

PART B
SOLAR - GEOPHYSICAL DATA

ISSUED
MAY 1958

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

SOLAR - GEOPHYSICAL DATA

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1. The first part of the paper is devoted to a general discussion of the problem of the existence of a solution of the system of equations (1) for arbitrary values of the parameters α and β . It is shown that the system has a solution for arbitrary values of the parameters α and β if and only if the condition

$$\alpha + \beta \geq 0 \quad (2)$$

is satisfied. If this condition is not satisfied, then the system has no solution for arbitrary values of the parameters α and β . The second part of the paper is devoted to a detailed analysis of the case when the condition (2) is satisfied. It is shown that the system has a unique solution for arbitrary values of the parameters α and β if and only if the condition

$$\alpha + \beta > 0 \quad (3)$$

is satisfied. If this condition is not satisfied, then the system has a unique solution for arbitrary values of the parameters α and β if and only if the condition

$$\alpha + \beta = 0 \quad (4)$$

is satisfied. If this condition is not satisfied, then the system has no solution for arbitrary values of the parameters α and β . The third part of the paper is devoted to a detailed analysis of the case when the condition (4) is satisfied. It is shown that the system has a unique solution for arbitrary values of the parameters α and β if and only if the condition

$$\alpha + \beta < 0 \quad (5)$$

is satisfied. If this condition is not satisfied, then the system has a unique solution for arbitrary values of the parameters α and β if and only if the condition

$$\alpha + \beta = 0 \quad (6)$$

is satisfied. If this condition is not satisfied, then the system has no solution for arbitrary values of the parameters α and β . The fourth part of the paper is devoted to a detailed analysis of the case when the condition (6) is satisfied. It is shown that the system has a unique solution for arbitrary values of the parameters α and β if and only if the condition

$$\alpha + \beta > 0 \quad (7)$$

is satisfied. If this condition is not satisfied, then the system has a unique solution for arbitrary values of the parameters α and β if and only if the condition

$$\alpha + \beta = 0 \quad (8)$$

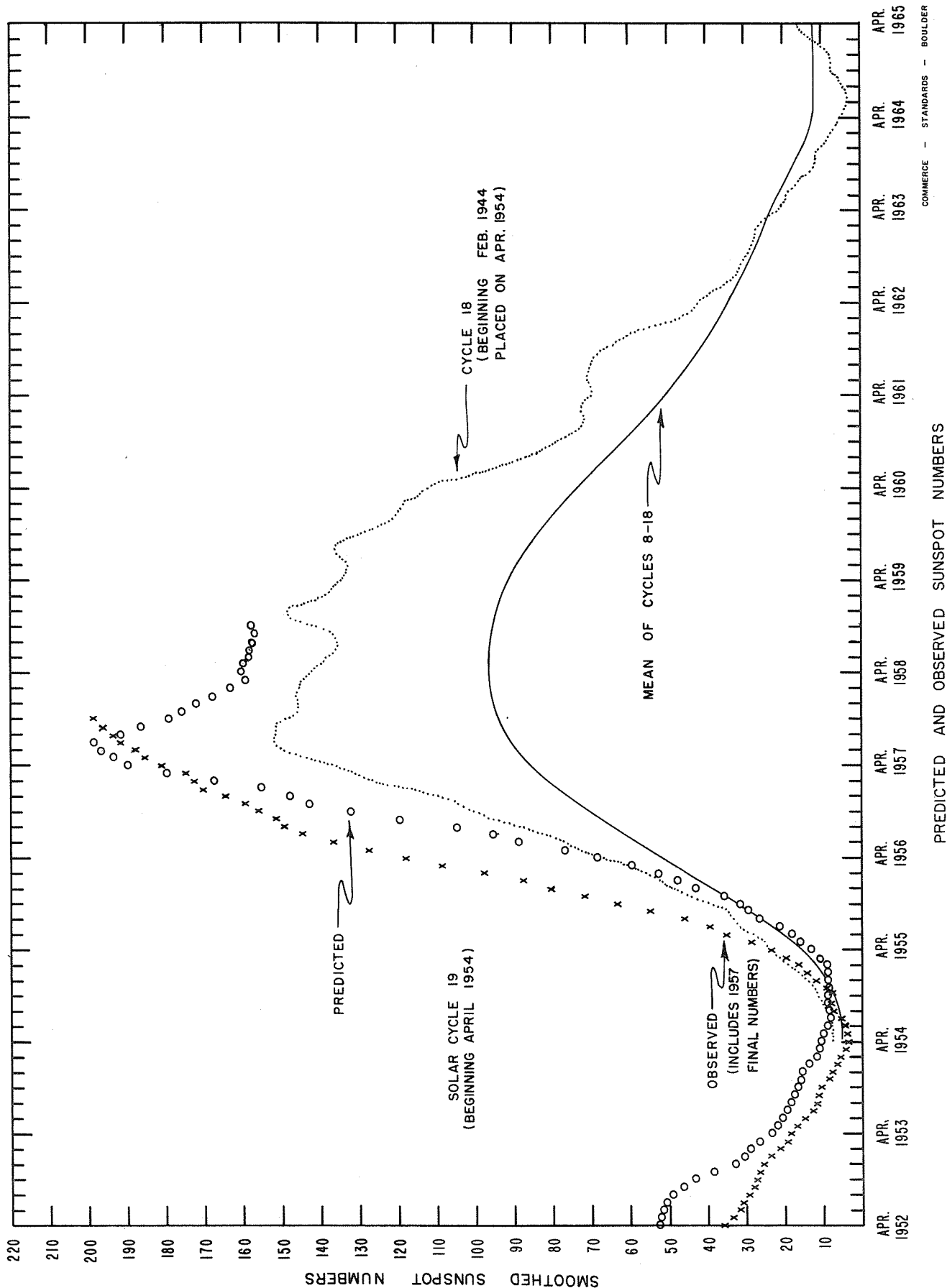
INTRODUCTION

The descriptive text is published quarterly or whenever context of the report is changed. The last issue in which the text appeared was CRPL-F164 Part B issued April 1958.

DAILY SOLAR INDICES

Mar. 1958	American Relative Sunspot Numbers R_A'
1	120
2	114
3	159
4	186
5	214
6	212
7	145
8	182
9	173
10	171
11	162
12	163
13	166
14	200
15	166
16	169
17	171
18	151
19	169
20	144
21	160
22	166
23	191
24	208
25	189
26	233
27	243
28	237
29	287
30	278
31	268
Mean:	187.0

Apr. 1958	Zürich Provisional Relative Sunspot Numbers R_Z	Daily Values Solar Flux at 2800 Mc, Ottawa, Canada Flux
1	290	331
2	292	326
3	245	302
4	245	295
5	244	290
6	212	289
7	246	283
8	246	272
9	204	250
10	197	244
11	159	216
12	140	196
13	127	179
14	96	177
15	99	188
16	108	197
17	147	207
18	168	213
19	191	221
20	192	226
21	218	229
22	212	237
23	201	235
24	181	244
25	206	248
26	182	245
27	190	247
28	198	258
29	207	255
30	208	265
Mean:	195.0	245.5



CALCIUM PLAGE AND SUNSPOT REGIONS

APRIL 1958

CMP Apr. 1958	Lat	McMath Plage Number	Return of Region	Calcium Plage Data				Sunspot Data		
				CMP Values Area Int.		History, Age		CMP Values Area Count		History
01.7	N26	4492	4443	400	2	$l - l$	3			
01.8	N06	4487	New	700	3	$b \nearrow l$	1	360	6	$b \nearrow l$
02.4	S14	4480	New*	5500	3	$l - l$	1	1160	10	$l - l$
02.9	N25	4481	4443	1700	3	$l - l$	3	390	1	$l - l$
04.6	N32	4484	4444	9000	3	$l - l$	2	860	14	$l - l$
04.7	N18	4485	4446	3400	2.5	$l \searrow l$	4	100	6	$l \vee l$
04.9	S21	4483	New*	5700	3	$l - l$	1	950	26	$l \wedge l$
06.3	N26	4488	4446	1500	2.5	$l \searrow d$	4	210	4	$l \searrow d$
06.9	S26	4489	4447	300	1	$l \searrow d$	6			
07.5	N12	4490	4449	4000	2.5	$l \nearrow l$	4	1140	11	$l \nearrow l$
08.1	S24	4494	4458	1000	2	$l \searrow l$	2	(230)	(5)	$l \wedge d$
08.9	S12	4496	4458	800	2	$l \nearrow l$	2	50	2	$b - d$
09.8	N17	4493	* *	8500	3	$l - l$	2	1270	8	$l \wedge l$
11.5	N44	4495	4464	3000	3	$l \searrow l$	2	(90)	(2)	$l - d$
12.8	S16	4497	New	1500	2.5	$l \nearrow l$	1	50	4	$b \vee l$
13.5	N45	4503	New	700	1.5	$b - d$	1			
13.9	N12	4498	4456	4800	3.5	$l \vee l$	2	20	2	$l \wedge l$
14.5	S08	4500	4472	800	1.5	$l \searrow d$	2			
15.8	S05	4501	New	500	1.5	$l - l$	1	60	4	$l - d$
15.9	S15	4504	4459	400	1.5	$l - l$	4	90	4	$b - d$
16.7	S25	4515	New+	200	2	$b - l$	1	(70)	(2)	$b - l$
17.7	S27	4509	4459	800	1	$l \searrow d$	4			
18.1	S10	4505	4466	200	1	$l - l$	2			
18.3	S23	4516	New	300	2	$b \nearrow l$	1			
18.5	N38	4502	4460?	1800	3	$l - l$	2	90	3	$l \vee d$
18.9	N18	4506	4465	4000	3.5	$l - l$	2	410	13	$l \wedge l$
21.1	S21	4508	New	8000	3.5	$l \nearrow l$	1	1620	4	$l \nearrow l$
21.1	N13	4511	New	400	2	$l \nearrow l$	1	20	1	$b - d$
21.1	N25	4507	4469	8000	3	$l \nearrow l$	2	280	3	$l \wedge d$
21.7	N41	4510	4469	1400	3	$l - l$	2	120	2	$l \searrow d$
22.7	N08	4513	New	500	2	$l - l$	1			
23.6	N14	4514	New	4000	3	$l \searrow l$	1	380	6	$l - l$
24.2	S24	4518	4479	300	1	$l \searrow l$	2	60	3	$b - d$
25.9	N09	4519	New	5200	3.5	$l - l$	1	910	19	$l \wedge l$
26.7	S20	4520	4478	4000	2.5	$l \searrow l$	3			
27.1	N10	4522	New	1200	2	$l \searrow d$	1	(20)	(1)	$l - d$
27.7	N19	4521	New	1600	2	$l - l$	1	220	3	$l \searrow l$
28.6	N13	4523	4487	500	2	$l \searrow l$	2			
29.3	N14	4532	4487	300	2	$l - l$	2			
29.4	S15	4524	4480	4000	3	$l \searrow l$	2?	500	2	$l - l$
30.0	N08	4526	4487	700	2	$l \searrow d$	2	(20)	(2)	$l - d$
30.0	N25	4525	4481	1500	2	$l - l$	4	10	1	$l \nearrow l$

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*4480 and 4483 lie at E and W extremities of last rotation's 4445;
they behave, however, more like new regions.

**4453 and 4452

+In position of last rotation's 4459.

CORONAL LINE EMISSION INDICES

In addition to indices previously published by month.

CMP 1957	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
30 Sep																
9 Oct									97	148			98	121		
17 Oct									137	250			102	143		
18 Oct									210	314			130	179	67	110
23 Oct	151	210											178	306	27	48
30 Oct																
31 Oct	145	193	90	130		143	61	160	163	230	43	70	187	263		
1 Nov	105	117	54	86		270	42	127	114	132			105	158		
5 Nov									154	260	8	22	188	285	12	18
11 Nov																
12 Nov									69	88	22	45	81	106	14	35
13 Nov			33	52			30	60	54a	76a			73a	118a		
14 Nov						158										
17 Nov	162	254							153	176	75	115	121	165	34	99
18 Nov											58	75			40	50
19 Nov	160	183				156										
20 Nov									31a	43a	33a	50a	69a	85a	46a	60a
21 Nov									52	66	36	65	127	168	21	53
22 Nov									72	86						
25 Nov	86	100	13	22		164	17	31								
26 Nov																
27 Nov	42a	58a	26a	45a		96a	51a	90a								
30 Nov	59a	94a				72a										
1 Dec	95	128	58	130		108	28	40	125	184	29	42	91	108	21	45
2 Dec			48	75			22	40	126	196	23	38	77	84	13	20
4 Dec																
5 Dec	43a	54a	36a	48a		77a	23a	40a								
6 Dec	71	88	21	47		176	18	48								
7 Dec	75	91				105			144	191	29	38	119	126	16	27
13 Dec									130	147	10	25	145	168	18	49
14 Dec	105	152	15	36		120	34	51			14	20			19	30
											26	50			16	40
																36

* = yellow line observed

a = index computed from low weight data

CORONAL LINE EMISSION INDICES

In addition to indices previously published by month.

CMP 1957	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
15 Dec	116	149	16	32	85	115	31	48	65	100	45	75	86	117	19	35
18 Dec			28	43			31	63			26	40			19	36
19 Dec			22	35	112	177	40	70								
20 Dec	132*	193	21	50			27	50								
21 Dec																
23 Dec									102	150	25	39	101	159	48	59
25 Dec																
27 Dec			20	35			32	70								
28 Dec			27	35			44	92								
29 Dec			34	55			45	80								
1958																
1 Jan	41	48	20	25	76	107	17	25								
6 Jan	138	160			119	168										
8 Jan	96	122	29	65			16	33								

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* = yellow line observed
a = index computed from low weight data

Note: Coronal data for April will appear in the next issue.
An equipment breakdown prevented reduction of data
in time for this issue.

APRIL 1958

COMMERCE - STANDARDS - BOULDER

OBSERVATORY	DATE APR. - 1958	OBSERVED UNIVERSAL TIME		MAX. PHASE	LOCATION			DURA- TION — MINUTES	IM- POR- TANCE	OBS. COND.	MEASUREMENTS					PROVISIONAL IONOSPHERIC EFFECT
		START	END		APPROX. LAT.	MATH					TIME — U T	MEAS. AREA Sq. Deg.	CORE. AREA Sq. Deg.	MAX. WIDTH Ed	MAX. INT. %	
						PLAGE DIST.	REGION									
MITAKA	01	0120 E	0125 D		S08	W40	4476	5 D	1	1	0120	089	1.14	1.68	96	SLOW S-SWF
MITAKA	01	0212 E	0218		S13	W38	4476	6 D	1	1	0215	2.78	3.44	2.58	96	
MITAKA	01	0433 E	0456		S15	W39	4476	23 D	1	1	0442	2.78	3.44	2.22	96	
NIZAMIAH	01	0445 E	0453	0447	S09	W68	4476	8	1	1	0447	1.22	3.13	1.80		
MITAKA	01	0451 E	0456 D		S05	W65	4476	5 D	1	1	0453	2.78	4.50	2.45	96	
CAPRI G	01	0722 E	0812 D		S14	W51	4476	50 D	1	1						
AROSA	01	0728 E	0738		S14	W50	4476	10	1	1			4.00			
CAPRI G	01	0750 E	0812 D		N23	E48	4488	22 D	1	3			4.00			
AROSA	01	0759 E	0808		N22	E50	4488	9	1	3						
UCCLE	01	0815 E	0829		S13	W40	4476	14 D	1	4						
UCCLE	01	0815 E	0830 D		N19	E84	4493	15 D	1	4						
UCCLE	01	0817 E	0829		N20	E53	4488	12	1	4	0820	070	14.00			
UCCLE	01	0830 E	0834	0830	S15	W50	4476	4	1	3	0830	1.20	2.20			
UCCLE	01	0836 E	0840	0838	N35	E40	4484	4	1	3	0838	1.20	2.50			
CAPRI G	01	0935 E	0947 D		S19	E40	4483	12 D	1	3			2.00			
CAPRI G	01	0938 E	1002 D		S09	W76	4476	24 D	1	3			2.00			
CAPRI G	01	0955 E	1000		S12	W46	4476	5	1	3			5.00			
UCCLE	01	0956 E	1003	0958	S10	W54	4476	7	16	5	0958	4.00	6.00			
AROSA	01	0958 E	1000 D		S09	W53	4476	2 D	1	4	1020	1.50	2.10		G-SWF	
UCCLE	01	1018 E	1028	1020	N37	E38	4484	10	1	3			5.00			
CAPRI G	01	1025 E	1042 D		S13	W52	4476	9	1	3	1022	2.20	4.40			
UCCLE	01	1019 E	1028	1022	S14	W44	4476	59 D	2	5	1056	4.50	7.00			
UCCLE	01	1051 E	1150 D		S16	W42	4476	59 D	26	3	1102	9.50	14.00			
CAPRI G	01	1052 E	1112 D		S20	W30	4478	20 D	1	3			5.00			
CAPRI G	01	1052 E	1130 D	1055	S12	W44	4476	38 D	2	3	1055		1.10			
CAPRI G	01	1052 E	1130 D		S14	W40	4476	38 D	2	3			4.20			
AROSA	01	1053 E	1131 D		S14	W40	4476	38 D	16	3	1100	3.00	4.20			
UCCLE	01	1100 E	1110	1103	S22	W34	4478	10	1	4	1103	2.00	2.40			
R O EDIN	01	1107 E	1131		S13	W41	4476	24 D	16	2	1210	2.89	4.08		G-SWF	
MCNATH	01	1131 E	1250		S15	W45	4476	79 D	16	1			4.00			
CAPRI G	01	1205 E	1231 D		S10	W45	4476	26 D	1	3						
AROSA	01	1220 E	1230		S09	W47	4476	10 D	1							
AROSA	01	1220 E	1230		N19	W54	4475	10 D	1							
CAPRI G	01	1323 E	1329		S18	E49	4483	6 D	1	3			3.00			
CAPRI G	01	1323 E	1340		N14	E82	4493	17 D	1	3			3.00			
MCNATH	01	1412 E	1500	1418	N34	E35	4484	48	1	2	1420	2.57	4.48			
MCNATH	01	1535 E	1625	1544	N34	E38	4484	50	1	3	1544	1.61	2.77			
MCNATH	01	1537 E	1558	1544	N20	E40	4484	21	1							
OTTAWA	01	1538 E	1555	1540	N21	E39	4484	17	1	2	1540	1.68	2.49		SLOW S-SWF	
CAPRI G	01	1540 E	1547 D		N39	E43	4484	7 D	1	2			2.00			
MCNATH	01	1600 E	1640	1614	S06	W45	4476	40	1	2	1614	1.93	2.74			
R O EDIN	01	1612 E	1627		S06	W43	4476	15 D	1	2	1620	2.00	2.70	1.56		
SAC PEAK	01	1630 E	1655	1635	S11	W56	4476	25	16	1						
CLIMAX	01	1631 E	1657	1635	S08	W56	4476	26	1	2	1635	4.60	4.60			
MCNATH	01	1631 E	1705	1635	S10	W53	4476	34	16	2	1635	1.93	3.32			
OTTAWA	01	1632 E			S10	W53	4476	16	16	2	1634	2.96	4.97			
USNRL	01	1632 E	1708	1634	S11	W55	4476	36	16	3	1634	1.93	3.28			
HUANCAYO	01	1633 E	1658	1635	S10	W52	4476	25 D	1	3	1644	1.13	1.87			
USNRL	01	1636 E	1703	1644	S15	W15	4478	27	1	3	1648	3.10	1.00			
CLIMAX	01	1642 E	1655	1648	S12	W56	4476	13	1	2	1653	1.13	1.52			
USNRL	01	1648 E	1718	1653	S24	W38	4478	30	1	2	1809	1.05	1.05			
USNRL	01	1800 E	1845	1809	S25	W38	4476	45	1	2	1809	0.79	1.05			
MCNATH	01	1846 E	1915	1855	N24	E44	4484	29	1	1	1855	1.45	2.49		1	

SOLAR FLARES

APRIL 1958

OBSERVATORY	DATE APR - 1958	OBSERVED UNIVERSAL TIME		LOCATION			DURA- TION — MINUTES	IM- POR- TANCE	OBS. COND.	MEASUREMENTS					PROVISIONAL IONOSPHERIC EFFECT
		START	END	APPROX.	MAGNITUDE					TIME — U T	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH H _z	MAX. INT. %	
					LAT.	MER. DIST.									
{CLIMAX MCMATH USNRL	01	1959	2010	S12	W56	4476	11	1	2	2006	2.60	2.81	1.50	108	Slow S-SWF S-SWF
	01	2000	2014	S14	W55	4476	14	1	2	2005	1.60	1.77		153	
	01	2002	2039	S15	W56	4476	37	1	2	2004	1.02				
{NIZAMIAH KODAIKANAL NIZAMIAH	02	0427	0441	S15	W58	4476	14	1	3	0433	1.22	2.23	2.00		Slow S-SWF S-SWF
	02	0502	0507	S26	W34	4478	5	2	2	0505			4.80		
	02	0505	0515	S23	W34	4478	10	16	3	0505	3.65	4.52	2.30		
{ZURICH ZURICH UCCLE	02	0905	0915	S23	W45	4478	10	1	2	0905	2.00	2.00			Slow S-SWF S-SWF
	02	0905	0920	N18	E39	4485	15	16	2	0905					
	02	0916	0930	N20	E38	4485	14	1	4	0918	2.20				
{ZURICH ZURICH ZURICH	02	0910	0918	S14	W62	4476	8	1	2	0910	5.00	5.00			Slow S-SWF S-SWF
	02	0910	0940	S27	E76	4494	30	1	2	0910	3.00	3.00			
	02	1020	1046	S16	E30	4483	26	1	2	1028	3.00	3.00			
{R O EDIN DUNSLINK UCCLE	02	1054	1108	N22	E32	4485	14	1	2	1056	3.00	4.00	2.79		Slow S-SWF S-SWF
	02	1055	1115	N23	E27	4485	20	2	3	1055	7.50	4.30	3.00		
	02	1123	1155	S17	E29	4483	32	16	4	1126	4.00	3.00			
{CAPRI G AROSA AROSA	02	1125	1230	S15	E27	4483	65	1	3						Slow S-SWF S-SWF
	02	1145	1150	S09	W61	4476	5	1	4						
	02	1248	1332	S16	E27	4483	20	1	2	1252	2.03	2.82		114	
{USNRL AROSA USNRL	02	1326	1356	S25	W40	4478	44	16	2						Slow S-SWF S-SWF
	02	1326	1416	S19	E26	4483	30	1	2	1330	1.47	1.67	1.00	131	
	02	1327	1336	S17	E29	4483	9	1	3	1329	4.00	4.60	1.66		
{R O EDIN OTTAWA MCMATH	02	1327	1402	S16	E26	4483	35	1	1	1334	2.44	2.75			Slow S-SWF S-SWF
	02	1332	1357	S17	E35	4483	15	1	2	1356	.90	1.30		123	
	02	1342	1401	S17	E28	4483	6	1	3						
{CAPRI G CAPRI G USNRL	02	1355	1410	N20	E35	4485	15	1	2						Slow S-SWF S-SWF
	02	1356	1400	N20	E35	4485	4	1	3	1357	4.00	5.90	2.26		
	02	1356	1408	N22	E35	4485	12	16	2	1358	2.15	3.05			
{R O EDIN OTTAWA CAPRI G	02	1420	1425	S23	W41	4478	5	1	3						Slow S-SWF S-SWF
	02	1516	1545	N34	E25	4484	29	1	1	1517	2.57	3.65			
	02	1520	1544	N34	E30	4484	24	1	2	1528	3.00	4.00			
{ZURICH CAPRI G ZURICH	02	1533	1542	S15	E25	4483	9	1	2						Slow S-SWF S-SWF
	02	1536	1601	S17	E26	4483	25	1	2	1536	3.00	3.00			
	02	1539	1735	S15	E24	4483	116	1	1	1545	1.02	1.11	2.00	158	
{MCMATH R O HERST OTTAWA	02	1540	1600	S16	E24	4483	20	1	1	1545	1.60	1.80	4.60	86	Slow S-SWF S-SWF
	02	1541	1610	S18	E26	4483	29	1	1	1548	.70	.90		79	
	02	1542	1615	S15	E25	4483	33	1	1	1546	2.03	2.27	2.70		
{R O EDIN CAPRI G CAPRI G	02	1545	1609	S15	E27	4483	24	1	3	1547	3.50	4.00			Slow S-SWF S-SWF
	02	1553	1617	N34	E30	4484	24	1	2						
	02	1605	1617	N31	E19	4484	12	1	2						
{CAPRI G OTTAWA R O EDIN	02	1609	1622	N30	E17	4484	13	16	4	1612	3.94	5.00	4.36		Slow S-SWF S-SWF
	02	1610	1620	N32	E21	4484	10	2	3	1612	4.00	5.40			
	02	1641	1729	N19	E29	4485	48	16	3	1651	3.13	4.01	2.00	102	
{OTTAWA USNRL R O EDIN	02	1642	1738	N20	E31	4485	56	1	2	1646	1.13	1.44	2.50		Slow S-SWF S-SWF
	02	1643	1719	N21	E35	4485	36	2	3	1653	4.00	5.80		116	
	02	1726	1738	S15	W68	4476	12	1	3	1727	.45	1.15		57	
{USNRL MCMATH USNRL	02	1807	1850	S26	E72	4494	43	16	2	1820	2.25	8.92	2.00	80	Slow S-SWF S-SWF
	02	1809	1847	S14	E76	4494	38	1	2	1811	.79	2.84			
	02	1918	1928	S16	E21	4483	10	1	1	1918	1.90	2.00		93	
{HAWAII MCMATH USNRL	02	1951	2020	S16	E23	4483	29	16	1	1954	2.42	2.61	2.00	168	Slow S-SWF S-SWF
	02	1951	2020	S16	E23	4483	29	16	1	1954	2.42	2.61	2.00	168	
	02	1953	2025	S15	E23	4483	32	16	2	1955	2.26	2.47	2.00	168	

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		START	END	MAX. PHASE	APPROX.					MAGN- ITUDE REGION	TIME — UT	MEAS. AREA Sq. Deg.	CORR. Sq. Deg.		MAX. WIDTH H _o	MAX. INT. %
					LAT.	MER. DIST.										
HAWAII	02	1958 E	2030 D		S14	E22	4483	32 D	2	1	1958	6.60	7.20		S-SWF	
	03	0412 E	0428 D	0420	S15	E19	4483	16 D	1	2	0415	2.50	2.90	2.20	135	
	03	0731	0828 D		S16	E17	4483	57 D	16				6.00			
	03	0737	0753		S16	E14	4483	16	1	2			4.00			
	03	0741	0757 D		N32	E14	4484	16 D	1	2			2.00			
	03	0801	0822		S27	E68	4494	21	1				3.00			
	03	0812 E	0825		S25	E72	4494	13 D		3						
	03	0812 E	0834		S16	E18	4483	22 D	3							
	03	0817	0845	0825	N36	E19	4484	28	2	4	0825	6.00	8.00		S-SWF	
	03	0822	0915		N33	E21	4484	53	16					7.00		
HAWAII	03	0925 E	0930 D		N31	E10	4484	5	1	2			2.00			
	03	1019	1032 D		S14	E16	4483	13 D	1	2			5.00			
	03	1020 E	1030		S15	E21	4483	10 D	1	2			3.00			
	03	1021	1025	1022	S16	E20	4483	4	1	2	1022	3.50	3.50		S-SWF	
	03	1021	1027		S19	E19	4483	6	1							
	03	1038	1040		S15	E15	4483	2	1	1		2.20	3.41			
	03	1132 E	1200 D		S16	E16	4483	28 D	1	1	1149	3.22	5.00			
	03	1311 E	1320 D		S15	E16	4483	9 D	1	1			3.00			
	03	1311 E	1320 D		N35	E17	4484	9 D	1	1			3.00			
	03	1320 E	1357 D		S21	E65	4494	37 D	1	1						
HAWAII	03	1325 E	1346		S28	E70	4494	21 D	1	2	1326		3.00			
	03	1326	1355		S25	E59	4494	29	1				3.00			
	03	1358 E	1434		S17	E12	4483	36 D	1			2.50	2.70			
	03	1402	1430	1410	S16	E13	4483	28	1	3	1409				20	
	03	1403	1425 D	1409	S16	E14	4483	22 D	1	1		2.57	2.70		61	
	03	1403	1427		S13	E12	4483	24	16							
	03	1404	1420 D		S15	E13	4483	16 D	1	2	1404		3.00			
	03	1404	1432		S16	E13	4483	28	1	3	1415	3.70	3.76		17	
	03	1405	1515		S16	E13	4483	40	1	3	1408	3.60	2.60			
	03	1435	1515		N33	E14	4484	23	1	3	1446	2.70				
HAWAII	03	1437	1500	1446	N36	E15	4484	38 D	16							
	03	1437	1515 D		N35	E15	4484	38	1	1	1442	2.89	4.05		61	
	03	1437	1520		N35	E15	4484	43	1	3	1444	3.42	4.61			
	03	1438	1515	1444	N33	E13	4484	37	1	2	1448	1.58	2.16	1.00	93	
	03	1439	1526	1448	N35	E15	4484	47	1	3						
	03	1440 E	1522		N33	E16	4484	42 D	2	2	1445					
	03	1445 E	1505		N33	E14	4484	20 D	1	2						
	03	1539	1622		S12	E14	4483	43	1							
	03	1721	1801	1742	S13	E10	4483	40	1	1	1742	3.70	3.70		G-SWF	
	03	1814	1839	1822	S26	E68	4494	25	1	1	1822	4.70	4.70			
HAWAII	03	1815	1830 D		S26	E65	4494	15 D	16	1	1820	2.57	5.61		53	
	03	1815	1835	1822	S26	E67	4494	20	1	3		2.40			17	
	03	1828	1906	1840	S13	E09	4483	38	2	1	1840	7.40	2.90			
	03	1830	1848 D		S13	E11	4483	18 D	1	1	1840	2.90	2.90		22	
	03	1832	1855	1840	S16	E08	4483	23	16	3	1837	4.90	2.68		117	
	03	1832	2014	1837	S15	E09	4483	42	16	3	1845	2.60	2.60		69	
	03	1840 E	1855		S15	E09	4483	15 D	16	1	1925	5.79	5.91			
	03	1909	1951	1925	S14	E09	4483	42	1	3	2010	2.70	2.70		19	
	03	2005	2035	2012	S24	E65	4494	30	1	3	2012	2.90	2.90		79	
	03	2005	2050	2010	S25	E65	4494	45	1	3	2012	1.93	4.21		51	
MITAKA	03	2010 E	2025 D		S25	E63	4494	15 D	1	1						
	04	0133 E	0139		N38	E06	4484	6 D	1	1	0133	.41	.56	1.81	91	
														PAGE	3	

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		START	END	MAX PHASE	APPROX. LAT.	APPROX. MER. DIST.	MCNATH PLACE REGION				TIME — UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH H _z	MAX. INT. %
KODAIKANAL	04	0305 E	0338 D	0318	S17 W47		4480	33 D	1	1	0309	3.90	5.40	2.80	135
MITAKA	04	0401 E	0411 D		N30 E04		4484	10 D	1	1	0404	3.71	4.52	1.70	96
MITAKA	04	0545	0602		N10 W33		4487	17	1	1	0549	2.78	3.28	1.89	115
ATHENS	04	0755 E	0808 D		N18 E71		4493	13 D	1	3		.70	2.40		
WENDEL	04	0906	0925 D		N23 E09		4484	19 D	1			2.25	3.00		81
MCNATH	04	1133 E	1152		N07 W33		4487	19 D	1		1134	2.25	2.79		
WENDEL	04	1157 E	1202 D		N08 W34		4487	5 D	1			1.93	3.00		60
MCNATH	04	1321	1337 D		N20 E07		4485	16 D	1		1336	1.77	2.16		89
MCNATH	04	1921	1930	1922	S16 E02		4483	9	1	2	1922	1.35	1.79	2.00	125
USNRL	04	1921	1933	1921	S17 E02		4483	12	1	2	1921	2.57	1.38		68
MCNATH	04	1933	2005	1940	S15 W05		4483	32	1	1	1940	4.70	2.60		120
MITAKA	04	2340 E	2359		S15 W07		4483	19 D	1	1	2350	1.84	4.80	1.45	
MITAKA	05	0014 E	0021	0014	N13 E49		4493	7 D	1	1	0015	3.71	2.93	3.87	149
MITAKA	05	0018 E	0045	0019	N15 E25		4490	27 D	1	1	0019	1.84	4.50	3.14	149
MITAKA	05	0112 E	0119		N31 W08		4484	7 D	1	1	0114	4.70	3.00	1.95	105
MITAKA	05	0123	0132	0130	S13 W32		4480	9	16	1	0124	3.80	5.55	1.57	131
MITAKA	05	0259 E	0305 D		S14 W04		4483	6 D	16	1	0259	3.80	3.84	2.62	162
MITAKA	05	0447 E	0454	0447	N19 E39		4493	7 D	16	1	0447	3.80	5.16	1.36	134
AROSA	05	0710	0727		N28 W08		4484	17	1			1.70	2.10		
ATHENS	05	0712	0741		N30 W08		4484	29	1	3					
AROSA	05	0724	0729		N20 W02		4485	5	1						
WENDEL	05	0745 E	0754		N22 W03		4485	9 D	1						
AROSA	05	0727	0803		S19 W08		4483	36	16						
WENDEL	05	0745 E	0805 D		S18 W09		4483	20 D	16						
AROSA	05	0752	0849	0809	N30 W08		4484	57	26						
ATHENS	05	0803	0846		N28 W09		4484	43	2	3					
OTTAWA	05	1352	1450		N31 W08		4484	40	1						
OTTAWA	05	1448	1500		S14 W13		4493	58	16						
SAC PEAK	05	1835	1930	1845	N16 E55		4493	12	1		1357	3.70	4.60		18
SAC PEAK	05	1925	1950	1935	S25 E36		4494	55	1	2	1450	2.90	3.02		20
HAWAII	05	1930	1948	1934	N43 E80		4495	25	2						
SAC PEAK	05	2020	2115	2030	N45 E85		4495	18	2		1934	3.30	7.70		16
CAPRI G	06	1335 E	1353		N16 E53		4493	55	1	2					
CAPRI G	06	1550 E	1557 D		N13 E36		4493	18 D	1	2					
CLIMAX	06	1651	1804	1721	N18 E43		4493	7 D	1	3					
SAC PEAK	06	1929	2010	1940	S31 W49		4484	73	1		1721	2.10	2.00		
HAWAII	06	1930	2025	1940	S14 W28		4483	41	1		1940	2.60			
WENDEL	06	2210	2228	2214	S17 W27		4483	55	1	2					
WENDEL	06	2210	2228	2214	N11 E36		4493	18	1	1	2214	1.60	2.20		17
WENDEL	07	1016 E	1100 D		N13 E30		4493	44 D	3						
CAPRI S	07	1021 E	1029 D		N12 E35		4493	8 D	16	2	1024	4.00	4.80		
NIZAMIAH	07	1025 E	1033 D		N15 E32		4493	8 D	2	2	1025	7.29	8.62	2.60	15
SAC PEAK	07	1625	1750 U	1637	N46 E70		4495	85 D	1	2					
MCNATH	07	1629	1745		N45 E60		4495	76	1	1					
MCNATH	07	2024	2045	2034	N15 E02		4490	21	1	2	2034	3.21	3.44		67
MCNATH	07	2048	2115	2057	N15 E06		4490	27	1	2	2057	3.54	3.75		74
SAC PEAK	07	2210	2240 U	2212	N11 W04		4490	30 D	1	2					15
HAWAII	07	2336	0040	2346	N08 E19		4493	64	16	2	2346	3.10	3.40		
HAWAII	08	0038	0052	0038	N12 W20		4490	14	1	2	0038	3.50	3.90	1.90	4
NIZAMIAH	08	0301	0329	0309	S17 W44		4483	28	1	2	0309	3.04	4.28		

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OBSERVATORY	DATE APR. 1958	OBSERVED UNIVERSAL TIME		LOCATION			DURA- TION — MINUTES	IR- POR- TANCE	OBS. COND.	MEASUREMENTS				PROVISIONAL IONOSPHERIC EFFECT			
		START	END	MAX. PHASE	APPROX.					MCNATH PLACE REGION	TIME — UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.		MAX. WIDTH H _g	MAX. INT. %	
					LAT.	MER. DIST.											
{CAPRI G ARCETRI CAPRI G UCCLE CAPRI G HAWAII MT WILSON	08	0850 E	0905 D	N34 W47		4484	15 D	1	2	0854	1.70	3.00		G-SWF			
	08	0854		N33 W46		4484	1	3									
	08	0912 E	0920 D	N12 E65		4498	8 D	1	3								
	08	0917 E	1035 D	N15 E45		4498	78	16	2	0918	3.40	2.00					
	08	1418 E	1425 D	N16 E19		4493	7 D	1	3			3.00					
	08	2328	0020	N14 E70		4498	52	1	2	2350	2.90	6.70					
	08	2350 E		N12 E68		4498	1										
	09	0852 E	0856	N12 W39		4490	4	1	3		2.00	2.60					
	09	1158 E	1202 D	S25 W90		4483	4 D	1	2			3.00					
	09	1220 E	1302 D	S12 E42		4497	42 D	1	2			3.00					
{CAPRI G MCNATH USNRL MCNATH OTTAWA MCNATH USNRL MCNATH MCNATH HAWAII	09	1222	1310	S10 E44		4497	48	1	2	1232	2.25	3.08		G-SWF			
	09	1225	1320	S12 E44		4497	55	1	1	1230	1.69	2.36			71		
	09	1346	1410	S13 E02		4493	24	16	1	1347	5.14	5.40					
	09	1435	1456	N10 W40		4490	21	1	1	1437	2.09	2.89					
	09	1435	1510	N12 W41		4490	35	1	2	1442	2.57	3.55					
	09	1435	1534	N11 W42		4490	59	16	1	1437	2.03	2.82					
	09	1442	1515	N26 W56		4484	33	1	1	1450	1.61	3.78					
	09	1840	2020	N24 W60		4485	100	16	1	1900	3.86	9.26					
	09	2140	2200 D	N07 E00		4493	20 D	1	2	2149	2.09	2.13					
	09	2140	2200 D	N07 E00		4493	20 D	1	2	2149	2.09	2.13					
{HAWAII UCCLE UCCLE CAPRI G R O EDIN UCCLE CAPRI G CAPRI S CAPRI G HUANCAYO SAC PEAK R O EDIN OTTAWA HUANCAYO MT WILSON SAC PEAK	10	0052 E	0132 D	N25 W63		4485	40 D	1	1	0052	1.50	3.60		Slow S-SWF			
	10	0858	0952	S13 E35		4497	54	16	4	0912	3.40	3.60					
	10	0900	1007	N15 W85		4485	67	16	4	0914	2.20	4.40					
	10	1010 E	1150 D	N18 W78		4485	100 D	1	3								
	10	1013 E	1046 D	N20 W74		4485	33 D	16	4	1021	4.00	6.80					
	10	1037	1042	N15 W85		4485	5	2	2	1038	3.40	3.00					
	10	1215 E	1220 D	N09 W53		4490	5 D	1	3			6.00					
	10	1548 E	1650 D	N07 W06		4493	62 D	1	3	1618	3.00	3.00					
	10	1550 E	1635 D	N09 W10		4493	45 D	1	3	1625	6.00	6.00					
	10	1615	1646	N05 W10		4493	31	2	2								
{SAC PEAK R O EDIN OTTAWA HUANCAYO MT WILSON SAC PEAK MT WILSON UCCLE UCCLE R O EDIN MT WILSON HUANCAYO WENDEL UCCLE MCNATH MT WILSON	10	1615	1650 U	N08 W14		4493	35 D	2	2					S-SWF			
	10	1625 E	1644	N08 W10		4493	19 D	2	1	1632	8.00	8.30			20		
	10	1631 E	1659	N07 W12		4493	28 D	16	1	1634	3.71	3.92				G-SWF	
	10	2015	2040	N25 W79		4485	25	1	2								S-SWF
	10	2103	2120	N05 W13		4493	17	16									
	10	2217	2245	N17 W90		4485	28	16	2		2.50						
	11	0000	0013	N15 W80		4490	13	1									
	11	1118 E		N30 W58		4484	16	2									
	11	1118 E		N12 W72		4490	8 D	1	1	1124	1.70	4.50					
	11	1122 E	1130	N11 W69		4490	6	1			2.00	3.80					
{MT WILSON HUANCAYO WENDEL UCCLE MCNATH MT WILSON CAPRI G R O EDIN MCNATH	11	1950 E	1956	N08 W25		4493	6	1						S-SWF			
	11	1950 E	2005	N05 W15		4493	15 D	1	2								
	12	1140 E	1203 D	N12 W85		4490	23 D	1			3.00						
	12	1150	1204	N10 W88		4490	14	16	4	1157	2.20	4.40					
	12	1700	1720	N12 W17			20	1	1	1705	2.41	2.65					
	13	2112	2119	N15 W55		4493	7	1									
	14	1245 E	1250 D	N25 W52		4493	5 D	1	2			3.00					
	14	1311 E	1331 D	N25 W58		4493	20 D	1	2	1312	1.50	2.00					
	14	1526	1600	N20 W60		4493	34	1	3	1535	1.45	3.42					
												1.96	66				
											PAGE	5					

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		START	END	APPROX.	MAX. HAZE REGION				TIME — U T	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.		
MCMATH	14	1645	1740	N12 W08	4498	55	1	3	1709	2.58	2.73	70	
MCMATH	14	1651	1720	N26 W60	4493	29	1	3	1703	2.09		61	
USNRL	14	1818	1823 D	N17 W63	4493	5 D	1	2	1820	.79	2.16	89	
MCMATH	14	2040	2205 D	N13 W10	4498	85 D	2	3	2105	6.43	6.88	87	
USNRL	14	2043	2146	N13 W08	4498	63	1	2	2051	1.69	1.81	114	
SAC PEAK	14	2045	2155 U	N13 W10	4498	70 D	2	2		5.90		15	
CLIMAX	14	2046	2150	N13 W09	4498	64	2		2104	10.60			
CAPRI S	15	0709 E	0714 D	S21 E75	4508	5 D	1	2	0713	.70	2.50		S-SWF
WENDEL	15	0710 E	0745 D	S18 E74	4508	35 D	16			6.00			S-SWF
CAPRI G	15	0925 E	0932 D	S21 E73	4508	7 D	1	2		3.00			
R O HERST	15	1026 E		S21 E75	4508		1		1026	1.00	2.50		
UCCLE	15	1044 E		S20 E78	4508		1	1				75	
MCMATH	15	1151 E	1215	N13 W15	4498	24	1	1	1157	2.89	3.18		
UCCLE	15	1154 E	1158	N11 W16	4498	4 D	1	4					
UCCLE	15	1154 E	1200 D	N13 W12	4498	6 D	1	4					
USNRL	15	1217	1240	S21 E76	4508	23	16	3	1228	.56	2.38	103	
MCMATH	15	1327	1345	S10 E35	4505	18	1	2	1331	2.09	2.55		
MCMATH	15	1422	1442	N16 E46	4506	20	1	2	1430	1.28	2.12		
MCMATH	15	1510	1530	N16 E46	4506	20	1	2		2.25	3.72		
MCMATH	15	1535	1550	N18 E46	4506	15	1	2	1538	1.28	2.12		
MCMATH	15	1735	1805	S20 E70	4508	30	1	2	1739	1.29	3.73	72	
MCMATH	15	1735	1830	N16 E44	4506	55	1	2	1744	1.13	1.86	87	
MCMATH	15	1810	1835	S20 E70	4508	25	1	2	1820	1.12	3.26		
MCMATH	15	2027	2055	S10 W40	4497	28	1	2	2032	2.25	2.93	65	
CAPRI G	16	0855 E	0907 D	S18 E61	4508	12 D	1	2		3.00			
CAPRI G	16	0952 E	0957 D	N18 E37	4506	5 D	1	2		3.00			
CAPRI G	16	1005 E	1022 D	S09 W44	4497	17 D	1	1		2.00			
UCCLE	16	1016	1030	S20 E65	4508	14	2	4	1019	3.00	6.00		S-SWF
CAPRI G	16	1018 E	1022 D	S18 E61	4508	4 D	16					62	
MCMATH	16	1148	1300 D	S20 E60	4508	72 D	1	1	1152	1.45	2.89		
MCMATH	16	1213	1240	N16 E34	4506	27	1	1	1225	3.54	4.95		
MCMATH	16	1300	1330	S10 W50	4497	30	1	2	1303	2.25	3.49		
OTTAWA	16	1323 E	1330	S20 E58	4508	7 D	1	1	1325	1.22	2.37		
MCMATH	16	1405	1445	S20 E60	4508	40	1	2	1419	2.74	5.47		
MCMATH	16	1405	1520	N15 E34	4506	75	1	2	1425	4.50	5.85		
MCMATH	16	1513	1540	N13 W34	4498	27	1	2	1517	2.09	2.72		
MCMATH	16	1530	1550	S20 E58	4508	20	1	2	1535	1.28	2.50		
MCMATH	16	1648	1700	S20 E57	4508	12	1	2	1652	1.61	3.14	75	
OTTAWA	16	1649		S19 E56	4508		1	3	1652	1.22	2.23		
MT WILSON	16	1650	1656	S21 E58	4508	6	1	2		2.73	3.55		
MCMATH	16	1800	1820	N17 E30	4506	20	1	2	1810	4.82	6.27	76	
MCMATH	16	1836	1900	N17 E30	4506	24	2	2	1842				
MT WILSON	16	2117		N16 E28	4506		1						
MT WILSON	16	2238	2306	N20 W18	4498	28	1						
CAPRI G	17	1012 E	1025	N16 W49	4498	13 D	1	3		3.00			
CAPRI G	17	1130 E	1222	S17 W42	4497	52 D	1	3		4.00			
CAPRI G	17	1233 E	1245 D	S17 W46	4497	12 D	1	3		5.00			
MCMATH	17	1235	1325	S18 E44	4508	50	1	2	1250	1.61	2.25	77	
USNRL	17	1521	1624	S19 E45	4508	63	1	2	1529	1.58	2.35	102	
MCMATH	17	1615	1632	S20 E40	4508	17	2	2	1624	4.18	5.44	98	
USNRL	17	1616	1646	S20 E38	4508	30	1	2	1620	1.81	2.37	6	SLOW S-SWF

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OBSERVATORY	DATE APR. 1958	OBSERVED UNIVERSAL TIME		LOCATION		DURA- TION — MINUTES	IM- POR- TANCE	OBS. COND.	MEASUREMENTS				PROVISIONAL IONOSPHERIC EFFECT
		START	END	APPROX. LAT.	MER. DIST.				MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH H _g	MAX. INT. %	
OTTAWA { HUANCAYO MCNATH OTTAWA	17	1619 E	1635	S20 E37	4508	16 D	16	3	1621	2.67	3.44		
	17	1623 E	1630	S22 E39	4508	7 D	1	2					
	17	1626	1635	S10 E62	4512	9	1	2	1629	1.61	3.80		87
	17	1626 E	1652	S09 E66	4512	26	1	3	1628	1.68	4.28		
MCNATH MT WILSON MT WILSON MT WILSON	17	1634 E		N11 E65	4513		1						
	17	2142	2202 D	N14 E50	4507	20 D	1	2	2150	1.29	2.24		84
	17	2425	2446	N38 E50	4510	21	1						
	17	2427	2447	N16 E30	4506	20	1						
MCNATH MCNATH MT WILSON MT WILSON	18	1210	1230	S21 E34	4508	20	1	1	1220	2.25	2.84		
	18	1443	1530	N23 E36	4508	47	1	2	1448	1.77	2.50		
	18		1504				2	2	1504	1.61	2.27		
	18	1500 E		N22 E33	4507	15	1	1	2116	1.93	2.62		
MCNATH MT WILSON MT WILSON MT WILSON	18	2031	2046	S05 E50	4512	15	1						
	18	2112	2132	N25 E33	4507	20	1						
	18	2113	2133	N20 E08	4506	20	1						
	18	2200	2210	S05 E50	4512	10	1						
ZURICH CAPRI G CAPRI G CAPRI G	18	2332	2336	S05 E50	4512	4	1						
	19	0920	0933	N23 E25	4507	13	1	3	0920		3.00		
	19	1018	1035	N23 E21	4507	17	1	3			3.00		
	19	1250	1320	N17 W05	4506	30	1	2	1256	3.21	3.47		72
CAPRI G CAPRI G CAPRI G CAPRI G	19	1300 E	1313	N18 W03	4506	13 D	1	3			5.00		
	19	1334 E	1340 D	S20 E25	4508	6 D	1	1			3.00		
	19	1718	1745 D	N18 W07	4506	27 D	2	1	1727	5.15	5.61		67
	19	1724	1735	N25 E19	4507	11	16	3	1025	4.00			
UCCLE MT WILSON MCNATH MT WILSON	19	1724	1742	N23 E19	4507	18	1						
	19	1821	1835 D	S20 W20	4516	14 D	1	1	1824	3.05	3.36		
	19	2107	2117	N23 E18	4507	10	1						
	19	2215	2225	S30 E19	4508	10	1						
SAC PEAK MITAKA UCCLE UCCLE	19	2305	2330	S22 E90	4520	25	1	2		4.60			24
	20	0114	0123	N25 E17	4507	9	1	1	0115	1.84	2.23		107
	20	0704	0711	S20 E10	4508	7	1	3	0707	2.20			
	20	0725	0740	N25 E15	4507	15	1	3	0727	2.00			
WENDEL CAPRI G UCCLE UCCLE	20	0956 E	1011 D	S22 E90	4520	15 D	16						
	20	1000	1008	S14 E75	4517	8	1	3			4.00		
	20	1035	1320	N18 W75	4498	165	16	4	1100	3.40	5.10		
	20	1215	1250	N15 E42	4514	35	1	4	1236	2.20			
UCCLE UCCLE UCCLE UCCLE	20	1347	1406	S25 E03	4508	19	16	4	1354	3.40			
	20	1352	1411	S25 E04	4508	19	1	3	1352		4.00		
	20	1353	1406	S21 E09	4508	13	1	3			4.00		
	20	1507	1530	S26 W02	4508	23	1				3.00		
WENDEL UCCLE MT WILSON CAPRI G	20	1518	1542	S21 E85	4520	24	16	3	1529	3.30	6.60		
	20	2257	2300	N21 E02	4507	3	1						
	21	0630 E	0640	N18 W25	4506	10 D	1	3			3.00		
	21	0717 E	0742	S20 W03	4508	25 D	1	3			4.00		
CAPRI G CAPRI G MCNATH MT WILSON	21	0736 E	0743	N18 W31	4506	7 D	1	3			2.00		
	21	1300	1330	S13 E56	4517	30	1	1	1310	1.73	3.20		
	21	1755	1801	N16 W35	4506	6	1						
	21	2051	2058	N16 W36	4506	7	1						
MITAKA	22	0220 E	0230	N25 W08	4507	10 D	1	1	0222	.89	1.06		96
													7

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OBSERVATORY	DATE	OBSERVED UNIVERSAL TIME		MAX. PHASE	LOCATION			DURATION — MINUTES	IM. POR. TANCE	OBS. COND.	MEASUREMENTS				PROVISIONAL IONOSPHERIC EFFECT	
		START	END		APPROX. LAT.	MER. DIST.	MCARTH PLAGE REGION				TIME — U T	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH E _h		MAX. INT. %
{CAPRI G ZURICH ZURICH CAPRI G MCARTH MT WILSON CAPRI G MT WILSON MT WILSON MT WILSON MT WILSON	1958	0827 E	0905		S20 W13	4508	38 D	1	1	1	0834		4.00		S-SWF	
	22	0834	0858		S22 W14	4508	24	3	3		1228		6.00			
	22	1228 E	1238		N11 W25	4511	10 D	1	1				1.00			
	22	1317 E	1340		N12 W18	4511	23 D	1	2				2.00			
	22	1527	1550	1533	N15 E10	4514	23	1	1		1533	2.73	2.95			
	22	1530	1552		N12 E07	4514	22	1	1				5.00			
	22	1536	1553		N14 E16	4514	17	1	3							
	22	1633	1639		N07 E41	4519	6	1								
	22	1903 E			S22 W20	4508	55	1	1							
	22	1904	1959		N12 E09	4514	55	1	1							
{MCARTH SAC PEAK USNRL USNRL UCCLE UCCLE MCARTH USNRL SAC PEAK	23	1455	1525	1458	N15 W05	4514	30	1	1	1	1458	3.54	3.75		62	
	23	1455	1530	1505	N15 W03	4514	35	1	2	2		3.00			17	
	23	1851	1935	1857	N16 W08	4514	44	1	3	1	1857	1.13	1.22	1.00	126	
	23	2040	2056	2040	N15 W08	4514	16	1	3	3	2040	1.02	1.09	1.00	109	
	24	0815	0829	0817	S20 W43	4508	14	1	3	3		2.20	2.40			
	24	1142	1204 D	1152	S17 W88	4516	22 D	1	4	4		2.80	5.60			
	24	1255	1350 D	1317	N12 E23	4519	55 D	1	1	1	1317	3.21	3.60			
	24	1827 E	1948 D	1837	N12 E21	4519	81 D	1	1	1	1837	1.47	1.65		107	
	24	1832	1845	1835	N11 E21	4519	13	1	2	2		2.70			15	
	{CAPRI G MCARTH USNRL WENDEL MCARTH	25	1055 E	1125 D		N14 W32	4514	30 D	1	2	2			3.00		
25		1415	1445	1423	N10 E25	4522	30	1	1	1	1423	6.43	7.20		65	
25		1415	1519	1437	N10 E24	4522	64	1	2	2	1437	1.92	2.20	1.00	79	
25		1614 E	1627 D		N12 E82	4529	13 D	1	1				3.00			
25		1947	2015	1949	N22 E90	4529	28	1	1	1	1949					
26		0630 E	0642 D		S23 W71	4508	12 D	1	2	2			6.00			
26		0739 E	0754		N18 E74	4529	15 D	1	2	2	0739		1.00			
26		0840 E	0851		N13 W37	4514	11 D	1	2	2	0840		1.00			
26		0917 E	0930 D		N13 W39	4514	13 D	1	3	3			6.00			
26		0923					25 D	1	2	2	0923	2.50	3.20			
{CAPRI G CAPRI G ZURICH WENDEL CAPRI S ONDREJOV CAPRI G USNRL CAPRI G CAPRI G CAPRI G CAPRI G CAPRI G MT WILSON	26	1025 E	1050 D		N19 E75	4529	25 D	1	2	2			5.00		S-SWF	
	26	1047	1107		N17 E76	4529	20	1	2	2			6.00			
	26	1049 E	1114 D		N17 E75	4529	27 D	1	2	2	1049		2.90			
	26	1052	1105 D		N16 E71	4529	13 D	1	3	3	1054	0.70				
	26	1055 E	1107		N20 E90	4529	12 D	2	3	3						
	26	1215	1217 D		N18 E78	4529	2 D	1	3	3						
	26	1223	1236		N25 E85	4531	13	1	2	2			4.00			
	26	1226 E	1303		N29 E90	4531	37 D	1	3	3	1227	0.45	3.22		75	
	26	1415	1515		S11 W09	4520	60	1	3	3			2.00			
	26	1545	1610 D		N19 E78	4529	25 D	1	3	3			4.00			
{CAPRI G CAPRI G CAPRI G CAPRI G CAPRI G MT WILSON	26	1605 E	1610 D		N19 E78	4529	5 D	1	3	3			2.00			
	26	1618 E	1622 D		S22 E68	4528	4 D	1	1	1			3.00			
	26	2307	2319		N27 E58	4527	12	1	1	1						
	27	0735 E	0749		N10 W03	4522	14 D	1	3	3			3.00		S-SWF	
	27	0745	0825		N11 W11	4522	40	2	3	3			7.00			
	27	1458	1518		S14 E77	4530	20	1	3	3			2.00		S-SWF	
	27	2318	2353		N09 W08	4522	35	1	1	1					Slow S-SWF	

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OBSERVATORY	DATE APR. 1958	OBSERVED UNIVERSAL TIME		LOCATION			IM- POR- TANCE	OBS. COND.	MEASUREMENTS				PROVISIONAL IONOSPHERIC EFFECT	
		START	END	APPROX. LAT.	MER. DIST.	MCNATH PLAGE REGION			TIME — U T	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH He		MAX. INT. %
MITAKA	28	0002 E	0018	S18	E83	4530	1	1	0010	1.34	4.61	2.89	107	Slow S-SWF
MITAKA	28	0220	0240	N17 E53	4529	4530	1	1	0228	2.78	4.95	1.66		S-SWF
MITAKA	28	0527 E	0543 D	S15 E74	4530	4530	1	1	0529	2.78	8.06	2.56		
CAPRI G	28	1454 E	1506	N20 E42	4529	4530	1	3			3.00		18	
SAC PEAK	28	2317	2355 D	S19 E55	4530	4530	2	2		5.46				
CAPRI G	29	0900	0940	N11 W28	4521	4521	1	3	0917		5.00			
UCCLE	29	0913	1002	N08 W30	4521	4521	2	4		5.60				
UCCLE	29	1105	1135	S15 E58	4530	4530	1	4		2.20				
CAPRI G	29	1111	1127	S13 E56	4530	4530	1	3			3.00			
CAPRI G	29	1108	1116	S10 W52	4517	4517	1	3			2.00			
UCCLE	29	1128	1200 D	N30 E50	4531	4531	2	4		7.90	8.70			
CAPRI G	29	1129	1240 D	N30 E51	4531	4531	2	3	1200	10.00				
CAPRI S	29	1156 E	1217	N32 E50	4531	4531	2	3	1210	5.50	10.50			Slow S-SWF
CAPRI G	29	1220	1230 D	S14 E55	4530	4530	10	2			6.00			
CAPRI G	29	1315 E	1325 D	S14 E55	4530	4530	10	2			4.00			
USNRL	29	1425 E	1526	N28 E46	4531	4531	1	3	1436	1.24	2.25	1.00	102	
MCNATH	29	1426 E		S16 E47	4530	4530	1	1		2.90	4.49			
CAPRI G	29	1457	1509	N30 E50	4531	4531	1	3			5.00			
CAPRI G	29	1527	1537	S24 E29	4528	4528	1	3			5.00			
CAPRI G	29	1655 E	1700 D	S15 E38	4530	4530	1	3		1.61	2.09		74	
MCNATH	29	1855 E	1950 D	S16 E45	4530	4530	2	2		5.79	8.97		130	S-SWF
HAWAII	29	1856	1958	S18 E45	4530	4530	2	2	1912	6.80	9.70			
SAC PEAK	29	1859	1902 D	S12 E46	4530	4530	3	3						
USNRL	29	1909 E	2013	S16 E48	4530	4530	2	2	1915	3.51	5.40	2.00	125	G-SWF
MCNATH	29	2120 E	2135 D	S17 E40	4530	4530	2	2		5.79	8.11		93	
CAPRI G	30	0628	0656	S15 E38	4530	4530	1	3	0644		5.00			S-SWF
CAPRI G	30	0804	0816	S15 E38	4530	4530	1	3			4.00			
ZURICH	30	0805	0816	S16 E35	4530	4530	1	3	0805		3.00			
UCCLE	30	0834	0852	N20 E18	4528	4528	1	4		2.20				
UCCLE	30	0905	0937	S15 E46	4530	4530	1	4		2.20				
CAPRI G	30	0908	0920 D	S17 E45	4530	4530	1	2			5.00			S-SWF
CAPRI S	30	0908	1005	S17 E44	4530	4530	1	2	0927	2.00	3.00			
SCHAUBINS	30	0936 E	0955	S20 W10	4524	4524	2	2			10.00			
CAPRI G	30	0937 E	0950 D	S22 W10	4524	4524	2	2			2.40			
CAPRI S	30	0937 E	1001	S21 W05	4524	4524	2	2	0937	2.20				
UCCLE	30	0937	1002	S22 W10	4524	4524	2	2		5.80				
ZURICH	30	0947 E	1004	S21 W13	4524	4524	1	2	0947		3.00			
CAPRI G	30	0940 E	1009	S16 E45	4530	4530	2	2			6.00			
ZURICH	30	0947 E	1012 D	S17 E41	4530	4530	2	2	0947		2.00			
ZURICH	30	0952	1008	S16 E33	4530	4530	1	2	0952		2.00			
CAPRI G	30	0952 E	1009	N12 E15	4529	4529	1	2			4.00			
CAPRI G	30	1014	1035	N20 E17	4529	4529	2	2			4.00			
UCCLE	30	1015	1030	N21 E16	4529	4529	1	3			3.00			
CAPRI G	30	1134	1140 D	N20 E18	4529	4529	1	3			3.00			
UCCLE	30	1134	1152	N21 E16	4529	4529	1	3		2.20				
CAPRI G	30	1245 E	1248 D	N27 E40	4531	4531	3	3			3.00			
CAPRI G	30	1248 E	1255 D	S16 E37	4530	4530	7	3			5.00			
CAPRI G	30	1248	1257 D	S16 E32	4530	4530	9	2	1251	1.16	1.40			
OTTAWA	30	1248	1257 D	S16 E34	4530	4530	9	2	1257	5.22	6.44			
OTTAWA	30	1250 E	1305 D	S16 E30	4530	4530	15	2		3.54	4.32		82	
MCNATH	30	1430 E		S16 E30	4530	4530	1	2		2.41	2.94		99	
MCNATH	30	1545	1640	S16 E28	4530	4530	1	2	1550	1.93	2.28		9	

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OBSERVATORY	DATE	OBSERVED UNIVERSAL TIME		LOCATION			DURA- TION — MINUTES	IM- POR- TANCE	OBS. COND.	MEASUREMENTS			PROVISIONAL IONOSPHERIC EFFECT
		START	END	LAT.	LONG.	REGION				TIME — U T	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	
MCMATH SAC PEAK WENDEL OTTAWA ZURICH SAC PEAK MCMATH OTTAWA MCMATH MCMATH SAC PEAK MCMATH USNRL SAC PEAK MCMATH USNRL HAWAII MCMATH MCMATH MCMATH SAC PEAK HAWAII	30	1545	1647	S16 E32	4530	4530	55	1	2	1628	2.58	3.04	99
	30	1546	1609	S18 E31	4530	4530	62	1	2		2.80		17
	30	1546	1645	S15 E31	4530	4530	23	1		1627	2.55	3.00	
	30	1615 E	1631	S15 E32	4530	4530	59	1	2	1615		3.00	
	30	1650	1715	S16 E30	4530	4530	16 D	1	2		2.50		17
	30	1653	1713	S16 E26	4530	4530	25	1	2	1658	2.42	2.85	
	30	1653	1718	S16 E29	4530	4530	20	1	2	1701	3.25	3.82	108
	30	1729	1738	S15 E28	4530	4530	25	1	2	1733	2.09	2.47	
	30	1745	1820	S15 E35	4530	4530	9	1	2	1810	4.82	6.27	
	30	1930	2000	S16 E28	4530	4530	35	16	2		2.80		22
CAPRI S KODAIKUNL KRASNAYA R O EDIN R O HERST SAC PEAK SCHAUINS USNRL	30	1930	2005	S16 E26	4530	4530	30	16	3	1940	3.53	4.10	107
	30	1930	2008 D	S18 E28	4530	4530	38 D	16	2	1938	1.92	2.23	119
	30	1932	2015	N10 W50	4519	4519	43	1	2		3.30		18
	30	1933	2015	N10 W48	4519	4519	42	2	3	1940	4.50	7.00	97
	30	1935	2008 D	N10 W51	4519	4519	33 D	16	2	1938	1.58	2.64	121
	30	1938	1952	S18 E27	4530	4530	14	1	3	1940	2.90	3.10	
	30	2128 E	2140	S15 E28	4530	4530	12 D	1	2	2128	2.80	3.33	
	30	2153	2210 D	N17 E15	4529	4529	17 D	1	2	2200	2.51	2.65	
	30	2205	2210 D	N15 E06	4529	4529	5 D	1	2	2210	2.74	2.90	16
	30	2210	2240	N16 E15	4529	4529	30	1	2		3.40		
CAPRI S KODAIKUNL KRASNAYA R O EDIN R O HERST SAC PEAK SCHAUINS USNRL	30	2352 E	0000 D	N12 E06	4529	4529	8 D	1	1	2354	2.10	2.10	
	30											PAGE	10

COMMERCE - STANDARDS - BOULDER

* RATED AS IMPORTANCE 17 BY OTHER OBSERVATORIES

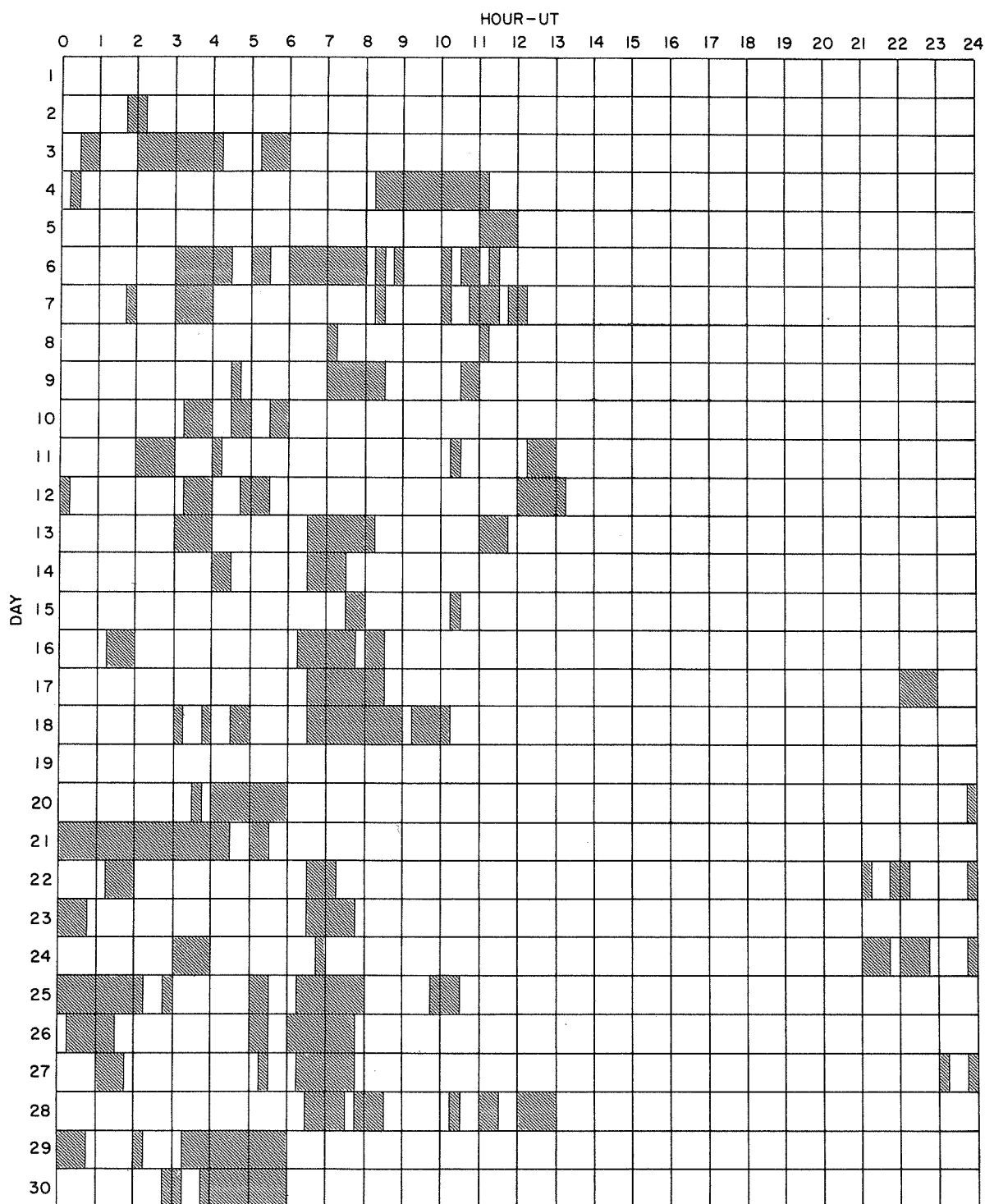
SAC PEAK: ALL VALUES IN MAX. INT. COLUMN ARE ARBITRARY UNITS (0-40), NOT PERCENT OF CONTINUOUS SPECTRUM.

E - LESS THAN
D - GREATER THAN
U - APPROXIMATE
+ - PLUS
- - MINUS

ANACAPRI SWEDISH
KODAIKUNL
KRASNAYA PAKHRA
ROYAL OBSERVATORY, EDINBURGH
GREENWICH ROYAL OBSERVATORY, HERSTMONCEUX
SACRAMENTO PEAK
SCHAUINSLAND
UNITED STATES NAVAL RESEARCH LABORATORY

INTERVALS OF NO FLARE PATROL OBSERVATIONS

APRIL 1958



Stations included:

Anacapri (Swedish)
 Arcetri
 Arosa
 Athens
 Climax
 Greenwich Royal Observatory,
 Herstmonceux

Hawaii
 Huancayo
 Kodaikanal
 McMath-Hulbert
 Mitaka
 Nizamia
 Ottawa

Royal Observatory,
 Edinburgh
 Sacramento Peak
 Uccle
 U. S. Naval Research Laboratory
 Zurich

COMMERCE - STANDARDS - BOULDER

SUBFLARES NOTED AS FOLLOWS, DATE - UNIVERSAL TIME - COORDINATES

MARCH 1958

ATHENS	01	0720	S15 E78	ATHENS	08	0738	S18 W18	UCCLE	15	0806	N12 W25
ATHENS	01	0729	S13 W51	*NIZAMIAH	08	1050	S22 W14	UCCLE	15	0813	N12 W28
WENDEL	01	1021 E	S12 W49	USNRL	08	1233 E	S16 W12	*WENDEL	15	0835 E	N12 W25
WENDEL	01	1225 E	S11 W49	USNRL	08	1340	N31 W13	UCCLE	15	1215	N37 E58
WENDEL	01	1228 E	S16 E86	USNRL	08	1425	S12 W90	UCCLE	15	1219	N33 E63
CAPRI S	01	1240 E	S12 W52	USNRL	08	1449 E	S22 W14	UCCLE	15	1234	N12 W25
*WENDEL	01	1344 E	S16 E76	SAC PEAK	08	1615	N10 E55	*USNRL	15	1343	N12 W27
USNRL	01	1426	S23 W05	USNRL	08	1617	N09 E55	USNRL	15	1408	N11 W29
HAWAII	01	2236	S17 W56	SAC PEAK	08	1702	N34 W19	USNRL	15	1516	N12 W28
				SAC PEAK	08	1740	N26 W34	SAC PEAK	15	1537	N22 W90
USNRL	02	1326	S21 E70	SAC PEAK	08	1757	N27 W33	SAC PEAK	15	1540	N12 W08
CLIMAX	02	1959	S28 E70	SAC PEAK	08	1800	N10 E56	*USNRL	15	1541	N12 W30
				CLIMAX	08	1810 E	N11 E54	USNRL	15	1557	N22 W90
USNRL	03	1414	S22 E55	SAC PEAK	08	1855	S14 W90	SAC PEAK	15	1607	N38 E53
USNRL	03	1506	S24 W32	HAWAII	08	2114	N36 W18	UCCLE	15	1609	N13 W33
CLIMAX	03	1605	S18 E46	HAWAII	08	2138 E	N12 E52	SAC PEAK	15	1717	N13 W29
CLIMAX	03	1630	S17 E50	HAWAII	08	2200	N36 W18	SAC PEAK	15	1805	N13 W30
USNRL	03	1632	S17 E52	CLIMAX	08	2200	N34 W19	SAC PEAK	15	1807	N22 W90
USNRL	03	1659	S25 W32	*SAC PEAK	08	2200	N08 E51	SAC PEAK	15	1907	N10 E38
*USNRL	03	1810	S22 E69	*SAC PEAK	08	2247	N09 E52	SAC PEAK	15	1915	N13 W30
USNRL	03	1823	N33 W39	CLIMAX	08	2248	N34 W19	SAC PEAK	15	1935	N13 W30
USNRL	03	1842	S18 E43	HAWAII	08	2248	N36 W18	SAC PEAK	15	2012	N13 W30
USNRL	03	1905	N34 W39					SAC PEAK	15	2110	N13 W30
USNRL	03	1923	S12 W28	ONDREJOV	09	1154	N10 E41	HAWAII	15	2112	N12 W31
USNRL	03	1942	S22 W36	WENDEL	09	1200 E	N10 E41	SAC PEAK	15	2112	S06 E88
HAWAII	03	2100	S14 E52	*WENDEL	09	1220 E	N10 E45	SAC PEAK	15	2150	N12 W31
				USNRL	09	1230	N35 W28	HAWAII	15	2152 E	N10 W32
USNRL	04	1300	S24 W44	USNRL	09	1316	N35 W25	SAC PEAK	15	2210	N13 W31
*CAPRI S	04	1320 E	S26 W44	*USNRL	09	1455 E	S17 W35	HAWAII	15	2212	N12 W31
USNRL	04	1409	N35 W50	SAC PEAK	09	1455	N21 W57	SAC PEAK	15	2255	N42 E35
WENDEL	04	1452 E	N20 E52	USNRL	09	1516	N11 E39				
USNRL	04	1520	N35 E20	SAC PEAK	09	1717	S14 W27	UCCLE	16	0825	N15 E20
WENDEL	04	1527 E	N20 E52	OTTAWA	09	1718	S15 W26	UCCLE	16	1110	N08 E30
USNRL	04	1536	N15 E90	SAC PEAK	09	1805	N32 W36	USNRL	16	1305	N11 W45
USNRL	04	1552	S18 E26	SAC PEAK	09	1857	N10 E38	USNRL	16	1310	N12 E24
USNRL	04	1553	N25 E20	SAC PEAK	09	1940	S15 W32	USNRL	16	1346	N12 E24
WENDEL	04	1605 E	S10 W40	HAWAII	09	2004	N15 E40	*USNRL	16	1350	N13 E25
WENDEL	04	1605 E	S18 E35	SAC PEAK	09	2102	S19 W39	*WENDEL	16	1358 E	N12 E24
USNRL	04	1605	S09 W43	HAWAII	09	2352	N19 E23	USNRL	16	1402 E	N11 E24
USNRL	04	1606	S21 E35					USNRL	16	1409	N16 W42
*CLIMAX	04	1715	S14 E42	ATHENS	10	0715	N15 E46	USNRL	16	1517 E	N15 E25
USNRL	04	1745	N33 W52	*SAC PEAK	10	1421 E	N35 W40	USNRL	16	1543 E	N14 W42
				SAC PEAK	10	1452	S22 W32	USNRL	16	1602	N09 W53
AROSA	05	0858	S18 E29	SAC PEAK	10	1522	N34 W45	USNRL	16	1603	N14 E25
*CAPRI S	05	1004 E	S21 E28	SAC PEAK	10	1540	N34 W45	USNRL	16	1624	N14 E25
ONDREJOV	05	1137 E	S13 W49	OTTAWA	10	1540	N32 W42				
WENDEL	05	1227 E	S18 E30	USNRL	10	1619	N17 E18	UCCLE	17	0852 E	N40 E54
*CAPRI S	05	1315 E	S17 E27	SAC PEAK	10	1632	N35 W45	*USNRL	17	1216	N36 E35
USNRL	05	1458 E	S19 E26	CLIMAX	10	1634	N34 W44	USNRL	17	1315	N22 E70
CLIMAX	05	1526	S13 E30	OTTAWA	10	1635	N32 W43	CAPRI S	17	1317 E	N25 E71
OTTAWA	05	1529	S13 E29	USNRL	10	1723	N17 E38	UCCLE	17	1515 E	N13 E11
SAC PEAK	05	1610 E	S13 W50	CLIMAX	10	1727	N15 E38	UCCLE	17	1515 E	N15 E09
OTTAWA	05	1614	S17 E31	SAC PEAK	10	1727 U	N17 E37	UCCLE	17	1515 E	N10 E15
*SAC PEAK	05	1625	S13 E29	SAC PEAK	10	1730	N32 W44	UCCLE	17	1539	N14 E87
SAC PEAK	05	1640	S12 W51	CLIMAX	10	1734	N36 W43	USNRL	17	1807	N22 E66
*OTTAWA	05	1640 E	S20 E25	USNRL	10	1735	N34 W42	USNRL	17	1958	N12 W84
*OTTAWA	05	1647 E	N28 W65	SAC PEAK	10	1742	N25 W25				
SAC PEAK	05	1712	S13 E33	CLIMAX	10	1743	N23 W24	WENDEL	18	0909 E	N22 E63
*CLIMAX	05	1720	S15 E29	USNRL	10	1745	N25 W25	UCCLE	18	1118	N14 W01
SAC PEAK	05	1735	S21 E26	USNRL	10	1825	N13 E39	WENDEL	18	1300 E	N22 E52
CLIMAX	05	1739	S25 E60	CLIMAX	10	1825	N14 E39	SAC PEAK	18	1857	N27 W70
OTTAWA	05	1740 E	S15 E24	*HAWAII	10	1956	N36 W50	SAC PEAK	18	2205	N10 W90
USNRL	05	1741 E	S17 E23	*USNRL	10	1956	N35 W44	SAC PEAK	18	2312	N27 W79
SAC PEAK	05	1742	N28 W64	USNRL	10	2023	S12 W48	SAC PEAK	18	2325	N10 W90
CLIMAX	05	1753	S08 W57	HAWAII	10	2032	N18 E33				
SAC PEAK	05	1817	N25 E04	USNRL	10	2034	N15 E35	R O HERST	19	1115 E	N12 W13
SAC PEAK	05	1830	S25 E25	HAWAII	10	2038	N20 E08	SAC PEAK	19	1512	N21 E55
SAC PEAK	05	1837	S16 E25	USNRL	10	2038	N17 E12	SAC PEAK	19	1545	N22 E41
*SAC PEAK	05	1902 E	S06 W57	USNRL	10	2057	S17 W52	SAC PEAK	19	1647	N23 E36
								SAC PEAK	19	2238 U	N46 W88
UCCLE	06	1023 E	S10 W65	ATHENS	11	0702 E	N30 W55				
*CLIMAX	06	1537	S20 E12	ATHENS	11	0725	N09 E15	*ATHENS	20	0700 E	N27 E58
USNRL	06	1658 E	S12 W67	ATHENS	11	0740	N16 E33	*ONDREJOV	20	0759 E	N21 E28
CLIMAX	06	1755	S21 E11	ATHENS	11	0804	N34 W50	ONDREJOV	20	0830 E	N22 E32
CLIMAX	06	1808	S22 E11	UCCLE	11	0833 E	N14 E29	UCCLE	20	1108	N20 W35
USNRL	06	1816 E	S22 E11	UCCLE	11	0839	S20 W58	MEUDON	20	1136	N25 E25
USNRL	06	1834 E	N25 W08	USNRL	11	1345	N11 E23	MEUDON	20	1143	N08 E45
CLIMAX	06	1842	S18 E12	USNRL	11	1349	N10 E15	SAC PEAK	20	1405	N13 W32
USNRL	06	1843 E	S17 E10	USNRL	11	1411	N23 W36	SAC PEAK	20	1700	N48 W90
USNRL	06	1921	N25 W02	USNRL	11	2100 E	N24 W37	SAC PEAK	20	1700	N22 E26
USNRL	06	2047 E	S18 E08					SAC PEAK	20	2040	N16 W34
USNRL	06	2059	N32 W90	ATHENS	12	0831 E	N18 E70	ATHENS	21	0717	N24 E17
USNRL	06	2104 E	S16 E09	UCCLE	12	1007	S11 W70	UCCLE	21	0856	N19 E17
				USNRL	12	1441	N14 E14	UCCLE	21	1041 E	N22 E18
USNRL	07	1239 E	N32 W04	USNRL	12	1451	N12 E90	*MEUDON	21	1411	N22 E15
USNRL	07	1242	S10 W78	USNRL	12	1512	N24 W49	*SAC PEAK	21	1411 E	N22 E13
*OTTAWA	07	1329	S18 E00	USNRL	12	1542	S20 W70	SAC PEAK	21	1522	N21 E15
USNRL	07	1415	N26 W21	USNRL	12	1552	N14 E14	CAPRI S	21	1527 E	N23 E14
USNRL	07	1447	N31 W06	USNRL	12	1611 E	N14 E13	UCCLE	21	1553	N23 E20
USNRL	07	1628	N32 W08	USNRL	12	1637	N14 E12	SAC PEAK	21	1612	S16 E90
OTTAWA	07	1628	N32 W08	USNRL	12	1637	S21 W59	SAC PEAK	21	1721 E	S14 E90
USNRL	07	1633	N24 W22	CLIMAX	12	1701	N12 E90	SAC PEAK	21	1802	N21 E12
USNRL	07	1633	S20 W02	USNRL	12	1703	N12 E90	SAC PEAK	21	1830 U	S15 E90
USNRL	07	1650	N24 W23	CLIMAX	12	1830	N12 E11				
USNRL	07	1712	N32 W10	USNRL	12	1831	N14 E12	*USNRL	21	1920 E	N22 E13
USNRL	07	1735	S14 W81	USNRL	12	2029	N15 E11	SAC PEAK	21	2317 U	N19 W55
USNRL	07	1740	N31 W10					SAC PEAK	21	2347 E	S12 E90
OTTAWA	07	1756	S16 W80	NIZAMIAH	13	0344	N10 E07	NIZAMIAH	22	0541	N17 E61
USNRL	07	1757	S14 W82	OTTAWA	13	1310	N15 W02	MEUDON	22	1057	N08 E64
USNRL	07	1854	N24 W22	SAC PEAK	13	1620	N14 W05	MEUDON	22	1057	S05 E71
*USNRL	07	1942	S13 W82	HAWAII	13	2022	N14 W02	*CAPRI S	22	1129 E	N23 E06
USNRL	07	2010	N24 W26					USNRL	22	1395 E	S24 E90
USNRL	07	2022	N25 W22	ONDREJOV	14	0719 E	S13 W30	USNRL	22	1391	N18 W63
*USNRL	07	2032	S13 W82	ONDREJOV	14	1237 E	N23 W70				

COMMENCE - STANDARDS - BOULDER

*Rated as flare of importance ≥ 1 by other observatories (See CRPL-F 164 Part B).

SUBFLARES NOTED AS FOLLOWS, DATE - UNIVERSAL TIME - COORDINATES

MARCH 1958

USNRL	22	1624	N25 E22	*SAC PEAK	28	1427	N22 W88	SAC PEAK	30	1770	S24 W01
UCCLE	23	0908	S20 E87	*USNRL	28	1429	N22 W90	SAC PEAK	30	1727	N35 E64
WENDEL	23	1101 E	S11 E70	SAC PEAK	28	1450	N22 W89	SAC PEAK	30	1805	S07 W18
USNRL	23	1228	N22 W13	USNRL	28	1452	N21 W90	SAC PEAK	30	1827	N37 E63
SAC PEAK	23	1355 D	S12 E90	USNRL	28	1512	N28 W90	SAC PEAK	30	1857	N16 W54
SAC PEAK	23	1457	N25 W04	USNRL	28	1604	N20 W90	SAC PEAK	30	1907	N35 E60
USNRL	23	1458	N26 W06	USNRL	28	1645	N27 W90	*SAC PEAK	30	2032	S07 W19
USNRL	23	1501	N24 E05	SAC PEAK	28	1947	N28 W90	SAC PEAK	30	2100	S07 W19
USNRL	23	1513	N26 W06	OTTAWA	28	2024	N24 W60	*SAC PEAK	30	2155	N36 E60
SAC PEAK	23	1655	N15 E41	SAC PEAK	28	2028 E	N26 W60				
SAC PEAK	23	1715	N23 E04	OTTAWA	28	2124	S24 E13	CAPRI S	31	0800 E	S14 W30
HAWAII	23	1830	N25 E01	SAC PEAK	28	2150 E	S08 E02	*CAPRI S	31	0859	S20 E28
SAC PEAK	23	1951 E	S22 E90	SAC PEAK	28	2217	S07 W17	*NIZAMIAH	31	1025 E	S10 W27
SAC PEAK	23	2015	N23 E03	SAC PEAK	28	2222	N28 W62	UCCLE	31	1112 E	S19 E28
SAC PEAK	23	2045	N23 E02	SAC PEAK	28	2247	N24 W90	UCCLE	31	1112 E	S08 W26
SAC PEAK	23	2335	N25 W23	SAC PEAK	28	2327	S07 E06	UCCLE	31	1112 E	N37 E52
								UCCLE	31	1144	N22 E66
*ATHENS	24	0645	N20 W24	AROSA	29	0657	N23 W90	UCCLE	31	1208	N23 W66
ATHENS	24	0650 E	N37 W53	AROSA	29	0657	S15 W01	UCCLE	31	1213	S08 W64
UCCLE	24	0830	N08 W89	WENDEL	29	0659 E	N23 W48	UCCLE	31	1213	S22 W90
WENDEL	24	0851 E	N19 W29	MEUDON	29	0758	N23 W63	OTTAWA	31	1215 E	S08 W57
*WENDEL	24	0918 E	S17 E64	WENDEL	29	0803 E	N26 W63	OTTAWA	31	1220	S07 W29
WENDEL	24	1013 E	N19 W24	UCCLE	29	0906 E	S27 W70	OTTAWA	31	1221	S15 W29
WENDEL	24	1130 E	N25 W16	UCCLE	29	0906 E	S18 W02	UCCLE	31	1224	S15 W32
USNRL	24	1210 E	N20 W30	WENDEL	29	0959 E	S08 W03	UCCLE	31	1237	N07 E18
*USNRL	24	1235	N20 W29	*MEUDON	29	1031	S06 E05	OTTAWA	31	1243	S14 W38
*UCCLE	24	1310	N20 W30	WENDEL	29	1044 E	N26 E66	UCCLE	31	1244	S14 W40
UCCLE	24	1406	S22 E79	UCCLE	29	1114	S22 W35	UCCLE	31	1248	S15 E25
WENDEL	24	1433 E	N19 W28	UCCLE	29	1131	S08 W08	UCCLE	31	1255	S08 W40
UCCLE	24	1436	N20 W30	WENDEL	29	1218 E	S22 E09	UCCLE	31	1255 E	S05 W32
HAWAII	24	2302	N19 E23	*OTTAWA	29	1223 E	S22 E15	OTTAWA	31	1255	S07 W29
				*R O HERST	29	1226 E	S23 E16	UCCLE	31	1326	N20 W45
NIZAMIAH	25	0257 E	N20 W35	OTTAWA	29	1314	S08 W08	UCCLE	31	1333	N34 E54
WENDEL	25	0744 E	N21 W31	*USNRL	29	1341	N36 E80	UCCLE	31	1341	S06 W63
WENDEL	25	0919 E	N25 W05	*USNRL	29	1353	S17 E90	UCCLE	31	1349	S13 W39
ONDREJOV	25	0944	S24 E60	SAC PEAK	29	1401 E	N35 E80	OTTAWA	31	1349	S14 W37
UCCLE	25	1043 E	N27 W31	*SAC PEAK	29	1405	S15 E57	OTTAWA	31	1357	S14 W31
UCCLE	25	1044	N29 W06	*USNRL	29	1407	S14 E60	SAC PEAK	31	1410 E	S20 E25
UCCLE	25	1044	N25 W12	*SAC PEAK	29	1432	S17 W06	SAC PEAK	31	1410	S13 W34
UCCLE	25	1058	S09 E50	ONDREJOV	29	1441 E	S10 W03	UCCLE	31	1416	S19 E26
*WENDEL	25	1124 E	S23 E61	SAC PEAK	29	1447	S08 W12	*SAC PEAK	31	1442	S06 W65
WENDEL	25	1249 E	S22 E63	*SAC PEAK	29	1447	N27 W70	UCCLE	31	1444	S09 W31
UCCLE	25	1308	S23 E62	*SAC PEAK	29	1505	S08 W12	SAC PEAK	31	1445	S08 W31
UCCLE	25	1333 E	S15 E51	SAC PEAK	29	1507	N19 W90	SAC PEAK	31	1447	N38 E50
UCCLE	25	1521	S22 E64	SAC PEAK	29	1545	N20 W90	UCCLE	31	1448	N38 E50
SAC PEAK	25	1932 E	S18 E46	SAC PEAK	29	1545	S18 E85	SAC PEAK	31	1517	S09 W69
SAC PEAK	25	2335	S22 E61	USNRL	29	1548	N20 W90	*SAC PEAK	31	1522	S12 W41
				SAC PEAK	29	1622	N22 E90	*OTTAWA	31	1523 E	S12 W65
OTTAWA	26	1415	S06 E09	SAC PEAK	29	1630	N21 W90	UCCLE	31	1523	S09 W70
OTTAWA	26	1421	N18 W54	USNRL	29	1631	N20 W90	OTTAWA	31	1528 E	S14 W39
OTTAWA	26	1535	S08 E07	SAC PEAK	29	1642	N20 W90	OTTAWA	31	1533	S11 W40
SAC PEAK	26	2305	S07 E02	SAC PEAK	29	1652	S18 E80	UCCLE	31	1534	S10 W42
HAWAII	26	2308	S08 E03	USNRL	29	1655 E	S16 E79	UCCLE	31	1534	S09 W70
				SAC PEAK	29	1710	N32 E90	UCCLE	31	1551	N05 E15
AROSA	27	0820	N22 W67	SAC PEAK	29	1750	S05 W33	UCCLE	31	1555	S15 E20
ZURICH	27	0820 E	N23 W54	SAC PEAK	29	1820	N35 E89	UCCLE	31	1601	S18 W31
ZURICH	27	0820 E	N22 W62	SAC PEAK	29	2002	N33 E89	SAC PEAK	31	1645	S13 W41
UCCLE	27	0827	S20 E26	SAC PEAK	29	2135	S24 E00	SAC PEAK	31	1727	S12 W34
WENDEL	27	0834 E	N24 W55	SAC PEAK	29	2320	N24 W88	SAC PEAK	31	1740	N36 E54
UCCLE	27	0835	N23 W68	SAC PEAK	29	2340	S07 W11	SAC PEAK	31	1750	S12 W42
UCCLE	27	0835	N25 W60					SAC PEAK	31	1757	N20 E56
UCCLE	27	0906	S25 E45	WENDEL	30	0806 E	N34 E69	SAC PEAK	31	1802	S06 W58
*UCCLE	27	0908	S28 E36	*UCCLE	30	0822	S15 W15	SAC PEAK	31	1822	S12 W43
UCCLE	27	0944 E	S16 E36	WENDEL	30	0902 E	N33 E64	SAC PEAK	31	1900	S05 W62
UCCLE	27	1029 E	N25 W46	WENDEL	30	0932 E	S22 W05	SAC PEAK	31	1910	S12 W43
UCCLE	27	1106	S16 E25	WENDEL	30	0940 E	N23 W65	SAC PEAK	31	2002	S08 W35
UCCLE	27	1106	S20 E33	WENDEL	30	0953 E	S07 W12				
UCCLE	27	1110	S16 E83	ZURICH	30	0954	S06 W09				
OTTAWA	27	1249	S24 W41	UCCLE	30	1000	S22 W05				
WENDEL	27	1315 E	S24 E40	ZURICH	30	1032	S14 W14				
OTTAWA	27	1319	S23 E39	ZURICH	30	1036	S08 W14				
OTTAWA	27	1322	S16 E34	WENDEL	30	1044 E	N33 E63				
WENDEL	27	1324 E	S14 E19	*WENDEL	30	1115 E	S24 E04				
SAC PEAK	27	1402	S19 E80	WENDEL	30	1129 E	N33 E63				
SAC PEAK	27	1402	N25 W76	WENDEL	30	1205 E	N34 E66				
SAC PEAK	27	1410	S16 E23	OTTAWA	30	1332	S05 W15				
OTTAWA	27	1410	S15 E22	SAC PEAK	30	1402	N35 E66				
ONDREJOV	27	1411	S18 E22	SAC PEAK	30	1402	S15 W16				
*OTTAWA	27	1414	N23 W67	WENDEL	30	1406 E	N33 E62				
*OTTAWA	27	1505	S24 E37	OTTAWA	30	1410	S14 W16				
*SAC PEAK	27	1505	S24 E39	OTTAWA	30	1411	N36 E61				
*SAC PEAK	27	1505	S30 E29	*SAC PEAK	30	1422	S07 W17				
*OTTAWA	27	1506	S27 E30	*WENDEL	30	1423 E	S08 W16				
SAC PEAK	27	1632	N24 W75	*WENDEL	30	1454 E	S20 W07				
SAC PEAK	27	1700	N24 W62	*SAC PEAK	30	1455	S19 W07				
*SAC PEAK	27	1700	S25 E38	WENDEL	30	1456 E	N33 E62				
SAC PEAK	27	1705	S28 E25	SAC PEAK	30	1457	N35 E61				
SAC PEAK	27	1747	N25 W42	OTTAWA	30	1501	S19 W07				
OTTAWA	27	2008	S06 W01	OTTAWA	30	1504	N37 E62				
SAC PEAK	27	2027	N25 W79	WENDEL	30	1514 E	S20 W07				
SAC PEAK	27	2302	S25 E34	SAC PEAK	30	1532	N34 E62				
SAC PEAK	27	2407	N35 E90	*SAC PEAK	30	1537	N34 E60				
				UCCLE	30	1539	N24 E88				
UCCLE	28	0725	S16 E17	OTTAWA	30	1545	N36 E59				
ATHENS	28	0727	N23 W62	SAC PEAK	30	1557	S08 W18				
*WENDEL	28	0843 E	S23 E24	WENDEL	30	1559 E	S08 W16				
WENDEL	28	0843 E	S24 E31	OTTAWA	30	1605 E	S06 W42				
WENDEL	28	0848 E	N24 W38	OTTAWA	30	1605 E	S09 W17				
UCCLE	28	0952 E	S16 E17	SAC PEAK	30	1615	N36 E60				
WENDEL	28	0955 E	S14 E14	SAC PEAK	30	1645	S14 W21				
*USNRL	28	1305	N36 E90	SAC PEAK	30	1650	N35 E60				
USNRL	28	1317	N27 W89	OTTAWA	30	1654 E	N37 E62				
UCCLE	28	1406 E	S16 E75	OTTAWA	30	1654 E	S13 W19				
				SAC PEAK	30	1715	N26 W90				

COMMERCE - STANDARDS - BOULDER

IONOSPHERIC EFFECTS OF SOLAR FLARES

(SHORT-WAVE RADIO FADEOUTS)

MARCH 1958

Mar. 1958	Start UT	End UT	Type	Wide Spread Index	Importance	Observation Stations	Known Flare, UT CRPL-F 164B
1	0120	0154	Slow S-SWF	3	1+	AN, <u>OK</u>	*
1	0340	0515	Slow S-SWF	5	3	AD, KO, OK, SY, <u>TO</u> , CW+	
1	0913	0925	S-SWF	4	2+	JU, KO, <u>NE</u> , CW**, CW***	0911
1	0929	0959	S-SWF	4	2	JU, KO, <u>NE</u> , CW**	0925
1	1649	1725	S-SWF	5	2+	BE, HU, MC, NE, <u>PR</u> , WS	*
3	1010	1145	S-SWF	5	3+	MA, NE, <u>PU</u> , SW, TO, CW***	1008E
6	0737	0758	S-SWF	4	2	KO, <u>NE</u> , <u>PU</u>	
7	1047	1130	S-SWF	3	2	NE, CW**	1030
8	1326	1355	S-SWF	5	2	BE, HU, MC, NE, <u>PR</u> , WS	
8	1620	1635	Slow S-SWF	3	1-	<u>BE</u> , MC, PR	
8	1723	1740	S-SWF	5	2+	BE, CR, HU, <u>MC</u> , PR, WS	1720
8	1805	1825	S-SWF	5	1+	BE, CR, HU, <u>MC</u> , PR, WS	
8	1900	1925	Slow S-SWF	4	1+	BE, CR, <u>MC</u> , PR, WS	
8	2102	2130	Slow S-SWF	4	2	AN, BE, HU, <u>MC</u> , PR, WS	
9	0128	0156	S-SWF	3	1+	AD, <u>OK</u>	
9	0211	0306	G-SWF	3	1+	AD, <u>OK</u>	0210E
9	1141	1159	Slow S-SWF	3	2	<u>NE</u> , <u>PU</u>	1145E
9	1542	1703	S-SWF	5	3	BE, CR, HU, MA, MC, NE, <u>PR</u> , PU, WS, CW**	1540
9	1900	1920	Slow S-SWF	4	1	BE, CR, HU, <u>MC</u> , PR, WS	
9	2003	2030	S-SWF	5	2+	AN, BE, CR, <u>HU</u> , <u>MC</u> , PR, TO, WS	1957
10	0205	0314	G-SWF	3	2	<u>OK</u> , TO	0208
10	0400	0500	G-SWF	1	2	<u>OK</u>	
10	0708	0730	Slow S-SWF	5	2+	JU, <u>OK</u> , CW+, CW**	0709E
10	1319	1401	G-SWF	5	2	MC, PR, <u>PU</u>	1316E
10	1412	1429	S-SWF	4	1+	PR, <u>PU</u>	1408
10	1717	1810	G-SWF	3	1	<u>MC</u> , PR, WS	1710
10	2025	2055	G-SWF	4	1	AD, <u>MC</u> , PR, WS	2024
11	0048	0320	S-SWF	3	3	AN, <u>OK</u>	0030E
11	1510	1800	Slow S-SWF	5	3	BE, CR, HU, <u>MC</u> , PR, WS, CW*	
12	0052	0439	G-SWF	1	3+	<u>OK</u>	0043E
12	1430	1520	Slow S-SWF	5	2+	BE, CR, HU, MA, MC, NE, PR, WS, CW***, RCA*	1436E
14	1455	1705	Slow S-SWF	5	3	BE, CR, HU, MA, MC, NE, <u>PR</u> , SW, WS, CW***	1504E
15	1538	1556	Slow S-SWF	5	1+	HU, JU, MC, <u>PR</u> , WS	1541E
16	1533	1550	Slow S-SWF	5	1+	JU, MC, <u>PR</u>	
18	1720	1740	Slow S-SWF	4	1	BE, CR, <u>HU</u> , MC, PR, WS	*
18	1901	2040	G-SWF	3	2+	BE, CR, MC	1905E
19	1730	1750	Slow S-SWF	3	1	HU, PR, WS	*
20	0642	0810	S-SWF	4	3	<u>PU</u> , CW+	0656E
20	1302	1335	G-SWF	3	2	NE, <u>PR</u>	1259
20	1452	1553	S-SWF	5	2+	BE, HU, NE, <u>PR</u> , PU, WS, RCA*, CW***	1445
20	2040	2120	S-SWF	4	2	AD, BE, HU, PR, <u>WS</u>	2025
21	1022	1049	S-SWF	4	2	KO, NE, SW, CW***	1019
21	1415	1430	S-SWF	5	2-	<u>BE</u> , HU, PR, PU	1413
21	1522	1550	S-SWF	5	2+	BE, CR, HU, MC, PR, PU, WS	
21	1700	1715	Slow S-SWF	3	2	<u>HU</u> , MC, PR	*
21	1715	1735	Slow S-SWF	4	2	BE, CR, MC, PR, WS	*
21	1852	1926	Slow S-SWF	4	2+	BE, CR, HU, <u>PR</u> , WS	1850
22	0000	0015	S-SWF	3	1	CA, <u>OK</u>	
22	0052	0110	G-SWF	3	1	AD, <u>CA</u>	
22	0206	0506	S-SWF	5	2+	AD, CA, <u>OK</u> , TO, CW+	*
22	0926	1022	Slow S-SWF	1	2	NE	0925E
22	1128	1155	G-SWF	4	2	MA, PR, <u>SW</u> , CW***	1123E
22	1235	1310	S-SWF	5	2	BE, HU, JU, <u>MC</u> , NE, PR, SW, CW***	
22	1810	1843	G-SWF	3	1+	MC, <u>PR</u> , WS	*
22	2341	0029	Slow S-SWF	5	2+	AD, CA, <u>TO</u> , WS	*
23	0845	0857	S-SWF	1	1	NE	0844
23	0953	1309	S-SWF	5	3	KO, MA, NE, PR, SW, RCA*, CW***	0950
23	1825	1915	S-SWF	4	1+	BE, HU, <u>MC</u> , PR, WS	1826
24	0302	0420	S-SWF	4	2	<u>CA</u> , KO, TO, CW+	*
24	0749	0814	S-SWF	1	1	<u>KU</u>	0749E

IONOSPHERIC EFFECTS OF SOLAR FLARES

(SHORT-WAVE RADIO FADEOUTS)

MARCH 1958

Mar. 1958	Start UT	End UT	Type	Wide Spread Index	Importance	Observation Stations	Known Flare, UT CRPL-F 164B
24	0958	1008	S-SWF	1	1	<u>NE</u>	0953
24	1542	1652	G-SWF	4	2+	<u>BE</u> , <u>CR</u> , <u>HU</u> , <u>MC</u> , <u>PR</u> , <u>WS</u>	1607E
24	2305	2400	Slow S-SWF	5	2	<u>AD</u> , <u>CA</u> , <u>TO</u> , <u>WS</u>	2306
25	0525	0600	Slow S-SWF	4	2	<u>KO</u> , <u>OK</u>	0529E
25	0603	0630	Slow S-SWF	5	2	<u>KO</u> , <u>KU</u> , <u>OK</u> , <u>CW**</u>	0557E
25	1452	1543	Slow S-SWF	5	1+	<u>BE</u> , <u>HU</u> , <u>JU</u> , <u>MC</u> , <u>PR</u> , <u>WS</u>	1449
26	2330	2355	G-SWF	4	2+	<u>AD</u> , <u>TO</u> , <u>WS</u>	2327
27	1200	1230	S-SWF	1	1+	<u>NE</u>	1201E
27	1535	1658	S-SWF	5	3	<u>BE</u> , <u>DA</u> , <u>HU</u> , <u>MC</u> , <u>NE</u> , <u>PR</u> , <u>PU</u> , <u>SW</u> , <u>WS</u> , <u>RCA*</u> , <u>CW***</u> , <u>CW+</u>	1535
27	1702	1725	S-SWF	5	2	<u>BE</u> , <u>HU</u> , <u>MC</u> , <u>NE</u> , <u>PR</u> , <u>WS</u>	1702
28	0420	0439	S-SWF	1	2	<u>OK</u>	*
28	0502	0530	Slow S-SWF	1	2	<u>OK</u>	
28	0606	0625	Slow S-SWF	1	1-	<u>OK</u>	
28	1000	1023	S-SWF	1	3+	<u>JU</u>	1000
28	1034	1115	S-SWF	5	3+	<u>DA</u> , <u>JU</u> , <u>KU</u> , <u>MA</u> , <u>NE</u> , <u>SW</u> , <u>CW***</u>	1032
28	1149	1239	S-SWF	3	3	<u>JU</u> , <u>NE</u>	1145E
28	1602	1625	Slow S-SWF	4	1	<u>BE</u> , <u>MC</u> , <u>PR</u> , <u>WS</u>	1547
28	1635	1652	G-SWF	3	1	<u>MC</u> , <u>PR</u> , <u>WS</u>	
28	1708	1818	S-SWF	5	3	<u>AN</u> , <u>BE</u> , <u>HU</u> , <u>MC</u> , <u>NE</u> , <u>PR</u> , <u>PU</u> , <u>WS</u> , <u>RCA*</u> , <u>CW***</u>	1707E
28	1833	1900	S-SWF	5	2+	<u>BE</u> , <u>HU</u> , <u>MC</u> , <u>PR</u> , <u>WS</u>	1833
28	2024	2040	Slow S-SWF	4	1	<u>AD</u> , <u>MC</u> , <u>PR</u> , <u>WS</u>	
28	2042	2108	S-SWF	4	2+	<u>AD</u> , <u>BE</u> , <u>HU</u> , <u>MC</u> , <u>PR</u> , <u>WS</u> , <u>RCA+</u>	2042
29	0757	0818	S-SWF	5	3	<u>KO</u> , <u>NE</u> , <u>OK</u>	
29	1220	1245	S-SWF	4	2	<u>BE</u> , <u>JU</u> , <u>NE</u> , <u>PR</u> , <u>SW</u>	1217E
29	1340	1415	S-SWF	5	3	<u>BE</u> , <u>CR</u> , <u>HU</u> , <u>MC</u> , <u>NE</u> , <u>PR</u> , <u>PU</u> , <u>SW</u> , <u>WS</u> , <u>RCA*</u> , <u>CW***</u> , <u>CW+++</u>	1339
29	1448	1502	S-SWF	5	2	<u>BE</u> , <u>JU</u> , <u>MA</u> , <u>MC</u> , <u>PR</u> , <u>PU</u> , <u>WS</u>	1448E
29	1628	1730	S-SWF	5	3	<u>BE</u> , <u>HU</u> , <u>JU</u> , <u>MC</u> , <u>NE</u> , <u>PR</u> , <u>PU</u> , <u>WS</u> , <u>RCA*</u> , <u>CW**</u>	
29	1821	1920	S-SWF	5	3	<u>BE</u> , <u>HU</u> , <u>MC</u> , <u>NE</u> , <u>PR</u> , <u>SW</u> , <u>WS</u> , <u>RCA+</u> , <u>RCA*</u> , <u>CW**</u>	1820
29	2130	2155	S-SWF	5	2+	<u>AD</u> , <u>AN</u> , <u>BE</u> , <u>CA</u> , <u>HU</u> , <u>MC</u> , <u>PR</u> , <u>WS</u> , <u>RCA+</u>	2132E
30	0018	0040	Slow S-SWF	5	1	<u>OK</u> , <u>PO</u> , <u>WS</u>	0021E
30	0109	0121	S-SWF	5	2	<u>AD</u> , <u>AN</u> , <u>OK</u> , <u>PO</u> , <u>TO</u> , <u>CW+</u>	0102E
30	0500	0505	S-SWF	5	1	<u>OK</u> , <u>PO</u>	0456E
30	0842	0916	S-SWF	1	3+	<u>JU</u>	0842
30	0955	1045	S-SWF	4	3	<u>NE</u> , <u>SW</u> , <u>CW***</u> , <u>CW+++</u>	0944
30	1552	1610	S-SWF	2	1	<u>MC</u> , <u>PR</u>	1533
30	1613	1640	G-SWF	3	1	<u>MC</u> , <u>PR</u> , <u>WS</u>	1614E
30	1742	1845	G-SWF	4	1+	<u>AN</u> , <u>BE</u> , <u>MC</u> , <u>PR</u> , <u>WS</u>	1740
30	1905	1932	Slow S-SWF	4	1-	<u>AN</u> , <u>BE</u> , <u>MC</u> , <u>PR</u> , <u>WS</u>	
30	2302	2320	Slow S-SWF	5	1+	<u>AD</u> , <u>PO</u> , <u>WS</u>	2304
31	0006	0050	G-SWF	5	2+	<u>AD</u> , <u>CA</u> , <u>OK</u> , <u>WS</u>	0005
31	0050	0210	S-SWF	5	3+	<u>AD</u> , <u>CA</u> , <u>OK</u> , <u>CW+</u>	
31	0756	0814	Slow S-SWF	4	2	<u>KO</u> , <u>OK</u>	
31	1420	1435	S-SWF	5	1-	<u>BE</u> , <u>MC</u> , <u>PR</u> , <u>PU</u>	
31	1438	1453	S-SWF	5	1+	<u>BE</u> , <u>PR</u> , <u>PU</u> , <u>WS</u>	
31	1935	1952	Slow S-SWF	2	1	<u>MC</u> , <u>WS</u>	1932

* No known flare patrol at this time.

COMMERCE - STANDARDS - BOULDER

CA = Canberra, Australia
 CR = Cornell University, N.Y.
 DA = Darmstadt, G.F.R.
 JU = Juhlesruh, G.D.R.
 KO = Kodaikanal.
 KU = Kuhlungsborn
 MA = Madrid, Spain
 NE = Nederhorst den Berg, Netherlands.
 PO = Potsdam
 PU = Prague, Czech.

SW = Enkoping, Sweden.
 SY = Sydney, Australia
 TO = Hiraio Radio Wave Observatory, Japan.
 CW* = Cable and Wireless, Barbadoes
 CW** = Cable and Wireless, Somerton, England.
 CW*** = Cable and Wireless, Brentwood, England
 CW+ = Cable and Wireless, Hong Kong.
 CW+++ = Cable and Wireless, Accra
 RCA* = RCA Communications Inc., Riverhead, N.Y.
 RCA+ = RCA Communications Inc., Pt. Reyes, Calif.

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES
APRIL 1958

OTTAWA

2800 MC

Apr. 1958	Type*	Start UT Hrs:Mins	Duration Hrs:Mins	Maximum		Remarks
				Time UT Hrs:Mins	Peak Flux	
1	2 Simple 2	b10 53	> 7	10 54.5	475	in sunrise
1	3 Simple 3 A	12 08.5	2 25	indet	30	
	6 Complex	12 08.5	9	12 11	20	
	2 Simple 2 f	14 11.8	13	14 13.9	195	
1	1 Simple 1	15 37.7	4	15 38.3	7	
1	2 Simple 2 f	16 32.5	3.5	16 34	18	
1	2 Simple 2	18 09	4	18 10	65	
1	2 Simple 2	22 52.5	1	22 53	51	
2	2 Simple 2	11 49.5	2.5	11 50	55	
2	2 Simple 2	13 25.2	2	13 26.2	13	
2	2 Simple 2 f	13 54.5	2	13 55	18	
2	1 Simple 1	14 25	1	14 25.5	7	
2	3 Simple 3 f A	15 00	2 10	indet	14	
	8 Group (2)	15 31	17			
	2 Simple 2	15 31	2.5	15 31.7	10	
	6 Complex	15 40	8	15 44.3	70	
2	9 Precursor	17 25	1		10	
	2 Simple 2	17 26	2.5	17 26.5	96	
	4 Post Increase		5		8	
2	2 Simple 2 f	18 05.5	10	18 08.9	110	
	4 Post Increase		10		9	
2	6 Complex f	19 51.5	7.5	19 53.4	260	
	4 Post Increase		18		12	
2	8 Group (2)	20 43	9.8			
	2 Simple 2	20 43	2	20 44	12	
	2 Simple 2	20 52.3	0.5	20 52.5	10	
3	3 Simple 3	17 44	9	17 48.5	7	
3	3 Simple 3 f	18 32	2 30	indet.	15	
4	2 Simple 2	13 05.5	1	13 05.9	16	
4	2 Simple 2	13 26.6	1	13 27	21	
4	8 Group (2)	19 20.5	5.5			
	2 Simple 2	19 20.5	1.5	19 21	48	
	2 Simple 2	19 24	2	19 24.9	26	
5	8 Group (2)	13 52	22.5			
	2 Simple 2 f	13 52	12.5	13 55.5	38	
	6 Complex f	14 04.5	10	14 07.8	60	
5	2 Simple 2	18 07.5	1	18 08	25	
5	1 Simple 1	18 39	2	18 40	6	
5	8 Group (2)	19 27.5	5.4			
	2 Simple 2	19 27.5	0.5	19 27.7	16	
	6 Complex	19 30.4	2.5	19 30.6	11	
5	2 Simple 2	22 51.5	3.5	22 52.5	10	
6	1 Simple 1	14 31	2.5	14 32	7	
6	6 Complex	19 34	12	19 36.8	13	
7	1 Simple 1	20 31	6	20 34	6	
9	2 Simple 2	13 46	2.5	13 47	11	
9	2 Simple 2	14 35.8	3.5	14 36.8	31	
	4 Post Increase		25		5	
9	2 Simple 2	21 47.2	2	21 47.8	9	
10	2 Simple 2	16 17	2	16 18.2	14	
	4 Post Increase		6		4	

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES
APRIL 1958

OTTAWA

2800 MC

Apr. 1958	Type*	Start UT Hrs:Mins	Duration Hrs:Mins	Maximum		Remarks
				Time UT Hrs:Mins	Peak Flux	
10	1 Simple 1	21 03	2	21 04	3	
10	6 Complex f	22 17	6	22 21	17	
11	2 Simple 2	11 14.5	2	11 15.7	8	
11	2 Simple 2	11 41.2	6	11 42.3	28	
11	1 Simple 1	11 55	2	11 56	4	
11	1 Simple 1	12 51.5	4	12 52	5	
11	8 Group (2)	13 30.5	9			
	1 Simple 1	13 30.5	3	13 32	7	
	2 Simple 2 f	13 35.5	4	13 37.5	62	
11	8 Group (2)	15 54.5	8			
	2 Simple 2	15 54.5	4	15 55.2	10	
	1 Simple 1	16 00	2.5	16 01.1	3	
12	1 Simple 1	17 00	6	17 00.9	6	
15	2 Simple 2	12 27	2	12 27.4	18	
19	1 Simple 1	22 19.9	1	22 20.2	7	
19	2 Simple 2	22 48.2	3	22 49	12	
20	2 Simple 2	13 51	0.4	13 51.1	11	
20	2 Simple 2	15 05.8	0.4	15 05.9	8	
21	6 Complex	20 49.3	3.5	20 50.2	17	
23	6 Complex	18 53	8	18 57.5	13	
24	2 Simple 2	16 21.3	1	16 21.8	10	
26	2 Simple 2	10 49.5	3	10 50.4	18	
27	1 Simple 1 f	18 04	2	18 04.5	5	
28	8 Group (2)	17 21	6.5			
	1 Simple 1	17 21	2	17 22	3	
	2 Simple 2	17 24.5	3	17 25.7	9	
28	6 Complex	23 18.5	6	23 20.4	97	in sunset osc.
29	8 Group (2)	10 50	11			
	1 Simple 1	10 50	2.5	10 51	7	
	1 Simple 1	10 58	3	10 59.5	7	
29	2 Simple 2	11 54.1	2	11 54.7	74	
29	1 Simple 1	12 13.8	0.5	12 14	5	
29	2 Simple 2 f	13 06	2.5	13 07.5	12	
29	8 Group (2)	13 22.1	5.4			
	2 Simple 2	13 22.1	1.5	13 22.8	26	
	1 Simple 1	13 26.5	1	13 26.8	7	
29	2 Simple 2	14 48.8	0.7	14 48.9	14	
29	8 Group (2)	16 54.8	1.6			
	1 Simple 1	16 54.8	0.3	16 54.9	6	
	1 Simple 1	16 55.7	0.7	16 55.9	7	
29	3 Simple 3 A	18 52	2 10	indet.	27	
	1 Simple 1	19 57.6	1	19 57.9	6	
30	1 Simple 1	17 14.8	1.5	17 15.2	4	
30	2 Simple 2	18 39.5	3	18 40.5	14	
30	3 Simple 3 f	19 20	40	19 31	15	

SOLAR RADIO EMISSION

DAILY DATA

APRIL 1958

CORNELL.

200 MC

Apr. 1958	Flux Density $10^{-22} \text{w m}^{-2}(\text{c/s})^{-1}$			Variability 0 to 3			Observing Periods	
	Hours UT			Hours UT			Hours UT	
	12 15	15 18	18 21	12 15	15 18	18 21		
1	[37	35	39	[1	1	2	1335-2100	{ 1800-2015 2020-2100
2	[20	29	27	[2	2	2	1335-2100	
3	[13	16	17	[1	2	2	1340-2045	
4	[20	18]	15	[1	1]	1	1340-1715,	
5	[15	17]		[1	1]		1335-1705	
6	[14	14]		[1	1]		1335-1715	2020-2100
7	[20	16	14	[1	2	1	1325-2010,	
8	[13	12	12]	[1	0	0]	1340-1940	
9	[16	12	14	[2	1	1	1335-2110	
10	[[14	13	12	[[1	1	1	1415-2100	
11	[[12	13	13	[[1	1	2	1350-1925	
12	[[12	12	12]]	[[0	1	0]]	1340-1910	
13	[12	12]		[1	1]		1330-1700	
14	[[12	12	12	[[1	1	0	1345-2100	
15	[12	12	12	[0	0	0	1335-2100	
16	[[12	11	11	[[0	1	1	1430-1940	
17	[13	13	12	[1	1	1	1330-2100	
18	[11	11	11	[0	0	0	1330-2100	
19	[11	11	11	[0	1	1	1320-2110	
20	[11	11]		[1	1]		1340-1700	
21	[11	12	12	[0	0	0	1330-2115	
22	[14	12	11	[1	1	0	1330-2100	
23	[12	12	12]]	[1	0	0]]	1330-2105	
24	[11	11	11	[0	1	1	1340-2100	
25	[12	14	13	[0	1	1	1340-1500, 1530-2105	
26	[13	13]		[1	1]		1305-1700	
27	[[12	12]]		[[1	1]]		1350-1615	

COMMERCE - STANDARDS - BOULDER

[= first hour missing.
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SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES
APRIL 1958

CORNELL

200 MC

Apr. 1958	Type Ap.J	Start UT	Time of Maximum	Duration Minutes	Type IAU	Max. Flux Density $10^{-22} \text{ W m}^{-2} (\text{c/s})^{-1}$		Remarks
						Inst.	Smooth	
1	8	1538	1538*	1.5	CA	3100*	1700*	
	2	1632	1634.5*	4.5	CA			
	2	2002	2006.5*	6	CA			
	8	2035	2036.5	4	CA	530*	260*	
2	2	1353.5	1538*	6.5	CA	880*	630*	
	8*	1539.5*	1540*	1*	CA*	2400*	1700*	
	8	1608.5	1609*	6	ECA*	4400*	1700*	
	2	1740	1743.5*	7	CA	530*	380*	
	2	1838.5	1844*	9	CA	1200*	740*	
	8	1852.5	1852.5*	1.5	CA	1000*	630*	
	8	1945.5	1946*	2	CA	2000*	1500*	
	8	1951.5	1952*	2	ECD	82,000*	58,000*	
	8	1955	1957*	20	CD	25,000*	14,000*	these two may be considered a major +(9)
	0	2021		>39	SA			
3	7,4	1603.5		235	E			
4	3	1628		1	CA	~65		off-scale on linear record
	8	1641.5	1642	2	CA	~65		
	8	1855	1858*	5	ECD	140*	91*	
	8	1921	1921*1923*	6	ECD	91*	55*	
	2	2011	2013*	3.5	CA	91*	55*	
	0	1359		71	SD			
	8	1403.5		6	ECD	~65		off-scale on linear record
7	3	1507		2	CD	46	25	
	2	1516		5	CD	49	25	
	1	1639.5		70	F			
	2	1808	1815.5*	11	F	120*	55*	
		1942	1942*	1		1700*	1500*	
8	1	1346		65	F			
9	6,4	b1335		>89	F			
	1	1636.5		45	E			
	3	1653.5	1653.5*	1.5	CA	91*	55*	
	2	1816		36	F			
	7	1943		>86	E			
	3	1947.5	1947.5*	1	CA	91*	72*	
	2	1644	1644.5*	2	CD	450*	310*	
	2	1651.5	1652.5	2	CD	49	25	
10	3	1659.5		.5	CD	40	23	
	3	1743	1743.5*	.5	CD	120*	72*	
	3	1829		0.25	CD	52	36	
	3	1531.5	1532.5*	1.5	CD	210*	140*	
13	3	1635	1635*	.5	CD	91*	72*	
	3	1408.5	1409	1	CD	~65		off-scale on linear record
	3	1512	1512*	1.5	CD	91*	55*	
	3	1925.5	1925.5*	1.5	CD	140*	120*	
16	3	1504.5		.5	CD	140*	120*	
	3	1550		0.25	CD	210*	140*	
	3	1819	1819.5*	1.5	CD	210*	140*	
	3	1823	1824.5	2.5	CD	47	26	
	3	1859.5		<0.25	CD	52	35	
	2	1629.5		3	CD	~65		off-scale on linear record
17	3	1927	1927*	1.5	CD	310*	260*	
19	2	1349.5	1351*	3	CD	140*	120*	
20	3	1514	1514.5	1.5	CD	~65		off-scale on linear record
	8	1522		8	ESD	~65		off-scale on linear record
	8	1844	1844.5*	3	CD	180	140*	

* Logarithmic recorder

COMMERCE - STANDARDS - BOULDER

SOLAR RADIO EMISSION
DAILY DATA
MARCH 1958

BOULDER

167 MC

1958 Mar.	Flux Density $10^{-22} \text{ W m}^{-2} (\text{c/s})^{-1}$						Variability 0 to 3						Observing Periods
	Hours UT					Day	Hours UT					Day	Hours UT
	0	12	15	18	21		0	12	15	18	21		
	3	15	18	21	24		3	15	18	21	24		
1	-	-	23	22	-	22	-	-	1	28	-	18	15.5-20.5
2	-	-	18	17	18	18	-	-	0	0	18	0	15.0-24.6
3	-	-	121	29	18	73	-	-	18	2	28	28	14.8-24.6
4	-	-	18	19	19	19	-	0	28	18	18	18	13.5-19.8, 20.3-24.7
5	-	-	20	18	20	19	-	0	1	1	08	1	13.5-24.7
6	-	-	20	22	20	21	-	08	1	18	28	18	13.4-24.7
7	-	-	22	25	22	24	-	2	2	28	28	28	13.4-24.7
8	-	-	52	149	384	180	-	2	2	3	3	3	13.4-24.7
9	-	-	79	119	125	108	-	2	2	2	28	2	13.4-24.7
10	-	-	113	83	83	95	-	2	2	2	28	2	13.4-24.8
11	-	-	33	40	60	43	-	2	2	2	28	2	13.3-13.6, 14.5-24.8
12	-	-	31	41	33	35	-	18	1	2	28	28	13.3-20.3, 20.5-24.8
13	-	-	29	34	32	31	-	1	1	18	28	18	13.8-24.8
14	-	-	24	22	22	23	-	-	18	18	18	18	15.5-24.8
15	-	-	-	21	19	21	-	1	18	18	18	18	13.3-14.8, 16.3-24.8
16	-	-	17	17	16	17	-	1	0	0	28	1	13.3-24.8
17	-	-	-	17	16	17	-	1	-	18	08	18	14.1-24.8
18	-	-	18	17	20	18	-	2	18	08	18	18	13.2-24.8
19	-	-	25	19	20	22	-	28	28	2	28	28	13.2-24.9
20	-	-	117	158	117	127	-	2	2	28	28	28	13.1-24.9
21	-	-	53	36	58	51	-	2	2	28	28	28	13.1-24.9
22	-	-	28	30	21	26	-	2	2	1	1	2	13.1-24.9
23	-	-	31	21	20	25	-	1	28	2	28	28	13.0-24.9
24	-	-	20	20	24	21	-	2	28	28	28	28	13.0-01.0
25	-	-	38	43	54	44	-	2	28	28	28	28	13.0-01.0
26	-	-	74	74	56	65	-	2	2	2	18	2	13.8-01.0
27	-	-	-	111	92	104	-	2	18	18	18	18	12.9-01.0
28	-	-	65	62	55	63	-	1	2	28	28	28	12.9-01.0
29	-	-	85	220	84	130	-	-	28	2	2	2	14.2-01.0
30	-	-	114	50	25	64	-	2	2	28	2	2	12.8-01.1
31	-	-	24	30	48	33	-	28	28	28	28	28	12.8-14.1, 15.0-17.5, 18.1-20.8, 21.9-01.1

COMMERCE - STANDARDS - BOULDER

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES
MARCH 1958

BOULDER

167 MC

Mar. 1958	Type Ap.J	Start UT	Time of Maximum	Duration Minutes	Type IAU	Max. Flux Density $10^{-22} \text{ w.m}^{-2} (\text{c/s})^{-1}$		Remarks
						Inst.	Smooth	
1	1	1530 B	1812.1	300 D	MF	120	-	Burst 1758.3
3	9	1349	1559.0	191 X	CD	420	160	
3	1	1700 X	1803.3	455 D	MF	1100	-	N2
4	1	1330 B	2434.9	670 D	MF	530	-	
6	1	1325 B	2307.0	675 D	F	770	-	S
7	6	1325 B	1848.8	675 D	CD	400	10	N3
8	6	1325 B	2003.8	675 D	CD	1200	370	Large bursts 1923.1, 1952.2
9	6	1325 B	1453.8	675 D	CD	1300	110	N4
9	2	1433.3	1434.0	00.8	ECD	920	-	
9	2	2049.8	2049.9	00.7	ECD	1200	-	
10	6	1325 B	1929.2	680 D	CD	640	100	N5
11	6	1320 B	2231.0	685 D	CD	770	43	S Large burst 2200.4
12	6	1320 B	1922.0	685 D	CD	540	27	S
13	6	1350 B	1549.5	655 D	CD	190	17	S
14	1	1530 B	1704.7	555 D	MF	95	-	S
15	1	1315 B	1723.5	690 D	MF	170	-	
16	2	2034	2040.4	07	ECD	140	22	
16	3	2330.0	2330.2	01	ECD	360	-	
18	1	1310 B	1625.1	700 D	MF	200	-	S
19	6	1310 B	1918.3	705 D	CD	310	11	S N6
20	6	1305 B	1533.8	710 D	CD	970	140	S N7
21	6	1305 B	1422.6	710 D	CD	670	54	S Large bursts 1355.9, 1421.1
22	6	1305 B	2222.3	710 D	CD	430	13	S Large burst 1913.0
22	0	1634	1948.4	22	CD	540	110	S
22	3	1822	1822.3	01	ECD	1500	-	

COMMERCE - STANDARDS - BOULDER

- Notes: 1. Interference may obscure or be mistaken for solar events. Relatively small events are not reported.
2. March 3, Large bursts 1830.2, 2147.3, 2346.0, 2409.8. Bursts 2254.3, 2341.0, 2409.1.
3. March 7, Large burst 1402.3, Burst 1854.7.
4. March 9, Large burst 1354.3, Burst 2119.5.
5. March 10, Bursts 1434.8, 1442.0, 1559.1, 2101.8, 2437.2.
6. March 19, Large bursts 1440.8, 2446.7.
7. March 20, Large bursts 1317.7, 1509.9, 1754.0, 2254.4.

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES
MARCH 1958

BOULDER

167 MC

Mar. 1958	Type Ap. J	Start UT	Time of Maximum	Duration Minutes	Type IAU	Max. Flux Density $10^{-22} \text{ W m}^{-2} (\text{c/s})^{-1}$		Remarks
						Inst.	Smooth	
23	6	1300 B	1437.3	405 X	CD	440	16	Large burst 1313.1, 1508.6
23	1	1945 X	2152.8	310 X	MF	170	-	Burst 2306.7
24	1	1300 B	1730.3	525 X	MF	750	-	S N8 Burst 2016.7
24	6	2145 X	2315.3	195 X	CD	170	10	S
25	6	1300 B	1414.1	720 D	CD	900	37	S N9
25	3	2434.2	2434.4	1.8	ECD	1400	-	
26	6	1350 B	2308.1	670 D	CD	470	57	Large burst 1522.1
27	6	1255 B	1523.7	725 D	CD	430	100	S Large burst 1417.1
28	6	1255 B	1647.1	725 D	CD	540	55	S Large burst 1818.9, 1907.7
29	6	1410 B	1438.6	285 X	CD	1100	96	S
29	9	1855 X	I	182 X	CD	1600	210	S N10
29	6	2157 X	2131.1	183 X	CD	1400	79	
29	3	2135	2135.7	02	ECD	1400	370	
30	6	1250 B	1404.3	130 X	CD	240	53	Large burst 1302.1
30	9	1500 X	1630.4	145 X	CD	860	47	
30	6	1725 X	2322.8	460 X	CD	1400	250	S
30	3	1908	1908.1	01	ECD	1600	-	
30	3	2301.3	2301.9	02	ECD	730	280	
30	3	2322.8	2322.9	00.5	ECD	1400	-	
30	2	2345	2346.1	03	CD	1100	390	
31	6	1250 B	1533.5	735 D	CD	2000 D	30	S N11
31	3	1652	1652.8	02	ECD	1200	390	
31	3	1712.8	1713.4	01.1	CD	1000	-	
31	3	1718.6	1719.4	01.4	ECD	1300	-	
31	2	1936	1936.7	04	ECD	1600	520	

COMMERCE - STANDARDS - BOULDER

8. March 24, Probable group of bursts occurred 1636-1639. Burst 2016.7
9. March 25, Large bursts 1444.1, 1817.7, 2437.1.
10. March 29, More than 10 large bursts having a flux value of approximately 1600 occurred 1919-1945 any one of which could have been considered the maximum. Also during this period the hourly calibration was taken from 1926-1929.
11. March 31, Large bursts 1302.7, 1332.0, 1712.0. Bursts 1623.0, 1802.1, 2308.5.

SOLAR RADIO EMISSION
DAILY DATA
MARCH 1958

BOULDER

470 MC

Mar. 1958	Flux Density $10^{-22} \text{ W m}^{-2} (\text{c/s})^{-1}$						Variability 0 to 3						Observing Periods	
	Hours UT					Day	Hours UT					Day	Hours UT	
	0	12	15	18	21		0	12	15	18	21			
	3	15	18	21	24		3	15	18	21	24			
1	-	-	79	79	79	79	-	-	1	0	1	1	14.0-23.3, 24.0-24.6	
2	-	-	78	79	79	79	-	-	0	0	0	0	14.8-24.6	
3	-	-	79	79	79	79	-	-	0	1	1	1	14.0-24.6	
4	-	-	79	80	80	79	-	0	0	0	0S	0	13.5-24.6	
5	-	-	79	80	80	79	-	0	0	1S	0S	0S	13.5-17.0, 17.6-24.6	
6	-	-	80	80	80	80	-	0	0S	0	0S	0S	13.5-24.7	
7	-	-	81	81	81	81	-	0	0	0	0	0	13.4-24.7	
8	-	-	81	81	100	87	-	1	0	0	1	0	13.4-24.7	
9	-	-	80	80	80	80	-	1S	1	1	0	1	13.4-24.7	
10	-	-	79	79	80	79	-	-	0	0	0S	0S	13.7-24.7	
11	-	-	79	80	79	79	-	0	0	0	0S	0	13.3-24.8	
12	-	-	79	79	79	79	-	-	0	0	0S	0	13.7-20.0, 20.2-24.8	
13	-	-	79	79	79	79	-	-	0	0	0	0	13.8-24.8	
14	-	-	79	79	79	79	-	0S	0S	0S	0S	0S	13.8-24.8	
15	-	-	79	79	79	79	-	-	1	0	0	0	13.7-23.0, 23.5-24.8	
16	-	-	78	77	78	78	-	-	0	1	0	0	13.8-24.8	
17	-	-	77	-	78	78	-	-	0	-	0S	0S	14.2-18.0, 18.9-20.2, NL	
18	-	-	78	78	78	78	-	-	0	0S	0S	0S	14.0-24.8	
19	-	-	79	79	79	79	-	-	0S	0S	1S	0S	13.8-24.8	
20	-	-	81	81	79	80	-	-	0	0	0	0	13.8-24.8	
21	-	-	79	79	79	79	-	-	1	2	0S	1	13.9-24.9	
22	-	-	80	80	79	80	-	0	0	1	0S	0	13.1-24.9	
23	-	-	79	78	78	79	-	-	1	0	0	0	13.9-24.9	
24	-	-	78	79	78	78	-	-	0	0	0S	0	14.0-24.9	
25	-	-	79	79	79	79	-	1	1	0S	0S	0S	13.8-24.9	
26	-	-	79	79	79	79	-	-	1S	1	1S	1S	13.8-01.0	
27	-	-	79	79	-	79	-	-	1	0S	-	1S	13.8-20.4, 22.9-01.0	
28	-	-	78	78	79	78	-	-	0S	0	0S	0S	13.8-01.0	
29	-	-	79	79	78	79	-	2	1	1	2S	2	13.8-01.0	
30	-	-	89	79	78	82	-	-	2	1	2	2	13.9-01.1	
31	-	-	79	79	79	79	-	0S	1	0S	1	1S	12.8-01.1	

Notes: 1. March 17, cont'd. 21.8-24.8.

COMMERCE - STANDARDS - BOULDER

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

MARCH 1958

BOULDER

470 MC

Mar. 1958	Type Ap.J	Start UT	Time of Maximum	Duration Minutes.	Type IAU	Max. Flux Density $10^{-22} \text{ w m}^{-2} (\text{c/s})^{-1}$		Remarks
						Inst.	Smooth	
1	3	1338.4	1338.7	00.9	ECD	95	-	S
1	2	2235.4	2235.9	01.8	CD	150	26	Burst 2409.8
3	3	1943.6	1943.6	00.1	ECD	260	-	Burst 2043.9
3	2	2143	2147.1	06	CD	180	23	
3	2	2341	2345.2	05	CD	210	28	
5	2	2038.2	2038.9	00.8	CD	300	-	S
8	0	2200 X	2304	160 X	SD	130	21	Burst 1327
8	3	2234.5	2235.1	00.7	CD	370	-	
9	0	1530 I	1547.6	18 I	CD	110	24	
9	3	1655.5	1655.6	00.5	ECD	260	-	
9	3	2043.7	2043.7	00.1	ECD	420	-	
15	3	1933.0	1933.3	00.4	ECD	400	-	S
16	3	1942.8	1942.9	00.2	ECD	350	-	
19	2	2049.3	2410.1	00.8	CD	340	-	S
20	1	1346 B	1930 X	664 D	M	120	-	S
21	2	1716.8	1718.0	04.3	CD	420	39	
21	2	1940.8	1942.5	04.1	CD	760	130	
22	1	1305 B	1712.7	710 D	M	130	-	S
22	8	1827.5	1846.8	23.5	CD	230	77	
22	0	1904	1914.0	21	SD	110	-	
23	3	1717.1	1717.2	00.2	ECD	380	-	
24	1	1434 X	1502.7	30 X	MF	120	-	
24	1	1843	1930.4	372 D	MF	100	-	S
25	3	1422.0	1422.2	00.3	ECD	170	-	S
26	1	1346 B	2003.3	674 D	MF	160	-	Bursts 1755, 2250
27	1	1348 B	2305.3	672 D	MF	370	-	I 2026-2256, Burst 1403.8
27	2	1702	1702.7	04	ECD	370	65	
28	1	1350 B	1547.9	670 D	MF	350	-	S
29	1	1344 B	1820.3	676 D	MF	200	-	N2
29	2	1442	1448.3	08	CD	520	150	
29	2	2125	2136.4	12 I	CD	260	45	
30	1	1354 B	1422.1	96 X	MF	110	-	
30	6	1530 X	1549.3	110 X	MF	420	11	N3
30	1	1720 X	2157.9	465 X	MF	360	-	
30	3	1750.9	1751.1	00.5	ECD	1200	-	
30	3	1907.9	1908.0	00.4	ECD	790	-	
30	2	2008.4	2009.4	04.1	CD	160	37	
30	2	2431.4	2431.7	01.5	CD	1400	390	
31	1	1245 B	1729.7	740 D	MF	280	-	S N4

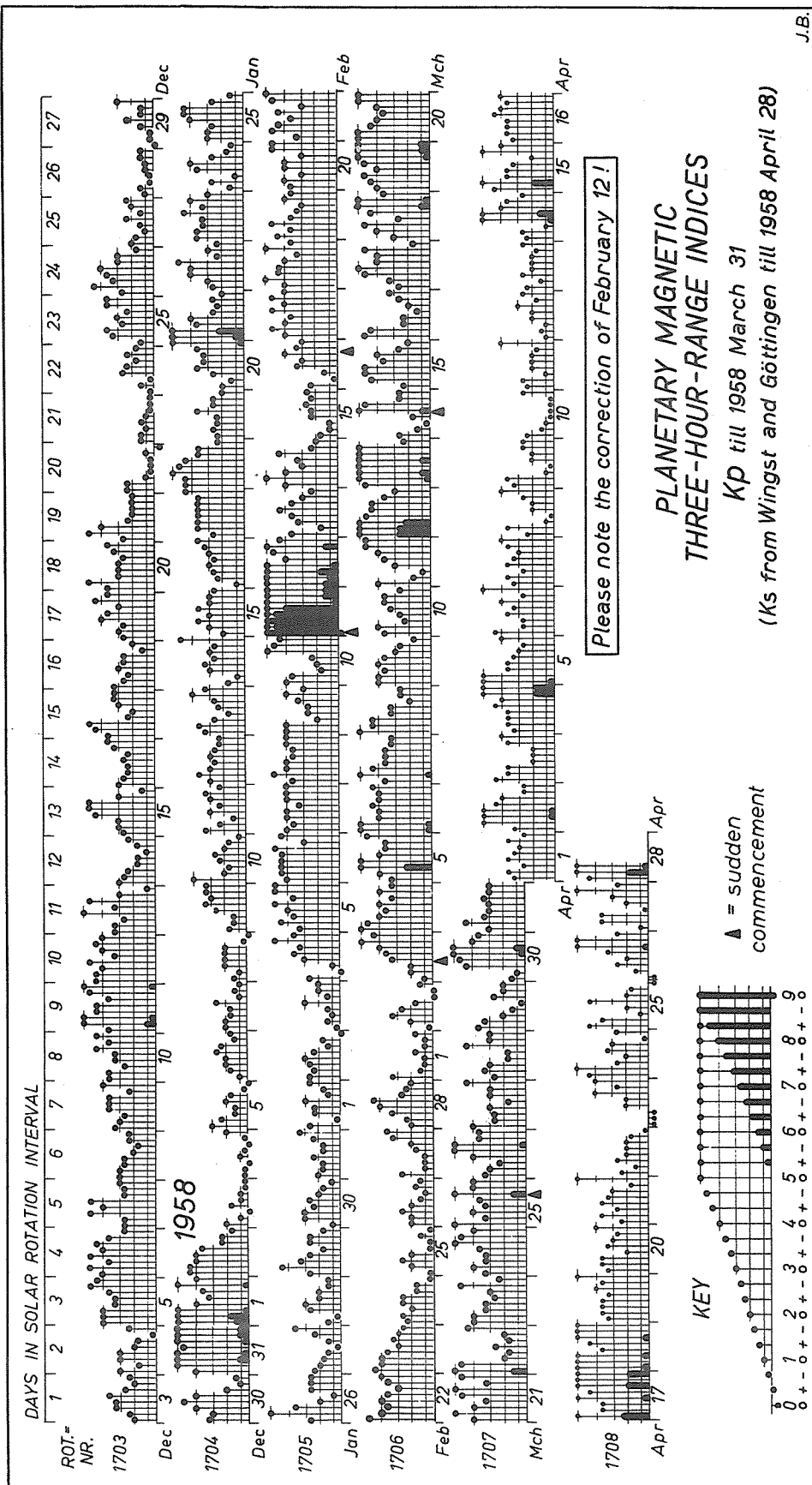
COMMERCE - STANDARDS - BOULDER

- Notes: 1. Interference may occasionally obscure or be mistaken for solar events.
 2. March 29, Bursts 1651.7, 1704.2, 2312.3, 2420.9, 2427.5, 2429.8, 2452.4, 2500.4.
 3. March 30, Bursts 1957.8, 2102.8, 2134.2, 2301.8, 2305.6.
 4. March 31, Bursts 1608.4, 1651.9, 2308.3, 2323.7.

GEOMAGNETIC ACTIVITY INDICES

MARCH 1958

Mar. 1958	C	Values Kp								Sum	Ap	Final Selected Days
		Three hour Gr. interval										
		1	2	3	4	5	6	7	8			
1	0.3	3+	1+	1o	1o	2-	1o	1o	2-	12o	6	Five Quiet
2	0.2	1-	2o	3+	3-	2-	0+	0+	1+	12+	7	
3	1.2	1o	2o	2o	3+	4-	4o	5o	4+	25+	21	
4	1.2	5o	5-	4o	4-	4o	3+	4o	3+	32o	28	1
5	1.4	3+	4o	7-	5o	4o	4-	4-	5-	35o	39	2
6	1.4	5+	5+	4o	4o	4+	4o	4o	4+	35+	36	16
7	1.1	4-	5+	4+	4-	4-	4-	3+	3+	31o	26	28
8	1.0	5o	4+	4+	3+	3+	2o	3-	3-	28-	22	29
9	1.0	4o	4o	4-	4o	4-	3o	3-	2-	27-	20	
10	0.9	4-	4o	2+	3-	3+	4-	4-	3-	26o	18	
11	1.1	4o	2-	1o	3o	4-	4o	5-	5-	27-	22	Five Disturbed
12	1.6	7o	7o	7-	5-	4+	4+	4-	3o	41-	64	
13	1.5	5-	5+	6-	5o	6-	5o	5o	2+	39-	48	
14	1.2	3-	1+	1-	2-	6-	5-	3-	3-	22o	20	5
15	1.2	2+	4+	5-	5-	4-	4o	3-	2o	28+	23	12
16	0.8	5-	4+	2+	2+	1+	2o	3-	3+	23o	16	13
17	1.2	3-	3+	5-	5o	4o	4o	5-	2-	30o	27	19
18	1.3	3o	4o	5-	3-	4+	6-	5+	4-	33+	34	20
19	1.5	4o	4+	5-	4o	5-	5+	6-	6-	38+	44	
20	1.4	5o	5o	4+	4o	4-	4o	5o	5o	36o	38	
21	1.3	4o	5o	4o	3+	5-	5o	3+	5-	34o	33	Ten Quiet
22	1.0	6o	5-	2o	2-	3-	2-	2o	4+	25o	24	
23	1.1	4o	4o	3+	3+	3-	3o	5-	2+	27+	21	
24	1.2	3+	4o	3+	3+	4-	5o	5-	4o	31+	27	1
25	1.4	5o	3+	4o	3+	4-	6o	4o	4o	33+	33	2
26	1.1	3+	3o	2+	4o	5o	5+	4-	4-	30+	27	3
27	0.9	4o	3-	3-	3o	2-	3o	3o	4+	24+	17	10
28	0.7	3-	3+	3o	2-	2-	4+	3o	3o	23-	15	14
29	0.4	4-	3+	2o	1+	1-	3-	2o	2o	18-	10	16
30	1.3	1+	1o	4+	5-	5+	6-	4o	4-	30o	32	27
31	0.8	3o	4+	3+	3o	3o	3+	3o	3o	26o	18	28
												29
												31
Mean:	1.09									Mean:	26	



CRPL RADIO PROPAGATION QUALITY FIGURES AND FORECASTS

NORTH ATLANTIC

MARCH 1958

Mar. 1958	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		1-4 days	4-7 days	8-25 days	Half Day (1) (2)	
1	7°	7+	7°	7+	7	7	7	7	7°	7	7		1	1
2	7°	7°	7°	7°	7	7	7	7	7°	7	7		2	1
3	7-	6+	7+	6+	7	7	7	7	7-	7	7		2	(4)
4	5-	5+	6+	6+	6	5	6	6	6-	6	7		(4)	3
5	6°	5+	7-	7-	6	6	6	6	6+	4	7		(4)	3
6	5+	5°	7°	6+	6	5	6	6	6°	4	7		(5)	3
7	6-	5+	7°	6+	5	5	7	6	6°	6	6		(4)	3
8	6-	5°	7°	7°	5	5	7	6	6+	6	6		(4)	2
9	7-	6+	6+	7-	6	6	7	7	7-	6	6		3	3
10	6+	7-	7-	7-	6	6	7	7	7-	7	6		3	3
11	6+	6+	7-	6+	7	7	7	7	6+	7	7		2	3
12	5-	4+	6-	6-	6	3	5	5	5°	7	7		(6)	3
13	4°	3+	5+	6-	5	4	5	4	(4+)	7	7		(4)	(4)
14	6-	5+	6°	7-	4	5	6	5	6°	5	6		1	(4)
15	7°	6°	6+	7-	5	6	6	6	7-	6	6		3	3
16	7-	7-	7°	7-	6	6	7	7	7-	6	6		3	2
17	7°	6°	7-	7-	7	7	6	7	7-	6	6		(4)	3
18	6°	6°	7-	6-	6	5	6	7	6+	6	5		3	(4)
19	5+	6-	6+	5+	6	4	6	6	6-	6	5		(4)	(4)
20	5+	5°	6°	6-	5	5	6	6	6-	6	5		(4)	3
21	5+	6-	6°	6-	5	5	6	5	6-	5	7		3	(4)
22	5°	6-	6+	7-	5	5	7	6	6-	5	7		3	3
23	6°	*4+	6°	6°	5	6	5	5	*5+	4	7		3	3
24	6+	6°	6+	6-	5	5	6	5	6°	4	7		3	3
25	5+	6°	6°	5°	4	5	6	4	6-	4	5		(4)	(4)
26	5+	6-	5+	5+	4	6	6	5	6-	4	6		3	(4)
27	6+	6°	6-	6-	5	6	6	5	6°	5	6		3	3
28	6+	6°	7-	6+	6	6	6	6	6+	5	5		2	3
29	6+	6+	7-	7-	7	6	7	6	7-	5	5		2	1
30	7°	7-	7-	6+	7	7	5	5	7-	5	5		2	(4)
31	6°	6-	7-	6+	5	5	6	6	6°	6	5		3	3
Score: Quiet Periods					P	12	15	19	13		11	8		
					S	16	12	11	16		11	18		
					U	1	0	1	1		3	4		
					F	1	(1	0	1		5	0		
Disturbed Periods					P	0	0	0	0		0	0		
					S	1	2	0	0		0	0		
					U	0	0	0	0		0	0		
					F	0	1	0	0		1	1		

() represent disturbed values.

COMMERCE - STANDARDS - BOULDER

* These below normal indices are the result of a particularly severe short-wave fadeout at 0955 U.T., and are not associated with radio or magnetic disturbance.

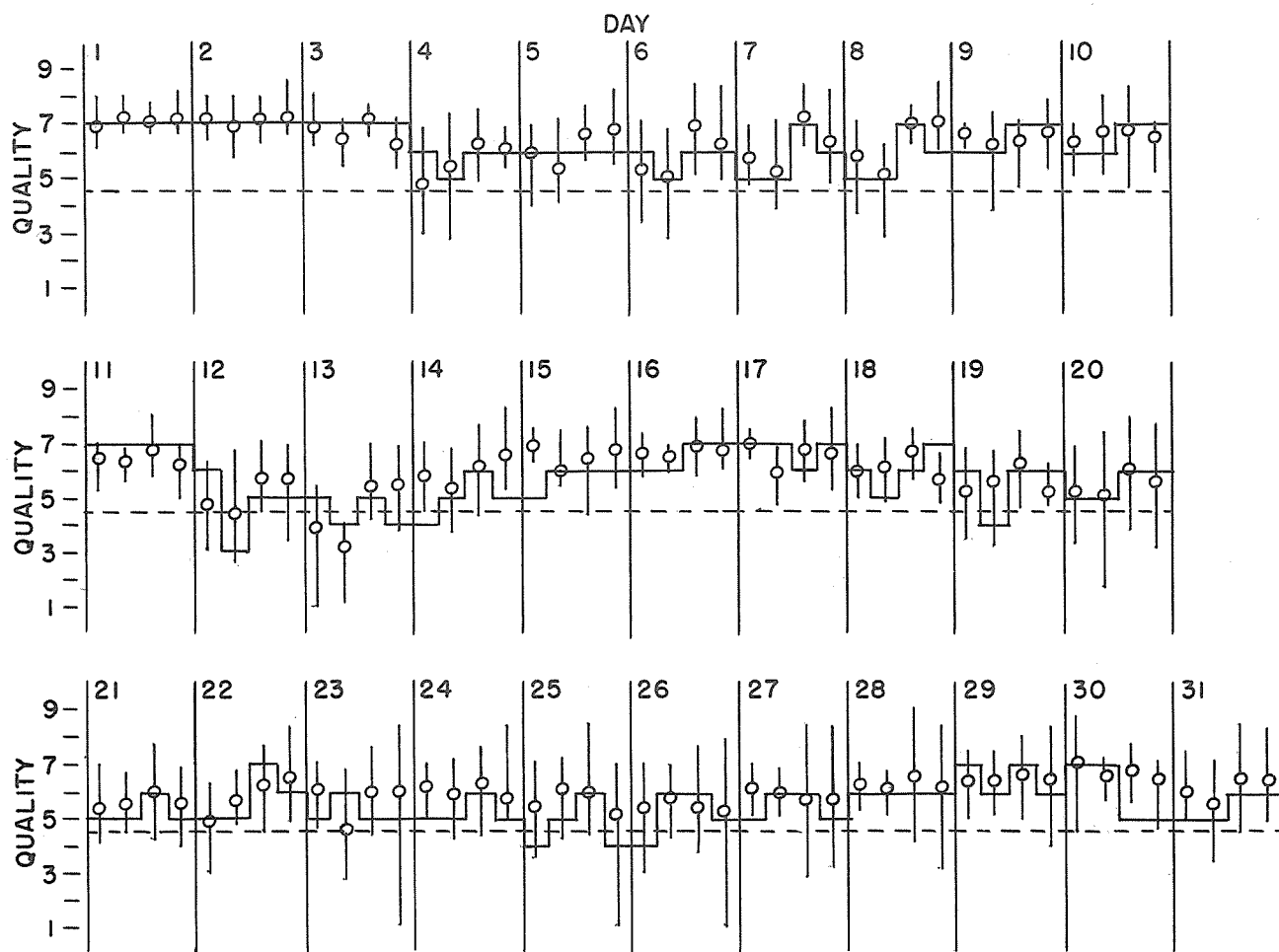
CRPL RADIO PROPAGATION QUALITY FIGURES AND FORECASTS NORTH ATLANTIC

MARCH 1958

— Short-term forecast

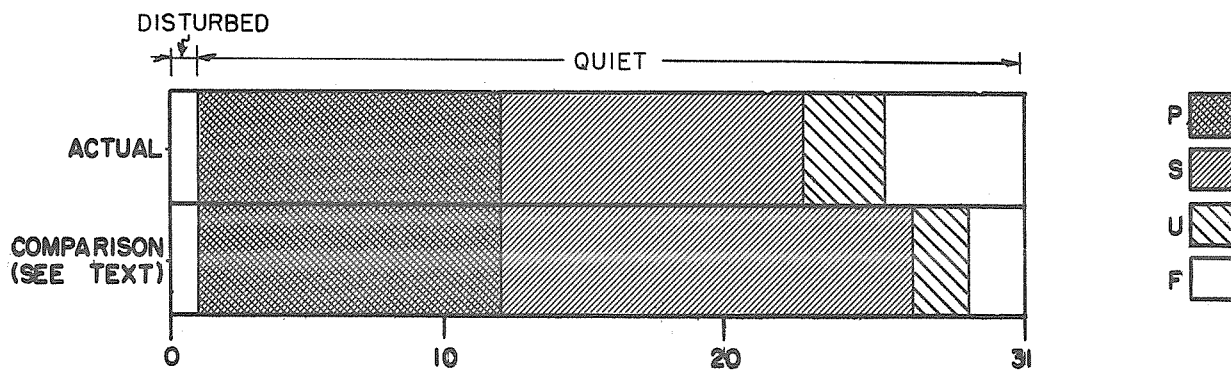
○ Quality figure

| Range of reports



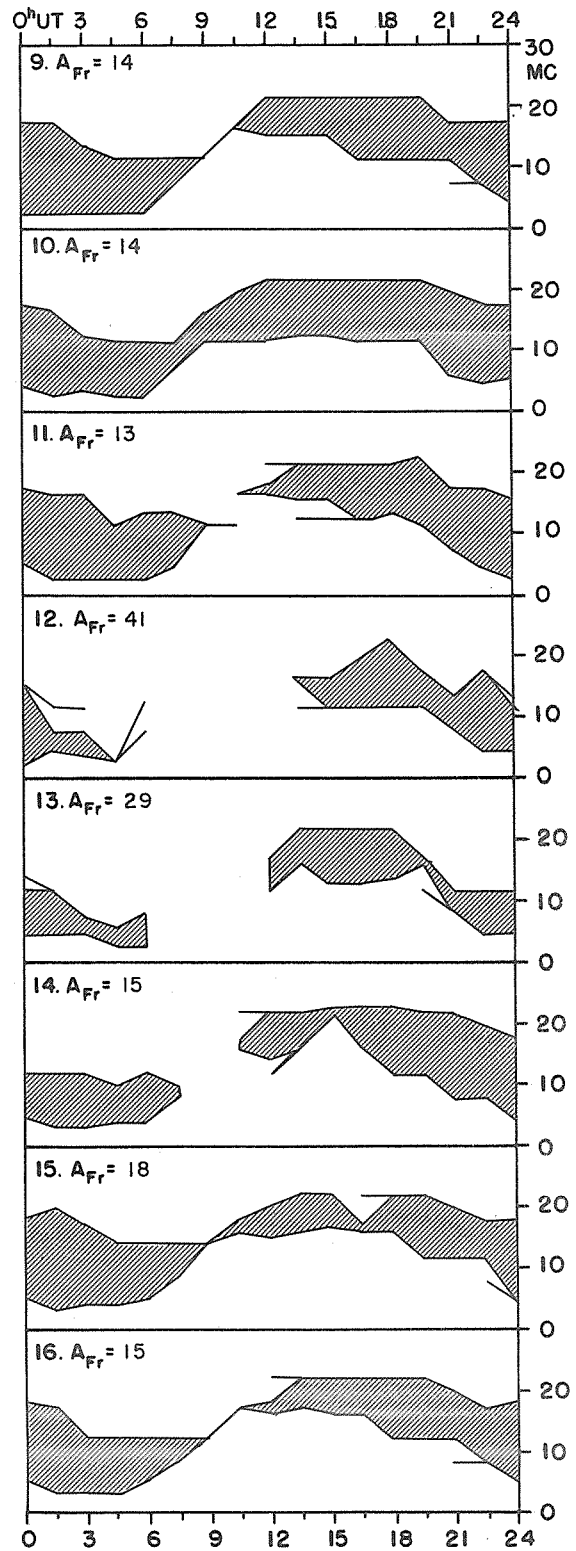
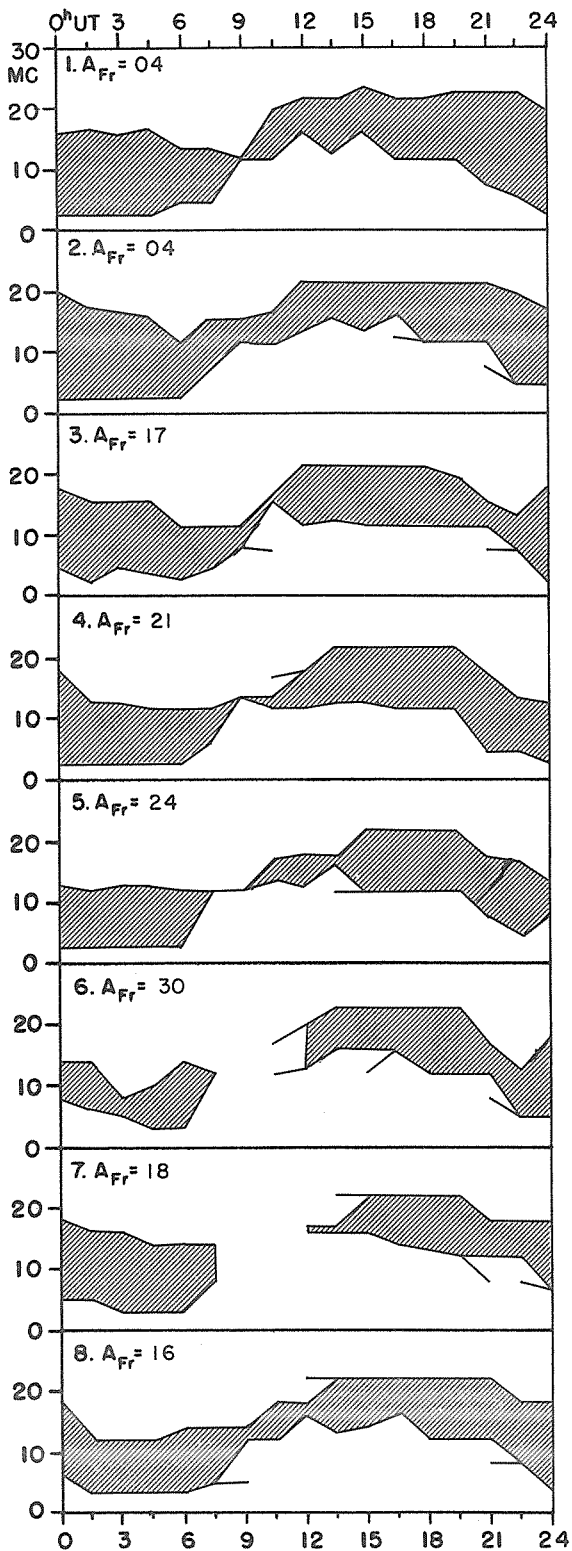
OUTCOME OF ADVANCED FORECASTS

COMMERCE — STANDARDS — BOULDER
1 TO 4 DAYS AHEAD



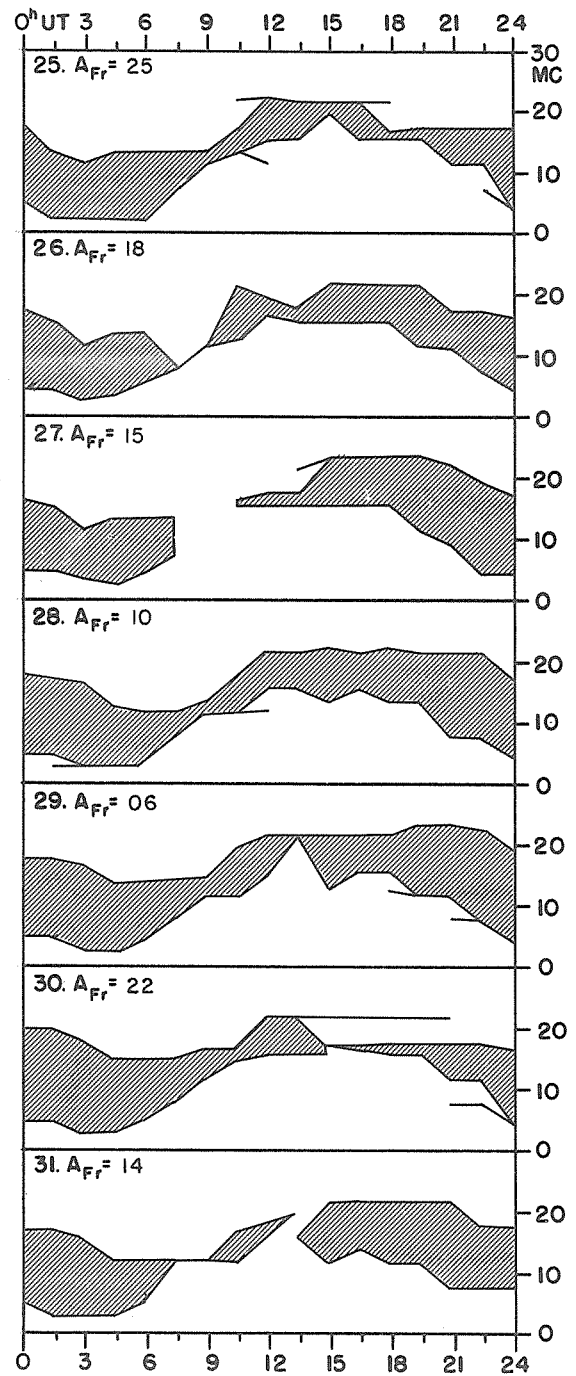
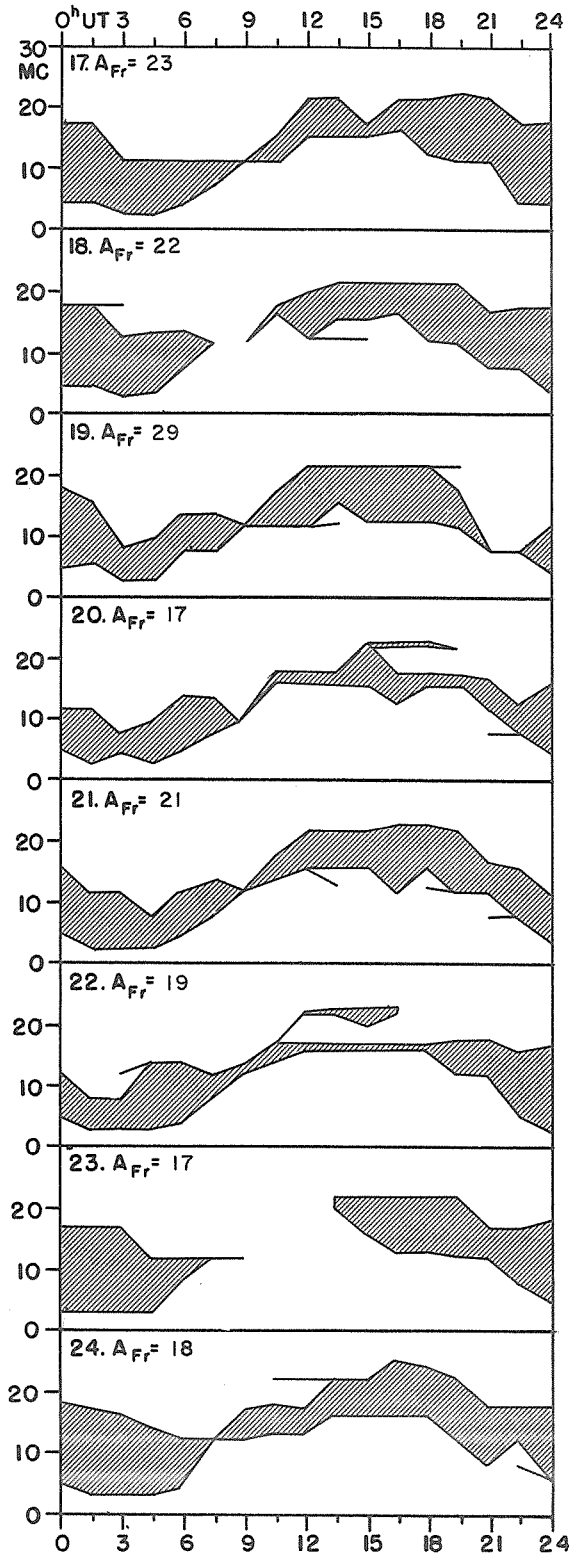
USEFUL FREQUENCY RANGES -- NORTH ATLANTIC PATH

MARCH 1958



COMMERCE - STANDARDS - BOULDER

MARCH 1958



COMMERCE - STANDARDS - BOULDER

Adapted from Observations by Deutsches Bundespost

CRPL RADIO PROPAGATION QUALITY FIGURES AND FORECASTS

NORTH PACIFIC

MARCH 1958

Mar. 1958	North Pacific 8-hourly quality figures			Short-term fore- casts issued at	Whole day index	Advance forecasts (Jp reports) for whole day; issued in advance by:			Geomag- netic K _{SI}	
	03 to 11	11 to 19	19 to 03	02 10 18		1-4 days	4-7 days	8-25 days	Half (1)	Day (2)
1	7	6	7	7 7 6	7	6	7		1	1
2	7	7	7	6 6 6	7	6	7		2	1
3	8	6	6	7 7 6	7	6	7		2	(4)
4	7	6	6	6 5 5	7	7	7		(4)	(4)
5	4	5	5	6 3 5	5	3	7		(5)	(4)
6	5	5	6	6 6 5	5	4	7		(5)	(4)
7	6	6	6	5 5 6	6	5	7		(4)	(4)
8	6	6	6	6 6 6	6	5	6		(4)	2
9	5	5	6	5 6 6	5	6	6		(4)	(4)
10	6	6	6	6 6 5	6	6	6		2	3
11	6	6	6	6 6 6	6	6	6		1	(4)
12	4	4	4	6 5 5	(4)	5	6		(7)	(4)
13	4	2	4	6 4 3	(3)	6	6		(6)	(6)
14	4	5	6	4 5 4	5	6	6		2	(4)
15	6	4	6	5 6 6	5	5	6		(4)	(4)
16	6	6	6	6 5 6	6	6	6		2	2
17	4	4	6	5 3 5	5	6	6		(5)	(4)
18	6	5	5	5 5 5	5	5	6		(4)	(4)
19	4	4	4	5 5 4	5	5	5		(4)	(6)
20	5	6	5	4 5 6	5	5	5		(4)	(4)
21	5	5	6	5 4 5	5	6	5		(4)	(4)
22	5	5	4	4 5 6	5	5	6		2	2
23	6	6	6	5 5 5	6	5	6		(4)	2
24	6	5	5	5 6 4	6	5	6		(4)	3
25	5	4	6	5 5 5	5	5	6		(5)	(4)
26	6	4	6	4 5 5	5	5	6		3	(4)
27	6	6	6	5 4 6	6	5	6		3	2
28	6	6	6	6 6 5	6	5	6		2	2
29	6	6	7	6 5 5	6	5	5		2	1
30	6	5	6	6 5 5	6	5	5		3	(4)
31	6	6	5	5 6 6	6	4	5		3	2
Score: Quiet Periods										
				P	11	9	10	11	15	
				S	13	13	15	16	12	
				U	0	1	1	1	2	
				F	1	1	1	1	0	
Disturbed Periods										
				P	1	0	1	0	0	
				S	2	5	2	1	0	
				U	0	1	0	0	0	
				F	3	1	1	1	2	

() represent disturbed values.

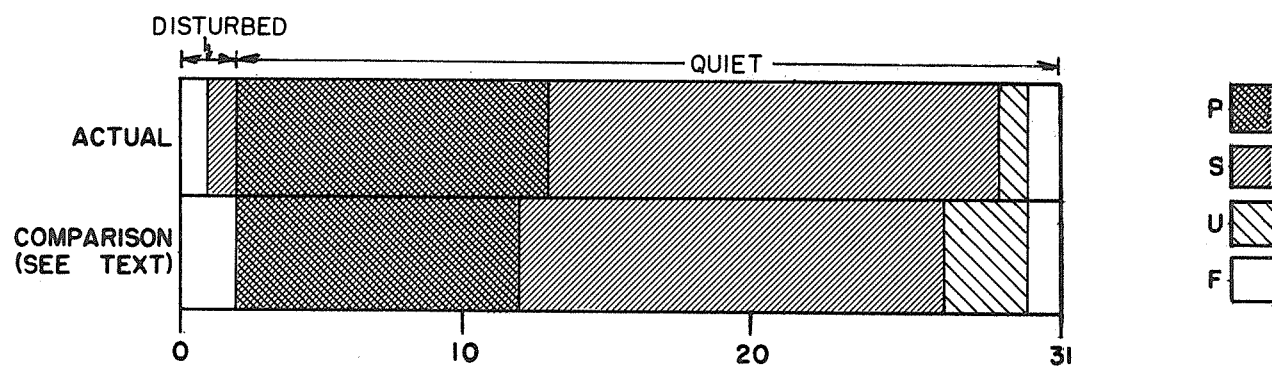
CRPL RADIO PROPAGATION QUALITY FIGURES AND FORECASTS

NORTH PACIFIC

MARCH 1958

OUTCOME OF ADVANCED FORECASTS

1 TO 4 DAYS AHEAD



COMMERCE - STANDARDS - BOULDER

ALERT PERIODS AND SPECIAL WORLD INTERVALS

Alert Issued Ends 1600 UT 1600 UT	SWI	A_{Be} On Days of Alert Period (SWI Underlined)	Number of Flares of $IMP \geq 2$ Reported Promptly on Days of Alert Period
1958			
Apr 07-Apr 10		16-11-11-09	1-0-1-1
Apr 30-May 05		23-19-08-06-09-10	1-3-2-1-0-5

COMMERCE - STANDARDS - BOULDER