

JUL 11 1963

CRPL-F 226 PART B

FOR OFFICIAL USE

Reference book not to be  
taken from the library.

PART B  
SOLAR - GEOPHYSICAL DATA

ISSUED  
JUNE 1963

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



## SOLAR - GEOPHYSICAL DATA

### CONTENTS

#### I DAILY SOLAR INDICES

- (a) Relative Sunspot Numbers and 2800 Mc Solar Flux - April - May 1963
- (b) Graph of Sunspot Cycle

#### II SOLAR CENTERS OF ACTIVITY

- (a) Calcium Plage and Sunspot Regions - May 1963
- (b-g) Revised Final Coronal Line Emission Indices - October, November, December 1962 - January, February, March 1963
- (h) Provisional Coronal Line Emission Indices - May 1963

#### III SOLAR FLARES

- (a-j) Optical Observations - May 1963
- (k) Flare Patrol Observations - May 1963
- (l-n) Optical Observations - February 1963
- (o) Flare Patrol Observations - February 1963
- (p) Ionospheric Effects (SWF-SEA-SCNA-SPA-Bursts) - April 1963

#### IV SOLAR RADIO WAVES

- (a) 2800 Mc - Outstanding Occurrences (ARO-Ottawa) - May 1963
- (b) 2800 Mc - Outstanding Occurrence (ARO-Ottawa) - Graphs - April 15, 16, 19, 1963
- (c) 108 Mc - Outstanding Occurrences (Boulder) - May 1963
- (d) 108 Mc - Selected Outstanding Occurrences (Boulder) - Graphs, May 20, 23, 24, 25, 29, 1963
- (e-f) 7.6 - 41 Mc - Spectral Observations (HAO-Boulder) - May 1963
- (g-l) 9.1 cm - Spectroheliograms (Stanford) - May 1963
- (m) 169 Mc - Interferometric Occurrences (Nançay) - May 1963

#### V COSMIC RAY INDICES

- (a) Climax Neutron Monitor - April 1963
- (b) Deep River Neutron Monitor - April 1963

#### VI GEOMAGNETIC ACTIVITY INDICES

- (a) C9 by Solar Rotations 1957 - 1962
- (b) C, Kp, Ap and Selected Quiet and Disturbed Days - April 1963
- (c) Chart of Kp by Solar Rotations - 1963

#### VII RADIO PROPAGATION QUALITY INDICES

- (a) CRPL Quality Figures and Forecasts - North Atlantic and North Pacific - April 1963
- (b) Graphs Comparing Forecasts and Observed Quality - North Atlantic and North Pacific - April 1963
- (c-d) Graphs of Useful Frequency Ranges - April 1963

#### VIII ALERT PERIODS AND SPECIAL WORLD INTERVALS

- (a) Alerts and SWI - May 1963

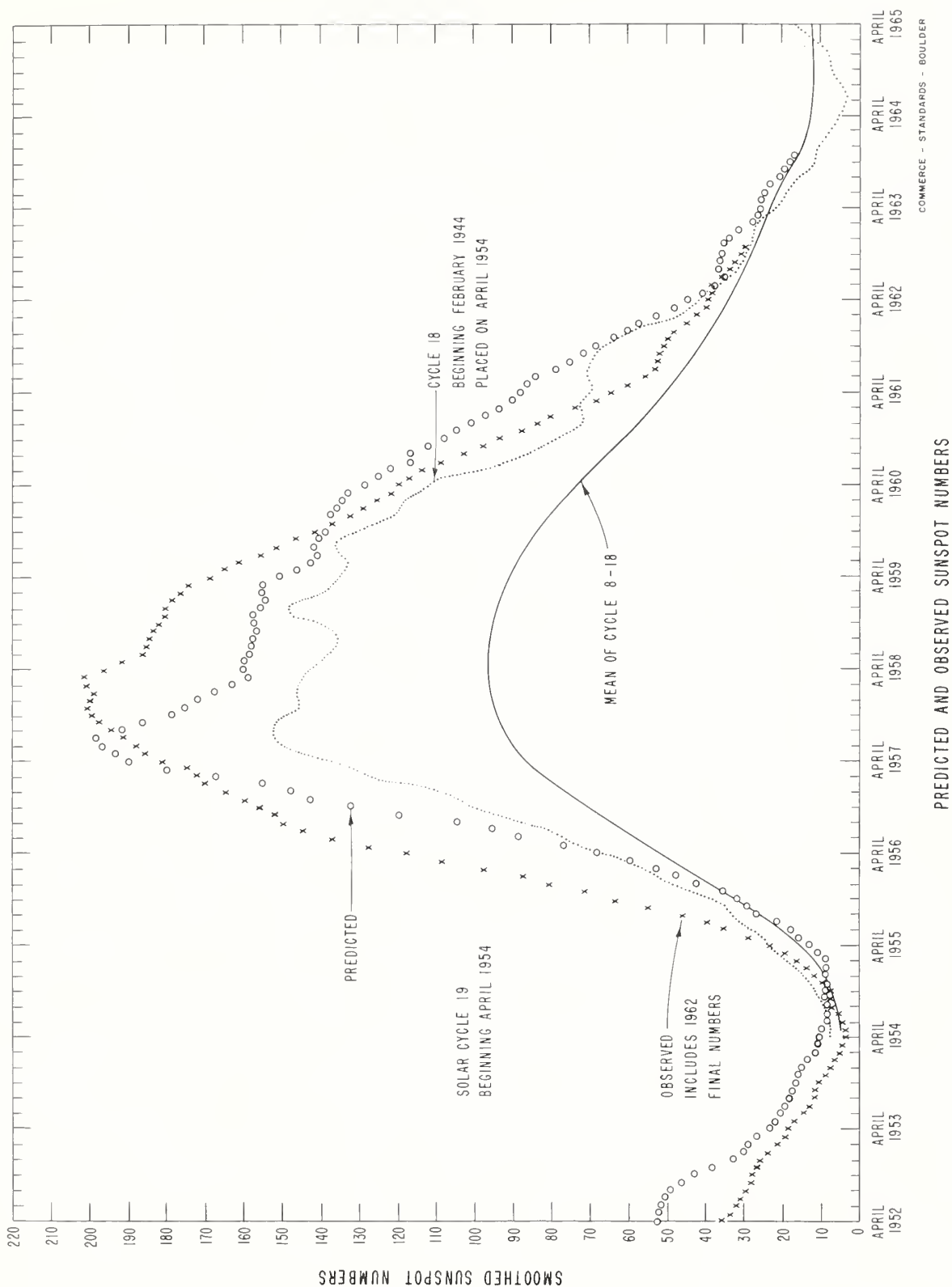


The text describing the contents of Part B was republished in November 1962. A revision was made December 1962, and an addenda January 1963.

## DAILY SOLAR INDICES

Apr. 1963	American Relative Sunspot Numbers $R_A'$
1	16
2	19
3	13
4	12
5	15
6	42
7	39
8	54
9	66
10	49
11	46
12	51
13	47
14	38
15	41
16	37
17	29
18	29
19	22
20	15
21	1
22	0
23	0
24	0
25	0
26	0
27	0
28	5
29	13
30	18
Mean:	23.9

May 1963	Zürich Provisional Relative Sunspot Numbers $R_Z$	Daily Values Solar Flux at 2800 Mc, Ottawa, Canada Flux
1	23	82
2	22	82
3	24	81
4	20	82
5	26	84
6	43	87
7	46	88
8	55	86
9	48	88
10	72	87
11	63	84
12	55	87
13	54	89
14	60	95
15	67	98
16	65	100
17	74	100
18	85	98
19	74	99
20	58	91
21	49	88
22	37	89
23	32	93
24	28	89
25	18	83
26	9	76
27	18	80
28	36	79
29	32	80
30	37	83
31	35	89
Mean:	44.0	87.6



## CALCIUM PLAGE AND SUNSPOT REGIONS

MAY 1963

CMP MAY 1963	LAT.	MCMATH PLAGE NUMBER	RETURN OF REGION	CALCIUM PLAGE DATA						SUNSPOT DATA		
				CMP VALUES		HISTORY	AGE (ROTA- TIONS)	DATE FIRST SEEN	DURA- TION (DAYS)	CMP VALUES		HISTORY
				AREA	INT					AREA	COUNT	
01.8	N24	6789	(1)	(400)	(2)	b $\wedge$ d	1	4/28	~11			
02.4	N14	6787	6756	1500	2.5	$\ell$ $\searrow$ d	6	4/26	~12			
02.5	N01	6791	6763	1000	2	$\ell$ — $\ell$	2	4/26	~12			
02.7	S09	6792	(2)	200	2	b $\wedge$ d	1	5/2	2			
04.5	N01	6797	(1)	(200)	(2)	b $\wedge$ d	1	5/7	1			
04.7	N17	6790	(3)	5000	3.5	$\ell$ — $\ell$	2	4/28	~12	270	4	$\ell$ — $\ell$
06.2	N01	6798	New	200	2	b $\sqrt{\ell}$	1	5/7	5	20	2	b $\wedge$ d
07.7	N29	6799	(4)	200	2	b $\wedge$ d	1	5/8	2			
07.9	S15	6796	New	1200	3.5	b $\sqrt{\ell}$	1	5/4	9	350	4	b $\sqrt{\ell}$
09.3	N10	6794	New	1100	3	$\ell$ — $\ell$	1	5/4	12	120	2	b $\wedge$ d
10.1	N11	6800	(1)	(100)	1.5	b $\wedge$ d	1	5/8	1			
11.9	S13	6795	6766	2600	3	$\ell$ — $\ell$	2	5/8	13			
14.6	N15	6802	(5) (8)	1600	3.5	$\ell$ — $\ell$	1	5/8	(11)*	190	8	b $\sqrt{\ell}$
15.0	S09	6801	6784	1200	3	$\ell$ — $\ell$	2	5/8	14	220	1	$\ell$ — $\ell$
15.9	N14	6803	(6) (9)	1000	2.5	b $\sqrt{\ell}$	1	5/9	(7)*	(460)	(6)	b — $\ell$
16.4	N03	6804	(4)	200	1	b $\wedge$ d	1	5/13	2			
17.5	N11	6807	(4)	300	1.5	b $\wedge$ d	1	5/16	2			
18.5	N03	6814	New	(1200)	(4)	b $\sqrt{\ell}$	1	5/21	4	(190)	(6)	b $\sqrt{\ell}$
19.6	N10	6805	New	4000	3.5	$\ell$ — $\ell$	1	5/13	13	810	11	$\ell$ — $\ell$
21.8	N04	6806	(7)	(500)	(1)	$\ell$ $\searrow$ d	1	5/15	3			
21.8	S01	6808	New	400	1	b $\wedge$ d	1	5/18	3			
22.5	S25	6810	New	400	2	b $\wedge$ d	1	5/21	4			
23.6	S12	6809	New	100	1	$\ell$ $\searrow$ d	1	5/18	4			
24.1	S16	6813	New	100	1.5	b $\wedge$ d	1	5/23	5			
24.9	N20	6818	(4)	(400)	(1.5)	b $\sqrt{\ell}$	1	5/28	2			
25.8	S09	6819	(1)	(100)	(2)	b $\wedge$ d	1	5/28	1			
27.5	S19	6822	New	(200)	(2)	b $\sqrt{\ell}$	1	5/30	3			
27.8	S09	6811	New	800	2	$\ell$ — $\ell$	1	5/21	13			
28.7	N12	6812	New	1700	3	$\ell$ — $\ell$	1	5/22	13	(120)	(2)	$\ell$ — $\ell$
30.7	S25	6823	New	200	2	b $\wedge$ d	1	5/30	3			
31.1	N14	6815	6790	1800	3.5	$\ell$ — $\ell$	3	5/25	13	280	7	b $\wedge$ d
31.9	N22	6816	6790	1500	2.5	$\ell$ — $\ell$	3	5/25	13			

(1) New - but small and ephemeral.

(2) New and ephemeral, but in position of 6758.

(3) Region 6790 is a return of part of old region 6759 that experienced a rejuvenation on the disk after April 6.

(4) New but ephemeral.

(5) New - return of part of 6769 with rejuvenation on disk after May 10.

(6) New - return of part of 6769 with rejuvenation on disk after May 15.

(7) New - in position of 6783.

(8) Regions 6802 and 6803 are examples of the expiration of an old plage (6769) followed by a re-development in the same position on the visible disk.

\* ( ) Denotes age as a new region.



# REVISED FINAL CORONAL LINE EMISSION INDICES

OCTOBER 1962

CMP Oct 1962	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 <sub>6</sub>	G <sub>1</sub>	R <sub>6</sub>	R <sub>1</sub>	G <sub>6</sub>	G <sub>1</sub>	R <sub>6</sub>	R <sub>1</sub>	G <sub>6</sub>	G <sub>1</sub>	R <sub>6</sub>	R <sub>1</sub>	G <sub>6</sub>	G <sub>1</sub>	R <sub>6</sub>	R <sub>1</sub>
1	69	92	x	x	40	66	x	x	14	21	20	25	38	54	18	21
2	30	50	13	14	7	11	23	28	15	27	24	34	13	36	18	21
3	32	62	14a	17a	11	14	20a	30a	13	21	23	31	43	57	18	32
4	27	36	x	x	9	20	x	x	19	27	20	22	75	133	23	45
5	x	x	x	x	x	x	x	x	13	23	10	12	42	74	18	45
6	16	27	10	12	24	55	10	15	20	39	20a	25a	17	24	15a	19a
7	19	28	14	18	17	31	19	24	11	13	11	14	14	17	8	10
8	20	28	14	22	10	17	22	31	12	22	10	12	16	24	6	8
9	21	22	x	x	10	14	x	x	x	x	x	x	x	x	x	x
10	36	42	14	22	16	22	19	23	x	x	x	x	x	x	x	x
11	50	70	24	42	21	45	24	43	27	50	5	6	62	97	4	8
12	3	55	24	x	2	3	x	11	35	91	26	19	50	109	19	17
13	42	55	26	55	22	38	18	28	54	102	22	25	45	62	19	31
14	56	98	47	72	29	70	35	49	46	78	12	17	32	63	14	21
15	40	75	35	56	40	90	34	56	37	59	20	28	29	50	23	29
16	42	84	26	31	20	36	30	36	24	44	17	20	26	40	17	27
17	17	21	29	35	61	157	42	80	39	91	30	45	40	78	24	50
18	28	79	22	28	43	99	23	29	60	119	29	43	28	69	12	20
19	17	32	19	34	15	30	11	18	35	56	33	68	23	44	11	17
20	6	12	22a	26a	11	15	14a	16a	40	114	38	56	11	16	19	28
21	11	38	47	72	5	8	35	49	15	32	30	66	15	23	20	24
22	9	22	12	18	5	6	8	11	9	14	25	39	14	20	17	24
23	x	x	x	x	x	x	x	x	7	13	12	18	23	57	18	27
24	x	x	x	x	x	x	x	x	22	39	16	28	54	113	22	39
25	76	205	16	44	26	45	4	6	12	21	9	11	41	81	19	56
26	68	137	11	23	22	36	6	8	12	23	15	17	52	95	19	28
27	70	90	14	17	11	24	16	22	12	23	22	26	46	57	11	16
28	31	38	15	18	16	31	15	23	x	x	x	x	x	x	x	x
29	38	56	19	22	8	19	16	21	27	61	21	27	30	63	12	14
30	40	72	21	43	8	12	22	31	20	25	29	57	29	57	18	24
31	65	121	18	22	10	19	26	43	37	96	25	39	50	80	9	11

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

Note: This table and the five following for coronal line emission indices through March 1963 replace the six similar tables published as tables II c-h in CRPL-F 225 Part B May 1963. The earlier data were incorrect because of instrumental difficulties at the Sacramento Peak Observatory. Appropriate corrections have been made.

## REVISED FINAL CORONAL LINE EMISSION INDICES

NOVEMBER 1962

CMP Nov 1962	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 <sub>6</sub>	G <sub>1</sub>	R <sub>6</sub>	R <sub>1</sub>	G <sub>6</sub>	G <sub>1</sub>	R <sub>6</sub>	R <sub>1</sub>	G <sub>6</sub>	G <sub>1</sub>	R <sub>6</sub>	R <sub>1</sub>	G <sub>6</sub>	G <sub>1</sub>	R <sub>6</sub>	R <sub>1</sub>	G <sub>6</sub>	G <sub>1</sub>	R <sub>6</sub>	R <sub>1</sub>	G <sub>6</sub>	G <sub>1</sub>	R <sub>6</sub>	R <sub>1</sub>
1	48	85	7	10	18	40	19	27	23	49	30	83	34	53	10	18								
2	38	56	11	16	18	41	16	18	22	30	31	45	26	34	15	17								
3	21	31	10	18	9	18	20	25	7	9	20	13	12	14	5	8								
4	14	23	15	19	9	12	14	19	9	15	21	29	9	11	12	15								
5	20	25	13	14	9	13	24	41	17	30	17	22	11	13	9	14								
6	31	48	26	41	15	19	25	28	20	35	17	24	28	50	10	13								
7	45	87	14	25	30	49	22	42	28	44	10	19	36	55	3	9								
8	27	54	8	11	42	99	13	28	x	x	x	x	x	x	x	x								
9	24	35	25	28	39	60	31	71	27	51	x	x	25	34	x	x								
10	32	64	24	32	43	77	24	29	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	30	39	21	37	62	119	25	48	x	x	x	x	x	x	x	x								
13	21	55	25	49	63	105	31	67	49	75	41	60	47	58	38	48								
14	37	84	18	24	40	73	37	55	37	66	25	34	24	31	19	27								
15	14	20	12	17	25	40	47	67	41	71	30	45	29	52	25	35								
16	16	20	20	28	43	71	47	76	x	x	x	x	x	x	x	x								
17	9	15	7	10	23	45	16	46	41	113	38	68	40	65	29	40								
18	15	21	18	24	10	14	33	64	29	44	x	x	47	66	x	x								
19	21	38	13	17	7	10	13	17	6	8	19	21	18	31	16	17								
20	31	52	13	17	10	11	13	22	7	13	12	14	25	41	12	20								
21	46	67	12	15	14	19	8	12	9	14	19	22	32	54	17	28								
22	x	x	x	x	x	x	x	x	19	31	x	x	x	84	x	x								
23	45	57	x	x	18	26	x	x	20	29	x	x	65	96	x	x								
24	x	x	x	x	x	x	x	x	19	27	x	x	60	128	x	x								
25	x	x	x	x	x	x	x	x	14	22	27	28	21	34	27	40								
26	x	x	x	x	x	x	x	x	8	11	17	21	27	34	14	18								
27	26	41	11	14	17	21	16	21	9	14	15	17	20	23	11	14								
28	19	31	7	11	12	30	11	13	7	17	14	27	20	22	14	20								
29	30	36	9	14	19	45	16	17	9	13	17	22	18	23	10	11								
30	x	x	x	x	x	x	x	x	13	18	20	24	30	50	15	18								

x = no observations

\* = yellow line emission

a = index computed from low weight data

continued on next page

# REVISED FINAL CORONAL LINE EMISSION INDICES

DECEMBER 1962

CMP Dec 1962	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 <sub>6</sub>	G <sub>1</sub>	R <sub>6</sub>	R <sub>1</sub>	G <sub>6</sub>	G <sub>1</sub>	R <sub>6</sub>	R <sub>1</sub>	G <sub>6</sub>	G <sub>1</sub>	R <sub>6</sub>	R <sub>1</sub>	G <sub>6</sub>	G <sub>1</sub>	R <sub>6</sub>	R <sub>1</sub>
1	40	90	27	60	15	24	29	46	9	15	21	28	28	56	27	50
2	80	144	x	x	32	62	x	x	10	22	15	22	40	53	31	31
3	24	35	19	28	9	20	18	21	10	16	18	27	20	34	18	x
4	15	30	11	20	16	24	19	25	x	x	x	x	x	x	x	x
5	18	35	15	17	22	50	25	35	17	22	x	x	22	42	x	x
6	57	81	x	x	64	93	x	x	17	31	23	28	14	28	26	36
7	32	40	x	x	32	45	x	x	16	22	20	22	13	17	35	53
8	29	39	x	x	39	48	x	x	26	39	17	21	16	25	25	61
9	37	64	47	77	31	45	34	64	30	64	20	24	27	45	22	40
10	58	95	26	35	38	45	17	24	25	50	x	x	20	25	x	x
11	22	26	15	21	21	29	14	17	x	x	x	x	x	x	x	x
12	34	56	31	35	30	50	24	36	25	50	10	15	10	14	11	20
13	24	53	28	48	24	38	30	62	x	x	x	x	x	x	x	x
14	37	80	19	21	24	48	19	31	25	60	15	21	20	33	11	14
15	22	35	14	17	12	20	19	28	x	x	x	x	x	x	x	x
16	11	17	12a	20a	7	11	12a	18a	4	6	14	17	21	31	15	18
17	10	15	14	22	2	4	14	22	x	x	x	x	x	x	x	x
18	x	x	x	x	x	x	x	x	9	12	5	12	36	57	8	21
19	25	39	x	x	5	8	x	x	x	8	x	x	x	x	x	x
20	44	92	28	45	11	17	19	28	5	x	26	28	34	48	26	41
21	40	104	33	42	5	8	25	35	5	11	x	x	18	31	x	x
22	32	87	25	31	3	6	13	16	2	8	19	22	16	20	15	17
23	27	34	13	17	5	8	9	10	6	8	13	16	10	14	7	10
24	10	15	x	x	2	3	x	x	4	6	10	14	12	16	7	10
25	x	x	x	x	x	x	x	x	5	8	17	20	16	20	8	10
26	12	13	7	7	4	10	8	11	x	x	x	x	x	x	x	x
27	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
28	21	38	11	24	4	18	13	18	9	15	19	35	16	33	14	14
29	x	x	x	x	x	x	x	x	14	23	13	15	15	20	5	6
30	20	34	17	21	10	20	14	15	21	53	30	36	13	17	11	14
31	x	x	x	x	x	x	x	x	33	87	22	24	12	22	16	20

x = no observations

\* = yellow line emission

a = index computed from low weight data

continued on following page

## REVISED FINAL CORONAL LINE EMISSION INDICES

JANUARY 1963

CMP Jan 1963	North East Quadrant (observed 7 days, earlier)				South East Quadrant (observed 7 days, earlier)				South West Quadrant (observed 7 days, later)				North West Quadrant (observed 7 days, later)			
	G <sub>6</sub>	G <sub>1</sub>	R <sub>6</sub>	R <sub>1</sub>	G <sub>6</sub>	G <sub>1</sub>	R <sub>6</sub>	R <sub>1</sub>	G <sub>6</sub>	G <sub>1</sub>	R <sub>6</sub>	R <sub>1</sub>	G <sub>6</sub>	G <sub>1</sub>	R <sub>6</sub>	R <sub>1</sub>
1	28	39	1	1	12	18	3	6	12	22	x	x	15	34	x	x
2	x	x	x	x	x	x	x	x	7	11	11	14	7	13	15	28
3	12	17	25	33	14	45	29	82	x	x	x	x	x	x	x	x
4	8	11	x	x	16	39	x	x	17	22	7	10	21	31	15	27
5	14	20	22	35	22	35	18	24	24	30	8	10	24	29	12	17
6	14	22	15	18	18	45	17	21	x	x	x	x	x	x	x	x
7	16	28	12	16	14	20	12	24	14	28	x	x	10	13	x	x
8	21	48	24	45	21	34	17	22	11	20	14	14	12	28	16	21
9	25	53	x	x	22	42	x	x	9	25	15	21	8	9	13	20
10	x	x	x	x	x	x	x	x	12	25	16	28	7	8	10	14
11	9	15	20	28	8	20	14	28	x	x	x	x	x	x	x	x
12	12	22	6	15	8	17	10	19	x	x	x	x	x	x	x	x
13	26	64	18	28	5	8	19	26	5	6	10	12	28	45	12	26
14	31	53	21	52	6	8	19	24	4	9	9	13	23	45	18	28
15	47	95	15	45	6	11	10	13	x	x	x	x	x	x	x	x
16	35	71	20	56	2	8	13	21	6	6	17	20	36	70	14	22
17	x	x	x	x	x	x	x	x	8	20	22	24	15	26	14	21
18	32	41	5	12	10	15	7	10	5	5	9	11	10	11	8	9
19	53	74	7	12	13	18	9	14	5	5	15	18	10	15	11	15
20	x	x	x	x	x	x	x	x	4	5	15	17	8	10	10	14
21	11	11	x	x	4	6	x	x	8	10	x	x	19	23	x	x
22	9	11	9	14	4	4	19	24	3	5	18	28	10	11	x	13
23	12	16	11	21	5	6	17	24	4	8	12	18	9	13	10	14
24	14	24	8	10	5	11	12	14	13	28	5	7	28	43	4	7
25	x	x	x	x	x	x	x	x	9	20	16	22	24	33	16	25
26	11	14	x	x	7	17	x	x	x	x	x	x	x	x	x	x
27	20	23	5	8	15	32	9	11	8	13	9	15	13	19	11	17
28	7	10	9	11	3	5	16	21	4	8	18	21	7	8	18	24
29	x	x	x	x	x	x	x	x	4	4	18	21	5	6	15	22
30	10	14	24	35	7	11	19	28	6	11	3	11	10	20	0	0
31	12	18	22	28	11	20	26	42	5	10	11	15	7	20	13	17

x = no observations

\* = yellow line emission

a = index computed from low weight data

CORONAL LINE EMISSION INDICES - STANFORD - BOULDER

# REVISED FINAL CORONAL LINE EMISSION INDICES

FEBRUARY 1963

CMP Feb 1963	North East Quadrant (observed 7 days earlier)					South East Quadrant (observed 7 days earlier)					South West Quadrant (observed 7 days later)					North West Quadrant (observed 7 days later)				
	G <sub>6</sub>	G <sub>1</sub>	R <sub>6</sub>	R <sub>1</sub>		G <sub>6</sub>	G <sub>1</sub>	R <sub>6</sub>	R <sub>1</sub>		G <sub>6</sub>	G <sub>1</sub>	R <sub>6</sub>	R <sub>1</sub>		G <sub>6</sub>	G <sub>1</sub>	R <sub>6</sub>	R <sub>1</sub>	
1	15	29	13	17		15	43	15	24		12	25	6	8		11	14	9	15	
2	14	23	18	27		10	13	21	35		18	23	4	6		15	22	5	7	
3	11	26	23	42		5	8	13	14		11	14	x	x		4	6	x	x	
4	23	46	x	x		14	17	x	x		x	x	x	x		x	x	x	x	
5	7	9	19	21		6	10	23	35		43	87	x	x		9	14	x	x	
6	5	6	17	21		6	14	20	41		10	18	x	x		4	5	x	x	
7	15	18	4	5		14	24	4	6		14	23	11	17		5	6	14	20	
8	16	35	14	28		5	6	10	14		x	x	x	x		x	x	x	x	
9	30	68	x	x		12	16	x	x		12	17	x	x		19	23	x	x	
10	27	50	19	49		5	10	10	13		7	11	3	10		37	48	4	12	
11	20	43	21	31		5	10	14	17		9	30	9	11		19	50	8	8	
12	20	46	14	25		4	6	11	13		x	x	x	x		x	x	x	x	
13	14	20	2	7		x	x	2	7		2	5	15	21		6	8	7	11	
14	7	10	8	10		3	4	14	17		3	3	12	14		4	5	9	10	
15	15a	28a	5	6		1a	6a	8	9		5	8	x	x		8	14	x	x	
16	17	19	3	7		9	12	4	5		4	5	9	11		4	5	5	10	
17	8	11	x	x		2	3	x	x		2	3	8	10		5	5	6	7	
18	x	x	x	x		x	x	x	x		3	5	11	14		5	5	7	7	
19	14	17	x	x		6	11	x	x		3	7	7	7		7	10	9	17	
20	5	6	x	x		5	10	x	x		3	5	8	10		15	21	9	15	
21	24	56	19	27		3	3	14	17		7	9	13	18		39	51	16	28	
22	x	x	x	x		x	x	x	x		3	4	7	8		16	26	7	10	
23	67	125	11	27		9	17	5	18		11	15	5	6		12	20	6	8	
24	45	87	9	20		8	10	5	12		x	x	x	x		x	x	x	x	
25	6	6	10	13		5	5	10	14		5	7	x	x		0	0	x	x	
26	x	x	x	x		x	x	x	x		3	6	x	x		11	17	x	x	
27	4	4	16	21		3	4	12	14		x	x	x	x		x	x	x	x	
28	4	5	12	14		4	4	8	10		6	8	8	10		8	14	9	10	

x = no observations

\* = yellow line emission

a = index computed from low weight data

REVISIONS - STRONGS - 1963/64

## REVISED FINAL CORONAL LINE EMISSION INDICES

MARCH 1963

CMP Mar 1963	North East Quadrant (observed 7 days earlier)				South East Quadrant (observed 7 days earlier)				South West Quadrant (observed 7 days later)				North West Quadrant (observed 7 days later)			
	G <sub>6</sub>	G <sub>1</sub>	R <sub>6</sub>	R <sub>1</sub>	G <sub>6</sub>	G <sub>1</sub>	R <sub>6</sub>	R <sub>1</sub>	G <sub>6</sub>	G <sub>1</sub>	R <sub>6</sub>	R <sub>1</sub>	G <sub>6</sub>	G <sub>1</sub>	R <sub>6</sub>	R <sub>1</sub>
1	7	11	x	x	5	8	x	x	x	x	41	52	x	x	35	50
2	3	4	9	14	4	6	8	10	13	17	17	28	8	11	13	16
3	3	8	15	28	6	10	18	28	x	20	x	14	9	10	8	x
4	4	13	11	13	11	18	9	13	8	10	9	x	6	8	x	8
5	4	5	10	13	9	14	7	8	x	x	x	x	x	x	x	x
6	5	6	6	14	7	10	8	10	x	x	x	x	x	x	x	x
7	20	33	6	10	21	32	6	14	x	20	11	15	26	45	15	20
8	11	15	3	4	5	5	5	7	x	x	x	x	x	x	x	x
9	34	48	7	14	20	25	5	7	x	x	x	x	x	x	x	x
10	x	x	x	x	x	x	x	x	7	15	5	10	44	78	22	64
11	73	121	x	x	6	10	x	x	x	37	x	x	72	87	x	x
12	30	42	x	x	3	6	x	x	21	8	16	20	25	36	9	10
13	x	x	x	x	5	8	8	x	5	6	14	20	18	31	8	11
14	17	25	9	17	5	8	x	10	3	6	22	26	17	39	12	14
15	14	17	24	36	x	x	22	28	6	17	24	30	8	11	13	18
16	11	14	12	16	5	6	12	13	8	36	36a	68a	7	11	22a	23a
17	11	15	2	14	10	12	4	8	8	11	22	32	10	11	6	10
18	6	6	8	11	5	5	8	10	8	28	40	65	15	20	13	16
19	x	x	x	x	x	x	x	x	3	6	26	32	29	34	18	40
20	x	x	x	x	x	x	x	x	6	9	8	11	37	48	8	18
21	48	76	40	90	5	6	15	18	5	20	x	x	62	82	x	x
22	x	x	x	x	x	x	x	x	10	25	22	28	41	73	29	52
23	x	x	x	x	x	x	x	x	5	6	16	20	24	45	18	24
24	22	25	20	31	4	6	13	17	x	x	x	x	x	x	x	x
25	34	39	x	x	13	15	x	x	x	x	x	x	x	x	x	x
26	7	8	11	13	5	8	13	14	x	x	x	x	x	x	x	x
27	8	11	10	14	6	11	8	11	6	8	15	16	3	6	20	28
28	6	8	18	24	7	8	15	28	x	x	x	x	x	x	x	x
29	6	8	22	28	5	6	12	28	x	x	x	x	x	x	x	x
30	5	8	24a	38a	8	11	19a	26a	x	x	x	x	x	x	x	x
31	7	13	20	24	14	23	12	16	x	x	x	x	x	x	x	x

x = no observations

\* = yellow line emission

a = index computed from low weight data

CONSERVING STANDARDS - BOLLINGER

# PROVISIONAL CORONAL LINE EMISSION INDICES

MAY 1963

CMP May 1963	North East Quadrant (observed 7 days earlier)				South East Quadrant (observed 7 days earlier)				South West Quadrant (observed 7 days later)				North West Quadrant (observed 7 days later)			
	G <sub>6</sub>	G <sub>1</sub>	R <sub>6</sub>	R <sub>1</sub>	G <sub>6</sub>	G <sub>1</sub>	R <sub>6</sub>	R <sub>1</sub>	G <sub>6</sub>	G <sub>1</sub>	R <sub>6</sub>	R <sub>1</sub>	G <sub>6</sub>	G <sub>1</sub>	R <sub>6</sub>	R <sub>1</sub>
1	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
2	33a	73a	x	x	x	14a	x	x	x	13a	20a	x	x	98a	x	x
3	50	64	x	x	9	22	x	x	11	11	25	34	53	106	29	72
4	x	x	19	28	x	x	13	32	25	25	28	32	55	126	21	28
5	38	66	18	58	7	9	15	17	11	11	30	48	32	38	19	26
6	27	36	21	28	4	11	15	16	48	21	x	x	13	17	x	x
7	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
8	x	x	x	x	x	x	x	x	19	31	33	40	16	34	27	44
9	6	8	20	26	10	14	31	40	13	19	26	40	14	19	14	22
10	5	8	30	34	25	42	41	68	40	50	37	68	14	36	12	26
11	12	14	21	26	71	123	36	68	x	x	15	20	x	x	5	10
12	18	36	18	36	43	73	43	73	38	59	25	46	31	59	19	34
13	25	39	26	30	27	56	34	52	31	67	28	34	47	90	36	71
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	25	39	x	x	8	17	x	x	x	x	x	x	x	x	x	x
17	21	36	11	13	5	11	16	24	x	x	x	x	x	x	x	x
18	16	22	24	31	5	8	22	28	x	x	x	x	x	x	x	x
19	30	89	34	44	2	6	16	22	17	37	10	12	37	65	16	28
20	30	50	12	17	3	11	3	10	8	17	32	40	27	53	40	72
21	x	x	x	x	x	x	x	x	4	7	27	36	9	11	35	44
22	8	11	40	52	3	8	23	28	x	x	x	x	x	x	x	x
23	6	7	21	28	5	6	16	24	7	11	x	x	12	20	x	x
24	6	11	32	38	5	6	25	36	4	4	5	6	3	3	5	7
25	x	x	x	x	x	x	x	x	2	4	x	x	2	3	x	x
26	11	17	17	20	8	14	16	36	7	8	7	9	10	12	6	8
27	18	22	21	44	15	31	29	64	7	13	31	52	25	50	6	28
28	x	x	x	x	x	x	x	x	9	11	24	28	58	160	31	44
29	x	x	x	x	x	x	x	x	5	7	7	8	14	21	12	20
30	x	x	x	x	x	x	x	x	8	10	21	24	18	22	27	32
31	x	x	x	x	x	x	x	x	6	8	12	16	21	31	2	4

x = no observations

\* = yellow line emission

a = index computed from low weight data



## SOLAR FLARES

MAY 1963

OBSERVATORY	DATE MAY 1963	OBSERVED UNIVERSAL TIME		LOCATION			DURA- TION — MINUTES	IM- POR- TANCE	OBS COND.	MEASUREMENTS				PROVISIONAL IONOSPHERIC EFFECT	
		START	END	APPROX. LAT.	MER DIST	McMATH PLACE REGION				TIME — U T	MEAS. AREA Sq Deg	CORR. AREA Sq Deg	MAX WIDTH Ha		MAX INT. °
LOCKHEED [ WENDEL ATHENES BUCHAREST BUCHAREST	01	0128	0150 D	0149 U	N17 E45		1-	1	0149	1.20	1.30		20	SI-SNF	
	01	0155	0710	NO FLARE	PATROL										
	01	0548	0824		N18 E47	6790	3+				32.00				
	01	0708 E	0835		N15 E46	6790	2	3		4.30	6.60				
	01	0740	0755	NO FLARE	PATROL										
	01	0806 E	1104 D		N14 E44	6790	1	2							
	01	0806 E	1104		N18 E49	6790	1	2							
	01	1035	1040	NO FLARE	PATROL										
	01	1055	1105	NO FLARE	PATROL										
	01	2240	2325	NO FLARE	PATROL										
[ OTTAWA MCMATH MCMATH LOCKHEED LOCKHEED	02	0120	0620	NO FLARE	PATROL										
	02	0655	0730	NO FLARE	PATROL										
	02	1000	1015	NO FLARE	PATROL										
	02	1020	1040	NO FLARE	PATROL										
	02	1500	1517		N09 E90		1-	3	1507	.41	2.00				
	02	1501	1515	1503	N08 E90		1-	3	1503	.20					
	02	2042	2140	2043	N18 E22	6790	1-	2	2043	.80	.90				
	02	2216	2228	2221	N20 E18		1-	2	2221	.20	.20		10		
	02	2355	2400	2357	N12 E15		1-	2	2357	.20	.20		20		
	03	0145	0755	NO FLARE	PATROL										
SAC PEAK	03	0900	1000	NO FLARE	PATROL										
	03	1005	1020	NO FLARE	PATROL										
	03	1025	1045	NO FLARE	PATROL										
	03	1845	1851	1847	N17 E16		1-	3		.43	.43		16		
	03	2330	2400	NO FLARE	PATROL										
	04	0000	0605	NO FLARE	PATROL										
	04	0750	0805	NO FLARE	PATROL										
	04	0823 E	0910 D	0840	N10 E67		1-	3	0837	.80					
	04	0905	0920	NO FLARE	PATROL										
	04	0930	0945	NO FLARE	PATROL										
CAPRI-S	04	0955	1005	NO FLARE	PATROL										
	04	1010	1150	NO FLARE	PATROL										
	04	1210	1225	NO FLARE	PATROL										
	04	1237	1248	1240	N09 E64		1-	2	1240	.41	.66				
	04	1329	1348	1340	N09 E61		1-	2	1340	.52	.79				
	04	1334	1348	1341	N09 E63		1-	3		.39	.62		16		
	04	1552	1606	1601	N09 E60		1-	2	1601	.47	.70				
	05	0145	0615	NO FLARE	PATROL										
	05	0805	0805	NO FLARE	PATROL		1-	2							
	05	0805 E	0827 D		N17 W07		1-	2							
[ BUCHAREST BUCHAREST CAPRI-S MCMATH MCMATH SAC PEAK	05	0805 E	0839 D		N14 W07		1-	2							
	05	0955	1035	NO FLARE	PATROL										
	05	1040	1140	NO FLARE	PATROL										
	05	1058 E	1125 D	1058	N15 W03		1-	1	1103	1.00	1.00				
	05	2010	2105	2025	N18 W16	6790	1-	2	2040	1.20	1.30				
	05	2010	2105	2040	N18 W16		1-	2							
	05	2014	2120 U	2048	N16 W16		1-	3		1.40	1.42		17		
	05	2014	2120 U	2048	N16 W16										
	05	2014	2120 U	2048	N16 W16										
	05	2014	2120 U	2048	N16 W16										

COMMENTS - STANDARDS - DOUBLOTT



# SOLAR FLARES

MAY 1963

OBSERVATORY	DATE	OBSERVED UNIVERSAL TIME		LOCATION		DURA- TION — MINUTES	IM- POR- TANCE	OBS COND.	MEASUREMENTS				PROVISIONAL IONOSPHERIC EFFECT	
		START	END	APPROX. LAT.	MER DIST				McMATH PLACE REGION	TIME U T	MEAS AREA Sq Deg.	CORR. AREA Sq Deg.		MAX WIDTH H <sub>g</sub>
LOCKHEED	MAY 1963													
	05	2024	2115	2042	N14 W16		1-	2	2042	1.60	1.60	1.60	20	
	05	2331	0043	2348	N14 W16		1-	2	2348	1.10	1.10	1.10	20	
LOCKHEED	05	2331	0043	0011	N14 W16		1-							
CAPRI-S	06	0150	0605	NO FLARE	PATROL									
ARCETRI	06	0800	E 0822	D	S15 E25		1-	2	0803	1.50	1.50	1.70		
ARCETRI	06	0925	E 1000	D	S14 E18		1-	3	0925	.65	.65	.70		
CAPRI-S	06	0928	E 1012	D	S13 E22		1-	2	0932	.80	.80	.90		
WENDEL	06	0932	E 0936	D	S15 E21		1-							
MCMAH	06	1005	1025	NO FLARE	PATROL									
WENDEL	06	1135	1150	D 1140	S15 E18	6796	1-	3	1140	.20	.20	.20		
MCMAH	06	1139	E 1145	D	S15 E20		1-	2	1239	1.10	1.10	1.30		
MCMAH	06	1234	E 1251	D	N16 W25	6790	1-	3	1241	1.80	1.80	2.30		
CAPRI-S	06	1236	E 1257	D	N15 W20	6790	1	2		.99	.99	1.03	17	
SAC PEAK	06	1242	E 1300	D 1245	N17 W25		1-							
LOCKHEED	07	0015	0115	NO FLARE	PATROL									
CAPRI-S	07	0134	0151	0142	S14 E08		1-	2	0142	.30	.30	.30	20	
WENDEL	07	0200	E 0605	D	NO FLARE	PATROL								
WENDEL	07	0628	E 0634	D	S15 E06		1-							
WENDEL	07	0645	E 0653	D	N15 W31		1-							
WENDEL	07	0700	E 0714	D	S16 E08		1-							
MCMAH	07	0740	0800	NO FLARE	PATROL									
CAPRI-S	07	1010	1030	NO FLARE	PATROL									
MCMAH	07	1151	1158	1152	S14 E03	6796	1-	2	1152	.20	.20	.20		
CAPRI-S	07	1155	E 1240	D	S15 E07		1-	3	1225	.80	.80	.80		
MCMAH	07	1217	1239	1219	S14 E04	6796	1-	2	1219	.50	.50	.50		
MCMAH	07	1310	1316	1311	S14 E04	6796	1-	2	1311	.20	.20	.20		
WENDEL	07	1500	1523	1506	S14 E03	6796	23	1		4.00	4.00	4.00		
MCMAH	07	1501	1525	1513	S14 E03	6796	1-	1	1510	.80	.80	.80		
SAC PEAK	07	1504	E 1526	D	S16 E02		1-	2	1506	1.11	1.11	1.11	18	
CAPRI-S	07	1506	E 1519	D	S15 E05		1-	2	1506	1.00	1.00	1.00		
HUANCAYO	07	1507	1527	1513	S15 E03	6796	1-	2	1516	3.30	3.40	2.00		
WENDEL	07	1546	E 1602	D	S14 E03	6796	16 D	1						
SAC PEAK	07	1547	1559	1550	S15 E02		1-	2	1549	.56	.56	.54	16	
HUANCAYO	07	1548	1558	1550	S15 E03		1-	2	1550	1.90	1.90	1.90		
MCMAH	07	1549	1554	1550	S14 E02	6796	1-	1	1550	.20	.20	.20		
OTTAWA	07	1746	1800	D 1753	S15 E02	6796	14 D	1	1753	3.56	3.56	3.56		
SAC PEAK	07	1746	1805	D 1751	S15 E00		1-	1	1753	1.28	1.28	1.26	18	
MCMAH	07	1746	1830	1750	S15 E02	6796	1-	2	1750	.40	.40	.40		
LOCKHEED	07	1753	E 1810	D 1800	S15 W01		1-	1	1800	.60	.60	.60	20	
WENDEL	08	0000	0615	NO FLARE	PATROL									
WENDEL	08	0550	E 0621	D	N02 W25	6798	21 D	1				3.00		
WENDEL	08	0750	0800	NO FLARE	PATROL									
WENDEL	08	1005	1230	NO FLARE	PATROL									

COMMERCE - STANDARD - BOULDER

## SOLAR FLARES

MAY 1963

OBSERVATORY	DATE MAY 1963	OBSERVED UNIVERSAL TIME		LOCATION		DURA- TION — MINUTES	IM- POR- TANCE	OBS COND.	MEASUREMENTS				PROVISIONAL IONOSPHERIC EFFECT
		START	END	APPROX LAT.	MER DIST				MCNATH PLACE REGION	TIME — U.T.	MEAS AREA Sq Deg	CORR AREA Sq Deg	
SAC PEAK	08	2124	2150	2130	S12 E40		1-	3		.43	.47		16
BUCHAREST CAPRI-S	09	0200	0605	NO FLARE	PATROL		1-	2					
	09	0645	0655	D	N01 W38		1-	2					
	09	0708	0750	D	N01 W38		1-	2					
	09	0712	0744	D	N03 W35		1-	3	0815	.80	1.00		
	09	1005	1035	NO FLARE	PATROL								
SAC PEAK MCNATH	09	1627	1640	1633	S13 W24		1-	3		.54	.56		16
	09	1627	1648	1631	S13 W25	6796	1-	3	1631	.60	.70		16
	09	1812	1852	U	S14 W25		1-	3		.60	.62		17
	09	1956	2014	D	S14 W25		1-	3		.58	.60		
	09	2220	2230	NO FLARE	PATROL								
SAC PEAK	09	2240	2245	NO FLARE	PATROL								
	09	2247	2251	D	S14 W28		1-	1		.41	.43		16
LOCKHEED	09	2250	2310	NO FLARE	PATROL								
	10	0006	0020	0011	S13 W27		1-	2	0011	.40	.40		10
	10	0215	0605	NO FLARE	PATROL								
	10	0740	0745	NO FLARE	PATROL								
	10	0920	0925	NO FLARE	PATROL								
CAPRI-S BUCHAREST	10	0930	0950	NO FLARE	PATROL								
	10	0945	0956	D	N19 W80		1-	3	0945	1.00			
	10	0954	1004	D	S09 E24		1-	3					
	10	1040	1048	D	S09 E24		1-	3					
	10	1055	1155	NO FLARE	PATROL								
CAPRI-S OTTAWA	10	1124	1134	D	S07 E23		1-	3	1124	.50			
	10	1159	1208	D	S10 E21		1-	3	1202	1.05	1.05		
	10	1201	1206	D	S07 E23		1-	3	1202	.50			
	10	1215	1220	NO FLARE	PATROL								
	10	1230	1240	NO FLARE	PATROL								
HUANCAYO SAC PEAK	10	1445	1502	1450	S11 E20		1-	2	1449	.80	.80	2.50	16
	10	1447	1500	1451	S10 E19		1-	3		.29	.29		
	11	0040	0115	NO FLARE	PATROL								
	11	0150	0615	NO FLARE	PATROL								
	11	1005	1016	D	N10 W22		1-	2					
BUCHAREST CAPRI-S	11	1030	1235	NO FLARE	PATROL								
	11	1115	1139	D	N10 W24		1-	1	1121	.40	.50		
	11	1147	1210	D	N22 E38		1-	1	1205	1.00	1.40		
	11	1456	1513	D	S11 W47		1-	1	1457	.50	.70		
	11	2003	2027		N11 W31	6794	1-	1	2003	.80	1.00		
CAPRI-S	12	0140	0600	NO FLARE	PATROL								
	12	0610	0635	NO FLARE	PATROL								
	12	0655	0712	D	N14 E25	6802	1	2	0659	2.00	2.30		
	12	1055	1120	NO FLARE	PATROL								
	12	1148	1159	1149	N07 W38		1-	3	1149	1.28	1.41		
OTTAWA SAC PEAK	12	1245	1250	1247	S15 W67		1-	2		.21	.35		16
	12	1246	1249	1247	S16 W68		1-	2	1247	.52	.92		
	12	1353	1359	1356	S14 W67		1-	3		.31	.52		16

COMMISSION - STANDARDS - BUILDER

COMMERCE - STANDARDS - BOULDER

# SOLAR FLARES

MAY 1963

OBSERVATORY	DATE MAY	OBSERVED UNIVERSAL TIME		LOCATION			DURA- TION — MINUTES	IM- POR- TANCE	OBS. COND.	MEASUREMENTS				PROVISIONAL IONOSPHERIC EFFECT
		START	END	APPROX. LAT.	MER DIST	MONTH PLACE REGION				TIME — U.T.	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX WIDTH Ha	
OTTAWA SAC PEAK SAC PEAK SAC PEAK	1963	12 1354	1359	S15 W67				1-1-	2	1356	.52	.90		15
	12 1437	1443	S14 W68					1-1-	3		.29	.50		15
	12 1715	1740	N12 W46					1-1-	3		.29	.35		15
	12 2248	2301	N10 E19					1-1-	3		.43	.43		16
BUCHAREST BUCHAREST ARCTERI BUCHAREST	13	0140	0650	NO FLARE										
	13 0308	E 1120 D	0918	N07 E85	PATROL			1-1-	3					
	13 0652	E 0830 D		N07 E85				1-1-	3	0830	.46	2.00		
	13 0810	E 0940 D		N11 E86	6805			1-1-	3					
BUCHAREST WENDEL BUCHAREST	13	0712	E 0736 D	S05 E16				1-1-	3					
	13 0723	E 0738 D		S07 E16				1-1-	3					
	13 1001	E 1018 D		N10 E12				1-1-	3					
	13 1120	E 1210	NO FLARE	PATROL				1-1-	3					
WENDEL WENDEL	13	1135	1157 D	N10 E11		6802		1-1-				3.00		
	13 1204	E 1220 D		S09 E19				1-1-						
	13 1215	1330	NO FLARE	PATROL										
	13 1317	E 1341 D		N15 E85				1-1-	2	1317	.50	.50	2.40	
CAPRI-S HUANCAYO LOCARNO WENDEL	13	1350	1401	S15 E85				1-1-	2	1355	.50	.50		
	13 1350	1405	N11 E08					1-1-	2					
	13 1352	1408	N10 E12	6802				1-1-	2					
	13 1352	1407	N12 E09					1-1-	2	1356	.52	3.00	.52	
SAC PEAK MCMATH LOCKHEED	13	1355	E 1405	N12 E09				1-1-	2		.23	.21		16
	13 1512	1545	N09 E90			6805		1-1-	2					
	13 1800	1815	1807	N09 E80				1-1-	2	1807	.40	1.20		20
	14	0200	0735	NO FLARE	PATROL			1-1-	1	0750	1.50			
CAPRI-S BUCHAREST	14	0730	E 0816 D	0747	N10 E75	6805		1-1-	3					
	14 0812	E 0918 D	0813	N10 E71				1-1-	3					
	14 0920	1105	NO FLARE	PATROL										
	14 1108	E 1200 D		N10 E73	6805			1-1-	2	1123	.70	2.40		
MCMATH	14	1200	1205	NO FLARE	PATROL									
	14 1210	1215	NO FLARE	PATROL										
	14 1230	1235	NO FLARE	PATROL										
	14 1554	E 1557	1554	N07 E69				1-1-	1					
HUANCAYO MCMATH	14	2055	2145	N10 E70		6805		1-1-	2	2106	.50	1.60	2.60	
	15	0150	0655	NO FLARE	PATROL									
	15 0702	E 0730 D	0710	N09 E65	6805			1-1-	2					
	15 0910	E 0940 D		N10 E60	6805			1-1-	3		3.60	7.30		
OTTAWA MCMATH CAPRI-S	15	0955	1005	NO FLARE	PATROL									
	15 1137	1154	1140	N09 W16		6802		1-1-	3	1140	.82	.82		
	15 1139	1148	1141	N10 W15				1-1-	3	1141	1.00	1.10		
	15 1140	E 1150 D		N10 W11				1-1-	2	1142	.50	.50		
CAPRI-S OTTAWA LOCKHEED	15	1346	E 1359 D	N10 W12				1-1-	3	1348	1.00	.62		
	15 1443	1503	1454	N08 E54				1-1-	3	1454	.47	.70		
	15 1445	1504	1451	N09 E52				1-1-	3	1451	.60	.60		
	15 1452	E 1501	1456	N07 E55	6805			1-1-	2	1456	2.40	4.30	2.40	20
CAPRI-S HUANCAYO	15	1633	E 1511 D	N06 E55		6805		1-1-	2	1500	1.50	3.00	2.40	
	15 1633	1637	1634	N08 E58		6805		1-1-	2	1635	1.60	3.10	2.30	
	15 1648	1708	1655	N11 W90				1-1-	2	1655	.20	1.00		
	15 1700	E 1705 D	1700	N04 W82				1-1-	2	1702	.90	4.30	2.90	20
HUANCAYO OTTAWA LOCKHEED	15	1711	1728	1714	N13 W17	6794		1-1-	3	1714	2.39	2.39	2.90	
	15 1711	1733	1715	N12 W18		6802		1-1-	2	1715	.60	.60		
	15 1715	E 1728 D	1716	N11 W17				1-1-	2	1715	1.40	1.50	2.00	20

COMMERCE - STANDARDS - BOULDER

## SOLAR FLARES

MAY 1963

OBSERVATORY	DATE MAY 1963	OBSERVED UNIVERSAL TIME		MAX PHASE	LOCATION		DURA- TION — MINUTES	IM- POR- TANCE	OBS COND.	MEASUREMENTS				MAX WIDTH He	MAX INT. %	PROVISIONAL IONOSPHERIC EFFECT
		START	END		APPROX. LAT.	MER DIST				M-MATH PLACE REGION	TIME — U T	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.			
SAC PEAK	15	1720 E	1730 U	1730	N13	W17		1-	1		.70	.70			17	
	15	1720 E	1750 D	1728	N08	E54		1-	1		.43	.58			16	
LOCKHEED	16	0124	0132 D	0129	N09	E49		1-	2	0129	.70	.80			20	
	16	0130	0600	NO FLARE	PATROL											
BUCHARST	16	0630	0645	NO FLARE	PATROL											
BUCHARST	16	0708 E	0739 D		N02	W90		1-	2							
SAC PEAK	16	0850 E	0904 D		N02	W90		1-	3		.43	.50			17	
OTTAWA	16	1245	1252	1247	N10	E42		1-	3	1247	.64	.74				
MC MATH	16	1246	1256	1248	N12	E43	6805	1-	3	1248	.30	.40				
SAC PEAK	16	1618	1630	1622	N07	E43		1-	3		.43	.50			16	
SAC PEAK	16	1800	1845	1823	N10	W34		1-	3		1.20	1.30			17	
LOCKHEED	16	1809	1840	1819	N10	W33		1-	2	1819	1.20	1.20			20	
MC MATH	16	1811	1841 D	1816	N10	W34	6802	1-	2	1816	.60	.70				
SAC PEAK	16	2258	2304	2300	N07	E38		1-	3		.27	.29			16	
LOCKHEED	17	0134	0144	0137	N15	W15		1-	2	0137	.70	.70			20	
	17	0200	1015	NO FLARE	PATROL											
OTTAWA	17	1420	1432	1423	N08	E25		1-	3	1423	.41	.41				
MC MATH	17	1640	1650	1642	N11	E28	6805	1-	2	1642	.30	.30				
OTTAWA	17	1640	1703	1643	N11	E28		1-	3	1643	.23	.23				
SAC PEAK	17	1641	1700	1644	N09	E28		1-	2		.43	.45			17	
MC MATH	17	1654	1704	1656	N11	E28	6805	1-	2	1656	.30	.30				
LOCKHEED	17	1940	2000	1946	N06	E21		1-	2	1946	.70	.70			20	
SAC PEAK	17	1940	2000	1949	N06	E22		1-	2		1.34	1.34			17	
	18	0015	1150	NO FLARE	PATROL											
CAPRI-S	18	0605 E	0712 D	0640	N10	E20		1-	2	0640	1.50	1.60				
CAPRI-S	18	0718 E	0732 D	0720	N08	E20		1-	2	0719	1.50	1.60				
CAPRI-S	18	0748 E	0903 D		N09	E15		1-	1	0748	.80	.90				
	18	0838 E	0903 D		N11	W52		1-	1	0900	1.00	1.60				
	18	2235	2400	NO FLARE	PATROL											
	19	0000	0600	NO FLARE	PATROL											
CAPRI-S	19	0708 E	0710 D		N09	E00		1-	1	0705	.50					
	19	0800	1105	NO FLARE	PATROL											
MC MATH	19	1108 E	1215		N13	W50	6803	1-	1	1130	.70	1.20				
MC MATH	19	1134	1147	1135	N05	E02	6805	1-	1	1135	.20	.20				
SAC PEAK	19	1844	1905	1850	N15	W55		1-	3		1.05	1.24			17	
	19	1852 E	1926	1852	N14	W50	6803	1	1	1853	1.80	3.10				
HUANCAYO	19	1955	2000	NO FLARE	PATROL			34 D								
	19	2005	2010	NO FLARE	PATROL											
	19	2040	2045	NO FLARE	PATROL											
	19	2055	2400	NO FLARE	PATROL											
	20	0000	0600	NO FLARE	PATROL											
BUCHARST	20	0719 E	0724 D	0720	N09	W10		1-	2							
BUCHARST	20	0816 E	0822 D	0819	N13	W62		1-	2							
BUCHARST	20	0913 E	0940 D		N16	W59		1-	2							
	20	1130	1325	NO FLARE	PATROL											

COMMENCE - STANDARDS - BOWCROSS

# SOLAR FLARES

MAY 1963

OBSERVATORY	DATE MAY 1963	OBSERVED UNIVERSAL TIME		LOCATION			DURA- TION — MINUTES	IM- POR- TANCE	OBS. COND.	MEASUREMENTS			PROVISIONAL IONOSPHERIC EFFECT	
		START	END	MAX PHASE	APPROX. LAT.	APPROX. MER DIST.				TIME U T	MEAS. AREA Sq Deg	CORR. AREA Sq Deg		MAX. WIDTH H <sub>3000</sub>
[ ] HUANCAYO [ ] LOCARNO [ ] SAC PEAK	20	1432 E	1605	1539	N13 W59		15	1-	2	1516	.80	1.60	2.50	
	20	1525	1540		N14 W58			1-	2					
	20	1552 E	1610 U	1553 U	N12 W63			1-	1		.35	.56		16
	20	1730	1745	NO FLARE	PATROL									
CAPRI-S	20	2040	2045	NO FLARE	PATROL									
	20	2145	2150	NO FLARE	PATROL									
	20	2200	2400	NO FLARE	PATROL									
	21	0000	0650	NO FLARE	PATROL									
CAPRI-S	21	0720	0730	NO FLARE	PATROL									
	21	0755	0810	NO FLARE	PATROL									
	21	0854 E	0856 D		N06 W24			1-	3	0854	.50			
	21	0900	1020	NO FLARE	PATROL									
[ ] LOCARNO [ ] WENDEL [ ] OTTAWA	21	1148	1230	1201	N06 W25		42	1-	2	1201	.50	.60		
	21	1153 E	1216 D		N05 W26		24 D	1-	2			4.00		
	21	1154	1216	1201	N05 W26			1-	2	1201	1.40	1.41		
	21	1507	1511	1509	N05 W28			1-	2	1509	1.34	1.37		
[ ] SAC PEAK [ ] MCNATH [ ] MCNATH	21	1507	1512	1508	N05 W28			1-	3		.43	.43		15
	21	2105	2120	2108	N11 W31			1-	2	2108	.20	.20		
	21	2139	2159 D	2151	N11 W31			1-	1	2151	.20	.20		
	21	2200	2350	NO FLARE	PATROL				2	2359	.40	.40		20
LOCKHEED	21	2356	0003	2359	N05 W46			1-						
	22	0135	1030	NO FLARE	PATROL									
	22	1702 E	1808 D		N10 W37		66 D	1-				4.00		
	22	1710 E	1744 D		N09 W40			1-						
[ ] WENDEL [ ] WENDEL [ ] SAC PEAK	22	1727	1750	1733	N08 W40			1-	2		1.34	1.53		17
	22	1752	1801	1757	N12 W44			1-	2		.70	.83		15
	22	2230	2315	NO FLARE	PATROL									
	23	0042	0050	0045	N11 W42			1-	2	0045	.20	.20		20
LOCKHEED	23	0135	0600	NO FLARE	PATROL									
	23	0745	0805	NO FLARE	PATROL			1-	2	0835	.50	1.20		
	23	0827 E	0902 D	0841	N05 W59			1-				3.00		
	23	0828 E	0907 D		N03 W64		39 D	1-	2	0839	.42	.89		
[ ] WENDEL [ ] ARCETRI	23	0830 E	0856 D		N05 W67									
	23	1105	1105	NO FLARE	PATROL									
	23	1005	1105	1141	N05 W69		17	1	1	1141	.80	2.40		
	23	1138	1155		N05 W69			1-	2	1219	.70	1.70		
[ ] CAPRI-S [ ] CAPRI-S [ ] MCNATH	23	1142 E	1223 D		N05 W60			1-	2	1220	.50	1.60		
	23	1206	1225	1232	N05 W69			1-	2	1220	1.00	3.50		
	23	1229	1302	1254 D	N05 W69		33	1	2	1232	1.00	2.40		
	23	1230 E	1254 D	1252	N05 W65		24 D	1	2	1230	1.00	2.40		
[ ] CAPRI-S [ ] CAPRI-S [ ] MCNATH	23	1314	1325	1316	N05 W69			1-	2	1316	.50	1.70		
	23	1350 E	1423	1403	N06 W68		33 D	1	2	1414	1.60	3.60		
	23	1351 E	1444 D		N04 W60			1-	2	1424	.60	1.60		
	23	1408	1425	1412	N05 W70			1-	2	1412	.50	1.70		
[ ] MCNATH [ ] MCNATH [ ] MCNATH	23	1454	1508	1458	N05 W71			1-	2	1458	.50	1.70		
	23	1454	1508	1502	N05 W71			1-	2	1458	.50	1.70		
	23	1500 E	1541 D		N04 W70		20	1-	2	1504	.50	1.40		
	23	1510	1530	1521	N05 W71			1-	2	1521	1.20	4.00		
[ ] CAPRI-S [ ] SAC PEAK	23	1520 E	1527	1522	N06 W71			1-	1			1.34		18

COMMENCE - STANDARDS - BOLLINGER

## SOLAR FLARES

MAY 1963

OBSERVATORY	DATE MAY 1963	OBSERVED UNIVERSAL TIME		LOCATION			IM- POR- TANCE	OBS. COND.	TIME - UT	MEASUREMENTS			PROVISIONAL IONOSPHERIC EFFECT
		START	END	APPROX. LAT.	APPROX. MAG.	REGION				MEAS. AREA Sq. Deg.	COBR. AREA Sq. Deg.	MAX WIDTH H <sub>3000</sub>	
[ SAC PEAK MCMATH MCMATH MCMATH [ SAC PEAK MCMATH MCMATH MCMATH MCMATH MCMATH	23	1547	1554	N06 W69	6814	6814	1-	1	1550	.70	1.34		SL - SWF
	23	1548	1555	N05 W70	6814	6814	1-	2	1550	.70	1.70		
	23	1702	1720	N14 E68	6812	6812	1-	1	1707	.60	1.60		
	23	1810	1855	N05 W74	6814	6814	1-	1	1824	.50	1.70		
	23	1820 E	1823 D	N05 W70	6814	6814	1-	1	1824	.58	1.09		
	23	1904	1936	N05 W74	6814	6814	1	1	1925	.60	2.20		
	23	1904	1936	N05 W74	6814	6814	1	1	1925	.60	2.20		
	23	2002	2020	N05 W76	6814	6814	1-	1	2015	1.00	1.00		
	23	2039	2103	N05 W76	6814	6814	1	1	2049	3.50	3.50		
	23	2158	2210 D	N06 W74	6814	6814	1-	2	2205	.50	1.70		
[ SAC PEAK MCMATH MCMATH MCMATH MCMATH MCMATH MCMATH MCMATH MCMATH MCMATH	23	2210	2300	NO FLARE	PATROL	PATROL	1-	1	2205	.50	1.70		
	23	2310	2400	NO FLARE	PATROL	PATROL	1-	1	2205	.50	1.70		
	24	0000	0600	NO FLARE	PATROL	PATROL	1-	1	0000	.50	1.70		
	24	0730	0750	NO FLARE	PATROL	PATROL	1-	1	0730	.50	1.70		
	24	0800	0855	NO FLARE	PATROL	PATROL	1-	1	0800	.50	1.70		
	24	0924 E	0933 D	N04 W84	6814	6814	1	2	0931	.52	2.02		
	24	1010	1025	NO FLARE	PATROL	PATROL	1-	1	1010	.50	1.70		
	24	1052 E	1100 D	N09 E54	6814	6814	1-	1	1052	.35	.52		
	24	1153	1234	N17 E60	6812	6812	1-	2	1212	.35	.52		
	24	1158	1235	N16 E60	6812	6812	1-	3	1203	.20	.40		
[ SAC PEAK MCMATH MCMATH MCMATH MCMATH MCMATH MCMATH MCMATH MCMATH MCMATH	24	1201 E	1225 D	N15 E57	6814	6814	1-	1	1215	.60	1.20		S - SWF
	24	1247	1255	N04 W90	6814	6814	1-	2	1251	.20	.40		
	24	1250 E	1315 D	N04 W78	6814	6814	1-	1	1255	.40	.70		
	24	1253 E	1302 U	N04 W85	6814	6814	1-	1	1255	.35	.52		
	24	1426	1436	N06 W74	6805	6805	1-	2	1430	1.22	2.62		
	24	1443	1450	N12 E57	6812	6812	1-	1	1446	.20	.40		
	24	1443	1451	N12 E56	6812	6812	1-	1	1446	.20	.40		
	24	1500	1605 D	N14 E54	6812	6812	1-	2	1515	.14	.21		
	24	1459	1522 D	N10 W73	6805	6805	1-	1	1515	.40	.70		
	24	1515	1525	N09 W72	6805	6805	1-	1	1519	.99	2.10		
[ SAC PEAK MCMATH MCMATH MCMATH MCMATH MCMATH MCMATH MCMATH MCMATH MCMATH	24	1516	1524	N10 W72	6805	6805	1-	2	1519	.76	1.52		SL - SWF
	24	1528 E	1535	N13 E52	6812	6812	1-	1	1518	.50	.80		
	24	1928 E	1935	NO FLARE	PATROL	PATROL	1-	1	1931	.50	.80		
	24	2135	2140	NO FLARE	PATROL	PATROL	1-	1	1931	.50	.80		
	24	2150	2150	NO FLARE	PATROL	PATROL	1-	1	1931	.50	.80		
	24	2155	2400	NO FLARE	PATROL	PATROL	1-	1	1931	.50	.80		
	25	0000	0600	NO FLARE	PATROL	PATROL	1-	1	1931	.50	.80		
	25	0750	0800	NO FLARE	PATROL	PATROL	1-	1	1931	.50	.80		
	25	0950	1000	NO FLARE	PATROL	PATROL	1-	1	1931	.50	.80		
	25	1010	1015	NO FLARE	PATROL	PATROL	1-	1	1931	.50	.80		
[ SAC PEAK MCMATH MCMATH MCMATH MCMATH MCMATH MCMATH MCMATH MCMATH MCMATH	25	1314	1331	N16 E90	6815	6815	1?	2	1325	1.98	5.20		S - SWF
	25	1623	1636	N05 W89	6805	6805	1-	1	1625	.50	15.20		
	25	1627 E	1638	N05 W80	6805	6805	1-	2	1627	3.20	1.44		
	25	1706	1722 D	N07 W84	6805	6805	1-	2	1627	.58	1.44		
	25	1712 E	1733	N05 W80	6805	6805	1-	2	1713	1.80	8.60		
	25	1729 E	1747 D	N07 W88	6805	6805	1-	1	1732	.20	2.50		
	25	1820	1845	NO FLARE	PATROL	PATROL	1-	1	1732	.20	2.50		
	25	2210	2220	NO FLARE	PATROL	PATROL	1-	1	1732	.20	2.50		
	25	2225	2400	NO FLARE	PATROL	PATROL	1-	1	1732	.20	2.50		
	26	0130	0705	NO FLARE	PATROL	PATROL	1-	1	1732	.20	2.50		

# SOLAR FLARES

MAY 1963

OBSERVATORY	DATE MAY 1963	OBSERVED UNIVERSAL TIME		LOCATION			DURA- TION — MINUTES	IM- POR- TANCE	OBS. COND.	MEASUREMENTS				PROVISIONAL IONOSPHERIC EFFECT	
		START	END	APPROX. LAT.	MER DIST	MC-MATH PLACE REGION				TIME U T	MEAS. AREA Sq Deg	CORR. AREA Sq Deg	MAX WIDTH Ha		MAX INT °
CAPRI-S	26	0616 E	0915 D	0830		6805	179 D	2	2	0732	2.00				
	26	0800	0825	NO FLARE	N12 W90 PATROL										
	26	1005	1020	NO FLARE	PATROL										
	27	0150	0600	NO FLARE	PATROL										
	27	0516 E	0552 D		N13 E48 N10 E46	6815	36 D	1				4.00			
	27	0524	0702 D	0626	N11 E13 N11 E10	6812	98 D	3				21.00			
	27	0605 E	0645 D			6812	40 D	2	3		8.20		8.60		
	27	0615 E	0658 D			6812	43 D	2	2	0633	6.60		6.60		
	27	0750	0800	NO FLARE	PATROL										
	27	0824	0906		N13 E46 N13 E46	6815	42	1				3.00			
WENDEL	27	0912 E	0944 D		N12 E45	6815	32 D	1				4.00			
	27	0930 E	0950 D			6815		1-	3	0930	.92	1.35			
	27	1005	1040	NO FLARE	PATROL										
	27	1147	1158	1151	N12 E47	6815		1-	1	1151	.20	.30			
	27	1340 E	1412		N14 E42			1-	2	1410	1.60	2.20	1.90		
	27	1344	1350	1347	N14 E45	6815		1-	2	1347	.30	.40			
	27	1346 E	1540 D		N16 E50	6815	114 D	1	1	1404	2.00	3.40			
	27	1400	1430	1405	N14 E45	6815		1-	2	1405	.80	1.20		16	
	27	1402	1416	1406	N12 E47			1-	3		.43	.52			
	27	1402	1422		N13 E46			1-	3	1409	.35	.42			
WENDEL	27	1457	1625	1509	N14 E45	6815		1-	2	1509	.80	1.20			
	27	1501	1534	1509	N14 E47	6812	33	1	3	1509	2.74	3.32			
	27	1504	1535	1514				1-	3		1.40	1.71		16	
	27	1505 E	1518 D		N19 E50		30 D	1-	1	1505	.50	.90			
	27	1514 E	1544 D		N13 E42	6815		1+	2			5.00	2.30		
	27	1520 E	1536	1521	N14 E42			1-	2	1520	.70	.90			
	27	1616	1635	1621	N06 E71	6817		1-	1	1621	.30	.90			
	27	1645	1700	1650	N06 E71	6817		1-	2	1650	.20	.50			
	27	1657	1748	1709	N14 E46	6815		1-	2	1709	.70	1.00			
	27	1720	1752	1721	N06 E70	6817		1-	2	1721	.20	.50			
CAPRI-S	27	1752	1828	1801	N14 E44	6815		1-	2	1801	.60	.80			
	27	1832	1930 D	1853	N14 E44	6815		1-	1	1853	1.00	1.40		16	
	27	1848 U		1851	N13 E42			1-	3		.58	.66			
	27	2023	2032 D		N14 E44	6815		1-	1	2028	.80	1.00			
	27	2140	2145	NO FLARE	PATROL										
	27	2245	2300	NO FLARE	PATROL										
	27	2305	2400	NO FLARE	PATROL										
	28	0000	0600	NO FLARE	PATROL										
	28	0750	0805	NO FLARE	PATROL										
	CAPRI-S	28	0852 E	0955 D		N11 E35			1-	2	0928	.80	1.00		
28		1005	1250	NO FLARE	PATROL										
28		1925	1930	NO FLARE	PATROL										
28		1940	1945	NO FLARE	PATROL										
28		1955	2000	NO FLARE	PATROL										
28		2015	2020	NO FLARE	PATROL										
28		2025	2030	NO FLARE	PATROL										
28		2035	2050	NO FLARE	PATROL										
28		2305	2400	NO FLARE	PATROL										
29		0000	0700	NO FLARE	PATROL										
29	0730	0810	NO FLARE	PATROL											
29	1010	1130	NO FLARE	PATROL											

COMMERCE - STANDARDS - BUILDER



# SOLAR FLARES

MAY 1963

OBSERVATORY	DATE MAY 1963	OBSERVED UNIVERSAL TIME		LOCATION		DURA- TION — MINUTES	IM- POR- TANCE	OBS COND.	MEASUREMENTS				PROVISIONAL IONOSPHERIC EFFECT		
		START	END	MAX. PHASE	APPROX. LAT.				MER DIST	MCNATH FLARE REGION	TIME — UT	MEAS AREA Sq. Deg.		CORR. AREA Sq. Deg.	MAX WIDTH He
MCMATH SAC PEAK HUANCAYO SAC PEAK	29	1140	1330	NO FLARE	PATROL	N11 W17	6812	1-	1	1506	.50	.50		17	SL-SHF
	29	1452	1507	D		N14 E16		1-	2		.87	.89			
	29	1518	1540	U		N12 E11		1-	2	1533	2.10	2.30	1.90	16	
	29	1524	1608	E		N12 E14		1-	1		.72				
	29	2104	2108	D		PATROL									
SAC PEAK	29	2105	2130	NO FLARE	PATROL										
	29	2145	2150	NO FLARE	PATROL										
	29	2145	2307	D		N11 E12		1-	2		.50	.50		17	
	29	2250	2307	D		N11 E12									
	29	2310	2400	NO FLARE	PATROL										
WENDEL	30	0000	0600	NO FLARE	PATROL										
	30	0450	0524	D		N13 E13	6815	2				12.00			
	30	0653	0718	D		N14 E09	6815	1				3.00			
	30	0710	0729	D		N12 E08		2							
	30	0710	0729	D		N11 W25		1-	2						
CAPRI-S BUCHAREST BUCHAREST ATHENES WENDEL	30	0743	0747	D		N13 E06	6815	1-	1	0747	.80	.80			
	30	0744	0757	D		N13 E06		1-	2						
	30	0747	0804	D		N15 E10		1-	3		1.00	1.10			
	30	0748	0814	D		N13 E07	6815	1-				4.00			
	30	0915	0945	NO FLARE	PATROL										
WENDEL	30	0938	0952	D		N13 E07		1-							
	30	0950	1325	NO FLARE	PATROL										
	30	1102	1125			N13 E05	6815	1	2	1102		2.00			
	30	1104	1130	E		N13 E07	6815	1				3.00			
	30	1208	1215	D		N12 W28		1-							
WENDEL	30	1306	1315	D		N13 E07		1-							
	30	1411	1432	D		N14 E09	6815	1-							
	30	1415	1423	D		N12 E07		1-	2	1416	2.30	2.40	1.80		
	30	1424	1432	D		N14 E08	6815	1-	1	1428	.50	.50			
	30	1638	1714	D		N13 E05	6815	1+							17
HUANCAYO MCMATH WENDEL SAC PEAK	30	1643	1710	U		N14 E04		1-							
	30	1659	1720	E		N13 E02	6815	1-	2		1.71	1.67			
	30	1817	1825			N12 E02	6815	1-	1	1659	.70	.70			
	30	1817	1830			N14 E02	6815	1-	1	1818	.40	.40			
	30	1959	2008			N12 E00	6815	1-	2		1.01	.99		17	
SAC PEAK	30	1959	2009			N12 E00		1-	1	2000	.30	.30			
	30	2148	2210	2151		N13 W01	6815	1-	2		.29	.29		15	
	30	2148	2210	2205		N13 W01		1-	2	2151	.60	.60			
	30	2201	2211	2204		N12 W02		1-	2		.43	.41		16	
	30	2227	2321	D		N13 W02	6815	1-	1	2247	.60	.60			
MCMATH	30	2325	2400	NO FLARE	PATROL										
	31	0000	0755	NO FLARE	PATROL										
	31	0725	0745			N13 W02	6815	1	2						
	31	0725	0750			N14 E01	6815	1+				5.00			
	31	0845	0857	D		N13 W01		1-							
WENDEL	31	0845	0945	NO FLARE	PATROL										
	31	0854	0900	D		N12 W05		1-							
	31	0950	1005	NO FLARE	PATROL										
	31	1010	1050	NO FLARE	PATROL										
	31	1200	1240	D		N13 W04	6815	1-	3	1204	1.20	1.20			



# SOLAR FLARES

MAY 1963

OBSERVATORY	DATE	OBSERVED UNIVERSAL TIME		LOCATION		DURATION MINUTES	OBS. COND.	MEASUREMENTS				PROVISIONAL IONOSPHERIC EFFECT
		START	END	LAT.	LONG.			MEAS. AREA Sq Deg	CORR. AREA Sq Deg	MAX WIDTH H <sub>o</sub>	MAX INT U <sub>o</sub>	
WENDEL WENDEL WENDEL	MAY 1963											
	31	1202 E	1210 D	N13 W03								
	31	1457 E	1503 D	N09 W42								
	31	1658 E	1713 D	N10 W12								
	31	2325	2400	NO FLARE PATROL								

COMET - STARDUST - BOULDER

ATHENS  
BAKOU  
CAPETOWN  
CAPRI F  
CAPRI S  
CRIMEE  
HERSTMONCEU  
HTE-PROVEN  
HTE-PROVEN

ATHENS, GREECE  
PIRCULI, USSR  
ROYAL OBSERVATORY,  
CAPE OF GOOD HOPE  
CAPRI, ITALY (GERMAN)  
CAPRI, ITALY (SWEDISH)  
SIMEIZ, USSR  
ROYAL GREENWICH OBSERVATORY,  
HERSTMONCEUX, ENGLAND  
HAUTE-PROVENCE

HONOLULU  
IKOMASAN  
KIEV KY  
KIEV KY  
LOCKHEED  
MCNATH  
MOSCOW  
NEW SCHAUM FREIBURG, GFR

HAWAII, USA  
KYOTO, JAPAN  
KIEV GAO, USSR  
KIEV UNIVERSITY, USSR  
LOS ANGELES, CALIF., USA  
MCNATH-HULBERT  
PONTIAC, MICH., USA  
MOSCOW-GAISH, USSR

NERA  
NIZHIR  
SAC PEAK  
SALTSJOBADEN  
SCHAUTINS  
TASHKENT  
WENDEL

NEDERHORST den BERGH,  
NETHERLANDS  
KRASNAYA PAKHRA, USSR  
SACRAMENTO PEAK, N.MEX. USA  
STOCKHOLM, SWEDEN  
SCHAUTINSLAND, GFR  
TASHKENT, USSR  
WENDELSTEIN, GFR

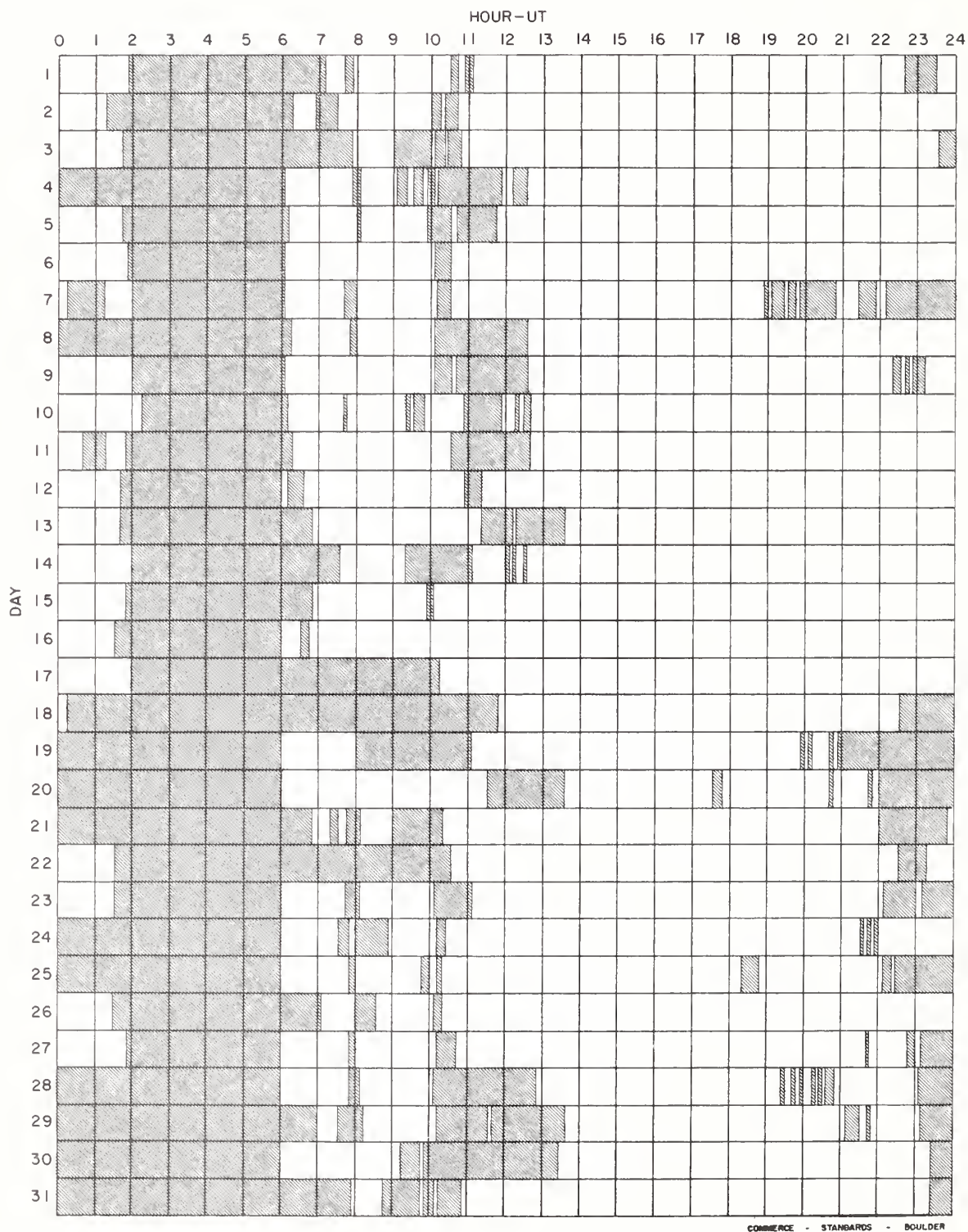
ALL VALUES IN THE MAXIMUM INTENSITY COLUMN FOR SAC PEAK ARE ARBITRARY UNITS (0-40) AND FOR LOCKHEED ARE ARBITRARY UNITS (10-40),  
NOT PERCENT OF CONTINUOUS SPECTRUM.

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

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

## INTERVALS OF NO FLARE PATROL OBSERVATIONS

MAY 1963



Stations Included:

Arcetri	Bucharest	Huancayo	Lockheed	Ottawa
Athènes	Herstmonceux	Istanbul	McMath-Hulbert	Sacramento Peak

# SOLAR FLARES

FEBRUARY 1963

OBSERVATORY	DATE	OBSERVED UNIVERSAL TIME		LOCATION			DURA- TION — MINUTES	IM- POR- TANCE	OBS. COND.	TIME — U T	MEASUREMENTS			PROVISIONAL IONOSPHERIC EFFECT		
		START	END	APPROX. LAT.	MER DIST	MCNATH PLACE REGION					MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX WIDTH H <sub>3000</sub>		MAX INT. °	
HTE-PROVEN HTE-PROVEN HTE-PROVEN HTE-PROVEN HTE-PROVEN HTE-PROVEN HTE-PROVEN HTE-PROVEN HTE-PROVEN HTE-PROVEN HTE-PROVEN HTE-PROVEN HTE-PROVEN HTE-PROVEN HTE-PROVEN HTE-PROVEN	FEB 1963	01 0000	0040	NO FLARE	PATROL											
	01 0100	0105	NO FLARE	PATROL												
	01 0840	0902	0852	S15 E65			1-									
	01 0906	0912	0909	S15 E65			1-									
	01 0934	0955	0945	S15 E65		6689	1		0945	1.60	3.80					
	01 1027	1043	1033	S15 E65			1-									
	01 1106	1220	1135	S15 E65		6689	1		1135	1.30	3.20					
	01 1255	1312	1302	S15 E65			1-									
	01 1350	1400	1353	S15 E65		6689	1		1353	1.30	3.20					
	01 1350	1410		S17 E64		6689	1	2								
	01 1424	1445	D 1426	S15 E65			1-									
	01 1445	1550	NO FLARE	PATROL												
	01 1610	1615	NO FLARE	PATROL												
	01 1620	1635	NO FLARE	PATROL												
	01 1640	1655	NO FLARE	PATROL												
	02 1135	1510	NO FLARE	PATROL												
03 1130	1145	NO FLARE	PATROL													
04 1000	1004		S15 E23			1-										
04 1215	1224		S17 E23			1-										
05 1405	1410	NO FLARE	PATROL													
05 1450	1500	NO FLARE	PATROL													
05 1505	1510	NO FLARE	PATROL													
06 0315	0325	NO FLARE	PATROL													
06 0450	0500	NO FLARE	PATROL													
06 0836	0846		S16 E00			1-										
06 1132	1151		S16 E00			1-										
06 1338	1357	D 1342	N12 E33			1-			1342	1.40	1.80					
06 1941	E 2012	D 1950	S16 W08			1-			1.20							
07 0350	0405	NO FLARE	PATROL													
07 0510	0535	NO FLARE	PATROL													
07 0545	0555	NO FLARE	PATROL													
07 1435	1445	NO FLARE	PATROL													
07 1450	1500	NO FLARE	PATROL													
08 0245	0345	NO FLARE	PATROL													
08 0405	0545	NO FLARE	PATROL													
08 0555	0600	NO FLARE	PATROL													
08 0941	E 0953		S14 W28			6689	1	3	0941	2.00	2.30					
09 1655	1710	NO FLARE	PATROL													
09 1800	2125	NO FLARE	PATROL													
09 2145	2315	NO FLARE	PATROL													
09 2320	2325	NO FLARE	PATROL													
10 1425	1455	NO FLARE	PATROL													
10 1750	1910	NO FLARE	PATROL													
10 1940	2400	NO FLARE	PATROL													
11 0000	0205	NO FLARE	PATROL													

## SOLAR FLARES

FEBRUARY 1963

OBSERVATORY	DATE	OBSERVED UNIVERSAL TIME		LOCATION		DURA- TION — MINUTES	IM- POR- TANCE	OBS. COND.	MEASUREMENTS				PROVISIONAL IONOSPHERIC EFFECT	
		START	END	APPROX. LAT.	MER DIST				TIME — U T	MEAS. AREA Sq Deg	CORR AREA Sq Deg	MAX WIDTH H <sub>3000</sub>		MAX INT. % <sub>s</sub>
CAPETOWN	FEB 1963													
	11	1545	1710											
	12	0205	0220											
	12	2250	2310											
	12	2315	2320											
	13	0245	0250											
	13	0320	0330											
	13	2245	2400											
	14	0000	0005											
	14	0654	0704							0657	.60			
CAPETOWN TACHKENT HTE-PROVEN	15	1440	1500											
	16	1105	1145											
	16	1300	1325											
	17	0155	0200											
	17	0705	0744											
	17	0711	0742											
	17	0726	0742											
	18	1437	1522											
	18	2135	2145											
	18	2200	2250											
CAPETOWN	18	2255	2300											
	18	2320	2330											
	19	0215	0220											
	19	0345	0350											
	19	0420	0500											
	19	1245	1250											
	19	1355	1435											
	20	1537	1553											
	20	1705	1715											
	21	0647	0713											
TACHKENT	21	0805	0830											
	21	1100	1330											
	21	2015	2041											
	22	0325	0330											
	22	0805	0810											
	22	0900	0920											
	22	1005	1150											
	22	1155	1240											
	23	0205	0215											
	23	0335	0340											
CLIMAX														

COMMENTS - STANDARDS - BOULDER

# SOLAR FLARES

FEBRUARY 1963

OBSERVATORY	DATE	OBSERVED UNIVERSAL TIME		LOCATION		DURA- TION — MINUTES	IM- POR- TANCE	OBS. COND.	MEASUREMENTS				PROVISIONAL IONOSPHERIC EFFECT	
		START	END	APPROX. LAT.	MER DIST				MAX PHASE	TIME U T	MEAS AREA Sq Deg.	CORR AREA Sq Deg.		MAX WIDTH Ha
HTE—PROVEN	FEB 1963													
	23	0854	0930		N07 W37		1-							
	24	0300	0315		PATROL									
	24	0320	0330		PATROL									
	24	0335	0340		PATROL									
	24	0350	0420		PATROL									
	24	0440	0500		PATROL									
	24	1425	1435		PATROL									
	25	0355	0400		PATROL									
	25	0500	0530		PATROL									
25	0605	0630		PATROL										
HTE—PROVEN	26	0305	0325		PATROL									
	26	0340	0410		PATROL									
	26	1215	1220		PATROL									
	27	0545	0550		PATROL									
	27	0605	0610		PATROL									
	27	0615	0625		PATROL									
	27	0922	0955		N00 E65		1-							
CAPRI—F	28	0445	0510		PATROL		1-	2	1508	1.00	1.03			
	28	1455	1522		N05 W15									

COMMERCE - STANDARDS - BOULDER

These flare reports are addenda to the February 1963 published in CRPL-F 223 B for March 1963.

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

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

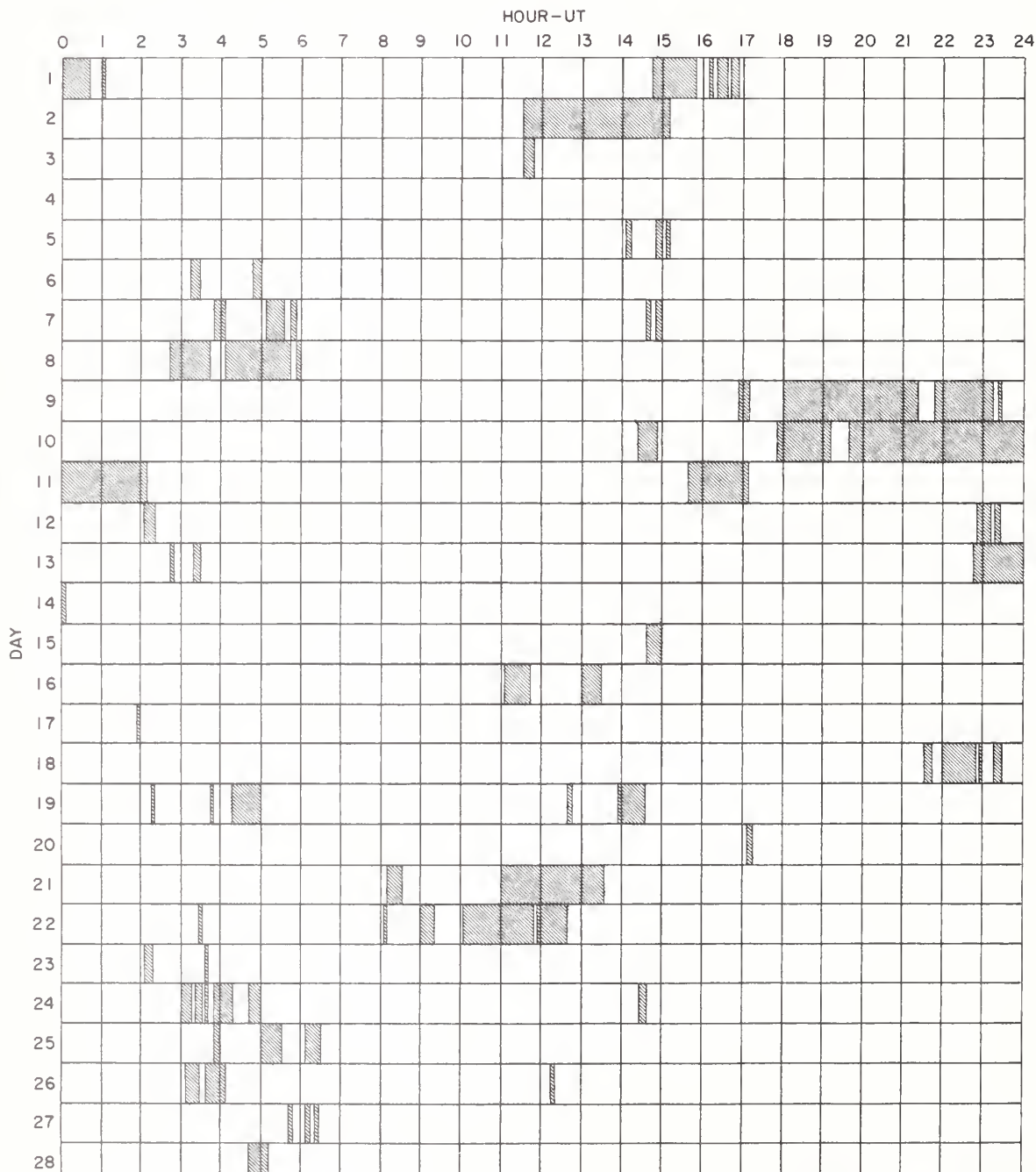
SEE DESCRIPTIVE TEXT PUBLISHED NOVEMBER 1961 FOR DEFINITION OF CORRECTED AREA VALUES LISTED FOR CLIMAX, HAWAII, LOCKHEED AND SACRAMENTO PEAK.

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



## INTERVALS OF NO FLARE PATROL OBSERVATIONS

FEBRUARY 1963



Stations Included:

COMMERCE - STANDARDS - BOULDER

Abastumani	Capri-F (German)	Herstmonceux	Kiev KO	Mitaka	Sacramento Peak
Arcetri	Capri-S (Swedish)	Honolulu	Kodaikanal	Nizamia	Schauinsland
Athens	Climax	Huancayo	Lockheed	Nizmir	Taqkent
Bakou	Crimee	Ikonasan	McMath-Hulbert	Ondrejov	Uccle
Capetown	Haute-Provence	Kharkov	Meudon	Ottawa	Voroshilov

# IONOSPHERIC EFFECTS OF SOLAR FLARES

IIIp

## SHORT WAVE RADIO FADEOUTS SUDDEN COSMIC NOISE ABSORPTION SUDDEN ENHANCEMENTS OF ATMOSPHERICS SUDDEN PHASE ANOMALIES SOLAR NOISE BURSTS AT 18 Mc

APRIL 1963

APRIL 1963	UNIVERSAL TIME			SWF TYPE	IMPORTANCE						WIDE SPREAD INDEX	STATIONS	KNOWN FLARE
	START	END	MAX		IMP	ABS	SCNA	SEA	SPA	BUR			
10	1949	1951								1	4	MC BO	
11	0059	0101								1	5	HA MA	*
11	0138	0140								1	5	HA MA	*
11	0141	0143								1	5	HA MA	*
11	1735	1737								1	4	MC BO	
12	0114	0116								1	5	HA MA	*
13	1659	1704								2	4	MC BO	
14	1600	2230								1	5	BO MC HA (Noise storm)	1600
+	15 1123	1153	1133	S	2				2		5	EN A1 A3 A5 A15 A16	1118E
	15 1124	1140									5	PR CW** CW*** LI NE	
	15 1124	1144	1126			50	2+				1	RO	
	15 1615	1655	1615						87		5	BO (NPM87, NAA51, NSS36)	
	15 1615	1705									5	MC AN BE BO FM HU LI NE PR WS	
+	15 1616	1705	1621	S	3	50	2+				5	BO BE MC RO	1613
	15 1616	1715	1631					2+			5	MC A3 A5 A15 A16 BO EN	
16	0209	0217								2	5	HA MA	*
16	1630	2000								1	5	BO MC HA (Noise storm)	1640
16	1641	1646								2+	4	BO MC	
16	1648	1654								2	4	BO MC	
17	0121	0124								1	5	HA MA	1900
17	1600	2200								1	5	BO MC HA (Noise storm)	
17	1819	1833								1+	4	BO MC (Group)	
17	1903	1945		SL 1							5	HU BE FM MC PR	
18	1644	1646								1+	4	MC BO	
18	1753	1755								1+	4	MC BO	1837
18	1834	1838								1+	4	MC BO	
18	1918	1920								1	4	MC BO	
18	2302	2304								1-	5	BO MC HA	
19	1710	1712								1-	4	BO MC	
+	19 1741	1911	1753	SL	2+				72		5	BO (NPM72, GBR36, NAA30, NSS25)	1756
	19 1753	1830									5	HU BE BO FM HU MC NE PR WS	
	19 1757	1828	1803			25	1					BO BE MC HA	
	19 1757	1901	1807					2				BO A1 A3 A5 MC	
	19 1857	1900								1+	4	MC BO	
19	1904	1906								1+	5	MC BO HA	
+	20 0211	0240	0214	S	2+	50	2				5	HA MA	*
	20 0212	0256									5	TO AD AN CA CW+ CW++ MA OK WS	
	20 0213	0251	0217					1			5	MA HA TO	
	20 1653	1654								1	4	MC BO	
	20 1702	1704								1	4	MC BO	
20	1816	1820								1-	4	MC BO	

RECEIVED - STANDARD - SOLAR

+ = Sudden Enhancement of Signals on VLF stations observed by A1, A3, A5, or A14  
RO = Rome, Italy  
EN = Preston, England  
A15 = Vermont  
A16 = Sao Paulo, Brazil

# SOLAR RADIO EMISSION OUTSTANDING OCCURRENCES

MAY 1963

ARO - OTTAWA

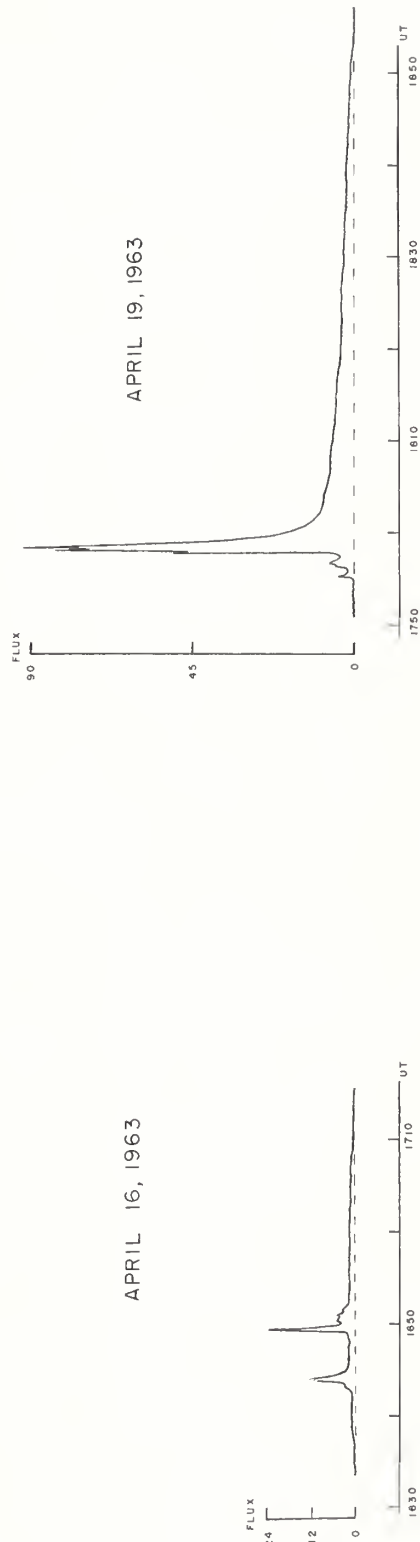
2800 Mc.

MAY 1963	TYPE	START UT	DURATION HRS. MIN		MAXIMUM			REMARKS
					TIME UT	PEAK FLUX	MEAN FLUX	
2	3 Simple 3 f	1845	1	12	1924	3	1.5	
2	1 Simple 1	2040		10	2045	2	1	
5	3 Simple 3 f	2012	1	45	2058	3	1.5	
5	3 Simple 3 A	2213	1	12	2235	2	1	
	1 Simple 1 f	2213		8	2217	4	2	
6	3 Simple 3 f	1234		19	1239	2	1	
7	3 Simple 3	1244		56	Indet.	2	1	
7	1 Simple 1	1746		6	1748	2	1	
9	3 Simple 3 f	1811	1	29	1855	2	1.5	
9	3 Simple 3	2246		12	2255	2	1.5	
13	3 Simple 3	1324	2	01	Indet.	2	1	
13	3 Simple 3	2209	>1	16	Indet.	3	-	
14	1 Simple 1	1413.3		1.	1413.7	2	1	
15	1 Simple 1	1137.5		12.	1140	2	1	
15	1 Simple 1	1740		5	1742.5	2	1	
16	3 Simple 3 f	1800	1	40	1830	3.5	1.8	
16	3 Simple 3	2040	>2	55	Indet.	9	-	
19	3 Simple 3	2052		38	2107	3	1.5	
19	1 Simple 1	2144		2	2145.2	4.5	2.3	
20	3 Simple 3	2254		29	2258	2	1	
22	3 Simple 3 f	1728		17	1731.5	2	1	
23	3 Simple 3 A	1210		35	Indet.	2	1.7	
	2 Simple 2 f	1236		6	1236.5	27	7	
24	2 Simple 2	1515.3		5	1515.9	32	6	
25	2 Simple 2	1621.8		6.2	1622.5	16	4	
25	1 Simple 1	1641		2	1641.8	1	0.5	
25	3 Simple 3 A f	1658	2	00	1713	4.5	2.3	
	6 Complex f	1701.5		8.5	1702.3	19	5	
26	3 Simple 3 A f	2202	>1	28	Indet.	10	-	
	1 Simple 1	2212		3	2213	2	1	
29	3 Simple 3	1517		>20	Indet.	2	-	
30	6 Complex f	1817.3		2.9	1819	3	2	

COMMERCE - STANDARDS - BOULDER



# SELECTED 2800 MC/S SOLAR NOISE BURSTS OTTAWA, CANADA APRIL 1963



# SOLAR RADIO EMISSION OUTSTANDING OCCURRENCES MAY 1963

BOULDER

108 Mc.

May 1963	Type	Start UT	Time of Maximum UT	Duration Minutes	Intensity
2	3	1601.1	1601.5	0.8	2
2	3	1728.1	1728.2	1.8	1
3	3	1521.1	1521.4	1.0	3
5	3	1518.5	1518.9	1.4	2
9	3	1803.0	1803.5	0.8	2
16	3	1342.0	1342.5	1.5	2
17	3	1945.1	1945.8	1.0	3
20	7	2315	2346	157 D	2
21	6	1145E	1250	205 D	1
23	7	1230	1308	~ 90	1
23	4A	1549.0	1550	2.5	2
23	4B	1600	1610	~ 75	1
24	6	1143E	1245	128 D	1
24	3	1515.0	1515.5	1.8	3
24	8	1521.3	1522.0	4.8	3
25	8	0126	0130.8	8	3
25	3	1610.0	1610.7	1.0	3
25	9A	1621.4	1623.5	5.2	3
25	9B	1626.6	2010	665 D	2
26	6	1403E	2218	552 D	2
29	8	1537.0	1541.0	6.0	3
30	3	1817.0	1818.2	1.4	3

COMMERCE - STANDARDS - BOULDER

## NOMINAL TIMES OF OBSERVATION OUTSTANDING OCCURRENCES

MAY 1963

BOULDER

108 Mc.

May 1963	U.T.			May 1963	U.T.		
1	1205-0135	I	1958-2057; 0045-0115	20	1637-1845; 1854-0152		
2	1204-0136			21	1145-0153		
3	1203-0137			22	1144-0154	I	2045-2149; 2237-2318
4	1202-0138	I	Throughout day	23	1143-0154	I	2227-2351
5	1201-0139			24	1143-0155	I	1730-2115; 0033-0117
6	1159-2109; 2225-0140			25	1142-0156	I	2303-2332
7	1158-0141			26	1403-0157		
8	1157-0142			27	1141-0158		
9	1156-0143			28	1140-0158	I	1930-2100
10	1155-0144	I	2150-2245	29	1140-0158	I	1930-2345
11	1154-0145			30	1139-0159	I	1930-0159
12	1153-0146			31	1139-0159	I	1815-2230
13	1152-0146	I	2210-2245				
14	1151-0147	I	2213-2232				
15	1150-0148						
16	1149-0149	I	1817-2100				
17	1148-0149						
18	1147-0150	I	0040-0108				
19	1147-1838						

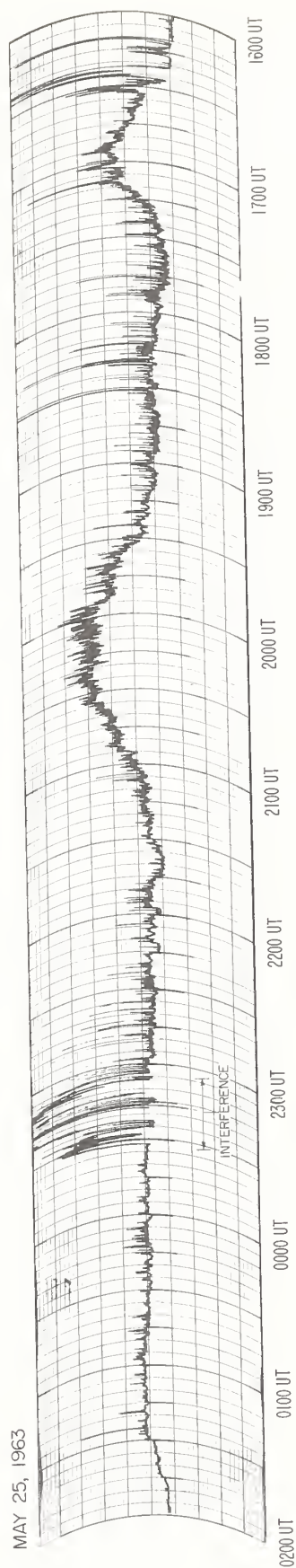
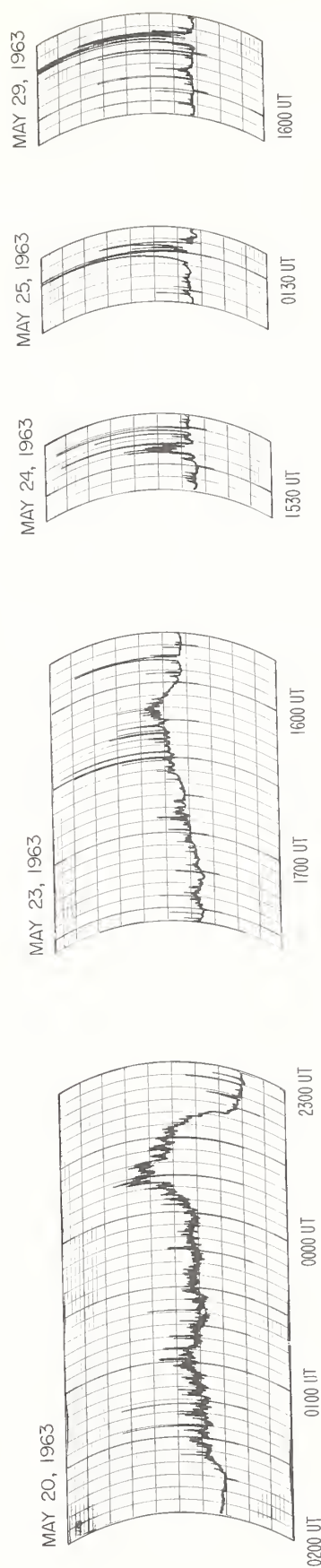
COMMERCE - STANDARDS - BOULDER

Local atmospherics are responsible for most of the "I" intervals.

# SOLAR NOISE BURSTS

108 Mc

BOULDER



# SOLAR RADIO EMISSION SPECTRUM OBSERVATIONS

MAY 1963

HAO BOULDER

7.6- 41 Mc.

Date	Bursts			Frequency Range (mc)	Date	Bursts			Frequency Range (mc)
1963	Type	Time (U.T.)	Inten- sity		1963	Type	Time (U.T.)	Inten- sity	
1 May	III	2315.30-2316	1-	21-41		III	1855-1855.30	1	21-41
2	III	1537.30-1538	1-	18-41		III	2002-2002.30	1-	24-31
	III	1838.15-1838.30	1-	17-41		III	2012.45-2013.30	1-	22-41
3	III	2427-2427.15	1-	22-41		III	2127.30-2128	1-	28-41
4	III	1453.30-1454	1-	7-41		III	2201.45-2202.15	1-	24-41
	III	1718.30-1719.30	1-	21-37		III	2217-2217.30	1-	24-41
	III	2009.15-2010	1	7-41		III	2228.30-2228.45	1-	27-41
7	III	1657.30-1658.45	1-	29-33		III	2236-2236.15	1-	25-38
	III	2215.45-2217.15	1-	21-41		III	2243.45-2244.15	1-	24-41
8	III	2304.30-2305.45	1-	22-41		continuum	2257-2345	1-	16-41
10	III	1607.30-1607.45	1-	23-41		III	2415-2415.30	1+	24-41
	III	2015.30-2017.15	2	16-41		III	2436.30-2438.15	1+	20-41
	III	2126-2126.15	1-	20-41		III	2439.30-2440	1	27-41
11	III	1855-1855.45	1-	7-41		III	2441.15-2442	1	31-41
13	III	1514.30-1515.15	1-	7-41		III	2443.45-2444.45	2	30-41
	III	1533-1534	1-	7-41		III	2450.15-2451	2	29-41
14	continuum	1343-1348	1	19-41		III	2506.45-2508.15	1-	22-41
	III	1411.30-1412	1-	25-41	19	III	2511.15-2511.30	1-	32-41
	III	1930.15-1930.45	1	22-41		III	1302.15-1304.45	1	12-41
	III	2236-2237.45	1-	16-41		III	1359.15-1359.45	1-	22-41
15	continuum	1500-1735.30	1-	21-41		III	1409.15-1409.30	1-	25-41
	III	2058.15-2058.30	1-	18-41		III	1629.15-1630	1	16-41
	III	2250.15-2250.45	1-	14-41		III	1736.30-1736.45	1-	20-41
	III	2415.45-2416	1-	26-41		III	1738.15-1738.45	1-	23-41
16	III	1536.45-1537	1-	23-41		III	1836.45-1837	1-	17-41
	III	1539.45-1540	1-	24-41		continuum	2006-2045	1-	22-41
	III	1711-1711.30	1-	24-41		III	2057.15-2057.45	1	23-41
	III	1852-1852.30	1-	22-41		III	2138.30-2141.30	2	21-41
	III	1917-1918	1	22-41		III	2142.15-2142.45	1-	29-41
	III	1933.15-1934.15	1	20-41		III	2144.30-2146.30	2	20-41
17	III	1143.15-1143.45	1-	16-31		continuum	2150-2305	1-	24-31
	III	1228.30-1229	1-	22-41		III	2306.15-2307.30	1-	21-41
	III	1238.45-1239.30	1-	19-41		III	2409.15-2409.45	1-	21-41
	III	1245.45-1246.30	1-	19-41		III	2437.30-2438.30	1-	15-41
	III	1421.15-1421.30	1-	31-41		III	2449-2449.45	1-	25-41
	III	1435.15-1436.45	1-	21-41	20	III	1320.30-1321	1-	23-41
	III	1646.30-1647	1-	26-41		III	1505.30-1505.45	1-	22-41
	No Observ.	1928-2239				III	1609.15-1609.45	1-	22-41
	III	2307-2309	1	22-41		III	1617.45-1618.15	1-	21-41
18	III	1519.45-1520.15	1-	29-41		III	1700.30-1701.30	2	19-41
	III	1530-1530.30	1-	29-41		III	1804.15-1804.45	1-	22-41
	III	1532.45-1533	1-	32-41		III	1830.45-1831	1-	31-41
	III	1603.30-1604.15	1	21-41		III	1841.45-1842.15	1-	28-41
	III	1632-1900	1-	18-41		III	1845.30-1846.30	1-	24-41
	III	1642-1642.30	1-	24-41		III	1859.15-1859.30	1-	24-41
	III	1650.45-1651	1	35-41		III	1919.30-1920	1	16-41
	III	1654-1654.15	1	18-30		III	1927.15-1927.45	1-	21-41
	III	1702.15-1703.45	1+	21-41		III	2034.45-2035	1-	20-41
	III	1809.15-1809.30	1-	25-39		III	2120-2124.15	1	21-41
	III	1825.30-1826	1-	24-41		III	2210.15-2211	1-	18-41

# SOLAR RADIO EMISSION SPECTRUM OBSERVATIONS

IVf

MAY 1963

HAO BOULDER

7.6- 41 Mc.

Date 1963	Bursts			Frequency Range (mc)	Date 1963	Bursts			Frequency Range (mc)
	Type	Time (U.T.)	Inten- sity			Type	Time (U.T.)	Inten- sity	
21	III	2217-2217.15	1-	20-41	24 cont.	III	1744-1744.30	1-	20-41
	III	2235.15-2236	1-	36-41		III	1756.45-1757	1-	28-41
	III	2241.30-2242.30	1	17-41		III	1757.30-1758	1-	28-41
	III	2247.30-2249	1	23-41		III	1802.45-1803.15	1	29-41
	III	2256-2257.45	1-	34-41		III	1807.15-1808.45	2	19-41
	III	2303.15-2304.30	2	21-41		III	1810.15-1812.30	1-	24-41
	IV	2313.30-2422	2	22-41		III	1815.15-1815.45	1-	25-41
	III	2340.15-2341.30	1	22-41		III	1822.30-1824	1-	27-41
	III	2345.15-2345.45	1	16-41		III	2048.30-2048.45	1-	30-41
	III	2458.45-2459.15	1-	22-41		III	2049.15-2049.30	1-	25-41
	III	1334-1334.30	1-	23-41		III	2049.45-2052	1-	20-41
	III	1444.30-1444.45	1-	26-41		III	2058.30-2059	1-	31-41
	III	1448-1448.15	1-	26-41		continuum	2526.15-2545	1	16-41
	III	1506-1508.30	1-	23-41	25	III	1620.45-1626	3+	7-41
	III	1511.15-1512.15	1-	12-41		II	1631.45-1654	3	19-41
	III	1959-1959.45	1-	23-41		IV	1652-1712	1-	25-41
	III	2148-2148.45	1-	21-41		III	1825.30-1826	1-	23-41
	III	2154.15-2155.30	1	21-41		III	1830.30-1832	3	20-41
	III	2359-2359.45	1-	20-41		III	1946.30-1947.15	1-	21-41
	III	2535.15-2535.45	1-	23-37		continuum	2023-a2530	2	19-41
	III	1625.30-1626.30	2	18-41		III	2024.15-2025	2	7-41
	III	2026-2026.30	1-	24-41		III	1346.15-1348.15	1-	18-41
	III	2135-2135.30	1	24-41		III	1348.30-1349	1-	22-41
	III	2136.30-2137	1-	18-41		continuum	b1354-1420	1-	25-41
	III	2146.30-2147	1-	32-41		III	1422-1422.30	1-	23-37
22	III	2147.15-2148	1	21-41		III	1505.45-1506.15	1-	21-41
	III	2215.15-2216	1	32-41		III	1507.30-1507.45	1-	22-41
	III	2246-2246.45	1	21-41		III	1509.30-1509.45	1-	22-41
	III	2247-2247.45	1-	25-41		III	1530.30-1533.45	1-	29-35
	III	2248.30-2249	1-	30-41		continuum	1620-1750	1-	28-41
	III	2340.15-2341.30	1-	22-41		III	1805.45-1806	1-	22-41
	III	2343.15-2344.15	1	20-41		III	1827.45-1828.15	1-	7-41
	II	1254.45-1304	2	29-41		III	1902.15-1902.30	1-	21-41
	IV	b1343-1425	1-	22-41		III	2025-2025.30	1-	24-41
	III	1521.45-1524	2	7-41		III	2035.15-2035.30	1-	21-41
	III	1550-1551.45	1+	7-41		III	2052.30-2052.45	1-	21-41
	IV	e 1600-2015	1	22-41		III	2109.15-2109.30	1-	23-41
23	III	1828.45-1830.15	1+	25-41		III	2114.15-2114.30	1-	7-41
	III	2019.30-2020	1-	21-41	26	continuum	2206-a2420	3	18-41
	III	2038.15-2038.45	1-	32-41		III	1347-1347.30	1-	25-41
	III	2141-2141.15	1-	22-41		III	2034-2034.15	1-	23-31
	continuum	2315-a2500	1-	26-41		III	2033.30-2034.30	1-	7-41
	III	2425-2425.30	1-	22-41		III	2037-2037.30	1-	23-36
	III	1434.30-1436	2	23-41		No Observ.	2102-2217		
	III	1515.45-1518	1+	7-41		III	2322.15-2322.30	1-	19-41
	II	1524.30-1540	1	22-41		III	1818-1819.30	1	7-41
	III	1718.15-1718.30	1-	27-41		III	2000.15-2000.45	1-	20-41
	III	2141-2141.15	1-	22-41					
	continuum	2315-a2500	1-	26-41					
	III	2425-2425.30	1-	22-41					
24	III	1434.30-1436	2	23-41					
	III	1515.45-1518	1+	7-41					
	II	1524.30-1540	1	22-41					
	III	1718.15-1718.30	1-	27-41					

COMMERCE - STANDARDS - BOULDER

d = harmonic structure

e = strong local interference

**Note:** Data from 24 July 1959 to 28 February 1961 have been published in the IGY Solar Activity Report Series, Number 23, available without charge from the World Data Center A: Solar Activity, High Altitude Observatory, Boulder, Colorado. The title of the report is "Solar Radio Emission. Spectral Observations in the Decameter Range, 24 July 1959 - 28 February 1961."

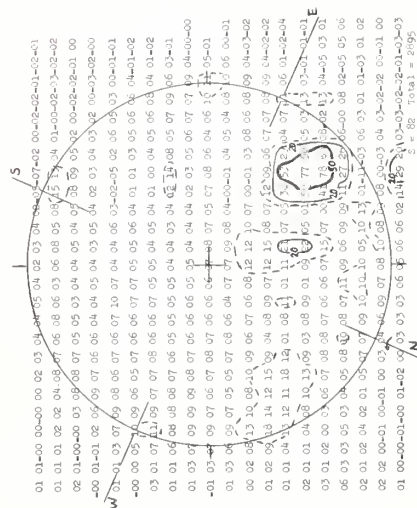


## SOLAR RADIO EMISSION SPECTROHELIOGRAMS

MAY 1963

STANFORD

9.1 cm

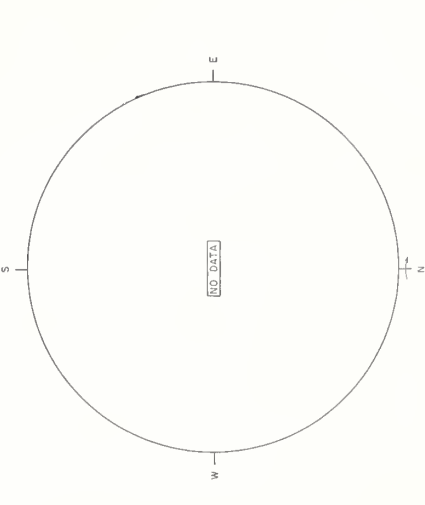
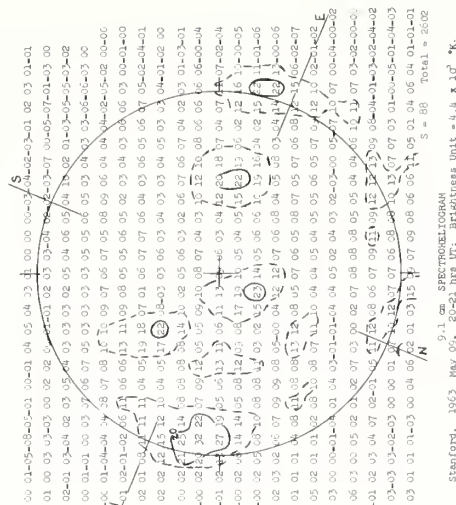
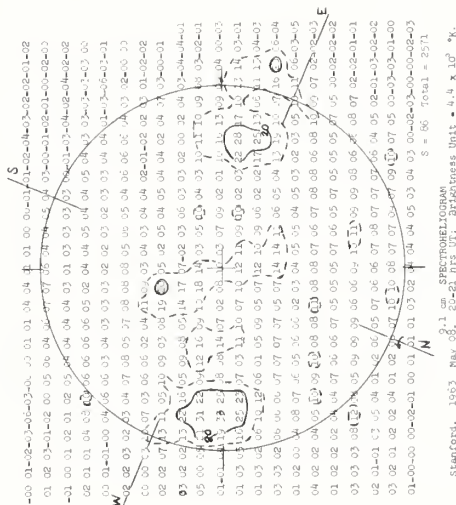
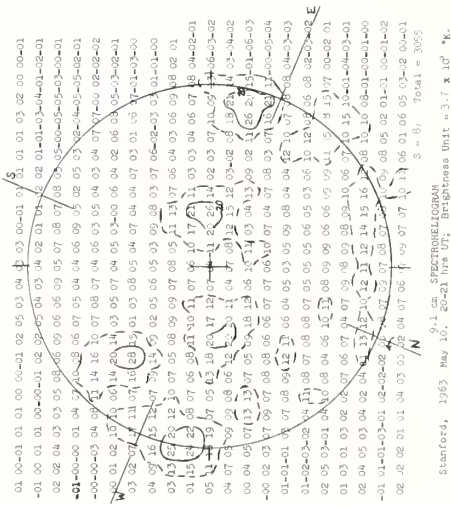
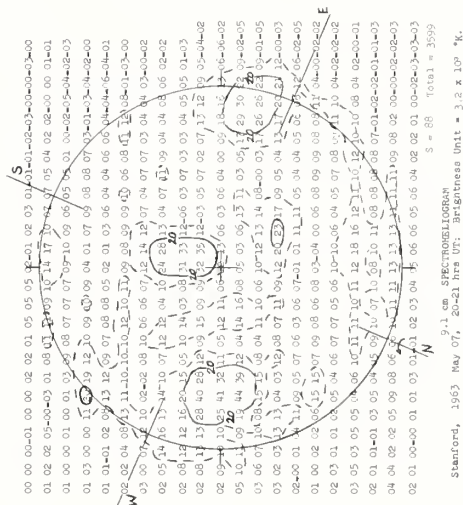


# SOLAR RADIO EMISSION SPECTROHELIOGRAMS

STANFORD

MAY 1963

9.1 cm



Stanford, 1963 May 10, 20-21 hrs UT; Brightness Unit =  $3.2 \times 10^3$   $\mu$ V.

Stanford, 1963 May 11, 20-21 hrs UT; Brightness Unit =  $3.0 \times 10^3$   $\mu$ V.

Stanford, 1963 May 09, 20-21 hrs UT; Brightness Unit =  $4.4 \times 10^3$   $\mu$ V.

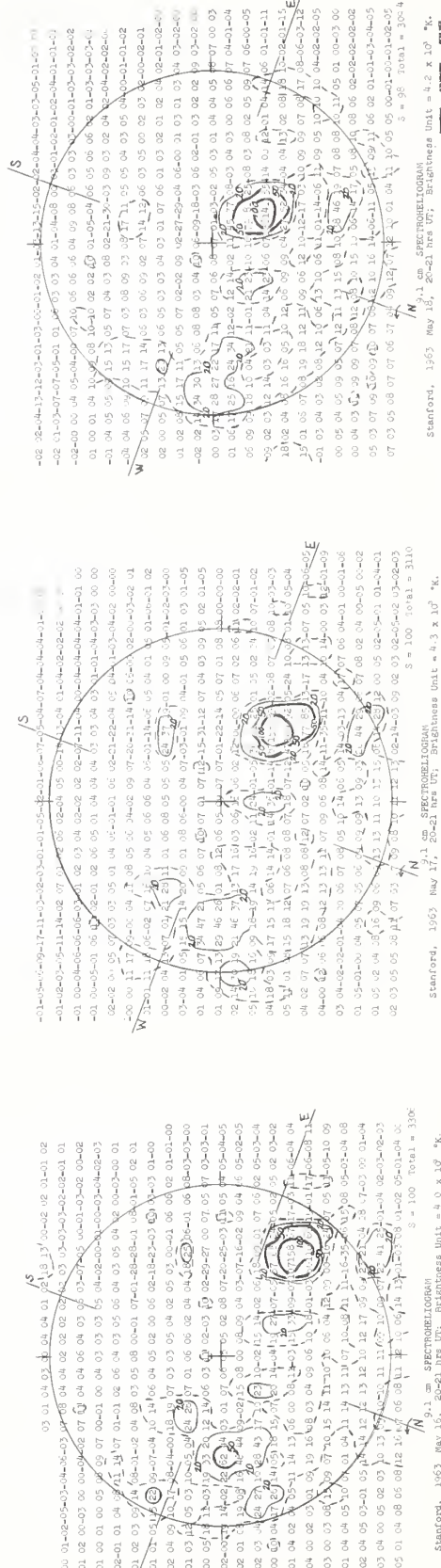
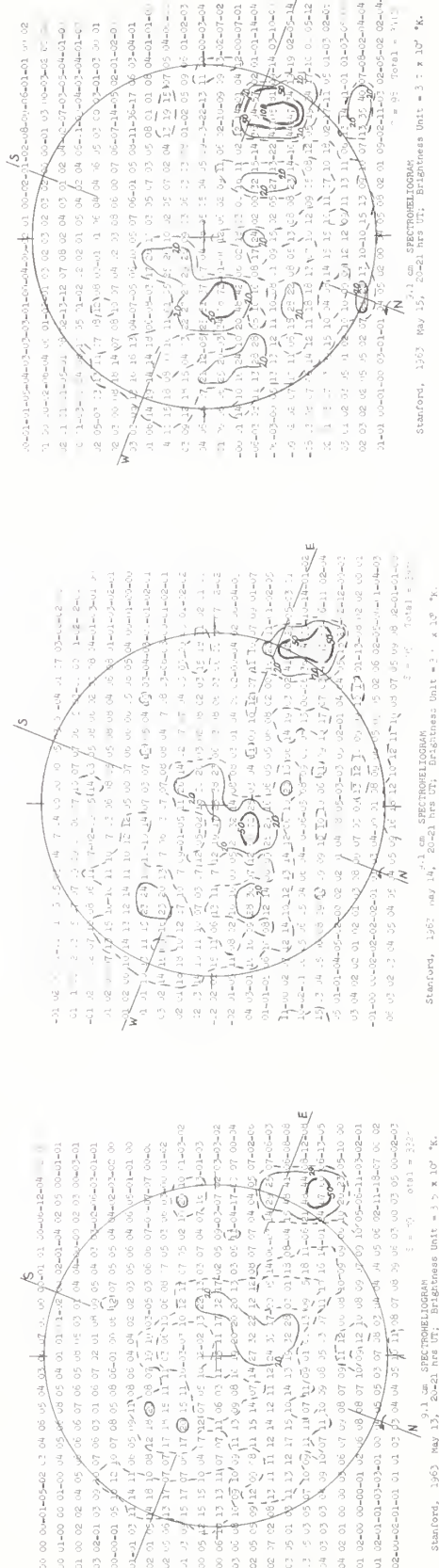
IVh

# SOLAR RADIO EMISSION SPECTROHELIOGRAMS

MAY 1963

STANFORD

9.1 cm



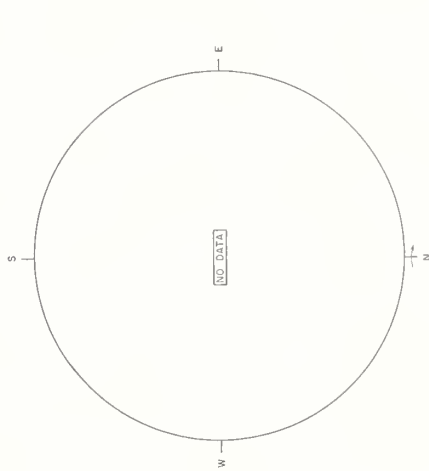


# SOLAR RADIO EMISSION SPECTROHELIOGRAMS

MAY 1963

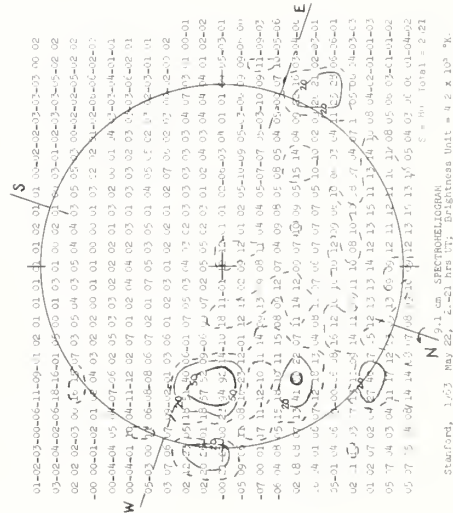
STANFORD

9.1 cm

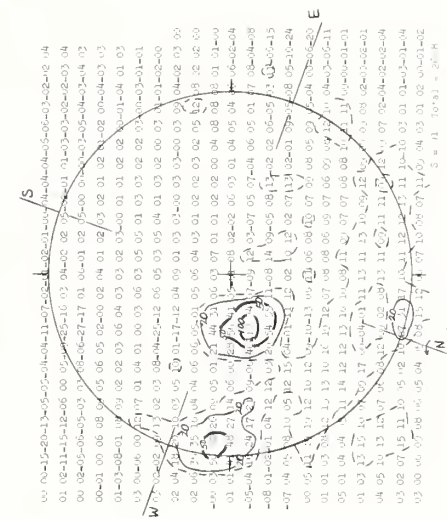


1963 MAY 19

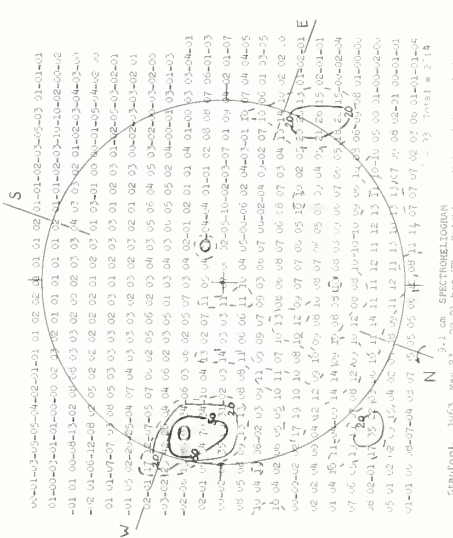
Stanford, 1963 May 20, 20-21 hrs UT, Brightness Unit =  $4.5 \times 10^4$  %.



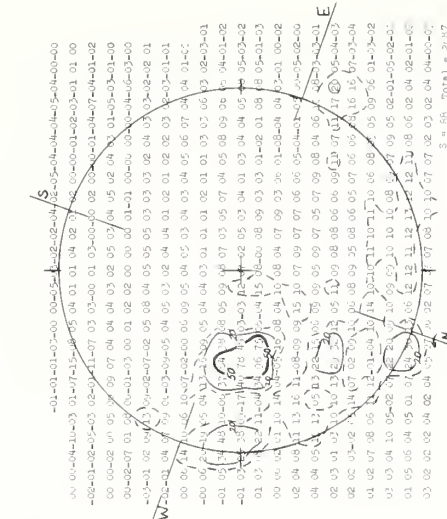
Stanford, 1963 May 22, 20-21 hrs UT, Brightness Unit =  $4.2 \times 10^4$  %.



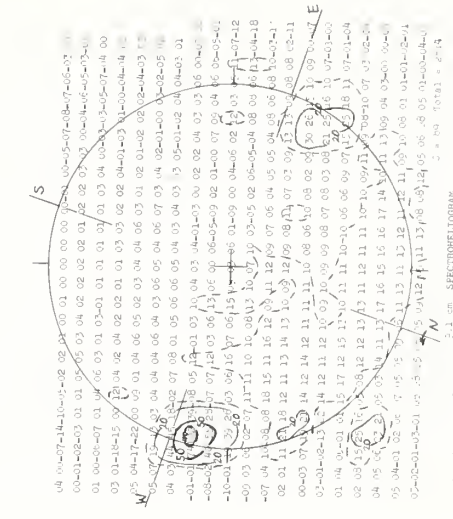
Stanford, 1963 May 20, 20-21 hrs UT, Brightness Unit =  $4.5 \times 10^4$  %.



Stanford, 1963 May 21, 20-21 hrs UT, Brightness Unit =  $4.5 \times 10^4$  %.



Stanford, 1963 May 21, 20-21 hrs UT, Brightness Unit =  $4.5 \times 10^4$  %.



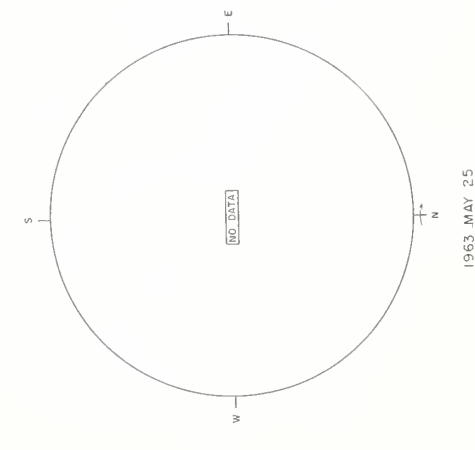
Stanford, 1963 May 24, 20-21 hrs UT, Brightness Unit =  $4.5 \times 10^4$  %.

## SOLAR RADIO EMISSION SPECTROHELIOGRAMS

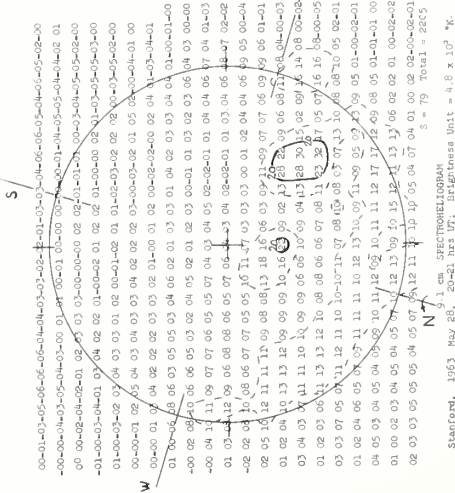
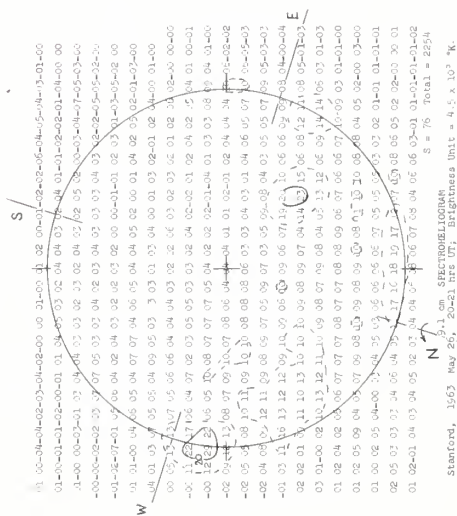
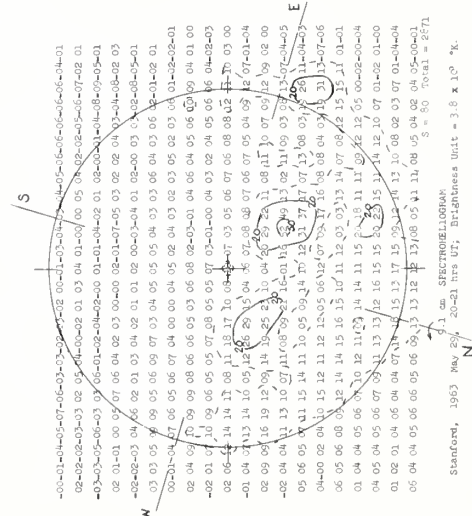
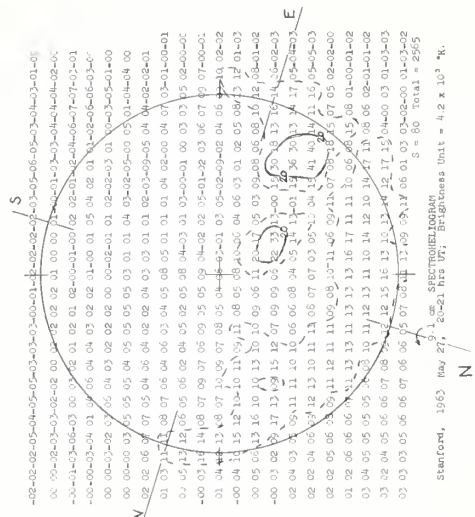
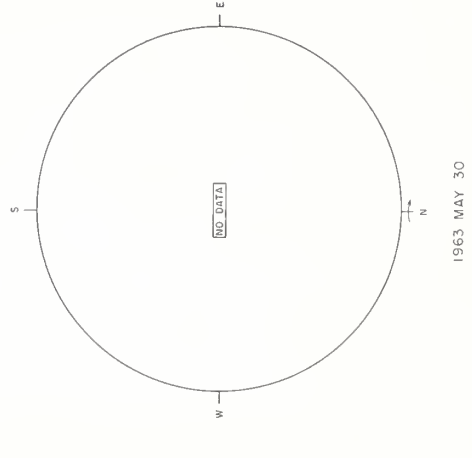
MAY 1963

STANFORD

9.1 cm



1963 MAY 25

Stanford, 1963 May 25, 20-21 hrs UT, Brightness Unit =  $4.5 \times 10^3$  %.Stanford, 1963 May 25, 20-21 hrs UT, Brightness Unit =  $4.8 \times 10^3$  %.Stanford, 1963 May 25, 20-21 hrs UT, Brightness Unit =  $4.5 \times 10^3$  %.Stanford, 1963 May 25, 20-21 hrs UT, Brightness Unit =  $3.8 \times 10^3$  %.Stanford, 1963 May 27, 20-21 hrs UT, Brightness Unit =  $4.2 \times 10^3$  %.

1963 MAY 30

# SOLAR RADIO EMISSION SPECTROHELIOGRAMS

MAY 1963

9.1 cm

STANFORD



1963 MAY 31

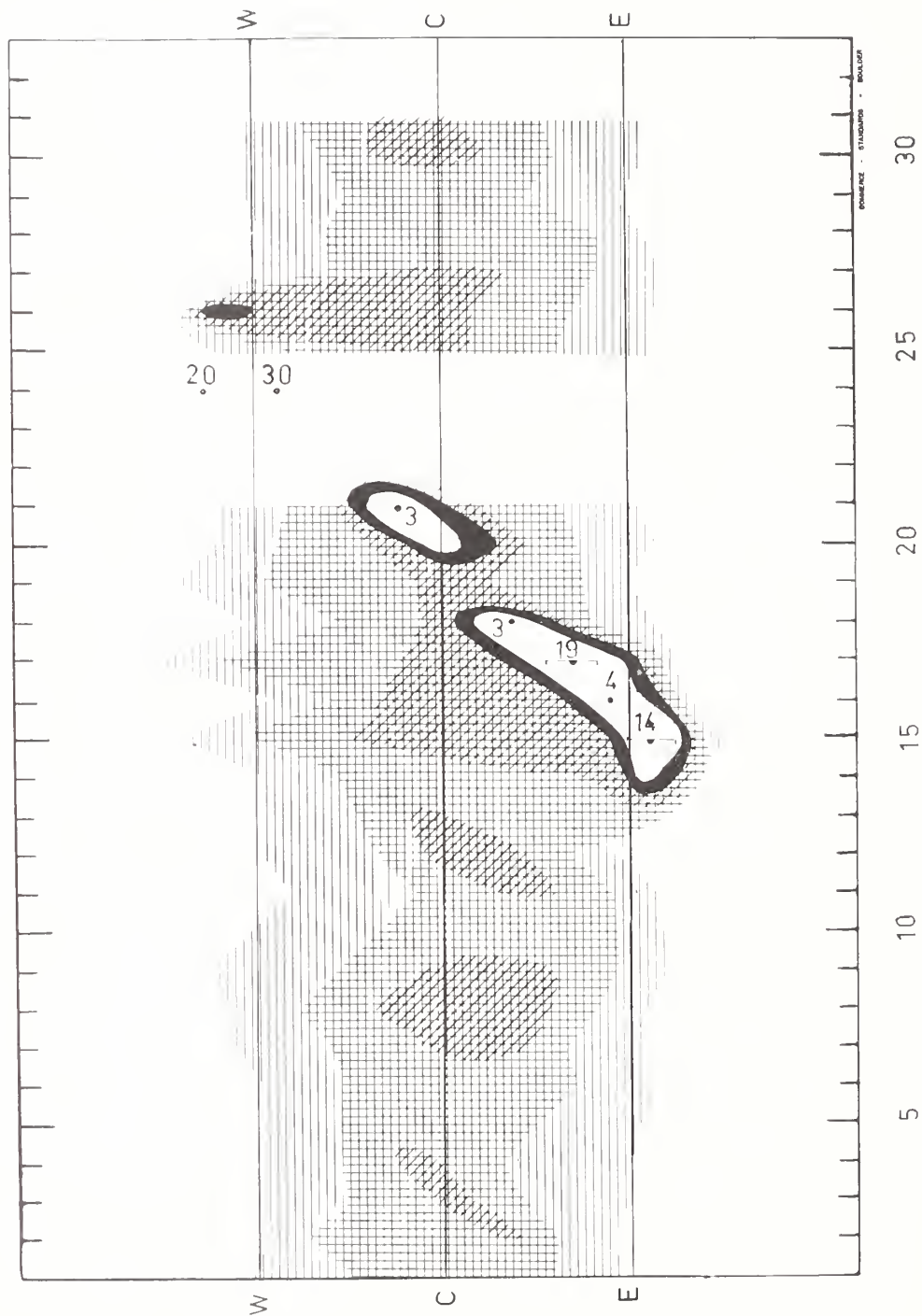
COMMENT: STANDARD - SOLAR

SOLAR RADIO EMISSION  
INTERFEROMETRIC OBSERVATIONS

MAY 1963

169 Mc.

# NANÇAY



MAY 1963

## COSMIC RAY INDICES

Va

(Climax Neutron Monitor)

IGC Station B 305

April 1963

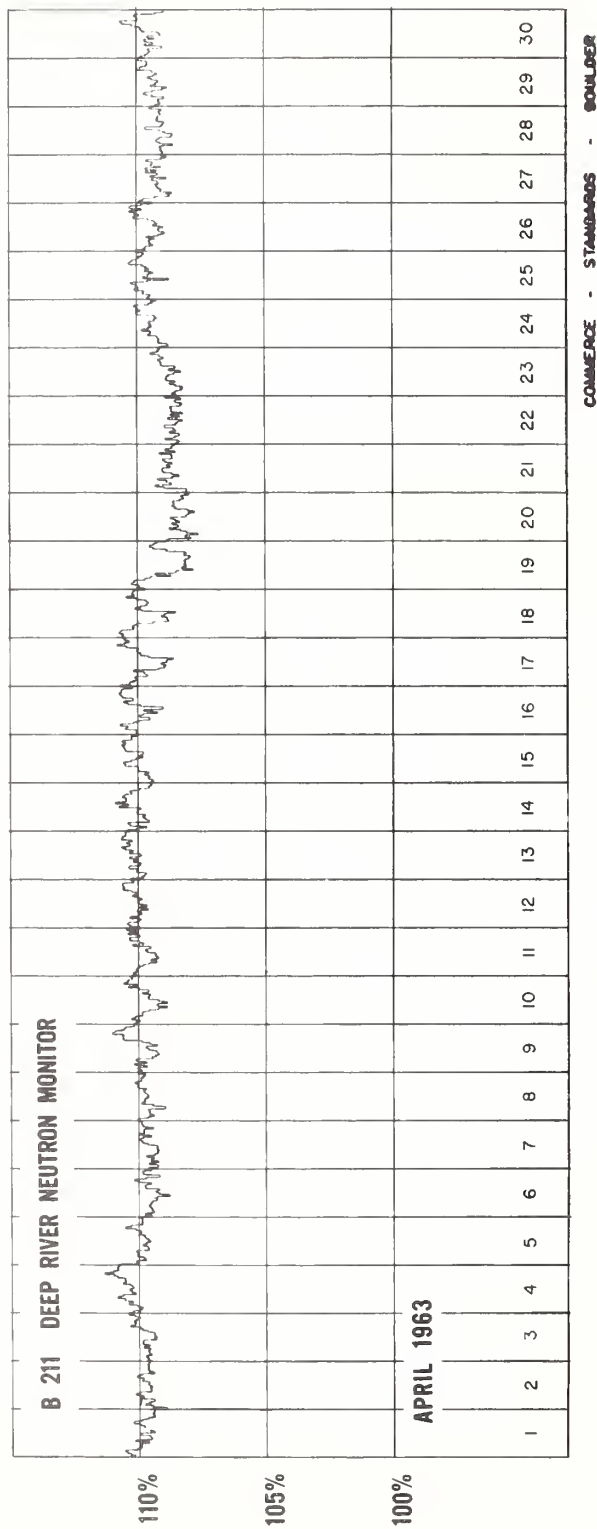
Apr. 1963	Daily average counts/hr*	Apr. 1963	Daily average counts/hr*
1	3211.9	16	3214.5
2	3207.1	17	3203.3
3	3199.4	18	3207.0
4	3202.7	19	3176.9
5	3205.5	20	3154.4
6	3188.5	21	3164.1
7	3177.4	22	3149.4
8	3182.2	23	3158.6
9	3187.0	24	3175.4
10	3186.4	25	3179.4
11	3186.0	26	3177.4
12	3186.2	27	3184.4
13	3195.8	28	3169.8
14	3183.5	29	3177.8 **(38)
15	3200.9	30	3181.2

COMMERCE - STANDARDS - BOULDER

\*Scaling Factor 128

\*\*Number of Section Hours

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





R	Rot-Nr.	1 <sup>st</sup> day	C9
778 877 778	19	J 13	1 2 2 1 2 7 7 6 5 3 3 5 6 3 2 3 6 6 2 1 2 2 1 2 4 7 2
878 778 883	57	F 9	2 1 2 1 7 2 2 2 4 5 4 6 5 6 7 2 1 4 8 6 4 4 2 4 7 2 2 2
883 778 883	M 8	4 4 7	2 2 2 3 6 4 3 3 4 5 5 5 3 6 4 7 7 5 5 4 5 5 6 6 6 6 6
887 888 888	1694	A 4	5 6 6 3 6 7 4 3 3 5 4 7 7 4 4 3 6 5 5 5 4 3 4 3 3 2 2 3
778 888 888	95	M 1	4 3 3 2 2 3 3 5 3 2 3 3 1 1 3 4 3 3 2 1 3 6 2 1 6 2 1 1
888 888 888	98	M 28	1 6 2 1 1 6 6 6 6 2 2 2 2 2 2 5 4 4 5 6 4 4 2 4 7 4 5 1
888 888 778	1897	J 24	4 7 7 4 5 1 7 7 6 3 7 4 2 2 1 1 2 1 4 2 3 6 3 6 3 3 1 1
888 888 778	98	J 21	6 3 3 1 2 1 3 1 2 1 6 3 3 6 2 2 2 2 5 6 2 2 1 2 3 3 5 1
887 888 888	99	A 17	2 3 3 5 1 2 5 3 6 6 6 6 8 8 8 8 3 4 2 1 2 1 6 4 3 3 3
888 888 888	1700	S 13	1 6 4 3 3 3 1 7 8 8 5 2 1 8 7 5 3 3 1 2 5 5 4 6 3 1 2 2
888 888 888	01	O 10	5 5 4 6 7 3 2 2 2 6 5 5 2 2 3 4 5 4 2 2 2 3 1 2 5 6 5 6 5
888 888 888	02	N 6	5 6 5 6 6 5 4 3 5 5 3 6 3 1 2 3 7 6 4 3 6 4 3 6 6 5 3
888 888 888	03	O 3	3 6 6 5 3 5 5 7 6 5 2 5 4 5 3 5 5 4 1 4 5 1 5 7 7 5 1
888 888 888	04	O 30	5 7 7 5 1 2 2 1 3 2 2 4 4 4 4 4 5 6 3 5 6 5 5 5 5 5 5
878 888 888	19	J 28	4 2 2 4 2 2 2 2 1 6 6 6 5 5 7 5 5 2 1 6 6 6 6 6 5 2 1 2
887 888 888	F 22	6 5 2	1 2 4 1 5 6 6 6 5 5 5 5 7 5 5 1 6 6 7 6 6 5 5 6 6 6
888 888 887	58	M 21	6 5 5 6 6 4 4 3 6 5 5 6 5 6 5 4 2 2 1 2 1 5 6 6 7 6 4 4
888 888 888	1708	A 17	7 7 6 4 4 1 2 3 3 2 3 2 6 4 4 4 4 5 6 3 5 6 5 5 5 5 5
778 888 888	09	M 14	6 6 4 4 5 3 1 1 1 6 6 5 7 7 7 6 1 2 4 7 6 6 5 4 2 4 5
887 778 888	1710	J 10	6 5 4 4 5 3 1 1 2 2 7 6 4 5 4 2 2 7 8 2 4 4 5 3 1 4 7 4 4 5
888 888 888	11	J 7	4 7 4 4 5 4 4 1 4 6 6 5 7 5 5 5 3 6 3 2 3 4 3 3 1 1 3 1
888 888 888	12	A 3	3 1 1 1 3 2 4 4 3 3 1 2 3 7 5 3 1 6 4 7 5 4 7 3 3 2 1 1 7 8
888 888 888	13	A 30	2 1 1 7 8 7 4 5 6 3 1 1 7 4 1 1 1 1 7 6 2 2 1 5 4
888 888 888	14	S 26	6 2 2 5 4 3 5 3 3 4 3 1 1 1 2 2 2 2 2 2 1 7 7 3 3 6 6
888 888 665	15	O 23	7 7 3 6 6 5 5 3 4 3 2 1 1 3 4 2 1 1 2 2 2 1 1 1 1 2
888 888 665	16	N 19	1 1 2 3 2 2 5 3 1 5 2 7 6 3 3 3 2 7 5 3 4 6 6 5 4 2
768 888 888	1717	O 16	4 6 6 5 4 2 2 1 3 3 4 2 3 2 1 1 6 6 5 5 6 7 4 3 2 2 2 4 5
888 888 887	19	J 12	3 2 2 2 4 5 5 3 1 2 5 5 2 2 4 3 4 3 5 5 6 6 5 3 3 5 6 5 5
678 888 888	F 8	3 5 6	5 5 6 6 7 5 3 1 4 4 7 7 6 7 6 5 4 3 1 3 1 5
888 888 888	59	M 7	1 3 1 1 5 3 2 1 1 1 1 1 1 3 2 6 7 7 5 5 3 1 3 1 1 5
878 887 888	1721	A 3	3 1 1 2 5 7 8 5 3 2 3 2 1 2 1 1 2 7 6 5 5 4 3 6 5 2 2 1 6
778 888 888	22	A 30	5 2 2 4 6 1 6 4 6 8 4 6 6 4 5 4 3 3 4 3 7 6 1 1 5 5
888 888 888	23	M 27	1 1 5 2 5 4 5 4 3 2 3 5 3 6 1 2 2 2 2 2 2 3 4 6 1 6 6
888 888 888	24	J 23	4 6 4 6 6 7 6 4 4 4 4 3 4 4 5 3 7 6 3 1 7 8 6 5 4 4 3 6 6
778 888 888	25	J 20	5 4 4 3 6 6 6 3 2 4 5 4 5 5 2 5 4 4 5 4 2 1 1 6 8 6 5 6 6
888 888 888	26	A 16	8 6 5 6 6 6 6 5 4 2 1 3 2 5 5 6 6 6 5 3 2 2 4 4 4 5 5 4 5
877 886 577	27	S 12	4 4 5 5 4 6 7 7 7 6 5 6 5 5 5 2 3 5 7 7 6 7 4 2 1 1 3 3
667 778 787	28	O 9	1 1 3 4 4 6 4 2 5 2 5 6 3 1 6 6 7 7 6 6 5 3 3 3
788 755 888	29	N 5	6 5 3 3 2 3 1 3 6 1 2 3 4 3 4 4 6 2 2 4 7 4 6 7 3 7 4
887 577 877	30	O 2	6 7 3 7 4 1 2 1 4 5 7 6 4 2 3 4 1 6 4 2 6 6 7 5 4 1 1
878 877 763	1731	O 29	5 4 1 1 3 5 2 1 1 7 6 4 3 7 6 4 5 4 7 5 5 5 2 2 1 3
878 764 19	J 25	2 1 2	3 2 4 5 5 5 5 3 1 1 2 3 6 2 6 5 6 5 5 5 3 2 1 1
566 557 666	60	F 21	5 3 2 1 1 5 4 5 5 5 4 4 3 3 5 6 2 2 5 7 5 3 3 2 1 4
788 888 778	M 19	3 2 1	1 4 1 1 4 5 5 8 7 7 6 6 4 5 4 4 6 6 6 4 6 6 6 5
877 666 678	1735	A 15	6 6 6 5 1 1 4 7 5 6 7 1 7 4 2 3 7 7 8 4 3 7 5 3 4 2 4
777 788 777	36	M 12	5 3 4 7 4 1 1 1 6 6 5 5 4 5 7 5 3 6 2 7 6 6 4 6 5 1 1
788 645 788	37	J 8	6 5 1 1 1 4 3 1 2 4 2 4 3 3 6 5 7 6 6 7 6 4 4 3 1 2
876 788 766	38	J 5	4 3 1 1 2 3 3 3 6 8 7 6 6 6 3 3 2 2 1 6 6 6 4 5 1 1
425 888 887	39	A 1	4 5 1 1 2 4 5 4 5 5 2 4 2 7 8 4 5 6 6 4 2 1 4 7 7 4 5
675 788 888	1740	A 28	4 7 7 4 5 6 8 6 6 5 4 4 4 3 5 4 2 4 1 2 2 4 6 1 2 4 4
863 78 766	41	S 24	6 1 2 4 4 6 7 1 4 6 6 6 6 3 4 1 4 1 6 3 3 2 5 7 7
555 556 877	42	O 21	2 1 5 7 7 6 6 6 6 4 5 7 3 1 1 5 7 7 7 8 5 1 2 7 6
654 457 666	43	N 17	5 1 1 7 6 3 4 6 4 5 5 2 4 8 6 1 3 5 6 5 5 2 5 4 7 6 2 4
764 357 754	1744	O 14	7 6 6 4 5 6 5 4 4 2 7 5 5 4 4 2 1 1 2 5 6 1 1 2 5
324 433 545	19	J 10	1 1 1 2 5 3 2 4 7 5 5 5 5 3 3 2 1 3 7 6 5 3 2 2 2
442 224 423	F 6	5 3 2	2 2 5 2 6 6 7 5 6 5 5 3 2 2 2 2 2 2 4 6 1 7
332 444 566	61	M 5	4 6 1 4 7 1 2 6 6 5 4 3 6 4 3 3 2 2 5 4 1 3 1 4 1 6 1 2
564 435 435	1748	A 1	4 4 6 1 2 2 6 5 6 3 4 7 7 4 1 2 2 2 2 3 2 4 3 2 2 2 4 5
663 343 345	49	A 28	2 1 2 4 5 1 5 6 5 3 4 2 5 4 5 3 6 2 2 6 1 3 4 2 1 3 2
433 435 577	1750	M 25	6 2 1 3 2 5 6 6 3 2 4 5 4 1 2 2 1 3 3 4 2 3 7 7 2 1 2
754 544 566	51	J 21	7 7 2 1 2 2 6 3 3 4 4 7 4 4 2 4 2 8 8 6 5 6 3 5 6 3 4
655 332 47	52	J 18	8 5 5 6 3 4 3 4 5 8 5 2 2 2 7 5 5 2 1 4 3 5 1 2 2 1 1 2
753 334 443	53	A 14	2 2 1 1 2 1 1 1 2 3 2 1 4 6 6 6 3 3 1 2 1 2 3 4 2 6
476 445 444	54	S 10	3 4 2 6 2 2 2 2 2 7 6 5 6 1 6 8 1 1 1 1 1 3 5
454 342 111	55	O 7	1 1 3 5 4 1 1 1 1 5 2 1 1 1 6 6 8 6 1 1 1 5 4 7 5
135 43 223	56	N 3	1 5 4 7 5 3 1 4 3 7 3 2 2 1 1 1 1 1 1 1 7 7 2 2 3
553 111 366	57	N 30	7 7 7 2 3 4 1 1 4 1 1 1 1 1 1 1 1 1 1 1 1 1 2 5 4 4 2
532 111 224	1758	O 27	2 5 4 4 2 2 1 1 7 3 1 3 3 3 3 4 2 1 1 1 2 3

R	Rot-Nr.	1 <sup>st</sup> day	C9
665 532 122	19	J 23	1 23 12 1 5 1 35 443 64 1 2432
477 643 112	F 19	2 432 244 22 2 4 6 2 33 42 1 243 4 1	
465 332 213	62	M 18	243 4 1 12 2 13 243 67 63 5 2 22 232
655 433 433	1762	A 14	22 232 356 3 3 322 112 21 5 2 1 2 3 442
322 454 432	63	M 11	2 3 442 3 1 1 3 1 5 2 1 323 2 5 4 12
333 543 333	64	J 7	2 5 4 12 23 1 1 3 34 125 444 222 543 23
322 222 211	85	J 4	543 23 22 321 1 343 224 76 5 2 363 212
111 24 332	86	J 31	363 312 556 53 12 555 54 164 542 114 466
135 544 422	67	A 27	1 4 466 676 454 433 75 342 2 6 435 411 622
444 223 553	68	S 23	4 1 622 547 533 344 3 665 623 635 246 345 566
333 222 214	69	O 20	3 45 566 665 342 244 5 5 421 3 6 6 1 5
53 213 431	1770	N 16	62 1 5 654 5 2 226 2 4 2 1 1 63 433 67
213 211 231	71	O 13	433 6765 3 1 4 1 1 3 1 2 1 1 1 1 66
123 211 223	19	J 9	1 1 66 665 45 12 32 674 1 1 1 7
321 112 211	F 5	2 7 556 52 1	

Symbol	1	2	3	4	5	6	7	8	9	
$R =$	0	1	10	31	48	81	81	101	121	171
			15	30	45	80	80	100	120	170
$C8 =$	0	1	2	3	4	5	6	7	8	9
$Cp =$	0.0	0.2	0.4	0.6	0.8	1.0	1.2	1.5	1.8	2.5
	0.1	0.3	0.5	0.7	0.9	1.1	1.4	1.6	1.9	2.8
$Ap =$	0	5	8	11	14	18	25	41	82	161
	4	7	10	13	17	24	40	81	160	400

## Daily Geomagnetic Character Figures C9 and Sunspot Numbers R

For explanation and previous years see  
„Abhandlungen der Akademie der Wissenschaften, Göttingen,  
Math.-Phys.Klasse, Beiträge zum 16.J., Heft 3, (1958)“  
(If not available request from Geophysikalisches Institut,  
Herzberger Landstrasse 180, 34 GÖTTINGEN, Germany)

COMMERCE - STANDARDS - BOULDER

## GEOMAGNETIC ACTIVITY INDICES

APRIL 1963

Apr. 1963	C	Values Kp								Sum	Ap	Final Selected Days
		Three hour Gr. interval										
		1	2	3	4	5	6	7	8			
1	0.5	3+	5-	4-	2o	2o	1+	0+	0o	17+	12	Five Quiet
2	0.2	1o	1-	0o	0+	1-	2-	2o	2-	8o	4	
3	0.1	3-	1+	1+	1o	0+	1-	1-	0+	8+	4	
4	1.1	1-	2-	2+	3+	4-	4o	4+	4+	24+	19	
5	1.4	5+	6-	4o	3+	4-	4o	4o	3o	33o	32	
6	1.2	3-	3o	5-	4-	3+	3-	3o	3+	26+	19	21
7	0.8	3-	3-	4-	4-	3o	3o	1o	3o	23-	15	24
8	0.4	3o	1+	1-	2+	2o	2-	2o	1+	14+	7	28
9	0.3	1-	3+	2o	1+	2-	2o	2o	1o	14o	7	
10	0.0	0o	0o	0+	0+	1o	1-	1o	0+	4-	2	
11	0.2	0+	0o	1-	2o	0+	0+	1o	1o	6-	3	Five Disturbed
12	0.6	3-	1o	2o	3-	3-	2o	2+	2o	17+	9	
13	0.7	2-	2-	1o	3-	3o	2+	3-	3o	18o	10	
14	1.1	4-	2o	1o	2+	3+	4o	3o	4+	24-	17	
15	0.9	5-	3+	4o	3-	3-	1o	2-	1+	21+	15	
16	0.3	3-	2o	1o	1o	1-	1+	2o	1+	12o	6	4
17	0.3	3+	2o	1o	1o	1+	2-	1+	1o	13-	7	5
18	0.9	1o	1-	1o	2-	3+	4-	4o	4+	20-	15	6
19	0.8	3o	3+	2+	1+	2-	3+	2o	2-	19-	10	14
20	0.6	3+	2-	2o	1+	2o	2o	1o	0+	14-	7	30
21	0.1	0o	1-	0o	2-	2-	1o	1o	1+	7+	4	Ten Quiet
22	0.7	3+	1-	0+	1o	1o	1+	4-	4o	15+	11	
23	0.4	2+	4o	4-	1+	1+	1o	1-	0o	14+	9	
24	0.1	0o	0o	0+	1-	1o	1-	1o	1-	4+	2	
25	0.1	1+	2-	1+	0o	0+	0+	1o	2o	8o	4	
26	0.3	2-	2+	1-	0+	1-	1o	2-	2+	11-	5	10
27	0.7	2-	2o	2o	2+	3-	3-	4-	1-	18-	10	11
28	0.2	0+	0o	1-	1+	1o	1o	1o	1o	6+	3	21
29	0.1	1-	2o	1o	1o	0+	1o	1o	1-	8-	4	24
30	1.2	1o	1-	1-	2-	2-	5-	6+	4+	21o	23	25
												26
												28
												29
Mean:	0.54									Mean:	10	





CRPL RADIO PROPAGATION QUALITY FIGURES AND FORECASTS  
APRIL 1963

NORTH ATLANTIC

NORTH PACIFIC

APRIL 1963	NORTH ATLANTIC			NORTH PACIFIC			NORTH ATLANTIC			NORTH PACIFIC			NORTH ATLANTIC			NORTH PACIFIC		
	6-HOURLY QUALITY FIGURES			6-HOURLY QUALITY FIGURES			6-HOURLY QUALITY FIGURES			6-HOURLY QUALITY FIGURES			6-HOURLY QUALITY FIGURES			6-HOURLY QUALITY FIGURES		
	00 06 12 18 24	00 06 12 18 24	00 06 12 18 24	00 06 12 18 24	00 06 12 18 24	00 06 12 18 24	00 06 12 18 24	00 06 12 18 24	00 06 12 18 24	00 06 12 18 24	00 06 12 18 24	00 06 12 18 24	00 06 12 18 24	00 06 12 18 24	00 06 12 18 24	00 06 12 18 24	00 06 12 18 24	00 06 12 18 24
01	50	5-	6-	60	5	4	6	5	5+	6	6	6	3	1	6	7	6	3
02	4+	4+	60	60	5	5	6	6	50	6	6	6	2	1	6	6	6	0
03	5-	4+	6+	60	4	4	6	6	5+	6	6	6	2	1	6	6	6	0
04	6-	40	6+	60	5	5	6	6	5+	4	4	4	(4)	3	6	6	6	2
05	40	3-	50	4+	5	3	6	5	(4-)	4	4	4	(4)	3	6	6	4	(4)
06	40	3+	5-	5+	4	3	6	5	(40)	4	4	4	3	3	5	6	4	(4)
07	5-	40	60	60	4	4	5	6	5-	4	4	4	3	2	5	5	4	2
08	5+	4+	6+	60	5	4	6	6	5+	4	4	4	2	2	5	5	5	2
09	5+	40	7-	60	6	5	6	6	5+	5	5	5	2	2	6	6	6	2
10	6-	50	7-	60	6	5	6	6	60	5	5	5	1	1	6	6	6	0
11	6-	5-	7-	6+	6	5	7	6	60	6	6	6	1	1	6	6	6	0
12	60	5+	7-	6+	6	5	7	6	6+	6	6	6	2	2	6	6	6	2
13	6-	50	6-	60	6	5	7	6	6-	6	6	6	2	3	6	6	6	2
14	50	40	60	60	6	5	6	6	50	6	6	6	2	3	6	6	6	2
15	50	4-	6-	60	5	4	6	6	5-	6	6	6	3	2	6	6	6	(4)
16	6-	50	6+	60	5	4	6	6	6-	6	6	6	2	2	6	6	6	2
17	60	5+	60	60	6	5	6	6	6-	6	6	6	2	1	6	6	6	2
18	6-	5-	6+	60	6	5	7	6	6-	6	6	6	1	3	6	7	7	2
19	6-	5-	60	60	6	4	7	6	6-	6	6	6	3	2	6	7	7	2
20	5-	40	6-	6-	6	4	6	6	5-	6	6	6	2	2	6	7	7	2
21	5-	40	6+	60	5	4	6	6	50	6	6	6	1	2	6	7	7	0
22	6-	4+	6+	6+	5	4	6	6	5+	6	6	6	1	2	6	6	6	1
23	4+	3+	6-	5+	5	4	6	6	(4+)	6	6	6	3	1	6	6	6	2
24	50	4+	60	60	5	4	6	6	5+	6	6	6	0	1	6	6	6	0
25	6-	4+	60	6-	5	5	6	6	5+	6	6	6	2	1	6	7	7	1
26	6-	5-	6+	6+	6	5	6	6	6-	6	6	6	1	1	6	7	7	1
27	6-	6-	7-	6+	6	5	6	6	6-	6	6	6	2	2	6	7	7	2
28	5-	5+	6+	6+	6	4	6	6	6-	6	6	6	1	1	6	7	7	0
29	5-	5-	6+	6+	6	5	7	6	6-	6	6	6	2	1	6	7	7	0
30	50	4+	7-	6-	5	5	7	6	6-	5	5	5	1	(4)	6	6	6	2
Score: Quiet Periods	P	15	8	20	27	12	12	12		21	20	17						
Disturbed Periods	S	11	5	10	2	15	15	15		8	9	13						
	U	0	0	0	0	0	0	0		0	1	0						
	F	0	0	0	0	0	0	0		1	0	0						
	P	1	10	0	0	2	2	2		0	0	0						
	S	3	7	0	1	0	0	0		0	0	0						
	U	0	0	0	0	0	0	0		0	0	0						
	F	0	0	0	0	1	1	1		0	0	0						

( ) Represent disturbed values. All times are Universal Time (U. T.)

Errata: In table VIIa CRPL-F 225, Part B, May 1963 the score columns were misplaced under the short-term forecasts for the North Pacific. The column beginning with 15 belongs under the 0600 forecast and the column beginning with 21 belongs under 1800.

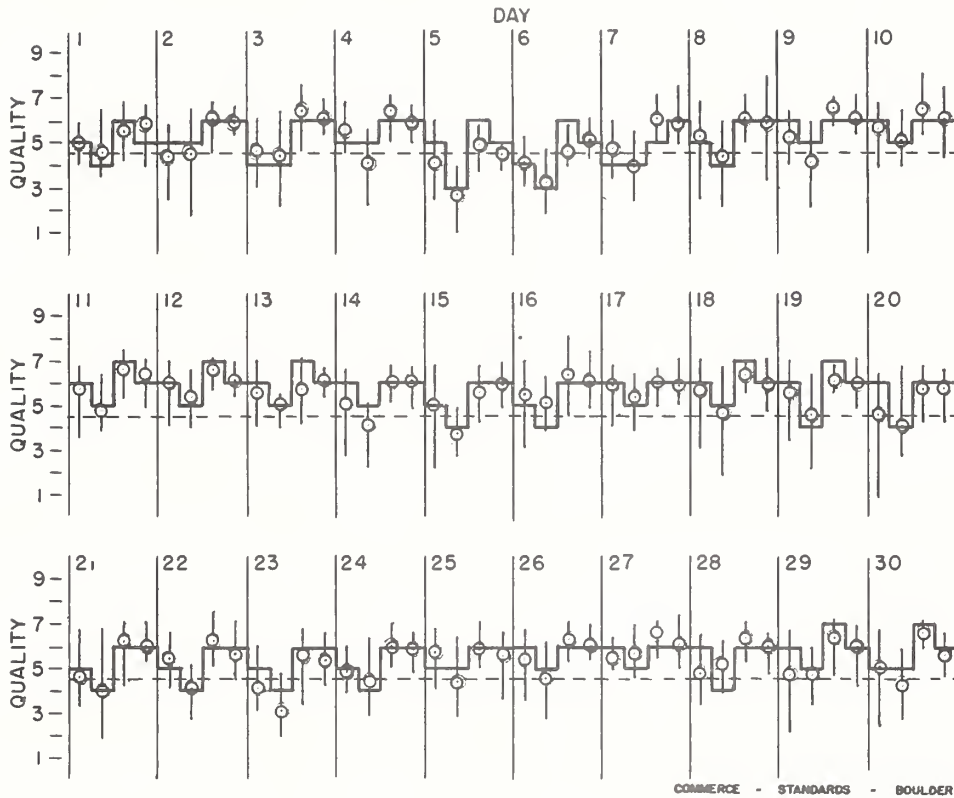
CRPL RADIO PROPAGATION QUALITY FIGURES AND FORECASTS  
NORTH ATLANTIC

VIIIb

APRIL 1963

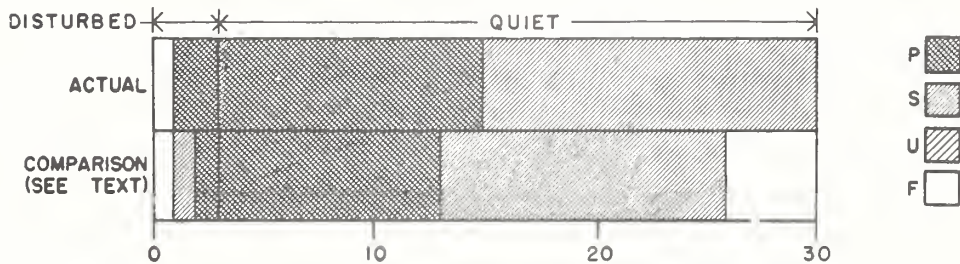
— Short-term forecast  
○ Quality figure

| Range of reports

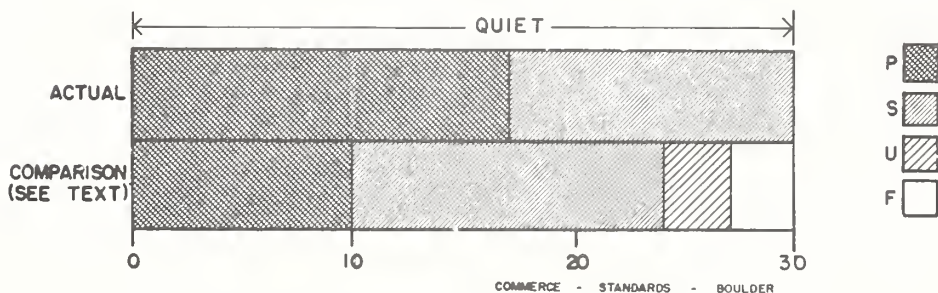


Outcome of advance forecasts--final estimates (1 to 7 days ahead).

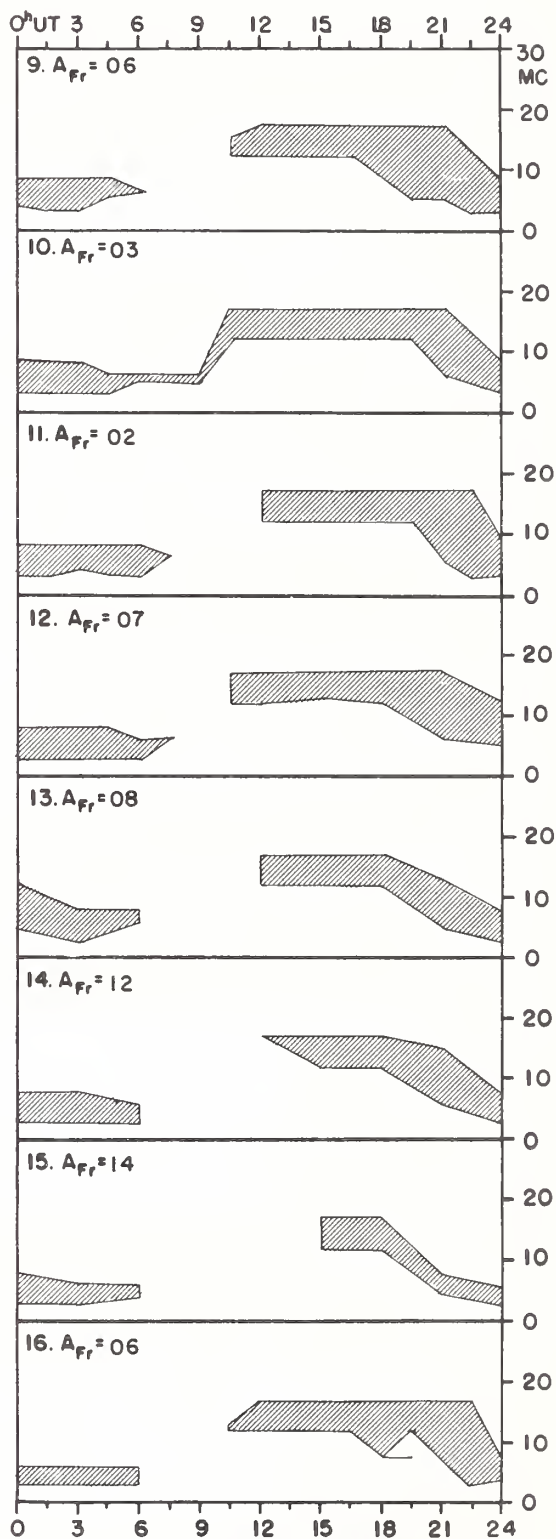
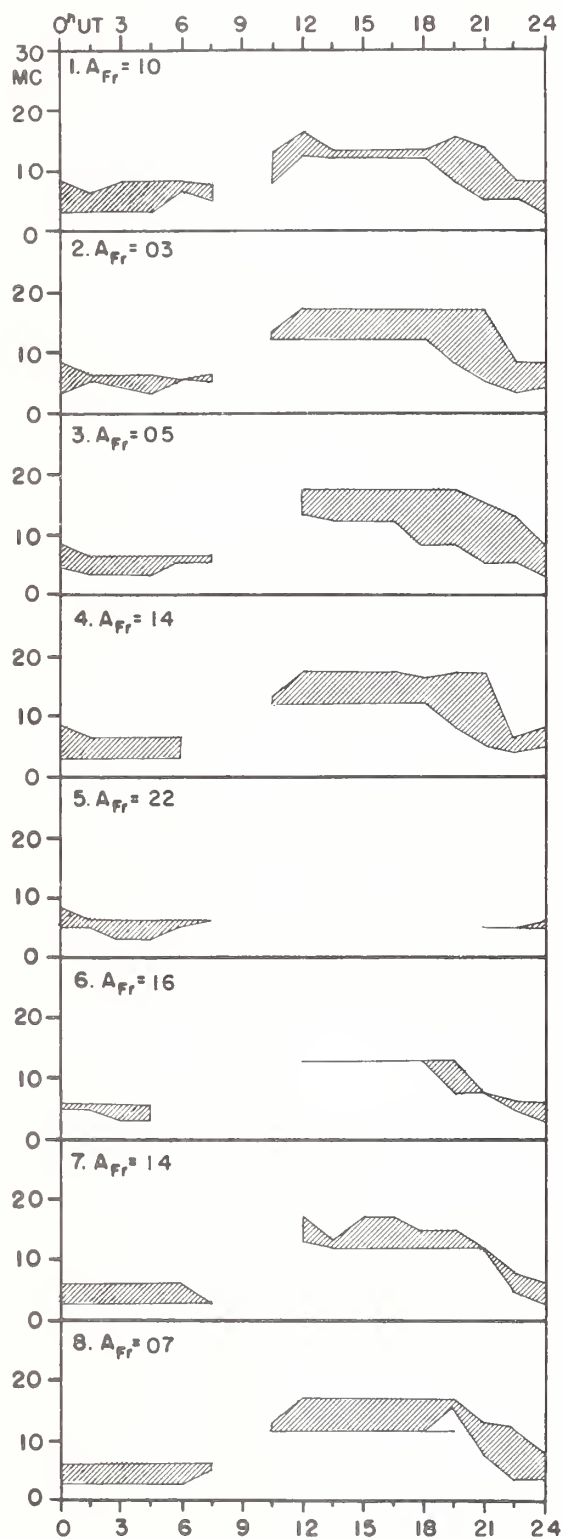
NORTH ATLANTIC



NORTH PACIFIC

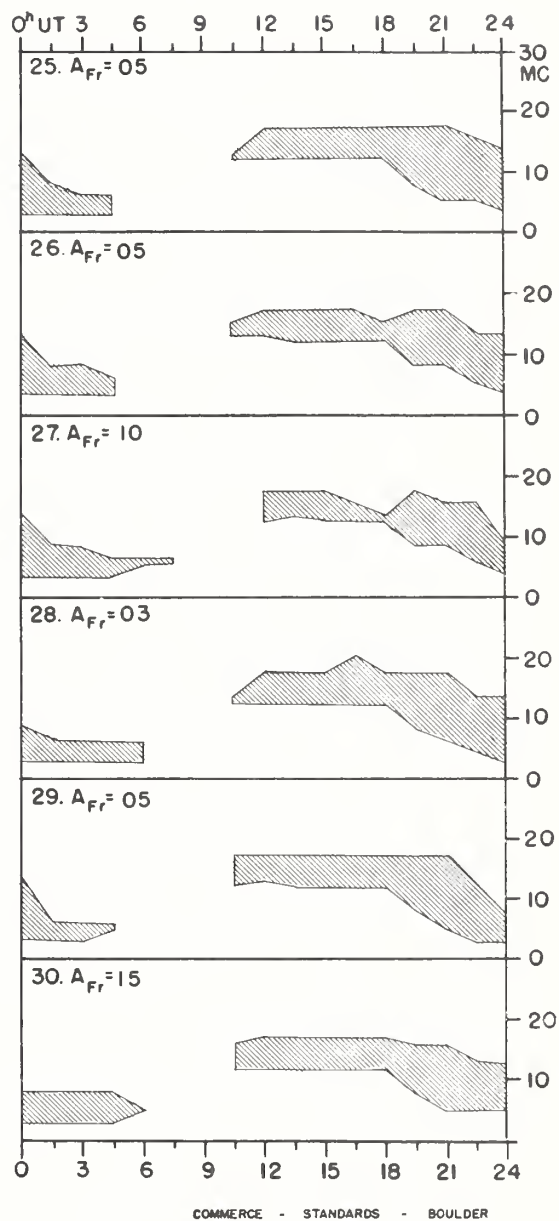
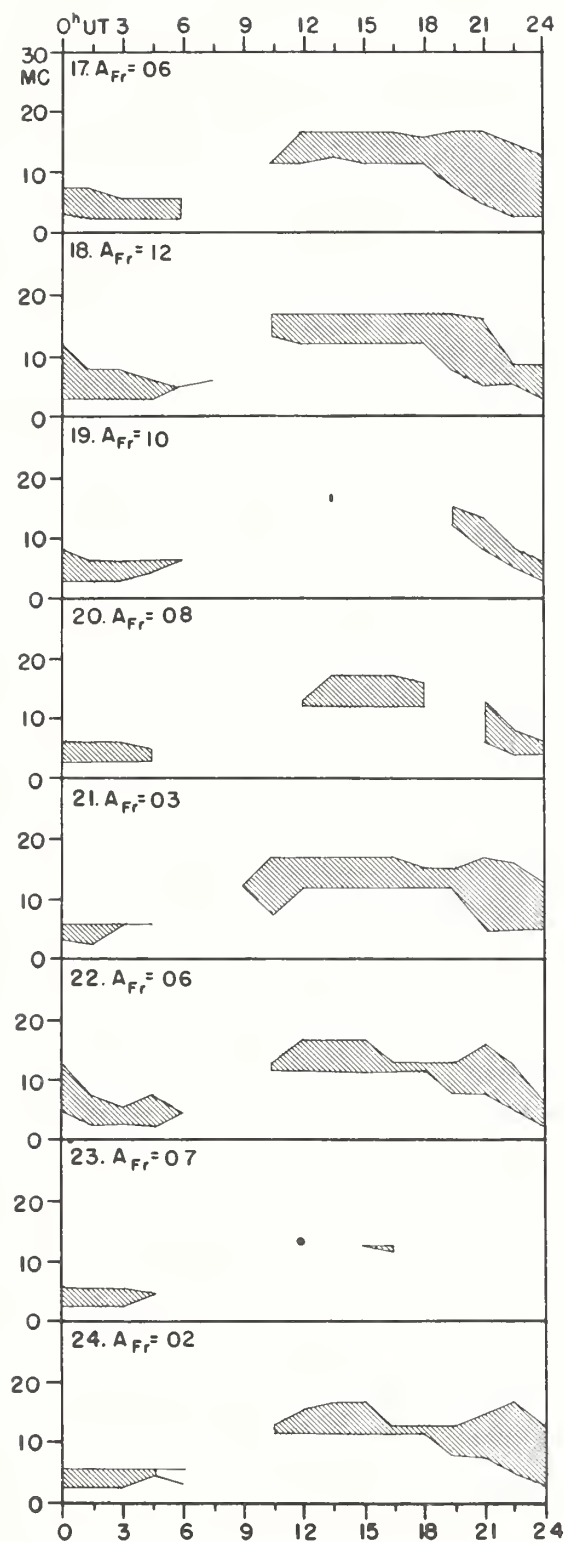


APRIL 1963



COMMERCE - STANDARDS - BOULDER

APRIL 1963



Adapted from Observations by Deutsches Bundespost

ALERT PERIODS AND SPECIAL WORLD INTERVALS

INTERNATIONAL URSIGRAM  
AND WORLD DAYS SERVICE

MAY 1963

Issued May 1963 Day/Time U.T.	Advance Geophysical Alert	No.	World-Wide Geophysical Alert	Special World Intervals
01/1600	Manila, Solar Flare, Three Plus 04/0513Z	198	Magnetic Storm April 30 1523Z	Start
02/1300		199		Continue
02/1600		200		Finish
03/1600				
07/0249	Climax Solar Flare, One Plus, 06/1236Z			
27/1255*	Wendelstein, Solar Flare, Three, 27/0524			

COMMERCE - STANDARDS - DOULDER

\* This alert actually was not issued by AGIWARN but was relayed by AGIWARN to Western Hemisphere organizations after receipt from Darmstadt.





