

National Bureau of Standards
Library, N.W. Bldg
FEB 9 1965

Reference book not to be
taken from the library.

✓ CRPL-F 245 PART B

FOR OFFICIAL USE

NATIONAL BUREAU
OF STANDARDS
LIBRARY
JUN 29 1973

2035
Ref
GC503
.451

PART B
SOLAR - GEOPHYSICAL DATA

ISSUED
JANUARY 1965

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

SOLAR - GEOPHYSICAL DATA

CONTENTS

I DAILY SOLAR INDICES

- (a) Relative Sunspot Numbers and 2800 Mc/s Solar Flux - November-December 1964
- (b) Graph of Sunspot Cycle
- (c) 2800 Mc/s Daily Values of Solar Flux (ARO-DRAO Ottawa) 1964
- (d) 2800 Mc/s Daily Values of Solar Flux adjusted (ARO-DRAO Ottawa) 1964

II SOLAR CENTERS OF ACTIVITY

- (a) Calcium Plage and Sunspot Regions - December 1964
- (b) Magnetic Classifications of Sunspots (Mt. Wilson) - December 1964
- (c) Provisional Coronal Line Emission Indices - December 1964

III SOLAR FLARES

- (a-e) Optical Observations - December 1964
- (f) Flare Patrol Observations - December 1964
- (g-h) Optical Observations - September 1964
- (i) Flare Patrol Observations - September 1964
- (j-l) Solar X-ray Average Flux and Outstanding Events (NRL) - September-October 1964
- (m) Ionospheric Effects (SWF-SEA-SCNA-SPA-SES-SFD-Bursts) - November 1964
- (n) 26 Mc/s - Riometer Events (South Pole) - November 1964

IV SOLAR RADIO WAVES

- (a) 2800 Mc/s Outstanding Occurrences (ARO-DRAO Ottawa) - December 1964
- (b) 169 Mc/s Interferometric Occurrences (Nancay) - December 1964
- (c) 108 Mc/s Outstanding Occurrences (NBS-Boulder) - December 1964
- (d) 7.6-41 Mc/s Spectral Observations (HAO-Boulder) - December 1964
- (e-j) 9.1 cm Spectroheliograms (Stanford) - December 1964

V COSMIC RAY INDICES

- (a) Churchill - Climax - Dallas Neutron Monitor - November 1964
- (b) Deep River Neutron Monitor - November 1964

VI GEOMAGNETIC ACTIVITY INDICES

- (a) C, Kp, Ap and Selected Quiet and Disturbed Days - November 1964
- (b) Chart of Kp by Solar Rotations - 1964
- (c) C9 - 1964

VII RADIO PROPAGATION QUALITY INDICES

- (a) CRPL Quality Figures and Forecasts - November 1964
- (b) Graphs Comparing Forecasts and Observed Quality - November 1964
- (c-d) Graphs of Useful Frequency Ranges - November 1964

VIII ALERT PERIODS AND SPECIAL WORLD INTERVALS

- (a) IQSY Alert Periods - December 1964

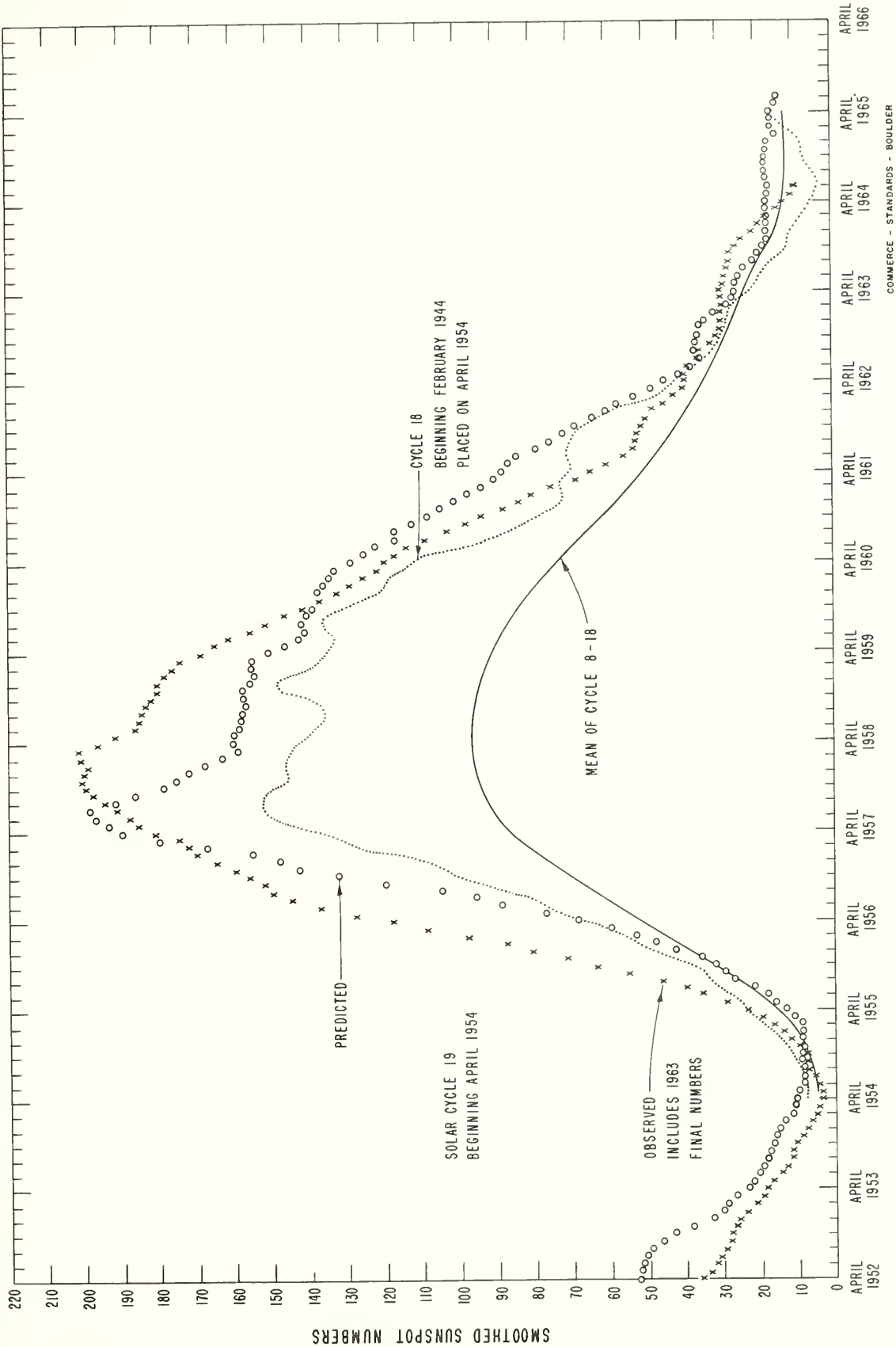
The descriptive text was republished in November 1964.

ADDENDUM: On Page 12, please add Observatoire Royal de Belgique, UCCLE, Belgium (UC) to the list of observatories supplying SEA reports.

DAILY SOLAR INDICES

Nov. 1964	American Relative Sunspot Numbers R _A '
1	12
2	11
3	10
4	3
5	0
6	0
7	3
8	2
9	0
10	0
11	0
12	2
13	1
14	11
15	4
16	20
17	17
18	16
19	16
20	20
21	2
22	2
23	0
24	4
25	0
26	0
27	0
28	4
29	0
30	0
Mean:	5.3

Dec. 1964	Zürich Provisional Relative Sunspot Numbers R _Z	Daily Values Solar Flux at 2800 Mc, Ottawa, Canada Flux	
		S	SA
1	0	76.0	73.9
2	0	76.0	73.8
3	0	76.7	74.4
4	0	78.0	75.7
5	7	77.6	75.3
6	7	76.8	74.6
7	0	76.1	73.8
8	8	77.3	75.0
9	7	77.4	75.0
10	10	78.3	76.0
11	12	79.5	77.0
12	16	76.7	74.3
13	9	77.9	75.5
14	17	77.8	76.1
15	10	78.3	76.5
16	17	79.9	78.2
17	27	79.6	77.8
18	24	79.9	78.1
19	22	81.0	79.1
20	23	79.5	77.6
21	25	78.0	76.2
22	26	77.5	74.9
23	16	76.0	73.5
24	18	75.0	72.5
25	19	75.0	72.4
26	14	74.0	71.5
27	17	76.3	73.8
28	25	77.3	74.7
29	36	77.7	75.1
30	20	76.7	74.1
31	20	78.5	75.9
Mean:	14.6	77.5	75.2



PREDICTED AND OBSERVED SUNSPOT NUMBERS

Ic

DAILY VALUES OF SOLAR FLUX AT 2300 m/s (OTTAWA - ARO)
 FLUX IN WATTS/M²/CYCLES/SECOND BANDWIDTH ($\times 10^{-22}$) - 2 POLARIZATIONS

OBSERVED VALUES

1964

1964

Day	Jan	Feb	Mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec
1	----	72.9	77.5	77.4	68.9	67.7	67.4	66.9	70.0	71.9	74.7	76.0
2	70.6	71.6	75.2	75.4	68.4	68.0	67.0	67.7	69.2	71.5	74.5	76.0
3	73.1	70.9	73.8	76.8	69.8	68.2	67.3	68.0	69.6	71.7	73.9	76.7
4	72.8	71.2	75.0	76.8	70.3	68.2	68.1	67.9	69.8	70.8	73.4	78.0
5	73.7	72.4	72.1	76.0	71.9	67.8	67.6	69.0	69.7	71.6	72.9	77.6
6	75.0	72.7	73.5	75.6	70.9	68.4	67.8	68.2	70.4	72.7	73.9	76.8
7	75.3	72.0	72.9	75.5	70.9	69.6	67.0	67.7	70.7	74.1	72.8	76.1
8	73.2	73.2	73.7	73.5	71.5	69.8	67.9	67.5	70.8	77.0	72.4	77.3
9	73.4	71.8	71.6	75.0	70.9	69.0	67.1	67.9	71.4	73.1	71.7	77.4
10	73.3	72.7	73.2	72.8	70.1	70.3	66.6	68.8	71.8	72.9	71.5	78.3
11	74.6	71.7	75.1	73.9	70.1	70.3	67.6	68.1	72.1	71.8	71.6	79.5
12	76.2	72.8	77.2	72.7	79.4	68.9	66.9	69.8	72.3	70.0	72.2	76.7
13	76.1	73.3	78.2	73.0	68.5	70.2	66.5	74.0	72.0	72.3	72.2	77.9
14	75.6	72.6	78.9	71.6	68.3	70.5	69.2	76.1	71.6	70.6	72.6	77.8
15	74.6	72.7	78.7	71.4	68.0	71.6	69.5	75.4	71.1	70.6	72.2	78.3
16	74.4	73.1	77.0	70.7	70.0	70.6	69.2	73.0	69.5	71.0	71.9	79.9
17	71.5	73.9	77.5	71.8	69.6	71.1	68.6	71.5	68.4	70.9	75.5	79.6
18	73.9	76.0	75.3	71.8	70.4	71.7	68.0	69.6	68.4	72.4	75.0	79.9
19	74.8	75.6	74.2	70.9	68.7	70.1	67.4	70.6	68.8	72.8	74.9	81.0
20	75.9	76.2	74.3	71.4	67.7	70.4	66.6	69.7	68.9	72.6	75.9	79.5
21	74.9	78.5	74.4	71.6	68.0	69.7	66.4	69.2	68.6	70.9	73.7	78.0
22	74.6	79.8	78.4	70.7	67.1	69.5	66.1	69.0	68.7	72.5	73.3	77.5
23	74.7	84.4	77.4	70.3	67.3	67.4	66.4	68.8	68.5	73.0	71.6	76.0
24	74.3	85.2	77.0	71.6	68.0	68.0	66.1	68.4	68.0	73.8	71.1	75.0
25	73.2	84.4	74.1	70.6	67.5	67.7	65.8	67.7	67.8	76.3	71.4	75.0
26	73.8	86.5	74.3	69.6	68.4	67.6	64.8	67.5	69.4	76.4	69.9	74.0
27	73.3	84.9	75.2	69.5	67.7	67.4	65.3	68.2	69.7	75.8	71.5	76.3
28	77.2	84.4	75.7	69.9	69.6	67.3	65.4	67.2	70.2	74.5	70.7	77.3
29	77.5	80.8	75.0	68.8	69.1	67.1	65.9	67.1	70.7	74.3	73.0	77.7
30	74.9		78.2	69.0	68.2	67.2	66.2	68.6	71.4	74.2	73.6	76.7
31	74.3		76.9		67.7		66.2	68.9		75.1		78.5
Mean:	74.4	76.1	75.5	72.5	69.1	69.0	67.0	69.3	70.0	72.9	72.8	77.5

COMMERCE - STANDARDS - BOULDER

DAILY VALUES OF SOLAR FLUX AT 2800 Mc/s (OTTAWA - ARO)
 FLUX IN WATTS/M²/CYCLES/SECOND BANDWIDTH ($\times 10^{-22}$) - 2 POLARIZATIONS

Id

1964	ADJUSTED TO 1 ASTRONOMICAL UNIT											1964
Day	Jan	Feb	Mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec
1	----	70.8	76.1	77.3	70.0	69.7	69.7	68.9	71.3	72.0	73.6	73.9
2	68.3	69.5	73.9	75.3	69.5	70.0	69.3	69.7	70.4	71.6	73.3	73.8
3	70.7	68.8	72.5	76.8	71.0	70.2	69.6	70.1	70.8	71.8	72.7	74.4
4	70.4	69.2	73.8	76.9	71.5	70.2	70.4	69.8	71.0	70.8	72.1	75.7
5	71.3	70.4	70.9	76.1	73.2	69.8	69.9	71.0	70.8	71.6	71.6	75.3
6	72.5	70.7	72.4	75.8	72.2	70.5	70.1	70.2	71.5	72.6	72.6	74.6
7	72.8	70.1	71.8	75.7	72.2	71.7	69.3	69.6	71.8	74.0	71.5	73.8
8	70.8	71.2	72.7	73.7	72.9	71.9	70.2	69.4	71.9	76.8	71.1	75.0
9	71.0	69.9	70.6	75.2	72.2	71.1	69.4	69.8	72.4	72.9	70.4	75.0
10	70.9	70.8	72.2	73.1	71.5	72.5	68.9	70.7	72.8	72.7	70.1	76.0
11	72.1	69.8	74.1	74.3	71.5	72.5	69.9	69.9	73.0	71.5	70.2	77.0
12	73.7	70.9	76.3	73.1	70.9	71.0	69.1	70.6	73.2	69.7	70.7	74.3
13	73.6	71.5	77.3	73.4	69.9	72.4	68.7	75.9	72.9	71.9	70.7	75.5
14	73.1	70.8	78.0	72.0	69.8	72.8	71.5	78.0	72.5	70.3	71.1	76.1
15	72.1	70.9	77.8	71.9	69.5	73.9	71.8	77.3	71.9	70.2	70.6	76.5
16	72.0	71.3	76.2	71.2	71.6	72.9	71.6	74.8	70.2	70.5	70.3	78.2
17	69.2	72.1	76.7	72.4	71.2	73.8	70.9	73.3	69.0	70.4	73.7	77.8
18	71.5	74.3	74.6	72.4	72.1	74.1	70.2	71.3	69.0	71.8	73.3	78.1
19	72.4	73.9	73.6	71.5	70.3	72.4	69.6	72.2	69.4	72.2	73.1	79.1
20	73.5	74.5	73.7	72.1	69.3	72.7	68.8	71.4	69.5	71.9	74.0	77.6
21	72.5	76.8	73.9	72.3	69.7	72.0	68.5	70.8	69.1	70.3	72.0	76.2
22	72.3	78.0	77.9	71.5	68.8	71.8	68.2	70.6	69.1	71.8	71.5	74.9
23	72.4	82.6	76.9	71.1	69.0	69.6	68.5	70.3	69.0	72.3	69.9	73.5
24	72.0	83.4	76.5	72.5	69.8	70.2	68.2	69.9	68.4	73.0	69.3	72.5
25	70.9	82.7	73.7	71.4	69.3	69.9	67.9	69.1	68.1	75.4	69.5	72.4
26	71.5	84.8	74.0	70.5	70.2	69.9	66.9	68.9	69.7	75.4	68.1	71.5
27	71.1	83.3	74.9	70.5	69.5	69.7	67.3	69.6	70.0	74.9	69.6	73.8
28	74.9	82.8	75.5	70.9	71.5	69.6	67.4	68.6	70.5	73.5	68.8	74.7
29	75.2	79.3	74.8	69.8	71.0	69.4	67.9	68.5	70.9	73.2	71.0	75.1
30	72.7		78.0	70.0	70.1	69.5	68.3	69.9	71.6	73.2	71.5	74.1
31	72.1		76.7		69.6		68.2	70.2		74.0	.	75.9
Mean:	72.0	74.3	74.8	73.0	70.7	71.3	69.2	71.0	70.7	72.4	71.3	75.2

COMMERCE - STANDARDS - BOULDER

CALCIUM PLAGE AND SUNSPOT REGIONS

DECEMBER 1964

Dec. 1964	LAT.	MCMATH PLAGE NUMBER	RETURN OF REGION	CALCIUM PLAGE DATA						SUNSPOT DATA		
				CMP VALUES		HISTORY	AGE (ROTA- TIONS)	DATE FIRST SEEN (1)	DURA- TION (DAYS) (1)	CMP VALUES		HISTORY
				AREA	INT					AREA	COUNT	
01.1	N16	7603	New	100	1	b - d	1	11/30	~ 1			
01.5	S25	7598	New	(100)	(1.5)	b - d	1	11/26	~ 1			
03.4	N02	7604 (3)	New	(100)	(1)	b - d	1	11/30	~ 1			
05.3	N05	7602 (3)	New	300	1.5	ℓ - ℓ	1	11/29	12			
08.6	N30	7605	7562	1600	2.5	ℓ - ℓ	2	<12/6	> 9			
10.0	N20	7608 (2)	New	100	2	b - d	1	12/8	1			
10.8	N33	7606	7568	2600	3	ℓ \ ℓ	2	<12/6	>11	10	3	b - d
10.8	S09	7609 (2)	New	(200)	(1.5)	b - d	1	12/8	1			
11.4	S05	7607 (2)	New	(100)	(1)	ℓ - d	1	12/6	1			
11.6	N17	7612 (2)	New	(100)	(1)	b - d	1	12/9	1			
12.5	N08	7610 (2)	New	(200)	(1.5)	b - d	1	12/8	1			
12.5	N22	7614	New	(300)	(1.5)	b - ℓ	1	~12/14	4			
13.0	N20	7611	7581	(700)	(1.5)	ℓ / d	2	<12/8	> 3			
13.3	N29	7615	New	100	1.5	b - d	1	12/14	~ 1			
13.6	S12	7620 (2)	New	(100)	(1)	b - d	1	12/17	1			
15.7	N08	7616	New	300	1	b - d	1	12/14	3			
16.0	N06	7624	New	(300)	(3.5)	b / ℓ	1	≥12/20	> 2			
16.2	N24	7621	New	200	1.5	b - d	1	12/17	~ 2			
16.5	S07	7613	New	2200	2.5	ℓ ^ ℓ	1	12/9	13	10	3	ℓ - d
18.8	N22	7618	New	600	3	b ^ d	1	≤12/14	> 8	10	4	ℓ - d
18.9	S08	7617	7585	800	1.5	ℓ / d	4	<12/14	> 8			
21.7	S10	7619	New	600	2.5	ℓ / ℓ	1	12/15	12	20	6	ℓ - d
24.6	S10	7623	New	(500)	(2.5)	ℓ - ℓ	1	12/18	≥11			
25.0	N34	7622	New	(3000)	(3)	ℓ \ ℓ	1	12/17	≥12	210	4	ℓ - ℓ
26.3	S32	7628a (4)	New	(100)	(1.5)	b - d	1	12/28	~ 1			
29.4	S09	7629a (4)	New	200	1	b - d	1	12/28	~ 1			
30.2	N02	7625 (3)	New	200	2.5	b - d	1	≤12/27	> 5	10	3	b - d
31.0	N22	7626	New	1300	3.5	b - ℓ	1	≤12/27	≥11	140	24	b - ℓ
31.4	S03	7627	New	200	1	b ^ d	1	≤12/27	> 5	40	1	b - d

COMMERCE - STANDARDS - BOULDER

- (1) Due to long intervals of bad weather conditions no calcium plage data were secured at the McMath-Hulbert Observatory on December 1-5, 7, 11-13, 19, 22-26, 29, 30, 1964.
- (2) These very small and ephemeral plages last for only one day.
- (3) Plage 7602 is new, in the same position as the ephemeral plage 7561 of the previous rotation; 7604 is in the same position as 7565 and 7625 is in the same position as ephemeral 7604.
- (4) Due to an oversight, the numbers 7628 and 7629 were used twice to designate different plages - these have been changed to 7628a and 7628b and 7629 a and b.

ERRATA: In CRPL-F244 Part B, page IIa, on Nov. 02.1 in calcium plage history column should be "b - ℓ" not "d - ℓ"; and on Nov. 15.9 the latitude of McMath Plage Number 7581 should be N28, not N18.

MT. WILSON MAGNETIC CLASSIFICATIONS OF SUNSPOTS

11b

DECEMBER 1964

DEC. 1964	TIME MEAS. UT	LAT.	MER DIST	TYPE	DEC. 1964	TIME MEAS. UT	LAT	MER DIST.	TYPE
1	No Obs				13	1900	N23 S07	W16 E31	α p *
2 - 3	No Spots				14	1745	S07 N23	E18 E55	β p α p *
4	1745	N36 N30	E52 E72	α p α p	15	1735	S07 N22 S09	E03 E44 E78	β p α f * α p
5	1835	N30	E60	α f	16	1810	N23 S08	E29 E65	β * β
6 - 7	No Spots				17 - 20	No Obs			
8	1705	N29	E25	β f	21	1810	N06 S11 N36	W80 W06 E36	α f α p β p *
9	No Obs				22	1715	S11 N36	W17 E24	β p β p *
10	1755	N30 S07	W05 E72	α p * γ	23 - 31	No obs			
11	1950	N25 N30 S07	W14 W09 E56	α p * α f * β p					
12	1650	S07	E45	α p					

COMMERCE - STANDARDS - BOULDER

* New Cycle Designation

PROVISIONAL CORONAL LINE EMISSION INDICES

DECEMBER 1964

CMP Dec 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	0	0	11	12	0	0	12	16
2	8	12	24	27	3	4	24	27	x	x	x	x	x	x	x	x
3	10	12	17	20	3	4	12	15	0	0	13	16	1	6	16	24
4	x	x	x	x	x	x	x	x	2	3	12	14	10	15	13	19
5	x	x	x	x	x	x	x	x	3	4	19	22	11	16	21	26
6	16	30	20	23	2	3	18	21	3	6	14	20	16	21	16	26
7	27	57	21	27	5	6	11	14	2	3	18	20	22	30	22	28
8	35	75	20	33	4	5	14	16	x	x	x	x	x	x	x	x
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	17	36	23	30	6	8	19	22	x	x	x	x	x	x	x	x
13	12	27	12	18	3	4	12	14	x	x	x	x	x	x	x	x
14	8	15	14	16	7	10	18	23	x	x	x	x	x	x	x	x
15	34	55	15	19	34	46	23	30	x	x	x	x	x	x	x	x
16	x	x	x	x	x	x	x	x	22	40	22	30	10	30	28	40
17	3	11	28	33	5	22	26	34	x	x	x	x	x	x	x	x
18	5	6	15	17	11	30	16	21	x	x	x	x	x	x	x	x
19	6	9	18	21	10	21	16	20	10	16	15	16	6	8	23	31
20	5	6	14	18	6	9	13	17	x	x	x	x	x	x	x	x
21	6	8	21	26	5	14	13	16	x	x	x	x	x	x	x	x
22	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
23	x	x	x	x	x	x	x	x	0	0	x	x	0	0	x	x
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	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	x	x	x	x	x	x	x	x	3	4	16	20	7	12	13	16
28	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
29	x	x	x	x	x	x	x	x	2	3	22	30	21	40	20	25
30	4	5	23	26	1	3	22	30	x	x	x	x	x	x	x	x
31	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

COMMERCE - STANDARDS - BOULDER

SOLAR FLARES

DECEMBER 1964

OBSERVATORY	DATE	OBSERVED UNIVERSAL TIME		LOCATION		DURA- TION — MINUTES	IM- POR- TANCE	OBS. COND.	TIME — U T	MEASUREMENTS			REMARKS
		START	END	APPROX.	MEATH PLACE REGION					MEAS AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX WIDTH H _g	
CAPS	DEC 1964												
	01	0000	0745	NO FLARE	PATROL		1-	2	1105	.30	.70	165	DG
	01	1055 E	1111 D	N23 W66	7592								
	01	1215	1340	NO FLARE	PATROL								
	01	1345	1355	NO FLARE	PATROL		1-	C		.41	.74	19	
SACP	01	1426	1447	1440	N26 W66	7592							
	01	1550	1605	NO FLARE	PATROL								
	01	2110	2155	NO FLARE	PATROL								
	01	2210	2400	NO FLARE	PATROL								
	02	0000	0750	NO FLARE	PATROL								
CAPS ARCE CAPS ARCE	02	1510	1525	NO FLARE	PATROL								
	02	1650	2400	NO FLARE	PATROL								
	03	0000	0730	NO FLARE	PATROL								
	03	0920	1025	NO FLARE	PATROL								
	03	1030	1045	NO FLARE	PATROL								
CAPS ARCE CAPS ARCE	03	1055	1110	NO FLARE	PATROL								
	03	1330	2400	NO FLARE	PATROL								
	04	0000	0715	NO FLARE	PATROL								
	04	0827	0856	N38 E80	7606	29	2	3	0838	6.00	6.82	185	G
	04	0935 E	0955 D	N33 E80	7606	20 D	1-	2	0945	2.13		151	G
LOCK LOCK LOCK LOCK	04	0958	1015 D	N32 E80	7606		1-	3	1008	.80			G
	04	1000 E	1255	N34 E80	7606		1	2	1000	.72	2.31		O
	04	1200	1330	NO FLARE	PATROL								
	04	1320	1625	NO FLARE	PATROL								
	04	1335		NO FLARE	PATROL								
LOCK LOCK LOCK LOCK	05	0040	0710	NO FLARE	PATROL								
	05	1740	1800	N30 E33	7606		1-	C	1747	.20	.20	10	
	05	2003	2024	N24 W26			1-	C	2010	.20	.20	10	
	05	2054	2107	N48 E12			1-	C	2059	.20	.30	10	
	05	2130	2149	N32 E30	7606		1-	C	2140	.10	.10	10	
CATA CAPS CAPS	06	0005	0705	NO FLARE	PATROL								
	06	0955	1015	NO FLARE	PATROL								
	06	1030	1400	NO FLARE	PATROL								
	07	0020	0745	NO FLARE	PATROL								
	07	1008 E	1025 D	N32 E45	7606	17 D	1	3	1015	1.80	2.90	176	FG
LOCK LOCK LOCK LOCK	07	1017 E	1038	N34 E46	7606	21 D	1	3	1027	.30		150	G
	07	1019 E	1022	N22 E75	7611		1-		1020				
	07	1725	1750	NO FLARE	PATROL								
	07	1810	2400	NO FLARE	PATROL								
	08	0000	0800	NO FLARE	PATROL								
LOCK LOCK LOCK LOCK	08	1235	1250	NO FLARE	PATROL								
	08	1255	1425	NO FLARE	PATROL								
	08	1828	1842	N47 W28			1-	C	1835	.30	.40	10	
	08	1828	1842	N47 W28									
	09	0000	0815	NO FLARE	PATROL								

SOLAR FLARES

DECEMBER 1964

OBSERVATORY	DATE DEC 1964	OBSERVED UNIVERSAL TIME		MAX PHASE	LOCATION		DURA- TION — MINUTES	IM- POB- TANCE	OBS. COND.	MEASUREMENTS			REMARKS
		START	END		APPROX. LAT.	APPROX. LONG. DIST.				TIME — U T	MEAS. AREA Sq Deg	CORR. AREA Sq Deg	
ARCE LOCK LOCK LOCK LOCK	09	1310	1350	NO FLARE	PATROL	7613	4 D	1- D	2	1514	.70	3.58	O
	09	1510	1514	D	S05 E90	7613		1-	C	1752	.50	1.50	HJ
	09	1742	1830	1752	S06 E80	7613		1-	3	2000	.50	2.50	HJ
	09	1940	2030	2000	S06 E90	7613	50	1	C	2135	.70	2.10	J
	09	2115	2210	2135	S06 E80	7613	55	1	C	2217	.50	2.50	J
ARCE UCCL CAPS CAPS CAPS	10	0025	0740	NO FLARE	PATROL	7613		1-	2	1000	.33	1.01	O
	10	0945	1000	D	S06 E79	7613		1-	3	1127	1.80		D
	10	1033	1034		S27 W80		18	1	3	1158	1.50		
	10	1120	1138		S03 E78	7613		1-	3	1228	.30		
	10	1152	1203	NO FLARE	PATROL	7613		1-	3	1357	.20	.20	DGH
LOCK SACP	10	1205	1255	NO FLARE	PATROL	7605		1-	C	2125	1.00	1.10	L
	10	1227	1234	NO FLARE	PATROL	7605		1-	C		.67	1.13	
	10	1305	1400	NO FLARE	PATROL	7606		1-	3				
	10	1353	1400	NO FLARE	PATROL	7606		1-	3				
	10	1410	1415	NO FLARE	PATROL	7605		1-	C				
CATA CATA	11	0000	0715	NO FLARE	PATROL	7613		1-	1-	0932			
	11	0925	0955	D	S11 E69	7613		1-	1-	1128			
	11	1110	1147	D	S08 E69	7613		1-	1-				
	11	1200	1405	NO FLARE	PATROL	7613		1-	1-				
	11	1735	1815	NO FLARE	PATROL	7613		1-	1-				
CATA SACP	12	0000	0755	NO FLARE	PATROL	7613	200 D	1- D	C	0855	.74	.89	17
	12	0850	1210	D	S08 E65	7613		1-	C				
	12	1320	1410	NO FLARE	PATROL	7613		1-	C				
	12	1425	1430	1427	S05 E43	7613		1-	C				
	12	1425	1430	1427	S05 E43	7613		1-	C				
CAPS CAPS SACP	13	0010	0800	NO FLARE	PATROL	7606		1-	3	0919	.20	.30	DG
	13	0915	0926	0926	N27 W32	7606		1-	3	1238	1.00	1.10	154
	13	1224	1247	1856	N22 W12	7614		1-	C		.68	.74	18
	13	1850	1907	1856	S08 E27	7613		1-	C				
	13	2350	2400	NO FLARE	PATROL	7613		1-	C				
LOCK	14	0000	0750	NO FLARE	PATROL	7606		1-	C	1848	.30	.40	10 L
	14	1200	1325	NO FLARE	PATROL	7606		1-	C				
	14	1340	1345	NO FLARE	PATROL	7606		1-	C				
	14	1835	1859	1848	N33 W52	7606		1-	C				
	14	1835	1859	1848	N33 W52	7606		1-	C				
LOCK	15	0020	0830	NO FLARE	PATROL	7606		1-	C	2150	.20	.40	10
	15	0930	1345	NO FLARE	PATROL	7606		1-	C				
	15	2125	2230	2150	S51 E48	7606		1-	C				
	15	2125	2230	2150	S51 E48	7606		1-	C				
	15	2125	2230	2150	S51 E48	7606		1-	C				
LOCK	16	0005	1355	NO FLARE	PATROL	7606		1-	C	2150	.20	.40	10
	16	1915	2055	NO FLARE	PATROL	7606		1-	C				

SOLAR FLARES

DECEMBER 1964

OBSERVATORY	DATE	OBSERVED UNIVERSAL TIME		LOCATION		DURA- TION — MINUTES	IM- POR- TANCE	OBS. COND.	MEASUREMENTS				REMARKS
		START	END	AFFROX LAT.	MER DIST				MEAS. AREA Sq Deg	CORR. AREA Sq Deg	MAX WIDTH R ₁₀	MAX INT %	
CAPS	1964												
	16	2100	2115	NO FLARE	PATROL								
	16	2225	2400	NO FLARE	PATROL								
	17	0000	0920	NO FLARE	PATROL								
	17	1030	1450	NO FLARE	PATROL								
	17	1310	1421	D	S08 E36	7619	1-	1	2.00	3.50		157	
	17	1500	1505	NO FLARE	PATROL								
	17	1732	1740	1735	S09 E54	7619	1-	1 C	.40	.70			
	17	2315	2340	D	N23 E12	7618	1-	C	.60	.60		20	D
	17	2340	2400	NO FLARE	PATROL								
CATA	18	0000	1330	NO FLARE	PATROL								
	18	1900	2400	NO FLARE	PATROL								
	19	0000	0500	NO FLARE	PATROL								
	19	0915	1505	NO FLARE	PATROL								
	19	1520	1600	NO FLARE	PATROL								
	19	1620	1635	NO FLARE	PATROL								
	19	1650	1705	NO FLARE	PATROL								
	19	1805	1810	NO FLARE	PATROL								
	19	1820	1845	NO FLARE	PATROL								
	19	1905	1915	NO FLARE	PATROL								
OTTA	19	1930	2050	NO FLARE	PATROL								
	19	2100	2110	NO FLARE	PATROL								
	19	2220	2400	NO FLARE	PATROL								
	20	0000	0815	NO FLARE	PATROL								
	20	1015	1425	NO FLARE	PATROL								
	20	1750	1850	NO FLARE	PATROL								
	20	2350	2400	NO FLARE	PATROL								
	21	0000	0845	NO FLARE	PATROL								
	21	0915	0945	NO FLARE	PATROL								
	21	0945	1140	D	S09 E03	7619	1	115 D	0950				
	21	1000	1045	NO FLARE	PATROL								
	21	1210	1355	NO FLARE	PATROL								
	21	1724	1739	1728	N35 E36	7622	1-	C	.22	.29			F
	21	0000	0745	NO FLARE	PATROL								
	22	1500	2400	NO FLARE	PATROL								
	23	0000	0805	NO FLARE	PATROL								
	23	0815	0825	NO FLARE	PATROL								
	23	1025	1040	NO FLARE	PATROL								
	23	1210	1250	NO FLARE	PATROL								
	23	1305	1350	NO FLARE	PATROL								
	23	2045	2120	NO FLARE	PATROL								
	23	2350	2400	NO FLARE	PATROL								
	24	0000	0815	NO FLARE	PATROL								
	24	0820	0825	NO FLARE	PATROL								

COMMENCE - STATIONS - SOLAR

SOLAR FLARES

DECEMBER 1964

OBSERVATORY	DATE	OBSERVED UNIVERSAL TIME		LOCATION			DURA- TION — MINUTES	IN- POR- TANCE	OBS COND.	MEASUREMENTS				REMARKS	
		START	END	APPROX LAT.	MER DIST	MONTH PLACE REGION				TIME U T	MEAS AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX WIDTH H ₀		MAX INT I ₀
UCCL	DEC 1964														
	24	0845	0945	NO FLARE	PATROL										
	24	1000	1145	NO FLARE	PATROL										
	24	1200	1203	NO FLARE	S12 W43	7619									
	24	1205	1445	NO FLARE	PATROL										
LOCK	24	2020	2220	NO FLARE	PATROL										
	25	0005	0720	NO FLARE	PATROL										
	25	0810	0900	NO FLARE	PATROL										
	25	1130	1155	NO FLARE	PATROL										
	25	1240	1850	NO FLARE	PATROL										
UCCL	25	2200	2230	2215	N30 E08	7622									
	26	0000	1145	NO FLARE	PATROL										
	26	1200	1415	NO FLARE	PATROL										
	26	2245	2315	NO FLARE	PATROL										
	26	2325	2400	NO FLARE	PATROL										
UCCL	27	0000	0830	NO FLARE	PATROL										
	27	1041	1044		N01 E60	7627									
	27	1113	1116		N01 E60	7627									
	27	1120	1122		N01 E60	7627									
	27	1128	1141		N01 E60	7627									
UCCL	27	1200	1420	NO FLARE	PATROL										
	27	2020	2200	NO FLARE	PATROL										
	27	2305	2400	NO FLARE	PATROL										
	28	0000	0815	NO FLARE	PATROL										
	28	1254	1326	1305	S01 E42	7627									
SACP	28	1705	1711	1706	N23 E32	7626									
	28	1920	2400	NO FLARE	PATROL										
	29	0000	0800	NO FLARE	PATROL										
	29	0850	0918		N34 W67	7622									
	29	0915	0918		N03 E24	7627									
BUCA	29	1550	1555	NO FLARE	PATROL										
	29	1825	1830	NO FLARE	PATROL										
	29	2030	2400	NO FLARE	PATROL										
	30	0000	0820	NO FLARE	PATROL										
	30	0846	1050		N34 W80	7622									
CAPS	30	0922	1148		N20 E14	7626									
	30	0925	0940	0928	N23 E16	7626									
	30	1027	1050		N22 E10	7626									
	30	1032	1040	1034	N22 E12	7626									
	30	1143	1148	1146	N22 E10	7626									
HTPR	30	1318	1326		N34 W80	7622									
	30	1345	1355	NO FLARE	PATROL										
	30	1430	1440	NO FLARE	PATROL										
	30	1550	1555	NO FLARE	PATROL										
	30	1609	1620	1615	S12 W87	7623									
CAPS	30	0000	0820	NO FLARE	PATROL										
	30	0846	1050		N34 W80	7622									
	30	0922	1148		N20 E14	7626									
	30	0925	0940	0928	N23 E16	7626									
	30	1027	1050		N22 E10	7626									
HTPR	30	1032	1040	1034	N22 E12	7626									
	30	1143	1148	1146	N22 E10	7626									
	30	1318	1326		N34 W80	7622									
	30	1345	1355	NO FLARE	PATROL										
	30	1430	1440	NO FLARE	PATROL										
SACP	30	1550	1555	NO FLARE	PATROL										
	30	1609	1620	1615	S12 W87	7623									
	30	0000	0820	NO FLARE	PATROL										
	30	0846	1050		N34 W80	7622									
	30	0922	1148		N20 E14	7626									
CAPS	30	0925	0940	0928	N23 E16	7626									
	30	1027	1050		N22 E10	7626									
	30	1032	1040	1034	N22 E12	7626									
	30	1143	1148	1146	N22 E10	7626									
	30	1318	1326		N34 W80	7622									
CAPS	30	1345	1355	NO FLARE	PATROL										
	30	1430	1440	NO FLARE	PATROL										
	30	1550	1555	NO FLARE	PATROL										
	30	1609	1620	1615	S12 W87	7623									
	30	0000	0820	NO FLARE	PATROL										
CAPS	30	0846	1050		N34 W80	7622									
	30	0922	1148		N20 E14	7626									
	30	0925	0940	0928	N23 E16	7626									
	30	1027	1050		N22 E10	7626									
	30	1032	1040	1034	N22 E12	7626									
HTPR	30	1143	1148	1146	N22 E10	7626									
	30	1318	1326		N34 W80	7622									
	30	1345	1355	NO FLARE	PATROL										
	30	1430	1440	NO FLARE	PATROL										
	30	1550	1555	NO FLARE	PATROL										
SACP	30	1609	1620	1615	S12 W87	7623									
	30	0000	0820	NO FLARE	PATROL										
	30	0846	1050		N34 W80	7622									
	30	0922	1148		N20 E14	7626									
	30	0925	0940	0928	N23 E16	7626									
CAPS	30	1027	1050		N22 E10	7626									
	30	1032	1040	1034	N22 E12	7626									
	30	1143	1148	1146	N22 E10	7626									
	30	1318	1326		N34 W80	7622									
	30	1345	1355	NO FLARE	PATROL										
CAPS	30	1430	1440	NO FLARE	PATROL										
	30	1550	1555	NO FLARE	PATROL										
	30	1609	1620	1615	S12 W87	7623									
	30	0000	0820	NO FLARE	PATROL										
	30	0846	1050		N34 W80	7622									
CAPS	30	0922	1148		N20 E14	7626									
	30	0925	0940	0928	N23 E16	7626									
	30	1027	1050		N22 E10	7626									
	30	1032	1040	1034	N22 E12	7626									
	30	1143	1148	1146	N22 E10	7626									
HTPR	30	1318	1326		N34 W80	7622									
	30	1345	1355	NO FLARE	PATROL										
	30	1430	1440	NO FLARE	PATROL										
	30	1550	1555	NO FLARE	PATROL										
	30	1609	1620	1615	S12 W87	7623									
SACP	30	0000	0820	NO FLARE	PATROL										
	30	0846	1050		N34 W80	7622									
	30	0922	1148		N20 E14	7626									
	30	0925	0940	0928	N23 E16	7626									
	30	1027	1050		N22 E10	7626									
CAPS	30	1032	1040	1034	N22 E12	7626									
	30	1143	1148	1146	N22 E10	7626									
	30	1318	1326		N34 W80	7622									
	30	1345	1355	NO FLARE	PATROL										
	30	1430	1440	NO FLARE	PATROL										
CAPS	30	1550	1555	NO FLARE	PATROL										
	30	1609	1620	1615	S12 W87	7623									
	30	0000	0820	NO FLARE	PATROL										
	30	0846	1050		N34 W80	7622									
	30	0922	1148		N20 E14	7626									
CAPS	30	0925	0940	0928	N23 E16	7626									
	30	1027	1050		N22 E10	7626									
	30	1032	1040	1034	N22 E12	7626									
	30	1143	1148	1146	N22 E10	7626									
	30	1318	1326		N34 W80	7622									
CAPS	30	1345	1355	NO FLARE	PATROL										
	30	1430	1440	NO FLARE	PATROL										
	30	1550	1555	NO FLARE	PATROL										
	30	1609	1620	1615	S12 W87	7623									
	30	0000	0820	NO FLARE	PATROL										
CAPS	30	0846	1050		N34 W80	7									

SOLAR FLARES

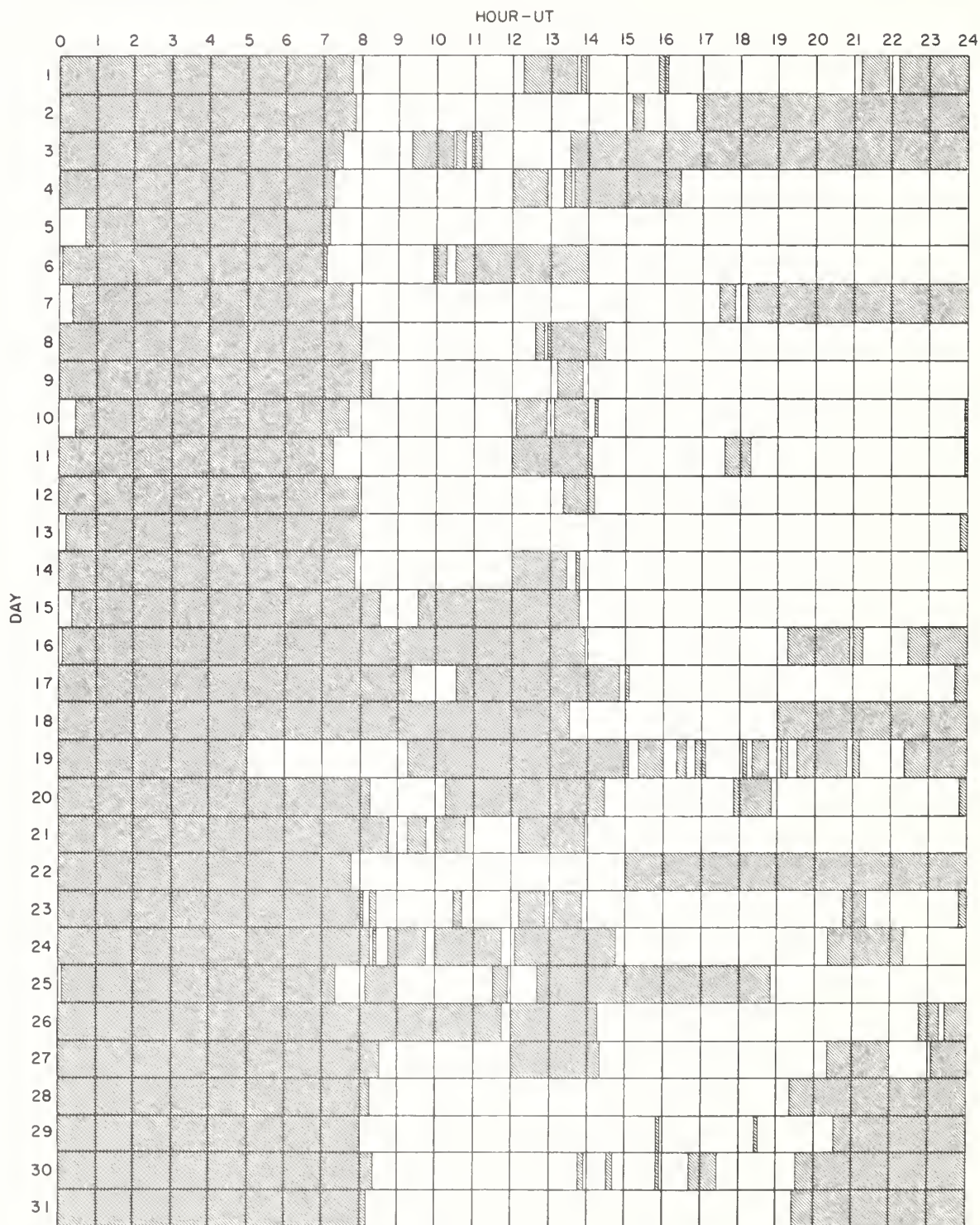
DECEMBER 1964

OBSERVATORY	DATE	OBSERVED TIME		LOCATION			DURA- TION — MINUTES	IM POR- TANCE	OBS COND.	TIME — U T	MEASUREMENTS			REMARKS
				APPROX.	MATH	MATH					MEAS.	CORR.	MAX.	
		START	END	LAT.	MER	PLACE					Sq Deg	Sq Deg	WIDTH Ha	MAX. INT "
	DEC 1964													
	30	1640	1725		PATROL									
	30	1930	2400		PATROL									
	31	0000	0810		PATROL									
	31	0826	1144		N20 W00	7626	198 D	1	3	0825	4.00	4.30		171 K
	31	0900	1020		N21 W03	7626	80 D	1		0910				
	31	1723	1740		N23 W07	7626		1-	2 C	1728	1.00	1.10		E
	31	1723	1740		N23 W08	7626		1-	C		.54	.56		21
	31	1723	1740		N23 W08	7626		1-	C	1727	.60	.60		20
	31	1925	2400		PATROL									

COMMERCE - STANDARDS - BOULDER

INTERVALS OF NO FLARE PATROL OBSERVATIONS PROVISIONAL

DECEMBER 1964



COMMERCE - STANDARDS - BOULDER

Observatories included:

Arcetri	Haute-Provence	McMath-Hulbert	Sacramento Peak
Bucharest	Istanbul	Ondrejov	Tortosa
Catania	Lockheed	Ottawa	Uccle

SOLAR FLARES

SEPTEMBER 1964

OBSERVATORY	DATE	OBSERVED UNIVERSAL TIME		LOCATION			DURA- TION — MINUTES	IN- POR- TANCE	OBS. COND.	MEASUREMENTS			REMARKS		
		START	END	MAX. PHASE	APPROX. LAT.	MER. DIST.				M-MATH PLACE REGION	TIME — U T	MEAS. AREA Sq. Deg.		CORR. AREA Sq. Deg.	MAX. WIDTH H _g
UCCL CLMX	SEPT 1964														
	01	2120	2135	NO FLARE	PATROL									D	
	02	1034 E	1037		N19 E60	7468		1-						B	
	02	1544	1705		N30 E90	7469		1-	3	C					
	05	0400	0415	NO FLARE	PATROL						.40	2.00			
	05	0420	0455	NO FLARE	PATROL										
UCCL	05	0600	0640	NO FLARE	PATROL										
	06	0355	0400	NO FLARE	PATROL										
	06	0420	0430	NO FLARE	PATROL										
	06	0440	0500	NO FLARE	PATROL										
	09	0410	0415	NO FLARE	PATROL										
	09	0440	0450	NO FLARE	PATROL										
UCCL	09	0515	0525	NO FLARE	PATROL										
	09	1452	1459	1453	N37 W45	7470	7	1	4		2.00	3.00		E	
	10	1502	1610		N40 W52	7470	68	1	4		2.00	3.00		EH	
	11	0417	0425	0420	N37 W65	7470		1-		C	.50	1.10	3.60	75	D
	11	0620 E	0735	0634	N39 W61	7470	75 D	2				12.00	2.30		
	11	0836	0841		N02 E45	7478		1-	4						D
UCCL	11	0839	0841		N40 W68	7470		1-	4						F
	11	0936	0952		N40 W68	7470		1-	3						F
	11	1103	1121		N40 W65	7470		1-	3						F
	11	1354	1410		N40 W68	7470		1-	4						E
	11	2209	2235	2211	N36 W73	7470		1-	2		.60	1.30			E
	11	2303	2329	2312	N36 W73	7470		1-	2		.60	1.30			G
HALE	12	0217 E	0247	0224	N36 W73	7470		1-	2		.50	1.10			G
	12	0323 E	0330 D	0328	N37 W73	7470		1-	2		.40	.90			G
	12	0801 E	0813		N42 W78	7470	12 D	1				4.00			
	12	0804 E	0820 D	U	N39 W75	7470		1-	2			2.00			
	12	0840 E			N06 W29	7480		1-							
	12	0912	0930 D		N41 W73	7470		1-							
HALE	12	1234	1251		N07 W32	7480		1-							
	12	1830 E	1859	1843	N37 W85	7470		1-	2		.40	1.40			G
	12	1913	1935	1925	N05 W37	7480		1-	2		.20	.20			G
	12	1926	1938	1931	N37 W85	7470		1-	2		.50	1.70			G
	12	2004	2028	2015	N05 W38	7480		1-	2		.30	.30			G
	12	2021	2029	2023	N37 W85	7470		1-	2		.20	.70			G
HALE	12	2058	2111	2102	N37 W85	7470		1-	2		.20	.70			G
	12	2221	2242	2225	N05 W40	7480		1-	2		.20	.20			G
	13	0250	0300	NO FLARE	PATROL										
	14	0840	0849		N29 W34	7474		1-	3						D
	14	1056 E	1100		N07 W60	7480		1-	2						D
	18	0105	0235	NO FLARE	PATROL										

SOLAR FLARES

SEPTEMBER 1964

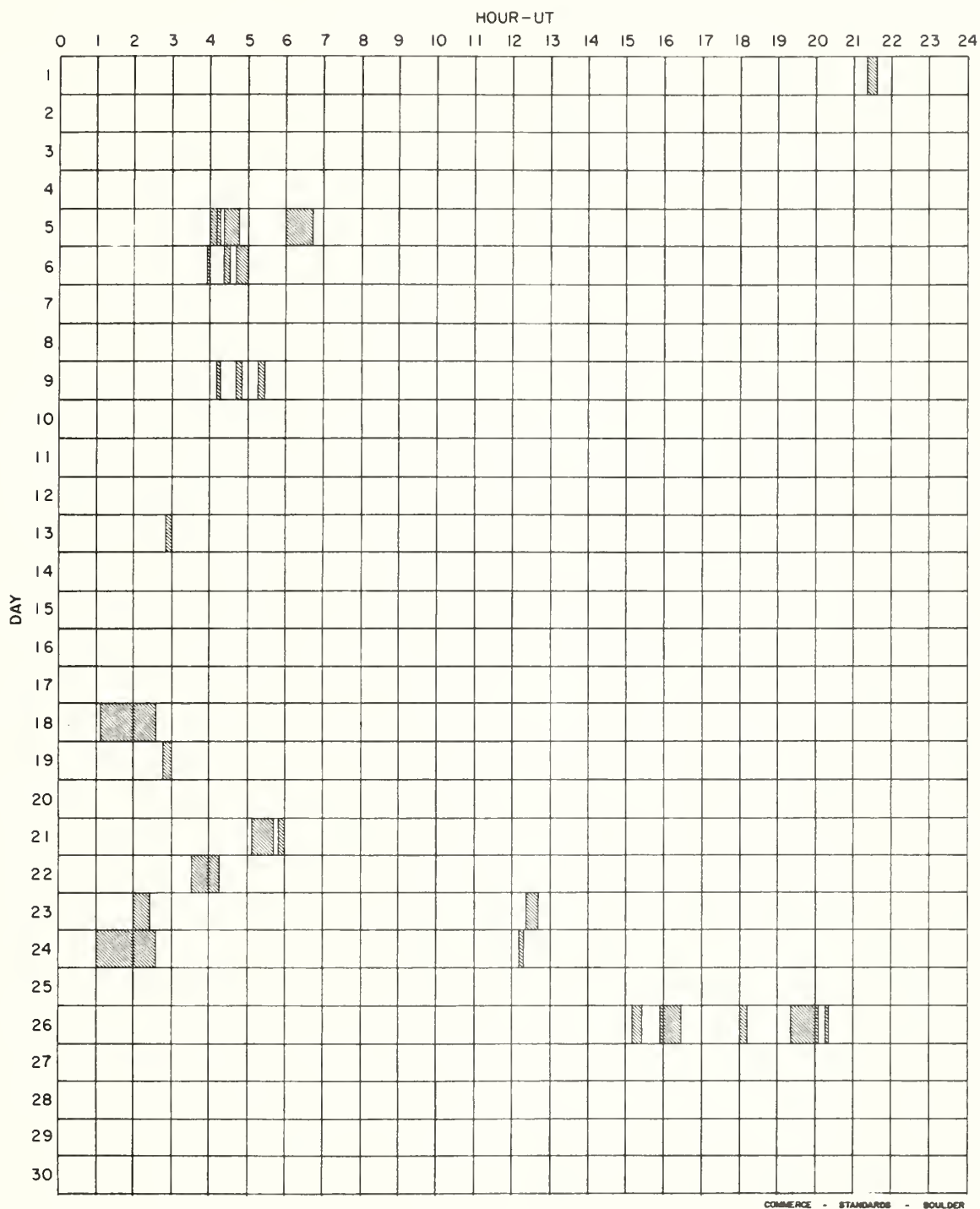
OBSERVATORY	DATE	OBSERVED UNIVERSAL TIME		LOCATION			DURA- TION — MINUTES	IM- POR- TANCE	OBS COND.	MEASUREMENTS				REMARKS	
		START	END	MAX PHASE	APPROX.					MEAS. AREA Sq. Deg.	COOR. AREA Sq. Deg.	MAX WIDTH H ₀	MAX. INT. %		
					LAT.	MER. DIST									
UCCL	SEP 1964														
	19	0245	0300	NO FLARE	PATROL										
	21	0505	0540	NO FLARE	PATROL										
	21	0550	0600	NO FLARE	PATROL										
	21	1427	1432	1429	N04 E38	7485	1-	4							DH
UCCL	22	0330	0415	NO FLARE	PATROL										
	22	0918	0954	N09 W03	7487	1-	3								E
UCCL	22	1044	1048	N03 E27	7485	1-	3								D
	23	0200	0225	NO FLARE	PATROL										
	23	1220	1240	NO FLARE	PATROL										
	24	0100	0235	NO FLARE	PATROL										
	24	1210	1215	NO FLARE	PATROL										
	26	1510	1525	NO FLARE	PATROL										
	26	1555	1625	NO FLARE	PATROL										
	26	1800	1810	NO FLARE	PATROL										
	26	1920	2005	NO FLARE	PATROL										
	26	2015	2020	NO FLARE	PATROL										
UCCL	27	1000	1004	1001	N26 E20	7499	1-	4							D
	27	1042	1046	1043	N26 E20	7499	1-	3							D
HALE	30	2122	2135 D	2126	N22 W56	7504	1-	3			.30	.40			
	30	2245 E	2315 D	2251	N22 W56	7504	1-	3			.30	.40			

FORM 102 - 6-64-100000 - 1000-1000

INTERVALS OF NO FLARE PATROL OBSERVATIONS

III

SEPTEMBER 1964



Observatories Included:

Abastumani	Capri-S (Swedish)	Huancayo	Locarno	Ottawa	Wroclaw
Arcetri	Catania	Ikomasan	Lockheed	Sacramento Peak	Zurich
Arosa	Climax	Istanboul	Lvov	Siberian Izmir	
Bakou	Dunsink	Kanzelhoehe	Manila	Sydney	
Bucharest	Haleakala	Kharkov	McMath-Hulbert	Tachkent	
Capetown	Haute-Provence	Kiev	Mitaka	Uccle	
Capri-F (German)	Herstmonceux	Kodaikanal	Ondrejov	Vorochilov	

SOLAR RADIATION MONITORING SATELLITE

AVERAGE X-RAY FLUX

NRL

SEPTEMBER - OCTOBER, 1964

Date	Times of Observation	Average X-ray Flux			Date	Times of Observation	Average X-ray Flux		
		44-60 Å	8-12 Å	0-8 Å			44-60 Å	8-12 Å	0-8 Å
September 1	0703 0709 1558 1613 1746 1758	2.7×10^{-2}	$< 1.5 \times 10^{-4}$	$< 1.2 \times 10^{-4}$	September 24	1040 1055 1227 1241	$> 2.8 \times 10^{-2}$	$< 1.1 \times 10^{-4}$	$< 1.0 \times 10^{-4}$
September 2	0713 0718 1422 1434 1609 1623 1754 1806	$> 2.8 \times 10^{-2}$	$< 1.0 \times 10^{-4}$	$< 1.1 \times 10^{-4}$	September 25	0906 0914 1049 1104 1235 1247	2.6×10^{-2}	$< 1.6 \times 10^{-4}$	$< 1.2 \times 10^{-4}$
September 3	0722 0727 0504 0512 1431 1444 1616 1631	2.9×10^{-2}	$< 1.7 \times 10^{-4}$	$< 1.2 \times 10^{-4}$	September 26	0915 0925 1058 1114 1245 1258	2.7×10^{-2}	$< 2.1 \times 10^{-4}$	$< 1.5 \times 10^{-4}$
September 4	0547 0555 0730 0738	2.7×10^{-2}	$< 4.5 \times 10^{-4}$	$< 3 \times 10^{-4}$	September 27	0922 0935 1107 1123 1255 1305	2.9×10^{-2}	$< 2.2 \times 10^{-4}$	$< 1.5 \times 10^{-4}$
September 11	1213 1224 1358 1414 1546 1557	3.3×10^{-2}	$< 7 \times 10^{-4}$	$< 4 \times 10^{-4}$	September 28	0026 0042 0931 0947 1117 1132 1306 1311 2254 2302	3.0×10^{-2}	$< 1.8 \times 10^{-4}$	$< 1.2 \times 10^{-4}$
September 12	1222 1233 1408 1423 1555 1606	$> 3.6 \times 10^{-2}$	6.6×10^{-4}	$< 1.4 \times 10^{-4}$	September 29	0035 0051 0223 0236 0940 0955 1126 1141 2302 2313	$> 3.1 \times 10^{-2}$	$< 1.1 \times 10^{-4}$	$< 1.0 \times 10^{-4}$
September 13	1231 1245 1417 1432 1605 1613	$> 3.1 \times 10^{-2}$	7.0×10^{-4}	$< 1.0 \times 10^{-4}$	September 30	0044 0059 0233 0245 0949 1005 1136 1149 2309 2323	$> 3.0 \times 10^{-2}$	$< 1.1 \times 10^{-4}$	$< 1.0 \times 10^{-4}$
September 14	1240 1253 1426 1441	3.4×10^{-2}	$< 2.0 \times 10^{-4}$	$< 1.8 \times 10^{-4}$	October 1	0054 0109 0244 0254 0814 0825 0958 1014 1147 1157 2318 2332	$> 3.2 \times 10^{-2}$	$< 1.5 \times 10^{-4}$	$< 1.2 \times 10^{-4}$
September 22	1022 1035 1207 1223 1355 1406	2.2×10^{-2}	$< 2.2 \times 10^{-4}$	$< 1.5 \times 10^{-4}$					
September 23	1031 1045 1220 1232 1406 1413	2.6×10^{-2}	$< 1.2 \times 10^{-4}$	$< 1.1 \times 10^{-4}$					

SOLAR RADIATION MONITORING SATELLITE

AVERAGE X-RAY FLUX

NRL

OCTOBER, 1964

Date	Times of Observation	Average X-ray Flux			Date	Times of Observation	Average X-ray Flux		
		44-60 A	8-12 A	0-8 A			44-60 A	8-12 A	0-8 A
October 2	0104 0118				October 12	0055 0102			
	0254 0301					2127 2142			
	0822 0835					2313 2346			
	1007 1023								
	1155 1205								
October 7	2327 2341				October 13	2138 2144			
						2325 2336			
October 8	0003 0018				October 14	2001 2012			
	0156 0203					2145 2200			
	0723 0736					2334 2345			
	0908 0923								
	1056 1105								
October 9	2226 2242				October 15	2009 2022			
						2154 2209			
						2351 2354			
October 10	0013 0026				October 21	2104 2117			
	0737 0746					2255 2303			
	0921 0932								
	2054 2103								
	2236 2251								
October 11					October 22	1747 1752			
						1927 1941			
						2117 2127			
October 12	0025 0036				October 23	1754 1803			
	0741 0755					1936 1951			
	0927 0941					2124 2136			
	2103 2113								
	2248 2300								
October 13					October 28	1654 1703			
						1836 1851			
						2025 2035			
October 14	0035 0044				October 29	1701 1713			
	2110 2123					1845 1859			
	2255 2309								
October 15	0044 0052				October 30	1710 1722			
	2118 2132					1855 1910			
	2304 2318								

COMMERCE - STANDARDS - BOULDER

SOLAR RADIATION MONITORING SATELLITE

AVERAGE X-RAY FLUX

NRL SEPTEMBER-OCTOBER, 1964

Date	Times of Observation	Outstanding Events		
		44-60 A	8-12 A	0-8 A
September 11	1546 1557	4.37×10^{-2}	$< 7 \times 10^{-4}$	$< 4 \times 10^{-4}$
October 7	2226 2242	$> 3.9 \times 10^{-2}$	6×10^{-4}	$< 1.5 \times 10^{-4}$
	8 0013 0026	$> 3.7 \times 10^{-2}$	7×10^{-4}	$< 1.0 \times 10^{-4}$
8	2054 2103	$> 3.1 \times 10^{-2}$	12×10^{-4}	3.7×10^{-4}
	2236 2251	$> 3.0 \times 10^{-2}$	10×10^{-4}	$< 1.0 \times 10^{-4}$
9	0741 0755	$> 3.1 \times 10^{-2}$	10×10^{-4}	4.0×10^{-4}
	0927 0941	$> 3.1 \times 10^{-2}$	14×10^{-4}	6.2×10^{-4}

Note: > indicates saturated signal.
 < indicates signal less than noise background.

COMMERCE - STANDARDS - BOULDER

IONOSPHERIC EFFECTS OF SOLAR FLARES

III m

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

NOVEMBER 1964

NOV 1964	UNIVERSAL TIME			TYPE SWF IMP	IMPORTANCE						BUR	WIDE SPREAD INDEX	STATIONS	KNOWN FLARE
	START	END	MAX		ABS	SCNA	SEA	SPA	SES	SFD				
04	0103	0105									1	5	HA MA	

COMMERCE - STANDARD - BOULDER

RIOMETER EVENTS

(Provisional)

NOVEMBER 1964

South Pole

26 Mc/s

NOV. 1964	START UT	END UT	MAX. UT	MAX. ABSORP. db, (tenths)	NO. OF PEAKS	NOV. 1964	START UT	END UT	MAX. UT	MAX. ABSORP. db, (tenths)	NO. OF PEAKS
1	1010	1815	1351	6	2	22	0341	1155	1005	4	2
2	1539	1746	1600	3	3	23	0724	2217	1152	16	2
2	2149	0328	0200	15	2	24	0346	0433	0401	7	2
4	0227	0624	0440	5	2	25	*				
4	1246	1752	1450	13	1	26	0349	0409	0359	5	1
4	2353	0126	0025	8	1	26	0648	2135	1141	9	2
5	1231	1916	1732	8	3	27	*				
6	0838	1749	1425	10	1	28	0216	0312	0237	6	1
7	*					28	0700	1516	1438	5	2
8	0024	0208	0106	8	2	28	1720	1855	1817	3	1
9	**					29	2252	0109	0019	29	1
10	1248	1712	1350	13	1	30	0537	0639	0542	9	1
11	1338	1633	1521	5	2	30	0929	1413	1225	4	3
15	2334					30	2100	2214	2151	3	2
16			2331								
17		0240		16	3						
17	1420	1752	1547	7	1						
18	0015	0236	0216	5	1						
19	0135	0235	0203	5	1						
20	0335	0441	0337	8	2						
21	*										

COMMERCE - STANDARDS - BOULDER

* No Event
 ** No Data

SOLAR RADIO EMISSION OUTSTANDING OCCURRENCES

IVa

DECEMBER 1964

ARO-DRAO (OTTAWA)

2800;2700 Mc/s

DEC. 1964	U R A N E	DESCRIPTIVE TYPE	START UT	DURATION HRS. MIN.	MEAN FLUX	MAXIMUM		REMARKS
						TIME	FLUX	
31	1 4	Simple 1 Post Increase	1723.5	02 28	3 1	1724.7	6 2	

COMMERCE - STANDARDS - BOULDER

HOURS OF OBSERVATION, OCTOBER, NOVEMBER, DECEMBER, 1964

OBSERVING PERIOD:

October 12:20 - 00:15 UT
November 12:40 - 23:15 UT
December 13:20 - 22:50 UT

With the following exceptions:

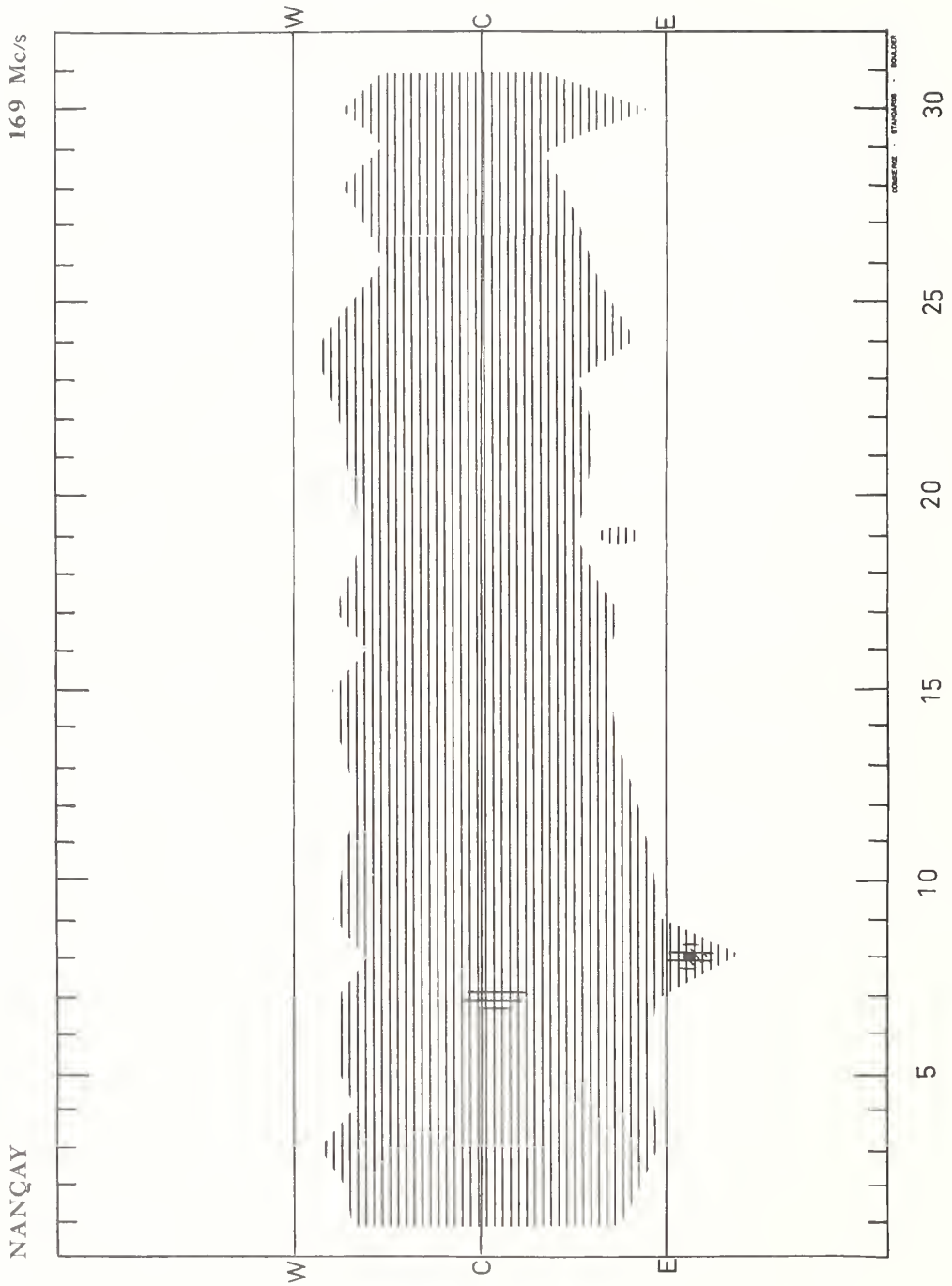
- (1) Observations commenced: Oct. 27 at 13:15 UT
Nov. 10 at 13:15 UT
11 at 13:15 UT
15 at 13:45 UT
Dec. 5 at 13:55 UT
11 at 13:45 UT
12 at 13:45 UT
15 at 13:45 UT
26 at 13:50 UT
28 at 14:30 UT
- (2) Daily interruption of observations, approximately 20 minutes
in duration, for calibration purposes:

In the period 14:00 - 15:00 UT
- (3) Interference or set trouble obscuring records on:

Dec. 16 20:05 to 22:05 UT

SOLAR RADIO EMISSION INTERFEROMETRIC OBSERVATIONS

DECEMBER 1964



DECEMBER 1964

SOLAR RADIO EMISSION OUTSTANDING OCCURRENCES

IVc

DECEMBER 1964

NBS BOULDER

108 Mc/s

Dec. 1964	TYPE	START UT	TIME OF MAXIMUM UT	DURATION MINUTES	INTENSITY
27	7	15 10	1545	270	1

NOMINAL TIMES OF OBSERVATION

DECEMBER 1964

NBS BOULDER

108 Mc/s

Dec. 1964	HOURS OF OBSERVATION U.T.	HOURS OF INTERFERENCE U.T.	Dec. 1964	HOURS OF OBSERVATION U.T.	HOURS OF INTERFERENCE U.T.
1	1407-2320	2212-2320	17	1421-2321	2142-2323
2	1408-2320		18	1422-2322	
3	1409-1610		19	1422-2322	
4	1728-2320		20	1423-2322	
5	1411-2134; 2232-2320		21	1645-2000	
6	1412-2320	2128-2249	22	1651-2323	2243-2323
7	1413-2320		23	1424-2324	2230-2324
8	1414-2320		24	1425-2324	1643-1925;
9	1415-2320		25	1425-2325	2223-2325
10	1416-2320		26	1425-2326	2133-2326
11	1417-2320	1418-1629	27	1426-2326	2230-2324
12	1417-2320		28	1426-2327	1540-1612;
13	1418-2320		29	1426-2328	2259-2327
14	1419-2320		30	1427-2329	
15	1420-2321		31	1427-2329	2258-2329
16	1550-2321				

COMMERCE - STANDARDS - BOULDER

Records low weight Dec. 4-15, antenna was stationary during this period. Sun tracking motor was not operating.

SOLAR RADIO EMISSION SPECTRAL OBSERVATIONS

DECEMBER 1964

High Altitude Observatory
Boulder

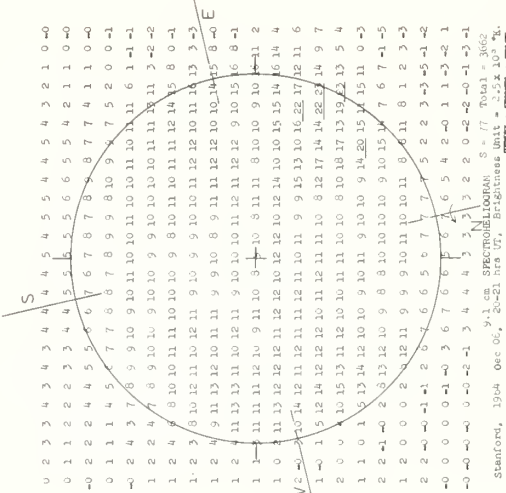
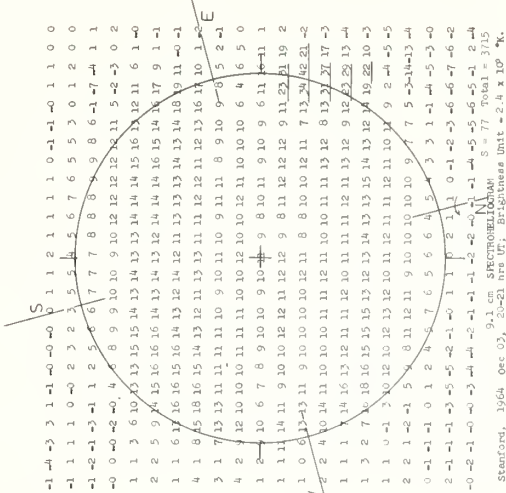
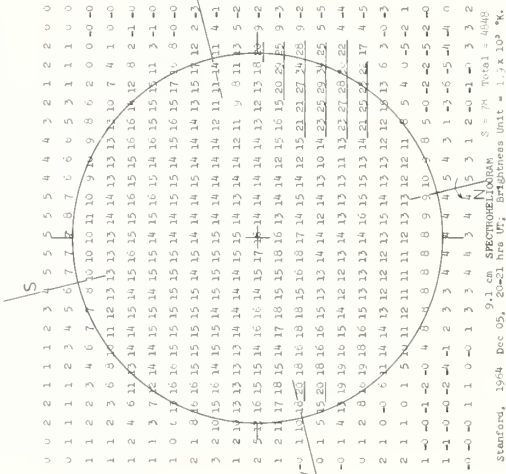
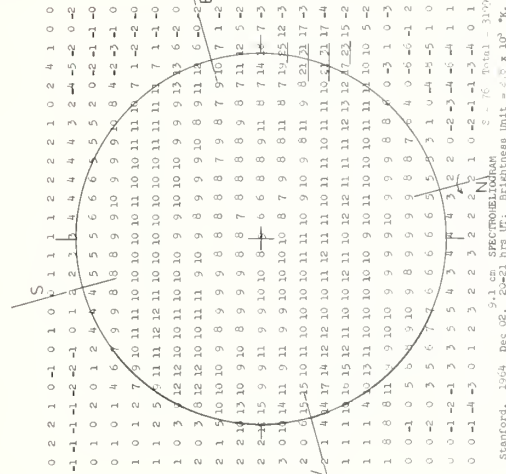
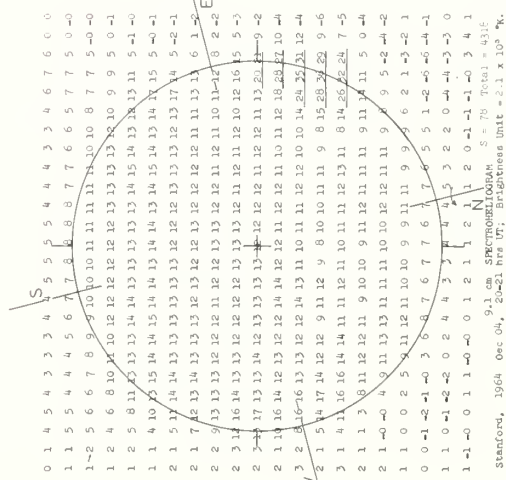
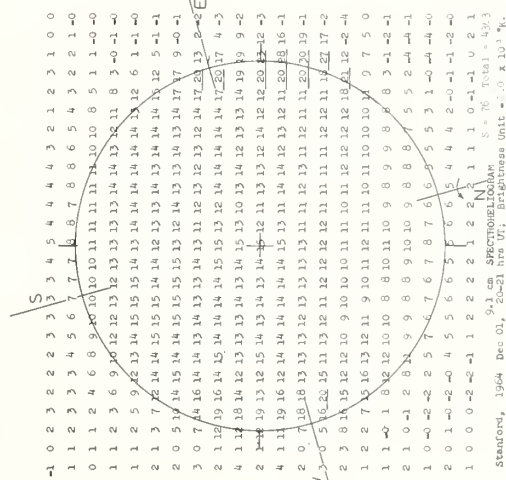
7.6-41 Mc/s

Date Dec 1964	Bursts			Frequency Range (Mc/s)	Date Dec 1964	Bursts			Frequency Range (Mc/s)
	Type	Time (U.T.)	Intensity			Type	Time (U.T.)	Intensity	
1 Dec	III	1504:30-1505	1	21-41	22	III	1736:15-1736:30	1	24-37
3	III	1655-1655:30	1	20-41		III	1843-1843:15	1-	25-34
8	no observ.	1840-1858, 2158-2228			23	no observ.	2200-2330		
9	no observ.	1521-1716				III	1813:45-1814	1-	25-41
						III	1820:30-1820:45	1-	25-41
	III	1808:45-1809:15	1	20-41		III	2210:45-2211	1	21-27
	III	2002:30-2003	1	20-41		III	2255:30-2255:45	1	23-27
10	no observ.	2314-2330			24	III	1538:15-1538:30	1-	22-26
18	no observ.	1716-1806				III	1538:45-1539	1	25-28
	III	1537:30-1537:45	1-	22-41		III	1550:15-1550:30	1-	24-41
	III	2032:45-2033	1-	22-41		III	1556-1556:15	1	20-28
	III	2156:15-2156:45	1	21-41		III	1602-1602:15	1	20-25
	III	2214-2214:15	1	21-41		III	1750:30-1750:45	1-	23-29
19	III	2225-2225:15	1	29-36		III	1752:15-1752:30	1-	23-29
20	III	1446-1446:15	1	31-35		III	1812:30-1812:45	1	25-30
	III	1813:30-1813:45	1-	23-41		III	1827-1827:15	1	25-30
	III	1930-1930:15	1-	22-41		III	1827:15-1827:30	1	25-30
	III	1937-1937:15	1	21-41		III	2139:15-2139:30	1+	22-28
	III	1944:45-1945	1-	24-41		III	2151:45-2152	1	16-32
	III	1947:45-1948	1-	26-41		III	2204-2204:15	1	22-35
	III	2032:30-2032:45	1	17-41	25	no observ.	1400-2330		
	III	2054:30-2054:45	1-	25-41	26	III	1523:15-1523:30	1-	24-36
	III	2108:45-2109	1-	27-30		III	1524-1524:15	1-	24-33
	III	2114-2114:15	1	30-35		III	1610:30-1610:45	1	20-24
	III	2120:30-2120:45	1-	26-38		III	1620:30-1621	2	21-41
	III	2122:15-2122:30	1-	22-38		III	1647-1647:15	1	20-27
21	continuum	2126:15-2213	1-	23-37		III	2027:15-2027:30	1	21-35
	no observ.	1400-1530				III	2220:30-2220:45	1-	20-27
	III	1537:45-1538	1-	34-40	29	no observ.	1400-1600		
	III	1538:15-1538:30	1-	29-39		III	1852:15-1852:30	2	20-41
	III	1538:30-1538:45	1-	27-33		III	1927:15-1927:30	1-	25-41
	III	1539-1539:15	1-	23-33		III	1928:15-1928:30	1-	34-41
	III	1558:30-1558:45	1	21-41		III	1928:30-1928:45	1-	25-41
	III	1638-1638:15	1-	33-39	30	III	1519:30-1519:45	1-	25-41
	III	1638:45-1639	1-	32-39		III	1617-1617:15	1-	19-41
	III	1639-1639:15	1-	30-36	31	III	1958:30-1958:45	1-	20-41
	III	1640:45-1641	1-	24-30		III	2028-2028:15	1-	22-36
	III	1655:30-1655:45	1	22-36					
	III	1733:45-1734	1	24-29					
	III	1737-1737:15	1	24-29					
	III	1828-1828:15	1-	25-37					
	III	1831:15-1831:30	1-	22-38					
	III	1833-1833:15	1-	22-35					
22	no observ.	1400-1600							
	III	1651:15-1651:30	1-	23-41					

SOLAR RADIO EMISSION SPECTROHELIOGRAMS

DECEMBER 1964

STANFORD

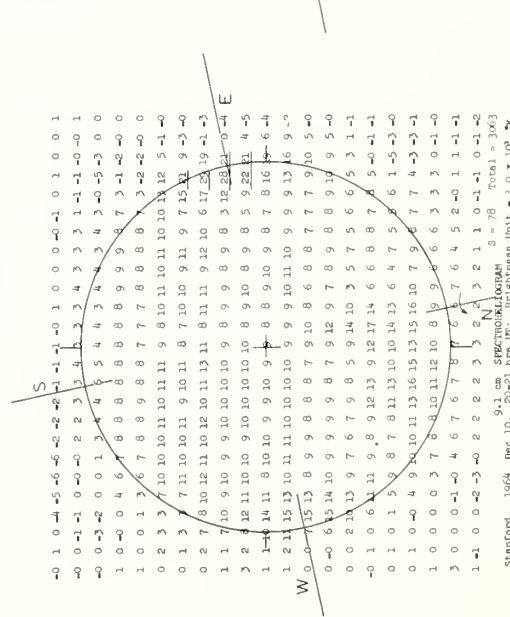
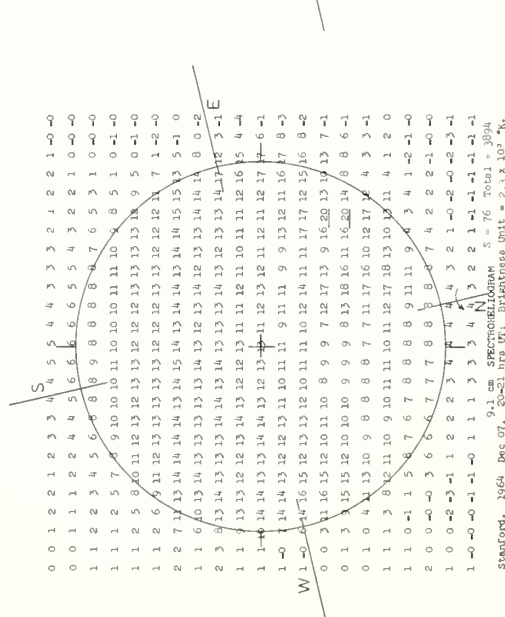
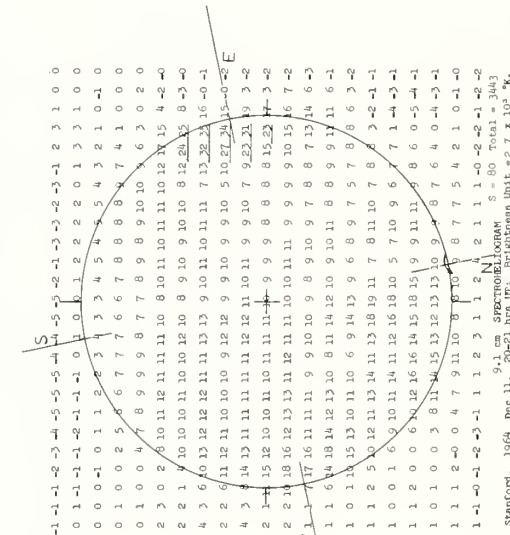
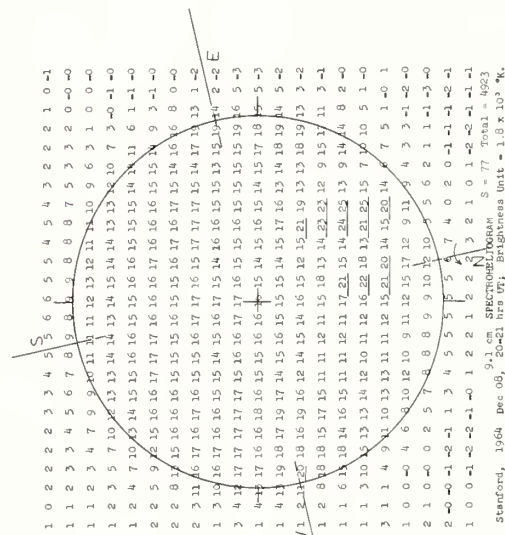
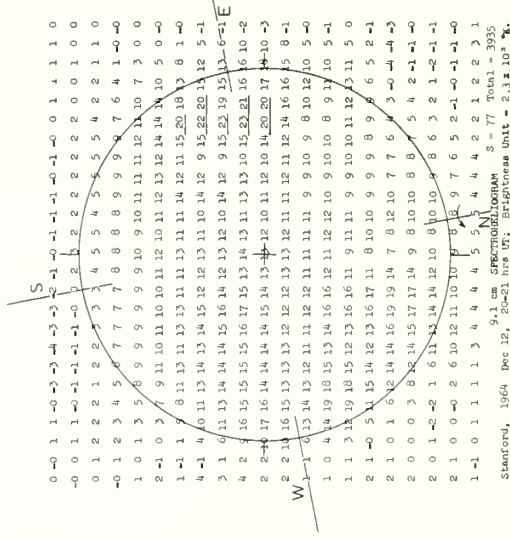
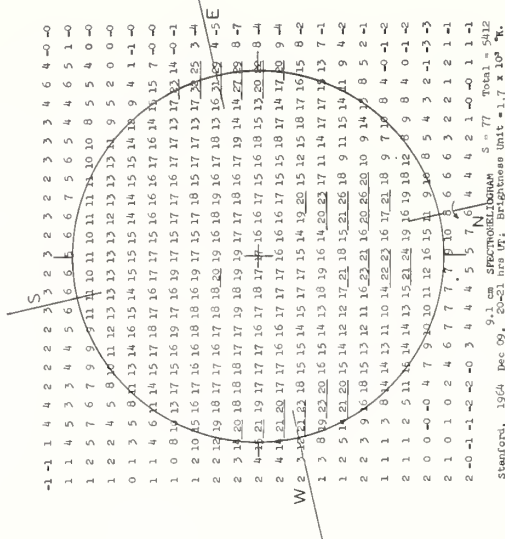


SOLAR RADIO EMISSION SPECTROHELIOGRAMS

DECEMBER 1964

STANFORD

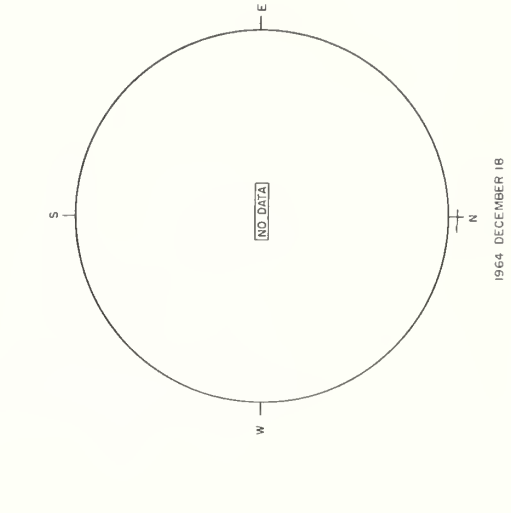
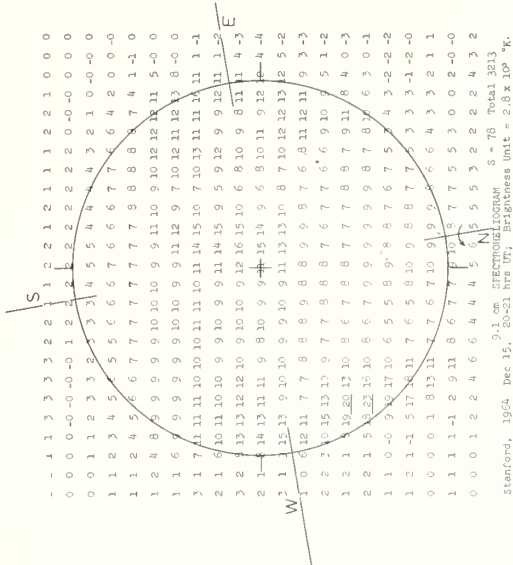
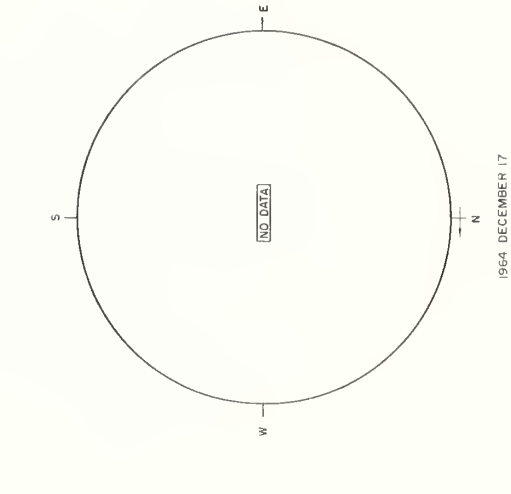
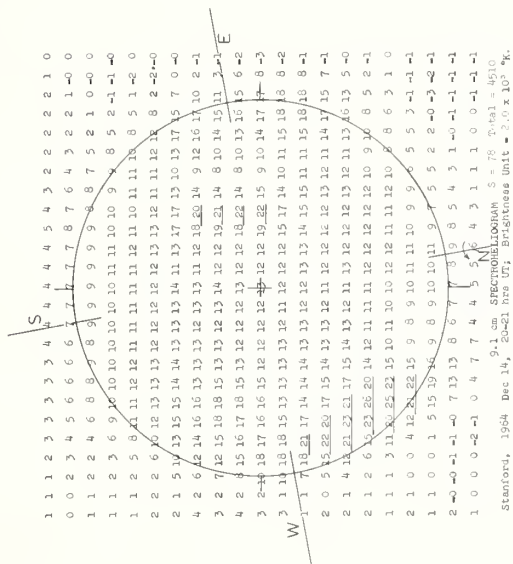
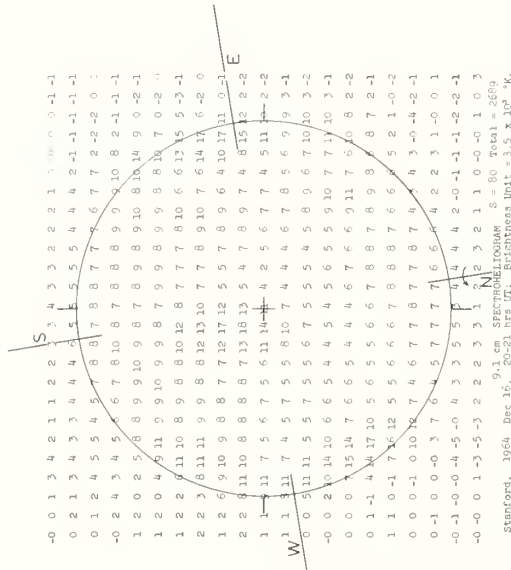
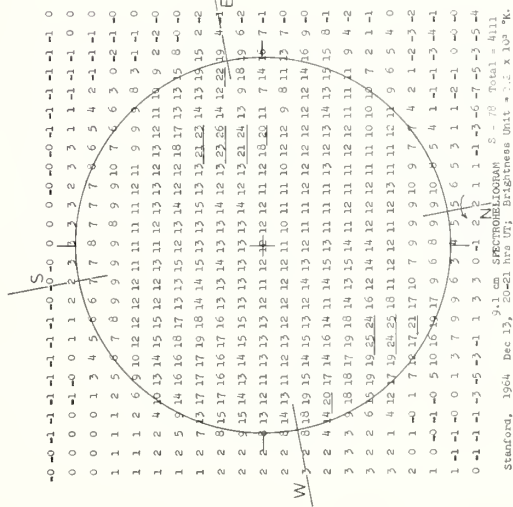
9.1 cm



SOLAR RADIO EMISSION SPECTROHELIOGRAMS

DECEMBER 1964

STANFORD



1964 DECEMBER 17

1964 DECEMBER 18

IVg

COSMIC RAY INDICES

(NEUTRON MONITORS)

NOVEMBER 1964

NOV 1964	CHURCHILL	CLIMAX	DALLAS
	Daily Average Counts Per Hour	Daily Average Counts Per Hour	Daily Average Counts Per Hour
1	6488.0	3323.4	6536.2
2	6464.2	3322.0-34	6510.1
3	6477.6	3335.3	6528.4
4	6461.4	3314.3	6510.1
5	6478.0	3326.7	6512.5
6	6492.0	3326.2	6524.6
7	6523.1	3336.3	6533.4
8	6497.3	3326.0	6508.9
9	6468.6	3323.3	6496.6
10	6462.5	3326.0	6494.9
11	6473.4	3337.5	6484.9
12	6464.2	3334.3-32	6517.5
13	6493.6	3360.3	6538.9
14	6496.8	3342.0	6524.5
15	6506.2	3334.5	6521.3
16	6470.7	3330.8	6477.9
17	6481.5	3298.5	6477.5
18	6496.0	3307.4	6473.0
19	6515.1	3321.4	6506.6
20	6522.4	3323.2	6518.9
21	6524.9	3310.8	6532.9
22	6525.4	3327.8	6532.1
23	6494.5	3326.3	6524.9
24	6512.7	3313.3	6508.8-16
25	6514.6	3317.5	6516.5-22
26	6485.4	3311.8-38	6523.0-22
27	6520.7	3337.8	6524.3
28	6499.6	3316.0	6523.0
29	6496.8	3315.9	6535.0
30	6502.0	3304.2	6557.8

COMMERCE - STANDARDS - BOULDER

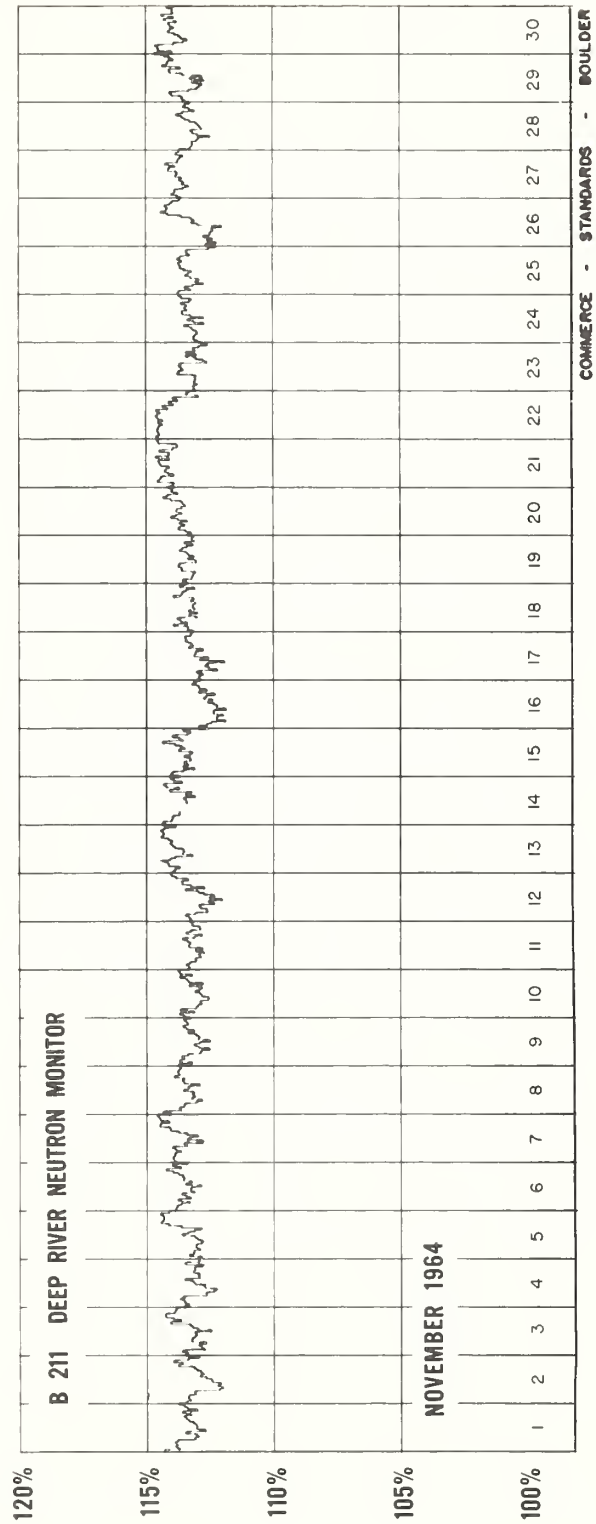
- (Number) Number of hours for which data are available if less than 24, (or 40 if Climax).

Churchill Super Neutron Monitor, Scaling Factor 120.

Climax IGC Station B305, Scaling Factor 128.

Dallas Super Neutron Monitor, Scaling Factor 120.

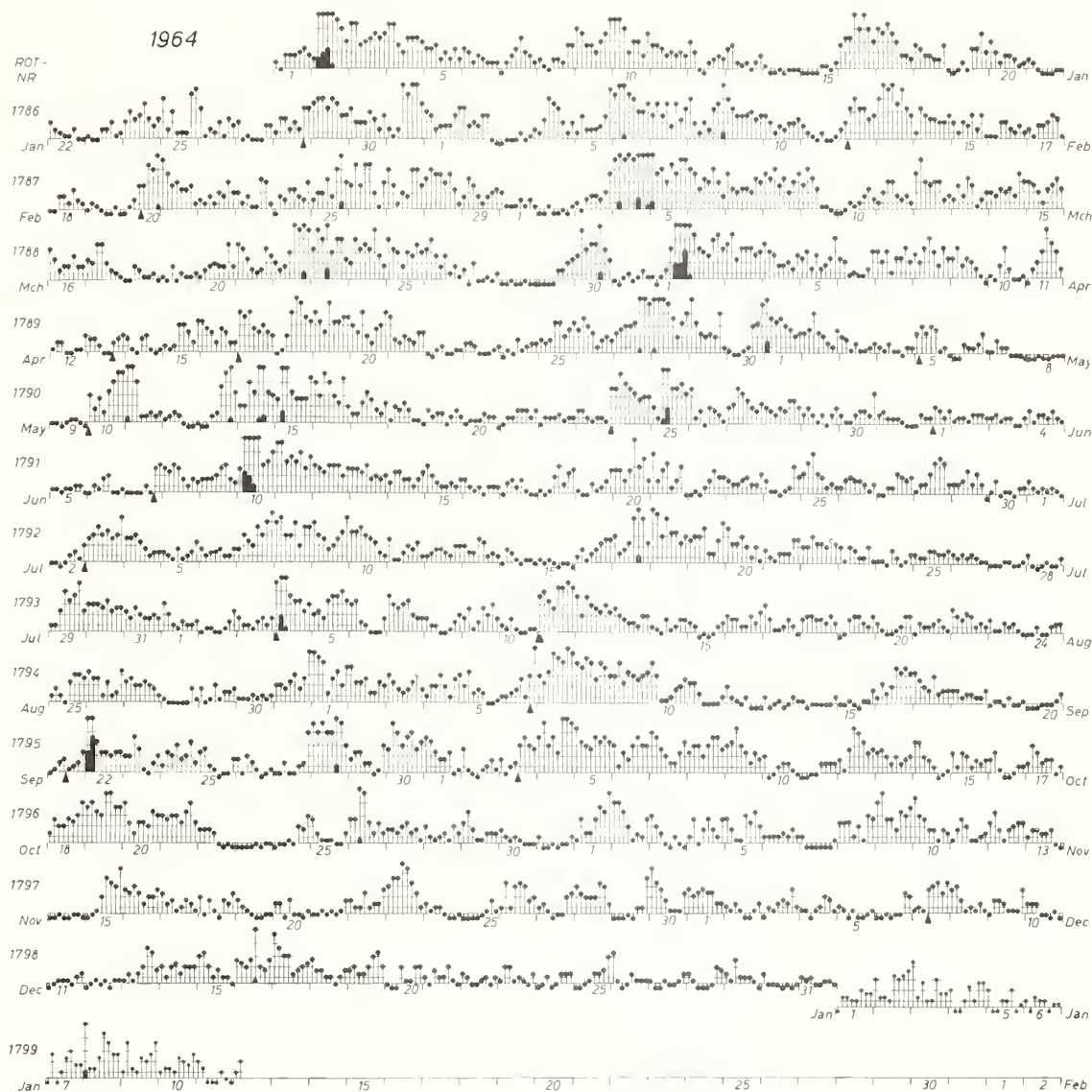
COSMIC RAY INDICES **(Pressure Corrected Hourly Totals)**



GEOMAGNETIC ACTIVITY INDICES

NOVEMBER 1964

NOV. 1964	C	Values Kp								Sum	Ap	Final Selected Days	
		Three hour Gr. interval											
		1	2	3	4	5	6	7	8				
1	1.0	1-	3-	1+	1+	3-	4-	3+	5-	20+	14	Five Quiet	
2	0.7	4o	4o	3+	2o	1-	1+	1o	3-	19o	13		
3	0.2	3o	2o	1+	0+	0o	1o	0+	0o	8o	4		
4	0.3	1o	3-	0+	2-	3-	2-	1o	3-	14-	7		
5	0.6	3-	2-	1-	1-	3o	2+	3+	2o	16+	9		
6	0.2	1o	1o	1o	1o	1+	1o	2-	1o	9o	4	14	
7	0.0	1o	0o	0o	0o	0o	0o	0o	1-	2-	1	19	
8	0.6	2+	2+	2+	1o	2o	1-	3o	3-	16+	8	24	
9	1.0	4o	5-	3-	3-	2-	3+	3o	4-	26-	19	25	
10	0.5	4+	3o	3-	2-	2-	1-	2-	1+	17o	11		
11	0.1	1-	2-	3-	2o	1-	1-	1o	1+	11-	5	Five Disturbed	
12	0.4	2+	3+	2-	1-	2-	2o	2+	2+	16+	8		
13	0.1	1o	2-	2-	1+	1+	2-	0+	0o	9o	4		
14	0.0	0o	0o	0+	0o	0o	0+	0+	0o	1o	1		
15	1.0	0o	0+	1-	2o	4-	3+	3o	4+	17+	12		
16	0.6	3-	2+	3o	2+	1+	2o	2o	3-	18+	10	1	
17	0.2	2+	1+	2-	1-	1o	2-	1+	1-	11-	5	2	
18	0.3	2o	0+	2-	1-	0o	2-	1+	2+	10o	5	9	
19	0.0	2-	1o	1-	0+	0o	0o	0+	0+	4+	2	15	
20	0.0	1+	1+	0o	2-	0+	0+	0o	1-	6-	3	23	
21	0.0	0+	0+	1-	0+	1-	0+	1-	2-	5o	3	Ten Quiet	
22	0.4	2-	1o	1o	2+	1o	1+	1+	3-	12+	6		
23	1.1	3o	4-	4-	5-	4+	3+	2+	1o	26o	20		
24	0.0	1+	1-	1o	1o	0+	0o	0o	0+	5-	2		
25	0.0	0o	0o	0o	0o	0+	1-	2-	1-	3+	2		
26	0.8	1o	3+	1o	3o	3+	3o	2-	2o	18+	11	6	
27	0.3	1o	1+	1-	0o	0+	0+	2o	2+	8o	4	7	
28	0.7	3o	2+	2o	2o	2o	3+	3o	1+	19o	10	13	
29	0.3	0o	0o	0o	0+	0o	1o	1o	4-	6o	4	14	
30	0.7	4+	3+	3-	2-	1-	1-	1-	2+	16+	11	19	
Mean:		0.40								Mean:		7	20
													21
													24
													25
													27



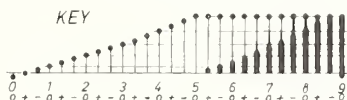
PLANETARY MAGNETIC
THREE-HOUR-RANGE INDICES
Kp 1964

(and preliminary indices to 1965 January 12)

1.6

COMMERCE - STANDARDS - BOULDER

KEY



▲ = sudden commencement

<i>R</i>	Rot- Nr.	1 st day	<i>C9</i>
665 532 122	19	J 23	1 23 12 1 5 1 5 1 35 443 64 1 2 432
477 643 112	62	F 19	2 432 244 22 214 62 33 42 2 243 4 1
465 332 213	1762	M 18	243 4 1 12 2 13 243 2 676 5 2 1 22 232
655 433 433	63	A 14	22 232 356 3 3 322 12 2 1 5 2 1 1 2 3 442
322 454 432	64	M 11	2 3 442 3 1 1 3 1 1 5 2 1 323 2 5 412
333 543 333	65	J 7	2 5 412 123 1 3 34 125 444 222 543 231
222 222 211	66	J 4	543 231 222 321 343 224 476 521 363 312
111 124 332	67	J 31	363 312 556 53 12 555 54 1 64 542 1 4 66
135 544 422	68	A 27	1 4 66 676 454 433 275 342 2 6 435 4 1 622
444 223 553	69	S 23	4 1 622 547 533 343 665 623 635 246 345 566
333 221 224	70	O 20	345 566 665 342 244 515 421 3 1 61 62 5
531 213 431	1770	N 16	62 5 654 512 226 2 42 1 63 433 67
213 211 231	71	O 13	433 67765 3 4 1 31 2 1 66
123 211 223	19	J 9	1 66 665 45 12 32 674 27
431 222 211	63	F 5	27 556 521 211 1 412 265
232 211 211	1775	M 4	1 65 753 2 1 21 31 1 31 56
224 444 211	76	M 31	3 1 56 542 2 234 41 432 32 1 2 566
122 444 553	77	A 27	2 566 452 213 445 253 1 12 1 21 245
223 225 642	78	M 24	21 245 323 31 47 321 11 12 253 321 5
122 221 112	79	J 20	321 15 643 231 4553 343 11 2 421 63
122 244 421	80	J 17	421 63 563 44 65 442 333 212 2 1 2126
123 422 232	1780	A 13	2 126 676 252 224 643 442 212 214 425 427
236 552 111	81	S 9	425 427 667 464 787 576 675 3 12 134 125
233 433 434	82	O 6	134 125 666 44 1 4 2 742 76 12 44 36
321 112 232	83	N 2	44 36 766 44 1 4 254 25 366
222 221 111	84	N 29	25 366 654 42 2 321 1 533 42 13 41
111 121 211	1785	O 26	13 41 75 521 15 521 642 11 3 41
112 111 112	19	J 22	13 41 253 632 33 645 42 462 232 36 454
133 211 113	64	F 18	36 454 2 4 622 2764 352 24 233 23 23
213 211 111	1789	M 16	3 23 665 43 6 76 533 34 214 11 224
111 211 111	1790	A 12	1 224 554 2 33 664 353 2 55 56
112 111 111	91	M 9	55 56 652 11 56 321 11 1 227
112 221 111	92	J 5	1 227 632 11 21 43 113 113 1 52 15
111 111 111	93	J 2	52 15 543 111 2 564 212 1 442 11
111 112 211	94	J 29	442 1 64 3 2 64 1 1 232 1
111 111 111	95	A 25	232 1 352 221 365 421 42 1 72 21
1 2 1 111	96	S 21	72 21 6 52 365 344 4 422 1 363 4
111 111 111	97	O 18	363 4 1 5 11 4 312 21 253 12 32 11
111 111 111	98	N 14	32 11 5 3 3 32 1 3 11 2 124
112 222 2	1798	O 11	12 124 412 1 1 133 1 53 2
		J 7	preliminary
		F 3	

Symbol	1	2	3	4	5	6	7	8	11
<i>R</i> =	0	15	30	45	60	80	100	130	170
<i>C9</i> =	0	1	2	3	4	5	6	7	8
<i>Cp</i> =	0.0	0.2	0.4	0.6	0.8	1.0	1.2	1.5	2.0
	0.1	0.3	0.5	0.7	0.9	1.1	1.4	1.8	2.5
<i>Ap</i> =	0	5	8	11	14	18	25	41	141
	4	7	10	13	17	24	40	91	400

DAILY GEOMAGNETIC CHARACTER FIGURES C9 AND SUNSPOT NUMBERS R

For explanation and previous years see J. Bartels:
„Abhandlungen der Akademie der Wissenschaften, Göttingen,
Beiträge zum I.G.J., Heft 3 (1958)“
(may be requested from Geophysikalisches Institut,
Herzberger Landstrasse 180, 34 Göttingen (Germany).)

NORTH ATLANTIC, NORTH PACIFIC

NOVEMBER 1964

NOV 1964	WHOLE DAY INDICES				ADVANCE FORECASTS (Jc- REPORTS) FOR WHOLE DAY	NORTH ATLANTIC								NORTH PACIFIC			GEOMAGNETIC INDICES							
						6 - HOURLY				SHORT-TERM FORECASTS				8 - HOURLY			K _{PP}		A _{PP}		K _{SI}		A _{SI}	
	QUALITY FIGURES					ISSUED ABOUT ONE				QUALITY FIGURES			HALF DAY		PRE-DICTED		HALF DAY							
	NORTH ATLANTIC	NORTH PACIFIC	AVERAGE HIGH LATITUDE			00 TO 06	06 TO 12	12 TO 18	18 TO 24	00 TO 06	06 TO 12	12 TO 18	18 TO 24	03 TO 11	11 TO 19	19 TO 03	HALF (1)	DAY (2)	08- SERVED	PRE- DICTED	HALF (1)	DAY (2)		
1	6+	6	6	5	6○	6+	7-	6○	5	5	7	6	5	5	6	1	3	12	17	1	3		9	
2	6+	6	6	5	6+	6○	7-	6+	5	5	7	6	5	5	6	3	1	10	15	3	1		7	
3	6○	6	6	5	5+	6○	7-	6+	6	5	7	6	6	5	6	2	0	4	11	1	0		2	
4	6○	6	6	6	5○	6○	7-	6+	6	5	7	6	6	5	6	2	2	6	7	0	2		3	
5	6+	6	6	6	6○	6+	7-	6+	5	6	7	6	5	5	7	1	2	6	4	1	2		5	
6	6+	7	7	6	6-	6○	7-	6+	6	6	7	6	6	5	7	1	1	4	4	0	1		3	
7	6○	5	6	6	6-	5+	7-	6+	6	6	7	7	5	5	7	0	0	0	3	0	0		0	
8	6○	6	6	6	5+	6○	7-	6+	6	5	7	6	6	5	7	2	2	7	7	1	2		6	
9	6○	6	6	6	6-	6-	7-	6○	6	5	6	6	5	6	6	(4)	3	18	7	4	2		16	
10	6○	6	6	6	5+	6○	7-	6+	6	5	7	6	5	5	7	3	1	8	7	2	1		5	
11	6○	6	6	6	5○	6○	7-	7-	5	6	7	6	5	5	7	2	1	5	6	2	1		6	
12	6○	6	6	6	5+	6○	7-	6○	6	6	7	7	6	5	7	2	2	8	5	2	1		6	
13	6○	6	6	6	6-	6-	7-	6+	5	6	7	7	6	6	6	2	0	4	6	2	1		5	
14	6+	6	6	6	6○	6-	7-	7-	6	6	7	7	6	5	6	0	0	0	9	0	0		1	
15	6+	5	6	6	6-	6-	7○	7-	6	5	7	6	5	5	7	1	3	11	13	1	3		9	
16	6+	6	6	6	6-	6○	7-	7-	6	6	7	6	5	5	6	2	1	7	9	2	2		8	
17	6○	6	6	6	5+	6-	7-	6+	6	6	7	7	6	5	7	1	1	3	8	1	1		3	
18	6○	6	6	6	6○	5+	7-	6○	6	6	7	6	5	5	7	1	1	3	7	1	1		7	
19	6○	6	6	6	6-	6○	7-	6○	6	6	7	6	5	5	7	1	0	1	3	0	0		1	
20	6○	6	6	6	5○	6-	7-	7-	6	6	7	6	5	5	6	1	0	2	3	1	0		2	
21	6○	5	6	6	5+	5+	7-	7-	6	6	7	6	5	5	6	1	1	2	7	0	0		2	
22	6○	5	6	6	6-	6-	6+	7-	5	6	6	6	5	5	6	1	1	4	11	2	1		4	
23	6-	5	6	6	6○	5+	6○	6○	6	6	6	6	5	5	6	3	2	15	7	3	3		22	
24	6○	5	6	6	6+	5+	7-	6-	5	5	6	6	5	5	6	1	0	2	5	1	0		3	
25	6-	5	6	6	5+	4○	7-	6○	6	6	7	6	5	5	6	0	1	2	5	0	0		0	
26	6-	5	6	6	5+	5○	7-	6+	6	5	7	6	5	5	5	2	2	8	3	2	2		11	
27	6-	5	6	6	6-	5○	7-	6+	6	5	7	7	5	5	6	1	1	3	5	0	1		2	
28	5+	5	5	5	4+	4+	7-	6+	6	5	7	6	5	5	5	2	2	7	11	2	2		8	
29	6-	5	6	5	5-	5○	7-	6+	6	5	7	7	5	5	6	0	1	3	11	0	1		2	
30	6-	5	6	6	5○	6-	7-	6+	6	5	7	6	5	5	6	2	1	7	7	1	0		4	
SCORE																								
QUIET PERIODS:					P	25									11	15	28	18						
					S	5									18	13	2	12						
					U	0									0	0	0	0						
					F	0									0	0	0	0						
DISTURBED PERIODS:					P	0									0	0	0	0						
					S	0									0	1	0	0						
					U	0									0	0	0	0						
					F	0									1	1	0	0						

COMMERCE - STANDARDS - BOULDER

NOTES:

1. The advance Jc forecasts are scored against the average high latitude whole day indices.
2. The observed indices for the North Pacific are low weight because of insufficient data available for their preparation.
3. As of November 1, 1964, short-term and advance forecasts for the North Pacific area are no longer prepared.
4. The predicted A_{PP} indices are issued each Wednesday for the coming seven days. The values for the first day of each prediction period is underlined.

CRPL RADIO PROPAGATION QUALITY FIGURES AND FORECASTS VIIb

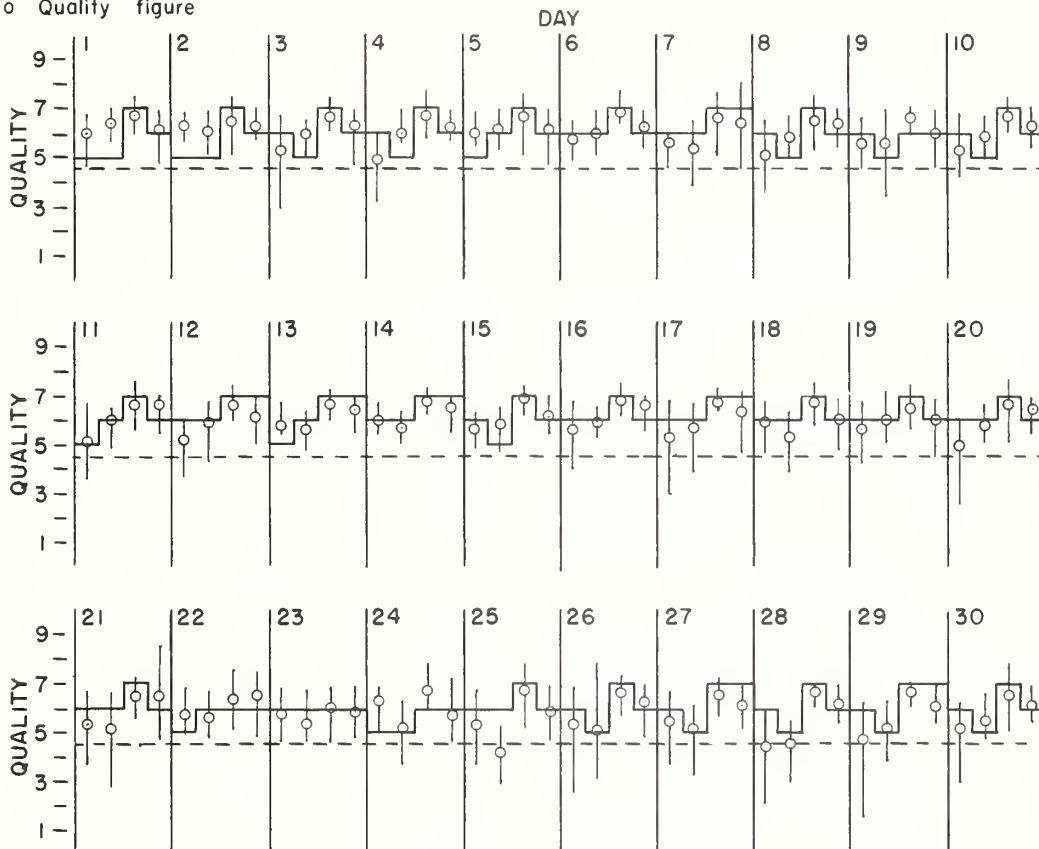
NORTH ATLANTIC

NOVEMBER 1964

— Short-term forecast

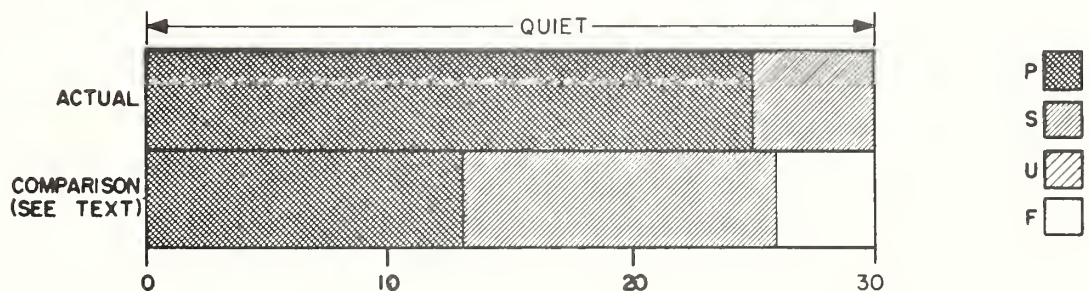
| Range of reports

o Quality figure



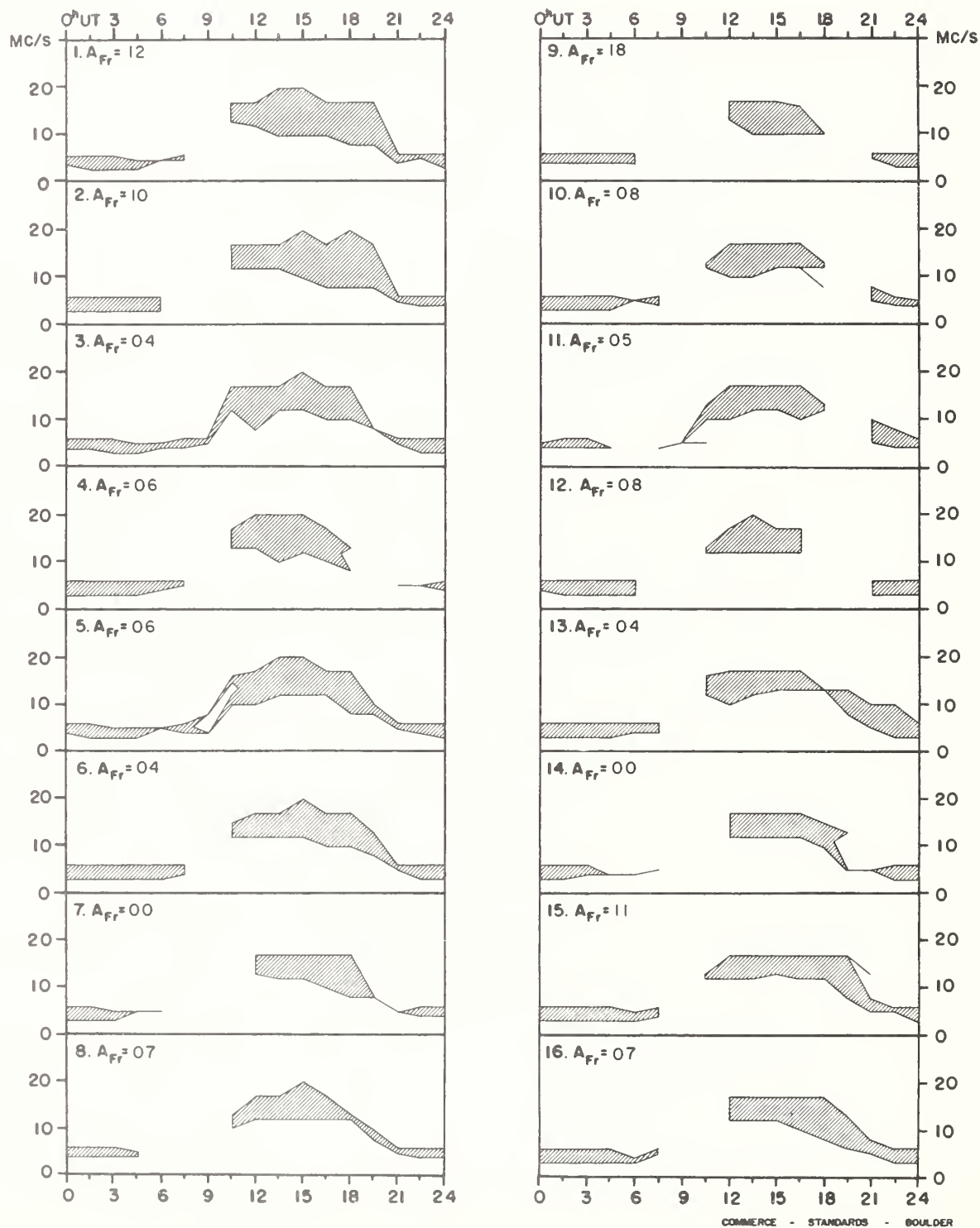
OUTCOME OF ADVANCE FORECASTS--FINAL ESTIMATES (1 TO 7 DAYS AHEAD)

HIGH LATITUDE

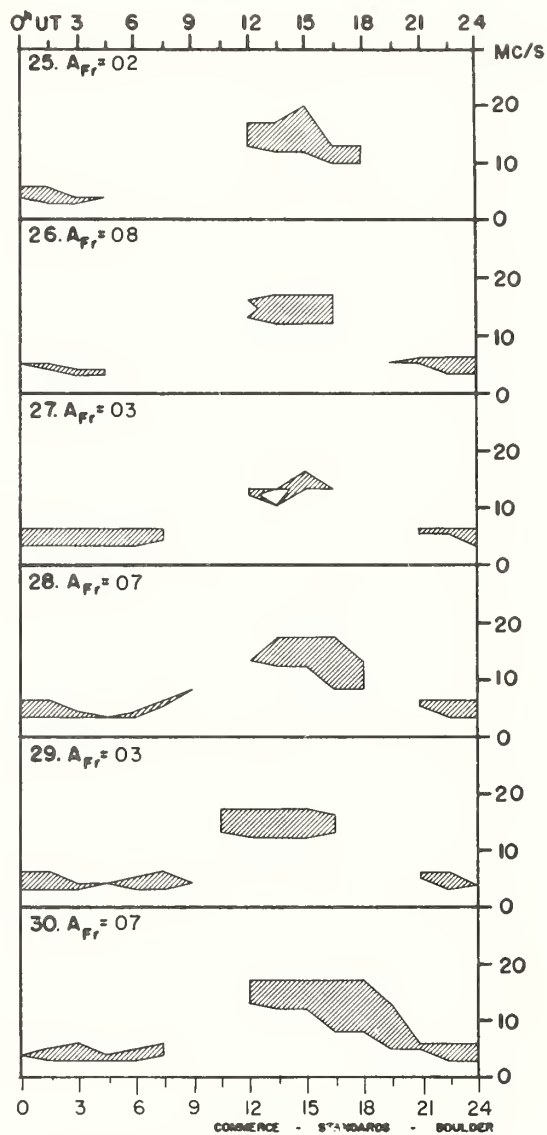
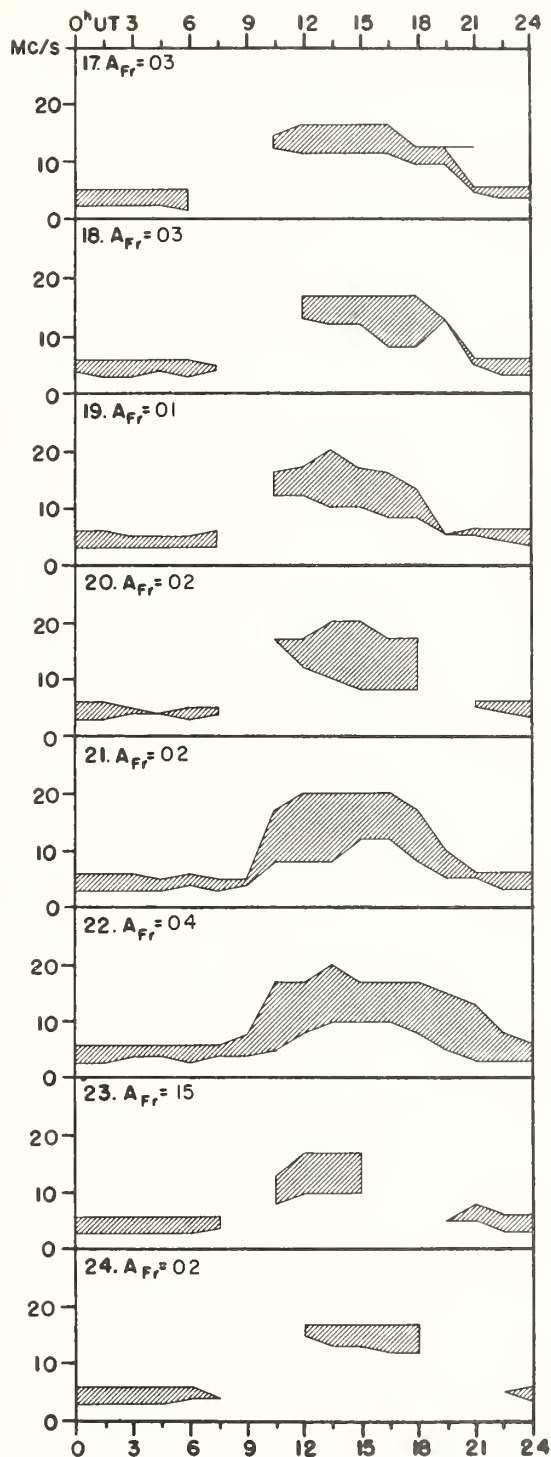


COMMERCE - STANDARDS - BOULDER

NOVEMBER 1964



NOVEMBER 1964



Adapted from Observations by Deutsches Bundespost

IQSY ALERT PERIODS

INTERNATIONAL URSIGRAM
AND WORLD DAYS SERVICE

DECEMBER 1964

DEC 1964	TIME OF ISSUE UT	ADVANCE GEOPHYSICAL ALERT	WORLDWIDE GEOPHYSICAL ALERT			
			NO.	TYPE	TIMING	ELABORATION
2	0400		143	Solar Activity	Exists	East Limb
3	0400		144	Solar Activity	Exists	East Limb
4	0400		145	Solar Activity	Exists	East Limb
5	0400		146	Solar Activity	Exists	
18	2000	Ft. Belvoir, Solar Activity Exists Eastern Hemisphere				
19	0400		147	Solar Activity	Exists	
20	0400		148	Solar Activity	Exists	
21	0400		149	Solar Activity	Exists	
22	0400		150	Solar Activity	Exists	
28	0400		151	Magnetic Calm	Exists	
28	2005	Ft. Belvoir, Solar Activity Exists Sunspot Born				
29	0400		152	Magnetic Calm Solar Activity	Exists Exists	
30	0400	McMath, Solar Flare 31/1727Z	153	Solar Activity	Exists	
31	1840					

COMMERCE - STANDARDS - BOULDER

Note: 1964 March 27 through April 3 has been designated as a
joint IONOMAGSTORM and QUIETSUN Retrospective World
Interval.
This information was sent with the December 2 Geophysical
Alert.

