

CRPL-F 244 PART B

FOR OFFICIAL USE

PART B
SOLAR - GEOPHYSICAL DATA

ISSUED
DECEMBER 1964

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

SOLAR - GEOPHYSICAL DATA

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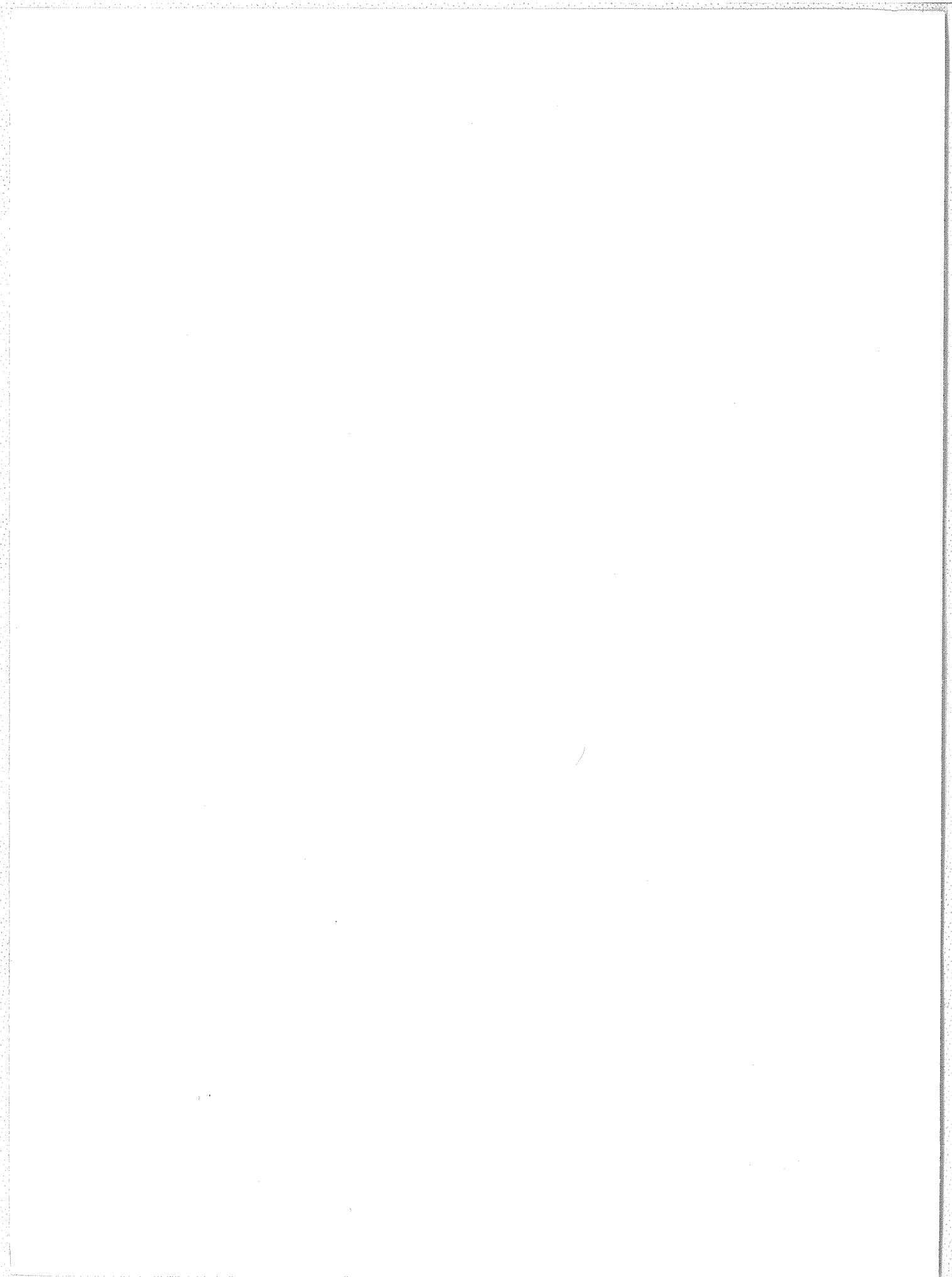
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ADDENDA AND ERRATUM TO TEXT PUBLISHED IN NOVEMBER, 1964

Flare Remarks:

On page 6, last line, add to the IAU remarks:

- s = flare follows the rising of a filament
- t = region active all day

The complete remarks table are repeated here for your convenience.

- a = eruptive prominence for which the base has a heliocentric distance of at least 90°
- b = probably the end of a more important flare
- c = invisible 10 minutes before
- d = brilliant point
- e = two or more brilliant points
- f = several eruptive centers
- g = no spots visible in the neighborhood
- h = the flare is accompanied by a dark filament (surge) of high sightline velocity
- i = very extensive active region
- j = marked variations in the intensity of the plage area, also before and (or) after the real flare event
- k = several intensity maxima
- l = filaments already existing in the neighborhood show effects of sudden activation
- m = the flare has a strong continuous spectrum (is visible in white light)
- n = the continuous spectrum shows effects of polarization
- o = the observations have been made in the calcium II lines H or K
- p = the flare shows helium D₃ in emission
- q = the flare shows the Balmer continuum in emission
- r = the H α line shows a marked asymmetry suggesting outgoing matter of high velocity
- s = flare follows the rising of a filament
- t = region active all day

Cosmic Ray Indices:

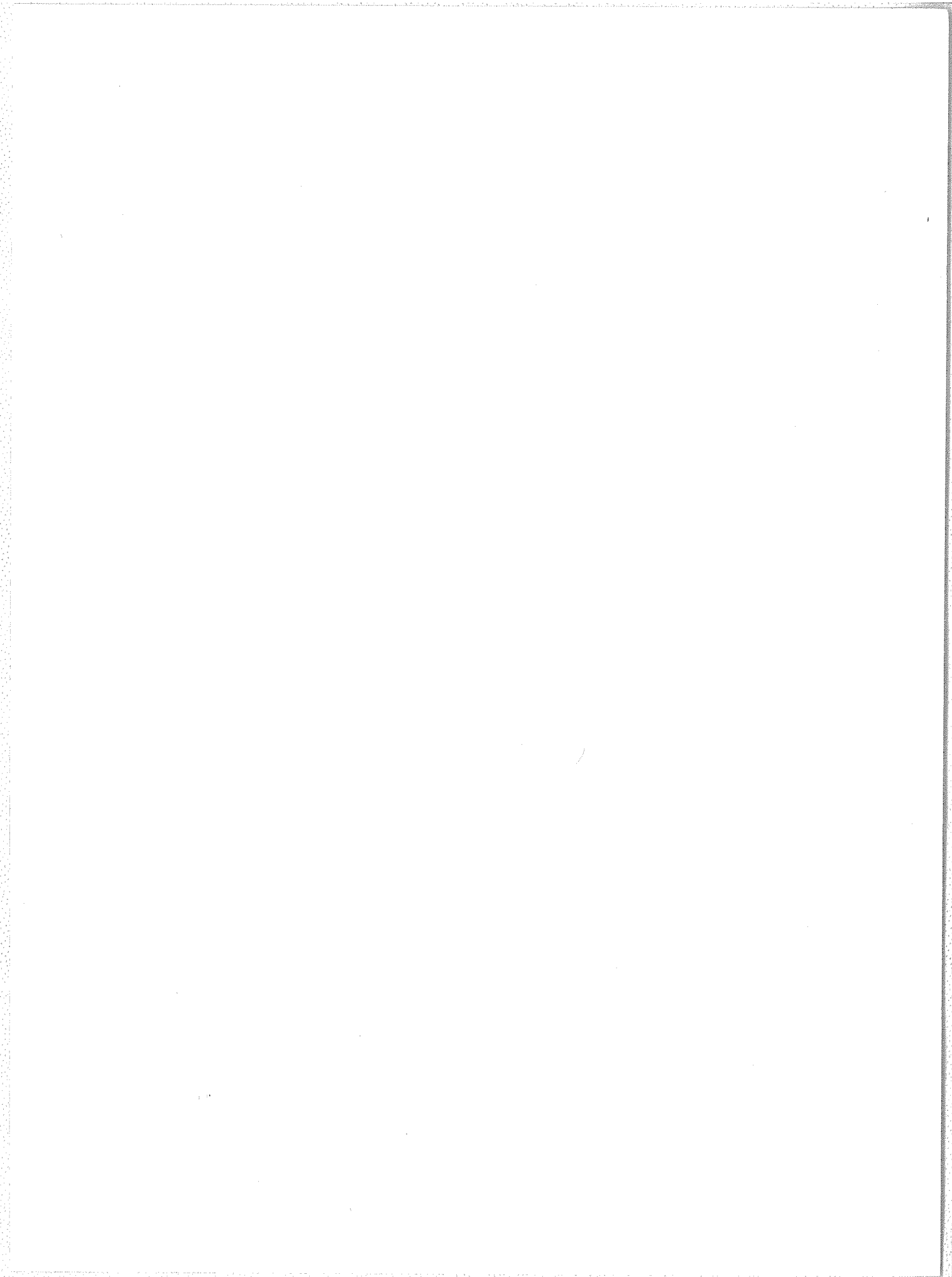
The coordinates for Dallas, Texas were given incorrectly in the table on page 24. They are geographic latitude $32^{\circ}47'$ and geographic longitude $96^{\circ}48'W$.

Flare Observatories:

The following table gives the abbreviations used for the solar observatories as reported in the solar flare tabulations beginning with data in CRPL-F244 Part B.

SOLAR FLARE OBSERVATORIES

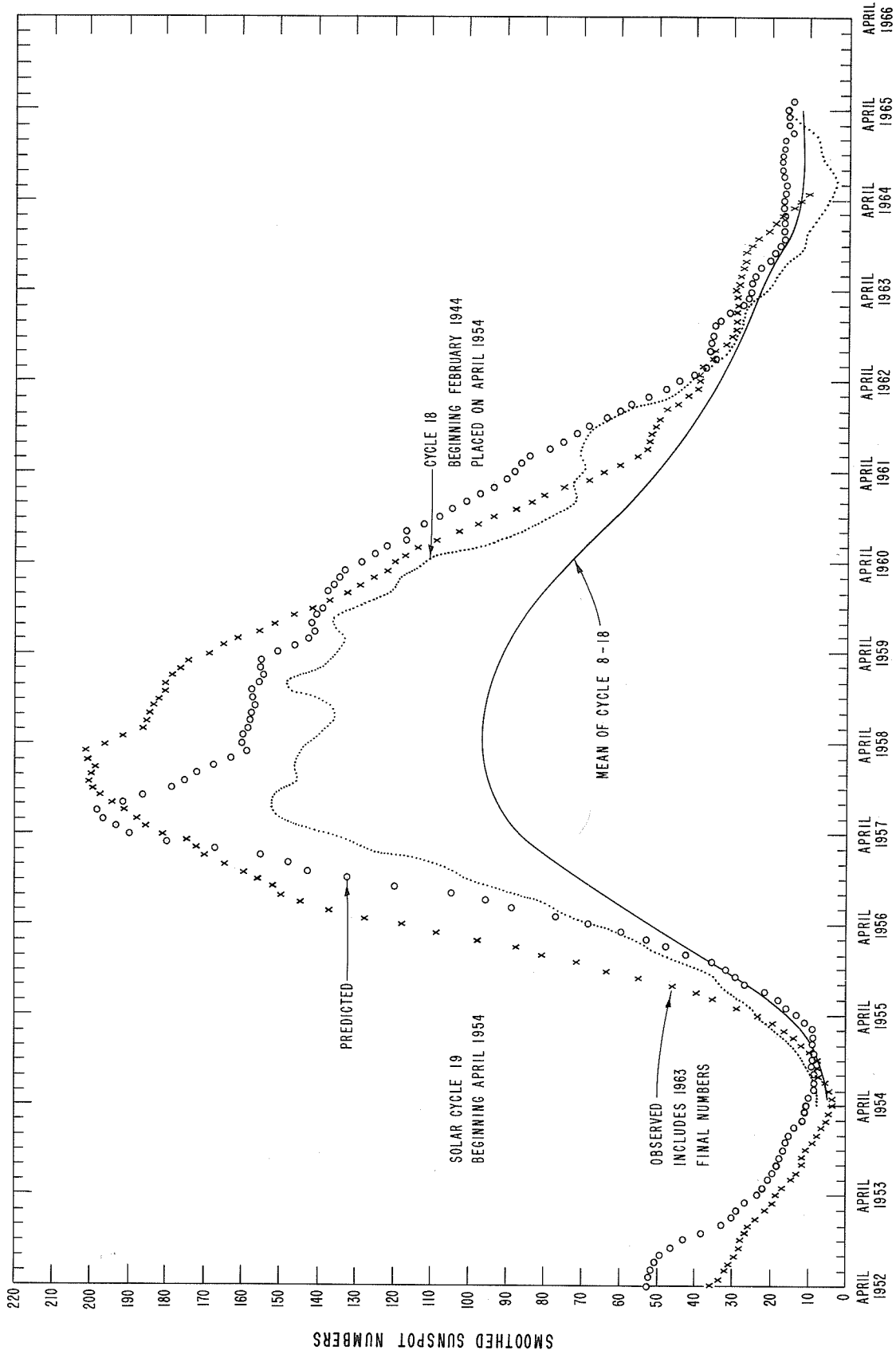
CODE NO.	I. A. U ABBREV.	NAME, PLACE AND COUNTRY	FORMER CRPL DESIGNATION
824	ABST	ABASTUMANI, GEORGIAN SSR	ABASTUMANI
825	ALMA	MTN OBS, ALMA-ATA, KAZAK SSR	ALMA-ATA
512	ARCE	ARCETRI, FLORENCE, ITALY	ARCETRI
521	AROS	AROSA, SWITZERLAND	AROSA
508	ATHN	NATL OBS, ATHENS, GREECE	ATHENES
832	BAKO	BAKOU, PIRCULI, USSR	PIRCULI
560	BUCA	NATL OBS, BUCHAREST, ROMANIA	BUCHAREST
151	CAPE	R.O. CAPE TOWN, CAPE OF GOOD HOPE SOUTH AFRICA	CAPE TOWN, GOOD HOPE
506	CAPF	ANACAPRI, ITALY (GERMAN)	CAPRI-G
519	CAPS	ANACAPRI, ITALY (SWEDISH)	CAPRI-S
466	CART	CARTER OBS, WELLINGTON, NEW ZEALAND	CARTER
570	CATA	CATANIA, SICILY, ITALY	CATANIA
450	CHRI	CHRISTCHURCH, NEW ZEALAND	CHRISTCHURCH
639	CLMX	HIGH ALTITUDE OBS, CLIMAX, COLORADO, USA	CLIMAX
826	CRIM	SIMEIS, CRIMEA, RSFSR	CRIMEE, SIMEIZ
511	DUNS	DUNSINK OBS, DUBLIN, IRELAND	DUNSINK
536	EDIN	R.O. EDINBURGH, SCOTLAND	R.O. EDINBURGH
564	FRIB	FRANHOFFER INST. FREIBURG, GFR	NEW SCHAUISLAND
478	HALE	HALEAKALA, MAUI, HAWAII, USA	HALEAKALA
563	HTPR	HAUTE-PROVENCE, FRANCE	HAUTE-PROVENCE
537	HERS	R. GREENWICH OBS, HERSTMONCEUX, ENGLAND	HERSTMONCEUX, RO. HERST
440	HONO	HONOLULU, HAWAII, USA	HAWAII
718	HUAN	GEOPHYSICAL INST, HUANCAYO, PERU	HUANCAYO
313	IKOM	IKOMASAN OBS, KYOTO, JAPAN	KYOTO
358	ISTA	UNIV. OBS, ISTANBUL, TURKEY	ISTANBUL
831	IZMI	IZMIRAN, KRASNAYA PAKHRA, USSR	NIZMIR, KRASNAYA PAKHRA
547	KANZ	GRAZ OBS, KANZELHOHE, AUSTRIA	KANZELHOHE
827	KHAR	KHARKOV, UKRANIAN SSR	KHARKOV
828	KIEV	KIEV, GAO, UKRANIAN SSR	KIEV, KO
829	KIKY	KIEV UNIV, UKRANIAN SSR	KIEV KY
309	KODA	KODAIKANAL, INDIA	KODAIKANAL
522	LOCA	LOCARNO, SWITZERLAND	LOCARNO
659	LOCK	LOCKHEED, LOS ANGELES, CALIFORNIA, USA	LOCKHEED
876	LVOV	LVOV, UKRANIAN SSR	LVOV
468	MANI	MANILA, PHILIPPINE ISLANDS	MANILA
642	MCMA	MCMATH-HULBERT, PONTIAC, MICHIGAN, USA	MCMATH
505	MEUD	MEUDON, FRANCE	MEUDON
314	MITK	MITAKA, TOKYO, JAPAN	MITAKA
555	MONT	MONTE MARIO OBS, ROME, ITALY	ROME
830	MOSC	MOSCOU, MOSCOW-GAISH, RSFSR	MOSCOW-G
643	MWIL	MT. WILSON, CALIFORNIA, USA	MT. WILSON
515	NERA	NEDERHORST DEN BERG, NETHERLANDS	NERA, NEDERHORST
310	NIZH	NIZAMIAH, HYDERABAD, INDIA	NIZAMIAH
504	ONDR	ONDREJOV, PRAGUE, CZECHOSLOVIA	ONDREJOV
603	OTTA	OTTAWA, ONTARIO, CANADA	OTTAWA
548	POTS	POTSDAM, GDR	POTSDAM
359	PURP	PURPLE MTN, NANKING, CHINA	PURPLE MT
645	SACP	SACRAMENTO PEAK, SUNSPOT, NEW MEXICO, USA	SACRAMENTO PEAK
572	SALO	SALONIQUE (THESSALONIKA) GREECE	THESSALONIKA
520	SALT	SALTSJOBADEN, STOCKHOLM, SWEDEN	STOCKHOLM
758	SANM	SAN MIGUEL, ARGENTINA	SAN MIGUEL
507	SCHA	SCHAUISLAND MT, GFR	SCHAUISLAND
862	SIBE	SIBERIE (SIBERIAN IZMIR) IRKUTSK, RSFSR	IRKUTSK
401	SYDN	C.S.I.R.O. SYDNEY, AUSTRALIA	SYDNEY
833	TACH	TACHKENT, UZBECK SSR	TASHKENT
661	TOMA	TOMANTZINTLA, MEXICO	TONANTZINTLA
556	TORT	TORTOSA, SPAIN	TORTOSA
502	UCCL	UCCLE, R.O. BRUSSELS, BELGIUM	UCCLE
644	USNR	USNRL, WASHINGTON, DC, USA	USNRL
516	UTRE	SONNENBORGH OBS, UTRECHT, NETHERLANDS	UTRECHT
834	VORO	VOROSHILOV, USSR	VOROSHILOV, USSURISK
546	WEND	WENDELSTEIN, GFR	WENDELSTEIN
574	WROC	WROCLAW, POLAND	WROCLAW
523	ZURI	EIDGENOSSISCHE STERNWARTE, ZURICH, SWITZERLAND	ZURICH



DAILY SOLAR INDICES

October 1964	American Relative Sunspot Numbers R_A'
1	10
2	5
3	1
4	0
5	1
6	12
7	17
8	14
9	7
10	0
11	0
12	0
13	1
14	1
15	1
16	0
17	0
18	14
19	9
20	3
21	0
22	0
23	0
24	1
25	6
26	0
27	0
28	0
29	0
30	1
31	12
Mean:	3.7

November 1964	Zürich Provisional Relative Sunspot Numbers R_Z	Daily Values Solar Flux at 2800 Mc, Ottawa, Canada Flux	
		S	S_A
1	9	74.7	73.6
2	8	74.5	73.3
3	7	73.9	72.7
4	0	73.4	72.1
5	0	72.9	71.6
6	7	73.9	72.6
7	7	72.8	71.5
8	7	72.4	71.1
9	0	71.7	70.4
10	0	71.5	70.1
11	0	71.6	70.2
12	9	72.2	70.7
13	7	72.2	70.7
14	17	72.6	71.1
15	8	72.2	70.6
16	16	71.9*	70.3*
17	12	75.5	73.7
18	19	75.0	73.3
19	12	74.9	73.1
20	17	75.9	74.0
21	20	73.7	72.0
22	8	73.3	71.5
23	0	71.6	69.9
24	8	71.1	69.3
25	9	71.4	69.5
26	0	69.9	68.1
27	0	71.5	69.6
28	0	70.7	68.8
29	0	73.0	71.0
30	0	73.6	71.5
31	0		
Mean:	6.9	72.8	71.3



PREDICTED AND OBSERVED SUNSPOT NUMBERS

CALCIUM PLAGE AND SUNSPOT REGIONS

NOVEMBER 1964

Nov. 1964	LAT.	MCMATH PLAGE NUMBER	RETURN OF REGION	CALCIUM PLAGE DATA						SUNSPOT DATA		
				CMP VALUES		HISTORY	AGE (ROTATIONS)	DATE FIRST SEEN (1)	DURATION (DAYS) (1)	CMP VALUES		HISTORY
				AREA	INT.					AREA	COUNT	
01.6	N06	7550 (2)	New	(600)	(1)	b - d	1	Oct. 28	1			
02.1	S08	7553	New	600	2.5	d - l	1	Oct. 30	≈ 8	85	2	b - d
03.0	N40	7554	7500	700	1.5	b \ l	2	Oct. 30	10			
03.9	S12	7563 (2)	New	100	1.5	b - d	1	Nov. 4	1			
04.2	N18	7566 (2)	New	(100)	(3)	b - l	1	Nov. 8	1			
05.2	N43	7559	7503	600	1.5	b \ d	3	Nov. 1	8			
05.3	S01	7567 (2)	New	(200)	(1)	b - l	1	Nov. 9	1			
05.3	S27	7564 (2)	New	100	1	b - d	1	Nov. 4	1			
05.7	N03	7565 (2)	New	100	1	b - d	1	Nov. 4	1			
07.4	N04	7561 (2)	New	(100)	(2)	b - d	1	Nov. 3	1			
09.6	N20	7572	New	200	2.5	b \ d	1	Nov. 11	4			
10.0	N09	7577	New	(200)	(3)	b / l	1	Nov. 14	2			
10.2	N24	7573 (2)	New	100	2.5	b - d	1	Nov. 11	1			
10.6	N32	7562	New	900	2.5	l - l	1	Nov. 3	13			
12.5	N29	7568	New	(100)	(1)	b / l	1	Nov. 9	10	73	1	b - d
12.3	N39	7571 (2)	New	100	1.5	b - d	1	Nov. 11	1			
13.2	S08	7579	New	(100)	(1)	b / l	1	Nov. 15	4			
13.3	N32	7583 (2)	New	(100)	(1)	b - d	1	Nov. 16	1			
14.3	S38	7580 (2)	New	100	1	b - d	1	Nov. 15	1			
14.7	N34	7569	New	(300)	(2)	b / d	1	Nov. 10	2			
15.2	N02	7570	7521	500	1.5	b ^ d	2	Nov. 10	5			
15.3	N04	7586 (2)	New	(100)	(1)	b - d	1	Nov. 18	1			
15.9	N18	7581	New	200	2.5	b / l	1	Nov. 15	≈ 6	(97)	6	b - l
16.3	N23	7574 (2)	New	(300)	(1.5)	l - d	1	Nov. 11	1			
16.6	N36	7587	New	(300)	(3)	b / l	1	Nov. 20	3	(109)	1	b - d
17.6	N02	7584 (2)	New	100	1	b - d	1	Nov. 16	1			
18.0	N04	7591 (2)	New	(200)	(1)	b - d	1	Nov. 22	1			
18.7	S24	7578 (2)	New	(100)	(1.5)	b - d	1	Nov. 14	1			
18.7	N19	7576	New	(100)	(1.5)	l - d	1	Nov. 11	2			
18.9	N10	7575	7544	(200)	(1)	l - d	2	Nov. 11	2			
20.8	N06	7594 (2)	New	(100)	(1)	b - d	1	Nov. 25	1			
21.9	N17	7582	7551	600	1	l \ d	2	Nov. 15	≈ 12			
22.1	S08	7585	7533	900	2.5	l \ l	3	Nov. 16	≈ 11			
23.1	N06	7588 (2)	New	(200)	(1)	b - d	1	Nov. 20	1			
23.3	N01	7595 (2)	New	(200)	(1)	b - d	1	Nov. 26	1			
23.4	N01	7593	New	100	2	b - d	1	Nov. 23	2			
25.0	N14	7596	New	100	1.5	b / l	1	Nov. 26	≈ 5			
25.1	N21	7597 (2)	New	100	1.5	b - d	1	Nov. 26	1			
26.1	N04	7589 (2)	New	(100)	(1.5)	l - d	1	Nov. 20	1			
26.2	S03	7590 (2)	New	(100)	(1.5)	l - d	1	Nov. 20	1			
26.8	S15	7599	New	(100)	(1.5)	b - d	1	Nov. 29	≈ 2			
27.1	N27	7592	7538	1200	2.5	b ^ l	3	Nov. 22	> 9			
28.6	N28	7600	New	200	1	b - d	1	Nov. 29	≈ 2			
30.2	N29	7601	New	200	2	b - d	1	Nov. 29	≈ 2			

STANFORD - STANFORD - STANFORD

- (1) No calcium plage observations were secured at the McMath-Hulbert Observatory on November 7, 19, 21, 27, 28, 1964.
- (2) These very small and ephemeral plages last for only one day.

MT. WILSON MAGNETIC CLASSIFICATIONS OF SUNSPOTS

IIB

NOVEMBER 1964

NOV. 1964	TIME MEAS. UT	LAT.	MER. DIST.	TYPE	NOV. 1964	TIME MEAS. UT	LAT.	MER. DIST.	TYPE
1	1755	S07	E04	βp	14	1830	N30 N08	W29 W63	βp* β
2	1750	S07	W12	ap	15	2225	N30 N18	W48 E00	ap* β*
3	1840	S07	W27	ap	16	1910	N30 N19	W60 W23	ap* β*
4	1800	N02	E14	ap	17 - 18 No Obs				
5	No Spots								
6	2145	N34	E47	β	19	1710	N21	W55	βp*
7	1655	N34	E39	af*	20	No Obs			
8 - 12	No Obs				21	1740	N38	W73	ap*
13	No Spots				22 - 30 No Spots				

* New Cycle

COMMERCE - STANDARDS - SOULDER

PROVISIONAL CORONAL LINE EMISSION INDICES

NOVEMBER 1964

CMP Nov 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	44	62	x	0	0	x	x	x	x	x	x	x
2	21	39	32	7	10	26	x	x	x	x	x	x
3	21	39	13	1	4	13	x	x	x	x	x	x
4	x	x	x	x	x	x	x	x	x	x	x	x
5	x	x	x	x	x	x	0	0	26	13	27	26
6	10	13	12	4	6	8	3	4	23	13	20	30
7	x	x	x	x	x	x	x	x	x	x	x	x
8	7	20	x	0	0	x	6	8	16	14	18	20
9	10	16	24	4	6	14	x	x	x	x	x	x
10	x	x	x	x	x	x	9	12	14	15	22	28
11	x	x	x	x	x	x	x	x	x	x	x	x
12	x	x	x	x	x	x	x	x	x	x	x	x
13	4	6	17	0	3	18	3	6	21	12	15	32
14	7	10	16	3	4	25	3	4	19	14	27	24
15	x	x	x	x	x	x	2	4	25	12	31	47
16	x	x	x	x	x	x	3	4	12	17	42	20
17	x	x	x	x	x	x	x	x	x	x	x	x
18	x	x	x	x	x	x	3	4	25	5	6	25
19	5	8	26	2	4	17	5	8	15	4	4	18
20	4	6	30	5	7	17	x	x	x	x	x	x
21	x	x	x	x	x	x	x	x	x	x	x	x
22	14	24	20	13	42	13	15	25	11	7	9	20
23	x	x	x	x	x	x	10	12	9	9	10	48
24	10	12	14	8	13	8	6	9	10	11	22	27
25	x	x	x	x	x	x	x	x	x	x	x	x
26	x	x	x	x	x	x	x	x	x	x	x	x
27	18	33	20	6	9	18	x	x	x	x	x	x
28	11	27	14	3	6	15	8	16	14	11	16	12
29	5	7	26	2	4	24	3	5	10	8	10	9
30	8	10	12	3	4	12	5	7	14	7	9	16

x = no observations * = yellow line emission a = index computed from low weight data G₆G₁R₁ - 7 days later

SOLAR FLARES

NOVEMBER 1964

OBSERVATORY	DATE	OBSERVED UNIVERSAL TIME		MAX. PHASE	LOCATION			DURATION - MINUTES	IM. PORTANCE	OBS. COND.	TIME - U T	MEASUREMENTS		REMARKS
		START	END		APPROX. LAT.	MER. DIST.	McMATH PLAGE REGION					MEAS. AREA - Sq. Deg.	CORR. AREA - Sq. Deg.	
	NOV 1964													
MCMA	01	0145	0235	NO FLARE										
	01	0330	0500	NO FLARE	PATROL									SL
	01	0620	0635	NO FLARE	PATROL									
	01	0710	0730	NO FLARE	PATROL									
	01	1205	1210	NO FLARE	PATROL									
	01	1703	1708	1704	N29 W19	7538			1-	1 C	1704	.60	.70	
SYDN	03	0137 E	0148	0139	N29 W38	7538			1-	P	0139	1.20	1.70	GH
	03	0615	0700	NO FLARE	PATROL									
	03	1200	1335	NO FLARE	PATROL									
SACP	03	1629	1650	1640	S12 W53	7548			1-	C		.41	.55	16
	04	0320	0635	NO FLARE	PATROL									
	04	0930	1055	NO FLARE	PATROL									
	04	1140	1150	NO FLARE	PATROL									
	04	1200	1355	NO FLARE	PATROL									
	05	0310	0330	NO FLARE	PATROL									
	05	0355	0450	NO FLARE	PATROL									
	05	0540	0600	NO FLARE	PATROL									
	05	0650	0720	NO FLARE	PATROL									
	05	0830	1310	NO FLARE	PATROL									
	05	1320	1325	NO FLARE	PATROL									
	05	1345	1355	NO FLARE	PATROL									
	06	0010	0205	NO FLARE	PATROL									
	06	0245	0445	NO FLARE	PATROL									
	06	0505	0750	NO FLARE	PATROL									
UCCL	06	1122	1126		N33 E59	7562			1-	3				E
	06	1200	1300	NO FLARE	PATROL									
	06	2355	2400	NO FLARE	PATROL									
	07	0000	0010	NO FLARE	PATROL									
	07	0105	0330	NO FLARE	PATROL									
	07	0700	1005	NO FLARE	PATROL									
	07	1120	1335	NO FLARE	PATROL									
	08	0020	0025	NO FLARE	PATROL									
	08	0555	0700	NO FLARE	PATROL									
	08	0720	0915	NO FLARE	PATROL									
	08	0930	0935	NO FLARE	PATROL									
	08	1200	1320	NO FLARE	PATROL									
	08	1350	1500	NO FLARE	PATROL									
	08	1510	1635	NO FLARE	PATROL									
	08	1710	1730	NO FLARE	PATROL									
SYDN	08	2134	2146	2139	S30 W09				1-	C	2139	.60	.72	CG
	08	2230	2320	NO FLARE	PATROL									
	09	0400	0455	NO FLARE	PATROL									
	09	0600	0700	NO FLARE	PATROL									
UCCL	09	0937	0945		N33 E17	7562			1-	2				E

SOLAR FLARES

NOVEMBER 1964

OBSERVATORY	DATE	OBSERVED UNIVERSAL TIME		MAX. PHASE	LOCATION			DURA- TION -- MINUTES	IM- POR- TANCE	OBS. COND.	TIME -- U T	MEASUREMENTS		MAX. WIDTH Sec.	MAX. INT. %	REMARKS
		START	END		APPROX. LAT. DIST.	MATH PLACE REGION	MEAS. AREA Sq. Deg.					COOR. AREA Sq. Deg.				
UCCL UCCL	NOV 1964	09	1027		N33 E17	7562		1-							E	
		09	1246	1251 D	N33 E17	7562		1-							E	
		09	1345		PATROL											
		09	1435		NO FLARE											
		09	1715		NO FLARE											
		09	1840		NO FLARE											
		09	1850		NO FLARE											
		09	1950		NO FLARE											
		09	2020		NO FLARE											
09	2125		NO FLARE													
UCCL		10	0340		PATROL											
		10	0355		NO FLARE											
		10	0700		NO FLARE											
		10	0800		NO FLARE											
		10	1014		NO FLARE											
		10	1340		N33 E03	7562		1-								DK
		10	1405		PATROL											
		10	1620		NO FLARE											
		10	2130		NO FLARE											
		10	2215		NO FLARE											
MCMA		11	0630		PATROL											
		11	1200		NO FLARE											
		11	1608		NO FLARE											
		11	1950		1615	N30 E11	7568		1-			1615	0.30			EH
		11	2355		NO FLARE											
		12	0000		NO FLARE											
		12	0215		NO FLARE											
		12	0445		NO FLARE											
		12	0940		NO FLARE											
		12	0945 E		0955	N29 E02	7568		1-			0958	1.50	1.60		DFGHJ
CAPS CATA		12	2355		NO FLARE											
		13	0000		NO FLARE											
		13	0245		NO FLARE											
		13	0400		NO FLARE											
		13	0505		NO FLARE											
		13	1245		NO FLARE											
		13	2100		2104	N32 W18	7568		1-			2104	0.30	0.20		J
		13	2204		2214	N32 W18	7568		1-			2210	0.20	0.48		J
		13	0039		0046	N34 W21	7568		1-			0046	0.40	0.48		DG
		SYDN MITK CATA		14	0042 E		N32 W20	7568		1-						
14	0605				NO FLARE			1-								
14	0820 E				NO FLARE				1-							
14	1200				NO FLARE				1-							
14	1255				NO FLARE				1-							
15	0404				0410	N32 W39	7568		1-			0410	0.30	0.42		GH
15	0425				NO FLARE				1-							

SOLAR FLARES

NOVEMBER 1964

OBSERVATORY	DATE	OBSERVED UNIVERSAL TIME		MAX PHASE	LOCATION			DURA-TION - MINUTES	IN-PORTANCE	OBS. COND.	TIME - U T	MEASUREMENTS			REMARKS
		START	END		APPROX.	LAT.	LONG. DIST.					MAGN. PLACE REGION	MEAS. AREA - Sq. Deg.	COOR. AREA - Sq. Deg.	
UCCL	15 1964	0500	0745	NO FLARE	PATROL		7568		1-	3					D
	15	1104	1107 D		N32 W44					C	1641	.20	.20		10
	15	1200	1355	NO FLARE	PATROL										
LOCK	15	1638	1647	1641	N32 W38		7568		1-	C					
	16	0010	0020	NO FLARE	PATROL										
SYDN MITK	16	0250	0258	0254	N31 W53		7568		1-	C	0254	.40	.72		DGH
	16	0251	0255	0253	N32 W52		7568		1-	C					H
SACP SACP SACP SACP MITK SYDN	16	0625	0745	NO FLARE	PATROL										
	16	1240	1330	NO FLARE	PATROL										
	16	1430	1445	NO FLARE	PATROL										
	16	1500	1530	NO FLARE	PATROL										
	16	1535	1540	NO FLARE	PATROL										
	16	1600	2055	NO FLARE	PATROL										
	16	1729 E	1733 D	1730	N20 W12		7581		1-	P		.27	.27		18
	16	2100 E	2101 U	2100 E	N19 W13		7581		1-	P		1.92	1.81		18
	16	2122	2127 D	2125	N19 W16		7581		1-	C		.27	.27		19
	16	2255	2308 D	2308	N20 W17		7581		1-	C		.35	.35		19
	16	2349 E	0034	0006	N18 W14		7581		1-	V	0006	2.46	2.68		134
	16	2353	0035	0014	N22 W17		7581		1-	C	0014	.60	.66		L
MITK SYDN	17	0345 E	0354	0345	N20 W18		7581		1	V	0345	.98	1.08		96
	17	0527	0604	0542	N17 E64		7582		2	C	0542	4.00	9.00		E GJ
CATA	17	0700	0730	NO FLARE	PATROL										
	17	0851 E			N18 W24		7581		1-	S					
SACP SACP SACP SACP SYDN	17	1200	1325	NO FLARE	PATROL										
	17	1724	1746	1734	S10 W58		7579		1-	C		.21	.31		17
	17	1750	1800	1755	N18 W26		7581		1-	C		.41	.43		17
	17	2208	2229	2215	N20 W31		7581		1-	C		.41	.43		16
	17	2224	2235	2227	N19 W28		7581		1-	C		.55	.58		19
SACP	17	2224	2235	2226	N20 W28		7581		1-	C	2226	1.40	1.61		H
	18	0230	0240	NO FLARE	PATROL										
MITK	18	0245	0250	NO FLARE	PATROL										
	18	0305	0310	NO FLARE	PATROL										
SACP	18	0330	0730	NO FLARE	PATROL										
	18	1507	1516	1511	N19 W36		7581		1-	C		.25	.27		17
MITK	19	0555	0720	NO FLARE	PATROL										
	19	1200	1350	NO FLARE	PATROL										DG
MITK	20	0223	0317	0250	N37 W45		7587		1-	C					
	20	0650	0745	NO FLARE	PATROL										
MITK	21	0030	0210	NO FLARE	PATROL										
	21	0334	0347	0339	N21 W75		7581		1	C					
LOCK	21	0650	0735	NO FLARE	PATROL										
	21	2128	2134	2130	N17 W85		7581		1-	C	2130	.20	.60		10
	21	2339	2357	2344	N26 E62		7592		1-	C	2344	.20	.30		10
22	0620	0745	NO FLARE	PATROL											H J

CONFIDENTIAL - STANFORD - 1964

SOLAR FLARES

NOVEMBER 1964

OBSERVATORY	DATE	OBSERVED UNIVERSAL TIME		LOCATION		DURATION MINUTES	IM-PORTANCE	OBS. COND.	TIME	MEASUREMENTS		REMARKS
		START	END	APPROX. LAT.	MER. DIST.					MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	
LOCK	NOV 22 1964	1845	1930	N37 W80	7587	57	1-	C	1845	.40	1.00	J
LOCK	22	2239	2250	N37 W80	7587		1-	C	2239	.20	.50	J
LOCK	22	2310	2327	N37 W80	7587		1-	C	2310	.20	.60	L.
LOCK	22	2335	0030	N37 W85	7587	57	1	C	2400	1.60	4.80	L.
MITK	23	0003	0028	N37 W84	7587	25	1	C			4.95	G
SYDN	23	0012	0019	N38 W90	7587			C				G
SYDN	23	0408	0427	N36 W90	7587			C				G
MITK	23	0411	0426	N37 W86	7587	15	1	C			3.65	G
	23	0830	0840	NO FLARE								
	23	1200	1340	NO FLARE	PATROL							
	24	0155	0215	NO FLARE	PATROL							
	24	0620	0745	NO FLARE	PATROL							
LOCK	24	1728	1745	N28 E28	7592	49	1-	C	1733	.30	.30	L
LOCK	24	2341	0030	N29 E26	7592		1	C	2350	2.00	2.00	L
SYDN	24	2343	0004	N27 E25	7592	21	2	C	2351	7.00	8.40	GHJ
SACP	24	2343	2355 D	N28 E26	7592		1-	C	2351	1.40	1.50	19
	25	0550	0605	NO FLARE	PATROL							
	25	0625	0635	NO FLARE	PATROL							
	25	0700	0740	NO FLARE	PATROL							
LOCK	25	1655	1709	N29 E15	7592		1-	C	1658	.20	.20	10
LOCK	25	2150	2201	S11 W28	7585		1-	C	2155	.30	.30	10
LOCK	25	2217	2232	N25 E09	7592		1-	C	2221	.30	.30	10
	26	0700	0745	NO FLARE	PATROL							
	26	1200	1255	NO FLARE	PATROL							
	26	1300	1350	NO FLARE	PATROL							
	26	1616	1704	N23 E03	7592		1-	C		.82	.84	19
SACP	26	1925	1950	NO FLARE	PATROL							
	27	0705	0745	NO FLARE	PATROL							
	27	1313	1328	N28 W10	7592		1-	P	1314	.31	.35	E
HUAN	27	1515	1630	NO FLARE	PATROL							
SACP	27	2140	2200	N25 W13	7592		1-	C		.31	.31	16
SACP	27	2248	2300	N27 W16	7592		1-	C		.43	.45	18
SACP	27	2303	2316 D	N30 W17	7592		1-	P		.54	.56	17
	27	2315	2320	NO FLARE	PATROL							
	28	0530	0625	NO FLARE	PATROL							
	28	0705	0940	NO FLARE	PATROL							
UCCL	28	1121	1125	N18 W50	7596		1-	3				DH
	28	1155	1355	NO FLARE	PATROL							
SACP	28	1357	1424	N28 W25	7592		1-	C		.21	.23	18
LOCK	28	1634	1655	N28 W28	7592		1-	C	1642	.30	.30	10
LOCK	28	1820	1830	N28 W28	7592		1-	C	1824	.20	.20	10
LOCK	28	2120	2155	S11 W90	7585		1-	C	2133	.20	1.00	10
	29	0015	0040	NO FLARE	PATROL							
	29	0100	0200	NO FLARE	PATROL							

CONTINUED - OBSERVATIONS - 6641-101

SOLAR FLARES

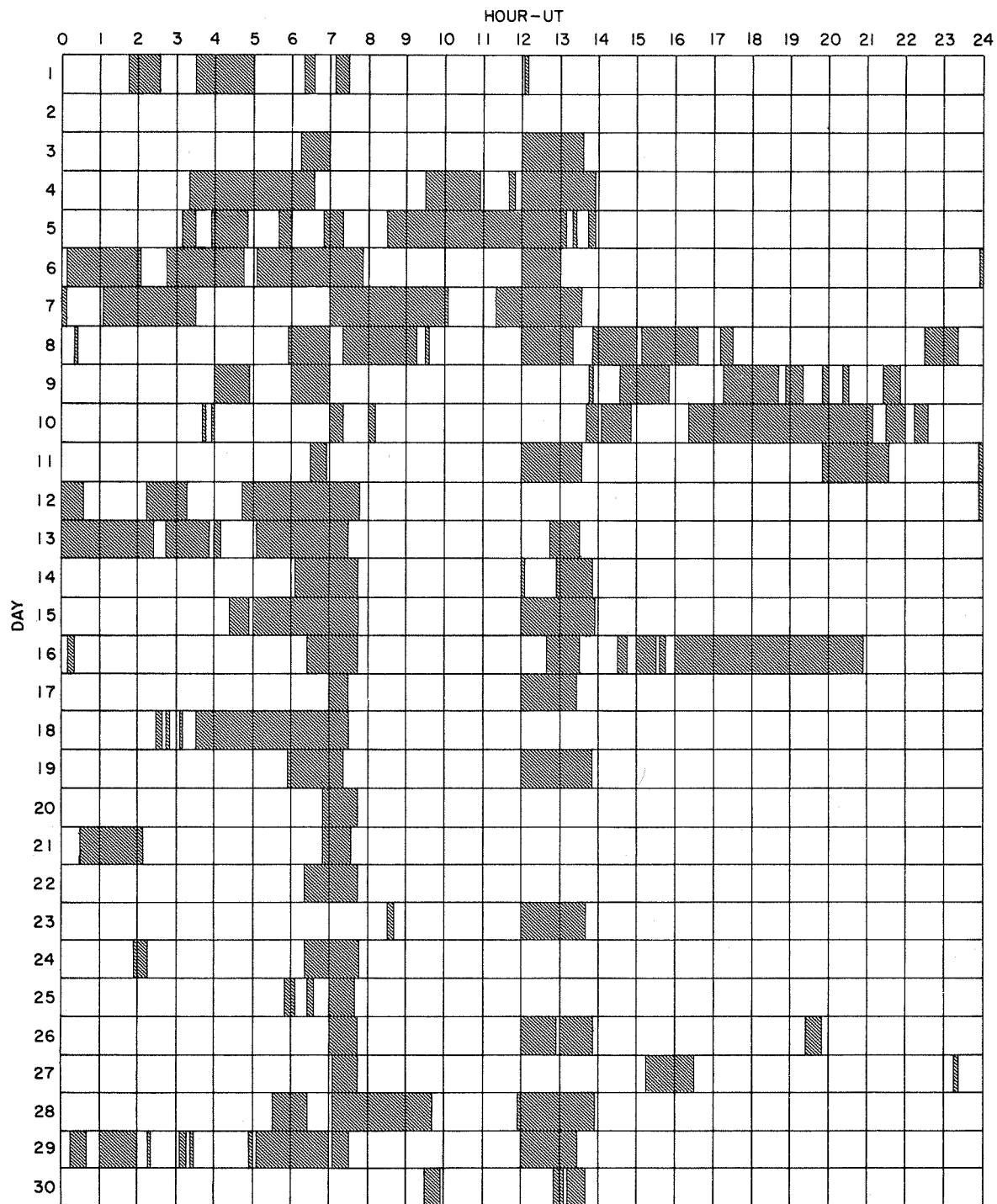
NOVEMBER 1964

OBSERVATORY	DATE	OBSERVED UNIVERSAL TIME		LOCATION			DURA- TION — MINUTES	IM- POR- TANCE	OBS. COND.	TIME — U T	MEASUREMENTS			REMARKS
		START	END	APPROX. LAT.	INSTR. DIST.	MAGNETH PLACE REGION					MEAS. AREA Sq. Deg.	COBR. AREA Sq. Deg.	MAX. WIDTH Deg.	
	NOV 1964													
	29	0215	0220											
	29	0305	0315											
	29	0320	0325											
	29	0455	0500											
	29	0505	0700											
	29	0705	0730											
	29	1200	1325											
LOCK	29	1602 E	1618									1.00		10
LOCK	29	1637	1645									.30		10
LOCK	29	1827	1850									.30		10
	30	0930	0955											
	30	1250	1305											
	30	1310	1340											
HUAN	30	1716 E	1743									.25		CG

COMMERCE • STANDARDS • BOULDER

INTERVALS OF NO FLARE PATROL OBSERVATIONS PROVISIONAL

NOVEMBER 1964



COMMERCE - STANDARDS - BOULDER

Observatories Included:

- | | | | | |
|----------------|----------------|----------|-----------------|--------|
| Catania | Locarno | Manila | Sacramento Peak | Uccle |
| Haute-Provence | Lockheed | Mitaka | Sydney | Zurich |
| Istanbul | McMath-Hulbert | Ondrejov | Tortosa | |

SOLAR FLARES

AUGUST 1964

OBSERVATORY	DATE AUG 1964	OBSERVED UNIVERSAL TIME		MAX. PHASE	LOCATION			DURATION MINUTES	IM- POR- TANCE	OBS. COND.	MEASUREMENTS			REMARKS
		START	END		APPROX. LAT.	MATH PLAGE REGION	MER. DIST.				TIME U.T.	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	
CAPS	01	1108 E	1119		N13 W48			1-	2		.30	.40	.70	GH
CAPS	01	1429 E	1438	NO FLARE	N14 W49			1-	2		.30	.40		GH
MCMA	01	1515	1842		PATROL	7425		1-	1		.40	.20		D
MCMA	01	1841	1857 D		N07 W25	7426		1-	1		.20	.20		DH
MCMA	02	1400	1414	1406	N07 W35	7426		1-	2		.30	.30		D
MCMA	02	1446 E	1459		N07 W35	7426		1-	2		.20	.20		D
MCMA	02	1734	1749 D	1740	N07 W37	7426		1-	2		.50	.50		E
MCMA	02	2146	2205 D	2151	N19 W72	7425		1-	2		.20	.60		DH
CAPE	03	0205	0225	NO FLARE	PATROL			1-			1.00	1.40		J
CATA	03	0230	0235	NO FLARE	PATROL			1-						
CATA	03	0240	0255	NO FLARE	PATROL			1-						
CATA	03	0648 E	0713		N08 W46	7426	25 D	1-	C					
CATA	03	0720 E	0745 D	0725	N08 W45	7426	45 D	1-						
CATA	03	1000 E	1045 D	1005	N08 W45	7426		1-						
CAPS	04	1436	1444		N18 W90			1-	2		.50			AEG
UCCL	04	1532	1539	1537	N08 W63			1-	3					D
CAPS	04	1536	1551		N04 W61			1-	2		.70	1.50		
HALE	04	1913	1921	1916	N15 W67			1-	C		.20	.30		
HALE	04	2016	2024	2020	N15 W67			1-	C		.10	.20		
CATA	05	0835 E	1015 D	0840	N08 W75	7426	6 D	1-	3		3.00	8.22		H
CAPF	05	1315 E	1321		N09 W74			2						DHK
UCCL	05	1358	1455		N08 W78			1-	3					
KANZ	05	1408 E	1417 D	1414	N07 W74	7426	9 D	1-						
KANZ	05	1429 E	1515 D	1448	N07 W74	7426	46 D	1-						
CAPE	05	1438	1455	1447	N07 W77	7426		1-	C		.40			DJ
MCMA	05	1441 E	1409		N05 W77	7426		1-	2		.50			EH
UCCL	05	1451	1455 D	1452	N07 W78			1-	3					D
UCCL	05	1504	1526 D		N08 W78			1-	4					D
ARCE	10	0847 E	0900 D		N11 E85			1-	2		.29	1.18		K
UCCL	10	0913 E	1035		N07 E85			1-	3					
CAPE	13	0810 E	0935 D		N23 W37	7430	85 D	1-	3		1.60	2.09		EJ
CAPE	13	0812 E	0823		N22 W40			1-	C		.90	1.20		EJ
CAPE	13	0900	0945	0902	N22 W40			1-	C		.90	1.20		JK
CAPE	13	0930 E		0929										JK
ARCE	13	0930 E			N23 W37	7430		1-	3		2.97	3.87		J
CAPE	13	0949	1028	0955	N22 W40			1-	C		.90	1.20		
CATA	13	0950 E	1010 D	0955	N23 W40	7430	20 D	1-						
ARCE	13	0955 E			N23 W37	7430		1-	C		.90	1.20		
CAPE	13	1206 E	1228		N22 W40			1-	3		1.70	2.22		E
CAPE	13	1235	1257	1242	N21 W41	7430	22	1-	2		.40	.60		J
MCMA	13	1235	1310	1241	N22 W41	7430		1-	C		1.70	2.30		J
KIEV	13	1300 E	1354 D	1341	N23 W43	7430	80 D	1-	P		1.00	1.40		FHJ
KANZ	13	1317 E	1437 D	1317	N23 W42	7430		1-			1.70	2.40		DI
MCMA	13	1336	1346	1342	N22 W43	7430		1-	2		.40	.60		EH

COMPOSITE - UTTERLINGS - 1964

SOLAR FLARES

AUGUST 1964

OBSERVATORY	DATE AUG 1964	OBSERVED UNIVERSAL TIME		LOCATION		DURA- TION — MINUTES	IM- POR- TANCE	OBS. COND.	TIME — U T	MEASUREMENTS			REMARKS	
		START	END	APPROX.	MATH.					MEAS.	CORR.	MAX.		
				LAT.	MER. DIST.	MONTH REGION				AREA Sq. Deg.	AREA Sq. Deg.	WIDTH Hr	MAX INT. %	
MCMA	13	1426 E	1511 D	N22 W43		7430	1-	1	1444	.70	1.00	1.80		EHK
MCMA	13	1453 E	1557 D	N23 W42		7430	1+		1518					EHK
KANZ	13	1705	1715	N23 W42		7430								
	13	1720	1750	NO FLARE PATROL										
CLMX	13	2130	2145 D	N09 E36			1-	C	2135	.60	.70			EG
HALE	13	2130	2155	N09 E35			1-	C	2137	.30	.30			D
HALE	13	2250	2254	N22 W48			1-	C	2251	.10	.10			D
SYDN	13	2250 E	2254	N21 W50			1-	C	2251	.80	1.20			E
MCMA	13	2251 E	2301	N22 W48		7430	1-	1	2301	.30	.40			E
MCMA	13	2251 E	2303 D	N07 E36		7443	1-	1	2301	.20	.20			E
SYDN	14	0358 E	0404	N24 W48			1-	C	0359	1.00	1.50			
CATA	14	0833 E	1010 D	N09 E30		7443	1-		1424	1.00	1.80			
CAPE	14	1422	1438	N23 W56			1-	C	1426	1.70	3.00			F
UCCL	14	1423	1430	N25 W55		7430	1-	2	1426	.20	.20			E
MCMA	14	2226	2300 D	N08 E22		7443	1-	1	2230	.20	.20			EH
MCMA	14	2230	2241	N22 W61		7430	1-	2	2236	.30	.60			
UCCL	15	1015	1016	N08 E15			1-	4						D
UCCL	15	1124	1126	N08 E14			1-	4						D
MCMA	15	1915	1930	NO FLARE PATROL			1-							D
MCMA	15	2120	2125	N26 W75		7430	1-	2	2121	.20	.20			D
MCMA	15	2147	2155	N26 W75		7430	1-	2	2150	.20	.20			D
MCMA	16	1759	1804	N22 W88		7430	1-	2	1801	.20	.20			D
CAPS	17	0658	0708	N21 W90			1-	2	0702	.40	.40			AD
CAPS	17	0951	1001	N22 W90			1-	3	0955	.60	.60			A
CAPS	17	1024 E	1038	N24 W90			1-	3	1033	.30	.30			AD
UCCL	18	1003 E	1005	N08 W26			1-	2	1207	.80	.80			D
CAPS	18	1206 E	1215 D	N08 W85			1-	2	2029	.60	.60			D
HALE	18	2012	2101	N08 W32			1-	C	2028	1.30	1.40			G
CLMX	18	2016	2039 D	N07 W30			1-	C	2028	1.30	1.40			EFG
MCMA	18	2021 E	2022 D	N08 W34		7443	1-	1	2021	.50	.60			E
KANZ	19	0852 E	0905 D	N10 W35		7443	1		0857	.60	.70	1.30		
ATHN	19	0855 E	0903	N08 W43			1-	2	0857	.60	.60			CD
I2NI	19	0856 E	0903	N10 W36			1-	P	0857	.90	.60			
ARCE	19	0900 E	0905 D	N08 W40			1-	2	0900	.43	.56			
CAPF	19	1105 E	1110 D	N10 W37		7443	1		1106	2.00	2.44			DH
MCMA	19	1135 E	1214	N09 W38		7443	1	3	1205	.20	.30			DH
MCMA	19	1240	1310	N09 W38		7443	1-	1	1255	.20	.30			D
CAPS	19	1241 E	1332	N12 E90			1-	1	1315	1.80	1.80			AH
MCMA	19	1345	1356	N09 W47		7443	1-	2	1347	.20	.30			D
CAPF	19	1350 E	1357 D	N09 W46			1-	3	1352	.25	.35			
CAPS	19	1400	1400	N08 W44			1-	2	1354	.50	.70			CD
MCMA	19	1430	1445	N07 E90		7448	1-	1	1432	.50	.50			DH
MCMA	19	1552	1556 D	N08 W44		7443	1-	1	1554	.30	.40			DH
MCMA	19	1655	1708	N08 W49		7443	1-	2	1657	.40	.70			DH

COMMISSION - STANDARDS - SOLAR

SOLAR FLARES

AUGUST 1964

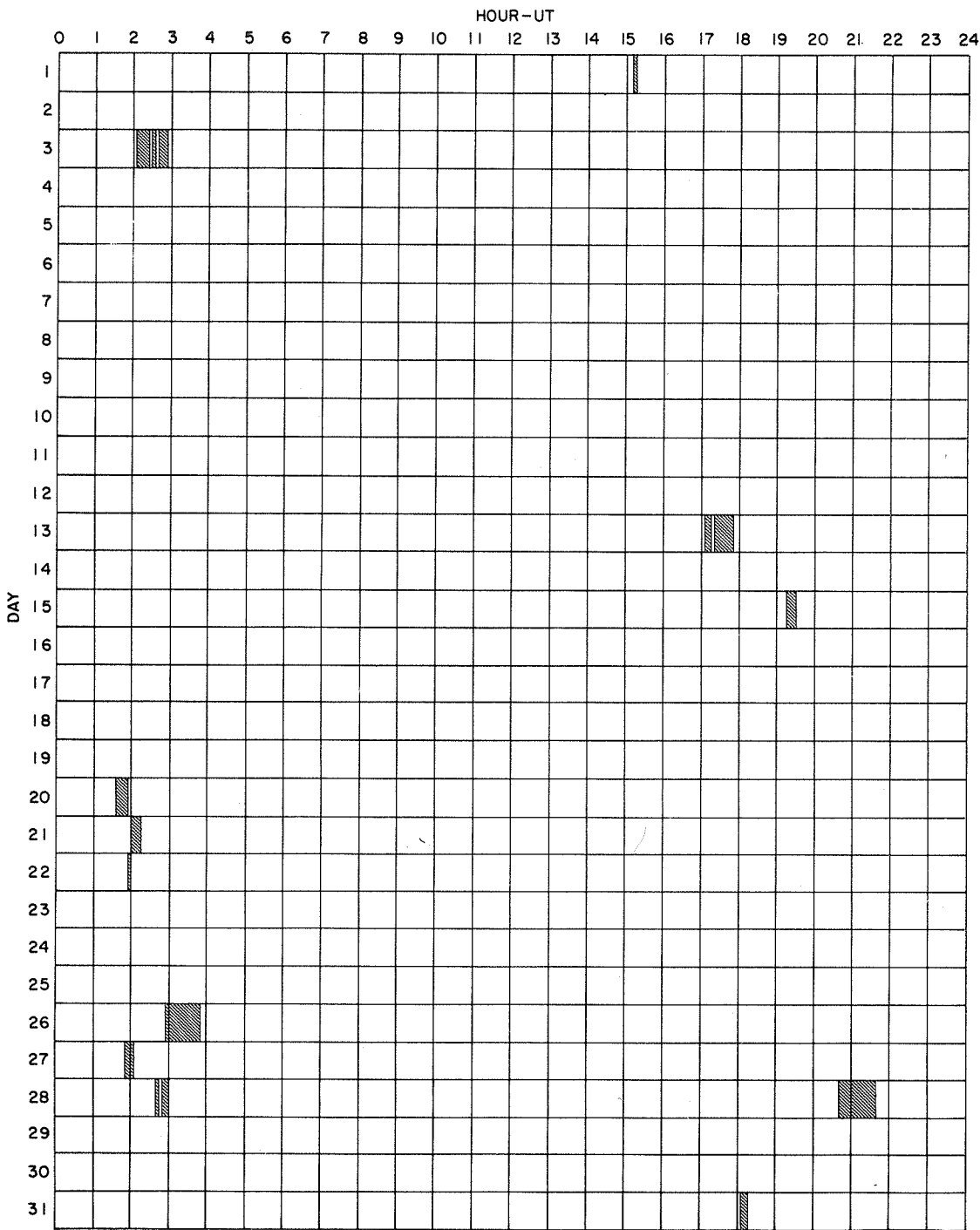
OBSERVATORY	DATE AUG 1964	OBSERVED UNIVERSAL TIME		MAX PHASE	LOCATION		DURA- TION — MINUTES	IM- POR- TANCE	OBS. COND.	TIME — U T	MEASUREMENTS		REMARKS
		START	END		APPROX. LAT.	MER. DISP.					MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	
UCCL	20	0135	0155	NO FLARE	PATROL			1-	3				E
	21	0200	0215	NO FLARE	PATROL			1-	3				D
UCCL CLMX HALE	21	1147	1149	D	E75			1-	3				D
	22	0155	0200	NO FLARE	PATROL			1-	3				D
	22	0847	0852		N08 W80			1-	C				
	22	1125	1128		N05 W60			1-	C				
MCMA	22	1930	1950	1938	N07 E48			1-	2	1938	.70	.80	LT
	22	1930	1950	1941	N07 E49			1-	2	1941	1.10	1.30	D
MCMA	23	1400	1415	1402	N11 E38	7448		1-	2	1402	.20	.20	D
	24	1907	1910	D	E70	7454		1-	1	1907	.20	.20	D
UCCL CAPE KANZ UCCL	25	0948	0953		N07 W54			1-	4				D
	25	1013	1043	1019	N01 E61			1-	C	1019	.50	1.10	D
	25	1030			N01 E64	7454		1-	4	1030			EG
	25	1017	1027	1018	N01 E82	7454		1	4	1018	4.50	3.10	EG
UCCL	26	0255	0350	NO FLARE	PATROL				3				EH
	27	0150	0205	NO FLARE	PATROL			1-					
	27	1121	1126	1122	S19 E34								
	28	0240	0245	NO FLARE	PATROL								
CAPS OTTA CAPS OTTA MCMA	28	0250	0300	NO FLARE	PATROL								
	28	2040	2140	NO FLARE	PATROL								
	30	0912	0930		N17 E90			1-	3	0923	.80	.17	DGH
	30	1343	1352	1344	N29 E87			1-	2	1344			ACFGHK
	30	1343	1429	1415	N28 E90	7468		1	2	1412	1.40	.39	
	30	1412	1442	1415	N28 E90	7468		1	2	1415			
	30	1413	1428	1415	N26 E90	7468		1-	2	1415	.30		
31	1805	1815	NO FLARE	PATROL									

COMMERCE - STANDARDS - BOULDER

These flares are addenda to the August 1964 flares published in ORPL-F 241 Part B for September 1964

INTERVALS OF NO FLARE PATROL OBSERVATIONS

AUGUST 1964



COMMERCE - STANDARDS - BOULDER

Observatories Included:

Abastumani	Capri-F (German)	Herstmonceux	Kodaikanal	Ondrejov	Vorochilov
Arcetri	Capri-S (Swedish)	Huancayo	Locarno	Ottawa	Wendelstein
Arosa	Catania	Ikomasan	Lockheed	Sacramento Peak	Wroclaw
Athens	Climax	Istanbul	Lvov	Siberie	Zurich
Bakou	Crimee	Izmiran	McMath-Hulbert	Sydney	
Bucarest	Haleakala	Kanzelhohe	Manille	Tachkent	
Capetown	Haute-Provence	Kiev	Mitaka	Uccle	

SOLAR RADIATION MONITORING SATELLITE

IIIk

AVERAGE X-RAY FLUX

NRL

JULY - AUGUST, 1964

Date	Times of Observation	Average X-ray Flux			Date	Times of Observation	Average X-ray Flux		
		44-60 A	8-12 A	0-8 A			44-60 A	8-12 A	0-8 A
July 1	0332 0341	2.3×10^{-2}	$< 1.5 \times 10^{-4}$	$< 1.2 \times 10^{-4}$	July 19	0058 0113	2.6×10^{-2}	$< 1.5 \times 10^{-4}$	$< 1.3 \times 10^{-4}$
	0518 0531					0250 0258			
	1834 1850					1418 1431			
	2022 2036					1602 1615			
	2213 2220					1751 1803			
July 2	0341 0353	2.2×10^{-2}	$< 2.0 \times 10^{-4}$	$< 1.5 \times 10^{-4}$	July 20	0107 0122	2.1×10^{-2}	$< 2.0 \times 10^{-4}$	$< 1.5 \times 10^{-4}$
	0514 0525					0253 0306			
	0713 0721					1426 1441			
	1844 1859					1611 1627			
	2031 2045					1802 1812			
July 3	0349 0403	1.8×10^{-2}	$< 4.5 \times 10^{-4}$	$< 4.0 \times 10^{-4}$	July 21	0116 0131	1.9×10^{-2}	$< 9 \times 10^{-4}$	$< 4 \times 10^{-4}$
	0535 0543					0303 0314			
	1711 1720					1442 1450			
	1854 1908					1621 1636			
July 14	0013 0022	2.1×10^{-2}	$< 10 \times 10^{-4}$	$< 5 \times 10^{-4}$	July 29	1218 1231	2.0×10^{-2}	$< 6 \times 10^{-4}$	$< 3 \times 10^{-4}$
	0158 0213					1405 1418			
	0348 0358					1553 1603			
	1520 1531					2122 2133			
	1702 1718					2308 2322			
July 15	0022 0033	2.1×10^{-2}	$< 2.5 \times 10^{-4}$	$< 1.5 \times 10^{-4}$	July 30	0053 0100	2.1×10^{-2}	$< 3 \times 10^{-4}$	$< 2.0 \times 10^{-4}$
	0207 0222					1227 1241			
	0354 0405					1412 1427			
	1528 1541					2136 2142			
	1711 1727					2319 2332			
July 16	0031 0041	2.5×10^{-2}	$< 1.5 \times 10^{-4}$	$< 1.2 \times 10^{-4}$	July 31	0104 0114	2.4×10^{-2}	$< 2.0 \times 10^{-4}$	$< 1.5 \times 10^{-4}$
	0216 0232					1236 1250			
	0400 0414					1423 1436			
	1537 1550					2140 2154			
	1721 1736					2327 2339			
July 17	0039 0053	2.8×10^{-2}	$< 1.2 \times 10^{-4}$	$< 1.0 \times 10^{-4}$	August 1	0115 0121	2.8×10^{-2}	$< 1.5 \times 10^{-4}$	$< 1.2 \times 10^{-4}$
	0225 0235					1104 1110			
	0414 0421					1245 1300			
	1406 1411					1432 1445			
	1543 1559					2004 2012			
	1733 1745					2150 2204			
	2304 2311					2335 2349			
July 18	0048 0103	2.9×10^{-2}	$< 1.1 \times 10^{-4}$	$< 1.0 \times 10^{-4}$	August 2	1110 1122	3.1×10^{-2}	2.1×10^{-4}	$< 1.0 \times 10^{-4}$
	0235 0248					1257 1308			
	1410 1421					1441 1453			
	1553 1609					2013 2023			
	1741 1754					2200 2213			
	2314 2322					2344 2357			

SOLAR RADIATION MONITORING SATELLITE

AVERAGE X-RAY FLUX

NRL

AUGUST, 1964

Date	Times of Observation	Average X-ray Flux			Date	Times of Observation	Average X-ray Flux		
		44-60 A	8-12 A	0-8 A			44-60 A	8-12 A	0-8 A
August 3	1114 1132	3.2×10^{-2}	1.6×10^{-4}	$< 1.0 \times 10^{-4}$	August 11	0903 0911	2.6×10^{-2}	$< 4 \times 10^{-4}$	$< 2.7 \times 10^{-4}$
	1303 1318					1044 1100			
	1451 1503					1231 1245			
	2022 2033					1809 1812			
	2206 2222					1949 2004			
2353 0006									
August 4	1130 1141	3.1×10^{-2}	2.3×10^{-4}	$< 1.0 \times 10^{-4}$	August 19	0826 0840	3.2×10^{-2}	$< 3.5 \times 10^{-4}$	$< 2.3 \times 10^{-4}$
	1312 1327					1012 1027			
	1502 1511					1203 1211			
	2031 2043					1731 1744			
	2216 2227					1918 1931			
	2104 2113								
August 5	0004 0013	$> 3.2 \times 10^{-2}$	3.7×10^{-4}	$< 1.0 \times 10^{-4}$	August 20	0839 0851	3.0×10^{-2}	$< 2.4 \times 10^{-4}$	$< 1.7 \times 10^{-4}$
	1135 1150					1022 1035			
	1330 1336					1217 1220			
	1513 1520					1556 1601			
	2041 2054					1740 1754			
2228 2241	1926 1941								
August 6	0018 0021	$> 3.2 \times 10^{-2}$	3.6×10^{-4}	$< 1.0 \times 10^{-4}$	August 21	0702 0712	2.9×10^{-2}	$< 1.5 \times 10^{-4}$	$< 1.1 \times 10^{-4}$
	1005 1012					0844 0900			
	1144 1200					1033 1045			
	1331 1345					1604 1613			
	1905 1912					1745 1803			
2049 2104	1936 1947								
August 7	1010 1022	3.1×10^{-2}	1.5×10^{-4}	$< 1.0 \times 10^{-4}$	August 22	0711 0722	2.9×10^{-2}	$< 1.2 \times 10^{-4}$	$< 1.1 \times 10^{-4}$
	1153 1209					0854 0909			
	1345 1354					1042 1054			
	1913 1923					1613 1624			
	2058 2113					1758 1813			
2245 2258	1945 1958								
August 8	1018 1032	2.8×10^{-2}	$< 1.4 \times 10^{-4}$	$< 1.2 \times 10^{-4}$	August 23	0719 0732	2.6×10^{-2}	$< 1.8 \times 10^{-4}$	$< 1.3 \times 10^{-4}$
	1203 1218					0903 0918			
	1353 1403					1053 1103			
	2106 2120					1622 1634			
	2255 2306					1808 1823			
	1954 2006								
August 9	1030 1041	2.5×10^{-2}	$< 1.7 \times 10^{-4}$	$< 1.3 \times 10^{-4}$	August 31	1404 1413	2.1×10^{-2}	$< 4 \times 10^{-4}$	$< 2.8 \times 10^{-4}$
	1212 1226					1549 1604			
	1403 1411					1735 1750			
	1931 1944								
	2112 2126								
2304 2313									
August 10	0858 0901	2.4×10^{-2}	$< 2.3 \times 10^{-4}$	$< 1.8 \times 10^{-4}$	Outstanding Events				
	1035 1051				Date	Times of Observation	44-60 A	8-12 A	0-8 A
	1222 1236				August 22	1945 1958	3.3×10^{-2}	3.4×10^{-4}	$< 1.1 \times 10^{-4}$
	1758 1801								
	1939 1954								
2126 2140									
2317 2320									

IONOSPHERIC EFFECTS OF SOLAR FLARES

III m

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

OCTOBER 1964

OCT. 1964	UNIVERSAL TIME			TYPE SWF IMP	IMPORTANCE							BUR	WIDE SPREAD INDEX	STATIONS	KNOWN FLARE
	START	END	MAX		ABS	SCNA	SEA	SPA	SES	SFD					
None Observed															

RIOMETER EVENTS

(Provisional)

OCTOBER 1964

South Pole

26 Mc/s

OCT. 1964	START UT	END UT	MAX. UT	MAX. ABSORP. db, (tenths)	NO. OF PEAKS	OCT. 1964	START UT	END UT	MAX. UT	MAX. ABSORP. db, (tenths)	NO. OF PEAKS
1	*					15	2005	2104	2030	3	3
2	0029	0428	0054	19	2	16	*				
3	0152	0452	0243	12	3	17	0112	0154	0142	7	3
3	1144	1906	1318	19	1	18	2228	0155	2302	36	1
4	0828	0434	2314	43	1	19	0606	1742	1538	9	1
5	0704	2359	2254	46	4	19	2035	0246	0105	71	2
6	0118	0149	0132	3	4	20	0903	1847	1322	22	1
6	0848	1838	1437	20	1	21	0055	0303	0059	11	1
6	2317	0559	0042	24	3	21	0731	2340	1450	8	5
7	0831	1518	1126	10	1	22	0300	0325	0309	4	1
8	0330	0428	0349	21	1	22	1153	1538	1242	7	1
8	0832	1915	1445	12	2	23	*				
9	0024	0555	0030	11	3	24	2323	2354	2335	4	1
9	0916	1658	1434	23	2	25	1347	1938	1423	6	3
9	2148	2345	2315	5	2	26	0933	0503	0000	15	3
10	0135	0212	0140	12	1	27	0748	1650	1114	10	9
10	1314	1634	1333	7	1	28	0110	0413	0139	13	2
11	2147	0142	2200	17	2	28	1014	1827	1604	10	2
12	0755	1812	1325	16	1	29	0310	0354	0326	6	2
13	0125	0154	0134	12	2	29	1311	1611	1454	5	1
13	1318	1828	1416	11	1	30	0025	0202	0057	13	1
14	0422	0516	0437	16	2	30	1131	1748	1203	3	2
14	0858	1804	1345	12	1	31	*				
15	0125	0139	0127	8	1						
15	0915	1758	1646	5	1						

COMMERCE - STANDARDS - BOULDER

* = No event.

SOLAR RADIO EMISSION OUTSTANDING OCCURRENCES

IVa

NOVEMBER 1964

ARO-DRAO (OTTAWA)

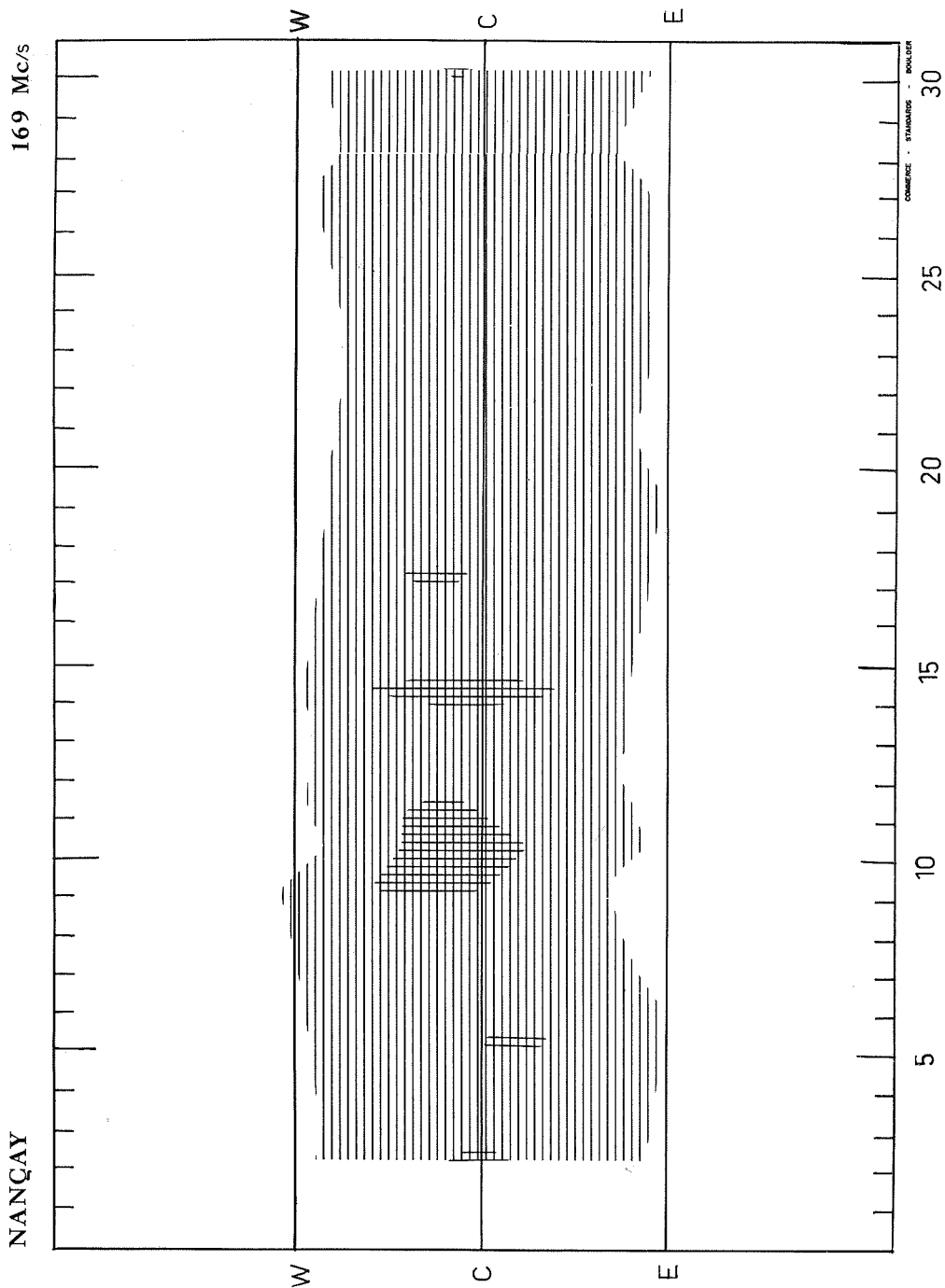
2800;2700 Mc/s

NOV. 1964	U R A N E	DESCRIPTIVE TYPE	START UT	DURATION HRS. MIN.	MEAN FLUX	MAXIMUM		REMARKS
						TIME	FLUX	
17	3	Simple 3	1754	1 01	0.4	Indet.	0.8	

COMMERCE - STANDARDS - BOULDER

SOLAR RADIO EMISSION INTERFEROMETRIC OBSERVATIONS

NOVEMBER 1964



NANÇAY

NOVEMBER 1964

SOLAR RADIO EMISSION OUTSTANDING OCCURRENCES

IVc

NOVEMBER 1964

NBS BOULDER

108 Mc/s

None observed

NOMINAL TIMES OF OBSERVATION

NOVEMBER 1964

NBS BOULDER

108 Mc/s

Nov. 1964	HOURS OF OBSERVATION U.T.	HOURS OF INTERFERENCE U.T.	Nov. 1964	HOURS OF OBSERVATION U.T.	HOURS OF INTERFERENCE U.T.
1	1334-2344	1857-1930	17	1352-1738;	
2	1335-2342	2258-2342D		1927-2327	
3	1336-2341	2300-2341D	18	1353-2236;	
4	1337-2340	2257-2340D		2322-2327	
5	1338-2338	2300-2338D	19	1355-2017;	
				2117-2144;	
6	1340-2337	2304-2337D		2215-2326	
7	1341-2336		20	1356-2125;	
8	1342-2335	1859-1915;		2151-2325	
		2130-2335D			
9	1343-2334	2300-2334D	21	1357-2325	1656-1709
10	1344-2333	2300-2333D	22	1358-2026;	1747-1809
				2200-2324	
11	1345-2333	2300-2333D	23	1630-2324	
12	1346-2332	2300-2332D	24	1400-2323	
13	1348-2331	1623-1636;	25	1401-2323	
		2300-2331D			
14	1349-2330	2115-2330D	26	1434-2322	
15	1350-2329	1856-1930;	27	1403-2322	
		2130-2329D	28	1404-2321	
			29	1405-2321	
16	1351-2328	2258-2328D	30	1406-2321	1702-1707

**SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS**

NOVEMBER 1964

**High Altitude Observatory
Boulder**

7.6-41 Mc/s

Date Nov 1964	Bursts			Frequency Range (Mc/s)	Date Nov 1964	Bursts			Frequency Range (Mc/s)
	Type	Time (U.T.)	Inten- sity			Type	Time (U.T.)	Inten- sity	
12	No Observ.	1330-1530			Cont.				
14	No Observ.	1330-1511			27	III	1938:45-1939:30	1	20-41
15	No Observ.	1330-1629				III	1942:15-1942:45	1	20-41
16	III	1759:30-1759:45	1	25-41		III	2123:15-2124	1-	23-41
	III	1801-1801:15	1	25-41		III	2247:15-2249:30	2	20-41
						III	2304:45-2305:45	1	20-41
	III	1801:30-1801:45	1	31-41	28	III	2227:30-2228	1	16-41
	III	1825:30-1825:45	1-	21-41		III	2229:15-2229:30	1-	26-41
17	III	1900:15-1900:30	1-	27-41	30	No Observ.	1536-1644		
19	III	1852:30-1852:45	1	25-41					
20	No Observ.	2216-2330							
22	III	1541:45-1542	1-	34-41					
24	III	2201:45-2202	1	17-41					
25	III	1649:15-1654	1-	20-41					
26	III	1619-1623:30	1-	23-41					
27	III	1627-1627:15	1-	25-41					

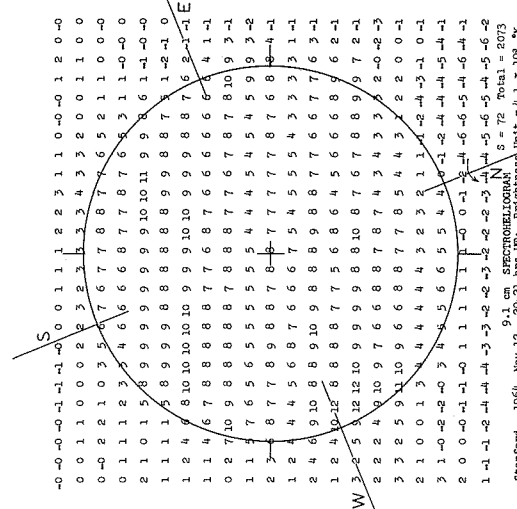
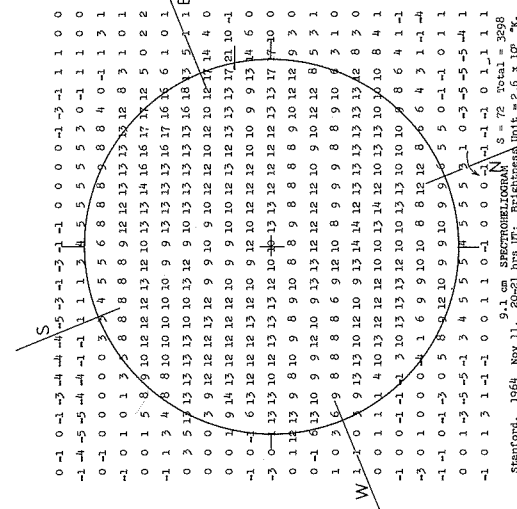
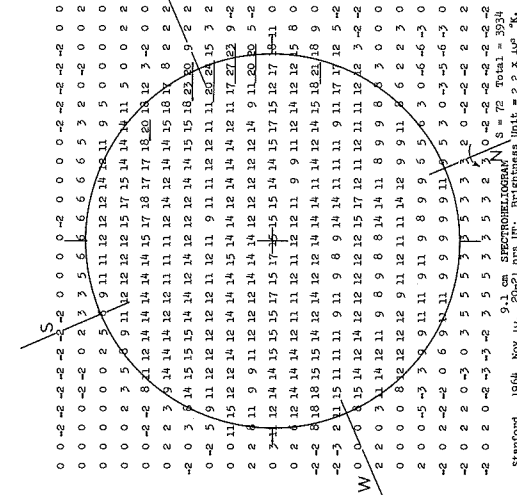
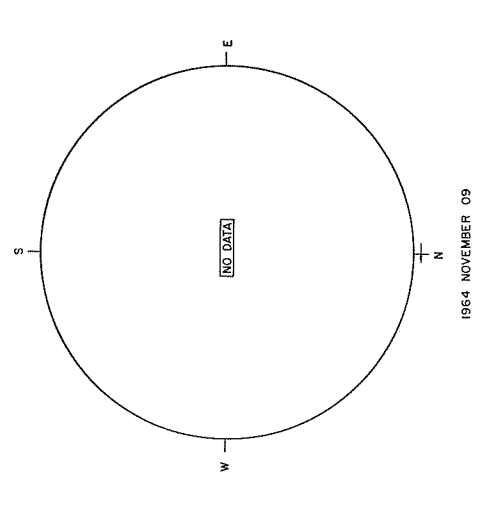
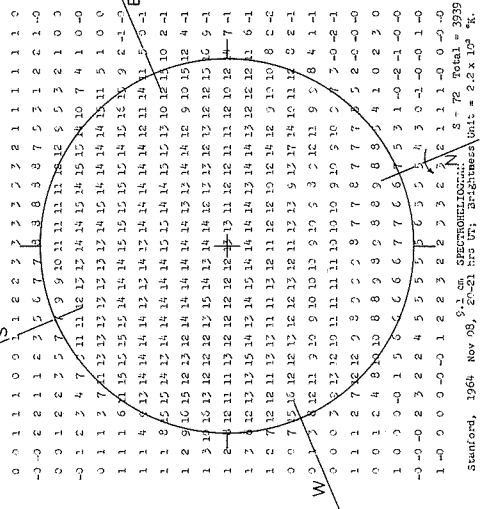
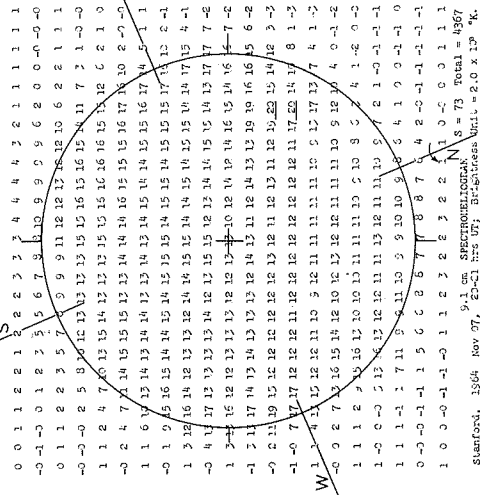
COMMERCE - STANDARDS - BOULDER

SOLAR RADIO EMISSION SPECTROHELIOGRAMS

NOVEMBER 1964

STANFORD

9.1 cm



Stanford, 1964 Nov 12, 20:21 hrs UT, Brightness Unit = 4.1 x 10⁴ %

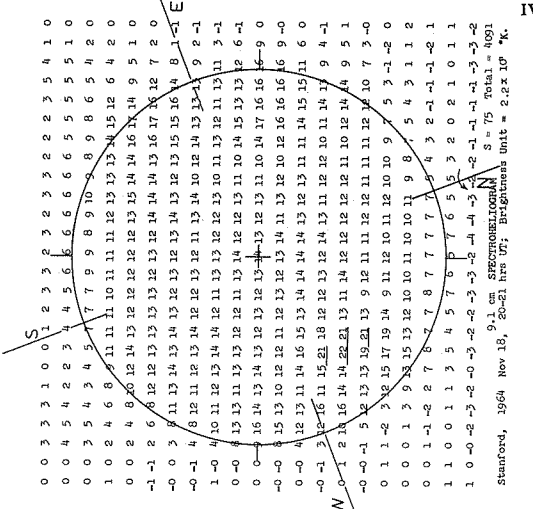
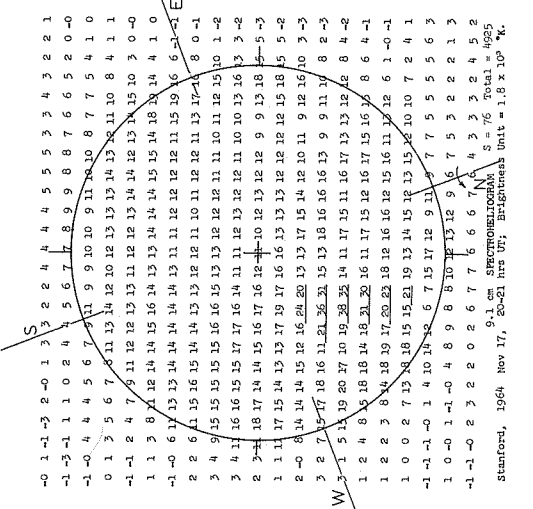
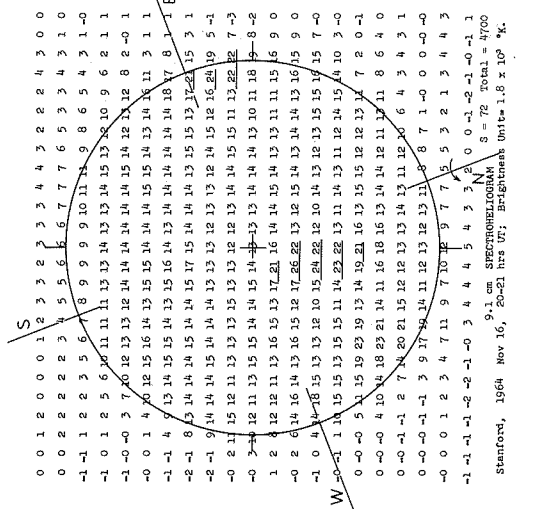
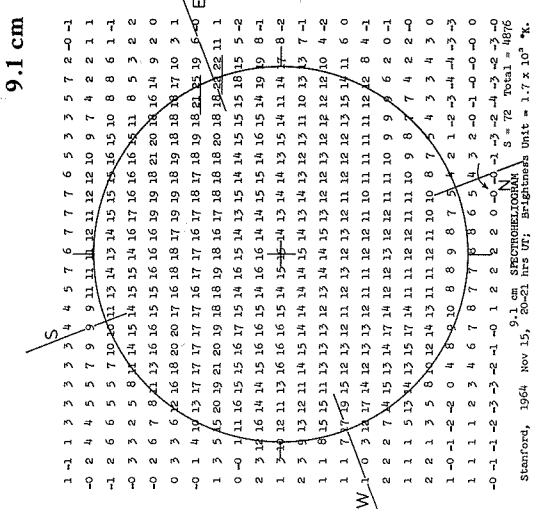
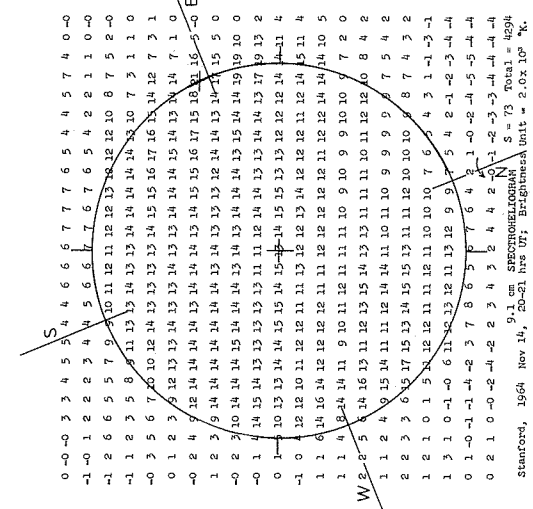
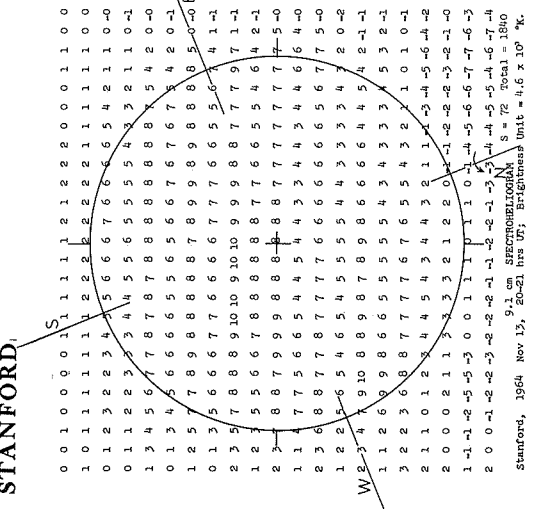
Stanford, 1964 Nov 11, 20:21 hrs UT, Brightness Unit = 2.6 x 10⁴ %

Stanford, 1964 Nov 9, 20:21 hrs UT, Brightness Unit = 2.0 x 10⁴ %

SOLAR RADIO EMISSION SPECTROHELIOGRAMS

NOVEMBER 1964

STANFORD

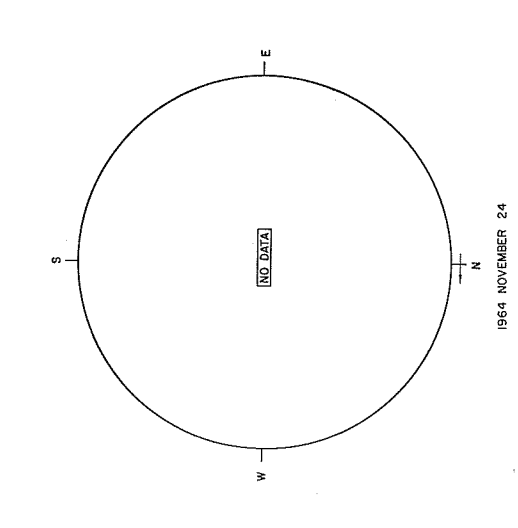
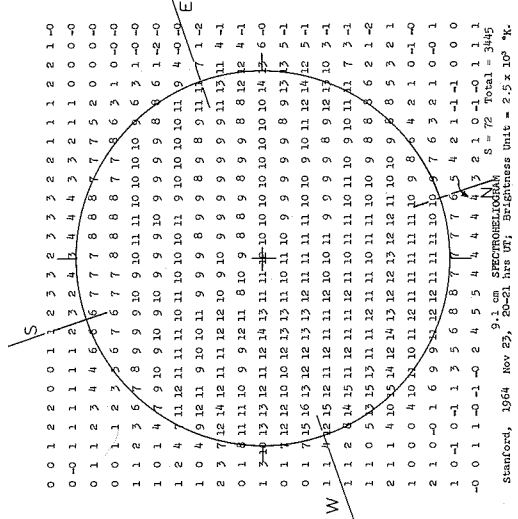
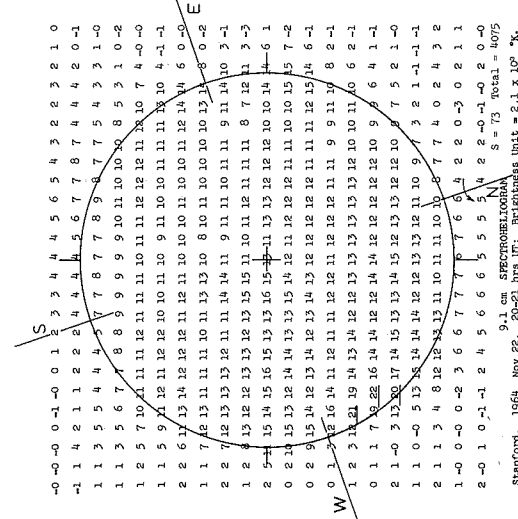
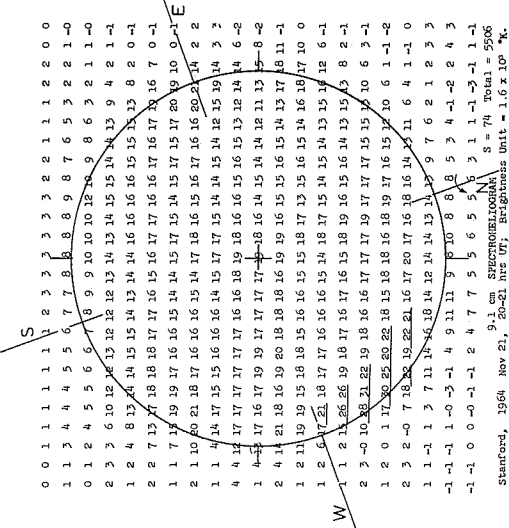
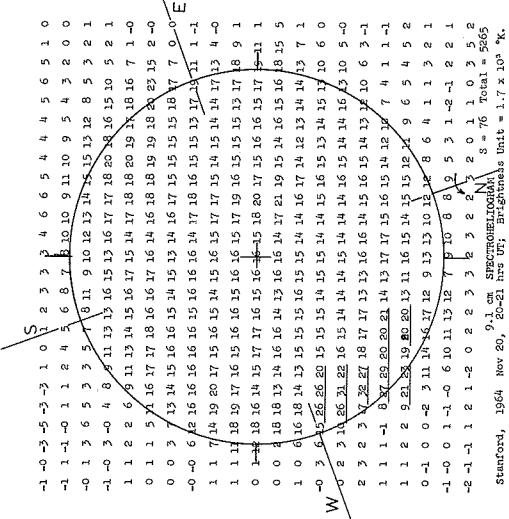
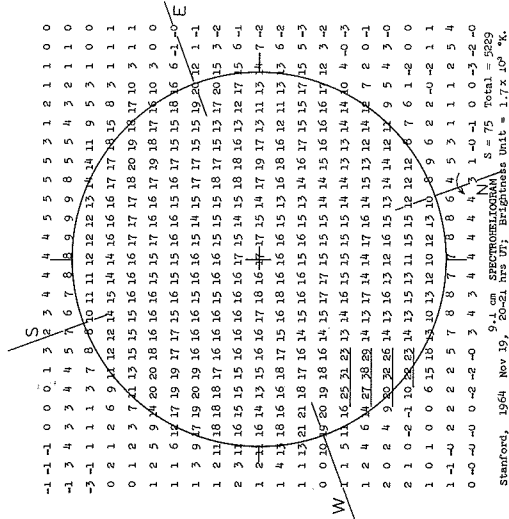


SOLAR RADIO EMISSION SPECTROHELIOGRAMS

NOVEMBER 1964

STANFORD

9.1 cm



1964 NOVEMBER 24

COSMIC RAY INDICES
(NEUTRON MONITORS)

OCTOBER 1964

OCT. 1964	CHURCHILL	CLIMAX	DALLAS
	Daily Average Counts Per Hour	Daily Average Counts Per Hour	Daily Average Counts Per Hour
1	6520.0	3329.5	6515.2
2	6536.7	3323.6	6502.9-18
3	6528.6	3320.8	6519.0
4	6507.8	3309.1	6515.0
5	6491.3	3297.0	6501.2
6	6479.7	3292.8	6497.0
7	6468.6	3299.3	6503.0
8	6463.5	3305.7	6508.8
9	6457.7	3309.2	6517.6
10	6473.4	3316.8	6529.3
11	6502.5 -15	3320.4	6530.8
12	6478.1 -21	3321.7	6524.0
13	6477.4	3317.9	6521.4
14	6476.3	3314.5	6529.3
15	6503.3	3317.0	6525.5
16	6511.2	3321.3	6519.6
17	6514.8	3323.2	6528.9
18	6491.0	3320.6	6495.4
19	6495.5	3301.0	6534.3
20	6483.9	3288.5	6514.6
21	6452.3	3294.8	6514.1
22	6446.6	3308.3	6529.0
23	6483.2	3318.8	6539.5
24	6494.8	3314.8	6537.6
25	6507.6	3319.9	6527.2
26	6496.2	3320.6	6520.9
27	6488.6	3323.5	6527.8
28	6506.1	3312.5	6521.1
29	6509.0	3318.0	6527.5
30	6499.3	3329.5	6543.0
31	6509.0	3325.5	6535.3

COMMERCE - STANDARDS - BOULDER

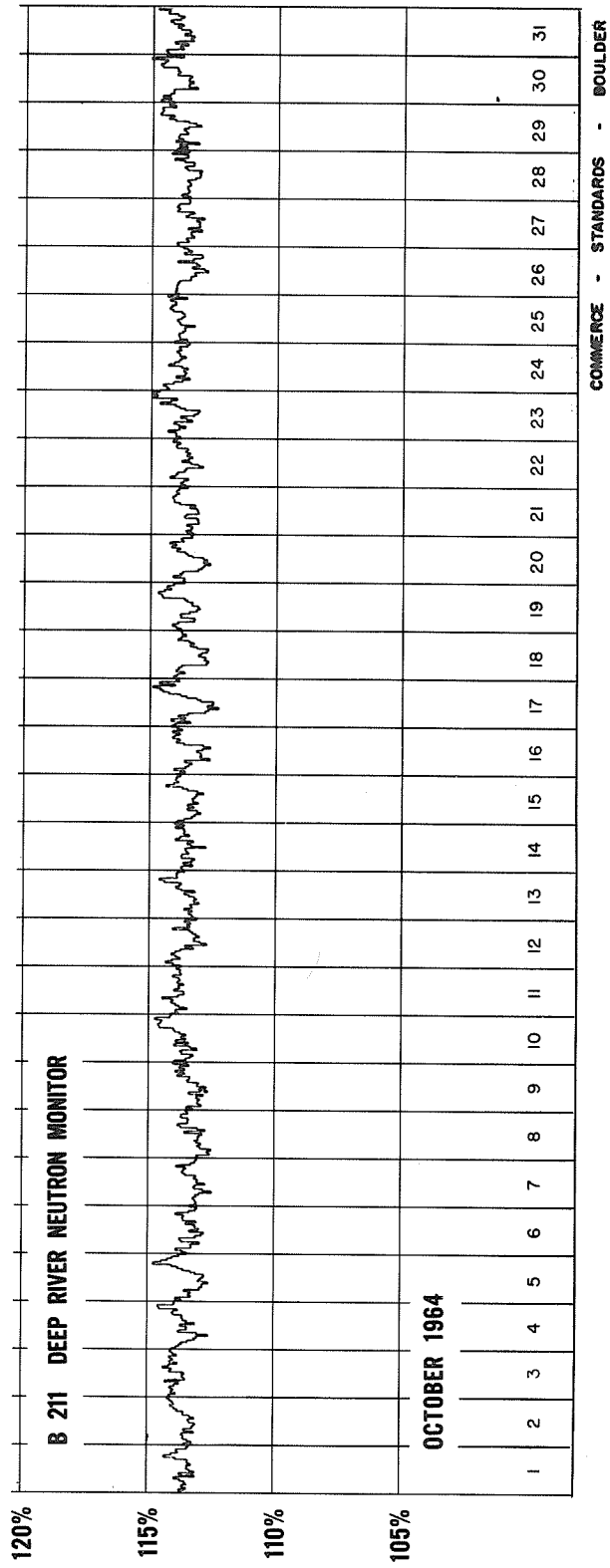
- (Number) Number of hours for which data are available if less than 24.

Churchill Super Neutron Monitor, Scaling Factor 120.

Glimax IGC Station B305, Scaling Factor 128.

Dallas Super Neutron Monitor, Scaling Factor 120.

COSMIC RAY INDICES
 (Pressure Corrected Hourly Totals)

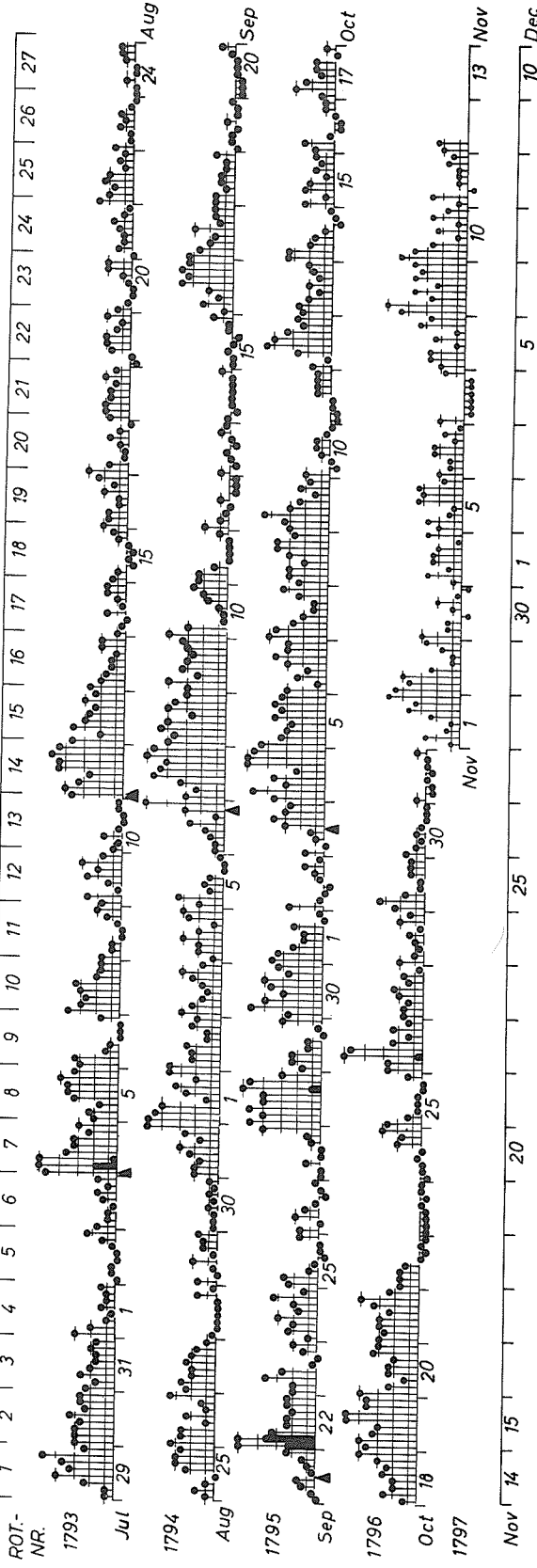


GEOMAGNETIC ACTIVITY INDICES

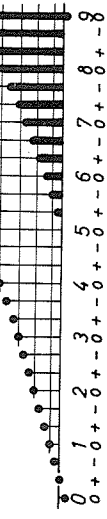
OCTOBER 1964

Oct. 1964	C	Values Kp								Sum	Ap	Final Selected Days
		Three hour Gr. interval										
		1	2	3	4	5	6	7	8			
1	0.6	4-	3+	2+	2-	2-	2+	0+	1-	16o	9	Five Quiet
2	0.3	3-	1-	0+	0o	1-	1o	2-	1-	8-	4	
3	0.7	2-	0+	1o	1+	3o	4-	3o	3-	17-	10	
4	1.4	4-	5-	3o	4-	2+	5o	5o	5-	32o	30	
5	1.1	4+	3+	3o	3-	4-	3+	4-	3+	27+	20	
6	0.8	3o	1o	2+	2-	3o	4-	3o	3o	21-	13	
7	0.8	4o	4-	3-	2o	1+	1+	2+	3+	21-	13	
8	1.0	2+	3o	3o	2o	3o	4-	4-	3-	23+	15	
9	0.8	3o	3+	4+	3o	2+	1+	2+	2-	21+	14	
10	0.1	2o	0o	0+	1o	1+	1+	1-	0+	7o	4	
11	0.2	0o	0o	0+	0+	1+	1+	1+	1+	6o	3	Five Disturbed
12	0.9	2-	1-	3-	4+	4o	3+	2+	3-	22-	15	
13	0.4	2+	3-	2o	1+	2o	1+	2-	2o	15+	7	
14	0.3	3+	3+	2o	2-	1o	0o	0+	1-	12+	7	
15	0.4	2+	1o	2+	2o	1o	2-	1+	2-	13+	6	
16	0.1	2-	2+	1-	0o	0o	0+	1o	1o	7o	4	
17	0.3	1+	3o	2+	1+	2-	2-	0+	1o	13-	6	
18	0.8	1+	3-	2o	2o	3-	2+	3o	4o	20o	12	
19	1.4	4-	4o	3+	3o	5-	5-	4-	4-	31-	26	
20	0.9	4o	2+	1+	2+	2+	2o	3+	3o	21-	12	
21	0.9	3o	3-	3o	3o	2+	3+	4o	2+	24-	15	Ten Quiet
22	0.0	2-	2-	2-	1+	0+	0o	0+	0o	7o	3	
23	0.0	0o	0o	0o	0o	0+	0o	0+	0+	1o	1	
24	0.3	0o	0+	0+	1-	0+	2o	2-	3o	8+	5	
25	0.2	3-	1+	1-	1-	1-	0+	0+	1+	8o	4	
26	1.1	3-	3-	5+	5-	2+	1+	2+	1+	23-	18	
27	0.4	2-	2-	1+	2o	2+	1+	2-	1-	13-	6	
28	0.3	2o	1o	1-	1o	1+	1-	2o	1+	10o	5	
29	0.3	2+	3+	2-	1-	1-	1+	1+	1+	13-	7	
30	0.0	2-	1o	1-	1o	1-	0+	0+	0+	6o	3	
31	0.0	1o	0o	0o	0+	0o	0+	0+	1o	3o	2	
Mean:	0.54									Mean:	10	

DAYS IN SOLAR ROTATION INTERVAL



KEY



▲ = sudden commencement

PLANETARY MAGNETIC
THREE-HOUR-RANGE INDICES

Kp till 1964 Oct. 31

(Ks from Wingst and Göttingen till Nov. 12)

COMMERCE BUREAU OF STANDARDS 1954 B.

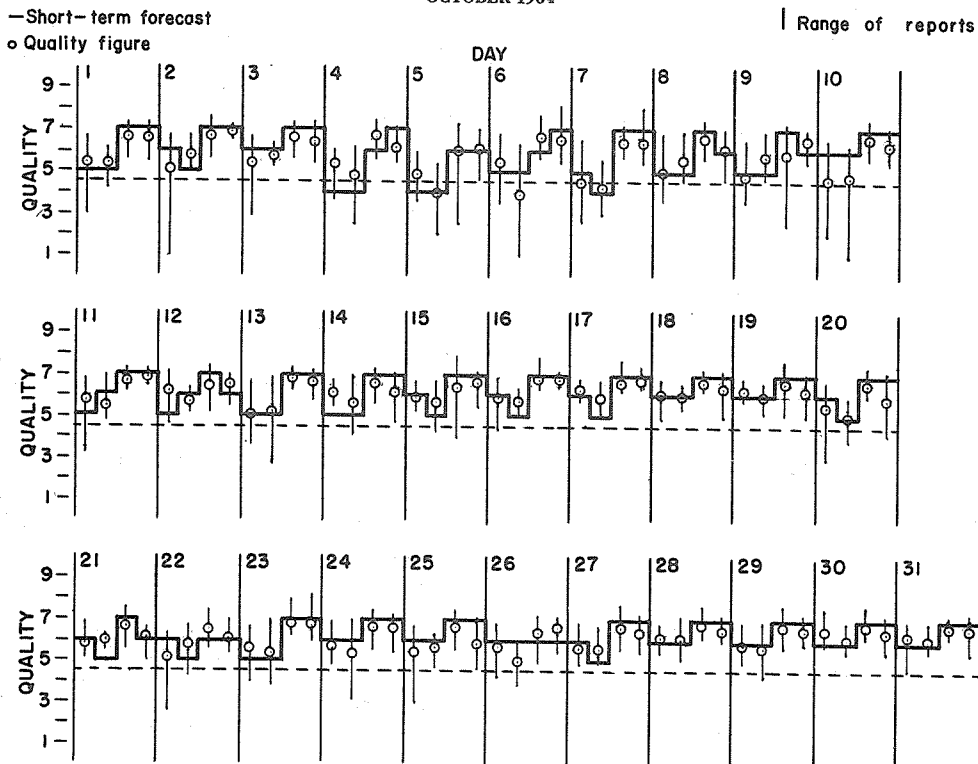
CRPL RADIO PROPAGATION QUALITY FIGURES AND FORECASTS

OCTOBER 1964

OCT. 1964	NORTH ATLANTIC					NORTH PACIFIC															
	NORTH ATLANTIC 8-HOURLY QUALITY FIGURES		SHORT-TERM FORECASTS ISSUED ABOUT ONE HOUR IN ADVANCE BY:		WHOLE DAY INDEX	ADVANCE FORECASTS (J-REPORTS) FOR WHOLE DAY, ISSUED IN ADVANCE BY:		NORTH PACIFIC 8-HOURLY QUALITY FIGURES		SHORT-TERM FORECASTS ISSUED AT:	WHOLE DAY INDEX	ADVANCE FORECASTS (K-REPORTS) FOR WHOLE DAY, ISSUED IN ADVANCE BY:		GEOMAGNETIC M_{3000}^F							
	00 TO 06	06 TO 12	12 TO 18	18 TO 24		00	06	12	18			03 TO 11	11 TO 19		03 TO 11	11 TO 19	02	09	18	1-7 DAYS IN ADVANCE	1-3 DAYS IN ADVANCE
01	5+	5+	7-	7-	5	5	7	7	6	6	6	6	4	4	7	5	5	5	5	2	1
02	5	6-	7-	7	6	5	7	7	6	6	6	6	5	5	6	5	6	6	6	0	0
03	5+	6-	7-	6+	6	6	7	7	6	5	5	5	5	5	6	5	6	6	1	3	3
04	5+	5-	7-	6+	4	4	6	7	6-	4	3	3	5	5	6	4	4	4	6	3	3
05	5	4	6	6	4	4	6	6	5+	4	4	4	3	5	6	5	4	4	3	3	3
06	5+	4	7-	7-	5	5	6	7	6-	5	5	5	4	4	6	6	6	6	2	2	2
07	4+	4+	6+	6+	5	4	7	7	5+	6	6	6	4	5	7	6	5	5	3	2	2
08	5	6-	7-	6+	5	5	7	6	6-	3	2	2	5	5	6	5	5	5	3	3	2
09	5-	6-	6	7-	5	5	7	6	6-	3	2	2	5	5	6	6	6	6	3	2	2
10	5-	5-	7-	6+	6	6	7	7	6-	6	6	6	4	5	6	5	5	6	0	0	1
11	6-	6-	7-	7	5	6	7	7	6+	6	6	6	5	5	6	6	6	6	0	0	0
12	6+	6-	6+	7-	5	6	7	6	6+	6	6	6	4	5	7	5	4	6	2	2	3
13	5	5+	7-	7-	5	5	7	7	6	6	6	6	6	4	6	6	6	6	2	2	2
14	6	6-	7-	6	5	5	7	7	6	6	6	6	5	5	6	6	6	6	2	2	0
15	6	6-	6+	7-	6	5	7	7	6+	6	6	6	5	6	7	6	6	6	1	1	1
16	6	6-	7-	7-	6	5	7	7	6+	6	6	6	6	6	6	6	6	6	0	0	0
17	6+	6	7-	7-	6	6	7	7	6+	6	6	6	6	6	7	6	6	6	2	1	2
18	6	6	7-	6+	6	6	7	7	6+	6	6	6	5	5	7	6	6	6	1	2	2
19	6+	6	7-	6+	6	6	6	6	6+	5	5	5	4	5	8	4	4	6	5	3	(4)
20	6-	5	7-	6	6	5	7	7	6-	5	5	5	5	6	7	6	5	5	3	2	2
21	6	6	7-	6+	6	5	7	6	6+	6	6	6	5	6	6	6	6	6	2	2	2
22	5	6-	7-	6	6	5	6	6	6	6	6	6	5	6	6	6	6	6	2	0	0
23	6-	5+	7-	7-	5	5	7	7	6+	6	6	6	5	7	8	6	6	6	0	0	0
24	6-	5+	7-	7-	6	6	7	7	6	6	6	6	5	6	7	6	6	6	0	1	1
25	6-	6-	7-	6	6	6	7	7	6	5	5	5	6	7	7	6	6	7	0	0	0
26	6-	5	6+	7-	6	6	6	6	6	5	5	5	5	5	6	6	5	5	(4)	2	2
27	6-	6-	7-	6+	6	5	7	7	6	6	6	6	4	6	6	5	5	5	2	1	1
28	6+	6	7-	7-	6	6	7	7	6+	6	6	6	4	6	7	6	6	6	0	1	1
29	6	6-	7-	7-	6	6	7	7	6+	6	6	6	5	6	6	6	6	6	2	1	1
30	7-	6+	7-	6+	6	6	7	7	6+	6	6	6	5	6	6	6	6	6	0	0	0
31	6+	6+	7-	7-	6	6	7	7	6+	6	6	6	5	6	7	5	6	6	0	0	0
Score: Quiet Periods	P	19	15	23	18	22	22	22		9	9	15				12	15				
	S	11	13	8	13	8	8	8		13	19	14				0	0				
	U	0	0	0	0	0	0	0		0	0	1				0	0				
	F	0	0	0	0	0	1	1		0	0	1				0	0				
Disturbed Periods:	P	0	2	0	0	0	0	0		1	1	0				1	1				
	S	1	1	0	0	0	0	0		4	1	0				1	1				
	U	0	0	0	0	0	0	0		1	0	0				0	0				
	F	0	0	0	0	0	0	0		3	1	0				2					

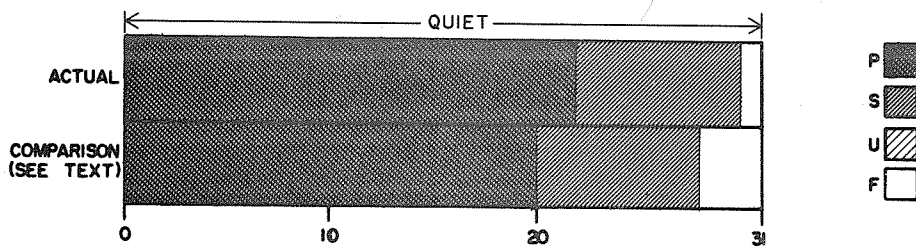
NORTH ATLANTIC

OCTOBER 1964

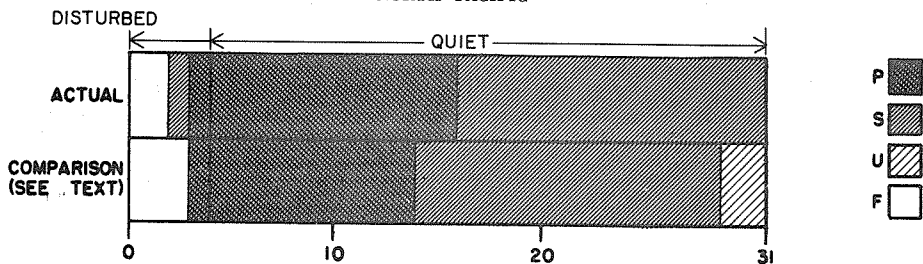


OUTCOME OF ADVANCE FORECASTS--FINAL ESTIMATES (1 TO 7 DAYS AHEAD)

NORTH ATLANTIC

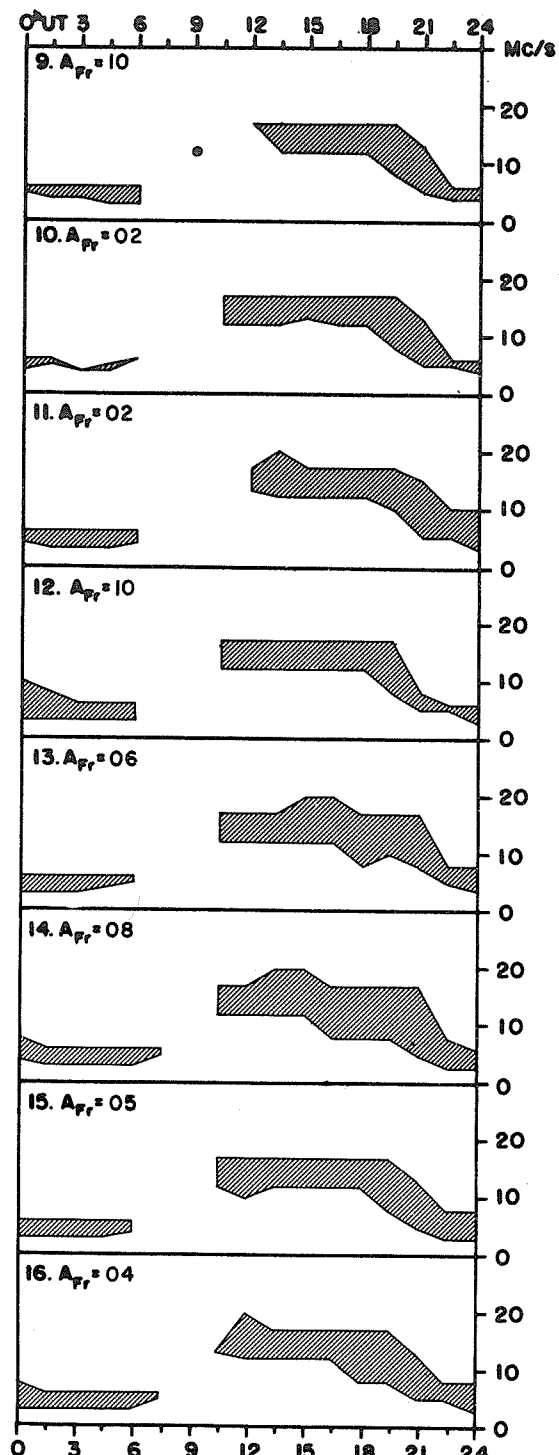
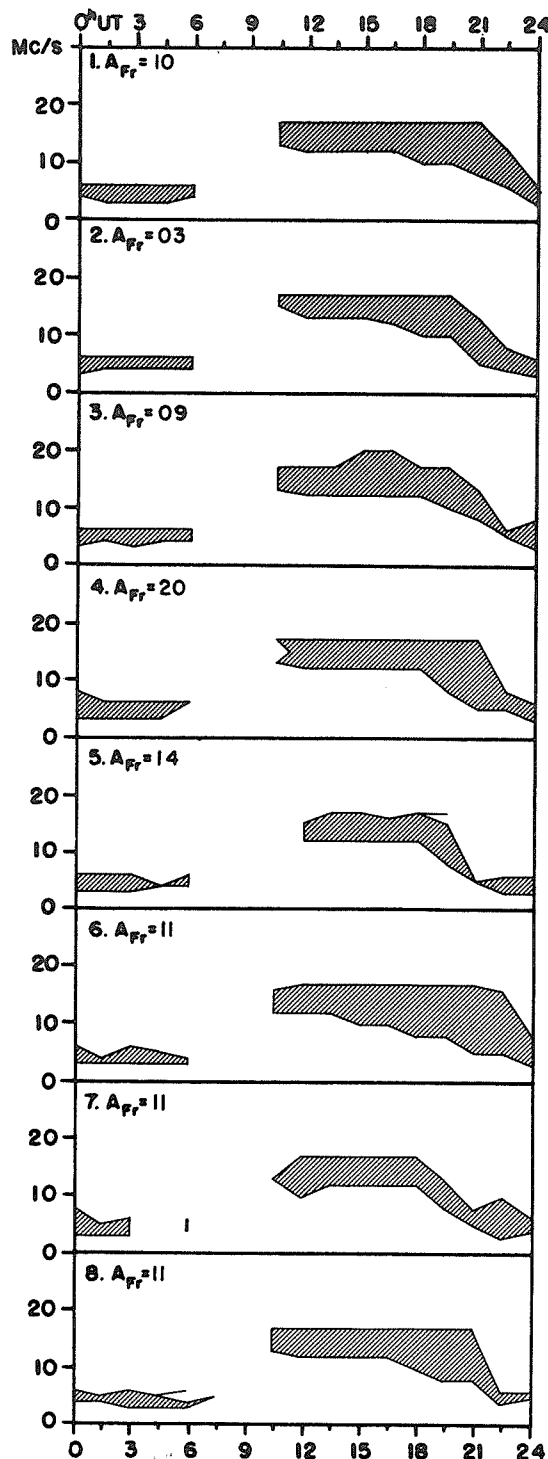


NORTH PACIFIC



USEFUL FREQUENCY RANGES -- NORTH ATLANTIC PATH

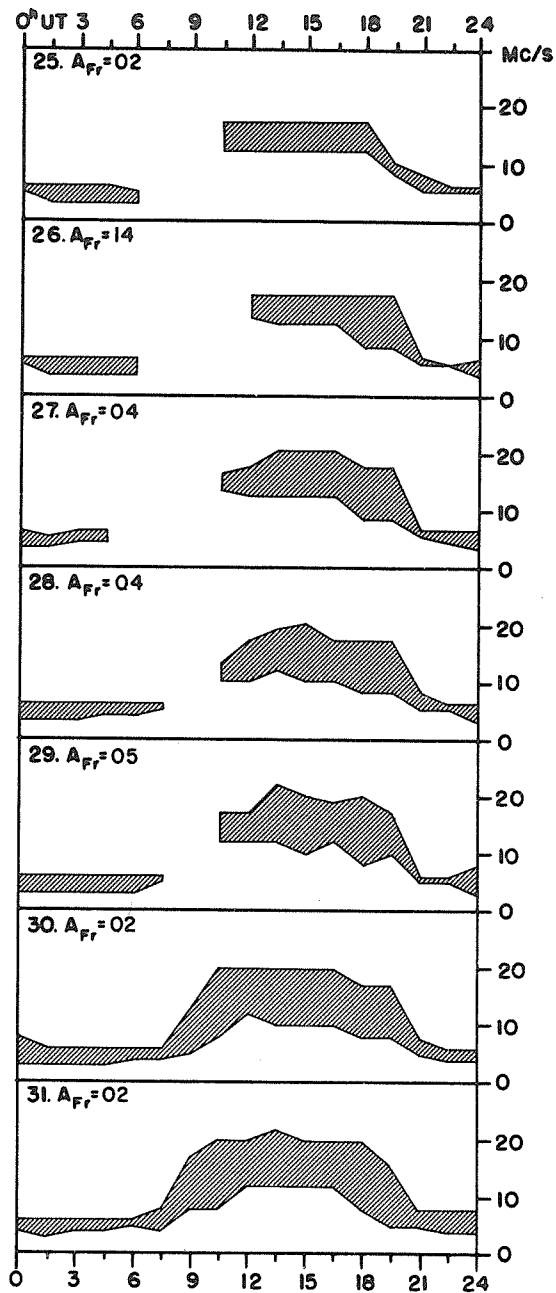
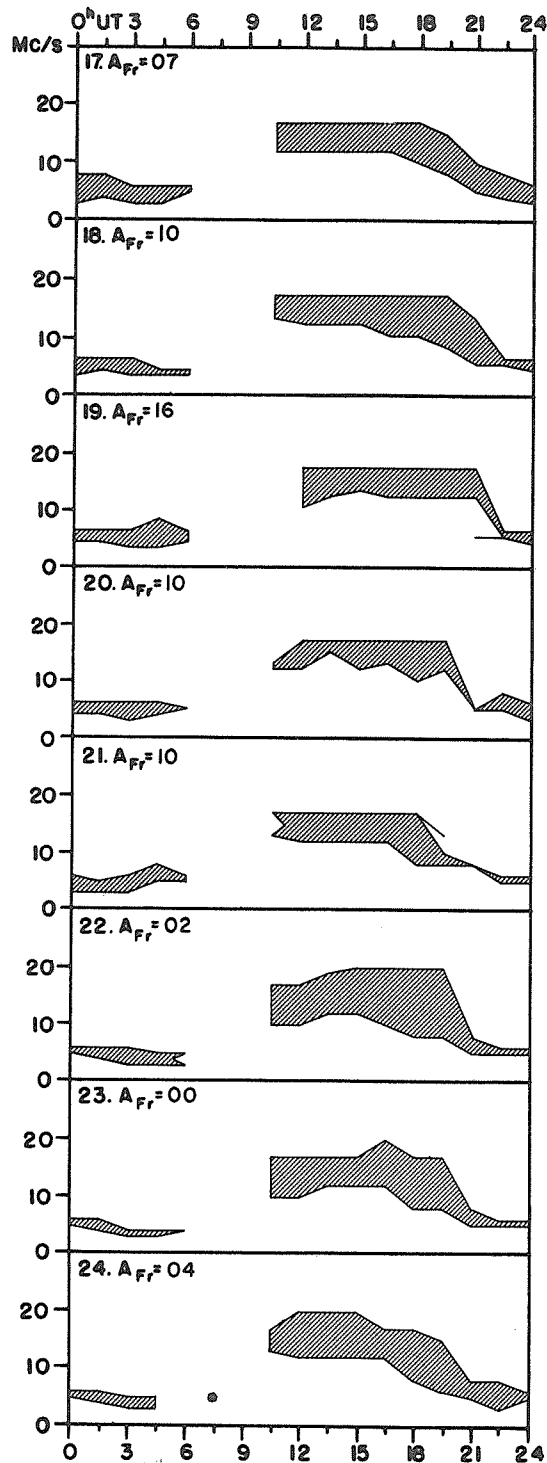
OCTOBER 1964



USEFUL FREQUENCY RANGES -- NORTH ATLANTIC PATH

VII d

OCTOBER 1964



COMMERCE - STANDARDS - BOULDER

Adapted from Observations by Deutsches Bundespost

VIIIa

IQSY ALERT PERIODS

**INTERNATIONAL URSIGRAM
AND WORLD DAYS SERVICE**

NOVEMBER 1964

NOV. 1964	TIME OF ISSUE UT	ADVANCE GEOPHYSICAL ALERT	WORLDWIDE GEOPHYSICAL ALERT			
			NO.	TYPE	TIMING	ELABORATION
17	0400		140	Solar Activity	Exists	New Region
18	0400		141	Solar Activity	Exists	
19	0400		142	Solar Activity	Exists	

COMMERCE - STANDARDS - BOULDER