PART B

SOLAR - GEOPHYSICAL DATA

ISSUED

NOVEMBER 1963

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

CRPL-F 231
PART B

NATIONAL BUREAU OF STANDARDS
CENTRAL RADIO PROPAGATION LABORATORY
BOULDER, COLORADO

Issued
30 Nov. 1963

SOLAR - GEOPHYSICAL DATA

CONTENTS

I DAILY SOLAR INDICES

(a) Relative Sunspot Numbers and 2800 Mc/s Solar Flux - September-October 1963
(b) Graph of Sunspot Cycle

II SOLAR CENTERS OF ACTIVITY

(a) Calcium Plage and Sunspot Regions - October 1963
(b) Magnetic Classifications of Sunspots (Mt. Wilson) - October 1963
(c-e) Final Coronal Line Emission Indices - July, August, September 1963
(f) Provisional Coronal Line Emission Indices - October 1963

III SOLAR FLARES

(a-i) Optical Observations - October 1963
(j) Flare Patrol Observations - October 1963
(k-m) Optical Observations - July 1963
(n) Flare Patrol Observations - July 1963
(o-r) Ionospheric Effects (SWF-SEA-SCNA-SPA-SES-SFD-Bursts) - January-September 1963
(s) 26 Mc/s - Riometer Events (South Pole) - September 1963

IV SOLAR RADIO WAVES

(a) 2800 Mc/s Outstanding Occurrences (ARO-Ottawa) - October 1963
(b-e) 2800 Mc/s Outstanding Occurrences (ARO-Ottawa) - Graphs - October 18, 19, 21, 22, 23, 25, 26, 1963
(f) 169 Mc/s Interferometric Occurrences (Nancay) - October 1963
(g) 108 Mc/s Outstanding Occurrences (NBS-Boulder) - October 1963
(h) 108 Mc/s Outstanding Occurrences (NBS-Boulder) - Graphs - October 18, 26, 1963
(i-k) 7.6-41 Mc/s Spectral Observations (HAO-Boulder) - October 1963
(l-q) 9.1 cm Spectroheliograms (Stanford) - October 1963

V COSMIC RAY INDICES.

(a) Climax Neutron Monitor - September 1963
(b) Deep River Neutron Monitor - September 1963

VI GEOMAGNETIC ACTIVITY INDICES

(a) C, Kp, Ap and Selected Quiet and Disturbed Days - September 1963
(b) Chart of Kp by Solar Rotations - 1963

VII RADIO PROPAGATION QUALITY INDICES

(a) CRPL Quality Figures and Forecasts - North Atlantic and North Pacific - September 1963
(b) Graphs Comparing Forecasts and Observed Quality - North Atlantic and North Pacific - September 1963
(c-d) Graphs of Useful Frequency Ranges - September 1963

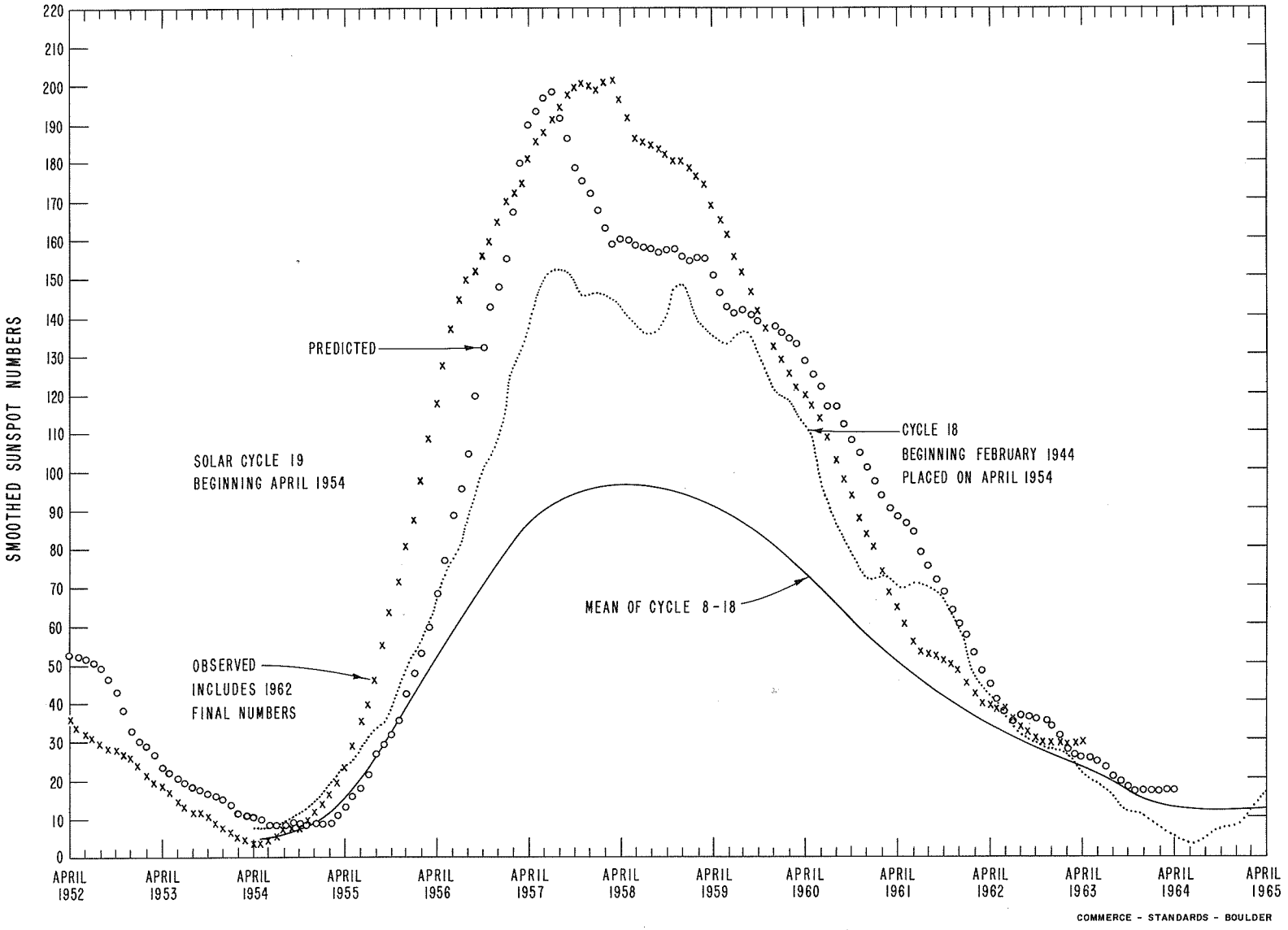
VIII ALERT PERIODS

(a) IQSY Alert Periods - October 1963

The descriptive text has been republished this month, November, 1963.

Sept. 1963	American Relative Sunspot Numbers R_A'
1	20
2	15
3	41
4	52
5	37
6	22
7	12
8	13
9	15
10	19
11	22
12	31
13	42
14	68
15	60
16	65
17	64
18	56
19	45
20	50
21	49
22	39
23	35
24	26
25	20
26	12
27	0
28	5
29	0
30	0
Mean:	31.2

Oct. 1963	Zürich Provisional Relative Sunspot Numbers R_Z	Daily Values Solar Flux at 2800 Mc/s ARO-Ottawa Flux
1	0	68
2	0	69
3	9	70
4	8	71
5	0	73
6	15	77
7	22	79
8	37	85
9	37	86
10	32	87
11	40	87
12	39	84
13	42	84
14	51	86
15	49	88
16	52	87
17	50	84
18	40	83
19	29	88
20	37	89
21	35	94
22	45	96
23	50	94
24	51	94
25	53	96
26	56	96
27	50	88
28	24	84
29	54	85
30	58	85
31	45	82
Mean:	35.8	84



PREDICTED AND OBSERVED SUNSPOT NUMBERS

CALCIUM PLAGE AND SUNSPOT REGIONS

OCTOBER 1963

Oct. 1963	LAT.	MCMATH PLAGE NUMBER	RETURN OF REGION	CALCIUM PLAGE DATA						SUNSPOT DATA		
				CMP VALUES		HISTORY	AGE (ROTATIONS)	DATE FIRST SEEN	DURATION (DAYS)	CMP VALUES		HISTORY
				AREA	INT.					AREA	COUNT	
30.9*	N18	6985 (1)	New	(200)	(1.5)	b — d	1	10/5	1			
2.0	S16	6982	New	(200)	(1)	b — d	1	10/4	2			
2.5	N08	6991 (1)	New	(300)	(1.5)	b — ℓ	1	10/7	1			
3.0	N01	6978 (1)	New	200	1.5	b — d	1	10/2	1			
3.0	S13	6988	New	(300)	(1.5)	b ⌐ ℓ	1	10/6	2			
3.2	S09	6977	New	100	1	b ∧ d	1	10/1	3			
3.8	N61	6983 (1)	New	200	1.5	b — d	1	10/4	1			
4.2	N26	6984 (1)	New	100	1.5	b — d	1	10/4	1			
5.4	N14	6992	New	(300)	(2)	b ⌐ ℓ	1	10/9	3			
7.1	S17	6981	New	100	1.5	b ∧ d	1	10/3	4			
8.7	N09	6979	New	1000	2.5	ℓ ⌉ ℓ	1	10/2	13			
10.1	N30	6995	New	100	1.5	b ⌐ ℓ	1	10/11	4			
10.3	S04	6996	New	(300)	(2.5)	b ⌐ ℓ	1	10/13	3			
12.2	N09	6986	6960	1700	3.5	ℓ ⌐ ℓ	6	10/5	14	240	1	ℓ — ℓ
12.2	N34	6990 (2)	New	700	3.5	ℓ — ℓ	1	10/7	12	170	3	ℓ — ℓ
12.6	S12	6987	6961	800	2.5	ℓ — ℓ	3	10/6	13			
13.6	S05	6989	6961	1000	3	ℓ — ℓ	3	10/7	13			
14.5	S12	6998	New	100	2.5	b ⌐ d	1	10/17	~2			
14.9	N04	6997	New	1000	3.5	b / ℓ	1	10/13	8	180	6	b / ℓ
16.6	S06	7001 (1)	New	(100)	(1.5)	b — ℓ	1	10/20	1			
17.2	N14	6993	6964	2900	3	ℓ — ℓ	4	10/10	14	70	4	b ∧ d
17.6	S04	6999	New	200	2.5	b — d	1	10/17	~2			
18.0	N27	6994	6969	700	3	ℓ — ℓ	2	10/11	13	100	1	ℓ ⌉ d
19.6	S05	7004 (1)	New	(200)	(1.5)	b — d	1	10/22	1			
19.7	S31	7007 (1)	New	(300)	(2)	b — d	1	10/23	1			
20.2	N25	7002	New	100	2	b / ℓ	1	10/20	6			
20.9	S19	7008	New	(200)	(2)	b / ℓ	1	10/23	5			
21.4	N45	7005	New	100	1.5	b ∧ d	1	10/22	2			
21.7	N09	7006	New	200	2	b — d	1	10/22	2			
21.9	N08	7000 (1)	New	(200)	(1.5)	b — d	1	10/17	1			
24.5	S11	7010	New	(200)	(2.5)	b ⌐ ℓ	1	10/26	5			
26.4	N12	7003	6980	5500	4	ℓ ⌐ ℓ	2	~10/19	15	1370	11	ℓ \ ℓ
26.5	S21	7009	New	100	2.5	b ∧ d	1	10/24	3			
30.1	N34	7016 (1)	New	(200)	(1)	b — d	1	11/1	1			
30.8	N02	7013	New	1000	3	b ⌐ ℓ	1	10/28	>7	360	5	b ⌐ ℓ
30.9	N10	7011 (1)	New	(100)	(1.5)	b — d	1	10/27	1			
31.9	N10	7012	6992	300	1.5	ℓ ⌉ d	2	10/26	8			

(1) These are all small and very ephemeral, lasting for only one day.
(2) Region 6990 is a new plage belonging to the new solar cycle.

* September, 1963

COMMERCE - STANDARDS - BOULDER

MT. WILSON MAGNETIC CLASSIFICATIONS OF SUNSPOTS

OCTOBER 1963

Oct. 1963	TIME MEAS. UT	LAT.	MER. DIST.	TYPE
1	No Spots			
2	1600	N12	W38	αf
		N07	W33	αp
3-4	No Spots			
5	No Obs.			
6	2210	N07	E70	βf
7	2155	N34	E50	αf*
		N08	E56	β
8	1845	N34	E41	βp*
		N07	E45	β
9	1725	N34	E29	βp*
		N07	E32	βp
10	2345	N15	W73	βf
		N07	E13	βp
		N33	E14	βp*
11	No Obs.			
12	2345	N07	W13	αp
		N33	W12	βp*
		N13	E58	αf
		N23	E63	αf
13	2345	N07	W26	αp
		N33	W27	αf*
		N03	E11	β
		N23	E51	αf
14	1800	N08	W37	αp
		N34	W35	αf*
		S07	W17	αf
		N03	W00	β
		N10	E37	αf
		N23	E41	αf
15	1835	N08	W50	αp
		N34	W49	αf*
		N02	W14	βp
		N13	E25	βf
		N23	E28	αf
16-23	No Obs.			
24	2325	S10	W46	αp
		N12	E14	αp
		N12	E23	βf
25	2350	S10	W60	αp
		N12	E01	αp
		N12	E08	βf
26	1555	S10	W69	αp
		N12	W07	αp
		N12	W00	βf
27	No Obs.			
28	2130	S10	W60	β
		N12	W38	βp
		N12	W23	αf
		N01	E24	βp
29	1735	S10	W71	βf
		N12	W50	βp
		N12	W36	αf
		N01	E13	β
		N10	E44	βf
30	2205	N11	W68	αp
		N00	W04	β
		N08	E26	β
31	1740	N11	W79	αp
		N00	W15	β
		N07	E13	βp

*New Cycle.

COMMERCE - STANDARDS - BOULDER

FINAL CORONAL LINE EMISSION INDICES

JULY 1963

CMP July 1963	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	10	15	12	32	6	6	16	50	36	42	x	x	66	99	x	x
2	62	>146	29	62	13	14	23	33	18	21	12	16	18	39	12	14
3	20	28	4	5	18	28	5	7	16a	25a	9	10	6a	8a	10	14
4	8	11	13	16	16	39	16	20	11	14	16	22	3	5	15	20
5	6	9	9	12	12	31	12	16	x	x	x	x	x	x	x	x
6	22	28	17	20	32	51	16	24	10	14	x	x	9	14	x	x
7	44	59	23a	28a	30	45	20a	24a	12	22	18a	23a	16	28	19a	24a
8	23	43	9	16	7	9	8	10	6	11	6	6	49	84	7	12
9	64	123	10	17	11	22	14	20	4	6	18a	24a	72	160	21a	30a
10	63	98	x	x	6	20	x	x	2	2	17	22	4	5	19	32
11	42	64	x	x	5	8	x	x	6	8	20	26	33	59	20	28
12	51	72	13	27	13	26	18	23	7	11	18	24	40	70	15	41
13	33	73	31	52	3	8	37	40	3	3	17	20	19	38	15	36
14	16	39	17	22	2	8	19	25	4	6	16	20	7	9	27	56
15	35	40	x	x	21	25	x	x	27	30	9	12	33	40	9	12
16	10	15	22	28	6	6	18	20	4	6	21	24	7	8	20	28
17	8a	8a	18	30	5a	6a	12	16	5	8	28	36	7	11	36	60
18	6	8	26	39	4	5	15	18	17	59	x	x	6	11	x	x
19	x	x	x	x	x	x	x	x	8	11	x	x	24	59	x	x
20	59	130	29	48	5	14	17	20	8	11	17	24	35	76	15	22
21	54	129	23a	32a	8	14	18a	24a	9	11	14	18	21	36	21	28
22	27	39	9	15	1	2	8	11	4	6	x	x	21	31	x	x
23	44	92	x	x	5	11	x	x	18	50	22	24	28	56	25	48
24	7	12	14	32	2	3	10	13	7	15	18	24	33	53	15	28
25	58	101	17	36	8	17	10	12	3	4	x	x	7	12	x	x
26	37	59	14	28	7	11	13	16	5	5	10	12	14	22	11	16
27	7	12	16	20	4	6	13	14	24	31	x	x	69	102	x	x
28	9	18	10	14	4	5	13	15	9	12	5	8	20	38	8	15
29	47	53	6	8	38	44	6	8	6	7	6	10	7	7	10	13
30	10	17	17	24	11	17	20	24	7	12	8	11	7	8	10	11
31	9	15	20	24	10	19	15	18	9	10	11	15	8	8	8	10

x = no observations * = yellow line emission a = index computed from low weight data

COMMERCE - STANDARDS - BOULDER

FINAL CORONAL LINE EMISSION INDICES

AUGUST 1963

CMP Aug 1963	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	23	75	x	x	12	17	x	x	3	3	x	x	14	17	x	x
2	8	11	x	x	7	8	x	x	6	15	21	24	14	21	25	46
3	18	25	18	24	7	11	16	20	3	5	7	10	6	11	7	8
4	37	56	19	28	2	3	15	20	9	12	11	12	46	93	7	15
5	73	120	x	x	4	8	x	x	2	3	x	x	3	4	x	x
6	46	92	32	66	4	11	19	22	6	6	25	36	27	42	21	32
7	18	30	15	20	5	7	20	24	4	8	19	28	30	39	12	20
8	10	14	x	x	3	3	x	x	4	8	24	30	25	33	17	27
9	19	31	24	48	3	7	15	20	6	14	35	52	10	14	19	44
10	64	106	x	x	28	38	x	x	4	13	x	x	13	29	x	x
11	10	12	10	17	11	16	6	8	4	8	28	34	9	14	23	32
12	5	6	12	18	3	6	8	9	5	8	27	32	8	11	35	40
13	7	9	16	20	6	8	13	15	8	11	6	10	14	19	4	9
14	8	8	17	22	10	14	15	19	x	x	x	x	x	x	x	x
15	8	11	10	11	4	8	11	14	19	25	x	x	21	29	x	x
16	13	18	26	40	6	15	22	26	18	29	x	x	11	15	x	x
17	3	4	13	15	4	4	11	20	47	115	33	56	13	17	24	36
18	16	21	16	20	19	43	20	33	x	x	x	x	x	x	x	x
19	15	21	x	x	12	20	x	x	6	8	22	36	3	7	x	x
20	80	146	30	96	13	31	31	35	x	x	x	x	x	x	x	x
21	53	67	16	30	15	53	18	24	17	28	13	15	25	31	9	12
22	34	42	15	30	7	14	17	20	17	20	x	x	16	22	x	x
23	92	140	11	17	19	25	11	19	33	54	13	31	31	38	x	x
24	50	91	8	14	27	49	10	16	x	x	x	x	x	x	x	x
25	22	36	22	28	25	45	35	55	18	34	7	18	19	22	x	x
26	7	11	24	30	11	14	30	36	x	x	24	26	x	x	22	28
27	10	11	4	8	17	22	6	16	8	11	23	28	8	11	21	30
28	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
29	4	6	x	x	4	4	x	x	15a	22a	17a	28a	38a	73a	27a	28a
30	16	38	x	x	3	7	x	x	6	8	16	20	22	43	13	18
31	48	90	28	40	3	6	27	31	5	6	18	20	24	45	16	22

x = no observations * = yellow line emission a = index computed from low weight data

COMMERCE - STANDARDS - BOULDER

FINAL CORONAL LINE EMISSION INDICES

SEPTEMBER 1963

CMP Sept 1963	North East Quadrant (observed 7 days earlier)				South East Quadrant (observed 7 days earlier)				South West Quadrant (observed 7 days later)				North West Quadrant (observed 7 days later)			
	G_6	G_1	R_6	R_1	G_6	G_1	R_6	R_1	G_6	G_1	R_6	R_1	G_6	G_1	R_6	R_1
1	x	x	x	x	x	x	x	x	5	17	22	28	43	78	21	44
2	4	6	4	5	2	2	5	7	6	14	29	42	31	59	17	36
3	x	x	x	x	x	x	x	x	11	16	28	66	40	115	14	15
4	26	45	9	12	6	6	10	14	10	12	17	24	8	20	17	46
5	22	31	12a	18a	7	20	12a	16a	3	3	8	8	13	20	7	10
6	17	19	14	19	12	13	10	14	8	11	9	12	8	9	10	12
7	14	16	x	x	x	x	x	x	x	x	x	x	x	x	x	x
8	11	17	12	15	6	8	7	9	4	5	11	15	6	7	14	17
9	7	8	36	43	7	8	36	44	x	x	x	x	x	x	x	x
10	14	25	25	36	5	8	27	36	x	x	x	x	x	x	x	x
11	x	x	x	x	x	x	x	x	6	11	16	24	6	8	21	39
12	25	31	26a	32a	19	37	26a	32a	10	18	9	10	6	6	7	10
13	10	16	16	20	19	36	16	22	62	99	x	x	26	66	x	x
14	15	29	17	25	25	60	16	18	74	140	x	x	25	39	x	x
15	18	31	17	48	10	31	18	34	62	106	27	36	47	95	15	16
16	49	101	11	28	36	95	12	12	49	87	15	21	49	84	12	12
17	18	22	13	15	13	30	19	34	27	39	19	26	26	39	11	16
18	9	12	7	9	6	9	9	11	12	20	27	32	40	50	24	34
19	38	59	7	8	21	64	9	12	10	16	8	10	21*	30	8	10
20	31*	44	10	12	23	74	13	28	22	81	13	16	43	95	23	37
21	x	x	x	x	x	x	x	x	11	20	24	32	33	59	18	28
22	6	8	11	16	8	8	11	15	5	6	34	38	17	36	44	76
23	x	x	x	x	x	x	x	x	3	5	19	24	16	45	26	42
24	x	x	x	x	x	x	x	x	2	5	x	x	10	17	x	x
25	11	17	27	32	8	14	24	37	2	4	11	13	7	9	8	12
26	8	15	14	20	4	5	16	25	11	21	9	16	14	18	9	16
27	x	x	x	x	x	x	x	x	3	5	6	8	9	12	1	4
28	36	64	x	x	3	4	x	x	4	8	7	12	8	16	8	12
29	19	28	25	47	6	8	32	48	4	6	9	12	14	15	6	8
30	22	34	16	24	3	3	16	20	2	2	8	12	2	2	8	8

x = no observations * = yellow line emission a = index computed from low weight data

COMMERCE - STANDARDS - BOULDER

PROVISIONAL CORONAL LINE EMISSION INDICES

OCTOBER 1963

CMP Oct 1963	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	18	31	20	28	3	6	29	35	8	11	11	12	10	18	9	12
2	7	11	25	30	2	6	28	36	6	6	10	16	8	12	12	15
3	5	6	10	13	3	4	9	10	x	x	18	20	4	6	13	16
4	9a	25a	14	20	x	x	23	28	x	x	x	x	x	x	x	x
5	7	8	22a	24a	2	3	26a	40a	x	x	21	24	x	x	27	36
6	6	6	27	32	1	3	30	42	4	6	17a	24a	5	14	18a	24a
7	9	11	19	28	4	6	16	20	4	6	24	32	11	20	23	32
8	25	73	18	28	4	6	15	28	x	x	x	x	x	x	x	x
9	16	33	10	20	2	4	9	10	15	25	18a	24a	15	17	19a	30a
10	16	21	13	20	19	33	10	12	x	x	15	17	x	x	14	16
11	13	21	9	12	22	34	11	16	x	x	x	x	x	x	x	x
12	16	32	10	20	21	33	12	19	x	x	x	x	x	x	x	x
13	40	92	13	30	29	48	15	32	32	80	15	25	20	41	12	15
14	4	7	8	9	4	8	15	28	25	56	20	24	42	78	35	72
15	29	39	22	34	14	24	13	18	14	28	16	20	46	87	25	43
16	36	49	26	61	14	18	12	12	x	x	x	x	x	x	x	x
17	68	126	41	114	14	20	20	40	9	20	x	x	30	50	12	18
18	x	x	x	x	x	x	x	x	5	8	24	33	37	67	33	44
19	x	x	29	32	x	x	22	28	7	11	x	x	18	25	x	x
20	14	17	27a	32a	5	6	25a	34a	19	50	45	70	13	17	24	32
21	15	20	31	40	4	6	32	40	x	x	36	66	x	x	22	28
22	x	x	22a	32a	x	x	31a	38a	x	x	x	x	x	x	x	x
23	10	11	15a	19a	3	6	21a	30a	14	31	29	48	13	17	15	18
24	6	11	15	20	x	x	17	19	x	x	x	x	x	x	x	x
25	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
26	x	x	x	x	x	x	x	x	6	17	18	22	51	84	17	28
27	19	43	22	39	5	12	15	20	x	x	x	x	x	x	x	x
28	12	17	19	24	4	6	22	27	x	x	x	x	x	x	x	x
29	8	8	23	28	3	6	27	30	18	35	23	37	12	17	10	12
30	x	x	x	x	x	x	x	x	8	24	13	18	8	18	16	28
31	6	11	x	x	4	4	x	x	6	12	x	x	8	21	x	x

x = no observations * = yellow line emission a = index computed from low weight data

COMMERCE - STANDARDS - BOULDER

SOLAR FLARES

OCTOBER 1963

OBSERVATORY	DATE OCT 1963	OBSERVED UNIVERSAL TIME START	END	MAX. PHASE	LOCATION APPROX. LAT.	MER. DIST.	McMATH PLAGE REGION	DURATION — MINUTES	IMPORTANCE	OBS. COND.	MEASUREMENTS TIME — U T	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hα	MAX. INT. %	PROVISIONAL IONOSPHERIC EFFECT
	01	0035	0700	NO FLARE	PATROL											
	02	0000	0005	NO FLARE	PATROL											
	02	0040	0650	NO FLARE	PATROL											
	02	0655	0700	NO FLARE	PATROL											
	02	0800	0825	NO FLARE	PATROL											
	02	0830	0845	NO FLARE	PATROL											
	02	0850	0910	NO FLARE	PATROL											
	02	0920	0950	NO FLARE	PATROL											
	02	0955	1000	NO FLARE	PATROL											
	02	1005	1045	NO FLARE	PATROL											
MCMATH	02	1229 E	1326		N11	W38	6980		1-	1	1300	.50	.60			
SAC PEAK	02	1310 E	1329	1321	N12	W36			1-	3		.14	.15		16	
MCMATH	02	1336	1435	1341	N11	W38	6980		1-	1	1341	.40	.50			
MCMATH	02	1336	1435	1400	N11	W38										
SAC PEAK	02	1400	1420	1408	N12	W38			1-	3		.14	.16		16	
MCMATH	02	1519	1538		N11	W39	6980		1-	1	1527	.30	.40			
	03	0000	0005	NO FLARE	PATROL											
	03	0045	0650	NO FLARE	PATROL											
	03	0900	0910	NO FLARE	PATROL											
	03	0915	0945	NO FLARE	PATROL											
	03	0950	1030	NO FLARE	PATROL											
	03	1035	1150	NO FLARE	PATROL											
	03	1155	1225	NO FLARE	PATROL											
	03	1230	1235	NO FLARE	PATROL											
	03	1240	1320	NO FLARE	PATROL											
	04	0040	0650	NO FLARE	PATROL											
	04	0815	0845	NO FLARE	PATROL											
	04	0855	0955	NO FLARE	PATROL											
	04	1000	1055	NO FLARE	PATROL											
	04	2355	2400	NO FLARE	PATROL											
	05	0045	0640	NO FLARE	PATROL											
	05	0800	0815	NO FLARE	PATROL											
	05	0905	1055	NO FLARE	PATROL											
	05	1105	1225	NO FLARE	PATROL											
MCMATH	05	1305	1315	1309	N07	E90	6986		1-	2	1309	.20				
MCMATH	05	1347	1415	1400	N07	E90	6986		1-	2	1400	.30				
MCMATH	05	1426	1441	1430	N07	E90	6986		1-	2	1430	.20				
MCMATH	05	1457	1515	1508	N07	E89	6986		1-	1	1508	.20				
MCMATH	05	1629	1655	1644	N07	E89	6986		1-	1	1644	.10				
SAC PEAK	05	2302	2311	2303	N07	E87			1-	2		.50	.50		18	
LOCKHEED	05	2303 E	2315	2303 U	N08	E80			1-	2	2303	.20	.60		20	
SAC PEAK	05	2335 E	2341	2336	N07	E87			1-	2		.27	.27		17	
	06	0100	0620	NO FLARE	PATROL											
	06	0805	0820	NO FLARE	PATROL											
	06	0945	1210	NO FLARE	PATROL											
	06	1220	1235	NO FLARE	PATROL											

SOLAR FLARES

OCTOBER 1963

OBSERVATORY	DATE OCT 1963	OBSERVED UNIVERSAL TIME START	END	MAX. PHASE	LOCATION APPROX. LAT.	MER. DIST.	McMATH PLAGE REGION	DURATION — MINUTES	IMPORTANCE	OBS. COND.	MEASUREMENTS TIME — U T	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hα	MAX. INT. %	PROVISIONAL IONOSPHERIC EFFECT
SAC PEAK	06	2200	2325	2313 U	N06	E25	6979	85	1	3		4.29	4.31		19	
LOCKHEED	06	2201	2250	2228	N05	E23			1-	2	2228	1.70	1.70		20	
	07	0100	0645	NO FLARE	PATROL											
	07	0800	0810	NO FLARE	PATROL											
	07	1020	1025	NO FLARE	PATROL											
	07	1045	1100	NO FLARE	PATROL											
	07	1110	1115	NO FLARE	PATROL											
	07	1200	1210	NO FLARE	PATROL											
	07	1225	1230	NO FLARE	PATROL											
SAC PEAK	07	1648	1702	1653	N34	E57			1-	3		.14	.21		16	
MCMATH	07	1650	1703	1654	N35	E58	6990		1-	2	1654	.20	.40			
MCMATH	07	1944	2105	2000	N35	E56	6990		1-	2	2000	.20	.40			
SAC PEAK	07	1950 U	2124	2020 U	N34	E55			1-	3		.29	.39		16	
SAC PEAK	07	2341	2355 D	2355 D	N34	E53			1-	3		.43	.58		16	
	07	2355	2400	NO FLARE	PATROL											
	08	0035	0620	NO FLARE	PATROL											
	08	0910	0920	NO FLARE	PATROL											
	08	0925	0935	NO FLARE	PATROL											
	08	0945	0950	NO FLARE	PATROL											
	08	0955	1005	NO FLARE	PATROL											
	08	1010	1020	NO FLARE	PATROL											
	08	1040	1110	NO FLARE	PATROL											
	08	1120	1130	NO FLARE	PATROL											
	08	1135	1150	NO FLARE	PATROL											
SAC PEAK	08	2317	2323	2319	N06	E43			1-	3		.23	.25		16	
	08	2355	2400	NO FLARE	PATROL											
	09	0035	0540	NO FLARE	PATROL											
	09	0835	0845	NO FLARE	PATROL											
	09	0910	0930	NO FLARE	PATROL											
	09	1100	1220	NO FLARE	PATROL											
SAC PEAK	09	1442	1515	1450	N05	W13	6979	33	1	2		2.15	2.10		18	
MCMATH	09	1445	1545		N05	W12	6979		1-	2	1451	.80	.80			
	10	0110	0700	NO FLARE	PATROL											
	10	0820	0830	NO FLARE	PATROL											
	10	0855	0925	NO FLARE	PATROL											
	10	1125	1130	NO FLARE	PATROL											
	10	1240	1245	NO FLARE	PATROL											
MCMATH	10	1450	1527	1500	N34	E20	6990		1-	2	1500	.30	.30			
MCMATH	10	1456	1501	1457	N05	E18	6986		1-	2	1457	.20	.20			
MCMATH	10	1550	1556	1552	N05	E17	6986		1-	2	1552	.20	.20			
MCMATH	10	1555	1615	1605	N15	W72	6992		1-	1	1605	.20	.60			
MCMATH	10	1735	1820	1740	N15	W73	6992		1-	1	1740	.40	1.20			
LOCKHEED	11	0045	0052 D	0050	N16	E90			1-	1	0050	.30	1.50		30	
	11	0050	0645	NO FLARE	PATROL											
	11	0820	0910	NO FLARE	PATROL											
CAPRI-S	11	1228 E	1250 D		N15	E77			1-	3	1228	.40	1.60			

SOLAR FLARES

OCTOBER 1963

OBSERVATORY	DATE OCT 1963	OBSERVED UNIVERSAL TIME START	END	MAX. PHASE	LOCATION APPROX. LAT.	MER. DIST.	McMATH PLAGE REGION	DURATION — MINUTES	IMPORTANCE	OBS. COND.	MEASUREMENTS TIME — U T	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hα	MAX. INT. %	PROVISIONAL IONOSPHERIC EFFECT
MCMATH	11	1230 E	1244		N16	E80	6993		1-	2	1239	.30	1.50			
	11	1655	1700	NO FLARE	PATROL											
	11	2115	2230	NO FLARE	PATROL											
	11	2355	2400	NO FLARE	PATROL											
	12	0015	0630	NO FLARE	PATROL											
ONDREJOV	12	1027 E	1037 D		N03	E30			1-	3	1028			1.80		
	13	0055	0615	NO FLARE	PATROL											
WENDEL	13	0921 E	0926 D		S03	W39			1-							
LOCKHEED	13	2331	0030 D	2343	N29	W18			1-	2	2343	1.60	1.60		30	
SAC PEAK	13	2332 U	2335 D		N35	W24			1-	2		.43	.47		15	
MANILA	13	2334 E	2357	2341	N35	W23	6990	23 D	1	2	2341	2.50	2.70			
	14	0030	0605	NO FLARE	PATROL											
BUCHAREST	14	0700	0728		N35	W30			1-	3						
BUCHAREST	14	0715	0922		N04	E06			1-	3						
BUCHAREST	14	0829	0903		N35	W30			1-	3						
SALTSJOBADN	14	1148 E	1154 D		N04	W10			1-	3		1.50	1.50			
MCMATH	14	1458	1500	1459	N03	E03	6997		1-	1	1459	.10	.10			
SAC PEAK	14	1502	1518	1508	N03	W02			1-	2		.29	.29		18	
MCMATH	14	1507	1513		N03	E03	6997		1-	1	1511	.10	.10			
CAPRI-S	14	1512 E	1547		N05	E05	6997	35 D	1	1	1514	2.50	3.00			
SAC PEAK	14	1657	1720	1659	N03	W02			1-	2		.37	.37		15	
LOCKHEED	14	1658	1711	1701	S02	W01			1-	2	1701	.60	.60		20	
MCMATH	14	1659	1720 D		N03	E03	6997		1-	1	1712	.50	.50			
SAC PEAK	14	1735	1740 D	1740 U	N03	W02			1-	2		.29	.29		15	
MCMATH	14	1738	1837	1741	N03	E02	6997		1-	2	1741	.80	.80			
SAC PEAK	14	1815	1825	1818	N03	W03			1-	2		.21	.21		16	
SAC PEAK	14	1838	1902	1841	N03	W03			1-	2		.62	.60		15	
MCMATH	14	1841	1925	1846	N03	W03	6997		1-	2	1858	.80	.80			
LOCKHEED	14	1842	1903	1850	S02	W01			1-	2	1850	.40	.40		20	
LOCKHEED	14	1932	1945	1936	S02	W01			1-	2	1936	.90	.90		20	
SAC PEAK	14	1932	1950	1935	N02	W02			1-	2		1.16	1.13		16	
MCMATH	14	1933	1948	1934	N03	W04	6997		1-	2	1934	1.00	1.00			
SAC PEAK	14	1952	2007	1958	N03	W04			1-	2		1.01	.99		16	
MCMATH	14	1954	2030	1959	N03	W04	6997		1-	2	1959	.60	.60			
MCMATH	14	2042	2050	2045	N03	W04	6997		1-	2	2045	.20	.20			
LOCKHEED	14	2052	2108	2056	S02	W01			1-	2	2056	.80	.80		10	
MCMATH	14	2053	2100 D	2055	N03	W04	6997		1-	2	2055	.70	.70			
SAC PEAK	14	2053	2102	2057	N03	W03			1-	2		.35	.35		17	
LOCKHEED	14	2255	2331	2302	S02	W01			1-	2	2302	.90	.90		20	
LOCKHEED	14	2255	2331	2323	S02	W01			1-							
MANILA	14	2324 E	2331		N03	W04			1-	2	2325	.50	.50			
	15	0050	0655	NO FLARE	PATROL											
MANILA	15	0054	0101	0057	N03	W06			1-	2	0058	.35	.35			
MANILA	15	0213	0245	0219	N03	W05			1-	2	0220	.50	.50			
MANILA	15	0504 E	0510		N03	W06			1-	2	0506	1.00	1.00			
BUCHAREST	15	0735	0739		N05	W09			1-	3						
MANILA	15	0735 E	0743	0738	N03	W07			1-	2	0738	.50	.50			

SOLAR FLARES

OCTOBER 1963

OBSERVATORY	DATE OCT 1963	OBSERVED UNIVERSAL TIME START	END	MAX. PHASE	LOCATION APPROX. LAT.	MER. DIST.	McMATH PLAGE REGION	DURATION — MINUTES	IMPORTANCE	OBS. COND.	MEASUREMENTS TIME — U T	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hα	MAX. INT. %	PROVISIONAL IONOSPHERIC EFFECT
ZURICH	15	0743 E	0756		N05	W08	6997	13 D	1	3	0743		2.00			
BUCHAREST	15	0748	0818		N05	W08			1-	3						
ISTANBUL	15	0752	0755		N04	W09	6997	3	1							
MCMATH	15	1413	1547	1414	N03	W14	6997		1-	2	1414	.50	.50			
ZURICH	15	1425 E	1431		N05	W11	6997	6 D	1	3	1425		2.00			
OTTAWA	15	1752	1803	1754	N03	W14			1-	3	1754	.87	.87			
MCMATH	15	1752	1805	1754	N04	W14	6997		1-	1	1754	.40	.40			
	15	2055	2115	NO FLARE	PATROL											
SAC PEAK	15	2118	2129 D	2125	N05	W15			1-	1		.43	.43		17	
	15	2130	2400	NO FLARE	PATROL											
	16	0000	0635	NO FLARE	PATROL											
MANILA	16	0130 E	0145 D	0139	N03	W19			1-	1	0140	1.00	1.00			G-SWF.
MANILA	16	0250	0301	0255	N03	W19			1-	2	0255	.60	.60			
MANILA	16	0612	0621	0615	N08	W50			1-	2	0615	.40	.50			
MANILA	16	0709	0717	0712	N03	W20			1-	2	0712	.35	.35			
MANILA	16	0729	0748	0731	N03	W20			1-	2	0731	.25	.25			
WENDEL	16	0730 E	0814 D		N03	W23	6997	44 D	1				3.00			
ONDREJOV	16	0935	1000		N04	W24			1-	3	0953			1.80		
HTE-PROVEN	16	0939 E	0947 D		N04	W21			1-		0941	.90	1.00			
ZURICH	16	1216 E	1318		N04	W23	6997	62 D	2	2	1228		7.00			
CAPRI-S	16	1223 E	1316 D		N05	W16	6997	53 D	1	3	1225	2.30	2.40			S-SWF
OTTAWA	16	1225	1256	1229	N02	W24	6997	31	2	1	1229	5.60	5.63			
ONDREJOV	16	1228 E	1300		N04	W22	6997	32 D	1+	3	1230			3.00		
MCMATH	16	1228 E	1330		N04	W24	6997	62 D	1	2	1228	2.50	2.80			
WENDEL	16	1231	1332 D		N03	W24	6997	61 D	1+				8.00			
OTTAWA	16	1607	1622	1616	N01	W28			1-	2	1616	.47	.48			
OTTAWA	16	1642	1656	1653	N11	W61	6986	14	1	2	1653	1.75	2.66			
OTTAWA	16	1657	1702 D	1701	N11	W59			1-	2	1701	1.05	1.53			
	16	1850	2100	NO FLARE	PATROL											
SAC PEAK	16	2103 E	2112	2105	N07	W29			1-	2		.72	.72		18	
	16	2125	2400	NO FLARE	PATROL											
	17	0000	0625	NO FLARE	PATROL											
MANILA	17	0627 E	0640		N03	W33			1-	1	0628	.25	.27			
	17	0640	0655	NO FLARE	PATROL											
BUCHAREST	17	0710	0720		N05	W35			1-	2						
BUCHAREST	17	0728	0738		N05	W35			1-	2						
ONDREJOV	17	1340 E	1353 D		N05	W40	6997	13 D	1	1	1341			1.50		
OTTAWA	17	1343	1354 D	1346	N03	W40	6997	11 D	1	2	1346	2.40	2.68			
MCMATH	17	1343	1358	1344	N04	W40	6997		1-	2	1344	.80	1.10			
CAPRI-S	17	1343 E	1359		N04	W40			1-	3	1346	.50	.60			
WENDEL	17	1344 E	1514 D		N03	W40	6997	90 D	1				3.00			
MCMATH	17	1727	1755 D	1730	N04	W42	6997		1-	2	1730	.40	.50			
	17	2100	2205	NO FLARE	PATROL											
SAC PEAK	17	2207 E	2242 D	2228 U	N04	W46			1-	2		1.01	1.18		18	
	17	2355	2400	NO FLARE	PATROL											
	18	0025	0655	NO FLARE	PATROL											
MCMATH	18	1625 E	1710 D	1631	N14	E90	7003	45 D	1	2	1631					S-SWF
MCMATH	18	1902	1945		N16	E90	7003		1-	2						

SOLAR FLARES

OCTOBER 1963

OBSERVATORY	DATE OCT 1963	OBSERVED UNIVERSAL TIME START	END	MAX. PHASE	LOCATION APPROX. LAT.	MER. DIST.	McMATH PLAGE REGION	DURATION — MINUTES	IMPORTANCE	OBS. COND.	MEASUREMENTS TIME — U T	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hα	MAX. INT. %	PROVISIONAL IONOSPHERIC EFFECT
MCMATH	18	2006	2058 D	2010	N16	E90	7003	52 D	1+	2	2010					
	18	2100	2400	NO FLARE	PATROL											
MANILA	18	2340	0010	2350	N15	E90	7003	30	1	2	2350	2.00				
	19	0000	0655	NO FLARE	PATROL											
WENDEL	19	1240 E	1255 D		N03	W68			1-							
	19	1600	1625	NO FLARE	PATROL											
LOCKHEED	19	1650	1725 D	1657	N11	E90	7003	35 D	2	1	1657	1.20	.60		20	S-SWF
	19	1725	1730	NO FLARE	PATROL											
	19	1740	1745	NO FLARE	PATROL											
	19	1755	1905	NO FLARE	PATROL											
	19	1940	2400	NO FLARE	PATROL											
	20	0000	0600	NO FLARE	PATROL											
MANILA	20	0023 E	0030		N10	E90			1-	2	0025	.30	1.50			
MANILA	20	0223 E	0232	0228	N13	E90			1-	2	0228	.30	1.50			
HTE-PROVEN	20	0738 E	0749		N14	E80	7003	11 D	1		0742	2.40				
BUCHAREST	20	0801	0833	0807	N12	E80			1-	2						
MANILA	20	0802	0814	0805	N12	E88			1-	2	0805	.20	.85			
MANILA	20	0842 E	0846	0843	N12	E88			1-	2	0843	.30	1.30			
WENDEL	20	0851 E	0914 D		N12	E79	7003	23 D	1				3.00			
BUCHAREST	20	0852 E	0906 D	0855	N16	E75	7003	14 D	1	2						
CAPRI-S	20	0853	0902		N16	E70	7003	9	1	3	0855	.90	2.50			
ONDREJOV	20	0854 E	0924		N18	E74	7003	30 D	1+	3	0855			4.60		
HTE-PROVEN	20	0855 E	0916		N15	E75	7003	21 D	1		0855	1.30				
HTE-PROVEN	20	0951	0955		N15	E75			1-		0954	.60				
CAPRI-S	20	1200 E	1208 D		N12	E70			1-	3	1203	.80	1.70			
	20	1805	1820	NO FLARE	PATROL											
	20	1830	1900	NO FLARE	PATROL											
SAC PEAK	20	2103	2118	2111	N11	E73			1-	3		.99	1.86		19	
	20	2355	2400	NO FLARE	PATROL											
	21	0025	0650	NO FLARE	PATROL											
MANILA	21	0223	0241	0227	N11	E67			1-	2	0241	1.33	2.30			
BUCHAREST	21	0806 E	0830 D	0815	N12	E63	7003	24 D	1	2						
HTE-PROVEN	21	0810	0847		N12	E67			1-		0815	.60	1.30			
HTE-PROVEN	21	1226	1240		N14	E75	7003	14	1		1231	1.20				
OTTAWA	21	1300	1311	1305	N11	E71			1-	3	1305	.70	1.36			
HTE-PROVEN	21	1305	1329		N10	E59			1-		1315	.40				
OTTAWA	21	1309	1320	1312	N10	E61			1-	3	1312	.76	1.15			
HTE-PROVEN	21	1323	1339		N14	E75	7003	16	1		1326	.90				
CAPRI-S	21	1323	1420 D		N13	E68	7003	57 D	1+	3	1344	1.00	3.00			G-SWF
OTTAWA	21	1324	1357	1338	N13	E69	7003	33	1	3	1338	1.40	2.56			
SAC PEAK	21	1326	1342	1327	N12	E71			1-	3		.62	1.18		18	
HTE-PROVEN	21	1328	1417		N12	E70	7003	49	1		1343	1.20				
SAC PEAK	21	1334	1355	1343	N10	E68			1-	3		.56	.97		18	
ZURICH	21	1335 E	1407		N13	E68	7003	32 D	1	3	1338		4.00			
LOCARNO	21	1400 E	1415 D		N12	E67	7003	15 D	1	2						
HTE-PROVEN	21	1448	1510		N10	E56			1-		1448	.30	.50			
OTTAWA	21	1453	1500	1455	N10	E57			1-	3	1455	.64	.90			
CAPRI-S	21	1453	1511		N10	E54			1-	3	1501	.60	1.00			

SOLAR FLARES

OCTOBER 1963

OBSERVATORY	DATE OCT 1963	OBSERVED UNIVERSAL TIME START	END	MAX. PHASE	LOCATION APPROX. LAT.	MER. DIST.	McMATH PLAGE REGION	DURATION — MINUTES	IMPORTANCE	OBS. COND.	MEASUREMENTS TIME — U T	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hα	MAX. INT. %	PROVISIONAL IONOSPHERIC EFFECT
ZURICH	21	1453 E	1512		N10	E56	7003	19 D	1	3	1455		2.00			
LOCKHEED	21	1911	1937 D	1918	N09	E50			1-	1	1918	.90	1.10		10	
LOCKHEED	21	2011	2031	2020	N16	E50			1-	2	2020	.30	.40		20	
MCMATH	21	2032 E	2040 D		N11	E62	7003	8 D	1-	1	2036	.50	1.10			
	22	0050	0700	NO FLARE	PATROL											
HTE-PROVEN	22	1329	1534 D	1350	N11	E52	7003	125 D	2+		1350	5.10	8.80			S1-S-SWF
CAPRI-S	22	1332	1532		N10	E54	7003	120	2+	3	1444	4.00	6.80		360	
LOCARNO	22	1340 E	1450 D		N12	E52	7003	70 D	2	2						
NERA	22	1342 E	1450 D		N12	E58	7003	68 D	2	2						
HTE-PROVEN	22	1355	1415		N08	E50			1-		1356	.70	1.20			
HTE-PROVEN	22	1358	1402		N10	E42			1-		1358	.40	.50			
ONDREJOV	22	1404 E	1456 D		N15	E54	7003	52 D	2	1	1405			2.30		
ZURICH	22	1423 E	1456		N11	E51	7003	33 D	1	3	1432		5.00			
MCMATH	22	1423 E	1610		N11	E53	7003	107 D	2+	2	1424	5.00	8.30			
HTE-PROVEN	22	1424	1500		N08	E43			1-		1433	1.50	1.90			
SAC PEAK	22	1426 E	1530 U	1426 E	N09	E51	7003	64 D	2	1		4.19	5.28		17	
SAC PEAK	22	1656	1740 D	1659	N14	W75			1-	1		.43	.50		15	
MCMATH	22	1658	1704	1700	N14	W77	6993		1-	2	1700	.30	1.10			
LOCKHEED	22	1836	1846	1840	N11	E44			1-	1	1840	.50	.60		10	
MCMATH	22	1837	1844	1838	N12	E47	7003		1-	2	1838	.30	.40			
MCMATH	22	1900	1915	1903	N12	E52	7003		1-	2	1903	.20	.30			
SAC PEAK	22	1901	1912	1906	N10	E51			1-	3		.14	.17		15	
MCMATH	22	1944	1953	1946	N12	E52	7003		1-	1	1946	.20	.30			
MCMATH	22	2001	2014 D		N12	E46	7003		1-	1	2004	.30	.40			
SAC PEAK	22	2238	2250	2241	N15	W76	6993	12	1	3		1.36	2.87		16	
LOCKHEED	22	2239	2258	2242	N14	W80	6993	19	1	2	2242	.70	2.10		20	
LOCKHEED	22	2239	2325	2245	N11	E49	7003	46	1	2	2245	2.00	2.50		30	
SAC PEAK	22	2240	2256	2242	N10	E52	7003	16	1	3		3.03	3.84		18	
	23	0025	0650	NO FLARE	PATROL											
MANILA	23	0305 E	0314		N07	E44			1-	1	0307	.50	.60			G-SWF
CAPRI-S	23	0926	0943		N11	E49			1-	3	1031	.60	1.10			
HTE-PROVEN	23	0929	0946		N12	E42	7003	17	1		0932	1.60	2.20			
BUCHAREST	23	1030 E	1048 D	1035	N16	W75	6993	18 D	1	1						
BUCHAREST	23	1145 E	□		N12	E46			1-	1						
MCMATH	23	1414	1427	1416	N11	E43	7003		1-	2	1416	.60	.80			
MCMATH	23	1520	1538	1522	N11	E43	7003		1-	2	1522	.20	.30			
SAC PEAK	23	1542	1549	1544	N10	E28			1-	2		.21	.21		15	
MCMATH	23	1550 E	1559	1552	N11	E43	7003		1-	2	1552	.30	.40			
MCMATH	23	1616	1642 D	1634	N11	E40	7003	26 D	1+	2	1650	3.10	4.00			
MCMATH	23	1642	1750	1650	N11	E40		68								
SAC PEAK	23	1617	1721 D	1657	N10	E41	7003	64 D	1	2		2.45	2.74		18	S-SWF
SAC PEAK	23	1628	1644 D	1637	N08	E35			1-	2		.43	.45		17	
OTTAWA	23	1630	1641		N10	E35			1-	2	1637	.58	.62			
OTTAWA	23	1643	1704 D	1658	N12	E40	7003	21 D	2	2	1658	4.84	5.43			
LOCKHEED	23	1649 E	1735	1655	N11	E39			1-	1	1655	1.40	1.50		20	
MCMATH	23	1728	1745	1732	N18	W85	6993		1-	1	1732	.20				
MCMATH	23	1806	1815	1810	N10	E40	7003		1-	1	1810	.30	.40			
MCMATH	23	1933	1940	1934	N10	E25	7003		1-	2	1934	.20	.20			
SAC PEAK	23	1954	2004	1958	N11	E31			1-	1		.14	.14		15	

SOLAR FLARES

OCTOBER 1963

OBSERVATORY	DATE OCT 1963	OBSERVED UNIVERSAL TIME START	END	MAX. PHASE	LOCATION APPROX. LAT.	MER. DIST.	McMATH PLAGE REGION	DURATION — MINUTES	IMPORTANCE	OBS. COND.	MEASUREMENTS TIME — U T	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hα	MAX. INT. %	PROVISIONAL IONOSPHERIC EFFECT
SAC PEAK	23	2004 E	2011	2006	S12	W27			1-	1		.29	.29		16	
SAC PEAK	23	2320	2323 D		N12	E38			1-	1		.43	.45		17	
	23	2335	2400	NO FLARE	PATROL											
	24	0000	0005	NO FLARE	PATROL											
	24	0020	0640	NO FLARE	PATROL											
MANILA	24	0448 E	0501 D	0449	N10	E35	7003	13 D	1	2	0449	2.50	2.70			
HTE-PROVEN	24	0728	0744		N12	E24			1-		0730	.70	.80			
HTE-PROVEN	24	1025	1235		N10	E19			1-		1154	.60	.60			
OTTAWA	24	1410	1421	1417	N11	E14			1-	3	1417	.82	.82			
HTE-PROVEN	24	1413	1419		N12	E15			1-		1418	.40	.50			
OTTAWA	24	1436	1443	1440	N13	E28			1-	3	1440	1.63	1.67			
HTE-PROVEN	24	1439	1442		N12	E26			1-		1442	1.30	1.50			
HTE-PROVEN	24	1455	1615 D		N12	E25	7003	80 D	1		1604	2.50	2.80			
MCMATH	24	1500 E	1615 D		N12	E25	7003		1-	1	1540	1.50	1.70			
	25	0045	0620	NO FLARE	PATROL											
	25	0625	0635	NO FLARE	PATROL											
	25	0640	0700	NO FLARE	PATROL											
	25	0705	0715	NO FLARE	PATROL											
WENDEL	25	0720 E	0726 D		N09	E05			1-							
ONDREJOV	25	0727 E	0758 D		S09	W50			1-	3	0735			1.90		
WENDEL	25	0737 E	0800 D		S10	W48	7008	23 D	1				3.00			
	25	1225	1235	NO FLARE	PATROL											
	25	1255	1325	NO FLARE	PATROL											
ONDREJOV	25	1326 E	1424		N13	E14	7003	58 D	1+	1	1356			1.60		
SAC PEAK	25	1438	1448	1439	N10	E05			1-	2		.35	.35		17	
WENDEL	25	1443 E	1450 D		S09	W52			1-							
WENDEL	25	1519 E	1534 D		S09	W53			1-							
MCMATH	25	1940	1955	1947	N25	W70	7002		1-	1	1947	.80	1.40			
LOCKHEED	25	1945	2000	1950	S10	W55			1-	2	1950	.30	.30		10	
	25	2005	2020	NO FLARE	PATROL											
LOCKHEED	25	2218 E	2324	2229	N12	E09	7003	66 D	1	2	2229	2.00	2.00		30	
SAC PEAK	25	2256 E	2315 U	2258	N11	E12			1-	2		1.11	1.09		18	
	26	0040	0710	NO FLARE	PATROL											
MANILA	26	0105	0112	0107	N11	E06			1-	2	0107	.35	.35			
WENDEL	26	0748 E	0800 D		S10	W64			1-							
CAPRI-S	26	0807	0825		N12	E09			1-	3	0811	1.20	1.20			
WENDEL	26	0810	0828 D		N11	E07	7003	18 D	1				3.00			
WENDEL	26	0814 E	0826 D		S10	W65			1-							
WENDEL	26	0911 E	0926 D		N11	W01			1-							
WENDEL	26	1046	1152		N10	W03	7003	66	2				9.00			
CAPRI-S	26	1050	1230		N10	E00	7003	100	2+	2	1144	7.00	7.00		292	
CAPRI-S	26	1125	1233		S10	W67	7008	8	1	2	1215	.40	1.10			
	26	1240	1310	NO FLARE	PATROL											
OTTAWA	26	1345 E	1351	1347	N12	W02			1-	2	1347	1.23	1.23			
MCMATH	26	1346	1400 D	1353	N11	E03	7003		1-	2	1353	.20	.20			
SAC PEAK	26	1455	1507	1459	N08	W09			1-	3		.35	.33		17	
MCMATH	26	1457	1506	1458	N08	W08	7003		1-	2	1458	.40	.40			
MCMATH	26	1507	1645	1535	N11	W05	7003	98	1	2	1535	2.50	2.50			

SOLAR FLARES

OCTOBER 1963

OBSERVATORY	DATE OCT 1963	OBSERVED UNIVERSAL TIME START	END	MAX. PHASE	LOCATION APPROX. LAT.	MER. DIST.	McMATH PLAGE REGION	DURATION — MINUTES	IMPORTANCE	OBS. COND.	MEASUREMENTS TIME — U T	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hα	MAX. INT. %	PROVISIONAL IONOSPHERIC EFFECT
SAC PEAK	26	1513	1600	1523	N12	W06	7003	47	1	3		3.73	3.51		18	
OTTAWA	26	1515 E	1612	1527	N11	W04	7003	57 D	1	2	1527	4.67	4.67			
CAPRI-S	26	1543 E	1555 D		N10	W02	7003	12 D	1+	1	1548	5.00	5.00			
LOCKHEED	26	1836	1910 D	1847	N11	W07	7003	34	1	2	1847	2.00	2.00		20	
MCMATH	26	1837	1900 D	1843	N11	W08	7003	23 D	2+	2	1920	6.50	6.50			G-SWF
MCMATH	26	1900	2014 D	1920	N11	W08		74 D								
SAC PEAK	26	1838	2030	1938	N12	W17	7003	112	2	3		9.69	9.49		20	
LOCKHEED	26	2005 E	2043	2013	N12	W08	7003	38 D	2	1	2013	7.00	7.00		20	
SAC PEAK	26	2247	2311	2248	N13	W09			1-	3		.56	.52		17	
	26	2355	2400	NO FLARE	PATROL											
SAC PEAK	27	0000 E	0015 D	0003	N12	W08			1-	1		1.94	1.90		19	
MANILA	27	0001 E	0027	0004	N11	W05	7003	26 D	1	2	0004	2.10	2.10			
	27	0015	0710	NO FLARE	PATROL											
MANILA	27	0051	0105	0055	N12	W06			1-	2	0055	.50	.50			
MANILA	27	0108	0112	0109	N12	W06			1-	2	0109	.20	.20			
MANILA	27	0153	0206	0155	N12	W06			1-	2	0155	.60	.60			
MANILA	27	0216	0258	0225	N12	W06			1-	2	0225	.60	.60			
MANILA	27	0353 E	0416 D	0408	N12	W09			1-	1	0408	1.00	1.00			
	27	1030	1055	NO FLARE	PATROL											
	27	1305	1325	NO FLARE	PATROL											
WENDEL	27	1354	1430		N11	W11	7003	36	1				3.00			
SAC PEAK	27	1825	1836	1827	N10	W25			1-	3		.70	.70		15	
SAC PEAK	27	2138	2145	2139	N09	W18			1-	3		.14	.14		16	
SAC PEAK	27	2259	2312	2304	N12	W22			1-	3		.47	.47		15	
	27	2355	2400	NO FLARE	PATROL											
	28	0015	0700	NO FLARE	PATROL											
MANILA	28	0158 E	0335	0158	N12	W20	7003	97 D	3	2	0215	13.00	13.00			S-SWF
WENDEL	28	0942 E	0954 D		N12	W30			1-							
WENDEL	28	0946 E	0951 D		S20	W53			1-							
ONDREJOV	28	1221 E	1227		N12	W29			1-	3	1222			1.10		
ONDREJOV	28	1233	1249		N12	W29			1-	3	1237			1.30		
HTE-PROVEN	28	1328 E	1330		N11	W28			1-			1.00	1.20			
WENDEL	28	1337 E	1349 D		N12	W31			1-							
MCMATH	28	1630	1640	1633	N14	W31	7003		1-	1	1633	.20	.20			
	28	1815	1820	NO FLARE	PATROL											
	28	2005	2120	NO FLARE	PATROL											
	28	2125	2300	NO FLARE	PATROL											
	28	2325	2400	NO FLARE	PATROL											
	29	0010	0700	NO FLARE	PATROL											
WENDEL	29	0724 E	0933 D		N01	E19	7913	129 D	1				5.00			
HTE-PROVEN	29	0727 E	0851 D		N01	E14			1-		0756	1.50	1.60			
SALTSJOBADN	29	0845 E	0930 D		N00	E18			1-	2		1.00	1.10		125	
SALTSJOBADN	29	0855 E	0917 D		S10	W61			1-	2		.50	1.10			
ONDREJOV	29	0946 E	1000 D		S10	W64	7010	14 D	1	2	0948			1.40		
WENDEL	29	1152 E	1208 D		S10	W65	7010	16 D	1				3.00			
HTE-PROVEN	29	1155	1207		S10	W66			1-		1156	.60				
ONDREJOV	29	1340 E	1403		S10	W67			1-	3	1349			1.80		
OTTAWA	29	1653	1700	1657	N09	W54			1-	1	1657	.76	1.01			

SOLAR FLARES

OCTOBER 1963

OBSERVATORY	DATE OCT 1963	OBSERVED UNIVERSAL TIME START	END	MAX. PHASE	LOCATION APPROX. LAT.	MER. DIST.	McMATH PLAGE REGION	DURATION — MINUTES	IMPORTANCE	OBS. COND.	MEASUREMENTS TIME — U T	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hα	MAX. INT. %	PROVISIONAL IONOSPHERIC EFFECT
MCMATH	29	1725 E	1735 D		N00	E16	7013		1-	1	1728	.20	.20			
MCMATH	29	1853	1859	1855	N11	W55	7003		1-	1	1855	.20	.40			
SAC PEAK	29	2312	2330	2325	N00	E10			1-	2		1.18	1.16		18	
MANILA	29	2320 F	2331		N04	E09			1-	2	2303	1.00	1.00			
	30	0045	0645	NO FLARE	PATROL											
MANILA	30	0048 E	0055	0051	N01	E08			1-	1	0051	.25	.25			
MANILA	30	0228	0235	0231	N06	W01			1-	2	0231	.67	.67			
ONDREJOV	30	0952	1002	0954	S08	E34			1-	3	0954			1.40		
LOCKHEED	30	2015	2027	2019	N08	E25			1-	2	2019	.40	.40		10	
	31	0015	0635	NO FLARE	PATROL											
	31	0900	0910	NO FLARE	PATROL											
	31	0925	0930	NO FLARE	PATROL											
	31	1100	1110	NO FLARE	PATROL											
	31	1210	1220	NO FLARE	PATROL											
	31	1615	1625	NO FLARE	PATROL											
	31	1630	1840	NO FLARE	PATROL											
	31	2345	2400	NO FLARE	PATROL											

COMMERCE - STANDARDS - BOULDER

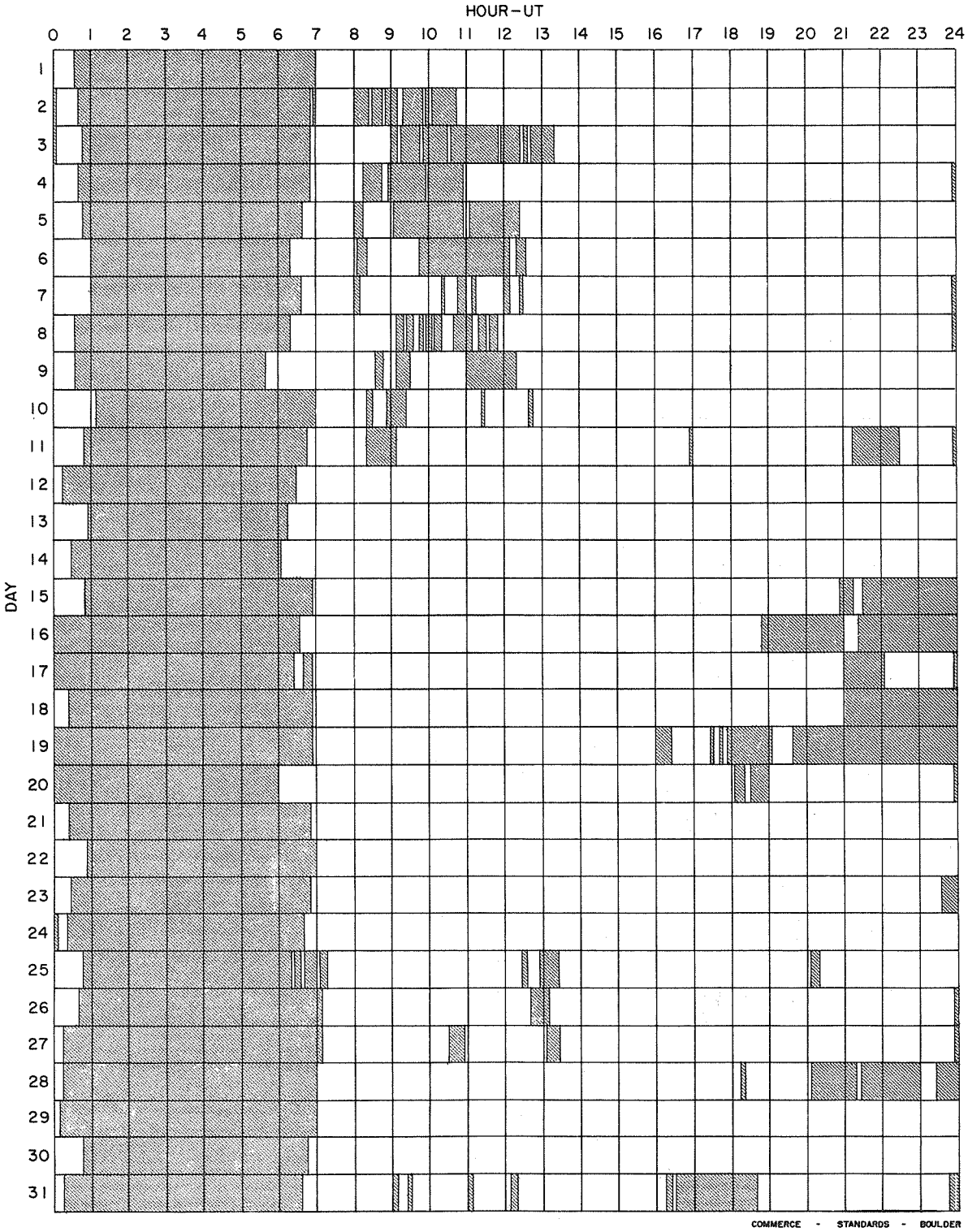
ATHENES	ATHENS, GREECE
BAKOU	PIRCULI, USSR
CAPETOWN	ROYAL OBSERVATORY, CAPE OF GOOD HOPE
CAPRI F	CAPRI, ITALY (GERMAN)
CAPRI S	CAPRI, ITALY (SWEDISH)
CRIMÉE	SIMEIZ, USSR
HERSTMONCEU	ROYAL GREENWICH OBSERVATORY, HERSTMONCEUX, ENGLAND
HTE-PROVEN	HAUTE-PROVENCE
HONOLULU	HAWAII, USA
IKOMASAN	KYOTO, JAPAN
KIEV KO	KIEV GAO, USSR
KIEV KY	KIEV UNIVERSITY, USSR
LOCKHEED	LOS ANGELES, CALIF., USA
MCMATH	MCMATH-HULBERT PONTIAC, MICH., USA
MOSCOU	MOSCOW-GAISH, USSR
	NEW SCHAUIN FREIBURG, GFR
NERA	NEDERHORST den BERGH, NETHERLANDS
NIZMIR	KRASNAYA PAKHRA, USSR
SAC PEAK	SACRAMENTO PEAK, N.MEX. USA
SALTSJÖBADEN	STOCKHOLM, SWEDEN
SCHAUINS	SCHAUINSLAND, GFR
TACHKENT	TASHKENT, 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 1961 FOR DEFINITION OF CORRECTED AREA VALUES LISTED FOR CLIMAX, HAWAII, LOCKHEED AND SACRAMENTO PEAK.

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

INTERVALS OF NO FLARE PATROL OBSERVATIONS
OCTOBER 1963



Observatories Included:

Bucharest	Haute-Provence	Istanbul	McMath-Hulbert	Ottawa
Capri-S (Swedish)	Herstmonceux	Lockheed	Ondrejov	Sacramento Peak

SOLAR FLARES

JULY 1963

OBSERVATORY	DATE JULY 1963	OBSERVED UNIVERSAL TIME START	END	MAX. PHASE	LOCATION APPROX. LAT.	MER. DIST.	McMATH PLAGE REGION	DURATION — MINUTES	IMPORTANCE	OBS. COND.	MEASUREMENTS TIME — U T	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hα	MAX. INT. %	PROVISIONAL IONOSPHERIC EFFECT
	01	0200	0335	NO FLARE	PATROL											
	01	0345	0400	NO FLARE	PATROL											
	01	0530	0545	NO FLARE	PATROL											
	02	0220	0245	NO FLARE	PATROL											
	02	0255	0335	NO FLARE	PATROL											
	02	0345	0400	NO FLARE	PATROL											
	02	0510	0520	NO FLARE	PATROL											
	02	0545	0600	NO FLARE	PATROL											
UCCLE	02	1521 E	1536	1531	N11	W56			1-	3	1531					
CLIMAX	02	2124	2129 D		N09	W58			1-		2127	.70	1.10			
	03	0220	0300	NO FLARE	PATROL											
CAPETOWN	03	0726	0737	0729	N10	W68			1-		0729	.80	2.00			
NEW SCHAUIN	03	0729 E	0732		N08	W68			1-	3		.30	.70			
UCCLE	03	1431	1501 D	1433	N10	W72			1-	3						
	04	0225	0255	NO FLARE	PATROL											
LOCARNO	04	0730	0750		N11	W77	6854	20	1	2						
CAPETOWN	04	0734	0754	0736	N08	W86	6854	20	1		0736	1.00				
NEW SCHAUIN	04	0734	0754	0737	N08	W79	6854	20	1+	3	0737	1.00	4.90			S-SWF
ZURICH	04	0735	0740		N10	W77	6854	5	1	3	0735		2.00			
ONDREJOV	04	0739 E	0750		N11	W85	6854	11 D	1+	3	0740			4.10		
ONDREJOV	04	1240	1250		N11	W88	6854	10	1+	3	1242			3.10		
LOCARNO	04	1240	1300		N11	W80	6854	20	1	2						
CAPETOWN	04	1240	1303	1245	N08	W88	6854	23	1		1245	.90				
KIEV KO	04	1246 E	1300	1246	N10	W90	6854	14 D	1+	1	1246	2.06			74	
CAPRI-F	04	1300 E	1305 D		N09	W83	6854	5 D	1	3	1300	1.50	5.89			
	05	0200	0300	NO FLARE	PATROL											
UCCLE	05	1003	1033	1008	N08	E50			1-	3						
	06	0215	0300	NO FLARE	PATROL											
	07	0200	0300	NO FLARE	PATROL											
	07	1835	1850	NO FLARE	PATROL											
	09	0205	0300	NO FLARE	PATROL											
	10	0200	0210	NO FLARE	PATROL											
	10	0225	0250	NO FLARE	PATROL											
	11	0200	0205	NO FLARE	PATROL											
	11	0215	0235	NO FLARE	PATROL											
	12	0205	0230	NO FLARE	PATROL											
	12	2325	2400	NO FLARE	PATROL											
	13	0230	0300	NO FLARE	PATROL											
	14	0220	0225	NO FLARE	PATROL											

SOLAR FLARES

JULY 1963

OBSERVATORY	DATE JULY 1963	OBSERVED UNIVERSAL TIME START	END	MAX. PHASE	LOCATION APPROX. LAT.	MER. DIST.	McMATH PLAGE REGION	DURATION — MINUTES	IMPORTANCE	OBS. COND.	MEASUREMENTS TIME — U T	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hα	MAX. INT. %	PROVISIONAL IONOSPHERIC EFFECT
	15	0205	0315	NO FLARE	PATROL											
	16	0200	0300	NO FLARE	PATROL											
	17	0200	0300	NO FLARE	PATROL											
	18	0240	0300	NO FLARE	PATROL											
	19	0205	0235	NO FLARE	PATROL											
	20	0210	0235	NO FLARE	PATROL											
	21	0205	0225	NO FLARE	PATROL											
	22	0200	0300	NO FLARE	PATROL											
	23	0205	0245	NO FLARE	PATROL											
	24	0205	0300	NO FLARE	PATROL											
ONDREJOV	24	0840	0844 D		N15	W58	6887	4 D	1-	3						
CLIMAX	24	2301	2312	2305	N16	W02			1-			.40	.40			
	25	0045	0050	NO FLARE	PATROL											
	25	0125	0130	NO FLARE	PATROL											
	25	0140	0220	NO FLARE	PATROL											
	25	0230	0235	NO FLARE	PATROL											
	26	0155	0300	NO FLARE	PATROL											
	26	2315	2325	NO FLARE	PATROL											
	27	0150	0220	NO FLARE	PATROL											
	28	0215	0230	NO FLARE	PATROL											
	28	0250	0255	NO FLARE	PATROL											
NEW SCHAUIN	28	1755 E	1847	1802	N13	E85	6908	52 D	1+	2			3.70			
	29	0150	0215	NO FLARE	PATROL											
	29	0250	0300	NO FLARE	PATROL											
CRIMEE	29	0715	0717 D	0717	N09	E79			1-	1	0717	.90				
UCCLE	29	0845	0902		N13	E79			1-	4						
UCCLE	29	1027	1050		N09	E79			1-	3						
UCCLE	29	1106	1123		N09	E79			1-	3						
CLIMAX	29	1957 E	2001 D		N14	W21			1-		2000	.40	.40			
CLIMAX	29	2141 E	2153 D		N13	W21			1-		2142	.70	.70			
	30	0225	0300	NO FLARE	PATROL											
ONDREJOV	30	0530 E	0536		N12	W25	6905	6 D	1	3	0531			5.10		
CRIMEE	30	0756	0812	0804	N13	W28			1-	1	0804	.90				
NIZMIR	30	0800 E	0814	0802	N13	W27	6905	14 D	1		0757	1.24			56	
ZURICH	30	0802 E	0814		N13	W26	6905	12 D	1	2	0802		2.00			
CAPRI-F	30	0805 E	0827		N13	W27	6905	22 D	1	3	0806	3.00	3.45			

SOLAR FLARES

JULY 1963

OBSERVATORY	DATE JULY 1963	OBSERVED UNIVERSAL TIME START	END	MAX. PHASE	LOCATION APPROX. LAT.	MER. DIST.	McMATH PLAGE REGION	DURATION — MINUTES	IMPORTANCE	OBS. COND.	MEASUREMENTS TIME — U T	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hα	MAX. INT. %	PROVISIONAL IONOSPHERIC EFFECT
NEW SCHAUIN	30	0823 E	0828		N12	W25			1-	2			.20			
UCCLE	30	0824 E	0927		N12	E87			1-	3						
NEW SCHAUIN	30	1052	1109		N11	W28			1-	2			.30			
KIEV KO	30	1240 E	1250 D	1244	N12	W30	6905	10 D	1	2	1244	3.61			60	
CAPRI-F	30	1246 E	1315 D		N13	W29			1-	3	1246	.33	.38			
ZURICH	30	1455 E	1505		N13	W29	6905	10 D	1	2	1455		2.00			
ONDREJOV	30	1520 E	1535 D		N13	E58			1-	3	1520			2.10		
UCCLE	30	1531	1543		N12	E62			1-	3						
NEW SCHAUIN	30	1732 E	1737 D		N11	W32			1-	2			.50			
NEW SCHAUIN	30	1750 E	1803		N11	E59			1-	2			.30			
NEW SCHAUIN	30	1759 E	1810		N12	E75			1-	2			1.00			
ONDREJOV	31	0505 E	0511		N13	E67			1-	3	0507			2.10		
ABASTUMANI	31	0618	0626	0621	N10	E72	6909	8	1+	3		1.80	5.35		88	
ONDREJOV	31	0620 E	0629		N13	E66	6909	9 D	1	3	0622			2.40		
NIZMIR	31	0747	0814	0755	N19	W40	6905	27	1+			1.44			65	
CRIMEE	31	0748	0806	0754	N13	W39			1-	1	0754	1.34				
ONDREJOV	31	0748 E	0811		N13	W39	6905	23 D	1+	3	0750			2.60		
ABASTUMANI	31	0748	0814	0750	N13	W38	6905	26	1	3		2.43	3.03		76	
NERA	31	0752 E	0800 D		N15	W39	6905	8 D	1	2						
NEW SCHAUIN	31	0758 E	0815		N12	W37			1-	3			.60			
ZURICH	31	0800 E	0813		N12	W39	6905	13 D	1	3	0800		3.00			
UCCLE	31	0914	0939		N13	E48			1-	3						
NEW SCHAUIN	31	0921 E	0936		N11	E51			1-	3			.50			
NEW SCHAUIN	31	0933 E	0938		N12	W40			1-	3			1.10			
NIZMIR	31	1004	1022	1005	N19	W42			1-			.72			60	
NIZMIR	31	1028	1034 D	1032	N19	W42	6905	6 D	1			1.34			55	
NEW SCHAUIN	31	1044 E	1056 D		N12	W39			1-	3			.40			
NEW SCHAUIN	31	1113 E	1124		N12	W40			1-	3			1.00			

COMMERCE - STANDARDS - BOULDER

These flare reports are addenda to the July 1963 flares published in CRPL-F 228 B for August 1963.

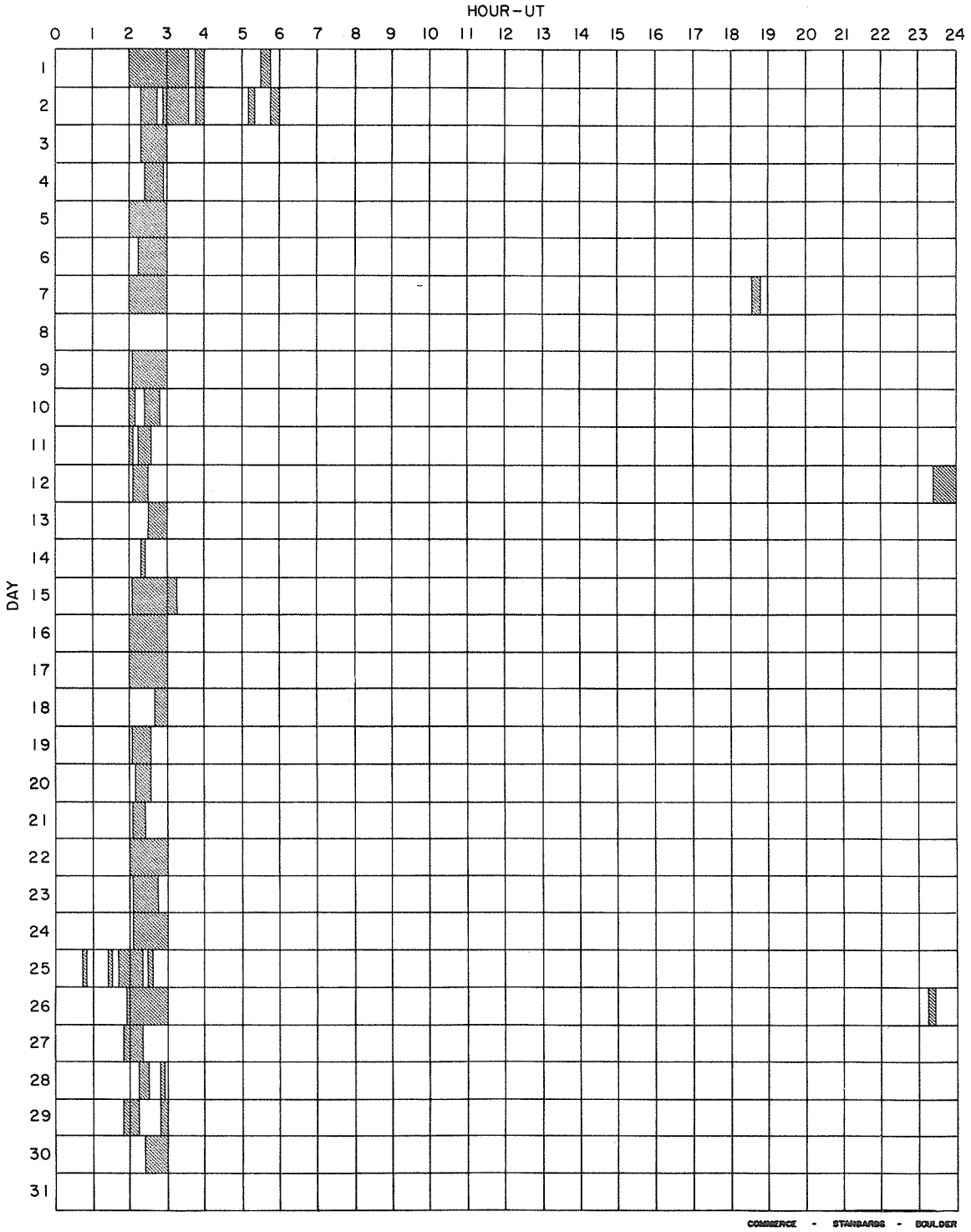
ATHENES	ATHENS, GREECE
BAKOU	PIRCULI, USSR
CAPETOWN	ROYAL OBSERVATORY, CAPE OF GOOD HOPE
CAPRI F	CAPRI, ITALY (GERMAN)
CAPRI S	CAPRI, ITALY (SWEDISH)
CRIMÉE	SIMEIZ, USSR
HERSTMONCEU	ROYAL GREENWICH OBSERVATORY, HERSTMONCEUX, ENGLAND
HTE-PROVEN	HAUTE-PROVENCE
HONOLULU	HAWAII, USA
IKOMASAN	KYOTO, JAPAN
KIEV KO	KIEV GAO, USSR
KIEV KY	KIEV UNIVERSITY, USSR
LOCKHEED	LOS ANGELES, CALIF., USA
MCMATH	MCMATH-HULBERT PONTIAC, MICH., USA
MOSCOU	MOSCOW-GAISH, USSR
NEW SCHAUIN	FREIBURG, GFR
NERA	NEDERHORST den BERGH, NETHERLANDS
NIZMIR	KRASNAYA PAKHRA, USSR
SAC PEAK	SACRAMENTO PEAK, N.MEX. USA
SALTSJÖBADEN	STOCKHOLM, SWEDEN
SCHAUINS	SCHAUINSLAND, GFR
TACHKENT	TASHKENT, 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 1961 FOR DEFINITION OF CORRECTED AREA VALUES LISTED FOR CLIMAX, HAWAII, LOCKHEED AND SACRAMENTO PEAK.

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

INTERVALS OF NO FLARE PATROL OBSERVATIONS
JULY 1963



Observatories Include:

Abastumani	Capetown	Haute-Provence	Istanbul	McMath-Hulbert	Sacramento Peak
Arcetri	Capri-F (Germany)	Herstmonceux	Kharkov	Mitaka	Tachkent
Athenes	Capri-S (Swedish)	Honolulu	Kiev KO	Nizmir	Voroshilov
Bakou	Climax	Huancayo	Kodaikanal	Ondrejov	
Bucharest	Crimee	Ikomasan	Lockheed	Ottawa	

IONOSPHERIC EFFECTS OF SOLAR FLARES

JANUARY — MAY, 1963

IONOSPHERIC EFFECTS OF SOLAR FLARES	UNIVERSAL TIME START	END	MAX	TYPE SWF IMP	IMPORTANCE ABS	SCNA	SPA	SPA	SPS	SFD	BUR	WIDE SPREAD INDEX	STATIONS	KNOWN FLARE
JAN 1963														
11	1356	1400	1357							09		1	BO (WWV10)	1356
15	1619	1624	1620							07		1	BO (WWV10-0.7, WWV15-0.5)	1617
15	1740	1750	1741							15		1	BO (WWV10-1.5 WWV15-0.5)	1739
31	1903	1906	1904							05		1	BO (WWV10)	
FEB 06	1938	1949U	1940							05		1	BO (WWV10-0.5 WWV15-0.2 KKE4-0.2 KKE5-0.1)	1925
06	2219	2226	2220							05		1	BO (WWV10-0.5 WWV15-0.3 KKE4-0.3 KKE5-0.2)	2219
18	1557	1601	1558							10		1	BO (WWV10-1.0 WWV15-0.9 KKE4-0.5 KKE5-0.2)	1557
MAR 04	2103	2106	2104							14		1	BO (WWV10-1.4 WWV15-0.9 KKE4-0.8 KKE5-0.7)	2103
07	1928	1930	1929							06		1	BO (WWV10-0.6 WWV15-0.5 KKE4-0.3 KKE5-0.2)	1928
07	2200	2210	2201							06		1	BO (WWV10-0.6 WWV15-0.3 KKE4-0.4 KKE5-0.2)	2159
APR 11	2008	2012	2009							04		1	BO (WWV10-0.4 WWV15-0.3 KKE4-0.2 KKE5-0.1)	
15	1123	1130	1124							46		1	BO (WWV5)	1118E
15	1614	1633	1616							76		1	BO (WWV10-7.6 WWV15-5.6 KKE4-5.2)	1613
15	1726	1729	1727							03		1	BO (WWV10-0.3 WWV15-0.2 KKE4-0.2)	1718
15	1737	1744	1739							13		1	BO (WWV10-1.3 WWV15-0.6 KKE4-0.5)	1738
15	1923	1925	1924							04		1	BO (WWV10-0.4 WWV15-0.2)	
16	1642	1646	1643							06		1	BO (WWV10-0.6 WWV15-0.3 KKE4-0.3 KKE5-0.2)	1640
16	1648	1652	1649							15		1	BO (WWV10-1.5 WWV15-1.0 KKE4-0.9 KKE5-0.6)	1640
17	1518	1522	1520							07		1	BO (WWV10-0.7 WWV15-0.4 KKE4-0.4 KKE5-0.2)	1520
17	1818	1825	1819							04		1	BO (WWV10-0.4 WWV15-0.2)	1820
17	1901	1907	1903							21		1	BO (WWV10-2.1 WWV15-1.2 KKE4-0.6 KKE5-0.7)	1900
17	2210	2213	2211							03		1	BO (WWV10-0.3 WWV15-0.2)	
19	1754	1803	1758							48		5	BO (WWV10-4.8 WWV15-3.2 KKE4-1.4 KKE5-1.8) HA (WWVH5-1.3)	1756
MAY 07	1744	1759	1747							11		1	BO (WWVH10-1.1 WWVH15-0.7 KKE4-0.1)	1746
13	1800	1804	1801							06		1	BO (WWV10-0.6 WWV15-0.2 KKE4-0.2 KKE5-0.1	1800
15	1710	1715	1712							05		1	BO (WWV10-0.5 WWV15-0.2 KKE4-0.1 KKE5-0.1)	1711

COMMERCE - STANDARDS - BOULDER

IONOSPHERIC EFFECTS OF SOLAR FLARES

MAY—AUGUST, 1963

IONOSPHERIC EFFECTS OF SOLAR FLARES	UNIVERSAL TIME START	END	MAX	TYPE SWF IMP	IMPORTANCE APS	SCNA	SPA	SPA	SPA	SPA	DUR	WIDE SPREAD INDEX	STATIONS	KNOWN FLARE
MAY (CONT.) 1963														
23	1228	1234	1230							05		1	BO (WWV10-0.5 WWV15-0.3 KKE4-0.1 KKE5-0.1)	1229
23	1236	1240	1237							06		1	BO (WWV10-0.6 WWV15-0.5 KKE4-0.2 KKE5-0.1)	1229
23	1454	1502	1456							06		1	BO (WWV10-0.6 WWV15-0.5 KKE4-0.4 KKE5-0.2)	1454
23	1517	1526	1519							12		1	BO (WWV10-1.2 WWV15-0.7 KKE4-0.5 KKE5-0.3)	1510
24	1514	1518	1515							26		1	BO (WWV10-2.6 WWV15-1.6 KKE4-1.2 KKE5-0.6)	1459
25	1620	1631	1621							16		1	BO (WWV10-1.6 WWV15-1.2 KKE4-0.3 KKE5-0.7)	1623
25	1706	1710	1707							03		1	BO (WWV10-0.3 WWV15-0.2)	1706
30	1815	1819	1816							34		1	BO (WWV10-3.4 WWV15-2.0 KKE5-1.2)	1817
JUNE														
01	1128	1135	1131							03		1	BO (WWV10-0.3)	1121
07	2047	2051	2048							23			(WWVH10-2.3 KKE4-0.5 KKE5-0.4)	2046
09	2202	2208	2203							04		1	BO (WWV10-0.4)	2203
10	1701	1704	1702							12		1	BO (WWV10-1.2 (WWV15-0.6)	1700
10	1812	1816	1814							07		1	BO (WWV10-0.7 WWV15-0.4)	1814
11	1518	1521	1519							04		1	BO (WWV10-0.4 WWV15-0.3)	1526
11	1908	1915	1910							21		1	BO (WWV10-2.1 WWV15-1.0)	
11	2028	2031	2029							06		1	BO (WWV10-0.6 WW15-0.3 KKE5-0.2)	2032E
11	2121	2127	2122							05		1	BO (WWV10-0.5 WWV15-0.4)	
12	1858	1901	1859							06		1	BO (WWV15-0.6 KKE5-0.4)	
13	1936	1940	1937							06		1	BO (WWV10-0.6 WWV15-0.1)	*
14	2052	2100	2055							22		1	BO (WWV10-2.2 WWV15-0.6 KKE4-0.1)	
AUG														
08	1736	1738									1	5	BO MC	
10	1629	1631									1	5	BO MC	
11	1945	1950	1946							20		1	BO (WWVH10-2.0 WWVH15-1.2)	1935
11	1958	2005									2	5	HA BO MC	
17	1604	1730	1615				2+					5	LO BO MC RO A1 A3 A15 A16	
17	1610	1613									1	4	BO MC	
17	1611	1631	1614		25	1						5	RO BO MC	
18	1752	1759	1753							1		1	BO (WWV10-10.0 WWV15-5.6 KKE4-4.0 KKE5-7.2)	1752
18	1759	1832	1801		20	1						4	BO MC	
18	1800	1845					1					4	BO MC	
18	2135	2139	2136							16		1	BO (WWV10-1.6 WWV15-0.8 KKE4-0.6 KKE5-1.6)	2134
19	0105	0113	0106							50		1	BO (WWV10-0.4 WWV15-5.0 KKE4-0.8 KKE5-1.2)	0104
21	2034	2037									2	5	BO HA MC	
21	2035	2040	2036							20		1	BO (WWV10-2.0 WWV15-1.2 KKE4-1.0 KKE5-1.4)	2035
21	2037	2040									2	5	BO HA MC	

CONFERENCE - STANDARDS - [illegible]

IONOSPHERIC EFFECTS OF SOLAR FLARES

SEPTEMBER 1963

IONOSPHERIC EFFECTS OF SOLAR FLARES	UNIVERSAL TIME START	END	MAX	TYPE SWF IMP	IMPORTANCE ABS	SCNA	SEA	SPA	SFS	SFD	BUR	WIDE SPREAD INDEX	STATIONS	KNOWN FLARE
SEP 1963														
04	2139	2141									1	5	HA BO MC	*
08	1905	2010	1930U	G 1+								4	MC AD WS	
08	1910	2030	1930					30				5	MA(NBA30), BO(NBA18), TU(NBA12)	
08	1930	1934									1+	5	BO HA MC	
12	1941	1946	1943							26		1	RO (WWV10-2.6 WWV15-1.6 KKE4-0.8)	1941E
12	2021	2029	2022							11		1	BO (WWV10-1.1 WWV15-0.4 KKE4-0.3)	2016
13	0409	0520	0419	SL 3								5	OK AD CA TO CW+	*
13	0415	0436	0424				2					1	TY	*
13	1540	1544	1542							02		1	BO (WWV10-0.2 WWV15-0.1 KKE4-0.1)	1532
13	1658	1700	1659							04		1	BO (WWV10-0.4 WWV15-0.1 KKE4-0.1)	1652
13	1705	1900	1730					50				5	BO(NBA50), TU(NBA45)	
13	1715	1800	1730	S 2+								5	BE BO FM HU MC WS	1705
13	1715	1830	1728						2+			5	A5 A1 A14	
13	1716	1803	1734		35	2						5	BO HA MC	
13	1716	1815					2					5	BO MC A5 A9 A16	
13	2030	2130	2045					10				5	BO(NBA10) TU(NBA10)	
15	0015	0315		S 3+								5	MA CA NZ OK TO CW+ CW++	0015
15	0017	0235	0024				3					5	TY HA MA	
15	0019	0138	0027						2			1	A3	
15	0023	0050	0031		15	1						5	BO HA MA	
15	1300		1305				1+					1	A16	1304
15	1305	1335	1312						2			1	A5	
15	1305	1355	1315	SL 1								5	HU MC NE	
15	1306	1401						2				1	KU	
15	1431	1458	1440						2			5	A1 A5	1442
15	1431	1512	1439				2					1	A1	
15	1743	1845	1750					13				5	TU(NBA13) BO(NBA10)	
15	1745	1748	1746							10		1	BO (WWVH10-1.0 WWVH15-0.4 KKE4-0.3)	1745
15	2015	2100	2032						2			5	A14 A1 A3 A5	2008
15	2015	2100	2031		85	3						5	BO HA MC	
15	2015	2102					3					5	BO HA A1 A3 A9 A15 A16	
15	2015	2110	2040	S 2+								5	MC AD BE BO FM HU NZ WS CW*	
15	2017	2220D	2018D							68		1	BO (WWV10-6.8 WWV15-4.0 KKE4-2.8 KKE5-3.2)	
15	2108	2132	2120						2			5	A1 A3 A5	2108
15	2109	2125	2113	SL 1-								5	MC AD BE BO HU	
15	2109	2129	2115		20	1						5	BO HA MC	
15	2109	2129					1					5	BO HA MC A15 A3	
15	2111	2121	2111D							26		1	BO (WWV10-2.6 WWV15-1.4 KKE4-1.0)	
15	2148	2203	2151		15	1						5	HA BO	
15	2148	2205U	2152						1			5	A5 A3 A14	
15	2148	2220					1					5	BO HA A3 A15	
16	0042	0100	0048						1-			1	A3	0041
16	0042	0106	0048		15	1						1	HA	
16	0042	0106					1					1	HA	
16	0420	0430	0426				1					1	TY	0420E
16	1014	1100	1025		50	2						3	RO PU	0938
16	1015	1020	1047						2			1	A3	
16	1015	1100		S 2								5	NE PU SW CW** CW***	
16	1015	1108						3				1	PU	
16	1016	1104					1+					1	PU	
16	1302	1338	1312						2			3	A5 A3	1300E
16	1303	1311	1304							120		1	BO (WWV10-6.8 WWV15-12.0 KKE4-6.0)	
16	1303	1316	1305		35	2						5	RO MC PU	
16	1303	1325	1310	S 2								5	BE FM HU MC NE PU SW CW* CW***	
16	1304	1330	1309				2					5	LO PU A1 A3 A15	
16	1304	1344						3				1	PU	
16	1440	1645	1600	G 3							2	4	HU MC PU	1430
16	1511	1514										5	MC BO RO	
16	1615	1623	1618							08		1	BO (WWV10-0.8 WWV15-0.6 KKE4-0.3)	1605
16	1626	1634	1630							26		1	BO (WWV-2.6 WWV-1.8 KKE4-0.6)	1605
16	1811	1816	1812							06		1	BO (WWV10-0.6 WWV15-0.3 KKE4-0.2)	1809
16	2105	2220	2115					18				5	TU(NBA18) BO(NBA15)	
16	2220	2235	2228							08		1	BO (WWV10-0.8 WWV15-0.4 KKE4-0.5)	2222
17	0445	0524	0451				1					1	TY	*
17	0640	0718	0648				1					1	TY	0629
17	0820	0822									1	1	RO	0823
17	0820	0825		S 2								1	DA	
17	0822	0833	0826		15	1						1	RO	
17	0824	0912	0830				1+					1	TY	
17	1818	1820									1	5	MC RO	1820
17	1818	1905	1825					18				1	BO(NBA18)	
17	1925	1953	1930	S 1+								5	BE BO FM HU MC	1910
17	1926	1931	1927							13		1	BO (WWV10-1.3 WWV15=0.6 KKE4-1.0)	
17	1927	2001	1932						2			5	A5 A3	
17	1927	2030	1931					35				5	MA(NBA35) BO(NBA33)	
17	1929	1946	1934		30	1						5	BO HA MC	
17	1929	2000					1					5	HA A3 A5 A9 A15 A16	
17	2135	2138	2135D							06		1	BO (WWV15-0.5 WWV10-0.5 KKE4-0.6)	2133
18	0320	0429	0350	SL 2								5	OK CA TO	0352
18	0322	0416	0332				1-					1	TY	
18	1405	1515	1423	SL 1+								5	MC BE DA FM HU WS	1358
18	1413	1416	1414							08		1	BO (WWV15-0.8)	

COMMERCE - STANDARDS - BOULDER

IONOSPHERIC EFFECTS OF SOLAR FLARES

SEPTEMBER 1963

IONOSPHERIC EFFECTS OF SOLAR FLARES	UNIVERSAL TIME START	END	MAX	TYPE SWF IMP	IMPORTANCE ARS	SCNA	SEA	SPA	SES	SFD	BUR	WIDE SPREAD INDEX	STATIONS	KNOWN FLARE
SEPT (CONT.) 1963														
18	1529	1533	1530							03		1	BO (WWV10-0.3 WWV15-0.2 KKE4-0.3)	1530
18	1614	1618	1615							03		1	BO (WWV10-0.3 WWV15-0.2)	1605
18	1640	1644	1642							04		1	BO (WWV10-0.4 WWV15-0.3)	
18	1659	1702	1700							10		1	BO (WWV10-1.0 WWV15-0.6 KKE4-0.5)	1702
18	1703	1709	1705							16		1	BO (WWV10-1.6 WWV15-0.8 KKE4-0.8)	1702
18	2130	2133	2139							04		1	BO (WWV10-0.4 WWV15-0.2 KKE4-0.2)	2045
18	2131	2400									1	1	HA	2045
18	2231	2234	2232							03		1	BO (WWV10-0.3 WWV15-0.2 KKE4-0.3)	*
19	1735	1740									1	5	HA MC	*
19	1830	1833	1831							09		1	BO (WWV10-0.9 WWV15-0.5 KKE4-0.3 KKE5-0.3)	*
19	1926	1930	1927							22		1	BO (WWV10-2.2 WWV15-1.2 KKE4-0.6 KKE5-0.8)	1929E
19	1928	2005	1940				2+					5	A5 A3 A15	1929E
19	1929	2010	1935						1+			1	A3	
19	2007	2010	2007D							26		1	BO (WWV10-2.6 WWV15-1.6 KKE4-1.0 KKE5-0.9)	*
19	2056	2101	2058							03		1	BO (WWV10-0.3 WWV15-0.2 KKE4-0.1 KKE5-0.1)	*
19	2119	2121									1	5	MC HA BO	*
19	2119	2123	2120							06		1	BO (WWV10-0.6 WW15-0.3 KKE4-0.3 KKE5-0.3)	*
19	2230	2232	2231							04		1	BO (WWV10-0.4 WWV15-0.2 KKE4-0.3 KKE5-0.2)	2230
19	2255	2340	2300						1+			1	A3	2258E
19	2258	2309	2300							34		1	BO (WWV10-3.4 WWV15-2.2 KKE4-3.4 KKE5-2.4)	
19	2258	2316	2307	S 1-								5	WS OK	
19	2258	2316	2302		25	1+						5	HA BO	
19	2300	2342	2306				1+					1	TY	
20	0711	0745	0719	SL 1+								5	OK JU	0706
20	0713	0735	0719		30	1						5	MA RO	
20	0714	0812	0724				2					5	TY KU	
20	0725	0815						2				1	KU	
20	1700	1710	1705E							36		1	BO (WWV10-3.6 WWV15-2.6 KKE4-1.0 KKE5-1.4)	1658
20	1700	1730	1715	SL 1+								5	MC BE FM HU	
20	1703	1840	1718					28				1	BO(NBA28)	
20	1705		1712				1					5	A9 A16	
20	1706	1735U	1710						1			5	A5 A3	
20	2015	2348									2	5	MC BO HA(NOISE STORM)	
20	2348	0003									3	5	HA BO	2351
20	2351	0325		S 3								5	TO AD AN MA NZ OK SY WS CW+ CW++	
20	2352	0052	0004	W09			2+					5	TY BO HA A9	
20	2353								1			5	A14 A5	
20	2356	2410D	2358D							56		1	BO (WW10-5.6 KKE4-6.6 KKE5-6.0)	
21	0000	0015	0003		20	1						5	BO MA	2351
21	0014	0018									3	5	MA HA RO	
21	0105	0245	0117		70	3						5	HA MA	
21	0110	0114									3	5	MA HA	
21	1415	2400									1	5	MC BO HA(NOISE STORM)	
21	1804	1808	1805							09		1	BO (WWV10-0.9 WWV15-0.5 KKE4-0.3 KKE5-0.3)	
21	1805	1807									1	5	MC BO HA	
21	1835	1839	1836							64		1	BO (WWV10-6.4 WWV15-3.9 KKE4-U KKE5-U)	1835
21	1904	1906									1	5	MC BO HA	
21	2120	2124									1	5	BO HA	
21	2212	2216	2214							02		1	BO (WWV10-0.2 WWV15-0.1)	2207
21	2213	2217									1	5	BO HA	
24	1445	1515	1453					11				1	BO(NBA11)	
24	1450	1545U	1502						2			1	A5	1433
24	1453	1558	1503				2					5	A5 A16	
24	1455	1520	1505	SL								1	HU WS	
25	0606	0621	0618				1					1	TY	*
26	0709	0851	0730	SL 3+								5	OK JU MA PU SW TO CW+ CW++ CW** C	0701E
26	0711	0751						2				3	KU PU	
26	0712	0806	0732	W20.0			2					5	TY LO	
26	1354	1359	1356							06		1	BO (WWV10-0.6 KKE4-0.5)	1354
26	2118	2122	2119							03		1	BO (WWV10-0.3 WWV15-0.2 KKE4-0.2 KKE5-0.3)	2120
28	1911	2020	1922					54				5	MA(NBA54) BO(NBA10)	

RIOMETER EVENTS

(PROVISIONAL)

SEPTEMBER 1963

South Pole **26 Mc/s**

SEPT. 1963	START UT	END UT	MAX. UT	MAX. ABSORP. TENTHS, db	NO. OF PEAKS	SEPT. 1963	START UT	END UT	MAX. UT	MAX. ABSORP. TENTHS, db	NO. OF PEAKS
1	0125	0224	0137	13	5	16	2320	0010	2334	10	4
1	1010	1534	1237	18	7	17	0212	0244	0216	9	1
1	2046	2134	2112	6	4	17	0410	0524	0431	29	2
2	0044	0135	0048	56	1	17	0640	0952	0657	20	8
2	1026	1031	1027	4	1	17	1042	1126	1122	5	2
3	0126	0216	0154	11	1	17	1150	1330	1221	11	3
3	1438	1708	1528	11	7	17	1535	1544	1541	3	1
4	1314	1640	1459	6	1	17	1723	1802	1748	4	3
5	0046	0218	0052	10	3	18	0050E	0120	0050	11	1
5	1046	1548	1221	11	3	18	0142	0152	0145	10	1
6	0002	0030	0015	19	2	18	0216	0430	0247	21	3
6	0113E	0146	0113	4	2	18	1014	2044	1400	11	13
6	1346	1556	1414	13	2	18	2220	2230	2224	8	1
8	0404	0511	0418	4	1	19	0018	0142	0040	21	1
8	1046	1130	1106	4	1	19	0400	0430	0404	23	1
8	1306	1350	1329	7	1	19	0502	0644	0512	11	3
9	0334	0416	0342	18	1	19	0702	0746	0724	9	1
9	1302	1748	1519	28	4	19	1120	1222D	1222	24	3
10	0314	0408	0323	7	2	20	0904	1239	1113	14	3
10	0850	1856	1417	11	8	20	1644	1730	1651	9	1
10	1954	2024	2021	6	2	20	1928	2004	1944	11	1
11	0110	0138	0116	18	3	20	2218	2258	2227	4	1
11	1000	1550	1033	20	6	21	1412	1648	1530	50	1
11	1744	1822	1752	4	5	22	0443	0712	0512	28	5
11	2333	2359	2340	23	3	22	0802	1340	0816	56	3
12	0116	0236	0119	49	3	22	1550	1936	1810	8	2
12	0258	0407	0306	8	2	22	2008	2122	2047	7	1
12	1318	1644	1420	17	1	22	2140	2309	2203	3	3
12	1734	1830	1812	4	2	23	0040E	0114	0040	11	1
13	0106	0115	0109	4	1	23	0242	0500	0323	14	1
13	0210	0259	0216	10	4	23	0517	0632	0540	75	2
13	1926	1935	1931	4	1	23	0716	1108	0812	50	6
13	2331	0044	0000	25	3	23	1156	1630	1309	16	6
14	0448	0640	0459	16	2	23	1650	1854	1753	13	6
14	0654	0800	0659	10	1	24	1630	1858	1843	4	1
14	0816	0952	0828	8	4	25	0206	0410	0212	28	4
14	1430	1510	1435	6	2	25	1202	1832	1417	23	8
14	1550	1732	1718	6	2	25	2026	2130	2106	4	3
14	1846	1956	1850	3	2	26*	0423	0700	0511	42	8
14	2141	2244	2152	102	4	26	2330	2348	2338	22	2
15	0122	0145	0132	7	1	27	1322	1710	1329	20	9
15	0235	0333	0259	22	3	27	2232	2312	2249	40	2
15	0608	0900	0621	14	2	28	0200	0350	0245	41	2
15	0950	1310	1225	17	3	28	0447	0724	0457	19	5
15	1338	1640	1436	20	8	28	1404	1910	1657	17	15
15	2311	0020	2317	19	1	28	2232	2350	2247	73	6
16	0413	0520	0416	15	3	29	0114	0618	0139	92	3
16	1128	1624	1227	47	8	29	0906	1906	1347	30	7
16	1640	1754	1718	13	2	29	2249	2326	2257	23	1
16	1813	1840	1828	5	2	30	0108	0316	0123	75	3
						30	0924	1152	1051	10	1
						30	1244	1810	1538	22	5

COMMERCE - STANDARDS - BOULDER

* There is a polar cap absorption event beginning 0740 UT September 26, 1963 and lasting into September 29, 1963. It was not reported in the preliminary event listing above.

SOLAR RADIO EMISSION

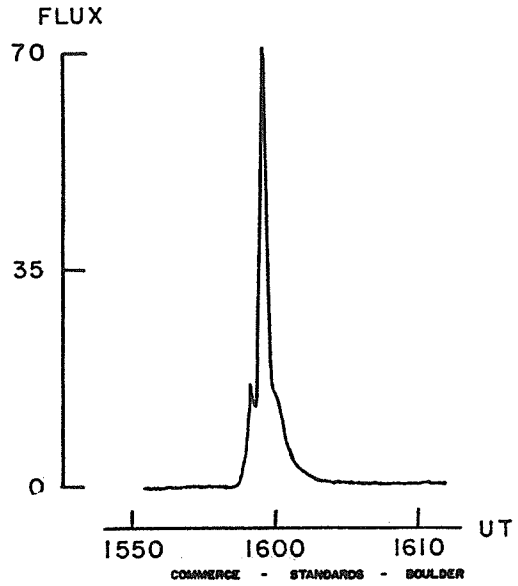
OUTSTANDING OCCURRENCES

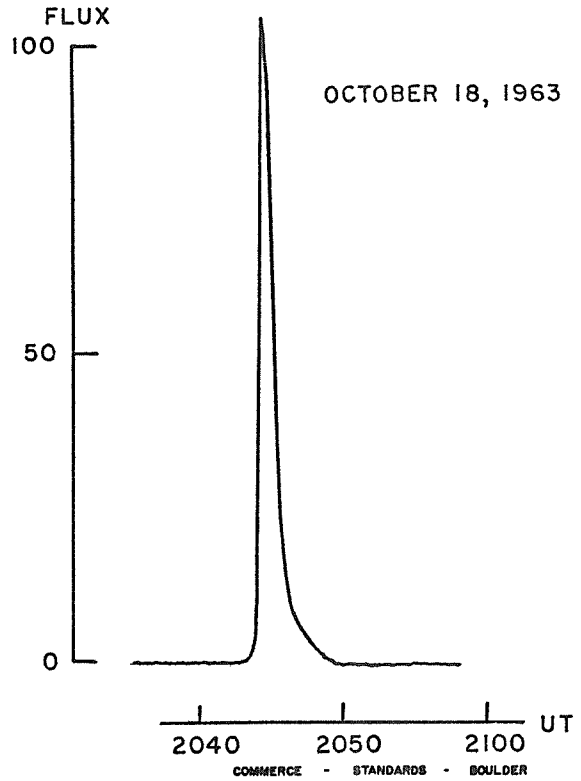
OCTOBER 1963

ARO - OTTAWA **2800 Mc/s**

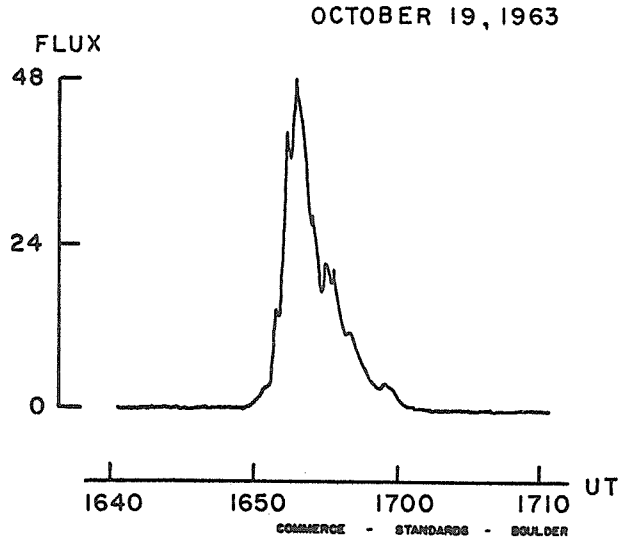
OCTOBER 1963	URANE	DESCRIPTIVE TYPE	START UT	DURATION HRS. MIN.	MEAN FLUX	MAXIMUM TIME	MAXIMUM FLUX	REMARKS
14	1	Simple 1 f	1658.8	0.8	1.5	1659.1	3	
16	3	Simple 3	1205	2 18	5	1238	10	
17	2	Simple 2	1342	2.5	3	1343	10	
	4	Post Increase		5.5	1.5		1	
18	2	Simple 2 f	1557	4.5	20	1559.2	71	
	4	Post Increase		7.5	1.5		3	
18	2	Simple 2	2043.3	5.8	23	2044.5	105	
19	2	Simple 2 f	1649.3	11.8	15	1653	48	
20	3	Simple 3	2056	>29	--	Indet.	6	
21	3	Simple 3 A	1304	2 11	4	Indet.	8	
	7	Period of Irregular Activity	1327.5	15.5	5	1335	9	
22	3	Simple 3 A	1333	2 45	7	1436	16	
	6	Complex f	1333	45	--	Indet.	>95	
	1	Simple 1	1431.5	2.5	1	1432.5	2	
	6	Complex	1455	2	0.8	1456.5	2.5	
23	3	Simple 3 A	1616	2 39	4	1653	10	
	2	Simple 2	1641	12	20	1644	45	
23	1	Simple 1	1933	1	0.5	1933.5	1	
24	1	Simple 1	1400.8	2	0.7	1401.3	1.5	
24	1	Simple 1 f	1436.8	0.8	0.6	1437	1.2	
24	3	Simple 3 A f	1443	1 39	1.2	1501	2.5	
	1	Simple 1	1453.5	2	1	1454.5	2	
25	6	Complex f	1155	11	25	1201	50	
	4	Post Increase		34	8		16	
25	3	Simple 3 A	1312	2 46	4.5	1329	9	
	1	Simple 1	1401	6	0.7	1404	1.5	
25	3	Simple 3 f	1752	1 16	2	1815	4	
26	1	Simple 1	1345.5	6	1	1348.5	2	
26	3	Simple 3	1510	1 05	2.5	1550	5	
26	3	Simple 3 A	1836	2 10	11	1908	22	
	1	Simple 1	1840	4	3	1841.5	6	
	2	Simple 2 f	1902	3	5	1902.7	9	
27	3	Simple 3 f	1343	27	1.5	1346	3	
28	3	Simple 3	1622	32	0.8	1624.5	1.5	

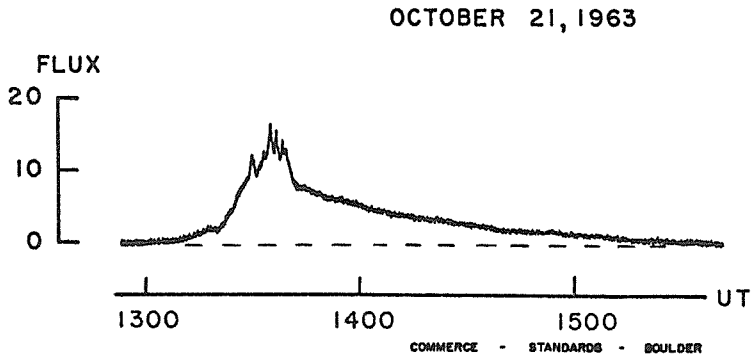
SELECTED 2800 Mc/s SOLAR NOISE BURSTS
ARO - OTTAWA, CANADA



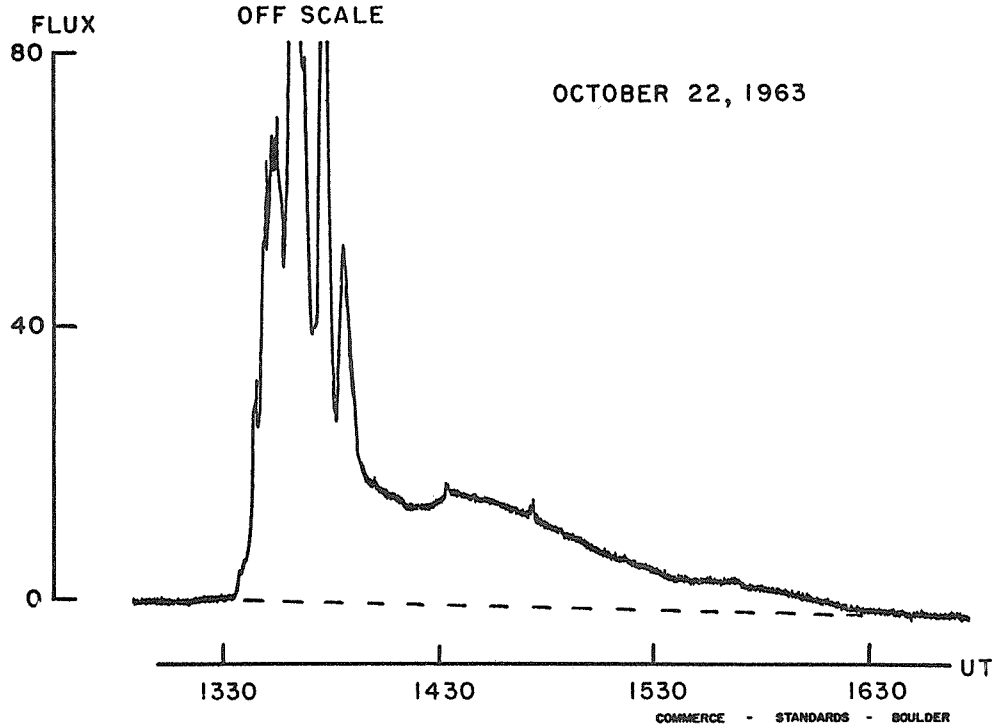


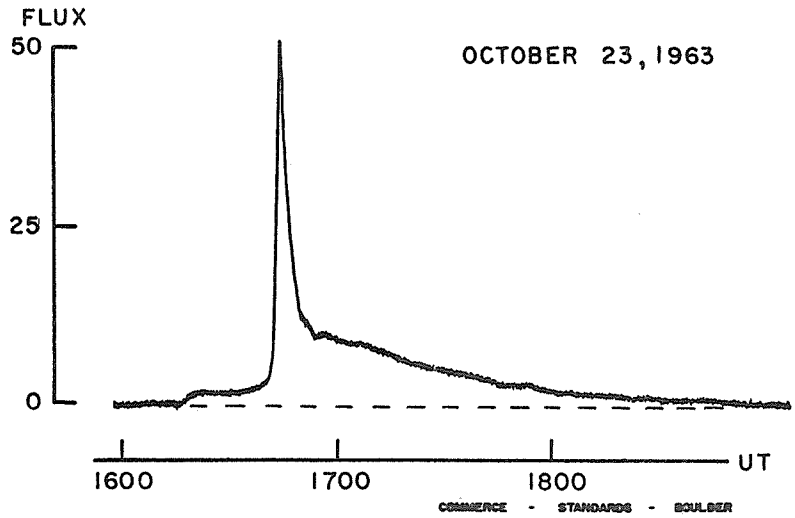
SELECTED 2800 Mc/s SOLAR NOISE BURSTS
ARO - OTTAWA, CANADA



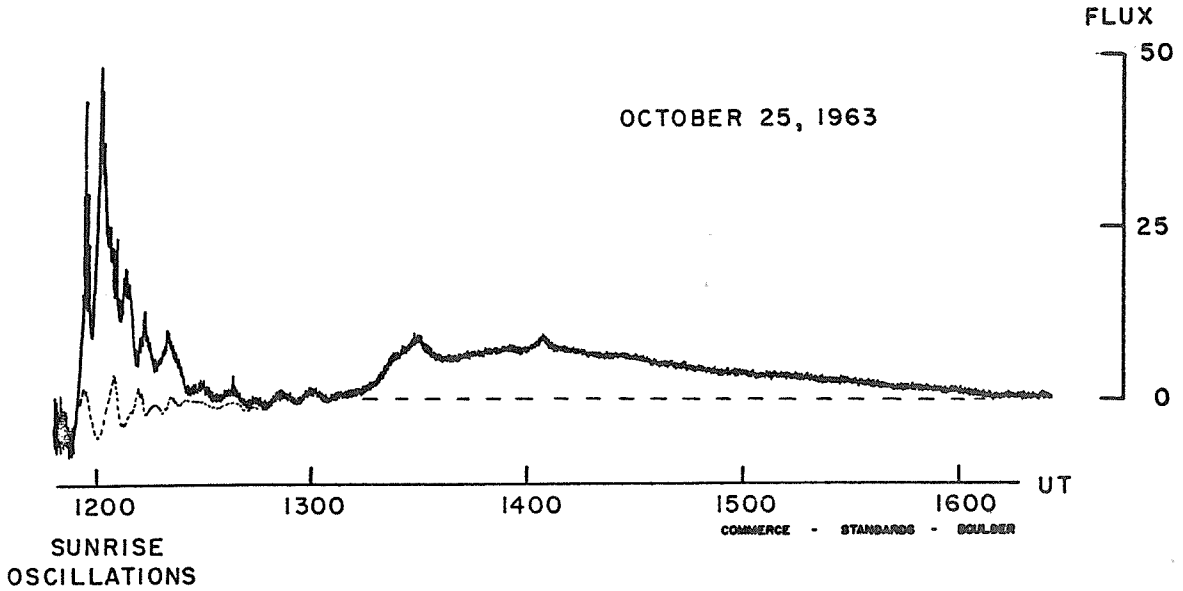


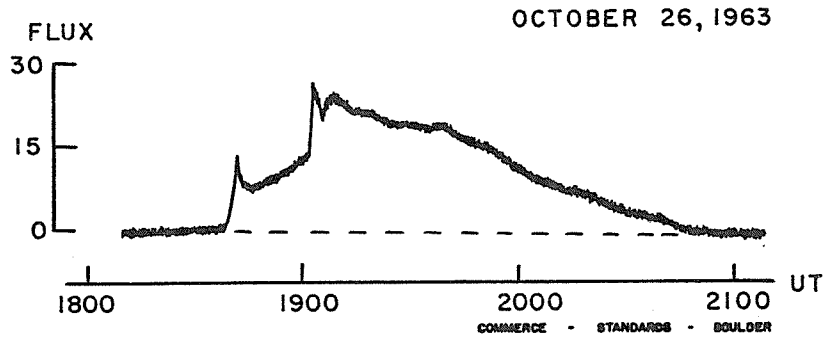
SELECTED 2800 Mc/s SOLAR NOISE BURSTS
ARO - OTTAWA, CANADA





SELECTED 2800 Mc/s SOLAR NOISE BURSTS
ARO - OTTAWA, CANADA



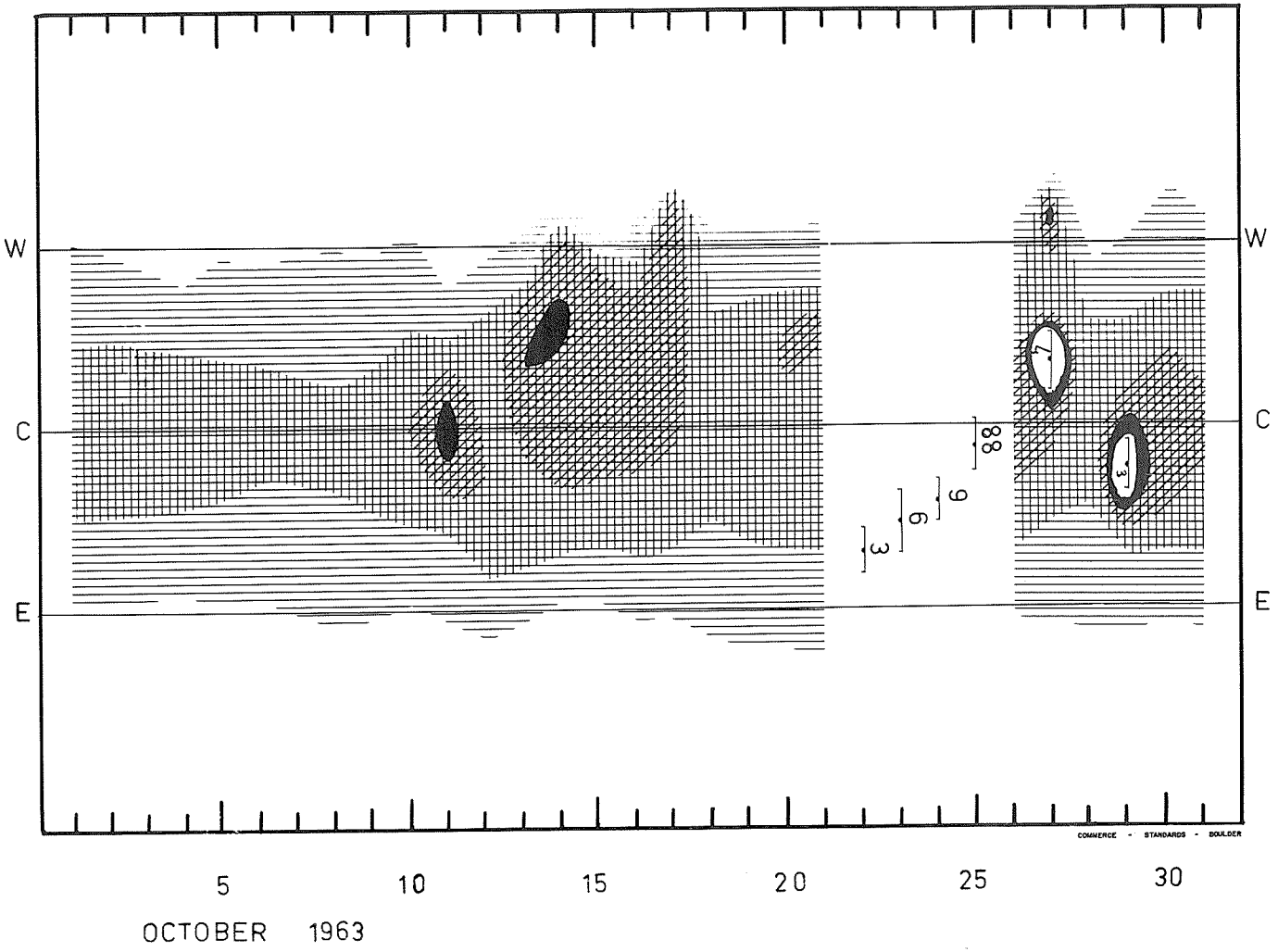


SOLAR RADIO EMISSION
INTERFEROMETRIC OBSERVATIONS

OCTOBER 1963

NANÇAY

169 Mc/s



SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES
OCTOBER 1963

NBS BOULDER 108 Mc/s

Oct. 1963	TYPE	START UT	TIME OF MAXIMUM UT	DURATION MINUTES	INTENSITY
5	3	1449.0	1449.3	2.0	3
13	6	1313 E		656 D	1
14	7	1912	1950 U	296 D	2
15	6	1315 E		315 D	1
16	6	1316 E		247 D	1
18	9	1557	1605	21	3
18	9	2043	2045	17	3
21	7	1355	1410	45	1
21	7	1655	1845	170	1
26	2	1910		9	1
26	7	2025	2107	206 D	2
27	3	1700.0	1700.5	2.1	3

COMMERCE - STANDARDS - BOULDER

NOMINAL TIMES OF OBSERVATION
OCTOBER 1963

NBS BOULDER 108 Mc/s

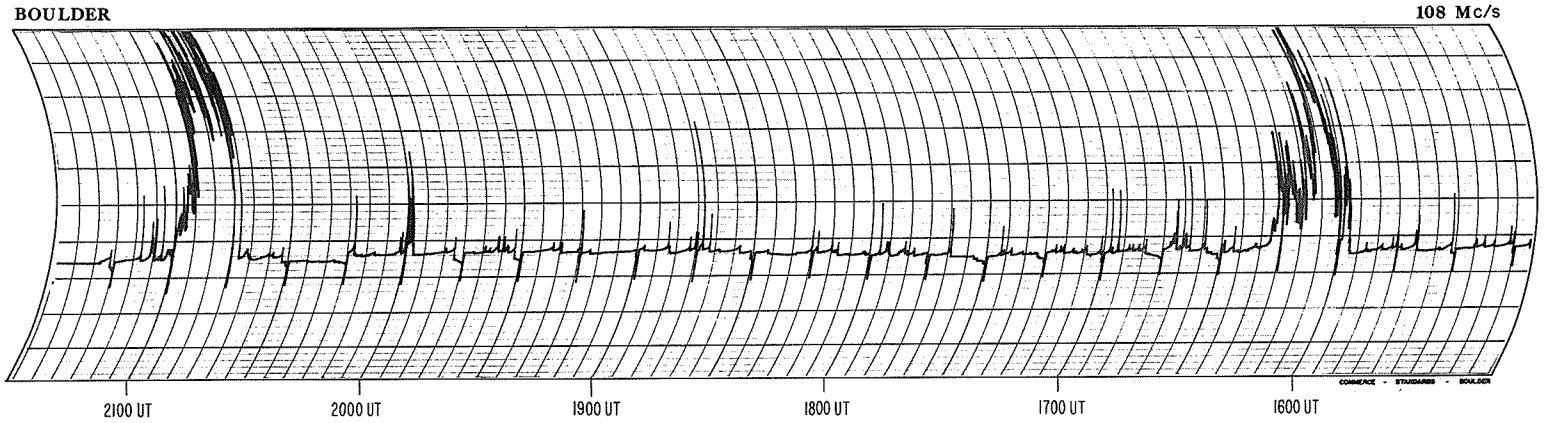
Oct. 1963	HOURS OF OBSERVATION	UT	Oct. 1963	HOURS OF OBSERVATION	UT
1	1301-0028	I 1912-1933	16	1316-0005	
2	1302-0026		17	1317-0003	
3	1303-0025		18	1318-0002	
4	1304-0023		19	1319-0000	
5	1305-0021		20	1320-2359	
6	1306-0020		21	1322-2245	
7	1307-0018		22	1640-2356	I 1820-1846
8	1308-0017	I 2054-2123	23	1324-2000; 2300-2355	
9	1309-1901; 2311-0015		24	1325-2124; 2225-2353	
10	1310-0014		25	1326-2352	
11	1311-0012				
12	1312-0011		26	1327-2351	
13	1313-0009	I 2055-2215 (1)	27	1328-2349	
14	1314-0008		28	1329-2348	
15	1315-0006		29	1330-2347	
			30	1331-2345	
			31	1333-2344	

COMMERCE - STANDARDS - BOULDER

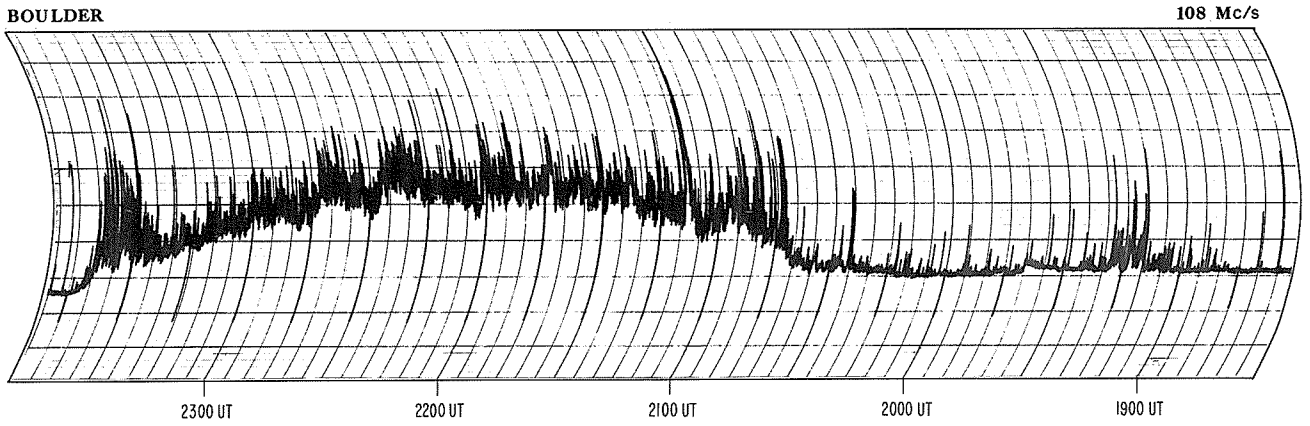
(1) Atmospherics

SOLAR RADIO EMISSION

OCTOBER 18, 1963



OCTOBER 26, 1963



SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

OCTOBER 1963

High Altitude Observatory
Boulder

7.6-41 Mc/s

Date 1963	Bursts Type	Time (U.T.)	Intensity	Frequency Range Mc/s
6 Oct	III	2057.15-2057.30	1-	21-41
	III	2058-2058.15	1-	21-41
	III	2200.45-2201	1-	22-41
	III	2228.30-2228.45	1-	32-41
7	III	1818.15-1818.30	1-	20-41
	III	1819.45-1820	1-	22-41
	III	1825.30-1825.45	1-	24-41
8	III	1842.45-1843.15	1	20-41
9	III	1448.45-1449	1-	18-41
	III	1558-1558.15	1-	22-41
	III	1607.30-1607.45	1-	21-32
	III	1615.45-1616	1-	19-41
	III	1630.15-1630.30	1-	20-29
	III	1700.15-1700.45	1-	21-41
	III	1836.30-1836.45	1-	24-38
	III	1847.30-1847.45	1-	21-41
	III	1851-1851.15	1-	19-41
	III	1927-1927.15	1-	20-30
	III	2032.30-2032.45	1-	22-33
	III	2107.30-2108.15	1-	19-41
	III	2211.45-2212	1-	22-38
	III	2213.15-2213.30	1-	22-34
	III	2223-2223.15	1-	20-41
	III	2225.30-2225.45	1-	20-41
	III	2226-2226.15	1-	20-41
	III	2227.30-2228	1-	20-41
	III	2228.30-2228.45	1-	20-41
	III	2237.30-2237.45	1-	20-41
	III	2306.15-2306.30	1-	21-41
10	III	1346.45-1347	1-	20-36
	III	1347.45-1348	1-	20-32
	III	1353-1353.15	1-	22-35
	III	1424.45-1425.15	1-	21-41
	III	1433.30-1433.45	1-	19-41
	III	1452.15-1452.30	1-	22-35
	III	1453.30-1453.45	1-	21-35
	III	1456-1457.15	2	20-41
	III	1516.15-1516.30	1-	21-34
	III	1517.45-1518	1-	21-38
	III	1550-1550.15	1-	23-41
	III	1552-1553.15	2	19-41
	III	1613.45-1614	1-	29-41
	III	1627-1627.15	1-	21-40
	III	1650.45-1651	1-	21-41
	III	1710.30-1710.45	1-	24-35
	III	1744-1744.15	1-	22-34
	III	1937-1937.15	1-	24-32
	III	1942.30-1942.45	1-	22-39
	III	1945.45-1946	1-	23-41
	III	1948.30-1948.45	1-	21-41

Date 1963	Bursts Type	Time (U.T.)	Intensity	Frequency Range Mc/s
cont. 10 Oct	III	2045.30-2045.45	1-	22-37
	III	2112-2112.15	1-	21-36
	III	2116.30-2116.45	1-	22-41
	III	2118-2118.15	1-	22-36
	III	2119.30-2119.45	1-	21-39
	III	2126-2126.15	1	21-41
	III	2150-2150.15	1-	22-41
	III	2213.30-2213.45	1-	23-34
	III	2316.30-2316.45	1	20-41
11	III	1552-1552.15	1-	25-34
	III	1613-1613.15	1-	26-38
	III	1832.30-1833	1-	20-41
	III	1905.45-1906.45	2	19-41
	III	1911.45-1912	1-	20-41
	III	1912.30-1912.45	1-	20-41
	III	1940-1940.30	2	19-41
	III	1950-1950.30	1-	20-35
	III	1958.45-1959	1	20-41
	III	2001-2001.15	1	20-41
	III	2003.15-2003.45	2	19-41
	III	2048.15-2048.45	1-	22-41
	III	2050-2050.15	1-	19-41
	III	2135.30-2136	1	20-41
	III	2158.15-2158.45	1	19-41
	III	2159.15-2200.15	2	18-41
	III	2201-2201.45	2	18-41
	III	2208-2208.15	1-	21-41
	III	2216.15-2216.30	1-	20-38
	III	2315.30-2316	1	21-41
	III	2323-2323.15	1-	22-34
	III	2326.30-2326.45	1-	20-36
12	III	1320.15-1320.30	1-	21-36
	III	1336.15-1336.45	1-	27-37
	III	1452-1453.30	1	19-41
	III	1535.30-1535.45	1-	20-33
	III	1609-1609.45	1	17-41
	III	1613-1613.15	1-	20-41
	III	1614.15-1614.30	1-	20-38
	III	1622.30-1622.45	1-	20-38
	III	1626.15-1626.30	1-	21-41
	III	1632-1632.15	1-	22-41
	III	1719.30-1720	1-	23-38
	III	1817.30-1817.45	1-	23-41
	III	1844-1844.15	1-	21-41
	III	1854.15-1854.30	1-	20-41
	III	1907-1907.15	1-	21-34
	III	1920.45-1921	1-	21-41
	III	1927.30-1927.45	1-	24-32
	III	1936.45-1937	1-	22-32
	III	1940.45-1941	1-	27-41

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

OCTOBER 1963

High Altitude Observatory
Boulder

7.6-41 Mc/s

Date 1963	Bursts Type	Time (U.T.)	Intensity	Frequency Range Mc/s
cont. 12 Oct	III	2009.45-2010	1-	19-32
	III	2010.15-2010.30	1-	19-32
	III	2018.15-2018.30	1-	20-35
	III	2040.15-2040.30	1-	22-35
	III	2050.30-2050.45	1-	20-33
	III	2107-2107.15	1-	24-31
	III	2113-2113.30	1-	20-41
	III	2122-2122.15	1-	21-30
	III	2144.15-2144.30	1-	20-33
	III	2229.30-2229.45	1-	24-41
	III	2311.30-2311.45	1-	20-41
	III	2354-2354.15	1-	20-32
13	continuum	b1301-a2420	1	19-41
	III	1413.15-1413.45	2	19-41
	III	1418.45-1419	1+	20-41
14	continuum	1355-1850	1-	19-41
	continuum	1910-2020	1	19-41
	continuum	2020-2119	1-	19-41
	continuum	2119-2224	2	19-41
	continuum	2224-a2340	1-	19-41
15	III	1537.45-1538.30	1-	22-41
	continuum	1830-1926	1-	19-41
	III	1838.45-1839	1	20-41
	III	1843.15-1844	1	20-41
	III	1925.15-1926	1-	28-41
16	continuum	b1348-1855	1-	22-41
17	III	1719-1719.15	1-	24-41
	No observ.	2120-2300		
18	III	1452.30-1453	1-	26-37
	III	1527-1527.30	1-	24-38
	III	1540-1541	1-	23-41
	III	1545-1546	1	24-41
	III	1547.15-1547.30	1-	22-38
	III	1551.30-1551.45	1-	28-41
	III	1555.15-1555.45	1-	24-34
	continuum	1557.45-1613.15	3	18-41
	IV	1613.15-1733	1	15-41
	III	1807.15-1808.45	1	20-41
	III	1827-1827.15	1-	31-41
	III	1900-1900.15	1-	22-33
	III	1907.30-1907.45	1	20-41
	III	1914.15-1916.45	1	20-41
	III	1933.30-1934.45	1	19-41
	III	1935.30-1936	1	19-41
	III	1936.15-1937.15	2	19-41
	III	1943-1943.15	1-	22-41
	III	1944-1944.15	1-	24-41
	III	1949-1949.15	1-	24-38
	III	2006-2006.15	1	25-35
	III	2007-2008.15	1	20-41

Date 1963	Bursts Type	Time (U.T.)	Intensity	Frequency Range Mc/s
cont. 18 Oct	III	2013.30-2014	1	20-41
	continuum	2043.30-2105	3	7-41
	II	d 2057-2100	2	18-41
	II	2120-2128	1-	19-41
	III	2318.15-2318.30	1-	22-41
	III	2322-2324.45	1	20-41
	III	2326.30-2326.45	1-	21-41
	III	2327.15-2327.30	1-	21-41
	III	2340.15-2344.15	1+	17-41
	III	2356-2358.15	1-	20-29
19	III	1652.15-1653.15	2	15-41
	III	1656.15-1657	2	14-41
	III	1701.30-1703	1	22-41
	IV	1702-1837	1	23-41
	III	1709-1710.30	2	18-41
	III	1915.30-1915.45	1-	19-41
	III	1919.45-1920	1-	21-35
	III	1923.15-1923.30	1-	21-38
	III	1924.30-1925.30	2	19-41
	III	2005.45-2006	1-	20-41
	III	2011.15-2011.30	1-	23-35
	III	2013.30-2013.45	1-	20-36
	III	2206.30-2207	1-	24-21
	III	2307.30-2307.45	1-	29-41
	III	2325.15-2328.30	1-	23-41
	III	2330.15-2331	1-	25-41
	III	2331.45-2332.15	1-	29-38
	III	2334.30-2334.45	1-	29-41
	III	2337.30-2337.45	1-	32-41
20	III	1345.45-1346	1-	24-40
	III	1348.30-1348.45	1-	28-34
	III	1417.15-1417.30	1-	28-38
	III	1423-1423.45	1-	22-41
	III	1425.45-1426	1-	21-41
	III	1432-1433	2	20-41
	III	1437.45-1438	2	19-21
	III	1450.30-1451	1-	27-38
	continuum	1501-1523	1-	20-41
	III	1511-1511.15	1	20-41
	III	1511.45-1512.15	1	20-41
	III	1629.30-1629.45	1-	20-32
	III	1643.45-1644	1-	23-41
	III	1647.15-1647.30	1-	20-37
	III	1650.30-1650.45	1-	21-41
	III	1739.15-1739.30	1-	20-41
	III	1808.45-1809	1-	19-41
	III	1809.30-1812.15	1-	21-41
	III	1836.15-1836.30	1-	22-41
	III	1912.15-1912.30	1-	23-37
	III	1924.15-1924.30	1-	29-39

d = harmonic structure

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

OCTOBER 1963

High Altitude Observatory
Boulder

7.6-41 Mc/s

Date 1963	Bursts Type	Time (U.T.)	Intensity	Frequency Range Mc/s
cont.				
20 Oct	III	1930.30-1931.45	2	20-41
	continuum	1931.45-1937	1-	22-41
	III	1950.30-1950.45	1-	21-41
	III	1956.15-1957.30	2	19-41
	III	2001-2001.30	1	19-41
	III	2006.30-2006.45	1	19-41
	III	2007.15-2007.45	1	20-41
	III	2008-2008.30	1+	20-41
	III	2013.15-2013.30	1-	22-41
	III	2026.15-2026.30	1-	27-41
	III	2044.30-2046.30	1-	21-41
	III	2256-2256.30	1-	23-41
	continuum	2306-2337	1-	23-41
	III	2312.30-2312.45	1-	25-41
	III	2328-2328.30	1-	23-41
21	continuum	b1350-a2350	1	20-41
22	III	1312.15-1313	1-	28-41
	continuum	b1321-1356	1-	20-41
	III	1351-1354.45	1	21-41
	II	1356.30-1418	3	20-41
	IV	1418-1600	2	20-41
	continuum	1600-a2331	1	19-41
	III	2238.45-2242.30	2	22-41
23	continuum	b1320-a2338	1	20-41
24	continuum	b1313-a2050	1	18-41
	No observ.	2050-2359		
25	continuum	b1320-a2130	1	20-41
	No observ.	2130-2326		
26	continuum	b1331-a2340	1	20-41
27	III	1344.30-1344.45	1-	23-27

Date 1963	Bursts Type	Time (U.T.)	Intensity	Frequency Range Mc/s
cont.				
27 Oct	III	1406.15-1406.30	1-	24-29
	III	1411-1411.15	1-	20-41
	III	1417.15-1417.30	1-	19-36
	III	1542.45-1543	1-	24-35
	III	1551.30-1551.45	1-	22-35
	III	1552.45-1553	1-	25-32
	III	1554.45-1555	1-	28-34
	continuum	1603-2230	1-	20-41
28	continuum	1600-1640	1-	22-41
	continuum	1848-1932	1-	26-35
29	III	1447.15-1447.30	1-	28-41
	III	1503-1503.30	1-	25-31
	III	1515.45-1516.15	1	21-41
	III	1646-1646.15	1-	29-39
	III	1854.45-1855.15	1-	31-41
	III	1949.45-1950.30	2	19-41
	III	2153.45-2154	1-	23-41
	III	2230-2230.30	1-	29-41
	III	2307.15-2307.30	1-	28-41
	III	2329-2329.15	1-	29-41
	III	2335.30-2336.15	1-	26-41
30	III	1956.45-1957	1-	33-41
	III	2019.30-2019.45	1-	27-41
	III	2058.30-2100.15	1	20-41
	III	2150-2150.15	1-	28-41
	III	2219.15-2219.45	1-	29-41
	III	2314.45-2315.15	1	27-41
	III	2328.45-2329	1-	29-41
31	III	1515-1516.15	1-	28-41
	III	1538.15-1538.30	1-	36-41
	No observ.	2030-2400		

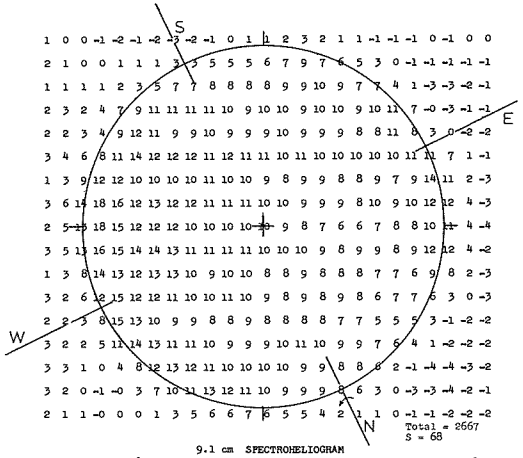
COMMERCE - STANDARDS - BOULDER

SOLAR RADIO EMISSION SPECTROHELIOGRAMS

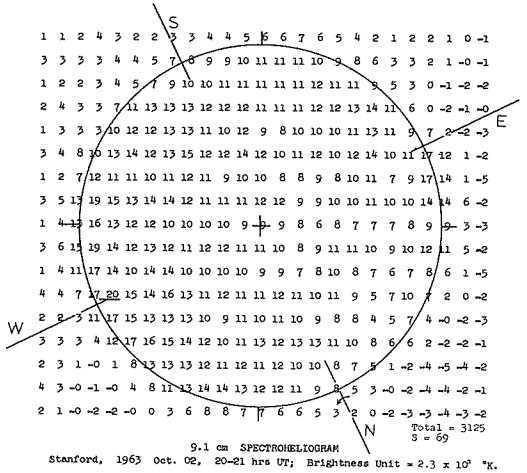
OCTOBER 1963

STANFORD

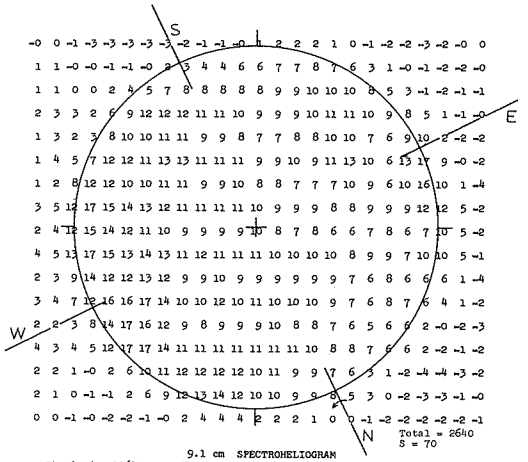
9.1 cm



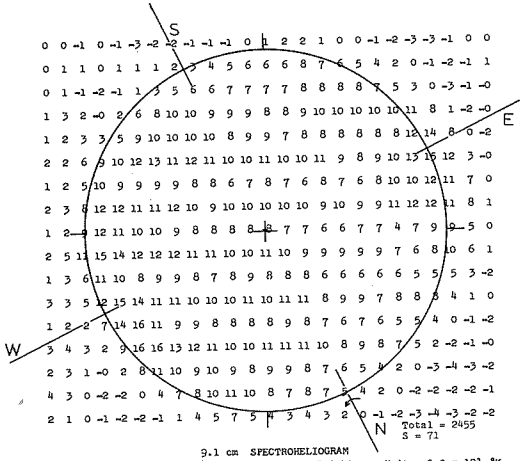
9.1 cm SPECTROHELIOGRAM
Stanford, 1963 Oct. 01, 20-21 hrs UT; Brightness Unit = 2.7 x 10^3 °K.



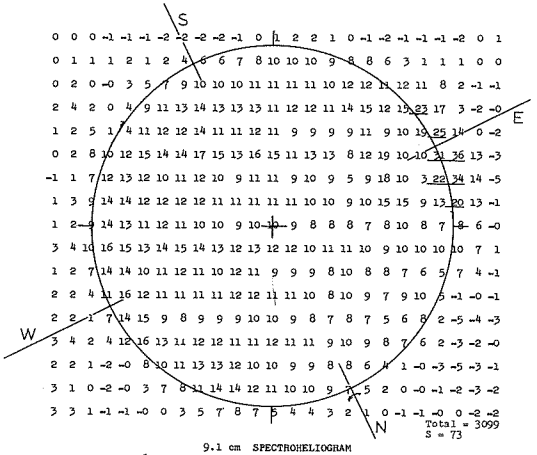
9.1 cm SPECTROHELIOGRAM
Stanford, 1963 Oct. 02, 20-21 hrs UT; Brightness Unit = 2.3 x 10^3 °K.



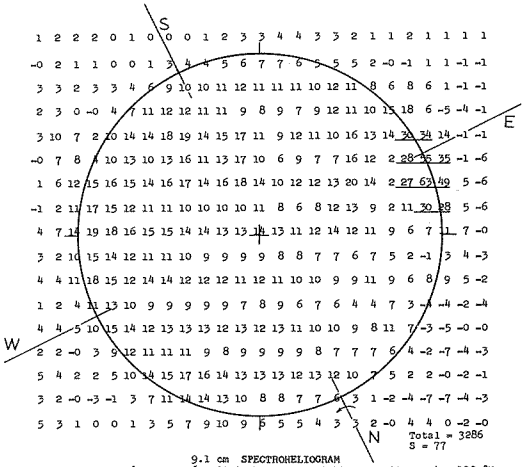
9.1 cm SPECTROHELIOGRAM
Stanford, 1963 Oct. 03, 20-21 hrs UT; Brightness Unit = 2.7 x 10^3 °K.



9.1 cm SPECTROHELIOGRAM
Stanford, 1963 Oct. 04, 20-21 hrs UT; Brightness Unit = 3.0 x 10^3 °K.



9.1 cm SPECTROHELIOGRAM
Stanford, 1963 Oct. 05, 20-21 hrs UT; Brightness Unit = 2.4 x 10^3 °K.

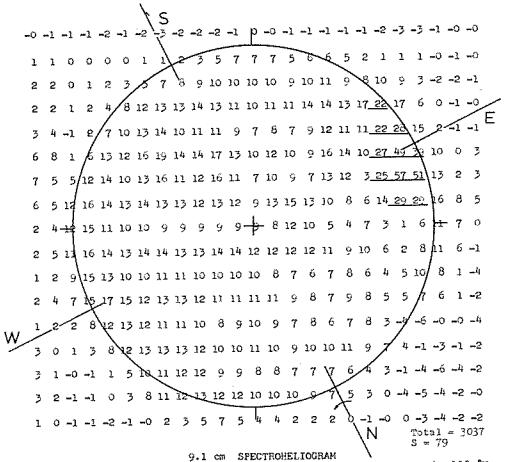


9.1 cm SPECTROHELIOGRAM
Stanford, 1963 Oct. 06, 20-21 hrs UT; Brightness Unit = 2.4 x 10^3 °K.

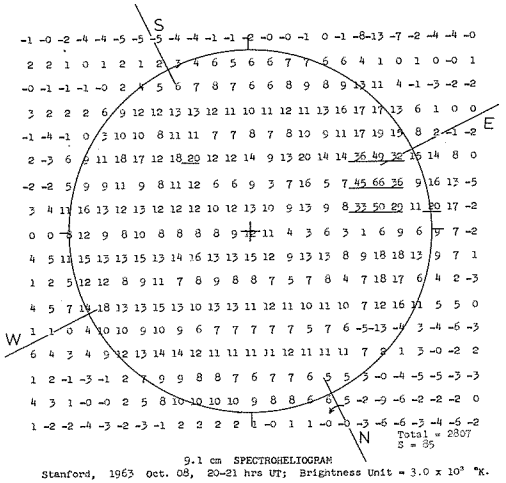
SOLAR RADIO EMISSION SPECTROHELIOGRAMS

OCTOBER 1963

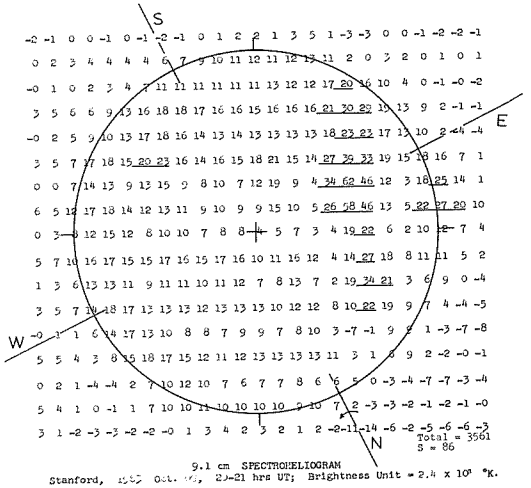
STANFORD **9.1 cm**



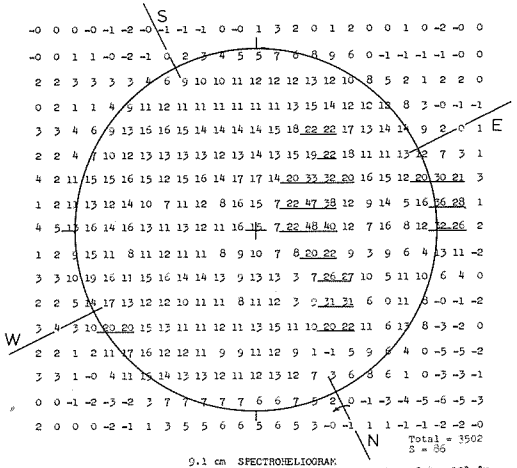
9.1 cm SPECTROHELIOGRAM
Stanford, 1963 Oct. 07, 20-21 hrs UT; Brightness Unit = 2.6 x 10^3 °K.



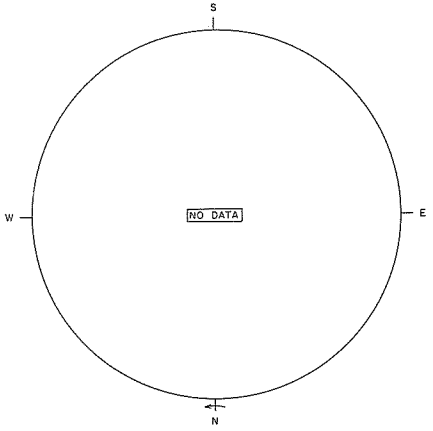
9.1 cm SPECTROHELIOGRAM
Stanford, 1963 Oct. 08, 20-21 hrs UT; Brightness Unit = 3.0 x 10^3 °K.



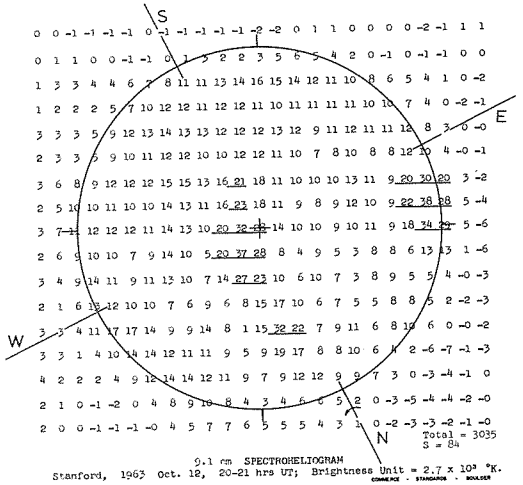
9.1 cm SPECTROHELIOGRAM
Stanford, 1963 Oct. 09, 20-21 hrs UT; Brightness Unit = 2.4 x 10^3 °K.



9.1 cm SPECTROHELIOGRAM
Stanford, 1963 Oct. 10, 20-21 hrs UT; Brightness Unit = 2.4 x 10^3 °K.



1963 OCTOBER 11



9.1 cm SPECTROHELIOGRAM
Stanford, 1963 Oct. 12, 20-21 hrs UT; Brightness Unit = 2.7 x 10^3 °K.

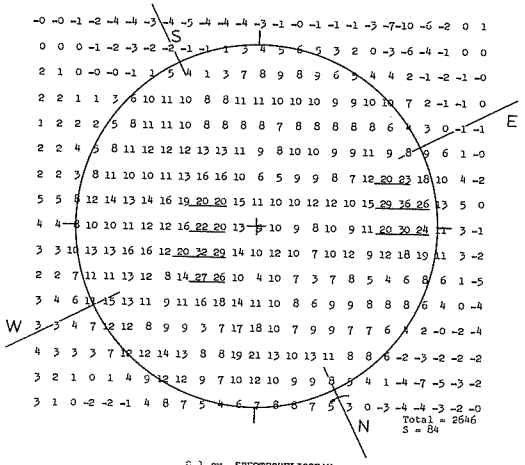
COMMERCE - STANFORD - BOULDER

SOLAR RADIO EMISSION SPECTROHELIOGRAMS

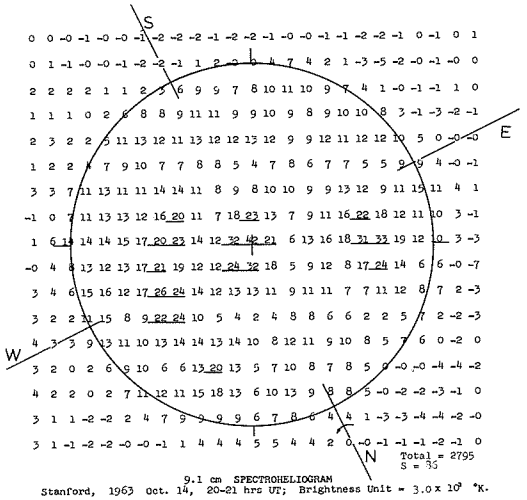
OCTOBER 1963

STANFORD

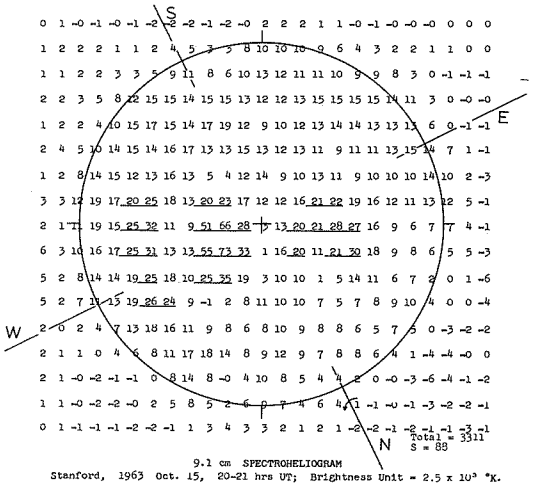
9.1 cm



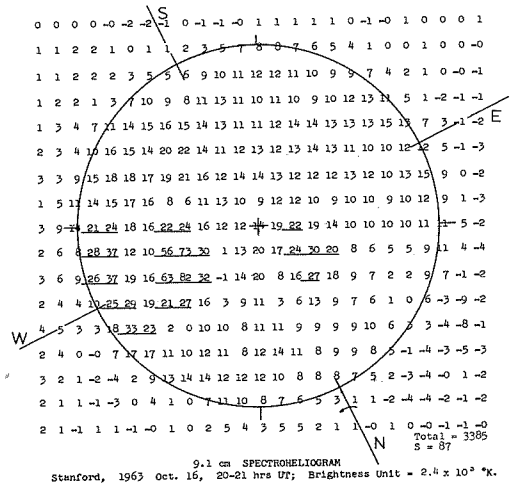
9.1 cm SPECTROHELIOGRAM
Stanford, 1963 Oct. 13, 20-21 hrs UT; Brightness Unit = 3.0 x 10^3 °K.



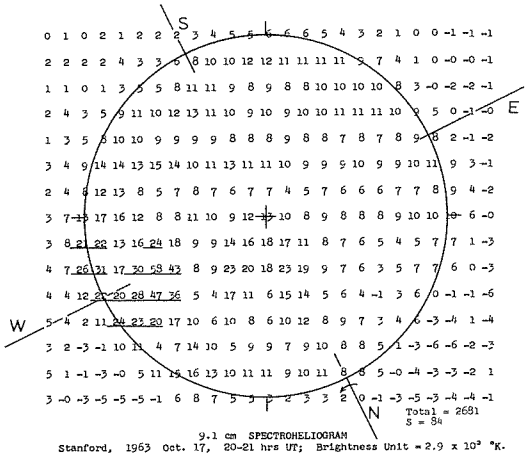
9.1 cm SPECTROHELIOGRAM
Stanford, 1963 Oct. 14, 20-21 hrs UT; Brightness Unit = 3.0 x 10^3 °K.



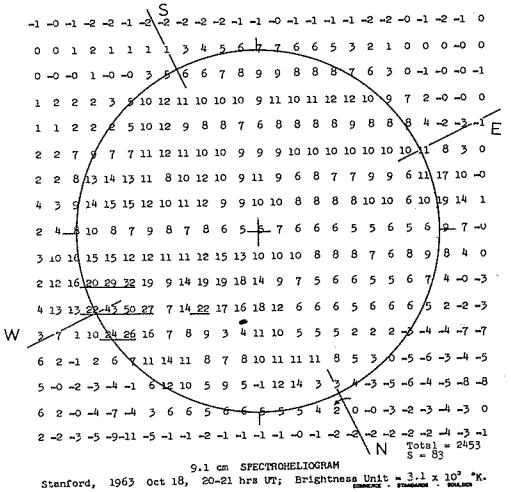
9.1 cm SPECTROHELIOGRAM
Stanford, 1963 Oct. 15, 20-21 hrs UT; Brightness Unit = 2.5 x 10^3 °K.



9.1 cm SPECTROHELIOGRAM
Stanford, 1963 Oct. 16, 20-21 hrs UT; Brightness Unit = 2.4 x 10^3 °K.



9.1 cm SPECTROHELIOGRAM
Stanford, 1963 Oct. 17, 20-21 hrs UT; Brightness Unit = 2.9 x 10^3 °K.



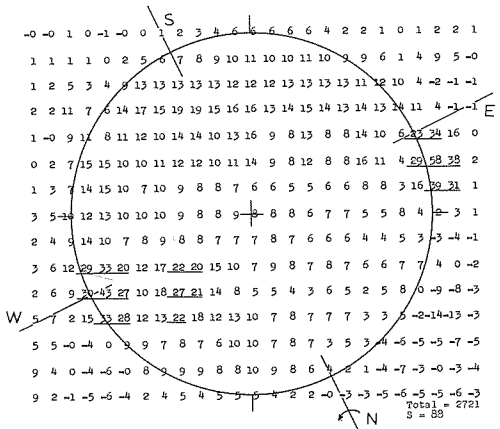
9.1 cm SPECTROHELIOGRAM
Stanford, 1963 Oct 18, 20-21 hrs UT; Brightness Unit = 3.1 x 10^3 °K.

SOLAR RADIO EMISSION SPECTROHELIOGRAMS

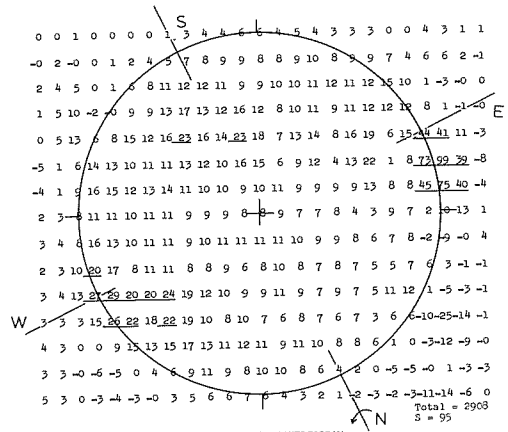
OCTOBER 1963

STANFORD

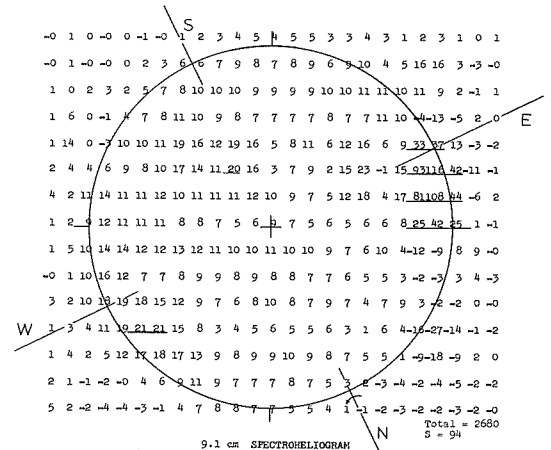
9.1 cm



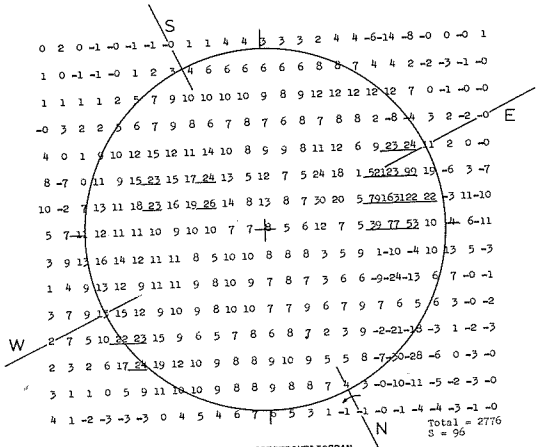
9.1 cm SPECTROHELIOGRAM
Stanford, 1963 Oct 19, 20-21 hrs UT; Brightness Unit = 3.0 x 10³ °K.



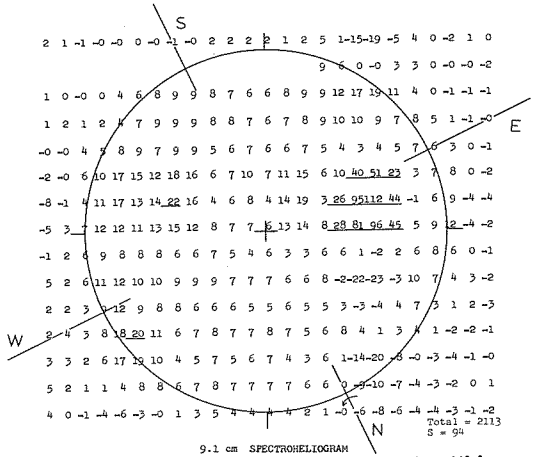
9.1 cm SPECTROHELIOGRAM
Stanford, 1963 Oct 20, 20-21 hrs UT; Brightness Unit = 3.0x 10³ °K.



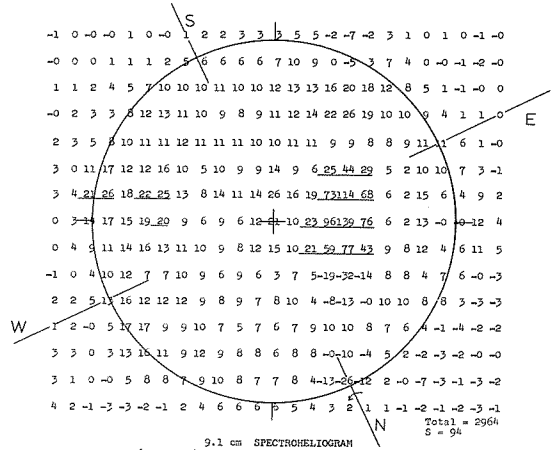
9.1 cm SPECTROHELIOGRAM
Stanford, 1963 Oct 21, 20-21 hrs UT; Brightness Unit = 3.2 x 10³ °K.



9.1 cm SPECTROHELIOGRAM
Stanford, 1963 Oct 22, 20-21 hrs UT; Brightness Unit = 3.1x 10³ °K.



9.1 cm SPECTROHELIOGRAM
Stanford, 1963 Oct 23, 20-21 hrs UT; Brightness Unit = 4.0 x 10³ °K.



9.1 cm SPECTROHELIOGRAM
Stanford, 1963 Oct 24, 20-21 hrs UT; Brightness Unit = 2.8 x 10³ °K.

COMMERCE - STANDARDS - BOULDER

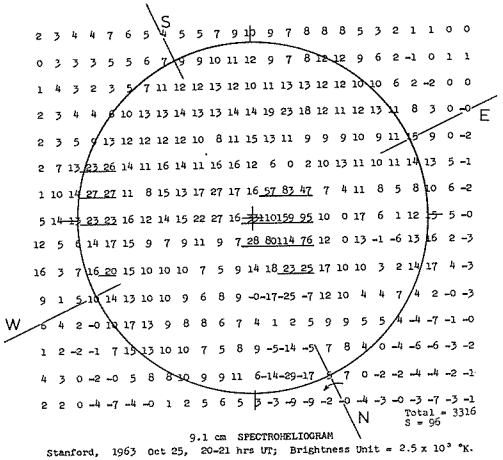
IVo

SOLAR RADIO EMISSION SPECTROHELIOGRAMS

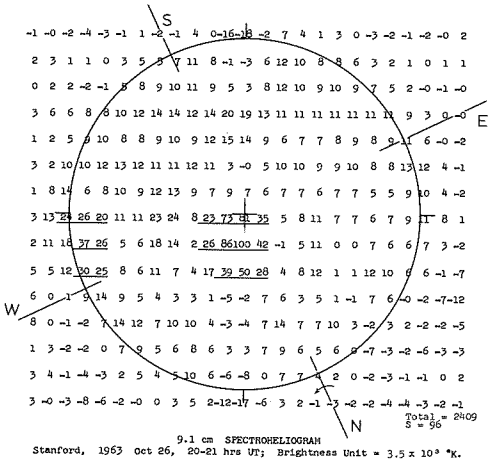
OCTOBER 1963

STANFORD

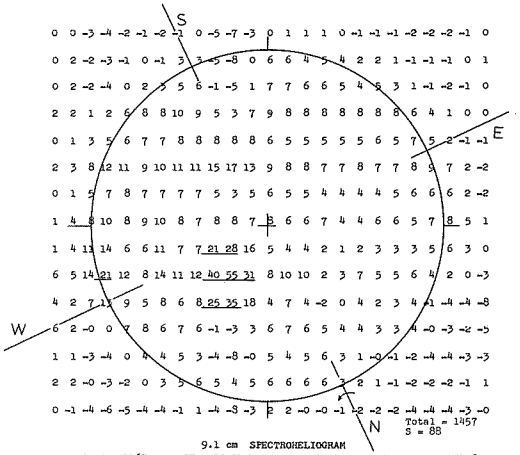
9.1 cm



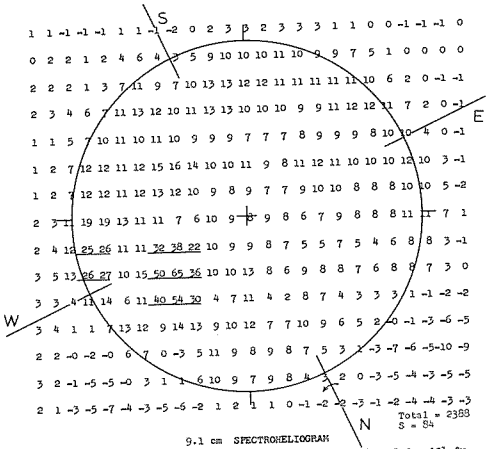
9.1 cm SPECTROHELIOGRAM
Stanford, 1963 Oct 25, 20-21 hrs UT; Brightness Unit = 2.5 x 10³ °K.



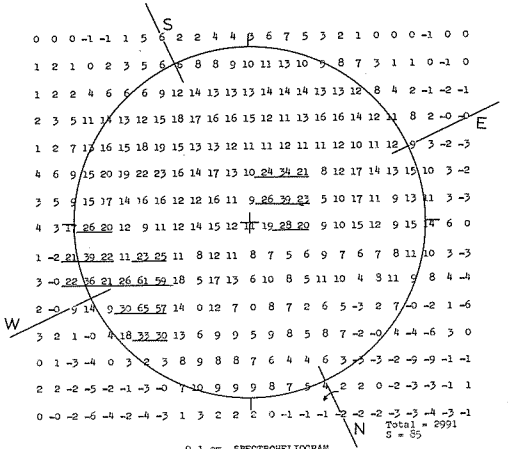
9.1 cm SPECTROHELIOGRAM
Stanford, 1963 Oct 26, 20-21 hrs UT; Brightness Unit = 3.5 x 10³ °K.



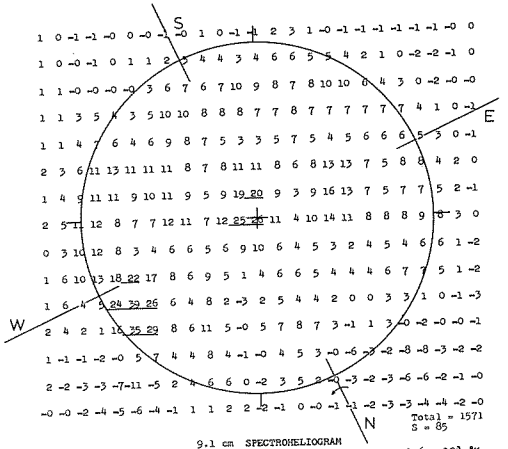
9.1 cm SPECTROHELIOGRAM
Stanford, 1963 Oct 27, 20-21 hrs UT; Brightness Unit = 5.2 x 10³ °K.



9.1 cm SPECTROHELIOGRAM
Stanford, 1963 Oct 28, 20-21 hrs UT; Brightness Unit = 3.0 x 10³ °K.



9.1 cm SPECTROHELIOGRAM
Stanford, 1963 Oct 29, 20-21 hrs UT; Brightness Unit = 2.4 x 10³ °K.



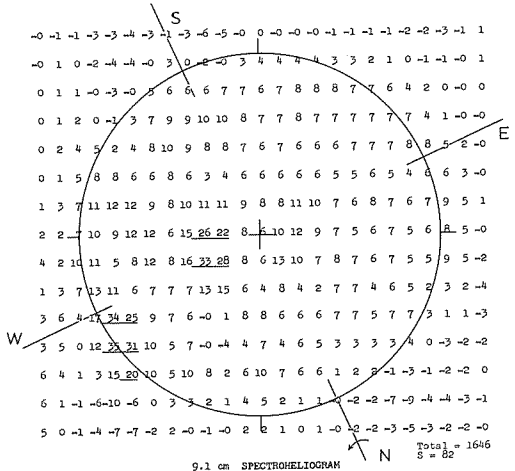
9.1 cm SPECTROHELIOGRAM
Stanford, 1963 Oct 30, 20-21 hrs UT; Brightness Unit = 4.6 x 10³ °K.

SOLAR RADIO EMISSION SPECTROHELIOGRAMS

OCTOBER 1963

STANFORD

9.1 cm



Total = 1646
S = 82

9.1 cm SPECTROHELIOGRAM
Stanford, 1963 Oct 31, 20-21 hrs UT; Brightness Unit = 4.2 x 10^3 °K.

COSMIC RAY INDICES

(Climax Neutron Monitor)

IGC Station B 305

SEPTEMBER 1963

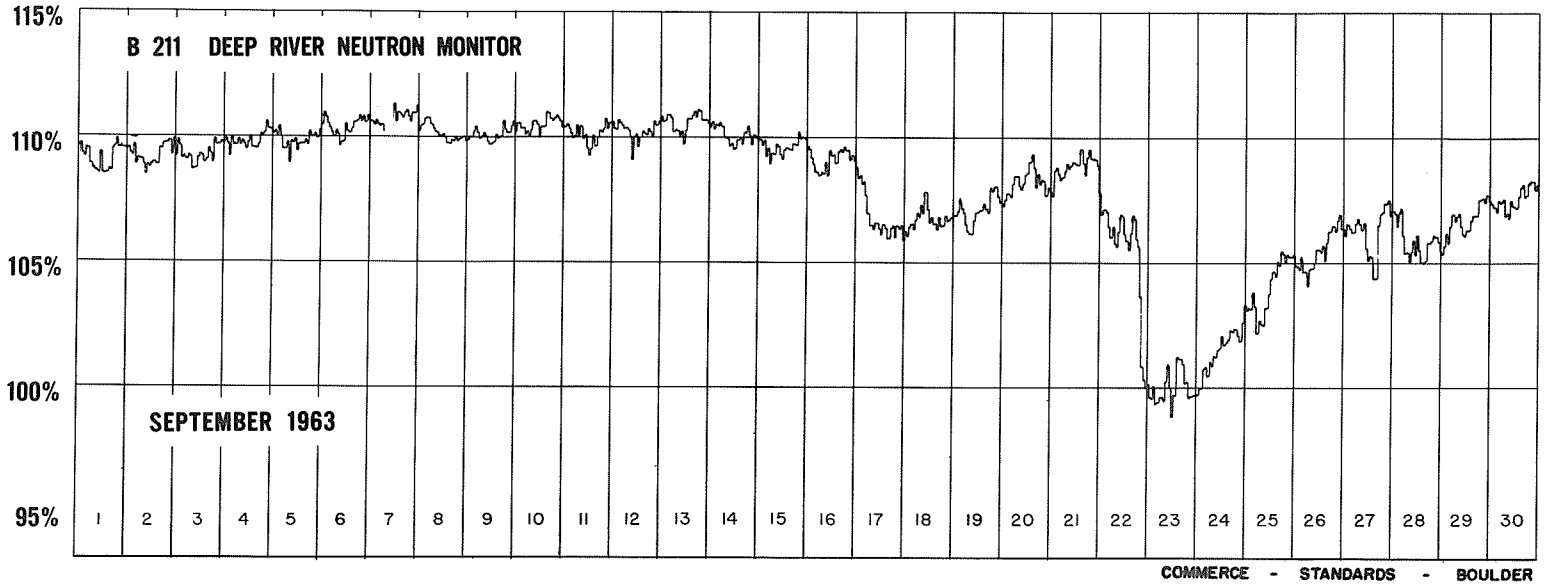
Sept. 1963	Daily average counts/hr*	Sept. 1963	Daily average counts/hr*
1	3188.1	16	3210.9
2	3189.1	17	3119.3
3	3189.3	18	3106.2
4	3206.1	19	3117.3
5	3203.0	20	3132.5
6	3208.0	21	3148.0
7	3208.8	22	3068.6
8	3202.5	23	2902.8
9	3198.1	24	2937.9
10	3206.1	25	3034.9
11	3215.6	26	3069.2
12	3205.4	27	3087.3
13	3212.2	28	3111.8
14	3242.8	29	3103.4
15	3218.8	30	3161.3

*Scaling Factor 128.

COMMERCE - STANDARDS - BOULDER

COSMIC RAY INDICES

(Pressure Corrected Hourly Totals)



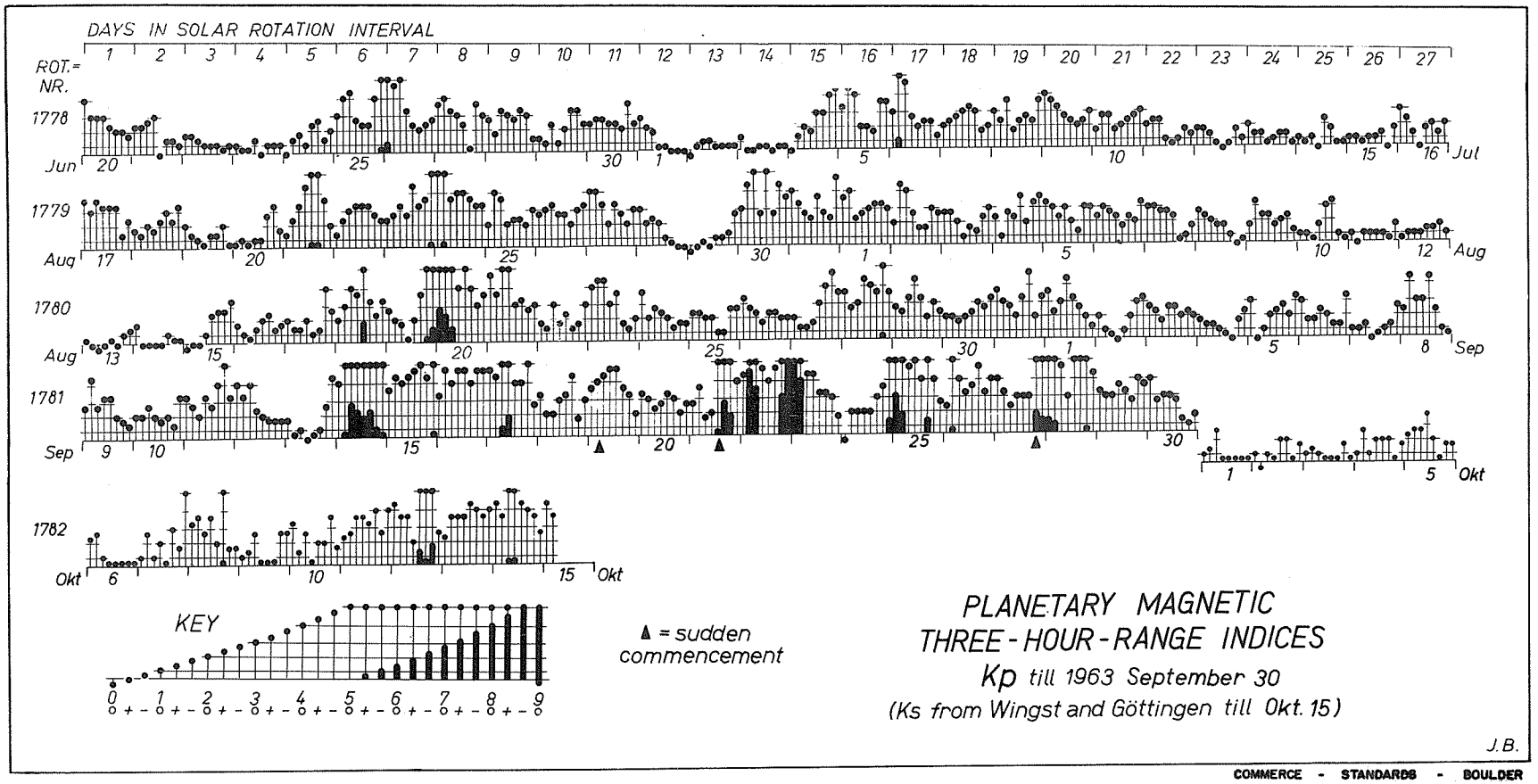
GEOMAGNETIC ACTIVITY INDICES

SEPTEMBER 1963

Sept. 1963	C	Values Kp Three hour Gr. interval 1 2 3 4	5 6 7 8	Sum	Ap	Final Selected Days
1	0.8	4- 2+ 3o 4+	3+ 3- 2o 1+	23-	15	Five
2	0.5	2o 1o 1- 0+	1o 2o 3o 3+	13+	8	Quiet
3	0.6	3- 2+ 2- 3-	3- 2o 2+ 2o	18+	9	
4	0.3	2- 1+ 1+ 1o	1- 0+ 2- 2+	10+	5	2
5	0.6	3o 0+ 1o 2o	2+ 3- 2o 3+	17-	9	4
						6
6	0.5	3o 2- 2- 2+	2o 1+ 1+ 3+	17-	9	7
7	0.2	1o 1o 1+ 0+	1- 1o 1+ 3-	9+	5	13
8	0.8	2+ 4+ 3o 3o	4+ 2+ 1o 1-	21o	15	
9	0.9	3- 4+ 3- 3+	3+ 2o 2- 1+	21+	14	
10	0.5	2o 2o 3- 2o	2- 2o 1+ 3+	17o	9	
11	1.1	3+ 3- 2o 3+	3- 4o 5o 3+	26+	20	Five
12	0.7	4o 3+ 4o 2+	2o 2- 2- 2-	21-	13	Disturbed
13	0.7	2- 1- 1o 0+	1- 1o 3- 4+	12+	8	
14	1.8	4o 5+ 7o 7-	6+ 7- 6- 5+	47o	82	14
15	1.4	4- 4+ 4o 4+	5- 5o 4+ 5+	36-	38	22
						23
16	1.3	3+ 5- 4o 5-	5- 4o 5- 5-	35-	33	25
17	1.4	5- 4+ 6- 6+	4o 4o 5o 3-	37-	43	28
18	0.9	3+ 2o 2o 3o	3+ 4+ 2- 3o	23-	15	
19	1.2	4- 4o 4+ 5-	5- 4- 3+ 2o	30+	26	
20	0.8	3+ 3o 2+ 3-	3+ 3o 2o 3-	22+	13	
21	1.5	3- 4- 2- 2o	5+ 7o 6+ 4o	33-	44	Ten
22	1.9	4+ 8+ 8- 5-	4o 5- 7+ 9-	50-	126	Quiet
23	1.7	9- 8o 4+ 4+	3+ 3+ 3o 2-	37-	78	
24	1.0	0o 2o 2o 2o	2o 3o 4- 6o	21-	18	2
25	1.6	7+ 6+ 5- 5o	4o 6o 4o 3-	40o	60	3
						4
26	1.2	2+ 5+ 4o 3+	4- 5- 3+ 4o	31-	27	5
27	1.3	4o 3+ 2+ 3o	3o 3o 6+ 6o	31o	34	6
28	1.6	6o 6- 5- 3o	5o 5o 5+ 4+	39o	48	7
29	1.0	3+ 3o 3o 4-	3+ 3- 4o 4-	27-	19	10
30	0.7	4o 3- 3o 3o	3- 1+ 1o 2-	19+	12	12
						13
						30
Mean:	1.02			Mean:	28	

COMMERCE - STANDARDS - BOULDER

Erratum: The mean Ap for December 1961 should be 12, not 26, as published in table VIa CRPL-F 210 Part B, issued February 1962.



COMMERCE - STANDARDS - BOULDER

CRPL RADIO PROPAGATION QUALITY FIGURES AND FORECASTS

SEPTEMBER 1963

NORTH ATLANTIC

SEPTEMBER 1963	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 (1)	DAY (2)
01	6o	5-	6+	7-	6	5	6	6	6o	6		6		3	2
02	6-	4+	6+	6+	6	5	6	6	5+	6		6		1	2
03	6o	4+	6+	6o	6	5	6	6	5+	6		6		3	2
04	6o	4+	7-	6+	6	4	6	6	6-	6		6		1	2
05	6-	5o	7-	6+	6	5	6	6	6o	6		6		2	2
06	6o	5-	6+	6+	6	5	6	6	6-	6		6		2	2
07	6+	5-	6+	6+	6	5	7	6	6o	6		6		1	2
08	6o	5o	6+	6+	6	4	6	6	6o	6		6		(4)	2
09	6-	4o	6+	7-	6	4	6	6	6-	6		6		3	2
10	5+	4+	6o	6+	6	4	6	6	5+	6		6		2	2
11	5o	5o	6o	6-	6	4	6	6	5+	6		6		3	3
12	4o	4-	7-	6+	6	4	6	6	5o	6		6		(4)	1
13	5+	4-	7-	6+	5	4	6	6	5+	6		6		1	2
14	5-	3+	4+	4o	4	4	5	4	(4o)	5		5		(5)	(4)
15	3o	3-	6-	5+	3	2	5	5	(4-)	4		4		(4)	(4)
16	4o	2+	4+	4-	3	2	5	5	(4-)	4		4		(4)	(4)
17	3-	2-	5-	4+	3	2	4	4	(3o)	4		4		(5)	3
18	3o	3-	6-	5-	3	2	5	5	(4-)	4		4		2	2
19	4+	3-	5o	5+	4	3	5	4	(4o)	3		3		(4)	2
20	5o	4-	6-	5+	5	4	6	6	5-	3		3		3	2
21	5o	3+	6-	5-	5	4	6	5	(4+)	4		4		3	(5)
22	4o	2+	4+	3-	3	2	4	3	(3+)	5		5		(5)	(5)
23	1+	1o	4o	4-	2	1	3	3	(3-)	6		6		(6)	3
24	2o	2+	6+	5o	2	2	5	5	(3+)	6		6		1	3
25	2+	1+	4o	4-	3	2	5	4	(3-)	6		6		(5)	3
26	3-	1+	4+	4+	3	3	5	5	(3+)	3		3		3	3
27	3o	2+	5+	4-	4	2	5	5	(3+)	4		4		3	(4)
28	2+	2-	3+	3o	2	2	4	4	(3-)	3	3	5		(4)	(4)
29	2+	2-	5o	4+	2	2	3	5	(3o)	3	3	6		3	3
30	3o	2+	5+	5o	3	2	4	5	(4-)	4	4	6		3	2
Score: Quiet Periods				P	12	4	12	16		7		7			
				S	3	2	10	4		6		6			
				U	0	0	1	0		1		1			
				F	0	0	0	0		0		0			
Disturbed Periods				P	9	16	1	4		8		5			
				S	5	7	6	6		4		4			
				U	0	1	0	0		1		2			
				F	1	0	0	0		3		5			

NORTH PACIFIC

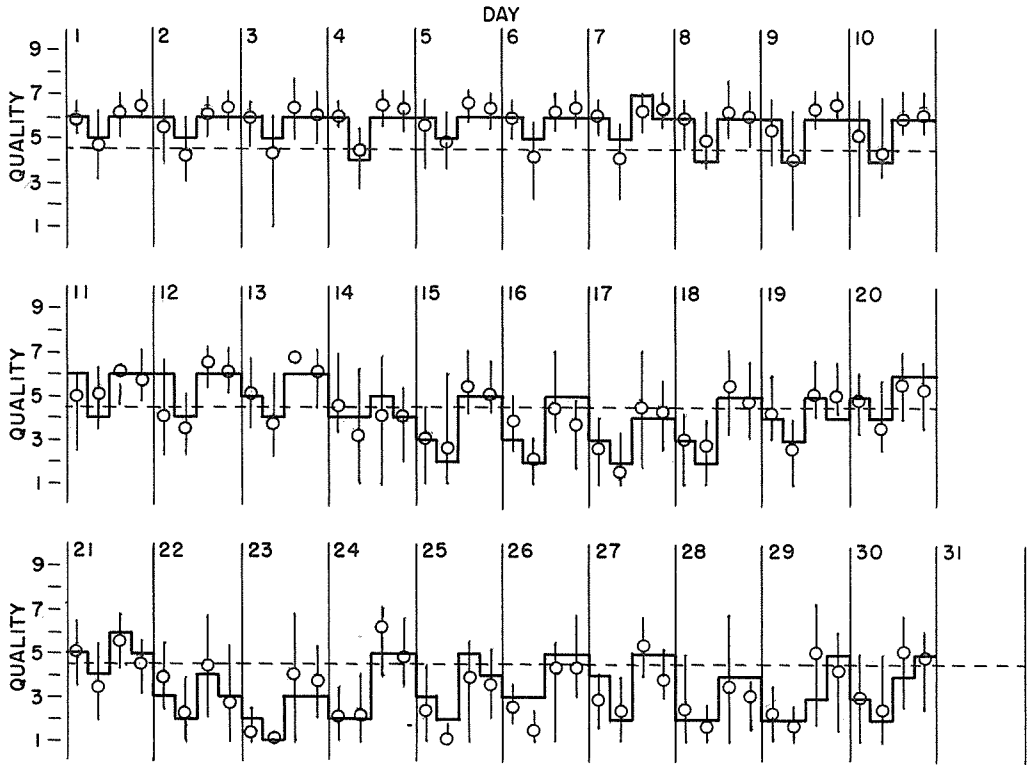
SEPTEMBER 1963	NORTH PACIFIC 8-HOURLY QUALITY FIGURES 03 TO 11	11 TO 19	19 TO 03	SHORT-TERM FORECASTS ISSUED AT: 02	09	18	WHOLE DAY INDEX	ADVANCE FORECASTS (J_P REPORTS) FOR WHOLE DAY; ISSUED IN ADVANCE BY: 1-7 DAYS FINAL J_{PS}	1-7 DAYS SDW	1-3 DAYS J_P	1-7 DAYS	GEOMAGNETIC K_{SI} HALF (1)	DAY (2)
01	5	6	7	6	4	5	6	6		6		1	2
02	6	5	6	5	5	6	6	6		6		0	2
03	6	5	7	5	5	6	6	6		6		2	2
04	6	5	6	5	5	6	6	6		6		2	2
05	6	6	6	5	6	6	6	6		6		2	2
06	6	6	7	5	5	6	6	6		6		2	2
07	7	6	7	6	6	6	6	6		6		1	1
08	5	4	7	6	5	6	6	6		6		(4)	2
09	4	4	7	6	5	6	6	6		6		3	2
10	6	6	7	6	6	6	6	6		6		2	2
11	6	5	7	6	6	6	6	6		6		2	3
12	6	5	7	6	5	6	6	5		5		(4)	1
13	6	6	6	6	6	6	6	5		5		0	1
14	5	3	3	5	3	3	(4)	4		4		(6)	(5)
15	3	3	4	2	3	2	(3)	3		3		(5)	(4)
16	4	4	4	2	1	3	(4)	3		3		(4)	(4)
17	3	3	4	2	1	2	(3)	4		4		(5)	(4)
18	3	4	5	3	3	3	(3)	4		4		3	3
19	4	3	5	3	3	2	(3)	3		3		(5)	(4)
20	4	4	4	4	3	5	(4)	3		3		3	3
21	4	4	6	4	2	2	(4)	3		3		2	3
22	3	3	4	4	2	5	(3)	5		5		(6)	(5)
23	4	4	6	2	2	5	(4)	6		6		(6)	2
24	5	4	4	5	5	5	(4)	6		6		1	3
25	4	3	4	2	2	3	(3)	6		6		(7)	(4)
26	4	3	5	3	5	3	(4)	3		3		3	(4)
27	4	4	4	3	4	5	(4)	3		3		3	3
28	2	3	3	3	2	4	(2)	4		4		(6)	(4)
29	2	3	5	3	3	5	(3)	5		5		3	2
30	3	4	7	5	4	5	5	5		5		3	1
Score: Quiet Periods				6	8	5		12					
				8	2	9		2					
				0	0	4		0					
				0	1	2		0					
Disturbed Periods				3	6	1		3					
				8	8	7		7					
				4	4	2		3					
				1	1	0		3					

CRPL RADIO PROPAGATION QUALITY FIGURES AND FORECASTS

NORTH ATLANTIC

SEPTEMBER 1963

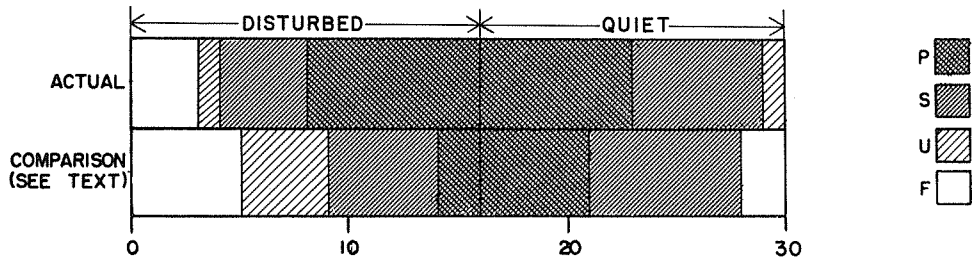
— Short-term forecast
○ Quality figure
| Range of reports



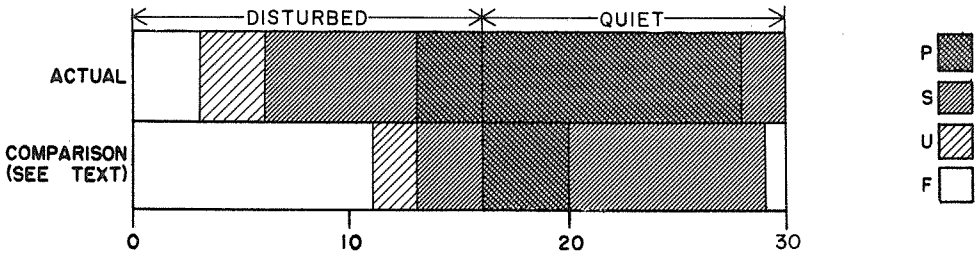
Outcome of advance forecasts--final estimates (1 to 7 days ahead)

COMMERCE - STANDARDS - BOULDER

NORTH ATLANTIC

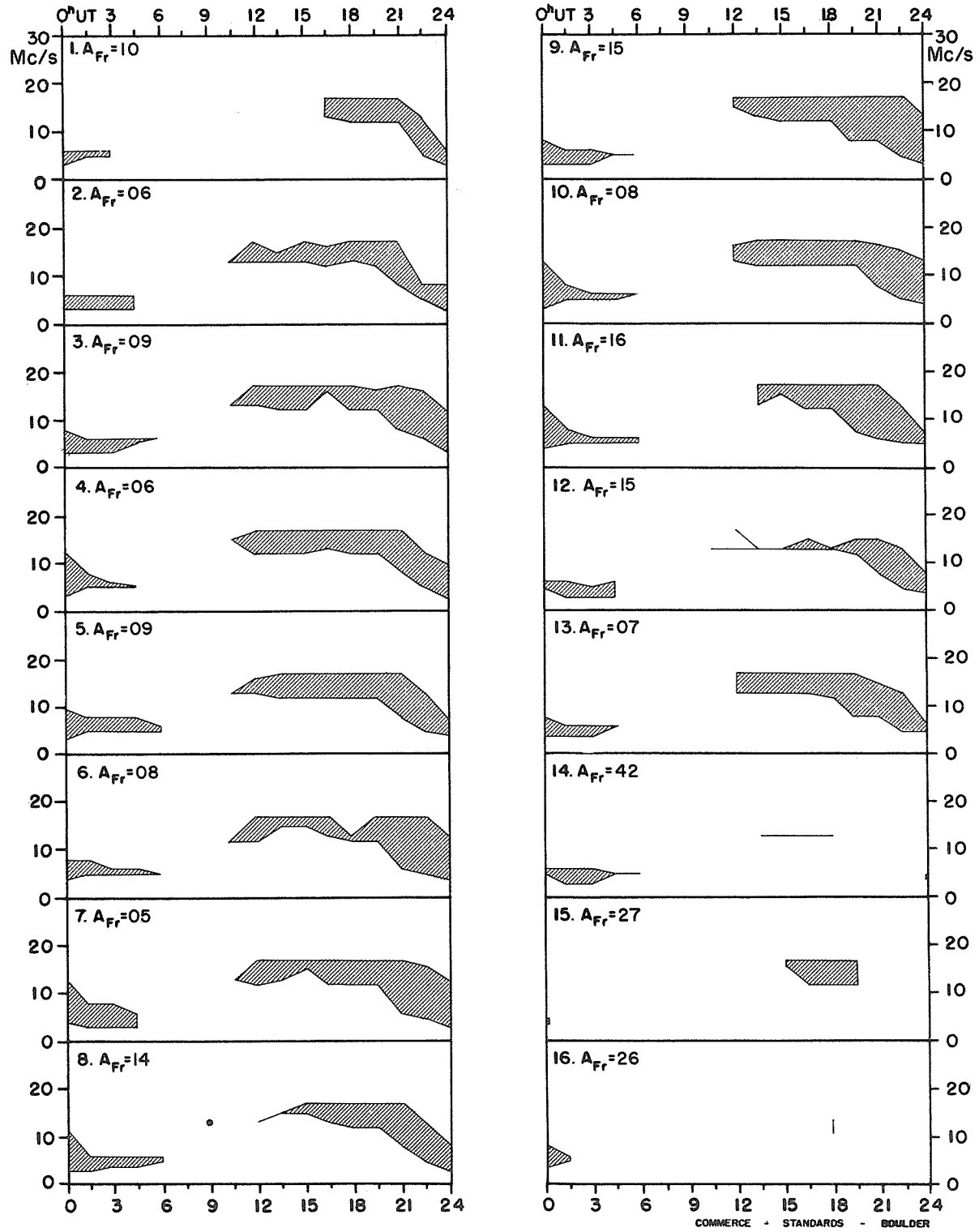


NORTH PACIFIC



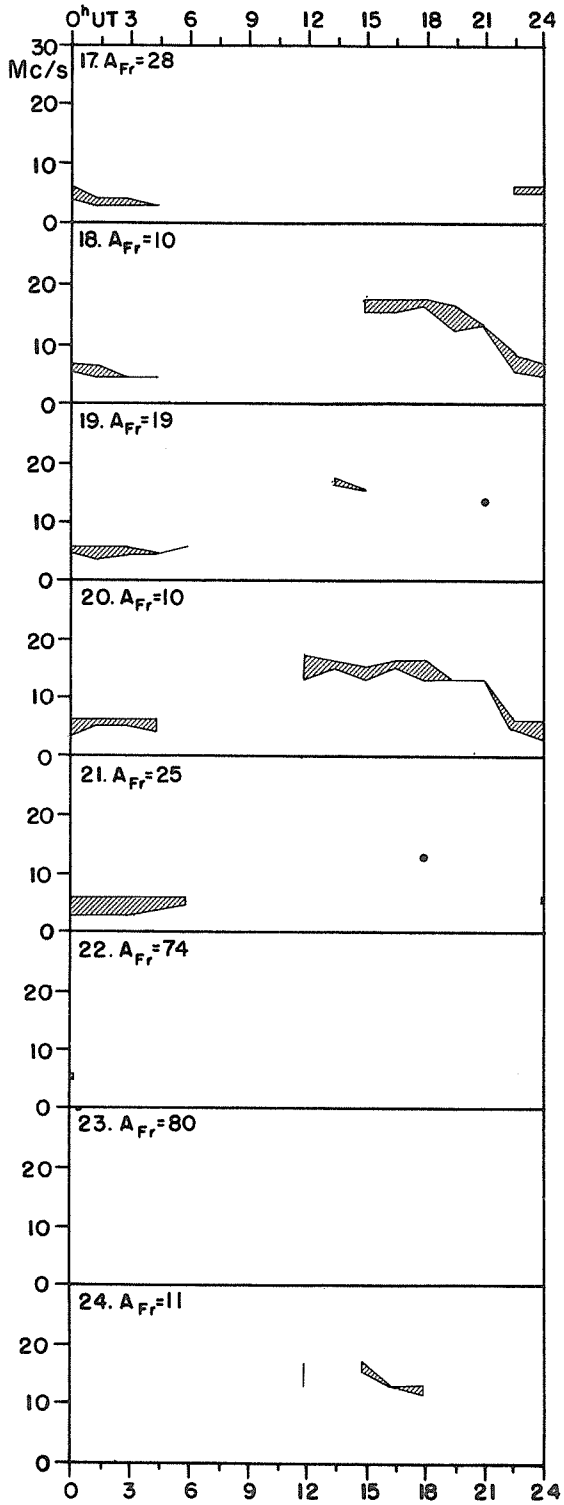
USEFUL FREQUENCY RANGES -- NORTH ATLANTIC PATH

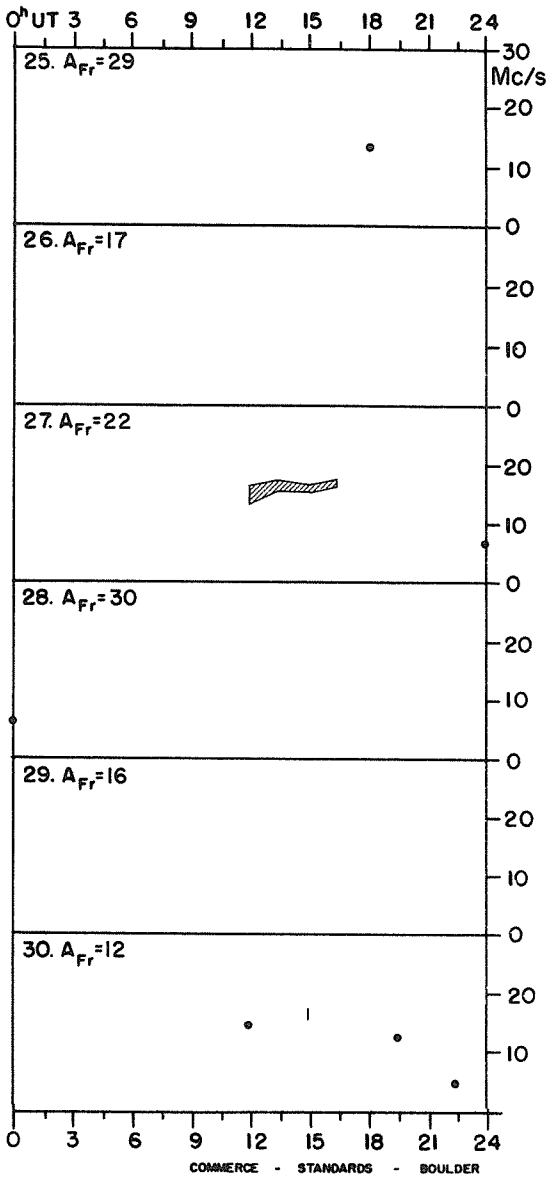
SEPTEMBER 1963



USEFUL FREQUENCY RANGES -- NORTH ATLANTIC PATH

SEPTEMBER 1963





Adapted from Observations by Deutsches Bundespost

IQSY ALERT PERIODS

INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

OCTOBER 1963

OCT. 1963	TIME OF ISSUE, UT	ADVANCE GEOPHYSICAL ALERT	WORLDWIDE GEOPHYSICAL ALERT			
			NO.	TYPE	TIMING	ELABORATION
7	0110	Sac Peak, Solar Flare 06/2219Z				
10	0400		1	Magnetic Storm	Expected	
11	0400		2	Magnetic Storm	Expected	
12	0400		3	Magnetic Storm	Expected	
15	0400		4	Solar Activity	Exists	
16	0400		5	Solar Activity	Exists	
17	0400		6	Solar Activity	Exists	
19	0400		7	Solar Activity	Exists	East Limb
20	0400		8	Solar Activity	Exists	East Limb
21	0400		9	Magnetic Storm	Expected	
21	1355	Ottawa, Solar Flare 21/1330Z				
22	0400		10	Solar Activity	Exists	
				Magnetic Storm	Expected	
22	1637	Climax, Solar Flare 22/1409Z				
23	0400		11	Solar Activity	Exists	Flares
24	0400		12	Solar Activity	Exists	
				Magnetic Storm	24/00XXZ	
25	0400		13	Solar Activity	Exists	
				Magnetic Storm	Exists	
26	0400		14	Solar Activity	Exists	
26	1557	Ottawa, Solar Flare 26/1530Z				
27	0400		15	Solar Activity	Exists	Flares
28	1627	Manila, Solar Flare 28/0158Z				
29	0400		16	Magnetic Storm	Expected	
29	1950	Ft. Belvoir, Magnetic Storm-29/13XXZ*				
30	0400		17	Magnetic Storm	29/13XX*	

* Later determined that this disturbance began suddenly 29/1359 UT.

COMMERCE - STANDARDS - BOULDER