PART B

SOLAR - GEOPHYSICAL DATA

ISSUED

DECEMBER 1963

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

CRPL-F 232
PART B

NATIONAL BUREAU OF STANDARDS
CENTRAL RADIO PROPAGATION LABORATORY
BOULDER, COLORADO

Issued
31 Dec. 1963

SOLAR - GEOPHYSICAL DATA

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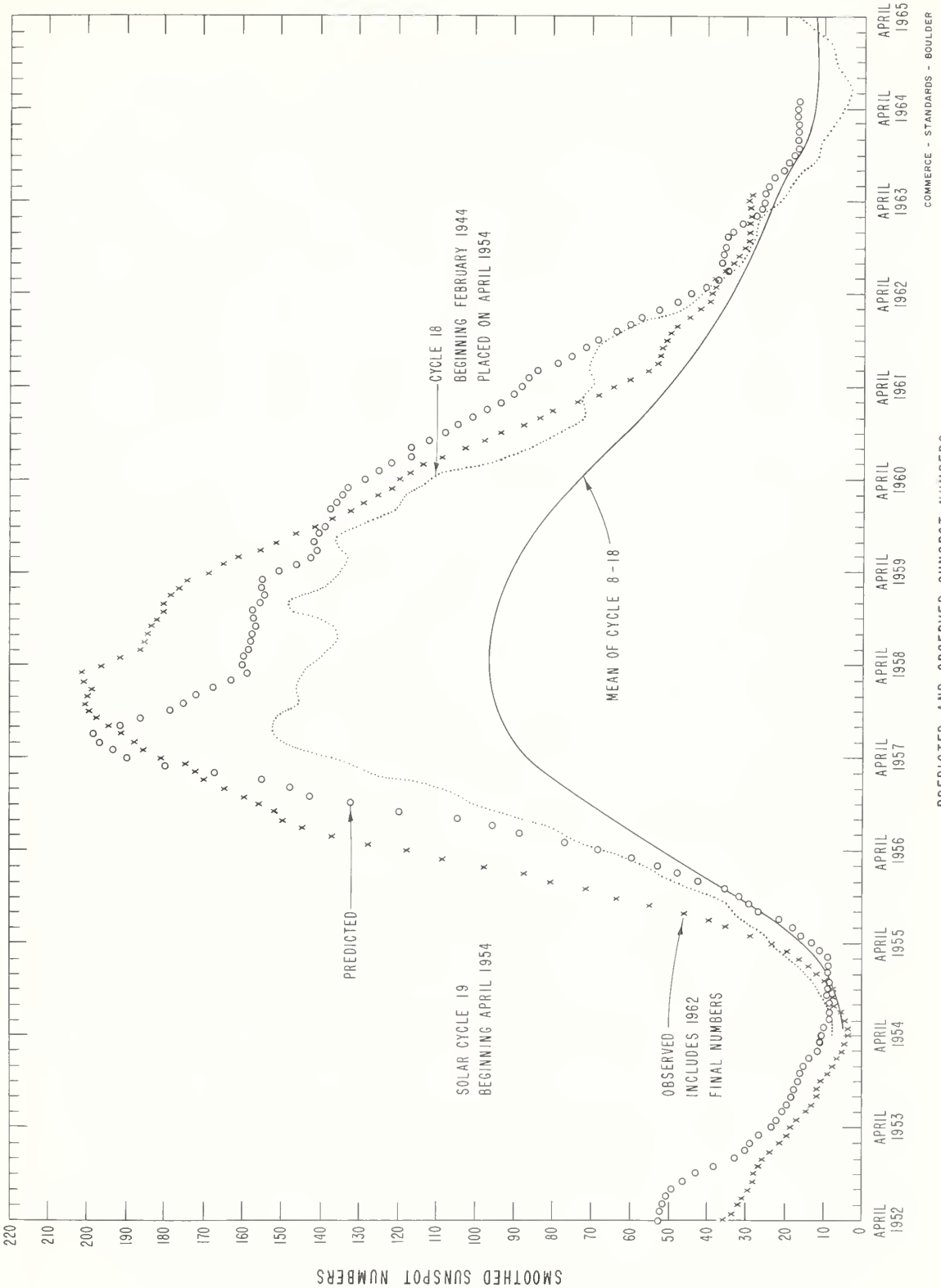
The descriptive text was republished November, 1963.

DAILY SOLAR INDICES

Oct. 1963	American Relative Sunspot Numbers R_A'
1	0
2	2
3	2
4	1
5	2
6	13
7	18
8	31
9	32
10	27
11	29
12	40
13	38
14	51
15	44
16	46
17	37
18	21
19	17
20	20
21	28
22	30
23	38
24	40
25	34
26	36
27	31
28	28
29	46
30	52
31	47
Mean:	28.4

Nov. 1963	Zürich Provisional Relative Sunspot Numbers R_Z	Daily Values Solar Flux at 2800 Mc, Ottawa, Canada Flux
1	45	87
2	52	85
3	43	83
4	28	83
5	23	80
6	11	78
7	10	76
8	10	75
9	9	76
10	0	75
11	8	76
12	11	77
13	7	77
14	7	78
15	9	81
16	16	81
17	24	80
18	29	82
19	20	86
20	28	84
21	30	86
22	34	86
23	36	84
24	35	83
25	32	82
26	17	82
27	14	81
28	14	79
29	20	79
30	21	79
Mean:	21.4	81

COMMERCE - STANDARDS - BOULDER



PREDICTED AND OBSERVED SUNSPOT NUMBERS

CALCIUM PLAGE AND SUNSPOT REGIONS

NOVEMBER 1963

Nov. 1963	LAT.	McMATH PLAGE NUMBER	RETURN OF REGION	CALCIUM PLAGE DATA						SUNSPOT DATA		
				CMP VALUES		HISTORY	AGE (ROTATIONS)	DATE FIRST SEEN (1)	DURATION (DAYS)	CMP VALUES		HISTORY
				AREA	INT.					AREA	COUNT	
01.7	N08	7015	New	1500	3	b ⌒ ℓ	1	10/29	10			
02.7	N28	7014	New	(200)	(1.5)	ℓ ⌒ d	1	10/28	3			
03.4	N28	7021 (2)	New	300	1	b – d	1	11/3	1			
03.8	S20	7022	New	(100)	(2)	b ⌒ ℓ	1	≤11/6	≥ 2			
06.5	N28	7030	New	(100)	(2)	b ⌒ ℓ	1	11/11	1			
06.5	N14	7017	New	(200)	(2)	ℓ ⌒ d	1	~11/1	≥ 3			
06.9	N19	7029 (2)	New	100	2	b – d	1	11/7	1			
07.5	S09	7023	New	200	1	b – d	1	11/6	2			
07.9	S18	7018	New	1300	2	ℓ ⌒ ℓ	1	11/1	13			
08.3	N10	7019 (3)	6986	1700	3	ℓ ⌒ ℓ	4 (4)	11/2	13			
08.4	S07	7020	6987	500	2	ℓ ⌒ ℓ	4	11/2	11			
09.3	S07	7025	6989	900	2	ℓ ⌒ ℓ	4	11/3	12			
09.3	N08	7024	New	(200)	(1.5)	b ⌒ d	1	≤11/6	≥ 2			
09.6	N04	7031 (2)	New	(100)	(1.5)	b – d	1	11/11	1			
10.8	N04	7026	6997	300	1.5	ℓ – ℓ	2	≤11/6	≥ 9			
11.4	N19	7027	New	200	1	ℓ ⌒ d	1	~11/6	~ 5			
12.9	S14	7037 (5)	New	(100)	(2.5)	b ⌒ d	1	11/15	2			
13.4	N15	7028	6993	1800	3	ℓ – ℓ	5	11/6	14			
15.9	S02	7043	New	(300)	(2.5)	b ⌒ ℓ	1	11/19	3			
16.1	N29	7041	New	(100)	(2.5)	b – ℓ	1	11/18	4			
16.3	N29	7032	7002	(100)	(2.5)	ℓ – d	2	11/11	1			
17.0	N50	7034	New	200	1.5	b ⌒ d	1	11/14	2			
17.8	S11	7033	7008	1300	3	ℓ – ℓ	2	11/11	> 11			
18.6	N11	7042	New	200	1.5	b – d	1	11/18	~ 3			
18.9	S30	7035	New	(200)	(2)	ℓ ⌒ d	1	~11/14	~ 2			
20.4	S12	7036	7010	1000	3	ℓ – ℓ	2	11/14	13			
21.5	N13	7038	7003	1200	3	ℓ – ℓ	3	11/15	≥ 12	170	1	ℓ ⌒ d
22.2	N21	7040	7003	300	2	ℓ – ℓ	3	11/16	≥ 11			
22.2	N01	7045	New	100	2.5	b – d	1	11/21	~ 1			
22.3	S32	7046	New	(200)	(2)	b ⌒ ℓ	1	≤ 11/24	≥ 3			
23.0	N12	7039	7003	2300	3	ℓ ⌒ ℓ	3	11/16	13	130	1	ℓ ⌒ ℓ
26.1	S01	7044	7013	600	2.5	ℓ – ℓ	2	11/19	13			
27.0	N17	7049	New	(200)	(2)	b ⌒ ℓ	1	11/30	2			
27.1	N04	7047	New	3300	3	ℓ – ℓ	1	11/20	14	300	4	ℓ – ℓ
28.6	S19	7050	New	(300)	(2)	b ⌒ ℓ	1	~11/30	~ 4			
28.8	N09	7048	7015	(400)	(1)	ℓ ⌒ d	2	< 11/24	> 4			
29.9	S11	7054 (2)	New	(200)	(2)	b ⌒ ℓ	1	12/3	1			
30.2	S38	7055 (2)	New	(200)	(2.5)	b – d	1	12/3	1			

(1) Some of this information is only approximate. Due to inclement weather conditions, no calcium plage data were secured at the McMath-Hulbert Observatory on Nov. 4, 5, 13, 22, 23, 27, 29.

(2) These very small and ephemeral plages last for only one day.

(3) Plage 7019 may be traced back through 7 rotations. However, one of its "ancestors", plage 6927, experienced a remarkable rejuvenation during its passage across the disk in August. If we can interpret this as evidence of the end of a sequence of plages and the formation of another series in the same position without any loss of continuity, then plage 7019 may be regarded as being only in its 4th rotation.

(4) Or 7.

(5) Plage 7037 is ephemeral but appears in the same location as plage 6998 - also ephemeral.

MT. WILSON MAGNETIC CLASSIFICATIONS OF SUNSPOTS

NOVEMBER 1963

Nov. 1963	TIME MEAS. UT	LAT	MER DIST	TYPE	Nov. 1963	TIME MEAS UT	LAT	MER DIST	TYPE
1	1850	N00	W29	βγ	17	No Obs.			
		N08	W00	βp	18	1710	N31	W34	β
2	1630	N00	W41	β			N10	E40	βp
		N08	W12	β			N11	E58	βp
		S18	E67	αp	19	1640	S13	E05	αp
		N07	E70	αp			N11	E27	αp
3	No Obs.						N12	E45	βp
4	1725	N09	E47	αp	20-21	No Obs.			
5	1605	N09	W53	αp	22	1940	N12	W01	αp
		N09	E34	βp			N04	E57	βp
6	No Obs.				23	1740	N13	W13	αp
7	2340	N07	E02	αp			N04	E46	βp
8	1745	N08	W07	βp	24-25	No Obs.			
		N13	E61	αp	26	1900	N04	W01	αp *
9-11	No Obs.						N05	E11	αf *
12	1700	N12	W57	αf	27	1840	N05	W08	βp
		N14	E03	γf	28-29	No Obs.			
		N18	E10	β	30	1745	N04	W49	βp
13-15	No Obs.								
16	1910	N11	E66	αp					

* Possible βp

PROVISIONAL CORONAL LINE EMISSION INDICES

NOVEMBER 1963

CMP Nov 1963	North East Quadrant (observed 7 days earlier)				South East Quadrant (observed 7 days earlier)				South West Quadrant (observed 7 days later)				North West Quadrant (observed 7 days later)			
	G_6	G_1	R_6	R_1	G_6	G_1	R_6	R_1	G_6	G_1	R_6	R_1	G_6	G_1	R_6	R_1
1	12	28	28	32	3	3	28	32	3	5	17	31	8	18	19	28
2	8	11	x	x	3	3	x	x	6	10	15	19	7	9	14	21
3	7	11	26	30	4	6	21	31	2	4	18	22	6	6	16	21
4	x	x	12	16	x	x	15	22	x	x	15	20	x	x	17	17
5	x	x	x	x	x	x	x	x	8	9	14	18	8	14	9	12
6	13	17	12	17	12	17	13	16	x	x	x	x	x	x	x	x
7	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
8	x	x	26	50	x	x	x	x	28	42	15	20	24	39	10	16
9	21	25	15	36	36	56	12	16	x	x	x	x	x	x	x	x
10	x	x	x	x	x	x	x	x	x	x	19	26	x	x	14	18
11	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
12	38	56	16	28	7	11	13	16	11	20	17	22	36	50	16	20
13	21	38	17	34	4	7	12	16	x	x	x	x	x	x	x	x
14	16	25	x	x	4	6	x	x	x	x	x	x	x	x	x	x
15	8	12	10	15	3	4	15	20	3	5	10	12	5	6	8	10
16	15	18	14	20	18	42	15	25	x	x	27	47	x	x	25	32
17	11	17	17	20	24	53	27	60	19	36	25	40	9	14	19	22
18	x	x	18	20	x	x	23	30	x	x	13a	24a	x	x	7a	16
19	11	14	10	15	19	42	16	36	26	50	29	79	12	14	16	28
20	x	x	x	x	x	x	x	x	24	39	33	46	28	40	22	32
21	x	x	x	x	x	x	x	x	x	x	28	36	x	x	24	40
22	74	128	27	56	10	22	22	28	10	16	26	32	40	57	27	67
23	x	x	x	x	x	x	x	x	8	17	28	36	28	42	34	83
24	x	x	30	50	x	x	23	30	16	28	26	30	21	26	26	31
25	x	x	x	x	x	x	x	x	28	59	25	28	25	53	26	40
26	47	76	24	36	8	17	15	16	30	82	20	28	23	80	35	82
27	x	x	x	x	x	x	x	x	10	20	12	15	26	80	13	16
28	x	x	x	x	x	x	x	x	12	17	21	26	17	28	18	22
29	8	18	11	14	2	5	11	12	7	9	13	15	8	9	[illegible]	11
30	x	x	18	20	x	x	26	30	4	4	18	24	6	12	11	15

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

COMMERCE - STANDARDS - BOULDER

SOLAR FLARES

NOVEMBER 1963

OBSERVATORY	DATE NOV 1963	OBSERVED UNIVERSAL TIME START	END	MAX. PHASE	LOCATION APPROX. LAT.	MER DIST	McMATH PLAGE REGION	DURATION — MINUTES	IMPORTANCE	OBS. COND.	MEASUREMENTS TIME — U T	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hα	MAX INT. %	PROVISIONAL IONOSPHERIC EFFECT
	01	0045	0110	NO FLARE	PATROL											
	01	0150	0350	NO FLARE	PATROL											
	01	0420	0940	NO FLARE	PATROL											
	01	0945	1220	NO FLARE	PATROL											
	01	1225	1350	NO FLARE	PATROL											
SAC PEAK	01	1356	1407	1358	N00	W26			1-	1		.91	.91		17	
CAPRI-S	01	1401 E	1420 D		S01	W24			1-	1	1403	1.00	1.30			
WENDEL	01	1404 E	1444		S01	W26	7013	40 D	2				12.00			
MCMATH	01	1545	1605		N00	W95			1-	1	1551	.20	.20			
	01	1625	1630	NO FLARE	PATROL											
	01	1635	1645	NO FLARE	PATROL											
LOCKHEED	01	1830	1920	1843	N01	W39			1-	2	1843	.50	.50		10	
	01	2350	2400	NO FLARE	PATROL											
	02	0000	0015	NO FLARE	PATROL											
	02	0235	0725	NO FLARE	PATROL											
MANILA	02	0411	0416 D	0415	N00	W34			1-	2	0415	.33	.33			
	02	0815	0835	NO FLARE	PATROL											
	02	0840	0910	NO FLARE	PATROL											
CAPRI-S	02	1458 F	1526 D		S02	W37			1-	1	1504	1.00	1.20			
	02	1540	1545	NO FLARE	PATROL											
	02	1550	1555	NO FLARE	PATROL											
	02	1610	1615	NO FLARE	PATROL											
	02	2240	2250	NO FLARE	PATROL											
	02	2355	2400	NO FLARE	PATROL											
	03	0005	0055	NO FLARE	PATROL											
	03	0125	0245	NO FLARE	PATROL											
	03	0305	0655	NO FLARE	PATROL											
	03	0715	0730	NO FLARE	PATROL											
	03	0755	0800	NO FLARE	PATROL											
	03	2130	2155	NO FLARE	PATROL											
	04	0110	0150	NO FLARE	PATROL											
	04	0200	0655	NO FLARE	PATROL											
MANILA	04	0531	0538	0534	N06	E55			1-	2	0534	.25	.30			
	04	0920	0945	NO FLARE	PATROL											
	04	0950	1010	NO FLARE	PATROL											
	04	1055	1150	NO FLARE	PATROL											
	04	1155	1330	NO FLARE	PATROL											
	05	0100	0220	NO FLARE	PATROL											
	05	0245	0350	NO FLARE	PATROL											
	05	0430	0730	NO FLARE	PATROL											
MANILA	05	0558 F	0611	0603	N01	W79			1-	2	0603	.33	.70			
ISTANBUL	05	0850 E	0853 D		S01	W80	7013	3 D	1							
	05	1040	1050	NO FLARE	PATROL											
	05	1115	1155	NO FLARE	PATROL											
	05	1310	1315	NO FLARE	PATROL											
	05	2355	24 0	NO FLARE	PATROL											
	06	0010	0045	NO FLARE	PATROL											

SOLAR FLARES

NOVEMBER 1963

OBSERVATORY	DATE NOV 1963	OBSERVED UNIVERSAL TIME START	END	MAX. PHASE	LOCATION APPROX LAT.	MER DIST	McMATH PLAGE REGION	DURATION — MINUTES	IMPORTANCE	OBS. COND.	MEASUREMENTS TIME — U T	MEAS. AREA Sq Deg	CORR AREA Sq Deg	MAX WIDTH Ha	MAX INT °o	PROVISIONAL IONOSPHERIC EFFECT
	06	0230	0430	NO FLARE	PATROL											
	06	0550	0925	NO FLARE	PATROL											
MANILA	06	0641	0651	0644	N09	E13			1-	2	0644	.25	.25			
	06	1610	1615	NO FLARE	PATROL											
	06	2105	2220	NO FLARE	PATROL											
	07	0000	0005	NO FLARE	PATROL											
	07	0010	0830	NO FLARE	PATROL											
	07	1140	1145	NO FLARE	PATROL											
	07	1810	1815	NO FLARE	PATROL											
	07	1855	1900	NO FLARE	PATROL											
	07	2000	2030	NO FLARE	PATROL											
	07	2125	2400	NO FLARE	PATROL											
LOCKHEED	07	2247	2256	2251	N16	E71			1-	2	2251	.30	.60		20	
	08	0000	0655	NO FLARE	PATROL											
LOCKHEED	08	2234	2241	2237	N17	E59			1-	2	2237	.30	.50		10	
SAC PEAK	08	2234	2242	2236	N16	E59			1-	3		.68	1.03		17	
	08	2245	2320	NO FLARE	PATROL											
	09	0025	0040	NO FLARE	PATROL											
	09	0050	0400	NO FLARE	PATROL											
	09	0430	0745	NO FLARE	PATROL											
	09	1025	1110	NO FLARE	PATROL											
	09	1150	1245	NO FLARE	PATROL											
SAC PEAK	09	1433	1500	1443	N02	E14			1-	3		1.03	1.01		15	
	09	2355	2400	NO FLARE	PATROL											
	10	0005	0045	NO FLARE	PATROL											
	10	0130	0540	NO FLARE	PATROL											
	10	0630	0740	NO FLARE	PATROL											
	10	1135	1200	NO FLARE	PATROL											
	10	2355	2400	NO FLARE	PATROL											
	11	0005	0735	NO FLARE	PATROL											
LOCKHEED	11	1752	1800	1755	N17	E22			1-	2	1755	.20	.20		10	
	11	2120	2150	NO FLARE	PATROL											
LOCKHEED	11	2226	2244	2230	N18	E20			1-	2	2230	.20	.20		10	
	11	2245	2320	NO FLARE	PATROL											
	12	0100	0430	NO FLARE	PATROL											
	12	0530	0740	NO FLARE	PATROL											
	12	0850	0930	NO FLARE	PATROL											
	12	0935	0945	NO FLARE	PATROL											
	13	0130	0740	NO FLARE	PATROL											
MANILA	13	0221	0229	0223	N15	E03			1-	2	0223	.33	.33			
MANILA	13	0254	0313	0301	N15	E23			1-	2	0301	1.00	1.00			
MANILA	13	0352 E	0358		N15	E02			1-	2	0353	1.00	1.00			
MANILA	13	0739	0750	0741	N15	E00			1-	2	0741	1.00	1.00			
	13	0900	0910	NO FLARE	PATROL											

SOLAR FLARES

NOVEMBER 1963

OBSERVATORY	DATE NOV 1963	OBSERVED UNIVERSAL TIME START	END	MAX PHASE	LOCATION APPROX. LAT.	MER. DIST.	McMATH PLAGE REGION	DURATION — MINUTES	IMPORTANCE	OBS. COND.	MEASUREMENTS TIME U T	MEAS. AREA Sq. Deg	CORR. AREA Sq. Deg	MAX WIDTH He	MAX INT %	PROVISIONAL IONOSPHERIC EFFECT
	13	0940	1215	NO FLARE PATROL												
	13	1500	1505	NO FLARE PATROL												
SAC PEAK	13	1726	1730	1728	N17	W04			1-	3		.83	.80		18	
	13	1855	1941	NO FLARE PATROL												
	13	2230	2251	NO FLARE PATROL												
	13	2310	2320	NO FLARE PATROL												
	13	2345	2400	NO FLARE PATROL												
	14	0000	0155	NO FLARE PATROL												
	14	0235	0435	NO FLARE PATROL												
	14	0520	0810	NO FLARE PATROL												
	14	0835	1510	NO FLARE PATROL												
	14	1530	1535	NO FLARE PATROL												
SAC PEAK	14	1757	1955 U	1839	N21	W21			1-	2		1.07	1.07		17	
	14	1810	1815	NO FLARE PATROL												
	14	2355	2400	NO FLARE PATROL												
	15	0000	1330	NO FLARE PATROL												
	15	1925	1930	NO FLARE PATROL												
	15	2105	2125	NO FLARE PATROL												
	16	0000	0200	NO FLARE PATROL												
	16	235	0805	NO FLARE PATROL												
	16	1610	1615	NO FLARE PATROL												
	16	1625	1650	NO FLARE PATROL												
LOCKHEED	16	1855	1920	1902	N10	W55			1-	2	1902	.60	.90		20	
MCMATH	16	1887	1910	1900	N11	W55	7028		1-	1	1900	.60	1.10			
LOCKHEED	16	1902	1915	1907	N08	E80			1-	2	1907	.20	.60		10	
	16	1935	2305	NO FLARE PATROL												
	17	0000	0100	NO FLARE PATROL												
	17	210	0745	NO FLARE PATROL												
MANILA	17	0704 E	0725	0715	N11	E69			1-	2	0715	.25	.45			
	17	1005	1020	NO FLARE PATROL												
	17	1040	1358	NO FLARE PATROL												
	17	1400	1425	NO FLARE PATROL												
	17	1540	1550	NO FLARE PATROL												
	17	1645	1725	NO FLARE PATROL												
	17	1730	1830	NO FLARE PATROL												
	17	2135	2215	NO FLARE PATROL												
	17	2350	2400	NO FLARE PATROL												
	18	0000	0730	NO FLARE PATROL												
MANILA	18	0456	0510	0500	N08	W70			1-	2	0500	.80	1.50			
	18	1300	1335	NO FLARE PATROL												
	18	1410	1425	NO FLARE PATROL												
	18	1720	2225	NO FLARE PATROL												
	18	2330	2400	NO FLARE PATROL												
	19	0000	0740	NO FLARE PATROL												
	19	810	0815	NO FLARE PATROL												

SOLAR FLARES

NOVEMBER 1963

OBSERVATORY	DATE NOV 1963	OBSERVED UNIVERSAL TIME START	END	MAX. PHASE	LOCATION APPROX. LAT.	MER DIST	McMATH PLAGE REGION	DURATION — MINUTES	IMPORTANCE	OBS. COND.	MEASUREMENTS TIME — U T	MEAS AREA Sq. Deg	CORR. AREA Sq. Deg	MAX WIDTH Ha	MAX. INT %	PROVISIONAL IONOSPHERIC EFFECT
SAC PEAK	19	1420	1430	1423	N16	W27			1-	3		.14	.14		16	
	19	2050	2055	NO FLARE	PATROL											
	20	0000	1000	NO FLARE	PATROL											
MANILA	20	0555	0614	0603	N15	E39			1-	2	0603	1.50	1.65			
	20	1125	1130	NO FLARE	PATROL											
	20	1305	1325	NO FLARE	PATROL											
	20	1550	1715	NO FLARE	PATROL											
	20	1805	2000	NO FLARE	PATROL											
	20	2140	2400	NO FLARE	PATROL											
	21	0000	0110	NO FLARE	PATROL											
	21	0230	0645	NO FLARE	PATROL											
MANILA	21	0529 E	0536		N11	E15			1-	2	0530	1.00	1.00			
	21	0705	0810	NO FLARE	PATROL											
	21	0905	0910	NO FLARE	PATROL											
	21	1005	1115	NO FLARE	PATROL											
	21	1310	1415	NO FLARE	PATROL											
	21	1500	1715	NO FLARE	PATROL											
LOCKHEED	21	1713	1733	1723	N12	E16			1-	1	1723	.40	.40		10	
	21	1720	1725	NO FLARE	PATROL											
	21	1740	1925	NO FLARE	PATROL											
	21	1945	2215	NO FLARE	PATROL											
	21	2255	2335	NO FLARE	PATROL											
	22	0215	0420	NO FLARE	PATROL											
	22	0500	0800	NO FLARE	PATROL											
CAPRI-S	22	1041	1123		N05	E58	7047	42	2	3	1047	3.00	5.10			
WENDEL	22	1052 E	1113 D		N06	E53	7047	21 D	1				4.00			
WENDEL	22	1141 E	1158 D		N14	E04			1-							
CAPRI-S	22	1312	1337 D		N08	E02			1-	3	1325	1.80	1.80			
LOCKHEED	22	2134	2203	2142	N06	E45			1-	2	2142	.50	.60		10	
SAC PEAK	22	2136	2144	2138	N06	E48			1-	3		.54	.64		16	
LOCKHEED	22	2210	2235	2216	N10	W03			1-	2	2216	.30	.30		10	
	22	2350	2400	NO FLARE	PATROL											
	23	0000	0745	NO FLARE	PATROL											
CAPRI-S	23	0805 E	0827 D		N06	E46			1-	2	0808	1.00	1.40			
	23	1530	1600	NO FLARE	PATROL											
	23	1650	1755	NO FLARE	PATROL											
LOCKHEED	23	2315	2340	2324	N04	E33			1-	1	2324	.60	.60		20	
SAC PEAK	23	2328 E	2359 D	2328 U	N06	E34			1-	3		.83	.87		17	
LOCKHEED	23	2323	2332	2326	N06	W03			1-	1	2326	.20	.20		10	
	24	0130	0715	NO FLARE	PATROL											
WENDEL	24	0956 E	1008 D		N05	E27			1-							
ONDREJOV	24	1012	1047		S09	E42			1-	3	1019			1.00		
WENDEL	24	1028 E	1041 D		N06	E28			1-							
WENDEL	24	1200	1237 D		N02	E30	7047	37 D	1+				6.00			
CAPRI-S	24	1201	1235 D		N04	E35	7047	34 D	1+	1	1211	4.00	4.80			
MCMATH	24	1557	1607	1600	N05	E24	7047		1-	1	1600	.20	.20			

SOLAR FLARES

NOVEMBER 1963

OBSERVATORY	DATE NOV 1963	OBSERVED UNIVERSAL TIME START	END	MAX. PHASE	LOCATION APPROX. LAT.	MER. DIST.	McMATH PLAGE REGION	DURATION — MINUTES	IMPORTANCE	OBS. COND.	MEASUREMENTS TIME — U T	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hα	MAX. INT. %	PROVISIONAL IONOSPHERIC EFFECT
OTTAWA	24	1824 E	1842	1834	N08	E26	7047	18 D	1	1	1834	3.03	3.06			
SAC PEAK	24	1828 E	1839 D	1833	N07	E25			1-	3		1.28	1.30		19	
LOCKHEED	24	1828	1848	1834	N08	E23			1-	2	1834	1.00	1.00		20	
SAC PEAK	24	1842 E	1847 D	1842	N04	E23			1-	3		.27	.29		17	
MCMATH	24	1845 E	1852 D		N08	E25	7047		1-	1	1845	.60	.70			
LOCKHEED	24	2220	2229	2222	N05	E22			1-	2	2222	.20	.20		10	
	25	0000	0835	NO FLARE	PATROL											
LOCKHEED	25	1823	1905	1833	N04	E18			1-	1	1833	.60	.60		10	
OTTAWA	25	1831	1839	1832	N03	E19			1-	2	1832	.17	.17			
	25	1845	1855	NO FLARE	PATROL											
	25	1920	2400	NO FLARE	PATROL											
	26	0000	0010	NO FLARE	PATROL											
	26	0130	0710	NO FLARE	PATROL											
	26	0715	0730	NO FLARE	PATROL											
	26	1250	1255	NO FLARE	PATROL											
	26	1300	1305	NO FLARE	PATROL											
	26	1335	1355	NO FLARE	PATROL											
	26	1925	1940	NO FLARE	PATROL											
	26	1945	2020	NO FLARE	PATROL											
LOCKHEED	26	2338	0005	2345	N07	W04			1-	1	2345	.20	.20		10	
	27	0005	0035	NO FLARE	PATROL											
MANILA	27	0101 E	0111	0104	N01	W04			1-	2	0104	.25	.25			
	27	0130	0755	NO FLARE	PATROL											
	27	1010	1025	NO FLARE	PATROL											
	27	1040	1125	NO FLARE	PATROL											
	27	1130	1135	NO FLARE	PATROL											
	27	1145	1340	NO FLARE	PATROL											
	27	2355	2400	NO FLARE	PATROL											
	28	0000	0555	NO FLARE	PATROL											
MANILA	28	0003 E	0010	0006	N00	W18			1-	2	0006	.40	.40			
MANILA	28	0013	0032	0017	N00	W18			1-	2	0017	1.00	1.00			
	28	0610	0805	NO FLARE	PATROL											
MANILA	28	0806	0815	0809	N00	W32			1-	2	0809	.50	.55			
MCMATH	28	1407	1425	1408	N01	W26	7047		1-	1	1415	.40	.40			
MCMATH	28	1407	1425	1415	N01	W26			1-							
HTE-PROVEN	28	1408	1434		N03	W30			1-		1418	1.60	1.80			
SAC PEAK	28	2104	2133	2123	N14	W85			1-	2		.68	1.71		15	
	29	0130	0735	NO FLARE	PATROL											
LOCKHEED	29	1655 E	1745	1700	N06	W39			1-	2	1700	.40	.40		10	
	29	2150	2225	NO FLARE	PATROL											
	29	2350	2400	NO FLARE	PATROL											
	30	0000	0820	NO FLARE	PATROL											
	30	0925	1145	NO FLARE	PATROL											
	30	1200	1340	NO FLARE	PATROL											
LOCKHEED	30	1611	1645	1615	S07	E80			1-	2	1615	.30	.90		10	

SOLAR FLARES

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OBSERVATORY	DATE NOV 1963	OBSERVED UNIVERSAL TIME START	END	MAX PHASE	LOCATION APPROX. LAT.	MER. DIST.	McMATH PLACE REGION	DURATION — MINUTES	IMPORTANCE	OBS. COND.	MEASUREMENTS TIME — U T	MEAS. AREA Sq Deg	CORR. AREA Sq. Deg.	MAX. WIDTH Ha	MAX. INT °₀	PROVISIONAL IONOSPHERIC EFFECT
→MCMATH	30	1614	1622	1618	S08	E88	7053		1-	1	1618	.20				
LOCKHEED	30	1712	1745	1721	N06	W46			1-	2	1721	.30	.40		10	
	30	1720	1930	NO FLARE	PATROL											
LOCKHEED	30	1855	1922	1901	S07	E90			1-	2	1901	.30	1.50		10	
	30	2005	2030	NO FLARE	PATROL											
	30	2205	2400	NO FLARE	PATROL											

COMMERCE - STANDARDS - BOULDER

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

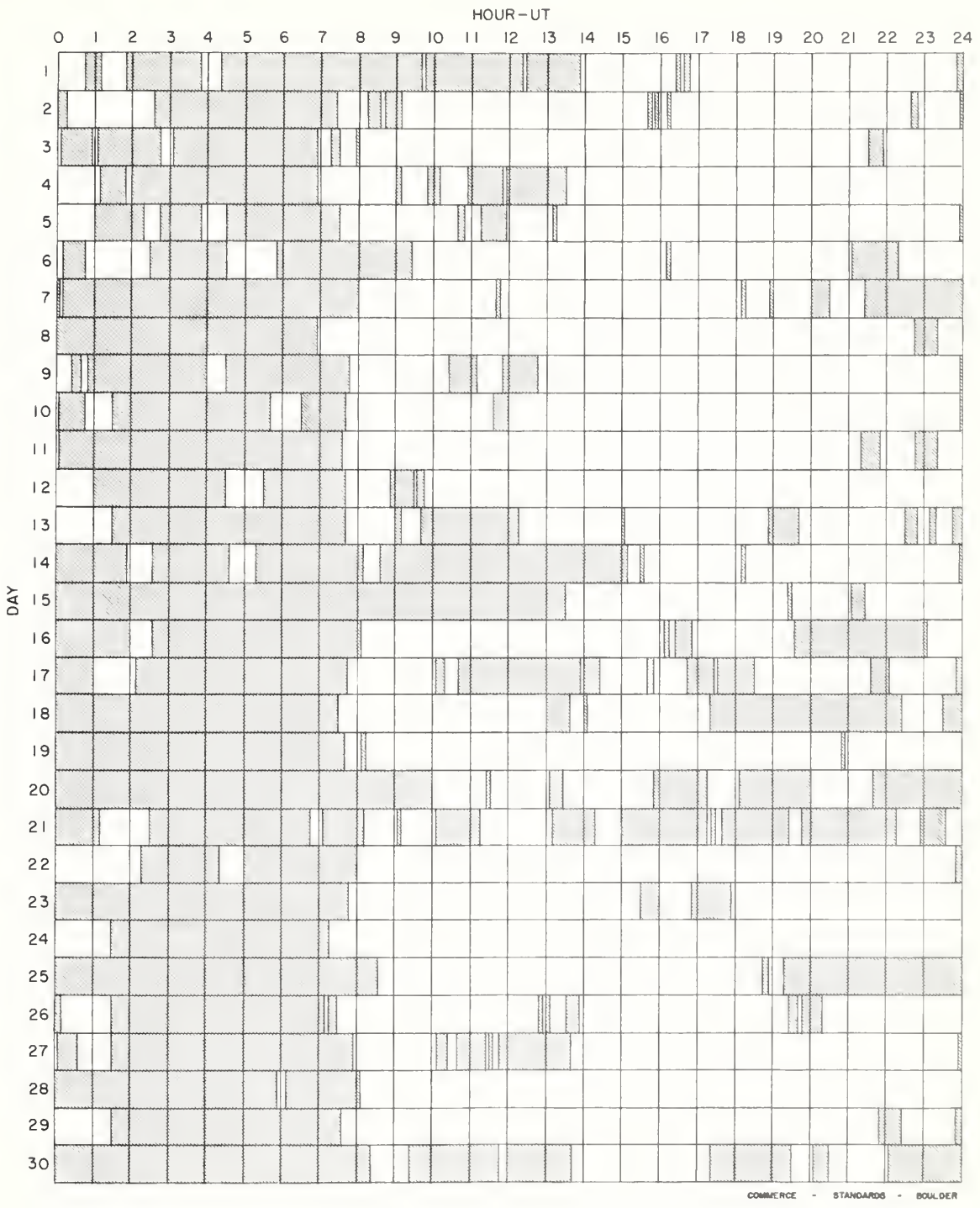
ALL VALUES IN THE MAXIMUM INTENSITY COLUMN FOR SAC PEAK ARE ARBITRARY UNITS (0-40) AND FOR LOCKHEED ARE ARBITRARY UNITS (10-40), NOT PERCENT OF CONTINUOUS SPECTRUM.

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.

INTERVALS OF NO FLARE PATROL OBSERVATIONS

NOVEMBER 1963



Observatories Included:

Arcetri	Haute-Provence	Huancayo	Istanbul	Ondrejov	Sacramento Peak
Capri-S (Swedish)	Herstmonceux	Ikomasan	McMath-Hulbert	Ottawa	

SOLAR FLARES

AUGUST 1963

OBSERVATORY	DATE AUG 1963	OBSERVED UNIVERSAL TIME START	END	MAX PHASE	LOCATION APPROX. LAT.	MER. DIST	McMATH PLAGE REGION	DURATION — MINUTES	IMPORTANCE	OBS. COND.	MEASUREMENTS TIME — U.T.	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hα	MAX. INT. %	PROVISIONAL IONOSPHERIC EFFECT
	01	0130	0230	NO FLARE	PATROL											
	01	0255	0310	NO FLARE	PATROL											
ABASTUMANI	01	0630	0639	0633	N14	E38	6908	9	1	2		1.62	2.96		70	
UCCLE	01	0857	0910 D	0904	N14	E35			1-	3	0904					
UCCLE	01	0927	0932	0929	N13	W52			1-	3	0929					
UCCLE	01	1045	1052	1047	N12	W57			1-	3	1047					
CAPETOWN	01	1110	1145	1120	N13	W57			1-		1120	.90	1.70			
UCCLE	01	1112	1142	1119	N12	W57	6905	30	1	3	1119	2.00	3.00			
CAPETOWN	01	1236	1317	1238	N13	W57			1-		1238	1.00	1.80			
CAPRI-F	01	1242 E	1249 D		N13	E32			1-	2	1243	1.00	1.00			
	02	0230	0245	NO FLARE	PATROL											
CRIMEE	02	0751 E	0841 D	0807	N11	W70			1-	2	0807	.90				
CAPETOWN	02	0753 E	0806 D	0756	N12	W70			1-		0756	.60	1.80			
CAPRI-F	02	0758 E	0717 D		N12	W68			1-	3	0759	.75	1.75			
UCCLE	02	1323	1347		N14	W40			1-	3						
UCCLE	02	1352	1413 D		N15	W40			1-	3						
	03	0225	0440	NO FLARE	PATROL											
BUCHAREST	03	0556 E	0614 D	0600	N11	W80	6905	18 D	1	2						
MANILA	03	0558	0606	0601	N11	W83	6905	8	1	2	0601	1.50	4.70			
KIEV-KO	03	0559 E	0606	0600	N10	W90	6905	7 D	1	2	0606	2.06			70	
CRIMEE	03	0559	0608	0600	N11	W86	6905	9	1	2	0600	1.34				
ABASTUMANI	03	0742	0751	0745	N11	W80	6905	9	1+	1		1.80	6.76			
CRIMEE	03	0743	0750	0744	N11	W81			1-	2	0744	.90				
CAPETOWN	03	0743	0754	0745	N12	W80			1-		0745	.70				
NIZMIR	03	0746 E	0750	0747 U	N15	W80			1-			.93			43	
	04	0240	0430	NO FLARE	PATROL											
CAPETOWN	04	0852	0940	0905	N08	E12	6909	48	1		0905	1.80	1.80			
CAPRI-F	04	0905 E	0928 D		N08	E12			1-	3	0905	1.00	1.00			
NIZMIR	04	0906	0932	0911	N07	E12	6909	26	1			1.80			60	
MANILA	04	0911 E	0930		N08	E09	6909	19 D	1	1	0914	2.50	2.50			
KHARKOV	04	0912	0942	0926	N08	W10	6908	30	1	2	0921	3.40	3.00	1.50		
	05	0245	0515	NO FLARE	PATROL											
CAPRI-F	05	0600 E	0625 D		N15	E05			1-	2	0600	1.50	1.50			
MANILA	05	0604	0624		N08	W04			1-	1	0610	1.00	1.00			
	06	0115	0120	NO FLARE	PATROL											
	06	0210	0300	NO FLARE	PATROL											
CRIMEE	06	0856	0906 D	0906 U	N14	W14	6909	10 D	2-	2	0906	5.40				
CAPETOWN	06	0856 E	0945 D		N15	W12	6909	49 D	2		0903	5.20	5.40			
KHARKOV	06	0856	0956	0911	N13	W13	6909	60	2	2	0902	15.47	15.40	2.10		
BUCHAREST	06	0857 E	1027 D		N15	W08	6909	90 D	2	2						S-SWF
KIEV-KO	06	0907 E	0940 D	0910	N15	W13	6909	33 D	1+	1	0910	4.13			60	
NIZMIR	06	0908 E	0945	0916	N15	W11	6909	37 D	2			10.83			70	
UCCLE	06	0908 E	0955 D	0908 U	N15	W12	6909	47 D	2	3		6.00	6.00			
	07	1240	1250	NO FLARE	PATROL											
	07	1650	1655	NO FLARE	PATROL											

SOLAR FLARES

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OBSERVATORY	DATE AUG 1963	OBSERVED UNIVERSAL TIME START	END	MAX. PHASE	LOCATION APPROX. LAT.	MER. DIST.	McMATH PLAGE REGION	DURATION — MINUTES	IMPORTANCE	OBS. COND.	MEASUREMENTS TIME — U T	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hα	MAX INT. °o	PROVISIONAL IONOSPHERIC EFFECT
	07	2235	2320	NO FLARE	PATROL											
	08	0105	0110	NO FLARE	PATROL											
	08	0910	0915	NO FLARE	PATROL											
	09	0135	0145	NO FLARE	PATROL											
	09	0155	0245	NO FLARE	PATROL											
	09	0255	0300	NO FLARE	PATROL											
MANILA	09	2312	2400	2320	N12	W77			1-	2	2340	.40	.92			S1-S-SWF
	10	0215	0300	NO FLARE	PATROL											
	11	0205	0300	NO FLARE	PATROL											
LOCKHEED	11*	1918	1950	1924	N70	E40			1-	2	1924	.20	.60		10	
	12	1745	2020	NO FLARE	PATROL											
	13	0250	0300	NO FLARE	PATROL											
	14	1605	1625	NO FLARE	PATROL											
	15	0205	0255	NO FLARE	PATROL											
	15	1740	1745	NO FLARE	PATROL											
	16	0130	0135	NO FLARE	PATROL											
	16	0140	0255	NO FLARE	PATROL											
	17	0000	0015	NO FLARE	PATROL											
	17	0205	0300	NO FLARE	PATROL											
BAKOU	17	0750 E	0815 D	0759	S07	E90	6932	25 D	2	2	0759	2.28	17.16		62	
BAKOU	17	0830 E	0845 D	0835	S13	E11	6924	15 D	1+	2	0835	3.19	6.50		60	
BAKOU	17	0839 E	0902 D	0845	S13	E14	6924	23 D	1	2	0845	1.82	2.50		50	
BUCHAREST	17	0843 E	0845 D		S11	E12			1-	3						
CAPRI-F	17	1406 E	1422 D		S11	E11			1-	3	1410	1.00	1.00			
CAPRI-F	17	1452 E	1500 D		S11	E11			1-	4	1454	1.00	1.00			
	17	1505	1510	NO FLARE	PATROL											
	17	1535	1540	NO FLARE	PATROL											
	17	1550	1605	NO FLARE	PATROL											
	18	0200	0215	NO FLARE	PATROL											
	18	0220	0235	NO FLARE	PATROL											
	18	0240	0245	NO FLARE	PATROL											
MANILA	18	0255	0302	0257	S12	W00			1-	2	0257	1.50	1.50			
KODAIKNL	18	0300 E	0304 D		S11	E03			1-	1		.64	.68			
CAPRI-F	18	0656 E	0702 D		S10	W03			1-	3	0658	1.00	1.00			
UCCLE	18	1137 E	1150 D		S05	E88			1-	3						
CLIMAX	18	1757	1811	1759	S12	W04			1-			1.40	1.40			
CLIMAX	18	2134	2143	2136	S12	W06			1-			.90	1.40			
	19	0200	0220	NO FLARE	PATROL											
	19	0250	0300	NO FLARE	PATROL											

SOLAR FLARES

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BAKOU	19	0704 E	0722 D	0710	S09	W17	6924	18 D	1	2	0710	2.28	2.09		56	
ABASTUMANI	19	0706	0711	0708	S11	W17	6924	5	1	3		1.08	1.22		71	
CAPETOWN	19	0706	0724	0709	S08	W19	6924	18	1		0709	2.30	2.50			
BUCHAREST	19	0707 E	0730 D		S10	W15			1-	2						
	20	0220	0300	NO FLARE	PATROL											
CLIMAX	20	1356 E	1420 D		S08	W35			1-			.30	.30			
	20	2300	2350	NO FLARE	PATROL											
	21	0150	0300	NO FLARE	PATROL											
BUCHAREST	21	0707 E	0851 D		N08	W13			1-	2						
CLIMAX	21	1327	1336	1330	N08	W19			1-			.30	.30			
CLIMAX	21	1420 E	1425 D		S07	W50			1-			.40	.40			
CAPRI-F	21	1422 E	1429 D		S09	W49			1-	3	1427	2.00	3.00			
	22	0005	0025	NO FLARE	PATROL											
	22	0035	0045	NO FLARE	PATROL											
	22	0115	0300	NO FLARE	PATROL											
ABASTUMANI	22	0726	0735	0728	S08	W60	6924	9	1	2		.99	1.97		68	
NIZMIR	22	0728	0733	0730	S12	W59	6924	5	1			1.34			60	
	23	0235	0240	NO FLARE	PATROL											
UCCLE	23	1430 E	1433 D		S13	W88			1-	3						
UCCLE	23	1456 E	1457 D		N06	W50			1-	3						
	23	1710	1725	NO FLARE	PATROL											
	24	0125	0250	NO FLARE	PATROL											
BUCHAREST	24	0727 E	0730 D		S05	W55			1-	3						
BUCHAREST	24	0732 E	0741 D		N08	W57			1-	3						
NIZMIR	24	0743	0746 D	0743 U	N07	E90	6941		1-		0746	.93			53	
	25	0200	0300	NO FLARE	PATROL											
CAPETOWN	25	1135	1155	1143	N16	W79	6927	20	1		1143	1.00				
MANILA	26	0017	0030		N06	W86	6927	13	1	1	0020	1.00	3.70			
MANILA	26	0115	0129	0117	N06	W86			1-	2	0118	.80	3.00			
VOROSHILOV	26	0118	0122	0120	N06	W82	6927	4	1			.72			78	
MANILA	26	0125	0134	0129	S06	W87			1-	2	0129	.80	3.00			
	26	0200	0300	NO FLARE	PATROL											
BUCHAREST	26	0705 E	0738 D		N11	E64			1-	3						
BUCHAREST	26	0705 E	0912 D		N10	E75			1-	3						
BUCHAREST	26	0833 E	0843 D		N10	E75			1-	3						
CLIMAX	26	1730	1710	1705	N07	E72			1-			.40	.40			
	27	0245	0300	NO FLARE	PATROL											
UCCLE	27	0928 E	0931 D		N08	E62			1-	3						
UCCLE	27	1220 E	1228 D		N08	E60			1-	3						
	28	0200	0300	NO FLARE	PATROL											
	29	0055	0150	NO FLARE	PATROL											

SOLAR FLARES

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	30	0155	0300	NO FLARE	PATROL											
	30	1705	1735	NO FLARE	PATROL											
	30	1750	1800	NO FLARE	PATROL											
	30	1850	1855	NO FLARE	PATROL											
	30	2110	2400	NO FLARE	PATROL											
	31	0000	0005	NO FLARE	PATROL											
	31	0010	0025	NO FLARE	PATROL											
	31	1615	1620	NO FLARE	PATROL											
	31	1650	1655	NO FLARE	PATROL											
	31	1700	1705	NO FLARE	PATROL											

COMMERCE - STANDARDS - BOULDER

These flare reports are addenda to the August 1963 flares published in CRPL-F 229B for September 1963.

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

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

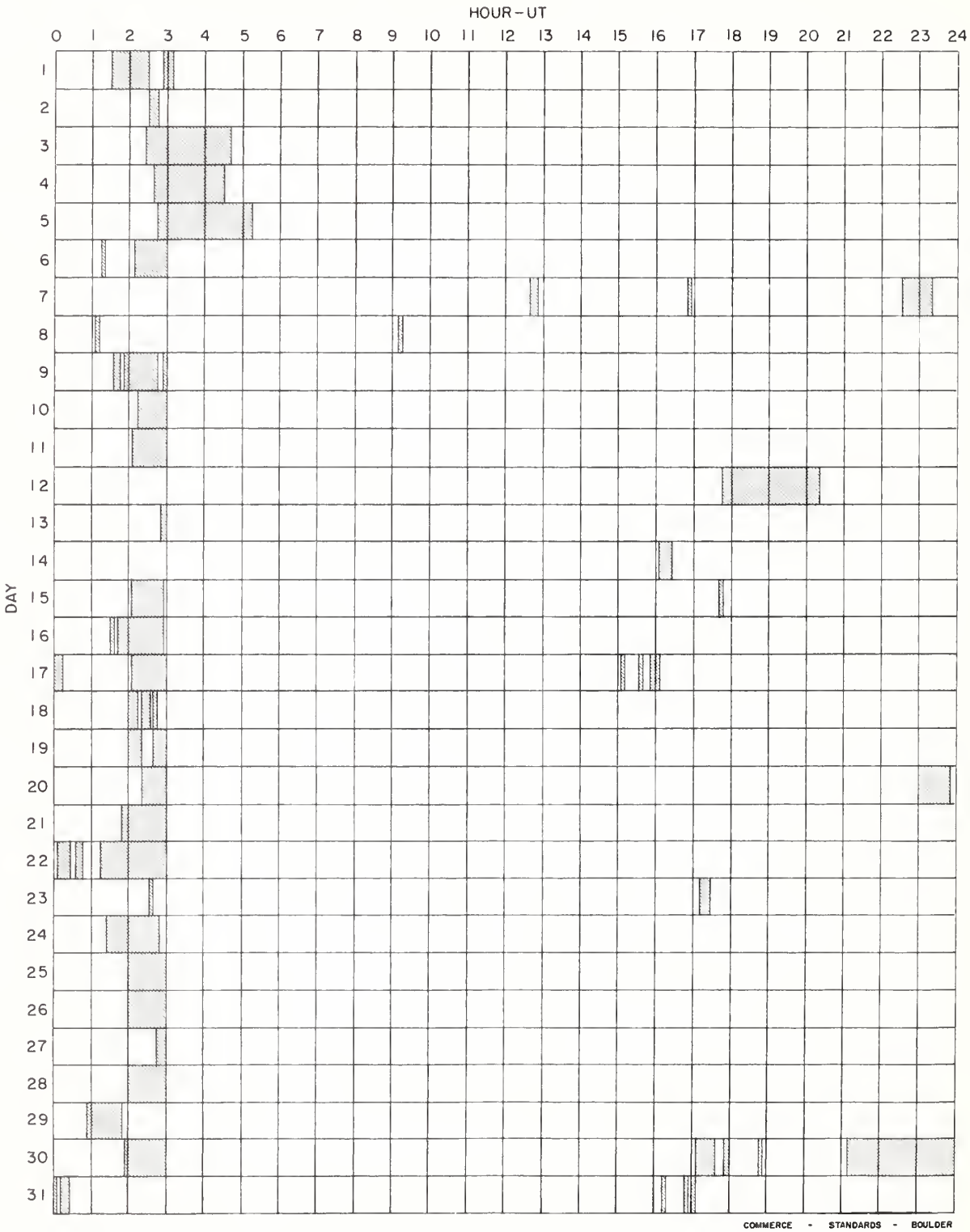
SEE DESCRIPTIVE TEXT PUBLISHED NOVEMBER 1961 FOR DEFINITION OF CORRECTED AREA VALUES LISTED FOR CLIMAX, HAWAII, LOCKHEED AND SACRAMENTO PEAK.

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

*This was a small flare associated with a "Polar Surge".

INTERVALS OF NO FLARE PATROL OBSERVATIONS

AUGUST 1963



Observatories Include:

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

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

OCTOBER 1963

IONOSPHERIC EFFECTS OF SOLAR FLARES	UNIVERSAL TIME			TYPE SWF IMP	IMPORTANCE						BUR	WIDE SPREAD INDEX	STATIONS	KNOWN FLARE
	START	END	MAX		ABS	SCNA	SEA	SPA	SES	SFO				
02	2042	2044									1	5	MC HA BO	
10	1552	1554									1	4	MC BO	1550
11	1906	1907									1	5	MC HA BO	
14	1853	1856	1854						6			1	BO (WWV10-0.6 WWV15-0.2 KKE4-0.4 KKE5-0.2)	1838
14	1932	1937	1933						6			1	BO (WWV10-0.6 WWV15-0.2 KKE4-0.3 KKE5-0.2)	1932
14	2052	2058	2054						5			1	BO (WWV10-0.5 WWV15-0.2 KKE4-0.2 KKE5-0.1)	2052
14	2321	2324	2322						4			1	BO (KKE4-0.4 WWV10-0.1 WWV15-0.1 KKE5-0.3)	2324E
16	0142	0155		G 1								4	MA CA	0130E
16	1227	1300U	1235						1			3	A5 A1	1216F
16	1227	1321					1					5	JU A5	
16	1228	1343		S 1								3	JU LI	
17	1342	1344	1343						3			1	BO (WWV10-0.3 WWV15-0.2 KKE5-0.2)	1340E
18	1558	1601									2	4	MC BO	1625E
18	1558	1626	1609	S 2								5	BE BO FM LI MC NE PA WS CW**	
18	1558	1700U	1603						2+			1	A5	
18	1600	1700	1608				2+					5	DU A1 A3 BO KU LO MC	
18	1600	1800	1618					90				5	MU(NBA90) TU(NBA70) BO(NBA60	
18	1601	1626	1605		20	1						4	BO MC	
18	1632	1634									1	4	MC BO	
18	2043	2101	2045D							90		1	BO (WWV10-0.9D WWV15-0.6D)	*
18	2044	2046									1	4	BO MC	
18	2044	2149					2+					5	BO A1 A3 A15 AN MC TA	
18	2045	2100	2050	S 2								5	AN AD BE BO FM MC NZ SY WS	
18	2046	2100	2048		40	2						4	BO MC	
18	2046	2220U	2055						2			3	A1 A5	
18	2342	2356		SL 1								4	TO OK	2340
19	0216	0231	0221	S 1								5	OK AD	*
19	1330	1400U	1337						1			1	A5	
19	1330	1500	1335					30				1	TU(NBA30)	
19	1335	1427		S 1								1	LI	
19	1651	1720	1705	S 2+								5	MC BE BO FM LI NF WS CW* CW**	1650
19	1651	1755	1656						2+			1	A5	
19	1652	1726	1659		50	2						4	BO MC	
19	1652	1726					2					5	BO A1 A3 A15 DU LO MC	
19	1655	1900	1705				1	50				5	MU(NBA150) BO(NBA85) TU(NBA80)	

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 IB Mc/s

OCTOBER 1963

IONOSPHERIC EFFECTS OF SOLAR FLARES	UNIVERSAL TIME			TYPE SWF	IMPORTANCE						BUR	WIDE SPREAD INDEX	STATIONS	KNOWN FLARE
	START	END	MAX	IMP	ABS	SCNA	SEA	SPA	SES	SFO				
20	2100	2300	2115					36					MU(NBA36)	2103
20	2106	2230U	2125				3					3	A15 A3	
21	1324	1455	1340						2+			1	A5	1323
21	1325	1530	1340					50				5	TU(NBA50) BO(NBA15)	
21	1325	1600	1345				2					5	LO A3	
21	1332	1438	1356	G 2								5	BE BO FM MC NE CW**	
22	1333	1445	1353		35	2						5	MC RO	1329
22	1333	1600	1400				3+					5	LO A3 A5	
22	1335	1456	1352						3+			1	A5	
22	1335	1630	1410					90				1	TU(NBA90)	
22	1338	1536	1415	SL 3								5	BE BO FM MC NE WS CW* CW** CW***	
22	2240	2258	2241							11		1	BO (WWV10-1.1 WWV15-0.8 KKE4-1.1-KKE5-0.9)	2238
22	2240	2334	2248				3+					1	TY	
22	2242	2300		S 1								1	TO	
22	2242	2400	2245					30				1	MU(NBA30)	
23	1637	1725	1655	S 2								5	BE BO FM MC WS	1616
23	1642	1730U	1647						1+			1	A5	
23	1646	1713	1654		25	1						4	BO MC	
23	1646	1713					1+					5	BO A3 A5 A15 MC	
24	0438	0518	0456				2					5	TY TA	0448E
24	0446	0501	0455	G 1								5	MA AD OK	
26	1058	1152		SL 1								1	DA	1046
26	1058	1208	1110		35	2						1	RO	
26	1840	1844	1841							05		1	BO (WWV10-0.5 WWV15-0.2 KKE4-0.3 KKE5-0.1)	1836
26	1840	1856U	1850					30				5	TU(NBA30) MU(NBA15) BO(NBA12)	
26	1853	2012	1930	G 2								5	BE BO FM MC WS	
26	1856	2030	1922						2			1	A5	
26	1856	2200	1930					85					TU(NBA85) MU(NBA60) BO(NBA45)	
26	1900	2000	1925		10	1						1	BO	
26	1900	2008					2					4	BO A3 A5	
26	1902	1906	1903							06		1	BO (WWV10-0.6 WWV15-0.3 KKE4-0.2 KKE5-0.2)	
28	0138	0348	0150				3+					1	TY	0158E
28	0140	0400	0150	SL 3								5	OK AD CA MA TO CW+ CW++	
28	0141	0147	0143							24		1	BO (WWVH15-2.4)	
28	1920	2030	1953	G 1+								5	MC AN BE	
29	1359	1407	1400							03		1	BO (WWV10-0.3 WWV15-0.1 KKE4-0.1 KKE5-0.2)	1340E
29	1629		1632						2			1	A5	1653
29	1629	1728	1644		60	3						4	MC BO	
29	1629	1728					2					4	MC BO	
29	1630	1730	1640	G 1								1	MC	

RIOMETER EVENTS
(Provisional)

OCTOBER 1963

South Pole **26 Mc/s**

OCT. 1963	START UT	END UT	MAX. UT	MAX. ABSORP. TENTHS, db	NO. OF PEAKS	SEPT. 1963	START UT	END UT	MAX. UT	MAX. ABSORP. TENTHS, db	NO. OF PEAKS
2	1350	1724	1440	7	1	18	0810	0946	0832	5	1
3	0916	1026	0934	8	1	18	1814	2102	1928	8	1
3	1450	1912	1620	4	2	19	0536	0602	0540	3	1
4	0904	1116	0956	8	1	19	1536	1738	1704	4	1
4	1436	1800	1702	4	1	19	2040	2112	2053	3	2
5	1033	1100	1042	3	1	19	2146	2222	2201	6	1
8	0253	0420	0313	17	2	19	2336	0028	2357	9	1
8	0900	1511	1253	7	1	20	0936	1922	1441	10	3
9	1308	1646	1341	5	1	21	1002	1053	1029	5	1
10	1016	1238	1119	5	1	22	1336	1450	1415	4	1
10	1336	1656	1527	9	1	24	0046	0136	0056	13	1
11	0752	1724	1229	31	8	24	2146	2220	2151	12	1
11	1908	2152	2005	5	10	25	0044	0240	0050	58	3
11	2330	0044	2342	16	2	26	0200	0416	0203	28	5
12	0146	0412	0154	35	1	26	1320	1642	1429	9	1
12	0942	1827	1409	13	10	26	2336	0030	0026	7	3
13	1206	1850	1534	43	6	29	0002	0030	0020	7	10
13	1930	1948	1945	3	2	29	0810	1154	0920	10	1
13	2002	2028	2012	3	2	29	1403	1616	1417	14	5
13	2214	0230	2216	16	1	29	2014	2202	2124	4	2
13	2330	0236	2358	20	5	29	2236	2316	2245	6	2
14	0646	2216	0933	11	16	30	0302	0938	0551	6	11
15	0112	0512	0140	26	4						
16	0116	0134	0122	13	1						
16	0307	0352	0328	8	2						
16	0645	1820	0925	26	7						
16	2154	0126	0013	6	40						
17	0442	0744	0534	6	1						
17	1734	1836	1750	3	1						
18	0326	0358	0336	6	1						

SOLAR RADIO EMISSION

OUTSTANDING OCCURRENCES

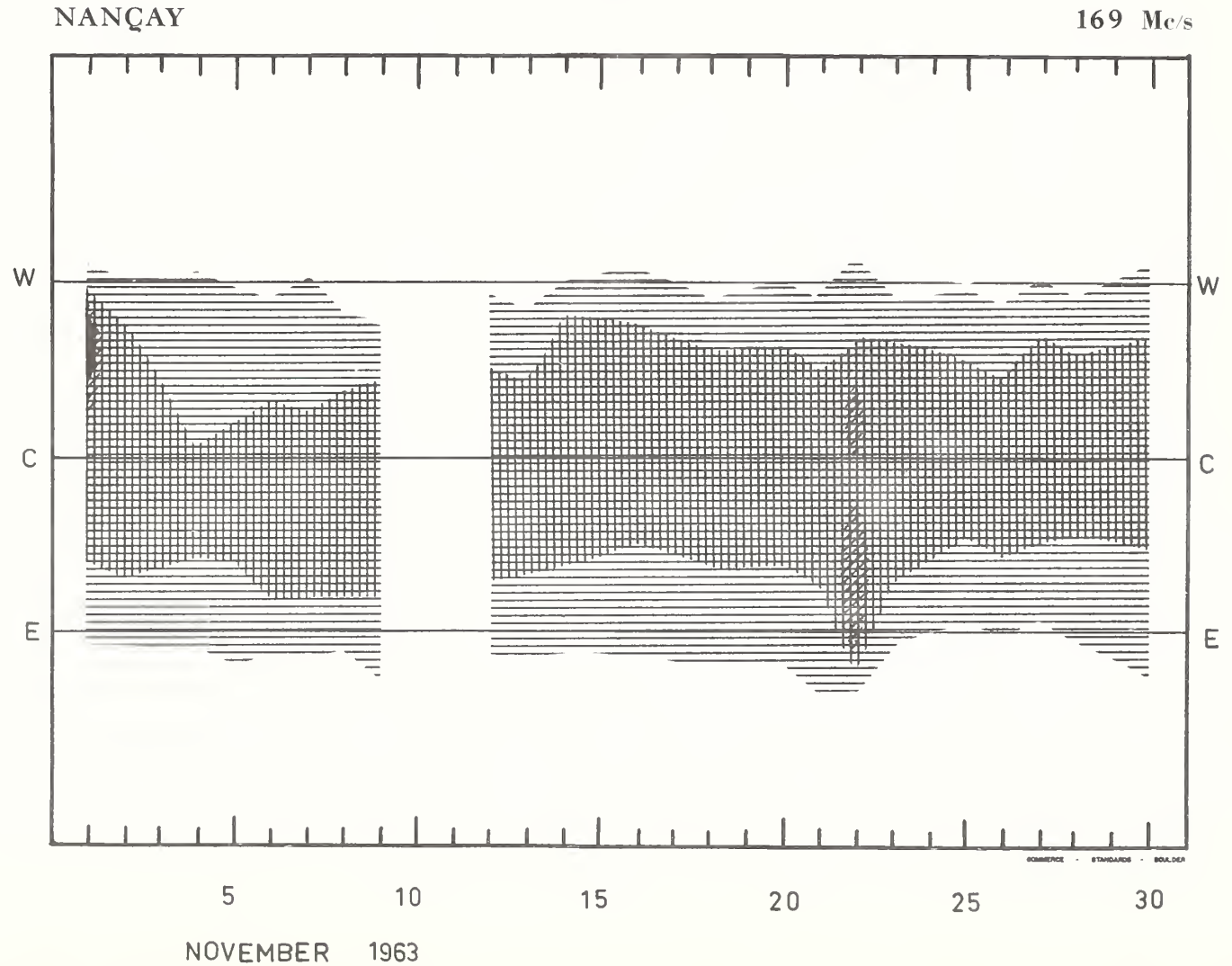
NOVEMBER 1963

ARO - OTTAWA — 2800 Mc/s

NOV. 1963	URANE	DESCRIPTIVE TYPE	START UT	DURATION HRS. MIN.	MEAN FLUX	MAXIMUM TIME	MAXIMUM FLUX	REMARKS
3	3	Simple 3 f	1633	12	1635	2	1	
3	3	Simple 3	1929	9	1934	0.8	0.4	
3	3	Simple 3 f	1949.5	6.5	1956	1.2	0.6	
14	3	Simple 3	1735	3 15	Indet.	6	3.5	
24	3	Simple 3	1830	17	1835	1	0.5	

SOLAR RADIO EMISSION
INTERFEROMETRIC OBSERVATIONS

NOVEMBER 1963



SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

NOVEMBER 1963

NBS BOULDER — 108 Mc/s

Nov. 1963	TYPE	START UT	TIME OF MAXIMUM UT	DURATION MINUTES	INTENSITY
3	3	1645.5	1646.2	2.2	2
7	3	1347.5	1348.1	1.4	3
16	3	1401.5	1402.5	2.5	3
17	3	1706.0	1707.1	2.0	2
19	3	1618.4	1619.3	2.0	3
24	3	1721.9	1722.0	2.0	2

COMMERCE - STANDARDS - BOULDER

NOMINAL TIMES OF OBSERVATION

NOVEMBER 1963

NBS BOULDER — 108 Mc/s

Nov. 1963	HOURS OF OBSERVATION	UT	Nov. 1963	HOURS OF OBSERVATION	UT
1	1334-2344		16	1351-2328	I 1954-2020
2	1335-2342		17	1352-2327	
3	1336-2341		18	1353-2327	
4	1337-2340		19	1354-2326	
5	1338-2338		20	1356-2325	
6	1340-2337		21	1357-2325	
7	1341-2336		22	1358-2324	
8	1342-2335		23	1359-2324	
9	1343-2334		24	1400-2323	
10	1344-2333		25	1401-2323	
11	1345-2333		26	1402-2322	
12	1346-2332	I 2125-2222	27	1403-2322	
13	1348-1800; 1900-2331		28	1404-2321	
			29	1405-2321	
14	1349-2330		30	1406-2321	
15	1350-2329				

COMMERCE - STANDARDS - BOULDER

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

NOVEMBER 1963

High Altitude Observatory
Boulder

7.6-41 Mc/s

Date 1963	Bursts			Frequency Range Mc/s
	Type	Time (U.T.)	Intensity	
1 Nov	No Observ.	1300-1838		
	III	2017.15-2017.30	1-	21-41
2	III	1412.15-1412.30	1-	24-41
4	No Observ.	1500-1524		
	No Observ.	1821-1929		
6	III	1912.15-1912.45	1	19-41
	III	1913.15-1913.30	1	19-41
8	III	2307.15-2307.30	1-	28-41
11	III	2225.45-2226	1-	19-41
	III	2226.15-2226.30	1-	20-41
	III	2227.15-2227.30	1-	22-41
13	III	1653.15-1654	2	20-41
	III	1835-1835.30	1-	26-41
	III	1836.45-1837	1-	24-41
	III	1837.30-1838	1-	20-41
	III	1844.45-1845	1-	24-41
	No Observ.	2030-2211		
	III	2222-2222.45	1	23-41
14	III	1541.15-1541.45	1-	23-41
	III	1603.15-1603.45	1-	23-41

Date 1963 cont.	Bursts			Frequency Range Mc/s
	Type	Time (U.T.)	Intensity	
14 Nov	III	1722.45-1723	1-	26-41
	III	1907.45-1908	1-	27-39
	III	2156.15-2156.30	1-	29-41
	III	2157.15-2158.15	1-	21-41
	III	2308.30-2309	1-	24-41
15	No Observ.	1500-1824		
	III	1925.15-1926	1	20-41
	III	1957.15-1957.30	1-	23-41
	III	2103.30-2104	1-	23-41
17	III	1910.45-1911	1-	23-41
	III	1913.45-1914.30	1-	20-41
	III	1916.15-1916.30	1-	25-39
	III	1916.45-1917.15	1-	20-41
	III	1917.45-1918	1-	30-39
	III	2249.30-2250	1	20-41
18	No Observ.	2143-2330		
19	III	1949.30-1950.30	2+	19-41
20	No Observ.	2145-2333		
28	No Observ.	1500-2400		
30	III	1714-1714.15	1-	22-41

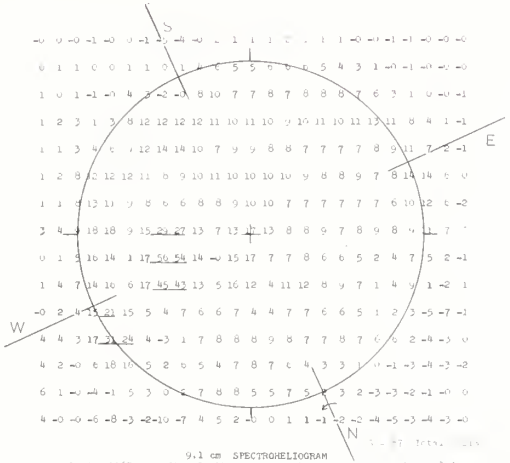
COMMERCE - STANDARDS - BOULDER

SOLAR RADIO EMISSION SPECTROHELIOGRAMS

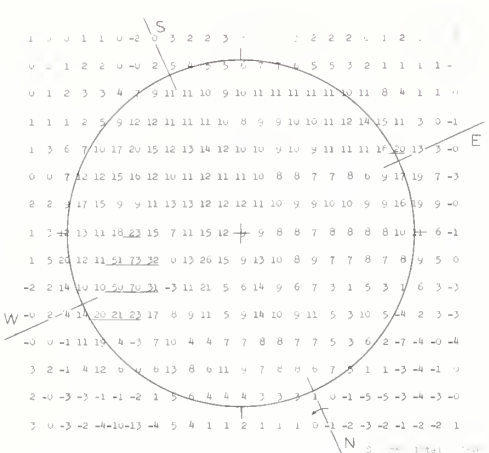
NOVEMBER 1963

STANFORD

9.1 cm



9.1 cm SPECTROHELIOGRAM
Stanford, 1963 Nov 01, 20-21 hrs UT; Brightness Unit = [illegible] x 10^3 °K.



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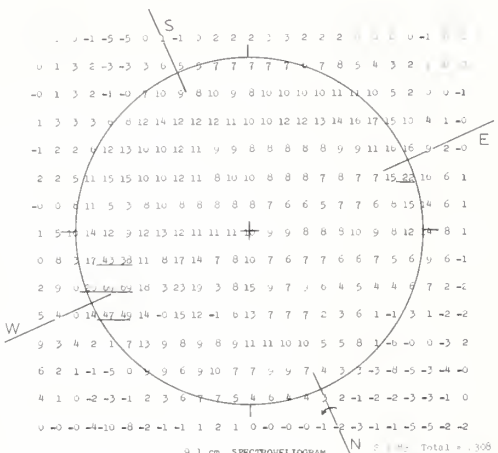
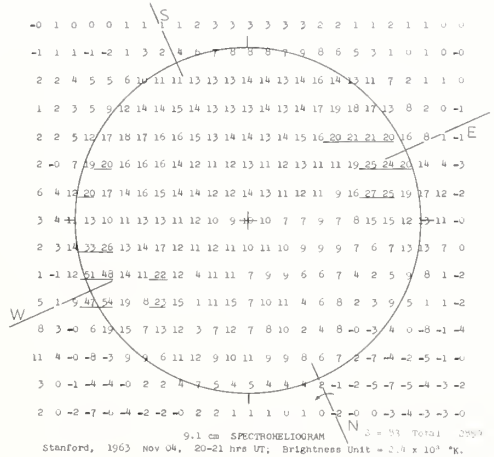
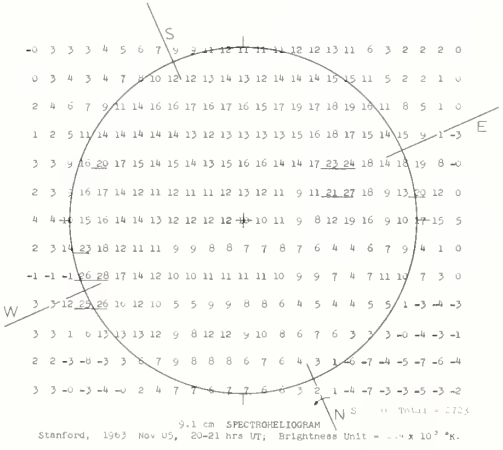
Stanford, 1963 Nov 02, 20-21 hrs UT; Brightness Unit = [illegible] x 10^3 °K.



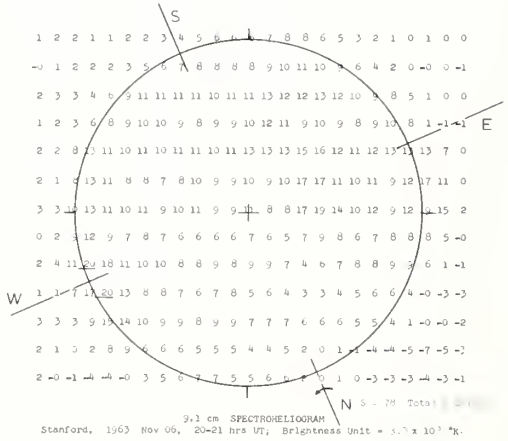
9.1 cm SPECTROHELIOGRAM
Stanford, 1963 Nov 03, 20-21 hrs UT; Brightness Unit = [illegible] x 10^3 °K.



9.1 cm SPECTROHELIOGRAM
Stanford, 1963 Nov 04, 20-21 hrs UT; Brightness Unit = [illegible] x 10^3 °K.



9.1 cm SPECTROHELIOGRAM
Stanford, 1963 Nov 05, 20-21 hrs UT; Brightness Unit = [illegible] x 10^3 °K.



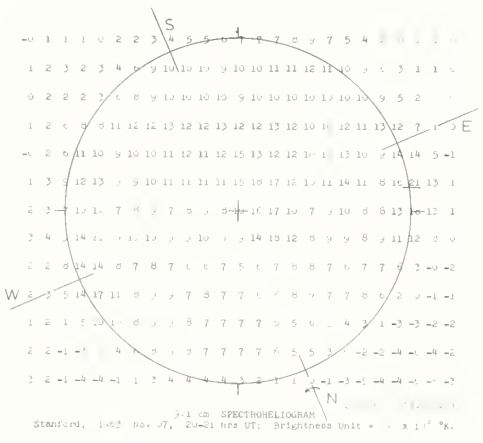
9.1 cm SPECTROHELIOGRAM
Stanford, 1963 Nov 06, 20-21 hrs UT; Brightness Unit = [illegible] x 10^3 °K.

SOLAR RADIO EMISSION SPECTROHELIOGRAMS

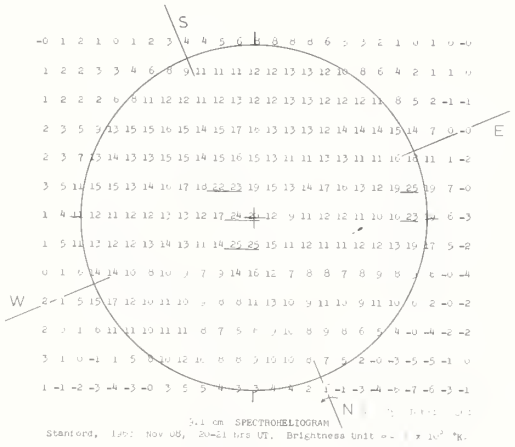
NOVEMBER 1963

STANFORD

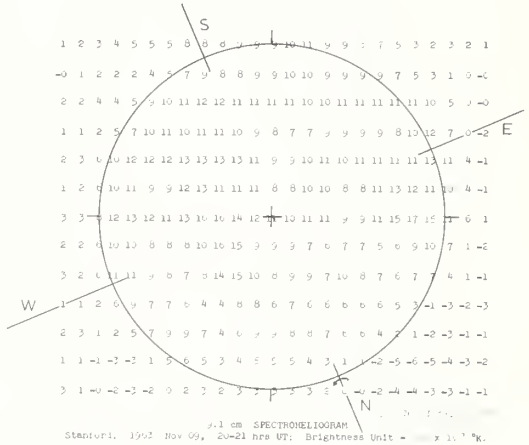
9.1 cm



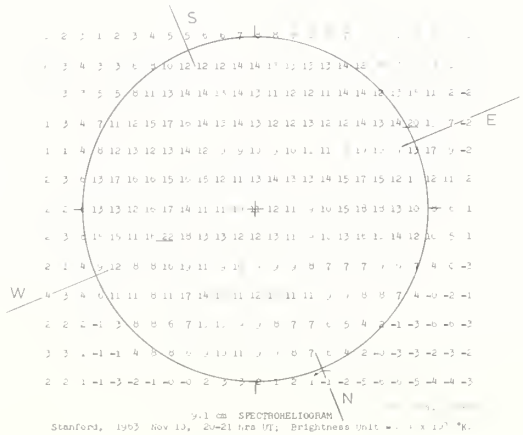
9.1 cm SPECTROHELIOGRAM
Stanford, 1963 Nov 07, 20-21 hrs UT; Brightness Unit = x 10³ °K.



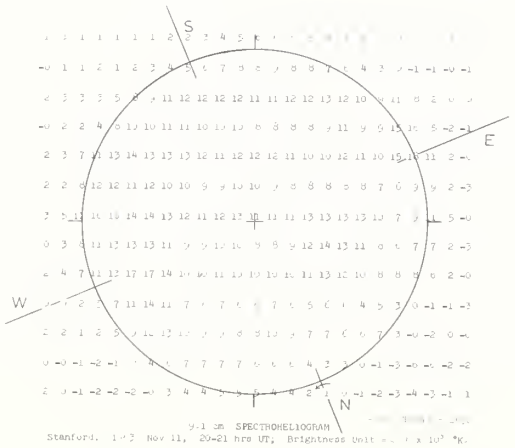
9.1 cm SPECTROHELIOGRAM
Stanford, 1963 Nov 08, 20-21 hrs UT; Brightness Unit = x 10³ °K.



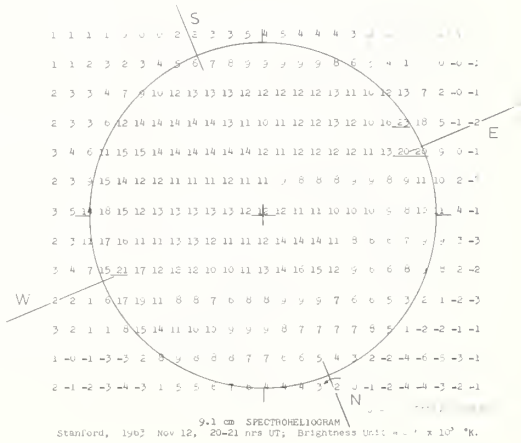
9.1 cm SPECTROHELIOGRAM
Stanford, 1963 Nov 09, 20-21 hrs UT; Brightness Unit = x 10³ °K.



9.1 cm SPECTROHELIOGRAM
Stanford, 1963 Nov 10, 20-21 hrs UT; Brightness Unit = x 10³ °K.



9.1 cm SPECTROHELIOGRAM
Stanford, 1963 Nov 11, 20-21 hrs UT; Brightness Unit = x 10³ °K.



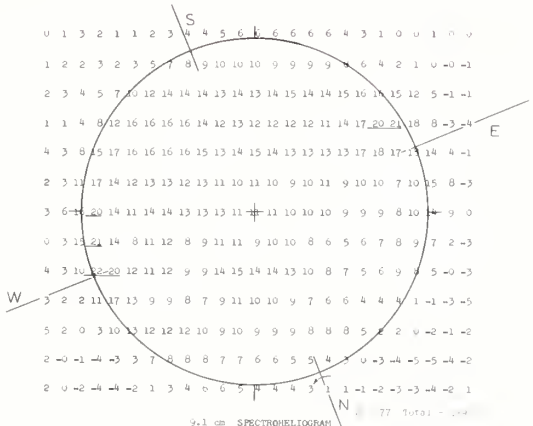
9.1 cm SPECTROHELIOGRAM
Stanford, 1963 Nov 12, 20-21 hrs UT; Brightness Unit = x 10³ °K.

SOLAR RADIO EMISSION SPECTROHELIOGRAMS

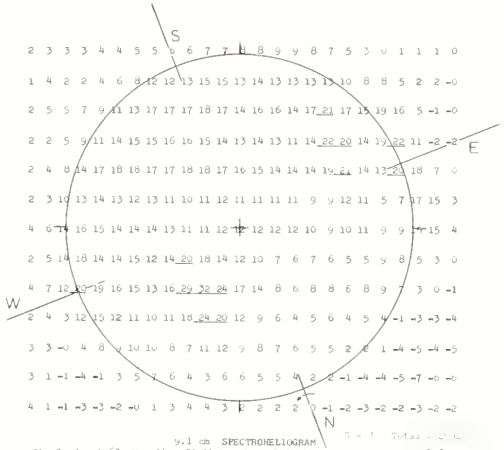
NOVEMBER 1963

STANFORD

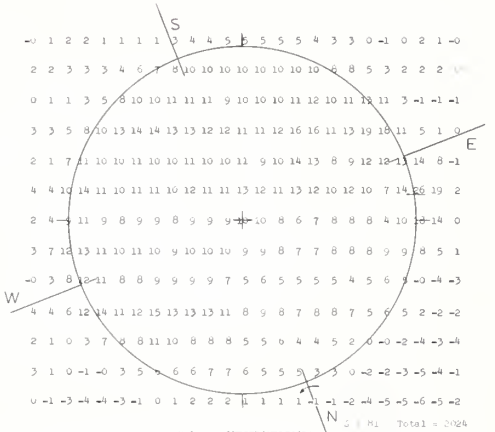
9.1 cm



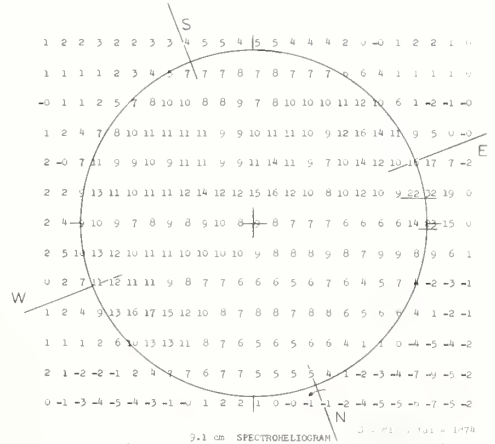
9.1 cm SPECTROHELIOGRAM
Stanford, 1963 Nov 13, 20-21 hrs UT; Brightness Unit = 2.4 x 10^3 °K.



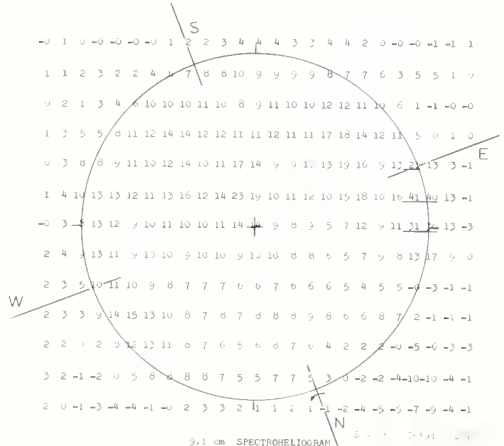
9.1 cm SPECTROHELIOGRAM
Stanford, 1963 Nov 14, 20-21 hrs UT; Brightness Unit = 2.2 x 10^3 °K.



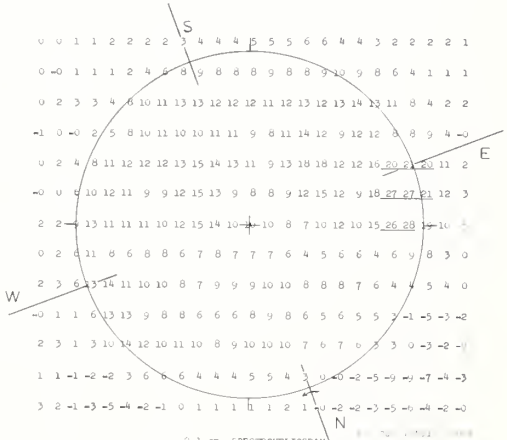
9.1 cm SPECTROHELIOGRAM
Stanford, 1963 Nov 15, 20-21 hrs UT; Brightness Unit = 3.0 x 10^3 °K.



9.1 cm SPECTROHELIOGRAM
Stanford, 1963 Nov 16, 20-21 hrs UT; Brightness Unit = 2.7 x 10^3 °K.



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

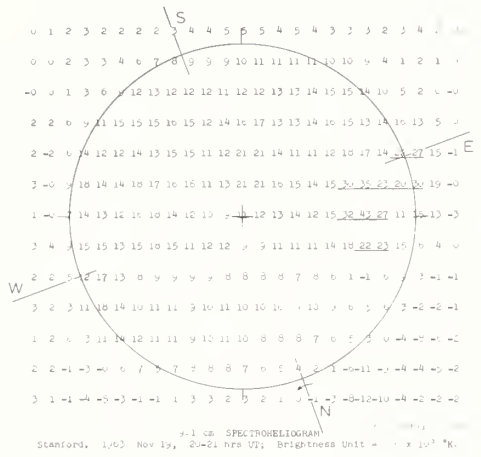


9.1 cm SPECTROHELIOGRAM
Stanford, 1963 Nov 18, 20-21 hrs UT; Brightness Unit = 2.9 x 10^3 °K.

SOLAR RADIO EMISSION SPECTROHELIOGRAMS

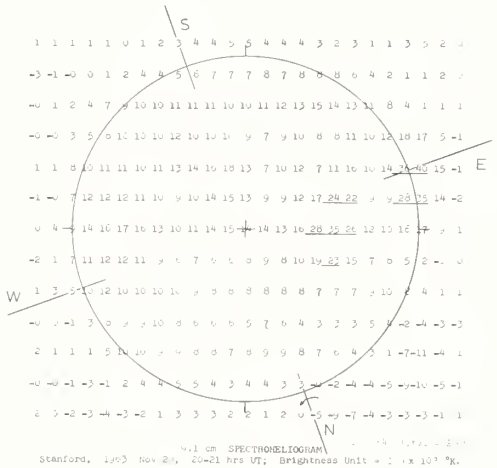
NOVEMBER 1963

STANFORD **9.1 cm**



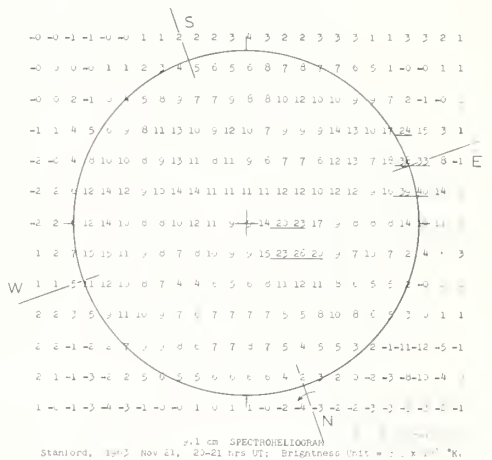
9.1 cm SPECTROHELIOGRAM

Stanford, 1963 Nov 19, 20-21 hrs UT; Brightness Unit = x 10^3 °K.



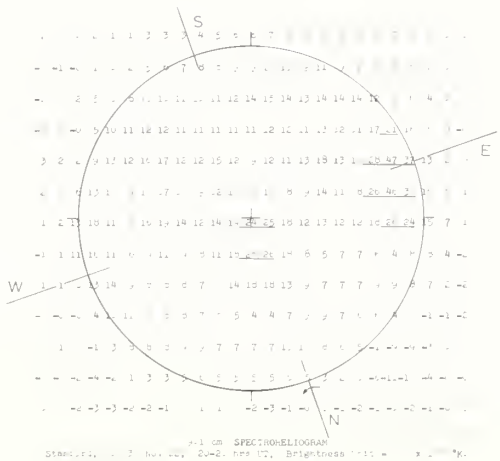
9.1 cm SPECTROHELIOGRAM

Stanford, 1963 Nov 20, 20-21 hrs UT; Brightness Unit = x 10^3 °K.



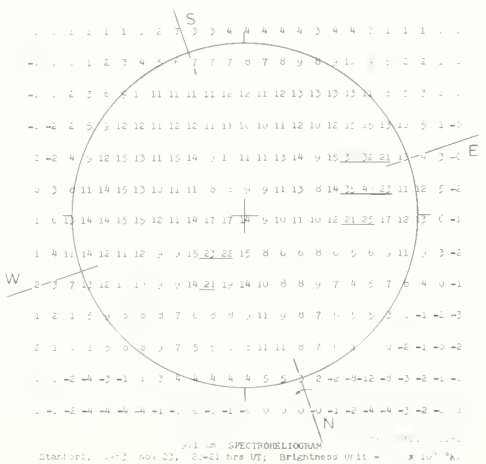
9.1 cm SPECTROHELIOGRAM

Stanford, 1963 Nov 21, 20-21 hrs UT; Brightness Unit = x 10^3 °K.



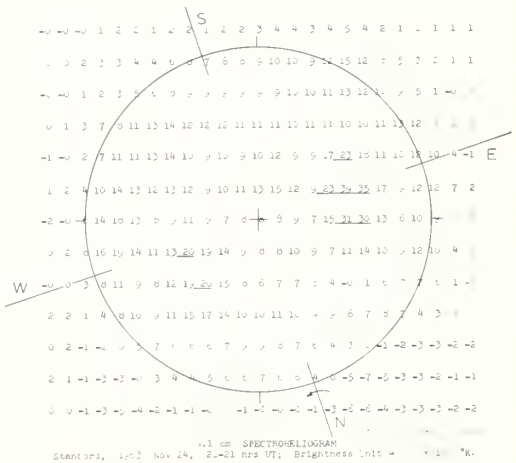
9.1 cm SPECTROHELIOGRAM

Stanford, 1963 Nov 22, 20-21 hrs UT; Brightness Unit = x 10^3 °K.



9.1 cm SPECTROHELIOGRAM

Stanford, 1963 Nov 23, 20-21 hrs UT; Brightness Unit = x 10^3 °K.



9.1 cm SPECTROHELIOGRAM

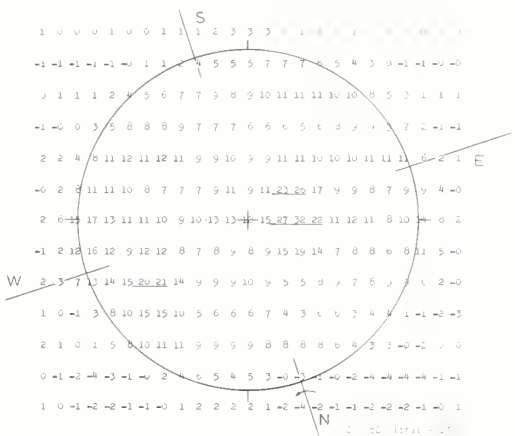
Stanford, 1963 Nov 24, 20-21 hrs UT; Brightness Unit = x 10^3 °K.

SOLAR RADIO EMISSION SPECTROHELIOGRAMS

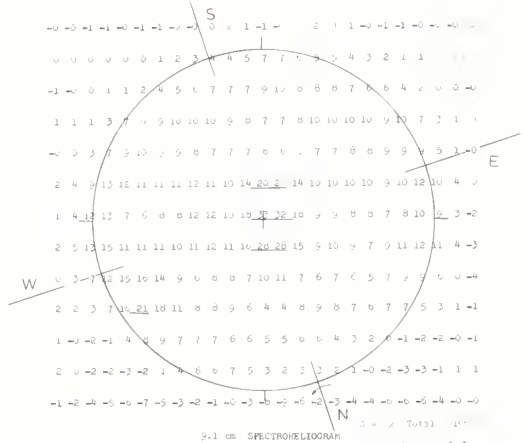
NOVEMBER 1963

STANFORD

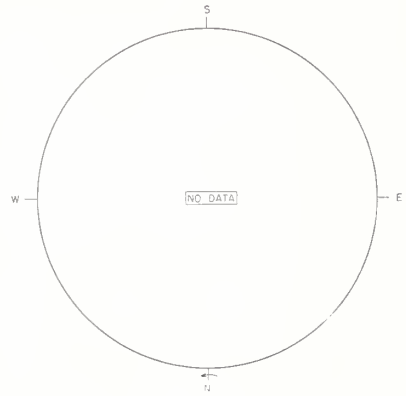
9.1 cm



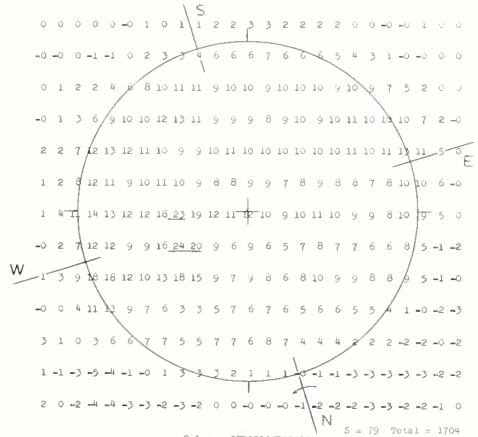
9.1 cm SPECTROHELIOGRAM
Stanford, 1963 Nov 25, 20-21 hrs UT; Brightness Unit = [illegible] x 10^3 °K.



9.1 cm SPECTROHELIOGRAM
Stanford, 1963 Nov 26, 20-21 hrs UT; Brightness Unit = 3.4 x 10^3 °K.

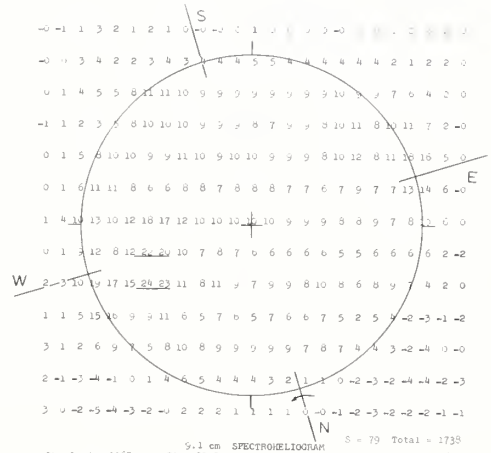


1963 NOVEMBER 27



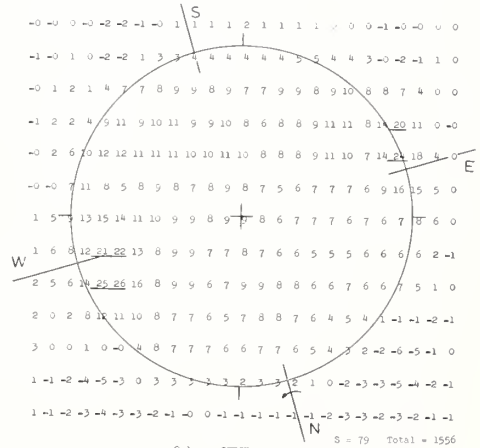
S = 79 Total = 1704

9.1 cm SPECTROHELIOGRAM
Stanford, 1963 Nov 28, 20-21 hrs UT; Brightness Unit = 3.2 x 10^3 °K.



S = 79 Total = 1738

9.1 cm SPECTROHELIOGRAM
Stanford, 1963 Nov 29, 20-21 hrs UT; Brightness Unit = 3.1 x 10^3 °K.



S = 79 Total = 1556

9.1 cm SPECTROHELIOGRAM
Stanford, 1963 Nov 30, 20-21 hrs UT; Brightness Unit = 3.5 x 10^3 °K.

COSMIC RAY INDICES

(Climax Neutron Monitor)

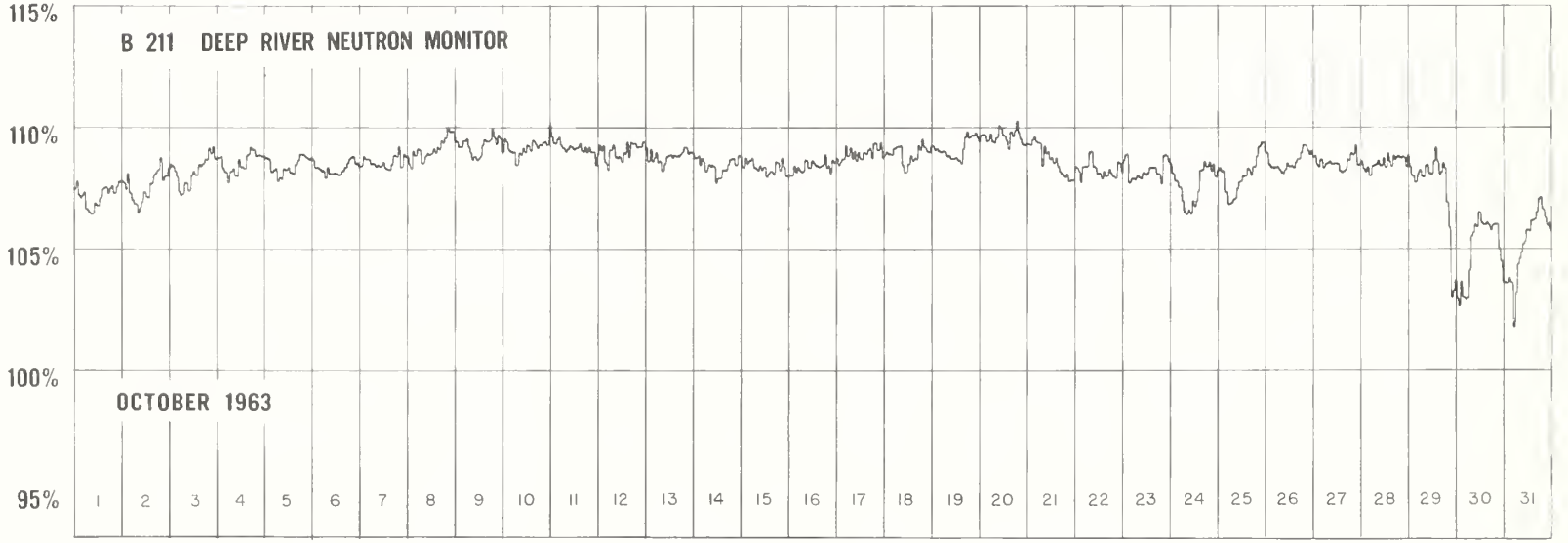
IGC Station B 305

Oct. 1963	Daily average counts/hr*	Oct. 1963	Daily average counts/hr*
1	3149.6	16	3191.0
2	3149.1	17	3199.5
3	3156.9	18	3204.6
4	3171.8	19	3218.8
5	3174.0	20	3233.2
6	3172.3	21	3184.6
7	3172.2	22	3171.8
8	3188.4	23	3173.6
9	3191.9	24	3191.6
10	3195.2	25	3186.2
11	3198.2	26	3193.5
12	3204.4	27	3184.1
13	3205.0	28	3162.8
14	3196.5	29	3162.7
15	3184.5	30	3065.5
		31	3097.9

*Scaling Factor 128.

COSMIC RAY INDICES

(Pressure Corrected Hourly Totals)



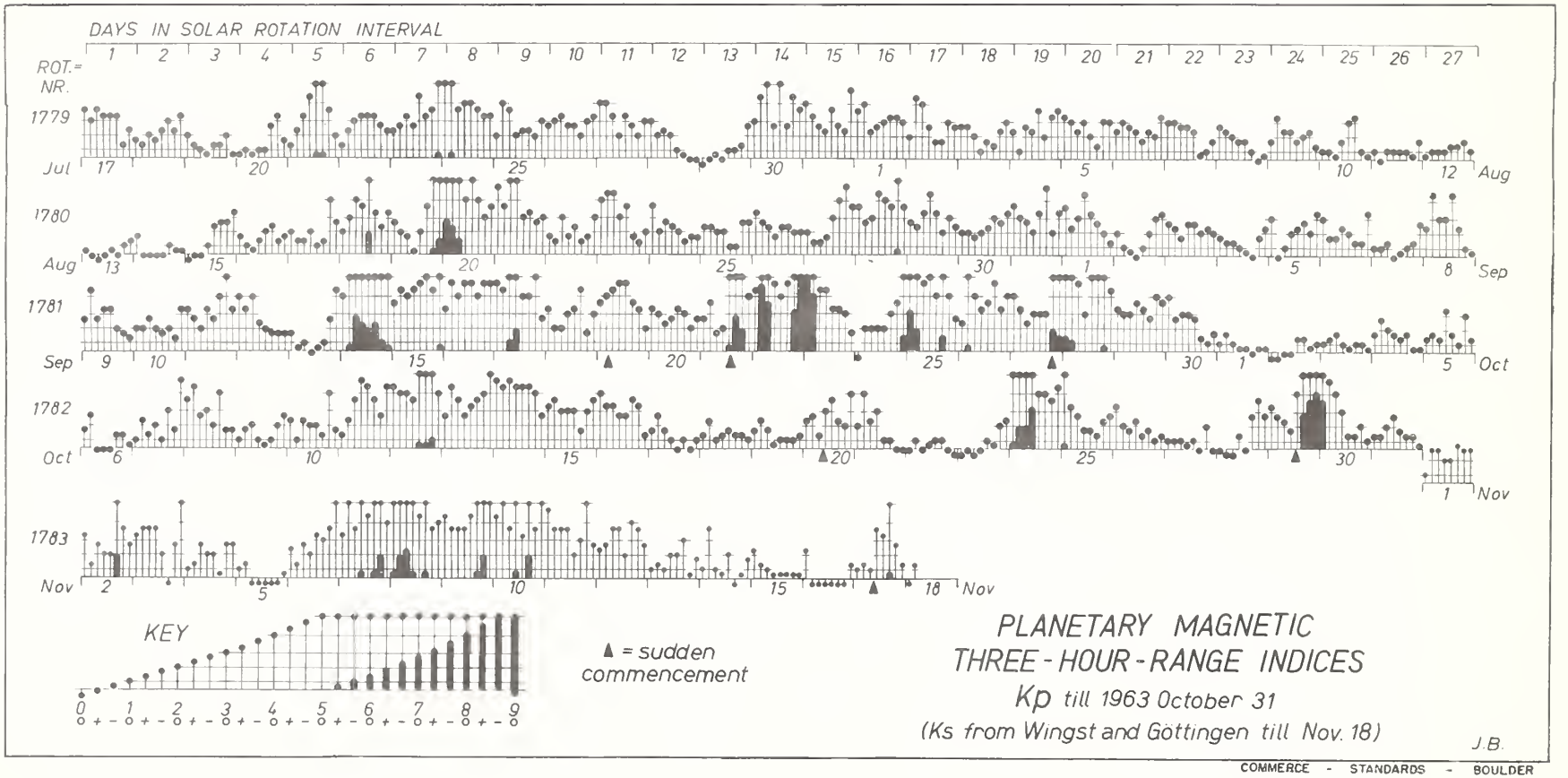
COMMERCE - STANDARDS - BOULDER

GEOMAGNETIC ACTIVITY INDICES

OCTOBER 1963

Oct. 1963	C	Values Kp — Three hour Gr. interval 1 2 3 4	5 6 7 8	Sum	Ap	Final Selected Days
1	0.0	1o 2- 1o 1-	1- 0+ 1- 1-	7-	4	Five
2	0.1	0o 0o 0+ 0+	1+ 1+ 1- 1o	5o	3	Quiet
3	0.2	1o 1+ 2- 1o	1- 1o 1o 1-	8+	4	
4	0.3	2- 3- 2o 2-	1+ 2- 1- 1-	12+	6	1
5	0.6	1+ 2- 1+ 3+	2- 1o 3o 1+	15-	8	2
						3
6	0.2	2- 3- 0+ 0+	0+ 1+ 1+ 1-	9-	5	22
7	0.7	1o 2+ 1+ 2o	1o 3o 2- 5-	17o	11	27
8	0.8	4- 4+ 3- 3o	2o 4o 2- 2-	23o	16	
9	0.4	1o 2- 2o 1o	1- 1o 2o 3-	12o	6	
10	0.7	2+ 1o 2+ 2o	2o 1+ 4o 2-	17-	9	
11	1.2	1+ 2+ 4- 5-	4+ 4- 3- 4+	27o	22	Five
12	1.5	4+ 4o 4o 4-	5+ 5+ 6- 4o	36+	39	Disturbed
13	1.3	3- 4+ 4- 3-	3+ 4- 4o 5o	29+	24	
14	1.3	5- 4+ 5- 4+	4+ 4+ 4o 3-	33+	31	12
15	0.9	3+ 4- 3o 3o	3o 2- 3o 4-	24+	16	14
						24
16	0.8	4o 3+ 3+ 3-	3- 4- 3+ 1+	24+	16	29
17	0.2	2- 3- 2- 1o	0+ 1o 0+ 1o	10-	5	30
18	0.2	1+ 2+ 1o 1+	2- 1+ 1+ 1o	11+	5	
19	0.2	2- 2+ 2- 1-	1o 1o 1o 1+	11-	5	
20	0.8	2+ 3- 1+ 3o	4- 2+ 2o 4o	21+	13	
21	0.5	2o 4o 2+ 3o	1o 1o 0+ 0+	14o	9	Ten
22	0.1	0+ 1o 0+ 1-	1o 1o 0+ 0o	5-	3	Quiet
23	0.3	0o 0+ 0o 0+	1o 1- 2o 2+	7-	3	
24	1.7	5+ 6+ 6+ 7+	4o 4o 4- 4+	41+	63	1
25	0.8	5+ 3+ 3- 2-	2- 1+ 2+ 3-	21o	16	2
						3
26	0.4	3+ 2o 2- 2+	1+ 2- 1o 1+	15-	8	6
27	0.3	1o 1o 1o 1-	1o 0+ 2o 0+	7+	4	17
28	0.5	0+ 0o 0o 1+	0+ 3- 4- 3-	11o	7	18
29	1.6	3+ 3- 2+ 2-	4o 7o 8- 8o	37-	74	19
30	1.3	8- 5- 4o 3o	1+ 1+ 2o 1o	25o	35	22
31	0.3	1+ 1+ 2o 3-	2- 1+ 1+ 1-	12+	6	23
						27
Mean:	0.65			Mean:	15	

COMMERCE - STANDARDS - BOULDER


DAYS IN SOLAR ROTATION INTERVAL
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27
ROT.= NR.
1779
Jul 17 20 25 30 1 5 10 12 Aug
1780
Aug 13 15 20 25 30 1 5 8 Sep
1781
Sep 9 10 15 20 25 30 1 5 Oct
1782
Oct 6 10 15 20 25 30 1 Nov
1783
Nov 2 5 10 15 18 Nov
KEY
0 1 2 3 4 5 6 7 8 9
▲ = sudden commencement
PLANETARY MAGNETIC
THREE-HOUR-RANGE INDICES
Kp till 1963 October 31
(Ks from Wingst and Göttingen till Nov. 18)
J.B.
COMMERCE - STANDARDS - BOULDER

CRPL RADIO PROPAGATION QUALITY FIGURES AND FORECASTS

OCTOBER 1963

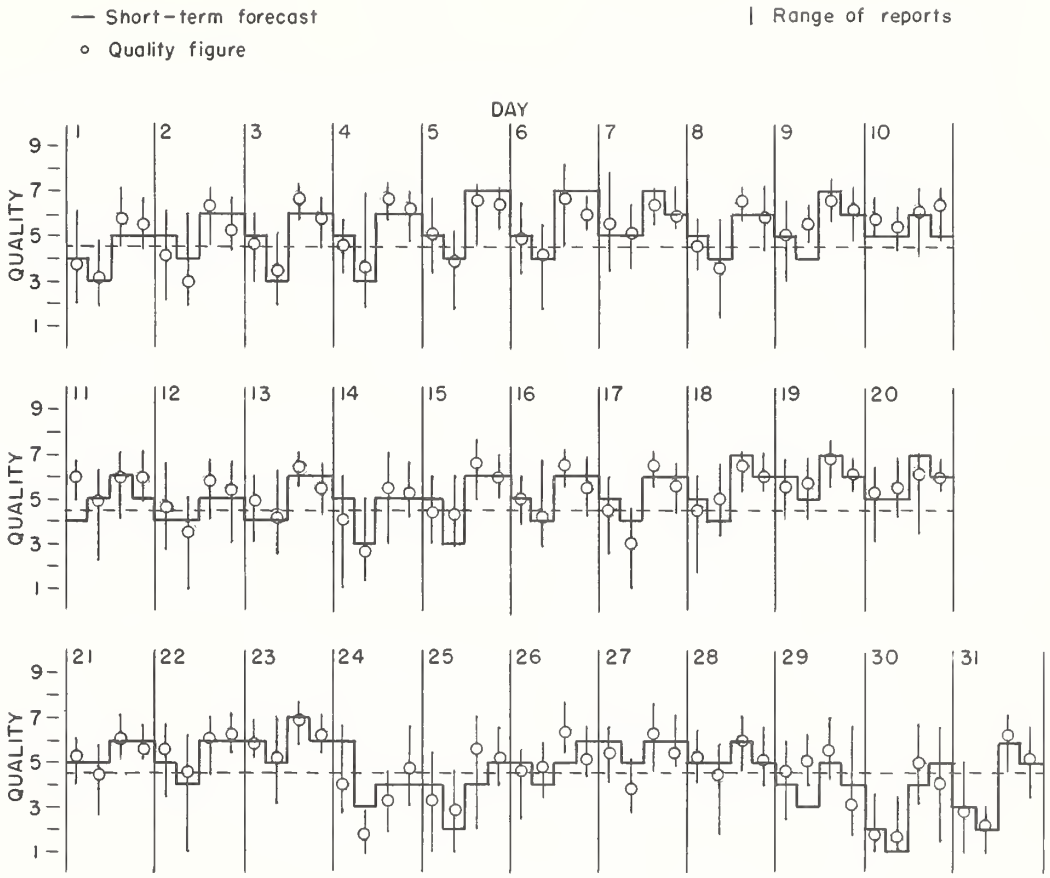
NORTH ATLANTIC

OCTOBER 1963	NORTH ATLANTIC 6-HOURLY QUALITY FIGURES				SHORT-TERM FORECASTS ISSUED ABOUT ONE HOUR IN ADVANCE OF				WHOLE DAY	ADVANCE FORECASTS (J-REPORTS) FOR WHOLE DAY; ISSUED IN ADVANCE BY				GEOMAGNETIC K_{FR}	
	00 TO 06	06 TO 12	12 TO 18	18 TO 24	00	06	12	18	INDEX	1-7 DAYS FINAL J_S	1-7 DAYS SDW J	1-3 DAYS	1-7 DAYS	HALF (1)	DAY (2)
01	4-	3+	6-	6-	4	3	5	5	4+	4	4	5		1	1
02	4	3	6+	5+	5	4	6	6	4+	5	5	5		0	1
03	5-	3+	7-	6-	5	3	6	6	5	5		5		2	1
04	5-	4-	7-	6+	5	3	6	6	5+	5		5		3	1
05	5	4	7-	6+	5	4	7	7	5+	6		6		2	2
06	5	4+	7-	6	5	4	7	7	5+	6		6		1	1
07	6-	5+	6+	6	5	5	7	6	6-	6		6		2	2
08	5-	4-	7-	6	5	4	6	6	5+	5		5		3	2
09	5+	6-	7-	6+	5	4	7	6	6	6		6		1	2
10	6-	5+	6	6+	5	5	6	5	6	5		5		1	2
11	6	5	6	6	4	5	6	5	4-	4		4		3	3
12	5-	3+	6-	5+	4	4	5	5	5-	3		3		(4)	(4)
13	5	4+	6+	6-	4	4	6	6	5	3		3		3	3
14	4	3-	6-	5+	5	3	5	5	(4)	4		4		(4)	3
15	4+	4+	7-	6	5	3	6	6	5+	4		4		(4)	3
16	5	4+	7-	6-	5	4	6	6	5+	5		5		3	2
17	4+	3	7-	6-	5	4	6	6	5-	6		6		2	1
18	4+	5	7-	6	5	4	7	6	6-	5		5		2	1
19	6-	6-	7-	6	6	5	7	6	6+	5		5		2	1
20	5+	6-	6	6	5	5	7	6	6-	5		5		2	2
21	5+	4+	6	6-	5	5	6	6	5+	5		5		3	1
22	6-	4+	6	6+	5	4	6	6	5+	5		5		1	1
23	6	5+	7	6+	6	5	7	6	6	5		5		0	1
24	4	2-	3+	5-	6	3	4	4	(3+)	6		6		(6)	3
25	2+	3-	6-	5+	4	2	4	5	(4)	3	3	6		3	2
26	5-	5-	6+	5+	5	4	5	6	5+	4	4	6		2	1
27	6-	4-	6+	6-	6	5	6	6	5	5	5	5		1	1
28	5+	4+	6+	5+	5	5	6	5	5	5	5	5		0	2
29	5-	5+	6-	3+	4	3	5	4	(4+)	4	5	4	5	2	(6)
30	2-	2-	5	4	2	1	4	5	(3)	3	5	3	5	(4)	1
31	2-	2+	6+	5+	3	2	6	5	(4-)	4		4		2	1
Score: Quiet Periods				P	14	4	15	21		9		9			
				S	6	4	14	8		11		11			
				U	0	1	0	0		2		2			
				F	1	1	1	0		1		1			
Disturbed Periods				P	3	10	0	0		5		2			
				S	6	11	1	2		2		3			
				U	0	0	0	0		0		1			
				F	1	0	0	0		1		2			

NORTH PACIFIC

NORTH PACIFIC 8-HOURLY QUALITY FIGURES			SHORT-TERM FORECASTS ISSUED AT			WHOLE DAY INDEX	ADVANCE FORECASTS (J_P REPORTS) FOR WHOLE DAY, ISSUED IN ADVANCE BY:				GEOMAGNETIC K_{SI}	
03 TO 11	11 TO 19	19 TO 03	02	09	18		1-7 DAYS FINAL J_{PS}	1-7 DAYS SDW J_P	1-3 DAYS	1-7 DAYS	HALF (1)	DAY (2)
6	5	6	6	5	4	5		6		5	2	0
5	5	6	5	4	4	5		5		5	0	1
4	5	7	5	5	5	5		5		5	1	1
5	5	7	4	4	5	5		5		5	2	1
5	5	7	6	5	4	5		6		5	1	1
5	4	7	4	4	5	5		4		4	1	0
5	5	6	6	5	5	5		4		6	1	2
5	6	7	5	5	4	6		6		6	2	2
5	6	6	5	5	6	6		6		6	1	1
5	6	6	5	5	7	6		5		5	2	2
5	5	6	6	4	5	6		3		3	3	2
5	4	6	5	5	3	(4)		3		3	(4)	(4)
5	5	7	4	4	5	5		3		3	(4)	2
5	4	6	4	4	4	(4)		3		2	(5)	(4)
4	5	6	4	4	6	5		4		4	3	2
4	5	6	4	5	6	5		4		4	3	2
4	5	7	5	4	4	5		5		5	2	0
5	5	7	5	6	6	5		5		5	1	1
6	5	7	6	6	6	6		5		5	2	(5)
6	6	6	6	6	6	6		5		5	2	2
5	6	7	6	4	6	6		5		5	2	0
6	7	7	6	7	7	7		5		5	0	0
5	5	6	6	6	7	5		5		5	0	1
3	3	5	5	3	3	5		3	3	7	(7)	(4)
4	4	6	3	3	5	(4)		3	3	7	2	2
3	4	6	4	5	5	(4)		4	4	6	2	2
4	4	5	5	4	6	(4)		5	5	6	0	1
5	4	6	5	5	5	(4)		6	6	6	0	2
5	5	4	5	4	3	(4)		4	4	6	2	(7)
4	4	7	3	4	6	5		3	3	6	(4)	1
5	4	6	6	5	6	6		5		5	1	1
			12	5	6			8				
			11	15	15			11				
			0	0	6			4				
			0	1	3			1				
			2	5	0			2				
			5	5	1			4				
			1	0	0			0				
			0	0	0			1				

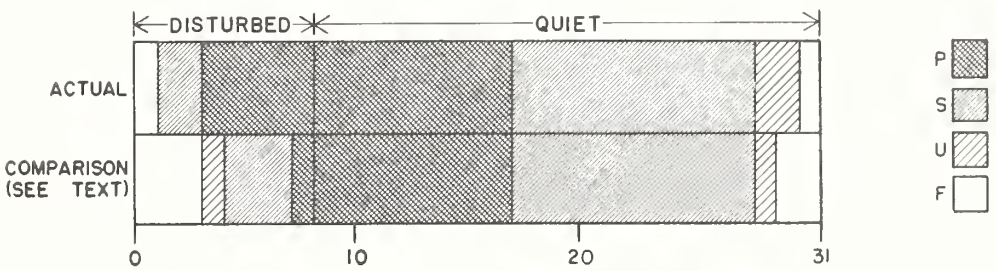
NORTH ATLANTIC



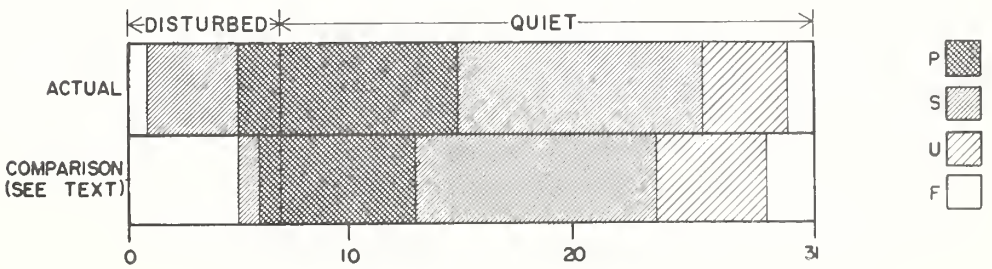
Outcome of advance forecasts--final estimates (1 to 7 days ahead)

COMMERCE - STANDARDS - BOULDER

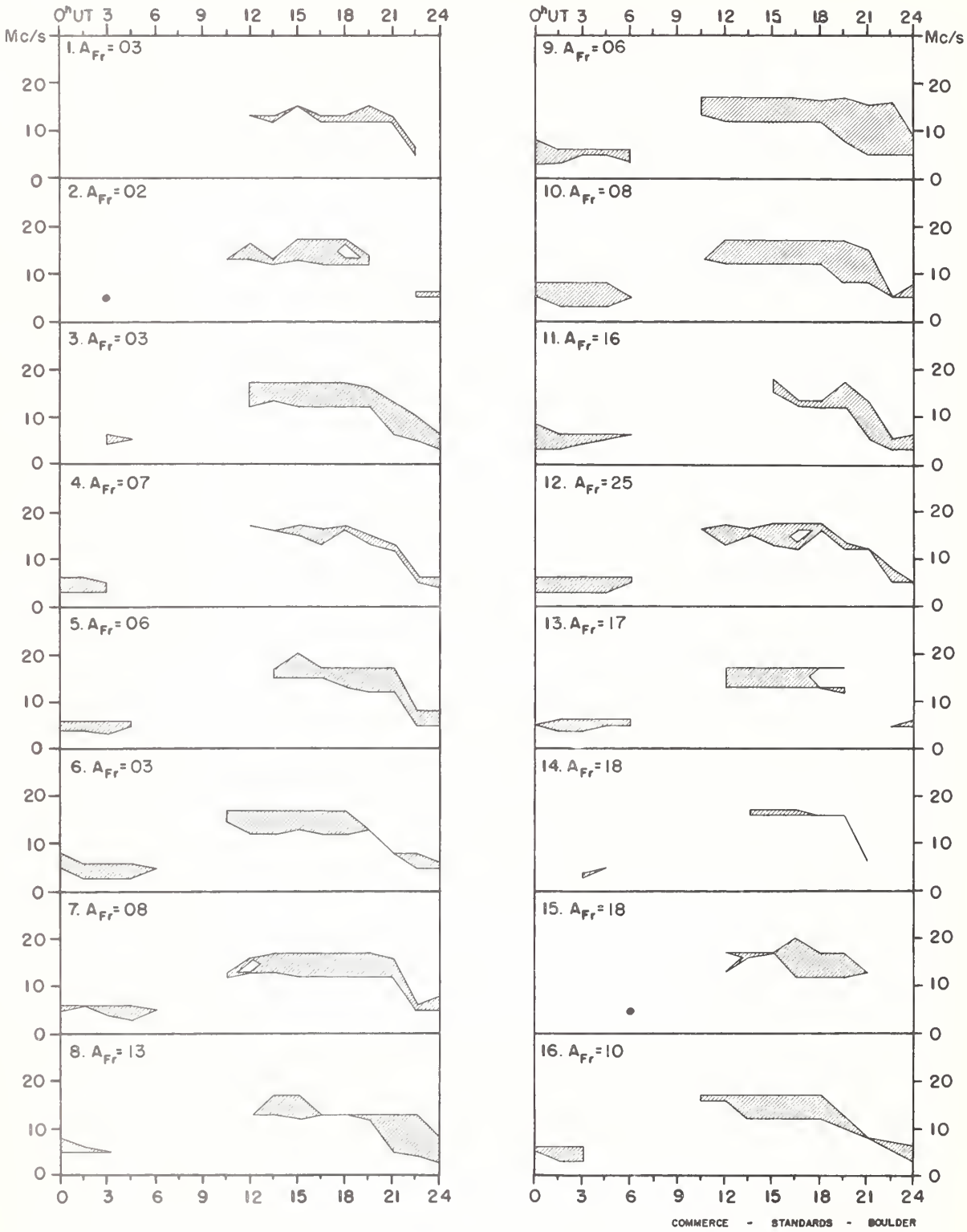
NORTH ATLANTIC



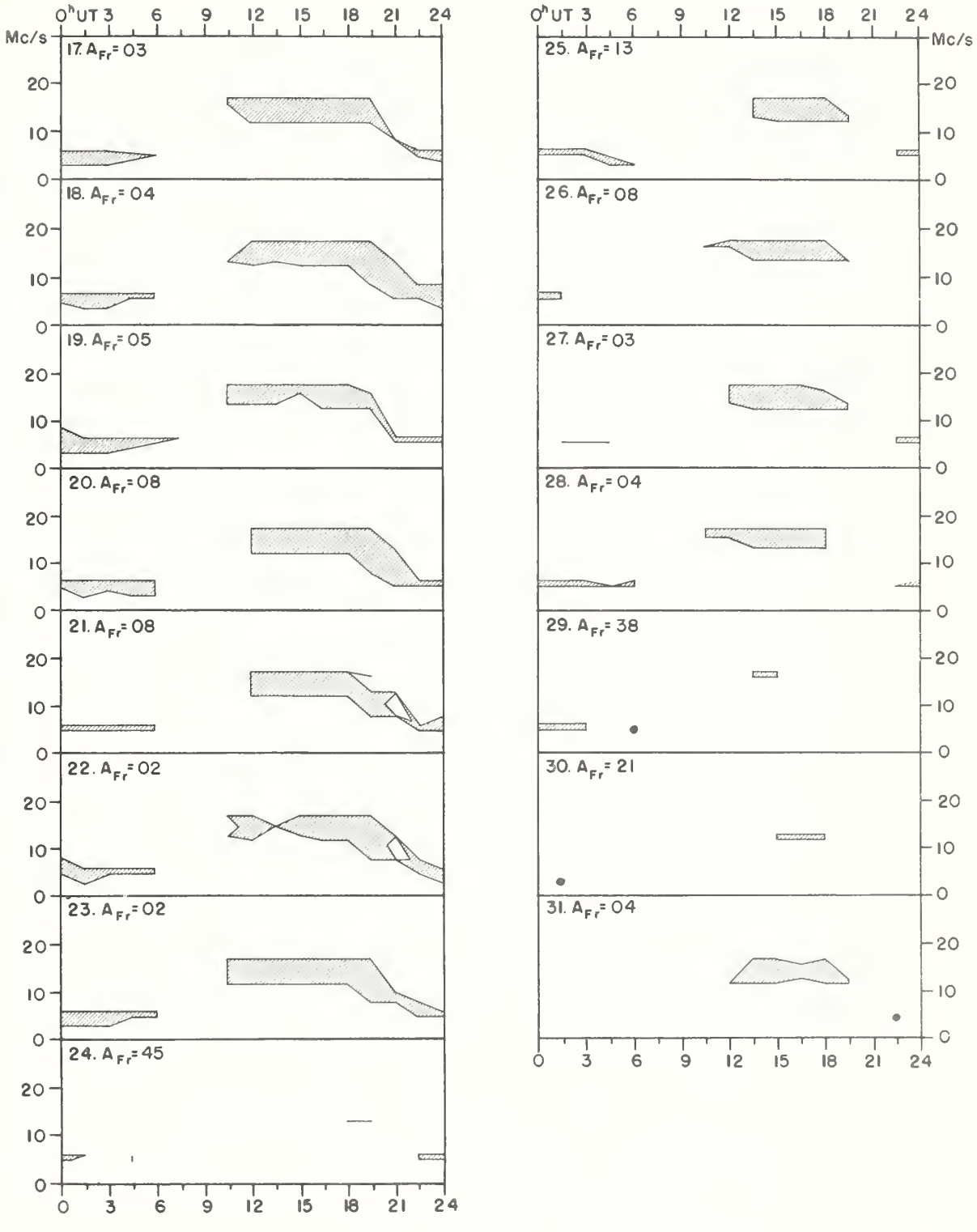
NORTH PACIFIC



OCTOBER 1963



OCTOBER 1963



Adapted from Observations by Deutsches Bundespost

IQSY ALERT PERIODS

INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

NOVEMBER 1963

NOV. 1963	TIME OF ISSUE, UT	ADVANCE GEOPHYSICAL ALERT	WORLDWIDE GEOPHYSICAL ALERT			
			NO.	TYPE	TIMING	ELABORATION
8	0400		18	Magnetic Storm	Exists	
8	1410	College, Cosmic Event exists Polar Cap Absorption 07/2000				
9	0400		19	Magnetic Storm	Exists	
10	0400		20	Magnetic Storm	Exists	
21	0400		21	Magnetic Storm	Expected	

COMMERCE - STANDARDS - BOULDER