

PART B
SOLAR - GEOPHYSICAL DATA

ISSUED

MAY 1964

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

SOLAR - GEOPHYSICAL DATA

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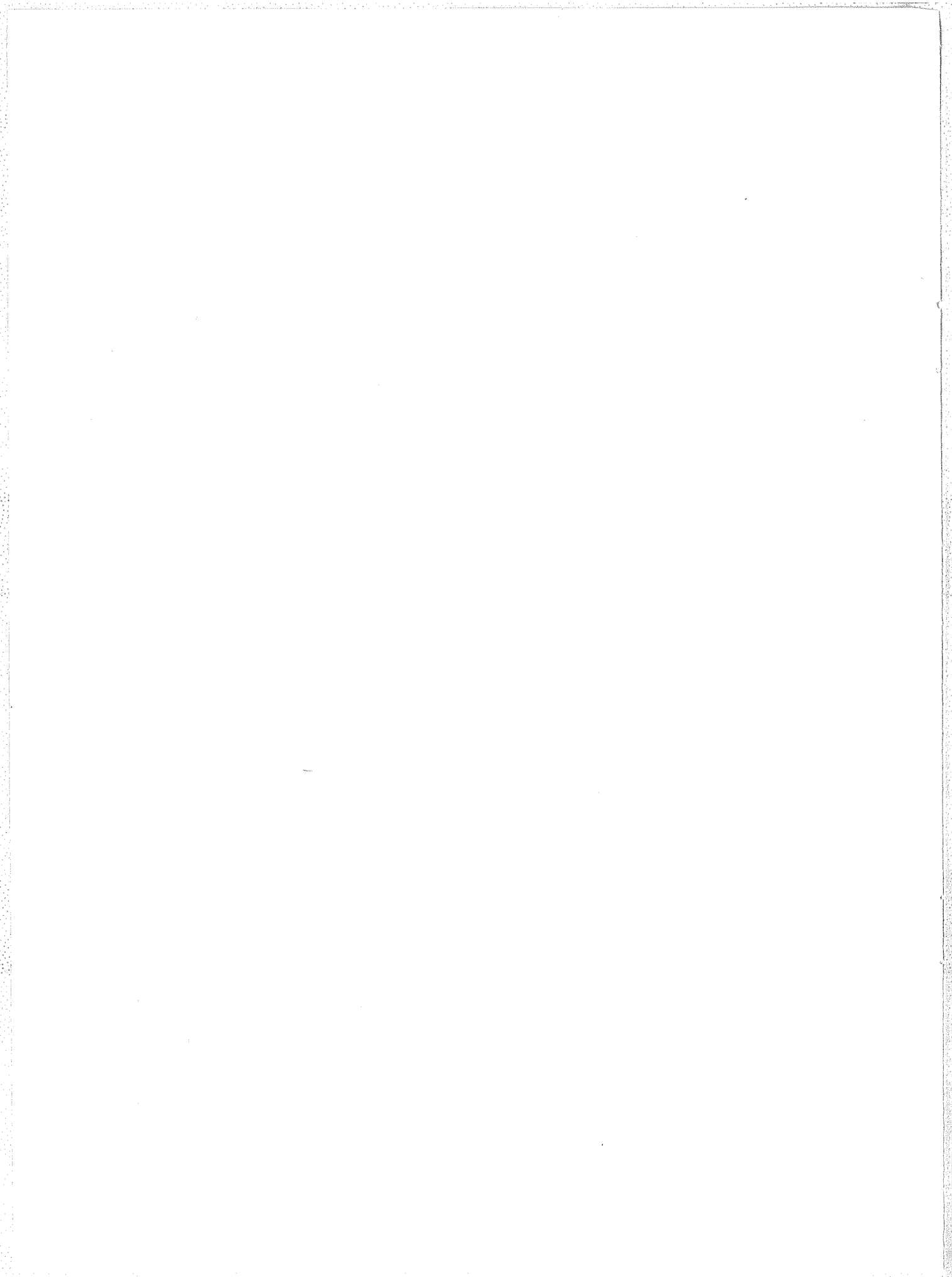
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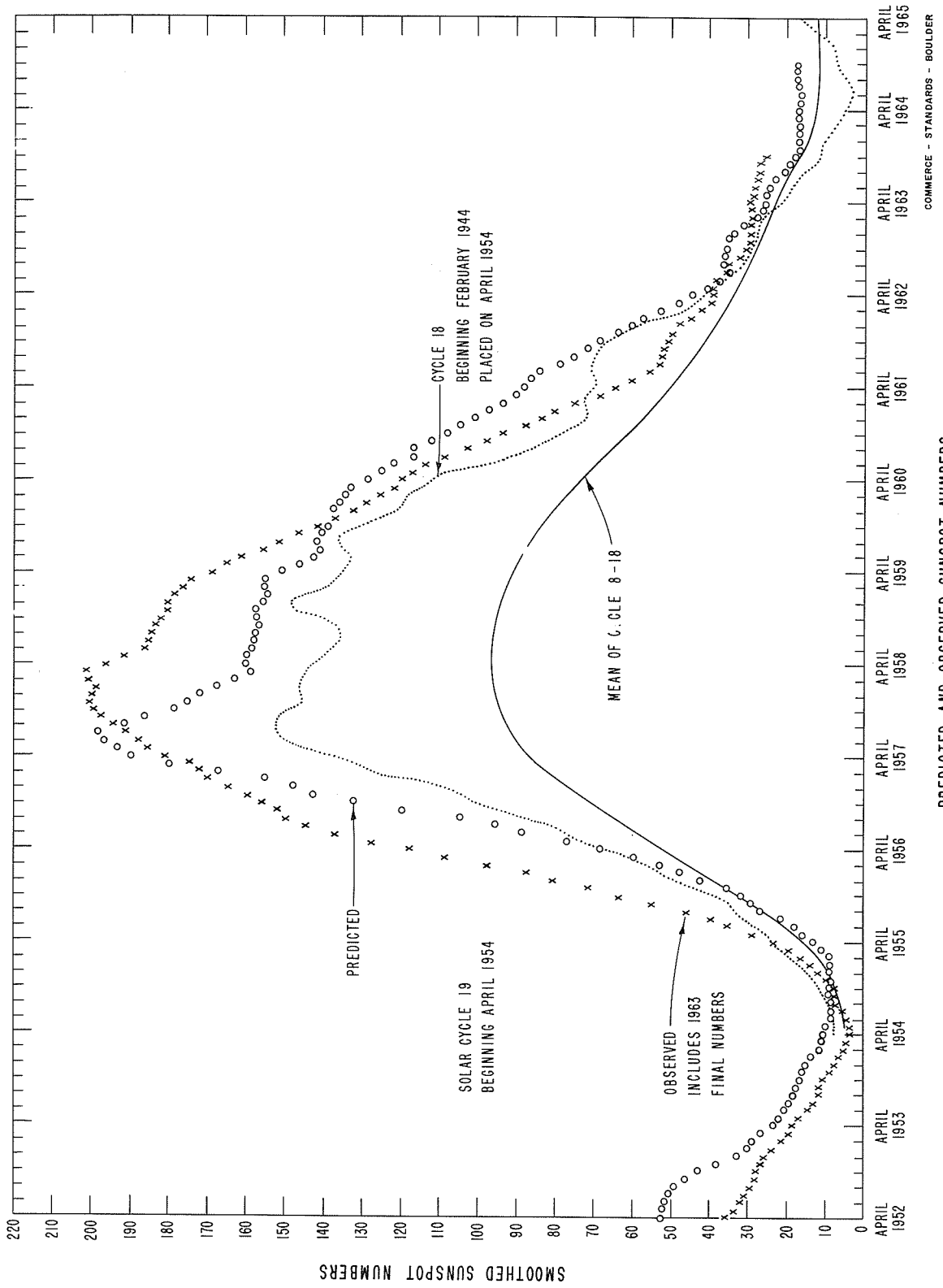


The descriptive text was republished November 1963.

DAILY SOLAR INDICES

Mar. 1964	American Relative Sunspot Numbers R_A'
1	6
2	2
3	0
4	1
5	2
6	1
7	1
8	0
9	0
10	0
11	9
12	23
13	23
14	26
15	22
16	25
17	13
18	11
19	11
20	14
21	22
22	31
23	5
24	28
25	25
26	16
27	13
28	11
29	2
30	0
31	1
Mean:	11.1

Apr. 1964	Zürich Provisional Relative Sunspot Numbers R_Z	Daily Values Solar Flux at 2800 Mc, Ottawa, Canada Flux
1	7	77
2	0	75
3	13	77
4	0	77
5	7	76
6	7	76
7	13	76
8	13	74
9	8	75
10	8	73
11	7	74
12	7	73
13	7	73
14	7	72
15	7	71
16	7	71
17	14	72
18	7	72
19	0	71
20	9	71
21	17	72
22	16	71
23	13	70
24	21	72
25	9	71
26	7	70
27	0	70
28	0	70
29	0	69
30	0	69
Mean:	7.7	73



CALCIUM PLAGE AND SUNSPOT REGIONS

APRIL 1964

Apr. 1964	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	
01.3	N01	7197 (2)	New	(300)	(1)	b - d	1	3/27	1			
01.5	N25	7210	New	(300)	(1.5)	b / l	1	4/4	4			
01.7	S02	7207 (2)	New	(200)	(1.5)	b - d	1	4/3	1			
02.8	N02	7199 (2)	New	(100)	(1.5)	b - d	1	3/29	1			
02.9	N56	7203	New	300	1.5	b / d	1	3/31	2			
03.4	N36	7208 (2)	New	100	1.5	b - d	1	4/3	1			
03.8	S05	7200	7178	400	2	l \ d	2	<3/29	>10			
04.2	N10	7209	New	400	2	b \ d	1	4/3	5			
04.3	N41	7211	New	100	1.5	b - d	1	4/4	2			
05.1	S04	7206 (2)	New	(400)	(1)	b - d	1	4/1	1			
05.5	N10	7201	New	1200	3	l - l	1	3/30	13			
05.9	N32	7216	New	(200)	(1.5)	b - l	1	4/9	2			
06.8	N11	7204	New	500	2.5	l - l	1	3/31	13			
07.0	N04	7205	7182	600	3	l \ l	2	3/31	13			
08.4	N01	7212 (2)	New	(200)	(1)	b - d	1	4/4	1			
08.7	N05	7223	New	(200)	(2.5)	b \ l	1	4/12	2			
09.1	N01	7214 (2)	New	(200)	(2.5)	b - d	1	4/6	1			
09.2	S09	7225	New	(100)	(2)	b - l	1	4/13	2			
09.4	S01	7226	New	(200)	(1)	b - l	1	4/13	2			
09.8	S33	7227 (2)	New	(200)	(1)	b - d	1	4/13	1			
09.9	N29	7215	New	100	1.5	b \ d	1	4/7	4			
10.2	S36	7219 (2)	New	100	1.5	b - d	1	4/9	1			
10.5	S18	7218 (2)	New	100	1.5	b - d	1	4/9	1			
11.0	N08	7217	New	100	1	b \ d	1	4/9	2			
11.1	N22	7228	New	(100)	(1)	b - l	1	4/13	3			
11.9	N14	7213	New	1200	3	l / l	1	4/5	13	50	1	l / d
13.5	S02	7234	New	400	1.5	b \ l	1	4/15	>3			
13.9	N24	7232	New	200	1.5	b / d	1	4/14	>4			
14.2	N22	7221 (2)	New	(300)	(1.5)	b - d	1	4/10	1			
14.2	S05	7220	7183	(300)	(1)	l \ d	4	<4/9	>2			
14.3	N11	7235 (2)	New	200	1.5	b - d	1	4/15	1			
15.2	N08	7233	New	500	1.5	b - d	1	4/14	>4			
15.2	S13	7229	New	200	3	b / d	1	4/13	>5	20	1	b - d
15.5	S32	7230 (2)	New	(200)	(1)	b - d	1	4/13	1			
16.2	N02	7236	New	500	1.5	b - d	1	4/16	>2			
16.9	N11	7222	7189	800	2.5	l \ d	2	4/10	>8			
17.1	N20	7237 (2)	New	100	2.5	b - d	1	4/16	>2			
18.0	S45	7231 (2)	New	(200)	(1)	b - d	1	4/13	1			
18.3	N09	7224	7187	1000	3	l \ l	4	4/12	13	10	1	l - d
19.6	S08	7251 (2)	New	(100)	(2.5)	b - l	1	4/25	1			
19.7	S01	7239 (2)	New	(100)	(2)	b - d	1	4/17	1			
19.7	S09	7240 (2)	New	(100)	(2)	b - d	1	4/17	1			
20.4	S08	7238 (2)	New	(400)	(1.5)	b - d	1	4/16	1			
21.7	N36	7241 (2)	New	(100)	(1)	l - d	1	4/17	1			
22.1	N28	7242 (2)	New	(200)	(2)	l - d	1	4/17	1			
22.4	S32	7243 (2)	New	(100)	(1.5)	l - d	1	4/17	1			
22.9	S08	7244	New	700	3	b / l	1	<4/22	>7	100	10	b \ d
23.4	N04	7248	New	300	1.5	b \ d	1	4/23	2			
24.4	N10	7249	New	600	1.5	b \ d	1	4/23	4			
25.1	S55	7245	New	200	1	b - d	1	<4/22	>2			
25.2	N03	7252 (2)	New	100	2	b - d	1	4/26	1			
25.4	S15	7246	New	(200)	(2.5)	b - d	1	<4/22	>1			
25.7	S08	7247	New	400	1	b / d	1	4/22	>7			
27.6	N34	7254 (2)	New	100	1.5	b - d	1	4/28	1			
27.9	S29	7257 (2)	New	(100)	(1)	b - d	1	5/1	1			
28.8	N09	7253 (2)	New	(200)	(2)	b - d	1	4/26	1			
28.9	N10	7266	New	(400)	(1.5)	b / l	1	5/3	2			
29.4	S15	7250	New	800	2.5	l \ d	1	4/23	10			

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- (1) No calcium plage data were secured at the McMath-Hulbert Observatory on April 2, 8, 18, 19, 20, 21, 27, 29 and 30.
- (2) These very small and ephemeral plages last for only one day.

MT. WILSON MAGNETIC CLASSIFICATIONS OF SUNSPOTS

11b

APRIL 1964

Apr. 1964	TIME MEAS. UT	LAT.	MER. DIST.	TYPE	Apr. 1964	TIME MEAS. UT	LAT.	MER. DIST.	TYPE
1	No Obs.				12	1635	N09	E74	α f*
2-4	No Spots				13	2320	N09	E58	α f*
5	No Obs.				14	No Spots			
6	2240	N16	E63	α p	15	1855	S13	W06	β
7	2250	N17	E50	α p	16-18	No Spots			
8	2425	N17	E35	α p	19-24	No Obs.			
9	2305	N17	E21	α p	25	2425	S10	W43	β p**
10	2425	N17	E07	α p	26	1710	S09	W53	α p
11	1730	N17	W03	α p	27-30	No Spots			

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*Inconclusive

**Old Cycle Polarities Reversed

NOTE: In CRPL-F 236 the data for Mt. Wilson magnetic classification of sunspots were for March 1964, not February 1964 as labelled.

FINAL CORONAL LINE EMISSION INDICES

JANUARY 1964

CMP Jan 1964	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 ₁	G ₆	G ₁	R ₁	G ₆	G ₁	R ₁	G ₆	G ₁	R ₁
1	9	11	22	16	20	24	20	32	7	27	37	4
2	14	17	20	20	19	22	13	18	6	11	15	4
3	12	14	16	18	9	14	10	14	13	10	12	13
4	10	14	11	11	10	12	8	12	11	9	10	8
5	15	18	15	11	14	18	7	8	15	10	14	18
6	7	11	11	3	6	15	6	8	36	13	14	28
7	10	18	12	7	9	16	24	73	50	13	17	24
8	12	17	24	4	6	19	16	34	36	13	20	20
9	12	16	15	6	7	13	6	8	9	12	14	6
10	19	25	19	10	11	15	13	14	x	32	39	x
11	23	34	13	9	17	16	12	17	14	17	20	10
12	19	28	10	9	13	6	18	34	x	39	50	x
13	18	32	30	10	18	20	10	11	26	26	42	20
14	21	28	23	15	19	26	5	8	7	31	53	30a
15	48	68	10	10	15	11	10	12	x	46	67	x
16	29	41	15	5	9	14	23	26	34a	40	56	12a
17	25	34	20	8	10	20	11	15	x	55	66	x
18	20	24	10	8	10	24	9	11	x	25	35	x
19	22	31	26	5	8	22	9	17	20	10	21	17
20	21	42	35	7	11	24	13	22	18	5	8	12
21	14	20	20	4	8	28	x	x	21a	x	x	21a
22	7	8	16	3	3	20	4	6	28	8	11	28
23	8	9	15	5	7	8	x	x	x	x	x	x
24	25	31	x	17	23	x	x	x	x	x	x	x
25	19	36	18	9	12	7	x	x	x	x	x	x
26	51	98	x	28	61	x	6	9	12	17	32	16
27	22	31	28	7	8	20	6	10	10	19	39	8
28	14	16	9	9	13	8	5	8	x	6	x	x
29	20	22	x	16	27	x	x	x	x	x	x	x
30	15	22	16a	26	32	16a	x	x	x	x	x	x
31	32	38	x	24	31	x	6	8	12a	6	7	16a

x = no observations

* = yellow line

a = index computed from low weight data

CONFERENCE - STANFORD - 1964

FINAL CORONAL LINE EMISSION INDICES

FEBRUARY 1964

CMP Feb 1964	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	12	x	x	11	13	x	x	x	5	6	x	x	x	x	x
2	5	7	16	20	3	4	19	20	16	8	8	23	26	12	11	16
3	9	11	10	12	5	8	12	16	16	5	8	x	x	11	17	20
4	x	x	19a	27a	x	x	20a	29a	29a	x	x	x	x	x	x	x
5	5	8	21	24	3	6	18	22	22	16	9	13	13	16	11	18
6	x	x	x	x	x	x	x	x	x	13	22	33	52	11	25	33
7	x	x	x	x	x	x	x	x	x	9	11	x	x	20	x	x
8	x	x	x	x	x	x	x	x	x	4	6	16	16	12	13	16
9	12	14	11	16	7	9	9	12	12	6	7	20	20	16	11	15
10	29	32	9	11	11	14	12	15	15	3	4	12	12	6	7	8
11	35	47	3	8	19	30	5	9	9	4	5	13	13	12	6	9
12	x	x	x	x	x	x	x	x	x	4	7	18	18	16	7	8
13	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
14	12	15	9	12	4	9	16	18	18	3	5	9	9	6	6	7
15	33	36	x	x	25	35	x	x	x	8	11	9	9	8	6	7
16	10	17	13	16	3	5	11	14	14	4	5	18	18	4	10	3
17	9	17	17	26	4	6	14	15	15	x	x	x	x	x	x	x
18	9	16	x	x	8	10	x	x	x	x	x	x	x	x	x	x
19	14	19	10	19	8	12	8	12	12	4	7	88a	88a	5	46a	83a
20	29	50	31	57	19	64	31	76	76	8	18	9	9	29	10	17
21	58	85	x	x	13	28	x	x	x	12	20	33	33	87	46	80
22	26	53	18	23	7	11	12	14	14	x	x	x	x	x	x	x
23	15	28	17	24	4	5	14	17	17	4	6	41	41	61	76	136
24	5	10	8	12	3	3	8	9	9	9	19	x	x	36	x	x
25	7	12	16	40	3	5	9	14	14	x	x	x	x	x	x	x
26	5	6	15	22	4	6	10	14	14	15	19	15	15	21	7	9
27	14	17	x	x	21	29	x	x	x	5	6	8	8	18	8	13
28	9	21	12	24	3	5	8	10	10	x	x	x	x	x	x	x
29	19	24	22	42	21	24	4	8	8	14	16	46	46	61	x	x

x = no observations

* = yellow line

a = index computed from low weight data

FINAL CORONAL LINE EMISSION INDICES

MARCH 1964

CMP Mar 1964	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	19	24	22	42	21	24	4	8	x	x	x	x	x	x	x	x
2	12	28	19	25	10	25	22	26	x	x	x	x	x	x	x	x
3	x	x	x	x	x	x	x	x	18	35	10	13	x	11	10	15
4	x	x	x	x	x	x	x	x	9	12	13	16	x	18	12	14
5	9	14	8	13	10	12	7	9	4	7	11	12	7	9	12	16
6	9	14	13	16	7	12	11	15	9	22	x	x	5	6	x	x
7	8	11	25	28	7	14	30	41	19	53	19	38	9	11	7	8
8	11	15	28	36	13	39	47	84	12	27	21	32	9	10	12	16
9	12	18	x	x	5	8	x	x	x	x	x	x	x	x	x	x
10	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
11	22	36	5	7	13	19	8	13	14	42	13	16	36	76	10	14
12	12	16	7	10	2	3	9	12	x	x	x	x	x	x	x	x
13	x	x	x	x	x	x	x	x	3	3	9	10	18	22	8	16
14	36	40	x	x	18	23	x	x	4	6	10	11	6	8	10	12
15	26	33	x	x	19	22	x	x	5	6	13	16	9	12	9	10
16	x	18	x	x	x	x	x	x	8	12	9	12	8	11	8	10
17	12	18	13	19	10	21	10	12	3	4	9	10	2	3	10	12
18	18	32	14	24	7	25	8	9	x	x	x	x	x	x	x	x
19	23	50	11	13	6	15	8	9	6	9	7	8	27	63	14	24
20	26	44	x	x	5	8	x	x	x	x	x	x	x	x	x	x
21	21	43	12	16	2	6	13	16	4	6	11	16	31	68	13	18
22	18	32	17	32	3	3	15	16	6	17	9	9	25	50	10	16
23	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
24	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
25	8	11	8	12	7	14	7	10	x	x	x	x	x	x	x	x
26	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
27	33	81	x	x	x	14	x	x	x	x	x	x	x	x	x	x
28	33	75	18	32	6	8	14	23	x	x	x	x	x	x	x	x
29	11	12	18	32	11	24	15	24	x	x	x	x	x	x	x	x
30	9	12	14	26	20	47	14	31	x	x	x	x	x	x	x	x
31	3	10	19	32	6	10	15	25	x	x	x	x	x	x	x	x

x = no observations

* = yellow line

a = index computed from low weight data

PROVISIONAL CORONAL LINE EMISSION INDICES

APRIL 1964

CMP April 1964	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	7	11	18	23	7	9	11	15
2	5	7	10	14	4	5	10	12	3	4	13	20	3	4	8	13
3	x	x	x	x	x	x	x	x	3	6	8	10	3	12	11	18
4	26	42	20	26	6	14	11	14	6	17	9	11	29	42	12	20
5	37	67	17	28	6	18	10	16	3	6	10	12	14	29	13	20
6	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
7	x	x	x	x	x	x	x	x	4	15	11	12	4	7	8	9
8	x	x	x	x	x	x	x	x	4	6	14	20	4	20	13	18
9	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
10	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
11	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
12	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
13	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
14	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
15	13	18	16	20	5	9	9	12	x	x	9	11	x	x	13	15
16	9	24	24	48	2	4	9	20	x	x	x	x	x	x	x	x
17	14	27	16	32	2	3	9	12	6	11	10	20	6	67	11	14
18	39	87	18	36	5	8	8	12	x	x	x	13	x	x	x	x
19	8	18	19	40	3	4	9	12	3	6	9	x	4	7	9	16
20	x	x	x	x	x	x	x	x	3	x	x	x	3	4	x	x
21	3	4	8	12	2	3	5	6	15	34	12	16	6	11	10	12
22	9	11	13	16	4	5	15	22	22	42	23	40	8	9	22	26
23	x	x	x	x	x	x	x	x	12	20	10	16	6	8	12	18
24	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
25	x	x	x	x	x	x	x	x	4	6	8	10	x	3	7	8
26	x	x	x	x	x	x	x	x	7	9	10	24	5	6	6	8
27	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
28	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
29	x	x	15	22	x	x	16	20	x	x	11	16	x	x	7	9
30	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

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

CONVERSION STANDARDS - BOULDER

SOLAR FLARES

APRIL 1964

OBSERVATORY	DATE	OBSERVED UNIVERSAL TIME		LOCATION		DURATION MINUTES	IN-FOCUS RANGE	OBS. COND.	TIME U.T.	MEASUREMENTS		MAX. WIDTH Hg	MAX. INT. %	PROVISIONAL LONGISPHERIC EFFECT	
		START	END	APPROX. LAT.	APPROX. MER. DIST.					MAGNETIC BLAZE REGION	MEAS. AREA Sq. Degr.				COBR. AREA Sq. Degr.
LOCKHEED LOCKHEED LOCKHEED	13	2029	2045	N10 E63			1-1	1	2035	.20	.30		10		
	13	2312	2327	N07 E36			1-1	1	2318	.30	.50		10		
	13	2352	0010	N07 E63			1-1	1	2359	.20	.30		10		
CAPRI S	14	0100	0230	PATROL		13 D	1	2	0753	1.00	1.70				
	14	0752	0805	N12 E53		7224									
LOCKHEED LOCKHEED LOCKHEED LOCKHEED LOCKHEED	14	1805	1810	PATROL											
	14	1835	1840	PATROL											
	14	1905	1910	PATROL											
	14	2010	2100	S13 E07			1-1	2	2025	.20	.20		10		
	14	2010	2100	S13 E07			1-1	2	2240	.30	.40		10		
LOCKHEED	15	2124	2140	N14 E55			1-1	2	2130	.30	.30		10		
	15	2225	2315	PATROL											
CAPRI S CAPRI S CAPRI S CAPRI S CAPRI S CAPRI S CAPRI S CAPRI S CAPRI S CAPRI S	16	0005	0040	PATROL											
	16	0125	0140	PATROL											
	16	1035	1115	PATROL											
	16	1120	1130	PATROL											
	16	1140	1205	PATROL											
	16	1230	1300	PATROL											
	16	1310	1335	PATROL											
	16	1600	1605	PATROL											
	17	0000	0150	PATROL											
	17	2010	2040	PATROL											
CAPRI S CAPRI S	18	0055	0200	PATROL			1-1	3	1154	1.00	1.00		10		
	18	1154	1204	N11 W01			1-1	3	1306	2.10	2.10		10		
	18	1306	1339	N10 E03		7224									
	18	1605	1625	PATROL											
CAPRI S CAPRI S	18	1630	1700	PATROL											
	18	1705	2400	PATROL											
	19	0000	0035	PATROL											
	19	0717	0724	S05 E50		7244	1	3	0722	1.50	2.30		10		
CAPRI S CAPRI S	19	0741	0754	S05 E50		7244	1	3	0748	1.50	2.30		10		
	19	1615	2340	PATROL											
KODAIKWL	19	2355	2400	PATROL											
	20	0000	0010	PATROL											
	20	0120	0130	PATROL											
	20	0202	E	S07 E41		7244	1	P	0202	1.93	2.56				
	20	0205	0215	PATROL											
	20	0955	1010	PATROL											
CAPRI S CAPRI S CAPRI S CAPRI S	20	1055	1110	PATROL											
	20	1210	1220	PATROL											
	20	1305	1315	PATROL											
	20	1535	1550	PATROL											

SOLAR FLARES

APRIL 1964

OBSERVATORY	DATE	OBSERVED UNIVERSAL TIME		LOCATION			DURATION - MINUTES	IM-PORTANCE	OBS. COND.	TIME - U.T.	MEASUREMENTS			PROVISIONAL IONOSPHERIC EFFECT
		START	END	APPROX. LAT.	APPROX. LONG.	REGR. DIST.					MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Deg.	
	APR 1964													
	20	1650	2250											
LOCKHEED	21	0037	0048											
LOCKHEED	21	0102	0115											
LOCKHEED	21	0105	0125											
	21	0105	0125											
	21	0140	0145											
MANILA	21	0400 E	0409											
	21	0915	0920											
	21	0945	1000											
	21	1005	1020											
	21	1025	1030											
	21	1125	1135											
	21	1345	1405											
	22	1610	1640											
	22	1645	2310											
	23	0000	0020											
	23	0040	0200											
MANILA	23	0434	0445											
	24	0100	0145											
CAPRI S	24	0640 E	0740											
	24	0920	0925											
CAPRI S	24	1214 E	1245 D											
HTE-PROVEN	24	1217	1310 D											
SAC PEAK	24	1239 E	1320											
	25	1646	1718											
LOCKHEED	25	1646	1718											
LOCKHEED	25	1730	1750											
LOCKHEED	25	1805	1900											
LOCKHEED	25	1805	1900											
LOCKHEED	25	1903	1945											
MCNATH	25	1912	1915											
	25	2047	2125											
LOCKHEED	25	2048	2053											
MCNATH	25	2210	2330											
	26	0137 E	0920											
KODAIKUL	26	0915	0930											
	26	0925	1055											
LOCKHEED	26	1900	1920											
	27	0150	0240											
	27	0435	0445											
	27	1110	1126											
CAPRI S	28	2120	2200											
	28	2205	2400											

SOLAR FLARES

APRIL 1964

OBSERVATORY	DATE	OBSERVED UNIVERSAL TIME		MAX. PHASE	LOCATION			DURA- TION — MINUTES	IM. FOR- TANCE	OBS. COND.	TIME — U T	MEASUREMENTS			PROVISIONAL IONOSPHERIC EFFECT
		START	END		APPROX.	LAT.	MR. DIST.					MSMATH PLAGE REGION	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	
	APR 1964														
	29	0000	0120	NO FLARE	PATROL										
	29	0130	0505	NO FLARE	PATROL										
	29	0515	0605	NO FLARE	PATROL										
	29	0755	0800	NO FLARE	PATROL										
	29	1300	1320	NO FLARE	PATROL										
	29	2355	2400	NO FLARE	PATROL										
	30	0245	0520	NO FLARE	PATROL										
	30	1150	1215	NO FLARE	PATROL										
	30	1230	1235	NO FLARE	PATROL										
	30	2355	2400	NO FLARE	PATROL										

CONSISTENT - STANDARDS - QUALITY

ATHENS	ATHENS, GREECE	HONOLULU	HAWAII, USA	NERA	NEDEHORST den BERGH,
BAKOU	PIRCULI, USSR	IKOMASAN	KYOTO, JAPAN		NETHERLANDS
CAPTOWN	ROYAL OBSERVATORY,	KIEV KO	KIEV GAO, USSR	NIZMIR	KRASNAYA PAKHRA, USSR
	CAPE OF GOOD HOPE	KIEV KY	KIEV UNIVERSITY, USSR	SAC PEAK	SACRAMENTO PEAK, N.MEX. USA
CAPRI F	CAPRI, ITALY (GERMAN)	LOCKHEED	LOS ANGELES, CALIF., USA	SALTSJOBADEN	STOCKHOLM, SWEDEN
CAPRI S	CAPRI, ITALY (SWEDISH)	MCMATH	MCMATH-HULBERT	SCHAUTINSLAND, GFR	SCHAUTINSLAND, GFR
CRIMEE	SIMEIZ, USSR	MOSCOW	FORTIAC, MICH., USA	TASHKENT	TASHKENT, USSR
HERSTMONCEU	ROYAL GREENWICH OBSERVATORY,	NEW SCHAUTIN	MOSCOW-GAISH, USSR	WENDEL	WENDELSTEIN, GFR
	HERSTMONCEUX, ENGLAND		NEW SCHAUTIN FREIBURG, GFR		
HTE-PROVEN	HAUTE-PROVENCE				

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.

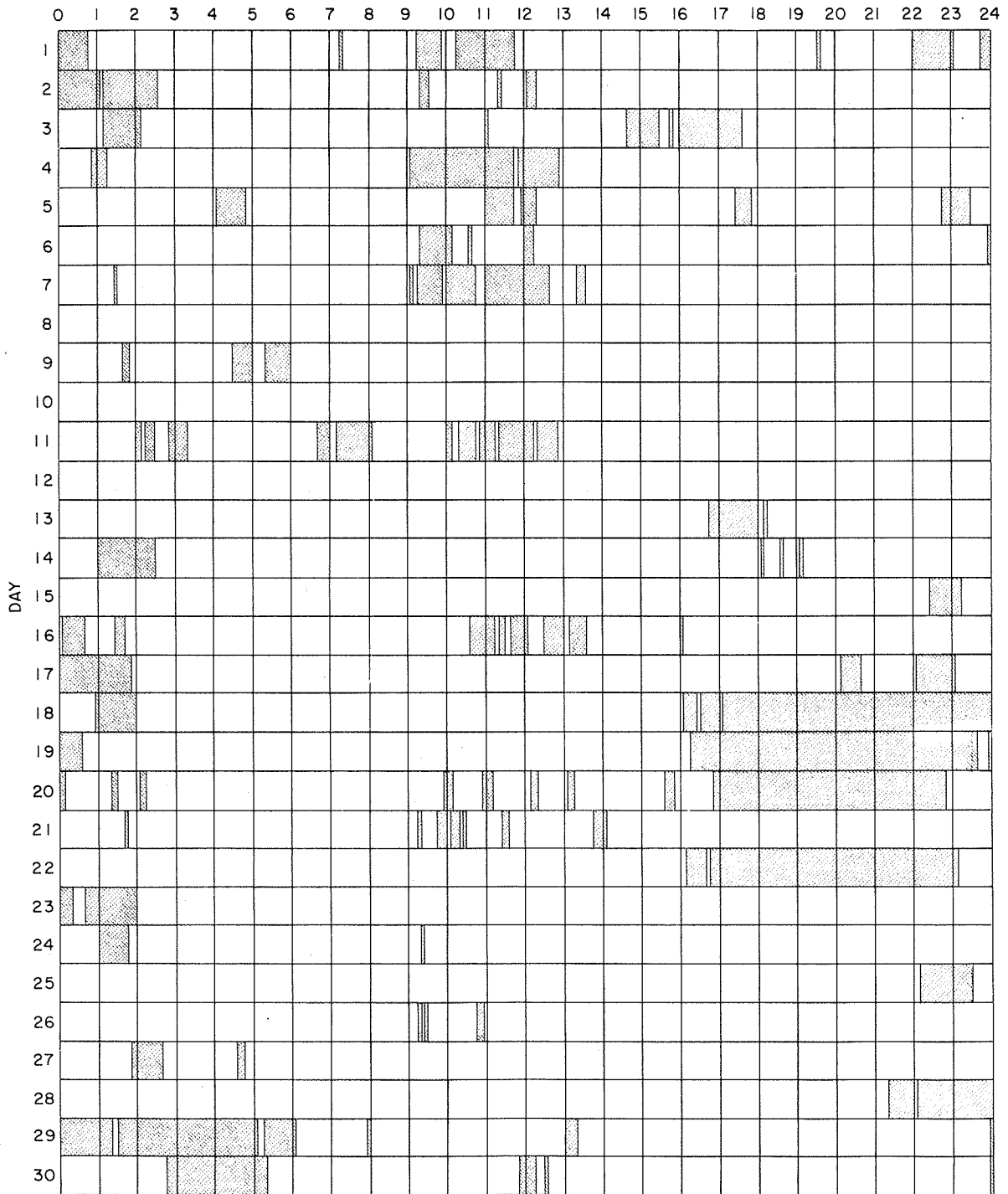
E = LESS THAN D = GREATER THAN U = APPROXIMATE □ = NOT REPORTED.

INTERVALS OF NO FLARE PATROL OBSERVATIONS

III f

APRIL 1964

HOUR-UT



Observatories Included:

COMMERCE - STANDARDS - BOULDER

Capri S - (Swedish)	Kodaikanal	McMath-Hulbert
Haute-Provence	Lockheed	Ondrejov
Istanbul	Manila	Sacramento Peak

SOLAR FLARES

JANUARY 1964

OBSERVATORY	DATE	OBSERVED UNIVERSAL TIME		LOCATION		DURATION MINUTES	IM. POR. TRACE	OBS. COND.	TIME U T	MEASUREMENTS		MAX. WIDTH H _α	MAX. INT. %	PROVISIONAL IONOSPHERIC EFFECT
		START	END	APPROX. LAT.	APPROX. LONG. (MAGN. PLAGE REGION)					MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.			
	JAN 1964													
	01	0300	0315											
	01	0700	NO FLARE	PATROL										
	01	0745	NO FLARE	PATROL										
	01	0800	NO FLARE	PATROL										
	01	1110	NO FLARE	PATROL										
	02	0045	NO FLARE	PATROL										
	02	0155	NO FLARE	PATROL										
CLIMAX	03	1540	1546	N12 W02		1-			1542	0.30	0.30			
	04	0105	0120	PATROL										
	05	0235	0245	NO FLARE										
	05	0723 E	0731	S06 E40		1-			1317	0.40	0.50	1.40	100	
KODAIKNI ATHENES	05	1316 E	1340 D	S07 E37		1-								
	06	0942	0949	S08 W45	7084	1			0944	2.13	2.35	1.40		
	07	1240	1245	PATROL										
	09	0200	0235	NO FLARE										
	09	1555	1615	NO FLARE										
	10	0348	0400	S16 E27		1-			0352	0.20	0.33			
SYDNEY ABASTUMANI	10	0608 E	0856 D	S07 W26	7096	1				1.80	2.02		65	
	13	0025	0040	PATROL										
	14	0110	0230	NO FLARE										
	14	0415	0500	NO FLARE										
	16	1037	1046	N11 W13	7102	1+			1040	2.13	2.25	1.60		
NIZAMIAH	17	0138	0230	N11 W34		1-			0144	1.00	1.20			
SYDNEY	18	0157	0206	N12 W45		1-								
MANILA	18	1715	2300	NO FLARE		1-			0201	0.17	0.20			
	19	1600	1615	NO FLARE										
	19	1800	1840	NO FLARE										
	21	0415	0419	N09 E60	7108	1			0419	1.20	2.70	1.40		
SYDNEY NIZAMIAH	21	1034	1043	S07 E53		1			1037	1.82	3.12			
	21	2355	2400	NO FLARE										
	22	0025	0055	NO FLARE										
	22	0122	0135	N09 E51		1-			0127	1.00	1.50	1.70	83	
SYDNEY MITAKA	22	0245 E	0255	N11 E47	7108	1			0245	3.00	5.00			
	22	0254	0259 D	N11 E48		1-			0257	0.50	0.55			
MANILA	22	0740	0800	N11 E44		1-			0750	0.64	0.94	1.40	100	
KODAIKNI	22													

CONVERSION - STANDARD - SOLAR

SOLAR FLARES

JANUARY 1964

OBSERVATORY	DATE	OBSERVED UNIVERSAL TIME		LOCATION			DURATION MINUTES	HA. NO. OR STANCE	ORIG. COND.	TIME U.T.	MEASUREMENTS			PROVISIONAL IONOSPHERIC EFFECT
		START	END	APPROX. LAT.	MER. DIST.	MAGNITUDE					MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Ha	
	JAN 1964													
CAPETOWN	22 0741	0820	0747	N11 E47		7108	39	1-	C	0747	1.70	2.50		
TACKENT	22 0743	0800 D	0748	N10 E47				1-	C	0748	1.60	2.40		
MANILA	22 0750 E	0804		N11 E46				1-	C	0755	1.25	1.50		75
BUCHAREST	22 0758 E	0945 D		N12 E44		7108	107 D	2	1					
NIZAMIAH	22 0927	0937		S08 E43			10	1+	2	0931	1.82	2.56	1.50	
	22 1620	1630		NO FLARE										
	23 0035	0040		NO FLARE										
	23 0050	0100		NO FLARE										
	23 0310 E	0313		N12 E32				1-	P	0310	.80	.96		
	23 1755	1800		NO FLARE										
	24 0405	0430		NO FLARE										
	24 0440	0515		NO FLARE										
	24 1600	1630		NO FLARE										
CAPETOWN	26 1239	1413	1306	N10 W10		7108	94	1+	C	1306	4.70	4.90		
NIZAMIAH	28 1041	1055	1044	N01 W45		7113	14	1	2	1044	1.82	2.60	1.30	
ATHENS	28 1202 E	1238 D		S03 W47				1-	2		.30	.50		
HUANCAYO	28 1505 E	1514 D	1507	S03 W48				1-	V	1507	.64	.96	2.30	
MANILA	29 0115	0140	0119	S02 W53				1-	2	0119	.25	.28		
	29 0255	0300		NO FLARE										
KODAIKML	29 0645	0700	0652	S03 W57		7113	15	1	C	0657	1.61	2.96	1.52	100
MANILA	29 0651	0700	0654	S02 W56				1-	2	0654	.50	.55		
MANILA	29 0755	0802	0757	S02 W56				1-	2	0757	.33	.36		
NIZAMIAH	29 1037	1047	1041	S04 W59		7113	10	1+	2	1041	1.22	2.35	1.60	
CLIMAX	29 1732	1739	1736	S02 W62				1-	2	1736	.60	.90		
	29 1955	2005		NO FLARE										
	29 2115	2125		NO FLARE										
	29 2340	2350		NO FLARE										
MANILA	30 0015	0020		NO FLARE										
SYDNEY	30 0130	0138	0133	S02 W66				1-	2	0133	.33	.33		
SYDNEY	30 0245	0248	0247	S03 W68				1-	C	0247	.40	.40	1.20	
CLIMAX	30 0509	0514	0510	S03 W68				1-	C	0510	.40	1.20		
	30 1639	1645	1642	S04 W78				1-	C	1642	.30	.60		
	31 0035	0105		NO FLARE										
	31 1145	1205		NO FLARE										
	31 1400	1405		NO FLARE										

COMMENCE - STANDARDS - BOLDER

These flare reports are addenda to the January 1964 flares published in CRPL-F 234B for February 1964.

- ATHENS, GREECE
- BAKOU, USSR
- CAPETOWN
- CAPE OF GOOD HOPE
- CAPRI, ITALY (GERMAN)
- CAPRI, ITALY (SWEDISH)
- CRINEE, USSR
- HERSTONCEU
- HTR-FROEN
- ATHENS, GREECE
- BAKOU, USSR
- CAPETOWN
- CAPE OF GOOD HOPE
- CAPRI, ITALY (GERMAN)
- CAPRI, ITALY (SWEDISH)
- CRINEE, USSR
- HERSTONCEU
- HTR-FROEN
- HONOLULU, HAWAII, USA
- IKOMASAN, JAPAN
- KIEV GAO, USSR
- KIEV KY, USSR
- LOOCHED, LOS ANGELES, CALIF., USA
- MCMATH
- MOSCOW, USSR
- NEW SCHAUMIN FREIBURG, GFR
- NEDERHORST den BERCH, NETHERLANDS
- KRAMAYA PAKHA, USSR
- SAC PEAK, SACRAMENTO PEAK, N.MEX. USA
- STOCKHOLM, SWEDEN
- SCHAUTINSLAND, GFR
- TASHKENT, USSR
- WENDEL, 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.

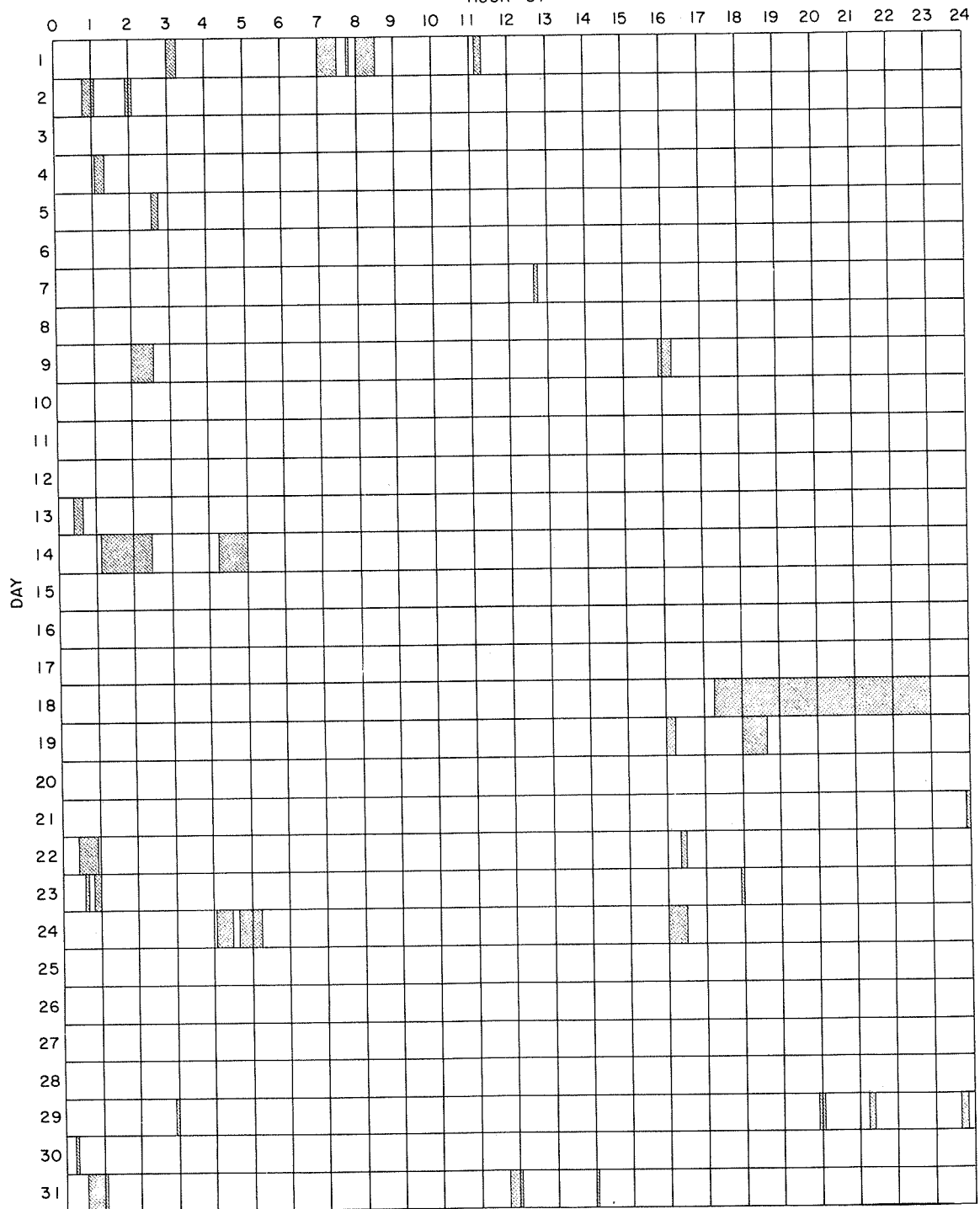
SEE DESCRIPTIVE TEXT PUBLISHED NOVEMBER 1961 FOR DEFINITION OF CORRECTED AREA VALUES LISTED FOR CLIMAX, HAWAII, LOCKHEED AND SACRAMENTO PEAK.

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

INTERVALS OF NO FLARE PATROL OBSERVATIONS

JANUARY 1964

HOUR-UT



COMMERCE - STANDARDS - BOULDER

Observatories included:

- | | | | | | |
|------------|-------------------|------------|----------------|-----------------|-------------|
| Abastumani | Capetown | Huancayo | Manila | Ottawa | Voroshilov |
| Arcetri | Capri-S (Swedish) | Ikomasan | McMath-Hulbert | Sacramento Peak | Wendelstein |
| Arosa | Climax | Kiev-KO | Mitaka | Sydney | Zurich |
| Athens | Crimee | Kodaikanal | Nizamiah | Tachkent | |
| Bakou | Haute-Provence | Locarno | Nizmir | Thessaloniki | |
| Bucharest | Herstmonceux | Lockheed | Ondrejov | Uccle | |

IONOSPHERIC EFFECTS OF SOLAR FLARES

IIIj

SHORT WAVE RADIO FADEOUTS SUDDEN PHASE ANOMALIES
 SUDDEN COSMIC NOISE ABSORPTION SUDDEN ENHANCEMENTS OF SIGNAL
 SUDDEN ENHANCEMENTS OF ATMOSPHERICS SUDDEN FREQUENCY DEVIATIONS
 SOLAR NOISE BURSTS AT 18 Mc/s

MARCH 1964

MAR. 1964	UNIVERSAL TIME			TYPE SWF IMP	IMPORTANCE						BUR	WIDE SPREAD INDEX	STATIONS	KNOWN FLARE	
	START	END	MAX		ABS	SCNA	SEA	SPA	SES	SFD					
16	0446	0540	0502	S 2					2			1	DE	0446	
16	0450	0510										4	CA MA		
16	1553	1614	1557								10	1	BO(WWV10-1.0,WWV15-0.6)		1553E
16	1555	1700	1616			20	1					5	BO ON PU		
16	1555	1820	1601					72			5	BO(CYZ72,NSS68,NBA54,GBR47,NAA32 NPG22),KU,PU			
16	1556	1730	1625	SL 3								5	MC BE BO FM JU NE PU WS		
16	1556	1732	1621					2+				5	BO A3 JU KU LO ON PU		
16	1557	1718	1612							2		1	A3		

COMMERCE -- STANDARDS -- BOULDER

DE = New Delhi, India
 ON = Ondrejov, Czechoslovakia

NOTE: In CRPL-F 236, April 1964, in the February 1964 table the first station for the two events listed should be "MC" not "ML".

IIIk

RIOMETER EVENTS

(Provisional)

MARCH 1964

South Pole

26 Mc/s

MAR. 1964	START UT	END UT	MAX. UT	MAX. ABSORP. db, (tenths)	NO. OF PEAKS	MAR. 1964	START UT	END UT	MAX. UT	MAX. ABSORP. db, (tenths)	NO. OF PEAKS
1	*					13	*				
2	*					14	*				
3	1016	1212	1058	3	10	15	*				
4	0548	0719	0620	4	1	16	*				
4	0958	1027	1006	3	1	17	*				
4	1256	1627	1416	18	2	18	*				
4	2038	2316	2135	51	2	19	*				
5	0117	0322	0155	40	3	20	*				
5	0745	1848	1335	20	3	21	*				
5	2316	0440	2358	49	1	22	*				
6	0903	1703	1047	10	2	23	*				
7	0045	0246	0051	38	2	24	*				
7	0846	2216	1516	14	1	25	*				
8	0006	0443	0229	23	2	26	*				
8	0849	1717	1146	23	3	27	*				
9	0147	0714	0338	20	1	28	**				
9	1349	1520	1444	6	3	29	**				
10	1748	2157	1818	7	1	30	*				
11	0938	1319	1007	10	2	31	*				
12	*										

COMMERCE - STANDARDS - BOULDER

* No Data

** No Event

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

IVa

APRIL 1964

ARO - OTTAWA

2800 Mc/s

APR. 1964	U R A N E	DESCRIPTIVE TYPE	START UT	DURATION HRS. MIN.	MEAN FLUX	MAXIMUM		REMARKS
						TIME	FLUX	
None observed.								

COMMERCE - STANDARDS - BOULDER

NOTE: In CRPL-F 232, December 1963, through CRPL-F 236, April 1964, the information in the columns entitled

MEAN FLUX

 and

MAXIMUM TIME	FLUX
-----------------	------

 have been misplaced for the data of November 1963 through March 1964.

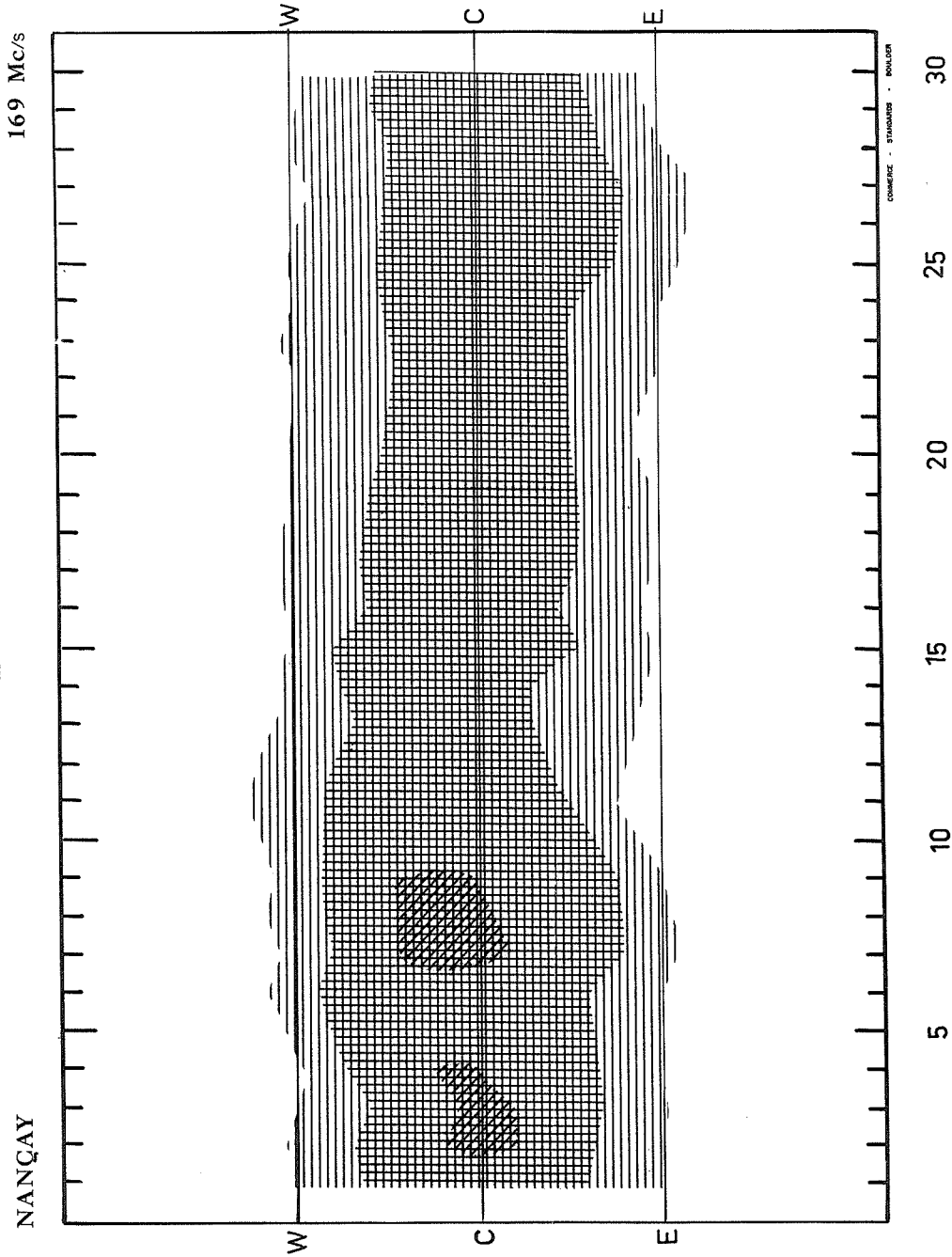
The time of maximum has been in the column "MEAN FLUX".

The mean flux has been in the column "MAXIMUM FLUX".

The maximum flux has been in the column "MAXIMUM TIME".

SOLAR RADIO EMISSION INTERFEROMETRIC OBSERVATIONS

APRIL 1964



NANÇAY

APRIL 1964

SOLAR RADIO EMISSION OUTSTANDING OCCURRENCES

IVc

APRIL 1964

NBS BOULDER

108 Mc/s

Apr. 1964	TYPE	START UT	TIME OF MAXIMUM UT	DURATION MINUTES	INTENSITY
2	3	1955.9	1956.5	1.1	2
27	3	1230.8	1231.0	1.1	3
28	3	1730.9	1731.0	1.1	2

COMMERCE - STANDARDS - BOULDER

NOMINAL TIMES OF OBSERVATION

APRIL 1964

NBS BOULDER

108 Mc/s

Apr. 1964	HOURS OF OBSERVATION	UT	Apr. 1964	HOURS OF OBSERVATION	UT
1	1250-0109	2046-2311	16	1226-0122	1220-1445; 1643-2100
2	1248-0110		17	1225-0123	
3	1246-0111		18	1223-0124	
4	1245-1713; 1948-2231; 2245-0112		19	1222-0125	
5	1243-0112		20	1220-0126	
		1656-1713	21	1219-0127	
6	1242-0113		22	1218-0128	
7	1240-0114		23	1216-0129	
8	1239-0115		24	1215-0130	
9	1237-0116		25	1213-0131	
10	1235-0117				
11	1234-0117		26	1212-0132	
12	1232-0118		27	1211-0132	
13	1231-0119		28	1209-0133	
14	1229-0120		29	1208-0134	
15	1228-0121	30	1207-0135		

COMMERCE - STANDARDS - BOULDER

SOLAR RADIO EMISSION SPECTRAL OBSERVATIONS

JANUARY 1964

Fort Davis

50-320 Mc/s

1964	OBSERVING HOURS	IMPORTANT BURSTS			FREQUENCY RANGE MC.	REMARKS
		TYPE	TIMES U.T.	INT.		
Jan. 1	1415-2349					
Jan. 2	1415-2349					
Jan. 3	1415-2349					
Jan. 4	1415-2349					
Jan. 5	1415-2349					
Jan. 6	1415-2349					
Jan. 7	1415-2349					
Jan. 8	1415-2349					
Jan. 9	1415-2349					
Jan. 10	1415-2353					
Jan. 11	1415-2353					
Jan. 12	1415-1749; 1839-2353	IIIG	2326-2328	2	290-<50	
Jan. 13	1415-2353					
Jan. 14	1415-2353					
Jan. 15	1415-2355					
Jan. 16	1415-2355					
Jan. 17	1415-2355					
Jan. 18	1415-2355					
Jan. 19	1415-2355					
Jan. 20	1415-2358					
Jan. 21	1415-2358					
Jan. 22	1415-2358					
Jan. 23	1415-2358					Weak I during day
Jan. 24	1415-2358					Weak I during day
Jan. 25	1400-2400					
Jan. 26	1400-2400	I	1418-1433	2	140-100	
Jan. 27	1400-2400					
Jan. 28	1400-2400					
Jan. 29	1400-2400	IIIG	1733-1737	1	320-<50	1736: Reverse drift 170-160 Mc/s
Jan. 30	1400-2400					
Jan. 31	1400-2400					

SOLAR RADIO EMISSION SPECTRAL OBSERVATIONS

IVe

FEBRUARY · 1964

Fort Davis

50-320 Mc/s

1964	OBSERVING HOURS	IMPORTANT BURSTS			FREQUENCY RANGE MC.	REMARKS
		TYPE	TIMES U. T.	INT.		
Feb. 1	1400-2400					
Feb. 2	1400-2400					
Feb. 3	1400-2400					
Feb. 4	1400-2400					
Feb. 5	1400-1523; 1533-1709; 1755-2400					
Feb. 6	1400-2400					
Feb. 7	1400-2400					
Feb. 8	1400-2400					
Feb. 9	1400-2400					
Feb. 10	1400-2400					
Feb. 11	1400-2400					
Feb. 12	1400-2400					
Feb. 13	1400-2400					
Feb. 14	1400-2400					
Feb. 15	1400-2400					
Feb. 16	1400-2400					
Feb. 17	1400-2400					
Feb. 18	1400-2400					
Feb. 19	1400-2400					
Feb. 20	1400-2400					
Feb. 21	1400-2228					
Feb. 22	1400-2400					
Feb. 23	1400-2400					
Feb. 24	1400-2400					
Feb. 25	1400-2400					
Feb. 26	1400-2400					
Feb. 27	1400-2400					
Feb. 28	1400-2400					
Feb. 29	1400-2400	IIIG IIIG	1749-1750 1751-1754	1 1	200-<50 175-<50	1745: Type V

SOLAR RADIO EMISSION SPECTRAL OBSERVATIONS

MARCH 1964

Fort Davis

50-320 Mc/s

1964	OBSERVING HOURS	IMPORTANT BURSTS			FREQUENCY RANGE MC.	REMARKS
		TYPE	TIMES U.T.	INT.		
Mar. 1	1331-2330					
Mar. 2	1330-2330					
Mar. 3	1331-2330					
Mar. 4	1330-2330					
Mar. 5	1535-2330					
Mar. 6	1331-2330					
Mar. 7	1330-2330					
Mar. 8	1330-2330					
Mar. 9	1330-2330					
Mar. 10	1330-2330					
Mar. 11	1331-2330					
Mar. 12	1330-2330					
Mar. 13	1330-2330					
Mar. 14	1330-2330					
Mar. 15	1330-2330					
Mar. 16	1330-2330	II IV IIIG	1557.7-1608 1605-1608 1604-1616	3 1 2	220-<50 320-180 150-<50	
Mar. 17	1330-2329					
Mar. 18	1330-2330					
Mar. 19	1331-2330					
Mar. 20	1330-2330	IIIG	1659-1701	2	240-<50	
Mar. 21	1331-2329					
Mar. 22	1330-2330					
Mar. 23	1330-2330					
Mar. 24	1331-2330					Weak I during day
Mar. 25	1330-2330					
Mar. 26	1331-2330					
Mar. 27	1330-2330					
Mar. 28	1331-2329					
Mar. 29	1331-2330					
Mar. 30	1330-2330					
Mar. 31	1331-2330					

**SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS**

IVg

APRIL 1964

**High Altitude Observatory
Boulder**

7.6-41 Mc/s

Date APR. 1964	Bursts			Frequency Range (Mc/s)	
	Type	Time (U.T.)	Inten- sity		
3 Apr	No observ.	2200-2400			
4	No observ.	1400-2400			
9	III	2317-2318:15	1-	20-41	
11	III	0020:30-0021	1+	16-41	
	III	0021:30-0022:15	1+	16-41	
	III	0023:15-0024	1	16-41	
	III	0024:30-0025:15	1	16-41	
	III	0025:30-0026	1-	20-41	
	IV	0025-0040	1-	20-25	
	III	0050:45-0051:30	1-	18-41	
	12	III	1426:15-1426:45	1-	27-41
	14	III	1828-1828:15	1-	32-41
18	III	1306-1306:45	1-	18-34	
	continuum	1400-1445	1-	24-36	
	III	2159:30-2200:30	1	15-41	

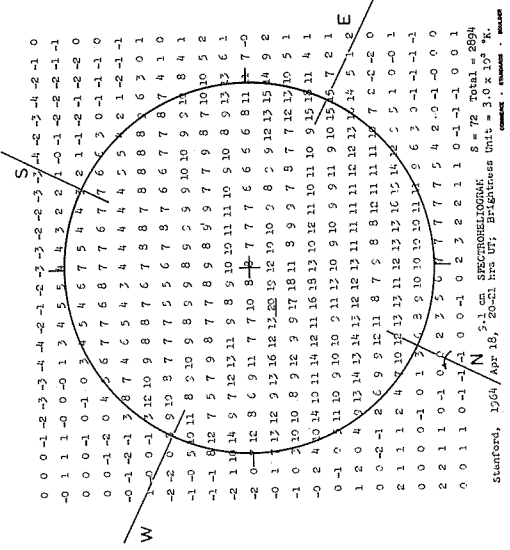
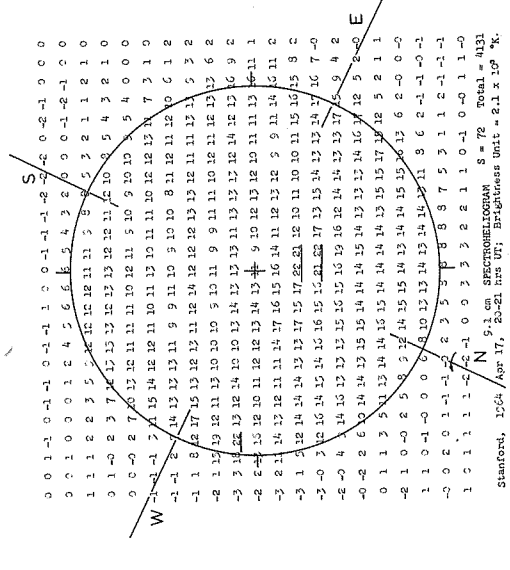
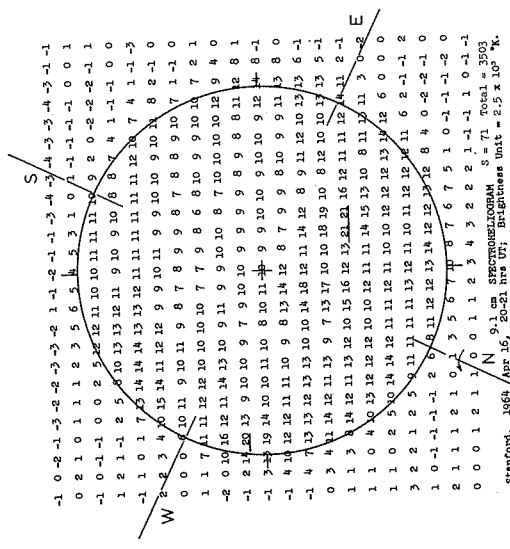
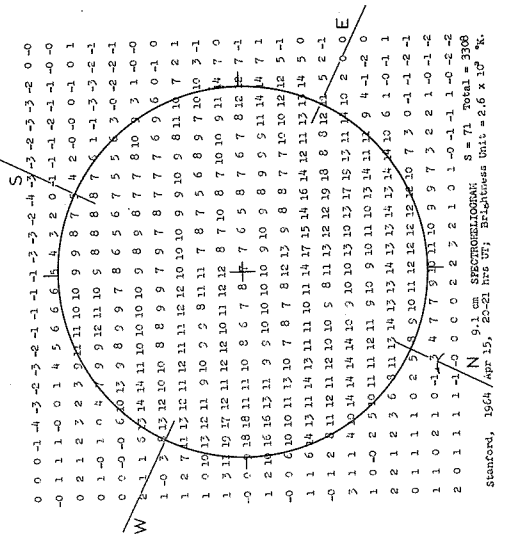
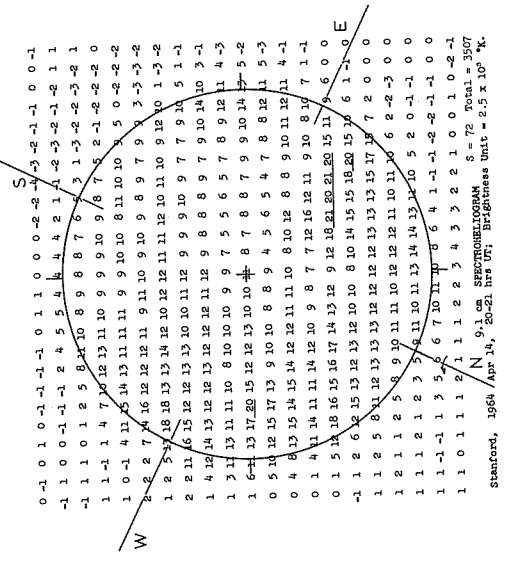
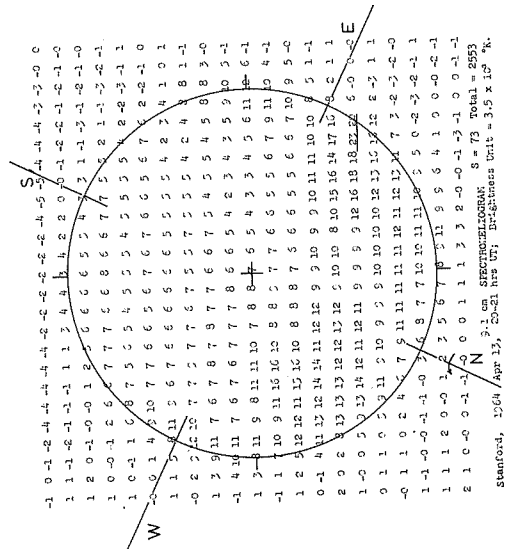
COMMERCE - STANDARDS - BOULDER

SOLAR RADIO EMISSION SPECTROHELIOGRAMS

APRIL 1964

STANFORD

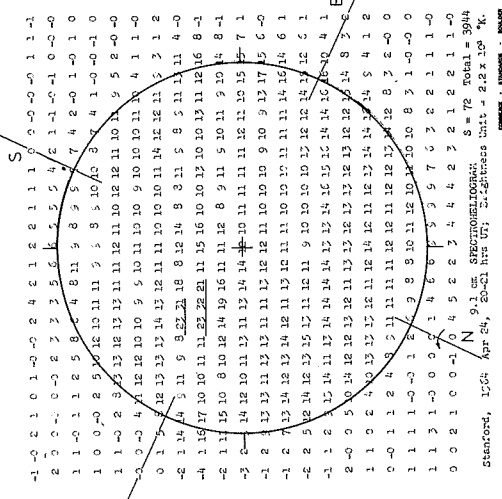
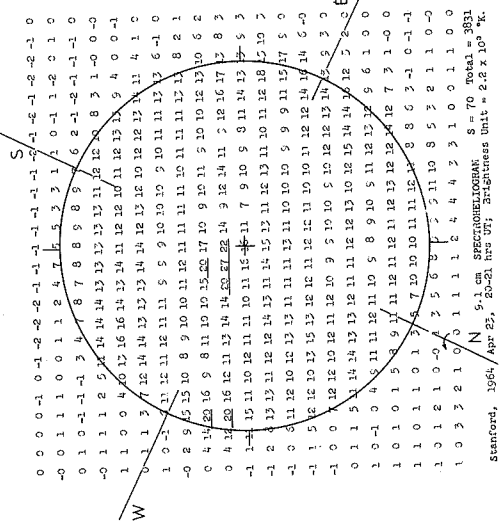
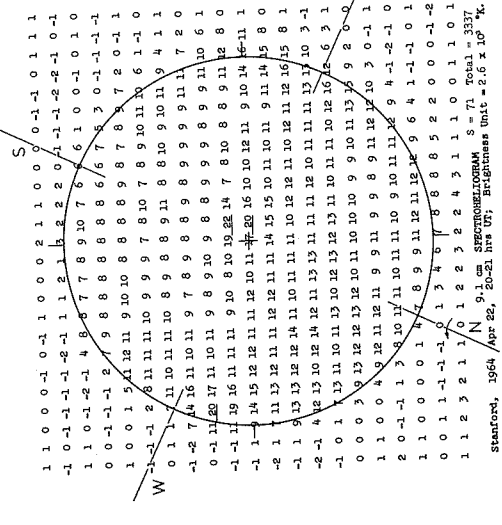
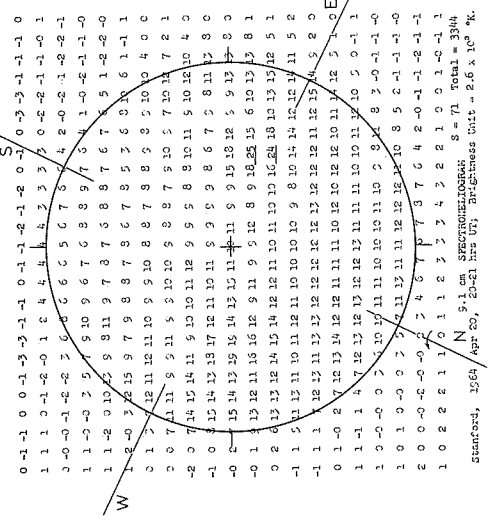
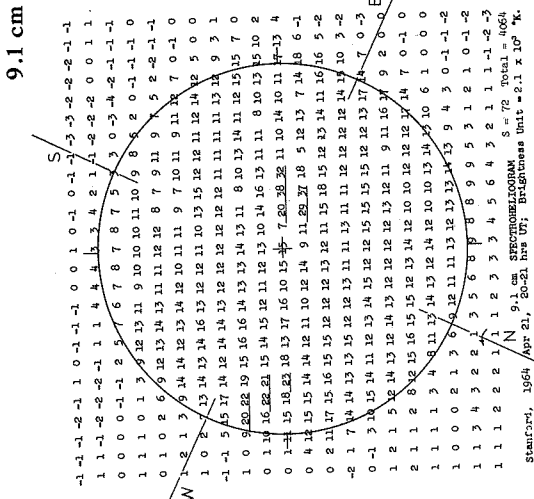
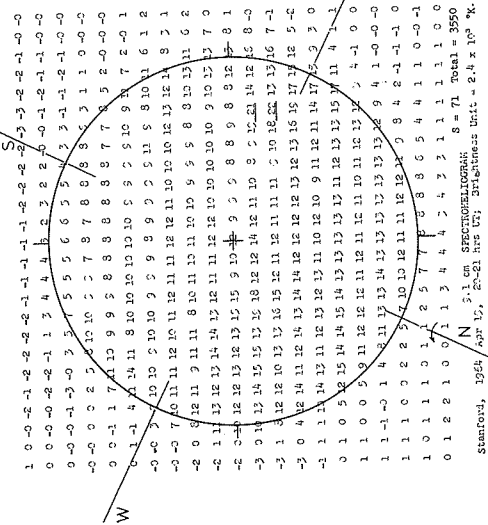
9.1 cm



SOLAR RADIO EMISSION SPECTROHELIOGRAMS

APRIL 1964

STANFORD



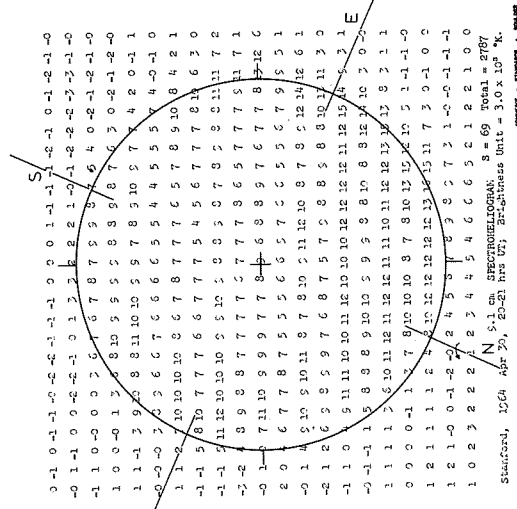
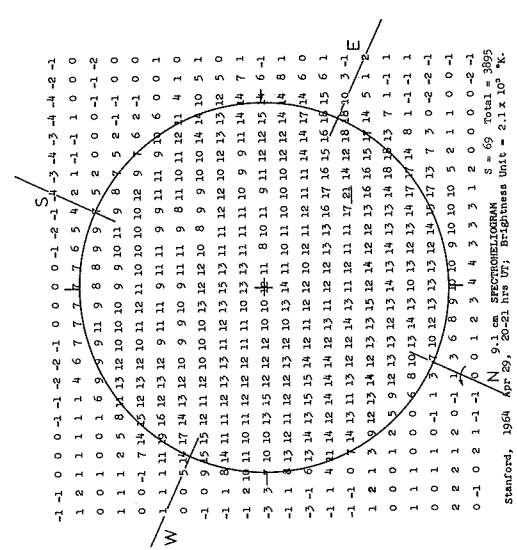
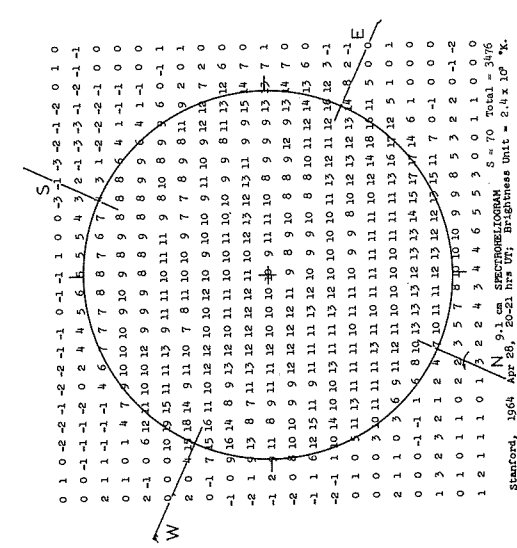
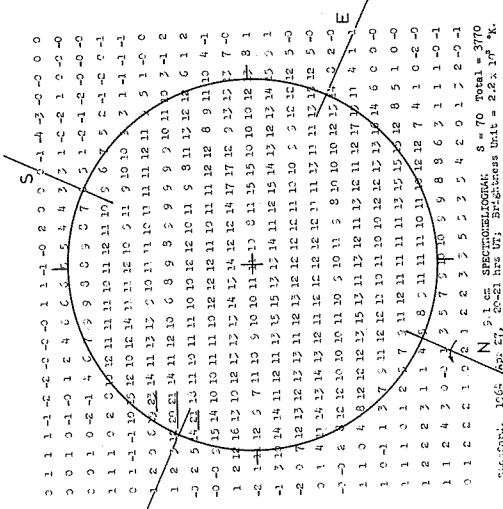
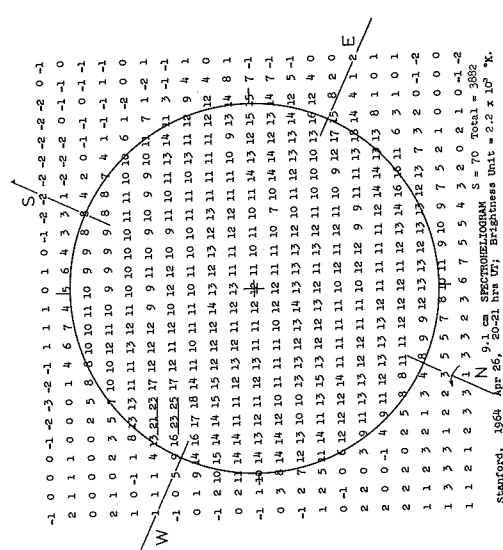
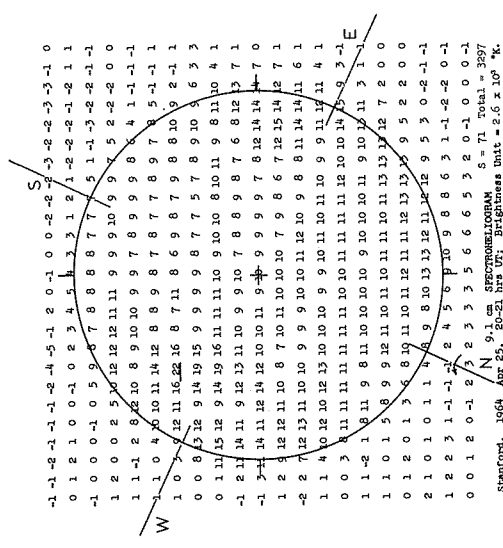
IVK

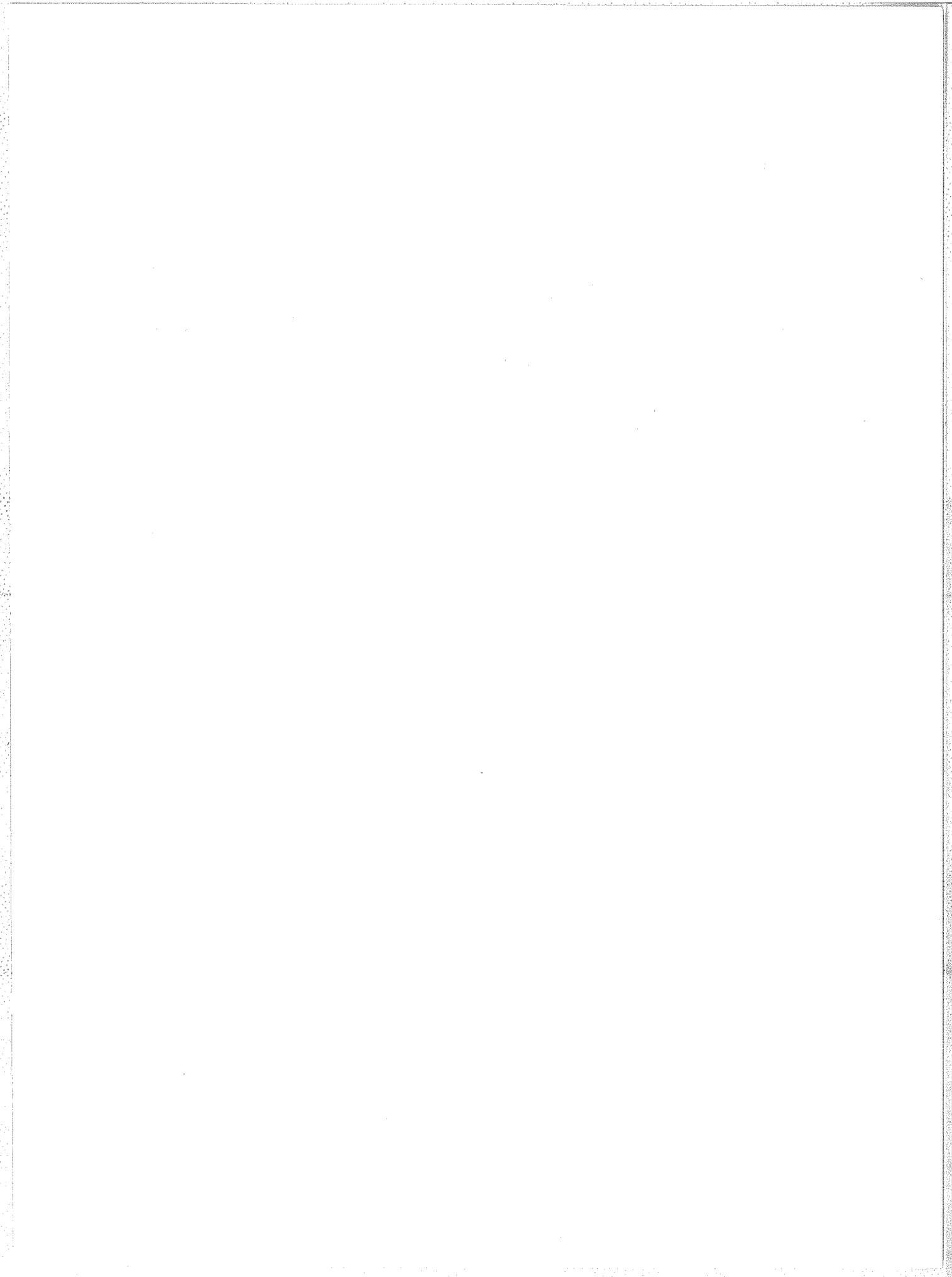
SOLAR RADIO EMISSION SPECTROHELIOGRAMS

APRIL 1964

STANFORD

9.1 cm





IVm FLUX DENSITY OF ISOLATED ACTIVE REGIONS AT 9.1 cm WAVELENGTH
BASED ON STANFORD SPECTROHELIOGRAMS

Flux densities of about 60 sources of solar microwave emission, observed during 1960 and 1962, have been determined by G. Swarup*, V. K. Kapahi* and S. C. Rose⁺, using Stanford 9.1 cm spectroheliograms. Values of flux density are given in units of 10^{-22} watts m^{-2} (c/s)⁻¹, and are estimated to have an accuracy of $\pm 15\%$. Flux densities were determined from readings made at discrete intervals. The sum of the readings was multiplied by a calibration factor based on Covington's value for whole-sun flux density for the day. The McMath number of the associated calcium plage is given at the top of each column. The central meridian passage, CMP, and latitude values have been determined from the 9.1 cm radio maps. The data are given on the following pages.

* Tata Institute of Fundamental Research, Colaba, Bombay-5.

+ Stanford Radio Astronomy Institute, Stanford, Calif.

5649		
DATE	FLUX	NI
6.3 MAY 1960	ND	ND
APR. 29	ND	ND
30	ND	ND
MAY 1	NI	NI
2	ND	ND
3	~ 9.3	~ 6.5
4	~ 6.5	~ 10.3
5	~ 10.3	~ 13.0
6	13.0	16.4
7	16.4	10.4
8	10.4	10.9
9	10.9	9.3
10	9.3	9.9
11	9.9	~ 12.5
12	~ 12.5	NI
13	NI	NI

5645		
DATE	FLUX	NI
30.4 APR. 1960	~ 13.3	ND
APR. 23	~ 13.3	ND
24	8.9	ND
25	ND	ND
26	ND	ND
27	14.4	ND
28	16.4	ND
29	18.7	ND
30	ND	ND
MAY 1	10.6	ND
2	ND	NI
3	NI	NI
4	NI	NI
5	NI	NI
6	NI	NI
7	NI	NI

5642		
DATE	FLUX	NI
27.6 APR. 1960	~ 3.8	NI
APR. 20	~ 3.8	NI
21	6.7	NI
22	~ 6.7	NI
23	16.6	ND
24	26.0	ND
25	14.7	ND
26	ND	ND
27	ND	ND
28	11.2	ND
29	8.3	ND
30	ND	ND
MAY 1	ND	ND
2	~ 14.5	NI
3	ND	NI
4	NI	NI
5	NI	NI

5630		
DATE	FLUX	NI
16.2 APR. 1960	NI	NI
APR. 7	NI	NI
8	~ 4.9	NI
9	~ 11.5	NI
10	~ 17.2	NI
11	~ 9.9	NI
12	~ 15.3	NI
13	~ 19.6	NI
14	~ 17.0	NI
15	~ 26.4	NI
16	ND	ND
17	20.9	ND
18	13.9	ND
19	14.1	ND
20	12.8	NI
21	9.1	NI
22	17.5	NI

5627		
DATE	FLUX	NI
13.6 APR. 1960	ND	ND
APR. 6	ND	ND
7	NI	NI
8	~ 4.9	NI
9	~ 9.9	NI
10	~ 12.6	NI
11	~ 13.3	NI
12	ND	ND
13	17.0	ND
14	22.2	ND
15	20.8	ND
16	ND	ND
17	13.6	ND
18	15.8	NI
19	9.2	NI
20	NI	NI

5625		
DATE	FLUX	NI
10.8 APR. 1960	ND	ND
APR. 3	ND	ND
4	ND	ND
5	~ 4.8	ND
6	~ 11.8	ND
7	~ 10.5	ND
8	~ 12.5	ND
9	~ 9.7	ND
10	~ 6.9	ND
11	~ 5.4	ND
12	~ 5.9	ND
13	~ 8.3	ND
14	~ 7.3	ND
15	NI	NI
16	NI	NI
17	ND	ND

McMATH NO. _____
 CMP & LAT. _____
 DAYS FROM _____
 CMP _____

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5693		
DATE	FLUX	NI
12.3 JUNE 1960	ND	ND
JUNE 4	ND	ND
5	7.7	ND
6	10.4	ND
7	11.4	ND
8	ND	ND
9	~ 10.7	ND
10	~ 13.4	ND
11	~ 9.3	ND
12	10.5	ND
13	ND	ND
14	11.5	ND
15	6.3	ND
16	~ 5.5	NI
17	~ 5.5	NI
18	NI	NI
19	NI	NI

5680		
DATE	FLUX	NI
5.1 JUNE 1960	ND	ND
MAY 27	ND	ND
28	8.6	ND
29	21.3	ND
30	17.3	ND
31	19.2	ND
JUNE 1	36.5	ND
2	ND	ND
3	ND	ND
4	17.5	ND
5	23.3	ND
6	19.2	ND
7	ND	ND
8	15.7	ND
9	17.6	ND
10	12.9	ND
11	7.6	ND

5679		
DATE	FLUX	NI
2.9 JUNE 1960	NI	NI
MAY 25	NI	NI
26	~ 4.7	NI
27	7.8	NI
28	ND	NI
29	19.5	NI
30	18.9	NI
31	16.7	NI
JUNE 1	17.7	NI
2	17.4	NI
3	ND	NI
4	ND	NI
5	~ 14.2	NI
6	ND	NI
7	~ 16.4	NI
8	~ 8.7	NI
9	NI	NI

5669		
DATE	FLUX	NI
25.2 MAY 1960	~ 4.3	NI
MAY 17	~ 4.3	NI
18	~ 5.2	NI
19	~ 5.1	NI
20	~ 4.5	NI
21	5.3	NI
22	12.7	NI
23	20.5	NI
24	21.9	NI
25	20.9	NI
26	25.2	NI
27	ND	NI
28	20.7	NI
29	15.0	NI
30	~ 8.7	NI
31	NI	NI

5654		
DATE	FLUX	NI
8.2 MAY 1960	NI	NI
MAY 1	NI	NI
2	NI	NI
3	3.2	NI
4	~ 7.4	NI
5	~ 5.9	NI
6	11.2	NI
7	ND	NI
8	14.9	NI
9	14.0	NI
10	ND	NI
11	18.6	NI
12	16.3	NI
13	8.9	NI
14	8.9	NI
15	NI	NI

5688		
DATE	FLUX	NI
7.0 MAY 1960	ND	ND
APR. 29	ND	ND
30	NI	NI
MAY 1	~ 8.7	NI
2	~ 8.1	NI
3	11.7	NI
4	10.0	NI
5	19.0	NI
6	~ 15.3	NI
7	~ 10.1	NI
8	~ 8.7	NI
9	~ 8.1	NI
10	~ 7.0	NI
11	NI	NI
12	NI	NI
13	NI	NI
14	NI	NI

McMATH NO. _____
 CMP & LAT. _____
 DAYS FROM _____
 CMP _____

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- 8

Symbols: ND = no data
 NI = not isolated

5694			5695			5713			5724			5726			5737		
14.4 JUNE			15.9 JUNE			25.9 JUNE			1.9 JULY			3.6 JULY			8.6 JULY		
DATE	FLUX	DENSITY	DATE	FLUX	DENSITY	DATE	FLUX	DENSITY	DATE	FLUX	DENSITY	DATE	FLUX	DENSITY	DATE	FLUX	DENSITY
1960			1960			1960			1960			1960			1960		
JUNE 7	7.5	ND	JUNE 18	5.3	ND	JUNE 24	~10.4	ND	JUNE 26	NI	ND	JULY 1	NI	ND	JULY 1	NI	ND
8	9.9	ND	19	7.7	ND	19	~13.8	ND	26	8.5	ND	2	8.5	ND	2	17.7	ND
9	12.9	ND	20	8.8	ND	20	~13.8	ND	26	29.4	ND	3	29.4	ND	3	17.7	ND
10	21.1	ND	21	~7.9	ND	21	~8.8	ND	27	31.1	ND	4	31.1	ND	4	14.2	ND
11	26.3	ND	22	12.2	ND	22	~7.9	ND	28	~33.2	ND	5	~33.2	ND	5	14.2	ND
12	23.1	ND	23	10.3	ND	23	12.2	ND	29	39.9	ND	6	39.9	ND	6	14.9	ND
13	23.1	ND	24	12.8	ND	24	10.3	ND	30	ND	ND	7	ND	ND	7	11.8	ND
14	21.5	ND	25	14.9	ND	25	12.8	ND	JULY 1	42.7	ND	8	42.7	ND	8	15.8	ND
15	16.3	ND	26	11.2	ND	26	14.9	ND	4	ND	ND	9	ND	ND	9	11.4	ND
16	13.9	ND	27	13.4	ND	27	12.2	ND	5	44.7	ND	10	44.7	ND	10	12.1	ND
17	11.4	ND	28	11.3	ND	28	11.2	ND	6	27.0	ND	11	27.0	ND	11	6.7	NI
18	11.0	ND	29	10.4	ND	29	13.4	ND	7	24.5	ND	12	24.5	ND	12	~6.7	NI
19	8.7	ND	30	7.0	ND	30	11.3	ND	8	~27.5	ND	13	~27.5	ND	13	NI	NI
20	~4.6	ND	JULY 1	4.6	NI	JULY 1	~15.0	NI	9	21.7	ND	14	21.7	ND	14	NI	NI
21	~2.5	ND	2	~2.5	ND	2	~15.0	NI	10	16.8	ND	15	16.8	ND	15	NI	NI

McMATH NO.

CMP & LAT.

DAYS FROM
CMP

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5694			5749			5775			5794			5797			5799			5801		
14.4 JUNE			16.8 JULY			30.5 JULY			13.6 AUG.			14.8 AUG.			17.1 AUG.			18.6 AUG.		
DATE	FLUX	DENSITY	DATE	FLUX	DENSITY	DATE	FLUX	DENSITY	DATE	FLUX	DENSITY	DATE	FLUX	DENSITY	DATE	FLUX	DENSITY	DATE	FLUX	DENSITY
1960			1960			1960			1960			1960			1960			1960		
JULY 3	NI	ND	JULY 9	~7.1	ND	JULY 23	ND	ND	AUG. 5	~9.5	ND	AUG. 7	ND	ND	AUG. 9	NI	NI	AUG. 12	NI	ND
4	ND	ND	10	10.8	ND	24	16.6	ND	6	ND	ND	8	ND	ND	10	~18.3	ND	13	ND	ND
5	NI	NI	11	6.6	ND	25	~16.2	ND	7	ND	ND	9	ND	ND	11	21.5	ND	14	ND	ND
6	NI	NI	12	10.6	ND	26	25.0	ND	8	ND	ND	10	NI	NI	12	ND	ND	15	NI	NI
7	6.3	ND	13	~10.1	ND	27	18.3	ND	9	ND	ND	11	~11.5	ND	13	ND	ND	16	~21.1	ND
8	15.5	ND	14	10.8	ND	28	30.3	ND	10	23.7	ND	12	~18.3	ND	14	28.9	ND	17	~16.3	ND
9	22.1	ND	15	17.8	ND	29	37.5	ND	11	27.1	ND	13	~18.3	ND	15	35.5	ND	18	~37.5	ND
10	23.0	ND	16	23.0	ND	30	ND	ND	12	23.7	ND	14	ND	ND	16	25.7	ND	19	~26.1	ND
11	15.4	ND	17	28.2	ND	31	21.6	ND	13	ND	ND	15	17.7	ND	17	29.5	ND	21	~17.1	ND
12	10.4	ND	18	35.0	ND	AUG. 1	22.3	ND	14	MD	MD	16	17.7	ND	18	18.7	ND	22	NI	NI
13	10.5	ND	19	22.2	ND	2	25.9	ND	15	16.7	ND	17	12.5	ND	19	19.0	ND	23	NI	NI
14	10.5	ND	20	ND	ND	3	ND	ND	16	11.7	ND	18	18.5	ND	20	20.0	ND	24	NI	NI
15	8.5	NI	21	22.1	ND	4	11.9	ND	17	10.7	ND	19	~15.5	ND	21	21.0	ND			
16	NI	NI	22	12.7	ND	5	~7.1	ND	18	10.3	ND	20	~15.5	ND	22	22.0	ND			
17	NI	NI	23	ND	ND	6	~7.1	ND	19	~9.1	NI	21	NI	NI	23	23.0	ND			

McMATH NO.

CMP & LAT.

DAYS FROM
CMP

-8
-7
-6
-5
-4
-3
-2
-1
0
1
2
3
4
5
6
7
8

McMATH NO.
CMP & LAT.
DAYS FROM
CMP

6377		
0.2 APR. 1962	MO2	FLUX DENSITY
MAR. 25	ND	
26	ND	
27	ND	
28	ND	
29	ND	
30	ND	
APR. 1	ND	
2	ND	
3	ND	
4	ND	
5	ND	
6	ND	
7	ND	

6379		
3.1 APR. 1962	JO7	FLUX DENSITY
MAR. 27	ND	
28	ND	
29	ND	
30	ND	
31	ND	
APR. 1	ND	
2	2.1	
3	1.9	
4	1.0	
5	1.2	
6	MI	
7	ND	
8	ND	
9	MI	

6386		
14.2 APR. 1962	MI0	FLUX DENSITY
APR. 6	MI	
7	ND	
8	ND	
9	ND	
10	ND	
11	ND	
12	ND	
13	10.8	
14	ND	
15	ND	
16	7.1	
17	7.4	
18	5.6	
19	4.7	
20	MI	

6393		
15.8 APR. 1962	MO8	FLUX DENSITY
APR. 11	MI	
12	MI	
13	MI	
14	MI	
15	ND	
16	ND	
17	ND	
18	25.3	
19	17.5	
20	20.8	
21	ND	
22	ND	
23	ND	
24	ND	
25	ND	
26	ND	
27	ND	
28	ND	

6396		
20.8 APR. 1962	MI2	FLUX DENSITY
APR. 13	ND	
14	ND	
15	ND	
16	5.5	
17	7.2	
18	5.7	
19	8.2	
20	4.4	
21	ND	
22	ND	
23	6.4	
24	6.2	
25	MI	
26	6.4	
27	5.8	
28	ND	

6403		
1.2 MAY 1962	MO9	FLUX DENSITY
APR. 23	6.8	
24	9.4	
25	10.4	
26	15.5	
27	23.5	
28	ND	
29	ND	
30	14.9	
MAY 1	14.5	
2	18.0	
3	14.0	
4	ND	
5	ND	
6	ND	
7	4.8	
8	4.5	

McMATH NO.
CMP & LAT.
DAYS FROM
CMP

6411		
6.3 MAY 1962	MI9	FLUX DENSITY
APR. 28	ND	
29	ND	
30	MI	
MAY 1	7.6	
2	ND	
3	5.4	
4	3.8	
5	ND	
6	ND	
7	3.7	
8	2.5	
9	2.5	
10	ND	
11	ND	
12	ND	

6412		
11.5 MAY 1962	MI5	FLUX DENSITY
MAY 3	4.4	
4	4.3	
5	ND	
6	ND	
7	5.1	
8	4.1	
9	2.6	
10	ND	
11	ND	
12	ND	
13	ND	
14	ND	
15	ND	
16	ND	
17	3.5	
18	2.9	
19	3.2	
20	2.3	
21	3.4	
22	2.3	

6416		
14.8 MAY 1962	SO9	FLUX DENSITY
MAY 7	2.5	
8	4.2	
9	5.0	
10	ND	
11	ND	
12	ND	
13	ND	
14	6.0	
15	5.0	
16	4.0	
17	4.9	
18	6.4	
19	ND	
20	ND	
21	3.4	
22	5.5	

6426		
26.3 MAY 1962	MI5	FLUX DENSITY
MAY 17	3.0	
18	5.4	
19	ND	
20	ND	
21	20.2	
22	15.6	
23	22.5	
24	15.4	
25	16.7	
26	ND	
27	ND	
28	17.8	
29	15.8	
30	16.5	
31	16.5	
JUNE 1	ND	
2	ND	
3	ND	
4	2.9	

6427		
27.8 MAY 1962	SO8	FLUX DENSITY
MAY 20	ND	
21	MI	
22	14.1	
23	10.9	
24	23.9	
25	18.4	
26	ND	
27	ND	
28	17.8	
29	15.8	
30	16.5	
31	16.5	
JUNE 1	ND	
2	ND	
3	ND	
4	2.9	

6432		
3.9 JUNE 1962	MI8	FLUX DENSITY
MAY 27	ND	
28	1.0	
29	0.5	
30	1.3	
31	1.5	
JUNE 1	ND	
2	ND	
3	ND	
4	ND	
5	0.5	
6	0.2	
7	0.9	
8	1.2	
9	ND	
10	ND	
11	1.6	

McMATH NO.
CMP & LAT.
DAYS FROM
CMP

6436		
5.8 JUNE	NO9	
DATE	FLUX	DENSITY
1962		
MAY 29	NI	
30	NI	
31	NI	
JUNE 1	ND	
2	ND	
3	ND	
4	ND	
5	0.8	
6	ND	
7	1.5	
8	1.1	
9	ND	
10	ND	
11	2.9	
12	ND	

6441		
10.9 JUNE	S09	
DATE	FLUX	DENSITY
1962		
JUNE 3	ND	
4	6.8	
5	8.0	
6	≈ 11.7	
7	8.7	
8	9.2	
9	ND	
10	ND	
11	5.1	
12	ND	
13	2.8	
14	≈ 7.7	
15	4.2	
16	ND	
17	ND	

6445		
14.8 JUNE	S12	
DATE	FLUX	DENSITY
1962		
JUNE 7	NI	
8	≈ 2.5	
9	ND	
10	ND	
11	0.7	
12	ND	
13	3.6	
14	ND	
15	3.8	
16	ND	
17	4.4	
18	ND	
19	6.0	
20	5.8	
21	5.1	
22	4.1	
23	3.4	

6452		
16.6 JUNE	M10	
DATE	FLUX	DENSITY
1962		
JUNE 9	ND	
10	ND	
11	NI	
12	ND	
13	2.9	
14	ND	
15	3.1	
16	ND	
17	ND	
18	4.4	
19	ND	
20	6.0	
21	5.8	
22	3.6	
23	ND	

6459		
23.1 JUNE	M16	
DATE	FLUX	DENSITY
1962		
JUNE 15	1.2	
16	ND	
17	ND	
18	8.2	
19	ND	
20	14.7	
21	5.7	
22	8.8	
23	ND	
24	ND	
25	3.1	
26	4.1	
27	6.7	
28	ND	
29	NI	
30	NI	

6460		
24.0 JUNE	S08	
DATE	FLUX	DENSITY
1962		
JUNE 16	ND	
17	ND	
18	NI	
19	ND	
20	NI	
21	1.9	
22	1.6	
23	ND	
24	ND	
25	3.1	
26	4.1	
27	ND	
28	3.4	
29	3.2	
30	ND	

-8
-7
-6
-5
-4
-3
-2
-1
0
1
2
3
4
5
6
7
8

McMATH NO.
CMP & LAT.
DAYS FROM
CMP

6463		
30.5 JUNE	0	
DATE	FLUX	DENSITY
1962		
JUNE 23	ND	
24	ND	
25	7.1	
26	12.6	
27	ND	
28	9.3	
29	10.7	
30	ND	
JULY 1	ND	
2	10.5	
3	13.7	
4	13.6	
5	7.8	
6	≈ 4.1	
7	≈ 2.7	

6466		
1.1 JULY	S20	
DATE	FLUX	DENSITY
1962		
JUNE 23	ND	
24	ND	
25	≈ 5.2	
26	≈ 6.4	
27	ND	
28	2.3	
29	1.9	
30	ND	
JULY 1	ND	
2	2.3	
3	≈ 4.8	
4	4.2	
5	3.5	
6	3.2	
7	2.5	
8	≈ 3.1	

6480		
12.8 JULY	M08	
DATE	FLUX	DENSITY
1962		
JULY 4	2.1	
5	2.7	
6	4.8	
7	9.3	
8	6.7	
9	4.9	
10	5.6	
11	5.1	
12	5.6	
13	7.0	
14	6.4	
15	6.4	
16	≈ 6.3	
17	6.9	
18	3.7	
19	3.8	

6492		
19.6 JULY	M15	
DATE	FLUX	DENSITY
1962		
JULY 12	NI	
13	NI	
14	NI	
15	NI	
16	1.5	
17	ND	
18	2.2	
19	NI	
20	1.3	
21	2.0	
22	2.5	
23	2.4	
24	≈ 3.3	
25	3.3	
26	NI	

6494		
22.5 JULY	M05	
DATE	FLUX	DENSITY
1962		
JULY 15	NI	
16	2.9	
17	ND	
18	3.7	
19	NI	
20	1.2	
21	1.0	
22	2.1	
23	1.4	
24	≈ 1.1	
25	NI	
26	NI	
27	ND	
28	NI	

6497		
27.6 JULY	0	
DATE	FLUX	DENSITY
1962		
JULY 19	0.9	
20	2.1	
21	2.5	
22	2.7	
23	2.2	
24	ND	
25	ND	
26	1.2	
27	ND	
28	0.9	
29	1.9	
30	≈ 1.7	
31	2.8	
AUG. 1	ND	
2	≈ 4.0	

-8
-7
-6
-5
-4
-3
-2
-1
0
1
2
3
4
5
6
7
8

McMATH NO. CMP & LAT. DAYS FROM CMP	6510			6514			6516			6542			6546			6548			6553		
	DATE 1962	FLUX DENSITY	NO9	DATE 1962	FLUX DENSITY	NO7	DATE 1962	FLUX DENSITY	NO3	DATE 1962	FLUX DENSITY	NO9	DATE 1962	FLUX DENSITY	NO5	DATE 1962	FLUX DENSITY	S12	DATE 1962	FLUX DENSITY	N25
-8	JULY 30	NI	NI	AUG. 11	3.1	AUG. 6	NI	AUG. 11	3.1	AUG. 26	NI	SEPT. 1	3.5	SEPT. 1	3.5	SEPT. 10	NI	SEPT. 10	3.8		
-7	JULY 31	NI	NI	AUG. 12	4.3	AUG. 7	NI	AUG. 12	4.3	AUG. 27	NI	SEPT. 2	5.1	SEPT. 2	5.1	SEPT. 11	NI	SEPT. 11	7.5		
-6	AUG. 1	ND	ND	AUG. 13	3.4	AUG. 8	NI	AUG. 13	3.4	AUG. 28	NI	SEPT. 3	4.5	SEPT. 3	4.5	SEPT. 12	NI	SEPT. 12	10.7		
-5	AUG. 2	NI	NI	AUG. 14	5.2	AUG. 9	NI	AUG. 14	5.2	AUG. 29	NI	SEPT. 4	7.8	SEPT. 4	7.8	SEPT. 13	NI	SEPT. 13	16.9		
-4	AUG. 3	NI	NI	AUG. 15	ND	AUG. 10	NI	AUG. 15	ND	AUG. 30	0.7	SEPT. 5	6.2	SEPT. 5	6.2	SEPT. 14	4.8	SEPT. 14	ND		
-3	AUG. 4	NI	NI	AUG. 16	ND	AUG. 11	NI	AUG. 16	ND	SEPT. 1	1.5	SEPT. 6	5.5	SEPT. 6	5.5	SEPT. 15	6.9	SEPT. 15	ND		
-2	AUG. 5	NI	NI	AUG. 17	3.5	AUG. 12	NI	AUG. 17	3.5	SEPT. 2	6.7	SEPT. 7	5.1	SEPT. 7	5.1	SEPT. 16	8.1	SEPT. 16	10.4		
-1	AUG. 6	1.5	5.0	AUG. 18	4.6	AUG. 13	5.0	AUG. 18	4.6	SEPT. 3	7.4	SEPT. 8	7.2	SEPT. 8	7.2	SEPT. 17	7.2	SEPT. 17	8.5		
0	AUG. 7	~ 1.7	8.2	AUG. 19	5.1	AUG. 14	8.2	AUG. 19	5.1	SEPT. 4	13.8	SEPT. 9	7.4	SEPT. 9	7.4	SEPT. 18	5.3	SEPT. 18	11.5		
1	AUG. 8	ND	ND	AUG. 20	7.8	AUG. 15	ND	AUG. 20	7.8	SEPT. 5	18.6	SEPT. 10	5.5	SEPT. 10	5.5	SEPT. 19	4.6	SEPT. 19	9.3		
2	AUG. 9	~ 1.6	ND	AUG. 21	5.6	AUG. 16	ND	AUG. 21	5.6	SEPT. 6	14.2	SEPT. 11	5.0	SEPT. 11	5.0	SEPT. 20	NI	SEPT. 20	7.4		
3	AUG. 10	ND	ND	AUG. 22	ND	AUG. 17	ND	AUG. 22	ND	SEPT. 7	11.4	SEPT. 12	NI	SEPT. 12	NI	SEPT. 21	NI	SEPT. 21	NI		
4	AUG. 11	1.9	5.7	AUG. 23	ND	AUG. 18	5.7	AUG. 23	ND	SEPT. 8	9.6	SEPT. 13	NI	SEPT. 13	NI	SEPT. 22	NI	SEPT. 22	NI		
5	AUG. 12	2.3	3.3	AUG. 24	ND	AUG. 19	3.3	AUG. 24	ND	SEPT. 9	8.6	SEPT. 14	NI	SEPT. 14	NI	SEPT. 23	ND	SEPT. 23	ND		
6	AUG. 13	~ 2.5	4.1	AUG. 25	3.0	AUG. 20	4.1	AUG. 25	3.0	SEPT. 10	3.7	SEPT. 15	ND	SEPT. 15	ND	SEPT. 24	ND	SEPT. 24	3.0		
7				AUG. 26	3.0	AUG. 21		AUG. 26	3.0		2.0	SEPT. 16	2.0	SEPT. 16	2.0				1.8		
8				AUG. 27	~ 3.0	AUG. 22		AUG. 27	~ 3.0			SEPT. 17	~ 3.0	SEPT. 17	~ 3.0						

McMATH NO. CMP & LAT. DAYS FROM CMP	6560			6562			6570			6579			6581			6591		
	DATE 1962	FLUX DENSITY	N10	DATE 1962	FLUX DENSITY	N10	DATE 1962	FLUX DENSITY	NO4	DATE 1962	FLUX DENSITY	S12	DATE 1962	FLUX DENSITY	NO3	DATE 1962	FLUX DENSITY	N12
-8	SEPT. 19	NI	NI	SEPT. 28	1.1	SEPT. 22	ND	SEPT. 5	2.5	OCT. 8	NI	OCT. 11	ND	OCT. 19	~ 6.7			
-7	SEPT. 20	4.3	2.3	SEPT. 29	3.4	SEPT. 23	2.3	SEPT. 6	3.0	OCT. 9	4.3	OCT. 12	NI	OCT. 20	3.5			
-6	SEPT. 21	ND	2.8	SEPT. 30	~ 9.6	SEPT. 24	2.8	SEPT. 7	ND	OCT. 10	6.1	OCT. 13	ND	OCT. 21	3.7			
-5	SEPT. 22	5.3	ND	OCT. 1	8.9	SEPT. 25	ND	OCT. 8	ND	OCT. 11	ND	OCT. 14	ND	OCT. 22	ND			
-4	SEPT. 23	4.6	4.4	OCT. 2	6.5	SEPT. 26	4.4	OCT. 9	4.9	OCT. 12	9.3	OCT. 15	2.0	OCT. 23	6.3			
-3	SEPT. 24	ND	2.7	OCT. 3	6.0	SEPT. 27	4.3	OCT. 10	8.4	OCT. 13	ND	OCT. 16	3.6	OCT. 24	9.6			
-2	SEPT. 25	7.0	3.4	OCT. 4	6.8	SEPT. 28	2.7	OCT. 11	ND	OCT. 14	ND	OCT. 17	6.0	OCT. 25	7.0			
0	SEPT. 26	5.4	2.6	OCT. 5	4.8	SEPT. 29	3.4	OCT. 12	5.4	OCT. 15	ND	OCT. 18	5.6	OCT. 26	8.5			
1	SEPT. 27	4.2	NI	OCT. 6	4.0	SEPT. 30	2.6	OCT. 13	ND	OCT. 16	8.9	OCT. 19	2.0	OCT. 27	8.4			
2	SEPT. 28	3.7	NI	OCT. 7	ND	SEPT. 1	3.8	OCT. 14	ND	OCT. 17	7.1	OCT. 20	4.5	OCT. 28	ND			
3	SEPT. 29	3.8	NI	OCT. 8	ND	SEPT. 2	NI	OCT. 15	8.3	OCT. 18	NI	OCT. 21	6.2	OCT. 29	7.7			
4	SEPT. 30	3.8	NI	OCT. 9	4.3	SEPT. 3	NI	OCT. 16	7.2	OCT. 19	NI	OCT. 22	ND	OCT. 30	8.0			
5	OCT. 1	NI	NI	OCT. 10	3.3	SEPT. 4	NI	OCT. 17	NI	OCT. 20	NI	OCT. 23	NI	OCT. 31	6.5			
6	OCT. 2	NI	NI	OCT. 11	ND	SEPT. 5	NI	OCT. 18	NI			OCT. 24	NI	OCT. 1	ND			
7														OCT. 2	ND			
8																		

COMMERCE - STANDARDS - BOULDER

COSMIC RAY INDICES
(Climax Neutron Monitor)
IGC Station B 305

MARCH 1964

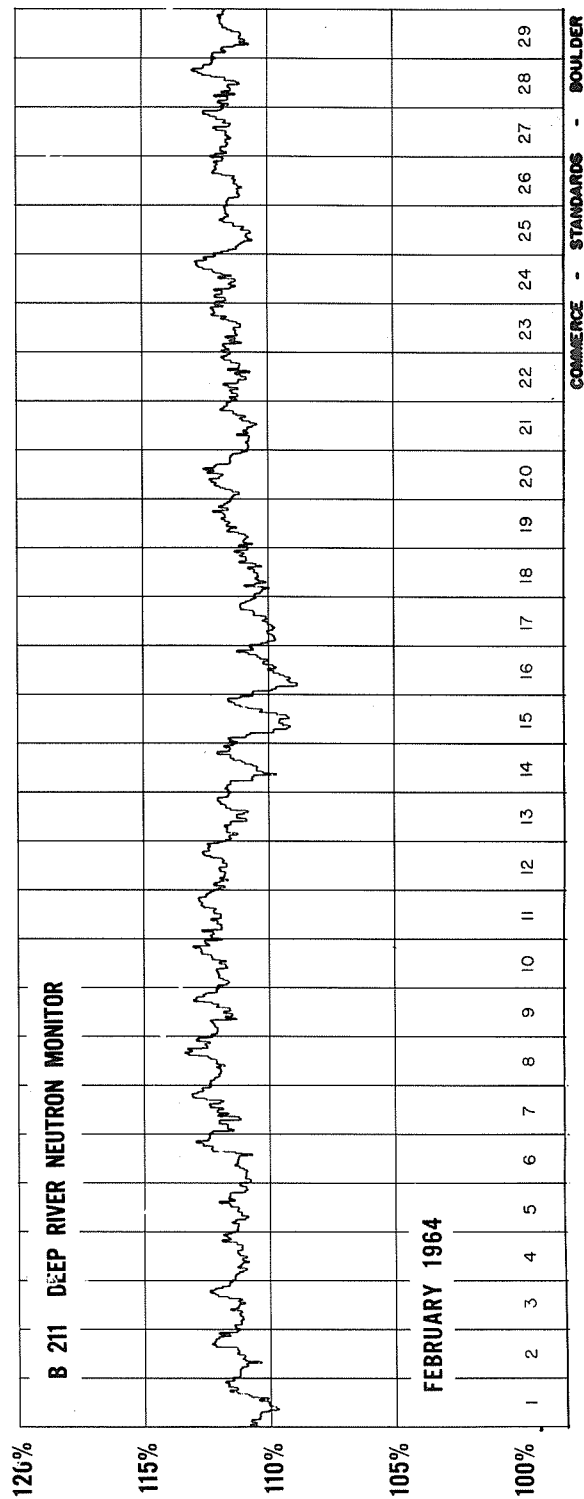
MAR. 1964	DAILY AVERAGE COUNTS / HOUR *	MAR. 1964	DAILY AVERAGE COUNTS / HOUR *
1	3238.3 ** <40	17	3234.4
2	3262.5	18	3246.4
3	3268.9 ** <40	19	3252.5
4	3284.9	20	3246.0
5	3266.4	21	3240.6
6	3267.6	22	3249.6
7	3269.8	23	3262.7
8	3263.7	24	3264.5
9	3259.6	25	3252.6
10	3277.1	26	3246.0
11	3271.5	27	3255.8
12	3268.6	28	3244.1
13	3269.6	29	3240.2
14	3251.0	30	3254.4
15	3245.8	31	3256.8
16	3244.0		

COMMERCE - STANDARDS - BOULDER

* Scaling Factor 128

** No. of Section Hours

COSMIC RAY INDICES
(Pressure Corrected Hourly Totals)



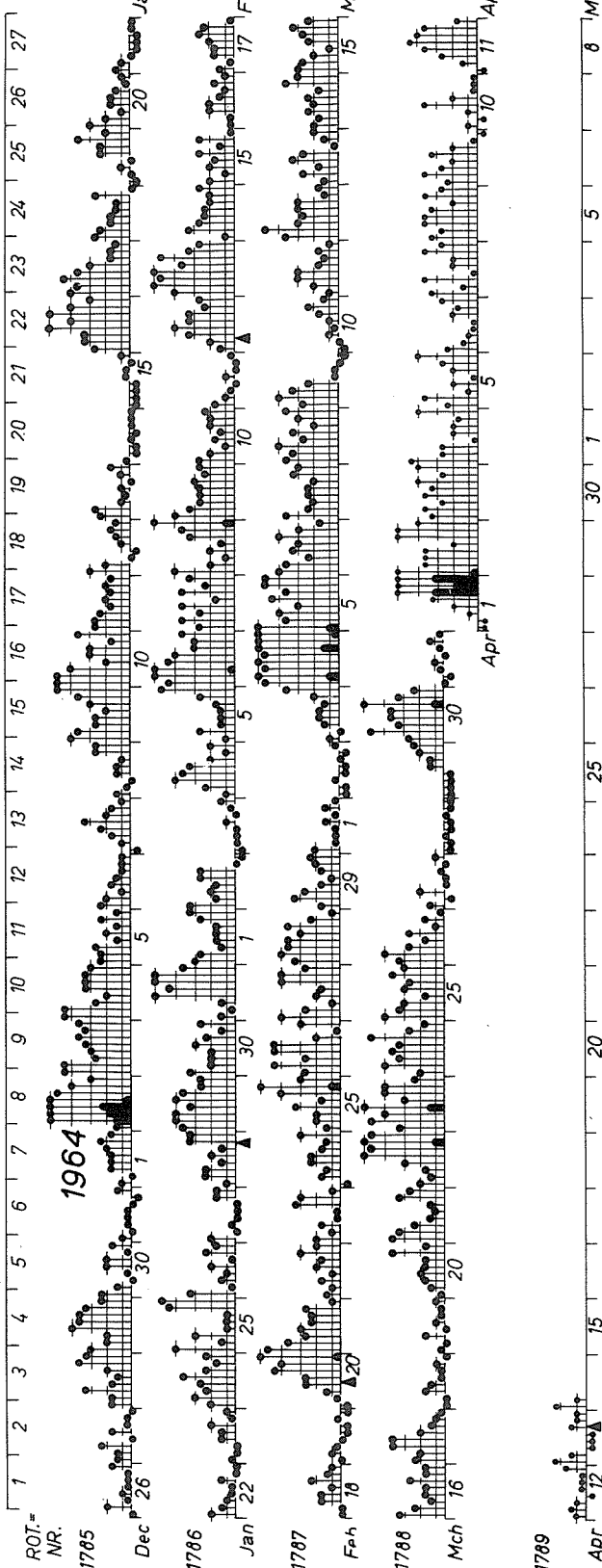
Note: The March 1964 Deep River Neutron Monitor data were published out of sequence in CRPL-F 236B. The above February 1964 data should have been in that issue.

GEOMAGNETIC ACTIVITY INDICES

MARCH 1964

March 1964	C	Values Kp								Sum	Ap	Final Selected Days
		Three hour Gr. interval										
		1	2	3	4	5	6	7	8			
1	0.1	2o	1-	1-	1-	1+	1-	1+	1-	8o	4	Five Quiet
2	0.0	0o	0o	1-	0o	0o	0+	0o	1-	2-	1	
3	0.7	1o	0+	1+	2-	2-	1+	2o	4-	13o	7	
4	1.7	5-	6-	5-	5o	5-	6o	5o	5+	41o	52	
5	1.5	6-	4-	4o	3o	4+	4-	5-	5-	34-	33	
6	1.0	4o	4-	2+	3+	3o	4o	3o	2-	25o	17	
7	0.8	4-	2+	2o	2+	2+	2o	3+	3o	21o	12	
8	1.0	4-	3+	4o	3-	3+	2o	3o	4-	26-	18	
9	0.4	3-	4o	3+	2+	1-	1-	0+	0o	14o	9	
10	0.3	0o	0+	1o	1-	1o	2-	2+	1+	8+	4	
11	0.5	1o	2o	3o	3o	2-	1+	2-	1o	15-	8	Five Disturbed
12	1.0	4-	5-	3o	3-	3o	3o	1+	2-	23o	16	
13	0.4	1+	3-	2-	3+	3-	1-	1+	2o	16-	8	
14	0.7	2o	2-	2+	2o	2+	2-	4-	3o	19-	10	
15	0.7	3o	3-	2o	1o	2+	3-	3+	2+	19+	11	
16	0.4	3+	2+	1+	2-	2-	3-	2-	2-	16+	8	
17	0.5	2+	2o	4-	4-	2o	1+	1o	1-	17-	10	
18	0.1	0+	0+	2-	1+	1-	1-	1o	0+	6+	3	
19	0.0	1-	0+	2-	0+	1o	1-	1-	1o	6+	3	
20	0.6	1-	1+	2-	2o	2-	2-	4-	2-	14+	8	
21	0.9	4-	3+	2+	1+	1o	1+	3+	3-	19o	12	Ten Quiet
22	1.3	2o	1+	2-	3o	5o	5-	6-	5-	28o	28	
23	1.3	3+	5-	4o	6o	3o	4o	4o	2+	31+	30	
24	1.1	2o	4o	3+	4-	3+	5-	3-	2-	25+	19	
25	0.9	4o	3+	3o	2-	3o	3-	4-	3o	24+	16	
26	0.4	3+	4o	3-	2-	3-	1o	2-	1-	18-	11	
27	0.1	1+	0o	2o	0+	0+	1-	0+	1o	6o	3	
28	0.0	0o	0o	0+	0o	0o	0+	0o	0o	1-	0	
29	0.2	0o	0o	0o	0o	1+	1+	2o	2+	7o	3	
30	1.3	3-	5-	3+	4-	4-	6-	3+	2+	29+	26	
31	0.1	0+	0o	1-	1o	0+	1-	1+	1-	5o	3	
Mean:	0.64									Mean:	13	

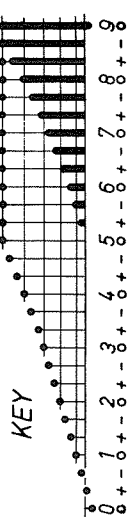
DAYS IN SOLAR ROTATION INTERVAL



PLANETARY MAGNETIC
THREE-HOUR - RANGE INDICES
Kp till 1964 March 31
(Ks from Wingst and Göttingen till April 14)

J. B.

▲ = sudden commencement



COMMERCE - STANDARDS - BOULDER

CRPL RADIO PROPAGATION QUALITY FIGURES AND FORECASTS

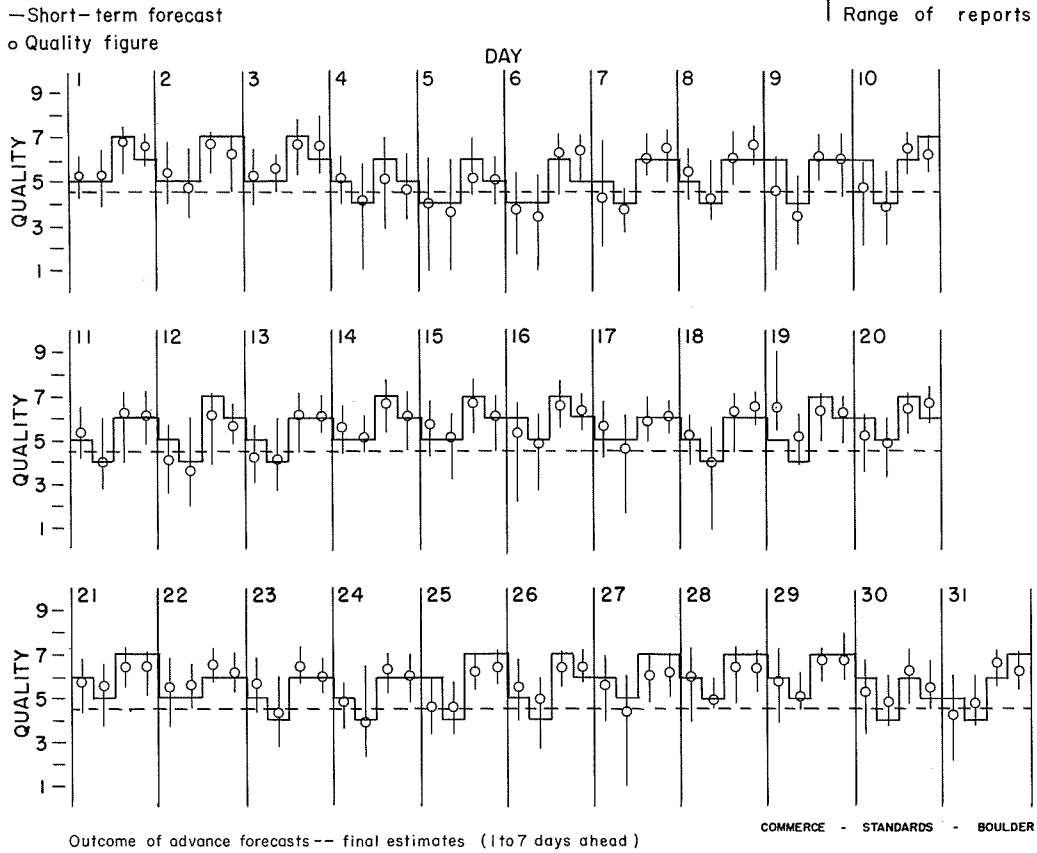
MARCH 1964

MAR. 1964	NORTH ATLANTIC										NORTH PACIFIC									
	NORTH ATLANTIC 6-HOURLY QUALITY FIGURES		SHORT-TERM FORECASTS ISSUED ABOUT ONE HOUR IN ADVANCE OF:			WHOLE DAY INDEX	ADVANCE FORECASTS (24-REPORTS) FOR WHOLE DAY ISSUED IN ADVANCE BY:		GEOMAGNETIC K_p		NORTH PACIFIC 8-HOURLY QUALITY FIGURES		SHORT-TERM FORECASTS ISSUED AT:			WHOLE DAY INDEX	ADVANCE FORECASTS (24-REPORTS) FOR WHOLE DAY ISSUED IN ADVANCE BY:		GEOMAGNETIC K_p	
	00 06 12 18 24	00 06 12 18	00 06 12 18	00 06 12 18	DAYS IN ADVANCE BY:		DAYS IN ADVANCE BY:	1/2 DAY (1)	DAY (2)	03 11 19	03 11 19	02 09 18	DAYS IN ADVANCE BY:	DAYS IN ADVANCE BY:	1/2 DAY (1)		DAY (2)			
01	5+	5+	7-	7-	5	5	7	6	60	6	6	1	1	7	7	7	7	7	1	1
02	5+	5-	7-	6+	5	5	7	6	6-	6	6	0	0	7	7	7	7	7	1	0
03	5+	6-	7-	7-	5	5	7	6	60	5	5	1	2	7	7	7	7	6	6	1
04	50	4+	50	5-	5	4	6	5	(4+)	4	4	(4)	(4)	4	4	5	4	4	(6)	(5)
05	40	4+	50	50	4	4	6	5	(4+)	4	4	(4)	(4)	4	4	5	4	4	(4)	(4)
06	4-	3+	6+	6+	4	4	6	5	50	4	4	3	2	5	5	5	4	4	(4)	2
07	4+	4-	60	7-	5	4	6	6	5+	5	5	3	2	5	5	5	5	5	2	2
08	6+	4+	60	7-	5	4	6	6	6-	6	6	3	2	5	5	5	5	5	3	2
09	5-	3+	6+	6+	6	4	6	6	50	6	6	3	1	6	6	6	6	6	3	0
10	5-	40	7-	6+	6	4	6	7	5+	6	6	1	1	6	6	6	6	6	1	1
11	5+	40	6+	6+	5	4	6	6	6-	5	5	3	1	6	6	7	7	5	2	1
12	40	4-	6+	6-	5	4	7	6	50	5	5	(4)	2	7	7	7	7	7	3	2
13	4+	4+	6+	60	5	4	6	6	5+	5	5	2	1	6	6	6	6	5	2	1
14	6-	50	7-	60	5	5	7	6	60	6	6	2	2	6	5	6	7	5	2	1
15	6-	5+	7-	6+	5	5	7	6	60	6	6	2	2	7	6	6	7	6	2	2
16	5+	50	7-	6+	6	5	7	6	6-	6	6	2	2	7	6	6	7	6	2	1
17	6-	5-	60	60	5	5	6	6	6-	5	5	3	1	6	6	6	6	6	2	1
18	5+	40	6+	7-	5	4	6	6	6-	5	5	6	6	6	6	6	6	6	1	0
19	7-	5+	6+	6+	5	4	7	6	60	4	4	1	1	7	6	6	7	6	1	1
20	5+	50	7-	6+	6	5	7	6	60	5	5	2	2	7	6	6	7	6	1	2
21	60	6-	7-	7-	6	5	7	7	60	5	5	2	1	7	7	7	7	8	2	1
22	6-	6-	7-	6+	5	5	6	6	60	6	6	1	(4)	7	6	6	7	6	2	(4)
23	6-	4+	7-	60	5	4	6	6	6-	6	6	(4)	3	6	5	6	6	6	(4)	3
24	50	40	6+	6+	5	4	6	6	5+	6	6	3	3	6	4	6	6	5	3	3
25	5-	5-	6+	7-	6	4	7	7	6-	5	5	3	3	6	6	6	6	6	2	2
26	6-	50	7-	7-	5	4	7	6	60	6	6	3	1	6	5	6	6	6	3	2
27	6-	4+	6+	6+	6	5	7	7	6-	6	6	6	0	6	6	6	6	7	1	1
28	6+	50	7-	6+	6	5	7	7	60	6	6	6	0	6	6	6	6	6	0	1
29	60	5+	7-	7-	6	4	6	5	6+	6	6	4	(4)	6	4	6	6	6	(4)	3
30	5+	50	6+	6-	6	4	6	5	6-	4	4	0	0	6	6	6	6	6	1	0
31	4+	50	7-	6+	5	4	6	7	6-	4	4	0	0	6	6	6	6	6	1	0
Score: Quiet Periods	P	11	9	21	17	15	17			15	17			15	13	18			6	
	S	13	8	10	14	11	10			11	10			12	9	6			17	
	U	1	0	0	0	0	0			0	0			0	1	0			2	
	F	0	0	0	0	4	3			4	3			0	0	0			0	
Disturbed Periods	P	2	11	0	0	1	1			1	1			0	1	0			1	
	S	4	3	0	0	0	0			0	0			0	3	2			1	
	U	0	0	0	0	0	0			0	0			0	0	0			0	
	F	0	0	0	0	0	0			0	0			0	0	0			0	

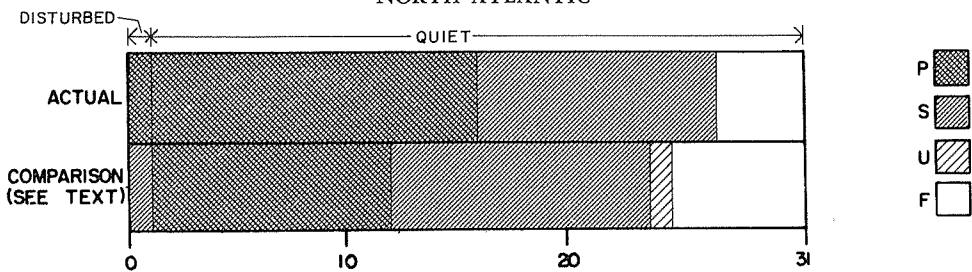
COMMERCE - STANDARDS - BOULDER

NORTH ATLANTIC

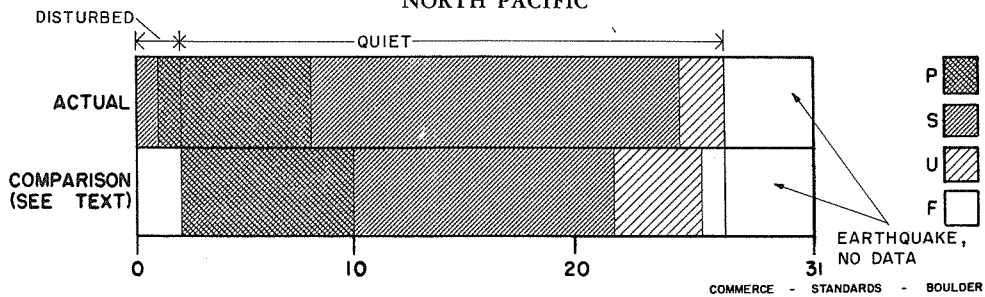
MARCH 1964



NORTH ATLANTIC

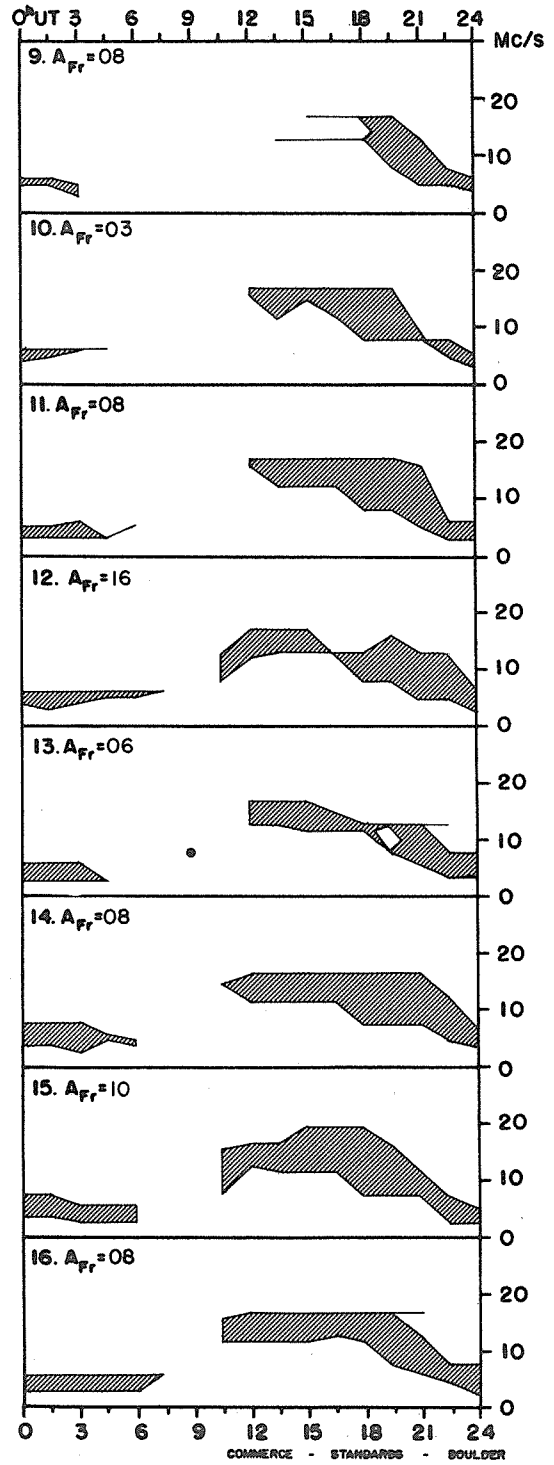
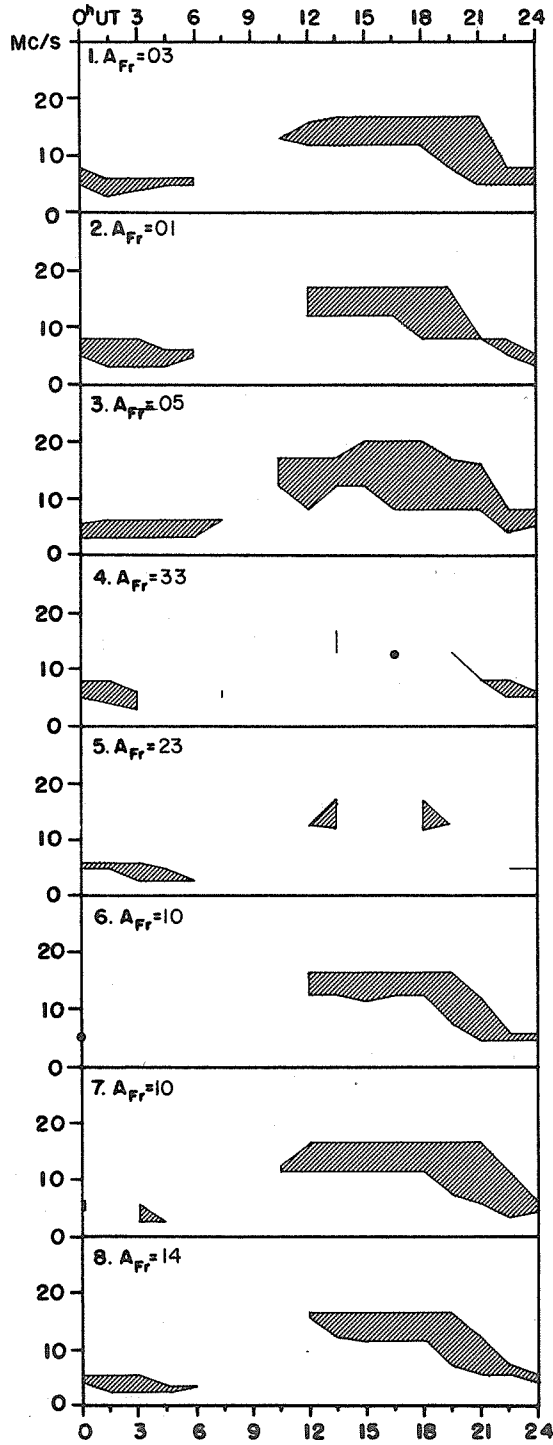


NORTH PACIFIC



USEFUL FREQUENCY RANGES -- NORTH ATLANTIC PATH

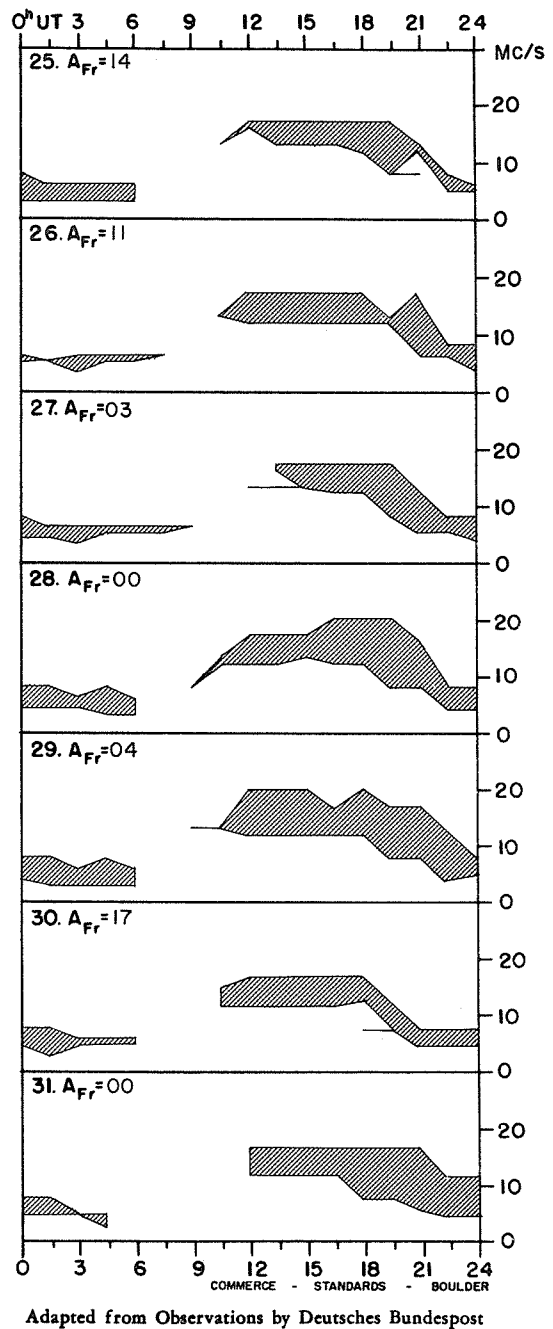
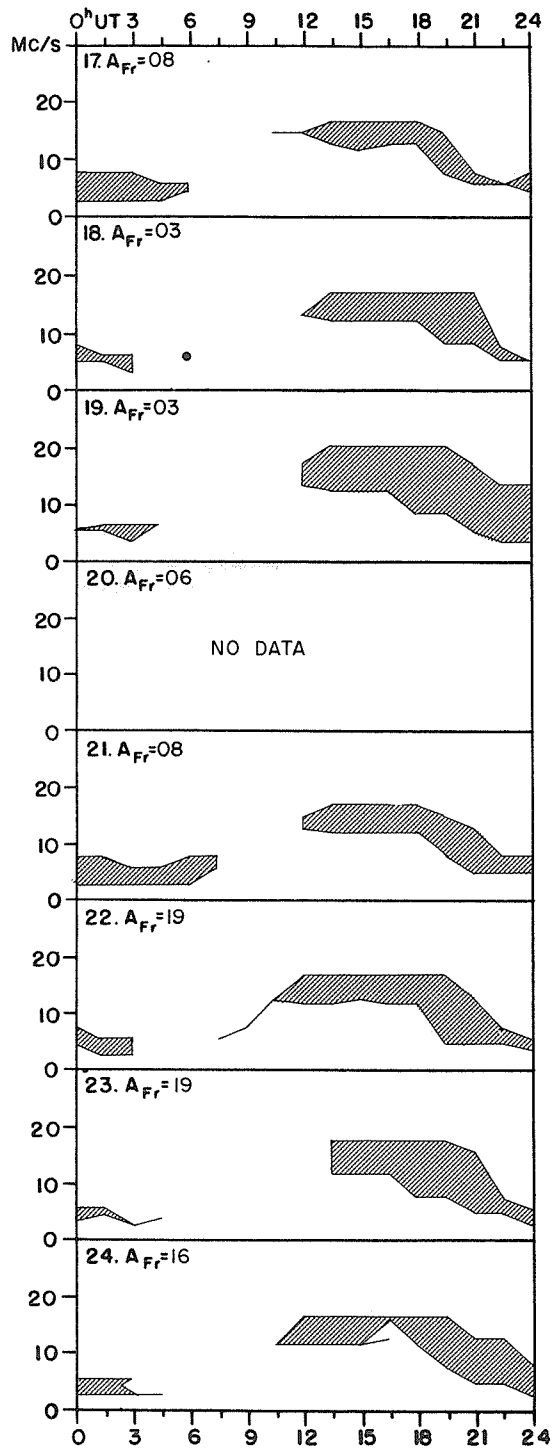
MARCH 1964



USEFUL FREQUENCY RANGES -- NORTH ATLANTIC PATH

VII d

MARCH 1964



Adapted from Observations by Deutsches Bundespost

IQSY ALERT PERIODS

INTERNATIONAL URSIGRAM
AND WORLD DAYS SERVICE

APRIL 1964

1964	TIME OF ISSUE UT	ADVANCE GEOPHYSICAL ALERT	WORLDWIDE GEOPHYSICAL ALERT			
			NO.	TYPE	TIMING	ELABORATION
2	0400	Ft. Belvoir, Magnetic Storm 27/14XX Z	59	Magnetic Storm	(Exists) (1)	
23	0400		60	Magnetic Calm	Exists	
24	0400		61	Magnetic Calm	Exists	
28	0400		62	Magnetic Storm Solar Calm	Expected Exists	
28	1355					
29	0400		63	Magnetic Storm Solar Calm	Exists Exists	
30			64	Solar Calm	Exists	

COMMERCE - STANDARDS - BOULDER

(1) (Exists): The word exists did not actually appear on the telegraphic alert message but was implied by the message.