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ENVIRONMENTAL SCIENCE SERVICES ADMINISTRATION
Robert M. White, Administrator
ENVIRONMENTAL DATA SERVICE
Woodrow C. Jacobs, Director

ESSA RESEARCH LABORATORIES

Solar-Geophysical Data

Number 289
for August 1968
July 1968
March 1968
& Miscellanea

DATA COMPILED BY AERONOMY AND SPACE DATA SERVICES
BOULDER, COLORADO

WASHINGTON, D.C.
SEPTEMBER 1968

SOLAR - GEOPHYSICAL DATA

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ALERT PERIODS

INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

AUGUST 1968

	TIME OF ISSUE UT	ADVANCE GEOPHYSICAL ALERT	WORLDWIDE GEOPHYSICAL ALERT			
			NO.	TYPE	TIMING	ELABORATION
01	0400		01649	Solar Flare	Expected	N14W18 N08W17
02	0400		02650	Solar Flare	Expected	N14W29
03	0342	Carnarvon Soflare Importance 2B N08E75				
	0400		03651	Solar Flare	Ends	
	1133	Toyokawa Tenflare 580% 030312Z				
05	0400		05652	Solar Flare	Expected	N11E65
06	0400		06653	Solar Flare	Expected	N11E49
07	0400		07654	Solar Flare	Expected	N12E30
08	0400		08655	Solar Flare	Expected	N12E12 Delta
	1822	Boulder Soflare Importance 2B N10W00				
	1840	Ottawa Tenflare 286% In progress 08/1804Z				
09	0400		09656	Solar Flares	Expected	N10E02
10	0400		10657	Solar Flares	Expected	N12W12 Delta
11	0400		11658	Solar Flares	Expected	N12W25 Delta
12	0400		12659	Solar Flares	Expected	N12W38 Delta
13	0400		13660	Solar Flares	Ends	
21	0202	Carnarvon Tenflare 385% In progress 21/0148Z				
	0400		21660*	Solar Flares	Expected	S14W41
	0423	Toyokawa Tenflare 270% 21/0147Z				
	1104	Toyokawa Tenflare 240% 21/0658Z				
22	0400		22661	Solar Flares	Expected	S16W50 N27W01
23	0400		23662	Solar Flares	Expected	S12W33
24	0400		24663	Solar Flares	End	

*Serial number reported in error

RELATIVE SUNSPOT NUMBERS

ZURICH, R_z

	1967 FINAL				1968 PROVISIONAL							
DAY	SEPT.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.
1	123	76	115	131	119	208	108	122	126	139	55	98
2	115	77	122	126	117	211	118	108	154	150	37	91
3	119	95	113	89	128	197	83	93	157	121	30	92
4	121	98	110	79	128	162	92	96	138	114	26	94
5	125	103	91	79	147	125	71	89	134	115	28	94
6	120	98	51	89	129	105	56	85	144	129	41	95
7	109	92	48	126	150	86	52	79	135	138	54	100
8	104	76	27	131	166	90	79	82	128	128	89	113
9	99	80	34	117	182	86	69	94	130	99	91	98
10	95	82	41	114	198	82	74	104	117	99	99	90
11	77	90	38	132	150	78	85	95	106	87	124	104
12	79	65	56	135	144	69	87	83	82	113	152	116
13	65	55	77	137	138	67	89	60	91	117	151	142
14	51	63	95	140	93	69	67	96	80	120	147	178
15	36	47	98	151	86	87	59	110	95	111	123	172
16	39	41	119	160	70	74	46	114	103	108	149	174
17	44	38	121	172	56	95	59	91	114	118	117	160
18	50	50	134	170	48	72	59	63	136	131	96	160
19	59	62	131	129	50	65	53	53	138	107	102	144
20	63	83	116	141	53	68	56	63	140	108	93	122
21	67	80	95	130	53	69	70	64	145	113	93	138
22	62	85	92	105	69	70	91	68	139	98	86	155
23	55	101	103	101	73	71	113	50	149	106	93	126
24	51	93	108	91	93	119	132	48	165	122	101	108
25	61	114	128	111	78	162	156	64	146	119	120	86
26	53	125	109	142	60	150	141	50	121	117	134	77
27	50	125	105	140	86	118	146	57	139	102	131	67
28	71	156	112	165	140	127	138	82	133	115	118	49
29	66	137	117	141	175	131	127	71	135	94	129	64
30	74	132	123	124	185		154	96	126	98	115	68
31		116		119	209		134		136		93	63
MEAN	76.8	88.2	94.3	126.4	115.3	107.3	92.4	81.0	128.5	114.5	97.3	110.9

1967 yearly mean = 93.8.

DAILY SOLAR FLUX AT 2800 MHz
OTTAWA ARO

FLUX ADJUSTED TO 1 A.U., S_a

	1967				1968							
DAY	SEPT.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.
1	160.5	139.7	140.3	140.0	171.4	254.1	162.8	143.8*	144.8	152.0*	128.3	134.2
2	156.6	135.0	140.9	131.5	171.8	253.0	164.4	144.1	148.2	145.4	120.3	134.2
3	147.0	131.5	137.5	120.5	179.3	244.3	150.8	137.1	156.3	143.8	117.2	140.9*
4	140.9	129.9	130.5	126.3	183.8*	220.3	144.5	131.7	154.5*	144.0	116.0	135.6
5	138.7	125.7	121.8	121.6	191.2	191.4	137.8	129.1*	156.0*	138.3	119.4	135.9
6	133.8	129.9	119.6	130.3	209.7	172.2	136.0	125.1	148.5	145.5	120.1	148.0
7	128.4	125.8	113.1	127.6	223.9	164.2	131.6	124.7	145.4	152.2*	135.0	139.8
8	133.9	121.5	112.8	129.6	230.2	151.5	124.1	130.7	141.6	154.6	147.1*	141.8
9	131.5	122.1	111.1	130.0	222.0	151.7	122.8	141.1	139.8	149.0	153.6	146.7
10	133.6	127.3	117.3	127.7	208.3	155.7	124.1	142.8	139.7	147.9	157.0	146.6
11	131.8	136.5	124.1*	136.6	202.5	155.7	128.3*	138.4	133.5	146.5*	162.8	150.7
12	131.7*	135.4	132.7	139.1	198.9	159.1	130.4	142.7	127.3	143.4	166.1	161.6
13	127.6	130.8	134.7	143.0	197.2	149.1	127.8	141.9	128.3	143.4	155.6	170.8
14	128.0	127.8	136.9	153.4*	187.0	145.7	127.9	138.3	138.2	139.5	155.9	185.1*
15	130.4	122.6	142.9	164.3	176.6	141.8*	125.9	140.0	141.8	139.7	147.9	185.7
16	126.4	118.0	151.8	181.3*	160.8	142.5	128.2	141.0	150.7	138.2*	149.5	179.0
17	126.7	117.3	154.9	202.0	157.4	138.6	135.2	132.2	166.5*	139.6	143.6	169.2
18	128.7	113.3	156.9	212.4*	148.5	135.2*	132.2	127.7	178.4	143.2*	135.2	164.8
19	127.7	119.3	166.7	205.4	141.6	137.5	130.1	125.3*	185.3*	147.5	135.3	159.8
20	130.6	131.2	166.0	201.5	137.3	138.6	129.6	122.4	193.6	151.5	133.9	159.9
21	126.6	130.1	161.4	198.0	132.5	148.5	140.0	123.4	194.6	157.2	133.0	158.6
22	124.6	137.3	159.4	182.3	135.7	151.8	142.2	115.6	190.3	154.6	139.0	153.8*
23	123.8	139.4	156.6	164.0	137.9	156.5	145.5	111.7	185.7	163.8	146.1	137.7
24	131.8	141.3	152.6	152.9	148.6	164.6	154.4*	117.5	182.6*	157.5	152.7	130.8
25	134.1	142.1	154.7	159.4	160.1	177.4*	156.0*	119.9	181.0	154.0	158.2	124.2
26	134.4	148.2	157.9	165.3*	174.0	183.9	156.8	114.3	177.1	146.2	154.4	118.0
27	137.3	161.1*	155.0*	177.0*	185.0	175.7	159.2*	119.1	170.9	147.6	146.8	114.5
28	134.6	177.0	157.2	184.1	213.0	170.7	157.1	128.4	158.1	142.8	143.6	119.4
29	131.7	163.4	150.3*	176.5	220.7	167.4	156.2	128.0	150.9	139.1	144.3*	121.7
30	131.7	159.5*	144.4*	158.9	229.1*		160.3	132.8	151.3*	135.9	138.6	125.5
31		148.6		152.6*	239.1*		155.8		148.9		134.7	123.5
MEAN	133.5	135.1	142.1	157.9	183.1	168.9	141.2	130.4	158.4	146.8	141.7	145.7

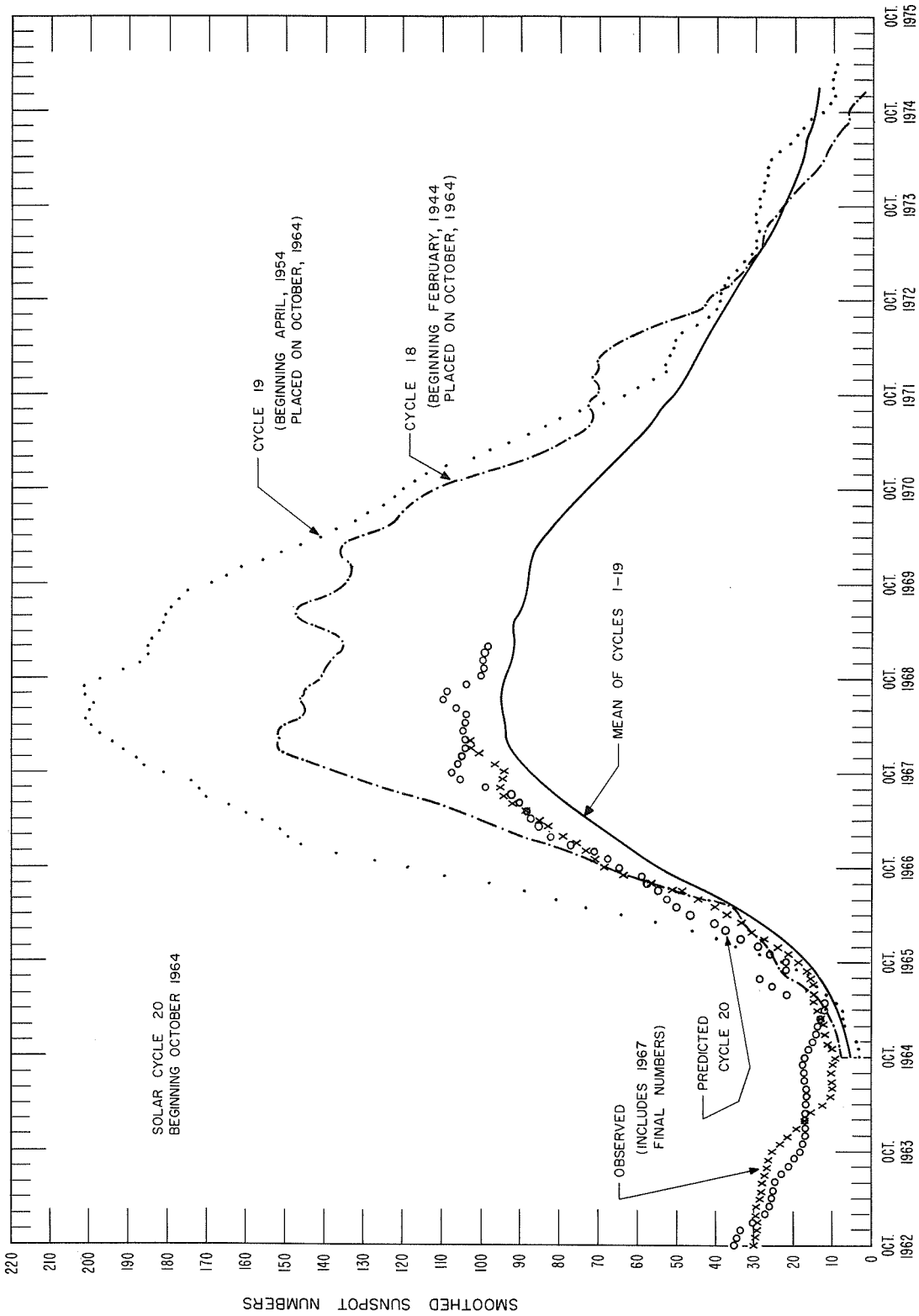
* adjusted for burst

DAILY SOLAR INDICES

AUGUST 1968

AUG. 1968	YEAR DAY	BARTELS 27-DAY CYCLE NUMBER	SUNSPOT NUMBERS		OBSERVED FLUX OTTAWA 2800	SOLAR FLUX ADJUSTED TO 1 A.U.					
			R_Z	$R_{A'}$		AFCRL 8800	AFCRL 4995	OTTAWA 2800	AFCRL 2695	AFCRL 1415	AFCRL 606
01	214	7	98	91	130.3	291	197	134.2	123.0	78.4	56.5
02	215	8	91	94	130.3	289	198	134.2	125.0	80.8	57.1
03	216	9	92	88	136.8*	304	205	140.9*	129.4	82.1	57.1
04	217	10	94	87	131.8	302	203	135.6	125.4	76.2	56.3
05	218	11	94	82	132.1	303	208	135.9	124.1	80.2	56.3
06	219	12	95	76	143.8	309	220	148.0	134.1	87.2	59.4
07	220	13	100	104	136.0	311	214	139.8	127.4	84.8	58.9
08	221	14	113	104	137.9	316	220	141.8	134.2	81.3	58.9
09	222	15	98	91	142.7	303	215	146.7	131.7	89.7	61.3
10	223	16	90	71	142.7	304	221	146.6	135.0	84.1	61.1
11	224	17	104	100	146.7	315	228	150.7	137.3	90.7	63.4
12	225	18	116	95	157.4	319	235	161.6	148.1	92.2	64.4
13	226	19	142	135	166.5	327	243	170.8	159.5	100.4	64.7
14	227	20	178	176	180.4*	345	270	185.1*	173.5	106.7	68.1
15	228	21	172	174	181.0	335	255	185.7	169.0	100.7	68.4
16	229	22	174	161	174.6	329	255	179.0	166.0	102.5	67.7
17	230	23	160	145	165.1	315	245	169.2	158.6	102.5	72.3
18	231	24	160	129	160.8	310	237	164.8	154.2	103.1	77.6
19	232	25	144	116	156.1	304	231	159.8	148.7	96.3	69.2
20	233	26	122	118	156.2	304	235	159.9	152.4	98.8	66.7
21	234	27	138	127	155.0	308	228	158.6	150.2	93.2	63.9
22	235	1	155	128	150.3*	307	226	153.8*	151.6	92.5	62.3
23	236	2	126	102	134.7	287	199	137.7	127.8	84.0	61.0
24	237	3	108	96	128.0	287	190	130.8	120.8	80.9	60.4
25	238	4	86	85	121.5	286	184	124.2	115.9	78.7	56.7
26	239	5	77	68	115.6	285	181	118.0	111.3	74.7	57.7
27	240	6	67	44	112.1	277	178	114.5	108.3	72.1	56.9
28	241	7	49	45	117.1	276	183	119.4	111.0	78.6	57.8
29	242	8	64	58	119.3	286	186	121.7	113.1	77.4	57.9
30	243	9	68	47	123.2	286	193	125.5	118.0	78.9	58.3
31	244	10	63	47	121.2	285	186	123.5	114.2	80.0	58.5
MEAN			110.9	99.5	142.2	303	215	145.7	135.4	87.4	61.8

* Adjusted for Burst



PREDICTED AND OBSERVED SUNSPOT NUMBERS

SMOOTHED OBSERVED SUNSPOT NUMBERS
ZURICH, R_Z

	1964	1965	1966	1967	1968
JAN		11.7	27.7	75.0	102.2
FEB		12.0	31.3	78.8	102.6
MAR		12.5	34.5	82.2	
APR		13.6	37.4	84.6	
MAY		14.6	40.7	87.4	
JUN		15.0	44.6	91.3	
JUL		15.5	50.3	93.9*	
AUG		16.4	56.6	94.6	
SEP		17.4	63.1	94.4	
OCT	9.6	19.7	67.6	94.0	
NOV	10.2	22.3	70.2	96.3	
DEC	11.0	24.5	72.7	100.0	

* The smoothed sunspot numbers beginning with July 1967 are calculated using 1968 provisional monthly averages.

CALCIUM PLAGE AND SUNSPOT REGIONS

AUGUST 1968

AUG. 1968 CMP	LAT.	MCMATH PLAGE NUMBER	RETURN OF REGION	CALCIUM PLAGE DATA: CMP VALUES AREA	CMP VALUES INT.	HISTORY	AGE (ROTATIONS)	DATE FIRST SEEN	DURATION (DAYS)	SUNSPOT DATA: CMP VALUES AREA	CMP VALUES COUNT	HISTORY	MT. WILSON SUNSPOT NO.
1.8	N17	9570	NEW	(300)	(2.5)	b - L	1	8/2	6	(10)	(5)	b - d	16910
1.8	S04	9560	NEW	(100)	(1.5)	b \ d	1	7/30	2				
4.0	S08	9577	NEW	(300)	(2.5)	b / L	1	≤8/6	≥ 4	(10)	(3)	b - L	16916
4.2	S12	9584	NEW	(100)	(1.5)	b - d	1	8/7	1				
5.3	S12	9572	NEW	(400)	(2.0)	b \ L	1	8/4	6	10	4	b - d	16914
5.4	N22	9557(1)	NEW	(1900)	(2.5)	L ∧ L	1	7/29	13	(10)	(1)	L \ d	16906
5.9	N06	9578	NEW	(200)	(1.5)	b / L	1	8/6	6	(10)	(4)	b - L	16919
6.3	S09	9565	NEW	(300)	(1.0)	L - d	1	8/1	4				
6.4	N03	9573	NEW	900	2.5	b / L	1	8/4	9	40	20	b ∧ L	16913
7.2	N12	9564	9499	1400	2.0	L \ L	2	7/31	13	10 10	3 1	b - d L - L	16918 16911
7.4	S22	9574	NEW	(300)	(1.5)	b - d	1	8/4	1				
7.7	S20	9590(2)	NEW	(200)	(2.0)	b ⌈ L	1	8/10	4	(10)	(3)	b - L	16922
8.3	S15	9571	9505	(200)	(1.5)	L \ d	2	8/2	5				
8.9	N13	9567	9503	7600	4.0	L - L	2	8/1	16	600 10	46 5	L ⌈ L b - L	16912 16926
9.4	S22	9579	NEW	600	1.5	L ⌋ L	1	8/3	14	(10)	(4)	b - L	16931
9.4	N31	9580	9511	400	1.5	L / L	2	8/3	13				
10.7	S03	9576	NEW	700	2.0	L ⌋ L	1	8/4	13	10	7	b ⌋ L	16923
10.8	N06	9575	NEW	2100	2.5	L ∧ L	1	8/4	13	10	1	L - L	16915
11.4	S26	9586	9513	800	2.0	L ⌉ L	6	8/6	10				
11.6	N16	9581	9533	1000	2.0	L ⌉ L	2	8/6	12				
12.0	N32	9587	NEW	(100)	(1.0)	b \ d	1	8/8	2				
12.0	S07	9588	9526	900	1.0	L / d	2	8/6	6				
12.1	S09	9599	NEW	(400)	(2.5)	b ∧ L	1	8/14	4	(10)	(5)	b ∧ d	16932
12.9	S16	9583(3)	9518	700	1.5	L ∨ L	4	8/6	14	10	1	L ⌊ L	16917
13.9	S28	9589	9513	1200	1.5	L ⌉ d	4	8/8	9				
14.0	N16	9582	9520	3200	4.0	L ⌈ L	3	8/6	14	70	8	b ∧ L	16924
14.2	S03	9602	NEW	(100)	(1.5)	b / L	1	8/15	6	(10)	(4)	b - L	16937
15.3	N31	9594	9520	500	2.0	L - d	4	8/9	10				
15.3	N07	9595	NEW	(100)	(1.5)	b - d	1	8/12	3				
16.9	S19	9591	9524 9537	3000	3.0	L ∨ L	2	8/10	14	100	2	L ∧ L	16921
16.9	N13	9596	9523	600	2.0	L - L	2	8/10	11	(10)	(1)	b - d	-
17.7	N28	9592	9548	1200	2.5	L ∧ L	2	8/11	14	(10)	(3)	b - d	-
18.0	S17	9593	9528	6100	3.5	L - L	3	8/11	14	660	48	L ⌉ L	16925
18.6	N02	9600	NEW	200	1.0	L - d	1	8/13	6				
18.7	S24	9612	NEW	(400)	3.5	b / L	1	8/19	6	(10)	(1)	b - L	-
19.6	N12	9598	9530	3300	2.5	L ⌉ L	3	8/13	14	300	13	L \ L	16930
19.8	S27	9601	NEW	(200)	(2.5)	L - d	1	8/14	3				
20.1	S15	9597	9534	6800	3.0	L ⌈ L	2	8/13	14	510 (10)	52 (4)	L ∧ L L \ d	16929 16935
21.1	N22	9603	9530	700	1.5	L - d	3	8/15	8				
21.8	N14	9613	9539	900	1.5	L / d	3	8/16	7				
22.2	S03	9604	NEW	100	2.5	L - d	1	8/16	1				
22.3	N28	9605	9530	1700	3.0	L / L	4	8/16	14	80	23	b ⌋ L	16938
22.9	S11	9624	NEW	(200)	2.0	b - L	1	8/25	3				
23.7	N20	9608	9539	500	1.5	L - d	3	8/18	6				
23.7	N22	9608a(4)	NEW	(800)	(2.0)	b - L	1	8/26	5	(10)	(5)	b - L	-
24.1	N08	9616	NEW	200	2.0	b - d	1	8/21	6				
24.8	S16	9610	NEW	1800	3.0	L ⌈ L	1	8/19	12	110	29	L ⌉ L	16939
24.8	N22	9627	-	(500)	(2.0)	b ∧ d	-	-	-				
25.1	N30	9614	9550	(600)	(1.0)	L - d	2	8/19	10				
25.9	S31	9619	NEW	700	2.0	b ⌈ L	1	8/22	10	(10)	(1)	b - d	16940
26.3	N38	9631	NEW	(100)	(1.5)	b - d	1	8/29	1				
26.8	N15	9611	9545	3800	2.5	L - L	2	8/19	14	10	1	L - L	16941
27.3	S26	9618	9569	400	2.0	L \ d	2	8/21	11				
28.6	S17	9636	NEW	(200)	(2.5)	b - d	1	8/30	2				
28.7	S08	9632	NEW	(300)	(1.5)	b / L	1	8/29	5	(10)	(1)	b - d	-
29.1	S21	9637	NEW	(200)	(1.5)	b - d	1	8/30	2				
29.9	N16	9638	NEW	(200)	(1.5)	b / L	1	8/30	6				
30.0	S08	9621	9577	1800	3.0	L ∧ L	2	8/23	13	10	5	b - d	16948
30.0	S17	9629	NEW	200	1.5	b - d	1	8/28	3				
30.2	S18	9646	NEW	(300)	(1.5)	b ⌈ L	1	9/2	3	(60)	(9)	b - L	-
30.9	S14	9648	NEW	(100)	(2.5)	b - L	1	9/3	2				
31.3	N23	9652	NEW	(300)	(1.5)	b - L	1	9/4	3				

(1) Region 9557 has developed near the position of old region 9496 of the previous rotation.
(2) Region 9590 has developed in the position of the small and ephemeral region 9574.
(3) Region 9583 experiences a resurgence on the disk with the development of new plage on August 16.
(4) Region 9608a has developed as a new plage, among the remnants of region 9539 of the previous rotation.

Calcium spectroheliograms were secured on all days in August 1968 except for August 5.

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Aug. 1968	TIME MEAS. UT	LAT.	MER. DIST.	TYPE	No.
1	2045	N13	W26	(βp)3	16901
		N06	W28	(βp)4	16903
		N31	W63	(αf)1	16905
		N20	E41	(βf)2	16906
		N12	W26	(βf)4	16907
2	2005	N13	W40	(βp)3	16901
		N07	W42	(βp)4	16903
		N12	W39	(βp)4	16907
		N19	W39	(βf)2	16908
		S22	W29	(βp)3	16909
		N16	W12	(αp)1	16910
		N06	E66	(αp)3	16911
		N11	E80	(αp)3	16912
3	1955	N15	W50	(β)2	16901
		N06	W56	(βp)5	16903
		N12	W54	(β)3	16907
		N18	W53	(βp)2	16908
		S23	W43	(β)3	16909
		N07	E53	(αp)3	16911
		N12	E70	(βp)5	16912
4	1850	N13	W67	(βf)3	16901
		N07	W68	(βp)4	16903
		N16	W64	(αp)3	16908
		N22	W56	(βp)2	16909
		N06	W40	(αp)4	16911
		N11	E59	(βp)6	16912
		N01	E22	(βp)3	16913
		S12	E06	(βf)2	16914
5	2315	N06	W86	αf	16903
		S22	W74	(β)2	16909
		N06	E24	(αp)4	16911
		N12	E43	(δ)4	16912
		N01	E01	(βp)3	16913
		S11	W09	(αp)1	16914
		N04	E65	(βp)2	16915
6	1845	N06	E13	(αp)3	16911
		N11	E30	(δ)3	16912
		N01	W06	(βf)3	16913
		N04	E55	(βp)2	16915
		S09	W36	(βp)2	16916
		S15	E80	(αp)2	16917
		N10	E16	(αp)1	16918
7	2240	N06	W02	(αp)3	16911
		N11	E15	(δ)5	16912
		N01	W21	(βf)3	16913
		N05	E37	(βf)2	16915
		S09	W54	(βp)2	16916
		S15	E64	(αp)3	16917
		N13	W01	(βf)2	16918
		N12	W29	(βp)2	16919
8	2240	N06	W16	(αp)3	16911
		N11	W0E	(δ)5	16912
		N01	W34	(βf)3	16913
		N06	E27	(αf)2	16915
		S08	W71	(αp)1	16916
		S15	E50	(αp)3	16917
		N13	W15	(βf)2	16918
		N13	W43	(βp)2	16919
		S06	E24	(αp)2	16920
9	1940	N06	W27	(αp)3	16911
		N11	W11	(δ)4	16912
		N01	W46	(βf)3	16913
		N06	E16	(αf)1	16915
		S16	E38	(αp)3	16917
		N13	W23	(βγ)1	16918
		N14	W56	(β)1	16919
10	1930	N06	W40	(αp)2	16911
		N11	W25	(δ)5	16912
		N0S	W63	(αp)1*	16913
		N08	E01	(βp)1	16915
		S15	E26	(αp)4	16917
		N13	W75	(αp)2	16919
		S17	E76	(αp)3	16921
11	1915	N07	W54	(αp)2	16911
		N12	W28	(δ)5	16912
		N10	W13	(αf)1	16915
		S14	E13	(αp)2	16917
		S18	E61	(αp)3	16921
		S20	W50	(αf)1	16922
		S03	W17	(αp)1	16923
		N16	E21	(βp)2	16924
		S15	E81	(αp)3	16925
12	No Obs.				

* Classification based on local decision.

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AUGUST 1968

Aug. 1968	TIME MEAS. UT	LAT.	MER. DIST.	TYPE	No.
13	1830	N12	W65	(δ)4	16912
		N10	W43	(βf)2	16915
		S14	W14	(αp)2	16917
		S18	E35	(αp)3	16921
		S23	W45	(βf)1	16922
		S01	W45	(β)5	16923
		N15	W08	(βp)4	16924
		S16	E59	(βp)4	16925
		N16	W65	(αf)3	16926
		N07	W38	(αf)2	16927
		S16	E67	(β)2	16928
		S13	E80	(βf)2	16929
		N06	E78	(αp)4	16930
		S26	W55	(β)1	16931
		N16	W03	(βf)2	16934
14	1900	N12	W79	(αp)3	16912
		N10	W56	(αp)2	16915
		S13	W26	(αp)1	16917
		S17	E22	(αp)4	16921
		S25	W57	(βf)3	16922
		S01	W58	(βp)4	16923
		N16	W19	(βp)4	16924
		S16	E44	(δ)6	16925
		N16	W80	(αp)2	16926
		S16	E52	(βf)3	16928
		S12	E71	(βp)4	16929
		N07	E63	(αp)4	16930
		S25	W69	(βp)2	16931
		S08	W35	(βp)1	16932
		S21	E14	(αp)1	16933
		N16	W13	(βp)2	16934
		S16	E70	(αp)2	16935
		S13	E61	(αp)2	16936
15	2145	S14	W38	(αp)1	16917
		S18	E08	(αp)4	16921
		S25	W71	(β)3	16922
		S02	W75	(βf)3	16923
		N15	W34	(βp)4	16924
		S16	E29	(δ)6	16925
		S16	E37	(βf)3	16928
		S11	E56	(β)4	16929
		N06	E48	(αp)6	16930
		S09	W50	(β)2	16932
		N16	W29	(βp)2	16934
		S16	E57	(βp)2	16935
		S11	E46	(αp)2	16936
16	2105	S14	W51	(αp)2	16917
		S17	W05	(αp)4	16921
		S02	W83	(αp)3	16923
		N16	W49	(αp)3	16924
		S15	E15	(δ)6	16925
		S16	E24	(βf)4	16928
		S11	E41	(βp)4	16929
		N07	E34	(αp)5	16930
		S08	W66	(αp)1	16932
		S20	E06	(αp)1	16933
		N16	W42	(βf)2	16934
		S16	E44	(βf)3	16935
		S11	E33	(αp)2	16936
		S04	W35	(αp)2	16937
17	2110	S14	W65	(αp)2	16917
		S18	W18	(αp)5	16921
		N15	W67	(αp)2	16924
		S16	E03	(δ)6	16925
		S16	E10	(βf)4	16928
		S11	E27	(βp)5	16929
		N07	E20	(αp)5	16930
		N14	W58	(αp)2	16934
		S14	E42	(αf)2	16935
		S11	E19	(αp)3	16936
		S04	W49	(βf)1	16937
18	2000	S14	W77	(αp)1	16917
		S18	W29	(αp)4	16921
		S16	W09	(βγ)5	16925
		S16	W01	(βf)3	16928
		S12	E15	(βf)5	16929
		N07	E08	(αp)5	16930
		N16	W70	(βp)1	16934
		S04	W66	(αf)1	16937
		N26	E42	(αp)2	16938
19	2240	S17	W45	αp	16921
		S14	W26	βp	16925
		S16	W13	αp	16928
		S12	W01	βp	16929
		N07	W06	βp	16930
		N27	E25	αp	16938
20	No Obs.				
21	No Obs.				

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AUGUST 1968

Aug. 1968	TIME MEAS. UT	LAT.	MER. DIST.	TYPE	No.
22	2345	S17	W63	(αp)4	16925
		S12	W40	(βp)3	16929
		N07	W47	(αp)4	16930
		N27	W07	(βp)4	16938
		S19	E22	(βp)4	16939
		S32	E35	(αf)1	16940
		N07	E42	(αp)2	16941
		S10	W45	(αp)4	16942
23	2347	S14	W80	αp	16925
		S10	W53	(βp)4	16929
		N10	W55	(βp)4	16930
		N28	W24	(βp)5	16938
		S18	E08	(βp)4	16939
		S32	E17	(αp)2	16940
		N08	E27	(αp)2	16941
		S08	W58	(αp)4	16942
24	1755	S12	W64	βp	16929
		N10	W62	βp	16930
		N27	W31	βp	16938
		S18	W02	βp	16939
		S30	E08	αp	16940
		N08	E27	αp	16941
		S09	W69	αp	16942
25	2245	S14	W77	αf	16929
		N27	W48	(β)2	16938
		S19	W17	(βp)4	16939
		N07	E02	(αp)2	16940
26					
27	No Obs.				
28					
29					
30	2345	S32	W68	αp	16940
		N13	E41	(βp)4	16943
		S10	E28	(βp)2	16944
		S25	E78	αp	16945
		S03	E79	(αp)3	16946
31	1725	S33	W79	αp	16940
		N12	E31	(βp)4	16943
		S11	E07	(βp)2	16944
		S27	E66	(αp)2	16945
		S04	E67	(αp)4	16946
		N16	W76	(αp)1	16947
		S10	W26	(αp)1	16948
		S28	E81	αp	16949

The number which appears on the right-hand side of the column labeled "Type" is a coded representation of the largest magnetic field strength measured in the group.

Code	Maximum Field Strength in Gauss	Code	Maximum Field Strength in Gauss
1	100-500	6	2600-3000
2	600-1000	7	3100-3500
3	1100-1500	8	3600-4000
4	1600-2000	9	4100-4500
5	2100-2500	10	>4500

SOLAR FLARES

PARTIAL LISTING

Solar Flares for which at least one observatory has assigned a numerical importance of "1" or greater.

AUGUST 1968

OBSERVATORY	OBSERVED UT DATE 1968 AUG	START	END	MAX. PHASE	LOCATION APPROX. LAT.	MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY	DURATION — MIN.	IMPORTANCE	OBS. COND.	TYPE	MEASUREMENTS TIME — UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hα	MAX. INT. %	REMARKS
ISTA	02	0707	0754		N07	E75	.963		7.9	47	-N								
CATA	02	0730	0815	0740	N14	E80	.981	9567	8.3	45	1B			0740	1.16			204	
MANI	02	0733E	0753	0735	N09	E74	.958	9767	7.9	20D	1F	2		0735	.93	2.12			
CAPS	02	0735E	0804D		N10	E76	.967		8.0	29D	-B	3		0737	1.20			194	E
MCMA	02	1213	1227	1215	N03	E56	.828	9564	6.7	14	-N		C	1215	.62	1.10			E
CATA	02	1215	1245	1215	N05	E55	.817	9564	6.6	30	1B			1215	1.73	3.03		204	
MITK	03	0312	0440	0323	N09	E75	.963	9567	8.8	88	3N		C	0323	5.78				FH
MANI	03	0355E	0445	0357	N08	E75	.963	9567	8.8	50D	2B	2		0357	3.51	8.16			
CATA	03	0535	0555D	0550	S23	W32	.677		31.8	20D	-B			0550	.87	1.19		257	Z
MANI	03	0537	0542D	0541	S20	W36	.693		31.5	5D	-N	2		0541	1.03	1.45			
ISTA	03	0545	0610		S22	W37	.716	9569	31.5	25	1N								
BUCA	03	0728	0815D		N14	W46	.719	9545	30.9	47D	1N		C	0738	3.32	4.70			
ISTA	03	0730	0750	0734	N19	W44	.704		31.0	20	-N								
CATA	03	0730	0815	0740	N09	W45	.703		30.9	45	-B			0740	.98	1.39		251	
CATA	03	0730	0850	0740	N13	W48	.741		30.7	80	-B			0740	1.04	1.56		263	
ARCE	03	0807E	0820D	0820	N17	W48	.745		30.7	13D	-N		C	0807	.86	1.30			
MCMA	03	1350	1440	1353	N20	W50	.772	9545	30.8	50	-N		C	1353	.72	1.20			E
CAPS	03	1351	1433D		N20	W50	.772	9545	30.8	42D	1N	3		1356	1.80	2.90		194	J
SACP	03	1351	1434	1357	N20	W50	.772		30.8	43	-N		C		1.53	1.91			
CATA	04	0540	0625	0550	N15	W58	.844	9545	30.9	45	1B			0550	1.86	3.50		204	E
ARCE	04	0955	1000D	1000	N22	W58	.849	9545	31.1	5D	1N		P	1000	1.60	2.90			
CAPS	04	0955	1012D		N15	W54	.806	9545	31.4	17D	1N	1		1001	2.00	3.40		188	
CATA	04	0955	1025	1000	N14	W57	.835	9545	31.1	30	1B			1000	1.73	3.19		209	
ONDR	04	0956E	1017		N18	W55	.818	9545	31.3	21D	1N		V	0957			2.10		C
CAPF	04	0958E	1015D		N17	W58	.845	9545	31.1	17D	2N		P	0959	2.94	5.13			
CAPS	04	1136	1233		N15	W55	.816	9545	31.4	57	1N	3		1213	3.00	5.10		166	
SACP	04	1421	1519	1443	N15	W59	.853		31.2	58	-N		C		1.02	1.48			
SANM	04	1435	1508	1441	N16	W60	.862	9545	31.1	33	1N		C	1441	1.62	3.23			
CAPS	04	1438E	1511D		N15	W57	.835	9545	31.3	33D	1N	2		1442	2.00	3.40		176	EJ
MCMA	04	1441E	1454D		N17	W60	.863	9545	31.1	13D	-N		P	1443	.72	1.40			E
CAPS	05	0806E	0830D		N09	E40	.639	9567	8.3	24D	1N	2		0810	2.00	2.80		171	J
CAPS	05													0824	2.50	3.50			W
WEND	05	0806E	0833		N09	E37	.599	9567	8.1	27D	1F		V		3.09				
WEND	05	0806E	0835		N08	E34	.556	9567	7.9	29D	1F		V		3.09				
AROS	05	0810E	0826		N10	E39	.627	9567	8.3	16D	1N		P	0821	2.89	3.70			
CATA	05	0810	0850	0815	N12	E39	.628	9567	8.3	40	2B			0815	4.05	5.22		229	
WEND	05	0853	0909D		N12	E48	.740	9567	9.0	16D	1N		V		3.09				
CAPS	05	0856E	0906D		N09	E45	.703		8.7	10D	-F	1		0905	1.50	1.90		149	J
SACP	05	1423	1508	1438	N16	W73	.951		31.1	45	-N		C		.81	1.61			
CATA	05	1430	1525	1435	N14	W74	.957	9545	31.1	55	2B			1435	2.61			246	
ONDR	05	1435E	1452		N18	W66	.909	9545	31.7	17D	1N		V	1436			2.60		DE
HOUT	05	1452	1502	1455	N16	W76	.966	9545	30.9	10	1N		C		1.30	3.50			
HOUT	05	1830	1839D	1833	N12	W83	.990	9545	30.5	9D	1N		C		.80	2.70			E
HOUT	05	2034	2045	2036	N16	W80	.981	9545	30.9	11	1N		C		.90	2.80			
CAPS	06	1135	1150		N10	E39	.626	9567	9.4	15	1N	3		1337	2.30	3.00		189	FK
SACP	06	1643	1737D	1709	N10	E28	.469	9567	8.8	54D	1B		C		2.65	2.71			
HALE	06	1725E	1740		N07	E34	.556		9.3	15D	-B	2	P	1725	.46	.60			T
MITK	08	0250	0319	0255	N11	E10	.190	9567	8.9	29	2B		C	0255	6.50	6.60			FH
MANI	08	0308E	0312D		N10	E12	.216	9567	9.0	4D	1N	2		0310	2.06	2.20			
MITK	08	0423	0440	0427	N08	E10	.175	9567	8.9	17	1N		C	0427	4.33	4.40			E
CATA	08	0555E	0740D	0633	N10	E07	.137	9567	8.8	105D	3B			0633	17.40	17.58		346	IZ
ISTA	08	0615	0745	0625	N09	E04	.084	9567	8.6	90	1B								
MANI	08	0617	0721D	0630	N09	E10	.179	9567	9.0	64D	1B	2		0630	4.64	4.70			
CAPS	08	0617E	0808D		N09	E10	.179	9567	9.0	111D	2B	2		0622	7.50	7.50		305	CFIJK
CAPF	08	0619E	0730D	0633	N10	E06	.122	9567	8.7	71D	3N		C	0633	12.34	12.57			
CATA	08	1305	1550	1320	N11	E03	.098	9567	8.8	165	1B			1320	2.90	2.92		302	Z
CATA	08	1310	1550	1320	N08	E06	.108	9567	9.0	160	1B			1320	3.74	3.78		269	
AROS	08	1312	1350D	1320	N11	E04	.108	9567	8.9	38D	2N		P	1317	5.36	5.40	5.50		
SACP	08	1312	1410U	1316	N10	E04	.095	9567	8.9	58U	1B		C		2.75	2.71			
CAPS	08	1313	1429		N10	E09	.168	9567	9.2	76	2N	3		1321	5.50	5.50		254	FIK
CAPS	08													1351	5.50	5.50		228	VK
MCMA	08	1325E	1435D		N10	E04	.095	9567	8.9	70D	1B		C	1337	3.61	3.50			FL
MCMA	08	1435	1525	1445	N10	E04	.095	9567	8.9	50			C	1445	2.32	2.30			FL
SACP	08	1436	1502D	1444	N09	E04	.084	9567	8.9	26D	1B		C		2.44	2.41			
CAPS	08	1438	1506		N10	E09	.168	9567	9.3	28	1B	3		1446	3.50	3.50		220	FIK
CAPF	08	1445E	1510D		N10	E05	.108	9567	9.0	25D	2N		C	1448	6.47	6.58			
SACP	08	1600	1620	1605	N10	E04	.095		9.0	20	-N		C		.92	.90			
MCMA	08	1602E	1622	1605	N10	E02	.074	9567	8.8	20D	-B		C	1605	1.24	1.20			E
CAPF	08	1605E	1622		N11	E05	.119	9567	9.0	17D	1N		C	1610	2.35	2.39			
CATA	08	1610E	1623	1615	N08	E06	.108		9.1	13D	-B			1615	.40	.41		200	C
HALE	08	1809	1924	1820	N11	W01	.085	9567	8.7	75	2B	1	C	1820	7.53	7.50			
SACP	08	1814	1915U	1821	N11	W01	.085	9567	8.7	61U	2B		C		9.96	9.84			
MCMA	08	1826E	1903D		N09	W01	.051	9567	8.7	37D	1B		P	1843	4.13	4.00			F
HOUT	08	1832E	1836D	1833U	N10	E02	.074	9567	8.9	4D	1N		C		4.30	4.30			E
SACP	08	2031	2038D	2037U	N10	W02	.074		8.7	7D	-N		C		1.23	1.21			

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OBSERVATORY	OBSERVED UT DATE 1968 AUG	START	END	MAX. PHASE	LOCATION APPROX. LAT.	MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY	DURATION — MIN.	IMPORTANCE	OBS. COND.	TYPE	MEASUREMENTS TIME — UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hα	MAX. INT.	REMARKS
HOUT	08	2032	2039	2036	N09	W02	.059	9567	8.7	7	1N		C		2.10	2.10			E
CATA	09	1605	1635D	1615	N09	W09	.162	9567	9.0	30D	1B			1615	3.71	3.78		339	
HOUT	09	1609E	1617	1611	N08	W10	.175	9567	8.9	8D	1B		C		2.10	2.10			E
CAPF	09	1615E	1625D		N10	W08	.152	9567	9.1	10D	1N		C	1619	2.94	2.99			
ONDR	11	1047E	1117		N11	W39	.627	9567	8.5	30D	1F		V	1054			2.00		HJ
LOCA	11	1050	1107D	1055	N10	W35	.571		8.8	17D	-N		V	1055	.85	1.10			
CAPS	11	1057E	1122		N10	W33	.542		9.0	25D	-B	3		1112	1.00	1.20		204	CE
CAPS	11	1324	1350		S18	E90	1.001	9593	18.3	26	2N	3		1332	2.00			189	
SANM	11	1635	1706	1646	S17	E67	.941	9591	16.7	31	2N		C	1646	2.75	8.04			A
SACP	11	1635	1712	1646	S16	E68	.945	9591	16.8	37	1N		C		1.22	2.33			
MCMA	11	1636	1708	1648	S18	E70	.957	9591	16.9	32	-B		C	1648	.52	1.80			E
HOUT	11	1643E	1657	1646U	S17	E69	.951	9591	16.9	14D	2N		C		3.20	8.00			H
HALE	11	1658E	1714		S17	E69	.951		16.9	16D	-B	2	P	1658	.52				E
HOUT	11	2159	2206	2201	N18	E22	.413	9582	13.6	7	1N		C		2.00	2.20			EL
HALE	11	2201E	2210D		N19	E21	.407		13.5	9D	-N	1	P	2201	.36	.40			E
SACP	11	2204E	2218	2206	N18	E21	.399		13.5	14D	-N		C		.61	.61			
HOUT	11	2213	2224	2214	S17	E90	1.001	9593	18.7	11	1N		C		1.20	4.80			
SACP	11	2254	2313	2259	N09	W45	.703		8.6	19	-N		C		1.12	1.31			
HOUT	11	2255	2303	2257	N08	W42	.665		8.8	8	-F		C		1.30	1.80			E
MITK	11	2255	2309	2258	N10	W42	.665	9567	8.8	14	1F		C	2258	1.75	2.40			E
CATA	12	1224E	1245D	1232	N01	W90	1.000	9573	5.8	21D	1N			1232	.58			172	
HOUT	12	1518	1537	1520	N01	W90	1.000	9573	5.9	19	1N		C		.60	2.40			EI
HOUT	12	1634E	1641	1637U	N01	W90	1.000	9573	5.9	7D	1N		C		.60	2.40			
SACP	12	2138	2207	2150	N12	E91	1.000	9598	19.7	29	1B		C		1.22				
MCMA	12	2142E	2200D		N12	E90	1.000	9598	19.7	18D	-N		C	2150					
HALE	12	2155E	2206	2156	N11	E89	.999	9598	19.6	11D	1N	2	P	2156	.93				
HALE	13	0216	0333	0243	N11	W62	.878	9567	8.4	77	1N	2	C	0243	1.65	3.50			
SACP	13	2105	2137	2113	N14	E76	.965	9598	19.6	32	1N		C		1.84	4.00			
HOUT	13	2109	2131	2113	N11	E78	.974	9598	19.7	22	2N		C		2.10	5.90			
HALE	14	0224E	0331	0234	S16	E54	.848		18.1	67D	-N	1	P	0234	.52	1.00			
MITK	14	0227E	0228D		S16	E57	.873	9593	18.4	1D	1N		P	0228	1.13	2.20			E
MANI	14	0250E	0319D		S15	E55	.854	9593	18.2	29D	1N	2		0250	2.06	3.60			
CAPS	14	0944E	1014D		S02	W51	.784		10.6	30D	-B	3		0945	1.00	1.50		201	CH
CAPF	14	0945E	1010D		N00	W52	.791	9576	10.5	25D	2N		P	0946	4.22	6.95			
CAPS	14	0958E	1014D		S17	E51	.826	9593	18.2	16D	1F	3		1004	1.50	2.60		157	C
SANM	14	1302E	1447		S25	W70	.966	9579	9.3	105D	1B		P	1325	1.30	5.02			D
SANM	14												C	1435	.65	2.51			D
MCMA	14	1322	1425		N12	W80	.981	9567	8.6	63	1B		C	1340	.83				KY
SANM	14	1322	1426		N13	W78	.974	9567	8.7	64	1B		C	1331	.97	5.58			D
SANM	14													1403	1.62	9.32			A
SACP	14	1326	1350	1333	N14	W77	.970	9567	8.8	24	1B		C		1.12	2.58			
HOUT	14	1327	1354	1331	N12	W85	.994	9567	8.2	27	1N		C		1.30	4.40			E
CAPS	14	1329E	1358		N12	W80	.981		8.6	29D	2N	2		1334	2.00			204	CF
HOUT	14	1358	1422	1400	N12	W85	.994	9567	8.2	24	1N		C		1.10	3.70			E
CAPS	14	1401	1430		N12	W85	.994	9567	8.2	29	1N	3		1405	1.30	1.40		189	K
HOUT	14	1856	1903	1858	S28	W75	.985	9579	9.2	7	1N		C		.80	2.40			EI
MCMA	14	1857	1901	1859	S27	W78	.991	9579	8.9	4	-N		C	1859	.21	.80			D
MITK	15	0046	0118	0102	S24	W70	.965	9579	9.8	32	1N		C	0102	.72				E
SACP	15	0050	0121U	0059	S26	W71	.971		9.7	31U	-N		C		.61	1.42			
MANI	15	0053E	0054D		S24	W69	.961	9579	9.9	1D	1F	2		0054	.93	2.10			
MITK	15	0244E	0255	0245	S29	W78	.992	9579	9.3	11D	1F		C	0245	.83				
BUCA	15	0600E	0650D		N17	W24	.433	9582	13.4	50D	1N		P	0600	2.21	2.40			
CAPF	15	0848E	0859		S27	W76	.987	9579	9.7	11D	1N		P	0851	1.76				H
MEUD	15	0951E	1015D		S27	W80	.995		9.4	24D	-N		C						
CAPS	15	0954E	1002		S27	W90	1.001	9579	8.7	8D	1N	3						170	C
MCMA	15	1142	1210D		S16	E33	.639	9593	18.0	28D	-N		C	1146	.62	.80			E
CAPS	15	1144E	1153D		S16	E43	.746	9593	18.7	9D	1N	3		1145	1.80	2.70		189	CF
MCMA	15	1405E	1425D		N14	W90	1.000	9567	8.8	20D	-F		C	1419					
AROS	15	1420E	1500		N13	W85	.994	9567	9.2	40D	1N		P						
CAPF	15	1455E	1530D		N23	W88	.997	9567	9.0	35D	1N		P	1500	1.18				A
SACP	16	0009	0029	0018	S03	W76	.972	9576	10.3	20	1F		C		.92	2.12			
MANI	16	0016	0026	0019	S02	W75	.968		10.4	10	-F	2		0019	.83	1.92			
CAPS	16	0600E	0640D		N18	W90	.999	9567	9.5	40D	2F	3						166	BL
MANI	16	0639	0643D	0641	S17	E08	.422		16.9	4D	-F	2		0641	.52	.57			
CAPS	16	0640E	0700D		S15	E05	.378	9591	16.7	20D	1N	3		0644	2.70	3.00		161	F
MCMA	16	1903	1935		N17	W90	.999	9567	10.0	32	1F		C	1911					A
MITK	17	0220	0246D	0227	S15	W52	.828	9583	13.2	26D	1N		C	0227	1.24	2.10			
MANI	17	0443	0523	0455	S10	E37	.649	9597	20.0	40	1F	2		0455	2.17	2.84			
MITK	17	0447	0522D	0509	S08	E37	.639	9597	20.0	35D	1N		C	0509	2.06	2.70			E
HOUT	17	1511	1520	1514	S09	E26	.505		19.6	9	-N		C		1.50	1.70			
SACP	17	1514	1531	1516	S09	E26	.505		19.6	17	-N		C		.92	.94			
CATA	17	1515	1555	1515	S07	E26	.490	9597	19.6	40	1N			1515	2.55	2.92		174	

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OBSERVATORY	DATE 1968 AUG	OBSERVED UT START	OBSERVED UT END	OBSERVED UT MAX. PHASE	LOCATION APPROX. LAT.	LOCATION APPROX. MER. DIST.	LOCATION CENTRAL DISTANCE	LOCATION MCMATH PLAGE REGION	LOCATION CMP DAY	DURATION — MIN.	IMPORTANCE	OBS. COND.	OBS. TYPE	MEASUREMENTS TIME — UT	MEASUREMENTS MEAS. AREA Sq. Deg.	MEASUREMENTS CORR. AREA Sq. Deg.	MEASUREMENTS MAX. WIDTH Hα	MEASUREMENTS MAX. INT. %	REMARKS
CAPS	17	1516E	1527		S10	E28	.538	9597	19.7	11D	1F	3		1518	2.00	2.40		158	J
CAPS	18	0838	0912		S17	W90	1.001	9583	11.6	34	1F	3		0857	.73			142	DGW
CAPS	18	1054E	1103		S10	E00	.289	9593	18.5	9D	1F	1		1057	2.00	2.00			C
CAPS	18	1203E	1217		S10	E00	.289	9593	18.5	14D	1F	1		1205	2.00	2.00		158	
SACP	18	1325	1434	1334	S17	W01	.403	9593	18.5	69	1B		C		3.36	3.37			
LOCA	18	1327	1421	1338	S16	W00	.387	9593	18.6	54	1N		V	1338	4.41	4.80			
MCMA	18	1329	1330D		S16	W02	.388	9593	18.4	1D	-N		C	1330	.41	.40			E
HOUT	18	1330E	1350	1333U	S17	E01	.403	9593	18.6	20D	2N		C		5.10	5.60			E
ONDR	18	1331E	1407		S16	W06	.399	9593	18.1	36D	1N		V	1332			2.40		J
CAPS	18	1340E	1425		S16	E05	.396	9593	18.9	45D	1N	1		1401	3.30	3.30		158	BU
MEUD	18	1404E	1430		S15	E03	.374		18.8	26D	-N		C	1404	.72	.70			
CAPS	19	0815E	0832D		S19	W88	1.000	9593	12.7	17D	1F	2						149	CD
ISTA	19	0820	0830		S14	W80	.990		13.3	10	-F								
CAPS	20	0622	0725D		S10	W32	.589	9593	17.9	63D	1N	3		0628	1.70	2.10		176	FH
ZURI	20	0631E	0645	0637	S11	W30	.571		18.0	14D	-N		C	0637	1.26	1.50			
ONDR	20	0849E	0925		S12	W34	.625		17.8	36D	-N		V	0902			2.10		CJ
CAPS	20	0854E	0927D		S10	W33	.601		17.9	33D	-F	3							
CATA	20	0855	0935	0905	S11	W33	.607		17.9	40	-B			0905	.58	.73		207	
WEND	20	0903E	0927		S10	W32	.589	9593	18.0	24D	1F		P		3.09				
CATA	20	0910	0915	0910	S15	W36	.667		17.7	5	-N			0910	.52	.70		166	
LOCA	20	0943	0955	0946	S16	W33	.641		17.9	12	-N		V	0946	.53	.70			
CAPS	20	1114	1140		S15	W32	.623		18.1	26	-F	3		1125	1.00	1.30		150	EH
WEND	20	1120	1136		S17	W33	.648	9593	18.0	16	1N		V		3.09				
WEND	20	1124	1157		S19	E57	.881	9610	24.8	33	1N		V		3.09				
CATA	20	1300	1328	1300	S16	W38	.695		17.7	28	-B			1300	1.16	1.64		214	H
CAPS	20	1303E	1338		S15	W34	.645	9593	18.0	35D	1N	3		1315	1.50	2.00		164	CEJ
LOCA	20	1525	1600	1531	S17	W36	.680	9593	17.9	35	1N		V	1531	1.68	2.30			
ONDR	20	1526	1555D		S17	W38	.701		17.8	29D	1N		V	1530			2.20		CJ
SANM	20	1526	1556	1529	S16	W39	.705	9593	17.7	30	1B		C	1529	2.27	3.26			D
MCMA	20	1527E	1553D		S16	W37	.684	9593	17.9	26D	-B		C	1529	1.03	1.40			E
SACP	20	1529E	1531D	1529U	S17	W38	.701		17.8	2D	-N		C		1.52	1.77			
CAPS	20	1529E	1600D		S14	W35	.650	9593	18.0	31D	1N	3		1530	2.00	2.60		196	CJU
HALE	21	0145	0214	0149U	S16	W42	.737	9593	17.9	29	1B	1	C	0149	2.89	4.30			FH
MANI	21	0533E	0602D	0541	N06	W21	.356	9598	19.7	29D	1N	2		0541	2.27	2.42			
MITK	21	0540E	0550D		N07	W20	.340	9598	19.7	10D	2F		C	0540	5.26	5.60			BF
ISTA	21	0540	0620		N06	W17	.291	9598	20.0	40	1B								
CATA	21	0540E	0645	0545	N09	W20	.341	9598	19.7	65D	1B			0545	3.76	4.01		245	BFZ
CAPS	21	0600E	0638		N07	W20	.340	9598	19.8	38D	2N	3		0600	9.00	9.60		189	BIU
MANI	21	0655	0709	0701	S16	W45	.767		17.9	14	-B	2		0701	1.03	1.60			
CATA	21	0655	0735	0700	S15	W46	.772	9593	17.8	40	2B			0700	4.64	7.54		331	HZ
CAPS	21	0657	0717		S19	W42	.753	9593	18.1	20	1B	2		0702	2.50	3.00		300	EL
CATA	21	0700	0755D	0700	S21	W40	.745	9593	18.3	55D	1B			0700	3.19	4.77		309	U
CAPF	21	0703E	0716		S14	W48	.788	9593	17.7	13D	1N		P	0706	1.76	2.91			H
ZURI	21	0819	0843	0829	S17	W45	.771		18.0	24	-F		C	0829	.84	1.30			
MANI	21	0822	0842	0828	S17	W42	.742	9593	18.2	20	1B	2		0828	2.06	3.08			
CAPS	21	0823	0854		S20	W38	.720	9593	18.5	31	1B	3		0825	3.50	4.90		204	EJL
LOCA	21	0828E	0845	0828	S17	W45	.771	9593	18.0	17D	1N		V	0828	2.73	4.30			
CAPS	21	1115	1158		S13	W13	.402	9597	20.5	43	1B	3		1123	1.90	2.10		204	EJK
WEND	21	1118E	1130		S10	W16	.394	9597	20.3	12D	1N		V		3.09				
AROS	21	1120E	1126D		S11	W17	.417		20.2	6D	1N		P	1124	2.06	2.30			
CAPS	21	1133	1145		S19	W45	.781		18.1	12	-N	3		1134	.40	.60		178	DJ
AROS	21	1155E	1217	1206	S14	W45	.758		18.1	22D	-N		P	1206	1.24	1.90			
MCMA	21	1158	1222	1205	S16	W46	.777	9593	18.0	24	-B		C	1205	.52	.80			E
CAPS	21	1159	1222		S19	W39	.723	9593	18.6	23	1B	3		1203	3.00	4.20		204	FJ
CAPF	21	1203E	1220D		S16	W49	.805	9593	17.8	17D	1N		P	1205	1.76	3.08			
MCMA	21	1530	1546D	1538	S15	W50	.811	9593	17.9	16D	1B		C	1538	2.17	3.50			F
SACP	21	1530	1605	1538	S13	W46	.764	9593	18.2	35	1N		C		2.83	3.55			
CATA	21	1530E	1615D	1542	S15	W46	.772	9593	18.2	45D	2B			1542	7.25	11.77		316	Z
AROS	21	1533	1603	1538	S13	W47	.774	9593	18.1	30	1N		C	1538	2.27	3.60			
HOUT	21	1534	1550	1539	S14	W49	.798	9593	18.0	16	2N		C		4.50	7.20			EI
SANM	21	1534	1557D	1538	S13	W48	.784	9593	18.0	23D	2B		P	1538	5.18	8.58			I
ZURI	21	1535	1545	1537	S14	W45	.758	9593	18.3	10	1F		C	1537	1.47	2.20			
CAPS	21	1535E	1600		S12	W40	.695	9593	18.6	25D	2N	3		1538	5.70	8.00		220	CF
HOUT	21	1836	1850	1838U	S18	W56	.871	9593	17.6	14	2B		C		3.20	6.10			I
SACP	21	1836	1902	1840	S18	W53	.847		17.8	26	1N		C		3.03	4.33			
MCMA	21	1838E	1910	1841	S16	W50	.814	9593	18.0	32D	1B		C	1841	1.34	2.10			HV
HOUT	21	1932	1955	1936	S18	W52	.839	9593	17.9	23	3B		C		7.70	13.90			EHI
MCMA	21	1933	2050		S16	W50	.814	9593	18.1	77	1B		C	1935	1.24	2.00			H
SACP	21	1935E	1954	1936U	S18	W51	.830		18.0	19D	1N		C		3.24	4.48			
MITK	22	0347	0402	0352	S17	W62	.912	9591	17.5	15	1N		C	0352	1.03	2.40			
HALE	22	0355	0410	0358	S17	W58	.884		17.8		-N	1	C	0358	.41	.90			K
HALE	22			0402						15				0402	.62	1.30			
MANI	22	0403E	0408		S17	W56	.869		18.0	5D	-F	2		0404	.52	.94			
CATA	22	0650	0745	0710	S17	W58	.884		17.9	55	-B			0710	.63	1.32		269	T
MITK	22	0705E	0725D	0721	S17	W61	.905		17.7	20D	-B		C	0721	.72	1.70			D

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OBSERVATORY	OBSERVED UT DATE 1968 AUG	START	END	MAX. PHASE	LOCATION APPROX. LAT.	MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY	DURATION — MIN.	IMPORTANCE	OBS. COND.	TYPE	MEASUREMENTS TIME — UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hα	MAX. INT. %	REMARKS
MANI	22	0715E	0725	0717	S18	W58	.886		18.0	10D	-N	2		0717	.67	1.26			
BUCA	22	0715E	0745D		S16	W58	.881	9593	18.0	30D	1N		C	0715	1.10	2.40			
CATA	22	0725	0755	0725	S17	W56	.869		18.1	30	-B			0725	.23	.46		219	
MCMA	22	1608E	1625D		S16	W36	.674	9597	20.0	17D	-F		C	1617	.83	1.00			
HALE	22	1613E	1631	1614	S16	W34	.652	9597	20.1	18D	1N	2	P	1614	1.86	2.40			F
SACP	22	1621	1659	1630	S13	W61	.897		18.1	38	-N		C		.51	.82			
HALE	22	1623	1642	1623	S13	W60	.890	9593	18.2	19	1N	2	C	1623	1.24	2.70			KF
SACP	22	1742	1816	1756	S17	E27	.586	9610	24.8	34	1N		C		1.93	2.08			
HALE	22	1751	1816	1758	S18	E27	.595		24.8	25	-B	1	C	1758	1.24	1.50			F
MCMA	22	1800E	1825		S16	E22	.524	9610	24.4	25D	-B		C	1803	.77	.80			E
MANI	23	0326	0344	0329	S17	W70	.957	9593	17.9	18	1N	2		0329	1.03	2.31			
HALE	23	0328	0400	0329	S20	W64	.930		18.3	32	-B	1	C	0329	.21				
MANI	23	0436	0450	0441	N27	W11	.384	9605	22.4	14	1N	2		0441	2.17	2.35			
CATA	23	1125E	1145D	1125	S18	W71	.963	9593	18.2	20D	2B			1125	4.34			240	
MCMA	23	1207	1220D		S14	W70	.954	9593	18.3	13D	1N		C	1210	1.03	3.00			FH
BUCA	24	0635E	0715D		S17	E06	.418	9610	24.7	40D	1B		P	0637	2.76	3.00			
AROS	25	1206	1230D	1215	S06	E61	.885	9621	30.1	24D	1N		P	1213	1.44	3.00	2.00		
CAPS	25	1207	1240		S06	E62	.893	9621	30.2	33	1F	3		1211	1.00	2.30		152	U
CAPF	25	1217E	1230D		S08	E60	.880	9621	30.0	13D	1N		P	1220	2.35	5.02			G
CAPF	25	1425E	1510D		S11	W83	.995	9597	19.4	45D	2N		P	1431	1.76				H
CAPS	26	1245	1325D		S19	W90	1.001	9597	19.8	40D	1N	3						168	
CAPS	26	1356E	1417D		N09	W90	1.000	9597	19.8	21D	1N	3		1359	2.60			176	
CAPS	27	1122E	1138		S18	W38	.709	9610	24.6	16D	1N	3		1125	1.80	2.50		164	C
CAPS	27	1125E	1150		S14	W90	1.000	9597	20.7	25D	1F	3		1140	3.63			151	C
CAPS	27	1150E	1208		S18	W38	.709	9610	24.6	18D	1F	3		1200	1.50	2.10		158	C
HALE	27	1713	1742D	1723	S08	E29	.539	9621	29.9	29D	1N	2	P	1723	1.96	2.30			F
MCMA	27	1718	1813		S08	E29	.539	9621	29.9	55	-N		C	1724	1.03	1.30			E
SACP	27	1720	1746	1727	S08	E29	.539		29.9	26	-N		C		1.11	1.17			
CAPS	28	1042E	1108		S17	W50	.819	9610	24.7	26D	1N	3						176	C
MITK	29	0020E	0130	0035	N13	E68	.921	9630	3.1	70D	1B		C	0035	.83				E
SACP	29	0031	0049D	0047U	N13	E69	.927		3.2	18D	-N		C		.61	1.10			
HALE	29	0043E	0110		N04	E67	.918		3.1	27D	-B	1	P	0046	.52				F
ISTA	29	0836	0855	0841	N11	E70	.934		3.6	19	-B								
CAPS	29	0838E	0935		N11	E67	.915	9630	3.4	57D	2N	3		0850	4.99			228	CEJW
ARCE	29	0904E	0935D		N07	E68	.923		3.5	31D	-B		C	0907	.76	1.80			
CAPS	29	1130	1202		N11	E67	.915	9630	3.5	32	1N	3		1132	.93			185	E
BUCA	30	0610E	0650D		N12	E54	.803		3.3	40D	-N		P	0619	1.10	1.80			
CAPS	30	0613E	0645D		N11	E52	.782	9630	3.2	32D	1N	1		0616	2.80	4.50		175	FJ
CATA	30	0615E	0720D	0625	N14	E53	.793		3.2	65D	-B			0625	.87	1.52		339	
CAPS	30	0935E	1015D		N11	E52	.782	9630	3.3	40D	1N	3		0940	2.00	3.40		164	EJ
CATA	30	1015	1100	1020	N31	E85	.990	9635	5.8	45	2N			1020	3.19			166	
CATA	30	1015	1205	1045	N12	E80	.981	9635	5.4	110	1B			1045	1.62			224	
CATA	30	1035	1245	1105	N13	E73	.951	9635	4.9	130	1B			1105	2.20			214	
CATA	30	1040	1250	1125	N21	E79	.975		5.4	130	-N			1125	.69			168	
SANM	30	1450	1610D	1454	N12	E47	.726		3.1	80D	-F		P	1454	.97	1.45			
CAPS	30	1548	1615D		N11	E49	.749	9630	3.3	27D	1N	3		1557	2.20	3.50		182	FJ
MCMA	30	1549	1615	1554	N13	E48	.738	9630	3.3	26	-B		C	1554	1.03	1.60			E
SACP	30	1551	1611	1554	N14	E49	.750		3.3	20	-F		C		.61	.74			
CATA	30	1555	1615	1600	N15	E47	.728		3.2	20	-B			1600	.58	.67		269	
CAPF	31	1125E	1210D	1140	S15	W90	1.001	9610	24.7	45D	1N		P	1140	.59				A
SACP	31	1324	1339D	1330	S09	E10	.325		1.3	15D	-N		C		1.32	1.31			
CAPS	31	1330E	1346		S08	E07	.287	9625	1.1	16D	1F	3		1334	2.00	2.10		142	CU
CATA	31	1530	1615D	1550	N15	W77	.969	9611	25.9	45D	1B			1550	.87			214	

"Remarks":

A = Eruptive prominence, base at >90°.
B = Probably the end of a more important flare.
C = Invisible 10 minutes before.
D = Brilliant point.
E = Two or more brilliant points.
F = Several eruptive centers.
G = No spots visible in the neighborhood.
H = Flare with high velocity dark surge.
I = Very extensive active region.
J = Plage with flare shows marked intensity variations.
K = Several intensity maxima.
L = Filaments show effects of sudden activation.
M = White-light flare.
N = Continuous spectrum shows effects of polarization.
O = Observations have been made in the calcium II lines H or K.
P = Flare shows helium D_3 in emission.
Q = Flare shows the Balmer continuum in emission.
R = Marked asymmetry in Hα line.
S = Brightening follows disappearance of filament (same position).
T = Region active all day.
U = Close and somewhat parallel bright filaments (|| or Y shape).
V = Occurrence of an explosive phase.
W = Great increase in area after time of maximum intensity.
X = Unusually wide Hα emission.
Y = Onset of a system of loop-type prominences.
Z = Major sunspot umbra covered by flare.

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Date, time (UT) and coordinates of Subflares not included in preceding table.

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01	0139	N15	W14	01	0139	N17	W14	01	0308	N03	E73	01	0312	N22	E52	01	0314E	N25	E52	01	0507E	N07	W25
01	0625	N08	W25	01	0930	N12	W21	01	1520E	N21	E47	01	1525	N21	E47	02	0052E	N14	W29	02	0630	N14	W33
02	0630	N12	W29	02	1412	N14	W36	02	1521	N16	W35	02	2115	N03	E54	02	2155	N19	W34	02	2247	N13	W40
03	0159	N11	W45	03	0204E	N10	W44	03	0431	N16	W44	03	0450	N11	W48	03	0504	N17	W44	03	0504	N11	W47
03	0640E	N20	W45	03	0645E	N18	W43	03	0845	N29	W90	03	0930E	N08	W50	03	1235	N18	W51	03	1256E	N21	W47
04	0112	N22	E14	04	1650E	N15	W62	04	1750E	N10	E56	04	1750	N09	E56	04	1944	N06	W67	04	2007	N11	E54
04	2008	N12	E52	04	2142	N08	E30	05	0239	N12	E47	05	0254E	N13	E49	05	0255E	S21	W59	05	0300	N14	E52
05	1515	N13	E43	05	1516	N13	E43	05	1518	N09	E20	05	1937	N10	E44	05	2045	N13	W83	05	2326	N12	E42
05	2353	N13	E40	06	0000E	N14	E40	06	0042	N14	E39	06	0049	N02	E05	06	0339	N12	E38	06	0640E	N12	E33
06	0714E	N12	E40	06	0845	N16	W90	06	0900E	N18	W88	06	1315	N07	E31	06	1317	N15	W86	06	1320	N15	W90
06	1332	N12	E31	06	1344	N15	E34	06	1400	N10	E29	06	1427	N15	E34	06	1842	N11	E25	06	2010	N12	E25
06	2053	N12	E25	06	2224	N12	E25	06	2235	N11	E90	07	0000U	N13	E24	07	0001	N12	E23	07	0506	N13	E24
07	0620	N11	E20	07	0703	N09	E23	07	0730	N10	E21	07	1345	N12	E20	07	1350	N09	E19	07	1350	N12	E19
07	1353E	N10	E20	07	1615E	N10	E19	07	1620	N17	E18	07	1641	N15	E86	07	1802	N09	E14	07	1842	N08	E13
07	1935	N12	E13	07	1943	N12	E10	07	2050	N01	W24	07	2300	N15	E15	07	2336	N09	E14	07	2347E	N11	E13
07	2347E	N11	E13	07	2348	N11	E12	07	2348	N09	E10	07	2349	N09	E11	08	0341	N09	E13	08	0345	S14	W40
08	0446	N11	E07	08	0546	N11	E08	08	0547	N11	E09	08	0547	N10	E07	08	0702	N18	W41	08	0710	N13	E10
08	0853	N11	E07	08	1217	N08	E04	08	1701	N09	E02	08	2012	N09	E04	08	2156E	N09	W01	09	0205	S07	E25
09	0650	N15	W17	09	0650	N11	W08	09	0746	N14	W00	09	0812	N13	W04	09	0813	N12	E03	09	0813	N14	W03
09	0813E	N13	W03	09	1639E	N09	W08	09	1641E	N09	W09	09	1720	N10	W09	09	1826	N09	W11	09	1854	N10	W10
09	1936	N11	W09	09	2007	N08	W12	09	2114	N09	W12	09	2115	N09	W12	09	2117	N09	W13	09	2227	N14	W56
09	2255	N03	W43	10	0019	N10	W17	10	0020	S15	E88	10	0349	N10	W17	10	0411	N15	W26	10	0700E	N16	W28
10	0716	N17	W27	10	0718E	N14	W27	10	0842	N13	W20	10	1301	S15	E85	10	1305	S17	E88	10	1340	S15	E85
10	1624	N16	W24	10	1625	N17	W24	10	1635	N10	W20	10	1652	N04	W55	10	1652	N06	W55	10	1653	N06	W56
10	1653	N04	W55	10	1738	N10	W24	10	1904	N11	W27	10	2118	N15	W22	10	2125	N10	W27	11	0108	N08	W30
11	0109	N15	W77	11	0133	N10	W29	11	0153	N10	W29	11	0305	N11	W30	11	0425	N10	W29	11	0428E	N09	W31
11	0600E	N02	W66	11	0610E	S03	W67	11	0650E	S03	W67	11	0725E	N10	W30	11	0730	N11	W27	11	0801	N01	W67
11	0803E	S03	W68	11	0804E	N01	W65	11	0927E	N15	E37	11	1438	N09	W37	11	1440	N10	W38	11	1440	N10	W39
11	1441	N10	W32	11	1536	N10	W38	11	1539	N09	W39	11	1634	N09	W39	11	1635	N10	W39	11	1835	N10	W40
11	2154	N14	W39	11	2201E	N18	W38	12	0124	N17	W43	12	0605E	N18	W43	12	0732	S17	E90	12	1005E	N12	W48
12	1534	S22	W65	12	1604E	S22	W66	12	1652	S02	W30	12	1708	N12	W65	12	1710	N12	W59	12	1713	N12	W50
12	1716	N15	W49	12	1733	S03	W31	12	1745E	S02	W28	12	1801	S16	E54	12	1822	N04	W25	12	1823	N05	W24
12	1824	N03	W22	12	1906	S03	W31	12	1915	S02	W30	12	1919	N31	E67	12	1959	N15	W49	12	2049E	N13	W55
13	0740	N00	W36	13	1252	S18	E64	13	1256E	S19	E65	13	1357	N16	W00	13	1449E	N14	W62	13	1610	N13	E80
13	1615	N14	E82	13	1627	S14	E68	13	1725	S11	E62	13	2046	S12	E90	13	2228	S11	E81	13	2321	S16	E63
14	0315E	N17	W03	14	0526	N16	W72	14	0749E	S16	E57	14	0806E	S10	E79	14	0806E	N11	E72	14	0819E	S06	W50
14	1300	S02	W54	14	1354	S11	E45	14	1428	S26	W70	14	1430	S26	W68	14	1430	S28	W65	14	1430	S26	W69
14	1448E	N10	W90	14	1504	S26	W69	14	1505	S26	W70	14	1520	S11	E43	14	1525	S11	E45	14	1610	S26	W68
14	1623	S01	W55	14	1715E	S27	W75	14	1842U	S01	W61	14	1940	S12	E20	14	1949	N00	W58	14	1952	N00	W60
14	2014	S17	E44	14	2145	S27	W75	14	2204	S02	W59	14	2229	S26	W75	14	2335E	S12	E36	14	2340E	S18	E39
15	0412	S16	E48	15	0415E	S28	W80	15	0415E	N07	E62	15	0434	N19	W21	15	0438	N20	W22	15	0531E	S18	E38
15	0620E	S27	W64	15	0651E	S14	E48	15	0840E	N10	W90	15	0855	N17	W90	15	0925	N18	W88	15	0945	S22	E36
15	0951	S21	E36	15	0953	S16	E20	15	1220	S00	W70	15	1225E	N01	W66	15	1328	S16	E10	15	1329	S15	E10
15	1626	S18	E33	15	1627	S18	E33	15	1629	S16	E33	15	1718	S00	W70	15	1743	S15	E42	15	1744	S15	E39
15	1755	N18	W27	15	1757	N16	W26	15	1915	S15	E40	15	1916	S15	E40	15	2054	S15	E09	15	2054	S15	E10
15	2055	S15	E40	15	2056	S15	E08	15	2118	S15	E13	15	2120	S14	E11	15	2207	S25	W72	16	0353	S18	E10
16	0353	S14	E09	16	0641	S15	E06	16	1025	N18	W90	16	1322	S13	E20	16	1347E	S17	E17	16	1417	S17	E22
16	1420	S17	E23	16	1541	N11	E41	16	1542	N10	E40	16	1543E	N10	E41	16	1557	S12	E48	16	1559	S12	E47
16	1600	S11	E46	16	1635	S17	E16	16	2025	N09	E39	16	2025	N11	E39	16	2027	N12	E38	16	2032E	N11	E35
16	2109	S15	E16	16	2115	S13	E43	16	2347	S10	E27	17	0104E	N16	W55	17	0145	S18	E17	17	0317E	S11	E43
17	0402E	S14	W04	17	0402E	S13	W10	17	0450	S14	W52	17	0453	S14	W52	17	0543E	S09	E30	17	0550	N09	W90
17	0853E	S12	W57	17	0854E	S12	W57	17	0958E	N16	W64	17	1000E	N19	W58	17	1305E	S20	E19	17	1923E	S23	W90
17	2034	S10	E20	17	2038E	S08	E22	17	2104	S14	E30	17	2252U	S19	E04	18	0630	S14	W68	18	0705E	S08	E16
18	1005E	N08	E20	18	1456	S12	E22	18	1529	S10	E20	18	1530	S12	E23	18	1650	S12	E13	18	1721	S10	E19
18	1725	S11	E20	18	1750	S20	W05	18	1801E	S16	W05	18	2236	S13	E16	19	0008	S11	E09	19	0010	S12	E07
19	0119	S19	W13	19	0342E	S13	W15	19	0705	N09	E01	19	0707E	N10	E04	19	0709E	N10	E02	19	0820	S05	W68
19	0845E	N09	W01	19	1152E	S12	E10	19	1245	S14	W14	19	1246E	S16	W15	19	1307E	S13	W16	19	1531	S13	W24
19	1533	S12	W23	19	1533	S11	W20	19	1536	S12	W19	19	1542E	S11	W21	19	1545E	S09	W24	19	1609	S12	E07
19	1610	S08	E03	19	1636E	S11	E07	19	1636	S12	E07	19	1637E	S11	E05	19	1821	S11	E05	19	1822	S11	E08
19	2055	S12	E02	20	0506E	S17	W33	20	0745E	N28	E28	20	1010	S16	W33	20	1103E	S20	E52	20	1431	S15	W34
20	1437E	S18	E52	20	1437E	S16	W39	20	1444E	S16	W37	20	1449	S16	W36	20	1454	S24	W23	20	1639	S16	W37
20	1639	S16	W37	20	1648	S17	W39	20	1842	S16	W38	20	1843	S16	W37	20	1903	S16	W38	20	1938	S16	W38
20	1954	S17	W39	20	2022	S16	W38	20	2026	S17	W39	20	2102	S18	W43	20	2103	S20	W43	20	2109E	S23	W45
20	2145	N04	W17	20	2215	S17	W42	20	2239	S16	W42	20	2318E	S15	W42	21	0115	S16	W42	21	0506E	S17	W39
21	0515	S16	W43	21	0820E	S09	W19	21	0844	S11	W15	21	0845	S11	W15	21	0845	S10	W12	21	0912	N05	W26
21	0914	N05	W20	21	0919	S25	W35	21	0923	S24	W34	21	0925E	S24	W35	21	1100	S16	W47	21	1332	S15	W47
21	1333	S15	W51	21	1335E	S16	W49	21	1338E	S16	W44	21	1338E	N09	W30	21	1347	N10	W29	21	1347	N15	W30
21	1348	N09	W30	21	1349	N09	W21	21	1350	N10	W30	21	1420E	S13	W13	21	1448	S16	W44	21	1530	S13	W21
21	1631	S17	E41	21	1806E	S12	W22	21	1807	S11	W22	21	1808E	S11	W21	21	2355	S17	W59	21	2355E	S18	W53
22	0000E	S17	W56	22	0103	S12	W26	22	0110	S11	W26	22	0127	N10	W35	22	0137	S17	W58	22	0140	N06	W33

SOLAR FLARES

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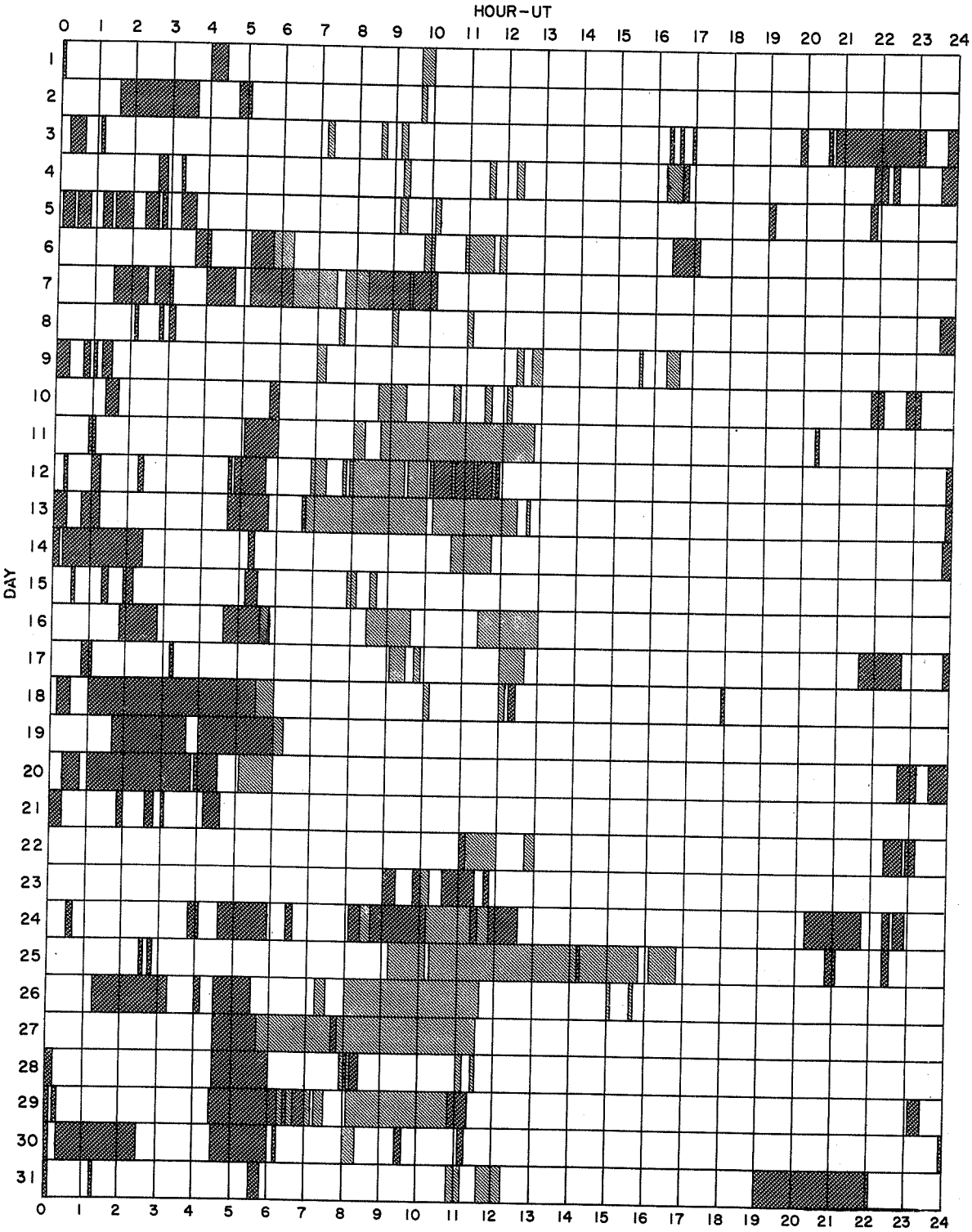
22	0232	S18	E32	22	0413E	S12	W30	22	0417	S12	W25	22	0419	S11	W25	22	0445	S17	W60
22	0513	S26	W46	22	0521	S25	W48	22	0555	S17	W58	22	0844E	S12	W29	22	0845	S14	W29
22	1020	S16	W60	22	1021	S15	W58	22	1040	S17	W30	22	1108	N28	E00	22	1302	S22	W52
22	1341	N27	W06	22	1434	S11	W38	22	1436	S12	W37	22	1526	S17	E30	22	1532	S17	E28
22	1548	S15	W36	22	1549	N27	W07	22	1553	S12	W63	22	1555	S15	W62	22	1558E	S12	W62
22	1611E	S20	W54	22	1613E	S19	W53	22	1617	N25	W03	22	1620	N27	W08	22	1630	S12	W34
22	1828	S10	W34	22	1829	S14	W30	22	1903	S16	W63	22	1903	S20	W64	22	1907E	S11	W36
22	2006	S16	W37	22	2052	N05	W50	22	2055	N05	W48	22	2312	S17	E26	22	2319	S12	W38
23	0410E	S12	W42	23	0715E	N28	W12	23	0717	N27	W11	23	0717	N27	W12	23	1405	S17	E15
23	1452	S17	W77	23	1456	S17	E14	23	1457	S17	E15	23	1648	N28	W17	23	1925	S13	W54
23	2258	N11	W49	23	2345	N12	W49	23	2353	N28	W19	24	0058E	S18	E08	24	0058	S17	E08
24	0314	N11	W51	24	0404E	S17	E06	24	0554E	S14	W56	24	0554E	S12	W65	24	0610E	S08	W60
24	1330	S17	W01	24	1331E	S18	E01	24	1400	S16	E02	24	1400	S19	E03	24	1540	S16	E01
24	1610	S29	W90	24	1901	N28	W32	24	1904	N27	W35	24	1907	S17	W01	24	2201	S17	W03
25	0320	N11	W65	25	1506E	S18	W15	25	1959	N30	W49	25	2259	S20	W24	26	1900E	S16	W90
26	2358	S12	E77	27	1320	S18	W38	27	1643	S17	W42	28	2108	N13	E70	29	0327	N23	W70
29	0424	N14	E67	29	0827	N27	W77	29	1237	N10	E67	29	1431	N13	E60	29	1533	S10	E36
29	1545	N22	W80	29	1545	N22	W81	29	1635	S16	W74	29	1745	S16	E74	30	0237	N14	E56
30	0825E	N11	E52	30	1019	N11	E49	30	1224	N11	E49	30	1343	N11	E49	31	0228	N16	E41
31	1510	S35	E88	31	1743	S02	E66	31	1833	N19	E25								

22	0503E	S11	W56	22	0940E	S15	W31	22	1330	S12	W38	22	1548	S15	W36	22	1603	S18	W52
22	1756	N06	W46	22	2003	S21	W44	23	0041	N11	W42	23	1442	S18	E14	23	2058	N27	W20
24	0309	S11	W54	24	1327	S16	E02	24	1555	N28	W30	25	0108E	S20	W85	26	2027	N17	W02
29	0350	N11	E68	29	1534	S12	E36	30	0251	N22	W84	31	1050	N13	E76				

INTERVALS OF NO FLARE PATROL OBSERVATION
For Preceding Solar Flare Table

AUGUST 1968



Observatories included in total patrol:

Arcetri	Capri-S (Swedish)	Istanboul	Meudon	San Miguel
Arosa	Catania	Locarno	Mitaka	Wendelstein
Bucharest	Haleakala	McMath-Hulbert	Ondrejov	Zürich
Capri-F (German)	Houston	Manila	Sacramento Peak	

The times when there was not cinematographic or visual patrol are shown by the darker areas. The rest of the shaded areas are times of visual patrol only.

SUDDEN IONOSPHERIC DISTURBANCES

SHORT WAVE RADIO FADEOUTS — SUDDEN PHASE ANOMALIES
SUDDEN COSMIC NOISE ABSORPTION — SUDDEN ENHANCEMENTS OF SIGNAL
SUDDEN ENHANCEMENTS OF ATMOSPHERICS — SUDDEN FREQUENCY DEVIATIONS

AUGUST 1968

AUG 1968	UNIVERSAL TIME START	END	MAX	WIDE SPREAD INDEX	SWF TYPE	IMP	IMPORTANCE ABS SCNA	SEA	SPA	SES	SFD	STATIONS	KNOWN FLARE
01	0138	0140	0139	1							06	HA(WWVH10-0.6)	0139
01	0140	0200	0149	3	G	1-						MA OK	
01	0312	0315	0313	1							05	HA(WWVH5-0.5, WWVH10-0.2)	0312
02	0052	0102	0054	1	S	1-						MA	0052E
02	0736	0756	0739	5	S	1						NU MA DA AT OK PU	0730
02	0735	0805		1						1		PU	
03	0200	0220	0205	1	S	1-						MA	0204E
03	0311	0445	0315	5	S	2+						MA OK TO HK	0312
03	0313	0323	0321	5			44 2					MA	
03	0315	0350	0320	5					20			HN(M23-20) MA(M23-170)	
03	0311		0314	1							16	HA(WWVH5-1.6, WWVH10-0.6)	
03	0733	0806	0741	5	S	1						AT DA NU PU	0728
03	0732	0807		1				1				PU	
03	0731	0755		1						1		PU	
03	1358	1410	1400	3	S	1-						DA PU	1350
04	1749	1752	1750	1							03	BO(WWI11-0.3)	1750E
05	0113		0117	3					46			GE-MR-GE/ 46	*
05	0114		0115	3						2		MR-GE-MR/ 2	
05	1431	1512	1435	5	S	1						TR NU WS PU	1423
05	1430	1633	1435	1					22			UM(AA17-22)	
05	1431	1511		1						1		PU	
05	1512	1535	1516	1				1				A22	1515
05	1520	1550	1523	1						1		A21	
05	2213		2240	3					133			MR-GE-MR/ 133	*
05	2145		2230	3						-12		MR-GE/-12 GE-MR/ -6	
06	0338	0341	0339	1							06	HA(WWVH5-0.6, WWVH10-0.3)	0339
06	1133	1356	1140	5	S	2-						AT NU	1135
06	1121		1145	1					16			UM(AA17-16)	
06	1321		1332U	5	SL	2						WS TR AT NU SW	1315
06	1324	1401	1333	1			20 1					RO	
06	1319	1429		3				2				PO LO	
06	1312	1335	1319	5					-112			HN(L20--112) UM(AA17-90, C15-50)	
06	1317	1505	1333	5						3		UM PU	
06	2203		2228	3					93			MR-GE/ 93 GE-MR/ 169	NF
06	2203		2227	3						-9		MR-GE/ -9 GE-MR/-22	
07	0147	0210	0151	1					32			MA(M23-32)	*
07	0144	0146	0145	1							08	HA(WWVH10-0.8)	
07	0400	0418	0403	5	S	1						OK CA	*
07	0400	0500	0407	1					54			MA(M23-54)	
07	0403		0406	3					118			HO-YP-HO/ 118	
07	0403		0405	3						4		HO-YP-HO/ 4	
07	0401	0404	0402	1							11	HA(WWVH5-1.1, WWVH10-0.3)	
07	0430	0540		1				*				TA	*
07	0835	0900		1				1+				KE	*
07	1939	1945	1942	1	S	1-						WS	1935
07	1940	1955	1945	1					122			TK(AA17-122)	
07	2354	2403	2358	5	SL	1-						WS MA OK CA	2348
07	2353	0010	2359	5					28			HN(L20-28,M23-21) MA(M23-63) HA(L20-25,B60-68)	
07	2350		2400	3					36			SK-TT/ 36 TT-PC/ 10	
07	2350		2400	3						12		SK-TT/ 12 PC-TT-PC/ 6	

SUDDEN IONOSPHERIC DISTURBANCES

AUGUST 1968

AUG 1968	UNIVERSAL TIME START	END	MAX	WIDE SPREAD INDEX	SWF TYPE IMP	IMPORTANCE ABS SCNA	SEA	SPA	SES	SFD	STATIONS	KNOWN FLARE
07	2351	2353	2352	1						05	HA(WWVH5=0.5, WWVH10=0.3)	
08	0106		0119	3				216			MR-GE-MR/ 216	NF
08	0106		0110	3					8		HO-YP/ 352 SK-TT/ 46 PC-TT/ 57 MR-GE-MR/ 8 HO-YP/ 5 SK-TT/ 14 PC-TT/ 9	
08	0250	0337	0252	5	S 1+						MA OK CA TO HK	0250
08	0253	0320	0258	1		65 2					MA	
08	0254	0318	0300	1			1				TY	
08	0250	0340	0259	5				28			HN(M23-28) HA(B60-45,L20-18) UM(C22-64) TK(AA17-85)	
08	0248		0301	3				226			MA(M23-173) GE-MR-GE/ 226 PC-TT/ 79 HO-YP/ 90 YP-HO/ 356 SK-TT/ 86	
08	0250		0255	3					6		GE-MR-GE/ 6 PC-TT/ 7 YP-HO/ -5 SK-TT/ 13 HO-YP/ 6	
08	0250	0355	0300	3							UM	
08	0249	0301	0252	3					2			
			0255	1						18	HA(WWVH5=1.8)	
			0252							18	HA(WWVH5=1.8)	
			0255							11	HA(WWVH10=1.1)	
08	0618	0730	0640	5	G 2					13	HA(WWVH10=1.3)	
08	0618	0730	0635	5			1				OK AT NU MA DA TO AT HK	0615
08	0616		0639	3				176			AT KE PU MR-GE/ 176	
08	0616		0640	3					11		HO-YP/ 129 MR-GE/ 11	
08	0621	0723		1							HO-YP/ -3	
08	1317	1350	1319	5	S 1						PU	
08	1315	1345	1318	5		40 2					HN DA TR HU NU AT PU SW	1310
08	1316	1400	1319	5			1				RO MC	
08	1316	1332	1322	5				-70			AT A17 A22 BO A1 A8 HN(L20--70) UM(C22-48, AA17-96)	
08	1315		1325	3				72			JP-NT/ 72 ST-NW/ 54 NT-JP/ 115	
08	1315		1323	3					11		SA-CP-SA/ 61 JP-NT-JP/ 11 ST-NW/-20	
08	1314	1350	1321	5							SA-CP-SA/ 10	
08	1314	1327	1317	1							UM PU A1 A21	
08	1438	1500	1448	5	G 1-					06	BO(WWI8=0.6)	
08	1437	1515	1443	5			1				HN NU AT DA	1435
08	1444	1516	1449	5				-70			A22 A17 AT HN(L20--70) UM(AA17-32)	
08	1436	1540	1445	5					34		A21 A1 UM	
08	1603	1620	1609	1	SL 1-						WS	1600
08	1603	1621	1610	5				-55			HN(L20--55) UM(AA17-16)	
08	1816	1900	1818	5	S 2-						WS MC HN NU DA TR TO	1814
08	1816	1850	1819	3		84 2					BA PU	
08	1816	1940	1820	5			3				BO MC	
08	1815	2000	1820	5				140			A1 BO AN A8 HN(M23-140, L20-35)	

SUDDEN IONOSPHERIC DISTURBANCES

AUGUST 1968

AUG 1968	UNIVERSAL TIME START	END	MAX	WIDE SPREAD INDEX	SWF TYPE	IMP	IMPORTANCE ABS	SCNA	SEA	SPA	SES	SFD	STATIONS	KNOWN FLARE
08	1815		1820	3						72			UM(C22-48, AA17-167) HA(L20-108, B60-315) SK-TT/ 72 PC-TT/ 64 JP-NT-JP/ 252 CP-SA/ 180 ST-NW/ 3	
08	1815		1816	3							-9		SA-CP/ 234 ST-NW/ -9 PC-TT/ 9 SK-TT/ 14 NT-JP-NT/ 9 CP-SA-CP/ 10	
08	1816	1920	1828	5									A1 A21 UM DV A20	
08	1814		1816	1								11B	BO(WWI11-11.8)	
08	2220		2233	3						111			MR-GE/ 111 GE-MR/ -97	2156E
08	2140		2225	3							-28		MR-GE/-28 GE-MR/ -7	
08	2340		2402	3						176			HO-YP-HO/ 176 MR-GE-MR/ 79	*
08	2340		2405	3							6		HO-YP-HO/ 6 MR-GE/ 5 GE-MR/ 31	
09	0112		0125	3						36			PC-TT/ 36 SK-TT/ -21	*
09	0118		0125	3							6		PC-TT/ 6 SK-TT/ 10 MR-GE/-10	
09	0238		0245	3						144			GE-MR/ 144 MR-GE/ 223 YP-HO/ 284	NF
09	0238		0245	3							8		GE-MR/ 8 YP-HO/ 10	
09	1609	1638	1611	5	S	1+							WS DA HN NU MC PU	1605
09	1609	1632	1611	1			10	1					MC	
09	1608	1705	1609	5						-98			HN(L20--98,M23-7) HA(L20-11)	
09	1605		1610	3						100			NT-JP/ 100 JP-NT/ 54 CP-JP/ 97 CP-SA-CP/ 10	
09	1609		1614	3							5		JP-NT/ 5 CP-JP/ 8 CP-SA-CP/ 6	
09	1608	1650	1614	3							1+		A1 A21	
09	1609	1614	1611	1								02	BO(WWI11-0.2)	
09	2204		2231	3						122			MR-GE-MR/ 122	2227
09	2157		2225	3							-6		MR-GE-MR/ -6	
11	0700		0707	3						-237			HO-YP/-237 GE-MR/ 46 MR-GE/-108	0650E
11	0630		0719	3							-36		MR-GE/-36 HO-YP/-32 GE-MR/ -2	
11	0752	0847	0814	5	G	1+							NU DA OK AT PU	0730
11	0750	0820	0805	1					1-				AT	
11	0753	0835		1							1		PU	
11	1442	1446	1443	1								06	BO(WWI9-0.6)	1441
11	1645	1702	1653	5	SL	1							HN NU WS	1643E
11	1642	1712	1654	3			10	1					MC BO	
11	1648		1707	1					1-				BO	
11	1648	1730	1658	5						28			HN(L20-28,M23-10) UM(AA17-42) HA(L20-14,B60-22)	
11	1650		1700	3						36			JP-NT/ 36 NT-JP/ 72	

SUDDEN IONOSPHERIC DISTURBANCES

AUGUST 1968

AUG 1968	UNIVERSAL TIME START	END	MAX	WIDE SPREAD INDEX	SWF TYPE	IMP	IMPORTANCE ABS SCNA	SEA	SPA	SES	SFD	STATIONS	KNOWN FLARE
11	1650		1705	3						5		NT-JP/ 5 JP-NT/ -9	
11	1648	1720	1655	3						1+		A20 A21 DV	
11	2300	0100		1				*				TA	2255
12	0003	0025	0007	1	S	1-						OK	NF
12	0001	0030	0008	5					10			HN(M23-10) MA(K18-33,M23-21)	
11	2351	2440	2358	1						2		A21	
12	1440		1448	3					72			ST-NW/ 72 SA-CP/ 36	NF
12	1438		1445	3						-12		ST-NW/-12 SA-CP/ -4	
12	1522		1530	1					-136			ST-NW/-136	1518
12	1520		1522	1						-13		ST-NW/-13	
12	1759	1802	1800	1							02	BO(WWI9-0.2)	1801
12	2047	2051	2049	1							06	BO(WWI9-0.6)	2049E
12	2158		2228	3					147			MR-GE-MR/ 147	2138
12	2147		2217	3						-7		MR-GE-MR/ -7	
13	1255	1311	1257	5	S	1+						DA NU HU AT PU	1252
13	1254	1312	1256	1			18 1					RO	
13	1254		1303	5				1				RO PU	
13	1253	1309	1259	5					70			HN(L20-70) UM(C22-40, AA17-38)	
13	1252		1253	3					-36			ST-NW/-36 CP-JP/-28	
13	1253		1257	3						7		ST-NW/ 7 CP-JP/ 10	
13	1253	1320	1258	5								A20 PU UM	
13	1254	1256	1255	1							06	BO(WWI8-0.6)	
14	0041	0104	0045	3	S	1						MA OK	*
14	0040	0120	0050	5					47			MA(M23-47,K18-23) HA(L20-11,B60-34)	
14	0210	0311	0233	3	G	1+						MA OK	0224E
14	0157	0223	0200	1					25			HN(013-25)	
14	0943	1023	0948	5	S	2-						NU AT DA PU	0944
14	0945	1025	0950	1				2				PU	
14	0943	1026		1						2		PU	
14	1328	1500	1344	5	SL	3						AT DA HU NU WS MC P	1322
14	1333	1450	1341	5			62 2					RO MC	
14	1331	1500	1340	5				2+				A6 A17 PO AT A22 RO	
14	1327	1433	1328	5					-112			HN(L20--112) UM(AA17-138, C15-137)	
14	1326		1349	3					50			SA-CP/ 50 JP-NT-J-/ 172 CP-SA/-126 ST-NW/ 72	
14	1326		1340	3						-9		ST-NW/ -9 SA-CP-S-/ 8 JP-NT/ 14 NT-JP/ 10	
14	1326	1530	1347	5						3		UM PU	
14	1948	2000U	1951	3	S	1-						HN WS	1949
14	1947	2045	1958	5					18			HN(M23-18, L20--84) HA(L20-14,B60-34)	
14	1950	2052	1955	1						1		DV	
14	2232	2250	2236	1	S	1-						WS	2229
14	2231	2310	2238	5					21			HN(M23-21, L20--43) HA(L20-18,B60-79)	
14	2235	2320	2240	1						1-		DV	
15	0055	0110	0059	1	S	1-						MA	0046
15	0050	0112	0055	5					10			HN(M23-10,L20-28)	

SUDDEN IONOSPHERIC DISTURBANCES

AUGUST 1968

AUG 1968	UNIVERSAL TIME START	END	MAX	WIDE SPREAD INDEX	SWF TYPE IMP	IMPORTANCE ABS SCNA	SEA	SPA	SES	SFD	STATIONS	KNOWN FLARE
											HA(B60-22,L20-11)	
15	0052	0140	0055	1							MA(M23-74,K18-25)	
15	0137	0156	0148	1	SL 1-				2		A21	
15	0137	0210	0150	1				30			MA	NF
15	0955	1015	0957	3	S 1-						MA(K18-30)	
15	0954	1030		1					1		DA PU	0951E
15	1718	1723	1719	1						02	PU	
15	2130		2200	1				147			BO(WWI9-0.2)	1718
15	2115		2200	1					-34		HO-YP/ 147	2118
15	2205		2230	3				115			HO-YP/ 34	
15	2155		2220	3					-9		MR-GE/ 115	2207
											GE-MR/ 154	
											MR-GE/ -9	
											GE-MR/-13	
16	2121	2138	2123	1	S 1-						WS	2115
16	2120	2140	2125	1				7			HN(M23-7,L20-20)	
17	0439	0523	0455	1	G 1						MA	0443
18	0303	0307	0304	1						04	HA(WWVH5-0.4)	*
			0306							02	HA(WWVH5-0.2)	
			0304							03	HA(WWVH10-0.3)	
18	1332	1430	1337	5	SL 1+						AT PU	1325
18	1747	1829		1	S 1						PU	1750
19	0347	0410	0355	1	SL 1-						MA	0342E
20	0908		0921	3				-39			ST-NW/ -39	0903E
20	0915		0927	3					-5		ST-NW/ -5	
20	1120	1140	1125	5	S 3-						NU DA PU	1120
20	1120		1125	1				6			UM(AA17-6)	
20	1120	1148		1					1		PU	
20	1528	1549	1535	5	SL 1-						DA TR NU WS PU	1525
20	1532	1607	1538	1			1				PU	
20	1529	1555	1530	5				-68			HN(L20--68)	
											UM(AA17-32,	
											C15-34)	
20	1528		1535	1				72			CP-JP/ 72	
20	1528		1532	1					6		CP-JP/ 6	
20	1525	1630	1535	1					1		UM	
20	1526	1531	1528	1						03	BO(WWI11-0.3)	
20	1650	1702	1658	5	SL 1-						HN TR WS	1648
20	1650	1802	1655	5				5			HN(M23-5,L20--10)	
											UM(C15-22,	
											AA17-22)	
20	1648		1654	3					5		CP-JP/ 5	
20	1651	1749	1656	1					1		DV	
20	1646	1658	1649	1						08	BO(WWI11-0.8)	
20	1902	1909	1904	5	S 1-						WS TR	1843
20	1848		1655	3				79			CP-JP/ 79	
20	1905		1912	1					1		DV	
20	2202	2209	2204	1	S 1-						WS	2145
20	2213		2240	1				154			MR-GE/ 154	
20	2155		2242	1					-36		MR-GE/-36	
20	2317	2327	2321	5	S 2+						MA WS	2318E
20	2316	2400U	2319	5				15			HN(M23-15,	
											L20--28,L20-10)	
											HA(L20-22,B60-45)	
											MA(K18-32,M23-62)	
											TK(G18-34)	
20	2313		2320	3				144			HO-YP-HO/ 144	
											PC-TT-PC/ 28	
											GE-MR/ 72	
											SK-TT/ 36	
20	2315		2319	3					5		GE-MR/ 5	
											PC-TT-PC/ 5	
											HO-YP/ 4	
											YP-HO/ 10	
											SK-TT/ 10	
20	2317	2350	2320	3					2		A21 DV	

SUDDEN IONOSPHERIC DISTURBANCES

AUGUST 1968

AUG 1968	UNIVERSAL TIME START	END	MAX	WIDE SPREAD INDEX	SWF TYPE	IMP	IMPORTANCE ABS	SCNA	SEA	SPA	SES	SFD	STATIONS	KNOWN FLARE
20	2315	2318	2316	1								07	BO(WWI8-0.7)	
21	0048		0051	1						68			HA(B60-68,L20-43)	NF
21	0148	0300	0148	5	S	2							MA AN CA TO	0145
21	0148	0157	0151	5			50	2					MA	
21	0149	0204	0153	5					1-				MA TA	
21	0149	0203	0153	5						20			HN(L20-20,M23-56)	
													MA(M23-160,	
													K18-126)	
													TK(G18-83)	
21	0144		0151	3						356			HO-YP/ 356	
													MR-GE/ 212	
													PC-TT-PC/ 100	
													YP-HO/ 349	
													GE-MR/ 172	
													SK-TT/ 97	
21	0147		0153	3							7		PC-TT-PC/ 7	
													MR-GE-MR/ 9	
													HO-YP-HO/ 7	
													SK-TT/ 20	
21	0148	0155	0225	1							1		DV	
21	0517	0525	0519	1	S	1-							MA	0515
21	0700	0716	0705	5	S	1-							MA AT NU DA TO PU	0655
21	0659	0710	0703	1			30	2					MA	
21	0700	0748	0706	1					2				PU	
21	0658	0745	0703	1						58			MA(K18-58)	
21	0657		0704	3						198			HO-YP/ 198	
													GE-MR/ 82	
													YP-HO/ 136	
21	0657		0706	3							9		GE-MR/ 9	
													HO-YP/ 9	
													YP-HO/ 14	
21	0700	0727		1							1		PU	
21	0824	0910	0832	5	SL	1+							AT DA NU MA PU	0819
21	0826	0900	0834	5					2				PU AT	
21	0822	0914		1							2		PU	
21	1120	1143		1	S	1							PU	1115
21	1334		1339	1						6			UM(AA17-6,C22-6)	1333
21	1537	1552	1542	5	S	1-							NU WS HU DA HN TR M	1530
21	1537	1550	1539	5						-70			HN(L20--70)	
													UM(C22-17,	
													AA17-32)	
21	1536		1546	3						32			JP-NT/ 32	
													NT-JP/ 72	
													SA-CP/ - 7	
21	1538		1545	3							5		JP-NT-JP/ 5	
													SA-CP/-14	
21	1534		1541	1							1		UM	
21	1534	1541	1536	1								04	BO(WWI11-0.4)	
21	1809	1822	1810	3	S	1-							HN WS	1807
21	1807	1822	1810	1						20			HN(L20-20,M23-7)	
21	1839	1915	1842	5	S	2-							MC HN HU AN WS TR	1836
21	1838U	1901	1843	1			15	1					MC	
21	1837	1915	1840	3									A22 A1	
21	1838	1910	1843	5						75			HN(L20-75,M23-45)	
													HA(L20-54,	
													B60-101)	
													AN(L20-36,	
													AA17-36,L20-36,	
													R16-8,012-21)	
21	1840		1845	3						72			NT-JP-NT/ 72	
21	1840		1848	3							3		NT-JP/ 3	
													JP-NT/ 7	
21	1839	1915	1842	3							3		A21 A20 A1	
21	1837	1846	1839	1								13	HA(WWVH5-1.3)	
			1840									11	HA(WWVH5-1.1)	
			1841									14	HA(WWVH5-1.4)	
			1843									05	HA(WWVH5-0.5)	
21	1838	1846	1841	1								26	BO(WWI11-2.6)	
21	1935	2030U	1939	5	S	2							WS HU HN TR MC	1932
21	1932	2023	1938	5			25	1					MC BO AN	

SUDDEN IONOSPHERIC DISTURBANCES

AUGUST 1968

AUG 1968	UNIVERSAL TIME START	END	MAX	WIDE SPREAD INDEX	SWF TYPE	IMP	IMPORTANCE ABS SCNA	SEA	SPA	SES	SFD	STATIONS	KNOWN FLARE
21	1936	2010	1941	5								AN BO A1 A22	
21	1935	2055	1942	5					55			HN(M23-55,L20-60)	
												AN(L20-30,	
												AA17-20,R16-20,	
												L20-24,O12-15)	
												HA(L20-50,	
												B60-101)	
21	1934	2030	1938	3						2+		A21 A20 A1	
21	1933	1946	1934	5							16	BO(WWI11-1.6)	
												HA(WWVH5-1.4)	
21	2355	0004	2358	1	S	1-						MA	2355
21	2357	2407	2400	1					18			MA(M23-18)	
22	0422	0430	0425	1	S	1-						MA	0419
22	1559	1611	1602	1	S	1-						WS	1555
22	1556	1650	1559	1					-70			HN(L20--70)	
22	1754	1811	1757	3	S	1-						HN WS	1751
22	1753	1822	1802	1					7			HN(M23-7)	
22	2156		2223	3						-14		MR-GE/-14	*
22	2232		2241	3					205			GE-MR/ 205	
												MR-GE/ 126	
22	2230		2237	3						-15		GE-MR/-15	
23	0327	0345	0329	1	S	1-						MA	0326
23	0326	0433	0336	1					42			MA(M23-42,K18-36)	
23	0326	0328	0327	1							06	HA(WWVH5-0.6)	
23	1108		1115	5	S	2+						NU DA AT PU AT	1125E
21	1109	1200	1122	5								AT PU KE	
23	1106		1114	1					31			UM(C22-31,	
												AA17-26)	
23	1106		1114	5						1		UM PU	
23	1500	1523	1502	5	S	1+						HN MC HU DA NU WS TO	1457
												PU	
23	1459	1510	1502	3			10 1					MC BO	
23	1500	1510	1502	5								AT PU	
23	1459	1542	1502	1					-42			HN(L20--42)	
23	1500		1505	3					7			SA-CP/ 7	
												JP-NT/ 57	
												NT-JP/ 97	
23	1500		1502	3						1		SA-CP/ 1	
										7		JP-NT-JP/ 7	
23	1500	1527		1						2		PU	
23	2345	2348	2347	1							03	HA(WWVH5-0.3,	2345
												WWVH10-0.2)	
24	0310	0350		1				2				KE	0309
24	0633	0648	0638	5	S	3-						NU DA	0635E
26	1901	1915U	1909	1	SL	1-						WS	1900E
26	1859	2000	1905	1					5			HN(M23-5)	
29	0038	0152	0044	5	S	1+						MA TO	0031
29	0036	0044	0041	1			20 1					MA	
29	0035	0200	0048	5					21			HN(M23-21)	
												HA(L20-29,B60-56)	
												MA(K18-72,M23-76)	
												TK(G18-34)	
29	0031		0046	3					104			MR-GE-MR/ 104	
												YP-HO/ 133	
												YP-KR/ 108	
												TT-PC-TT/ 28	
												SK-TT/ 28	
												KR-UP/ 43	
29	0027		0040	3						10		TT-PC-TT/ 10	
												UP-KR/ 5	
												SK-TT/ 15	
												KR-UP/ 33	
												GE-MR-GE/ 7	
												YP-HO/ 5	
29	0429	0447	0431	1	S	1-						MA	0424
29	0428	0451	0435	1					40			MA(M23-40,K18-29)	

SUDDEN IONOSPHERIC DISTURBANCES

AUGUST 1968

AUG 1968	UNIVERSAL TIME START	END	MAX	WIDE SPREAD INDEX	SWF TYPE IMP	IMPORTANCE ABS SCNA	SEA	SPA	SES	SFD	STATIONS	KNOWN FLARE
29	0839	0907	0848	5	SL 1						AT NU DA PU	0836
29	0844	0907		1			-1				PU	
29	0838	0933		1					1		PU	
29	2200		2225	3				75			MR-GE/ 75	NF
											GE-MR/ 111	
29	2150		2227	3					-10		MR-GE/-10	
											GE-MR/ -6	
30	0240	0315	0242	1	S 1						MA	0237
30	0240	0331	0247	1				62			MA(M23-62,K18-43)	
30	0235		0246	3				82			GE-MR/ 82	
											YP-HO/ 205	
											MR-GE/ 151	
30	0240		0248	3					5		MR-GE-MR/ 5	
											YP-HO/ 2	
30	2200		2232	3				118			MR-GE-MR/ 118	NF
30	2158		2230	3					-7		MR-GE-MR/ -7	
31	1538		1559	1				154			ST-NW/ 154	00000
31	1539		1545	1					2		ST-NW/ 2	

STATIONS REPORTING FOR AUGUST 1968:

AAVSO	Darmstadt	Kerguelen (T)	Okinawa (partial)	Sweden
Anchorage	HANDS	London	Paterson	Tasmania
Athens	Hawaii	Loran-C	Poitiers (T)	Tokyo
Barbadoes	Hiraiso	Manila	Prague	Toyokawa
Boulder (partial SFD)	Hong Kong	McMath	Rome	Trinidad
Canberra	Huancayo	Neustrelitz	São Paulo	White Sands

TIME OF NO OBSERVATIONS FOR AUGUST 1968:

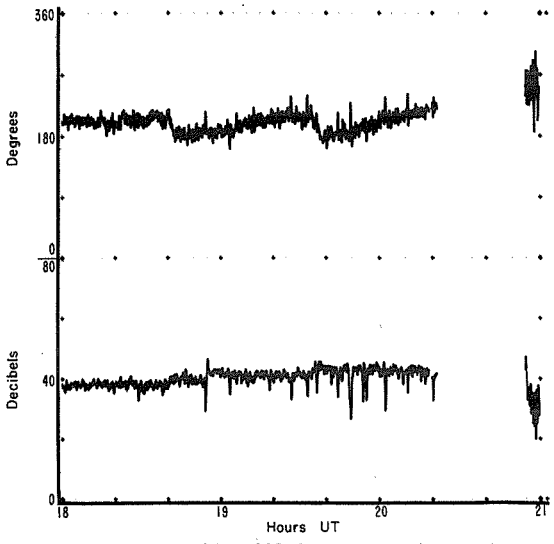
DATE	TIME (UT)	STATION
01	1435-2102, 1654-2212	HU, HN
03	2025-2340	HU
04	0544-2400	HN
05	1900-2400	AT (SEA)
06	0000-2400	AT (SEA), HN
07	0000-1700, 0500-1130	AT (SEA), UM
08	0400-2400, 1435-2130	LO, HU
09-22	0000-2400	LO
09-31	0000-2400	A8
09	0500-2400, 1400-1800	A22, UM
10-11	0000-2400	A22
12	0000-1200	A22
13	2128-2235	HN
15	0600-1015, 1400-1450, 1511-1615, 1300-2400	AT(SWF), HN, HU, DV
16	1400-1740, 2330-2400	UM, AT(SEA)
16-18	0000-2400	DV
17	0015-1630, 0000-1630	AT(SWF), AT(SEA)
18	0146-0406, 1512-1716, 0745-1815	HN, HN, AT(SEA)
19	0000-2300, 1902-1921	DV, HN
20	2022-2111	HN
21-23	0000-2400	RO
21	0000-1541, 0500-1105, 1300-2400	HN, UM, DV
22-31	0000-2400	DV
22	1245-1418, 1416-1645	HN, HU
23	0000-1600, 1400-1800	LO, UM
24	0000-1423	HN
26	1300-1350	UM
28	0500-1110	UM
29	1330-1655, 1617-1643	HU, HN
30	1400-1640	UM

NOTES: (T) refers to the telegraphic form in which events are reported.
Hawaii SCNA-SEA out of operation
Boulder SFDs not scaled after 21 August 1968.
Okinawa reported for the first 14 days only.

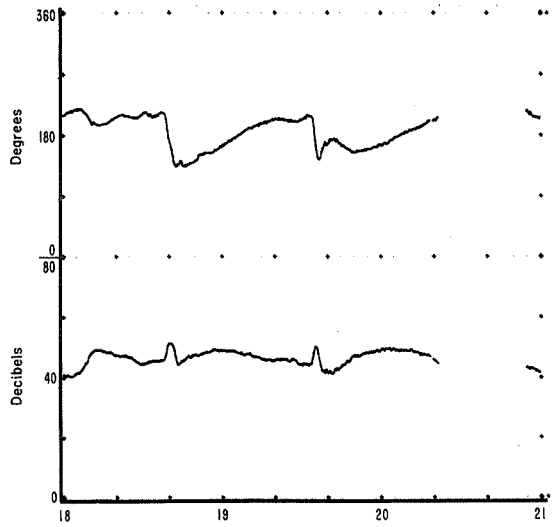
ERRATA: All Loran-C SPAs for the months of January and February 1968, May-July 1968 should have their signs reversed; all negative SPAs should be positive, and visa versa. This will conform all Loran-C reports to the standard that a phase advance (positive SPA) indicates a dropping of the reflection layer, and a phase decrease (negative SPA) indicates a rise of the reflection layer.

SELECTED SID EVENTS-HANDS

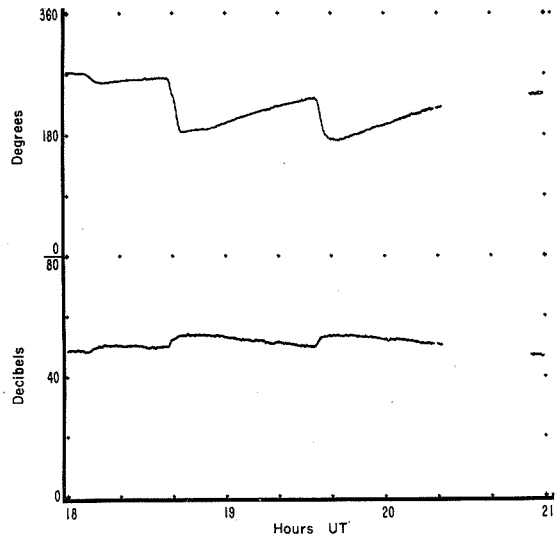
21 AUGUST 1968



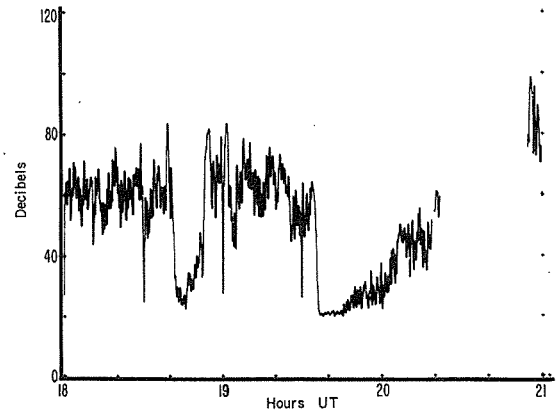
16 kHz GBR Rugby, England



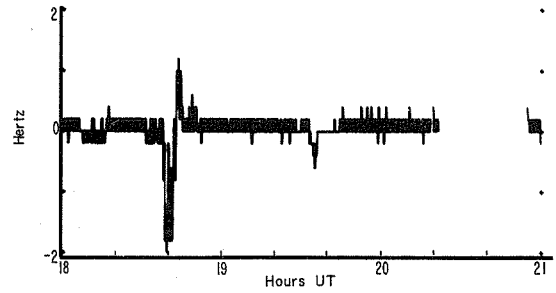
20 kHz WWVL Ft. Collins, Co.



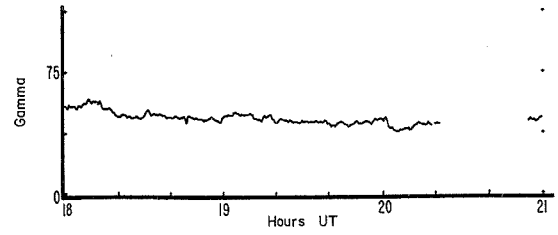
100 kHz Loran-C Jupiter, Fla.



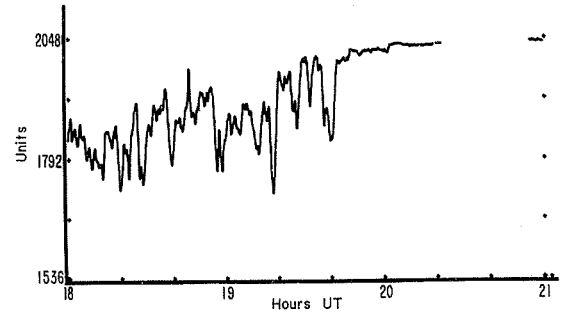
11.1 MHz Amplitude



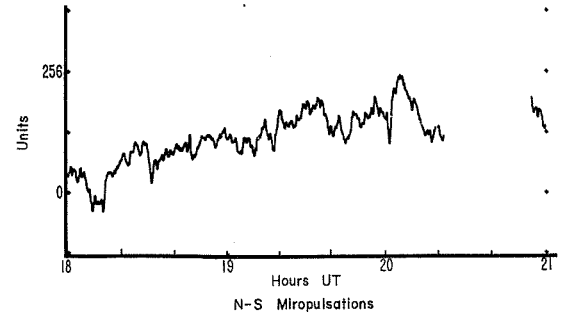
11.1 MHz, Longbranch, Ill.



Horizontal Magnetic Field



E-W Micropulsations



N-S Miropulsations

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

Western Hemisphere

AUGUST 1968

AUG. 1968	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY $10^{-22} Wm^{-2} Hz^{-1}$ PEAK	MEAN	INT	REMARKS
1	2695	PENT	1	0138.5	0139.8	5	7.4	3.4		
	2800	OTTA	20	1312	1319	25	2.2	1.1		
	184	BOUL	43	1412	1430	163	290.0	175.0		
	184	BOUL	43	2318	0014	141 D	315.0	290.0		
2	408	SANM	3	1854.1	1854.3	.9	171.0	88.0		
	408	SANM	3	1924	1924.5	1	178.0	88.0		
3	2800	OTTA	32	1305	1345	55	-3.2	-1.6		
	408	SANM	45	1350.7	1351	1.5	47.5	13.0		
	2800	OTTA	20	1400	1410	30	2.2	1.1		
	2800	OTTA	20	1600	1725	140	4.0	2.0		
	18	BOUL	6	2102	2103	2			1	
	18	MCMA	6	2103	2104	2			1	
4	2800	OTTA	20	1330	1445	175	4.4	2.2		
	10700	PENN	3	1748.7	1749.7	4.5	10.0	3.0		
	8800	SGMR	1	1749.3	1749.7	1.1	5.6	1.9		
	4995	SGMR	1	1749.3	1749.7	3.3	4.3	1.2		
	2800	OTTA	3	1749	1749.5	2	14.0	5.0		
	2700	PENN	3	1749	1749.4	1.6	10.3	3.5		
	2695	SGMR	3	1749.3	1749.6	3.0	8.5	3.4		
	408	SANM	45	1846.7	1847	.8	91.5	51.5		
	184	BOUL	43	1957	2138	281	290.0	160.0		
	2800	OTTA	32	2250	2255	15	-2.4	-1.2		
5	2695	SGMR	3	1427	1430.2	8.8	10.8	3.6		
	4995	SGMR	3	1428.7	1430	3.3	25.8	8.6		
	2800	OTTA	3	1428	1430	4	12.0	5.4		
	2700	PENN	3	1428.8	1430	8.1	10.0	2.4		
	8800	SGMR	1	1429.5	1430	1.0	5.8	2.8		
	2800	OTTA	29	1432		8	2.4	1.2		
	2695	SGMR	1	1454.7	1454.9	1.2	4.3	2.2		
	1415	SGMR	3	1454.5	1454.7	9.6	50.0	7.2		
	606	SGMR	3	1454.6	1454.7	9.6	90.0	10.8		
	7000	SAOP	3	1517.7	1518.4	1.	20.0	10.0		
	10700	PENN	3	1518	1518.2	1.-	23.8	10.0		
	2800	OTTA	1	1518	1518.3	1	2.4	1.2		
	2700	PENN	1	1518	1518.2	.8	2.4	1.0		
	960	PENN	3	1518	1518.2	.6	22.9	15.0		
	15400	SGMR	23	1831.7	1831.9	18.8	5.7	2.5		
	10700	PENN	20	1831.6	1838.3	36.0	22.4	6.3		
	8800	SGMR	23	1831.5	1831.7	16.3	8.1	4.0		
	4995	SGMR	22	1831.7	1831.9	24.3	6.7	3.3		
	2695	SGMR	1	1831.9	1832.4	2.9	2.3	1.1		
	2695	SGMR	22	1837.7	1840	12.8	4.4	2.2		
	15400	SGMR	3	1838.1	1838.3	.9	8.2	4.1		
	8800	SGMR	3	1838	1838.3	1.8	8.1	4.0		
	2800	OTTA	20	1838	1838.2	12	2.4	1.2		
	2700	PENN	20	1838	1838.2	16.6	2.7	1.3		
	15400	SGMR	3	2054.2	2054.7	5.0	13.5	6.0		
	10700	PENN	3	2054	2054.7	21.2	27.8	5.7		
	8800	SGMR	3	2054.2	2054.7	5.0	22.2	9.8		
	4995	SGMR	3	2054.2	2054.9	5.1	23.2	10.0		
	2800	OTTA	20	2054	2055	15	3.6	1.8		
	2700	PENN	20	2054.4	2055	20.0	3.6	1.4		
6	2695	PENT	24	0007		5	3.6			
	15400	SGMR	45	1134	1135	3.2	34.9	20.1		
	8800	SGMR	45	1134.1	1134.9	2.6	88.0	28.8		
	7000	SAOP	45	1134.2	1134.9	3.2	29.8	15.0		
	4995	SGMR	45	1134.2	1134.9	2.7	38.0	25.4		
	2695	SGMR	22	1134.4	1134.8	29.0	7.5	3.7		
	8800	SGMR	29	1136.7	1136.7	25.4	9.7	4.8		
	4995	SGMR	29	1136.9	1136.9	71.4	8.7	4.3		
	15400	SGMR	29	1137.2	1137.2	53.2	9.4	4.7		
	184	BOUL	42	1240	U	44	U	U		
	2800	OTTA	21	1310	1350	165	6.6	3.3		
	2700	PENN	20	1311.7	1323.3	95.8	10.7	3.6		
	10700	PENN	20	1312.1	1347.6	70.9	19.0	9.5		
	8800	SGMR	22	1312.8	1346.7	51.3	15.4	7.7		
	2700	PENN	45	1312.9	1313.5	1.8	70.8	12.5		
	4995	SGMR	22	1313	1346.8	61.9	19.4	9.7		
	2800	OTTA	4	1313	1313.7	1.5	47.0	23.0		
	2695	SGMR	23	1313.2	1323.3	62.6	13.0	6.5		
	2695	SGMR	3	1313.2	1313.6	1.5	87.0	25.0		
	1415	SGMR	23	1313.1	1320.5	51.1	3.6	2.3		
	1415	SGMR	3	1313.1	1313.4	1.8	110.0	34.2		
	15400	SGMR	22	1315.8	1340	59.6	18.4	9.2		
	2800	OTTA	21	1318	1325	12	4.8	2.4		
	2800	OTTA	1	1319.5	1320	2	3.6	1.8		
	2800	OTTA	1	1323	1323.8	1.5	5.2	4.0		
	2800	OTTA	20	1650	1715	70	3.4	1.7		
	2800	OTTA	1	2052	2053	4	2.0	1.0		
	2800	OTTA	2	2149	2151	50	2.4	1.6		
	2800	OTTA	2	2229	2232.5	6	3.8	1.4		
7	2695	PENT	45	0001	0001.5	10	4.8	2.0		
	8800	SGMR	1	1121	1124	5.7	4.4	2.0		
	4995	SGMR	1	1122.2	1124.1	3.9	5.3	2.5		
	2695	SGMR	1	1123.5	1124.1	1.4	4.3	2.0		

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	1415 SGMR	1	1123.9	1124.1	2.2	1.3	.5		
	606 SGMR	1	1123.7	1124.2	.8	2.5	1.0		
	2800 OTTA	20	1315	1350	45	2.6	1.3		
	408 SANM	3	1326	1326.4	1.0	37.0	21.0		
	8800 SGMR	20	1351.7	1353.9	8.5	7.0	3.0		
	4995 SGMR	1	1351.5	1352.3	5.6	4.2	2.0		
	2700 PENN	3	1612	1612.2	12.8	14.9	0.9		
	2800 OTTA	32	1845	1920	65	-2.0	-1.0		
	2695 PENT	21	2345	0025	120	4.4	2.2		
	2695 PENT	40	2348	2352.5	9	39.0			
8	4995 SGMR	28	1304.6	1313.5	8.9	6.6	3.0		
	10700 PENN	3	1306.7	1316.9	14.4	211.0D	44.0D		
	8800 SGMR	28	1308.6	1310.7	4.7	10.6	5.0		
	7000 SAOP	4	1310.5	1316.9	11.3	110.0	55.0		
	2800 OTTA	21	1310	1350	85	10.4	5.4		
	2695 SGMR	28	1310.6	1313.3	2.9	2.5	1.0		
	2700 PENN	3	1311.6	1315.2	7.4	34.0	12.9		
	15400 SGMR	4	1313.6	1317.1	12.1	150.0	35.0		
	8800 SGMR	4	1313.3	1316.9	11.9	210.0	50.0		
	4995 SGMR	4	1313.5	1316.7	10.2	98.0	22.0		
	2800 OTTA	4	1313.5	1315	6	38.0	19.0		
	2695 SGMR	4	1313.5	1315.4	7	45.0	10.0		
	1415 SGMR	45	1314.4	1317.2	8.1	88.0	12.0		
	960 PENN	45	1314	1314.9		10.0D			
	606 SGMR	40	1314.2	1315.3	3.6	6.0	1.0		
	2800 OTTA	29	1319.5		17	6.0	3.0		
	2700 PENN	29	1319	1319	71.0	9.8	5.5		
	2695 SGMR	29	1320.5	1320.5	65	10.0	4.0		
	10700 PENN	29	1321.1	1321.1	68.9	30.8	15.4		
	4995 SGMR	30	1323.7	1323.7	66.4	18.7	6.0		
	15400 SGMR	29	1325.7	1325.7	69.3	19.2	7.0		
	8800 SGMR	30	1325.2	1325.2	67.2	20.9	8.0		
	8800 SGMR	1	1352.2	1353.3	3.6	6.8	3.0		
	4995 SGMR	1	1353.4	1355.6	5.0	3.1	1.5		
	15400 SGMR	20	1435	1439.8	31.2	23.5	10.0		
	10700 PENN	20	1435.6	1444.4	31.9	23.7	10.7		
	8800 SGMR	20	1435	1443	31.5	15.2	7.0		
	2800 OTTA	20	1435	1445	55	5.2	2.6		
	4995 SGMR	20	1436.7	1445.2	31.1	13.3	6.0		
	2700 PENN	20	1437.2	1445.5	29.8	4.7	2.4		
	2695 SGMR	20	1440.5	1445.3	21.5	4.8	2.0		
	18 MCMA	6	1448	1450	3			2	
	7000 SAOP	20	1559		11.6	12.4	6.2		
	8800 SGMR	22	1706.2	1719.9	35.7	6.7	3.2		
	4995 SGMR	22	1706.4	1719.6	35.5	4.9	2.1		
	15400 SGMR	28	1805	1814.1	9.1	4.6	2.0		
	8800 SGMR	28	1805.2	1814	8.8	11.1	5.0		
	7000 SAOP	3	1805.9	1811	16.1	1755.0	.		
	4995 SGMR	28	1805	1814.1	9.1	7.6	3.5		
	2800 OTTA	28	1805		9	2.4	1.8		
	2695 SGMR	28	1805	1814.7	9.7	3.8	1.5		
	10700 PENN	3	1813.1	1816.6	5.9	1380.0	328.0		
	2700 PENN	45	1813.1	1816.4	5.9	335.0	95.0		
	1415 SGMR	4	1813.2	1817.1	8.8	96.0	36.3		
	15400 SGMR	4	1814.1	1816.6	10.7	2380.0	695.0		
	8800 SGMR	4	1814	1816.5	8	1700.0	520.0		
	4995 SGMR	4	1814.1	1816.5	7.9	1520.0	460.0		
	2800 OTTA	4	1814	1816.5	8	395.0	95.0		
	2695 SGMR	4	1814.7	1816.3	7.3	430.0	160.5		
	960 PENN	3	1815.4	1817.1	4.6	14.5	6.9		
	606 SGMR	4	1816.4	1816.6	1.	25.0	10.4		
	10700 PENN	29	1819	1819	65.2	108.0	33.0		
	2700 PENN	29	1819.5	1819.5	64.7	30.4	8.4		
	960 PENN	29	1820	1820	44.0	3.2	1.6		
	8800 SGMR	29	1822	1822	64.5	59.2	22.0		
	7000 SAOP	29	1822		35.2				
	4995 SGMR	29	1822	1822	64.6	59.5	20.7		
	2800 OTTA	29	1822		80	18.0	7.0		
	2695 SGMR	29	1822	1822	64.1	21.3	14.1		
	1415 SGMR	29	1822	1822	64.6	5.4	2.6		
	15400 SGMR	29	1824.8	1824.8	45.3	26.6	13.1		
	960 PENN	24	1930.2	2145.8		3.0			
9	2700 PENN	20	1606.4	1610.9	24.1	9.5	3.8		
	8800 SGMR	22	1608.7	1610.6	29.3	34.7	6.0		
	7000 SAOP	21	1608.6		18.5				
	7000 SAOP	45	1608.6	1610.9	2.6	22.7			
	4995 SGMR	22	1608.7	1611	47.3	19.8	6.0		
	2800 OTTA	21	1608	1615	45	5.0	2.5		
	2800 OTTA	2	1608.9	1609.5	1	3.6	2.0		
	2695 SGMR	22	1608.7	1611.1	39.3	9.9	3.5		
	10700 PENN	20	1610.2	1610.7	20.1	17.3	4.7		
	2800 OTTA	1	1610.5	1611	1.5	2.4	1.2		
	408 SANM	45	1947.4	1947.8	1.2	65.0	35.0		
	2695 PENT	20	2310	2330	75	2.6	1.3		
11	8800 SGMR	3	1130.3	1130.7	1.2	8.1	2.7		
	4995 SGMR	1	1130.3	1131	3.3	3.4	1.6		
	10700 PENN	20	1257.1	1257.5	11.0	9.3	1.0		
	8800 SGMR	3	1257.1	1257.3	3.2	10.5	3.5		

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11	7000	SAOP	1	1257.6	1258	.8	9.2	4.6		
	4995	SGMR	3	1257.3	1257.5	3.8	8.4	2.8		
	8800	SGMR	3	1610.6	1611	.8	10.5	5.0		
	4995	SGMR	1	1610.9	1611.3	.6	4.2	2.1		
	4995	SGMR	23	1633.2	1638.3	77.9	12.2	6.0		
	2695	SGMR	23	1633.4	1638.3	21.2	6.8	3.2		
	2800	OTTA	21	1635	1740	115	3.8	1.9		
	2800	OTTA	21	1635	1650	25	7.2	3.6		
	2700	PENN	28	1635.7	1638.2	8.4	7.6	3.2		
	10700	PENN	20	1636.7	1657.2	41.5	15.8	7.8		
	2800	OTTA	2	1636	1638	4.5	6.2	3.1		
	4995	SGMR	3	1644.6	1646.1	3.6	30.8	15.0		
	2800	OTTA	4	1644	1646	5	30.0	15.0		
	2700	PENN	3	1644.1	1646.1	4.2	30.2	14.7		
	2695	SGMR	3	1644.7	1646.4	5.2	31.7	15.1		
	1415	SGMR	3	1644.8	1646.7	11.7	16.3	5.6		
	960	PENN	45	1644	1647.1	6.5	11.6	2.6		
	606	SGMR	40	1644.8	1648.8	59.2	18.0	3.3		
	8800	SGMR	40	1645.2	1705.4	57.8	18.2	9.1		
	15400	SGMR	22	1646	1655.3	51.3	16.0	8.0		
	2700	PENN	29	1648.3	1648.3	44.3	5.3	1.3		
	960	PENN	29	1650.5	1650.5	33.0	.9	0.4		
	960	PENN	45	1652.2	1652.8	1.6	5.9	1.8		
	960	PENN	24	1739.2	2110		21.6			
	18	MCMA	6	1825	1826	2			1	
	2800	OTTA	22	2145	2155	25	4.4	2.2		
	2700	PENN	24	2151.3	2206.3		4.1			
	184	BOUL	6	2157	2159	5	435.0	220.0		
	18	MCMA	6	2158	2101	4			2	
	18	BOUL	6	2200	2202	4			1	
	2695	PENT	20	2345	2420	95	2.4	1.2		
12	7000	SAOP	3	1035.7	1036.1	.7	37.8	18.9		
	8800	SGMR	3	1055.7	1056	2.7	38.2	19.1		
	4995	SGMR	3	1055.9	1056.1	3.2	12.5	6.3		
	15400	SGMR	3	1056	1056.3	.6	11.2	5.6		
	15400	SGMR	3	1153.7	1154.2	1.6	29.2	9.7		
	10700	PENN	3	1153.5	1154.1	2.2	66.0	13.0		
	8800	SGMR	3	1153.2	1154	2.0	26.3	8.7		
	7000	SAOP	4	1153.5	1154.5	1.1	46.8	23.4		
	4995	SGMR	3	1153.6	1154.1	2.1	24.7	8.2		
	2800	OTTA	2	1153.5	1154	3	9.8	2.6		
	2700	PENN	3	1153.6	1154.2	2.5	8.0	2.7		
	2695	SGMR	3	1153.8	1154.3	1.8	7.7	3.1		
	1415	SGMR	1	1153.9	1154.3	2.1	.9	.4		
	960	PENN	3	1153.5	1153.8		10.0D			
	606	SGMR	1	1153.3	1153.7	1.3	7.4	3.5		
	328	PENN	45	1153.6	1153.7	1.0	43.4	11.6		
	184	BOUL	6	1548	1548	2	570.0	320.0		
	10700	PENN	20	1605	1625	33.2	7.0	3.5		
	2700	PENN	20	1605.3	1617.8	33.7	3.0	1.5		
	4995	SGMR	22	1606.5	1614	23.6	7.6	3.0		
	8800	SGMR	22	1607.3	1616.4	21.8	6.3	2.7		
	2695	SGMR	22	1608.7	1625	19.8	5.5	2.6		
	960	PENN	20	1609.7	1613.8	14.1	2.2	0.5		
	2800	OTTA	20	1610	1615	30	2.2	1.1		
	10700	PENN	20	1916	1923.9	10.7	6.9	3.4		
	2700	PENN	1	1922	1923.8	5.3	3.2	1.6		
	960	PENN	3	1923	1923.6	1.6	7.6	1.2		
	2800	OTTA	1	1924	1925	2	2.2	1.1		
	2700	PENN	40	1935.4		80				
	960	PENN	45	2005.7	2007.4	2.4	11.7	2.4		
	328	PENN	45	2005.9	2006.2	1.1	52.5	10.6		
	960	PENN	1	2018.2	2018.7	1.2	2.0	1.0		
	328	PENN	5	2018.3	2018.8	1.9	60.0	9.9		
	1415	SGMR	1	2046.6	2049.2	5.6	2.2	1.0		
	606	SGMR	4	2047.5	2049	5.1	215.0	51.0		
	2800	OTTA	20	2110	2143	50	2.4	1.2		
	2700	PENN	20	2120.5	2132.7	30.4	3.3	1.7		
	328	PENN	45	2125.5	2127.2	2.1	250.0D	55.0D		
	960	PENN	45	2126	2127.4	1.7	25.8	7.0		
	960	PENN	45	2133.1	2133.4	1	30.0D	15.0D		
	328	PENN	45	2133.1	2133.3	1.5	250.0D	57.0D		
	960	PENN	45	2223.7	2224		18.0D			
	328	PENN	45	2223.5	2224	1.2	255.0D	53.0D		
13	1415	SGMR	3	1247.4	1247.5	.4	27.3	10.1		
	606	SGMR	3	1247	1247.4	1.0	49.5	10.2		
	184	BOUL	48	1252	1255	10	6480.0U	1700.0U		
	10700	PENN	45	1253.5	1254.7	3	170.0	58.0		
	8800	SGMR	3	1253.3	1254.6	9.6	125.0	40.5		
	4995	SGMR	3	1253.6	1254.7	13.4	110.0	33.3		
	2800	OTTA	4	1253.5	1254.5	5	72.0	18.0		
	2700	PENN	45	1253.5	1254.7	3.4	55.7	18.1		
	2695	SGMR	3	1253.7	1254.8	9.3	67.0	22.0		
	1415	SGMR	3	1253.6	1255	10.3	28.6	12.1		
	960	PENN	45	1253.5	1255		12.0D			
	15400	SGMR	3	1254.2	1254.8	9	125.0	40.5		
	606	SGMR	4	1254.2	1254.8	8.8	35.8	14.0		
	328	PENN	45	1254.3	1254.7	1.1	31.4	11.1		
	10700	PENN	29	1256.5	1256.5	50.3	11.5	5.7		

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13	2700	PENN	29	1256.9	1256.9	37.1	4.3	2.1		
	8800	SGMR	20	1655	1656.4	13	6.1	3.0		
	4995	SGMR	1	1657.7	1700.3	6.8	4.6	2.0		
	2695	SGMR	3	1657.7	1658.4	1.6	8.4	4.0		
	1415	SGMR	1	1657.8	1658.5	6.8	1.7	.5		
	10700	PENN	1	1727.8	1728.4	1.5	4.7	0.4		
	2800	OTTA	1	1727	1728	2	3.6	1.8		
	2700	PENN	1	1727.8	1728.4	1.4	4.0	2.2		
	960	PENN	45	1727.8	1728.8	1.4	2.2	0.3		
	18	MCMA	41	1816		11			1	
	1415	SGMR	3	2003.5	2003.6	.5	260.0	30.0		
	606	SGMR	3	2003.3	2003.5	.7	235.0	25.0		
	2800	OTTA	21	2100	2140	130	3.8	1.9		
	606	SGMR	1	2102.8	2103.3	.9	4.9	2.0		
	2800	OTTA	1	2103	2103.2	1	3.0	1.5		
	1415	SGMR	1	2103.2	2103.4	.3	2.2	1.0		
	2695	PENT	20	2340		120 D	9.0			
14	1415	SGMR	3	1209.1	1209.3	.5	37.6	14.0		
	606	SGMR	3	1209.1	1209.3	.7	54.3	26.0		
	184	BOUL	44	1230 E	U	780 D		290.0		
	408	SANM	3	1243.7	1244.2	1.1	71.0	38.0		
	8800	SGMR	46	1322.8	1338.7	23.2	465.0	244.0		
	7000	SAOP	45	--	1338.4		645.7			
	960	PENN	45	--	1334		20.0D			
	1415	SGMR	46	1322.5	1334	23.5	34.0	17.0		
	18	MCMA	42	1322	1323	13			2	
	4995	SGMR	46	1323	1338.8	23	420.0	140.0		
	2695	SGMR	46	1323.5	1338.6	22.5	115.0	51.0		
	10700	PENN	28	1325.3	1326.8	5.1	123.4	80.4		
	2700	PENN	28	1325.7	1327.4	4.7	25.7	18.7		
	606	SGMR	4	1325.8	1333	20.2	13.0	6.5		
	15400	SGMR	46	1326.1	1338.7	19.9	280.0	100.0		
	2800	OTTA	46	1326	1338.5	21	114.0	57.0		
				1326	1327	4	34.0			
				1330	1338.5	12	114.0			
				1342	1344	5	45.0			
	10700	PENN	45	1330.4	1338.8	16	415.0D	180.0D		
	2700	PENN	45	1330.4	1338.6	16.6	65.0D	40.0D		
	184	BOUL	48	1331	1334	9	555.0	435.0		
	18	MCMA	41	1344	1346	6			1	
	7000	SAOP	29	1345.5		26.1				
	15400	SGMR	29	1346	1346	49.0	53.3	19.7		
	10700	PENN	29	1346.4	1346.4	53.4	59.3	29.7		
	8800	SGMR	29	1346	1346	36.0	65.8	23.4		
	4995	SGMR	29	1346	1346	47.0	64.5	21.5		
	2695	SGMR	29	1346	1346	47.0	23.8	11.9		
	1415	SGMR	29	1346	1346	37.0	4.1	2.0		
	606	SGMR	29	1346	1346	36.0	1.5	.7		
	2800	OTTA	29	1347		60	14.0	3.5		
	2700	PENN	29	1347	1347	30.2	10.9	5.4		
	2695	SGMR	3	1425.6	1425.7	.2	63.0	12.0		
	1415	SGMR	3	1425.6	1425.7	.3	175.0	35.0		
	606	SGMR	3	1425.5	1425.7	.4	265.0	53.0		
	18	BOUL	6	1452	1456	5			1	
	1415	SGMR	3	1518.7	1518.9	.6	81.0	40.0		
	606	SGMR	3	1518.6	1518.9	.6	47.5	23.0		
	10700	PENN	20	1523.5	1528.9	16.0	9.8	4.9		
	7000	SAOP	20	1523.2	1529.2	14.5	20.2	10.1		
	2800	OTTA	21	1523	1527	40	5.0	2.5		
	2700	PENN	20	1523.4	1529.5	15.0	5.2	2.2		
	960	PENN	45	1523.4	1529.5	8.9	4.1	2.9		
	2800	OTTA	1	1528	1529.5	4	5.0	2.5		
	2800	OTTA	21	1620	1635	80	6.0	3.0		
	2800	OTTA	1	1631	1632	3	4.6	2.3		
	1415	SGMR	45	1752.5	1754	1.9	260.0	28.0		
	606	SGMR	45	1752.5	1753.8	1.9	265.0	40.0		
	2695	SGMR	4	1754	1754.2	.5	13.6	4.0		
	2800	OTTA	22	1820	1945	150	6.8	3.4		
	15400	SGMR	4	2022.9	2023.1	1.4	16.4	4.0		
	10700	PENN	3	2022.5	2023	2.2	22.1	7.9		
	8800	SGMR	4	2022.7	2022.9	1.6	20.0	5.0		
	4995	SGMR	2	2022.7	2023.1	1.6	7.1	3.5		
	1415	SGMR	4	2028.7	2029.7	1.8	130.0	40.0		
	2695	SGMR	2	2029.9	2030	.6	6.6	3.0		
	606	SGMR	4	2029.2	2029.6	1.3	64.0	16.0		
	18	BOUL	42	2148	2212	36			1	
15	2800	OTTA	1	1109	1109.5	1.5	3.6	1.8		
	2800	OTTA	24	1140		5	3.0			
	15400	SGMR	20	1141.4	1146.5	7.9	5.4	2.5		
	8800	SGMR	22	1141.4	1146.5	22.1	10.3	5.0		
	4995	SGMR	22	1141	1146.7	25.7	6.9	3.0		
	2695	SGMR	20	1141	1146.8	25.3	2.9	1.0		
	184	BOUL	44	1220 E		780 D		220.0		
	18	MCMA	6	1328	1331 E	4			3	
	1415	SGMR	1	1329	1329.6	1.4	3.9	1.5		
	2800	OTTA	20	1410	1430	50	3.0	1.5		
	18	MCMA	42	1757		32			1	
	2800	OTTA	20	1840	1940	105	5.2	2.8		
16	2695	PENT	1	0010	0014	7	4.2	2.1		

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16	184	BOUL	44	1220 E	1545	780 D	940.0	435.0		
	2800	OTTA	20	1240	1245	25	3.0	1.5		
	2800	OTTA	24	1325		5	3.0			
	408	SANM	45	1346.7	1347.4	1.1	19.5	14.0		
	2700	PENN	20	1537.2	1542.4	11.5	3.2	1.6		
	18	MCMA	41	1538	1539	2			1	
	2800	OTTA	1	1540	1542.5	8	2.4	1.2		
	7000	SAOP	45	1556.6	1559.9	4.6	28.3	14.1		
	2700	PENN	3	1556.2	1559.7	23.6	25.9	4.0		
	10700	PENN	20	1557	1559.8	15.2	11.7	5.9		
	8800	SGMR	3	1557.7	1559.6	7.3	7.6	3.0		
	4995	SGMR	3	1557.8	1600	8.8	16.8	5.0		
	2800	OTTA	3	1557	1600	7	32.0	15.0		
	2695	SGMR	3	1557.8	1600	9.2	31.2	8.0		
	960	PENN	1	1557.6	1559.5	5.8	4.0	1.3		
	1415	SGMR	1	1558.5	1600.3	7.8	4.7	2.0		
	606	SGMR	4	1559	1559.8	8.0	27.0	5.0		
	2800	OTTA	29	1604		40	3.0	1.5		
	18	MCMA	6	1729	1731	3			2	
	2800	OTTA	20	1920	2028	45	6.0	2.6		
	18	MCMA	6	1940	1941	3			1	
	184	BOUL	6	2130	2132	10	4700.0	720.0		
	2800	OTTA	32	2230	2325	70	-3.4	-1.7		
	184	BOUL	6	2253	2253	3	1375.0	400.0		
	2695	PENT	46	2345.5	2348.5	4	15.0	7.4		
	2695	PENT	30	2349.5		40	5.0	2.5		
17	2695	PENT	1	0001	0003.5	5	2.6	1.3		
	2800	OTTA	20	1154	1156	45	4.2	2.1		
	184	BOUL	44	1220 E	2100 U	780 D	6480.0D	3000.0		
	2800	OTTA	20	1250	1310	50	2.6	1.3		
	606	SGMR	4	1259.4	1259.4	.3	16.3	8.2		
	408	SANM	27	1425	1500.6	55	18.0	19.0		
	960	PENN	24	1811	2057		3.8			
	606	SGMR	20	1840.2	2058.3	208.3	20.6	10.3		
	1415	SGMR	20	1902	2054	188.0	8.0	4.0		
	2800	OTTA	20	2104	2106	15	4.0	2.0		
18	184	BOUL	43	1220 E	1400	780 D	5760.0	2170.0		
	606	SGMR	40	1259	1753.5	481	74.0	28.1		
	2800	OTTA	21	1325	1335	115	7.8	3.9		
	2700	PENN	20	1326.5	1331.8	40.5	12.0	2.4		
	10700	PENN	20	1327.6	1341.4	31.0	11.5	5.8		
	4995	SGMR	20	1327.6	1335.4	28.2	10.8	5.0		
	2695	SGMR	20	1327.6	1332	27.1	14.1	7.2		
	8800	SGMR	20	1328	1336.1	28.0	14.1	7.0		
	606	SGMR	4	1328.3	1334.5	6.9	37.5	18.6		
	1415	SGMR	20	1329.5	1334.5	28.2	10.4	5.2		
	15400	SGMR	20	1330.6	1337.2	25.7	7.8	3.8		
	960	PENN	45	1330.8	1332.5		6.0D			
	2800	OTTA	1	1331.5	1332	2.5	9.0	4.0		
	18	MCMA	6	1414	1416	4			2	
	18	MCMA	43	1505 U		315			2	
	18	BOUL	44	1649 E		338			2	
	2800	OTTA	22	1750	1815	220	4.2	2.1		
19	184	BOUL	43	1220 E	1410 U	780 D	4000.0	2525.0		
	18	MCMA	43	1305		602			3	
	18	BOUL	43	1509		512			3	
	2800	OTTA	20	1530	1541	35	3.4	1.7		
	7000	SAOP	45	1635.6	1637	2.5	23.9	16.0		
	4995	SGMR	22	1821.6	1827.2	18.4	9.2	3.0		
	8800	SGMR	22	1822.3	1826.7	18.2	3.9	1.5		
20	7000	SAOP	4	1121.2	1122	1.3	13.9	7.0		
	2700	PENN	40	1200		130				
	184	BOUL	43	1220 E	1815	780 D	1450.0	1158.0		
	18	MCMA	6	1234	1239	4			2	
	2800	OTTA	1	1323.3	1323.8	.5	7.2	3.6		
	18	MCMA	6	1340	1341	2			1	
	18	MCMA	43	1352	1625	488			2	
	18	BOUL	43	1458		386			2	
	15400	SGMR	4	1526.8	1527.8	10.7	12.0	4.0		
	10700	PENN	3	1526.2	1528	4.2	21.4	12.7		
	8800	SGMR	4	1526.1	1527.6	11.9	27.4	6.0		
	7000	SAOP	4	1526.3	1528.3	3.3	44.0	22.0		
	4995	SGMR	4	1526.3	1527.8	11.3	50.3	12.0		
	2800	OTTA	4	1526	1528	5	20.0	7.0		
	2700	PENN	3	1526.2	1528	2.8	15.7	8.6		
	2695	SGMR	45	1526.3	1528.1	10.2	19.4	5.0		
	1415	SGMR	22	1526.7	1527.2	10.1	7.2	2.5		
	960	PENN	45	1526.2	1527.8	2.2	26.9	5.0		
	606	SGMR	46	1526	1526.2	6.0	305.0	12.1		
	960	PENN	29	1528.4	1528.4	29.0	1.7	0.9		
	7000	SAOP	29	1529.6		8.5				
	2700	PENN	29	1529	1529	23.4	4.1	2.1		
	10700	PENN	29	1530.4	1530.4	23.6	7.1	3.6		
	2800	OTTA	1	1535	1536	1.5	2.4	1.2		
	10700	PENN	3	1539.9	1540.6	2.7	11.9	5.9		
	1415	SGMR	45	1539.3	1542	12.7	17.2	4.0		
	960	PENN	45	1539.6	1540.6	3.9	14.3	4.0		

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20	606	SGMR	46	1539.5	1540.6	9.5	115.0	48.0		
	408	SANM	45	1539.4	1540.4	3	422.0	53.0		
	15400	SGMR	2	1540.3	1540.4	3.7	6.5	3.0		
	8800	SGMR	4	1540	1540.2	4.0	17.3	4.0		
	7000	SAOP	3	1540.1	1540.5	1.3	23.1	11.5		
	4995	SGMR	4	1540	1540.3	4.4	20.6	4.5		
	2800	OTTA	45	1540	1540.3	3	7.8	3.2		
	2700	PENN	45	1540.2	1540.5	2.4	5.8	2.9		
	2695	SGMR	45	1540.1	1540.4	3.9	9.6	2.0		
	408	SANM	27	1548.4	1552	6.6	21.5	14.5		
	2800	OTTA	2	1557	1557.6	1	8.0	4.0		
	15400	SGMR	3	1648.6	1648.8	3.1	69.0	17.0		
	10700	PENN	45	1648.2	1652.5	6	89.0	25.6		
	8800	SGMR	3	1648.3	1648.7	2.7	58.0	14.0		
	7000	SAOP	3	1648.3	1648.8	1.2	52.0	26.0		
	4995	SGMR	3	1648.4	1648.8	2.6	21.5	4.0		
	2700	PENN	45	1648.3	1652.5	6.3	17.5	6.0		
	2695	SGMR	3	1648.7	1648.9	1.9	9.6	2.5		
	960	PENN	45	1648.3	1648.7	4.4	48.4	4.3		
	7000	SAOP	29	1649.5		1.6				
	8800	SGMR	45	1651.5	1652.5	8.6	49.1	9.0		
	15400	SGMR	45	1652	1652.7	5.6	54.0	10.0		
	7000	SAOP	45	1652.4	1652.8	1.5	30.0			
	4995	SGMR	4	1652.3	1652.5	7.4	20.2	5.0		
	2695	SGMR	4	1652.2	1652.7	8.0	21.9	5.0		
	960	PENN	29	1652.7	1652.7	18.7	1.4	0.7		
	7000	SAOP	29	1653.9		33				
	10700	PENN	29	1654.2	1654.2	58.6	19.2	9.6		
	2700	PENN	29	1654.6	1654.6	35.2	6.1	3.1		
	10700	PENN	3	1836.6	1837.2	2.6	9.8	3.8		
	8800	SGMR	3	1836.5	1837	4.0	13.7	5.0		
	4995	SGMR	1	1836.7	1837.2	2.3	6.9	3.0		
	2700	PENN	1	1836.7	1837.2	2.7	2.7	1.4		
	2695	SGMR	1	1836.8	1837.4	2.7	2.4	1.0		
	1415	SGMR	1	1837.4	1837.5	.3	1.0	.5		
	2800	OTTA	21	2100	2155	260	7.0	3.5		
	2800	OTTA	3	2214.5	2215	2.5	14.0	3.5		
	1415	SGMR	3	2214.7	2215.1	5.6	8.0	3.0		
	184	BOUL	6	2314	2314	3	4750.0	1304.0		
	8800	SGMR	4	2315.5	2316	3.5	570.0	100.0		
	4995	SGMR	4	2315.5	2316.1	2.1	355.0	70.0		
	2800	OTTA	3	2315.5	2316	4	115.0	36.0		
	2695	SGMR	4	2315.7	2316.3	1.7	58.0	15.0		
	1415	SGMR	4	2315.7	2316.5	2.9	43.0	8.0		
	606	SGMR	4	2315.7	2315.8	1.8	195.0	35.0		
	2800	OTTA	29	2319.5		15	5.2	2.6		
21	2800	OTTA	20	1115	1130	30	3.8	1.9		
	4995	SGMR	22	1122.6	1123.5	16.7	13.3	5.0		
	8800	SGMR	22	1123.1	1131.5	13.5	14.8	5.0		
	7000	SAOP	21	1123.2		14.8				
	7000	SAOP	1	1123.6	1124	1.9	10.4	5.2		
	2695	SGMR	22	1123	1129.2	20.0	4.8	1.5		
	1415	SGMR	40	1129.8	1131.5	2.6	9.2	1.5		
	7000	SAOP	3	1131.6	1132.5	1.3	15.9	7.9		
	606	SGMR	46	1146	1146.7	1.9	63.0	16.0		
	2800	OTTA	20	1155	1200	20	3.8	1.9		
	184	BOUL	43	1220 E	1220 U	780 D	1085.0	505.0		
	18	MCMA	6	1324	1325	2			1	
	7000	SAOP	45	1331.7	1333.7	3.4	29.9	15.0		
	10700	PENN	3	1331.8	1333.8	2.6	22.6	12.4		
	4995	SGMR	46	1331.9	1333.7	7.4	17.2	3.5		
	15400	SGMR	22	1332.8	1333.8	8.2	14.1	6.0		
	8800	SGMR	46	1332.2	1333.8	5.2	31.5	5.5		
	2800	OTTA	1	1332	1332.8	1.5	3.0	1.5		
	2700	PENN	20	1332.2	1332.9	20.4	4.5	0.9		
	2695	SGMR	40	1332.3	1334.5	3.1	7.7	2.5		
	1415	SGMR	46	1332.3	1332.8	2.5	485.0	80.0		
	960	PENN	45	1332.2	1333.7		40.0D			
	10700	PENN	29	1334.4	1334.4	20.2	9.1	4.5		
	7000	SAOP	1	1345.5	1346.5	2.3	6.0	3.0		
	18	MCMA	6	1349	1351	2			2	
	18	MCMA	41	1405	1413	11			1	
	18	MCMA	6	1436	1438	2			2	
	18	MCMA	43	1436		305 D			2	
	18	MCMA	6	1455	1458	5			3	
	4995	SGMR	46	1530.6	1538.2	10.7	130.0	28.0		
	2700	PENN	45	1530	1536.4	11.8	138.0D	27.0D		
	2695	SGMR	46	1531	1536.5	10.0	175.0	35.0		
	18	BOUL	43	1532		362			1	
	8800	SGMR	46	1533	1538	7.0	62.0	15.0		
	7000	SAOP	45	1533.4	1538	7.4	178.0	89.0		
	2800	OTTA	4	1533	1536.5	9	124.0	46.0		
	960	PENN	45	1533.8	1538.3	7.0	11.9	4.7		
	1415	SGMR	46	1534.2	1537	6.6	65.0	15.0		
	15400	SGMR	20	1535.5	1538.5	35.7	18.8	4.0		
	10700	PENN	3	1535.1	1538.2	4.0	34.6	19.6		
	606	SGMR	4	1537.8	1538.3	2.4	11.7	2.5		
	10700	PENN	29	1539.1	1539.1	18.9	13.9	6.9		
	8800	SGMR	29	1540	1540	23.4	19.0	9.5		
	1415	SGMR	29	1540.8	1540.8	22.8	6.4	3.2		

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21	960	PENN	29	1540.8	1540.8	29.0	3.1	1.6		
	4995	SGMR	29	1541.3	1541.3	31.0	20.2	10.1		
	2700	PENN	29	1541.8	1541.8	38.2	7.7	3.9		
	2695	SGMR	29	1541	1541	30.3	14.4	7.2		
	2800	OTTA	29	1542		14	8.6	2.9		
	960	PENN	45	1547.1	1548.3	6.8	18.2	3.0		
	328	PENN	45	1548	1548.3	4.2	166.0	34.0		
	18	MCMA	48	1555	1600	7			3	
	18	MCMA	6	1607	1610	4			3	
	2800	OTTA	1	1635	1635.5	1.5	3.8	1.9		
	2695	SGMR	22	1746.3	1801.7	37.3	12.0	6.0		
	8800	SGMR	21	1754	1809.3	37.1	9.0	4.5		
	4995	SGMR	21	1755	1809	35.5	21.0	10.5		
	1415	SGMR	20	1755.4	1802.6	37.0	4.6	2.3		
	10700	PENN	20	1806.5	1807.6	27.0	11.8	5.9		
	8800	SGMR	3	1806.7	1808	2.3	7.8	4.8		
	4995	SGMR	3	1806	1807.6	3.6	16.8	8.4		
	2800	OTTA	1	1806.8	1808	2.2	7.0	5.0		
	2700	PENN	20	1806	1807.7	18.5	7.0	2.1		
	2800	OTTA	29	1809		5	2.4	1.2		
	2700	PENN	20	1836.6	1848	23.1	4.3	2.2		
	10700	PENN	20	1837.5	1842.5	49.3	18.8	7.7		
	960	PENN	45	1837.1	1842.4	5.7	10.7	1.7		
	15400	SGMR	20	1838.2	1842.8	19.8	18.8	9.4		
	8800	SGMR	45	1838.3	1838.8	21.0	19.5	6.3		
	4995	SGMR	45	1838.3	1839	19.0	18.4	6.1		
	2800	OTTA	41	1838.5		5				
	2800	OTTA	3	1838.5	1839	1	10.0	5.0		
	2700	PENN	45	1838.6	1841.8	4.2	12.2	3.3		
	2695	SGMR	45	1838.8	1842	7.6	16.8	2.6		
	1415	SGMR	45	1838.8	1840.9	13.9	8.0	2.0		
	606	SGMR	41	1838.3	1842	4.2	75.0	8.0		
	2800	OTTA	1	1839.5	1840	1	3.0	1.5		
	2800	OTTA	3	1841.5	1842	1.5	19.0	9.5		
	2700	PENN	45	1932.8	1934	7	225.0D	75.0D		
	15400	SGMR	28	1933.7	1934.3	2.2	15.0	13.0		
	10700	PENN	45	1933.3	1937.1	6.5	500.0D	105.0D		
	8800	SGMR	45	1933.3	1937.3	5.1	530.0	135.0		1
	4995	SGMR	45	1933.3	1934.3	5.8	250.0	120.0		1
	2800	OTTA	45	1933	1934.5	8	300.0U			
				1933	1934.5	3	300.0U			
				1936	1937.2	5	190.0U			
	2695	SGMR	45	1933.4	1934	7.6	330.0	120.0		1
	1415	SGMR	45	1933.5	1934.2	7.4	150.0	48.0		1
	960	PENN	45	1933.4	1934.4	6.4	22.7	10.2		
	606	SGMR	45	1933.5	1938	7.4	200.0	13.8		1
	328	PENN	5	1933.4	1934	1.0	9.8	3.3		
	15400	SGMR	45	1935.9	1936.3	3.4	390.0	115.0		1
	8800	SGMR	29	1938.4	1938.4	47.4	36.3	18.2		1
	15400	SGMR	29	1939.3	1939.3	60.5	24.9	12.5		1
	10700	PENN	29	1939.8	1939.8	9.4	23.6	11.8		
	4995	SGMR	29	1939.1	1939.1	65.2	30.2	15.1		1
	2700	PENN	29	1939.8	1939.8	67.2	18.3	6.4		
	960	PENN	29	1939.8	1939.8	26.0	2.3	1.1		
	1415	SGMR	29	1940.9	1940.9	80.4	8.6	4.3		1
	2800	OTTA	29	1941		60	18.0	9.0		
	2695	SGMR	29	1941	1941	57.6	16.8	8.4		1
	2800	OTTA	32	2045	2115	95	-3.6	-1.8		
	18	MCMA	6	2046	2048	3			1	
	2695	PENT	1	2354.5	2355.5	2	4.2	2.1		
22	2800	OTTA	23	1500	1613	130	6.2	3.1		
	328	PENN	45	1552.9	1553.9	1.6	15.3	2.9		
	10700	PENN	20	1553.6	1554.5	40.1	14.0	4.1		
	2700	PENN	20	1553	1554.5	42.8	5.4	1.3		
	960	PENN	20	1553.2	1554	13.2	1.5	0.3		
	184	BOUL	6	1553	1553	2	866.0	362.0		
	15400	SGMR	1	1554.4	1555	1.4	5.9	4.0		
	8800	SGMR	3	1554	1554.4	1.8	14.4	9.6		
	4995	SGMR	3	1554	1555	4.1	12.9	8.6		
	2800	OTTA	1	1554	1555	5	4.6	2.3		
	2695	SGMR	1	1554	1555.1	3.5	7.2	4.8		
	1415	SGMR	3	1554.7	1554.8	.7	10.6	7.0		
	2800	OTTA	21	1750	1800	30	3.8	1.9		
	8800	SGMR	20	1751	1754	30.0	5.9	3.0		
	2695	SGMR	20	1751.8	1754	20.2	9.3	4.7		
	4995	SGMR	20	1752	1754	20.2	10.1	5.1		
	1415	SGMR	20	1752.5	1754	9.8	2.0	1.0		
	2800	OTTA	1	1753	1754	3	7.8	3.9		
	2800	OTTA	1	1941.5	1942.5	3.5	3.8	1.7		
	960	PENN	24	2015.2	2153		2.4			
	2700	PENN	24	2112	2235.8		10.0			
	2800	OTTA	20	2130	2245	210	6.6	3.3		
23	606	SGMR	20	1104.8	1109.1	10.6	4.1	2.0		
	4995	SGMR	45	1105.8	1108.3	8.5	50.0	25.0		
	8800	SGMR	45	1106.7	1108.3	8.0	45.2	22.6		
	7000	SAOP	45	1106.6	1108.5	7.2	74.1	37.2		
	2800	OTTA	21	1106	1135	70	7.6	3.8		
	2800	OTTA	46	1106	1108	10	42.0	21.0		
				1106	1108	4	42.0			

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

Western Hemisphere

AUGUST 1968

AUG. 1968	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY $10^{-22} Wm^{-2} Hz^{-1}$ PEAK	MEAN	INT	REMARKS
23	2695	SGMR	45	1110	1112	6	26.0			
	15400	SGMR	45	1106.8	1108.4	6.3	39.8	19.7		
	1415	SGMR	45	1107.4	1109.3	7.5	29.2	14.6		
	4995	SGMR	1	1107.3	1108.7	3.7	13.7	6.7		
	2800	OTTA	3	1207.8	1209	3.0	4.7	2.3		
	2695	SGMR	3	1207.5	1219	4	15.0	6.8		
	1415	SGMR	1	1207.8	1209.2	3.8	17.0	8.5		
	2800	OTTA	1	1207.5	1209.4	4.2	6.7	3.3		
	2800	OTTA	20	1314	1315	2	3.0	1.5		
	15400	SGMR	3	1455	1500	20	3.4	1.5		
	8800	SGMR	1	1459.8	1500	.5	17.2	8.6		
	4995	SGMR	1	1459.1	1459.9	1.6	6.1	3.0		
				1459.2	1500	1.6	3.5	1.8		
25	184	BOUL	6	1650	1650	1	434.0	217.0		
	408	SANM	45	1938.4	1938.9	1	80.0	40.0		
26	10700	PENN	20	1804.7	1847	114	8.6	4.3		
27	2695	SGMR	45	1935.9	1936.5	12.6	16.5	8.2		
29	2695	PENT	24	0034		3	5.2			
	2695	PENT	4	0037	0038	5	66.0	20.0		
	2800	OTTA	3	0046.2	0046.8	1.5	20.0	10.0		
	184	BOUL	6	1529	1529	1	310.0	155.0		
	184	BOUL	6	2045	2046	2	1304.0	550.0		
30	2800	OTTA	22	1120	1200	255	9.2	4.6		
	960	PENN	24	1756	2028		2.4			
31	18	BOUL	42	1405	1435	63			1	
	18	MCMA	6	1500	1501	1			1	
	408	SANM	3	1738.2	1738.9	1.2	79.5	30.0		
	18	MCMA	42	1741		18			1	
	18	BOUL	41	1742	1745	7			1	
	184	BOUL	6	1746	1746	1	1158.0	579.0		
	18	MCMA	42	1813		22			1	
	18	BOUL	42	1813		22			1	
	1415	SGMR	46	1820.8	1832	21.6	560.0	100.0		
	2800	OTTA	40	1821	1823.8	3	6.0			
	606	SGMR	46	1821.8	1833.6	13.5	100.0	20.0		
	2695	SGMR	46	1823.6	1833	11.3	55.0	10.7		
	2800	OTTA	40	1829	1833	6	48.0			

Explanation of Type Code:

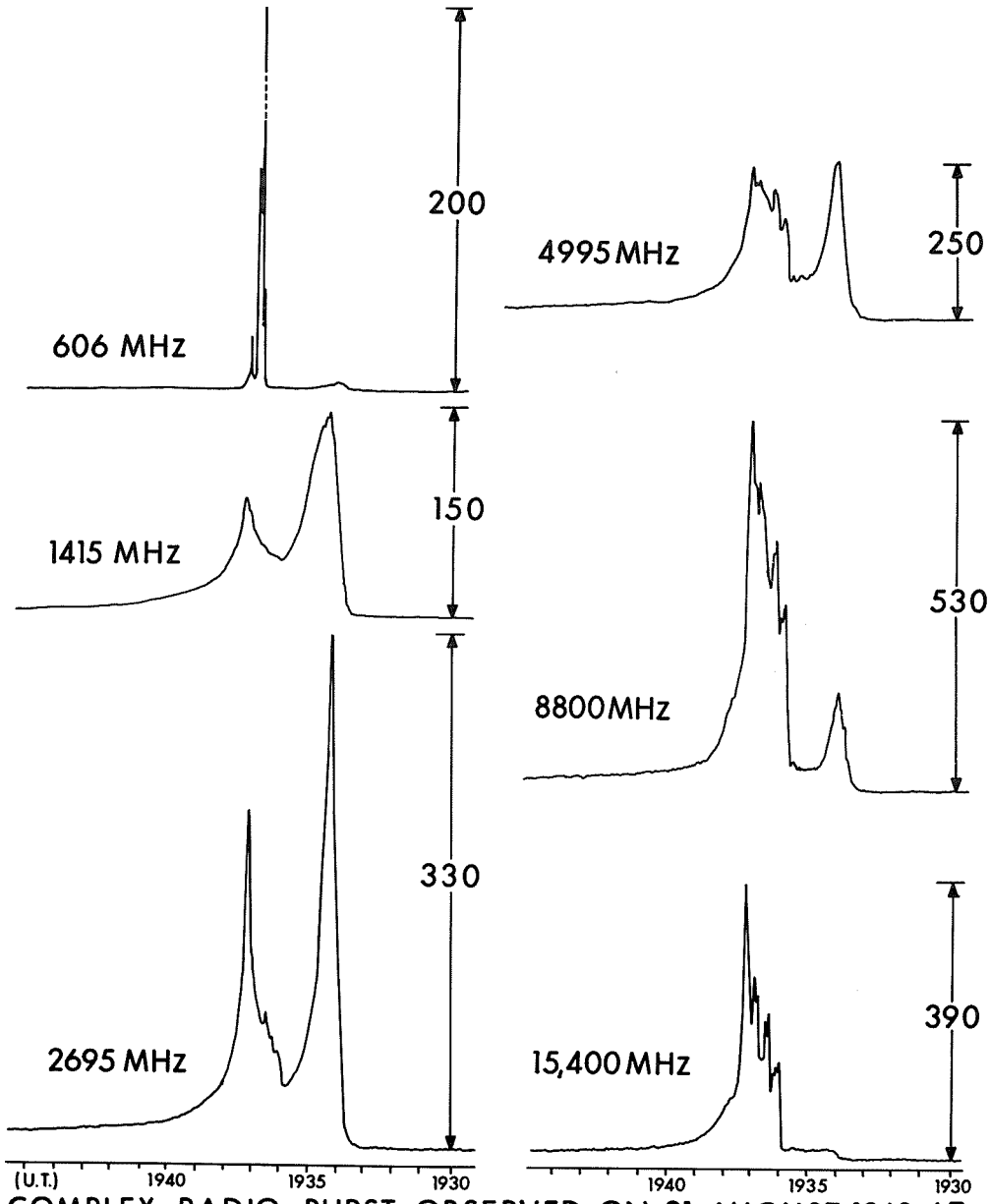
1 Simple 1	6 Minor	22 Simple 3F	27 Rise and Fall	32 Absorption	44 Noise Storm in Progress
2 Simple 1F	7 Minor +	23 Simple 3AF	28 Precursor	40 Fluctuation	45 Complex
3 Simple 2	8 Spike	24 Rise	29 Post Burst Increase	41 Group of Bursts	46 Complex F
4 Simple 2F	20 Simple 3	25 Rise A	30 Post Burst Increase A	42 Series of Bursts	47 Great Burst
5 Simple	21 Simple 3A	26 Fall	31 Post Burst Decrease	43 Onset of Noise Storm	48 Major
					49 Major +

Observatories:

BOUL = Boulder (ESSA-184 MHz, U. of Colo.-18 MHz)
OTTA = ARO - Ottawa
PENN = Pennsylvania State University
PENT = DRAO - Penticton
SANM = San Miguel, Argentina
SAOP = Sao Paulo, Brazil
SGMR = AFCRL - Sagamore Hill

SELECTED SOLAR NOISE BURST
AFCRL SAGAMORE HILL

AUGUST 1968



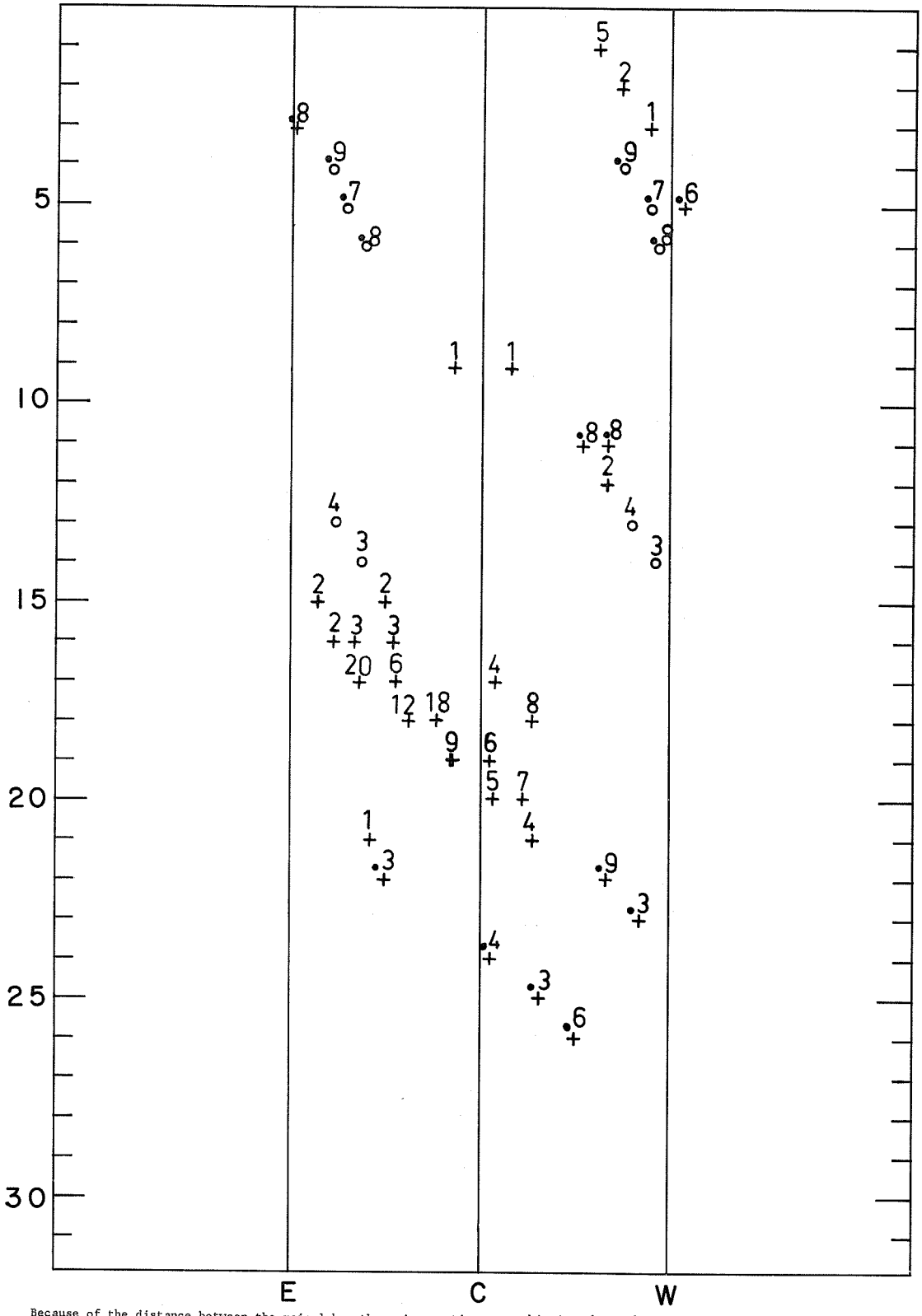
COMPLEX RADIO BURST OBSERVED ON 21 AUGUST, 1968 AT SAGAMORE HILL RADIO OBSERVATORY, HAMILTON, MASS.

AFCRL PHOTO 148-193

SOLAR RADIO EMISSION
INTERFEROMETRIC OBSERVATION

AUGUST 1968

Nançay 408 MHz

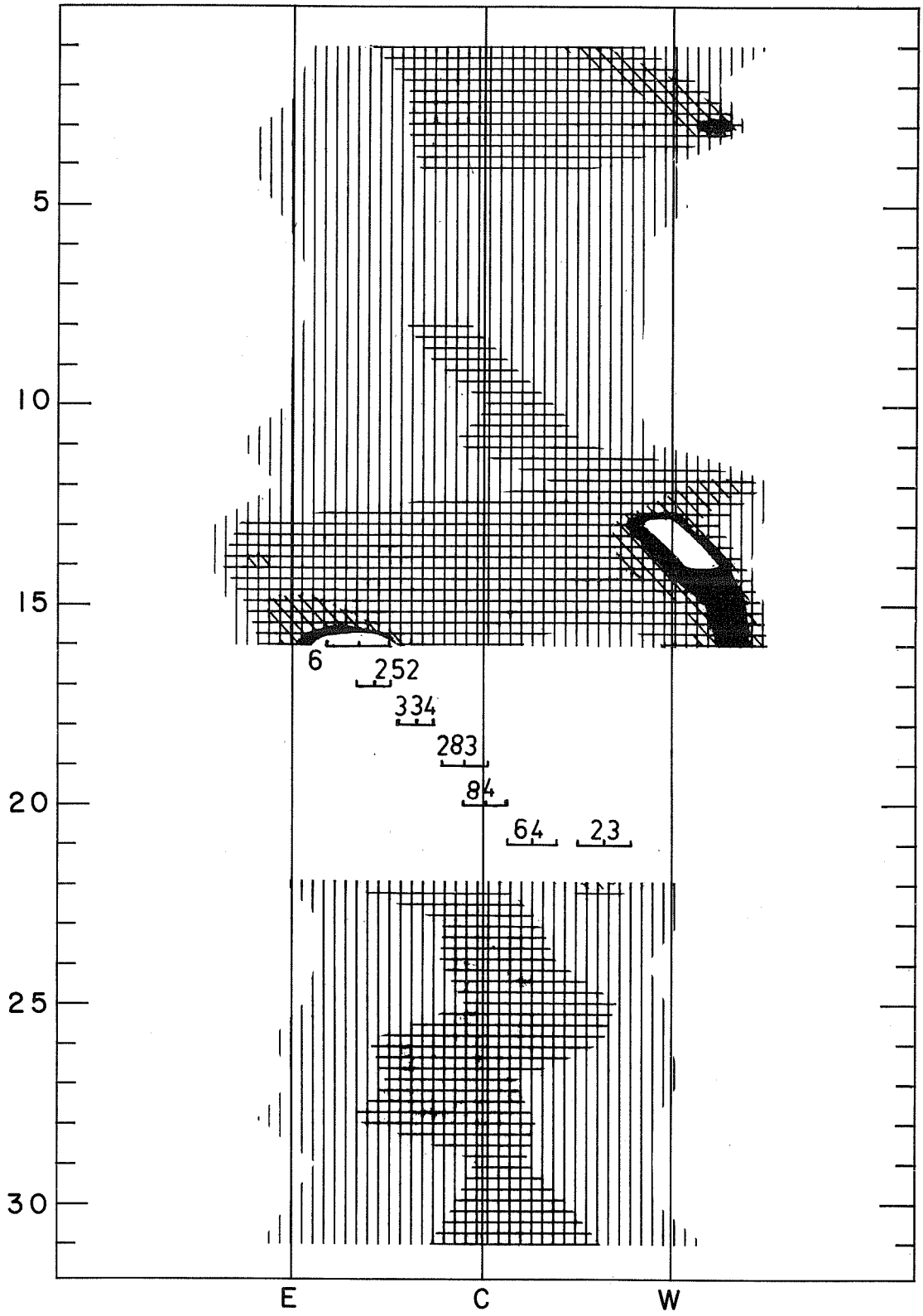


Because of the distance between the main lobes there is sometimes an ambiguity about the position East or West of the Center of Activity. The two possible positions are indicated by circles on the chart.

SOLAR RADIO EMISSION
INTERFEROMETRIC OBSERVATION

AUGUST 1968

Nançay 169 MHz

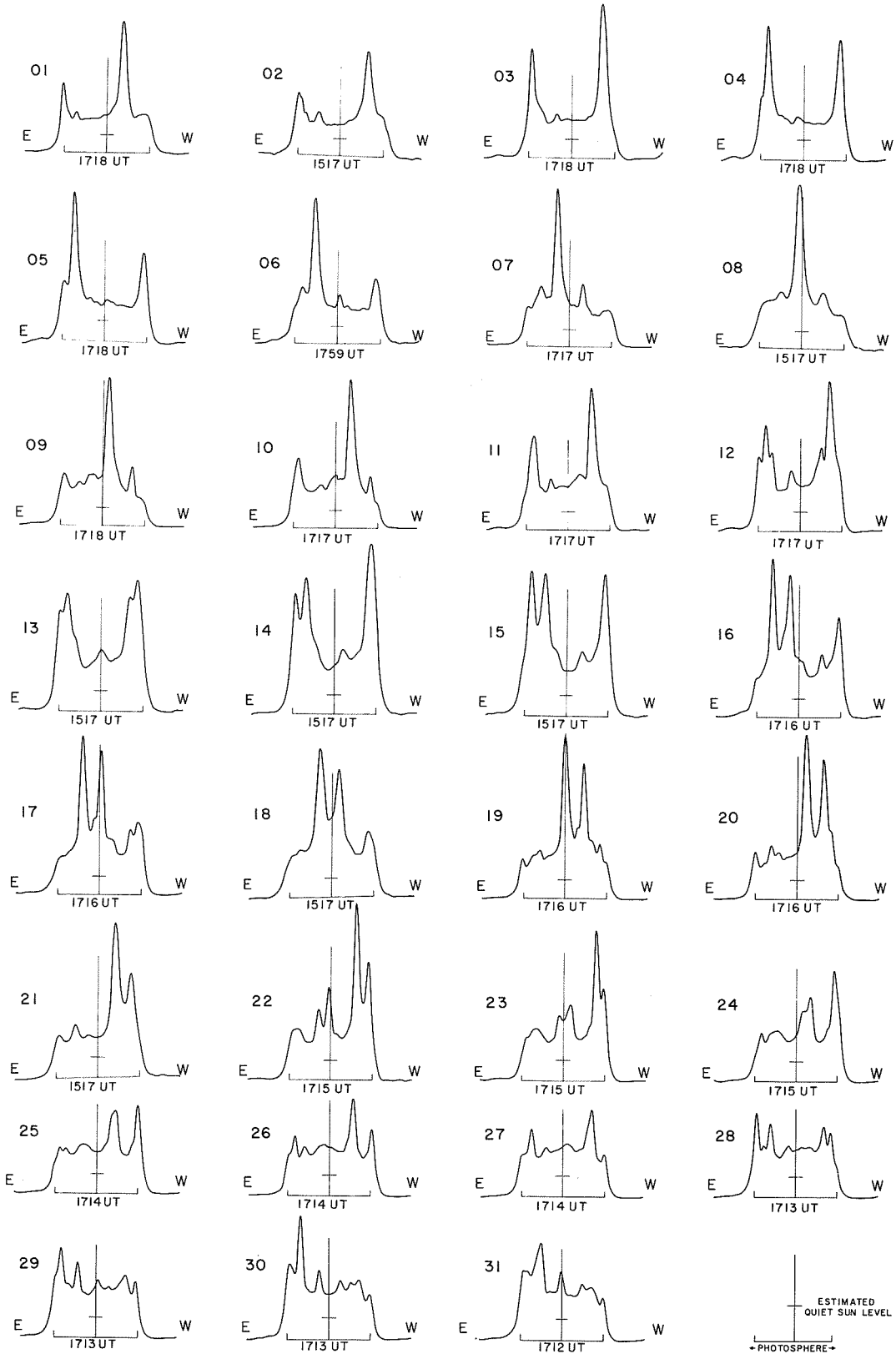


EAST - WEST SOLAR SCANS

ALGONQUIN RADIO OBSERVATORY
CANADA

August 1968

10.7 cm
Fan-Beam with 1.5 minutes of arc
E-W Resolution

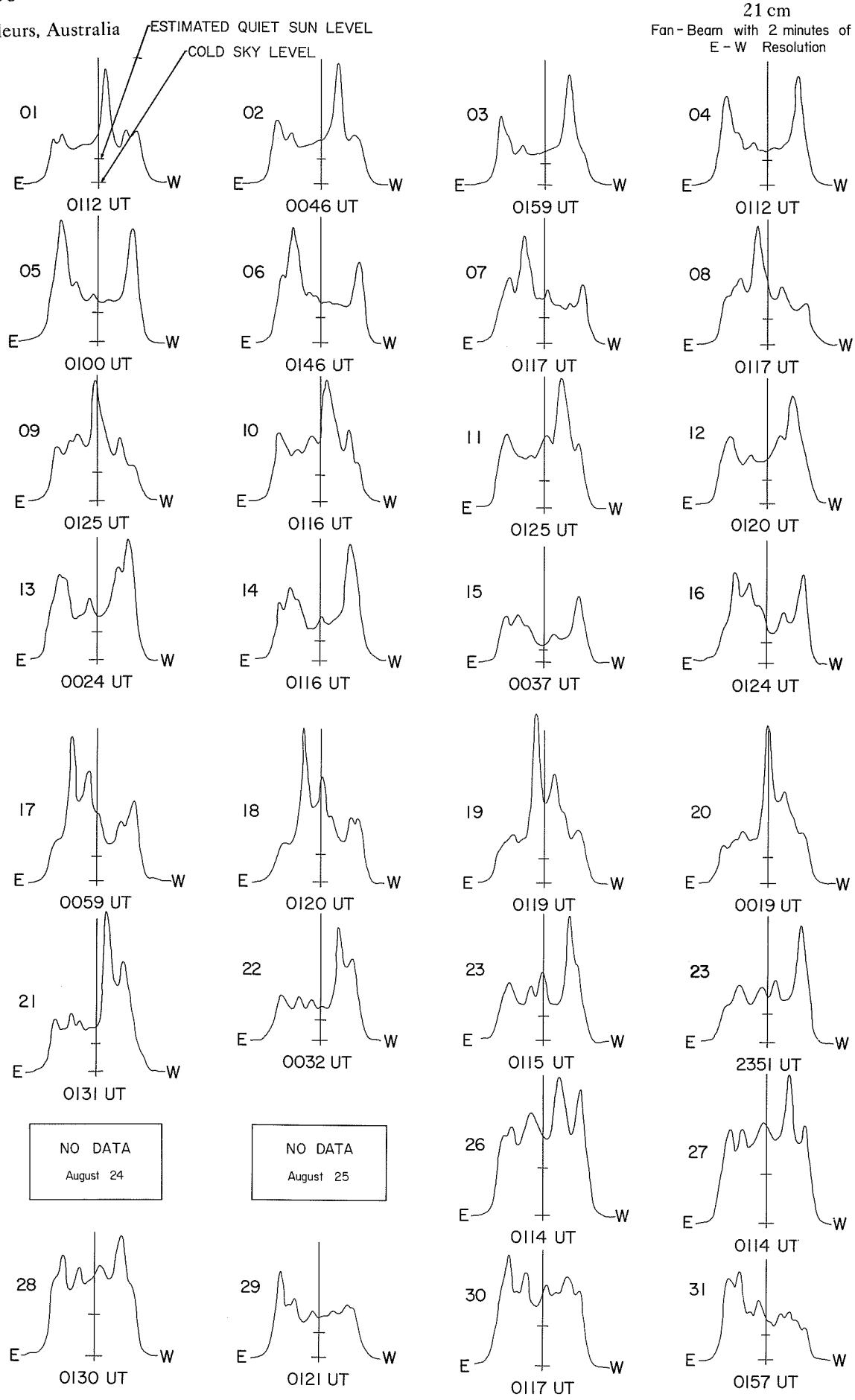


EAST-WEST SOLAR SCANS

AUGUST 1968

Fleurs, Australia

21 cm
Fan-Beam with 2 minutes of arc
E-W Resolution

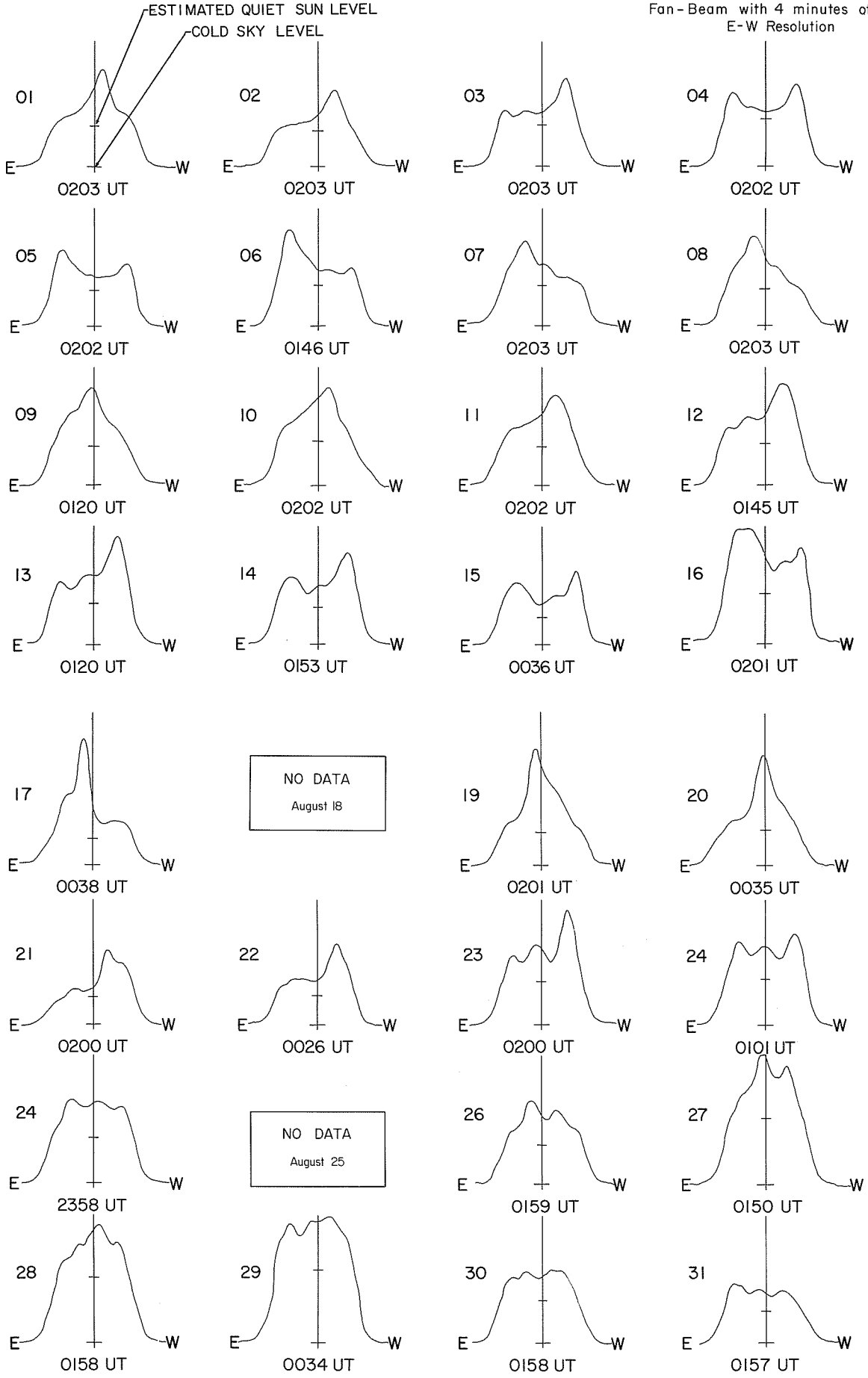


EAST-WEST SOLAR SCANS

AUGUST 1968

Fleurs, Australia

43 cm
Fan-Beam with 4 minutes of arc
E-W Resolution



SOLAR WIND VELOCITY
and
CO-ROTATION DELAY TIMES
August 1968

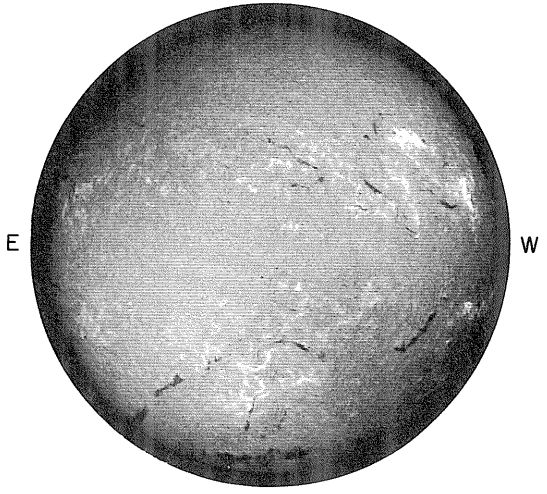
Date 1968	PIONEER VI				PIONEER VII			
	Time (Z)	Pass	U_H+	TAU	Time (Z)	Pass	U_H+	TAU
1	G1721	960	494.1	-11.79				
2								
3					G0007	717	491.1	+5.5
3	G1636	962	502.1	-11.8	G1801	718	416.8	+5.49
4	G1731	963	466.5	-11.78	G1759	719	524.5	+5.51
5	G1724	964	399.7	-11.76	G1803	720	585	+5.52
6	G1724	965	396.8	-11.75	G1811	721	624.7	+5.53
7	G1710	966	364.7	-11.74	G1812	722	425.4	+5.51
8	G1641	967	362.4	-11.73				
9								
10					G0042	724	488.6	+5.52
10	G1554	969	320.9	-11.7	G1803	725	475.3	+5.52
11	G1642	970	375.7	-11.74	G1803	726	494.6	+5.53
12	G1642	971	381.	-11.74				
13					G1806	728	433.6	+5.52
14	G1732	973	606.5	-11.83	G1813	729	413.9	+5.52
15	G1513	974	561.7	-11.81				
16	G1513	975	476.9	-11.79				
17	G2002	976	427.6	-11.76	G2040	732	433.2	+5.53
18	G1735	977	770.4	-11.86	G1807	733	462.5	+5.53
19								
20	G1719	979	561.1	-11.82	G1807	735	364.5	+5.52
21	G1734	980	690.5	-11.85	G1807	736	326.3	+5.52
22	G1739	981	548.3	-11.82	G1808	737	343.6	+5.52
23								
24					G0023	738	330.2	+5.52
24	G1709	983	442.3	-11.77	G1815	739	467.7	+5.54
25	G1745	984	457.9	-11.78	G1822	740	424.3	+5.54
26	G1305	985	441.	-11.78	G1819	741	429.3	+5.54
27	G1657	986	561.5	-11.83	G1818	742	373.1	+5.53
28	G1744	987	541.6	-11.83	G1816	743	501.4	+5.55
29	G1745	988	693.9	-11.87	G1816	744	620.8	+5.55
30								
31					G0012	745	595.9	+5.5
31	G1745	990	674.3	-11.88	G1816	746	563.3	+5.55

Table of Contents
for July 1968 Data

For explanations of the data contained herein see "Descriptive Text" published in February 1968.

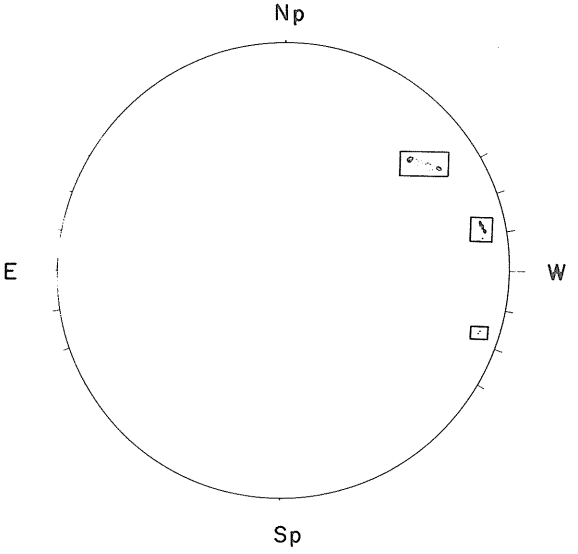
JULY 1, 1968 (P=-2.66, B_o=2.93, L_o=313.50)

BOULDER Hα



1317 UT

ESSA-BOULDER SUNSPOTS

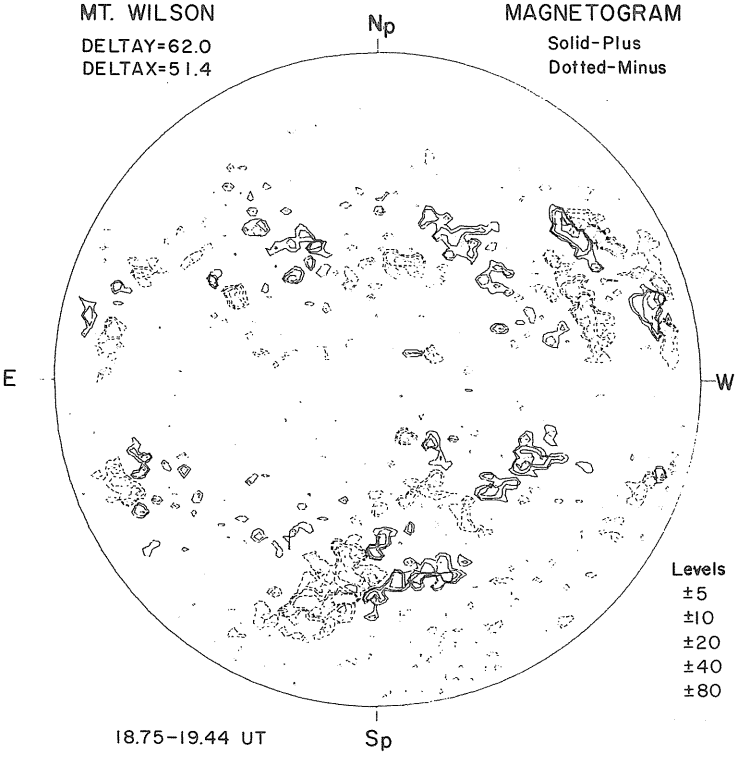


1420 UT

MT. WILSON MAGNETOGRAM

DELTAY=62.0
DELTAX=51.4

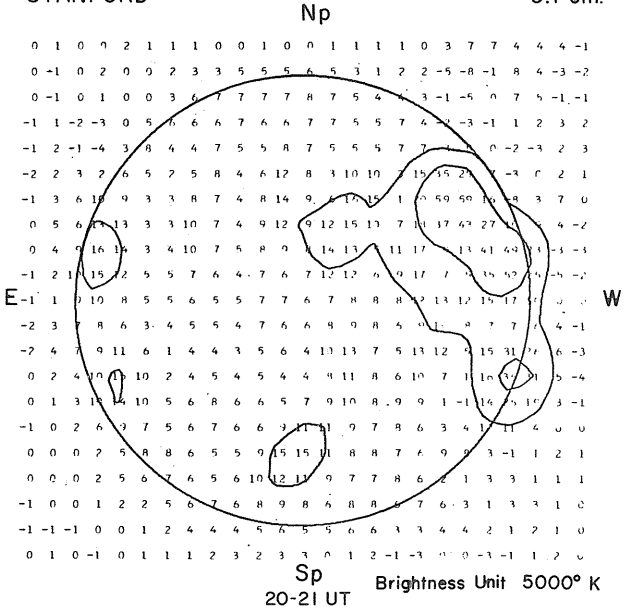
Solid-Plus
Dotted-Minus



Levels
±5
±10
±20
±40
±80

18.75-19.44 UT

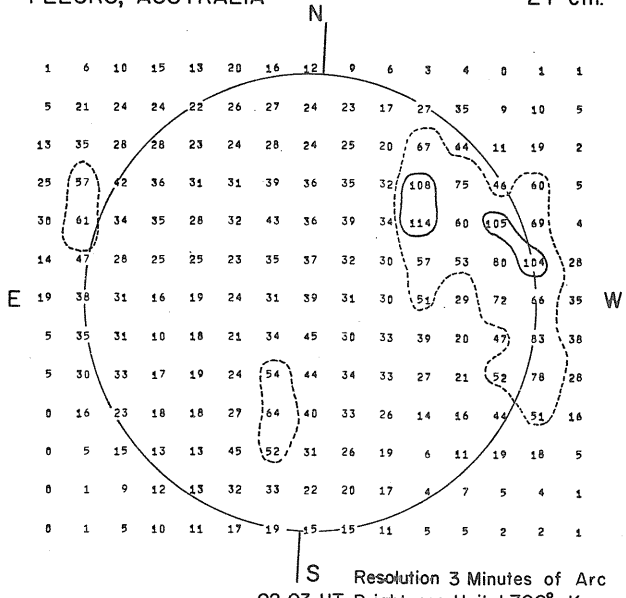
STANFORD 9.1 cm.



20-21 UT

Brightness Unit 5000° K

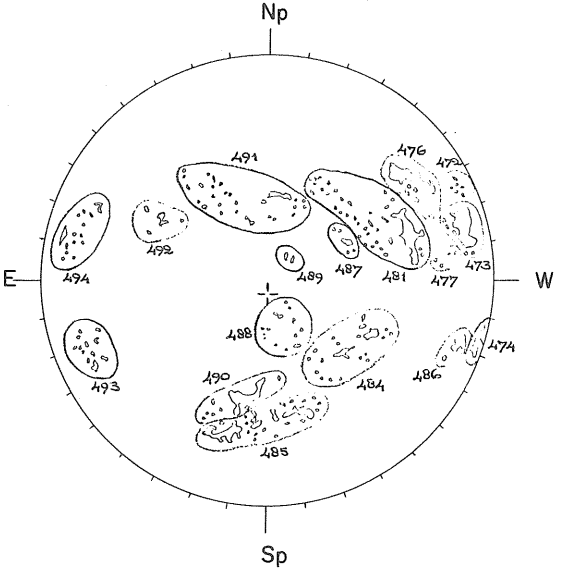
FLEURS, AUSTRALIA 21 cm.



Resolution 3 Minutes of Arc

02-03 UT Brightness Unit 1,700° K

McMATH-HULBERT CALCIUM REPORT



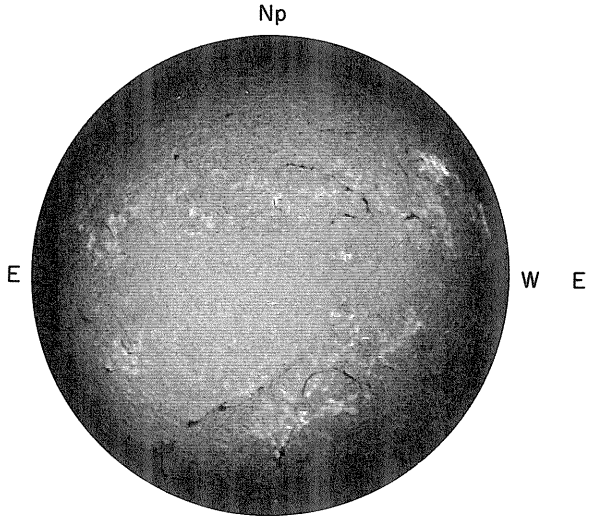
73-46-3.0
74-40-2.5
76-31-3.0
81-27-2.5
85-32-2.5
86-15-2.5
88-06-2.5
89-03-2.5
90-15-2.5

1350 UT

47
Jul 68

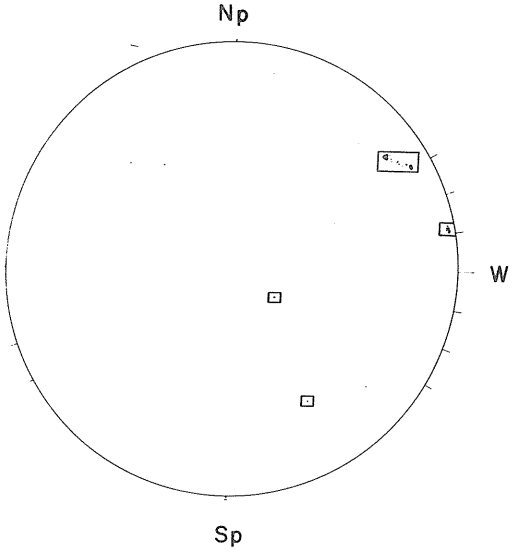
JULY 2, 1968 (P=-2.21, B_o=3.04, L_o=300.27)

BOULDER Hα



1324 UT

ESSA-BOULDER SUNSPOTS

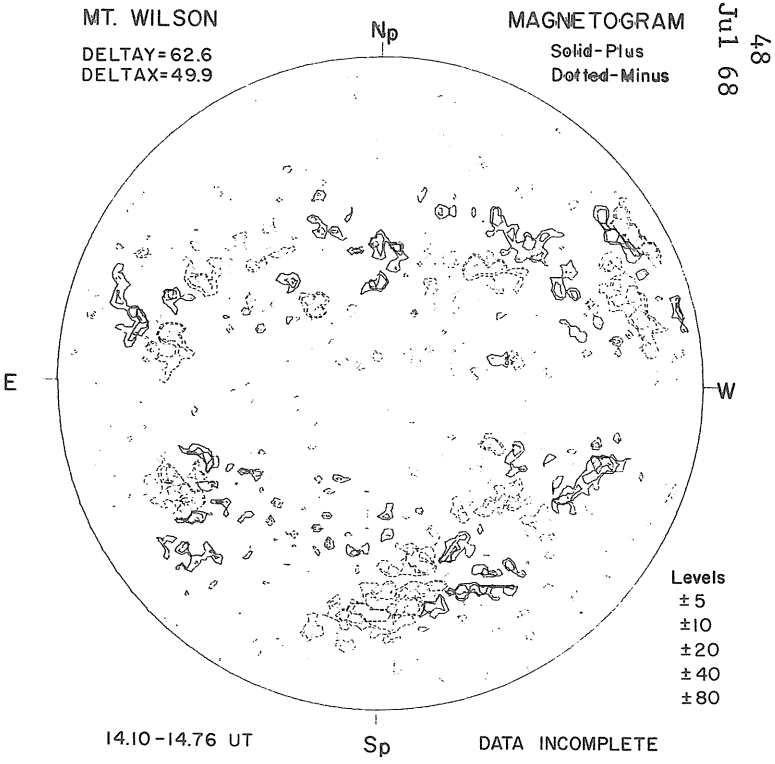


1345 UT

MT. WILSON MAGNETOGRAM

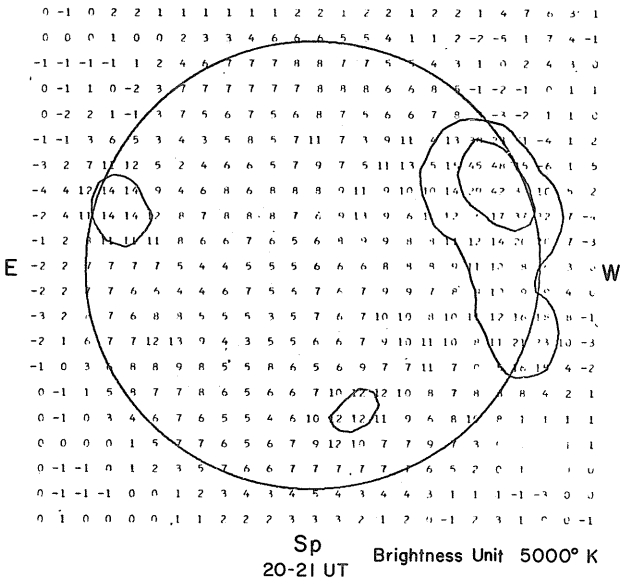
DELTAY=62.6
DELTAX=49.9

Solid-Plus
Dotted-Minus



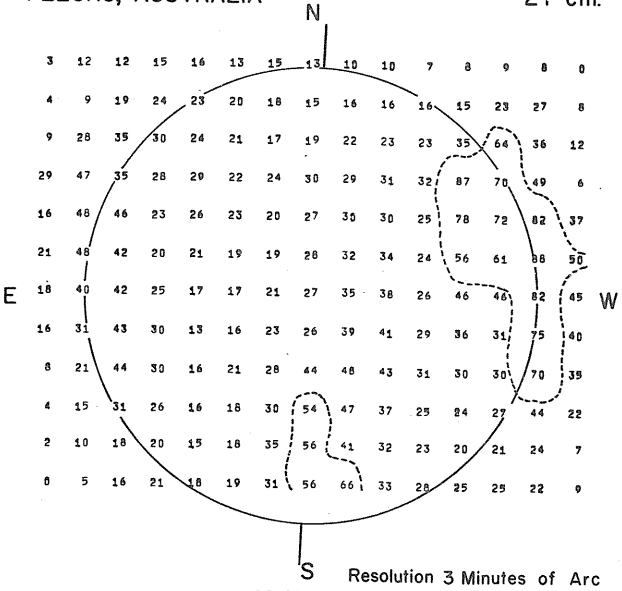
14.10-14.76 UT DATA INCOMPLETE

STANFORD 9.1 cm.



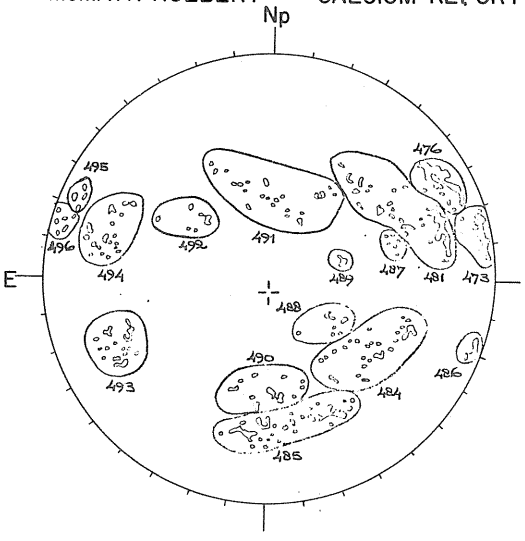
20-21 UT Brightness Unit 5000° K

FLEURS, AUSTRALIA 21 cm.



Resolution 3 Minutes of Arc
02-03 UT Brightness Unit 1,700° K

McMATH-HULBERT CALCIUM REPORT

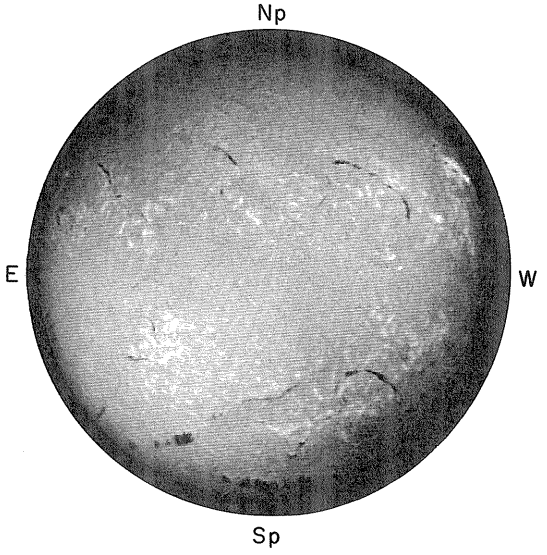


73-44-3.0
76-28-3.5
85-28-2.5
86-12-2.5
89-03-2.5
90-15-2.5
93-15-2.5
94-16-2.5

1220 UT

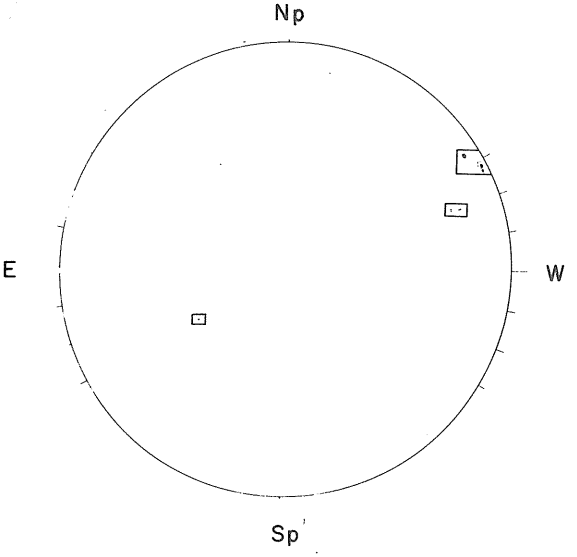
JULY 3, 1968 (P=-1.75, B_o=3.15, L_o=287.03)

BOULDER Hα



1334 UT

ESSA-BOULDER SUNSPOTS

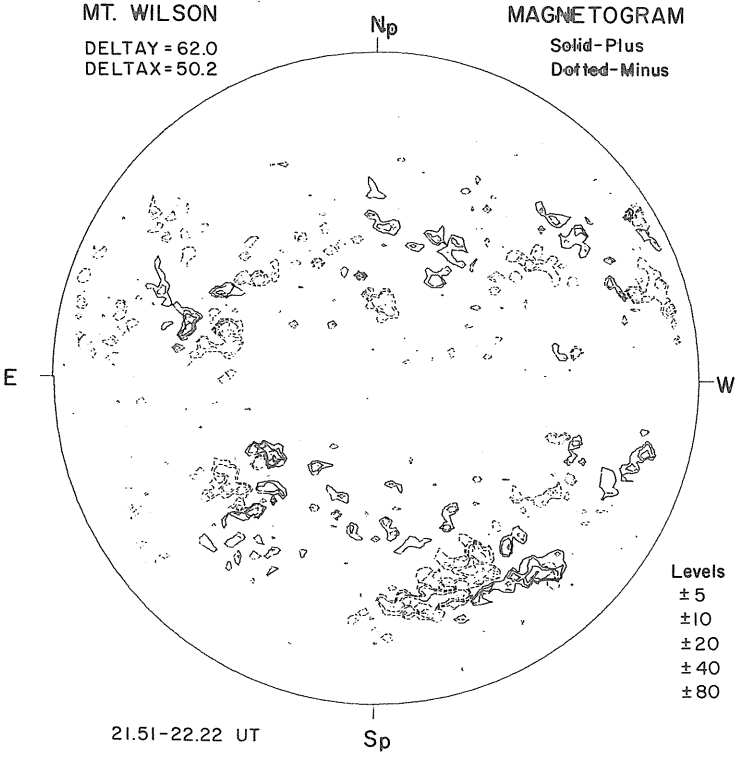


1355 UT

MT. WILSON MAGNETOGRAM

DELTAY = 62.0
DELTAX = 50.2

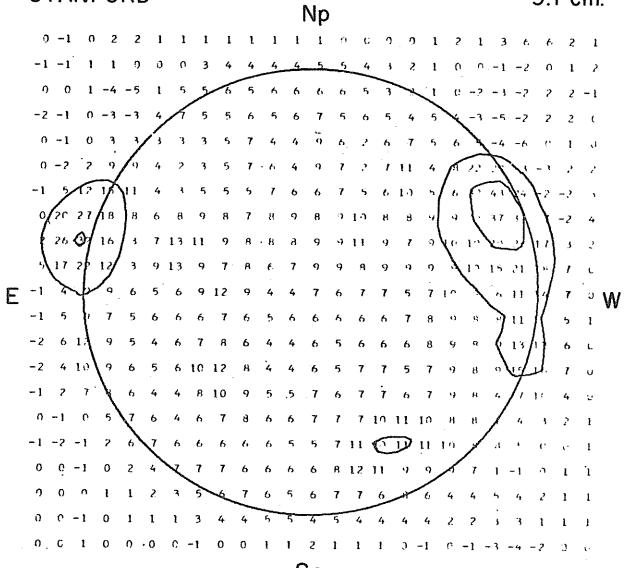
Solid-Plus
Dotted-Minus



Levels
±5
±10
±20
±40
±80

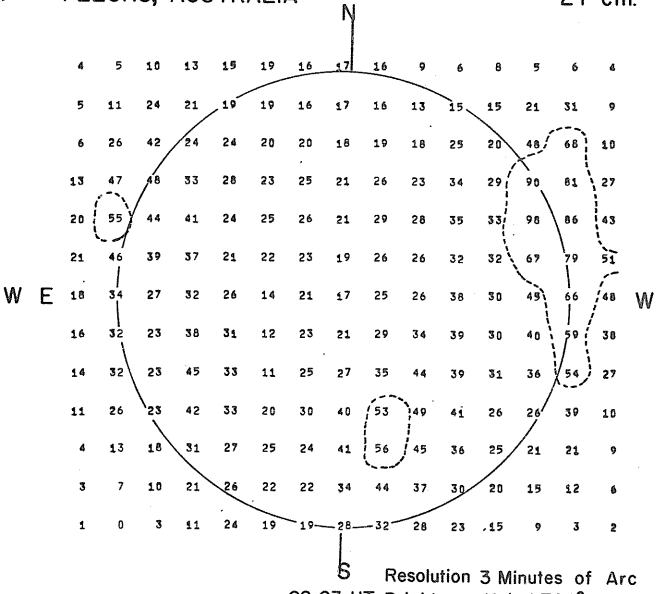
21.51-22.22 UT

STANFORD 9.1 cm.



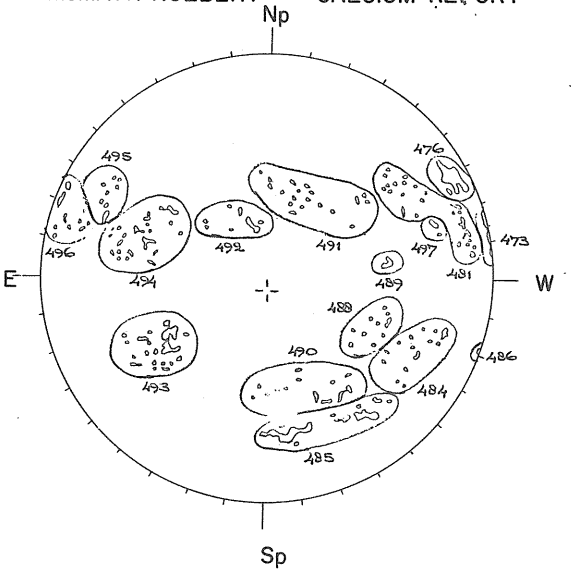
20-21 UT Brightness Unit 5000° K

FLEURS, AUSTRALIA 21 cm.



Resolution 3 Minutes of Arc
02-03 UT Brightness Unit 1,700° K

McMATH-HULBERT CALCIUM REPORT

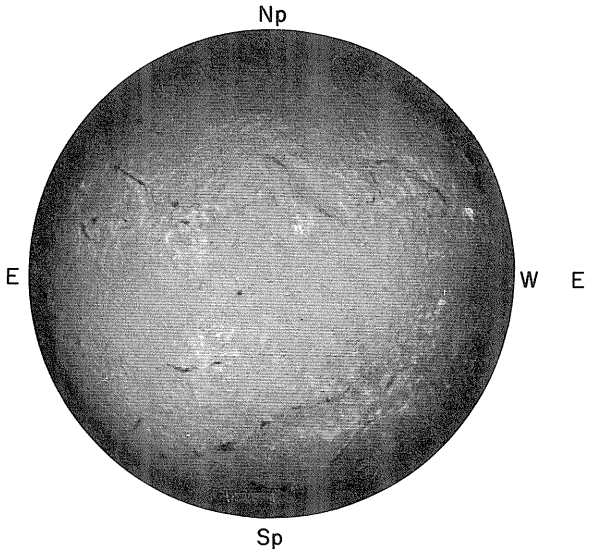


76-31-3.5
85-30-2.5
90-15-2.5
93-17-2.5
94-16-2.5
96-16-3.0
97-04-3.0

1230 UT

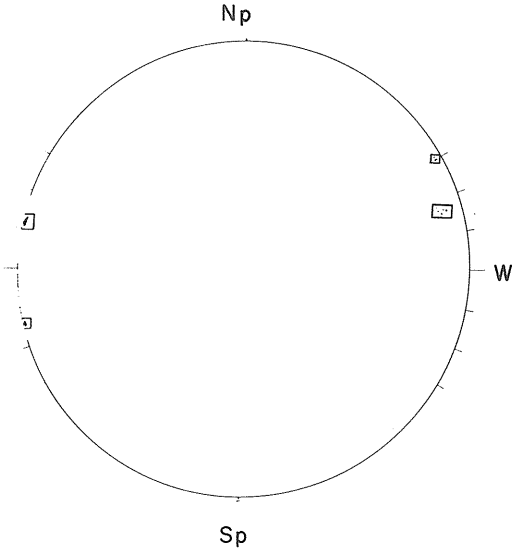
JULY 4, 1968 (P=-1.30, B_o=3.26, L_o=273.80)

BOULDER Hα



1317 UT

ESSA-BOULDER SUNSPOTS

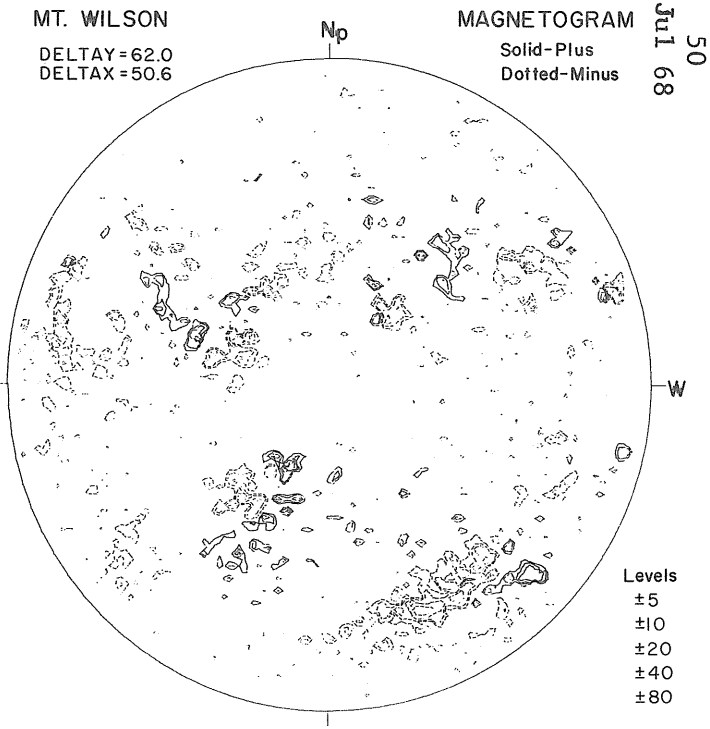


1400 UT

MT. WILSON MAGNETOGRAM

DELTAY=62.0
DELTAX=50.6

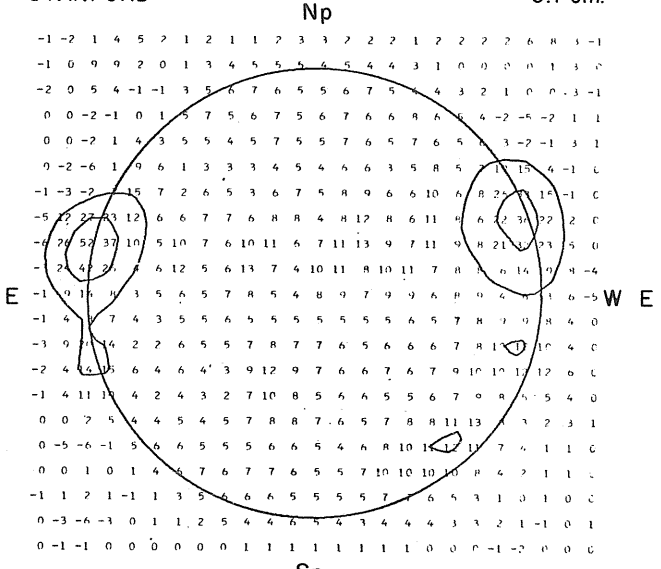
Solid-Plus
Dotted-Minus



Levels
±5
±10
±20
±40
±80

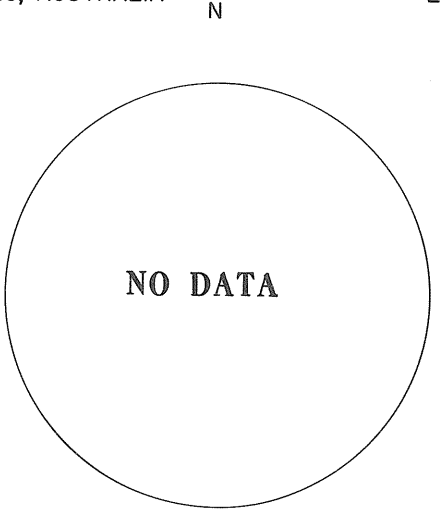
17.69-18.41 UT DATA INCOMPLETE

STANFORD 9.1 cm.



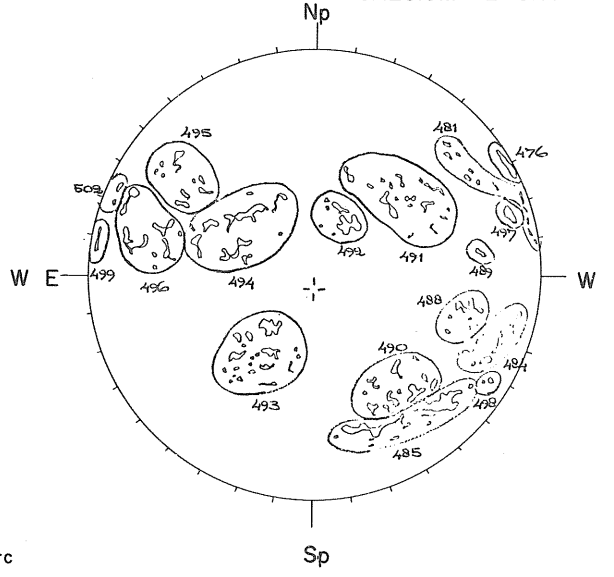
20-21 UT Brightness Unit 5000° K

FLEURS, AUSTRALIA 21 cm.



Resolution 3 Minutes of Arc
02-03 UT Brightness Unit 1,700° K

McMATH-HULBERT CALCIUM REPORT

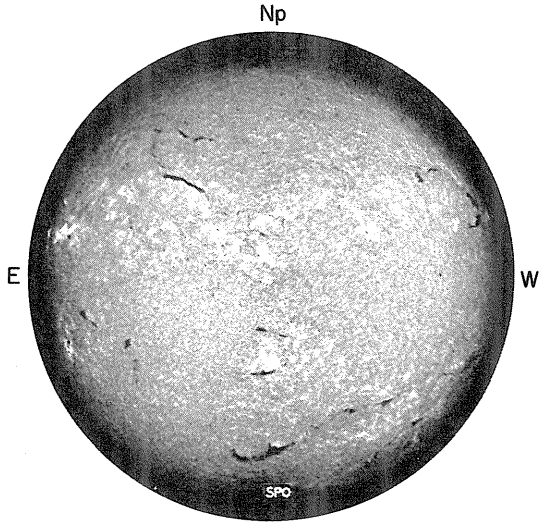


76-25-3.0
85-32-2.5
93-18-2.5
94-20-2.5
96-17-3.0
97-05-3.0
99-10-2.5

1246 UT

JULY 5, 1968 (P=-0.84, B_o=3.36, L_o=260.56)

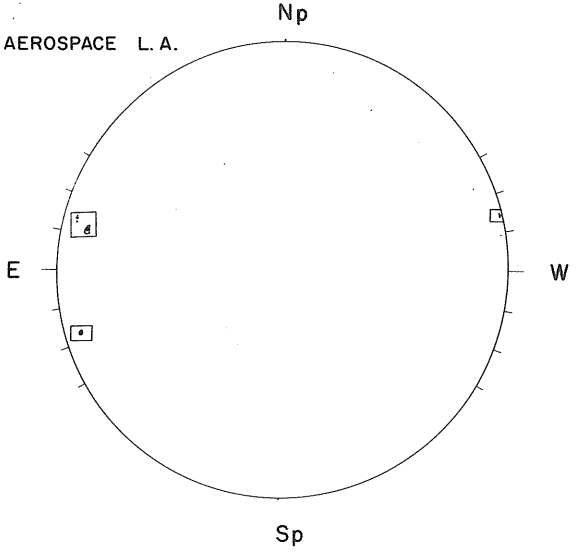
SACRAMENTO PEAK Hα



2040 UT

ESSA-BOULDER SUNSPOTS

AEROSPACE L. A.

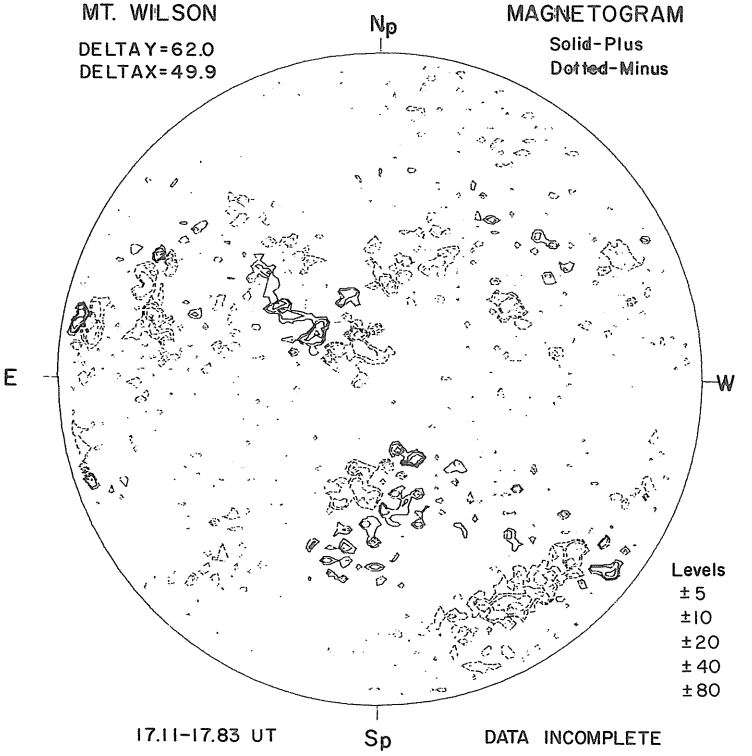


1905 UT

MT. WILSON MAGNETOGRAM

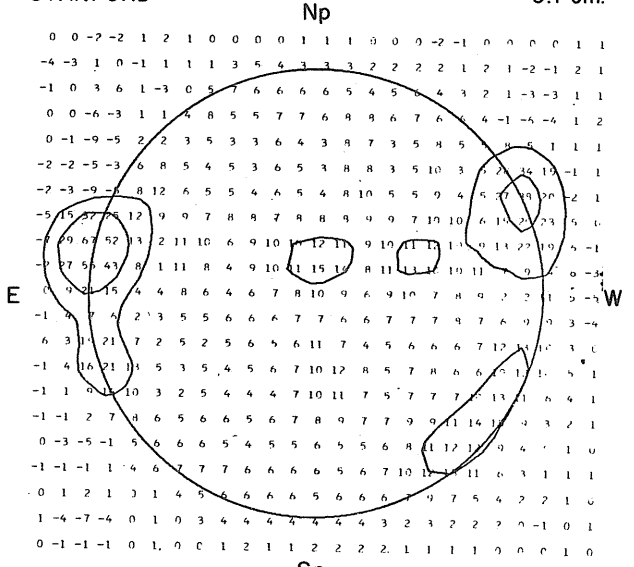
DELTAY=62.0
DELTAX=49.9

Solid-Plus
Dotted-Minus



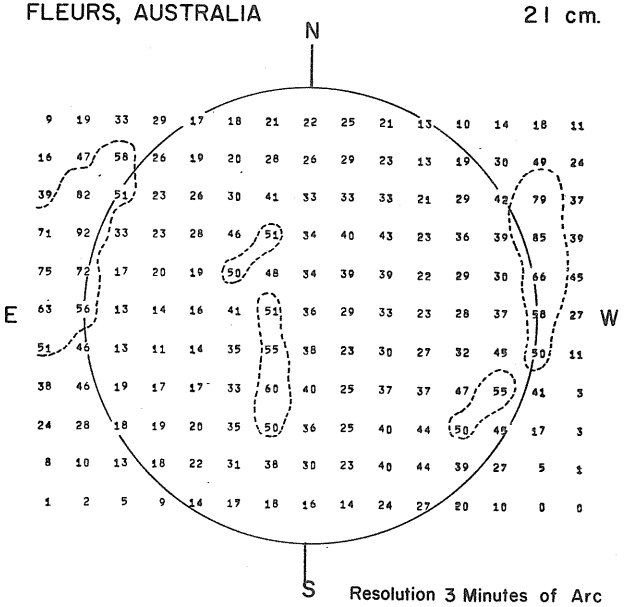
17.11-17.83 UT DATA INCOMPLETE

STANFORD 9.1 cm.



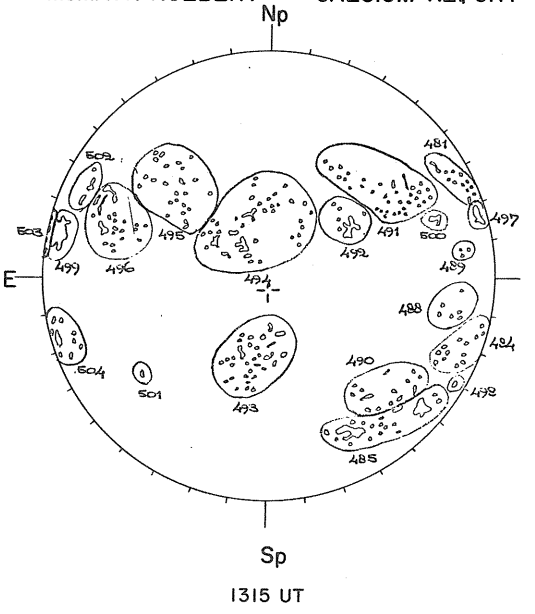
20-21 UT Brightness Unit 5000° K

FLEURS, AUSTRALIA 21 cm.



Resolution 3 Minutes of Arc
02-03 UT Brightness Unit 1,700° K

McMATH-HULBERT CALCIUM REPORT

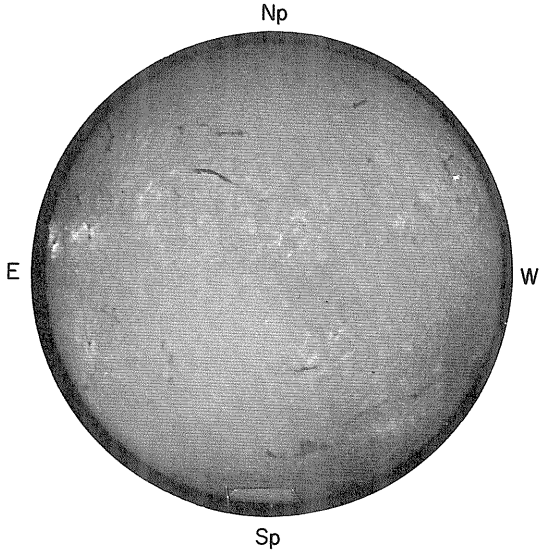


84-13-2.5
85-30-2.5
92-08-2.5
93-20-2.5
94-18-2.5
96-16-3.0
97-07-3.0
99-30-3.0
00-04-3.0
01-01-2.5
04-11-3.0

1315 UT

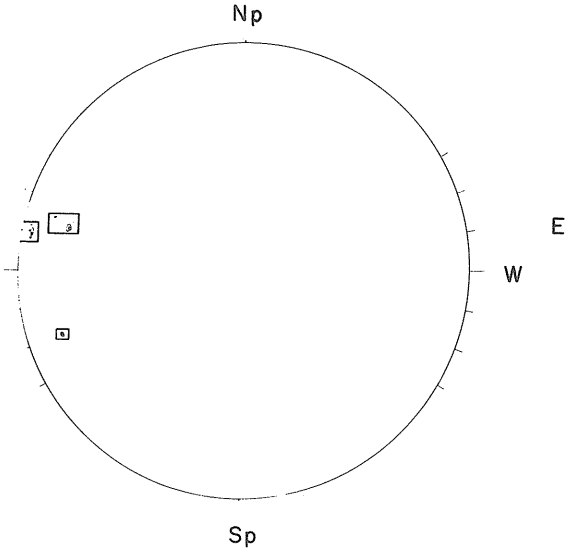
JULY 6, 1968 (P=-0.39, B_o=3.47, L_o=247.33)

BOULDER Hα



1506 UT

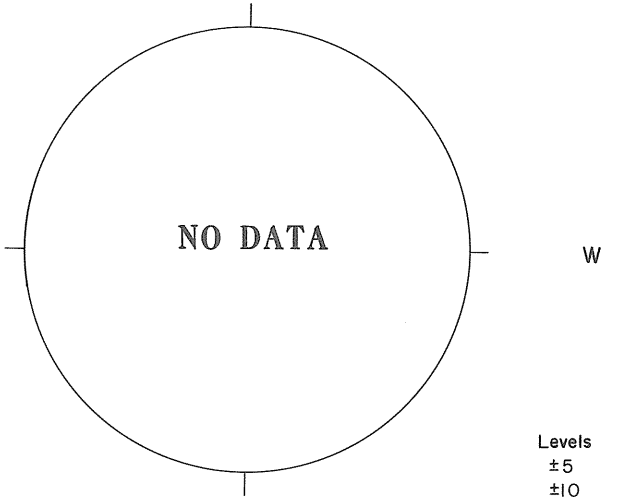
ESSA-BOULDER SUNSPOTS



1535 UT

MT. WILSON MAGNETOGRAM

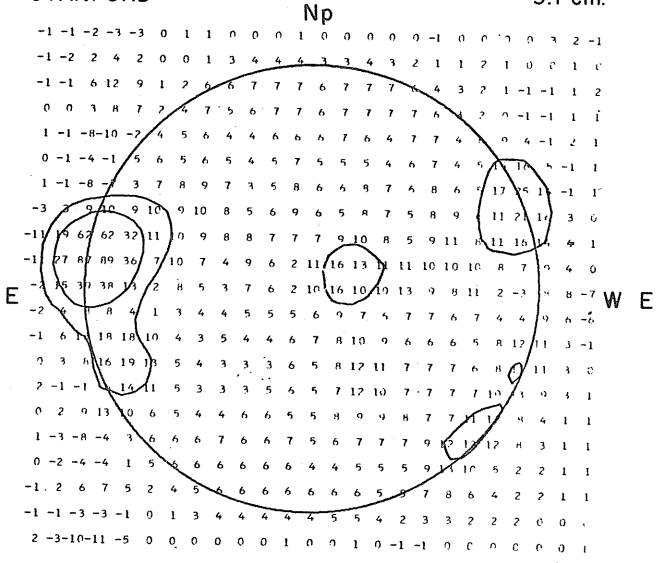
Solid-Plus
Dotted-Minus



NO DATA

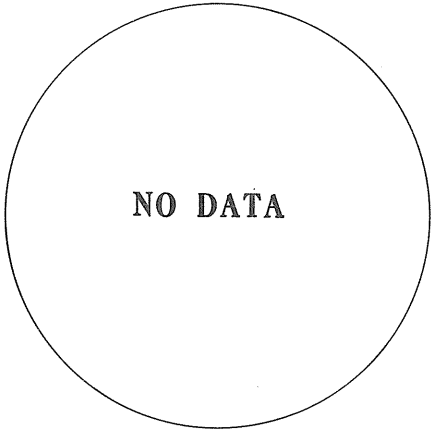
Levels
±5
±10
±20
±40
±80

STANFORD 9.1 cm.



20-21 UT Brightness Unit 5000° K

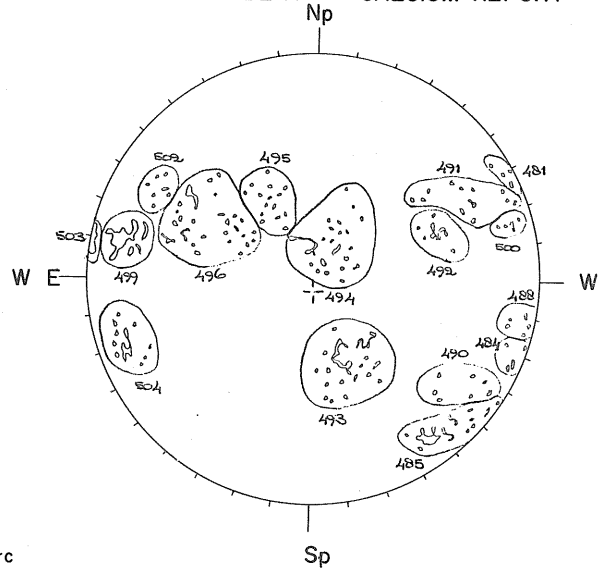
FLEURS, AUSTRALIA 21 cm.



NO DATA

Resolution 3 Minutes of Arc
02-03 UT Brightness Unit 1,700° K

McMATH-HULBERT CALCIUM REPORT

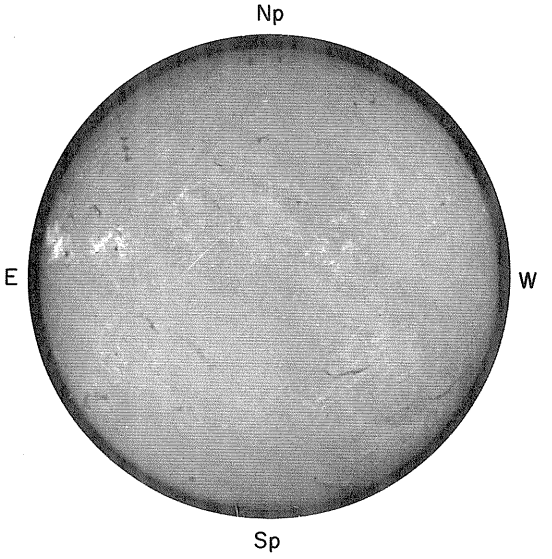


84-07-2.5
96-16-2.5
99-33-3.0
03-40-3.5
04-13-2.5

1325 UT

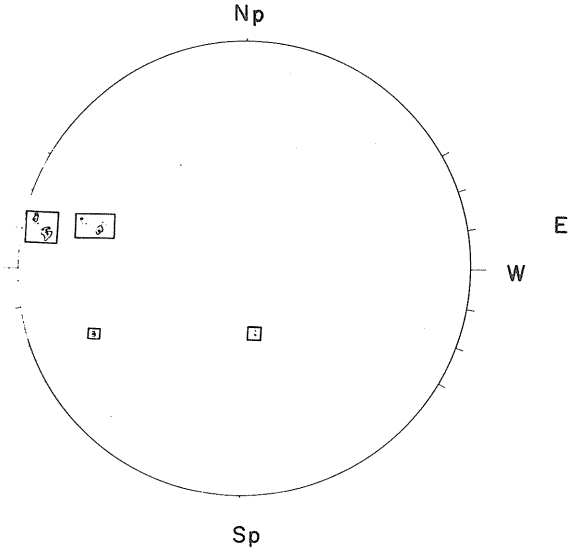
JULY 7, 1968 (P=0.06, B_o=3.58, L_o=234.09)

BOULDER Hα



1407 UT

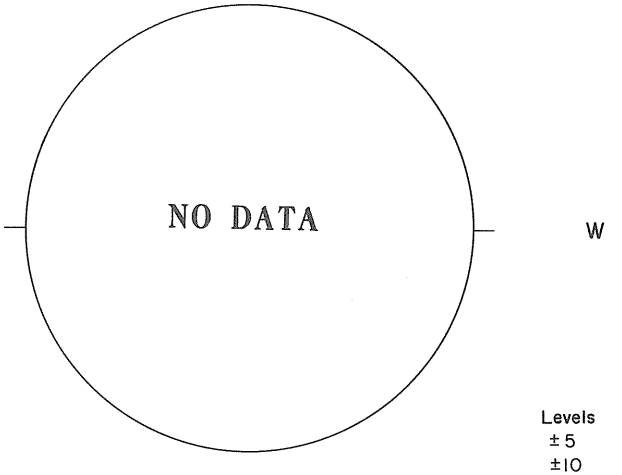
ESSA-BOULDER SUNSPOTS



1515 UT

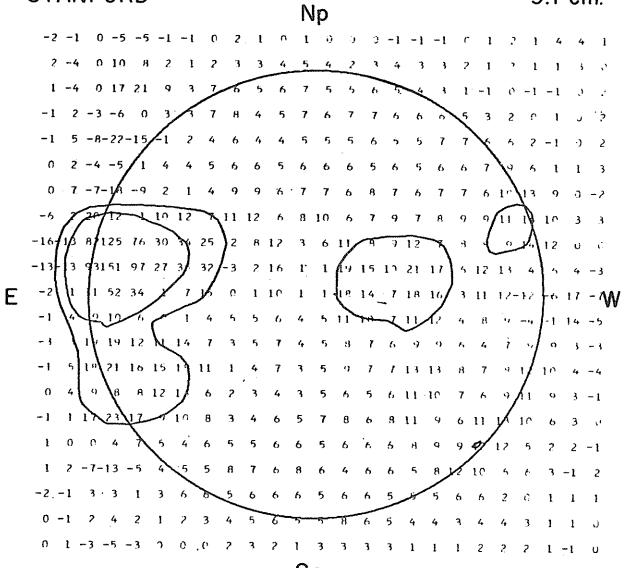
MT. WILSON MAGNETOGRAM

Solid-Plus
Dotted-Minus



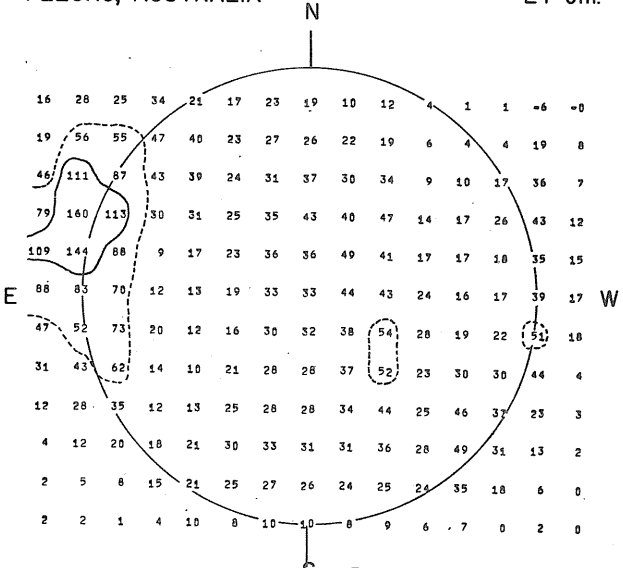
Levels
±5
±10
±20
±40
±80

STANFORD 9.1 cm.



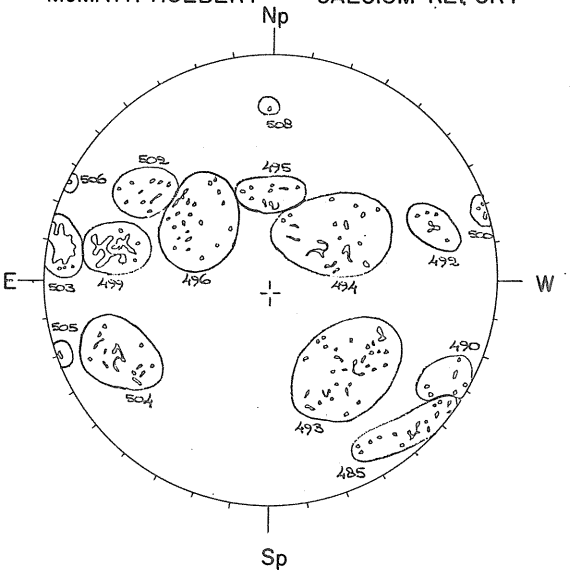
20-21 UT Brightness Unit 5000° K

FLEURS, AUSTRALIA 21 cm.



Resolution 3 Minutes of Arc
02-03 UT Brightness Unit 1,700° K

McMATH-HULBERT CALCIUM REPORT



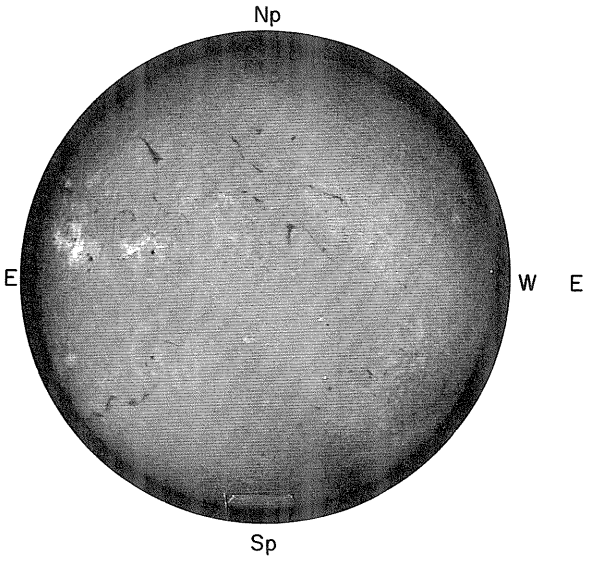
1300 UT

94-16-2.5
96-15-2.5
99-28-3.0
03-52-3.5
04-16-2.5
05-06-2.5

JULY 8, 1968 (P=0.52, B_o=3.68, L_o=220.86)

BOULDER

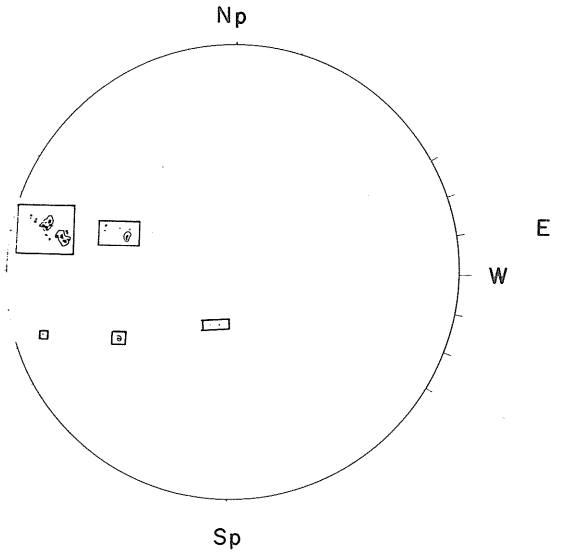
Hα



1408 UT

ESSA-BOULDER

SUNSPOTS

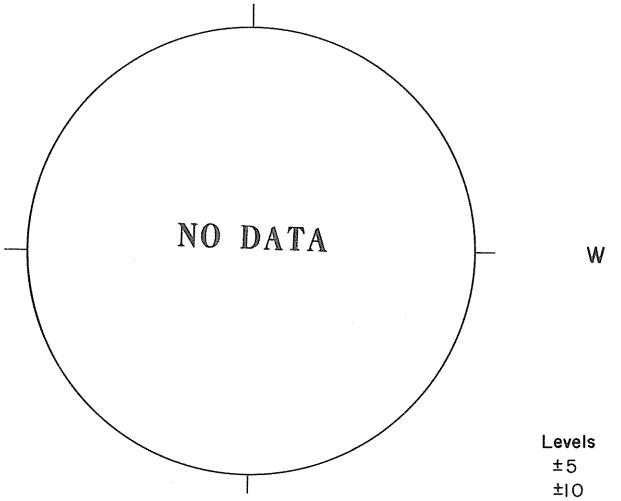


1320 UT

MT. WILSON

MAGNETOGRAM

Solid-Plus
Dotted-Minus

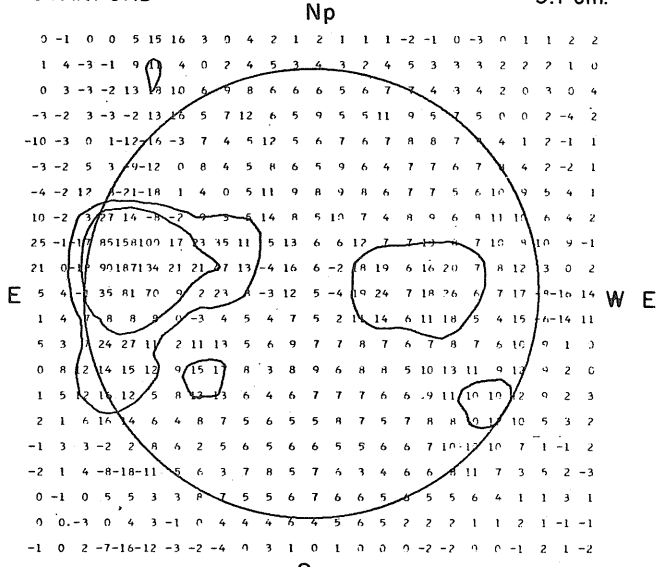


Levels
±5
±10
±20
±40
±80

DATA INCOMPLETE

STANFORD

9.1 cm.

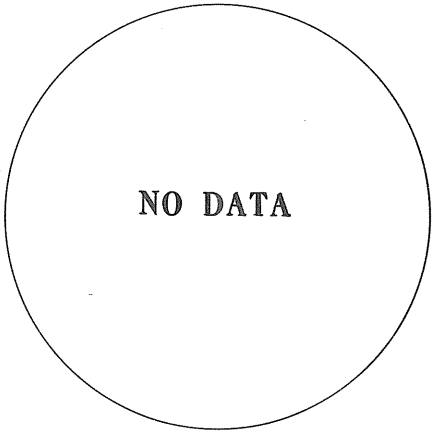


20-21 UT

Brightness Unit 5000° K

FLEURS, AUSTRALIA

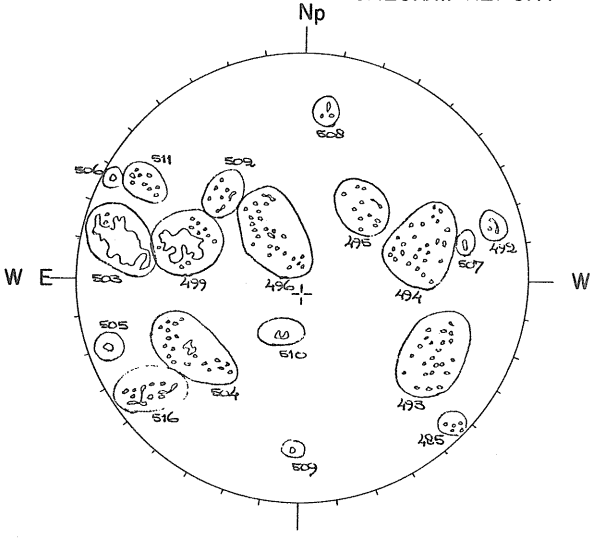
21 cm.



Resolution 3 Minutes of Arc
02-03 UT Brightness Unit 1,700° K

McMATH-HULBERT

CALCIUM REPORT

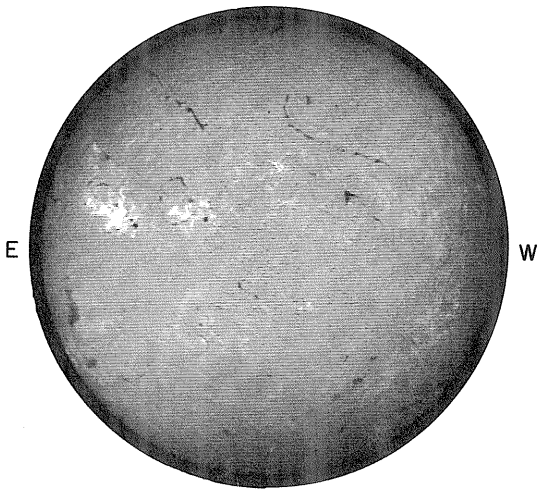


1400 UT

96-14-2.5
99-30-3.5
03-70-3.5
04-15-2.5
05-05-2.5
06-03-2.5
10-02-2.5

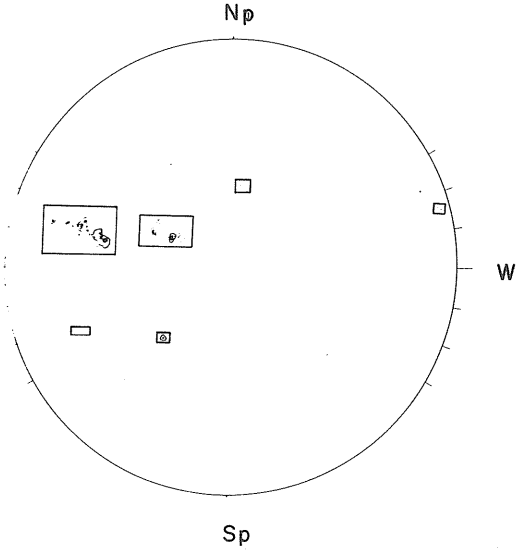
JULY 9, 1968 (P=0.97, B_o=3.78, L_o=207.62)

BOULDER Hα



1411 UT

ESSA-BOULDER SUNSPOTS

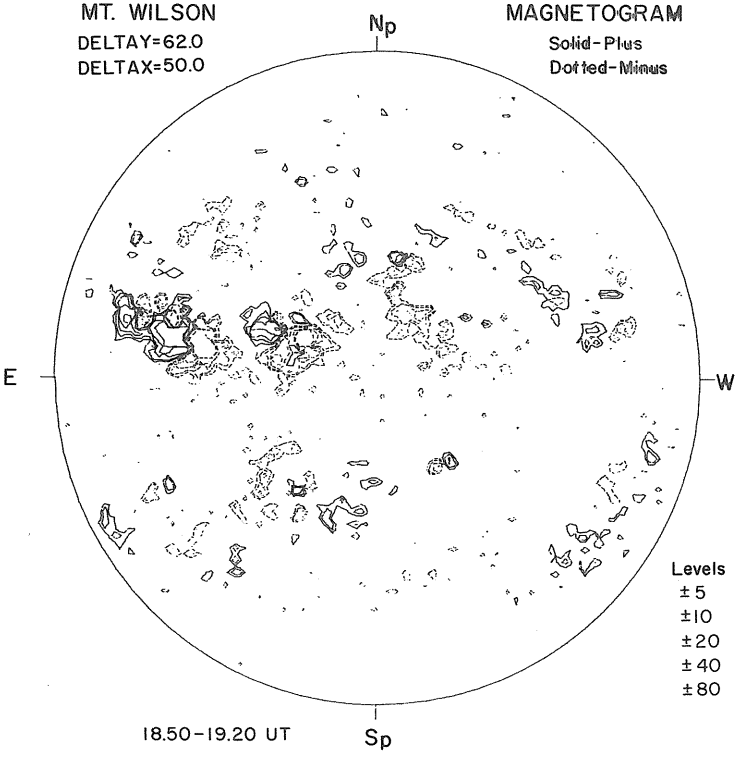


1445 UT

MT. WILSON MAGNETOGRAM

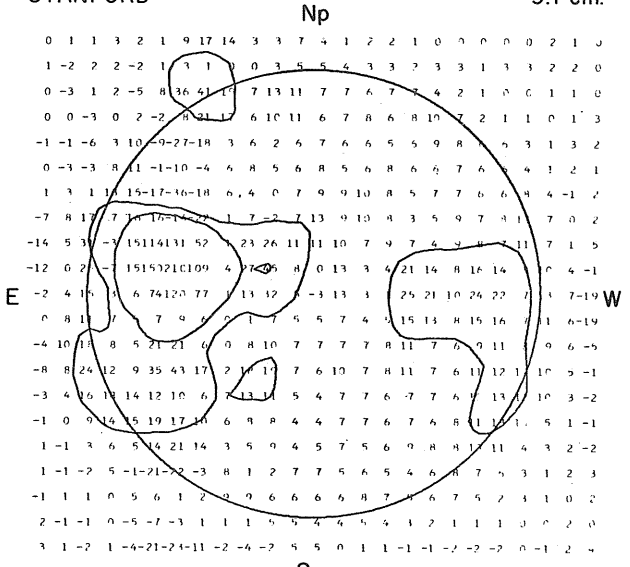
DELTAY=62.0
DELTAX=50.0

Solid-Plus
Dotted-Minus



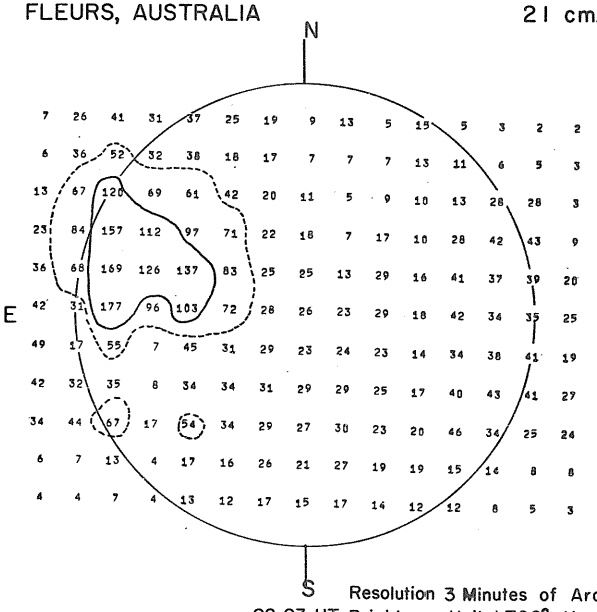
18.50-19.20 UT

STANFORD 9.1 cm.



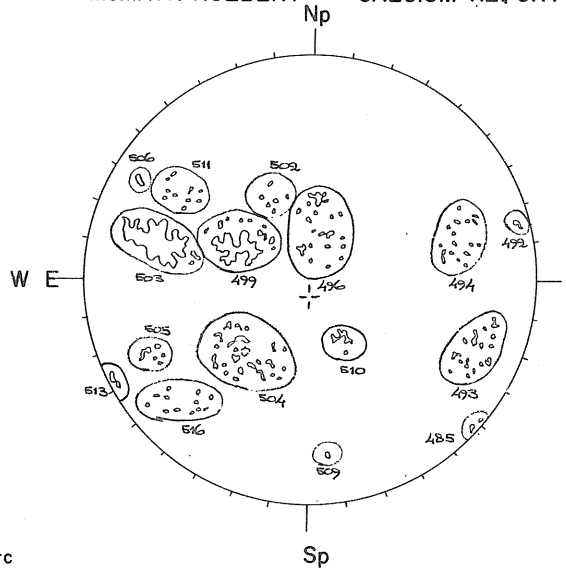
20-21 UT Brightness Unit 5000° K

FLEURS, AUSTRALIA 21 cm.



Resolution 3 Minutes of Arc
02-03 UT Brightness Unit 1,700° K

McMATH-HULBERT CALCIUM REPORT



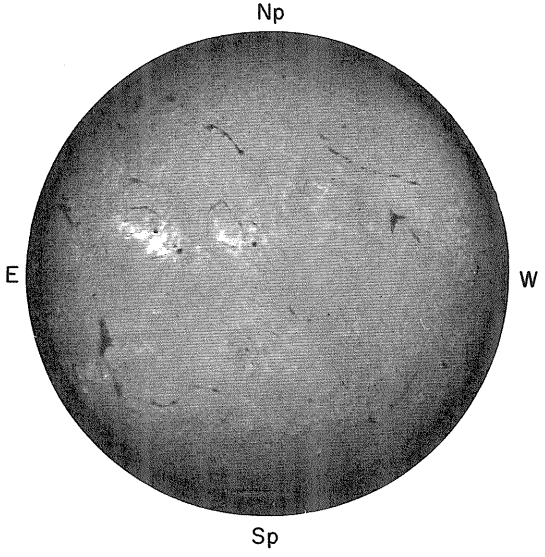
92-02-2.5
96-16-2.5
99-38-3.0
03-75-3.5
04-18-2.5
05-06-2.5
06-02-3.5

1300 UT

55
Jul 68

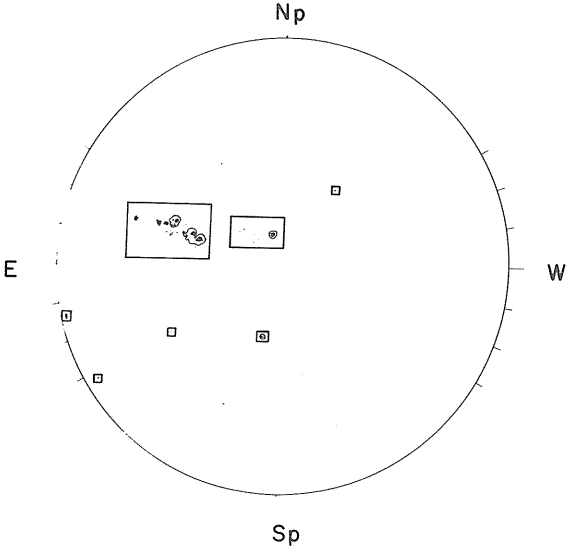
JULY 10, 1968 (P=1.42, B_o=3.88, L_o=194.39)

BOULDER Hα



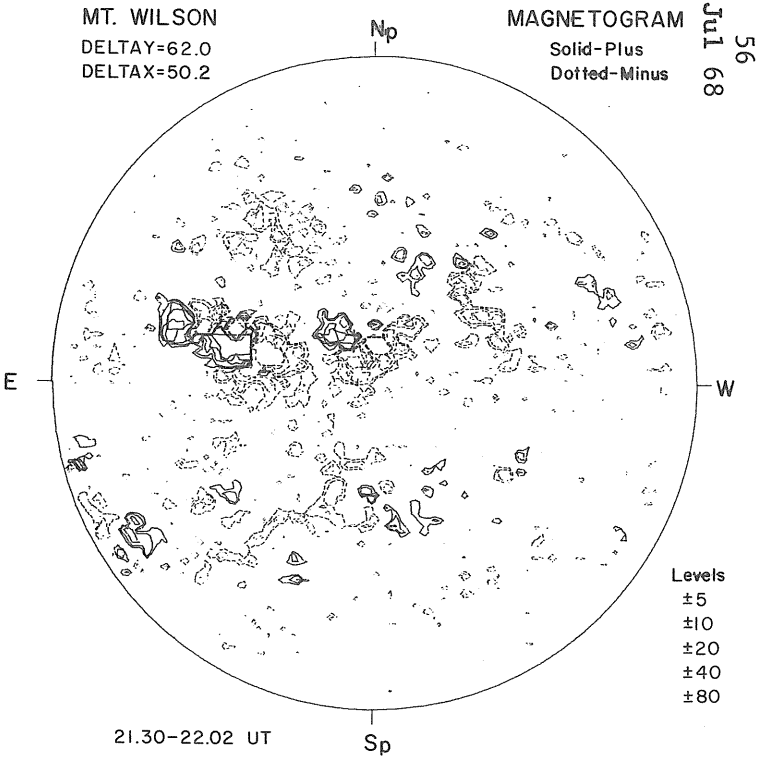
1310 UT

ESSA-BOULDER SUNSPOTS



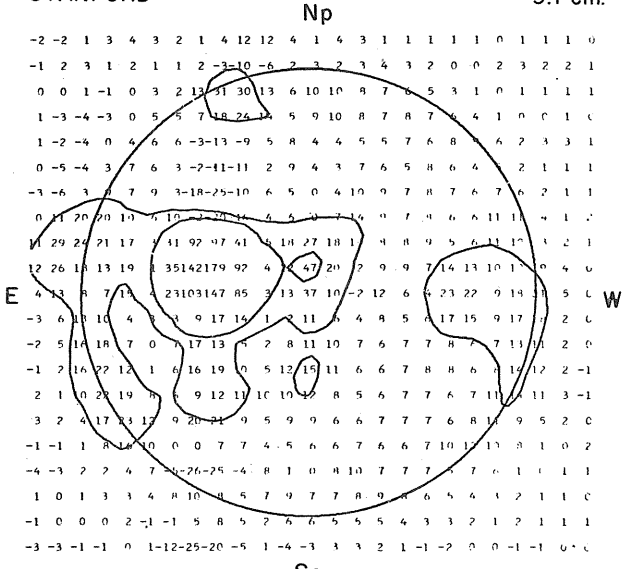
1425 UT

MT. WILSON MAGNETOGRAM
DELTAY=62.0
DELTAX=50.2
Solid-Plus
Dotted-Minus



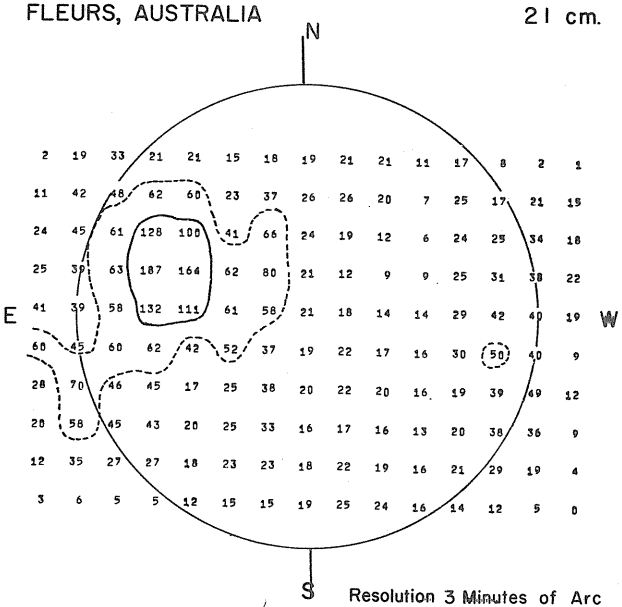
21.30-22.02 UT

STANFORD 9.1 cm.



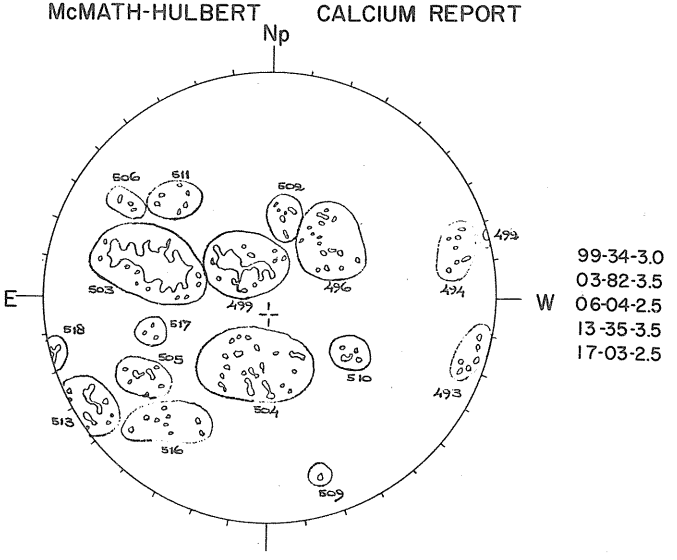
20-21 UT Brightness Unit 5000° K

FLEURS, AUSTRALIA 21 cm.



Resolution 3 Minutes of Arc
02-03 UT Brightness Unit 1,700° K

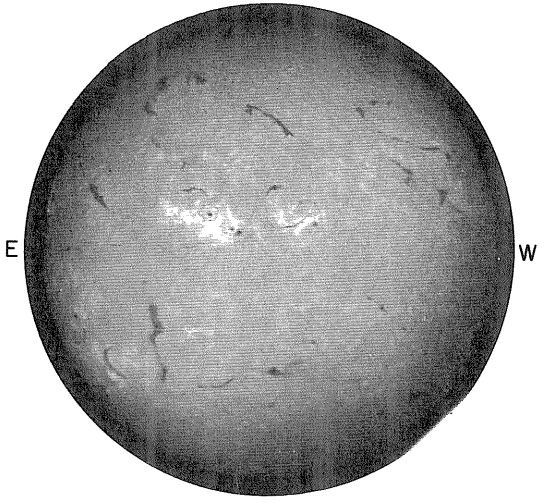
McMATH-HULBERT CALCIUM REPORT



1220 UT

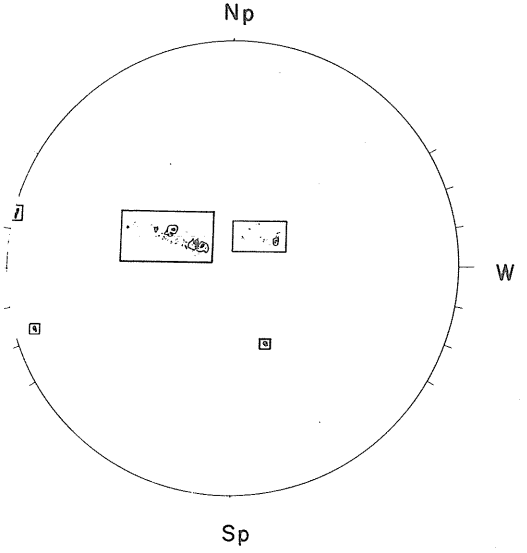
JULY 11, 1968 (P=1.87, B_o=3.99, L_o=181.15)

BOULDER Hα



1533 UT

ESSA-BOULDER SUNSPOTS

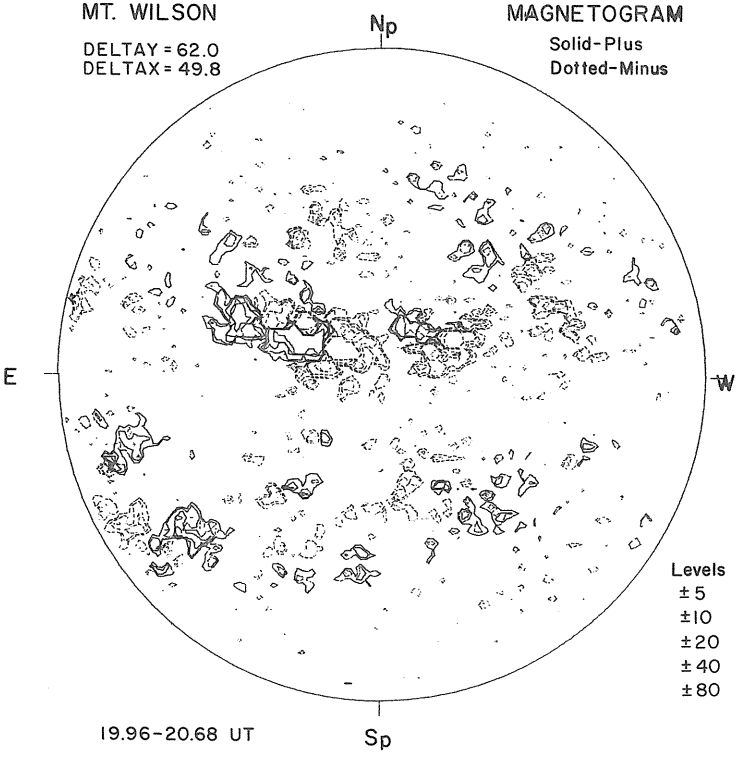


1525 UT

MT. WILSON MAGNETOGRAM

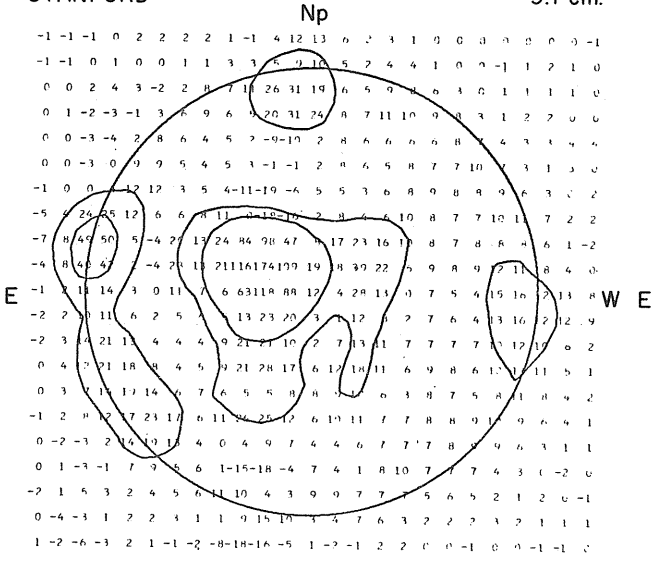
DELTAY = 62.0
DELTAX = 49.8

Solid-Plus
Dotted-Minus



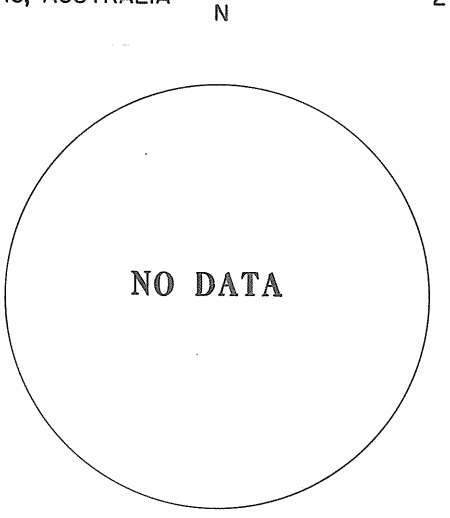
19.96-20.68 UT

STANFORD 9.1 cm.



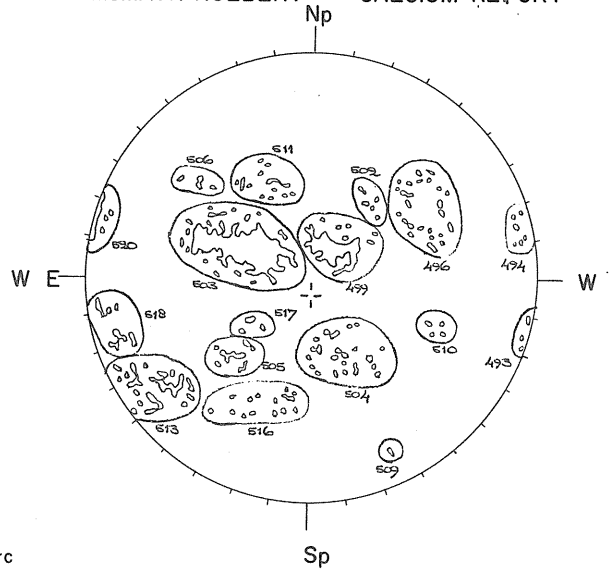
20-21 UT Brightness Unit 5000° K

FLEURS, AUSTRALIA 21 cm.



Resolution 3 Minutes of Arc
02-03 UT Brightness Unit 1,700° K

McMATH-HULBERT CALCIUM REPORT

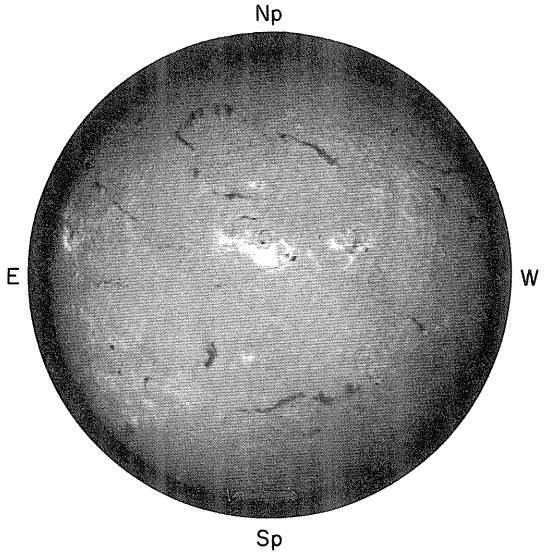


1200 UT

57
Jul 68

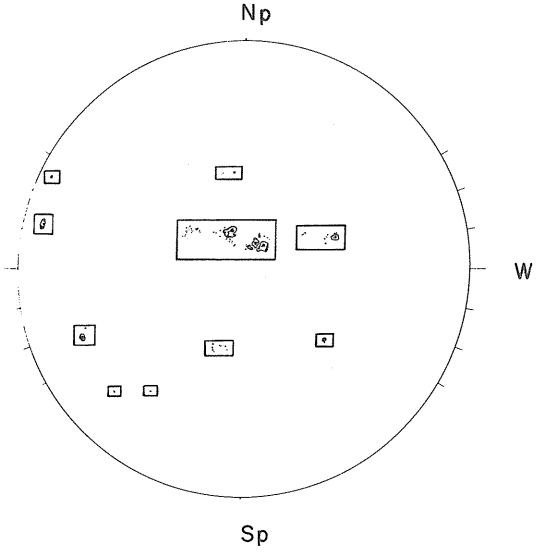
JULY 12, 1968 (P=2.32, B_o=4.09, L_o=167.92)

BOULDER Hα



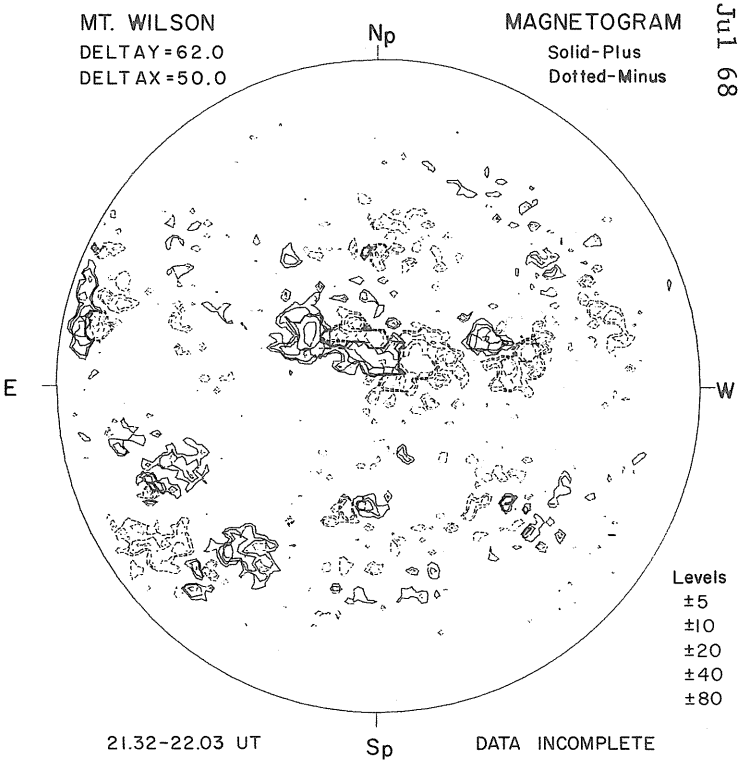
1638 UT

ESSA-BOULDER SUNSPOTS



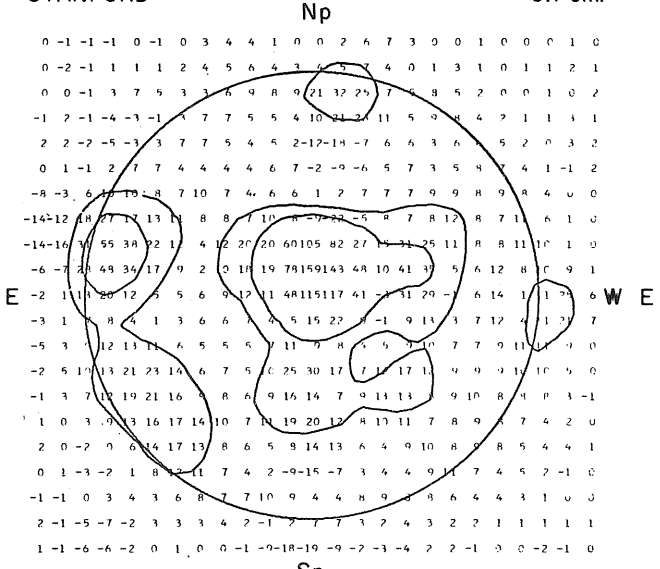
1348 UT

MT. WILSON MAGNETOGRAM
DELTAY=62.0 Solid-Plus
DELTAX=50.0 Dotted-Minus



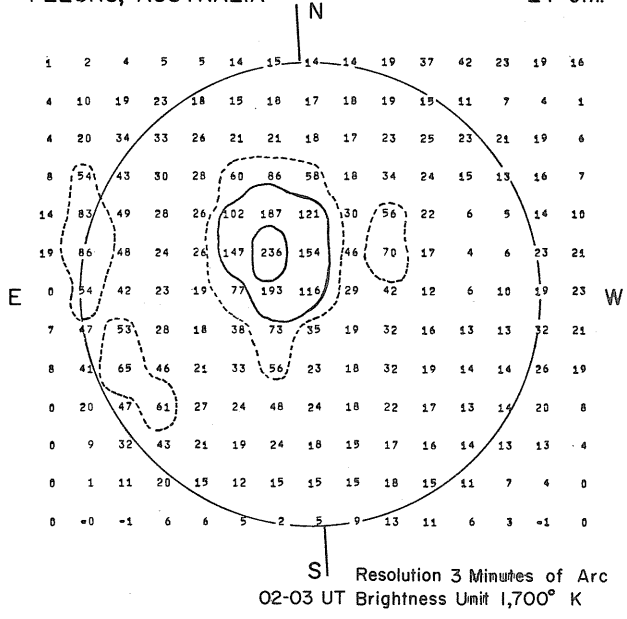
21.32-22.03 UT DATA INCOMPLETE

STANFORD 9.1 cm.



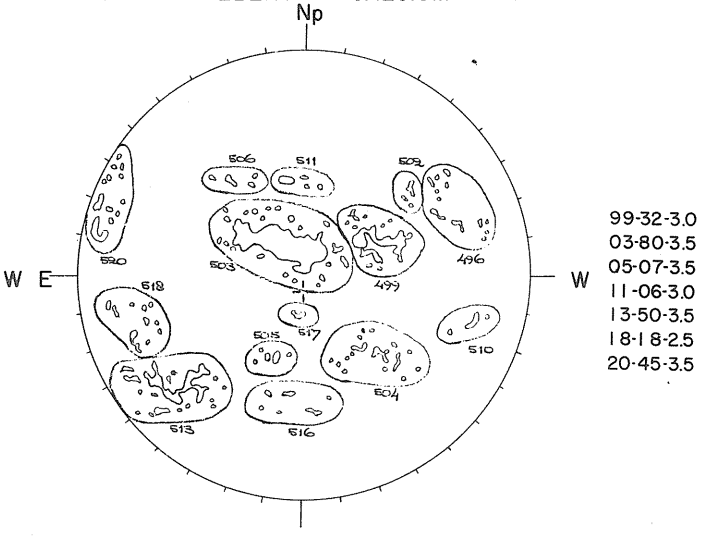
20-21 UT Brightness Unit 5000° K

FLEURS, AUSTRALIA 21 cm.



Resolution 3 Minutes of Arc
02-03 UT Brightness Unit 1,700° K

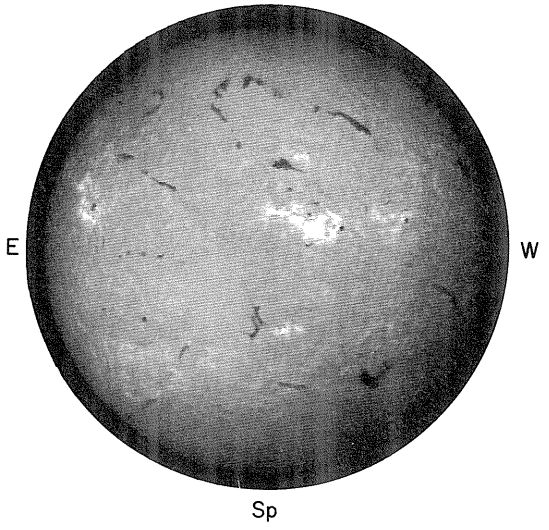
McMATH-HULBERT CALCIUM REPORT



1215 UT

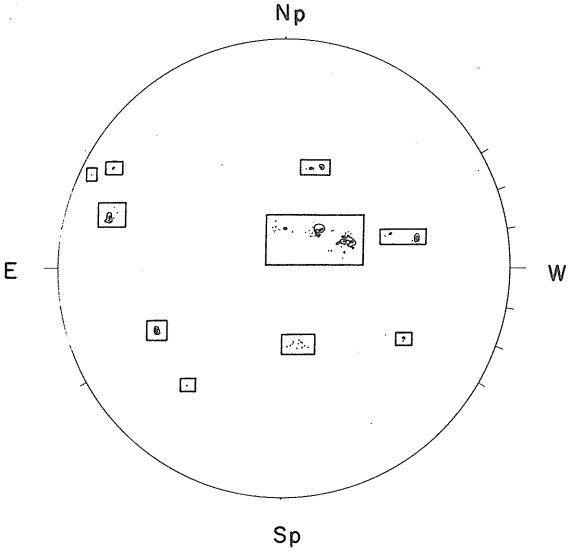
JULY 13, 1968 (P=2.77, B_o=4.19, L_o=154.68)

BOULDER Hα



1733 UT

ESSA-BOULDER SUNSPOTS

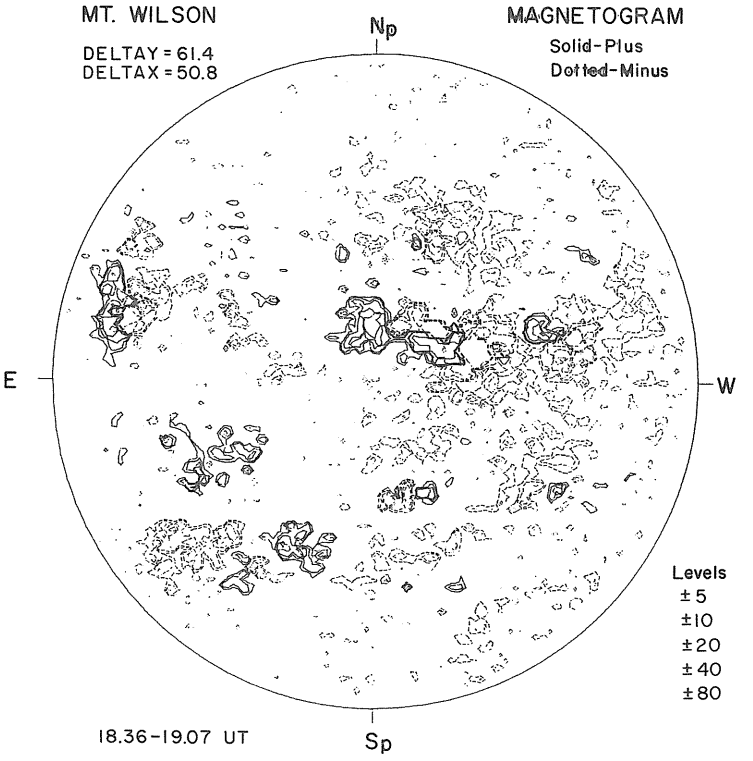


1345 UT

MT. WILSON MAGNETOGRAM

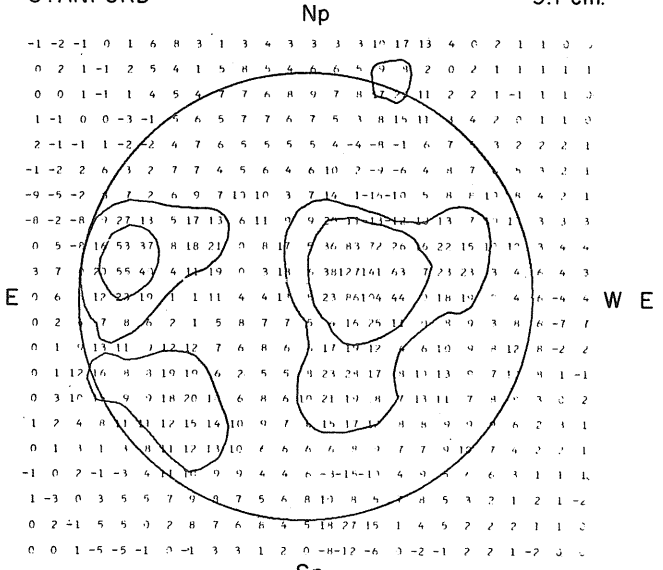
DELTAY = 61.4
DELTAX = 50.8

Solid-Plus
Dotted-Minus



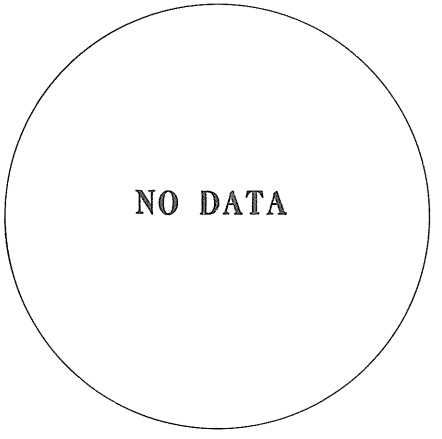
18.36-19.07 UT

STANFORD 9.1 cm.



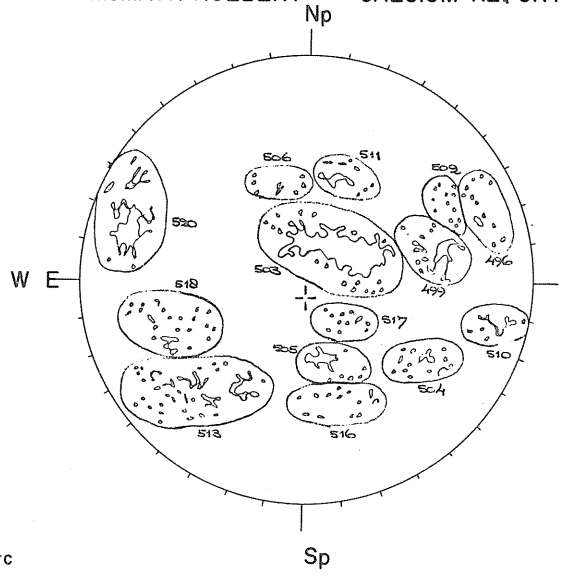
20-21 UT Brightness Unit 5000° K

FLEURS, AUSTRALIA N 21 cm.



S Resolution 3 Minutes of Arc
02-03 UT Brightness Unit 1,700° K

McMATH-HULBERT CALCIUM REPORT



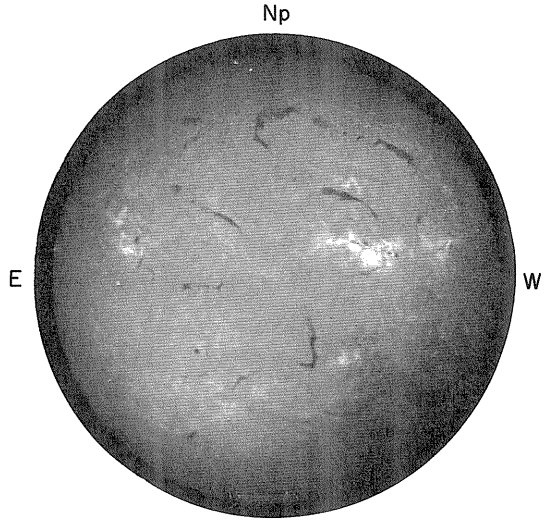
99-28-2.5
03-82-3.0
05-12-2.5
13-46-2.5
20-67-3.0

1320 UT

59
Jul 68

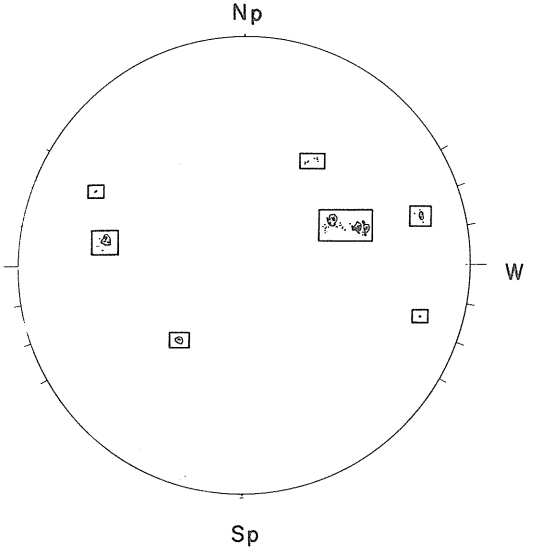
JULY 14, 1968 (P=3.22, B_o=4.28, L_o=141.45)

BOULDER Hα



1648 UT

ESSA-BOULDER SUNSPOTS

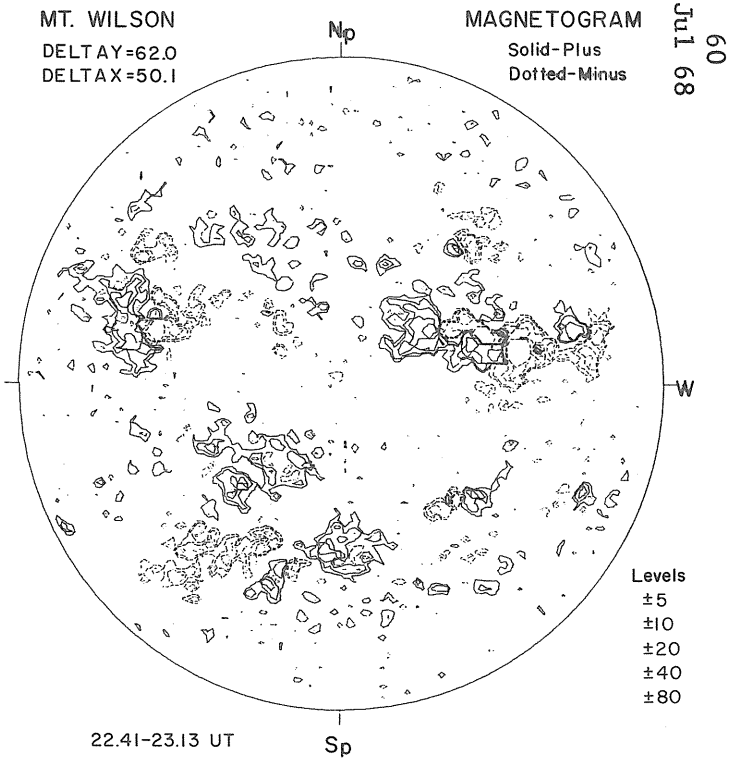


2000 UT

MT. WILSON MAGNETOGRAM

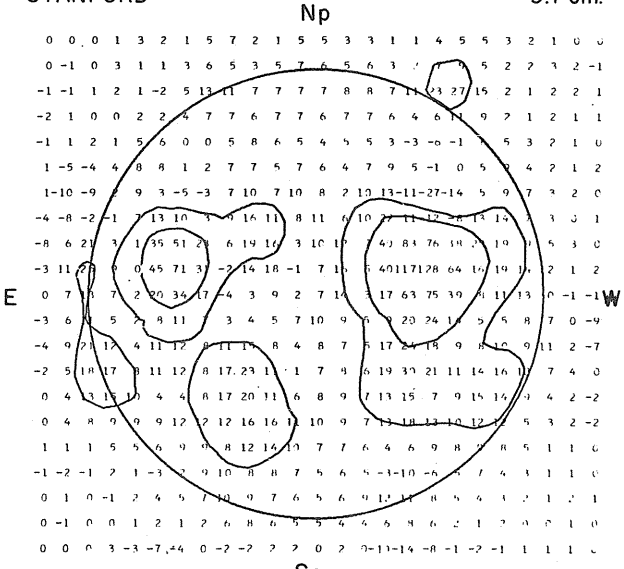
DELTAY=62.0
DELTAX=50.1

Solid-Plus
Dotted-Minus



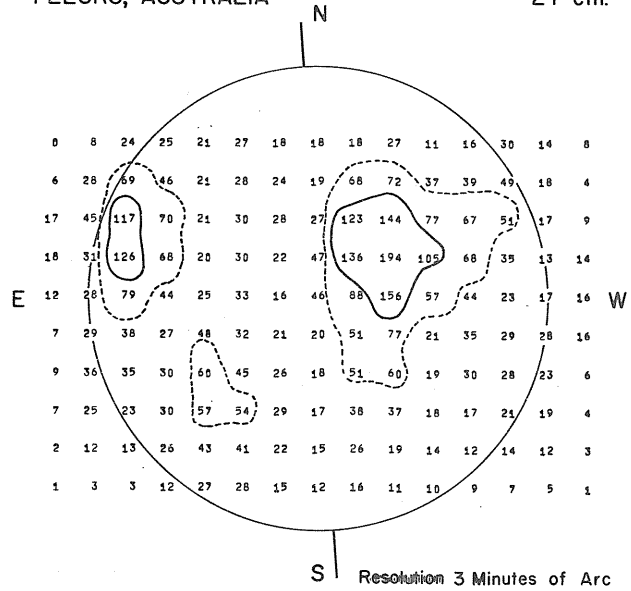
22.41-23.13 UT

STANFORD 9.1 cm.



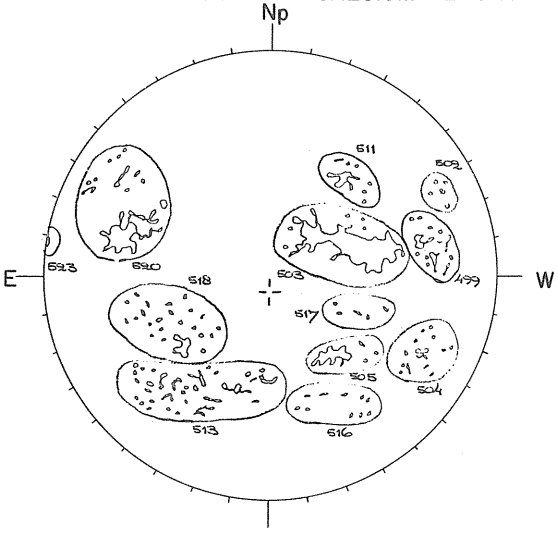
20-21 UT Brightness Unit 5000° K

FLEURS, AUSTRALIA 21 cm.



Resolution 3 Minutes of Arc
02-03 UT Brightness Unit 1,700° K

McMATH-HULBERT CALCIUM REPORT



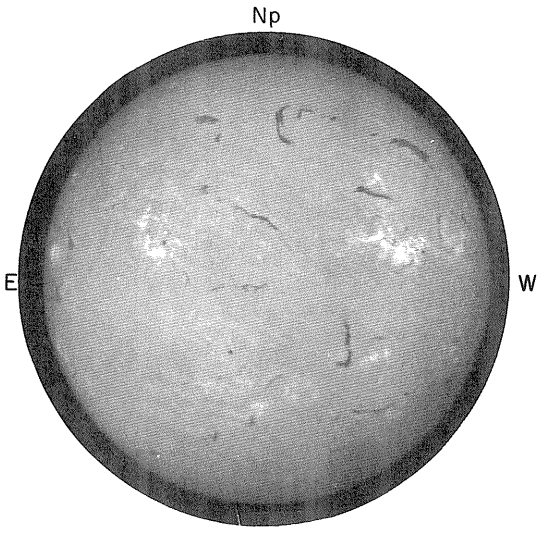
99-25-2.5
03-83-3.0
05-14-2.5
11-12-2.5
13-38-2.0
20-62-3.0
23-08-3.0

1400 UT

JULY 15, 1968 (P=3.66, B_o=4.38, L_o=128.22)

BOULDER

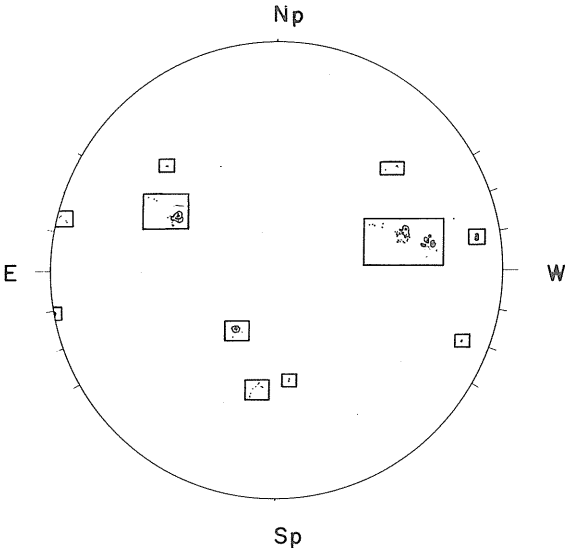
H α



1400 UT

ESSA-BOULDER

SUNSPOTS



1428 UT

MT. WILSON

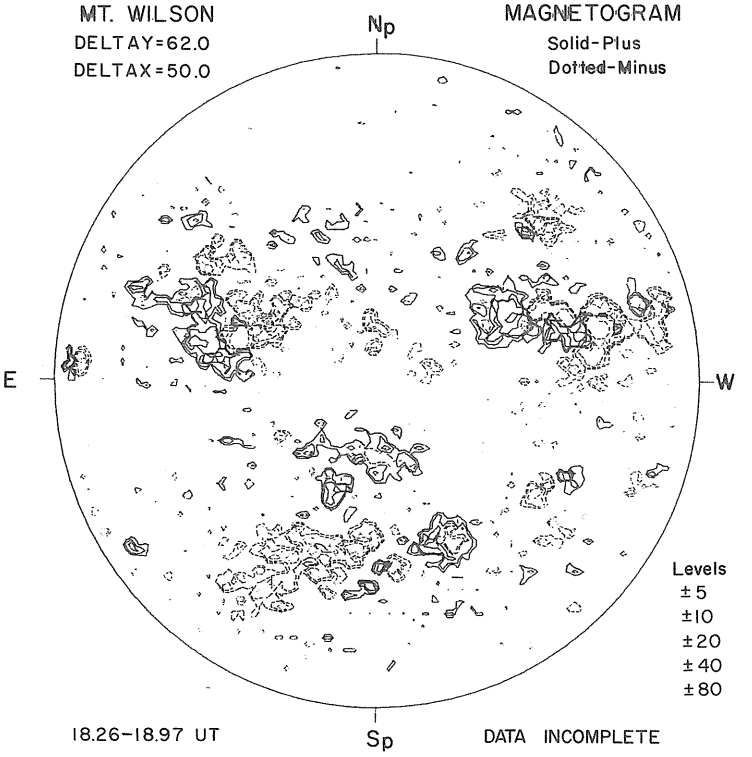
DELTAY=62.0

DELTAX=50.0

MAGNETOGRAM

Solid-Plus

Dotted-Minus

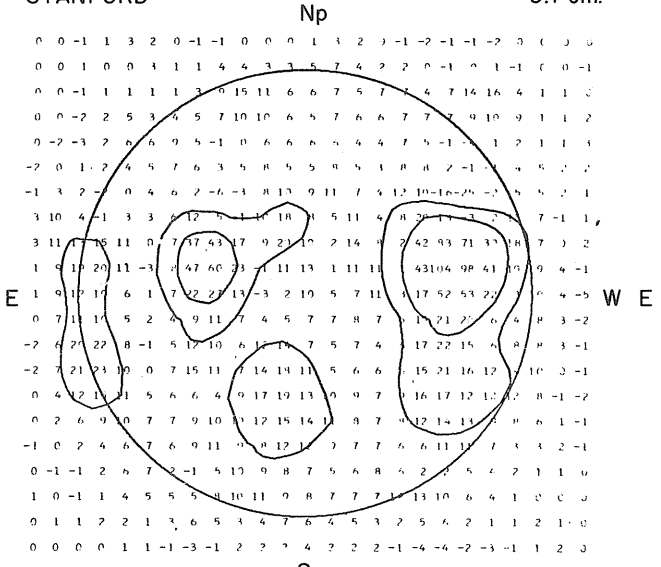


18.26–18.97 UT

DATA INCOMPLETE

STANFORD

9.1 cm.

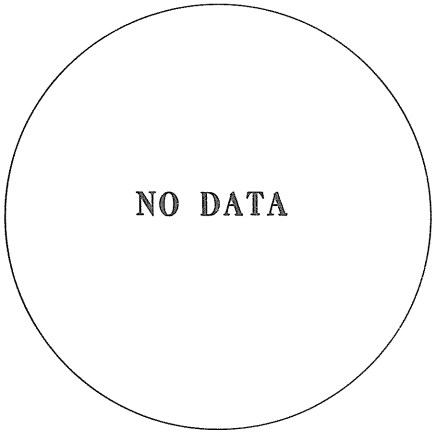


20-21 UT

Brightness Unit 5000° K

FLEURS, AUSTRALIA

N



S

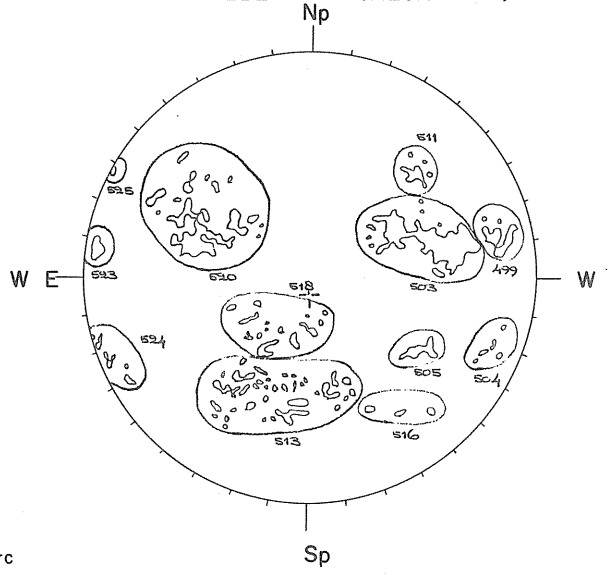
Resolution 3 Minutes of Arc

02-03 UT Brightness Unit 1,700° K

21 cm.

McMATH-HULBERT

CALCIUM REPORT



99-30-2.5

03-83-3.0

05-12-3.0

11-12-3.0

13-51-2.5

20-69-2.5

23-33-3.0

24-14-3.0

25-03-2.5

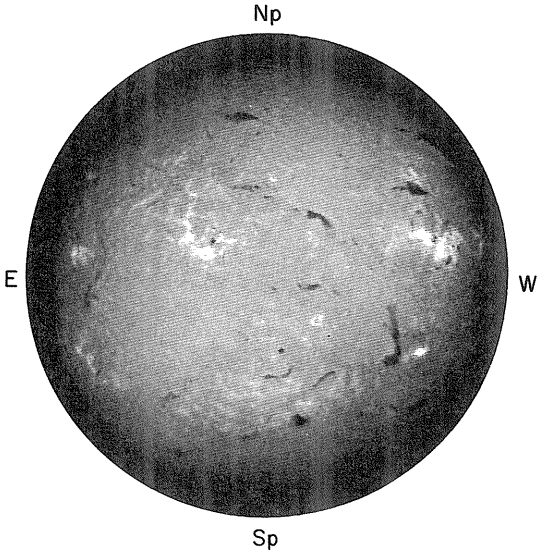
1250 UT

61

Jul 68

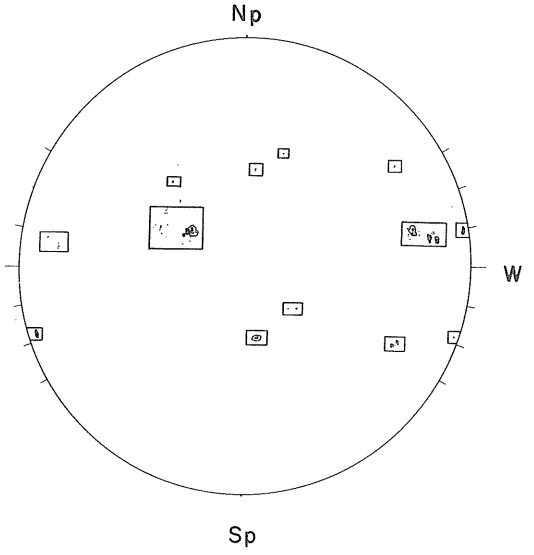
JULY 16, 1968 (P=4.11, B_o=4.48, L_o=114.98)

BOULDER Hα



1336 UT

ESSA-BOULDER SUNSPOTS

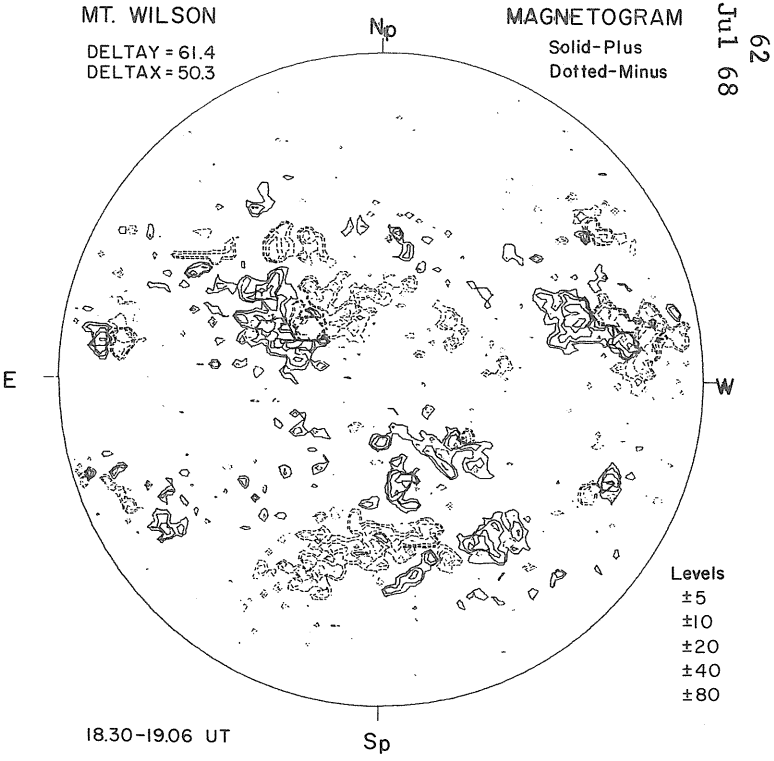


1405 UT

MT. WILSON MAGNETOGRAM

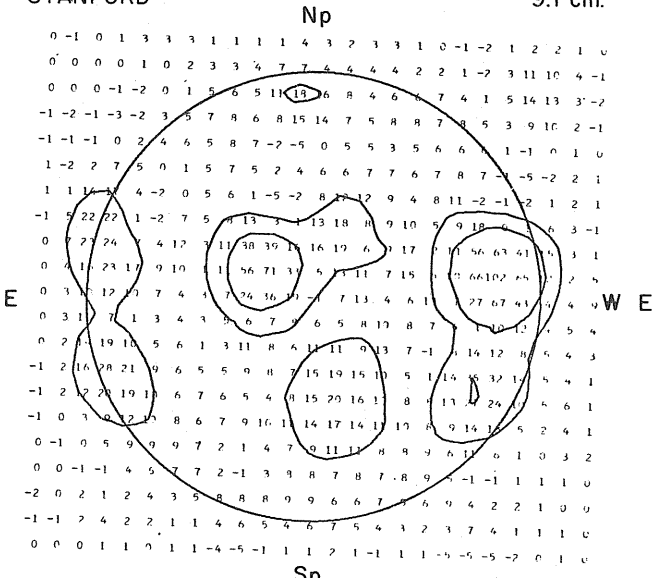
DELTAY = 61.4
DELTAX = 50.3

Solid-Plus
Dotted-Minus



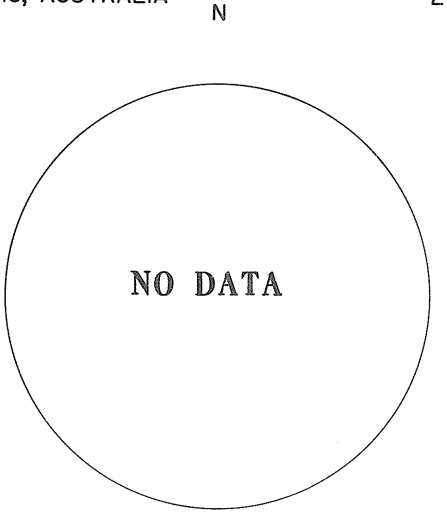
18.30-19.06 UT

STANFORD 9.1 cm.



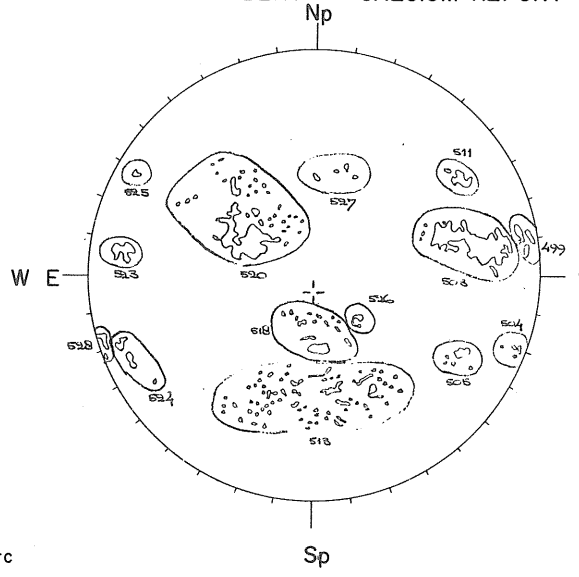
20-21 UT Brightness Unit 5000° K

FLEURS, AUSTRALIA 21 cm.



Resolution 3 Minutes of Arc
02-03 UT Brightness Unit 1,700° K

McMATH-HULBERT CALCIUM REPORT

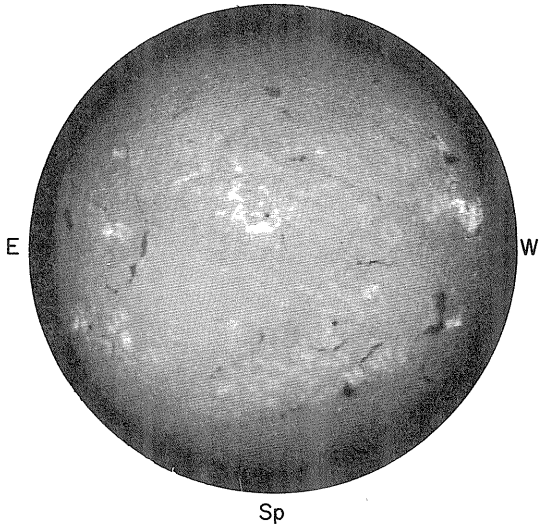


99-31-2.5
03-82-3.0
05-11-3.0
11-10-2.5
13-51-2.5
20-65-3.0
23-20-3.0
24-13-2.5
26-02-2.5
27-04-2.5

1300 UT

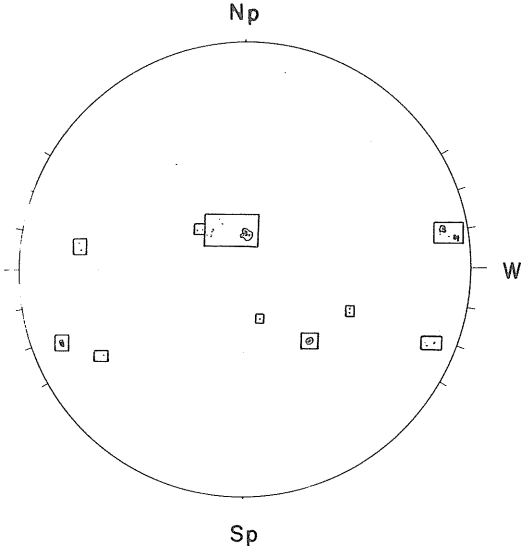
JULY 17, 1968 (P=4.55, B_o=4.57, L_o=101.75)

BOULDER Hα



1405 UT

ESSA-BOULDER SUNSPOTS

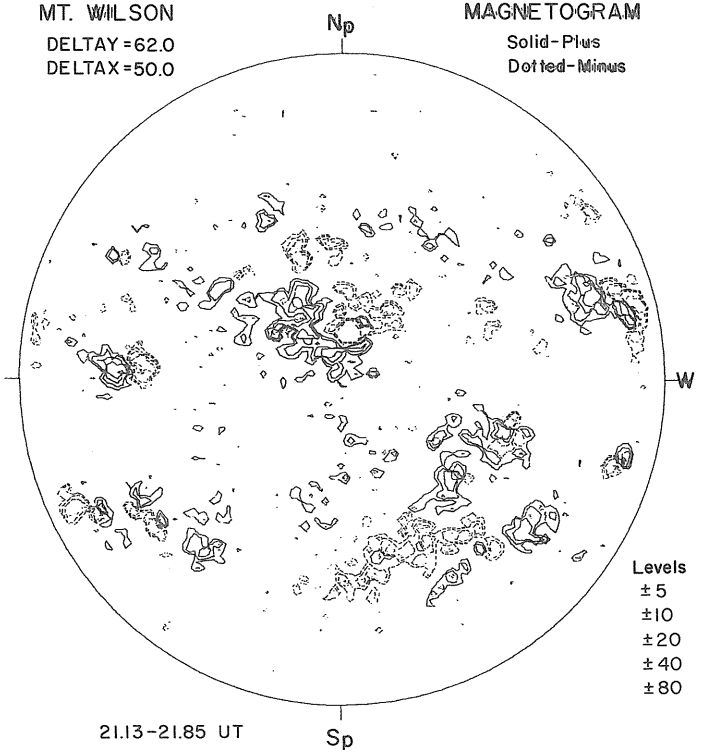


1545 UT

MT. WILSON MAGNETOGRAM

DELTAY=62.0
DELTAX=50.0

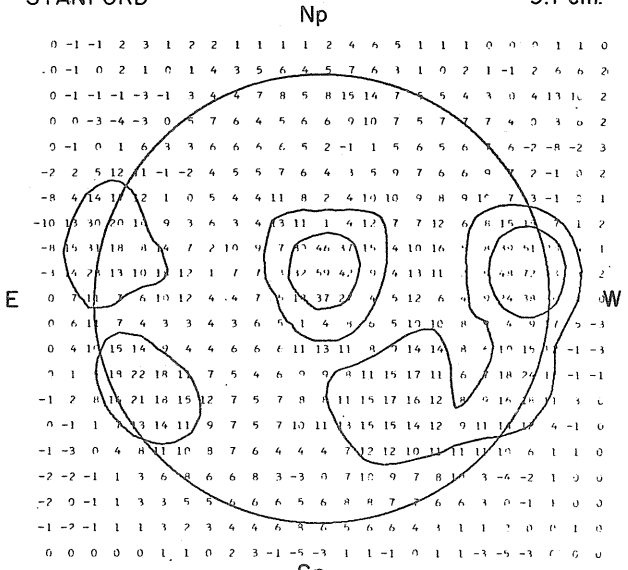
Solid-Plus
Dotted-Minus



Levels
±5
±10
±20
±40
±80

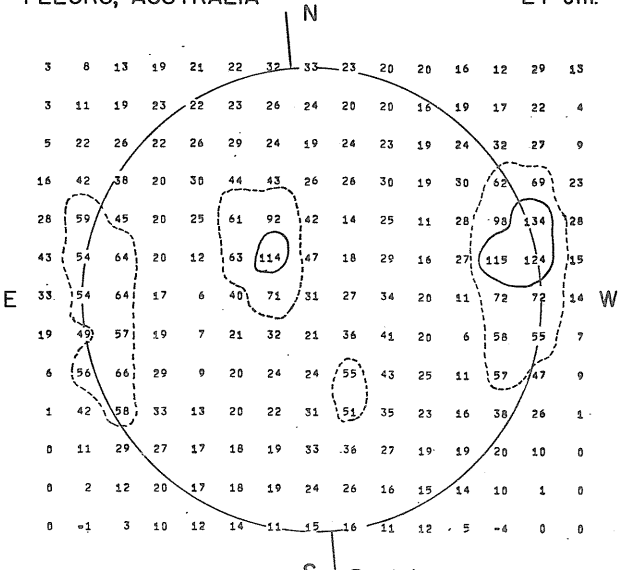
21.13-21.85 UT

STANFORD 9.1 cm.



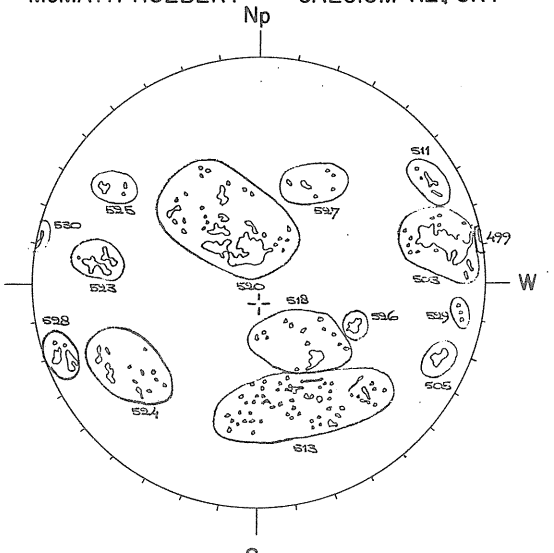
20-21 UT Brightness Unit 5000° K

FLEURS, AUSTRALIA 21 cm.



Resolution 3 Minutes of Arc
02-03 UT Brightness Unit 1,700° K

McMATH-HULBERT CALCIUM REPORT



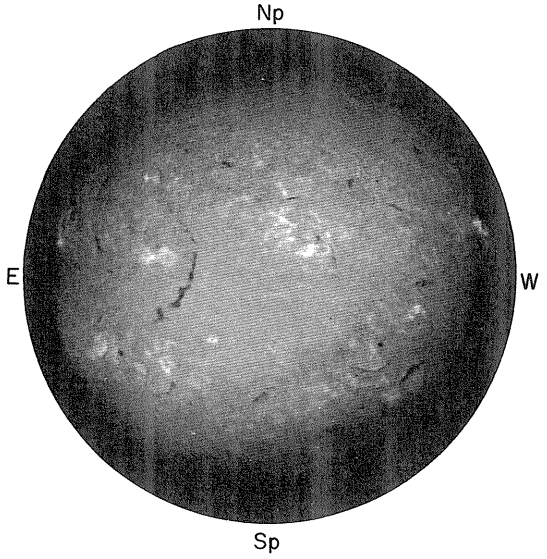
03-80-3.0
05-12-3.0
13-48-2.0
20-62-3.0
23-20-3.0
24-16-2.5
25-05-2.5
26-05-2.5
27-06-2.5

1400 UT

63
Jul 68

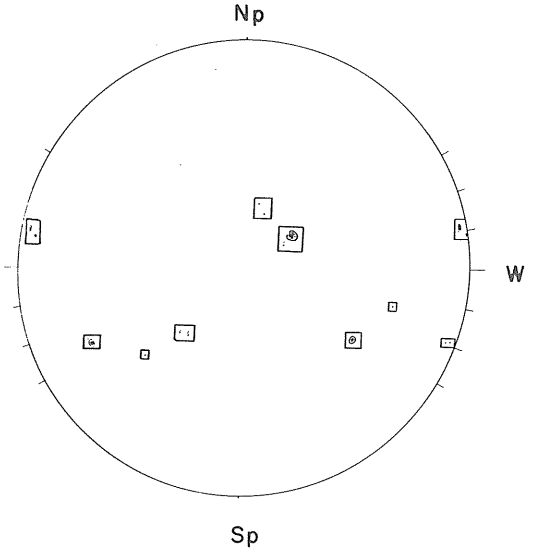
JULY 18, 1968 (P=4.99, B_o=4.66, L_o=88.52)

BOULDER Hα



1600 UT

ESSA-BOULDER SUNSPOTS

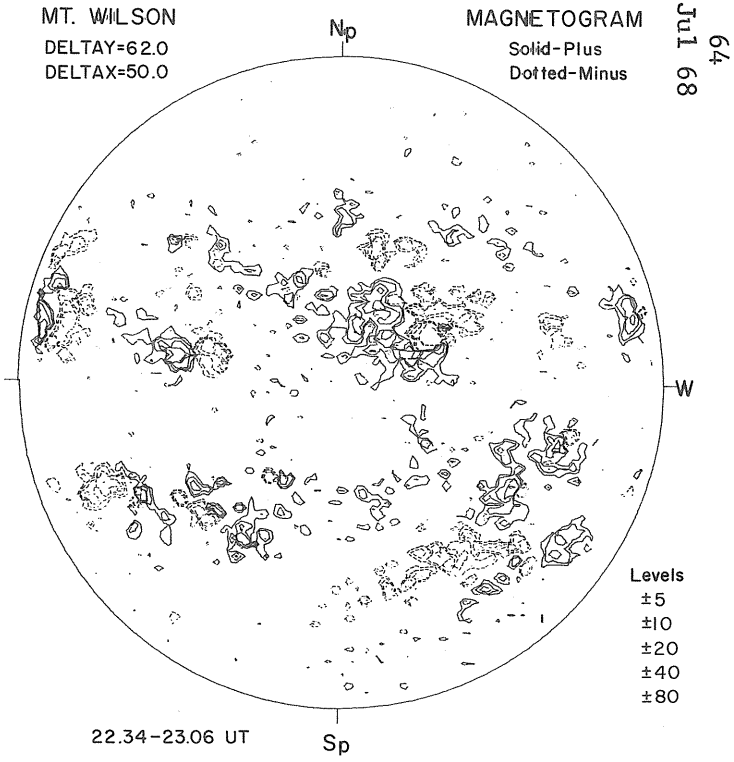


1525 UT

MT. WILSON MAGNETOGRAM

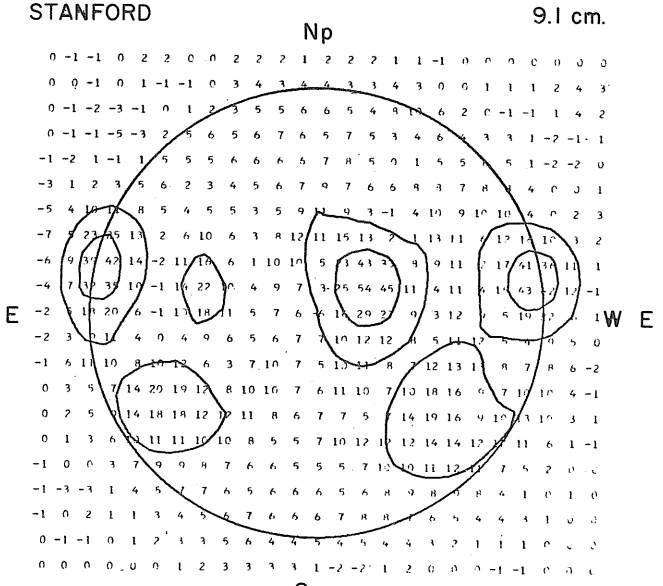
DELTAY=62.0
DELTAX=50.0

Solid-Plus
Dotted-Minus



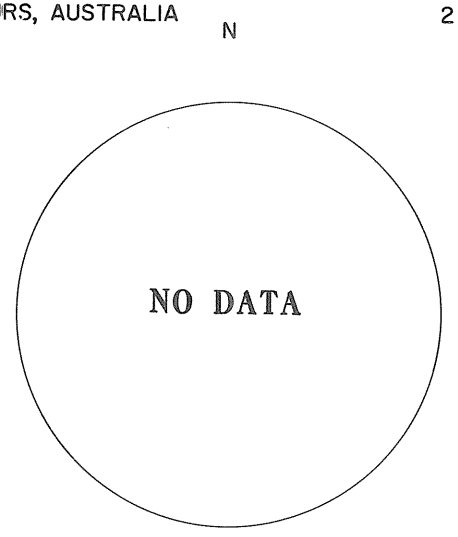
22.34-23.06 UT

STANFORD 9.1 cm.



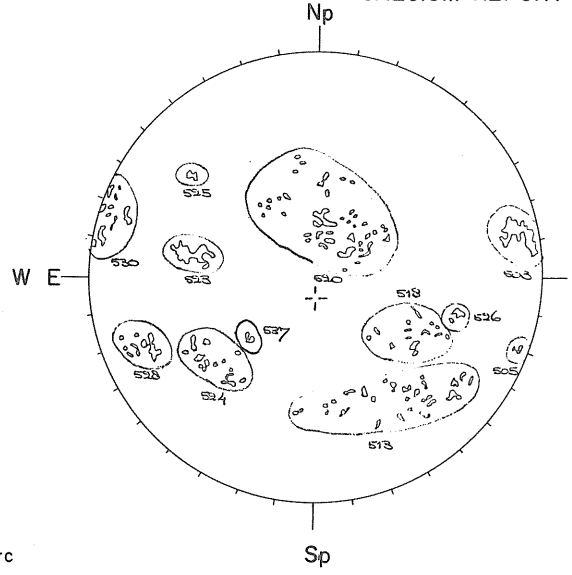
20-21 UT Brightness Unit 5000° K

FLEURS, AUSTRALIA 21 cm.



02-03 UT Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

McMATH-HULBERT CALCIUM REPORT

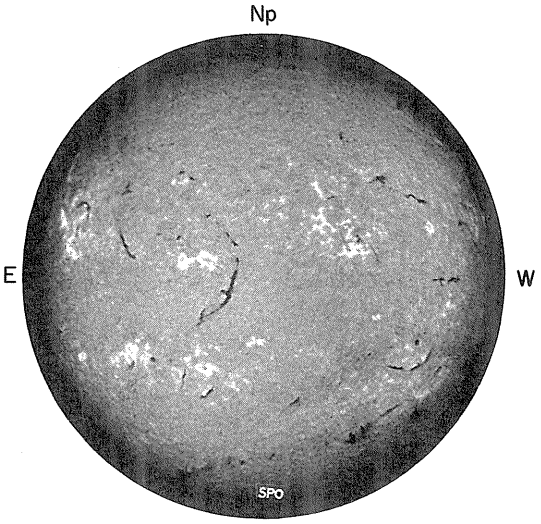


03-73-3.0
13-42-2.0
20-45-3.0
23-25-3.0
24-13-2.5
26-06-2.5
28-23-2.5
30-36-3.0
37-02-2.5

1305 UT

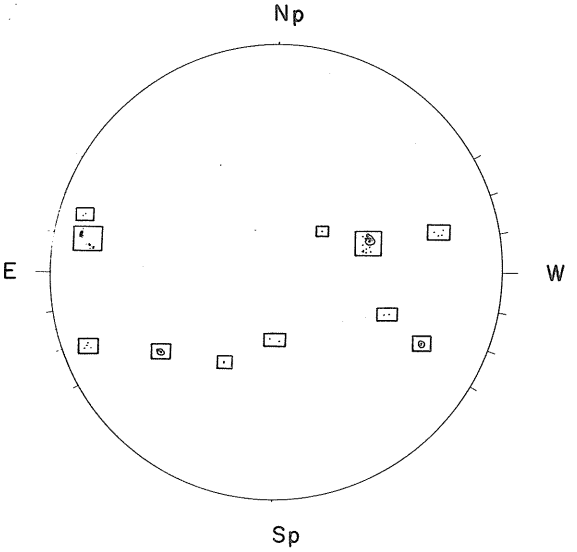
JULY 19, 1968 (P=5.42, B_o=4.75, L_o=75.29)

SACRAMENTO PEAK Hα



1411 UT

ESSA-BOULDER SUNSPOTS

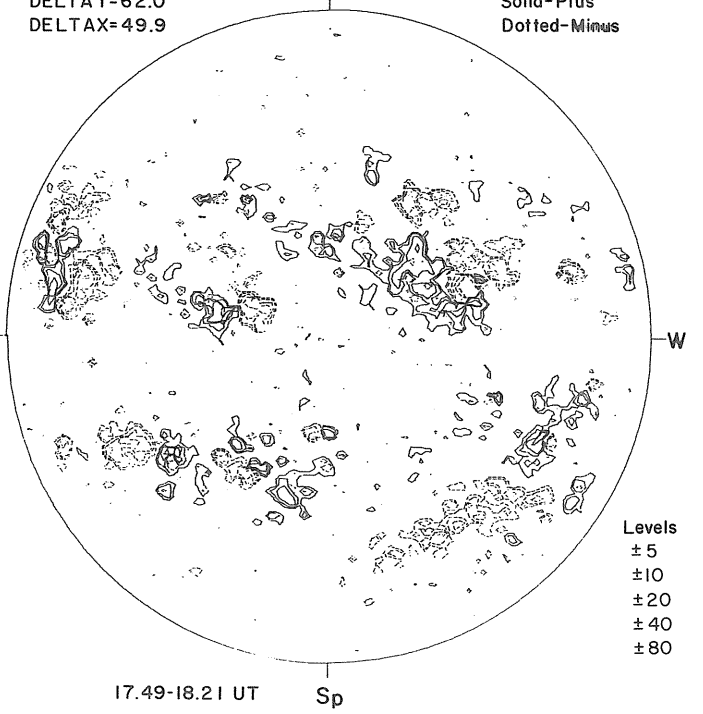


1340 UT

MT. WILSON MAGNETOGRAM

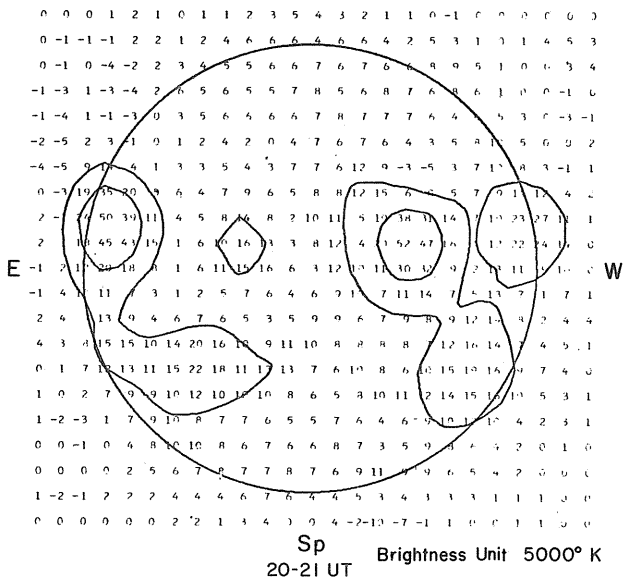
DELTAY=62.0
DELTAX=49.9

Solid-Plus
Dotted-Minus



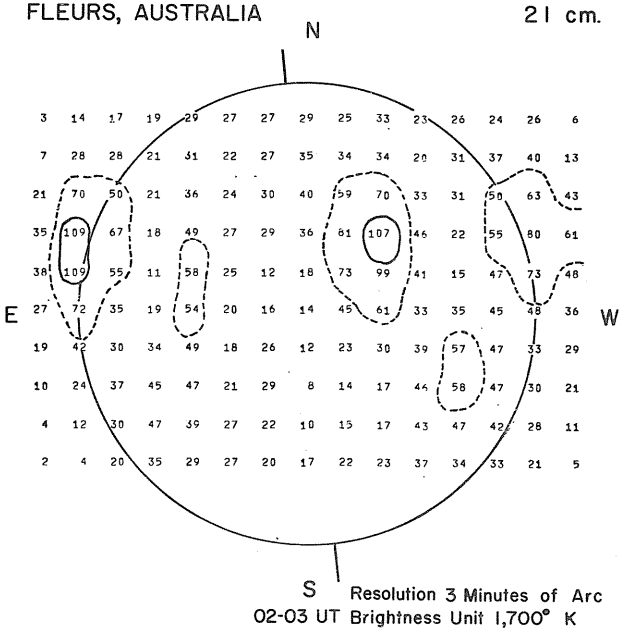
17.49-18.21 UT

STANFORD 9.1 cm.



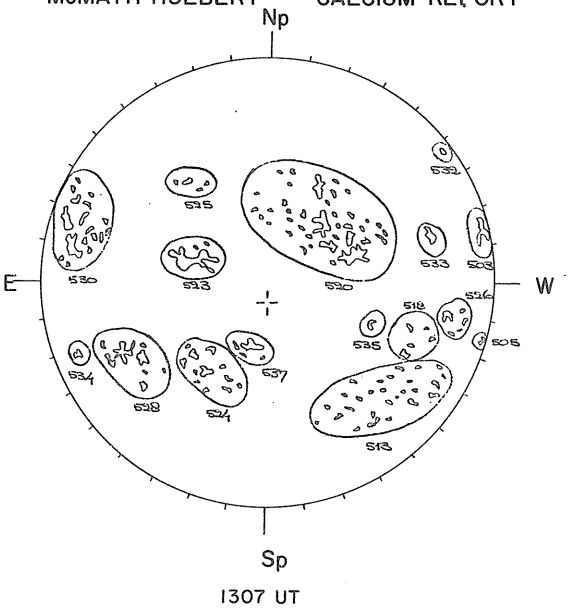
20-21 UT Brightness Unit 5000° K

FLEURS, AUSTRALIA 21 cm.



Resolution 3 Minutes of Arc
02-03 UT Brightness Unit 1,700° K

McMATH-HULBERT CALCIUM REPORT



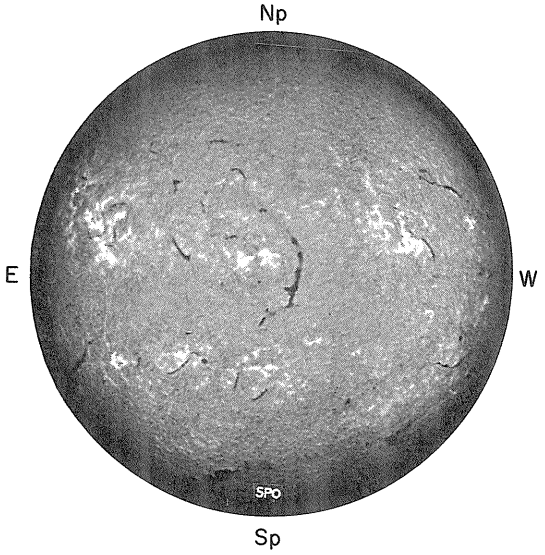
03-34-2.0
13-37-2.0
20-48-3.0
23-23-3.0
28-27-2.5
30-54-3.0
33-08-2.5
34-03-2.5

1307 UT

65
Jul 68

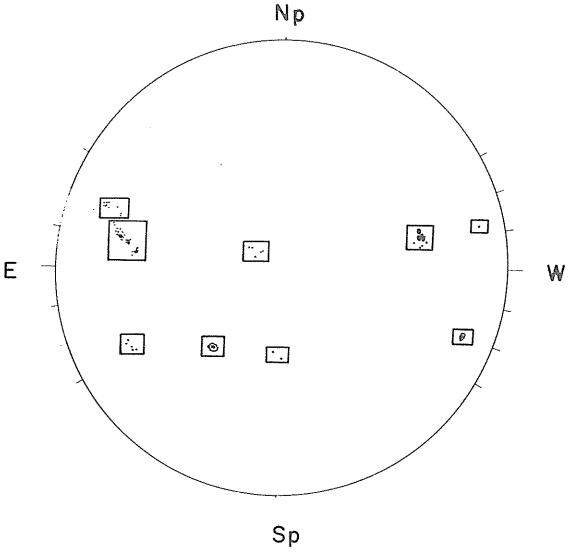
JULY 20, 1968 (P=5.86, B_o=4.84, L_o=62.06)

SACRAMENTO PEAK Hα



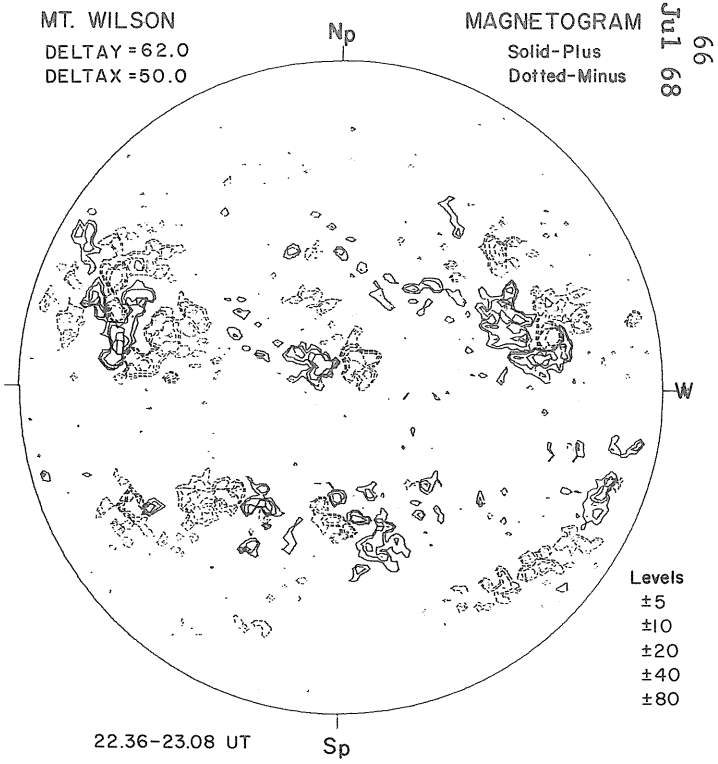
1432 UT

ESSA-BOULDER SUNSPOTS



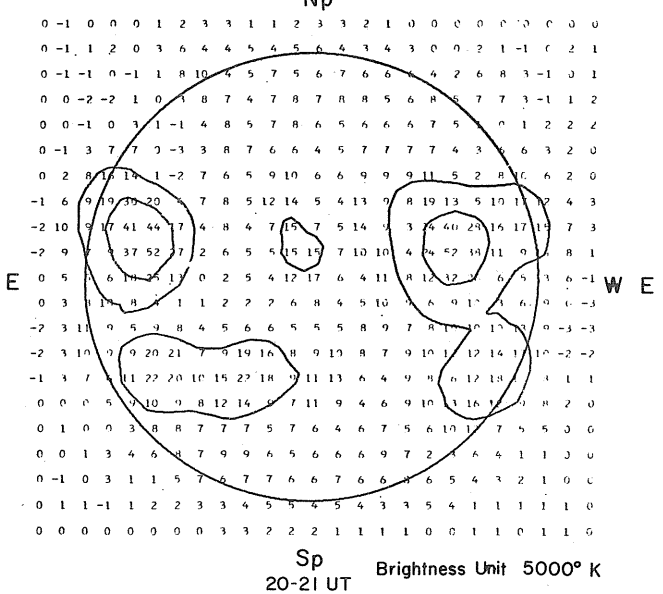
1530 UT

MT. WILSON MAGNETOGRAM
DELTAY = 62.0
DELTAX = 50.0
Solid-Plus
Dotted-Minus



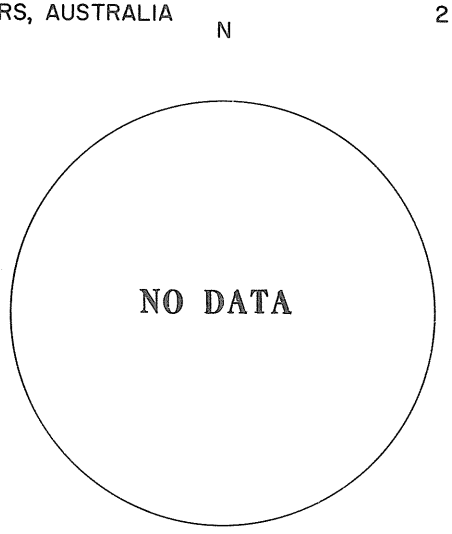
22.36–23.08 UT

STANFORD 9.1 cm.



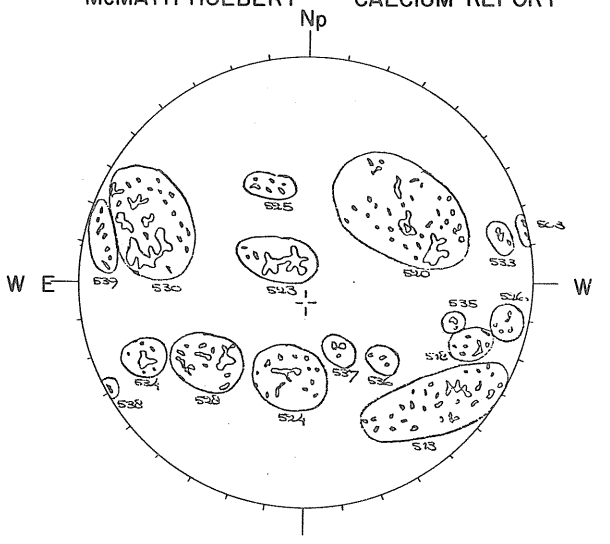
20-21 UT Brightness Unit 5000° K

FLEURS, AUSTRALIA 21 cm.



Resolution 3 Minutes of Arc
02-03 UT Brightness Unit 1,700° K

McMATH-HULBERT CALCIUM REPORT

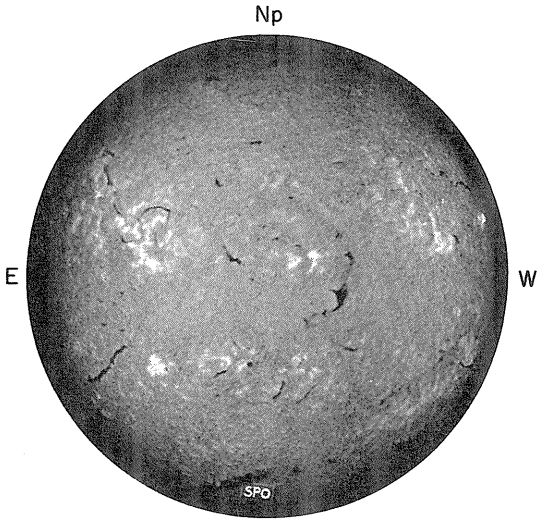


13-33-2.0
20-45-3.0
23-19-3.0
24-13-2.5
28-21-2.5
30-68-3.5
33-06-3.0
34-09-3.0

1300 UT

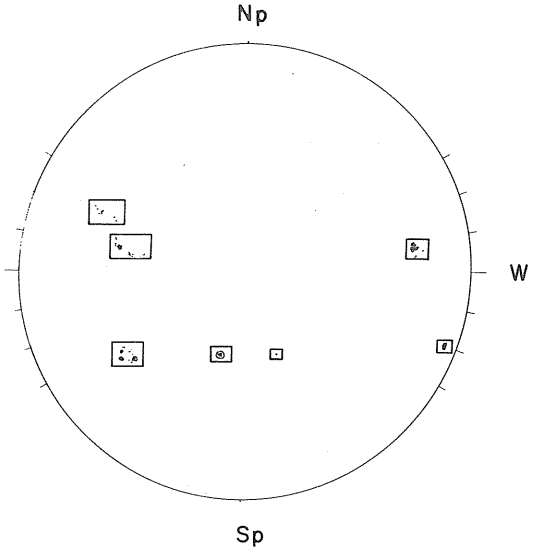
JULY 21, 1968 (P=6.29, B_o=4.93, L_o=48.83)

SACRAMENTO PEAK Hα



1417 UT

ESSA-BOULDER SUNSPOTS

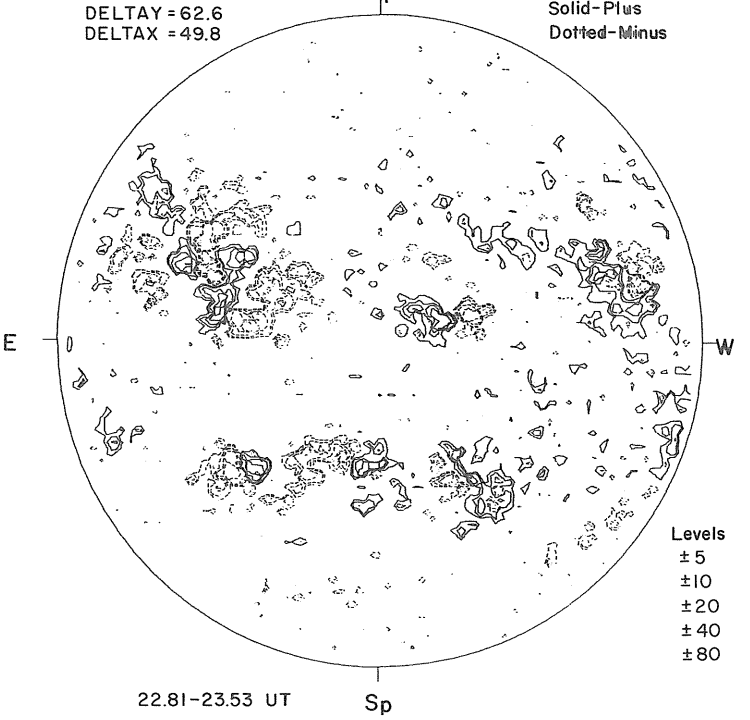


1415 UT

MT. WILSON MAGNETOGRAM

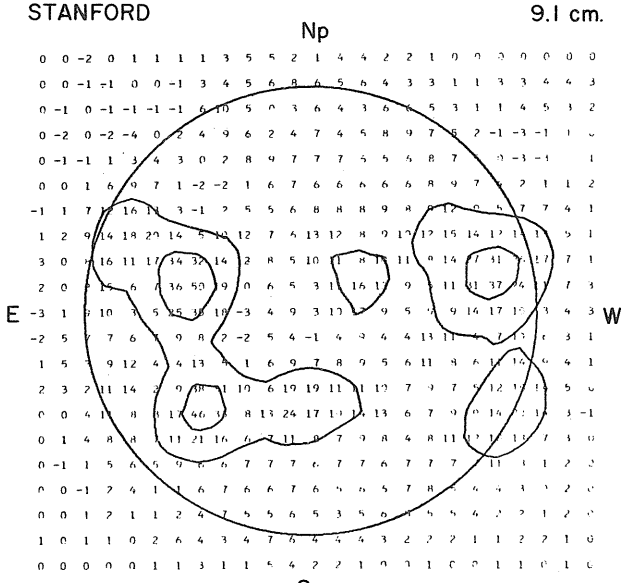
DELTAY = 62.6
DELTAX = 49.8

Solid-Plus
Dotted-Minus



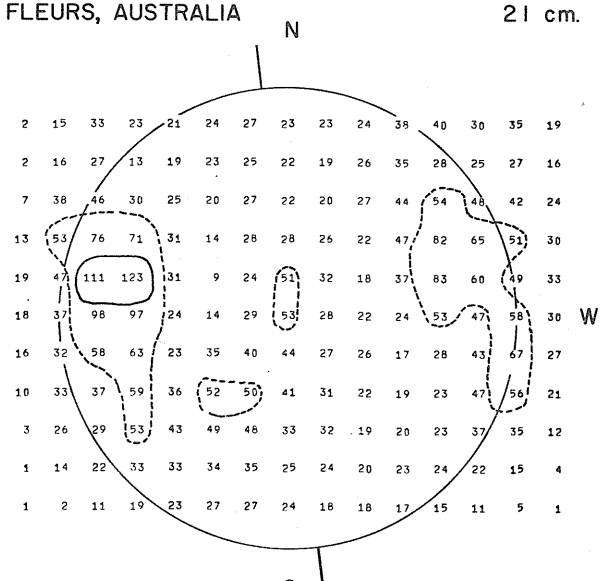
22.81-23.53 UT

STANFORD 9.1 cm.



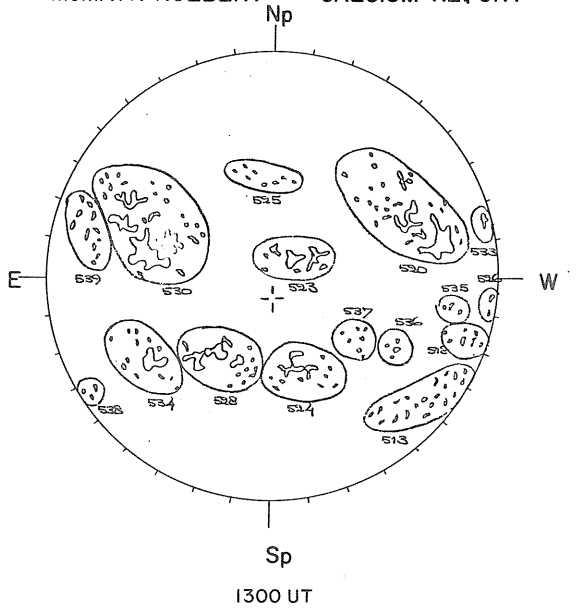
20-21 UT Brightness Unit 5000° K

FLEURS, AUSTRALIA 21 cm.



Resolution 3 Minutes of Arc
02-03 UT Brightness Unit 1,700° K

McMATH-HULBERT CALCIUM REPORT

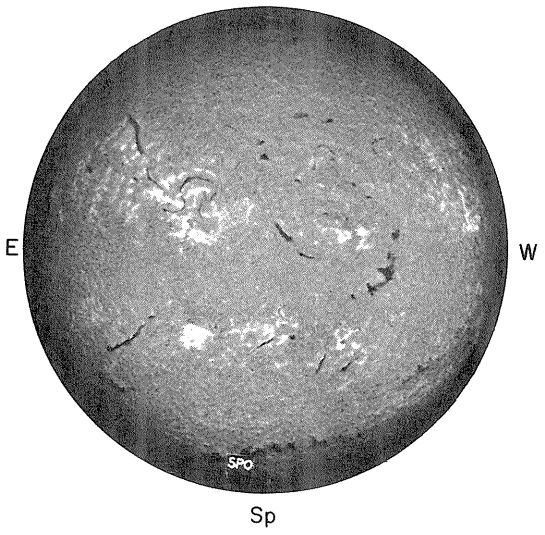


20-48-3.0
23-16-3.0
24-14-2.5
28-25-2.5
30-70-3.0
33-08-3.5
34-16-3.0

1300 UT

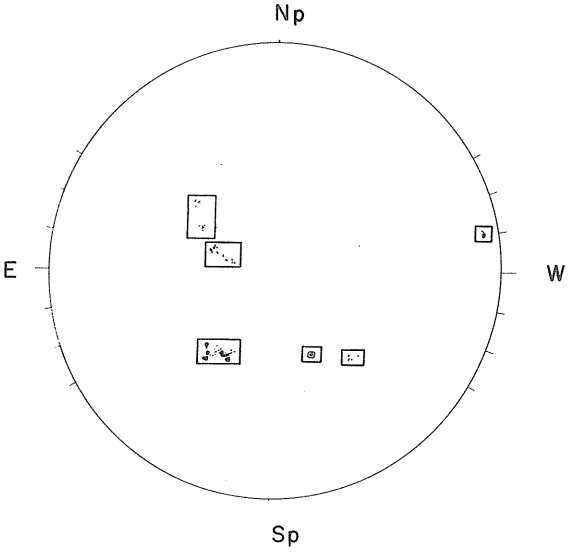
JULY 22, 1968 (P=6.72, B_o=5.02, L_o=35.60)

SACRAMENTO PEAK Hα



1424 UT

ESSA-BOULDER SUNSPOTS

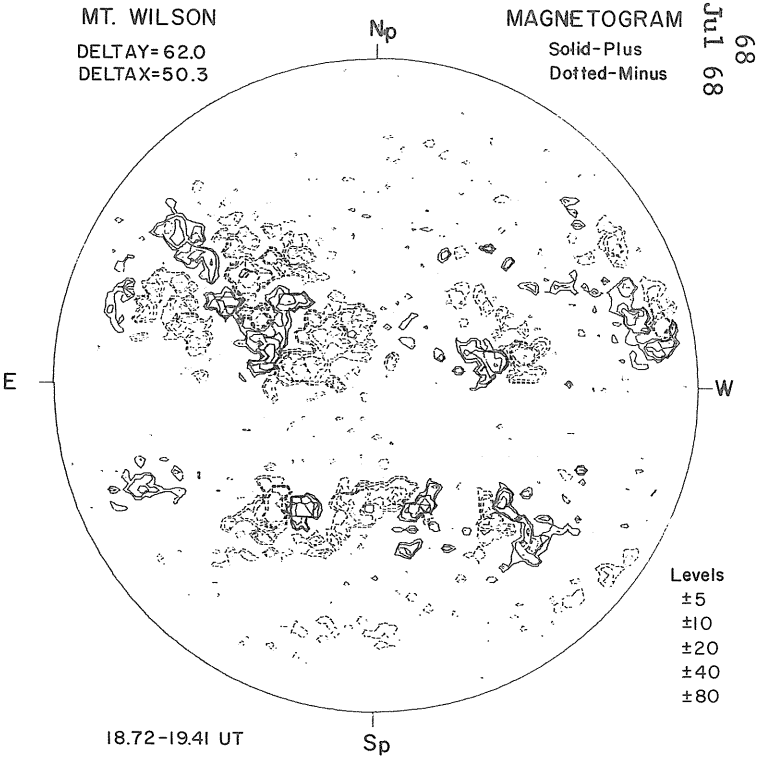


2030 UT

MT. WILSON MAGNETOGRAM

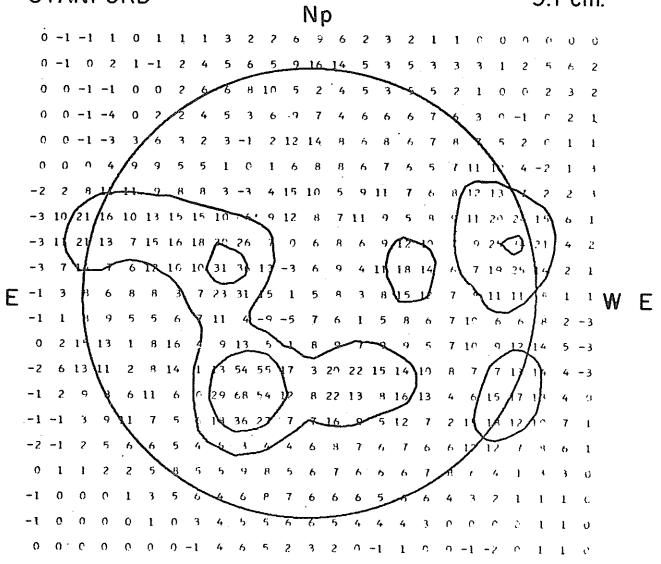
DELTAY=62.0
DELTAX=50.3

Solid-Plus
Dotted-Minus



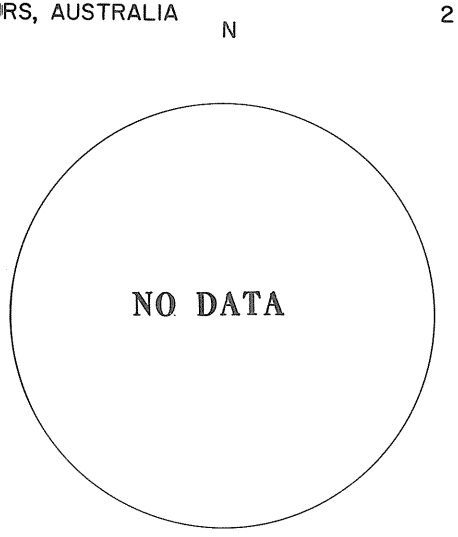
18.72-19.41 UT

STANFORD 9.1 cm.



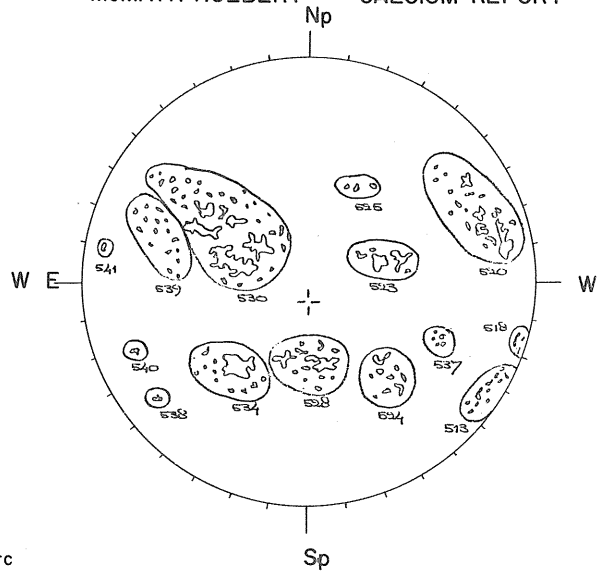
20-21 UT Brightness Unit 5000° K

FLEURS, AUSTRALIA 21 cm.



Resolution 3 Minutes of Arc
02-03 UT Brightness Unit 1,700° K

McMATH-HULBERT CALCIUM REPORT

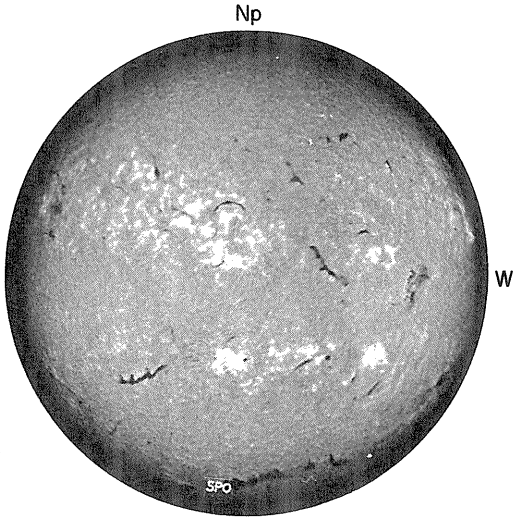


20-44-2.5
23-14-3.0
28-22-2.5
30-68-3.0
34-22-3.5

1308 UT

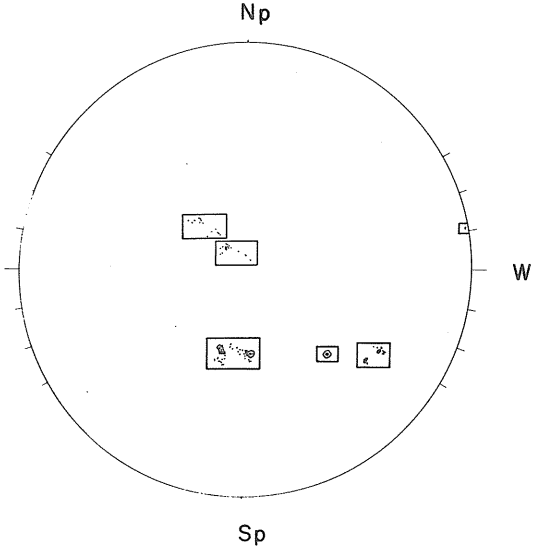
JULY 23, 1968 (P=7.15, B_o=5.11, L_o=23.37)

SACRAMENTO PEAK Hα



1429 UT

ESSA-BOULDER SUNSPOTS

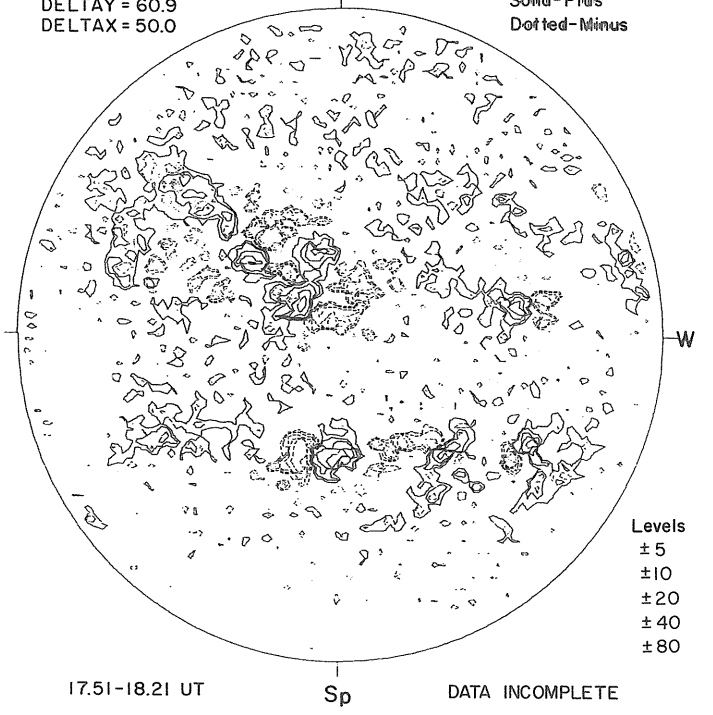


1930 UT

MT. WILSON MAGNETOGRAM

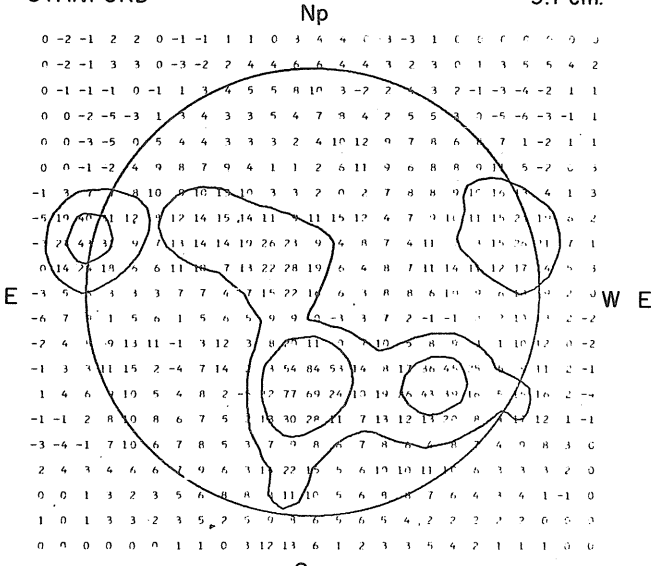
DELTAY = 60.9
DELTAX = 50.0

Solid-Plus
Dotted-Minus



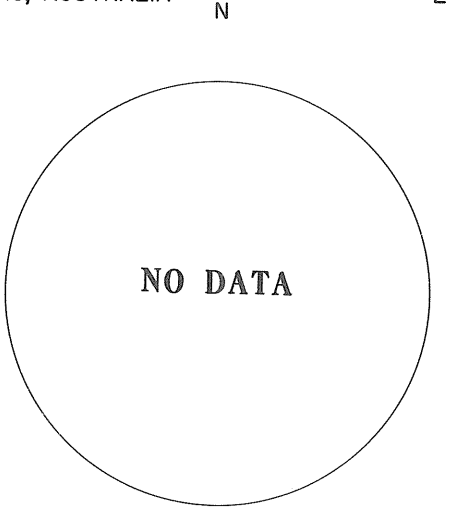
17.51-18.21 UT DATA INCOMPLETE

STANFORD 9.1 cm.



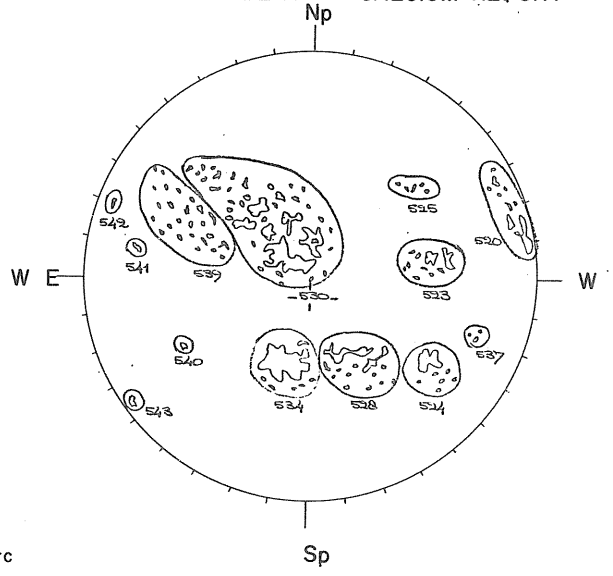
20-21 UT Brightness Unit 5000° K

FLEURS, AUSTRALIA 21 cm.



Resolution 3 Minutes of Arc
02-03 UT Brightness Unit 1,700° K

McMATH-HULBERT CALCIUM REPORT



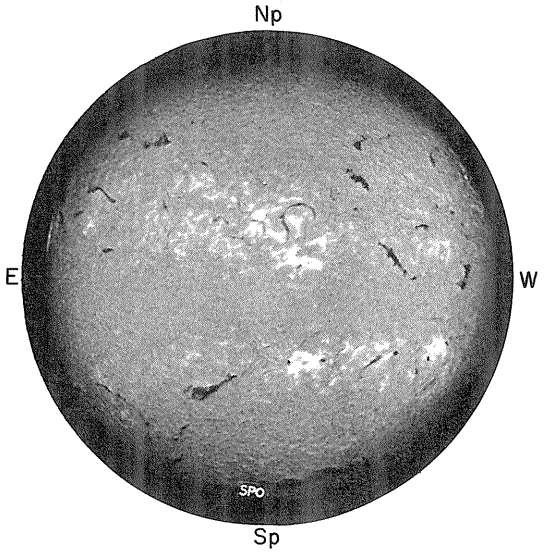
23-15-3.0
24-13-3.5
28-18-2.5
30-70-3.0
34-36-3.5

1245 UT

JULY 24, 1968 (P=7.58, B_o=5.19, L_o=9.14)

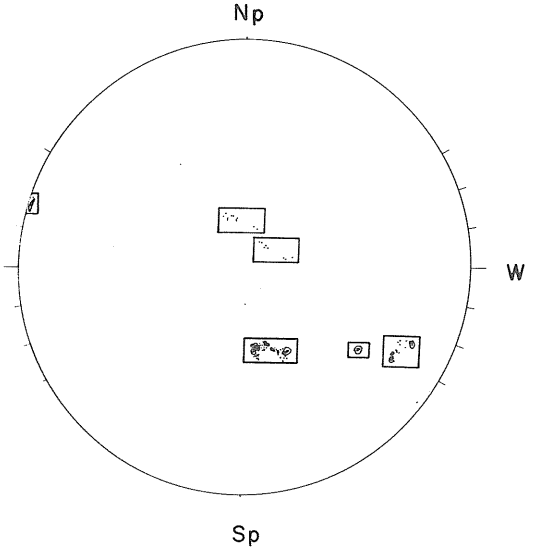
70
Jul 68

SACRAMENTO PEAK Hα



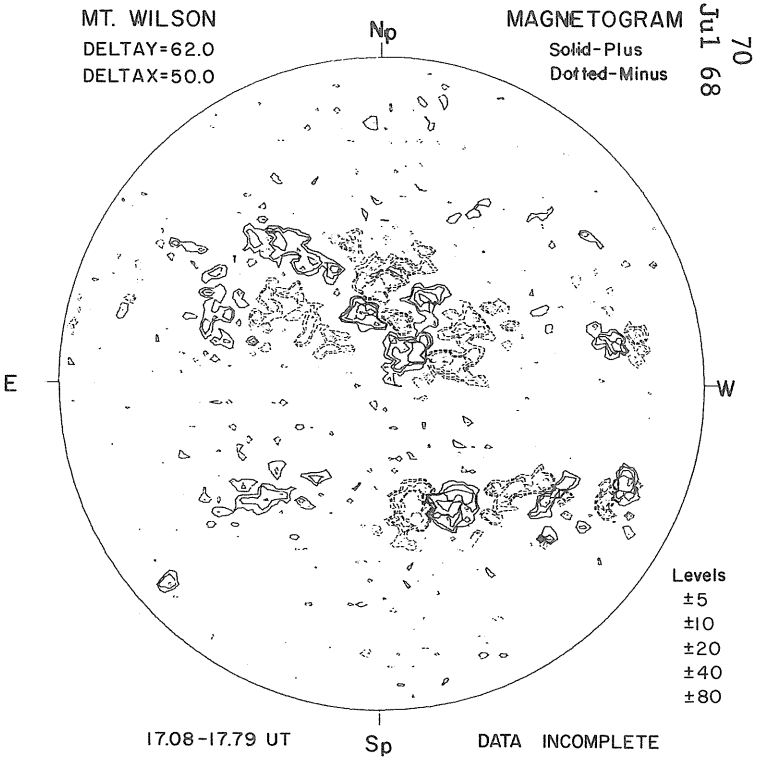
1448 UT

ESSA-BOULDER SUNSPOTS



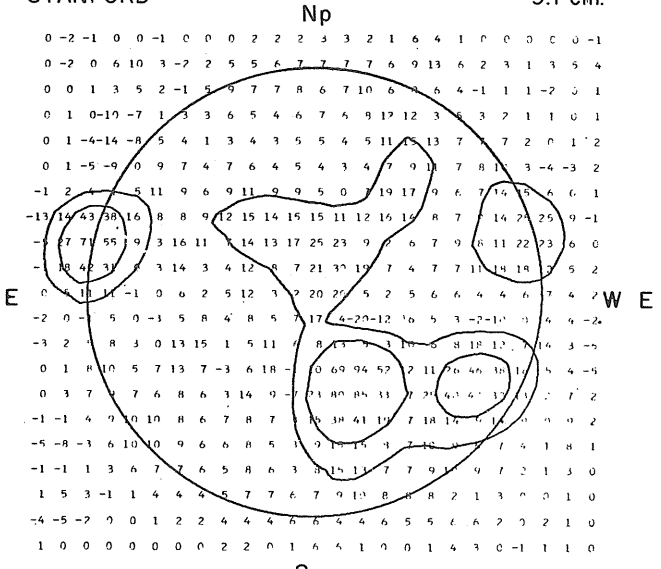
1340 UT

MT. WILSON MAGNETOGRAM
DELTAY=62.0
DELTAX=50.0
Solid-Plus
Dotted-Minus



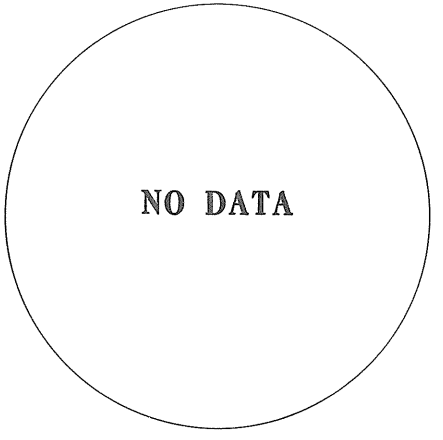
17.08-17.79 UT DATA INCOMPLETE

STANFORD 9.1 cm.



20-21 UT Brightness Unit 5000° K

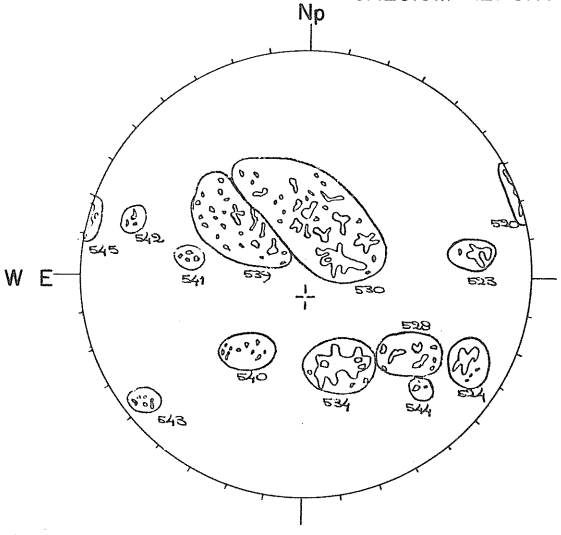
FLEURS, AUSTRALIA N



S Resolution 3 Minutes of Arc
02-03 UT Brightness Unit 1,700° K

21 cm.

McMATH-HULBERT CALCIUM REPORT

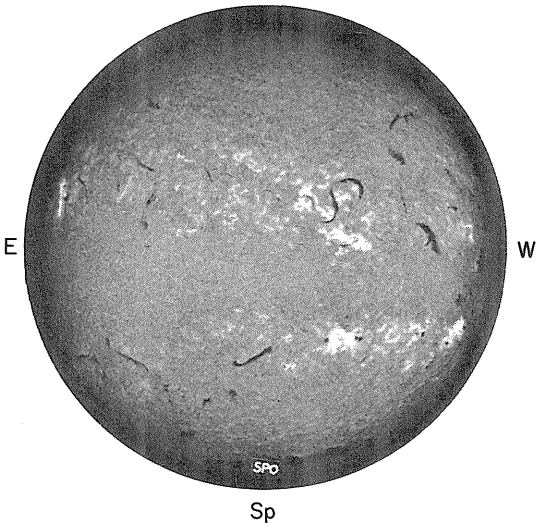


23-15-3.0
24-14-3.0
28-19-2.5
30-70-3.0
34-36-3.5
42-03-2.5
44-03-3.0
45-24-3.0

1935 UT

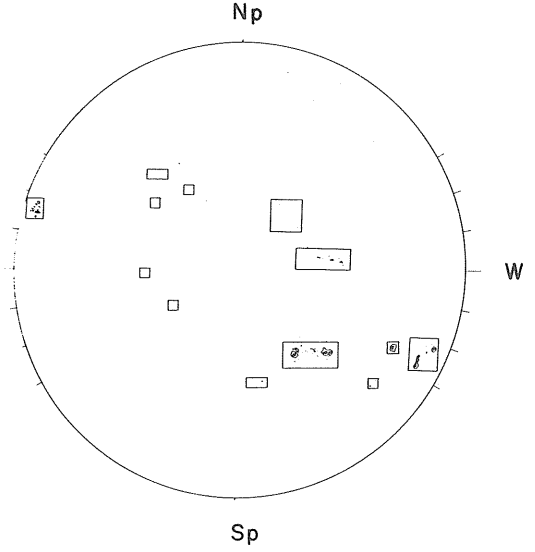
JULY 25, 1968 (P=8.00, B_o=5.28, L_o=355.91)

SACRAMENTO PEAK Hα



1407 UT

ESSA-BOULDER SUNSPOTS

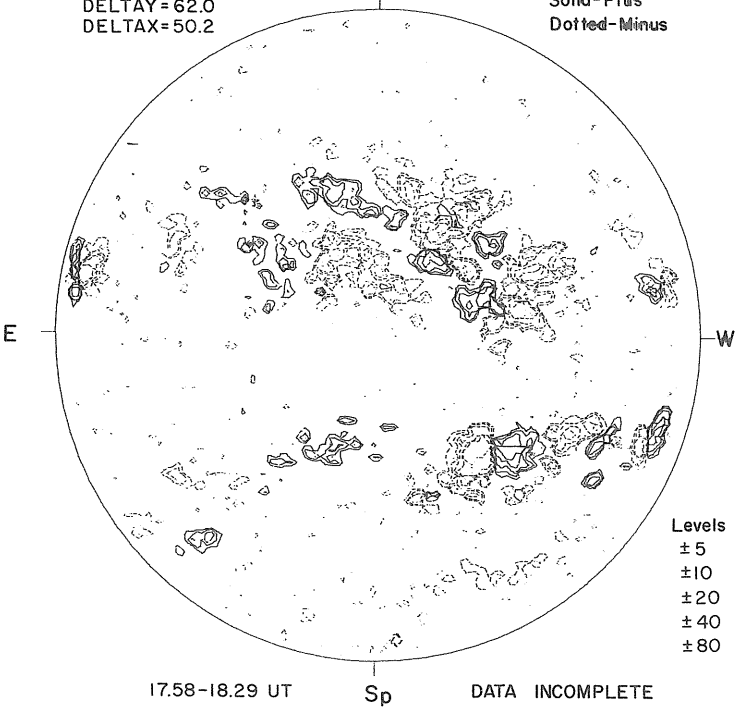


1400 UT

MT. WILSON MAGNETOGRAM

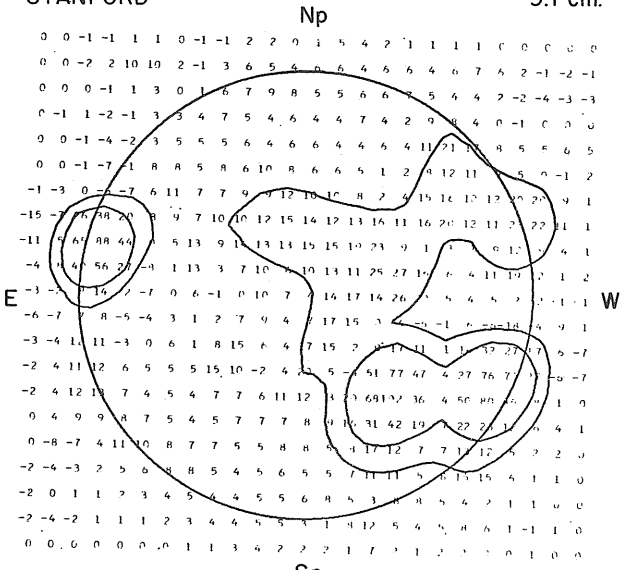
DELTAY=62.0
DELTAX=50.2

Solid-Plus
Dotted-Minus



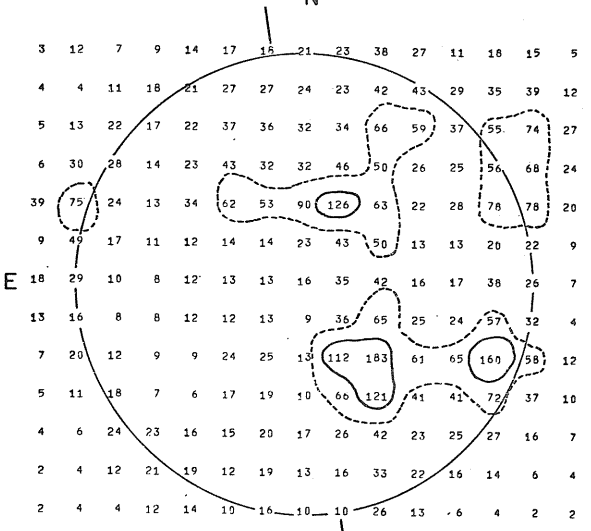
17.58-18.29 UT DATA INCOMPLETE

STANFORD 9.1 cm.



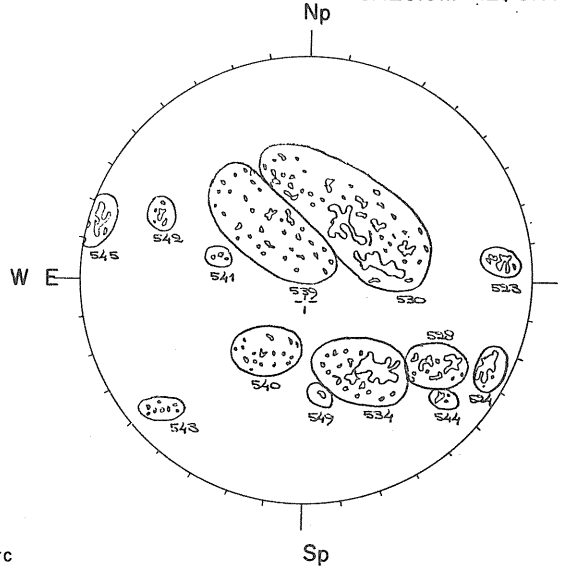
20-21 UT Brightness Unit 5000° K

FLEURS, AUSTRALIA 21 cm.



Resolution 3 Minutes of Arc
02-03 UT Brightness Unit 1,700° K

McMATH-HULBERT CALCIUM REPORT



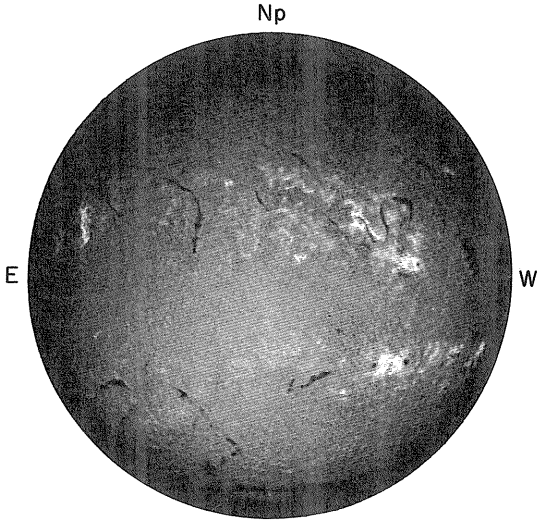
23-15-2.5
24-18-3.0
28-20-2.5
30-67-3.0
34-38-3.5
44-05-2.5
45-25-3.0

1215 UT

71
Jul 68

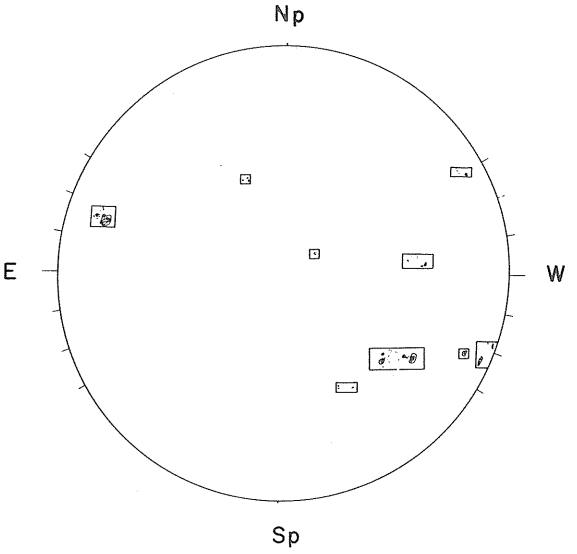
JULY 26, 1968 (P=8.42, B_o=5.36, L_o=342.68)

BOULDER Hα



1436 UT

ESSA-BOULDER SUNSPOTS

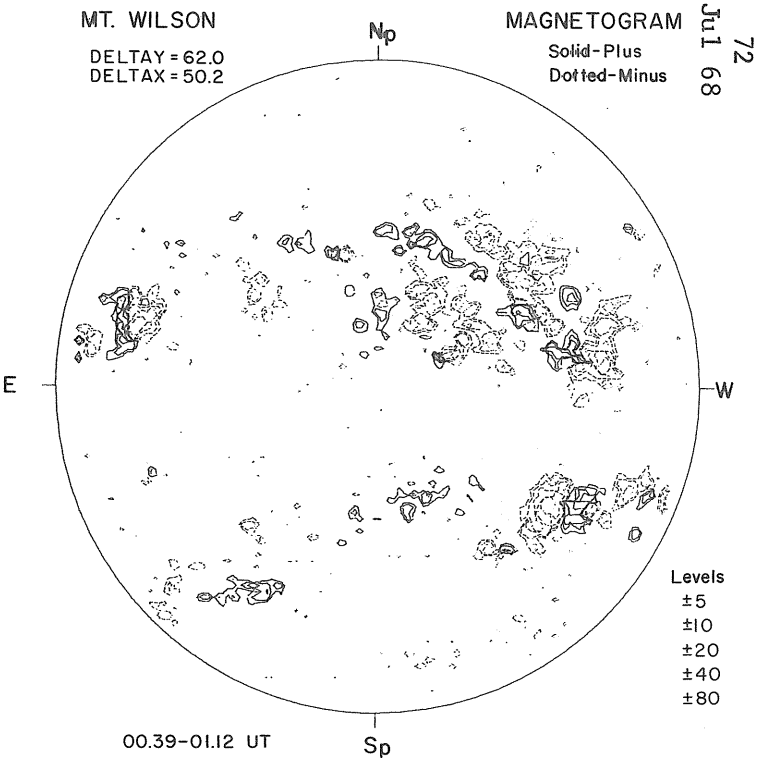


1400 UT

MT. WILSON MAGNETOGRAM

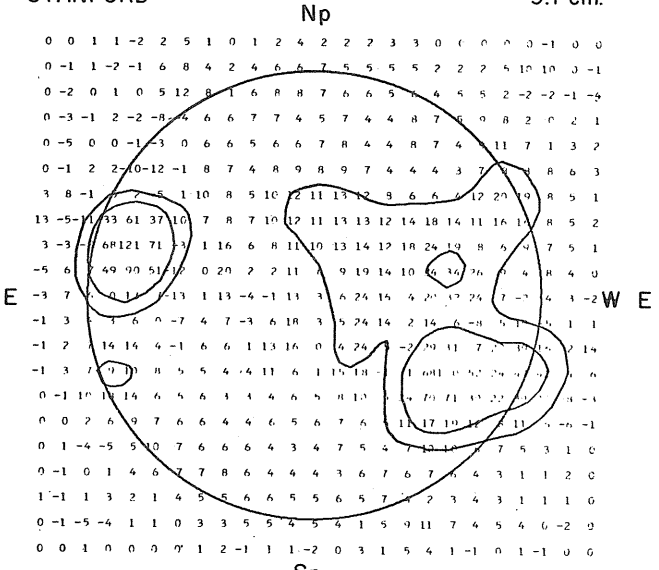
DELTAY = 62.0
DELTAX = 50.2

Solid-Plus
Dotted-Minus



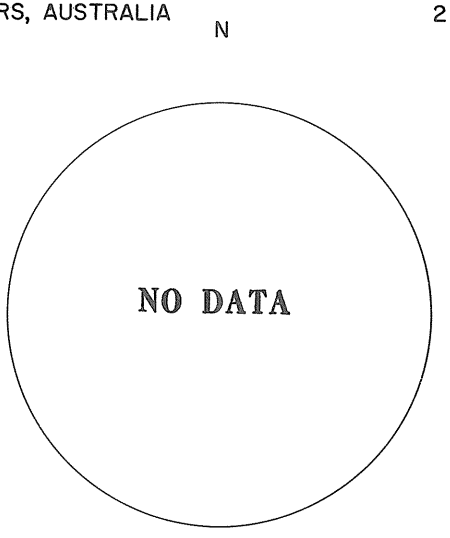
00.39-01.12 UT

STANFORD 9.1 cm.



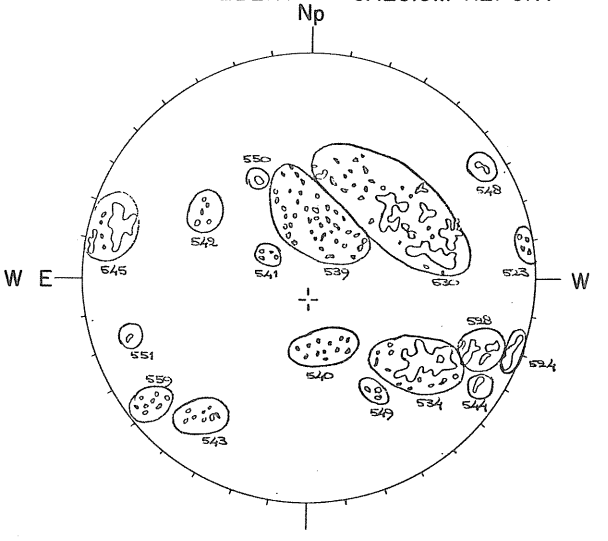
20-21 UT Brightness Unit 5000° K

FLEURS, AUSTRALIA 21 cm.



Resolution 3 Minutes of Arc
02-03 UT Brightness Unit 1,700° K

McMATH-HULBERT CALCIUM REPORT

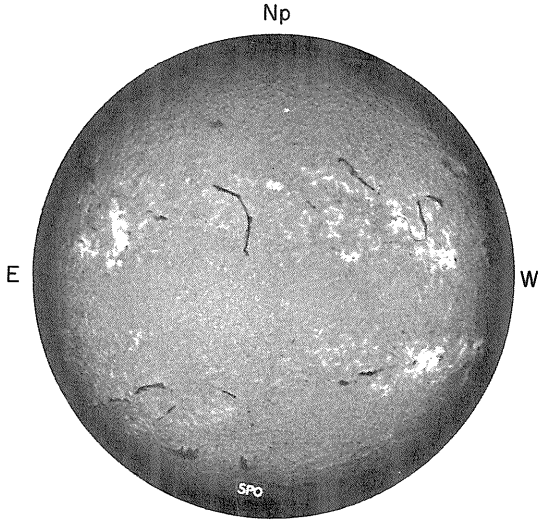


24-20-3.0
28-21-2.5
30-66-3.0
34-40-3.0
45-55-3.0
48-06-2.5
49-03-2.5
50-02-2.5
51-02-2.5

1220 UT

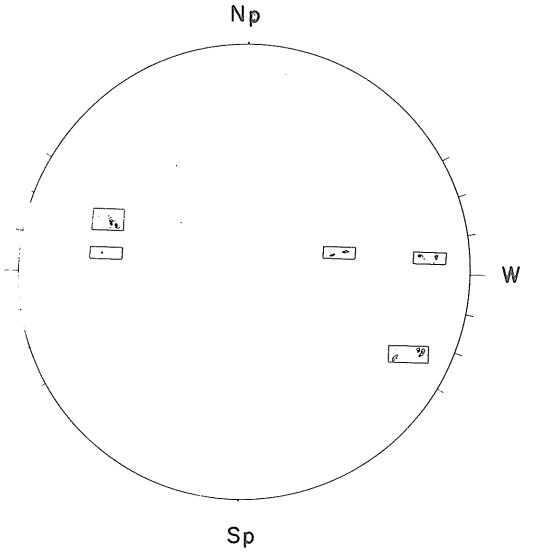
JULY 27, 1968 (P=8.84, B_o=5.44, L_o=329.45)

SACRAMENTO PEAK Hα



1409 UT

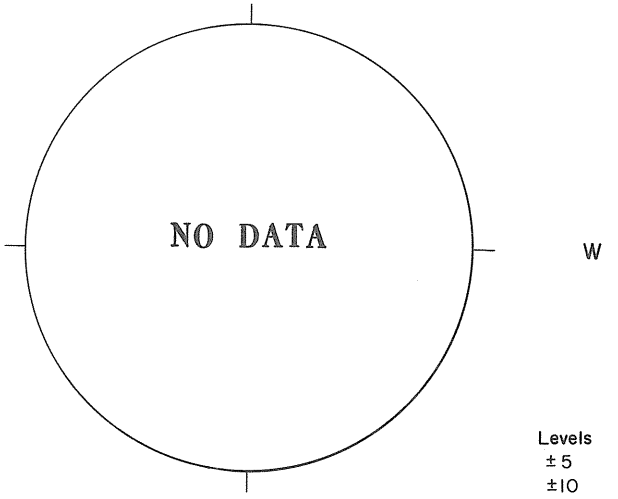
ESSA-BOULDER SUNSPOTS



2230 UT

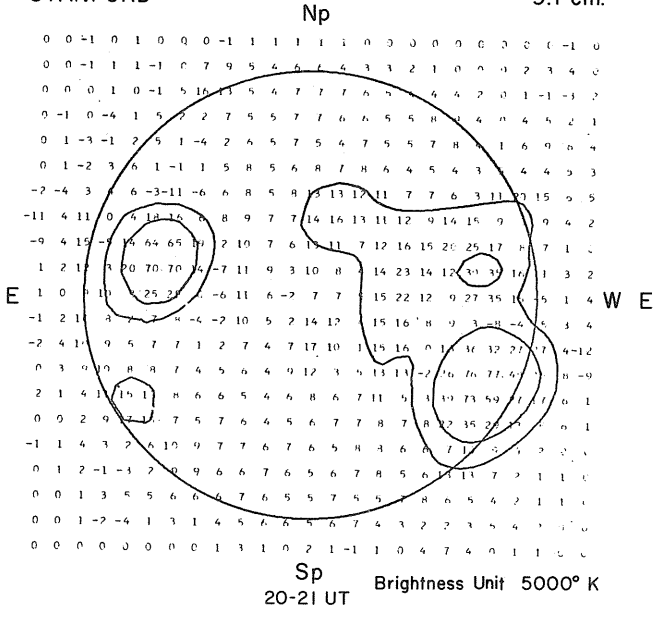
MT. WILSON MAGNETOGRAM

Solid-Plus
Dotted-Minus



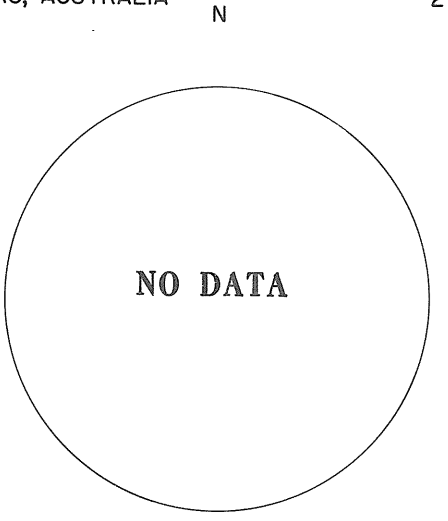
Levels
±5
±10
±20
±40
±80

STANFORD 9.1 cm.



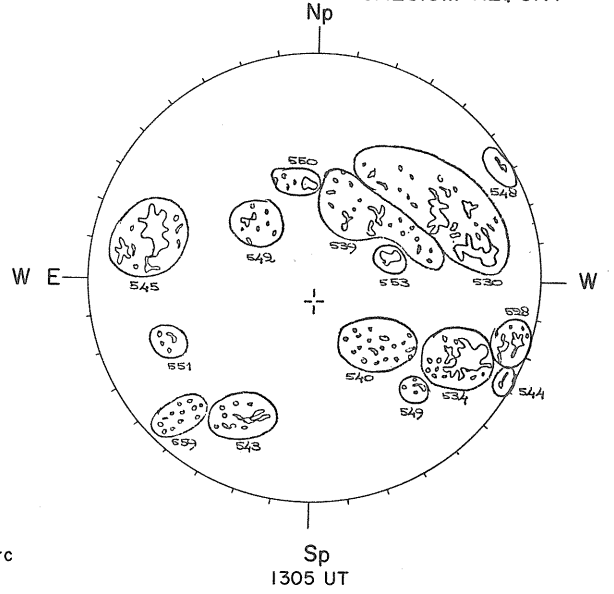
20-21 UT Brightness Unit 5000° K

FLEURS, AUSTRALIA 21 cm.



Resolution 3 Minutes of Arc
02-03 UT Brightness Unit 1,700° K

McMATH-HULBERT CALCIUM REPORT



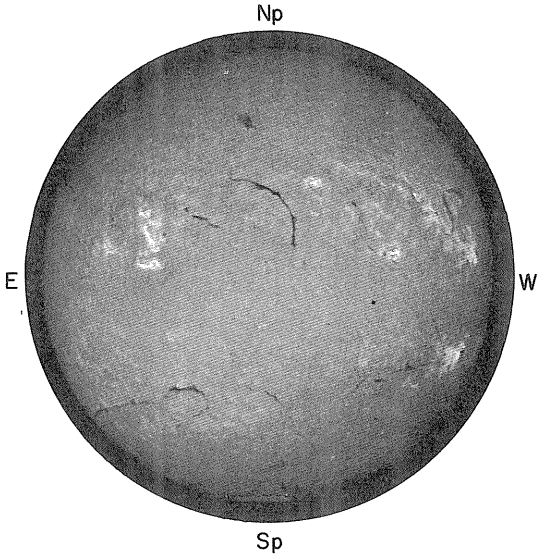
28-22-2.5
30-70-3.0
34-49-3.5
45-57-3.5
48-09-2.5
50-08-2.5
53-07-3.0

1305 UT

73
Jul 68

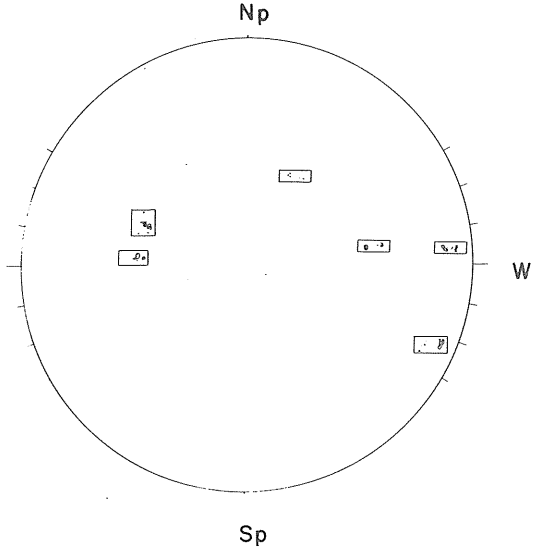
JULY 28, 1968 (P=9.25, B_o=5.52, L_o=316.23)

BOULDER Hα



1345 UT

ESSA-BOULDER SUNSPOTS

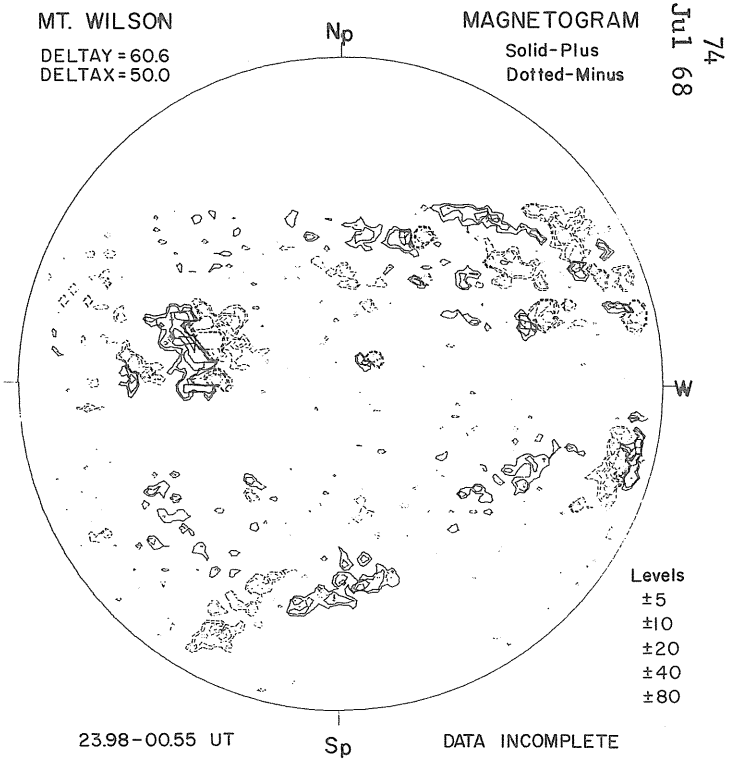


1415 UT

MT. WILSON MAGNETOGRAM

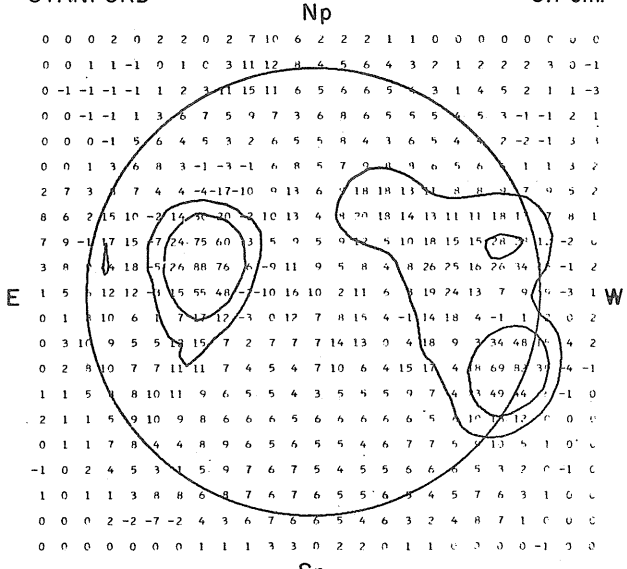
DELTAY = 60.6
DELTAX = 50.0

Solid-Plus
Dotted-Minus



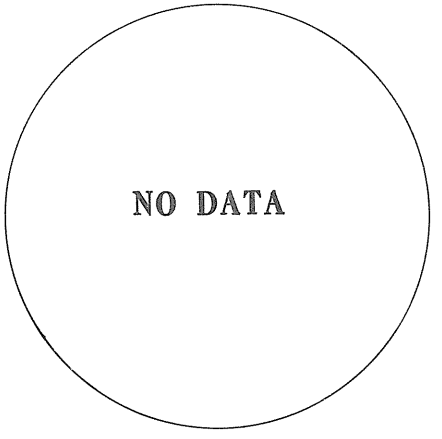
23.98-00.55 UT DATA INCOMPLETE

STANFORD 9.1 cm.



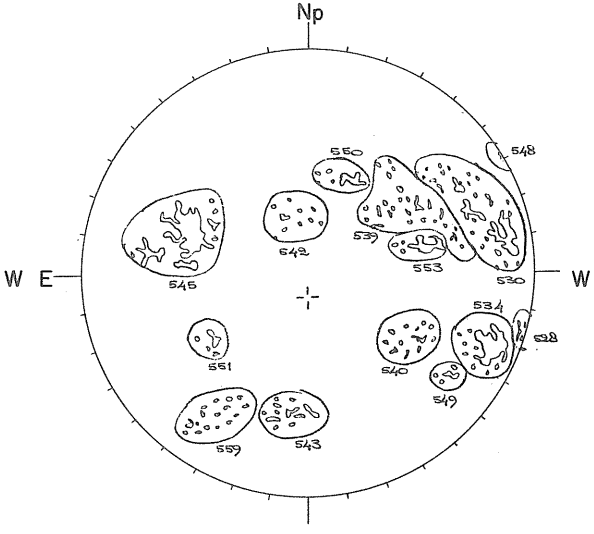
20-21 UT Brightness Unit 5000° K

FLEURS, AUSTRALIA 21 cm.



Resolution 3 Minutes of Arc
02-03 UT Brightness Unit 1,700° K

McMATH-HULBERT CALCIUM REPORT

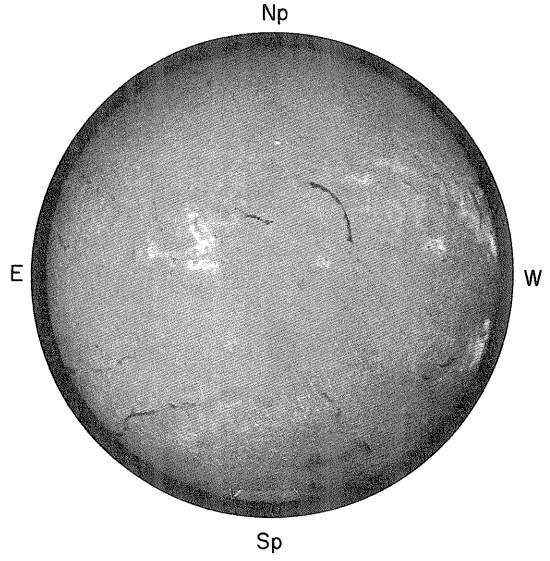


30-67-3.0
34-47-3.5
45-63-3.5
50-11-3.0
53-13-3.0

1305 UT

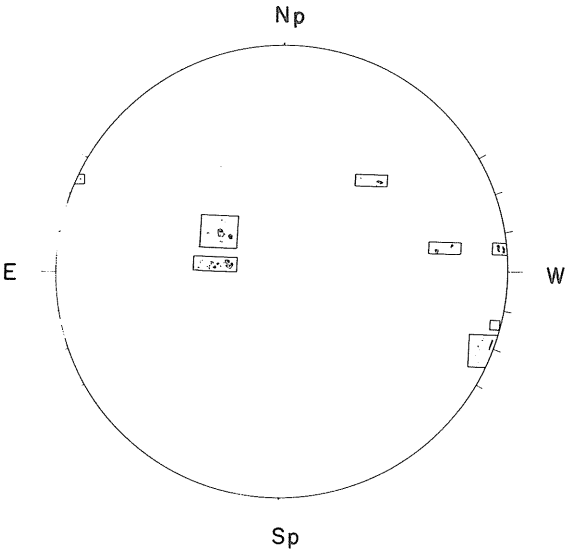
JULY 29, 1968 (P=9.66, B_o=5.60, L_o=303.00)

BOULDER Hα



1329 UT

ESSA-BOULDER SUNSPOTS

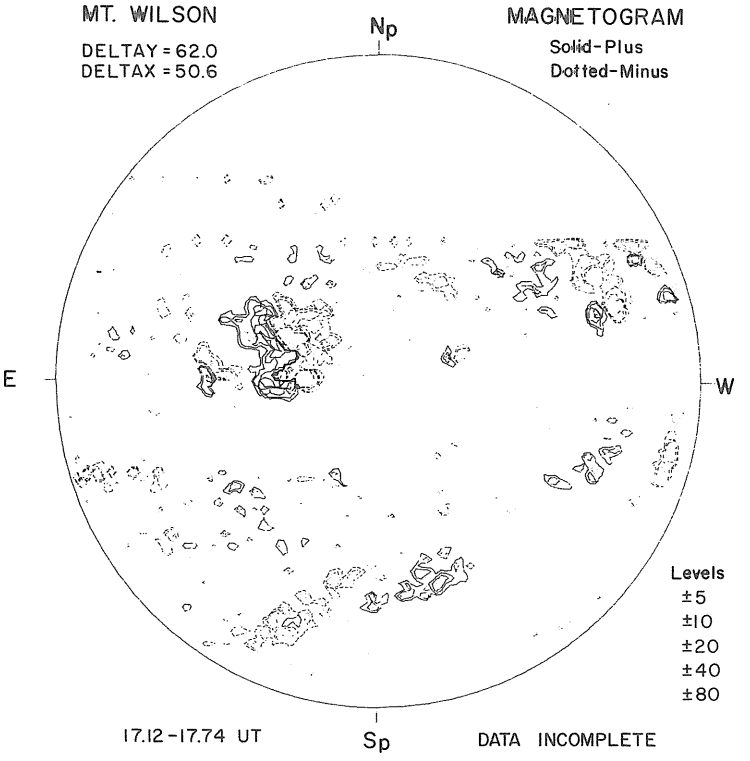


1348 UT

MT. WILSON MAGNETOGRAM

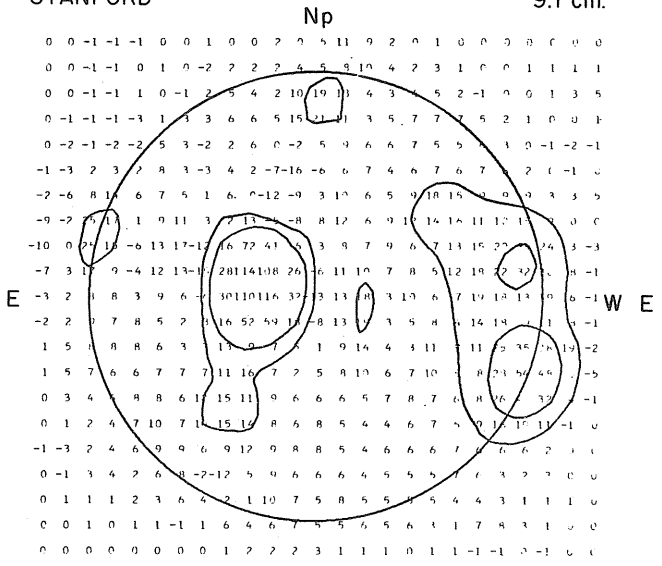
DELTAY = 62.0
DELTAX = 50.6

Solid-Plus
Dotted-Minus



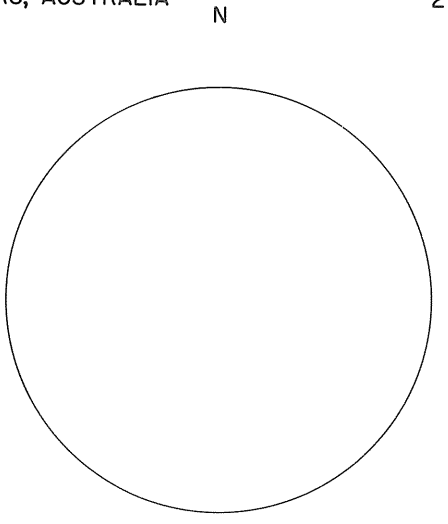
17.12-17.74 UT DATA INCOMPLETE

STANFORD 9.1 cm.



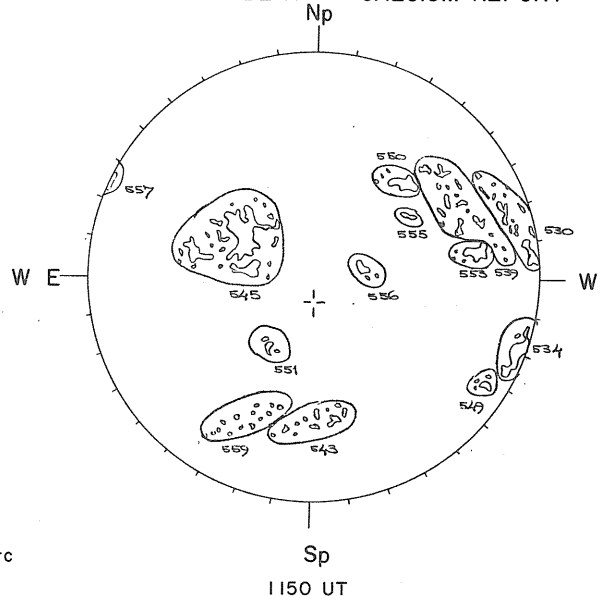
20-21 UT Brightness Unit 5000° K

FLEURS, AUSTRALIA 21 cm.



Resolution 3 Minutes of Arc
02-03 UT Brightness Unit 1,700° K

McMATH-HULBERT CALCIUM REPORT

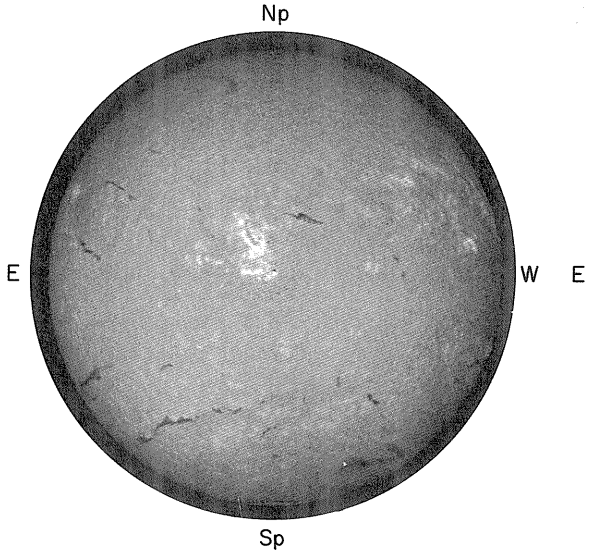


30-60-3.5
34-56-3.5
45-67-4.0
50-10-3.0
53-14-3.0
56-05-2.5
57-08-3.0

1150 UT

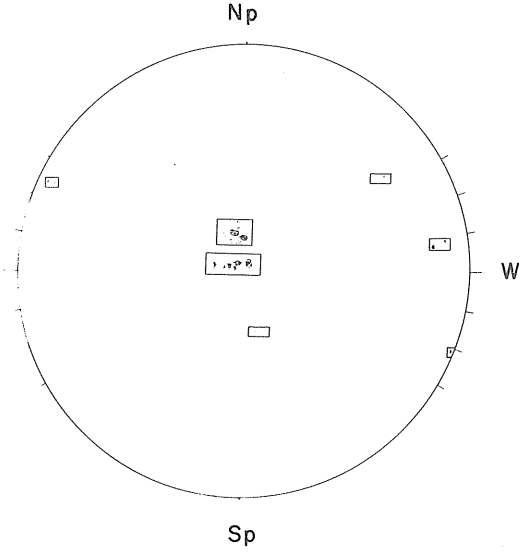
JULY 30, 1968 (P=10.07, B_o=5.67, L_o=289.77)

BOULDER Hα



1335 UT

ESSA-BOULDER SUNSPOTS

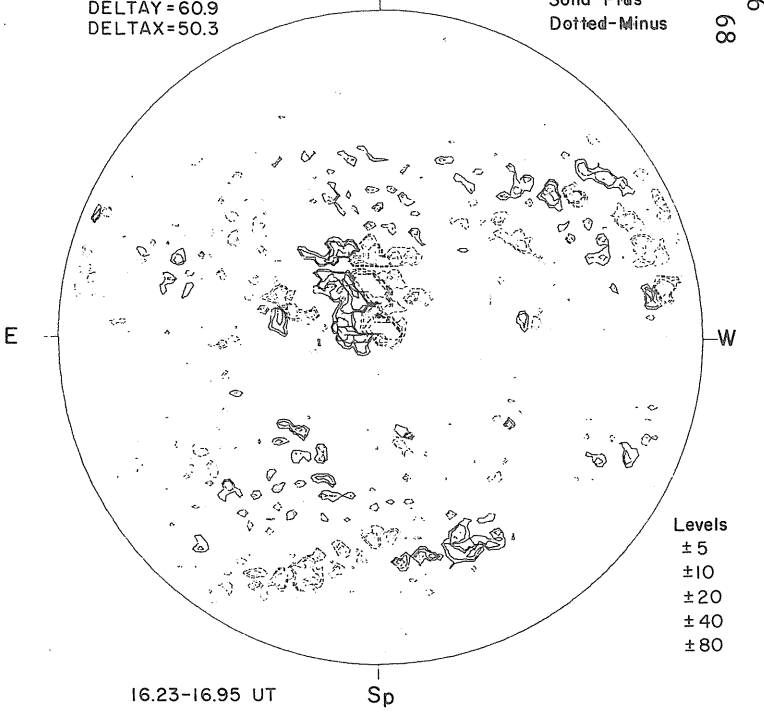


1500 UT

MT. WILSON MAGNETOGRAM

DELTAY=60.9
DELTAX=50.3

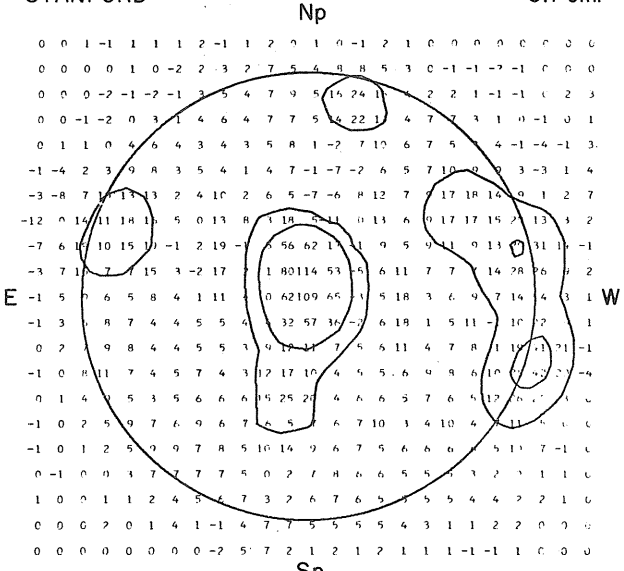
Solid-Plus
Dotted-Minus



Levels
±5
±10
±20
±40
±80

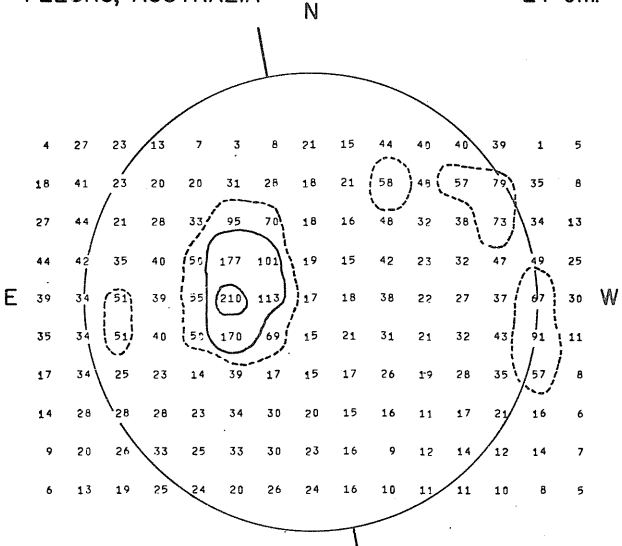
16.23-16.95 UT

STANFORD 9.1 cm.



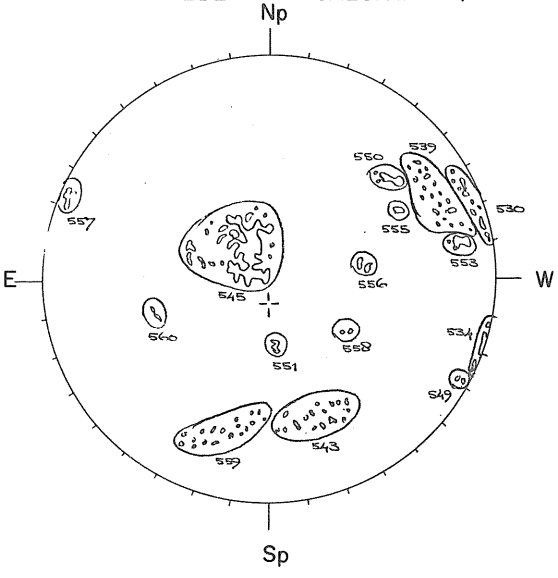
20-21 UT Brightness Unit 5000° K

FLEURS, AUSTRALIA 21 cm.



Resolution 3 Minutes of Arc
02-03 UT Brightness Unit 1,700° K

McMATH-HULBERT CALCIUM REPORT

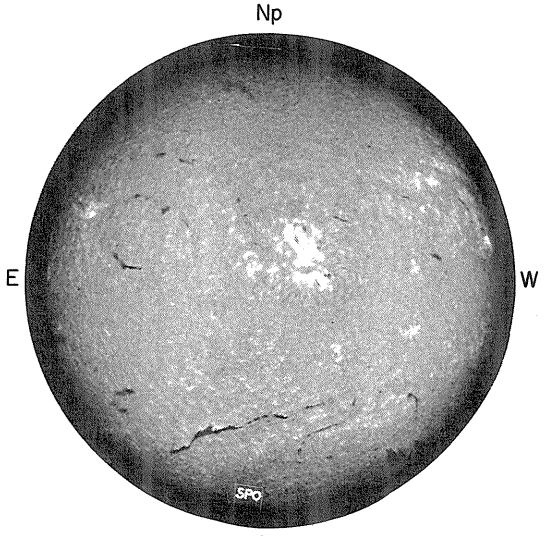


30-48-2.5
34-33-2.5
39-21-2.5
45-66-3.5
50-11-2.5
53-13-3.0
56-02-2.5
57-13-3.0

1300 UT

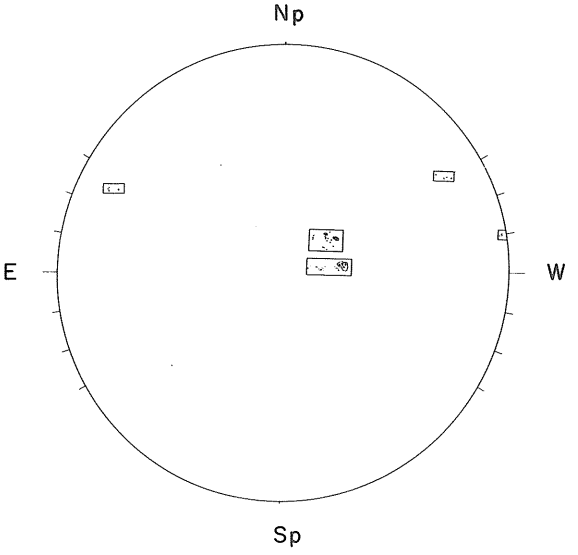
JULY 31, 1968 (P=10.47, B_o=5.75, L_o=276.55)

SACRAMENTO PEAK Hα



1431 UT

ESSA-BOULDER SUNSPOTS

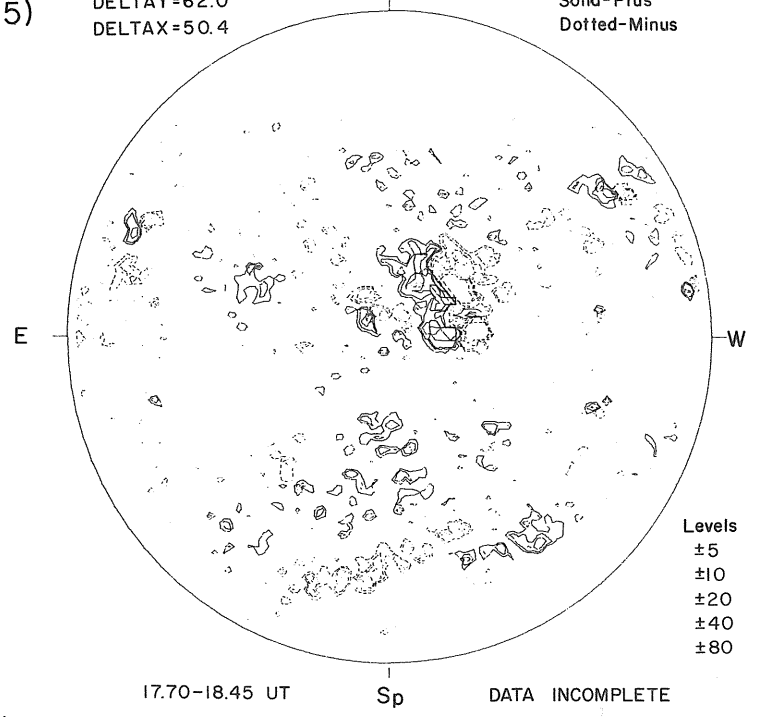


1645 UT

MT. WILSON MAGNETOGRAM

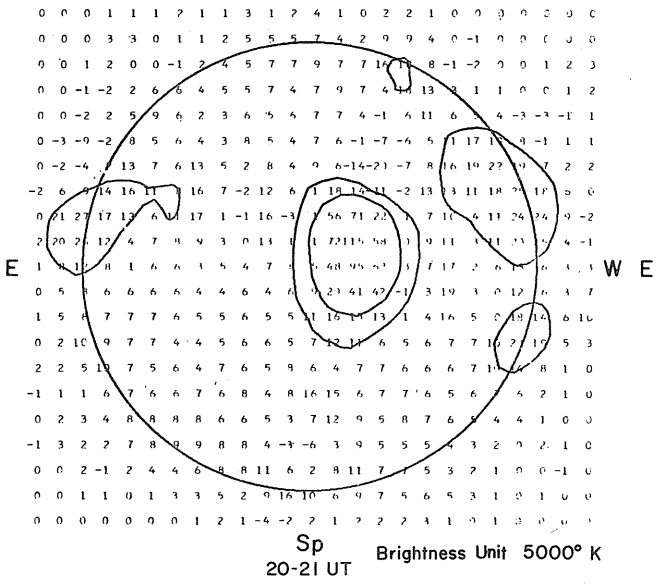
DELTAY=62.0
DELTAX=50.4

Solid-Plus
Dotted-Minus



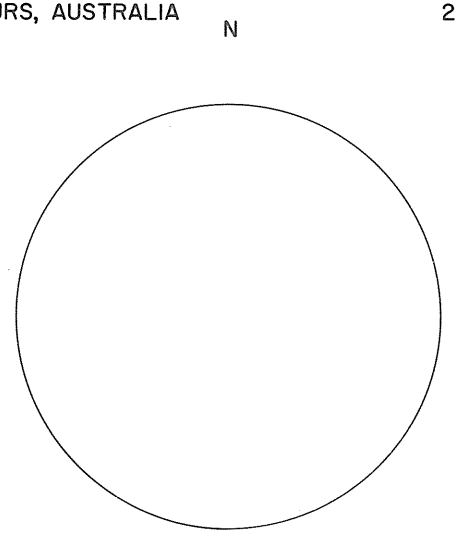
17.70-18.45 UT DATA INCOMPLETE

STANFORD 9.1 cm.



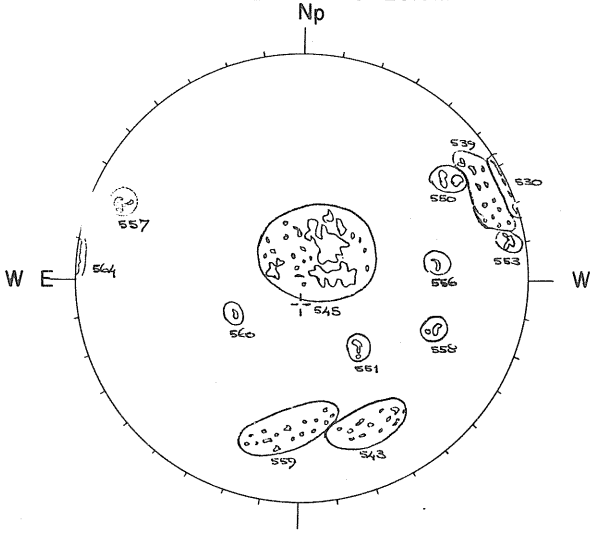
20-21 UT Brightness Unit 5000° K

FLEURS, AUSTRALIA 21 cm.



Resolution 3 Minutes of Arc
02-03 UT Brightness Unit 1,700° K

McMATH-HULBERT CALCIUM REPORT



45-66-3.5
50-11-3.0
53-11-3.0
57-10-2.5

1300 UT

77
Jul 68

CORONAL LINE EMISSION INDICES

JULY 1968

CMP July 1968	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	99	170	22	35	100	137	38	62	106	121	29	45	70	87	16	19
2	78	128	12	17	101	118	33	57	72	100	14	23	47	79	18	32
3	68	81	x	x	82	100	x	x	x	x	x	x	x	x	x	x
4	56	73	x	x	58	77	x	x	79	105	83	105	47	70	47	70
5	74	93	x	x	78	101	x	x	41	54	0	0	27	41	0	0
6	x	x	x	x	x	x	x	x	56	68	x	x	53	67	x	x
7	68	75	13	25	66	78	3	8	x	x	x	x	x	x	x	x
8	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
9	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
10	89	111	x	x	48	108	x	x	x	x	2	5	x	x	13	46
11	108	153	24	37	88	139	11	12	26	42	5	16	93	197	8	36
12	x	x	x	x	x	x	x	x	77	115	4	22	106	157	38	92
13	82	132	23	49	58	77	1	6	78	107	17	28	119	180	25	48
14	82	111	18	35	82	96	12	17	86	118	9	11	98	127	19	33
15	101	121	14	27	92	99	17	25	74	90	13	23	96	136	11	17
16	67	91	3	10	94	128	23	44	35	68	x	x	x	x	x	x
17	x	x	x	x	x	x	x	x	66	86	x	x	96	147	x	x
18	95	134	15	27	87	115	12	19	69	85	6	8	117	162	18	30
19	33	42	15	22	40	52	14	19	78	93	17	24	108	147	20	26
20	70	96	x	x	67	108	x	x	99	133	24	37	107	154	16	24
21	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
22	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
23	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
24	x	x	22	50	x	x	22	31	x	x	x	x	x	x	x	x
25	66	82	16	31	x	x	0	0	x	x	x	x	x	x	x	x
26	x	x	16	30	53	62	5	19	x	x	x	x	x	x	x	x
27	96	123	27	46	41	51	10	13	35	41	12	22	74	105	13	20
28	76	112	17	25	46	57	11	19	57	70	17	32	92	111	18	26
29	79	124	15	23	48	62	12	15	43	60	2	6	71	78	12	15
30	92	138	x	x	64	76	x	x	x	x	x	x	x	x	x	x
31	90	126	x	x	57	70	x	x	x	x	x	x	x	x	x	x

These values are based upon Pic-du-Midi and Kislovodsk only.

SOLAR X-RAYS BY SATELLITE

JULY 1968

OUTSTANDING EVENTS FOR JULY 1968

DATE	STA	START	END	8-20 XE-3	0-8 XE-4	0-3 XE-5	COMMENTS
1	NRL	0643	0657	10.00	16.00	3.10	INCREASING
4	NRL	0013	0022	13.00	11.00	0.68	
5	NRL	2030	2039	27.00	45.00	4.80	INCREASING
5	ABRD	2211	2221	23.00	25.00	1.70	
5	ABRD	2351	0003	20.00	22.00	1.10	
6	ABRD	0134	0146	34.00	47.00	5.60	
6	ABRD	0319	0329	13.00	11.00	.90	
6	ABRD	0501	0513	15.00	16.00	1.50	
6	ABRD	0643	0651	16.00	29.00	.	
6	ABRD	0825	0829	17.00	16.00	.90	
6	ABRD	2251	2303	18.00	20.00	1.00	
7	ABRD	0034	0045	14.00	13.00	.90	
7	NRL	0224	0231	15.00	27.00	4.30	
7	NRL	2011	2021	25.00	29.00	2.50	
7	ABRD	2333	2345	15.00	18.00	2.10	
8	ABRD	0117	0127	20.00	25.00	2.60	
8	NRL	1914	1920	100.00	220.00	55.00	
8	ABRD	2055	2101	34.00	30.00	1.70	
9	NRL	1953	2003	34.00	65.00	8.70	
9	ABRD	2133	2144	34.00	56.00	6.90	PEAK AT 2136Z
9	NRL	2136	2145	33.00	49.00	5.80	DECREASING
9	ABRD	2315	2327	21.00	18.00	1.10	
10	ABRD	0058	0109	14.00	11.00	2.40	PEAK AT 0106Z
10	ABRD	0242	0253	25.00	38.00	5.90	
10	NRL	0247	0256	25.00	40.00	4.30	
10	ABRD	2358	0009	34.00	42.00	4.40	DECREASING
11	ABRD	0142	0151	18.00	16.00	1.50	
11	ABRD	0324	0336	15.00	29.00	5.00	
11	ABRD	2256	2308	16.00	13.00	.71	
12	ABRD	0041	0050	68.00	112.00	38.00	DECREASING
12	ABRD	0223	0234	34.00	38.00	2.80	
12	NRL	0228	0237	34.00	38.00	2.90	
12	ABRD	0406	0416	21.00	20.00	.	
14	ABRD	0022	0032	34.00E	80.00	35.00	DECREASING
16	ABRD	1937	1947	15.00	11.00	.71	
16	ABRD	2120	2130	12.00	8.90	.71	
16	ABRD	2304	2312	16.00	18.00	.71	
17	ABRD	2201	2211	17.00	25.00	2.60	
18	ABRD	0127	0139	21.00	27.00	2.80	
19	ABRD	0351	0400	14.00	11.00	.71	
19	ABRD	2143	2153	13.00	16.00	2.80	INCREASING
23	ABRD	1921	1932	15.00	8.90	.90	
23	ABRD	2248	2259	13.00	18.00	.53	
24	NRL	1825	1832	13.00	13.00	2.30	
24	ABRD	1820	1832	13.00	13.00	1.10	INCREASING
25	ABRD	1541	1547	15.00	11.00	.53	
25	ABRD	1902	1913	17.00	18.00	2.10	INCREASING
26	NRL	1806	1813	28.00	31.00	2.80	DECREASING
26	ABRD	1946	1955	19.00	20.00	1.70	DECREASING
26	ABRD	2129	2140	34.00	36.00	3.60	DECREASING
27	NRL	1850	1854	15.00	11.00		
28	ABRD	1926	1936	17.00	20.00	3.30	DECREASING
28	NRL	2255	2309	13.00	11.00	0.53	
29	NRL	0038	0049	17.00	25.00	5.80	DECREASING
29	ABRD	0034	0047	16.00	22.00	4.40	PEAK AT 0041Z
29	ABRD	1501	1510	14.00	11.00	.90	
29	ABRD	1642	1653	18.00	22.00	2.40	DECREASING
29	ABRD	1824	1835	17.00	13.00	1.10	
29	ABRD	2008	2018	27.00	38.00	5.00	
29	NRL	2014	2022	34.00	40.00	5.90	
29	ABRD	2151	2202	16.00	11.00	.	
29	ABRD	2333	2346	14.00	11.00	.71	
30	ABRD	0115	0127	13.00	13.00	.53	
30	ABRD	1541	1552	16.00	11.00	.71	
30	NRL	1542	1551	16.00	11.00	1.30	
30	ABRD	2050	2101	34.00	58.00	8.70	DECREASING
30	NRL	2055	2106	34.00	54.00	6.90	
30	NRL	2236	2249	11.00	8.90	0.90	INCREASING
31	ABRD	0159	0205	27.00	42.00	5.80	DECREASING
31	ABRD	1622	1634	15.00	22.00	3.60	PEAK AT 162930Z
31	NRL	1626	1634	15.00	13.00	1.30	

DAILY AVERAGES FOR JULY 1968

DATE	44-60 XE-1	8-20 XE-3	0-8 XE-4
1	1.46	7.30	4.92
2	1.50	7.89	6.14
3	1.43	6.95	4.50
4	1.73	9.05	5.60
5	1.93	11.40	9.00
6	2.35	15.50	13.98
7	2.08	11.90	9.35
8	2.40	12.33	7.43
9	3.17	17.33	14.67
10	2.83	14.50	10.12
11	2.60	13.00	7.75
12	2.60	11.00	6.70
13	2.30	9.33	5.97
14	2.22	9.72	7.73
15	2.00	8.44	4.94
16	2.55	11.15	7.00
17	2.63	10.43	5.60
18	2.68	10.55	7.90
19	2.47	8.42	4.50
20	2.37	8.08	5.23
21	2.12	7.04	3.56
22	2.37	9.76	6.39
23	2.75	11.77	7.42
24	2.82	11.50	7.07
25	2.90	13.25	9.40
26	2.74	11.40	7.14
27	2.49	10.51	6.07
28	2.60	11.25	7.25
29	3.23	15.83	12.50
30	2.53	11.33	6.70
31	2.37	10.72	6.33

SOLAR X-RAYS BY SATELLITE

JULY 1968

OBSERVING TIMES FOR JULY 1968

DATE	STA	START UT	END UT	ASPECT ANGLE
1	ABRD	0129	0139	2.0
1	NRL	0132	0140	2.2
1	ABRD	0312	0322	2.0
1	ABRD	0456	0505	2.0
1	NRL	0501	0509	2.2
1	ABRD	0639	0649	2.0
1	NRL	0643	0657	2.2
1	NRL	0824	0837	2.2
1	NRL	2247	2259	2.7
2	ABRD	0029	0039	3.0
2	NRL	0030	0041	2.7
2	ABRD	0211	0222	3.0
2	NRL	0219	0220	3.2
2	ABRD	0355	0405	2.5
2	NRL	0401	0408	3.2
2	ABRD	0540	0545	2.5
2	NRL	0542	0555	3.2
2	ABRD	0721	0733	2.5
2	NRL	0724	0737	3.2
2	ABRD	0903	0913	2.5
2	NRL	0909	0913	3.2
2	NRL	2148	2158	4.0
2	NRL	2329	2341	4.7
2	ABRD	2330	2338	4.5
3	ABRD	0111	0121	4.5
3	NRL	0114	0122	4.7
3	ABRD	0255	0304	4.5
3	ABRD	0439	0448	4.5
3	NRL	0442	0453	4.7
3	ABRD	0621	0632	4.0
3	NRL	0623	0634	4.7
3	ABRD	0804	0815	4.5
3	NRL	0806	0813	4.7
3	NRL	2049	2057	5.2
3	ABRD	2221	2229	4.5
3	NRL	2229	2241	3.2
4	ABRD	0010	0022	3.0
4	NRL	0013	0022	3.2
4	ABRD	0153	0204	3.0
4	ABRD	0336	0347	3.5
4	NRL	0342	0351	3.7
4	ABRD	0520	0531	3.5
4	NRL	0524	0534	3.7
4	ABRD	0702	0712	3.5
4	ABRD	0844	0850	3.5
4	NRL	2129	2140	5.0
4	NRL	2311	2322	3.7
4	ABRD	2311	2321	3.5
5	ABRD	0053	0103	4.0
5	NRL	0057	0104	4.2
5	ABRD	0235	0246	4.5
5	ABRD	0420	0430	4.5
5	NRL	0424	0434	4.7
5	ABRD	0602	0615	4.5
5	ABRD	0743	0757	4.0
5	NRL	2030	2039	4.7
5	NRL	2210	2222	5.0
5	ABRD	2211	2221	4.5
5	ABRD	2351	0003	3.0
5	NRL	2355	0004	3.2
6	ABRD	0134	0146	3.0
6	ABRD	0319	0329	3.0
6	NRL	0324	0333	3.2
6	ABRD	0501	0513	3.5
6	NRL	0505	0512	3.7
6	ABRD	0643	0651	3.5
6	ABRD	0825	0829	3.5
6	NRL	2110	2122	5.2
6	ABRD	2114	2118	5.0
6	ABRD	2251	2303	4.5
6	NRL	2253	2304	3.7
7	ABRD	0034	0045	4.0
7	ABRD	0218	0228	4.0
7	NRL	0224	0231	3.7
7	ABRD	0401	0412	4.0
7	NRL	0406	0417	3.7
7	ABRD	0543	0551	4.0
7	NRL	0547	0554	3.7
7	ABRD	0727	0730	4.0
7	NRL	2011	2021	5.2
7	NRL	2152	2204	4.7
7	ABRD	2152	2202	4.5
7	ABRD	2333	2345	4.5
7	NRL	2337	2345	4.7
8	ABRD	0117	0127	4.5
8	ABRD	0301	0311	4.5
8	NRL	0305	0315	3.7
8	ABRD	0443	0455	4.0
8	NRL	0447	0453	3.7
8	NRL	1914	1920	5.2
8	NRL	2051	2104	5.2
8	ABRD	2055	2101	4.5
8	ABRD	2234	2245	3.5
8	NRL	2235	2245	3.7
9	ABRD	0016	0027	3.5
9	ABRD	0159	0210	3.0
9	NRL	0205	0213	3.2
9	ABRD	0346	0354	3.0
9	NRL	0347	0354	3.2
9	NRL	1953	2003	4.7
9	ABRD	2133	2144	4.5
9	NRL	2136	2145	5.2
9	ABRD	2315	2327	3.5
9	NRL	2319	2326	3.7
10	ABRD	0058	0109	3.5
10	ABRD	0242	0253	3.5
10	NRL	0247	0256	4.0
10	ABRD	0425	0434	4.5
10	NRL	0428	0437	4.5
10	ABRD	0606	0612	4.5
10	NRL	1854	1902	5.2
10	NRL	2033	2045	5.2
10	ABRD	2035	2044	5.0
10	ABRD	2214	2226	4.5
10	NRL	2217	2226	4.7
10	ABRD	2358	0009	4.5
11	ABRD	0142	0151	4.5
11	NRL	0146	0156	4.7
11	ABRD	0324	0336	4.5
11	ABRD	0506	0514	3.5
11	ABRD	0649	0652	3.5
11	NRL	1933	1945	5.2
11	ABRD	2114	2125	3.5
11	NRL	2116	2126	3.7
11	ABRD	2256	2308	2.5
12	ABRD	0041	0050	3.0
12	ABRD	0223	0234	3.0
12	NRL	0228	0237	3.2
12	ABRD	0406	0416	3.0
12	ABRD	0547	0554	3.0
12	NRL	1833	1844	4.7
12	NRL	2015	2027	2.7
12	ABRD	2015	2024	3.0
12	ABRD	2155	2207	2.5
12	NRL	2200	2208	2.7
12	ABRD	2339	2349	3.0
13	ABRD	0123	0133	3.0
13	NRL	0130	0137	2.7
13	ABRD	0306	0316	3.0
13	NRL	0309	0316	2.7
13	ABRD	0447	0455	3.5
13	ABRD	0630	0634	3.0
13	NRL	1914	1925	4.7
13	ABRD	1917	1922	4.5
13	ABRD	2055	2107	3.5
13	NRL	2057	2107	3.7
13	ABRD	2238	2249	3.0
14	ABRD	0022	0032	3.0
14	ABRD	0205	0214	3.0
14	NRL	0209	0219	3.2
14	ABRD	0347	0356	3.5
14	NRL	0351	0358	3.2
14	ABRD	0529	0535	3.0
14	NRL	1814	1825	3.2
14	ABRD	1956	2006	3.5
14	NRL	1957	2007	3.2
14	ABRD	2136	2148	4.0
14	NRL	2142	2149	3.7
14	ABRD	2320	2331	4.0
15	ABRD	0105	0115	4.0
15	NRL	0109	0119	3.7
15	ABRD	0246	0257	3.5
15	NRL	0251	0258	3.7
15	ABRD	0428	0436	4.0
15	ABRD	0611	0615	5.0
15	NRL	1715	1724	5.2
15	NRL	1856	1907	5.2
15	ABRD	1858	1905	5.0
15	ABRD	2036	2048	5.0
15	NRL	2039	2047	3.7
15	ABRD	2221	2230	4.0
16	ABRD	0003	0013	4.5
16	NRL	0008	0017	4.7
16	ABRD	0146	0157	4.5
16	NRL	0150	0159	3.7
16	ABRD	0328	0338	3.0
16	NRL	0332	0338	3.2
16	ABRD	0510	0516	3.5
16	NRL	1755	1807	4.7
16	ABRD	1937	1947	5.0
16	NRL	1938	1948	5.0
16	ABRD	2120	2130	5.0
16	NRL	2123	2130	5.2
16	ABRD	2304	2312	5.0
17	ABRD	0046	0056	5.0
17	NRL	0050	0100	5.2
17	ABRD	0228	0240	5.5
17	NRL	0232	0241	3.5
17	ABRD	0409	0418	3.5
17	ABRD	0554	0557	3.5

SOLAR X-RAYS BY SATELLITE

JULY 1968

OBSERVING TIMES FOR JULY 1968

DATE	STA	START UT	END UT	ASPECT ANGLE
17	NRL	1656	1705	4.7
17	NRL	1836	1848	5.2
17	ABRD	1838	1845	5.0
17	ABRD	2001	2211	4.5
17	NRL	2022	2030	4.5
17	ABRD	2201	2211	4.5
17	ABRD	2345	2355	4.5
17	NRL	2350	2358	4.7
18	ABRD	0127	0139	4.5
18	NRL	0132	0141	4.7
18	ABRD	0309	0320	4.5
18	NRL	0314	0321	4.7
18	ABRD	0453	0458	4.5
18	NRL	1737	1748	5.2
18	ABRD	1919	1928	5.5
18	NRL	1919	1922	5.2
18	ABRD	2100	2111	5.0
18	NRL	2107	2111	4.7
18	ABRD	2244	2253	5.0
18	NRL	2250	2255	4.7
19	ABRD	0027	0038	4.5
19	NRL	0031	0042	4.7
19	ABRD	0209	0222	4.5
19	NRL	0212	0222	4.7
19	ABRD	0351	0400	4.5
19	NRL	1636	1647	5.2
19	NRL	1818	1830	4.2
19	ABRD	1818	1827	4.0
19	ABRD	1959	2010	3.5
19	NRL	2003	2011	3.2
19	ABRD	2143	2153	4.0
19	ABRD	2326	2336	4.0
19	NRL	2331	2340	3.7
20	NRL	0012	0022	4.7
20	ABRD	0109	0121	4.0
20	NRL	0112	0125	3.7
20	ABRD	0250	0301	4.0
20	ABRD	0433	0440	4.5
20	NRL	1539	1545	5.2
20	NRL	1717	1728	5.2
20	ABRD	1719	1726	5.0
20	ABRD	1858	1910	5.0
20	NRL	1901	1910	4.0
20	ABRD	2042	2052	4.5
20	NRL	2231	2237	4.7
21	ABRD	0008	0019	5.0
21	ABRD	0150	0203	3.5
21	NRL	0154	0203	3.0
21	ABRD	0322	0341	3.0
21	NRL	1617	1628	3.5
21	ABRD	1758	1809	4.0
21	NRL	1759	1810	3.7
21	ABRD	1940	1951	4.0
21	NRL	1944	1951	3.7
21	ABRD	2125	2133	4.0
21	ABRD	2307	2317	4.0
21	NRL	2312	2322	3.7
22	ABRD	0049	0102	4.0
22	NRL	0053	0105	4.0
22	ABRD	0231	0243	4.5
22	NRL	0236	0243	4.5
22	ABRD	0414	0422	4.5
22	NRL	1516	1527	5.2
22	NRL	1659	1710	5.2
22	ABRD	1659	1707	5.0
22	ABRD	1840	1851	4.0
22	NRL	1842	1851	4.2
22	ABRD	2023	2030	4.5
22	ABRD	2204	2213	4.5
22	NRL	2212	2220	4.7
22	ABRD	2345	2356	4.5
22	NRL	2353	0006	4.7
23	ABRD	0128	0141	4.5
23	NRL	0134	0145	4.7
23	ABRD	0309	0320	4.5
23	NRL	1557	1609	5.2
23	ABRD	1739	1750	5.0
23	NRL	1746	1750	5.2
23	ABRD	1921	1932	5.0
23	NRL	1926	1932	5.2
23	ABRD	2104	2114	5.5
23	NRL	2112	2116	5.2
23	ABRD	2248	2259	6.0
23	NRL	2253	2304	5.7
24	ABRD	0029	0043	5.0
24	NRL	0034	0047	5.2
24	ABRD	0213	0224	4.5
24	NRL	0217	0227	4.5
24	ABRD	0356	0404	4.5
24	NRL	1459	1508	5.2
24	NRL	1639	1651	5.2
24	ABRD	1639	1649	5.0
24	ABRD	1820	1832	5.0
24	NRL	1825	1832	5.2
24	ABRD	2004	2014	5.0
24	ABRD	2146	2156	5.0
24	NRL	2153	2201	5.2
24	ABRD	2331	2342	5.5
24	NRL	2334	2346	5.2
25	ABRD	0112	0124	5.5
25	NRL	0116	0129	4.5
25	ABRD	0254	0305	4.5
25	NRL	1539	1550	5.2
25	ABRD	1541	1547	5.0
25	ABRD	1719	1731	5.0
25	NRL	1722	1731	5.2
25	ABRD	1902	1913	5.0
25	ABRD	2047	2055	5.5
25	ABRD	2229	2240	5.5
25	NRL	2233	2245	5.2
26	ABRD	0011	0024	5.5
26	NRL	0015	0029	5.2
26	ABRD	0153	0205	5.5
26	NRL	0158	0208	5.2
26	NRL	1438	1449	5.2
26	ABRD	1620	1630	5.0
26	NRL	1622	1632	5.2
26	ABRD	1802	1813	5.0
26	NRL	1806	1813	5.2
26	ABRD	1946	1955	5.0
26	ABRD	2129	2140	5.0
26	ABRD	2311	2323	5.0
26	NRL	2314	2328	5.2
27	ABRD	0053	0106	5.5
27	NRL	0057	0109	5.2
27	ABRD	0236	0245	5.0
27	NRL	1340	1348	5.5
27	NRL	1519	1531	4.7
27	ABRD	1521	1529	5.0
27	ABRD	1700	1712	4.5
27	NRL	1703	1712	4.7
27	ABRD	1844	1854	5.0
27	NRL	1850	1854	4.7
27	ABRD	2027	2037	5.0
27	NRL	2034	2040	5.2
27	ABRD	2210	2221	5.0
27	NRL	2214	2226	5.2
27	ABRD	2352	0005	5.0
27	NRL	2356	0005	5.2
28	ABRD	0134	0144	5.0
28	NRL	1419	1430	5.2
28	ABRD	1600	1611	5.0
28	NRL	1601	1612	5.2
28	ABRD	1743	1753	5.0
28	ABRD	1926	1936	5.0
28	ABRD	2109	2119	5.5
28	ABRD	2252	2304	5.5
28	NRL	2255	2309	5.2
29	ABRD	0034	0047	5.0
29	NRL	0038	0049	5.2
29	ABRD	0217	0225	5.0
29	NRL	1319	1329	5.7
29	NRL	1500	1512	5.2
29	ABRD	1501	1510	5.0
29	ABRD	1642	1653	5.0
29	NRL	1645	1653	5.2
29	ABRD	1824	1835	5.0
29	NRL	1831	1835	5.2
29	ABRD	2008	2018	5.0
29	NRL	2014	2022	5.5
29	ABRD	2151	2202	5.5
29	NRL	2155	2208	5.2
29	ABRD	2333	2346	5.5
29	NRL	2337	2349	5.2
30	ABRD	0115	0127	5.5
30	NRL	1400	1411	5.2
30	ABRD	1403	1407	5.0
30	ABRD	1541	1552	5.0
30	NRL	1542	1551	5.2
30	ABRD	1723	1734	5.0
30	NRL	1729	1734	5.2
30	ABRD	1907	1917	5.0
30	ABRD	2050	2101	5.0
30	NRL	2055	2106	5.2
30	ABRD	2233	2245	5.0
30	NRL	2236	2249	5.2
31	ABRD	0015	0027	5.0
31	NRL	0020	0029	5.2
31	ABRD	0159	0205	5.0
31	NRL	1300	1310	5.7
31	NRL	1441	1453	5.0
31	ABRD	1441	1450	5.0
31	ABRD	1622	1634	5.0
31	NRL	1626	1634	5.0
31	ABRD	1806	1816	5.0
31	ABRD	1949	1959	5.0
31	NRL	1955	2003	5.2
31	ABRD	2132	2144	5.0
31	NRL	2136	2148	5.2
31	ABRD	2314	2317	5.0
31	NRL	2318	2330	5.2

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JULY 1968

JUL. 1968	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT.	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT.	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT.	SPECTRAL TYPE
01	0000	0146	HARV										
	0000	0248	BOUL										
	0000	0629	CULG				0207	0207.5	1	0207	0207.5	1	IIIG
			CULG				0355		1	0355		1	IIIB
			CULG				0509.5		1	0509.5		1	IIIB
			CULG				0537	0537.5	2	0537	0537.5	2	IIIB,U
	0555	1755	WEIS				0912	1300	1				IIIB
	1215	2400	HARV										
	0830	1400	SGMR							1502	1504		IIIG
			WEIS				1502.3	1502.7	1				VB
			BOUL							1502.9	1505.2	3	IIIG
			BOUL							1505.2	1506.6	1	IIIG
			SGMR							1510	1527		IV
			BOUL							1515.7	1518.6	3	III
			BOUL							1518.6	1528	2	CONT
			BOUL							1608.5	1608.8	1	III
	2120	2400	CULG										
			BOUL							2350.3	2350.6	1	III
02	0000	0147	HARV										
	0000	0641	CULG				0033	0033.5	1	0033	0033.5	1	IIIG
	0000	0250	BOUL							0033.9	0034.1	2	III
			CULG							0151		1	IIIB
			CULG							0313.5		1	IIIB
			CULG				0559.5		1				IIIB
	0545	1824	WEIS				0653.1	0653.3	1				IIIU
	1215	2400	HARV										
	1315	1432	SGMR										
	1533	1713	SGMR										
	1740	0100	SGMR										
			BOUL							1922.3	1922.6	2	III
	2045	2400	CULG										
03	0000	0147	HARV										
	0000	0251	BOUL							0002.1	0003.1	3	III
	0000	0418	CULG				0024	0036	1	0024	0036	1	IIIG
			BOUL							0032.3	0033.9	2	IIIG
			BOUL							0036.2	0037.7	3	IIIG
			CULG				0338	0340	1	0338	0340	1	IIIG
	0600	1809	WEIS				0823.2	0823.3	2				III,V
	1215	2400	HARV										
	1358	2400	BOUL							1642.4	1642.7	1	III
			BOUL							1732.7	1733	1	III
			BOUL							1815.1	1815.4	1	III
	0830	0100	SGMR							2007.9	2008.2		IIIB
			SGMR							2012.5	2013		IIIB
			BOUL							2013	2014.9	2	IIIG
			BOUL							2045.1	2046.6	3	IIIG
			SGMR							2045.4	2046		IIIB
	2049	2400	CULG										
			BOUL							2101.7	2105.7	1	IIIG
			SGMR							2142	2142.5		IIIB
			BOUL							2211.5	2211.9	3	III
			BOUL							2319.2	2319.5	1	III
04	0000	0147	HARV										
	0000	0247	BOUL										
	0000	0703	CULG										
	0830	1410	SGMR										
	1215	2400	HARV										
	0555	1815	WEIS				1232.8	1235.5	1				
	1413	2400	BOUL							1949	2037	2	CONT
	1546	0100	SGMR							2002	2100		CONT
			SGMR							2019.1	2020		IIIB
			SGMR							2026.2	2026.9		IIIB
			BOUL							2037	2136	1	CONT
	2053	2400	CULG				2128	2229	1	2128	2229	1	IIIN
			BOUL							2224.6	2228.3	1	IIIG
			CULG				2312	2313	2	2312	2313	2	IIIG
			BOUL							2312.7	2313.9	3	III
			SGMR							2312.8	2313.4		IIIB
05	0000	0147	HARV										
	0000	0700	CULG				0140.5	0141	1	0140.5	0141	1	IIIB
	0000	0230	BOUL							0141.5	0141.9	2	III
			CULG				0249		1	0249		1	IIIB
			CULG				0307	0427	1	0307	0427	1	IIIN
			CULG				0340	0344	2	0340	0344	2	IIIG
			CULG				0543	0545	2	0543	0546.5	2	IIIG,V
	0830	0100	SGMR							1422	1423		IIIB
	1402	1540	BOUL							1422.9	1423.4	2	III
	1640	2400	BOUL							1722	1759.9	1	CONT
			BOUL							1759.9	1844	2	CONT
			SGMR							1800	1930		CONT
	1230	2400	HARV	1928	1933	1	1928	1933	1				IIIG
			BOUL							1944.7	1947.6	2	IIIG
			HARV	2038	2039	2	2038	2041	2	2039	2041	2	IIIGG
			SGMR							2038.8	2041		IIIG
			BOUL							2039.3	2042.7	3	III
			BOUL							2042.7	2150	1	IV
			BOUL							2044.4	2045.8	2	IIIG

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JUL. 1968	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT.	START UT	END UT	INT.	START UT	END UT	INT.	
05			BOUL							2055.5	2114	2	II
			SGMR							2057	2110		CONT
			BOUL							2221.7	2222	2	III
	2100	2400	CULG				2242		1				IIIB
			BOUL							2245	2246.8	1	IIIG
06	0000	0147	HARV										
	0000	0058	BOUL							0015.3	0015.5	1	III
	0000	0700	CULG				0019.5		1	0019.5		1	IIIB
			BOUL							0020.3	0020.5	2	III
			CULG				0024	0130	1	0041	0130	1	CONT
			BOUL							0037	0058 D	2	CONT
			CULG				0154.5	0157	1	0154.5	0157	1	IIIG
			CULG				0222.5		1	0222.5		1	IIIB
			CULG				0343	0343.5	1	0343	0343.5	1	IIIG
	0735		WEIS				0839.4	0840.9	2				IIIG
			WEIS				0844.6	0844.8	1				B
			WEIS				0846.1	0846.9	1				IIIG
			WEIS	0944.6	1004	3							IV
	0830	0100	SGMR							0946	0951		IIIG
			SGMR							0955	0957.3		IIIG
			WEIS				1009.2	1021.9	1				IIIGG.RS
			SGMR							1233	1234		IIIB
	1415	2400	BOUL							1417.9	1418.1	1	III
			BOUL							1430.6	1451	1	CONT
			BOUL							1506.8	1513.3	2	IIIG
			SGMR							1510	1510.3		IIIB
	1230	2400	HARV				1554	1609	2	1554	1609	2	IIIN
			WEIS				1554	1554.9	2				IIIG
			SGMR							1554	1557.3		IIIG
			BOUL							1554.9	1557.9	3	IIIG
			WEIS				1555.5	1555.9	1				IIIG
			WEIS				1608.8	1609.1	2				IIIG
			SGMR							1609	1609.4		IIIB
			BOUL							1609.6	1610.1	3	III
			BOUL							1624.7	1624.9	1	III
			BOUL							1628.2	1628.5	1	III
			WEIS				1634.6	1634.8	1				B
			SGMR							1635	1635.3		IIIB
			BOUL							1635.5	1635.8	3	III
			SGMR							1647	1647.3		IIIB
			BOUL							1647.8	1651.8	2	IIIG
			WEIS				1652.9	1654.1	3				IIIG
			HARV	1653		2	1653	1654	3				IIIG
			BOUL							1705.7	1705.9	1	III
			WEIS				1719	1720.9	1				IIIG
			SGMR							1719	1722		IIIG
			BOUL							1719.8	1727.8	3	IIIGG
			SGMR							1724	1726.4		IIIG
			BOUL							1823.1	1829.3	1	IIIG
			SGMR							1836.6	1836.8		IIIB
			BOUL							1837.2	1839.9	2	IIIG
			BOUL							1925	2025	1	CONT
			BOUL							1935.3	1939.5	2	IIIG
			SGMR							1936.3	1936.4		IIIB
			BOUL							2056.3	2056.6	1	III
	2052	2400	CULG				2132.5	2133	1	2132.5	2133	1	IIIG
			BOUL							2133.3	2134.1	2	IIIG
			BOUL							2146	2410	1	CONT
			CULG				2146.5		1				IIIB
			CULG				2203.5		1				IIIB
			CULG				2222.5	2333	1	2222.5	2333	1	IIIN
			BOUL							2227.2	2229.7	2	IIIG
			BOUL							2234.6	2238.1	3	IIIG
			CULG				2235	2237.5	2				IIIG.V
			SGMR							2235.3	2236.8		IIIB
			BOUL							2325.9	2331.5	2	IIIG
07	0000	0147	HARV				0002		2				IIIG
	0000	0609	CULG				0002.5	0003	2	0002	0008	1	IIIG
	0000	0232	BOUL							0008.9	0009.1	2	III
	0830	0100	SGMR							0017	0017.6		IIIB
			BOUL							0049.3	0053.9	1	IIIG
			HARV				0052		1				IIIG
			CULG				0052.5	0053	2				IIIG.U
			BOUL							0111.2	0113.5	2	IIIG
			CULG				0112.5		1	0112.5		1	IIIB
	1231	2400	HARV				0139		1				IIIG
			BOUL							0139.2	0139.5	1	III
			CULG				0139.5		1				RS
			CULG				0139.5	0147	2	0144.5	0147	2	IIIG.U
			BOUL							0145.3	0147.6	2	IIIG
			CULG				0219	0222	1	0219	0222	1	IIIG
			CULG				0225	0227	2	0226	0227	1	IIIG.V
			CULG				0235	0340	1				IIIN
			CULG				0320	0329	1				II
			CULG				0428	0535	1	0428	0535	1	IIIN
			CULG				0430	0435.5	2	0430	0435.5	2	IIIG.U
			CULG				0436		1	0436		1	RS
	0640	1854	WEIS				0806.1	0813.3	3				IIIGG

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JUL. 1968	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT.	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT.	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT.	SPECTRAL TYPE
07			WEIS				1136.1	1136.2	1				
	1214	2310	BOUL							1214 E	1805	1	CONT
			WEIS				1226.9	1305	2				N
			WEIS				1258.2	1258.4	1				IIIB
			HARV	1305	1306	2	1305	1306	2				IIIG
			SGMR							1400	0100		CONT
			WEIS				1454.1	1454.2	2				
			WEIS				1513.5	1514.2	1				IIIG
			HARV				1559	1702	1	1602	1707	1	UNCL,N
			WEIS				1559.2	1647.8	2				IIIGG
			SGMR							1602	1603		IIIG
			SGMR							1631	1700		IIIG
			BOUL							1631.5	1639.1	3	IIIGG
			BOUL							1640.1	1649.8	3	IIIGG
			BOUL							1651	1658,7	3	IIIG
			WEIS				1657.2	1657.7	1				IIIG
			SGMR							1705	1705.3		IIIB
			WEIS				1721.9	1722.3	2				IIIB
			HARV				1722		3	1722		2	IIIG
			SGMR							1722.6	1723		IIIB
			HARV				1725	1726	2				IIIG
			WEIS				1725	1725.5	2				IIIG
			WEIS				1739.7	1740.9	3				IIIG
			HARV				1740	1741	3	1740	1741	3	IIIG,V
			SGMR							1740	1741.3		IIIB
			BOUL							1740.5	1742.2	3	IIIG
			HARV				1804	1835	1				IIIN
			BOUL							1805	1903,4	2	CONT
			BOUL							1903.4	2130	1	CONT
			BOUL							2024.4	2028.4	3	IIIG
			HARV				2026	2027	1	2026	2027	1	IIIG
			SGMR							2026.8	2027.3		IIIB
			BOUL							2038.4	2039.8	2	IIIG
			SGMR							2038.8	2039.3		IIIG
			HARV				2048	2049	2	2048	2049	2	IIIG
			SGMR							2048	2050		IIIG
			BOUL							2048.7	2050.2	3	IIIG
	2058	2400	CULG				2200.5		1	2200.5		1	IIIB
			BOUL							2200.7	2203.3	1	IIIG
			BOUL							2237.4	2246.7	3	IIIG
			CULG				2238.5	2245.5	2	2238.5	2245.5	2	IIIG,U
			HARV				2239	2245	1	2239	2245	1	IIIG
			SGMR							2240	2240.3		IIIB
			SGMR							2246	2246,2		IIIB
			CULG				2259		1	2259		1	IIIB
			HARV				2314	2316	2	2314	2316	2	IIIG
			CULG				2314	2317.5	3	2314	2317.5	3	IIIG,V,U
			SGMR							2315	2317		IIIG
			CULG				2332	2332.5	2	2332	2332.5	2	IIIG,U
			CULG				2350	2350.5	3	2350	2350.5	3	IIIB
08	0000	0700	CULG				0003.5	0012.5	1	0003.5	0012.5	1	IIIG
			CULG				0015	0017.5	2	0015	0017.5	2	IIIG,V
	0000	0249	BOUL							0043 E	0206 D	1	CONT
	0000	0147	HARV	0051	0052	1	0015	0017	2	0016	0017	2	IIIG
			CULG				0123.5	0203	1	0123.5	0203	1	IIIN
			CULG				0141	0142	2	0141.5	0142	1	IIIG,U
			CULG				0155		2	0155		2	IIIB
			CULG				0159.5	0203	2	0159.5	0203	2	IIIG,V,U
			CULG				0258.5	0259	2	0258.5	0259	2	IIIB,U
			CULG				0401	0416	1	0401	0416	1	IIIN
			CULG				0527	0546	1	0523.5	0558	1	IIIN,U
			CULG				0530.5	0531.5	2	0530.5	0531.5	2	IIIG,V
			CULG				0536	0537	1	0536	0537	1	IIIG
			CULG				0543	0543.5	2	0543	0543.5	2	IIIG
			CULG				0649	0652	2	0649	0652	1	IIIG
	0550	1845	WEIS				0649.2	0649.5	2				IIIB,V
			WEIS				0651.9	0652.1	1				IIIB,V
			WEIS				0730.6	0731.5	3				IIIG,V
			WEIS				0736.8	0737.2	3				III,V
			WEIS				0743.5	0745	3				B
			WEIS	0947.5	0948	3	0830.6	0830.8	1				IIIG
			WEIS										IIIG
			WEIS				1037	1037.6	2				IIIG
			WEIS				1039.9	1040.1	1				IIIB
	1231	2400	HARV				1311	1312	1				IIIG
	0830	0100	SGMR							1312	1312,3		IIIB
			HARV				1327	1328	1				IIIG
			WEIS				1327.9	1328.1	1				IIIG
			HARV				1441	1443	1				IIIGG
			WEIS				1441	1442.2	1				IIIG
			SGMR							1441	1442,4		IIIG
			BOUL							1441.8	1443.8	2	IIIG
			WEIS				1600.1	1604.4	1				
			BOUL							1610	1654	2	CONT
			SGMR							1624	1645		CONT
			SGMR							1625	1625,6		IIIG
			WEIS				1628.9	1629.1	1				IIIB
			HARV				1629	1633	2	1629	1633	1	IIIGG
			SGMR							1629	1629,3		IIIB

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JUL. 1968	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT.	START UT	END UT	INT.	START UT	END UT	INT.	
08	1419	2400	BOUL							1629.8	1636.2	3	IIIG
			WEIS				1632.7	1633.2	2				IIIG
			SGMR							1632.8	1635.3		IIIG
			HARV	1708	1715	3	1708	1710	3				IIIGG
			WEIS				1708.6	1745	3				II IV
			HARV	1710	1727	3	1709	1732	3	1712	1732	3	II
			SGMR							1711.8	1732		CONT
			SGMR							1712	1715		IIIG
			BOUL							1712.5	1721.7	3	IIIGG
			SGMR							1715	1719		II
			BOUL							1715.5	1751.4	3	II
			BOUL							1715.8	1906	3	IV
			SGMR							1720	1722		IIIG
			HARV	1730	1745	3	1739	1746	3				IV
			SGMR							1732	1830		IV
			HARV				1800	1920	1				I
			BOUL							1817	2217	1	CONT
			SGMR							1851.7	1852		IIIB
			BOUL							1851.8	1902	3	IIIGG
			SGMR							1853.3	1853.6		IIIB
			SGMR							1856.8	1857.5		IIIB
			HARV	1858	1859	1	1851	1901	3	1851	1901	2	IIIGG
			SGMR							1858.1	1900		IIIG
			HARV				1903	1926	2				IV
			SGMR							1920	1920.5		IIIB
			SGMR							2105	2105.5		IIIB
	2109	2400	CULG				2140	2400	1				IS
			HARV				2142	2143	2	2142	2143	1	IIIG
			CULG				2142	2143	2	2142	2143	2	IIIG.U
			BOUL							2142.2	2144.6	2	IIIG
			SGMR							2142.8	2143.2		IIIB
			HARV				2144	2400	1				IN
			CULG				2144	2400	2	2144	2400	2	IIIS
			CULG				2216.5	2217.5	1	2216.5	2217.5	1	IIIG
			BOUL							2217	2422	3	CONT
09	0000	0700	CULG				0000	0017	2	0000	0023	2	IIIS
			CULG				0000	0210	1				IS
	0000	0147	HARV				0016	0147	2				IC
	0000	0257	BOUL							0022	0200	2	CONT
			CULG				0024	0700	1	0024	0700	1	IIIN
			CULG				0054	0059	2	0054	0059	2	IIIG
			CULG				0250	0250.5	3	0250		3	IIIG
			CULG				0318	0320	1	0318	0320	1	IIIG
			CULG				0349.5	0353	2	0349.5	0353	2	IIIG.U
			CULG				0355.5		1				IIIB.U
			CULG				0436	0441	2	0436	0441	2	IIIG
			CULG				0457		1	0457		1	IIIB
			CULG				0505.5		1	0505.5		1	IIIB
			CULG				0526.5		1	0526.5		1	IIIB
			CULG				0615	0616	3	0615	0616	3	IIIG
	0605	1113	WEIS				0615.3	0616.2	2				VB
			CULG				0620	0633	2	0620	0633	2	IIIG
			WEIS				0625.6	0626.2	1				IIIG
			WEIS				0629.6	0629.8	1				IIIB
			WEIS				0633.1	0633.2	1				IIIB
			WEIS				0643.8	0644	2				IIIB
			CULG				0644		2	0644		2	IIIB
			WEIS				0656.7	0656.9	1				B
			WEIS				0701.6	0701.9	3				IIIB
			WEIS				0703.2	0703.4	2				IIIB
			WEIS				0725.1	0725.4	2				IIIB
			WEIS				0738.6	0739.2	2				IIIG
			WEIS				0755.3	0755.9	2				IIIG
			WEIS				0816.1	0816.4	2				IIIB
			WEIS				0837.6	0838	2				IIIG
			WEIS				0842.4	0842.8	1				IIIG
			WEIS				0912.2	0913.9	3				IIIG
			WEIS	1002.5	1003.7	3							IIIG.V
			WEIS				1107	1107.4	3				IIIG
			WEIS				1112.9	1114.2	2				IIIG
	0830	0100	SGMR							1138.5	1138.9		IIIB
			SGMR							1146.5	1147		IIIB
	1230	2400	HARV				1230	1628	1				IN.
			HARV				1401	1402	1				IIIG
			SGMR							1402	1405.5		IIIG
	1408	2400	BOUL							1414	0045	1	CONT
			SGMR							1430.1	1430.5		IIIB
			BOUL							1430.2	1431.7	2	IIIG
			HARV				1557	1559	1	1557	1559	1	IIIG
			SGMR							1557.3	1558.7		IIIG
			BOUL							1557.4	1559.3	3	IIIG
			HARV				1628	1754	1				I
			SGMR							1647.8	1648.8		IIIG
			BOUL							1647.9	1648.7	3	IIIG
			HARV				1648		1	1648		1	IIIG
			HARV				1712	1713	2	1712		2	IIIG
			BOUL							1712.4	1713.4	3	IIIG
			SGMR							1713	1714		IIIB
			HARV				1805	1806	2				IIIG

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JUL. 1968	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT.	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT.	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT.	SPECTRAL TYPE
09			BOUL							1805.5	1806	3	III
			SGMR							1806	1806.6		IIIB
			HARV				1840	2153	1				I
			BOUL							1857.1	1857.5	2	III
			SGMR							1857.8	1858		IIIB
			BOUL							1904.4	1904.7	2	III
			SGMR							1905	1905.3		IIIB
			SGMR							1932.3	1933.3		IIIB
			BOUL							1942.1	1942.4	2	III
			SGMR							1942.5	1942.8		IIIB
			SGMR							1954.6	1955		IIIB
			SGMR							2033	2033.3		IIIB
			HARV				2124	2125	1				IIIG
	2102	2400	CULG				2124	2125	1	2124	2125	1	IIIG
			BOUL							2124.1	2130.3	3	IIIG
			SGMR							2125.1	2125.3		IIIB
			SGMR							2127	2127.2		IIIB
			CULG				2128.5	2130.5	3	2128.5	2130.5	3	IIIG,V
			HARV	2129	2130	2	2129	2130	2	2129	2130	2	IIIGG
			SGMR							2129.3	2130.8		IIIB
			CULG				2140	2327	1				I
			HARV				2216	2320	1				IN
			CULG				2219.5	2223.5	1				IIIG
			CULG				2239	2243.5	2	2239	2243.5	2	IIIG,V
			BOUL							2240.3	2244.5	3	IIIGG
			SGMR							2242.5	2244.2		IIIG
			HARV	2243	2244	2	2239	2244	2	2240	2244	2	IIIGG
10	0000	0147	HARV										
	0000	0700	CULG				0011.5		1	0011.5		1	IIIB
			CULG				0203	0209.5	2	0203	0208.5	2	IIIG,V
	0000	0239	BOUL							0203	0208.5	2	IIIG
			CULG				0255.5		1	0255.5		1	IIIB
			CULG				0354	0357	1	0355	0357	1	IIIG
			CULG				0408	0413	1	0408	0413	1	IIIG
			CULG				0415	0416	2	0415	0416	2	IIIG
			CULG				0416	0448.5	1	0421	0448.5	1	IIIN
			CULG				0526	0526.5	1				IIIG
			CULG				0547	0656	1				IIIN
			CULG				0612	0622	2	0615	0622	2	IIIG
	0600	1845	WEIS				0615.2	0622.1	2				IIIGG
			CULG				0644.5		2	0644.5		2	IIIB
			WEIS				0645	0645.7	1				IIIG
			WEIS				0727.4	0729.2	3				IIIGG
			WEIS				0744.6	0745.3	3				IIIG
			WEIS				0755	1435					IN
			WEIS				0854.4	0854.6	1				IIIB
			WEIS				0909.4	0909.8	2				IIIB
			WEIS				0933.4	0934.4	3				IIIB,V
			WEIS				0935	0935.5	2				IIIG
			WEIS				1100.6	1101.1	1				IIIG
			WEIS				1213.9	1215	2				IIIG
	0830	1800	SGMR							1214.5	1215.8		IIIG
	1231	2400	HARV				1239	1500	1				IN
			WEIS				1335.4	1335.6	1				IIIB
	1401	2400	BOUL							1417.9	1420.1	2	IIIG
			BOUL							1433.4	1434.9	2	IIIG
			BOUL							1445.2	1445.5	1	III
			BOUL							1551.1	1557.8	2	IIIG
			SGMR							1602.8	1603.1		IIIB
			BOUL							1603.7	1604	2	III
			WEIS				1603.8	1603.9	1				IIIB
			SGMR							1604.5	1604.8		IIIB
			BOUL							1622.7	1623	1	III
			BOUL							1638.8	1639	2	III
			BOUL							1651.4	1651.7	1	III
			BOUL							1705.6	1706	2	III
			SGMR							1706	1706.4		IIIB
			BOUL							1710.5	1710.8	1	III
			BOUL							1715	2059.9	1	CONT
			BOUL							1718	1721.3	2	IIIG
			SGMR							1718.3	1718.8		IIIB
			SGMR							1721	1722		IIIB
			SGMR							1744.3	1744.8		IIIB
			BOUL							1907	1907.3	2	III
			BOUL							1912.3	1913	2	III
			HARV				2007		1				IIIG
	2020	0100	SGMR							2040	2245		CONT
			BOUL							2055.9	2126.5	3	CONT
			HARV				2056	2107	1	2059	2107	1	IIIGG
			SGMR							2058.8	2059.2		IIIB
	2103	2400	CULG				2104.5	2125	1	2107	2125	1	IIIG
			SGMR							2105	2105.4		IIIB
			HARV				2107	2126	2	2107	2110	2	IIIGG
			SGMR							2107.5	2111		IIIG
			HARV							2115		1	IIIG
			SGMR							2115.2	2116.3		IIIB
			SGMR							2120.2	2120.5		IIIB
			CULG				2125	2126	2	2125	2126	2	IIIG
			HARV							2125	2126	2	IIIGG

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10			SGMR							2125.5	2126.8		IIIB
			BOUL							2126.5	2530 D	1	CONT
			CULG				2127	2400	1	2127	2400	1	IIIN
			HARV				2209	2212	2	2209	2212	2	IIIG
			CULG				2209	2221	2	2209	2221	2	IIIGG
			BOUL							2209.1	2220.2	3	IIIGG
			SGMR							2210	2210.5		IIIB
			SGMR							2212.5	2213		IIIB
			CULG				2228.5	2245	1	2228.5	2245	1	IIIGG,U
			BOUL							2228.8	2238.8	3	IIIGG
			HARV				2230	2233	1				IIIG
			CULG				2230	2233	2	2232	2233	2	IIIG
			BOUL							2312.5	2320.9	2	IIIG
			BOUL							2326	2334,3	2	IIIG
			CULG				2349		2	2349		2	IIIB
11	0000	0147	HARV										
	0000	0700	CULG				0000	0632	1	0000	0619	1	IIIN
	0000	0255	BOUL							0031.2	0035.8	2	IIIG
			BOUL							0100.8	0101.7	2	IIIG
			CULG				0113	0117	1	0113	0117	1	IIIG
			BOUL							0113.5	0122.4	2	IIIG
			BOUL							0158.9	0204.4	2	IIIG
			CULG				0203.5	0204.5	3	0203.5	0204.5	3	IIIB
			CULG				0246	0246.5	1	0246	0246.5	1	IIIG
			CULG				0259		2				IIIB,U
			CULG				0313	0323.5	2	0313	0323.5	2	IIIG,V
			CULG				0403.5	0415.5	2	0400.5	0415.5	2	IIIG,V
			CULG				0455	0527	2	0455	0527	2	IIIG
			CULG				0543	0543.5	1	0543	0543.5	1	IIIG
			CULG				0549	0549.5	2	0549	0549.5	2	IIIG
			CULG				0554		2	0554		2	IIIG
	0605	1808	WEIS				0746.5	0746.8	2				IIIB
			WEIS				0748.4	0751.7	3				IIIG
			WEIS				0903.2	0903.8	3				IIIB,V
			WEIS				1014.3	1014.9	1				IIIG
			WEIS				1125.4	1127.1	3				IIIG
	0830	0100	SGMR							1126.5	1128		IIIG
			WEIS				1134.4	1136.8	3				IIIGG
			SGMR							1134.6	1137.3		IIIG
			WEIS				1219.4	1222.4	3				IIIGG
			SGMR							1221	1223		IIIB
			WEIS				1329	1329.2	1				IIIG
			SGMR							1329	1329,3		IIIB
			SGMR							1410	1410,3		IIIB
	1230	2400	HARV				1433	1435	1	1435		1	IIIG
	1427	2400	BOUL							1433.8	1435.8	2	IIIG
			WEIS				1435.3	1435.8	1				IIIG
			SGMR							1435.3	1435.8		IIIB
			BOUL							1445.7	1446	2	III
			BOUL							1517.4	1525.4	2	IIIG
			HARV				1548	1549	1	1548		1	IIIG
			WEIS				1548.4	1549.2	2				IIIG
			SGMR							1549	1550		IIIG
			BOUL							1645	1755	1	CONT
			WEIS				1728.9	1729.1	1				IIIG
			SGMR							1729	1729,4		IIIB
			BOUL							1748.3	1752.4	2	IIIG
			SGMR							1749	1752		IIIG
			BOUL							1947.8	1948.1	2	III
			BOUL							2005	2227 D	1	CONT
			BOUL							2129.3	2132.6	2	IIIG
	2107	2400	CULG				2129.5	2132.5	2	2129.5	2132.5	2	IIIG
			SGMR							2130	2133		IIIG
			CULG				2149		1	2149		1	IIIB
			CULG				2205.5		1	2205.5		1	IIIB
			CULG							2224.5	2358	1	IIIN
			CULG				2327		1	2327		1	IIIB
12	0000	0146	HARV	0002	0010	1	0000	0146	1				IN
	0000	0058	CULG				0005	0055	1				I
			CULG				0054	0055	1	0054	0055	1	IIIG
	0000	0238	BOUL							0108	0108.3	2	III
			BOUL							0151.3	0151.9	1	III
	0345	0700	CULG							0355.5	0404	1	IIIG
			CULG							0451.5		1	IIIB
			CULG				0646.5						IIIB
	0830	0100	SGMR							1244.8	1245.2		IIIB
	0545	1832	WEIS				1341.7	1355	2				IIIGG
			SGMR							1341.7	1404		CONT
			SGMR							1342	1342,8		IIIG
	1230	2400	HARV				1343	1352	2				IIIGG
			SGMR							1351	1358		IIIG
			WEIS	1353.8	1422	1							S
	1354	2400	BOUL							1354 E	1455	3	CONT
			WEIS				1357.3	1357.5	1				IIIB
			HARV				1400	1409	2				IIIGG
			WEIS				1400.4	1416.7	3				IIIGG
			SGMR							1404	1445		IV
			WEIS				1426.7	1426.9	1				IIIB

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12			SGMR							1445	0100		CONT
			BOUL							1455	2055	1	CONT
			SGMR							1529.5	1530		IIIB
			SGMR							1533	1533.3		IIIB
			HARV				1619	1620	1				IIIG
			HARV				1700	2400	1				IN
			BOUL							2055	2311	2	CONT
	2106	2400	CULG				2106	2400	1				I
			CULG				2118	2400	1	2118	2400	1	IIIN
			CULG				2144	2200	2				IIIG
			SGMR							2144.7	2145		IIIB
			SGMR							2146.5	2146.9		IIIB
			SGMR							2149.6	2150.3		IIIB
			BOUL							2311	0145 D	1	CONT
13	0000	0237	BOUL										
	0000	0700	CULG				0000	0414	1	0000	0414	1	IIIN
			CULG				0000	0700	1				I
	0000	0146	HARV				0100	0146	1				IN
			CULG				0345	0350	1	0345	0350	1	IIIG
			CULG				0515	0520	2	0515	0520	2	IIIG
			CULG				0536		2	0536		2	IIIB
			CULG				0620.5		1	0620.5		1	IIIB
	0550	1900	WEIS				0702	0717	1				IN
			WEIS				1047.2	1048.8	2				IIIG
	1231	2400	HARV				1231	1800	1				IN
	0830	0100	SGMR							1331.9	1332.5		IIIB
			SGMR							1337.8	1338.8		IIIG
	1431	2400	BOUL							1508	2540 D	1	CONT
			HARV				1544	1548	1	1544	1548	1	IIIG
			WEIS				1544.3	1544.9	3				IIIG
			BOUL							1544.3	1548	2	IIIG
			WEIS				1547.6	1548	2				IIIG
			BOUL							1629.7	1633.9	2	IIIGG
			WEIS				1629.7	1634	2				IIIGG
			HARV				1630	1634	2	1630	1634	2	IIIGG
			BOUL							1656.2	1657.1	2	IIIG
			WEIS				1656.4	1657	1				IIIG
			HARV				1714	1717	2	1714	1717	2	IIIGG
			BOUL							1714	1717.2	2	IIIG
			WEIS				1714.3	1717.2	3				IIIG
			SGMR							1714.3	1718		IIIG
			SGMR							1720	1720.3		IIIB
			SGMR							1727.5	1727.9		IIIB
			BOUL							1746.4	1746.8	2	III
			WEIS				1746.5	1746.8	1				IIIG
			SGMR							1746.7	1747.1		IIIB
			SGMR							1838.1	1838.5		IIIB
			HARV				1936	1938	1	1936	1938	1	IIIG
			BOUL							1936.2	1937.9	2	IIIG
			SGMR							1936.6	1938.1		IIIG
			HARV				2100		1				IIIG
			BOUL							2102.7	2103.7	2	IIIG
			SGMR							2103	2104		IIIB
			BOUL							2154.8	2155.1	2	III
			HARV				2222		1				IIIG
			BOUL							2222.1	2223	2	IIIG
			SGMR							2222.5	2222.8		IIIB
			HARV				2231	2234	2	2231	2234	1	IIIG
			BOUL							2231.3	2232	2	III
			SGMR							2231.8	2232.5		IIIB
			BOUL							2305.3	2305.8	2	III
			BOUL							2330.6	2331.1	2	III
	2332	2400	CULG				2332	2400	1				I
			CULG							2341		1	IIIB
14	0000	0146	HARV										
	0000	0233	BOUL										
	0000	0700	CULG				0000	0700	1				I
			CULG				0013	0016	1	0013	0016	1	IIIG
			CULG				0047		1	0047		1	IIIB
			CULG				0114	0119	1	0114		1	IIIG
			CULG							0209		1	IIIB
			CULG							0219.5		1	IIIB
			CULG				0247	0251	1	0247	0251	1	IIIG
			CULG				0341.5	0342	1	0341.5	0342	1	IIIG
			CULG				0402.5		1	0402.5		1	IIIG
			CULG							0538		1	IIIB
			CULG				0643		1	0643		1	IIIB
	0704	1827	WEIS										
			WEIS				0719.8	0720.6	2				IIIG
			WEIS				1156.7	1157	2				IIIG
	1230	2400	HARV				1254	1255	1				IIIG
			WEIS				1255.1	1255.8	1				IIIGG
	0830	0100	SGMR							1256	1256.4		IIIB
			WEIS				1257.4	1257.6	1				IIIB
			SGMR							1258	1258.4		IIIB
			WEIS				1259.6	1259.8	1				IIIG
			HARV				1300	1301	1				IIIG
			WEIS				1302.1	1302.2	1				IIIB,RS

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				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT.	START UT	END UT	INT.	START UT	END UT	INT.	
14			HARV	1546	1822	1	1546	1822	1				IN
	1419	0230	BOUL							1719.1	1725.3	1	IIIG
			HARV				1838	1839	2	1838	1839	2	IIIG
			BOUL							1838.1	1839.7	3	IIIG
			SGMR							1838.8	1840		IIIB
	2104	2400	CULG				2151	2151.5	2	2151.5		2	IIIG
			BOUL							2204	2204.2	1	III
			BOUL							2219.3	2219.7	1	III
15	0000	0146	HARV										
	0000	0230	BOUL							0007.2	0007.5	1	III
			BOUL							0108.4	0112.6	2	IIIG
	0000	0700	CULG				0108.5	0112.5	1	0108.5	0112.5	1	IIIG
			BOUL							0125.8	0126.3	1	III
			CULG				0200.5	0203	2				IIIG,U
			CULG				0220		1				IIIB
			CULG				0233	0237	1	0233	0237	1	IIIG
			CULG				0310.5	0313	1	0310.5	0312	1	IIIG
			CULG				0321	0323.5	1	0321.5	0322	1	IIIG,U
			CULG				0336.5	0337.5	2				IIIG
			CULG				0436	0436.5	2	0436	0436.5	2	IIIG
			CULG				0448	0449	1	0448	0452.5	1	IIIG
			CULG				0547	0547.5	3	0547	0547.5	3	IIIG
			CULG				0606.5	0609	1				IIIG
			CULG				0626	0629.5	2	0626	0629.5	2	IIIG
	0755	1842	WEIS				1005.4	1005.8	1				IIIG
			WEIS				1156	1156.3	3				IIIG
			WEIS				1320.4	1320.9	1				IIIG
	1335	1508	SGMR										
			WEIS				1348.8	1349	1				IIIB
			WEIS				1420.7	1421.2	2				IIIG
	1400	2306	BOUL							1420.7	1421.6	2	IIIG
	1231	2400	HARV				1421		1				IIIG
			BOUL							1438.8	1439.3	2	III
			WEIS				1439	1439.2	1				IIIB
			HARV	1630	1720	1							IN
			BOUL							1715.6	1717.9	3	IIIG
			WEIS				1716.7	1717.8	1				IIIG
			HARV				1717	1718	1	1717	1718	1	IIIG
	1551	0100	SGMR							1717.6	1718		IIIG
			BOUL							1752.6	1753	2	III
			BOUL							1758.9	1759.1	2	III
			BOUL							1850.1	1850.3	2	III
			BQUL							1916.1	1916.3	2	III
			SGMR							2009.7	2010.4		IIIB
			SGMR							2017.6	2018		IIIB
			HARV				2022	2023	1				IIIG
			BOUL							2037.5	2038.5	3	III
			HARV				2038		2	2038		2	IIIG
			SGMR							2038.2	2039		IIIB
			BOUL							2042.7	2043	3	III
	2106	2400	CULG										
16	0000	0146	HARV										
	0000	0646	CULG				0532.5	0533	1	0532.5	0533	1	IIIG
			CULG				0557.5		1				IIIG
	0830	1820	SGMR										
	0735	1810	WEIS				1012	1012.8	1				IIIGG
	1231	2400	HARV				1437	1622	1				IN
	1402	2400	BOUL							1503.6	1503.8	2	III
			HARV				1521		2				IIIG
			WEIS				1521.1	1521.6	2				IIIGG
			BOUL							1812.8	1813.8	2	IIIG
			HARV	1813		1	1813		2	1813		1	IIIG
			BOUL							1911.2	1911.5	1	III
			BOUL							2011.4	2011.6	2	III
			BOUL							2048.9	2049.1	2	III
			BOUL							2054.7	2055.1	1	IIIG
			BOUL							2110.8	2114.9	2	IIIG
			BOUL							2218.6	2219.1	2	III
	2057	2400	CULG				2219		1	2219		1	IIIB
			BOUL							2241.3	2241.6	2	III
			CULG							2241.5		1	IIIB
			BOUL							2348.9	2349.2	2	III
17	0000	0108	CULG										
	0000	0146	HARV										
	0000	0228	BOUL										
	0113	0651	CULG				0405		1	0405		1	IIIB
			CULG				0422		1	0422		1	IIIB
			CULG				0428	0428.5	1	0428		1	IIIG,U
			CULG				0557		1	0557		2	IIIB
			CULG				0627.5		1				IIIB
	0747	1840	WEIS										
	1358	1702	BOUL										
	1231	2400	HARV	1714	1715	1	1714	1715	1				IIIG
			HARV	1719	1720	1	1719	1722	1				IIIG
			HARV				1903		1				IIIG
	1742	2400	BOUL							1915.1	1915.3	1	III
	1300	0100	SGMR							1936.1	1936.6		IIIB

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				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT.	START UT	END UT	INT.	START UT	END UT	INT.	
17			BOUL							1950.6	1951.2	2	III
			HARV				1951		2	1951		1	IIIG
			BOUL							2048	2048.2	1	III
			BOUL							2100.6	2101.2	2	IIIG
	2054	2400	CULG							2142.5		1	IIIB
			CULG				2248.5	2249	1	2248.5	2249	1	IIIG
			CULG				2301		1				IIIB
			HARV				2301	2400	1				IN
			BOUL							2301.2	2301.4	1	III
			CULG				2308	2309.5	1	2308	2309.5	1	IIIG
			BOUL							2308	2309.2	2	IIIG
			CULG				2329	2330	2	2329	2330	2	IIIG.U
			BOUL							2329.1	2330.1	2	IIIG
18	0000	0145	HARV										
	0000	0321	BOUL										
	0000	0654	CULG				0235.5	0236	1				IIIG
			CULG				0417.5	0418.5	1				IIIG
			CULG				0625.5		1	0625.5		1	IIIB
	0815	1900	WEIS										
	1354	2400	BOUL							1536.3	1537	2	III
	0830	0100	SGMR							1536.7	1537.2		IIIB
	1336	2400	HARV				2345	2348	2				IIIG
			BOUL							2345.5	2346.7	3	III
	2041	2400	CULG				2345.5	2348.5	2	2345.5	2346	2	IIIG.U
19	0000	0145	HARV										
	0000	0218	BOUL										
	0000	0644	CULG							0200.5		1	IIIB
	0830	0100	SGMR										
	1232	2400	HARV				1407	1408	1				IIIG
	0735	1930	WEIS				1407.5	1407.8	2				IIIB
	1351	2400	BOUL							1407.6	1408	2	III
	2051	2400	CULG										
20	0000	0145	HARV										
	0000	0219	BOUL										
	0000	0731	CULG							0043		1	IIIB
	0830	0100	SGMR										
	0645	1804	WEIS				1007.9	1010.2	1				IIIG
			WEIS				1152.1	1152.2	1				
			WEIS				1156.2	1156.3					
	1232	2400	HARV										
	1436	2400	BOUL							1613.1	1614.1	2	IIIG
	2054	2400	CULG										
21	0000	0145	HARV										
	0000	0543	CULG										
	0000	0233	BOUL							0041.9	0043.1	2	IIIG
	0830	0100	SGMR										
	0840	1806	WEIS										
	1232	2400	HARV										
	1343	2400	BOUL										
	2208	2400	CULG										
22	0000	0145	HARV										
	0000	0218	BOUL										
	0000	0655	CULG				0500	0502	1	0500	0502	1	IIIG
	0549	1907	WEIS										
	0830	0100	SGMR										
	1408	2400	BOUL							1831.3	1832.2	1	IIIG
	1231	2400	HARV	1903		1							IIIG
	2119	2400	CULG										
23	0000	0145	HARV										
	0000	0215	BOUL										
	0000	0652	CULG										
	0603	1744	WEIS										
	0830	1930	SGMR										
	1232	2400	HARV										
	1409	1939	BOUL							1642.6	1647.3	1	IIIG
	2126	2400	CULG										
	2300	0100	SGMR										
	2300	2400	BOUL										
24	0000	0136	CULG										
	0000	0144	HARV										
	0000	0212	BOUL										
	0218	0508	CULG										
	0603	1815	WEIS										
	0830	2000	SGMR										
	1232	2400	HARV				1248	1307	1				IN
	1350	2400	BOUL							1744.1	1744.3	1	III
			BOUL							1828.2	1828.4	1	III
	2045	0100	SGMR										
			HARV	2122	2217	1	2122	2217	1				IN
	2145	2400	CULG										

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JULY 1968

JUL. 1968	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT.	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT.	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT.	SPECTRAL TYPE
25	0000	0144	HARV										
	0000	0302	BOUL							0005.7	0005.9	1	III
			BOUL							0050.8	0052.7	2	IIIG
	0000	0731	CULG				0052.5		1	0052.5		1	IIIB
	0000	0302	BOUL							0138.4	0139.1	1	IIIG
			CULG				0659.5		1	0659.5		1	IIIB
	0540	1800	WEIS				0659.5	0659.8	2				IIIG
			WEIS				0807.3	0807.8	1				IIIG
			WEIS				0810.2	0811.4	1				IIIG
	0830	0100	SGMR										
			WEIS				0855	0930	1				IN
	1412	2400	BOUL							1731.7	1731.9	2	III
			BOUL							1751	1751.3	2	III
			BOUL							1914.5	1914.8	1	III
			BOUL							1936.3	1939.9	2	III
	1232	2400	HARV	1940		1	1939	1940	1				IIIG
			HARV	2030		1	2030		2				IIIG
			BOUL							2053.9	2053.6	2	III
			HARV				2054		1				IIIG
			BOUL							2204	2204.4	3	III
	2213	2358	CULG										
			BOUL							2229.4	2229.7	1	III
26	0000	0144	HARV										
	0000	0218	BOUL										
	0021	0732	CULG				0557.5	0558	1				IIIG
	0645	1835	WEIS				0755	1511	1				IN
			WEIS				0818	0820.7	1				IIIGG
			WEIS				1137.9	1142.2	1				IIIG
	0830	0100	SGMR							1140.5	1141.2		IIIB
			WEIS				1145.2	1147	2				IIIGG
			SGMR							1146.3	1146.9		IIIB
			WEIS				1232.5	1233.5	1				IIIG
			SGMR							1234	1234.5		IIIB
			WEIS				1239.1	1239.2	1				IIIB
	1232	2400	HARV	1245		1	1245	1340	1				IN
			HARV	1501	1518	1	1501	1518	1				IN
	1414	2400	BOUL							1502.1	1509.6	3	IIIG
			HARV	1504	1506	2	1504	1506	2	1505	1506	2	IIIGG
			WEIS				1504.7	1506.7	2				III,V
			SGMR							1505.3	1506.2		IIIB
			BOUL							1529.1	1529.3	1	III
			BOUL							1847.5	1848.1	2	III
			BOUL							1907.6	1914.6	1	IIIGG
			HARV				1951	2114	1				IN
	2055	2400	CULG										
			HARV	2114	2116	2	2115	2116	1				IIIG
			BOUL							2128.3	2131.5	2	IIIG
			BOUL							2145.3	2147	2	IIIG
			BOUL							2210.8	2211	1	III
			SGMR							2335.1	2337.5		IIIG
27	0000	0144	HARV				0006	0144	1				IN
	0000	0218	BOUL							0027.9	0028.8	1	IIIG
			BOUL							0042.4	0042.7	2	III
	0000	0641	CULG				0115	0207	1				I
			BOUL							0118.5	0118.7	1	III
			BOUL							0124.6	0136.1	1	IIIG
			CULG				0206.5		1	0206.5		1	IIIB
			CULG							0549.5		1	IIIB
			WEIS				0921	1056	1				IN
			WEIS				0926.7	0927.5	2				IIIG
			WEIS				0930.3	0932	2				IIIG
	1232	2400	HARV				1245	1940	1				IN
	0830	0100	SGMR							1314	1315.6		IIIG
			HARV	1327	1342	1							IIIN
	0730	1825	WEIS	1341.8	1341.9	1							IIIB
	1424	2400	BOUL							1455.9	1456.1	1	III
			HARV	1511	1513	2	1511	1512	2				IIIG
			WEIS				1511.7	1511.9	2				IIIB
			HARV	1546	1547	1	1546	1547	1				IIIG
	1424	2400	BOUL							1546.1	1546.3	2	III
			SGMR							1546.7	1547		IIIB
			WEIS	1601.8	1601.9	1							IIIB
			HARV	1602		2							IIIG
			BOUL							1753.6	1753.9	1	III
			SGMR							1754.1	1754.7		IIIB
			HARV				2310	2311	2				IIIG
	2057	2400	CULG				2310.5		1				I
			CULG				2312	2313	1	2312	2313	1	IIIG
			BOUL							2312	2312.8	2	IIIG
			BOUL							2317.5	2319.8	3	IIIG
			CULG				2318	2320	2	2318	2320	2	IIIG,V
			BOUL							2357.1	2358.8	3	IIIG
			CULG							2357.5	2358.5	2	IIIG,U

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JULY 1968

JUL. 1968	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT.	START UT	END UT	INT.	START UT	END UT	INT.	
28	0000	0144	HARV				0000	0100	1				IN
	0000	0219	BOUL							0028.7	0028.9	1	III
			BOUL							0035.7	0035.9	1	III
			BOUL							0057.8	0058.8	3	IIIG
	0000	0630	CULG							0058	0059	2	IIIG,U
			CULG							0314		1	IIIB
	1232	2400	HARV				1311	1312	1				IIIG
	0830	0100	SGMR							1356	1356.7		IIIB
	1351	2400	BOUL							1359.5	1403.9	2	IIIG
	0725	1830	WEIS				1401	1401.6	1				V
			WEIS				1403.5	1403.9	1				IIIB
			SGMR							1404	1405		IIIB
			BOUL							1407.4	1407.7	1	III
			SGMR							1428.2	1428.5		IIIB
			SGMR							1445.3	1445.6		IIIB
			SGMR							1455	1457		IIIG
			SGMR							1504	1504.4		IIIB
	1351	1602	BOUL							1505.5	1506.3	2	IIIG
	0830	0100	SGMR							1636.2	1636.8		IIIB
			SGMR							1640.2	1641.2		IIIG
	0725	1830	WEIS				1640.7	1643.4	1				IIIG
	1640	1726	BOUL							1640.9	1643.5	2	IIIG
	0830	0100	SGMR							1643	1644		IIIB
			SGMR							1648.4	1649.3		IIIB
			SGMR							1724	1725		IIIB
			BOUL							1724.1	1725.3	2	III
			WEIS				1724.2	1724.7	1				IIIG
	2046	2400	CULG										
			HARV				2120	2400	1				I
			BOUL							2327.6	2328.8	1	IIIG
29	0000	0144	HARV				0000	0139	1				I
	0000	0655	CULG										
	0000	0215	BOUL							0024.6	0024.9	1	III
	0555	1840	WEIS				0748.5	0749.1	1				IIIB
			WEIS				1049.1	1052.6	1				IIIGG
	1232	2400	HARV				1352	1648	1				IN
			HARV				1424	1425	1				IIIG
	1407	2400	BOUL							1424.6	1425.1	1	IIIG
			WEIS				1424.7	1425.1	1				IIIG
			HARV				1605	1613	1				IIIGG
			WEIS				1608	1610.3	1				I,IIIG
			BOUL							1608.1	1609.8	2	IIIG
			BOUL							1647.8	1648.4	2	III
			BOUL							1708.2	1713.7	2	IIIG
	0830	0100	SGMR							1710	1710.6		IIIB
			BOUL							1720.4	1720.7	2	III
			WEIS				1720.5	1720.7	1				IIIB
			BOUL							1728.8	1729.8	1	IIIG
			HARV				1729	1731	1				IIIG
			BOUL							1803.4	1803.9	1	IIIG
			SGMR							1849	1850.5		IIIG
			SGMR							1930	1931.5		IIIG
			BOUL							1948	1948.2	2	III
			BOUL							2113.4	2113.7	2	III
			BOUL							2156	2156.2	1	III
	2050	2400	CULG				2326	2327	1	2326	2327	1	IIIG
			BOUL							2326	2326.5	2	III
			BOUL							2356.4	2356.7	2	III
30	0000	0143	HARV										
	0000	0220	BOUL							0006.1	0006.6	2	III
	0000	0648	CULG				0006.5		1				IIIB
			BOUL							0050.4	0050.8	1	III
			CULG				0051		1	0051		1	IIIB
			CULG							0124		1	IIIB
			CULG				0251.5	0252	2	0251.5	0252	2	IIIG,U
			CULG				0310	0310.5	1	0310	0310.5	1	IIIB
			CULG				0457.5	0458	1	0457.5	0458	1	IIIG
			CULG				0518		3	0518		3	IIIB
			CULG				0523		2	0523		2	IIIB
			CULG							0548		1	IIIB
			CULG				0619	0619.5	1	0619	0619.5	1	IIIG
	0629	1815	WEIS				0913.6	0914.4	1				IIIG
			WEIS				1042.5	1043	2				IIIG
	0830	0100	SGMR							1530.3	1531.3		IIIG
	1440	2400	BOUL							1541.3	1541.5	1	III
			BOUL							1641.2	1641.4	2	III
	1246	2400	HARV	1825	1826	1	1824	1827	1				IIIG
			HARV				1928	1930	2	1930		1	IIIG
			BOUL							1929.9	1930.3	2	III
			SGMR							1930.6	1930.9		IIIB
			BOUL							1936.2	1939	2	IIIG
			HARV				1937	1938	1	1937	1938	1	IIIG
			SGMR							1937.3	1940		IIIB
			BOUL							2011.9	2012.2	1	III
	2033	2400	CULG				2134.5	2135.5	1				IIIG
			HARV	2136		1	2134	2136	1				IIIG
			BOUL							2150.9	2151.2	1	III
			CULG				2151	2152	1				IIIG

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JULY 1968

JUL. 1968	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT.	START UT	END UT	INT.	START UT	END UT	INT.	
30			CULG				2212		1	2212		1	IIIB
			HARV				2212	2213	1				IIIG
			CULG				2333		2	2333		1	IIIG
			CULG				2352.5	2354	2	2352.5	2354	2	IIIG
			HARV				2353	2354	1				IIIG
31	0000	0215	BOUL										
	0000	0142	HARV				0048		1				IIIG
	0000	0653	CULG				0117	0118	1	0117	0118	1	IIIG
	1246	1912	HARV	0118		1	0117	0118	1				IIIG
			CULG				0325	0327	1	0326	0327	1	IIIG
			CULG				0515.5		1				IIIG,U
			CULG				0519		2	0519		2	IIIG,U
			CULG				0523		2				IIIG
	0635	1825	WEIS				0907.8	0908.5	1				IIIG,RS
			WEIS				1020.2	1021.2	1				IIIG
			WEIS				1120.4	1120.7	1				IIIG,RS
			WEIS				1129.2	1129.7	3				IIIB
	0830	0100	SGMR							1129.5	1130.5		IIIB
	1415	1858	BOUL							1423.2	1423.4	2	III
			BOUL							1553.2	1554.4	2	IIIG
	1915	2400	HARV				1640	1641	1				IIIG
			WEIS				1640	1640.7	1				IIIG
			SGMR							1833	1834		IIIG
			SGMR							1909	1911		IIIG
	2047	2400	CULG										
	1904	2400	BOUL							2052.8	2053.3	2	IIIG
			HARV	2217	2224	1	2221	2224	1				I

The symbols used in connection with the spectral type in describing the important bursts are as follows:

B = Single burst
G = Small group (< 10) of bursts
GG = Large group (> 10) of bursts
C = Underlying continuum (particularly with type I)
S = Storm in the sense of intermittent but apparently connected activity
N = Intermittent activity in this period.
U = U-shaped burst of Type III
RS = Reverse slope burst
DP = Drifting pairs
DC = Drifting Chains
H = Herringbone
CONT = Continuum
UNCLF = Unclassified activity

COSMIC RAY INDICES
(Neutron Monitors)

JULY 1968

JULY 1968	CHURCHILL DAILY AVERAGE COUNTS PER HOUR	DEEP RIVER DAILY AVERAGE COUNTS PER HOUR	CLIMAX DAILY AVERAGE COUNTS PER HOUR	DALLAS DAILY AVERAGE COUNTS PER HOUR
1	5976.08	6454.5	3856.1	5953.21
2	5988.21	6481.3	3867.4	5968.58
3	6038.54	6533.7	3886.9	6005.33
4	5993.38	6491.0	3854.8	5982.46
5	6014.75	6518.2	3879.0	6020.92
6	6003.79	6522.6	3875.9	6009.04
7	6013.79	6503.2	3873.0	5997.83
8	6012.29	6506.4	3884.1	6003.58
9	6000.16	6489.0	3868.5	5982.00
10	5978.50	6490.0	3853.1	5967.54
11	5817.08	6278.1	3707.6	5787.21
12	5755.83	6233.8	3672.2	5761.83
13	5741.16	6233.0	3691.0	5777.04
14	5747.96	6218.7	3693.1	5781.71
15	5796.00	6271.0	3728.3	5827.46
16	5856.79	6338.7	3774.2	5880.58
17	5895.41	6395.0	3815.1	5940.63
18	5928.13	6407.2	3824.3	5955.08
19	5922.58	6408.2	3823.2	5946.87
20	5935.66	6443.2	3818.4	5935.00
21	5941.50	6437.4	3834.4	5950.08
22	5940.46	6431.8	3836.8(34)	5947.37
23	5973.96	6468.3	3848.6	5966.08
24	5982.50	6470.8	3852.7	5972.25
25	5991.96	6500.3	3858.3	5987.38
26	5987.71	6499.7	3858.0	5986.67
27	5994.33	6495.1	3863.7	6001.83
28	6009.66	6534.4	3880.5	6021.54
29	6025.08	6554.8	3886.3	6022.88
30	6026.91	6544.3	3883.1	6007.04
31	6044.21	6534.6	3893.6	6024.75

( ) Number of hours for which data are available if less than 24 (or number of section hours if less than 40 for Climax).

Churchill Super Neutron Monitor, Scaling Factor 120.

Deep River Neutron Monitor, Scaling Factor 300.

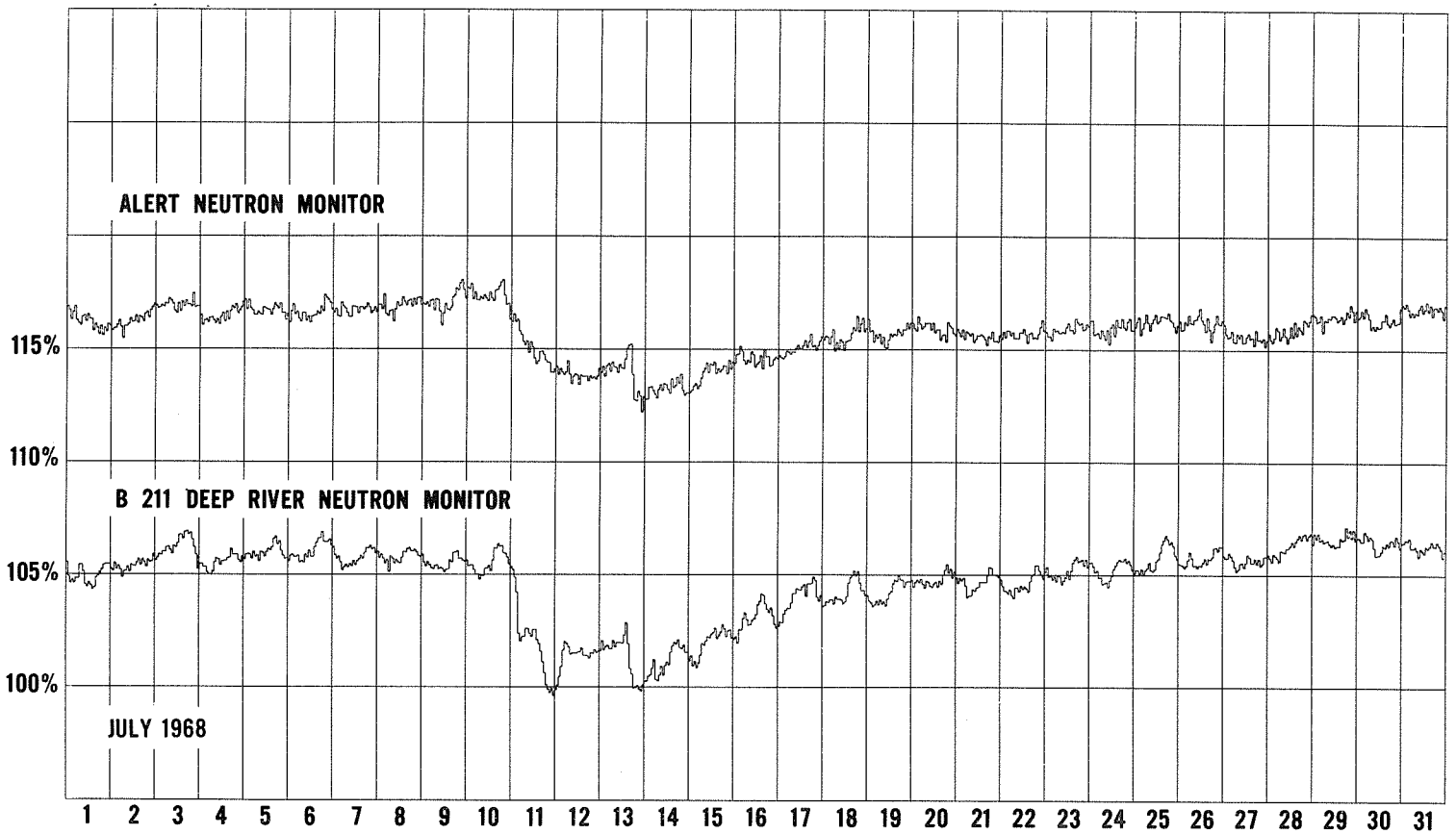
Climax IGC Station B305, Scaling Factor 100.

Dallas Super Neutron Monitor, Scaling Factor 120.

COSMIC RAY INDICES

(Pressure Corrected Hourly Totals)

JULY 1968



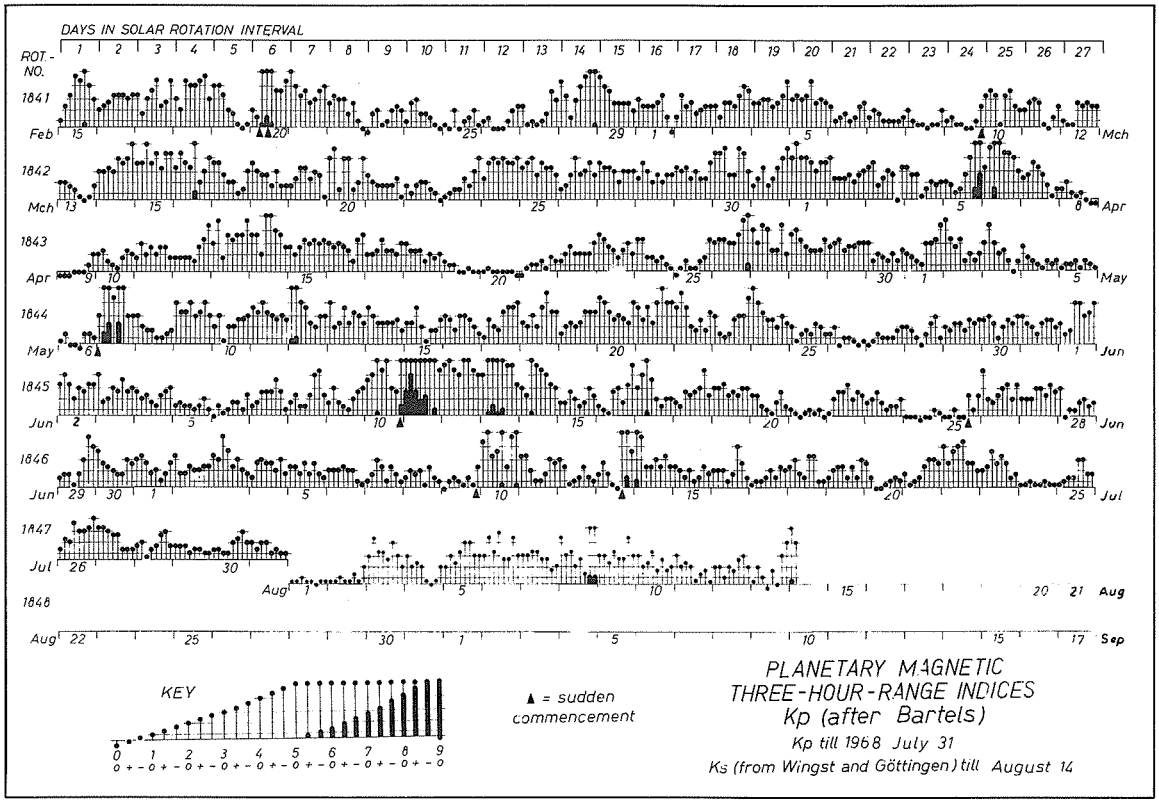
GEOMAGNETIC ACTIVITY INDICES

JULY 1968

DAY		Kp THREE-HOUR RANGE INDICES 1	2	3	4	5	6	7	8	SUM	Ci	Cp	Ap
1		3	3+	3-	2-	2	1	2-	3-	18	0.5	0.6	10
2		3+	2-	2-	2+	2	2	2+	2+	18-	0.6	0.5	9
3	D	3+	3	5-	4-	2+	3	2	2-	24-	0.9	0.9	16
4		1+	3-	3	3-	3-	2	3	2-	19	0.5	0.6	10
5		2+	2+	2-	3-	2-	3-	2-	1+	16+	0.4	0.4	8
6	Q	2	2	2	2+	2	2	1	1-	14	0.4	0.3	6
7		1	2-	3	2+	1	2+	2-	1	14	0.4	0.4	7
8	Q	1+	2	2-	2	1-	2+	1+	1	12+	0.4	0.3	6
9	QQ	0+	1	1+	1	1-	1+	1-	2+	9-	0.3	0.2	4
10	D	4+	5	3+	4-	5+	2+	5-	5+	34	1.4	1.4	35
11		3+	3+	2	1	1	2-	3	3-	18	0.7	0.6	10
12	Q	3	2+	1-	1	1+	2+	1+	1	13	0.5	0.3	7
13	D	2-	3-	2-	1-	0+	5	6	4-	22-	1.2	1.1	22
14	D	6-	5-	2+	2+	3	2+	3+	2+	26	1.1	1.1	22
15	Q	2+	2	1+	2	1	1+	2+	2-	14	0.4	0.3	6
16		2	2	2	1	2-	4	3-	1+	17-	0.7	0.5	9
17	Q	1-	1	1	1+	2	1+	2+	2	12-	0.3	0.2	6
18		2+	3	2-	1+	3+	3+	1	1	17	0.6	0.6	10
19		1+	2	2+	2+	1+	2+	1+	3	16	0.6	0.4	8
20	QQ	3-	1+	0+	0+	1-	1	1+	1	9-	0.2	0.2	5
21		2-	1-	1	1+	2+	3	3	3-	16-	0.5	0.5	9
22	D	4	3-	4-	4	4+	3-	3-	2	26	1.0	1.0	19
23		2	2+	4-	3-	3+	3-	1+	2-	20-	0.6	0.7	11
24	QQ	1-	1-	1	1-	1-	1	1-	1-	6	0.1	0.1	3
25		1-	1	1+	1+	3	3	2-	2-	14-	0.5	0.4	7
26		1+	2+	2	4-	3	3	3+	4	23-	0.9	0.8	15
27		3+	3+	3	3-	3-	1+	1+	1+	19	0.6	0.6	11
28		2-	2	1-	1+	2-	3-	3	2-	15-	0.5	0.4	8
29	QQ	2-	2-	2-	1	1+	1+	1	1	11-	0.2	0.2	5
30		1+	1+	1	1	2	2+	3	2	14	0.3	0.4	7
31	QQ	2	1+	2	2	1	1+	1	1	12-	0.3	0.2	5
										MEAN	0.57	0.52	10

Preliminary storm sudden commencements (ssc) occurred July 9 at 2155 UT and July 13 at 1612 UT.

GEOMAGNETIC ACTIVITY INDICES



DAILY AVERAGE INDICES Ap

DAY	1967 AUG.	SEPT.	OCT.	NOV.	DEC.	1968 JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY
1	4	25	10	3	33	26	10	10	26	13	17	10
2	2	22	5	10	18	35	19	9	12	14	17	9
3	3	6	7	23	8	9	16	14	13	11	14	16
4	8	6	4	9	7	7	17	16	9	6	9	10
5	8	4	7	11	13	10	8	17	34	4	5	8
6	6	4	6	4	21	16	2	7	36	3	5	6
7	9	9	7	3	20	8	4	5	11	53	11	7
8	11	9	12	18	26	6	14	4	3	7	13	6
9	7	11	18	10	10	3	19	4	2	21	9	4
10	13	3	33	4	6	5	36	15	6	10	36	35
11	24	3	13	17	3	10	51	8	10	17	103	10
12	8	4	19	22	6	13	14	8	11	27	38	7
13	6	29	9	17	5	9	18	5	23	14	48	22
14	10	14	13	11	4	12	5	23	26	11	26	22
15	6	14	8	10	10	10	25	28	14	9	8	6
16	8	11	5	9	8	13	14	26	14	11	13	9
17	19	5	10	2	11	13	18	12	10	15	18	6
18	14	12	7	3	19	10	24	12	8	17	12	10
19	9	18	4	3	30	13	12	11	3	11	14	8
20	11	44	3	2	32	15	35	20	2	19	7	5
21	6	85	1	5	16	8	24	7	4	24	3	9
22	5	10	6	13	12	9	10	5	8	16	10	19
23	5	4	8	8	16	10	5	9	12	13	6	11
24	7	6	4	20	5	10	7	22	8	18	2	3
25	14	6	3	11	3	4	4	19	5	6	4	7
26	10	4	3	9	7	13	4	14	26	4	14	15
27	7	5	10	8	9	9	8	16	20	4	11	11
28	6	36	25	17	5	14	30	12	16	6	6	8
29	8	45	25	15	6	16	18	14	14	9	13	5
30	10	35	15	13	9	11		27	7	10	11	7
31	11		7		59	8		16		10		5
MEAN	9	16	10	10	14	11	16	13	13	13	17	10

PRINCIPAL MAGNETIC STORMS

JULY 1968

DATE 1968 MO DA.	STORM TIME UT START	STORM TIME UT END MO. DA. HR.	OBS.	GEO-MAG. LAT.	SUDDEN COMMENCEMENT TYPE	AMPLITUDES D(')	AMPLITUDES H(γ)	AMPLITUDES Z(γ)	C FIGURE DEGREE OF ACTIVITY	MAXIMAL ACTIVITY ON K-SCALE 0 TO 9 MO. DA.	3-HOUR PERIOD	K INDEX	RANGES D (')	RANGES H (γ)	RANGES Z (γ)	STORM NUMBERS
07 03	0100	07 03 18	HYDE	7.6N	••	••	••	••	M	07 03	4	4	6	55	27	34
	1057	-- -- --	HYDE	7.6N	SI	+ 0.5	-18	+ 2								34
07 09	24--	07 11 13	COLL	64.6N	••	••	••	••	MS	07 10	5	7	220	1600	560	35
	2154	07 11 06	NEWP	55.1N	SC *	1	18	1	M	07 10	1,2,5 8	5	33	149	152	35
	2156	07 11 04	WITT	54.1N	SC	- 2	+20	0	M	07 10	1,2,5	5	30	180	50	35
										07 10	7,8					35
	2156	07 11 06	FRED	49.6N	SC *	0	18	2	M	07 10	1,5	5	20	120	44	35
	2156	07 11 09	BOUL	49.0N	SC *	- 1	+14	--	M	07 10	5	5	20	125	70	35
	22--	07 11 09	IRKU	40.8N	••	••	••	••	M	07 10	2,5,7	5	20	91	40	35
	2154	07 10 15	ALIB	9.5N	••	••	••	••	M	07 10	5	5	7	151	51	35
	2155	07 10 16	HYDE	7.6N	••	••	••	••	M	07 10	1,5	5	7	153	25	35
	2156	07 11 07	GUAM	4.0N	SC	--	07	03	M	07 10	1,5	5	--	60	10	35
	2154	07 10 15	ANNA	1.5N	••	••	••	••	M	-- --	-	-	5	183	59	35
	2154	07 10 15	TVAN	1.1S	••	••	••	••	M	-- --	-	-	5	188	115	35
	22--	07 11 06	HRMN	33.3S	••	••	••	••	M	07 10	8	5	18	96	50	35
	21--	07 11 01	GNAN	43.2S	••	••	••	••	M	07 10	5,7	5	18	110	114	35
	20--	07 11 08	TOOL	46.7S	••	••	••	••	M	07 10	5	5	24	106	41	35
07 10	1819	-- -- --	HYDE	7.6N	SC	- 0.2	+19	- 1	-	-- --	-	-	--	--	--	35
	00--	07 11 09	PMOR	18.6S	••	••	••	••	M	07 10	1,2,5	5	6	170	58	35
	02--	07 11 00	KGLN	57.3S	••	••	••	••	M	07 10	8	5	--	--	--	35
07 13	1612	07 14 06	COLL	64.6N	SC *	- 5	+69	--	M	07 13	7	5	123	720	420	36
										07 14	1,2					36
	1613	07 14 09	NEWP	55.1N	SC *	6	18	5	M	07 13	7	5	29	181	101	36
										07 14	1,2	5				36
	1612	07 14 05	WITT	54.1N	SC	- 4	+47	+ 5	MS	07 13	6,7	6	20	190	80	36
	1613	07 14 07	FRED	49.6N	SC *	4	35	8	M	07 13	7	5	22	161	61	36
	1613	07 14 08	BOUL	49.0N	SC *	+ 5	+22	- 8	M	07 13	7	5	24	140	80	36
	1612	07 14 05	IRKU	40.8N	SC *	+ 3.1	+71	+10	M	07 13	6,7	5				36
										07 14	1	5	19	190	21	36
	1613	07 14 05	TUCS	40.4N	SC	+ 3	+26	+ 2	M	07 13	7	5	10	100	10	36
										07 14	1	5				36
	1612	07 14 06	MBOR	21.3N	SC	- 2.5	+54	--	M	07 13	6	5	2	54	--	36
	1613	07 14 08	HONO	21.1N	SC	+01	+27	+12	M	07 14	1	5	15	99	48	36
	1612	07 14 05	ALIB	9.5N	SC	- 1.0	+45	-10	M	07 13	6,7	5	5	84	55	36
	1613	07 14 05	HYDE	7.6N	SC	- 0.6	+45	- 2	M	07 13	6	5	5	89	21	36
	1612	07 14 05	ANNA	1.5N	SC	- 1.5	+51	+26	M	-- --	-	-	5	84	55	36
	1611	07 14 05	HUAN	0.6S	SC	2	08	11	M	07 13	6,7	5	4	275	29	36
	1612	07 14 05	TVAN	1.1S	SC	+ 0.5	+42	+57	M	-- --	-	-	3	107	84	36
	1612	07 14 12	PMOR	18.6S	SC	+ 0.3	+27	+13	M	07 14	1	5	5	83	42	36
	1613	07 14 06	HRMN	33.3S	SC	+ 1	+26	+16	M	07 13	7	5	13	73	58	36
										07 14	2	5				36
	1614	07 14 05	KGLN	57.3S	SC	--	--	--	M	07 14	1	5	--	--	--	36
07 21	16--	07 24 00	NEWP	55.1N	••	••	••	••	M	07 22	4	5	28	82	114	37
										07 23	3	5				37

RADIO PROPAGATION QUALITY FIGURES AND FORECASTS

JULY 1968

North Atlantic, North Pacific

JUL. 1968	WHOLE DAY INDICES: NORTH ATLANTIC	WHOLE DAY INDICES: NORTH PACIFIC	WHOLE DAY INDICES: AVERAGE HIGH LATITUDE	ADVANCE FORECASTS (JC-REPORTS) FOR WHOLE DAY	NORTH ATLANTIC 6-HOURLY QUALITY FIGURES: 00 TO 06	06 TO 12	12 TO 18	18 TO 24	NORTH ATLANTIC SHORT-TERM FORECASTS ISSUED ABOUT ONE HOUR IN ADVANCE OF: 00	06	12	18	NORTH PACIFIC 6-HOURLY QUALITY FIGURES: 00 TO 06	06 TO 12	12 TO 18	18 TO 24	GEOMAGNETIC INDICES: K_{FR} HALF DAY (1)	(2)	A_{FR} OBSERVED	K_{SI} HALF DAY (1)	(2)	A_{SI}
01	7-	6	6+	7	7o	6-	6+	7o	6	7	6	7	6	6	6	6	3	2	11	3	1	9
02	7-	6	6+	7	7+	6o	7o	7-	7	6	7	7	6	6	6	6	3	2	11	2	1	7
03	7-	6	6+	7	7o	6o	7-	7-	7	6	6	6	6	6	6	6	3	3	15	(4)	2	17
04	7-	6	6+	6	7o	7-	7-	7-	7	6	7	7	6	6	6	6	3	3	14	2	2	12
05	7-	6	6+	6	7o	7-	7o	7-	7	6	7	6	6	6	6	6	3	2	9	2	1	7
06	7-	6	6+	7	7-	6o	7o	7-	7	6	7	7	6	6	6	6	3	2	9	2	1	5
07	7-	6	6+	7	7-	6+	7-	7o	7	6	7	7	6	6	6	6	2	2	7	2	1	6
08	6+	6	6o	7	7o	6+	6+	6-	7	6	7	7	6	6	6	5	3	2	10	3	1	8
09	7-	6	6+	7	7o	7-	7-	7-	7	6	7	7	6	6	6	6	2	1	5	1	1	4
10	6+	6	6+	7	7o	6o	6o	7-	7	5	6	6	6	6	6	6	(4)	(4)	30	(4)	(4)	36
11	7-	6	6+	5	7o	6-	7-	7-	7	6	6	7	6	6	6	6	3	2	11	2	1	9
12	6+	6	6+	5	7-	5+	7-	7-	7	6	7	7	6	6	6	6	2	1	7	1	1	4
13	7-	6	6+	6	7o	7-	7-	7-	7	6	7	7	5	6	6	6	2	3	16	2	3	16
14	7-	6	6+	6	6+	6+	7-	7-	6	5	6	7	6	6	5	6	3	3	15	(4)	2	23
15	7-	6	6+	6	7-	6+	7-	7-	7	6	7	7	6	6	6	6	2	2	8	2	1	5
16	7-	6	6+	6	7o	7-	7o	7-	6	7	7	7	6	6	6	6	2	2	9	2	2	8
17	7-	6	6+	7	7-	7-	7-	7-	7	6	7	7	6	6	6	6	1	2	6	1	2	5
18	7o	6	7-	7	7o	7-	7o	7o	7	6	7	7	6	6	6	6	2	2	8	2	2	9
19	7-	6	6+	7	7o	7-	7o	7-	7	7	7	7	6	6	6	6	2	2	8	2	1	8
20	7o	6	7-	7	7+	7-	7o	7o	7	7	7	7	6	6	6	6	1	1	4	1	1	2
21	7o	6	7-	7	7o	7-	7-	7o	7	7	7	7	6	6	6	6	1	2	7	1	2	5
22	7-	6	6+	7	7-	6o	7-	7o	7	6	6	7	6	6	6	6	(4)	3	18	(4)	2	20
23	7-	6	6+	7	7-	6-	7-	7o	7	7	7	7	6	6	6	6	3	3	12	2	2	9
24	7o	6	7-	7	7o	7o	7o	7o	7	6	7	7	6	6	6	6	1	1	3	0	0	1
25	7-	6	6+	7	7+	7-	7-	7-	7	7	7	7	6	6	6	6	1	2	6	1	2	4
26	7-	6	6+	7	7o	7-	7-	7-	7	7	7	7	6	6	6	6	3	3	15	2	2	10
27	7-	6	6+	7	7-	6o	7o	7-	7	6	7	7	6	6	6	6	3	2	12	3	1	8
28	7-	6	6+	7	7-	7-	7-	7-	7	7	7	7	6	6	6	6	1	2	5	1	2	5
29	7o	6	7-	7	7o	7-	7o	7o	7	7	7	7	6	6	6	6	2	2	7	1	1	3
30	7o	6	7-	6	7o	7-	7o	7-	7	6	7	7	6	6	6	6	1	2	6	1	2	5
31	7-	6	6+	6	7-	7-	7-	7-	7	7	7	7	6	6	6	6	2	1	4	2	0	4
QUIET			P	12					29	18	26	27										
			S	19					2	13	5	4										
			U	0					0	0	0	0										
			F	0					0	0	0	0										
DISTURBED			P	0					0	0	0	0										
			S	0					0	0	0	0										
			U	0					0	0	0	0										
			F	0					0	0	0	0										

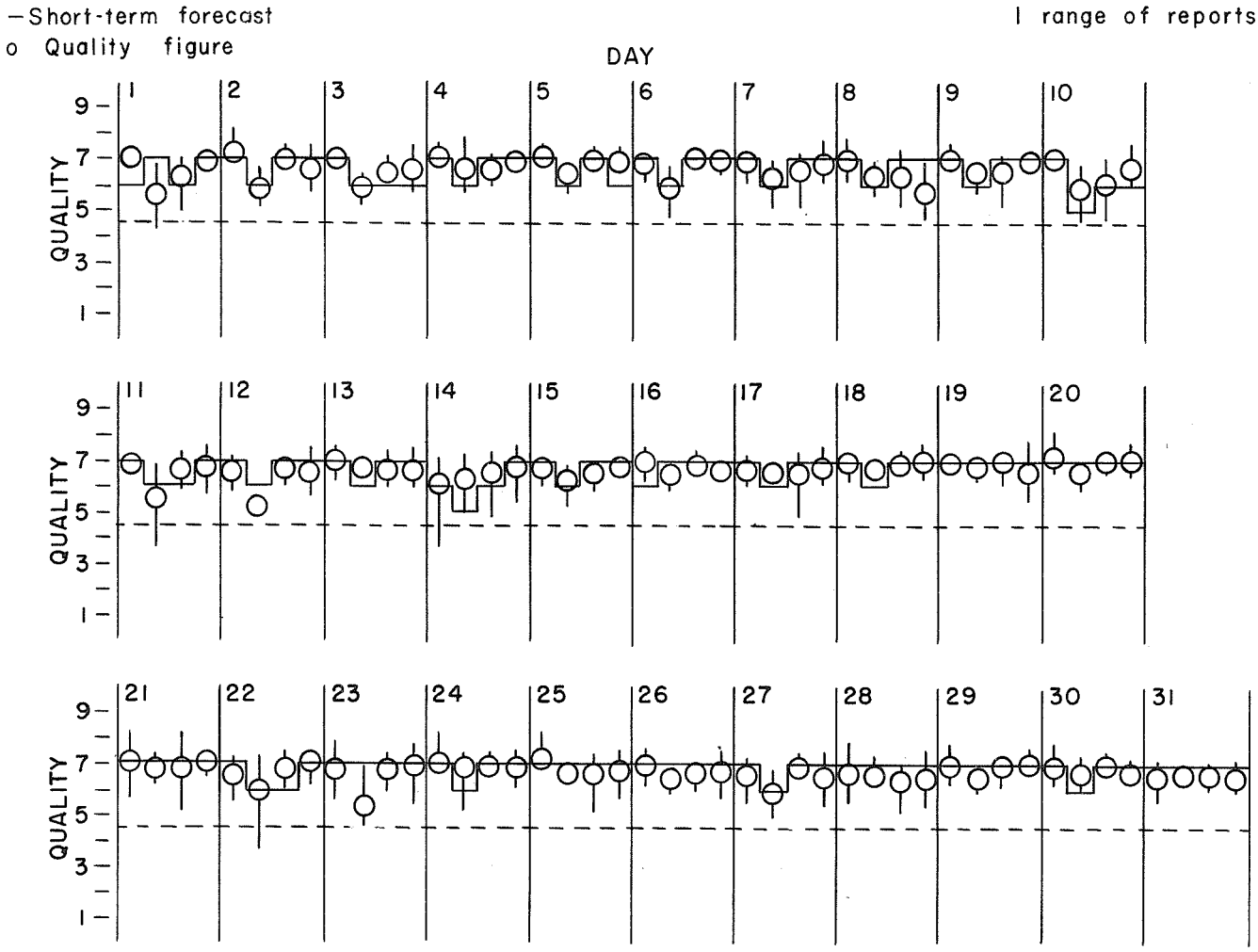
1) THE ADVANCE JC-FORECASTS ARE SCORED AGAINST THE AVERAGE HIGH LATITUDE WHOLE-DAY INDICES.

2) BEGINNING WITH JULY 1968 A_{FR} INDICES ARE NO LONGER PREDICTED.

RADIO PROPAGATION QUALITY FIGURES AND FORECASTS

JULY 1968

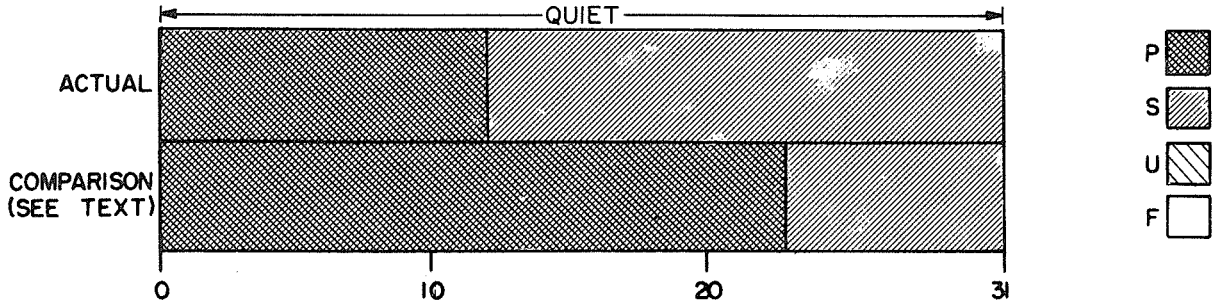
North Atlantic



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

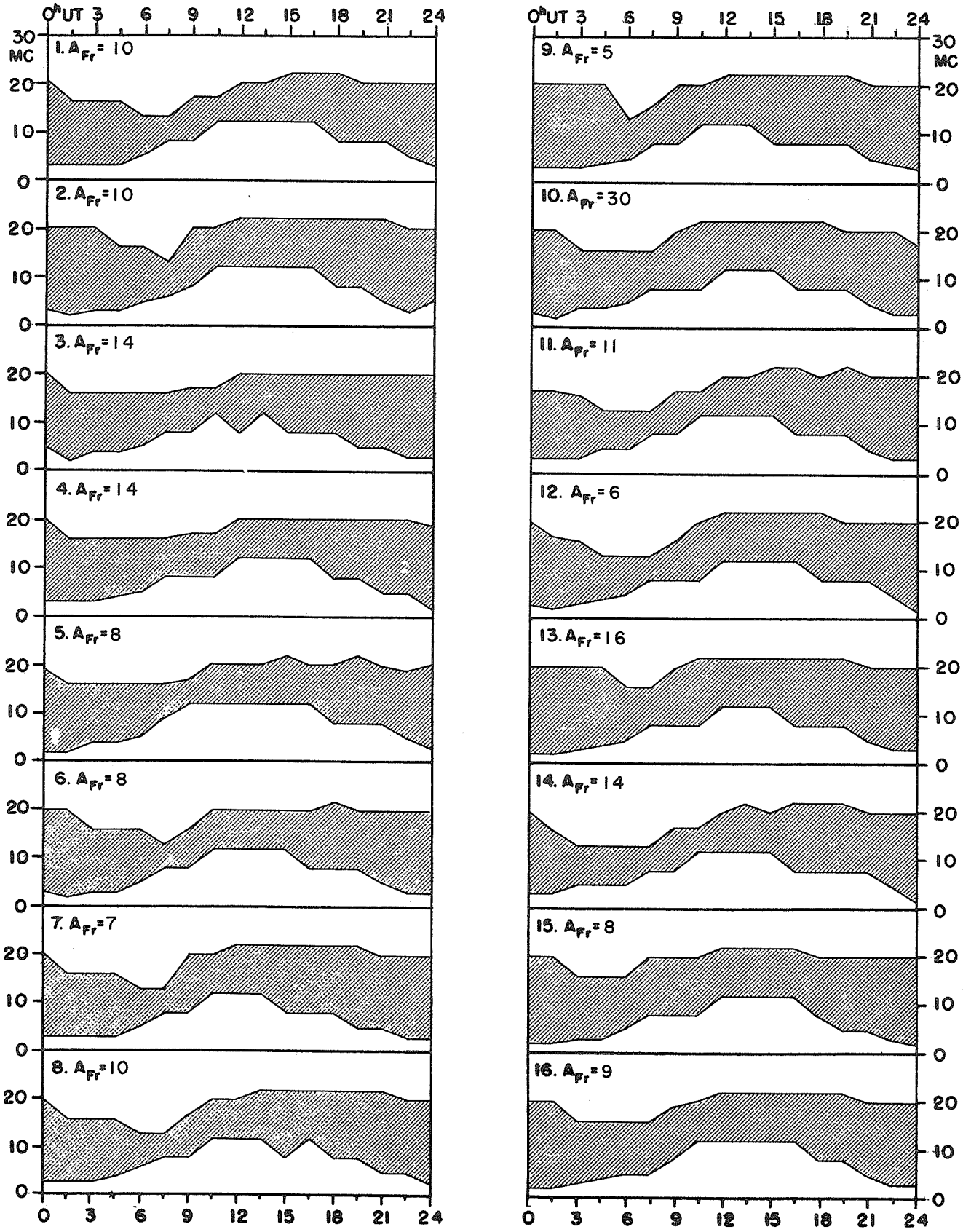
High Latitude radio propagation conditions

HIGH LATITUDE



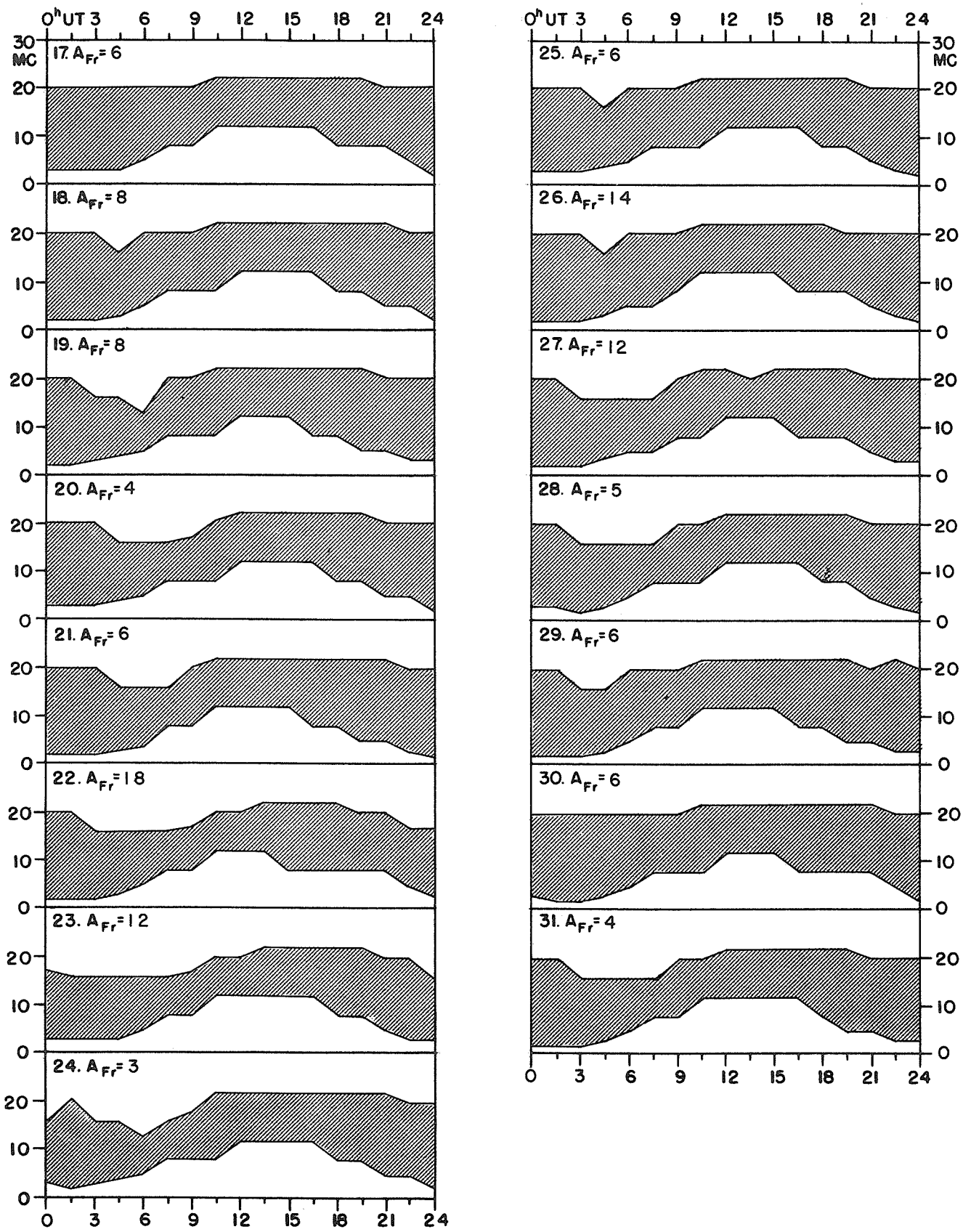
TRANSMISSION FREQUENCY RANGES--NORTH ATLANTIC PATH

JULY 1968



TRANSMISSION FREQUENCY RANGES--NORTH ATLANTIC PATH

JULY 1968



Adapted from Observations by Deutsche Bundespost

Table of Contents
for March 1968 Data

For explanations of the data contained herein see "Descriptive Text" published in February 1968.

SOLAR FLARES
Confirmed
MARCH 1968

OBSERVATORY	OBSERVED UT DATE 1968 MAR	START	END	MAX. PHASE	LOCATION APPROX. LAT.	MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY	DURATION — MIN.	IMPORTANCE	OBS. COND.	TYPE	MEASUREMENTS TIME — UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hα	MAX. INT. %	REMARKS
GRP13867	01	1619	1639	1622	N12	W59	.881	9222	26.3	20	-N				.58				7 7 7 7
SACP	01	1617	1642	1620	N11	W58	.871	9222	26.3	25	-B		C		.99	1.49			
HTPR	01	1618	1642D	1623	N13	W61	.898	9222	26.1	24D	-N			1623	.62	1.40			
BOUL	01	1619	1634	1621	N13	W58	.875	9222	26.3	15	-N		C		.40	.80			E
HOUT	01	1620	1638	1622	N13	W58	.875	9222	26.3	18	-N		C		.30	.60			E
CANR	01	1620E	1634	1621U	N12	W59	.881	9222	26.3	14D	-N		C		.30	.60			E
HUAN	01	1623E	1642		N13	W58	.875	9222	26.3	19D	-B	1	P	1623	.75	1.15			E
LOCK	01	1623E	1642	1623U	N12	W60	.888	9222	26.2	19D	-N		C		.70				
GRP13872	02	0310	0328	0317	N08	W61	.889	9222	26.6	18	-N				.67				2 2 2 2
HALE	02	0310	0328	0316	N07	W60	.879	9222	26.6	18	-B	3	C	0316	.72	1.50			HJ
MANI	02	0315E	0328	0318	N08	W61	.889	9222	26.6	13D	-F	2		0318	.62	1.20			
	02	0440	0500	NO FLARE PATROL															
875 CAPE	02	0926	1010	0945	N16	W15	.463	9225	1.3	44	-N		C	0945	1.59	1.80			4
GRP13876	02	1202	1223	1206	N13	W18	.454	9225	1.2	21	1N				2.41				4 3 2 4
CAPE	02	1202	1216	1206	N15	W17	.468	9225	1.2	14	1N		C	1206	1.87	2.10			FV
ONDR	02	1209E	1230		N12	W19	.453	9225	1.1	21D	1N		V	1211			2.00		C
ZURI	02	1212E	1220D		N12	W17	.432	9225	1.2	8D	1N		P		2.94	3.30			
CANR	02	1224E	1227D	1226U	N11	W19	.443	9225	1.1	3D	-F		C		.20	.20			
GRP13878	02	1327	1345	1335	N09	W67	.932	9222	26.5	18	-N				.69				2 2 2 5
CAPE	02	1327	1345	1332	N08	W68	.937	9222	26.5	18	-N		C	1332	.71	2.10			
ATHN	02	1336E	1345	1338	N09	W66	.925	9222	26.6	9D	-N	2		1338	.66		1.70		
GRP13879	02	1411	1426	1413	S25	W38	.648	9224	28.7	15	-B				1.95				4 4 4 4
SANM	02	1410	1423	1412	S26	W37	.641	9224	28.8	13	-N		C	1412	.48	.65			E
ATHN	02	1411E	1423	1412	S25	W40	.670	9224	28.6	12D	-B	2		1412	.99	1.40	2.00		
CAPE	02	1412	1430	1413	S24	W37	.632	9224	28.8	18	1N		C	1413	3.81	4.80			FV
SACP	02	1413E	1429	1413E	S24	W36	.620	9224	28.9	16D	1B		C		2.52	2.78			
GRP13884	02	1813	1845	1816	S25	E50	.776	9244	6.5	32	-B				1.48				3 3 3 3
HALE	02	1812	1835	1815	S25	E51	.785	9244	6.6	23	-B	2	C	1815	1.24	2.00			FJL
LOCK	02	1813	1855	1817	S25	E49	.766	9244	6.4	42	-B		C		1.30				
SACP	02	1815E	1844U	1817U	S24	E51	.783	9244	6.6	29U	1N		C		1.89	2.41			
GRP13886	02	1916	1944	1925	N11	W27	.537	9225	29.8	28	-N				.91				2 2 2 3
HALE	02	1916	1946	1925	N11	W27	.537	9225	29.8	30	-B	1	C	1925	1.03	1.20			FH
LOCK	02	1917	1942	1925	N12	W28	.557	9225	29.7	25	-F		C		.80				H
GRP13888	02	1945	1958	1949	S25	E50	.776	9244	6.6	13	-B				.81				2 2 2 2
HALE	02	1944	1955	1949	S25	E50	.776	9244	6.6	11	-B	1	C	1949	.62	1.00			
LOCK	02	1946	2000	1949	S25	E49	.766	9244	6.5	14	-N		C		1.00				
GRP13891	02	2229	2242	2233	S29	E49	.776	9244	6.6	13	-N				.71				2 2 2 2
HALE	02	2225	2239	2230	S29	E49	.776	9244	6.6	14	-B	1	C	2230	.62	1.00			F
LOCK	02	2233	2245	2236	S28	E49	.774	9244	6.6	12	-F		C		.80				
GRP13892	02	2237	2302	2240	N05	W71	.950	9222	26.6	25	-B				.73				2 2 2 2
LOCK	02	2237	2302	2240	N04	W70	.944	9222	26.7	25	-N		C		1.10				H
HALE	02	2248E	2301		N06	W71	.951	9222	26.6	13D	-B	1	C	2248	.36				
	03	0420	0435	NO FLARE PATROL															
GRP13896	03	0710	0803	0720	S26	E46	.738	9244	6.7	53	1B				1.92				2 2 2 4
CAPS	03	0710E	0749		S27	E45	.731	9244	6.7	39D	1B	3		0712	1.80	2.50		208	
CAPE	03	0710	0735	0720	S25	E45	.725	9244	6.7	25	1N		C	0720	2.03	2.90			FH
CAPE	03	0718	0816	0730	S23	E47	.741	9244	6.8	58	-F		C	0730	.97	1.40			F
GRP13897	03	0711	0837	0725	S25	E35	.613	9241	5.9	86	-F				1.31				2 2 2 4
CAPE	03	0711	0837	0725	S24	E35	.608	9241	5.9	86	-N		C	0725	1.41	1.80			F
CAPS	03	0733E	0745D		S25	E35	.613	9241	5.9	12D	-F	3		0735	1.20	1.40		145	CJ
916 MITK	04	0215	0240	0218	S26	W65	.902	9224	28.2	25	1F		C	0218	1.44				3
GRP13919	04	0700	0720	0703	S24	E32	.573	9244	6.7	20	1N				1.27				3 3 3 6
MANI	04	0700	0714	0703	S25	E31	.567	9244	6.6	14	-B	2		0703	.62	.77			F
CAPE	04	0700	0714D	0703	S24	E32	.573	9244	6.7	14D	1N		P	0703	1.87	2.30			FH
ATHN	04	0701	0733	0703	S23	E32	.567	9244	6.7	32	1N	2		0703	1.32	2.70	1.90		
GRP13931	04	1711	1747	1721	S25	E35	.613	9244	7.3	36	-B				1.58				6 6 6 6
SACP	04	1709	1752	1718	S25	E35	.613	9244	7.3	43	1N		C		3.08	3.39			
MCMA	04	1710	1743D	1722	S25	E38	.648	9244	7.6	33D	-B		C	1722	1.24	1.60			EH
HALE	04	1711E	1845		S25	E34	.602	9244	7.3	94D	-B	1	P	1718	1.08	1.40			J
BOUL	04	1713	1735	1718	S27	E35	.624	9244	7.3	22	-B		C		.70	.90			E
HUAN	04	1716E	1746		S24	E34	.597	9244	7.3	30D	-B	1	P	1716	1.29	1.41			E
LOCK	04	1727E	1800	1727U	S26	E36	.630	9244	7.4	33D	1N		C		2.10				

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GRP13964	06	1132	1152	1135	S25	E11	.352	9244	7.3	20	-N				1.29				4 4 4 6
HTPR	06	1132E	1150D	1135	S24	E11	.339	9244	7.3	18D	-N			1135	1.34	1.40			
CANR	06	1132	1145	1135	S28	E09	.382	9244	7.2	13	-N		C		.80	.80			
CAPE	06	1132	1203	1135	S24	E11	.339	9244	7.3	31	-N		C	1135	1.68	1.80			FV
ATHN	06	1133	1149	1135	S25	E11	.352	9244	7.3	16	-F	2		1135	1.32	1.40	1.40		
GRP13977	07	0455	0530	0509	N25	E09	.551	9250	7.9	35	-B				1.24				2 2 2 5
MITK	07	0455	0530	0507	N25	E10	.555	9250	8.0	35	-N		C	0507	1.44	1.80			E
MANI	07	0508E	0519D	0511	N25	E08	.547	9250	7.8	11D	-B	1		0511	1.03	1.23			
GRP13982	07	1249	1321	1253	S26	W13	.382	9244	6.6	32	1B				2.68				6 4 4 6
CAPE	07	1247	1350	1255	S25	W14	.378	9244	6.5	63	2N		C	1255	5.14	5.60			FV
CANR	07	1250	1300	1253	S28	W14	.417	9244	6.5	10	-B		C		1.60	1.70			E
MCMA	07	1250	1325D	1252	S26	W14	.391	9244	6.5	35D	1B		C	1252	1.91	2.00			EH
MONT	07	1257E	1305D		S25	W10	.345	9244	6.8	8D	1B		C	1257	2.06				
CAPS	07	1325E	1327D		S26	W13	.382	9244	6.6	2D	-N	1		1327	1.50	1.60			B
ATHN	07	1340E	1350	1345	S27	W13	.395	9244	6.6	10D	-N	2		1345	.66	.70	1.70		
	07	2125	2135	NO FLARE PATROL															
	07	2240	2305	NO FLARE PATROL															
GRP13998	09	1104	1117	1109	S29	W33	.615	9244	7.0	13	-N				1.24				2 2 2 5
CAPE	09	1101	1120	1109	S29	W33	.615	9244	7.0	19	-N		C	1109	1.28	1.60			
CAPS	09	1106	1114		S28	W33	.608	9244	7.0	8	-N	3		1110	1.20	1.50		160	
GRP13999	09	1137	1211	1143	N18	E19	.522	9261	10.9	34	-N				1.63				4 4 4 8
ABST	09	1134	1220	1142	N20	E18	.537	9261	10.8	46	1B		C	1142	1.80	3.10		72	D
CAPE	09	1137	1210	1145	N19	E18	.525	9261	10.8	33	-N		C	1145	1.59	1.90			F
ATHN	09	1141	1149D	1143	N17	E21	.529	9261	11.1	8D	-N	1		1143	1.32	1.60	1.60		
CAPS	09	1142E	1203		N17	E20	.519	9261	11.0	21D	1N	3		1145	1.80	2.20		171	
	09	1630	1815	NO FLARE PATROL															
005 MITK	10	0142	0200	0145	S13	E51	.771	9259	13.9	18	-N		C	0145	1.24	1.90			E 3
GRP14006	10	0537	0607	0545	S19	W40	.650	9256	7.2	30	-N				.91				3 3 3 5
MANI	10	0536	0615	0545	S19	W41	.663	9256	7.2	39	-F	1		0545	1.03	1.39			
MITK	10	0539	0605D	0543	S18	W39	.635	9256	7.3	26D	-N		C	0543	.72	.90			
ATHN	10	0545E	0558	0545	S20	W40	.653	9256	7.2	13D	-N	2		0545	.99	1.10	1.80		
GRP14022	12	1347	1413	1353	S13	E16	.289	9259	13.8	26	-B				1.24				6 6 6 7
LOCA	12	1346	1417	1350	S14	E16	.294	9259	13.8	31	-N		V	1350	1.47	1.50			
HTPR	12	1347	1415	1347	S13	E15	.273	9259	13.7	28	-B			1347	.72	.80			
MONT	12	1348	1415	1352	S12	E14	.252	9259	13.6	27	1B		C	1352	2.06				
CAPE	12	1348	1412	1350	S13	E14	.258	9259	13.6	24	-N		C	1350	1.51	1.60			FV
CAPS	12	1349E	1407		S14	E20	.355	9259	14.1	18D	-B	2		1351	1.40	1.50		191	
SACP	12	1358E	1408D	1406	S14	E15	.279	9259	13.7	10D	-N		C		.27	.27			
033 SACP	12	2108	2118	2110	N26	W59	.915	9250	8.5	10	-N		C		1.00	1.69			1
GRP14038	13	0644	0655	0646	N29	E81	.997	9267	19.4	11	1F				.99				2 2 2 3
CAPE	13	0644	0655	0646	N30	E83	.999	9267	19.5	11	1N		C	0646	.97				V
CAPS	13	0646E	0653D		N28	E78	.992	9267	19.1	7D	1F	1		0648	1.00				C
GRP14044	13	1530	1545	1534	S18	W83	.988	9256	7.4	15	-N				.99				7 7 6 11
CAPE	13	1525	1545	1535	S18	W85	.993	9256	7.3	20	1N		C	1535	1.41				
SACP	13	1528	1543	1533	S19	W85	.992	9256	7.3	15	-N		C		.72				
MCMA	13	1530	1543	1534	S18	W85	.993	9256	7.3	13	-N		C	1534					E
ATHN	13	1531E	1545	1531	S15	W80	.980	9256	7.6	14D	-N	2		1531	.66		1.90		
HUAN	13	1532E	1532D		S18	W85	.993	9256	7.3		-N	1	P	1532	.50				
LOCA	13	1532	1547	1535	S20	W80	.979	9256	7.6	15	-F		V	1535	1.05				
CAPS	13	1534E	1544		S17	W80	.980	9256	7.6	10D	1N	2		1538	1.60				CG
052 MCMA	13	1849	1855	1850	N18	W88	1.000	9263	7.2	6	-N		C	1850					D 3
GRP14055	14	0957	1035	1022	S21	W53	.798	9268	10.4	38	1F				1.20				3 3 3 7
CATA	14	0945	1120	0950	S20	W52	.787	9268	10.5	95	-N			0950	.63	1.09		195	T
CAPE	14	1008	1040	1022	S20	W53	.797	9268	10.4	32	1F		C	1022	1.46	2.40			FT
CAPS	14	1023E	1029		S22	W54	.809	9268	10.4	6D	1F	1		1026	1.50	2.40		145	B
GRP14056	14	1002	1053	1013	N14	E35	.652	9262	17.0	51	-N				1.69				7 7 7 7
HTPR	14	0958	1050	1010	N14	E37	.674	9262	17.2	52	-N			1010	1.13	1.50			
CAPE	14	1001	1100	1017	N14	E35	.652	9262	17.0	59	1N		C	1017	2.12	2.80			FV
LOCA	14	1002	1059	1015	N13	E36	.657	9262	17.1	57	1N		V	1015	1.68	2.20			
MEUD	14	1003E	1035		N14	E34	.641	9262	17.0	32D	-N			1013	1.13	1.40			CE
ATHN	14	1005	1051D	1007	N17	E34	.661	9262	17.0	46D	-N	1		1007	.83	1.10	1.40		
CATA	14	1005	1100	1015	N13	E36	.657	9262	17.1	55	-B			1015	1.44	1.92		224	
CAPS	14	1023E	1053D		N13	E35	.646	9262	17.1	30D	1N	1		1025	3.50	4.60		168	B

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GRP14058	14	1250	1322	1256	S20	W57	.835	9268	10.3	32	-N				.87				3 3 3 5
HTPR	14	1247	1345	1254	S19	W55	.815	9268	10.4	58	-N			1254	.41	.70			
CAPE	14	1252	1310	1258	S20	W55	.816	9268	10.4	18	1N		C	1258	1.28	2.20			F
ATHN	14	1255E	1311	1255	S22	W59	.854	9268	10.1	16D	-B	2		1255	.91	1.40	1.80		
GRP14059	14	1412	1433	1420	S18	W57	.833	9268	10.3	21	-N				1.23				3 3 3 8
CAPE	14	1405	1440	1420	S20	W56	.826	9268	10.4	35	1N		C	1420	2.08	3.60			
HUAN	14	1414	1432	1420	S20	W57	.835	9268	10.3	18	-N	2	C	1420	.62	.85			
CANR	14	1416	1428	1420	S15	W57	.832	9268	10.3	12	-N		C		1.00	1.70			
GRP14071	15	1116	1206	1121	N29	E52	.881	9267	19.4	50	1N				1.44				5 4 4 7
CAPE	15	1102	1215	1125	N30	E52	.884	9267	19.4	73	1N		C	1125	1.37	2.60			F
ATHN	15	1111	1157	1116	N28	E50	.863	9267	19.2	46	1B	2		1116	.99	2.30	2.00		
HTPR	15	1118E	1210		N30	E50	.872	9267	19.2	52D	-N			1118	.83	1.70			Z
KIEV	15	1120	1200	1122	N29	E55	.899	9267	19.6	40	1N		C	1122	2.58			65	EI
HUAN	15	1151E	1207		N28	E51	.870	9267	19.3	16D	-F	1	P	1152	.25	.37			DT
GRP14087	16	0725	0748	0730	S20	E28	.500	9265	18.4	23	-N				1.74				8 8 7 9
ISTA	16	0645E	0754D		S21	E29	.519	9265	18.5	69D	1B								
CAPS	16	0722E	0745		S20	E27	.487	9265	18.3	23D	1N	1		0740	3.00	3.40			CH
MANI	16	0723	0747	0726	S19	E26	.468	9265	18.3	24	-N	2		0726	.62	.70			
HTPR	16	0723	0755	0731	S18	E28	.490	9265	18.4	32	-N			0731	1.03	1.20			
CRON	16	0724	0742	0732	S21	E28	.506	9265	18.4	18	-N		C		1.60	1.90			E
BUCA	16	0725	0753	0732	S19	E29	.509	9265	18.5	28	-N		C	0732	1.55	1.70			
ATHN	16	0726E	0743	0726	S20	E28	.500	9265	18.4	17D	-N	2		0726	1.65	2.00	1.90		
ABST	16	0729	0745	0730	S19	E29	.509	9265	18.5	16	1N		C	0730	2.70	3.10		70	E
GRP14102	17	1751	1857	1806	N33	E21	.705	9267	19.3	66	-N				1.15				3 3 3 3
LOCK	17	1750	1850	1805	N32	E17	.674	9267	19.0	60	-N		C		1.50				
MCMA	17	1752	1900	1801	N35	E24	.741	9267	19.5	68	-B		C	1801	.77	1.10			E
SACP	17	1812E	1900	1813	N31	E22	.689	9267	19.4	48D	-N		C		1.19	1.37			
GRP14103	17	1923	1953	1929	N32	E20	.689	9267	19.3	30	-N				.94				3 3 3 4
LOCK	17	1920	2000	1930	N32	E17	.674	9267	19.1	40	-F		C		.90				
MCMA	17	1923	1955	1929	N35	E23	.736	9267	19.5	32	-N		C	1929	.52	.80			E
BOUL	17	1926	1943	1929	N29	E20	.655	9267	19.3	17	-N		C		1.40	1.90			
GRP14108	18	1442	1459	1443	N16	W09	.419	9266	17.9	17	-N				1.17				3 3 3 8
CAPE	18	1441	1452	1444	N14	W10	.396	9266	17.9	11	1F		C	1444	2.12	2.30			V
HTPR	18	1442	1510	1442	N15	W10	.410	9266	17.9	28	-N			1442	.72	.80			
ATHN	18	1442	1455	1444	N18	W08	.443	9266	18.0	13	-N	2		1444	.66	.70	1.70		
GRP14109	18	1639	1657	1643	N10	E75	.973	9275	24.3	18	1F				1.46				3 3 3 5
LOCK	18	1637	1705	1643	N11	E74	.970	9275	24.2	28	-F		C		1.30				
CANR	18	1638	1642D	1641U	N10	E78	.983	9275	24.5	4D	2F		C		2.30	7.10			
BOUL	18	1640	1649	1642U	N08	E72	.958	9275	24.1	9	1F		C		.80	2.20			H
GRP14113	19	0434	0455	0437	N36	E01	.683	9267	19.3	21	-N				1.38				2 2 2 5
MITK	19	0433	0450	0436	N35	E01	.670	9267	19.3	17	1N		C	0436	1.55	2.10			E
CRON	19	0434	0500	0437	N36	E01	.683	9267	19.3	26	-N		C		1.20	1.70			EK
CRON	19	0434	0500	0450	N36	E01	.683	9267	19.3	26	-N		C						
GRP14125	20	0819	0914	0831	N19	W10	.467	9267	19.6	55	-N				1.69				2 2 2 9
CAPE	20	0815	0940	0832	N20	W11	.487	9267	19.5	85	-N		C	0832	1.68	1.90			F
CANR	20	0823	0848	0829	N18	W09	.447	9267	19.7	25	1N		C		1.70	2.00			
	20	1925	1930	NO FLARE PATROL															
	21	0120	0140	NO FLARE PATROL															
GRP14135	21	0734	0748	0740	S25	E61	.873	9279	25.9	14	-B				.58				6 6 5 9
ATHN	21	0715	0732D	0719	S27	E58	.852	9279	25.7	17D	-N	2		0719	.99	1.50	1.70		
ISTA	21	0716	0743		S23	E58	.847	9279	25.7	27	-N								
CAPE	21	0732	0750	0737	S25	E60	.865	9279	25.8	18	-N		C	0737	.71	1.40			HT
MANI	21	0734	0745	0737	S25	E68	.921	9279	26.4	11	-B	1		0737	.41	.86			
BUCA	21	0735	0745		S25	E60	.865	9279	25.8	10	-B		C	0738	.66	1.30			D
CATA	21	0745E	0755D	0745	S24	E61	.872	9279	25.9	10D	-B			0745	.11	.24		209	
GRP14139	21	0856	0912	0905	S25	E58	.849	9279	25.7	16	-N				1.46				3 3 3 6
CAPE	21	0856	0918	0905	S24	E58	.848	9279	25.7	22	-F		C	0905	.80	1.60			
WEND	21	0902E	0909D		S24	E58	.848	9279	25.7	7D	1N		V		3.09				
ATHN	21	0904E	0909	0904	S27	E57	.844	9279	25.7	5D	-N	1		0904	.50	1.20	1.70		
GRP14141	21	1027	1054	1030	S24	E59	.856	9279	25.9	27	-N				1.72				4 4 3 5
CAPE	21	1024	1055	1029	S24	E58	.848	9279	25.8	31	-N		C	1029	1.02	2.00			
KHAR	21	1027E	1035D		S23	E61	.871	9279	26.0	8D	-F		V				1.60		D
WEND	21	1028	1053		S24	E57	.839	9279	25.7	25	1F		V		3.09				
CATA	21	1030	1040D	1030	S24	E58	.848	9279	25.8	10D	1B			1030	1.04	2.03		224	T

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GRP14142	21	1152	1214	1155	S25	E57	.841	9279	25.8	22	-B				.95				3 3 3 7
ATHN	21	1149	1207	1153	S28	E57	.845	9279	25.8	18	-B	2		1153	.66	1.30	2.00		
CAPE	21	1152	1215	1155	S24	E57	.839	9279	25.8	23	1N		C	1155	1.33	2.40			
CATA	21	1155	1220	1157	S24	E58	.848	9279	25.8	25	-B			1157	.87	1.69		331	
GRP14145	21	1252	1304	1259	S26	E58	.850	9279	25.9	12	-N				.80				3 3 3 6
CAPE	21	1250	1304	1259	S24	E56	.831	9279	25.7	14	-F		C	1259	.80	1.40			H
HUAN	21	1252	1304		S24	E59	.856	9279	26.0	12	-N	1	C	1257	.93	1.35			E
ATHN	21	1253	1258	1254	S30	E60	.871	9279	26.0	5	-N	2		1254	.33	.70	1.50		
ATHN	21	1257	1304	1258	S28	E57	.845	9279	25.8	7	-N	2		1258	.66	1.30	1.60		
GRP14147	21	1422	1512	1429	N17	W54	.853	9266	17.5	50	1B				1.92				6 6 6 7
ATHN	21	1420	1526	1426	N21	W54	.866	9266	17.5	66	1B	2		1427	1.98	4.10	2.00		
CAPE	21	1421	1431D	1429	N16	W54	.850	9266	17.5	10D	2B		P	1429	3.19	5.80			FV
HUAN	21	1422	1439D		N16	W53	.841	9266	17.6	17D	1N	2	P	1432	1.39	2.00			
SANM	21	1423E	1503D	1424	N18	W54	.856	9266	17.5	40D	1B		P	1424	1.45	2.82			E
CATA	21	1425	1515D	1437	N15	W54	.847	9266	17.6	50D	1B			1437	1.86	3.50		324	E
MEUD	21	1426E	1502		N17	W54	.853	9266	17.6	36D	1B			1434	1.65	2.90			CE
14147	21			1447	N19	W54	.859	9266	17.5	66					2.30				2 2 1 7
ATHN	21	1420	1526	1447	N21	W54	.866	9266	17.5	66	1B								
CAPS	21	1443E	1511D		N16	W54	.850	9266	17.6	28D	1N	2		1444	2.30	4.40		196	BF
GRP14148	21	1524	1541	1532	S27	E55	.827	9279	25.8	17	-N				.85				2 2 2 3
BOUL	21	1524E	1540	1531	S25	E56	.832	9279	25.8	16D	-N		C		.70	1.20			
ATHN	21	1533E	1541	1533	S29	E54	.822	9279	25.7	8D	-N	2		1533	.99	1.80	1.60		
150 CANR	21	1720	1755	1727	S25	E53	.805	9279	25.7	35	1N		C		1.20	2.00			K 2
150 CANR	21			1747	S25	E53	.805	9279	25.7	35			C						2
153 LOCK	21	1913	1930	1916	S24	E53	.803	9279	25.8	17	-B		C		1.30				1
154 CRON	22	0130U	0135D	0132	S25	E48	.757	9279	25.7	5D	-N		C		1.10	1.70			1
157 HALE	22	0309E	0351D		N10	W05	.304	9281	21.8	42D	1B	2	P	0326	2.58	2.70			FGK 3
GRP14158	22	0416	0442	(0417)	N10	W06	.309	9281	21.7	26	-B				1.55				2 1 1 3
MANI	22	0416E	0442		N10	W06	.309	9281	21.7	26D	-B	2		0417	1.55	1.62			F
KODA	22	0431E	0437D		N09	W05	.288	9281	21.8	6D	1N		P	0435	2.58	2.70			L
GRP14159	22	0537	0559	0543	N10	W06	.309	9281	21.8	22	1N				2.72				3 3 3 4
ABST	22	0528	0556	0543	N09	W06	.294	9281	21.8	28	1N		P	0543	2.88	3.00			F
TACH	22	0540	0556	0543	N10	W06	.309	9281	21.8	16	1N		V	0543	4.28	4.50	2.80	69	E
ATHN	22	0543	0604	0544	N10	W06	.309	9281	21.8	21	-B	2		0544	.99	1.20	2.00		
GRP14161	22	0725	0812	0739	N10	W07	.315	9281	21.8	47	-N				1.39				6 6 5 7
ISTA	22	0700E	0820		N10	W07	.315	9281	21.8	80D	1N								
BUCA	22	0720	0813		N10	W07	.315	9281	21.8	53	1N		C	0740	2.21	2.30			
ATHN	22	0730	0810	0732	N09	W07	.300	9281	21.8	40	-B	2		0739	.99	1.20	2.00		
ATHN	22	0730	0810	0739	N09	W07	.300	9281	21.8	40	-B								
MANI	22	0732E	0803	0744	N10	W07	.315	9281	21.8	31D	-N	1		0744	.83	.87			F
SIBE	22	0739E	0800D	0742	N10	W08	.322	9281	21.7	21D	-F		P	0742	1.82	1.86		73	EFJT
CRON	22	0739U	0756U	0741U	N09	W07	.300	9281	21.8	17U	-N		C		1.10	1.10			EI
GRP14189	23	0634	0653	0637	S25	E34	.604	9279	25.8	19	-N				1.07				3 3 3 5
CRON	23	0634	0648	0636	S25	E34	.604	9279	25.8	14	-N		C		1.40	1.70			
ATHN	23	0635E	0657	0638	S27	E35	.626	9279	25.9	22D	-B	1		0638	.99	1.20	1.80		
MANI	23	0640E	0654		S23	E34	.594	9279	25.8	14D	-N	2		0640	.83	1.01			J
GRP14190	23	0727	0741	0729	S25	E33	.592	9279	25.8	14	-N				1.20				3 3 2 7
ISTA	23	0640E	0730	0727	S24	E31	.563	9279	25.6	50D	-N								
CRON	23	0727	0755	0729	S24	E34	.599	9279	25.9	28	1N		C		1.90	2.30			HIK
ATHN	23	0730E	0737	0730	S27	E35	.626	9279	25.9	7D	-N	1		0730	.50	.60	1.50		
14190	23			0745	S24	E34	.599	9279	25.9	28					.34				2 2 1 8
CRON	23	0727	0755	0744	S24	E34	.599	9279	25.9	28	1N		C						
CATA	23	0740E	0745D	0745	S24	E34	.599	9279	25.9	5D	-N			0745	.34	.43		195	

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OBSERVATORY	OBSERVED UT DATE 1968 MAR	START	END	MAX. PHASE	LOCATION APPROX. LAT.	MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP DAY	DURATION — MIN.	IMPORTANCE	OBS. COND.	TYPE	MEASUREMENTS TIME — UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hα	MAX. INT. %	REMARKS
GRP14193	23	0936	0958	0940	S22	E33	.576	9279	25.9	22	1B				2.54				12 12 12 13
CATA	23	0920	1010	0935	S23	E33	.581	9279	25.9	50	1B			0935	2.32	2.87		309	
CAPE	23	0931	1007	0941	S23	E33	.581	9279	25.9	36	2B		C	0941	6.03	8.80			FHJV
ABST	23	0935	0954	0940	S22	E34	.589	9279	25.9	19	1B		C	0940	2.97	3.70			EJK
KHAR	23	0936	0953	0938	S24	E33	.587	9279	25.9	17	1B		P	0938	2.89	3.60	2.80		HL
CAPS	23	0936	0953		S24	E32	.575	9279	25.8	17	1B	3		0939	4.00	4.80		237	HJ
CANR	23	0936	0946	0938	S24	E34	.599	9279	26.0	10	-N		C		1.10	1.30			K
MONT	23	0936	1015	0940	S21	E39	.646	9279	26.3	39	1B		C	0940	3.09				H
CRON	23	0937	0951	0941	S25	E34	.604	9279	26.0	14	-N		C		.80	1.00			EH
ZURI	23	0937E	0945D		S22	E33	.576	9279	25.9	8D	1N		P		2.94	3.60			
MANI	23	0939E	0956D	0941	S23	E33	.581	9279	25.9	17D	1B	2		0941	1.80	2.24			J
CAPF	23	0941E	0953		S24	E31	.563	9279	25.7	12D	1N		9	0942	1.76	2.14			
ARCE	23	0950E	1000D		S23	E32	.569	9279	25.8	10D	-N		C	0950	.80	1.00			E
GRP14200	23	1511	1536	1512	S22	E31	.551	9279	26.0	25	-F				1.26				3 2 2 4
CAPS	23	1510	1527D		S23	E28	.520	9279	25.7	17D	-F	3		1516	1.60	1.80		142	
SACP	23	1511	1530	1512U	S23	E29	.532	9279	25.8	19	-N		C		.91	.95			
MONT	23	1525	1542		S21	E36	.609	9279	26.3	17	-N		C	1530	1.55				
207 LOCK	23	2134	2155	2140	S25	E28	.534	9279	26.0	21	-N		C		1.00				L 2
GRP14214	24	0302	0325	0312	S12	E07	.149	9273	24.7	23	-N				1.56				3 3 3 5
KODA	24	0258	0328	0259	S13	E06	.147	9273	24.6	30	-N		C	0325	1.93	1.90	1.60		K
SIBE	24	0300	0325	0313	S12	E08	.163	9273	24.7	25	1F		C	0313	1.46	2.08		64	CE
CRON	24	0307	0321	0310	S12	E06	.136	9273	24.6	14	-N		C		1.30	1.30			E
GRP14216	24	0741	0812	0753	S12	E03	.102	9273	24.5	31	1B				3.15				9 9 9 9
HTPR	24	0735	0900	0749	S12	E03	.102	9273	24.5	85	1B			0749	4.43	4.50			K
HTPR	24	0735	0900	0740	S12	E03	.102	9273	24.5	85	-B			0738	1.75	1.80			K
ABST	24	0737	0928	0752	S12	E04	.112	9273	24.6	111	2B		C	0750	6.76	6.80		92	FJ
CAPS	24	0738	0811		S12	E03	.102	9273	24.5	33	1B	3		0753	4.00	4.00		325	JK
MANI	24	0738	0811	0752	S11	E03	.088	9273	24.5	33	-B	2		0752	1.03	1.03			F
CATA	24	0740E	0820D	0752	S12	E03	.102	9273	24.5	40D	1B			0752	3.76	3.79		309	E
MONT	24	0741E	0821D	0758	S12	E01	.090	9273	24.4	40D	1N		C	0758	2.06				
KODA	24	0749E	0802	0751	S13	E05	.136	9273	24.7	13D	1B		P	0754	3.22	3.30	2.44		IK
CRON	24	0750	0811	0753	S13	E03	.118	9273	24.6	21	-N		C		1.90	1.90			EI
CANR	24	0752E	0805	0755U	S11	E04	.099	9273	24.6	13D	-N		C		1.20	1.20			E
GRP14218	24	0943	1012	0949	S24	E20	.433	9279	25.9	29	-N				1.52				3 3 3 10
CAPE	24	0942	1018	0949	S24	E20	.433	9279	25.9	36	-N		C	0949	.76	.90			F
WEND	24	0942E	1006		S23	E21	.436	9279	26.0	24D	1N		V		3.09				
CAPS	24	0946	1002D		S24	E18	.411	9279	25.8	16D	-N	3		0948	.70	.80		163	E
GRP14219	24	1232	1248	1233	S24	E18	.411	9279	25.9	16	-N				1.51				5 5 5 6
CAPE	24	1231	1248	1234	S24	E17	.401	9279	25.8	17	-N		C	1234	1.30	1.40			FH
HTPR	24	1231	1250	1232	S24	E18	.411	9279	25.9	19	-N			1232	.72	.80			
CAPS	24	1232	1242D		S24	E19	.422	9279	25.9	10D	-N	2		1234	1.80	2.00		165	H
WEND	24	1232E	1400D		S23	E20	.424	9279	26.0	88D	1N		P		3.09				
MEUD	24	1233	1245	1234	S24	E17	.401	9279	25.8	12	-N			1234	.62	.70			EH
GRP14222	24	1637	1725	1646	S11	W02	.079	9273	24.5	48	1B				4.75				9 9 9 9
SACP	24	1541	1745U	1647	S12	W01	.090	9273	24.6	124U	1B		C		5.17	5.10			
MCMA	24	1632	1745	1644	S12	W03	.102	9273	24.5	73	1B		C	1644	2.06	2.10			F
LOCK	24	1635	1730	1650	S12	W03	.102	9273	24.5	55	1N		C		3.00				J
HUAN	24	1635	1735		S12	W02	.095	9273	24.5	60	1B	1	C	1651	4.38	4.38			
CANR	24	1636	1651D	1641	S13	W02	.111	9273	24.5	15D	1N		C		2.30	2.30			H
WEND	24	1639E	1708D	1648	S12	E02	.095	9273	24.8	29D	2B		P		12.38				
BOUL	24	1640	1659	1644	S13	W03	.118	9273	24.5	19	2B		C		5.40	5.40			
HOUT	24	1642	1707	1643	S13	W03	.118	9273	24.5	25	-N		C		1.40	1.40			
HTPR	24	1648E	1728D	1650	S12	W02	.095	9273	24.5	40D	2B			1650	6.70	6.80			Z
GRP14232	25	1444	1541	1507	S12	W14	.254	9273	24.6	57	1B				4.52				12 12 10 13
SACP	25	1439	1600U	1505	S12	W14	.254	9273	24.6	81U	2B		C		5.30	5.21			
CAPE	25	1440	1600	1510	S11	W15	.265	9273	24.5	80	2B			1510	9.58	9.90			FHJ
HTPR	25	1442	1508D	1503	S12	W15	.270	9273	24.5	26D	2B			1503	5.57	5.80			
MONT	25	1443	1550	1510	S12	W14	.254	9273	24.6	67	1N		C	1510	3.61				H
LOCA	25	1443	1539	1510	S12	W12	.223	9273	24.7	56	2N		V	1510	5.25	5.40			K
MCMA	25	1445	1600	1505	S12	W13	.239	9273	24.6	75	1B		C						
CAPF	25	1448E	1555	1512	S11	W13	.233	9273	24.6	67D	1N		P	1512	3.53	3.59			
CAPS	25	1448E	1529D		S12	W14	.254	9273	24.6	41D	2B	3		1509	5.00	5.20		256	C
ONDR	25	1448E	1527D		S12	W13	.239	9273	24.6	39D	1N		V	1516			2.30		CHJ
CANR	25	1500E	1515	1504U	S11	W14	.249	9273	24.6	15D	1N		C		3.70	3.70			
HUAN	25	1500E	1502D		S12	W14	.254	9273	24.6	2D	1B	1	P	1502	2.01	2.00			
HOUT	25	1502	1519	1507	S13	W15	.275	9273	24.5	17	-N		C		1.60	1.70			
L 14232	25			1520	S11	W14	.249	9273	24.6	52					5.03				3 3 2 13
ZURI	25	1458	1600	1524	S11	W12	.217	9273	24.7	62	2N		C	1524	7.35	7.50			
BOUL	25	1515E	1531	1515U	S11	W14	.249	9273	24.6	16D	1N		C		2.70	2.70			E
HTPR	25	1517E	1600		S12	W15	.270	9273	24.5	43D	2B								

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GRP14232	25	1444	1600	1449	S12	W14	.254	9273	24.6	76	-N				1.92				3 3 3 14
CAPE	25	1440	1600	1450	S11	W14	.249	9273	24.6	80	-N		C	1450	1.56	1.60			FK
MCMA	25	1445	1600	1448	S12	W13	.239	9273	24.6	75	1B		C	1505	3.61	3.80			KUW
HOUT	25	1448	1500	1449	S13	W15	.275	9273	24.5	12	-N		C		.60	.60			E
GRP14233	25	1316	1412	1336	S12	W13	.239	9273	24.6	56	-N				1.64				8 8 8 13
MCMA	25	1301	1320D	1310	S12	W12	.223	9273	24.6	19D	-F		C	1310	.62	.70			E
CAPS	25	1309	1411D		S11	W15	.265	9273	24.4	62D	-N	3		1339	1.90	2.00		170	
CATA	25	1310	1505D	1335	S13	W12	.230	9273	24.6	115D	-B			1335	1.73	1.79		234	F
ZURI	25	1315	1430	1348	S11	W12	.217	9273	24.7	75	-N		C	1348	1.93	2.00			
LOCA	25	1320E	1410	1335	S12	W12	.223	9273	24.7	50D	-N		V	1335	1.89	2.00			
CAPE	25	1321	1350	1334	S12	W14	.254	9273	24.5	29	-N		C	1334	1.92	2.00			F
MCMA	25	1323	1440D	1335	S12	W12	.223	9273	24.7	77D	-N		C	1335	.83	.90			F
HTPR	25	1329E	1410	1332	S12	W13	.239	9273	24.6	41D	-N			1332	1.24	1.30			
ATHN	25	1336E	1356D	1336	S15	W15	.289	9273	24.4	20D	-N	2		1336	1.65	1.70	1.80		
'14233	25			1400	S15	W14	.275	9273	24.5	48					.71				2 2 2 14
CATA	25	1350	1505D	1400	S18	W16	.328	9273	24.4	75D	-F			1400	.87	.93		148	
HUAN	25	1400E	1411		S12	W12	.223	9273	24.7	11D	-N	1	P	1400	.55	.55			ET
GRP14255	26	1905	2010	1927	N11	E20	.450	9285	28.3	65	-N				1.45				4 3 3 5
MCMA	26	1825	2100D	1926	N12	E22	.483	9285	28.4	155D	1N		C	1926	2.06	2.20			FK
HUAN	26	1849E	1901D		N11	E21	.461	9285	28.4	12D	-F	1	P	1901	.25	.25			D
LOCK	26	1855	2000	1925	N10	E17	.405	9285	28.1	65	-F		C		1.20				
SACP	26	1915	2019	1930	N11	E18	.427	9285	28.2	64	-N		C		1.10	1.11			
GRP14256	26	1925	1952	1933	S25	W58	.850	9282	22.5	27	-N				.73				2 2 2 4
MCMA	26	1925	1935D	1932	S24	W58	.849	9282	22.5	10D	-N		C	1932	.72	1.40			E
SACP	26	1925	1952	1934	S25	W58	.850	9282	22.5	27	-N		C		.73	1.06			
259 CRON	27	0145	0205	0151U	N18	E45	.776	9286	30.4	20	-N		C		1.20	1.90			E 2
260 CRON	27	0224	0250D	0229	S23	W63	.887	9282	22.4	26D	1F		C		1.60	3.20			HI 3
GRP14263	27	0855	0940	0909	S24	W65	.902	9282	22.5	45	-N				.72				3 3 2 13
CATA	27	0855E	0950D	0900	S25	W65	.903	9282	22.5	55D	-N			0900	.80			197	T
ONDR	27	0903E	0915		S23	W65	.902	9282	22.5	12D	-N		V	0904			1.90		CDJ
LOCA	27	0905	0955	0918	S24	W66	.909	9282	22.4	50	-F		V	0918	.63				J
GRP14264	27	0933	1012	0943	S11	W37	.599	9273	24.6	39	-F				1.67				7 6 5 16
CATA	27	0915E	1105	0945	S13	W38	.614	9273	24.5	110D	1N			0945	3.07	3.95		195	
CAPE	27	0925	1055	0947	S10	W39	.625	9273	24.5	90	1N		C	0947	3.04	3.80			FH
HTPR	27	0930	1015	0935	S10	W38	.612	9273	24.5	45	-N			0935	1.44	1.80			L
MEUD	27	0934	1005	0943	S11	W39	.626	9273	24.5	31	-F			0943	.52	.60			EH
CAPS	27	0941	1000D		S11	W38	.612	9273	24.6	19D	-F	3		0947	.30	.40		140	H
KHAR	27	0943E	1012D		S12	W32	.530	9273	25.0	29D	1F		V				1.80		DL
ARCE	27	1005E	1015		S10	W37	.598	9273	24.6	10D	1N		C	1005	2.13	2.70			
'14264	27			0920	S12	W39	.626	9273	24.5	48					2.12				2 2 2 15
MONT	27	0910	0952	0918	S13	W40	.641	9273	24.4	42	1N		C	0918	2.58				E
ATHN	27	0921E	1004	0921	S10	W38	.612	9273	24.5	43D	-B	2		0921	1.65	1.90			
265 MONT	27	1005	1037	1010	S12	E53	.793	9288	31.4	32	1B		C	1010	2.06				H 15
GRP14266	27	1008	1026	1012	S23	E62	.880	9289	1.1	18	-N				.81				10 10 9 15
CAPE	27	1003	1033	1014	S22	E62	.879	9289	1.1	30	1N		C	1014	1.07	2.20			H
HTPR	27	1005	1020	1010	S23	E62	.880	9289	1.1	15	-F			1010	.77	1.50			H
ONDR	27	1007E	1025		S24	E60	.865	9289	31.9	18D	1N		V	1010			2.20		CHJR
MEUD	27	1008	1025		S23	E62	.880	9289	1.1	17	-F			1010	.26	.50			DH
ARCE	27	1010	1025D	1010	S22	E61	.871	9289	1.0	15D	1N		C	1010	1.08	2.30			H
CATA	27	1010E	1035	1010	S21	E64	.894	9289	1.2	25D	-B			1010	.52	1.19		224	
LOCA	27	1010	1028	1015	S23	E61	.872	9289	1.0	18	-N		V	1015	.53	1.10			H
ATHN	27	1011	1023	1015	S26	E63	.889	9289	1.1	12	-N	2		1015	.66	1.50			
CAPS	27	1012E	1022		S24	E66	.909	9289	1.4	10D	-F	3		1016	.70			149	CH
KHAR	27	1013E	1026D		S23	E61	.872	9289	1.0	13D	1F		P	1016	1.70	3.50	1.50		H
GRP14269	27	1134	1158	1139	N17	E44	.761	9286	30.8	24	1N				2.58				9 9 9 12
HTPR	27	1130	1200	1133	N18	E47	.794	9286	31.0	30	-N			1133	1.34	1.90			E
ZURI	27	1132	1150	1138	N19	E43	.762	9286	30.7	18	1N		C	1138	2.39	3.60			
CAPE	27	1132	1210	1141	N18	E44	.766	9286	30.8	38	1B		C	1141	2.59	3.90			FV
MONT	27	1133	1142		N20	E40	.738	9286	30.5	9	-N		C	1136	1.55				E
KIEV	27	1135	1200	1143	N20	E45	.785	9286	30.9	25	1N		C	1143	3.09			80	EI
CATA	27	1135	1140D	1135	N18	E44	.766	9286	30.8	5D	1B			1135	1.44	2.26		214	
CAPS	27	1135E	1158D		N15	E42	.731	9286	30.6	23D	1N	1		1138	3.00	4.50		170	CF
ATHN	27	1137	1154	1139	N16	E47	.786	9286	31.0	17	1N	2		1139	2.64	4.30			
WEND	27	1138E	1157		N10	E41	.697	9286	30.6	19D	1F		V		4.13				

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OBSERVATORY	OBSERVED UT DATE 1968 MAR	START	END	MAX. PHASE	LOCATION APPROX. LAT.	MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP DAY	DURATION — MIN.	IMPORTANCE	OBS. COND.	TYPE	MEASUREMENTS TIME — UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hα	MAX. INT. %	REMARKS
GRP14273	27	1311	1326	1317	S22	E61	.871	9289	1.1	15	-F				.60				4 4 4 15
HTPR	27	1307	1325	1312	S23	E60	.864	9289	1.0	18	-N			1312	.83	1.60			H
SANM	27	1309E	1330D	1314	S20	E60	.862	9289	1.0	21D	-F		C	1314	.26	.52			E
HUAN	27	1311	1319		S23	E62	.880	9289	1.2	8	-F	1	C	1315	.45	.67			ET
CATA	27	1315	1330	1325	S21	E60	.863	9289	1.1	15	-N			1325	.87	1.79		191	
274 MONT	27	1315	1325	1320	S12	E52	.783	9288	31.5	10	-N		C	1320	1.55				14
GRP14275	27	1331	1356	1338	S24	W69	.928	9282	22.4	25	-N				.92				11 11 11 15
HTPR	27	1330	1350	1331	S24	W70	.934	9282	22.3	20	-N			1331	.52	.90			HT
CAPE	27	1330	1351D	1338	S24	W70	.934	9282	22.3	21D	1N		P	1338	1.34	3.40			FV
KIEV	27	1330	1400	1341	S22	W71	.939	9282	22.2	30	1N		C	1341	3.61			65	D
ATHN	27	1333	1355	1335	S23	W64	.895	9282	22.8	22	-B	2		1335	.83	1.80			
SANM	27	1334E	1356D	1340	S23	W67	.915	9282	22.5	22D	-F		C	1340	.32	1.04			E
CAPS	27	1336E	1358D		S24	W75	.959	9282	21.9	22D	1N	2		1338	1.00			182	J
MCMA	27	1336E	1359		S25	W70	.934	9282	22.3	23D	1B		C	1341	.72	2.10			E
LOCA	27	1337E	1403	1340	S24	W68	.922	9282	22.5	26D	-N		V	1340	.63				
MEUD	27	1338E	1340D		S24	W68	.922	9282	22.5	2D	-F			1339	.26				CE
HUAN	27	1339E	1339D		S26	W70	.934	9282	22.3		-N	1	P	1339	.50				ET
CATA	27	1340E	1350D	1340	S27	W66	.910	9282	22.6	10D	-N			1340	.34			191	
GRP14279	27	1448	1501	1451	S23	E60	.864	9289	1.1	13	-F				.62				2 2 2 9
HTPR	27	1445	1500	1450	S24	E59	.857	9289	1.0	15	-F			1450	.62	1.00			
MCMA	27	1450	1502	1451	S22	E60	.863	9289	1.1	12	-N		C	1451	.62	1.20			E
280 MONT	27	1452	1500	1455	S12	E51	.772	9288	31.4	8	-N		C	1455	1.55				9
GRP14288	27	1734	1844	1801	S14	W44	.692	9273	24.4	70	2N				4.60				4 4 4 4
MCMA	27	1730	1950D	1802	S13	W43	.679	9273	24.5	140D	2B		C	1811	5.67	7.60			FHKLU
LOCK	27	1738	1815	1758	S20	W46	.725	9273	24.3	37	-F		C		.80				
BOUL	27	1758	1844	1803	S11	W43	.678	9273	24.5	46	3N		C		10.00	14.00			EK
HUAN	27	1801E	1843D		S12	W42	.665	9273	24.6	42D	1N	1	P	1807	1.91	2.04			E
14288	27			1814	S12	W42	.665	9273	24.6	124					4.59				3 3 2 4
MCMA	27	1730	1950D	1811	S13	W43	.679	9273	24.5	140D	2B		C						
LOCK	27	1756	2000	1815	S11	W41	.652	9273	24.7	124	1B		C		4.50				
SACP	27	1809E	1821D	1817U	S13	W41	.654	9273	24.7	12D	2B		P		4.68	5.26			
GRP14291	27	1825	1839	1829	S25	E59	.858	9289	1.2	14	-F				1.75				2 2 2 4
BOUL	27	1825	1840	1828	S24	E60	.865	9289	1.3	15	1N		C		2.60	4.70			
LOCK	27	1825	1837	1829	S26	E58	.851	9289	1.1	12	-F		C		.90				H
GRP14292	27	2002	2028	2007	S24	W71	.939	9282	22.5	26	-N				1.13				3 3 3 3
BOUL	27	2000	2039	2007	S23	W71	.939	9282	22.5	39	1N		C		1.80	4.50			
LOCK	27	2000	2017	2007	S25	W68	.922	9282	22.7	17	-N		C		.80				
HUAN	27	2005	2008D		S24	W75	.959	9282	22.2	3D	-B	1	P	2008	.80				
GRP14298	28	0322	0404	0331	S15	W50	.762	9273	24.4	42	1N				2.64				5 5 5 5
CULG	28	0320	0430	0330	S18	W52	.786	9273	24.2	70	1B	2	C		2.99	4.64			F
MANI	28	0321	0400	0326	S13	W47	.727	9273	24.6	39	-B	2		0326	.52	.75			F
CRON	28	0325	0340	0329U	S15	W52	.784	9273	24.2	15	1N		C		2.70	4.30			EH
MITK	28	0329E	0410D		S17	W53	.796	9273	24.2	41D	2F		C	0332	5.05	7.80			F
KODA	28	0331E	0359	0339	S14	W48	.739	9273	24.5	28D	1N		P	0334	1.93	2.90	1.80		E
299 MITK	28	0422	0435	0423	S23	E52	.793	9289	1.1	13	-N		C	0423	.72	1.20			E 3
GRP14301	28	0745	0836	(0801)	S23	W78	.972	9282	22.5	51	1N				.93				3 3 2 14
ISTA	28	0745E	0854D		S24	W76	.964	9282	22.6	69D	-N								
MONT	28	0757E	0815		S23	W79	.975	9282	22.4	18D	1N		C	0757	1.55				H
CAPS	28	0800E	0840D		S23	W80	.979	9282	22.3	40D	1F	3		0805	.30				CDJ
14301	28			0810	S24	W80	.979	9282	22.3	80					.27				3 3 3 16
BUCA	28	0730E	0840D		S26	W80	.978	9282	22.3	70D	-F		C	0820	.43				
CATA	28	0755	0915	0810	S24	W80	.979	9282	22.3	80	-N			0810	.23			186	
ARCE	28	0815E	0835D		S22	W80	.979	9282	22.3	20D	-N		C	0815	.15	.50			
14301	28			0733	S23	W84	.990	9282	22.0	30					.54				2 2 2 10
HTPR	28	0720	0745	0730	S22	W85	.992	9282	21.9	25	-N			0730	.21				A
CATA	28	0735E	0755	0735	S24	W83	.987	9282	22.1	20D	1N			0735	.87			168	B
GRP14304	28	0901	0943	0918	S24	E51	.786	9289	1.2	42	-N				1.25				3 3 2 15
LOCA	28	0852E	0935		S23	E50	.774	9289	1.1	43D	-F		V						J
MONT	28	0900	0945	0920	S24	E53	.805	9289	1.3	45	-N		C	0920	.83				
ARCE	28	0910	0950D	0915	S24	E49	.766	9289	1.1	40D	1N		C	0915	1.67	2.60			H

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OBSERVATORY	OBSERVED UT DATE 1968 MAR	START	END	MAX. PHASE	LOCATION APPROX. LAT.	MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY	DURATION — MIN.	IMPORTANCE	OBS. COND.	TYPE	MEASUREMENTS TIME — UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hα	MAX. INT. %	REMARKS
GRP14305	28	0940	1009	0945	S15	W52	.784	9273	24.5	29	-N				.96				3 3 3 16
MONT	28	0938	1012	0950	S12	W48	.738	9273	24.8	34	-N		C	0950	1.55				
CATA	28	0940	0950	0940	S16	W49	.752	9273	24.7	10	-N			0940	.34	.53		172	
CATA	28	0940	1005	0940	S17	W55	.815	9273	24.3	25	-N			0940	.34	.61		166	
CATA	28	0940	1000	0940	S14	W52	.783	9273	24.5	20	-N			0940	.29	.47		151	Z
ARCE	28	0941	0950D		S17	W56	.825	9273	24.2	9D	-N		C	0943	.65	1.20			
GRP14306	28	1000	1026	1007	S23	E49	.764	9289	1.1	26	-N				.91				5 5 5 13
HTPR	28	0957	1030	1004	S23	E48	.753	9289	1.0	33	-N			1004	.72	1.10			T
MONT	28	1000	1040	1009	S24	E52	.795	9289	1.3	40	1B		C	1009	1.55				
MEUD	28	1000	1015	1006	S23	E47	.743	9289	31.9	15	-F			1006	.52	.80			
LOCA	28	1002	1020D	1010	S23	E50	.774	9289	1.2	18D	-N		V	1010	.85	1.40			
ATHN	28	1010	1024	1011	S15	E40	.644	9289	31.4	14	-N	2		1011	.66	.90	1.60		
GRP14311	28	1405	1448	1425	S24	E50	.776	9289	1.3	43	-N				.98				2 2 2 13
MONT	28	1403	1450	1425	S24	E50	.776	9289	1.3	47	-N		C	1425	1.55				
MCMA	28	1406	1445		S24	E49	.766	9289	1.3	39	-N		C	1408	.41	.60			E
GRP14312	28	1457	1522	1501	S24	E49	.766	9289	1.3	25	-N				1.05				3 3 3 13
SACP	28	1354	1510	1502	S23	E47	.743	9289	1.1	76	-N		C		1.19	1.45			
MONT	28	1455	1527	1501	S24	E50	.776	9289	1.4	32	-N		C	1501	1.55				
MCMA	28	1459	1530D	1501	S24	E49	.766	9289	1.3	31D	-N		C	1501	.41	.60			E
GRP14313	28	1546	1619	1556	S23	W86	.994	9282	22.2	33	-N				1.28				5 4 2 10
HTPR	28	1520	1630	1545	S22	W89	.998	9282	22.0	70	-N								AH
MONT	28	1520	1620		S23	W82	.985	9282	22.5	60	1N		C	1525	1.55				H
BOUL	28	1543	1607	1549	S22	W90	.999	9282	21.9	24	1N		C		1.00	4.00			H
MCMA	28	1549	1600		S25	W88	.997	9282	22.1	11	-F		C						DH
LOCK	28	1603E	1638	1603E	S25	W82	.985	9282	22.5	35D	-F		C		.40				H
GRP14319	28	1838	1859	1842	S24	W89	.998	9282	22.1	21	-N				.88				5 5 4 6
SACP	28	1835	1848	1842	S24	W93	1.000	9282	21.8	13	1N		C		.92				
LOCK	28	1837	1906	1842	S25	W82	.985	9282	22.6	29	-F		C		1.00				H
MCMA	28	1838	1855D	1842	S25	W88	.997	9282	22.2	17D	-B		C	1842					EH
HUAN	28	1839	1906		S24	W90	.999	9282	22.0	27	-N	1	C	1842	.70				E
BOUL	28	1839	1846D	1842	S22	W90	.999	9282	22.0	7D	1F		C		.90	3.60			HI
GRP14339	29	1809	1902	1840	N17	E18	.495	9286	31.1	53	-F				1.78				3 3 3 6
HUAN	29	1808	1910		N17	E18	.495	9286	31.1	62	-N	2	C	1844	1.24	1.28			E
LOCK	29	1810	1900	1840	N15	E17	.461	9286	31.0	50	-F		C		1.30				
BOUL	29	1832	1855	1839	N18	E20	.524	9286	31.3	23	1F		C		2.80	2.80			
14339	29			1817	N18	E19	.515	9286	31.2	44					.82				2 2 2 6
MCMA	29	1807	1905	1814	N18	E20	.524	9286	31.3	58	-N		C	1814	.62	.70			EK
SACP	29	1809	1839	1820	N18	E18	.506	9286	31.1	30	-N		C		1.01	1.05			
GRP14346	30	0313	0321	0315	S16	E64	.893	9292	3.9	8	-F				.76				2 2 2 4
CRON	30	0313	0322	0315	S15	E65	.900	9292	4.0	9	-N		C		.90	1.90			
MANI	30	0314E	0320		S16	E64	.893	9292	3.9	6D	-F	1		0315	.62	1.20			
CRON	30	0317	0322	0318	S16	E63	.885	9292	3.9	5	-N		C		.50	1.00			EI
GRP14353	30	0929	0951	0933	S22	E22	.441	9289	1.0	22	-N				1.40				7 7 6 10
ATHN	30	0926	0947	0929	S26	E20	.456	9289	31.9	21	-N	2		0929	1.65	1.80	1.90		
CAPS	30	0927E	0947		S21	E24	.459	9289	1.2	20D	-N	3		0931	1.30	1.40		170	CE
WEND	30	0928E	0952		S22	E22	.441	9289	1.0	24D	1N		V		3.09				
MANI	30	0930E	0946D		S22	E23	.454	9289	1.1	16D	-N	1		0931	.83	.94			F
ARCE	30	0930	0950D	0935	S21	E21	.421	9289	1.0	20D	-N		C	0935	.96	1.00			
CATA	30	0930	1005	0935	S23	E21	.438	9289	1.0	35	-B			0935	.58	.65		211	Z
CATA	30	0930	0950	0935	S24	E25	.494	9289	1.3	20	-N			0935	.34	.40		164	Z
ONDR	30	0931E	0959D		S22	E21	.429	9289	1.0	28D	-F		V	0936			1.40		CJ
GRP14360	30	1241	1251	1244	S17	E57	.834	9292	3.8	10	-N				1.08				6 6 5 8
CANR	30	1240	1246	1243	S18	E58	.844	9292	3.9	6	-F		C		1.00	1.70			
MONT	30	1241	1255	1245	S15	E58	.843	9292	3.9	14	-B		C	1245	.52				H
KIEV	30	1241	1250	1243	S18	E56	.826	9292	3.7	9	1N		C	1243	3.09			65	DH
CAPS	30	1241	1249		S15	E54	.805	9292	3.6	8	-N	3		1246	.30	.50		174	H
ATHN	30	1243	1252	1245	S20	E57	.836	9292	3.8	9	-B	2		1245	.50	.90	2.00		
ONDR	30	1247E	1252		S16	E56	.824	9292	3.7	5D	-F		V	1247			1.20		CDH
GRP14369	31	0219	0230	0222	S14	E50	.762	9292	3.8	11	-N				.98				2 2 2 4
MITK	31	0219	0230	0221	S13	E49	.750	9292	3.8	11	1N		C	0221	1.44	2.20			H
MANI	31	0221E	0229	0222	S15	E50	.763	9292	3.8	8D	-N	2		0222	.52	.80			
GRP14371	31	0609	0627	0613	S15	E49	.752	9292	3.9	18	-N				.83				5 5 5 8
ABST	31	0607	0619	0613	S14	E47	.728	9292	3.8	12	-N		C	0613	.99	1.50			EJ
MANI	31	0608	0618	0610	S14	E47	.728	9292	3.8	10	-N	2		0610	.62	.91			
BUCA	31	0608E	0655D		S14	E47	.728	9292	3.8	47D	-N		C	0613	.88	1.20			
CAPS	31	0611E	0619D		S15	E48	.741	9292	3.9	8D	-F	3		0615	1.00	1.40		159	H
ATHN	31	0613	0622	0615	S16	E57	.834	9292	4.5	9	-N	2		0615	.66	1.00	1.90		

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OBSERVATORY	OBSERVED UT				LOCATION					DURATION — MIN.	IMPORTANCE	OBS.		MEASUREMENTS					REMARKS
	DATE 1968	START	END	MAX. PHASE	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP DAY			COND.	TYPE	TIME — UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hα	MAX. INT. %	
	MAR																		
GRP14376	31	1329	1358	1333	S22	E08	.296	9289	1.2	29	-N				1.24				7 7 7 8
CATA	31	1325	1410	1330	S22	E09	.304	9289	1.2	45	-B			1330	.58	.61		257	
CATA	31	1325	1410	1330	S23	E06	.299	9289	1.0	45	-N			1330	.11	.12		162	Z
SACP	31	1326	1350	1334	S22	E08	.296	9289	1.2	24	-N		C		.56	.55			
CANR	31	1327	1355	1330	S23	E09	.318	9289	1.2	28	-F		C		1.00	1.00			K
CANR	31	1327	1355	1341	S23	E09	.318	9289	1.2	28	-F		C						
KIEV	31	1330	1400	1333	S22	E07	.289	9289	1.1	30	1B		C	1333	2.58			110	DI
CAPS	31	1330	1356D		S22	E09	.304	9289	1.2	26D	-B	3		1334	1.80	1.90		196	
ATHN	31	1333	1358	1336	S23	E07	.304	9289	1.1	25	-B	2		1336	1.65	1.80	2.00		
HUAN	31	1341E	1344D		S22	E08	.296	9289	1.2	3D	-N	1	P	1342	.50	.50			E
GRP14377	31	1559	1637	1606	S17	W29	.503	9287	29.5	38	-N				1.18				4 4 4 6
SACP	31	1557	1646	1603	S17	W28	.489	9287	29.6	49	-N		C		1.93	1.99			
MEUD	31	1600	1620		S16	W29	.499	9287	29.5	20	-N			1604	.83	.90			E
ATHN	31	1608E	1635	1608	S16	W28	.484	9287	29.6	27D	-N	2		1608	1.32	1.30	1.70		
MCMA	31	1610E	1645D		S17	W29	.503	9287	29.5	35D	-N		C	1620	.62	.70			E

NOTE: GRP numbers may appear several times in order to indicate secondary maxima. The start, end and importance for the flare event are given only with the first GRP entry. Skipped lines separate reports of secondary maxima. Care should be exercised in utilizing the numbers in the remarks column. The first number is the number of stations reporting the individual maximum, and not the total number of stations reporting some part of the flare event. The last number is the number of stations reporting at the time of the individual maximum and not necessarily the total number of stations observing during the flare event.

When it is impossible to determine the time of Maximum Phase from the individual reports the time of Area Measurements is used. This time appears in parentheses.

For Flares reported by only one station the last 3 digits of the group number appears to the left of the station code.

Remarks:

A = Eruptive prominence, base at >90°.
B = Probably the end of a more important flare.
C = Invisible 10 minutes before.
D = Brilliant point.
E = Two or more brilliant points.
F = Several eruptive centers.
G = No spots visible in the neighborhood.
H = Flare with high velocity dark surge.
I = Very extensive active region.
J = Plage with flare shows marked intensity variations.
K = Several intensity maxima.
L = Filaments show effects of sudden activation
M = White-light flare.
N = Continuous spectrum shows effects of polarization.
O = Observations have been made in the calcium II lines H or K.
P = Flare shows helium D_3 in emission.
Q = Flare shows the Balmer continuum in emission.
R = Marked asymmetry in Hα line.
S = Brightening follows disappearance of filament (same position).
T = Region active all day.
U = Close and somewhat parallel bright filaments (|| or Y shape).
V = Occurrence of an explosive phase.
W = Great increase in area after time of maximum intensity.
X = Unusually wide Hα emission.
Y = Onset of a system of loop-type prominences.
Z = Major sunspot umbra covered by flare.

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OBSERVATORY	OBSERVED UT DATE 1968 MAR	START	END	MAX. PHASE	LOCATION APPROX. LAT.	MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP DAY	DURATION — MIN.	IMPORTANCE	OBS. COND.	TYPE	MEASUREMENTS TIME — UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hα	MAX. INT. %	REMARKS
860 MITK	01	0316E	0320		N13	E00	.346	9225	1.1	4D	-F		C	0317	1.86	1.90			E 6
861 HTPR	01	0838	0900	0838	N15	W02	.380	9225	1.2	22	-N			0839	.41	.40			6
GRP13862	01	0908	0938	0914	S26	W27	.527	9224	28.4	30	-F				.88				4 4 4 8
CAPE	01	0905	0943	0914	S26	W29	.550	9224	28.2	38	-N		C	0914	1.51	1.80			F
HTPR	01	0907	1000	0914	S26	W29	.550	9224	28.2	53	-N			0914	.41	.50			
CAPS	01	0911	0923		S27	W25	.513	9224	28.5	12	-F	2		0913	1.20	1.40		141	
MANI	01	0913E	0925	0915	S25	W25	.497	9224	28.5	12D	-F	2		0915	.41	.48			
GRP13863	01	0915	0919	0916	N12	W54	.839	9222	26.3	4	-F				.62				2 2 2 8
CAPE	01	0914	0919	0916	N13	W56	.859	9222	26.2	5	-F		C	0916	.44	.80			
CAPS	01	0915	0918		N10	W51	.805	9222	26.6	3	-F	1		0916	.80	1.40			
864 HTPR	01	1240	1305	1242	N15	W04	.384	9225	1.2	25	-N			1242	.52	.60			8
865 CAPE	01	1312	1335	1327	N14	W59	.885	9222	26.1	23	-F		C	1327	.80	1.70			7
GRP13866	01	1538	1601	1544	S27	W32	.591	9224	28.3	23	-F				.58				3 3 3 9
SACP	01	1536	1602	1544	S27	W33	.602	9224	28.2	26	-F		C		.80	.88			
HTPR	01	1538	1600		S27	W32	.591	9224	28.3	22	-N			1540	.31	.40			
HUAN	01	1539	1548D		S26	W32	.585	9224	28.3	9D	-F	1	C	1541	.62	.68			E
868 BOUL	01	1639	1642	1640	S24	W34	.597	9224	28.1	3	-F		C		.30	.40			7
869 BOUL	01	1716	1720	1718	S30	W32	.611	9224	28.3	4	-F		C		.30	.40			6
870 MANI	02	0037E	0042		N08	W61	.889	9222	26.5	5D	-F	2		0038	.21	.40			4
871 HALE	02	0232	0243	0234	N07	W60	.879	9222	26.6	11	-B	3	C	0234	.41	.90			FJ 2
873 HALE	02	0316	0328	0319	N15	W12	.426	9225	1.2	12	-B	3	C	0319	.31	.30			J 2
874 ARCE	02	0920	0930D	0920	S25	E57	.840	9244	6.7	10D	-N		C	0920	.34	.70			5
GRP13877	02	1256	1315	1257	N14	W20	.486	9225	1.0	19	-N				.73				2 2 2 5
ATHN	02	1255E	1305	1255	N15	W15	.450	9225	1.4	10D	-B	2		1255	.66	.70	2.00		
CAPE	02	1256	1325	1258	N13	W24	.519	9225	29.7	29	-F		C	1258	.80	.90			F
GRP13880	02	1424	1442	1431	N12	W25	.521	9225	29.7	18	-F				.61				4 4 4 4
CAPE	02	1420	1448	1432	N13	W25	.530	9225	29.7	28	-N		C	1432	1.64	1.90			V
SACP	02	1424	1446	1432U	N11	W24	.501	9225	29.8	22	-N		C		.45	.47			
SANM	02	1426	1445	1433	N12	W24	.510	9225	29.8	19	-F		C	1433	.15	.18			E
CANR	02	1427	1430	1428U	N12	W25	.521	9225	29.7	3	-F		C		.20	.20			
881 SACP	02	1445	1454	1447	S24	E54	.812	9244	6.7	9	-N		C		.36	.48			4
882 SACP	02	1455	1513	1458	S25	E54	.813	9244	6.7	18	-N		C		.36	.48			4
883 LOCK	02	1745	1802	1751	N12	W22	.487	9225	1.1	17	-F		C		.80				2
885 HALE	02	1845	1900	1851	N12	W21	.475	9225	1.2	15	-B	3	C	1851	.31	.40			FJ 2
887 LOCK	02	1925	1943	1930	S25	E49	.766	9244	6.5	18	-F		C		.90				2
889 HALE	02	1946	2006	1955	N12	E25	.521	9240	4.7	20	-F	2	C	1955	.31	.40			CGJ 2
890 LOCK	02	2030	2044	2037	S26	W50	.778	9224	28.1	14	-F		C		.80				3
GRP13893	02	2332	2348	2340	N13	W22	.497	9225	1.3	16	-N				.56				2 2 2 3
LOCK	02	2325	2352	2340	N13	W22	.497	9225	1.3	27	-F		C		.60				
HALE	02	2338	2344	2340	N13	W21	.486	9225	1.4	6	-B	1	C	2340	.52	.60			FJ
894 HALE	03	0137	0145	0139	S23	E31	.555	9241	5.4	8	-F	2	C	0139	.52	.60			2
895 HALE	03	0207	0226	0209	S23	E30	.542	9241	5.3	19	-N	2	C	0209	.46	.60			2
898 CAPS	03	0729E	0747D		N11	W28	.549	9225	1.2	18D	-N	3		0733	.80	1.00		166	CJ 4
899 CAPS	03	0743E	0752		N12	W25	.522	9225	1.4	9D	-F	3		0747	.80	.90		145	CJ 5
900 CAPE	03	0756	0820	0800	N13	W35	.646	9225	29.7	24	-N		C	0800	1.06	1.40			H 7
GRP13901	03	0940	0948	(0943)	N14	W27	.562	9225	1.4	8	-F				.86				2 2 2 7
HTPR	03	0940	0943D		N15	W28	.582	9225	1.3	3D	-N			0942	.72	.90			
CAPS	03	0940	0948		N13	W25	.530	9225	1.5	8	-F	3		0944	1.00	1.20		140	J
902 CAPE	03	1056	1125	1105	S24	E44	.711	9244	6.8	29	-F		C	1105	.71	1.00			F 6

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OBSERVATORY	OBSERVED UT DATE 1968 MAR	START	END	MAX. PHASE	LOCATION APPROX. LAT.	MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP DAY	DURATION — MIN.	IMPORTANCE	OBS. COND.	TYPE	MEASUREMENTS TIME — UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hα	MAX. INT. %	REMARKS
903 CAPE	03	1300	1332	1316	N16	W32	.633	9225	1.1	32	-F			1316	1.41	1.80			F 8
GRP13904	03	1338	1347	1342	S24	E45	.722	9244	6.9	9	-F				.41				5 5 5 8
HTPR	03	1333	1347		S23	E43	.697	9244	6.8	14	-F			1333	.41	.60			
MCMA	03	1333	1349	1342	S24	E46	.732	9244	7.0	16	-F		C	1342	.52	.70			EH
CAPE	03	1339	1350	1342	S25	E44	.714	9244	6.9	11	-F		C	1342	.80	1.10			H
CANR	03	1340	1343	1341	S26	E47	.748	9244	7.1	3	-N		C		.20	.20			
SANM	03	1340	1346	1342	S22	E42	.683	9244	6.7	6	-F		C	1342	.13	.19			D
GRP13905	03	1501	1523	1507	S23	E25	.481	9241	5.5	22	-F				.98				4 4 4 7
HTPR	03	1458	1508D	1507	S23	E25	.481	9241	5.5	10D	-F			1507	1.34	1.50			
CANR	03	1500	1510	1502	S24	E24	.477	9241	5.4	10	-F		C		.70	.80			
HUAN	03	1502	1530		S23	E25	.481	9241	5.5	28	-N	1	C	1511	1.05	1.08			E
MCMA	03	1503	1530	1511	S23	E25	.481	9241	5.5	27	-F		C	1511	.83	.90			EH
GRP13906	03	1609	1616	1611	N11	W39	.681	9225	29.7	7	-N				.43				5 5 5 5
LOCK	03	1608	1616	1611	N10	W40	.687	9225	29.7	8	-N		C		.60				
LOCA	03	1608	1616D	1610	N11	W38	.669	9225	29.8	8D	-N		V	1610	.73	1.00			
CANR	03	1609	1614	1611	N10	W39	.676	9225	29.7	5	-N		C		.20	.30			
MCMA	03	1609	1617	1612	N12	W38	.674	9225	29.8	8	-N		C	1612	.31	.40			DH
HUAN	03	1610E	1616		N12	W39	.686	9225	29.7	6D	-N	1	P	1612	.31	.35			H
GRP13907	03	1815	1820.	1816	N15	W35	.659	9225	1.1	5	-F				.35				2 2 2 4
BOUL	03	1814	1821	1816	N15	W34	.648	9225	1.2	7	-F		C		.50	.60			
CANR	03	1815	1819	1816	N14	W35	.652	9225	1.1	4	-F		C		.20	.20			
908 HALE	03	2004	2009	2007	S24	E37	.632	9244	6.6	5	-F	1	C	2007	.21	.30			4
909 BOUL	03	2233	2240	2235	S16	W24	.424	9237	2.1	7	-F		C		.30	.30			4
910 BOUL	03	2250	2300	2254	N11	W34	.622	9225	1.4	10	-F		C		.30	.40			5
911 LOCK	03	2328	2338	2330	S28	W44	.725	9235	29.7	10	-F		C		.50				4
912 MITK	03	2358	0013	0009	S26	W65	.902	9224	28.1	15	1N		C	0009	1.34				4
GRP13913	04	0027	0047	0031	S26	W65	.902	9224	28.1	20	-F				.51				2 2 2 4
MITK	04	0022	0046	0026	S26	W65	.902	9224	28.1	24	-N		C	0026	.62	1.40			D
LOCK	04	0031	0047	0035	S26	W65	.902	9224	28.1	16	-F		C		.40				
GRP13914	04	0041	0050	0044	S34	W62	.890	9224	28.4	9	-F				.63				3 3 3 4
LOCK	04	0037	0051	0044	S34	W62	.890	9224	28.4	14	-F		C		.60				
MITK	04	0043	0048	0045	S34	W61	.883	9224	28.5	5	1F		C	0045	1.03	2.30			D
HALE	04	0043	0052	0043	S34	W62	.890	9224	28.4	9	-N	1	C	0043	.26	.60			V
915 MITK	04	0050	0058	0054	S26	W65	.902	9224	28.2	8	-N		C	0054	.62				D 3
917 MITK	04	0514	0520	0516	S15	W27	.463	9237	2.2	6	-F		C	0516	.93	1.10			D 4
918 MITK	04	0552	0603D		S24	W67	.914	9224	28.2	11D	-N		P	0603	.62				D 5
GRP13920	04	0702	0714	0704	S21	E22	.428	9241	5.9	12	-N				.73				2 2 2 6
CAPE	04	0702	0714	0704	S21	E22	.428	9241	5.9	12	-N		C	0704	.80	.90			C
ATHN	04	0702	0707D	0703	S21	E21	.415	9241	5.9	5D	-N	2		0703	.66	.90	1.60		
GRP13921	04	0858	0910	0859	S27	E38	.657	9244	7.2	12	-N				.29				3 3 3 7
CANR	04	0855	0905	0857	S28	E41	.694	9244	7.4	10	-F		C		.10	.10			
ATHN	04	0859	0910	0900	S25	E35	.613	9244	7.0	11	-N	2		0900	.66	.90	1.70		
CATA	04	0900	0915	0900	S28	E39	.673	9244	7.3	15	-B			0900	.11	.16		214	
922 CAPE	04	0902	0910	0905	N20	W41	.751	9225	1.3	8	1F		C	0905	1.87	2.80			7
923 ATHN	04	0919	0926	0920	S23	W72	.943	9224	28.0	7	-N	2		0920	.33		1.60		7
924 ATHN	04	0943	0953	0944	S23	W72	.943	9224	28.0	10	-N	2		0944	.33		1.60		6
925 ATHN	04	1022	1037	1025	S23	W73	.949	9224	28.0	15	-N	2		1025	.33		1.70		5
926 CAPE	04	1046	1052	1046	N19	W87	1.000	9222	26.9	6	-N		C	1046	.44				CV 4
927 HUAN	04	1412	1428		S15	W34	.562	9237	2.0	16	-F	2	C	1418	.55	.58			E 6
GRP13928	04	1535	1538	1536	S28	W73	.949	9224	28.2	3	-F				.26				2 2 2 7
BOUL	04	1534	1538	1536	S28	W75	.958	9224	28.0	4	-F		C		.20	.50			
HUAN	04	1536	1537D		S28	W71	.939	9224	28.3	1D	-F	1	P	1537	.31				T
929 BOUL	04	1558	1602	1559	S24	W85	.991	9224	27.3	4	-F		C		.10	.30			6

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GRP13930	04	1621	1630	1623	S24	E29	.537	9244	6.9	9	-N				.78				5 5 5 5
LOCK	04	1620	1630	1623	S25	E30	.555	9244	6.9	10	-N		C		1.10				
MCMA	04	1620	1630	1623	S24	E29	.537	9244	6.9	10	-N		C	1623	.83	1.00			EH
BOUL	04	1621	1631	1623	S25	E30	.555	9244	6.9	10	-N		C		.20	.20			H
HUAN	04	1621	1631	1622	S23	E29	.530	9244	6.9	10	-N	2	C	1622	.75	.79			EH
SACP	04	1622E	1630	1622U	S24	E29	.537	9244	6.9	8D	-N		C		1.00	1.05			
GRP13932	04	1942	1953	1945	S24	E27	.512	9244	6.8	11	-N				.86				5 5 5 6
LOCK	04	1941	2005	1945	S25	E30	.555	9244	7.1	24	-N		C		.80				
SACP	04	1942	1952	1944	S24	E26	.500	9244	6.8	10	-N		C		1.55	1.60			
BOUL	04	1943	1949	1945	S25	E25	.496	9244	6.7	6	-N		C		.80	.90			
HUAN	04	1943	1949	1944	S24	E26	.500	9244	6.8	6	-F	2	C	1944	.75	.78			E
MCMA	04	1943	1948	1945	S24	E26	.500	9244	6.8	5	-F		C	1945	.41	.50			EL
GRP13933	04	1952	2001	1954	N12	W47	.772	9225	1.3	9	-F				.46				2 2 2 6
HUAN	04	1951	2002		N12	W46	.762	9225	1.4	11	-F	2	C	1954	.50	.62			E
MCMA	04	1952	1959	1954	N11	W48	.779	9225	1.2	7	-F		C	1954	.41	.90			E
GRP13934	04	2007	2025	2010	S23	W78	.971	9224	28.0	18	-F				.54				3 3 2 5
MCMA	04	2003	2015D	2007	S20	W77	.968	9224	28.1	12D	-F		C	2007					E
HALE	04	2010	2025	2012	S26	W78	.971	9224	28.0	15	1F	1	C	2012	.62				T
HUAN	04	2014E	2017D		S24	W78	.971	9224	28.0	3D	-F	1	P	2015	.45				E
935 BOUL	04	2150	2159	2155	N15	W90	1.001	9222	27.2	9	-F		C		.30	1.20			4
GRP13936	04	2213	2225	2216	S25	E26	.508	9244	6.9	12	-F				.49				3 3 3 4
BOUL	04	2213	2224	2215	S27	E25	.513	9244	6.8	11	-F		C		.20	.20			
LOCK	04	2213	2230	2217	S25	E30	.555	9244	7.2	17	-F		C		.90				
HALE	04	2214	2221	2215	S24	E23	.465	9244	6.7	7	-F	1	C	2215	.36	.40			
937 LOCK	04	2348	0000D	2355	N14	W90	1.000	9222	27.2	12D	-F		C		1.00				5
938 MITK	05	0002	0009	0005	S24	W82	.984	9224	27.9	7	-N		C	0005	.72				DG 4
939 MITK	05	0019	0025	0022	S24	W82	.984	9224	27.9	6	-N		C	0022	.83				DG 4
940 MITK	05	0030	0040D	0034	S24	W82	.984	9224	27.9	10D	1N		C	0034	1.03				G 4
941 MITK	05	0206	0209D		N12	W49	.792	9225	1.4	3D	-F		P	0207	.93	1.40			5
942 HALE	05	0250	0254	0250	S25	E22	.462	9244	6.8	4	-F	1	C	0250	.31	.30			4
943 ISTA	05	0725E	0833		N23	W36	.724	9225	2.6	68D	1N								7
944 ISTA	05	0735	0755D		N12	W41	.708	9225	2.2	20D	1F								7
GRP13945	05	0800	0823	0806	N25	E35	.730	9250	8.0	23	-F				.36				2 2 2 7
HTPR	05	0800	0825	0806	N25	E35	.730	9250	8.0	25	-F			0806	.41	.60			
ARCE	05	0805E	0820		N25	E35	.730	9250	8.0	15D	-N		C	0805	.31	.50			
946 CAPE	05	0950	1013	0956	N14	W60	.893	9225	29.9	23	-N		C	0956	.71	1.60			5
947 CAPE	05	1020	1050	1023	N22	W27	.635	9243	3.4	30	-N		C	1023	.88	1.10			C 6
948 HUAN	05	1253	1325	1259	N25	E34	.722	9250	8.1	32	-F	2	C	1259	.57	.68			E 7
949 CANR	05	1455	1458	1456	S27	E19	.450	9244	7.0	3	-F		C		.30	.30			9
GRP13950	05	1539	1551	1545	N20	W30	.645	9243	3.4	12	-F				.35				4 4 4 7
BOUL	05	1535	1550	1538	N19	W29	.627	9243	3.5	15	-F		C		.30	.40			
HUAN	05	1541	1550	1545	N21	W31	.663	9243	3.3	9	-F	2	C	1545	.31	.35			E
CANR	05	1541	1550	1544	N21	W29	.644	9243	3.5	9	-F		C		.40	.50			
CAPS	05	1546E	1553D		N20	W30	.645	9243	3.4	7D	-F	1		1548	.40	.50			CG
951 HUAN	05	1614	1631		N24	E32	.697	9250	8.1	17	-F	2	C	1620	.21	.24			D 5
952 HALE	05	1741	1750	1743	N14	E38	.686	9250	8.6	9	-F	1	C	1743	.21	.30			6
GRP13953	05	1752	1800	1754	S24	E17	.397	9244	7.0	8	-N				.52				5 5 5 6
BOUL	05	1748	1755	1749	S26	E16	.409	9244	6.9	7	-N		C		.50	.50			
HUAN	05	1753	1805	1755	S25	E16	.398	9244	6.9	12	-N	2	C	1755	.50	.50			E
HALE	05	1753	1758	1754	S24	E15	.376	9244	6.9	5	-N	1	C	1754	.41	.40			
LOCK	05	1753	1805	1756	S21	E19	.390	9244	7.2	12	-N		C		.80				
CANR	05	1753	1757	1754	S26	E17	.419	9244	7.0	4	-N		C		.40	.40			

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GRP13954	05	1809	1828	1813	N24	E31	.688	9250	8.1	19	-N				.69				5 5 5 6
BOUL	05	1805	1829	1809	N23	E32	.689	9250	8.2	24	-N		C		.60	.80			H
HUAN	05	1810	1827	1816	N24	E31	.688	9250	8.1	17	-B	2	C	1816	.70	.81			H
HALE	05	1810	1822	1813	N23	E30	.671	9250	8.0	12	-B	1	C	1813	.62	.80			
LOCK	05	1810	1835	1814	N24	E30	.680	9250	8.0	25	-N		C		1.00				
MCMA	05	1819E	1829D		N25	E32	.705	9250	8.2	10D	-N		P	1820	.52	.70			DH
955 HUAN	05	2015	2020D		N24	E28	.663	9250	7.9	5D	-F	1	C	2016	.25	.29			E 4
956 BOUL	05	2307	2312	2309	N21	W32	.672	9243	3.6	5	-F		C		.40	.50			4
GRP13957	06	0515	0545	0522	S26	E14	.391	9244	7.3	30	-F				1.19				2 2 2 4
MITK	06	0511	0545	0520	S25	E14	.378	9244	7.3	34	-N		C	0520	1.44	1.60			E
MANI	06	0518	0532D	0524	S26	E14	.391	9244	7.3	14D	-F	2		0524	.93	1.01			F
958 CAPE	06	0626E	0712	0628	N24	E76	.986	9255	12.0	46D	-N		P	0628	.71				4
959 CAPE	06	0626E	0720	0637	N26	E62	.932	9261	10.9	54D	-N		P	0637	.97	2.50			F 5
GRP13960	06	0907	0912	0909	S25	E08	.331	9244	7.0	5	-N				.23				6 6 5 8
CAPS	06	0907	0912		S24	E10	.331	9244	7.1	5	-B	3		0908	.20	.20		200	D
MANI	06	0907E	0909		S26	E10	.359	9244	7.1	2D	-F	2		0908	.15	.17			
CANR	06	0907	0910	0909	S26	E08	.346	9244	7.0	3	-N		C		.20	.20			
CAPE	06	0907	0912	0909	S24	E07	.310	9244	6.9	5	-N		C	0909	.44	.50			V
ISTA	06	0907	0915		S25	E09	.337	9244	7.1	8	-F								
ATHN	06	0909	0913	0910	S25	E05	.315	9244	6.8	4	-N	2		0910	.17	.20	1.50		
GRP13961	06	0942	0947	0944	S23	W07	.295	9241	5.9	5	-F				.62				2 2 1 7
CAPE	06	0941	0948	0944	S22	W08	.286	9241	5.8	7	-F		C	0944	.62	.60			H
ISTA	06	0942	0946		S23	W06	.289	9241	6.0	4	-F								
962 CAPE	06	1004	1015	1009	S32	E05	.426	9244	6.8	11	-F		C	1009	.62	.70			4
GRP13963	06	1013	1022	1015	N20	W01	.458	9248	6.4	9	-F				.43				4 4 4 4
CAPE	06	1012	1025	1016	N20	W02	.459	9248	6.3	13	-F		C	1016	.44	.50			
ATHN	06	1012	1024	1015	N20	E01	.458	9248	6.5	12	-N	2		1015	.66	.70	1.70		
CANR	06	1013	1019	1015	N19	W01	.443	9248	6.4	6	-N		C		.20	.20			
HTPR	06	1014	1020	1015	N20	W02	.459	9248	6.3	6	-F			1015	.41	.50			
GRP13965	06	1140	1152	1144	S23	W09	.309	9241	5.8	12	-F				.30				2 2 2 6
CANR	06	1140	1152	1144	S23	W09	.309	9241	5.8	12	-N		C		.20	.20			
CAPS	06	1144E	1152D		S22	W08	.286	9241	5.9	8D	-F	2		1144	.40	.40			DG
GRP13966	06	1402	1410	1404	N22	E18	.561	9250	7.9	8	-N				.66				3 3 3 9
CAPE	06	1400	1412	1404	N25	E17	.591	9250	7.9	12	-N		C	1404	.93	1.10			F
CANR	06	1402	1407	1403	N18	E14	.482	9250	7.6	5	-F		C		.40	.50			
ATHN	06	1403	1412	1404	N23	E23	.611	9250	8.3	9	-N	2		1404	.66	.80	1.50		
967 SACP	06	1619	1632	1623	N15	W60	.895	9225	2.2	13	-N		C		.36	.58			3
GRP13968	06	1653	1710	1658	N12	W74	.970	9225	1.2	17	-F				.49				2 2 2 3
SACP	06	1632	1711	1659	N11	W72	.961	9225	1.3	39	-N		C		.72	1.55			
MCMA	06	1653	1708	1656	N12	W75	.974	9225	1.1	15	-F		C	1656	.26				E
GRP13969	06	1714	1739	1724	S26	E08	.346	9244	7.3	25	-F				.76				2 2 2 3
SACP	06	1711	1747	1727	S26	E08	.346	9244	7.3	36	-N		C		.90	.89			
MCMA	06	1716	1730	1721	S25	E08	.331	9244	7.3	14	-F		C	1721	.62	.70			E
GRP13970	06	2020	2030	2023	N20	W06	.468	9248	6.4	10	-F				.48				2 2 2 4
LOCK	06	2020	2032	2023	N20	W06	.468	9248	6.4	12	-F		C		.50				
SACP	06	2020	2028	2023	N20	W05	.465	9248	6.5	8	-N		C		.45	.46			
971 HUAN	06	2117	2125		N13	W79	.988	9225	1.0	8	-F	1	C	2120	.21				D 6
GRP13972	06	2125	2158	2145	S24	W16	.386	9241	5.7	33	-F				.86				2 2 2 4
LOCK	06	2125E	2200	2141	S25	W16	.398	9241	5.7	35D	-F		C		.80				
SACP	06	2149E	2156	2149	S23	W15	.364	9241	5.8	7D	-F		C		.91	.90			
973 LOCK	07	0000E	0047U	0025U	S25	W16	.398	9241	5.8	47U	-F		C		.90				3
974 HALE	07	0250	0310	0253	S26	E01	.322	9244	7.2	20	-B	1	C	0253	.72	.80			F 3
975 HALE	07	0314	0347	0318	N14	E71	.959	9255	12.5	33	-N	1	C	0318	.41				GJ 5
976 HALE	07	0353	0414	0405	N24	E11	.545	9250	8.0	21	-B	2	C	0405	.21	.20			FG 4
GRP13978	07	0641	0658	0642	S21	W21	.415	9241	5.7	17	-N				1.37				2 2 2 7
CAPE	07	0639	0656	0641	S21	W20	.402	9241	5.8	17	1N		C	0641	2.08	2.30			
ATHN	07	0642	0700	0643	S21	W21	.415	9241	5.7	18	-N	2		0643	.66	.70	1.60		

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979 CANR	07	1105	1115	1108	S07	E85	.995	9259	13.8	10	-F		C		.20	.70			8
GRP13980	07	1142	1152	1145	N25	E04	.537	9250	7.8	10	-N				.52				4 4 4 7
CANR	07	1141	1150	1145	N23	E03	.506	9250	7.7	9	-N		C		.20	.20			H
CAPE	07	1141	1152	1145	N25	E02	.534	9250	7.6	11	-N		C	1145	.80	.90			H
CAPS	07	1142E	1150		N25	E04	.537	9250	7.8	8D	-N	1		1145	.40	.50		188	CD
ATHN	07	1143	1155	1145	N25	E07	.544	9250	8.0	12	-N	2		1145	.66	.70	1.60		
981 ATHN	07	1238E	1245	1240	S26	W13	.382	9244	6.6	7D	-N	2		1240	.33	.40	1.50		3
GRP13983	07	1257	1323	1305	S24	W20	.430	9244	6.0	26	-B				1.67				2 2 2 5
MONT	07	1257E	1320		S22	W20	.411	9244	6.0	23D	-N		C	1258	1.03				
ATHN	07	1303E	1325	1305	S25	W19	.429	9244	6.1	22D	1B	2		1305	2.31	2.60	2.00		
984 ATHN	07	1405	1414	1406	S18	W79	.976	9237	1.7	9	-N	2		1405	.33		1.60		6
GRP13985	07	1415	1423	1417	N25	E04	.537	9250	7.9	8	-N				.43				3 3 3 6
CANR	07	1415	1420	1417	N23	E03	.506	9250	7.8	5	-N		C		.20	.20			H
CAPE	07	1415	1425	1417	N26	E02	.549	9250	7.7	10	-F		C	1417	.44	.50			
ATHN	07	1416	1425	1418	N25	E08	.547	9250	8.2	9	-N	2		1418	.66	.70	1.70		
986 ATHN	07	1456E	1503	1459	S28	W10	.388	9244	6.9	7D	-N	2		1459	.33	.50	1.50		7
GRP13987	07	1540	1545	1541	S27	W13	.395	9244	6.7	5	-N				.44				2 2 2 5
MCMA	07	1540	1545	1541	S26	W14	.391	9244	6.6	5	-N		C	1541	.31	.30			D
CAPE	07	1540	1543D	1541	S27	W12	.388	9244	6.8	3D	-N		P	1541	.57	.60			V
GRP13988	07	1547	1551	1548	N25	E02	.534	9250	7.8	4	-N				.20				3 3 3 5
CANR	07	1546E	1549	1548	N24	E01	.519	9250	7.7	3D	-N		C		.20	.20			
MCMA	07	1547	1551	1548	N25	E02	.534	9250	7.8	4	-N		C	1548	.21	.30			D
CAPS	07	1548E	1552		N25	E02	.534	9250	7.8	4D	-N	2		1550	.20	.20		188	CD
989 HALE	07	2014	2023	2015	S18	W04	.198	9256	7.5	9	-B	1	C	2015	.83	.80			FHJV 2
GRP13990	07	2026	2040	2030	S25	W07	.325	9244	7.3	14	-F				.64				2 2 2 2
HALE	07	2026	2040	2030	S25	W07	.325	9244	7.3	14	-N	1	C	2030	1.03	1.10			F
HUAN	07	2030E	2035D		S25	W06	.320	9244	7.4	5D	-F	1	P	2030	.25	.25			D
991 HUAN	07	2030E	2035D		S17	W03	.177	9256	7.6	5D	-F	1	P	2030	.25	.25			D 2
GRP13992	07	2347	0011	2353	S23	W30	.542	9241	5.7	24	-B				.78				2 2 2 2
HALE	07	2347	0013		S23	W30	.542	9241	5.7	26	-B	1	P	2354	.72	.90			
MITK	07	2347	0008	2353	S23	W29	.530	9241	5.8	21	-N		C	2353	.83	1.00			DG
993 HALE	08	1714	1721	1715	N19	E28	.617	9261	10.8	7	-N	3	C	1715	.15	.20			L 3
994 HALE	08	1847	1858	1851	N20	E28	.626	9261	10.9	11	-N	1	C	1851	.15	.20			4
995 HUAN	08	2158	2201D		N19	E28	.617	9261	11.0	3D	-F	1	P	2200	.31	.34			D 2
996 MITK	09	0039	0050	0045	N17	E52	.837	9258	12.9	11	-F		C	0043	.52	1.00			DG 2
997 MITK	09	0311	0322	0314	S25	W32	.578	9244	6.7	11	-F		C	0314	.72	.90			D 3
000 HUAN	09	1949	1958		N19	E14	.495	9261	10.9	9	-F	1	C	1950	.25	.25			D 3
GRP14001	09	1953	2015	1958	519	W33	.561	9256	7.4	22	-F				.45				2 2 2 3
LOCK	09	1953	2015	1958	S21	W33	.570	9256	7.4	22	-F		C		.40				
HUAN	09	1953	2012D		S18	W33	.557	9256	7.4	19D	-N	1	C	1957	.50	.52			E
002 LOCK	09	1953	2015	1958	S21	W33	.570	9244	7.4	22	-F		C		.40				3
003 HUAN	09	2111	2118	2114	N19	E13	.488	9261	10.9	7	-N	2	C	2114	.70	.72			E 2
004 HUAN	09	2154	2159	2156	N19	E13	.488	9261	10.9	5	-F	2	C	2156	.41	.42			E 2
007 ISTA	10	0850E	0918		N39	W90	1.003	9243	3.6	28D	-N								7
008 ISTA	10	0922E	0940		S15	W31	.520	9256	8.1	18D	-B								8
GRP14009	10	1032	1100	1039	N20	E34	.684	9255	13.0	28	-N				.70				3 3 3 8
CATA	10	1030	1100D	1040	N18	E33	.659	9255	12.9	30D	-N			1040	.57	.74		155	
CAPE	10	1030	1103	1040	N20	E32	.664	9255	12.8	33	-N		C	1040	.71	1.00			H
ATHN	10	1036	1058	1038	N21	E36	.710	9255	13.1	22	-N	1		1038	.83	1.10	1.60		
GRP14010	10	1403	1440	1406	S29	W47	.758	9244	7.1	37	-F				.60				3 2 2 6
HTPR	10	1403	1440	1405	S29	W48	.767	9244	7.0	37	-F			1405	.93	1.40			
SANM	10	1405E	1421D	1407	S27	W46	.741	9244	7.1	16D	-F		P	1407	.26	.38			E
HUAN	10	1417E	1435		S30	W48	.770	9244	7.0	18D	-N	2	P	1425	.50	.62			E

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	DATE 1968 MAR	START	END	MAX. PHASE	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY			COND.	TYPE	TIME — UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hα	MAX. INT. %	
011 HTPR	10	1458E	1510D	1500	S22	W67	.914	9241	5.6	12D	-N			1500	.31	.80			4
GRP14012	10	1648	1658	1651	S09	W06	.108	9254	10.3	10	-F				.38				2 2 2 3
LOCK	10	1647	1700	1650	S09	W06	.108	9254	10.2	13	-F		C		.50				
HUAN	10	1648	1656	1651	S08	W05	.087	9254	10.3	8	-F	2	C	1651	.25	.25			D
013 MCMA	11	1421	1429	1424	S14	E28	.474	9259	13.7	8	-N		C	1424	.31	.40			D 7
014 CAPE	11	1458	1504	1500	S08	W14	.240	9254	10.6	6	-F		C	1500	.71	.70			6
GRP14015	11	1534	1544	1536	S14	E28	.474	9259	13.7	10	-F				.36				2 2 2 5
HOUT	11	1534U	1544U	1536U	S13	E28	.472	9259	13.7	10U	-F		C		.20	.20			
MCMA	11	1534E	1538D		S14	E28	.474	9259	13.7	4D	-N		C	1536	.52	.60			E
016 LOCK	11	1650	1700	1653	S13	E26	.442	9259	13.7	10	-F		C		.40				6
017 BOUL	11	1829	1844	1833	S08	W19	.323	9254	10.3	15	-F		C		.60	.60			4
018 HUAN	11	2151	2222D		S17	E88	.998	9265	18.5	31D	-F	1	C	2220	.21				D 3
019 CATA	12	0820	0905	0835	N14	W60	.893	9263	7.8	45	-F			0835	.15	.35		133	7
020 CATA	12	0850	1000	0850	S14	W18	.324	9268	11.0	70	-F			0850	.15	.16		150	7
GRP14021	12	1320	1334	1325	S14	E18	.324	9259	13.9	14	-F				.81				2 2 2 5
HTPR	12	1320	1335	1325	S13	E15	.273	9259	13.7	15	-F			1325	.21	.20			
CAPS	12	1325E	1332		S14	E20	.355	9259	14.1	7D	-N	2		1326	1.40	1.50		160	
GRP14023	12	1356	1405	1357	N27	E89	1.001	9267	19.3	9	-N				.52				2 2 2 7
CAPE	12	1356	1405	1357	N27	E90	1.002	9267	19.3	9	-N		C	1357	.53				
CAPS	12	1358E	1405		N26	E87	1.000	9267	19.1	7D	-N	2		1400	.50				
GRP14024	12	1535	1544	1538	S13	E14	.258	9259	13.7	9	-F				.48				2 2 2 6
HTPR	12	1534	1545	1537	S12	E13	.236	9259	13.6	11	-F			1537	.31	.30			
SACP	12	1535	1542	1539	S13	E14	.258	9259	13.7	7	-F		C		.64	.63			
GRP14025	12	1618	1635	1622	S13	E13	.243	9259	13.7	17	-N				.71				3 3 3 3
SACP	12	1617	1635	1623	S13	E13	.243	9259	13.7	18	-N		C		.81	.80			
HTPR	12	1617	1640	1622	S13	E12	.227	9259	13.6	23	-N			1622	.83	.90			
BOUL	12	1620	1629	1622	S13	E13	.243	9259	13.7	9	-F		C		.50	.50			
026 SACP	12	1658	1705	1701	N14	W58	.877	9263	8.4	7	-N		C		.28	.41			3
GRP14027	12	1712	1730	1721	S14	E14	.264	9259	13.8	18	-F				.52				2 2 2 2
SACP	12	1707	1733	1723	S13	E13	.243	9259	13.7	26	-N		C		.64	.63			
BOUL	12	1717	1727	1719	S14	E14	.264	9259	13.8	10	-F		C		.40	.40			
GRP14028	12	1810	1821	1814	N15	W59	.887	9263	8.3	11	-F				.31				2 2 2 3
SACP	12	1810	1821	1814	N14	W58	.877	9263	8.4	11	-N		C		.36	.55			
HUAN	12	1811E	1811D		N15	W59	.887	9263	8.3		-F	1	P	1811	.25				D
GRP14029	12	1815	1856	1818	N20	E54	.863	9262	16.8	41	-F				.45				2 2 2 3
SACP	12	1815	1856	1818	N20	E53	.855	9262	16.7	41	-F		C		.45	.66			
HUAN	12	1823E	1838D		N19	E54	.860	9262	16.8	15D	-N	1	P	1825	.45	.61			E
030 HUAN	12	1835	1838D		S13	E12	.227	9259	13.7	3D	-F	1	P	1838	.25	.25			D 3
031 SACP	12	1915	1942	1930	S13	E12	.227	9259	13.7	27	-F		C		.72	.71			2
032 SACP	12	2107	2115	2108	N13	W60	.890	9263	8.4	8	-N		C		.36	.57			1
GRP14034	12	2135	2204	2146	S15	E11	.230	9259	13.7	29	-F				.94				2 2 2 2
SACP	12	2128	2217	2148	S14	E11	.221	9259	13.7	49	-N		C		1.28	1.25			
BOUL	12	2141	2150	2144	S15	E11	.230	9259	13.7	9	-F		C		.60	.60			
035 BOUL	12	2233	2241	2234	N31	E90	1.002	9267	19.7	8	-F		C		.20	.80			H 2
036 SACP	12	2244	2259	2250	N26	W60	.921	9250	8.4	15	-F		C		.73	1.27			3
037 MANI	13	0232E	0238	0233	N30	E83	.999	9267	19.3	6D	-F	2		0233	.10	.30			4
GRP14039	13	0910	0920	0915	N16	W66	.935	9263	8.4	10	-F				.48				2 2 2 10
CAPE	13	0909	0920	0914	N16	W67	.941	9263	8.4	11	-F		C	0914	.66	1.90			
CATA	13	0910	0920	0915	N16	W65	.930	9263	8.5	10	-N			0915	.29			155	
040 CAPE	13	0945	1000	0949	N18	W78	.988	9263	7.6	15	-N		C	0949	.62				10
041 CAPE	13	1001	1010	1005	N16	W68	.946	9263	8.3	9	-F		C	1005	.44	1.30			7

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GRP14042	13	1338	1402	1350	N29	W41	.804	9261	10.5	24	-F				.34				2 2 2 10
CAPE	13	1336	1402	1350	N28	W42	.806	9261	10.4	26	-N		C	1350	.44	.80			H
CATA	13	1340	1355D	1350	N29	W40	.797	9261	10.6	15D	-F			1350	.23	.39		148	
GRP14043	13	1521	1537	1530	N18	W35	.679	9261	11.0	16	-N				.72				2 2 2 10
SACP	13	1517	1537	1530	N16	W34	.654	9261	11.1	20	-N		C		.45	.51			
ATHN	13	1525	1536	1529	N20	W35	.693	9261	11.0	11	-N	2		1529	.99	.90	1.80		
GRP14045	13	1546	1605	1557	S15	W80	.980	9256	7.7	19	-F				.61				4 4 3 10
SACP	13	1545	1607	1600	S17	W80	.980	9256	7.7	22	-F		C		.45	1.14			
CAPE	13	1546	1604	1557	S14	W80	.980	9256	7.7	18	-N		C	1557	.97				
MCMA	13	1547	1604	1555	S16	W80	.980	9256	7.7	17	-F		C	1555					D
CAPS	13	1550E	1602D		S14	W80	.980	9256	7.7	12D	-N	1		1552	.40				CG
646 HTPR	13	1547	1607	1554	S15	E80	.980	9269	19.7	20	-F			1554	.31				10
GRP14047	13	1549	1618	1557	S13	E02	.107	9259	13.8	29	-F				.92				3 3 3 10
HTPR	13	1546	1610D	1552	S13	E02	.107	9259	13.8	24D	-F			1552	.72	.70			
SACP	13	1548	1618	1602	S13	E02	.107	9259	13.8	30	-F		C		.63	.62			
CAPS	13	1553	1602D		S13	E02	.107	9259	13.8	9D	-F	1		1558	1.40	1.40		140	
648 SACP	13	1635	1644	1640	N14	W70	.954	9263	8.4	9	-N		C		.27	.56			5
649 HUAN	13	1709E	1715		N15	W75	.976	9263	8.1	6D	-F	1	C	1711	.21				D 4
GRP14050	13	1822	1833	1823	N20	W32	.664	9261	11.4	11	-F				.68				2 2 2 3
MCMA	13	1822	1833	1823	N19	W33	.666	9261	11.3	11	-N		C	1823	.52	.70			E
HUAN	13	1824E	1826D		N21	W31	.663	9261	11.4	2D	-F	1	P	1826	.83	.94			E
651 SACP	13	1837E	1848	1838	N19	W33	.666	9261	11.3	11D	-F		C		.55	.62			2
653 HUAN	13	2146	2155		S18	W88	.997	9256	7.3	9	-N	1	C	2152	.41				3
654 HUAN	13	2207	2217D		S18	W87	.996	9256	7.4	10D	-F	1	C	2210	.25				D 3
657 HTPR	14	1121	1230		S19	E53	.796	9265	18.4	69	-F			1130	.41	.70			T 4
GRP14060	14	1507	1545	1531	S20	W58	.844	9268	10.3	38	-N				1.18				2 2 2 10
HUAN	14	1503	1545D	1534	S20	W58	.844	9268	10.3	42D	-N	1	C	1534	.95	1.33			
CAPE	14	1511	1538D	1528	S19	W57	.834	9268	10.4	27D	1N		P	1528	1.41	2.50			
661 HOUT	14	1525	1533	1527	N17	W35	.672	9261	12.0	8	-F		C		.30	.40			10
GRP14062	14	1547	1613	1556	S19	W57	.834	9268	10.4	26	-F				.65				2 2 2 9
CANR	14	1547	1606	1552	S15	W57	.832	9268	10.4	19	-N		C		1.00	1.70			
LOCK	14	1600E	1620	1600U	S22	W56	.828	9268	10.5	20D	-F		C		.30				
663 HOUT	14	1550	1603	1554	S24	W80	.978	9256	8.7	13	-F		C		.20	.60			8
664 HOUT	14	1635	1644	1639	N16	W78	.986	9250	8.8	9	-F		C		.20	.60			6
665 BOUL	14	1641	1655	1646	S19	W55	.815	9268	10.6	14	1N		C		1.20	2.00			6
666 SACP	14	1642	1716	1651	N29	E59	.922	9267	19.1	34	-F		C		.45	.78			6
667 HOUT	14	1711	1717	1715	N14	W75	.976	9250	9.1	6	-F		C		.10	.30			6
668 SACP	14	1816	1853	1826	S22	W58	.845	9268	10.4	37	-N		C		.55	.77			5
669 HOUT	14	1822	1831	1826	N21	W32	.672	9255	12.4	9	-F		C		1.10	1.50			5
670 HOUT	14	1850	1855	1851	N18	W90	1.001	9250	8.0	5	-F		C		.40	1.60			6
672 CAPE	15	1325	1345	1336	N20	E30	.644	9266	17.8	20	-N		C	1336	.62	.80			6
GRP14073	15	1328	1345	1331	S23	E42	.686	9265	18.7	17	-F				.60				2 2 2 6
CAPE	15	1325	1345	1332	S22	E42	.683	9265	18.7	20	-F		C	1332	.80	1.10			FH
CATA	15	1330	1345D	1330	S24	E41	.678	9265	18.6	15D	-N			1330	.40	.55		158	G
GRP14074	15	1456	1506	1457	N30	E49	.865	9267	19.3	10	-F				.26				2 2 2 5
HUAN	15	1456	1506		N30	E49	.865	9267	19.3	10	-F	1	P	1457	.25	.37			D
SACP	15	1456	1506	1457	N30	E48	.859	9267	19.2	10	-N		C		.27	.39			
675 SACP	15	1529	1534	1532	S19	W71	.938	9268	10.3	5	-F		C		.19	.34			6
676 HUAN	15	1609E	1615D		N31	E48	.863	9267	19.3	6D	-F	1	P	1610	.25	.38			D 7
677 SACP	15	1618	1626	1620	N31	E47	.857	9267	19.2	8	-F		C		.27	.40			5

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GRP14078	15	1804	1836	1805	N33	E45	.854	9267	19.1	32	-N				.33				2 2 2 3
BOUL	15	1804	1836	1805	N31	E44	.837	9267	19.1	32	-N		C		.30	.60			
SACP	15	1804	1809U	1805	N34	E45	.859	9267	19.1	5U	-N		C		.36	.53			
SACP	15	1816U	1836U	1820U	N34	E45	.859	9267	19.1	20U	-N		C		.27	.39			
GRP14079	15	1859	1905	1901	N33	E45	.854	9267	19.2	6	-N				.29				2 2 2 2
SACP	15	1857	1904	1901	N34	E45	.859	9267	19.2	7	-N		C		.27	.39			
BOUL	15	1900	1906	1901	N31	E44	.837	9267	19.1	6	-N		C		.30	.60			
GRP14080	15	1913	1917	1915	N33	E45	.854	9267	19.2	4	-N				.29				3 3 3 3
SACP	15	1913	1917	1915	N34	E44	.853	9267	19.1	4	-N		C		.27	.39			
BOUL	15	1913	1916	1914	N31	E44	.837	9267	19.1	3	-N		C		.30	.60			
HUAN	15	1914E	1919		N33	E46	.860	9267	19.3	5D	-N	1	P	1914	.31	.45			D
081 SACP	15	1927	1936E	1928U	N32	E45	.849	9267	19.2	9D	-F		C		.45	.64			3
082 HUAN	15	2001	2004D		N33	E46	.860	9267	19.3	3D	-F	1	P	2003	.25	.36			D 3
GRP14083	15	2109	2122	2112	N18	E25	.577	9266	17.8	13	-N				.40				3 3 3 3
SACP	15	2107	2116U	2109	N18	E24	.567	9266	17.7	9U	-N		C		.45	.48			
HUAN	15	2108	2114D		N18	E26	.587	9266	17.8	6D	-F	1	P	2111	.35	.37			E
BOUL	15	2111	2122	2114U	N18	E26	.587	9266	17.8	11	-N		C		.40	.50			
084 SACP	15	2200	2210U	2204	N28	E42	.806	9267	19.1	10U	-N		C		.63	.84			4
GRP14085	15	2207	2220	2212	N18	E24	.567	9266	17.7	13	-F				.38				2 2 2 4
HUAN	15	2204	2220D		N18	E24	.567	9266	17.7	16D	-N	1	P	2214	.35	.37			D
BOUL	15	2210	2214D	2212U	N17	E24	.557	9266	17.7	4D	-F		C		.40	.50			
GRP14086	15	2222	2226	2224	N34	E43	.847	9267	19.2	4	-F				.26				2 2 2 4
SACP	15	2222	2226U	2224	N34	E43	.847	9267	19.2	4U	-F		C		.27	.39			
HUAN	15	2223E	2226		N33	E43	.841	9267	19.2	3D	-F	1	P	2224	.25	.36			CD
GRP14088	16	1128	1208	1133	N17	E14	.467	9266	17.5	40	-F				.30				3 3 3 7
HTPR	16	1128	1219D	1136	N18	E14	.480	9266	17.5	51D	-F			1136	.31	.40			
ATHN	16	1128	1151	1130	N18	E14	.480	9266	17.5	23	-N	2		1130	.33	.40	1.70		
MEUD	16	1128	1215		N16	E15	.462	9266	17.6	47	-F			1134	.26	.30			DHK
GRP14089	16	1159	1221	1159	N18	E14	.480	9266	17.5	22	-N				.85				2 2 2 7
CAPE	16	1122	1223	1158	N17	E14	.467	9266	17.5	61	-N			1158	1.20	1.30			
ATHN	16	1159	1219	1200	N18	E14	.480	9266	17.5	20	-N	2		1200	.50	.60	1.70		
090 CAPE	16	1427	1451	1437	N17	E13	.460	9266	17.6	24	-N		P	1437	.53	.60			9
GRP14091	16	1449	1502	1451	N27	E36	.752	9267	19.3	13	-F				.45				3 3 3 9
SANM	16	1448	1500D	1451	N28	E34	.744	9267	19.2	12D	-F		C	1451	.15	.23			
CAPS	16	1449	1457		N26	E37	.753	9267	19.4	8	-F	1		1453	.80	1.30		149	
HTPR	16	1450	1510	1450	N28	E37	.767	9267	19.4	20	-F			1450	.41	.60			
092 ATHN	16	1518E	1527	1518	N18	E13	.473	9266	17.6	9D	-N	2		1518	.66	.80	1.60		8
093 HUAN	16	1619E	1624D		S20	W87	.996	9268	10.2	5D	-F	1	P	1622	.21				D 7
094 HUAN	16	1901	1912		N17	E11	.446	9266	17.6	11	-F	2	C	1906	.21	.21			D 3
095 MITK	17	0742	0748D	0744	N18	E03	.427	9266	17.5	6D	-F		C	0744	.83	.90			D 9
096 CAPS	17	0900E	0905D		N10	W06	.311	9262	16.9	5D	-F	2		0902	.50	.50		139	CH 10
097 CAPS	17	0950	0958		S09	E13	.225	9265	18.4	8	-F	2		0954	1.20	1.20		145	G 10
098 HTPR	17	1047	1110	1050	N27	E24	.660	9267	19.2	23	-F			1050	.31	.40			9
GRP14099	17	1233	1248	1236	N11	W08	.339	9262	16.9	15	-N				.31				2 2 2 4
HTPR	17	1233	1250	1236	N12	W08	.354	9262	16.9	17	-N			1236	.21	.20			
CAPS	17	1235E	1246		N10	W07	.317	9262	17.0	11D	-N	3		1238	.40	.40		164	C
100 CAPS	17	1346	1351		S19	E11	.275	9265	18.4	5	-F	3		1348	1.80	1.90		137	J 4
101 MCMA	17	1555	1608D	1559	N11	E90	1.000	9275	24.4	13D	-N		C						A 6
104 MCMA	17	2105	2125D	2108	N35	E23	.736	9267	19.6	20D	-N		C	2108	.52	.80			E 3
105 MITK	17	2351E	0005D	2354	S08	E02	.038	9265	18.1	14D	-F		C	2354	1.34	1.40			3
106 MANI	18	0600E	0608	0604	N10	E80	.989	9275	24.3	8D	-N	2		0604	.15	.40			3

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GRP14107	18	1055	1107	1058	N15	W07	.394	9266	17.9	12	-F				.59				5 5 5 6
HTPR	18	1054	1105	1055	N15	W08	.399	9266	17.9	11	-F			1055	.31	.30			
CATA	18	1055	1110	1100	N15	W08	.399	9266	17.9	15	-N			1100	.58	.64		195	
ATHN	18	1056	1109	1058	N17	W07	.424	9266	17.9	13	-N	2		1058	.66	.70	1.60		
CANR	18	1056	1105	1058	N14	W07	.378	9266	17.9	9	-F		C		.40	.40			
CAPS	18	1057E	1104		N13	W07	.363	9266	17.9	7D	-F	3		1059	1.00	1.00		153	C
110 HUAN	18	1951	1958		N17	W15	.474	9266	17.7	7	-F	2	C	1952	.21	.21			D 4
111 MCMA	18	2029	2043	2032	N16	W16	.470	9266	17.7	14	-N		C	2032	.62	.70			E 3
112 LOCK	18	2224	2248	2229	N15	W15	.448	9266	17.8	24	-F		C		.20				3
114 MITK	19	0530	0600	0543	N38	W03	.709	9267	19.0	30	-N		C	0543	.83	1.10			7
115 CATA	19	0845	0855	0845	N17	W24	.556	9266	17.6	10	-N			0845	.63	.76		166	10
116 CATA	19	0925	0940	0925	N29	E00	.589	9267	19.4	15	-F			0925	.11	.14		132	Z 9
GRP14117	19	1219	1312	1239	N31	W04	.619	9267	19.2	53	-N				.51				3 3 3 6
CAPE	19	1216	1310	1250	N37	W06	.700	9267	19.1	54	-N			1250	.75	1.00			
CATA	19	1220	1335	1245	N27	W02	.561	9267	19.4	75	-N			1245	.11	.16		178	
ATHN	19	1220	1251	1223	N30	W05	.607	9267	19.1	31	-N	2		1223	.66	.80	1.80		
14117	19			1240	N31	W04	.619	9267	19.2	5					.45				2 2 2 6
HUAN	19	1240	1244D		N35	W05	.674	9267	19.2	4D	-F	1	P	1243	.31	.36			D
CATA	19	1240	1245	1240	N26	W03	.548	9267	19.3	5	-F			1240	.58	.81		141	
118 CATA	19	1405	1415	1405	N34	W03	.658	9267	19.4	10	-N			1405	.23	.32		155	8
119 SACP	19	1730	1744	1734	S16	W02	.159	9269	19.6	14	-N		C		.28	.27			5
GRP14120	19	1909	1921	1914	N34	W08	.666	9267	19.2	12	-F				.53				2 2 2 2
SACP	19	1907	1920	1914	N34	W07	.664	9267	19.3	13	-N		C		.45	.52			
LOCK	19	1910	1922	1913	N33	W08	.653	9267	19.2	12	-F		C		.60				
121 LOCK	19	1916	1935	1922	N19	W31	.645	9266	17.5	19	-F		C		.20				3
122 HUAN	19	1954E	1954D		N35	W06	.675	9267	19.4		-N	1	P	1954	.25	.29			D 3
GRP14123	20	0625	0705	0648	N36	W09	.693	9267	19.6	40	-F				1.46				2 2 2 6
CAPE	20	0625	0710	0646	N36	W14	.707	9267	19.2	45	1F		C	0646	2.08	2.90			F
MANI	20	0645E	0700	0650	N35	W03	.671	9267	20.1	15D	-F	2		0650	.83	1.12			
124 ATHN	20	0748	0758	0750	S14	E62	.876	9273	25.0	10	-N	2		0750	.66	1.40	1.80		9
GRP14126	20	0823	0854	0848	S14	E62	.876	9273	25.0	31	-N				.66				2 2 1 8
ATHN	20	0823	0836	0825	S15	E60	.860	9273	24.8	13	-N	2		0825	.66	1.40	1.80		
ISTA	20	0825E	0850		S13	E64	.892	9273	25.2	25D	-N								
ATHN	20	0847	0858	0848	S15	E61	.868	9273	24.9	11	-N	2		0848	.66	1.40	1.80		
127 CATA	20	0910E	0930D	0915	S12	E62	.877	9273	25.0	20D	-B			0915	.29	.62		224	8
128 SANM	20	1211E	1240D	1218	S24	E72	.944	9279	25.9	29D	-F		P	1218	.15	.53			D 6
129 ATHN	20	1317	1331	1320	S15	E60	.860	9273	25.1	14	-N	2		1320	.66	1.40	1.80		6
130 ATHN	20	1320E	1332	1320	S30	E71	.940	9279	25.9	12D	-N	2		1320	.66		2.00		6
131 ATHN	20	1350	1401	1352	S15	E60	.860	9273	25.1	11	-N	2		1352	.66	1.40	1.90		5
132 ATHN	20	1352E	1412	1352	S30	E71	.940	9279	25.9	20D	-N	2		1352	.66		2.00		5
GRP14133	21	0645	0755	0745	N10	E07	.316	9281	21.8	70	-N				1.73				2 2 1 8
ISTA	21	0645E	0745D		N09	E07	.300	9281	21.8	60D	1N								
CATA	21	0745E	0755D	0745	N10	E07	.316	9281	21.8	10D	-N			0745	1.73	1.83		190	T
GRP14134	21	0715	0736	0715	S15	E46	.716	9273	24.8	21	-N				.66				2 2 1 8
ATHN	21	0715E	0732D	0715	S16	E47	.729	9273	24.8	17D	-N	2		0715	.66	1.00	1.70		
ISTA	21	0715	0736		S14	E45	.704	9273	24.7	21	-N								
136 CATA	21	0745E	0755D	0745	S13	E48	.738	9273	24.9	10D	-N			0745	.52	.80		174	T 8
137 CATA	21	0745E	0755D	0745	S17	E42	.671	9273	24.5	10D	-N			0745	.17	.23		178	8
138 KHAR	21	0813	0820		S23	E61	.871	9279	25.9	7	-F		P				1.80		DH 4
140 CATA	21	0950E	1005	0950	S13	E36	.587	9273	24.1	15D	-B			0950	.29	.36		214	6

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OBSERVATORY	OBSERVED UT DATE 1968	START	END	MAX. PHASE	LOCATION APPROX. LAT.	MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY	DURATION — MIN.	IMPORTANCE	OBS. COND.	TYPE	MEASUREMENTS TIME — UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hα	MAX. INT. %	REMARKS
	MAR																		
GRP14143	21	1210	1425	1214	N10	E04	.300	9281	21.8	135	-F				.60				2 2 2 8
SANM	21	1210E	1425D	1214	N10	E04	.300	9281	21.8	135D	-F		P	1214	.45	.47			EHJ
HUAN	21	1225E	1236		N11	E04	.317	9281	21.8	11D	-F	1	C	1227	.35	.35			ET
HUAN	21	1246	1339		N10	E03	.297	9281	21.8	53	-N	1	C	1318	.75	.75			E
HUAN	21	1410	1425	1411	N09	E01	.276	9281	21.7	15	-N	2	C	1411	.25	.25			D
GRP14144	21	1237	1251	1238	S27	E60	.867	9279	26.0	14	-F				.42				3 3 3 6
SANM	21	1237E	1300D	1238	S25	E59	.857	9279	26.0	23D	-F		C	1238	.15	.32			D
ATHN	21	1237	1248	1238	S30	E60	.871	9279	26.0	11	-N	2		1238	.66	1.40	1.60		
HUAN	21	1238	1244		S25	E61	.873	9279	26.1	6	-F	1	C	1239	.45	.70			E
146 HUAN	21	1415	1426	1420	S24	E57	.839	9279	25.9	11	-F	2	C	1420	.21	.29			D 7
GRP14149	21	1536	1550	1538	N10	E03	.297	9281	21.9	14	-B				.84				2 2 2 6
BOUL	21	1534	1550	1537	N10	E02	.295	9281	21.8	16	-N		C		1.50	1.60			
ATHN	21	1538	1549	1539	N10	E04	.300	9281	22.0	11	-B	2		1539	.17	.20	2.00		
151 LOCK	21	1803	1828	1813	N10	E01	.293	9281	21.8	25	-F		C		.30				2
152 LOCK	21	1833	1845	1836	N30	W27	.709	9267	19.7	12	-F		C		.30				2
155 MANI	22	0200E	0213		S22	E48	.750	9279	25.7	13D	-N	1		0201	.62	.94			4
156 SIBE	22	0205E	0500	0214	N10	E08	.322	9276	22.7	175D	1F		P	0214	2.48	2.54		64	EFKJT 3
156 SIBE	22	0205E	0500	0418	N10	E08	.322	9276	22.7	175D	1F		P	0418	2.97	3.05		73	2
160 SIBE	22	0546E	0610D	0547	S00	E08	.184	9276	22.8	24D	-F		P	0547	1.65	1.70		66	EFJT 4
GRP14162	22	0740	0752	0743	S25	E49	.767	9279	26.0	12	-N				.30				3 3 2 7
BUCA	22	0738	0754		S24	E48	.755	9279	25.9	16	-N		C	0742	.43	.60			D
ISTA	22	0741	0750		S24	E49	.765	9279	26.0	9	-F								
ATHN	22	0742	0753	0743	S27	E49	.772	9279	26.0	11	-B	2		0743	.17	.20	2.00		
GRP14163	22	0911	0922	0914	S23	E45	.720	9279	25.8	11	-N				.67				3 3 2 6
MANI	22	0910	0917D	0914	S22	E44	.707	9279	25.7	7D	-B	2		0914	.41	.37			
KHAR	22	0912	0922D		S24	E47	.744	9279	25.9	10D	-F		V				1.80		DH
ARCE	22	0915E	0915D		S24	E45	.723	9279	25.8		-N		P	0915	.93	1.40			B
164 ATHN	22	0951	1010	0953	N10	W07	.315	9281	21.9	19	-B	2		0953	.99	1.20	2.00		5
165 ATHN	22	1017	1028	1018	S27	E50	.782	9279	26.2	11	-N	2		1018	.66	1.10	1.80		4
166 ATHN	22	1030	1047	1033	N10	W07	.315	9281	21.9	17	-B	2		1033	.99	1.20	2.00		4
GRP14167	22	1059	1111	1104	S26	E46	.740	9279	25.9	12	-F				.70				2 2 2 3
CAPE	22	1057	1110	1105	S24	E45	.723	9279	25.8	13	-F		C	1105	.89	1.30			V
ATHN	22	1101	1112	1102	S28	E46	.746	9279	25.9	11	-N	2		1102	.50	.80	1.60		
168 ATHN	22	1220	1226	1221	S28	E46	.746	9279	26.0	6	-N	2		1221	.33	.50	1.40		1
GRP14169	22	1237	1245	1239	S26	E45	.729	9279	25.9	8	-N				.49				2 2 2 3
ATHN	22	1236	1246	1239	S28	E46	.746	9279	26.0	10	-B	2		1239	.66	1.10	1.70		
MEUD	22	1238	1244		S24	E43	.702	9279	25.8	6	-F			1240	.31	.40			
GRP14170	22	1339	1356	1344	S26	E44	.719	9279	25.9	17	-N				.35				2 2 2 4
SACP	22	1339	1355	1342	S23	E43	.698	9279	25.8	16	-F		C		.37	.43			
ATHN	22	1344E	1356	1346	S28	E45	.736	9279	25.9	12D	-B	2			.33	.50	1.60		
GRP14171	22	1422	1430	1425	N31	W43	.829	9267	19.4	8	-F				.15				3 3 2 5
SACP	22	1421	1430	1424	N34	W41	.833	9267	19.5	9	-F		C		.19	.25			
HOUT	22	1423	1429	1425	N33	W42	.834	9267	19.4	6	-F		C		.10	.20			
NERA	22	1425E	1427D		N25	W45	.811	9267	19.2	2D	1N	3							
172 ATHN	22	1435	1458	1438	N10	W09	.329	9281	21.9	23	-N	2		1438	.66	.70	1.60		4
GRP14173	22	1559	1605	1600	N08	W13	.339	9281	21.7	6	-F				.33				2 2 2 6
HOUT	22	1558	1605	1600	N08	W13	.339	9281	21.7	7	-F		C		.40	.40			
HUAN	22	1559	1601D		N08	W13	.339	9281	21.7	2D	-F	1	P	1601	.25	.25			E
GRP14174	22	1637	1645	1640	S23	E41	.676	9279	25.8	8	-N				.64				3 3 3 4
HUAN	22	1637	1645		S24	E41	.679	9279	25.8	8	-N	1	P	1639	.50	.56			EH
SACP	22	1637	1645	1640	S23	E40	.664	9279	25.7	8	-N		C		.83	.94			
HOUT	22	1638	1644	1640	S23	E41	.676	9279	25.8	6	-N		C		.60	.80			
175 HOUT	22	1807	1813	1810	N09	W14	.362	9281	21.7	6	-F		C		.40	.40			3
176 HOUT	22	1819	1836	1824	N28	W46	.834	9267	19.3	17	-F		C		.20	.40			3

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OBSERVATORY	OBSERVED UT DATE 1968 MAR	START	END	MAX. PHASE	LOCATION APPROX. LAT.	MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP DAY	DURATION — MIN.	IMPORTANCE	OBS. COND.	TYPE	MEASUREMENTS TIME — UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hα	MAX. INT. %	REMARKS
177 HOUT	22	1907	1919	1910	S13	E27	.458	9273	24.8	12	-F		C		.30	.30			3
178 HOUT	22	1933	1939	1934	S13	E28	.473	9273	24.9	6	-F		C		.60	.70			3
GRP14179	22	1948	1958	1950	S23	E39	.653	9279	25.8	10	-F				.67				2 2 2 3
HOUT	22	1948	1957	1950	S23	E39	.653	9279	25.8	9	-F		C		.60	.80			
SACP	22	1948	1959	1950	S23	E39	.653	9279	25.8	11	-N		C		.73	.83			
180 HOUT	22	2006	2009	2007	N09	W15	.373	9281	21.7	3	-F		C		.50	.50			3
GRP14181	22	2107	2118	2111	S13	E28	.473	9273	25.0	11	-F				.77				2 2 2 3
SACP	22	2106	2116	2111	S12	E27	.455	9273	24.9	10	-N		C		.83	.84			
HOUT	22	2108	2120	2110	S13	E28	.473	9273	25.0	12	-F		C		.70	.80			
GRP14182	22	2233	2241	2235	S15	E21	.376	9273	24.5	8	-N				.74				3 3 3 5
SACP	22	2232	2243	2235	S14	E21	.371	9273	24.5	11	-N		C		.73	.73			
LOCK	22	2232	2241	2235	S15	E21	.376	9273	24.5	9	-N		C		1.00				
HOUT	22	2234	2239	2236	S16	E20	.367	9273	24.4	5	-F		C		.50	.50			
GRP14183	22	2249	2313	2253	S24	E39	.657	9279	25.9	24	-F				.45				4 4 4 5
LOCK	22	2247	2317	2255	S24	E40	.668	9279	25.9	30	-F		C		.40				
SACP	22	2248	2319	2311	S23	E39	.653	9279	25.9	31	-N		C		.92	1.03			
HOUT	22	2250	2304	2253	S23	E38	.641	9279	25.8	14	-F		C		.20	.30			
MANI	22	2250	2310	2252	S24	E37	.634	9279	25.7	20	-F	2		2252	.26	.35			
184 SACP	22	2329	2354	2332	S23	E30	.544	9273	25.2	25	-F		C		.45	.51			7
185 MANI	23	0131	0150	0133	S24	E36	.622	9279	25.8	19	-F	2		0133	.62	.77			3
186 MANI	23	0204	0209D	0207	S24	E36	.622	9279	25.8	5D	-N	1		0207	.72	.90			4
GRP14187	23	0550	0622	0555	S25	E35	.616	9279	25.9	32	-B				.80				2 2 2 5
MANI	23	0548E	0622		S23	E34	.594	9279	25.8	34D	-N	1		0556	.93	1.16			J
ATHN	23	0552	0558D	0555	S27	E35	.626	9279	25.9	6D	-B	1		0555	.66	.80	1.40		
188 CRON	23	0606	0612	0607	N16	E66	.935	9285	28.2	6	1N		C		1.10	2.50			E 5
GRP14191	23	0920	0935	0920	S12	E20	.348	9273	24.9	15	-N				.14				1 1 1 11
CATA	23	0920	0925	0920	S12	E20	.348	9273	24.9	5	-N			0920	.14	.15		195	
CATA	23	0925	0935	0925	S12	E18	.316	9273	24.7	10	-N			0925	.14	.15		195	
192 CATA	23	0930	1005	0935	S14	E19	.341	9273	24.8	35	-B			0935	.29	.31		224	T 12
194 CAPE	23	1020	1032	1027	S12	E18	.316	9273	24.8	12	-N		C	1027	1.03	1.10			9
195 CATA	23	1140E	1205	1145	S12	E16	.285	9273	24.7	25D	-N			1145	.58	.61		178	7
196 MONT	23	1220	1235		S21	E37	.621	9279	26.3	15	-N		C	1225	1.55				6
197 MONT	23	1245	1255	1248	S12	E16	.285	9273	24.7	10	-N		C	1248	1.55				5
198 SANM	23	1245E	1308D	1253	S23	E30	.545	9279	25.8	23D	-F		C	1253	.13	.16			D 6
199 SACP	23	1336	1355	1340	N35	W54	.913	9267	19.5	19	-N		C		.64	1.09			7
201 CAPE	23	1538	1550	1542	S36	E02	.486	9274	23.8	12	-F		C	1542	.86	1.00			C 5
202 MONT	23	1645	1658		S12	E14	.254	9273	24.7	13	-N		C	1649	1.03	•			4
203 HOUT	23	1825	1850	1830U	S13	E16	.290	9273	25.0	25	-F		C		.20	.20			3
204 SACP	23	1858	1920U	1906U	N18	W88	1.000	9266	17.2	22U	-N		C		.09				3
GRP14205	23	1913	1927	1917	S13	E10	.200	9273	24.6	14	-N				.51				3 3 3 3
HOUT	23	1913	1926	1918	S13	E11	.215	9273	24.6	13	-N		C		.50	.50			
LOCK	23	1913	1927	1916	S13	E09	.186	9273	24.5	14	-F		C		.40				
SACP	23	1913	1927U	1916U	S12	E11	.207	9273	24.6	14U	-N		C		.64	.63			
GRP14206	23	2124	2150	2135	S13	E12	.230	9273	24.8	26	-N				.75				2 2 2 2
LOCK	23	2117	2150	2135	S12	E08	.163	9273	24.5	33	-N		C		1.00				L
HOUT	23	2130	2140D	2135	S14	E15	.281	9273	25.0	10D	-N		C		.50	.50			
208 SACP	23	2245	2259U	2247U	N11	E55	.844	9285	28.1	14U	-N		C		.45	.65			4
209 SACP	23	2337	2343	2338	N14	E54	.844	9285	28.0	6	-F		C		.55	.77			4
210 LOCK	24	0010	0040	0025	S12	E07	.149	9273	24.5	30	-F		C		.40				5
211 SACP	24	0044	0054	0046	S12	E08	.163	9273	24.6	10	-F		C		.37	.36			5

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OBSERVATORY	OBSERVED UT				LOCATION					DURATION — MIN.	IMPORTANCE	OBS.		MEASUREMENTS					REMARKS
	DATE 1968	START	END	MAX. PHASE	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP DAY			COND.	TYPE	TIME — UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hα	MAX. INT. %	
	MAR																		
212 CRON	24	0109	0139	0114	S12	E07	.149	9273	24.6	30	-F		C		1.10	1.10			IK 6
212 CRON	24			0130	S12	E07	.149	9273	24.6	30									5
213 CRON	24	0220E	0235D	0220U	S12	E06	.136	9273	24.5	15D	-N		C		1.00	1.00			EI 5
215 MANI	24	0353E	0359		N13	E52	.823	9285	28.1	6D	-F	2		0354	.26	.45			5
GRP14217	24	0835	1000	(0848)	S12	E02	.095	9273	24.5	85	-N				1.63				2 2 2 9
MONT	24	0835E	1000D		S14	W01	.124	9273	24.3	85D	-N			0845	1.55				
ARCE	24	0850E	0915D		S10	E05	.102	9273	24.7	25D	-N		C	0850	1.70	1.70			
GRP14220	24	1344	1423	(1409)	S25	W27	.523	9282	22.5	39	-F				1.20				2 2 1 12
LOCA	24	1344E	1430		S24	W25	.491	9282	22.7	46D	-N		S						
CAPS	24	1407	1415		S25	W28	.534	9282	22.5	8	-F	2		1409	1.20	1.40		145	GH
GRP14221	24	1546	1621	1551	S12	W02	.095	9273	24.5	35	-N				.76				5 5 5 8
MCMA	24	1542	1630D	1548	S12	W03	.102	9273	24.4	48D	-N		C	1548	.72	.70			EK
HUAN	24	1543	1620		S12	W02	.095	9273	24.5	37	-N	1	P	1550	.50	.50			E
HOUT	24	1547	1621	1550	S13	W02	.111	9273	24.5	34	-N		C		.70	.70			IK
CAPS	24	1550	1609D		S12	E00	.089	9273	24.7	19D	-F	3		1553	.60	.60		155	W
CANR	24	1550	1613	1555	S13	W02	.111	9273	24.5	23	-F		C		1.30	1.30			K
14221	24			1603	S13	W01	.107	9273	24.6	23					2.50				2 2 1 9
CAPS	24	1550	1609D		S12	E00	.089	9273	24.7	19D	-F	3		1607	2.50	2.50			
CANR	24	1550	1613	1603	S13	W02	.111	9273	24.5	23	-F		C						
223 HOUT	24	1931	1943	1936	N38	W70	.981	9267	19.6	12	-F		C		.50	1.50			I 4
GRP14224	24	2046	2100	2049	S24	E15	.380	9279	26.0	14	-N				.65				3 3 3 5
LOCK	24	2045	2100	2049	S24	E14	.370	9279	25.9	15	-F		C		.80				
MCMA	24	2047	2100	2049	S24	E15	.380	9279	26.0	13	-N		C	2049	.52	.60			E
SACP	24	2047	2059	2049	S23	E15	.368	9279	26.0	12	-N		C		.64	.63			
225 MCMA	24	2101	2128D	2104	S12	W03	.102	9273	24.7	27D	-F		C	2104	.72	.80			EH 5
GRP14226	24	2123	2132	2125	N36	W79	.997	9267	19.0	9	-F				.38				3 3 2 5
MCMA	24	2123	2128D	2124	N35	W88	1.001	9267	18.3	5D	-F		C	2124					D
HOUT	24	2123	2133	2125	N36	W75	.991	9267	19.3	10	-F		C		.40	1.40			
SACP	24	2123	2131	2125	N36	W75	.991	9267	19.3	8	-F		C		.36				
227 SACP	24	2316	2332	2319	S24	E13	.361	9279	25.9	16	-N		C		.91	.91			4
GRP14228	25	0216	0229	0218	S23	E12	.339	9279	26.0	13	-F				.81				2 2 2 4
MANI	25	0214	0231	0217	S23	E12	.339	9279	26.0	17	-F	2		0217	.62	.65			
CRON	25	0217	0227	0219	S23	E11	.330	9279	25.9	10	-F		C		1.00	1.00			
GRP14229	25	0708	0749	0723	N34	W82	.999	9267	19.1	41	-N				1.18				2 2 2 8
CAPE	25	0708	0800	0721	N37	W83	1.000	9267	19.1	52	1N		C	0721	1.70				F
ATHN	25	0725E	0738	0725	N30	W80	.996	9267	19.3	13D	-N	2		0725	.66		1.80		
230 CATA	25	0910	0920	0915	N11	E32	.595	9285	27.8	10	-F			0915	.17	.21		132	16
231 ATHN	25	1232E	1245	1232	N12	W45	.750	9281	22.1	13D	-N	2		1232	.66	1.00	1.60		13
GRP14234	25	1444	1506	1453	N36	W80	.998	9267	19.6	22	-N				.93				2 2 2 14
SACP	25	1443	1506	1453U	N37	W82	.999	9267	19.5	23	1N		C		.83				
MONT	25	1444	1505	1453	N35	W77	.993	9267	19.8	21	-N		C	1453	1.03				
235 SACP	25	1626	1653	1634	S23	E88	.997	9289	1.3	27	1F		C		.73				9
GRP14236	25	1717	1730	1723	S14	W12	.238	9273	24.8	13	-F				.43				3 3 3 8
MCMA	25	1715	1729D	1723	S14	W12	.238	9273	24.8	14D	-F		C	1723	.41	.40			E
LOCK	25	1718	1730	1722	S15	W13	.261	9273	24.7	12	-F		C		.30				
HUAN	25	1723E	1730D		S12	W12	.223	9273	24.8	7D	-F	1	P	1729	.57	.57			E
237 SACP	25	1826	1835	1829	S22	E86	.994	9289	1.2	9	-N		C		.28				5
238 BOUL	25	2051U	2117	2055	S12	W17	.301	9273	24.6	26U	-F		C		1.30	1.30			EK 4
238 BOUL	25			2106	S12	W17	.301	9273	24.6	26U									4
239 LOCK	26	0032	0048	0038	S17	E70	.933	9288	31.3	16	-F		C		.30				5
240 CRON	26	0205	0213	0207	S18	E49	.754	9287	29.8	8	-N		C		1.00	1.50			4
241 MANI	26	0245	0307	0248	N18	E56	.871	9286	30.3	22	-N	2		0248	.62	1.15			4

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OBSERVATORY	OBSERVED UT DATE 1968 MAR	START	END	MAX. PHASE	LOCATION APPROX. LAT.	MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY	DURATION — MIN.	IMPORTANCE	OBS. COND.	TYPE	MEASUREMENTS TIME — UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hα	MAX. INT. %	REMARKS
GRP14242	26	0621	0647	0625	N16	E53	.841	9286	30.2	26	-F				.66				3 3 3 7
MANI	26	0621	0644	0625	N18	E55	.863	9286	30.4	23	-N	2		0625	.52	.94			
CAPS	26	0622E	0639D		N16	E51	.823	9286	30.1	17D	-F	2		0627	.80	1.40		142	
BUCA	26	0625E	0650		N15	E54	.846	9286	30.3	25D	-F		C	0626	.66	1.20			
243 CATA	26	0720	0835	0730	S17	W27	.473	9273	24.3	75	-N			0730	.58	.66		190	12
244 CATA	26	0850	0910	0850	S13	W26	.443	9273	24.4	20	-F			0850	.21	.23		149	12
GRP14245	26	0958	1008	0958	S16	W27	.469	9273	24.4	10	-N				.43				2 2 2 12
CAPE	26	0955	1001	0956	S14	W27	.461	9273	24.4	6	-N		C	0956	.54	.60			V
CATA	26	1000	1015D	1000	S19	W29	.511	9273	24.2	15D	-N			1000	.31	.36		162	
CATA	26	1000	1005	1000	S16	W26	.455	9273	24.5	5	-F			1000	.60	.68		144	
GRP14246	26	1141	1200	1145	S25	W54	.815	9282	22.4	19	-F				.80				2 2 2 9
CAPE	26	1136	1200	1144	S24	W54	.813	9282	22.4	24	1F		C	1144	1.30	2.30			
CATA	26	1145	1200	1145	S26	W53	.808	9282	22.5	15	-N			1145	.29	.51		158	
GRP14247	26	1258	1305	1300	S15	W29	.494	9273	24.4	7	-N				.65				2 2 2 7
CAPE	26	1256	1304	1259	S14	W29	.491	9273	24.4	8	-N		C	1259	.89	1.00			
CATA	26	1300	1305	1300	S15	W29	.494	9273	24.4	5	-N			1300	.40	.47		157	
248 CATA	26	1415	1420D	1415	S15	W25	.436	9273	24.7	5D	-F			1415	.58	.65		141	T 12
249 SACP	26	1440	1601	1510	S13	W26	.443	9273	24.7	81	-F		C		.45	.46			10
250 SACP	26	1448	1503	1458	S22	E73	.949	9289	1.1	15	-F		C		.28	.54			11
GRP14251	26	1658	1739	1701	S13	W27	.458	9273	24.7	41	-F				.40				2 2 2 7
SACP	26	1656	1728	1700	S13	W25	.428	9273	24.8	32	-F		C		.27	.28			
SACP	26	1656	1742	1713	S13	W27	.458	9273	24.7	46	-N		C		.64	.65			
MCMA	26	1659	1735	1701	S12	W28	.471	9273	24.6	36	-N		C	1701	.52	.60			E
252 SACP	26	1734	1748	1739	S19	E72	.944	9289	1.1	14	-F		C		.83	1.60			4
GRP14253	26	1813	1912	1822	S12	W28	.471	9273	24.7	59	-F				.38				3 3 3 5
SACP	26	1807	1853	1822	S13	W28	.473	9273	24.7	46	-F		C		.28	.28			
HUAN	26	1816	1835D		S12	W28	.471	9273	24.7	19D	-F	1	C	1818	.25	.25			DT
MCMA	26	1817	1930	1821	S12	W28	.471	9273	24.7	73	-N		C	1821	.62	.70			EK
GRP14254	26	1856	1917	1859	S11	W30	.499	9273	24.5	21	-F				.50				2 2 2 5
HUAN	26	1853	1901D		S11	W30	.499	9273	24.5	8D	-F	1	P	1901	.50	.51			E
HOUT	26	1858	1917	1859U	S11	W30	.499	9273	24.5	19	-F		C		.50	.60			K
257 HUAN	26	2130	2237D		S12	W30	.500	9273	24.6	67D	-F	1	P	2158	.31	.32			D 5
258 SACP	26	2309	2322	2316	S16	W33	.553	9273	24.5	13	-N		C		.19	.20			6
261 MANI	27	0417E	0417D		S30	E90	.998	9289	2.9		-B	2		0417	.52	1.70			2
GRP14262	27	0608	0627	0618	S24	W66	.909	9282	22.3	19	-N				.22				4 4 3 7
ONDR	27	0601E	0616		S23	W65	.902	9282	22.4	15D	-N		V	0603			1.90		CDHJ
HTPR	27	0614	0629	0618	S24	W65	.902	9282	22.4	15	-N			0618	.31	.70			
CAPS	27	0619E	0629		S22	W69	.927	9282	22.1	10D	-F	3		0623	.20			155	H
MANI	27	0625E	0634	0628	S26	W66	.910	9282	22.3	9D	-N	2		0628	.15	.31			
267 ATHN	27	1044	1049	1045	S27	E67	.917	9289	1.5	5	-N	2		1045	.33				13
GRP14268	27	1103	1110	1104	N15	W77	.983	9281	21.7	7	-N				.28				3 3 3 14
HTPR	27	1102	1110	1103	N13	W75	.975	9281	21.8	8	-F			1103	.21				D
ATHN	27	1103	1108	1104	N23	W80	.994	9281	21.5	5	-N	2		1104	.33				
CATA	27	1105E	1113	1105	N08	W77	.979	9281	21.7	8D	-N			1105	.29			178	
270 HTPR	27	1153	1215	1205	N13	W75	.975	9281	21.9	22	-F			1205	.41				A 12
GRP14271	27	1241	1303	1246	S25	W71	.939	9282	22.2	22	-F				.43				2 2 2 12
CAPE	27	1241	1255	1246	S25	W71	.939	9282	22.2	14	-F		C	1246	.45	1.30			FT
MCMA	27	1245E	1310		S25	W70	.934	9282	22.3	25D	-N		C	1248	.41	1.20			E
272 MCMA	27	1248	1305D	1253	S16	E72	.945	9289	1.9	17D	-F		C	1253	.21	.60			D 12
276 MONT	27	1411	1430	1415	S12	E52	.783	9288	31.5	19	-B		C	1415	1.55				11

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OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS					REMARKS
	DATE 1968	START	END	MAX. PHASE	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hα	MAX. INT. %	
	MAR																		
GRP14277	27	1412	1428	1414	S23	E60	.864	9289	1.1	16	-N				.34				7 7 6 11
HTPR	27	1408	1430	1415	S24	E59	.857	9289	1.0	22	-F			1415	.52	.90			
MCMA	27	1410E	1411D		S22	E60	.863	9289	1.1	1D	-N		P	1411	.77	1.50			E
SANM	27	1411E	1430D	1414	S22	E59	.855	9289	1.0	19D	-F		C	1414	.15	.31			E
SACP	27	1412U	1418U	1413U	S22	E60	.863	9289	1.1	6U	-N		C		.19	.27			
ONDR	27	1413E	1433		S25	E58	.850	9289	31.9	20D	1N		V	1416			2.10		CHJ
MEUD	27	1414E	1415D		S23	E60	.864	9289	1.1	1D	-F			1414	.21	.40			CD
CATA	27	1415	1420	1415	S21	E61	.871	9289	1.2	5	-B			1415	.17	.38		209	
278 MCMA	27	1440	1458D	1445	S25	W71	.939	9282	22.3	18D	-F		C	1445	.52	1.50			E 12
GRP14281	27	1520	1534	1526	S23	E60	.864	9289	1.1	14	-N				.46				5 5 5 9
MCMA	27	1516	1537	1525	S22	E60	.863	9289	1.1	21	-B		C	1525	.41	.80			E
HTPR	27	1520	1530	1525	S24	E58	.849	9289	1.0	10	-F			1525	.41	.70			
MEUD	27	1522	1532	1526	S23	E60	.864	9289	1.1	10	-N			1526	.31	.60			D
SACP	27	1523	1538U	1526U	S22	E60	.863	9289	1.1	15U	-N		C		.64	.94			
HUAN	27	1524E	1534D		S22	E60	.863	9289	1.1	10D	-N	1	P	1527	.55	.80			E
282 MONT	27	1521	1558	1530	S12	E50	.761	9288	31.4	37	1B		C	1530	2.27				10
GRP14283	27	1535	1547	1538	S24	W71	.939	9282	22.3	12	-N				.56				5 5 5 10
MONT	27	1530	1610		S23	W68	.921	9282	22.5	40	1N		C	1535	1.55				
MEUD	27	1537	1541	1538	S24	W70	.934	9282	22.4	4	-N			1538	.31				D
SACP	27	1537	1542	1538	S24	W73	.950	9282	22.2	5	-N		C		.37	.73			
MCMA	27	1537	1542	1538	S25	W71	.939	9282	22.3	5	-B		C	1538	.31	.90			D
HUAN	27	1539E	1542D		S24	W75	.959	9282	22.0	3D	-F	1	P	1540	.25				D
MCMA	27	1604	1620	1608	S25	W72	.945	9282	22.3	16	-F		C	1608	.41	1.30			E
284 MCMA	27	1600	1659		S22	E60	.863	9289	1.2	59	-N		C	1610	.52	1.00			EL 7
285 MONT	27	1620	1635D	1623	S12	E50	.761	9288	31.4	15D	-B		C	1623	1.55				7
286 MCMA	27	1628	1645	1638	S25	W72	.945	9282	22.3	17	-N		C	1638	.31	1.00			DH 7
287 MCMA	27	1702	1750	1704	S22	E59	.855	9289	1.1	48	-N		C	1704	.72	1.40			E 4
289 MCMA	27	1738	1749	1740	S27	E90	.999	9293	3.5	11	-N		C	1740					DL 4
GRP14290	27	1801	1829	1807	S24	E59	.857	9289	1.2	28	-F				.46				2 2 2 5
LOCK	27	1800	1820	1810	S26	E58	.851	9289	1.1	20	-F		C		.30				
MCMA	27	1801	1838	1804	S22	E59	.855	9289	1.2	37	-N		C	1804	.62	1.20			E
293 LOCK	27	2201	2215	2205	S22	E90	.999	9292	3.7	14	-F		C		.30				H 5
294 HUAN	27	2205	2224D		S13	W44	.691	9273	24.6	19D	-F	1	C	2208	.31	.35			D 5
295 MANI	27	2247	2310	2251	S24	W73	.950	9282	22.5	23	-N	2		2251	.31	.69			3
296 LOCK	27	2300	0030	2345	S25	E55	.824	9289	1.1	90	-N		C		1.30				JK 4
297 LOCK	27	2325	0050	2350	S25	W73	.950	9282	22.5	85	-F		C		.60				J 4
300 HTPR	28	0547	0630	0550	S23	W80	.979	9282	22.2	43	-N			0550	.31				A 6
GRP14302	28	0735	0900	0820	S23	E50	.774	9289	1.1	85	-N				.76				3 3 2 15
CATA	28	0735E	0925	0820	S23	E51	.784	9289	1.1	110D	-B			0820	.58	.94		248	BK
ISTA	28	0745E	0856		S24	E51	.786	9289	1.1	71D	-N								
ARCE	28	0810E	0840		S24	E49	.766	9289	1.0	30D	-N		C	0810	.93	1.40			
CATA	28	0810	0815	0810	S21	E48	.749	9289	31.9	5	-N			0810	.13	.21		182	K
303 CATA	28	0740	0800	0740	N17	E37	.690	9286	31.1	20	-N			0740	.34	.49		191	13
GRP14307	28	1042	1140		S23	W85	.992	9282	22.1	58	-F				1.55				2 2 1 13
HTPR	28	1042	1140		S23	W90	.999	9282	21.7	58	-F								AH
MONT	28	1050	1130		S23	W80	.979	9282	22.5	40	1N		C		1.55				H
308 MONT	28	1145	1215	1158	S24	E51	.786	9289	1.3	30	-N		C	1158	.83				12
GRP14309	28	1230	1322	1320	S23	W85	.992	9282	22.1	52	-F				1.55				3 3 1 13
HTPR	28	1230	1310		S22	W87	.996	9282	22.0	40	-F								
MONT	28	1238	1325		S23	W81	.982	9282	22.5	47	1N		C	1240	1.55				
MCMA	28	1317	1330	1320	S25	W88	.997	9282	22.0	13	-F		C	1320					DH
310 HTPR	28	1257	1302	1258	S22	E45	.719	9289	31.9	5	-F			1258	.41	.60			11
314 HUAN	28	1603E	1608		S23	E46	.732	9289	1.1	5D	-F	1	P	1603	.41	.50			E 11
315 LOCK	28	1725	1735	1728	S25	W82	.985	9282	22.6	10	-F		C		.60				H 7

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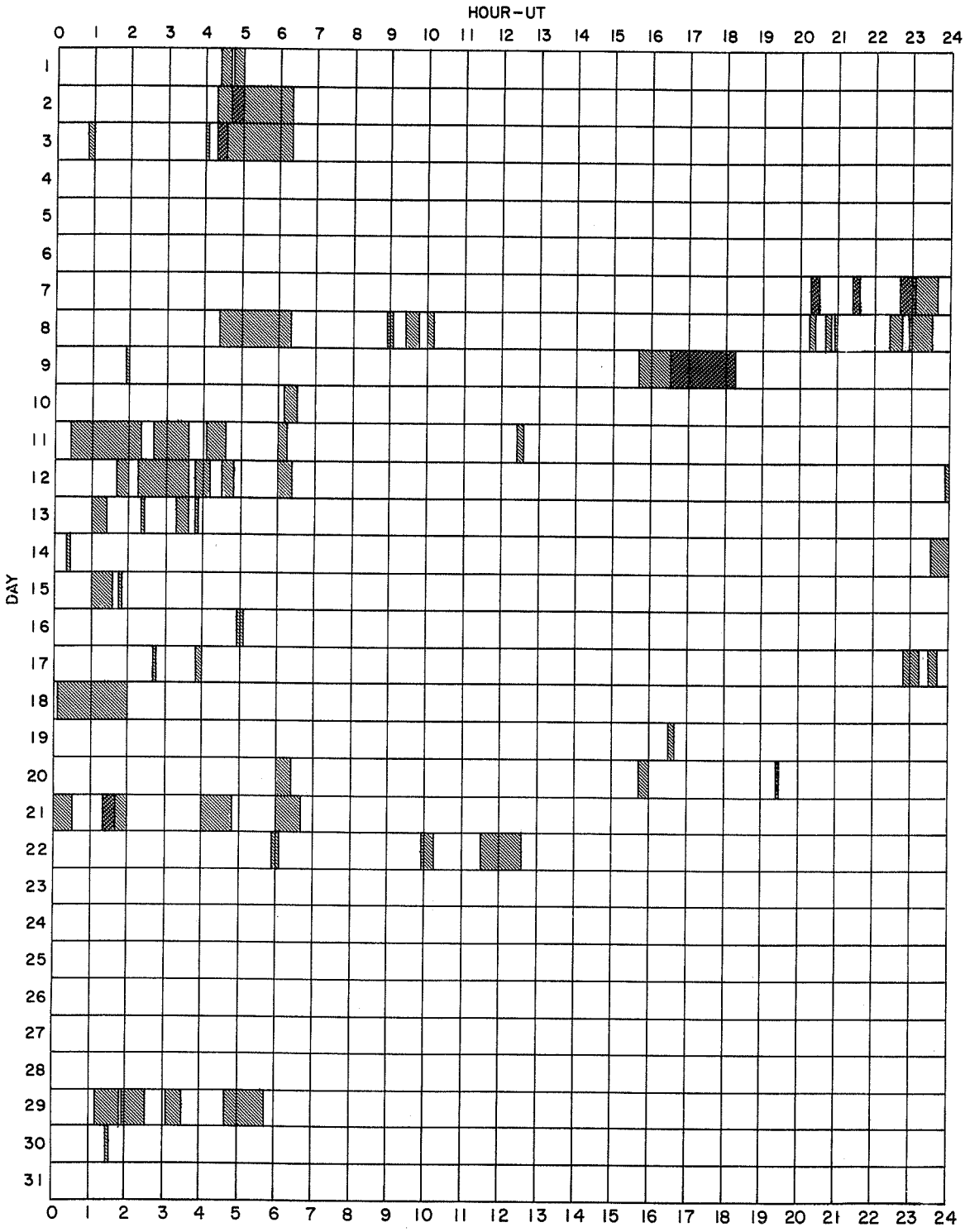
OBSERVATORY	OBSERVED UT DATE 1968 MAR	START	END	MAX. PHASE	LOCATION APPROX. LAT.	MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY	DURATION — MIN.	IMPORTANCE	OBS. COND.	TYPE	MEASUREMENTS TIME — UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hα	MAX. INT. %	REMARKS
GRP14316	28	1733	1752	1742	S21	E46	.727	9289	1.2	19	-N				.61				4 4 4 7
SACP	28	1731	1754	1742	S22	E44	.708	9289	1.0	23	-N		C		.73	.87			
MCMA	28	1732	1751	1742	S24	E49	.766	9289	1.4	19	-B		C	1742	.52	.80			E
HUAN	28	1735	1750		S23	E45	.722	9289	1.1	15	-N	1	C	1743	.50	.59			E
HOUT	28	1740U	1743D	1743U	S13	E44	.691	9289	1.0	3D	-F		C		.70	1.00			
GRP14317	28	1815	1833	1820	S24	W88	.997	9282	22.2	18	-F				.25				2 2 1 7
MCMA	28	1815	1835D	1820	S25	W88	.997	9282	22.2	20D	-N		C	1820					DH
HUAN	28	1816E	1831		S23	W88	.997	9282	22.2	15D	-F	1	C	1826	.25				T
GRP14318	28	1838	1849	1842	S18	E44	.698	9289	1.1	11	-F				.48				2 2 2 6
HUAN	28	1838	1847	1840	S23	E44	.711	9289	1.1	9	-F	2	C	1840	.25	.29			D
HOUT	28	1839U	1850	1843U	S13	E44	.691	9289	1.1	11U	-F		C		.70	1.00			
GRP14320	28	1914	1938	1922	S25	W88	.997	9282	22.2	24	-F				.25				2 2 1 6
HUAN	28	1914	1931D		S24	W88	.997	9282	22.2	17D	-F	1	C	1917	.25				D
MCMA	28	1914	1938	1922	S25	W88	.997	9282	22.2	24	-N		C	1922					D
321 HUAN	28	1930	1931D		S23	E44	.711	9289	1.1	1D	-N	1	P	1931	.31	.37			D 6
322 SACP	28	2116	2140	2126	S21	E42	.682	9289	1.0	24	-F		C		.37	.42			5
323 HUAN	28	2157E	2201D		S22	E42	.685	9289	1.1	4D	-N	1	P	2159	.50	.58			E 5
324 LOCK	28	2330	0015	2341	S25	W83	.987	9282	22.8	45	-F		C		.40				H 3
325 LOCK	29	0055	0109	0100	S25	W90	.999	9282	22.3	14	-F		C		.30				3
326 HTPR	29	0558	0604		S17	E75	.960	9292	3.9	6	-F								D 7
GRP14327	29	0600	0619	0608	S13	W55	.814	9273	25.1	19	-N				.41				3 3 2 6
HTPR	29	0545	0615	0550	S14	W52	.783	9273	25.3	30	-F			0550	.31	.50			DH
ONDR	29	0553E	0620		S14	W58	.842	9273	24.9	27D	-F		V	0605			1.40		CDH
ATHN	29	0606	0621	0608	S10	W56	.824	9273	25.1	15	-B	2		0608	.50	.90	2.00		
328 MEUD	29	0755	0802	0756	S23	E36	.619	9289	1.0	7	-F			0756	.57	.70			11
329 MONT	29	0803E	0820		S12	W67	.915	9273	24.3	17D	-N		C	0810	.62				12
330 MEUD	29	0813	0820	0813	S24	E37	.636	9289	1.1	7	-F			0813	.31	.40			10
331 MONT	29	0925	0940		N08	W17	.382	9285	28.1	15	-N		C	0930	.83				12
332 HTPR	29	1050	1055		S28	W90	.998	9282	22.7	5	-F								10
GRP14333	29	1424	1429	1426	S18	E69	.927	9292	3.8	5	-F				.27				2 2 2 13
HUAN	29	1423E	1427		S16	E68	.921	9292	3.7	4D	-F	1	C	1425	.21				D
ATHN	29	1425	1430	1426	S19	E70	.933	9292	3.9	5	-N	2		1426	.33	1.00	1.80		
GRP14334	29	1444	1452	1445	S23	E34	.595	9289	1.2	8	-N				.76				6 6 6 13
HTPR	29	1407	1455	1440	S23	E36	.619	9289	1.3	48	-F			1440	.93	1.10			
HUAN	29	1423E	1450		S23	E33	.583	9289	1.1	27D	-N	1	C	1445	.95	1.03			E
SACP	29	1440	1451	1445	S23	E33	.583	9289	1.1	11	-F		C		.64	.69			
MEUD	29	1444	1447	1445	S23	E33	.583	9289	1.1	3	-F			1445	.36	.40			
CATA	29	1445	1450	1445	S22	E34	.590	9289	1.2	5	-B			1445	.87	1.08		214	
MONT	29	1445	1500		S24	E34	.600	9289	1.2	15	-N		C	1448	.83				
335 HUAN	29	1523	1537		S18	E77	.969	9292	4.4	14	-F	1	C	1530	.21				D 12
336 HUAN	29	1613	1627		S23	E32	.571	9289	1.1	14	-F	2	C	1620	.31	.33			E 10
GRP14337	29	1638	1655	1641	N18	E15	.482	9286	30.8	17	-N				.29				2 2 2 8
MCMA	29	1638	1655	1641	N18	E15	.482	9286	30.8	17	-N		C	1641	.26	.30			D
HUAN	29	1638	1642D		N18	E14	.474	9286	30.7	4D	-N	1	P	1642	.31	.31			D
338 MCMA	29	1650E	1706	1659	S12	W60	.860	9273	25.2	16D	-N		C	1659	.26	.50			D 7
GRP14340	29	1822	1927	1907	S23	E32	.571	9289	1.2	65	-N				.57				2 2 2 5
HUAN	29	1822	1923		S23	E31	.559	9289	1.1	61	-N	2	C	1905	.62	.65			E
MCMA	29	1830E	1857	1838	S22	E32	.566	9289	1.2	27D	-N		C	1838	.83	1.00			E
MCMA	29	1900	1930	1907	S22	E32	.566	9289	1.2	30	-N		C	1907	.52	.70			E
341 MCMA	29	1933E	1945	1937	S12	W62	.877	9273	25.2	12D	-N		C	1937	.26	.60			D 3
GRP14342	29	2023	2046	2029	N18	E14	.474	9286	30.9	23	-N				.61				3 3 3 4
LOCK	29	2022	2042	2027	N18	E13	.467	9286	30.8	20	-F		C		.70				
MCMA	29	2023	2050	2026	N18	E15	.482	9286	31.0	27	-B		C	2026	.41	.40			DH
SACP	29	2030E	2046	2034	N18	E13	.467	9286	30.8	16D	-N		C		.73	.75			

SOLAR FLARES
Small or Unconfirmed
MARCH 1968

OBSERVATORY	OBSERVED UT DATE 1968 MAR	START	END	MAX. PHASE	LOCATION APPROX. LAT.	MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY	DURATION — MIN.	IMPORTANCE	OBS. COND.	TYPE	MEASUREMENTS TIME — UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hα	MAX. INT. %	REMARKS
343 MCMA	29	2111	2125	2114	S15	E68	.921	9292	4.0	14	-N		C	2114	.52	1.40			EH 4
344 MCMA	29	2136	2212D	2140	S15	E68	.921	9292	4.0	36D	-F		C	2159	.62	1.70			EHK 4
344 MCMA	29			2159	S15	E68	.921	9292	4.0	36D			C						3
345 LOCK	30	0025	0045	0035	S15	W65	.900	9273	25.1	20	-F		C		.20				2
GRP14347	30	0724	0736	0727	S15	E59	.852	9292	3.7	12	-F				.21				2 2 1 12
MEUD	30	0724	0734	0727	S15	E58	.843	9292	3.7	10	-N			0727	.21	.40			
CAPS	30	0728E	0738D		S14	E59	.851	9292	3.7	10D	-F	2							CH
GRP14348	30	0734	0748	(0739)	N22	E05	.486	9286	30.7	14	-F				.86				2 2 2 12
MEUD	30	0734	0746		N22	E05	.486	9286	30.7	12	-F			0737	.31	.30			E
CAPS	30	0734E	0750D		N20	E09	.471	9286	31.0	16D	-F	2		0737	.60	.70		158	C
CAPS	30	0739	0750D		N22	E02	.481	9286	30.5	11D	-F	2		0741	.80	.90		140	
349 CATA	30	0810	0815	0810	S14	W69	.928	9273	25.2	5	-N			0810	.13			178	12
GRP14350	30	0830	0910	0840	N12	W31	.588	9285	28.0	40	-N				1.30				2 2 2 12
CATA	30	0825	0920	0840	N11	W32	.594	9285	28.0	55	-N			0840	.93	1.16		182	T
ARCE	30	0835	0900	0840	N13	W30	.584	9285	28.1	25	1N		C	0840	1.67	2.10			
GRP14351	30	0851	0912	0855	N19	E05	.440	9286	30.7	21	-N				.59				3 3 3 11
CATA	30	0850	0930	0855	N15	E04	.375	9286	30.7	40	-N			0855	.52	.57		158	
CATA	30	0850	0930	0855	N22	E03	.482	9286	30.6	40	-N			0855	.23	.27		178	
CATA	30	0850	0930	0855	N18	E06	.428	9286	30.8	40	-N			0855	.17	.20		191	
MEUD	30	0851	0900		N18	E05	.425	9286	30.7	9	-F			0852	.31	.30			E
MONT	30	0851	0905	0855	N20	E05	.456	9286	30.7	14	-B		C	0855	.72				
352 ARCE	30	0910E	0910D		S13	E60	.860	9292	3.9		-N		P	0910	.46	.90			11
354 LOCA	30	1015	1030	1017	N13	W28	.560	9285	28.3	15	-N		V	1017	.63	.70			6
355 CATA	30	1115	1140	1120	S24	E21	.447	9289	1.0	25	-N			1120	.69	.78		178	8
356 CAPS	30	1122	1131D		S16	E58	.843	9292	3.8	9D	-F	3		1126	1.00	1.70		152	H 7
357 CATA	30	1140	1155	1140	S14	W70	.934	9273	25.2	15	-N			1140	.29			166	7
GRP14358	30	1153	1205	1200	S16	W14	.285	9287	29.4	12	-N				.22				2 2 2 9
CAPS	30	1151	1159		S16	W14	.285	9287	29.4	8	-N	3		1154	.20	.20		166	D
CATA	30	1155	1210	1200	S16	W14	.285	9287	29.4	15	-N			1200	.23	.24		161	
359 CATA	30	1230E	1250	1235	S14	W70	.934	9273	25.3	20D	-N			1235	.58			155	9
361 MCMA	30	1300	1320	1304	S15	E57	.833	9292	3.8	20	-N		C	1304	.31	.50			DH 8
362 MCMA	30	1327	1338	1329	S15	E57	.833	9292	3.8	11	-N		C	1329	.31	.50			D 10
GRP14363	30	1628	1636	1631	S16	E56	.824	9292	3.9	8	-F				.36				2 2 2 7
LOCK	30	1627	1636	1631	S16	E56	.824	9292	3.9	9	-F		C		.40				
MCMA	30	1629	1635	1630	S15	E56	.824	9292	3.9	6	-N		C	1630	.31	.50			DH
364 MCMA	30	1835	1847	1837	N16	W07	.402	9286	30.2	12	-F		C	1837	.31	.30			D 3
365 LOCK	30	1934	1950	1937	N17	W08	.422	9286	30.2	16	-F		C		.70				3
366 MCMA	30	1956	2003	2000	S14	W85	.994	9273	24.5	7	-F		C	2000					D 3
GRP14367	30	2121	2131	2122	N20	W05	.456	9286	30.5	10	-F				.54				2 2 2 4
MCMA	30	2120	2130	2122	N18	W08	.437	9286	30.3	10	-F		C	2122	.52	.50			D
HUAN	30	2122	2131D		N22	W01	.480	9286	30.8	9D	-F	1	P	2126	.55	.56			E
GRP14368	30	2302	2320	2311	S14	E51	.773	9292	3.8	18	-F				.48				2 2 2 3
SACP	30	2302	2318	2308	S13	E51	.772	9292	3.8	16	-N		C		.64	.80			
MANI	30	2312E	2322	2313	S15	E51	.774	9292	3.8	10D	-F	2		2313	.31	.48			
370 MANI	31	0405	0415	0407	S14	E49	.751	9292	3.8	10	-F	2		0407	.62	.94			4
372 ATHN	31	0808	0818	0808	S16	E50	.764	9292	4.1	10	-N	2		0808	.66	1.10	1.80		11
373 ATHN	31	1002	1014D	1004	S16	E49	.753	9292	4.1	12D	-N	2		1004	.66	1.10	1.90		10
GRP14374	31	1229	1241	1232	S13	E01	.113	9288	31.6	12	-F				1.78				2 2 2 7
CAPS	31	1228E	1242D		S12	E00	.094	9288	31.5	14D	-F	3		1233	1.90	1.90		152	C
ATHN	31	1230	1240	1232	S14	E01	.130	9288	31.6	10	-N	2		1232	1.65	1.70	1.80		
375 CAPS	31	1246E	1303D		S23	E10	.326	9289	1.3	17D	-F	3		1248	.70	.70		157	CE 7
GRP14378	31	1631	1639	1632	N13	W48	.783	9285	28.1	8	-F				.33				3 3 3 6
MCMA	31	1630	1635	1632	N13	W48	.783	9285	28.1	5	-N		C	1632	.52	.80			E
MEUD	31	1631	1633D		N12	W49	.790	9285	28.0	2D	-F			1632	.26	.40			D
HALE	31	1631	1642	1632	N14	W48	.787	9285	28.1	11	-F	1	C	1632	.21	.30			

INTERVALS OF NO FLARE PATROL OBSERVATION
For Preceding Solar Flare Table

MARCH 1968



Observatories included in total patrol:

Abastumani	Canary Islands	Culgoora	Istanboul	McMath-Hulbert	Sacramento Peak
Arcetri	Capetown	Haleakala	Kiev	Manila	San Miguel
Arosa	Capri-F(German)	Haute-Provence	Kharkov	Meudon	Siberie
Athens	Capri-S(Swedish)	Herstmonceux	Kodaikanal	Mitaka	Tachkent
Boulder	Carnarvon	Houston	Locarno	Monte Mario	Wendelstein
Bucharest	Catania	Huancayo	Lockheed	Ondrejov	Zürich

The times when there was no cinematographic or visual patrol are shown by the darker areas.
The rest of the shaded areas are times of visual patrol only.

SUDDEN IONOSPHERIC DISTURBANCES

SHORT WAVE RADIO FADEOUTS — SUDDEN PHASE ANOMALIES
SUDDEN COSMIC NOISE ABSORPTION — SUDDEN ENHANCEMENTS OF SIGNAL
SUDDEN ENHANCEMENTS OF ATMOSPHERICS — SUDDEN FREQUENCY DEVIATIONS

ADDITIONS AND AMENDMENTS

MARCH 1968

	UNIVERSAL TIME			WIDE SPREAD INDEX	SWF TYPE	IMPORTANCE					STATIONS	KNOWN FLARE
	START	END	MAX		IMP.	ABS SCNA	SEA	SPA	SES	SFD		
02	1816	1837	1821	1				05			HN(M23-05)	1812
24	2048		2100	1				144			CP-SA/144	
24	2048		2052	1					-25		CP-SA/-25	2045
24	2050	2135	2100	1				55			TK(AA17-55)	
29	1922		1945	3				-151			MR-GE/-51 GE-MR/108	1933E
29	1920		1941	3					-06		MR-GE/-6 GE-MR/-15	

STATIONS REPORTING FOR MARCH 1968:

AAVSO	Ft. Belvoir	Kerguelen (T)	Okinawa	Sweden
Anchorage	Hawaii	London	Paterson	Tasmania
Boulder	Hiraiso	Loran-C	Rome	Tokyo
Christchurch	Huancayo	Manila	San Fernando	Trinidad
Debra Zeith	Julesruh (T)	McMath	São Paulo	White Sands
			Slough	Woomera

TIME OF NO OBSERVATIONS FOR MARCH 1968:

DATE	TIME (UT)	STATION
01	1447-1454, 1724-2304	HN
02	0430-0532, 2227-2400	HN
03	0000-0054, 1814-2340	HN
04	2050-2400	HN
05	0512-1416, 2113-2400	HN
06	0000-0234, 2104-2400	HN
07	0000-0131, 1453-1517, 2117-2400	HN
08	0000-0237	HN
09	1016-2400	HN
10	0000-0046	HN
12	1710-1735, 2155-2204	HN
13	0812-0845	HN
14	2059-2132	HN
16	0614-0720	HN
17	0207-0728, 1900-2400	HN, DV
18	2021-2146	DV
18-20	0000-2400	DV
19	1850-1954, 2150-2400	HN
20	0000-0050, 1804-2346	HN
21	0000-1300	DV
23	2103-2221	HN
24	2334-2400	HN
25	0000-0057	HN
27	1737-1751	HN
28	1855-2014	HN

NOTES: Hawaii SCNA-SEA out of operation.
(T) indicates the telegraphic form in which SID messages are received.

SOLAR X-RAY FLARES (2 - 12A°)
SATELLITES EXPLORER 33 and 35

March 1968

University of Iowa

Date 1968	Onset UT	Maximum UT	Peak-Ratio to Quiet Sun	Remarks
2 March	1410	1412	7	Rapid rise, rapid decline
	2237	2244	11	
4 March	1709	1724	4	
8 March	--	--	--	An unusually quiet day
13 March	0642	0647	6	
15 March	1113	1126	5	
17 March	1749	1803	7	
18 March	--	--	--	An unusually quiet day
20 March	1959	2605	4	Very slow rise and very slow decline
21 March	1419	1429	6	
	1913	1917	20	Rapid rise, rapid decline
	2200	2209	8	
22 March	--	--	--	Numerous small flares
23 March	0934	0940	8	Rapid rise, rapid decline
	2126	2134	4⁻	
24 March	0744	0753	10	(Note 1)
	0850	0852	5	
	1634	1646	11	(Note 1)
25 March	1501	1507	10	(Note 1)
27 March	1331	1344	4⁻	
	1758	1816	4	Complex structure

Note 1: These three X-ray flares, all apparently from McMath plage region 9273, have a remarkable similarity in their intensity-time profiles and in their maximum absolute intensities.

SOLAR PROTONS BY SATELLITE
EXPLORER 34 (1967-51A)

MARCH 1968

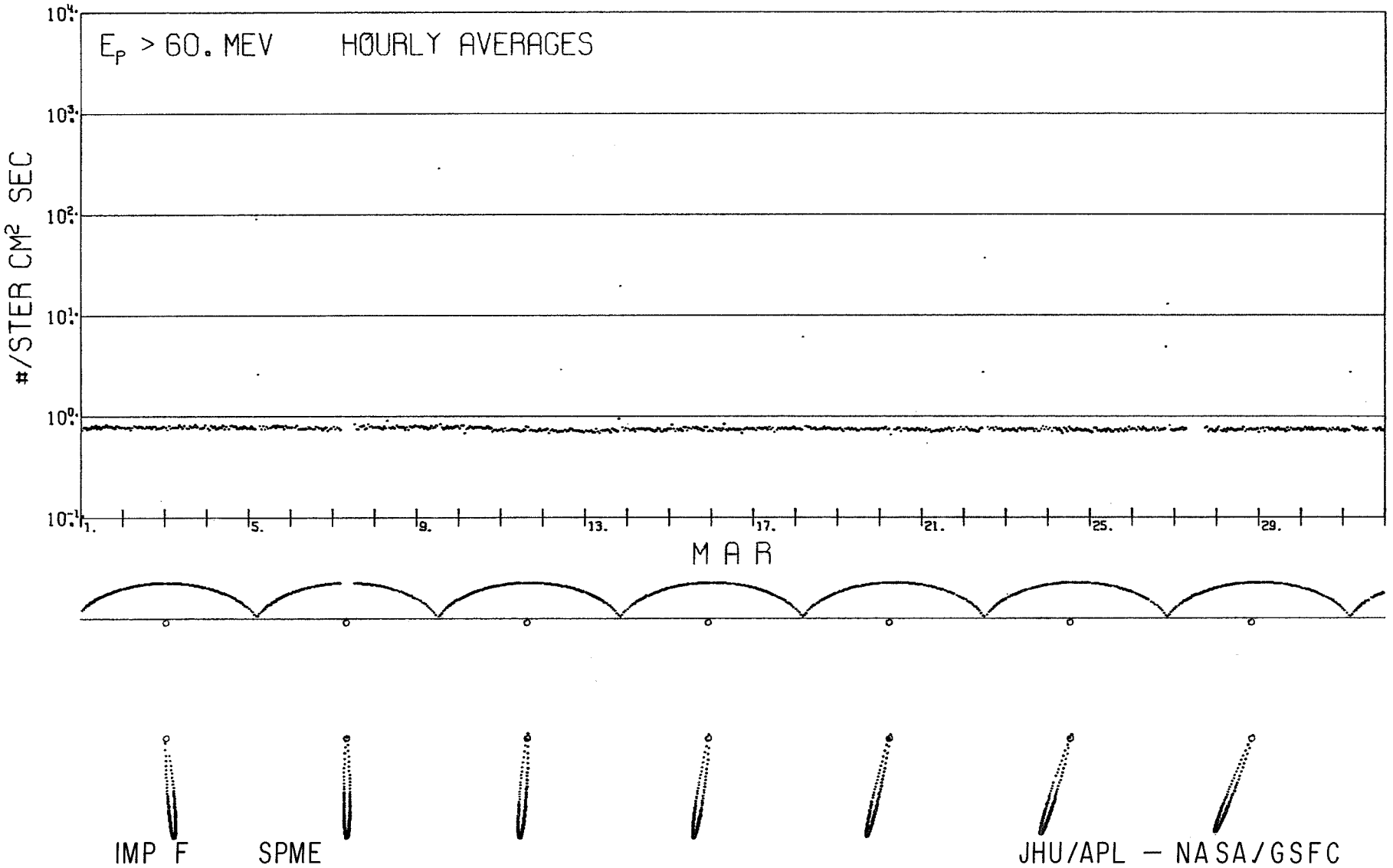
PROTON ENERGY GREATER THAN 60 MEV. HOURLY AVERAGES. IMP F SOLAR PROTON MONITOR. JHU/APL AND GSFC

YEAR 1968

DATE		DAY OF YEAR	HOUR 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
3	1	61	0.75	0.79	0.78	0.75	0.78	0.78	0.80	0.78	0.81	0.77	0.80	0.79	0.80	0.81	0.83	0.80	0.79	0.79	0.78	0.78	0.81	0.80	0.79	0.79
3	2	62	0.78	0.77	0.79	0.79	0.75	0.78	0.82	0.80	0.79	0.80	0.80	0.78	0.77	0.81	0.79	0.81	0.77	0.80	0.80	0.75	0.77	0.78	0.78	0.81
3	3	63	0.79	0.74	0.81	0.78	0.78	0.78	0.79	0.78	0.83	0.81	0.78	0.82	0.77	0.78	0.81	0.79	0.80	0.84	0.80		0.78	0.78	0.79	0.83
3	4	64	0.78	0.75	0.81	0.78	0.80	0.76	0.77	0.79	0.79	0.82	0.76	0.80	0.76	0.81	0.81	0.80	0.80	0.78	0.78	0.79	0.78	0.80	0.79	0.78
3	5	65	0.77	0.81	0.76	0.76	51.4	2.64	0.81	0.76	0.82	0.76	0.80	0.77	0.79	0.80	0.81	0.79	0.81	0.80	0.81	0.80	0.75	0.81	0.78	0.79
3	6	66	0.79		0.78	0.81	0.76	0.76	0.75	0.75	0.76	0.78	0.79	0.78	0.76	0.76	0.80	0.78	0.78	0.77	0.74	0.78	0.79	0.72	0.75	0.77
3	7	67	0.80	0.76	0.78	0.77	0.74								0.85	0.76	0.76	0.81	0.80	0.82	0.76	0.77	0.85	0.80	0.80	0.79
3	8	68	0.78	0.79	0.79	0.77	0.76	0.80	0.77	0.91	0.79	0.78	0.78	0.77	0.82	0.79	0.79	0.78	0.79	0.74	0.79	0.74	0.81	0.79	0.80	0.82
3	9	69	0.80	0.78	0.80	0.80	0.78	0.78	0.76	0.78	0.82	0.76	0.79	0.82	290.	0.84	0.78	0.75	0.77	0.80	0.78	0.79	0.77	0.79	0.81	0.79
3	10	70	0.77	0.82	0.81	0.68	0.76	0.78	0.80	0.79	0.77	0.79	0.79	0.78	0.79	0.78	0.77	0.77	0.80	0.77	0.77	0.72	0.75	0.74	0.72	0.75
3	11	71	0.76	0.72	0.77	0.73	0.73	0.74	0.75	0.74	0.75	0.74	0.73	0.72	0.73	0.75	0.80	0.79	0.72	0.74	0.73	0.72	0.72	0.73	0.75	0.73
3	12	72	0.74	0.74	0.76	0.69	0.73	0.74	0.72	0.72	0.71	0.72	0.71	0.71	0.75	0.71	0.72	0.76	0.76	0.72	0.72	0.73	0.73	0.71	0.72	0.71
3	13	73	0.72	0.72	0.71	0.73	0.70	0.70	0.76	0.72	0.68	0.73	0.73	0.72	0.74	0.73	0.70	0.76	0.74	0.73	0.71	0.96	19.8	0.79	0.74	0.77
3	14	74	0.75	0.73	0.75	0.76	0.72	0.75	0.76	0.76	0.75	0.76	0.74	0.76	0.76	0.74	0.73	0.72	0.73	0.78	0.76	0.71	0.72	0.74	0.73	0.76
3	15	75	0.76	0.83	0.76	0.71	0.75	0.73	0.75	0.73	0.79	0.78	0.73	0.77	0.76	0.78	0.77	0.78	0.75	0.76	0.75	0.73	0.79	0.79	0.71	0.73
3	16	76	0.72	0.77	0.75	0.75	0.76	0.73	0.76	0.84	0.74	0.73	0.76	0.74	0.76	0.75	0.74	0.75	0.74	0.68	0.75	0.76	0.78	0.75	0.76	0.76
3	17	77	0.76	0.72	0.77	0.77	0.76	0.75	0.77	0.77	0.74	0.79	0.74	0.77	0.70	0.74	0.77	0.76	0.77	0.75	0.77	0.76	0.75	0.75	0.78	0.78
3	18	78	0.76	0.75	0.76	0.74	6.07	0.80	0.80	0.78	0.78	0.76	0.76	0.76	0.74	0.75	0.75	0.75	0.78	0.76	0.77	0.77	0.76	0.74	0.76	0.74
3	19	79	0.76	0.77	0.74	0.71	0.76	0.76	0.77	0.74	0.77	0.75	0.75	0.72	0.73	0.76	0.75	0.75	0.75	0.76	0.75	0.74	0.74	0.76	0.76	0.73
3	20	80	0.75	0.77	0.76	0.79	0.74	0.75	0.67		0.74	0.74	0.77	0.77	0.72	0.75	0.76	0.75	0.73	0.76	0.74	0.73	0.75	0.76	0.72	
3	21	81	0.74	0.72	0.77	0.73	0.74	0.70	0.72	0.72	0.73	0.73	0.71	0.75	0.73	0.76	0.74	0.77	0.75	0.72	0.77		0.73	0.74	0.78	0.75
3	22	82	0.74	0.78	0.75	0.73	0.74	0.73	0.72	0.72	0.71	0.76	0.77	2.73	37.2	0.78	0.75	0.77	0.77	0.73	0.79	0.76	0.75	0.76	0.71	0.73
3	23	83	0.75	0.74	0.73	0.74	0.76	0.73	0.72	0.76	0.77	0.74	0.76	0.73	0.75	0.75	0.76	0.76	0.72	0.75	0.72	0.71	0.75	0.80	0.74	0.78
3	24	84	0.74	0.76	0.72	0.78	0.77	0.75	0.76	0.73	0.69	0.77	0.76	0.71	0.78	0.76	0.72	0.73	0.76	0.74	0.74	0.73	0.72	0.75	0.73	0.72
3	25	85	0.72	0.70	0.77	0.78	0.73	0.73	0.71	0.73	0.75	0.71	0.76	0.74	0.71	0.71	0.74	0.75	0.72	0.75	0.73	0.71	0.76	0.72	0.78	0.74
3	26	86	0.76	0.75	0.73	0.79	0.76	0.75	0.78	0.76	0.73	0.72		0.75	0.78	0.73	0.77	0.73	0.75	0.75	0.76	4.84	13.0	0.82	0.74	0.73
3	27	87	0.73	0.75	0.74	0.76	0.77	0.74	0.75											0.77	0.79	0.72	0.74	0.75	0.72	0.71
3	28	88	0.74	0.79	0.73	0.72	0.74	0.71	0.75	0.74	0.75	0.74	0.73	0.72	0.74	0.75	0.75	0.78	0.72	0.74	0.74	0.75	0.75	0.75	0.74	0.75
3	29	89	0.70	0.76	0.78	0.71	0.77	0.77	0.74	0.76	0.74	0.73	0.76	0.77	0.74	0.74	0.75	0.72	0.77	0.72	0.77	0.75	0.74	0.74	0.76	0.76
3	30	90	0.72	0.75	0.78	0.74	0.77	0.74	0.76	0.73	0.75	0.75	0.76	0.74	0.75	0.76	0.74	0.72	0.76	0.73	0.78	0.74	0.74	0.78	0.73	0.73
3	31	91	0.75	0.72	0.74	0.72	2.76	0.80	0.78	0.76	0.77	0.73	0.75	0.74	0.73	0.73	0.73			0.76	0.75	0.73	0.76	0.77	0.73	0.73

SOLAR PROTONS BY SATELLITE
EXPLORER 34 (1967-51A)

MARCH 1968



SOLAR PROTONS BY SATELLITE
EXPLORER 34 (1967-51A)

MARCH 1968

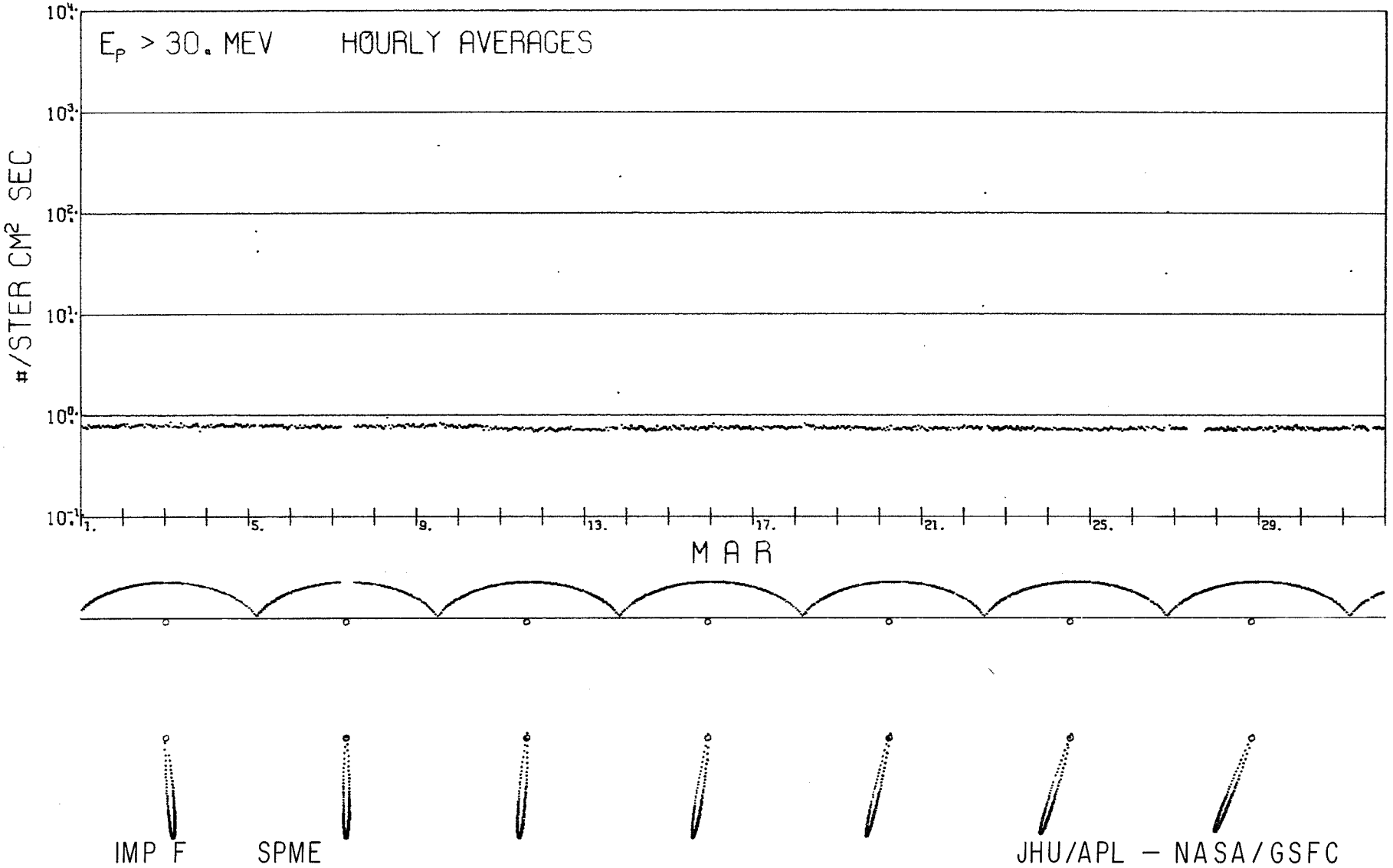
PROTON ENERGY GREATER THAN 30 MEV. HOURLY AVERAGES. IMP F SOLAR PROTON MONITOR. JHU/APL AND GSFC

YEAR 1968

DATE		DAY OF YEAR	HOUR 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
3	1	61	0.79	0.77	0.78	0.76	0.82	0.78	0.78	0.78	0.79	0.79	0.81	0.77	0.80	0.79	0.78	0.80	0.79	0.78	0.77	0.77	0.80	0.77	0.80	0.81
3	2	62	0.83	0.79	0.83	0.78	0.76	0.79	0.79	0.81	0.80	0.81	0.81	0.81	0.77	0.84	0.81	0.81	0.81	0.77	0.80	0.75	0.80	0.79	0.78	0.79
3	3	63	0.82	0.81	0.79	0.86	0.78	0.79	0.79	0.77	0.77	0.84	0.78	0.80	0.79	0.77	0.77	0.78	0.81	0.81	0.83	0.78	0.71	0.78	0.79	0.76
3	4	64	0.81	0.77	0.82	0.77	0.78	0.79	0.80	0.80	0.82	0.82	0.79	0.79	0.79	0.79	0.78	0.78	0.83	0.82	0.80	0.82	0.78	0.79	0.79	0.81
3	5	65	0.77	0.80	0.81	0.80	67.5	42.8	0.79	0.81	0.77	0.78	0.81	0.78	0.80	0.79	0.83	0.80	0.78	0.80	0.80	0.81	0.75	0.78	0.75	0.77
3	6	66	0.81		0.79	0.76	0.76	0.80	0.75	0.75	0.81	0.77	0.77	0.76	0.78	0.79	0.78	0.80	0.80	0.77	0.74	0.75	0.79	0.77	0.77	0.78
3	7	67	0.76	0.77	0.76	0.77	0.78								0.79	0.77	0.80	0.77	0.77	0.80	0.80	0.79	0.75	0.79	0.79	0.77
3	8	68	0.76	0.80	0.78	0.79	0.75	0.75	0.79	0.95	0.80	0.74	0.80	0.77	0.79	0.81	0.81	0.79	0.78	0.75	0.82	0.82	0.78	0.78	0.81	0.77
3	9	69	0.77	0.77	0.79	0.81	0.76	0.79	0.79	0.80	0.80	0.78	0.82	0.78	466.	0.84	0.82	0.82	0.76	0.80	0.78	0.79	0.80	0.77	0.77	0.76
3	10	70	0.80	0.78	0.76	0.77	0.76	0.77	0.80	0.78	0.77	0.80	0.80	0.79	0.78	0.78	0.72	0.77	0.78	0.72	0.76	0.73	0.74	0.77	0.73	0.74
3	11	71	0.76	0.72	0.75	0.75	0.70	0.73	0.73	0.76	0.75	0.75	0.74	0.72	0.76	0.72	0.75	0.74	0.74	0.76	0.73	0.69	0.72	0.70	0.72	0.74
3	12	72	0.76	0.70	0.72	0.74	0.75	0.73	0.72	0.70	0.71	0.72	0.73	0.74	0.73	0.74	0.76	0.73	0.77	0.71	0.71	0.73	0.74	0.72	0.71	0.72
3	13	73	0.72	0.72	0.73	0.70	0.74	0.73	0.73	0.72	0.73	0.71	0.71	0.71	0.76	0.70	0.76	0.75	0.75	0.74	0.74	1.66	230.	0.80	0.75	0.75
3	14	74	0.75	0.73	0.78	0.75	0.74	0.73	0.74	0.77	0.77	0.76	0.73	0.70	0.72	0.72	0.72	0.73	0.72	0.79	0.71	0.73	0.75	0.76	0.75	0.73
3	15	75	0.75	0.71	0.79	0.77	0.75	0.74	0.73	0.78	0.79	0.74	0.75	0.73	0.75	0.74	0.73	0.77	0.72	0.75	0.75	0.76	0.76	0.73	0.74	0.77
3	16	76	0.78	0.84	0.77	0.76	0.75	0.77	0.72	0.73	0.76	0.74	0.74	0.78	0.78	0.74	0.78	0.77	0.74	0.73	0.76	0.75	0.76	0.75	0.77	0.73
3	17	77	0.73	0.76	0.74	0.74	0.74	0.72	0.77	0.76	0.77	0.76	0.74	0.76	0.78	0.78	0.76	0.76	0.77	0.76	0.74	0.73	0.76	0.75	0.77	0.76
3	18	78	0.75	0.76	0.77	0.76	86.6	0.84	0.80	0.79	0.79	0.77	0.78	0.73	0.76	0.76	0.76	0.74	0.79	0.76	0.74	0.74	0.74	0.76	0.75	0.75
3	19	79	0.77	0.75	0.77	0.78	0.74	0.76	0.77	0.72	0.75	0.74	0.77	0.76	0.75	0.75	0.76	0.76	0.73	0.73	0.75	0.74	0.72	0.74	0.73	0.75
3	20	80	0.74	0.71	0.75	0.71	0.76	0.72	0.78		0.73	0.73	0.74	0.73	0.72	0.75	0.75	0.74	0.75	0.75	0.71	0.75	0.77	0.71	0.78	0.74
3	21	81	0.78	0.75	0.72	0.70	0.76	0.74	0.73	0.75	0.75	0.74	0.74	0.74	0.75	0.74	0.72	0.75	0.71	0.76	0.74		0.76	0.73	0.76	0.75
3	22	82	0.78	0.75	0.77	0.77	0.77	0.74	0.74	0.77	0.76	0.73	0.75	12.0	158.	0.79	0.76	0.75	0.72	0.75	0.74	0.75	0.72	0.73	0.74	0.75
3	23	83	0.78	0.75	0.78	0.74	0.73	0.74	0.77	0.74	0.72	0.76	0.75	0.73	0.76	0.74	0.74	0.77	0.70	0.73	0.76	0.74	0.75	0.73	0.71	0.74
3	24	84	0.73	0.73	0.71	0.76	0.74	0.71	0.72	0.72	0.74	0.75	0.72	0.73	0.73	0.73	0.71	0.74	0.72	0.74	0.70	0.71	0.75	0.75	0.73	0.75
3	25	85	0.73	0.71	0.74	0.75	0.73	0.70	0.71	0.72	0.76	0.74	0.72	0.74	0.77	0.75	0.75	0.74	0.73	0.74	0.70	0.73	0.73	0.73	0.75	0.77
3	26	86	0.74	0.74	0.73	0.77	0.75	0.77	0.75	0.71	0.77	0.76		0.74	0.77	0.77	0.75	0.72	0.72	0.72	0.76	25.4	103.	0.80	0.74	0.76
3	27	87	0.74	0.75	0.74	0.74	0.75	0.76	0.74											0.70	0.73	0.74	0.74	0.73	0.73	0.72
3	28	88	0.74	0.73	0.76	0.74	0.72	0.72	0.77	0.73	0.74	0.71	0.74	0.72	0.77	0.77	0.74	0.72	0.74	0.73	0.77	0.74	0.72	0.73	0.72	0.75
3	29	89	0.75	0.76	0.72	0.76	0.73	0.74	0.77	0.76	0.71	0.70	0.79	0.74	0.75	0.77	0.74	0.74	0.77	0.74	0.76	0.73	0.79	0.79	0.76	0.76
3	30	90	0.73	0.75	0.71	0.78	0.74	0.76	0.75	0.73	0.73	0.73	0.71	0.75	0.75	0.75	0.76	0.73	0.74	0.74	0.73	0.75	0.76	0.74	0.74	0.75
3	31	91	0.77	0.75	0.76	0.75	27.0	0.81	0.73	0.77	0.77	0.79	0.74	0.79	0.77	0.74	0.72			0.76	0.77	0.75	0.76	0.76	0.74	0.76

SOLAR PROTONS BY SATELLITE
EXPLORER 34 (1967-51A)

MARCH 1968



SOLAR PROTONS BY SATELLITE
EXPLORER 34 (1967-51A)

MARCH 1968

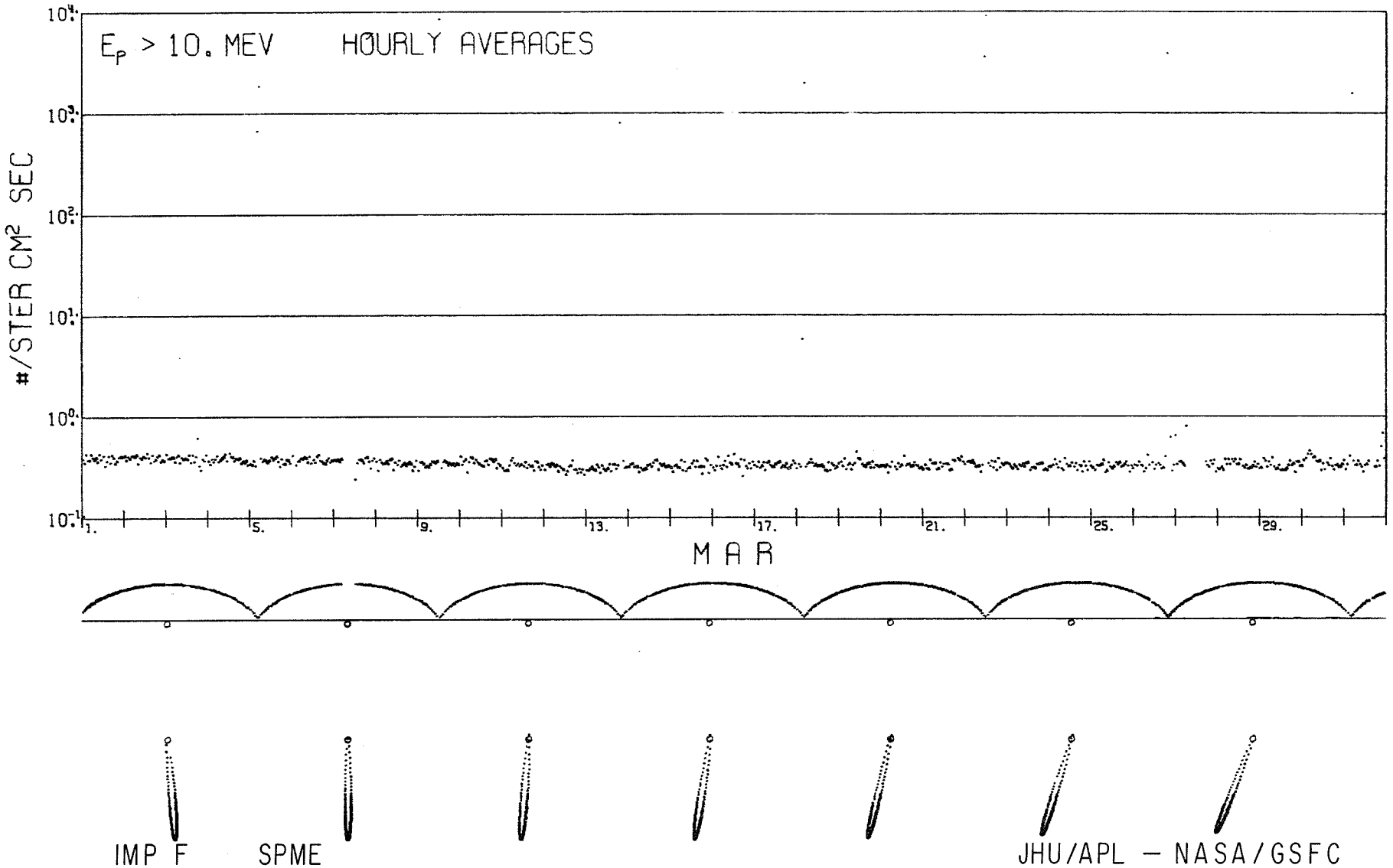
PROTON ENERGY GREATER THAN 10 MEV. HOURLY AVERAGES. IMP F SOLAR PROTON MONITOR. JHU/APL AND GSFC

YEAR 1968

DATE		DAY OF YEAR	HOUR 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
3	1	61	0.38	0.36	0.43	0.38	0.38	0.44	0.40	0.39	0.40	0.37	0.44	0.39	0.42	0.33	0.37	0.42	0.35	0.42	0.40	0.35	0.37	0.40	0.41	0.41
3	2	62	0.42	0.38	0.41	0.40	0.42	0.41	0.41	0.43	0.35	0.40	0.39	0.41	0.40	0.44	0.40	0.36	0.43	0.37	0.39	0.41	0.43	0.37	0.38	0.37
3	3	63	0.43	0.39	0.39	0.40	0.40	0.37	0.41	0.42	0.36	0.40	0.39	0.39	0.39	0.42	0.36	0.42	0.35	0.41	0.43	0.33	0.30	0.39	0.37	0.42
3	4	64	0.37	0.34	0.39	0.37	0.39	0.41	0.36	0.38	0.39	0.41	0.44	0.37	0.44	0.41	0.41	0.37	0.39	0.38	0.39	0.35	0.36	0.36	0.37	0.34
3	5	65	0.34	0.34	0.37	0.33	676.	1851	0.39	0.37	0.38	0.38	0.36	0.37	0.40	0.38	0.39	0.41	0.36	0.32	0.39	0.35	0.34	0.33	0.37	0.35
3	6	66	0.41		0.34	0.37	0.37	0.40	0.39	0.40	0.39	0.36	0.41	0.35	0.38	0.36	0.41	0.43	0.37	0.36	0.35	0.34	0.37	0.39	0.36	0.37
3	7	67	0.38	0.37	0.38	0.36	0.38								0.24	0.35	0.38	0.39	0.37	0.35	0.39	0.40	0.37	0.31	0.37	0.39
3	8	68	0.36	0.29	0.38	0.36	0.34	0.35	0.37	0.35	0.39	0.38	0.30	0.36	0.34	0.37	0.33	0.34	0.35	0.33	0.35	0.36	0.34	0.30	0.33	0.37
3	9	69	0.30	0.36	0.36	0.34	0.32	0.33	0.32	0.34	0.37	0.36	0.35	0.37	8513	0.31	0.36	0.37	0.36	0.33	0.35	0.34	0.34	0.33	0.34	0.34
3	10	70	0.41	0.34	0.36	0.38	0.29	0.36	0.40	0.39	0.35	0.38	0.36	0.35	0.33	0.33	0.37	0.37	0.34	0.39	0.38	0.37	0.38	0.32	0.35	0.33
3	11	71	0.32	0.30	0.30	0.29	0.33	0.37	0.39	0.35	0.33	0.35	0.33	0.34	0.32	0.36	0.31	0.34	0.32	0.33	0.29	0.36	0.36	0.32	0.30	0.33
3	12	72	0.30	0.34	0.34	0.33	0.34	0.34	0.32	0.33	0.29	0.33	0.31	0.30	0.27	0.29	0.33	0.33	0.37	0.30	0.30	0.28	0.31	0.29	0.30	0.27
3	13	73	0.29	0.30	0.31	0.32	0.30	0.30	0.34	0.32	0.23	0.33	0.31	0.29	0.31	0.34	0.29	0.34	0.34	0.31	0.33	797.	4036	0.36	0.31	0.32
3	14	74	0.32	0.34	0.34	0.32	0.32	0.32	0.28	0.31	0.29	0.30	0.31	0.33	0.34	0.32	0.35	0.37	0.37	0.30	0.35	0.33	0.34	0.32	0.32	0.33
3	15	75	0.31	0.28	0.33	0.33	0.31	0.31	0.37	0.30	0.35	0.29	0.31	0.32	0.34	0.36	0.32	0.35	0.32	0.32	0.28	0.32	0.39	0.37	0.28	0.33
3	16	76	0.31	0.30	0.32	0.40	0.33	0.31	0.33	0.37	0.32	0.41	0.35	0.34	0.43	0.35	0.34	0.32	0.38	0.26	0.37	0.33	0.31	0.35	0.31	0.35
3	17	77	0.33	0.32	0.36	0.31	0.33	0.35	0.29	0.35	0.36	0.33	0.32	0.32	0.34	0.35	0.36	0.32	0.33	0.32	0.35	0.31	0.31	0.33	0.36	0.35
3	18	78	0.31	0.34	0.32	5.78	1983	0.32	0.34	0.35	0.38	0.35	0.32	0.34	0.32	0.33	0.33	0.32	0.30	0.29	0.35	0.30	0.34	0.33	0.31	0.32
3	19	79	0.34	0.36	0.33	0.38	0.30	0.33	0.34	0.30	0.33	0.34	0.45	0.39	0.38	0.34	0.32	0.32	0.34	0.34	0.31	0.36	0.32	0.33	0.33	0.22
3	20	80	0.32	0.33	0.32	0.33	0.28	0.32	0.36		0.32	0.30	0.34	0.32	0.33	0.41	0.33	0.34	0.34	0.32	0.33	0.35	0.33	0.33	0.31	0.32
3	21	81	0.30	0.33	0.31	0.30	0.37	0.34	0.34	0.35	0.30	0.31	0.35	0.32	0.34	0.34	0.34	0.29	0.30	0.37	0.37		0.39	0.37	0.40	0.36
3	22	82	0.34	0.36	0.36	0.35	0.37	0.35	0.32	0.32	0.32	0.28	0.33	3616	9254	0.34	0.32	0.37	0.31	0.36	0.29	0.39	0.31	0.34	0.33	0.35
3	23	83	0.35	0.34	0.32	0.31	0.33	0.32	0.30	0.33	0.33	0.34	0.32	0.34	0.35	0.30	0.31	0.31	0.31	0.34	0.34	0.35	0.34	0.29	0.30	0.30
3	24	84	0.32	0.32	0.33	0.38	0.34	0.31	0.36	0.31	0.29	0.39	0.34	0.32	0.32	0.35	0.32	0.35	0.30	0.33	0.33	0.28	0.36	0.33	0.30	0.36
3	25	85	0.32	0.31	0.30	0.33	0.33	0.33	0.34	0.37	0.23	0.29	0.35	0.32	0.31	0.32	0.35	0.34	0.35	0.32	0.33	0.34	0.36	0.33	0.28	0.32
3	26	86	0.30	0.33	0.33	0.36	0.33	0.33	0.29	0.30	0.42	0.33		0.35	0.30	0.33	0.34	0.33	0.31	0.31	0.40	3869	8057	0.62	0.29	0.33
3	27	87	0.65	0.34	0.36	0.36	0.35	0.33	0.81											0.36	0.38	0.32	0.36	0.34	0.37	0.29
3	28	88	0.31	0.30	0.31	0.30	0.38	0.34	0.38	0.34	0.38	0.36	0.38	0.34	0.34	0.38	0.32	0.31	0.33	0.31	0.31	0.31	0.32	0.36	0.32	0.34
3	29	89	0.31	0.31	0.39	0.37	0.32	0.36	0.33	0.39	0.32	0.30	0.31	0.33	0.29	0.30	0.30	0.31	0.33	0.35	0.33	0.34	0.28	0.36	0.36	0.33
3	30	90	0.32	0.37	0.39	0.42	0.46	0.43	0.39	0.40	0.36	0.36	0.37	0.30	0.35	0.30	0.35	0.33	0.39	0.32	0.30	0.33	0.33	0.32	0.32	0.34
3	31	91	0.37	0.30	0.34	0.41	1570	0.37	0.33	0.33	0.36	0.34	0.32	0.28	0.33	0.34	0.37			0.32	0.32	0.37	0.32	0.51	0.68	0.33

SOLAR PROTONS BY SATELLITE
EXPLORER 34 (1967-51A)

MARCH 1968



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