1745	N09 E34
* MCNATH	04	1951	S19 E72	WENDEL	11	1305 E	N24 E13	LOCKHEED	24	1752	N09 E34
LOCKHEED	04	2016	S19 E72	LOCKHEED	11	1729 U	N01 W38	SAC PEAK	24	1756	N09 E35
LOCKHEED	04	2017	N12 E11	LOCKHEED	11	1733	N11 W40	SAC PEAK	24	1842	N10 W84
LOCKHEED	04	2031	S16 E26	LOCKHEED	11	1734 U	N22 W01	SAC PEAK	24	1842	N10 W84
LOCKHEED	04	2114	N07 W38	LOCKHEED	11	2143	S13 E16	LOCKHEED	24	1842	N10 W84
HAWAII	04	2116	N07 W39	LOCKHEED	11	2156 U	S11 W90	LOCKHEED	24	1842	N10 W84
LOCKHEED	04	2148	S17 E73	LOCKHEED	11	2216	N17 W09	LOCKHEED	24	1848	N09 E34
LOCKHEED	04	2208	S14 E73	HAWAII	11	2220	N18 W09	LOCKHEED	24	1909	N12 E63
LOCKHEED	04	2240	N11 E09	* LOCKHEED	11	2349 E	N18 W08	LOCKHEED	24	1909	N12 E63
LOCKHEED	04	2313	S02 E54	LOCKHEED	12	1852	N21 W10	LOCKHEED	24	1930	N11 W82
LOCKHEED	04	2316	N11 E09	LOCKHEED	12	2008	N10 W03	SAC PEAK	24	1938	N10 W84
LOCKHEED	04	2317	N10 W35	LOCKHEED	12	2042	N25 W53	LOCKHEED	24	1950	N09 E33
LOCKHEED	04	2342	N26 E03	LOCKHEED	12	2049	N07 F90	LOCKHEED	24	1953	N06 E51
ARCETR1	05	0847 E	N06 W46	SAC PEAK	12	2105	N25 W53	LOCKHEED	24	1953	N06 E51
ARCETR1	05	0849 E	N26 E23	LOCKHEED	12	2110	N26 W54	HAWAII	24	1954	N13 E32
ARCETR1	05	0849 E	N29 E34	LOCKHEED	12	2124	S18 W90	SAC PEAK	24	1954	N09 E33
ARCETR1	05	0909 E	N04 W45	LOCKHEED	12	2150 E	N25 W53	LOCKHEED	24	2017	N12 E42
ARCETR1	05	0918 E	N13 W73	SAC PEAK	12	2152	N24 W10	HAWAII	24	2030 E	N07 W90
WENDEL	05	1016 E	S12 E58	LOCKHEED	12	2153	N23 W11	LOCKHEED	24	2043	N09 E33
WENDEL	05	1024 E	S14 E66	LOCKHEED	12	2209	N07 E90	LOCKHEED	24	2050	N09 E33
WENDEL	05	1024 E	S14 E66	SAC PEAK	12	2210	N06 E90	LOCKHEED	24	2050	N07 E64
WENDEL	05	1126 E	N04 W46	LOCKHEED	12	2231	N07 E90	HAWAII	24	2054	N07 E50
WENDEL	05	1228 E	S10 E61	LOCKHEED	12	2330 U	S22 W33	SAC PEAK	24	2056	N07 E65
WENDEL	05	1247 E	N08 W17					LOCKHEED	24	2103	N09 W84
CAPRI S	05	1411 E	N07 E41	LOCKHEED	13	1628	S23 W41	LOCKHEED	24	2113	S17 E82
MCNATH	05	1525	S22 E48	LOCKHEED	13	1645	S11 W07	LOCKHEED	24	2113	N23 E39
HUANCAYO	05	1533 E	N08 W42	LOCKHEED	13	1732	S18 W75	SAC PEAK	24	2124	N07 E63
HUANCAYO	05	1620 E	N08 W42	LOCKHEED	13	1754	S03 E36	LOCKHEED	24	2159	N12 E43
LOCKHEED	05	1623 E	N07 W47	LOCKHEED	13	1756	S22 W42	HAWAII	24	2200	N04 E67
LOCKHEED	05	1645	N07 W47	LOCKHEED	13	1756	N18 E82	SAC PEAK	24	2200	N10 E65
LOCKHEED	05	1725	S13 E58	LOCKHEED	13	1824	N07 E76	LOCKHEED	24	2206	N10 W34
LOCKHEED	05	1752	N22 W50	LOCKHEED	13	1828	S23 W41	LOCKHEED	24	2208	N10 W34
LOCKHEED	05	1754	N15 W68	LOCKHEED	13	1847	S17 W90	LOCKHEED	24	2216	N07 E62
LOCKHEED	05	1816	N10 W60	LOCKHEED	13	1905	S47 W50	LOCKHEED	24	2230	N06 E59
MCNATH	05	1820	N08 W50	LOCKHEED	13	1906	S18 W75				
LOCKHEED	05	1844	S16 E60	LOCKHEED	13	1906	S18 W75	SAC PEAK	25	1604 E	N06 E54
LOCKHEED	05	2000	S02 E42	LOCKHEED	13	2012	S23 W43	SAC PEAK	25	2112	N08 E15
HAWAII	05	2048 E	N07 W23	LOCKHEED	13	2054	S21 W52	HAWAII	25	2118	N12 E51
HAWAII	05	2112	S17 E13	LOCKHEED	13	2147	S10 E29	HAWAII	25	2120	N09 E14
LOCKHEED	05	2148	N12 W03	LOCKHEED	13	2154	S03 E34	SAC PEAK	25	2216	N09 E90
LOCKHEED	05	2151	N26 E23	LOCKHEED	13	2355	S03 E33				
HAWAII	05	2152	N12 W02					SAC PEAK	26	1454	N02 E27
HAWAII	05	2232	N17 E48	CAPRI S	14	0826 E	N20 W34	HUANCAYO	26	1502 E	N00 E28
LOCKHEED	05	2232	N26 E20	SAC PEAK	14	1830	S22 W57	SAC PEAK	26	1522	N07 E86
HAWAII	05	2238	N31 E16					SAC PEAK	26	1640	N06 E33
HAWAII	05	2340 E	N07 W54	* SAC PEAK	15	1549 E	S21 W46	SAC PEAK	26	1722	S14 E48
LOCKHEED	05	2357	N22 W54	* HUANCAYO	15	1645 E	S05 E11	SAC PEAK	26	1812	N06 E38
LOCKHEED	06	0004	N06 W53	* SAC PEAK	15						

SUBFLARES

Noted as follows: Date-Universal Time - Coordinates

JANUARY 1960

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

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

CONRAD - STADART - WOLFE

SOLAR FLARES

NOVEMBER 1959

OBSERVATORY	DATE NOV 1959	OBSERVED UNIVERSAL TIME		LOCATION		DURA- TION — MINUTES	IM- POR- TANCE	OBS. COND.	MEASUREMENTS				PROVISIONAL IONOSPHERIC EFFECT
									TIME — UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH H ₀	MAX. INT. %
GOOD HOPE	02	1010	1030	N23	E47	5446	1		1013	2.40	3.70		
GOOD HOPE	02	1314	1330	N23	E43	5446	1		1317	1.60	2.30		
VOROSHILOV	03	0237	0254	N23	E35	5446	17	1	0247	2.17	4.51		68
SYDNEY	03	0311	0320	N05	W82	5437	9	1	0315	1.50	6.00		
SIMEIZ	03	0825	E 0832 D	N13	W65	5439	7 D	1	0826	.90	1.90		
SIMEIZ	03	0838	E 0848 D	N27	E34	5446	1	1	0838	1.82	2.40		
CAPRI G	03	1052	E 1057 D	N18	W26	5441	5 D	2	1055	3.00	3.00		
GOOD HOPE	03	1115	E 1135	N23	E30	5446	20	1	1118	1.80	2.10		
CAPRI G	03	1356	E 1400 D	N13	W60	5439	4 D	2	1358	4.00	4.00		
VOROSHILOV	03	2250	E 2312	N16	W70	5439	22	1+	2302	2.53	6.87		62
TASHKENT	04	0606	E 0630	N27	E15	5446	24	1	0613	3.03	3.00	2.40	80
GOOD HOPE	04	1010	E 1024	N13	W76	5439	14	1	1012	1.20			
{ GOOD HOPE	04	1148	E 1219	N13	W82	5439	31	1	1156	2.10			
{ CAPRI G	04	1159	E 1213	N13	W80	5439	14 D	3	1201		5.00		
{ GOOD HOPE	04	1322	E 1349	N12	W84	5439	27	1	1334	1.60			
{ CAPRI G	04	1334	E 1352 D	N12	W80	5439	18 D	2	1335		9.00		
SYDNEY	04	2243	E 2254	S17	E88	5452	11	2	2250	1.50			
SYDNEY	05	0055	E 0102	S17	E87	5452	7	2	0059	1.00			
SYDNEY	05	0149	E 0200	S17	E86	5452	11	2	0157	.25			
LOCKHEED	05	1655	E 1830	N26	E03	5446	95	2	1735	2.60			30
LOCKHEED	05	2015	E 2050	N26	E03	5446	35	2	2030	2.00			10
VOROSHILOV	06	0130	E 0224	N25	W00	5446	54	1	0139	7.59	8.10		80
ATHENS	06	0714	E 0725	S17	E70	5452	11 D	3	1618	1.70	4.40		
LOCKHEED	06	1611	E 1720	N26	W09	5446	69	1	1752	2.60			40
LOCKHEED	06	1740	E 1844	S20	E61	5452	64	1	1752	2.00			20
VOROSHILOV	07	0241	E 0302	S18	E57	5452	21	1	0255	1.71	3.23		78
{ ABASTUMANI	07	0741	E 0829 D	N27	W16	5446	48 D	2	0753	2.53	2.90		67
{ ABASTUMANI	07	0756	E 0829 D	N24	W22	5446	33 D	2	0803	3.18	3.60		65
LOCKHEED	07	1614	E 1850	S17	E50	5452	156 D	2	1734	2.10			30
LOCKHEED	07	1912	E 2055	S17	E50	5452	103	2	1945	2.00			20
SYDNEY	07	2248	E 2254	N20	E83	5457	6	1	2250	.75	3.00		
LOCKHEED	07	2310	E 2410	S17	E50	5452	60	1	2345	2.00			20
SYDNEY	08	0308	E 0428	S20	E34	5452	80	2	0254	2.00	3.00		
LOCKHEED	08	2344	E 2410	S17	E29	5452	26	1	2354	2.00			40
KRASNYA	09	0900	E 0910	N22	W90	5441	10	2	0902	.90	4.50		90
CAPRI G	09	1158	E 1212 D	S16	E51	5454	14 D	3	1206		7.00		
CAPRI G	09	1243	E 1310 D	S19	E21	5452	27 D	3	1247		8.00		
VOROSHILOV	10	0046	E 0056	S18	E18	5452	10	2	0052	1.90	2.12		63
NEDERHORST	10	1104	E 1117 D	S23	E11	5452	13 D	2					
CAPRI G	10	1118	E 1152 D	S18	E11	5452	34 D	3	1122		7.00		
CAPRI G	10	1226	E 1305 D	S17	E10	5452	39 D	1	1231		3.00		
LOCKHEED	10	1635	E 1721	S16	E06	5452	46	2	1640	3.00			40
LOCKHEED	10	1820	E 2015	S16	E06	5452	115	2	1904	4.80			40
LOCKHEED	10	2324	E 2433 D	S16	E02	5452	69 D	1	2350	2.20			10
VOROSHILOV	11	0100	E 0111	S17	E06	5452	11	1+	0109	3.79	4.04		80

SOLAR FLARES

NOVEMBER 1959

OBSERVATORY	DATE NOV 1959	OBSERVED UNIVERSAL TIME		LOCATION			DURA- TION — MINUTES	IM- POR- TANCE	OBS. COND.	MEASUREMENTS				PROVISIONAL IONOSPHERIC EFFECT
		START	END	MAX. PHASE	APPROX.					CORR. AREA Sq. Deg.	MAX. WIDTH Ha	MAX. INT. %		
					LAT.	MER. DIST.								
KRASNYA	11	0851	0912	0854	S18 W04	5452	21	1	2	0854	.90	.50	80	S-SWF
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	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	
CAPRI G	14	0737 E	0745		N16 W03	5457	8 D	1	3	0738	3.00	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	3.00		
{CAPRI G	14	1219 E	1231 D		S16 W38	5452	12 D	1	3	1221	4.00	4.00		
{GOOD HOPE	14	1219	1234	1221	S17 W38	5452	15	1	3	1221	1.70	2.30		
CAPRI G	14	1335 E	1352 D		S20 W25	5454	17 D	1	3	1337	5.00	5.00		
CAPRI G	14	1431 E	1452 D		S18 W43	5452	21 D	1	2	1432	3.00	3.00		
{TASHKENT	15	0638	0714	0651	S17 W54	5452	36	1	2	0647	4.13	7.00	65	
{GOOD HOPE	15	0700 E	0740		S17 W52	5452	40 D	1	2	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	70	
GOOD HOPE	15	0909	0932	0911	S18 W51	5452	23	1	3	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	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	4.00		
CAPRI G	16	1025 E	1032 D		S14 W66	5452	7 D	1	3	1030	4.00	5.00		
CAPRI G	16	1129 E	1138 D		N07 E70	5464	9 D	1	3	1132				
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	2	0938	2.10	3.60		
{NEDEHORST	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	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	
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		

SOLAR FLARES

NOVEMBER 1959

OBSERVATORY	DATE	OBSERVED		LOCATION		DURA- TION — MINUTES	IM- POR- TANCE	OBS. COND.	MEASUREMENTS				PROVISIONAL IONOSPHERIC EFFECT		
		UNIVERSAL TIME		LAT.	APPROX. MER. DIST.				MC-MATH FLARE REGION	TIME — UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.		MAX. WIDTH H _o	MAX. INT. %
		START	END												
CAPRI G	19 NOV 1959	1046 E	1051 D	N24 E31	5464	5 D	1	2	1048		3.00				
	20	1132	1140	N07 E45	5466	8	1	2	1133	1.71	2.60	1.80			
	20	1134 E	1137 D	N04 E43	5466	3 D	1	2	1135		3.00				
	20	2237 E	2307	S15 E79	5467	30 D	1	3	2243	.50	2.00				
{ VOROSHILOV	21	0014	0048	N22 E67	5468	34	1	2	0019	1.00	2.50		63		
	21	0014 E	0105	N27 E67	5468	51 D	1	2	0034	2.00	4.00				
	21	2316	2327	N19 E47	5468	11	1	2	2322	2.30			10		
	{ LOCKHEED	21	2318	2326	N20 E46	5468	8	2	3	2323	3.00	5.00			
SYDNEY	23	0345	0359	N24 E80	5471	14	1	1	0347	.75	3.00				
	{ TASHKENT	23	0654	0713	N26 E86	5471	19	1	3	0659	1.84		5.00	65	
	{ GOOD HOPE	23	0654	0715	N24 E90	5471	21	1		0657	.50				
	GOOD HOPE	23	0936	1004	N24 E90	5471	28	1		0941	.50				
VOROSHILOV	25	0117	0120	N03 E90	5476	3	1	2	0118	.45	3.09		72		
	GOOD HOPE	25	1135	N11 E78	5476	37	1+		1142	2.00					
	{ ATHENS	26	0748	0824	N12 E66	5476	36	2+	5		4.30	9.70			Slow S-SNF
		{ GOOD HOPE	26	0749 E	0826	N12 E70	5476	37 D	2		0750	1.20			
{ KRASNAYA		26	0827	0835	N10 E71	5476	8	1+	2	0831	1.82	2.50		100	
{ GOOD HOPE		26	0828	0840	N12 E75	5476	12	1		0831	1.00				
{ GOOD HOPE	26	0923	1110	S15 W18	5467	107	2		0938	6.80	7.50				
	{ KRASNAYA	26	0924	1045	S13 W10	5467	81	2+	2	0931	21.76	11.90		155	S-SNF
	{ KRASNAYA	26	0924	1045	S13 W10	5467	81	2+	2	0931	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				
	{ KRASNAYA	27	0921	0940	N11 E68	5476	19	1	3	0831	1.82	2.30		70	
	{ CAPRI G	27	0939 E	1002 D	N04 E61	5476	23 D	1	2	0941		4.00			
	{ CAPRI G	27	1108 E	1155	N11 E63	5476	47 D	1	3	1110		3.00			
{ GOOD HOPE	27	1134	1147	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	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			
{ GOOD HOPE	27	1225 E	1304	N11 E62	5476	39 D	1	3	1227		3.00				
	{ CAPRI G	27	1244	1302	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	N10 E37	5476	63 D	1	1	0747	1.35	1.90	1.80	79	
		{ GOOD HOPE	28	0733	0828	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-SNF	
	{ CAPRI G	28	1235 E	1252 D	N11 E34	5476	17 D	2	1	1236		9.00			
	{ GOOD HOPE	28	1335 E	1340 D	S17 W46	5467	5 D	2		1338	4.20	6.20			
	LOCKHEED	28	2006	2130	N10 E30	5476	84	3	2	2017	13.00			40	Slow S-SNF
LOCKHEED	29	0010	0035 D	N23 E03	5471	25 D	1	1	0022	2.00			20		

SOLAR FLARES

NOVEMBER 1959

OBSERVATORY	DATE NOV 1959	OBSERVED UNIVERSAL TIME		LOCATION			DURA- TION — MINUTES	IM- POR- TANCE	OBS. COND.	MEASUREMENTS			MAX. WIDTH H _α	MAX. INT. %	PROVISIONAL IONOSPHERIC EFFECT
		START	END	LAT.	APPROX.	MEMATH PLAGE REGION				TIME	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.			
SYDNEY	29	0056	0111	N13	E28	5476	15	1	2	0107	3.00	3.00			
VOROSHILOV	29	0253	0321	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			
{ ATHENS	29	0809 E	0933	N11	E23	5476	84 D	1+		0831	3.80	4.20			
	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		0942	2.72	3.20	2.40		
{ GOOD HOPE	29	1221 E	1238 D	N12	E22	5476	17 D	1	1	1223	4.10	4.60			
{ GOOD HOPE	29	1335 E	1500 D	N10	E19	5476	85 D	2		1346	6.90	7.40			Slow S-SWF
{ CLIMAX	29	1820	1925 D	N09	E16	5476	65 D	2		1839	10.50				S-SWF
{ LOCKHEED	29	1826	2002	N07	E18	5476	96	2+	3	1847	6.50			40	
SIMEIZ	30	0909 E	0923 D	N10	E15	5476	14 D	1		0912	2.26	2.60	3.20		
{ GOOD HOPE	30	1111	1150	N10	E07	5476	39	2	1	1117	6.00	6.20			
{ GOOD HOPE	30	1148	1220	N22	F35	5477	32	1		1153	2.00	2.60			
{ LOCKHEED	30	1604	1655	N10	E10	5476	51	1	2	1611	2.00			20	
{ LOCKHEED	30	1722	1850 D	N09	E07	5476	88 D	3	2	1742	12.60			40	
{ CLIMAX	30	1731 E	1838	N03	E02	5476	67 D	3		1742	12.60				
{ LOCKHEED	30	2053	2145	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 I110 of CRPL-F 185B, "These flare reports are addenda to the September 1959 flares published in CRPL-F 182B." On page I11k 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
KODAIKANAL KODAIKANAL
KRASNAYA KRASNAYA PAKHRA
LOCKHEED LOS ANGELES

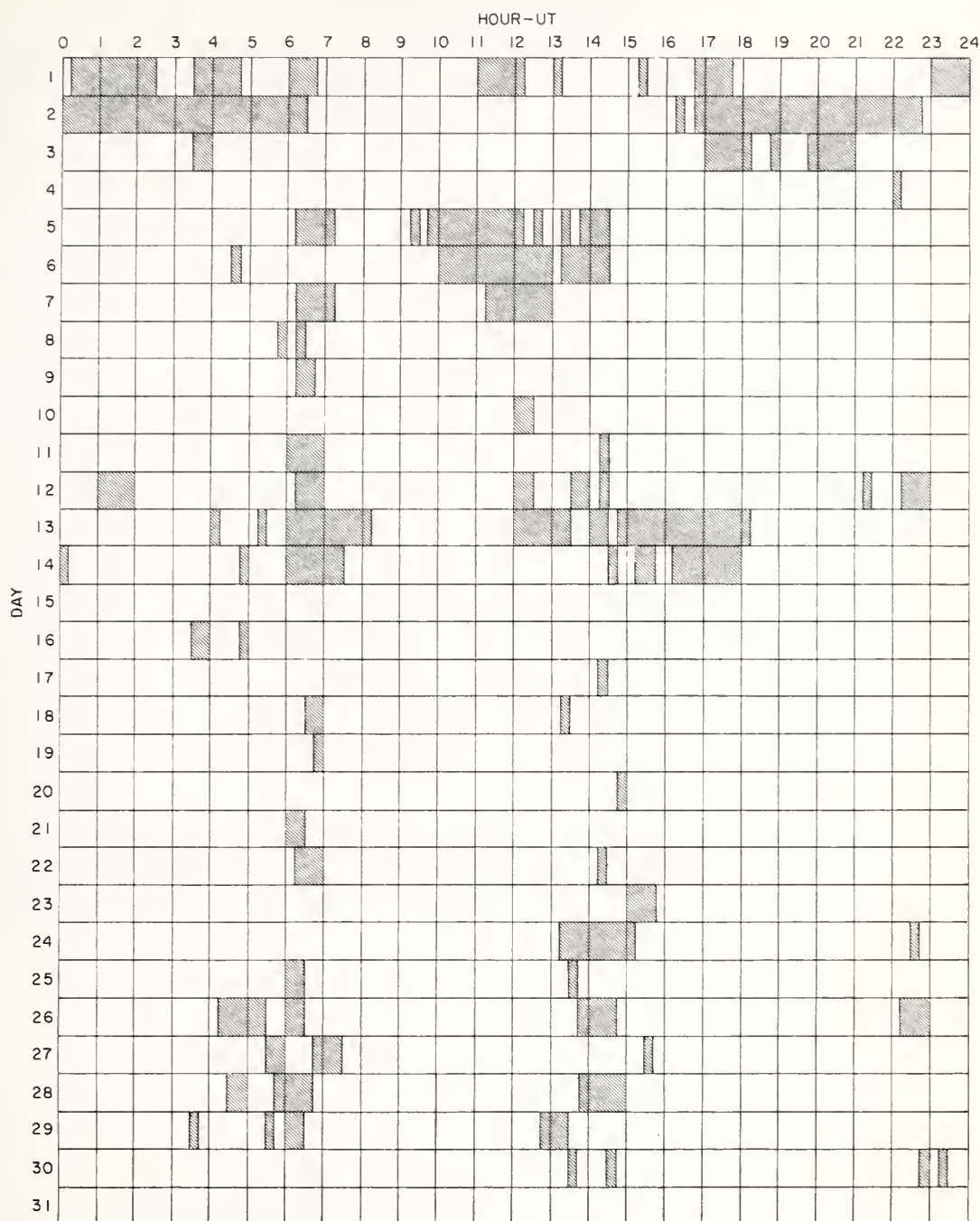
MOSCOW-C MOSCOW - GAISI
R O EDIN ROYAL OBSERVATORY, EDINBURGH
R O HERST GREENWICH ROYAL OBSERVATORY, HERSTMONCEUX
SAC PEAK SACRAMENTO PEAK
SCHAUTINS SCHAUTINS
USNRL UNITED STATES NAVAL RESEARCH LABORATORY

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

IIIk



Stations Include:

COMMERCE - STANDARDS - BOULDER

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

IONOSPHERIC EFFECTS OF SOLAR FLARES

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

OCTOBER 1959

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

NOVEMBER 1959

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

IONOSPHERIC EFFECTS OF SOLAR FLARES

III m

(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, <u>OK</u>	*
7	0419	0442	S-SWF	1	1+	<u>OK</u>	*
7	1505	1535	Slow S-SWF	5	1	BE, FM, HU, MC, <u>PR</u>	1504E
11	2100	2124	Slow S-SWF	5	2-	AN, HU, LA, MC, <u>PR</u> , WS	2040U
13	1850	1930	Slow S-SWF	5	1+	AD, AN, HU, <u>MC</u> , PR, WS	
15	0430	0500	Slow S-SWF	1	1+	<u>OK</u>	*
15	1312	1322	S-SWF	4	1-	<u>KU</u> , PR	
15	1340	1425	Slow S-SWF	4	1+	HU, <u>MC</u> , NE, PR	1334
15	1732	1800	Slow S-SWF	5	1+	AN, HU, <u>MC</u> , PR, WS	1730D
16	2245	2319	Slow S-SWF	5	2-	AD, AN, HU, LA, <u>OK</u> , TO, WS	2239
17	1618	1710	Slow S-SWF	5	2-	<u>BE</u> , FM, MC, PR, WS	*
19	1932	2029	G-SWF	5	2-	FM, HU, LA, PR, <u>WS</u>	1928
22	1650	1723	Slow S-SWF	5	1	BE, HU, MC, <u>PR</u> , WS	
24	0218	0257	Slow S-SWF	1	1+	<u>OK</u>	*
25	1718	1743	S-SWF	5	2	<u>BE</u> , FM, HU, MC, PR, WS	*
30	2027	2050	G-SWF	4	1	AD, AN, FM, PR, <u>WS</u>	

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		Remarks
				Time UT	Peak Flux	
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	

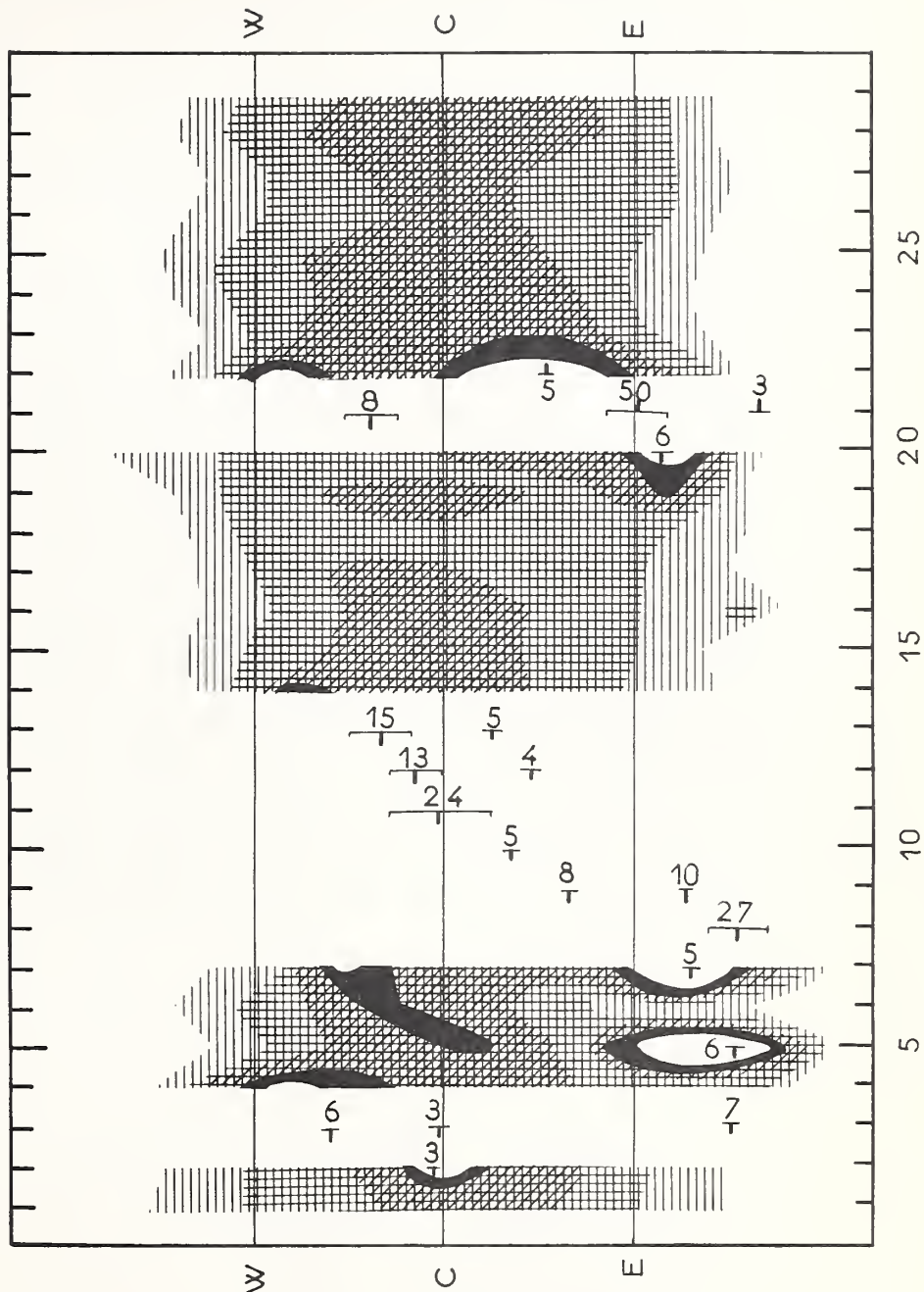
COMMERCE - STANDARDS - BOULDER

SOLAR RADIO EMISSION INTERFEROMETRIC OBSERVATIONS

FEBRUARY 1960

Nançay

169 Mc



FEBRUARY 1960

SOLAR RADIO EMISSION OUTSTANDING OCCURRENCES

FEBRUARY 1960

BOULDER

167 MC

Feb. 1960	Type	Start UT	Time of Maximum UT	Duration Minutes	Intensity	Feb. 1960	Type	Start UT	Time of Maximum UT	Duration Minutes	Intensity
1	2	1415.9	1416.0	1.6	2*	7	6	1403 E		198	1
1	2	1446	1446.7	6	2*	7	7	1940		275 D	1
1	2	1452.9	1454.0	1.2	2*	8	6	1404 E		611 D	2
1	3	1454.8	1454.9	0.7	3*	9	6	1402 E		616 D	2
1	3	1522.8	1522.8	0.3	2	10	6	1400 E	2210	618 D	2
1	3	1529.3	1529.5	0.6	2	11	6	1358 E		623 D	2
1	3	1547.1	1547.1	0.2	2	11	3	1617.5	1617.5	0.3	3
1	3	1554.5	1554.5	0.9	2	11	3	1812.0	1812.0	0.2	3
1	2	1647.0	1647.7	1.2	2	12	6	1355 E		625 D	2
1	2	2205.0	2206.5	2.0	3	13	6	1355 E		627 D	2
2	3	1555.5	1555.5	0.2	2	14	3	1838.5	1838.5	0.2	3
2	3	1708.0	1708.0	0.2	2	14	3	1917.0	1917.0	0.2	3
2	2	1908.2	1909.5	2.4	2	14	3	2206.9	2206.9	0.3	3
2	3	2047.7	2047.7	0.1	2	16	3	1623.6	1623.6	0.1	1
2	3	2111.0	2111.2	2.0	3	16	3	1743.4	1743.4	0.2	1
2	3	2152.0	2152.0	0.4	3	17	3	0006.3	0007.2	1.3	2**
2	3	2153.9	2153.9	0.3	2	17	3	0013.2	0013.2	0.1	2**
3	3	1455.0	1455.0	0.1	2	17	2	0015.5	0015.9	1.5	1**
3	3	1521.1	1521.1	0.1	1	17	3	0019.1	0019.5	0.9	1**
3	3	1549.1	1549.2	0.9	2	17	3	0022.3	0022.3	0.3	1**
3	8	1708.0	1709.7	4.0	3	18	2	1507.0	1507.1	2.0	2
3	3	1840.1	1840.1	0.3	1	18	3	2129.0	2129.0	1.0	2
3	3	2021.9	2021.9	0.1	2	19	3	1516.8	1516.8	0.3	2
3	8	2023.8	2024.1	2.2	3	19	3	1548.5	1548.5	0.2	2
3	3	2337.9	2337.9	0.2	1**	19	7	2132	2147	64	2
4	6	1408 E		198 D	2	20	3	1421.5	1421.5	0.3	2*
4	3	1829.0	1829.5	1.0	3	20	3	1505.9	1506.1	0.7	2
4	2	1831.5	1832.8	3.5	2	20	3	1513.0	1513.0	0.1	1
4	3	1929.0	1929.0	1.0	2	20	3	1610.0	1610.4	0.8	2
4	3	1932.5	1932.5	0.2	2	20	7	1637	2213	473 D	2
4	8	2037.6	2038.1	3.9	3	21	3	1353.7	1353.7	0.2	2*
4	3	2046.5	2046.9	2.3	3	21	3	1358.2	1358.2	0.3	2*
4	3	2112.2	2112.2	0.1	1	22	6	1517 E		208 D	1
4	3	2141.6	2141.6	0.3	2	22	3	1935.5	1935.5	0.4	2
4	3	2146.3	2146.3	0.3	2	22	3	2034.1	2034.3	0.9	2
4	7	2232		100 D	1	23	3	0024.0	0024.0	0.3	1**
5	6	1405 E		441 D	2	23	3	1428.0	1428.0	0.1	2**
5	3	1943.5	1943.5	0.2	3	23	3	2100.0	2100.0	0.2	2
5	3	1945.0	1946.0	2.0	3	25	3	1427.2	1427.8	0.8	1**
5	3	2145.0	2145.3	1.0	2	25	3	1911.8	1911.8	0.2	1
5	3	2148.2	2148.3	0.8	2	25	3	2050.4	2050.4	0.3	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						

* 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

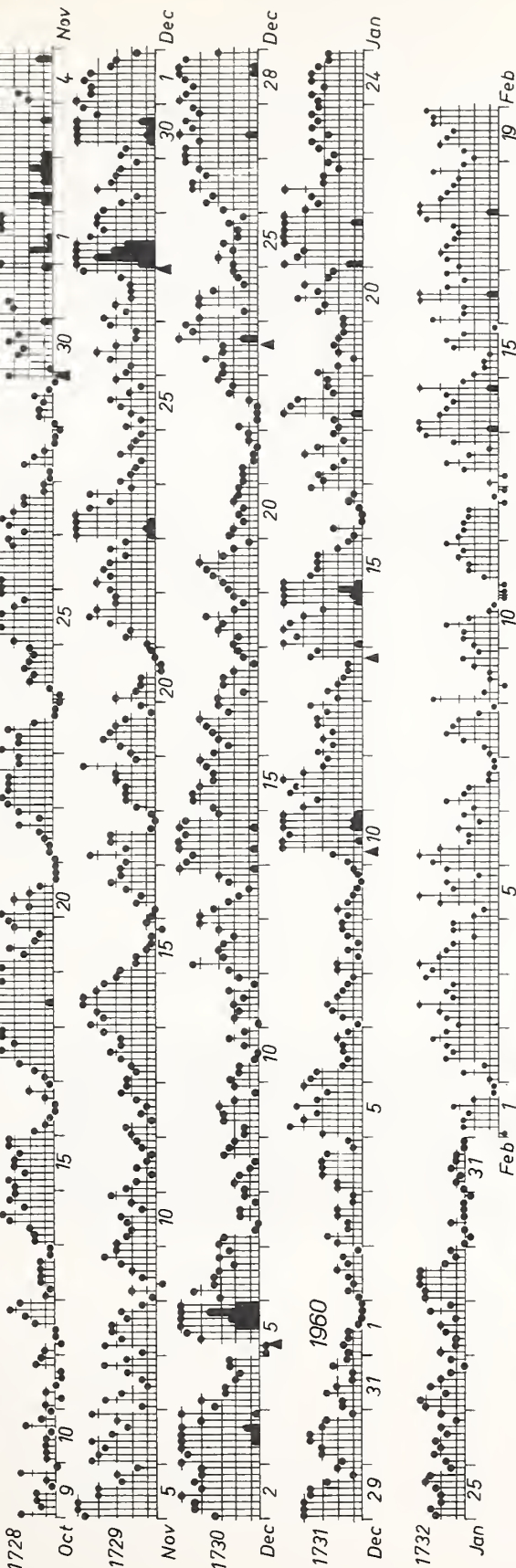
GEOMAGNETIC ACTIVITY INDICES

JANUARY 1960

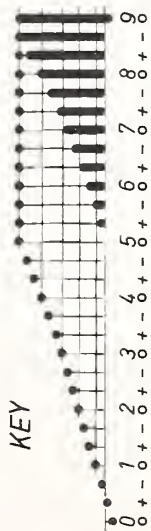
Jan. 1960	C	Values Kp								Sum	Ap	Final Selected Days
		Three hour Gr. interval										
		1	2	3	4	5	6	7	8			
1	0.0	1+	2-	1+	1+	1-	0+	0+	0+	7+	4	Five Quiet
2	0.1	1-	1+	1o	1+	2o	1+	2-	1-	10o	5	
3	0.1	2o	3-	1+	1+	2o	2o	1o	1o	13+	6	
4	0.6	2o	2o	3o	3o	3o	3-	1o	1+	18o	10	
5	1.1	3o	5-	4o	3+	4+	3+	3-	4o	29+	24	
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 Disturbed
12	1.0	3+	2+	3o	2+	3+	3+	3-	4-	24o	15	
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	
15	1.2	6+	5+	4-	3+	3+	3+	2o	1+	29-	30	
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 Quiet
22	1.1	4o	3+	4-	5o	3o	3o	2o	3-	27-	20	
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	
25	0.6	2+	3-	2o	2o	2+	3o	3-	1+	18+	10	
26	0.2	2-	2+	2o	2+	2-	2o	1o	2o	15o	7	3
27	0.3	3o	3+	2-	3-	2o	1+	0+	1+	16-	9	7
28	0.2	2o	1o	1o	2-	2o	1o	3-	1+	13-	6	8
29	0.7	3o	3o	3+	3+	3+	2-	1o	1+	20o	12	9
30	0.0	0+	0o	0+	1+	0+	0+	0+	0o	3o	2	16
31	0.1	0+	1o	1-	1+	1o	1o	0+	0+	6o	3	28
												30
												31
Mean:	0.69									Mean:	15	

DAYS IN SOLAR ROTATION INTERVAL

ROT. =
NR.



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.

COMMERCE - STANDARDS - BOULDER

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} Half Day (1) (2)
	00 to 06	06 to 12	12 to 18	18 to 24	00	06	12	18		1-7 days Final Js	1-7 days SDW	1-7 days J	1-7 days J	
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.

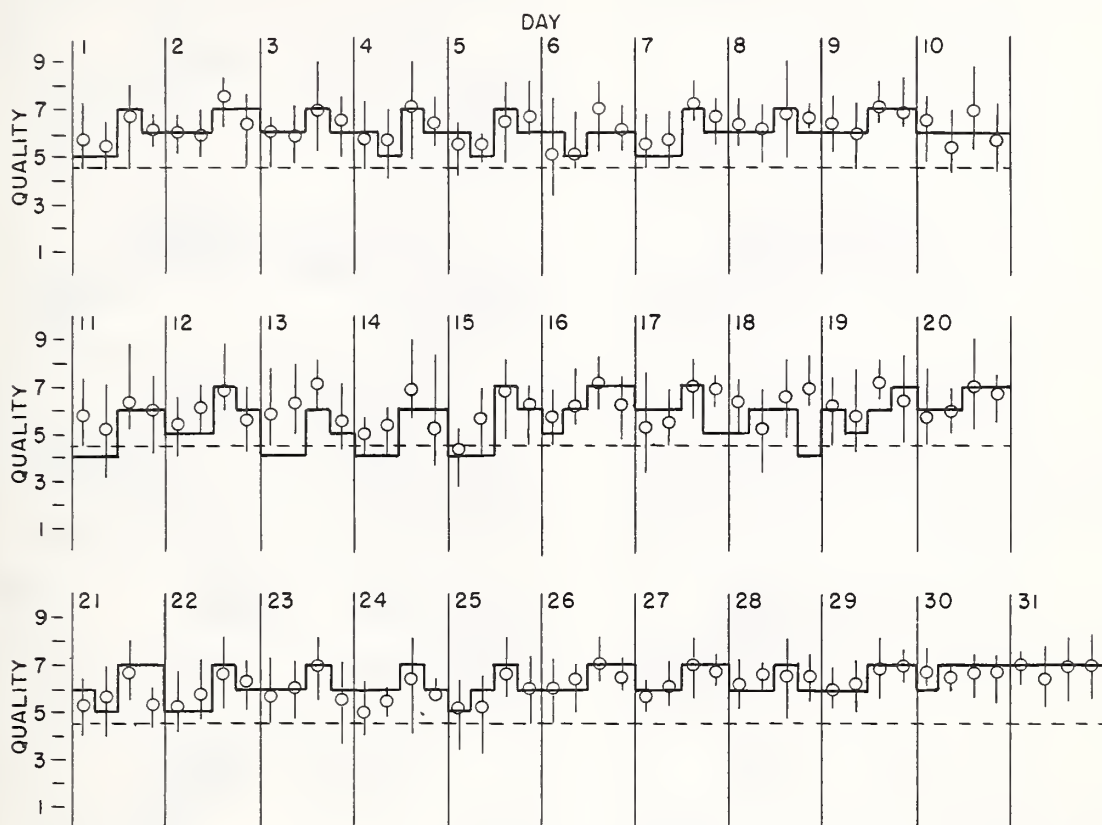
NORTH ATLANTIC

JANUARY 1960

— Short-term forecast

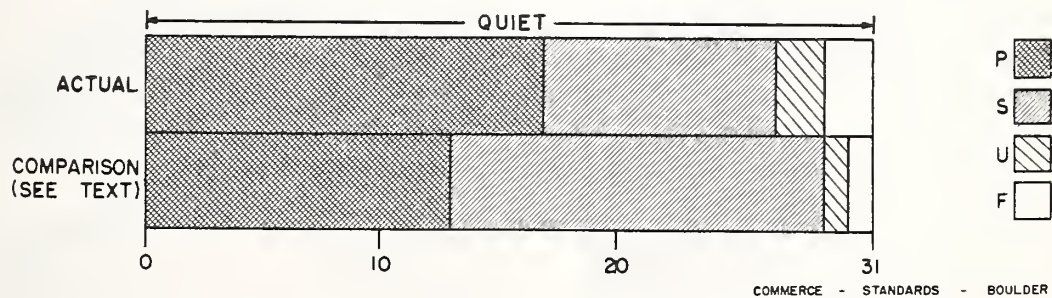
| Range of reports

o Quality figure



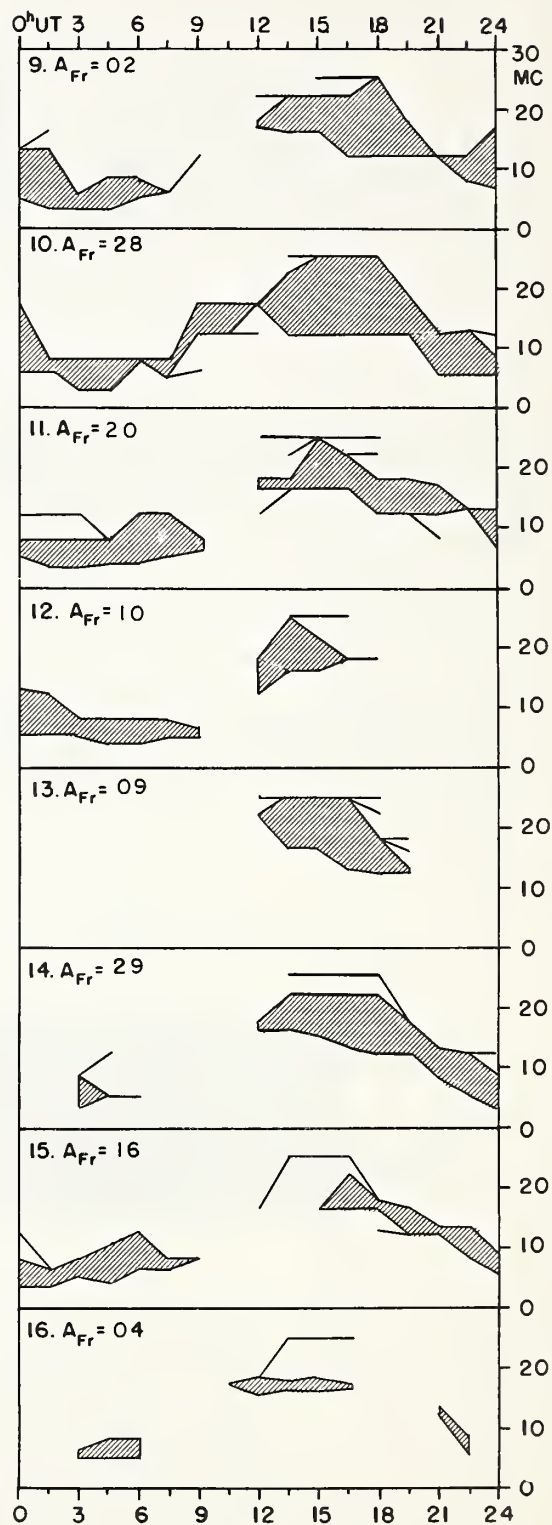
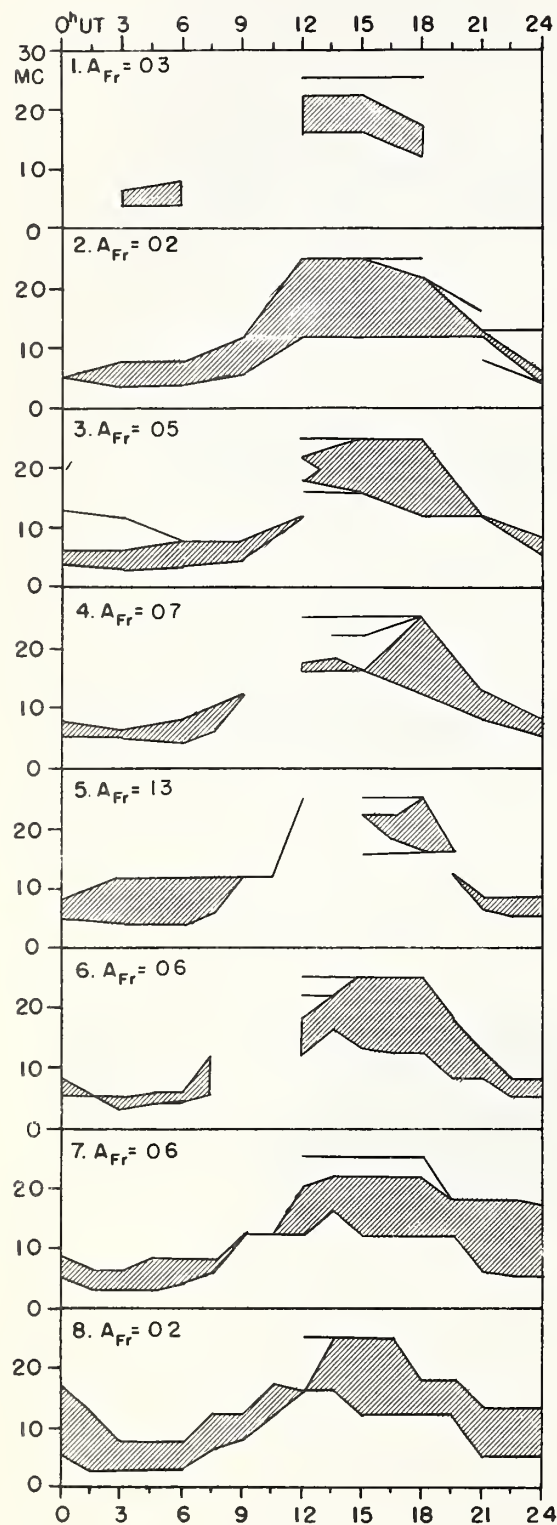
OUTCOME OF ADVANCED FORECASTS

FINAL ESTIMATE

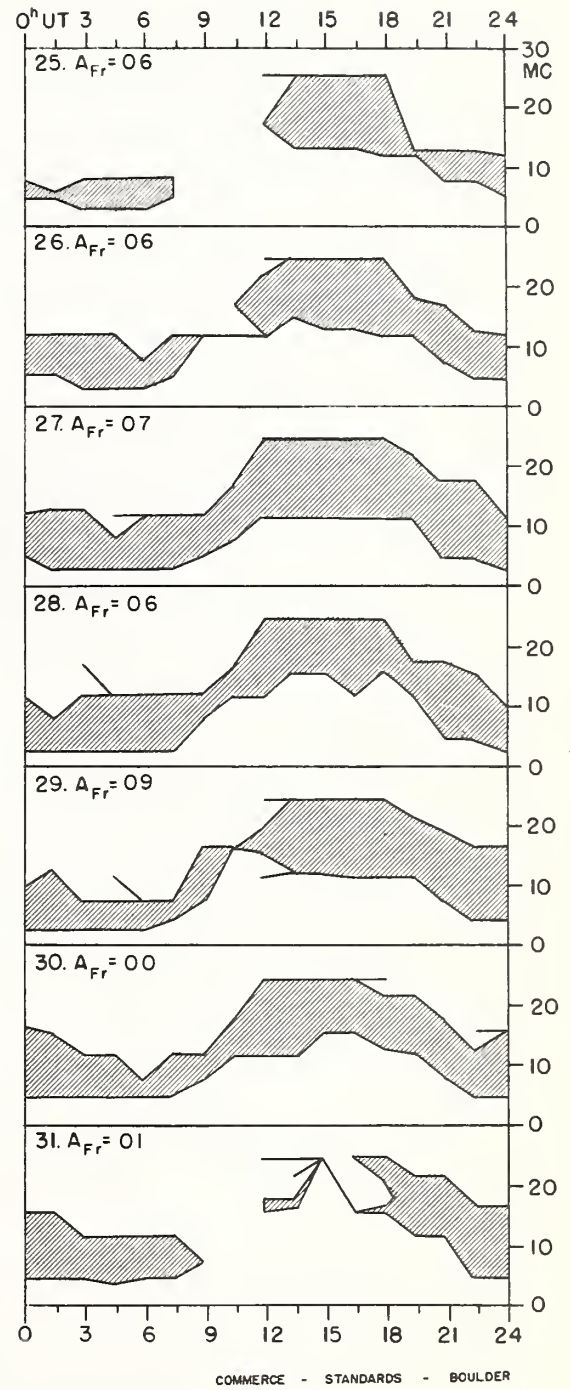
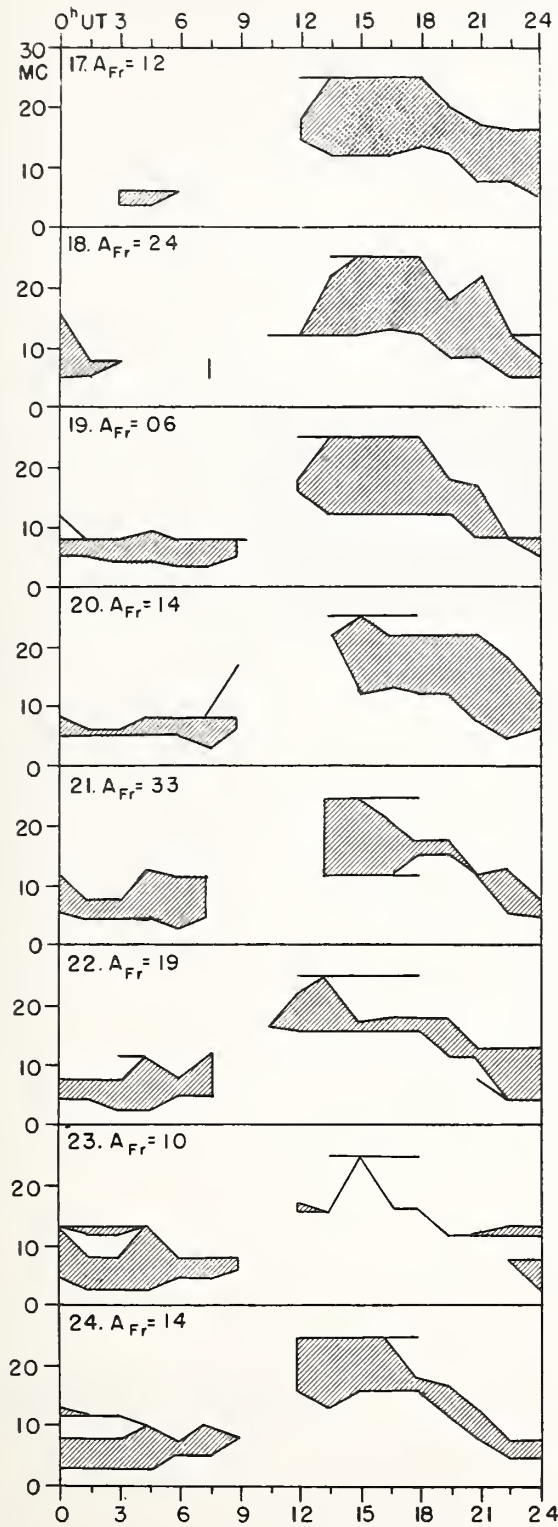


COMMERCE - STANDARDS - BOULDER

JANUARY 1960



COMMERCE - STANDARDS BOULDER



Adapted from Observations by Deutsches Bundespost

CRPL RADIO PROPAGATION QUALITY FIGURES AND FORECASTS

NORTH PACIFIC

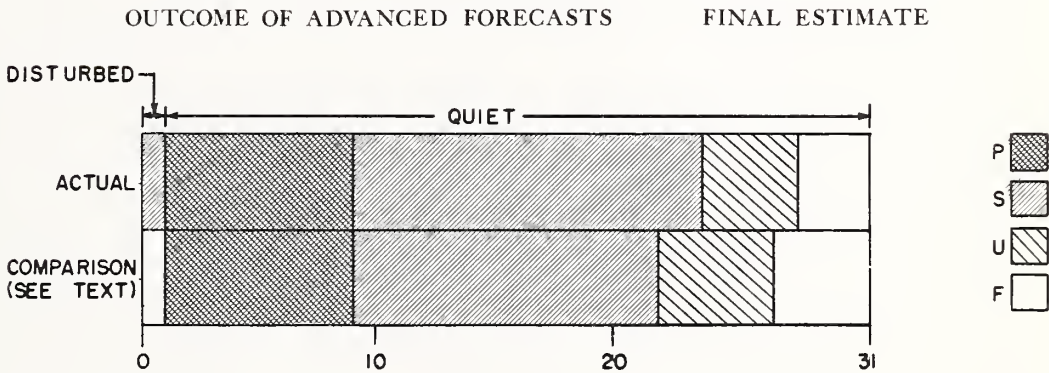
JANUARY 1960

Jan. 1960	North Pacific 12-hourly quality figures		Short-term fore- casts issued at		Whole day index	Advance forecasts (Jp reports) for whole day; issued in advance by:				Geomag- netic K _{S1}	
	0700 to 1900	1900 to 0700	0600	1800		1-7 days Final	1-7 days Jps	1-7 days SDW	1-7 days Jp	Half Day (1) (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



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			

COMMERCE - STANDARDS - BOULDER

