PART B

SOLAR - GEOPHYSICAL DATA

ISSUED
SEPTEMBER 1960

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

CRPL-F 193
PART B

NATIONAL BUREAU OF STANDARDS
CENTRAL RADIO PROPAGATION LABORATORY
BOULDER, COLORADO

Issued
30 Sept. 1960

SOLAR - GEOPHYSICAL DATA

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INTRODUCTION

The descriptive text is published periodically or whenever context of the report is changed. The last issue in which the text appeared was CRPL-F189 Part B issued May 1960.

DAILY SOLAR INDICES

July 1960	American Relative Sunspot Numbers $R_{A'}$
1	144
2	152
3	153
4	158
5	141
6	117
7	119
8	117
9	115
10	90
11	72
12	73
13	87
14	91
15	108
16	117
17	118
18	125
19	127
20	126
21	127
22	123
23	106
24	97
25	90
26	82
27	77
28	75
29	82
30	64
31	63
Mean:	107.6

Aug. 1960	Zürich Provisional Relative Sunspot Numbers R_Z	Daily Values Solar Flux at 2800 Mc, Ottawa, Canada Flux
1	63	140
2	53	134
3	31	125
4	32	122
5	25	126
6	24	127
7	57	134
8	57	145
9	76	152
10	94	170
11	156	187
12	207	214
13	235	234
14	236	238
15	252	240
16	244	241
17	232	247
18	225	250
19	217	234
20	202	219
21	177	201
22	168	189
23	130	171
24	113	162
25	131	158
26	140	162
27	109	150
28	98	140
29	97	129
30	96	129
31	84	132
Mean:	131.0	174.3

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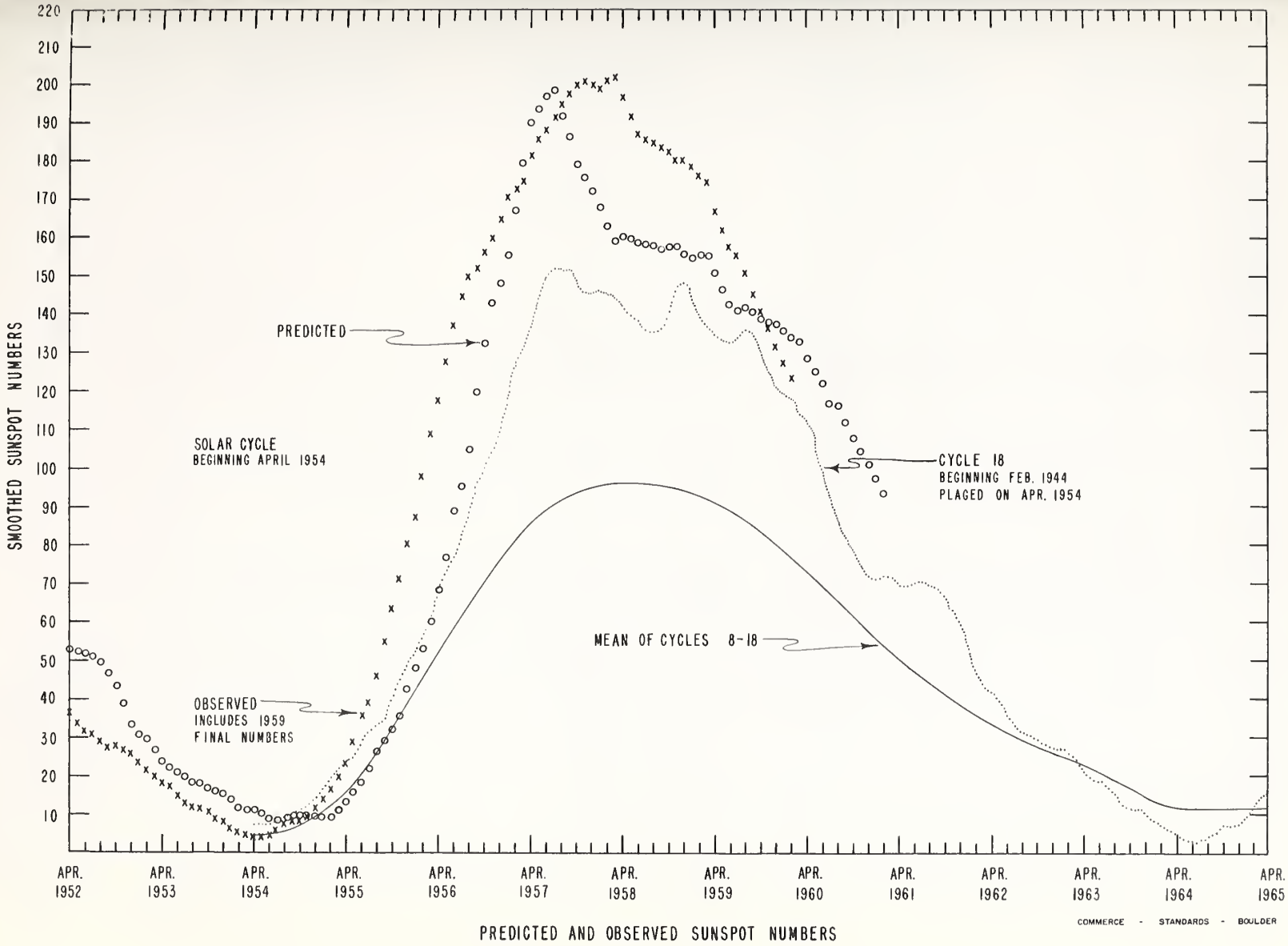

PREDICTED AND OBSERVED SUNSPOT NUMBERS

CALCIUM PLAGE AND SUNSPOT REGIONS

AUGUST 1960

CMP Aug. 1960	Lat	McMath Plage Number	Return of Region	Calcium Plage Data				Sunspot Data		
				CMP Values Area	Int.	History, Age		CMP Values Area	Count	History
01.4	N17	5784	5728	800	2	ℓ ⌜ ℓ	5			
01.4	N02	5786	5732	300	1.5	ℓ ⌜ ℓ	2			
03.0	N32	5780	5735	600	1	ℓ – ℓ	2			
03.2	N11	5778	5732	800	2	ℓ – ℓ	2			
03.7	N28	5781	5735	300	1.5	ℓ ⌝d	2			
04.1	S10	5787	New	300	3	ℓ – ℓ	1			
04.4	N16	5782	5737	2600	3	ℓ \ ℓ	5			
06.5	N14	5785	5740	1000	2.5	ℓ – ℓ	3	50	5	b ∧ d
08.0	N29	5789	5743	300	1.5	ℓ – ℓ	2			
08.3	S17	5788	5741	2200	2	ℓ / ℓ	4	(20)	(2)	b ∧ d
08.7	N22	5791	5746	400	1	ℓ ⌝d	2			
09.2	S09	5790	5745	2300	2	ℓ \ ℓ	4			
10.0	N26	5792	5746	700	1.5	ℓ ⌝d	2			
10.8	S02	5793	5759	500	2	ℓ / ℓ	2	100	8	b / ℓ
13.4	N20	5794	5749	11000	3.5	ℓ – ℓ	2	790	57	ℓ – ℓ
14.6	N12	5796	5752	1500	2.5	ℓ \ ℓ	6			
14.6	S14	5797	*	4500	3.5	ℓ – ℓ	1	800	34	ℓ – ℓ
15.8	S09	5798	**	3600	3.5	ℓ – ℓ	1	390	11	ℓ – ℓ
16.9	S05	5800	****	4800	3.5	ℓ – ℓ	1	395	5	ℓ – ℓ
17.0	N17	5799	***	6500	3.5	ℓ – ℓ	1	1840	34	ℓ \ ℓ
18.1	N02	5812	New	100	2	b ∧ d	1			
18.7	S09	5801	5764	4800	3.5	ℓ – ℓ	2	880	15	ℓ / ℓ
19.4	N15	5802	+	4500	3.5	ℓ – ℓ	1	780	3	ℓ – ℓ
21.4	N14	5803	++	3300	3	ℓ – ℓ	1	160	4	ℓ ⌝d
21.8	S07	5805	5767	1400	1	ℓ – ℓ	5			
21.8	N27	5806	New	900	2	ℓ / ℓ	1	60	6	ℓ / ℓ
22.3	N07	5807	5769	900	2.5	ℓ / ℓ	4	220	3	b ⌜ ℓ
22.4	S16	5808	5771	600	1	ℓ – ℓ	3			
23.2	S08	5809	5771	1500	3	ℓ / ℓ	3	190	6	b / ℓ
23.5	S16	5811	5771	2200	3.5	ℓ – ℓ	3	400	5	ℓ – ℓ
23.7	N23	5810	5770	1000	1	ℓ / ℓ	4	70	2	b / ℓ
25.5	S20	5828	New	(600)	(3)	b ⌜ ℓ	1			
25.7	N23	5813	5775	300	2.5	ℓ – ℓ	3			
25.7	S09	5815	New	100	1.5	ℓ ⌝d	1			
25.8	N11	5814	5775	2000	2.5	ℓ – ℓ	3			
26.0	S20	5824	New	(400)	(1.5)	b ∧ d	1			
27.1	N11	5816	5775	3400	3	ℓ \ ℓ	3	70	1	ℓ – ℓ
27.6	S17	5829	New	(100)	(1.5)	b ⌜ ℓ	1			
27.7	N19	5818	5784	1600	2	ℓ – ℓ	6	40	1	b / ℓ
28.0	N35	5817	5774	2600	2.5	ℓ \ ℓ	5			
29.0	N23	5823	New	1400	2	b ∧ ℓ	1			
29.2	S18	5825	New	1200	3.5	b / ℓ	1	500	7	b ⌜ ℓ
30.3	S12	5830	New	400	3	b / ℓ	1	20	2	b ∧ d
30.4	N10	5826	5778	300	2	b ⌜ ℓ	3			
31.5	N16	5822	5782	3800	3.5	ℓ – ℓ	6	480	33	ℓ – ℓ

Correction for July: Region 5759 was New and should not have been omitted.

July										
14.9	N02	5759	New	300	3	b ⌜ ℓ	1	100	8	b ⌜ ℓ

* New in position of 5754.
** New in position of 5756.
*** New in position of 5761.
**** New in position of 5760.
\+ New and part of 5765.
++ New and part of 5765.

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PROVISIONAL CORONAL LINE EMISSION INDICES

AUGUST 1960

CMP Aug 1960	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	82a	117a	x	x	58a	74a	x	x	32	44	18a	20a	81	93	36a	73a
2	83a	102a	31a	36a	53a	62a	x	x	42a	51a	24a	32a	80a	97a	28a	52a
3	83	116	12	20	45	64	8	13	32	48	x	x	65	80	x	x
4	x	x	x	x	x	x	x	x	24a	31a	6a	8a	47a	66a	33a	88a
5	64a	87a	26a	40a	27a	33a	25a	32a	26a	34a	5	7	44a	78a	10	17
6	x	x	x	x	x	x	x	x	43a	64a	18a	36a	44a	67a	x	x
7	69	94	8a	13a	45	76	8a	10a	48	60	8	17	34	42	12	18
8	43	64	7	10	41	76	7	10	58	80	x	x	33	40	x	x
9	62*	95	x	x	55	80	x	x	59a	91a	21a	51a	40a	50a	x	x
10	72	97	x	x	50	73	x	x	46	72	9a	13a	44	49	9a	12a
11	54	72	23	35	38	46	13	20	34a	48a	x	x	69a	86a	x	x
12	x	x	x	x	107a	140a	x	x	24a	39a	18a	21a	57a	64a	x	x
13	65a	95a	39a	61a	29a	44a	37a	66a	68a	126a	x	x	98a	132a	26a	40a
14	76	110	36	56	57	110	38	96	73*	167	30	50	72	86	x	x
15	81	108	29a	38a	64	118	32a	64a	83	148	24	36	68	80	15	35
16	98a	117a	31a	59a	105a	157a	43a	84a	x	x	x	x	x	x	x	x
17	78	113	x	x	108	167	x	x	126	166	63	112	102	160	36	72
18	91a	119a	15a	25a	x	x	51a	114a	76a	118a	x	x	82a	125a	x	x
19	x	x	18	28	x	x	14	27	x	x	x	x	x	x	x	x
20	x	x	46a	82a	58a	101a	35a	45a	65	94	32	48	109	154	42	80
21	139	160	19	26	56	108	16	25	48a	80a	x	x	87a	116a	x	x
22	70	98	x	x	55	86	x	x	76	108	18	32	72	95	34	64
23	89a	103a	24a	38a	73a	139a	39a	53a	77	98	21	36	68	89	x	x
24	67a	106a	11a	15a	29a	38a	15a	22a	76a	162a	27a	48a	80a	128a	27a	51a
25	106a	148a	x	x	43a	64a	x	x	57a	100a	16a	30a	91a	116a	26a	46a
26	120	157	x	x	44	70	x	x	57	83	28	42	73	92	21	34
27	120a	132a	x	x	61a	94a	x	x	75a	104a	27a	40a	91a	104a	13a	18a
28	77	129	x	x	37	62	x	x	72	140	37	72	71	98	26	40
29	60	103	5	8	17	32	5	8	51a	110a	x	x	51a	62a	x	x
30	x	x	x	x	x	x	x	x	42a	82a	11	18	54a	115a	7	13
31	38a	58a	19a	24a	24a	32a	24a	35a	21	24	27	36	52	87	42	93

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

Note: These coronal line intensities, expressed in millionths of equivalent angstroms are believed to be correct to ± 10 per cent, probable error, according to the calibrations of February-March 1960. All intensities from the Climax and Sacramento Peak Observatories during the years 1956-1959, inclusive, if multiplied by the factor 0.60, will be expressed in the same scale to a somewhat lower precision.

Intensities prior to 1956 cannot be compared precisely with those obtained later because of changes in observing and reduction techniques. They may be converted roughly to millionths of equivalent angstroms by use of the table given by Billings and Varsavsky, 1955, Zs. f. Ap. 38, 160.

CORONAL LINE EMISSION INDICES

APRIL 1960

CMP Apr 1960	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	65	95	x	x	55	68	x	x	x	x	11a	18a	x	x	17a	38a
2	65	100	x	x	37	47	x	x	70	95	x	x	48	79	18	24
3	107	146	13	35	84	106	5	8	86	130	29	102	56	74	30	54
4	79	86	11	21	81	114	11	26	56a	95a	10a	27a	50a	69a	9a	12a
5	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
6	75	114	x	x	68	96	x	x	59	104	12	24	69	92	12	22
7	x	x	x	x	x	x	x	x	70a	108a	11a	18a	74a	119a	12a	19a
8	x	x	x	x	x	x	x	x	46a	74a	x	x	47a	56a	x	x
9	x	x	x	x	x	x	x	x	37	42	3	10	60	81	1	5
10	102	123	x	x	77	122	x	x	38	80	16	27	44	62	16	19
11	27a	38a	x	x	11a	24a	9a	20a	31a	46a	18a	48a	61a	92a	11a	15a
12	48	65	x	x	27	52	12	18	42a	64a	14a	31a	71a	105a	15a	47a
13	105	147	x	x	52	66	x	x	43a	62a	11a	15a	44a	63a	18a	32a
14	x	x	11	30	x	x	2	4	60a	94a	10a	13a	95a	150a	10a	17a
15	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
16	50	54	x	x	49	69	x	x	x	x	x	x	x	x	x	x
17	71	97	15	28	49	61	17	44	47	62	10a	18a	56	79	14a	29a
18	91a	151a	12a	22a	48a	60a	10a	24a	86	110	x	x	139	176	x	x
19	x	x	x	x	x	x	x	x	69	85	x	x	115	140	x	x
20	105	132	12	18	52	80	5	12	73	105	x	x	146	188	x	x
21	116	141	18a	30a	63	119	11a	17a	55	78	4	10	129	194	30	52
22	x	x	x	x	20a	28a	x	x	53	75	5	23	87	126	16	28
23	69	108	4	13	75	130	4	17	62	98	6	15	38	50	8	17
24	44	66	x	x	46	56	x	x	71	127	x	x	65	91	x	x
25	64a	109a	12a	18a	67a	134a	12a	24a	81	132	x	x	84	116	x	x
26	50a	65a	13a	23a	67a	132a	17a	34a	78	93	x	x	100	142	x	x
27	61a	84a	11a	29a	65a	88a	9a	12a	x	x	x	x	x	x	x	x
28	58a	90a	16a	24a	43a	55a	10a	17a	73	93	x	x	114	171	x	x
29	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
30	x	x	x	x	x	x	x	x	55	82	x	x	28	48	x	x

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

CORONAL LINE EMISSION INDICES

MAY 1960

CMP May 1960	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	55	75	16a	29a	53	84	7a	9a	x	x	x	x	x	x	x	x
2	110	155	x	x	105	134	x	x	36	43	15	21	x	x	x	x
3	113	137	x	x	95	127	x	x	40	54	9	10	x	x	x	x
4	118	129	x	x	106	132	x	x	43	67	11	18	x	x	x	x
5	120	147	x	x	90	140	5	25	x	x	x	x	x	x	x	x
6	121	162	5	17	104	144	5	14	x	x	x	x	x	x	x	x
7	79	96	5	18	59*	116	17	36	35a	59a	11a	16a	50a	73a	12a	20a
8	97	119	x	x	59	92	x	x	x	x	x	x	x	x	x	x
9	126	140	x	x	74	116	x	x	47	83	x	x	54	80	x	x
10	145	191	x	x	84	112	x	x	100	187	15	24	123	174	4	10
11	x	x	x	x	x	x	x	x	42a	55a	x	x	36a	43a	x	x
12	147	186	x	x	113	154	x	x	96	146	x	x	108	122	x	x
13	x	x	x	x	x	x	x	x	24	48	8	10	28	50	13	26
14	x	x	x	x	x	x	x	x	26	35	x	x	45	56	x	x
15	x	x	x	x	x	x	x	x	27	39	14	18	42	54	18	30
16	57	82	27	42	40	50	9	13	29	42	9	11	56*	81	15	28
17	x	x	23	38	53	67	9	12	49	94	13a	14a	124	194	14a	15a
18	x	x	22	33	x	x	21	30	39	74	14	28	49	62	13	21
19	x	x	x	x	23a	28a	x	x	56	80	19a	30a	73	82	29a	38a
20	x	x	x	x	x	x	x	x	72	108	9a	12a	92	116	10	18
21	x	x	10	17	x	x	9	13	39	56	16	29	40	64	23	50
22	20	30	x	x	21	30	x	x	69	93	x	x	101	151	x	x
23	42	60	13a	23a	39	58	15a	20a	74	97	x	x	95	122	x	x
24	104	169	12	20	97	152	9	12	60	68	27a	40a	97	119	27a	35a
25	x	x	14a	22a	28a	34a	7a	9a	36	46	13	23	68	92	14	18
26	86	123	x	x	83	98	x	x	63	95	x	x	70	106	x	x
27	30	58	8	13	40	73	9	12	57	83	x	x	36	77	x	x
28	16	20	11	14	32	48	14	28	48	61	9	11	25	32	6	10
29	21	31	16	26	32	39	15	22	30	40	5	9	21	24	6	9
30	22	26	14	25	28	31	10	16	x	x	x	x	x	x	x	x
31	66	85	12	20	61	82	4	6	52	65	2	4	49	69	10	14

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

CORONAL LINE EMISSION INDICES

JUNE 1960

CMP Jun 1960	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	81	126	24	41	40	63	9	11	79	155	5	9	86	104	11	26
2	72	92	24a	25a	60	71	18a	22a	81	112	3	9	92	142	14	23
3	147	197	17a	34a	83	112	16a	29a	90	128	8	15	112	144	17	26
4	64	89	11	21	51	85	8	10	34	52	10	16	107	157	15	25
5	122	167	x	x	84	139	x	x	14	24	7	12	66 *	91	13	20
6	125	141	x	x	86	129	x	x	47	70	6	8	113	130	7	16
7	136	161	19a	20a	123	152	13a	20a	51	67	x	x	65	91	x	x
8	46	66	14	25	55	72	13	20	82	89	x	x	78	106	x	x
9	79	98	x	x	104	138	x	x	39	76	16a	26a	38	48	8a	19a
10	78	94	x	x	61	100	x	x	65	80	15a	22a	87	101	22a	47a
11	83	94	15	24	51	60	11	15	42	77	17	22	53	77	27	66
12	100	128	17	45	51	85	2	4	69	107	x	x	153	226	x	x
13	x	x	x	x	x	x	x	x	57	81	x	x	155	224	x	x
14	91	123	16	20	51	96	13	25	86	125	35a	65a	126	168	17a	43a
15	159	182	12	17	82	106	20	31	73	127	x	x	66	83	x	x
16	89	119	12	20	86	107	19	32	65	94	10	26	54	63	4	11
17	79	95	13	22	110	133	11	26	71	83	13	17	65	95	11	20
18	45	68	12	19	59	80	9	10	36	40	x	x	48	64	x	x
19	33	46	5	14	12	18	2	8	32a	40a	15	25	42a	60a	18	30
20	128	170	19	24	60	69	5	6	33a	50a	27a	40a	44a	65a	19a	40a
21	x	x	x	x	x	x	x	x	56	85	5	15	71	105	10	18
22	96	117	6	8	80	106	4	14	32	44	9	15	21	32	13	20
23	40	57	13a	33a	71	96	17a	23a	61	116	17	40	27	32	17	34
24	63	76	24a	37a	97	114	25a	49a	68	122	x	x	63*	150	x	x
25	30	45	27	51	36	46	26	46	x	x	x	x	x	x	x	x
26	98	130	x	x	68	90	x	x	x	x	x	x	x	x	x	x
27	90	133	x	x	84	97	x	x	60	95	27a	50a	55	69	27a	80a
28	80	139	25a	38a	98	162	22a	49a	x	x	x	x	x	x	x	x
29	99	190	x	x	109	144	x	x	102	166	30a	40a	101	183	20a	40a
30	86	133	25	37	95	123	10	14	x	x	x	x	x	x	x	x

COMMERCE - STANDARDS - BOULDER

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

Note: These coronal line intensities, expressed in millionths of equivalent angstroms are believed to be correct to ± 10 per cent, probable error, according to the calibrations of February-March 1960. All intensities from the Climax and Sacramento Peak Observatories during the years 1956-1959, inclusive, if multiplied by the factor 0.60, will be expressed in the same scale to a somewhat lower precision.

Intensities prior to 1956 cannot be compared precisely with those obtained later because of changes in observing and reduction techniques. They may be converted roughly to millionths of equivalent angstroms by use of the table given by Billings and Varsavsky, 1955, Zs. f. Ap. 38, 160.

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OBSERVATORY	DATE AUG 1960	OBSERVED UNIVERSAL TIME START	OBSERVED UNIVERSAL TIME END	OBSERVED UNIVERSAL TIME MAX. PHASE	LOCATION APPROX. LAT.	LOCATION APPROX. MER. DIST.	LOCATION McMATH PLAGE REGION	DURATION — MINUTES	IMPORTANCE	OBS. COND.	MEASUREMENTS TIME — U T	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Ha	MAX. INT. %	PROVISIONAL IONOSPHERIC EFFECT
HAWAII	01	0002 E	0028	0002	N09	W18	5775	26 D	1	2	0002	1.20				
ONDREJOV	01	0707	0758		N04	W21	5775	51	1+	3	0711			2.40		
UCCLE	01	1018	1108	1141	N07	W25	5775	50	1+	4	1141	3.50	3.50			
ZURICH	02	1358 E	1402		N26	W84	5779	4 D	1	2	1358		3.00			
ARCETRI	05	1123 E	1131 D		N18	E88	5794	8 D	1	3	1123	.80	3.60			
HAWAII	05	2214	2226	2218	N17	E90	5794	12	1+	3	2218	.50				
ISTANBUL	06	0730 E	0755		N20	E83	5794	25 D	1+							
ARCETRI	06	0834 E	0918 D		N18	E77	5794	44 D	1	3						S-SWF
CAPRI S	06	1313 E	1328		N18	E81	5794	15 D	2	1	1314	2.50	9.20			S-SWF
SAC PEAK	06	1324 E	1400	1330	N20	E90	5794	36 D	1	3		3.03			18	
SAC PEAK	06	1506	1524	1514	N20	E90	5794	18	1	3		2.18			30	S-SWF
HUANCAYO	06	1618	1649	1625	N21	E76	5794	31	2+	2	1625	2.90	11.70	6.30		Slow S-SWF
LOCKHEED	06	1620 E	1650	1625	N22	E75	5794	30 D	1	2	1625	2.00			30	
HAWAII	06	1908 E	1922		N19	E73	5794	14 D	1+	2	1918	.70				S-SWF
HAWAII	06	2256	2325 D		N18	E71	5794	29 D	1	2	2318	1.00				Slow S-SWF
HAWAII	07	0104 E	0116 D	0110	N23	E70	5794	12 D	1	2	0110	1.00				G-SWF
HAWAII	07	0143 E	0200 D		N23	E70	5794	17 D	1	2	0145	.80				
ONDREJOV	07	0509 E	0517		N20	E70	5794	8 D	1+	3	0509			3.60		
ONDREJOV	07	0550 E	0557 D		N20	E85	5794	7 D	1	2	0552			3.40		
ONDREJOV	07	0728	0735	0729	N19	E83	5794	7	1	3	0729			4.10		
ISTANBUL	07	0740 E	0757		N19	E85	5794	17 D	1+							S-SWF
AROSA	07	0747 E	0803 D		N20	E84	5794	16 D	1							
AROSA	07	0805	0815		N16	E67	5794	10	1							
ISTANBUL	07	0807 E	0845 D		N17	E65	5794	38 D	1+							
WENDEL	07	0820 E	0854		N18	E70	5794	34 D	1+				6.00			
CAPRI S	07	1222 E	1231		N24	E85	5794	9 D	1	3	1224	2.00	2.00			S-SWF
WENDEL	07	1222 E	1257		N24	E84	5794	35 D	1+				6.00			
WENDEL	07	1307 E	1312 D		N22	E64	5794	5 D	1				3.00			
LOCKHEED	07	1728	1825	1738	N21	E63	5794	57	1	2	1738	2.00			30	
LOCKHEED	07	1728	1825	1757	N21	E63	5794	57	1	2	1738	2.00			30	G-SWF
HAWAII	07	1756 E	1802 D	1758	N19	E63	5794	6 D	1	2	1758	1.20				
KODAIKNL	08	0500 E	0505 D	0500	N22	E70	5794	5 D	2	1	0500	3.80	10.50	1.28		S-SWF
ARCETRI	08	0900 E			N20	E71	5794	□	1	3	0900	1.10	2.60			
ISTANBUL	09	0625 E	0638		N21	E57	5794	13 D	1							
ISTANBUL	10	0650 E	0705		S06	E76	5798	15 D	1							
ISTANBUL	10	0753	0800		N17	E85	5799	7	1							
ZURICH	10	0754 E	0759		N17	E87	5799	5 D	1	1	0754		2.00			
HAWAII	10	1800 E	1802 D	1800	N12	E90	5799	2 D	1	2	1800	.40				
HAWAII	10	2000	2010	2002	N12	E90	5799	10	1	3	2002	.40				
HAWAII	10	2138	2202	2140	N12	E90	5799	24	1	3	2140	.30				
KODAIKNL	11	0247	0315	0304	N21	E33	5794	28	2	3	0300	5.80	7.10	2.08	122	Slow S-SWF
ISTANBUL	11	0655 E	0705 D		S22	W43	5788	10 D	1							
CAPRI S	11	0935	0942		S09	E60	5798	7	1	3	0939	.30	2.60			

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ONDREJOV	11	1203	1213	1205	N23	E26	5794	10	1	3	1205			2.00		
ZURICH	11	1221 E	1228		S01	W10	5793	7 D	1	2	1221		4.00			
LOCKHEED	11	1916	2055	1930	N23	E27	5794	99	2+	2	1930	8.00			40	S-SWF
HAWAII	11	1924	2042	1928	N22	E27	5794	78	3+	3	1928	7.80				
HAWAII	11	2004	2022	2008	S03	W18	5793	18	1	3	2008	1.20				
ISTANBUL	12	0640	0705		S01	W23	5793	25	1							
CAPRI S	12	1033 E	1037 D		N22	E19	5794	4 D	1	1	1037	2.00	2.30			
ISTANBUL	13	0745	0758		S01	W36	5793	13	1+							
ZURICH	13	0958 E	1004		N19	E46	5799	6 D	1	2	0958		2.00			
ZURICH	13	1000	1009 D		N20	E06	5794	9 D	1	2	1002		2.00			
CAPRI S	13	1305 E	1341		N19	E07	5794	36 D	1	2	1328	2.00	2.10			
HAWAII	13	1747 E	1751		N22	E48	5799	4 D	1	2	1747	1.20				
HAWAII	13	2236	2244	2238	S04	W45	5793	8	1	2	2238	1.20				
HAWAII	13	2252	2252 D	2252	S13	E70	5801		1	2	2252	1.00				
SAC PEAK	13	2254 E	2258	2254 E	S13	E70	5801	4 D	1	2		2.37			16	
HAWAII	14	0200 E	0204 D		N22	E41	5799	4 D	2	1	0201	1.40				
ONDREJOV	14	0534 E	0622		N24	W03	5794	48 D	2+	3	0538			4.40		S-SWF
KODAIKNL	14	0535 E	0547 D	0540	N20	W13	5794	12 D	3	1	0540	14.80	15.60	1.80	153	
ISTANBUL	14	0615 E	0630		N22	W05	5794	15 D	2+							
ISTANBUL	14	0625	0645		N21	W09	5794	20	1							
ONDREJOV	14	0757	0809		N20	E38	5799	12	1	3	0759			2.50		
ONDREJOV	14	0857 E	0912 D		N20	E37	5799	15 D	1	2	0900			2.90		
CAPRI S	14	0858	0919		N23	E35	5799	21	1	3	0906	2.20	3.10			
ZURICH	14	0952 E	1000		N19	E35	5799	8 D	1	1	0952		2.00			
ZURICH	14	0952 E	1003 D		S00	W50	5793	11 D	1	1	0954		2.00			
SAC PEAK	14	1250 E	1328	1310	N21	E38	5799	38 D	1	1		3.45			32	
CAPRI S	14	1307 E	1410		N22	E32	5799	63 D	2	3	1312	5.00	6.50			S-SWF
ONDREJOV	14	1311 E	1335 D		N20	E35	5799	24 D	2	1	1311			7.90		
WENDEL	14	1329 E	1414 D		N20	E34	5799	45 D	1+				7.00			
WENDEL	14	1329 E	1347 D		S01	W51	5793	18 D	1				3.00			
WENDEL	14	1410	1432 D		S01	W51	5793	22 D	1				3.00			
KODAIKNL	15	0525 E	0540 D	0525	N19	W25	5794	15 D	1	2	0525	1.90	2.10	1.68	123	
CAPRI S	15	0748 E	0820 D		S08	E35	5801	32 D	1	3	0750	2.00	2.60			
AROSA	15	1015 E			N22	E25	5799	□	1							
SAC PEAK	15	1544	1608	1554	S07	E01	5798	24	1	2		2.83			16	
ONDREJOV	15	1551 E	1558 D		S09	E05	5798	7 D	1+	1						
SAC PEAK	15	1646	1654	1648	S13	W13	5797	8	1	2		2.18			14	
SAC PEAK	15	1646	1656	1648	N20	W23	5794	10	1	2		2.33			16	
HUANCAYO	15	1725	1741	1729	S10	E40	5801	16	1	3	1729	2.40	3.20	3.00		
HAWAII	15	2132	2152	2140	S07	E01	5798	20	1	2	2140	1.10				
AROSA	16	0600 E	0610 D		S11	E32	5801	10 D	1							
WENDEL	16	0632 E	0651		N12	E68	5803	19 D	1+				6.00			
WENDEL	16	0655	0717 D		N12	E70	5803	22 D	1				4.00			
WENDEL	16	0714 E	0732 D		S09	W32	5797	18 D	1				4.00			
ISTANBUL	16	0717	0725		S10	E31	5801	8	1							
WENDEL	16	0840 E	0856 D		S08	E33	5801	16 D	1				3.00			

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CAPRI S	16	1130 E	1221		S11	E30	5801	51 D	1+	3	1149	2.20	2.60			
WENDEL	16	1131	1235 D		S10	E31	5801	64 D	2				12.00			
AROSA	16	1140 E	1240		S09	E30	5801	60 D	2							
ONDREJOV	16	1143 E	1217		S10	E29	5801	34 D	2	2	1145			2.90		Slow S-SWF
UCCLE	16	1144 E	1145 D		S11	E29	5801	1 D	2	3	1144	5.00	5.50			
SCHAUINS	16	1158 E	1230		S13	E27	5801	32 D	2	2			10.00			
ZURICH	16	1158 E	1230		S10	E30	5801	32 D	1	2	1158		5.00			
SCHAUINS	16	1225	1240		N09	E58	5803	15	1	1			4.00			
AROSA	16	1228	1240 D		N11	E60	5803	12 D	1							
ZURICH	16	1228	1242		N11	E60	5803	14	1	2	1228		3.00			
HUANCAYO	16	1526	1541	1529	S06	W09	5798	15	1	3	1529	2.00	2.10	2.90		
AROSA	16	1527	1548		S05	W13	5798	21	1							
ONDREJOV	16	1531 E	1553		S06	W10	5798	22 D	1	1	1544			2.00		
ZURICH	16	1538	1548		S05	W08	5798	10	1	2	1538		1.00			
ZURICH	16	1559	1606		S10	W18	5797	7	1	2	1559		2.00			
ZURICH	16	1602	1626		N20	W49	5794	24	1	2	1602		5.00			
HUANCAYO	16	1603	1622	1606	N22	W46	5794	19	1	3	1606	2.00	2.50	3.10		
WENDEL	16	1619 E	1636		N20	W51	5794	17 D	1+				7.00			
LOCKHEED	16	2303	2400	2304	S10	E22	5801	57	1	2	2312	2.70			30	
LOCKHEED	16	2303	2400	2312	S10	E22	5801	57	1	2	2312	2.70			30	Slow S-SWF
SAC PEAK	16	2304	2348 D	2314	S11	E22	5801	44 D	2	1		6.40			35	
WENDEL	17	0716 E	0747 D		N09	E54	5803	31 D	1+				9.00			
WENDEL	17	0838 E	0930		N09	E53	5803	52 D	1+				7.00			
WENDEL	17	0932	1021		N10	E50	5803	49	2				9.00			
WENDEL	17	1000	1014		S11	E16	5801	14	1				5.00			
ARCETRI	17	1045 E	1059 D		S20	E88	5811	14 D	1	3	1045	1.00	4.40			
WENDEL	17	1104	1141		N18	W05	5799	37	1+				7.00			
CAPRI S	17	1112 E	1127		N20	W01	5799	15 D	1	3	1115	2.50	2.60			
CAPRI S	17	1135 E	1201		N21	W53	5794	26 D	1	3	1148	2.00	3.70			
WENDEL	17	1310	1338 D		N11	E50	5803	28 D	1+				7.00			
CAPRI S	17	1310 E	1440 D		N11	E55	5803	90 D	1+	3	1355	1.90	3.20			Slow S-SWF
SAC PEAK	17	1330	1410	1352	N10	E52	5803	40	1	2		3.95			18	
HUANCAYO	17	1346 E	1427	1353	N09	E48	5803	41 D	1+	2	1353	4.90	7.10	3.40		
HUANCAYO	17	1450	1530	1451	S11	E77	5809	40	1+	2	1454	1.50	5.80	6.00		
HUANCAYO	17	1600 E	1627	1600	S11	E77	5809	27 D	1+	2	1600	1.50	5.80	4.90		
SAC PEAK	17	1616	1640	1624	S11	E13	5801	24	1	2		2.18			16	
HUANCAYO	17	1620	1652	1624	S11	E13	5801	32	1	2	1624	2.00	2.20	2.80		
SAC PEAK	17	1806	1840 U	1814	N22	W63	5794	34 U	1	2		2.33			16	
HAWAII	17	1837 E	1849 D	1839	N22	W66	5794	12 D	1	2	1839	1.00				
LOCKHEED	18	0134	0218 D	0137	N14	E23	5802	44 D	1	1	0156	2.10			20	
LOCKHEED	18	0134	0218 D	0156	N14	E23	5802	44 D	1	1	0156	2.10			20	
CAPRI S	18	0620 E	0709		S06	W32	5798	49 D	1	3	0622	3.00	3.60			
ISTANBUL	18	0645	0700		S08	W33	5798	15	1							
ISTANBUL	18	0655	0730 D		S10	E07	5801	35 D	2							
WENDEL	18	0725 E	0742 D		S10	E06	5801	17 D	1+				6.00			
UCCLE	18	1346 E	1353		N18	W69	5794	7 D	1	3						
CAPRI S	18	1347 E	1423 D		N18	W61	5794	36 D	1	3	1349	1.00	2.60			
HUANCAYO	18	1431 E	1446	1431	S10	E02	5801	15 D	1	2	1438	2.20	2.30	2.70		
CAPRI S	18	1547 E	1604		S12	W51	5797	17 D	1	3	1550	1.20	2.20			

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LOCKHEED	19	0103	0117	0108	N15	E05	5802	14	1	1	0108	2.00			20	
ISTANBUL	19	0640 E	0700		S09	W10	5801	20 D	1							
ISTANBUL	19	0725	0730		N14	W02	5802	5	1							
ISTANBUL	19	0725	0745		N13	W02	5802	20	2							
UCCLE	19	1137	1150	1146	N13	W03	5802	13	1	2	1146	2.00				
UCCLE	19	1233	1300	1248	N15	W90	5794	27	1+	2						
CAPRI S	19	1235	1310		N18	W85	5794	35	2	3	1245	4.00	(4.00)			S-SWF
ZURICH	19	1244 E	1320		N18	W87	5794	36 D	1	2	1244		3.00			
UCCLE	19	1410 E	1420 D	1410	N16	W01	5802	10 D	1	3	1410	3.00				
ARCETRI	19	1624 E			S10	E49	5809	□	1	3	1624	1.70	2.60			
HAWAII	19	1837 E	1852	1838	N16	W90	5794	15 D	1	2	1838	.50				G-SWF
HAWAII	19	2130	2142	2134	N16	W90	5794	12	1	3	2134	.20				S-SWF
CAPRI S	20	0620 E			N17	W47	5799	□	1	1	0620	2.00	3.10			
ARCETRI	20	0832 E	0907 D		N18	W90	5794	35 D	1	3	0850	.80	3.80			
ISTANBUL	20	0833 E	0910 D		S10	W21	5801	37 D	2-							
CAPRI S	20	0840 E	0915		S10	W21	5801	35 D	1	3	0852	2.50	2.80			
ONDREJOV	20	0841	0915		S11	W24	5801	34	1	3	0844			2.30		
WENDEL	20	0843	0908		S10	W22	5801	25	1+				5.00			
ARCETRI	20	0846 E	0909 D		S10	W24	5801	23 D	1	3	0852	2.80	3.20			
SCHAUINS	20	0850 E	0908		S09	W19	5801	18 D	2	2			6.00			
LOCKHEED	20	2033	2104	2040	N15	E18	5803	31	1	2	2040	4.20			20	
HAWAII	20	2034	2056 D	2040	N16	E11	5803	22 D	2	2	2040	4.10				
UCCLE	21	1005 E			S12	E27	5811	□	1	2						
CAPRI S	21	1358 E	1417		S09	W73	5798	19 D	1	3	1401	.50	2.30			S-SWF
CAPRI S	21	1546 E	1630 D		N28	E03	5806	44 D	1	3	1551	4.20	4.80			
SAC PEAK	21	1546	1630	1558	N27	W03	5806	44	2	1		6.54			18	S-SWF
SCHAUINS	21	1555 E	1625		N26	W05	5806	30 D	1+	2			4.00			
LOCKHEED	21	2228	0115 U	2345	N05	E64	5816	167 U	2	1	2345	6.00			20	
SAC PEAK	21	2230 E	2322 D	2312 U	N08	E65	5816	52 D	2	1		9.16			19	
HAWAII	22	0005 E	0006 D		N06	E66	5816	1 D	2	1	0005	3.90				
WENDEL	22	0704	0717 D		S11	E16	5811	13 D	1				3.00			
ARCETRI	22	0935 E			S14	W51	5801	□	1	3	0935	1.70	2.70			
WENDEL	22	1147 E	1210 D		S12	E12	5811	23 D	1				3.00			
CAPRI S	22	1152 E	1215		S09	E10	5809	23 D	1	3	1155	2.00	2.10			
STOCKHOLM	22	1200 E	1210		S08	E10	5809	10 D	1	3	1200	3.00	3.00			
AROSA	23	1605	1630		S18	E03	5811	25	1							
UCCLE	24	0841 E			N17	W60	5802	□	1	1	0841	1.50	3.30			
ZURICH	24	1447	1455		S19	W10	5811	8	1	2	1447		3.00			
WENDEL	24	1645 E	1651		N27	W39	5806	6 D	1				4.00			
HAWAII	25	0014 E	0020		N01	E36	5816	6 D	1	2	0014	1.30				
ISTANBUL	25	0635	0645		N19	W73	5802	10	1							
ONDREJOV	25	0940	0957		S08	W27	5809	17	1	3	0948			2.10		
CAPRI S	25	0952 E	1006		N19	W77	5802	14 D	1	3	0958	.80	2.60			
ONDREJOV	25	1022 E	1059		S05	W26	5809	37 D	1	3	1025			2.00		
SCHAUINS	25	1026	1041		S06	W27	5809	15	1+	2			4.00			

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SOLAR FLARES

AUGUST 1960

OBSERVATORY	DATE AUG 1960	OBSERVED UNIVERSAL TIME START	OBSERVED UNIVERSAL TIME END	OBSERVED UNIVERSAL TIME MAX. PHASE	LOCATION APPROX. LAT.	LOCATION APPROX. MER. DIST.	LOCATION McMATH PLAGE REGION	DURATION — MINUTES	IMPORTANCE	OBS. COND.	MEASUREMENTS TIME — U T	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hα	MAX. INT. %	PROVISIONAL IONOSPHERIC EFFECT
WENDEL	25	1311 E	1328		N08	W82	5802	17 D	1				3.00			
ONDREJOV	25	1343	1402	1347	N17	W80	5802	19	1	3	1347			2.40		
ONDREJOV	25	1510	1525 D		S05	W28	5809	15 D	1	3	1512			2.20		
ISTANBUL	26	0650	0708		S07	W41	5809	18	1							
AROSA	26	0850	0900		N18	W88	5802	10	1							
ZURICH	26	0850 E	0926		N18	W89	5802	36 D	1	2	0850		2.00			
ARCETRI	26	0901 E	0914 D		N19	W89	5802	13 D	1	3	0906	.60	2.90			
SCHAUINS	26	1202 E	1210		N25	W28	5810	8 D	1	2			4.00			
WENDEL	26	1203	1233		N20	W30	5810	30	1+				6.00			
WENDEL	26	1216 E	1232 D		N23	W35	5810	16 D	1				4.00			
SCHAUINS	26	1355 E	1415		N04	E20	5816	20 D	1+	2						
WENDEL	26	1357	1436		N09	E16	5816	39	1+				6.00			S-SWF
ZURICH	26	1405	1430		N07	E14	5816	25	1	2	1405		3.00			
WENDEL	26	1358	1444		S18	W37	5811	46	1				3.00			
WENDEL	26	1554	1623		N24	W36	5810	29	1+				5.00			
CAPRI S	26	1555	1616		N23	W36	5810	21	1	3	1607	2.90	3.60			
LOCKHEED	26	1700	1717	1707	N20	W90	5802	17	1	2	1707	2.00			20	
SAC PEAK	26	1704 E	1716 D	1706	N18	W90	5802	12 D	1	1		2.37			22	
WENDEL	27	0616	0634 D		S03	W54	5809	18 D	1				3.00			
AROSA	27	0707	0715		S17	W46	5811	8	1							
ONDREJOV	27	0709	0715	0711	S19	W46	5811	6	1	3	0711			2.90		
WENDEL	27	0844	0922		S03	W51	5809	38	1+				7.00			
ZURICH	27	0849	0922 D		S03	W53	5809	33 D	1	2	0858		5.00			
CAPRI S	27	0855 E	0929		S05	W52	5809	34 D	1	3	0902	2.20	3.50			
UCCLE	27	1116 E			S03	W58	5809	□	1	3						
CAPRI S	27	1138 E	1316		S04	W59	5809	98 D	1	3	1246	1.20	2.20			
WENDEL	27	1404	1430		S09	W67	5807	26	1				4.00			
CAPRI S	27	1407 E	1432		S07	W57	5809	25 D	1	3	1408	2.10	3.80			
WENDEL	28	0628 E	0648		S17	E16	5825	20 D	2				8.00			
UCCLE	28	1152 E			N18	E44	5822	□	1	3		2.50				
ONDREJOV	28	1258	1307		N20	E40	5822	9	1	3	1300			2.30		
SAC PEAK	28	1923 E	2034	1931	N08	W28	5816	71 D	1	3		3.95			19	
HAWAII	29	0150 E	0220 D	0155	N18	E33	5822	30 D	1	2	0155	2.90				
CAPRI S	29	0628 E	0728		N20	E30	5822	60 D	1	3	0636	3.20	4.00			
ZURICH	29	0655 E	0657 D		N19	E26	5822	2 D	1	1						
ZURICH	29	0958	1018		S19	E04	5825	20	1	2	0958		2.00			
ONDREJOV	29	1002 E	1010		S32	E02	5825	8 D	1	3	1003			2.10		
LOCKHEED	29	1914	2030	1930	N21	E24	5822	76	1	2	1930	3.20			20	
HAWAII	29	1916 E	2020 D	1920	N19	E25	5822	64 D	2+	2	1920	6.70				
CAPRI S	30	0921	1100 D		N19	E16	5822	99 D	2	3	0930	4.60	5.10			
UCCLE	30	0924 E			N17	E16	5822	□	2	3	0924	9.00	9.00			
ARCETRI	30	0925 E	1011 D		N17	E15	5822	46 D	2	3	0935	7.60	7.60			
R O HERST	30	0950 E	1025	0950	N18	E14	5822	35 D	1	2	0950	3.80	4.00	2.00	61	
CAPRI S	31	0620 E	0730		N18	E05	5822	70 D	1	3	0644	4.40	4.40			
SAC PEAK	31	1412	1436	1418	S19	W31	5825	24	1	3		2.18			16	

SOLAR FLARES

AUGUST 1960

OBSERVATORY	DATE AUG 1960	OBSERVED UNIVERSAL TIME START	END	MAX. PHASE	LOCATION APPROX. LAT.	MER. DIST.	McMATH PLAGE REGION	DURATION — MINUTES	IMPORTANCE	OBS. COND.	MEASUREMENTS TIME — U T	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hα	MAX. INT. %	PROVISIONAL IONOSPHERIC EFFECT
↳CAPRI S	31	1413 E	1457 D		S17	W23	5825	44 D	1	3	1424	2.40	2.80			
LOCKHEED	31	1647	1725	1651	N19	W02	5822	38	1	2	1652	3.90			30	

COMMERCE - STANDARDS - BOULDER

CAPRI G ANACAPRI - GERMAN
CAPRI S ANACAPRI - SWEDISH
GOOD HOPE ROYAL OBSERVATORY, CAPE OF GOOD HOPE
KIEV* KIEV UNIVERSITY
KODAIKNAL KODAIKANAL
KRASNYA KRASNAYA PAKHRA
LOCKHEED LOS ANGELES
MOSCOW-G MOSCOW - GAISH
R O EDIN ROYAL OBSERVATORY, EDINBURGH
R O HERST GREENWICH ROYAL OBSERVATORY, HERSTMONCEUX
SAC PEAK SACRAMENTO PEAK
SCHAUINS SCHAUINSLAND
USNRL UNITED STATES NAVAL RESEARCH LABORATORY

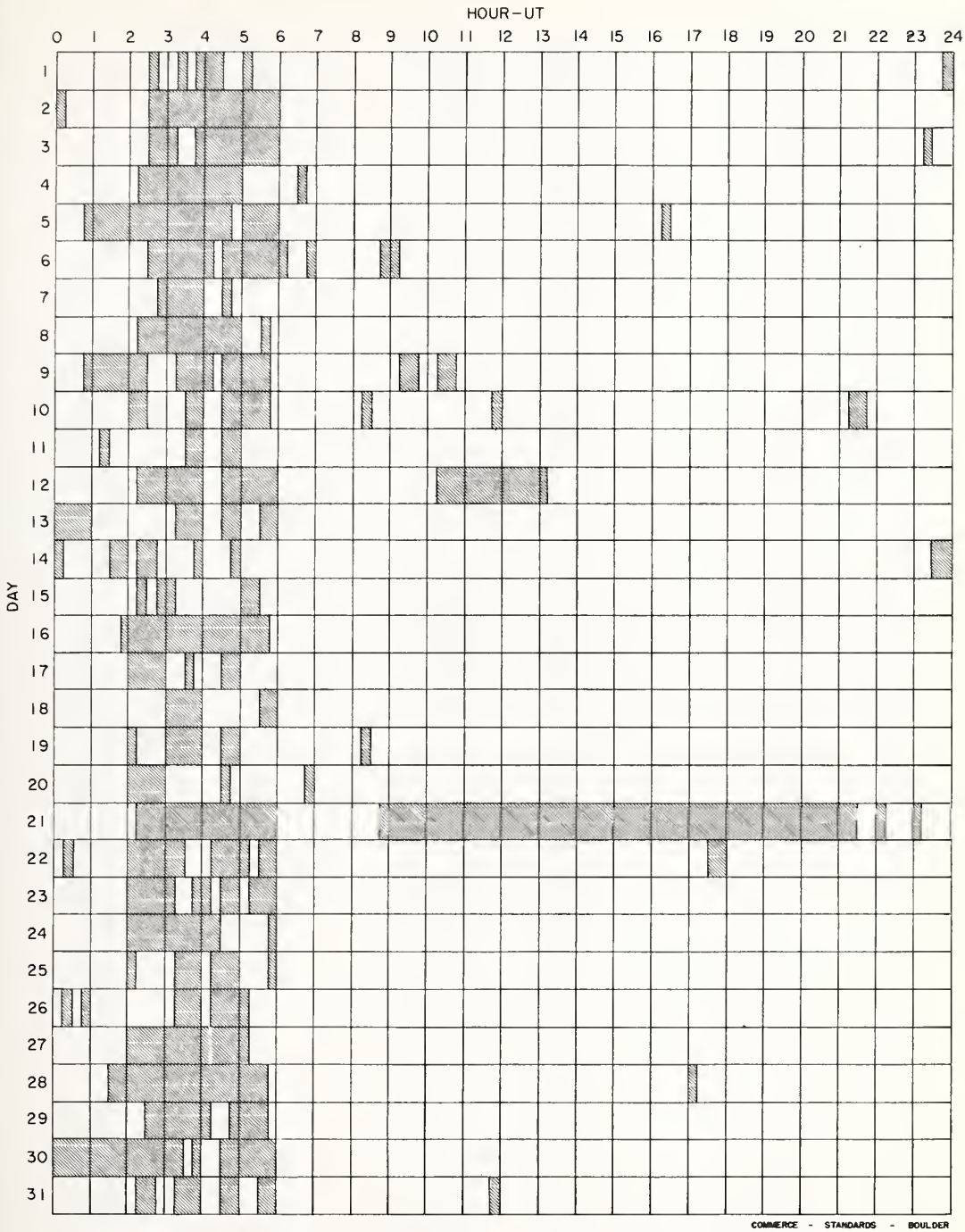
SAC PEAK: ALL VALUES IN MAX. INT. COLUMN ARE ARBITRARY UNITS (0-40), NOT PERCENT OF CONTINUOUS SPECTRUM.

E - LESS THAN & - PLUS
D - GREATER THAN - - MINUS
U - APPROXIMATE □ - NOT REPORTED

LOCKHEED OBSERVATIONS: ALL VALUES IN THE MAXIMUM INTENSITY COLUMN ARE ARBITRARY UNITS ON A SCALE OF 10 TO 40 - NOT PERCENT OF THE CONTINUOUS SPECTRUM.

INTERVALS OF NO FLARE PATROL OBSERVATIONS

AUGUST 1960



Stations Include:

Anacapri (Swedish)	Istanbul	Royal Greenwich Observatory
Arcetri	Kodaikanal	Herstmonceux
Hawaii	Lockheed	Sacramento Peak
Huancayo	Ondrejov	Uccle

SUBFLARES

Noted as follows: Date-Universal Time-Coordinates

JULY 1960

	HAWAII	01	0004	N14 E38
	LOCKHEED	01	0033	N22 W70
*	LOCKHEED	01	0058	N23 W70
	LOCKHEED	01	0135	N07 E35
	HAWAII	01	0142	N11 E33
	LOCKHEED	01	0222	N22 W70
*	ARCETRI	01	0826 E	N22 W77
*	CAPRI S	01	1033 E	N09 E34
	STOCKHOLM	01	1035 E	N29 E04
*	UCCLE	01	1307	N21 W80
	SAC PEAK	01	1356	N08 E32
	WENDEL	01	1459 E	N22 W80
*	SAC PEAK	01	1520	N22 W90
*	LOCKHEED	01	1522	N21 W90
*	UCCLE	01	1524	N21 W80
	SAC PEAK	01	1544	N09 E26
	MCMATH	01	1649	S13 W16
	LOCKHEED	01	1649	S15 W14
	SAC PEAK	01	1650 U	S15 W16
	LOCKHEED	01	1725	N10 E19
	LOCKHEED	01	1732	N21 W85
	ONDREJOV	01	1735 E	N22 W80
	LOCKHEED	01	1758	N08 E23
	LOCKHEED	01	1813	N09 E23
	SAC PEAK	01	1822 E	N20 W82
*	LOCKHEED	01	1843	N21 W85
*	SAC PEAK	01	1844 E	N22 W81
	LOCKHEED	01	1934	N08 E23
	HAWAII	01	2102	S17 W15
	LOCKHEED	01	2123	N10 E20
	LOCKHEED	01	2203	N21 W85
	LOCKHEED	01	2240	N09 E27
	WENDEL	02	1010 E	N07 E15
*	CAPRI S	02	1259 E	S15 W21
	SAC PEAK	02	1312	N18 W90
	SAC PEAK	02	1322	N12 E90
	SAC PEAK	02	1412	N18 W90
	SAC PEAK	02	1448	N28 W05
	SAC PEAK	02	1606	N18 W90
	MCMATH	02	1629	N26 W12
	MCMATH	02	1633	N09 E12
	LOCKHEED	02	1638	S08 W48
	SAC PEAK	02	1638	S09 W48
	MCMATH	02	1639	S08 W49
	LOCKHEED	02	1648	N07 E80
	LOCKHEED	02	1740	N09 E11
	LOCKHEED	02	1830	N27 W17
	LOCKHEED	02	1831	N10 E09
	SAC PEAK	02	1912	S11 W47
	LOCKHEED	02	1913	S10 W47
	MCMATH	02	1913	S09 W49
	HAWAII	02	1922 E	S18 W44
	LOCKHEED	02	1926	N07 E76
	LOCKHEED	02	1953	N31 W14
	MCMATH	02	1953	N30 W12
	LOCKHEED	02	2100	N09 E15
	LOCKHEED	02	2113	N10 E08
	SAC PEAK	02	2138 E	N26 W18
	LOCKHEED	02	2310	N10 E08
	LOCKHEED	02	2358	N10 E08
	LOCKHEED	03	0030	S13 E25
	LOCKHEED	03	0125	S15 W38
	LOCKHEED	03	0155	N37 W12
	LOCKHEED	03	0220	N10 E08
*	CAPRI S	03	1020 E	N26 W23
	MCMATH	03	1205 E	N09 E05
	SAC PEAK	03	1318	N27 W27
	ONDREJOV	03	1322 E	N28 W28
	SAC PEAK	03	1418	S13 W42
*	LOCKHEED	03	1430	N27 W29
	LOCKHEED	03	1508	N27 W20
	LOCKHEED	03	1515	S12 W42
	SAC PEAK	03	1516	S12 W42
	LOCKHEED	03	1610	N10 00
	MCMATH	03	1822 E	S00 W01
	MCMATH	03	1919	N08 W11
*	MCMATH	03	2027 E	N27 W31
*	LOCKHEED	03	2037	N27 W30
	LOCKHEED	03	2046	N09 W05
	LOCKHEED	03	2148	N10 00
	LOCKHEED	03	2223	N10 W04
	SAC PEAK	03	2250	N30 W10
	LOCKHEED	03	2252	N26 W33
	LOCKHEED	03	2252	N26 W33
	LOCKHEED	04	0004	N25 E04
	LOCKHEED	04	0050	N25 E04
	LOCKHEED	04	0115	N09 W08
	LOCKHEED	04	0122	N08 W55
	LOCKHEED	04	0122	N08 W55
*	CAPRI S	04	0916 E	N30 W35
	SAC PEAK	04	1640	N04 W18
	MCMATH	04	1650	N14 E56
	LOCKHEED	04	1735	N15 E56
	MCMATH	04	1738 E	N14 E56
	LOCKHEED	04	1745	S26 E90
	SAC PEAK	04	1746 E	S27 E90
	LOCKHEED	04	1800	N15 E56
	MCMATH	04	1803 E	N14 E55
	LOCKHEED	04	1839	N15 E56
	HAWAII	04	1936	N23 W40
	LOCKHEED	04	1942	N27 W39
	LOCKHEED	04	1942	N27 W39
	LOCKHEED	04	1950	N08 W66
	LOCKHEED	04	2028	N08 W66
	LOCKHEED	04	2100	N30 W40
	HAWAII	04	2110 E	N02 W20
	LOCKHEED	04	2142	N25 W43
	LOCKHEED	04	2211	N30 W40
	LOCKHEED	04	2306	N13 E51
	LOCKHEED	04	2310	N26 W43
	HAWAII	04	2334	N18 W47
	LOCKHEED	05	0055	N08 W69
	LOCKHEED	05	0136	N20 W11
	WENOEL	05	1017 E	N30 W43
	MCMATH	05	1212	N06 W31
	STOCKHOLM	05	1215	N08 W30
	MCMATH	05	1243	N08 W16
	STOCKHOLM	05	1245 E	N09 W14
	MCMATH	05	1609	N08 W18
	LOCKHEED	05	1621	N25 W55
	LOCKHEED	05	1650	N16 E43
	LOCKHEED	05	1747	N10 W23
	MCMATH	05	1755 E	N13 E43
	LOCKHEED	05	1818	N29 W48
	MCMATH	05	1838 E	N19 W18
	LOCKHEED	05	1845	N07 W19
	LOCKHEED	05	1917	N09 W30
	LOCKHEED	05	1923	N11 W25
	LOCKHEED	05	2000	S16 W70
	LOCKHEED	05	2000	N08 W27
	LOCKHEED	05	2016	N07 W38
	MCMATH	05	2017 E	N09 W37
	LOCKHEED	05	2218	N06 W38
	LOCKHEED	05	2317	N16 E41
	LOCKHEED	06	0040	N15 E48
	LOCKHEED	06	0129	N05 W38
	LOCKHEED	06	0130	N30 W57
	LOCKHEED	06	0135	N09 W32
	HAWAII	06	0140 E	N03 W33
	UCCLE	06	0904	N10 W28
	CAPRI S	06	0905 E	N08 W25
	STOCKHOLM	06	1108 E	N11 E29
	MCMATH	06	1134	N10 W31
	STOCKHOLM	06	1155 E	N08 W37
	MCMATH	06	1210	N15 E33
	MCMATH	06	1347	N10 W32
	MCMATH	06	1408	N10 W32
	MCMATH	06	1428	N13 W54
	MCMATH	06	1525	N10 W33
	LOCKHEED	06	1600	S12 E75
	LOCKHEED	06	1640	N08 W44
*	LOCKHEED	06	1743	N07 W39
*	MCMATH	06	1745	N08 W40
	LOCKHEED	06	1755	S11 E70
	HAWAII	06	1758 E	S02 E68
*	LOCKHEED	06	1916	N15 W40
*	MCMATH	06	1918 E	N08 W40
	LOCKHEED	06	2123	N10 W03
	HAWAII	06	2124	N10 W04
	MCMATH	06	2127 E	N10 E01
	LOCKHEED	06	2140	N16 E90
*	LOCKHEED	06	2307	N05 W48
	HAWAII	07	0052 E	N19 E44
	LOCKHEED	07	0115	N07 W42
	LOCKHEED	07	0159	N08 W46
	LOCKHEED	07	0221	N09 W39
	MCMATH	07	1353 E	S13 E74
	MCMATH	07	1449	N34 E09
	LOCKHEED	07	1455 E	N19 E77
	LOCKHEED	07	1639	N32 W78
	LOCKHEED	07	1702	N15 E38
	LOCKHEED	07	1708	N18 E80
	LOCKHEED	07	1932	N18 E80
	LOCKHEED	07	2003	N15 E35
	LOCKHEED	07	2256	S08 E16
	LOCKHEED	07	2302	N07 E09
	LOCKHEED	08	0040	N07 W57
	CAPRI S	08	0928 E	S13 E44
	ARCETRI	08	0930 E	S12 E45
	MCMATH	08	1354	N12 E27
	CAPRI S	08	1357	N13 E23
	LOCKHEED	08	1540	S15 E43
	MCMATH	08	1541	S16 E44
	MCMATH	08	1632	S15 E59
	MCMATH	08	1709	S15 E40
	LOCKHEED	08	1712	S10 E06
	LOCKHEED	08	1712	N21 E67
	LOCKHEED	08	1712	N15 E23
	LOCKHEED	08	1712	N15 E23
	MCMATH	08	1725	N13 E23
	MCMATH	08	1823 E	S12 E05
	MCMATH	08	1909	N14 E27
*	LOCKHEED	08	1924	N06 W75
	MCMATH	08	1950 E	N15 E22
	LOCKHEED	08	2002	N31 W90
	LOCKHEED	08	2046	N09 W67
	LOCKHEED	08	2209	N17 W61
	HAWAII	08	2226	N01 W73
	SAC PEAK	08	2333 U	N11 W68
	HAWAII	08	2336	N03 W64
	HAWAII	09	0052	S10 E04
	LOCKHEED	09	0053	S10 E03
	LOCKHEED	09	0058	N06 W07
	LOCKHEED	09	1630	N08 W78
*	LOCKHEED	09	1740	S13 E31
	LOCKHEED	09	1801	S17 W47
	LOCKHEED	09	1815	S10 W07
*	SAC PEAK	09	1816 E	S15 E29
	HAWAII	09	1816 E	N06 E07
	LOCKHEED	09	1820	N15 E09
	LOCKHEED	09	1830	N08 W78
	LOCKHEED	09	1910	N08 W78
	LOCKHEED	09	1925	S10 W07
	HAWAII	09	1935 E	S03 W75
	SAC PEAK	09	1951 E	S10 W08
	HUANCAYO	09	1957 E	S10 W09
	LOCKHEED	09	2008	S07 W77
*	LOCKHEED	09	2009	N15 E07
	LOCKHEED	09	2014	N06 W77
*	HUANCAYO	09	2019 E	N13 E07
	LOCKHEED	09	2121	S07 W77
	LOCKHEED	09	2217	S12 E28
	LOCKHEED	09	2239	N06 W77
	LOCKHEED	09	2239	N06 W77
	LOCKHEED	09	2352	N14 W19
	LOCKHEED	09	2354	N06 W84
	SAC PEAK	09	2354 E	N12 W18
	SAC PEAK	09	2354 E	N16 E90
	LOCKHEED	10	0050	N16 E05
	HAWAII	10	0104 E	N16 E01
	LOCKHEED	10	0122	N06 W84
	SAC PEAK	10	1534 E	N14 W03
	LOCKHEED	10	1600	N17 W03
	LOCKHEED	10	1757	S11 E30
	LOCKHEED	10	1822	N15 W01
	SAC PEAK	10	1824	N14 W01
	HAWAII	10	1826 E	N15 W03
*	LOCKHEED	10	1857	N14 W05
	SAC PEAK	10	1958	N26 W38
	LOCKHEED	10	1958	N27 W36
	LOCKHEED	10	2138	S17 W62
	LOCKHEED	10	2230	S17 W62
*	LOCKHEED	11	0025	S15 E13
	UCCLE	11	0905	S17 W71
	UCCLE	11	1150	N11 W22
	STOCKHOLM	11	1156 E	N13 W21
	SAC PEAK	11	1326	N09 W40
*	SAC PEAK	11	1352	S15 E06
*	HUANCAYO	11	1357 E	S17 E06
	SAC PEAK	11	1438	N13 W14
	LOCKHEED	11	1534	N15 W16
	SAC PEAK	11	1538	N16 W15
	MCMATH	11	1542	N15 W14
	CAPRI S	11	1548	N15 W16
	LOCKHEED	11	1648	N15 W15
	SAC PEAK	11	1708	N04 W29
	SAC PEAK	11	1710	N16 E62
	LOCKHEED	11	1710	N10 W28
	MCMATH	11	1710	N09 W29
	LOCKHEED	11	1710	N16 E61
	HCHATH	11	1711	N14 E63
	SAC PEAK	11	1720	N19 E70
	LOCKHEED	11	1721	N19 E67
	LOCKHEED	11	1749	N13 W16
	LOCKHEED	11	1800	N17 E60
*	HAWAII	11	1828	N24 E60
*	SAC PEAK	11	1828	N15 E61
*	LOCKHEED	11	1828	N16 E60
*	HUANCAYO	11	1830	N16 E64
	LOCKHEED	11	1927	S20 W44
	LOCKHEED	11	1945	N18 E60
	LOCKHEED	11	1954	N15 W19
	LOCKHEED	11	2010	N20 E68
	SAC PEAK	11	2024	S10 W37
	MCMATH	11	2024 E	S09 W38
	LOCKHEED	11	2025	S09 W38
	LOCKHEED	11	2040	N16 W43
	HAWAII	12	0014	N12 W21
	LOCKHEED	12	0014	N15 W22
	LOCKHEED	12	0014	N15 W22
	HAWAII	12	0036 E	N09 W22
	STOCKHOLM	12	1040 E	N15 E46
	SAC PEAK	12	1346	N13 W27
	HUANCAYO	12	1348	N17 W26
	STOCKHOLM	12	1350	N16 W14
	MCMATH	12	1357 E	N13 W27
	SAC PEAK	12	1432	N12 W40
*	LOCKHEED	12	1645	N15 W30
*	LOCKHEED	12	2027	N15 W30
	LOCKHEED	12	2044	N20 E54
*	LOCKHEED	12	2355 E	N15 W32
	LOCKHEED	13	1725	N18 E38
	LOCKHEED	13	1819	N15 W42
	HAWAII	13	1822 E	N07 W43
	LOCKHEED	13	2332	N21 W10
	LOCKHEED	14	0035	S04 E78
	LOCKHEED	14	0152	N15 W46
	MCMATH	14	1230	N15 E25
	MCMATH	14	1412	N16 E24
	MCMATH	14	1511	N16 E24
	LOCKHEED	14	1620	N20 E31
	LOCKHEED	14	1629	N11 E48
	LOCKHEED	14	1642	N21 E30
	LOCKHEED	14	1800	N20 E30
	HAWAII	14	1804	N26 E29
	LOCKHEED	14	1848	N19 E26
	HAWAII	14	1850	N24 E21
	LOCKHEED	14	2104	N27 E32
	HUANCAYO	14	2104 E	N28 E33
	MCMATH	14	2106	N25 E32
	HAWAII	14	2108	N32 E27
*	LOCKHEED	14	2127	N15 W85
	LOCKHEED	14	2218	N15 E25
	LOCKHEED	14	2340 E	N08 W19
*	LOCKHEED	15	0002	N25 E27
*	LOCKHEED	15	0045	N20 E23
	HAWAII	15	0144	N24 E19
	SAC PEAK	15	1326	S17 E72
	SAC PEAK	15	1402	N21 W32
	SAC PEAK	15	1454	N14 W71
	LOCKHEED	15	1524	N21 W30
	LOCKHEED	15	1652	N17 E10
	LOCKHEED	15	1734	N19 E14
	LOCKHEED	15	1804	N19 E10
	LOCKHEED	15	1911	N21 E15
	LOCKHEED	15	1922	N16 E05
	LOCKHEED	15	2358	N16 W72
	UCCLE	16	0939	N22 W42
*	UCCLE	16	0958	N26 E90
	MCMATH	16	1146 E	N21 W44
	SAC PEAK	16	1500	N18 E07
	SAC PEAK	16	1504	N14 W89
	LOCKHEED	16	1540	N20 E01
	SAC PEAK	16	1548	N18 E01
	SAC PEAK	16	1606	N18 W88
	LOCKHEED	16	1635	N20 E01
	LOCKHEED	16	1730	N01 W26
	HAWAII	16	1846	N25 W25
	HAWAII	16	1848	N18 W03
	LOCKHEED	16	1900	N23 E04
	HAWAII	16	1912	N22 E01
	LOCKHEED	17	0108	N19 W05
	LOCKHEED	17	0207	N19 W04
	WENOEL	17	1012 E	N03 W33
	LOCKHEED	17	1502	N03 W36
	SAC PEAK	17	1504	N01 W36
	SAC PEAK	17	1524	N20 W09
	LOCKHEED	17	1525	N22 W09
	LOCKHEED	17	1715	N22 W09
	SAC PEAK	17	1756	N21 W10
	LOCKHEED	17	1930	N19 W17
	LOCKHEED	17	2006	N20 E68
	LOCKHEED	17	2013	N22 W13
	SAC PEAK	17	2100	N18 W16
	LOCKHEED	17	2100	N19 W17
	SAC PEAK	17	2204	N24 W09
	LOCKHEED	17	2204	N23 W15
	HAWAII	17	2206	N22 W17
	LOCKHEED	17	2213	N20 E68
	LOCKHEED	17	2251	N24 W12
	SAC PEAK	17	2254	N09 E90
	LOCKHEED	17	2255	N11 E90
	LOCKHEED	17	2343	N23 W15
	LOCKHEED	17	2348	N22 W11
	LOCKHEED	18	0020	N22 W13
	LOCKHEED	18	0044	N20 E68
	SAC PEAK	18	1428	N21 W23
	LOCKHEED	18	1528	N11 W22
	LOCKHEED	18	1604	N24 W24
	LOCKHEED	18	1626	N11 W22
	LOCKHEED	18	1700	N02 W49
	LOCKHEED	18	1726	N03 W51
	LOCKHEED	18	1750	N22 W23
	LOCKHEED	18	1821	N23 W26
	LOCKHEED	18	1852	N12 E78
	LOCKHEED	18	2102	N23 W26
	LOCKHEED	18	2155	N18 W30
	HAWAII	18	2200 E	N13 W31
	HAWAII	18	2212	S03 W52
	LOCKHEED	18	2224	N27 W27
*	LOCKHEED	18	2238	N05 W55
	LOCKHEED	18	2325 E	N21 W29
*	HAWAII	19	0100	N17 W31
	LOCKHEED	19	0136	N26 W28
	CAPRI S	19	0605 E	N21 W28
	WENOEL	19	0612 E	N21 W31
	ISTANBUL	19	0757	N22 W29
	ISTANBUL	19	0802	N02 W58
	WENOEL	19	1006 E	N03 W63
	WENOEL	19	1224 E	N17 W37
*	LOCKHEED	19	1449	N19 W39
*	SAC PEAK	19	1450	N18 W39
*	HUANCAYO	19	1451	N18 W36
	SAC PEAK	19	1508	N19 W39
	LOCKHEED	19	1625	N22 W37
	LOCKHEED	19	1924	N22 W39
	LOCKHEED	19	2010	N24 W36

SUBFLARES

Noted as follows: Date - Universal Time - Coordinates

JULY 1960

	LOCKHEED	19	2155	N22 W40
	SAC PEAK	19	2316	N10 E63
	SAC PEAK	20	1312	N20 W50
	SAC PEAK	20	1428	N15 E90
	SAC PEAK	20	1520	N21 E31
	LOCKHEED	20	1521	N20 E30
	MCMATH	20	1522	N21 E28
	CAPRI S	20	1523 E	N18 E30
	LOCKHEED	20	1616	N15 E90
	SAC PEAK	20	1634	N20 W31
	LOCKHEED	20	1634	N14 W34
	LOCKHEED	20	1648	N17 W58
	LOCKHEED	20	1705	N15 E14
	LOCKHEED	20	1801	N23 W49
	LOCKHEED	20	1905	N17 W59
	LOCKHEED	20	1930	N07 E41
	CAPRI S	21	1206	S07 E51
	CAPRI S	21	1240 E	S05 W85
	MCMATH	21	1252	S14 E24
	SAC PEAK	21	1306 E	S03 W89
	CAPRI S	21	1355 E	N22 W59
	MCMATH	21	1557	N06 W29
*	LOCKHEED	21	1638 E	N20 W60
	MCMATH	21	1900 E	S06 E52
*	LOCKHEED	21	1930	N16 W74
*	HUANCAYO	21	1930 E	N19 W75
	SAC PEAK	21	2256	S02 W90
	ISTANBUL	22	0808 E	N1D W39
	CAPRI S	22	0834	S06 E47
	STOCKHOLM	22	0912 E	N22 W65
	MCMATH	22	1156	S12 E42
	STOCKHOLM	22	1211	S05 E14
	MCMATH	22	1405	S11 E10
	SAC PEAK	22	1406 E	S08 E10
	CAPRI S	22	1406 E	S10 E14
	STOCKHOLM	22	1415 E	S07 E09
	SAC PEAK	22	1618	S01 E40
	LOCKHEED	22	1620	S03 E29
	MCMATH	22	1621	S03 E40
	SAC PEAK	22	1720	N20 W76
*	LOCKHEED	22	1720	N15 W55
*	SAC PEAK	22	1720	N16 W56
	LOCKHEED	22	1721	N21 W75
	MCMATH	22	1722	N20 W79
	LOCKHEED	22	1746	N23 W76
	LOCKHEED	22	1746	N23 W76
	LOCKHEED	22	1815	S10 E07
*	LOCKHEED	22	1824	N23 W76
*	SAC PEAK	22	1830	N23 W77
	LOCKHEED	22	1907	N15 W56
	MCMATH	22	1908	N14 W57
	MCMATH	22	2052 E	N19 W84
	LOCKHEED	22	2106	N21 W75
	HAWAII	22	2110 E	N10 W80
	LOCKHEED	22	2113	N23 W76
	LOCKHEED	22	2127	N23 W76
	LOCKHEED	22	2143	N20 W75
	LOCKHEED	22	2304	N21 W78
	HAWAII	22	2304	N09 W74
	LOCKHEED	22	2308	S17 E04
	LOCKHEED	22	2325	N08 E12
	HAWAII	22	2330	N08 E07
	HAWAII	22	2344	N08 W85
	LOCKHEED	22	2345	N20 W80
	CAPRI S	23	0825 E	N08 E11
	MCMATH	23	1241	N11 E07
	SAC PEAK	23	1308 E	N05 E90
	SAC PEAK	23	1346	N05 E90
	MCMATH	23	1432	S08 E33
	SAC PEAK	23	1432	S07 E33
	LOCKHEED	23	1616	S09 E27
	SAC PEAK	23	1620 E	S07 E27
	MCMATH	23	1621 E	S18 W04
	LOCKHEED	23	1621	S18 W04
	LOCKHEED	23	1640	S10 W05
*	LOCKHEED	23	1809	N06 E90
*	LOCKHEED	23	1809	N06 E90
*	SAC PEAK	23	1814 E	N05 E90
	SAC PEAK	23	1814 E	N11 E05
*	SAC PEAK	23	1820 E	N05 E90
	LOCKHEED	23	2017	N09 W01
	MCMATH	23	2018	N09 W00
	LOCKHEED	23	2053	N21 W90
	LOCKHEED	23	2358 U	N10 W04
	SAC PEAK	24	1448 U	S05 E17
	LOCKHEED	24	1455 U	S06 E18
	LOCKHEED	24	1629	N14 E72
	LOCKHEED	24	1711	N12 E85
	LOCKHEED	24	1735	N07 E75
	SAC PEAK	24	1738	N05 E76
	MCMATH	24	1739	N04 E74
	HAWAII	24	1748 E	N18 E75
	LOCKHEED	24	1751	N08 W14
	HAWAII	24	1752	N07 W14
	SAC PEAK	24	1752	N10 W13
	HAWAII	24	1810	N08 W12
	LOCKHEED	24	2053	N07 E75
	MCMATH	24	2057 E	N30 E68
	LOCKHEED	24	2100	N33 E71
*	LOCKHEED	24	2145	N09 W16
*	SAC PEAK	24	2148 E	N10 W14
*	MCMATH	24	2158 E	N09 W13
	LOCKHEED	25	0040	S11 E16
	HAWAII	25	0046	S07 E20
	SAC PEAK	25	1321 E	N08 W20
	MCMATH	25	1526	S09 E07
	SAC PEAK	25	1530 U	S11 E08
	LOCKHEED	25	1655	N06 E58
	MCMATH	25	1655	N04 E60
*	LOCKHEED	25	2120	N1D W27
*	LOCKHEED	26	0052	N10 W32
	LOCKHEED	26	0125	N05 E58
	HAWAII	26	0150	N39 E52
	LOCKHEED	26	0151	N32 E54
*	UCCLE	26	1158 E	N04 E55
	SAC PEAK	26	1408	S10 W44
	SAC PEAK	26	1416	N13 E56
	SAC PEAK	26	1424	N04 E50
	SAC PEAK	26	1440	S09 W43
	SAC PEAK	26	1532	N04 E49
	SAC PEAK	26	1600	S09 W54
	SAC PEAK	26	1644 E	N03 E53
	HAWAII	26	1900 E	S18 W50
	HAWAII	26	1926 E	S18 W50
	SAC PEAK	26	2006 E	N04 E47
	LOCKHEED	26	2106	S09 W57
	SAC PEAK	26	2112 E	S09 W56
*	LOCKHEED	26	2217	N06 E42
*	LOCKHEED	26	2217	N06 E42
	LOCKHEED	26	2237	N27 E38
	HAWAII	26	2238	N31 E35
	LOCKHEED	27	0002	S09 W56
	HAWAII	27	0004	S17 W52
	LOCKHEED	27	0013	N09 W43
	HAWAII	27	0014	N03 W42
	LOCKHEED	27	0035	N06 E48
	HAWAII	27	0036	N12 E48
	HAWAII	27	0056 E	S14 W06
	ISTANBUL	27	0750	N08 E45
	MCMATH	27	1330	N15 E09
	MCMATH	27	1335	N03 E38
	SAC PEAK	27	1700	S10 W70
	LOCKHEED	27	1720 E	S09 W70
	LOCKHEED	27	1744	S03 W90
	SAC PEAK	27	1748 E	S03 W90
	SAC PEAK	27	1812	S03 W90
	LOCKHEED	27	1820	S07 W83
	LOCKHEED	27	1913	N07 E37
	LOCKHEED	27	2232	N11 W53
	SAC PEAK	27	2232 U	N10 W55
	MCMATH	27	2233	N10 W55
	LOCKHEED	27	2302	N17 W76
	ONDREJOV	28	0825 E	N09 E30
	ONDREJOV	28	0841	S11 W75
*	CAPRI S	28	1240	N11 E30
*	MCMATH	28	1240	N10 E38
	SAC PEAK	28	1302	S08 W79
	SAC PEAK	28	1452	N10 E22
	WENDEL	28	1457 E	N05 E27
	SAC PEAK	28	1506	N10 E22
	SAC PEAK	28	1530	S08 W80
	LOCKHEED	28	1534	N05 E23
	LOCKHEED	28	1540	S10 W80
	SAC PEAK	28	1548	N05 E25
	LOCKHEED	28	1548	N04 E25
	SAC PEAK	28	1610	S18 W26
	LOCKHEED	28	1611	S20 W27
	LOCKHEED	28	1631	N04 E23
	SAC PEAK	28	1638	N04 E24
	SAC PEAK	28	1730	S17 W28
	LOCKHEED	28	1730	S17 W29
	MCMATH	28	1731	S17 W27
	SAC PEAK	28	1914 E	N06 E22
	MCMATH	28	1915	N04 E23
	LOCKHEED	28	1915	N05 E22
	HAWAII	28	2116	N10 W67
	HAWAII	28	2120 E	N13 E17
	HAWAII	28	2121 E	S19 W70
	HAWAII	28	2222 E	N10 E22
	LOCKHEED	28	2241	N10 E16
	HAWAII	28	2248	N16 E18
	LOCKHEED	29	0139	N06 E18
	SAC PEAK	29	1514	S06 W30
	SAC PEAK	29	1656	S06 W90
	HAWAII	29	1906	N07 E12
	LOCKHEED	29	1907	N06 E12
	LOCKHEED	29	1951	S15 W44
	LOCKHEED	29	2112	N06 E11
	MCMATH	29	2113 E	N08 E08
	HAWAII	29	2114	N07 E11
	LOCKHEED	29	2322	N10 E04
	HAWAII	29	2328 E	N10 E02
	WENDEL	30	0616 E	N26 W03
*	ONDREJOV	30	1216	N04 E04
	WENDEL	30	1446 E	N07 E00
	WENDEL	30	1500 E	N08 W02
	LOCKHEED	30	1522	N08 E02
	LOCKHEED	30	1745	N10 W04
	MCMATH	30	1952 E	N10 W08
	HAWAII	30	1956	N07 W10
	LOCKHEED	30	2110	N09 W10
	MCMATH	30	2110	N10 W10
	HAWAII	30	2112	N07 W10
	LOCKHEED	30	2346	N05 W06
	HAWAII	31	0138 E	N15 W11
	ONDREJOV	31	0926 E	N07 W16
	WENDEL	31	1012 E	N27 E35
	ONDREJOV	31	1014 E	N22 E32
*	WENDEL	31	1045 E	N10 W06
	WENDEL	31	1123 E	N09 W16
	WENDEL	31	1123 E	N07 W13
	WENDEL	31	1146 E	N24 W20
	MCMATH	31	1203	S04 E70
	SAC PEAK	31	1330	N32 W14
	SAC PEAK	31	1354	N05 W15
	LOCKHEED	31	1438	N28 W21
	LOCKHEED	31	1600	N25 W60
*	WENDEL	31	1647 E	N24 W23
*	LOCKHEED	31	1648	N25 W25
	LOCKHEED	31	1750	N25 W63
	SAC PEAK	31	1806	N25 W53
	LOCKHEED	31	1910	N25 W63
	LOCKHEED	31	1930	N32 W14
	HAWAII	31	1936	N12 W21
	MCMATH	31	2023 E	N08 W23
	LOCKHEED	31	2023	N10 W23
	HAWAII	31	2028	N05 W23
	LOCKHEED	31	2030	N25 W53
	SAC PEAK	31	2224	N25 W54
	LOCKHEED	31	2303	N05 W20
	HAWAII	31	2304	N02 W20
	SAC PEAK	31	2320	N09 W24
	LOCKHEED	31	2322	N10 W25
	HAWAII	31	2322	N04 W24
	LOCKHEED	31	2345	N25 W64
	LOCKHEED	31	2358	N10 W28
	LOCKHEED	31	2358	N10 W28

*Rated as flare of importance ≥ 1 by other observatories (see CRPL-F 1928 for August, 1960).

COMMERCE · STANDARDS · BOULDER

SOLAR FLARES

MAY 1960

OBSERVATORY	DATE MAY 1960	OBSERVED UNIVERSAL TIME START	END	MAX. PHASE	LOCATION APPROX. LAT.	MER. DIST.	McMATH PLAGE REGION	DURATION — MINUTES	IMPORTANCE	OBS. COND.	MEASUREMENTS TIME — U T	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hα	MAX. INT. %	PROVISIONAL IONOSPHERIC EFFECT
VOROSHILOV	01	2210	2222	2214	S09	E65	5653	12	1+	1		1.54			80	
GOOD HOPE	02	0707	0800	0723	N13	W55	5642	53	1		0723	1.70	3.20			
GOOD HOPE	02	0815	0839	0819	S03	W28	5645	24	1		0819	2.40	2.70			
VOROSHILOV	03	0327	0346 D	0329	S04	W38	5645	19 D	1+	1		2.62			125	
ABASTUMANI	03	0547	0558	0551	N11	E38	5652	11	1	2		.90	1.20		63	
ABASTUMANI	03	0723 E	0825 D	0739	S14	E50	5653	62 D	1	2		1.00	1.60		62	
MEUDON	03	0733	0840		S13	E50	5653	67	1				5.00			
GOOD HOPE	03	0802	0833	0811	S09	E46	5653	31	1		0811	2.40	3.60			
GOOD HOPE	03	0920	0935	0925	N30	E61	5654	15	1		0925	1.00	2.90			
GOOD HOPE	03	1232	1309	1247	N19	W90	5642	37	1		1247	.90				
UCCLE	04	0848	0918	0901	N13	W30	5647	30	1+	1	0901	4.00	5.00			
GOOD HOPE	04	0851	0917	0904	S09	E32	5653	26	1		0904	3.50	4.20			
GOOD HOPE	04	1000	1048		N16	W90	5642	48	1		1015	1.60				S-SWF
NIZAMIAH	05	0313 E	0319 D		N29	E44	5654	6 D	1	1	0313	1.82	2.98	1.50		
MITAKA	05	0315 E	0335	0318	N26	E44	5654	20 D	1	1	0315	2.81	4.45	2.17	128	
MEUDON	05	0545	0620	0600	S12	E25	5653	35	1							
UCCLE	05	1523	1614	1536	S09	E20	5653	51	1	1	1536	3.50	4.00			
VOROSHILOV	05	2206 E	2224		N10	E04	5649	18 D	1	3	2209	2.71			79	
UCCLE	06	1408	1435 D	1435	S08	E05	5653	27 D	2+	2	1435	11.00	11.00			Slow S-SWF
VOROSHILOV	07	0050	0056	0053	S09	E90	5657	6	1	2		2.71			69	
VOROSHILOV	09	0039	0117	0042	S11	E05	5655	38	1+	1		2.89			95	
PIRCULI	09	0916 E	0936 D	0918 U	S08	E48	5657	20 D	3	1	0918	22.95	34.80		67	
UCCLE	09	1059	1115 D		N12	W38	5652	16 D	1	1	1115	2.50	2.50			
VOROSHILOV	09	2329	2340	2330	N30	W27	5654	11	1+	3		2.35			162	Slow S-SWF
ABASTUMANI	10	0627	0633	0629	N10	W54	5652	6	1	1		.90	1.60		63	
PIRCULI	10	0810	0829	0812	N31	W29	5654	19	1	1	0812	2.01	4.08		59	
PIRCULI	11	0610 E	0637	0615 U	S12	E32	5657	27 D	1+	2	0615	5.97	7.12		56	
PIRCULI	11	0628	0639 D	0633	N15	W68	5652	11 D	2	2	0633	5.05	13.80		60	
PIRCULI	11	0722	0738 D	0734 U	N29	W45	5654	16 D	1+	2	0734	6.43	10.70		52	
UCCLE	11	1420 E			N30	W45	5654	□	1	1						Slow S-SWF
KRASNYA	12	0655	0702	0658	N27	W49	5654	7	1			1.82			112	
KRASNYA	12	0656	0734	0701	N09	W90	5652	38	1+			.88			95	
KRASNYA	12	0729	0742	0731	N28	W49	5654	13	1			.68			90	
KRASNYA	12	0804	0845	0829	N09	W90	5652	41	2			1.82			135	
UCCLE	12	1400 E			N28	W60	5654	□	1	1						Slow S-SWF
VOROSHILOV	12	2243	2253	2245	N14	W59	5654	10	1+	2		1.00			86	
VOROSHILOV	12	2248	2254	2251	N30	W64	5654	6	1+	2		.90			91	
MITAKA	13	0436	0447	0437	N30	W67	5654	11	1+	1	0437	3.08	7.39	4.62	120	
TASHKENT	13	0518	0538	0521	S07	E85	5663	20	1	2	0523	4.13		1.90	110	
TASHKENT	13	0519	0610 D	0532	N28	W71	5654	51 D	3	2	0533	4.95	20.00	5.30	335	

SOLAR FLARES

MAY 1960

OBSERVATORY	DATE MAY 1960	OBSERVED UNIVERSAL TIME START	OBSERVED UNIVERSAL TIME END	OBSERVED UNIVERSAL TIME MAX. PHASE	LOCATION APPROX. LAT.	LOCATION APPROX. MER. DIST.	LOCATION McMATH PLAGE REGION	DURATION — MINUTES	IMPORTANCE	OBS. COND.	MEASUREMENTS TIME — U T	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Ha	MAX. INT. %	PROVISIONAL IONOSPHERIC EFFECT
MITAKA	13	0526	0641	0532	N29	W65	5654	75	3	1	0532	13.36	32.06	12.35	204	S-SWF
ABASTUMANI	13	0533 E	0732 D	0552	N32	W70	5654	119 D	3	2	0542	9.07	32.80	3.00	138	
MOSCOW G	13	0924 E	0937 D		S09	E88	5663	13 D	1+	2	0933	204.00	15.10	1.35	110	
UCCLE	13	0925	0932	0925	N08	W85	5652	7	1	2						
PIRCULI	15	0532 E	0719 D	0535 U	S12	E66	5663	107 D	1+	1	0535	5.05	11.50		58	
PIRCULI	15	0550	0605	0554	N15	E27	5660	15	1	1	0554	1.84	2.19		56	
PIRCULI	15	0634	0719	0706 U	S10	E56	5663	45	1+	1	0706	2.75	4.95		88	
PIRCULI	16	1023	1032	1027	N18	E10	5660	9	1	3	1027	1.84	2.01		63	
KIEV	16	1313	1345 D	1317	N17	E07	5660	32 D	1		1317	2.60			90	
MITAKA	17	0203	0224	0206	S08	E33	5663	21	1	1	0206	3.08	3.76	3.25	122	
ALMA-ATA	17	0418	0453	0425	S09	E35	5663	35	1+		0425	3.27			96	
MITAKA	17	0423	0441	0425	S08	E32	5663	18	1+	1	0434	4.63	5.65	2.82	149	
TASHKENT	17	0425	0442	0424	S10	E33	5663	17	1+	2	0422	3.30	4.00	3.30	70	
GOOD HOPE	17	1138	1154	1141	N16	W34	5658	16	1		1141	2.20	2.70			
UCCLE	17	1402	1410 D		S09	E27	5663	8 D	1	3						
ALMA-ATA	18	0255	0312	0259	N15	W43	5658	17	1+		0259	1.87			57	
ALMA-ATA	18	0310 E		0310	N27	W10	5662	□	1		0310	3.27			54	
ALMA-ATA	18	0448 E		0448	N20	E45	5664	□	1		0448	2.80			59	
ALM/ -ATA	18	0524 E		0524	S12	E26	5663	□	1+		0524	9.35			52	
PIRCULI	21	0901 E	0915 D	0908 U	S14	W13	5663	14 D	1	2	0908	2.75	2.92		60	
MITAKA	22	0422	0434		S16	W23	5663	12	1	1	0422	1.03	1.10	2.90	83	
MITAKA	22	0546 E	0554		S11	W23	5663	8 D	1	1	0546	3.08	3.30	2.51	120	
PIRCULI	22	0603 E	0650 D	0633 U	N16	W82	5660	47 D	2	1	0633	3.22	16.40		54	
MITAKA	23	0335 E	0342		N20	W67	5662	7 D	1	1	0335	1.03	2.24	3.97	100	
ALMA-ATA	23	0340 E		0340	N20	W67	5662	□	1+		0340	2.34			54	
ALMA-ATA	23	0440 E		0440	N13	E32	5669	□	1+		0440	4.67			54	
ALMA-ATA	23	0555 E		0555	N02	E67	5670	□	1+		0555	1.87			55	
UCCLE	23	1328 E	1417		N13	E36	5669	49 D	2	3	1330	9.00	10.00			
ALMA-ATA	24	0449 E		0449	N01	E51	5672	□	1+		0440	3.74			61	
ALMA-ATA	24	0524 E		0524	S11	W55	5663	□	2		0524	13.09			58	
ALMA-ATA	24	0600 E		0600	N15	E13	5669	□	1		0600	4.67			66	
KHARKOV	24	0905 E	0919 D		N02	E48	5670	14 D	1+	1	0912	8.00	11.40			
GOOD HOPE	24	0906 E	0910 D		N03	E49	5670	4 D	1		0907	2.20	3.40			
TASHKENT	25	0230 E	0311		N10	E04	5669	41 D	1+	2	0231	6.43	7.00			
KODAIKNL	25	0235 E	0258 D	0235	N12	E06	5669	23 D	1	4	0235	2.60	2.60	2.00	136	
TASHKENT	25	0451	0520	0457	N15	W00	5669	29	1	2	0457	2.48	3.00			
ABASTUMANI	25	0454 E	0538 D	0459 U	N15	W00	5669	44 D	2	3	0505	3.62	3.80	2.40	88	
KHARKOV	25	1058 E	1112 D		N16	W01	5669	14 D	1	1	1102	.57	.58	1.60		
MEUDON	26	0850	1045	0930	N15	W15	5669	115	2+				20.00			
KHARKOV	26	0903	1049 D	0928	N14	W16	5669	106 D	2	2	0928	11.43	11.80	2.40		
GOOD HOPE	26	0907	1050	0928	N19	W13	5669	103	2		0928	7.60	3.30			Slow S-SWF

SOLAR FLARES

MAY 1960

OBSERVATORY	DATE MAY 1960	OBSERVED UNIVERSAL TIME START	OBSERVED UNIVERSAL TIME END	OBSERVED UNIVERSAL TIME MAX. PHASE	LOCATION APPROX. LAT.	LOCATION APPROX. MER. DIST.	LOCATION McMATH PLAGE REGION	DURATION — MINUTES	IMPORTANCE	OBS. COND.	MEASUREMENTS TIME — U T	MEASUREMENTS MEAS. AREA Sq. Deg.	MEASUREMENTS CORR. AREA Sq. Deg.	MEASUREMENTS MAX. WIDTH Ha	MEASUREMENTS MAX. INT. %	PROVISIONAL IONOSPHERIC EFFECT
MOSCOW G	26	0909 E	1107 D		N15	W17	5669	118 D	1+	2	0921	7.94	8.67	3.16	250	
KRASNYA	26	0911	1019	0933 U	N14	W15	5669	68	1+	3		6.53			94	
MEUDON	27	0540	0555 D		N13	E75	5678	15 D	1							
PIRCULI	27	0542 E	0600 D	0547 U	N15	E75	5678	18 D	1+	1	0547	1.84	6.26		76	
PIRCULI	27	0542 E	0550 D	0542 U	N19	W28	5669	8 D	1	1	0542	3.95	4.79		57	
PIRCULI	27	0542 E	0552 D	0550 U	S14	E07	5670	10 D	1	1	0550	2.75	2.89		56	
PIRCULI	27	0711 E	0720 D	0715 U	N18	W65	5671	9 D	1	1	0715	1.19	2.73		62	
MEUDON	27	1420	1505	1430	N16	W27	5669	45	1+							S-SWF
MEUDON	27	1510	1540		N13	E70	5678	30	1							
ABASTUMANI	28	0734 E	0743 D	0738 U	N04	W71	5673	9 D	1+	3		.90	2.90		59	
MEUDON	28	0830	0835 D		N13	E55	5678	5 D	1							
MEUDON	28	1402	1458 D	1423	N12	E55	5678	56 D	2-							S-SWF
PIRCULI	29	0600	0610	0603	N12	E46	5678	10	1	1	0603	2.75	4.17		55	
PIRCULI	29	0600 E	0611 D	0600 U	S18	E35	5677	11 D	1	1	0600	3.67	4.74		52	
PIRCULI	29	0701 E	0712	0704	S18	E35	5677	11 D	1	1	0704	2.11	2.73		59	
ABASTUMANI	29	0736 E	0741 D	0738 U	N13	E46	5678	5 D	1	1		1.00	1.60		59	S-SWF
KRASNYA	29	0737	0749	0742	N14	E46	5678	12	1	2		.90			98	
GOOD HOPE	29	0814	0836	0819	N03	W88	5673	22	1		0819	.30				
KRASNYA	29	0852	0902	0855	N27	E90	5680	10	1			1.35			62	
GOOD HOPE	29	0854	0904	0856	N27	E87	5680	10	1		0856	1.00				
PIRCULI	29	0900	0912	0904	S25	W45	5674	12	1	1	0904	2.01	3.10		51	
GOOD HOPE	29	1001	1014	1003	N15	E46	5678	13	1		1003	1.60	2.30			
MITAKA	29	2340	2350	2343	N11	E35	5678	10	1	1	2340	1.54	1.94	2.17	120	
MITAKA	30	0350 E	0355		N15	W66	5669	5 D	1	1	0350	.51	1.08	2.41	115	
PIRCULI	30	0434 E	0734 D	0452 U	S16	E23	5677	180 D	1	1	0452	2.75	3.12		62	
GOOD HOPE	31	0732 E	0754		N35	E65	5680	22 D	1		0732	.90	2.50			
KRASNYA	31	0753 E	0808	0755 U	N12	E20	5678	15 D	1			1.82			90	
PIRCULI	31	0755 E	0840	0757	N14	E21	5678	45 D	1+	1	0757	2.75	3.06		93	
GOOD HOPE	31	1102	1120	1105	N18	W85	5669	18	1		1105	.80				

COMMERCE - STANDARDS - BOULDER

These flare reports are addenda to the May 1960 flares published in CRPL-F, 190 Part B, June 1960.

CAPRI G ANACAPRI - GERMAN
CAPRI S ANACAPRI - SWEDISH
GOOD HOPE ROYAL OBSERVATORY, CAPE OF GOOD HOPE
KIEV* KIEV UNIVERSITY
KODAIKNAL KODAIKANAL
KRASNYA KRASNAYA PAKHRA
LOCKHEED LOS ANGELES
MOSCOW-G MOSCOW - GAISH
R O EDIN ROYAL OBSERVATORY, EDINBURGH
R O HERST GREENWICH ROYAL OBSERVATORY, HERSTMONCEUX
SAC PEAK SACRAMENTO PEAK
SCHAUINS SCHAUINSLAND
USNRL UNITED STATES NAVAL RESEARCH LABORATORY

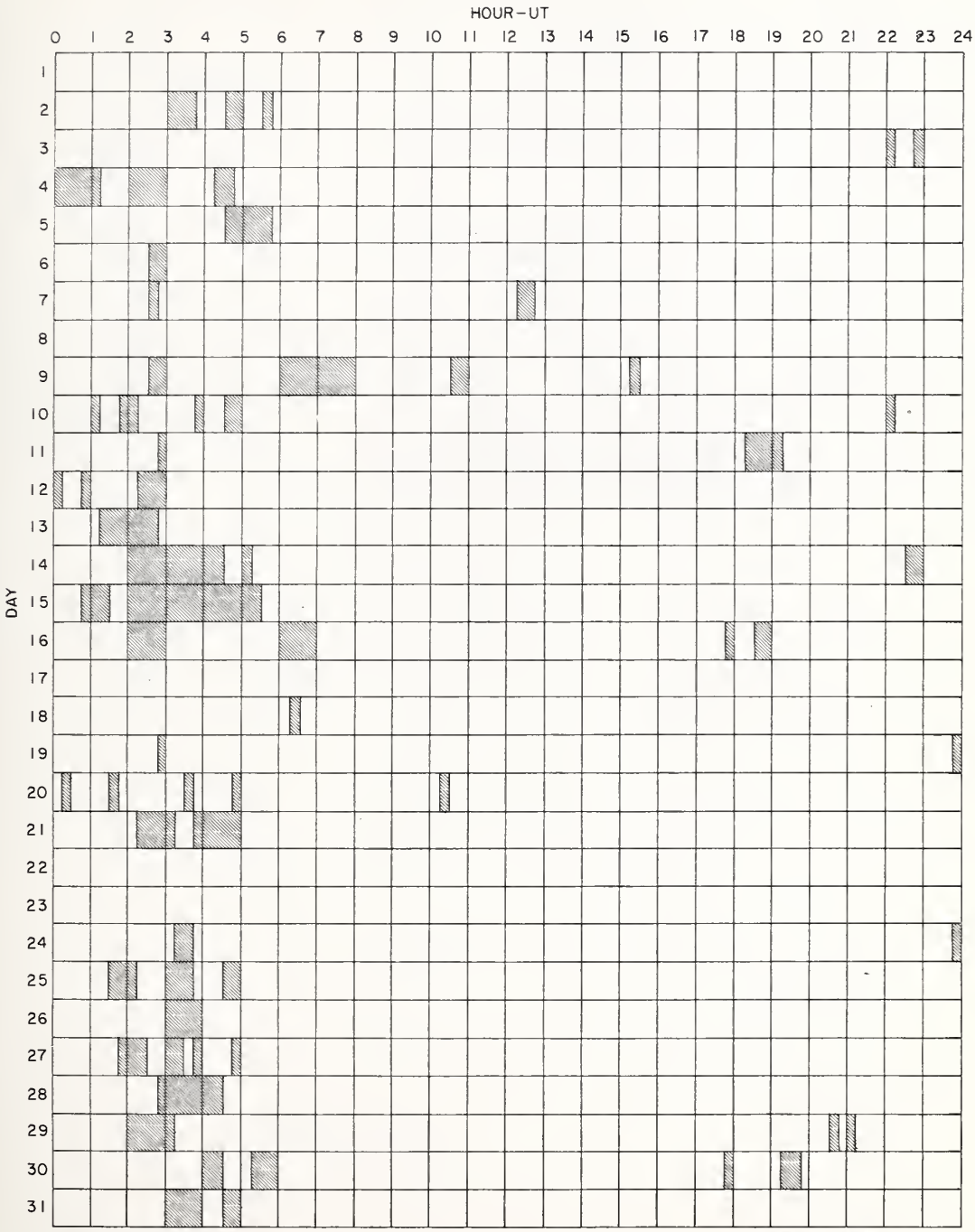
SAC PEAK: ALL VALUES IN MAX. INT. COLUMN ARE ARBITRARY UNITS (0-40), NOT PERCENT OF CONTINUOUS SPECTRUM.

E - LESS THAN & - PLUS
D - GREATER THAN - - MINUS
U - APPROXIMATE □ - NOT REPORTED

LOCKHEED OBSERVATIONS: ALL VALUES IN THE MAXIMUM INTENSITY COLUMN ARE ARBITRARY UNITS ON A SCALE OF 10 TO 40 - NOT PERCENT OF THE CONTINUOUS SPECTRUM.

INTERVALS OF NO FLARE PATROL OBSERVATIONS

MAY 1960



Stations Include:

Abastumani
Alma Ata
Anacapri (Swedish)
Arcetri
Dunsink
Good Hope
Hawaii
Huancayo
Kharkov
Kiev GAO
Kodaikanal
Krasnaya Pakhra
Lockheed
McMath
Meudon
Mitaka
Moscow - G
Nizamiah
Ondrejov
Pirculi
Royal Greenwich Observatory
Herstmonceux
Sacramento Peak
Simeiz
Uccle
Voroshilov

IONOSPHERIC EFFECTS OF SOLAR FLARES

(SHORT-WAVE RADIO FADEOUTS)

JULY 1960

July 1960	Start UT	End UT	Type	Wide Spread Index	Importance	Observation Stations	Known Flare, UT CRPL-F 192B
1	0505	0552	S-SWF	5	1+	JU, OK, CW++	*
1	1018	1025	S-SWF	1	1	NE	1012
1	1158	1255	G-SWF	3	1	MC, PR	1151E
7	0201	0238	S-SWF	5	1	AD, OK	0200
9	1815	1855	G-SWF	5	1-	AD, BE, MC, PR	1730
12	1650	1723	Slow S-SWF	5	1	AN, BE, MC, PR	1648
12	2033	2110	S-SWF	5	1+	AN, BE, BO, FM, MC, PR	2028E
12	2345	0006	S-SWF	5	1	AD, BO, OK, TO, WS	2338E
15	0526	0639	Slow S-SWF	1	1+	OK	0534E
18	0227	0258	Slow S-SWF	1	1	OK	*
19	0439	0525	S-SWF	5	2	AD, OK, CW+	0318
19	1815	1840	S-SWF	5	1+	BE, FM, HO, HU, MC, PR, CW*	1816U
20	1024	1136	S-SWF	5	2+	BR, NE, SW, CW***	1020E
22	1245	1335	Slow S-SWF	5	1	BE, JU, MC, PR	1242
23	1350	1409	S-SWF	5	1	BE, LI, MC, PR	
23	1808	1840	S-SWF	5	2	BE, BO, FM, HU, LA, LI, MC, NE, PR, WS	1808
26	0325	0352	Slow S-SWF	5	1+	AD, OK	*
26	1705	1730	S-SWF	5	1+	BE, MC, PR	1702
29	0112	0200	Slow S-SWF	5	1	AD, OK	

BO = Boulder, Colorado
BR = Breisach, G.F.R.
HO = Hollandia, New Guinea
JU = Juhlesruh, G.D.R.
LA = Los Angeles, Calif.
LI = Lindau, G.F.R.
NE = Nederhorst den Berg, Netherlands
CW* = Cable and Wireless, Barbadoes
CW*** = Cable and Wireless, Brentwood, England
CW+ = Cable and Wireless, Hong Kong
CW++ = Cable and Wireless, Singapore

IONOSPHERIC EFFECTS OF SOLAR FLARES

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

JULY 1960

July 1960	CLASS SCNA	CLASS SEA	CLASS Burst	WIDE SPREAD INDEX	TIME (UNIVERSAL TIME) BEGIN	TIME (UNIVERSAL TIME) MAX.	TIME (UNIVERSAL TIME) END	PERCENT ABSORPTION SCNA	OBSERVATION STATIONS
1		1		3	1019	1022	1036		DU, NE
1			2	4	1300E		2400D		BO, MC (Noise Storm)
2			1	4	1638		1640		BO, MC
3			1	4	1717		1735		BO, MC
4		1		3	1338	1345	1401		A1, A3, A5, A10, A12
4			1	4	1600E		2130D		BO, MC (Noise Storm)
4		2		3	1838	1850	1910D		A1, A5
5			1	4	1831		1832		BO, MC
6			1	4	2107		2109		BO, MC
6			1	4	2230		2232		BO, MC
7			1	4	1938		1940		BO, MC
8			2	5	1925		1935		BO, HA, MC
8			2	1	2326		2332		HA
9			1	5	1817		1825		BO, MC
10		2		1	0727	0730	0830D		A11
11		1		3	1429	1440	1500D		A1, A3, A5
12	1			1	2030	2039	2114	25	HA
12		2		5	2034	2046	2139		A1, A2, A3, A5, A6, A10, HA, PA
12	2			1	2346	2348	0015	55	HA
12		2		5	2346	2355	0108		A1, A2, A3, A5, A10, A11, HA, HO
13			1	5	1700E		0200		BO, HA (Noise Storm)
14		1+		5	1057		1135		DU, NE, PA
14			1	5	1300E		0200		BO, HA, MC (Noise Storm)
15			1	5	1330E		0200		BO, HA, MC (Noise Storm)
15		1		3	1820	1832	1900		A1, A3, A5
18		1+		4	1830	1837	1855		A1, A3, A5, A6, A10
18		1		5	2158	2208	2253		A6, BO, HA
18	1			1	2159	2204	2215	15	HA
19		1+		5	1817	1829	1850		A1, A5, A10, BO, DU, HA
19	2			5	1818	1822	1845	35	BO, HA
20		2		3	1023	1030	1054		DU, NE
20			1	5	1400E		2300		BO, HA (Noise Storm)
21			1	5	1925		1940		BO, HA, MC (Group of Bursts)
21		1+		3	1920	1925	1950		A2, A3
22			1	4	1722		1725		BO, MC
22			1	5	2329		2333		BO, HA
23			2	5	1807		1812		BO, HA
23		2		5	1811	1818	1850		A3, A5, A9, A10, BO, DU, HA, NE, PA
23	2			5	1812	1815	1845	50	BO, HA
23			2	5	1836		1844		BO, HA
23			1	5	1848		1850		BO, HA
23			2	5	2116		2120		BO, HA
26		1+		5	1707	1720			A2, A3, A5, A10, BO, DU, NE, PA
26	1			4	1707	1710	1725	20	BO, MC
26			1	4	1821		1835		BO, MC (Group of Bursts)
26			1	4	1904		1920		BO, MC (Group of Bursts)
26			2	1	2217		2232		HA (Group of Bursts)
29		2		3	2110	2125U	2220D		A2, A5, A10
30	1			5	1816	1823	1829	15	BO, HA

COMMERCE - STANDARDS - BOULDER

Notes: A11 = Manila, Philippines
A12 = Addis Ababa, Ethiopia

SOLAR RADIO EMISSION

OUTSTANDING OCCURRENCES

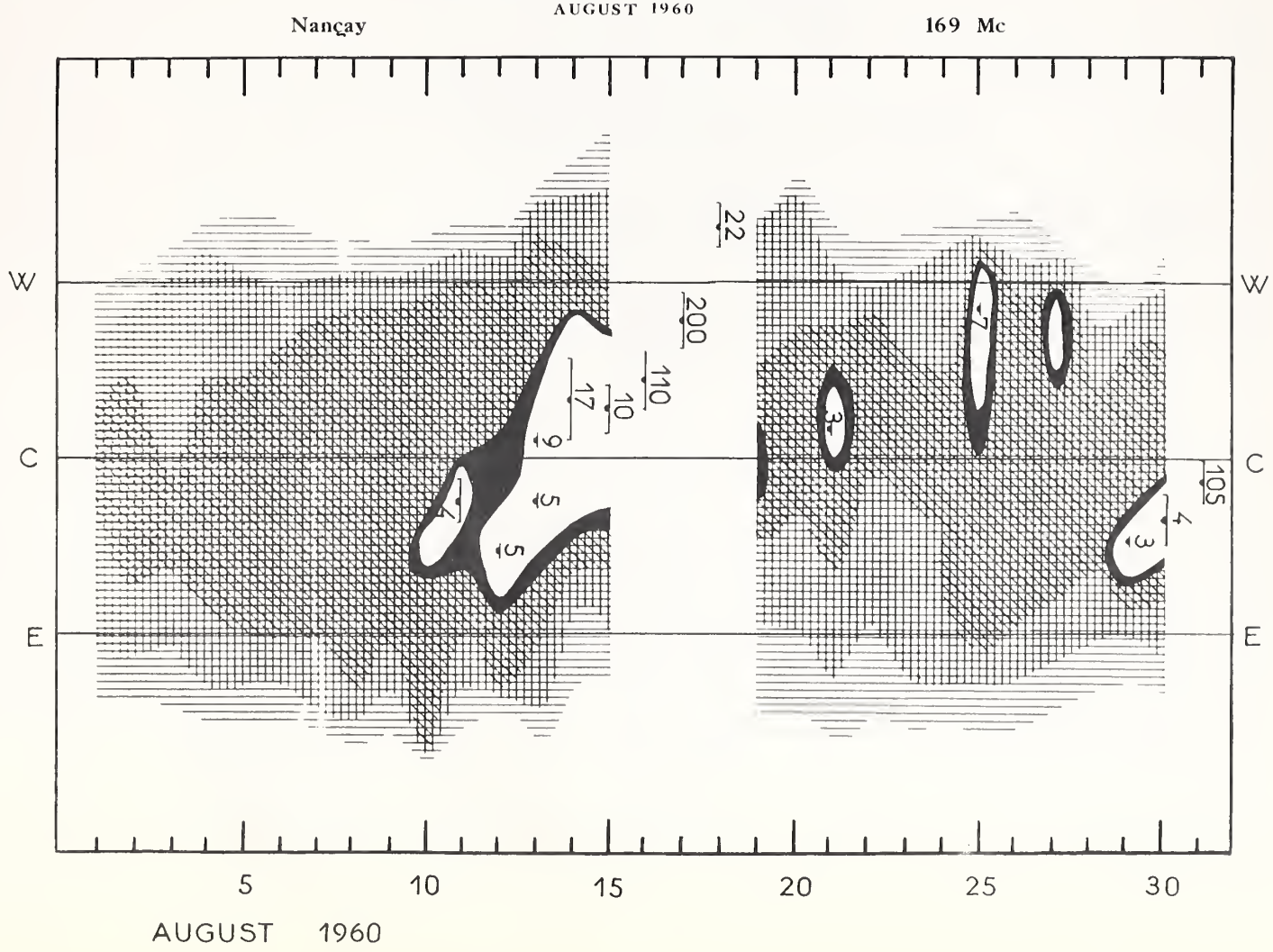
AUGUST 1960

Ottawa **2800 Mc**

Aug. 1960	Type*		Start UT	Duration Hrs:Mins	Maximum Time UT	Maximum Peak Flux	Remarks
1	3	Simple 3	1838	20	1840	6	
5	1	Simple 1	2020.2	1.5	2020.5	6	
6	6	Complex f	1310	10	1311.3	145	
6	1	Simple 1	1510	2	1510.5	7	
6	8	Group (3)	1619	16.5			
	6	Complex f	1619	6	1622.5	42	
	1	Simple 1	1626.4	1	1626.8	6	
	1	Simple 1	1633.5	2	1634.5	6	
6	2	Simple 2 f	1902	3	1903.3	200	
6	2	Simple 2	2345.5	2	2346.4	33	
7	2	Simple 2 f	1218	5	1219.2	72	
	8	Group (3)	1728.3	1 25.7			
	2	Simple 2	1728.3	2.5	1729	20	
	2	Simple 2	1736	7	1738	80	
	6	Complex f	1749	10	1750.5	35	
	5	Absorption	1759	55		- 8	
7	2	Simple 2	2201.8	3	2202.5	15	
11	3	Simple 3	1327	25	1337	30	
11	3	Simple 3 A	1916	2 24	indet.	9	
	2	Simple 2	1923.5	37	1928	1100	
	2	Simple 2	2004	28	2011	77	
12	2	Simple 2 f	1555	4	1556.5	25	
13	3	Simple 3 A	1705	1 25	1715	4	
	2	Simple 2	1742.5	1	1743	9	
13	3	Simple 3	1837	35	1840	3	
13	1	Simple 1	2300	2	2300.5	7	
14	2	Simple 2	1238.3	7	1239	9	
14	2	Simple 2 f	1307	16	1310.7	680	
	4	Post Increase A		1 30		22	
	2	Simple 2	1333	2.5	133.5	24	
	2	Simple 2	1410.5	4	1412	10	
	2	Simple 2	1419	4	1420.5	22	
15	3	Simple 3	1641	25	indet.	3	
15	2	Simple 2	1934.5	1.5	1935.2	23	
16	2	Simple 2	1224	7	1226.5	15	
17	3	Simple 3	1618	30	1624	5	Record poor
17	3	Simple 3	1807	10	1810	7	Record poor
18	2	Simple 2	1649	3	1650	10	
19	8	Group (2)	1235	19			
	2	Simple 2	1235	8	1238	74	
	6	Complex	1246	8	1248	38	
19	2	Simple 2	1407	3	1408	8	
19	1	Simple 1	1833.5	4	1834.5	7	
19	2	Simple 2	2023	2.5	2023.5	17	
19	2	Simple 2	2131	3	2132	15	
20	3	Simple 3	2032	25	2035	5	
21	3	Simple 3 A	b1544.5	> 1 25.5	indet.	10	
	3	Simple 3	1556	8	1558.5	6	
	2	Simple 2	1604.5	16	1607	19	
	2	Simple 2	1630	40	1638	80	
23	2	Simple 2	1608	5	1608.8	15	
28	1	Simple 1	1546.3	1	1546.7	6	
30	2	Simple 2	1302	2	1302.5	20	
31	3	Simple 3 A	1646	30	indet.	5	
	6	Complex	1647.5	7.5	1648.5	18	

COMMERCE - STANDARDS - BOULDER

SOLAR RADIO EMISSION
INTERFEROMETRIC OBSERVATIONS
AUGUST 1960



SOLAR RADIO EMISSION

OUTSTANDING OCCURRENCES

AUGUST 1960

BOULDER 167 MC

Aug. 1960	Type	Start UT	Time of Maximum UT	Duration Minutes	Intensity
1	2	1424.2	1425.0	1.8	1
1	3	1515.8	1516.0	2.2	2
3	3	1238.0	1238.5	1.0	2*
3	3	1616.3	1617.0	2.2	2
5	3	0052.0	0052.0	0.4	2**
6	3	1311.0	1311.0	2.1	3*
6	3	1529.0	1529.0	1.0	2
6	8	1618.9	1622.6	7	3
6	3	1816.9	1817.0	0.3	2
6	2	1902.5	1903.7	10	3
6	3	2139.9	2139.9	0.2	3
6	3	2345.5	2346.0	1.5	2
7	3	0107.0	0107.5	1.0	2**
7	3	1223.2	1223.2	0.5	2*
7	3	1227.0	1227.2	0.4	2*
7	3	1514.0	1514.0	0.2	2
7	3	1616.0	1616.0	0.9	2
7	3	1619.3	1620.1	1.9	2
7	3	1735.0	1735.0	0.5	2
7	3	1737.0	1738.1	3.0	3
7	3	1748.2	1748.8	2.8	3
7	3	1755.0	1756.8	2.0	3
7	3	1853.0	1853.0	0.1	2
7	3	2008.0	2008.0	1.0	2
7	3	2030.0	2030.6	1.5	3
7	3	2206.5	2207.4	0.8	2
8	3	1302.6	1302.6	0.3	2*
9	3	1558.0	1558.8	0.7	1
11	3	1926.0	1926.0	1.0	3
11	9	1929.0	1932.9	16	3
11	9	2222.0	2301.5	54	3
12	2	0032.0	0033.0	4.0	2
12	3	0046.0	0046.8	0.6	2**
12	3	0057.0	0057.0	0.2	2**
12	3	0111.0	0111.0	0.3	2**
12	3	0113.5	0113.5	0.2	2**
12	2	1233.8	1235.1	2.0	2*
12	3	1240.0	1240.5	1.0	2*
12	2	1314.0	1315.6	4.0	2*
12	3	1441.5	1441.5	0.1	2
12	3	2036.5	2036.5	0.3	2
12	3	2137.5	2137.5	0.2	2
12	2	2325.0	2329.5	5	2
12	3	2338.7	2338.7	0.6	2
13	3	0051.6	0052.0	0.7	3**
13	3	0108.5	0109.0	1.5	2**
13	2	0115.0	0117.2	3.2	3**
13	3	0128.5	0128.5	0.2	2**
13	6	1208 E		817 D	2
13	8	1741.0	1743.0	5	3
14	6	1209 E		815 D	2
15	6	1503 E		640 D	2
16	6	1211 E		277 D	2
16	6	2128 E		252 D	2
17	6	1214 E		681 D	2
18	6	1215 E		180 D	1
19	8	1235.2	1236.2	4.1	2*
19	8	1239.3	1240.5	2.7	3*
19	2	1242.0	1243.8	7	2*
19	3	1248.1	1248.1	0.3	3*
19	3	1500.8	1501.0	0.6	2
19	3	2130.9	2131.6	1.5	2
20	3	1243.8	1243.8	0.2	2*
21	3	1335.0	1335.0	0.2	2
21	7	1529	1634	156	2
21	3	1844.4	1844.4	0.3	2
22	3	1227.1	1227.1	0.4	2*
22	3	1229.0	1229.0	0.3	2*
25	6	1220 E		88 D	2
26	3	1239.0	1239.0	1.0	2
26	3	1356.4	1356.4	0.9	2
26	7	1545	1635	205	2
27	3	1601.0	1601.0	0.4	2
27	3	1916.5	1916.5	0.1	2
28	3	1451.0	1451.0	0.9	3
28	3	1500.2	1500.5	1.0	3
28	3	1503.0	1503.1	0.5	3
28	3	1512.0	1512.0	1.2	3
29	6	1225 E		776 D	1
30	3	1239.0	1239.0	0.6	2*
30	3	1317.0	1317.0	0.1	2*
30	7	2045		275 D	1
31	6	1226 E		773 D	2

* On sunrise pattern.

** On sunset pattern.

Errata: In CRPL-F 192 Part B on page IVc the data are for July 1960 as page heading indicates, not for June 1960 as table subheadings indicate. Also on page IVd the times of observation are for July 1960.

COMMERCE - STANDARDS - BOULDER

TIMES OF OBSERVATIONS

BOULDER

Aug. 1960	U.T.			Aug. 1960	U.T.		
1	1157-0158	I	1543-0158	17	1214-0138	I	1515-1920;
2	1200-0158	I	1520-0158				2023-0115
3	1200-0157	I	1730-1856;	18	1215-0137	I	1610-1912;
			1953-0115				2003-2400
4	1200-0155	I	1200-0155	19	1217-0135	I	1609-0003
5	1201-0154	I	1520-0154	20	1217-0133	I	1925-1938
6	1201-0153			21	1217-0132		
7	1202-0152			22	1218-0130	I	1602-0004
8	1205-0152	I	1515-0055	23	1219-0130	I	1503-0130
9	1205-0151	I	1607-2400	24	1220-0129	I	1517-1815;
10	1206-0150	I	1503-0050				2100-0014
11	1207-0149	I	1515-0015	25	1220-0128	I	1518-0001
12	1208-0147	I	1512-1855	26	1222-0126	I	1511-0004
			2157-0015	27	1222-0124		
13	1208-0145			28	1225-0122		
14	1209-0144	I	2118-2400	29	1225-0121	I	1512-1735;
15	1503-0143	I	1525-1700;				2050-2300
			1915-0143	30	1227-0120	I	1630-1812;
16	1211-1648;	I	2130-0030				2105-0045
	2128-0140			31	1226-0119	I	1524-1830;
							1940-0010

COMMERCE - STANDARDS - BOULDER

ADDENDUM TO SOLAR RADIO EMISSION SPECTRUM OBSERVATIONS:

In CRPL-F 188 Part B, issued April 1960, please add to the Ft. Davis observations on page IVu the following information:

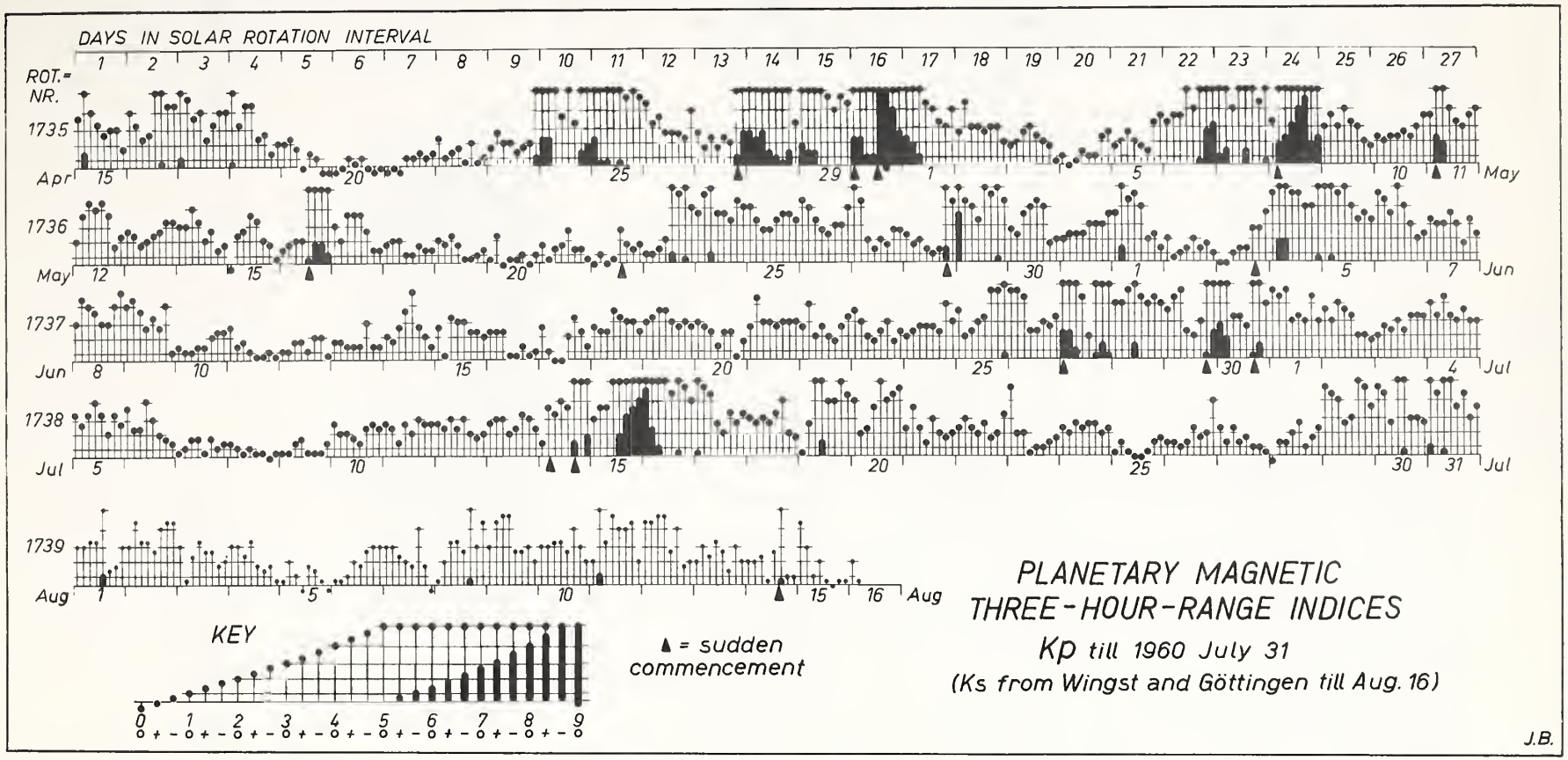
1959 Sept. 11, type II, 2203.6-2205 UT, intensity 2.

GEOMAGNETIC ACTIVITY INDICES

JULY 1960

July 1960	C	Values Kp Three hour Gr. interval 1 2 3 4	5 6 7 8	Sum	Ap	Final Selected Days
1	1.2	5- 4+ 5- 3o	3+ 3o 4+ 3o	30+	26	Five
2	0.9	4- 3o 4o 4-	3+ 2o 2o 2-	23+	16	Quiet
3	0.8	2o 3- 2+ 3o	2+ 3+ 3+ 3+	22+	13	
4	1.0	4o 3+ 4+ 3+	3o 4- 3o 3o	28-	20	7
5	0.9	3+ 3- 3+ 4o	3+ 2o 3+ 3-	25-	16	8
						9
6	0.6	4- 2+ 2+ 4o	3o 2o 2- 1+	20+	12	25
7	0.2	1- 1o 2- 2-	1- 2- 1o 1+	10-	5	27
8	0.0	1+ 1o 1- 1o	1- 1- 0+ 1-	6+	3	
9	0.1	1- 1- 1+ 2-	1- 1- 1- 1+	8-	4	
10	0.5	3- 2o 2o 2-	1+ 2+ 3- 2+	17o	8	
11	0.8	3- 2+ 1+ 3-	2o 3o 3- 3-	19+	10	Five
12	0.7	3- 2+ 3o 2+	3o 2o 2- 2o	19o	10	Disturbed
13	0.7	3- 3o 3o 2o	2+ 3+ 3o 2+	22-	12	
14	1.4	1+ 4- 3+ 4o	4- 6o 5o 6+	33+	40	14
15	1.8	3o 4- 4- 5o	6+ 7+ 8- 8o	45-	93	15
						16
16	1.7	8+ 7- 6- 5o	4+ 5+ 5- 4o	44o	77	19
17	1.2	5+ 5- 4+ 3-	2o 3+ 3- 3+	28+	24	31
18	0.9	3o 3- 3o 3-	3+ 4o 2o 2-	22+	14	
19	1.4	1- 3- 5o 6o	4o 4o 5o 4+	32-	35	
20	1.2	4o 2o 2+ 4-	5o 4o 4+ 5-	30o	26	
21	0.6	2+ 4- 2+ 1+	3o 2o 2- 2o	18+	10	Ten
22	0.6	2+ 3o 2+ 2o	3- 2- 2o 3+	19+	10	Quiet
23	0.6	5- 2o 2o 1-	1o 1o 1+ 2-	14+	9	
24	0.7	2+ 2o 3- 2+	3- 3- 2o 2+	19o	10	7
25	0.0	1- 1+ 1- 0+	0+ 1- 1+ 2-	7o	4	8
						9
26	0.5	1+ 1+ 1o 1+	2+ 2- 2o 4o	15o	8	10
27	0.3	2+ 1+ 2+ 1+	2- 1o 1o 1-	12-	6	23
28	0.4	0o 1+ 1+ 2o	3- 1o 2- 2+	12+	6	24
29	1.3	5- 4+ 4o 3-	3o 5o 5- 4-	32o	29	25
30	1.2	5- 4+ 3- 5o	5+ 3o 3o 3-	31-	29	26
31	1.3	6- 4+ 5+ 5o	4- 4+ 3o 4-	35o	37	27
						28
Mean:	0.82			Mean:	20	

COMMERCE - STANDARDS - BOULDER



COMMERCE - STANDARDS - BOULDER

CRPL RADIO PROPAGATION QUALITY FIGURES AND FORECASTS
NORTH ATLANTIC

JULY 1960

July 1960	North Atlantic 6-hourly quality figures				Short-term forecasts issued about one hour in advance of:				Whole day index	Advance forecasts (J-reports) for whole day; issued in advance by:				Geomagnetic K_{Fr}	
	00 to 06	06 to 12	12 to 18	18 to 24	00	06	12	18		1-7 days Final	1-7 days Js	1-3 days SDW	1-7 days J	Half (1)	Day (2)
1	6-	4o	5o	6-	4	4	6	6	5o	4			4	(4)	3
2	6o	4+	5-	6o	6	5	6	5	5o	5			5	3	2
3	7-	6o	6o	6+	6	5	6	6	6+	6			6	3	3
4	6+	5-	6o	6+	6	5	5	6	6o	6			6	(4)	3
5	6o	5o	6-	6+	6	5	6	6	6-	6			6	(4)	3
6	6+	6+	6+	6+	6	5	6	6	6+	6			6	3	2
7	7-	6o	7-	7-	7	6	7	7	6+	6			6	2	1
8	7o	7-	7o	7-	7	7	7	7	7-	6			6	1	0
9	7o	7-	7-	7-	7	7	7	7	7-	7			7	1	1
10	7o	7-	7-	7-	7	7	7	7	7-	7			7	2	2
11	7o	7-	7-	7-	7	7	7	7	7-	7			7	3	3
12	7-	5o	6+	7-	7	6	6	6	6+	7			7	3	2
13	7-	6-	6+	7-	7	6	7	7	6+	7			7	3	3
14	7-	5o	6o	6o	6	6	6	6	6o	7			7	3	(5)
15	6-	4-	4+	3o	4	4	5	4	(4o)	7			7	(4)	(5)
16	2o	2o	4-	4+	3	1	3	3	(3o)	4	4		6	(6)	(4)
17	3-	2o	5o	6-	4	3	5	6	(3+)	5	5		6	(5)	3
18	6-	4-	6o	6+	5	5	6	6	5o	6	6		6	3	3
19	6+	3o	6-	6+	6	5	4	5	5-	6	6		7	(4)	(4)
20	6o	5-	6+	6o	6	3	6	6	6-	6	6		7	3	(4)
21	6o	4+	6+	7o	6	5	6	6	6-	6			6	3	2
22	7-	6-	6+	7-	6	5	6	7	6+	6			6	3	2
23	6-	6-	6+	7-	7	5	6	7	6o	6			6	2	2
24	7-	6o	7-	7-	6	6	6	7	7-	6			6	3	2
25	7-	6+	7-	7o	7	6	7	7	7-	6			6	1	2
26	7o	7-	7-	7-	7	6	7	7	7-	6			6	1	3
27	7-	6+	7-	7o	6	6	7	7	7-	5			5	2	2
28	7o	7-	7o	7-	7	7	7	7	7-	6			6	1	2
29	6+	6-	6o	6+	7	6	6	6	6o	6			6	(4)	(4)
30	4+	3o	5+	6-	5	4	5	5	(4+)	5			5	(4)	3
31	5o	3+	5o	6o	6	3	5	5	5-	5			5	(5)	3

Score:											
Quiet Periods	P	17	13	23	23		15		14		
	S	9	7	5	6		11		11		
	U	0	1	0	0		1		2		
	F	2	0	1	0		0		0		
Disturbed Periods	P	0	3	0	0		0		0		
	S	3	6	2	2		2		1		
	U	0	1	0	0		1		0		
	F	0	0	0	0		1		3		

( ) represent disturbed values.

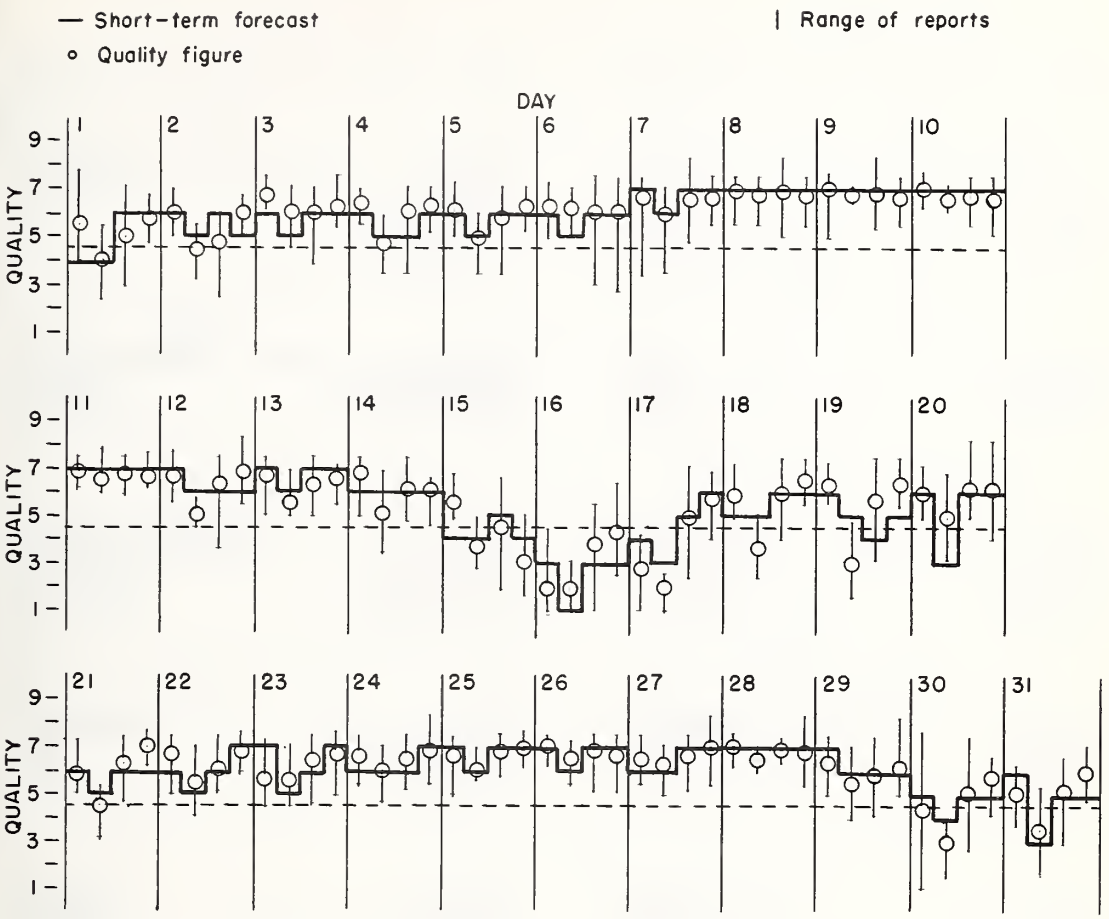
All times are Universal Time (U.T.)

COMMERCE - STANDARDS - BOULDER

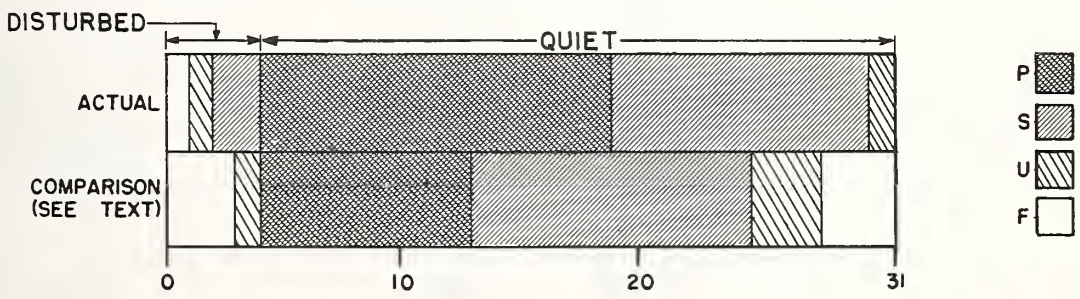
CRPL RADIO PROPAGATION QUALITY FIGURES AND FORECASTS

NORTH ATLANTIC

JULY 1960

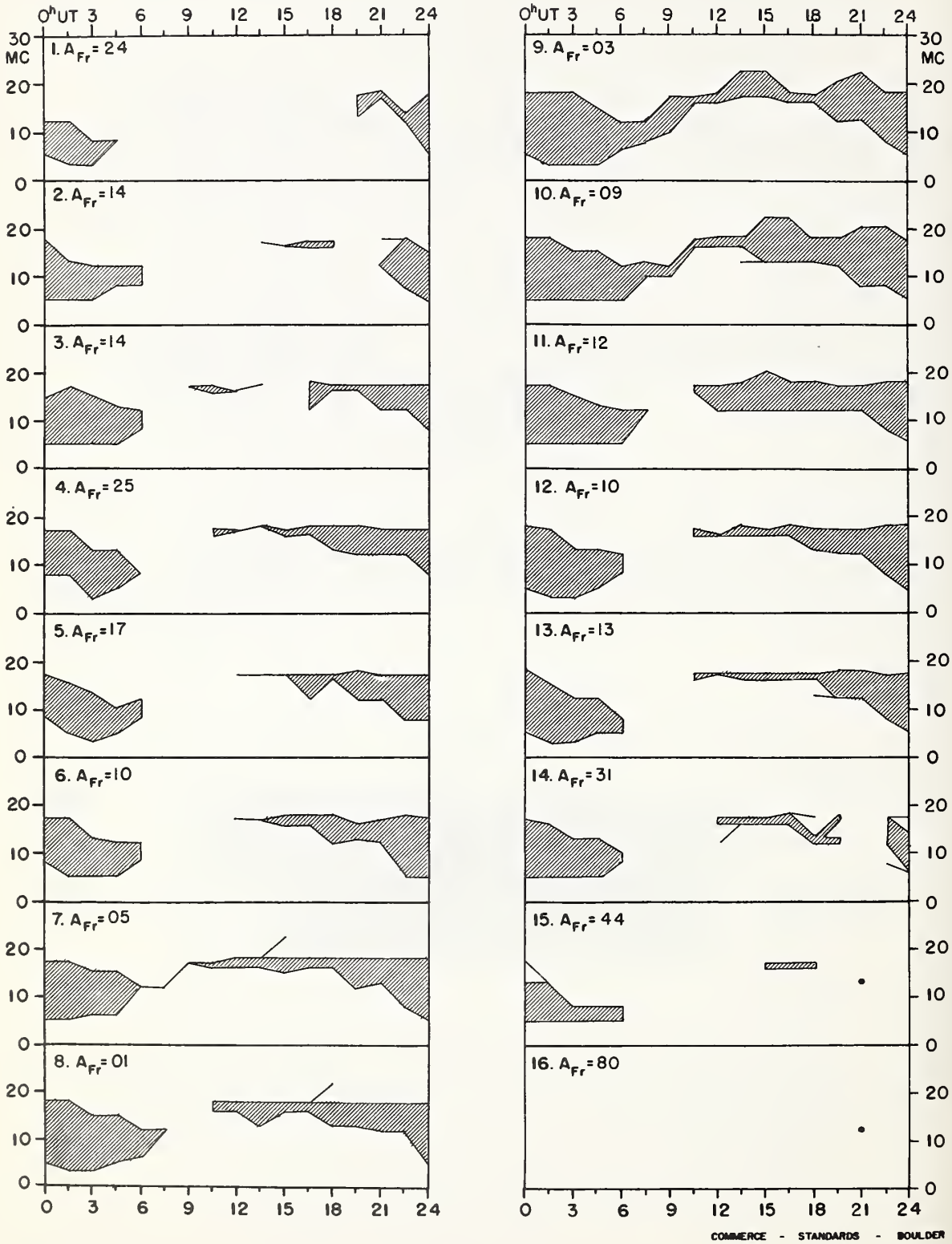


OUTCOME OF ADVANCED FORECASTS FINAL ESTIMATE

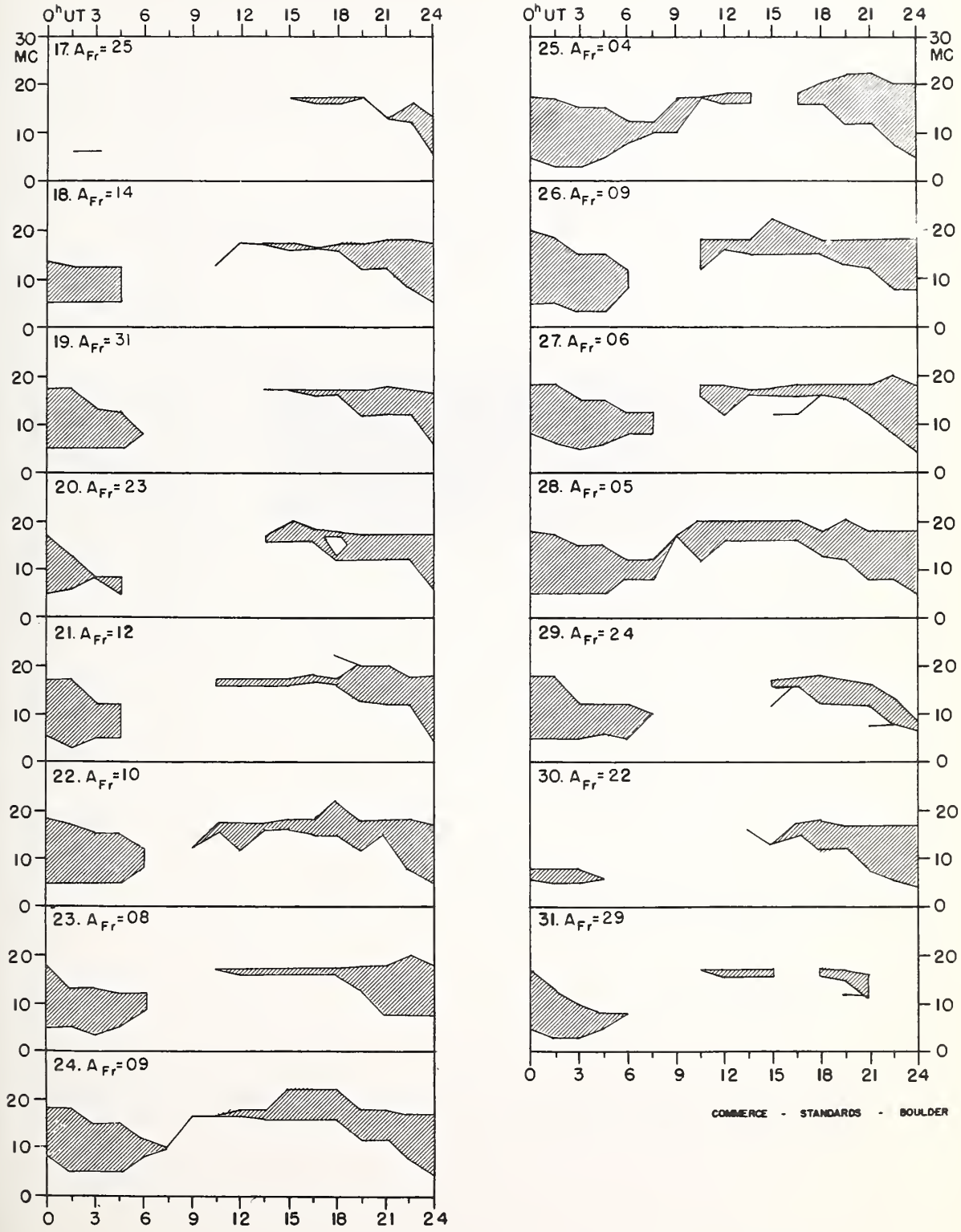


USEFUL FREQUENCY RANGES -- NORTH ATLANTIC PATH

JULY 1960



JULY 1960



Adapted from Observations by Deutsches Bundespost

CRPL RADIO PROPAGATION QUALITY FIGURES AND FORECASTS

NORTH PACIFIC

JULY 1960

July 1960	North Pacific 12-hourly quality figures		Short-term forecasts issued at		Whole day index	Advance forecasts (Jp reports) for whole day; issued in advance by:				Geomagnetic K_{Si}	
	0700 to 1900	1900 to 0700	0600	1800		1-7 days Final	1-7 days Jps	1-3 days SDW	1-7 days Jp	Half Day (1)	Day (2)
1	5	6	5	6	5	5			5	(4)	3
2	6	5	5	5	6	5			5	(4)	2
3	6	6	6	6	6	6			6	3	3
4	6	5	5	6	6	6			6	(4)	3
5	6	5	5	5	6	6			6	(4)	3
6	5	6	5	5	5	6			6	3	2
7	7	6	6	6	7	5			5	2	1
8	6	7	6	6	6	5			5	2	1
9	6	7	6	7	7	6			6	1	1
10	7	7	7	7	7	6			6	2	2
11	7	7	7	6	6	6			6	2	2
12	6	7	6	6	6	6			6	3	2
13	7	7	6	6	7	6			6	3	2
14	6	6	6	5	6	6			6	(4)	(4)
15	3	2	6	3	(3)	6			6	(5)	(8)
16	3	3	3	3	(2)	4	4		6	(7)	(5)
17	4	5	4	4	(4)	5	5		6	(5)	3
18	6	6	5	6	6	6	6		6	(4)	3
19	3	4	6	5	(4)	6	6		6	(5)	(4)
20	6	6	5	5	5	6	6		6	3	(4)
21	6	6	5	5	6	5			5	3	2
22	7	6	6	7	6	6			6	2	2
23	7	7	7	6	7	6			6	2	1
24	6	5	6	7	6	6			6	2	2
25	6	6	6	6	6	5			5	1	1
26	8	6	6	6	7	5			5	2	2
27	7	6	6	6	6	5			5	2	1
28	6	6	7	7	6	6			6	1	2
29	6	5	6	5	6	6			6	(4)	(4)
30	4	6	5	5	5	6			6	(5)	(4)
31	4	4	5	4	(4)	6			6	(6)	(4)

Score:				
Quiet Periods	P	13	12	12
	S	11	14	12
	U	1	1	2
	F	0	0	0
Disturbed Periods	P	2	2	0
	S	2	2	1
	U	0	0	1
	F	2	0	3

( ) represent disturbed values.

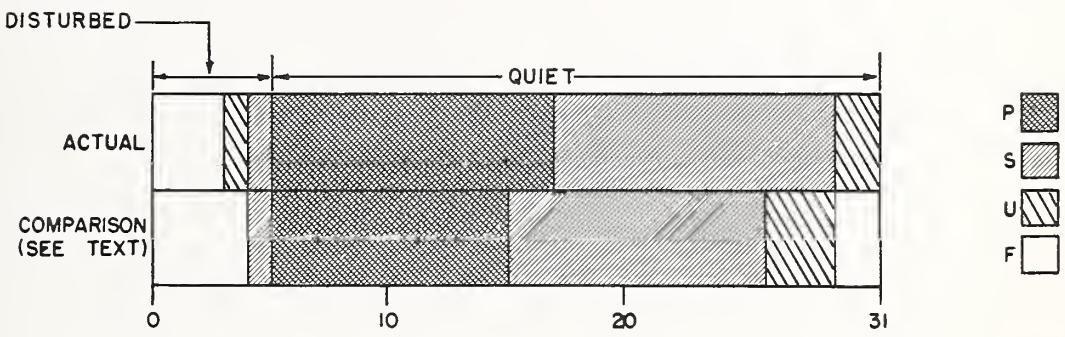
All times are Universal time (U.T.)

COMMERCE - STANDARDS - BOULDER

NORTH PACIFIC

JULY 1960

OUTCOME OF ADVANCED FORECASTS FINAL ESTIMATE



ALERT PERIODS AND SPECIAL WORLD INTERVALS

INTERNATIONAL WORLD DAY SERVICE

AUGUST 1960

Issued Day/Time UT Aug. 1960	Advance Geophysical Alert	No.	World-Wide Geophysical Alert	Special World Interval
16/1600		79	Magnetic Storm 16/1410Z	Start Special World Interval
17/1600		80		Continue Special World Interval
18/1600		81		Finish Special World Interval
20/1100	Ft. Belvoir, Magnetic Storm 19/1615Z			
20/1600		82	Magnetic Storm 19/1615Z	
28/0745	Ft. Belvoir, Magnetic Storm 27/2010Z			
29/1230	Ft. Belvoir, Magnetic Storm 29/0020Z			
29/1600		83	Magnetic Storm 29/0020Z	
30/0500	Ft. Belvoir, Magnetic Storm Aurora Probable 29/0020Z			
30/1600		84	Magnetic Storm Aurora Probable 29/0020Z	

COMMERCE - STANDARDS - BOULDER