PART B

SOLAR - GEOPHYSICAL DATA

ISSUED
APRIL 1959

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

CRPL-F 176
PART B

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30 April 1959

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CONTENTS

INTRODUCTION

170 Mc Observations

Data on solar radio emission at the nominal frequency of 170 Mc recorded at the Gunbarrel Hill (Boulder) station of the National Bureau of Standards (C.G. Little) are presented. The half width of the antenna lobe is appreciably greater than the solar disk. Polarization is not determined, but the dipole is oriented E-W. All times are in Universal Time (UT or GCT). Observations are interrupted during the period from 26 to 29 minutes after each hour for calibrations.

Beginning January 1, 1959 the method of reducing the records has been changed. The 3-hourly and daily flux density and variability are no longer determined. The outstanding occurrences are reported. However, instead of giving the intensity to the nearest unit of 10^{-22} watts meter^{-2}(c/s)$^{-1}$, a scale of 1 to 3 is now used where for the estimate of smoothed maximum flux:

1 signifies $<100 \times 10^{-22}$ wm^{-2}(c/s)$^{-1}$

2 signifies >100 $<1000 \times 10^{-22}$ wm^{-2}(c/s)$^{-1}$

3 signifies $>1000 \times 10^{-22}$ wm^{-2}(c/s)$^{-1}$.

Starting and maximum times are read to the nearest 1/10 minute if they are very definite and otherwise to the nearest minute. If the duration is less than five minutes, it is given to the nearest 1/10 minute; otherwise to the nearest minute. The following qualifying symbols are used:

E = Event in progress before observations began.
D = Event continues after observations cease.
I = Event apparently continued during an interruption of the observations. The period of the interruption may be given in the remarks.
S = Measurement may be influenced by interference or atmospherics.

The types of the outstanding occurrences follow the classification described by Dodson, Hedeman and Owren (Ap J. 118, 169, 1953), in which the types are identified by numbers which describe the character of the trace, but not the magnitude of the event, as follows:

0 - Rise in base level -- A temporary increase in the continuum with duration of the order of tens of minutes to an hour.

1 - Series of bursts -- Bursts or groups of bursts, occurring intermittently over an interval of time of the order of minutes or hours. Such series of bursts are assigned as distinctive events only when they occur on a smooth record or show as a distinct change in the activity.

2 - Groups of bursts -- A cluster of bursts occurring in an interval of time of the order of minutes.

3 - Minor burst -- A burst of moderate or small amplitude, and duration of the order of one or two minutes.

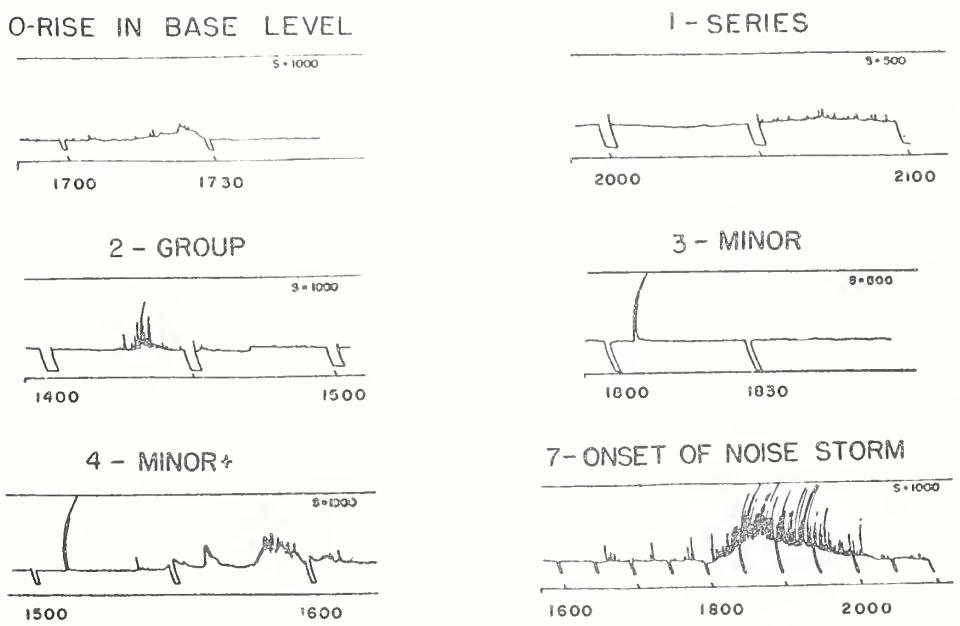
4 - Minor burst and second part -- A double rise in flux in which the early rise is a minor burst.

6 - Noise storm -- A temporary increase in radiation characterized by numerous closely spaced bursts, by an increase in the continuum, or by both. Duration is of the order of hours or days.

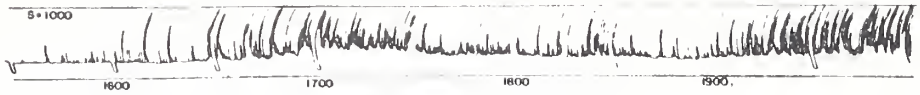
7 - Noise storm begins -- The onset of a noise storm occurs at some time during the observing period.

8 - Major burst -- An outburst, or other burst of large amplitude and more than average duration. A major burst is usually complex, with a duration of the order of one to ten minutes.

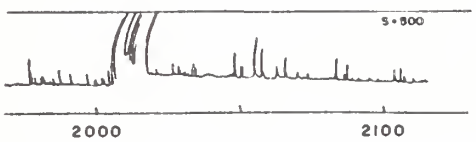
9A, 9B, or 9 -- Major burst and second part or large event without distinct first and second parts -- If there is a double rise in flux, the first part, a major burst, is listed as 9A and the second part as 9B. The second part may consist of a rise in base level, a group or series of bursts, a noise storm. A major increase in flux with duration greater than ten minutes but without distinct first and second parts, is listed simply as 9.



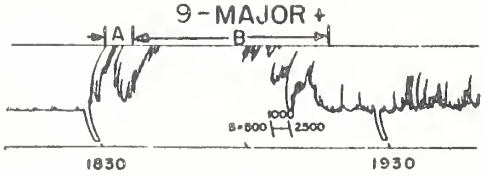
6-NOISE STORM IN PROGRESS



8-MAJOR



9-MAJOR +



Note: In the present table, the type classifications 0 and 1 are not used; they have been included above only for information.

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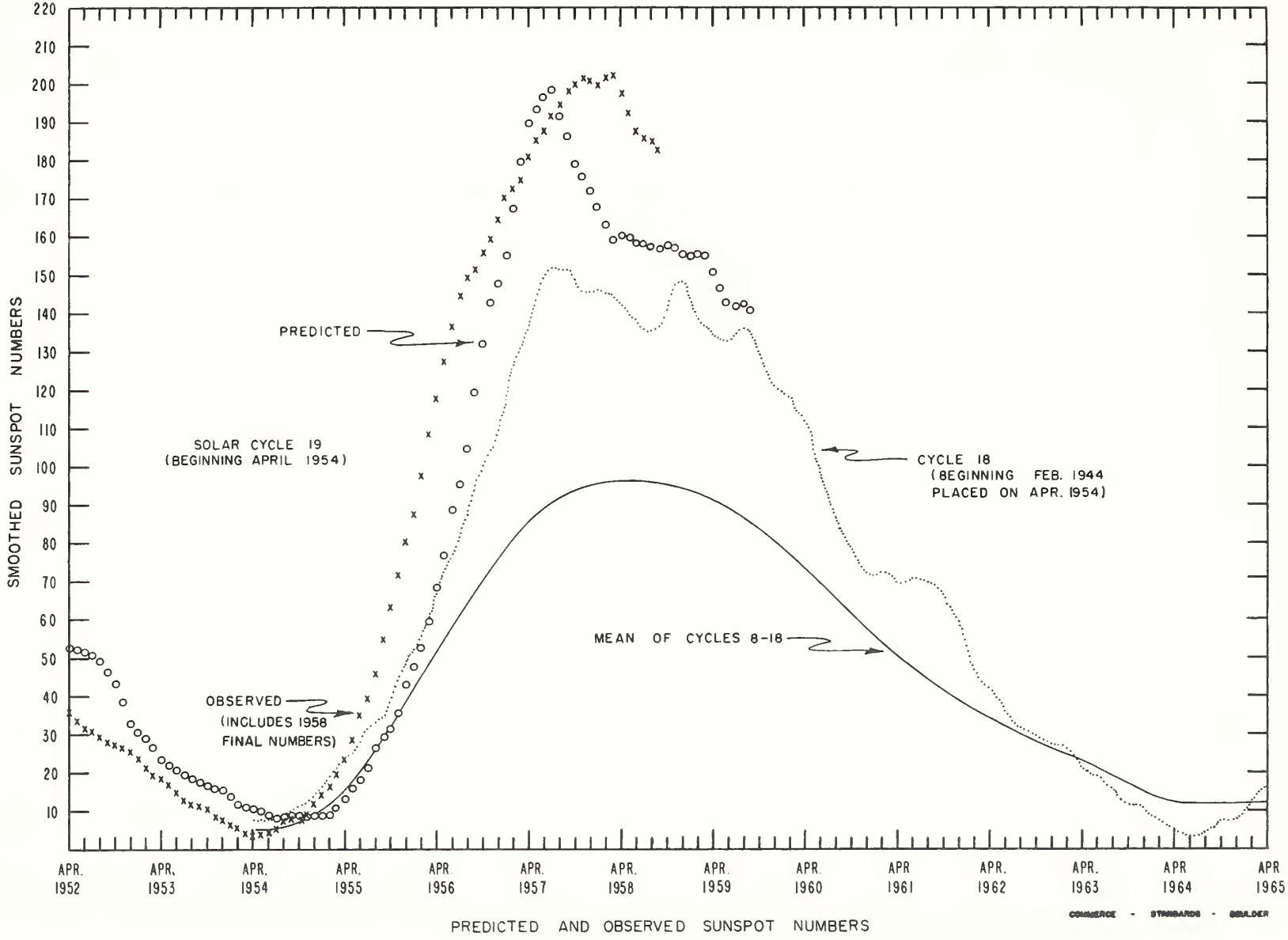
The descriptive text is published quarterly or whenever context of the report is changed. The last issue in which the text appeared was CRPL-F174 Part B issued February 1959.

DAILY SOLAR INDICES

Feb. 1959	American Relative Sunspot Numbers R_A'
1	107
2	118
3	133
4	155
5	109
6	103
7	63
8	66
9	83
10	96
11	114
12	78
13	102
14	77
15	120
16	104
17	169
18	115
19	112
20	111
21	135
22	142
23	172
24	151
25	142
26	172
27	152
28	129
Mean:	118.9

Mar. 1959	Zürich Provisional Relative Sunspot Numbers R_Z	Daily Values Solar Flux at 2800 Mc, Ottawa, Canada Flux
1	158	187
2	144	181
3	137	181
4	145	178
5	133	179
6	138	190
7	139	188
8	140	191
9	149	198
10	151	204
11	135	201
12	126	194
13	159	207
14	173	215
15	216	235
16	225	246
17	228	259
18	230	274
19	242	281
20	236	285
21	215	287
22	200	262
23	194	258
24	178	247
25	199	248
26	195	247
27	178	246
28	171	248
29	217	245
30	227	258
31	244	254
Mean:	181.4	228.2



PREDICTED AND OBSERVED SUNSPOT NUMBERS

CALCIUM PLAGE AND SUNSPOT REGIONS

MARCH 1959

CMP Mar. 1959	Lat	McMath Plage Number	Return of Region	Calcium Plage Data				Sunspot Data		
				CMP Values Area	Int.	History, Age		CMP Values Area	Count	History
0.16	S06	5031	4991	2000	3	ℓ ⌝\ d	6	60	4	ℓ ⌝\ d
02.6	S02	5040	New	300	2	b /\ d	1	20	1	b /\ d
03.2	N17	5032	4993	3000	2	ℓ — ℓ	3			
04.4	S03	5034	New	1200	2.5	ℓ ⌝\ d	1	20	1	ℓ ⌝\ d
05.3	S17	5036	New	1500	2.5	ℓ — ℓ	1	270	7	b ⌜ ℓ
05.4	N18	5035	4997	5200	3	ℓ — ℓ	4	130	2	ℓ / ℓ
06.8	N13	5037	4997	1400	2	ℓ — ℓ	4			
07.0	N08	5041	New	800	2	ℓ / ℓ	1			
07.7	S11	5039	New	1800	3.5	ℓ / ℓ	1	820	5	ℓ — ℓ
09.0	N16	5051	New	(1500)	(2.5)	b ⌜ ℓ	1	120	2	b /\ d
11.0	N25	5043	5003	4000	3	ℓ / ℓ	4	100	2	ℓ ⌝\ d
11.4	S18	5042	New	1300	2	ℓ ⌝\ d	1			
11.8	N08	5045	New	2500	3	ℓ ⌝\ d	1	120	1	ℓ ⌝\ d
12.4	S15	5044	5019	1300	2	ℓ ⌝\ d	2	120	4	ℓ ⌝\ d
13.6	N18	5046	New*	2200	2	ℓ — ℓ	1	220	2	ℓ — ℓ
15.0	N10	5048	5009	2800	2.5	ℓ — ℓ	5	290	1	ℓ — ℓ
15.2	S14	5047	New	(500)	(3)	ℓ — ℓ	1			
15.2	N23	5057	New	800	2	b / ℓ	1			
15.9	S08	5049	New	700	2	ℓ \ ℓ	1	190	1	ℓ \ ℓ
16.5	N34	5050	5012	1000	2	ℓ \ d	2			
17.6	S15	5053	5014	1000	2.5	ℓ — ℓ	7	60	2	ℓ — ℓ
18.0	N09	5052	**	8000	3	ℓ — ℓ	3	1770	14	ℓ — ℓ
18.6	N28	5054	***	8500	3	ℓ — ℓ	1	2470	10	ℓ — ℓ
18.7	S12	5055	5017	700	2	ℓ \ d	3	70	1	b /\ d
19.0	S23	5064	New	(500)	(2)	b ⌜ ℓ	1			
21.1	N17	5058	5018	9000	3	ℓ \ ℓ	4	1610	10	ℓ /\ ℓ
22.3	N29	5059	5018	1200	2.5	ℓ — ℓ	4			
24.6	N15	5060	****	4500	2.5	ℓ — ℓ	2	750	8	ℓ ⌝\ d
26.3	N22	5061	5026	3000	3	ℓ — ℓ	4	1210	6	ℓ — ℓ
26.6	S33	5065	5027	600	3	ℓ — ℓ	2	110	5	ℓ — ℓ
27.7	S08	5063	New	2500	3	ℓ — ℓ	1	610	19	ℓ /\ ℓ
28.2	N18	5070	New	800	2.5	b / ℓ	1	(270)	(21)	b / ℓ
29.2	S03	5077	New	(400)	(2)	b ⌜ ℓ	1	(80)	(2)	b ⌜ ℓ
29.3	N07	5066	New	1000	3.5	ℓ — ℓ	1	500	6	ℓ — ℓ
30.2	S03	5067	5040	1200	3	ℓ — ℓ	2			
30.3	N11	5069	5032	1200	3	b /\ d	4			
30.5	S13	5078	New	200	2	b ⌜ ℓ	1			
31.0	N23	5068	5032	5000	3	ℓ — ℓ	4	2480	5	ℓ — ℓ
31.3	N03	5079	5034	300	2	b ⌜ ℓ	2			
31.5	S04	5074	5034	200	3	b ⌜ ℓ	2			

* In position of old 5008.
** 5013 and 5016.
*** Mostly new in position of old 5015.
**** 5023 and 5025.

CORONAL LINE EMISSION INDICES

MARCH 1959

CMP March 1959	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	93	125	22	48	97	136	23	30
2	x	x	x	x	x	x	x	x	101	148	14	36	131	211	28	42
3	158	186	24	54	109	175	30	78	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	141	260	44a	107a	226	310	77a	136a
6	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
7	129	184	56	72	42	72	29	84	x	x	x	x	x	x	x	x
8	105	128	31	48	49	56	14	21	x	x	x	x	x	x	x	x
9	134	188	52	90	47	52	20	27	x	x	x	x	x	x	x	x
10	140	160	58	138	63	112	32	72	x	x	17a	30a	139	160	36a	56a
11	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
12	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
13	76	102	38	63	64	96	21	63	95	140	x	x	122	140	x	x
14	x *	x	x	x	x	x	x	x	106	138	x	x	121	131	x	x
15	94	111	31	45	98	147	47	84	x	x	x	x	x	x	x	x
16	148	209	30	48	149	172	27	54	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	184	209	69a	104a	107	129	20a	36a	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	x	x	x	x	x	x	x	x
22	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
23	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
24	137	179	43	56	41	48	15	21	x	x	x	x	x	x	x	x
25	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
26	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
27	149	197	x	x	93	122	x	x	85	154	x	x	174	239	x	x
28	164	200	x	x	107	152	x	x	50	87	x	x	140	196	x	x
29	x	x	x	x	x	x	x	x	104	166	15	24	161	223	26	31
30	x	x	x	x	x	x	x	x	120a	181a	x	x	238a	307a	x	x
31	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

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

COMMERCE - STANDARDS - BOULDER

SOLAR FLARES

MARCH 1959

OBSERVATORY	DATE MAR 1959	OBSERVED UNIVERSAL TIME START	OBSERVED UNIVERSAL TIME END	OBSERVED UNIVERSAL TIME MAX. PHASE	LOCATION APPROX. LAT.	LOCATION APPROX. MER. DIST.	LOCATION McMATH PLAGE REGION	DURATION — MINUTES	IMPORTANCE	OBS. COND.	MEASUREMENTS TIME — U T	MEASUREMENTS MEAS. AREA Sq. Deg.	MEASUREMENTS CORR. AREA Sq. Deg.	MEASUREMENTS MAX. WIDTH Hα	MEASUREMENTS MAX. INT. %	PROVISIONAL IONOSPHERIC EFFECT
CAPRI-S	01	0752	0804 D		N14	E50	5035	12 D	1	1	0759	1.50	2.50			
WENDEL	01	0752	0825 D		N15	E50	5035	33 D	1&				5.00			
WENDEL	01	0835	0841		N24	W33	5026	6	1				3.00			
ZURICH	01	1015 E	1025		N21	W35	5026	10 D	1	3	1015		1.00			
CAPRI-G	01	1258 E	1325 D		N20	W38	5026	27 D	1	3	1300		4.00			
CAPRI-G	01	1612 E	1622 D		N24	W38	5026	10 D	1	3	1615		4.00			
SAC PEAK	01	1812	1845	1821	N32	E90	5051	33	2	2		5.30			18	
SAC PEAK	01	2257	2307 D	2302	N13	E40	5035	10	1	2		2.50			20	
HAWAII	01	2300 E	2318	2300	N17	E38	5035	18 D	1&	2	2300	3.70	5.20			
WENDEL	02	0730 E	0830 D		N22	W50	5026	60 D	1&				5.00			
CAPRI-G	02	0735 E	0752 D		N21	W50	5026	17 D	2	1	0737		7.00			
WENDEL	02	0741 E	0759 D		N26	W43	5026	18 D	1				3.00			
LOCARNO	02	0745 E	0840		N20	W50	5026	55 D	2	2	0745		2.00			
CAPRI-S	02	0753 E	0852 D		N19	W44	5026	59 D	1	2	0757	2.50	5.00			
LOCARNO	02	0745 E	0815		S06	W04	5031	30 D	1	2	0745					
CAPRI-S	02	0801 E	0822 D		S07	W11	5031	21 D	1	2	0807	4.00	4.00			
WENDEL	02	0758 E	0834		N05	W04	5040	36 D	1				3.00			
WENDEL	02	0841	0900 D		N17	W75	5023	19 D	1				3.00			
WENDEL	02	0930 E	0936 D		N23	W46	5026	6 D	1				3.00			
LOCARNO	02	1010 E	1030		N21	E90	5043	20 D	1&	2	1010					
CAPRI-S	02	1030 E	1046 D		S20	E38	5036	16 D	1	2	1041	3.00	4.20			
WENDEL	02	1034	1046 D		N18	E35	5035	12 D	1				4.00			
WENDEL	02	1052	1100 D		N23	W47	5026	8 D	1				3.00			
CAPRI-G	02	1110 E	1138		S12	E68	5039	28 D	1	1	1112		3.00			
WENDEL	02	1254	1305		N26	W49	5026	11	1				3.00			
ARCETRI	02	1421 E	1447 D		S10	E66	5039	26	1	3	1447	2.20	5.10			
CAPRI-G	02	1545 E	1604 D		N26	W50	5026	19 D	1	2	1547		3.00			
CAPRI-G	02	1555 E	1604 D		S18	E35	5036	9 D	1	2	1556		2.00			
SAC PEAK	02	1637	1732	1652	S19	E34	5036	55	1	2		3.50			20	Slow S-SWF
MCMATH	02	1641 E	1727		S19	E33	5036	46 D	1	1	1654		2.15			
MCMATH	02	1851	1902 D		N22	W55	5026	11 D	1	1	1900		2.30			
CLIMAX	02	2317	2329	2319	N26	W56	5026	12	1		2319	2.10				S-SWF
HAWAII	02	2318	2334	2320	N23	W58	5026	16	1	3	2320	3.30	7.60			
WENDEL	03	0800 E	0928		S12	E56	5039	88 D	1&				5.00			
ARCETRI	03	0832 E	0853 D		S10	E56	5039	21	1	3	0851	2.00	3.50			
ARCETRI	03	0921 E			S10	E56	5039		1	1						
WENDEL	03	0902	0926	0906	N26	W57	5026	24	1				3.00			S-SWF
WENDEL	03	1012 E	1204 D		S10	E56	5039	112 D	1&				6.00			
WENDEL	03	1035	1115 D		N12	E20	5035	40 D	1&				5.00			
UCCLE	03	1147	1152		S19	E12	5036	15	1	1	1148	4.00				
CAPRI-S	03	1306 E	1313 D		S10	E53	5039	7 D	1	2	1309	2.00	3.40			
CAPRI-G	03	1432 E	1442 D		S16	E19	5036	10 D	1	2	1434		3.00			
MCMATH	03	1455 E	1540 D		N20	W70	5026	45 D	1	1	1455		2.00			
CAPRI-G	03	1545 E	1552 D		S11	E51	5039	7 D	1&	2	1550		5.00			
CAPRI-S	03	1545 E	1553 D		S10	E52	5039	8 D	1	2	1547	2.50	4.30			
SAC PEAK	03	1545	1555	1547	S11	E50	5039	10	1	3		3.40			17	
NIZAMIAH	04	0317	0330	0321	S13	E42	5039	13	1	2	0321	1.82	2.73	1.80		
NIZAMIAH	04	0345 E	0357		N22	W85	5026	12 D	2	2	0345	1.52	12.39	2.00		S-SWF
CAPRI-S	04	0715 E	0730 D		S09	E41	5039	15 D	1	2	0718	2.50	3.30			
CAPRI-S	04	0948 E	1010 D		S18	E10	5036	22 D	1	2	0952	3.50	3.50			

SOLAR FLARES

MARCH 1959

OBSERVATORY	DATE MAR 1959	OBSERVED UNIVERSAL TIME START	END	MAX. PHASE	LOCATION APPROX. LAT.	MER. DIST.	McMATH PLAGE REGION	DURATION — MINUTES	IMPORTANCE	OBS. COND.	MEASUREMENTS TIME — U T	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Ha	MAX. INT. %	PROVISIONAL IONOSPHERIC EFFECT
CAPRI-G	04	1004 E	1050 D	1045	S16	E09	5036	46 D	1&	2	1045		6.00			
CAPRI-G	04	1004 E	1050 D		S11	E40	5039	46 D	1	2	1005		2.00			
HAWAII	04	2346	0006	2350	S09	E34	5039	20	1	3	2350	2.10	2.50			
CAPRI-G	05	0945 E	0955 D		S17	W00	5036	10 D	1	3	0946		3.00			
CAPRI-G	05	0950 E	0955 D		S10	E26	5039	5 D	1	3	0951		3.00			
CAPRI-G	05	1215 E	1310 D		S10	E26	5039	55 D	1	3	1217		4.00			
CAPRI-G	05	1240 E	1257 D		N22	W90	5026	17 D	2	2						
CAPRI-G	05	1345 E	1402 D		N22	W90	5026	17 D	2	2						
UCCLE	05	1436	1438 D		S18	W15	5036	2 D	1	5	1438	4.00				
SAC PEAK	05	1525	1547	1530	N23	W90	5026	22	1	2		2.10			35	S-SWF
CAPRI-G	05	1526 E	1557 D		N16	W90	5026	31 D	1&	2						
CAPRI-S	06	0754 E	0808 D		N19	E57	5043	14 D	1	3	0756	2.50	5.00			
CAPRI-G	06	1008 E	1012 D		N17	W90	5026	4 D	1	2						
CAPRI-G	06	1148 E	1207 D		N09	E69	5045	19 D	1	2	1150		3.00			
CAPRI-S	06	1225 E	1416 D		N11	W21	5035	111 D	2	1	1325	5.00	5.50			
KANZELHOHE	06	1245 E			N15	W18	5035		2							
CAPRI-G	06	1312 E	1325 D		N13	W22	5035	13 D	2	1	1316		8.00			
UCCLE	06	1340 E	1350		N14	W20	5035	10 D	2							
UCCLE	06	1342 E			N15	W23	5035		2	5	1342	7.00				
CAPRI-G	06	1400 E	1405 D		N17	W90	5026	5 D	1	1						
SAC PEAK	07	1723 U	1750 U	1730	N01	E90	5049	27 D	2	3		8.10			20	Slow S-SWF
SAC PEAK	07	1733	1750	1737	S01	E90	5049	17	1&	3		2.60			25	
SAC PEAK	07	1733	1748 U	1740	N13	E90	5048	15	1&	3		2.10			17	
CAPRI-G	08	0921 E	0930 D		N22	W45	5035	9 D	1	3	0922		3.00			
CAPRI-G	08	1045 E	1055 D		S17	W34	5036	10 D	1	3	1054		4.00			
LOCARNO	08	1050	1112	1056	S18	W33	5036	22	1&	2			2.00			
CAPRI-G	08	1106 E	1112 D		N14	W41	5035	6 D	1	3	1110		3.00			
CAPRI-S	08	1151 E	1205 D		N22	E23	5043	14 D	1	3	1153	2.50	3.00			
CAPRI-G	08	1157 E	1212 D		N24	E25	5043	15 D	1	3	1200		3.00			
CAPRI-S	08	1547 E	1603 D		N09	W70	5032	16 D	1	1	1554	1.00	3.70			
SAC PEAK	08	2107	2130	2122	N12	E90	5048	23	1&	2		4.90			18	
WENDEL	09	0805	0818 D		N06	E42	5045	13 D	1				4.00			
WENDEL	09	0825 E	0849 D		N08	W23	5041	24 D	1				4.00			
CAPRI-G	09	0828 E	0915 D		N09	W24	5041	47 D	1	3	0830		2.00			
CAPRI-G	09	0842 E	0915 D		N16	W44	5035	33 D	1	3	0845		2.00			
CAPRI-G	09	0945 E	0958 D		N12	W56	5035	13 D	1	3	0955		4.00			
WENDEL	09	0947 E	1013		N12	W55	5035	26 D	1				4.00			
CAPRI-G	09	1135 E	1152 D		N16	W50	5035	17 D	1	3	1139		3.00			
WENDEL	09	1140 E	1201		N16	W50	5035	21 D	1				3.00			
CAPRI-G	09	1205 E	1225 D		N12	W57	5035	20 D	1&	2	1207		5.00			
CAPRI-S	09	1210 E	1230 D		N12	W54	5035	20 D	1	3	1212	2.00	3.80			
ZURICH	09	1302 E	1310		S12	W35	5039	8 D	1	2	1302		2.00			
SAC PEAK	09	1715	1757	1728 U	N15	W67	5035	42	2	2		5.80			18	Slow S-SWF
SAC PEAK	09	1800	1842	1810	N19	W57	5035	42	1&	2		4.80			17	
WENDEL	10	1006 E	1122 D		N24	W70	5035	76 D	2				10.00			
WENDEL	10	1010 E	1032 D		N13	W69	5035	22 D	1				4.00			
UCCLE	10	1450	1510		S08	W47	5039	20	1	2	1455	3.50				

SOLAR FLARES

MARCH 1959

OBSERVATORY	DATE MAR 1959	OBSERVED UNIVERSAL TIME START	OBSERVED UNIVERSAL TIME END	OBSERVED UNIVERSAL TIME MAX. PHASE	LOCATION APPROX. LAT.	LOCATION APPROX. MER. DIST.	LOCATION McMATH PLAGE REGION	DURATION — MINUTES	IMPORTANCE	OBS. COND.	MEASUREMENTS TIME — U T	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hα	MAX. INT. %	PROVISIONAL IONOSPHERIC EFFECT
UCCLE	10	1518	1530	1521	N26	E03	5043	12	1&	2	1521	4.00				
SAC PEAK	10	1737	1810	1745	S08	W51	5039	33	1	1		3.20			17	
MCMATH	10	1738	1758	1740	S06	W52	5039	20	1	1	1740		2.25			
UCCLE	11	1048	1120		N09	W85	5035	32	1	4						
CAPRI-G	11	1109 E	1113		N15	W74	5035	4 D	1	3	1110		3.00			
CAPRI-G	11	1109 E	1117 D		N13	E90	5052	8 D	1	3	1110					
UCCLE	11	1130	1135 D	1135	S17	W82	5036	5 D	1&	2	1135	3.00	6.00			
CAPRI-G	11	1135 E	1155 D		S16	W77	5036	20 D	1	3	1135		4.00			Slow S-SWF
CAPRI-S	11	1137 E	1152 D		S19	W66	5036	15 D	1	2	1142	1.50	5.00			
CAPRI-G	11	1402 E	1415 D		S05	E60	5039	13 D	1	3	1404		2.00			
CAPRI-G	11	1402 E	1445 D		N22	E90	5054	43 D	1	3	1404					S-SWF
STOCKHOLM	11	1413 E	1420 D		N26	E90	5054	7 D	1	3	1418	2.00				
ZURICH	11	1411 E	1413 D		N16	W74	5035	2 D	1	2	1411		1.00			
SAC PEAK	11	1810	1845	1815	N12	E80	5052	35	2	2		5.80			20	S-SWF
HAWAII	11	1810	1846	1814	N16	E88	5052	36	1	3	1814	3.40				
STOCKHOLM	12	0913 E	0938		S11	W69	5039	25 D	1	3	0926	1.50	3.30			G-SWF
MITAKA	13	0021 E	0035	0026	N11	E56	5052	14 D	1	1	0025	1.10	2.10	4.38	165	Slow S-SWF
LOCARNO	13	0800 E	0815		N13	E53	5052	15 D	1	3	0800		2.00			
LOCARNO	13	1210 E	1240		N12	W26	5045	30 D	1&	3	1210		2.00			
SAC PEAK	13	1500	1540	1510	N23	E65	5054	40	1	2		2.10			14	
LOCARNO	13	1550	1615 D		N11	E57	5052	25 D	1&	3	1610		3.00			
MCMATH	13	1550	1625	1608	N12	E55	5052	35	1	2	1608		2.50			
MITAKA	14	0018 E	0039		N10	E47	5052	21 D	1	1	0024	.41	.64		107	Slow S-SWF
HAWAII	14	0020 E	0038 D		N13	E48	5052	18 D	1	2	0022	3.30	5.50			
MITAKA	14	0030 E	0052		N24	E56	5054	22 D	1&	1	0037	1.92	4.19	4.35	227	
CAPRI-G	14	1055 E	1125 D		N14	E47	5052	30 D	1	1	1103		3.00			
CAPRI-G	14	1243 E	1325 D		N26	E52	5054	42 D	1	2	1245		3.00			
CAPRI-S	14	1359 E	1434 D		N28	E65	5054	35 D	1	2	1404	2.00	5.20			
LOCARNO	14	1405	1430 D		N24	E58	5054	25 D	1&	3	1430		3.00			
CAPRI-G	14	1409 E	1432 D		N28	E65	5054	23 D	1	3	1413		4.00			
CAPRI-G	14	1440 E	1500 D		N13	E44	5052	20 D	1	3	1442		4.00			
CAPRI-G	14	1540 E	1556 D		S16	E45	5053	15 D	1	1	1555		3.00			
HAWAII	15	0102	0140	0107	N07	W52	5045	38	1&	2	0107	4.50	7.50			
MITAKA	15	0104 E	0117 D		N10	W49	5045	13 D	1	1	0107	2.67	4.25	2.71	149	
WENDEL	15	0750	0816		S12	W04	5049	26	1				4.00			
CAPRI-G	15	0757 E	0812		S13	W03	5049	15 D	1	3	0800		3.00			
CAPRI-G	15	0904 E	0910 D		N27	E35	5054	6 D	1	3	0906		4.00			
CAPRI-G	15	0904 E	0935 D		N11	W01	5048	31 D	1	3	0906		4.00			
WENDEL	15	0912	0938		N17	E04	5048	26	1&				6.00			
CAPRI-G	15	1137 E	1240 D		N26	E37	5054	63 D	1&	3	1154		7.00			
WENDEL	15	1139 E	1145 D		N30	E48	5054	6 D	1&				7.00			
WENDEL	15	1215	1300		N31	E50	5054	45	2				9.00			
CAPRI-S	15	1216 E	1244 D		N32	E47	5054	28 D	1	3	1217	2.00	3.80			
CAPRI-G	15	1223	1251 D		N12	E31	5052	28 D	1	3	1230		4.00			Slow S-SWF
WENDEL	15	1225	1244		N09	E30	5052	19	1&				6.00			
HAWAII	15	1902	1930	1904	N12	E24	5052	28	1	3	1904	2.30	2.60			
MITAKA	16	0017 E	0020		N28	E37	5054	3 D	1	1	0017	.89	1.39	3.44	120	

SOLAR FLARES

MARCH 1959

OBSERVATORY	DATE MAR 1959	OBSERVED UNIVERSAL TIME START	END	MAX. PHASE	LOCATION APPROX. LAT.	MER. DIST.	McMATH PLAGE REGION	DURATION — MINUTES	IMPORTANCE	OBS. COND.	MEASUREMENTS TIME — U T	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hα	MAX. INT. %	PROVISIONAL IONOSPHERIC EFFECT
MITAKA	16	0024	0043		N27	E35	5054	19	1&	1	0031	3.20	5.18	2.54	134	
MITAKA	16	0034	0038		N28	E23	5054	4	1	1	0034	.59	.83		96	
MITAKA	16	0050	0100		N27	E35	5054	10	1&	1	0050	3.12	5.05	4.29	183	S-SWF
HAWAII	16	0050	0144 D	0052	N30	E33	5054	54 D	1&	3	0052	4.70	7.20			
NIZAMIAH	16	0307	0320	0312	N28	E21	5054	13	1	1	0312	1.82	2.35	2.10		
MITAKA	16	0319 E	0326		N24	E22	5054	7 D	1	1	0319	1.34	1.77	2.33	107	
MITAKA	16	0319 E	0329		N27	E34	5054	10 D	1&	1	0319	3.80	6.16	2.55	115	
MITAKA	16	0353	0424	0401	N26	E30	5054	31	1&	1	0403	3.28	5.31	4.04	143	Slow S-SWF
NIZAMIAH	16	0357	0423	0408	N31	E30	5054	26	1&	1	0408	3.04	4.42	2.30		
KODAIKNL	16	0402 E	0412		N11	E20	5052	10 D	2	2	0402	5.50	8.20	2.00	118	
CAPRI-G	16	0841	0953	0916	N11	E16	5052	72	2	3	0916		9.00			
CAPRI-S	16	0844 E	0954 D		N08	E18	5052	70 D	1	2	0922	4.00	4.20			
ARCETRI	16	0918 E	0924 D		N11	E17	5052	6	2	4	0918	5.00	5.40			S-SWF
ARCETRI	16	0918	0925 D		N11	E17	5052	7 D	2							
R O HERST	16	0924 E	0950	0927 U	N10	E17	5052	26 D	1	2	0928	1.30	1.40	2.69	86	
ARCETRI	16	0925 E	0952 D		N11	E17	5052	27	2	4						
KODAIKNL	16	0926 E	0937		N29	E37	5054	11 D	2	1	0926	4.80	5.18	2.00	118	
CAPRI-G	16	1007 E	1102 D		N29	E24	5054	55 D	1	3	1015		3.00			
CAPRI-G	16	1118 E	1142 D		N27	E22	5054	24 D	1	3	1121		3.00			
CAPRI-G	16	1119	1142 D		S13	W15	5049	23 D	1	3	1123		3.00			
CAPRI-G	16	1202 E	1250 D		N14	E55	5058	48 D	1	3	1214		3.00			
CAPRI-S	16	1206 E	1258 D		N12	E51	5058	52 D	1	2	1236	2.00	3.50			
CAPRI-G	16	1226 E	1250 D		N27	E22	5054	24 D	1	1	1228		3.00			
CAPRI-G	16	1414 E	1430 D		N27	E29	5054	16 D	1	1	1415		4.00			
MCMATH	16	1625	1650	1629	N28	E27	5054	25	1	2	1629		2.00			S-SWF
UCCLE	16	1632	1640	1633	N29	E26	5054	8	1	5						
UCCLE	16	1703	1708 D		N10	E13	5052	5 D	1&	3	1708	4.00				
HAWAII	16	2236	2250	2238	N12	E08	5052	14	1	3	2238	2.50	2.70			
HAWAII	17	0132	0148	0134	N28	E12	5054	16	1	3	0134	3.30	4.10			S-SWF
WENDEL	17	0657 E	0804		N28	E21	5054	67 D	2				9.00			Slow S-SWF
WENDEL	17	0940	0958 D		N24	E12	5054	18 D	1&				5.00			
WENDEL	17	1000	1011		N25	E16	5054	11	1&				5.00			
ZURICH	17	1005 E	1011		N27	E15	5054	6 D	1	2	1005		2.00			
CAPRI-G	17	1010 E	1022 D		N27	E11	5054	12 D	1	1	1012		4.00			
WENDEL	17	1155 E	1221		N27	E06	5054	26 D	1&				6.00			
CAPRI-G	17	1122 E	1127 D		N17	E90	5060	5 D	1	1	1123					
WENDEL	17	1157	1208		N10	W01	5052	11	1				3.00			
ZURICH	17	1210	1234		N27	E05	5054	24	1&	2	1220		4.00			
STOCKHOLM	17	1213	1233		N26	E10	5054	20 D	1	3	1217	3.00	3.60			
LOCARNO	17	1215 E	1240		N26	E08	5054	25 D	2	2	1215		9.00			
CAPRI-G	17	1227 E	1240 D		N25	E07	5054	13 D	1	1	1230		3.00			
ZURICH	17	1225 E	1228		N19	E53	5058	3 D	1	2	1225		3.00			
CAPRI-G	17	1317 E	1320 D		N18	E48	5058	3 D	1	1	1320		3.00			
WENDEL	17	1431	1506 D		N12	W01	5052	35 D	1				3.00			
ZURICH	17	1432	1510 D		N11	W00	5052	38 D	1	2	1432		2.00			
CAPRI-G	17	1455 E	1525 D		N12	E02	5052	30 D	1	1	1501		4.00			
ZURICH	17	1445	1510 D		N27	E12	5054	25 D	1	2	1445		3.00			
WENDEL	17	1447	1510		N27	E10	5054	23	1				3.00			
CAPRI-S	17	1452 E	1609 D		N25	E05	5054	77 D	1	1	1559	3.00	3.30			
CAPRI-G	17	1455 E	1525 D		N25	E10	5054	30 D	1	1	1457		3.00			
CAPRI-G	17	1510 E	1525 D		N16	E50	5058	15 D	1	1	1512		4.00			
SAC PEAK	17	1542	1602	1557	N26	E04	5054	70	1	2		2.10			17	

SOLAR FLARES

MARCH 1959

OBSERVATORY	DATE MAR 1959	OBSERVED UNIVERSAL TIME START	END	MAX. PHASE	LOCATION APPROX. LAT.	MER. DIST.	McMATH PLAGE REGION	DURATION — MINUTES	IMPORTANCE	OBS. COND.	MEASUREMENTS TIME — U T	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Ha	MAX. INT. %	PROVISIONAL IONOSPHERIC EFFECT
CAPRI-G	17	1543	1550 D		N27	E07	5054	7 D	1	1	1545		4.00			
WENDEL	17	1544 E	1603 D		N26	E06	5054	19 D	1&				7.00			
ZURICH	17	1555 E	1604 D		N27	E03	5054	9 D	1	1	1555		4.00			
NIZAMIAH	18	0303	0318	0308	N30	E13	5054	15	1	2	0308	1.82	2.32	1.80		
MITAKA	18	0628 E	0654	0633	N28	E07	5054	26 D	2&	1	0634	5.67	6.86	2.64	227	S-SWF
WENDEL	18	0655 E	0725		N25	E05	5054	30 D	1				4.00			
WENDEL	18	0715	0728		N17	E28	5058	13	1				3.00			
WENDEL	18	0755	0805 D		N30	E06	5054	10 D	1				4.00			
UCCLE	18	1048	1055		N21	E30	5058	7	1	4						
LOCARNO	18	1340 E	1345 D		N25	W05	5054	5 D	2	4						S-SWF
ZURICH	18	1535	1551 D		N25	W01	5054	16 D	1	1	1535		5.00			
SAC PEAK	18	1535	1555	1542	N25	W05	5054	20	1	2		2.60			18	G-SWF
MCMATH	18	1535	1615	1541	N26	W00	5054	40	1	1	1541		2.50			
MCMATH	18	1807	1828	1810	N13	E36	5058	21	1	2	1810		2.50			
SAC PEAK	18	1807 E	1832	1812 U	N13	E36	5058	25 D	1	2		2.70			17	
CLIMAX	18	1807	1834	1811	N17	E42	5058	27	1		1811	2.40				
HAWAII	18	1808	1816 D	1812	N16	E35	5058	8 D	1	3	1812	2.90	3.80			
MCMATH	18	1834	2050 D	1839	N27	E02	5054	136 D	1	2	1839		2.10			
SAC PEAK	18	1842	19.5	1902	N30	E05	5054	33	1	2		2.30			15	
MCMATH	18	2057	2121	2058	N08	W04	5052	24	1	2	2058		2.10			
MCMATH	18	2057	2129 D		N28	E01	5054	32 D	1	2	2119		2.20			
SAC PEAK	18	2215	2235	2220	N11	W17	5052	20	1	2		3.20			17	
HAWAII	18	2218	2234	2219	N10	W17	5052	16	1	3	2219	3.30	3.60			
MITAKA	19	0104	0112	0107	N28	W12	5054	8	1	1	0105	.89	1.11	3.27	98	
MITAKA	19	0228	0245		N28	W15	5054	17	1	1	0237	.89	1.11	1.62	100	
MITAKA	19	0244	0309	0244	N28	W01	5054	25	1	1	0245	.30	.37	2.01	143	
NIZAMIAH	19	0514	0521	0516	N25	W10	5054	7	1	1	0516	1.82	2.19	1.50		
MITAKA	19	0515 E	0533		N25	W12	5054	18 D	1	1	0520	1.48	1.76	3.01	149	
MITAKA	19	0537	0553 D	0543	N25	W12	5054	16 D	1	1	0541	2.21	2.67	3.31	120	
NIZAMIAH	19	0544 E	0555	0547	N26	W10	5054	11 D	1	1	0547	3.65	4.38	1.90		
WENDEL	19	0732 E	0810 D		N28	E38	5059	38 D	1&				6.00			
WENDEL	19	0836 E	0847 D		N25	W10	5054	11 D	1				3.00			
CAPRI-S	19	0833 E	0925 D		N15	E14	5058	52 D	2	3	0845	5.00	5.50			
WENDEL	19	0836 E	0910		N15	E15	5058	34 D	1&				6.00			
CAPRI-G	19	0842 E	0855 D		N14	E13	5058	13 D	1&	3	0845		6.00			
WENDEL	19	0915 E	0928 D		N12	W17	5052	13 D	1				3.00			
WENDEL	19	0900	0913		N25	W06	5054	13	1&				8.00			
CAPRI-S	19	0902 E	0935 D		N25	W07	5054	33 D	1	3	0905	3.00	3.30			
WENDEL	19	0906	0928 D		N29	W05	5054	22 D	1				3.00			
CAPRI-G	19	0935 E	0957 D		N29	W10	5054	22 D	1	3	0936		3.00			
WENDEL	19	1027 E	1118		N27	W17	5054	51 D	1&				7.00			
ZURICH	19	1035	1112		N28	W20	5054	37	1&	3	1055		5.00			
UCCLE	19	1036	1130	1043	N27	W18	5054	54	2	4	1043	6.00	6.30			
STOCKHOLM	19	1038	1109		N26	W16	5054	31	2	3	1056	5.00	6.50			
ONDREJOV	19	1038	1115		N29	W17	5054	37	3							S-SWF
CAPRI-S	19	1039 E	1130 D		N28	W10	5054	51 D	2	3	1057	7.00	8.00			
CAPRI-G	19	1044 E	1205 D		N24	W10	5054	81 D	2	3	1047		8.00			
UCCLE	19	1050 E	1120		N26	W15	5054	30 D	2&							
WENDEL	19	1106	1122		N29	W06	5054	16	1				3.00			
ZURICH	19	1107	1118		N29	W10	5054	11	1	3	1107		3.00			
CAPRI-G	19	1151 E	1207 D		N13	W19	5052	16 D	1	3	1155		3.00			

SOLAR FLARES

MARCH 1959

OBSERVATORY	DATE MAR 1959	OBSERVED UNIVERSAL TIME START	END	MAX. PHASE	LOCATION APPROX. LAT.	MER. DIST.	McMATH PLAGE REGION	DURATION — MINUTES	IMPORTANCE	OBS. COND.	MEASUREMENTS TIME — U T	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Ha	MAX. INT. %	PROVISIONAL IONOSPHERIC EFFECT
CAPRI-G	19	1357 E	1405 D		N12	W17	5052	8 D	1	3	1400		3.00			
ZURICH	19	1400 E	1422 D		N12	W22	5052	22	1	2	1400		2.00			
CAPRI-S	19	1427	1443 D		N26	W19	5054	16 D	1	3	1429	2.00	2.40			
ONDREJOV	19	1428	1435		N28	W15	5054	7	2							S-SWF
ZURICH	19	1428	1440 D		N29	W18	5054	12 D	1	2	1428		3.00			
CAPRI-G	19	1430 E	1437 D		N29	W13	5054	7 D	1	3	1434		3.00			
MCMATH	19	1435	1458	1445	N12	W14	5052	23	1	2	1445		2.00			
ZURICH	19	1445 E	1500 D		N11	W27	5052	15 D	1	2	1445		1.00			
ZURICH	19	1453	1457		N25	W18	5052	4	1	2	1453		1.00			
MCMATH	19	1605	1710	1625	N26	W16	5054	65	1	3	1625		2.50			
NIZAMIAH	20	0429	0524	0503	N13	E54	5060	55	2	3	0503	3.04	5.61	2.60		
MITAKA	20	0440 E	0535	0446	N14	E58	5060	55 D	1&	1	0445	3.20	7.23	4.35	149	
ARCETRI	20	0956 E			S35	E81	5062		1	3	0956	.70	4.00			
ARCETRI	20	1121 E	1140 D		N10	W40	5052	19	1	2						
ARCETRI	20	1128 E	1140 D		N17	W34	5052	12	1	2						
CAPRI-G	20	1217 E	1240 D		N11	W36	5052	23 D	1	3	1219		3.00			
ZURICH	20	1415	1427 D		N16	W03	5058	12 D	1	3	1415		1.00			
CAPRI-G	20	1417 E	1432 D		N14	W02	5058	15 D	1	3	1425		3.00			
ZURICH	20	1502	1504		N08	W40	5052	2	1	3	1502		1.00			
CAPRI-G	20	1506 E	1525 D		N16	E10	5058	19 D	1	3	1508		3.00			
CAPRI-G	20	1527 E	1535 D		N28	W27	5054	8 D	1	3	1530		3.00			
SAC PEAK	20	1532	1655	1540	N16	E43	5060	83	1	2		2.90			24	
CAPRI-G	20	1533 E	1605 D	1540	N19	E45	5060	32 D	2	2	1540		6.00			
WENDEL	20	1536	1619 D		N17	E45	5060	43 D	2				9.00			
CAPRI-S	20	1537 E	1619 D		N15	E45	5060	42 D	2	3	1539	4.00	6.00			
ZURICH	20	1550 E	1617 D		N16	E47	5060	27 D	2	1	1550		7.00			
MCMATH	20	1552 E			N17	E47	5060		1	1	1552		2.20			
CLIMAX	20	2237	2250	2241	N28	W39	5054	13	1		2241	2.10				S-SWF
HAWAII	20	2238	2249	2240	N27	W40	5054	11	1	3	2240	2.30	3.80			
MITAKA	20	2356 E	2403		N27	W33	5054	7 D	1	1	2356	1.30	2.94	2.32	120	
SYDNEY	21	0155	0250	0220	N10	W37	5052	55	2							
MITAKA	21	0158	0245	0205	N12	W33	5052	47	2&	1	0213	9.38	11.70	2.44	222	S-SWF
KODAIKNL	21	0200 E	0235		N12	W36	5052	35 D	2	2	0200	6.50	8.50	1.80	106	
MITAKA	21	0337	0345		N26	W34	5054	8	1	1	0342	.41	.53	2.11	96	
NIZAMIAH	21	0538 E	0555		N16	W01	5058	17 D	1	1	0538	2.43	2.63	1.50		
CAPRI-G	21	0732 E	0755 D		N13	W45	5052	23 D	1	3	0734		4.00			
CAPRI-G	21	0749 E	0755 D		N17	E29	5060	6 D	1	3	0751		2.00			
CAPRI-G	21	0818 E	0822 D		N20	W09	5058	4 D	1	3	0820		2.00			
ZURICH	21	0817 E	0825 D		N26	W44	5054	8 D	1	3	0817		3.00			
CAPRI-S	21	0820 E	0829 D		N25	W42	5054	9 D	1	3	0822	2.00	3.50			
WENDEL	21	0822	0833		N27	W35	5054	11	1				4.00			
CAPRI-G	21	0825 E	0837 D		N28	W35	5054	12 D	1	3	0827		4.00			
CAPRI-G	21	0845 E	0855 D		N19	E39	5060	10 D	1	3	0847		4.00			
LOCARNO	21	0900 E	0930 D		N13	W45	5052	30 D	2-	2	0900		7.00			
CAPRI-G	21	0903 E	1127 D		N14	W44	5052	144 D	2	3	0905		8.00			
WENDEL	21	0905	0941 D		N15	W43	5052	36 D	2				10.00			
ZURICH	21	0907 E	0942 D		N15	W44	5052	35 D	1	3	0907		6.00			S-SWF
ONDREJOV	21	0907 E	1009 D	0913	N13	W46	5052	62 D	2							
LOCARNO	21	0908	0930 D		N14	W35	5052	22 D	1&	2	0930		2.00			
UCCLE	21	0910 E			N13	W52	5052		2							
SCHAUINS	21	0910 E	1023 D		N13	W40	5052	73 D	2							

SOLAR FLARES

MARCH 1959

OBSERVATORY	DATE	OBSERVED UNIVERSAL TIME			LOCATION			DURATION	IMPORTANCE	OBS. COND.	MEASUREMENTS					PROVISIONAL IONOSPHERIC EFFECT
		START	END	MAX. PHASE	APPROX. LAT.	APPROX. MER. DIST.	McMATH PLAGE REGION	— MINUTES			TIME — U T	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Ha	MAX. INT. %	
	MAR 1959															
CAPRI-S	21	0911 E	0954 D		N12	W43	5052	43 D	2	3	0912	4.00	6.00			
STOCKHOLM	21	0914 E	1043		N15	W40	5052	29 D	2	3	0918	5.50	8.30			
SALTSJOBOD	21	0914 E	1043		N15	W40	5052	89 D	2							
ARCETRI	21	0915 E	0940 D		N15	W50	5052	25	2							
ARCETRI	21	0915 E	1046 D		N18	W40	5052	91	2							
UCCLE	21	0917 E			N15	W45	5052		3	4	0917	10.00	13.00			
ARCETRI	21	0933 E			N15	W50	5052		1	3	0933	1.70	2.80			
WENDEL	21	0910 E	1050 D		N20	W33	5054	100 D	1&				8.00			
ARCETRI	21	0933 E	0953 D		N18	W40	5054	20	1	3	0940	3.30	4.60			
WENDEL	21	0951 E	1005 D		N30	W30	5054	14 D	1				3.00			
ZURICH	21	0952	0956		N28	W35	5054	4	1	3	0952		1.00			
CAPRI-G	21	1300 E	1400 D		N30	W35	5054	60 D	1&	3	1312		6.00			
WENDEL	21	1308 E	1346 D		N25	W47	5054	38 D	1&				6.00			
CAPRI-S	21	1309	1401 D		N25	W46	5054	52 D	2	3	1331	4.00	6.90			Slow S-SWF
MCMATH	21	1310	1325 D		N27	W48	5054	15 D	1	1	1314		3.00			
ONDREJOV	21	1312	1344		N27	W45	5054	32	2							
ONDREJOV	21	1617 E	1718 D		N17	E01	5058	61 D	2							
SAC PEAK	21	1645	1712	1700	N28	W49	5054	27	2	2		9.00			20	
HUANCAYO	21	1652	1710	1656	N28	W46	5054	18	2	2	1656	6.70	12.00	6.20		Slow S-SWF
CLIMAX	21	1658 E	1710		N30	W52	5054	12 D	2		1701	8.30				
SAC PEAK	21	1747	1942	1802	N16	W05	5058	115	1	2		2.30			17	
MCMATH	21	1750 E	1900 D		N16	W05	5058	70 D	1	1	1811		2.60			
CLIMAX	21	1821	1911	1836	N29	W44	5054	50	1		1836	2.10				G-SWF
HAWAII	22	0116 E	0154		N24	W16	5058	38 D	1	2	0120	3.10	3.70			
NIZAMIAH	22	0403	0421	0411	N24	W52	5054	18	2	2	0411	2.74	5.42	2.80		G-SWF
WENDEL	22	0716 E	0740 D		N08	E65	5061	24 D	1				4.00			
WENDEL	22	0728	0737		N18	E27	5060	9	1				3.00			
WENDEL	22	0731 E	0819		N18	E20	5060	48 D	1&				5.00			
CAPRI-S	22	0754 E	0824 D		N15	E20	5060	30 D	1	1	0803	2.00	2.20			
MCMATH	22	1339	1545	1345	N30	W50	5054	126	1&	1	1345		4.00			
KANZELHOHE	22	1350	1425 D		N30	W42	5054	35 D	2&							S-SWF
CAPRI-S	22	1359 E	1516 D		N27	W49	5054	77 D	2	2	1403	3.50	7.00			
SAC PEAK	22	1450 E	1505 D	1450	N16	W17	5058	15 D	1	2		3.30			15	
SAC PEAK	22	1450 E	1615 U	1450 U	N30	W52	5054	85 D	1	2		3.50			15	
MCMATH	22	1557	1628	1600	N24	W26	5058	31	1	1	1600		2.00			
NIZAMIAH	23	0313 E	0329	0318	S17	W61	5053	16 D	1&	1	0318	1.01	2.86	2.50		
CAPRI-G	23	0838 E	0842 D		N13	W31	5058	4 D	1	1	0839		3.00			
LOCARNO	23	0850 E	0910		N15	W28	5058	20 D	1&	2	0900		3.00			
LOCARNO	23	0850 E	0920 D		N16	E06	5060	30 D	1	2	0920		1.00			
KANZELHOHE	23	0855 E	0947		N17	E07	5060	52 D	2							
CAPRI-G	23	0931 E	1002 D		N19	E03	5060	31 D	1	1	0932		3.00			
LOCARNO	23	1040	1105 D		N18	W35	5058	25 D	1&	2	1100		3.00			
CAPRI-S	23	1042 E	1102 D		N19	W33	5058	20 D	1	2	1044	2.00	2.50			
LOCARNO	23	1040 E	1205 D		N18	E06	5060	25 D	1	2	1100		1.00			
KANZELHOHE	23	1115	1150		N17	E07	5060	35	2							
CAPRI-G	23	1201 E	1310 D		N21	E29	5061	69 D	1	1	1201		5.00			
CAPRI-S	23	1202 E	1240 D		N22	E23	5061	38 D	1	3	1205	2.50	2.90			
MCMATH	23	1308	1330	1312	N18	E10	5060	22	1	1	1315		2.20			
LOCARNO	23	1311	1325	1317	N15	E19	5060	14	1	2			2.00			
CAPRI-G	23	1325 E	1430 D		N28	W65	5054	65 D	1	3	1342		5.00			
ARCETRI	23	1326 E			N30	W70	5054		1	3	1326	.60	2.50			

SOLAR FLARES

MARCH 1959

OBSERVATORY	DATE MAR 1959	OBSERVED UNIVERSAL TIME START	END	MAX. PHASE	LOCATION APPROX. LAT.	MER. DIST.	McMATH PLAGE REGION	DURATION — MINUTES	IMPORTANCE	OBS. COND.	MEASUREMENTS TIME — U T	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hα	MAX. INT. %	PROVISIONAL IONOSPHERIC EFFECT
LOCARNO	23	1328	1405	1336	N26	W68	5054	37	1&	2			3.00			
MCMATH	23	1328	1550 D	1345	N28	W75	5054	142 D	1&	1	1345		3.50			Slow S-SWF
CAPRI-S	23	1333 E	1409 D		N23	W68	5054	36 D	2	3	1347	2.00	6.60			
LOCARNO	23	1500	1515	1505	N24	W74	5054	15	1	2			2.00			
UCCLE	23	1518	1533	1527	N12	W40	5058	15	1&	4						
LOCARNO	23	1518	1540	1524	N10	W36	5058	22	2	2			8.00			
MCMATH	23	1520	1534	1524	N13	W39	5058	14	1	1	1524		2.08			
SAC PEAK	23	1520	1537	1525	N12	W37	5058	17	1	2		3.40			17	
LOCARNO	23	1527	1555		N18	E02	5060	28	1	2	1530		2.00			
UCCLE	23	1528	1533		N19	E01	5060	5	1	4						
CAPRI-G	23	1528 E	1600 D		N19	E07	5060	32 D	1	2	1534		4.00			
CAPRI-G	23	1530	1600 D	1552	N15	W35	5058	30 D	2	2	1552		6.00			
CAPRI-G	23	1540	1550		N26	W65	5054	10	1	2	1543		2.00			
LOCARNO	23	1541	1552		N23	W66	5054	11	1	2	1545		1.00			
MCMATH	23	1540	1704	1558	N13	W38	5058	84	1	1	1558		2.25			
SAC PEAK	23	1542	1645	1555	N11	W38	5058	63	1&	2		4.00			22	
LOCARNO	23	1544	1610 D	1555	N09	W35	5058	26 D	2	2			7.00			S-SWF
CAPRI-S	23	1555 E	1636 D		N09	W35	5058	41 D	2	3	1606	5.00	6.00			
UCCLE	23	1607 E	1655 D		N10	W40	5058	48 D	2	4						
WENDEL	24	0645 E	0706 D		N25	E33	5061	21 D	1&				7.00			
CAPRI-G	24	0645 E	0730 D		N26	E30	5061	45 D	1	3	0647		4.00			
CAPRI-G	24	0651 E	0730 D		N25	E90	5068	39 D	1	3	0656					
CAPRI-G	24	0701	0850 D	0730	N17	W04	5060	110 D	2&	2	0730		10.00			
ATHENS	24	0705	0908		N19	W02	5060	123	2&							
WENDEL	24	0706 E	0846	0738	N20	W02	5060	100 D	2&				17.00			Slow S-SWF
SCHAUINS	24	0708	0844		N16	W06	5060	96	2							
CAPRI-S	24	0709 E	0852		N20	W05	5060	103 D	3	3	0743	12.00	12.60			
LOCARNO	24	0710 E	0850	0738	N14	W09	5060	100 D	2&	2			10.00			
CAPRI-G	24	0710 E	0850 D		S07	E39	5063	100 D	1	3	0713		3.00			
LOCARNO	24	0840	0902	0850	S09	E40	5063	22	1	2						
WENDEL	24	0908	0937 D		N25	E31	5061	29 D	1				4.00			
UCCLE	24	0910	0925 D		N27	E32	5061	15 D	1	4			4.00			
CAPRI-G	24	0910 E	1006 D		N26	E30	5061	56 D	1	3	0912		3.00			
UCCLE	24	0958 E	1204 D		N22	W87	5054	126 D	3	4						
WENDEL	24	0958	1300 D		N31	W72	5054	182 D	3				22.00			
LOCARNO	24	0959	1230 D	1105	N27	W60	5054	151 D	2	3			10.00			
NEDERHORST	24	1005 E	1045 D		N25	W75	5054	40 D	3							
KODAIKNL	24	1010 E	1037		N28	W75	5054	27 D	2&	1	1010	3.90	15.60	5.20		S-SWF
CAPRI-G	24	1013 E	1230 D		N27	W75	5054	137 D	2	3	1050		7.00			
ARCETRI	24	1035 E	1138 D		N30	W79	5054	3	2	2						
ZURICH	24	1039 E	1139 D		N30	W75	5054	60 D	2	2	1039		11.00			
CAPRI-S	24	1103 E	1237 D		N30	W71	5054	94 D	2	3	1145	2.00	6.40			
ZURICH	24	1116	1125 D		N26	W82	5054	9 D	1	2	1116		2.00			
WENDEL	24	1044 E	1107 D		S09	E39	5063	23 D	1				4.00			
LOCARNO	24	1045	1105		S07	E41	5063	20	1	3	1100		1.00			
ZURICH	24	1049 E	1056		S08	E40	5063	7 D	1	2	1049		1.00			
ZURICH	24	1102	1108 D		S08	E40	5063	6 D	1	2	1102		1.00			
CAPRI-G	24	1145 E	1230 D		N15	W80	5052	45 D	1	3	1150		5.00			
WENDEL	24	1146 E	1324 D		N11	W84	5052	98 D	2&				18.00			
WENDEL	24	1219 E	1251 D		N25	E27	5061	32 D	1				4.00			
CAPRI-G	24	1228 E	1230 D		N26	E30	5061	2 D	1	3	1230		4.00			
ARCETRI	24	1358 E	1415 D		S07	E39	5063	17	2	3	1405	1.70	2.20			

SOLAR FLARES

MARCH 1959

OBSERVATORY	DATE MAR 1959	OBSERVED UNIVERSAL TIME START	OBSERVED UNIVERSAL TIME END	OBSERVED UNIVERSAL TIME MAX. PHASE	LOCATION APPROX. LAT.	LOCATION APPROX. MER. DIST.	LOCATION McMATH PLAGE REGION	DURATION — MINUTES	IMPORTANCE	OBS. COND.	MEASUREMENTS TIME — U T	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hα	MAX. INT. %	PROVISIONAL IONOSPHERIC EFFECT
LOCARNO	24	1450 E	1510 D		S09	E36	5063	20 D	1&	2	1500		5.00			
HAWAII	25	0040	0106	0044	N06	W90	5052	26	2	3	0044	2.00				G-SWF
ATHENS	25	0600	0637		N24	W80	5059	37	2							S-SWF
KODAIKNL	25	0615 E	0623		N16	W62	5058	8 D	2	1	0615	2.90	6.60	2.30	106	
ATHENS	25	0616	0640		N15	W65	5058	24	2&							
CAPRI-G	25	0655 E	0725 D		N25	E74	5068	30 D	1	3	0658		5.00			
WENDEL	25	0831 E	1018 D		N23	E75	5068	107 D	2				9.00			
WENDEL	25	0850	0903 D		N08	E85	5068	13 D	1&				6.00			
CAPRI-G	25	0942 E	0950 D		N16	W08	5060	8 D	1	3	0944		4.00			
CAPRI-G	25	0942 E	0950 D		N23	E15	5061	8 D	1	2	0944		3.00			
CAPRI-G	25	1230 E	1232 D		N25	E74	5068	2 D	1	1	1230		4.00			
MCMATH	25	1234 E	1500 D		N22	E80	5068	146 D	1	1	1256		3.00			
STOCKHOLM	25	1255	1330		N22	E73	5068	35	1	3	1257	1.50	6.00			
CAPRI-G	25	1345 E	1352 D		N25	E74	5068	7 D	1	1	1347		4.00			
MCMATH	25	1307	1410	1313	N24	E13	5061	63	1	1	1313		2.10			
STOCKHOLM	25	1415	1450 D		S10	E25	5063	35 D	1&	3	1417	3.00	3.30			
MCMATH	25	1443	1501	1450	S08	E23	5063	18	1	1	1450		2.00			
MCMATH	25	1538	1552	1545	S08	E20	5063	14	1	1	1545		2.00			
CAPRI-G	26	0731 E	0740 D		□			9 D	1	1						Slow S-SWF
UCCLE	26	1120 E			N20	W01	5061		2							S-SWF
UCCLE	26	1120 E			N18	W05	5061		2	4	1120	10.00				
LOCARNO	26	1130 E	1150		N14	W03	5060	20 D	1&	4	1130		5.00			
CAPRI-G	26	1300 E	1325 D		N28	E12	5061	25 D	1	2	1302		4.00			
STOCKHOLM	26	1249	1310		N22	E58	5068	21	1	1	1254	1.80	3.60			Slow S-SWF
CAPRI-G	26	1300 E	1325 D		N26	E60	5068	25 D	1	2	1302		4.00			
UCCLE	26	1530 E			N25	E57	5068		1	4						S-SWF
SAC PEAK	26	2100	2147 U	2107	N25	E57	5068	47 D	2	2		5.90			16	S-SWF
HAWAII	26	2102	2128		N27	E56	5068	26	2	1	2110	8.70	19.90			
MITAKA	27	0148 E	0200		N25	E54	5068	12 D	2	1	0150	6.81	14.50	2.90	169	Slow S-SWF
CAPRI-S	27	0839 E	0851 D		N22	W09	5061	12 D	1	1	0842	3.00	3.30			
LOCARNO	27	1046	1108		N24	E49	5068	22	1	3	1100		4.00			
LOCARNO	27	1240	1320		N25	W12	5061	40	1&	3	1300		6.00			
LOCARNO	27	1340	1350	1343	N22	W12	5061	10	1	3			1.00			
LOCARNO	27	1448	1506	1450	N33	W16	5061	18	1	3			2.00			
LOCARNO	27	1517	1535		N25	W13	5061	18	1&	3	1520		5.00			
MCMATH	27	1518 E	1535		N25	W23	5061	17 D	1	1	1523		2.50			
HAWAII	28	0034	0110	0035	S09	W08	5063	36	1	3	0035	2.50	2.50			
CAPRI-G	28	0650 E	0720 D		N14	E46	5071	30 D	1	3	0652		3.00			
CAPRI-G	28	0710 E	0720 D		N26	E35	5068	10 D	1	3	0712		3.00			
CAPRI-G	28	1523 E	1550 D		N14	E46	5071	27 D	1	3	1525		3.00			S-SWF
MCMATH	28	1549	1625	1552	N24	E36	5068	36	1	2	1552		2.10			
MCMATH	28	1725	1840	1733	N22	W32	5061	75	2	2	1737		4.50			S-SWF
SAC PEAK	28	1727	1810	1735	N23	W31	5061	43	2	2		5.20			18	
MCMATH	28	1947	2010	1949	N22	W28	5061	14	1	1	1949		2.10			
MCMATH	28	2113	2240 D	2126	N25	W32	5061	87 D	3	1	2126		11.00			
HAWAII	28	2114	2216	2126	N24	W32	5061	62	3	3	2126	1.50	2.10			
SAC PEAK	28	2115	2247	2127	N23	W31	5061	92	2	2		8.00			30	S-SWF
CLIMAX	28	2146 E	2238		N23	W36	5061	52 D	2		2147	6.10				
ATHENS	29	0801 E	0848		N17	E37	5071	47 D	2							S-SWF

SOLAR FLARES

MARCH 1959

OBSERVATORY	DATE MAR 1959	OBSERVED UNIVERSAL TIME START	OBSERVED UNIVERSAL TIME END	OBSERVED UNIVERSAL TIME MAX. PHASE	LOCATION APPROX. LAT.	LOCATION APPROX. MER. DIST.	LOCATION McMATH PLAGE REGION	DURATION — MINUTES	IMPORTANCE	OBS. COND.	MEASUREMENTS TIME — U T	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Ha	MAX. INT. %	PROVISIONAL IONOSPHERIC EFFECT
LOCARNO	29	0830	0930		N13	E31	5071	60	2	2	0900		4.00			
LOCARNO	29	1050 E	1140		S35	W32	5065	50 D	1	2	1100		2.00			
LOCARNO	29	1115 E	1150		N29	E27	5068	35 D	1&	2	1130		2.00			
LOCARNO	29	1107	1150 D		N21	W32	5061	43 D	2	2	1150		6.00			
UCCLE	29	1120 E	1155 D		N25	W42	5061	35 D	2							
UCCLE	29	1121 E			N21	W44	5061		1	3						
LOCARNO	29	1250 E	1305 D		N20	W33	5061	15 D	1&	2	1305		2.00			
LOCARNO	29	1515	1620 D		N26	E19	5068	65 D	2	2	1620		3.00			S-SWF
SAC PEAK	29	1520	1625 U	1542	N26	E20	5068	65 D	1	2		3.20			18	
LOCARNO	29	1525	1550		N12	E36	5071	25	1	2	1630		2.00			
SAC PEAK	29	2145	2250	2202	N12	E26	5071	65	1	2		2.20			17	G-SWF
HAWAII	29	2207 E	2236		N14	E26	5071	29 D	1	2	2209	3.50	4.20			
HAWAII	29	2342	2400 D	2344	N22	E08	5068	18 D	1	2	2344	2.60	3.00			
CAPRI-G	30	0912 E	0915 D		□			3 D	1	1	0912		3.00			
CAPRI-G	30	1020 E	1023 D		□			3 D	1	1	1020		3.00			
CAPRI-G	30	1140 E	1142 D		□			2 D	1	1	1140		3.00			
SAC PEAK	30	1742	1755	1750	N26	E04	5068	13	1	2		2.50			18	
SAC PEAK	30	2215	2250	2220	N24	W58	5061	35	1	2		3.30			14	
HAWAII	30	2216 E	2224 D		N23	W58	5061	8 D	1	2	2220	2.30	5.20			
SAC PEAK	30	2240	2302	2247	N29	E09	5068	22	1	2		2.60			16	
HAWAII	31	0140 E	0158		N26	E10	5068	18 D	1	3	0144	2.20	2.60			
CAPRI-G	31	0758 E	0810		N22	W33	5070	12 D	1&	2	0800		4.00			
CAPRI-G	31	1253 E	1259		N13	E07	5071	6 D	1	2	1255		4.00			
HAWAII	31	2132	2156	2132	N33	W02	5068	24	2	3	2132	7.20	10.00			
SAC PEAK	31	2140 E			N31	W00	5068		1&	1		4.70			15	

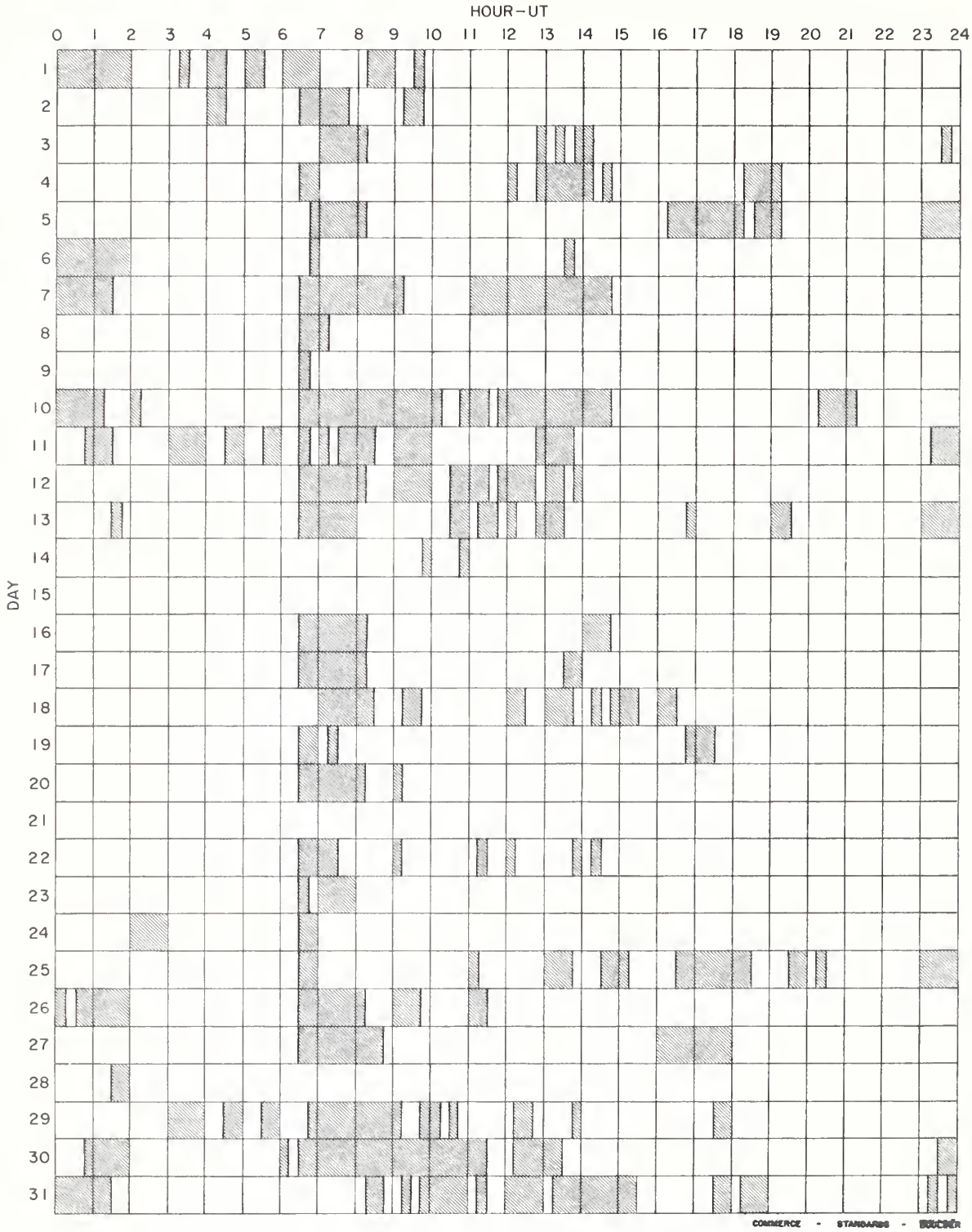
CAPRI G	ANACAPRI - GERMAN
CAPRI S	ANACAPRI - SWEDISH
GOOD HOPE	ROYAL OBSERVATORY, CAPE OF GOOD HOPE
KIEV*	KIEV UNIVERSITY
KODAIKNAL	KODAIKANAL
KRASNYA	KRASNAYA PAKHRA
MOSCOW	NIZMIR
MOSCOW-G	MOSCOW - GAISH
R O EDIN	ROYAL OBSERVATORY, EDINBURGH
R O HERST	GREENWICH ROYAL OBSERVATORY, HERSTMONCEUX
SAC PEAK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

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

E - LESS THAN
D - GREATER THAN
U - APPROXIMATE
& - PLUS
\- - MINUS
□ - NOT REPORTED

INTERVALS OF NO FLARE PATROL OBSERVATIONS

MARCH 1959



Stations Include:

Anacapri (Swedish)	Mitaka
Arcetri	Nizamiah
Climax	Royal Greenwich Observatory
Dunsink	Herstmonceux
Hawaii	Sacramento Peak
Huancayo	Uccle
Locarno	Zurich

SUBFLARES

Noted as follows: Date-Universal Time-Coordinates

FEBRUARY 1959

MCMATH	01	1439	N11 E76
MCMATH	01	1725	N12 W12
MEUDON	02	1502	N10 E60
SAC PEAK	02	1515 E	N08 E60
SAC PEAK	02	1517	N16 E09
MCMATH	02	1618	N03 E63
MCMATH	02	1638	N17 E09
SAC PEAK	02	1640	N13 E08
*SAC PEAK	02	1705	N12 E61
MCMATH	02	1755	N07 E62
SAC PEAK	02	1852	N16 E07
*MCMATH	02	1924 E	N16 E08
SAC PEAK	02	2025	N24 W35
SAC PEAK	02	2230	N23 W35
WENDEL	03	0829 E	N12 E55
WENDEL	03	0835 E	N16 E38
WENDEL	03	0855 E	N17 E03
WENDEL	03	0904 E	N15 E00
+R O HERST	03	1015	N14 E00
SAC PEAK	03	1702	N22 W44
WENDEL	04	0910 E	N16 W15
WENDEL	04	1100 E	N14 E39
WENDEL	04	1146 E	N02 W57
WENDEL	04	1226 E	N22 W18
WENDEL	04	1235 E	N18 W15
WENDEL	04	1236 E	N25 E77
SAC PEAK	04	1507	N14 W51
SAC PEAK	04	1605	S15 W16
MCMATH	04	1606	S14 W16
SAC PEAK	04	1910	N23 E65
MCMATH	04	1912	N25 E66
HAWAII	04	1914	N30 E67
SAC PEAK	04	2207	N22 E77
SAC PEAK	05	1505	N20 E31
MCMATH	05	1514	N12 E20
SAC PEAK	05	1910	S12 W32
SAC PEAK	05	2147	N10 E33
WENDEL	06	1046 E	N15 W41
MEUDON	06	1049	N12 E12
STOCKHOLM	06	1052	N06 E15
WENDEL	06	1057 E	N10 E13
*SAC PEAK	06	1508 E	N19 E10
*SAC PEAK	06	1902	N22 W42
SAC PEAK	06	2005	N27 E50
MCMATH	06	2008	N27 E50
SAC PEAK	06	2202	N11 W03
WENDEL	07	0851 E	N15 W55
*MEUDON	07	1005	N15 W02
*STOCKHOLM	07	1008	N09 W09
WENDEL	07	1117 E	N10 W53
WENDEL	07	1142 E	N20 E46
SAC PEAK	07	1459 E	N14 W57
MCMATH	07	1557	N14 W60
SAC PEAK	07	1722	N05 E08
MCMATH	07	1725	N06 E10
MCMATH	07	1938	N20 W60
HAWAII	07	2236 E	N05 E10
WENDEL	08	0908 E	S25 W67
MCMATH	08	1522	N28 E29
MCMATH	08	1613	N22 E21
MCMATH	08	1746	N14 E27
MEUDON	09	0925	N10 E90
*MEUDON	09	1110	N13 E88
MEUDON	10	1017 E	N09 E70
WENDEL	10	1050 E	N07 W46
SAC PEAK	10	1520 E	N10 E70
SAC PEAK	10	1521	N17 W02
SAC PEAK	10	1712	N07 E70
SAC PEAK	10	1822	N07 E70
SAC PEAK	10	2017	N08 E73
SAC PEAK	10	2122	N06 E64
SAC PEAK	10	2155	N05 E67
WENDEL	11	0854 E	N07 E64
WENDEL	11	0856 E	N30 W06
WENDEL	11	0956 E	N22 W10
*CAPRI-S	11	1037 E	N06 E59
MEUDON	11	1 43	N25 W05
WENDEL	11	1149 E	N09 E56
MEUDON	11	1222 E	N28 W15
SAC PEAK	11	1502	N22 W15
MCMATH	11	1502	N22 W18
SAC PEAK	11	1537	N09 E54
MCMATH	11	1540 E	N10 E62
SAC PEAK	11	1602	N21 W16
SAC PEAK	11	1602	N10 E56
MCMATH	11	1603	N21 W16
MCMATH	11	1603	N10 E55
SAC PEAK	11	1617	N24 W10
MCMATH	11	1618	N23 W10
SAC PEAK	11	1649	N07 E53
MCMATH	11	1648	N10 E62
MCMATH	11	1850	N22 W17
SAC PEAK	11	*1850	N22 W17
MCMATH	11	1920 E	N09 E60
SAC PEAK	11	1920	N10 E60
SAC PEAK	11	1955	N24 W12
MCMATH	11	1955	N24 W12
MEUDON	12	1106	N22 E85
*MEUDON	12	1118	N12 E53
WENDEL	12	1127 E	N30 W12
WENDEL	12	1224 E	N17 E72
WENDEL	12	1228 E	N34 E69
MEUDON	12	1313	N20 E80
CAPRI-S	12	1315 E	N34 E75
WENDEL	12	1350 E	N08 E45
MEUDON	12	1445	N21 E28
CAPRI-S	12	1446	N20 E25
MCMATH	12	1447	N18 E24
*SAC PEAK	12	1447	N20 E23
MCMATH	12	1515	N22 W21
SAC PEAK	12	1515	N21 W32
WENDEL	12	1517 E	N09 E51
SAC PEAK	12	1550	N15 E90
MCMATH	12	1612	N09 E48
SAC PEAK	12	1650	N09 E46
*SAC PEAK	12	1657	N12 W68
SAC PEAK	12	2107	N08 E42
*WENDEL	13	0826 E	N08 E40
*WENDEL	13	0830 E	N09 E39
ONDREJOV	13	1129 E	N21 W42
MEUDON	13	1603	N14 E77
ARCETRI	14	0844 E	N10 E25
WENDEL	14	0907 E	S10 E35
WENDEL	14	0907 E	S08 E35
WENDEL	14	0907 E	S07 E35
WENDEL	14	1150 E	N10 E29
*MEUDON	14	1240	N13 E28
WENDEL	14	1427 E	N09 E23
WENDEL	14	1454 E	N10 E21
SAC PEAK	14	1555	N07 E20
SAC PEAK	14	2100	N27 W65
WENDEL	15	1220 E	N06 E03
SAC PEAK	15	1636 E	N19 E70
MCMATH	15	1730	N28 W32
MCMATH	15	1745	N05 E04
*MEUDON	16	0835	N13 E40
*MEUDON	16	0845	N10 E28
*MEUDON	16	1000	N10 E38
SAC PEAK	16	1555	N07 W12
SAC PEAK	16	1627	N16 E56
SAC PEAK	16	1630	N28 W45
SAC PEAK	16	1825	N22 E40
SAC PEAK	16	2150	N06 W14
SAC PEAK	16	2227	N15 E53
WENDEL	17	0815 E	N14 E47
WENDEL	17	0840 E	N20 E55
*MEUDON	17	0910	N17 E45
STOCKHOLM	17	1148 E	N13 E47
WENDEL	17	1150 E	N05 W30
MEUDON	17	1150	N12 E62
MEUDON	17	1435	N20 E40
MEUDON	17	1450	N20 E40
SAC PEAK	17	1454 E	N19 E45
* SAC PEAK	17	1502	N18 E43
* SAC PEAK	17	1540	N19 E44
MCMATH	17	1842 E	N19 E42
HAWAII	17	2306	N27 E42
WENDEL	18	1144 E	N15 E35
WENDEL	18	1215 E	N18 E34
MCMATH	18	1436	N19 E30
MCMATH	18	1452	N13 E14
WENDEL	18	1454 E	N13 E16
WENDEL	18	1456 E	N18 E35
MCMATH	18	1616	N12 W34
SAC PEAK	18	2057	N15 E25
*MEUDON	19	0807	N22 E30
*MEUDON	19	0932	N25 E23
*WENDEL	19	0934 E	N20 E23
MEUDON	19	0950	N14 E00
WENDEL	19	1006 E	N14 E04
MEUDON	19	1027 E	N14 E00
WENDEL	19	1034 E	N13 E03
WENDEL	19	1059 E	N13 W45
WENDEL	19	1138 E	N18 E22
WENDEL	19	1244 E	S20 W81
*MCMATH	19	1459	N18 E21
*SAC PEAK	19	1503 E	N18 E21
UCCLE	19	1550 E	N14 W02
UCCLE	19	1625 E	N20 E19
SAC PEAK	19	1802	N20 E23
MCMATH	19	1803	N20 E22
MCMATH	19	1942	N21 E17
SAC PEAK	19	1945	N21 E14
SAC PEAK	19	2000	N16 E30
MCMATH	19	2000	N16 E30
SAC PEAK	19	2000	N05 W04
MCMATH	19	2001	N06 W04
WENDEL	20	0747 E	N35 W50
WENDEL	20	0758 E	N18 E18
WENDEL	20	0800 E	N25 W06
UCCLE	20	1005 E	N20 E11
WENDEL	20	1256 E	N20 E45
WENDEL	20	1314 E	S06 W13
*CAPRI-S	20	1317 E	N05 W11
*MCMATH	20	1320 E	N07 W13
ONDREJOV	20	1334	N13 W25
MCMATH	20	1412	N26 W26
WENDEL	20	1420 E	N25 W12
*MCMATH	20	1434	N16 E56
*SAC PEAK	20	1457	N17 E55
*MCMATH	20	1500	N16 E56
MCMATH	20	1517	N26 W26
CAPRI-S	20	1529 E	N27 W23
MCMATH	20	1632	N26 W26
SAC PEAK	20	*1632	N26 W27
MCMATH	20	1645	N09 W19
MCMATH	20	1659	N20 E10
SAC PEAK	20	1700	N20 E12
SAC PEAK	20	1707	N07 W65
MCMATH	20	1709	N09 W66
MCMATH	20	1720	N06 W16
SAC PEAK	20	1727 E	N09 W15
MCMATH	20	1740	N26 W28
SAC PEAK	20	1745	N26 W28
MCMATH	20	1905	N26 W28
SAC PEAK	20	1955	N11 W13
HAWAII	20	2020 E	N23 W02
SAC PEAK	20	2037	N20 E01
HAWAII	21	0020 E	N22 W02
*MEUDON	21	0940	N20 W50
MEUDON	21	0945	N30 W30
UCCLE	21	1000 E	S34 E61
MCMATH	21	1310 E	S34 E62
MCMATH	21	1430	N28 W40
*MCMATH	21	1450	N28 W40
MEUDON	21	1520	N27 W35
MCMATH	21	1522 E	N28 W40
MCMATH	21	1639	N29 W40
MCMATH	21	1715 E	N26 W26
MCMATH	21	1745	S34 E58
MCMATH	21	1815	N16 W41
MCMATH	21	1820	N29 W40
MCMATH	21	1837	N29 W42
MCMATH	21	1925	N07 W30
HAWAII	21	1926 E	N03 W32
MCMATH	21	2003	N29 W44
HAWAII	21	2005	N17 W48
MCMATH	21	2013	N17 W43
HAWAII	21	2132	S01 W85
HAWAII	21	2250	N03 W32
HAWAII	21	2353 E	N11 W35
*MEUDON	22	0943	N20 W20
SAC PEAK	22	1930 E	N28 W11
SAC PEAK	22	2020	N21 W26
*HAWAII	22	2200 E	N28 E12
HAWAII	22	2326 E	N29 W13
CAPRI-S	23	0953 E	N19 E07
*STOCKHOLM	23	1130 E	N25 W70
SAC PEAK	23	1847 E	N22 W35
HAWAII	23	1904 E	N13 W44
HAWAII	23	2210	N13 W44
SAC PEAK	23	2217 E	N15 W41
SAC PEAK	23	2217 E	N27 W70
SAC PEAK	23	2220	N17 E10
SAC PEAK	23	2222	N22 E00
SAC PEAK	23	2255	N19 W37
HAWAII	23	2258	N19 W39
WENDEL	24	0950 E	N14 E07
WENDEL	24	1008 E	N35 E24
WENDEL	24	1020 E	N18 E29
MCMATH	24	1434	N13 W30
SAC PEAK	24	1442 E	N12 W30
MCMATH	24	1556	N20 W06
SAC PEAK	24	1557	N19 W07
SAC PEAK	24	1642	N20 W50
MCMATH	24	1643	N22 W51
MCMATH	24	1718	N18 W01
SAC PEAK	24	1722	N17 W01
MCMATH	24	1945	N18 W02
SAC PEAK	24	1957	N17 W02
SAC PEAK	24	2042	N29 W35
SAC PEAK	24	2115	N22 W50
HAWAII	24	2116	N18 W52
*HAWAII	24	2352	N19 W12
ARCETRI	25	0813 E	N28 W45
MEUDON	25	0935	N20 W18
MEUDON	25	0937	S33 E05
STOCKHOLM	25	0944 E	S32 E03
*MEUDON	25	1135	S33 E05
*MCMATH	25	1332	N17 W60
MCMATH	25	1420	N28 W47
*SAC PEAK	25	1445 E	N28 W47
MCMATH	25	1457	N29 W48
SAC PEAK	25	1505	N28 W47
SAC PEAK	25	1532	S32 E01
MCMATH	25	1544	N17 W60
SAC PEAK	25	1545	N17 W66
MCMATH	25	1613	N28 W47
MCMATH	25	1800 E	N29 W50
*SAC PEAK	25	1825	N20 W20
MCMATH	25	1840	N17 W66
SAC PEAK	25	1902	N16 W66
MCMATH	25	1903 E	N17 W66
HAWAII	25	1904	N12 W68
MCMATH	25	1945	N22 W65
MCMATH	25	1948	N29 W50
HAWAII	25	2054	N27 W54
HAWAII	26	0120	S02 E52
WENDEL	26	0915 E	N22 W70
*MEUDON	26	0918	N22 W20
WENDEL	26	0935 E	N23 W30
*STOCKHOLM	26	0948 E	S09 E47
WENDEL	26	1153 E	S31 W10
WENDEL	26	1232 E	N20 W04
CAPRI-S	26	1237 E	S32 W12
WENDEL	26	1246 E	N26 W27
WENDEL	26	1322 E	N20 E00
MEUDON	26	1329	N20 W55
WENDEL	26	1330 E	N18 W49
WENDEL	26	1347 E	N32 W04
SAC PEAK	26	1500	N17 W78
SAC PEAK	26	1742	N24 W38
SAC PEAK	26	1750	N20 E00
SAC PEAK	26	1807	N28 W60
SAC PEAK	26	1827	N23 W35
HAWAII	26	1830 E	N22 W39
SAC PEAK	26	1907	N24 W40
*SAC PEAK	26	2030	N24 W37
*HAWAII	26	2032 E	N22 W39
SAC PEAK	26	2107	N22 W03
HAWAII	26	2108	N23 W04
CAPRI-S	27	0706 E	N21 W08
ONDREJOV	27	0730	N17 E64
*WENDEL	27	0844 E	N22 W11
WENDEL	27	1309 E	N24 W43
WENDEL	27	1353 E	N18 W14
WENDEL	27	1354 E	S16 E30
WENDEL	27	1359 E	N23 W43
WENDEL	27	1402 E	S04 E33
WENDEL	27	1410 E	S34 W26
*CAPRI-S	27	1430	N21 W12
*MCMATH	27	1430 E	N24 W14
WENDEL	27	1442 E	N15 E62
MCMATH	27	1442	N16 E66
SAC PEAK	27	1451 E	N22 W15
MCMATH	27	1550	N16 E66
*SAC PEAK	27	1555	N22 W16
MEUDON	27	1626	N15 E90
MCMATH	27	1725	N24 W16
MCMATH	27	1740	N24 W16
MCMATH	27	1810	N24 W16
SAC PEAK	27	1815	N21 W17
*SAC PEAK	27	1815	N17 E59
*HAWAII	27	1850	N20 E58
MCMATH	27	1910	N24 W16
SAC PEAK	27	2135	N18 W13
SAC PEAK	27	2135	N14 E78
HAWAII	27	2140 E	N18 E79
WENDEL	28	0919 E	S34 W36
UCCLE	28	0924 E	N28 W32
*CAPRI-S	28	1024 E	N23 W23
WENDEL	28	1329 E	N20 W58
WENDEL	28	1354 E	N01 W58
WENDEL	28	1424 E	N24 W27
SAC PEAK	28	1450	N26 W27
SAC PEAK	28	1500	N25 W22
SAC PEAK	28	1547	S01 E49
SAC PEAK	28	1557	N13 E53
SAC PEAK	28	1850	N22 W33
HAWAII	28	1854	N19 W37

*Rated as flare of importance ≥ 1 by other observatories (see CRPL-F 175 Part B).

SOLAR FLARES

JANUARY 1959

OBSERVATORY	DATE JAN 1959	OBSERVED UNIVERSAL TIME START	END	MAX. PHASE	LOCATION APPROX. LAT.	MER. DIST.	McMATH PLAGE REGION	DURATION — MINUTES	IMPORTANCE	OBS. COND.	MEASUREMENTS TIME — UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Ha	MAX. INT. %	PROVISIONAL IONOSPHERIC EFFECT
VOROSHILOV	01	0015 E	0022		N16	W47	4936	7 D	1	2	0018		2.17		71	
SIMEIZ	01	0726	0738 D	0729 U	S09	E87	4949	12 D	1	2	0729		6.40		68	
SIMEIZ	01	0753	0820	0755 U	S18	W66	4934	27	1	2	0755		3.80	2.20	76	
SIMEIZ	01	0813 E	0850	0818 U	N24	E40	4943	37 U	1	2	0827		1.80	2.00	60	
SIMEIZ	01	0855	0950	0902 U	S12	W62	4934	55	1B	2	0855		6.50	2.60	128	S-SWF
GOOD HOPE	01	0903 E	0942 D		S13	W64	4934	39 D	2		0903	2.90	6.60			
GOOD HOPE	02	0639 E	0700		N20	W88	4936	21 U	1		0639	.10				
GOOD HOPE	02	0733	0745	0738	S10	W70	4934	12	1		0738	.80	2.30			
GOOD HOPE	02	0911	0945		S08	W70	4934	34	2		0915	2.50	7.30			
KIEV	02	0911	1002	0916 U	S09	W70	4934	51	1B	2	0915		3.40		90	S-SWF
SIMEIZ	02	0915 E	0940 D		S07	W69	4934	25 D	1B	1	0915		8.20	3.80	120	
KIEV	02	1103	1117	1108	N21	W90	4936	14	1B	2					111	
VOROSHILOV	03	0337	0354	0342	S30	W35	4948	17	1	2	0342		2.41		64	
GOOD HOPE	03	0708	0730	0718	N13	W66	4936	22	1		0718	1.30	3.20			
GOOD HOPE	03	0715	0735	0718	S11	E64	4949	20	1		0718	1.30	3.00			
UCCLE	03	0914 E	0916 D		S12	E09	4944	2 D	1	1						
UCCLE	03	0930 E	0933 D		S08	E60	4949		B							
UCCLE	04	1132 E			N10	W85	4938		1B	4						
UCCLE	05	1049	1127	1108	N26	E28	4951	38	2B	4	1108	7.50	9.20			
GOOD HOPE	05	1049	1135	1102	N26	E27	4951	46	1		1102	2.60	3.30			
NEDERHORST	05	1120	1125		N26	E24	4951	5	2B	2						
SYDNEY	06	0010	0018	0015	N15	E58	4953	8	1	2	0015	1.00	2.50			
SYDNEY	06	0134	0142	0137	N18	E57	4953	8	1	2	0137	2.00	4.50			
SYDNEY	06	0157	0204	0158	N17	E56	4953	7	2	2	0158	3.50	7.00			
SYDNEY	06	0443	0501	0446	N15	E56	4953	18	1	2	0446	2.00	5.00			
ABASTUMANI	06	0638 E	0723 D	0703 U	N22	W89	4936	45 D	2-	1	0703		16.14			
VOROSHILOV	07	0215	0404 D	0240 U	S16	W11	4947	109 D	2B	3	0237		15.90		91	
GOOD HOPE	07	0639 E	0725	0652	N07	W90	4954	46 D	2		0652	1.30				
GOOD HOPE	07	0847	0915	0853	N07	W90	4954	28	1		0853	.40				
CLIMAX	07	1851	2035		N23	W03	4951	104	1		1935	4.60				
VOROSHILOV	09	0047	0109	0053	S04	E13	4955	22	1	2	0053		2.47		66	
VOROSHILOV	09	0240	0247	0241	N17	W71	4943	7	1B	1	0241		2.13		128	
ABASTUMANI	10	0812 E	0856 D	0830	N19	W41	4951	44 D	2-	2	0830		15.70	1.40	78	
UCCLE	10	1100 E			S12	W09	4952		1B	2						
SYDNEY	11	0234	0239	0236	N21	E60	4962	5	1	2	0236	1.00	2.00			
KODAIKNL	11	0311 E			S16	W63	4947		1	2						
UCCLE	11	1100	1105 D		N20	E62	4955	5 D	1	3						
SYDNEY	11	2300 E	2309 D		N21	E51	4962	9 D	1	2	2300	1.00	2.00			
SYDNEY	12	0252	0321	0300	N18	W69	4951	29	1	2	0300	1.50	4.00			S-SWF
NIZAMIAH	12	0259 E	0309		N27	W60	4951	10 D	1	3	0259	1.82	4.20	1.50		
SYDNEY	12	0412	0455	0426	N26	E48	4962	43	1	2	0426	2.00	3.00			
VOROSHILOV	13	0238	0241	0239	N20	W80	4951	3	1B	1	0239		2.18		80	

SOLAR FLARES

JANUARY 1959

OBSERVATORY	DATE JAN 1959	OBSERVED UNIVERSAL TIME START	END	MAX. PHASE	LOCATION APPROX. LAT.	MER. DIST.	McMATH PLAGE REGION	DURATION — MINUTES	IMPORTANCE	OBS. COND.	MEASUREMENTS TIME — U T	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Ha	MAX. INT. %	PROVISIONAL IONOSPHERIC EFFECT
ABASTUMANI	13	0558 E	0616 D	0604	N17	W70	4951	18 D	1	2	0604		3.50			
ABASTUMANI	13	0616	0629 D	0619 U	N23	E34	4962	13 D	1	2	0619		1.70			
SYDNEY	14	0225	0456	0321	S21	W45	4958	151	2	2	0321	7.00	10.00			
VOROSHILOV	14	0239	0417 D	0311	S26	W41	4958	98 D	2	1	0311		16.40		66	
GOOD HOPE	14	1053	1124	1103	N29	W08	4959	31	1		1103	2.20	2.40			
UCCLE	14	1057	1107 D	1059	N29	W10	4959	10 D	1b	1	1059	6.00	6.00			
UCCLE	14	1107 E			N27	W10	4959		1	1						
GOOD HOPE	15	0645 E	0657		N23	E09	4962	12 D	1		0645	1.80	2.10			
GOOD HOPE	15	0702	0725	0707	N18	E85	4969	23	1		0707	.70				
GOOD HOPE	15	1233	1300 D	1243	N18	E82	4969	27 D	1		1243	1.00				
SYDNEY	15	2234	2240	2237	N12	E71	4969	6	1	2	2237	1.00	3.00			
SYDNEY	15	2326	0015	2332	N15	W39	4959	49	1	2	2332	2.00	3.00			
SYDNEY	16	0102	0112	0105	N15	E68	4969		1	2	0105	1.00	5.00			
SYDNEY	16	0114	0153 D	0126	N12	W69	4953	39 D	1	2	0126	1.00	3.00			
SYDNEY	16	0138	0150	0141	N15	E66	4969	12	1	2	0141	.75	2.50			
SYDNEY	16	0339	0403	0352	N09	W73	4953	24	1	2	0352	1.00	3.00			
SYDNEY	16	2336	2347	2341	S10	E68	4972	11	2	2	0341	2.00	5.50			
SYDNEY	17	0204	0223	0213	S02	E67	4972	19	1	2	0213	.75	2.00			
SYDNEY	17	0235	0240	0236	N20	E64	4974	5	1	2	0236	2.00	4.00			
SYDNEY	17	0243	0312	0251	S11	E68	4972	29	1	2	0251	1.00	3.00			
SYDNEY	17	0316	0329	0320	S02	E66	4972	13	1	2	0320	1.00	3.00			
SYDNEY	17	0348	0416	0400	S08	E68	4972	28	2	2	0400	3.00	7.00			
SYDNEY	17	0419	0437	0425	S02	E66	4972	18	1	2	0425	2.00	4.00			
GOOD HOPE	17	0752	0813	0754	S10	E67	4972	21	1		0754	1.10	2.80			
VOROSHILOV	18	0032	0048	0034	N15	E39	4969	16	1b	1	0034		8.01		77	
SYDNEY	18	0206	0224	0208	S02	E55	4972	18	2	2	0208	3.00	5.00			
VOROSHILOV	18	0207	0218		N03	E55	4973	11	1b	1	0209		2.82		100	
SYDNEY	19	0018	0030	0022	S17	E53	4972	12	1	2	0022	1.00	2.00			
SYDNEY	19	0010	0104	0042	N17	E38	4969	54	2	2	0042	7.00	9.00			Slow S-SWF
VOROSHILOV	19	0020	0122	0047	N16	E30	4969	62	2	2	0047		7.25		130	
SYDNEY	19	0230	0250	0237	S15	E59	4972	20	2	2	0237	4.00	7.00			
VOROSHILOV	19	0233	0247	0237	N20	E54	4974	14	1b	2	0237		4.10		112	
VOROSHILOV	20	0226	0235	0231	N17	E77	4976	9	1b	2	0231		4.00		95	
NIZAMIAH	20	0409	0423	0415	N14	E63	4976	14	1	3	0415	.91	2.22	1.50		
SIMEIZ	20	0750	0757	0752	N17	E22	4969	7	1	1	0751		2.80	2.60	84	
NIZAMIAH	20	0920	0947	0929	N12	E61	4976	27	1	3	0929	1.22	2.98	2.10		
SIMEIZ	20	0925 E	1000 D	0929 U	N08	E66	4976	35 D	1	1	0932		2.30	3.00	92	
GOOD HOPE	20	0926	1000	0935	N08	E65	4976	34	1		0935	1.00	2.40			
GOOD HOPE	20	1102	1153	1118	N20	E15	4969	51	1		1118	4.30	4.90			
KIEV	20	1109	1144	1130	N16	E14	4969	35	1	2	1130		3.30		59	
GOOD HOPE	20	1237	1255	1242	N22	E90	4979	18	1		1242	1.10				
VOROSHILOV	21	0235	0347	0303	N20	E01	4969	72	1b	2	0303		2.35		94	
NIZAMIAH	21	0315 E	0359	0337	N20	E03	4969	44 D	2	2	0337	7.29	8.06	3.20		
VOROSHILOV	21	0329	0434 D	0347	N21	E40	4969	65 D	2	2	0347		6.45		108	G-SWF
GOOD HOPE	21	0637 E	0700		N01	W77	4967	23 D	1		0637	1.00	4.40			

SOLAR FLARES

JANUARY 1959

OBSERVATORY	DATE JAN 1959	OBSERVED UNIVERSAL TIME START	END	MAX. PHASE	LOCATION APPROX. LAT.	APPROX. MER. DIST.	McMATH PLAGE REGION	DURATION — MINUTES	IMPORTANCE	OBS. COND.	MEASUREMENTS TIME — U T	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Ha	MAX. INT. %	PROVISIONAL IONOSPHERIC EFFECT
GOOD HOPE	21	0806	0900	0825	S11	E50	4977	54	1		0825	3.00	4.70			
CAPRI-G	21	1246 E	1250 D		N13	E07	4969	4 D	1	1	1247		2.00			
CAPRI-G	21	1246 E	1301 D		N15	E51	4976	15 D	1	1	1247		3.00			
CAPRI-G	21	1249	1501 D		N17	E05	4969	132 D	1	1	1250		2.00			
GOOD HOPE	21	1246	1334 D		S15	E28	4972	48 D	2		1334	5.00	5.80			
CAPRI-G	21	1249	1412 D		S10	E25	4972	83 D	2	1	1320		6.00			
CAPRI-G	21	1327 E	1332 D		N13	E19	4973	5 D	1	1	1330		3.00			
CAPRI-G	21	1445 E	1458 D		N18	E05	4974	13 D	1	1	1450		3.00			
CAPRI-G	21	1537 E	1547 D		N10	E11	4973	10 D	1	1	1538		3.00			
GOOD HOPE	22	0706	0715	0709	N11	E10	4973	9	1		0709	3.00	3.20			
SIMEIZ	22	0739 E	0750	0742 U	N12	W11	4969	11 D	1	1	0742		2.00		100	
ABASTUMANI	22	0739 E	0752 D		N12	W11	4969	13 D	1	3	0750		2.70	2.30		
ABASTUMANI	22	0805	0827 D	0813	N19	W17	4969	22 D	1&	3	0811		7.50	1.20	76	
SIMEIZ	22	0805	0840	0808 U	N19	W18	4969	35	1	1	0808		3.70		68	
ABASTUMANI	22	0832 E	0918 D	0905	N14	E37	4976	46 D	1&	3	0907		12.00	1.50	82	
SIMEIZ	22	0854	0946 D	0909 U	N14	E40	4976	52 D	1	1	0855		5.60	3.20	112	
GOOD HOPE	22	0856	0937	0902	N16	E38	4976	41	1		0902	2.90	3.90			
KIEV	22	0856 E	0938 D	0901	N18	E41	4976	42	1&	3	0900		5.50		74	
NIZAMIAH	22	0904 E	0908 D		N10	E38	4976	4 D	1&	3	0904	3.65	4.84	1.70		
KIEV	22	1011	1026	1012	N12	W04	4973	15	1	3	1012		3.90		65	
GOOD HOPE	22	1011	1032	1012	N09	W01	4973	21	1		1012	2.10	2.20			
NIZAMIAH	22	1012 E	1019 D		N07	E02	4973	7 D	1	2	1012	2.43	2.48	1.70		
KHARKOV	22	1012	1050	1015	N09	W05	4973	18	1	2	1015		3.40	2.70		
KHARKOV	22	1102	1126	1110	N10	W16	4969	24	1	2	1110		5.70	1.50		
KHARKOV	22	1108	1145	1125	N08	W04	4973	37	3	2	1125		33.10	4.00		
GOOD HOPE	22	1108	1147	1125	N10	W03	4973	39	2		1125	5.40	5.60			
KIEV*	22	1109	1138 D	1125	N10	E13	4973	29 D	2	2	1125		3.30			
KIEV	22	1109	1144	1127	N10	W02	4973	35	2	3	1127		9.00		138	
CAPRI-G	22	1515 E	1542 D		N10	W14	4969	27 D	2	1			6.00			
CAPRI-G	22	1546 E	1552 D		N09	W01	4973	6 D	1&	1			5.00			
NIZAMIAH	23	0322	0333	0327	N15	E32	4976	11	1	3	0327	2.43	3.09	1.60		
GOOD HOPE	23	0713	0810	0718	N20	W26	4969	57	1		0718	2.20	2.70			
ABASTUMANI	23	0828 E	0858 D	0844 U	N16	W20	4969	30 D	1&	3	0844		7.70	1.80	66	
UCCLE	23	0944	1040	0945	N18	W02	4974	56	1	3						
UCCLE	23	1025	1055	1031	N13	W34	4969	30	1&	3						
GOOD HOPE	23	1027	1053	1032	N11	W30	4969	26	1		1032	2.30	2.90			
UCCLE	23	1116	1130	1119	N16	E30	4976	14	1	3	1119	1.50				
CAPRI-G	23	1530 E	1532 D		N09	W04	4973	2 D	1	1			4.00			
CAPRI-G	24	1114 E	1215 D	1124	N12	W16	4973	61 D	1&	3	1124		5.00			
GOOD HOPE	24	1121	1215	1126	N10	W20	4973	54	1		1126	1.90	2.10			
UCCLE	24	1123 E			N13	W19	4973		1	2						
CAPRI-G	24	1138 E	1155 D		N21	W22	4974	17 D	1	3	1141		3.00			
CAPRI-G	24	1240 E	1247 D		N11	W23	4973	7 D	1	3	1243		2.00			
CAPRI-G	24	1315 E	1420 D		N13	W16	4973	65 D	1	2	1316		3.00			
CAPRI-G	24	1430 E	1432 D		N20	W15	4974	2 D	1	2	1432		3.00			
SYDNEY	25	0030 E	0038		S08	E17	4977	8 D	1	2	0030	2.00	2.00			
SYDNEY	25	0203 E	0315	0216	N17	W42	4969	72 D	2	2	0216	7.00	11.00			
VOROSHILOV	25	0211	0253	0220	N14	W46	4969	42	2	2	0220		5.33		127	S-SWF
KODAIKNL	25	0217 E	0223 D	0220	N17	W43	4969	5 D	2	2	0217	5.45	8.18	1.40		

SOLAR FLARES

JANUARY 1959

OBSERVATORY	DATE JAN 1959	OBSERVED UNIVERSAL TIME START	END	MAX. PHASE	LOCATION APPROX. LAT.	MER. DIST.	McMATH PLAGE REGION	DURATION — MINUTES	IMPORTANCE	OBS. COND.	MEASUREMENTS TIME — U T	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Ha	MAX. INT. %	PROVISIONAL IONOSPHERIC EFFECT
NIZAMIAH	25	0523 E	0531		N19	W41	4969	8 D	1	2	0523	1.82	2.68	1.50		
ABASTOMANI	25	0730 E	0833 D	0747 U	N19	W04	4976	33 D	2	2	0747		20.10			
KIEV*	25	1042	1052 D	1046 U	N16	W51	4969	10 D	1	2	1046		1.80			
CAPRI-G	25	1125 E	1132 D		N11	W29	4973	7 D	1	1			2.00			
GOOD HOPE	25	1249 E	1305	1250	N22	E31	4979	16 D	1		1250	2.60	3.50			
UCCLE	25	1330	1418	1355	N11	W35	4973	48	1&	4	1355	3.50				
GOOD HOPE	25	1333	1406 D		N09	W34	4973	33 D	1		1350	3.30	4.10			
UCCLE	25	1407	1417 D	1417	N18	W55	4969		2	4	1417	5.00	8.00			Slow S-SWF
UCCLE	25	1423	1434 D	1434	N14	W35	4973		2	4	1434	5.00	6.00			
SYDNEY	26	0013 E	0110	0037	N09	W42	4973	57 D	2	2	0037	4.00	5.00			
SYDNEY	26	0112	0125	0116	N17	W45	4974	13	1	2	0116	2.00	3.00			
SYDNEY	26	0216	0244	0230	N16	W54	4969	28	1	2	0230	2.00	4.00			
SYDNEY	26	0227	0239	0232	N20	E76	4983	12	1	2	0232	.75	2.00			
SYDNEY	26	0244	0254		N08	W51	4973	10	1	1	0252	1.50	2.00			
NIZAMIAH	26	0444 E	0450 D		N18	W58	4969	6 D	1	2	0444	1.52	3.28	1.70		
GOOD HOPE	26	0647 E	0735		N21	W40	4974	48 D	2		0647	4.00	5.90			
GOOD HOPE	26	0647 E	0752 D		N11	W45	4973	65 D	2		0647	5.00	7.20			
GOOD HOPE	26	0650	0705	0652	N09	W56	4969	15	1		0652	1.50	2.70			
GOOD HOPE	26	0705	0710 D	0707	N22	W63	4969	5 D	1		0707	1.00	2.40			
GOOD HOPE	26	0842	1000	0903	N17	W67	4969	78	3		0903	5.00	12.80			
NIZAMIAH	26	0844	0917	0857	N16	W63	4969	33	2&	2	0857	6.08	13.12	3.40		S-SWF
CAPRI-G	26	0845	1030 D		N17	W60	4969	105 D	2	2	0900		6.00			
KODAIKNL	26	0855 E	0906 D	0902	N17	W57	4969	11 D	2	2	0855			2.00	118	
CAPRI-G	26	0930	1030 D		N12	W08	4976	60 D	1	2	0935		5.00			
CAPRI-G	26	0951	1030 D	0955	N11	W42	4973	39 D	1	2	0955		4.00			
GOOD HOPE	26	0952	1002	0954	N11	W44	4973	10	1		0954	1.80	2.50			
GOOD HOPE	26	1027	1315	1050	N15	W60	4969	168	3		1050	6.50	14.30			
CAPRI-G	26	1044 E	1215 D		N18	W60	4969	91 D	2	2	1100		8.00			
NIZAMIAH	26	1052 E	1058 D		N15	W60	4969	6 D	1&	2	1052	3.65	7.87	1.90		
UCCLE	26	1057 E	1152 D		N14	W60	4969	55 D	3	4		11.00	20.00			
CAPRI-G	26	1500 E	1550 D		N22	E62	4983	50 D	1	1	1502		4.00			
KODAIKNL	27	0210 E	0235 D	0230	N13	W75	4969	25 D	1	2	0210	1.36	5.15	1.60	99	
NIZAMIAH	27	0412 E	0419 D		N18	W20	4976	7 D	1	2	0412	3.04	3.31	1.50		
SIMEIZ	27	0910	0925 D	0912	N04	E36	4982	15 D	1	1	0912		1.20	2.00	60	
UCCLE	27	0930	0950	0938	N09	W21	4976	20	2	4	0938	6.00				
GOOD HOPE	27	0930	1035	0937	N10	W22	4976	65	1		0937	2.90	3.20			
SIMEIZ	27	0931 E	0938 D	0938 U	N09	W26	4976		1&	1	0937		5.20	2.80	92	
UCCLE	27	1000	1009	1006	N04	E36	4982	9	1	4	1006	1.50				
UCCLE	27	1125	1138		N07	W60	4973	13	1	4		2.50	5.00			
GOOD HOPE	27	1129	1142	1135	N15	W61	4969	13	1		1135	1.00	2.10			
GOOD HOPE	27	1213	1255	1215	N19	E50	4983	42	1		1215	1.40	2.40			
CAPRI-G	27	1220 E	1227 D		N20	E47	4974	7 D	1	1	1221		5.00			
NEDERHORST	27	1320 E	1330 D		N11	W21	4976	10 D	1	3						
CAPRI-G	27	1323 E	1327 D		N15	W23	4976	4 D	1	1	1325		3.00			
NEDERHORST	27	1330 E	1400		N06	E43	4982	30 D	2	3						
GOOD HOPE	27	1331	1333 D		N06	E43	4982	2 D	1		1333	2.40	3.30			
UCCLE	27	1348 E	1430		N05	E43	4982	42 D	2	4		5.00				
CAPRI-G	27	1340 E	1347 D		N06	W60	4973	7 D	1	1	1341		5.00			
UCCLE	27	1408	1420		N05	E35	4982	12	1	4		1.30				
UCCLE	27	1420	1430 D	1430	N10	W68	4973		2&	4	1430	8.00	11.00			S-SWF
NEDERHORST	27	1438	1443		N10	W60	4973	.5	2	3						

SOLAR FLARES

JANUARY 1959

OBSERVATORY	DATE JAN 1959	OBSERVED UNIVERSAL TIME START	OBSERVED UNIVERSAL TIME END	OBSERVED UNIVERSAL TIME MAX. PHASE	LOCATION APPROX. LAT.	LOCATION APPROX. MER. DIST.	LOCATION McMATH PLAGE REGION	DURATION — MINUTES	IMPORTANCE	OBS. COND.	MEASUREMENTS TIME — U T	MEASUREMENTS MEAS. AREA Sq. Deg.	MEASUREMENTS CORR. AREA Sq. Deg.	MEASUREMENTS MAX. WIDTH Ha	MEASUREMENTS MAX. INT. %	PROVISIONAL IONOSPHERIC EFFECT
CAPRI-G	27	1452 E	1457 D		N06	E41	4982	5 D	1	1	1453		4.00			
VOROSHILOV	28	0059	0108	0105	N10	W70	4973	9	16	3	0105		2.18		98	
SYDNEY	28	0412	0420	0416	N13	W69	4969	8	1	1	0416	.75	2.00			
ABASTUMANI	28	0716 E	0809 D	0745 U	N08	W74	4973	53 D	1	3	0745		7.00			
CAPRI-G	28	1046 E	1047 D		□			1 D	1	1						
UCCLE	28	1110	1120		N04	E23	4982	10	1	4		1.50				
CAPRI-G	28	1120 E	1132 D		N22	E37	4983	12 D	1	1	1130		4.00			
CAPRI-G	28	1240 E	1246 D		□			6 D	1	1						
CAPRI-G	28	1455 E	1502 D		N05	E24	4982	7 D	1	1	1457		3.00			
CAPRI-G	28	1532 E	1537 D		N15	W35	4976	5 D	1	1	1534		5.00			Slow S-SWF
NIZAMIAH	29	0457 E	0503 D		N12	W45	4976	6 D	16	2	0457	3.04	4.55	2.00		
ALMA-ATA	29	0525	0550	0525	N14	W49	4976	25 D	1	2	0525		3.30		71	
UCCLE	29	0934	0955		N21	E90	4992	21	1	4						
CAPRI-G	29	0948 E	0956		N26	E76	4992	8 D	1	2	0950		4.00			
NEDERHORST	29	0949 E	0955 D		N08	W87	4973	6 D	1	3						
CAPRI-G	29	0957 E	1030 D		S07	W48	4977	33 D	1	2	1000		3.00			
UCCLE	29	1112	1145 D		N08	E90	4992	33 D	16	4						
CAPRI-G	29	1445 E	1502 D	1447	N05	E17	4982	17 D	2	2	1447		6.00			
CAPRI-G	30	0902 E	0920 D		N05	E03	4982	18 D	1	3	0904		4.00			
CAPRI-G	30	1322 E	1402 D	1328	N24	E59	4992	40 D	1	3	1328		5.00			
VOROSHILOV	30	2341	0006	2350	N13	E90	4997	25	26	3	2350				92	
SYDNEY	31	0110	0139	0117	N18	E03	4983	29	2	2	0117	5.00	6.00			
VOROSHILOV	31	0111	0137	0111	N21	W01	4983	26	16	3	0111		2.60		93	
CAPRI-G	31	0825 E	0847		S08	W44	4987	22 D	1	3	0827		4.00			
GOOD HOPE	31	0842	0945	0845	N21	W78	4976	63	2		0913	1.80	8.80			
GOOD HOPE	31	1009	1028 D	1013	N11	E57	4992	19 D	16		1013	3.20	6.00			
CAPRI-G	31	1020 E	1032 D		N12	E51	4992	12 D	1	3	1021		3.00			
CAPRI-G	31	1108 E	1112 D		N18	E54	4992	4 D	1	3	1110		3.00			
CAPRI-G	31	1347 E	1416		N20	E59	4992	29 D	1	3	1349		3.00			
CAPRI-G	31	1440 E	1522 D		N14	W18	4982	42 D	1	2	1442		7.00			
GOOD HOPE	31	1442	1510	1450	N22	W04	4983	28	1		1450	2.20	2.50			

COMMERCE - STANDARDS - BOULDER

These flare reports are addenda to the January 1959.
flares published in CRPL-F 174 Part B, February 1959.

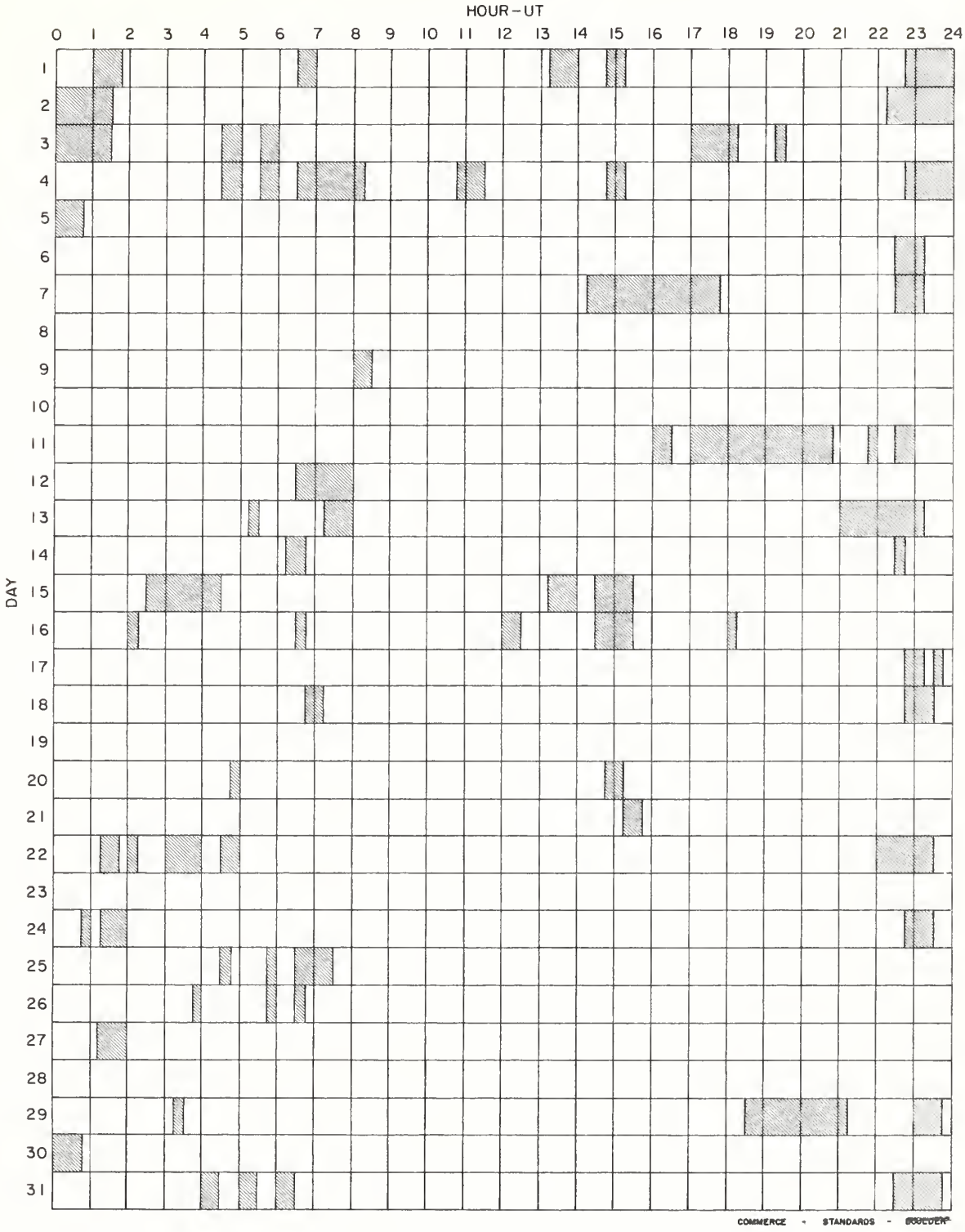
CAPRI G	ANACAPRI - GERMAN
CAPRI S	ANACAPRI - SWEDISH
GOOD HOPE	ROYAL OBSERVATORY, CAPE OF GOOD HOPE
KIEV*	KIEV UNIVERSITY
KODAIKNAL	KODAIKANAL
KRASNYA	KRASNAYA PAKHRA
MOSCOW	NIZMIR
MOSCOW-G	MOSCOW - GAISH
R O EDIN	ROYAL OBSERVATORY, EDINBURGH
R O HERST	GREENWICH ROYAL OBSERVATORY, HERSTMONCEUX
SAC PEAK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

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

E - LESS THAN & - PLUS
D - GREATER THAN - - MINUS
U - APPROXIMATE □ - NOT REPORTED

INTERVALS OF NO FLARE PATROL OBSERVATIONS

JANUARY 1959



Stations Include:

Abastumani
Alma Ata
Anacapri (Swedish)
Arcetri
Capetown
Climax 1-9
Dunsink
Hawaii
Huancayo
Kharkov
Kiev GAO
Kiev University
Kodaikanal
Krasnaya Pakhra
Meudon
Mitaka
Moscow University
Nederhorst
Nizamiah
Ondrejov
Royal Greenwich Observatory
Herstmonceux
Sacramento Peak
Simeiz
Sydney
Tashkent
Uccle
U.S. Naval Research Laboratory
Utrecht
Voroshilov

SOLAR FLARES

OBSERVATORY	DATE OCT 1958	OBSERVED UNIVERSAL TIME START	END	MAX. PHASE	LOCATION APPROX. LAT.	MER. DIST.	McMATH PLAGE REGION	DURATION — MINUTES	IMPORTANCE	OBS. COND.	MEASUREMENTS TIME — U T	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Ha	MAX. INT. %	PROVISIONAL IONOSPHERIC EFFECT
SYDNEY	06	2310	2326 D	2323	N19	E38	4805	16 D	1	2		3.00	4.00			
GOOD HOPE	24	0853	0915	0856	S32	E40			1-		0856	.90	1.50			
GOOD HOPE	24	0922	1000	0936	S02	W58	4826	38	1		0936	1.50	2.80			
GOOD HOPE	24	1035	1100	1039	S04	W55	4826	25	1		1039	1.60	2.90			
GOOD HOPE	24	1131	1155	1135	S32	E37			1-		1135	1.30	2.00			
GOOD HOPE	24	1222	1259	1230	S10	W31			1-		1230	1.20	1.50			
GOOD HOPE	24	1327	1347	1331	S10	W31	4929	20	1		1331	1.70	2.10			
GOOD HOPE	25	0715	0741	0731	S11	W39			1-		0731	1.10	1.50			
GOOD HOPE	25	0750	0815	0756	S09	W42	4929	25	1		0756	1.80	2.50			
GOOD HOPE	25	0834	0850	0836	N23	W88	4818	16	1		0836	.20	5.70			
GOOD HOPE	25	0855	0910	0902	S11	W41			1-		0902	1.20	1.60			
GOOD HOPE	25	1034	1058	1039	S06	W07			1-		1039	1.10	1.10			
GOOD HOPE	25	1053	1110	1057	S11	W43			1-		1057	.90	1.30			
GOOD HOPE	25	1238	1320	1250	N23	W88	4818	42	1		1250	.30	8.60			
GOOD HOPE	27	0645 E	0702		S16	E46			1-		0645	1.00	1.60			
GOOD HOPE	27	0645 E	0758		S09	W71	4829	73 D	1		0647	1.10	4.20			
GOOD HOPE	27	0723 E	0750 D		S09	W76	4829	27 D	1		0724	1.30	5.80			
GOOD HOPE	27	0822 E	0825 D		S14	E43			1-		0825	1.00	1.50			
GOOD HOPE	28	1146	1156	1151	S09	W90			1-		1151	.20				
GOOD HOPE	31	1019 E	1200		S19	E39	4849	101 D	2		1019	8.00	10.90			S-SWF
GOOD HOPE	31	1258	1330	1312	S17	E40			1-		1312	1.30	1.80			
GOOD HOPE	31	1152 E	1250		N07	W85	4841	58 D	1		1237	.70	8.10			
GOOD HOPE	31	1343	1355	1346	N07	W85			1-		1346	.60	6.90			

These flare reports are addenda to the October 1958 flares published in CRPL-F 171 B, November 1958 and CRPL-F 174 B, February 1959.

E = LESS THAN & = PLUS
D = GREATER THAN - = MINUS
U = APPROXIMATE ☐ = NOT REPORTED

Two solar flares reported by R. O. Herstmonceux and published in CRPL-F 164B and CRPL-F 168B respectively should have positions corrected to read as below

R.O.Herst	Mar. 14	1504E	1530	1507	S20	W90	4445	26 D	1	2	1507	.50				
R.O.Herst	July 3	0752	0835	0802	N24	W15	4628	43	1+	3	0804	2.50	2.80	2.82	12.0	

Note: We invite notification of similar corrections to the published data.

INTERVALS OF NO FLARE PATROL OBSERVATIONS

The following are changes to the Intervals of No Flare Patrol Observations charts due to the inclusion, in CRPL-F 174 B of February 1959, of the data from Mt. Wilson for the period July 1957 through April 1958. The times listed are times originally indicated as 'no flare patrol' but during which Mt. Wilson was patrolling.

July	4	2300-2330	Aug.	21	0000-0030	Dec.	21	2230-2245
1957	6	0000-0130		24	0000-0100		23	2215-2245
	7	0100-0230		25	1700-1730		24	1715-1930
	8	1630-1830		26	0000-0045			2000-2045
	9	0130-0230		29	0000-0200		28	2215-2230
	10	0000-0030			2100-2130			2245-2300
	11	0030-0215		30	0030-0100		29	0000-0015
		2030-2300		31	1600-2115			2315-2330
	12	2100-2130			2145-2400	Jan.	1	2300-2330
	13	0130-0200	Sept.	1	0000-0045	1958	2	2245-2300
		1700-1730		2	0030-0115		5	1730-1745
	14	0030-0045		3	0015-0030			2300-2330
		1730-2330		4	1800-1830		12	2300-2315
	16	0200-0230		6	1700-1800		13	1700-1730
	17	1700-1830		10	2200-2230		16	2100-2115
		2000-2030		12	0100-0130		18	1630-1745
	18	2100-2200		21	0000-0030			1800-1815
	19	2300-2400		27	0030-0115			1830-2045
	20	0000-0200		28	0030-0115			2115-2145
		1730-1800		29	0030-0045		19	1745-1800
	21	0200-0215	Oct.	1	0000-0030			1900-1915
	23	0200-0230		6	1730-1800		22	2045-2100
		1700-1900		12	1600-1630			2215-2315
	26	0100-0130		16	2000-2115		23	2100-2200
		0200-0230		17	1615-1630		27	2015-2030
	27	2100-2130			1700-1730			2115-2300
		2200-2230			1830-1930			2315-2330
	30	0100-0230			2000-2200		28	1630-1700
		1830-2300			2245-2300			2330-2400
	31	0030-0100		18	1615-1715		29	2245-2400
Aug.	1	0000-0030			1730-1745		30	0000-0030
	3	0100-0130		19	1600-1630			2115-2145
		2300-2330			1700-2130			2215-2400
	4	0130-0200			2145-2215	Feb.	13	2115-2215
		1800-1830			2230-2400		17	2300-2400
		1845-1900		20	0000-0015		20	2100-2145
		2100-2130		24	2230-2300		22	1615-1645
	5	2000-2030		25	2130-2215			1715-1745
	6	1930-2030			2230-2345		23	2315-2345
		2100-2330		27	1900-1930		24	0000-0115
	7	0100-0130			2230-2245			2115-2245
		2130-2330	Nov.	7	2230-2245		26	2300-2315
		2345-2400		9	2315-2330		27	2300-2330
	8	0000-0030		10	1915-1930	Mar.	1	1630-1700
		0100-0130			1945-2000			1900-1945
		1800-1830			2215-2400		4	2130-2200
	9	0000-0100		16	1645-1700			2215-2345
	10	1700-1730		18	2300-2330		5	2215-2230
		1900-1930		19	1615-1715		18	1800-1900
	12	1730-1800		23	2215-2330		19	1945-2000
	13	0030-0100		29	2315-2330		20	2015-2030
	16	1930-2330			2345-2400	Apr.	16	0115-0130
		2345-2400		30	0000-0030		17	2200-2300
	17	1500-1530			2300-2315		20	2345-2400
		1700-1900	Dec.	6	2100-2400		21	0000-0130
		2200-2400		7	1700-1730		22	2100-2115
	18	1700-1830			1815-1900			2145-2200
	19	1900-1930		8	2230-2330		23	0030-0045
		2100-2230		9	2230-2245		24	2100-2145
	20	2315-2400		11	2215-2300			2230-2245

IONOSPHERIC EFFECTS OF SOLAR FLARES

(SHORT-WAVE RADIO FADEOUTS)

FEBRUARY 1959

Feb. 1959	Start UT	End UT	Type	Wide Spread Index	Importance	Observation Stations	Known Flare, UT CRPL-F 175B
1	0422	0450	S-SWF	5	3-	NE, OK, TO, CW+	0425E
1	1718	1736	Slow S-SWF	5	1+	BE, FM, HU, MC, PR, WS	1714
2	1717	1730	G-SWF	3	1+	HU, MC, PR	1702
2	1817	1942	S-SWF	5	3	AN, BE, FM, HU, LA, MC, NE, PR, WS, CW*	1815
3	0038	0100	Slow S-SWF	5	1+	AD, NE, OK	
8	0925	1005	S-SWF	1	1	NE	
8	1342	1411	S-SWF	5	2	BE, DA, HU, MC, NE, PR, PU	1342E
8	2038	2112	S-SWF	5	2	AD, BE, FM, HU, LA, MC, PR, WS	*
9	0200	0245	S-SWF	5	3	AD, AN, CA, HO, TO	*
9	0952	1044	S-SWF	4	3	NE, SW, CW**, CW***	0945
9	1300	1434	G-SWF	5	2-	JU, NE, PR	1103
9	1620	1630	S-SWF	3	1	BE, MC, PR	*
9	1632	1720	S-SWF	5	2+	BE, FM, HU, LA, MC, NE, PR, WS, SW, CW*, CW***	*
10	0217	0258	Slow S-SWF	5	2	AD, OK, TO	0216
10	0350	0410	S-SWF	5	1+	NE, OK	0346
10	1823	1835	S-SWF	5	1	BE, FM, HU, LA, MC, PR, WS	
12	2308	2348	Slow S-SWF	5	2	AD, AN, HU, LA, TO, WS	2300E
15	0440	0500	S-SWF	1	1+	OK	*
15	1628	1644	S-SWF	5	1+	BE, HU, MC, NE, PR, WS	
16	0523	0539	S-SWF	1	1	OK	*
16	2042	2120	Slow S-SWF	5	1+	AD, AN, BE, HU, MC, PR, WS	
17	1834	1900	Slow S-SWF	5	1	AD, AN, MC, PR, WS	*
18	0100	0120	S-SWF	4	1	AD, OK	*
18	0500	0525	S-SWF	5	2+	CA, OK, TO	*
19	2030	2110	Slow S-SWF	5	1+	AD, AN, BE, HU, MC, PR, WS	2029
27	1757	1915	Slow S-SWF	4	2+	BE, FM, MC, WS	1818

*No known flare patrol

CA = Canberra, Australia
DA = Darmstadt, G.D.R.
HO = Hollandia, New Guinea
PU = Prague, Czechoslovakia
SW = Enkoping, Sweden
TO = Hiraiso Radio Wave Observatory, Japan
CW* = Cable and Wireless, Barbadoes
CW** = Cable and Wireless Somerton, England
CW*** = Cable and Wireless, Brentwood, England

IONOSPHERIC EFFECTS OF SOLAR FLARES

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

AUGUST 1958

DATE	CLASS SCNA	CLASS SEA	CLASS Burst	WIDESPREAD INDEX	TIME (UNIVERSAL TIME) BEGIN	TIME (UNIVERSAL TIME) MAX.	TIME (UNIVERSAL TIME) END	PERCENT ABSORPTION SCNA	OBSERVATION STATIONS
1		1-		4	1150		1220		DU, KU, NU
1			1	5	1636	1637	1638		MC, RE, SP
1			1	4	2148	2149	2155		BO, RE
2		1-		3	0741		0756		KU, NU,
2		1-		1	1254		1300		NU
2			1-	4	1837		1838		BO, RE
2			1-	4	1841		1842		BO, RE
2	2			5	1842	1902	2100U	57	BO, MC, RE
2		2+		5	1843	1849	1938		A1,A2,A3,A5,BO,ED,KU,MC,PA
2			1-	5	1847	1848	1849		BO, MC, RE
2			1	4	1924	1925	1943		BO, MC
3		1-		1	0841		0901		KU
3			1-	4	2022	2023	2025		BO, MC
3			1-	4	2027	2029	2030		BO, MC
3	1-			1	2145	2151	2221	9	BO
3		2		5	2148	2200	2230		A1, A2, A3, BO
4			2	4	1501	1505	1507		MC, RE
4			1	4	2113	2114	2117		BO, MC
5			1-	3	1830	1831	1831		BO, SP
5			1-	3	1952	1953	1954		BO, SP
6		3		1	0600		0708		HO
6		1-		3	1154		1214		KU, NU
6	1-			1	1516	1529	1600	9	BO
6		1		5	1522	1532	1610		A2, BO, KU
7		1		1	0047		0102		HO
7	2			5	1501	1508	1530	60	BO, ED, MC, RE, SP
7		2		5	1501	1512	1550		A1,A3,BO,DU,ED,KU,NE,NU,PA,SP
8			1+	5	1629	1631	1633		BO, MC, RE, SP
8			1+	5	1633	1636	1637		BO, MC, RE, SP
8			1	5	1910	1912	1913		BO, MC, SP
8			1	5	1932	1933	1935		BO, MC, SP
8			1-	5	2104	2106	2107		BO, MC, SP
9		1		1	0349		0419		HO
9			1	3	1600	1602	1609		MC, RE
9	1-			1	1607	1612	1620	5	BO
9		1-		1	1610	1614	1620		BO
9			1	5	1618	1622	1625		BO, MC, RE
9			1+	5	1652	1655	1656		BO, MC, RE, SP
9			2	5	1739	1744	1753		BO, MC, SP
9			1	5	1850	1852	1857		BO, MC, RE, SP
9			1	4	1938	1940	1941		MC, SP
10			1	5	1435	1439	1443		BO, MC, RE
10		1-		3	1437	1451	1510		A4, BO
10	1-			1	1439	1445	1505		BO
10			1	3	1536	1539	1550		MC, RE
10			1	5	1653	1655	1656		MC, RE, SP
10			1+	5	1658	1700	1702		BO, MC, RE, SP
10		1-		1	1802	1811	1819		BO,
10	1-			1	1805	1809	1820		BO
10			1	5	1826	1829	1837		BO, MC, SP
10			1	5	2024	2025	2026		MC, RE, SP
10			1	5	2036	2044	2045		MC, RE, SP
10			1	5	2145	2147	2149		BO, MC, SP
11	1			3	1457	1507	1530U	30	BO, RE
11		1-		5	1500	1507	1535		A2, BO, ED, KU, PA, NU
11			1	5	1817	1820	1822		BO, MC, SP
11			1	5	1954	1956	1958		BO, MC, SP
12		1		1	0423		0457		HO
12		1		3	1228	1233	1255		A1, A3
12			1	4	1652	1655	1656		BO, MC
12			1	4	1842	1849	1903		BO, MC
13		2		4	0929	0948	1047		BU, ED, NE
13	1			3	1206	1217	1240	35	MC, RE
13		1+		5	1207	1219	1333		BU, ED, KU, MC, NE, NU, PA
13			1-	4	1510		1511		BO, RE
13	1			4	1534	1538	1550	15	BO, MC, RE
13		1		5	1535	1543	1556		A2, BO, DU, KU, NU, PA
13			1	3	1712	1714	1715		BO, SP
13			1+	5	1737	1739	1741		BO, MC, SP
14		2+		3	0610		0637		NE, NU
14		1		1	0708		0730		HO

COMMERCE - STANDARDS - BOULDER

IONOSPHERIC EFFECTS OF SOLAR FLARES

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

AUGUST 1958

DATE	CLASS SCNA	CLASS SEA	CLASS Burst	WIDESPREAD INDEX	TIME (UNIVERSAL TIME) BEGIN	TIME (UNIVERSAL TIME) MAX.	TIME (UNIVERSAL TIME) END	PERCENT ABSORPTION SCNA	OBSERVATION STATIONS
14		1		3	0802		0822		KU, NU
14	1			1	1240	1253	1310	20	RE
14		1+		4	1240		1315		ED, NE, PA
14	1			4	1616	1630	1649	14	BO, MC, RE
14		2-		4	1618	1633	1651		A2, BO, NE
14	1			4	1802	1817	1850	40	BO, RE, SP
14		1+		5	1803	1815	1837		A2, BO, ED, PA
14		2+		5	2150	2210	2235D		A1, A2, A3, A6, BO
14	1+			4	2154	2202	2232	32	BO, RE, SP
14			1	3	2204	2205	2206		BO, SP
15		1-		1	0901		0931		KU
15		1		4	1321		1354		NE, NU, KU
15	1-			1	1918	1921	1934	10	BO
15		2		3	1920	1938	2000		A2, A3
16		1+		4	0435		0510		ED, HO, NE
16		1-		3	1207	1212	1249		ED, KU
16			2	5	1659	1701	1704		BO, MC, RE, SP
16			1+	5	1706	1708	1710		BO, MC, RE, SP
16			1+	4	1741	1743	1744		RE, SP
17		2		3	1300	1320	1340		A2, DE
18		1-		4	0806	0818	0855		ED, KU, NU
18		3		1	1147		1228		HO
18		1		5	2145	2150	2200		A1, A2, A3, A7
19		1		1	0700		0800		HO
19		-		1	0807	0816	0847		ED
19			2	5	2200	2204	2213		BO, MC, SP
20	1			1	0043	0047	0110		BO
20		2+		1	0045	0050	0145		A7
20		2		5	2030	2055	2130		A2, A3, A5, A6, BO
20	1+			1	2035	2055	2120		BO
21			2	5	1907	1909	1911		BO, MC, SP
21			1+	5	2037	2040	2041		BO, MC, RE, SP
21			1	4	2115	2117	2119		BO, SP
22		1-		1	1320		1340		KU
22			2	5	1428	1435	1437		MC, RE, SP
22			1	5	1438	1440	1441		MC, RE, SP
22	2+			5	1442	1450	1530U	70	BO, MC, RE, SP
22		1-		1	1444	1453	1530		BO
22			2	5	1458	1503	1507		BO, MC, SP
23		1+		4	1017	1026	1054		ED, KU, NU
23		1		4	1415	1421	1510		DU, KU, PA
23	1-			1	1424	1427	1434		RE
23			2	5	1650	1656	1659		BO, MC, RE, SP
23	1-			1	1659	1703	1725U		RE
24		1		4	0649		0714		HO, KU
24	1			1	1118	1136	1142	15	RE
24		2+		2	1120	1138	1240		A3, A5
24		1		2	1258	1303	1345D		A3, A5
24			1	4	1340	1342	1343		RE, SP
24		1+		3	1423	1440	1455		A1, A3, A5
24			2	5	1835	1838	1839		BO, MC, SP
24			1-	3	1930	1933	1935		BO, SP
24		1		3	2015	2030	-		A1, A7
24			1+	5	2022	2024	2027		BO, MC, RE, SP
25		2		3	1540	1545	1610		A1, A2, A5
25			1	3	2020	2021	2023		BO, SP
25			1-	3	2046	2047	2048		BO, SP
26		3		1	0020	0039	0110D		A7
26	1			1	0024	0029	0055		SP
26			1	5	1606	1609	1610		MC, RE, SP
26			1	5	1748	1750	1751		BO, MC, SP
26		2		4	1818	1823	1843D		A1, A5, A7
26			2	5	2039	2042	2045		BO, MC, SP
26			1+	4	2228	2230	2232		BO, SP
27			1	5	2006	2007	2009		BO, RE, SP
28		1-		3	1020		1035		KU, NU
28		-		1	1157		1400		ED
28	1-			3	1803	1810	1825	4	BO, RE
28		1-		1	1807	1808	1817		BO
30		1-		1	1442		1455		NU
30	1			3	1605	1611	1626	12	BO, RE
30		1		5	1606	1611	1645		BO, KU, NU

SOLAR RADIO EMISSION
DAILY DATA

MARCH 1959

Washington, D.C. 9530 Mc.

Day	Flux	Day	Flux	Day	Flux
1		11	248	21	
2	236	12	250	22	
3	221	13	260	23	288
4	230	14	256	24	274
5	240	15	272	25	254
6	234	16	278	26	260
7	242	17	298	27	264
8	238	18	309	28	
9	248	19	313	29	
10	254	20	294	30	276
				31	258

OUTSTANDING OCCURRENCES

Mar. 1959	Type	Start UT	Duration Hrs.Mins	Maximum Time UT	Maximum Peak Flux	Observing Period UT	Remarks
2	Simple 2	2058.0	9.3	2059.0	26	1220-2140	
3						1215-2130	
4						1215-2215	
5	Complex	1525.9	12.5	1528.2	108	1235-2220	
6						1530-2140	
7	Complex	1246.5	12.0	1248.6	11	1155-2135	
	Complex	1730	25.0	1745	43		
8						1520-2230	
9	Simple 2	1720.3	2.7	1721.0	27	1220-2140	
	Complex	1812.2	0.8	1812.8	10		
10	Complex	1303.5	3.5	1305.1	8	1230-2150	
	Simple 2	1421.8	3.0	1422.3	24		
	Simple 1	1637.6	2.0	1638.7	6		
	Simple 2	1921.0	3.6	1921.9	77		
11	Simple 1	1412.4	2.3	1413.2	7	1340-2145	
	Complex	1801.0	34.0	1820.4	108		
	Simple 2F	1839.2	0.3	1839.3	23		
	Simple 2	2019.5	2.0	2020.5	32		
12	Simple 2	1654.2	3.4	1655.6	26	1215-2140	Strong Winds
	Post Inc.	1657.6	13.0		12		
13						1215-2150	Strong Winds
14						1725-2045	Strong Winds
15						1150-1540	Strong Winds
16	Simple 2	1158.2	0.6	1158.5	11	1145-2145	Strong Winds
	Simple 3	1625.3	9.7	1627.0	10		Strong Winds
	Simple 2	1704.4	4.0	1705.2	49		
17	Simple 1	1446.6	0.5	1447.0	6	1215-2100	
	Simple 2	1709.0	1.5	1709.7	50		Strong Winds
18	Simple 2	1458.5	Indeter	1459.5	47	1330-2235	Radar Interference
	Simple 2	1536.9	Indeter	1539.8	18		
	Group (2)	1753.3	10.6				
	Simple 2	1753.3	3.6	1754.2	45		
	Simple 2	1801.6	2.3	1802.5	69		
	Complex	1838.9	4.3	1840.0	20		
	Complex	2215.6	11.0	2216.9	136		
19	Group (2)	1428.0	22.8			1230-2130	
	Complex	1428.0	9.5	1428.9	41		
	Simple 2	1444.5	6.3	1446.2	53		
	Simple 2	1631.1	2.8	1631.9	59		
	Simple 2	1951.0	3.6	1952.2	16		
20	Simple 1	1256.0	3.5	1257.8	5	1235-2150	
	Simple 3	1525	35.0	1529.5	40		
	Post Inc. A	1600.0	1 30		24		
	Complex	1636.2	11.0	1642.3	20		
		Before					
23	Post Inc.	1215	50.0		36	1215-2145	
	Simple 3A	1311.0	4 30	1343.3	77		
	Complex	1328.4	6.0	1331.5	95		
	Simple 2	1335.4	2.3	1336.4	10		
	Simple 2	1339.2	2.0	1340.0	8		
	Simple 3A	1520.0	1 30	1556.4	20		
	Simple 2	1530.6	5.8	1533.4	12		
	Simple 2	1542.4	1.6	1542.9	21		
	Simple 1	1550.2	1.3	1551.0	7		
	Simple 2	1551.6	1.5	1552.3	9		
	Simple 2	1606.5	1.6	1606.8	17		
	Simple 2	1815.5	0.6	1815.8	12		
	Simple 2	1820.9	1.3	1821.5	10		
	Simple 3A	1852.0	50.0	1916.6	23		
	Simple 2	1855.3	0.8	1855.7	45		
	Complex	1901.2	4.0	1902.5	16		
24	Simple 2	1723.2	1.0	1723.6	11	1215-2200	
	Simple 3	1959.0	54.0	2009.5	10		
	Group 2	2054.3	16.3				
	Simple 2	2054.3	3.4	2055.9	30		
	Simple 2	2059.7	2.3	2100	11		
	Simple 3	2104.9	7.7	2107.0	12		
25	Complex	1721.6	8.3	1723.6	9	1400-2145	
	Complex	2013.2	1 08	2016.9	154		
26	Simple 2	1247.5	5.6	1249.1	19	1215-2110	Strong Interference
	Simple 2	1516.8	3.6	1518.2	79		
	Simple 2	2101.0	Indeter	2103.2	31		
27						1130-2010	Rain All Day
30	Complex	1547.9	35.0	1550.2	190	1215-2150	Interference
	Simple 2	2016.2	1.7	2017.1	34		Radar Interference

SOLAR RADIO EMISSION
DAILY DATA

FEBRUARY 1958

Washington,D.C. 9530 Mc.

Day	Flux	Day	Flux	Day	Flux
1	233	11	288	21	242
2		12	296	22	248
3	266	13	301	23	
4	296	14	284	24	264
5		15	278	25	252
6	303	16		26	254
7	299	17		27	250
8	301	18		28	258
9		19	258		
10	292	20			

OUTSTANDING OCCURRENCES

Feb. 1958	Type	IAU	Start UT	Duration Hrs.Mins	Maximum Time UT	Maximum Peak Flux	Observing Period UT	Remarks
1							1610-2050	
3	Complex	CD	1541.0	2.5	1541.7	22	1400-2130	
	Complex		Indeter	Indeter	1727.4	14		
4							1400-2135	
6	Group (2)	CD	1803.4	4.0			1400-2145	
	Complex		1803.4	0.8	1804.0	34		
	Complex		1804.9	0.9	1805.0	39		
7							1345-2145	
8	Simple 3	SD	1738.0	2 15	Indeter	14	1330-2140	
10	Complex	CA	1904.0	19	1905.8	307	1345-2140	
	Post Inc.		1923.0	>2		28		
11	Simple 2	SD	1344.0	6.0	1346.0	16	1340-2130	
12	Group (2)	SA	1840.3	15			1330-2130	
	Simple 2		1840.3	4.7	1843.3	55		
	Simple 2		1845.2	10.7	1847.1	51		
	Complex	CD	2036.0	2.7	2037.5	13		
13							1330-2130	
14	Simple 2	SD	2041.9	2.8	2042.8	26	1400-2140	
15							1420-1830	
19							1415-2110	
21							1330-2140	
22							1320-1920	
24							1330-2130	
25	Simple 3	SD	2000.0	>1 30	2029.0	15	1330-2135	
26	Simple 1	SD	1503.0	2.0	1504.0	6	1400-2100	
27							1430-2130	
28	Simple 2	SD	1728.0	7.0	1730.5	11	1330-2140	
	Complex	CD	1838.8	12.2	1843.5	16		

COMMERCE - STANDARDS - BOULDER

SOLAR RADIO EMISSION
DAILY DATA

Washington, D.C. — MARCH 1959 — 3200 Mc.

Day	Flux	Day	Flux	Day	Flux
1		11	165	21	
2	144	12	173	22	
3	140	13	183	23	221
4	145	14	188	24	203
5	150	15	209	25	207
6	157	16	211	26	200
7	162	17	221	27	210
8	172	18	245	28	
9	179	19	247	29	
10	181	20	258	30	208
				31	209

OUTSTANDING OCCURRENCES

Mar. 1959	Type	Start UT	Duration Hrs.Mins	Maximum Time UT	Maximum Peak Flux	Observing Period UT	Remarks
2	Simple 2	2058.0	10.6	2059.2	47	1220-2140	
3						1215-2030	
4						1215-2215	
5	Complex	1559.7	1.0	1600.1	8	1235-2220	
6						1215-2140	
7	Complex	1246.4	11.7	1248.7	17	1155-2135	
	Complex	1730	≈ 25.0	≈1745	> 58		
	Simple 1	1811.3	12.1	1818.3	5		
8						1520-2230	
9	Simple 2	1401.1	0.1	1401.15	17	1220-2140	
	Complex	1719.0	7.0	1721.1	62		
	Simple 1	1739.0	15.5	1744.0	6		
10	Complex	1302.2	26.0	1305.2	11	1230-2150	
	Complex	1418.3	6.7	1422.2	7		
	Simple 2	1515.3	4.0	1516.2	24		
	Simple 2	1637.6	4.6	1638.5	32		
	Simple 2	1921.3	3.6	1922.0	12		
11	Complex	1411.8	2.6	1413.2	7	1340-2145	
	Complex	1802.6	33.0	1820.4	156		
12	Complex	1653.6	4.4	1655.3	53	1215-2140	Strong Winds
	Post Inc.	1658.0	16.0		8		
13						1215-2150	Strong Winds
14						1725-2045	Strong Winds
15						1150-1540	Strong Winds
16	Simple 2	1158.2	0.6	1158.5	17	1145-2145	Strong Winds
	Simple 2	1625.3	5.0	1626.9	18		
17	Simple 2	1446.6	0.8	1447.0	10	1215-2100	Strong Winds
	Simple 2F	1709.3	1.6	1709.8	52		
18	Simple 1	1506.9	1.0	1507.2	7	1330-2235	Radar Interference
	Complex	1536.9	19.0	1539.8	11		
	Indeter	Indeter	Indeter	≈1802	≈ 8		
	Simple 1	1838.9	1.3	1839.6	4		
19	Complex	1428.3	9.0	1428.9	19	1230-2130	
	Simple 1	1631.0	1.7	1632.0	5		
	Simple 1	1951.3	4.0	1952.2	5		
20	Simple 1	1256.8	2.3	1257.8	6	1235-2150	
	Complex	≈ 1525	> 35.0	1538.0	31		
	Post Inc. A	1600.0	1 30		20		
	Simple 3	1636.5	10.0	1642.3	8		
		Before					
23	Post Inc.	1215	> 50.0		> 14	1215-2145	
	Simple 3A	1311.0	4 30	1335.0	37		
	Simple 2	1329.8	4.7	1332.0	96		
	Simple 2	1335.4	2.0	1336.5	10		
	Simple 2	1339.2	2.5	1340.0	9		
	Simple 2	1521.3	6.0	1523.5	11		
	Complex	1531.3	7.7	1533.4	21		
	Simple 3A	1541.7	1 15	1618.2	16		
	Complex	1544.8	11.0	1552.4	30		
	Simple 2	1605.0	4.3	1607.0	11		
	Complex	1815.5	1.2	1815.7	28		
	Simple 3	1820.6	9.0	1822.8	5		
	Simple 2	1855.4	0.8	1855.7	8		
	Complex	1857.5	9.5	1902.5	32		
	Post Inc.	1907.0	55.0		10		
24	Simple 2	1459.9	0.2	1500.0	11	1215-2200	
	Simple 2	1720.6	4.7	1723.6	34		
	Simple 3	1945.0	1 15	2007.8	17		
	Simple 3	2102.0	9.2	2107.2	12		
25	Group (3)	1644.9	40.0			1400-2145	
	Complex	1644.9	9.7	1649.1	26		
	Simple 2F	1707.2	4.1	1709.6	24		
	Complex	1722.0	3.0	1723.6	34		
	Complex	2011.6	46.0	2016.9	506		
26	Simple 1	1247.8	4.3	1249.4	7	1215-2110	Strong Interference
	Simple 2	1517.1	5.3	1518.6	51		
	Complex	2100.4	Indeter	2103.4	21		
27						1130-2010	Rain All Day
30	Complex	1547.9	35.0	1550.3	20	1215-2150	Interference
31						1215-2050	Radar Interference

SOLAR RADIO EMISSION
DAILY DATA

FEBRUARY 1958

Washington, D.C. — 3200 Mc.

Day	Flux	Day	Flux	Day	Flux
1	182	11	211	21	148
2		12	196	22	155
3	216	13	215	23	
4	219	14	188	24	184
5		15	185	25	175
6	228	16		26	179
7	231	17		27	163
8	219	18		28	173
9		19	164		
10	209	20			

OUTSTANDING OCCURRENCES

Feb. 1958	Type	IAU	Start UT	Duration Hrs.Mins	Maximum Time UT	Maximum Peak Flux	Observing Period UT	Remarks
1							1610-2050	
3	Complex	CD	1541.0	3.0	1541.7	27	1400-2130	
	Simple 1f	SD	1726.0	5.0	1727.4	11		
4							1400-2135	
6	Group (2)	CD	1802.8	4.6			1400-2145	
	Complex		1802.8	1.5	1804.1	38		
	Complex		1804.9	2.6	1805.3	29		
7							1345-2145	
8	Simple 3	SD	1738.0	2 15	Indeter	30	1330-2140	
10	Complex	CD	1900.3	23.0	1905.3	126	1345-2140	
	Post Inc.		1923	>2		13		
11	Simple 2	SD	1344.0	6.0	1346.0	21	1340-2130	
12	Simple 3	SD	Indeter	Indeter	1847.2	15	1330-2130	
	Complex	CD	2036.0	2.8	2037.4	18		
13							1330-2130	
14	Simple 2	SD	1709.4	2.4	1710.5	9	1400-2140	
15	Simple 3	SD	1800.0	> 30.0	1817.2	15	1420-1830	
19							1415-2110	
21							1330-2140	
22							1320-1920	
24	Simple 1	SD	2000.6	1.0	2001.1	6	1330-2130	
25	Simple 3	SD	1954.0	>1 40	2004.0	26	1330-2135	
26	Simple 2	SD	1502.6	2.5	1504.0	8	1400-2100	
27	Simple 1	SD	1940.0	1.0	1940.5	7	1830-2130	
28	Simple 2f	SD	1728.0	7.0	1730.5	22	1330-2140	
	Complex	CD	1838.0	12.0	1843.5	9		
	Simple 2	SD	2128.5	Indeter	2131.3	13		

[redacted]

SOLAR RADIO EMISSION

OUTSTANDING OCCURRENCES

MARCH 1959

Ottawa **2800 Mc.**

	Type*	Start UT	Duration Hrs:Mins	Maximum Time UT	Maximum Peak Flux	Remarks
2	2 Simple 2	2058	7	2059	40	
6	3 Simple 3	1230	1 30	1239	20	
7	2 Simple 2	1248	1	1248.5	17	
7	9 Precursor f	1722	19		15	
	2 Simple 2	1741	15	1746	45	
9	6 Complex f	1719	6	1721.3	60	
	4 Post Increase f		10		5	
10	2 Simple 2	1515.5	2	1516	20	
10	2 Simple 2	1637.5	3.5	1638.8	28	
10	1 Simple 1	1921.5	3	1922.5	7	
10	1 Simple 1	2127	2	2128	5	
11	6 Complex f	1807	26	1814	125	
12	2 Simple 2 f	1653.5	5	1655	40	
12	1 Simple 1	1741.5	6	1742.5	4	
12	1 Simple 1	1757.5	5	1800	4	
14	1 Simple 1	2155.8	3	2156.5	5	
15	2 Simple 2	1907	1.5	1907.5	9	
16	3 Simple 3	1353	15	1356	8	
17	2 Simple 2	1709.8	2.5	1710	50	
18	2 Simple 2	1305.5	2.5	1306.5	9	
18	3 Simple 3	1345	12	1350	7	
18	1 Simple 1	1537	7	1539	6	
19	2 Simple 2 f	1428.3	3	1429	10	
20	1 Simple 1	1257	2	1257.8	7	
20	2 Simple 2	1413.3	1	1413.8	10	
20	3 Simple 3 A	1528	1 05	1542	25	
	1 Simple 1	1529	1	1529.5	7	
20	2 Simple 2	2237.7	5	2238.7	30	In sunset osc.
21	2 Simple 2	1313.5	1	1314	12	
21	2 Simple 2 f	1701	4	1701.5	50	
22	2 Simple 2 f	1340	15	1345.5	525	
	4 Post Increase A		3		30	
	6 Complex	1558.3	3.5	1559	30	
22	2 Simple 2	2217.5	2.5	2218.5	10	
23	3 Simple 3 A	1325	4	1336.5	25	
	2 Simple 2	1330	5	1332	70	
	1 Simple 1	1519.5	2	1520.5	7	
	2 Simple 2	1532.3	2.5	1533.3	16	
	9 Precursor	1550	2	1533.3	7	
	2 Simple 2	1552	1.5	1552.3	27	
23	2 Simple 2	1815.5	1	1815.8	15	
24	- Record incomplete	b1200	>3 20		55*	In sunrise
24	2 Simple 2	1723	1.5	1723.7	23	
24	1 Simple 1	2105.5	3	2107	5	
25	1 Simple 1	1308.5	2	1309.8	5	
25	2 Simple 2	1708.5	2.5	1709.3	28	
25	2 Simple 2	1723	1	1723.3	17	
25	6 Complex	2013.3	25	2016.8	475	
	4 Post Increase		2		15	
26	2 Simple 2	1517.5	2	1518.5	35	
26	2 Simple 2	2102	3	2103.5	10	
28	3 Simple 3 f	1715	1 05	1733	20	
28	2 Simple 2 f	2120.5	7	2123.5	100	
	4 Post Increase		35		22	
29	8 Group (2)	1858	11.4			
	2 Simple 2	1858	2	1858.5	18	
	4 Post Increase		7		5	
	2 Simple 2	1908.4	1	1908.8	22	
29	2 Simple 2	2148	6	2150	20	
	4 Post Increase		35		7	
30	3 Simple 3 A	1549	22	1557	11	
	6 Complex	1550	3.5	1550.5	17	
31	2 Simple 2	2131	3.5	2132.2	225	

*Maximum reached during this period

CORRESPONDENCE - STANDARDIZATION - ANALYSIS

HOURS OF OBSERVATIONS: JANUARY, FEBRUARY, MARCH 1959

OBSERVING PERIOD: January 1330 UT - 2120 UT (approx.)
February 1255 UT - 2200 UT (approx.)
March 1215 UT - 2235 UT (approx.)

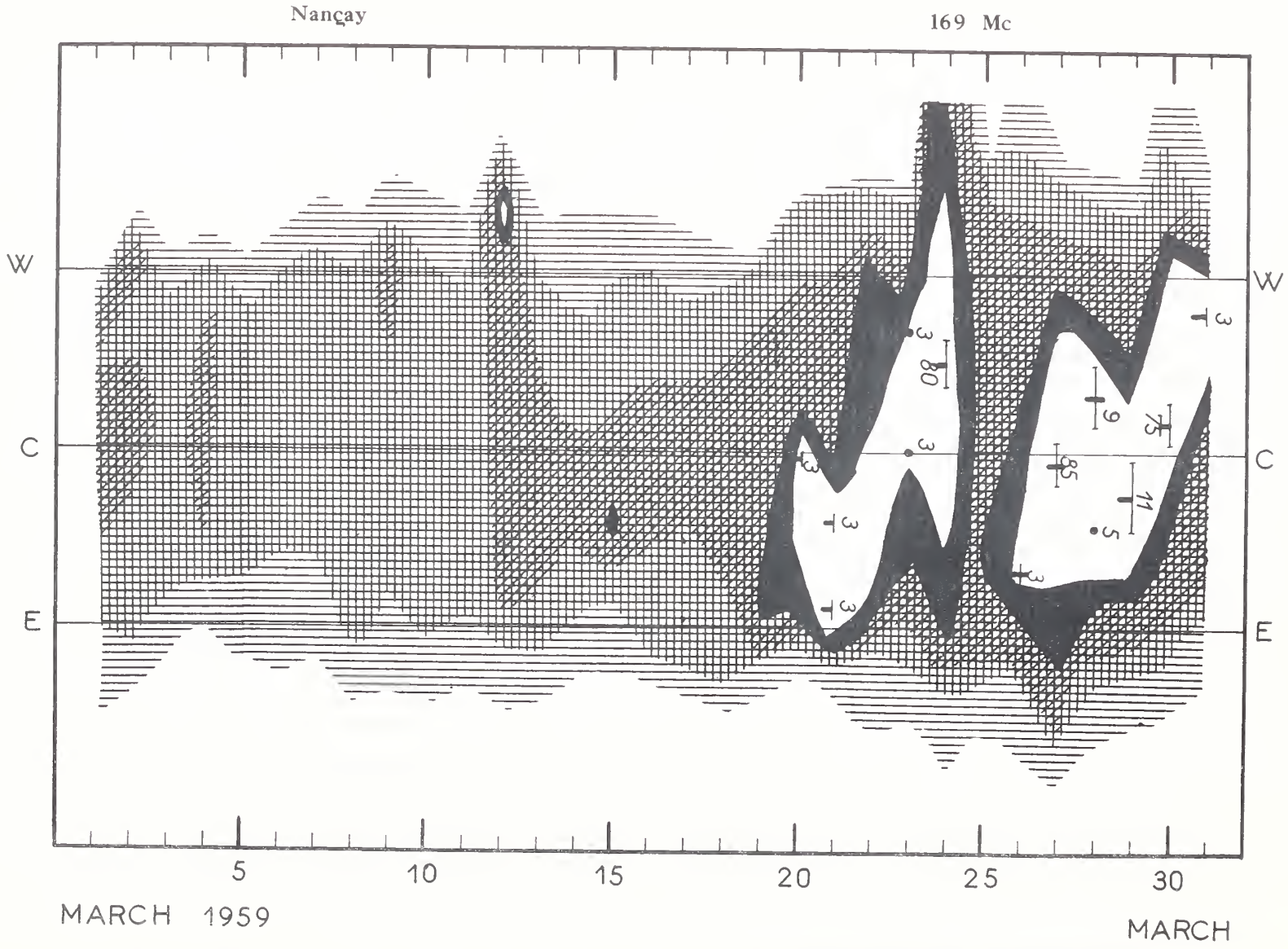
with the following exceptions:

(1) Continuous observations on all days have been broken for receiver calibration and by sporadic interference.

(2) No observations:
January 6,7
March 8

(3) Delay in time of start of observations:
January 8 1550
16 - 1730
February 16 - 1420
March 3 - 1310
4 - 1320
9 - 1400
10 - 1400
15 - 1610

SOLAR RADIO EMISSION
INTERFEROMETRIC OBSERVATIONS



SOLAR RADIO EMISSION

DAILY DATA
DECEMBER 1958

BOULDER 167 MC

Dec. 1958	Flux Density 10^{-22} w m^{-2}(c/s)$^{-1}$ Hours UT 0-3	12-15	15-18	18-21	21-24	Day	Variability 0 to 3 Hours UT 0-3	12-15	15-18	18-21	21-24	Day	Observing Periods Hours UT
1	-	-	49	30	50	42	-	-	2S	2S	2S	2S	14.1-23.3
2	-	-	120	47	42	73	-	-	2S	2S	2S	2S	14.1-23.3
3	-	-	54	74	41	58	-	-	1S	2S	2S	2S	14.0-23.3
4	-	-	-	-	-	-	-	-	-	-	-	-	14.1-20.6; 20.9-23.3
5	-	-	136	74	49	91	-	-	2S	2S	2S	2S	14.2-23.3
6	-	-	-	23	112	67	-	-	1S	2S	2S	2S	14.2-23.2 Note 1
7	-	-	19	17	14	17	-	-	2S	2S	2S	2S	14.2-23.2
8	-	-	208	39	206	144	-	-	2S	2S	2S	2S	14.2-21.8; 22.1-23.3
9	-	-	13	12	9	12	-	-	2S	2S	2S	2S	14.3-23.3
10	-	-	18	11	11	14	-	-	2S	2S	2S	2S	14.3-23.3
11	-	-	23	22	20	22	-	-	2S	2S	2S	2S	14.5-19.8; 20.6-23.3
12	-	-	34	19	15	24	-	-	2S	2S	1S	1S	14.3-23.3
13	-	-	8	22	24	17	-	-	1S	1S	2S	1S	14.3-23.3
14	-	-	30	34	30	31	-	-	2S	2S	1S	2S	14.3-23.3
15	-	-	13	13	14	13	-	-	1S	2S	0S	1S	14.3-23.3
16	-	-	11	11	-	11	-	-	1S	0S	1S	1S	14.3-23.3
17	-	-	10	-	-	10	-	-	0S	0S	-	0S	14.3-20.5; 22.0-23.3
18	-	-	12	12	13	12	-	-	0S	0S	0S	0S	14.3-23.3
19	-	-	14	14	13	14	-	-	0S	1S	0S	0S	14.3-23.3
20	-	-	-	-	17	17	-	-	-	-	0S	0S	20.0-23.3
21	-	-	14	13	12	13	-	-	0S	1S	1S	1S	14.3-23.3
22	-	-	13	12	12	12	-	-	0S	1S	2S	1S	14.3-17.1; 17.7-23.3
23	-	-	12	12	10	12	-	-	0S	1S	0S	0S	14.3-23.3
24	-	-	11	11	10	11	-	-	2S	1S	2S	1S	14.4-19.3; 20.6-23.4
25	-	-	9	10	10	10	-	-	1S	1S	2S	1S	14.4-23.4
26	-	-	-	9	9	9	-	-	1S	2S	0	1S	14.4-23.4
27	-	-	10	10	9	9	-	-	1S	0	0	0S	14.4-23.4
28	-	-	14	22	26	20	-	-	2S	2	2S	2S	14.4-23.4
29	-	-	9	8	8	8	-	-	0S	0S	1S	0S	14.4-23.4
30	-	-	8	10	10	9	-	-	0S	0S	1S	0S	14.4-23.4
31	-	-	9	8	-	8	-	-	2S	1S	0S	1S	14.4-23.4

Note: 1. Flux values for December 6 thru December 31 may be too low by some unknown factor, perhaps as large as 2.

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES
DECEMBER 1958

BOULDER 167 MC

	Type Ap.J	Start UT	Time of Maximum	Duration Minutes	Type IAU	Max. Flux Density 10^{-22} w $m^{-2}(c/s)^{-1}$ Inst.	Smooth	Remarks
Dec.								
1	6	1405 B	2317.2	555 D	CA	660 X	41 X	S
2	6	1405 B	1737.1	555 D	CA	810	110	S
3	6	1400 B	1417.9	329 D	CA	460	68	S,I 1926-1929
3	9	1929 I	1935.9	14 X	CD	790	140	
3	6	1943 X	2152.5	212 X	CA	1900 D	68	S
3	3	2216.9	2217.8	1	ECD	880	-	S
5	6	1410 B	1636.9	550 D	CA	600	130	S
6	6	1830 B	2054.3	290 D	CA	800 X	100 X	
7	6	1410 B	2032.4	550 D	CA	270	14	S
8	6	1410 B	2037.7	550 D	CA	860 D	200	S,I 2150-2205
9	8	1659	1703.3	7	ECD	1300 D	670 D	N3
9	3	2210.5	2211.0	1	ESD	320	-	S
10	6	1415 B	2221.0	545 D	CA	630 D	10	S
10	8	2101	2102.1	3	ECD	1000 D	-	S
10	8	2111	2112.0	3	ECD	530 D	-	
11	6	1430 B	1519.0	215 D	CA	1200 D	16	S, Large burst 1429.2
11	9	1805	Note 4	25 X	ECD	1800 D	250	N4
11	6	1830 X	2214.2	290 D	CA	790 D	12	S,I 1950-2037, N5
11	8	1854	1856.0	5	ECD	890 D	110	
11	8	1934.5	1937.5	6	ECD	1400 D	100	
12	6	1415 B	1722.0	545 D	CA	1400 D	26	S
13	1	1415 B	1847.1	545 D	MF	1400 D	-	S
13	3	2149.7	2150.1	1.3	ECD	1200 D	-	
14	6	1420 B	1530.7	540 D	CA	1074 D	24	S
15	3	1908.4	1908.9	0.9	ECD	90	-	
15	3	1912.8	1913.3	1.2	ECD	97	-	
16	3	2132.3	2133.2	1.6	ESD	140	-	Bursts 1717
19	3	1906.8	1907.5	1	ESD	60	-	
21	3	2103	2103.5	1	ESD	52	-	
21	3	2133.4	2134.3	1	ECD	39	-	
22	3	1803.3	1806.0	0.8	ESD	850 D	-	
22	3	1810.5	1811.0	1	ECD	160	-	
23	3	1833.1	1833.3	0.9	ESD	120	-	
23	3	1955.9	1956.1	0.7	ESD	42	-	
24	1	1425 B	1616.9	444 D	MF	530 D	-	S
24	3	2140.8	2141.0	0.6	ESD	160	-	
24	9	2149	2207	41 X	CA	89	15	
25	1	1425 B	2219.6	540 D	MF	520 D	-	S
25	3	1639.1	1639.4	0.7	ESD	240	-	
26	1	1425 B	1848.5	540 D	MF	450 D	-	S
27	3	1743.7	1744.0	1.0	ESD	88	-	Bursts 1439.0, 1727.9
28	6	1425 B	1509.5	540 D	CA	400 D	16	S, Large burst 1624.0
28	8	1854.4	1855.3	2.6	ECD	980 D	-	
28	8	2000	2000.5	1.5	ECD	980 D	-	
31	8	1702 X	1707.1	9 X	CD	350	-	S, N6

Notes:
1. Interference may occasionally obscure or be mistaken for solar events.
2. Flux values for December 6 thru 31 may be too low by some unknown factor, perhaps as large as 2.
3. December 9, Burst 1905.0, large burst 1914.4.
4. December 11, Maximum may have occurred sometime between 1809.5-1810.5 or at 1812.8.
5. December 11, Large burst 2212.0.
6. December 31, Burst started while making a test, another burst occurred at 1717.1.

COMMERCE - STANDARDS - BOULDER

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

JANUARY 1959

BOULDER

167 MC

Jan. 1959	Type	Start UT	Time of Maximum UT	Duration Minutes	Intensity
1	6	1600 E		447 D	1
1	2	1657	1701	7	2
1	2	1816	1818	4	2
1	2	1845	1846	3	2
1	2	1948	1948	2	2
1	3	1919	1919	1.5	2
1	8	2131	2133	7	2
2	6	1425 E		548 D	1
2	2	1501	1501	2	2
2	2	1646	1648	4	2
2	2	1903.5	1904	2	2
3	6	1426 E	1431	544 D	1
3	2	1503	1503.5	2	2
3	2	2117	2118	2	2
4	6	1424 E		290 D	1
4	2	1506	1507	2	2
4	3	1628.5	1628.5	1	2
5	2	2047.5	2047.5	2.5	2
6	6	1500 E		513 D	2
6	2	2221	2222	1.5	2
7	6	1423 E		493 D	2
7	2	1935.5	1936	1.5	2
8	6	1424 E		493 D	1
8	2	2031	2032.5	6	2
8	2	2255	2256	3	2
9	6	1425 E		492 D	1
9	3	1933	1933	0.5	2
9	3	2012	2012	0.1	2
10	6	1425 E		492 D	2
11	6	1729	1755	91	2
11	6	1951		226 D	1
11	2	2158	2158	1	2
12	6	1601		54	1
12	6	E1815		42 D	1
12	2	1938	1939.5	3	2
12	2	1942	1942.5	3	1
16	3	*1431.5	1432	1.5	2
18	3	1757.5	1758	1.5	2
18	2	2003	2003.9	1.5	2
18	3	2017	2017	1	1
18	3	2033	2033	.5	2
18	2	2122	2122	2	2
18	2	2132.5	2132.5	1.	1
20	7	1452	1509	40	1
21	2	1600	1600.5	1	2
22	3	1815	1815.5	1	3
22	2	1818	1821	3.5	3
22	3	1932.5	1932.5	1	2
22	2	2008	2008.5	1	2
22	8	2056	2058	14	3
23	6	1421 E		573 D	1
23	3	1549	1549	1	2
23	2	1635	1635.5	1	2
23	2	1639.5	1640.5	3.5	3
23	3	1810	1810	.2	2
23	2	1908	1908.5	1	2
23	2	1939.5	1940	2	2
23	3	1955	1955	.2	2
23	3	2003	2003	.2	2
23	3	2010	2010.5	1	2
23	3	2019	2019	1	2
23	3	2152.5	2152.5	.2	2
23	3	2155.5	2155.5	.2	2
23	3	2233.5	2233.5	.2	2
23	3	2338	2338	.2	2
23	3	2250	2250	.2	2
24	6	1419 E		576 D	1
24	2	1451.5	1454	3.5	2
24	3	1458	1458	.5	2
24	2	1509	1509	3	2
24	3	1535.5	1535.5	.2	2
24	2	1545	1546.5	3	2
24	3	1550	1551	1.5	2
24	3	1553	1553.3	1	2
24	3	1622.5	1622.5	.2	3
24	3	1645.5	1645.5	.2	2
24	2	2016	2017.5	2.5	2
24	3	2045	2045	.2	2
24	2	2159.5	2202	4.5	2
24	2	2303	2305	3	2
24	2	2320.8	2321	2.2	2
25	6	1416 E		578 D	2
25	2	1519	1520.5	3	2
26	6	1417 E		456 D	1
27	6	1418 E		552 D	1
27	3	1654	1654	.2	1
27	3	1816	1816	.2	2
27	8	1955	1957	5	3
28	6	1629		22	1
28	6	1906.5		292.5	1
28	3	1941	1941	.2	2
28	3	2001.5	2002	1	1
28	3	2026	2026	.2	2
29	2	1712	1712	1	2
29	6	2141		135. D	1
30	3	1559.5	1559.5	.5	2
31	3	1802	1802.2	1	1
31	3	1831	1831	.2	1
31	3	1837	1837	.5	1
31	3	2208	2208	.2	1
31	2	2312	2313	3	1

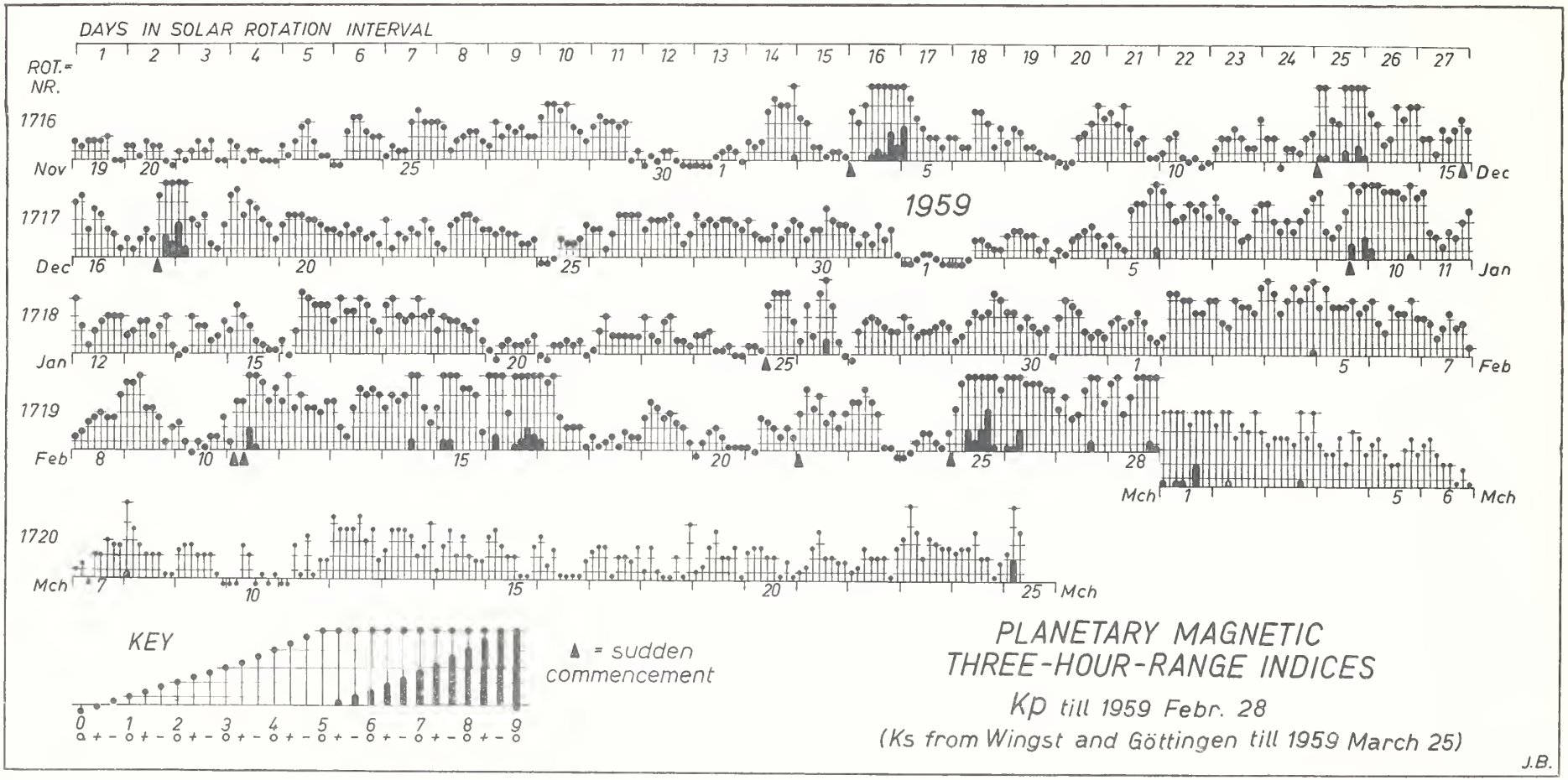
*Sunrise

COMMERCE - STANDARDS - BOULDER

GEOMAGNETIC ACTIVITY INDICES

FEBRUARY 1959

Feb. 1959	C	Values Kp Three hour Gr. interval 1 2 3 4	5 6 7 8	Sum	Ap	Final Selected Days
1	0.7	3- 3o 2+ 3-	3+ 3- 2- 1+	20-	11	Five
2	1.1	2- 4+ 4+ 4o	4o 3+ 3+ 4o	29o	23	Quiet
3	1.2	4o 3- 2+ 4o	4- 4- 3+ 5-	28+	22	
4	1.3	5o 4+ 3+ 4o	5- 4o 5- 5+	35+	36	10
5	1.1	4- 5- 4- 4-	4- 4o 3+ 4-	30+	24	18
						20
6	1.0	4o 3- 2o 4-	3+ 3+ 4o 3o	26o	18	21
7	0.6	3o 3- 2- 2+	3+ 2+ 3- 1o	19o	11	24
8	0.9	1+ 2- 2+ 3-	3o 3- 3- 4o	20+	12	
9	1.1	5- 5- 5o 3+	3+ 3- 1o 2o	27-	23	
10	0.2	2+ 1o 0+ 1o	1- 1+ 1+ 3-	11-	6	
11	1.4	1o 4- 4- 6+	5+ 5- 4- 4+	33-	36	Five
12	1.1	4- 5o 3+ 4o	3+ 3+ 3o 4-	29+	24	Disturbed
13	1.2	4- 2o 1+ 3+	4+ 4o 4+ 4o	27o	21	
14	1.3	3+ 4o 4- 4o	6- 5o 3+ 2+	31+	30	4
15	1.3	3+ 6- 6- 5o	4+ 4+ 4o 2-	34o	37	16
						25
16	1.7	5o 6o 5o 3o	5+ 6- 6+ 6o	42+	61	26
17	1.0	6- 5- 5o 3-	2o 2o 2o 1-	25-	24	28
18	0.1	1+ 1- 1o 1+	1- 2- 1+ 1+	9+	4	
19	0.7	3- 4- 3+ 3-	3o 2+ 2o 1o	21-	12	
20	0.1	0o 1o 2- 2o	1+ 1- 1- 1-	8o	4	
21	0.2	1- 0+ 3- 2+	2o 1+ 2o 1+	13-	6	Ten
22	0.8	3o 4+ 3+ 4o	2+ 3o 2o 3o	25o	17	Quiet
23	0.3	4- 4- 4+ 4-	3o 1- 1- 0o	20-	15	
24	0.2	0o 0+ 1o 2-	2- 1o 1- 2-	8o	4	1
25	1.9	3+ 5- 6+ 6-	6+ 7+ 5+ 4+	43+	69	7
						8
26	1.5	5+ 5+ 6+ 5-	5- 5- 4+ 4+	40-	48	10
27	1.3	3+ 4o 3- 3o	4+ 6- 5o 4-	32-	30	18
28	1.5	5- 5o 3o 4o	5o 5o 6- 5+	38-	44	19
						20
						21
						23
						24
Mean:	0.95			Mean:	24	



COMMERCE - STANDARDS - BOULDER

CRPL RADIO PROPAGATION QUALITY FIGURES AND FORECASTS
NORTH ATLANTIC
FEBRUARY 1959

Feb. 1959	North Atlantic 6-hourly quality figures				Short-term forecasts issued about one hour in advance of:				Whole day index	Advance forecasts (J-reports) for whole day; issued in advance by:				Geomagnetic K_{Fr}	
	00 to 06	06 to 12	12 to 18	18 to 24	00	06	12	18		1-7 days Final	1-7 days Js	1-7 days SDW	1-7 days J	Half (1)	Day (2)
1	6+	7-	7o	7+	7	7	7	7	7-	7			7	2	2
2	7+	6+	7o	7-	7	7	7	7	7-	7			7	(4)	3
3	7-	7+	7-	7-	7	7	7	7	7-	7			7	3	3
4	6o	7o	7-	6o	7	6	7	7	6+	7			7	(4)	(4)
5	6+	6+	7o	7-	6	6	7	6	7-	7			7	3	3
6	7-	7-	7+	7-	6	7	7	7	7-	7			7	2	3
7	7-	7-	7+	7o	7	7	7	7	7o	7			7	2	1
8	7-	7-	7+	7+	7	6	7	7	7o	7			7	2	3
9	5+	5+	7o	7o	7	5	7	6	6o	7			7	(4)	2
10	6+	6+	7+	7+	6	6	7	6	7-	5		5	7	1	1
11	7-	6-	7-	7-	5	5	4	4	7-	4		4	7	3	(4)
12	6-	6o	7o	7o	5	5	6	7	6+	4		4	4	(4)	3
13	7-	6o	6+	6-	7	7	7	6	6+	6			6	1	3
14	6o	7-	5+	6o	6	6	7	5	6o	6			6	3	(4)
15	6-	5o	7-	6+	6	6	5	6	6-	7			7	(4)	3
16	6-	6-	7-	4+	6	6	6	6	5+	7			7	(4)	(4)
17	5-	6-	6+	6+	5	5	5	6	6-	7			7	(4)	1
18	6o	6-	7-	7-	6	6	7	7	6+	7			7	0	1
19	7-	6+	7o	7o	6	6	7	7	7-	7			7	3	2
20	7o	7o	7+	7+	7	7	7	7	7+	7			7	1	1
21	7+	7-	7+	7o	7	7	7	7	7o	7			7	2	2
22	7-	6+	7+	7+	7	5	6	7	7o	7			7	3	3
23	7+	6o	7+	7+	7	7	7	7	7o	7			7	3	1
24	7o	7o	7+	7+	7	7	7	7	7o	7			7	0	2
25	7o	5o	6o	5-	7	7	6	4	6-	7			7	(4)	(4)
26	4-	3+	6+	6+	6	3	5	5	(4+)	3			3	(4)	(4)
27	6-	6-	7o	6o	5	5	7	6	6o	5			5	3	(4)
28	6-	6-	5+	5+	6	6	7	4	6-	6			6	(4)	(4)

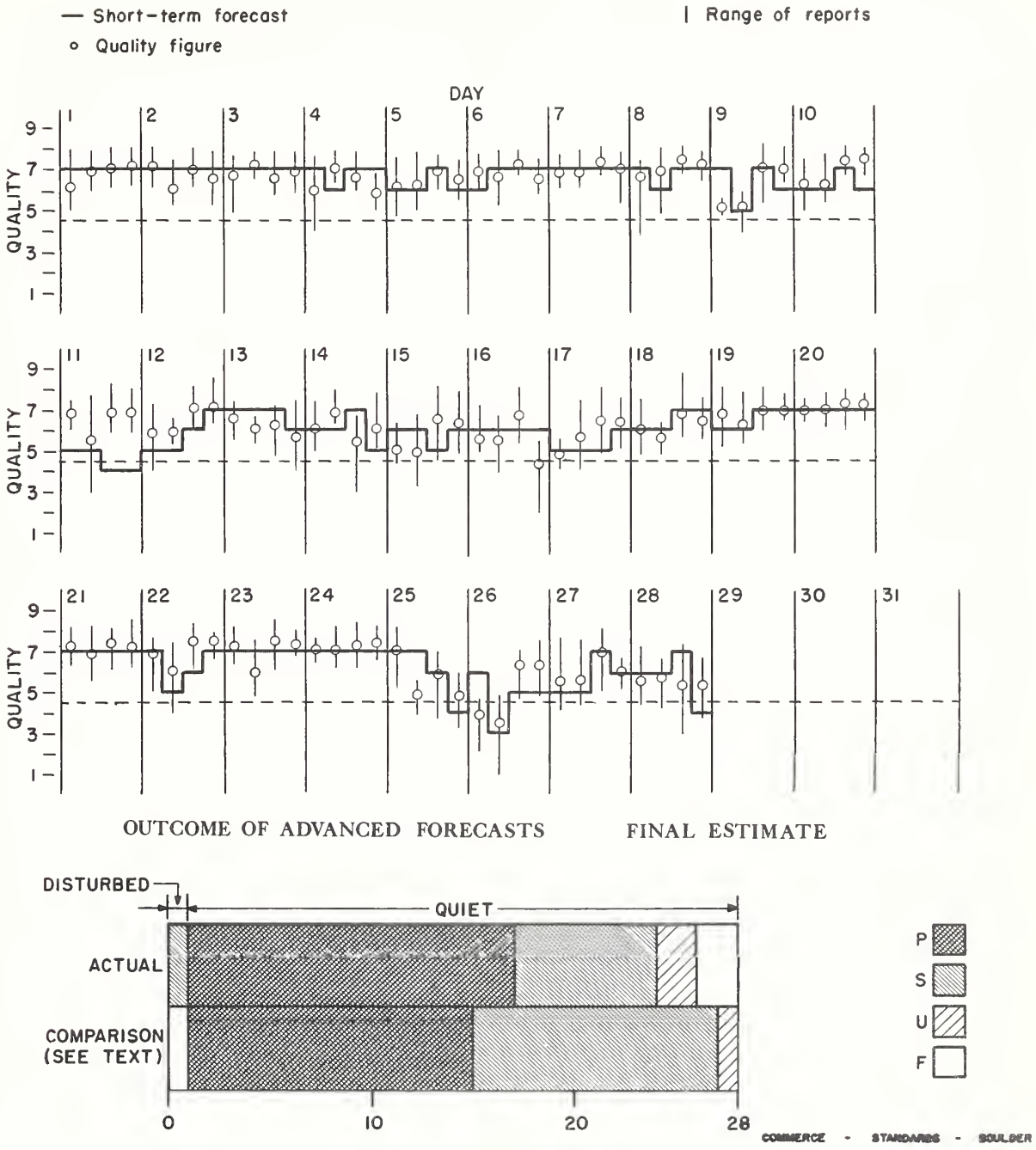
Score:			00	06	12	18	Whole day	Advance forecasts 1-7 days Final	Advance forecasts 1-7 days J
Quiet Periods	P		19	14	18	18		16	18
	S		6	12	6	8		7	7
	U		2	1	3	0		2	1
	F		0	0	1	1		2	1
Disturbed Periods	P		0	1	0	0		0	0
	S		0	0	0	0		1	1
	U		0	0	0	0		0	0
	F		1	0	0	1		0	0

( ) represent disturbed values.

CRPL RADIO PROPAGATION QUALITY FIGURES AND FORECASTS

NORTH ATLANTIC

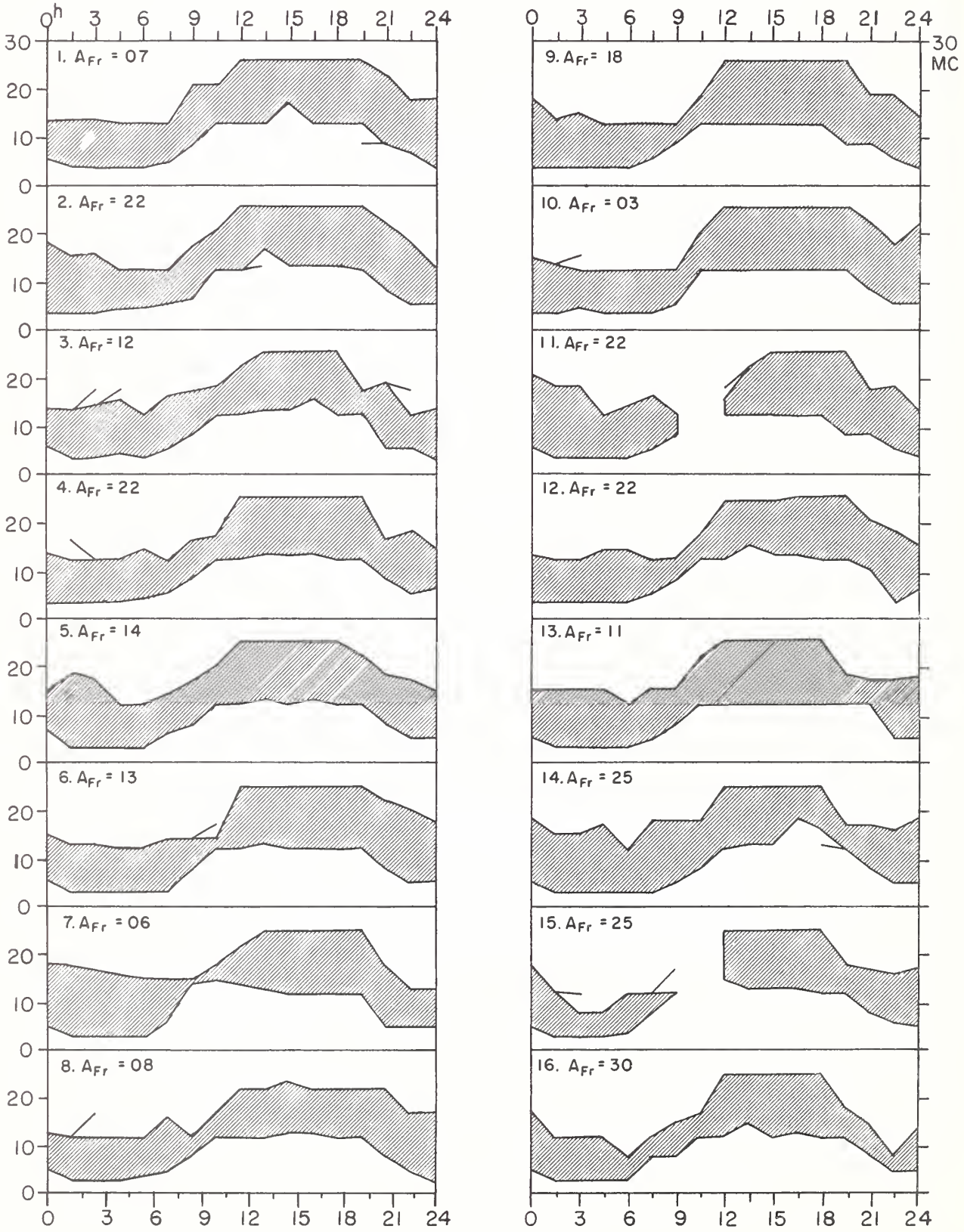
FEBRUARY 1959

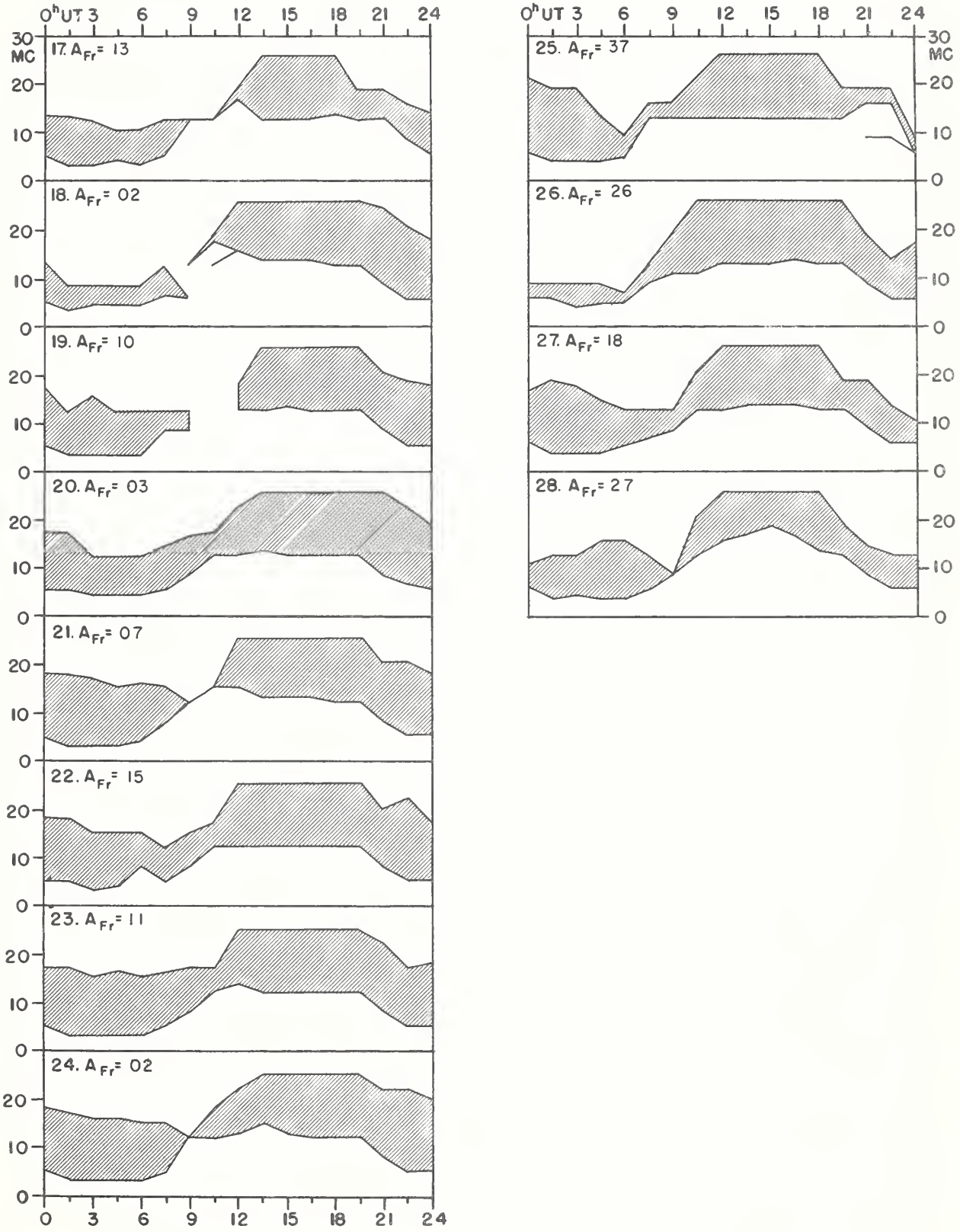


OUTCOME OF ADVANCED FORECASTS FINAL ESTIMATE

USEFUL FREQUENCY RANGES -- NORTH ATLANTIC PATH

FEBRUARY 1959

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30 MC
17. AFr= 13
18. AFr= 02
19. AFr= 10
20. AFr= 03
21. AFr= 07
22. AFr= 15
23. AFr= 11
24. AFr= 02
25. AFr= 37
26. AFr= 26
27. AFr= 18
28. AFr= 27
0 10 20 30

CRPL RADIO PROPAGATION QUALITY FIGURES AND FORECASTS

NORTH PACIFIC

FEBRUARY 1959

Feb. 1959	North Pacific 8-hourly quality figures			Short-term forecasts issued at			Whole day index	Advance forecasts (Jp reports) for whole day; issued in advance by:				Geomagnetic K_{S1}	
	03 to 11	11 to 19	19 to 03	02	10	18		1-7 days Final	1-7 days Jpa	1-7 days SDW	1-7 days Jp	Half (1)	Day (2)
1	6	6	7	6	6	6	7	6			6	(4)	(4)
2	5	6	7	6	5	6	6	6			6	3	(4)
3	5	6	7	5	6	6	6	6			6	(4)	(5)
4	6	6	6	6	6	5	6	6			6	(4)	(4)
5	6	6	6	6	6	5	6	5			5	3	(4)
6	6	6	7	6	5	6	7	5			5	2	2
7	7	7	6	6	6	7	7	5			5	2	3
8	6	6	6	6	6	5	6	6			6	(5)	2
9	6	7	7	6	4	6	7	6			6	1	1
10	6	6	7	6	6	6	6	6			6	(4)	(5)
11	6	5	6	6	4	5	5	6			6	3	3
12	6	6	7	5	4	6	6	4			4	2	(4)
13	7	6	7	6	6	6	6	5			5	(4)	(5)
14	7	4	7	6	3	5	6	6			6	(5)	(5)
15	5	4	6	6	3	5	5	6			6	(4)	(6)
16	6	4	5	5	5	5	5	6			6	(5)	2
17	5	5	6	5	5	6	5	6			6	1	1
18	5	4	6	5	5	6	5	6			6	3	3
19	6	6	6	5	5	6	6	5			5	1	0
20	6	5	6	5	6	6	6	5			5	2	1
21	6	6	6	6	6	6	6	6			6	3	2
22	6	6	7	6	6	6	7	6			6	(4)	2
23	6	7	6	6	6	7	6	6			6	0	1
24	7	6	6	6	6	6	7	6			6	(5)	(7)
25	5	3	4	6	3	3	(4)	6			6	(5)	(4)
26	3	3	5	5	5	4	(3)	5			5	3	(5)
27	6	4	6	6	6	4	5	5			5	(4)	(5)
28	6	3	5	6	5	4	5	6			6	(5)	(5)

Score:			02	10	18	Whole day index	1-7 days Final
	Quiet Periods	P	17	12	7		9
		S	10	5	18		15
		U	0	0	1		1
		F	0	2	1		1
	Disturbed Periods	P	0	2	0		0
		S	0	4	1		0
		U	1	2	0		1
		F	0	1	0		1

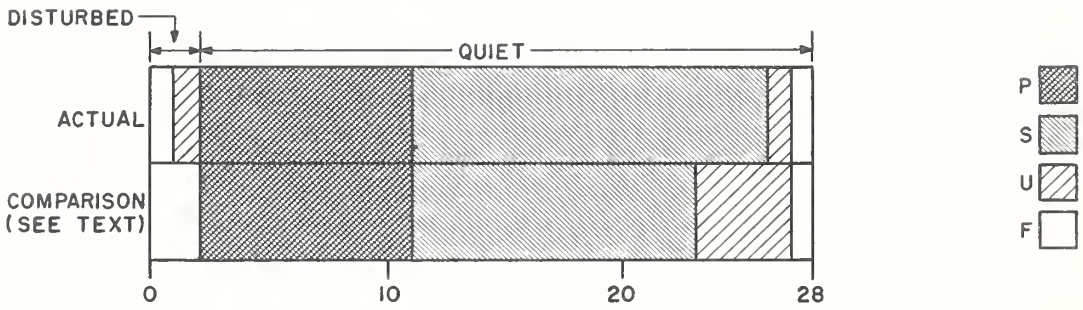
( ) represent disturbed values.

CRPL RADIO PROPAGATION QUALITY FIGURES AND FORECASTS

NORTH PACIFIC

FEBRUARY 1959

OUTCOME OF ADVANCED FORECASTS FINAL ESTIMATE



COMMERCE - STANDARDS - BOULDER

ALERT PERIODS AND SPECIAL WORLD INTERVALS

INTERNATIONAL GEOPHYSICAL COOPERATION 1959

Issued Day/Time UT Mar. 1959	Advance Geophysical Alert	No.	Worldwide Geophysical Alert	Special World Interval
25/2305	Ft. Belvoir Magnetic Storm 25/1415Z	1		
26/1600		5	Aurora Inferred Magnetic Storm 26/0840Z	Start Special World Interval
27/1600		6		Continue Special World Interval
28/1600		7		Finish Special World Interval
29/0006	McMath Solar Flare 28/2118Z			

COMMERCE - STANDARDS - BOULDER