PART B

SOLAR - GEOPHYSICAL DATA

ISSUED

FEBRUARY 1962

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

CRPL-F 210
PART B

NATIONAL BUREAU OF STANDARDS
CENTRAL RADIO PROPAGATION LABORATORY
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Issued
28 Feb. 1962

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CONTENTS

ADDENDA TO TEXT PUBLISHED NOVEMBER 1961

II SOLAR CENTERS OF ACTIVITY

Mount Wilson Magnetic Classifications of Sunspots

This report lists the date and time (UT) of the observation, the approximate heliocentric coordinates, and the magnetic classification of the sunspot groups, as observed at the Mt. Wilson Observatory. Only those groups for which magnetic measures are available will be listed; no attempt will be made to number groups.

The classification system gives the maximum magnetic information. The classifications are defined as follows:

αp	All the magnetic measures in the group are of the same polarity which is that corresponding to the preceding spots in that hemisphere for that cycle.
αf	All the magnetic measures in the group are of the same polarity which is that corresponding to the following spots in that hemisphere for that cycle.
βp	A bipolar group in which the magnetic measures indicate that the preceding spots are dominant.
β	A bipolar group in which the magnetic measures indicate a balance between the preceding and following spots.
βf	A bipolar group in which the magnetic measures indicate that the following spots are dominant.
$\beta\gamma$	A group which has general β characteristics but in which one or more spots are out of place as far as the polarities are concerned.
γ	A group in which the polarities are completely mixed.

IV SOLAR RADIO WAVES

2800 Mc Observations

Beginning with the start of 1962, the routine solar noise observations at 2800 Mc (10.7 cm) of the Radio and Electrical Engineering Division of the National Research Council will be made at the new Algonquin Radio Observatory (ARO) which has been established at Lake Traverse, Ontario, 150 miles northwest of Ottawa.

At this site, the patrol observations will be carried out by the use of two Dicke type radiometers which are both connected to a single 1.8 metre (6 foot) parabolic reflector. This system is operationally equivalent to the original installation at Goth Hill, Ottawa, but differs from it in that the diameter of the reflector has been increased from 1.2 metres (4 feet) and newer components used in the radiometers. These differences have resulted in an increase in the signal-to-noise ratio by at least a factor of 2, so that smaller bursts are more evident on the records from ARO than on those from Goth Hill.

Simultaneous observations have been carried out at the two observatories for a period of 15 months and it is believed that the new equipment has been satisfactorily calibrated in terms of the older apparatus. By comparing the daily calibrations at ARO with those at Goth Hill for this whole period, a transfer constant has been found which should ensure that the daily flux values reported from ARO will be consistent with those reported in the past from Goth Hill. This transfer constant (.256) has been found from 374 observations with a standard deviation of .00575.

As in the past, the calibrations from two independent radiometers will be averaged to provide the daily flux value. The ratios of the calibrations from the two radiometers at ARO have been found for the year 1961, and the 362 values had a mean of 0.9915 with a standard deviation of .00977. The ratios of the calibrations from the two radiometers at Goth Hill for the same period had a mean of 1.0006 with a standard deviation of .01326 (309 values). It is interesting to note that the standard deviation of the ARO values is 25% less than that of the Goth Hill values.

Even though the new station is now supplying the daily reports, it is planned to continue to use the Goth Hill equipment, at least intermittently, until the forthcoming sunspot minimum. These additional observations will provide further checks on the transfer constant mentioned above.

The transfer of the patrol observations to ARO has taken place at a time when interference at 2800 Mc from radars has grown to an exceedingly high and troublesome level at Goth Hill. Unfortunately, some interference at this same frequency has been observed at ARO but should not increase to the same extent. This continuing interference raises the possibility that observations will have to be transferred to the near-by frequency of 2700 Mc , which has been allocated by the International Telegraph Union, Geneva Conference 1959, for use in radio astronomy. Plans are now being made to construct apparatus for this allocated frequency in order to conduct tests. If this frequency band shows less interference, the transfer of patrol observations from 2800 Mc to 2700 Mcs may be undertaken. Such a transfer would not be achieved as simply as the present one since spectral differences would have to be examined in addition to the calibration of the apparatus.

Dec. 1961	American Relative Sunspot Numbers R_A'
1	63
2	69
3	53
4	58
5	38
6	23
7	26
8	29
9	17
10	9
11	0
12	0
13	0
14	3
15	0
16	0
17	3
18	2
19	6
20	10
21	26
22	39
23	61
24	77
25	80
26	74
27	80
28	64
29	57
30	46
31	40
Mean:	34.0

Jan. 1962	Zürich Provisional Relative Sunspot Numbers R_Z	Daily Values Solar Flux at 2800 Mc, Ottawa, Canada* Flux
1	27	-
2	23	-
3	17	79
4	10	81
5	17	78
6	9	77
7	10	77
8	8	74
9	8	74
10	13	75
11	7	76
12	7	77
13	12	74
14	28	82
15	20	86
16	19	84
17	16	87
18	22	94
19	29	99
20	34	107
21	42	112
22	63	111
23	82	116
24	83	114
25	88	115
26	86	115
27	92	115
28	85	115
29	66	109
30	71	101
31	70	102
Mean:	37.5	93.4

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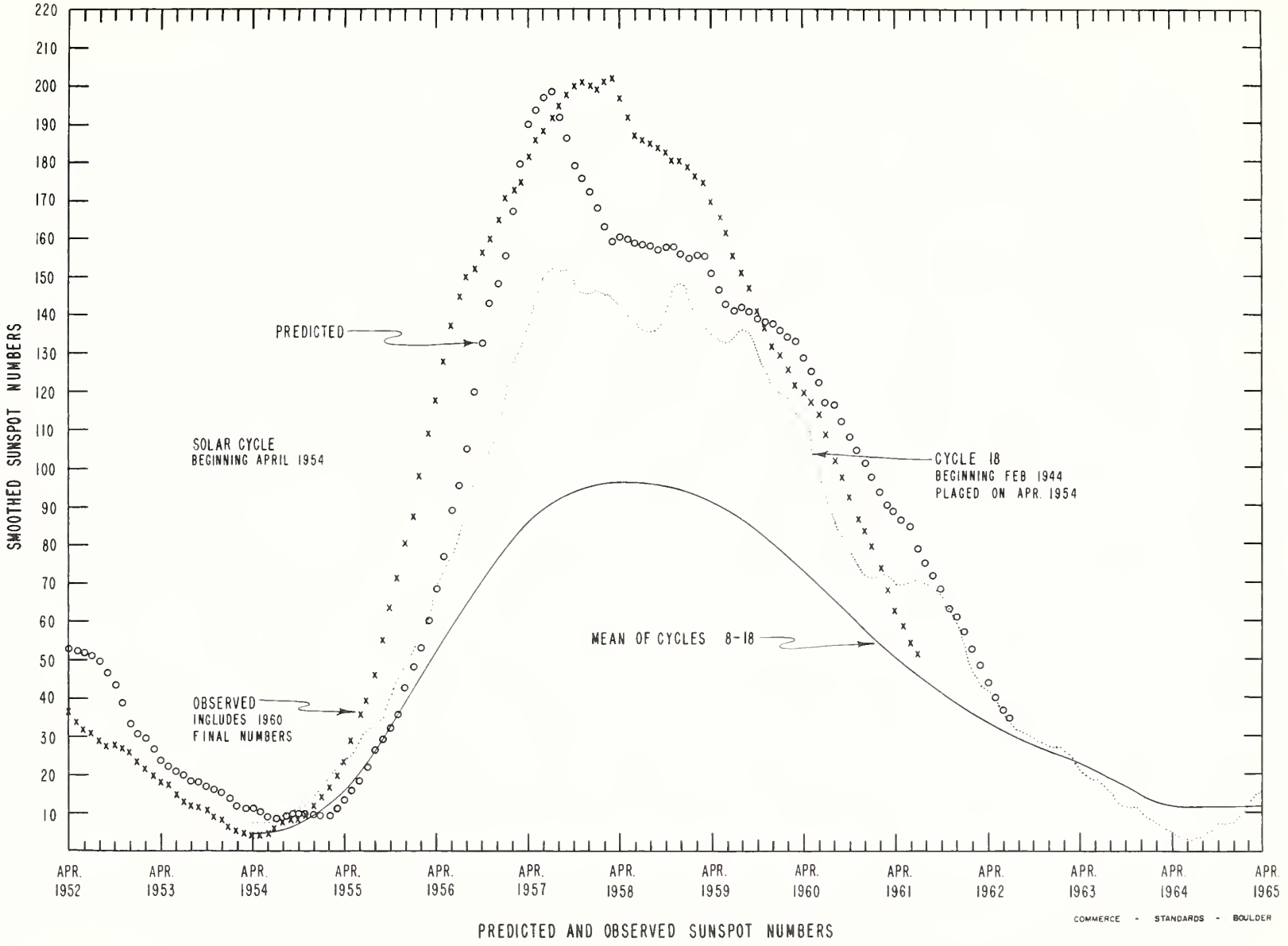
*Footnote: Patrol observations of solar radio noise on 2800 Mc/s are now being made at the Algonquin Radio Observatory (ARO) located at Lake Traverse, Ontario, Canada. The daily flux values reported from ARO will be consistent with those reported in the past from Ottawa. To assure this, the radiometers at the two locations will be operated concurrently, at least on an intermittent schedule, until the forthcoming sunspot minimum.



PREDICTED AND OBSERVED SUNSPOT NUMBERS

CALCIUM PLAGE AND SUNSPOT REGIONS

JANUARY 1962

CMP Jan. 1962	Lat	McMath Plage Number	Return of Region	Calcium Plage Data				Sunspot Data		
				CMP Values Area	Int.	History, Age		CMP Values Area	Count	History
01.6	N20	6306	6285	1000	2	ℓ — ℓ	2			
02.0	N11	6307	6285	1000	2.5	ℓ — ℓ	2			
07.2	S13	6309	**	200	2.5	b ⟋⟍ d	(1)			
08.1	N16	6308	*	800	3.5	ℓ — ℓ	1	20	1	ℓ — ℓ
08.8	N15	6315	New	200	2	b ⟋ ℓ	1			
09.0	N04	6310	New	600	2.5	ℓ — ℓ	1			
09.8	N14	6311	**	200	2	ℓ ⟍ d	(1)			
10.5	N09	6312	6291	900	2	ℓ ⟋ ℓ	5			
10.5	S16	6320	New	(600)	(2)	b ⟋ ℓ	1			
11.2	N23	6313	**	(300)	(2)	ℓ ⟍ d	(1)			
11.6	N25	6316	**	(300)	(2)	b ⟋⟍ d	(1)			
12.2	S09	6314	6295	(300)	(2)	ℓ ⟍ d	2			
14.2	S21	6317	**	(200)	(1)	ℓ ⟍ d	(1)			
16.8	N02	6318	6296	(300)	(2)	b ⟋⟍ d	(2)			
17.0	S03	6322	6296	500	1.5	b ⟋⟍ d	2			
19.7	N16	6319	6299	2100	3	ℓ — ℓ	5	(100)	(2)	ℓ ⟋ ℓ
19.9	S12	6323	**	600	2	b ⟋⟍ d	1			
22.6	S04	6321	***	2300	2.5	ℓ ⟋ ℓ	2			
24.2	N08	6324	6302	4500	3.5	ℓ — ℓ	5	1260	27	ℓ — ℓ
25.1	N22	6325	6303	1400	3.5	ℓ — ℓ	2	130	3	ℓ ⟍ d
27.7	S11	6328	6304	200	2	b ⟋ ℓ	3			
29.1	S17	6329	New	300	2	b ⟋ ℓ	1			
29.5	N12	6326	6307	4500	3.5	ℓ — ℓ	3	510	20	ℓ — ℓ
30.5	S12	6327	New	800	2.5	ℓ — ℓ	1			

*New, in position of 6289
**Small, ephemeral
***6300, 6301

Jan. 1962	Time Meas.	Lat.	Mer. Dist.	Type
1	2135	N19	W62	αp
		N09	W60	αp
3	2345	N15	E52	βf
4	2320	S14	E30	β
		N15	E42	αf
5	1640	N16	E34	αf
12	1640	N04	W49	αp
		N14	E87	αp?
14	2250	N05	W76	αp
		N13	E52	αp
		N13	E61	αp
15	1640	N05	W71	β
		S21	W69	αf
		N16	E41	αp
		N17	E50	αp
17	1725	N14	E15	αp
		N16	E26	βf
19	1710	N04	E61	βγ
26	1730	N07	W35	βp
		N22	W28	βp*
		N11	E37	βf
29	1710	N07	W75	βp
		N10	W03	βγ
31	2320	N10	W32	βγ
		S09	W27	βp
		N07	E54	β
		N10	E67	αp

*Polarities Reversed For This Cycle.

PROVISIONAL CORONAL LINE EMISSION INDICES

JANUARY 1962

CMP Jan 1962	North East Quadrant (observed 7 days earlier)				South East Quadrant (observed 7 days earlier)				South West Quadrant (observed 7 days later)				North West Quadrant (observed 7 days later)			
	G_6	G_1	R_6	R_1	G_6	G_1	R_6	R_1	G_6	G_1	R_6	R_1	G_6	G_1	R_6	R_1
1	57	104	42a	120a	21	25	12a	18a	x	x	x	x	x	x	x	x
2	45	72	x	x	11	12	x	x	x	x	4a	6a	x	x	1a	2a
3	31	48	x	x	7	10	x	x	7	11	17	28	18	20	21	24
4	15	26	19	32	4	6	16	20	10	11	3	4	19	25	12	30
5	23	36	19	30	5	6	19	37	7	14	3a	11a	14	20	7a	12a
6	27	40	14	20	5	10	11	12	x	x	x	x	x	x	x	x
7	x	x	5	8	x	x	8	8	x	x	x	x	x	x	x	x
8	40	56	15a	40a	9	14	17a	24a	10	28	15	25	42	64	24	40
9	36	84	31a	60a	7	11	28a	33a	14	28	18a	34a	53	106	22a	36a
10	29	31	14	16	14	22	24	44	x	x	x	x	x	x	x	x
11	6a	8a	5	7	1	2	5	5	x	x	x	x	x	x	x	x
12	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
13	x	x	x	x	x	x	x	x	5	6	11	15	9	12	12	17
14	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
15	x	x	x	x	x	x	x	x	3	5	7	10	4	6	8	10
16	x	x	x	x	x	x	x	x	8	11	9a	12a	15	20	9a	12a
17	31	34	12	20	8	11	12	18	9	14	31	32	29	62	38	61
18	53	148	12	20	11	22	7	10	x	x	x	x	x	x	x	x
19	64	165	5a	14a	12	17	5a	10a	12	20	31	49	46	92	31	54
20	x	x	x	x	x	x	x	x	14	26	22	27	27	40	17	32
21	x	x	x	x	x	x	x	x	35	62	23	33	45	62	13	17
22	35	66	9	15	34	64	17	35	33	47	12	17	38	46	8	15
23	77	118	13a	26a	24	42	19a	26a	25	40	15	25	52*	72	20	57
24	x	x	x	x	x	x	x	x	25	34	x	x	52	64	x	x
25	x	x	x	x	x	x	x	x	37	48	x	x	29	36	x	x
26	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
27	25	41	14	22	14	20	11	15	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	31	61	19	47	5	8	9	12	33	53	x	x	53	101	x	x
30	38	84	27a	58a	12	17	10a	18a	x	x	x	x	x	x	x	x
31	31	50	39	57	25	76	35	64	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

JANUARY 1962

OBSERVATORY	DATE JAN 1962	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
KODAIKANL	03	0313 E	0320 D	0316	N12	W75	6302	7 D	1	2	0316	.60	2.10	1.84	122	
KODAIKANL	03	0335 E	0349 D	0340	N12	W75	6302	14 D	1+	2	0340	1.10	4.20	2.00	135	
LOCKHEED	11	1715	1749	1726	N17	E90	6319	34	1	2	1726	.40	2.00		20	
LOCKHEED	11	1809	1833	1819	N17	E90	6319	24	1	2	1819	.40	2.00		10	
LOCKHEED	11	1845	1900	1853	N17	E90	6319	15	1	1	1853	.40	2.00		20	
LOCKHEED	13	1616	1629	1620	N13	E90	6319	13	1	1	1620	.80	4.00		20	
LOCKHEED	13	1919	1929	1923	N13	E90	6319	10	1	1	1923	.40	2.00		20	
ONDREJOV	16	0928 E	0956 D		N14	E36	6319	28 D	1+	3	0929			3.10		
MEUDON	16	0951 E	1000 D		N16	E35	6319	9 D	1							
LOCKHEED	17	1645 E	1723	1700	N06	E90	6324	38 D	1	2	1700	.40	2.00		10	
LOCKHEED	17	2009	2029	2019	N06	E90	6324	20	1	2	2019	.40	2.00		10	
LOCKHEED	18	0003	0027	0015	N05	E90	6324	24	1	2	0015	.80	4.00		10	
WENDEL	18	1408 E	1420 D		N06	E70	6324	12 D	1				3.00			
LOCKHEED	18	1645 E	1815	1700	N05	E72	6324	90 D	1	1	1700	1.50	3.00		10	
LOCKHEED	18	1645 E	1815	1745	N05	E72										
KODAIKANL	20	0649 E	0652 D	0650	N07	E50	6324	3 D	1	2	0650	1.10	2.10	1.20	122	
UCCLE	23	0907	0926		N20	W46	6319	19	1	3		3.00	3.60			
KODAIKANL	24	0446 E	0459 D	0455	N20	E07	6325	13 D	1	2	0455	2.60	2.70	1.64	122	
LOCKHEED	25	2304	2350	2317	N11	E51	6326	46	1	2	2317	1.50	2.00		20	
SAC PEAK	27	2204	2230	2212	S08	E60	6330	26	1	3		2.31	3.47		22	
LOCKHEED	27	2206	2221	2211	S07	E60	6330	15	1	2	2211	1.50	2.20		20	
SAC PEAK	28	1620 U	1634	1626 U	N04	W50	6324	14 U	1	3		1.88	2.39		17	
SAC PEAK	28	1920 U	1945 U	1936 U	N10	E08	6326	25 U	1	3		2.37	2.37		20	
SAC PEAK	28	2136	2156 U	2140	N10	E12	6326	20 U	1	3		3.30	3.30		22	
LOCKHEED	28	2137	2211	2145	N10	E10	6326	34	1	2	2145	2.10	2.10		30	
SAC PEAK	29	2213	2236 U	2218	N10	E10	6326	25 U	1	3		3.03	3.03		20	
UCCLE	29	1518	1550 D	1526	N08	E00	6326	32 D	1+	3	1526	5.50	5.50			
SAC PEAK	29	1520	1620	1528	N10	W01	6326	48	1	3		2.89	2.89		18	
UCCLE	30	0952	1016	0955	N08	W06	6326	24	1	3	0955					
ONDREJOV	31	1132	1153	1144	N11	W24	6326	21	2	3	1144			3.30		
UCCLE	31	1141	1237	1149	N12	W23	6326	56	1	3		3.50	3.80			
WENDEL	31	1142 E	1240 D		N11	W21	6326	58 D	1+				5.00			
MEUDON	31	1145	1315	1147	N12	W20	6326	90	1							
LOCARNO	31	1230 E	1240 D		N10	W21	6326	10 D	1+	2						
WENDEL	31	1437	1450 D		N11	W32	6326	13 D	1				3.00			
SAC PEAK	31	1734	1803	1740	N11	W36	6326	34	1	3		1.88	2.06		18	
SAC PEAK	31	1902	1940	1906	N11	W36	6326	38	1	3		2.02	2.23		19	

COMMERCE - STANDARDS - BOULDER

ATHENES	ATHENS, GREECE
BAKOU	PIRGULI, USSR
CAPETOWN	ROYAL OBSERVATORY, CAPE OF GOOD HOPE
CAPRI F	CAPRI, ITALY (GERMAN)
CAPRI S	CAPRI, ITALY (SWEDISH)
GRIMÉE	SIMEIZ, USSR
HERSTMONCEU	ROYAL GREENWICH OBSERVATORY, HERSTMONCEUX, ENGLAND
HONOLULU	HAWAII, USA
IKOMASAN	KYOTO, JAPAN
KIEV KO	KIEV GAO, USSR
KIEV KY	KIEV UNIVERSITY, USSR
LOCKHEED	LOS ANGELES, CALIF., USA
MCMATH	MCMATH-HULBERT PONTIAG, MICH., USA
MOSGOU	MOSGOW-GAISH, USSR
NERA	NEDERHORST den BERGH, NETHERLANDS
NIZMIR	KRASNAYA PAKHRA, USSR
SAC PEAK	SACRAMENTO PEAK, N.MEX. USA
SALTSJÖBADEN	STOCKHOLM, SWEDEN
SCHAUINS	SCHAUINSLAND, GFR
TACHKENT	TASHKENT, USSR
WENDEL	WENDELSTEIN, GFR

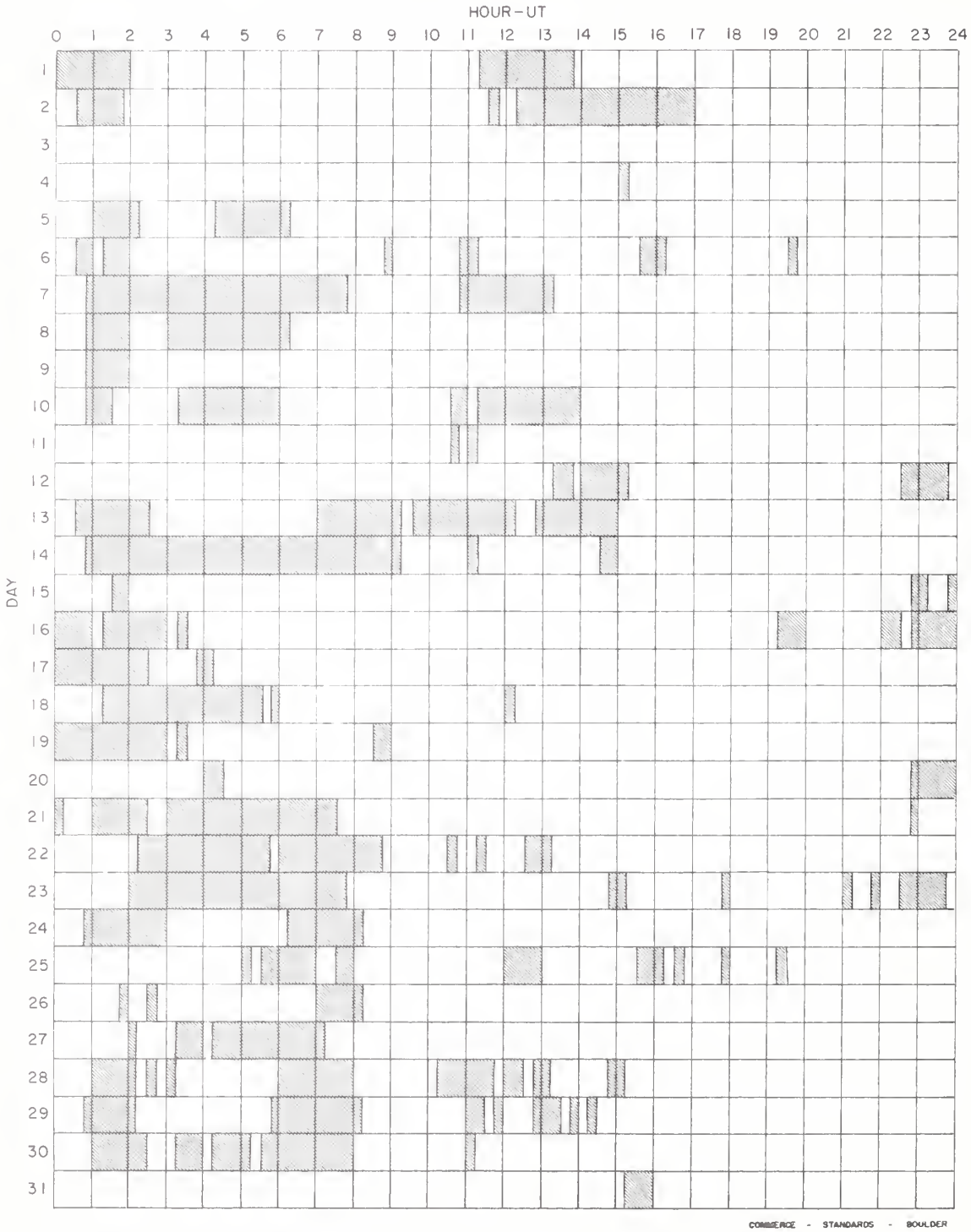
ALL VALUES IN THE MAXIMUM INTENSITY COLUMN FOR SAC PEAK ARE ARBITRARY UNITS (0-40) AND FOR LOCKHEED ARE ARBITRARY UNITS (10-40), NOT PERCENT OF CONTINUOUS SPECTRUM.

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

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

INTERVALS OF NO FLARE PATROL OBSERVATIONS

JANUARY 1962



Station Include:

Arcetri	Honolulu	Kodaikanal	McMath-Hulbert	Ondrejov	Wendelstein
Capri (Swedish)	Huancayo	Lockheed	Meudon	Sacramento Peak	

SUBFLARES

Noted as follows: Date-Universal Time-Coordinates

DECEMBER 1961

	MCMATH	01	1522	N15	E46
	SAC PEAK	01	1816	N11	W12
	HONOLULU	01	1830 E	N12	W12
	HONOLULU	01	1848	N13	W13
	SAC PEAK	01	1848	N11	W12
	MCMATH	01	1849 E	N10	W12
	MCMATH	01	1934	N15	E43
	SAC PEAK	01	2042	N06	W06
	SAC PEAK	01	2148	N12	W19
	UCCLE	02	0943	N15	E32
	UCCLE	02	1007 E	N14	E34
	UCCLE	02	1024	N11	W24
	UCCLE	02	1030	N14	E34
	UCCLE	02	1055	N14	E34
	SAC PEAK	02	1834	N15	E27
*	HONOLULU	02	1920	N12	W29
*	LOCKHEED	02	1945 E	N13	W32
	LOCKHEED	02	1949	S09	E02
*	HONOLULU	02	2134	N08	W21
	MCMATH	03	1820	N15	E16
	MCMATH	03	1820	N09	W33
	LOCKHEED	03	2050	N12	W44
*	LOCKHEED	04	1735	N15	E02
	LOCKHEED	04	1925	N16	E03
	LOCKHEED	04	2008	N15	E01
	CLIMAX	04	2009	N16	E02
	SAC PEAK	04	2012 E	N17	E03
	CLIMAX	04	2021	N14	E61
	LOCKHEED	04	2021	N13	W58
	KODAIKNL	05	0516 E	N15	E03
	UCCLE	05	0941	N16	W58
	WENOEL	05	1033 E	N14	W08
	CLIMAX	05	1612	N15	W10
	SAC PEAK	05	1640	N12	W67
	LOCKHEED	05	1820	N14	W11
	LOCKHEED	05	1936	N14	W16
*	LOCKHEED	05	1939	S10	W39
	LOCKHEED	05	2215	N09	W76
	UCCLE	06	1025	N12	W33
	UCCLE	06	1029	N15	W34
	KODAIKNL	06	1041	N17	W20
	UCCLE	06	1112	N13	W37
	UCCLE	06	1256	N13	W26
	UCCLE	06	1307	N10	W87
	UCCLE	06	1311	S12	W49
	UCCLE	06	1423	N16	W29
	LOCKHEED	06	1657	N07	W38
	LOCKHEED	06	1755	N07	W38
	LOCKHEED	06	1832	N07	W38
	UCCLE	07	1117	N13	W38
	LOCKHEED	07	1812	N10	W52
	LOCKHEED	07	1903	N10	W52
	HONOLULU	07	1922 E	N10	W53
	LOCKHEED	07	1923	N06	W53
	LOCKHEED	07	2015	N10	W52
	LOCKHEED	07	2050	N08	W53
	LOCKHEED	07	2315	N15	W44
	WENDEL	08	0944 E	N13	W61
	WENOEL	08	1235 E	N13	W63
	ONDREJOV	08	1337	N08	W60
	MCMATH	08	1515 E	N05	W62
	MCMATH	08	1515 E	N14	W55
	LOCKHEED	08	1748	S10	W85
	MCMATH	08	1855 E	N06	W65
	LOCKHEED	08	1919	S10	W85
	LOCKHEED	08	2145	S10	W85
	KODAIKNL	09	0903 E	N07	W75
	CAPRI S	09	1150	S11	W77
	SAC PEAK	10	1454	N10	W90
	SAC PEAK	10	1526	N19	W06
	SAC PEAK	10	1758	N17	W08
	SAC PEAK	10	2202	N18	W10
	LOCKHEED	13	1840	S09	E70
	HONOLULU	14	2034 E	N12	W47
	LOCKHEED	16	1801	N14	E90
	LOCKHEED	16	2046	N02	E56
	LOCKHEED	17	0016	N13	E90
	SAC PEAK	17	1926	N04	E44
	UCCLE	18	1220	N06	E36
	UCCLE	18	1253	S20	E65
	UCCLE	18	1333	S20	E65
	UCCLE	19	0921	N05	W87
	UCCLE	19	1029	N05	W87
	UCCLE	19	1321	N05	W87
	LOCKHEED	19	1955	N11	W18
	LOCKHEED	19	2109	S05	E90
	LOCKHEED	19	2145	N04	W90
	LOCKHEED	19	2204	S05	E90
	LOCKHEED	20	1614	S03	E80
	LOCKHEED	20	1654	S02	E90
	LOCKHEED	20	1748	S03	E90
	SAC PEAK	20	1928	S07	E90
	LOCKHEED	20	2044	S02	E02
	LOCKHEED	20	2127	S02	E90
	SAC PEAK	21	1604	S06	E67
	LOCKHEED	21	1820	S05	E67
	LOCKHEED	21	1851	S05	E67
	LOCKHEED	21	1911	S05	E67
	LOCKHEED	21	2035	S05	E67
	LOCKHEED	21	2154	S05	E67
	LOCKHEED	22	0007	S06	E63
	WENOEL	22	0941 E	S07	E57
	LOCKHEED	22	1630	N25	E80
	LOCKHEED	22	1638	N12	W01
	LOCKHEED	22	1815	S06	E52
	LOCKHEED	22	1830	N12	W00
	LOCKHEED	22	1932	S04	E48
	SAC PEAK	22	2146	N12	W01
	LOCKHEED	22	2230	N13	W01
	LOCKHEED	22	2234	S05	E56
	LOCKHEED	22	2317	N13	W01
	LOCKHEED	23	0002	N12	W02
	UCCLE	23	1028 E	S05	E50
	UCCLE	23	1038	N22	E68
	UCCLE	23	1049	N10	W06
	UCCLE	23	1120	N10	W06
	SAC PEAK	23	1546	N12	W10
	SAC PEAK	23	1600	S14	E90
	LOCKHEED	23	1600 E	S11	E90
	LOCKHEED	23	1652	S01	W30
	SAC PEAK	23	1658	N12	W11
	SAC PEAK	23	1700	S02	W31
	LOCKHEED	23	1711	N13	W13
	LOCKHEED	23	1804	S05	E35
	LOCKHEED	23	1825	N13	W13
	LOCKHEED	23	1856	N26	E65
	SAC PEAK	23	1906 U	N24	E65
	LOCKHEED	23	1912	N14	W14
*	HONOLULU	23	1952	S07	E42
	LOCKHEED	23	2050	N14	W14
*	LOCKHEED	23	2130	N14	W14
	LOCKHEED	23	2140	S07	E90
*	LOCKHEED	23	2150	N13	W14
	HONOLULU	23	2158 E	N13	W13
	LOCKHEED	23	2342	N13	W14
	WENOEL	24	0915 E	N13	E17
	UCCLE	24	1031	N12	W19
	ONOREJOV	24	1108	N09	E55
	WENOEL	24	1141 E	N24	W57
	LOCKHEED	24	1624	S04	E21
	LOCKHEED	24	1650	S12	E75
	LOCKHEED	24	1723	S03	E34
	LOCKHEED	24	1811	N16	W26
	SAC PEAK	24	1854	N14	W27
	LOCKHEED	24	1856	N15	W27
	LOCKHEED	24	2020	N13	W28

COMMERCE - STANDARDS - BOULDER

SUBFLARES

Noted as follows: Date - Universal Time - Coordinates

DECEMBER 1961

LOCKHEED	24	2135	N15 W20
LOCKHEED	24	2216	N13 W28
LOCKHEED	24	2345	S02 E30
LOCKHEED	24	2359	S12 E75
WENDEL	25	1016 E	N24 E40
UCCLE	25	1104 E	S06 E17
WENDEL	25	1105 E	S04 E17
LOCKHEED	25	1610	S06 E18
LOCKHEED	25	1658	S14 W90
LOCKHEED	25	1700	N11 E80
SAC PEAK	25	1736	N12 W32
LOCKHEED	25	1737	N13 W30
LOCKHEED	25	1737	N11 E39
LOCKHEED	25	1755	N21 E35
LOCKHEED	25	1755	S06 E17
SAC PEAK	25	1756	S06 E17
LOCKHEED	25	1910	S06 E17
SAC PEAK	25	2006	N22 E32
LOCKHEED	25	2007	N22 E31
SAC PEAK	25	2008	S08 E18
HONOLULU	25	2036	S07 E18
LOCKHEED	25	2100	N12 E39
HONOLULU	25	2216 E	N12 W34
LOCKHEED	25	2220	S09 E61
LOCKHEED	25	2344	S05 E13
KODAIKNL	26	0534	N12 E36
LOCKHEED	26	1750	S01 E05
LOCKHEED	26	1754	N20 E16
LOCKHEED	26	1825	N04 E49
SAC PEAK	26	2000	N02 W76
LOCKHEED	26	2239	N19 E15
LOCKHEED	26	2355	N18 E65
LOCKHEED	27	1629	N12 E17
SAC PEAK	27	1630	N12 E17
LOCKHEED	27	1704	N11 E15
SAC PEAK	27	1952	N12 E15
LOCKHEED	27	1953	N12 E14
LOCKHEED	27	2006	N21 E08
LOCKHEED	27	2041	N20 E12
SAC PEAK	27	2044	N21 E13
LOCKHEED	27	2059	N10 E05
LOCKHEED	27	2116	N11 E15
LOCKHEED	27	2157	N10 E11
SAC PEAK	27	2200	N12 E12
LOCKHEED	27	2240	N11 E12
HONOLULU	27	2308	N11 E15
LOCKHEED	27	2308	N12 E13
LOCKHEED	27	2345	N12 E13
HONOLULU	27	2346	N18 E18
LOCKHEED	27	2350	N22 E04
HONOLULU	28	0116	N13 E13
WENDEL	28	0859 E	S06 W12
WENDEL	28	0920 E	S04 W22
WENDEL	28	1202 E	S03 W29
WENDEL	28	1240 E	S04 W29
SAC PEAK	28	1622	N13 E03
SAC PEAK	28	1710	S04 W32
HONOLULU	28	1822 E	N19 W09
SAC PEAK	28	1826	S03 W33
HONOLULU	28	1837 E	S11 W33
HONOLULU	28	1958 E	N12 W00
SAC PEAK	28	1958	N13 E01
SAC PEAK	28	2130	N13 W00
HONOLULU	29	0052 E	N13 E02
ONDREJOV	29	1146	S03 W44
ONDREJOV	29	1210	S03 W44
SAC PEAK	29	1558	N12 W17
SAC PEAK	29	1948	N11 W15
LOCKHEED	30	1933	N19 W26
SAC PEAK	30	1936	N20 W28

COMMERCE - STANDARDS - BOULDER

Rated as flare of importance 1 by other observatories (see CRPL-F 209 Part B for January 1962).

SOLAR FLARES

SEPTEMBER 1961

OBSERVATORY	DATE SEPT 1961	OBSERVED UNIVERSAL TIME			LOCATION			DURATION — MINUTES	IMPORTANCE	OBS. COND.	MEASUREMENTS					PROVISIONAL IONOSPHERIC EFFECT
		START	END	MAX PHASE	APPROX. LAT.	APPROX. MER. DIST.	McMATH PLAGE REGION				TIME — U T	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hα	MAX. INT. %	
TACHKENT	01	0320	0507	0452	N13	E42	6212	107	1			2.37	3.20			
TACHKENT	01	0320	0507	0322	N13	E42			1							
TACHKENT	01	0320	0507	0433	N13	E42			1							
MITAKA	01	0321	0335 D		N13	E44	6212	14 D	1	1	0321	1.81	2.64	2.49	113	
MITAKA	01	0359	0426	0415	N11	E40	6212	27	1	1	0409	.50	.69	2.70	140	
MITAKA	01	0430	0443 D	0435	N11	E39	6212	13 D	1	1	0432	.50	.69	1.96	120	
MITAKA	01	0447	0502	0456	N10	E38	6212	15	1	1	0451	.50	.66	1.95	120	
IKOMASAN	01	0450	0500		N12	E38	6212	10	1		0450	3.09		1.34	110	
CAPRI G	01	0705 E	0755 D		N13	E40	6212	50 D	1	3	0706		3.00			
SCHAUINS	01	0740	0813		N11	E40	6212	33	1				4.00			
LOCARNO	01	1306	1328		N18	W89	6206	22	1	1						
ZURICH	01	1315 E	1318		N17	W88	6206	3 D	1	3	1315		2.00			
ZURICH	01	1342	1347		N10	E32	6212	5	1	3	1342		2.00			
CAPRI G	01	1427 E	1512 D		N12	E35	6212	45 D	1	3	1430		3.00			
CAPRI G	01	1542 E	1602 D		N12	E45	6212	20 D	1	2	1545		5.00			
TACHKENT	02	0321	0346	0324	N11	E28	6212	25	2		0324	8.04	8.80	5.10	140	
MITAKA	02	0337 E	0352		N09	E25	6212	15 D	1	1	0340	1.81	2.03	2.07	107	
MITAKA	02	0355	0412	0400	N13	E30	6212	17	1	1	0358	1.60	1.92	2.93	118	
ALMA-ATA	02	0436	0444	0440	N11	E25	6212	8	1+		0440	1.80			90	
MITAKA	02	0608	0643 D	0617	N11	E28	6212	35 D	1	1	0636	1.51	1.80	2.48	107	
KIEV KO	02	0608 E	0725 D	0613 U	N13	E27	6212	77 D	1+	1	0630	4.13			63	
KHARKOV	02	0610 E	0737 D		N13	E27	6212	87 D	1	1	0638	2.84	3.10	1.70		Slow S-SWF
CAPRI G	02	0610 E	0750 D	0655	N13	E28	6212	100 D	1	3	0655		6.00			
CAPETOWN	02	0644 E	0721		N14	E28	6212	37 D	1		0645	2.70	3.10			
SCHAUINS	02	0745 E	0830		N12	E23	6212	45 D	1	2			3.00			
CAPRI G	02	0805	0900		N13	E22	6212	55	1	3	0810		3.00			
CAPRI G	02	1110 E	1145 D		N12	E26	6212	35 D	1	3	1112		3.00			
SCHAUINS	02	1111 E	1117 D		N11	E23	6212	6 D	1	2			3.00			
CAPRI G	02	1207 E	1242 D	1214	N12	E24	6212	35 D	1	3	1214		5.00			
CAPETOWN	02	1347	1401 E	1358	N14	E25	6212	14 D	1		1358	3.10	3.40			
LOCARNO	02	1348	1440		N13	E23	6212	52	1+	1						
CAPRI G	02	1350 E	1412 D		N12	E26	6212	22 D	1	3	1355		4.00			Slow S-SWF
KIEV KO	02	1352 E	1418 D	1358 U	N15	E25	6212	26 D	1	1	1357	2.58			56	
IKOMASAN	02	2335	2346 D		N13	E18	6212	11 D	1		2340	4.13			100	
IKOMASAN	03	0050 E	0215 D	0110	N13	E18	6212	85 D	1		0110	1.44		1.22	100	
CAPRI G	03	0615 E			N12	E14	6212		1	2			3.00			
CRIMEE	03	0844	0852 D	0846	N14	E09	6212	8 D	1	2	0846	.90			86	
CAPRI G	03	1437 E	1504 D		N17	E76	6217	27 D	1	3	1439		2.00			
LOCARNO	03	1448	1525 D		N14	E10	6212	37 D	1	1						
CAPRI G	03	1455 E	1550 D		N14	E12	6212	55 D	1	3	1458		4.00			
KIEV KO	04	0636 E	0659 D		N13	W02	6212	23 D	1	1	0640	3.61			45	
CRIMEE	04	0727	0748 D	0735 U	N12	W06	6212	21 D	2-	2	0735	2.70			118	
KIEV KO	04	0729	0745	0733	N11	W07	6212	16	1+	1	0733	4.64			77	S-SWF
ABUSTUMANI	04	0730	0752	0735	N13	W06	6212	22	1	2		2.52	2.60		80	
SCHAUINS	04	0738 E	0800 D		N11	W05	6212	22 D	1	2			4.00			
ZURICH	04	1006	1023		N12	W02	6212	17	1	2	1006		4.00			
CAPRI G	04	1010 E	1028 D		N13	W02	6212	18 D	1	3	1016		3.00			
KIEV KO	04	1312 E	1330 D		N12	W05	6212	18 D	1	1	1312	1.03			50	

COMMERCE - STANDARDS - BOULDER

SOLAR FLARES

SEPTEMBER 1961

OBSERVATORY	DATE SEPT 1961	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
LOCARNO	04	1425	1500 D	1434	N14	W02	6212	35 D	2-	1	1434		4.00			
SCHAUINS	04	1435 E	1455		N13	W03	6212	20 D	1	2			5.00			S-SWF
CAPRI G	04	1438 E	1507 D		N12	W04	6212	29 D	2	3	1440		6.00			
ZURICH	04	1512	1537		N13	W03	6212	25	2	1	1512		6.00			
SCHAUINS	04	1516 E	1536		N13	W04	6212	20 D	1+	3			5.00			
CAPRI G	04	1521 E	1550 D		N12	W04	6212	29 D	2	2	1523		8.00			
IKOMASAN	04	2255	2320 D		N12	W10	6212	25 D	1		2255	4.13		1.18	100	
IKOMASAN	05	0456 E	0507 D		N13	W18	6212	11 D	1		0500	1.86			90	
CAPRI G	05	0827 E	0922 D		N12	W16	6212	55 D	1	3	0831		5.00			
CAPRI G	05	1010 E	1027 D		N14	W22	6212	17 D	1	3	1017		3.00			
SCHAUINS	05	1018 E	1028 D		N13	W20	6212	10 D	1	2			3.00			
CAPRI G	05	1258 E	1307 D		N13	W16	6212	9 D	1	2	1303		3.00			
SCHAUINS	05	1416 E	1425 D		N11	W21	6212	9 D	1	1			4.00			
CAPRI G	05	1427 E	1447 D		N13	W16	6212	20 D	1	2	1431		5.00			S-SWF
CLIMAX	05	1644	1734	1658	N14	W16	6212	50	1			2.20	2.20			Slow S-SWF
CRIMEE	07	0615	0621 D	0616 U	N12	W46	6212	6 D	1	2	0616	2.26			84	
CAPRI G	08	0818 E	0845 D		N13	W54	6212	27 D	1	3	0824		2.00			
LOCARNO	08	1115	1130 D		N13	W56	6212	15 D	1	3						
CAPRI G	08	1118 E	1142 D		N13	W57	6212	24 D	1	3	1121		3.00			
CAPRI G	08	1206 E	1212 D		N17	E24	6217	6 D	1	3	1208		4.00			
CAPETOWN	08	1331	1350 D	1335	N11	W60	6212	19 D	1		1335	1.40	2.80			
CAPRI G	08	1457 E	1545 D	1523	N15	E49	6222	48 D	2	2	1523		11.00			
OTTAWA	08	1446	1557 D		N19	W55	6212	71 D	2		1520	4.90	6.40			
CLIMAX	08	1446	1639 D	1520	N20	W53	6212	113 D	2			6.20	8.20			Slow S-SWF
SCHAUINS	08	1524 E	1545 D		N10	W50	6212	21 D	2	1			8.00			
ZURICH	08	1631 E	1635		N14	W59	6212	4 D	1	2	1631		2.00			
CLIMAX	08	1947	2006	1950	N12	W61	6212	19	1			1.50	2.30			
BAKOU	09	0810 E	0830 D	0818	S08	E75	6223	20 D	2	2	0818	4.56	19.00		59	
CAPRI G	09	0925 E	1020 D	0948	S13	W52	6215	55 D	1	3	0948		5.00			
CAPETOWN	09	1029	1051	1033	N12	W72	6212	22	1		1033	1.30				
CAPETOWN	09	1141	1340	1150	N16	W67	6212	119	1+		1150	.90	2.20			
CAPRI G	09	1142 E	1305 D	1224	N13	W63	6212	83 D	2	2	1224		9.00			
OTTAWA	09	1147 E	1210 D		N15	W70	6212	23 D	1		1210	2.20	3.70			
LOCARNO	09	1225 E	1320		N19	W63	6212	55 D	1+	3						
ABUSTUMANE	10	0656 E	0749 D	0703 U	S10	E60	6223	53 D	2	3		4.50	10.70		82	
BAKOU	10	0659 E	0740	0718	S08	E62	6223	41 D	1+	2	0718	4.10	9.44		71	
CAPRI G	10	0705 E	0737 D		S08	E61	6223	32 D	1	3	0725		6.00			
CAPETOWN	10	0714 E	0736		S08	E62	6223	22 D	1		0715	1.30	2.80			
KHARKOV	13	0923 E	0941 D		S14	E10	6223	18 D	1	1	0924	2.29	2.50	1.50		
CAPRI G	13	0923 E	0952 D		S14	E12	6223	29 D	1	3	0926		3.00			
CAPRI G	13	1130 E	1157 D		N14	E36	6224	27 D	1	3	1133		4.00			
SCHAUINS	13	1523	1542 D		N14	E34	6224	19 D	1	1			3.00			
SCHAUINS	13	1555 E	1610 D		S12	E20	6223	15 D	1	1			2.00			
IKOMASAN	13	2330	0027 D		S09	E12	6223	57 D	1		2400	4.13		1.18	100	
IKOMASAN	14	0220 E	0236		S09	E10	6223	16 D	1		0220	1.44		1.34	100	
CAPRI G	14	0918 E	0923 D		S08	E07	6223	5 D	1	3	0922		3.00			

SOLAR FLARES

SEPTEMBER 1961

OBSERVATORY	DATE SEPT 1961	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. °o	PROVISIONAL IONOSPHERIC EFFECT
VOROSHILOV	15	0032	0139 D	0039	S16	W12	6223	67 D	2	1		5.38			121	Slow S-SWF
ABUSTUMANE	15	0628	0636	0632	N09	W41	6221	8	1	3		2.70	5.10		65	
LOCARNO	15	1450	1530		S09	W11	6223	40	1	1						
CAPRI G	15	1457 E	1535 D		S09	W08	6223	38 D	1	3	1501		4.00			
SCHAUINS	15	1504 E	1519		S10	W09	6223	15 D	1	2			3.00			
CAPRI G	16	1107 E	1203 D		N17	E75	6227	56 D	2	3	1114		9.00			S-SWF
CAPETOWN	16	1143 E	1158		N20	E78	6227	15 D	2		1143	2.10				
MITAKA	17	0247 E	0251		S12	W37	6223	4 D	1	1	0248	.60	.77	2.82	120	
CAPRI G	17	0919 E	0931		S12	W39	6223	12 D	1	3	0923		3.00			
NIZMIR	17	0923 E	0930	0923	S11	W41	6223	7 D	1		0918	2.70			60	
CAPRI G	17	0931 E	0942 D		N22	W42	6222	11 D	1	3	0932		2.00			
LOCARNO	17	1304	1322		S13	W45	6223	18	1	2						
CAPRI G	17	1308 E	1412 D	1315	S12	W41	6223	64 D	1	3	1315		4.00			
CLIMAX	17	1750	1815	1755	N14	W27	6224	25	1			4.00	4.00			
VOROSHILOV	18	0030 E	0037 D		N15	E49	6227	7 D	1	2	0030	2.52			74	
CAPRI G	18	1127 E	1218 D		S06	W53	6223	51 D	1	3	1128		5.00			
KIEV KO	18	1128 E	1216 D	1132 U	S05	W50	6223	48 D	1+	2	1132	4.13			60	
SCHAUINS	18	1133 E	1142 D		S07	W49	6223	9 D	1	2			3.00			
CAPRI G	18	1346 E	1430 D		S11	W57	6223	44 D	1	3	1351		3.00			
VOROSHILOV	19	0047	0116	0055	N18	W39	6224	29	1	2		1.89			66	
ALMA-ATA	20	0410	0421	0416	N17	W60	6224	11	1		0416	.88			81	
CAPETOWN	20	1021	1027	1022	N13	W63	6224	6	1		1022	1.10	2.30			
CAPRI G	21	0746 E	0752 D		N17	W76	6224	6 D	1	3	0748		3.00			
CAPRI G	23	0644 E	0727 D		N08	E04	6228	43 D	1	3	0646		3.00			
ALMA-ATA	23	0650 E	0720	0650	N07	E03	6228	30 D	1		0650	2.17			58	
CAPRI G	23	0734 E	0740 D		N15	W18	6227	6 D	1	3	0736		5.00			
CAPRI G	23	0752 E	0845 D		N02	E73	6234	53 D	1	3	0754		3.00			
NIZMIR	23	0758 E	0815 D	0758	S04	E80	6234	17 D	1			.90			55	
CAPRI G	24	0703 E	0847 D		N07	W10	6228	104 D	1	3	0743		6.00			
CAPRI G	24	0707 E	0907 D	0825	N25	W30	6227	120 D	2	3	0825		8.00			
AROSA	25	0646	0700		N07	W25	6228	14	1							
CRIMEE	25	0647 E	0708 D	0649 U	N07	W25	6228	21 D	1	1	0649	.90			78	
CAPETOWN	25	0648	0705	0651	N07	W25	6228	17	1		0651	2.00	2.20			
AROSA	25	1015	1021		N07	W27	6228	6	1							
ZURICH	25	1420	1423		N08	W31	6228	3	1	3	1420		2.00			
CAPRI C	25	1420 E	1426 D		N08	W29	6228	6 D	1	3	1421		2.00			
CAPRI G	25	1435 E	1447 D		N07	W26	6228	12 D	1	3	1436		2.00			
ZURICH	25	1501	1507		N07	W28	6228	6	1	3	1501		2.00			
ZURICH	26	1020 E	1028		N12	E85	6237	8 D	1	1	1020		2.00			
CAPRI G	26	1016 E	1052 D	1037	N13	E65	6235	36 D	2	3	1037		8.00			
ZURICH	26	1020 E	1045		N11	E61	6235	25 D	1	1	1020		4.00			

SOLAR FLARES

SEPTEMBER 1961

OBSERVATORY	DATE SEPT 1961	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
CAPETOWN	26	1033 E	1058		N14	E65	6235	25 D	2		1033	3.00	7.10			
VOROSHILOV	26	2305	2322	2315	N11	E54	6235	17	1	2		1.26			65	
VOROSHILOV	27	0018	0103	0036	N08	E58	6235	45	1	2		1.62			76	
CAPETOWN	27	1107	1117	1110	N13	E78	6237	10	1		1110	1.10				
LOCARNO	27	1109	1120		N14	E77	6237	11	1	2						
CAPRI G	27	1117 E	1142 D		N13	E67	6237	25 D	1	3	1118		4.00			
LOCARNO	27	1445	1506	1451	N14	E61	6237	21	1+	2	1451		4.00			
CLIMAX	27	1448	1500	1451	N12	E64	6237	12	1			1.50	2.20			
CLIMAX	27	1916	1950	1920	N13	E60	6237	34	1			1.60	2.20			
CLIMAX	27	1950	2014	1954	N13	E70	6237	24	1			1.20	2.20			S-SWF
MITAKA	28	0141 E	0144		N14	E62	6237	3 D	1	1	0141	1.01	2.10	2.28	134	
CAPETOWN	28	0907	0922	0911	N14	E36	6235	15	1		0911	1.80	2.20			
AROSA	28	0917 E	0920		N14	E61	6237	3 D	1							
MITAKA	28	2315 E	0009		N11	E28	6235	54 D	1+	1	2315	9.05	10.49	2.60	120	S-SWF
AROSA	29	0905 E	0918		N12	E45	6237	3 D	1							
CAPRI G	29	1047 E	1140 D	1052	N12	E41	6237	53 D	1	3	1052		4.00			
AROSA	29	1050 E	1100 D		N12	E43	6237	10 D	1							
CAPETOWN	29	1050	1109	1053	N13	E42	6237	19	1		1053	2.00	2.70			
CAPRI G	29	1157 E	1210 D		N12	E41	6237	13 D	1	3	1206		3.00			
CAPETOWN	29	1159	1215	1204	N13	E42	6237	16	1		1204	2.20	2.80			
CAPETOWN	29	1414	1420 D	1419	N13	E42	6237	6 D	1		1419	1.90	2.40			
ZURICH	30	0804 E	0824 D		N14	E31	6237	20 D	1	2	0804		4.00			
AROSA	30	0805 E	0815 D		N14	E31	6237	10 D	1							
CAPRI G	30	0810 E	0812 D		N12	E30	6237	2 D	1	1	0811		5.00			
BAKOU	30	0830 E	0845	0840	N14	E31	6237	15 D	1	2		5.47			58	
CAPRI G	30	0952 E	1008 D		N12	E29	6237	16 D	1	3	0953		4.00			
ZURICH	30	1004 E	1014		N14	E30	6237	10 D	1	2	1004		4.00			
CAPETOWN	30	1247	1330	1257	N14	E28	6237	43	1		1257	1.80	2.10			
CAPRI G	30	1323 E	1352 D		N12	E27	6237	29 D	1	3	1325		4.00			
CAPRI G	30	1427 E	1442 D		N12	E27	6237	15 D	1	3	1430		4.00			
VOROSHILOV	30	2306	2320	2308	N03	W31	6234	14	1+	3		1.97			80	

COMMERCE - STANDARDS - BOULDER

These flare reports are addenda to the September 1961 flares published in CRPL-F 206 Part B, October 1961.

ATHENES	ATHENS, GREECE	HONOLULU	HAWAII, USA	NERA	NEDERHORST den BERGH, NETHERLANDS
BAKOU	PIRCULI, USSR	IKOMASAN	KYOTO, JAPAN		
CAPETOWN	ROYAL OBSERVATORY, CAPE OF GOOD HOPE	KIEV KO	KIEV GAO, USSR	NIZMIR	KRASNAYA PAKHRA, USSR
		KIEV KY	KIEV UNIVERSITY, USSR	SAC PEAK	SACRAMENTO PEAK, N.MEX. USA
CAPRI F	CAPRI, ITALY (GERMAN)	LOCKHEED	LOS ANGELES, CALIF., USA	SALTSJÖBADEN	STOCKHOLM, SWEDEN
CAPRI S	CAPRI, ITALY (SWEDISH)	MCMATH	MCMATH-HULBERT PONTIAC, MICH., USA	SCHAUINS	SCHAUINSLAND, GFR
CRIMÉE	SIMEIZ, USSR			TACHKENT	TASHKENT, USSR
HERSTMONCEU	ROYAL GREENWICH OBSERVATORY, HERSTMONCEUX, ENGLAND	MOSCOU	MOSCOW-GAISH, USSR	WENDEL	WENDELSTEIN, GFR

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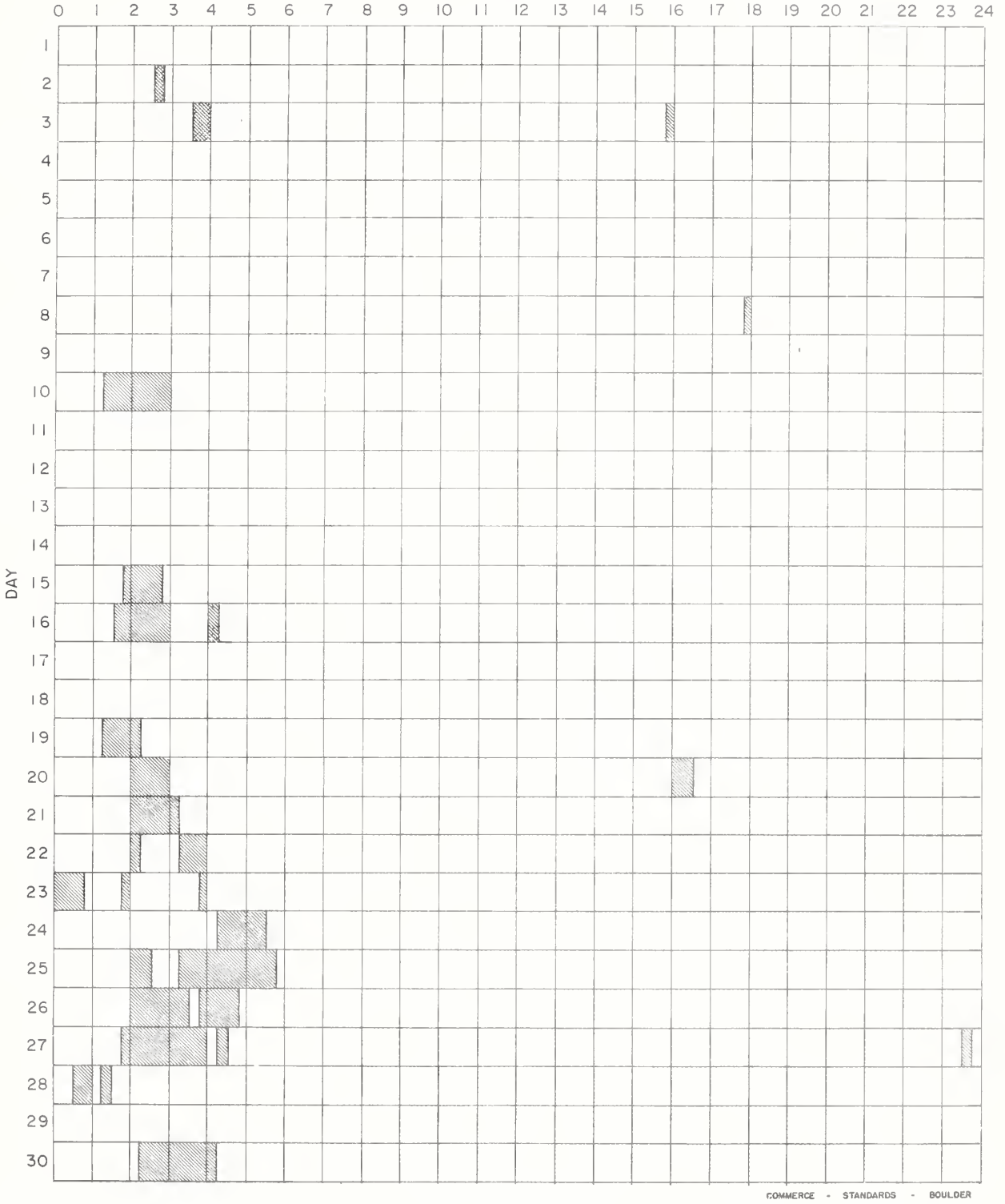
E = LESS THAN D = GREATER THAN U = APPROXIMATE □ = NOT REPORTED.

INTERVALS OF NO FLARE PATROL OBSERVATIONS

SEPTEMBER 1961



Stations Include:

Abastumani	Capetown	Huancayo	Kodaikanal	Moscou	Tachkent
Alma-Ata	Capri (Swedish)	Ikomasan	Lockheed	Nizmir	Uccle
Arcetri	Climax	Istanbul	McMath-Hulbert	Ondrejov	Voroshilov
Bakou	Crimée	Kharkov	Meudon	Ottawa	Wendelstein
Bucharest	Honolulu	Kiev KO	Mitaka	Sacramento Peak	

SOLAR FLARES

OCTOBER 1961

OBSERVATORY	DATE OCT 1961	OBSERVED UNIVERSAL TIME START	END	MAX. PHASE	LOCATION APPROX. LAT.	MER DIST	McMATH PLAGE REGION	DURATION — MINUTES	IM PORTANCE	OBS. COND.	MEASUREMENTS TIME — U T	MEAS AREA Sq. Deg	CORR. AREA Sq Deg	MAX WIDTH Ha	MAX INT %	PROVISIONAL IONOSPHERIC EFFECT
CAPRI F	01	0802 E	0820 D		N14	E09	6237	18 D	1	2	0803		2.00			
BAKOU	01	0802 E	0824	0805	N11	E10	6237	22 D	1	3	0805	.91	.94		50	
UCCLE	01	1029	1035 D	1035	N14	E16	6237	6 D	1	3	1035	2.00	2.10			
CAPRI F	02	1457 E	1512 D		N14	E03	6237	15 D	2	1	1502		6.00			
VOROSHILOV	03	2305	2318	2308	S12	E03	6241	13	1+	2		1.97			125	
CAPETOWN	04	0825	0857	0832	S13	W02	6241	32	1		0832	2.30	2.40			
BUCHAREST	04	0830	0900 D	0836	S13	W03	6241	30 D	1	3			4.70			
ALMA ATA	09	0546	0610	0558	N09	E54	6247	24	1		0558	1.26			53	
LOCARNO	09	0940	1017		N19	E85	6250	37	2	2						
VOROSHILOV	09	2320	2328	2326	N06	E86	6250	8	2	1		1.07			98	
CAPETOWN	10	1204	1225	1210	N16	E77	6250	21	1		1210	1.10				
UCCLE	10	1206	1223	1210	N15	E75	6250	17	1	3	1210	1.00	2.40			
CAPETOWN	10	1223	1306	1232	N13	E36	6247	43	1		1232	2.70	3.30			
UCCLE	10	1223	1309	1230	N11	E35	6247	46	1+	3	1230	4.50	5.70			
LOCARNO	10	1230	1304	1240	N11	E35	6247	34	2	2	1240	4.00				
ZURICH	10	1233 E	1308		N12	E36	6247	35 D	1	3	1233		5.00			
AROSA	10	1245 E	1320		N10	E34	6247	35 D	2							
BUCHAREST	11	0731	0839	0755	N15	E66	6250	68	1	3			2.60			
KIEV KO	12	1043	1100	1045	N12	E08	6247	17	1+		1045	4.13			74	
AROSA	12	1419	1430 D		S09	W10	6246	11 D	1							
ALMA ATA	13	0611	0624 D	0615	N02	W58	6249	13 D	1		0615	1.08			56	
VOROSHILOV	14	0331	0339	0335	N04	W69	6249	8	2	1		2.60			80	
ALMA ATA	15	0713	0720	0714	S07	W55	6246	7	1		0714	1.26			67	
AROSA	15	1420 E	1430		S06	W57	6246	10 D	1							
BUCHAREST	17	0915 E	0930 D	0922	N14	W61	6247	15 D	1	2			2.30			
ABASTUMANI	18	0637	0714 D	0651	N14	W70	6247	37 D	1	3		3.60	3.70			
KHARKOV	27	0807 E	0849 D		N11	W09	6261	42 D	1	1	0817	5.67	5.90	1.20		

COMMERCE -. STANDARDS - BOULDER

These flare reports are addenda to the October 1961 flares published in CRPL-F 207 Part B, November 1961.

ATHENES	ATHENS, GREECE	HONOLULU	HAWAII, USA	NERA	NEDERHORST den BERGH, NETHERLANDS
BAKOU	PIRCULI, USSR	IKOMASAN	KYOTO, JAPAN		
CAPETOWN	ROYAL OBSERVATORY, CAPE OF GOOD HOPE	KIEV KO	KIEV GAO, USSR	NIZMIR	KRASNAYA PAKHRA, USSR
		KIEV KY	KIEV UNIVERSITY, USSR	SAC PEAK	SACRAMENTO PEAK, N.MEX. USA
CAPRI F	CAPRI, ITALY (GERMAN)	LOCKHEED	LOS ANGELES, CALIF., USA	SALTSJÖBADEN	STOCKHOLM, SWEDEN
CAPRI S	CAPRI, ITALY (SWEDISH)	MCMATH	MCMATH-HULBERT PONTIAC, MICH., USA	SCHAUINS	SCHAUINSLAND, GFR
CRIMÉE	SIMEIZ, USSR			TACHKENT	TASHKENT, USSR
HERSTMONCEU	ROYAL GREENWICH OBSERVATORY, HERSTMONCEUX, ENGLAND	MOSCOU	MOSCOW-GAISH, USSR	WENDEL	WENDELSTEIN, GFR

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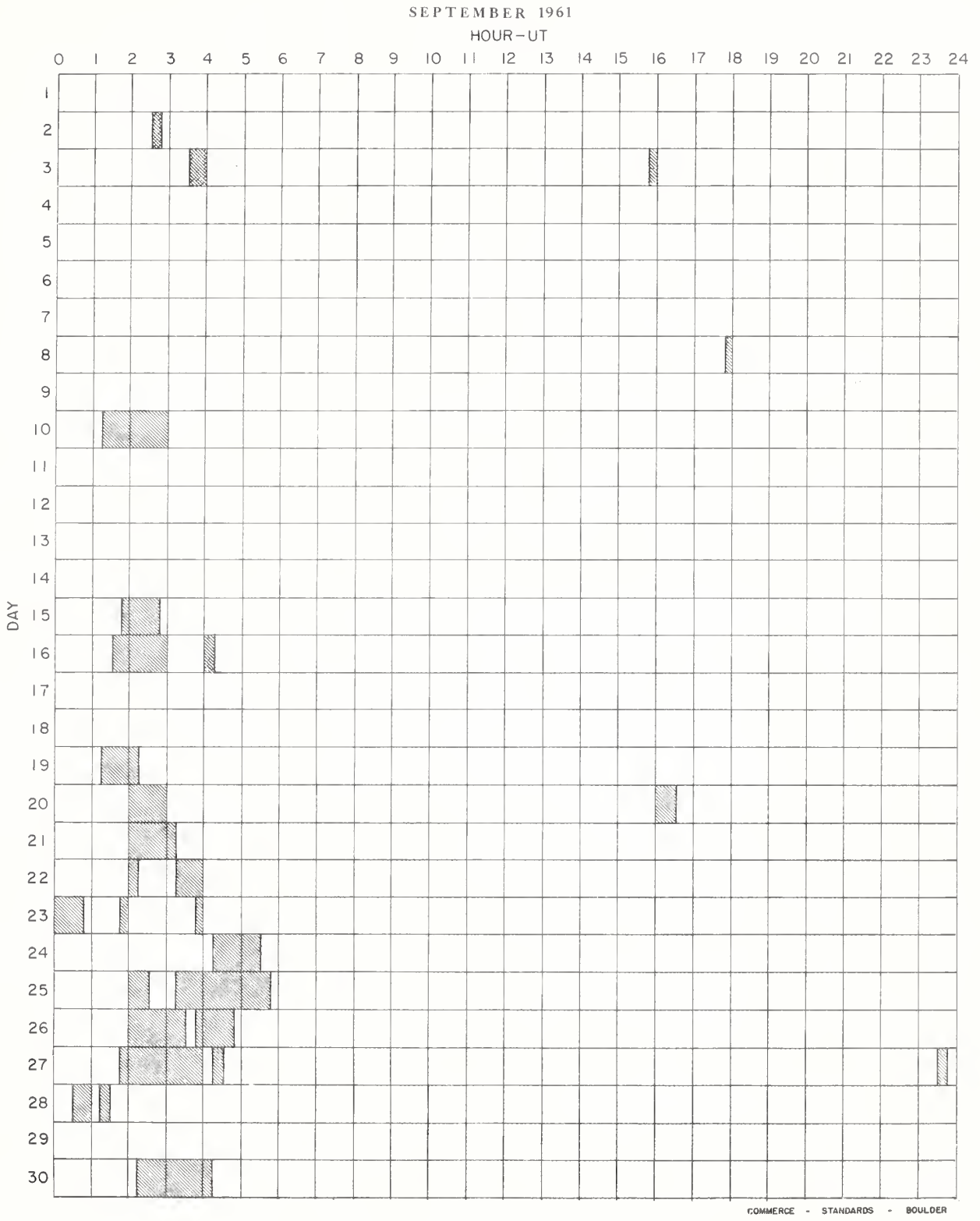

Stations Include:

Abastumani	Capetown	Huancayo	Kodaikanal	Moscou	Tachkent
Alma-Ata	Capri (Swedish)	Ikomasan	Lockheed	Nizmir	Uccle
Arcetri	Climax	Istanbul	McMath-Hulbert	Ondrejov	Voroshilov
Bakou	Crimée	Kharkov	Meudon	Ottawa	Wendelstein
Bucharest	Honolulu	Kiev KO	Mitaka	Sacramento Peak	

SOLAR FLARES

OCTOBER 1961

OBSERVATORY	DATE OCT 1961	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	IM POR-TANCE	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
CAPRI F	01	0802 E	0820 D		N14	E09	6237	18 D	1	2	0803		2.00			
BAKOU	01	0802 E	0824	0805	N11	E10	6237	22 D	1	3	0805	.91	.94		50	
UCCLE	01	1029	1035 D	1035	N14	E16	6237	6 D	1	3	1035	2.00	2.10			
CAPRI F	02	1457 E	1512 D		N14	E03	6237	15 D	2	1	1502		6.00			
VOROSHILOV	03	2305	2318	2308	S12	E03	6241	13	1+	2		1.97			125	
CAPETOWN	04	0825	0857	0832	S13	W02	6241	32	1		0832	2.30	2.40			
BUCHAREST	04	0830	0900 D	0836	S13	W03	6241	30 D	1	3			4.70			
ALMA ATA	09	0546	0610	0558	N09	E54	6247	24	1		0558	1.26			53	
LOCARNO	09	0940	1017		N19	E85	6250	37	2	2						
VOROSHILOV	09	2320	2328	2326	N06	E86	6250	8	2	1		1.07			98	
CAPETOWN	10	1204	1225	1210	N16	E77	6250	21	1		1210	1.10				
UCCLE	10	1206	1223	1210	N15	E75	6250	17	1	3	1210	1.00	2.40			
CAPETOWN	10	1223	1306	1232	N13	E36	6247	43	1		1232	2.70	3.30			
UCCLE	10	1223	1309	1230	N11	E35	6247	46	1+	3	1230	4.50	5.70			
LOCARNO	10	1230	1304	1240	N11	E35	6247	34	2	2	1240	4.00				
ZURICH	10	1233 E	1306		N12	E36	6247	35 D	1	3	1233		5.00			
AROSA	10	1245 E	1320		N10	E34	6247	35 D	2							
BUCHAREST	11	0731	0839	0755	N15	E66	6250	68	1	3			2.60			
KIEV KO	12	1043	1100	1045	N12	E08	6247	17	1+		1045	4.13			74	
AROSA	12	1419	1430 D		S09	W10	6246	11 D	1							
ALMA ATA	13	0611	0624 D	0615	N02	W58	6249	13 D	1		0615	1.08			56	
VOROSHILOV	14	0331	0339	0335	N04	W69	6249	8	2	1		2.60			80	
ALMA ATA	15	0713	0720	0714	S07	W53	6246	7	1		0714	1.26			67	
AROSA	15	1420 E	1430		S06	W57	6246	10 D	1							
BUCHAREST	17	0915 E	0930 D	0922	N14	W61	6247	15 D	1	2			2.30			
ABASTUMANI	18	0637	0714 D	0651	N14	W70	6247	37 D	1	3		3.60	3.70			
KHARKOV	27	0807 E	0849 D		N11	W09	6261	42 D	1	1	0817	5.67	5.90	1.20		

COMMERCE - STANDARDS - BOULDER

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BAKOU	PIRCULI, USSR
CAPETOWN	ROYAL OBSERVATORY, CAPE OF GOOD HOPE
CAPRI F	CAPRI, ITALY (GERMAN)
CAPRI S	CAPRI, ITALY (SWEDISH)
CRIMÉE	SIMEIZ, USSR
HERSTMONCEU	ROYAL GREENWICH OBSERVATORY, HERSTMONCEUX, ENGLAND
HONOLULU	HAWAII, USA
IKOMASAN	KYOTO, JAPAN
KIEV KO	KIEV GAO, USSR
KIEV KY	KIEV UNIVERSITY, USSR
LOCKHEED	LOS ANGELES, CALIF., USA
MCMATH	MCMATH-HULBERT PONTIAC, MICH., USA
MOSCOU	MOSCOW-GAISH, USSR
NERA	NEDERHORST den BERGH, NETHERLANDS
NIZMIR	KRASNAYA PAKHRA, USSR
SAC PEAK	SACRAMENTO PEAK, N.MEX. USA
SALTSJÖBADEN	STOCKHOLM, SWEDEN
SCHAUINS	SCHAUINSLAND, GFR
TACHKENT	TASHKENT, USSR
WENDEL	WENDELSTEIN, GFR

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SOLAR RADIO EMISSION

OUTSTANDING OCCURRENCES

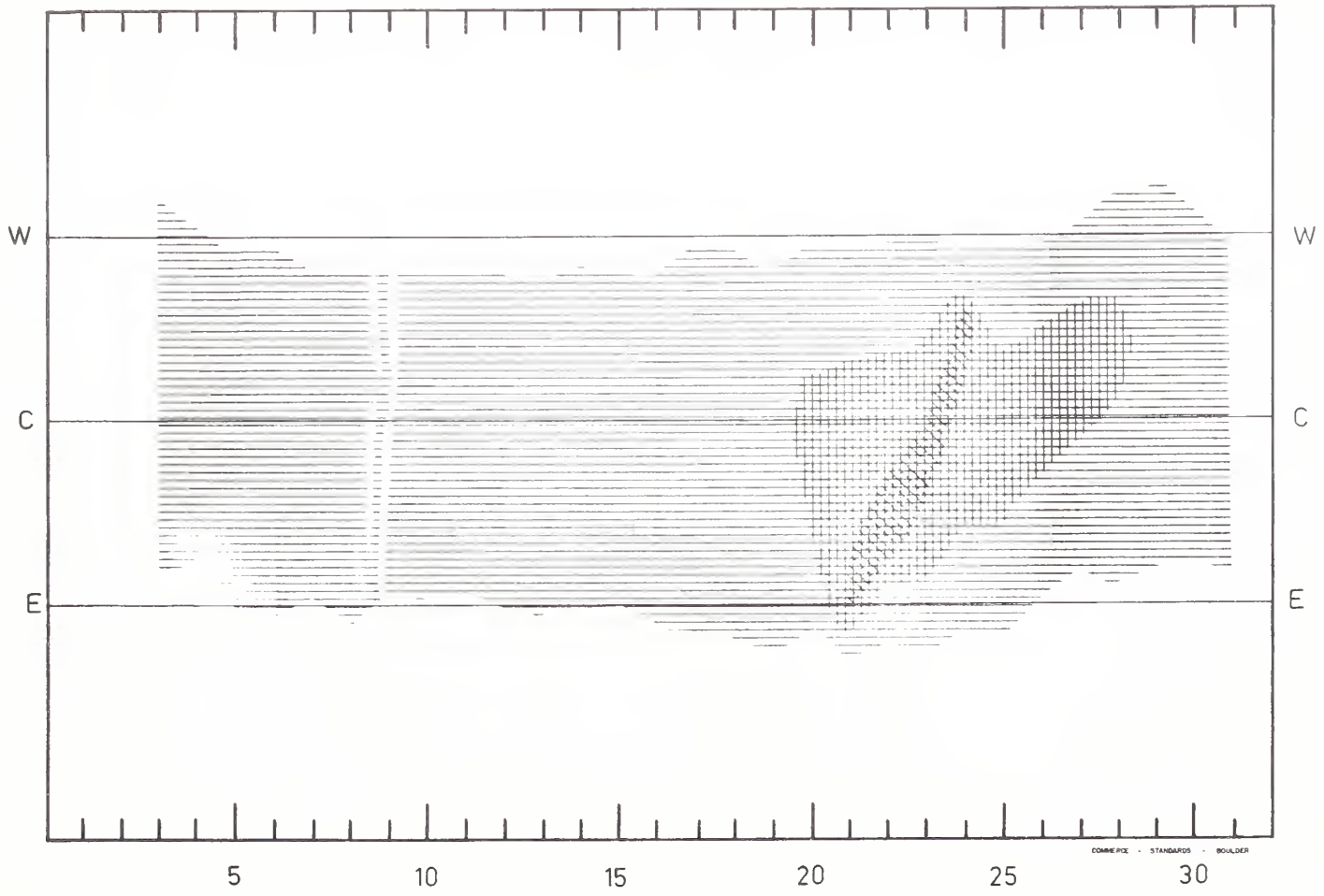
JANUARY 1962

ARO OTTAWA 2800 MC

JANUARY 1962	TYPE	START UT	DURATION HRS MINS	MAXIMUM TIME UT MAX	MAXIMUM PEAK FLUX	MAXIMUM MEAN FLUX	REMARKS
28	3 Simple 3 A	1915	44	Indet.	1.3	.7	
	6 Complex	1929	8	1932.2	6	3	
29	3 Simple 3 A	1513	1 02	1530	5	3	
	1 Simple 1	1520	10	1522.5	6	3	
31	1 Simple 1 f	1441.3	2.8	1442	4	1.8	
31	1 Simple 1	1447	3.5	1447.7	3	1.3	
31	1 Simple 1	1902	6	1904	6	3	
	4 Post Increase		35		2	1	

SOLAR RADIO EMISSION
INTERFEROMETRIC OBSERVATIONS

Nançay JANUARY 1962 169 Mc



SOLAR RADIO EMISSION

JANUARY 1962

BOULDER 108 Mc

Jan. 1962	Type	Start UT	Time of Maximum UT	Duration Minutes	Intensity
7	3	1733.1	1733.9	1.2	1
9	3	1658.1	1658.3	2.4	2
9	3	2203.2	2203.4	.8	1
18	3	1626.6	1626.7	1.4	1
21	3	1511.2	1511.3	.8	1
22	3	1643.1	1643.6	.7	2
23	7	1430		120	2
24	1	1934		67	1
30	3	2317.8	2318.6	1.3	2
31	3	1830.7	1830.9	1.1	2

COMMERCE - STANDARDS - BOULDER

No records January 1-4, 13, 14, 1962.

NOMINAL TIMES OF OBSERVATION

JANUARY 1962

BOULDER 108 Mc.

Jan. 1962	U.T.	Jan. 1962	U.T.
5	1536-2334	22	1422-2352
6	1427-2335	23	1421-2353
7	1427-2217	24	1420-2354
8	1427-2337	25	1420-2046;
9	1427-2338		2151-2356
10	1427-2339	26	1419-2357
11	1427-2340	27	1418-2358
12	1426-1743	28	1417-2359
15	1716-2344	29	1417-0000
16	1425-2345	30	1416-0002
17	1425-2346	31	1415-0003
18	1424-2347		
19	1423-2348		
20	1423-2349		
21	1422-2350		

COMMERCE - STANDARDS - BOULDER

SOLAR RADIO EMISSION
SPECTRUM OBSERVATIONS

JANUARY 1962

HAO BOULDER

7.6 – 41 Mc

Date 1962	Bursts				Date 1962	Bursts			
	Type	Time (U.T.)	Intensity	Frequency Range (mc)		Type	Time (U.T.)	Intensity	Frequency Range (mc)
2 Jan	III	2252.30-2254	1+	24 - 41	24[c] Jan	continuum	1516-1523	1-	22 - 41
3	III	1912.30-1912.45	1-	27 - 41		III	1519.45-1520.15	1	22 - 41
5	III	2046.30-2047.15	1-	23 - 41		III	1549.45-1553	1-	24 - 40
9#	III	1817.30-1818	1-	24 - 41		III	1601.30-1601.45	1	19 - 38
19	III	1614.30-1615	1-	28 - 41		III	1605-1607.30	1+	21 - 41
	III	1619.15-1619.30	1-	22 - 41		III	1616.45-1617.30	1	20 - 41
	III	1650.15-1650.45	1-	22 - 41		III	1628.30-1629.15	1-	19 - 41
	III	1909.30-1910	1	21 - 37		III	1655.45-1656.15	1+	22 - 36
	III	2132.45-2133.15	1-	26 - 41		III	1702.30-1703.15	1+	24 - 41
	III	2223.15-2224	1	22 - 41		III	1703-1703.30	1-	24 - 41
	III	2224-2224.30	1-	35 - 41		III	1736-1736.30	1-	22 - 38
	III	2225-2227.15	1+	15 - 41		III	1742.45-1743.15	1	21 - 35
20[c]	III	1818.30-1819.45	1-	27 - 41		continuum	1748.45-1815	1-	21 - 41
	III	1815.15-1815.45	1-	27 - 41		III	1748.45-1749	1-	20 - 34
	III	1920-1920.15	1-	22 - 32		III	1752.45-1753.15	1-	24 - 38
	III	1947.15-1947.45	1-	21 - 41		III	1757-1757.30	1	21 - 37
	III	1948.45-1949	1-	21 - 34		III	1758.30-1759.15	1	20 - 36
	III	2000.45-2001	1+	22 - 40		III	1830.30-1831	1-	23 - 38
	III	2100.45-2101	1+	23 - 41		III	1914-1914.30	1	21 - 33
	III	2147.30-2148	1	23 - 41		III	1923.45-1924.15	1	21 - 31
21[c]	III	1704-1704.15	1	22 - 37		III	1929.15-1929.45	1-	22 - 29
	III	1751.45-1752.15	1	24 - 34		III	1946.15-1946.45	1	20 - 34
	III	1805.15-1805.45	1-	22 - 41		continuum	2010-2300	1-	19 - 41
	III	1911.30-1912.30	1-	22 - 36		III	2011.30-2012.30	1+	16 - 41
	III	1927.45-1928.15	1	23 - 40		III	2026.30-2029.30	1+	16 - 41
	III	1944.30-1945	1-	22 - 34		III	2035-2037.15	2	24 - 41
	III	2023-2023.30	1	20 - 40		III	2144-2144.30	1+	21 - 34
	III	2032.45-2033.30	1	22 - 36		III	2203-2205	1+	15 - 41
	III	2109.45-2110.15	1-	23 - 35		III	2234-2235	1+	15 - 41
	III	2117.15-2117.30	1-	22 - 41		III	2235-2237	1+	15 - 41
	III	2147.30-2148	1	20 - 38	25[c]	III	1443-1443.30	1-	28 - 40
	III	2150.15-2151	1-	21 - 35		III	1542.45-1543	1	21 - 35
	III	2153-2153.15	1	24 - 41		III	1543.30-1543.45	1-	23 - 36
	III	2259.15-2300	1	20 - 41		III	1604.45-1605.45	1+	20 - 41
22[c]	III	1442.30-1442	1-	21 - 41		III	1615.15-1615.45	1-	23 - 41
	III	1453-1453.30	1	24 - 41		continuum	1616-1632	1-	20 - 41
	III	1526.45-1528.15	1	21 - 41		III	1617.30-1619	1	22 - 41
	III	1533.15-1533.45	1-	25 - 41		III	1619.30-1620.45	1+	21 - 41
	III	1554.30-1555	1-	22 - 41		III	1621-1621.30	1	21 - 40
	III	1556-1556.30	1	21 - 41		III	1714.45-1715.15	1	22 - 41
	III	1558-1558.30	1	21 - 41		III	1720-1720.15	1-	24 - 35
	continuum	1601-1836	1-	21 - 41		III	2002.30-2003	1	21 - 38
	III	1612.15-1612.45	1+	21 - 41		III	2015.30-2016	1-	20 - 34
	III	1812.30-1813	1	24 - 41		III	2023.45-2024.15	1-	21 - 34
	III	1913.15-1914	1+	22 - 35		III	2024.45-2025.15	1-	21 - 34
	continuum	1914-2040	1-	21 - 41		III	2113.15-2113.45	1+	21 - 41
	III	1926.30-1927.15	1	20 - 36		III	2326.30-2327	1-	23 - 36
	III	1958-1959.15	1	16 - 41		III	2331-2331.15	1-	30 - 41
	III	2009.15-2009.45	1	21 - 41	26[c]	III	1712.15-1712.30	1-	24 - 38
	III	2039.15-2040	1	21 - 41		III	1713.45-1714.30	1-	27 - 40
	III	2052.30-2052.45	1	23 - 41		III	1740-1740.30	1	26 - 41
	III	2116-2117.15	1	22 - 41		III	1740.30-1741	1	26 - 41
	III	2123.30-2124	1-	23 - 36		III	1751-1751.15	1-	27 - 40
	III	2156-2156.15	1-	22 - 32		III	1753.45-1754.15	1-	25 - 32
	III	2158-2158.30	1	20 - 41		III	1820.15-1820.45	1	27 - 38
	III	2207.30-2208	1	22 - 39		III	1832.30-1832.45	1	24 - 41
	III	2219-2219.30	1	21 - 41		III	1933-1933.15	1-	22 - 41
	III	2227.30-2228	1-	22 - 40		III	1950-1950.30	1-	21 - 41
	III	2233.30-2233.45	1	32 - 41	27	III	1618-1618.30	1	22 - 41
	III	2235.45-2236.15	1	29 - 41		III	2004.15-2004.30	1-	26 - 41
23[c]	continuum	1440-1455	1-	19 - 41		III	2207-2207.30	1+	21 - 41
	II	1459.45-1508	1+	26 - 41*		III	2254-2254.15	1	27 - 41
	III	1503.30-1505.45	1	22 - 41	30	III	1757.15-1757.45	1-	23 - 35
	continuum	1515-2340	1-	21 - 41		III	1758-1758.15	1	25 - 41
24[c]	III	1446.45-1447.15	1-	29 - 38		III	1833.45-1834.15	1-	21 - 35
	III	1453-1455.30	1-	22 - 41		III	2319.30-2320	1	27 - 41
	III	1458.30-1459.30	1-	21 - 41	31	III	1832-1832.15	1-	21 - 33
	III	1500.30-1502.15	1-	27 - 41					

Observations began 1728 UT.

* possibly isolated ionospheric scintillation

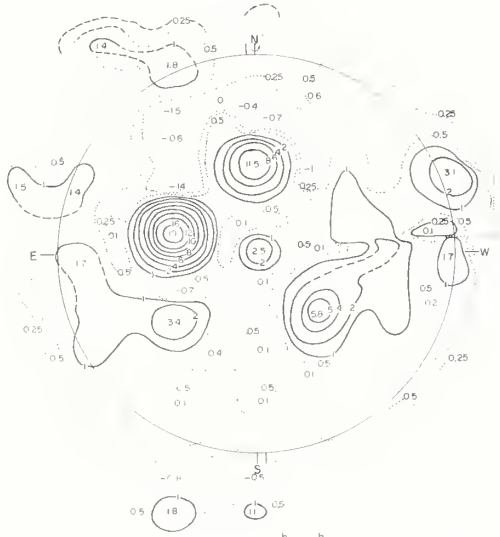
[c]many faint type III's not reported

SOLAR RADIO EMISSION SPECTROHELIOGRAMS

STANFORD

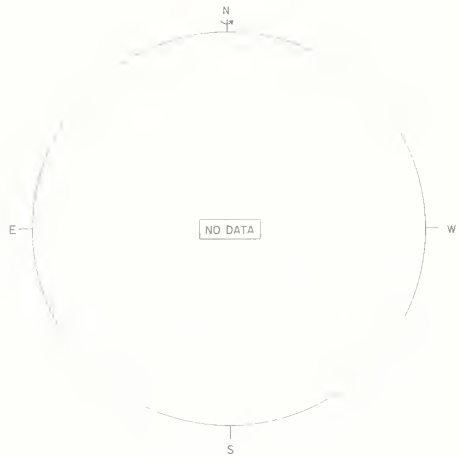
JULY 1960

9.1 cm



1960 JULY 1, $20^h - 21^h$ UT

CONTOUR BRIGHTNESS UNIT = 67,000° K

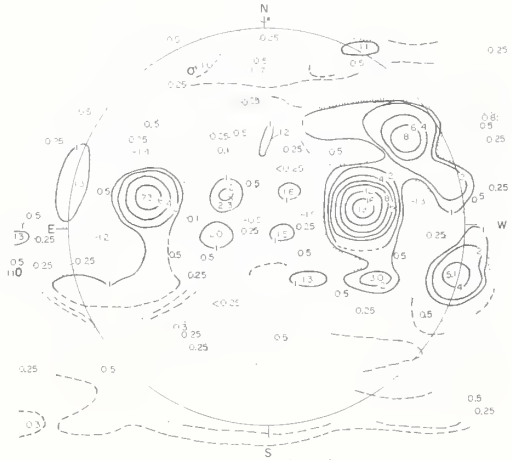


1960 JULY 2

1960 JULY 3, $19^h - 20^h$ UT

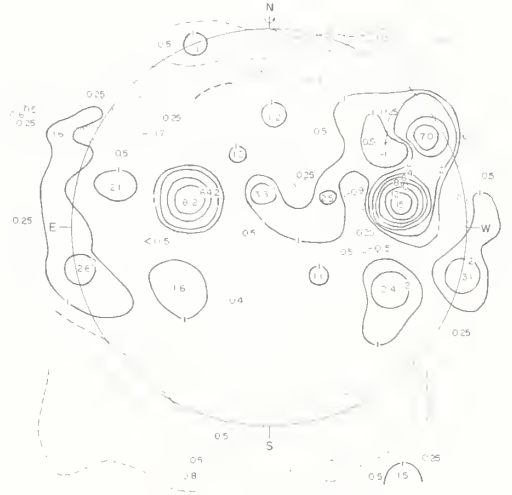
CONTOUR BRIGHTNESS UNIT = 77,000° K

1960 JULY 4



1960 JULY 5, $19^h - 20^h$ UT

CONTOUR BRIGHTNESS UNIT = 74,000° K



1960 JULY 6, $20^h - 21^h$ UT

CONTOUR BRIGHTNESS UNIT = 69,400° K

SOLAR RADIO EMISSION SPECTROHELIOGRAMS

JULY 1960

STANFORD

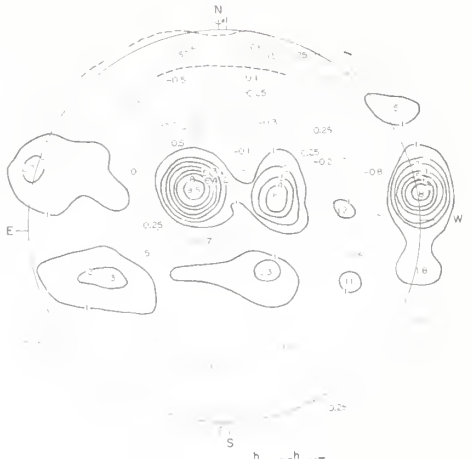
9.1 cm

1960 JULY 7, $19^h - 20^h$ UT

CONTOUR BRIGHTNESS UNIT = 55,000 °K

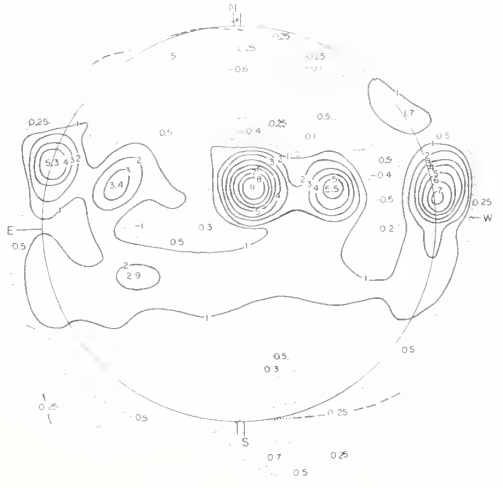
1960 JULY 8, $19^h - 20^h$ UT

CONTOUR BRIGHTNESS UNIT = 66,000 °K



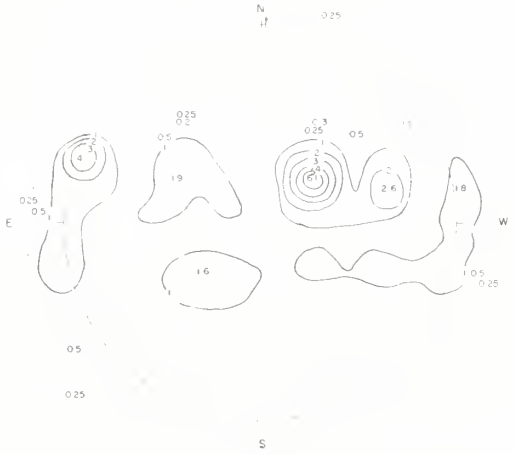
1960 JULY 9, $19^h - 20^h$ UT

CONTOUR BRIGHTNESS UNIT = 82,000 °K



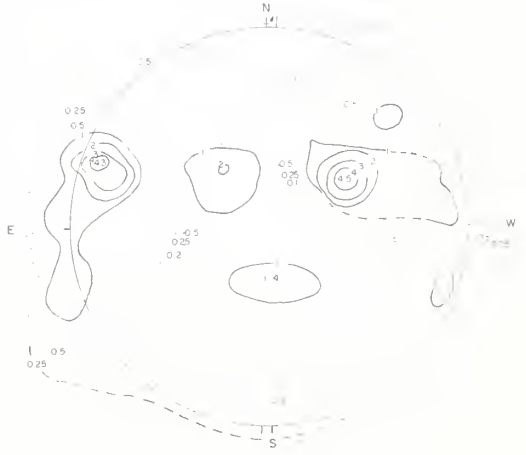
1960 JULY 10, $19^h - 20^h$ UT

CONTOUR BRIGHTNESS UNIT = 65,000 °K



1960 JULY 11^d, $19^h - 20^h$ UT

CONTOUR BRIGHTNESS UNIT = 76,000 °K



1960 JULY 12^d, $19^h - 20^h$ UT

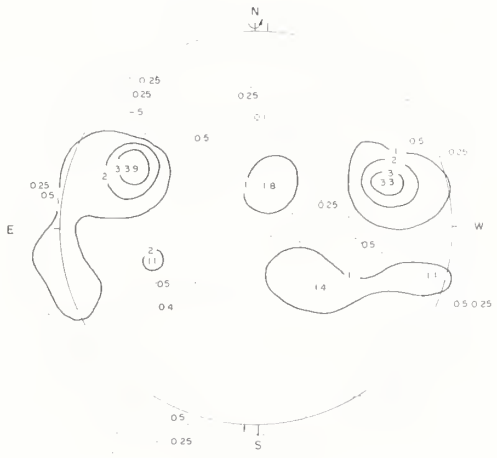
CONTOUR BRIGHTNESS UNIT = 69,000 °K

SOLAR RADIO EMISSION SPECTROHELIOGRAMS

JULY 1960

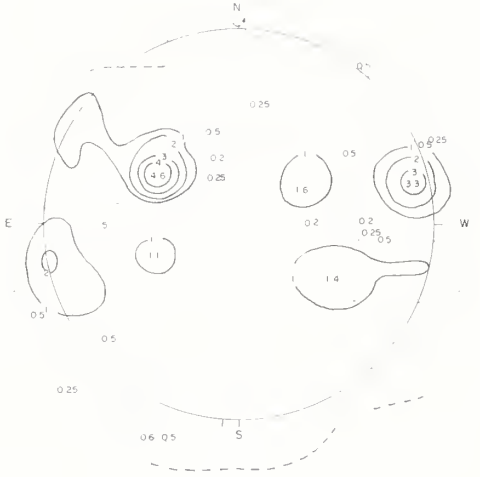
STANFORD

9.1 cm



1960 JULY 13^{d}, 19^{h} – 20^{h} UT

CONTOUR BRIGHTNESS UNIT = 70,000° K



1960 JULY 14^{d} 19^{h}–20^{h} UT

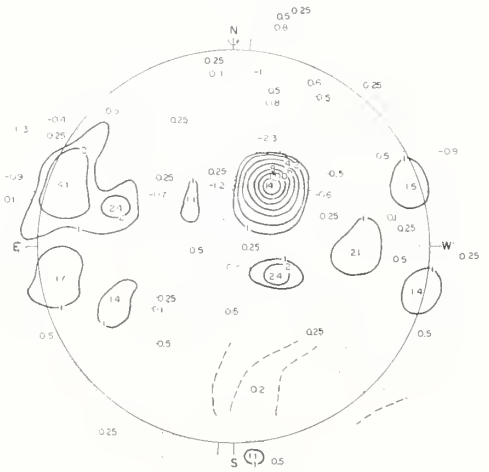
CONTOUR BRIGHTNESS UNIT = 73,000° K

1960 JULY 15^{d} 19^{h}-20^{h} UT

CONTOUR BRIGHTNESS UNIT = 76,000° K

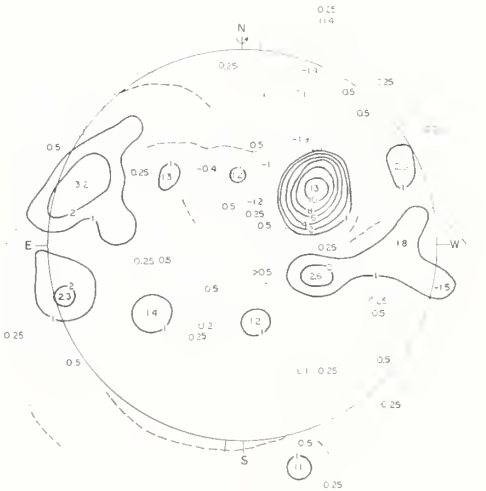
1960 JULY 16, 20^{h} – 21^{h} UT

CONTOUR BRIGHTNESS UNIT = 73,000° K



1960 JULY 17, 19^{h} – 20^{h} UT

CONTOUR BRIGHTNESS UNIT = 74,000° K



1960 JULY 18, 19^{h} – 20^{h} UT

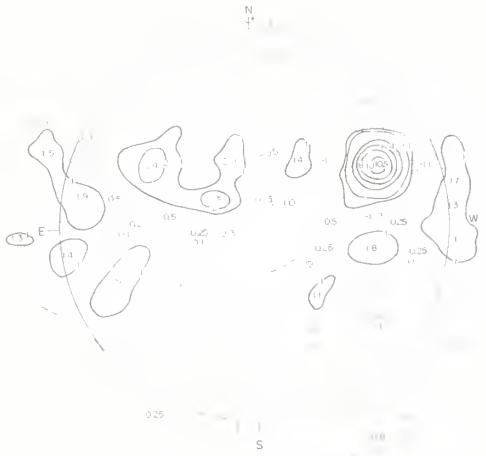
CONTOUR BRIGHTNESS UNIT = 79,000° K

SOLAR RADIO EMISSION SPECTROHELIOGRAMS

JULY 1960

9.1 cm

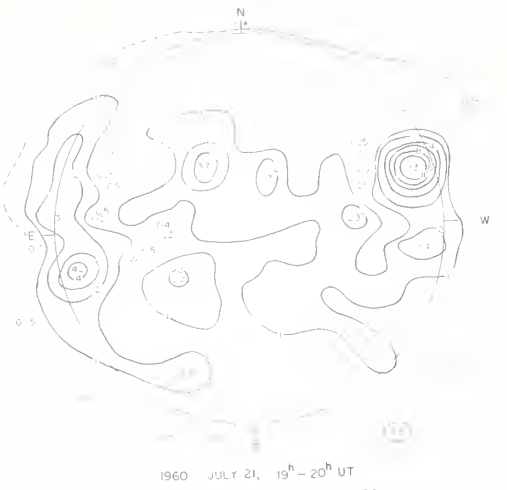
STANFORD



1960 JULY 19, 19^{h} – 20^{h} UT

CONTOUR BRIGHTNESS UNIT = 77,000 °K

1960 JULY 20



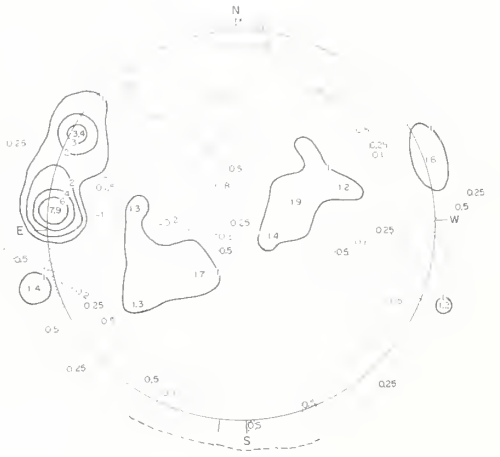
1960 JULY 21, 19^{h} – 20^{h} UT

CONTOUR BRIGHTNESS UNIT = 60,000 °K

1960 JULY 22, 19 – 20 UT

CONTOUR BRIGHTNESS UNIT = 77,000 °K

1960 JULY 23



1960 JULY 24, 20^{h} – 21^{h} UT

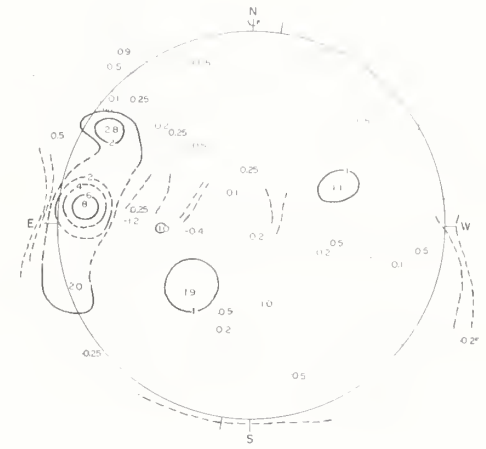
CONTOUR BRIGHTNESS UNIT = 88,800 °K

SOLAR RADIO EMISSION SPECTROHELIOGRAMS

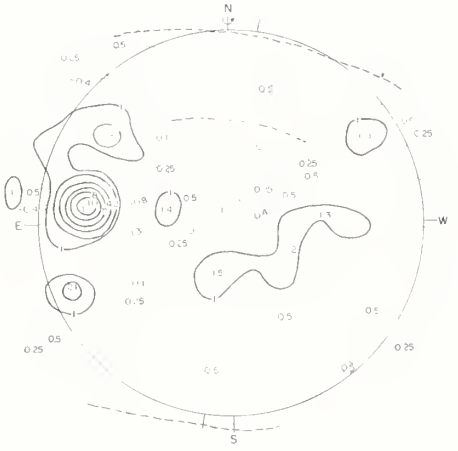
JULY 1960

STANFORD

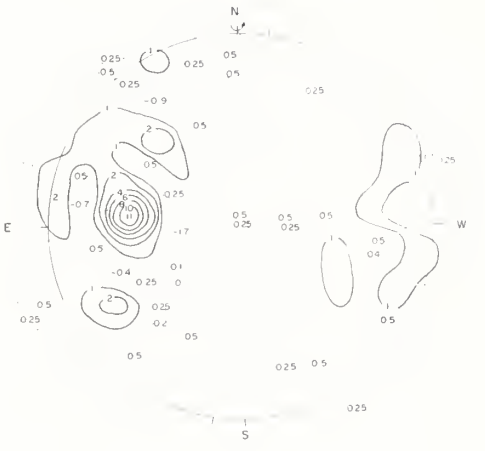
9.1 cm



1960 JULY 25 $20^h - 21^h$ UT
CONTOUR BRIGHTNESS UNIT = 82,000 °K

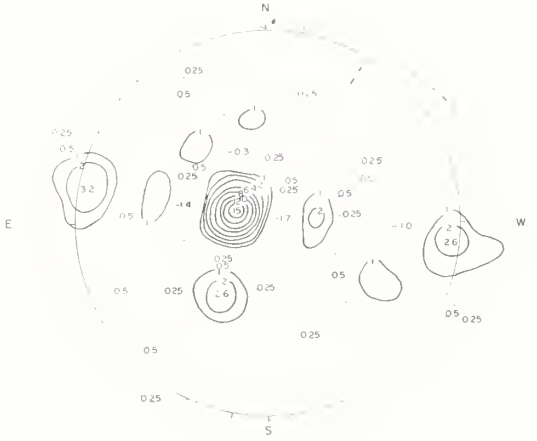


1960 JULY 26 $19^h - 20^h$ UT
CONTOUR BRIGHTNESS UNIT = 84,000 °K

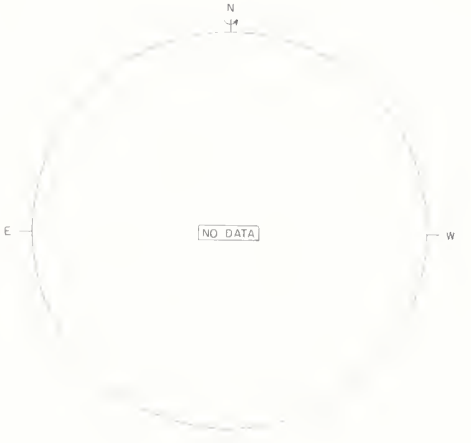


1960 JULY 27, 20 - 21 UT
CONTOUR BRIGHTNESS UNIT = 79,000° K

1960 JULY 28^d $19^h - 20^h$ UT
CONTOUR BRIGHTNESS UNIT = 79,000° K



1960 JULY 29^d $19^h - 20^h$ UT
CONTOUR BRIGHTNESS UNIT = 85,000° K



1960 JULY 30

SOLAR RADIO EMISSION SPECTROHELIOGRAMS

JULY 1960

STANFORD

9.1 cm

1960 JULY 31, 20[illegible] UT
CONTOUR BRIGHTNESS UNIT = 77,000°K

COMMERCE - STANDARDS BOULDER

COSMIC RAY INDICES

Climax Neutron Monitor

IGC STATION B 305

NOVEMBER-DECEMBER 1961

Nov. 1961	Daily average counts/hr.*	Nov. 1961	Daily average counts/hr.
1	3079.8	16	3086.4
2	3095.5	17	3094.3
3	3084.4	18	3088.6
4	3076.9	19	3080.6
5	3078.4	20	3087.7
6	3072.5	21	3109.8
7	3077.9	22	3090.3
8	3077.2	23	3082.2
9	3082.8	24	3084.9
10	3085.9	25	3083.7
11	3098.6	26	3093.0
12	3100.2	27	3100.9
13	3110.7	28	3110.2
14	3089.3	29	3117.2
15	3082.7	30	3122.9

COMMERCE - STANDARDS - BOULDER

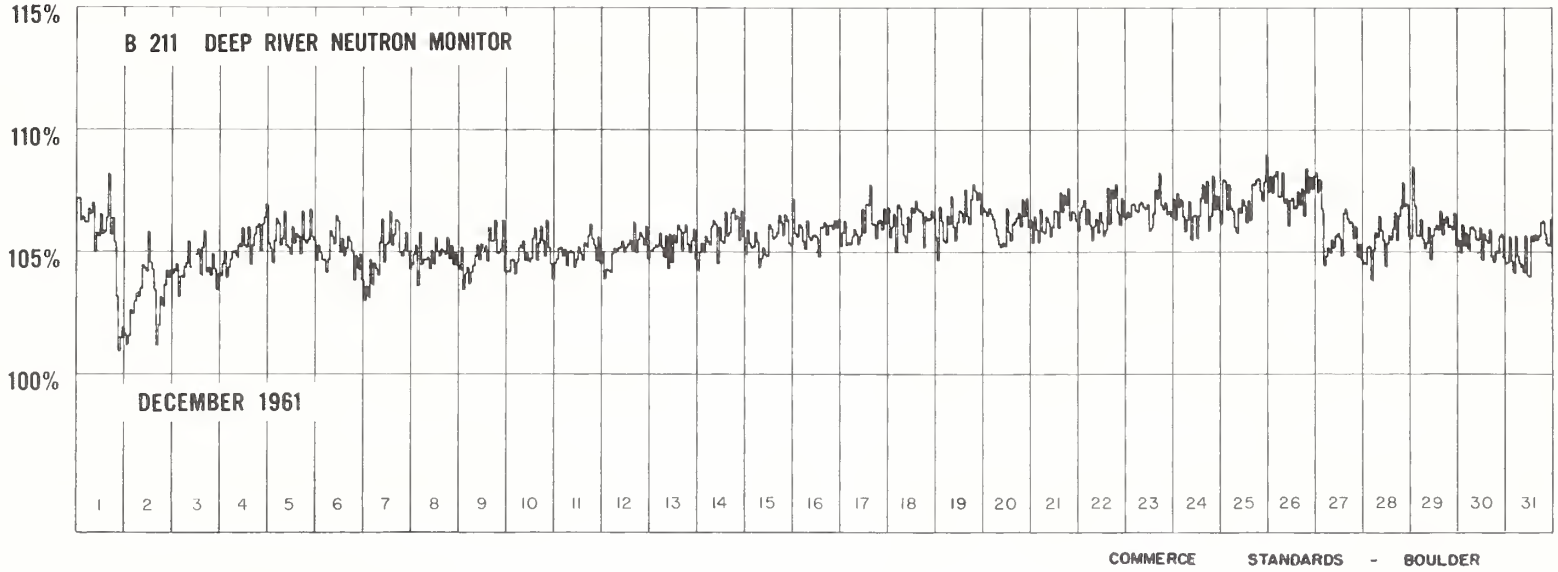
Dec. 1961	Daily average counts/hr.*	Dec. 1961	Daily average counts/hr.
1	3091.7	16	3102.5
2	3022.9	17	3113.2
3	3086.4	18	3119.8
4	3082.9	19	3116.5
5	3075.8	20	3096.0
6	3049.8	21	3097.0
7	3033.8	22	3102.4
8	3055.0	23	3116.7
9	3081.8	24	3109.8
10	3079.3	25	3133.0
11	3090.3	26	3134.2
12	3085.9	27	3077.8
13	3075.6	28	3079.0
14	3083.1	29	3084.8
15	3086.7	30	3070.9
		31	3068.6

COMMERCE - STANDARDS - BOULDER

* SCALING FACTOR 128

COSMIC RAY INDICES

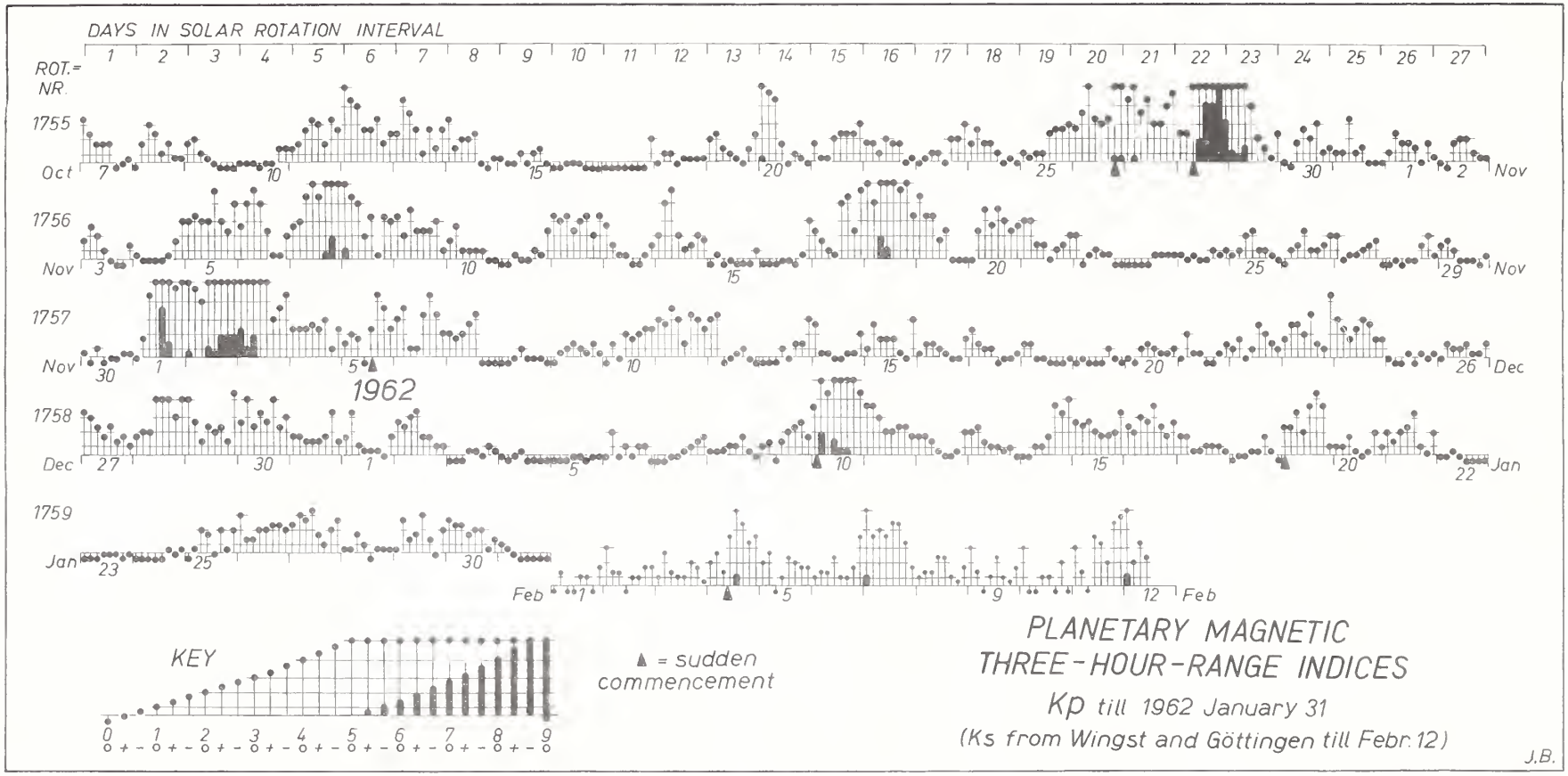
(Pressure Corrected Hourly Totals)



DECEMBER 1961

Dec. 1961	C	Values Kp Three hour Gr. interval 1 2 3 4	5 6 7 8	Sum	Ap	Final Selected Days
1	1.7	0+ 2- 4+ 5o	8- 6o 5- 5o	35-	54	Five
2	1.8	5+ 5- 4o 6-	5+ 6+ 6+ 6+	44o	66	Quiet
3	1.6	7- 6- 6+ 5o	5o 3o 4- 4+	40-	55	
4	0.6	2+ 2+ 2+ 3-	2+ 3o 1o 2+	18+	10	8
5	0.9	1+ 2o 2- 0o	2+ 4+ 4- 2+	18-	11	18
						19
6	1.0	3o 4- 1o 1o	3+ 4+ 3+ 2o	22-	15	20
7	0.3	2o 2- 2o 3-	3+ 0o 0o 0o	12-	6	25
8	0.0	0o 0o 0+ 1o	0+ 0+ 0+ 0o	2+	2	
9	0.1	0o 1- 1o 1+	1o 1- 1+ 1-	7-	3	
10	0.4	0o 1+ 0+ 2o	2- 2o 2+ 2+	12o	6	
11	0.8	3o 3- 4- 3o	1+ 3+ 3o 2+	22+	14	Five
12	0.1	3o 3+ 0o 0+	1- 1o 0+ 0o	9-	6	Disturbed
13	0.2	0o 0o 0o 1o	0+ 1+ 1+ 3o	7o	4	
14	0.1	3- 1- 1- 0+	0+ 1- 1- 2o	8o	4	1
15	0.4	1o 3- 2- 2-	2- 1- 0+ 3o	13-	7	2
						3
16	0.2	1- 1+ 1+ 1o	1- 0+ 0+ 2-	7+	4	28
17	0.0	2+ 1+ 1o 1o	0o 0+ 0+ 1-	7o	4	30
18	0.0	1+ 1+ 0+ 0+	0o 0o 0o 0+	4-	2	
19	0.0	0o 0+ 0o 0o	0o 1o 0+ 0o	2-	1	
20	0.1	0+ 0o 1o 1+	1o 1- 1- 1o	6o	3	
21	0.1	0+ 2o 1- 1-	0o 0o 1- 1+	6-	3	Ten
22	0.3	1o 2- 0+ 1o	3- 2o 1+ 1o	11o	6	Quiet
23	0.9	2- 3- 3- 2o	3+ 1+ 1o 4+	19o	12	
24	0.5	3o 2+ 2- 2+	3o 3- 2- 2-	18+	10	8
25	0.0	0+ 0o 0o 1-	0o 1- 0+ 1-	3-	2	9
						16
26	0.1	0+ 1+ 1o 1o	1+ 1- 1- 1+	8-	4	17
27	0.7	3+ 3o 2+ 2-	2+ 1+ 2- 1o	17-	9	18
28	1.2	2- 2o 2o 4o	4o 4o 3o 4o	25-	18	19
29	0.8	4o 3- 1+ 2+	2o 2+ 1+ 4+	20+	13	20
30	0.8	3- 4o 2+ 3+	3- 4o 2+ 3o	24+	16	21
31	0.4	2- 2- 1+ 1+	1+ 2- 3+ 1+	14-	7	25
						26
Mean:	0.52			Mean:	26	

COMMERCE - STANDARDS - BOULDER



COMMERCE - STANDARDS - BOULDER

CRPL RADIO PROPAGATION QUALITY FIGURES AND FORECASTS

DECEMBER 1961

NORTH ATLANTIC

DATE DECEMBER 1961	NORTH ATLANTIC 6-HOURLY QUALITY FIGURES 00 TO 06	06 TO 12	12 TO 18	18 TO 24	SHORT-TERM FORECASTS ISSUED ABOUT ONE HOUR IN ADVANCE OF 00	06	12	18	WHOLE DAY INDEX	ADVANCE FORECAST (J-REPORTS) FOR WHOLE DAY, ISSUED IN ADVANCE BY 1-7 DAYS FINAL J_S	1-7 DAYS SDW J	1-3 DAYS J	1-7 DAYS J	GEOMAGNETIC K_{FR} HALF DAY (1)	(2)
01	6-	5-	5○	4+	6	5	5	4	5-	6			6	3	(5)
02	3+	4+	4+	3-	3	2	5	4	(4-)	3	3		6	(5)	(5)
03	3-	2+	4+	3○	3	3	4	4	(3○)	4	4		5	(5)	(4)
04	2+	2+	5-	3+	3	2	5	4	(3○)	4	4		4	3	2
05	3+	3○	5+	3○	3	3	6	4	(3+)	5	5		4	1	3
06	4-	3+	5+	3+	3	3	6	4	(4-)	5	5		4	2	2
07	4+	4○	5+	5○	4	3	6	4	(4+)	4			4	1	1
08	4○	4-	6-	5+	5	4	6	5	(4+)	4			4	1	1
09	5○	4+	6○	5+	4	3	6	5	5○	5			5	1	1
10	4+	4+	6+	4+	5	4	6	5	5-	5			5	1	2
11	5-	5-	7-	5-	4	4	6	5	5+	5			5	3	1
12	4-	3+	6○	5○	5	3	6	5	(4+)	6			6	2	1
13	5○	4-	6○	5+	4	4	6	5	5-	6			6	0	2
14	5-	5-	7-	6-	5	4	6	6	5+	5			5	1	1
15	5-	4○	6○	5+	5	3	6	5	5-	4			4	2	1
16	5○	4○	6+	5-	4	4	6	5	5-	4			4	1	1
17	5+	4+	6-	6-	5	4	6	5	5○	4			4	1	0
18	5-	5○	6+	6○	5	4	6	6	6-	4			4	1	0
19	5+	4+	6○	5+	5	5	6	6	5○	5			5	0	0
20	4+	5-	6+	6-	5	4	6	5	5○	5			5	1	0
21	5-	5○	6+	5+	4	5	7	6	5+	5			5	1	1
22	4+	5+	6+	6○	5	5	6	6	5+	5			5	1	1
23	5○	5○	7-	6-	5	5	6	6	6-	6			6	2	3
24	5○	5○	6○	6-	5	5	6	6	5+	6			6	3	2
25	5○	5-	7-	6+	5	5	6	6	6-	6			6	0	1
26	5+	5○	7-	6+	6	5	7	6	6-	6			6	1	1
27	4+	5+	7-	6-	5	4	6	6	5+	6			6	3	1
28	5-	4+	6-	5-	5	5	6	5	5-	4			4	3	3
29	4+	4+	6○	5○	4	4	6	5	5-	3			3	3	2
30	4-	4-	6-	6-	4	4	6	5	(4+)	4			4	3	2
31	5-	4-	6-	5○	4	4	6	5	(4+)	4			4	1	1
Score:				P	10	7	20	18		11			11		
Quiet Periods				S	7	5	9	6		8			8		
				U	0	0	0	0		1			1		
				F	0	0	0	0		1			1		
Disturbed Periods				P	6	12	1	1		4			5		
				S	8	6	1	6		4			2		
				U	0	1	0	0		1			1		
				F	0	0	0	0		1			2		

NORTH PACIFIC

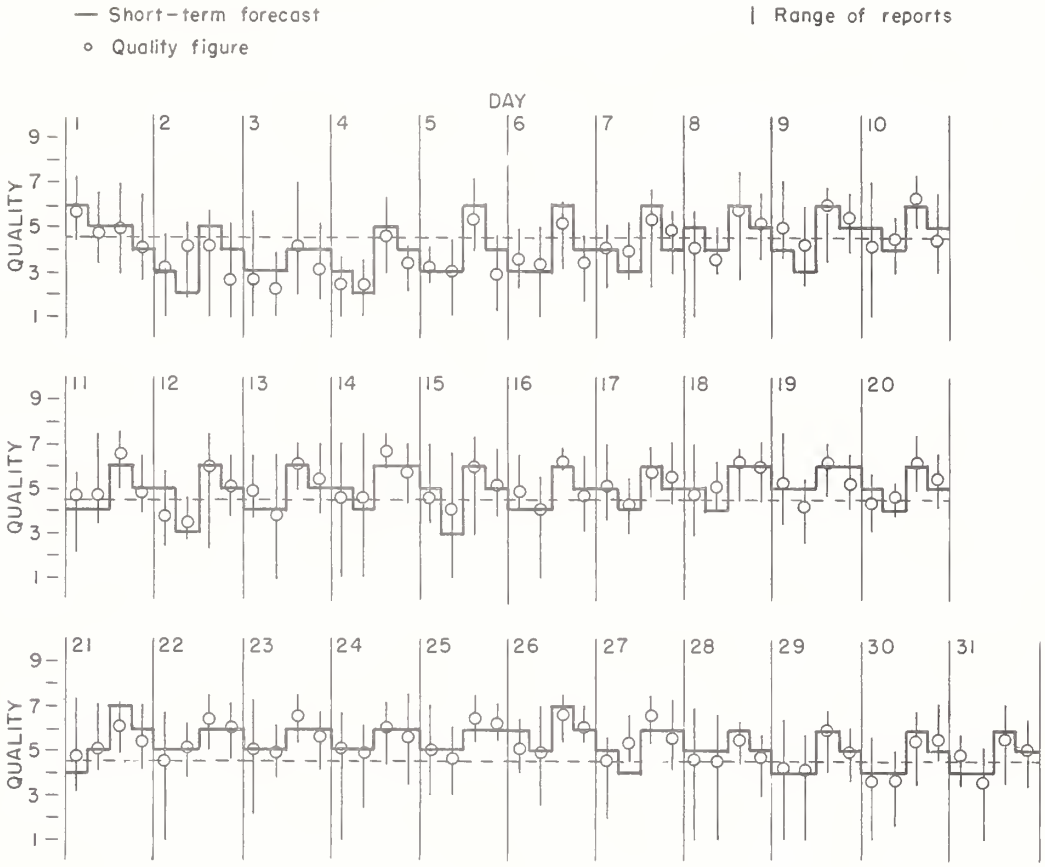
NORTH PACIFIC 12-HOURLY QUALITY FIGURES 0700 TO 1900	1900 TO 0700	SHORT-TERM FORECASTS ISSUED AT 0600	1800	WHOLE DAY INDEX	ADVANCE FORECASTS (J_P-REPORTS) FOR WHOLE DAY, ISSUED IN ADVANCE BY 1-7 DAYS FINAL J_{PS}	1-7 DAYS SDW	1-3 DAYS J_P	1-7 DAYS	GEOMAGNETIC K_{SI} HALF DAY (1)	(2)
4	6	5	4	5	4	4		5	3	(6)
3	2	4	4	(3)	4	4		5	(4)	(6)
4	4	2	4	(3)	4	4		5	(6)	(4)
5	5	4	5	(4)	5	5		5	3	2
5	5	5	4	(4)	5	5		5	1	2
5	5	5	4	5	5			5	2	3
6	5	4	5	6	4			4	2	1
5	4	4	5	(4)	4			4	0	0
5	5	3	4	5	4			4	0	0
6	6	4	5	6	5			5	1	2
6	6	5	4	6	5			5	3	2
5	6	4	5	5	5			5	1	1
4	5	4	5	(4)	5			5	0	1
5	6	4	5	5	4			4	1	0
6	6	4	5	6	4			4	2	2
6	6	4	6	6	4			4	0	1
6	6	6	6	6	5			5	1	0
7	7	5	6	7	5			5	0	0
6	6	6	6	6	5			5	1	0
6	6	6	6	6	6			6	0	0
6	6	6	6	6	6			6	0	2
6	5	6	6	6	6			6	2	2
6	6	5	5	6	6			6	2	2
6	6	5	5	6	6			6	0	0
6	6	6	6	6	6			6	1	0
6	6	5	5	6	4			4	2	1
6	6	5	6	6	4			4	2	3
7	7	5	6	7	4			4	2	2
6	5	6	6	6	4			4	2	2
6	6	6	6	6	4			4	1	1
6	6	5	6	6	4			4	2	3
7	7	5	6	7	4			4	2	2
6	5	6	6	6	4			4	2	2
6	6	5	6	6	4			4	1	1
		9	11		9					
		11	15		6					
		3	0		2					
		4	2		8					
		1	1		2					
		2	1		4					
		1	1		0					
		0	2		0					

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

CRPL RADIO PROPAGATION QUALITY FIGURES AND FORECASTS

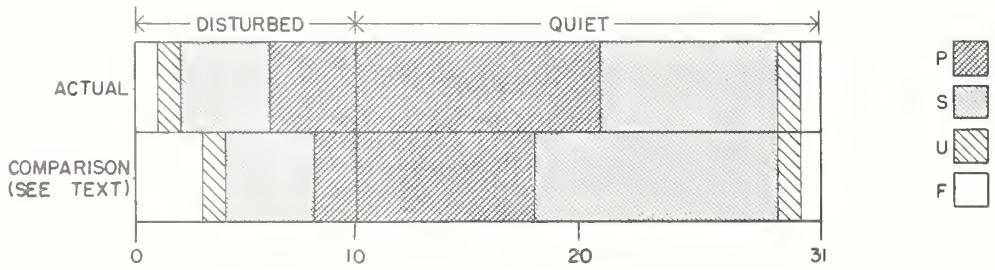
NORTH ATLANTIC

DECEMBER 1961

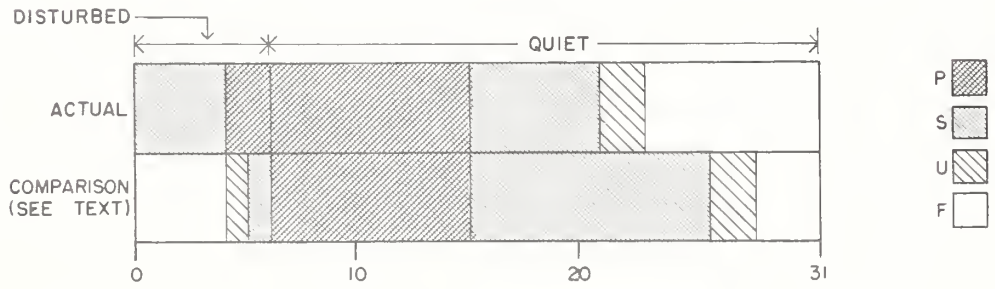


OUTCOME OF ADVANCED FORECASTS FINAL ESTIMATE

NORTH ATLANTIC

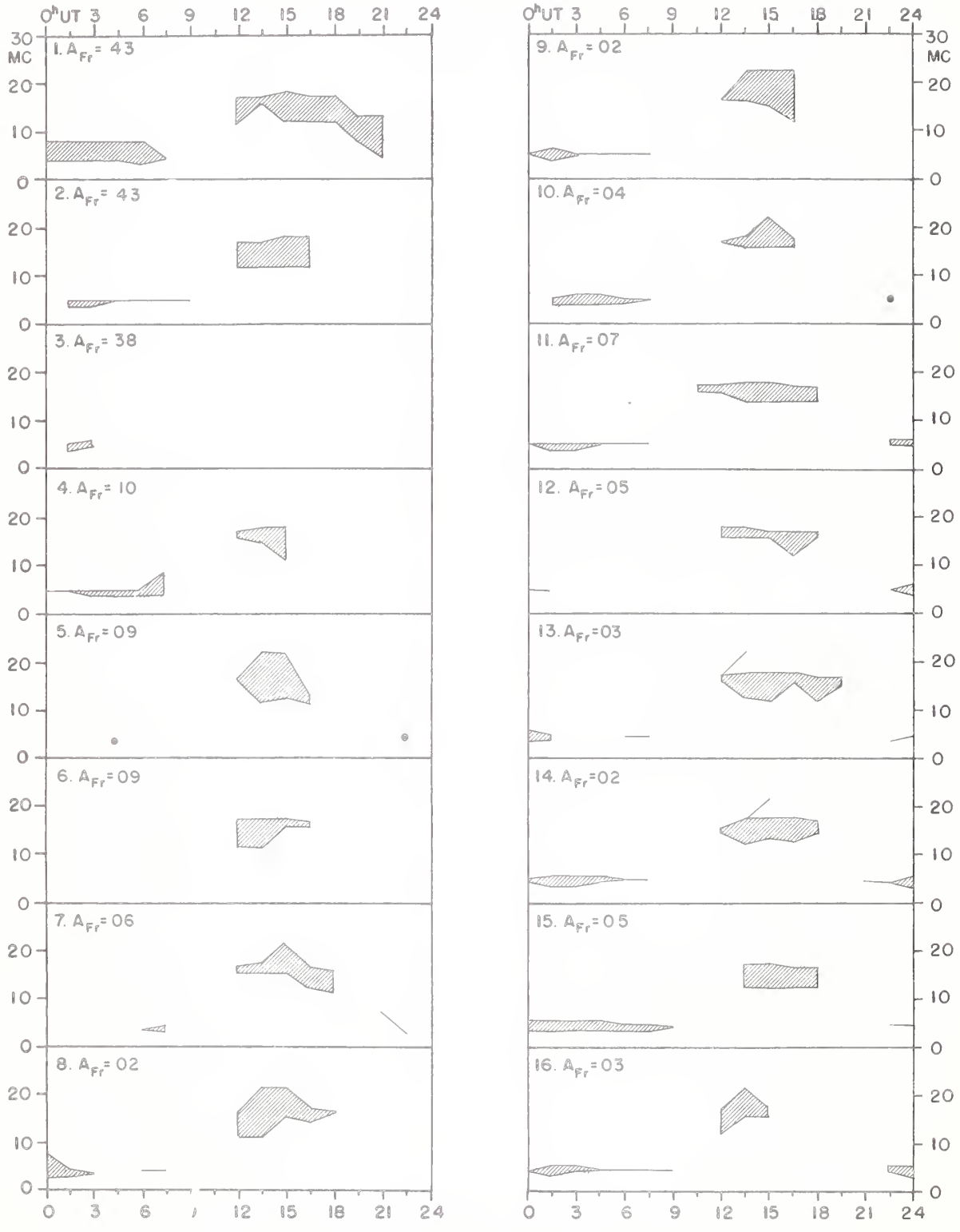


NORTH PACIFIC



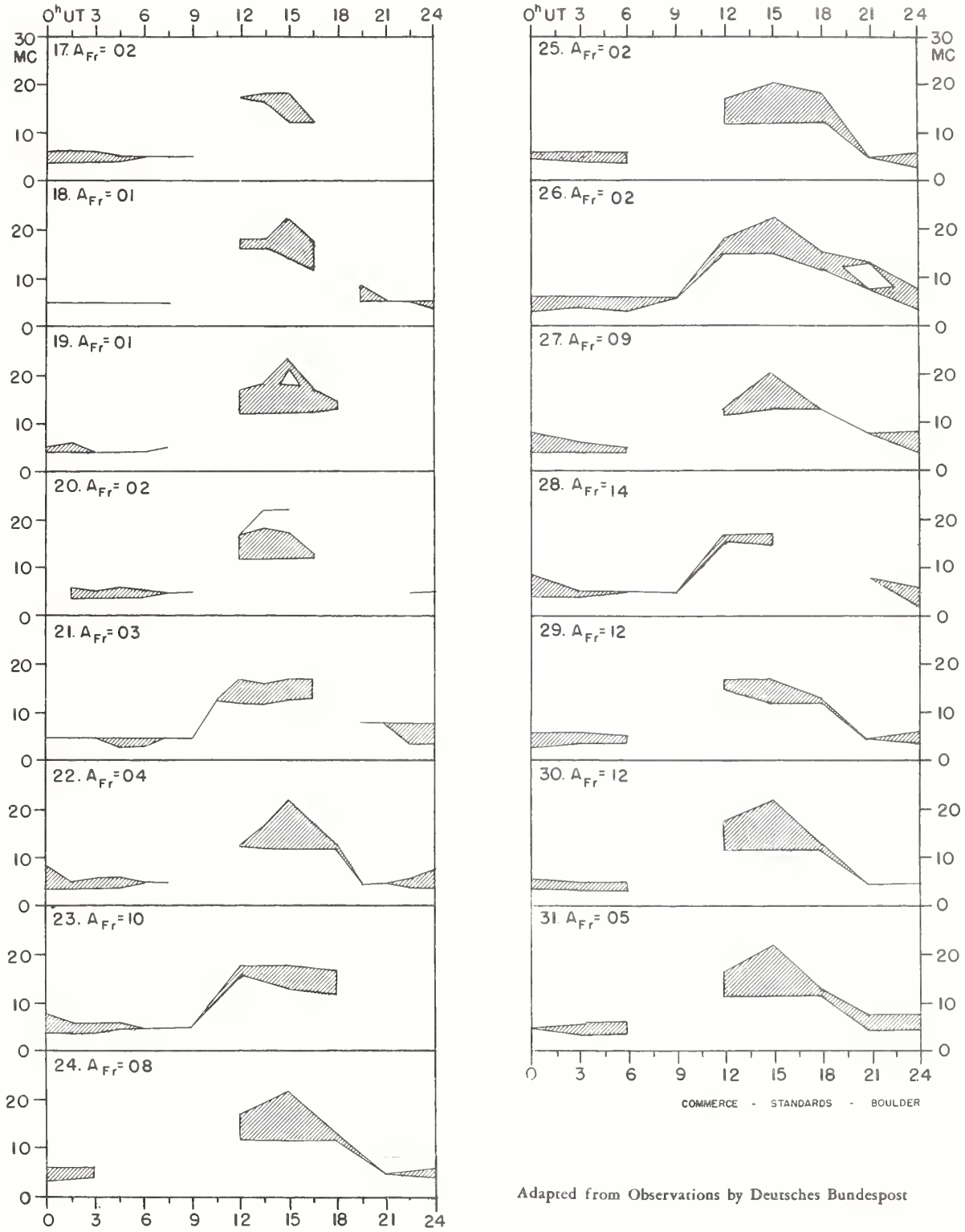
USEFUL FREQUENCY RANGES -- NORTH ATLANTIC PATH

DECEMBER 1961



USEFUL FREQUENCY RANGES -- NORTH ATLANTIC PATH

DECEMBER 1961



Adapted from Observations by Deutsches Bundespost

ALERT PERIODS AND SPECIAL WORLD INTERVALS

INTERNATIONAL WORLD DAY SERVICE

JANUARY 1962

Issued January 1962 Day/Time UT	Advance Geophysical Alert	No.	World-Wide Geophysical Alert	Special World Interval
10/1423	Ft. Belvoir, Magnetic Storm Aurora Probable 10/0216Z			
10/1600		158	Magnetic Storm Aurora Probable, 10/0216Z	Start
11/1600		159		Finish
29/1800	Climax, Solar Flare, One Plus 29/1520Z			

COMMERCE - STANDARDS - BOULDER