PART B

SOLAR - GEOPHYSICAL DATA

ISSUED
NOVEMBER 1961

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

CRPL-F 207
PART B

NATIONAL BUREAU OF STANDARDS
CENTRAL RADIO PROPAGATION LABORATORY
BOULDER, COLORADO

Issued
30 Nov. 1961

SOLAR - GEOPHYSICAL DATA

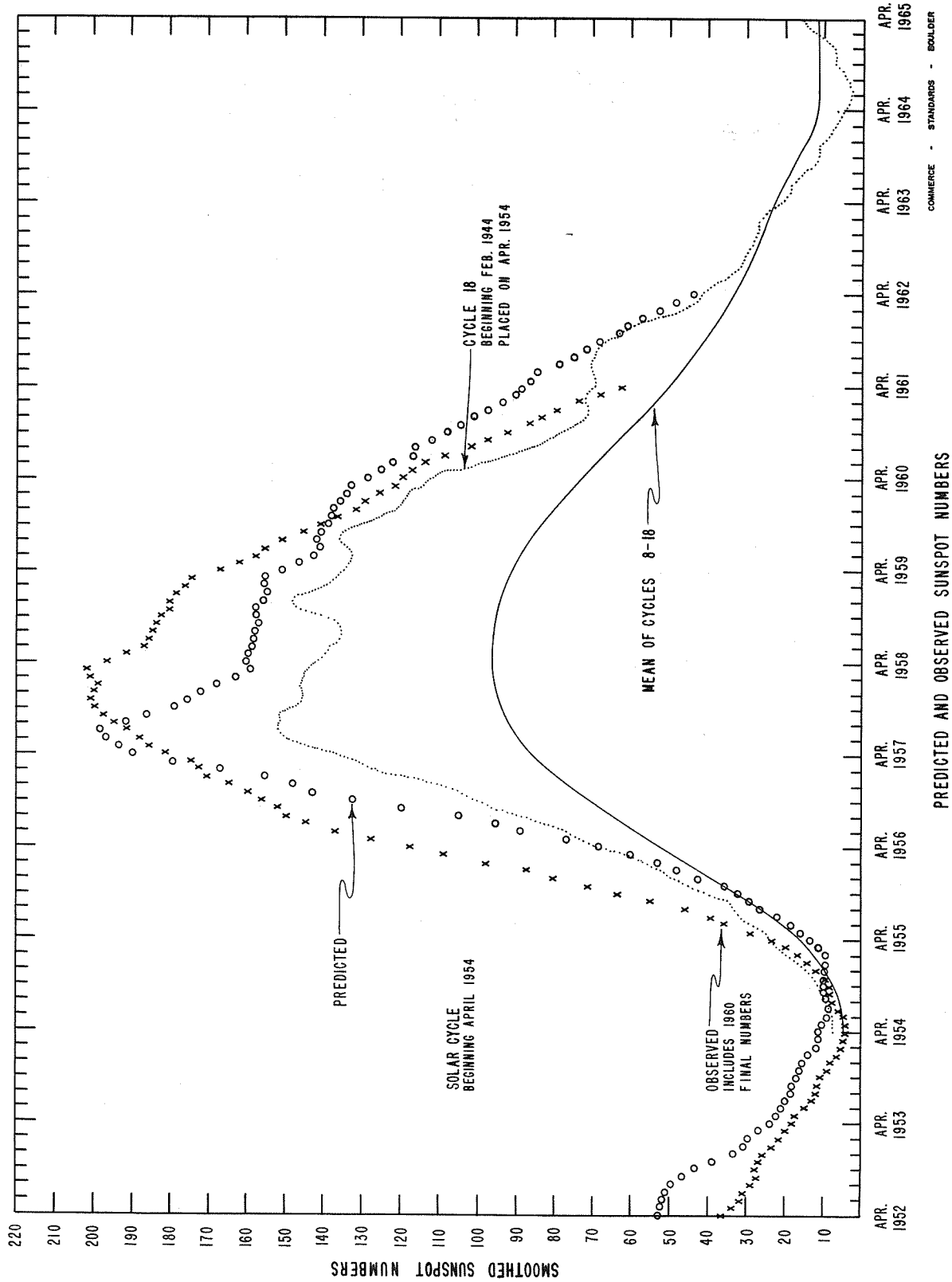
CONTENTS

The descriptive text has been republished this month, November 1961.

Sep. 1961	American Relative Sunspot Numbers $R_{A'}$
1	36
2	41
3	41
4	40
5	35
6	32
7	31
8	26
9	41
10	40
11	43
12	44
13	67
14	105
15	105
16	95
17	62
18	48
19	50
20	43
21	39
22	34
23	39
24	57
25	60
26	64
27	65
28	65
29	50
30	44
Mean:	51.4

Oct. 1961	Zürich Provisional Relative Sunspot Numbers R_Z	Daily Values Solar Flux at 2800 Mc, Ottawa, Canada Flux
1	45	98
2	47	97
3	53	97
4	50	102
5	46	108
6	42	101
7	40	99
8	46	98
9	47	107
10	53	106
11	58	107
12	76	111
13	47	111
14	44	105
15	53	106
16	46	100
17	39	97
18	39	95
19	46	95
20	38	93
21	47	92
22	33	89
23	16	85
24	17	85
25	7	83
26	13	83
27	6	84
28	7	86
29	9	85
30	9	87
31	8	86
Mean:	36.4	96.1

COMMERCE - STANDARDS - BOULDER


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

CALCIUM PLAGE AND SUNSPOT REGIONS

OCTOBER 1961

CMP OCTOBER 1961	Lat	McMath Plage Number	Return of Region	Calcium Plage Data				Sunspot Data		
				CMP Values				CMP Values		
				Area	Int.	History	Age	Area	Count	History
01.2	N12	6235	6212	3600	3.5	ℓ — ℓ	3	70	3	ℓ ⌝d
02.0	S04	6238	New	(700)	(2)	ℓ ⌝d	1			
02.6	N13	6237	New	2600	3.5	ℓ — ℓ	1	180	17	ℓ — ℓ
04.2	S11	6241	New	700	3.5	b ⌜ ℓ	1	140	6	b ⌜ ℓ
05.8	N16	6244	New	400	2	b ∧ d	1	40	1	b ∧ d
06.1	N11	6242	New	200	1.5	b ∧ d	1			
07.4	N13	6240	6217	1500	3	ℓ — ℓ	3	110	2	b ∧ d
09.2	N05	6249	*	700	3.5	b ⌜ ℓ	1	120	6	b ⌜ ℓ
09.6	N13	6243	6222	1400	1.5	ℓ ⌝d	3	40	3	ℓ ⌝d
11.0	S10	6245	6223	1200	3	ℓ — ℓ	2			
12.1	S10	6246	6223	2000	3	ℓ — ℓ	2	150	2	b ⌜ ℓ
13.2	N14	6247	6224	1800	3.5	ℓ — ℓ	2	130	3	ℓ — ℓ
14.3	N15	6258	New	(400)	(3)	b ⌜ ℓ	1			
16.4	N18	6250	New	2600	3.5	ℓ — ℓ	1	360	1	ℓ — ℓ
16.8	N10	6253	6233	(300)	(1.5)	ℓ ⌝d	2			
19.8	N15	6254	New?	2100	3	ℓ — ℓ	1?	60	2	b ∧ d
20.6	N08	6255	6228	600	2	ℓ — ℓ	2			
23.9	S18	6256	New	1500	3	ℓ — ℓ	1	50	2	ℓ ⌝d
24.1	N17	6257	**	1400	2.5	ℓ — ℓ	1	(10)	(1)	ℓ ⌝d
24.8	S05	6260	New	1400	3	ℓ — ℓ	1	(20)	(2)	ℓ ⌝d
25.5	N06	6261	New	400	1.5	b ⌜ ℓ	1	20	3	b ⌜ ℓ
29.5	N13	6262	6237	1500	2.5	ℓ — ℓ	2			
31.5	S13	6263	6241	1300	2.5	ℓ \ ℓ	2			

COMMERCE - STANDARDS - BOULDER

*New in position of 6221.
**New in position of 6232.

The McMath calcium plage number identifications and region histories should be considered as preliminary, subject to change after more detailed scrutiny.

PROVISIONAL CORONAL LINE EMISSION INDICES

SEPTEMBER 1961

CMP Sep 1961	North East Quadrant (observed 7 days earlier)				South East Quadrant (observed 7 days earlier)				South West Quadrant (observed 7 days later)				North West Quadrant (observed 7 days later)			
	G_6	G_1	R_6	R_1	G_6	G_1	R_6	R_1	G_6	G_1	R_6	R_1	G_6	G_1	R_1	R_6
1	34	46	6	8	14	18	8	10	20	28	x	x	39	50	x	x
2	34	39	7	8	15	28	9	12	x	x	x	x	x	x	x	x
3	34	53	17	32	21	36	12	20	x	x	x	x	x	x	x	x
4	64	87	27	44	39	76	18	20	28	36	9	12	72	143	21	52
5	x	x	x	x	x	x	x	x	39a	64a	6	12	63a	132a	14	24
6	x	x	x	x	x	x	x	x	42	48	12	16	41	56	14	20
7	41	68	22	35	38	85	9	20	37	62	x	x	29	34	x	x
8	33	40	7	13	34	60	6	10	x	x	x	x	54	87	x	x
9	x	x	x	x	x	x	x	x	36	61	9	10	48	76	13	30
10	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
11	54	68	9	10	30	40	12	18	x	x	x	x	x	x	x	x
12	106	171	16	24	68	160	15	32	67	118	x	x	129	160	x	x
13	121	157	16	36	56	132	17	28	x	x	x	x	x	x	x	x
14	101	123	18	32	42	84	8	16	30	48	13	30	36	45	11	15
15	72	92	x	x	58	90	x	x	25	44	11	18	42	52	12	15
16	x	x	x	x	x	x	x	x	22a	34a	7	10	70a	115a	14	28
17	x	x	x	x	x	x	x	x	15	28	6	7	34	50	9	10
18	38	42	16	24	13	22	8	12	24	56	30a	44a	36	50	41a	46a
19	22a	25a	14	16	11a	17a	11	16	7a	11a	x	x	19a	28a	x	x
20	50	64	11	16	11	14	9	12	18	45	25	40	37	64	23	32
21	56	84	x	x	17	35	x	x	23	50	17	20	56	78	35	56
22	60a	104a	x	x	18	47	x	x	x	x	x	x	x	x	x	x
23	24	38	14	15	24	44	11	13	26	50	3	7	41	59	10	22
24	20a	22a	x	x	22a	28a	x	x	14a	20a	7a	10a	18a	28a	6a	12a
25	x	x	x	x	x	x	x	x	17	22	12a	16a	22	31	11a	16a
26	36	53	x	x	17	22	x	x	11	14	18	25	18	20	16	20
27	x	x	x	x	x	x	x	x	13	17	34a	48a	32	42	30a	40a
28	13	20	15	20	7	8	12	15	19	22	x	x	36	53	x	x
29	24	32	16	46	11	16	7	13	9	14	x	x	x	x	x	x
30	89a	135a	14	23	14a	25a	10	13	12	22	x	x	53	73	9	14

x = no observations

a = low weight data

* = yellow line observed

COMMERCE - STANDARDS - BOULDER

PROVISIONAL CORONAL LINE EMISSION INDICES

OCTOBER 1961

CMP Oct 1961	North East Quadrant (observed 7 days earlier)				South East Quadrant (observed 7 days earlier)				South West Quadrant (observed 7 days later)				North West Quadrant (observed 7 days later)			
	G_6	G_1	R_6	R_1	G_6	G_1	R_6	R_1	G_6	G_1	R_6	R_1	G_6	G_1	R_6	R_1
1	80	110	17	27	24	45	12	20	23	31	12a	18a	99	146	22a	43a
2	69	98	21a	24a	22	42	28a	35a	x	x	x	x	x	x	x	x
3	38	47	x	x	23	31	x	x	36	57	x	x	31	40	x	x
4	30	36	15	24	22	34	12	16	45	78	25	44	27	31	16	18
5	44	53	17	32	33	48	10	16	30	36	14	15	19	24	10	15
6	x	x	x	x	x	x	x	x	25	39	11	16	54	101	12	24
7	53a	81a	5	15	20a	31a	1	3	28	39	18	28	61	104	21	41
8	50a	72a	6a	10a	21a	28a	4a	5a	37	48	16	20	62	75	33	64
9	67	90	20a	48a	23	36	25a	40a	77	115	x	x	77	115	x	x
10	47	68	12	22	44	64	25	50	84	126	27	50	66	121	16	28
11	71	101	46a	65a	68	112	45a	88a	82	128	10a	16a	73	90	27a	40a
12	86	162	x	x	51	73	x	x	55	73	15a	24a	55	87	13a	28a
13	70	132	x	x	23	34	x	x	34	56	6a	7a	70	109	4a	5a
14	46	73	16	28	10	14	12	14	19	48	7a	10a	48	70	12a	15a
15	49	70	26a	41a	10	14	16a	18a	9a	10a	12a	15a	41a	68a	15a	25a
16	x	x	x	x	x	x	x	x	11	17	33a	48a	57	92	46a	98a
17	19a	32a	x	x	10a	16a	x	x	12	17	11a	32a	60	76	13a	16a
18	61	90	32	56	11	20	24	28	x	x	x	x	x	x	x	x
19	39	65	25	35	8	16	8	10	x	x	x	x	x	x	x	x
20	67	101	29	48	18	31	15	22	x	x	x	x	x	x	x	x
21	34	47	17	24	21	39	12	20	x	x	x	x	x	x	x	x
22	33	48	20	24	20	24	19	29	x	x	x	x	x	x	x	x
23	x	x	20a	52a	x	x	19a	24a	58	118	x	x	56	95	x	x
24	63	115	34	56	39	62	40	62	40	49	x	x	55	84	x	x
25	69	104	30a	56a	42	78	44a	63a	x	x	x	x	x	x	x	x
26	47	70	31a	40a	11	14	27a	36a	x	x	x	x	x	x	x	x
27	63	78	6a	7a	20	39	6a	7a	x	x	x	x	x	x	x	x
28	62	101	11a	20a	18	28	5a	7a	12	20	11	15	35	60	9	12
29	68	104	7	10	x	x	6	7	24	36	10a	10a	51	81	10a	15a
30	69	98	33a	48a	48	87	38a	76a	37	64	12a	14a	30	42	15a	24a
31	37	45	12a	12a	49	84	12a	20a	61	96	x	x	48	59	x	x

COMMERCE - STANDARDS - BOULDER

x = no observations

a = low weight data

* = yellow line observed

SOLAR FLARES

OCTOBER 1961

OBSERVATORY	DATE OCT 1961	OBSERVED UNIVERSAL TIME			LOCATION			DURATION — MINUTES	IMPORTANCE	OBS. COND.	MEASUREMENTS					PROVISIONAL IONOSPHERIC EFFECT
		START	END	MAX. PHASE	APPROX. LAT.	APPROX. MER. DIST.	McMATH PLAGE REGION				TIME — U T	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hα	MAX. INT. %	
ISTANBUL	01	0803	0834		N13	E13	6237	31	1							
ISTANBUL	01	0820	0845		N03	W36	6234	25	1							
ISTANBUL	01	0853	0905 D		N14	E17	6237	12 D	1							
ISTANBUL	01	0855	0905 D		N14	W05	6235	10 D	1							
WENDEL	02	0741	0758		N14	E03	6237	17	1				4.00			
WENDEL	02	1433 E	1517 D		N14	E00	6237	44 D	1+				7.00			
SAC PEAK	02	1434	1522	1448	N15	W00	6237	48	1	2		2.70	2.70		20	
ONDREJOV	02	1437 E	1525	1445	N14	E03	6237	48 D	1+	3	1445			2.90		
ONDREJOV	03	0720	0732		N16	E56	6240	12	1	3	0723			2.80		
KODAIKNL	03	0505 E	0515 D	0505	N17	E68	6240	10 D	1+	2	0505	1.80	4.60	1.68	114	
ONDREJOV	03	0739 E	0746		N07	W35	6235	7 D	1	3	0740			2.90		
WENDEL	03	0811 E	0824		N17	W59	6234	13 D	1				3.00			
WENDEL	03	1122 E	1143 D		N07	W38	6235	21 D	1				4.00			
WENDEL	04	0632 E	0705		S13	W01	6241	33 D	1+				6.00			
CAPRI S	04	0828 E	0841 D		S14	W03	6241	13 D	1	2	0830	2.10	2.10			
WENDEL	04	0847 E	0904 D		S13	W02	6241	17 D	1				3.00			
ISTANBUL	05	0720 E	0735		N12	W57	6235	15 D	1							
KODAIKNL	09	0307 E	0309 D	0307	N04	E01	6249	2 D	1	2		2.80	2.80			
KODAIKNL	09	0602 E	0608 D	0603	N08	E53	6247	6 D	1	1	0602	1.50	2.50	1.60	114	
KODAIKNL	09	0602 E	0608 D	0603	N08	E53			)		0603			1.84		
ARCETRI	09	0945 E	0955 D		N20	E90	6250	10 D	1	3						
SAC PEAK	09	2131 E	2159 U	2131 U	N05	W11	6249	28 D	1	1		2.31	2.31		17	
ONDREJOV	10	1204	1224	1208	N17	E70	6250	20	1	3	1208			2.30		
MEUDON	10	1205	1220	1210	N15	E80	6250	15	1							
CAPRI S	10	1205 E	1225 D		N15	E77	6250	20 D	1+	3	1212	1.20	3.80			
SALTSJOBADN	10	1211 E	1217 D		N15	E78	6250	6 D	1	2	1212	1.00	3.00			
MEUDON	10	1219	1245 D	1230	N13	E35	6247	26 D	1+				5.00			
MCMATH	10	1222	1327	1234	N13	E36	6247	65	1+	2	1234		3.00			
ONDREJOV	10	1223	1303 D	1233	N11	E37	6247	40 D	1+	3	1233			2.70		
CAPRI S	10	1223	1306 D		N13	E36	6247	43 D	1+	3	1233	3.50	4.60			
SALTSJOBADN	10	1225 E	1306 D		N12	E35	6247	41 D	1+	2	1234	2.50	3.00			
WENDEL	10	1227 E	1309		N12	E34	6247	42 D	2				8.00			
SAC PEAK	10	1756	1816	1804	N13	E74	6250	20	1	3		1.86	3.69		17	
SAC PEAK	10	1756	1816	1758	N13	E74										
ONDREJOV	11	1003 E	1022		N12	E22	6247	19 D	1	3	1009			2.10		
KODAIKNL	12	0208 E	0213 D	0210	S08	W04	6246	5 D	1	2	0208	1.10	1.10	1.20	114	
KODAIKNL	12	0208 E	0213 D	0210	S08	W04			)		0210			1.52		
WENDEL	12	1041 E	1045 D		N14	E08	6247	4 D	1				4.00			
WENDEL	12	1421 E	1436 D		S08	W10	6246	15 D	1				3.00			
SAC PEAK	12	2002	2030	2014	N15	E04	6247	28	1	3		2.19	2.19		18	
WENDEL	13	1225	1309 D		N13	W05	6247	44 D	1				3.00			
WENDEL	14	0857 E	0911		N02	E01	6250	14 D	1				3.00			

COMMERCE - STANDARDS - BOULDER

SOLAR FLARES

OCTOBER 1961

OBSERVATORY	DATE OCT 1961	OBSERVED UNIVERSAL TIME			LOCATION			DURATION — MINUTES	IMPORTANCE	OBS. COND.	MEASUREMENTS					PROVISIONAL IONOSPHERIC EFFECT
		START	END	MAX. PHASE	APPROX. LAT.	APPROX. MER. DIST.	McMATH PLAGE REGION				TIME — U T	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hα	MAX. INT. %	
WENDEL	14	1440 E	1454 D		N15	E24	6250	14 D	1				3.00			
WENDEL	16	0659 E	0727 D		N21	E04	6250	28 D	1				3.00			
MCMATH	16	1728	1831	1738	N12	W50	6247	63	1	1	1738		2.10			
SAC PEAK	16	1728	1846	1738	N11	W30	6247	78	2	3		6.66	8.42		24	
WENDEL	17	1000 E	1030 D		S07	E61		30 D	1				4.00			
WENDEL	17	1224	1242 D		S07	E60		18 D	1				4.00			
ISTANBUL	19	0750 E	0820		N18	E57	6257	30 D	1							
ISTANBUL	*20	0856	0915		S09	E52	6260	19	1+							
WENDEL	20	0902 E	0918 D		S08	E48	6260	16 D	1				3.00			
WENDEL	27	0840 E	0854 D		N11	W08	6261	14 D	1				3.00			
MITAKA	29	0036	0046		N09	W35	6261	10	1	1	0038	1.01	1.26	1.96	96	

COMMERCE - STANDARDS - BOULDER

ATHENES	ATHENS, GREECE	HONOLULU	HAWAII, USA	NERA	NEDERHORST den BERGH, NETHERLANDS
BAKOU	PIRCULI, USSR	IKOMASAN	KYOTO, JAPAN	NIZMIR	KRASNAYA PAKHRA, USSR
CAPETOWN	ROYAL OBSERVATORY, CAPE OF GOOD HOPE	KIEV KO	KIEV GAO, USSR	SAC PEAK	SACRAMENTO PEAK, N.MEX., USA
CAPRI F	CAPRI, ITALY (GERMAN)	KIEV KY	KIEV UNIVERSITY, USSR	SALTSJOBADEN	STOCKHOLM, SWEDEN
CAPRI S	CAPRI, ITALY (SWEDISH)	LOCKHEED	LOS ANGELES, CALIF., USA	SCHAUINS	SCHAUINSLAND, GFR
CRIMEE	SIMEIZ, USSR	MCMATH	MCMATH-HULBERT, PONTIAC, MICH., USA	TACHKENT	TASHKENT, USSR
HERSTMONCEU	ROYAL GREENWICH OBSERVATORY, HERSTMONCEUX, ENGLAND	MOSCOU	MOSCOW-GAISH, USSR	WENDEL	WENDELSTEIN, GFR

ALL VALUES IN THE MAXIMUM INTENSITY COLUMN FOR SAC PEAK ARE ARBITRARY UNITS (0-40) AND FOR LOCKHEED ARE ARBITRARY UNITS (10-40), NOT PERCENT OF CONTINUOUS SPECTRUM.

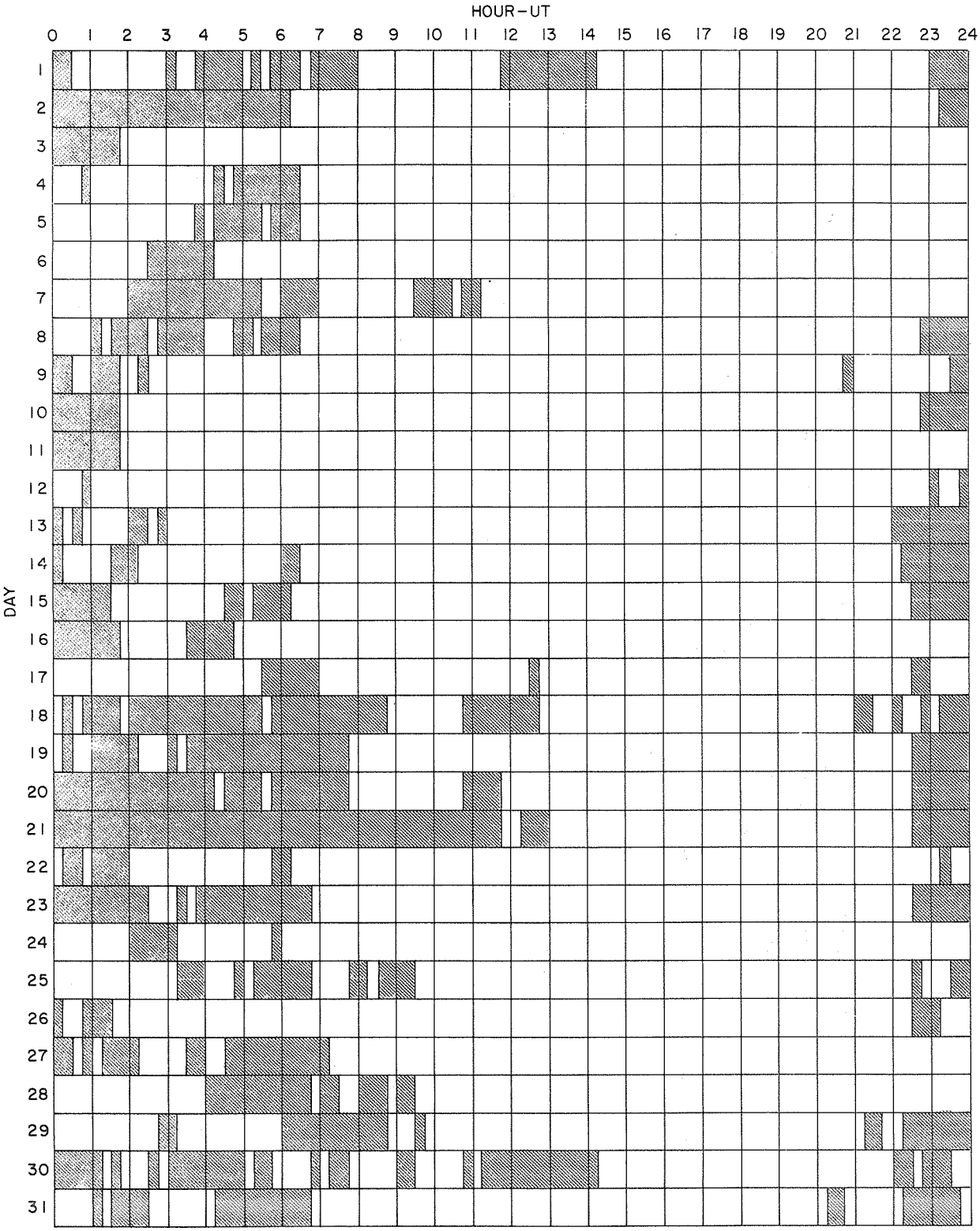
SEE DESCRIPTIVE TEXT PUBLISHED NOVEMBER 1960 FOR DEFINITION OF CORRECTED AREA VALUES LISTED FOR CLIMAX, HAWAII, LOCKHEED AND SACRAMENTO PEAK.

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

*Changed from reported W52 to E52 to agree with other reports.

INTERVALS OF NO FLARE PATROL OBSERVATIONS

OCTOBER 1961



Stations Include:

Arcetri	Istanbul	Mitaka
Capri S	Lockheed	Ondrejov
Herstmonceux	Kodaikanal	Sacramento Peak
Honolulu	McMath	Wendelstein
Huancayo	Meudon	

SUBFLARES

Noted as follows: Date-Universal Time-Coordinates

SEPTEMBER 1961

	LOCKHEED	01	0042	N13	E46
	LOCKHEED	01	0055	N19	W16
	KODAIKNL	01	0452	N12	E45
	WENDEL	01	0614 E	N11	E38
	WENDEL	01	0628 E	N13	E36
*	ONDREJOV	01	0736	N13	E42
	UCCLE	01	0944	N10	E37
	UCCLE	01	0959	N10	E37
	UCCLE	01	1032	N13	E33
	UCCLE	01	1034	N10	E37
	UCCLE	01	1151	N12	E34
*	UCCLE	01	1232	N10	E37
*	UCCLE	01	1236	N10	E40
*	ONDREJOV	01	1237 E	N12	E34
*	UCCLE	01	1313	N20	W87
	SAC PEAK	01	1340	N11	E34
	UCCLE	01	1341	N09	E34
	CAPRI S	01	1341	N10	E35
	WENDEL	01	1345 E	N10	E32
	UCCLE	01	1409	N10	E39
	SAC PEAK	01	1412	N12	E35
	UCCLE	01	1413	N10	E35
	ONDREJOV	01	1414 E	N12	E33
	UCCLE	01	1420	N13	E40
	UCCLE	01	1424	N10	E35
	WENDEL	01	1425 E	N12	E34
	UCCLE	01	1505	N13	E40
	UCCLE	01	1541	N11	E37
	LOCKHEED	01	1702	N12	E30
	MCMATH	01	2147 E	N12	E35
	KODAIKNL	02	0728	N12	E28
*	MEUDON	02	0817	N13	E22
	UCCLE	02	0844 E	N14	E22
	UCCLE	02	0847	N15	E21
*	SAC PEAK	02	1410	N14	E19
*	CAPRI S	02	1410 E	N13	E21
	ONDREJOV	02	1432	N13	E19
	LOCKHEED	02	1835	N13	E21
	LOCKHEED	02	1905	N12	E15
	HONOLULU	02	1914 E	N25	E01
	LOCKHEED	02	1932	N13	E21
	LOCKHEED	02	2052	N14	E15
	HONOLULU	02	2104 E	N11	E66
	LOCKHEED	02	2147	N14	E15
	HONOLULU	02	2236 E	N08	E30
	LOCKHEED	03	0110	N14	E18
	KODAIKNL	03	0222	N12	E15
	KODAIKNL	03	0433 E	N12	E11
	CAPRI S	03	0600 E	N12	E14
*	MEUDON	03	0710	N14	E08
	ONDREJOV	03	0923	N11	E09
*	MCMATH	03	1430	N10	E86
	MCMATH	03	1450	N17	E11
	LOCKHEED	03	1609	N09	E03
	LOCKHEED	03	1626	N10	E03
	LOCKHEED	03	1709	N13	E03
*	HONOLULU	03	2028 E	N08	E79
*	HONOLULU	03	2352	N14	E08
	BUCHAREST	04	0655 E	N13	E03
*	CAPRI S	04	0727	N10	W05
*	MEUDON	04	0736 E	N12	W03
*	UCCLE	04	1015 E	N13	W03
*	KODAIKNL	04	1025	N11	W04
	WENDEL	04	1128 E	N10	E75
	WENDEL	04	1435 E	N10	E73
	WENDEL	04	1538 E	N11	E11
	LOCKHEED	04	1646	N09	E67
	SAC PEAK	04	1807	N12	W06
	LOCKHEED	04	1808	N12	W06
*	SAC PEAK	04	1835	N13	W06
*	MCMATH	04	1849 E	N12	W06
*	SAC PEAK	04	1856	N10	W05
*	SAC PEAK	04	2148	N13	W15
*	SAC PEAK	04	2158	N12	W10
	ONDREJOV	05	0823 E	N14	W21
	UCCLE	05	0829	N11	W20
	BUCHAREST	05	0831 E	N11	W17
	ONDREJOV	05	0835 E	N10	W19
	BUCHAREST	05	0837	N14	W21
*	UCCLE	05	0854	N11	W18
*	BUCHAREST	05	0855	N11	W17
*	UCCLE	05	1241	N15	W15
*	SAC PEAK	05	1414	N11	W23
*	ONDREJOV	05	1425 E	N11	W25
*	HERSTMONCEU	05	1437 E	N11	W20
*	MCMATH	05	1527 E	N14	W17
	LOCKHEED	05	1556	N13	W17
	LOCKHEED	05	1812	N12	W27
	HONOLULU	05	1816 E	S15	W07
	SAC PEAK	05	1817	N11	W28
	LOCKHEED	05	1845	N13	W27
	LOCKHEED	05	2010	N13	W30
	LOCKHEED	05	2115	N12	W23
	BUCHAREST	06	0755	N18	W23
	BUCHAREST	06	0910	N13	W24
	LOCKHEED	06	1547	N16	W31
	LOCKHEED	06	1952	N06	E70
*	CAPRI S	07	0614 E	N12	W42
	UCCLE	07	1018 E	N11	W48
	UCCLE	07	1035	N15	W54
	LOCKHEED	07	1652	N12	W56
	LOCKHEED	07	1816	N12	W57
	HONOLULU	07	1816 E	N15	W58
*	MCMATH	07	2141	S07	E90
	ARCETRI	08	0917 E	S10	E90
*	MCMATH	08	1208 E	N18	E22
	CAPRI S	08	1330	N12	W56
	MCMATH	08	1332	N10	W60
	MEUDON	08	1332	N13	W63
	MCMATH	08	1630	N11	W61
	MCMATH	08	1642	N18	E20
	MEUDON	08	1650	S10	E27
	HONOLULU	08	1948	N12	W63
	LOCKHEED	08	2140	S10	E79
	LOCKHEED	08	2201	N12	W62
	LOCKHEED	08	2208	S10	E79
	LOCKHEED	08	2320	S10	E79
	ISTANBUL	09	0800 E	S13	W72
	UCCLE	09	0914	S12	E78
*	UCCLE	09	0923	S10	W53
	UCCLE	09	1010	N18	E88
	UCCLE	09	1042	N12	E85
	UCCLE	09	1139	N19	W67
	CAPRI S	09	1147 E	N17	W69
	MCMATH	09	1150 E	N15	W67
	MCMATH	09	1205	N11	E87
*	MCMATH	09	1803	N19	E88
	MCMATH	10	1434	S11	E60
	WENDEL	10	1521 E	S12	E57
	MCMATH	11	1454	N18	W20
	LOCKHEED	11	2022	S13	E42
	LOCKHEED	11	2334	S13	E42
	UCCLE	12	1203	N10	E41
	HONOLULU	12	1820	S12	E30
	LOCKHEED	12	1822	S12	E29
	HONOLULU	12	2009	S12	E38
	LOCKHEED	12	2016	N13	E37
	LOCKHEED	12	2030	S09	E21
	LOCKHEED	12	2216	N14	E42
	LOCKHEED	12	2305	N14	E43
	LOCKHEED	12	2345	N18	E41
	BUCHAREST	13	0710 E	N14	W37
	BUCHAREST	13	0790	S09	E18
	WENDEL	13	0909 E	S12	E18
*	CAPRI S	13	0926 E	S13	E12
*	WENDEL	13	1022 E	S11	E17
*	MEUDON	13	1110	N14	E35
	UCCLE	13	1117	N20	E01
	WENDEL	13	1119 E	N19	W01
*	CAPRI S	13	1129	N16	E35
	WENDEL	13	1155 E	N18	W01
	WENDEL	13	1217 E	S12	E17
	WENDEL	13	1220 E	S14	E08
	WENDEL	13	1258 E	S14	E08
	MCMATH	13	1358	N19	W02
	MCMATH	13	1430	N13	E30
	MCMATH	13	1433	S15	E11
	WENDEL	13	1508 E	N20	W30
	WENDEL	13	1524 E	N14	E33
	WENDEL	13	1613 E	S13	E12
	LOCKHEED	13	1709	S09	E17
	LOCKHEED	13	1749	N12	E24
	LOCKHEED	13	1925	S08	E10
	MCMATH	13	1932 E	S08	E11
	LOCKHEED	13	2041	S09	E13
	HONOLULU	13	2108	N14	E31
	LOCKHEED	13	2123	S13	E04
	LOCKHEED	13	2135	S05	E11
	LOCKHEED	13	2247	S08	E09
	LOCKHEED	14	0002	N13	E28
	HONOLULU	14	0006	N14	E30
	KODAIKNL	14	0230	S08	E12
	BUCHAREST	14	0735	N20	W04
	BUCHAREST	14	0749	N14	E25
	ARCETRI	14	0920 E	S10	E08
	WENDEL	14	1033 E	S11	W04
	WENDEL	14	1134 E	N14	E21
	UCCLE	14	1449	S13	W07
	LOCKHEED	14	1806	N17	E18
	LOCKHEED	14	1814	S09	E00
	LOCKHEED	14	1927	N17	E16
	HONOLULU	14	1928	N17	E16
	HUANCAYO	14	1932 E	N16	E19
	HONOLULU	14	1936	N07	E20
	LOCKHEED	14	1944	N15	E90
	LOCKHEED	14	1953	S13	W06
	LOCKHEED	14	2056	N13	E90
	LOCKHEED	14	2145	N13	W33
	LOCKHEED	14	2150	N16	E17
	LOCKHEED	14	2247	N09	W36
	LOCKHEED	14	2252	N16	E18
	HONOLULU	14	2254	N18	E14
	HONOLULU	14	2254	N19	W33
	SAC PEAK	14	2322 E	N18	E18
	LOCKHEED	15	0018	N14	E15
	LOCKHEED	15	0035	N13	E14
*	CAPRI S	15	0735 E	S07	W08
	BUCHAREST	15	0757 E	N14	E13
	UCCLE	15	1036	N12	W39
	UCCLE	15	1048	N12	W39
	UCCLE	15	1105	S08	W08
	UCCLE	15	1114	N12	W42
	MCMATH	15	1222	S11	W13
	CAPRI S	15	1455	S10	W13
	MCMATH	15	1458 E	S10	W10
	MCMATH	15	1742	N07	W42
	MCMATH	15	1944	N08	E87
	MCMATH	15	2033 E	N18	E05
	LOCKHEED	15	2137	S13	W20
*	MCMATH	15	2144	N13	E85
*	HONOLULU	15	2146	N12	E90
*	SAC PEAK	15	2148 E	N13	E86
	HONOLULU	16	0054 E	N14	E04
	WENDEL	16	0748 E	N16	W03
	WENDEL	16	0818 E	N11	W04
	WENDEL	16	0926 E	S10	W27
	MCMATH	16	1212 E	N10	W88
	MCMATH	16	1252	N09	W58
	MCMATH	16	1310	N10	W88
	MCMATH	16	1356	N11	W10
	MCMATH	16	1530	N15	E75
	MCMATH	16	1613	S15	W30
	MCMATH	16	2006	S11	W25
	MCMATH	16	2044	S09	W29
	MCMATH	16	2116	N12	W15
	MCMATH	16	2146	N13	W15
	KODAIKNL	17	0243	S10	W38
*	MEUDON	17	0915	S11	W41
*	KODAIKNL	17	0922	S10	W38
*	MEUDON	17	0924	N21	W42
*	ARCETRI	17	0925 E	S11	W39
*	KODAIKNL	17	0930 E	N19	W46
*	ONDREJOV	17	0930	N20	W45
*	CAPRI S	17	0930 E	S25	W41
*	UCCLE	17	0938 E	N21	W48
*	MCMATH	17	1307 E	S11	W42
	MCMATH	17	1703	N13	W27
*	MCMATH	17	1727	S12	W47
*	MCMATH	17	1751	N13	W27
*	HONOLULU	17	1756 E	N14	W26
	HONOLULU	18	0028	N13	E52
	ONDREJOV	18	0848 E	N21	W61
	MCMATH	18	1213 E	S06	W80
	MCMATH	18	1245	N18	W33
	ONDREJOV	18	1347 E	S12	W56
	CAPRI S	18	1347 E	S12	W55
	MCMATH	18	1348	S13	W58
	WENDEL	18	1447 E	S13	W59
	MCMATH	18	1449	N15	E42
	LOCKHEED	18	1842	N20	E41
	LOCKHEED	18	1847	N11	W80
	LOCKHEED	18	2042	S13	W59
	MCMATH	18	2043	S12	W62
	HONOLULU	18	2046 E	S11	W61
	LOCKHEED	19	0025	N18	W39
	BUCHAREST	19	0705	N18	E37
	UCCLE	19	1053	N13	W53
	MCMATH	19	1447	N15	W48
	LOCKHEED	20	0014	N12	E28
	LOCKHEED	20	0032	N14	W57
*	MEUDON	20	1020	N14	W62
*	SALTSJOBADN	20	1021 E	N12	W60
	ONDREJOV	20	1459 E	N06	E37
	CAPRI S	21	1213 E	N08	W37
	UCCLE	21	1435	N17	W73
	WENDEL	22	0707 E	N07	E15
	WENDEL	22	1129 E	N08	E15
	MCMATH	22	1947	N07	E11
	SAC PEAK	22	2052	N06	E08
	MCMATH	22	2100 E	N06	E08
	ONDREJOV	23	0600 E	N02	E70
*	MEUDON	23	0635	N06	W00
	MEUDON	23	0715	N15	W25
	WENDEL	23	0738 E	N07	E05
	WENDEL	23	0752 E	N07	E05
	WENDEL	23	1416 E	N07	E00
	WENDEL	23	1452 E	N02	E70
	WENDEL	23	1501 E	N07	E01
	WENDEL	23	1544 E	N02	E70
	LOCKHEED	23	1743	N11	E90
	LOCKHEED	23	2048	N01	E72
	LOCKHEED	23	2120	N07	W04
	LOCKHEED	23	2304	N03	E68
*	BUCHAREST	24	0735	N22	W30
	WENDEL	24	1232 E	N02	E58
	WENDEL	24	1236 E	N02	E61
	WENDEL	24	1306 E	N02	E58
	WENDEL	24	1329 E	N07	W14
*	WENDEL	24	1338 E	N02	E60
	WENDEL	24	1414 E	N07	W14
	MCMATH	24	1528	N06	W17
	SAC PEAK	24	1630	N01	E57
	SAC PEAK	24	1726	N07	W19
	LOCKHEED	24	1727	N06	W20
	SAC PEAK	24	1800	N02	E62
	LOCKHEED	24	1800	N03	E58
	LOCKHEED	24	1920	N07	W19
	SAC PEAK	24	1940	N08	W20
	LOCKHEED	24	2046	N07	W20
	LOCKHEED	24	2309	N07	W21
	HONOLULU	24	2310	N08	W21
	LOCKHEED	24	2310	N08	E74
*	CAPRI S	25	0716 E	N07	W24
	ONDREJOV	25	0730	N02	W65
	ONDREJOV	25	0819 E	N07	W27
*	CAPRI S	25	1005 E	N08	W27
	WENDEL	25	1355 E	N09	E70
	WENDEL	25	1355 E	N09	E77
	UCCLE	25	1413	N15	E80
	UCCLE	25	1415	N18	E84
	WENDEL	25	1422 E	N18	E78
	UCCLE	25	1444	N10	E75
	UCCLE	25	1501	N08	W30
	LOCKHEED	25	1740	N09	E68
	LOCKHEED	25	1838	N08	W33
	BUCHAREST	26	0700 E	N06	W38
*	WENDEL	26	0705 E	N10	E61
*	ARCETRI	26	0837 E	N13	E86
*	UCCLE	26	0857	N13	E87
*	UCCLE	26	1016	N07	E65
	UCCLE	26	1020	N08	E66
*	WENDEL	26	1536 E	N08	W27
*	LOCKHEED	26	2010	N12	E57
	LOCKHEED	26	2305	N10	E52
	LOCKHEED	26	2332	N04	W90
	LOCKHEED	27	0005	N09	E57
	WENDEL	27	1134 E	N14	E63
*	UCCLE	27	1155	N13	E66
	WENDEL	27	1213 E	N13	E45
*	MCMATH	27	1216	N06	W62
	WENDEL	27	1255 E	N09	E43
	UCCLE	27	1341	N11	W75
	UCCLE	27	1440	N12	E64
*	MCMATH	27	1448	N12	E66
	MCMATH	27	1557	N14	E63
	MCMATH	27	1606	N12	E43
	MCMATH	27	1615	N14	E63
	MCMATH	27	1637	N13	E76
	MCMATH	27	1754	N13	E75
	SAC PEAK	27	1800	N13	E60
	MCMATH	27	1803	N13	E62
	MCMATH	27	1909 E	N11	E43
*	HONOLULU	27	1916	N11	E60
*	HONOLULU	27	1952	N14	E76
*	CAPRI S	28	0915 E	N13	E65
*	UCCLE	28	0916	N11	E65
	ONDREJOV	28	0947 E	N14	E62
*	UCCLE	28	1014	N11	E65
*	UCCLE	28	1023	N10	E32
*	CAPRI S	28	1023 E	N12	E32
*	MCMATH	28	1520	N13	E34
*	CAPRI S	28	1524	N15	E31
	LOCKHEED	28	1720	N15	E31
	LOCKHEED	28	2104	N14	E29
	MCMATH	28	2105	N13	E30
	LOCKHEED	28	2305	N06	W77
	WENDEL	29	0852 E	N17	E46
*	CAPRI S	29	1118	N13	E41
*	ONDREJOV	29	1123 E	N15	E41
*	CAPRI S	29	1149 E	N09	W90
	MCMATH	29	1213 E	N13	E43
*	CAPRI S	29	1415 E	N13	E39
*	MCMATH	29	1415	N13	E43
*	SAC PEAK	29	1417 E	N14	E37
	LOCKHEED	29	1800	N02	W14
	LOCKHEED	29	1950	N12	E90
	LOCKHEED	29	2104	N13	E18
*	CAPRI S	30	1230 E	N14	E29
	SAC PEAK	30	1420	N14	E28
	CAPRI S	30	1423 E	N14	E28
	LOCKHEED	30	1746	N16	E90
	LOCKHEED	30	2305	N03	W30
	LOCKHEED	30	2335	N01	W30

COMMERCE - STANDARDS - BOULDER

*Rated as flares of importance 2/1 by other observatories (See CRPL-F 206 Part B for October 1961).

SOLAR FLARES

JULY 1961

OBSERVATORY	DATE JULY 1961	OBSERVED UNIVERSAL TIME			LOCATION			DURATION — MINUTES	IMPORTANCE	OBS. COND.	MEASUREMENTS					PROVISIONAL IONOSPHERIC EFFECT
		START	END	MAX. PHASE	APPROX. LAT.	APPROX. MER. DIST.	McMATH PLAGE REGION				TIME — U T	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hα	MAX. INT. %	
CAPRI G	01	0812	0840		N06	W38	6155	28	1	2			4.00			
CAPRI G	02	1130	1145		N07	W53	6155	15	1	2			4.00			
CAPRI G	06	0635 E	0651		N12	E08	6164	16 D	1	2			4.00			
MEUDON	07	0920	1020		S05	E20	6165	60	1				3.00			
CAPRI G	07	0926 E	0945 D		S04	E20	6165	19 D	1+	2			5.00			
SCHAUINS	07	0949 E	1015 D		S02	E17	6165	26 D	1	2		3.00	3.00	1.90		
MEUDON	07	1330	1400		N04	W03	6164	30	1							
GOOD HOPE	07	1334 E	1355 D	1336	N12	W10	6164	21 D	1		1336	2.20	2.30			
CAPRI G	07	1345 E	1355		N11	W10	6164	10 D	1	2			4.00			
SCHAUINS	08	1058 E	1114		N16	W79	6167	16 D	1	2	1100		4.00	1.60		
GOOD HOPE	08	1059	1127	1102	N07	E81	6170	28	1		1102	.60				
CAPRI G	08	1312 E	1335		N15	W25	6164	23 D	1	2			4.00			
GOOD HOPE	09	1026	1054	1032	N05	E42	6166	28	1		1032	2.20	2.90			
CAPRI G	09	1030 E	1042		N02	E45	6166	12 D	1+	2			6.00			
CAPRI G	09	1449 E	1456		N16	W35	6164	7 D	1	2			4.00			
MITAKA	10	0612 E	0627		S08	E56	6171	15 D	1	1	0614	1.54	2.74	3.26	118	
GOOD HOPE	10	1312	1338	1314	S08	E51	6171	26	1		1314	1.80	3.10			
CAPRI G	10	1312 E	1500 D		S08	E48	6171	108 D	1	2			5.00			S-SWF
SCHAUINS	10	1440 E	1440 D		S07	E49	6171	)		1						
SCHAUINS	10	1554 E	1625 D		S08	E50	6171	31 D	1	2			3.00	1.20		S-SWF
OTTAWA	11	1133	1155	1135	N14	W74	6164	22	1			1.20	2.30			
GOOD HOPE	11	1134	1155	1138	N16	W70	6164	21	1		1138	1.10	3.10			
MEUDON	11	1330	1345	1332	S08	E35	6171	15	1				3.00			
OTTAWA	11	1331	1415	1344	S04	E33	6171	44	1			3.10	3.40			S-SWF
CAPRI G	11	1341 E	1455		S07	E35	6171	74 D	1	2			4.00			
CAPRI G	12	0740 E	0742		S07	E25	6171	2 D	1	2			4.00			
SCHAUINS	12	0742 E	0800		S05	E21	6171	18 D	1	2	0742		2.00	2.60		
SCHAUINS	12	0919 E	0930		S07	E23	6171	11 D	1	2			3.00			
MEUDON	12	0950	1200	1025	S08	E20	6171	130	3				20.00			
GOOD HOPE	12	1001	1220	1030	S07	E24	6171	139	3		1030	14.30	16.00			
SCHAUINS	12	1005	1157	1025	S08	E23	6171	112	3	2	1025		15.00	8.20		S-SWF
CAPRI G	12	1026 E	1140		S08	E20	6171	74 D	3	2			20.00			
OTTAWA	12	1103 E	1226 D		S07	E22	6171	83 D	2		1103	11.20	11.20			
CAPRI G	13	0909 E	0950 D		S08	E10	6171	41 D	1	2			4.00			S-SWF
MITAKA	14	0252 E	0316		S05	W02	6171	24 D	1	1	0254	.82	.82	2.27	125	
GOOD HOPE	14	1019 E	1040		S03	W07	6171	21 D	1		1019	2.70	2.70			
MITAKA	15	0051	0131	0059	S09	W06	6171	40	1	2	0104	1.03	1.34	2.17	98	
MITAKA	15	0649	0703		S05	W17	6171	14	1	1	0659	1.23	1.60	2.59	120	
MITAKA	15	0655	0700		S08	W15	6171	5	1	1	0657	1.23	1.60	1.75	120	
GOOD HOPE	15	1121 E	1157		S07	W21	6171	36 D	1		1133	2.70	2.90			

SOLAR FLARES

JULY 1961

OBSERVATORY	DATE JULY 1961	OBSERVED UNIVERSAL TIME			LOCATION			DURATION — MINUTES	IMPORTANCE	OBS. COND.	MEASUREMENTS					PROVISIONAL IONOSPHERIC EFFECT
		START	END	MAX. PHASE	APPROX. LAT.	APPROX. MER. DIST.	McMATH PLAGE REGION				TIME — U T	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hα	MAX. INT. %	
MEUDON	15	1505 E			N13	E16	6172	□	1							S-SWF
CAPRI G	15	1521	1640 D		N12	E15	6172	79 D	2+	2			10.00			
CAPRI G	15	1620	1635		S08	E55	6174	15	1	2			4.00			
GOOD HOPE	16	0757	0814	0806	S04	W31	6171	17	1		0806	2.30	2.70			
GOOD HOPE	16	1107	1124	1110	S04	W31	6171	17	1		1110	1.80	2.10			
GOOD HOPE	16	1258	1316	1300	S05	W34	6171	18	1		1300	4.10	5.00			
KYOTO	17	0215 E	0238 D	0219	S18	W38	6171	23 D	1		0219	4.54		1.77	120	S-SWF
MITAKA	17	0301	0329		S05	W43	6171	28	1+	1	0312	2.57	3.65	1.96	125	
CAPRI G	17	0643 E	0720 D		N10	W10	6172	37 D	1	2			3.00			
MEUDON	17	0710	0830		S05	W45	6171	80	1+							Slow S-SWF
CAPRI G	17	1325 E	1342 D		S08	W43	6171	17 D	1	2			5.00			S-SWF
CAPRI G	17	1611 E	1630 D		N09	E40	6175	19 D	2	2			8.00			
MEUDON	18	0800	0815		S05	W60	6171	15	1+				5.00			
GOOD HOPE	18	0804	0839	0811	S05	W60	6171	35	2		0811	4.10	8.00			S-SWF
CAPRI G	18	0825 E	0845 D		S07	W57	6171	20 D	1	2			4.00			
CAPRI G	18	0911 E	0916 D		S04	W59	6171	5 D	1	2			2.00			
GOOD HOPE	18	0920	1250	1005	S05	W61	6171	210	3+		1005	12.80	25.60			
CAPRI G	18	0926	1145		S06	W58	6171	139	3	2			20.00			S-SWF
MEUDON	18	0930	1100	1003	S08	W60	6171	90	2+				10.00			
GOOD HOPE	18	1305	1336	1308	S06	W60	6171	31	1		1308	1.60	3.20			Slow S-SWF
CAPRI G	18	1311 E	1332		S05	W55	6171	21 D	1	2			4.00			
OTTAWA	18	1612	1629	1619	S02	W64	6171	17	1			2.80	4.50			
GOOD HOPE	19	0749	0810	0801 U	N08	E87	6178	21	1		0801	.40				
GOOD HOPE	19	1024	1032	1026	S06	W68	6171	8	1		1026	1.00	2.70			
GOOD HOPE	19	1348	1400 D	1353	S08	W78	6171	12 D	1		1353	.50				
OTTAWA	19	1443	1502	1454	S12	W82	6171	19	1			1.50	3.00			
OTTAWA	19	1451	1507	1453	N05	E80	6178	16	1			.60	1.40			
GOOD HOPE	20	0718 E	0736		S10	W88	6171	18 D	1		0722	.80				S-SWF
CAPRI G	20	0854 E	0903 D		S10	W90	6171	9 D	1	2			4.00			
OTTAWA	20	1212	1230	1215	S12	W90	6171	18	1			.50	2.40			
OTTAWA	20	1524	1602 D	1530	S07	W90	6171	38 D	1			.70	3.50			S-SWF
SCHAUINS	20	1528 E	1635		S08	W90	6171	67 D	1	2						
SCHAUINS	20	1645 E	1715 D		S05	W90	6171	30 D	2	2						
CAPRI G	22	1355 E	1413		N13	W27	6175	18 D	1	2			4.00			
CAPRI G	23	1203 E	1213 D		N02	W04	6176	10 D	1	2			4.00			
MITAKA	24	0118 E	0126 D		N08	E24	6178	8 D	1	1	0118	2.88	3.11	2.49	115	
MITAKA	24	0403 E	0449 D		N12	E15	6178	46 D	1	1	0411	2.06	2.16	2.27	107	
MITAKA	24	0421 E	0449 D		N09	E17	6178	28 D	1	1	0425	1.03	1.09	1.84	120	
MITAKA	24	0457	0523 D	0502	N10	E17	6178	26 D	1+	1	0500	1.03	1.09	2.38	227	Slow S-SWF
MITAKA	24	0507	0523 D		N09	E11	6178	16 D	1	1		1.03	1.06		120	
MITAKA	24	0449 E	0537 D	0502	N17	E19	6179	48 D	2+	1	0504	10.28	11.10	2.71	261	
SCHAUINS	24	0520 E	0620 D		N15	E20	6179	60 D	2	2	0533		18.00	2.20		
CAPRI G	24	0533 E	0610		N11	E28	6179	37 D	2	2			8.00			
SCHAUINS	24	0900 E	0950 D		N09	E13	6178	50 D	1	2		4.00	4.00	2.00		
CAPRI G	24	0905 E	1030 D		N07	E11	6178	85 D	1	2			4.00			

SOLAR FLARES

JULY 1961

OBSERVATORY	DATE JULY 1961	OBSERVED UNIVERSAL TIME			LOCATION			DURATION — MINUTES	IMPORTANCE	OBS. COND.	MEASUREMENTS					PROVISIONAL IONOSPHERIC EFFECT
		START	END	MAX. PHASE	APPROX. LAT.	APPROX. MER. DIST.	McMATH PLAGE REGION				TIME — U T	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hα	MAX. INT. %	
CAPRI G	24	1435 E	1448 D		N00	W22	6176	13 D	1	2			4.00			
CAPRI G	24	1645 E	1656 D		N01	W23	6176	11 D	1	2			3.00			
MITAKA	25	0520	0528		N07	W02	6178	8 D	1	1	0523	1.03	1.03	1.75	96	
CAPRI G	25	1103 E	1115		N01	E64	6181	12 D	1	2			3.00			
MEUDON	25	1223	1255	1230	N07	E03	6178	32	1							
CAPRI G	25	1224 E	1237		N07	W04	6178	7 D	1	2			3.00			
MEUDON	25	1359	1410	1401	N07	E03	6178	11	1				3.00			
KYOTO	25	2230 E	2252 D	2240	N08	W12	6178	22 D	1		2240	7.22		1.46	100	
MITAKA	27	0432	0450	0441	N10	W83	6175	18	1	1	0433	.82		2.81	120	
MITAKA	27	0630 E	0652		N03	W27	6178	22 D	1	1	0637	4.11	4.85	2.38	115	
KYOTO	27	0632	0651 D		N07	W25	6178	19 D	1		0632	5.78		1.50	120	
CAPRI G	27	0640 E	0700 D		N06	W25	6178	20 D	1	3	0644		3.00			
MITAKA	27	0744	0800 D	0748	N08	W81	6175	16 D	1	1	0749	.82		2.72	107	
CAPRI G	27	0822 E	0838		N09	W83	6175	16 D	1	3	0830		5.00			
GOOD HOPE	27	0908	1050	0912	N09	W84	6175	102	2		0912	1.60				
CAPRI G	27	1128 E	1305 D		N11	W82	6175	97 D	2	3	1130		8.00			
GOOD HOPE	27	1135	1233	1152	N09	W88	6175	58	1+		1152	.90				
MITAKA	28	0157 E	0229 D	0204	N07	W90	6175	32 D	1	1	0205	1.03		5.10	165	
KYOTO	28	0240	0320 D		N10	W37	6178	40 D	2		0240	12.99		2.66	120	Slow S-SWF
MITAKA	28	0244 E	0418 D	0248	N12	W37	6178	94 D	2+	1	0257	8.22	10.52	2.81	278	
CAPRI G	28	0820 E	0845 D		N11	W90	6175	25 D	)	3						
CAPRI G	28	1650 E	1700 D		N11	W44	6178	10 D	2	2	1653		12.00			
MITAKA	29	0508	0516		N08	W50	6178	8	1	1	0510	.82		2.17	120	
CAPRI G	29	1439 E	1602 D		N23	W50	6179	83 D	1	3	1442		4.00			
CAPRI G	29	1515 E	1550 D	1535	N10	W59	6178	35 D	1	2	1535		5.00			
MEUDON	29	1640	1700	1644	N09	W53	6178	20	1				4.00			
CAPRI G	29	1645	1701 D	1648	N10	W58	6178	16 D	2	2	1648		9.00			
MITAKA	30	0618 E	0653 D		N05	W66	6178	35 D	1	3	0618	2.06	4.28	1.43		
MITAKA	30	0618 E	0653 D		N10	W66	6178	35 D	1	3	0639	3.08	6.41	1.65		
CAPRI G	30	0637 E	0648		N10	W65	6178	11 D	1	3	0638		2.00			
CAPRI G	30	1502 E	1517 D		S21	E46	6187	15 D	2	3	1505		5.00			

COMMERCE - STANDARDS - BOULDER

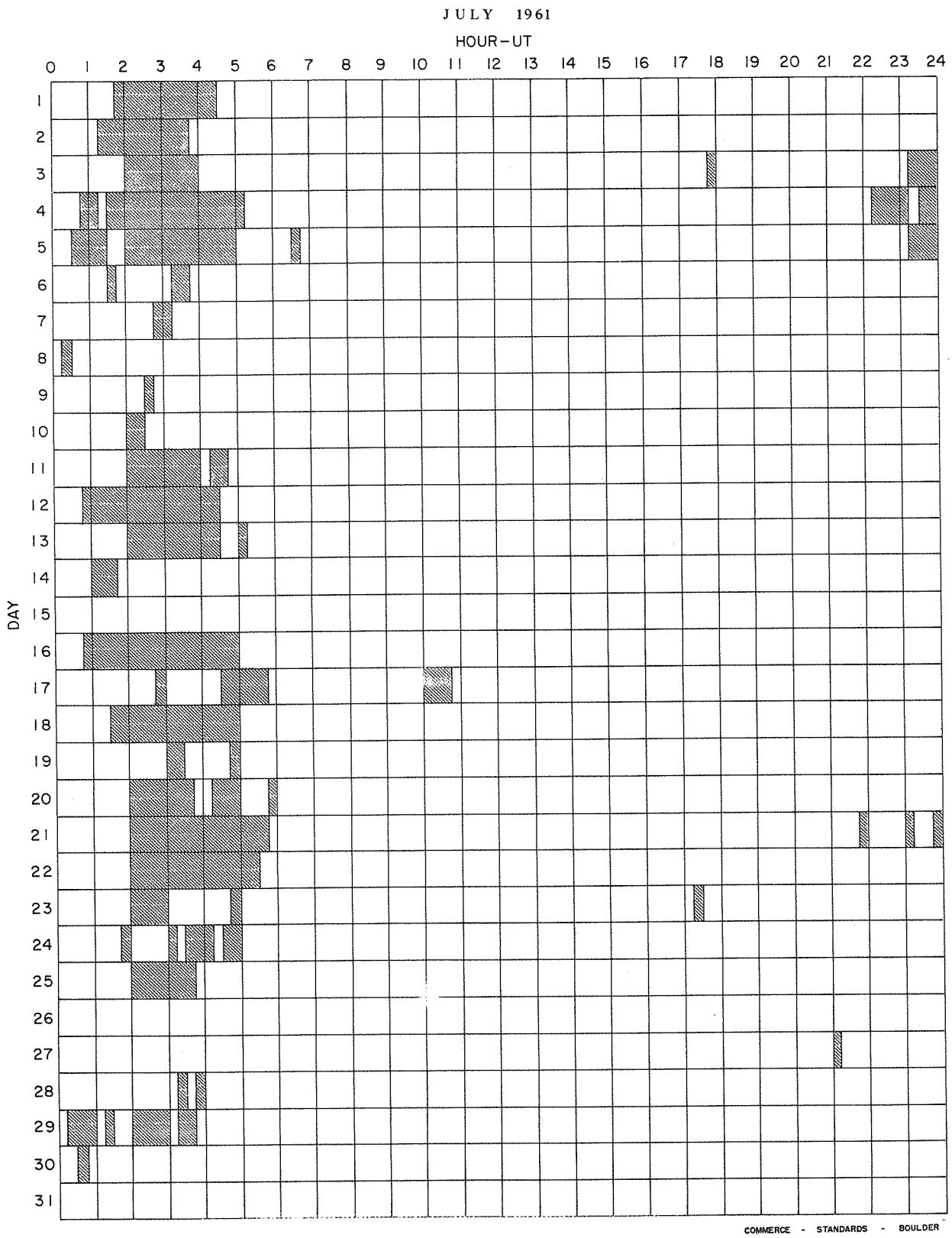
E = LESS THAN
D = GREATER THAN
U = APPROXIMATE
□ = NOT REPORTED

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

ALL VALUES IN THE MAXIMUM INTENSITY COLUMN FOR SAC PEAK ARE ARBITRARY UNITS (0-40) AND FOR LOCKHEED ARE ARBITRARY UNITS (10-40), NOT PERCENT OF CONTINUOUS SPECTRUM.

SEE DESCRIPTIVE TEXT PUBLISHED NOVEMBER 1960 FOR DEFINITION OF CORRECTED AREA VALUES LISTED FOR CLIMAX, HAWAII, LOCKHEED AND SACRAMENTO PEAK.

INTERVALS OF NO FLARE PATROL OBSERVATIONS



Stations Include:

Arcetri	Climax	Ikomasan	Mitaka	Uccle
Bucharest	Herstmonceux	Lockheed	Ondrejov	Wendelstein
Capetown	Honolulu	McMath	Ottawa	
Capri S	Huancayo	Meudon	Sacramento Peak	

IONOSPHERIC EFFECTS OF SOLAR FLARES

SHORT WAVE RADIO FADEOUTS
SUDDEN COSMIC NOISE ABSORPTION
SUDDEN ENHANCEMENTS OF ATMOSPHERICS
SUDDEN PHASE ANOMALIES
SOLAR NOISE BURSTS AT 18 Mc

SEPTEMBER 1961

SEPTEMBER 1961	UNIVERSAL TIME START	END	MAX	SWF TYPE	IMP	IMPORTANCE ABS	SCNA	SEA	SPA	BUR	WIDE SPREAD INDEX	STATIONS	KNOWN FLARE
01	2159	2202								1	5	BO HA	
02	0128	0210	0138						30			BO+	
02	0323	0405	0325			15	1				1	HA	0323
02	0324	0402	0340					1			5	HA A11 HO	
02	0608	0654		SL	1+						1	OK	0600
02	0616	0642	0625					1			1	A11	
* 02	1347	1445	1358					1			3	A5 A1 A3	1330
02	1352	1414		SL	1						4	PR MC	
02	1412	1415								1	1	RE	
02	1416	1419								1-	1	RE	
02	1433	1437								1+	1	RE	
02	1529	1548U	1535					1-			3	A5 A1	
* 02	1638	1715U	1647					2			3	A5 A1 A3	1638U
02	1646	1658	1651			10	1					BO	
02	2032	2033								1	5	BO HA	
02	2201	2205								1	5	BO HA	
02	2238	2241								1	5	BO HA	2230
02	2258	2300								1	5	BO HA	
03	2021	2026								1	5	BO HA	2015
03	2043	2115		S	1+						5	MC AD AN FM PR WS	2040
03	2044	2103	2051			35	2				5	HA BO RE	
03	2044	2140	2050						51			BO	
* 03	2045		2053					2+			5	HA A3 A6 A9 BO	
03	2235	2310	2246					1			5	A9 A6 A11	
04	0727	0748		S	1+						5	OK DA NE	0726
04	0730	0757	0736					1			5	TY NE	
04	1429	1510U	1439						26			BO	
04	1430	1500		S	1+						5	MC BE FM NE PR	1428
04	1433	1449	1437			10	1				5	BO RE	
* 04	1433	1458						1			5	NE A3 A5 PA	
04	1510	1600	1518						39			BO	
04	1512	1542	1518			30	1+				4	RE BO	1512
* 04	1514	1534						1			5	PA A3 A5	
04	1515	1540		S	1+						5	MC FM PR WS	
04	1833	1910U	1840						26			BO	
* 04	1910	2040	1915						58			BO	
04	1913	1940		S	1+						5	MC AD AN BE FM LA PR WS	1834
04	1914	1950	1919			30	2				5	BO HA RE	
* 05	1418	1600	1441					1			5	DU A5	1415
05	1430	1450		S	1						5	MC BE JU PR	
05	1640	1730		SL	2+						5	MC BE FM HU PR	1646
05	1649		1650						32			BO	
* 05	1653	1730	1702					2			1	A5	
05	1846	1848								1	5	BO HA RE	
06	1820	2250								2	5	BO HA (Noise Storm)	
07	1622	1635		S	1-						5	MC BE PR	
* 08	1552	1640	1614					2			5	BO A3 A5 A7 NE PA	1545
08	1552	1705		SL	2+						5	PR BE BO FM HU MC NE PU WS	
08	1553	1633							X			KU	
08	1558	1624	1605			30	2				5	BO RE	
* 10	1940	2125U	2003					2			5	A5 A3 A9 BO HA	1950
10	1942	2123		SL	3						5	PR AD AN BE BO FM HU MC WS	
10	1943	2115	1959			59	2				5	RE BO HA	
10	1951	2025								3	5	BO HA RE	
14	1814	1816								1	5	BO RE	
15	0025	0128		SL	2+						5	OK AD TO	0031
15	0034	0116	0045			25	1				1	HA	
15	0040	0123	0055					1			1	HA	
15	0044	0046								1	1	HA	
16	1102	1152		S	2						4	NE SW	1057
16	2328	0015	2335					2			1	A11	
25	0305	0355		S	2						4	OK TO	0301E
25	0307	0342	0316					1			1	TY	
25	1927	1930								1	5	BO HA RE	
25	2350	2400								1	1	HA	
27	1218	1220								1-	1	RE	1214E
27	1950	2045						2			3	A5 A3	
27	1955	2015		S	1						5	MC BE HU PR	1950
28	0005	0013								2	1	HA	*
28	0137	0143								1	1	HA	
28	2211	2300D	2228						30			BO	
28	2214	2308								3	5	BO HA (Group)	2202
* 28	2216	2258	2224					2			5	TY BO CA HA HO TO	
28	2218	2320		S	2						5	AN AD BO HU MC PR TO WS	

Notes: 1. DA = Darmstadt, GFR; LA = Los Angeles, Calif.
2. In SPA column BO+ denotes recording GBR (16 kc) and BO denotes recording NBA (18 kc).

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TO REPLACE JULY 1961 DATA PUBLISHED IN CRPL-205B
PAGES IIIj, IIIk

IONOSPHERIC EFFECTS OF SOLAR FLARES

SHORT WAVE RADIO FADEOUTS
SUDDEN COSMIC NOISE ABSORPTION
SUDDEN ENHANCEMENTS OF ATMOSPHERICS
SUDDEN PHASE ANOMALIES
SOLAR NOISE BURSTS AT 18 Mc

JULY 1961

JULY 1961	UNIVERSAL TIME START	END	MAX	SWF TYPE	IMP	IMPORTANCE ABS	SCNA	SEA	SPA	BUR	WIDE SPREAD INDEX	STATIONS	KNOWN FLARE
01	1744	1800	1749						X		1	BO+	1739
02	1822	1824								1	4	BO MC	
03	1508	1520	1515						X		1	BO+	
03	1520	1618	1540						X			BO+	
03	1618	1640	1622						X			BO+	
03	2147	2148								1	5	BO HA	
04	1708	1710								1	5	BO MC RE	
04	1832	1836								1	5	BO HA MC RE (Group)	
04	1849	1853								1	5	BO HA MC	
04	1904	1905								1	4	BO MC	
04	1919	1920								1	5	BO HA MC	
04	1930	1950	1940						X		1	BO+	
04	1940	1942								1	5	BO HA MC	
05	1514	1540		SL	1						4	MC RE HU PR	
05	1623	1626								1	5	BO MC RE	
05	1952	1954								1	5	BO MC	
05	2210	2318	2233					2			4	A1 A6	
06	1334	1349	1339			7	1				5	MC BO	
06	1334	1405	1345					1			5	MC A3 BO	
06	1544	1545								1	5	BO MC RE	
06	1746	1747								1	4	BO MC	
06	1816	1820								1	5	BO MC RE	
06	1856	1858								1	5	BO HA MC RE	
07	1611	1645	1622						X		1	BO+	
07	1859	1912	1903						X			BO+	
07	1950	2040	2015						X			BO+	
07	2321	2324								1	5	BO HA	
08	1107	1109								1	5	RE	1054
08	1535	1645	1600						X		1	BO+	
09	1645		1730						X		1	BO+	
09	1738	1900	1750						X			BO+	
09	2037	2041								1	5	BO HA MC RE	
10	0722	0752		S	1+						5	PU JU OK	
10	0939	0956	0948					1			1	TY	0810
* 10	1313	1335		S	1+						5	MC BE JU PR PU	1312
* 10	1522	1605		S	2						5	MC BE FM HU JU PR PU	
10	1642		1655						X		1	BO+	
10	1852	2100	1900						X			BO+	
11	1125	1155	1130						X		1	BO+	1100
11	1332	1352		S	1+						5	PR BE BO FM MC NE	1332
11	1333	1500	1345						X		1	BO	
11	1335	1400	1341			36	1				3	RE MC	
* 11	1335	1416	1339					1			5	DU A1 MC	
11	1600	1930	1710						X			BO	1615
11	1648	2053		S	3+						5	PR AN BE BO FM HU MC NE SW WS	
11	1650	1750	1704			76	3				5	RE BO HA MC	
* 11	1653	1838	1711					2			5	DU AS BO MC NE	
11	1704	2015								1	5	BO HA MC RE (Group)	
12	1000U	1300U	1040U						X		1	BO+	1000
12	1020	1133	1035			43	1+				3	RE MC	
12	1023	1200		S	3						5	MC BE DA FM NE PR SW TN	
12	1024	1100	1038					2			5	A11 NE	
12	1030	1034								1	1	RE	
12	1120	1225								1	1	RE	
12	1830	1833								1	4	BO MC	
12	2130	2220	2140						X			BO+	
12	2249	2303	2252			15	1				4	BO MC	2248
* 12	2251	2324	2257					1			5	TY A5 A9 A11 BO	
13	0905	0920		S	1						3	NE DA	0850
13	1027	1035								1	1	RE	*
13	1040	1046								1	1	RE	*
13	2133	2205	2144					1+				TY	
* 13	2213	2234	2221					2			5	TY A5 A6 A9	
* 13	2248	2309	2254					1			5	TY A5	2240
14	0027	0035								1	1	HA (Group)	
14	1650	1718	1702						X		1	BO+	
15	1434		1517						X		1	BO	1433
15	1435		1448					1			3	A1 A3	
15	1435	2050								2	5	BO MC RE (Noise Storm)	
15	1512	1530	1517			21	1				1	RE	

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IONOSPHERIC EFFECTS OF SOLAR FLARES

SHORT WAVE RADIO FADEOUTS
SUDDEN COSMIC NOISE ABSORPTION
SUDDEN ENHANCEMENTS OF ATMOSPHERICS
SUDDEN PHASE ANOMALIES
SOLAR NOISE BURSTS AT 18 Mc

JULY 1961

JULY 1961	UNIVERSAL TIME START	END	MAX	SWF TYPE	INP	IMPORTANCE ABS	SCNA	SEA	SPA	BUR	WIDE SPREAD INDEX	STATIONS	KNOWN FLARE
15	1512	1705		S	3						5	MC BE FM HU JU NE PR	1508
* 15	1515		1517					1-			3	A2 A1	
* 15	1550	1800	1605						X			BO	
* 16	1300	1340						1			5	PA A1	1254
16	1942	2040	2008						X		1	BO	1938
17	0214	0307		S	1+						4	TO OK	*
17	0217	0228	0220			10	1				5	BO HA MC	
17	0731	0800		SL	1						5	OK BR	0720
17	0732	0814	0742					1			1	TY	
17	1308	1309								1	1	RE	1300
* 17	1310U	1400U	1320U					1+			3	A2 A3	
17	1310	1400	1321						X		1	BO	
17	1320	1350		S	1+						5	MC BE FM HU PR	
17	1350	1351								1-	1	RE	
17	2140	2220	2147			35	2				5	BO HA RE	2125
17	2140	2230		S	2+						5	MC BE HU PR TO	
17	2140	2300	2144						X			BO	
* 17	2141	2230	2152					2+			5	BO A2 A3 A5 A6 A9 HA	
18	0500	0530		S	2						4	OK TO	*
18	0504	0528	0515					1			4	TY A11	
18	0807	0912	0816					2			5	TY A11 DU	0754
18	0808	0825		S	1						5	NE OK	
18	0943	1051	1030					2+			5	TY A11 DU NE	0921
18	0953	1036	1008						X		1	BO+	
18	1000	1153		S	3						5	PR NE PA SN	
18	1158	1415		SL	3-						5	PR FM HU PA SW	
18	1614	1618								1	4	BO MC	1617
19	1832	1848	1838						X		1	BO+	
19	1939	2000	1948						X			BO+	1903
19	2055	2200	2110						X		1	BO	2051
19	2100	2125		SL	1+						5	MC BE HU PR	
20	0316	0407		S	2						5	OK CA TO	*
20	0718	0809	0730					1+			5	DU NE TY	
20	0722	0752		S	1						5	DA NE OK TO	
20	1550	2200		S	3+						5	MC AN BE BO BR FM HU NE PR SW TO	1525E
20	1551		1600						X		1	BO	1525E
20	1552	1752						2+			5	NE A2 A3	
20	1552	2140				88	3				5	RE BO CO MC	
20	1557	2013								2	4	BO MC RE (Noise Storm)	
20	1615	1830	1624						X			BO+	1633E
21	0407	0442		S	1+						5	AD OK TO	*
21	0506	0533		SL	1						5	AD OK	0511
21	1702	1815		S	2+						5	MC BO FM HU PR PU	1714
21	1702	1900	1710						X		1	BO	
21	1703		1708			20	1				5	BO HA MC	
* 21	1703		1710					2			5	BO A1 A2 A3 A5 HA	
21	1902	1905								1	5	BO HA MC	
21	1917	1920								1	4	BO MC	
22	0629	0755		S	2						5	OK PU	
23	1550	1700	1625						X		1	BO+	
23	2159	2201								1	5	BO HA MC	
23	2227	2231								2	5	BO HA MC RE	
24	0117	0120								1	1	HA	
24	0455	0620		SL	2+						1	OK	0500E
24	1114	1215	1122						X		1	BO+	
24	1737	1745								1	5	BO HA MC	1722
24	1740						1-				1	MC	
24	1748	1900	1810						X		1	BO	
24	1755	1930		SL	2+						5	MC BE HU PR	
24	1816	1820								1	4	BO MC	
24	2000	0124								2	5	BO HA MC (Noise Storm)	
25	1220	1231	1226							1+	1	RE	
25	1529	0035								1	5	BO HA MC RE (Noise Storm)	
26	1948	2030	1955						X		1	BO+	
27	2055	2240	2120						X		1	BO+	
27	2346	2348								1	1	HA	
28	0227	0331		SL	2+						5	AD CA NZ OK SY TO	*
28	0229	0347	0243			30	2				1	HA	
28	0232	0316	0247					1+			1	TY	
28	0235	0258								2	1	HA (Group)	
30	2056	2128	2102					1			4	A5 A3 A6	

COMMERCE - STANDARDS - BOULDER

Notes:

1. BR = Breisach; CA = Canberra; CO = College, Alaska; DA = Darmstadt; DU = Dunsink; JU = Juhlesruh; PM = Paramaribo; RE = Rensslaer; SY = Sydney; TA = Tasmania; TN = Tangiers.
2. Asterisk * indicates Sudden Enhancement of Signal from 18 kc (NDA Panama Canal Zone) observed by A5.
3. For SPA data BO+ indicates reception of GBR, BO indicates reception of NBA.
4. In known flare column + indicates no known flare patrol at times of event.

IVa

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

OCTOBER 1961

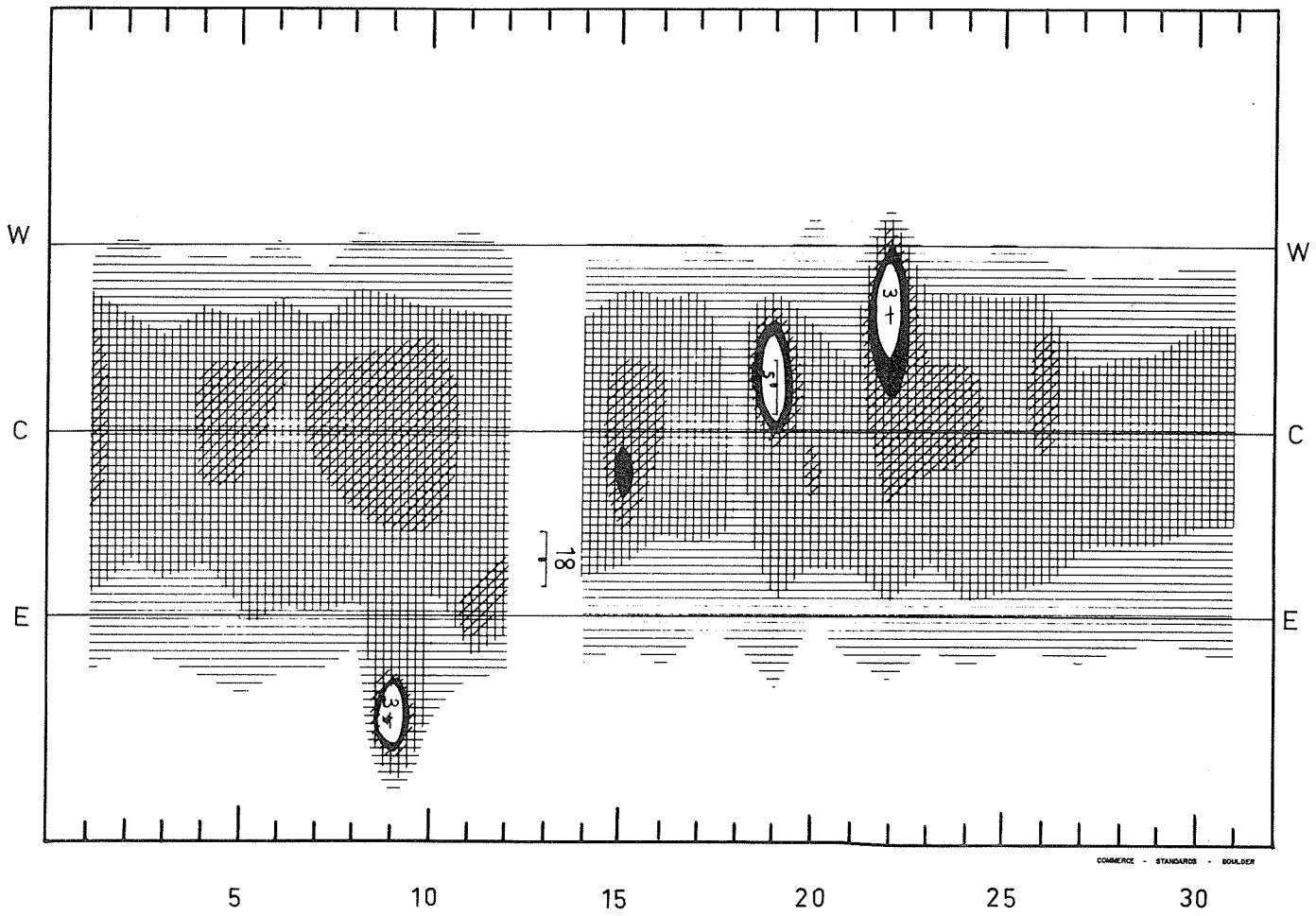
OTTAWA

2800 MC

OCT. 1961	TYPE	START UT	DURATION HRS:MINS	MAXIMUM TIME UT MAX	MAXIMUM PEAK FLUX	MAXIMUM MEAN FLUX	REMARKS
2	3 Simple 3	1435	1 00	1440	3	1.5	
10	3 Simple 3	1223	1 14	1229	8	5	
22	6 Complex f	1841	7	1843	28	6	

SOLAR RADIO EMISSION
INTERFEROMETRIC OBSERVATIONS

Nançay OCTOBER 1961 169 Mc



IVb

IVc

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES
OCTOBER 1961

BOULDER 108 Mc.

Oct. 1961	Type	Start UT	Time of Maximum UT	Duration Minutes	Intensity
9	1	2225		57	2
11	2	1540	1547	11	2
11	2	2304	2306	11	3
12	8	1524	1528	6.0	3
14	7	2147	2328	133 D	2
17	1	1512		345	2
18	2	1548.0	1549.0	4.5	3
19	3	1430.0	1431.5	2.5	3
19	1	1652		254	2
21	3	1447.0	1447.5	1.0	3
21	3	1507.5	1508.0	1.0	2
22	3	1717.0	1718.0	2.3	2
23	8	1501.5	1502.5	4.5	3
24	3	2041.0	2041.5	0.7	3
25	2	1444.8	1445.0	4.5	3
30	3	1354.0	1354.0	1.5	2

COMMERCE - STANDARDS - BOULDER

NOMINAL TIMES OF OBSERVATION
OCTOBER 1961

BOULDER 108 MC

Oct. 1961	U.T.		Oct. 1961	U.T.	
1	1301-0028		17	1512-0003	
2	1302-0026		18	1318-0001	
3	1303-0025		19	1319-0000	
4	1304-0023		20	1320-2359	
5	1305-0021		21	1322-2357	
6	1306-0020		22	1323-2356	
7	1307-0018		23	1324-2355	
8	1308-0017		24	1325-2353	
9	1309-1634;		25	1326-2352	
	1755-0015		26	1327-2351	
10	1310-1610;		27	1328-2350	
	1730-0014		28	1329-2349	I 2000-2245
11	1311-0012		29	1330-1350;	
12	1312-0011			1530-2348	
13	1313-0009	I 2145-0009	30	1331-2345	
14	1314-0008		31	1333-2344	
15	1315-0006				
16	1316-0005				

COMMERCE - STANDARDS - BOULDER

SOLAR RADIO EMISSION SPECTRUM OBSERVATIONS

JUNE — SEPTEMBER 1961

OWENS VALLEY, CALIFORNIA

540-975 Mc

1961	OBSERVING HOURS	IMPORTANT BURSTS			FREQUENCY RANGE MC.	REMARKS
		TYPE	TIMES U.T.	INT.		
June 28	1923-2405.5					No activity
June 29	1619-2130					No activity
July 5	1641-2410	IIIb	2234	1-	625-575	1 second duration
		Cont.	2402	1-	450-1000	15 seconds duration
July 6	1632-1908					No activity
	1913-2410					No activity
Aug. 15	1855-2411					No activity
Aug. 16	1623-1957					No activity
	2054-2311					No activity
	2342-2401					No activity
Aug. 17	1613-1856					No activity
	1900-2409	Cont.	2112	1-	450-700	4 seconds duration
Aug. 18	1658-2359					No activity
Aug. 19	1654-2409					No activity
Aug. 20	1626-2409					No activity
Aug. 21	1621-2357					No activity
Aug. 22	2012-2352					No activity
Aug. 23	1655-1745					No activity
Aug. 24	1638-2402					No activity
Aug. 25	1629-2351					No activity
Aug. 26	1643-2409					No activity
Sep. 5	1730-2400					No activity
Sep. 6	1608-2243					No activity
	2253-2401					No activity
Sep. 7	1605-2255					No activity
Sep. 8	1620-1730					No activity
	1833-2040					No activity
	2125-2230					No activity
	2314-2353					No activity
Sep. 12	1607-1710					No activity
	2009-2347					No activity
	2347.25-2356					No activity
Sep. 13	1747-1855					No activity
	1858-2017					No activity
	2106-2146					No activity
Sep. 14	1710-2116					No activity
	2127-2350					No activity
Sep. 15	1606-1835					No activity
	1950-2400					No activity
Sep. 18	2120-2400					No activity
Sep. 19	1601-1822	IIIb	1624.5	1-	460	Short shift
	1825-2401					No activity
Sep. 20	1600-2359					No activity
Sep. 21	1602-2313					No activity
	2330-2358					No activity
Sep. 22	1608-2400					No activity
Sep. 23	1639-2358					No activity

SOLAR RADIO EMISSION
SPECTRUM OBSERVATIONS

SEPTEMBER—NOVEMBER 1961

OWENS VALLEY, CALIFORNIA — 540-975 Mc

Date 1961	Observing Hours	Important Bursts			Frequency Range Mcs	Remarks
		Type	Times U.T.	Int.		
Sep. 26	1608-1814					No activity
	2122-2358					No activity
Sep. 27	1603-2400					No activity
Sep. 28	1558-2359	IIIg	1952.75	1-	Below 450	Two pair
Sep. 29	1625-2140					No activity
	2144-2345	IIIg	2200-2204	1-	550-450	Very short drift bursts
		Cont.	2204-2209	2	1000-450	Smooth wide band
		IIIg	2205-2206	2	600-450	Each 1 second duration, fast drift rate
		Cont.	2209-2240	1-	950-450	Slow fade out, smooth
		IIIg	2328	1-	Below 450	Fast drift rate
Sep. 30	1658-2347					No activity
Oct. 2	1627-2148					No activity
Oct. 9	1752-2351	IIIg	1845	1-	Below 450	0.5 second duration, fast drift rate
		III	2053	1	475	Pair, 2 second duration, short frequency shift
		IIIb	2136.5	1	460	0.5 second duration, short frequency shift
		IIIG	2224-2225	1	Above 800*	0.25 second duration, fast shift
		IIIg	2227:5	1	Above 800*	0.25 second duration, fast shift
Oct. 10	1628-2346					No activity
Oct. 12	1636-2348	III	1920.5	1-	650-600	0.5 second duration, short frequency shift
		IIIg	1927	1	750-600	0.5 second duration, fast frequency shift
		IIIg	2048-2050	1-	1000-800	0.5 second duration, fast frequency shift
Oct. 13						No activity
Oct. 16	1640-1822					No activity
	2004-2248					No activity
Oct. 17	1629-1846					No activity
	1947-2334					No activity
Oct. 18	1637-1906					No activity
	2048-2352					No activity
Oct. 19	1634-1831					No activity
	1835-2353	IIIg	2211	1-	650-500	0.5 second duration, fast frequency shift
Oct. 20	1631-2237					No activity
Oct. 21	1722-1831					No activity
Oct. 22	1645-1851					No activity
	2151-2356					No activity
Oct. 23	1634-2028					No activity
	2032-2156					No activity
Oct. 24	1626-1832					No activity
Oct. 25	1636-2350					No activity
Oct. 26	1616-1900					No activity
	1944-2349					No activity
Oct. 27	1638-1928					No activity
	1932-2350					No activity
Oct. 30	1620-1509					No activity
Oct. 31	1648-2352					No activity
Nov. 1	1634-1748					No activity

COMMERCE - STANDARDS - BOULDER

*Note: On October 9 receiver limits 800 Mc to 450 Mc, on other days between June 28 through November 1 receiver limts 1000 Mc to 450 Mc.

SOLAR RADIO EMISSION
SPECTRUM OBSERVATIONS

MARCH 1961

HAO BOULDER

7.6-41 Mc

Date 1961	Bursts Type	Time (U.T.)	Intensity	Frequency Range (mc)
7 Mar	III	2109-2110.30	1-	31-41
8	III	1447.45-1448	1-	24-41
14	III	2138.45-2139.15	1-	22-41
	II	2145.30-2151.45	1-	27-38
	IV	2220-2245	1-	26-36
18	III	1400.30-1401	1-	27-41
	III	1401-1401.45	1-	21-41
	III	1451.45-1452	1-	20-41
	III	1612-1612.15	1-	25-41
	II	1627.45-1640	1	23-41
	III	1739-1743.15	1+	11-41
	III	1744-1744.15	1	27-41
	II	1757-1800.45	1	28-41
	III	2152.30-2153	1	22-41
19	III	1503.15-1505	1-	24-41
	III	1918.30-1918.45	1-	22-41
	III	1922.15-1922.30	1-	27-41
20	III	1659.15-1701.30	1-	24-41
	III	1711-1711.15	1-	20-41
	III	1713.30-1713.45	1-	20-41
	III	1747.15-1748.15	1-	23-41
	III	2130.45-2131.15	1-	24-41
	III	2132.15-2132.30	1-	32-41
	III	2257.30-2257.45	1-	25-40
21	III	1708-1708.15	1-	27-39
	III	1757-1757.30	1-	24-41
	III	2006-2006.30	1	21-41
	III	2105.15-2105.30	1-	23-41
	III	2148.45-2149	1-	22-41
	II	2222.45-2237	1	28-41
	IV	2237-a2330	1-	26-41
22	III	1413.45-1414	1-	25-41
	III	1414.30-1414.45	1-	21-41
	III	1418.15-1418.30	1-	24-41
	III	1419.30-1419.45	1-	21-41
	III	1519.15-1519.30	1-	23-35
	III	1542.30-1542.45	1-	30-37
	III	1543.30-1543.45	1-	26-35
	III	1608.15-1608.30	1-	17-41
	III	1641.30-1643.30	1-	23-41
	continuum	1643.30-2353.30	1-	25-41
	III	1728.30-1728.45	1-	29-41
	III	1732.15-1732.45	1-	27-41
	III	1751.45-1752.30	1	10-41
	III	1849.45-1850.30	1	12-41
	III	1857.45-1858	1-	27-41
	III	1911.30-1911.45	1-	24-36
	III	1917-1917.30	1	21-41
	III	1936.30-1937	1-	24-41
	III	1946-1946.45	1-	24-41
	III	2004.45-2005	1-	26-32
	III	2007.30-2007.45	1-	25-34
	III	2027.15-2027.30	1-	26-41
	III	2028.15-2028.45	1	26-41
	III	2137.30-2138	1-	20-41
	III	2143.30-2143.45	1-	24-41
	III	2150-2150.30	1	22-41
	III	2152-2152.15	1-	22-41
	III	2220-2220.30	1-	24-41
	III	2226-2226.15	1-	28-36
	III	2227.15-2227.30	1-	24-36
	III	2239-2240.30	1-	25-41
	III	2243.30-2244.30	1-	20-41
	III	2248-2248.15	1-	25-41
	III	2339.30-2339.45	1-	20-41

Date 1961	Bursts Type	Time (U.T.)	Intensity	Frequency Range (mc)
22 Mar	III	2347.30-2347.45	1-	27-41
	III	2411.45-2412	1-	26-41
23	continuum	b1357.30-a2430	1+	21-41
	III	1518.30-1519.30	1	11-41
	III	1733-1733.45	1+	13-41
	III	1747.45-1749	1-	25-41
	III	1752.15-1753.15	1-	24-41
	III	1757-1757.15	1-	27-41
	III	1826.30-1826.45	1-	27-41
	III	1919-1919.15	1-	26-41
	III	1958-1958.15	1-	28-41
	III	1958.30-1958.45	1-	28-41
	III	2005-2005.15	1-	25-41
	III	2035.15-2035.30	1-	23-41
	III	2045-2045.15	1-	22-41
	III	2120.15-2121	1-	22-41
	III	2155.30-2155.45	1-	29-41
	III	2156.30-2156.45	1-	24-41
	III	2203.45-2204	1-	22-41
	III	2216.15-2216.30	1	22-41
	III	2240.30-2241	1+	16-41
	III	2241-2241.15	1-	23-41
	III	2306.15-2306.30	1-	28-41
	III	2308-2308.15	1-	22-41
	III	2311.15-2311.30	1-	27-36
	III	2315.45-2316	1-	26-41
	III	2328.30-2328.45	1	24-41
	III	2355.30-2355.45	1	19-41
	III	2410.15-2410.30	1	20-41
	III	2412.15-2412.30	1-	23-41
	III	2412.30-2412.45	1-	23-41
	III	2413.15-2413.30	1-	22-41
	III	2414.15-2414.30	1-	29-41
	III	2417.30-2417.45	1-	23-41
	III	2421.45-2422.15	1	21-41
24	continuum	b1350-a2457	1+	22-41
	III	1633.45-1634	1	16-41
	III	1644.45-1645.30	1+	11-41
	III	1852.30-1853	1	23-41
	III	1952.45-1953	1+	11-41
	III	1955.30-1956	1	22-41
	III	1956-1956.30	1	22-41
	III	2130-2130.30	1	17-41
	III	2236.45-2237.15	1+	22-41
	III	2248.30-2249	1+	21-41
	III	2339-2339.30	1+	20-41
	III	2404.45-2405	1	24-41
25	continuum	b1347-a2445	1-	24-41
	III	1733.30-1734.15	1	23-41
	III	1906-1906.30	1	22-41
	III	2016.15-2016.45	1	21-41
	III	2019.15-2019.45	1	20-41
	III	2251-2259.30	1+	22-41
26	continuum	b1355-2400	1	25-41
	III	2237.30-2238	1	22-41
	III	2357.30-2358	1	22-41
	III	2407-2419		20-41
	II	2424-2440		21-41
27	continuum	b1406-a2445	1	24-41
	III	2333.15-2334	1+	22-41
	III	2441-2443.30	1	23-41
	III	2443.30-2444	1	23-41
28	III	1519-1519.15	1-	27-35
	III	1742-1742.15	1-	28-41
	continuum	1743-2020	1-	26-41

COMMERCE - STANDARDS - BOULDER

SOLAR RADIO EMISSION SPECTRUM OBSERVATIONS

MARCH—APRIL 1961

HAO BOULDER

7.6 - 41 Mc

Date 1961	Bursts			Frequency Range (mc)
	Type	Time (U.T.)	Intensity	
28 Mar	III	1742-1742.15	1-	28-41
	III	1825.45-1826	1-	27-41
	III	1925-1925.30	1-	24-41
	III	1944-1944.15	1-	25-33
	III	2006.30-2006.45	1-	27-38
	continuum 2130-a2325		1-	27-41
	III	2223.30-2223.45	1-	26-41
	III	2237-2237.30	1-	26-41
	III	2313.30-2313.45	1-	25-41
29	III	1525.30-1526.15	1-	17-41
	III	1819.30-1820	1-	25-41
	III	2232.30-2233	1-	26-36
31	III	1451-1451.15	1-	30-41
	III	2250.45-2251.15	1	21-41
	continuum 2304-2314			28-41
2x Apr				
4	continuum 2151.15-2157.30		1-	26-38
	III	2239-2240	1-	24-41
	III	2242-2242.15	1-	21-41
	III	2242.15-2243	1	21-41
	III	2244.45-2245.45	1-	21-41
	IV	2248-2302		27-41
5	III	1546.45-1547.15	1-	19-41
	III	1600.30-1601	1-	22-41
	III	1604-1604.30	1-	19-41
	III	1610.45-1611.15	1-	12-41
	III	1629.30-1630.15	1-	24-41
	III	1645.45-1650	1-	28-41
	III	1653.30-1654	1-	10-32
	III	1703-1704	2	9-41
	III	1705.30-1706	1	22-41
	III	1903.30-1904	2	9-41
	III	1904.30-1905.30	2	9-41
	III	1917.30-1918.30	2	9-41
	III	2056.30-2057.15	1-	22-41
	III	2058-2058.30	1-	22-41
	III	2059.45-2100.15	1-	22-41
	continuum 2102-2110			25-41
	III	2202.15-2203	1-	20-41
	III	2204.15-2205.30	1-	13-41
6	III	1503-1503.30	1-	22-41
	III	1536-1537.30	1-	11-41
	III	1538-1540.30	1-	11-41
	III	1542.30-1542.45	1-	13-41
	III	1625.30-1625.45	1-	11-41
	continuum 1625.45-1637.30		1-	22-41
	III	1643.15-1643.30	1-	10-41
	III	1650.30-1651	1-	9-41
10	III	1830.30-1830.45	1-	30-41
	III	1926-1926.30	1-	30-41
11	III	1451.30-1451.45	1-	20-41
	III	1506.45-1507.30	1-	10-41
	III	1919.45-1920.30	1-	9-41
	III	2013.30-2014	1	8-41
	III	2016.30-2017	1-	8-41
	III	2100-2100.30	1-	24-41
14	III	1849.30-1850.15	1-	9-41
	III	2113-2113.30	1	11-41
15	III	2210.30-2211	1-	14-41
	III	2212-2212.15	1-	15-35
	III	2214.15-2214.30	1-	13-41
	III	2301.30-2302	1-	11-41
17	III	1407-1407.30	1-	19-41
	III	1752-1752.30	1-	9-41
	III	1757.45-1758	1-	8-37
	III	1851.30-1851.45	1-	9-41

Date 1961	Bursts			Frequency Range (mc)
	Type	Time (U.T.)	Intensity	
17 Apr	III	1935.15-1935.30	1-	11-41
	III	1946-	1-	8-35
	III	2105.45-2106	1-	23-41
	III	2144.45-2145	1-	24-41
	III	2150.45-2151	1-	22-41
	III	2240-2240.30	1-	24-41
	III	2341-2341.30	1-	13-41
18	III	1431.30-1432	1-	15-41
	III	1440.30-1441	1-	9-41
	III	1516.15-1516.45	1-	13-41
	III	1541.30-1542	1-	8-41
	III	1608.30-1609.30	1-	8-41
	III	1648.30-1649	1-	19-41
	III	1709.45-1710	1-	11-41
	continuum 1845-2310		1-	23-41
19x[1]	III	1445.30-1445.45	1-	23-39
	continuum b1815-1825		1-	26-41
	III	1947.45-1948	1-	16-41
20	continuum b1400-1705		1-	23-41
	continuum 2233-2503		1	23-41
21	continuum 1405-1420		1-	23-41
	III	1405-1405.30	1-	23-41
	III	1410.30-1411	1-	21-41
	III	1414.30-1415.45	1-	25-41
	III	1418-1418.45	1-	25-41
	III	1424.30-1424.45	1-	20-41
	III	1431-1431.15	1-	12-41
	continuum 1816-a2437		1-	25-41
22	III	1400-1400.30	1-	24-41
	III	1401.45-1402	1-	21-41
	III	1405.15-1405.30	1-	22-41
	III	1410-1410.30	1-	22-34
	III	1547.45-1548	1-	23-41
	III	1845.45-1846	1-	9-41
	III	1920.45-1921	1	15-41
	III	1931.30-1931.45	1	8-41
	III	1941-1941.15	1-	22-41
	continuum 1958-2200		1-	23-41
	III	2140.15-2141	1+	8-41
23	III	1420-1421.45	1-	25-41
	III	1424.15-1424.30	1-	23-38
	III	1429-1429.30	1-	22-41
	III	1430.45-1431	1-	22-41
	III	1449.15-1450	1-	21-41
	III	1454.45-1455	1-	22-41
	continuum 1615-1650		1-	20-41
	III	1634-1634.15	1-	23-41
	III	2125.30-2125.45	1-	20-41
	III	2209.30-2209.45	1-	22-41
24	III	1501.15-1501.30	1-	21-34
	III	1706.30-1706.30	1-	28-41
	III	1726	1-	27-41
25	III	1911.15-1911.45	1-	8-38
28	III	1506-1508.30	1-	8-39
	III	1652.30-1652.45	1-	20-35
	III	1653.15-1653.45	1-	20-39
	III	1656.45-1657	1-	23-35
30	III	2154.45-2155.15	1-	19-40
	III	2156	1-	8-40

x = no observations before 1804
x[1] = no observations 1630-1808

COMMERCE - STANDARDS - BOULDER

SOLAR RADIO EMISSION
SPECTRUM OBSERVATIONS

MAY 1961

HAO BOULDER

7.6 - 41 Mc

Date 1961	Type	Bursts Time (U.T.)	Intensity	Frequency Range (mc)
2 May	III	1528.45-1529	1-	27-35
	III	1921.15-1922.15	1-	8-40
	III	2113-2114	1-	8-27
	III	2159-2200.15	1-	25-40
	III	2309-2309.30	1-	29-39
3	III	1542.30-1543.30	1-	19-40
	III	1632.30-1634.45	1-	23-34
	III	1838.30-1839.45	1-	24-41
4	III	1410-1410.30	1-	29-41
	III	1411-1412	1-	29-41
	III	1433.30-1434	1-	20-41
	III	1458		22-41
	III	1614-1614.15	1-	20-41
	III	2034-2034.30	1-	10-41
	III	2037.30-2038	1-	11-41
	III	2201.30-2202	1-	22-41
	III	2203-2205	2	12-41
	III	2208.30-2212.30	2	12-41
	II	2209-2237.30	1	20-41
	IV	2249-e2401	1-	26-41
5	III	1500.30-1501	1-	8-41
	III	1623.30-1625	1-	7.6-41
	III	1625	1-	8-41
	III	1804.15-1805.30	1	8-41
	III	1835.15-1836.30	1-	9-40
	III	1838.30-1839	1-	8-40
	III	1929-1930.45	2	8-41
	III	1932.15-1932.30	1-	29-41
	III	1942.45-1943	1-	36-41
	III	1950-1953	1-	30-40
	III	1959.45-2000.30	1-	8-41
	III	2027.45-2028.45	1-	19-41
	III	2031.15-2032.30	1	9-41
	III	2033-2033.30	1-	24-41
	III	2034.15-2035.15	1-	7.6-41
	III	2035.30-2036	1-	16-41
	III	2045-2046	1	8-41
	III	2049-2050.15	1	7.6-41
	III	2050-2050.30	1-	11-41
	III	2050.45-2051.45	1	7.6-41
	III	2052.30-2053.30	1	7.6-41
	III	2058.15-2058.45	1-	20-41
	III	2059-2059.45	1	8-40
	III	2100.15-2100.30	1-	25-37
	III	2100.45-2101	1-	21-29
	III	2102.15-2102.45	1-	16-41
	III	2136-2137	1	16-41
	III	2140-2140.30	1-	16-24
	III	2145.30-2146.15	1	16-41
	III	2209.45-2210.45	1	12-41
	III	2210.45-2212	1+	7.6-41
	III	2212.15-2212.30	1-	18-41
	III	2218.45-2219.15	1-	16-34
	III	2226.15-2227	1-	15-28
	III	2230-2235	2	7.6-41
	III	2242.30-2243	1	18-41
	III	2245-2245.30	1	16-41
	III	2328.45-2329.30	1-	16-40
	III	2338.45-2338.47	1-	33-41
	III	2348.30-2349.45	1-	11-41

Date 1961	Type	Bursts Time (U.T.)	Intensity	Frequency Range (mc)
5 May	III	2350-2350.30	1-	20-41
	III	2351.15-2352.15	1-	11-41
	III	2354.45-2355.45	1	11-41
	III	2356-2356.30	1-	15-27
	III	2358.15-2400	2	9-41
	III	2421.30-2422	1-	16-41
	III	2430-2430.30	1-	23-35
	III	2432.45-2433.15	1-	19-41
6	III	1402.30-1403	1	15-41
	III	1447.45-1449.15	1-	8-33
	III	1454.45-1455.30	1-	11-37
	III	1551-1551.15	1-	23-40
	III	1617.45-1621.45	1	7.6-41
	III	1623.45-1624.30	1	7.6-41
	III	2209-2212.30	1-	8-41
	III	2213.45-2215.15	1-	13-40
7	IV	1452-1513	1-	31-40
	III	1724-1725.30	1-	8-40
	III	1726.15-1726.30	1-	8-15
	III	2147.15-2148.15	1-	13-41
	III	2151.45-2152.45	1	12-41
	III	2327-2328	1	20-41
8	III	2321.30-2321.45	1-	21-41
	III	2321.45-2322	1-	21-41
9	III	1555-1555.45	1-	8-17
	III	1556-1556.30	1	8-39
	continuum	1605-1618.30	1	20-41
	III	1607-1607.30	2	8-41
	III	1620-1620.15	1	21-40
	III	1620.30-1620.45	1-	18-40
10	III	1859.30-1859.45	1-	33-39
	III	2142.45-2143.30	1-	11-30
	III	2225.15-2225.30	1-	22-32
11	III	1607.15-1607.30	1-	20-41
	III	1757.45-1758	1	30-41
	III	1758.15-1758.45	1	25-41
	III	1759-1800.45	2	18-41
	III	1801.30-1801.45	1	22-41
	III	1807.30-1807.45	1	9-41
12	III	1356-1358.15	1+	12-41
	III	1605-1605.15	1-	20-41
	III	1607-1607.30	1-	20-41
	III	1747.45-1748.15	1	17-41
	III	1748.45-1749.15	1	19-41
	III	1850.30-1853	1-	8-41
	III	2015.45-2016.30	1-	17-41
	III	2018.30-2018.45	1-	23-37
	III	2100-2103.15	1	7.6-41
	III	2103-2103.15	1-	22-36
	III	2123.45-2124.30	1	20-40
	III	2304.45-2306.15	1+	13-41
	III	2309.15-2310.30	1	16-41
	III	2312.15-2313.30	1	13-41
	III	2348.30-2351.30	2	11-41
	III	2359.30-2403.30	2	11-41
	III	2444-2444.45	1-	26-39
	III	2448.15-2448.30	1-	31-41
	III	2509.45-2512	1+	14-41
	III	2514.45-2515	1-	21-41
	III	2516.15-2516.45	1-	21-37
	III	2519.45-2520.15	1-	20-41

d = harmonic structure

SOLAR RADIO EMISSION
SPECTRUM OBSERVATIONS

MAY—JUNE 1961

HAO BOULDER

7.6 - 41 Mc

Date 1961	Bursts			Frequency Range (mc)
	Type	Time (U.T.)	Intensity	
17 May	III	1756.30-1757.15	1	8-41
19	III	1900-1900.15	1-	8-39
	III	1900.15-1900.30	1-	23-35
	III	2017-2017.15	1-	24-33
	III	2025.30-2026	1-	24-38
	III	2055.45-2057.30	1-	10-32
	III	2115.15-2115.30	1-	25-32
	III	2118-2118.30	1-	23-34
	continuum	2120-2130	1-	22-36
	III	2300-2300.15	1-	20-30
	III	2312.15-2312.30	1-	21-41
	III	2314.30-2314.45	1-	25-34
	III	2349	1-	22-41
20	III	1753.30-1754.15	1-	22-41
	III	1948.45-1949.15	1-	7.6-39
	III	1949.30-1951.30	1+	7.6-41
	III	1952.45-1953.30	1	7.6-41
	III	1953-1953.15	1-	25-32
	III	1953.30-1953.45	1	20-41
	III	2036.15-2036.30	1-	24-30
	III	2049-2049.30	1-	27-40
	III	2057.30-2058	1-	16-41
	III	2423.30-2424.15	1-	22-32
21	III	1554-1554.30	1-	11-41
22	III	1434	1	22-40
	III	1518.30-1518.45	1-	11-41
	III	1603.15-1603.30	1-	12-41
	III	1605-1605.30	1-	8-41
	III	1605.30-1605.45	1-	8-41
	III	1632.45-1633	1-	8-41
	III	1634.15-1636.30	2	8-41
	III	1652	1	21-30
	III	1710.45-1711.30	2	8-41
	III	1740	1-	8-29
	III	1751.45-1752.45	1	7.6-41
	III	1851-1853	2	8-41
	III	2152.30-2153	1+	10-41
	III	2309-2310.30	2	12-41
	III	2447.30-2447.45	1	16-41
	III	2523.45-2524	1-	16-42
	III	2525.30-2526	1-	16-41
	III	2531-2531.45	1-	16-41
	III	2536-2537	1-	16-41
24	III	1826	1	8-15
25	III	1403.45-1404	1-	17-30
	III	1420.30-1420.45	1-	12-41
	III	2030.45-2031	1-	20-41
29	III	2245-2245.15	1-	16-39
	III	2330.15-2330.30	1-	24-38
30	III	2123-2123.30	1-	11-27
	III	2333-2334.45	1	13-41
1 June	III	2034-2034.15	1-	27-41
	III	2102.15-2102.45	1-	27-40
2	III	1347	1-	21-41
	III	1410.30-1410.45	1-	17-41
	III	1434-1434.15	1-	20-36
	III	1632	1	23-36
	III	1846.30-1847.30	1-	8-13
3	III	1417	1-	22-41
4	III	1601	1	10-33

Date 1961	Bursts			Frequency Range (mc)
	Type	Time (U.T.)	Intensity	
4 Jun	III	1637	1	20-37
	III	1725	1	8-27
	III	1813	1	30-41
	III	2009.45-2010	1-	22-41
	III	2135.15-2135.30	1-	8-41
	III	2308	1	18-30
5	III	1547.30-1549.15	1	8-41
	III	1741	1	20-41
	III	2033	1	25-40
	III	2141.30-2142	1-	9-41
	III	2143.15-2143.30	1-	21-41
	III	2145.30-2145.45	1-	16-41
	III	2148.15-2148.30	1-	21-41
	III	2149-2149.30	1-	8-41
	III	2152-2152.30	1-	16-41
	III	2302.45-2303.15	1-	11-41
	III	2303.30-2304	1-	11-41
	III	2308-2309	1	12-41
	III	2311.15-2311.30	1-	16-41
	III	2316-2316.15	1-	21-41
6	continuum	1553-a2240	1-	23-41
	III	2003.45-2004.15	1	16-41
	III	2007.45-2008.30	1-	22-41
	III	2038.30-2038.45	1-	21-41
	III	2056.30-2056.45	1-	23-41
	III	2103.45-2104	1-	23-41
	III	2138.15-2138.30	1-	24-41
	III	2307.45-2308	1-	28-41
7	III	2327.15-2327.30	1-	16-29
8	III	1905	2	17-41
9	III	2023.15-2023.30	1-	25-39
	III	2031.30-2031.45	1-	22-35
	III	2138.15-2143	3	23-41
	II	2138-2159	3	24-41
	IV	2153.30-2243	1-	23-41
11	III	1453.30-1454.15	1-	15-39
	III	1504-1510	2	10-41
	II	1508-1512	2	12-41
	III	1516-1518	2	12-41
	II	1516-1523	3	11-41
	IV	1520-1528	2	28-41
12	III	1813.30-1814.45	1+	7.6-41
13	III	1424-1424.15	1-	22-41
	III	1458-1458.30	1	11-41
	III	1553	3	29-41
	III	1631.45-1632.45	1	7.6-41
	III	1930.15-1930.30	1-	23-41
	III	2030-2030.30	1-	21-41
	III	2031-2031.15	1-	21-41
	III	2035.45-2038	1+	7.6-41
	III	2036-2038	2	8-41
	III	2129.15-2129.30	1-	21-41
	III	2129.45-2130.45	1	7.6-41
	III	2131.30-2131.45	1-	21-41
	III	2139-2139.15	1-	19-41
	III	2141.45-2143.15	1	22-41
	III	2217.30-2218	1	21-41
14	III	1412.15-1413	1-	22-41
	III	1613-1616.30	1	7.6-41
	continuum	1628-1635	2	7.6-41

COMMERCE - STANDARDS - BOULDER

SOLAR RADIO EMISSION

SPECTRUM OBSERVATIONS

JUNE 1961

HAO BOULDER

7.6-41 Mc

Date 1961	Bursts			Frequency Range (mc)
	Type	Time (U.T.)	Intensity	
14 Jun	III	1643-1644	1-	34-41
	III	1728	2	30-41
	III	1730.30-1732	3	27-41
	III	1733.30-1734	2	32-41
	III	1806-1806.45	1-	9-41
	III	2006	1-	7.6-41
	III	2045.30-2045.45	1-	7.6-36
	III	2046.30-2049.30	1+	7.6-41
	III	2151.15-2151.30	1-	24-34
	III	2153-2153.15	1-	26-41
	III	2154.30-2154.45	1-	24-38
	III	2244.15-2244.30	1-	22-41
	III	2245-2245.30	1-	22-41
	III	2247-2248.15	1-	13-41
	III	2326	1	30-36
	III	2333.15-2336	1	7.6-41
	III	2357-2359.30	1	13-41
	III	2503.30-2504	1-	24-41
15	III	1401-1401.30	1-	17-41
	III	1402-1403	1-	17-41
	III	1406.30-1407.15	1-	13-41
	III	1407.15-1408	1-	21-41
	III	1421.45-1422.30	1-	12-41
	III	1432.45-1433.15	1-	22-39
	III	1438.45-1439.30	1-	16-40
	III	1454.30-1457	1+	7.6-41
	III	1546.15-1546.45	1-	28-41
	III	1552-1553.30	1	23-41
	III	1601-1601.30	1-	25-41
	III	1607.45-1608.45	1	8-41
	III	1608.45-1609.30	1	12-41
	III	1631-1632	1	21-41
	III	1635-1637.30	1+	8-41
	III	1638.45-1646.45	2	7.6-41
	II	1649-1708	1+	20-41
	III	1701.30-1709.15	2+	7.6-41
	III	1709.15-1710.30	2	8-41
	III	1717.30-1722.15	2	7.6-41
	IV	1717-1732	1-	25-41
	III	1739.15-1741.30	1	7.6-41
	III	1752.30-1753	1-	21-39
	III	1753.30-1753.45	1-	27-41
	III	1822-1822.45	1-	21-41
	III	1831.45-1832.30	1-	21-41
	III	1841.45-1842.30	1-	21-41
	III	1844.30-1845	1-	21-41
	III	1900-1901.15	1	8-41
	III	1901.15-1902.30	1	8-41
	III	1903.30-1904.30	1	17-41
	III	1916.45-1917.45	1-	25-39
	III	1918.45-1919.15	1-	23-41
	III	1923.45-1924.15	1-	21-41
	III	1945.30-1946.30	1-	8-41
	III	1958.30-1959.30	1-	22-41
	III	2002.15-2002.45	1-	23-39
	III	2003.45-2004	1-	23-41
	III	2034.45-2035	1-	22-41
	III	2044.15-2044.45	1-	16-41
	III	2048-2049	1-	7.6-41
	III	2103.15-2111	2	7.6-41

Date 1961	Bursts			Frequency Range (mc)
	Type	Time (U.T.)	Intensity	
15 Jun	III	2111.15-2113.15	1	7.6-41
	III	2116-2118.45	1	8-41
	III	2133.15-2133.30	1-	22-41
	III	2144.45-2145.30	1	13-41
	III	2155.15-2155.30	1	21-41
	III	2202.30-2208.30	1-	8-41
	III	2203-2206	2	7.6-41
	III	2206.30-2207.30	1+	7.6-41
	III	2214.15-2215.15	1	9-41
	III	2225-2225.15	1-	13-34
	III	2234.15-2234.45	1-	13-41
	III	2239.45-2240	1-	21-35
	III	2307-2308.15	1	10-41
	III	2339.15-2340.30	1-	17-41
	III	2346-2349.30	1	11-41
	III	2420.15-2421	1-	17-41
	III	2428.15-2428.30	1-	22-39
	III	2432-2432.30	1-	22-41
	III	2434.15-2436.30	1	12-41
	III	2441.45-2444	1+	11-41
	III	2512-2512.30	1-	21-41
	III	2513-2514	1-	21-41
	III	2543.30-2544	1-	16-41
	III	2544.15-2548		21-41
	III	2605.15-2606.15	1-	17-38
	III	2607.45-2608.30	1-	17-38
	III	2613.45-2614.45	1-	17-27
	III	2615.15-2616	1-	17-30
16c	III	1424.45-1425	1-	20-38
	III	1508.15-1509	1	10-41
	III	1519-1519.15	1-	23-40
	III	1618-1618.15	1-	25-40
	III	1628.30-1628.45	1-	24-40
	III	1728-1728.30	1-	23-40
	III	1734.30-1735	1-	23-37
	III	1813.15-1814.15	1-	8-41
	III	1814.15-1815.15	1-	8-41
	III	1825.15-1825.45	1-	16-37
	III	2032.15-2033.30	1	9-41
	III	2035-2035.15	1-	24-39
	III	2319.30-2320.15	1-	12-41
	III	2337.30-2338	1-	16-41
	III	2338.30-2339.15	1	12-41
	III	2339.15-2340	1-	17-41
	III	2342.30-2343.15	1-	17-41
	III	2348.30-2349	1-	23-41
	III	2357.15-2357.30	1-	23-40
	III	2412.30-2412.45	1-	24-34
	III	2430.30-2431.30	1-	17-41
	III	2432.45-2433	1-	26-41
	III	2433.15-2433.45	1-	17-40
	III	2453.15-2454.15	1-	17-41
	III	2454.45-2455.15	1-	23-41
	III	2501.30-2502	1-	22-35
	III	2503.30-2504.30	1-	17-41
	III	2508-2510.30	1	17-41
	III	2511-2514.30	1-	23-41
	III	2531.15-2531.45	1-	17-41
	III	2544.45-2545.30	1-	17-41
	III	2552.45-2553.15	1-	17-41

c = many faint type III's not measured

SOLAR RADIO EMISSION

SPECTRUM OBSERVATIONS

JUNE 1961

HAO BOULDER 7.6 - 41 Mc

Date 1961	Bursts			Frequency Range (mc)
	Type	Time (U.T.)	Intensity	
16 Jun	III	2600.15-2602.15	1-	17-41
	III	2604.30-2604.45	1-	23-37
17	III	1505-1505.45	1	22-41
	III	1653.15-1654	1	8-41
	III	1655.15-1656	1-	8-41
	III	1805-1806	1-	7.6-41
	III	1806.45-1808.15	1-	8-41
	III	1810.15-1811.45	1-	8-41
	III	2053.30-2054	1-	17-41
	III	2142.15-2142.45	1-	10-40
	III	2507.45-2508	1-	25-38
18	III	1449.15-1449.45	1-	13-41
	III	1528.15-1528.45	1-	25-40
	III	1529.30-1530.45	1	8-41
	III	1709-1710.30	1	7.6-41
	III	1725.30-1726.15	1-	16-41
	III	1745.45-1747	1-	7.6-40
	III	2322.45-2323	1-	16-41
	III	2423	1	25-34
	III	2459	1-	21-38
	III	2516-2517	1	21-41
	III	2519-2520	1	22-41
	III	2535	1-	24-41
19	III	1438.30-1441.30	1	12-41
	III	1451.30-1452	1	20-41
	III	1919-1920.30	1	7.6-41
	III	1923	1	23-41
	III	2035-2036	1	22-41
	III	2142-2142.15	1-	22-41
	III	2147.30-2149.30	1	7.6-41
	III	2230.30-2231	1-	12-41
	III	2323-2325	1-	22-34
20c	continuum 1624-1650		1-	23-41
	III	1743.45-1744.15	1-	23-37
	III	2136-2136.30	1-	24-35
	III	2145.15-2145.30	1-	24-38
	III	2156-2156.30	1-	22-34
	III	2233-2233.30	1-	24-39
	III	2248.15-2248.30	1-	28-36
	III	2329.30-2329.45	1-	22-36
21c	III	1453.30-1453.45	1-	23-40
	III	1502-1502.45	1-	23-40
	III	1512.30-1512.45	1-	17-41
	III	1640-1640.30	1-	21-39
	III	1729-1729.15	1-	18-41
	III	1803.30-1803.45	1-	16-40
	III	1814.30-1814.45	1-	17-40
	continuum 1815-a2330		1	23-41
	III	1816-1836.30	1-	20-41
	III	1900-1900.30	1	19-37
	III	1901.15-1901.30d	1-	21-41
	III	1938.15-1938.45d	1-	8-39
	III	2009.15-2009.30	1-	8-34
	III	2014.45-2015	1-	23-34
	III	2018-2019.15 d	1-	8-39
	III	2110	2	20-41
22c	continuum b1353-1940		1-	19-41
	III	1646-1647	2	7.6-41
	III	1804-1805.30	1	7.6-41
	III	1846-1848	1	7.6-41
	III	1850.30-1851.30	1	7.6-41

Date 1961	Bursts			Frequency Range (mc)
	Type	Time (U.T.)	Intensity	
22 Jun	III	1927-1928d	1	7.6-37
	III	1933-1934d	1	7.6-41
	III	1942.15-1943	1-	7.6-41
	III	1951.30-1951.45	1-	20-41
	III	1958-1958.15	1-	7.6-41
	III	1958.30-1958.45	1-	7.6-41
	III	1959-1959.15	1-	7.6-41
	III	2002.45-2003	1-	7.6-41
	III	2004-2004.15	1-	7.6-41
	III	2009.30-2010d	1-	7.6-41
	III	2015-2015.15	1-	23-41
	III	2024-2024.15	1-	7.6-41
	III	2030.45-2031	1-	7.6-41
	III	2039-2039.15	1-	7.6-41
	III	2103.30-2103.45	1-	21-41
	III	2122.45-2123	1-	22-41
	III	2128-2128.15	1-	7.6-41
	III	2206.30-2206.45	1-	20-41
	III	2243.15-2243.30	1-	15-41
	III	2243.45-2244	1-	15-41
	III	2317.15-2317.30	1-	15-41
23c°	continuum b1356-1410		1-	21-41
	III	1424-1424.30	1-	26-38
	III	1505.45-1506.15	1-	24-40
	III	1522-1522.45	1-	22-41
	III	1524.45-1525	1-	33-40
	continuum 1600-1635		1-	21-41
	III	1619.30-1621.30	1	8-41
	III	1637.45-1638.15	1	16-41
	III	1641.15-1642	1	25-35
	III	1654.30-1655	1-	22-41
	III	1734.15-1734.45	1-	21-33
	III	1753.15-1753.30	1-	25-37
	continuum 1800-1900		1-	22-41
	continuum 2002-2155		1-	25-41
	III	2143.30-2144	1-	25-41
	III	2145.15-2145.30	1-	25-33
	III	2252.30-2252.45	1-	17-35
	III	2312-2312.30	1-	26-35
	III	2322.15-2322.30	1-	23-41
	III	2330-2330.15	1-	22-39
	continuum 2337-a2540		1-	21-41
24c	continuum 1415-1425		1-	33-41
	III	1500-1500.30	1-	22-40
	continuum 1505-1618		1-	20-41
	III	1630.15-1630.30	1-	26-35
	III	1649-1649.45	1-	8-36
	III	1725.45-1726	1-	24-41
	III	1737.15-1737.30	1-	31-40
	III	1928.45-1929.15	1-	25-33
	III	2008.30-2008.45	1-	23-39
	III	2016-2016.30	1-	22-39
	III	2325.30-2326.15	1-	23-34
	III	2428-2428.30	1	22-41
	III	2443-2443.15	1-	29-40
	III	2443.30-2444	1-	35-41
25	III	1400-1400.15d	1-	23-41
	III	1525.45-1526.15	1-	24-32
	continuum 1845-1855		1-	24-36
	III	1855-1855.30	1+	22-41

c = many faint type III's not measured
° = no observations from 1907 to 2002
d = harmonic structure

SOLAR RADIO EMISSION
SPECTRUM OBSERVATIONS

JUNE–JULY 1961

HAO BOULDER

7.6-41 Mc

Date 1961	Bursts			Frequency Range (mc)
	Type	Time (U.T.)	Intensity	
25 Jun	III	2009-2009.30	1	22-38
	III	2018-2018.30	1-	24-40
	III	2038.30-2039	1-	25-40
	III	2039.15-2039.45	1-	25-40
	III	2102.15-2103.15	1-	25-38
	III	2106-2106.45	1-	27-41
	III	2130-2130.30	1-	27-38
27	III	1444-1445	3	22-31
	III	1450-1450.45	1-	12-41
28	III	1433-1434	1	21-41
	III	2010.30-2011.45	1-	11-35
29	III	1917.45-1918.15	1-	16-41
	III	1922.30-1922.45	1-	20-41
	III	1924-1924.15	1	7.6-41
	II	1956.30-2055	1+	20-35
	III	2010.30	1+	7.6-38
1 Jul	III	1613.45-1614	1-	24-41
2	III	1820-1820.30	1-	21-41
	III	1821.30-1822.15	1	7.6-41
	III	1823-1823.15	1-	30-41
	III	1823.30-1825	1	7.6-41
	III	1830.15-1830.30	1-	21-41
3	III	2147-2147.45	1-	24-41
4	III	1833.15-1834	1	7.6-41
	III	1834.45-1835.30	1	7.6-41
	III	1849.45-1850.30	1-	7.6-41
	III	1904.30-1904.45	1-	7.6-41
	III	1918.30-1920	1	7.6-41
	III	1940.45-1941.15	1-	7.6-41
	III	2119.30-2119.45	1-	7.6-18
	III	2122-2122.30	1-	7.6-41
5	III	1411.30-1412.15	1-	13-27
	III	1413-1413.15	1-	13-27
	III	1623.30-1626	1-	9-19
	III	1721.45-1723.15	1-	7.6-41
	III	1725.45-1727	1-	7.6-41
	III	1807.30-1808	1-	7.6-41
	III	1808.30-1809.15	1-	7.6-41
	III	1952.30-1954	1-	7.6-18
6	III	1538.15-1538.45	1-	12-41
	III	1541.30-1544	1-	7.6-41
	III	1738.15-1739	1-	8-30
	III	1740-1741	1-	8-30
	III	1745.45-1746.30	1	8-41
	III	1808.15-1809.15	1-	8-26
	III	1812-1812.45	1-	8-18
	III	1816-1817	1-	13-41
	III	1817-1818.30	1-	24-41
	III	1835	1-	31-41
	III	1856.15-1858	1-	13-41
	III	1911-1911.45	1-	9-28
7	III	2322.30-2324	1-	16-41
9	III	1446.30-1448	1-	8-41
	III	1448.30-1449.15	1-	13-34
	III	2037.15-2039.30	1-	8-18
	III	2039.30-2042.15	1-	8-27
11	III	1656-1656.30	1	7.6-41
	III	1659.30-1700	1	7.6-41
	IV	1702-2300	2+	9-41
	III	1958.30-2000	1	7.6-41
12c	IV	b1400-1925	1-	18-41
	continuum 1925-2105			18-41
	III	1947.45-1948	1	23-41
	III	2057-2057.15	1	21-41
13	continuum b1402-2302			21-41

Date 1961	Bursts			Frequency Range (mc)
	Type	Time (U.T.)	Intensity	
13 Jul	III	1518.45-1519.30	1	17-41
	III	1609.30-1610	1-	20-41
	III	1639.15-1640.15	1	12-41
	III	1722.30-1723	1	12-41
	III	2001-2001.15	1-	21-41
	III	2032.15-2033	1-	17-41
	III	2033.15-2033.30	1-	23-41
	III	2100.45-2101	1-	22-41
	III	2116.45-2117.15	1-	21-37
	III	2155-2155.15	1-	22-34
	III	2201-2201.15	1-	23-34
	III	2306.15-2306.30	1-	19-35
	III	2308-2308.30	1-	19-38
	III	2329.45-2330	1-	20-41
	III	2333-2333.30	1-	20-36
	III	2336-2336.30	1	11-41
	III	2337.45-2338	1-	21-41
	III	2340-2341.30	1+	11-41
	III	2351.30-2351.45	1-	23-41
	III	2427-2428.15	1+	16-41
	III	2430-2432	1	16-41
	III	2433.30-2434.30	1	16-41
	III	2447.45-2448	1-	21-41
	III	2454.45-2455	1-	21-41
	III	2529.30-2529.45	1-	19-36
	III	2530.45-2531	1-	19-36
	III	2531.45-2532	1	16-41
	III	2537.45-2538	1	19-41
	III	2548.30-2548.45	1-	23-41
	III	2616.30-2617.30	1-	17-30
14	III	1641.45-1642	1-	24-37
	III	1657-1657.15	1-	27-37
	III	1658.45-1659	1-	27-35
	III	1715-1715.15	1	21-41
	III	1740.15-1741.30	1-	8-18
	III	1754.45-1755	1-	21-41
	III	1804.15-1804.45	1-	22-31
	III	1815.45-1816	1-	21-30
	III	1922.15-1922.45	1-	20-40
	III	1955.30-1956	1-	21-32
	III	2028.15-2028.30	1-	22-32
	III	2030.30-2032	1-	8-27
	III	2132.15-2132.45	1-	20-30
	III	2202-2203	1-	15-38
	III	2209.15-2209.30	1-	20-36
15c	III	1307-1307.15	1-	15-37
	III	1309.45-1310	1-	15-26
	III	1310.45-1311	1-	15-30
	III	1319-1319.30	1-	18-39
	III	1323.30-1323.45	1-	23-35
	III	1354.15-1354.45	1-	13-32
	III	1355.15-1356.30	1-	17-31
	III	1401.15-1401.30	1-	17-33
	III	1412-1412.15	1-	21-35
	III	1433.15-1433.30	1-	7.6-41
	III	1434.15-1435	1	16-41
	continuum 1435.30-1443		1+	7.6-41
	IV	1522-1803	3+	9-41
	continuum 1803-a2453		1-	15-41
	III	1540.30-1542	2	9-27
	III	1753.30-1753.45	1	10-40
	III	1930.15-1930.45	1	15-31
	III	2053	1	7.6-37
16c	III	1329-1329.15	1-	13-21
	III	1335.30-1335.45	1-	17-30

c = many faint type III's not measured

SOLAR RADIO EMISSION
SPECTRUM OBSERVATIONS

JULY 1961

HAO BOULDER 7.6 - 41 MC

Date 1961	Bursts			Frequency Range (mc)
	Type	Time (U.T.)	Intensity	
16 Jul	III	1348.30-1348.45	1-	19-33
	III	1450.15-1451	1-	13-32
	III	1536.15-1537	1-	8-18
	III	1545-1545.30	1-	9-17
	III	1734-1735.45	1-	8-36
	III	1737-1737.45	1-	8-29
	continuum	1810-1823	1-	23-41
	III	1938.30-1939	1-	24-41
	III	2027.15-2027.30	1-	23-34
	III	2034.30-2034.45	1-	21-32
17c	III	1317-1317.30	1	15-41
	III	1350-1351	1	15-41
	III	1617-1619.30	1-	9-38
	continuum	1636-1709	1-	25-38
	III	1925.30-1925.45	1-	7.6-41
	III	2001.45-2002	1-	22-32
18c	continuum	b1306-1800	1-	25-41
	III	1442.15-1443.15	1+	19-41
	continuum	1823-1954	1-	22-41
	III	1906.30-1906.45	1+	7.6-41
	III	1908.45-1909	1	7.6-41
	III	1923-1923.30	1	7.6-41
	III	1924-1924.30	1+	7.6-41
	III	2011.30-2011.45	1	7.6-41
	III	2027.45-2028	1	7.6-32
	III	2234.45-2235	1-	7.6-32
	III	2309.30-2309.45	1	20-41
19c	III	1325.15-1325.30	1-	27-41
	III	1356.15-1356.45	1	13-41
	III	1508.45-1509.30	1-	12-41
	III	1658-1658.30	1-	21-37
	continuum	1712-1750	1-	22-41
	III	1712.30-1713.45	1-	21-35
	III	1715.15-1715.45	1-	21-40
	III	1725-1725.15	1-	27-41
	III	1729.45-1730.30	1-	21-41
	III	1803-1804.45	1+	7.6-41
	continuum	1809-1905	1-	21-41
	III	1811-1812.30	1	7.6-34
	III	1844.45-1846.15	1-	16-41
	III	1915-1915.15	1-	23-41
	III	1955.15-1955.45	1-	17-41
	III	2140.30-2140.45	1-	24-38
	III	2147.30-2148	1-	12-41
	III	2156.45-2158.15	1	7.6-41
20	III	1554.45-1600.15	3	8-41
	II	1600-1625e	3	20-41
	IV	1620-1730	2	10-41
		1745-1748f	3	25-32
	III	1749.30-1751.15	1+	7.6-41
		1801.30-1802.30f	3+	21-27
	III	1916-1916.45	1+	7.6-41
	III	1917-1918	1+	7.6-41
	III	1918-1918.45	1+	7.6-41
	III	2006-2007.30	2	7.6-41
	III	2257.30-2258	1	21-41
21	III	1421-1423	1-	21-30
	III	1423-1423.45	1-	21-41
	III	1500.45-1501.15	1-	21-41
	III	1515.30-1516	1-	22-34

Date 1961	Bursts			Frequency Range (mc)
	Type	Time (U.T.)	Intensity	
21 Jul	III	1553-1556.45	1-	8-18
	III	1608.30-1608.45	1-	24-38
	III	1619.45-1620	1-	24-33
	III	1702-1703	1-	22-39
	III	1707.15-1708	1-	10-20
	III	1709.15-1710.45	1-	8-35
	III	1711-1712	1-	8-41
	III	1808-1817g	1-	29-37
	III	1902.15-1903.30	1-	24-41
	III	1903.45-1905.30	1	12-41
	III	1913.30-1913.45	1-	33-40
	III	1915.30-1918	1	14-41
	IV	1936-1950.30	1-	25-41
	III	1949-1949.30	1	20-40
	III	2014.30-2014.45	1-	28-41
	III	2015.30-2016.30	1-	9-38
	IV	2033-2055	1-	25-41
	IV	2102-2147	1-	24-41
22	IV	2315-a2548	1-	20-41
	III	2330-2331	1	24-41
23c	III	1547-1549	1-	8-41
	III	1652.45-1653	1-	21-41
	III	1659.30-1700	1-	17-40
	III	1702-1702.15	1-	22-40
	III	1706.15-1706.30	1-	26-41
	III	1714-1714.15	1-	26-41
	III	1952.15-1952.30	1-	21-31
	III	2005.30-2005.45	1-	21-34
	III	2142.45-2143	1-	24-41
	III	2154.15-2154.30	1-	23-41
	III	2159.15-2201	1+	7.6-41
	III	2226.30-2229.45	1+	8-41
	III	2235-2236	1	8-41
	III	2326.15-2327.15	1	11-41
	III	2327.30-2328.45	1-	22-40
	III	2335.45-2336.30	1	12-41
	III	2356.30-2356.45	1-	24-40
	III	2358.15-2358.30	1-	22-41
	III	2359.45-2400	1-	22-41
	III	2409.45-2410.15	1-	22-41
	III	2417.45-2418.15	1	17-41
	III	2418.15-2419	1	17-41
	III	2435.30-2435.45	1-	27-37
	III	2440.15-2440.45	1	17-41
	III	2450.30-2451.15	1	17-41
	III	2517.15-2519.15	1-	17-41
	III	2522.45-2523	1-	23-39
	III	2527.45-2528	1-	25-38
24 e	III	1222.30-1223.15	1	11-41
	III	1326.30-1326.45	1-	17-41
	III	1345.45-1346.30	1-	23-41
	continuum	1357-2457	1-	20-41
	III	1513.45-1514.15	1+	7.6-41
	III	1519.45-1520.45	1+	7.6-41
	III	1558-1558.30	2	12-41
	III	1621-1622	1	7.6-41
	III	1717.30-1717.45	1	7.6-41
	III	1732.45-1733.15	1	7.6-41
	III	1736.45-1738.15	2	7.6-41
	III	1754.30-1755	1+	7.6-41

c = many faint type III's not measured
e = many narrow band bursts superimposed 1606-1726
f = amorphous structure
g = possibly type II

COMMERCE - STANDARDS - BOULDER

SOLAR RADIO EMISSION
SPECTRUM OBSERVATIONS

JULY—AUGUST 1961

HAO BOULDER

7.6 - 41 Mc

Date 1961	Bursts			Frequency Range (mc)
	Type	Time (U.T.)	Intensity	
24 Jul	III	1800.15-1800.30	1	7.6-41
	III	1806.15-1806.30	1	7.6-41
	III	1834-1835.45	2	7.6-41
	III	1838.45-1839.15	1+	7.6-41
	III	1901.30-1902	1+	7.6-41
	III	1903.30-1904	1+	7.6-41
	III	2002-2003	1+	7.6-41
	III	2043-2043.30	1	7.6-41
	III	2052-2053	2	7.6-41
	III	2429.30-2431	2	13-41
	III	2454-2454.30	1+	16-41
	III	2456.45-2457	1	16-41
	III	2518-2519	2	17-41
25c	III	1220-1220.30	1	12-41
	IV	1300-2057.30	1-	22-41
	III	1315.45-1316.15	1	12-41
	III	1328-1328.45	1	12-41
	III	1332.30-1333	1	16-41
	III	1355.30-1356	1	12-41
	III	1409-1409.45	1	12-41
	III	1428.30-1429.15	1+	7.6-41
	III	1452.45-1453.15	1	12-41
	III	1529.15-1529.30	1	7.6-41
	III	1533.45-1536	2	7.6-41
	III	1611-1612.30	1	7.6-41
	III	1632.45-1633	1	7.6-41
	III	1637.30-1638	1	7.6-41
	III	1640.30-1642.45	2	7.6-41
	III	1644.15-1644.45	1+	7.6-41
	III	1857.30-1859.15	2	7.6-41
	III	1859.30-1900.45	2	7.6-41
	III	1901.15-1901.45	1+	7.6-41
	III	1902.30-1903.15	1+	7.6-41
	III	2119.15-2119.45	1	7.6-41
	III	2127.30-2127.45	1-	23-41
	III	2203.30-2203.45	1-	20-38
	continuum 2317.15-2441.15		1-	21-41
26c	III	1331.15-1332	1	17-41
	III	1353.30-1354	1-	17-41
	III	1358.45-1359.15	1-	20-41
	III	1418.45-1419.15	1-	22-41
	III	1426.30-1427	1-	22-41
	III	1435.45-1436	1-	21-33
	III	1452.15-1452.45	1-	17-38
	III	1457.15-1458	1-	13-33
	III	1458.30-1458.45	1-	25-38
	III	1511.45-1512	1-	20-40
	III	1535-1535.45	1-	11-35
	III	1608.45-1609.30	1-	9-41
	III	1622.15-1622.30	1-	29-38
	III	1628-1628.15	1-	26-41
	III	1653.15-1653.45	1-	13-40
	III	1742.30-1743	1-	23-40
	III	1819.30-1820	1-	12-41
	III	1837-1837.15	1-	22-39
	III	1857.15-1858	1-	21-39
	III	1901.45-1902	1-	21-39
	III	1904.15-1905	1	9-41
	III	1911.45-1912.15	1-	17-40
	III	1922.15-1922.30	1-	23-38

Date 1961	Bursts			Frequency Range (mc)
	Type	Time (U.T.)	Intensity	
26 Jul	III	1933.45-1934	1-	21-41
	III	1946.30-1948	1-	8-41
	III	1950.30-1951.45	1	8-41
	III	2003.30-2004	1-	14-41
	III	2111.15-2111.30	1-	21-41
	continuum 2300-2340		1-	21-41
	III	2325.45-2326.30	1	17-40
	III	2336.45-2337	1-	22-38
	III	2428.40-2429	1-	23-41
	III	2441-2441.30	1-	22-41
	continuum 2523-2530		1-	28-41
	III	2523.30-2523.45	1-	28-41
	III	2526-2526.15	1-	28-41
	III	2529.45-2530	1-	26-41
27	III	1924-1924.15	1-	27-41
	III	2006.30	1	31-41
	III	2330.15-2330.30	1-	11-41
	III	2346.30-2347	1	10-41
28	III	1405.15-1405.30	1	17-41
29	III	2325-2326.15	1	17-41
30	II	1926-1932	1-	33-41
	III	1930.45-1931.15	1-	23-41
	II	1942-1946	1+	35-41
	IV	1946-2042	2	24-41
	III	2238.30-2239	1-	21-41
31	III	1322-1322.15	1-	21-41
	III	1506-1506.45	1-	21-41
	III	1507.45-1508.15	1-	21-41
1 Aug	III	1734-1735.15	1-	24-34
	III	2028.15-2028.30	1-	24-41
	III	2029.45-2030	1-	7.6-41
	III	2031.45-2032.15	1-	7.6-41
	III	2043.30-2044.15	1-	7.6-41
	III	2046-2046.15	1-	20-41
	III	2140.15-2140.45	1-	29-41
	III	2237.15-2237.30	1-	21-41
2	III	1520.30-1521	1-	22-33
	III	1544.45-1546	1-	9-41
	III	1546-1547.30	1-	12-40
	III	1553-1553.30	1	20-26
	III	1744-1744.45	1-	22-39
	III	1753-1754.30	1-	8-38
	III	1757.15-1757.30	1-	27-41
	III	1842.15-1843.15	1-	20-41
3	III	1621.15-1622	1-	22-41
4	III	1521-1521.30	1-	23-39
5	III	1343.15-1343.30	1-	21-34
	III	1444.30-1445	1-	20-36
	III	1709.45-1710	1-	22-41
	III	1710-1711	1	16-41
	III	1711-1711.30	1-	23-39
	III	1726-1726.30	1-	21-41
	III	1730-1730.15	1-	27-41
6	III	1507.15-1508	1-	12-41
	III	1740.30-1741	1-	21-41
	III	2010.45-2011.15	1-	16-40
	III	2103.15-2103.30	1-	28-40
7	III	1913.15-1913.30	1-	21-41
8	III	1237-1238.15	1-	15-41
	III	1349.15-1349.30	1-	21-41

c = many faint type III's not measured

COMMERCE - STANDARDS - BOULDER

SOLAR RADIO EMISSION
SPECTRUM OBSERVATIONS

AUGUST 1961

HAO BOULDER 7.6–41 MC

Date 1961	Bursts			Frequency Range (mc)	Date 1961	Bursts			Frequency Range (mc)
	Type	Time (U.T.)	Intensity			Type	Time (U.T.)	Intensity	
8 Aug	III	1424.30-1424.45	1-	21-41	10 Aug	III	2052.15-2053.15	1-	20-41
	III	1426.15-1426.30	1-	23-41		III	2053.15-2053.45	1	20-41
9	III	1502.15-1503	1-	23-37		III	2055-2055.15	1-	20-41
	III	1527-1527.30	1-	24-38		III	2114.45-2116	1+	7.6-41
	III	1541-1541.15	1-	23-35		III	2122.30-2122.45	1-	21-41
	III	1607.15-1607.30	1	20-41		III	2125-2125.15	1-	21-41
	III	1609-1610.15	1-	12-41		III	2132-2132.15	1-	20-41
	III	1646.15-1646.45	1-	22-36		III	2138.45-2139	1-	20-41
	III	1648-1648.15	1-	22-33		III	2141.15-2144.15	1+	7.6-41
	III	1838-1838.45	1-	8-41		III	2220.15-2220.45	1-	10-41
	III	1927.45-1928	1-	23-41		III	2225.15-2225.30	1-	15-41
	III	1931-1931.30	1-	26-38		III	2252.15-2253	1-	20-41
	III	1931.30-1932.30	1	19-41		III	2308.15-2308.30	1-	16-41
	III	2015-2015.30	1-	26-41		III	2310.30-2311	1	7.6-41
	III	2154.30-2155d	1-	22-41		III	2315-2319	1	7.6-41
	III	2203.45-2204	1-	22-28		III	2321.30-2322	1-	14-41
	III	2307-2307.45d	1-	22-41		III	2326-2326.15	1	16-41
	III	2319-2321.30	1-	22-33		II	2330-2343	1	21-41
10c	III	1227-1228	1-	19-41		III	2338.30-2342	1+	12-41
	III	1336.15-1336.45	1-	16-41		III	2359.30-2400	1	24-41
	III	1348.30-1350.15	1	12-41		III	2408.30-2408.45	1-	16-41
	III	1358.30-1359	1	12-41		III	2409-2411.30	1+	22-27
	III	1407.30-1408	1	16-41		III	2424-2424.30	1	11-41
	III	1413.45-1414.15	1	16-41		III	2446.30-2447.15	1	13-41
	III	1414.45-1415	1-	16-41		III	2455.15-2557	1	13-41
	III	1415.15-1415.45	1-	16-41		III	2516.30-2517.15	1	17-41
	III	1416.15-1416.45	1	16-41		III	2522.30-2524.30	1	16-41
	III	1427.45-1428.15	1	13-41		III	2525-2527	1	16-41
	continuum	1434.30-1441	1+	7.6-41		III	2527.15-2528	1	16-41
	III	1445.15-1445.30	1	12-41	11c	III	1235.30-1236	1-	12-26
	III	1505-1508	1+	7.6-41		III	1240.30-1241.15	1-	15-41
	III	1519.30-1519.45	1-	11-41		III	1256.15-1257.45	1-	16-41
	III	1520.15-1520.30	1-	11-41		III	1258-1259	1-	15-41
	III	1532.45-1536.30	1+	7.6-41		III	1300-1305.45	1+	9-41
	III	1659-1659.15	1-	24-41		III	1305.30-1307	1	15-41
	III	1719.45-1720	1-	7.6-41		III	1309.30-1310.45	1+	10-41
	III	1723.30-1724.15	1-	7.6-31		III	1311-1311.30	1-	16-41
	III	1735.45-1736.30	1-	7.6-25		III	1316.45-1317.30	1-	12-31
	III	1739.30-1740	2	25-41		III	1317.30-1319	1-	22-41
	III	1753.15-1754.15	1-	7.6-41		III	1322-1323	1	12-41
	III	1756-1757	1+	23-31		III	1323-1324.45	1	12-41
	III	1819.15-1819.30	1-	7.6-41		III	1357.15-1357.45	1-	13-29
	III	1823-1823.15	1	7.6-41		III	1528.30-1529	1-	15-40
	III	1823.45-1824.30	1	7.6-41		III	1632.30-1635	1+	7.6-41
	III	1826-1826.30	1	7.6-41		III	1654.45-1655	1-	22-37
	III	1826.45-1827	1-	7.6-41		III	1709.15-1710	1	8-41
	III	1827.30-1828	1	7.6-41		III	1731-1731.15	1-	9-35
	III	1830.15-1830.45	1-	7.6-41		III	1735.15-1736	1-	11-37
	III	1833.45-1834	1-	7.6-41		III	1739.15-1740	1	20-41
	III	1839.15-1839.45	1-	7.6-41		III	1743.15-1744.30	1	8-19
	III	1858.30-1859	1	7.6-41		III	1744-1745	1-	8-41
	III	1904.45-1905	1-	16-41		III	1823.15-1824.30	1-	9-40
	III	1930-1930.30	1	7.6-41		III	1825.30-1826.45	1-	8-35
	III	1947.30-1948	1	7.6-41		III	1826.45-1827	1-	24-34
	III	1948.30-1949	1-	7.6-41		III	1833-1834.15	1-	15-41
	III	1949.30-1950	1	7.6-41		III	1835-1835.15	1-	21-39
	III	1950-1950.30	1	7.6-41		III	1838-1838.45	1-	16-39
	III	1950.30-1952	1	7.6-41		III	1840.30-1841	1-	16-30
	III	1954.45-1955	1-	7.6-41		III	1854.45-1855	1-	31-41
	III	1959-2000	1	7.6-41		III	1919-1919.45	1	8-41

c = many faint type III's not measured

COMMERCE - STANDARDS - BOULDER

SOLAR RADIO EMISSION
SPECTRUM OBSERVATIONS

AUGUST 1961

HAO BOULDER

7.6—41 MC

Date 1961	Bursts			Frequency Range (mc)
	Type	Time (U.T.)	Intensity	
11 Aug				
	III	1931-1932	1-	8-38
	III	2044.30-2045	1-	21-41
	III	2051-2051.45	1-	8-35
	III	2057.15-2058.30d	1	8-41
	III	2131.15-2132	1	7.6-41
	III	2132-2132.30	1	17-41
	III	2144.15-2148.30	1+	8-41
	III	2149-2149.30	1-	22-41
	III	2205-2205.15	1-	23-39
	III	2205.45-2206.15	1-	22-39
	III	2213.15-2213.45	1	18-41
	III	2238.15-2238.45	1-	23-41
	III	2247.30-2248.30	1	12-41
	III	2249-2249.30	1-	18-34
	III	2321.15-2322.15	1	22-41
	III	2327-2328.15	1	20-41
	III	2344.45-2345	1-	22-41
	III	2354.15-2355	1	17-41
	III	2355-2355.30	1-	23-41
	III	2430-2435.30	1-	16-41
	III	2524.45-2525	1	17-41
12	III	1306-1306.30	1-	21-41
	III	1447.30-1448	1+	10-41
	III	1449-1450.15	1-	21-41
	III	1509.30-1509.45	1	12-41
	III	1515.15-1515.30	1-	22-41
	III	1517.30-1518.30	1	7.6-41
	III	1518.45-1520	1	7.6-41
	III	1531-1535.30	1	11-41
	III	1601.45-1602	1	17-41
	III	1614-1617	1+	7.6-41
	II	1624-1638	1+	7.6-41
	III	1626.30-1633.30	3+	7.6-41
	III	1705.15-1705.30	1-	23-41
	III	1707-1707.15	1-	21-41
	III	1710.30-1716.15	2	7.6-41
	III	1717.45-1718	1-	7.6-41
	III	1718.45-1719.15	1-	7.6-41
	III	1720.15-1723	2	7.6-41
	III	1725.15-1725.30	1	7.6-41
	III	1726.45-1727	1-	23-41
	III	1731.45-1732	1-	21-41
	III	1734.15-1735	1	21-41
	III	1809-1810	2	8-10
	III	1811.15-1812.45	1+	7.6-41
	III	1845-1846.15	1-	21-41
	III	1901.30-1901.45	1-	22-41
	III	1902-1902.15	1-	22-41
	III	1908.15-1909.15	1-	21-41
	III	1941-1950	1	7.6-41
	III	1956.15-1959	1-	7.6-41
	III	2003-2005	1-	9-41
	III	2006.15-2006.30	1	9-41
	III	2148.45-2149	1-	16-41
	III	2206.30-2206.45	1-	24-41
	III	2236-2236.15	1-	21-41
	III	2255.30-2256	1	11-41
	III	2302-2307.45	1-	16-41
	III	2310.30-2313.45	1	16-41
	III	2357.15-2357.45	1	16-41
	III	2400-2400.15	1-	23-41
	III	2415.30-2416.30	1	16-41
	III	2430-2432	1	16-41
	III	2438.15-2438.30	1-	22-41

Date 1961	Bursts			Frequency Range (mc)
	Type	Time (U.T.)	Intensity	
12 Aug	continuum 2444-2449		1-	24-39
	III	2455.30-2456.15	1	21-41
	III	2509.45-2510	1-	21-41
	III	2517.45-2518	1-	28-41
	III	2529.15-2530.30	1-	17-41
13c	III	1229.30-1230	1-	25-41
	III	1249.30-1250	1	16-41
	III	1252.30-1253	1	16-41
	III	1257-1258.30	1	16-41
	III	1259.15-1259.45	1-	16-41
	III	1301-1301.30	1-	16-41
	III	1327.30-1328	1	20-41
	III	1330.30-1330.45	1-	20-41
	III	1331.30-1332.15	1-	20-41
	III	1332.15-1332.45	1-	20-41
	III	1333.15-1333.30	1-	20-41
	III	1353.30-1354	1-	20-41
	III	1354.15-1354.30	1-	20-41
	III	1356.15-1356.30	1	20-41
	III	1356.45-1357	1	20-41
	III	1357.45-1358	1	20-41
	III	1358.15-1400.30	1+	20-41
	III	1404.15-1404.45	1-	20-41
	continuum 1408-1415		1	20-41
	III	1513-1513.45	1	7.6-41
	III	1516.30-1520	1+	7.6-41
	III	1612.15-1612.45	1	27-41
	III	1619.15-1619.30	1	21-41
	III	1643.15-1643.30	1	7.6-41
	III	1649-1649.15	1+	10-41
	III	1651.15-1651.45	1-	7.6-41
	III	1653.15-1653.30	1	23-41
	III	1654-1654.15	1	23-41
	III	1749.15-1749.30	1	21-41
	III	1817.45-1818.15	1+	7.6-41
	III	1819.15-1819.30	1-	16-41
	III	1821.45-1822.30	1-	16-41
	III	1906-1906.45	2	7.6-41
	continuum 1907.45-1913		2	7.6-41
	III	1916.30-1917	1-	25-41
	III	2005.15-2005.30	1-	21-41
	III	2015-2015.15	1-	21-41
	III	2030-2030.30	1-	21-41
	III	2048-2048.30	1+	7.6-41
	III	2108.30-2109	1-	20-41
	III	2200.30-2201	1-	21-41
	III	2206.30-2207	1-	21-41
	III	2238.30-2239	1-	23-41
	III	2242-2242.15	1-	23-41
	continuum 2311-a2501		1-	23-41
	III	2456.30-2500.30	2	15-41
	III	2526.30-2527	1-	21-41
14c	continuum b1224.30-a2528		1	21-41
	III	1731.30-1732.45	2	7.6-41
	III	2237.30-2238.45	2	13-41
	III	2330.30-2331.30	2	16-41
15c	continuum 1508.45-a2525y		1-	22-41
	III	1646.15-1650	2	9-41
	III	1650.15-1651.30	1	9-39
	III	1659.45-1701.30	1	9-41
	III	1703.15-1705	1	12-41
	III	1716.15-1716.30	1	24-41
	III	1726.30-1727	1	27-41
	III	1728-1729	1	9-41
	III	1730.15-1731.30	1	21-41

y = may have extended to 7.6 mc after 1700

SOLAR RADIO EMISSION
SPECTRUM OBSERVATIONS

AUGUST 1961

HAO BOULDER 7.6-41 MC

Date 1961	Bursts			Frequency Range (mc)
	Type	Time (U.T.)	Intensity	
15 Aug	III	1806.30-1807	1	16-41
	III	1810.15-1810.45	1	9-41
	III	1812.15-1813	1	23-41
	III	1815-1817	1	9-41
	III	1906-1908.15	1+	9-41
	III	1936-1937.15	1	9-41
	III	2018.15-2019.30	1+	10-41
	III	2030-2031	1+	11-41
	III	2031-2032.15	1+	11-41
	III	2033.45-2035.15	1	11-41
	III	2044.45-2045.30	1	22-41
	III	2338.45-2340	1+	22-41
	III	2357-2357.45	1	16-41
	III	2359.45-2400.30	1+	16-41
16c	continuum b1233-a2540		1	21-41
	III	1340-1341	2	16-41
	III	1411.15-1412.15	2	21-41
	III	1425.30-1426.15	2	23-41
	III	1434-1435	2	22-41
	III	1515.30-1516.45	1+	12-41
	III	1641-1645	1+	16-41
	III	1747.30-1750	1+	9-41
	III	1826.15-1829.30	1+	9-41
	III	1923-1925	2	9-41
	III	2002.15-2003	1+	9-41
	III	2013-2014.30	1	9-41
	III	2030.45-2033.30	1+	9-41
	III	2324.15-2326	2	22-41
17	continuum 1500-2057		1-	21-41
	III	1656.45-1657.15	2	15-41
	III	2104.30-2108.30	2+	9-41
	III	2109-2110.30g	2	32-35
	IV	2130-2155	1	26-41
	continuum 2158-2501		1-	23-41
18c	III	1326-1326.15	1-	23-38
	III	1359.45-1400	1-	26-37
	III	1400.15-1400.30	1-	24-34
	III	1402-1402.15	1-	23-38
	III	1505-1505.15	1	22-34
	III	1626.30-1627	1-	23-36
	III	1638-1638.45	1-	11-36
	III	1640.15-1640.30	1-	26-37
	III	1710.15-1710.30	1	22-35
	continuum 2035.30-2048.30		2+	10-41
	III	2049.15-2049.30	1-	26-40
	III	2050.15-2052	2	20-41
	II	2051-2146	3	22-41
	IV	2135-2158	1-	26-41
	III	2305.45-2306.30	1	24-41
	III	2329.15-2329.45	1-	24-41
19	III	2055.15-2055.45	1	29-41
	III	2200-2200.15	1-	22-34
20	III	2140-2142	1-	11-40
23	III	2114.15-2117.45	1	10-41
	III	2118-2120	1	11-41
	III	2120-2120.15	1-	29-41
	III	2122.45-2125.15	1+	7.6-41
	III	2125.15-2127	1	11-41
	III	2130-2131.30	1-	25-41
24	III	1611-1611.15	1-	27-38
	III	1846.45-1847.30	1	15-40
	III	2233.30-2235	1-	20-38
25c	III	1416.15-1416.30	1	18-36
	III	1420-1422	1	19-36
	III	1423-1425	1+	15-41
25 Aug	III	1454.45-1455	1-	21-38
	III	1457-1457.15	1	22-41
	III	1520-1520.15	1	22-41
	III	1647.15-1648	1-	12-41
	III	1753-1753.30	1-	9-41
	continuum 1821-2200		1-	21-41
	continuum 2230-2243		1-	21-40
	continuum 2248.30-2257		1-	21-41
	continuum 2300-a2501.15		1-	21-41
26c	continuum b1307-1500		1-	19-41
	III	1537.30-1538	1-	16-39
	III	1617.15-1617.45	1-	16-41
	III	1626-1626.30	1-	22-36
	III	1653.30-1654.30	1-	8-33
	III	1721.15-1721.45	1-	22-40
	III	1747.30-1748.30	1-	21-41
	III	1752.15-1752.45	1-	22-36
	III	1753.15-1754	1-	23-35
	III	1754.15-1754.45	1	21-33
	III	1800-1801	2	8-41
	III	1803-1804	1-	8-40
	III	1815.45-1816.15	1	20-36
	III	1834.15-1834.45	1-	23-36
	III	1840-1840.45	1-	8-37
	III	1901.30-1902.30	1-	8-41
	III	1929.15-1930.15	1	8-37
	III	1932-1933	1-	8-36
	III	1938.15-1938.45	1-	20-36
	III	1951.45-1953	1-	8-36
	III	2014-2014.30	1-	20-34
	III	2050-2050.15	1-	21-41
	III	2120.15-2120.45	1-	21-40
	III	2154.30-2155	1-	16-30
	III	2212.45-2213.15	1-	16-40
	III	2222.30-2223	1-	16-36
	III	2253.45-2254.30	1	13-38
	III	2306.45-2307.15	1-	21-36
	III	2338.45-2339.15	1-	21-39
	III	2351.45-2352.15	1-	21-39
	III	2421.45-2422.15	1-	22-36
27	III	1915-1915.30	1-	24-35
	III	1922.15-1922.30	1-	23-32
	III	2302.30-2303	1-	22-41
	III	2320.45-2321.15	1-	22-40
	continuum 2328.30-2358.30		1-	22-40
28	III	1312-1312.15	1	21-36
	III	1606.30-1607	1-	22-41
	III	2128-2128.15	1-	22-42
	III	2130.15-2130.30	1-	22-41
	III	2146.15-2146.30	1-	27-41
	III	2149-2149.15	1-	23-41
	III	2308.30-2309	1-	25-34
	III	2351-2351.15	1	23-41
29	III	1602.30-1603	1	21-31
	III	1810-1810.45	1	7.6-41
	III	1837-1837.15	1-	27-41
	III	1916.30-1916.45	1-	21-33
	III	1941.15-1941.30	1-	21-39
	III	1959.30-2000	1+	7.6-41
	III	2000.15-2000.30	1+	7.6-41
	III	2001-2001.30	1+	7.6-41
	III	2003.15-2003.30	1	7.6-41
	III	2125.45-2126	1-	23-41
	III	2126-2126.15	1-	23-41
	III	2146-2146.15	1	21-41

g = possibly type II

COMMERCE - STANDARDS - BOULDER

SOLAR RADIO EMISSION
SPECTRUM OBSERVATIONS

AUGUST–SEPTEMBER 1961

HAO BOULDER

7.6–41 Mc

Date 1961	Bursts Type	Time (U.T.)	Intensity	Frequency Range (mc)
29 Aug	III	2157.45-2158	1	21-41
	III	2159.15-2159.30	1-	21-41
	III	2159.45-2200	1-	21-41
	continuum	2201-2223	1	23-36
	III	2203.30-2205	1-	21-41
	III	2205.15-2205.45	1	21-41
30	III	1529.45-1530	1-	23-40
	III	1619.30-1619.45	1-	21-40
	III	1630.15-1631.30	1+	7.6-41
	III	1631.45-1632.15	1	7.6-41
	III	1632.45-1633.30	1-	7.6-41
	III	1633.45-1634	1	22-41
	continuum	1650-1754	1-	18-41
	continuum	1754-1910	2	7.6-41
	III	1905-1907	2	7.6-41
	III	1929.30-1931	1	19-36
	III	1931-1931.15	1-	29-41
	III	1942.30-1943	1-	22-32
	continuum	2015-2100	1-	12-41
	III	2023.30-2024.30	1+	8-41
	III	2253.30-2254	1-	20-40
31	III	1446.45-1447.15	1	19-41
	III	1716.30-1718	1+	8-41
	III	1733-1733.30	1-	8-41
	III	1918.30-1919	1-	16-32
1 Sep	continuum	b1308-1540p	1	20-41
	continuum	1540-1555p	1-	20-35
	III	1837.30-1838	1-	18-36
	III	1838.30-1838.45	1-	25-40
	III	1857-1857.30	1-	24-41
	III	2049.30-2050	1+	22-41
	III	2051.45-2052.15	1+	27-41
	III	2156-2156.30	1-	23-41
	III	2158.30-2159	1+	25-41
	III	2200-2202.45	2	11-41
	III	2241.15-2242.15	1-	21-41
2	III	1310-1310.15	1-	24-41
	III	1325.45-1326	1-	21-35
	III	1350.30-1351	1-	31-41
	III	1403-1403.30	1	25-41
	III	1403.45-1404.15	1+	21-41
	III	1405.15-1405.30	1	24-41
	III	1406.45-1408	2	19-41
	III	1410-1413	2+	12-41
	III	1414.45-1418	2	16-41
	III	1431.45-1435.30	2+	11-41
	III	1625.30-1627	1-	20-38
	continuum	2030-2037	1-	19-41
	III	2032.15-2033.15	1+	20-41
	III	2043.30-2108	1	20-41
	III	2201.15-2202.45	2	10-41
	III	2231.30-2232	1-	22-29
	III	2237.45-2238.30	1-	22-36
	III	2238.45-2240	1+	12-41
	III	2258-2259	1	16-41
	III	2359-2359.30	1-	27-39
3	III	1428.45-1431	1+	24-41
	III	1515.30-1516.30	1-	24-41
	III	1518-1519.15	1	23-41
	III	1807.15-1808	1	26-41

Date 1961	Bursts Type	Time (U.T.)	Intensity	Frequency Range (mc)
3 Sep	III	1813-1813.15	1-	26-41
	III	1944.30-1945	1-	30-41
	III	1945-1945.45	1	28-41
	continuum	2016-2025	1	28-41
	III	2020-2022.15	2	21-41
	III	2024-2024.15	1	20-41
	III	2042-2042.30	1-	24-35
	II	2053.30-2113.30	1+	30-41
	III	2150-2150.15	1	21-41
	III	2150.15-2153	1-	20-41
	III	2257-2258	1+	21-41
	III	2346-2346.30	1-	17-40
4	III	1435.15-1437.15	1+	16-41
	III	1446.15-1446.30	1	22-40
	III	1610.45-1611.30	1	14-40
	III	1621.30-1622.30	1-	10-38
	III	1646.15-1647.30	1+	8-41
	III	1733.15-1734	1	8-41
	III	1827.45-1828	1-	25-39
	III	1842.45-1843.15	1	21-32
	III	2250.45-2251	1-	31-38
5	III	1445.15-1446	1-	23-40
	III	1454.45-1455	1	23-36
	III	1458-1458.30	1-	21-41
	III	1458.45-1459	1-	29-41
	III	1549.15-1549.30	1	23-36
	III	1711.30-1712.15c	1	16-41
	III	1749.30-1750.45	1	16-41
	III	1844.45-1845.30	1	22-40
	III	1846.15-1848.30	1+	8-41
	III	1855.15-1855.30	1	23-41
	III	2318.30-2319.30	1+	13-41
6	continuum	1738-2254p	3	20-41
7x[2]	III	1315.45-1316	1	22-41
8	III	1601.45-1605.45	1+	11-41
	II	1601.45-1630	3	11-41
	IV	1606.30-1730	2	20-41
	III	1608-1609.30	2	13-41
	III	1610-1612	1+	20-41
9	continuum	b1308-1535r	1+	20-41
	III	2128.45-2129	1-	22-35
10	III	1712.30-1712.45	1-	24-37
	III	1927.30-1930	1-	8-34
	III	1931.15-1932.15	1-	8-39
	III	1933.15-1935	1-	8-41
	II	1935.15-2038	2	7.6-41
	IV	2013-2154	1+	21-41
	III	2114-2114.45	1	13-41
11	III	1953.45-1954	1-	21-41
12	III	2212.15-2212.30	1-	24-41
	III	2217-2217.15	1-	24-41
	III	2224-2224.15	1-	24-41
	III	2226.45-2227	1-	24-41
13	III	1605.15-1605.30	1-	24-41
	III	1614.15-1614.30	1-	24-41
	III	1620-1620.30	1-	24-41
	III	1742.30-1743.30	1	7.6-41
	III	1940.30-1940.45	1-	22-41
	III	1944.15-1944.30	1-	22-41
	III	2204.15-2204.45	1-	7.6-41

c = many faint type III's not measured
p = faint burst structures superimposed

r[2] = no bursts superimposed
x[2] = no observations 1549-2335

SOLAR RADIO EMISSION

SPECTRUM OBSERVATIONS

SEPTEMBER–OCTOBER 1961

HAO BOULDER

7.6-41 Mc

Date 1961	Bursts			Frequency Range (mc)
	Type	Time (U.T.)	Intensity	
13 Sep	III	2210.15-2210.30	1-	23-41
	III	2332.30-2332.45	1-	25-41
	III	2400.45-2401.15	1	23-41
	III	2419.45-2420	1-	22-41
	III	2426-2426.15	1-	22-41
	III	2426.30-2426.45	1-	22-41
	III	2427.15-2427.30	1-	22-41
	III	2427.45-2428	1-	22-41
14	III	1816-1816.45	1	7.6-41
15	III	1451-1451.15	1-	21-41
	III	1502-1502.30	1-	27-41
	III	1931.45-1932	1	24-41
	III	2130.15-2130.30	1-	31-41
16	III	1413.15-1413.30	1	22-41
	III	1413.45-1414	1	22-41
	continuum 1525-1531		1	16-41
	continuum 1543.30-1628		1-	22-41
	III	1609.45-1610	1+	22-41
	III	1614.15-1614.30	1+	22-41
17	III	1902.15-1902.30	1-	21-36
	III	2103.45-2104	1-	21-36
18	III	1612-1623	1	22-38
	III	1902.45-1903.30	2	10-41
	III	2002.30-2003	1+	12-41
19x[3]	III	1335.15-1335.30	2	24-41
23c	continuum 1404-1417		1-	23-41
	III	1906.15-1906.45	1-	22-41
	III	1908.30-1909.15	1-	22-41
	III	2247.30-2248	1-	21-41
24x[4]	III	1320-1320.15	1	15-31
	III	2113.30-2113.45	1-	10-34
25	III	1548-1548.30	1-	19-41
	III	1603-1603.15	1+	21-35
	III	1743.30-1745.15	1-	20-41
	III	1747-1748	1-	20-41
	III	1927.15-1930.15	1+	7.6-41
	III	2135.15-2135.30	1-	21-29
	III	2141.15-2141.30	1	22-41
	III	2357.45-2358	1	33-41
26	III	1400.30-1400.45	1	19-41
	III	1648.15-1648.30	1	7.6-41
	III	1658.15-1658.30	1-	23-41
	III	1658.45-1659	1-	23-41
	III	1803.30-1803.45	1	9-15
	III	1915-1915.15	1-	24-41
	III	1918.15-1918.30	1-	7.6-41
	III	1922.30-1922.45	1-	26-38
	III	1936.15-1936.30	1-	7.6-41
	III	1948-1948.15	1-	7.6-41
	III	1951-1952.15	1-	7.6-41
	III	1954-1954.15	1-	20-41
	III	2004.45-2005	1-	22-41
	III	2019.15-2019.30	1-	12-41
	III	2048-2048.30	1	12-41
	III	2149-2149.15	1-	16-41
27	III	1407.15-1409.15	1	12-41
	III	1414.15-1414.45	1-	12-41
	III	1428.45-1429.15	1-	24-41
	continuum 1436.30-1442		1+	13-41
	III	1516.15-1516.45	1-	22-41

Date 1961	Bursts			Frequency Range (mc)
	Type	Time (U.T.)	Intensity	
27x[5] Sep	III	1543.45-1547.15	2	7.6-41
	III	1604-1608.45	2	7.6-41
	IV	1617-1640	1-	26-41
	III	1721.30-1722	1-	20-41
	III	1742.15-1742.45	1-	20-41
	III	1754.30-1755	1	7.6-41
	III	1802.30-1802.45	1-	7.6-41
	III	1805.30-1806.15	1+	7.6-41
	III	1844.45-1845	1-	20-41
	III	1858.15-1858.45	1+	12-41
	III	1901.45-1902	1-	20-41
	III	1904.30-1915	1+	7.6-41
	III	1923-1923.15	1-	7.6-41
	III	1952.45-1956.15	2	7.6-41
	III	1959.15-1959.30	1-	7.6-41
	II	2001.30-2015	1+	25-41
	III	2010-2010.45	2	15-41
	III	2012-2012.30	2+	10-41
	III	2015-2015.15	2	18-41
	III	2039.30-2040	1	12-41
	III	2040.30-2041	1	12-41
	III	2041.15-2042	1	12-41
	III	2132-2132.15	1-	24-41
	III	2144.30-2144.45	1-	22-41
	III	2155.45-2156.30	1-	16-41
	III	2157.30-2157.45	1-	16-41
	III	2242.45-2243	1-	23-41
28c	continuum 1432-2214.30		1-	21-41
	III	2026-2026.15	1+	16-41
	III	2026.30-2027	1+	16-41
	III	2102.15-2103	1+	16-41
	III	2113-2113.45	1+	21-41
	III	2114.15-2114.45	1+	21-41
	III	2131-2131.30	2	16-41
	III	2135-2135.30	1+	21-41
	III	2212-2212.30	2+	16-41
	IV	2214.30-2358	2+	14-41
	II	2217-2249	3+	15-41
	III	2308-2308.15	2	16-41
	III	2342.45-2343	1+	22-41
29c	continuum 0445-2350		1-	21-41
30c	continuum 0335-2245		1	22-41
	III	1510.45-1511.30	2+	15-41
1 Oct	III	1545.15-1545.30	1-	23-41
	III	1632.30-1633	1-	16-34
	III	1711.30-1718.30	1-	19-41
2	III	1523.15-1523.30	1	18-41
7	III	1910.15-1910.30	1-	22-41
8	III	1506-1507.15	1-	22-41
	continuum 1512-1518		1	22-41
	III	1708.15-1708.30	1-	22-33
9	continuum 1338-1415		1-	24-41
	II	1415.45-1419.15	1-	24-41
	III	2008.30-2008.45	1-	33-41
	III	2013-2013.30	1-	29-41
	III	2032.15-2032.30	1-	28-34
	continuum 2206-2327		1-	25-41
	III	2209.45-2210	1-	25-41
	III	2215.45-2216	1-	25-41
	III	2216.15-2216.30	1-	25-41

[3] = no observations 1503/19 Sep to 1304/23 Sep

[4] = no observations 1512-1617 and 1910-2023

[5] = no observations from 2206-2232

COMMERCE - STANDARDS - BOULDER

SOLAR RADIO EMISSION
SPECTRUM OBSERVATIONS

OCTOBER 1961

HAO BOULDER 7.6–41Mc

Date 1961	Bursts			Frequency Range (mc)	Date 1961	Bursts			Frequency Range (mc)
	Type	Time (U.T.)	Intensity			Type	Time (U.T.)	Intensity	
9 Oct	III	2242.30-2242.45	1-	25-41	19 Oct	III	2221.45-2222	1	22-41
	III	2243.30-2243.45	1-	25-41		III	2226.30-2226.45	1	22-41
	III	2248-2248.30	1-	25-41	27	III	2022.45-2023.30	1-	29-41
11	III	2305-2305.15	1	26-41	28	III	1752.45-1753.15	1-	12-41
	III	2307.15-2307.30	1-	29-41		III	2006-2007	1+	7.6-41
18	III	1920-1920.30	1-	28-41		III	2106.30-2106.45	1-	23-41
19	III	1957.15-1957.30	1-	22-41		III	2123.15-2123.30	1	21-41
	III	2002.30-2002.45	1-	22-41		III	2123.45-212	1	21-41
	III	2057-2057.30	1-	26-39		III	2125-2127.30	2	7.6-41
	III	2111.30-2111.45	1	22-41		III	2220.15-2220.30	1-	24-41
	III	2207.15-2207.30	1	23-41		III	2239.45-2240	1	24-41
	III	2207.30-2207.45	1-	23-41	29	III	2045-2046.15	1	21-41
	III	2221.15-2221.30	1-	25-41					

COMMERCE - STANDARDS - BOULDER

COSMIC RAY INDICES

(Climax Neutron Monitor)

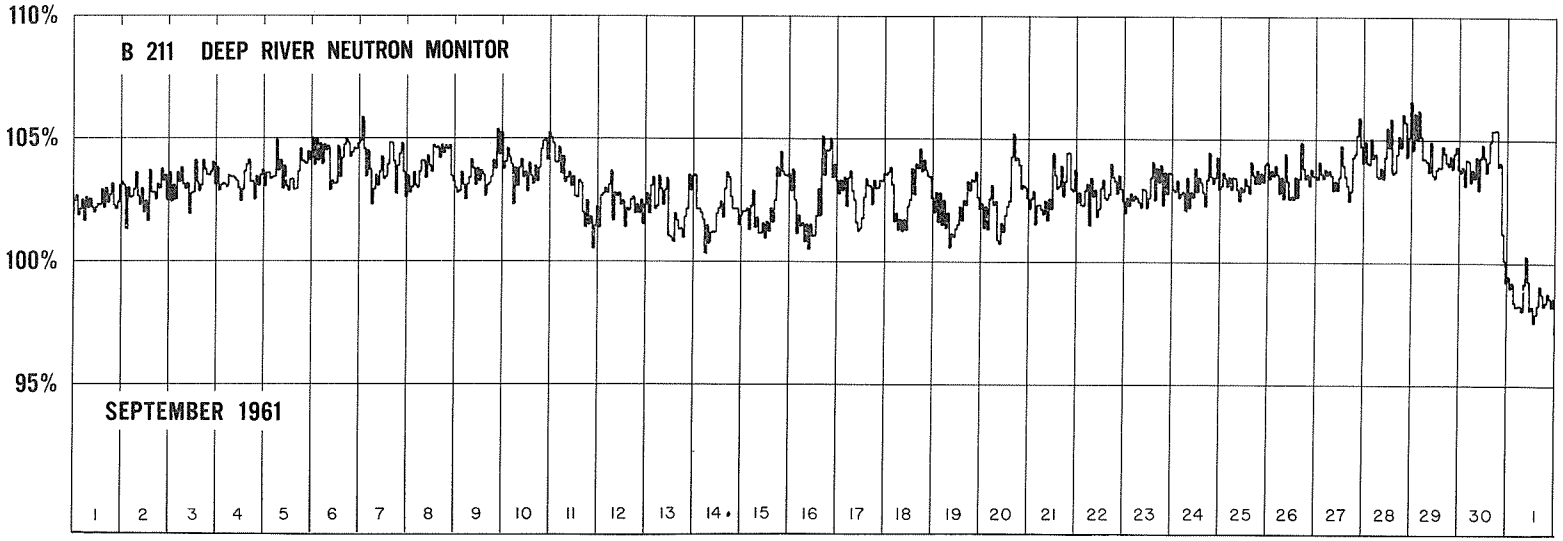
SEPTEMBER 1961

Sept. 1961	Daily average counts/hr.	Sept. 1961	Daily average counts/hr.
1	2987.9	16	2964.0
2	2996.0	17	2978.9
3	2978.8	18	3005.1
4	3001.6	19	2979.6
5	3004.5	20	2992.6
6	3021.9	21	2986.2
7	3012.3	22	2988.3
8	3005.7	23	2980.9
9	3014.7	24	2990.0
10	3023.8	25	3003.0
11	2995.2	26	3002.8
12	2974.9	27	3010.7
13	2965.7	28	3017.8
14	2963.8	29	3013.7
15	2963.6	30	3030.3

COMMERCE - STANDARDS - BOULDER

COSMIC RAY INDICES

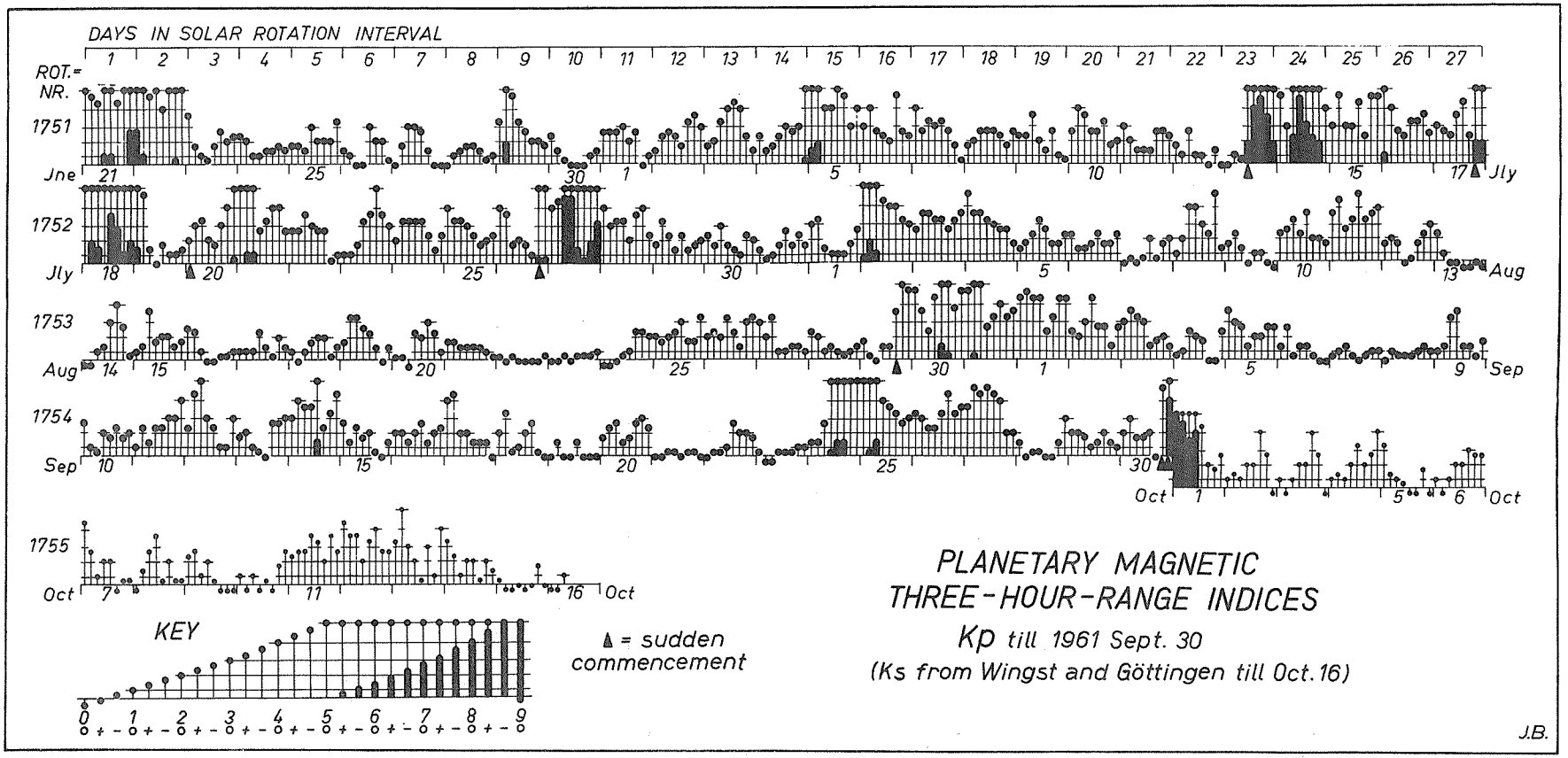
(Pressure Corrected Hourly Totals)



GEOMAGNETIC ACTIVITY INDICES

SEPTEMBER 1961

Sept. 1961	C	Values Kp Three hour Gr. interval 1 2 3 4	5 6 7 8	Sum	Ap	Final Selected Days
1	1.2	4+ 5- 4+ 4+	2+ 3+ 4+ 4+	32o	28	Five
2	0.8	2+ 2o 3o 4+	3- 3- 1+ 3-	21o	13	Quiet
3	0.6	3o 4- 3+ 3o	1+ 2- 2o 1+	19+	12	
4	0.3	1- 1o 2+ 2o	2- 0+ 0+ 2+	11-	5	7
5	0.6	4- 3o 3- 1+	2o 2o 3- 3-	20o	12	8
						19
6	0.1	1+ 3- 1- 1+	1+ 1- 0+ 0+	9-	5	21
7	0.0	1- 1o 1+ 1-	0+ 1- 1o 1o	7-	4	23
8	0.0	0+ 1o 1- 1-	1- 1o 1+ 1o	7-	4	
9	0.5	1o 1+ 3+ 4-	1+ 1+ 1- 2-	14+	8	
10	0.4	3- 1o 1- 2o	2- 2+ 2- 2o	14o	7	
11	0.7	1o 2+ 1+ 2+	2+ 3o 3o 4o	19+	12	Five
12	0.8	2+ 4+ 5o 3o	2+ 1o 1o 3o	22o	17	Disturbed
13	0.5	2- 2o 1o 1-	0+ 3- 3- 3o	14o	8	
14	1.3	3o 4o 4- 4-	6o 2+ 3+ 4+	30+	28	1
15	0.3	3- 1+ 2+ 2-	2o 1- 0+ 1+	12+	6	14
						24
16	0.4	2o 2o 1+ 2o	3- 1+ 2o 2+	16-	7	25
17	0.5	4o 4+ 2o 2o	1+ 1+ 1+ 0+	17-	11	30
18	0.2	2o 3+ 1- 1o	2o 3- 1- 0+	13-	7	
19	0.0	0+ 1+ 0+ 0+	1+ 0+ 0+ 0+	5-	3	
20	0.5	2- 2+ 3- 1+	2- 3- 3o 2+	18-	9	
21	0.0	0+ 0+ 1- 1-	0+ 1- 1- 0+	4o	2	Ten
22	0.3	0+ 1- 1- 1o	3- 2o 2o 2-	11o	6	Quiet
23	0.1	1- 0o 0o 1-	1- 1- 1o 1o	5-	2	
24	1.5	1+ 1+ 3- 5+	6o 6o 5o 5o	33-	42	4
25	1.3	5o 5+ 6o 4o	4- 3+ 3- 3o	33o	35	6
						7
26	0.9	3+ 3o 2+ 2+	3+ 4+ 3+ 4-	26-	18	8
27	1.1	4- 5- 4+ 5-	4+ 4o 2o 2o	30-	26	19
28	0.2	1+ 0+ 1- 1-	0+ 0+ 1+ 3o	8o	5	21
29	0.2	2o 2o 2- 1o	1+ 2o 1+ 1o	12+	6	22
30	1.3	2o 3o 2- 2-	2o 0+ 5- 8o	23+	36	23
						28
						29
Mean:	0.55			Mean:	13	



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CRPL RADIO PROPAGATION QUALITY FIGURES AND FORECASTS

SEPTEMBER 1961

NORTH ATLANTIC

DATE SEPT. 1961	NORTH ATLANTIC 6-HOURLY QUALITY FIGURES: 00 TO 06	06 TO 12	12 TO 18	18 TO 24	SHORT-TERM FORECASTS ISSUED ABOUT ONE HOUR IN ADVANCE OF: 00	06	12	18	WHOLE DAY INDEX	ADVANCE FORECASTS (J-REPORTS) FOR WHOLE DAY; ISSUED IN ADVANCE BY: 1-7 DAYS FINAL J_S	1-7 DAYS SDW	1-3 DAYS J	1-7 DAYS	GEOMAGNETIC K_{FR} HALF DAY (1)	(2)
01	4-	2o	5o	5o	4	4	6	6	(4-)	6		6		4)	(4)
02	4o	3+	5+	6-	5	2	5	6	(4+)	6		6		3	2
03	5+	3+	6o	6o	4	4	6	6	5-	7		7		4)	2
04	6o	4+	5+	6o	6	5	6	6	5o	7		7		2	2
05	6+	4+	6o	6o	6	4	6	6	5+	6		6		3	2
06	5+	4+	6+	6+	6	5	6	6	5+	6		6		2	1
07	6+	5+	7-	6+	6	5	7	7	6+	5		5		2	1
08	6+	6-	6+	6+	6	6	7	7	6+	6		6		1	1
09	6o	5+	6+	7-	6	6	5	6	6o	6		6		3	1
10	6+	5+	7-	7-	5	5	6	6	6+	6		6		1	2
11	6+	5+	7-	6o	6	5	6	7	6o	6		6		2	2
12	4+	4o	6+	6+	5	3	6	6	5o	6		6		3	2
13	6o	5o	6+	6o	5	4	6	6	6-	4	4	6		1	2
14	6-	5o	6+	7-	6	4	6	6	6-	6	4	6		(4)	(4)
15	6-	4o	6+	7-	5	5	6	6	5+	6	5	6		2	1
16	7-	6-	7o	7-	6	5	7	7	7-	6		6		2	2
17	6-	6-	6+	7-	6	5	6	7	6o	6		6		3	1
18	6+	5+	7-	7-	6	6	7	7	6+	6		6		2	1
19	7-	6-	7-	7-	6	5	6	7	6+	6		6		1	0
20	7-	5o	6+	6o	6	6	7	6	6o	6		6		2	2
21	5o	4+	6+	6+	6	5	5	6	5+	6		6		1	1
22	5+	4+	7-	7-	5	4	6	7	6-	6		6		1	2
23	6+	4+	6+	7-	6	6	6	6	6-	6		6		0	2
24	6+	5o	6+	6-	6	5	6	5	6-	6		6		3	(5)
25	4-	3-	6-	6o	4	3	4	5	(4o)	6		6		5)	3
26	5-	3+	6+	6-	4	4	6	7	5-	5		5		3	3
27	4+	2+	5-	6o	5	3	5	5	(4o)	4		4		5)	3
28	5-	4o	6o	6-	4	4	6	6	5o	4		4		1	1
29	6+	5-	6o	6+	6	5	6	6	6-	5		5		2	1
30	6-	6-	6+	5o	6	5	6	5	6-	4	4	5		2	3

Score: Quiet Periods	P	14	6	19	17		13		14					11	16	
	S	11	9	10	13		9		10					13	12	
	U	0	0	0	0		2		2					1	0	
	F	0	0	1	0		2		0					1	0	
Disturbed Periods	P	2	4	0	0		1		1					2	0	
	S	3	9	0	0		0		0					2	2	
	U	0	1	0	0		0		0					0	0	
	F	0	1	0	0		3		3					0	0	

NORTH PACIFIC

NORTH PACIFIC 12-HOURLY QUALITY FIGURES: 0700 TO 1900	1900 TO 0700	SHORT-TERM FORECASTS ISSUED AT: 0600	1800	WHOLE DAY INDEX	ADVANCE FORECASTS (J_P REPORTS) FOR WHOLE DAY; ISSUED IN ADVANCE BY: 1-7 DAYS FINAL J_{PS}	1-7 DAYS SDW	1-3 DAYS J_P	1-7 DAYS	GEOMAGNETIC K_{SI} HALF DAY (1)	(2)
5	5	4	6	5	5		5		(5)	3
6	5	6	6	5	6		6		3	2
6	6	6	6	5	6		6		3	1
6	6	6	7	6	6		6		2	2
6	6	7	7	6	6		6		2	2
6	6	6	6	6	6		6		1	1
6	6	6	6	6	6		6		1	1
7	6	6	6	7	6		6		0	0
7	6	6	7	7	6		6		2	1
8	6	5	6	7	5		5		1	2
7	5	5	5	7	5		5		2	3
5	6	4	5	5	5		5		(4)	2
6	5	5	6	6	4	4	6		1	2
6	5	5	6	6	4	4	6		3	(4)
5	5	6	5	5	5	5	6		2	0
6	6	6	6	6	6		6		2	2
5	6	5	6	6	6		6		3	2
6	6	6	6	6	6		6		1	2
6	6	5	6	6	6		6		0	0
6	6	5	5	6	6		6		2	2
6	6	7	7	6	6		6		0	0
6	6	6	6	7	6		6		1	2
6	7	5	6	7	6		6		0	1
5	4	6	3	5	6		6		3	(5)
4	5	3	5	(4)	6		6		(6)	3
4	5	5	5	(4)	5		5		3	3
4	5	4	4	(4)	4		4		(5)	3
4	5	4	5	(4)	4		4		1	1
5	6	5	5	5	5		5		2	1
5	4	5	5	5	4	4	6		2	3

Score: Quiet Periods	P								14							
	S								8							
	U								2							
	F								2							
Disturbed Periods	P								2							
	S								1							
	U								0							
	F								1							

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

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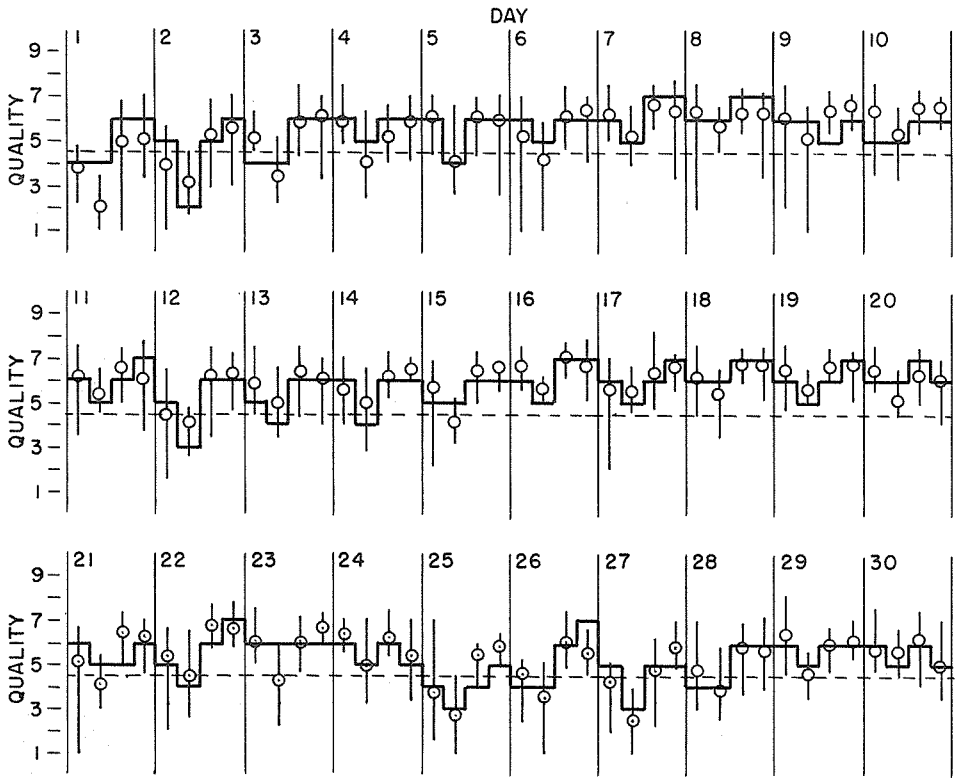
CRPL RADIO PROPAGATION QUALITY FIGURES AND FORECASTS

NORTH ATLANTIC

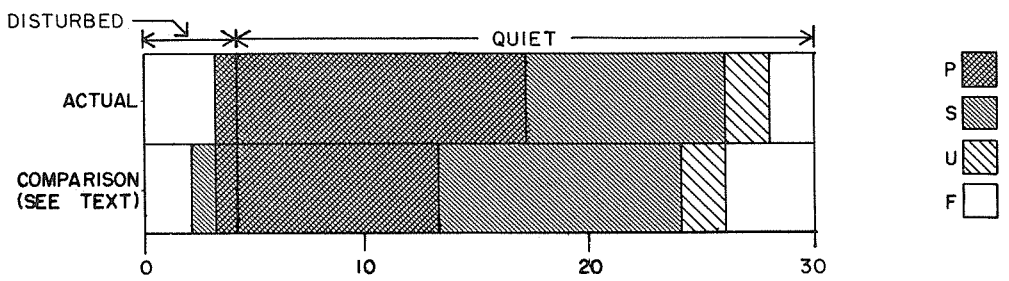
SEPTEMBER 1961

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

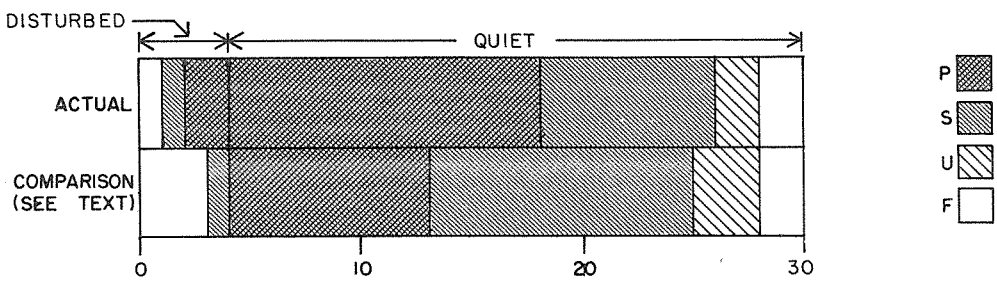


OUTCOME OF ADVANCED FORECASTS FINAL ESTIMATE

NORTH ATLANTIC

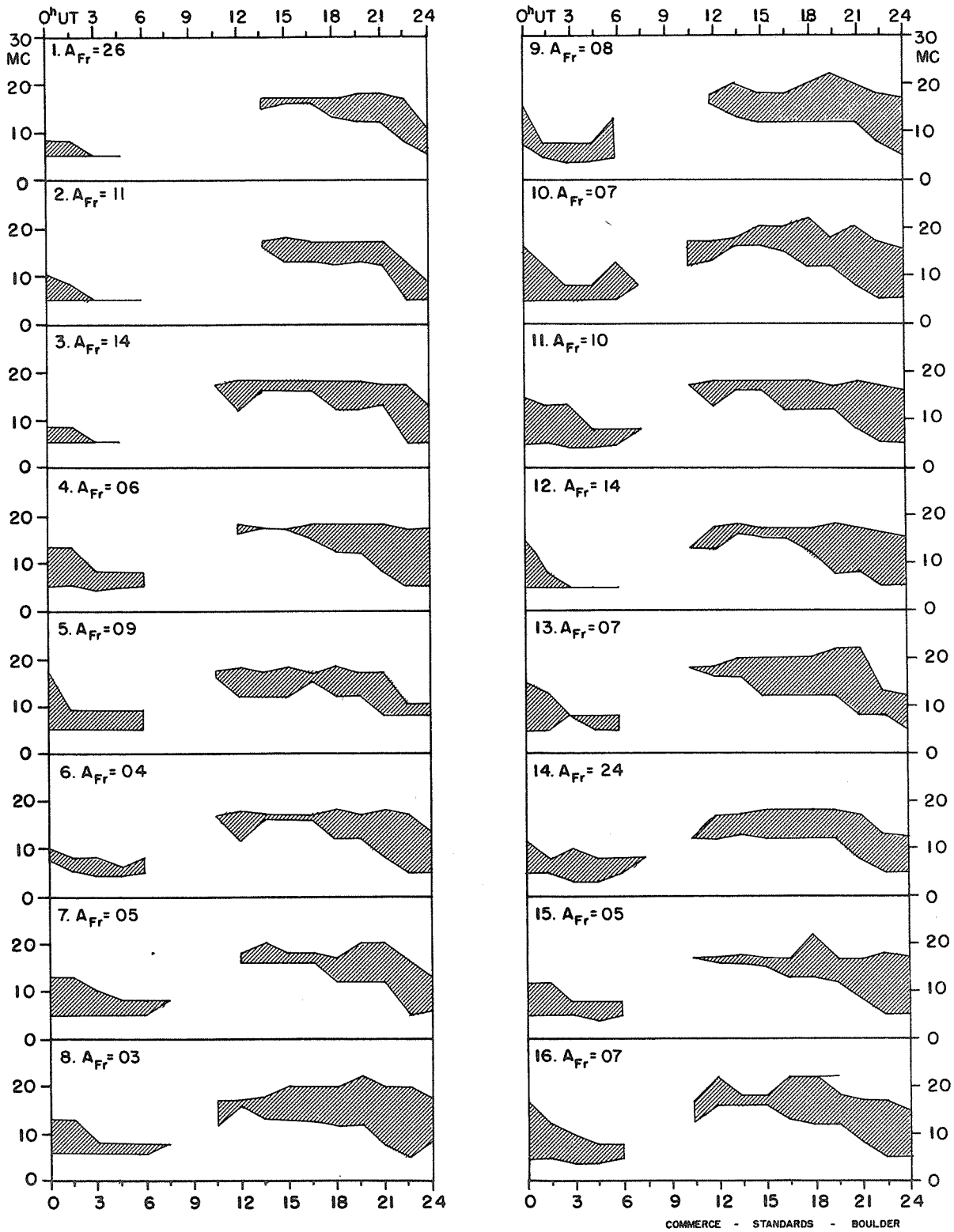


NORTH PACIFIC

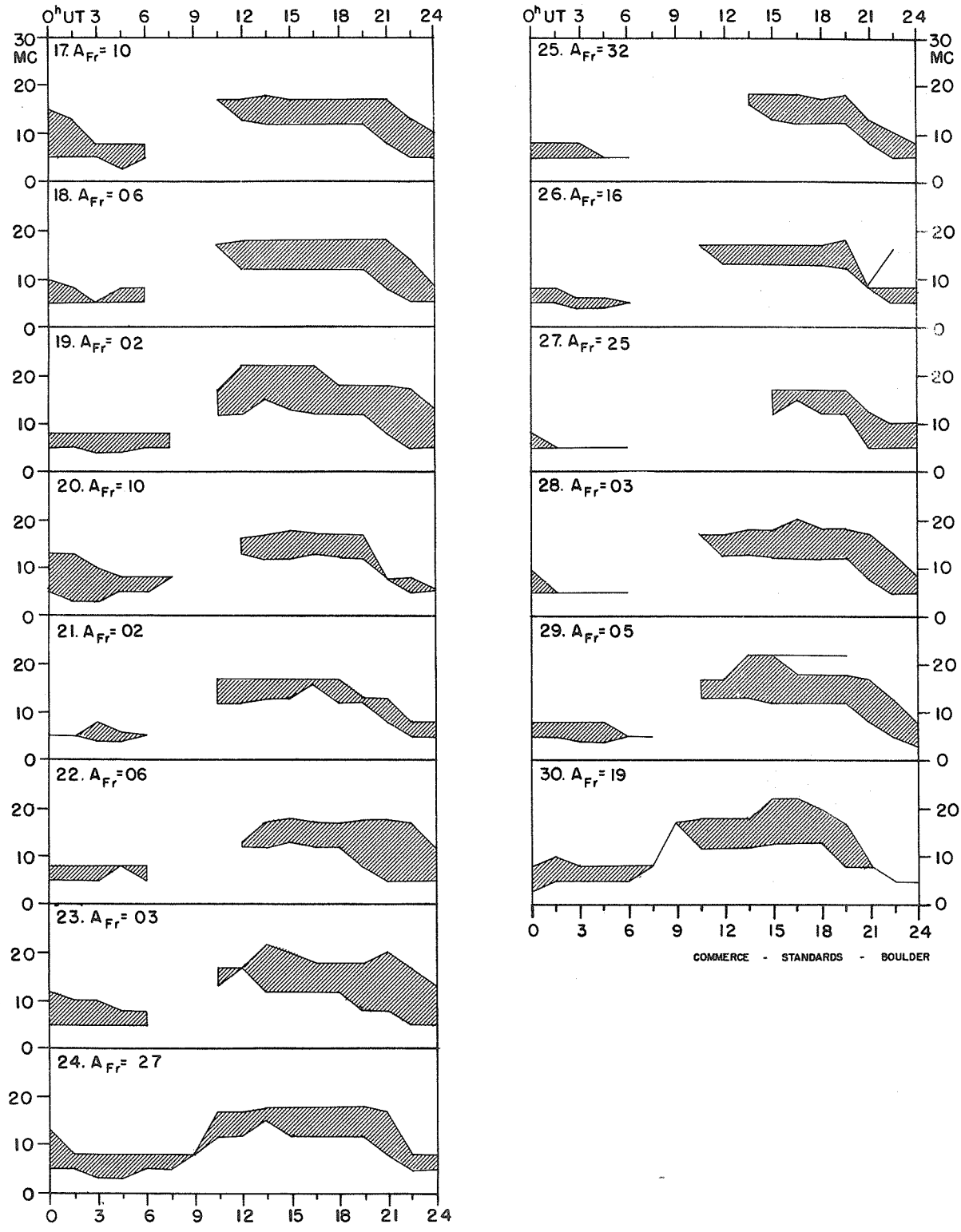


USEFUL FREQUENCY RANGES -- NORTH ATLANTIC PATH

SEPTEMBER 1961



SEPTEMBER 1961



Adapted from Observations by Deutsches Bundespost

VIIIa

ALERT PERIODS AND SPECIAL WORLD INTERVALS

INTERNATIONAL WORLD DAY SERVICE

OCTOBER 1961

Issued October 1961 Day/Time UT	Advance Geophysical Alert	No.	World-Wide Geophysical Alert	Special World Interval
01/1600		146	Magnetic Storm 30/2111Z	Continue
02/1600		147		Finish
02/1930	Climax Solar Flare, 02/1440Z			
26/2345	Ft. Belvoir, Magnetic Storm 26/1940Z			
27/1600		148	Magnetic Storm 26/1940Z	
28/1227	Ft. Belvoir, Magnetic Storm, Aurora Probable 28/0812Z			
28/1600		149	Magnetic Storm, Aurora Probable 28/0812Z	Start
29/1600		150		Finish

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Erratum:
In CRPL-F 200 Part B, issued April 1961, in Table VIIIa the final entry should be March 1961 28/1600, No. 115, Finish Special World Interval.

International Geophysical Calendar 1962

Issued October 1961 by the International World Day Service under the auspices of U. R. S. I.

1962 **JANUARY** 1962

S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	(16)	(17)	(18)	19	20
21	22	23	24	25	26	27
28	29	30	31			

1962 **FEBRUARY** 1962

S	M	T	W	T	F	S
				1	2	3
[4	5]	6	7	8	9	10
11	12	(13)	(14)	(15)	16	17
18	19	20	21	22	23	24
25	26	27	28			

1962 **MARCH** 1962

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	(20)	(21)	(22)	23	24
25	26	27	28	29	30	31

1962 **APRIL** 1962

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	(17)	(18)	(19)	20	21
22	23	24	25	26	27	28
29	30					

1962 **MAY** 1962

S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	(15)	(16)	(17)	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

1962 **JUNE** 1962

S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	(19)	(20)	(21)	22	23
24	25	26	27	28	29	30

1962 **JULY** 1962

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	(17)	(18)	(19)	20	21
22	23	24	25	26	27	28
29	30	[31]				

1962 **AUGUST** 1962

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	(14)	(15)	(16)	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

1962 **SEPTEMBER** 1962

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	(18)	(19)	(20)	21	22
23	24	25	26	27	28	29
30						

1962 **OCTOBER** 1962

S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	(16)	(17)	(18)	19	20
21	22	23	24	25	26	27
28	29	30	31			

1962 **NOVEMBER** 1962

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	(13)	(14)	(15)	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	

1962 **DECEMBER** 1962

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	(18)	(19)	(20)	21	22
23	24	25	26	27	28	29
30	31					

1963 **JANUARY** 1963

S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	(22)	(23)	(24)	[25]	26
27	28	29	30	31		

(17) Regular World Day (RWD) (18) RWD with highest priority

[31] Day of Solar Eclipse

7 Day with unusual meteor shower activity

[16 17 18 19 . . .] World Synoptic Interval, (WSI), combining World Meteorological Interval, Regular World Interval, International Rocket Week.

Supplementary copies are available upon request to the Secretary General of U. R. S. I., 7 place Danco, Brussels 18.

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IXb

International Geophysical Calendar 1962

1. **Purpose**—The International Geophysical Calendar 1962 designates selected days and intervals for special attention for geophysical experiments and analysis during 1962 and is thus a framework for world-wide co-ordination. It serves mainly the branches of geophysics dealing with the earth's atmosphere in which many phenomena vary significantly during the course of a year. In some experiments, such as the routine recording of variations of the earth's magnetic field, the observing and analysis programs at observatories are normally carried out at a uniform level throughout the year; in these cases the Calendar is not needed. However, in many other experiments (for example, rocket experiments), it is not practical or meaningful to carry out the same program on each and every day. Here the Calendar can provide a useful mechanism for coordination: experimenters will know that their colleagues in other countries, in other laboratories and in other disciplines will tend to also carry out experiments on the days or intervals marked on the Calendar. In this way, results of experiments may later be more easily and usefully compared.

In some scientific fields, international scientific organizations have made specific recommendations for programs to be done on days or intervals marked on the Calendar. In others, the arrangements are informal or self-evident. Some examples are given below.

2. **Regular World Days (RWD)** are intended for observations or analyses or special experiments which as a practical matter can be done for only about 10% of days and should be spaced throughout the year. Examples in Ionospheric Physics are: oblique incidence pulse transmission and reception; absorption measurement by pulse reflection technique; extended observing schedule for whistlers and V.L.F. emissions; vertical sounding ionograms by f-plot, h'-plot, etc.; hourly reduction from ionograms of F-region true height parameters "hc" and "qc".

The RWD with highest priority are for similar work which can be undertaken for only one day each month. A specific example is the program recommended by U.R.S.I. for exchange of copies of original ionograms in ionospheric vertical sounding work.

3. **World Synoptic Intervals (WSI)** are intended for experiments which for practical reasons cannot be carried on continuously, but for which statistics of seasonal variations are especially needed. To simplify the Calendar the Regular World Intervals, World Meteorological Intervals and International Rocket Weeks of past years have been combined for 1962 into one set of intervals. For the sake of the synoptic meteorological rocket programs as designated by COSPAR and WMO the intervals have been placed about a month after the equinoxes and solstices—the times of marked seasonal change in certain upper air meteorological phenomena. During WSI meteorological rockets at a network of stations are launched at least once daily. Balloon sounding programs either with special instruments or launchings to unusually high balloon altitudes have been planned during WSI. Other programs such as ionospheric drift and high atmosphere wind measurements are other examples of suitable programs for such intervals. In several disciplines sample detailed data will provide a sampling of variations throughout the year but with improved statistics during one month of each season.

4. **Other Special Days** marked on the Calendar include the days of solar eclipses, two in 1962 and one in January 1963, when special programs may be expected to be carried out in appropriate parts of the world to study the sun and any eclipse effects on the earth's atmosphere. Ionospheric stations customarily increase their observing programs even if the magnitude of eclipse at their location is small. Many solar activity observatories take extra observations and issue specially detailed reports to assist the interpretation of the geophysical effects. Also shown are days when meteor shower activity is unusual. These include some of the important visual meteor showers and also unusual showers observable mainly by radio and radar techniques. Attention is also called to these days in case ionization produced by meteors may account for unusual effects in other geophysical experiments. The Annual World Meteorological Day, selected as March 23 (not marked on the Calendar), was first celebrated in 1961. Its purpose is to make the services which national meteorological services can render to the various branches of economic development, as well as the activities of the World Meteorological Organization, better known and appreciated by the public of all countries.

5. **Special Intervals not appearing on Calendar**—Periods of great magnetic, auroral and ionospheric disturbance are also of considerable geophysical interest. Worldwide coordination of observation is especially useful for stations not near the auroral zones, that is, places where the beginning of a major disturbance may not be immediately apparent from local observations. Notices of Geophysical Alerts and Special World Intervals (SWI) are distributed by telegram or radio broadcast on a current basis by the solar-geophysical Regional Warning Centers, whose telegraphic addresses are as follows: AGIWARN WASHINGTON (U.S.A.); AGI KOKUBUNJI (Japan); NIZMIR MOSCOW (U.S.S.R.); IONOSPHARE DARMSTADT (G.F.R.) or GENTELABO PARIS (France) or A.G.I. NEDERHORSTDENBERG (Netherlands). The meteorological telecommunications network coordinated by W.M.O. carries such information once daily soon after 1600 U.T. Many geophysical stations increase their programs or carry on special experiments during disturbed periods. Prompt notification of immediately significant geophysical observations and of major solar flare events which have important and sometimes long lasting geophysical effects, are also undertaken through the Regional Warning Centers.

5. *The International World Day Service* (*I.W.D.S.*) was established in 1958 by the International Council of Scientific Unions (I.C.S.U.) and is administered by the International Scientific Radio Union (U.R.S.I.), 7, Place Emile Danco, Brussels 18, Belgium. This Calendar has been drawn up by A. H. Shapley and J. V. Lincoln in consultation with interested I.C.S.U. unions and committees and representatives of the W.M.O. A fuller description of the Calendar has appeared in the U.R.S.I. Information Bulletin and various widely available scientific publications.

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