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CRPL-F 225 PART B

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PART B
SOLAR - GEOPHYSICAL DATA

ISSUED
MAY 1963

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

SOLAR - GEOPHYSICAL DATA

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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

Mar. 1963	American Relative Sunspot Numbers R_A
1	0
2	0
3	4
4	12
5	15
6	21
7	20
8	19
9	19
10	19
11	25
12	24
13	21
14	3
15	8
16	11
17	12
18	13
19	12
20	13
21	13
22	11
23	10
24	12
25	11
26	11
27	11
28	0
29	15
30	15
31	18
Mean:	12.8

Apr. 1963	Zürich Provisional Relative Sunspot Numbers R_Z	Daily Values Solar Flux at 2800 Mc, Ottawa, Canada Flux
1	15	73
2	25	74
3	28	74
4	17	70
5	23	72
6	50	78
7	50	80
8	64	81
9	55	82
10	53	82
11	48	88
12	63	93
13	56	89
14	45	87
15	50	88
16	50	88
17	46	87
18	40	88
19	36	84
20	19	78
21	10	74
22	0	72
23	0	71
24	0	73
25	0	72
26	0	72
27	0	75
28	7	78
29	16	78
30	26	80
Mean:	29.7	79.4

PREDICTED AND OBSERVED SUNSPOT NUMBERS

COMMERCE - STANDARDS - BOULDER

CALCIUM PLAGE AND SUNSPOT REGIONS

APRIL 1963

CMP APRIL 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	
01.4	S07	6754	New	1100	3.5	$\ell - \ell$	1	3/29	~10	440	3	$b \nearrow \ell$
01.6	S21	6753	***	700	1.5	$\ell - \ell$	3	3/27	~12			
02.9	S22	6761	*	400	1	$b \nearrow d$	1	4/1	1			
05.5	S26	6762	*	200	2	$b \nearrow d$	1	4/4	1			
05.7	S09	6758	New	500	2	$\ell \searrow d$	1	3/31	7	70	2	$b \nearrow d$
05.9	N12	6756	6724	2600	3.5	$\ell - \ell$	4,5	3/30	15	(40)	(2)	$b \nearrow \ell$
05.9	N02	6763	New	400	3	$b \nearrow \ell$	1	4/4	9	150	7	$b \nearrow \ell$
07.2	N14	6759	6724	2600	3	$\ell - \ell$	4,5	3/30	15	570	13	$b \nearrow \ell$
09.8	S10	6770	**	(300)	(2)	$b \nearrow \ell$	1	4/12	3			
10.1	N14	6768	*	300	2	$b \nearrow d$	1	4/11	1			
10.2	S14	6765	+	300	1	$\ell \searrow d$	1	4/6	4			
10.4	S01	6764	New	200	1.5	$\ell \searrow d$	1	4/6	5			
11.8	N10	6772	New	(300)	(1.5)	$b \nearrow \ell$	1	4/14	5			
14.8	S12	6766	New	2000	3.5	$\ell - \ell$	1	4/3	14	480	6	$\ell - \ell$
14.9	S19	6767	6734	1600	3	$\ell - \ell$	2	4/3	14	70	1	$\ell - \ell$
15.5	S01	6771	+	300	2.5	$b \nearrow d$	1	4/12	2			
16.8	S02	6773	*	200	1	$b \nearrow d$	1	4/15	1			
17.0	S09	6734	New	(500)	(2.5)	$b \nearrow \ell$	1	4/24	1			
18.3	N15	6769	6730	2100	2.5	$\ell - \ell$	4	4/11	14			
19.9	S12	6735	*	(100)	(2)	$b \nearrow \ell$	1	4/24	1			
21.0	N15	6776	+	200	2	$b \nearrow d$	1	4/20	3			
21.7	S11	6774	+	(200)	(1)	$\ell \nearrow d$	1	4/17	2			
23.3	S12	6780	*	300	1.5	$b \nearrow d$	1	4/22	1			
23.3	N09	6775	New	300	2	$\ell - \ell$	1	4/16	13			
23.9	N07	6779	+	400	1	$b \nearrow d$	1	4/22	2			
24.2	N20	6777	*	(300)	(1.5)	$\ell \searrow d$	1	4/20	1			
24.5	N06	6783	+	300	1.5	$b \nearrow d$	1	4/23	2			
24.9	N04	6788	+	(200)	(1.5)	$b \nearrow d$	1	4/28	~1			
25.7	N05	6778	New	700	1.5	$\ell \searrow \ell$	1	4/20	~10			
26.9	N19	6786	*	200	2	$b \nearrow d$	1	4/26	1			
28.2	N04	6781	+	(700)	(2)	$\ell \searrow d$	1	4/21	4			
28.2	S04	6782	6734	600	1.5	$\ell \searrow d$	2	4/22	~7			
30.1	S04	6793	*	(200)	(2.5)	$b \nearrow d$	1	5/3	1			

COMMERCE - STANDARDS - BOULDER

* New - but small and ephemeral

** New - in position of 6731

*** 6715 and 6722

+ New and ephemeral

MT. WILSON MAGNETIC CLASSIFICATIONS OF SUNSPOTS

11b

APRIL 1963

Apr. 1963	Time Meas.	Lat.	Mer. Dist.	Type
1	No Obs.			
2	No Obs.			
3	1915	S04	W34	αf
4	No Obs.			
5	No Obs.			
6	1810	S05	W74	αf
		N02	W14	βf
		N15	E10	$\beta \gamma$
		N01	E47	αp
*				

COMMERCE - STANDARDS - BOULDER

* No further observations for the month
due to renovation of the 150' Solar
Tower.

FINAL CORONAL LINE EMISSION INDICES

Hc

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 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	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	30	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	5	x	x	2	3	x	x	35	51	6	10	50	109	10	17
13	42	55	26	55	22	38	18	28	54	102	15	18	45	62	13	22
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	18	28	14	20	11	17
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	17	31	13	20	43	90	14	28
25	76	205	16	44	26	45	4	6	9	17	7	8	32	65	13	40
26	68	137	11	23	22	36	6	8	10	20	11	12	40	76	13	20
27	70	90	10	12	11	24	11	16	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

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 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	48	85	7	10	18	40	19	27	20	38	22	59	28	42	8	13
2	38	56	11	16	18	41	16	18	17	24	22	32	21	27	11	12
3	21	31	10	18	9	18	20	25	7	10	7	9	9	11	4	6
4	14	23	15	19	9	12	14	19	7	12	15	21	7	9	8	11
5	20	25	9	10	9	13	17	29	10	13	12	16	12	24	7	10
6	31	48	26	41	15	19	25	28	16	28	11	17	22	40	7	9
7	36	69	10	18	24	39	16	30	28	44	10	19	36	55	3	9
8	22	43	6	8	33	79	10	20	x	x	x	x	x	x	x	x
9	22	28	18	20	27	48	22	51	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	39	60	25	43	38	46	30	40
14	37	84	18	24	40	73	37	55	29	53	18	24	19	25	14	19
15	21	76	12	30	20	32	30	48	41	71	30	45	29	52	25	35
16	13	16	14	20	34	57	33	54	x	x	x	x	x	x	x	x
17	7	12	5	7	18	36	12	33	33	90	38	68	32	52	29	40
18	12	17	13	17	8	11	24	46	29	44	x	x	47	66	x	x
19	16	30	9	12	6	8	9	12	5	6	14	15	14	25	12	12
20	24	41	9	12	8	9	10	16	8	20	9	10	18	33	9	14
21	46	67	12	15	14	19	8	12	7	11	14	16	25	43	12	20
22	x	x	x	x	x	x	x	x	19	31	x	x	61	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	5	6	12	15	23	27	10	13
27	21	33	8	10	13	17	12	15	7	11	10	12	16	18	8	10
28	15	25	5	8	12	24	8	9	7	17	17	19	20	22	8	14
29	30	36	9	14	19	45	16	17	7	10	12	16	14	18	7	8
30	x	x	x	x	x	x	x	x	11	14	14	17	24	40	10	13

x = no observations

* = yellow line emission

a = index computed from low weight data

COMMERCE - STANDARDS - BOULDER

FINAL CORONAL LINE EMISSION INDICES

DECEMBER 1962

CMF 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 ₆	G ₁	R ₆	k 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	32	72	27	60	12	19	29	46	7	12	15	20	22	45	19	36
2	80	144	x	x	32	62	x	x	10	22	12a	16a	40	53	14a	22a
3	13	20	13	20	13	15	13	15	9	16	13	19	15	27	12	22
4	12	24	8	14	13	19	13	18	x	x	x	x	x	x	x	x
5	15	28	10	12	17	40	18	25	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	16	16	13	17	25	38
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	84	128	30	53	55	73	15	35	25	50	x	x	20	25	x	x
11	63	103	x	x	44	61	x	x	x	x	x	x	x	x	x	x
12	34	56	25	28	30	50	19	29	20	40	7	11	9	11	8	14
13	20	42	19	34	19	30	22	44	x	x	x	x	x	x	x	x
14	29	64	10	15	20	38	13	22	20	48	11	15	15	26	7	10
15	19	28	17	20	12	16	10	16	x	x	x	x	x	x	x	x
16	11	17	12a	20a	7	11	12a	18a	4	6	10	12	21	31	10	13
17	8	12	10	16	1	3	10	16	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	x	x	x	x	x	x	x
20	44	92	28	45	11	17	19	28	5	8	26	28	34	48	26	41
21	40	104	24	30	5	8	18	25	5	11	x	x	18	31	x	x
22	32	87	25	31	3	6	13	16	2	6	14	16	13	16	11	12
23	27	34	11	12	5	8	13	18	6	8	13	16	10	14	7	10
24	10	15	x	x	2	3	x	x	4	6	7	10	12	16	7	10
25	x	x	x	x	x	x	x	x	5	8	17	20	16	20	8	10
26	9	10	5	5	3	8	6	8	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	13	24	8	17	8	30	9	13	7	12	13	25	12	26	10	10
29	x	x	x	x	x	x	x	x	14	22	13	15	15	20	5	6
30	20	34	12	15	10	20	10	11	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

COMMERCE - STANDARD - BOULDER

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 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	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	5	8	x	10	5	10	11	20
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	1	31	15	27
5	11	16	16	25	16	28	13	17	24	30	8	10	4	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	10	22	x	x	7	10	x	x
8	21	48	24	45	21	34	17	22	8	16	10	10	9	22	10	15
9	25	53	x	x	22	42	x	x	7	20	11	15	6	7	9	14
10	x	x	x	x	x	x	x	x	9	20	11	20	5	6	7	10
11	7	12	14	20	6	16	17	20	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	5	13	7	9	17	36	13	21
15	47	95	15	45	6	11	10	13	x	x	x	x	x	x	x	x
16	28	57	18	40	3	8	9	15	6	6	11	14	36	70	10	16
17	x	x	x	x	x	x	x	x	9	21	15	17	9	18	11	15
18	32	41	5	12	10	15	7	10	4	7	7	8	8	9	6	7
19	53	74	7	12	13	18	9	14	4	5	10	13	8	12	8	11
20	x	x	x	x	x	x	x	x	3	4	10	12	6	8	7	10
21	8	8	x	x	4	4	x	x	8	10	x	x	19	23	x	x
22	7	8	7	10	3	3	13	17	2	4	12	20	8	9	7	9
23	10	13	8	15	4	5	12	17	3	6	9	13	7	10	7	10
24	11	19	6	7	4	9	9	10	13	28	5	7	23	43	4	7
25	x	x	x	x	x	x	x	x	11	24	12	16	16	26	12	18
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	6	10	8	12	10	15	7	7
28	5	8	6	8	2	4	11	15	3	6	14	17	5	6	11	15
29	x	x	x	x	x	x	x	x	3	3	12	15	4	5	11	16
30	10	14	17	25	7	11	14	20	6	11	3	11	10	20	0	0
31	9	14	12	20	9	16	19	30	4	8	9	11	5	16	9	12

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

COMMERCE - STANDARDS - BOULDER

FINAL CORONAL LINE EMISSION INDICES

FEBRUARY 1963

CMF 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 ₆	G ₁	R ₆	R ₁	G ₆	G ₁	R ₆	R ₁	G ₆	G ₁	R ₆	R ₁
1	11	23	9	12	14	34	11	17	12	25	6	8
2	11	18	13	19	7	18	14	25	18	23	4	6
3	9	21	17	30	5	6	9	10	11	14	x	x
4	23	46	x	x	14	17	x	x	x	x	x	x
5	5	7	14	15	5	8	16	25	43	87	x	x
6	4	5	12	15	5	11	14	29	8	14	x	x
7	15	18	4	5	14	24	4	6	8	12	8	12
8	14	28	10	20	4	5	7	10	x	x	x	x
9	30	68	x	x	12	16	x	x	12	17	x	x
10	19	40	14	35	4	8	7	9	7	11	3	10
11	16	34	15	22	3	5	10	12	14	40	7	8
12	16	37	10	18	2	3	8	9	x	x	x	x
13	14	20	2	7	x	x	2	7	2	4	11	15
14	5	8	6	7	1	3	10	12	2	3	8	10
15	15a	28a	5	6	1a	6a	8	9	5	8	x	x
16	17	19	3	7	9	12	4	5	3	4	6	8
17	8	11	x	x	2	3	x	x	1	2	6	7
18	x	x	x	x	x	x	x	x	1	4	4	10
19	14	17	x	x	6	11	x	x	3	5	5	5
20	4	5	x	x	4	8	x	x	2	4	6	12
21	19	45	14	19	2	2	10	12	7	9	13	7
22	x	x	x	x	x	x	x	x	2	3	5	6
23	67	125	11	27	9	17	5	18	27	38	3	4
24	45	87	9	20	8	10	5	12	x	x	x	x
25	4	5	7	9	4	4	8	10	5	7	x	x
26	x	x	x	x	x	x	x	x	3	6	x	x
27	3	3	11	15	2	3	9	10	3	x	x	x
28	3	4	9	10	3	3	6	7	6	8	6	7

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

FINAL CORONAL LINE EMISSION INDICES

MARCH 1963

CME 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 ₆	G ₁	R ₆	A 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	7	11	x	x	5	8	x	x	x	x	41	52	x	x	35	50
2	2	3	7	10	3	4	5	7	13	17	17	28	8	11	13	16
3	2	6	11	20	4	8	12	20	14	20	x	x	9	10	x	x
4	3	10	8	9	9	14	6	9	6	8	6	10	5	6	6	6
5	2	4	8	9	7	11	5	6	x	x	x	x	x	x	x	x
6	3	5	4	10	5	8	5	7	x	x	x	x	x	x	x	x
7	20	33	6	10	21	32	6	14	11	20	11	15	26	45	15	20
8	8	12	2	3	3	4	3	5	x	x	x	x	x	x	x	x
9	27	38	5	10	15	20	4	5	x	x	x	x	x	x	x	x
10	x	x	x	x	x	x	x	x	10	30	6	14	34	62	14	46
11	73	121	x	x	6	10	x	x	21	37	x	x	72	67	x	x
12	30	42	x	x	3	6	x	x	5	8	16	20	25	36	9	10
13	x	x	x	x	x	x	x	x	5	8	10	14	18	31	5	8
14	17	25	6	12	5	8	5	7	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	6	9	22	32	8	9	6	10
18	4	5	5	8	4	4	6	7	8	28	40	65	15	20	13	16
19	x	x	x	x	x	x	x	x	3	6	20	32	20	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	16	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	14	20	14	22	3	5	9	12	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	5	8	10	5	8	9	10	x	x	x	x	x	x	x	x
27	8	11	7	11	6	11	6	8	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	26	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	5	10	20	24	11	18	12	16	x	x	x	x	x	x	x	x

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

COMMERCE - STANDARDS - ROULDER

PROVISIONAL CORONAL LINE EMISSION INDICES

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APRIL 1963

CMP Apr 1963	North East Quadrant (observed 7 days earlier)				South East Quadrant (observed 7 days earlier)				South West Quadrant (observed 7 days later)				North West Quadrant (observed 7 days later)			
	G ₆	G ₁	R ₆	R ₁	G ₆	G ₁	R ₆	R ₁	G ₆	G ₁	R ₆	R ₁	G ₆	G ₁	R ₆	R ₁
1	6	7	28	36	13	31	17	22	x	x	x	x	x	x	x	x
2	7	8	24	28	9	20	13	19	x	x	x	x	x	x	x	x
3	16	20	x	x	6	11	x	x	x	x	x	x	36	62	x	x
4	x	x	x	x	x	14	22	28	26	92	x	x	x	x	x	x
5	49	109	24	36	9	x	x	x	x	x	x	x	x	x	x	x
6	54	101	22	32	4	6	17	38	x	x	21	26	x	x	26	40
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	x	11	x	x	x	8	x	x
9	x	x	x	x	x	3	17	23	4	x	x	x	6	x	x	x
10	8	11	14	18	2	x	x	x	x	x	x	x	x	x	x	x
11	x	x	13a	20a	x	x	17a	28a	x	x	x	x	x	x	x	x
12	x	x	11	15	x	x	25	32	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	15	25	37	40	35	53	27	40
17	41	101	x	x	4	6	x	x	x	x	x	x	x	x	x	x
18	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
19	x	x	x	x	x	x	18	20	x	x	20	44	x	x	17	24
20	x	x	18	25	x	x	x	x	x	x	x	x	x	x	x	x
21	x	x	x	x	x	x	x	x	7	8	15	18	9	11	12	23
22	x	x	x	x	x	x	x	x	4	5	19	23	5	7	17	27
23	7	8	x	x	1	3	x	x	x	x	x	x	x	x	x	x
24	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
25	x	x	x	x	x	x	x	x	4	6	19	22	5	7	21	30
26	x	x	x	x	x	x	x	x	x	x	20	26	x	x	20	28
27	x	x	x	x	x	x	x	x	10	14	20	22	9	11	21	24
28	x	x	x	x	x	x	x	x	10	14	15	24	12	20	15	24
29	x	x	x	x	x	x	x	x	11	17	20	36	8	11	17	24
30	10	14	12	20	6	11	14	18	x	x	x	x	x	x	x	x

x = no observations

* = yellow line emission

a = index computed from low weight data

SOLAR FLARES

APRIL 1963

OBSERVATORY	DATE	OBSERVED UNIVERSAL TIME		LOCATION			DURATION — MINUTES	IM- POR- TANCE	OBS. COND.	MEASUREMENTS			PROVISIONAL IONOSPHERIC EFFECT
		START	END	APPROX	MC-MATH FLARE REGION	LAT	MEAS DIST			TIME U T	MEAS AREA Sq Deg	CORR AREA Sq Deg	
OTTAWA OTTAWA	APR 1963												
	01 0000	0700	NO FLARE	PATROL									
	01 0725	0730	NO FLARE	PATROL									
	01 0745	0925	NO FLARE	PATROL									
	01 0955	1130	NO FLARE	PATROL									
	01 1155	1210	NO FLARE	PATROL									
OTTAWA	01 1240	1257	1246	N15 E61									
	01 1845	1909	1853	N14 E59									
	01 1935	2235	NO FLARE	PATROL									
	01 2310	2400	NO FLARE	PATROL									
ATHENES	02 0000	0605	NO FLARE	PATROL									
	02 0855	0901	NO FLARE	N13 E51	6756								
	02 1040	1045	NO FLARE	PATROL									
	02 1100	1110	NO FLARE	PATROL									
	02 1120	1225	NO FLARE	PATROL									
	02 1230	1245	NO FLARE	PATROL									
WENDEL WENDEL	03 0005	0635	NO FLARE	PATROL									
	03 0750	0755	NO FLARE	PATROL									
	03 0758	0813	D	S07 W26									
	03 0907	0934	D	S07 W27	6754								
	03 0925	1005	NO FLARE	PATROL									
	03 1010	1040	NO FLARE	PATROL									
ATHENES	03 1120	1125	NO FLARE	PATROL									
	03 1135	1140	NO FLARE	PATROL									
	03 1218	1302	NO FLARE	S05 W28									
	03 1325	1345	NO FLARE	PATROL									
MCMATH MCMATH	04 0005	0530	NO FLARE	PATROL									
	04 1419	1430	NO FLARE	N17 E20	6756								
	04 2133	2155	D	N15 E36	6759								
	04 2205	2210	NO FLARE	PATROL									
	04 2220	2245	NO FLARE	PATROL									
	04 2320	2340	NO FLARE	PATROL									
ATHENES ATHENES	04 2345	2400	NO FLARE	PATROL									
	05 0000	0600	NO FLARE	PATROL									
	05 0647	0652	NO FLARE	S01 E25									
	05 0724	0726	NO FLARE	S06 W43									
	05 0835	0840	NO FLARE	PATROL									
	05 0845	0850	NO FLARE	PATROL									
MCMATH MCMATH SAC PEAK	05 0900	0925	NO FLARE	PATROL									
	05 0935	1030	NO FLARE	PATROL									
	05 1902	2005	D	N15 E23	6759								
	05 2105	2130	2110	N15 E22	6759								
	05 2153	2220	2157	N15 E22	6759								
	05 2339	2346	2341	N14 E20									
BUCHAREST BUCHAREST	06 0000	0610	NO FLARE	PATROL									
	06 0700	0911	D	N01 W08	6763								
	06 0851	0953	D	N15 E16									

OBSERVATORY	DATE	OBSERVED UNIVERSAL TIME		LOCATION			DURATION — MINUTES	IM- POR- TANCE	OBS. COND.	MEASUREMENTS				PROVISIONAL IONOSPHERIC EFFECT		
		START	END	MAX. PHASE	APPROX.					McMATH PLAGE REGION	TIME	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.		MAX. WIDTH He	MAX. INT. °
					LAT.	MER. DIST.										
WENDEL	APR 1963															
	06	0904 E	0916 D		N14 E17		1-		1							
	06	1006 E	1011 D		N03 W08		1-		2							
	06	1030	1105 D	NO FLARE												
	06	1045 E	1052 D		N13 E16		1-									
	06	1120	1130	NO FLARE	PATROL											
	06	1210	1215	NO FLARE	PATROL											
	06	1320	1400	NO FLARE	PATROL											
	06	1400 E	1510		N15 E12	6759	1-		1405	1.20	1.30					
	06	1943	1955	1945	N02 W18		1-		1945	.10	.10			20		
MCMATH	06	1944	1954	1950	N02 W08		1-		2023	.14	.14			15		
	06	2018	2035 D	2023	N01 E46	6764	1-			.30	.40					
	07	0000	0530	NO FLARE	PATROL											
	07	0900	0950	NO FLARE	PATROL											
CAPRI-S	07	1006 E	1045 D		N12 W03	6759	1	39 D	1006	2.10	2.20					
	07	1916	1935 D	1922	N12 W07	6759	1-		1922	.40	.40					
	07	1940	1950	NO FLARE	PATROL											
	07	2149	2218		N11 E04	6759	1-		2200	.20	.20					
WENDEL	08	0000	0530	NO FLARE	PATROL											
	08	0703	0709	0704	N14 W13		1-		0704	.10	1.30			2.20		
	08	0820 E	0840 D		S22 E90		1-									
	08	1145 E	1245 D		S06 E90		1-		1300	1.00						
	08	1256 E	1340 D		S05 E85	6766	1	44 D								
	08	1446 E	1457 D		S12 E81		1-									
	08	1500 U	1520	1514	N11 W06		1-		1505	.14	.14			16		
	08	1504 E	1609 D		S05 E85		1-			.60						
	08	1544 E	1608 D		S12 E80	6766	1	24 D		4.00						
	08	2020	2030	NO FLARE	PATROL											
WENDEL	08	2245	2400	NO FLARE	PATROL											
	09	0000	0535	NO FLARE	PATROL											
	09	0650	0651 D		N10 W16		1-			.10	.10					
	09	0730	0736		S09 E73		1-		0730					2.40		
	09	1209 E	1004		S09 E71		1-		0952					2.30		
	09	1209	1217 D	1212	S08 E72	6766	1-		1212	.40	1.30					
	09	1209	1231		S08 E70		1-		1217	.93	1.80					
	09	1216	1226		S09 E70	6766	1	10	1219	.50	1.60			2.60		
	09	1217	1228	1221	S08 E72	6766	1-		1221	.80	2.00					
	09	1218 E	1240 D		S10 E68		1-			.70	.73					
WENDEL	09	1318	1338	1322	N18 W31		1-		1322	.30	.40					
	09	1320	1337	1323	N18 W31	6759	1-		1323	.70	.70					
	09	1512	1522	1514	S08 E69	6766	1	2	1514	.30	.80					
	09	1540	1545	1541	S08 E69	6766	1-		1541	.30	.80					
	09	1558	1608	1602	S08 E69	6766	1-		1602	.30	.80					
	09	1629 E	1635 D	1635 U	S10 E69		1-		1629	.29	.52					
	09	1630	1638	1634	S08 E68	6766	1-		1634	.20	.60					
	09	1700	1712	1705	S08 E68	6766	1-		1705	.20	.60					
	09	1705	1730	NO FLARE	PATROL		1-							16		
	09	1735	1805	NO FLARE	PATROL											
MCMATH	09	1755 E	1845 D		S08 E67	6766	1-		1813	.60	1.80					

SOLAR FLARES

APRIL 1963

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OBSERVATORY	DATE	OBSERVED UNIVERSAL TIME		LOCATION			DURATION — MINUTES	IM- POR- TANCE	OBS. COND.	MEASUREMENTS				PROVISIONAL IONOSPHERIC EFFECT
		START	END	APPROX. LAT.	M. MATH PLAGE REGION	MER. DIST.				TIME U T	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX WIDTH H ₃₀₀₀	
ISTANBUL BUCHARST CAPRI-S BUCHARST MCMATH SAC PEAK MCMATH MCMATH	APR 1963													
	09	1840	1845	NO FLARE	PATROL									
	09	1905	2010	NO FLARE	PATROL									
	09	2030	2035	NO FLARE	PATROL									
	09	2040	2055	NO FLARE	PATROL									
	09	2145	2400	NO FLARE	PATROL									
	10	0000	0545	NO FLARE	PATROL									
	10	0730	0900	D		6759	90 D	2						
	10	0735	0742	D	S10 E61			1-	3					
	10	0740	0830	D	N15 W40	6759	50 D	2		0753	4.50	6.50		
ATHENES	10	0742	0918	D	N16 W35	6759	96 D	2						
	10	1016	1040	D	N16 W35	6759	24 D	1						
	10	1233	1237	D	S08 E54	6766		1-						
	10	1733	1740		N03 W66			1-						
	10	1735	1741		N02 W65	6763		1-						
	10	2021	2040		N02 W71	6763		1-						
	10	2100	2105	NO FLARE	PATROL									
	10	2115	2120	NO FLARE	PATROL									
	10	2205	2310	NO FLARE	PATROL									
	10	2320	2400	NO FLARE	PATROL									
BUCHARST	11	0000	0600	NO FLARE	PATROL									
	11	0730	0735	D	N18 W48			1-	3		.50	.70		
	11	0735	0750	NO FLARE	PATROL									
	11	0830	0850	NO FLARE	PATROL									
	11	0910	0930	NO FLARE	PATROL									
	11	0930	1145	NO FLARE	PATROL	6759		1						
	11	1200	1235	NO FLARE	PATROL									
	11	1256	1311	1300	N11 W44			1-	2	1300	.76	.88		
	11	1257	1312	1300	N11 W45	6759		1-	2	1300	.40	.60		
	11	1905	1940	NO FLARE	PATROL									
LOCKHEED SAC PEAK	11	2327	2345	2336	N14 W53			1-	2	2336	.90	1.10	10	
	11	2328	2348	2334	N16 W57			1-	3		1.32	1.96	19	
	11	2355	2400	NO FLARE	PATROL									
ATHENES	12	0000	0630	NO FLARE	PATROL									
	12	0646	0651	N16 W65				1-	3		.30	.70		
	12	0935	0940	NO FLARE	PATROL									
	12	0945	0955	NO FLARE	PATROL									
OTTAWA ATHENES	12	1100	1105	NO FLARE	PATROL									
	12	1141	1223	1146	S12 E31	6766	42	1+	2	1146	4.60	4.70		
	12	1500	1502	S08 E34				1-	3		.20	.30		
	12	2010	2025	NO FLARE	PATROL									
12	2335	2400	NO FLARE	PATROL										
CAPRI-S CAPRI-S SAC PEAK SAC PEAK	13	0000	0600	NO FLARE	PATROL									
	13	0630	0708	D	N09 W78			1-	3					
	13	0721	0742	D	N09 W78	6759	21 D	1-	3	0630	1.70	1.70		
	13	1443	1449	1445	S09 E17			1-	3	0722	1.40	.56	16	
	13	1454	1501	1456	N12 W79			1-	3		.23	.31	16	
	13	1454	1501	1456	N12 W79			1-	3		.23	.31	16	

SOLAR FLARES

APRIL 1963

OBSERVATORY	DATE	OBSERVED TIME		LOCATION		DURA- TION -- MINUTES	IM- POR- TANCE	OBS. COND.	TIME		MEASUREMENTS		PROVISIONAL IONOSPHERIC EFFECT
		START	END	APPROX.	M-MATH PLACE REGION				U T		MEAS. AREA Sq Deg	CORR AREA Sq Deg	
LOCKHEED LOCKHEED	13	2003	2008	S10 E10			1-	2	2005		.20	.20	10
	13	2020	2030	N19 W90			1-	2	2023		.10	.50	20
	13	2025	2030	NO FLARE									
	13	2105	2115	PATROL									
	13	2125	2130	NO FLARE									
	13	2135	2245	PATROL									
	13	2255	2400	NO FLARE									
	14	0000	0600	NO FLARE									
	14	1429	1535	PATROL	6766		1-	2	1435		.20	.20	
	14	1509	1526	S11 E05			1-	3			.29	.27	
MCMATH SAC PEAK HUANCAYO SAC PEAK MCMATH SAC PEAK MCMATH	14	1515	1540	S10 E07			1-	1	1521		.20	.20	17
	14	1545	1548	S11 E04			1-	3			.56	.58	
	14	1545	1557	S12 E04	6766		1-	3	1546		.30	.30	16
	14	1600	1610	S10 E04			1-	3			.56	.54	
	14	1601	1607	S11 E04	6766		1-	1	1603		.20	.20	16
	14	2005	2120	NO FLARE									
	14	2140	2155	NO FLARE									
	14	2225	2245	PATROL									
	14	2255	2310	NO FLARE									
	14	2345	2400	NO FLARE									
ATHENES ATHENES CAPRI-S ARCETRI ARCETRI CAPRI-S WENDEL CAPRI-S MCMATH SAC PEAK MCMATH SAC PEAK SAC PEAK OTTAWA MCMATH CAPRI-S HUANCAYO SAC PEAK MCMATH SAC PEAK MCMATH SAC PEAK MCMATH SAC PEAK MCMATH MCMATH MCMATH	15	0000	0515	NO FLARE									
	15	0646	0651	PATROL			1-	5			.50	.60	
	15	0703	0805	S20 W11			1-	5	0755		1.50	1.50	
	15	0747	0843	S13 W05	6766	56 D	1	3			2.00	2.00	
	15	0753	0835	S08 W08	6766	42 D	1	3	0758		2.13	2.15	
	15	0925	0943	S09 W05			1-	3	0925		.39	.39	
	15	1046	1054	S13 W03	6766	25 D	1-	3	1046		1.50	1.50	
	15	1118	1143	S12 W08			2	2			8.00	8.00	
	15	1125	1203	S15 W07	6766	38 D	2	2	1128		5.00	5.00	
	15	1133	1230	S12 W07	6766	57 D	1	2	1133		3.00	3.00	
S - SWF MCMATH SAC PEAK MCMATH SAC PEAK SAC PEAK OTTAWA MCMATH CAPRI-S HUANCAYO SAC PEAK MCMATH SAC PEAK MCMATH SAC PEAK MCMATH SAC PEAK MCMATH MCMATH MCMATH	15	1359	1415	S15 W08	6766		1-	3			.29	.29	16
	15	1417	1450	S12 W08			1-	2	1424		1.10	1.10	
	15	1418	1440	S12 W09			1-	3			.76	.76	
	15	1613	1713	S11 W10	6766	60	2	3	1620		7.69	7.69	20
	15	1614	1648	S09 W09	6766	34	2+	3			11.90	11.90	28
	15	1614	1700	S11 W09	6766	46	1+	2	1618		4.50	4.50	
	15	1616	1626	S15 W08	6766	10 D	1	1	1619		3.00	3.00	
	15	1621	1641	S10 W08	6766	20 D	2	2	1621		5.30	5.30	
	15	1718	1726	S12 W10	6766		1-	3			.29	.29	17
	15	1726	1746	S15 W08	6766		1-	2	1728		.30	.30	
S - SWF MCMATH SAC PEAK MCMATH SAC PEAK SAC PEAK MCMATH SAC PEAK MCMATH SAC PEAK MCMATH SAC PEAK MCMATH MCMATH MCMATH MCMATH MCMATH MCMATH MCMATH	15	1738	1800	S12 W12			1-	2			1.11	1.11	18
	15	1739	1753	S12 W11	6766		1-	2	1740		1.20	1.20	
	15	1805	1815	S11 W12			1-	3			.70	.70	18
	15	1807	1813	S11 W12	6766		1-	2	1809		.40	.40	
	15	1821	1835	S12 W13			1-	3			.29	.29	17
	15	1825	1835	S11 W13	6766		1-	2	1825		.20	.20	
	15	2000	2010	S11 W12	6766		1-	2	2003		.20	.20	
	15	2202	2228	S15 W12	6766		1-	2	2209		.30	.30	
	15	2350	2400	NO FLARE									
	15	2350	2400	PATROL									

SOLAR FLARES

APRIL 1963

IIIc

OBSERVATORY	DATE	OBSERVED UNIVERSAL TIME		LOCATION			DURATION — MINUTES	IM- POR- TANCE	OBS. COND.	MEASUREMENTS				PROVISIONAL IONOSPHERIC EFFECT
		START	END	MAX PHASE	APPROX. LAT.	MER. DIST.				TIME U.T.	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX WIDTH Ha	MAX INT. °
[] WENDEL [] WENDEL [] WENDEL [] WENDEL [] WENDEL [] ARCETRI [] WENDEL [] CAPRI-S [] SAC PEAK [] SAC PEAK [] OTTAWA [] HUANCAYO [] SAC PEAK [] LOCKHEED [] LOCKHEED	16 APR 1963	0000	0555	NO FLARE	PATROL									
	16	0740 E	0747 D		S11 W16			1-						
	16	0741 E	0750 D		S15 W17			1-						
	16	0842 E	0853 D		S10 W16			1-						
	16	0854 E	0905 D		S14 W18			1-						
	16	0855	0920		S11 W22	6766	25	1-	3	0915	.82	3.00		
	16	0915			S11 W22	6766	16	1-	2	1343	2.00	3.00		
	16	1024	1040		S14 W19			1-						
	16	1343 E	1402 D		S11 W13			1-	2		.41	.41		16
	16	1418	1425	1421	S11 W22			1-	3		1.26	1.26		21
[] SAC PEAK [] OTTAWA [] HUANCAYO [] SAC PEAK [] LOCKHEED [] LOCKHEED	16	1640	1710	1651	S14 W22			1-	3		.70	.70		
	16	1643	1708		S15 W22			1-	2	1455	.50	.60	2.90	16
	16	1651 E	1709 D	1651	N16 W18			1-	1	1654	.14	.14		20
	16	2114	2126 U	2117 U	S16 W26			1-	2	2122	.20	.20		10
	16	2116	2134	2122	S16 W24			1-	2					
	16	2140	2220	NO FLARE	PATROL			1-	2	2244	.30	.30		
	16	2241	2252	2244	S10 W28			1-	2					
	16	2340	2400	NO FLARE	PATROL									
	17	0000	0600	NO FLARE	PATROL									
	17	0610	0620	NO FLARE	PATROL									
[] ATHENES [] WENDEL [] ONDREJOV [] ARCETRI [] WENDEL [] SAC PEAK [] CAPRI-S [] SAC PEAK [] CAPRI-S [] HUANCAYO [] WENDEL [] SAC PEAK [] MCMATH [] MCMATH [] LOCKHEED [] SAC PEAK [] SAC PEAK	17	0645	0647 D		N10 W71			1-	2		.40	1.20		
	17	0655 E	0702 D		S16 W27			1-						
	17	0930	0951		S15 W30	6766	21	1-						
	17	0932 E	0939		S15 W30	6766	7 D	1-	3	0932	1.39	1.59	2.10	
	17	0932	0950		S15 W28			1-	3	0932				
	17	1120	1300	NO FLARE	PATROL									
	17	1306	1328		S12 W36	6766	22	1-	3		.97	4.00		18
	17	1308	1319	1309	S10 W40			1-	3		1.94	1.05		18
	17	1411	1432	1413	S10 W40	6766	20	1-	1	1417	.80	2.10		
	17	1417 E	1428 D		S10 W35			1-	3		.97	1.05		18
[] SAC PEAK [] CAPRI-S [] CAPRI-S [] HUANCAYO [] WENDEL [] SAC PEAK [] MCMATH [] MCMATH [] LOCKHEED [] SAC PEAK [] SAC PEAK	17	1520	1530	1522	S11 W39			1-	2	1523	1.50	1.80		
	17	1520 E	1533 D		S13 W35			1-	2	1524	1.80	2.20	3.10	
	17	1521	1532	1522	S10 W37	6766	11	1-	2					
	17	1524 E	1535 D		S12 W37	6766	11 D	1-	2					
	17	1620	1630	NO FLARE	PATROL									
	17	1820	1849	1822	S14 W36			1-	3		.21	.23		17
	17	1820	1852		S15 W35	6766		1-	3	1823	.20	.20		
	17	1900	1921 D		S12 W38	6766		1-	2	1903	1.20	1.60		
	17	1900	1930	1905	S11 W37			1-	2	1905	1.40	1.10		20
	17	1902	1925	1905	S10 W40	6766	23	1-	3		2.02	2.25		19
[] ISTANBUL [] CAPRI-S [] ATHENES [] MCMATH [] MCMATH	17	2012	2026	2014	S15 W39			1-	3		.56	.60		16
	17	2305	2400	NO FLARE	PATROL									
	18	0000	0500	NO FLARE	PATROL									
	18	0905 E	0920 D		S08 W47			1-	2	0910	1.00	1.40		
	18	0909 E	0920 D	0909	S12 W43			1-	3		.30	.50		
	18	0914 E	0916 D		S11 W46			1-						
	18	1025	1035	NO FLARE	PATROL									
	18	1136 E	1158	1138	S11 W44	6766		1-	2	1138	.40	.60		
	18	1200	1210	1202	S12 W46	6766		1-	2	1202	.20	.20		
	18													

COMMERCE - STA-ROARDS - BOULDER

COMMERCE - STA-ROARDS - BOULDER

SOLAR FLARES

APRIL 1963

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OBSERVATORY	DATE	OBSERVED UNIVERSAL TIME			LOCATION			DURA- TION — MINUTES	IM- POR- TANCE	OBS. COND.	TIME U T	MEASUREMENTS		MAX WIDTH H _g	MAX INT. I _g	PROVISIONAL IONOSPHERIC EFFECT
		START	END	MAX PHASE	APPROX. LAT.	MER DIST.	M-MATH PLACE REGION					MEAS. AREA Sq Deg	CORR. AREA Sq Deg			
[SAC PEAK MCMATH SAC PEAK MCMATH HUANCAYO MCMATH MCMATH SAC PEAK OTTAWA MCMATH	1963															
	18	1350	1405	1355	S20 W54		6767		1-	3		.56	.78		16	
	18	1350	1410	1355	S21 W54				1-	1	1355	.40	.70			
	18	1431	1438	1432	S09 W46				1-	3		.76	.89		17	
	18	1547	1613	1551	S10 W46		6766		1-	2	1551	.30	.40			
	18	1549	1555	1551	S15 W46		6766	6	1-	2		1.90	2.70			
	18	1632	1636	1633	S16 W50		6766		1-	1	1633	.30	.40			
	18	1710	1740	1713	S19 W50		6767		1-	1	1713	.20	.30			
	18	1710	1740	1726	S19 W50				1-	3		.56	.68		17	
	18	1837	1844	1841	S14 W49				1-	1	1841	.99	1.20			
ATHENES ATHENES ATHENES ATHENES SAC PEAK SAC PEAK SAC PEAK HUANCAYO SAC PEAK	18	1839	1847	1841	S14 W49		6766		1-	1	1841	.30	.40			
	18	2205	2400	NO FLARE	PATROL											
	19	0000	0510	NO FLARE	PATROL				1-	2		.30	.40			
	19	0632	0639		S20 W53				1-	2		.40	.80			
	19	0646	0649		S08 W61				1-	2		.40	.70			
	19	0648	0655	D	S12 W53				1-	2		.30	.70			
	19	0735	0747		N09 E50											
	19	0900	0920	NO FLARE	PATROL											
	19	0925	0935	NO FLARE	PATROL											
	19	1005	1015	NO FLARE	PATROL											
SAC PEAK SAC PEAK SAC PEAK HUANCAYO SAC PEAK	19	1020	1025	NO FLARE	PATROL											
	19	1115	1120	NO FLARE	PATROL											
	19	1130	1230	NO FLARE	PATROL											
	19	1255	1300	NO FLARE	PATROL											
	19	1428	1448	1438	S14 W59				1-	3		.29	.41		16	
	19	1453	1507	1458	S10 W66				1-	3		.64	1.05		17	
	19	1717	1735	1718	S10 W65				1-	3		.64	1.03		16	
	19	1756	1837	1800	S10 W66		6766	41	1	3		3.07	4.99		21	SI-3-SWF
	19	1800	1824	1804	S11 W64		6766	24 D	1+	2	1813	2.60	6.10	2.20		
	19	2050	2100	NO FLARE	PATROL											
SAC PEAK ARCETRI ARCETRI WENDEL CAPRI-S CAPRI-S SAC PEAK HUANCAYO CAPRI-S SAC PEAK SAC PEAK MCMATH SAC PEAK	19	2249	2320	2251	S10 W70				1-	2		.56	1.01		16	
	19	2340	2400	NO FLARE	PATROL											
	20	0000	0715	NO FLARE	PATROL											
	20	0725	0755	NO FLARE	PATROL											
	20	0754	0912	D	S12 W67		6766	18 D	1	3	0754	1.06	2.23			
	20	0850	0933	D	S12 W67				1-	2	0850	.65	1.37			
	20	1002	1020	D	S12 W71		6766	18 D	1				3.00			
	20	1005	1140	NO FLARE	PATROL											
	20	1205	1221	D	S15 W72		6766	16 D	2	2	1214	3.00				
	20	1429	1436	D	S15 W68				1-	2	1429	.80				
SAC PEAK HUANCAYO CAPRI-S SAC PEAK SAC PEAK MCMATH SAC PEAK	20	1501	1518	1507	S12 W79				1-	3		.56	1.40		17	
	20	1507	1515	D	S12 W74		6766	8 D	1	1	1511	1.50	4.50	3.90		
	20	1508	1513	D	S15 W68				1-	2	1508	.80			17	
	20	1707	1714	1711	S12 W85				1-	3		.21	.52			
	20	1715	1720	NO FLARE	PATROL											
	20	1803	1809	1806	S11 W85				1-	3		.21	.52		16	
	20	1940	1947	D	S14 W76		6766		1-	3	1941	.20	.70			
	20	2323	2329	2325	S15 W77				1-	3		.41	.93		16	
	20	2340	2400	NO FLARE	PATROL											
	20															

SOLAR FLARES

APRIL 1963

OBSERVATORY	DATE	OBSERVED UNIVERSAL TIME		LOCATION			DURA- TION — MINUTES	IM- POR- TANCE	OBS. COND.	MEASUREMENTS				PROVISIONAL IONOSPHERIC EFFECT		
		START	END	MAX. PHASE	APPROX. LAT.	MER. DIST.				MEATH PLACE REGION	TIME — U T	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.		MAX. WIDTH Ha	MAX. INT. °
ATHENES ATHENES	APR 1963															
	21	0000	0515	NO FLARE	PATROL											
	21	2340	2400	NO FLARE	PATROL											
	22	0000	0600	NO FLARE	PATROL											
	22	0615	0635	NO FLARE	PATROL											
	22	0640	0700	NO FLARE	PATROL											
	22	0705	0710	NO FLARE	PATROL											
	22	1005	1015	NO FLARE	PATROL											
	22	1030	1035	NO FLARE	PATROL											
	22	1040	1045	NO FLARE	PATROL											
	22	1635	1640	NO FLARE	PATROL											
	22	1905	2000	NO FLARE	PATROL											
	22	2010	2400	NO FLARE	PATROL											
	23	0000	0505	NO FLARE	PATROL											
	23	0520	0600	NO FLARE	PATROL											
	23	1225	1235	NO FLARE	PATROL											
	23	1240	1250	NO FLARE	PATROL											
	23	1255	1300	NO FLARE	PATROL											
	23	1320	1325	NO FLARE	PATROL											
	23	1745	1755	NO FLARE	PATROL											
	23	2050	2115	NO FLARE	PATROL											
	23	2335	2400	NO FLARE	PATROL											
	24	0000	0605	NO FLARE	PATROL				1-	2		•50	1.80			
	24	0605	0640		S25 W74				1-	2		•80	1.20			
	24	0624	0639		S33 W43											
	24	0900	0905	NO FLARE	PATROL											
	24	0915	1050	NO FLARE	PATROL											
	24	1940	2005	NO FLARE	PATROL											
	24	2015	2020	NO FLARE	PATROL											
	24	2030	2040	NO FLARE	PATROL											
	24	2250	2400	NO FLARE	PATROL											
	25	0000	0830	NO FLARE	PATROL											
25	0835	0840	NO FLARE	PATROL												
25	0910	0920	NO FLARE	PATROL												
25	0925	0935	NO FLARE	PATROL												
25	0940	0945	NO FLARE	PATROL												
25	0950	0955	NO FLARE	PATROL												
25	1000	1010	NO FLARE	PATROL												
25	1040	1045	NO FLARE	PATROL												
25	1740	1745	NO FLARE	PATROL												
25	1855	1900	NO FLARE	PATROL												
25	1905	1915	NO FLARE	PATROL												
25	1925	1930	NO FLARE	PATROL												
25	2040	2100	NO FLARE	PATROL												
25	2205	2245	NO FLARE	PATROL												
25	2305	2400	NO FLARE	PATROL												
26	0000	0610	NO FLARE	PATROL												

SOLAR FLARES

APRIL 1963

OBSERVATORY	DATE	OBSERVED UNIVERSAL TIME		LOCATION			DURA TION — MINUTES	IM. POR- TANCE	OBS. COND.	TIME — U T	MEASUREMENTS				MAX INT °	PROVISIONAL IONOSPHERIC EFFECT
		START	END	MAX. PHASE	APPROX						M-MATH PLAGE REGION	MEAS AREA Sq Deg	CORR AREA Sq Deg	MAX WIDTH Ha		
					LAT	MER DIST										
CAPRI-S	APR 1963															
	26	0750	0800	NO FLARE	PATROL											
	26	0910	0920	NO FLARE	PATROL											
	26	0940	0955	NO FLARE	PATROL											
	26	1005	1010	NO FLARE	PATROL											
	26	1220	1310	NO FLARE	PATROL											
	26	1535	1545	NO FLARE	PATROL											
	26	1605	1615	NO FLARE	PATROL											
	26	1910	1915	NO FLARE	PATROL											
	26	1930	1935	NO FLARE	PATROL											
CAPRI-S	26	1940	1945	NO FLARE	PATROL											
	26	2015	2020	NO FLARE	PATROL											
	26	2025	2055	NO FLARE	PATROL											
	26	2220	2230	NO FLARE	PATROL											
	26	2240	2400	NO FLARE	PATROL											
	27	0000	0600	NO FLARE	PATROL											
	27	1305 E	1435 D	NO FLARE	N20 E90			1-	3	1409	.50					
	27	1800	1805	NO FLARE	PATROL											
	27	1825	1830	NO FLARE	PATROL											
	27	1835	1845	NO FLARE	PATROL											
WENDEL SAC PEAK	27	1850	1855	NO FLARE	PATROL											
	27	2005	2115	NO FLARE	PATROL											
	27	2330	2400	NO FLARE	PATROL											
	28	0000	0600	NO FLARE	PATROL											
	28	2330	2400	NO FLARE	PATROL											
	29	0000	0600	NO FLARE	PATROL											
	29	1353 E	1401 D	NO FLARE	N15 E72			1-	3							
	29	1416	1430 U	1422	N10 E36			1-	3		.35	.39		16		
	29	1736	1745	1740	N17 E70			1-	3		.29	.60		16		
	29	1820	1830	NO FLARE	PATROL											
SAC PEAK	29	2313	2329 D	2323	N11 E29			1-	3		.50	.52		16		
	29	2330	2400	NO FLARE	PATROL											
	30	0000	0600	NO FLARE	PATROL											
	30	0023	0034	0029	N17 E65			1-	1	0029	.30	.60		20		
	30	0625 E	0736 D		N15 E65			1-	3	0719	1.00	2.00				
	30	0925	1005 D		N18 W62		6778	1-	2	0950	1.23	2.37				
	30	0947 E	1008 D		N15 E68			1-	2	0947	.50	1.00				
	30	1142 E	1228 D	1150	N14 E59		6790	1-	3	1148	1.20	2.90				
	30	1229 E	1244 D	1230	N16 E62			1-	3	1235	.80	2.00				
	LOCKHEED	30	1815	1830	1820	N18 E54			1-	1	1820	.30	.40		10	
30		1935	2010	NO FLARE	PATROL											
30		2105	2400	NO FLARE	PATROL											
30		2339	2257	2242	N09 E15			1-	2	2242	.40	.40		20		

COMMENCE - STANDARDS - BOULDER

SOLAR FLARES

APRIL 1963

ATHENS	ATHENS, GREECE	HONOLULU	HAWAII, USA	NERA	NEDERHORST den BERGH,
BAKOU	PIRCULI, USSR	IKOMASAN	KYOTO, JAPAN		NETHERLANDS
CAPETOWN	ROYAL OBSERVATORY, CAPE OF GOOD HOPE	KIEV KO	KIEV GAO, USSR	NIZMIR	KRASNAYA PAKHRA, USSR
CAPRI F	CAPRI, ITALY (GERMAN)	KIEV KY	KIEV UNIVERSITY, USSR	SAC PEAK	SACRAMENTO PEAK, N. MEX. USA
CAPRI S	CAPRI, ITALY (SWEDISH)	LOCKHEED	LOS ANGELES, CALIF., USA	SALTSJOBADEN	STOCKHOLM, SWEDEN
CRIMEE	SIMEIZ, USSR	MCWATH	MCWATH-HULBERT	SCHAUTINS	SCHAUTINSLAND, GFR
HERSTIMONCEU	ROYAL GREENWICH OBSERVATORY, HERSTIMONCEUX, ENGLAND	MOSCOU	PONTIAC, MICH., USA	TACHKENT	TASHKENT, USSR
HTR-PROVEN	HAUTE-PROVENCE	NEW SCHAUN FREIBURG, GFR	MOSCOM-GAISH, USSR	WENDEL	WENDELSTEIN, GFR

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

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

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

COMMERCE - STANDARDS - BOULDER

Note: Recently the WDC-A for Solar Activity received corrected data for the flare reports from Tachkent, U.S.S.R., for May, June, July and September 1961 and for January, February and March 1962. These corrections have been made on the punch cards and printouts are available on request.

INTERVALS OF NO FLARE PATROL OBSERVATIONS

APRIL 1963

COMMERCE - STANDARDS - BOULDER

Stations Include:

Arcetri	Bucharest	Huancayo	McMath-Hulbert	Ottawa
Athenes	Capri-S (Swedish)	Istanbul	Ondrejov	Sacramento Peak

SOLAR FLARES

JANUARY 1963

IIIk

OBSERVATORY	DATE	OBSERVED UNIVERSAL TIME			LOCATION			DURA- TION — MINUTES	IM- POR- TANCE	OBS. COND.	MEASUREMENTS				PROVISIONAL IONOSPHERIC EFFECT	
		START	END	MAX. PHASE	APPROX. LAT	MER. DIST	McMATH PLACE REGION				TIME U T	MEAS AREA Sq Deg.	CORR AREA Sq Deg.	MAX. WIDTH H _g		MAX INT. °
CAPETOWN HTE-PROVEN	JAN 1963															
	01	0600	0610	NO FLARE	PATROL											
	01	0620	0645	NO FLARE	PATROL											
	01	0734	0742	0736	S01 E59	6663					0736	•80	1.60			
	01	1052	1100		N00 E55											
	01	1405	1420	NO FLARE	PATROL											
	01	1935	1940	NO FLARE	PATROL											
	01	2000	2005	NO FLARE	PATROL											
	01	2015	2400	NO FLARE	PATROL											
	02	0000	0005	NO FLARE	PATROL											
IKOMASAN	02	0010	0015	NO FLARE	PATROL											
	02	1415	1435	NO FLARE	PATROL											
	02	2320	2400	NO FLARE	PATROL											
	03	0000	0005	NO FLARE	PATROL											
	03	0325	0350	NO FLARE	PATROL											
	03	0410	0900	NO FLARE	PATROL											
	03	1205	1350	NO FLARE	PATROL											
	03	1400	1410	NO FLARE	PATROL											
	03	1425	1430	NO FLARE	PATROL											
	03	1445	1450	NO FLARE	PATROL											
CAPETOWN	03	1510	1655	NO FLARE	PATROL											
	04	0030	0043	D	S05 W43						0030	1.65			100	
	04	0325	0335	NO FLARE	PATROL											
	04	0340	0425	NO FLARE	PATROL											
	04	0430	0435	NO FLARE	PATROL											
	04	0440	0515	NO FLARE	PATROL											
	04	1125	1215	NO FLARE	PATROL											
	04	1515	1540	NO FLARE	PATROL											
	05	0240	0330	NO FLARE	PATROL											
	05	1420	1520	NO FLARE	PATROL											
CAPETOWN	06	0200	0635	NO FLARE	PATROL											
	06	0746	0809	0749	S06 E78						0749	•70				
	06	1330	1515	NO FLARE	PATROL											
	06	1535	1545	NO FLARE	PATROL											
	07	0305	0400	NO FLARE	PATROL											
	07	0500	0915	NO FLARE	PATROL											
	07	1040	1045	NO FLARE	PATROL											
	07	1225	1515	NO FLARE	PATROL											
	07	2310	2400	NO FLARE	PATROL											
	08	0000	0005	NO FLARE	PATROL											
CAPETOWN	08	0035	0120	NO FLARE	PATROL											
	08	0200	0215	NO FLARE	PATROL											
	08	0225	0240	NO FLARE	PATROL											
	08	0305	0340	NO FLARE	PATROL											
	08	0435	0635	NO FLARE	PATROL											
	08	0435	0635	NO FLARE	PATROL											
	08	0435	0635	NO FLARE	PATROL											
	08	0435	0635	NO FLARE	PATROL											
	08	0435	0635	NO FLARE	PATROL											
	08	0435	0635	NO FLARE	PATROL											

COMMENCE - STANDARDS - BOULDER

SOLAR FLARES

JANUARY 1963

OBSERVATORY	DATE	OBSERVED TIME		LOCATION		DURATION — MINUTES	IM- POR- TANCE	OBS. COND.	TIME U.T.	MEASUREMENTS			PROVISIONAL IONOSPHERIC EFFECT
		START	END	APPROX. LAT.	MATH PLAGE REGION					MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH H _g	
HTE-PROVEN [HTE-PROVEN [UCCLE [UCCLE [HTE-PROVEN [HTE-PROVEN [HTE-PROVEN	JAN 1963												
	09	0230	0640	PATROL									
	09	0730	0750	PATROL									
	09	1410	1415	PATROL									
	09	1440	1445	PATROL									
	09	2215	2220	PATROL									
	09	2230	2235	PATROL									
	09	2345	2400	PATROL									
	10	0000	0030	PATROL									
	10	0315	0340	PATROL									
HTE-PROVEN [HTE-PROVEN [UCCLE [UCCLE [HTE-PROVEN [HTE-PROVEN [HTE-PROVEN	10	0345	0505	PATROL									
	10	0925	0945	PATROL									
	10	0948	1000 D	PATROL									
	10	1040	1043 D	PATROL									
	10	1100	1123	N13 E70									
	10	1111	1113 D	N13 E70									
	10	1150	1156	N10 E80									
	10	1212	1300	N12 E85									
	10	1231	1234 D	N13 E70									
	10	1315	1400	N14 E80									
LOCKHEED	10	1420	1515	N13 E70									
	10	1530	1540	PATROL									
	10	1545	1800	PATROL									
	10	2010	2025	PATROL									
	10	2030	2035	PATROL									
	10	2055	2115	PATROL									
	10	2056 U	2034 U	N09 E65									
	10	2125	2130	PATROL									
	10	2235	2245	PATROL									
	10	2250	2300	PATROL									
LOCKHEED	10	2257	2305	PATROL									
	10	2305	2315	N08 E65									
	10	2325	2335	PATROL									
	10	2350	2400	PATROL									
	11	0000	0005	PATROL									
	11	0045	0050	PATROL									
	11	0115	0500	PATROL									
	11	1356	1357 D	N13 E68									
	11	1640	1645	PATROL									
	11	1728	1737 D	N08 E57									
CAPETOWN	11	2155	2210	N12 E60									
	11	2300	2330	PATROL									
	11	0000	0005	PATROL									
	11	0045	0050	PATROL									
	11	0115	0500	PATROL									
	11	1356	1357 D	N13 E68									
	11	1640	1645	PATROL									
	11	1728	1737 D	N08 E57									
	11	2155	2210	N12 E60									
	11	2300	2330	PATROL									
LOCKHEED LOCKHEED	11	0000	0005	PATROL									
	11	0045	0050	PATROL									
	11	0115	0500	PATROL									
	11	1356	1357 D	N13 E68									
	11	1640	1645	PATROL									
	11	1728	1737 D	N08 E57									
	11	2155	2210	N12 E60									
	11	2300	2330	PATROL									
	12	0005	0010	PATROL									
	12	0310	0500	PATROL									
HTE-PROVEN HTE-PROVEN HTE-PROVEN	12	1151	1154	N11 E45									
	12	1247	1251	N11 E45									
	12	1301	1310	N11 E45									
	12	1510	1615	PATROL									
	12	0005	0010	PATROL									
	12	0310	0500	PATROL									
	12	1151	1154	N11 E45									
	12	1247	1251	N11 E45									
	12	1301	1310	N11 E45									
	12	1510	1615	PATROL									

SOLAR FLARES

JANUARY 1963

III m

OBSERVATORY	DATE	OBSERVED UNIVERSAL TIME		LOCATION			DURA- TION — MINUTES	IM- POR- TANCE	OBS. COND.	MEASUREMENTS				PROVISIONAL IONOSPHERIC EFFECT
		START	END	APPROX LAT.	MATH PLAGE REGION	MER DIST.				TIME U T	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX WIDTH H ₃₀	
LOCKHEED	JAN 1963													
	12	1620	1638	N11 E54				1-	1	1627	.70	.80		10
	12	1700	1725	PATROL										
	12	1755	1800	NO FLARE										
LOCKHEED	12	1755	1800	PATROL				1-	1	1850	.20	.20		20
	12	1846	1901	N11 E41				1-	1	1850	.20	.20		20
	12	2326	2357	N08 E32				1-	1	2342	.30	.30		20
	12	2326	2357	N08 E32				1-	1	2342	.30	.30		20
HTE-PROVEN LOCKHEED	13	0400	0450	PATROL				1-	1	1600	.80	.80		10
	13	1308	1315	N05 E37				1-	1	1600	.80	.80		10
	13	1600	1626	N07 E34										
	14	0300	0305	PATROL										
HTE-PROVEN HTE-PROVFN LOCKHEED	14	0310	0350	PATROL										
	14	1012	1029	N08 E21				1-						
	14	1123	1127	N08 E21				1-						
	14	2252	2306	N11 E11				1-	1	2256	.20	.20		10
TACHKENT HTE-PROVEN HTE-PROVEN HTE-PROVEN	15	0510	0533	N12 E16	6673		23 D	1	2	0517	2.09	2.30		84
	15	0807	0830	N12 E07				1-						
	15	0839	0913	N10 E08				1-						
	15	1227	1247	N13 E13				1-						
LOCARNO HTE-PROVEN HTE-PROVEN HTE-PROVEN	15	1235	1245	N10 E04	6673		10	1	3					
	15	1239	1247	N12 E07				1-						
	15	1313	1323	N08 E06				1-						
	15	1350	1415	N10 E03	6673		25	1	3					
HTE-PROVEN LOCKHEED LOCKHEED LOCKHEED	15	1358	1411	N12 E07				1-	2	1710	.50	.50		20
	15	1700	1734	N13 E09				1-	2	1743	1.00	1.00		20
	15	1739	1755	N13 E02				1-	2	1942	.80	.80		20
	15	1928	2002	N13 E08				1-	2	2251	.60	.60		20
LOCKHEED LOCKHEED LOCKHEED LOCKHEED	15	2248	2304	N13 W02				1-	2	2352	.60	.60		10
	15	2346	2357	N12 E06				1-	2	2352	.60	.60		10
	15	2352	0007	N11 W01				1-	2	2357	.30	.30		10
	15	2352	0007	N11 W01				1-	2	2357	.30	.30		10
HTE-PROVEN HTE-PROVEN HTE-PROVEN LOCKHEED	16	0925	0956	N05 W08				1-	1					
	16	1010	1020	PATROL										
	16	1030	1155	NO FLARE										
	16	1155	1219	NO FLARE										
LOCKHEED LOCKHEED LOCKHEED LOCKHEED	16	1220	1235	N05 W08				1-						
	16	1807	1832	PATROL				1-	2	1813	.20	.20		20
	16	2310	2321	N08 W12				1-	2	2314	.20	.20		10
	16	2310	2321	N10 W11										
UCCLE LOCKHEED LOCKHEED LOCKHEED	17	1250	1306	N14 W19				1-	3	1254	.20	.20		20
	17	2248	2305	N05 W29				1-	2	2251	.50	.50		20
	17	2321	2341	N14 W22				1-	2	2328				20
	17	2321	2341	N14 W22										
LOCKHEED LOCKHEED LOCKHEED LOCKHEED	18	1455	1500	PATROL										
	18	1600	1650	NO FLARE										
	18	2325	2335	NO FLARE										
	18	2345	2350	NO FLARE										
LOCKHEED LOCKHEED	19	0110	0120	PATROL										
	19	0110	0120	PATROL										

COMMERCE - STANDARDS - BULLDOZER

SOLAR FLARES

JANUARY 1963

OBSERVATORY	DATE	OBSERVED UNIVERSAL TIME		LOCATION		DURATION — MINUTES	IM- POR- TANCE	OBS COND.	MEASUREMENTS				PROVISIONAL IONOSPHERIC EFFECT
		START	END	APPROX. LAT.	M. MATH FLARE REGION				TIME	MEAS AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX WIDTH H _{fo} F ₂	MAX INT. F ₂
LOCKHEED	19 JAN 1963												
	19	0150	0200	NO FLARE	PATROL								
	19	1435	1445	NO FLARE	PATROL								
	19	1450	1500	NO FLARE	PATROL								
	19	1510	1545	NO FLARE	PATROL								
LOCKHEED	19	1610	1630	NO FLARE	PATROL								
	19	1650	1655	NO FLARE	PATROL								
	19	2006	2021	2012	N07 W56		1-	1	2012	.50	.60	10	
	20	1510	1530	NO FLARE	PATROL								
	21	0749	0805	0751	N07 W74	16	1		0751	1.00			
LOCKHEED	21	1618	1644	1624	N05 W69		1-	2	1624	.30	.50	20	
	24	2032	2041	2035	S08 E41		1-	2	2035	.10	.10	10	
	24	2234	2304	2250	N12 E02		1-	1	2250	.20	.20	20	
	25	0325	0330	NO FLARE	PATROL								
	25	2250	2355	NO FLARE	PATROL								
HTE-PROVEN	26	1350	1405	NO FLARE	PATROL								
	26	2245	2400	NO FLARE	PATROL								
	27	1217 E	1225 D		N04 E63		1-						
	28	0145	0150	NO FLARE	PATROL								
	28	2025	2050	NO FLARE	PATROL								
CAPETOWN	28	2245	2250	NO FLARE	PATROL								
	28	2315	2340	NO FLARE	PATROL								
	29	0120	0130	NO FLARE	PATROL								
	29	2240	2245	NO FLARE	PATROL								
	29	2300	2400	NO FLARE	PATROL								
CAPETOWN	30	0000	0205	NO FLARE	PATROL								
	30	0545	0555	NO FLARE	PATROL								
	30	0630	0644		N12 W52	6680	1-		0631	.70	1.20		
	30	1007 E	1035		N12 W54	6680	1		1010	1.30	2.30		
	30	1303	1343 D	1306	N12 W54	6680	1		1306	1.20	2.30		
HTE-PROVEN	30	1320 E	1415		N10 W55	6680	1			2.10	3.80		
	30	1400 E	1500 D		N10 W57	6680	2		1400		12.00		
	30	1455	1500	NO FLARE	PATROL								
	30	2245	2325	NO FLARE	PATROL								
	30	2340	2345	NO FLARE	PATROL								
UCCLE	31	0530	0540	NO FLARE	PATROL								
	31	0545	0555	NO FLARE	PATROL								
	31	0600	0605	NO FLARE	PATROL								
	31	1112	1122	1119	N13 W73		1-	3	1119				
	31	1202	1220		N13 W73		1-	3					
UCCLE	31	1237	1253		N13 W74		1-	3					
	31	1320	1353	1323	N13 W74		1-	3	1323				

SOLAR FLARES

JANUARY 1963

OBSERVATORY	DATE	OBSERVED UNIVERSAL TIME		LOCATION			DURATION — MINUTES	IM. FOR- TANCE	OBS. COND.	MEASUREMENTS				PROVISIONAL IONOSPHERIC EFFECT
		START	END	APPROX. LAT.	MER. DIST	M-MATH PLACE REGION				MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Ha	MAX INT. %	
UCCLE	JAN 1963													
	31	1357	1412	N13	W74			1-	3					
	31	2235	2400	NO FLARE PATROL										

These flare reports are addenda to the January 1963 flares published in CRPL-F 222B for February 1963.

ATHENS	ATHENS, GREECE	HONOLULU	HAWAII, USA	NERA	NEDERHORST den BERGH,
BAKOU	PIRCULI, 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	SALTSJOBADEN	STOCKHOLM, SWEDEN
CRINEE	CAPRI, ITALY (SWEDISH)	MCNATH	MCNATH-HULBERT	SCHAUTINS	SCHAUTINSLAND, GFR
HERSTMONCEU	SIMEIZ, USSR	MOSCOU	PONTIAC, MICH., USA	TACHKENT	TASHKENT, USSR
	ROYAL GREENWICH OBSERVATORY,		MOSCOW-GAISH, USSR	WENDEL	WENDELSTEIN, GFR
	HERSTMONCEUX, ENGLAND				
HTE-PROVEN	HAUTE-PROVENCE				
			NEW SCHAUTIN 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.

COMMERCE - STANDARDS - BOULDER

INTERVALS OF NO FLARE PATROL OBSERVATIONS

JANUARY 1963

HOUR-UT

Stations Include:

Abastumani	Capri -F (German)	Honolulu	Lockheed	Nizmir
Arcetri	Capri -S (Swedish)	Huancayo	McMath-Hulbert	Ottawa
Athenes	Climax	Ikomasan	Meudon	Sacramento Peak
Bakou	Crimee	Kiev KO	Mitaka	Tachkent
Capetown	Haute-Provence	Kodaikanal	Nizamiah	Uccle

IONOSPHERIC EFFECTS OF SOLAR FLARES

IIIq

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

MARCH 1963

MARCH 1963	UNIVERSAL TIME			SWF TYPE	IMPORTANCE					WIDE SPREAD INDEX	STATIONS	KNOWN FLARE
	START	END	MAX		IMP	ABS	SCNA	SEA	SPA			
20	2151	2153							1	5	MC BO HA	2150

COMMERCE - STANDARDS - BOULDER

SOLAR RADIO EMISSION OUTSTANDING OCCURRENCES

APRIL 1963

ARO - OTTAWA

2800 Mc.

APRIL 1963	TYPE	START UT	DURATION HRS MIN	MAXIMUM			REMARKS
				TIME UT	PEAK FLUX	MEAN FLUX	
11	3 Simple 3	2040	40	2052	2	1	
12	3 Simple 3 A	1141	27.5	1151.5	3	1.5	
	1 Simple 1 f	1143.8	4.2	1144.7	6	3.5	
15	- Record	b1110	>1 50	1138	7	-	
	Incomplete A						
	2 Simple 2 f	1123	9	1124.5	220	40	
	2 Simple 2	1144.5	13.5	1150	12	6.5	
15	3 Simple 3 A	1357	2 03	1448	3	2	
	1 Simple 1	1418	1	1418.3	2	1	
15	3 Simple 3 f	1615	1 35	1617	7	3.7	
15	1 Simple 1	2202.3	0.8	2202.5	3.5	2	
16	3 Simple 3 A	1637	33	Indet.	2	1	
	2 Simple 2 f	1642.5	3	1644	11	3	
	2 Simple 2 f	1649	3	1649.3	22	7	
17	3 Simple 3	1308	17	1310	2	1	
17	3 Simple 3	1410	25	1412	4	2	
17	1 Simple 1	1832	0.3	1832.2	2	1	
17	2 Simple 2	1902	3	1903.1	21	9	
	4 Post Increase		1 10		2	1	
19	3 Simple 3	1135	11	1139	2	1	
19	3 Simple 3 f	1443	37	1446	2	1	
19	2 Simple 2 f	1755	11.5	1158.7	92	14	
	4 Post Increase		45.5		6	3	
19	3 Simple 3	2143	>1 32	Indet.	4*	-	
28	3 Simple 3	1139	28	1148	2	1	
29	1 Simple 1	2216	7	2221	2	1	
30	3 Simple 3 A	1137	35	1152	3	1.5	
	2 Simple 2 f	1142.2	7.8	1145	8	4	
30	2 Simple 1	1416	2	1417	2	1	

*Maximum flux observed during this period.

COMMERCE - STANDARDS - BOULDER

SOLAR RADIO EMISSION INTERFEROMETRIC OBSERVATIONS

APRIL 1963

IVb

BOEING - SEATTLE

221 Mc.

Apr. 1963	Type	Starting time	Time of max.	Dura- tion	Flux density $10^{-22} \text{ W m}^{-2} (\text{c/s})^{-1}$	
		UT	UT	minutes	peak	mean
6	ef	2336.1	2336.1	0.2	40	10.5
9	es	0042.3	0042.3	0.5	25	7.5
10	ec	1949.7	1949.8	0.8	28	8.0
14	es	0054.2	0054.2	0.2	25	7.5
16	c	1643.0	1643.7	1.5	25	7.5
16	EC	1649.0	1649.2	3	1860	250
17	es	2113.2	2113.2	0.3	640	98

COMMERCE - STANDARDS - BOULDER

Normal observing period: 1600-0100 UT.

**SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES
APRIL 1963**

BOULDER

108 Mc.

April 1963	Type	Start UT	Time of Maximum UT	Duration Minutes	Intensity
12	7	1401	1430	90	2
12	7	1727	1825	153	2
16	3	1643.0	1643.8	1.8	3
16	8	1648	~1650	11.0	3
17	3	1819.4	1820.0	1.7	3
17	3	1830.5	1832.8	2.5	3
18	6	1223E	-	298D	2
18	8	1839.2	~1840	2.5	3
19	8	1426.5	1428.0	5.0	2
19	8	1432.0	1436.5	5.5	3
20	3	2322.5	2323.0	1.7	2

**NOMINAL TIMES OF OBSERVATION
OUTSTANDING OCCURRENCES
APRIL 1963**

BOULDER

108 Mc.

April 1963	U.T.			April 1963	U.T.	
1	1250-0109	I	1808-2004 2026-2039 2101-2116	17	1225-0104	I 2343-2349
2	1248-0110			18	1223-0124	
				19	1300-0125	
3	1246-2115			20	1220-1715	
	2235-0111				2045-0126	
4	1245-0112			21	1219-1505	
5	1243-2303				1650-1714	
6	1242-0113	I	0043-0116		1730-1912	
7	1240-1728				1919-1950	
	1807-0114				1954-2130	
8	1239-0115			22	1907-0128	
9	1237-0116			23	1216-0129	
10	1235-0117			24	1215-2228	
11	1234-0117			25	2200-0131	
12	1232-0118			26	1212-0132	
13	1231-2145			27	1211-0132	
	2340-0119			28	1209-0133	
14	1229-0120			29	1208-0134	
15	1228-2015			30	1207-0135	
16	1226-1915					
	2005-0122					

COMMERCE - STANDARDS - BOULDER

SOLAR NOISE BURSTS

APRIL 1963

108 Mc.

BOULDER

COMBINE - STUDY - BULK

SOLAR RADIO EMISSION SPECTRUM OBSERVATIONS

Fort Davis

JANUARY — FEBRUARY 1963

50-320 Mc.

1963	OBSERVING HOURS	IMPORTANT BURSTS			FREQUENCY RANGE MC	REMARKS
		TYPE	TIMES U.T	INT		
Jan. 1	1415-2350					
Jan. 2	1415-2350					
Jan. 3	1415-2350					
Jan. 4	1415-2350					
Jan. 5	1415-2350					
Jan. 6	1415-2350					
Jan. 7	1415-2355					
Jan. 8	1415-2355					
Jan. 9	1415-2355					
Jan. 10	1415-2355					
Jan. 11	1415-2355					
Jan. 12	1415-2355					
Jan. 13	1415-2355					
Jan. 14	1415-2355					
Jan. 15	1415-2355	IIIG	1619-1622	1-2	320-100	
Jan. 16	1415-2355					
Jan. 17	1415-2355					
Jan. 18	1415-2355					
Jan. 19	1415-2355					
Jan. 20	1415-2400					
Jan. 21	1415-2400					
Jan. 22	1415-2400					
Jan. 23	1415-2400					
Jan. 24	1415-2400					
Jan. 25	1400-2400					
Jan. 26	1400-2400					
Jan. 27	1400-2400					
Jan. 28	1400-2400					Weak I throughout day
Jan. 29	1400-2400					
Jan. 30	1400-2400	I	1409-1640	1	200-<50	
Jan. 31	1400-2400					Weak I during day
Feb. 1	1400-2400					
Feb. 2	1400-2400					
Feb. 3	1400-2400					
Feb. 4	1400-2400					
Feb. 5	1400-1600					
Feb. 6	1400-2330					
Feb. 7	1400-2400					
Feb. 8	1400-2400	IIIG	2339-2340	2	240-<50	
Feb. 9	1400-2400					
Feb. 10	1400-2400					
Feb. 11	1400-2400					
Feb. 12	1400-2400					
Feb. 13	1400-2400					
Feb. 14	1400-2400					
Feb. 15	1400-2400					
Feb. 16	1400-2400					
Feb. 17	1400-2400					
Feb. 18	1400-2400					Weak I during day
Feb. 19	1400-2400					

SOLAR RADIO EMISSION SPECTRUM OBSERVATIONS

IVf

FEBRUARY — MARCH 1963

Fort Davis

50-320 Mc.

1963 <small>UTIME</small>	OBSERVING HOURS	IMPORTANT BURSTS			FREQUENCY RANGE MC	REMARKS
		TYPE	TIMES U. T	INT		
Feb. 20	1400-2400					
Feb. 21	1400-2400					
Feb. 22	1345-2400					
Feb. 23	1345-2400					
Feb. 24	1345-2400					
Feb. 25	1345-2400					
Feb. 26	1345-2400					
Feb. 27	1345-2400					
Feb. 28	1345-2400					
Mar. 1	1400-2400					
Mar. 2	1400-2400					
Mar. 3	1400-2400	II	2350.0-2353	1	140-<50	
Mar. 4	1526-2400					
Mar. 5	1330-2330					
Mar. 6	1330-2330					
Mar. 7	1330-2330					
Mar. 8	1330-2330					
Mar. 9	1330-2330					
Mar. 10	1330-2330					
Mar. 11	1330-2330					
Mar. 12	1330-2330					
Mar. 13	1330-2330					
Mar. 14	1330-2330					
Mar. 15	1330-2330					
Mar. 16	1330-2330					
Mar. 17	1330-2330					
Mar. 18	1330-2330					
Mar. 19	1330-2330					
Mar. 20	1330-2330	IIIG	2151-2152	2	220-<50	
Mar. 21	1330-2330					
Mar. 22	1330-2330					
Mar. 23	1330-2330					
Mar. 24	1330-2330					
Mar. 25	1330-2330					
Mar. 26	1330-2330					
Mar. 27	1330-2330					
Mar. 28	1330-2330					
Mar. 29	1330-2330					
Mar. 30	1330-2249					
Mar. 31	1330-2330					

SOLAR RADIO EMISSION SPECTRUM OBSERVATIONS

APRIL 1963

HAO BOULDER

7.6 - 41 Mc.

Date	Bursts			Frequency Range (mc)	Date	Bursts			Frequency Range (mc)
1963	Type	Time (U.T.)	Intensity		1963	Type	Time (U.T.)	Intensity	
1 Apr	III	2147.45-2148.15	1	32-41	11	III	1608-1608.30	1-	19-41
3	III	2253.45-2254	1-	20-41					
4	No Observ.	2100-2157				III	1615.15-1618	2	7-41
5	III	2146.45-2147.30	1	16-41		III	1641.30-1643.45	2	19-41
	III	2147.45-2148	1-	27-37		III	1645.30-1646	1-	21-36
						III	1656.15-1656.45	1-	21-31
						III	1657.30-1658	1-	23-38
	III	2149.30-2150	1-	21-36					
6	III	1912.45-1913.45	1-	7-35		III	1703.15-1703.45	1	20-28
	III	2123.45-2125	1	7-41		III	1707.30-1708	1-	24-41
7	III	1726-1726.30	1-	24-40		III	1711-1712.15	1-	30-41
	III	1739.15-1739.30	1-	24-35		III	1728.30-1730	1	18-41
						III	1735.15-1737	1+	7-41
	III	1740.30-1741.15	1-	19-35		continuum	1805-2135	1-	21-41
	III	1800.30-1801	1	19-41		III	1838.15-1839	1	21-41
	III	1807-1808	1+	7-41		III	2032.15-2033.15	1	11-41
	III	1816.30-1819	1-	22-41		III	2329.15-2329.45	1-	21-41
	III	1820-1821.15	1+	7-41		continuum	1725-1900	1-	24-41
					12				
	III	1821.30-1822	1	7-41					
	III	1843-1844.30	1-	7-41	12 Apr	III	1734.30-1735	1	21-41
	III	1844.45-1846	1+	7-41		III	1739.15-1739.30	1	22-41
	III	1846-1846.15	1	16-41		III	2011.15-2011.30	1-	22-36
	III	1847-1848	1+	7-41		III	2037.30-2038	1	21-41
						III	2457.30-2458	1-	20-41
	III	1849.45-1850.30	1-	22-41					
	III	1924.45-1925	1-	20-41	13	continuum	b1542-a2459	1-	20-41
	III	1938.45-1939.15	1	12-41		III	1635.45-1636.45	1+	20-41
	III	2113-2113.15	1	16-41		III	1659.30-1702.45	1+	7-41
	III	2228.45-2229	1-	21-39	14	continuum	b1527-a2500	1+	18-41
8	continuum	2306-a2450	1-	22-41		III	1731.15-1732.45	1+	7-41
	continuum	b1507-a2450	1-	20-41					
	III	2240.45-2241.30	1	11-41		III	1743-1744.45	1+	7-41
	III	2241.30-2243	1	11-41	15	No Observ.	1619-1638		
	III	2442.30-2444.15	1	20-41		continuum	b1638-a2500	1-	19-41
9	continuum	1930-2105	1-	25-41		III	1720.15-1721.45	1+	8-41
	III	1942.15-1943	1-	22-41	16	continuum	b1529-a2520	1+	19-41
	III	2100.45-2101	1-	22-41					
	III	2144-2144.30	1-	22-41		III	1641.30-1645.30	2+	7-41
	III	2158.45-2159	1	21-41		III	1648-1653.30	2+	7-41
10						IV	1703-1755	1	18-41
	III	2401.15-2402	1	22-41	17	continuum	b1440-a2520	1-	16-41
	III	1842.45-1843	1-	31-41		III	1539.45-1541.30	1+	7-41
	III	1933-1934.45	1+	7-41					
	III	1949.30-1951	1+	7-41		III	1615-1617.45	1+	7-41
	III	2047.45-2048.15	1-	23-36		III	1819.15-1821.15	1+	7-41
						III	1831.45-1833.15	1+	7-41
	III	2122.45-2123.45	1+	16-41		III	1834.45-1835.15	1+	7-41
	III	2222.15-2222.45	1	16-41		III	2053-2054	1+	7-41
	III	2237.15-2237.30	1-	22-34					
	III	2239-2239.15	1-	22-34		III	2240.45-2242.15	1+	7-41
	III	2239.45-2240.30	1+	12-41		III	2247.30-2248.45	1+	7-41
					18	continuum	b1337-a2500	1-	19-41
	III	2252.15-2252.30	1-	20-41		III	1641.15-1645.30	2	7-41
	III	2306.30-2307	1	21-41		III	1735.30-1736.30	1+	7-41
	III	2323-2323.30	1-	22-38					
	III	2329.15-2332	1-	21-41		III	1753.15-1754.30	1+	7-41
	III	2335-2336.45	1	13-41		III	1839.15-1842.15	1+	7-41
						III	1918.30-1920	1+	7-41
	III	2346-2346.45	1	16-41		III	2301.15-2304.30	1+	7-41
	III	2404-2404.45	1-	21-41	19	continuum	b1507.30-a2500	1-	22-41
	III	2407.45-2408.15	1-	20-41					
	III	2445.15-2445.45	1-	19-35		III	1522-1523	1-	16-35
						III	1532.45-1533.30	1-	22-36

SOLAR RADIO EMISSION SPECTRUM OBSERVATIONS

IVh

APRIL 1963

HAO BOULDER

7.6 - 41 Mc.

Date 1963	Bursts			Frequency Range (mc)	Date 1963	Bursts			Frequency Range (mc)
	Type	Time (U.T.)	Intensity			Type	Time (U.T.)	Intensity	
20	III	1538.45-1539.15	1-	21-35		III	2109.30-2109.45	1-	16-41
	III	1710.45-1712	1	7-41		III	2127.15-2127.30	1-	22-41
	III	1720-1721	1-	7-41		III	2215.45-2216	1-	21-38
						III	2322.15-2325.15	1+	16-41
						III	2342.15-2342.45	1-	23-41
	III	1722.45-1723.15	1-	21-41	21				
	III	1857.15-1859.15	1+	7-41					
	III	1904-1905.45	1+	7-41		III	2437.45-2438	1-	23-41
	III	1924.15-1925	1-	7-41	24	II	2005.15-2029	1+	22-41
	III	2341.15-2351.15	2+	12-41		IV	2030-2118	1-	23-41
					25	III	2321.15-2322	1-	16-41
	III	1603.15-1604.15	1	16-41		III	2329-2329.45	1-	21-41
	III	1605.45-1606.15	1-	16-41					
	III	1609.15-1610.15	1	22-41	28	III	1720.15-1721.15	1	13-41
	III	1625.15-1625.45	1-	12-41		III	1957.45-1958	1-	22-41
	III	1653.15-1653.45	1	7-41		III	2315.30-2316	1-	21-41
					29				
	III	1702.30-1703.45	1	12-41	30	No observ.	1507-1553		
	III	1736-1736.15	1	7-41		No observ.	1727-1853		
	III	1816.45-1819.45	1-	9-41		III	2236-2242	1	21-41
	continuum	1905-2020	1-	22-41					
	III	2048.15-2049	1-	16-41					

COMMERCE - STANDARDS - BOULDER

c = many faint Type III's not reported

d = harmonic structure

SOLAR RADIO EMISSION INTERFEROMETRIC OBSERVATIONS

APRIL 1963

169 Mc.

NANÇAY

APRIL 1963

SOLAR RADIO EMISSION SPECTROHELIOGRAMS

APRIL 1963

STANFORD

9.1 cm

Stanford, 1963 Apr 06, 2:01 hrs UT;

1963 APRIL 05

1963 APRIL 06

IVj

9.1 cm

9.1 cm SPECTROHELIOGRAM
Stanford, 1963 Apr 08, 20-21 hrs UT.

4.1 cm SPECTROELILOGRAM
Stanford, 1903 Apr 11, 20-21 hrs UT:

N
067 ADDII C7

9.1 cm SPECTROHELIOGRAM

SOLAR RADIO EMISSION SPECTROHELIOGRAMS

STANFORD

APRIL 1963

9.1 cm

Stanford, 1962 Apr 17, 20-21 hrs UT.

Stanford, 1962 Apr 17, 20-21 hrs UT.

Stanford, 1962 Apr 17, 20-21 hrs UT.

Stanford, 1962 Apr 17, 20-21 hrs UT.

Stanford, 1962 Apr 17, 20-21 hrs UT.

Stanford, 1962 Apr 17, 20-21 hrs UT.

Stanford, 1962 Apr 17, 20-21 hrs UT.

Stanford, 1962 Apr 17, 20-21 hrs UT.

Stanford, 1962 Apr 17, 20-21 hrs UT.

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Stanford, 1962 Apr 17, 20-21 hrs UT.

Stanford, 1962 Apr 17, 20-21 hrs UT.

Stanford, 1962 Apr 17, 20-21 hrs UT.

Stanford, 1962 Apr 17, 20-21 hrs UT.

Stanford, 1962 Apr 17, 20-21 hrs UT.

SOLAR RADIO EMISSION SPECTROHELIOGRAMS

APRIL 1963

STANFORD

9.1 cm

Stanford, 1963 Apr 19, 20:21 hrs UT;

Stanford, 1963 Apr 22, 20:21 hrs UT;

Stanford, 1963 Apr 21, 20:21 hrs UT;

Stanford, 1963 Apr 25, 20:21 hrs UT;

Stanford, 1963 Apr 26, 20:21 hrs UT;

Stanford, 1963 Apr 28, 20:21 hrs UT;

SOLAR RADIO EMISSION SPECTROHELIOGRAMS

9.1 cm

STANFORD

APRIL 1963

Stanford, 1963 Apr 25, 20-21 hrs UT.

Stanford, 1963 Apr 26, 20-21 hrs UT.

Stanford, 1963 Apr 27, 20-21 hrs UT.

Stanford, 1963 Apr 28, 20-21 hrs UT.

Stanford, 1963 Apr 29, 20-21 hrs UT.

Stanford, 1963 Apr 30, 20-21 hrs UT.

Stanford, 1963 May 1, 20-21 hrs UT.

IVn

COSMIC RAY INDICES

(Climax Neutron Monitor)

IGC Station B 305

MARCH 1963

Mar. 1963	Daily average counts/hr *	Mar. 1963	Daily average counts/hr *
1	3201.1	16	3167.8
2	3183.3	17	3166.6
3	3190.6	18	3173.4
4	3196.3	19	3171.8
5	3190.6	20	3174.3
6	3200.5	21	3165.2
7	3200.3	22	3174.9
8	3198.2	23	3165.9
9	3167.8	24	3159.9
10	3178.5	25	3167.2
11	3145.2	26	3175.5
12	3143.1	27	3188.0
13	3135.9	28	3194.6
14	3133.0	29	3196.8
15	3156.5	30	3196.2
		31	3208.8

COMMERCE - STANDARDS - BOULDER

*Scaling Factor 128

COSMIC RAY INDICES (Pressure Corrected Hourly Totals)

GEOMAGNETIC ACTIVITY INDICES

MARCH 1963

Mar. 1963	C	Values Kp								Sum	Ap	Final Selected Days
		Three hour Gr. interval										
		1	2	3	4	5	6	7	8			
1	0.8	2+	4o	4o	2+	2o	4-	2+	3-	23+	15	Five Quiet
2	0.2	2o	2o	2-	2+	2o	1+	1+	1-	13+	6	
3	0.6	1-	2-	3+	2o	2+	1+	1+	2+	15o	8	
4	0.0	1o	1-	1o	1o	1-	1-	1o	1-	7-	4	
5	0.2	0o	1o	1o	1-	1o	0o	1+	1+	6+	3	
												26
6	0.2	1o	2o	1-	0+	1-	2o	2o	2-	10+	5	27
7	0.9	1-	2o	0+	0o	0o	0+	2+	5o	11-	9	
8	1.4	4o	3+	5-	5+	4+	4o	4+	3+	33+	31	
9	1.1	3o	4+	3+	3o	3o	3-	2+	4+	26o	18	
10	1.6	3+	4o	4+	4o	5o	6+	6o	5-	38-	48	
11	1.1	5-	4-	2+	3-	3-	3+	4+	3o	27-	20	Five Disturbed
12	0.6	4-	3+	2+	3-	3-	2+	2+	1-	20o	12	
13	0.6	0o	0+	2-	2-	4-	3+	2o	1+	14o	8	
14	0.0	2-	0o	0o	0+	0+	0o	0+	1o	4-	2	
15	0.0	1+	2-	0+	0+	0o	0+	1-	0o	5-	2	
												10
16	0.0	0o	0o	1-	0+	0o	0+	0+	1-	2+	2	11
17	0.5	0+	0o	0o	0+	1-	1+	2o	2+	7o	4	
18	0.6	1-	2-	2-	1+	2o	2o	1o	2-	12o	6	
19	0.6	2-	3o	2-	1o	1o	2-	2-	3-	14+	7	
20	0.3	1o	1o	1-	1-	0+	0+	2-	3-	8+	4	
21	0.1	1+	2-	2o	0+	0+	0+	0+	0o	6+	3	Ten Quiet
22	0.1	0o	0o	0o	1-	1-	1o	1-	1-	4-	2	
23	0.8	2-	2-	2-	4o	4-	3-	1+	1+	18o	11	
24	0.2	1o	0+	0o	2-	2-	2-	1+	2o	10-	4	
25	0.1	2-	0+	0+	1-	0+	1o	1o	1-	6o	3	
												15
26	0.1	0o	0o	0o	0+	1-	1-	2-	0+	4-	2	16
27	0.0	0o	0o	0+	0+	0o	0+	1-	0o	2-	1	22
28	0.2	0o	0+	1+	2-	1o	1-	2-	2-	8+	4	25
29	0.2	2o	2o	1o	2-	2o	1-	1-	1o	11o	5	26
30	0.1	1-	0+	1-	1+	0+	0o	1o	1-	5o	3	27
31	0.4	0o	1-	1o	1o	1o	0+	1-	2+	7o	4	30
Mean:	0.44									Mean:	8

PLANETARY MAGNETIC
THREE-HOUR-RANGE INDICES
Kp till 1963 March 31
(Ks from Wingst and Göttingen till April 16)

J.B.

COMMERCE - STANDARDS - BOULDER

NORTH PACIFIC

MARCH 1963

[illegible]

COMMERCE • STANDARDS • BOULDER

CRPL RADIO PROPAGATION QUALITY FIGURES AND FORECASTS NORTH ATLANTIC

VIIb

MARCH 1963

— Short-term forecast
○ Quality figure

| Range of reports

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

NORTH ATLANTIC

NORTH PACIFIC

MARCH 1963

MARCH 1963

INTERNATIONAL URSIGRAM
AND WORLD DAYS SERVICE

APRIL 1963

Issued April 1963 Day/Time U.T.	Advance Geophysical Alert	No.	World-Wide Geophysical Alert	Special World Intervals
15/1745	McMath, Solar Flare, One Plus 15/1618Z			
18/0117	Climax, Solar Flare, One Plus 17/1908Z			
19/1910	Sac Peak, Solar Flare, One Plus 19/1800Z			

COMMERCE - STANDARDS - BOULDER