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CRPL-F 246 PART B

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PART B  
SOLAR - GEOPHYSICAL DATA

ISSUED  
FEBRUARY 1965

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



## SOLAR - GEOPHYSICAL DATA

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The descriptive text was republished in November 1964, with addenda given in December 1964 and January 1965.

Beginning with this issue (CRPL-F 246 Part B), the solar flare data are being presented differently. The flares alone will be given in the table for the immediately preceding month, and the no-flare patrol observations for that month will be given only in graphical form. All of the flares available for the month four months before date of publication will be presented together with the no-flare patrol entries in tabular form. The no-flare patrol observations for that month's data will also be given graphically.

There are two additional flare observatories now reporting. They are:

<u>Code No.</u>	<u>I.A.U. Abbrev.</u>	<u>Name, Place And Country</u>	<u>Former CRPL Designation</u>
880	SHEM	SHEMAKHA, AZERBAIJAN, SSR	None
382	KAND	KANDILLI OBS., ISTANBOUL, TURKEY	None

At the end of this issue in Table IXa you will find a daily Radar Meteor Index which has been prepared by Dr. Peter Millman at the request of some ionospheric physics research workers.

## DAILY SOLAR INDICES

Dec. 1964	American Relative Sunspot Numbers R <sub>A</sub> '	Jan. 1965	Zürich Provisional Relative Sunspot Numbers R <sub>Z</sub>	Daily Values Solar Flux at 2800 Mc, Ottawa, Canada	
				S Flux	S <sub>A</sub>
1	1	1	23	85.6	82.7
2	0	2	26	84.2	81.5
3	1	3	34	82.1	79.4
4	0	4	34	80.7	78.0
5	2	5	32	80.0	77.4
6	0	6	19	80.4	77.7
7	0	7	18	78.2	75.7
8	2	8	17	77.5	74.9
9	0	9	14	76.7	74.1
10	11	10	8	76.0	73.5
11	14	11	7	75.1	72.7
12	11	12	0	75.1	72.6
13	14	13	0	75.0	72.5
14	11	14	7	74.5	72.0
15	5	15	8	74.9	72.4
16	8	16	7	73.7	71.4
17	20	17	7	73.6	71.2
18	27	18	20	74.5	72.1
19	26	19	22	73.9	71.5
20	28	20	28	76.1	73.7
21	29	21	23	76.6	74.1
22	22	22	22	76.8	74.4
23	18	23	17	75.7	73.4
24	14	24	22	76.4	74.1
25	14	25	21	75.5	73.1
26	11	26	21	75.9	73.5
27	17	27	34	79.2	76.8
28	38	28	19	77.4	75.1
29	34	29	29	79.0	76.6
30	17	30	20	81.0	78.6
31	21	31	15	80.0	77.7
Mean:	13.4	Mean:	18.5	77.5	75.0

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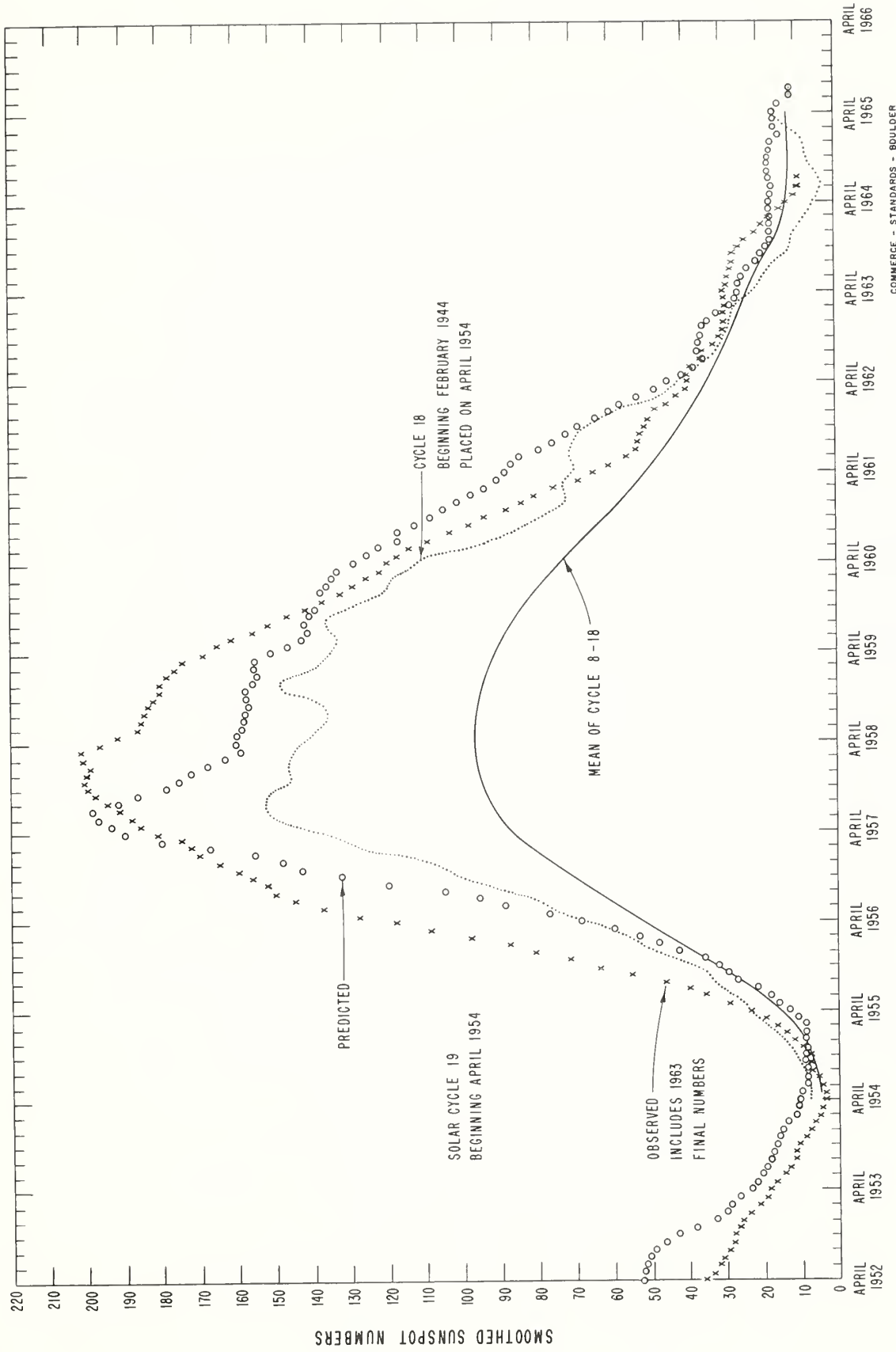
Footnote: At ARO (Ottawa) the flux is measured at 1400-1415, 1700-1715 and 2000-2015 UT. The flux given in Table Ia is that at 1700-1715 UT. When significant changes in solar flux occur, the morning and afternoon values will also be given as below:

<u>1965</u>	<u>1400 UT</u>	<u>1700 UT</u>	<u>2000 UT</u>
January 27	77.1	79.2	78.5
January 28	78.2	77.4	79.1

ERRATA: In CRPL-F 245 Part B, page Id. The daily values Adjusted to 1 Astronomical Unit for December 14 to December 22 should read:

Dec. 14 - 75.3	Dec. 17 - 77.0	Dec. 20 - 76.9
15 - 75.8	18 - 77.3	21 - 75.5
16 - 77.3	19 - 78.4	22 - 74.9

The monthly mean for December 1964 becomes 75.0.



PREDICTED AND OBSERVED SUNSPOT NUMBERS

## CALCIUM PLAGE AND SUNSPOT REGIONS

JANUARY 1965

JAN. 1965	LAT.	MCMATH PLAGE NUMBER	RETURN OF REGION	CALCIUM PLAGE DATA						SUNSPOT DATA		
				CMP VALUES		HISTORY	AGE (ROTA- TIONS)	DATE FIRST SEEN (1)	DURA- TION (DAYS) (1)	CMP VALUES		HISTORY
				AREA	INT.					AREA	COUNT	
4.0	N05	7628b	New	200	2.5	b - d	1	≤1/3	~1			
4.4	N32	7632	New	(300)	(1)	b - d	1	≤1/6	~1			
4.6	S25	7633	New	(200)	(1.5)	b - d	1	≤1/6	~1			
7.1	S01	7634	New	(300)	(2)	b - d	1	≤1/9	~1			
7.3	N26	7631	7606	300	1	b - d	3	<1/4	>3			
7.6	N35	7629b	7606	400	1.5	b - d	3	<1/3	>8			
9.2	N22	7630 (2)	New	1900	3.5	ℓ - ℓ	1	1/3	>12	(121)	(2)	ℓ ~ d
9.4	N08	7639 (3)	New	(100)	(1)	b - d	1	1/12	1			
12.2	N09	7640 (3)	New	200	1.5	b - d	1	1/12	1			
12.4	S09	7635	7613	1200	1	b / d	2	< 1/9	>6			
12.5	N33	7641 (3)	New	100	1.5	b - d	1	1/12	1			
14.4	N21	7636	New	(100)	(-)	ℓ - d	1	≤1/9	≥3			
14.4	N04	7642	New	500	1.5	b - d	1	1/13	2			
14.6	S09	7637	7617	400	1	ℓ - d	5	≤1/9	≥6			
15.2	N25	7638 (3)	7618	300	1.5	ℓ - d	2	1/9	10			
16.7	N22	7643	New	400	2.5	b / ℓ	1	1/13	9	278	6	b - ℓ
17.4	S11	7644	New	200	1	b - d	1	1/16	1			
18.2	N07	7648	New	200	1.5	b - d	1	1/18	1			
18.4	N06	7645	New	300	2	b - d	1	1/16	~3			
18.7	S20	7653	New	(100)	(1.5)	b - d	1	1/21	~1			
18.9	N06	7649	New	300	1	b - d	1	1/18	1			
22.1	S02	7647	New	(200)	(1.5)	ℓ - d	1	1/16	1			
22.2	N34	7646	7622	1600	3	ℓ / ℓ	2	1/16	>11	36	1	b - d
23.9	N29	7650	New	(600)	(2)	ℓ - ℓ	1	1/18	11			
24.4	S24	7654	New	(200)	(1)	b - d	1	1/21	~1			
26.1	S13	7652	New	(200)	(2)	ℓ - d	1	1/20	1			
26.3	S23	7657 (3)	New	100	1	b - d	1	1/27	1			
27.3	S01	7662	New	(100)	(1.5)	b - d	1	1/29	2			
28.1	N24	7655	7626	2800	3.5	ℓ - ℓ	2	1/21	14	145	5	ℓ - d
29.7	N04	7656	New	200	1.5	b - d	1	<1/26	>3			
30.0	N05	7663 (3)	New	200	1.5	b - d	1	1/30	1			

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- (1) No calcium plage observations were secured at the McMath-Hulbert Observatory on January 1, 2, 5, 6, 7, 8, 15, 17, 19, 22, 23, 24, 25, 1965.
- (2) Region 7630 is a new plage, in the same position as plage 7611 of the previous rotation.
- (3) These very small and ephemeral plages last for only one day.



MT. WILSON MAGNETIC CLASSIFICATIONS OF SUNSPOTS

11b

JANUARY 1965

Jan. 1965	TIME MEAS. UT	LAT	MER DIST	TYPE	Jan. 1965	TIME MEAS UT	LAT	MER DIST	TYPE
1 - 2	No Obs				16	1840	N20	W04	$\alpha_p$
3	1810	N22 N22	W48 E71	$\beta_p$ $\beta_p$	17 - 19	No Obs			
4	1815	N22 N21	W60 E59	$\beta_p$ $\beta_p$	20	1910	N20 N31	W59 E13	$\beta_p$ $\beta_p$
5 - 7	No Obs				21 - 22	No Obs			
8	1925	N08 N21	E04 E06	$\alpha_f$ $\beta_p$	23	1650	N23	E60	$\beta_p$
9	2400	N21	W06	$\alpha_f$	24 - 27	No Obs			
10	1725	N23	W19	$\beta_f$	28	2245	N23	W01	$\beta_p$
11 - 13	No Obs				29	1845	N22 N12	W21 E59	$\beta_p$ $\beta_p$
14	1850	N22	E26	$\alpha_p$	30	2255	N24 N08	W38 E54	$\alpha_p$ $\beta_p$ *
15	No Obs				31	1750	N08	E43	$\beta_p$ *

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\* Only Old Cycle Observed Here This Month.

PROVISIONAL CORONAL LINE EMISSION INDICES

JANUARY 1965

The Coronal Indices will be published at a later date because the microdensitometer is undergoing repairs.

# SOLAR FLARES

JANUARY 1965

OBSERVATORY	DATE	OBSERVED UNIVERSAL TIME		LOCATION		DURATION MINUTES	IM. FOR. TANCE	OBS. COND.	TIME U.T.	MEASUREMENTS			REMARKS
		START	END	APPROX. LAT.	APPROX. LONG. DIST.					MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH He	
BUCA	JAN 01 1965	1013 E	1035 D	N22 W15	7626	21	1-	2 C	1834	.70	1.80	1.80	10 L
LOCK	01	1848	1848	N22 E90	7630		1-	C	1950	.60	3.50	3.50	10 HJ
LOCK	01	1920	2020	N21 W22	7626	22	1-	C	2215	.50	2.50	2.50	10 L
MITK	02	0057	0105	N20 W27	7626	19	1	V	0057	1.97	2.38	1.54	146
MITK	02	0121	0128	N19 W24	7626	7	1	V	0120	2.95	3.48	1.02	93
MITK	02	0204	0212	N20 W90	7630	13	1-	V	0356	1.78	4.62	4.62	H
MITK	02	0353 E	0406	N21 E90	7630	6	1	V	0414	3.93	3.93	3.25	H
MITK	02	0415	0421	N21 E90	7630	15	1-	C	1039	.86	1.11	1.11	133
ISTA	02	0810	0825	N23 W26	7626		1-	C	1047	.30	1.71	1.71	118
CATA	02	1030 E	1110	N21 W30	7626		1-	C	1315	.70	.90	.90	10 J
CATA	02	1040	1320	N20 E90	7630		1-	C	1742	1.11	1.25	1.25	18
HTPR	02	1310	1315	N24 W27	7626		1-	C	2015	.40	1.20	1.20	10 L
LOCK	02	1735	1750	N21 W32	7626		1-	C	2255	.45	1.35	1.35	17
SACP	02	1741 E	1822 D	N21 W34	7626		1-	C	2255	.60	1.80	1.80	10 L
LOCK	02	2000 U	2100	N24 E80	7630		1-	C		.12	.34	.34	18
SACP	02	2029	2046	N21 E80	7630		1-	C		.60	1.20	1.20	CD
LOCK	02	2225	2330	N24 E80	7630		1-	C		.60	1.00	1.00	D
SACP	02	2243	2300	N21 E78	7630		1-	C		1.07	2.13	2.13	E
CAPS	03	1125 E	1133	N19 W44	7626		1-	2	1435	1.50	4.50	4.50	19 FLS
CAPS	03	1142 E	1233	N19 W44	7626		1-	2	1617	.20	.60	.60	LS
HTPR	03	1201	1232	N20 W48	7626		1-	1 C	1823	.33	.56	.56	18
OTTA	03	1427	1443	N23 E68	7630	30	1	C		.20	.60	.60	D
SACP	03	1427	1512 U	N24 E72	7630	45	1	C		.74	1.27	1.27	18
MCMA	03	1428	1520	N22 E70	7630	52	1+	2 C		.24	.39	.39	17
MCMA	04	1615	1620 D	N26 E62	7630		1-	1 P		.76	1.05	1.05	20
SACP	04	1810	1836	N23 E62	7630		1-	1 C		.43	.67	.67	0
MCMA	04	1819	1828 D	N26 E60	7630		1-	1 C		.37	.94	.94	16
SACP	04	1908	1922	N23 E62	7630		1-	1 C		.43	.60	.60	0
SACP	04	2242	2244	N23 E59	7630		1-	1 C		.56	.80	.80	0
SACP	04	2343	2359 D	N21 E51	7630		1-	1 C		.50	.60	.60	20
ARCE	05	0920 E	1556	N23 E46	7630		1-	2 C	0920	.43	.67	.67	0
SACP	05	1546	1550	N22 W76	7626		1-	1 C		.37	.94	.94	16
KAND	06	0713	0717	N21 E39	7630		1-	B		.43	.60	.60	0
KAND	06	0810	0840	N23 W90	7626	30	2	G		.56	.80	.80	0
ARCE	06	0820 E	0830 D	N16 W90	7626	10	1	2	0820	.43	2.44	2.44	0
ARCE	06	0845 E	0900 D	N16 W90	7626	15	1	2	0850	.56	3.18	3.18	0
KAND	06	0847	0937	N23 W90	7626	50	1+	D		.50	.60	.60	20
LOCK	06	1910	1926	N21 E29	7630		1-	1 C	1912	.70	.80	.80	20
LOCK	06	2045	2100	N21 E29	7630		1-	1 C	2047	.69	.96	.96	0
ARCE	07	0850 E	0905 D	N29 E13	7630		1-	2	0900	.65	.90	.90	0
ARCE	07	0930 E	1000 D	N29 E13	7630		1-	2	0945	.65	.90	.90	0
MITK	11	0110 E	0117 D	N23 W26	7629		1-	1 C		.41	1.47	1.47	G
SACP	13	2035	2050	N17 W84	7629		1-	C		.41	1.47	1.47	18

# SOLAR FLARES

JANUARY 1965

OBSERVATORY	DATE		OBSERVED UNIVERSAL TIME		LOCATION			DURA-TION - MINUTES	IM FOR TRACE	OBS COND.	TIME U T	MEASUREMENTS			REMARKS
	JAN 1965		START	END	APPROX LAT.	APPROX LON.	MAX. ALT. REGION					MESS AREA Sq. Deg.	COBR AREA Sq. Deg.	MAX WIDTH Ho	
SACP	14	1502	1524	1508	N23 E09	7638		1-	C	1.15	1.19	19			
SACP	14	2050	2126	2108	N31 W75	7630		1-	C	.49	1.30	17			
SACP	15	2151	2203	2155	N21 W08	7638		1-	C	.49	.50	17			
LOCK	16	1915	1923	1919	N35 E58	7646		1-	C	.20	.40	10			
SACP	17	1452	1459	1454	N37 E67	7650		1-	C	.8	.18	17			
LOCK	17	1830	1853	1842	N32 E54	7646		1-	C	.20	.30	10			
LOCK	17	2148	2216	2200	N20 W35	7643		1-	C	.30	.30	10			
KAND	18	0742	0825	0755	N20 W26	7643	43	1	B						
ISTA	18	0743	0810	0743	N23 W20	7643	27	D							
CATA	18	0840	0905	0849	N22 W27	7643		1-	C	.40	.48	151	D		
KAND	18	0845	0855	0850	N22 W25	7643	10	1	D	.40	.50				
HTRP	18	0846	0852	0848	N22 W19	7643		1-	D	.40	.50				
KAND	18	0925	0930	0930	N22 W27	7643		1-	D	.10	.15				
HALE	18	2236	2253	2239	N19 E55			1-	4	.10	.15		C		
HALE	19	2057	2208	2100	N20 W44	7643		1-	4	.50	.70		C		
HALE	20	0155	0240	0158	N20 W46	7643		1-	4	.40	.50		C		
ARCE	20	0815	0835	0815	N22 W55	7643		1-	3	.88	1.59		C		
ARCE	20	0855	0925	0905	N23 W55	7643		1-	3	.85	1.54		O		
CAPS	20	0910	0940	0910	N23 W47	7643	30	D	2	2.20	3.50	160	O		
ARCE	20	0945	1000	0945	N22 W55	7643	15	D	3	1.41	2.55		O		
CATA	20	1130	1140	1137	N22 W49	7643		1-	C	.66	1.20	138	E		
CAPS	20	1300	1315	1315	N29 E24	7646		1-	2	.80	1.00	153	D		
LOCK	20	1900	1930	1914	N21 W56	7643		1-	C	.20	.30	10			
LOCK	20	2023	2034	2026	N20 W59	7643		1-	C	.40	.50	10			
LOCK	20	2236	2310	2242	N20 W61	7643		1-	C	.30	.50	10			
HALE	20	2324	2348	2330	N25 E90	7655		1-	4	.30	.50		CK		
HALE	20	2324	2359	2339	N25 E90	7655		1-	4	.50	.70		CK		
MITK	21	0005	0012	0008	N33 E15	7646		1-	C						
MITK	21	0028	0037	0032	N26 W70	7643		1-	C						
KAND	21	1306	1419	1359	N26 E90	7655	73	D	B						
MCMA	21	1410	1418	1414	N26 E90	7655		1-	2	.80	.80	1414			
MCMA	21	2000	2018	2000	N19 W85	7643		1-	1	.40	.40	2000	D		
MITK	22	0318	0352	0332	N21 W85	7643		1-	C						
MITK	22	0620	0536	0524	N21 W90	7643		1-	C						
KAND	22	0659	0755	0729	N22 W90	7643	56	D	B						
KANZ	22	0819	0903	0903	N21 W85	7643		1-	C						
CATA	22	0840	1200	1033	N10 W90	7643	200	D	C			126	D		
ARCE	22	0915	0940	0915	N19 W85	7643	25	D	3	.62	1.52		O		
KANZ	22	0930	0952	0940	N21 W85	7643		1-	C	.49	2.00				
KANZ	22	0959	1005	1005	N21 W85	7643		1-	C						
ARCE	22	1000	1005	1005	N20 W82	7643		1-	3	.46	1.69		O		
CATA	22	0848	1200	1033	N23 E90	7655	192	D	C	.72	2.94	141	D		
LOCK	22	1607	1632	1617	N20 E90	7655		1-	C	.30	1.50	10	H		
LOCK	22	1920	1950	1923	N20 E90	7655		1-	C	.30	1.50	10			

# SOLAR FLARES

JANUARY 1965

OBSERVATORY	DATE	OBSERVED UNIVERSAL TIME		LOCATION			DURA- TION — MINUTES	IM- POR- TANCE	OBS. COND.	MEASUREMENTS			REMARKS
		START	END	APPROX. LAT.	M- R. DIST	M- MATH PLACE REGION				TIME — U T	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	
LOCK	22	2005	2027	N20 E90	7655			1-	C	.20	1.00		10
LOCK	22	2052	2120	N20 E90	7655			1-	C	.20	1.00		10
HTPR	23	1015	1047	N25 E55	7655			1-		.70			E
HTPR	24	0954	1004	N24 E44	7655			1-		.40	.60		D
KANZ	24	1337	1430	N23 E57	7655			1-					D
HTPR	24	1409	1432	N21 E55	7655			1-		.30			
SACP	24	1412	1435	N23 E56	7655			1-	C	.43	.66		18
KANZ	24	1441	1452	N23 E57	7655			1-					
SACP	24	1526	1555	N21 E41	7655			1-	C	.16	.20		19
LOCK	24	1648	1710	N28 E53	7655			1-	C	.30	.50		10
SACP	24	1650	1714	N28 E54	7655			1-	C	.40	.63		17
SACP	24	1919	1950	N22 E52	7655			1-	C	.53	.75		18
SACP	24	2012	2025	N23 E51	7655			1-	C	.49	.69		18
LOCK	24	2020	2035	N23 E50	7655			1-	C	.30	.50		10
LOCK	25	2103	2120	N24 E32	7655			1-	C	.30	.40		10
LOCK	25	2218	2229	N22 E36	7655			1-	C	.40	.50		10
HTPR	26	1345	1354	N25 E10	7655			1-		.60	.80		E
LOCK	26	1729	1748	N21 E11	7655			1-	C	.74	.90		10
LOCK	26	2227	2243	N30 W46	7650			1-	C	.20	.30		10
LOCK	26	2357	0016	N30 W46	7650			1-	C	.30	.50		10
MCMA	27	1656	1700	N23 E00	7655			1-	P	.30	.30		E
MITK	28	0217	0232	N20 E10	7655		15	1-	V	1.97	2.22	1.64	115
MITK	28	0434	0449	N20 E09	7655		15	1-	V	1.67	1.87	1.54	107
SACP	28	1542	1545	N22 E01	7655			1-	C	.74	.76		18
LOCK	28	1701	1714	N21 E01	7655			1-	C	.10	.10		J
LOCK	28	1947	1956	N08 E90	7661			1-	C	.10	.50		10
LOCK	28	2357	0020	N07 E80	7661			1-	C	.30	.30		10
LOCK	28	2359	0015	N28 W08	7655			1-	C	.40	.40		20
SACP	29	0002	0014	N22 W06	7655			1-	C	.29	.30		18
OTTA	29	1829	1641	N12 E73	7661			1-	C	.17	.37		H
SACP	29	1829	1645	N12 E71	7661			1-	C	.24	.51		17
LOCK	29	1829	1647	N09 E71	7661			1-	C	.60	1.20		10
MCMA	29	1830	1641	N07 E76	7661			1-	2	.50			SH
LOCK	29	1648	1710	N12 E71	7661			1-	C	.657	.60	1.20	10
MCMA	29	1805	1703	N09 E75	7661			1-	1	.50			S
LOCK	29	1855	1828	N12 E71	7661			1-	C	.50	1.00		10
LOCK	29	2010	2055	N12 E71	7661			1-	C	.40	.80		10
LOCK	29	2128	2135	N08 E71	7661			1-	C	.50	1.00		20
SACP	29	2128	2131	N09 E70	7661			1-	C	.66	1.29		18
LOCK	29	2334	2355	N09 E71	7661			1-	C	.10	.20		10
MITK	30	0142	0153	N07 E66	7661		11	1-	V	.88	2.06	1.75	107
LOCK	30	1820	1945	N07 E55	7661			1-	C	.30	.50		10
MCMA	30	1922	1935	N09 E58	7661			1-	C	.80	1.60		E

# SOLAR FLARES

JANUARY 1965

OBSERVATORY	DATE	OBSERVED UNIVERSAL TIME		LOCATION			DURATION — MINUTES	IM- POP- TANCE	OBS. COND.	TIME — U T	MEASUREMENTS			REMARKS
		START	END	APPROX. LAT.	MER. DIST.	M-MATH FLAGE REGION					MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Ha	
—	JAN 1965													
— SACP	30	1925	1945	N07 E56		7661		1-	C		.49	.70		18
— LOCK	30	2025	2056	N07 E55		7661		1-	C	2031	.30	.50		10
— SACP	30	2026	2048	N08 E56		7661		1-	C		.66	.93		18
— LOCK	30	2225	2247	N07 E55		7661		1-	C	2235	.20	.40		10
— LOCK	31	0020	0030 D	N05 E55		7661		1-	C	0025	.20	.40		10
— KAND	31	1314	1323	N05 E43		7661		1-	G		.41	.51		17
— SACP	31	1530	1553	N07 E46		7661		1-	C		.50	.60		10
— LOCK	31	2010	2034	N07 E45		7661		1-	C	2017	.50	.70		10
— MAMA	31	2013	2024 D	N09 E43		7661		1-	P	2015	1.08	1.29		J
— SACP	31	2013	2040	N09 E44		7661		1-	C					19

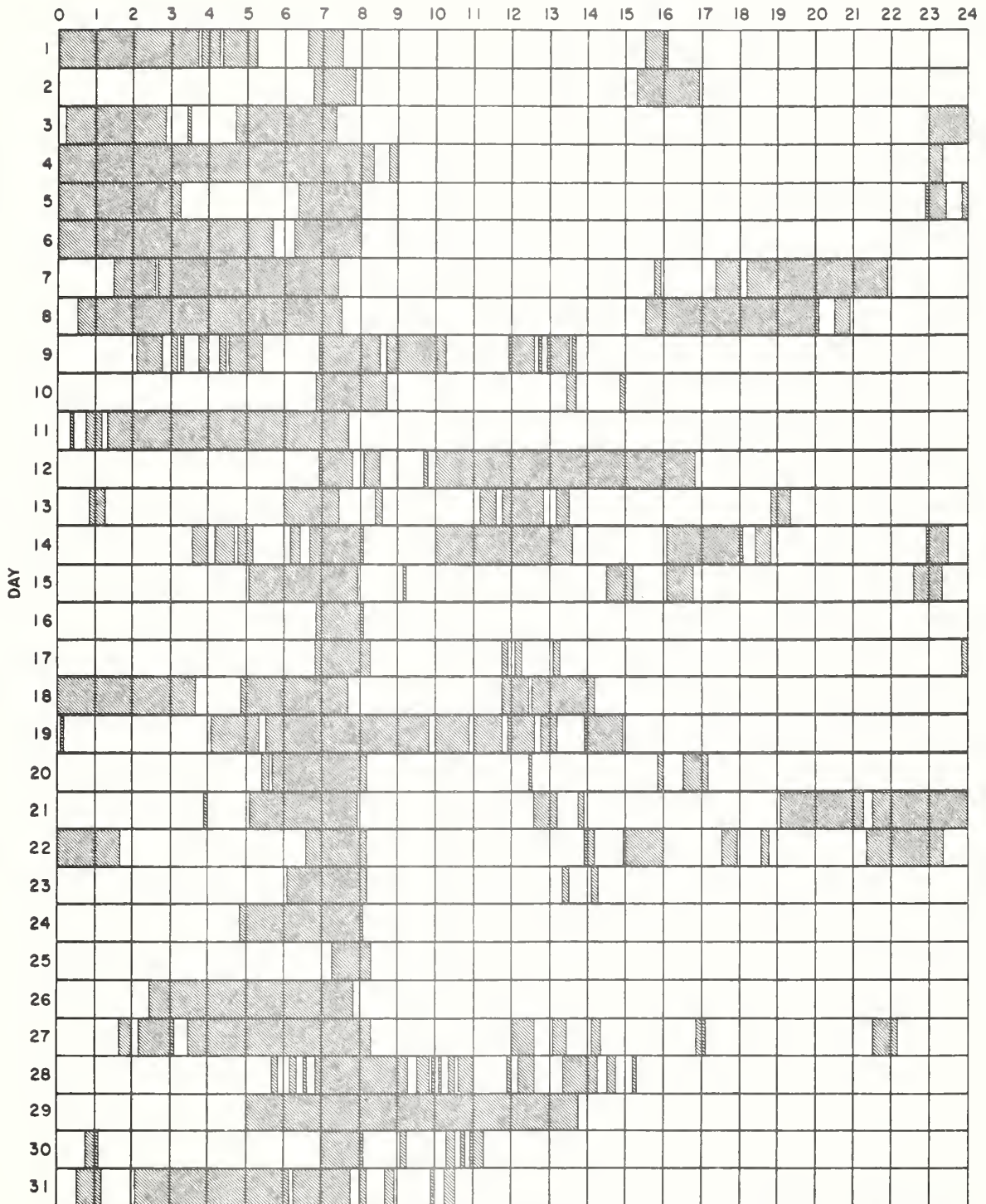
COMSERFE - STANBROS - BOLDEN

# INTERVALS OF NO FLARE PATROL OBSERVATIONS PROVISIONAL

IIIc

JANUARY 1965

HOUR-UT



COMMERCE - STANDARDS - BOULDER

Observatories Included:

Arcetri	Catania	Herstmonceux	Lockheed
Bucharest	Haleakala	Istanbul	Mitaka
Capri-S (Swedish)	Haute-Provence	Kanzelhöhe	Ottawa
			Sacramento Peak
			Tortosa

# SOLAR FLARES

OCTOBER 1964

OBSERVATORY	DATE	OBSERVED UNIVERSAL TIME		LOCATION			DURA-TION MINUTES	IM- POR- TANCE	OBS. COND.	MEASUREMENTS			REMARKS	
		START	END	APPROX. LAT.	MER DIST.	MAGNITUDE PLAGE REGION				TIME U.T.	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.		MAX WIDTH Hr
CATA	OCT 01	0800 E	0830 D	S07 W21				1-	3					
ARCE	OCT 01	0815 E	0845 D	S07 W23				1-			.81			DK
UCCL	OCT 01	0926	0935	N44 E60	7503			1-	4					D
UCCL	OCT 01	0945	0948	S07 W24	7508			1-	4					EK
UCCL	OCT 01	1016	1042 D	N23 W68	7504			1-	4					E
UCCL	OCT 01	1039		S07 W24	7508			1-	4					D
UCCL	OCT 01	1103	1110	S07 W24	7508			1-	3					D
UCCL	OCT 01	1130	1134	S07 W24	7508			1-	3					E
UCCL	OCT 01	1142	1215 D	S07 W24	7508			1-	3					D
UCCL	OCT 01	1340	1352	N22 W67	7504			1-	3					E
UCCL	OCT 02	0930	0950	S07 W38	7508			1-	3					D
UCCL	OCT 02	1015	1022 D	N24 W85	7504			1-	2					D
UCCL	OCT 02	1130	1200 D	S07 W38	7508			1-	2					EK
UCCL	OCT 02	1412	1455	S07 W38	7508			1-	2					D
LOCK	OCT 03	1822	1830	N06 E44				1-	C		.20	.20		10
CAPE	OCT 04	0802	0841	S07 W67	7508			1-	C		.50	1.30		J
CAPE	OCT 04	0910	0940	S07 W67	7508			1-	C		.80	0.914		J
CAPR	OCT 04	0920 E	0930 D	S11 W62				1-	3		.80	1.60		J
UCCL	OCT 04	0926 E	0958 D	S05 W70	7508			1-	2					E
CAPR	OCT 04	1317 E	1327	S11 W62				1-	3		.80	1.60		E
CAPR	OCT 04	1420 E	1433	S11 W63				1-	3		.90	1.80		E
HALE	OCT 04	1758 E	1813 D	S09 W69				1-	2		.10	.20		H
MCMA	OCT 04	1835	1855	S08 W72	7508			1-	C		.40	.40		H
CLMX	OCT 04	1838	1847	S05 W74	7508			1-	C		.60	1.20		H
HALE	OCT 04	1838 E	1848	S08 W70				1-	2		.50	1.00		H
HALE	OCT 04	1838 E	1848	S08 W70				1-	2		.50	1.00		H
HUAN	OCT 04	1843 E	1852	S08 W74				1-	P		.20	.20		
LOCK	OCT 04	2012	2041	N24 W58				1-	2		.30	.30		10
HALE	OCT 04	2206 E	2211	S08 W70				1-	2		.10	.20		
HALE	OCT 04	2351 E	0031	S08 W71				1-	2		.30	.60		
HALE	OCT 05	0147	0159	S08 W80				1-	2		.60	1.60		E
UCCL	OCT 05	0907	0910	S06 W85	7508			1-	2					E
ARCE	OCT 05	0940 E	1000 D	N23 W24				1-	3		.49	.55		D
UCCL	OCT 05	1204	1206 D	S06 W85	7508			1-	3					D
CAPR	OCT 05	1440 E	1453	S10 W85				1-	3		.30	.30		D
CAPR	OCT 05	1454	1510 D	S10 W85				1-	3		.80	.80		D
HALE	OCT 05	1801 E	1805	S10 W90				1-	3		.20	.20		D
HALE	OCT 05	1849	1919 D	S10 W90				1-	3		.20	.20		D
HALE	OCT 05	2010	2029	S10 W90				1-	4		.20	.20		D
HALE	OCT 05	2105	2128	S11 W90				1-	2		.40	.40		D
HALE	OCT 06	0102	0143	N24 W33				1-	3		.30	.30		D
HALE	OCT 06	0119	0134	N23 W35				1-	3		.20	.20		D
HALE	OCT 06	0119	0137 D	N26 W31				1-	3		.60	.70		D
HALE	OCT 06	0200	0214	S09 W90				1-	4		.20	.20		D
HALE	OCT 06	0210	0220	N23 W33				1-	4		.20	.20		D
HALE	OCT 06	0210	0220	N23 W33				1-	4		.20	.20		D
HALE	OCT 06	0228	0254	N24 W33				1-	4		.20	.20		D
CAPE	OCT 06	0625 E	0705	N25 W38	7512			1	C		1.60	2.10		J



# SOLAR FLARES

OCTOBER 1964

OBSERVATORY	DATE	OBSERVED UNIVERSAL TIME		MAX. PHASE	LOCATION			DURATION MINUTES	IM. FOR. STANCE	OBS. COND.	TIME U.T.	MEASUREMENTS			REMARKS
		START	END		APPROX. LAT.	MATH. PLAGE REGION	MER. DIST.					MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Ho	
[ ]	OCT 1964														
ARCE	06	0845 E	0915 D		N23 W39	7512		30 D	1-	3	0900	1.51	2.00		
BUCH	06	0910 E	0921 D		N25 W37				1-	3		.85	.70		
ARCE	06	0945 E	[ ]		N23 W39				1-	3	0945	.85	1.13		
HALE	06	1913	1934	1923	N23 W43				1-	3	1923	.20	.20		
HALE	06	1950	2035	2020	N23 W45				1-	3	2020	.30	.40		
HALE	06	2040	2115	2059	N24 W44				1-	4	2059	.70	.80		
LOCK	06	2122	2140	2128	N26 W46				1-	4	2128	.30	.30	10	
HALE	06	2128	2134	2130	N21 W45				1-	3	2130	.20	.20		
LOCK	06	2231	2252	2239	N26 W46				1-	C	2239	.50	.50	10	
SAC	06	2233	2253	2237	N23 W47				1-	C		1.67	2.04	17	
CLMX	06	2234	2245	2237	N25 W47	7512			1-	C	2237	.60	.70		
HALE	07	0038	0048	0039	N22 W47				1-	3	0039	.30	.40		
HALE	07	0119	0211	0138	N26 W45				1-	3	0138	.80	1.00		
MANI	07	0130 E	0150		N24 W48				1-	2	0130	.25	.32		
BUCH	07	0720 E	0726 D		N25 W50				1-	2		.90	.90		
BUCH	07	0833 E	0842 D		N25 W51				1-	2		.50	.50		
BUCH	07	0857 E	0905 D		N25 W51				1-	2		.90	.90		
CAPE	07	0917	0930	0919	N26 W52	7512			1-	3	0919	1.20	1.90	J	
ARCE	07	0940 E	0950 D		N22 W52				1-	3	0940	.72	1.16		
CAPR	07	1232 E	1338		N24 W51				1-	2	1312	.30	.60		
SAC	07	1317 E	1343	1330	N26 W51				1-	C		.26	.33	18	
CAPR	07	1342 E	1404		S12 W23				1-	C	1400	.30	.30		
HUAN	07	1350 E	1410		S11 W22				1-	P	1400	.20	.20		
CAPE	07	1355	1407	1357	N26 W52	7512			1-	C	1357	.80	1.30	J	
CAPR	07	1411 E	1416		S12 W23				1-	2	1414	.40	.40		
SAC	07	1411 E	1416		S12 W23				1-	C		.56	.58	19	
MCMA	07	1412	1418	1412	S12 W22				1-	C	1414	.30	.30		
HUAN	07	1450	1550	1510	N26 W53	7514			1-	P	1510	1.00	1.70		
CAPR	07	1457	1548 D		S12 W24				1-	3	1508	.40	.40		
SAC	07	1507 E	1600	1533	S12 W23				1-	C		.42	.43	21	
LOCK	07	1515 E	1555	1530	S11 W24				1-	C	1530	.20	.20	10	
MCMA	07	1523 E	1610	1526	S12 W24	7514			1-	C	1526	.20	.20		
LOCK	07	1650	1720	1657	S11 W24				1-	C	1657	.40	.40	10	
LOCK	07	1715	1755	1730	N25 W56				1-	C	1730	.30	.50	10	
LOCK	07	1843	1910	1855	N25 W56				1-	C	1855	.40	.60	10	
HALE	07	1849	1905	1857	N24 W57				1-	4	1857	.20	.30		
HALE	07	1949	2034		N19 W56				1-	4	1949	.20	.30		
LOCK	07	2004	2019	2009	N07 W80				1-	C	2009	.20	.50	10	
HALE	07	2137	2142 D		N21 W63				1-	4	2142	.20	.30		
LOCK	08	0011	0024	0016	N23 W47				1-	C	0016	.10	.10	10	
SIBE	08	0045	0215	NO FLARE	PATROL				1-	C		.83	2.22	50	CEHL
CAPE	08	0424	0443 D	0429	N25 W64	7512	19 D		1-	C	0429	.70	1.70	J	
CAPE	08	0649 E	0700	0815	N25 W66	7512			1-	C	0650	1.00	2.40	J	
BUCH	08	0807	0828	0815	N26 W66	7512	21		1-	C	0815	.60	1.10	J	
CAPE	08	0845 E	0855 D		N26 W60				1-	2	0930	.60	1.40	J	
CAPE	08	0927	0949	0930	N25 W66	7512	22		1-	C	0936	1.60	3.80	J	
BUCH	08	0928 E	0940 D		N26 W60				1-	2		.60	1.60		
CATA	08	0930 E	0945 D	0935	N25 W65				1-	2		.60	1.60		

# SOLAR FLARES

OCTOBER 1964

OBSERVATORY	DATE	OBSERVED UNIVERSAL TIME		LOCATION			DURA- TION - MINUTES	IN- POR- TANCE	OBS COND.	TIME U T	MEASUREMENTS			REMARKS
		START	END	APPROX LAT	MER DIST	M-NUMB PLAGE REGION					NEAR AREA Sq. Deg	CORR AREA Sq. Deg	MAX WIDTH R <sub>90</sub>	
	OCT 1964													
CAPE	08	1112	1122	N25 W66		7512		1-	C	1115	.60	1.40		J
TACH	08	1113	1119	N25 W67		7512		1-	C	1114	.50	1.20		D
CAPE	08	1231	1310	N25 W67		7512	39	1+	C	1234	2.30	5.60		J
HUAN	08	1420	1510	N25 W68				1-	P	1450	.50	1.30		
CLMX	08	1429	1458	N25 W76		7512		1-	C	1447	.40	.60		G
LOCK	08	1717	1755	N26 W63				1-	C	1722	.50	.90		
LOCK	08	1835	1905	N25 W70				1-	C	1848	.60	1.10		10
LOCK	08	1919	1940	N25 W70				1-	C	1924	.60	1.10		10
HUAN	08	1940	2010	N25 W69				1-	P	1950	.30	.80		
LOCK	08	1943	2025	N25 W70				1-	C	1952	.60	1.10		10
LOCK	08	2057	2120	N25 W72				1-	C	2107	.50	1.00		10
LOCK	08	2135	2155	N25 W72				1-	C	2142	.40	.80		10
LOCK	08	2250	2317	N25 W72				1-	C	2304	.60	1.20		10
HTE-	09	0924	0941	N25 W80				1-	P		.30			.30
I2MI	09	1012	1028	N23 W80		7512	16	1	P	1020	1.80	4.00		50
LOCK	09	1215	1300	PATROL				1-	C		.30	.70		10
LOCK	09	1823	1843	N25 W76				1-	C	1831	.30	.70		10
LOCK	09	1917	1931	N25 W82				1-	C	1925	.30	.80		10
LOCK	09	2005	2012	N25 W85				1-	C	2008	.30	.90		10
LOCK	09	2043	2107	N30 W80				1-	C	2050	.20	.50		10
MITK	10	0116	0120	N24 W90		7512		1-	C					
MITK	10	0210	0229	N24 W90		7512		1-	C					
TACH	10	0322	0356	N25 W87		7512	34	1	C	0322	.50	5.60		65
MITK	10	0327	0358	N24 W90		7512	31	1	C					
VORO	10	0333	0347	N23 W90		7512		1-	P	0339	.63	.63		72
BUCH	10	0834	0910	N26 W87				1-	3					
LOCK	10	1845	1920	N25 W90				1-	C	1850	.30	1.50		10
LOCK	10	1852	1858	N45 W72				1-	C	1856	.30	.70		10
MITK	11	0336	0410	N08 W90			34	1	C					GH
LOCK	11	1715	1738	PATROL				1-	C	1730	.30	1.50		10
LOCK	11	2119	2136	N11 E08				1-	C	2126	.10	.10		10
SAC	11	2120	2136	N12 E08				1-	C		.35	.35		17
SAC	11		2132											
LOCK	12	1000	1045	PATROL				1-	C	2335	.30	.50		10
LOCK	12	2325	2355	N00 E64										
MCMA	13	0530	0555	PATROL				1-	C		.30	.50		
SAC	13	1155	1245	PATROL				1-	C		.10	.10		
MCMA	13	1255	1320	PATROL				1-	C		.35	.35		
MCMA	13	1405	1416	N00 W50		7520		1-	C	1410	.30	.50		
SAC	15	1847	1908	N08 E36				1-	C		.70	.74		17
MCMA	15	1848	1855	N09 E35		7521		1-	C	1850	.40	.50		
	17	1150	1205	PATROL				1-	C					

# SOLAR FLARES

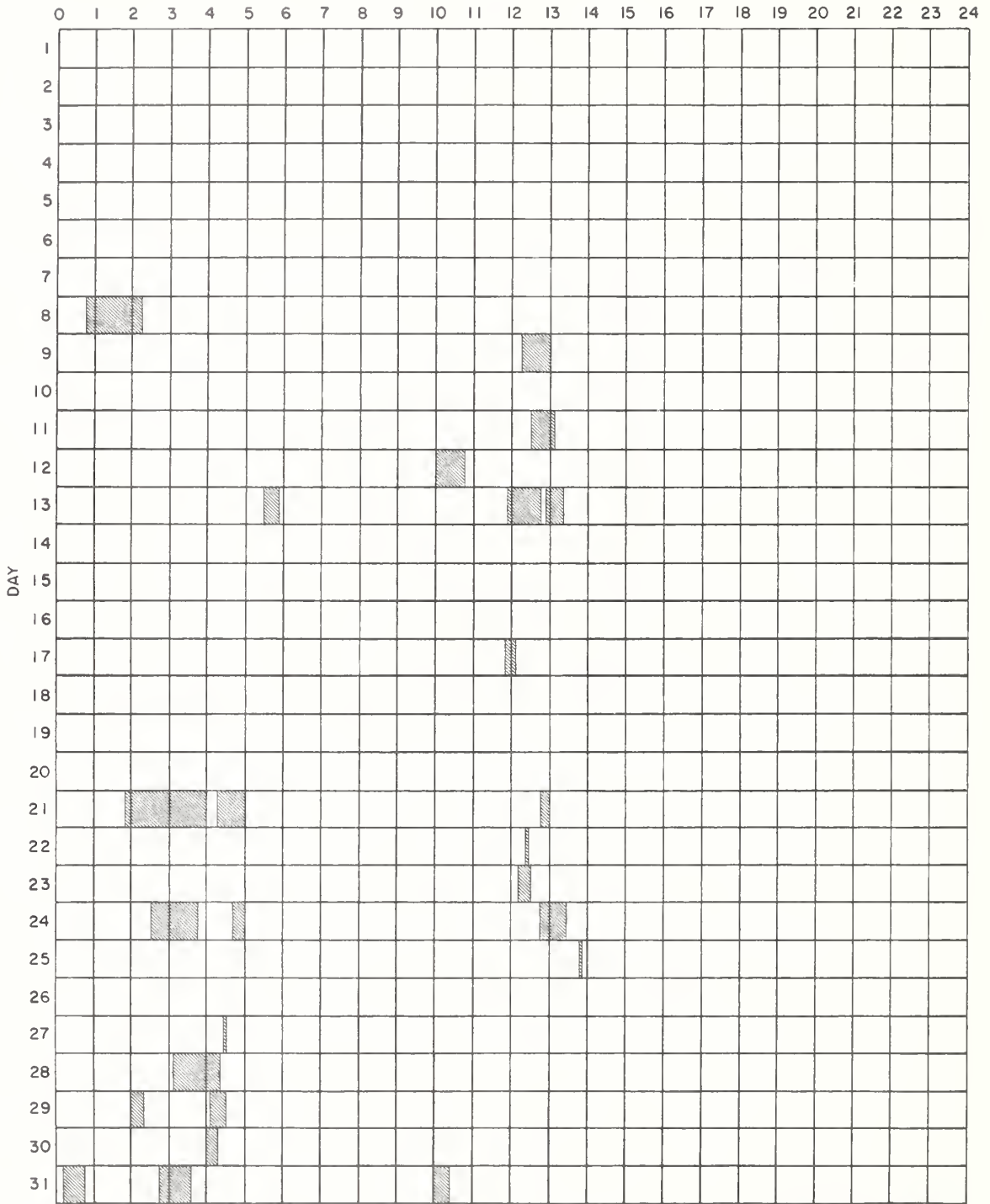
OCTOBER 1964

OBSERVATORY	DATE	OBSERVED UNIVERSAL TIME		LOCATION			DURATION MINUTES	IM FOR. TRACE	OBS. COND.	MEASUREMENTS			REMARKS
		START	END	APPROX.	MATH. PLACE REGION	MEAS. AREA Sq. Deg.				CORR. AREA Sq. Deg.	MAX. WIDTH Ha	MAX. INT. $\times 10^4$	
ARCE UCCL	18	1000 E		N30 E00				1-	3	.82	.90		E
	18	1145	1155	N30 W01	7531			1-	2				
LOCK LOCK	19	1715	1745	S11 E52				1-	C	.30	.40		10
	19	1800	1845	S07 W60				1-	C	.30	.50		
LOCK	21	0150	0400	PATROL									10
	21	0415	0500	PATROL									
	21	1245	1300	PATROL									
	22	1220	1225	PATROL									
SAC	23	1210	1230	PATROL									16
	24	0230	0345	PATROL									
SAC	24	0440	0500	PATROL									17
	24	1245	1325	PATROL									
	24	2325	2350	N06 W40				1-	C	.20	.20		
	25	1345	1350	PATROL									
SAC	25	2043	2059	N28 E69				1-	C	.27	.52		17
	26	1527	1550	S20 E17				1-	C	.97	1.00		
UCCL	27	0425	0430	PATROL									E
	27	0910	0925	S11 W06	7533			1-	2				
SYDN	28	0305	0420	PATROL				1	C	3.00	4.50		E
	28	0635	0649	N24 E47	7538		14	1	C				
ARCE SAC CAPR	29	0200	0220	PATROL									17
	29	0405	0430	PATROL									
	29	0810 E	0825 D	S14 E06				1-	4	.57	.61		
	29	1446	1532	S13 E04				1-	C	.27	.27		
ONDR LOCK	29	1451	1512	S12 E05				1-	3	.50	.50		10
	30	0400	0420	PATROL									
ARCE	31	0010	0045	PATROL									10
	31	0245	0335	PATROL									
	31	0840 E	0850 D	S08 E23				1-	2	.82	.90		
	31	1000	1025	PATROL									
ONDR LOCK	31	1038	1039	S07 E26				1-	3	.10	.10		10
	31	2350	2350	S06 E10				1-	C	.10	.10		

# INTERVALS OF NO FLARE PATROL OBSERVATIONS

OCTOBER 1964

HOUR-UT



COMMERCE - STANDARDS - BOULDER

Observatories Included:

- |                  |                   |              |                |                 |            |
|------------------|-------------------|--------------|----------------|-----------------|------------|
| Abastumani       | Capri-S (Swedish) | Herstmonceux | Kodaikanal     | Mitaka          | Sydney     |
| Arcetri          | Catania           | Huancayo     | Locarno        | Ondrejov        | Tachkent   |
| Arosa            | Climax            | Ikomasan     | Lockheed       | Ottawa          | Uccle      |
| Bucharest        | Crimee            | Istanboul    | Lvov           | Sacramento Peak | Vorochilov |
| Capetown         | Haleakala         | Izmiran      | Manila         | Shemakha        | Wrocław    |
| Capri-F (German) | Haute-Provence    | Kiev         | McMath-Hulbert | Siberie         | Zurich     |

# IONOSPHERIC EFFECTS OF SOLAR FLARES

IIIk

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

DECEMBER 1964

DEC. 1964	UNIVERSAL TIME			TYPE SWF IMP	IMPORTANCE						BUR	WIDE SPREAD INDEX	STATIONS	KNOWN FLARE
	START	END	MAX		ABS	SCNA	SEA	SPA	SES	SFO				
15	0905	0908									1	5	<u>RO</u> MA	

COMMERCE - STANDARDS - BOULDER

## RIOMETER EVENTS

(Provisional)

DECEMBER 1964

South Pole

26 Mc/s

DEC. 1964	START UT	END UT	MAX. UT	MAX. ABSORP. db, (tenths)	NO. OF PEAKS	DEC. 1964	START UT	END UT	MAX. UT	MAX. ABSORP. db, (tenths)	NO. OF PEAKS
1	0126	0440	0204	13	3	15	1022	1551	1258	5	3
1	0804	1737	1010	9	4	16	0403	1842	1441	24	1
1	2340	0127	0011	6	5	17	0106	0137	0123	12	2
2	2248	2343	2321	6	1	17	0518	1412	0938	10	1
3	0437	0525	0450	4	2	18	0154	0330	0207	13	1
3	0944	2045	1254	10	5	18	2059	0134	0029	7	4
4	0353	0422	0358	7	1	19	**	2210	1347	8	1
4	1134	1915	1450	9	1	20	0619	1548	1113	10	1
5	*					21	0945	1631	1418	6	1
6	*					22	1000	2141	1604	5	1
7	1059	1446	1257	12	1	23	*				
7	2222	2308	2230	3	1	24	*				
8	0507	0941	0510	6	1	25	1426	1803	1610	4	1
9	0835	1341	1039	10	1	25	2314	0224	2321	15	1
9	2245	0023	2249	8	3	26	1511	1538	1523	3	1
11	*					27	0006	0234	0046	3	2
12	0451	0715	0536	3	1	28	0219	0307	0234	9	1
13	0121	0737	0144	4	4	29	*				
14	0612	1719	1115	9	1	30	*				
15	0124	0755	0516	12	3	31	0108	0138	0120	4	2

\* No Event  
 \*\* Uncertain

COMMERCE - STANDARDS - BOULDER

SOLAR RADIO EMISSION  
OUTSTANDING OCCURRENCES

IVa

JANUARY 1965

ARO-DRAO (OTTAWA)

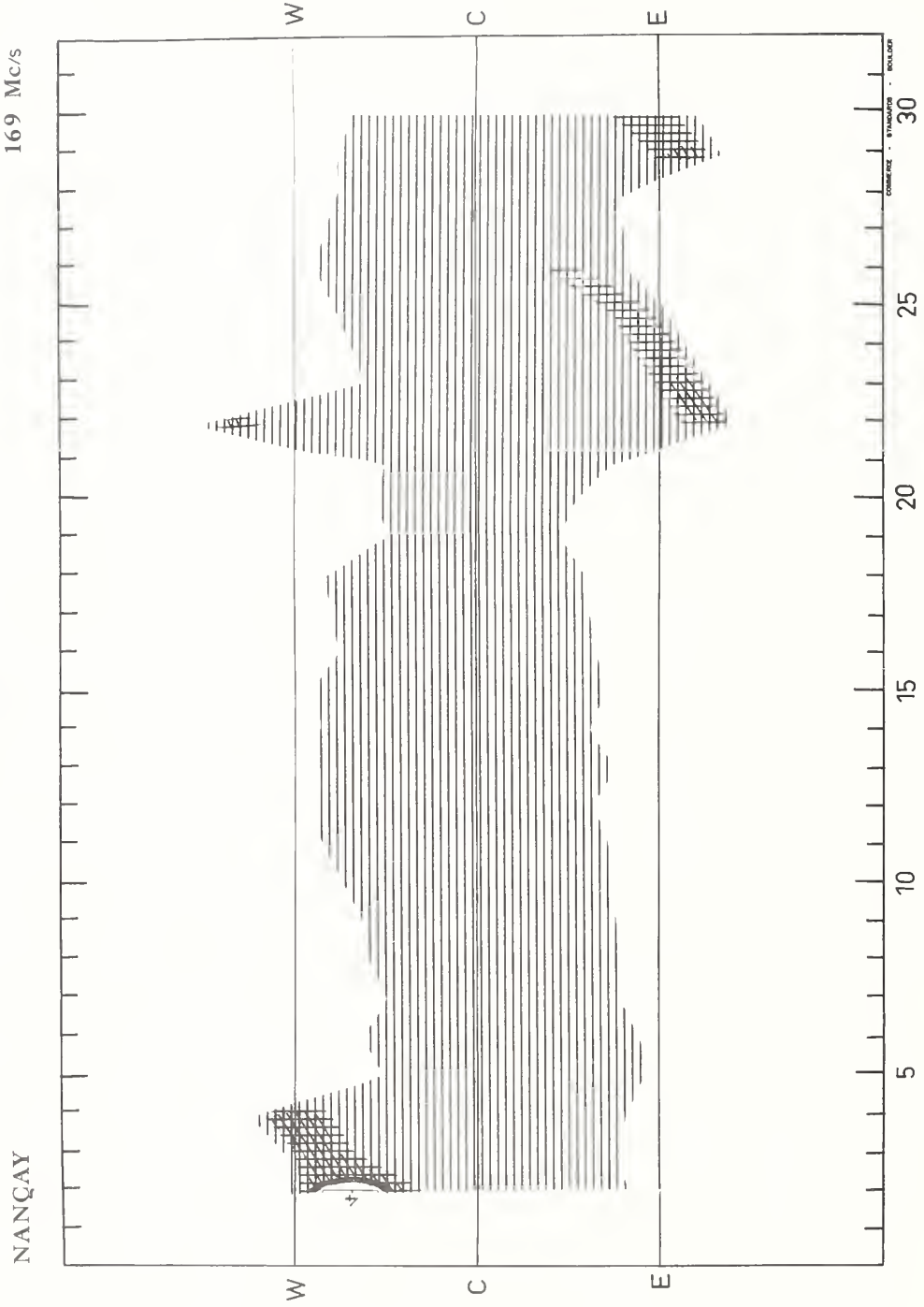
2800; 2700 Mc/s

JAN. 1965	U R A N E	DESCRIPTIVE TYPE	START UT	DURATION HRS. MIN	MEAN FLUX	MAXIMUM		REMARKS
						TIME	FLUX	
26	3	Simple 3 A	1341	2 07	0.6	Indet.	1.2	
	1	Simple 1	1343	1	1	1343.3	2	
30	1	Simple 1	1924	9	1	1927	2	
31	2	Simple 2 f	2012	3	9	2012.9	18	
	4	Post Increase		45	1		2	

COMMERGE - STANDARDS - BOULDER

# SOLAR RADIO EMISSION INTERFEROMETRIC OBSERVATIONS

JANUARY 1965



JANUARY 1965



# SOLAR RADIO EMISSION OUTSTANDING OCCURRENCES

IVc

JANUARY 1965

NBS BOULDER

108 Mcs

Jan. 1965	TYPE	START UT	TIME OF MAXIMUM UT	DURATION MINUTES	INTENSITY
17	3	1617	1618	2.2	2

## NOMINAL TIMES OF OBSERVATION

JANUARY 1965

NBS BOULDER

108 Mcs

Jan. 1965	HOURS OF OBSERVATION U.T.	HOURS OF INTERFERENCE U.T.	Jan. 1965	HOURS OF OBSERVATION U.T.	HOURS OF INTERFERENCE U.T.
1	1427-2330	1650-1915	19	1423-2349	1512-1649;
2	1427-2331	2316-2331			2257-2349
3	1427-2332	1855-1920; 2210-2332	20	1423-2350	1645-1755; 2300-2350
4	1427-2333	2308-2333			
5	1427-2334	2300-2334	21	1422-2351	1500-1730
			22	1422-2352	2300-2352
6	1427-2335	2302-2335	23	1421-2353	2230-2353
7	1427-2336	2305-2336	24	1420-2354	2217-2354
8	1427-2337	2300-2337	25	1420-2356	1613-1730; 2259-2356
9	1427-2338	2259-2338			
10	1427-2339		26	1419-2357	1500-1532; 2259-2357
11	1427-2340		27	1418-2358	1800-1850; 2300-2358
12	1426-2341				
13	1426-2342		28	1417-2359	2300-2359
14	1426-2343	2300-2343	29	1417-2400	2307-2400
15	1425-2344	2259-2344	30	1416-0002	2301-0002
16	1425-2345	1700-1710; 2301-2345	31	1415-0003	1736-1751; 1856-2005; 2225-0003
17	1424-2346	2215-2346			
18	1424-2347	1511-1720; 2325-2347			

# SOLAR RADIO EMISSION SPECTRAL OBSERVATIONS

OCTOBER 1964

Fort Davis

50-320 Mcs

1964	OBSERVING HOURS	IMPORTANT BURSTS			FREQUENCY RANGE MC	REMARKS
		TYPE	TIMES U.T	INT		
Oct. 1	1330 - 2330					
Oct. 2	1330 - 2330					
Oct. 3	1330 - 2330					
Oct. 4	1330 - 2330					
Oct. 5	1330 - 2330					
Oct. 6	1330 - 2330					2140 - 2330; Weak I
Oct. 7	1558 - 2330					
Oct. 8	1331 - 2330					
Oct. 9	1331 - 2330					
Oct. 10	1331 - 2330					
Oct. 11	1330 - 2030					
Oct. 12	1330 - 2330					
Oct. 13	1330 - 2330					
Oct. 14	1330 - 2330					
Oct. 15	1330 - 2330					
Oct. 16	1330 - 2330					
Oct. 17	1330 - 2330					
Oct. 18	1330 - 2330					
Oct. 19	1330 - 2330					
Oct. 20	1330 - 2330					
Oct. 21	1330 - 2330					
Oct. 22	1330 - 2330					
Oct. 23	1331 - 2330					
Oct. 24	1330 - 2330					
Oct. 25	1330 - 2330					
Oct. 26	1330 - 2330					
Oct. 27	1330 - 2330					
Oct. 28	1330 - 2330					
Oct. 29	1330 - 2330					
Oct. 30	1330 - 2330					
Oct. 31	1330 - 2330					

# SOLAR RADIO EMISSION SPECTRAL OBSERVATIONS

IVc

NOVEMBER 1964

Fort Davis

50-320 Mc/s

1964	OBSERVING HOURS	IMPORTANT BURSTS			FREQUENCY RANGE MC	REMARKS
		TYPE	TIMES U.T	INT		
Nov. 1	1402 - 2345					
Nov. 2	1403 - 2345					
Nov. 3	1403 - 2345					
Nov. 4	1403 - 2345					
Nov. 5	1403 - 2345					
Nov. 6	1403 - 2345					
Nov. 7	1403 - 2345					
Nov. 8	1403 - 2345					
Nov. 9	1402 - 2345					
Nov. 10	1402 - 2345					
Nov. 11	1402 - 2345					
Nov. 12	1402 - 2345					
Nov. 13	1403 - 2345					
Nov. 14	1402 - 2345					
Nov. 15	1402 - 2345					
Nov. 16	1402 - 2345					
Nov. 17	1402 - 2345					
Nov. 18	1403 - 2345					
Nov. 19	1402 - 2345					
Nov. 20	1403 - 2345					
Nov. 21	1403 - 2345					
Nov. 22	1402 - 2345					
Nov. 23	1403 - 2345					
Nov. 24	1402 - 2345					
Nov. 25	1402 - 2345					
Nov. 26	1403 - 2345					
Nov. 27	1402 - 2345	IIIG	2247 - 2249	2	200 - <50	
Nov. 28	1402 - 2345					
Nov. 29	1402 - 2345					
Nov. 30	1402 - 2345					

# SOLAR RADIO EMISSION SPECTRAL OBSERVATIONS

DECEMBER 1964

Fort Davis

50-320 Mcs

1964	OBSERVING HOURS	IMPORTANT BURSTS			FREQUENCY RANGE MC	REMARKS
		TYPE	TIMES U. T.	INT		
Dec. 1	1403 - 2345					
Dec. 2	1402 - 2345					
Dec. 3	1402 - 2345					
Dec. 4	1402 - 2345					
Dec. 5	1402 - 2345					
Dec. 6	1402 - 2345					
Dec. 7	1403 - 2001 2005 - 2345					
Dec. 8	1403 - 1741 2120 - 2345					
Dec. 9	1545 - 2345					
Dec. 10	1408 - 2345					
Dec. 11	1411 - 2345					
Dec. 12	1410 - 2345					
Dec. 13	1410 - 2345					
Dec. 14	1411 - 2345					
Dec. 15	1410 - 2345					
Dec. 16	1410 - 2345					
Dec. 17	1409 - 2345					
Dec. 18	1410 - 2345					
Dec. 19	1409 - 2345					
Dec. 20	1409 - 2345					
Dec. 21	1412 - 2345					
Dec. 22	1411 - 2345					
Dec. 23	1410 - 2345					
Dec. 24	1410 - 2345					
Dec. 25	1409 - 2345					
Dec. 26	1410 - 2345	I	2144 - 2345	1	170 - 100	
Dec. 27	1409 - 2345	I	1409 - 1840	1-2	250 - 75	
Dec. 28	1410 - 2345					
Dec. 29	1409 - 2345					
Dec. 30	1409 - 2345					
Dec. 31	1411 - 2345					

SOLAR RADIO EMISSION  
SPECTRAL OBSERVATIONS

IVg

JANUARY 1965

High Altitude Observatory  
Boulder

7.6-41 Mc/s

Date Jan 1965	Bursts			Frequency Range (Mc/s)	Date Jan 1965	Bursts			Frequency Range (Mc/s)
	Type	Time (U.T.)	Inten- sity			Type	Time (U.T.)	Inten- sity	
1 Jan	no observ.	1400-2330			24	III	1618:45-1619	1-	30-41
3	III	1829:45-1830	1-	34-41		III	1623-1623:15	1-	22-35
	III	2000:15-2001	2	26-41		III	1830:45-1831:15	1	21-41
	III	2001:15-2001:30	1-	33-41		III	1936:30-1937:30	2	12-41
	III	2002-2002:15	1-	30-41		III	2102:45-2103	1-	22-35
	III	2002:15-2002:30	1-	30-41		III	2130:30-2131	1	22-41
	III	2101:45-2102	1-	30-41		III	2133:45-2134	1-	26-36
	III	2246:30-2247	1+	29-41	25	III	1819-1819:30	1-	23-41
4	III	1830:15-1830:30	1-	29-41	26	III	2223:30-2224	1	22-41
5	III	2031-2031:15	1-	25-35	27	no observ.	1500-1600, 2200-2330		
8	no observ.	2230-2330			28	no observ.	1400-1535		
	III	2145:30-2146	1-	21-41	29	no observ.	1400-1600, 2200-2330		
11	no observ.	1510-1541			30	no observ.	1400-1700		
14	no observ.	1400-1534, 2200-2330			31	no observ.	1400-1730		

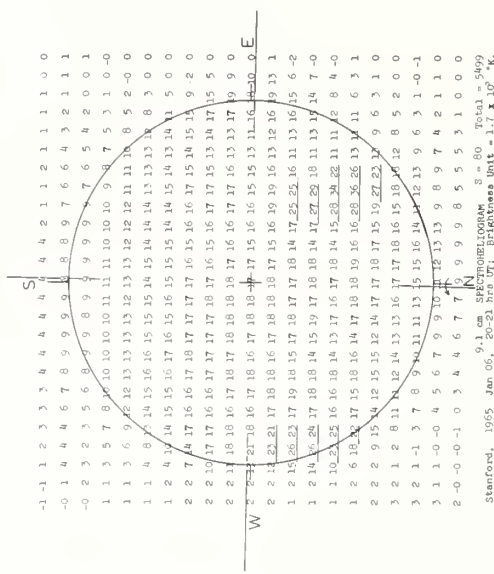
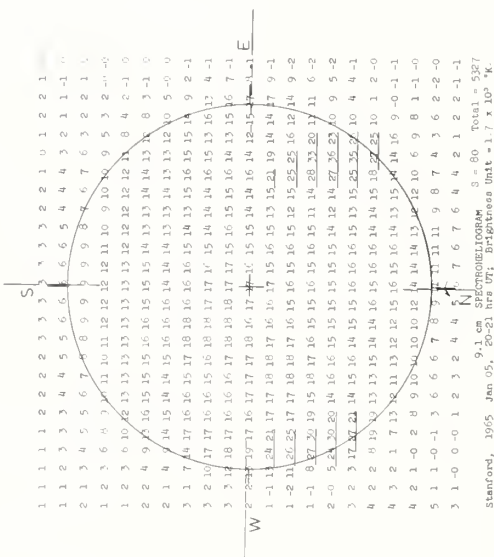
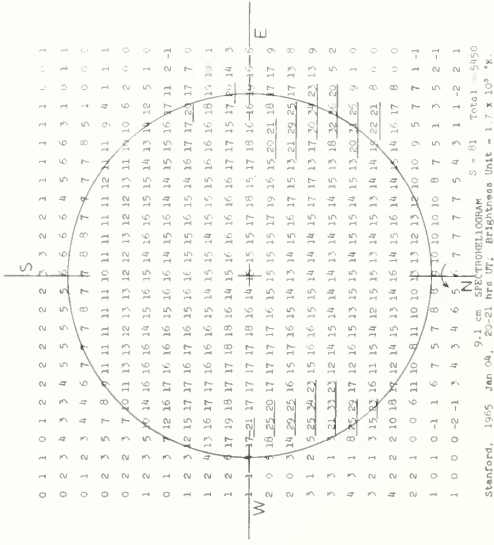
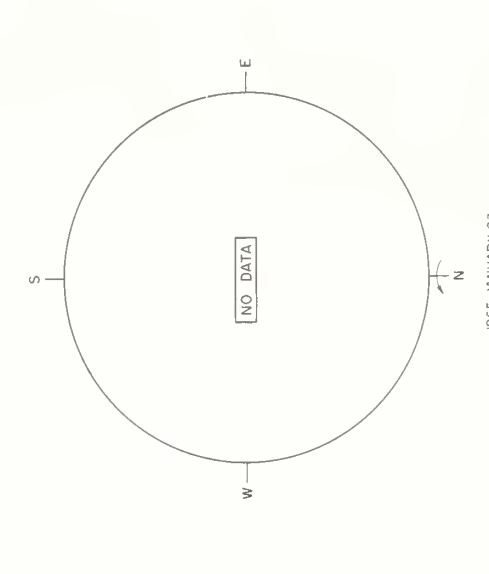
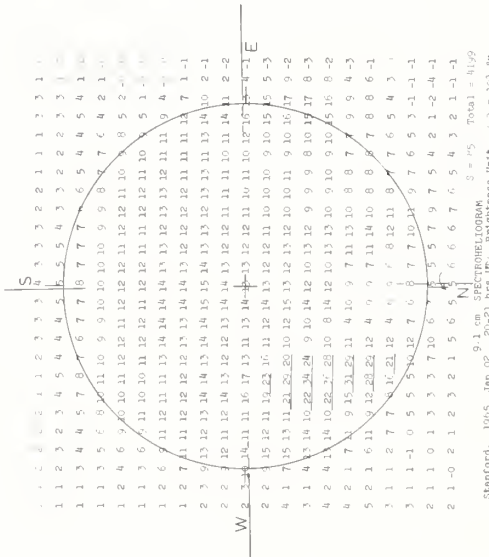
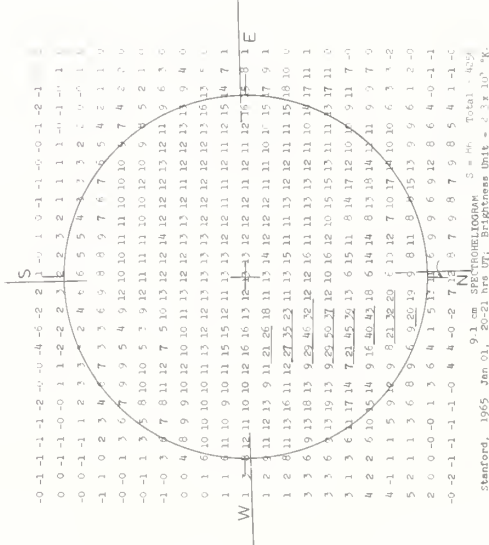
GONGERLE - STINEBAUGH - BOULDER

# SOLAR RADIO EMISSION SPECTROHELIOGRAMS

JANUARY 1965

STANFORD

9.1 cm







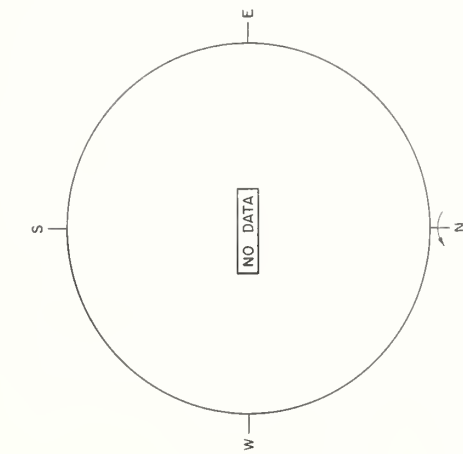


# SOLAR RADIO EMISSION SPECTROHELIOGRAMS

JANUARY 1965

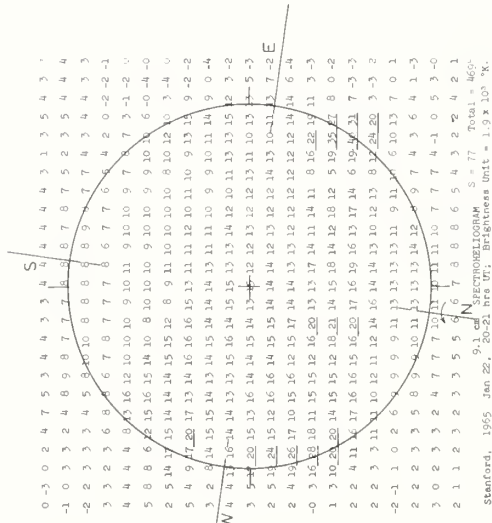
STANFORD

9.1 cm



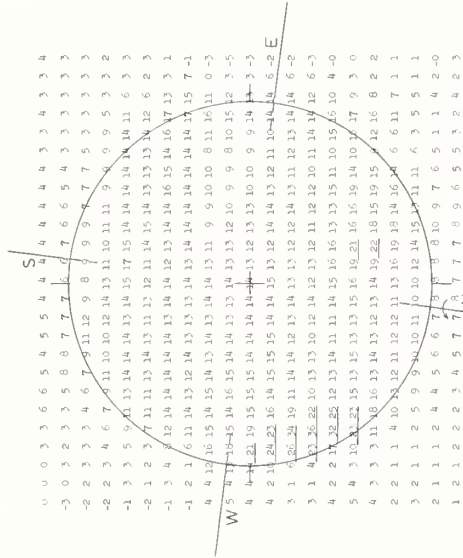
1965 JANUARY 19

Stanford, 1965 Jan 22, 20-21 hrs UT; Brightness Unit =  $1.9 \times 10^4$  K.



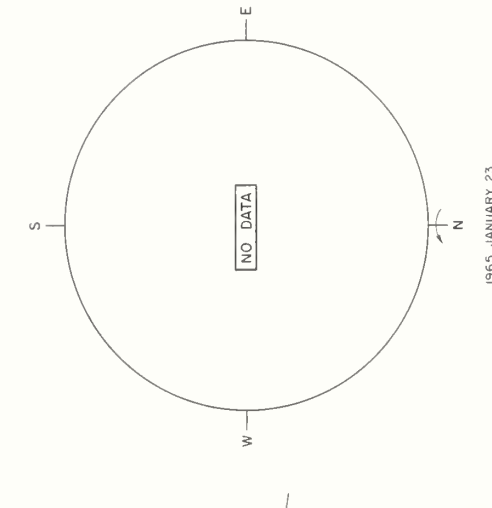
1965 JANUARY 20

Stanford, 1965 Jan 22, 20-21 hrs UT; Brightness Unit =  $1.9 \times 10^4$  K.



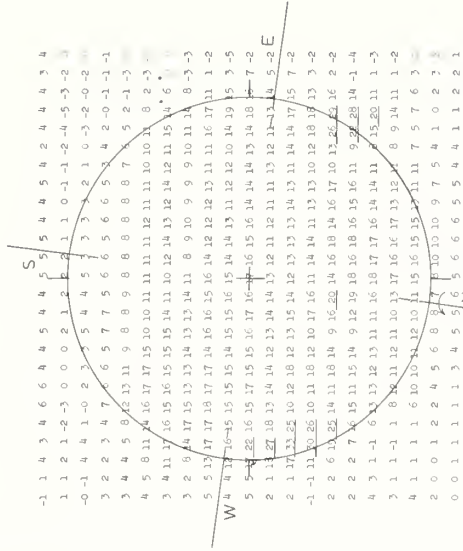
1965 JANUARY 21

Stanford, 1965 Jan 20, 20-21 hrs UT; Brightness Unit =  $1.9 \times 10^4$  K.



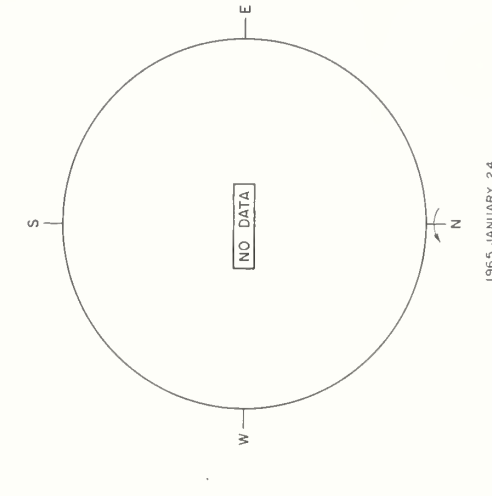
1965 JANUARY 22

Stanford, 1965 Jan 20, 20-21 hrs UT; Brightness Unit =  $1.9 \times 10^4$  K.



1965 JANUARY 23

Stanford, 1965 Jan 21, 20-21 hrs UT; Brightness Unit =  $2.0 \times 10^4$  K.



1965 JANUARY 24

IVk

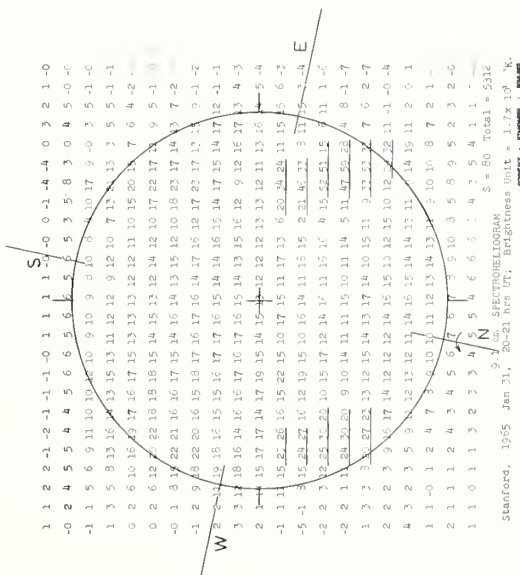


# SOLAR RADIO EMISSION SPECTROHELIOGRAMS

JANUARY 1965

9.1 cm

STANFORD



# COSMIC RAY INDICES

## (Neutron Monitors)

DECEMBER 1964

DEC. 1964	CHURCHILL	CLIMAX	DALLAS
	DAILY AVERAGE COUNTS PER HOUR	DAILY AVERAGE COUNTS PER HOUR	DAILY AVERAGE COUNTS PER HOUR
1	6528.7	3333.6	6579.6
2	6525.2	3348.1	6546.8
3	6520.9	3349.0	6561.4
4	6535.9	3356.5	6591.0
5	6537.5	3351.2	6609.8
6	6544.5	3358.1	6614.4
7	6546.5	3360.9	6619.0 (23)
8	6551.5	3361.4	6627.0
9	6582.0	3372.8	6613.7
10	6581.7	3375.4	6584.2
11	6578.7	3375.0	6612.3
12	6595.5	3380.5	6619.4
13	6590.8	3378.1	6615.3
14	6570.5	3374.9	6646.8
15	6579.2	3369.3	6632.9
16	6569.4	3375.5	6607.5
17	6572.3	3365.5	6612.3
18	6593.9	3363.0	6620.3
19	6578.2 (16)	3375.7	6617.8
20	6580.0 (18)	3358.2	6614.8
21	6582.5	3352.9	6610.9
22	6612.9	3353.1	6632.8
23	6604.5	3355.3	6634.6
24	6622.6	3365.6	6645.6
25	6631.0	3375.6	6666.8
26	6622.4 (22)	3374.0	6674.3
27	6578.0	3374.4	6650.9
28	6571.2 (22)	3370.3 (38)	6642.5 (23)
29	6568.7 (22)	3376.0	6603.3
30	6576.3 (23)	3371.8	6600.0
31	6575.2 (23)	3379.6	6606.3 (22)

COMMERCE - STANDARDS - BOULDER

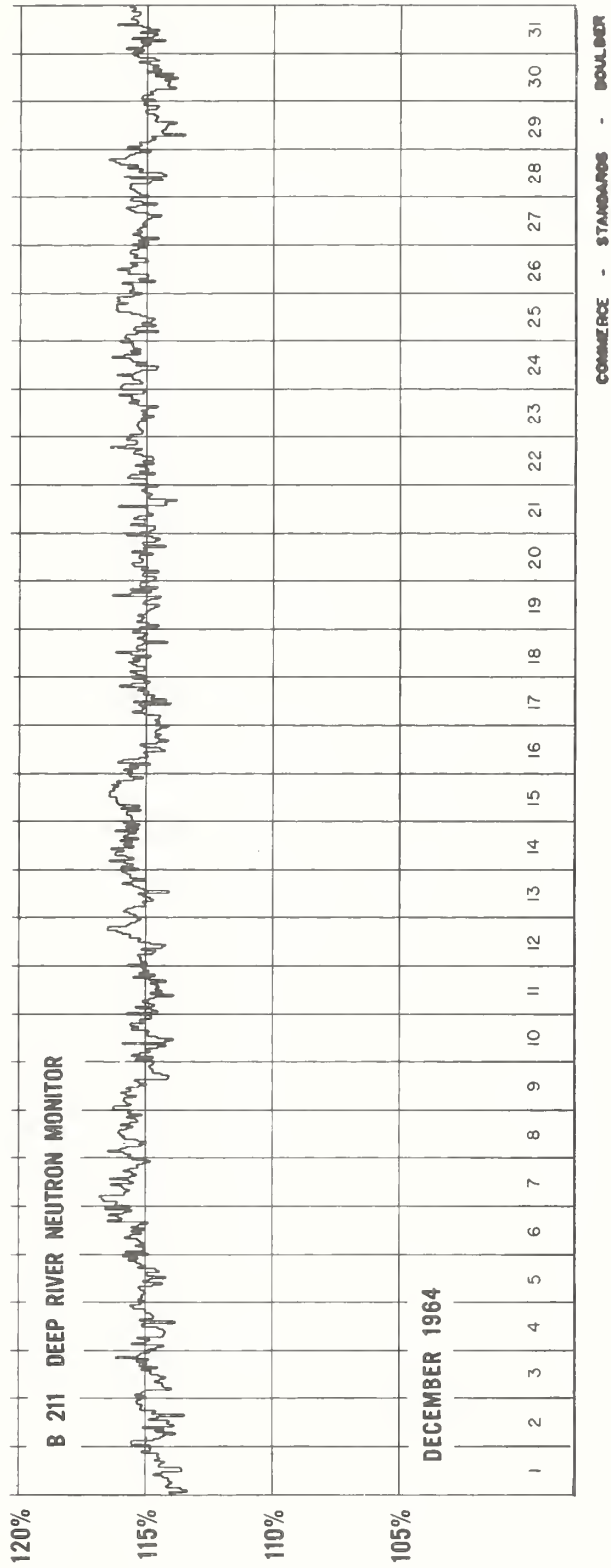
( ) Number of hours for which data are available if less than 24 (or number of section hours if less than 40 for Climax).

Churchill Super Neutron Monitor, Scaling Factor 120.

Climax IGC Station B305, Scaling Factor 128.

Dallas Super Neutron Monitor, Scaling Factor 120.

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



COMMERCE - STANDARDS - BOULDER

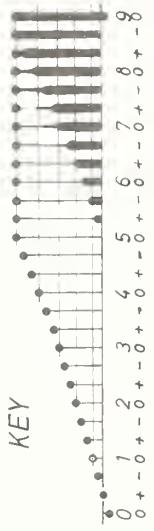
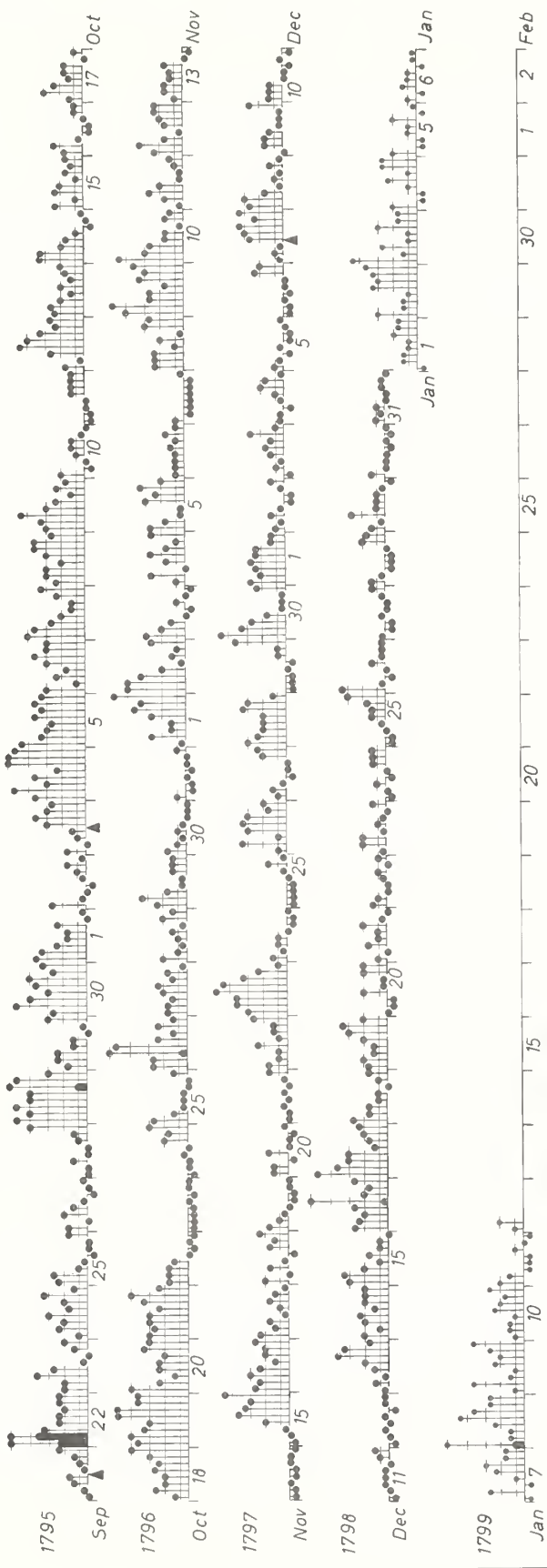
## GEOMAGNETIC ACTIVITY INDICES

DECEMBER 1964

Dec. 1964	C	Values Kp								Sum	Ap	Final Selected Days	
		Three hour Gr. interval											
		1	2	3	4	5	6	7	8				
1	0.5	3-	2o	2+	3-	2+	2+	1+	1+	17o	8	<b>Five Quiet</b>	
2	0.0	1o	1-	1+	1-	0o	0o	1-	1+	6-	3		
3	0.3	0o	1o	1-	1+	2-	1+	3-	1o	10-	5		
4	0.2	1-	1-	0o	1-	1o	2o	2-	1-	7+	4		5
5	0.0	1o	1-	0o	1-	0o	0o	0+	1-	3+	2		12
6	0.3	0o	0o	0+	0o	0+	0+	2+	2o	5+	3	27	
7	0.7	1-	1o	1-	3-	3o	3+	2+	3+	17o	10	30	
8	0.2	3-	3o	2-	1-	1o	1-	1+	1-	12-	6	31	
9	0.3	0+	2-	2-	1+	1-	1-	1-	3-	10-	5		
10	0.0	1+	1+	1+	0+	0+	0o	1-	0o	5+	3		
11	0.1	0o	0+	1-	1-	1-	0+	1o	1+	5o	3	<b>Five Disturbed</b>	
12	0.1	0o	0+	1-	0+	1-	0o	1-	1-	3+	2		
13	0.7	1-	1+	1-	1+	2o	4-	3+	2-	15-	9		
14	0.6	2o	1o	2o	2+	1+	2o	2o	2o	15-	7		7
15	0.3	3o	3+	2o	1o	2-	1o	1o	0+	13+	8		13
16	1.1	3-	2+	2o	3-	5+	2o	2-	3-	21+	15	16	
17	0.8	5-	4-	3o	3o	1+	2-	2o	2+	22-	15	17	
18	0.2	3-	2-	2-	1o	1o	0+	1o	2-	11o	6	19	
19	0.7	2-	2o	1+	1+	2o	3o	3+	2o	17-	9		
20	0.3	0+	0o	0o	2o	1-	1-	2o	2o	8-	4		
21	0.2	1o	0+	2-	1o	1o	2o	1-	0+	8o	4	<b>Ten Quiet</b>	
22	0.1	1+	1o	0+	0+	1-	1o	0+	1o	6o	3		
23	0.2	1-	2o	2o	1-	1o	1-	0+	1+	9-	4		
24	0.1	0o	0+	1o	0o	0+	1+	1+	1+	6-	3		2
25	0.4	0o	0o	0+	1-	1+	1+	2-	3o	8+	4		5
26	0.1	3+	1-	0o	0+	1+	1-	1-	1-	8-	5	10	
27	0.0	1-	0o	0o	1-	0+	0+	1-	1+	4o	2	11	
28	0.3	1+	1-	0o	0o	0o	0+	2o	2-	6o	3	12	
29	0.1	1+	1-	3-	1o	1o	1o	0+	0o	8o	4	22	
30	0.0	1+	0+	0+	0+	0o	0+	0o	0+	3o	2	24	
31	0.0	1o	1-	1o	0+	0+	1-	1-	0+	5o	3	27	
												30	
												31	
Mean:	0.29									Mean:	5		

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



PLANETARY MAGNETIC  
THREE-HOUR-RANGE INDICES  
Kp 1964

(and preliminary indices to 1965 January 12) J.B.

NORTH ATLANTIC, NORTH PACIFIC

DECEMBER 1964

DEC. 1964	WHOLE DAY INDICES			ADVANCE FORECASTS (Jc-REPORTS) FOR WHOLE DAY	NORTH ATLANTIC				NORTH PACIFIC				GEOMAGNETIC INDICES									
	NORTH ATLANTIC	NORTH PACIFIC	AVERAGE HIGH LATITUDE		6 - HOURLY QUALITY FIGURES				SHORT-TERM FORECASTS ISSUED ABOUT ONE HOUR IN ADVANCE OF .				8 - HOURLY QUALITY FIGURES			K <sub>FN</sub>		A <sub>FN</sub>		K <sub>SI</sub>		A <sub>SI</sub>
					00 TO 06	06 TO 12	12 TO 18	18 TO 24	00	06	12	18	03 TO 11	11 TO 19	19 TO 03	HALF (1)	DAY (2)	08-SERVED	PRE-DICTED	HALF (1)	DAY (2)	
1	60	5	6	6	6-	6-	7-	6+	5	5	7	6	5	5	6	3	1	8	7	2	1	7
2	60	5	6	6	6-	6-	7-	60	5	6	7	7	5	5	6	1	1	2	5	1	0	1
3	60	5	6	6	6-	60	6+	6-	6	6	7	6	5	5	6	1	1	3	5	1	1	3
4	60	5	6	6	6-	6+	7-	60	6	6	7	6	-	5	6	1	1	2	3	0	0	2
5	6+	5	6	6	60	6+	7-	6+	6	6	7	6	5	5	6	0	1	1	5	0	0	1
6	6+	5	6	6	60	6+	7-	6+	6	6	7	6	5	5	6	0	1	2	11	0	1	2
7	6+	5	6	6	60	60	7-	6+	6	6	7	6	5	5	6	1	2	6	7	1	2	7
8	6+	6	6	6	60	60	7-	7-	6	6	7	6	6	6	6	2	1	5	5	1	1	3
9	6+	5	6	6	6-	6-	7-	6+	6	6	7	6	5	5	6	1	1	3	5	1	0	4
10	60	5	6	6	60	50	7-	6+	6	6	7	6	6	6	5	1	0	2	3	1	0	2
11	6+	5	6	6	60	5+	70	7-	6	6	7	6	-	5	5	1	1	2	3	1	0	2
12	6+	5	6	6	6-	60	7-	6+	6	5	7	7	5	5	5	0	1	1	10	0	0	1
13	60	5	6	6	6-	5+	6+	7-	6	6	7	6	-	5	6	1	3	7	6	0	2	3
14	6+	6	6	6	6+	6-	7-	7-	6	6	7	6	6	5	6	2	1	5	3	2	1	4
15	60	5	6	6	6-	6-	7-	6+	6	6	7	7	5	4	6	2	1	6	3	2	1	5
16	60	5	6	6	6-	6-	7-	6+	6	5	7	6	5	4	6	2	3	11	2	2	2	15
17	6-	5	5	6	50	5-	7-	6+	6	5	7	6	5	5	7	3	1	11	9	(4)	1	13
18	60	5	6	6	6-	60	7-	6+	6	5	7	6	5	5	6	2	1	4	10	1	1	3
19	6+	5	6	6	6-	60	7-	7-	6	5	7	6	5	6	7	1	2	4	10	1	2	5
20	6+	6	6	6	60	60	7-	6+	6	6	7	7	5	5	6	1	1	3	11	1	1	3
21	6+	5	6	6	60	6-	7-	6+	6	6	7	6	5	5	6	1	1	2	6	1	1	3
22	60	5	6	6	6-	60	7-	6+	6	6	7	6	5	5	7	1	0	1	4	1	0	2
23	60	5	6	6	6-	5+	7-	7-	6	6	7	7	5	6	6	2	0	4	4	2	0	5
24	6+	5	6	6	60	6-	7-	7-	6	6	7	7	5	5	6	0	1	2	4	0	0	1
25	60	5	6	6	6+	6-	7-	6+	6	5	7	7	5	5	6	0	2	3	5	0	2	3
26	60	5	6	6	60	6-	7-	60	6	5	7	6	-	5	6	1	0	2	5	1	1	3
27	6+	5	6	6	6+	6-	7-	7-	6	5	7	6	5	5	6	0	0	0	8	0	0	0
28	6+	5	6	6	60	60	7-	6+	6	6	7	7	5	5	6	1	1	2	7	0	0	1
29	60	5	6	6	6-	5+	7-	6+	6	6	7	7	5	5	6	1	0	3	4	1	1	3
30	60	5	6	6	60	6-	7-	6-	6	6	7	6	5	5	6	0	0	0	3	1	0	1
31	6+	6	6	6	6-	60	7-	6+	6	5	7	6	6	5	6	1	1	2	3	0	0	2
<u>SCORE</u>																						
QUIET PERIODS:				P	30					28	17	29	18									
				S	1					3	14	2	13									
				U	0					0	0	0	0									
				F	0					0	0	0	0									
DISTURBED PERIODS:				P	0					0	0	0	0									
				S	0					0	0	0	0									
				U	0					0	0	0	0									
				F	0					0	0	0	0									

NOTES:

1. The advance Jc forecasts are scored against the average high latitude whole day indices.
2. The observed indices for the North Pacific are low weight because of insufficient data available for their preparation.
3. The predicted A<sub>FN</sub> indices are issued each Wednesday for the coming seven days. The value for the first day of each prediction period is underscored.



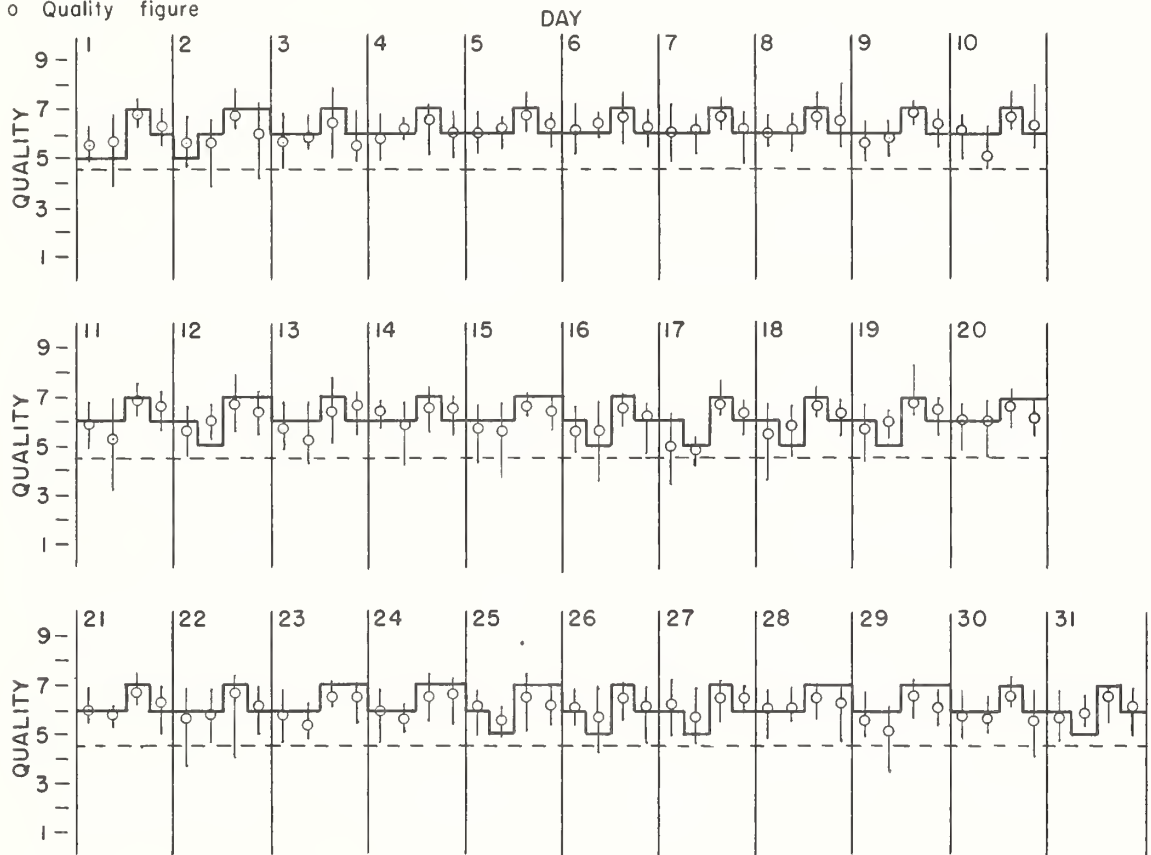
NORTH ATLANTIC

DECEMBER 1964

— Short-term forecast

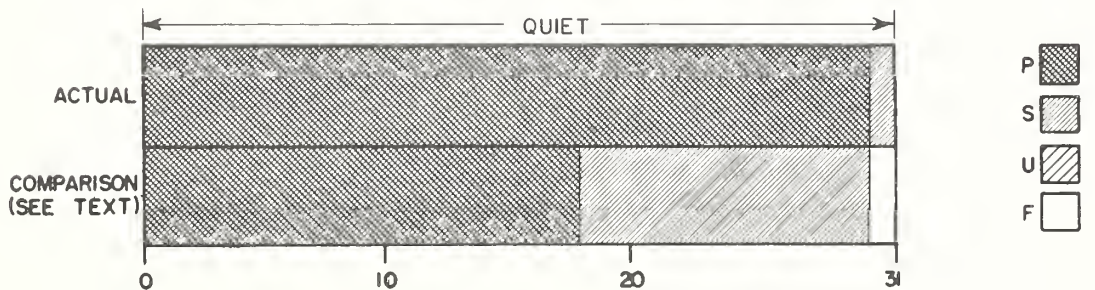
| Range of reports

o Quality figure

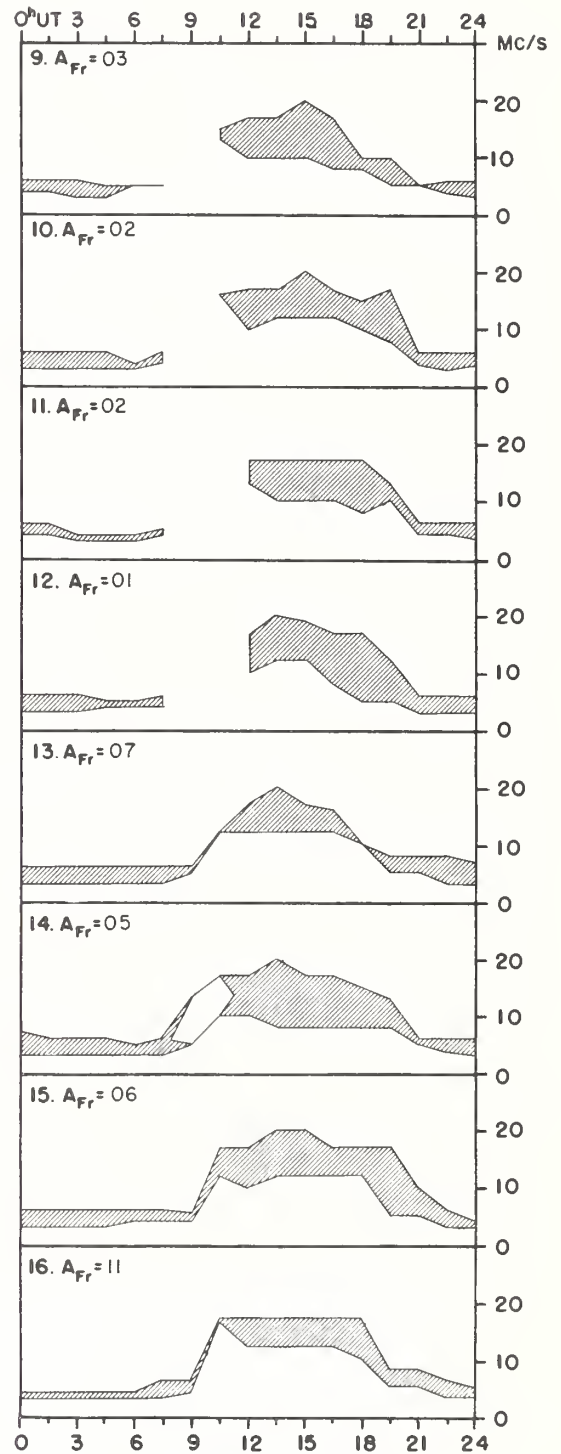
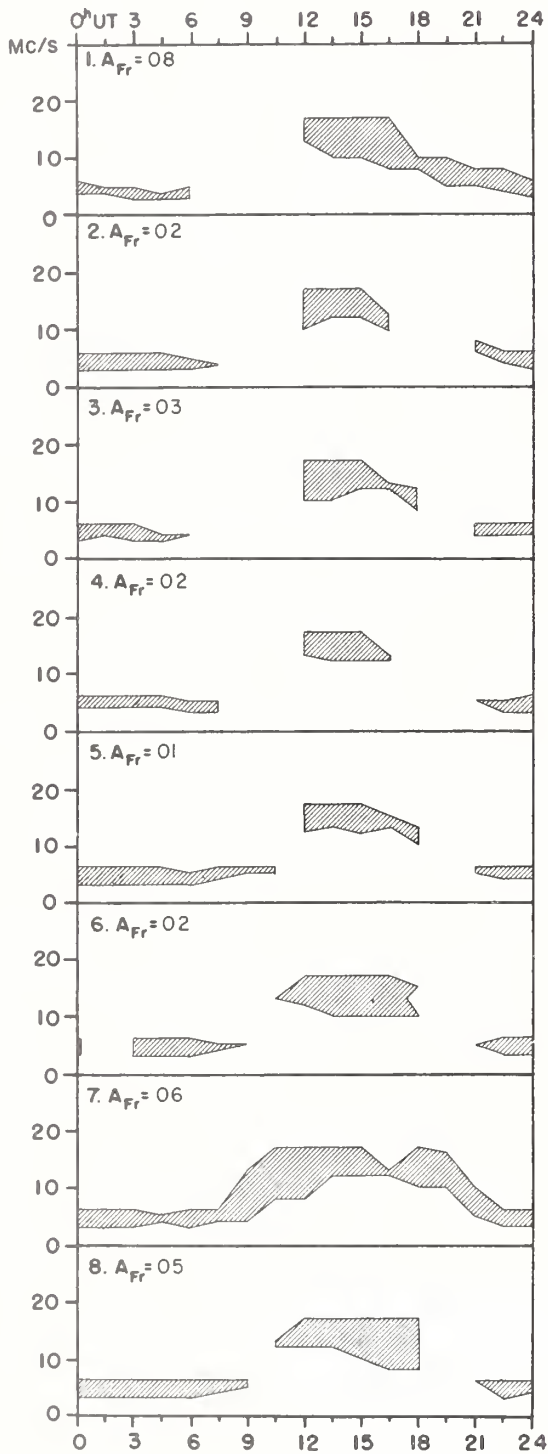


OUTCOME OF ADVANCE FORECASTS--FINAL ESTIMATES (1 TO 7 DAYS AHEAD)

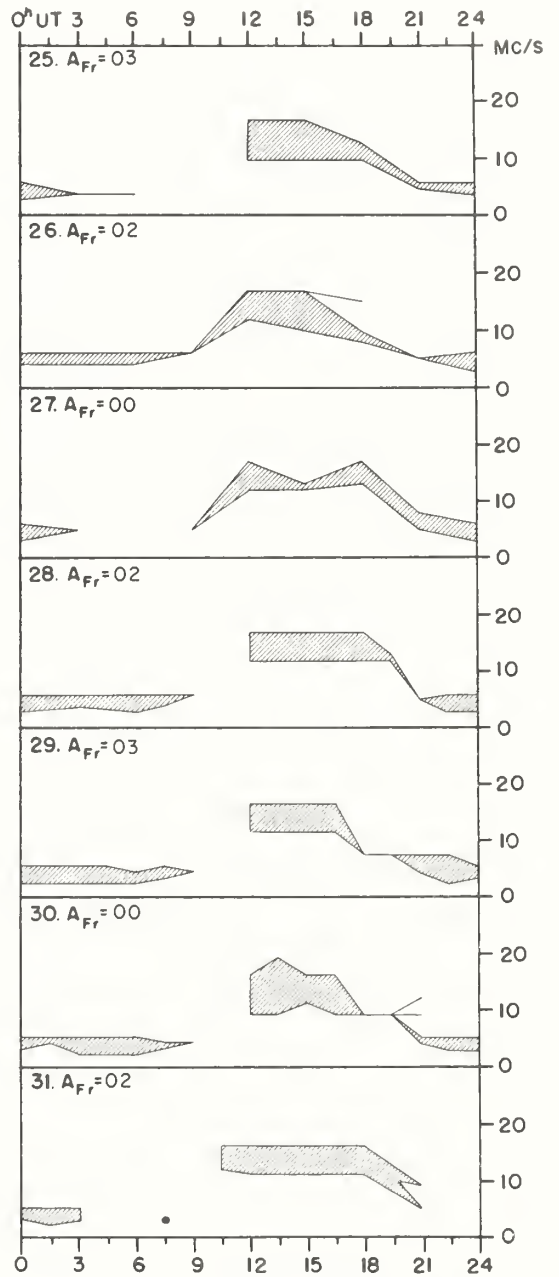
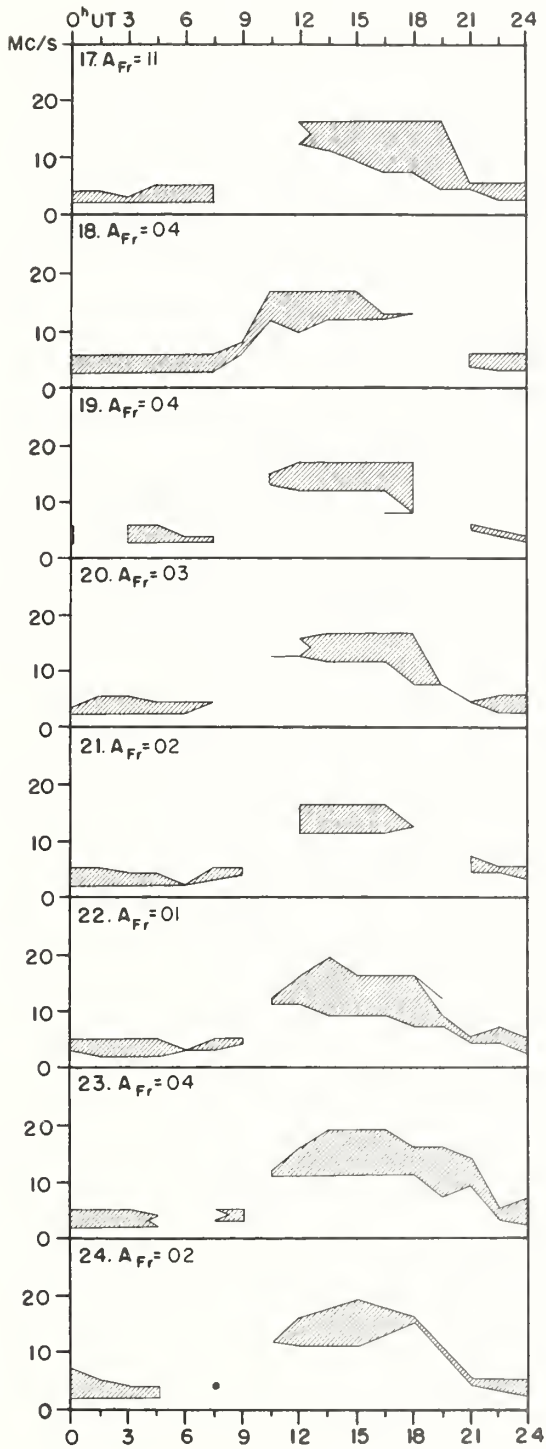
HIGH LATITUDE



DECEMBER 1964



DECEMBER 1964



COMMERCE - STANDARDS - BOULDER

Adapted from Observations by Deutsches Bundespost

## IQSY ALERT PERIODS

INTERNATIONAL URSIGRAM  
AND WORLD DAYS SERVICE

JANUARY 1965

JAN. 1965	TIME OF ISSUE UT	ADVANCE GEOPHYSICAL ALERT	WORLDWIDE GEOPHYSICAL ALERT			
			NO.	TYPE	TIMING	ELABORATION
3	1600	McMath, Solar Flare 03/1433Z				
4	0400		154	Solar Activity	Exists	
5	0400		155	Solar Activity	Exists	
6	0400		156	Solar Activity Magnetic Calm	Exists Exists	
7	0400		157	Magnetic Calm	Exists	
23	0400		158	Solar Activity	Exists	East Limb
25	0400		159	Magnetic Calm	Exists	
26	0400		160	Magnetic Calm	Exists	
27	2005	McMath, Solar Activity				

COMMERCE - STANDARDS - BOULDER

## RADAR METEOR INDEX

The values presented in Table IXa have been derived by Dr. Peter Millman, National Research Council, Ottawa, Canada, from the radar hourly rates published by Millman, P. M. and McIntosh, B. A. in Canadian Journal of Physics, 42, 1730-1742, 1964. Random statistical variations in the rates have been eliminated. This index refers to the mean for the 24 hours of the Universal Time date and applies to any year. In most cases they will apply fairly well to visual meteors, but at certain times of the year, particularly in June, when most of the activity is in the daytime, the visual rates seen at night will be much lower. Another important point to note is that these rates refer to a latitude of  $45^\circ$  north and may be quite different for the equator or south latitudes.

The index for  $\leq 1$  mag covers the range of rates from 0 to 25 per hour and index for  $\leq 6$  mag covers the range from 100 to 300 per hour.

## RADAR METEOR INDEX

Date	Jan.		Feb.		Mar.		Apr.		May.		June		Jul.		Aug.		Sept.		Oct.		Nov.		Dec.	
	App	Vis	App	Vis	App	Vis	App	Vis	App	Vis	App	Vis	App	Vis	App	Vis	App	Vis	App	Vis	App	Vis	App	Vis
1	2	3	1	1	1	1	1	2	2	4	3	5	4	3	5	3	2	3	2	6	2	5	2	5
2	2	4	1	1	1	1	2	2	2	4	4	4	3	3	5	3	5	2	4	2	6	2	5	5
3	7	8	1	1	1	1	2	2	2	4	4	6	4	2	4	3	5	2	6	2	6	2	5	5
4	3	3	1	1	1	1	2	3	3	5	3	6	5	2	4	3	5	2	4	2	6	2	5	5
5	2	3	1	1	1	1	2	3	5	5	5	6	6	2	6	3	5	2	6	2	6	2	5	5
6	2	3	1	1	1	1	2	3	6	6	7	5	5	2	5	4	5	2	5	2	5	2	5	5
7	2	2	1	1	1	1	1	1	2	5	6	7	5	2	4	5	5	2	5	2	5	2	5	5
8	1	2	1	1	1	1	1	2	5	5	6	8	2	2	4	5	5	2	5	2	5	2	5	5
9	1	2	1	1	1	1	1	2	5	5	6	8	2	2	4	5	5	2	5	2	4	2	5	5
10	1	2	1	1	1	1	1	2	5	5	6	8	2	2	4	5	6	2	5	2	6	2	6	6
11	1	3	1	1	1	1	2	2	5	5	8	8	2	4	6	6	6	2	6	2	6	2	6	6
12	1	3	1	1	1	1	2	2	5	5	8	8	2	4	6	6	6	2	6	2	6	2	7	7
13	1	3	1	1	1	1	2	2	5	5	8	8	2	4	10	7	5	2	6	2	6	2	4	9
14	1	3	1	1	1	1	2	2	5	5	8	8	2	4	7	5	5	2	6	2	6	2	4	10
15	1	3	1	1	1	1	2	2	5	5	4	9	2	5	5	4	4	2	6	2	6	2	4	9
16	2	3	1	1	1	1	2	2	5	5	4	8	2	5	4	4	2	5	2	6	2	4	3	5
17	2	3	1	1	1	1	2	2	5	5	4	8	2	5	3	3	3	2	6	2	6	3	4	4
18	2	2	1	1	1	1	2	2	5	5	4	8	2	5	2	2	3	2	6	2	6	3	4	4
19	2	2	1	1	1	1	2	2	5	5	4	7	2	5	2	2	3	2	6	2	6	2	4	3
20	1	2	1	1	1	1	2	2	5	5	3	7	2	5	2	2	4	2	7	2	7	2	4	3
21	1	2	1	1	1	1	2	2	5	5	3	7	2	6	2	2	4	2	8	2	8	2	4	3
22	1	1	1	1	1	1	3	3	4	4	3	7	2	6	2	4	2	6	3	8	2	4	2	3
23	1	1	1	1	1	1	2	3	4	4	3	7	2	6	2	4	2	6	3	7	2	4	2	3
24	1	1	1	1	1	1	2	3	4	4	3	7	2	6	2	4	2	6	2	6	2	4	2	3
25	1	1	1	1	1	1	3	3	4	4	3	6	2	6	2	4	2	6	2	6	2	4	2	3
26	1	1	1	1	1	1	3	3	4	4	3	6	2	6	2	4	2	6	2	5	2	5	2	3
27	1	1	1	1	1	1	3	3	4	4	3	6	2	6	2	4	2	6	2	5	2	5	2	3
28	1	1	1	1	1	1	3	3	4	4	3	6	2	6	2	3	2	6	2	5	2	5	2	3
29	1	1	1	1	1	1	3	3	4	4	3	5	3	6	2	3	2	7	2	5	2	5	2	3
30	1	1	1	1	1	2	3	3	4	4	3	4	3	6	2	3	2	7	2	5	2	5	2	3
31	1	1	1	1	2	2	5	2	5	5	3	4	3	6	2	2	3	2	7	2	5	2	5	3



