

CRPL-F 235 PART B

FOR OFFICIAL USE

PART B
SOLAR - GEOPHYSICAL DATA

ISSUED
MARCH 1964

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

SOLAR - GEOPHYSICAL DATA

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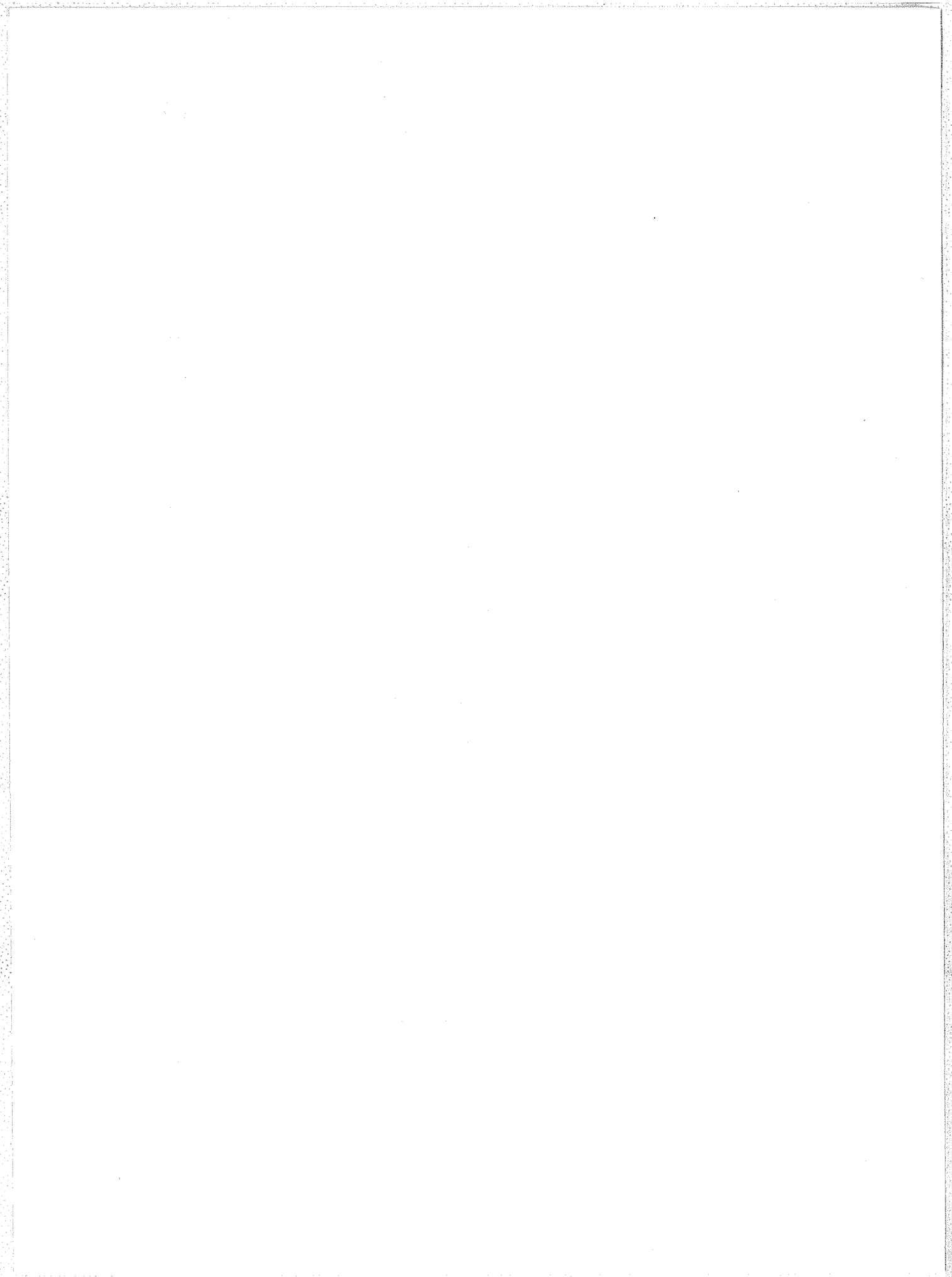
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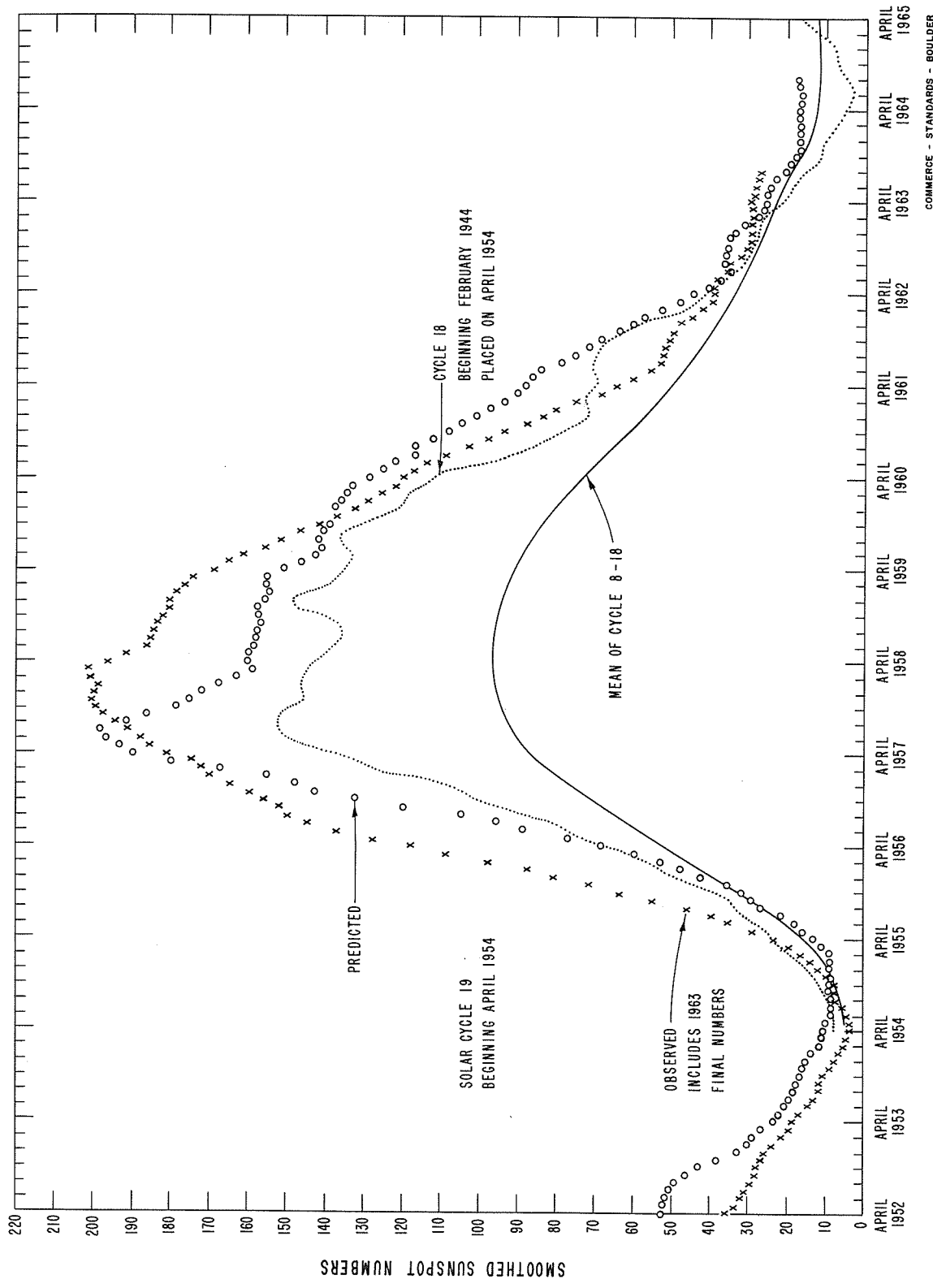


The descriptive text was republished November, 1963.

DAILY SOLAR INDICES

Jan. 1964	American Relative Sunspot Numbers R_A'
1	0
2	1
3	0
4	1
5	7
6	19
7	20
8	16
9	4
10	4
11	6
12	6
13	19
14	25
15	25
16	11
17	2
18	1
19	10
20	16
21	14
22	14
23	12
24	14
25	14
26	13
27	14
28	26
29	24
30	17
31	4
Mean:	11.6

Feb. 1964	Zürich Provisional Relative Sunspot Numbers R_Z	Daily Values Solar Flux at 2800 Mc, Ottawa, Canada Flux
1	0	73
2	0	72
3	0	71
4	0	71
5	0	72
6	0	73
7	10	72
8	13	73
9	20	72
10	8	73
11	0	72
12	0	73
13	0	73
14	8	73
15	15	73
16	16	73
17	16	74
18	8	76
19	8	76
20	23	76
21	39	79
22	41	80
23	54	84
24	44	85
25	30	84
26	34	87
27	30	85
28	34	84
29	23	81
30		
31		
Mean:	16.3	76



PREDICTED AND OBSERVED SUNSPOT NUMBERS

ZURICH FINAL RELATIVE SUNSPOT NUMBERS

1963

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
1	23	30	0	15	23	31	30	65	20	0	45	28
2	29	25	0	25	22	26	22	55	25	7	52	31
3	34	44	8	28	24	15	37	53	34	9	43	30
4	35	53	14	17	20	13	22	51	43	8	37	30
5	23	47	22	23	26	23	9	50	42	0	29	28
6	8	50	32	50	43	8	9	53	31	15	13	25
7	7	48	35	50	46	29	9	38	9	20	10	17
8	8	40	29	63	55	54	10	23	14	32	11	13
9	7	32	32	55	48	68	17	22	15	37	9	32
10	8	21	34	59	64	82	9	20	23	32	0	27
11	8	18	23	48	64	82	10	9	22	40	8	26
12	8	16	18	63	55	87	10	0	28	39	11	18
13	9	9	17	56	54	82	18	7	40	42	7	10
14	33	16	24	45	56	57	22	13	65	51	7	8
15	44	17	15	50	65	54	19	11	84	49	9	7
16	40	16	8	50	66	33	11	18	85	52	16	7
17	40	18	13	41	76	27	11	29	81	50	24	8
18	21	16	19	34	78	25	13	43	73	40	28	17
19	20	20	12	28	68	23	15	36	72	29	25	15
20	16	20	13	19	58	19	11	36	73	37	28	17
21	16	20	13	10	49	19	19	50	77	35	30	14
22	7	20	16	0	37	7	19	68	70	45	34	13
23	17	22	17	0	24	15	25	64	54	50	36	9
24	15	20	19	0	28	24	17	50	38	51	35	16
25	17	16	10	0	18	29	25	37	25	53	32	8
26	7	11	16	0	9	34	16	29	13	52	23	7
27	14	17	15	0	18	31	23	16	0	38	23	0
28	34	0	7	7	36	24	7	21	9	24	21	0
29	25		12	16	32	30	24	16	0	54	27	0
30	23		17	26	37	27	55	23	0	58	28	0
31	18		19		35		65	24		45		0
Mean	19.8	24.4	17.1	29.3	43.0	35.9	19.6	33.2	38.8	35.3	23.4	14.9

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Annual Mean: 27.9

CALCIUM PLAGE AND SUNSPOT REGIONS

IIa

FEBRUARY 1964

Feb. 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)(2)	CMP VALUES		HISTORY
				AREA	INT.					AREA	COUNT	
Jan. 31.0	S23	7127 (2)	New	(300)	(1)	b - ℓ	1	2/5	1			
31.8	S35	7116 (2)	New	(100)	(2)	b - d	1	1/28	1			
Feb. 01.0	N28	7120	New	300	1.5	b / ℓ	1	1/29	7			
01.1	N13	7132 (2)	New	(200)	(1)	b - ℓ	1	2/5	1			
03.2	N45	7124 (2)	New	200	1.5	b - d	1	2/4	1			
03.5	N20	7122	7095	100	1.5	ℓ / ℓ	8	1/29	10			
03.8	N04	7121	New	600	1.5	ℓ / ℓ	1	1/29	11			
03.8	S21	7128 (2)	New	200	2	b - d	1	2/5	1			
05.6	S09	7133	New	400	3	b / ℓ	1	2/6,7	5			
05.7	N08	7134	New	400	2	b \ ℓ	1	2/7	2			
06.1	N27	7135	New	300	2	b \ ℓ	1	2/7	3			
06.1	N47	7125 (2)	New	100	2	b - d	1	2/4	1			
06.7	N09	7129	New	300	1	b / d	1	2/5	3			
07.2	N01	7131 (2)	New	200	2	b - d	1	2/5	1			
07.7	S20	7136	New	200	1.5	b / d	1	2/7	2			
09.6	N16	7126	New	(200)	(2)	ℓ - d	1	2/3	3			
09.7	N05	7144	New	100	2	b \ ℓ	1	2/10	3			
10.1	N31	7140 (2)	New	100	2	b - d	1	2/9	1			
10.3	S10	7149	New	(200)	(1.5)	b \ ℓ	1	2/14	2			
10.1	S05	7137 (2)	New	(400)	(2.5)	b - d	1	2/7	1			
10.5	S15	7146 (2)	New	300	1	b - d	1	2/11	1			
10.7	N11	7130	7102	400	2	ℓ \ ℓ	6	2/4	≥ 9			
10.7	S11	7145 (2)	New	100	1.5	b - d	1	2/10	1			
11.3	N20	7141	New	200	1.5	b - d	1	2/9	2			
11.4	S29	7142 (2)	New	100	2	b - d	1	2/9	1			
11.9	S15	7148 (2)	New	100	1.5	b - d	1	2/12	1			
12.3	S08	7138 (2)	New	(400)	(1.5)	b - d	1	2/7	1			
12.7	N10	7139	(3)	400	1.5	ℓ / d	6	2/<7	> 10			
12.6	S28	7143 (2)	New	(100)	(2)	b - d	1	2/9	1			
12.7	N26	7150	New	100	2	b \ ℓ	1	2/14	4			
13.9	N02	7147	(4)	500	1.5	b / ℓ	1	2/11	> 7			
14.5	S15	7156 (2)	New	(200)	(1.5)	b - ℓ	1	2/17	1			
15.8	N04	7157 (2)	New	200	1.5	b - d	1	2/17	1			
17.3	N08	7151	New	600	1.5	b / d	1	2/14	≥ 4			
18.9	S39	7158 (2)	New	200	1.5	b - d	1	2/17	1			
19.6	S09	7152	New	(300)	(1.5)	ℓ - d	1	2/14	≥ 7			
20.8	N16	7155 (2)	New	(200)	(2)	b - d	1	2/16	1			
20.9	S06	7153	7113	1400	3	ℓ / ℓ	2	2/14	13	60	1	ℓ \ ℓ
21.7	N09	7154	7108	2100	3.5	ℓ / ℓ	2	2/14	14	160	5	b \ ℓ
22.6	N13	7170 (2)	New	(200)	(2.5)	b - ℓ	1	2/28	1			
22.6	S19	7159 (2)	New	(100)	(2)	ℓ - d	1	2/17	1			
23.9	N02	7168	New	(400)	(2.5)	b / ℓ	1	2/26	4	50	1	b / ℓ
24.0	S01	7160 (2)	New	(200)	(1.5)	b - d	1	2/20	1			
24.5	N08	7161	7115	2500	3.5	b / ℓ	1	2/20	11	570	12	ℓ / ℓ
25.6	N12	7169 (2)	New	(100)	(1.5)	b - d	1	2/27	1			
26.3	S12	7166	New	400	1.5	b / d	1	2/24	2			
26.9	N09	7162	New	(300)	(1)	ℓ - d	1	2/21	2			
27.9	S09	7163	New	(200)	(1.5)	b - d	1	2/23	2			
28.0	S03	7172	New	(600)	(1.5)	b \ ℓ	1	2/29	2			
29.0	N25	7164	(5)	800	2	ℓ \ ℓ	1	2/23	13			
29.7	S05	7165	New	(200)	(1)	ℓ - d	1	2/23	3			

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- (1) Due to inclement weather conditions, no calcium plage data were secured at the McMath-Hulbert Observatory on February 6, 13, 18 and 19.
- (2) These very small and ephemeral plages last for only one day.
- (3) Part of 7104.
- (4) New - in same position as old 7105.
- (5) New - in position of 7120.

MT. WILSON MAGNETIC CLASSIFICATIONS OF SUNSPOTS

FEBRUARY 1964

Feb. 1964	TIME MEAS. UT	LAT.	MER. DIST.	TYPE	Feb. 1964	TIME MEAS. UT	LAT.	MER. DIST.	TYPE
1-6	No Spots				24	1630	S04 N10 N07	W56 W42 W03	α p β γ β
7	1640	S08	W25	β					
8	1715	S09	W40	β p	25-26	No Obs.			
9	2155	S08	W57	β p	27	1620	N02 N09	W47 W44	β β p
10	1805	S07	W69	β					
11-13	No Spots				28	1810	N02 N10 N06 S07	W63 W58 E25 E45	β f β p α p α p
14-20	No Obs.								
21	1640	S04 N10 N08	W16 W01 E41	α p β α p	29	1810	N02 N10 N06 N07	W78 W76 E11 E32	α f α p α p α p
22-23	No Obs.								

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PROVISIONAL 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 ₁	G ₆	G ₁	R ₁	G ₆	G ₁	R ₁	G ₆	G ₁	R ₁
1	x	x	x	x	x	x	x	x	x	x	x	x
2	5	7	20	3	19	20	5	6	14	16	12	16
3	9	11	12	5	12	16	5	8	23	26	8	20
4	x	x	27 ^a	x	20 ^a	29 ^a	x	x	x	x	x	x
5	5	8	24	3	18	22	x	x	x	x	x	x
6	x	x	x	x	x	x	13	22	33	52	10	33
7	x	x	x	x	x	x	x	x	x	x	x	x
8	x	x	x	x	x	x	4	6	15	16	10	16
9	12	14	16	7	9	12	6	7	17	20	13	15
10	x	x	x	x	x	x	3	4	9	12	5	8
11	x	x	x	x	x	x	4	5	12	13	11	9
12	x	x	x	x	x	x	4	7	13	18	13	8
13	x	x	x	x	x	x	x	x	x	x	x	x
14	12	15	12	4	16	18	3	5	8	9	5	8
15	x	x	x	x	x	x	8	11	5	9	7	7
16	10	17	16	3	11	14	4	5	15	18	4	13
17	9	17	26	4	14	15	x	x	x	x	x	x
18	x	x	x	x	x	x	x	x	x	x	x	x
19	x	x	x	x	x	x	4	7	4 ^a	8 ^a	5	8 ^a
20	29	50	57	19	31	76	8	18	7	9	13	17
21	x	x	x	x	x	x	12	20	28	33	38	80
22	26	53	23	7	12	14	x	x	x	x	x	x
23	15	28	24	4	14	17	4	6	36	41	33	136
24	5	10	12	3	8	9	9	19	x	x	19	x
25	7	12	40	3	9	14	x	x	x	x	x	x
26	5	6	22	4	10	14	x	x	x	x	x	x
27	x	x	x	x	x	x	5	6	7	8	9	13
28	9	21	24	3	8	10	x	x	x	x	x	x
29	19	24	42	21	4	8	x	x	x	x	x	x

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

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SOLAR FLARES

FEBRUARY 1964

OBSERVATORY	DATE	OBSERVED TIME		LOCATION			DURA- TION — MINUTES	IM- POR- TANCE	ONE COND.	TIME — U T	MEASUREMENTS			PROVISIONAL IONOSPHERIC EFFECT
		START	END	APPROX. LAT.	MER. DIST.	MATH FLARE REGION					MEAS. AREA Sq. Deg.	CONR. AREA Sq. Deg.	MAX. WIDTH R _z	
	FEB 1964													
	01	0515	0805	PATROL										
	01	1110	1315	PATROL										
	01	2355	2400	PATROL										
	02	0030	0815	PATROL										
	02	1005	1015	PATROL										
	02	1110	1300	PATROL										
	03	0035	0205	PATROL										
	03	0235	0330	PATROL										
	03	0430	0810	PATROL										
	03	0850	1010	PATROL										
	03	1050	1400	PATROL										
	03	1620	1625	PATROL										
	03	1945	2340	PATROL										
	04	0050	0110	PATROL										
	04	0200	0810	PATROL										
	04	0825	0845	PATROL										
	04	1154 E	1211	N48 E17				1--	3	1155	•60	1.00		
	04	1220	1435	PATROL										
	04	1505	1515	PATROL										
	04	1535	2400	PATROL										
	05	0000	0035	PATROL										
	05	0050	0130	PATROL										
	05	0140	0630	PATROL										
	05	0935	1000	PATROL										
	05	1140	1145	PATROL										
	05	1200	1300	PATROL										
	05	1410	1420	PATROL										
	05	2105	2115	PATROL										
	05	2355	2400	PATROL										
	06	0115	0130	PATROL										
	06	0220	0730	PATROL										
	06	1030	1345	PATROL										
	06	1820	1910	PATROL										
	06	2000	2025	PATROL										
	06	2105	2115	PATROL										
	06	2145	2340	PATROL										
	07	0200	0230	PATROL										
	07	0425	0715	PATROL										
	07	0740	0755	PATROL										
	07	0920	0930	PATROL										
	07	0950	1000	PATROL										
	07	1005	1020	PATROL										
	07	1030	1115	PATROL										
	07	1125	1300	PATROL										
	07	1310	1410	PATROL										

SOLAR FLARES

FEBRUARY 1964

OBSERVATORY	DATE	OBSERVED UNIVERSAL TIME		LOCATION		DURA- TION — MINUTES	IM- POR- TANCE	OBS. COND.	TIME — U T	MEASUREMENTS		MAX. WIDTH H _c	MAX. INT. % _s	PROVISIONAL LONGISPHERIC EFFECT	
		START	END	APPROX. LAT.	MER. DIST.					MATH FLAGE REGION	MEAS. AREA Sq. Deg.				CORR. AREA Sq. Deg.
ARCETRI MANILA	08	0325	0530												
	08	0600	0725												
	08	0825	0900	D											
	08	0834	0848	E											
	08	1005	1255												
	08	2355	2400												
	09	0000	0105												
	09	0120	0600												
MANILA	09	0725	0734												
	09	1100	1300												
	10	0130	0155												
SAC PEAK	10	0215	0615												
	10	0700	0810												
	10	0835	0840												
	10	1005	1015												
	10	1025	1135												
	10	1140	1250												
	10	1907	1925												
	10	2000	2055												
	10	2101	2109												
	10	2101	2118												
	11	0145	0215												
	SAC PEAK LOCKHEED	11	0330	0700											
11		0830	0835												
11		0840	0915												
11		1000	1235												
11		1335	1435												
11		1715	2355												
12		0055	0435												
12		0455	0540												
12		0915	0930												
12		0955	1300												
12		1735	1745												
12		1800	1805												
12	1810	1900													
12	2155	2400													
MANILA	13	0000	0015												
	13	0030	0120												
	13	0150	0505												
	13	0530	0545												
	13	0600	0610												
	13	0640	0650												
	13	1030	1110												
MANILA	13	1200	1220												
	13	1225	1320												
	13	1325	1330												
	13	1325	1330												

SOLAR FLARES

FEBRUARY 1964

OBSERVATORY	DATE	OBSERVED TIME		LOCATION			DURA- TION MINUTES	IM- POR- TANCE	OBS. COND.	TIME U T	MEASUREMENTS		MAX. WIDTH H _g	MAX. INT. %	PROVISIONAL IONOSPHERIC EFFECT
		START	END	APPROX. LAT.	MATH PLAGE REGION	MER. DIST.					MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.			
MANILA	19 FEB 1964	0213	0220												
		0245	0310												
		0410	0510												
		0900	1400												
SAC PEAK	19	1709	1728												
		1717	U												
OTTAWA	20	0615	0645												
	20	1620	1625												
	20	1802	1808												
	20	1900	2400												
UCCLE	21	0000	0005												
	21	0919	0938												
	21	1011	1030												
	21	1014	E												
	21	1015	E												
	21	1017	E												
	21	1150	1202												
	21	1447	1452												
	21	1515	1517												
	21	1515	1545												
SAC PEAK	21	1522	1535												
	21	1522	2400												
MCMATH	21	2350	2400												
		2350	2400												
ARCETRI	22	0330	0715												
	22	0936	E												
	22	1000	E												
	22	1016													
	22	1038	1042												
	22	1058	1120												
	22	1058	1120												
	22	1746	1810												
	22	1845	1950												
	22	1858	1927												
	22	2203	2230												
	22	2206	2242												
SAC PEAK	22	2315	2345												
	22	2315	2353												
LOCKHEED	22	2315	2353												
	22	2355	2400												
SAC PEAK	22	2355	2400												
		2355	2400												
ONDREJOV	23	0050	0630												
	23	0645	E												
	23	0800	E												
	23	1818	1842												
	23	1932	2003												
	23	1945	E												
	23	2134	2155												
	23	2137	2158												
	23	2137	2158												
	23	2227	2255												
SAC PEAK	23	2230	2252												
		2230	2252												
LOCKHEED	24	0045	0250												
		0045	NO FLARE												
		0630	NO FLARE												
		0830	NO FLARE												
		1010	D												
		1828	NO FLARE												
		1940	NO FLARE												
		1945	NO FLARE												
		2137	NO FLARE												
		2140	NO FLARE												

COMMERCE - STANDARDS - BOULDER

SOLAR FLARES

FEBRUARY 1964

OBSERVATORY	DATE FEB 1964	OBSERVED UNIVERSAL TIME		LOCATION			DURATION MINUTES	IM- POR- TANCE	OBS. COND.	MEASUREMENTS			PROVISIONAL IONOSPHERIC EFFECT
		START	END	APPROX.	LAT.	MER. DIST.				MATH PLACE REGION	TIME U T	MEAS. AREA Sq. Deg.	
MANILA	24	0330	0600	NO FLARE	PATROL			1-	1	1.00	1.00	1.00	
	24	0600	0606 D	0603	N08 E03								
	24	0605	0805	NO FLARE	PATROL								
	24	0830	0910	NO FLARE	PATROL								
	24	1010	1310	NO FLARE	PATROL								
	24	1320	1350	NO FLARE	PATROL								
LOCKHEED	24	1928	2010	1945	N08 W45			1-	2	.20	.30	.30	10
	25	0220	0350	NO FLARE	PATROL								
	25	0405	0615	NO FLARE	PATROL								
	25	0645	0710	NO FLARE	PATROL								
	25	0915	1350	NO FLARE	PATROL								
	25	1910	2100	NO FLARE	PATROL								
ARCETRI	26	0005	0320	NO FLARE	PATROL			1-	3	1.30	1.60	1.60	
	26	0345	0545	NO FLARE	PATROL			1-	3	.40	.50	.50	
	26	0850 E	1000 D	N09 W30									
	26	0925 E	0955 D	N06 W31									
	26	1005	1345	NO FLARE	PATROL								
	26	1900	2025	NO FLARE	PATROL								
LOCKHEED	26	2105	2120	NO FLARE	PATROL								
	26	2150	2400	NO FLARE	PATROL								
	27	0000	0710	NO FLARE	PATROL			1-	2	.20	.20	.20	10
	27	0720	0930	NO FLARE	PATROL								
	27	0935	1130	NO FLARE	PATROL								
	27	1145	1255	NO FLARE	PATROL								
UCCLE	27	2045	2200	2105	N06 E34								
	27	2355	2400	NO FLARE	PATROL								
	28	0000	0055	NO FLARE	PATROL								
	28	0110	0315	NO FLARE	PATROL								
	28	0320	0815	NO FLARE	PATROL								
	28	0857	0912	NO FLARE	PATROL								
SAC PEAK	28	0904	0908	N11 W55				1-	3				
	28	0935	0954	S08 E54				1-	3				
	28	0939	0946	N03 W61				1-	3				
	28	1145	1150	N11 W55				1-	3				
	28	1200	1210	NO FLARE	PATROL								
	28	1215	1345	NO FLARE	PATROL								
CAPRI S	28	1352	1445	1410	S06 E52			1-	C	1.49	1.90	1.90	17
	28	1405	1423	1414	S08 E47			1	1	2.10	2.80	2.80	
	28	1405 E	1500	1414	S07 E51	7167		2	S				
	28	1408 E	1412 D		S04 E53	7167		1-	1	.50	.80	.80	
	29	0150	1345	NO FLARE	PATROL								
	29	2355	2400	NO FLARE	PATROL								

SOLAR FLARES

FEBRUARY 1964

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

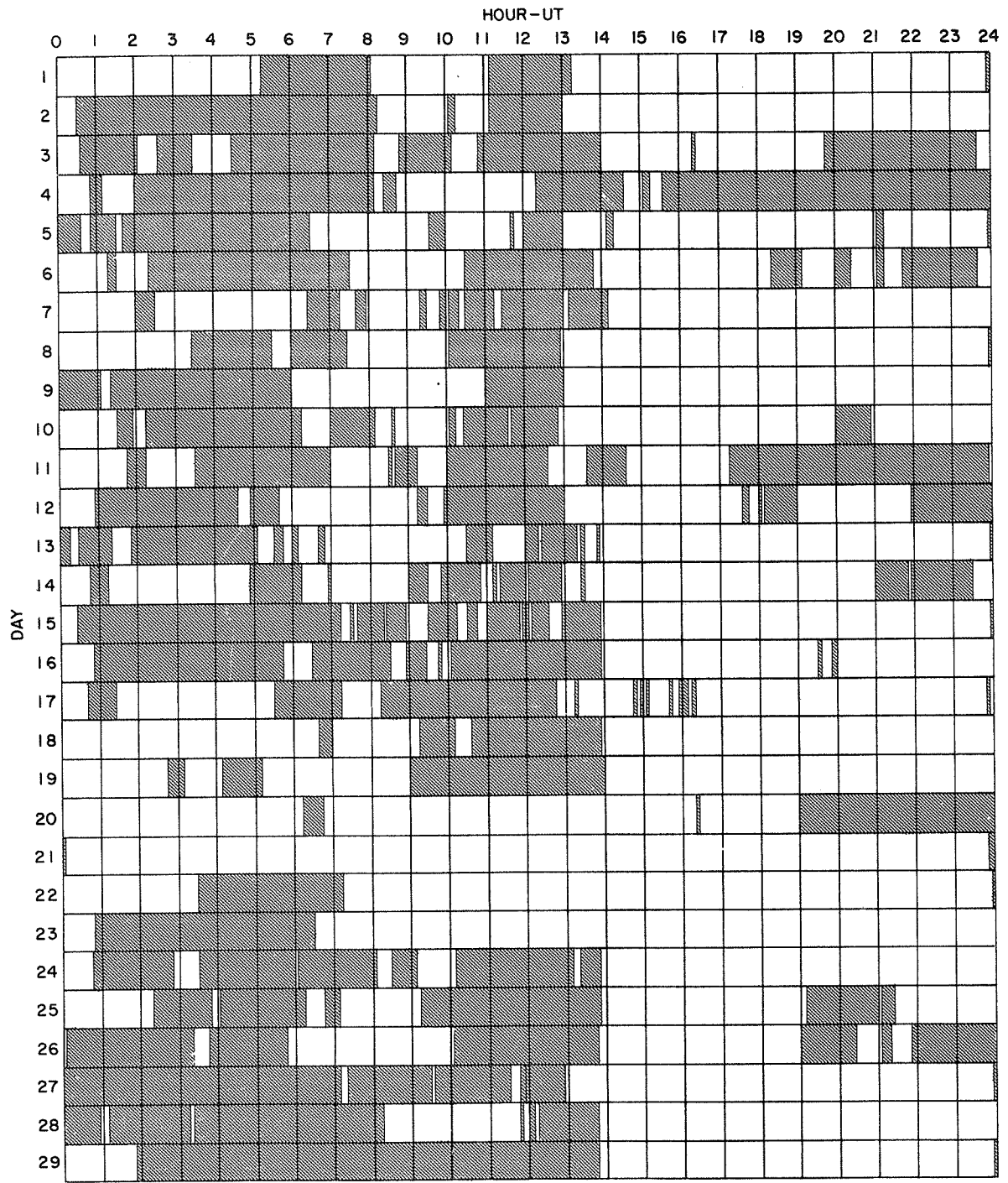
SEE DESCRIPTIVE TEXT PUBLISHED NOVEMBER 1961 FOR DEFINITION OF CORRECTED AREA VALUES LISTED FOR CLIMAX, HAWAII, LOCKHEED AND SACRAMENTO PEAK.

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

COMMERCE - STANDARDS - BOULDER

INTERVALS OF NO FLARE PATROL OBSERVATIONS

FEBRUARY 1964



COMMERCE - STANDARDS - BOULDER

Observatories Included:

- | | | | |
|----------|----------|----------|-----------------|
| Arcetri | Ikomasan | Manila | Sacramento Peak |
| Athenes | Istanbul | Ondrejov | Uccle |
| Huancayo | Locarno | Ottawa | Zurich |

SOLAR FLARES

NOVEMBER 1963

OBSERVATORY	DATE	OBSERVED UNIVERSAL TIME		LOCATION			DURA- TION — MINUTES	IM- POR- TANCE	OBS. COND.	TIME — U T	MEASUREMENTS		PROVISIONAL IONOSPHERIC EFFECT
		START	END	APPROX. LAT.	MER. DIST.	McWORTH FLARE REGION					MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	
UCCLE	NOV 1963												
	01	0045	0110										
	01	0435	0440										
	01	0515	0520										
	01	0915	0940										
	01	0945	1105										
	01	1201	1214										
	01	1250	1320										
	02	0250	0625										
	02	0635	0640										
	02	0930	0948										
NIZAMIAH UCCLE	02	1029	1052										
	02	1610	1615										
BUCHARREST BUCHARREST BUCHARREST UCCLE BUCHARREST BUCHARREST	03	2130	2155										
	04	0300	0350										
	04	0425	0505										
	04	0600	0650										
	04	0714	0730										
	04	0720	0746										
	04	0823	0857										
	04	0853	0908										
	04	0924	0949										
	04	0943	0953										
	04	1100	1150										
04	1155	1230											
UCCLE UCCLE UCCLE UCCLE	05	0200	0220										
	05	0245	0350										
	05	0430	0625										
	05	0904	0926										
	05	1204	1232										
	05	1214	1225										
	05	1236	1317										
	06	0010	0045										
	06	0240	0245										
	06	2105	2110										
	06	2200	2220										
UCCLE UCCLE UCCLE	07	0000	0005										
	07	0010	0230										
	07	0235	0240										
07	0645	0655											
08	0030	0140											
10	2355	2400											
11	0005	0345											

COMMERCE - STANDARDS - BOULDER

SOLAR FLARES

NOVEMBER 1963

OBSERVATORY	DATE	OBSERVED UNIVERSAL TIME		LOCATION			DURA- TION — MINUTES	IM- POR- TANCE	OBS. COND.	TIME — U T	MEASUREMENTS		PROVISIONAL IONOSPHERIC EFFECT
		START	END	APPROX. LAT.	MER. DIST.	MAGNETH PLACE REGION					MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	
	NOV 1963												
	11	0350	0355			PATROL							
	12	0245	0250			PATROL							
	12	0530	0600			PATROL							
	13	0200	0540			PATROL							
	13	0550	0600			PATROL							
	13	1920	1940			PATROL							
	13	2230	2250			PATROL							
	13	2310	2320			PATROL							
	13	2345	2400			PATROL							
	14	0000	0100			PATROL							
	14	0315	0335			PATROL							
	14	0345	0435			PATROL							
	14	0520	0522	D		N13 W10				0520	1.68		
KODAIKNI	14	0525	0805			PATROL		1-	1				
	14	0835	0840			PATROL							
	14	1055	1100			PATROL							
	14	1340	1352			S13 E88							
	14	1405	1420			PATROL							
UCCLE	14	1425	1430			PATROL		1-	3				
	14	1440	1505			PATROL							
	14	1530	1535			PATROL							
	14	1810	1815			PATROL							
	15	0215	0230			PATROL							
	15	0240	0300			PATROL							
	15	0305	0310			PATROL							
	15	0355	0400			PATROL							
	15	0435	0535			PATROL							
	15	1315	1330			PATROL							
	17	0530	0600			PATROL							
	17	1005	1020			PATROL							
	17	1040	1120			PATROL							
	17	1130	1355			PATROL							
	17	1400	1425			PATROL							
	18	0000	0030			PATROL							
	18	0200	0210			PATROL							
	18	0300	0600			PATROL							
	18	1300	1335			PATROL							
	18	1400	1405			PATROL							
	19	0000	0230			PATROL							
	19	0315	0500			PATROL							
	20	0200	0500			PATROL	14 D	1	2	0603	3.15		
	20	0600	0614	D		N13 E35	13	1	1	0607	1.64		
CRIMEE	20	0601	0614			N14 E37					2.00	1.80	55
TACHKENT	20												

COMMERCE - STANDARDS - BOULDER

SOLAR FLARES

NOVEMBER 1963

OBSERVATORY	DATE	OBSERVED UNIVERSAL TIME		LOCATION		DURA- TION — MINUTES	IM- POR- TANCE	OBS. COND.	TIME — U T	MEASUREMENTS		MAX. WIDTH Re	MAX. INT. %	PROVISIONAL IONOSPHERIC EFFECT
		START	END	APPROX. LAT.	MER. DIST.					MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.			
ABASTUMANI	20	0602	0608 E	0604		6	D	1		2.25	2.94		55	
	20	1640	NO FLARE	N14 E37		7039								
	20	1700	NO FLARE	PATROL										
	20	1815	NO FLARE	PATROL										
	20	1935	NO FLARE	PATROL										
	20	2140	NO FLARE	PATROL										
	21	0005	NO FLARE	PATROL										
	21	0230	NO FLARE	PATROL										
	21	1410	NO FLARE	PATROL										
	21	1500	NO FLARE	PATROL										
ZURICH UCCLE	21	1945	NO FLARE	PATROL										
	21	2255	NO FLARE	PATROL										
	22	0215	NO FLARE	PATROL										
	22	1043 E	1108	1048	N06 E53	25	D	1	1048		4.00			SI-S-SWF
NIZAMIAH	22	1329 E	1343 D	1332	N11 W06									
	23	0030	NO FLARE	PATROL		7047								
	23	0230	NO FLARE	PATROL										
	23	0320	NO FLARE	PATROL										
	23	0335	NO FLARE	PATROL										
	23	0450	NO FLARE	PATROL										
	23	1046	1052	1052	S03 W52	13		1+	1052	1.82	3.00	1.60		
	24	1202	1229	1203	N02 E30			1-	1203	1.30	1.50			
	25	0000	0220	NO FLARE	PATROL									
	25	0535	0635	NO FLARE	PATROL									
CAPETOWN CAPETOWN CLIMAX	26	1340	1355	NO FLARE	PATROL									
	27	0550	0755	NO FLARE	PATROL									
	27	0822 E	0833 D	0833	N04 W05			1-						
	28	0425	0500	NO FLARE	PATROL									
	28	0749	0755	0750	N05 W17			1-	0750	1.00	1.00			
	28	1406	1427 D	1407	N01 W28			1-	1407	1.20	1.30			
	28	2117	2129 D	2129	N15 W90			1-	2125	1.40	2.00			
	29	0155	0205	NO FLARE	PATROL									
	29	0215	0225	NO FLARE	PATROL									
	29	0235	0310	NO FLARE	PATROL									
CLIMAX	29	0330	0500	NO FLARE	PATROL									
	29	1648	1714	1659	N08 W40			1-		1.20	1.30			
	30	0200	0600	NO FLARE	PATROL									
	30	1047 E	1109 D	1053	S10 E88			1-		1.20	1.30			
BUCHAREST	30	1335	1340	NO FLARE	PATROL									
	30	1335	1340	NO FLARE	PATROL			3		1.20	1.30			G-SWF

COMMERCE - STANDARDS - BOULDER

SOLAR FLARES

NOVEMBER 1963

These flare reports are addenda to the November 1963 flares published in CRPL-F 232 B for December 1963.

ATHENS	ATHENS, GREECE	HONOJULU	HAWAII, USA	NERA	NEDERHORST den BERGH,
BAKOU	PIRCULLI, USSR	IKOMASAN	KYOTO, JAPAN		NETHERLANDS
CAPETOWN	ROYAL OBSERVATORY, CAPE OF GOOD HOPE	KIEV KO	KIEV GAO, USSR	NIZMIR	KRASNOYA PAKHA, USSR
CAPRI F	CAPRI, ITALY (GERMAN)	KIEV KY	KIEV UNIVERSITY, USSR	SAC PEAK	SACRAMENTO PEAK, N.MEX. USA
CAPRI S	CAPRI, ITALY (SWEDISH)	LOCKHEED	LOS ANGELES, CALIF., USA	SALTSJOBADEN	STOCKHOLM, SWEDEN
CRIMEE	SIMEIZ, USSR	MCWATH	MCWATH-HULBERT	SCHAUTINS	SCHAUTINSLAND, GFR
HERSTMONCEU	ROYAL GREENWICH OBSERVATORY, HERSTMONCEUX, ENGLAND	MOSCOU	PONTIAC, MICH., USA	TAGHKENT	TASHKENT, USSR
HTR-PROVEN	HAUTE-PROVENCE		MOSCOM-GAISH, USSR	WENDEL	WENDELSTEIN, GFR
			NEW SCHAUTIN FREIBURG, 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.

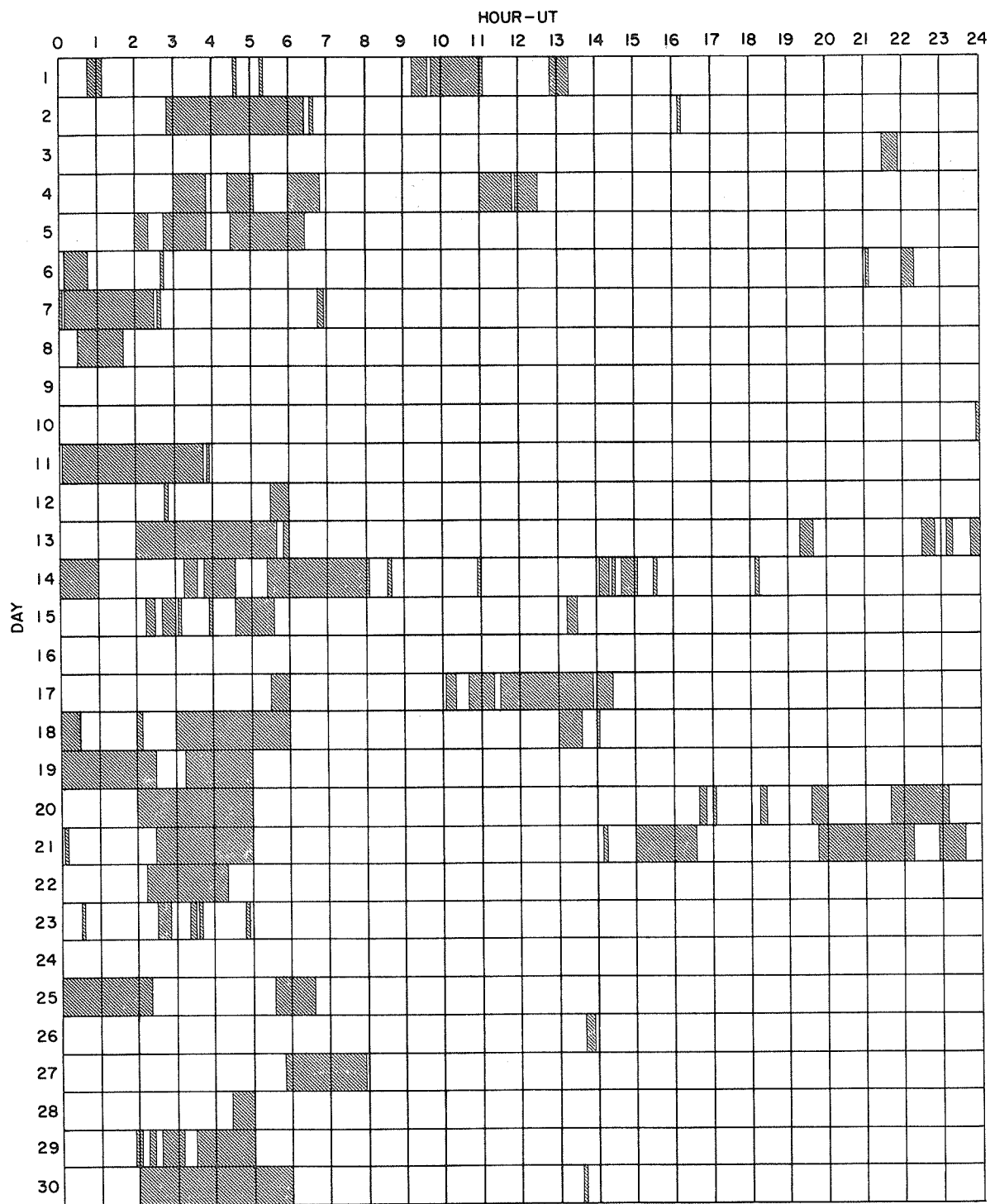
E = LESS THAN D = GREATER THAN U = APPROXIMATE □ = NOT REPORTED.

COMMERCE - STANDARDS - BOULDER.

INTERVALS OF NO FLARE PATROL OBSERVATIONS

III

NOVEMBER 1963



COMMERCE - STANDARDS - BOULDER

Observatories Include:

- | | | | | | |
|------------|-------------------|----------------|----------------|-----------------|------------|
| Abastumani | Capetown | Haute-Provence | Kiev-KO | Nizamiah | Tackhent |
| Arcetri | Capri-F (German) | Herstmonceux | Kodaikanal | Nizmir | Uccle |
| Athens | Capri-S (Swedish) | Huancayo | Lockheed | Ondrejov | Voroshilov |
| Bakou | Climax | Ikomasan | McMath-Hulbert | Ottawa | |
| Bucharest | Crimee | Istanbul | Mitaka | Sacramento Peak | |

IONOSPHERIC EFFECTS OF SOLAR FLARES

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

JANUARY 1964

JAN. 1964	UNIVERSAL TIME			TYPE SWF IMP	IMPORTANCE						BUR	WIDE SPREAD INDEX	STATIONS	KNOWN FLARE
	START	END	MAX		ABS	SCNA	SEA	SPA	SES	SFD				
No sudden ionospheric disturbances for January 1964.														

RIOMETER EVENTS
(Provisional)

IIIa

JANUARY 1964

South Pole

26 Mc/s

JAN. 1964	START UT	END UT	MAX. UT	MAX. ABSORP. db, (tenths)	NO. OF PEAKS	JAN. 1964	START UT	END UT	MAX. UT	MAX. ABSORP. db, (tenths)	NO. OF PEAKS
2	0441	0528	0447	11	1	17	0805	1918	1541	9	2
2	0732	1458	1305	17	5	18	0159	0434	0217	13	2
2	1848	1952	1909	3	3	18	0938	1125	0959	4	1
3	0204	0355	0243	35	5	19	1450	1709	1604	12	1
3	0819	1611	1412	10	5	20	1021	1744	1431	5	2
3	1819	1950	1845	6	3	24	0341	0444	0358	7	2
4	0006	0345	0245	24	5	24	0946	2328	1446	7	2
4	1246	2008	1555	12	4	25	0044	0158	0109	10	2
6	0230	0359	0249	11	3	25	0602	0722	0613	4	1
7	0932	1624	1032	6	4	25	1857	1949	1940	3	1
7	1831	1941	1915	4	4	26	0212	0314	0220	13	1
8	0016	0054	0026	6	4	26	1241	2124	1950	6	4
9	0100	0204	0117	8	1	27	0116	0205	0133	23	2
9	1010	1019	1018	3	1	28	1916	1947	1932	5	1
10	0016	0217	0110	7	1	29	0620	1930	0958	10	3
10	0544	0742	0552	15	1	30	0304	0529	0311	5	3
10	1519	1744	1625	5	2	30	0740	1830	1434	12	3
10	2247	0107	2255	17	3	31	0856	2028	1105	23	2
11	1943	0308	0032	18	3						
13	0249	0800	0256	7	2						
14	0023	0126	0116	5	1						
15	0106	0133	0127	3	2						
16	0944	1230	1204	9	3						
16	2257	2309	2301	3	1						
17	0244	0324	0248	13	1						

COMMERCE - STANDARDS - BOULDER

**SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES**

FEBRUARY 1964

ARO - OTTAWA

2800 Mc/s

FEB. 1964	U R A N E	DESCRIPTIVE TYPE	START UT	DURATION HRS. MIN.	MEAN FLUX	MAXIMUM		REMARKS
						TIME	FLUX	
23	3	Simple 3	1822	11	1826	1	0.5	
23	3	Simple 3	1934	>26	1941	1.5	0.7	
28	3	Simple 3	1401	42	1410	2	1	
28	3	Simple 3	1531	1 36	Indet.	1	0.5	
28	3	Simple 3 A	1734	2 16	Indet.	1	0.5	
	1	Simple 1	1851	0.8	1851.2	2	1	

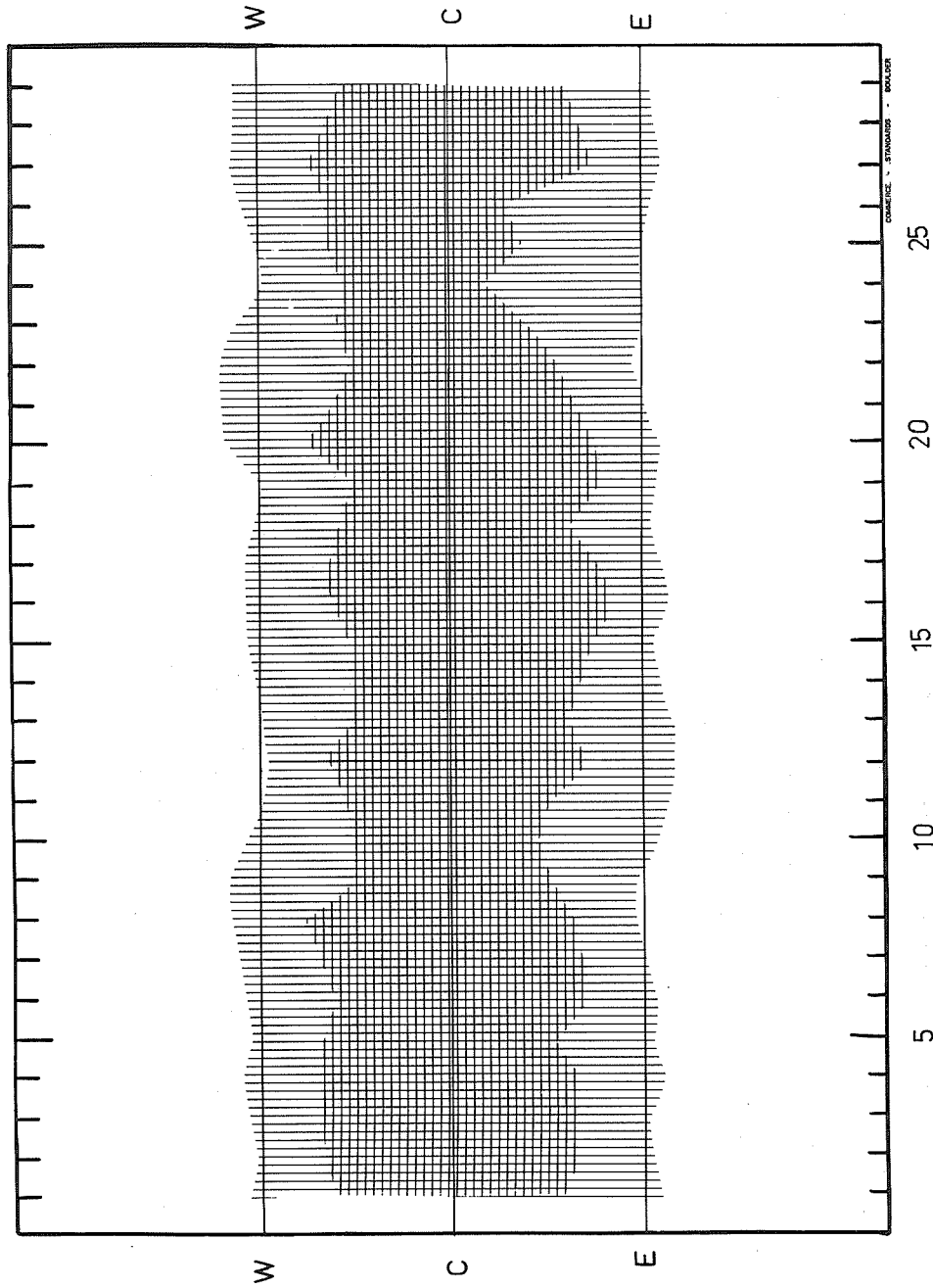
COMMERCE - STANDARDS - BOULDER

SOLAR RADIO EMISSION
INTERFEROMETRIC OBSERVATIONS

FEBRUARY 1964

NANÇAY

169 Mc/s



FEBRUARY 1964

IVc

SOLAR RADIO EMISSION OUTSTANDING OCCURRENCES

FEBRUARY 1964

NBS BOULDER

108 Mc/s

No Outstanding Occurrences were observed during February 1964.

NOMINAL TIMES OF OBSERVATION

FEBRUARY 1964

NBS BOULDER

108 Mc/s

Feb. 1964	HOURS OF OBSERVATION	UT	Feb. 1964	HOURS OF OBSERVATION	UT
1	1414-0004		16	1357-0022	
2	1413-0005	1636-1825	17	1356-2326	
3	1412-0006		18	1605-0024	
4	1411-0008	1711-1726	19	1353-0025	
5	1410-0009		20	1352-0026	
6	1409-0010		21	1350-0028	
7	1408-0011		22	1349-0029	
8	1407-0012		23	2230-0030	
9	1406-0014		24	1346-0031	
10	1404-0015		25	1345-0032	
11	1403-0016		26	1343-0033	
12	1402-0017		27	1342-0034	
13	1401-0018		28	1340-0036	2025-2040
14	1400-0019		29	1339-0037	1745-1758
15	1358-0021	1520-1529; 1805-1826			

COMMERCE - STANDARDS - BOULDER

**SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS**

IVd

FEBRUARY 1964

**High Altitude Observatory
Boulder**

7.6-41 Mc/s

Date FEB. 1964	Bursts			Frequency Range (Mc/s)
	Type	Time (U.T.)	Inten- sity	
14 Feb	III	1627:30-1628	1-	26-41
23	II	1902:45-1915:45	1	19-37
29	III	1745-1746:45	1	22-40
	III	1752-1752:15	1-	32-40

COMMERCE - STANDARDS - BOULDER

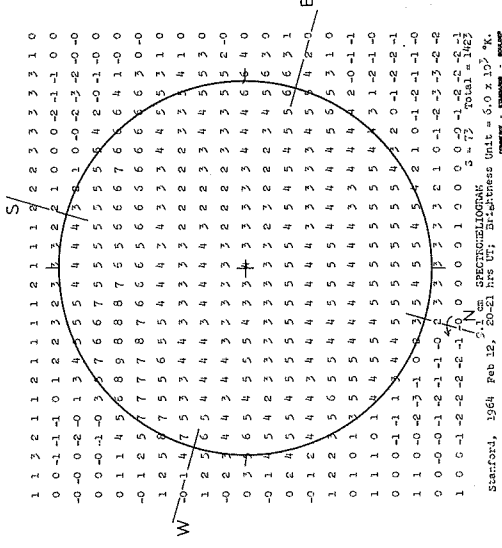
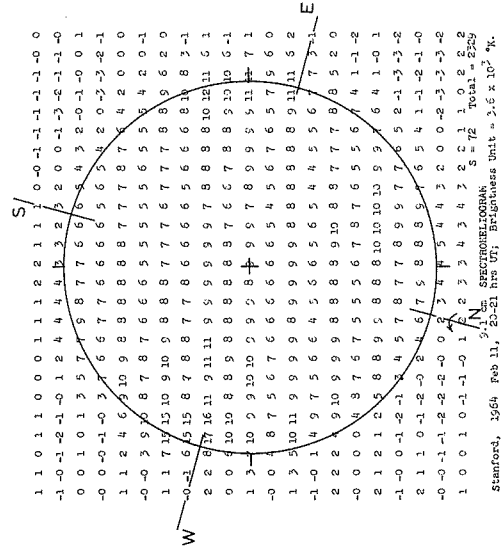
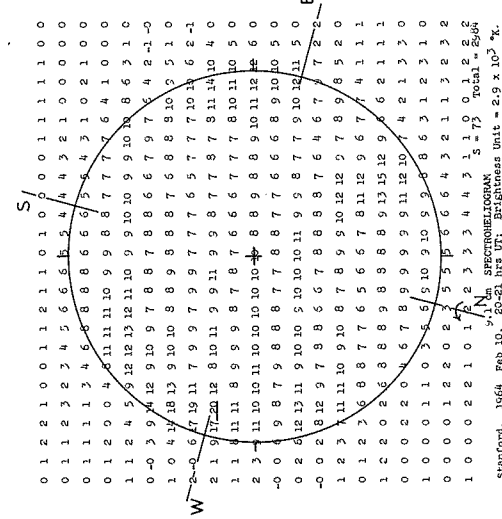
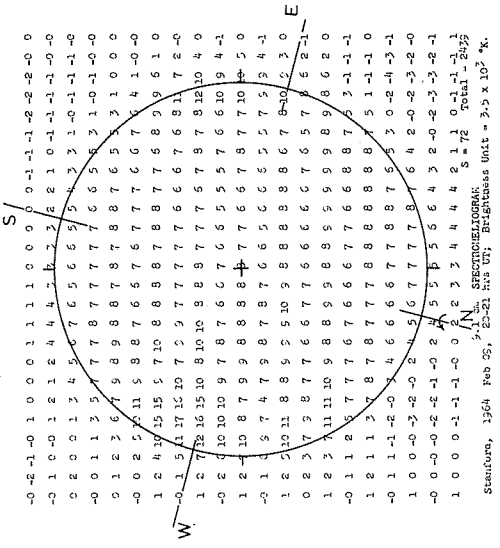
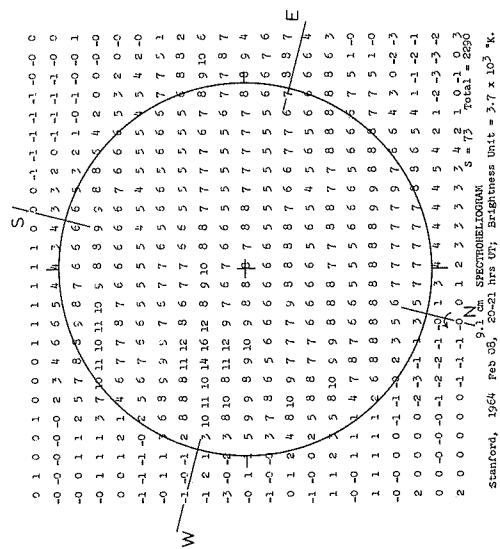
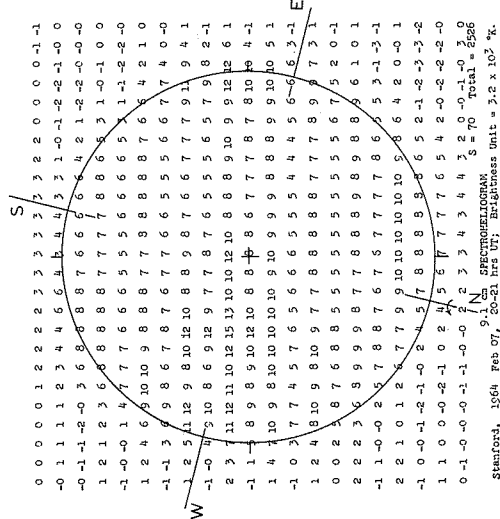
Beginning with February 1964, the Boulder spectro-
graphic data times are given in hours, minutes and
seconds to the nearest 15 seconds.

SOLAR RADIO EMISSION SPECTROHELIOGRAMS

FEBRUARY 1964

STANFORD

9.1 cm

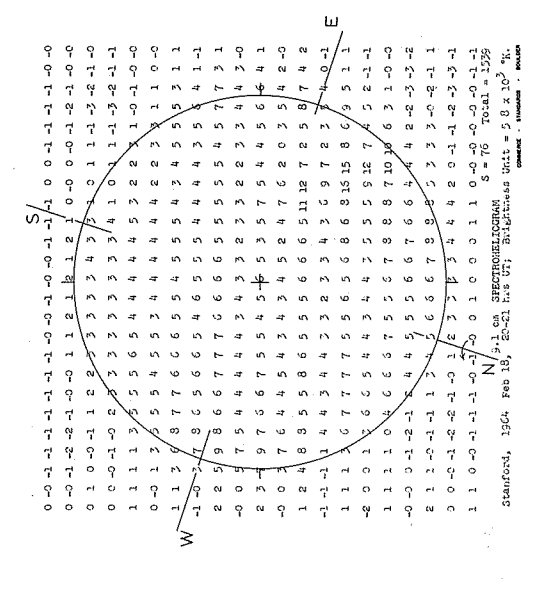
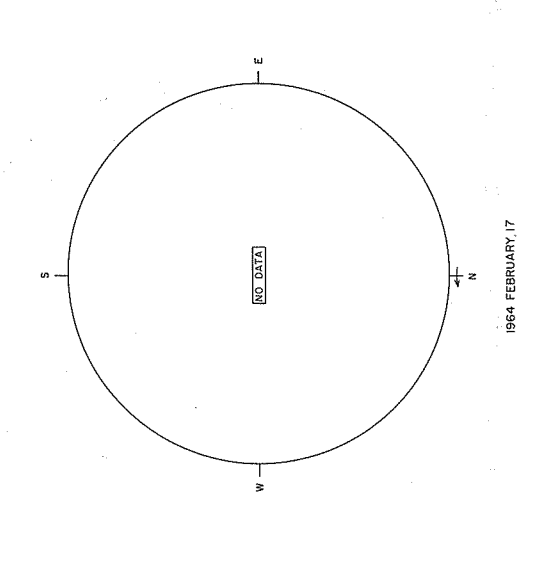
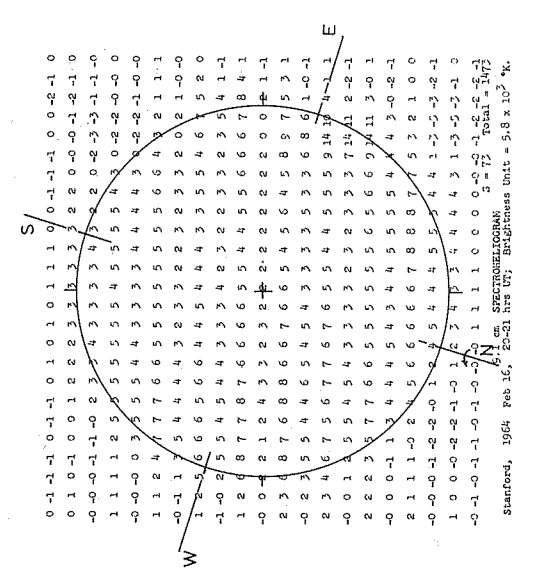
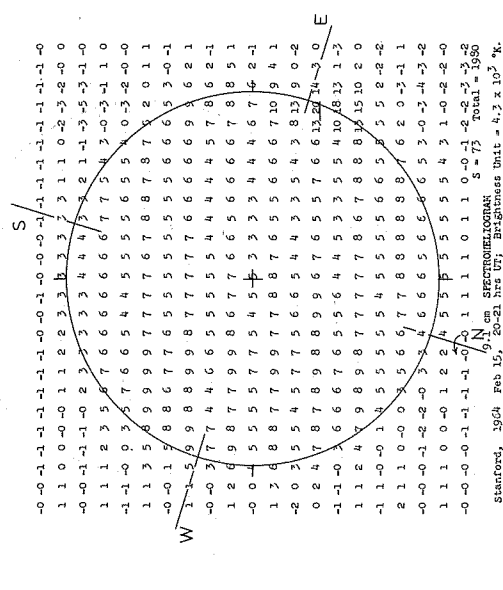
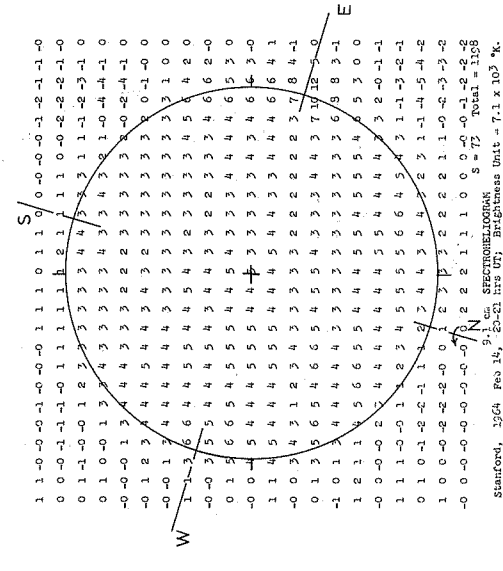
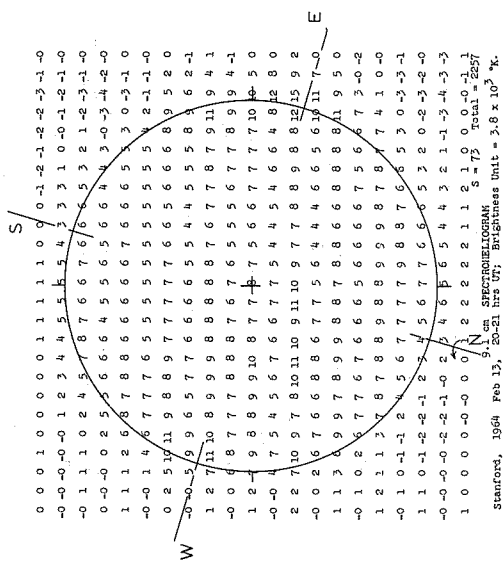


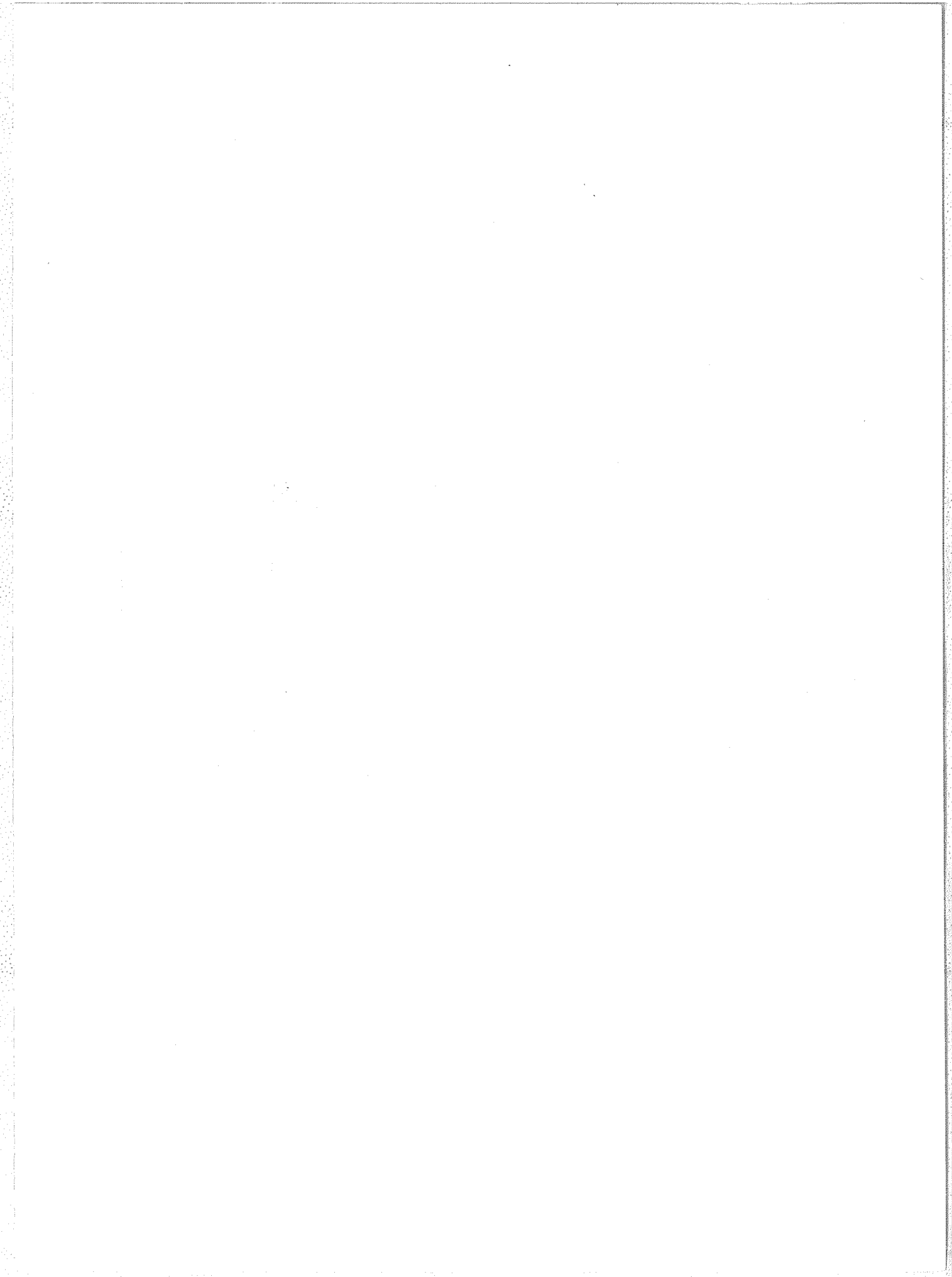
SOLAR RADIO EMISSION SPECTROHELIOGRAMS

FEBRUARY 1964

STANFORD

9.1 cm





Va

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

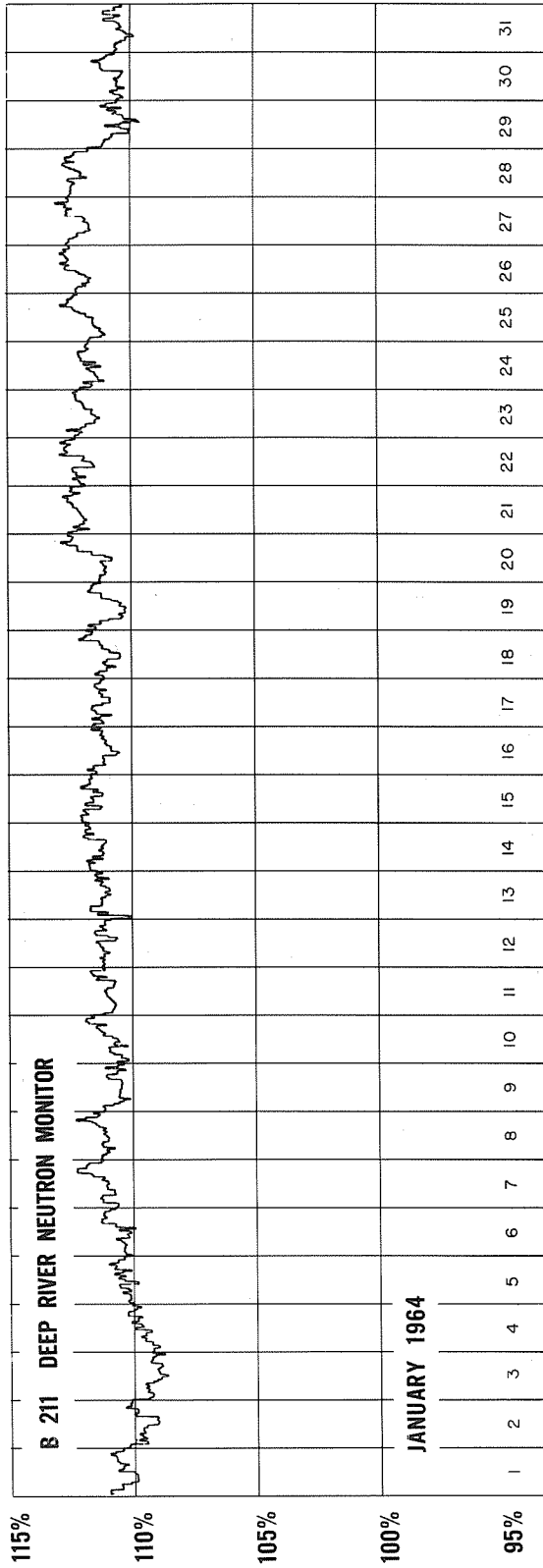
JANUARY 1964

Jan. 1964	Daily average counts/hr*	Jan. 1964	Daily average counts/hr*
1	3224.4	16	3244.3
2	3227.2	17	3246.1
3	3196.4	18	3251.9
4	3198.7	19	3255.5
5	3214.0	20	3239.7
6	3230.0	21	3258.4
7	3259.6	22	3272.8
8	3255.2	23	3263.4
9	3231.4	24	3254.2
10	3225.8	25	3236.8
11	3238.2	26	3238.7
12	3233.2	27	3243.2
13	3243.6	28	3245.8
14	3252.8	29	3227.3
15	3256.1	30	3219.8
		31	3210.0

* Scaling Factor 128

COMMERCE - STANDARDS - BOULDER

COSMIC RAY INDICES
(Pressure Corrected Hourly Totals)

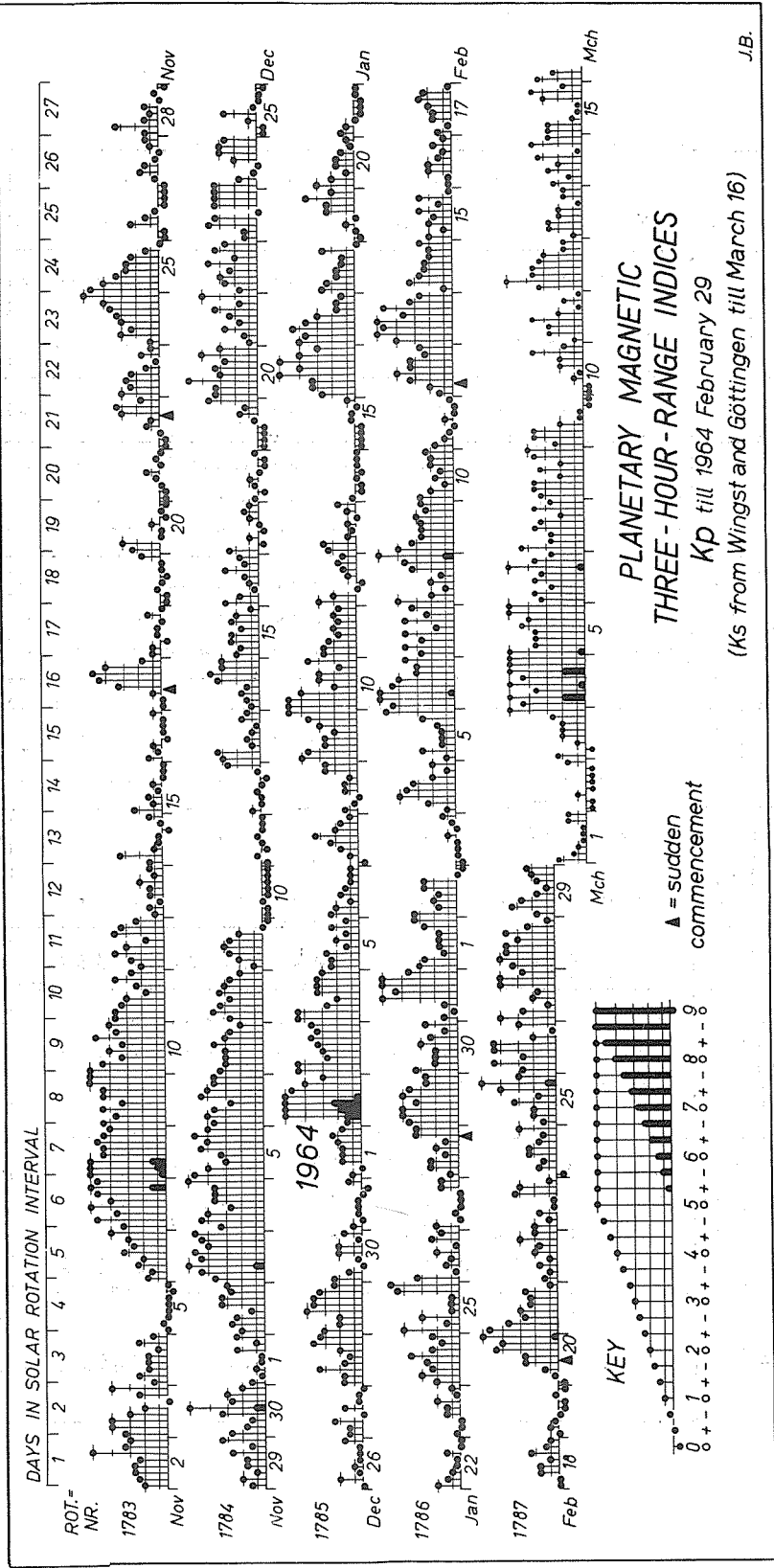


COMMERCE - STANDARDS - BOULDER

GEOMAGNETIC ACTIVITY INDICES

JANUARY 1964

Jan. 1964	C	Values Kp								Sum	Ap	Final Selected Days	
		Three hour Gr. interval											
		1	2	3	4	5	6	7	8				
		<i>33.5 24.5 24.5 20.5</i>				<i>15.5 12.5 6.5 22.5</i>							
		<i>33.5 24.2 24.8 20.2</i>				<i>15.8 11.2 6.8 2.2</i>							
1	0.4	1o	0+	2-	2-	2-	2o	2+	2-	12+	6	Five Quiet	
2	1.6	1+	6o	6+	7-	5+	5-	4o	3o	37+	53		
3	1.1	4+	4+	3-	3o	3+	4-	3+	4-	28+	21		
4	0.9	4+	4+	3-	2o	3+	3+	3+	3o	26+	19		14
5	0.4	2+	2+	3-	1+	2o	1+	2+	1+	16-	8		15
6	0.1	2+	2o	1o	2-	1+	1o	1o	1o	11+	5	21	
7	0.5	0o	1o	2-	2+	3+	2o	2-	1o	13o	7	22	
8	0.5	1+	1-	0+	1+	1+	1o	3-	3-	11+	6	27	
9	1.1	4o	4-	3-	3-	2o	3o	4-	5-	26+	20		
10	1.0	5-	5-	4o	2o	3o	3o	2-	4-	27-	21		
11	0.2	3-	3-	2+	2-	2o	2-	2o	2-	17-	8	Five Disturbed	
12	0.2	3o	2o	0+	0o	1o	1+	2-	1+	11-	6		
13	0.1	2+	3-	1o	1-	1o	0+	1o	2-	11-	6		
14	0.0	1-	0o	0o	0+	0o	0+	0+	0+	2o	1		2
15	0.0	0o	0o	0o	0o	1-	1-	0+	1o	3-	2		3
16	1.2	3-	3+	3+	5o	4o	5o	4o	3o	30+	27	10	
17	0.6	4o	4-	4+	4-	3o	2-	2-	1+	23+	17	16	
18	0.5	3-	2+	2-	2-	1+	1+	3-	0+	14o	7	31	
19	0.5	0o	0+	1o	0+	2+	2+	4-	2o	12o	7		
20	0.2	3o	2o	1o	2-	2-	1+	1-	1o	12+	6		
21	0.0	1+	1o	0+	0o	0o	0o	0+	0+	3+	2	Ten Quiet	
22	0.1	2o	1+	1o	1-	1-	1+	0+	0+	8-	4		
23	0.3	1-	0+	0+	1+	1+	2o	1-	1o	8-	4		
24	0.9	2o	3o	2+	3-	4-	2+	2-	2+	20o	11		6
25	1.0	4o	1+	3o	1o	1o	1o	4+	5-	20+	16		8
26	0.4	3+	1-	1+	1o	2o	1-	2+	2-	13o	7	12	
27	0.3	2o	0+	1-	0+	0+	0+	2-	2-	7+	4	13	
28	0.7	1o	2+	2+	1+	2o	1+	3+	3+	17o	9	14	
29	1.1	4-	4o	4o	3+	4o	4-	3-	3-	28o	21	15	
30	0.6	3+	2o	2o	2o	3o	2+	1+	3-	19-	10	21	
31	1.2	1+	1-	1+	5o	4+	5o	5o	4-	26+	26	22	
23	0.3	1-	0+	0+	1+	1+	2o	1-	1o	8-	4	23	
24	0.9	2o	3o	2+	3-	4-	2+	2-	2+	20o	11	24	
25	1.0	4o	1+	3o	1o	1o	1o	4+	5-	20+	16	25	
26	0.4	3+	1-	1+	1o	2o	1-	2+	2-	13o	7	26	
27	0.3	2o	0+	1-	0+	0+	0+	2-	2-	7+	4	27	
28	0.7	1o	2+	2+	1+	2o	1+	3+	3+	17o	9	28	
29	1.1	4-	4o	4o	3+	4o	4-	3-	3-	28o	21	29	
30	0.6	3+	2o	2o	2o	3o	2+	1+	3-	19-	10	30	
31	1.2	1+	1-	1+	5o	4+	5o	5o	4-	26+	26	31	
Mean:	0.57	<i>6</i>								Mean:	12		



COMMERCE - STANDARDS - BOULDER

CRPL RADIO PROPAGATION QUALITY FIGURES AND FORECASTS

JANUARY 1964

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

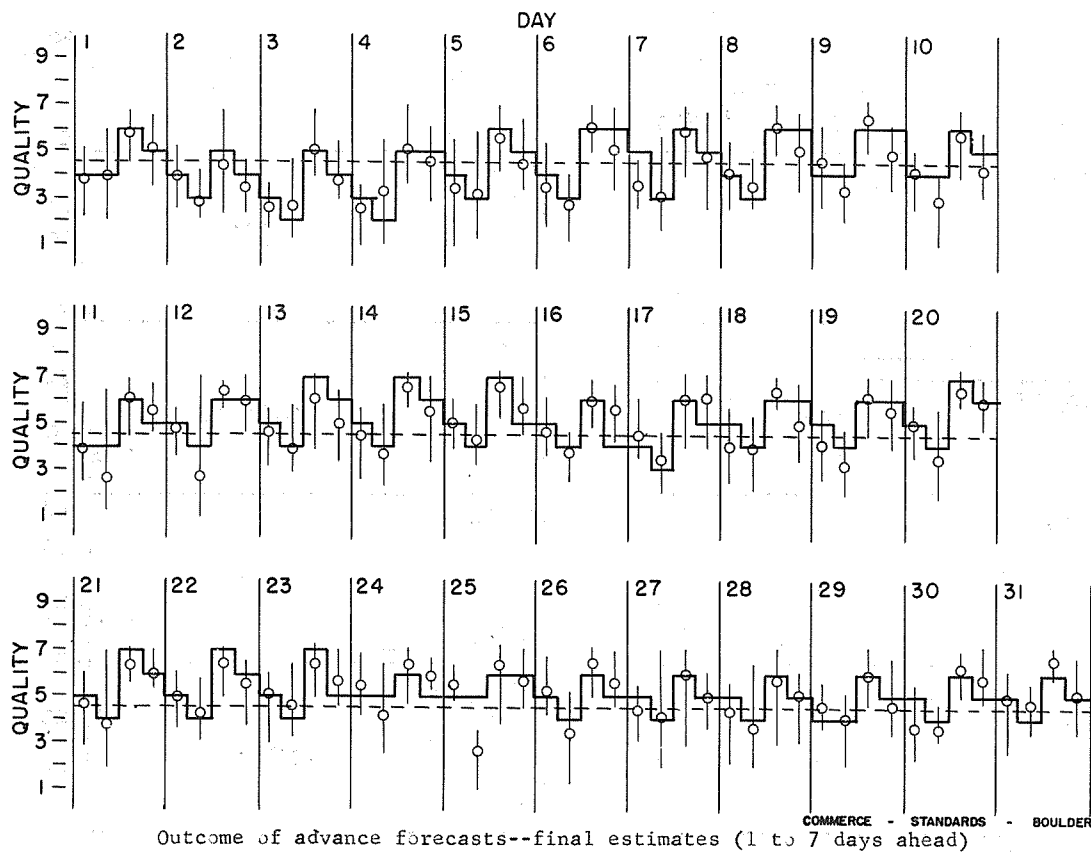
COMMERCE - STANDARDS - BOULDER

CRPL RADIO PROPAGATION QUALITY FIGURES AND FORECASTS VIIb NORTH ATLANTIC

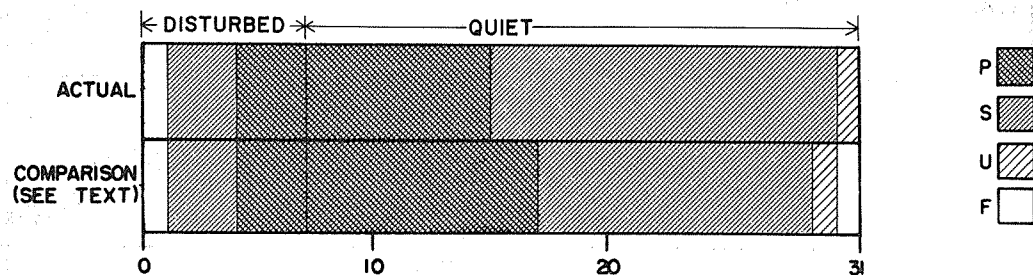
JANUARY 1964

— Short-term forecast
○ Quality figure

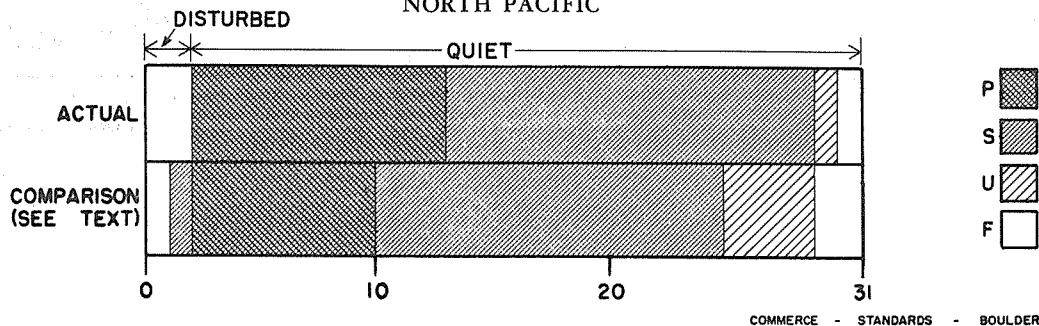
| Range of reports



NORTH ATLANTIC

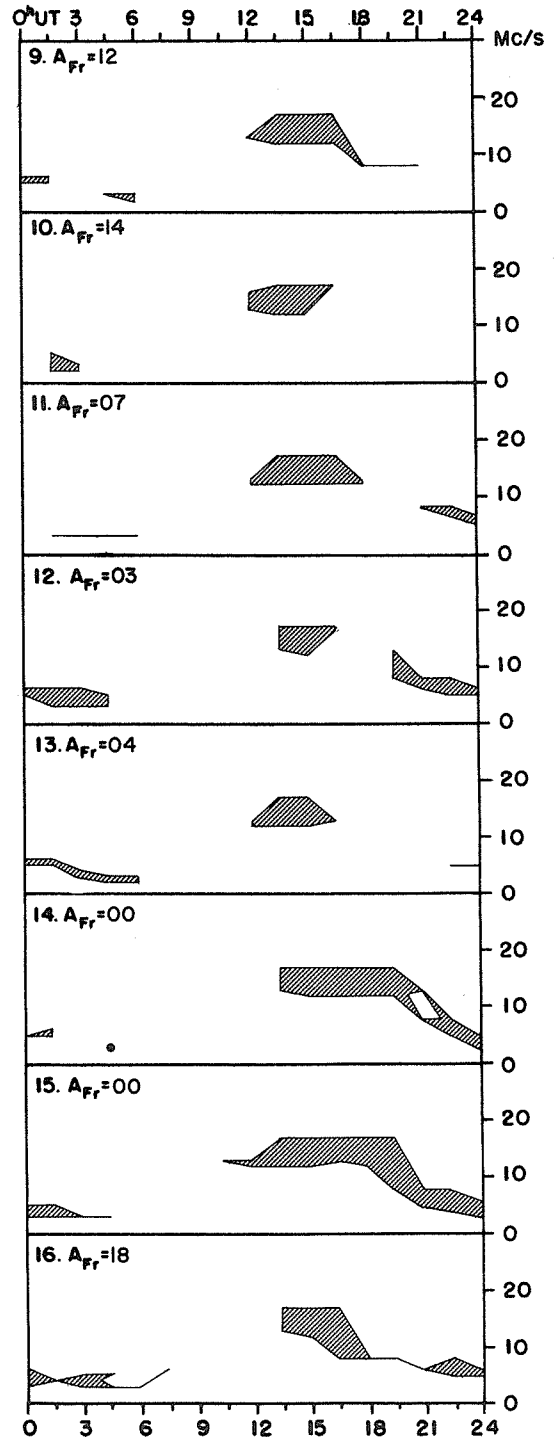
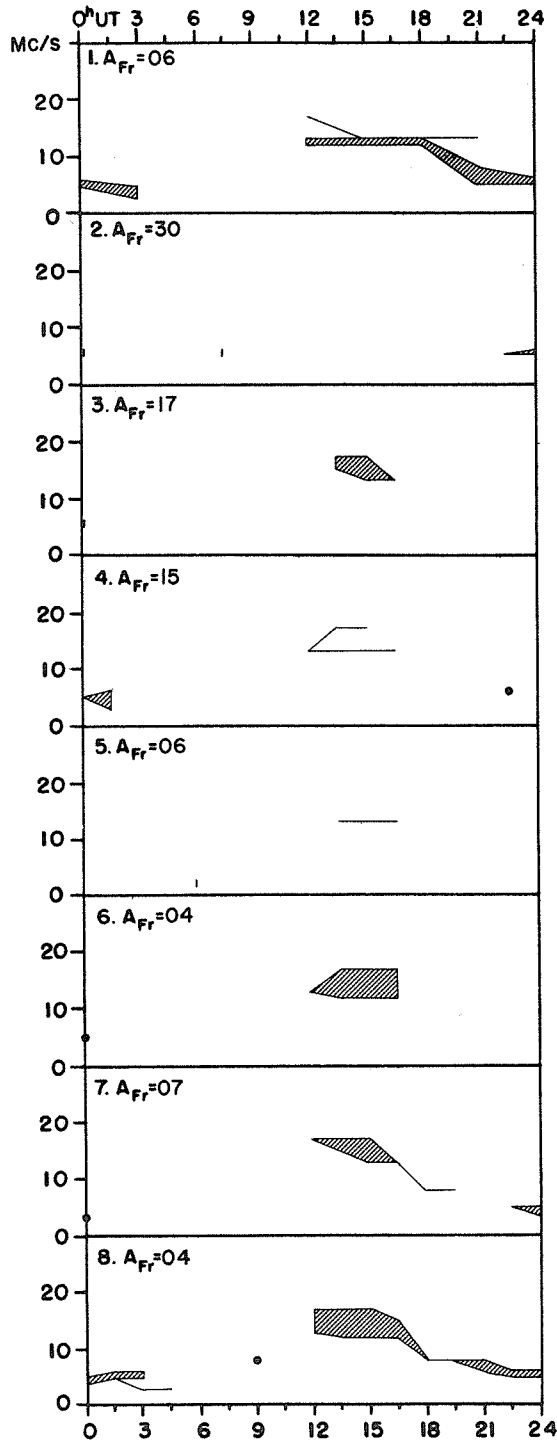


NORTH PACIFIC

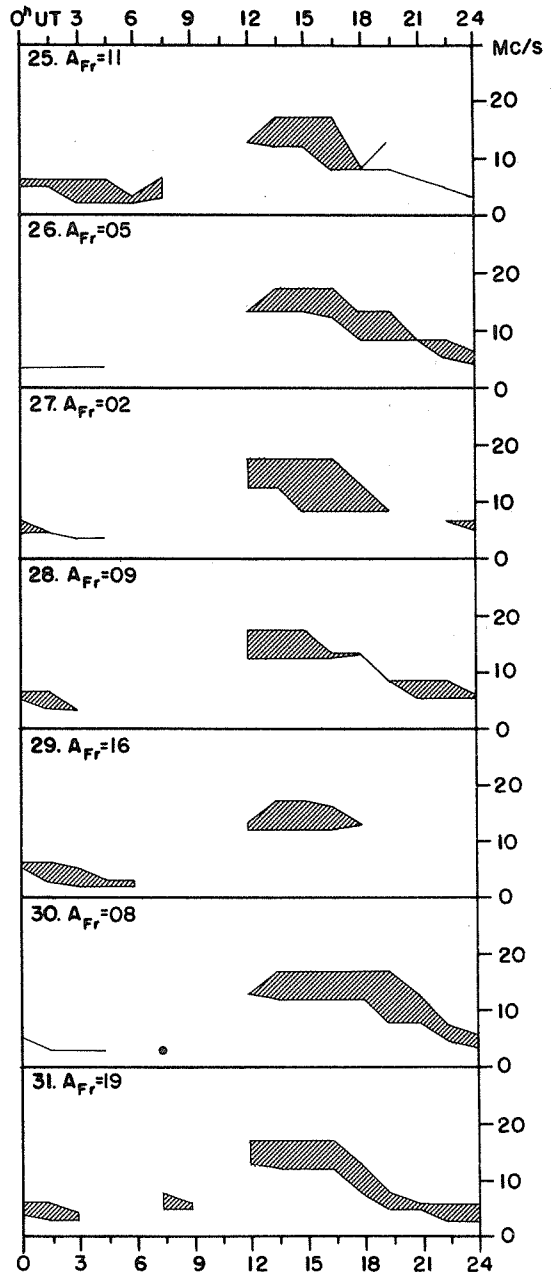
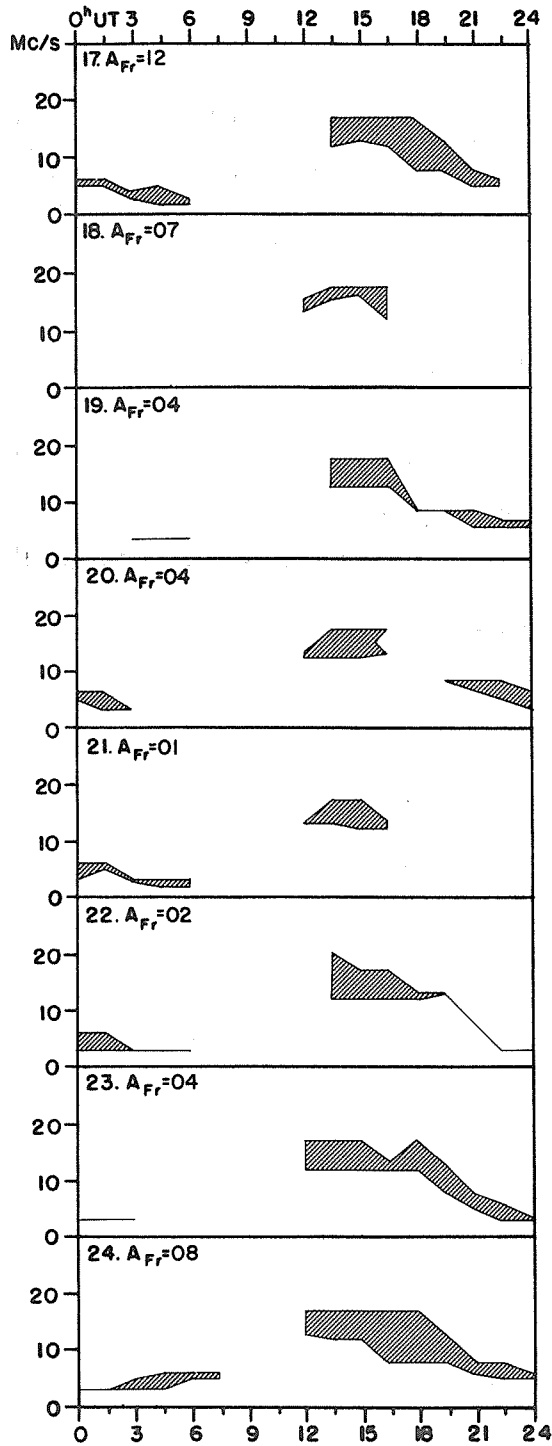


COMMERCER - STANDARDS - BOULDER

JANUARY 1964



JANUARY 1964



COMMERCE - STANDARDS - BOULDER

Adapted from Observations by Deutsches Bundespost

IQSY ALERT PERIODS
INTERNATIONAL URSIGRAM
AND WORLD DAYS SERVICE
FEBRUARY 1964

FEB. 1964	TIME OF ISSUE UT	ADVANCE GEOPHYSICAL ALERT	WORLDWIDE GEOPHYSICAL ALERT			
			NO.	TYPE	TIMING	ELABORATION
4	0400	Ft. Belvoir, Magnetic Storm 13/03XXXZ	34	Solar Calm	Exists	
13	1825					
20	0400		35	Magnetic Calm	Exists	
23	0400		36	Solar Activity	Exists	
24	0400		37	Solar Activity	Exists	
25	0400		38	Solar Activity	Exists	

COMMERCE - STANDARDS - BOULDER

On dates not listed above, the World-Wide Alert message was "IQSY GEOALERT NIL".