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CRPL-F 251 PART B

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PART B
SOLAR - GEOPHYSICAL DATA

ISSUED
JULY 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. Addenda have been given in the introduction to each of the CRPL-F Part B reports, December 1964 through June 1965.

At the end of this issue in Section IX you will find meteor indices prepared by Dr. Peter M. Millman of the National Research Council, Ottawa, Canada. An explanation of their derivation precedes the table and figure. They consist of four indices, two for visual and two for radar counts, for each day in the year.

DAILY SOLAR INDICES

May 1965	American Relative Sunspot Numbers R_A'
1	0
2	3
3	4
4	1
5	1
6	0
7	9
8	10
9	4
10	0
11	1
12	7
13	10
14	4
15	29
16	37
17	57
18	55
19	65
20	55
21	48
22	43
23	39
24	30
25	23
26	14
27	1
28	0
29	0
30	0
31	0
Mean:	17.7

June 1965	Zürich Provisional Relative Sunspot Numbers R_Z	Daily Values Solar Flux at 2800 Mc, Ottawa, Canada Flux S S_A	
1	9	70.8	72.8
2	24	73.7	75.8
3	36	75.2	77.4
4	38	78.2	80.5
5	34	78.3	80.6
6	30	78.4	80.7
7	25	77.2	79.5
8	17	78.4	80.7
9	19	79.0	81.4
10	9	78.3	80.7
11	7	76.5	78.9
12	0	76.0	78.4
13	0	76.8	79.2
14	20	76.1	78.5
15	0	76.7	79.1
16	0	76.0	78.4
17	12	76.3*	78.7*
18	25	78.2	80.8
19	16	74.9	77.4
20	21	76.0	78.5
21	19	75.9	78.4
22	14	78.2	80.7
23	7	80.2	82.8
24	7	78.1	80.7
25	7	79.3	81.9
26	7	78.7	81.4
27	8	77.7	80.3
28	23	76.7	79.3
29	18	76.4	79.0
30	14	77.0	79.6
Mean:	15.5	77.0	79.4

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* Adjusted for burst emission

PREDICTED AND OBSERVED SUNSPOT NUMBERS

CALCIUM PLAGE AND SUNSPOT REGIONS

JUNE 1965

JUNE 1965	LAT.	MCMATH PLAGE NUMBER	RETURN OF REGION	CALCIUM PLAGE DATA						SUNSPOT DATA		
				CMP VALUES		HISTORY	AGE (ROTATIONS)	DATE FIRST SEEN	DURATION (DAYS)	CMP VALUES		HISTORY
				AREA	INT.					AREA	COUNT	
1.4	S24	7836	New	(200)	(1.5)	b - d	1	5/29	1			
1.6	N37	7828 (1)	7799	1200	2	ℓ ∧ d	2	5/26	12			
2.0	S11	7842	New	(400)	(3.5)	b ∧ ℓ	1	≤ 6/3	6	(10)	(6)	b ∧ d
2.8	N11	7832	New	(100)	(2)	b - d	1	5/28	2			
2.8	N18	7837	New	(200)	(1)	b - d	1	5/29	4			
3.1	N26	7848	New	(300)	(2.5)	b - ℓ	1	6/7	3	(10)	(1)	b - d
3.2	N39	7843	New	200	2	b - d	1	6/3	2			
3.9	S10	7840	New	2000	3.5	b ∧ ℓ	1	6/1	9	140	34	b ∧ ℓ
4.0	N12	7839 (1)	New	(100)	(1.5)	b - d	1	5/31	1			
4.1	S10	7833	New	(100)	(1)	ℓ - d	1	5/28	2			
4.8	N29	7838	7794	800	2	ℓ - d	2	5/29	11			
5.2	S29	7844	New	200	2	b - d	1	6/5	2			
5.7	S21	7849 (1)	New	(100)	(1.5)	b - d	1	6/8	1			
8.3	S04	7850 (1)	New	(100)	(1.5)	b - d	1	6/10	1			
10.3	N03	7851 (1)	New	100	1.5	b - d	1	6/10	1			
11.0	N03	7846 (1)	New	(300)	(1)	b - d	1	6/6	1			
11.4	S09	7853 (1)	New	200	2	b - d	1	6/11	1			
11.8	N01	7861 (1)	New	(100)	(1)	b - d	1	6/16	1			
11.9	N18	7845	7803	1600	2.5	ℓ / ℓ	3	6/5	13			
12.3	S26	7855 (1)	New	300	2	b - d	1	6/12	1			
12.3	N10	7862 (1)	New	(200)	(1)	b - d	1	6/16	1			
12.8	S02	7854 (1)	New	(100)	(2)	b - d	1	6/11	1			
12.9	S36	7856 (1)	New	100	1.5	b - d	1	6/12	1			
13.4	N22	7847	7813	3200	3	ℓ / ℓ	2	6/6	14	(10)	(1)	b ∧ d
16.0	N31	7868	New	(300)	(2)	b - d	1	6/20	2			
16.6	S27	7863	New	100	1	b / ℓ	1	6/16	7	(20)	(4)	b - ℓ
17.3	N23	7852 (2)	7809	1700	2.5	ℓ ∧ ℓ	2	6/10	15			
17.6	N06	7865 (1)	New	(200)	(1)	b - d	1	6/18	1			
18.2	N27	7857 (2)	7809	900	1.5	ℓ - d	2	6/12	13			
18.3	S27	7860 (1)	New	(100)	(1.5)	b - d	1	6/15	1			
18.7	N03	7866 (1)	New	(100)	(1)	b - d	1	6/18	1			
19.1	N22	7858 (3)	7812	1300	2.5	ℓ / ℓ	2	6/12	14	(10)	(1)	b - d
19.2	S04	7871 (1)	New	(100)	(1)	b - d	1	6/23	1			
20.3	N29	7859 (3)	7812	800	1.5	ℓ ∧ ℓ	2	6/14	13			
21.5	N25	7864	New	(200)	(1)	b - d	1	6/17	2			
21.8	S35	7869	New	(200)	(2.5)	b - d	1	6/22	5	(10)	(5)	b - d
22.6	S23	7875	New	(200)	(2)	b - d	1	6/25	2			
22.8	N39	7870 (1)	New	200	1.5	b - d	1	6/22	1			
23.5	N29	7872	New	100	1.5	b - d	1	6/23	3			
24.5	N31	7867	New	1400	3	ℓ / ℓ	1	6/18	13	(10)	(5)	b - d
26.0	N16	7879	New	(200)	(2)	b - d	1	6/28	3			
27.0	N25	7876 (1)	New	(200)	(1.5)	b - d	1	6/25	1			
27.7	N19	7880	New	(100)	(2.5)	b - d	1	6/29	5			
28.0	S03	7881	New	(100)	(1)	b - d	1	6/29	2			
29.1	S12	8777	7842	800	1	ℓ - ℓ	2	< 6/25	~13			
30.5	S11	8774	7840	900	2	ℓ / d	2	6/24	12			
30.6	N26	8773	7848	4200	2.5	ℓ / ℓ	2	6/23	14	(10)	(1)	b - d

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- (1) These small and ephemeral plages were seen only for one day.
 (2) Regions 7852 and 7857 are parts of region 7809.
 (3) Regions 7858 and 7859 are parts of region 7812.

No calcium spectroheliogram was secured at the McMath-Hulbert Observatory on 12 June 1965.

MT. WILSON MAGNETIC CLASSIFICATIONS OF SUNSPOTS

11b

JUNE 1965

JUNE 1965	TIME MEAS. UT	LAT.	MER. DIST.	TYPE	No.	JUNE 1965	TIME MEAS. UT	LAT.	MER. DIST.	TYPE	No.
1-2	No Obs.					15-16	No Obs.				
3	2350	S11 S10	W25 W03	β p β f	15922 15923	17	1405	S28 N24	W12 E51	β f* α p*	15926 15927
4	1615	S11 S10	W34 W11	β f β p	15922 15923	18	2345	S27	W30	β f*	15926
5	1605	S11 S10	W47 W26	β γ β p	15922 15923	19	1615	S27	W41	β f*	15926
6	1605	S11 S10 N20 N23	W60 W38 E77 E80	β f β p α f* α p*	15922 15923 15924 15925	20	No Obs.				
7	2145	S12 S10 N20 N23	W78 W59 E57 E64	α p α p α p* α p*	15922 15923 15924 15925	21	1830	S27	W65	β f	15926
8	No Obs.					22-24	No Spots				
9	1700	N23	E40	α p*	15925	25	No Obs.				
10	1620	N23	E28	α p*	15925	26	1620	N26 N29	E51 E62	α f α f	15930 15931
11	2155	N22	E10	α p*	15925	27	1750	N30	E50	β p*	15931
12-14	No Spots					28	1655	N30	E38	β p*	15931
						29	1740	N29	E26	β p*	15931
						30	1645	N29 N26	E14 E09	β p* α f	15931 15932

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* New Cycle

PROVISIONAL CORONAL LINE EMISSION INDICES

JUNE 1965

ChF June 1965	North East quadrant (observed 7 days earlier)				South East quadrant (observed 7 days earlier)				South West quadrant (observed 7 days later)				North West quadrant (observed 7 days later)			
	G ₆	G ₁	R ₆	R ₁	G ₆	G ₁	R ₆	R ₁	G ₆	G ₁	R ₆	R ₁	G ₆	G ₁	R ₆	R ₁
1	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
2	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
3	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
4	x	x	x	x	x	x	x	x	x	x	x	x	17	27	18	25
5	x	x	x	x	x	x	x	x	5	8	14	16	11	17	16	19
6	x	x	x	x	x	x	x	x	1	7	20	26	10	14	17	20
7	5	8	0	0	1	6	2	5	x	x	x	x	x	x	x	x
8	x	x	13	16	x	x	x	x	x	x	x	x	x	x	x	x
9	x	x	8a	15a	x	x	4a	12a	x	x	x	x	x	x	x	x
10	x	x	x	x	24	30	x	x	x	x	x	x	x	x	x	x
11	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
12	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
13	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
14	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
15	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
16	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
17	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
18	65	125	19	26	1	4	14	21	x	x	x	x	x	x	x	x
19	42	61	10	18	1	5	25	28	x	x	x	x	36	56	9	16
20	29	41	18	28	0	0	16	24	0	0	9	10	26	36	27	36
21	x	x	x	x	x	x	x	x	0	0	x	x	16	22	x	x
22	x	x	x	x	x	x	x	x	0	0	2	11	22	59	5	19
23	x	x	x	x	x	x	x	x	0a	0a	15	25	7a	12a	15	17
24	x	x	x	x	x	x	x	x	x	8	0	9	x	x	8	25
25	x	x	x	x	x	x	x	x	3	8	3	10	15	28	9	16
26	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
27	x	x	x	x	x	x	x	x	0	0	0a	0a	21	53	1a	9a
28	x	x	x	x	x	x	x	x	0a	0a	0a	0a	11a	25a	3a	14a
29	x	x	x	x	x	x	x	x	18	62	0	0	30	78	8	14
30	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

x = no observations

* = yellow line emission

a = index computed from low weight data

COMMENT

STANDARDS

BOULDER

JUNE 1965

COMMERCE - STANDARDS - BOULDER

SOLAR FLARES

JUNE 1965

OBSERVATORY	DATE	OBSERVED UNIVERSAL TIME		LOCATION			DURA- TION — MINUTES	IM- POR- TANCE	OBS. COND.	MEASUREMENTS				REMARKS
		START	END	APPROX.	MC-MATH FLAGE REGION					TIME — U T	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX WIDTH H _g	
					LAT.	MER DIST.								
MCMA	JUNE 05	1345	1440	S12	W25	7840	60	1-	2 C	1403	.50	.60	22	E
SACP	05	1807	1834	S12	W50	7842		1-	C		1.58	2.01		
HALE	06	0039	0050	S13	W56	7842		1-	2 C	0042	.30	.40		
HALE	06	0150	0210	S13	W56	7842		1-	2 C	0152	.10	.10		D
IKOM	06	0630	0649	N20	E90	7845		1-	2 C					DO
CATA	06	0630	0730	N18	E84	7845		2	3	0703	2.24	9.14	159	G
CAPS	06	1325	1345	S10	W57	7842		1-	3	1333	.40	.90	182	D
SACP	06	1327	1344	S11	W61	7842		1-	C		.52	.79	18	S
MCMA	06	1330	1342	S12	W62	7842		1-	2 C	1333	.40	.90		
HALE	06	1804	1812	S12	W65	7842		1-	2 C	1806	.30	.50		S
MCMA	06	1805	1809	S12	W64	7842		1-	2 C	1809	.40	.90		S
HALE	06	2358	0009	S13	W52	7842		1-	2 C	0001	.10	.10		E
KAND	07	0906	0918	S12	W50	7840		1-						
KAND	07	0906	0928	S14	W54	7840		1-						
WEND	07	0915	0932	S10	W42	7840		1-						
KAND	07	0931	0950	S14	W54	7840		1-						
KAND	07	0937	0946	N20	E62	7845	9	1				3.20		
BUCA	07	1033	1057	N12	W45	7845	24 D	1						
KAND	07	1029	1100	S14	W48	7840	31	2						
KAND	07	1033	1100	S11	W44	7840	27	1+						
KAND	07	1039	1054	S12	W49	7840		1-						
CAPS	07	1042	1106	S13	W48	7840	24 D		2	1045	2.00	3.00	185	F
WEND	07	1558	1607	S12	W46	7840	17 D	1+				5.00	20	
SACP	07	2013	2028	N23	E73	7847		1-	C		.35	.74		
SACP	07	2101	2110	N21	E64	7847		1-	C		.26	.44	19	
SACP	07	2101	2110	N27	W61	7848		1-	C		.17	.28	18	
HALE	07	2102	2111	N27	W60	7848		1-	2 C	2104	.30	.50		
HALE	07	2124	2203	S13	W85	7842		1-	1 C	2131	.10			
HALE	08	0045	0145	N20	E65	7847		1-	2 C	0055	.80	1.40		
MANI	08	0047	0107	N19	E65	7847		1-	1	0054	.33	.56		
HALE	08	0229	0355	N21	E63	7847		1-	2 C	0248	1.00	1.00		FK
HALE	08	0730	0851	N25	W65	7848		1-	3	0759	.42	.84	138	E
CATA	08	0935	0941	S13	W90	7842		1-						
KAND	08	0951	1032	N23	E59	7847		1-	2			1.20		H
BUCA	08	1450	1458	N25	W70	7848		1-						D
KANZ	08	1517	1530	N23	E63	7847		1-	1 C	1520	.10	.20		E
MCMA	08	1640	1710	N23	E63	7847		1-	1 C	1700	.40	.80		EHK
MCMA	08	1659	1724	N20	E59	7847		1-	2 P	1702	.90	1.40		
HALE	08	1659	1724	N25	W75	7848		1-	2 P	1712	.20	.50		
HALE	08	1728	1739	N25	W80	7848		1-	2 C	1733	.10	.20		
HALE	08	1943	2009	N20	E52	7847		1-	2 C	1947	.60	.80		
HALE	08	2226	2234	N22	W85	7848		1-	1 C	2229	.20	.20		H
HALE	08	2238	2321	N20	E52	7847	43	1	1 C	2244	2.20	3.10		FK
HALE	08	2239	2242	N23	E60	7847		1	1 P	2242	1.20	2.40		S
MCMA	08	2244	2303	N22	E50	7847	19 D	1	V	2248	1.20	2.10	96	DH
IKOM	08	2302	2322	N25	W85	7848	20	1	1 C	2309	.80		1.58	
HALE	08													

SOLAR FLARES

JUNE 1965

OBSERVATORY	DATE	OBSERVED UNIVERSAL TIME		LOCATION		DURA- TION — MINUTES	IM- POR- TANCE	OBS COND.	MEASUREMENTS			REMARKS		
		START	END	MAX. PHASE	APPROX.				MEAS. AREA Sq. Deg.	COOR. AREA Sq. Deg.	MAX. WIDTH In		MAX. INT. °.	
					PLAGE									REGION
	JUNE 1965								TIME — U.T.					
HALE	08	2324	2338	2327	N24	W85	7848	1-	1 C	2327	•30			
HALE	09	0004	0009	0007	N24	W85	7848	1-	1 C	0007	•20			
HALE	09	0010	0030	0017	N24	W85	7848	1-	1 C	0017	•70			
HALE	09	0114	0119	0117	N24	W85	7848	1-	1 C	0117	•10			
HALE	09	0132	0132	0125	N24	W85	7848	1-	1 C	0125	•20			
HALE	09	0146	0151	0148	N24	W85	7848	1-	1 C	0148	•20			
HALE	09	0159	0208	0201	N20	E42	7845	1-	1 C	0201	•50	•60		
HALE	09	0304	0320	0306	N24	W85	7848	1-	1 C	0306	•70		H	
HALE	09	0333	0344	0337	N24	W85	7848	1-	1 C	0337	•20			
HALE	09	0410	0416	0413	N27	W89	7848	1-	1 C	0413	•30			
CATA	09	0545	E	0610	N24	W88	7848	1-	2	0610	•40	1.96	EG	
CAPS	09	0600	E	0640	N22	W85	7848	40 D	2	0617	2.50	145	215	
CAPS	09	0600	E	0715	N22	E45	7847	75 D	2	0655	4.00	6.00	204	
CATA	09	0600	0735	0641	N22	E47	7847	95	2	0641	5.82	9.18	FK	
MANI	09	0605	E	0720	N21	E50	7847	75 D	2	0638	2.00	2.60	I	
MEUD	09	0713	E	0716	N26	W90	7848	1-	1-					
KAND	09	0720	E	0750	N27	W88	7848	30 D	1					
MEUD	09	0736	E	0801	N26	W90	7848	25 D	1-					
CAPS	09	0745	E	0800	N22	W85	7848	15 D	1+		1.00		225	
KAND	09	0747	0802	0751	N29	W88	7848	15	1	0750				
KAND	09	0814	0817		N29	W88	7848	1-	1-					
MEUD	09	0834	E	0911	N26	W90	7848	37 D	1					
KAND	09	0838	E	0903	N28	W88	7848	25 D	1					
KAND	09	0905	0910		N28	W88	7848	5	1					
KAND	09	0910	0919		N18	E51	7845	1-	1-					
KAND	09	0921	0922		N27	E61	7847	12	1					
KAND	09	0914	0933	0923	N28	W90	7848	19	1					
KAND	09	0946	1041		N28	W90	7848	1-	1-					
KAND	09	1206	1242		N26	W90	7848	1-	1-					
KAND	09	1250	1256		N26	W90	7848	1-	1-					
CAPS	09	1525	1539		N21	W90	7848	1-	3	1520	•20		170 D	
LOCK	09	1745	1800	1750	N26	W89	7848	1-	C	1750	•30	•90	HJ	
LOCK	09	1817	1825	1820	N26	W89	7848	1-	C	1820	•30	•90	HJ	
HALE	09	1851	1857	1854	N23	W90	7848	1-	1 C	1854	•30		H	
HALE	09	1907	1913	1909	N23	W90	7848	1-	1 C	1909	•20			
HALE	09	1934	1947	1942	N24	W90	7848	1-	1 C	1942	•40			
MCMA	09	1943	1955	1948	N25	W90	7848	1-	1 C	1946	•30	1.50	HJ	
LOCK	09	1946	E	1946	N26	W89	7848	1-	1 C	1949	•20		HK	
HALE	09	1948	2003	1949	N24	W90	7848	1-	1 C	1949				
HALE	09	1957	E	1957	N26	W89	7848	1-	C	1946	•30	1.50	HJ	
HALE	09	2041	2046	2045	N23	W90	7848	1-	1 P	2045	•30			
LOCK	09	2115	2138	2124	N26	W89	7848	1-	C	2124	•30	1.50	HJ	
MCMA	09	2119	E	2131	N25	W90	7848	1-	2 P	2124				
MCMA	09	2214	2227	2219	N25	W90	7848	1-	2 P	2220	•30	1.50	HJ	
LOCK	09	2215	2230	2220	N26	W89	7848	1-	C	2220				
LOCK	10	0015	0055	0025	N26	W89	7848	1-	C	0025	•30	1.50	HJ	
ARCE	10	0900	0935		S13	W90	7840	35	1	0915	•52	2.95		
KAND	10	0905	0952		S11	W90	7840	47	1	0911	1.70	2.30	F	
CAPS	10	0909	E	0935	N24	E40	7847	26 D	2	0911				

COMMERCE - STANDARD - BOULDER

SOLAR FLARES

JUNE 1965

OBSERVATORY	DATE	OBSERVED UNIVERSAL TIME		LOCATION			DURA- TION — MINUTES	IM- POR- TANCE	OBS COND	MEASUREMENTS				REMARKS			
		START	END	MAX PHASE	APPROX.					MEM- PHASE DIST	MEAS AREA Sq Deg	CORR AREA Sq Deg	MAX WIDTH Ho		MAX INT %		
					LAT	MER DIST											
KAND	10 JUNE 1965	1011	1027	1017	N24	W90	7848	1									
KAND	10	1034	1130		N24	W90	7848	1									
KAND	10	1138	1255		N27	W90	7848	1									
KAND	10	1152	1159		S11	W90	7840	1									
MCMA	10	1345	1409	1355	N22	E36	7847	1	1 C	1355	.60	.80				S	
MCMA	10	1425	1433	1426	N22	E30	7847	1	2 C	1426	.20	.30				D	
MCMA	10	1510	1502	1512	N24	E34	7847	1	2 C	1512	.40	.50				S	
MCMA	10	2005	2025	2009	N21	E27	7847	1	1 C	2009	.50	.50					
HALE	10	2043	2100	2051	N22	E32	7847	1	1 C	2051	.20	.20				J	
LOCK	10	2228	2237	2231	N22	E15	7845	1	1 C	2231	.30	.30				10	
LOCK	10	2228	2240	2231	N22	E24	7847	1	2 C	2231	.80	.80				F	
HALE	11	0054	0119	0058	N23	E31	7847	1	1 C	0058	.40	.40					
HALE	11	0055	0108	0058	N18	E25	7847	1	1 C	0058	.30	.30				10	
HALE	11	0355	0415	D	N22	E27	7847	1	3 P	0400	.30	.30					
MCMA	11	1707	1715	1709	N24	E25	7847	1	2 C	1709	.30	.40				S	
SACP	11	1707	1716	1710	N24	E22	7847	1	C		.26	.27				16	
LOCK	11	2001	2015	2008	N23	E20	7847	1	C	2008	.20	.20				10	
MCMA	11	2005	2015	2008	N24	E23	7847	1	2 C	2008	.50	.60				LS	
HALE	11	2005	2018	2008	N22	E19	7847	1	2 C	2008	.40	.40					
HALE	11	2006	2012	2008	N23	E20	7847	1	C	2008	.18	.21				D	
CATA	12	0637	0726	0706	N22	E10	7847	1	4	0706	1.26	1.37				EGH	
CAPS	12	0701	0734		N22	E09	7847	1	3	0707	1.80	2.00				161	
MCMA	12	1152	1215	1155	N23	E08	7847	1	3 C	1159	.90	1.00				FG	
KANZ	12	1556	E	1650	N20	E02	7847	54 D								GL	
SACP	12	1746	1918	1804	N22	E01	7847	1	C		2.37	2.36				20	
HALE	12	1748	1815	D	N22	E04	7847	27 D	1	3 P	1753	3.10	3.10			FK	
HALE	12	1748	1827	1753	N22	E03	7847	1	C	1753	.83	.90				EHK	
HUAN	12	1748	1802		N23	E03	7847	97	1	3 C	1758	2.00	2.20			FST	
MCMA	12	1748	1925	1758	N19	E00	7847	1	1	1848	.50	.50					
HALE	12	1840	1854	D	N26	E06	7847	1	1 P	1932	.20	.20					
HALE	12	1926	1937		N21	W09	7847	90 D	1	2	0326	2.10	2.10				
MANI	13	0300	E	0430	N21	W14	7847	1	2 C	2331	.60	.60				10	
HALE	13	2318	2343	2331	N21	W13	7847	1	C	2335	.50	.50					
LOCK	13	2320	0020	2335	N23	W13	7847	1	2 C	2335	.40	.40					
HALE	13	2333	2341	2335	N22	W15	7847	1	1 C	0007	.50	.50					
HALE	13	2352	0023	0007	N22	W14	7847	1	2	2358	.40	.40					
MANI	13	2357	E	0020	N21	W15	7847	1									
SACP	14	0000	E	0020	N22	W14	7847	1	P		.52	.53				17	
CATA	14	1028	E	1037	N20	W22	7847	1	4	1033	1.22	1.39				D	
HALE	14	1554	1606	1558	N23	W24	7847	1	C		.43	.45				155	
SACP	14	1554	1607	1555	N23	W24	7847	1	2 C	1555	.30	.30				S	
MCMA	14	1554	1607	1555	N23	W24	7847	1	C	1745	.20	.20				10	
LOCK	14	1700	1915	1745	N17	E13		1									
LOCK	15	0020	0032	0025	N26	E53	7858	1	C	0025	.20	.20				10	
BUCA	15	0735	0830		N22	W30	7847	1	2		4.80	9.00				GL	
WEND	15	0736	0826		N23	W27	7847	55									
								50									

SOLAR FLARES

JUNE 1965

OBSERVATORY	DATE	OBSERVED UNIVERSAL TIME		LOCATION		DURA- TION — MINUTES	IM- POR- TANCE	OBS. COND.	MEASUREMENTS		MAX WIDTH Ha	MAX INT %	REMARKS
		START	END	APPROX. LAT.	MER DIST	MONTH PLACE REGION			TIME U T	MEAS AREA Sq Deg	CORR AREA Sq Deg		
— CATA	15 JUNE 1965	0737 E	0840 D	N22 W30	7847	63 D	1	2	0744	2.60	3.17	170	EG
— CAPS	15	0740 E	0902	N22 W30	7847	82 D	1	3	0751	2.20	2.80	182	CFGHKL
— MANI	15	0801	0820	N21 W32	7847		1	2	0805	.50	.55		
— ARCE	15	0805 E	0828 D	N22 W32	7847		1	2	0814	.92	1.17		
— ARCE	15	0814 E	0849 D	N21 W28	7847		1	2	0836	.69	.83		
— KANZ	15	0830 E	0840 D	N20 W32	7847	10 D	1	2					BAGH
— BUCA	15	0832 E	0912 D	N20 W33	7847	40 D	1	2					G
— ARCE	15	0836	0932	N22 W32	7847		1	2	0842	.56	.71		
— CAPS	15	1140 E	1200	N22 W30	7847		1	3	1145	1.30	1.60	157	CDG
— HALE	15	1929	1953	N22 W39	7847		1	2 C	1932	.20	.20		
— HALE	15	2045 E	2107	N09 W47	7862		1	1 P	2046	.20	.20		
— SACP	16	1402	1409 D	N22 W49	7847		1	P		.35	.45	18	
— MCMA	16	1405	1415 D	N23 W40	7847		1	2 P	1409	.20	.40		E
— HALE	16	1633	1640	N21 W58	7845		1	3 P	1635	.20	.30		
— CATA	17	0605 E	0615 D	S27 W11	7863		1	5	0608	.48	.55	117	EGH
— ARCE	17	0813 E	0850 D	S29 W09	7863		1	2	0815	.72	.85		
— MCMA	17	1131	1157	N24 W58	7847	26	1	2 C	1139	1.00	2.00		SK
— CAPS	17	1255	1320	S29 W11	7863		1	2 C	1258	.40	.50		E
— CAPS	17	1311 E	1312 D	S30 W10	7863		1	1					
— MCMA	17	1415	1445	S29 W10	7863		1	2 C	1425	.30	.40		EH
— MCMA	17	1515	1800 D	S29 W09	7863		1	1 C	1730	.50	.60		DHK
— SACP	17	1610	1633	S28 W12	7863		1	2	.26	.27	.26	18	
— HUAN	17	1616	1638	S27 W15	7863		1	C	1623	.15	.18		D
— LOCK	18	0110	0130 D	N27 E89	7867		1	C	0120	.20	.60	10	
— CAPS	18	0620	0633	S29 W20	7863		1	3	0625	.80	1.00	163	D
— CAPS	18	0650 E	0703	S29 W20	7863		1	3	0653	1.30	1.60	157	D
— CAPS	18	0728	0740 D	S29 W20	7863		1	3	0730	1.50	1.80	161	D
— ARCE	18	0806 E	0838 D	S29 W22	7863		1	3	0806	1.31	1.66		
— ARCE	18	0901 E	1000 D	S29 W22	7863		1	3	0901	1.34	1.70		
— WEND	18	1035 E	1100 D	N25 W65	7847	35 D	1+	3			8.00		
— CAPS	18	1037 E	1100	N20 W70	7847		1	3	1044	.70	2.00		EGH
— CAPS	18	1143	1217	N32 W70	7847	34	1	3	1152	.90	2.70	188	GJ
— MCMA	18	1430	1515	N32 E80	7867		1	2 C	1452	.40	.40		EK
— HUAN	18	1843	1856	S28 W30	7863		1	2	1848	.15	.20		D
— HUAN	18	1906	1923	S28 W30	7863		1	C	1914	.15	.20		D
— HUAN	18	2012	2028	S28 W30	7863		1	C	2020	.15	.20		D
— MCMA	18	2015	2034	S29 W22	7863		1	1 P	2021	.20	.30		DH
— HALE	18	2133	2136	N20 W90	7845		1	1 C	2134	.10			
— ARCE	19	0800 E	0847 D	S29 W36	7863	47 D	1	2	0841	1.41	2.03		
— ARCE	19	0904		S29 W36	7863		1	2	0904	.98	1.41		
— LOCK	19	2012	2021	N33 W01	7859		1	C	2017	.20	.20	10	
— LOCK	19	2315	2347	N05 E42			1	C	2325	.20	.20	10	
— HALE	20	0155	0216	N29 E56	7867		1	2 C	0202	.40	.60		
— HALE	20	0226	0233	N29 E56	7867		1	2 C	0229	.40	.60		
— HALE	20	0231	0313	S28 W46	7863		1	2 C	0235	.60	.80		
— CATA	20	0545 E	0630 D	S28 W46	7863		1	3	0558	.46	.76	141	E

SOLAR FLARES

JUNE 1965

OBSERVATORY	DATE	OBSERVED UNIVERSAL TIME		LOCATION			DURATION — MINUTES	IM- POR- TANCE	OBS COND.	MEASUREMENTS				REMARKS		
		START	END	MAX PHASE	APPROX.					M-MATH PLACE REGION	TIME U.T.	MEAS AREA Sq. Deg.	CORR AREA Sq. Deg.		MAX WIDTH He	MAX INT °
					LAT.	MER DIST.										
KANZ	20	0747 E	0752 D	S26 W49	7863		1-							D		
	KANZ	20	1051 E	1054 D	S26 W50	7863	1-							D		
	MCMA	20	1252	1257 D	S28 W53	7863	1-		1 P	1254	.50	1.00		E		
	SACP	20	1325	1336	S28 W53	7863	1-		C		.35	.51				
	CAPS	20	1329	1335	S28 W46	7863	1-		3 P	1330	.80	1.20				
	HUAN	20	1338 E	1407 D	S27 W55	7863	1-		P	1345	.15	.29		D		
	HALE	20	1724	1740	S28 W59	7863	1-		1 C	1731	.40	.60				
	HUAN	20	1819	1835	S27 W56	7863	1-		C	1827	.15	.29		D		
	HUAN	20	1918	1938	S27 W56	7863	1-		C	1926	.20	.38		D		
	LOCK	20	2059	2118	S01 E07	7863	1-		C	2105	.20	.20		D		
HALE	20	2137	2216	S27 W57	7863	1-		C	2201	.30	.57			D		
	HALE	20	2154	2206 D	S28 W59	7863	1-		1 P	2158	.60	1.00				
LOCK	20	2240	2305	S32 W55	7863		1-		C	2246	.20	.30		H		
CATA	21	0548 E	0620 D	S29 W60	7863		1-		2	0553	.42	.86		E		
BUCA	21	0630 E	0639 D	S28 W70	7863		1-		2			1.20				
HALE	21	1755	1810	S27 W70	7863		1-		1 C	1802	.40	.80				
HALE	21	1848	1920	S30 W70	7863		1-		1 C	1853	.20	.40				
CATA	22	0640 E	0650 D	S37 W03	7869		1-		4	0645	.96	1.25		E		
KANZ	22	0807 E	0828 D	S26 W72	7863		1	D						D		
ARCE	22	0835	0905 D	S29 W78	7863		1-		3	0835	.26	.83		E		
KANZ	22	0837 E	1041 D	S27 W71	7863		1+									
WEND	22	0843	1050 D	S26 W79	7863		1+					7.00				
ARCE	22	0920 E	1000 D	S29 W78	7863		1-		3	0925	.23	.74				
WEND	22	0903 E	0913 D	N29 E23	7867		1-									
WEND	22	0917 E	0931 D	N29 E23	7867		1-									
WEND	22	0948 E	1038 D	N19 E22	7867		1-									
MCMA	22	1106 E	1220	S29 W85	7863		1-		2 P	1107	.80			BE		
CAPS	22	1204 E	1223	S28 W75	7863		1		3	1206	1.00	5.00		EG		
KAND	22	1210 E	1235	S27 W90	7863		2									
KAND	22	1225 E	1315	N34 E08	7870		1									
KAND	22	1237	1319	S25 W88	7863		1									
KAND	22	1256	1319	S30 W90	7863		1-									
KANZ	22	1346	1654 D	S29 W74	7863		1+									
HALE	23	0103	0112	S26 W90	7863		1-		1 C	0105	.10			H		
HALE	23	0129	0139	S26 W90	7863		1-		1 C	0139	.30			HK		
HALE	23	0220	0250	S26 W90	7863		1-		1 C	0229	.10					
HALE	23	0334 E	0358	S26 W90	7863		1-		2 P	0337	.40					
HALE	23	0403	0428 D	S29 W90	7863		1-		2 P	0409	.40					
HALE	23	0416	0419	S29 W90	7863		1-		2 C	0417	.10					
KAND	23	0805	0822	S24 W90	7863		1-									
KAND	23	0821	1205 D	S31 W90	7863		2-									
KAND	23	0830	0915	S24 W90	7863		1-									
KAND	23	0839	1205 D	S28 W90	7863		2									
ARCE	23	0855 E	0910 D	S30 W90	7863		1-		2	0855	.23	1.31				
ARCE	23	0857 E	0910 D	S27 W90	7863		1		2	0857	.36	2.05				
KAND	23	0919	0943	S24 W90	7863		1-									
ARCE	23	0950 E	1000 D	S27 W90	7863		1		2	1000	.59	3.35				

SOLAR FLARES

JUNE 1965

OBSERVATORY	DATE	OBSERVED TIME		LOCATION		DURA- TION — MINUTES	IM- POR- TANCE	OBS. COND.	MEASUREMENTS		MAX WIDTH Hu	MAX INT I _u	REMARKS
		START	END	APPROX. LAT.	MER DIST	MONTHLY PLACE REGION			TIME — U T	MEAS. AREA Sq Deg	CORR. AREA Sq Deg		
— KAND	23 JUNE 1965	0952	0958	S24	W90	7863	1-						
— KAND	23	1005	1042	S23	W90	7863	1-						
— KAND	23	1044	1101	S23	W90	7863	1-						
— KAND	23	1113	1125	S23	W90	7863	1-						
— KAND	23	1134	1142	S23	W90	7863	1-						
HALE	23	1840	1859	S30	W90	7863	1-	2 C	1850	.20			
— ARCE	24	0900 E	0930 D	N24	E90	7873	1-	2	0920	.39	2.22		
— KAND	24	0904	0906	N30	E90	7873	1-						
KAND	25	0842	0846	N35	W67	7859	1-						
ARCE	25	0910 E	0925 D	N32	E87	7878	1-	3	0915	.18	.83		
KAND	25	0913	0924	N40	W90	7857	1-						
KAND	25	1018 E	1035 D	N30	E82	7878	17 D						D
— KANZ	25	1056	1111 D	N28	E76	7878	15 D						D
— WEND	25	1232	1248	N31	E85	7878	1-	1 C	1233	.10	3.00		D
— MCMA	25	1412	1433	N30	E80	7878	1-	1 C	1419	.20			D
— KANZ	25	1416	1428	N31	E85	7878	1-	1 C		.57	.60	18	D
— MCMA	25	2111	2120 U	N30	W19	7867	1-						
SACP	25	2111	2120 U	N30	W19	7867	1-						
ARCE	26	0845	0900	N33	E73	7878	1-	3	0845	.43	1.14		
— MCMA	26	1746	1759	N24	E50	7873	1-	2 C	1750	.20	.40		D
— MCMA	26	2015	2125	N24	E50	7873	1-	2 C	2030	.20	.40		
— MCMA	26	2232	2241 D	N23	E48	7873	1-	2 P	2234	.30	.60		D
— LOCK	26	2232	2250	N23	E46	7873	1-	2 C	2237	.30	.30	10	
— SACP	26	2234	2242	N24	E47	7873	1-	C	2237	.35	.44	17	
LOCK	27	2105	2140	N31	E37	7873	1-	C	2112	.10	.10	10	
MEUD	28	1020	1055	N30	E40	7878	35						
— CATA	28	1020 E	1130	N33	E36	7878	70 D	2	1027	3.60	5.10	246	I
— CAPS	28	1021 E	1123	N32	E40	7878	62 D	3	1026	3.76	5.62	254	CFK
— HERS	28	1055 E	1112 D	N32	E44	7878	1-	2	1102	2.50	3.75		E
— MCMA	28	1107 E	1146	N29	E46	7878	1-	2 P	1108	.60	1.10		BS
— KAND	28	1218	1302	N15	W90		44			1.00	1.40		
— LOCK	28	1610	1700	N32	E44	7878	1-	C	1620	.20	.20	10	
— KAND	29	0820	0826	S18	E90		1-						
— KAND	29	0820	0830	S11	E90		1-						
— KAND	29	0846	0903	N04	E90		1-						
— KAND	29	0916	0927	S18	E90		1-						
— KAND	29	0917	0925	N06	E90		1-						
— KANZ	29	1632 E	1642 D	N31	E29	7878	10 D						H
— KANZ	29	1720 E	1722 D	N31	E29	7878	2 D						H
— LOCK	30	2016	2040	N21	W06	7873	23 D	1 C	2024	1.00	1.00	10	F
— MCMA	30	2022 E	2045 D	N23	W06	7873	1	1 P	2023	2.20	2.40		

COMMERCE - STANDARDS - BOULDER

INTERVALS OF NO FLARE PATROL OBSERVATIONS PROVISIONAL

JUNE 1965

HOUR-UT

Observatories included:

Arcetri
Bucharest
Catania

Haleakala
Herstmonceux
Istanbul

Kandilli
Kanzelhoehe
Lockheed

Manila
Meudon
Sacramento Peak

Salonique
Tortosa
Wendelstein

Wroclaw

SOLAR FLARES

MARCH 1965

OBSERVATORY	DATE	OBSERVED UNIVERSAL TIME		LOCATION		DURA- TION — MINUTES	IM- POR- TANCE	OBS. COND.	TIME — U T	MEASUREMENTS			REMARKS
		START	END	APPROX LAT.	MER DIST	MATH PLACE REGION				MEAS. AREA Sq Deg	CORR AREA Sq Deg	MAX WIDTH H ₀	
CULG	01 MAR 1965	0510	0517	0512	0512	0512	0512	0512	0512	.80	1.44		FG
LOCK	01	1800	1823	N02 W32	7712	7712	1-	C	1807	.20	.20	10	
LOCK	01	1821	1834	N18 E01	7707	7707	1-	C	1826	.20	.20	10	CG
CULG	01	2351	2357	545 E31			1-	C	2353	.40	.60		
	02	0905	0955	NO FLARE	PATROL								
	02	1010	1025	NO FLARE	PATROL								
	02	1135	1140	NO FLARE	PATROL								
CAPS	02	1253	1309	N31 E38	7712	7712	1-	3	1258	.60	1.00	135	GH
OTTA	02	1549	1612	1556	N21 W00	7707	1-	C	1556	.91	.92		
OTTA	02	1553	1622	1559	506 E13	7704	1-	C	1559	.31	.31		E
	03	1530	1610	NO FLARE	PATROL								
SACP	04	0650	0710	NO FLARE	PATROL		1-	C		.41	.44	17	
HALE	04	1539	1600	1550	N25 W13	7707	1-	3	1933	.20	.20		
	04	1920	1950	1933	N28 E14	7712							
CLMX	05	0023	0033	0026	N10 E78		1-	C	0026	.20	.50		
SACP	05	0023	0040	0026	N12 E76		1-	C		.34	.84	17	
HALE	05	0024	0049	0032	N12 E80		1-	4	0032	.20	.30	20	
LOCK	05	0024	0040	0031	N29 E11	7712	1-	C	0031	.30	.66	18	
SACP	05	0025	0044	0028	N30 E11	7712	1-	C	0028	.40	.40		
CLMX	05	0026	0033	0028	N30 E09	7712	1-	C	0028	.80	.90		D
MITK	05	0026	0040	0028	N30 E11	7712	1-	2	0032	1.80	2.20	110	H
HALE	05	0026	0057	0032	N30 E12	7712	1-	2	0114	.80	.90		FK
IKOM	05	0028	0040	0114	N28 E10	7712	1-	V					
HALE	05	0111	0145	0114	N30 E12	7712	1-						
HALE	05	0120	0128	0121	N28 E10	7712	1-	V					
IKOM	05	0128	0138	0130	N31 E13	7712	1-	2	0130	.15	.15	100	E
MANI	05	0212	0228	0218	N13 E02		1-	4	0218	.20	.20		
HALE	05	0229	0310	0241	N13 E02		1-	3	0241	.40	.40		H
MITK	06	0239	0246	0242	N05 W90	7715	1-	C		.60	1.10	65	HGD
TACH	06	0624	0639	0625	N19 W51	7707	1-	C	0742	.60	1.00	160	DGJ
CAPS	06	0740	0756	D	N21 W50	7707	1-	3	0800	.58	1.00	159	GS
BUCA	06	0745	0811	0800	N24 W50	7707	1-	S					
CATA	06	0745	0915	D	N22 W50	7707	1-						
BUCA	06	0829	0910	D	N24 W50	7707	1-	3					
	06	1330	1335	NO FLARE	PATROL								
SACP	06	1814	1920	1849	N32 W11	7712	1-	C		1.51	1.70	18	
CLMX	06	1815	1915	1848	N32 W10	7712	1-	C	1848	.70	.80		
HALE	06	1817	1848	1839	N30 W13	7712	1-	2	1839	.30	.30		
HALE	06	1817	1933	1839	N32 W12	7712	1-	2	1839	.40	.40		
HALE	06	1858	1950	1907	N35 W10	7712	1-	3	1907	.30	.30		
HALE	06	1830	1900	1841	N18 W57	7707	1-	3	1841	.40	.60		
HALE	06	1859	1922	1910	N21 W56	7707	1-	3	1910	.50	.80		
HALE	06	1919	1948	1924	N17 W58	7707	1-	3	1924	.20	.30		
HALE	06	1953	1953	1946	N18 W57	7707	1-	4	1946	.50	.80		
HALE	06	1955	2042	2003	N18 W57	7707	1-	3	2003	1.20	1.90		H

SOLAR FLARES

MARCH 1965

OBSERVATORY	DATE	OBSERVED UNIVERSAL TIME		LOCATION			DURATION — MINUTES	IM-PORTANCE	OBS. COND.	MEASUREMENTS				REMARKS	
		START	END	APPROX. LAT	MER. DIST.	M-THAT PLACE REGION				TIME U.T.	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX WIDTH Ho		MAX INT "
HALE	MAR 06 1965	2100	2142	N18 W57	7707		1-	3	2115	1.00	1.60				
HALE	06	2200	2216	N17 W58	7707		1-	3	2205	.40	.60				
HALE	07	0141	0153	N30 W15	7712		1-	3	0144	.80	.90			L	
CULG	07	0307	0324	N25 W55	7707		17	C	0311	2.40	5.00				
CLMX	07	1602	1620 U	N21 W67	7707		1-	C	1611	.96	1.88				
—	07	1603	1613 D	N32 W69	7707		1-	C	1611	.50	1.10				
HUAN	07	1604	1627	N22 W68	7707		1-	P	1611	.20				E	
IKOM	07	2305	2321 D	N15 W37			16 D	C						D	
HUAN	08	1300	1304	N15 W45				C	1302	.10	.15			DG	
LOCK	08	1740	1810	N19 W90	7707		1-	C	1800	.30	1.50		20		
HALE	08	2240	2254 D	N13 W50			1-	3	2245	.20	.30				
LOCK	08	2351	2359	N26 W45	7712		1-	C	2355	.20	.40		20		
—	08	2353	2358	N27 W46	7712		1-	3	2354	.20	.30			DG	
IKOM	08	2354	2357 D	N30 W41	7712		1-	V	2354	.40	.60		70		
IKOM	09	0055 E	0100 D	N20 W85	7707			V						GD	
MITK	09	0350	0356 D	N28 W90	7707		1-	C						A	
IKOM	09	0516 E	0528 D	N10 W90	7708		12 D	V	2312	.80	1.00		80		
—	09	2306	2340 D	N20 W26	7716		1-	V							
ARCE	10	0850 E	0910 D	N19 W33	7716		1-	3	0910	.39	.48		129		
CATA	10	0905 E	0925 D	N19 W33	7716		1-	S	0906	.72	.94				
—	10	1900	2215	PATROL											
—	10	2300	2305	PATROL											
MCMA	11	1343	1354	N29 W84	7712		1-	1 C	1346	.20				DH	
MITK	12	0232	0247	N28 E51	7718		1-	C						H	
—	12	0650	0655	PATROL											
MANI	12	0825	0838	N31 E61	7718		1-	2	0828	.17	.29				
ARCE	12	0830 E	0819 D	N32 E53	7718		49 D	1	3	0919	1.07	2.02			
ARCE	12	1000 E	1034	N32 E53	7718		1-	3	1000	.78	1.47				
UCCL	12	1033	1037	N28 E50	7718		1-	C	1217	.46	.71			D	
OTTA	12	1213	1226	N31 E52	7718		1-	C	1307	.11	.15			FF	
—	12	1242	1317	N29 E43	7718		1-	C	1310	.80	1.70			H	
MCMA	12	1306 E	1402	N32 E51	7718		20 D	2 P						EHK	
KANZ	12	1309 E	1329 D	N32 E54	7718		1-								
KANZ	12	1331 E	1337 D	N32 E54	7718		1-								
KANZ	12	1345 E	1354 D	N32 E54	7718		1-								
SACP	12	1411 E	1422	N28 E47	7718		1-	C	1416	.42	.60		18		
—	12	1414	1421	N29 E48	7718		1-	C		.72	1.02				
UCCL	12	1414	1421	N29 E50	7718		1-							D	
MCMA	12	1415	1421	N29 E50	7718		1-	1 C	1416	.30	.60			D	
OTTA	12	1450	1512	N31 E50	7718		1-	C	1458	.28	.43				
UCCL	12	1452	1502	N29 E52	7718		1-	C	1456	.20	.40			D	
—	12	1453	1507	N31 E52	7718		1-	1 C	1456	.20	.40			D	
MCMA	12	1505 E	1511	N30 E52	7718		1-	P	1508	.16	.32			D	
HUAN	12	1526	1544	N28 E46	7718		1-	C		.46	.65			D	
SACP	12	1527	1550	N29 E46	7718		1-	C	1536	.28	.40		17	H	
OTTA	12	1527	1550	N29 E46	7718		1-	C	1536						

SOLAR FLARES

MARCH 1965

OBSERVATORY	DATE	OBSERVED UNIVERSAL TIME		LOCATION		DURA- TION — MINUTES	IM- POR- TANCE	OBS. COND.	MEASUREMENTS				REMARKS		
		START	END	APPROX. LAT.	APPROX. MER DIST				TIME U T	MEAS AREA Sq Deg	CORR. AREA Sq Deg	MAX WIDTH Ha		MAX INT °	
MCMA	MAR 1965	12 1528	1539	N29 E47	7718		1-	1 C	1535	.20	.40			DH	
		12 1530	1541	N29 E50	7718		1-	1-	1533	.16	.30			D	
		12 1532 E	1537 D	N28 E50	7718		1-	P	1533	.16	.30			DC	
		12 1618	1626	N29 E46	7718		1-	1 C	1624	.20	.40			DH	
		12 1621	1634	N28 E49	7718		1-	1 C	1625	.25	.46			D	
		12 1621	1636 U	N28 E46	7718		1-	1 C	1625	.37	.52		17	DH	
		12 1651	1704	N28 E46	7718		1-	1 C	1652	.20	.40				
		12 1651	1707	N31 E49	7718		1-	1 C	1652	.20	.40				
		12 1651	1707	N31 E47	7718		1-	1 C	1652	.20	.40				
		12 1939	1956	N27 E44	7718		1-	3	1947	.20	.30			H	
		12 2010	2020	N30 E45	7718		1-	3	2011	.50	.75				
		12 2012	2035	N28 E43	7718		1-	3	2016	.40	.60			H	
		12 2046	2054 D	N27 E43	7718		1-	3	2050	.20	.30			H	
		12 2102	2112 D	N27 E43	7718		1-	2	2107	.20	.30				
		12 2140	2200	NO FLARE											
		12 2213 E	2224	PATROL											
					N28 E42	7718		1-	4	2215	.40	.60			
SACP	13 2050	2106	2054	N31 E34	7718		1-	C		.92	1.17		20		
LOCK	14 1845	1905	1855	N50 W75			1-	C	1855	.10	.50		10		
OTTA	15 1420	1445	1422	N25 W14	7720		1-	C	1422	.11	.12			H	
MCMA	16 1633	1705		N31 E03	7718		1-	2 P	1636	.30	.40			DH	
MCMA	16 1826 E	1847 D		N32 W02	7718		1-	1 P	1830	.20	.20			SLH	
	17 0210	0230	NO FLARE	PATROL											
	18 0825 E	0928 D		N30 W23	7718	63 D	1	S	0938	4.00	3.11		141		
	18 0830	1200 D	0938	N27 W27	7718	210 D	1	2	0925	2.24	1.05				
	18 0858 E	1000 D		N28 W26	7718		1-	3	0943	1.05	1.41			CFHJKR	
	18 0941 E	0959		N28 W24	7718		1-	C	1013	2.10	2.80	1.70		J	
	18 1000	1058	1013	N29 W26	7718	58	1	C	1013	2.10	2.80			J	
	18 1127	1208	1140	N29 W26	7718	41	1	C	1140	1.80	2.50		112		
	18 1140 E	1200 D	1143	S11 E27	7727		1-	S	1143	.84	.94				
	18 1206 E	1254 D		N29 W26	7718	48 D	1	C		4.00	2.20			J	
	18 1225	1240	1228	N29 W26	7718	15	1	C	1228	1.60	2.20			J	
	18 1307	1324	1310	N29 W24	7718	17	1	C	1310	2.10	2.80		18	J	
	18 1324 E	1350	1335 U	N28 W28	7718		1-	C	1341	1.61	1.88			J	
	18 1335	1417	1341	N29 W27	7718		1-	C	1341	1.00	1.40			J	
	18 1414 E	1517 D		N28 W28	7718		1-	1 P	1429	.70	1.00			F	
	18 1811 E	1816		N29 W31	7718		1-	1 P	1813	.18	.26			D	
	18 1915	1956	1932	N27 W32	7718		1-	C		.92	1.10		17		
	18 2315	2324	2318	S31 W03			1-	C	2318	.20	.22			CGH	
	19 0006	0012		N28 W36	7718	6	1	C					100	E	
	19 0110 E	0128 D		N28 W32	7718		1-	V	0124	.80	1.10	1.18	80	D	
	19 0940	1000 D	0941	N29 W36	7718	20 D	1-	S	0941	1.40	2.25		132	HGD	
	19 2356	0015	0004	S12 E08	7727		1-	C							
	20 0210	0233	0219	S12 E08	7727		1-	3	0219	.50	.50			F	
	20 0755 E	0800 D		N20 E75	7732		1-	1	0755	.50	1.70		190	DG	

COMMERCE - STANDARDS - BOULDER

SOLAR FLARES

MARCH 1965

OBSERVATORY	DATE	OBSERVED UNIVERSAL TIME		LOCATION			DURA- TION — MINUTES	IM- POR- TANCE	OBS COND.	MEASUREMENTS			REMARKS			
		START	END	MAX. PHASE	APPROX					MAGNITUDE FLARE REGION	TIME U T	MEAS AREA Sq Deg		CORR AREA Sq Deg	MAX WIDTH Ha	MAX INT %
					LAT	MER DIST										
ARCE _____ HALE _____ SACP _____ LOCK _____ HALE _____ SACP _____ HALE	MAR 1965	20 0820 E	0850 D		N25 E80	7732	1-	1-	2	0823	.29	.93				
	20 0910 E	0923 D		N25 E80	7732	1-	1-	2	0910	.26	.83					
	20 1818	1820	1819	N31 W55	7718	1-	1-	4	1819	.10	.20		17			
	20 1818	1820	1819	N32 W54	7718	1-	1-	C		.29	.48		10			
	20 1856	1920	1903	S11 W01	7727	1-	1-	C	1903	.30	.30		10			
	20 1858	1917	1907	S13 W02	7727	1-	1-	3	1907	.40	.40		18	H		
	20 1860	1924 U	1909	S12 W02	7727	1-	1-	C		.72	.71					
	20 2053	2113	2100	N27 W60	7718	1-	1-	4	2100	.30	.50					
	21 0500	0528	0508	N25 E64	7732	28	1	C	0508	1.00	3.00			G		
	21 2119	2133	2127	N28 W70	7718	14	1	C	2128	.60	3.00			G		
CULG _____ LOCK _____ CULG	21 2204	2224	2211	N28 W75	7718	1-	1-	C	2211	.30	.90		10			
	21 2206	2219	2208	N29 W70	7718	13	2	C	2208	1.20	6.00			G		
	22 0500	0510	NO FLARE	PATROL			1	S	1026	.64	3.64		112	GD		
CATA MITK	22 1013 E	1200 D	1026	N28 W90	7718	107 D	1-	C								
	22 2325	2337	2331	N23 E40	7732											
LOCK	23 1420	1430	NO FLARE	PATROL			1-	C	2314	.30	1.50		20			
	23 2310 E	2320 D	2314	N12 W90												
SACP _____ HUAN _____ OTTA	24 1620	1650 D	1625	N11 E73	7735		1-	C		.38	.84		17	D		
	24 1623	1646	1626	N08 E74	7735		1-	C	1626	.10	.19					
	24 1646 E	1653 D		N17 E41	7737		1-	C	1650	.16						
	24 2025	2030	NO FLARE	PATROL												
	24 2040	2115	NO FLARE	PATROL												
KAND _____ OTTA _____ CAPE _____ SACP _____ HUAN _____ OTTA _____ HUAN _____ HUAN _____ HUAN _____ HALE _____ LOCK	25 1229	1238 D	1230	N11 E67	7735		1-	C		2.07	3.23		E			
	25 1246	1347	1327	N10 E62	7735	61	1	C	1327	.80	1.70					
	25 1314	1336	1325	N09 E62	7735		1-	C	1325	.86	1.42		17			
	25 1318	1341	1324	N09 E63	7735		1-	C		.25	.55			D		
	25 1323	1343	1328	N08 E62	7735		1-	C	1328	.69	1.08			D		
	25 1350	1403	1354	N10 E62	7735		1-	C	1354	.10	.22			D		
	25 1352	1401	1356	N08 E62	7735		1-	C	1356	.90	1.90					
	25 1352	1407	1355	N09 E62	7735		1-	C	1355	.34	.51		18			
	25 1606	1631	1612	N10 E58	7735		1-	C		.17	.25			HJ		
	25 1608	1627	1613	N10 E58	7735		1-	C	1613	.18	.36			D		
	25 1612 E	1613 D		N08 E59	7735		1-	P	1613	.30	.60			H		
	25 1621 E	1634		N08 E59	7735		1-	P	1625	.42	.84					
	25 1638	1649 D	1642	N09 E59	7735		1-	P	1642	.40	.60					
	25 1811 E	1833	1813	N09 E56	7735		1-	3	1813	.40	.60		10	J		
	25 2223	2250	2235	N09 W53	7735		1-	C	2235	.40	.60					
MITK _____ MANI _____ SACP _____ VORO _____ CULG _____ SIBE _____ MITK _____ MITK	26 0001 E	0016	0012	N10 E52	7735		1	V	0012	1.01	1.80	2.49	125			
	26 0003 E	0020		N11 E58	7735		1-	1	0005	.67	.97					
	26 0015	0048	0015 E	N09 E55	7735		1-	P		1.44	2.02		28			
	26 0005 E	0018		N24 E55	7739		1-	P	0006	3.06	1.60		59	E		
	26 0132	0140	0134	N14 E54	7735		1-	C	0134	.40	.76					
	26 0206	0400 D	0333	N08 E52	7735	114 D	1	C	0333	1.80	3.00		17	CD		
	26 0255	0315	0300	N10 E51	7735		1-	C						D		
	26 0323	0353 D	0337	N10 E52	7735		1	C						D		

SOLAR FLARES

MARCH 1965

OBSERVATORY	DATE	OBSERVED UNIVERSAL TIME		LOCATION		DURA- TION — MINUTES	IM- POR- TANCE	OBS COND.	TIME — UT	MEASUREMENTS			REMARKS
		START	END	APPROX. LAT.	MATHS PLACE REGION					MEAS. AREA Sq. Deg	CORR. AREA Sq. Deg	MAX WIDTH He	
	MAR 1965												
— CULG	26	0325	0359	N09 E51	7735	34	1	C	0338	1.80	3.15		
— CULG	26	0505	0525	N09 E51	7735	20	1	C	0513	2.60	4.42		DJ
— ABST	26	0505	0612	N09 E55	7735	67	1	C	0511	4.60	3.90		
— MANI	26	0508	0549	N11 E55	7735	41 D	1	2	0513	1.60	2.24		
— CULG	26	0509	0608	N09 E54	7735	59	1	C	0530	1.60	2.96		
— ARCE	26	0810	0842	N13 E50	7735	32 D	1	3	0817	1.93	2.97		
— CAPE	26	0815	0828	N10 E51	7735		1-	C	0817	.80	1.40		
— CAPS	26	0816	0829	N08 E47	7735	13	1-	3	0819	1.50	2.40	200	EHJ
— MANI	26	0816	0831	N11 E54	7735		1-	2	0819	.33	.46		
— CAPF	26	0821	0834	N08 E50	7735	13 D	1	2		.33	.44		
— MANI	26	0850	0913	N11 E53	7735		1-	2	0858	.60	1.00		J
— CAPE	26	0850	0925	N10 E51	7735	35	1	2	0855	2.00			
— CAPF	26	0852	0919	N08 E48	7735	27	1	2		1.01	1.55		
— ARCE	26	0855	1000	N13 E50	7735		1-	2	0951	1.00	1.50		
— SALT	26	0945	1010	N10 E48	7735		1-	3	0950	1.00	1.60		J
— CAPE	26	0947	1010	N10 E50	7735		1-	C		.60	1.00	150	CJ
— CAPS	26	0949	1005	N08 E46	7735	15 D	1-	3	1000		3.00		
— CAPF	26	1000	1015	N09 E49	7735		1-	2		1.02	1.64	151	
— CATA	26	1000	1130	N10 E50	7735		1-	S	1007	1.80	2.60	216	FFJ
— CAPS	26	1314	1336	N08 E45	7735	22	1	3	1324	1.67	2.03	28	
— SACP	26	1314	1336	N09 E45	7735		1-	C		1.10	1.70		
— CAPE	26	1315	1335	N10 E48	7735		1-	C	1320	.68	.84	21	
— SACP	26	1429	1455	N10 E46	7735		1-	C		.70	1.10	190	EJ
— CAPS	26	1430	1444	N08 E46	7735		1-	3	1435	1.00	1.60		
— CAPE	26	1430	1453	N10 E48	7735		1-	C	1433	.16	.25		D
— HUAN	26	1537	1547	N09 E45	7735		1-	C	1541	.76	.90	19	
— SACP	26	2036	2058	N11 E42	7735		1-	C		1.10	2.13		EF
— OTTA	27	1220	1421	N12 E34	7735	121	1	C	1229	1.30	1.70		
— CAPE	27	1222	1253	N11 E36	7735		1-	C	1226	1.90	2.50	190	CE
— CAPS	27	1227	1310	N09 E38	7735	43 D	1-	3	1231	.40	.50		E
— MCMA	27	1302	1345	N12 E38	7735		1-	2	1308				
	28	0000	0010	PATROL									
— OTTA	28	1526	1552	N24 E90			1-	C	1539	.29	.20		D
— MCMA	28	1844	1853	N12 E20	7735		1-	2	1845	.40	.40	10	
— LOCK	28	2232	2245	N18 W32			1-	C	2236				
— SACP	29	0040	0058	N01 W66	7736		1-	C		.60	1.02	18	
— OTTA	30	1541	1549	N09 E67			1-	C	1545	.11	.21		
— OTTA	30	1703	1710	N15 E23			1-	C	1707	.15	.15		H
— SACP	30	2247	2304	N12 W17	7735		1-	C		.34	.34	17	
	31	0120	0135	PATROL									
— SACP	31	2220	2225	PATROL									

COMMENCE - STANDARDS - BOULDER

INTERVALS OF NO FLARE PATROL OBSERVATIONS

MARCH 1965

Observatories included:

Abastumani	Capri-F (German)	Herstmonceux	Kiev-Ko	Mitaka	Tachkent
Arcetri	Capri-S (Swedish)	Huancayo	Kodaikanal	Ondrejov	Tortosa
Arosa	Catania	Ikomasan	Locarno	Ottawa	Uccle
Athènes	Climax	Istanbul	Lockheed	Sacramento Peak	Voroshilov
Bakou	Culgoora	Izmiran	Lvov	Salonique	Wendelstein
Bucharest	Haleakala	Kandilli	Manila	Siberie	Wroclaw
Capetown	Haute-Provence	Kanzelhöhe	McMath-Hulbert	Simeiz	Zürich

IONOSPHERIC EFFECTS OF SOLAR FLARES

1110

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

MAY 1965

MAY 1965	UNIVERSAL TIME			TYPE SWF IMP	IMPORTANCE						BUR	WIDE SPREAD INDEX	STATIONS	KNOWN FLARE
	START	END	MAX		ABS	SCNA	SEA	SPA	SES	SFD				
01	1426	1444	1431							002		1	BO(WWV15-0.16 WWV10-0.15)	1426
01	1429	1447	1433	S 1			1					1	PU	
01	1429	1449	1434									1	PU	
02	0045	0100		S 1			1					4	HA TY	0045
02	0045	0105		1								4	TO MA	
02	0046	0054	0052		21							4	MA HA	
02	0047	0150	0053	S 2				99				1	MA(NPG-100)	1207
02	1210	1240										1	PU	
03	2147	2152									1	4	BO HA	
03	2156	2200									1	4	HA BO	
03	2207	2210									1	4	BO HA	
03	2210	2215									1	4	BO HA	
06	0027	0035									1	4	HA MA	
07	0040	0111									1	3	HA MA	0045
09	0242	0249									1	4	MA HA	
13	1510	1512									1	4	BO RO	
15	1827	1855	1840	SL 1+			2					5	A5 A1 A2 A3	
15	1830	1855	1836									5	MC BO HU	
15	1830	1900	1840					18				1	BO(NSS88-18NSS21-18)	
15	1831	1910	1838						1			3	MU(WWVL) A3 A18	
16	0412	0445	0422	S 1+								3	OK	
16	0413	0530	0427						32			1	MA(NPG-32)	
16	0415	0451	0428				1					3	TY	
16	0905	0938		S 3								1	PU	
16	0908	0938	0917				1						PU UC	
16	1905	2000	1915					30				5	BO(NSS88-30NSS21-15 NAA18-18)MA(NPG18-18) MU(WWVL)	1925E
16	1906	1911	1907							002		1	BO(WWV10-0.2WWV15-0.1)	
16	1908	1920	1913		6	1						5	BO HA	
16	1908	1950	1916				1					5	A1 BO HA A2 A3	
16	1908	1950	1916									5	A1 BO HA A2 A3	
16	1910	1922	1915	S 1								5	MC HU TR WS	
16	1910	1946	1916						1			1	A3	
17	1858	1904	1902							004		1	BO(WWV10-0.4WWV15-0.3 KKE5-0.3KKE4-0.2)	1858
17	2040	2041	20400							004		1	BO(WWV15-0.4)	
17	2155	2157									1	4	HA BO	
18	0051	0053									1	4	MA HA	
18	1850	1905	1856							006		1	BO(WWV10-0.6WWV15-0.3 KKE5-0.2KKE4-0.1)	1844
19	1920	1922									1	4	HA BO	1902
19	1925	1927									1	4	HA BO	
19	2008	2011									1	4	HA BO	
19	2304	2306									1	4	BO HA	

IONOSPHERIC EFFECTS OF SOLAR FLARES

SHORT WAVE RADIO FADEOUTS
 SUDDEN COSMIC NOISE ABSORPTION
 SUDDEN ENHANCEMENTS OF ATMOSPHERICS
 SOLAR NOISE BURSTS AT 18 Mc/s

SUDDEN PHASE ANOMALIES
 SUDDEN ENHANCEMENTS OF SIGNAL
 SUDDEN FREQUENCY DEVIATIONS

MAY 1965

MAY 1965	UNIVERSAL TIME			TYPE SWF IMP	IMPORTANCE						WIDE SPREAD INDEX	STATIONS	KNOWN FLARE
	START	END	MAX		ABS	SCNA	SEA	SPA	SES	SFD			
-20	0000	0100	0016	S 1-				40			1	MA(NPG18-40)	0001
-20	0001	0032	0023								5	MA OK WS	
-20	0002	0004									4	MA HA	
-20	0005	0037	0013					47			1	MA(NPG-47)	
-20	0007	0010									4	HA MA	
-20	0007	0031		S 2			1				1	TY	2320
20	0030	0033									4	HA MA	
20	0053	0056									4	MA HA	
20	0205	0207									4	HA MA	
20	2107	2109									4	HA BO	
-20	2318	0026		S 2						036	5	TO BO	2320
-20	2320	2328	2321								1	BO(KKE4-3.6WWV10-3.4 WWV15-2.2KKE5-2.2)	
-20	2321	2329	2329					99			1	MA(NPG18-108)	
-20	2322	2335	2324		20	1					5	BO HA MA	
-20	2322	2346					1				5	BO HA TY	
21	0257	0302									1	4 MA HA	
-22	1942	1945D	1943	S 1-					2	003	1	BO(WWV10-0.3WWV15-0.2)	1943
-22	1943	1958	1950								1	A3	
-22	1950	2010									5	MC FM WS	
-22	1959	2004	2001							004	1	BO(WWV10-0.4WWV15-0.1)	
22	2246	2249	2247D							004	1	BO(WWVH15-0.4)	
23	1805	1809		SL 1							1	4 HA BO	1806
23	1905	1910									2	4 BO HA	
23	1925	1929									1	4 HA BO	
24	1954	1955									1	4 BO HA	
24	2057	2100									1	4 BO HA	
25	0340	0420	0358	S 1-							1	OK	0338
25	1513	1516									5	RO BO	
25	1956	1958									5	HA BO	
25	2004	2012									5	HA BO RO	
25	2116	2119									5	BO HA	
25	2119	2125		S 1-							5	BO HA	2209
25	2200	2205									5	BO HA RO MA	
25	2209	2214									5	BO HA RO	
25	2242	2245D	2243							014	1	BO(WWV10-1.4WWV15-1.0 KKE4-1.0)	
-25	2242	2247									3+	5 BO HA MA RO	
-25	2242	2252		S 1-				36			1	TO	2242
-25	2242	2310	2247								1	MA(NPG18-36)	
-26	0458	0508									4	MA RO	
-26	0504	0530	0510					30			1	MA(NPG18-22) SE(GBR16-30)	
-26	0506	0521	0510								1	MA	
26	0912	0915		S 1-							1	4 RO MA	0855E
27	1406	1412									2	5 RO BO	
28	0202	0204									2	5 MA HA	
28	1850	1855									2	5 BO HA	

COMMERCE - STANDARDS - BOULDER

Two new reporters were added this month. A18 = Scituate, Mass. SE = Seychelles I.

RIOMETER EVENTS

IIIq

MAY 1965

FROBISHER BAY

30 Mc/s

MAY 1965	START UT	END UT	MAX. UT	MAX. ABSORP. db, (tenths)	NO. OF PEAKS	MAY 1965	START UT	END UT	MAX. UT	MAX. ABSORP. db, (tenths)	NO. OF PEAKS
1	*					7	***				
2	**					8	*				
3	**					9	*				
4	*					10	0040	0532	0250	16	3
5	0229	0329	0249	8	1	11	*				
5	2320	0010	2348	6	2	12	0150	0404	0308	18	2
6	**					13	1150	1320	1242	15	3

* No Event
** No Data

The Frobisher Bay riometer ceased operation on May 13, 1965.

SOLAR RADIO EMISSION OUTSTANDING OCCURRENCES

JUNE 1965

ARO-OTTAWA
DRAO-PENTICTON

2800 Mc/s
2700 Mc/s

JUN 1965	U R A N E	DESCRIPTIVE TYPE	START UT	DURATION HRS MIN	MEAN FLUX	MAXIMUM		REMARKS
						TIME	FLUX	
2	3	Simple 3	1810	1 25	0.5	1905	1.0	
4	3	Simple 3A	1455	55	1.0	1505	2.0	
	1	Simple 1	1505.5	03.5	1.0	1507	1.4	
4	3	Simple 3	1910	2 30	1.1	1922	2.2	
5	3	Simple 3A	1807	1 03	2.5		5.0	
	6	Complex F	1808.8	06.3	28.0	1813	40.0	
		1st Compt.	1808.8	02.5		1809.5	24.0	
		2nd Compt.	1811.5	03.5		1813	40.0	
	2	Simple 2F	1820.5	08.5	22.0	1821.3	50.0	
7	1	Simple 1	0121	03	0.5	0123	1.0	
8	3	Simple 3A	2239	32	0.6	2249	1.2	
	1	Simple 1	2239	02	1.0	2240.5	2.0	
	1	Simple 1	2241.5	01	0.6	2242	1.2	
10	3	Simple 3	1250	5 00	0.7	Indet	1.4	
		Rise	2045	> 5 00			1.4	
12		Rise Only	1745	20			2.6	
13		Rise	2330	> 2 15			1.2	
15	3	Simple 3	1140	2 50	0.9	1225	1.8	
17	3	Simple 3	1550	1 20	0.3	Indet	0.6	
28	3	Simple 3	b1150	> 50		Indet	3.0	
30	3	Simple 3	2015	1 45	0.7	2030	1.4	

COMMERCE - STANDARDS - BOULDER

HOURS OF OBSERVATION, APRIL, MAY, JUNE 1965

OBSERVING PERIOD:

April 1120 - 0150 UT
May 1050 - 0140 UT
June 1045 - 0140 UT

With the following exceptions:

(1) Observations commenced: April 4 at 1330 UT
9 at 1215 UT
11 at 1215 UT
12 at 1215 UT
25 at 1215 UT

May 8 at 1210 UT
9 at 1200 UT
10 at 1210 UT

(2) Observations ended: April 26 at 2320 UT

(3) Interruption of observations, approximately 20 minutes in duration, for calibration purposes in the period 1400 to 1500 UT on April 1 to 15.

SOLAR RADIO EMISSION INTERFEROMETRIC OBSERVATIONS

IVb

MAY 1965

BOEING - SEATTLE

223 Mc/s

May 1965	Type of Event	Start UT	End UT	Max UT	Flux Density at Time of Maximum $10^{-22} W_m^{-2} (cps)^{-1}$
2	Major burst	1734.2	1737.7	1736.2	112
2	Series of bursts	2230	2232	2231	27
7	Noise storm	1600	2000		
11	Minor burst			2042.4	53
17	Series of bursts	1540	0100	2053.4	42
18	Series of bursts	1645	0050		
18	Minor burst	2335.3	2340.4	2339.4	48
19	Noise storm	1530	2055		
20	Noise storm	1600	0200		
21	Noise storm	1550	0200		
22	Noise storm	1630	0230		
23	Series of bursts	1610	2000	1907	300
23	Noise storm	2115	0240		
24	Series of bursts	2100	0030	2254	200
25	Series of bursts	2006	2315	2209.5	150
25	Major burst	2241.2	2244.5	2242.1	400

COMMERCE - STANDARDS - BOULDER

Note: The equipment was down on May 19, 1965 from 2205 to 2252 UT.

Normal observing hours were from 1600 UT to 0230 UT.

SOLAR RADIO EMISSION OUTSTANDING OCCURRENCES

JUNE 1965

NBS BOULDER

108 Mcs

June 1965	TYPE	START UT	TIME OF MAXIMUM UT	DURATION MINUTES	INTENSITY
5	9A	1813	-	1.9	≥ 2
	9B	1820	~1822	9	≥ 2

COMMERCE - STANDARDS - BOULDER

NOMINAL TIMES OF OBSERVATION

JUNE 1965

NBS BOULDER

108 Mcs

June 1965	HOURS OF OBSERVATION U.T.	HOURS OF INTERFERENCE U.T.	June 1965	HOURS OF OBSERVATION U.T.	HOURS OF INTERFERENCE U.T.
1	1138-0200	1738-2347	16	1800-0208	1800-0208
2	1138-0201	2210-0201	17	1136-0208	1832-0208
3	1138-0201	1138-1325; 2322-0045	18	1136-0208	2024-0035
4	1137-0202	1630-0202	19	1136-0209	2002-2020
5	1137-0202		20	1136-0209	
6	1137-0203	2333-0043	21	1136-0209	2049-0038
7	1136-0204	1800-2251	22	1136-1939; 2016-0209	
8	1136-0204	2316-0204	23	1136-0210	1850-2333
9	1136-0205	1925-0016	24	1137-0210	1838-2035
10	1136-0205	2022-2343	25	1137-0210	2307-2315
11	1136-0206	2100-0206	26	1137-0210	
12	1136-0206		27	1138-0210	
13	1135-2142	2123-2142	28	1138-0210	
14	- -		29	1139-0210	
15	- -		30	1139-0210	1852-0210

COMMERCE - STANDARDS - BOULDER

Note: Most of the interference due to atmospherics.

SOLAR RADIO EMISSION SPECTRAL OBSERVATIONS

IVd

JUNE 1965

High Altitude Observatory
Boulder

7.6-41 Mc/s

Date June 1965	Bursts			Frequency Range (Mc/s)	Date June 1965	Bursts			Frequency Range (Mc/s)
	Type	Time (U.T.)	Inten- sity			Type	Time (U.T.)	Inten- sity	
2 June	III	1826:45-1827	1-	25-41	8 June	III	2229:30-2229:45	1-	28-41
3	III	1740:15-1741:30	2	23-41	9	III	2033-2033:30	1+	20-41
	III	1744-1744:45	2	25-41	10	no observ.	1100-1539		
	III	2132:15-2132:45	1-	20-41	14	no observ.	1100-1312		
4	no observ.	1100-1159			15	no observ.	1545-2400		
5	III	1812:30-1815:45	3	8-41	16	no observ.	1400-1918		
	II	1818-1847	3	15-41	22	no observ.	1100-1145		
	III	1821-1825:15	2	8-41	23	no observ.	1100-1140		
	IV	1822-1833	2	21-41		III	1535:15-1537:30		8-41
	III	2111:30-2111:45	1-	24-32		III	1539:30-1539:45	2	33-41
	III	2229:15-2229:45	1-	16-37		III	1539:45-1540	2	33-41
6	III	2333:15-2333:45	1-	25-35	28	III	1833:45-1835	2	8-41
7	III	0003:30-0004	1	22-38					
	III	0004:15-0004:30	1-	27-35					
8	III	2209:30-2210	1	21-41					

ORIGINAL - PHOTOCOPIED - 1964.622

SOLAR RADIO EMISSION SPECTROHELIOGRAMS

IVc

STANFORD

JUNE 1965

9.1 cm

Stanford, 1965 June 1, 20-21 hrs UT, Brightness Unit = 2.0×10^{-3} W/m² K

Stanford, 1965 June 04, 20-21 hrs UT, Brightness Unit = 2.1×10^{-3} W/m² K

Stanford, 1965 June 05, 20-21 hrs UT, Brightness Unit = 1.5×10^{-3} W/m² K

1965 JUNE 05

Stanford, 1965 June 05, 20-21 hrs UT, Brightness Unit = 2.2×10^{-3} W/m² K

Stanford, 1965 June 05, 20-21 hrs UT, Brightness Unit = 1.5×10^{-3} W/m² K

SOLAR RADIO EMISSION SPECTROHELIOGRAMS

JUNE 1965

STANFORD

9.1 cm

SOLAR RADIO EMISSION SPECTROHELIOGRAMS

IVg

JUNE 1965

9.1 cm

STANFORD

Stanford, 1965 June 16, 9-10 hrs UT, Brightness Unit = $1.0 \times 10^{-5} \text{ W/m}^2/\text{MHz}$.

SOLAR RADIO EMISSION SPECTROHELIOGRAMS

JUNE 1965

9.1 cm

STANFORD

IVh

SOLAR RADIO EMISSION SPECTROHELIOGRAMS

11 JUL 1965

STANFORD

COSMIC RAY INDICES

(Neutron Monitors)

MAY 1965

May 1965	CHURCHILL	CLIMAX	DALLAS
	DAILY AVERAGE COUNTS PER HOUR	DAILY AVERAGE COUNTS PER HOUR	DAILY AVERAGE COUNTS PER HOUR
1	6622.6	3385.4	6721.5
2	6617.4	3385.5	6707.8
3	6646.0	3406.5	6713.2
4	6642.1	3403.0	6705.3
5	6639.6	3419.1	6722.7
6	6617.5	3410.2	6707.4 (23)
7	6622.7	3415.6	6713.3
8	6644.9	3415.7	6712.9
9	6627.0	3410.7	6711.9
10	6655.7	3409.7	6690.2
11	6686.3	3402.0	6710.0
12	6698.9	3408.0	6716.1
13	6691.1	3416.3	6702.8
14	6675.1	3412.8	6713.3
15	6678.2	3402.0	6688.9
16	6647.0	3394.2	6673.4
17	6621.5	3388.3	6665.6
18	6606.3	3383.5	6663.3
19	6634.3	3385.2	6672.8
20	6633.8	3382.8	6669.5
21	6602.0	3378.0	6662.5
22	6604.5	3381.6	6655.9
23	6586.7	3387.5	6647.7
24	6594.3	3396.6	6652.5
25	6596.0	3391.5	6648.7
26	6601.5	3384.1	6655.6
27	6595.8	3362.2	6637.6
28	6592.6	3362.4	6624.2
29	6591.1	3351.6	6631.0
30	6580.3	3346.8	6621.8
31	6583.3	3352.4 (38)	6625.6

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)**

GEOMAGNETIC ACTIVITY INDICES

MAY 1965

May 1965	C	Values Kp								Sum	Ap	Final Selected Days
		Three hour Gr. interval										
		1	2	3	4	5	6	7	8			
1	0.1	1+	1-	1-	1+	1-	1-	1o	1-	7o	4	Five Quiet
2	0.0	1-	0o	0o	0o	0+	1-	0+	1-	3-	2	
3	0.0	1o	1-	1-	0+	1o	1o	0o	0+	5o	3	
4	0.3	0+	1+	1-	1-	0+	2-	1+	2o	8+	4	
5	1.3	4+	5o	5+	3+	2+	3+	2+	3+	29+	26	
6	0.4	2o	1-	2+	1o	2o	1o	1+	2+	13-	6	11
7	0.4	3o	2+	1-	1+	1o	0+	1+	0o	10o	5	13
8	0.9	1o	1o	1+	2-	1+	3-	3+	4+	17-	11	14
9	0.9	4+	4-	2-	1+	1+	1-	2o	3-	18-	12	19
10	0.5	3o	2+	3-	2-	1-	1-	1+	2-	14o	7	
11	0.0	0+	0o	0o	0+	0+	1-	1-	1o	3+	2	Five Disturbed
12	0.3	2o	2+	1+	1o	1-	0+	0+	1o	9o	4	
13	0.1	0o	0+	1-	1-	1-	1o	1-	1o	5o	3	
14	0.2	1-	1-	0+	0+	1-	1-	1o	0+	5-	3	
15	0.3	1+	0+	0+	1o	1o	1o	1+	2o	8+	4	
16	1.1	2+	3-	3+	4-	5+	2+	1+	2+	23+	18	5
17	0.3	2-	2o	2o	1+	1o	1o	1+	0+	11-	5	8
18	0.2	1-	2o	1-	1-	0+	1o	1o	1+	8-	4	9
19	0.0	1-	1-	1-	1o	0+	0+	0o	1-	4+	2	10
20	0.2	0+	1-	0+	0+	1o	2-	1o	2-	7o	4	16
21	0.4	2-	1+	0+	1-	1+	2-	2o	2o	11o	5	Ten Quiet
22	0.4	2o	2-	1o	1o	1-	2o	2+	1+	12o	6	
23	0.3	1+	1o	2+	1o	1o	1o	0+	2o	10o	5	
24	0.4	2-	1o	2+	1o	1o	2o	2+	1o	12+	6	
25	0.1	0+	0+	1-	1-	1-	1o	1o	1-	5+	3	
26	0.3	1-	1o	1o	1-	0+	1o	2-	2o	8+	4	1
27	0.4	2+	2-	1o	1+	1o	2o	1+	2-	12+	6	2
28	0.4	1-	1o	0+	2o	2o	2+	2-	1-	11-	5	3
29	0.1	1o	0+	1-	0+	1o	1o	1-	1o	6o	3	11
30	0.1	1-	1-	0+	1-	1o	1o	1-	0+	5+	3	13
31	0.3	1-	1-	1o	2-	1+	1o	1o	1-	8o	4	14
Mean: 0.35												Mean: 6

NORTH ATLANTIC, NORTH PACIFIC

MAY 1965

MAY 1965	WHOLE DAY INDICES				NORTH ATLANTIC								NORTH PACIFIC				GEOMAGNETIC INDICES							
					6 - HOURLY				SHORT-TERM FORECASTS				6 - HOURLY				K _{PR}		A _{PR}		K _{SI}		A _{SI}	
					QUALITY FIGURES				ISSUED ABOUT ONE				QUALITY FIGURES											
	NORTH ATLANTIC	NORTH PACIFIC	AVERAGE HIGH LATITUDE	FOR WHOLE DAY	00 TO 06	06 TO 12	12 TO 18	18 TO 24	00	06	12	18	00 TO 06	06 TO 12	12 TO 18	18 TO 24	HALF (1)	DAY (2)	08 - SERVED	PRE-OICTED	HALF (1)	DAY (2)		
1	6+	6	6	6	6+	6-	7-	7o	6	6	7	7	6	6	6	6	1	1	3	5	1	1	2	
2	6+	6	6	6	6+	6-	7o	7-	6	6	7	7	6	6	7	6	0	1	1	5	0	0	1	
3	7-	5	6	6	7-	6o	7-	7o	7	6	7	7	6	5	5	6	1	0	2	6	0	0	1	
4	7-	5	6	6	7-	6-	7-	7o	7	6	7	7	6	6	5	6	1	1	4	6	1	1	3	
5	6+	6	6	6	6o	6o	6+	7-	7	5	6	7	6	5	6	5	(4)	2	19	5	(4)	2	24	
6	6o	6	6	6	6o	5o	6+	7-	6	5	6	7	6	6	7	6	2	2	6	9	1	1	5	
7	6+	6	6	6	6+	6-	7-	7-	6	5	7	7	5	4	7	6	2	1	4	6	2	0	5	
8	6+	6	6	6	6+	6+	6+	7-	6	6	7	7	6	5	7	6	2	3	10	6	2	2	7	
9	6o	6	6	6	6-	6o	6+	6+	6	5	6	7	6	6	7	5	3	2	11	6	2	1	6	
10	6+	6	6	6	6o	6-	7-	7-	6	5	7	7	6	6	7	6	3	1	7	5	3	0	8	
11	6+	6	6	6	7-	6o	7-	7-	6	6	7	7	6	6	6	6	0	1	2	4	0	0	1	
12	6+	6	6	7	7-	6-	7-	7-	7	6	7	7	6	6	7	5	2	1	5	3	2	0	4	
13	7-	6	6	7	7-	6+	7-	7o	7	6	7	7	6	6	6	6	1	1	2	5	1	0	3	
14	6+	6	6	6	7-	6-	7-	7-	7	6	7	7	6	6	7	5	1	1	2	7	0	0	1	
15	6+	6	6	6	7-	5o	7-	7-	7	6	7	7	6	6	6	6	1	2	5	11	1	1	3	
16	6+	6	6	6	6+	6-	6+	6+	6	6	6	6	6	6	6	5	3	3	18	9	3	2	18	
17	6+	6	6	6	6-	6o	7-	7o	6	5	7	7	6	6	6	6	2	1	6	7	2	1	6	
18	7-	6	6	6	7-	6o	7-	7o	7	6	7	7	6	6	7	6	2	1	5	5	1	1	4	
19	7-	6	6	7	7-	6o	7-	7-	7	6	7	7	6	6	6	6	1	0	2	3	1	0	2	
20	7-	6	6	7	7-	6+	7-	7o	7	6	7	7	6	7	6	6	1	2	5	5	0	1	2	
21	7-	7	7	7	7-	7-	7-	7o	7	6	7	7	7	7	7	6	1	2	5	5	1	1	3	
22	7-	7	7	6	7-	6-	7-	7o	7	6	7	7	7	7	7	6	1	2	5	8	2	2	5	
23	7-	7	7	5	7-	6+	7-	7-	7	6	7	7	7	6	7	7	2	1	7	25	2	0	5	
24	7-	7	7	5	7-	6+	7-	7-	7	6	7	7	7	7	7	6	2	2	7	20	2	1	5	
25	7-	7	7	5	7-	6o	7o	7-	7	6	7	7	7	7	8	8	0	1	2	8	0	0	1	
26	7-	7	7	6	7-	6+	7o	7o	7	6	7	7	6	7	8	6	1	2	5	6	1	1	3	
27	7-	7	7	7	7-	6+	7-	7-	7	6	7	7	7	7	7	7	2	1	6	6	2	1	4	
28	7-	7	7	7	7-	6+	7-	7o	7	6	7	7	6	7	7	6	1	2	5	4	1	2	4	
29	7-	7	7	7	7-	6o	7-	7o	7	6	7	7	6	7	7	7	1	1	4	3	0	0	1	
30	7-	7	7	7	7-	6+	7-	7+	7	6	7	7	6	7	7	6	1	1	3	5	0	0	2	
31	7-	7	7	7	7-	6+	7o	7o	7	6	7	7	6	7	7	6	2	1	4	7	2	1	5	
SCORES																								
QUIET PERIODS: P									29	24	30	30												
S									6	7	1	1												
U									3	0	0	0												
F									0	0	0	0												
DISTURBED PERIODS: P									0	0	0	0												
S									0	0	0	0												
U									0	0	0	0												
F									0	0	0	0												

COMMERCE - STANDARDS - BOULDER

NOTES:

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

NORTH ATLANTIC

MAY 1965

— Short-term forecast

o Quality figure

I Range of reports

HIGH LATITUDE

MAY 1965

COMMERCE - STANDARDS - BOULDER

MAY 1965

Adapted from Observations by Deutsches Bundespost

IQSY ALERT PERIODS

INTERNATIONAL URSIGRAM
AND WORLD DAYS SERVICE

JUNE 1965

June 1965	TIME OF ISSUE UT	ADVANCE GEOPHYSICAL ALERT	WORLDWIDE GEOPHYSICAL ALERT			
			NO.	TYPE	TIMING	ELABORATION
6	0400		208	Solar Activity	Exists	Beta-Gamma Spot
7	0400		209	Solar Activity	Exists	
8	0400		210	Solar Activity	Exists	

COMMERCE - STANDARDS - BOULDER

The following text is a reprint of an article published by Dr. Peter M. Millman, National Research Council, Ottawa, Ontario, Canada in the Journal of the Royal Astronomical Society of Canada, Vol. 59, No. 3, pp. 143-146.

A simplified quantized method of listing a physical parameter is generally called an index. The magnetic index, Kp, is a good example of a well-established geophysical index. In the astronomical field it may be of interest to derive a meteor index, related to hourly meteor rates.

The radar meteor patrol, operated since 1957 on a frequency of 32.7 megacycles at the Springhill Meteor Observatory, latitude 45°N, provides a long and homogeneous series of meteor rate determinations. This has been reported on by Millman and McIntosh (1963, 1964). I have used the echo rates from this program, recorded 1958-1962 inclusive, to derive four meteor indices, listed in the Table IXc for each day in the year and plotted in Figure IXd. Dates are in Universal Time, that is morning dates Eastern Standard Time. Jan. 1 refers to the period 19^h EST Dec. 31 to 19^h EST Jan. 1, etc.

These four indices are identified by the letters V for visual and R for radar, and by subscripts which give approximately, in apparent visual magnitudes, the fainter limit of the meteor counts to which the corresponding index applies. To derive the V indices only the radar counts during the dark hours were used, while for the R indices an average was taken over the entire 24 hours. Radar echoes 1 second duration or longer correspond very roughly to meteors between the fourth and third magnitude and brighter. Counts of echoes, 1 second duration and longer, were used to determine V₃. This index should correspond most closely to visual programs carried out under normal conditions, where few meteors fainter than the 3rd or 4th magnitude are recorded. Radar counts for echoes lasting 8 seconds or longer were used to derive indices V₁ and R₁, which correspond to counts down to about the 1st magnitude, that is to meteors photographed with normal fast cameras. The index R₆ is based on the counts of all echoes recorded with the Springhill patrol radar, that is counts to about magnitude 6.

In general, all indices have been normalized to a 1 - 10 range. The only exception is the Geminid maximum for V₃ and V₁, where the rates are so high compared to the remainder of the year that values over 10 had to be used.

The indices correspond to the following echo count ranges in hourly rates:-

	<u>index range</u>	<u>hourly rate range</u>
V ₁	1 - 20	0 - 50
V ₃	1 - 25	5 - 130
R ₁	1 - 10	0 - 25
R ₆	1 - 10	100 - 300

RADAR METEOR INDICES
(Continued)

The values of the indices correspond proportionately to the ranges in hourly rates, after non-significant statistical variations have been eliminated. However, it must be stressed that the purpose of an index is to give an easily-read, qualitative description of a physical parameter. It is not designed to be used quantitatively.

The two most striking differences between the V and the R indices are the prominence of the Geminids in the former and the presence of a June maximum in the latter. It should be noted that these indices refer to average conditions experienced in the five years 1958-1962. Certain changes will appear from time to time, for example, the Leonids may be more prominent during the next few years.

References

Millman, P.M. and McIntosh, B.A.

- 1963. Smithsonian Contr. Astrophys.
 vol. 7, pp. 47 - 51.
- 1964. Canadian Jour. Phys.
 vol. 42, pp. 1730 - 1742.

RADAR METEOR INDEX

[illegible]

RADAR METEOR INDEX

Indices determined from radar meteor counts, 1958-1962. Annual meteor showers; Q, Quadrantids; Y, Lyrids; E, Eta Aquarids; A, Arietids; Z, Zeta Perseids; D, Delta Aquarids; P, Perseids; O, Orionids; L, Leonids; G, Geminids; U, Ursids.