

PART B
SOLAR - GEOPHYSICAL DATA

ISSUED
MAY 1961

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

SOLAR - GEOPHYSICAL DATA

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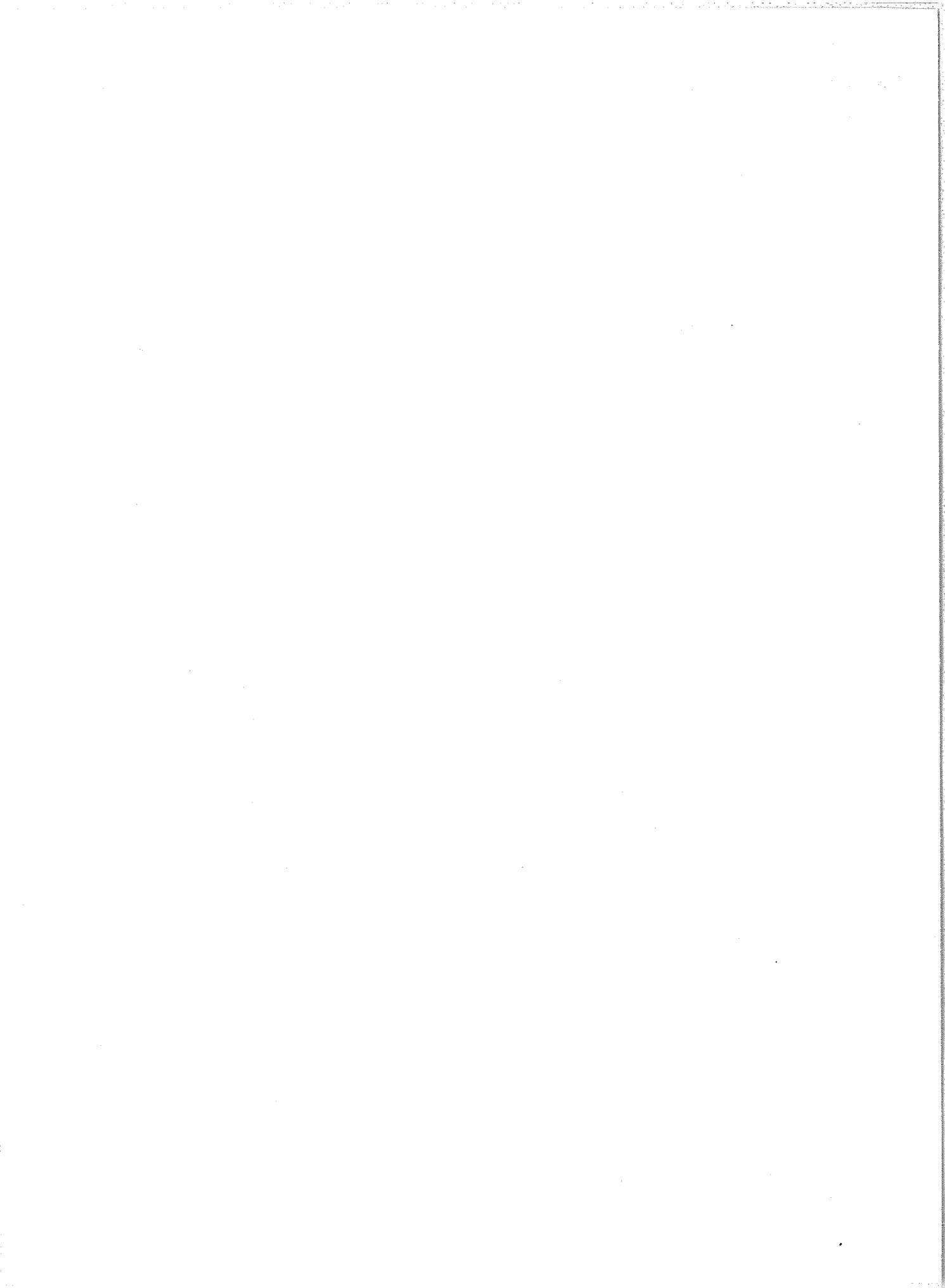
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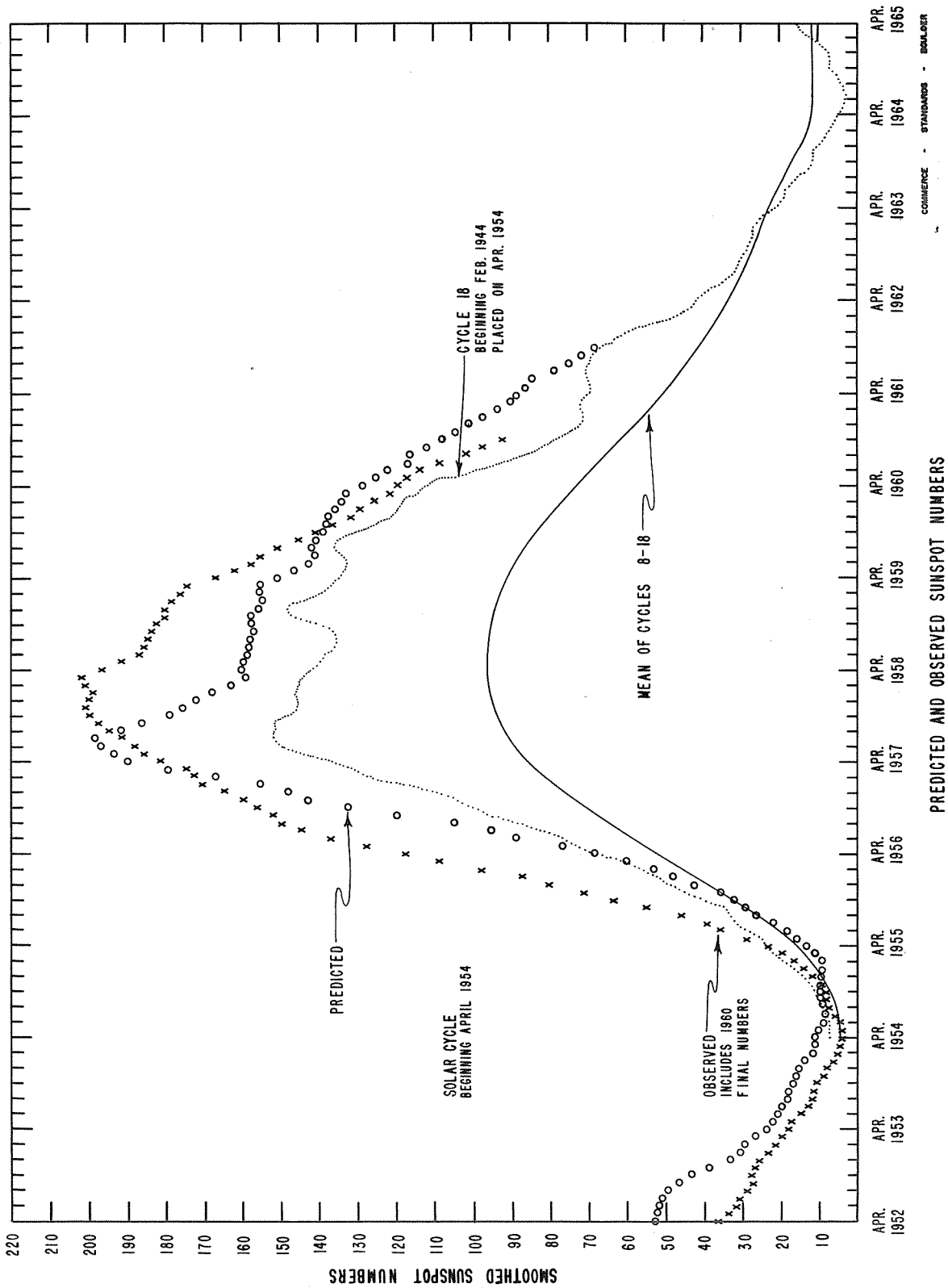


The descriptive text was published separately, November 1960.

DAILY SOLAR INDICES

Mar. 1961	American Relative Sunspot Numbers R_A'
1	12
2	22
3	33
4	24
5	28
6	31
7	33
8	41
9	33
10	20
11	17
12	13
13	18
14	44
15	40
16	55
17	52
18	39
19	31
20	33
21	50
22	53
23	60
24	71
25	67
26	70
27	70
28	85
29	90
30	102
31	98
Mean:	46.3

Apr. 1961	Zürich Provisional Relative Sunspot Numbers R_Z	Daily Values Solar Flux at 2800 Mc, Ottawa, Canada Flux
1	87	113
2	60	105
3	55	101
4	73	103
5	86	107
6	82	106
7	64	98
8	66	104
9	49	96
10	48	93
11	47	92
12	42	89
13	40	88
14	41	93
15	53	98
16	60	103
17	78	105
18	72	107
19	65	105
20	56	103
21	52	104
22	47	103
23	41	105
24	36	111
25	48	111
26	60	126)
27	82	120
28	74	114
29	92	121)
30	99	122)
Mean:	61.8	104.9



CALCIUM PLAGE AND SUNSPOT REGIONS

APRIL 1961

CMP Apr. 1961	Lat	McMath Plage Number	Return of Region	Calcium Plage Data				Sunspot Data		
				CMP Values Area Int.		History, Age		CMP Values Area Count		History
01.8	S19	6071	New	2200	3	<i>l-l</i>	1	210	1	<i>l-l</i>
02.6	N11	6070	6049	1200	2	<i>l \ l</i>	3			
03.4	S15	6074	6048	3200	3	<i>l-l</i>	2	70	3	<i>l / l</i>
04.3	N17	6076	New	(200)	(1)	<i>l \ d</i>	1			
04.6	N02	6075	6051	1200	2	<i>l-l</i>	3			
06.1	N16	6077	New	1700	3	<i>b / l</i>	1	290	15	<i>b / l</i>
07.4	S20	6081	6053	500	1.5	<i>b / l</i>	3			
08.3	N13	6078	New	400	1	<i>l-l</i>	1			
09.2	S04	6079	6054	800	2	<i>l-l</i>	4	100	1	<i>l-l</i>
10.9	S05	6080	6054	1300	2	<i>l \ l</i>	4			
14.0	N04	6082	6062	1800	3	<i>l \ l</i>	2	20	1	<i>b / l</i>
14.2	N17	6083	6062	1100	2.5	<i>l-l</i>	2			
15.2	S26	6088	6058	1200	3	<i>l-l</i>	2	40	3	<i>b ^ d</i>
15.4	N08	6084	6059	500	2	<i>l-l</i>	2			
16.6	S07	6085	New	300	2.5	<i>l \ d</i>	1			
16.7	N12	6086	New	1400	3	<i>l / l</i>	1	190	10	<i>l \ l</i>
17.6	N02	6087	New	1200	2.5	<i>l-l</i>	1	220	1	<i>l \ d</i>
19.0	S13	6089	6060	900	2	<i>l \ l</i>	3	10	1	<i>b ^ d</i>
21.6	N30	6090	6063	900	2.5	<i>l \ l</i>	5			
22.8	S11	6091	6067	3000	3	<i>l \ l</i>	3	20	1	<i>l \ d</i>
22.9	N08	6092	*	2800	3	<i>l \ l</i>	2	210	1	<i>l-l</i>
27.5	S14	6093	6069	1300	2	<i>l-l</i>	2			
27.7	N05	6094	New	400	2	<i>l-l</i>	1			
29.3	S07	6096	New	700	3	<i>l-l</i>	1			
30.4	N05	6097	New	2000	3	<i>l / l</i>	1	490	11	<i>b / l</i>
30.7	S13	6098	6074	8200	3	<i>l-l</i>	3	400	10	<i>l \ l</i>

*6065, 6066, 6068.

COMMERCE - STANDARDS - BOULDER

Correction for March plage table: Region 6048 is New instead of return of 6023.

PROVISIONAL CORONAL LINE EMISSION INDICES
APRIL 1961

CMP Apr 1961	North East Quadrant (observed 7 days earlier)				South East Quadrant (observed 7 days earlier)				South West Quadrant (observed 7 days later)				North West Quadrant (observed 7 days later)			
	G ₆	G ₁	R ₆	R ₁	G ₆	G ₁	R ₆	R ₁	G ₆	G ₁	R ₆	R ₁	G ₆	G ₁	R ₆	R ₁
1	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
2	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
3	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
4	44	57	7	14	29	58	15	15	x	x	x	x	x	x	x	x
5	42a	64a	x	x	25a	53a	x	x	x	20	6	7	39	64	15	30
6	21	22	x	x	11	18	x	x	x	10	6	7	34	52	11	28
7	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
8	32	65	7	9	15	21	14	17	19	17	13	19	24	26	8	12
9	24	32	12	15	27	71	14	28	17	20	9	17	23	25	10	14
10	20	31	8	11	30	80	9	20	x	x	x	x	23	x	x	x
11	16	20	9	13	28	53	9	22	x	x	x	x	x	x	x	x
12	17	24	30	61	14	26	13	15	9a	12a	x	x	37a	60a	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	64	x	x	x	x	x	x
15	x	x	x	x	x	x	x	x	41	x	x	x	84	123	x	x
16	56	90	11	22	29	52	6	8	x	x	x	x	x	x	x	x
17	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
18	x	x	x	x	x	x	x	x	49	69	8	11	41	69	8	10
19	37	47	6	7	39	49	5	6	x	x	x	x	x	x	x	x
20	47	60	4	5	60	70	5	8	56	91	x	x	50	61	x	x
21	x	x	x	x	x	x	x	x	56	104	x	x	39	48	x	x
22	93	120	12	25	56	87	15	23	56a	96a	13a	20a	67a	87a	14a	18a
23	58	81	10	16	59	126	12	25	x	x	x	x	x	x	x	x
24	58	90	x	x	32	44	x	x	19	25	x	x	28	31	x	x
25	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
26	32	36	x	x	26	31	x	x	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	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
29	50	73	x	x	98	162	x	x	x	x	x	x	x	x	x	x
30	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

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

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SOLAR FLARES

APRIL 1961

OBSERVATORY	DATE APR 1961	OBSERVED UNIVERSAL TIME		MAX. PHASE	LOCATION			DURA- TION — MINUTES	IM- POR- TANCE	OBS. COND.	TIME — U T	MEASUREMENTS			PROVISIONAL IONOSPHERIC EFFECT
		START	END		APPROX. LAT.	MER. DIST.	MCMAH PLACE REGION					MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hc	
{ WENDEL STOCKHOLM	01	0816 E	0827 D		S12 W12		6059	11 D	1			3.00			
	01	1116 E	1150 D		S12 W13		6059	34 D	1+			6.00			
	01	1119 E	1143 D		S10 W12		6069	24 D	1	3	1122	2.00			
WENDEL	03	1711	1725 D		S11 W42		6069	14 D	1+			6.00			
WENDEL	04	0743 E	0755 D		N12 E27		6077	12 D	1			3.00			
WENDEL	04	1349	1400		N13 E23		6077	11	1			3.00			
{ SAC PEAK	04	1400 E	1413	1400 U	S11 W54		6059	13 D	1	3		1.90			23
{ WENDEL	04	1400 E	1416		S13 W50		6059	16	1			3.00			
WENDEL	04	1414	1438		N13 E23		6077	24	1			4.00			
SAC PEAK	04	1648	1726	1705	S08 W26		6074	38	1	3		2.06			22
LOCKHEED	04	2233	2306	2240	N14 E17		6077	33	1	2	2240	2.00			30
WENDEL	05	0717	0735		N13 E15		6077	18	1			3.00			
{ ONDREJOV	05	0829 E	0850		N13 E14		6077	21 D	1	3	0830			2.40	
WENDEL	05	0830	0909	0841	N13 E13		6077	39	1+			7.00			
SCHAUINS	05	0840 E	0850		N12 E12		6077	10 D	1	2		2.00			2.50
WENDEL	05	1117	1230		N13 E10		6077	73	1+			6.00			
ONDREJOV	05	1222	1423		N13 E08		6077	20	1	3	1225	2.00			2.30
{ HUANCAYO	05	1335	1435	1353	N13 E18		6077	60	1	2	1353	2.20			3.30
WENDEL	05	1341	1423	1349	N13 E11		6077	42	1+			5.00			
WENDEL	05	1555	1647	1629	N13 E08		6077	52	1+			1.40			
{ HUANCAYO	05	1526	1635	1600	N12 E19		6077	39	1	2	1600	2.30			2.30
{ HUANCAYO	05	1556	1635	1625	N12 E19		6077	39	1	2	1625	2.50			3.00
SAC PEAK	05	2051	2149	2059	N12 E03		6077	58	1	1		2.17			26
ONDREJOV	06	0716	0726		N14 W07		6077	10	1+	3	0719			4.40	
{ WENDEL	06	0716	0726		N14 W08		6077	10	1			4.00			
WENDEL	06	0915 E	0945		N13 E01		6077	30 D	1			3.00			
WENDEL	06	1114	1135		N13 W01		6077	21	1			4.00			
{ HUANCAYO	06	1318 E	1405	1355	N13 W04		6077	47 D	2			10.00			
WENDEL	06	1350	1359		N13 W04		6077	9	1	2	1355	2.30			2.40
{ SAC PEAK	06	1423	1440	1440	N14 W04		6077	17	1	2		3.00			
{ HUANCAYO	06	2131	2223	2140	N13 W09		6077	52	1	2	2144	4.39			26
ONDREJOV	07	1001 E	1024	1003	N13 W08		6077	9 D	1	1		4.40			
ONDREJOV	08	1034 E	1051		N14 W16		6077	23 D	1+	3	1002			2.50	
MEUDON	08	1050	1130		N14 W26		6077	17 D	1	1	1039			1.07	
SAC PEAK	09	1356	1417	1402	S09 W90		6074	21	1	3		.72			17
SAC PEAK	09	1502	1510	1508	S09 W90		6074	8	1	3		.97			20
WENDEL	09	1532	1541		N13 W41		6077	9	1			3.61			
WENDEL	10	0833	0859		N13 W57		6077	26	1+			5.00			
ONDREJOV	13	0605 E	0615		N12 W90		6077	10 D	1+	3	0605			4.00	
LOCKHEED	20	0022	0100	0036	S12 E30		6091	38	1	1	0036	2.00			10

SOLAR FLARES

APRIL 1961

OBSERVATORY	DATE	OBSERVED UNIVERSAL TIME		LOCATION		DURA- TION MINUTES	IM- POR- TANCE	OBS. COND.	MEASUREMENTS			PROVISIONAL IONOSPHERIC EFFECT			
		START	END	APPROX. LAT.	MER. DIST.				MC MATH PLAGE REGION	TIME U T	MEAS. AREA Sq. Deg.		CORR. AREA Sq. Deg.	MAX. WIDTH Hr	MAX. INT. %
WENDEL	22	0531 E	0553	S14	E02	6091	1	2	4.00						
LOCKHEED	23	2017	2032	S12	E90	6098	1	2	2.50			10			
{	24	0035	0145	S12	E90	6098	1	1	2.50			10			
{	24	0035	0145	S12	E90	6098	1	1	2.50			10			
{	24	2228	2300	S07	E75	6098	1	2	2.30			20			
WENDEL	25	1211 E	1235 D	S07	E71	6098	1	2	4.00			10			
{	25	2003	2030	S11	E64	6098	1	2	3.20			10			
{	25	2008	2018	S11	E65	6098	1	2	3.20			10			
{	25	2052	2120	S13	E69	6098	1	2	1.32			17			
{	25	2052	2120	S13	E69	6098	1	2	3.40			20			
{	25	2053	2120	S15	E68	6098	1	2	1.90			16			
{	25	2053	2120	S15	E68	6098	1	2	2.29			16			
LOCKHEED	26	0116	0140 D	S06	E61	6098	1	1	1.60			10			
STOCKHOLM	26	1037	1240 D	S16	E57	6098	2	3	2.20			20			
STOCKHOLM	26	1247	1334 D	S16	E57	6098	2	3	7.00			20			
{	26	1424	1627 U	S12	E55	6098	2	3	3.50			24			
{	26	1604 E	1636 D	S11	E56	6098	2	3	12.15		2.10	Slow S-SWF			
{	26	1646	1920 U	S12	E55	6098	3	3	15.88		21.20	Slow S-SWF			
{	26	1648	1945	S11	E53	6098	2	2	8.10		10.70	Slow S-SWF			
{	26	1755 E	1834 D	S10	E52	6091	2+	1	5.70		9.00	30			
HUANCAYO	26	2209	2222	S08	E50	6098	1	1	1.60		2.50				
KYOTO	27	0245 E	0310	S09	E50	6098	2	2	16.50		3.90	120			
STOCKHOLM	27	1224	1240 D	S07	E40	6098	1	3	3.00						
KYOTO	28	0220 E	0240 D	S07	E35	6098	1	1	3.09			110			
{	28	0646	0710 D	S09	E35	6098	1	1	4.00		2.20				
{	28	0649 E	0712	S10	E35	6098	1+	3	0.53						
{	28	1201	1239 D	S05	E30	6098	1	3	3.00		3.50				
{	28	1202 E	1230	S04	E25	6098	1	3	3.50		3.90				
{	28	1202	1237	S05	E30	6098	1+	3	8.00		8.00				
{	28	2250	2324 D	S09	E23	6098	1	2	2.58		2.58	18			
KYOTO	30	0528	0533 D	S07	E05	6098	1	1	2.06		1.42	100			

COMMERCE - STANDARDS - BOULDER

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

CAPRI G ANACAPRI - GERMAN
CAPRI S ANACAPRI - SWEDISH
GOOD HOPE ROYAL OBSERVATORY, CAPE OF GOOD HOPE
KIEV* KIEV UNIVERSITY
KODAIKANAL KODAIKANAL
KRASNAYA KRASNAYA PAKHRA
LOCKHEED LOS ANGELES

MC MATH MCMATH-HULBERT
MOSCOW - G MOSCOW - GAISH
R O HERST ROYAL GREENWICH OBSERVATORY,
HERSTMONCEUX
SAC PEAK SACRAMENTO PEAK
SCHAUINS SCHAUINS
WENDEL WENDELSTEIN

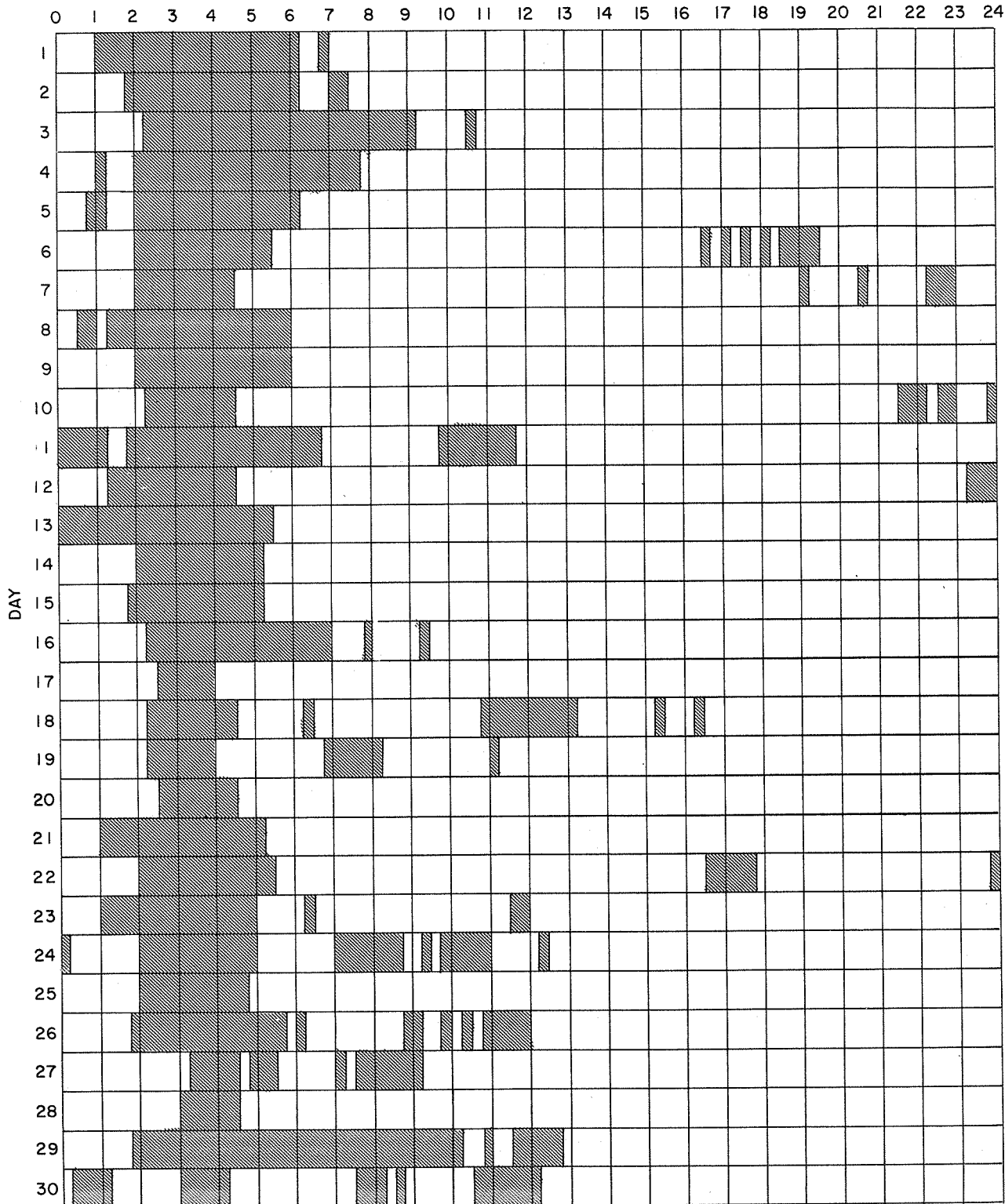
ALL VALUES IN THE MAXIMUM INTENSITY COLUMN FOR SAC PEAK ARE ARBITRARY UNITS (0-40) AND FOR LOCKHEED ARE ARBITRARY UNITS (10-40), NOT PERCENT OF CONTINUOUS SPECTRUM.

SEE DESCRIPTIVE TEXT PUBLISHED NOVEMBER 1960 FOR DEFINITION OF CORR. AREA VALUES LISTED FOR CLIMAX, HAWAII, LOCKHEED AND SAC PEAK.

INTERVALS OF NO FLARE PATROL OBSERVATIONS

APRIL 1961

HOUR-UT



COMMERCE - STANDARDS - BOULDER

Stations Include:

- | | | | | |
|---------|----------|----------------|-----------------------------|--------------|
| Arcetri | Huancayo | McMath-Hulbert | Royal Greenwich Observatory | Schauinsland |
| Climax | Kyoto | Meudon | Herstmonceux | Uccle |
| Hawaii | Lockheed | Ondrejov | Sacramento Peak | Wendelstein |

SUBFLARES

Noted as follows: Date-Universal Time - Coordinates

MARCH 1961

LOCKHEED	02	0040	E	S12	W29	UCCLE	20	0827	N08	W15	SAC PEAK	27	1652	E	S15	E56	
LOCKHEED	02	0040	E	N23	E03	UCCLE	20	1000	S13	E28	SAC PEAK	27	1714	N08	W11		
SAC PEAK	02	1846		N07	E05	LOCKHEED	20	1805	N08	E13	* HAWAII	27	1846	E	S15	E53	
HAWAII	04	2334		S12	E39	LOCKHEED	20	1805	N08	E13	LOCKHEED	27	2108		N07	W13	
UCCLE	05	1012		S09	E33	HAWAII	20	2044	N19	E78	SAC PEAK	27	2126		S17	E56	
WENDEL	05	1309	E	S09	E30	MCMATH	20	2045	N21	E88	LOCKHEED	27	2206		N08	W13	
* CAPRI S	06	0856	E	N02	E13	LOCKHEED	20	2210	N21	E85	UCCLE	28	1228		S19	E81	
* ARCTERI	06	0856	E	N05	E14	SAC PEAK	20	2229	N09	E70	UCCLE	28	1230		S08	E75	
UCCLE	06	1023		N22	W54	LOCKHEED	20	2229	N11	E72	SAC PEAK	28	1402	E	S19	E85	
UCCLE	06	1342		N01	E13	HAWAII	20	2336	N20	E77	* HUANCAYO	28	1420	E	S30	W50	
WENDEL	07	0819	E	N05	W31	SAC PEAK	20	2338	E	N21	* CAPRI S	28	1420	E	S24	W52	
* UCCEL	07	0831	E	S12	W40	LOCKHEED	21	1830	N09	W05	* CAPRI S	28	1443	E	S14	E44	
UCCEL	07	0954		N22	W65	LOCKHEED	21	1903	N09	W05	* SAC PEAK	28	1654		S13	E42	
UCCEL	07	1353		N22	W68	LOCKHEED	21	2008	N09	W05	SAC PEAK	28	1707		S08	E76	
WENDEL	07	1357	E	S09	E00	LOCKHEED	21	2020	N08	E53	SAC PEAK	28	1715		N12	E68	
HAWAII	07	1854		S07	E90	SAC PEAK	21	2020	N08	E53	SAC PEAK	28	1835		S13	E41	
WENDEL	08	1123	E	N03	W20	* STOCKHOLM	22	0850	N09	E51	HAWAII	28	1908		S16	E41	
UCCEL	08	1404		S10	E85	HAWAII	22	1740	E	N10	HUANCAYO	28	2006		S07	E78	
ARCTERI	09	0859	E	N05	W30	HAWAII	22	1846	N08	E46	HAWAII	28	2016		S10	E72	
SAC PEAK	09	2249		S07	E61	CLIMAX	22	1847	N09	E47	SAC PEAK	28	2108		S13	E39	
LOCKHEED	09	2250		S06	E62	HAWAII	22	2100	E	N08	SAC PEAK	28	2114		S15	E40	
UCCEL	10	1152		N06	W46	LOCKHEED	22	2110	N09	E41	SAC PEAK	28	2140		S09	E73	
LOCKHEED	10	1720		S10	E50	UCCEL	23	1044	S05	W27	HAWAII	28	2144	E	S11	E41	
MCMATH	10	1729		S08	E50	UCCEL	23	1101	N05	W27	SAC PEAK	28	2214		S13	E36	
HAWAII	10	2012		S10	E52	HAWAII	23	1842	E	N09	SAC PEAK	28	2314		S16	E38	
LOCKHEED	10	2013		S06	E50	HAWAII	23	2022	E	N08	HAWAII	29	0108		N09	W23	
MCMATH	10	2017		S08	E50	HAWAII	23	2022	E	N08	HAWAII	29	0127	E	S13	E37	
LOCARNO	11	0945		S06	E42	WENDEL	24	1313	E	N04	W43	LOCKARNO	29	0720		N06	W45
LOCKHEED	11	1958	E	S07	E40	HAWAII	24	1816	E	N04	W47	LOCKARNO	29	0728		N08	W08
LOCKHEED	13	1827		N21	E53	HAWAII	24	1906	F	N06	W47	* CAPRI S	29	0754	E	S11	E68
LOCKHEED	13	1927		N21	E53	ARCTERI	25	0826	E	S05	W56	LOCKARNO	29	0900		N06	W29
HAWAII	13	1934	E	N19	E54	WENDEL	25	1024	E	N03	W52	LOCKARNO	29	1000		N06	W29
LOCKHEED	13	2048		N21	E53	WENDEL	25	1205	E	N03	W53	SAC PEAK	29	1422		S13	E30
LOCKHEED	13	2105		N20	E53	* SAC PEAK	25	1409	E	S15	E90	SAC PEAK	29	1445		N08	W33
LOCKHEED	13	2300		N22	W16	SAC PEAK	25	1409	E	S15	E90	SAC PEAK	29	1641		S12	E25
LOCKHEED	13	2343		N04	E70	SAC PEAK	25	1430	S20	E90	LOCKHEED	29	1721		S12	E26	
HAWAII	13	2346		N01	E70	MCMATH	25	1438	S20	E90	LOCKHEED	29	1742		N07	W36	
UCCEL	14	1007		N21	E45	SAC PEAK	25	1458	S15	E85	LOCKHEED	29	1831		S13	E25	
UCCEL	14	1128		N21	E42	* SAC PEAK	25	1545	S20	E90	HAWAII	29	1832		S12	E25	
LOCKHEED	14	1722		N20	E42	MCMATH	25	1547	S20	E90	LOCKHEED	29	1911		S11	E24	
SAC PEAK	14	2040		S03	W04	LOCKHEED	25	1612	S20	E90	HAWAII	29	1958		N10	W40	
UCCEL	15	1237		N20	E30	LOCKHEED	25	1650	N02	W58	LOCKHEED	29	1959		N09	W38	
UCCEL	15	1426		N23	W37	SAC PEAK	25	1657	N03	W60	SAC PEAK	29	2005	E	N18	W38	
UCCEL	15	1446		S17	E45	* SAC PEAK	25	1704	S20	E90	LOCKHEED	29	2039		S11	E23	
UCCEL	15	1456		N11	E70	MCMATH	25	1705	S20	E90	* HAWAII	29	2040		S13	E21	
UCCEL	15	1515		N24	W39	ONDREJOV	26	1001	E	N03	W68	* LOCKHEED	29	2107		S11	E22
UCCEL	15	1540		N03	E50	WENDEL	26	1111	E	S12	E66	* LOCKHEED	29	2150		S11	E22
HAWAII	15	1754	E	S02	W17	WENDEL	26	1120	E	N04	W68	SAC PEAK	29	2233		S23	E38
LOCKHEED	16	1915		N24	W51	ONDREJOV	26	1195	E	S17	E73	HAWAII	29	2330		S12	E21
HAWAII	16	2142		S25	E28	WENDEL	26	1213		N02	W65	LOCKHEED	29	2330		S11	E23
WENDEL	17	1048	E	N03	E15	WENDEL	26	1559		N08	E08	LOCKHEED	30	0005		S11	E22
WENDEL	17	1513	E	S24	E21	LOCKHEED	26	1600		N05	W71	LOCKHEED	30	0023		N07	W39
* SAC PEAK	18	1605		N20	W14	MCMATH	26	1604		N08	E08	HAWAII	30	0128		S13	E21
LOCKHEED	18	1608		N21	W14	HAWAII	26	1604		N08	E08	MCMATH	30	1608		N09	W54
SAC PEAK	18	1739	E	N35	E08	HAWAII	26	1800	E	S20	E82	MCMATH	30	1838		N07	W66
HAWAII	18	1744	E	N04	E07	LOCKHEED	26	1825	U	S15	E65	* HAWAII	30	1848		S14	F11
LOCKHEED	18	1814		N03	E08	LOCKHEED	26	1825	U	S15	E65	HAWAII	30	1958		N08	W50
LOCKHEED	18	1827		S24	E02	LOCKHEED	26	1828		N02	W72	HUANCAYO	30	2016		S17	E12
HAWAII	18	1842		S25	E07	HAWAII	26	1830		S15	E66	MCMATH	30	2047		S07	E10
LOCKHEED	18	1842		S25	E07	HAWAII	26	2000	E	S21	E80	LOCKHEED	30	2047		S16	E11
LOCKHEED	18	1907		S26	E03	SAC PEAK	26	2042	E	S19	E80	HAWAII	30	2048		S17	E08
LOCKHEED	19	1920		N09	E25	LOCKHEED	26	2125		N09	W03	HAWAII	30	2134		S20	E27
LOCKHEED	19	2315		N07	W10	SAC PEAK	26	2157		S15	E65	LOCKHEED	30	2135		S17	E26
HAWAII	19	2330	E	N06	W09	SAC PEAK	26	2215	E	S14	E64	MCMATH	30	2137		S09	E26
HAWAII	19	2350		S14	E31	HAWAII	27	0012		S11	E52	LOCKHEED	30	2246		N07	W52
						LOCKHEED	27	0014		S12	E53	LOCKHEED	31	0035		S15	E11
						CAPRI S	27	0835		N09	W00	LOCKHEED	31	0038		S17	E09
						UCCEL	27	1027		S04	E85	SAC PEAK	31	1456		S10	W67
						* SAC PEAK	27	1305	E	S15	E56	SAC PEAK	31	1752		S09	W75
						* HUANCAYO	27	1414		S16	E60	HAWAII	31	1940		S12	W03
						UCCEL	27	1518		N08	W08	SAC PEAK	31	2349		S18	W01

CONARCC - STANBARD - BULLDER

*Rated as flare of importance ≥ 1 by other observatories (See GRFL-F 200 Part B, for April 1961).

SOLAR FLARES

JANUARY 1961

OBSERVATORY	DATE JAN 1961	OBSERVED TIME		LOCATION		DURA- TION — MINUTES	IM- POR- TANCE	OBS. COND.	MEASUREMENTS			PROVISIONAL IONOSPHERIC EFFECT
		START	END	LAT.	APPROX. MER. DIST.				M-CATH PLAGE REGION	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	
{ MITAKA KYOTO VOROSHILOV MITAKA MITAKA TASHKENT TASHKENT	01	0121	0212	N09	W40	5977	1	2	1.57	2.72	2.27	118
	01	0150	0213	N13	W03	5983	2	2	5.16			120
	01	0151	0205	N16	E00	5983	1+	2	2.87			155
	01	0200	0217	N15	W01	5983	1	2	2.95	3.01	2.81	120
	01	0352	0404	N15	W02	5983	1+	2	2.95	3.10	4.98	176
	01	0522	0546	N15	W03	5983	1	1	1.55	2.00		
	01	0558	0605	N15	W03	5983	1	1	1.00	1.00		
{ VOROSHILOV MITAKA VOROSHILOV MITAKA KYOTO MEUDON GOOD HOPE SIMEIZ GOOD HOPE GOOD HOPE	02	0058	0106	N16	W16	5983	1	3	1.89	2.89	2.17	78
	02	0116	0123	N22	E61	5991	1	2	1.28			107
	02	0116	0131	N20	E60	5991	1	3	1.53			73
	02	0538	0552	N22	E59	5991	1	1	.98	2.21	2.71	107
	02	0552	0602	N16	W17	5983	1	1	3.71			100
	02	0830	0844	N17	W17	5983	1	1	2.80	3.10		87
	02	0836	0855	N19	W18	5983	1	1	3.15			
{ MEUDON SIMEIZ GOOD HOPE GOOD HOPE KYOTO MITAKA VOROSHILOV VOROSHILOV	02	0836	0855	N17	W19	5983	1	1	1.50	3.00		
	02	0913	0928	N22	E58	5991	1	1	1.40	2.80		
	02	1137	1209	N22	E58	5991	1	1	1.44			
	03	0025	0043	N16	W26	5983	2	1	14.44	2.10	1.33	100
	03	0224	0240	S15	E36	5990	1	1	1.67		2.06	115
	04	0058	0112	N19	W42	5983	1+	2	3.59			85
	04	0206	0220	N19	W42	5983	2	2	4.04			117
{ KYOTO MEUDON MEUDON MEUDON MEUDON VOROSHILOV MITAKA KYOTO PIRCULI	05	0130	0140	N12	W53	5983	1	10	1.44			80
	05	0835	0910	N22	E17	5991	1	35				
	05	0936	0950	N22	E17	5991	1	14				
	05	1143	1210	N20	E15	5991	1+	27				
	05	1312	1335	N20	E14	5991	1	23				
	06	0032	0050	N24	E05	5991	1+	18	2.52			99
	07	0041	0052	N24	W05	5991	1	11	1.67	1.75	1.76	120
{ KYOTO PIRCULI PIRCULI ALMA ATA MITAKA PIRCULI MITAKA TASHKENT	07	0150	0155	N20	W18	5995	1-	2	1.44			80
	07	0630	0737	S11	E62	5995	1	67	2.28	5.29		61
	08	0045	0106	N13	W90	5983	2	21	10.31	2.19	5.82	120
	08	0649	0752	S09	E51	5997	1	63	1.37			54
	09	1050	1106	N22	W42	5991	1	16	1.19	1.83		50
	11	0753	0805	S13	E36	5998	1	12	1.65			56
	16	0222	0246	S09	W31	5998	1	24	2.16	2.50	1.96	134
{ PIRCULI MITAKA TASHKENT	19	0730	0747	S04	E49	6005	1	17	2.09	3.24		63
	20	0347	0459	N10	E90	6011	1	72	3.93		3.75	
	25	0522	0600	N18	E38	6011	1	38	5.01	7.00		

SOLAR FLARES

JANUARY 1961

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.	MCMATH PLACE REGION					MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH H _g	
PIRCULI	25	0825 E	0844 D	N09 E80	E80	6013	19 D	1	2	0827	1.19	6.06	54	
PIRCULI	26	1038	1045 U	N10 E60	E60	6013	7	1	2	1043	1.73	3.70	53	
HUANCAYO	27	1739 E	1748	N08 E42	E42	6013	9 D	1	2	1741	2.00	2.70	2.20	
MEUDON	28	1045	1058	N09 E32	E32	6013	13	1						
{ KIEV CAPRI G , MEUDON	29	1004 E	1012 D	N17 E14	E14	6013	8 D	1	2		1.55		68	
	29	1008 E	1012	N13 E19	E19	6013	4 D	1	2		3.00			
	29	1517	1533	N09 E19	E19	6013	16	1						
VOROSHILOV	30	0159	0212	N10 E13	E13	6013	13	1+	2		3.59		88	
SIMEIZ	30	0529	0545	N11 E10	E10	6013	16	1+	3	0631	3.15		129	
* GOOD HOPE	30	1424	1440	N12 E05	E05	6013	16	1		1425	2.40	2.50		S-SWF
HUANCAYO	30	2000	2013	N12 E03	E03	6013	13	1	2	2005	2.00	2.10	5.00	
MITAKA	31	0337	0348	N05 W05	W05	6013	11	1	1	0337	1.47	1.58	2.29	
PIRCULI	31	0743	0802	N12 W05	W05	6013	19	1	3	0754	2.09	2.26	120	
* MEUDON	31	1500	1518	N09 W09	W09	6013	18	1					58	
{ OTTAWA	31	1511	1531	N11 W11	W11	6013	20	1		1513	2.70	2.70		S-SWF

COMMERCE - STANDARDS - BOULDER

These flare reports are addenda to the January 1961 flares published in CRPL-F 198 Part B, February 1961

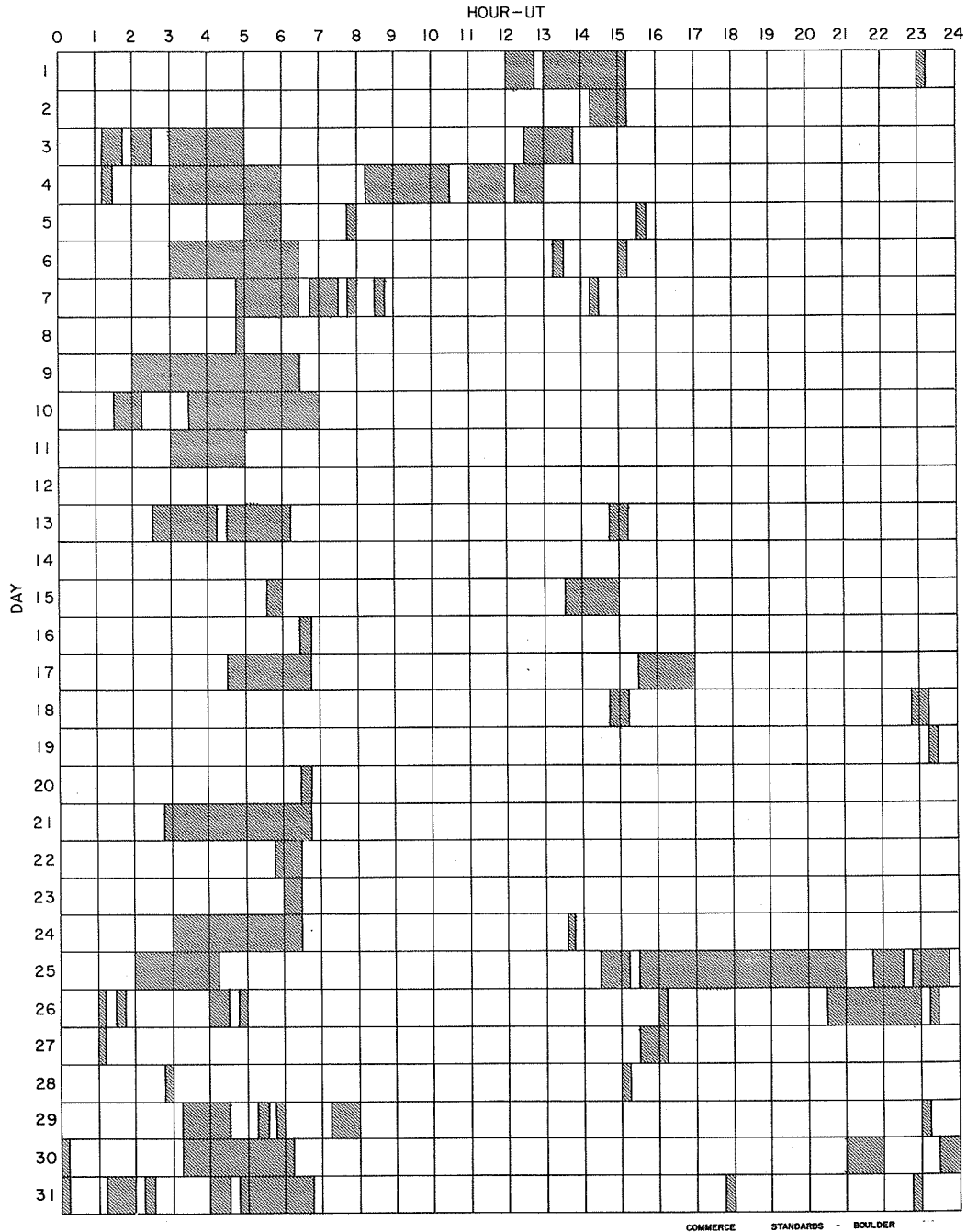
E = LESS THAN	CAPRI G	ANACAPRI - GERMAN	MCMATH	MCMATH-HULBERT
D = GREATER THAN	CAPRI S	ANACAPRI - SWEDISH	MOSCOW-G	MOSCOW - GAISH
U = APPROXIMATE	GOOD HOPE	ROYAL OBSERVATORY, CAPE OF GOOD HOPE	R O HERST	ROYAL GREENWICH OBSERVATORY,
□ = NOT REPORTED	KIEV*	KIEV UNIVERSITY	SAC PEAK	HERSTMONCEUX
	KODAIKANAL	KODAIKANAL	SCHAUTINS	SACRAMENTO PEAK
	KRASNYA	KRASNYA PAKHRA	WENDEL	SCHAUTINSLAND
	LOCKHEED	LOS ANGELES		WENDELSTEIN

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 1960 FOR DEFINITION OF CORRECTED AREA VALUES LISTED FOR CLIMAX, HAWAII, LOCKHEED AND SAC PEAK.

INTERVALS OF NO FLARE PATROL OBSERVATIONS

JANUARY 1961



Stations Include:

- | | | | | |
|--------------------|----------|-----------------|-----------------------------|-----------------|
| Alma Ata | Hawaii | Krasnaya Pakhra | Mitaka | Sacramento Peak |
| Anacapri (Swedish) | Huancayo | Kyoto | Ondrejov | Simeiz |
| Arcetri | Istanbul | Lockheed | Ottawa | Tashkent |
| Climax | Kiev GAO | McMath-Hulbert | Pirculi | Uccle |
| Good Hope | Kharkov | Meudon | Royal Greenwich Observatory | Voroshilov |
| | | | Herstmonceux | Wendelstein |

Errata:

The following footnote should have been included with the chart "Intervals of No Flare Patrol" for December 1960 published in CRPL-F 200 for April 1961, page III h.

Stations Include:

- | | | | | |
|--------------------|------------|----------------|-----------------------------|-----------------|
| Abastumani | Good Hope | Kiev GAO | Moscow-Gaish | Sacramento Peak |
| Alma Ata | Hawaii | Lockheed | Ondrejov | Simeiz |
| Anacapri (Swedish) | Huancayo | McMath-Hulbert | Pirculi | Tashkent |
| Arcetri | Istanbul | Meudon | Royal Greenwich Observatory | Uccle |
| Climax | Kodaikanal | Mitaka | Herstmonceux | Voroshilov |
| | | | | Wendelstein |

SOLAR FLARES
MAY DECEMBER 1960

OBSERVATORY	DATE	OBSERVED UNIVERSAL TIME		LOCATION		APPROX. LAT.	MGMATH PLACE REGION	DURATION MINUTES	IM. POR. TANCE	OBS. COND.	MEASUREMENTS				PROVISIONAL IONOSPHERIC EFFECT
		START	END	MAX. PHASE	MEAS. AREA Sq. Deg.						CORR. AREA Sq. Deg.	MAX. WIDTH Ed	MAX. INT. %		
KYOTO	1960 May 23	2245	2310 D		N12 E18	5669	25 D	1			2245	5.16		110	S-SWF
KYOTO	June 06	0457 E	0520 D	0505	N08 E10	5688	23 D	1			0505	1.44		110	
KYOTO	08	2350 E	0145 D	0035	S10 E90	5695	115 D	1			0035		3.02	100	
KYOTO	20	0522	0545 D		S12 W60	5695	23 D	1+			0522	2.89		130	
KYOTO	July 11	0400 E	0450 D	0425	S17 W67	5734	50 D	1			0425	1.44		100	
KYOTO	14	0600 E	0620 D		N15 W51	5740	20 D	1			0600	2.27		90	
KYOTO	17	0209 E	0228 D		N20 W02	5749	19 D	1+			0213	3.71		120	
KYOTO	19	0430	0435		N20 W26	5749	5	1			0430	4.13		100	
KYOTO	20	0520 E	0555 D	0523	N20 W37	5749	35 D	1			0523	2.89		100	
KYOTO	22	0051 E	0105 D		N12 W45	5752	14 D	1			0053	11.34		100	
KYOTO	28	0204 E	0215		N26 E26	5774	11 D	1			0204	1.03		100	
KYOTO	28	0232	0238 D		S11 W68	5764	6 D	1			0232	5.36		100	
KYOTO	29	0144 E	0155 D		N07 E20	5775	11 D	1			0150	4.33		110	Slow S-SWF
KYOTO	29	0408 E	0430 D		S10 W80	5764	22 D	1			0415	1.44		90	
KYOTO	29	0523	0546 D		S10 W80	5764	23 D	1			0525	1.65		100	
KYOTO	31	0500	0505 D		N09 W12	5775	5 D	1			0500	3.30		120	
KYOTO	Aug 01	0007	0014 D		N08 W17	5775	7 D	1			0007			100	
KYOTO	02	0037	0045		N09 W22	5775	8	2			0037	4.13		120	
KYOTO	02	0525 E	0530 D		N06 W24	5775	5 D	1			0525	1.44		80	
KYOTO	08	0450 E	0525 D	0455	N19 E72	5794	35 D	1			0500	2.68		100	S-SWF
KYOTO	18	0142 E	0215 D	0155	N16 E25	5802	33 D	1+			0155	4.33		130	
KYOTO	18	0423 E	0450 D		S09 E10	5801	27 D	1			0430			100	
KYOTO	18	0425 E	0505 D	0430	N19 W59	5794	40 D	1+			0430	4.95		120	
KYOTO	18	0615 E	0649 D	0620	S09 W28	5798	34 D	2			0620	7.22		130	
KYOTO	18	0649	0649 D		S10 E07	5801		1			0649	3.09		120	
KYOTO	20	0409 E	0416 D		S14 W68	5798	7 D	1			0410	3.09		80	
KYOTO	26	0450 E	0545 D	0510	S05 W35	5809	55 D	1			0510	2.89		100	
KYOTO	Sept 02	0021 E	0025 D		N18 W18	5822	4 D	1			0023	3.09		110	
KYOTO	02	0140 E	0210 D	0155	N18 W18	5822	30 D	1			0155	4.33		90	
KYOTO	03	2353	0016 D		N16 W90	5818	23 D	1			2355			100	
KYOTO	21	0133	0145 D		S13 E62	5863	12 D	1+			0135	1.65		120	

SOLAR FLARES

MAY DECEMBER 1960

OBSERVATORY	DATE	OBSERVED UNIVERSAL TIME		LOCATION			DURA- TION MINUTES	IM- POP- TANCE	OBS. COND.	MEASUREMENTS				PROVISIONAL IONOSPHERIC EFFECT	
		START	END	APPROX. LAT.	MR. DISP.	MATH PLACE REGION				TIME U T	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hz		MAX. INT. %
	1960														
KYOTO	26 Oct	0535 E	0603	S20	W58	5858	28 D	2		0535	4.95		2.34	150	SLOW S-SWF
KYOTO	12	0218 E	0230	S15	W44	5880	12. D	1+		0218	4.33		1.68	120	
KYOTO	13	0526	0532 D	S15	E38	5893	6 D	1		0526	3.71			100	
KYOTO	19	0030 E	0110 D	N18	E28	5901	40 D	1		0055	2.48		1.51	110	
KYOTO	19	0549	0606 D	N18	E25	5901	17 D	1		0550	3.30		1.66	120	
KYOTO	20	0205 E	0235	N18	E15	5901	30 D	1		0210	2.27		1.00	90	
KYOTO	26	0109	0114 D	N20	E68	5909	5 D	1		0110	1.44			100	
KYOTO	Nov 06	0523	0533 D	N22	E76	5925	10 D	1+		0523	2.68		2.68	120	
KYOTO	14	0018	0046 D	N26	W20	5925	28 D	2		0018	9.28		2.34	120	SLOW S-SWF
KYOTO	15	0034		N27	W35	5925	D	1		0034	1.03			110	
KYOTO	21	0007	0014 D	N06	W53	5932	7 D	1		0007				100	
KYOTO	21 Dec	0014 E	0020 D	N19	W35	5932	6 D	1		0016	2.06		1.66	100	
KYOTO	02	0551 E	0608 D	N15	W23	5948	17 D	1		0551	2.89		1.66	100	
KYOTO	08	0045 E	0104 D	S08	W58	5953	19 D	1		0045	2.06			120	
KYOTO	21	0141 E	0152 D	S21	W05	5973	11 D	1		0141	1.44			100	

These flares are addenda to the May thru December 1960 flares published in CRPL-F 191 July 1960 thru CRPL-F 200 Part B for April 1961.

IONOSPHERIC EFFECTS OF SOLAR FLARES

IIIj

(SHORT-WAVE RADIO FADEOUTS)

MARCH 1961

Mar. 1961	Start UT	End UT	Type	Wide Spread Index	Importance	Observation Stations	Known Flare, UT CRPL-F 200
26	1019	1100	S-SWF	5	3	DA, JU, <u>NE</u> , PU, SW, CW*** 73E=3.0	1009E

DA = Darmstadt, G.F.R.

JU = Juhlesruh, G.D.R.

NE = Nederhorst den Berg, Netherlands

PU = Prague, Czechoslovakia

SW = Enköping, Sweden

CW** = Cable and Wireless, Somerton, England

CW*** = Cable and Wireless, Brentwood, England

COMMERCE - STANDARDS - BOULDER

IONOSPHERIC EFFECTS OF SOLAR FLARES

(Sudden Cosmic Noise Absorption
Sudden Enhancements Of Atmospherics
Solar Noise Bursts At 18 Mc.)

MARCH 1961

Mar. 1961	CLASS			WIDESPREAD INDEX	TIME (UNIVERSAL TIME)			PERCENT ABSORPTION SCNA	OBSERVATION STATIONS
	SCNA	SEA	Burst		BEGIN	MAX.	END		
18		1	1	1	1724	1743	1730		BO BO, MC, RE A1, A3 BO, MC BO, HA, MC (Noise Storm)
			1	5	1728		1748		
			3	3	1740		1755		
			4	4	1751		1754		
			5	5	1300		2300		
25		1	5	1300		2300		BO, HA, MC (Noise Storm)	
26	2+		3	1019	1037	1127		DU, NE	

NE = Nederhorst den Berg, Netherlands.

COMMERCE - STANDARDS - BOULDER

**SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES**

APRIL 1961

OTTAWA

2800 MC

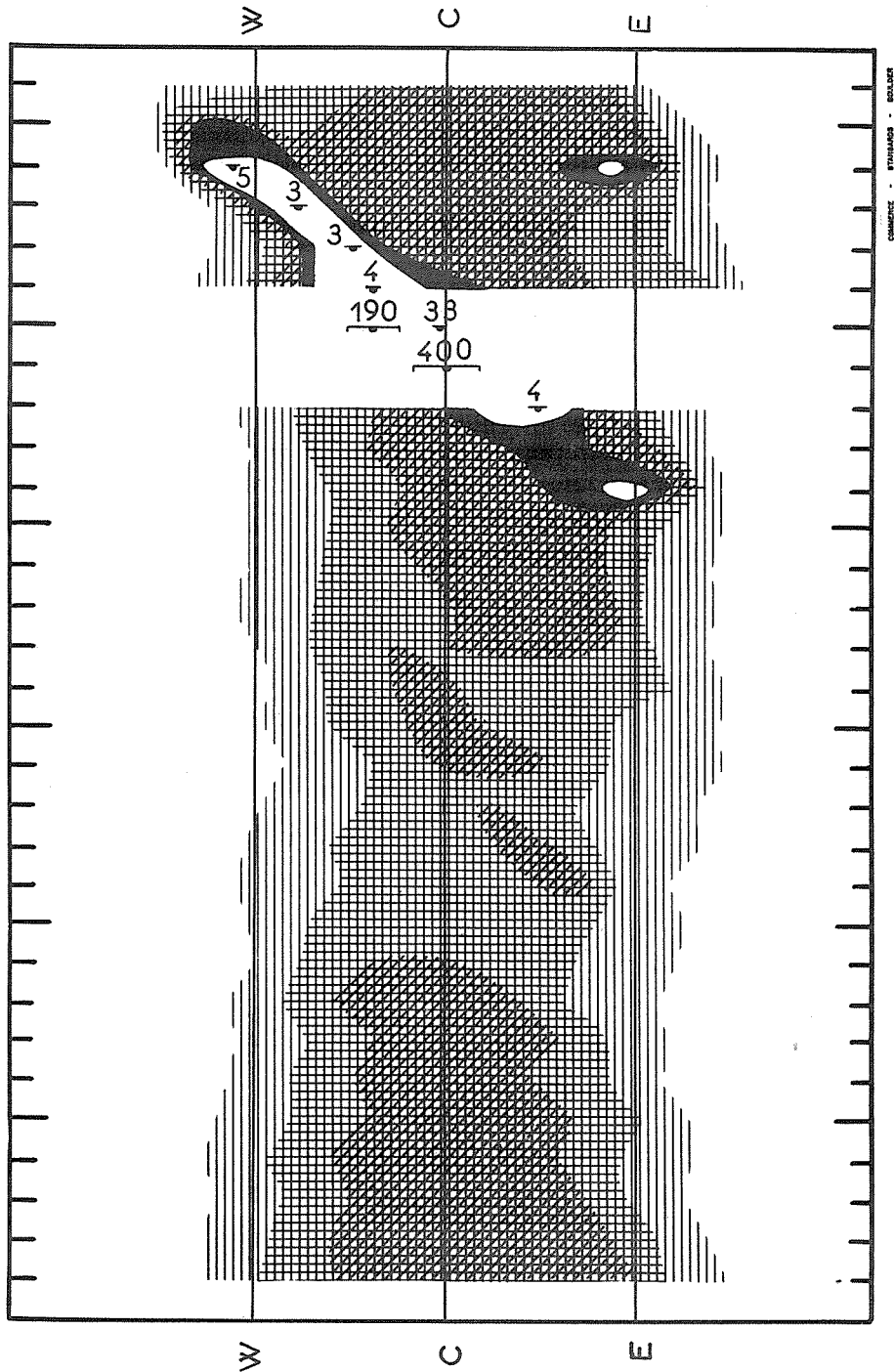
Apr. 1961	Type	Start UT	Duration Hrs:Mins	Maximum		Mean Flux	Remarks
				Time UT	Peak Flux		
3	2 Simple 2 f	1711	1.5	1711.8	35	8	
4	8 Group (2)	1412.5	16.5				
	2 Simple 2 f	1412.5	3	1413.3	14	5	
	2 Simple 2 f	1421	8	1422.8	12	5	
4	6 Complex f	2232.5	11	2237.7	25	8	
5	6 Complex	1623.5	4	1625.5	14	7	
5	3 Simple 3 A	2056	45	Indet.	3	1.5	
	2 Simple 2 f	2101.8	8	2104	105	22	
6	3 Simple 3	1747	1 40	1753	4	2.2	
6	3 Simple 3 A	2130	1 00	Indet.	3	2	
	1 Simple 1	2132	1.5	2132.7	4	2	
10	2 Simple 2 f	1829	5	1831	14	7.3	
	4 Post Increase		15		1.8	.8	
10	1 Simple 1	1925.5	1	1925.8	3	1.3	
11	3 Simple 3 A	1808	1 00	1810.5	4	1.5	
	1 Simple 1	1819.5	2	1820	3	1.5	
24	3 Simple 3 A	1714	40	Indet.	2.1	1	
	1 Simple 1	1723.3	1.4	1724.3	6.2	1.7	
24	2 Simple 2 f	2227	5.5	2230	9.3	3.5	
25	2 Simple 2	1204.5	3.5	1206.3	11.7	5	
	4 Post Increase		11.5		2.9	1.7	
25	1 Simple 1	1739	1.7	1740	2	1	
25	2 Simple 2	2007.3	2.4	2008.2	10.7	4	
25	1 Simple 1	2028.5	2.5	2029.5	2	1	
25	1 Simple 1	2206	1.5	2206.4	2.7	2	
26	3 Simple 3 f	1247	1 13	1250	8	4	
26	9 Precursor	1418	8.5		3.5	2	
26	2 Simple 2 f	1426.5	9.5	1432	28.4	18.9	
	4 Post Increase		1 51		13.7	5.9	
26	3 Simple 3 A	1640	3 57	Indet.	32	11.3	
	6 Complex	1656.8	8	1702	18.3	9.6	
27	7 Period of irregular activity	1600	4 10		5.1	2.4	
27	1 Simple 1	1934.3	1	1934.7	3.8	3	
27	1 Simple 1	2255	.5	2255.3	7.1	4.7	
28	3 Simple 3 A	1205	30	Indet.	5.3	2.2	
	2 Simple 2	1211.7	2.3	1212.9	8.9	5.1	
28	1 Simple 1	2245.3	.7	2245.7	5.2	3	
30	2 Simple 2 f	1444	4.3	1447	10.6	5.7	
	4 Post Increase		42.7		4.6	2.5	

SOLAR RADIO EMISSION
INTERFEROMETRIC OBSERVATIONS

Nancay

MARCH 1961

169 Mc



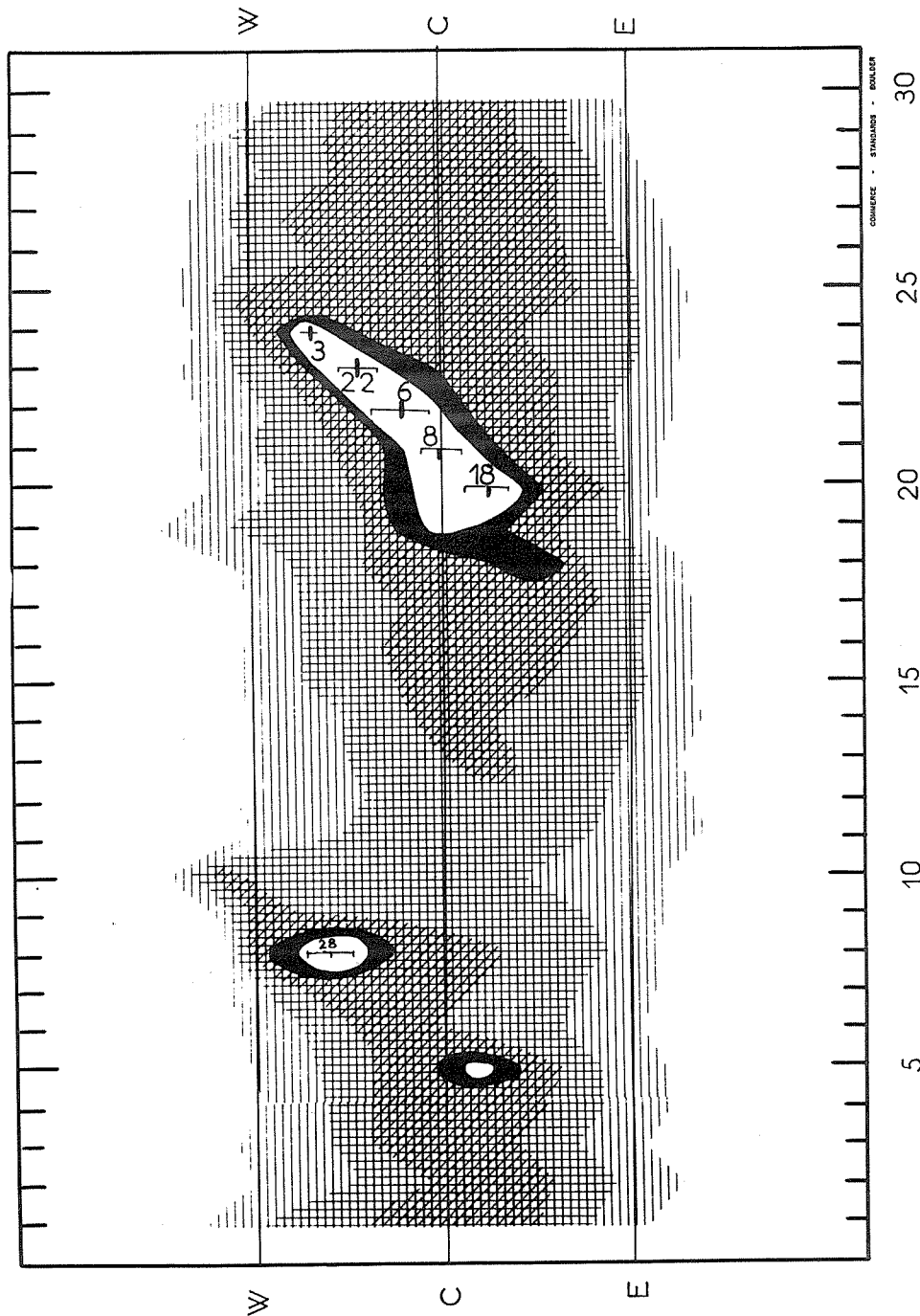
MARCH 1961

SOLAR RADIO EMISSION
INTERFEROMETRIC OBSERVATIONS

169 Mc

APRIL 1961

Nançay



APRIL 1961

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

IVd

APRIL 1961

BOULDER

108 Mc.

Apr. 1961	Type	Start UT	Time of Maximum UT	Duration Minutes	Intensity	Apr. 1961	Type	Start UT	Time of Maximum UT	Duration Minutes	Intensity
1	3	1754.5	1755.0	0.7	2	14	3	1705.5	1705.6	0.3	2
2	3	1752.2	1752.4	0.5	2	14	3	2112.3	2112.6	1.6	2
2	3	2253.6	2254.0	0.4	2	15	3	1416.0	1416.1	0.2	2
3	3	0014.5	0014.6	0.5	2	15	3	1424.0	1424.1	0.2	2
3	3	1751.2	1751.9	0.7	2	15	3	1624.9	1625.0	0.2	2
3	3	2344.2	2344.6	0.6	2	15	3	1743.2	1743.3	0.7	2
4	3	0042.0	0042.3	0.5	2	15	3	1921.7	1922.0	0.5	2
4	3	1301.8	1302.2	0.5	2	16	3	1614.4	1614.7	0.6	2
4	3	2336.5	2337.1	0.7	2	16	3	1700.8	1701.2	0.4	3
5	3	1603.7	1604.2	0.7	2	16	3	2037.5	2037.7	0.5	2
5	3	1815.2	1816.0	1.0	2	17	3	1254.5	1255.2	0.8	2
5	3	1957.8	1958.4	0.7	2	17	3	1326.5	1327.0	0.6	2
5	2	2059.0	2059.9	9	2	17	3	1603.2	1603.6	0.4	2
5	3	2235.1	2236.0	0.8	3	17	3	1918.0	1918.0	0.3	2
6	8	0016.6	0020.0	6.0	3	17	3	2340.3	2341.0	1.5	2
6	2	1536.0	1537.5	6	2	18	3	1230.6	1231.3	0.5	3
6	3	1650.4	1650.6	0.3	2	18	3	1321.5	1322.5	0.7	3
7	3	0037.0	0037.2	0.3	2	18	3	1357.0	1357.4	0.5	2
7	3	1803.8	1803.9	0.6	2	18	3	1418.2	1418.6	0.4	2
7	3	2330.5	2330.9	0.5	2	18	3	1440.1	1440.6	0.5	2
8	3	1526.6	1527.1	0.5	3	18	2	1649.0	1649.4	0.5	2
8	3	1946.4	1946.9	0.5	2	18	7	1838		62	1
8	3	2046.3	2046.6	0.3	2	18	7	2145		43	1
8	3	2120.2	2120.8	0.6	2	19	3	1241.0	1241.5	1.0	2
9	3	1646.5	1647.0	1.0	2	19	3	1246.0	1246.7	0.8	2
9	3	2004.5	2004.6	0.3	2	19	3	1327.0	1327.3	0.8	2
9	3	2104.5	2104.9	0.4	2	19	2	1331.7	1335.1	6	2
9	3	2242.2	2242.4	0.3	2	19	7	1745		92	1
10	3	1925.1	1926.5	1.5	3	19	7	2353		45	1
11	3	1302.9	1303.0	0.3	2	20	2	1226.2	1228.3	2.2	2
11	3	1307.6	1308.0	0.4	2	20	2	1254.9	1255.1	0.4	2
11	3	1336.5	1337.0	1.2	2	20	3	1309.9	1310.1	0.3	2
11	3	1438.6	1439.0	0.4	2	20	3	1313.3	1313.8	0.4	2
11	3	2038.3	2038.6	0.3	2	20	3	1331.6	1332.0	0.4	2
12	3	1316.0	1316.4	0.4	3	20	3	1351.6	1352.1	0.5	3
12	3	1532.6	1533.2	1.0	2	20	3	1413.3	1413.9	0.5	3
12	3	1630.5	1631.4	1.3	2	20	3	1559.4	1559.6	0.3	2
12	3	1651.9	1652.5	0.6	3	20	3	1700.9	1701.3	1.0	2
12	3	1717.6	1718.2	0.6	3	20	3	1828.5	1828.9	1.0	2
12	3	1726.9	1727.2	0.5	2	20	7	2131		104	1
12	3	2123.5	2123.9	0.4	2	21	7	0012		63	2
12	3	2221.2	2221.8	0.9	3	21	3	1239.7	1240.1	1.1	2
13	3	1255.6	1256.1	0.5	2	21	3	1247.2	1248.2	1.5	2
13	3	1303.7	1304.0	0.4	3	21	3	1300.1	1301.8	1.8	2
13	3	1327.4	1327.8	0.5	2	21	3	1319.7	1320.1	0.5	2
13	3	1339.1	1339.8	1.2	2	21	3	1324.6	1325.1	0.6	2
13	3	1416.7	1417.0	0.6	2	21	3	1559.0	1559.1	0.7	2
13	3	1505.5	1505.9	0.5	2	21	3	1721.0	1721.5	0.5	2
13	3	1509.2	1509.6	0.9	2	21	3	1813.0	1813.4	0.5	2
13	3	1846.2	1846.5	0.4	2	21	3	1816.5	1817.0	0.5	2
13	3	2339.8	2340.1	0.5	2	21	3	2201.5	2201.9	0.5	3
14	3	1254.7	1255.0	0.8	2	22	3	0014.5	0015.0	0.5	2
14	3	1312.0	1312.2	0.3	2	22	3	1338.9	1339.3	0.6	2
14	3	1333.0	1333.1	0.3	2	22	3	1349.0	1349.4	0.5	2
14	3	1451.5	1451.6	0.3	2	22	3	1547.5	1548.4	1.9	2

IVc

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

APRIL 1961

BOULDER

108 Mc.

Apr. 1961	Type	Start UT	Time of Maximum UT	Duration Minutes	Intensity
22	3	1558.3	1559.2	1.1	3
22	3	1605.5	1606.0	0.5	2
22	2	1621.0	1623.0	3.0	2
22	3	1630.6	1631.4	0.8	2
22	3	1714.2	1715.0	1.0	2
22	3	1826.2	1826.5	0.6	2
22	3	1902.8	1903.3	0.5	2
22	3	2320.8	2321.4	0.6	3
23	3	1715.6	1716.2	0.8	2
23	3	1729.5	1729.9	0.5	2
23	3	1856.8	1857.0	0.4	2
23	3	1900.5	1901.0	0.5	3
24	3	1240.0	1240.4	0.6	2
24	3	1413.5	1413.9	0.6	2
24	3	1603.0	1604.0	1.1	2
24	3	1724.2	1726.0	2.0	2
24	3	1845.6	1846.0	0.5	2
24	3	1935.0	1935.6	0.7	2
24	3	2346.0	2346.5	0.5	2
25	3	1234.7	1235.0	0.4	2
25	3	1317.1	1317.5	0.4	2
25	3	1423.3	1423.8	0.6	2
25	3	1636.2	1636.9	0.7	2
25	3	1651.5	1652.1	0.6	2
25	3	2044.2	2044.5	0.5	2
26	3	0001.0	0001.5	0.6	2
26	3	1219.5	1220.6	1.2	2
26	3	1307.5	1307.9	0.4	2
26	3	1321.0	1321.5	0.5	2
26	3	1339.0	1339.8	0.8	3

	Type	Start UT	Time of Maximum UT	Duration Minutes	Intensity
26	3	1647.5	1648.0	0.6	2
27	3	1301.2	1301.8	0.6	3
27	3	1316.2	1316.6	0.6	2
27	3	1328.0	1329.2	1.2	3
27	3	1916.0	1916.5	0.5	2
28	3	1303.5	1303.9	0.5	2
28	3	1342.3	1342.9	0.6	3
28	3	1346.5	1346.9	0.5	2
28	3	1507.6	1508.0	0.5	2
28	3	1533.7	1534.4	0.7	2
28	3	1646.4	1647.0	0.6	2
28	3	1733.4	1733.9	0.5	2
28	3	1945.1	1946.0	0.9	2
29	3	0003.2	0003.5	0.5	2
29	3	1333.0	1333.6	0.6	3
29	3	1336.0	1336.5	0.5	3
29	3	1348.4	1348.9	0.5	3
29	3	1530.4	1530.8	0.7	2
29	3	1634.5	1635.5	1.0	3
29	3	1709.8	1710.1	0.4	2
29	3	1755.5	1756.3	0.9	2
29	3	1823.6	1824.0	0.5	2
29	3	1839.4	1841.2	2.0	2
29	3	2217.7	2218.4	0.7	3
30	3	1538.0	1538.6	0.6	2
30	3	1602.1	1602.6	0.5	2
30	3	1729.5	1730.0	0.5	2
30	3	1810.5	1810.7	0.5	2
30	3	1812.3	1812.6	0.5	2
30	3	1917.0	1917.5	0.5	2

COMMERCE - STANDARDS - BOULDER

NOMINAL TIMES OF OBSERVATION

APRIL 1961

BOULDER

108 MC

Apr. 1961	U. T.		Apr. 1961	U. T.
1	1251-2117		15	1229-0120
2	1516-0108		16	1227-0121
3	1247-0109		17	1226-0122
4	1246-0110		18	1224-0123
5	1431-0111		19	1223-0124
6	1243-0112		20	1221-0125
7	1241-0113		21	1220-0126
8	1240-0114		22	1219-0127
9	1238-0115		23	1217-0128
10	1236-0116	I 2008-2207	24	1216-0128
11	1235-0116		25	1214-0130
12	1233-0118		26	1213-0130
13	1232-0118		27	1212-0131
14	1230-1833; 2006-0120		28	1210-0132
			29	1209-0133
			30	1208-0134

COMMERCE - STANDARDS - BOULDER

SOLAR RADIO EMISSION
SPECTRUM OBSERVATIONS

IVf

FEBRUARY 1961

OWENS VALLEY, CALIFORNIA

500-1000 Mc

Date 1961	Observing Hours	Type	Important Bursts Times U.T.	Int.	Frequency Range	Remarks
Feb. 1	1634-2410					No activity
Feb. 2	1631-1953					No activity
Feb. 3	1650-2353					No activity
Feb. 6	1658-2350					No activity
Feb. 7	1639-1738					No activity
Feb. 7	1816-2331					No activity
Feb. 8	1757.5-1754.5 1757.5-2358.	I	2142	1-	950-1000	No activity 3 spots for 5 seconds Continuum No activity
Feb. 9	1659-2106					No activity
Feb. 10	1755-2014					No activity
Feb. 14	1630-2422					No activity
Feb. 20	1656.5-2420					No activity

COMMERCE - STANDARDS - BOULDER

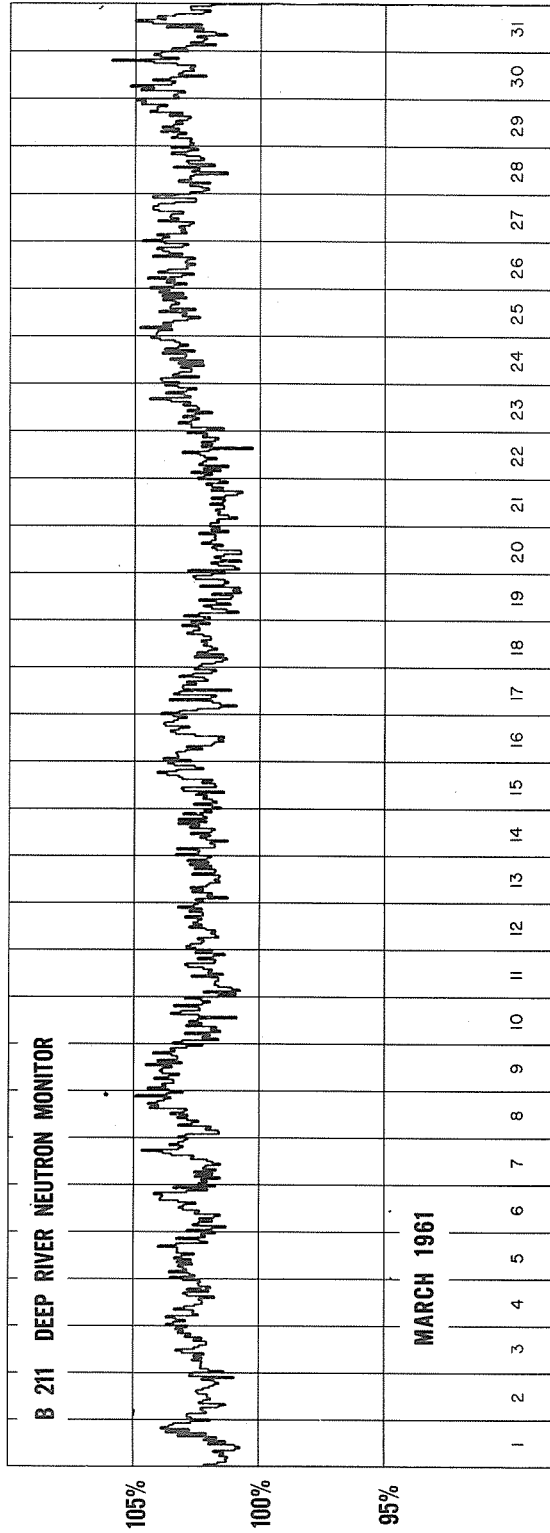
COSMIC RAY INDICES
(Climax Neutron Monitor)

Mar. 1961	Daily average counts/hr	Mar. 1961	Daily average counts/hr
1	2978.6	17	2992.7
2	2964.4	18	3000.2
3	2988.8	19	2978.4
4	2995.1	20	2982.2
5	3014.3	21	2959.1
6	3034.8	22	2967.7
7	3011.1	23	2984.0
8	3004.7	24	2994.0
9	2996.5	25	2997.0
10	2987.9	26	2998.0
11	2981.1	27	2984.6
12	2987.6	28	2954.4
13	2982.0	29	2965.8
14	2972.3	30	2959.3
15	2975.1	31	2930.3
16	2995.5		

(31)

(10)

COSMIC RAY INDICES
(Pressure Corrected Hourly Totals)



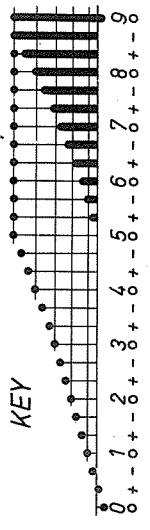
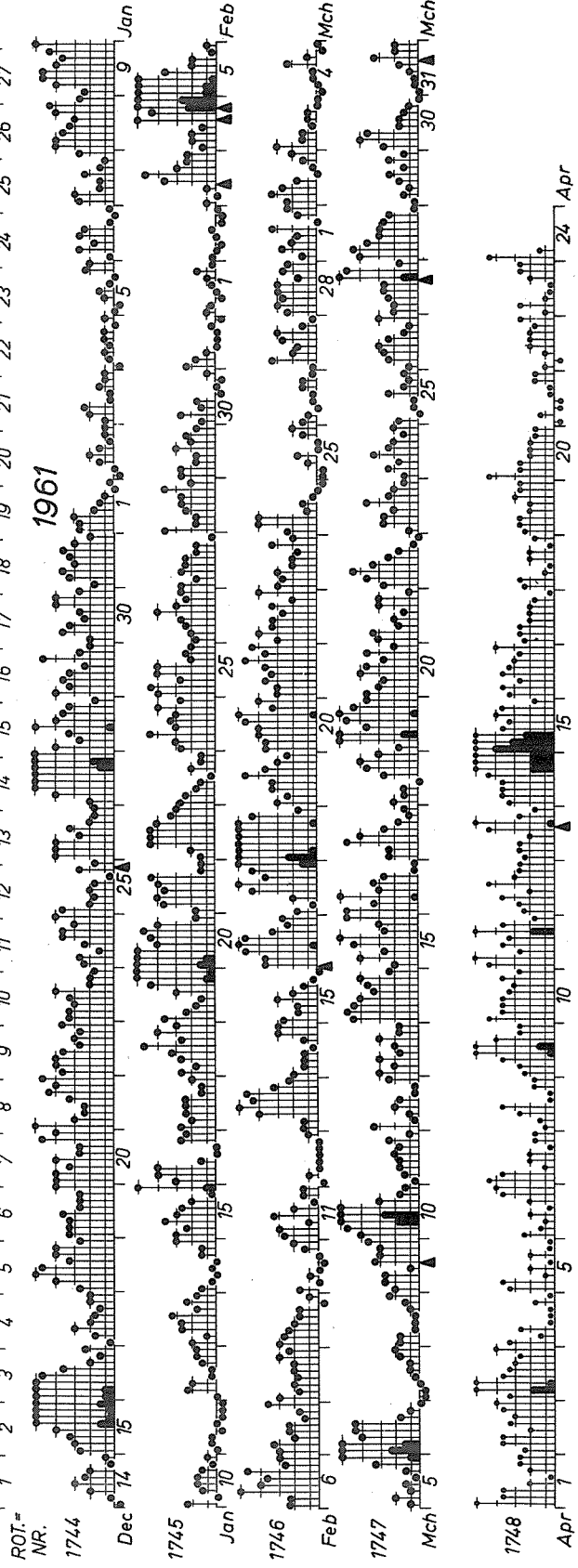
COMMERCE - STANDARDS - BOULDER

GEOMAGNETIC ACTIVITY INDICES

MARCH 1961

Mar. 1961	C	Values Kp								Sum	Ap	Final Selected Days
		Three hour Gr. interval										
		1	2	3	4	5	6	7	8			
1	0.3	1+	3-	2o	2-	3+	0+	2-	2+	15+	8	Five Quiet
2	0.2	2+	3+	3-	2-	0+	1-	1+	2o	14+	8	
3	0.1	3o	1+	1+	1-	1o	1o	0+	0+	9o	5	
4	0.1	0o	0+	1-	1-	2+	1o	0o	0+	5+	3	
5	0.9	1o	2o	1o	1+	1-	1+	3+	6-	16+	14	
6	1.3	7-	6o	4o	4+	4+	2-	1o	0+	28+	37	3
7	0.2	0o	0o	0+	1-	1o	1o	2-	2o	7-	3	25
8	0.2	2-	2-	1-	1-	1-	1o	1+	2+	10o	5	
9	0.9	2o	3-	3-	1o	3+	3o	3o	4-	21+	13	
10	1.4	4o	5-	6+	7o	5o	3o	2-	1+	33o	46	
11	0.3	1-	1+	2-	2-	2o	2-	2+	1o	12+	6	Five Disturbed
12	0.2	3+	1-	1o	2o	2-	1-	1-	2+	12+	7	
13	0.4	3o	2o	3o	2-	2o	3o	2-	2-	18o	10	
14	1.2	4+	5-	4+	4o	3+	4-	4o	2+	31-	26	6
15	1.2	2o	4o	3-	4+	5o	3-	3o	5-	28+	24	10
16	1.1	5-	3+	5+	3o	3+	3-	1-	1-	24-	20	14
17	0.6	2+	2+	5-	4o	3-	2-	1o	1+	20o	14	19
18	0.8	2o	1+	1+	0+	3-	4-	4o	3o	18+	12	
19	1.3	2-	5o	6o	4-	5-	5+	4+	4-	34+	38	
20	0.9	4-	3o	3-	4o	4-	3-	4-	2o	25+	17	
21	0.6	3o	3+	2-	2o	1+	3o	3o	1o	18+	11	Ten Quiet
22	0.7	3-	4-	4+	3+	2+	2-	1-	0+	19o	13	
23	0.6	1o	3-	3-	2o	4-	2+	2o	1+	18-	10	
24	0.4	1+	2+	2-	3+	2+	2o	1+	2o	16+	8	2
25	0.1	2-	0+	1-	1-	2+	1+	1o	1+	9+	5	3
26	0.5	1o	2+	3-	3o	2+	1+	1o	3o	17-	9	4
27	1.2	2o	2o	2+	3-	3-	6o	5-	2-	24o	22	7
28	1.0	4o	4+	4-	3o	3o	3-	2+	1-	24-	17	8
29	0.4	1-	1+	1o	2-	2+	1+	2+	1+	12o	6	11
30	0.6	3-	4o	4-	2-	2-	1+	1o	0+	16+	10	12
31	0.4	0+	1-	1-	1o	2-	3+	2o	2o	12-	6	25
												29
												31
Mean:	0.65									Mean:	14	

DAYS IN SOLAR ROTATION INTERVAL



▲ = sudden commencement

PLANETARY MAGNETIC
THREE-HOUR-RANGE INDICES

Kp till 1961 March 31
(Ks from Wingst and Göttingen till April 24)

J.B.

COMMERCE - STANDARDS - BOULDER

CRPL RADIO PROPAGATION QUALITY FIGURES AND FORECASTS
 NORTH ATLANTIC MARCH 1961 NORTH PACIFIC

DATE	NORTH ATLANTIC 6-HOURLY QUALITY FIGURES				SHORT-TERM FORECASTS ISSUED ABOUT ONE HOUR IN ADVANCE OF,				WHOLE DAY INDEX	ADVANCE FORECASTS (F-REPORTS) FOR WHOLE DAY ISSUED IN ADVANCE BY				NORTH PACIFIC 12-HOURLY QUALITY FIGURES	SHORT-TERM FORECASTS ISSUED AT:		WHOLE DAY INDEX	ADVANCE FORECASTS (L-REPORTS) FOR WHOLE DAY ISSUED IN ADVANCE BY				GEOMAGNETIC K _{PI}											
	00	06	12	18	00	06	12	18		-7	-7	-7	-7		0000	1800		1900	0700	0400	1800	-7	-7	-7	-7	FINAL JPS	SO W	J P	DAY (1)	DAY (2)	GEOMAGNETIC K _{SI}		
MAR.1961																																	
01	6-	50	7-	6+	6	4	7	7	60																								
02	6-	5-	7-	6+	6	5	7	7	6-																								
03	60	5+	7-	6+	6	5	7	6	60																								
04	6+	6-	70	7-	6	5	7	6	6+																								
05	6+	60	7-	6-	6	6	7	7	6+																								
06	3-	3-	50	5-	5	2	5	5	(3+)																								
07	3-	3-	60	60	4	3	6	5	(4-)																								
08	60	5-	6+	6+	4	4	6	6	6-																								
09	6-	6-	60	6+	6	5	7	6	60																								
10	5+	40	5-	5-	5	5	5	4	5-																								
11	3-	30	60	7-	4	3	6	5	(40)																								
12	6-	5-	7-	7-	5	5	6	6	6-																								
13	50	5-	6+	6+	6	4	6	6	6-																								
14	4+	3+	5+	4+	5	4	6	5	(4+)																								
15	4-	3+	5+	5+	3	3	5	4	(40)																								
16	4+	3-	6-	60	4	4	5	5	(4+)																								
17	5+	4-	6-	6-	5	4	5	5	5-																								
18	6-	5-	6+	6+	6	5	6	6	6-																								
19	60	30	5+	6-	5	3	5	4	(4+)																								
20	5+	3+	5+	7-	4	4	5	5	5-																								
21	60	4+	7-	6+	6	4	6	6	5+																								
22	6+	40	6+	6+	6	5	6	6	5+																								
23	60	5+	6+	6+	6	5	6	6	60																								
24	60	50	7-	6+	6	5	6	6	60																								
25	7-	6-	6+	7-	6	5	7	6	6+																								
26	7-	6-	7-	7-	6	6	6	7	6+																								
27	7-	60	7-	7-	7	6	7	4	7-																								
28	50	40	6+	7-	4	3	6	7	5+																								
29	6+	60	70	6+	6	5	7	7	6+																								
30	6-	50	7-	7-	7	5	7	6	60																								
31	6+	60	7-	7-	7	6	7	6	6+																								

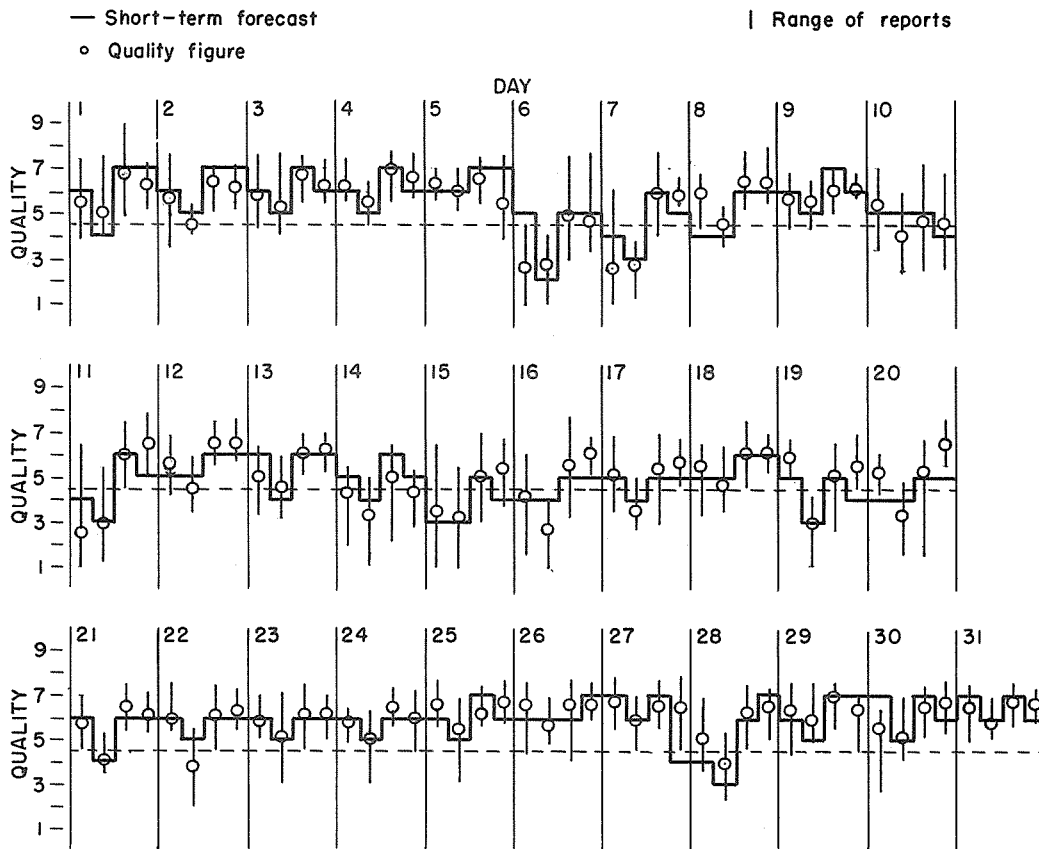
Score: Quiet Periods P 14 11 22 12
 S 10 7 9 14
 U 0 0 0 2
 F 1 0 0 2
 Disturbed Periods P 1 6 0 0
 S 4 7 0 1
 U 1 0 0 0
 F 0 0 0 0

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

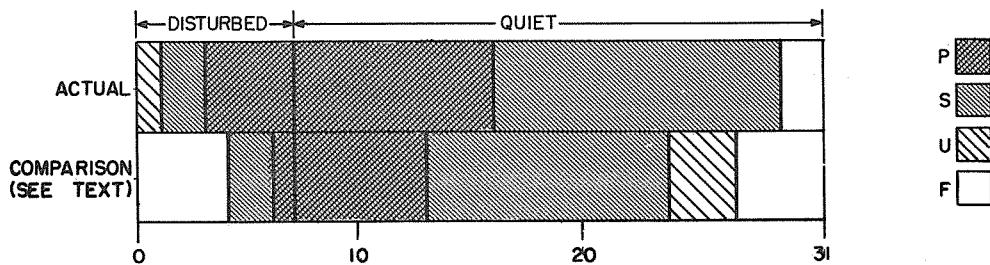
CRPL RADIO PROPAGATION QUALITY FIGURES AND FORECASTS
NORTH ATLANTIC

VII b

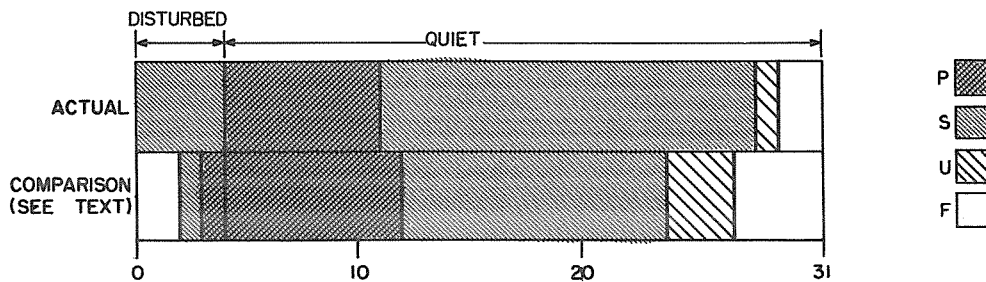
MARCH 1961



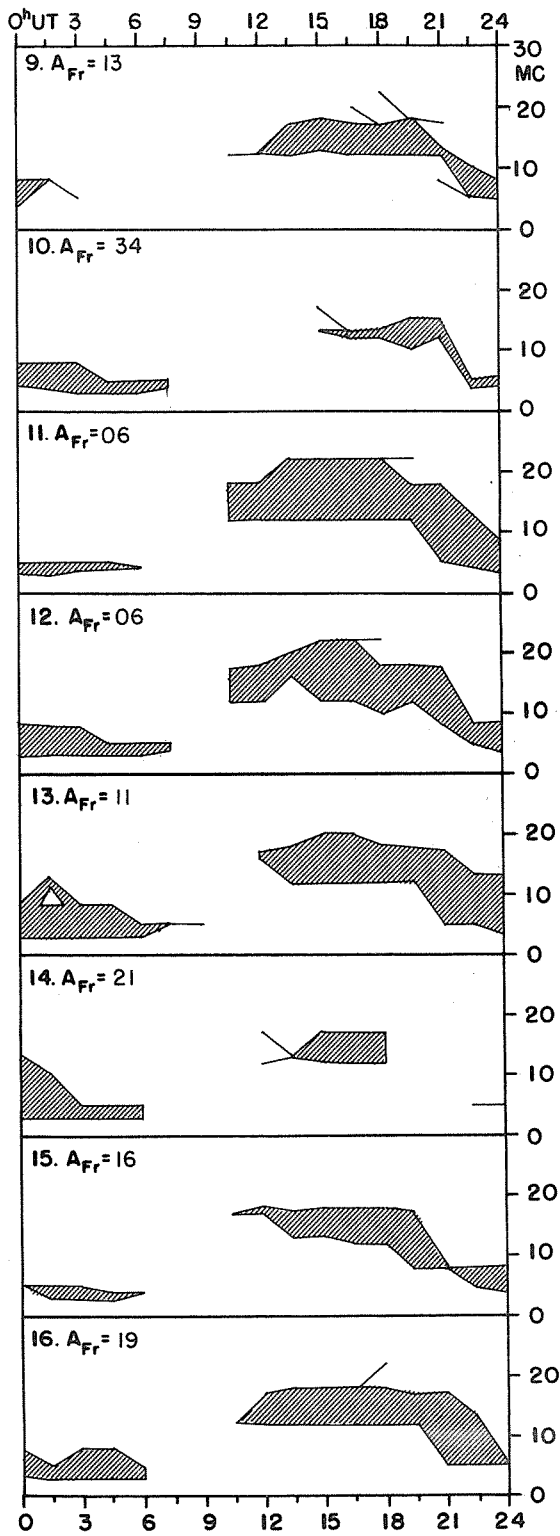
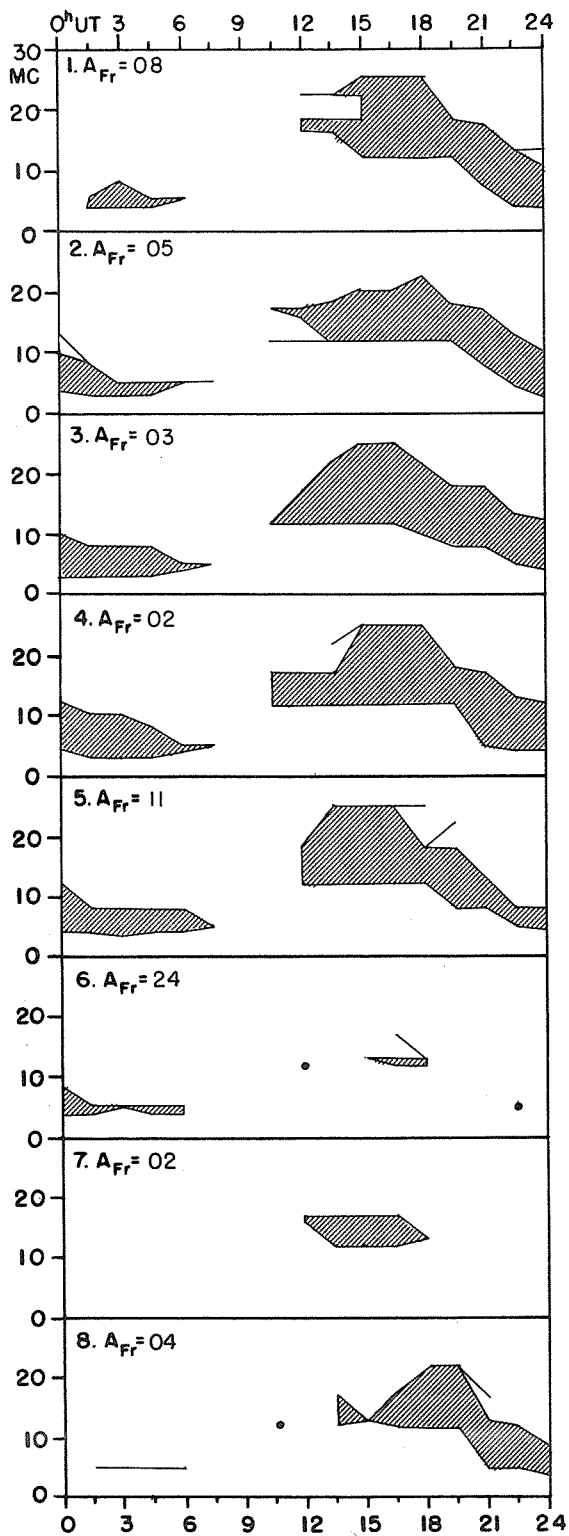
OUTCOME OF ADVANCED FORECASTS FINAL ESTIMATE
NORTH ATLANTIC

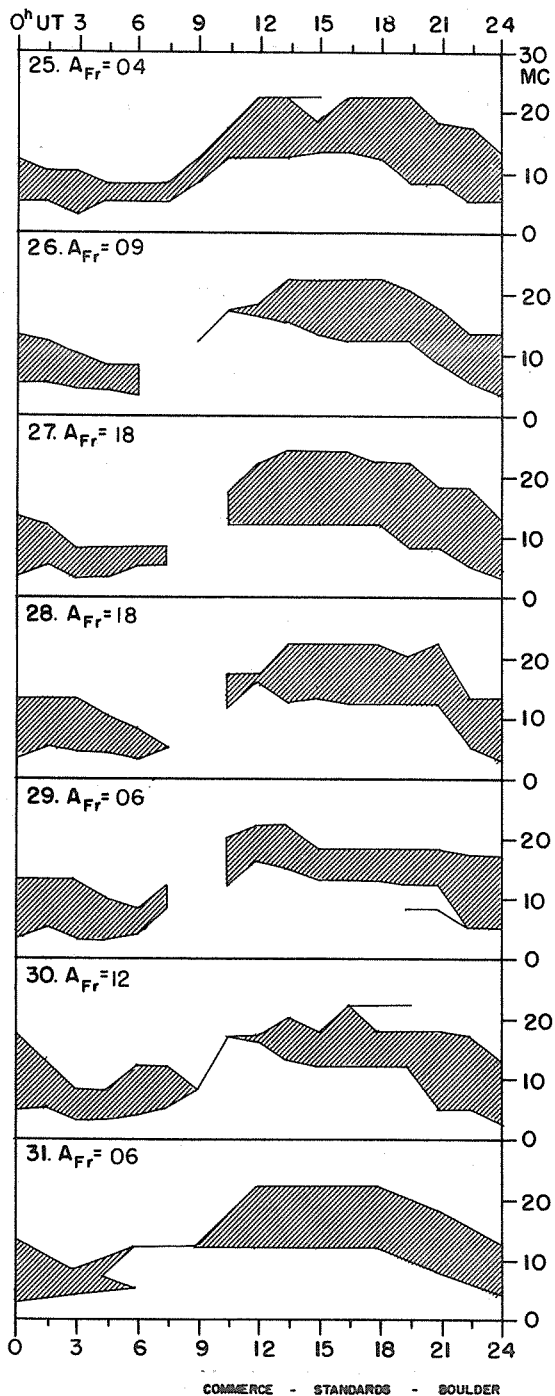
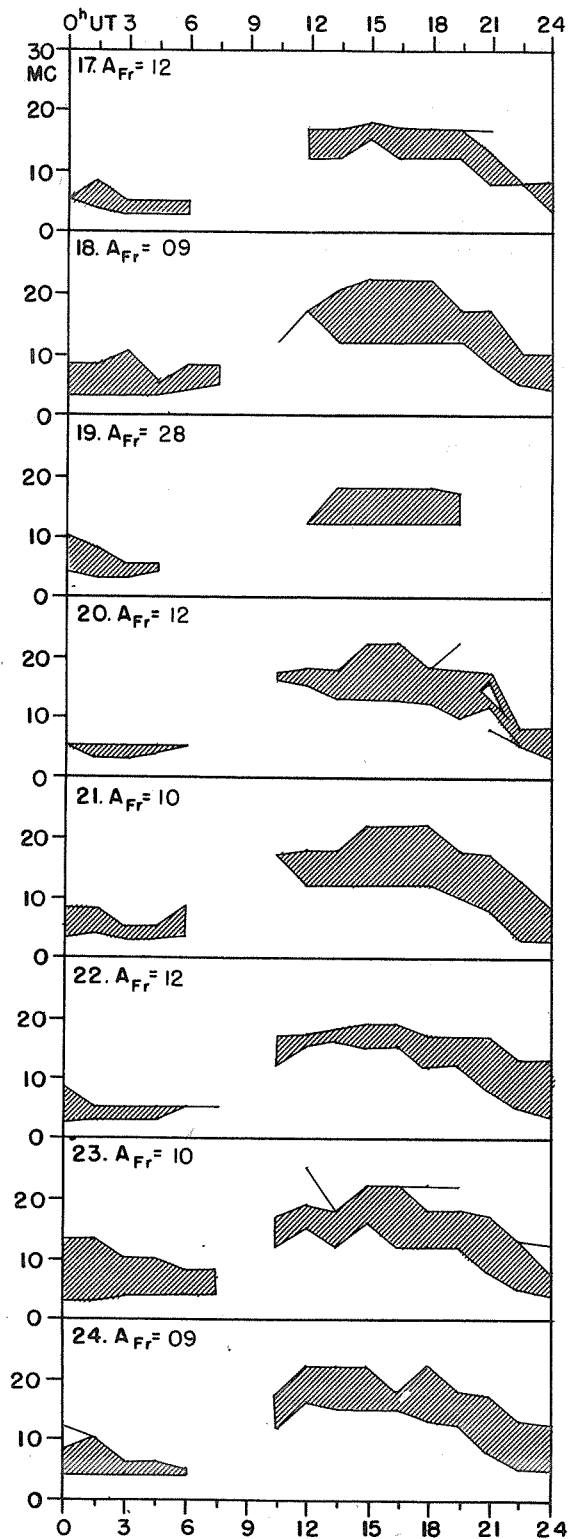


NORTH PACIFIC



MARCH 1961





ALERT PERIODS AND SPECIAL WORLD INTERVALS

INTERNATIONAL WORLD DAY SERVICE

APRIL 1961

Issued Day/Time UT Apr. 1961	Advance Geophysical Alert	No.	World-Wide Geophysical Alert	Special World Interval
03/0410	Ft. Belvoir, Magnetic Storm 31/1338Z*			
03/1600		116	Magnetic Storm 02/20XXZ*	
09/1600		117	Magnetic Storm 09/07XXZ	
13/2030	Ft. Belvoir, Magnetic Storm 13/1452Z			
14/1600		118	Magnetic Storm 13/1452Z	
26/1945	Burbank, Solar Flare 26/1655Z			

COMMERCE - STANDARDS - BOULDER

*Increase in geomagnetic activity was thought to be continuation of very minor disturbance which began March 31. Further examination, however, indicated the beginning of a new disturbance April 02.