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Robert M. White, Administrator

ENVIRONMENTAL DATA SERVICE
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ESSA RESEARCH LABORATORIES

Solar-Geophysical Data

Number 293

for December 1968

November 1968

July 1968

& Miscellanea

DATA COMPILED BY AERONOMY AND SPACE DATA SERVICES
BOULDER, COLORADO

WASHINGTON, D.C.

JANUARY 1969

SOLAR-GEOPHYSICAL DATA

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	1967 Jul	Aug	Sep	Oct	Nov	Dec	1968 Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
American Relative Sunspot Numbers R_A	276	277	278	279	280	281	282	283	284	285	286	287	288	289	290	291	292	293
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* Also 15400 MHz beginning in FB-280.
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For explanations of the data contained herein see "Descriptive Text" published in February 1968.

ALERT PERIODS

INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

DECEMBER 1968

Dec. 1968	TIME OF ISSUE UT	ADVANCE GEOPHYSICAL ALERT	WORLDWIDE GEOPHYSICAL ALERT			
			NO.	TYPE	TIMING	ELABORATION
02	2116	Boulder Soflare 02/2027Z Importance 3N N19E87				
04	1930	Izmiran Magstorm 04/0300Z				
05	0242	Izmiran Magstorm 05/0300Z				
	0400		05725	Cosmic Event	Begins	03/0300Z Polcap Absorption
	1528	Boulder Magstorm Exists 05/0632Z				
06	0112	Kakioka Magstorm 05/0635Z	06726	Cosmic Event	Exists	Polcap Absorption
07	0400		07727	Magstorm	Ends	
	0400		07728	Cosmic Event	Exists	Polcap Absorption
08	0400		08729	Cosmic Event	Ends	
10	0400		10730	Soflare Flares	Expected	N14W55
11	0400		11731	Soflare Flares	Expected	N14W68 and S31E27
	1230	Canaries Tenflare 500% 11/1144Z in progress 11/1159Z				
	1450	Meudon Type IV Burst 11/1130Z about 200% in progress 11/1200Z related probably to the East Limb				
12	0400		12732	Soflare Flares	Expected	N14W81 and S31E14
13	0400		13733	Soflare Flares	Expected	S32E09
14	0400		14734	Soflare Flares	Expected	S32W05
15	0400		15735	Soflare Alert	Ends	
19	1846	Huancayo Magstorm 1450Z Gradual Storm Beginning				
20		Huancayo Solar Activity 20705 3.2mm Burst peak flux 396 units 1948Z				
24	0400		24736	Soflare Flares	Expected	N20E45
25	0400		25737	Soflare Flares	Expected	N19E33
	0931	Kakioka Magstorm 24/22xxZ				
26	0400		26738	Soflare Flares	Expected	N19E20
27	0400		27739	Soflare Flares	Expected	S12W64
	1137	Huancayo Soflare Exists Importance 2N N16W02 27/1059Z				
	1350	Carnarvon Soflare 27/1054Z Importance 3B N17E02 27/1200Z				
	1456	Meudon 3cm Outburst 27/1052Z 500% in progress 27/1111Z				
	1600	Izmiran Major Tenflare 27/1054Z Major Burst 15m 27/1054Z				
28	0400		28740	Soflare Flares	Expected	N19W05
	0400		28741	Magstorm	Expected	
	0605	Carnarvon Soflare 28/0520Z Importance 2B N16E63 28/0600Z				
29	0400		29742	Soflare Flares	Expected	N17W15 Delta
	0400		29743	Magstorm	Expected	Minor
	1940	Ramey Suspected Proton Flare 29/1826Z Importance 2B Umbral Coverage 29/1940Z				
	1958	Ottawa Tenflare 248% 29/1913Z in progress 29/1945Z				
30	0400		30744	Soflare Flares	Expected	N17W36
	0400		30745	Magstorm	Expected	Minor
31	0400		31746	Soflare Flares	Expected	N18W44

RELATIVE SUNSPOT NUMBERS

ZURICH, R_Z

1968 PROVISIONAL

DAY	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.
1	119	208	108	122	126	139	55	98	78	75	85	113
2	117	211	118	108	154	150	37	91	82	73	70	115
3	128	197	83	93	157	121	30	92	130	108	76	122
4	128	162	92	96	138	114	26	94	131	119	93	128
5	147	125	71	89	134	115	28	94	126	118	111	134
6	129	105	56	85	144	129	41	95	96	126	97	133
7	150	86	52	79	135	138	54	100	98	135	92	126
8	166	90	79	82	128	128	89	113	106	112	89	132
9	182	86	69	94	130	99	91	98	128	87	118	140
10	198	82	74	104	117	99	99	90	138	70	131	110
11	150	78	85	95	106	87	124	104	145	103	113	83
12	144	69	87	83	82	113	152	116	150	108	94	58
13	138	67	89	60	91	117	151	142	163	70	94	84
14	93	69	67	96	80	120	147	178	113	76	89	86
15	86	87	59	110	95	111	123	172	88	90	84	88
16	70	74	46	114	103	108	149	174	79	88	79	64
17	56	95	59	91	114	118	117	160	81	82	74	77
18	48	72	59	63	136	131	96	160	86	108	69	98
19	50	65	53	53	138	107	102	144	89	121	76	101
20	53	68	56	63	140	108	93	122	91	114	92	106
21	53	69	70	64	145	113	93	138	95	122	90	101
22	69	70	91	68	139	98	86	155	107	134	85	119
23	73	71	113	50	149	106	93	126	122	136	76	122
24	93	119	132	48	165	122	101	108	153	139	62	125
25	78	162	156	64	146	119	120	86	197	138	80	132
26	60	150	141	50	121	117	134	77	189	133	94	140
27	86	118	146	57	139	102	131	67	183	138	94	154
28	140	127	138	82	133	115	118	49	149	118	72	133
29	175	131	127	71	135	94	129	64	137	112	75	139
30	185		154	96	126	98	115	68	91	118	95	117
31	209		134		136		93	63		99		119
MEAN	115.3	107.3	92.4	81.0	128.5	114.5	97.3	110.9	120.7	108.7	88.3	112.9

1967 yearly mean = 93.8.

DAILY SOLAR FLUX AT 2800 MHz
OTTAWA ARO

FLUX ADJUSTED TO 1 A.U., S_a

1968

DAY	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.
1	171.4	254.1	162.8	143.8*	144.8	152.0*	128.3	134.2	129.5*	136.5	153.4*	140.2
2	171.8	253.0	164.4	144.1	148.2	145.4	120.3	134.2	134.2	136.3	151.5*	149.9
3	179.3	244.3	150.8	137.1	156.3	143.8	117.2	140.9*	142.8*	145.2	146.1	149.6
4	183.8*	220.3	144.5	131.7	154.5*	144.0	116.0	135.6	143.2	146.1	140.3	147.9
5	191.2	191.4	137.8	129.1*	156.0*	138.3	119.4	135.9	139.6	147.9	132.9	146.6*
6	209.7	172.2	136.0	125.1	148.5	145.5	120.1	148.0	136.0	145.3	131.4	142.9
7	223.9	164.2	131.6	124.7	145.4	152.2*	135.0	139.8	141.1	146.9	129.1	140.2
8	230.2	151.5	124.1	130.7	141.6	154.6	147.1*	141.8	149.4	141.6	133.1	141.8
9	222.0	151.7	122.8	141.1	139.8	149.0	153.6	146.7	149.4	137.3	135.4	145.6
10	208.3	155.7	124.1	142.8	139.7	147.9	157.0	146.6	156.2	134.6	135.2	148.0
11	202.5	155.7	128.3*	138.4	133.5	146.5*	162.8	150.7	152.5	133.9	132.6*	143.6
12	198.9	159.1	130.4	142.7	127.3	143.4	166.1	161.6	156.0	136.8	129.3*	139.0
13	197.2	149.1	127.8	141.9	128.3	143.4	155.6	170.8	150.6	127.2	131.5	131.5
14	187.0	145.7	127.9	138.3	138.2	139.5	155.9	185.1*	146.7	132.1	131.3	134.3
15	176.6	141.8*	125.9	140.0	141.8	139.7	147.9	185.7	135.7	137.0	133.5	134.1
16	160.8	142.5	128.2	141.0	150.7	138.2*	149.5	179.0	132.0	137.2	127.6	127.0
17	157.4	138.6	135.2	132.2	166.5*	139.6	143.6	169.2	131.5	142.5	140.5	130.2
18	148.5	135.2*	132.2	127.7	178.4	143.2*	135.2	164.8	128.7	149.6	148.0	133.9
19	141.6	137.5	130.1	125.3*	185.3*	147.5	135.3	159.8	127.3	153.7	141.3	141.9
20	137.3	138.6	129.6	122.4	193.6	151.5	133.9	159.9	127.4	155.5	139.1	144.7*
21	132.5	148.5	140.0	123.4	194.6	157.2	133.0	158.6	133.6*	163.3	133.8	147.1*
22	135.7	151.8	142.2	115.6	190.3	154.6	139.0	153.8*	127.5	164.8*	131.0	147.3
23	137.9	156.5	145.5	111.7	185.7	163.8	146.1	137.7	126.8	167.0	132.3	146.3
24	148.6	164.6	154.4*	117.5	182.6*	157.5	152.7	130.8	143.0	173.3	134.2	154.0
25	160.1	177.4*	156.0*	119.9	181.0	154.0	158.2	124.2	158.1*	171.7	135.3	155.3
26	174.0	183.9	156.8	114.3	177.1	146.2	154.4	118.0	160.0*	172.5	135.2	154.0
27	185.0	175.7	159.2*	119.1	170.9	147.6	146.8	114.5	157.8	172.8*	134.1	163.5
28	213.0	170.7	157.1	128.4	158.1	142.8	143.6	119.4	158.8	171.0	129.6	150.7*
29	220.7	167.4	156.2	128.0	150.9	139.1	144.3*	121.7	154.0*	191.1	128.2	147.2
30	229.1*		160.3	132.8	151.3*	135.9	138.6	125.5	144.3	163.9*	128.6	144.2
31	239.1*		155.8		148.9		134.7	123.5		159.5		139.6
MEAN	183.1	168.9	141.2	130.4	158.4	146.8	141.7	145.7	142.5	151.4	135.5	143.9

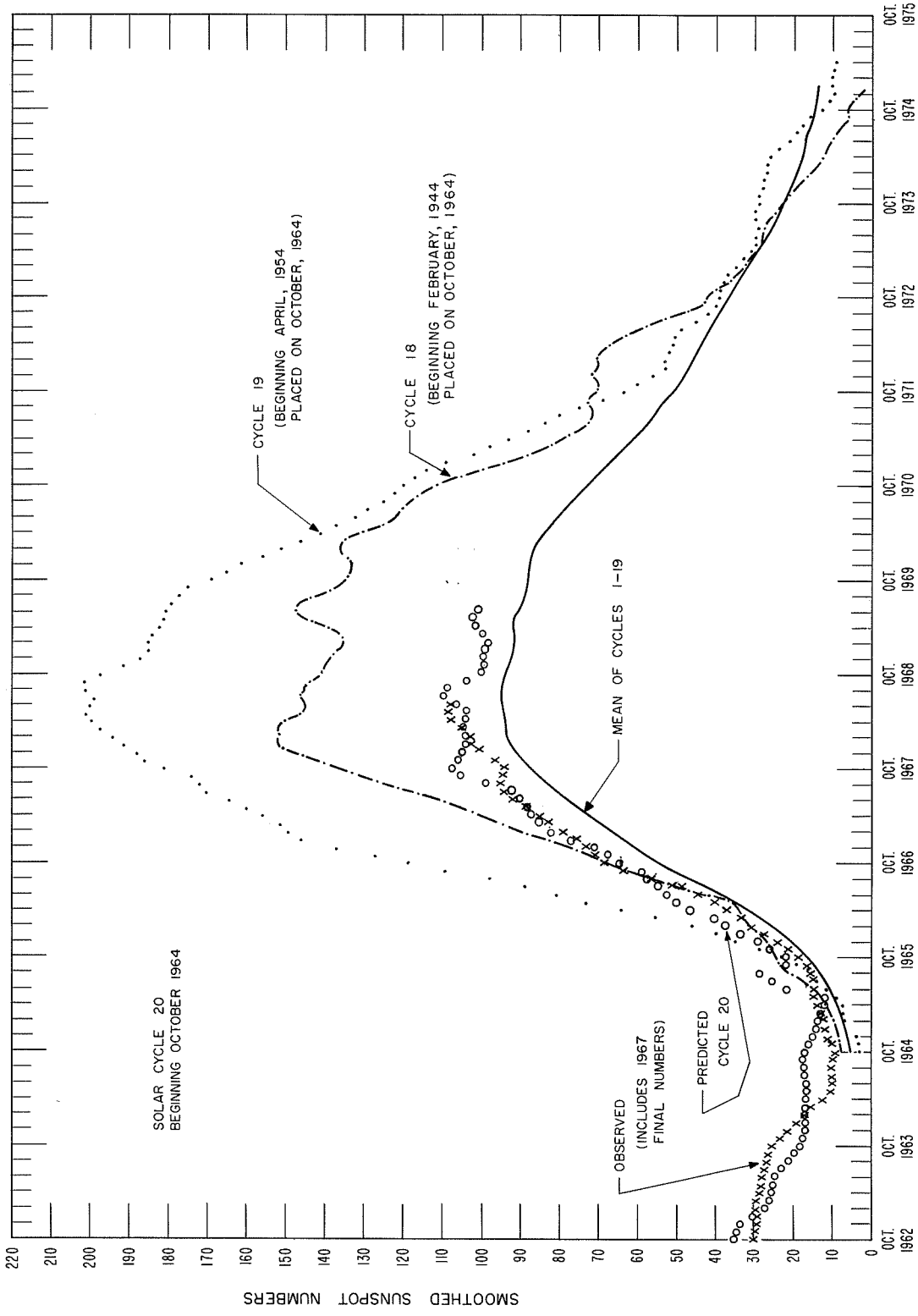
* adjusted for burst

DAILY SOLAR INDICES

DECEMBER 1968

DEC. 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	336	21	113	74	144.2	301	226	140.2	132.6	98.9	67.4
02	337	22	115	89	154.2	305	234	149.9	141.3	99.7	67.4
03	338	23	122	96	154.1	302	225	149.6	137.2	97.5	66.4
04	339	24	128	105	152.3	283	220	147.9	136.2	101.2	65.6
05	340	25	134	101	151.0*	299	237	146.6*	145.4	102.4	65.5
06	341	26	133	90	147.2	281	225	142.9	136.3	100.1	65.7
07	342	27	126	113	144.5	282	225	140.2	132.4	96.2	64.5
08	343	1	132	97	146.2	283	223	141.8	131.5	96.0	64.3
09	344	2	140	124	150.1	288	240	145.6	138.1	98.6	64.4
10	345	3	110	123	152.6	293	242	148.0	141.4	99.7	66.1
11	346	4	83	77	148.2	289	227	143.6	136.3	98.5	65.1
12	347	5	58	73	143.4	282	210	139.0	131.7	93.3	64.9
13	348	6	84	65	135.7	277	207	131.5	121.6	89.5	62.8
14	349	7	86	56	138.6	281	208	134.3	124.6	92.4	63.0
15	350	8	88	67	138.4	282	206	134.1	128.5	91.6	65.4
16	351	9	64	67	131.2	272	196	127.0	120.8	90.5	64.4
17	352	10	77	84	134.5	282	209	130.2	127.7	93.7	66.1
18	353	11	98	87	138.3	278	204	133.9	128.0	94.8	63.9
19	354	12	101	101	146.6	284	219	141.9	135.8	100.0	66.0
20	355	13	106	89	149.5*	280	219	144.7*	140.4	99.5	63.6
21	356	14	101	102	152.0*	285	222	147.1*	142.5	105.5	63.3
22	357	15	119	104	152.2	289	225	147.3	142.5	102.7	68.5
23	358	16	122	92	151.3	281	223	146.3	140.9	100.8	66.0
24	359	17	125	100	159.3	285	230	154.0	149.7	105.5	67.3
25	360	18	132	141	160.6	293	234	155.3	153.5	108.6	68.7
26	361	19	140	185	159.3	291	242	154.0	151.7	110.9	70.3
27	362	20	154	183	169.1	300	252	163.5	160.0	114.1	73.2
28	363	21	133	159	155.8*	299	236	150.7*	148.3	107.7	65.5
29	364	22	139	136	147.6	293	219	147.2	136.5	99.9	66.0
30	365	23	117	102	149.1	296	223	144.2	137.9	102.7	69.8
31	366	24	119	91	144.4	289	216	139.6	133.5	100.8	68.5
MEAN			112.9	102.4	148.4	288	223	143.9	137.6	99.8	66.1

* 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	104.6
APR		13.6	37.4	84.6	107.2
MAY		14.6	40.7	87.4	107.9
JUN		15.0	44.6	91.3	107.0
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
DECEMBER 1968

Dec. 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.
1.4	S09	9793	9753	(700)	(2.0)	L ⌐ L	2	11/25	12	(10)	(1)	b \ d	17071
										(10)	(1)	b - d	-
1.7	N16	9794	9751	(2100)	(2.5)	L Λ L	3	11/25	13	(10)	(3)	b - d	17080
										-	-	b - d	17079
										-	-	b - d	17078
2.1	S17	9804	New	(200)	(2.0)	b - L	1	12/5	3				
3.9	S06	9800	New	300	2.5	b - L	1	≤12/3	≥7	10	6	b - d	17072
4.1	N25	9809	New	(200)	(2.0)	b - L	1	12/7	2				
4.4	N33	9803	9766	300	1.0	L - d	2	<11/30	>9				
4.5	N10	9796	9754	1500	3.0	L - L	2	<11/30	>10	(10)	(4)	b - d	-
5.3	S13	9797(1)	New	1600	2.5	L / L	1	≤11/30	12	340	18	L Λ L	17073
5.5	S26	9805	New	200	2.0	b - L	1	12/5	5				
5.8	N14	9798(2)	New	3000	3.0	L / L	1	≤11/30	≥12	540	79	L / L	17074
7.0	S13	9799	9758	1300	2.5	L / L	6	11/30	12	20	6	b \ d	17081
										10	1	b - d	17082
8.0	S24	9801(3)	New	2200	2.5	L ⌐ L	1	≤12/3	≥11	10	3	L ⌉ d	17075
										(10)	(1)	b - d	17087
										200	13	L Λ L	17076
8.7	N21	9802	9760	4100	2.5	L Λ L	3	<12/3	>11	10	4	b - d	17083
										(10)	(4)	b - d	17086
11.4	S25	9827	New	(200)	(1.5)	b - L	1	12/17	1				
11.7	N25	9807	9765	800	1.5	L \ L	3	12/5	12	(10)	(2)	b - d	17088
11.7	S12	9808	9764	700	1.0	L ⌊ d	3	12/5	≥9				
12.3	N10	9820	New	(100)	(1.5)	b - L	1	12/16	2				
12.4	N02	9830	New	(300)	(2.0)	b - L	1	12/18	1				
12.8	N23	9821	New	(900)	(3.0)	b / L	1	≤12/16	≥3	(10)	(15)	b / L	17111
13.4	N22	9810	9775	500	2.0	L \ d	2	12/7	>7				
13.4	N10	9812(4)	New	700	2.5	b ⌉ L	1	12/8	10	(10)	(1)	L - d	17085
13.7	S30	9811	New	2500	3.5	L / L	1	12/7	>12	400	53	L ⌐ L	17084
14.3	N36	9813	9765	(100)	(1.5)	L V ?	3	12/8	≥11				
14.3	N22	9816	New	(200)	(2.0)	b - d	1	12/10	≥3	(10)	(1)	b - d	-
15.4	S07	9831	New	(200)	(2.0)	b - ?	1	12/18	>1	(10)	(5)	b - L	-
15.8	S17	9815(5)	New	(300)	(1.0)	L ⌊ d	1	12/9	8				
16.7	N18	9817	9772	2100	2.0	L / L	4	12/9	>10	10	2	b - d	-
										(10)	(5)	b - L	-
18.1	N42	9823	New	(100)	(1.5)	b - d	1	12/16	1				
18.2	S12	9832	New	300	2.0	b - L	1	12/18	7	(50)	(12)	b \ L	17093
18.4	S21	9818	New	2500	3.0	L ⌐ L	1	12/11	14	30	16	L Λ L	17089
18.7	S11	9824	New	(200)	(1.5)	b - d	1	12/16	2				
18.7	N31	9828	New	700	3.0	b ⌐ L	1	12/17	8	10	9	b - d	17091
19.2	N16	9819	9779	(1500)	(2.0)	L Λ d	3,4&5	12/13	>6				
19.4	N04	9825	New	(500)	(2.5)	? - d	1	12/16	>3	(10)	(2)	b - d	-
19.5	S19	9829	New	(400)	(2.5)	b ⌋ L	1	12/16	10	70	27	b / L	17090
19.8	N33	9835	New	(200)	(1.5)	b / L	1	≤12/24	2				
22.4	S16	9826	9780	(2600)	(3.5)	L / L	5	12/16	>10	(20)	(11)	b / L	17099
										(10)	(4)	b - d	17092
24.3	S06	9833	9785	1000	3.0	L - L	2	12/18	12	100	6	L ⌉ L	17094
24.9	N04	9834	9787	300	1.5	L - d	4	12/18	≥8				
25.2	N14	9836	New	1000	2.5	L - L	1	≤12/24	≥7	10	8	L - L	17096
25.9	S17	9838	9790	500	1.5	L / L	4	≤12/24	≥8	(10)	(7)	b - L	17101
26.0	N07	9837	9789	200	1.5	L / d	4	<12/24	>6				
26.4	S05	9839	New	(700)	(2.0)	? ⌐ L	1	<12/24	≥8	(10)	(4)	b - d	17710 100
27.0	S14	9840	9790	(500)	(1.5)	L - d	4	<12/24	>6				
27.0	S22	9841	9790	(2000)	(3.0)	L ⌉ L	4	<12/24	>10	10	0	L - d	17095
										(10)	(5)	b - d	17108
27.6	N18	9842(6)	New	(5900)	(3.5)	L ⌐ L	1	≤12/24	≥11	680	52	L ⌐ L	17097
28.4	S27	9843	New	(3200)	(3.5)	L Λ L	1	≤12/24	≥11	150	18	L ⌉ L	17098
										(10)	(1)	b - d	17110
30.7	N25	9852	New	(200)	(1.5)	b - L	1	1/2	2				
30.8	N09	9845	9796	(800)	(1.0)	L ⌉ d	3	<12/29	>5				

(1) Region 9797 is either a new plage, or a resurgence of region 9757 of the previous rotation.
(2) Region 9798 has formed in the position of the small and short-lived region 9770 of the previous rotation.
(3) Region 9801 is mostly a new plage, but also contains remnants of old region 9759.
(4) Region 9812 has formed on the disk, in the position of region 9768.
(5) Region 9815 has formed in the position of old plage 9776.
(6) Region 9842 is mostly a new plage that has developed in the position of old plage 9792.

No calcium spectroheliograms were secured at the McMath-Hulbert Observatory on Dec. 1, 2, 12, 14, 15, 19, 20, 21, 22, 23, 26, 27 and 28, 1968.

MT. WILSON CLASSIFICATION OF SUNSPOTS

DECEMBER 1968

Dec. 1968	TIME MEAS. UT	LAT.	MER. DIST.	TYPE	No.
1	No Obs.				
2	2215	S08	W78	(αp) 3	17069
		S08	E12	(βf) 3	17072
		S13	E29	(β) 5	17073
		N11	E38	(β) 5	17074
		S25	E62	(αp) 2	17075
3	1830	S08	E02	(αp) 2	17072
		S12	E18	(β) 5	17073
		N12	E27	(βp) 5	17074
		S24	E54	(βp) 2	17075
		N19	E76	(αp) 3	17076
4	2230	S08	W15	(β) 1	17072
		S12	E03	(βp) 4	17073
4.9		N12	E12	(βp) 5	17074
		S24	E39	(βp) 3	17075
		N19	E60	(αp) 3	17076
		N06	W65	(αp) 2	17077
		N12	W38	(αf) 1	17078
		N18	W35	(βf) 2	17079
		N12	W31	(β) 2	17080
		S12	E24	(βp) 3	17081
5	1735	S12	W07	(βp) 5	17073
5.7		N13	E02	(βp) 5	17074
		S24	E28	(βp) 2	17075
		N20	E49	(αp) 5	17076
		S12	E13	(βp) 4	17081
6	1735	S12	W21	(βp) 4	17073
		N13	W12	(βγ) 6	17074
		S25	E16	(β) 2	17075
		N19	E36	(αp) 6	17076
		S12	W0E	(βp) 3	17081
7	1655	S12	W34	(βp) 4	17073
7.7		N13	W25	(βγ) 5	17074
		S23	E03	(βp) 1	17075
		N19	E23	(αf) 5	17076
		S12	W13	(βp) 2	17081
		S16	W05	(βp) 2	17082
		N18	E08	(αp) 2	17083
		S32	E71	(β) 3	17084
8	2250	S12	W49	(βp) 4	17073
		N14	W41	(βp) 5	17074
		N19	E07	(αf) 5	17076
		N18	W10	(αp) 1	17083
		S31	E51	(βp) 2	17084
		N10	E59	(βp) 2	17085
9	2010	S11	W61	βp	17073
9.8		N15	W53	βp	17074
		N19	W04	αf	17076
		N18	W24	αp	17083
		S31	E45	βp	17084
		N10	E46	βp	17085
		N17	W17	βp	17086
		S26	W22	αp	17087
10	2030	S11	W75	βp	17073
		N15	W68	βp	17074
		N20	W19	αf	17076
		S32	E32	βp	17084
		N09	E31	αp	17085
		S19	W41	βp	17087
		N22	E10	αp	17088
11	1845	N15	W81	(βp) 4	17074
11.8		N20	W32	(αf) 4	17076
		N19	W49	(αp) 1	17083
		S33	E22	(βp) 4	17084
		N09	E19	(αp) 2	17085
		S19	W55	(βp) 2	17087
12	1925	N20	W46	(αf) 3	17076
		N19	W65	(αp) 2	17083
		S33	E10	(βγ) 5	17084
		S23	E70	(β) 2	17089
13	1720	N20	W58	(αf) 3	17076
		N19	W75	(αp) 2	17083
		S33	W03	(βγ) 4	17084
		S22	E57	(β) 3	17089
14					
15	No Obs.				
16					
17	1735	S31	W56	βp	17084
17.7		S19	E22	βp	17090
		S21	E03	βp	17089
		N31	E12	β	17091
		S15	E65	αp	17092
		N22	W67	βp	17111*
18					
19	No Obs.				
20					

*Pick-up number

MT. WILSON CLASSIFICATION OF SUNSPOTS

DECEMBER 1968

Dec. 1968	TIME MEAS. UT	LAT.	MER. DIST.	TYPE	No.
21	1735	S19	W28	(βp) 3	17090
21.7		S22	W49	(β) 2	17089
		S10	W42	(βp) 3	17093
		S05	E33	(αp) 4	17094
		S22	E67	(αp) 2	17095
		N15	E46	(β) 2	17096
		N18	E77	(βp) 3	17097
22	1640	S19	W42	(βp) 4	17090
		S23	W61	(βf) 2	17089
		S05	E19	(βγ) 4	17094
		S22	E57	(αp) 3	17095
		N13	E33	(βp) 2	17096
		N19	E66	(δ) 4	17097
		S27	E79	αp	17098
23	1700	S19	W59	(βγ) 3	17090
23.7		S06	E07	(αp) 3	17094
		S22	E42	(αp) 2	17095
		N14	E19	(βγ) 2	17096
		N19	E53	(δ) 5	17097
		S27	E63	(βp) 3	17098
		S12	W18	(βp) 2	17099
		S07	E35	(αf) 1	17100
24					
25	No Obs.				
26					
27					
28	1910	S05	W61	(αp) 3	17094
28.8		S22	W19	(βf) 3	17095
		N15	W52	(βγ) 2	17096
		N17	W15	(δ) 5	17097
		S28	W02	(βγ) 4	17098
		S16	W43	(βγ) 2	17101
		S18	E56	(αp) 1	17102
		S17	E69	(βp) 3	17103
		N10	E50	(αp) 5	17104
		N15	E50	(αp) 4	17105
		N16	E81	(αp) 3	17106
29	1735	S05	W75	(αp) 1	17094
		N15	W67	(αp) 1	17096
		N18	W26	(δ) 5	17097
		S27	W14	(βγ) 4	17098
		S14	W60	(αp) 1	17101
		S16	E57	(βp) 2	17103
		N10	E39	(αp) 4	17104
		N15	E39	(αp) 3	17105
		N16	E69	(αf) 2	17106
		S07	E47	(βp) 2	17107
30	1925	N18	W40	(δ) 4	17097
30.8		S27	W27	(βp) 4	17098
		S16	E43	(βp) 2	17103
		N11	E24	(αp) 4	17104
		N15	E24	(αp) 4	17105
		N16	E55	(αf) 2	17106
		S23	W45	(αp) 1	17108
31	1705	N17	W54	(δ) 4	17097
		S27	W40	(αp) 4	17098
		S15	E29	(αp) 2	17103
		N11	E12	(αp) 4	17104
		N16	E12	(βγ) 4	17105
		N18	E43	(αp) 2	17106
		S23	W57	(β) 1	17108
		N18	E53	(αf) 2	17109
		S31	W26	(αf) 1	17110

SOLAR FLARES

PARTIAL LISTING

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

DECEMBER 1968

OBSERVATORY	OBSERVED UT. DATE 1968 DEC	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
WEND	03	1216	1230D		S13	E20	.468	9797	5.0	14D	1N		V		3.61				
CAPS	03	1227E	1232D		S13	E20	.468		5.0	5D	-N	1							
MONT	03	1240E	1247	1240	S12	E20	.458		5.0	7D	-F		C	1240	.21				
WEND	04	0932E	0945		N22	E21	.430	9798	6.0	13D	1N		V		5.16				
HUAN	05	2129	2206		N12	W01	.097	9798	5.8	37	1F	2	C	2141	2.01	2.00			E
HALE	05	2131	2145	2135	N14	E00	.130		5.9	14	-N	1	C	2135	.62	.60			FJ
MANI	07	0135E	0152	0137	S32	E82	.998	9811	13.2	17D	1N	2		0137	.83	2.21			
CAPS	08	0824	0850D		N14	W34	.563	9798	5.8	26D	1B	1		0835	1.60	2.00		220	H
CAPS	08	1001E	1002D		N14	W34	.563	9798	5.9	1D	1B	1		1001	1.90	2.30			
SANM	08	1317E	1545		N13	W48	.740	9798	5.0	148D	1N		P	1322	1.94	2.74			BEKT
SANM														1413	.80	1.61			
SANM														1434	.48	.97			
SANM														1527	2.26	4.51			
SACP	08	1433	1442	1435	N14	W40	.643		5.6	9	-F		C		.50	.56			
HUAN	08	1434	1440	1435	N14	W40	.643		5.6	6	-N	1	C	1435	.37	.42			
HUAN	08	1459	1503		N09	W41	.652		5.5	4	-F	1	C	1500	.21	.23			D
SACP	08	1521	1555	1528	N12	W37	.601		5.9	34	-N		C		1.57	1.74			
HUAN	08	1523	1552		N12	W38	.614	9798	5.8	29	1N	2	C	1529	1.73	1.93			
HOUT	08	1527	1540	1531	N12	W37	.601		5.9	13	-N		C		1.10	1.40			E
MANI	09	0123E	0140	0128	S34	E63	.950	9811	13.8	17D	1F	2		0128	1.34	2.78			
MANI	09	0609E	0651D	0615	N11	W46	.715	9798	5.8	42D	2N	2		0615	4.54	6.56			
HALE	10	0108	0129	0110	S30	E44	.825		13.3	21	-N	2	C	0110	.72	1.20			F
MANI	10	0109E	0135	0115D	S32	E54	.899	9811	14.1	26D	1F	2		0115	1.29	2.35			
HALE	10	2355	0014D	0002	N06	W79	.980	9798	5.1	19D	1N	2	P	0002	.77				
MANI	11	0758E	0851	0825	S33	E32	.761	9811	13.7	53D	1F	2		0825	2.17	3.00			
CATA	11	0945E	1005D	1000	N17	W78	.973		5.6	20D	-B			1000	.69			200	
ONDR	11	0951E	1004		N16	W75	.961	9798	5.8	13D	1N		V	0957			2.50		CJ
HALE	11	2213	2314D	2237	S22	E84	.998	9818	18.2	61D	1N	2	P	2237	1.08				
MONT	13	0841	0919	0901	N22	W90	.999	9802	6.6	38	1N		C	0901	3.40				
SACP	14	1552	1610U	1558	N15	W90	1.000		7.9	18U	-N		C		.59				
HOUT	14	1558	1615	1601	N14	W90	1.000	9802	7.9	17	1N		C		.60	2.40			
HUAN	14	1600E	1600D		N16	W90	1.000		7.9		-N	1	P						
HOUT	14	1921	1935	1925	N16	W90	1.000	9802	8.1	14	1N		C		.70	2.40			
MANI	14	2238	2310	2245	N14	W90	1.000	9802	8.2	32	1N	2		2245	1.24	4.10			
SACP	14	2253E	2324	2259U	N14	W90	1.000	9802	8.2	31D	1N		C		1.95				
HALE	14	2346	2400D	2352	N16	W90	1.000	9802	8.2	14D	1N	2	P	2352	.62				
HALE	15	0209	0300	0219	N16	W90	1.000	9802	8.3	51	1B	2	C	0219	.83				
MANI	15	0219E	0229	0225	N13	W90	1.000	9802	8.3	10D	1N	2		0225	1.34	4.40			
HALE	15	0302	0331D	0307	N16	W90	1.000	9802	8.4	29D	1N	2	C	0307	.57				
MANI	16	0525E	0533		S31	W35	.763	9811	13.6	8D	1F	2		0525	1.65	2.30			
CATA	16	0920E	1035D	0920	N24	W46	.740	9821	12.9	75D	1B			0920	1.44	2.26		251	
CATA	16	0935E	1135D	0945	N22	W50	.776		12.6	120D	-B			0945	.58	.99		224	
MANI	17	0038E	0044D	0043	S31	W44	.847	9811	13.7	6D	1F	2		0043	2.94	4.40			
MANI	17	0410E	0421D	0412	N22	W62	.873	9821	12.5	11D	1F	1		0412	1.24	2.40			
CATA	17	1208E	1235D	1210	N25	W65	.897	9821	12.6	27D	1B			1210	1.16			372	
MANI	17	2228E	2259D		N22	W72	.940	9821	12.5	31D	1F	1		2237	1.24	2.80			
SACP	17	2236	2249	2240	N20	W72	.941		12.5	13	-B		C		.59	1.23			
CATA	18	0820E	0830	0823	N25	W78	.973	9821	12.5	10D	1B			0823	.72			240	
ISTA	19	0851E	0859D		N22	W90	.999		12.6	8D	-F								
CATA	19	0855E	0910	0855	N26	W90	.999		12.6	15D	-B			0855	.34			309	
CATA	19	0905E	0920D	0910	N27	W88	.997	9821	12.8	15D	1B			0910	.63			240	
MANI	20	2328E	2342	2335	N21	E90	.999	9821	27.7	14D	1N	2		2336	.72	2.30			
CATA	21	1010	1050	1020	N16	E90	1.000	9842	28.2	40	1B			1020	1.16			245	
MONT	21	1018	1024	1021	N19	E85	.994		27.8	6	-N		C	1021	2.06				
HUAN	21	1157	1206	1158	N16	W80	.981		15.5	9	-N	1	C	1158	.31				D
CAPS	21	1158E	1204		N12	W80	.982		15.5	6D	-N	1		1200	.50			160	
CATA	21	1200E	1205D	1200	N18	W88	.998	9817	14.9	5D	1B			1200	.58			214	
MONT	21	1216	1325D	1235	S25	E79	.991	9841	27.4	69D	1N		C	1235	4.54				
HUAN	21	1223	1307		S24	E77	.986	9841	27.3	44	1F	1	C						DS
CAPS	21	1259E	1304D		S20	E78	.987	9841	27.4	5D	1N	2		1302	1.20			170	U
HUAN	21	1401	1444		N16	W83	.990	9817	15.4	43	1N	1	P						
CAPS	21	1403E	1416		N12	W80	.982		15.6	13D	-N	3		1404	.20			175	CD
CAPS	21	1416	1444D	1424	N12	W82	.988	9817	15.4	28D	1B	3		1424	1.80			300	
HALE	21	1730E	1828	1747	N19	E80	.981	9842	27.7	58D	2N	2	P	1747	2.68				H

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OBSERVATORY	OBSERVED UT DATE 1968 DEC	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
HALE	21	1730E	1806		N15	W80	.982	9817	15.7	36D	1B	2	P	1737	.52				H
MANI	22	0728	0743		N15	W90	1.000	9817	15.6	15	1N	2		0737	.83	2.68			
ISTA	22	0730	0745D		N16	W90	1.000		15.6	15D	-N								
CAPS	22	0850E	1020D		S10	E25	.489	9833	24.2	90D	1N	3		0940	1.80	2.00		180	FJK
ISTA	22	0859E	1040D		S09	E28	.521		24.5	101D	-N								
MONT	22	0949	1009	0952	N14	W90	1.000		15.7	20	-N		C	0952	.46				
CAPS	22	0957	1021D		N12	W90	1.000	9817	15.7	24D	1N	3							
HALE	22	1859	1921	1901	N18	E70	.936	9842	28.0	22	1B	2	C	1901	.62				
SACP	22	1901	1906	1903	N18	E70	.936		28.0	5	-N		C		.29	.57			
HUAN	22	1901	1909		N16	E70	.936		28.0	8	-N	1	C						D
HUAN	22	1940	2030		S18	W44	.758	9829	19.5	50	1N	2	C	1945	1.86	2.20			
SACP	22	1941	2009	1945	S20	W43	.758	9829	19.6	28	1B		C		1.85	2.20			
HALE	22	1946E	2024	1947	S19	W44	.763	9829	19.5	38D	1B	2	P	1947	2.11	3.00			F
HALE	23	0111	0153	0124	S22	E54	.861	9841	27.1	42	1B	3	C	0124	1.44	2.60			
MANI	23	0134E	0157		S22	E53	.853	9841	27.0	23D	1N	1		0134	1.86	3.15			
HUAN	23	1521	1623		S13	W19	.442	9826	22.2	62	1F	1	C	1530	1.91	1.91			E
SACP	23	1527	1548	1534U	S13	W18	.431		22.3	21	-N		C		2.05	2.04			
MANI	23	2339	2400	2346	N20	E63	.890	9842	28.7	21	1F	2		2346	1.13	2.23			
SACP	23	2343	2353	2349	N20	E60	.867		28.5	10	-N		C		.52	.81			
HALE	24	0044	0053	0048	S28	E66	.949		29.0	9	-N	2	C	0048	.36				
MANI	24	0044	0106	0055	S29	E67	.955	9843	29.1	22	1N	2		0055	1.86	3.90			
HALE	24	0054	0102	0055	S28	E67	.954	9843	29.1	8	1N	1	C	0055	1.24				V
MANI	24	0146	0231	0156	N20	E56	.832	9842	28.3	45	2N	2		0156	3.09	5.60			
MANI				0219							1F			0219	1.34				
HALE	24	0152	0253	0157	N22	E56	.835	9842	28.3	61	2N	2	C	0157	4.95	9.70			KS
MANI	24	0749E	0813	0755	S12	W24	.491	9826	22.5	24D	1N	2		0755	2.06	2.36			
HUAN	24	1935	2101		S11	W32	.584	9826	22.4	86	1B	1	C	2014	2.58	2.60			
SACP	24	1936	2031	1940	S11	W32	.584	9826	22.4	55	1N		C		2.12	2.25			
HOUT	24	1940E	1950	1941U	S11	W32	.584		22.4	10D	-N		C		1.20	1.40			E
SACP	24	1952	2022	2000	S15	W26	.540		22.9	30	-N		C		.87	.89			
HALE	24	1955E	2057D		S13	W33	.608	9826	22.4	62D	1N	2	P	1955	4.13	5.00			FIU
SACP	24	2227	2248D	2230	N19	E28	.509	9842	27.0	21D	2B		C		5.42	5.81			
HOUT	24	2228	2237	2229	N19	E31	.548	9842	27.3	9	1B		C		2.20	2.60			E
HALE	24	2236E	2252D		N19	E28	.509	9842	27.0	16D	1N	1	P	2236	2.06	2.50			
MANI	24	2241E	2246D		N18	E30	.530	9842	27.2	5D	1N	2		2241	2.06	2.56			
MANI	25	0126E	0152		S23	E27	.623	9841	27.1	26D	1N	2		0134	1.75	2.13			
MANI	25	0659E	0735	0710	S11	W40	.681	9826	22.3	36D	1N	2		0710	1.65	2.20			
HUAN	25	1836	1855		S11	W44	.727	9826	22.5	19	1N	2	C	1840	1.80	2.14			
MCMA	25	1837	1900D	1841	S12	W45	.742	9826	22.4	23D	1B		C	1841	1.55	2.10			E
MCMA	25	1902	1922D		S12	W43	.720	9826	22.6	20D			C	1917	.31	.40			FK
HUAN	25	1902	1956D		S09	W46	.743		22.3	54D	-N	1	C	1940	1.13	1.35			
MCMA	25	1926E	2020D		S12	W43	.720		22.6	54D	1N			1940	1.34	2.00			FK
HALE	25	2051	2126	2056	N14	E03	.163	9837	26.1	35	1N	2	C	2056	2.27	2.40			F
MANI	26	0804	0834D	0811	S10	W56	.846	9826	22.1	30D	1N	2		0811	1.55	2.67			
CAPS	26	0950	1054D		S09	W54	.825	9826	22.4	64D	1B	1		1004	1.30	2.20		204	FW
HALE	27	0257	0335D	0300	S10	W63	.902	9826	22.4	38D	1B	1	P	0300	1.55	3.40			FHJ
MANI	27	0300E	0333	0301	S09	W66	.922	9826	22.2	33D	1N	1		0301	1.24	2.40			
HALE	27	0312	0335D	0313	S11	W66	.924		22.2	23D	-B	1	P	0313	.26				
HALE	27	0315	0323	0318	S10	W65	.917		22.3	8	-N	1	C	0318	.26				
CAPS	27	1043	1135D	1056	N15	W00	.176	9842	27.4	52D	2B	2		1057	6.60	7.00		640	FHV
HUAN	27	1059E	1237		N16	E04	.204	9842	27.8	98D	2N	1	C	1101	4.95	4.95			HT
HALE	27	2015	2033	2021	S11	W78	.982	9826	22.0	18	1B	2	C	2021	.98				
HUAN	27	2016	2038	2020	S09	W74	.966	9826	22.3	22	1N	1	C	2020	1.19				
HALE	27	2225	2238	2227	S12	W82	.993	9826	21.8	13	1N	2	C	2227	.62				
HUAN	27	2226	2235D		S10	W75	.971		22.3	9D	-N	1	C	2229	.37				
MANI	28	0519	0558	0523	N15	E64	.896	9847	2.0	39	2N	2		0523	2.68	5.40			
MANI	28	0839E	0851D		N13	W14	.277	9842	27.3	12D	1F	1		0841	1.96	2.10			
ONDR	28	0844E	0921		N16	W17	.344	9842	27.1	37D	1N		V	0852			2.00		
CAPS	28	0852E	0920D		N15	W13	.282		27.4	28D	-B	2		0905	.60	.70		270	E
CAPS	28	1000E	1026		S15	W38	.676		25.6	26D	-B	2		1009	1.40	1.80		220	C
ONDR	28	1007E	1032		S17	W39	.698	9838	25.5	25D	1N		V	1008			2.00		H
SACP	28	2120	2150	2129	N15	W55	.819	9836	24.8	30	1B		C		2.82	3.99			
MCMA	29	1742	1815D		N14	W32	.543	9842	27.3	33D	-N		C	1750	.52	.60			E
HUAN	29	1813	2055		N17	W33	.568	9842	27.3	162	1B	1	P	1926	2.84	3.08			K
SACP	29	1823	1854	1836	N15	W32	.546		27.4	31	-N		C		.77	.84			
MCMA	29	1827E	1915D		N14	W32	.543	9842	27.4	48D	-B		C	1845	.93	1.10			E
SACP	29	1913	2109	1935	N16	W33	.564	9842	27.3	116	1B		C		3.09	3.38			
MCMA	29	1915	1955D		N15	W34	.573	9842	27.3	40D	1B		C	1930	2.68	3.50			F
HOUT	29	1923	2005	1926	N16	W34	.577	9842	27.3	42	1N		C		2.40	3.10			EK
HOUT	29			1939															
HALE	29	1924E	2055D	1927	N17	W33	.568	9842	27.3	91D	2B	2	P	1927	4.43	5.60			F
SACP	29	2310	2326	2315	S28	W12	.569		29.1	16	-B		C		1.57	1.60			

SOLAR FLARES

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OBSERVATORY	OBSERVED UT DATE 1968 DEC	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
HALE	29	2314	2352	2316	S27	W12	.556	9843	29.1	38	1N	2	C	2316	1.86	2.10			
MANI	29	2315E	2335D		S31	W12	.609		29.1	20D	-B	2		2317	1.65	1.74			
HALE	30	0213	0242	0221	N22	W24	.485	9842	28.3	29	1N	2	C	0221	2.42	2.90			HF
MANI	30	0217	0240	0224	N21	W24	.477	9842	28.3	23	1B	2		0224	1.86	2.30			
ONDR	30	1005E	1016		N18	W27	.494	9842	28.4	11D	1N		V	1007			2.00		CH
CAPS	30	1008E	1016D		N17	W26	.475		28.5	8D	-N	3		1011	.40	.50		190	CDH
HALE	30	1956	2037	2002	N14	W46	.723	9842	27.4	41	1N	2	C	2002	1.86	2.80			
MANI	30	2303	2332	2308	N15	W47	.736	9842	27.4	29	1B	2		2308	2.06	3.30			
SACP	30	2305	2329	2309	N16	W49	.759	9842	27.3	24	1N		C		1.75	2.27			
HALE	30	2307	2342	2311	N15	W50	.769	9842	27.2	35	1B	2	C	2311	2.06	3.40			F
CAPS	31	1221E	1250D		N18	W50	.774	9842	27.8	29D	1N	2		1224	1.50	2.40		186	CH

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.

SOLAR FLARES

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

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01	0420E	S21	W55	01	0705E	S21	W56	01	0737	S08	W50	01	1010E	S20	W77	01	1235E	N13	E60
01	1308	S12	W88	01	1314E	S16	W83	01	1321	S12	W84	01	1350	S20	W64	01	1403	S16	W83
01	1419	N12	E59	01	1419	N11	E59	01	1424	S12	W88	01	1449	N15	E59	01	1455	S20	W64
01	1721	S17	W85	01	1733	N12	E57	01	1813	N12	E55	01	2026E	S10	W60	01	2026E	S16	W85
02	0749E	S15	W90	02	0806	N18	E90	02	0809	S15	W90	02	0841	S15	W90	02	0900E	S12	W87
02	1030	S29	E78	02	1052E	N10	E49	02	1118	S15	W90	02	1159E	S13	E35	02	1231	S15	W90
02	1424	S15	W90	02	1817E	N12	E38	03	1753	N13	E33	03	1801	N18	E78	03	1934	S22	E55
03	2130	S13	E15	03	2228	S22	E55	03	2246	S14	E15	03	2247E	N22	E70	04	0055	N17	E74
04	0856	N12	E19	04	1433E	N13	E13	04	1501	N14	E15	04	1504E	N12	E15	04	1510E	N13	E15
04	1545E	N12	E17	04	1553E	N14	E16	04	1553	N10	W42	04	1558	N16	W36	04	1757	N15	E17
04	2003	N12	E16	04	2009	N13	E15	04	2303	N12	E12	05	2024E	N14	E00	05	1045E	N12	E06
05	1834	N14	E03	05	1846E	N12	W01	05	1951	N13	E02	05	2016	N14	E00	05	2026E	N12	W00
05	2213	N13	W49	05	2253	S24	E27	05	2347	N14	E01	06	0147	S24	E26	06	0148	S24	E24
06	0910	N23	E30	06	1028	N12	W07	06	1040E	N13	W10	06	1245E	N14	W08	06	1953	N22	E30
06	2035E	S12	W17	06	2054E	S32	E90	06	2148	S31	E90	06	2230	N10	W16	06	2230	N11	W16
07	0032	N11	W17	07	0143	N15	W16	07	0145	N23	E30	07	0146E	N22	E21	07	0325	N16	W16
07	0506	N15	W17	07	0652	N14	W17	07	1453	S32	E82	07	1652E	N14	W25	07	1716	N13	W22
07	1828	N12	W25	07	1917	N16	W27	07	2040	N16	W27	07	2040	N15	W28	07	2108	N15	W27
08	0034	N11	W32	08	0101	S32	E66	08	0134	N16	W30	08	0136	N16	W31	08	0150	N15	W29
08	0234	N15	W34	08	0313	N16	W31	08	1137	N16	W34	08	1217	N20	E16	08	1245	N14	W34
08	1722	N11	E64	08	1807	N13	W42	08	1821	S30	E61	08	1946	N14	W42	08	1956	S30	E62
08	2008	S25	W11	08	2105	N14	W43	08	2129	N14	W43	08	2153	N15	W38	08	2154	N15	W37
08	2155	S30	E59	08	2159	S30	E58	08	2218	S31	E60	08	2328	S33	E59	09	0207	N28	E59
09	0820	S32	E55	09	1122E	S33	E53	09	1154E	S31	E50	09	1209	N17	W01	09	1220	S31	E56
09	1249	S30	E56	09	1314	S31	E56	09	1413	N13	W52	09	1414	N13	W52	09	1541E	S23	W22
09	1820E	S31	E53	09	1917	N17	W54	09	2015	S31	E51	09	2029	N19	W02	09	2029	N19	W03
09	2111	N20	W02	09	2111	N20	W02	09	2129	N16	W50	09	2144	S32	E52	09	2145	S31	E52
10	0035	S33	E50	10	0712E	S25	W31	10	0723E	N15	W62	10	0835	S38	E41	10	0850	S32	E40
10	1015	S41	E37	10	1144E	S32	E41	10	1645	N17	W67	10	1730	S33	E32	10	1731	S33	E31
10	1846	S31	E38	10	1859	N13	W68	10	1900	N14	W66	10	1901	S28	E35	10	1901	N15	W69
10	1936	S32	E31	10	1938	S32	E31	10	1946	S31	E38	10	2150	S32	E36	10	2153	S32	E35
11	0110	S34	E33	11	0147	S34	E25	11	0216	N18	W72	11	0320	S35	E26	11	0346	S32	E36
11	0626	S33	E33	11	0913E	S32	E30	11	1038	N22	W25	11	1048	S31	E31	11	1111E	S34	E31
11	1242	S33	E29	11	1253E	S31	E27	11	1510	S31	E26	11	1555	N10	W78	11	1555	N11	W80
11	1623	N18	W28	11	1628	S31	E26	11	1630	S32	E27	11	1633	S25	W50	11	1633	S26	W50
11	1819	S31	E26	11	2025	N16	W90	11	2036	S23	W59	11	2050	N14	W90	11	2112	S31	E24
12	0023	S31	E19	12	0027	S32	E20	12	0152	N17	W34	12	0159	S24	E83	12	0501E	S30	E18
12	0617	N19	W54	12	0659	N18	W37	12	0710	N22	E27	12	1259	N19	W57	12	1311	N18	W38
12	1401E	S31	E13	12	1427	N18	W40	12	1438	N15	W90	12	1501	S31	E15	12	1502	S32	E15
12	1847	S33	E16	12	1936	S31	E14	12	1937	S33	E14	12	2005	N17	W64	12	2017	N17	W65
12	2103	S30	E09	12	2123	N16	W65	12	2126	N17	W65	12	2147	N17	W65	12	2216	N17	W65
13	0047	S29	E02	13	0048	S30	W00	13	0048	N16	W69	13	0108	S30	E09	13	0109	S31	E09
13	0214	S30	E09	13	0223	S23	W77	13	0930	S20	W82	13	1227	S22	E59	13	1354	S31	W01
13	1513	S22	E58	13	1515	N18	W73	13	1618	S33	W03	13	1634	S21	E57	13	1637	S22	E58
13	1813	N15	W78	13	2100E	S22	E56	13	2216	N17	W85	14	0648	S34	W02	14	1435E	N16	W88
14	1659E	N15	W90	14	1822E	S32	W10	14	1825U	S32	W10	14	1958	S33	W10	14	2022E	S32	W11
14	2218	S32	W14	14	2220	S22	E43	14	2221	S24	E34	15	1055E	S24	E31	15	1325E	N22	W36
15	1744	N21	W40	16	0140E	S19	E29	16	0537	N22	W44	16	0813	S21	E27	16	0945	S24	E23
16	1929	N21	W55	16	2001	N21	W55	16	2203E	N22	W57	16	2203E	S32	W37	17	0440	S22	E22
17	0515E	N22	W63	17	1408	S21	E06	17	1412	N22	W66	17	1436	N22	W66	17	1439	N20	W66
17	1537	N22	W69	17	1537	N22	W67	17	1652	S20	E06	17	1653	S22	E06	17	1910	S24	W81
18	0212E	N24	W73	18	0436	N24	W76	18	0437E	S20	E19	18	0835	S17	W05	18	0840	N22	W80
18	1053	N22	W75	18	1357E	N21	W80	18	1414	N22	W85	18	1518	N21	W80	18	1522E	N22	W80
18	1818	S33	W80	18	1839	N21	W85	18	1852E	N22	W82	18	1912E	N22	W85	18	1922	S22	W12
18	1930	N22	W85	18	2055	N21	W85	18	2057E	N22	W85	18	2216	N21	W86	19	0755E	N30	W90
19	1130E	S19	W20	19	1402E	N22	W90	19	1830	N31	W13	20	0135E	S08	W62	20	0145E	N21	W89
20	1214	S19	W11	20	1220	S19	W11	20	1221E	S19	W11	20	1224E	S19	W10	20	1253	S19	W11
20	1859E	S19	W13	20	2010	S19	W14	21	0832	N18	E90	21	0915	S10	E24	21	1058	N16	W80
21	1758	N18	E80	21	1935	S06	E31	21	1945	S10	W48	21	2008	S09	E29	21	2026	S18	W31
21	2055	S18	W31	21	2247	S22	W30	21	2300	N15	W90	21	2329	N23	E89	21	2333	S22	W30
22	0004	S06	E26	22	0008	S07	E28	22	0046	N15	E43	22	0111E	S11	W52	22	0231	N21	E89
22	0254E	N19	E83	22	0346E	N13	E42	22	0352E	S07	E27	22	1116E	S09	E26	22	1424	S20	W40
22	1444	N15	E60	22	1500E	S26	E75	22	1605	N23	E78	22	1649	N18	E62	22	1704	N18	E61
22	1743	S22	E57	22	1757	N17	E72	22	1813	N28	W55	22	1826	N14	E34	22	1830	N19	E69
22	1831	N20	E70	22	1831	N18	E70	22	1845	S18	W44	22	1920	S19	W44	22	1925	N20	E59
22	2025	N16	E30	22	2034	N18	E72	22	2034	N16	E72	22	2057	N18	E69	22	2150	N18	E68
22	2219	S07	E15	22	2347	S23	E17	23	0032	N18	E53	23	1438	S13	W18	23	1440	N22	E57
23	1454	N21	E62	23	1454	N20	E63	23	1456	S13	W18	23	1556	N16	E45	23	1557	N15	E46
23	1623	N16	W72	23	1732	N18	E44	23	1733	N17	E45	23	1734	N17	E44	23	1740E	N19	E45
23	1907	N17	E44	23	1931	N16	E43	23	1931	N17	E43	23	2000	N17	E57	23	2123	N17	E43

01	1235E	S16	W80	01	1410	S16	W82
01	1710	N12	E57	01	2050	S13	E44
02	1016	S15	W90	02	1350	S15	W90
03	1955	N13	E28	04	0710	N17	E70
04	1541	N14	E17	04	1823	N13	E17
05	1654	S23	E30	05	2115	N18	W49
06	0312	S26	E30	06	2022	S21	E09
07	0013	N15	W15	07	0332E	N16	W16
07	1726	S31	E72	07	2133	N14	W31
08	0225	N16	W31	08	1317E	N11	E60
08	2002	N07	W55	08	2154	N12	W42
09	0758E	N13	W50	09	1230	N15	W52
09	1551	N11	W51	09	2030	N20	W02
09	2231	S31	E51	10	1010	S37	E38
10	1825	N13	W68	10	1918	N15	W70
10	2251	S32	E39	11	0428E	S32	E33
11	1146	S20	W49	11	1614	N17	W28
11	1636	N10	W78	11	2121	S22	E81
12	0515	N20	W53	12	1340E	S30	E06
12	1733	N18	W42	12	2020	N16	W65
13	0030	S25	E67	13	0211	S33	E10
13	1411	S31	W01	13	1700	N18	W73
14	1623	S22	E46	14	2022E	N16	W90
15	1700	N21	W39	16	1616	S22	E17
17	0448E	N22	W60	17	1502E	N22	W67
17	2021E	N22	W69	18	1005E	N24	W80
18	1802	N22	W82	18	1925E	S21	W13
19	1000	N34	W05	20	0159	N14	W64
20	1501E	S19	W12	21	1107E	N12	W80
21	2042	N18	E78	21	2351	S21	W32
22	0233E	N20	E84	22	1431	S15	W43
22	1737	S24	E80	22	1831	S25	E73
22	1926	N18	E59	22	2152	N18	E58
23	1442	N16	E47	23	1621	N14	W73
23	1905	N18	E43	23	2316	S28	E67

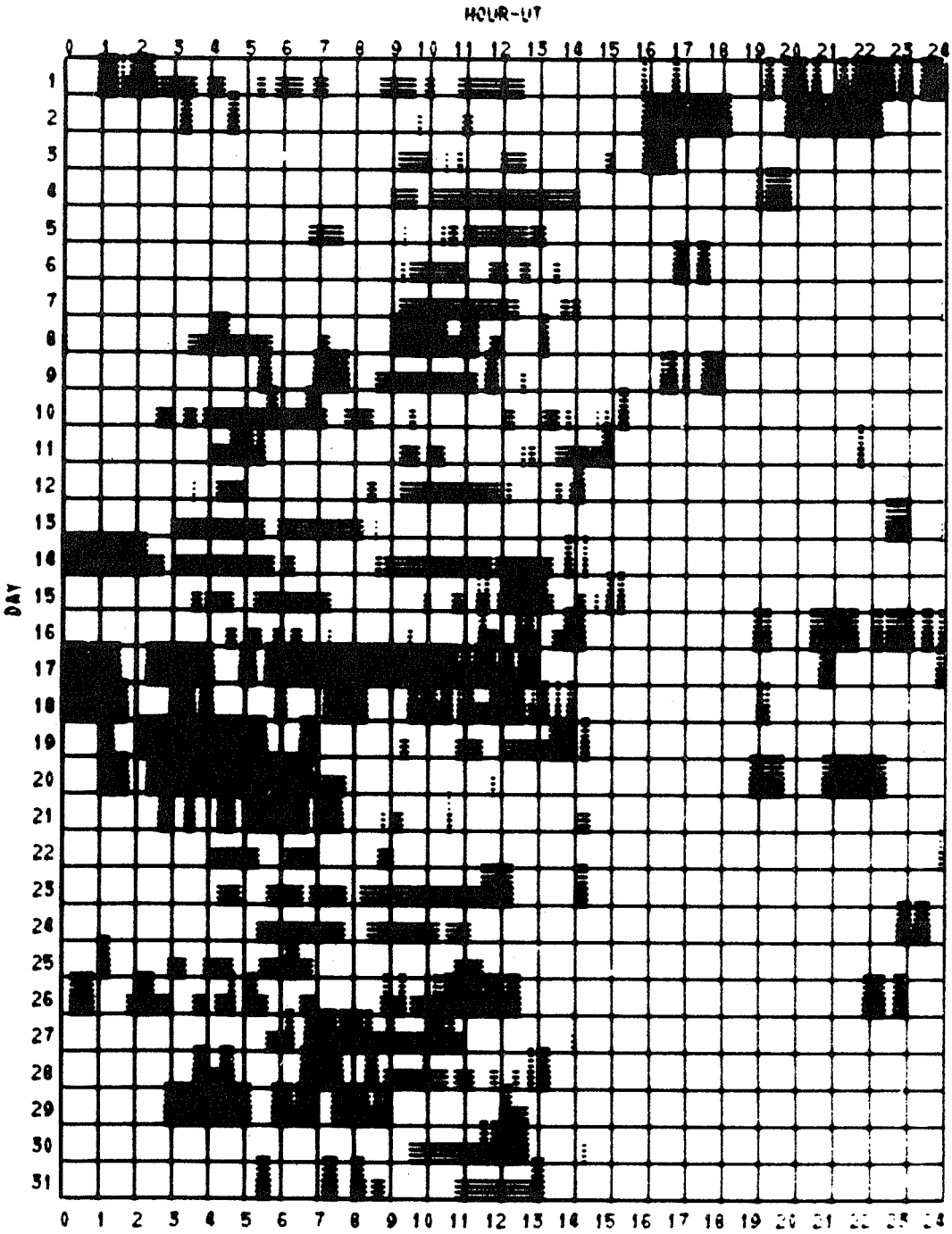
SOLAR FLARES

DECEMBER 1968

23	2316	S27	E66	23	2325	N20	E30	24	0030	S10	W22	24	0032	S10	W23	24	0043	N21	E57	24	0043	N21	E56
24	0106	N17	E41	24	0111	N18	E40	24	0235	S09	E01	24	0235	S09	E02	24	0414E	S27	E60	24	0414E	N22	E43
24	0726E	N17	E40	24	1020E	S06	W04	24	1020E	N18	E36	24	1020E	N18	E48	24	1038	N22	E38	24	1157	S12	W30
24	1249	S12	W27	24	1404	S14	W32	24	1550	N19	E32	24	1610	N22	E47	24	1653	N18	E32	24	1654	N17	E32
24	1654	N17	E31	24	1704E	N18	E30	24	1710	N17	E43	24	1724	S12	W30	24	1735E	S12	W32	24	1826	S09	W08
24	1828	S10	W08	24	1838	S12	W31	24	1838	S12	W31	24	1839	S11	W31	24	1921	S30	E50	24	1922E	S29	E49
24	1934	N17	E42	24	2005	S23	E33	24	2012E	S22	E33	24	2046	S29	E49	24	2118	S30	E49	24	2235E	S25	E51
25	0033	N19	E31	25	0156E	N21	E43	25	0329E	S11	W36	25	0459E	N19	E24	25	0713	N18	E30	25	1236	S11	W44
25	1320	S11	W42	25	1429	S11	W43	25	1510	N20	E18	25	1510	N20	E18	25	1512	N19	E20	25	1512	N20	E18
25	1517	N20	E18	25	1518	N20	E18	25	1532	N20	E18	25	1532	N19	E19	25	1532	N19	E18	25	1547	S25	E40
25	1547	S25	E42	25	1606	S11	W21	25	1609	S11	W22	25	1620	S22	E19	25	1622	S23	E20	25	1812	S14	W68
25	1825	S25	E24	25	1858	N15	E07	25	1938	S25	E21	25	2022	S12	W61	25	2024	S25	E21	25	2021	S12	W45
25	2027	S11	W46	25	2050	S24	E23	25	2139	N22	E19	25	2142	S25	W85	25	2148	S27	E28	25	2300	N18	E16
26	0050E	S10	W49	26	0121	N21	E26	26	0310	S08	W50	26	0310E	N19	E12	26	0457E	N20	E11	26	0611	S10	W51
26	0717	N24	E26	26	0744	S22	E29	26	0816	S22	E31	26	0825E	S13	W63	26	0835	N14	E13	26	0925E	N14	E13
26	0930	N17	E25	26	0931E	N15	E24	26	0939E	N13	E12	26	1010E	N15	E12	26	1131E	N14	E12	26	1246	N15	E11
26	1322	N15	E09	26	1322	N15	E09	26	1353	N15	E10	26	1355	N15	E09	26	1429	N15	E09	26	1443	N16	E11
26	1804	N22	E23	26	1834E	N14	E06	26	1900	N15	E08	26	1938	S26	E23	26	2022	S10	W60	26	2050	S24	E22
26	2050	N14	E04	26	2139	N22	E21	27	0008	N17	E07	27	0112	N17	E06	27	0125	S11	W64	27	0125	S10	W64
27	0130	N16	E02	27	0203	N15	E00	27	0204	N16	E01	27	0258	N13	E02	27	0328	N16	E03	27	0330	N15	E02
27	0508E	N16	W02	27	0840	S08	W69	27	1447	S26	E16	27	1515	N14	W03	27	1536	N15	W03	27	1742	S12	W69
27	1749	N12	W24	27	1818	N13	W05	27	1836	S26	E13	27	2010	S26	E12	27	2100	S16	W30	27	2101	N14	W09
27	2102	S10	W75	27	2138	S10	W75	27	2337	N15	E66	28	0011	S16	W34	28	0015E	S14	W31	28	0056	N16	W43
28	0056	N16	W43	28	0106	S26	E03	28	0232	S25	E03	28	0250	S15	E81	28	0320	S15	W34	28	0502E	S26	E09
28	1129	S11	W82	28	1135E	S08	W90	28	1431	N13	E57	28	1605	N15	W47	28	1605	N15	W18	28	1627	N16	W18
28	1706	S12	W89	28	1839	S12	W91	28	1852	N17	W08	28	1930	N13	W21	28	2007E	N14	W22	28	2040	N17	W09
28	2042	S24	W23	28	2111	N14	W23	28	2115	N15	W55	28	2221	S16	W46	29	0200	S14	E70	29	1153E	N15	W24
29	1326	N15	W32	29	1326	N15	W32	29	1326	N15	W32	29	1405E	N14	W32	29	1428	N16	W30	29	1428	N14	W31
29	1504	N14	W64	29	1556	N14	W32	29	1857	S14	E58	29	1901E	S13	E60	29	2139	N16	W34	30	0023	N12	E33
30	0024	N13	E32	30	0319	S30	W13	30	0319	S27	W14	30	0444	S27	W16	30	0743	S14	E54	30	0751	S28	W16
30	1345	S22	W44	30	1407	N15	W46	30	1421	N13	E23	30	1424	N12	E26	30	1428E	N18	E32	30	1452	S15	E47
30	1455E	S16	E48	30	1510E	N15	W46	30	1805	N17	W45	30	1812	N17	W45	30	1839	N15	W44	30	2311	N13	E19
30	2312	N13	E19	30	2312	N13	E21	30	2331	N21	W35	30	2331	N21	W35	30	2332	N22	W35	30	2345	N13	E23
30	2345	N14	E21	30	2349	S31	W22	30	2349	S29	W25	30	2352	S32	W24	31	0210	N17	W45	31	0213	S27	W27
31	0232	S22	W49	31	0303	N17	W49	31	0305	N17	W51	31	0317	N13	E19	31	0322E	N13	E21	31	0417	N17	W52
31	0508E	N13	E18	31	0516	N13	W53	31	0618E	N13	W52	31	1322	N19	E15	31	1348	N18	E13	31	1513	N17	E44
31	1607	N14	W58	31	1610	N13	W58	31	1835	N17	E42	31	1906	N13	W59	31	1906	N13	W59	31	1951	S32	W34

INTERVALS OF NO FLARE PATROL OBSERVATION
For Preceding Solar Flare Table

DECEMBER 1968



Observatories included in total patrol:

Arcetri	Catania	Huancayo	Manila	San Miguel
Bucharest	Haleakala	Istanboul	McMath	Sacramento Peak
Capri F (German)	Herstmonceux	Kodaikanal	Monte Mario	Wendelstein
Capri S (Swedish)	Houston	Locarno	Ondrejov	Zürich

Times of no flare patrol are shown by the shaded area for each day divided into times of no cinematographic patrol (bottom half of day) and times of neither visual nor cinematographic patrol (top half of day).

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

DECEMBER 1968

DEC 1968	UNIVERSAL TIME START	END	MAX	WIDE SPREAD INDEX	SWF TYPE	IMP	IMPORTANCE ABS SCNA	SEA	SPA	SES	SFD	STATIONS	KNOWN FLARE
01	1502	1538	1513	1					10			HN(O13-10)	1455
01	1813	1834	1819	1					10			HN(M23-10)	1813
01	2020	2113	2032	1					10			HN(M23-10)	2026E
02	0011	0100	0021	1					16			HN(M23-16)	NF
02	1723	1739	1732	5	G	1-						WS HU	*
02	1720	1807	1730	1					22			HN(M23-22)	
02	1939		1945	1					25			HN(O13-25)	*
02	1952	2033	1957	5	SL	1						WS HU	*
02	1952		1958	1					30			HN(O13-30)	
02	2113	2126	2118	5	SL	1-						HN HU WS	*
02	2106	2330	2124	5					90			HN(O13-90) MA(K18-75)	
03	0148	0210	0153	1					20			MA(K18-20)	NF
03	1946U	2050	2006	1					10			HN(M23-10)	1955
03	2233		2237						-46			GE-MR/ -46	2228
03	2233		2234							-12		GE-MR/-12 YP-HO/ -9	
03	2240	2348	2303	1					60			MA(K18-60)	2247E
03	2244		2252						-79			YP-HO/ -79	
04	0637		0710						-234			MR-GE/-234 YP-HO/ 97 GE-MR/ 75 HO-YP/ 46	NF
04	0627		0632							-37		YP-HO/-37 HO-YP/-21 MR-GE/-12 GE-MR/ 2	
04	0740	0843	0749	1					36			MA(K18-36)	NF
04	1543U	1607U		1		1-						HU	1541
04	1543		1557	1					38			UM(O12-38,C22-38)	
04	1546		1550						64			NT-JP-NT/ 64 CP-DN/ -36	
04	1547		1948							-15		CP-DN/-15 JP-NT/-13 NT-JP/ -9	
06	2238		2240						82			UP-KR-UP/ 82	2230
06	2235		2238							-72		KR-UP-KR/-72	
07	1832	1846	1841	1	SL	1-						HN	1828
07	1829	1855	1833	5					10			HN(M23-10,L20-18) HA(L20-7)	
08	0233	0300	0240	1					22			MA(K18-22)	0234
08	0958	1014	1006	1	S	1						AT	1001E
08	0954	1018	0959	1				1-				AT	
08	1526	1545D	1533	5	SL	1-						WS HU	1521
08	1525	1538	1527U	1					15			HN(L20-15)	
08	1525		1528						-111			NT-JP/-111 JP-CP/-108 CP-DN/ -54	
08	1525		1528							-13		CP-DN/-13 JP-CP/-13 NT-JP/-12	
08	2200	2215	2202	1					7			HN(M23-7)	2153
08	2153	2156	2155	1							04	HA(WWVH5-0.4, WWVH10-0.3)	
08	2259	2318	2307	1	SL	1-						HN	NF
08	2253	2315	2254	1					7			HN(M23-7)	
09	0614	0648	0616	1	S	1						MA	0609E
09	0613	0630	0620	1			37 2					MA	
09	0615	0915		1				*				TA	
09	0558	0655	0603	5					90			MA(R16-90) UM(C22-32)	
09	0612		0620	1						1		UM	
09	1744	1836	1759	1					35			HN(L20-35,M23-7)	*
10	0110	0143	0112	1					20			MA(K18-20)	0108
10	1823	1849	1832	5					20			HN(L20-20,M23-7) HA(L20-7)	1825
10	1828		1833						43			NT-JP-NT/ 43	
10	1827		1832							4		JP-NT-JP/ 4	
10	1900	1906	1903	1					5			HN(L20-5,M23-5, L20--10)	1900
10	1918	1931U	1922	1					5			HN(M23-5)	1918
10	1950E	2000	1952	1	S	1-						WS	1936
10	1937	2017	1945	1					7			HA(L20-7)	

SUDDEN IONOSPHERIC DISTURBANCES

DECEMBER 1968

DEC 1968	UNIVERSAL TIME START	END	MAX	WIDE SPREAD INDEX	SWF TYPE IMP	IMPORTANCE ABS SCNA	SEA	SPA	SES	SFD	STATIONS	KNOWN FLARE
11	0117	0130	0119	1				7			HN(M23-7)	0110
11	0155	0228	0208	1				23			MA(K18-23)	0147
11	0628	0638	0632	1	SL 1-						MA	0626
11	1152	1223	1154	5	S 1+						DA AT PU	1146
11	1152	1239	1202	3			3				PU PO	
11	1150	1236	1200	5				216			SL(R16-216)	
											DE(AA17-125)	
11	1148	1224		1							UM(C22-48)	
11	1513	1540		1	SL 1-				3		PU	
11	1514	1529	1523	1				10			HU	1510
11	1515		1522					108			HN(L20-10)	
											NT-JP/ 108	
											JP-NT/-100	
11	1515		1520								CP-DN/ 36	
									-12		CP-DN/-12	
11	1630	1646	1638	1	SL 1-						JP-NT-JP/ -7	
11	1632	1645	1638	1				30			HN	1630
11	1820	1832	1827	1				10			HN(L20-30)	
11	2113U	2137	2121	5				15			HN(M23-10)	1819
											HN(L20-15,M23-10)	2112
											HA(L20-11)	
12	0154	0230	0208	1				30			MA(K18-30)	0152
12	0153		0315					-180			KR-UP/-180	
											UP-KR/ 50	
12	0200		0234						-12		UP-KR/-12	
											KR-UP/ 3	
12	1504	1519	1508	1				15			HN(L20-15)	1501
12	1505		1506					-82			NT-JP/ -82	
											JP-NT/ 36	
12	1504		1506						-15		NT-JP/-15	
											JP-NT/ -8	
12	1534	1550	1536	5				20			HN(L20-20)	NF
12	1917U		1925	5				10			UM(012-22,C22-60)	
											HN(M23-10,L20-15)	NF
12	1938	1957	1947	1				15			HA(L20-14)	
											HN(L20-15,M23-5)	1936
14	1608	1621	1613	1	SL 1-						TR	1600E
14	1609		1613	1				- 75			HN(L20--75)	
14	2040	2130	2045	1				29			HA(L20-29)	NF
14	2238	2253		1	SL 1-						TR	2238
14	2240	2259	2246	5				85			HN(L20-85,M23-35)	
											MA(K18-28)	
14	2237		2245					172			GE-MR/ 172	
14	2245		2247						-17		HO-YP/-17	
											GE-MR/ -6	
15	2213	2254	2217	5				40			HN(M23-40,	NF
											L20-130)	
											HA(L20-40)	
17	1247	1339	1254	5				40			UM(C22-40)	*
											DE(AA17-25)	
17	1247	1339	1254	1					1		UM	
17	1757	1850	1806	1				40			HN(M23-40)	NF
17	1949	2010	1953	1				15			HN(M23-15)	NF
17	2014	2035	2019	1				10			HN(M23-10)	2021
17	2234		2241	5				40			HN(M23-40,L20-30)	2236
											HA(L20-25)	
17	2247	2255	2250	1				- 10			HN(L20--10,	2236
											M23-10)	
18	0442	0512	0447	1				28			MA(K18-28)	0437E
18	1852	1906	1857	1				5			HN(L20-5,M23-5)	1852E
18	1912	1933	1916	1				25			HN(L20-25,M23-15)	1912E
18	2056		2059	5				10			HN(M23-10,L20-15)	2055
											HA(L20-11)	
18	2219		2221	5				7			HN(M23-7,M23-7)	2216
											HA(L20-14)	
19	1647	1708	1653	1				40			HN(M23-40,L20-60)	NF
19	1832	1840	1834	5				7			HN(M23-7)	1830
											HA(L20-11)	
19	1833		1835					72			CP-SA/ 72	
19	1833		1835						-18		CP-SA/-18	
19	1846	1910	1853	5				18			HN(M23-18)	NF
											HA(L20-11)	
19	1931	1941	1933	1				10			HN(L20-10)	NF
19	1947	2000	1953	1				30			HN(L20-30)	NF
19	2019		2022	1				- 15			HN(L20--15,M23-7)	NF
19	2115	2210U	2137	5				65			HN(L20-65,M23-40)	NF
											HA(L20-40)	
19	2115		2145					266			UP-KR/ 266	
											KR-UP/-198	
19	2112		2130						-13		UP-KR/-13	
											KR-UP/ -8	
19	2336	2348	2342	1				15			HN(L20-15,M23-10)	NF
19	2331		2340					72			HO-YP/ 72	
											YP-HO/ -72	

SUDDEN IONOSPHERIC DISTURBANCES

DECEMBER 1968

DEC 1968	UNIVERSAL TIME START	END	MAX	WIDE SPREAD INDEX	SWF TYPE	IMP	IMPORTANCE ABS SCNA	SEA	SPA	SES	SFD	STATIONS	KNOWN FLARE
19	2332		2335							-5		HO-YP-HO/ -5	
20	1940	2026	1949	5	G	1+						HN WS TR	*
20	1941	2027	1948	3			10 1					BO MC	
20	1938	2049	2002	1				2				BO	
20	1940	2140	1952	1					61			HA(L20-61)	
20	2033	2042	2036	1	S	1-						WS	NF
20	2037	2145	2041	1						3+		DV	
21	1215	1330	1218	1					40			DE(AA17-40)	1216
21	1416	1432	1420	1	SL	1-						HU	1416
21	1418	1454	1426	1				1				PU	
21	1415	1426	1422	5					10			HN(L20-10) UM(C22-40,O12-40) DE(AA17-55)	
21	1415	1449	1422	1						1		UM	
21	1750E	1805	1758	1	G	1-						WS	1730E
21	1744	1802	1755	1					20			HN(L20-20,M23-5)	
22	0957	1033	1002	1					24			UM(C22-24)	0957
22	0957	1033	1002	1						1		UM	
22	1604	1609	1606	1					5			HN(L20-5)	1605
22	1720	1741U	1731	1	SL	1-						HN	1737
22	1723	1738	1730	1					10			HN(L20-10)	
22	1830	1858	1833	5					15			HN(M23-15,L20-30) HA(L20-7)	1830
22	1942	2010	1950U	5	SL	1-						WS TR	1940
22	1941		1948	5					75			HN(L20-75,M23-30) HA(L20-29)	
22	1949			1					- 60			HN(L20--60)	
22	1951	2012	1954	1					50			HN(L20-50)	
22	2154	2201	2157	1					15			HN(L20-15,M23-7)	2152
23	0118	0133	0127	1					50			MA(K18-50,R16-10)	0111
23	1950	2023	2005	1					7			HN(M23-7)	2000
23	2338	2428	2403	1					25			MA(K18-25)	2339
24	0154	0210	0202	1	SL	1-						MA	0146
24	0156	0238	0204	1					28			MA(AA17-28, K18-20)	
24	0153		0200						144			YP-HO/ 144 HO-YP/ 115 GE-MR/ 108 MR-GE/ 68	
24	0150		0202							-6		MR-GE/ -6 YP-HO-YP/ -1 GE-MR/ -2	
24	0720	0845	0730	1						1		ND	0726E
24	1040	1051	1044	5	S	1						AT PU	1038
24	1040	1105	1045	5				1+				PO LO PU AT	
24	1038	1106	1041	5					110			SL(R16-110) DE(AA17-55) UM(O12-66,C22-40)	
24	1039	1106		5						1		PU UM	
24	1941	2003	1949	5	SL	1-						HN HU	1935
24	1936	2040	1949	5					45			HN(M23-45, L20-180) HA(L20-32)	
24	2227	2249	2230U	3	S	1-						HN WS	2227
24	2226	2350	2234	5					70			HN(M23-70, L20-125) MA(K18-50) HA(L20-50)	
25	0633	0708	0637	1	S	1						MA	NF
25	0632	0723	0637	1					90			MA(R16-90,K18-32)	
25	1425		1435						50			CP-SA/ 50	1429
25	1425		1430							-17		CP-SA/-17	
25	1825	1855	1832	1					10			HN(M23-10)	1825
25	1840	1900	1850E	5	SL	1-						WS HU	1836
25	1840	1920	1846	1					40			HA(L20-40)	
25	1839		1841						-90			NT-JP/ -90 CP-JP/ -61 JP-NT/ -50	
25	1840		1848							8		JP-NT-JP/ 8 CP-JP/ -6	

SUDDEN IONOSPHERIC DISTURBANCES

DECEMBER 1968

DEC 1968	UNIVERSAL TIME START	END	MAX	WIDE SPREAD INDEX	SWF TYPE IMP	IMPORTANCE ABS SCNA	SEA	SPA	SES	SFD	STATIONS	KNOWN FLARE
26	0315	0400		1			*				TA	0310
26	0317		0320					147			YP-HO/ 147	
26	0317		0319						-40		YP-HO/-40	
26	0612	0624	0617	1				16			MA(R16-16, AA17-11)	0611
26	0805		0817	1				32			UM(C22-32)	0804
26	0805		0817	1					1		UM	
26	0942		0957	1				32			UM(C22-32)	0939E
26	0942		0957	1					1		UM	
26	1837	1900	1841	5	S 1-						WS TR	1834E
26	1832		1839	5				40			HN(M23-40,L20-22) HA(L20-29)	
26	1902	1930	1907	1	S 1						WS	1900
26	1904		1907	1				- 5			HN(L20--5,M23-5)	
26	2022		2024	5	S 2+						HN TR WS HU	2022
26	2024	2045	2027	3		20 1					BO MC	
26	2023	2113U	2035	1			2				BO	
26	2022	2142	2030	5				80			HN(M23-80, L20-170) HA(L20-61)	
26	2024	2125	2030	1					2+		DV	
26	2027	2047	2028	1	S 2						HN	
26	2054	2142	2056	1				3			HN(M23-3)	2050
27	0317	0326	0324	1	SL 1-						MA	0257
27	0252	0414	0319	1				59			MA(K18-59,R16-50)	
27	0718	1000	0742	1				140			MA(K18-140)	*
27	1055	1128	1056	5	S 2+						DA AT HU PU	1043
27	1057	1130	1101	5			1+				LO PU PO AT	
27	1051	1203	1100	5				309			UM(C22-309) DE(AA17-280)	
27	1054	1134		5					3		PU UM	
27	1742	1750	1746	1				35			HN(L20-35,M23-7)	1742
27	2014	2035	2025	5	SL 1-						WS HU	2015
27	2015		2017	5				- 10			HN(L20--10, M23-25) MA(K18-25) HA(L20-18)	
27	2228	2305	2233	5				20			HN(M23-20) HA(L20-14)	2226
28	0522	0551	0524	1	S 1						MA	0519
28	0521	0559	0532	1				40			MA(AA17-40, R16-32,K18-34)	
28	0836	0936	0848	1	S 3						AT	0839E
28	0835	0913	0908	1			1				AT	
28	0835	0958	0856	5				64			UM(C22-64) MA(K18-22)	
28	0835	0940	0850	5					1		ND UM	
28	0845	0940		1			*				TA	
28	1128	1211	1132	5	S 3-						AT DA PU	1129
28	1128	1230	1140	5			2				PU AT	
28	1126	1210	1135	5				238			SL(R16-238) UM(O12-102, C22-112) DE(AA17-160)	
28	1125	1201	1132	1					3		UM	
28	1605	1800D	1620	1	SL 1						MC	1605
28	1630		1632					-115			NT-JP/-115 JP-NT/ -61	1627
28	1628		1630						-10		NT-JP-NT/-10	
28	2057	2114	2101	3	S 1-						HN WS	2042
28	2054	2119U	2105	5				45			HN(M23-45,L20-30) HA(L20-32)	
28	2052		2107					180			UP-KR-UP/ 180	
28	2052		2058						-10		KR-UP-KR/-10	
28	2058	2252	2103	1					1+		DV	
28	2131	2158	2139	1				10			HN(M23-10)	2120
29	0025	0044	0027	1				7			HN(M23-7)	NF
29	1744		1748	1				5			HN(M23-5,L20-5)	1742
29	1752	1809	1758	1				7			HN(M23-7,L20-5)	
29	1827	1903	1832	5				40			HN(M23-40) HA(L20-22)	1827E
29	1828		1835					-75			NT-JP/ -75 JP-NT/ -43	
29	1834		1835						40		JP-NT/ 40 NT-JP/ 4	
29	1833U	1845	1838	1				- 45			HN(L20--45)	
29	1921	2058	1931	5	SL 3						TR WS HN MC HU	1913
29	1923	2052	1934	3		55 2					BO MC	
29	1923	2045	1940	1			2+				BO	
29	1915	2246	1937	5				130			HN(M23-130, L20-10) HA(L20-126) UM(C22-96,O12-93) MA(K18-43)	
29	1921		1932					57			CP-JP/ 57	
29	1921		1927						8		CP-JP/ 8	
29	1920	2129		5					3+		DV UM	

SUDDEN IONOSPHERIC DISTURBANCES

DECEMBER 1968

DEC 1968	UNIVERSAL TIME START	END	MAX	WIDE SPREAD INDEX	SWF TYPE	IMP	IMPORTANCE ABS	SCNA	SEA	SPA	SES	SFD	STATIONS	KNOWN FLARE
29	1919		1922	1						-110			HN(L20=-110)	
29	1922	1928	1925	1						70			HN(L20=70)	
29	2316	2349	2319	5						10			HN(M23=10) MA(K18=43,R16=17) HA(L20=22)	2310
30	1812	1817	1814	1						5			HN(L20=5,M23=10)	1812
30	1842		1846	1						5			HN(M23=5)	1839
30	1959	2040	2017	1					1				BO	1956
30	2000	2036	2016	1						7			HN(M23=7)	
30	2305	2322	2312	1	S	1-							MA	2305
30	2308	2313	2311	5						5			HN(L20=5,M23=25) MA(K18=14) HA(L20=18)	
30	2307		2312							79			UP=KR=UP/ 79	
30	2306		2312								=14		UP=KR/=14 KR=UP/ =6	
31	1220	1300	1225	1						20			DE(AA17=20)	1221E
31	2109		2122	5						30			HN(013=30) HA(L20=36)	NF
31	2114	2122	2116	1	S	1-							HN	
31	2113	2152	2118U	1						35			HN(L20=35)	
31	2125	2204	2132	1						10			HN(013=10)	
31	2207	2222	2208	1						10			HN(L20=10,013=15)	NF

STATIONS REPORTING FOR DECEMBER 1968:

Athens	Huancayo	Prague
Boulder	Kerguelen Is.	Preston
Canberra	Loran-C	Rome
Darmstadt	Manila	Sao Paulo
Debra Zeith	McMath	Slough
HANDS	New Delhi	Tokyo
Hawaii	Paterson	Trinidad
Hiraiso	Poitiers	White Sands
Hobart		

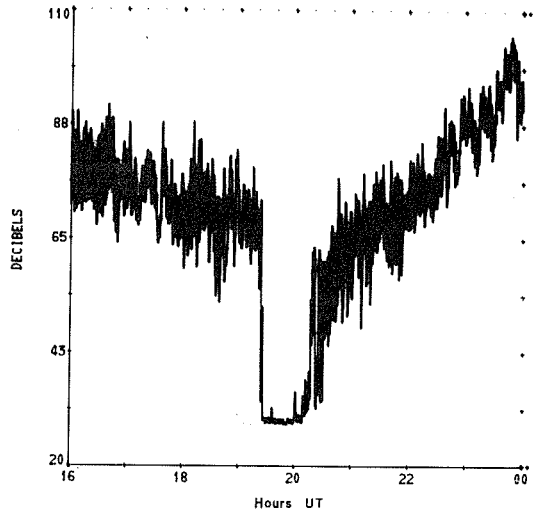
TIME OF NO OBSERVATIONS FOR DECEMBER 1968:

DATE	TIME (UT)	STATION
02-31	0000-2400	RO
02	1250-1335	SL
03	0800-2400	DV
04	0000-2400, 0733-2008, 2304-2314	DV, HN, HN
05	0000-2100, 0609-2200, 1524-1727	DV, HN, HU
07	1519-1821	HN
12	1508-2020	HU
15	1400-1743	HN
16	0147-0209, 1335-1415	HN, SL
18	2102-2209	HN
19	1520-1930, 2214-2242	HU, HN
23	0639-1434	HN
26	0000-1300, 1440-1457, 1538-1855	DE, HN, HU
28	2222-2240	HN

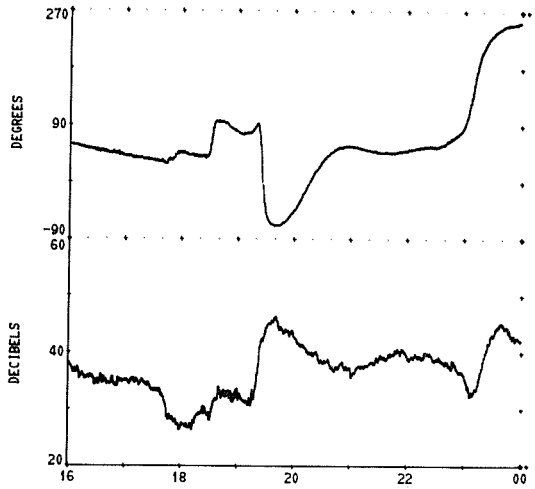
Notes: Reports from the following stations were received too late to be included in the above table:
AAVSO
Anchorage
Sweden
Woomera

SELECTED SID EVENTS RECEIVED BY HANDS

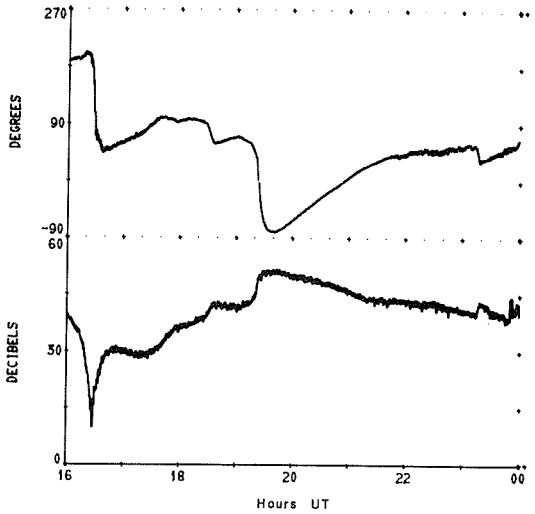
29 DECEMBER 1968



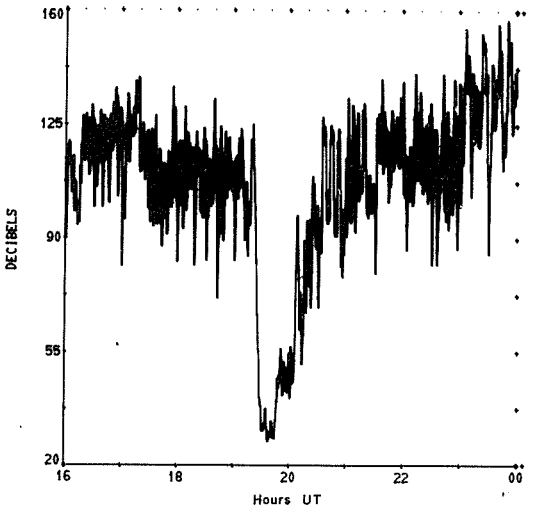
4.063 MHz Amplitude Erie, Colo.



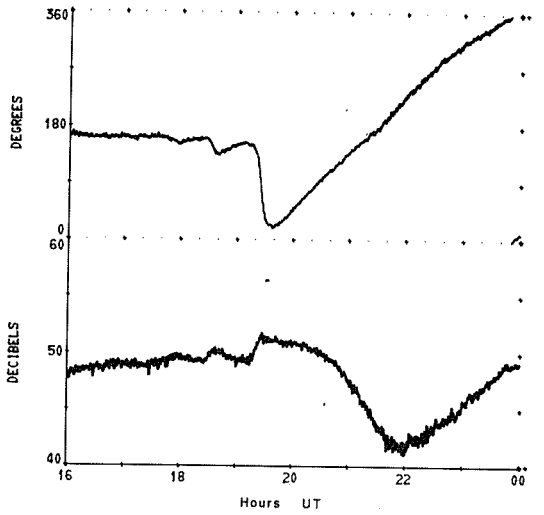
100 kHz Loran-C Jupiter, Fla.



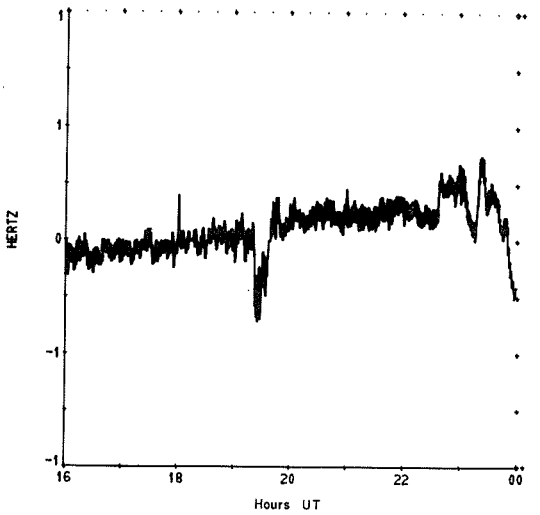
23.4 kHz NPM Oahu, Hawaii



11.1 MHz Longbranch, Ill.



13.6 kHz Omega Trinidad W.I.



11.1 MHz Longbranch, Ill.

The Selected SID Event on page 24 of the last issue of IER-FB was for November 14, 1968.

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

Western Hemisphere

DECEMBER 1968

DEC. 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	2800 OTTA	21	2005	2030	100	6.2	3.1		
	2700 PENN	20	2015.6	2017.3		7.7			
	960 PENN	1	2015	2017.3	5	4.6	1.5		
	2800 OTTA	1	2016	2018	6	8.6	4.3		
2	2800 OTTA	20	2035	2037	10	1.8	0.6		
	2695 PENT	28	2100		5	3.2	1.6		
	2695 PENT	46	2105	2116	42	270.0	60.0		
			2105	2116	25.5	270.0			
			2130.5	2134.5	16.5	58.0			
	408 SANM	45	2105	2119.2	35 D	48.0	14.5		
	184 BOUL	48	2111	2114	15	6480.0D	1800.0		
	2695 PENT	29	2147		60 D	32.0			
3	408 SANM	40	1339	1447.9	111	50.0	6.5		
	2800 OTTA	20	1946	1952	11	3.0	1.5		
4	408 SANM	45	0945 E	1026	80 D	40.5	15.5		
	2800 OTTA	20	1506.5	1507.5	10	2.0	1.0		
	2700 PENN	20	1537.8	1543.1	21.8	8.1	2.2		
	7000 SAOP	45	1541.7	1543.6	2.7	37.2	29.9		
	2800 OTTA	3	1541	1543	4	10.6	5.8		
	10700 PENN	20	1541.8	1544.1	28.2	21.3	8.5		
	8800 SGMR	45	1542.1	1543.8	2.8	37.8	12.6		
	4995 SGMR	45	1542.3	1543.8	3.1	49.9	16.6		
	2695 SGMR	45	1542.2	1543.9	3	11.5	3.8		
	8800 SGMR	29	1544.9	1544.9	10.2	17.2	8.6		
	7000 SAOP	29	1544.4		38.2				
	4995 SGMR	29	1545.4	1545.4	9.7	14.5	7.2		
	2800 OTTA	29	1545		30	3.2	1.4		
	2695 SGMR	29	1545.2	1545.2	10.7	2.9	1.5		
	2700 PENN	20	1758.8	1820	83.8	2.5	1.5		
	2800 OTTA	22	1800	1821	50	6.8	3.4		
	4995 SGMR	1	1820.3	1820.8	1.3	4.6	2.3		
	2695 SGMR	1	1820.7	1820.8	.4	1.3	.7		
	2695 PENT	22	2000	2002	10	3.2	1.6		
	2695 PENT	22	2020	2034	50	4.0	2.0		
	184 BOUL	6	2032	2032	2	1450.0	500.0		
	486 WASH	41	2330	2341	13	145.0			
5	2800 OTTA	22	1425	1540	230	8.4	4.6		
	2800 OTTA	20	1835	1840	50	2.8	1.4		
	2695 PENT	20	2130	2135	22	3.6	1.8		
6	2700 PENN	1	1526.4	1527.3	6.4	2.9	1.5		
	486 WASH	45	2040	2051	15	600.0D			
	184 BOUL	6	2150	2150	2	930.0	720.0		
7	7000 SAOP	1	1643	1643.6	1.6	5.8	2.9		
	8800 SGMR	1	1646.5	1646.7	1.4	6.3	3.0		
	4995 SGMR	1	1646.5	1646.7	1.1	5.1	2.0		
	8800 SGMR	22	1828.6	1830.3	8.7	8.2	3.5		
	4995 SGMR	22	1828.6	1831.4	18.4	11.1	4.0		
	2695 PENT	20	2130	2135	25	3.4	1.7		
8	7000 SAOP	3	1502.7	1503.6	2.6	13.9	7.0		
	10700 PENN	3	1505.7	1506	1	17.2	8.6		
	7000 SAOP	3	1519.9	1521	4.5	135.7	67.8		
	8800 SGMR	3	1522.6	1524.1	4.5	89.0	43.0		
	4995 SGMR	3	1522.4	1524.1	5.4	150.0	75.0		
	2800 OTTA	3	1522.5	1524.5	5.5	31.0	14.0		
	2700 PENN	3	1522.1	1524.1	14.8	30.7	6.1		
	2695 SGMR	3	1522.7	1524.4	3.4	33.8	16.5		
	10700 PENN	3	1522.9	1523.9	21.7	47.3	12.8		
	15400 SGMR	3	1523.4	1524.3	9.7	12.1	5.5		
	7000 SAOP	29	1524.4		24				
	2695 SGMR	29	1526.1	1526.1	14.2	10.4	5.2		
	8800 SGMR	29	1527.1	1527.1	15.6	13.9	6.9		
	4995 SGMR	29	1527.8	1527.8	16.2	20.3	10.2		
	2800 OTTA	29	1528		10	5.4	2.7		
	184 BOUL	43	1714	1828	143	720.0			
	408 SANM	27	1725	1808.3	90	23.0	12.5		
	2800 OTTA	20	1745	1910	195	8.6	4.3		
	2700 PENN	24	1747	1928		6.4			
	2695 PENT	3	2158	2158.5	4	13.0	3.4		
9	7000 SAOP	22	1152.4	1153.7	2.9	8.6	4.3		
	2800 OTTA	24	1350		10	4.6			
	7000 SAOP	3	1507.6	1508.7	2.6	8.6	4.3		
	2800 OTTA	22	1742	1750	115	5.4	4.4		
	2695 SGMR	20	1742.5	1749	29.3	6.0	3.0		
	4995 SGMR	20	1743.3	1758.1	24.9	6.9	3.5		
	1415 SGMR	20	1743.3	1749	15.7	2.1	1.1		
	8800 SGMR	20	1745.2	1753.3	20.1	5.3	2.7		
	15400 SGMR	20	1748	1753.9	13.2	3.1	1.6		
	2700 PENN		1823.6	1823.7	.2	18.3	9.1		
	960 PENN	8	1823.7	1823.7	.1	35.4	17.7		
	328 PENN	8	1823.7	1823.7	.1	336.0	168.0		
10	7000 SAOP	20	1326		2.4	4.8	2.4		
	2700 PENN	20	1817.3	1826	24.9	3.0	1.5		

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	8800	SGMR	22	1824.5	1826.2	16.8	17.2	7.0		
	7000	SAOP	22	1824		5.2	9.6	4.8		
	15400	SGMR	22	1824.4	1826.2	16.4	8.2	4.0		
	4995	SGMR	22	1824.5	1826.3	16.8	9.0	4.0		
	2695	SGMR	22	1825	1825.4	13	2.0	1.0		
	8800	SGMR	22	1859.6	1900.5	10.4	11.5	4.0		
	15400	SGMR	2	1859	1900.5	3.9	6.1	3.0		
	4995	SGMR	2	1859.6	1900.5	7.3	6.9	2.5		
	184	BOUL	6	2103	2103	1	1400.0	360.0		
11	7000	SAOP	20	1113.4	1114.7	3.8	11.5	5.8		
	408	SANM	45	1140	1148.7	30	788.0	74.5		
	7000	SAOP	47	1143.5	1150.6	14.4	613.7	285.0		
	7000	SAOP	29	1205		68.5				
	606	SGMR	22	1243.6	1307	108.4	16.5	7.0		
	2800	OTTA	22	1505	1520	60	4.0	2.0		
	4995	SGMR	20	1722	1725	12.8	3.3	1.0		
	8800	SGMR	20	1723.9	1725.5	9.6	.8	.4		
	2695	SGMR	20	1723	1726.5	12	2.5	1.0		
12	2800	OTTA	24	1500		4	1.7			
	960	PENN	41	1529.2	1531.5	2.8	21.4			
	8800	SGMR	3	1533.9	1534.2	14.9	160.0	25.4		
	7000	SAOP	3	1533.4	1534.1	2.8	209.5	104.8		
	4995	SGMR	3	1533.5	1534.3	13.6	270.0	51.0		
	2800	OTTA		1533.5	1534.8	6 D	165.0			
	2700	PENN	3	1533.5	1534.5	25	135.0	17.5		
	2695	SGMR	3	1533.7	1534.7	6.4	175.0	40.8		
	10700	PENN	3	1533.3	1534.2	16	138.0	13.3		
	606	SGMR	40	1533.6	1533.9	.6	22.8	7.6		
	1415	SGMR	3	1534	1535	15.1	29.4	11.1		
	7000	SAOP	29	1537.9		11.6				
	184	BOUL	6	1545	1546	3	2100.0	430.0		
	184	BOUL	6	1749	1750	2	1080.0	500.0		
	10700	PENN	3	1810.8	1812.2	3.3	37.8	6.2		
	8800	SGMR	3	1811.6	1812.2	5.9	43.0	14.0		
	7000	SAOP	4	1811.3	1812	2.4	62.1	31.0		
	4995	SGMR	3	1811.6	1812.2	7	78.0	26.0		
	2800	OTTA	3	1811.5	1812.5	3.5	48.0	12.0		
	2700	PENN	3	1811.5	1812.3	4.7	40.4	26.8		
	2695	SGMR	3	1811.6	1812.3	4.9	44.2	14.7		
	1415	SGMR	3	1811.7	1812.5	4.4	12.9	5.2		
	960	PENN	3	1811.6	1812.2	3.5	8.4	3.3		
	606	SGMR	45	1811.4	1811.4	1.2	21.6	11.0		
	15400	SGMR	1	1812	1812.2	.8	7.2	3.6		
	2700	PENN	1	1916.4	1916.7	5.9	3.4	1.4		
	1415	SGMR	3	2012.8	2014.1	3.6	9.5	3.0		
	8800	SGMR	3	2013.4	2014	1	18.1	8.2		
	4995	SGMR	3	2013.3	2014	1.1	24.6	11.0		
	2800	OTTA	3	2013.3	2014	3	24.0	6.0		
	2700	PENN	3	2013.2	2013.9	3	19.8	5.6		
	2695	SGMR	3	2013.3	2014	2.1	20.8	9.0		
	606	SGMR	1	2013.3	2013.9	1	1.6	1.2		
	18	BOUL	6	2055	2057	3			1	
	18	BOUL	6	2117	2118	2			1	
	2695	PENT	1	2240	2240.5	1	2.4	1.2		
13	184	BOUL	44	1410 E		475 D		500.0		
14	2695	PENT	4	2240	2241	3.5	11.4	5.7		
15	184	BOUL	44	1410 E		270 D	720.0			
	2800	OTTA	20	1710	1755	100	2.2	1.1		
16	960	PENN	1	1722.6	1722.8	.5	6.4	2.2		
	328	PENN	45	1722.6	1722.7	.5	96.5	36.1		
	2700	PENN		1755.5	1755.5	.5	12.0	2.4		
	960	PENN	8	1757.3	1757.3	.1	3.7	0.2		
	960	PENN	3	1808.5	1808.7	.4	16.1	6.2		
	328	PENN	5	1808.4	1808.7	.7	373.0D	162.0D		
	960	PENN	3	1840.7	1840.9	1.7	44.7	8.5		
	328	PENN	5	1840.8	1841	.5	263.0	117.0		
	2800	OTTA	1	1842.5	1842.6	1	6.0	2.0		
	2700	PENN	1	1842.5	1842.5	1	5.3	1.1		
	960	PENN	1	1847.3	1847.4	.3	4.3	1.8		
	960	PENN	3	1849.1	1850.3	1.5	29.5	8.0		
	328	PENN	5	1849.7	1850.1	.6	385.0D	196.0D		
	2700	PENN	1	1850	1850.2	.6	2.2	0.7		
	960	PENN	1	1912.7	1914.3	1.9	4.4	1.1		
	328	PENN	45	1913.9	1914.4	.6	49.1	26.7		
17	2700	PENN	1	1528.5	1529.3	3.5	7.2	3.3		
18	7000	SAOP	3	1150.1	1151.4	1.4	19.1	9.6		
	8800	SGMR	20	1917.3	1924	7.9	3.0	1.5		
	4995	SGMR	20	1918.6	1924	14.4	3.1	1.5		
	2695	SGMR	1	1922.7	1924	4.1	4.6	2.0		
20	408	SANM	45	1245	1246.5	2	38.0	30.0		
	2700	PENN	24	1621	1841.5		5.0			
	2800	OTTA	20	1625		45	2.8	1.4		

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	2700 PENN	1	1646.3	1647.8	2	2.4	1.6		
	2700 PENN		1653.5	1653.5	.5	21.5	3.0		
	2800 OTTA	23	1715	1815	130	5.6	2.8		
	2700 PENN	1	1854.1	1858.1	5.7	3.3	1.5		
	2800 OTTA	22	1856	1857	10	3.4	1.7		
	960 PENN	41	1856.7	1857	2	22.5			
	2700 PENN	3	1931.6	1942.2	20.3	61.3	20.6		
	1415 SGMR	20	1931.9	1942.5	39.7	24.4	12.2		
	7000 SAOP	4	1936.9	1941.7	13	107.3	53.6		
	4995 SGMR	3	1936.3	1942	10.2	140.0	41.6		
	2800 OTTA	3	1936	1942	18	72.0	27.0		
	2695 SGMR	3	1936.3	1942.2	9.5	70.0	26.4		
	10700 PENN	3	1937.1	1942.9	11	62.2	29.8		
	8800 SGMR	3	1938.2	1942.1	8.5	65.0	25.2		
	960 PENN	20	1938.2	1942.2	28.3	8.0	2.9		
	606 SGMR	45	1939.2	1940.5	3.4	21.5	5.0		
	15400 SGMR	3	1940.1	1943.2	6.5	22.0	11.0		
	2695 SGMR	29	1945.8	1945.8	25.8U	25.4	12.7		
	8800 SGMR	29	1946.7	1946.7	34.3U	19.7	9.9		
	15400 SGMR	29	1946.6	1946.6	19.9U	7.7	3.9		
	4995 SGMR	29	1946.5	1946.5	30.3U	35.8	17.9		
	10700 PENN	29	1948.1	1948.1	59.9	14.6	7.3		
	2700 PENN		1951.9	1951.9	71.1	11.6	5.8		
	2800 OTTA	29	1954		115	10.0	5.0		
21	2800 OTTA	20	1605	1625	90	2.8	1.4		
	2800 OTTA	21	1740	1752	70	2.8	1.4		
	184 BOUL	6	1811	1813	5	790.0	570.0		
	2700 PENN	1	1813.7	1815.2	3.9	2.6	1.5		
	10700 PENN	1	1813.7	1815	3.6	7.2	3.2		
	960 PENN	1	1813.8	1815.2	4.2	3.8	1.4		
	8800 SGMR	3	1814.3	1815.1	3.3	9.0	4.5		
	15400 SGMR	1	1814.6	1815.1	1.4	5.0	2.5		
	4995 SGMR	1	1814.5	1815.3	3.1	1.3	.7		
	2800 OTTA	2	1814	1815	3	2.2	1.1		
	2695 SGMR	1	1814.3	1816.4	2.6	3.0	1.5		
	1415 SGMR	1	1814.4	1815.5	6.2	6.7	3.4		
	606 SGMR	1	1814.3	1816.5	2.9	2.0	1.0		
22	408 SANM	27	0950 E	0955.8	70 D	19.0	7.5		
	8800 SGMR	3	1604.4	1604.7	2.4	46.6	10.0		
	7000 SAOP	4	1604.2	1604.5	2.7	49.5	24.8		
	15400 SGMR	1	1604.6	1604.7	.9	4.5	2.0		
	4995 SGMR	3	1604.4	1604.7	4.2	21.4	5.0		
	2800 OTTA	2	1604.5	1604.8	1	3.0	1.5		
	2700 PENN	1	1604.2	1604.7	2.4	3.3	1.6		
	2695 SGMR	1	1604.5	1604.7	1.6	3.8	1.5		
	10700 PENN	3	1604.2	1604.6	1.4	32.9	9.1		
	7000 SAOP	3	1829.5	1830.2	5	119.4	59.7		
	8800 SGMR	4	1830.6	1831.1	8.1	81.0	16.0		
	15400 SGMR	3	1830.8	1831.1	5.4	14.0	6.0		
	4995 SGMR	4	1830.6	1831.1	6.8	145.0	29.0		
	2800 OTTA	4	1830.5	1831	3	81.0	33.0		
	2700 PENN	3	1830.5	1831	2.4	70.7	20.6		
	2695 SGMR	4	1830.6	1831.1	10.5	77.0	15.0		
	1415 SGMR	3	1830.8	1831.1	7.9	6.8	2.5		
	10700 PENN	3	1830.6	1830.9		64.7			
	960 PENN	3	1830.7	1830.8	.3	58.2	19.9		
	2700 PENN	29	1832.9	1832.9	12.6	6.7	3.4		
	2800 OTTA	29	1833.5		6	4.8	1.2		
	2800 OTTA	1	1931	1931.2	.5	3.6	1.8		
	184 BOUL	6	1935	1935	1	1800.0	900.0		
	2695 SGMR	22	1940.5	1943.3	11	10.3	4.0		
	2700 PENN	20	1941.4	1943.4	14.6	5.7	2.3		
	8800 SGMR	22	1942.1	1953.5	17.5	7.7	3.0		
	4995 SGMR	22	1942	1943.3	19.2	11.5	4.5		
	2800 OTTA	1	1942	1944	5	6.8	4.6		
	1415 SGMR	2	1942	1943.5	6	1.0	.5		
	2800 OTTA	29	1947		30	3.0	1.5		
	184 BOUL	6	2033	2033	1	2800.0	1400.0		
	2695 PENT	20	2110	2150	60 D	3.4			
23	184 BOUL	6	1500	1500	2	800.0	650.0		
	184 BOUL	6	1510	1511	5	2880.0	800.0		
	2700 PENN	1	1512.9	1513.3	1	2.3	1.2		
	2695 SGMR	2	1512.2	1513.4	2.1	4.1	1.5		
	8800 SGMR	3	1513	1513.2	1.2	29.4	7.0		
	15400 SGMR	3	1513.2	1513.3	1.5	9.3	4.0		
	4995 SGMR	4	1513	1513.3	1.2	22.4	5.0		
	2800 OTTA	1	1513	1513.3	1.5	2.4	1.2		
	1415 SGMR	1	1513.2	1513.4	1	2.3	1.0		
	960 PENN	45	1513	1513.4	2.5	13.2	1.4		
	606 SGMR	4	1513.2	1513.3	2.7	57.0	10.0		
	2800 OTTA	24	1524		30	5.6			
	408 SANM	45	1538.3	1538.8	1.4	110.0	33.0		
	408 SANM	45	1551.7	1552.5	1.5	64.0	26.0		
	2800 OTTA	22	1554	1558	26	6.4	1.8		
	2800 OTTA	1	1609.4	1609.6	.5	2.2	1.1		
	2800 OTTA	3	1654	1654.4	4	20.0	5.0		
	2800 OTTA	29	1658		6	2.2	1.1		
	4995 SGMR	1	1732	1735.8	7.3	7.4	3.0		

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	2695	SGMR	1	1732	1735.9	4.9	3.8	1.5		
	1415	SGMR	1	1732.3	1736.5	6.1	2.6	1.0		
	184	BOUL	41	1732	1735	4	640.0	290.0		
	8800	SGMR	1	1733.6	1735.1	6.4	4.1	2.0		
	2800	OTTA	1	1733.5	1733.9	1	2.4	1.2		
	606	SGMR	1	1734	1736.5	4.5	1.5	.5		
	2800	OTTA	1	1735	1735.8	1	3.0	1.5		
	2800	OTTA	31	1736	1750	43	-8.8	-4.4		
	2695	SGMR	32	1736.9	1753	43.1	6.3	2.0		
	1415	SGMR	32	1738.4	1753	30.8	3.4	1.5		
	4995	SGMR	32	1739.3	1758	35.8	7.6	3.0		
	8800	SGMR	32	1740	1758	32.4	8.3	4.0		
	15400	SGMR	32	1747.4	1759.5	23.1	13.6	5.0		
	184	BOUL	6	1754	1754	1	4340.0	2100.0		
	8800	SGMR	1	1953.3	1953.5	1.3	3.7	1.5		
	4995	SGMR	1	1953	1953.5	1.6	7.4	3.0		
24	7000	SAOP	4	1037.2	1039.6	2.3	24.2	12.1		
	184	BOUL	6	1644	1644	1	1450.0	360.0		
	7000	SAOP	3	1652.7	1653.2	1.1	10.9	5.9		
	2700	PENN	3	1652.3	1654.4	8.6	23.5	5.2		
	960	PENN	45	1652.7	1654.3	4.3	40.4	6.3		
	606	SGMR	4	1652.7	1654.3	3.5	15.5	5.1		
	1415	SGMR	3	1653.3	1654.1	4.7	190.0	31.7		
	184	BOUL	6	1653	1653	3	2170.0	360.0		
	7000	SAOP	8	1655.5			32.7	16.4		
	2700	PENN	20	1934.3	1938.7	74.2	15.7	3.5		
	2800	OTTA	21	1935	2015	110	8.0	5.4		
	2695	SGMR	23	1935.8	1955.5	41.9	10.3	5.2		
	1415	SGMR	21	1935.9	1946.6	42.3	5.4	2.7		
	8800	SGMR	4	1936.9	1937.8	2.9	15.2	12.0		
	4995	SGMR	4	1936.2	1937.7	4.3	27.4	19.8		
	2800	OTTA	4	1936	1939	14	14.6	7.3		
	2695	SGMR	4	1936.9	1938.9	4.7	10.3	6.0		
	1415	SGMR	45	1936.7	1936.8	1.8	12.0	4.8		
	10700	PENN	20	1936.8	1937.6	81.1	11.7	3.8		
	960	PENN	45	1937.5	1939.9	3.8	29.2	4.8		
	606	SGMR	4	1938.3	1939.9	5.1	35.0	7.5		
	328	PENN	5	1938.3	1938.7	.8	16.3	4.1		
	8800	SGMR	29	1939.8	1939.8	18.6	7.4	3.7		
	4995	SGMR	29	1940.5	1940.5	37.5	10.6	5.3		
	328	PENN	5	1947.8	1948.4	1.8	10.1	3.5		
	2800	OTTA	4	1951	1954	11	10.0	5.0		
	1415	SGMR	45	1951.8	1956.7	9.3	13.4	4.6		
	960	PENN	3	1951.5	1955.4	9.3	12.7	3.5		
	606	SGMR	45	1951.7	2000.7	19.5	17.5	4.5		
	408	SANM	45	1951.7	2000.8	18.3	38.0	12.5		
	184	BOUL	48	2225	2227	8	6480.0D	1080.0		
	2695	PENT	46	2227	2228.7	9	158.0	26.0		
				2227	2227.7	1.2	145.0			
				2228.2	2228.7	7.8	158.0			
	2695	PENT	29	2236		6 D	5.0			
25	4995	SGMR	3	1511.8	1512.3	5.4	18.6	6.4		
	2800	OTTA	3	1511.8	1512.3	2	18.0	9.0		
	2700	PENN	3	1511.5	1512.2	10.9	22.0	2.6		
	2695	SGMR	3	1511.8	1512.2	2.7	22.3	9.2		
	1415	SGMR	3	1511.7	1512.3	2.8	14.7	5.0		
	960	PENN	3	1511	1512.1	3.6	7.8	2.7		
	606	SGMR	3	1511.8	1512.2	1.7	33.2	10.7		
	8800	SGMR	1	1512.1	1512.3	4.1	5.6	1.7		
	2800	OTTA	29	1513.8		8	3.8	1.7		
	7000	SAOP	1	1546.2	1546.4	1.2	6.3	3.2		
	2700	PENN	3	1546.9	1547.4	4.9	14.2	2.9		
	2695	SGMR	3	1546.9	1547.3	3.6	14.7	4.1		
	960	PENN	1	1546.9	1547.4	4.3	6.7	1.3		
	328	PENN	45	1546.9	1547.1	.6	56.0	11.0		
	8800	SGMR	1	1547.2	1547.5	2	4.3	1.3		
	4995	SGMR	3	1547	1547.4	3.7	11.2	3.8		
	2800	OTTA	4	1547	1547.4	1.5	18.6	4.7		
	1415	SGMR	3	1547.2	1547.5	1.7	8.0	2.5		
	606	SGMR	40	1547	1547.1	1.9	6.1	2.0		
	7000	SAOP	45	1835.6	1841.2	3.1	27.6			
	4995	SGMR	45	1836.8	1841	6.8	34.2	20.2		
	2800	OTTA	23	1836	1901	55	6.0	3.0		
	2700	PENN	20	1836.6	1841.2	131.1	13.7	3.5		
	1415	SGMR	45	1836.8	1839.5	5.3	22.1	6.9		
	10700	PENN	20	1836.8	1841.2		21.3			
	8800	SGMR	4	1837.5	1841.1	13.3	23.2	8.2		
	2800	OTTA	4	1837	1840	9	11.0	5.5		
	2695	SGMR	4	1837.9	1841.2	4.6	15.1	7.2		
	960	PENN	45	1837.1	1838	5.9	195.0	23.8		
	606	SGMR	4	1837.9	1839.6	20.6	19.5	1.0		
	15400	SGMR	20	1838	1840.9	17.7	10.2	5.1		
	2695	SGMR	29	1842.5	1842.5	23.9	5.5	2.7		
	1415	SGMR	29	1842.1	1842.1	16.4	4.2	2.1		
	4995	SGMR	29	1843.6	1843.6	15.4	10.6	5.3		
	7000	SAOP	31	1844.3		5				
	2800	OTTA	1	1847.5	1848	2	3.4	1.7		
	328	PENN	5	1849.8	1849.9	.4	170.0	48.0		
	408	SANM	45	1900	1903.3	11.7	20.5	8.5		

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

Western Hemisphere

DECEMBER 1968

DEC. 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
	1415	SGMR	1	1902.8	1903.6	1.6	3.6	2.3		
	606	SGMR	4	1902.8	1903.2	1.5	10.5	3.0		
	2695	SGMR	1	1910.4	1910.5	2.1	2.4	1.2		
	1415	SGMR	1	1910.4	1910.5	1.2	1.2	.6		
	606	SGMR	1	1910.1	1910.8	1.4	4.5	2.2		
	4995	SGMR	1	1911.5	1911.6	.6	1.6	.8		
	2695	PENT	26	2005		55	6.4			
	2695	PENT	1	2206	2206.5	1	5.0	2.5		
26	4995	SGMR	22	1354.1	1359.7	13.4	9.9	4.0		
	1415	SGMR	23	1355.6	1357	11.9	3.2	1.5		
	8800	SGMR	22	1356.6	1359.6	15.5	4.8	2.0		
	2800	OTTA	23	1356	1358	30	5.4	2.7		
	2695	SGMR	4	1356.3	1358.2	6.7	8.4	2.0		
	606	SGMR	1	1356.6	1356.7	2.6	4.7	2.0		
	7000	SAOP	22	1358.3	1359.9	3.7	13.7	6.8		
	1415	SGMR	3	1358	1358.6	1.2	12.2	4.0		
	2800	OTTA	2	1429	1429.5	2	2.2	1.1		
	7000	SAOP	22	1455.5		6.7	16.0	8.0		
	4995	SGMR	22	1534	1540	8.6	2.2	1.0		
	2695	SGMR	22	1534	1543.8	14.9	12.0	5.0		
	1415	SGMR	22	1534.3	1544	14.6	6.2	2.0		
	8800	SGMR	20	1535	1541.6	11.4	4.5	2.0		
	2700	PENN	20	1540.2	1543.7	20.8	7.7	1.7		
	184	BOUL	41	1541	1542	5	650.0	360.0		
	2800	OTTA	2	1542	1543.9	7	7.4	1.9		
	606	SGMR	2	1542	1544.5	6	6.8	3.0		
	960	PENN	3	1543.2	1543.8	1.6	9.5	3.6		
	328	PENN	5	1543.4	1543.5	.4	33.1	7.3		
	8800	SGMR	1	1553.9	1555.2	3.1	6.2	3.0		
	4995	SGMR	1	1553.9	1555.2	4.4	6.4	3.0		
	2695	SGMR	1	1553.9	1555	1.8	4.8	2.0		
	15400	SGMR	1	1554.5	1555.2	1.8	3.6	1.5		
	2800	OTTA	2	1554	1555	2	4.4	2.2		
	1415	SGMR	1	1554.9	1555	1	2.0	1.0		
	7000	SAOP	45	1653.9	1655.6	3.1	18.3	9.2		
	2800	OTTA	1	1803.8	1804.5	1.5	3.0	1.5		
	2700	PENN	1	1803.6	1804.6	3.2	3.2	1.6		
	960	PENN	3	1805.7	1806	.4	10.0	1.5		
	184	BOUL	6	1830	1831	3	1085.0	720.0		
	2700	PENN	24	1831.7	1834.1		3.9			
	4995	SGMR	20	1833.3	1835	12.5	3.6	1.5		
	2800	OTTA	1	1833	1834	4.5	4.0	2.0		
	2695	SGMR	1	1833.3	1834.2	1.4	2.9	1.0		
	606	SGMR	1	1833.7	1833.8	1.8	4.2	2.0		
	1415	SGMR	20	1834.2	1834.2	13.1	2.1	1.0		
	328	PENN	45	1834	1839.3	6.8	66.8	6.5		
	960	PENN	3	1840.1	1840.3	.3	9.0	2.7		
	2800	OTTA	21	1850	1910	70	3.0	1.5		
	2700	PENN	20	1857.8	1904.5	22.4	14.0D	3.0D		DUR. CAL.
	4995	SGMR	22	1858.4	1904.6	29.8	20.1	8.0		
	2695	SGMR	22	1901.8	1904.3	11.6	14.3	6.0		
	1415	SGMR	22	1901.8	1904.7	8.6	9.7	4.0		
	8800	SGMR	22	1903	1904.5	13.4	4.1	2.0		
	15400	SGMR	1	1903.2	1904	1.2	2.6	1.0		
	2800	OTTA	3	1903	1904.5	5	13.0	6.0		
	606	SGMR	1	1903.7	1904.5	1.3	2.6	1.2		
	606	SGMR	45	1917.9	1918.8	1.6	31.1	1.5		
	1415	SGMR	1	1918.3	1918.4	.4	1.0	.5		
	8800	SGMR	4	2021.7	2023.3	9.9	140.0	30.0		
	4995	SGMR	4	2021.6	2023.6	10	130.0	20.0		
	2700	PENN	3	2021.4	2023.7	5.2	31.0	10.3		
	2695	SGMR	3	2021.8	2023.7	5.9	32.6	8.0		
	10700	PENN	45	2021.4	2023.2	5.8	165.0	48.6		
	2800	OTTA	21	2022	2057	110	13.0	6.5		
	2800	OTTA	3	2022	2023.9	4	34.0	15.0		
	1415	SGMR	40	2022.7	2022.9	2.8	4.6	1.5		
	2800	OTTA	30	2026		15	6.6	3.3		
	2700	PENN	29	2026.6	2026.6		5.5			
	2700	PENN	1	2027.6	2028.5	3.4	4.0	2.0		
	10700	PENN	29	2027.2	2027.2		17.2			
	2800	OTTA	1	2028	2028.5	2	2.6	1.3		
	10700	PENN	3	2028.2	2028.4	2.6	13.5	7.4		
	606	SGMR	45	2045.5	2053	10.3	98.0	20.0		
	408	SANM	45	2050	2052.5	40	57.0	11.0		
	328	PENN	41	2050.8	2052.7	4.2	114.0			
	184	BOUL	6	2050	2050	3	5760.0	1450.0		
	2700	PENN	3	2051.4	2052.9	11.9	17.5	6.2		
	960	PENN	3	2051.8	2054.1	4.3	23.7	11.2		
	2695	PENT	45	2052.5	2053.2	4	16.0	7.4		
	1415	SGMR	45	2052.4	2053.1	3	22.1	4.2		
	10700	PENN	3	2052.5	2053.7	4	9.6	4.8		
	2695	PENT	1	2057.5	2058.5	3	3.0	1.5		
	606	SGMR	40	2101	2104.8	5.5	16.6	3.5		1
27	408	SANM	40	0955 E	1007.5	59.2D	50.0	8.0		
	7000	SAOP	47	1048.4	1055.8	14.9	1951.8			
	408	SANM	45	1054.2	1056	50.8	2500.0D	25.0		
	7000	SAOP	29	1110.7		23.5				
	7000	SAOP	41	1134.6		58				
	7000	SAOP	20	1134.6		52.6	12.5	6.7		

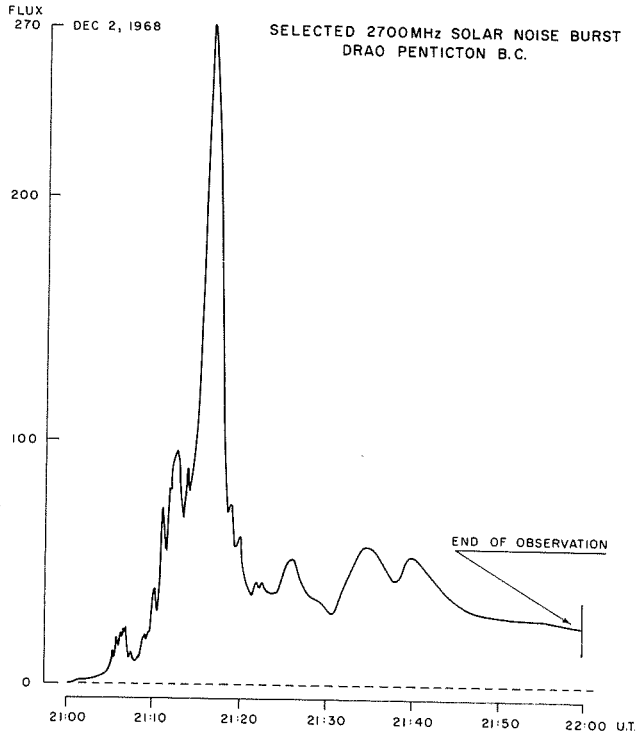
SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

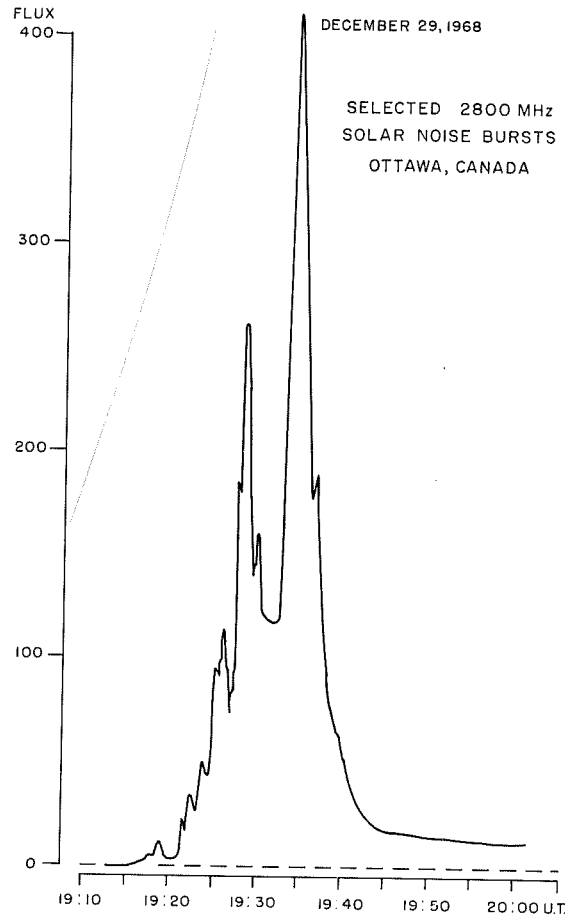
Western Hemisphere

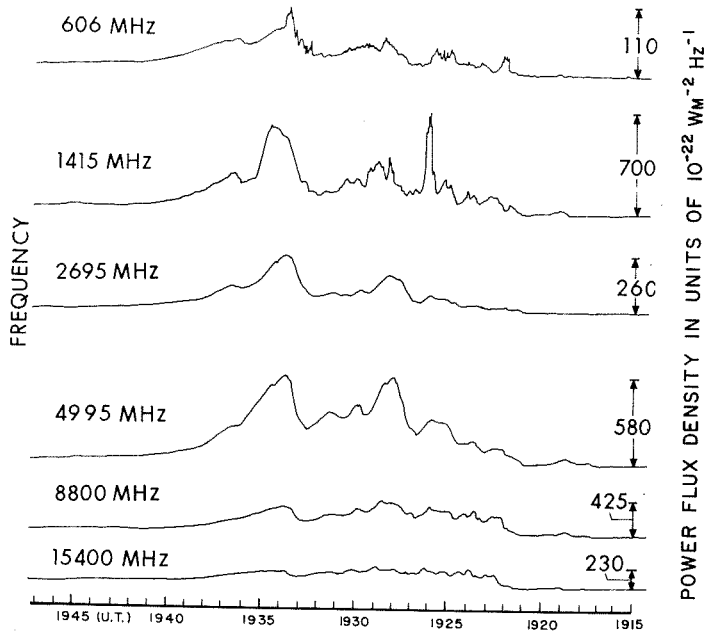
DECEMBER 1968

DEC. 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
	7000	SAOP	22	1229		3.2	6.1	3.0		
	7000	SAOP	20	1502.3		47.5	10.4	5.2		
	1415	SGMR	1	1742.5	1742.6	.3	6.7	3.0		
	606	SGMR	4	1742	1742	4.5	175.0	20.0		
	2695	PENT	20	2015	2025	25	2.4	1.2		
28	7000	SAOP	3	1124.4	1128.6	6.8	221.6	110.8		
	7000	SAOP	29	1131.1		41				
	2800	OTTA	21	1600	1630	60	3.2	1.6		
	2800	OTTA	1	1626	1626	1.5	2.6	1.2		
	7000	SAOP	21	1627		36				
	7000	SAOP	3	1628	1628.6	1.2	52.2	26.1		
	2695	PENT	1	2021.5	2022	1.5	3.8	1.9		
	2695	PENT	21	2050	2110	65	2.2	1.1		
29	408	SANM	42	1340	1347.9	8.7	42.5	19.0		
	8800	SGMR	3	1406.3	1406.7	7.8	21.1	7.3		
	15400	SGMR	3	1406.6	1406.9	.6	13.0	7.4		
	4995	SGMR	3	1406.2	1406.7	9	8.4	2.8		
	7000	SAOP	3	1407	1407.2	2.1	19.2	9.6		
	8800	SGMR	3	1428	1428.6	7.6	18.0	7.4		
	15400	SGMR	3	1428.1	1428.7	1.6	57.7	38.4		
	4995	SGMR	3	1428	1428.6	.9	8.1	4.1		
	2800	OTTA	2	1428	1428.5	1	2.4	1.2		
	2800	OTTA	2	1523	1523.3	1	2.0	1.0		
	2800	OTTA	20	1750	2030	240 D	18.0			
				1750	1833	80	6.0			
				1910	2030	160 D	18.0			
	8800	SGMR	20	1827.5	1828.7	15.7	20.1	7.0		
	15400	SGMR	3	1827.6	1829	4.7	17.1	8.6		
	4995	SGMR	20	1828.2	1833.4	8.5	9.9	3.0		
	408	SANM	45	1905	1936.7	40	50.0	13.5		
	8800	SGMR	45	1914.8	1928.7	27.2	425.0	280.0		
	2695	SGMR	45	1914.5	1928.3	30.1	260.0	175.0		
	1415	SGMR	45	1914.3	1926	30.9	700.0	465.0		
	7000	SAOP	45	1915.8	1929.8	21.5	387.3	120.7		
	15400	SGMR	45	1915.8	1928.5	22.2	230.0	145.0		
	4995	SGMR	45	1915	1929	30.2	580.0	385.0		
	2800	OTTA	2	1917.2	1919	3	8.8	4.4		
	606	SGMR	45	1918	1934.4	24.3	110.0	62.0		
	2800	OTTA	46	1921	1934	24	405.0	115.0		
				1921	1928.5	11	260.0			
				1932	1934	13	405.0			
	7000	SAOP	29	1937.3		19				
	15400	SGMR	29	1938	1938	34 D	80.0	40.0		
	8800	SGMR	29	1942	1942	43.2D	56.0	28.0		
	606	SGMR	29	1942.3	1942.3	37.4D	13.8	6.9		
	2695	SGMR	29	1944.6	1944.6	41 D	15.1	7.6		
	184	BOUL	43	1944	1948	136	940.0			
	4995	SGMR	29	1945.2	1945.2	39.8D	26.4	13.2		
	2800	OTTA	29	1945		13	6.6	3.3		
	1415	SGMR	29	1945.2	1945.2	36.8D	13.4	6.7		
	408	SANM	29	1945	2021.8	75	29.0	11.0		
	184	BOUL	6	2131	2132	2	1550.0	860.0		
30	328	PENN	45	1421.8	1425.7	5.4	63.8	14.2		
	2800	OTTA	4	1424.9	1425.5	1.5	32.0	16.0		
	2700	PENN	3	1424.3	1425.7	2.4	31.3	7.8		
	2695	SGMR	45	1424.8	1425.7	3.5	48.5	19.8		
	1415	SGMR	3	1424.6	1425.4	6.4	10.0	3.0		
	960	PENN	1	1424.8	1425.5	1.8	6.0	3.0		
	606	SGMR	3	1424.3	1425.7	4.2	11.2	4.9		
	8800	SGMR	45	1425.3	1425.4	3.4	9.9	6.5		
	4995	SGMR	45	1425.1	1425.4	5.4	29.4	11.5		
	15400	SGMR	3	1437.8	1438.1	2.4	29.2	11.0		
	8800	SGMR	3	1438	1438.2	1.4	8.6	5.2		
	4995	SGMR	20	1451.5	1451.9	8.8	1.9	1.0		
	8800	SGMR	20	1454.4	1455.7	19.4	2.2	1.1		
	1415	SGMR	1	1455.4	1455.9	6.4	1.0	.5		
	2695	SGMR	20	1456.6	1501	9.7	3.3	1.6		
	8800	SGMR	20	1637.6	1637.7	12.3	6.0	3.0		
	15400	SGMR	3	1637.5	1637.8	8.7	34.0	8.1		
	4995	SGMR	1	1637.7	1637.9	1.1	.6	.3		
	8800	SGMR	20	1811.4	1812	8	1.6	.8		
	15400	SGMR	20	1811.4	1812	11.4	5.9	3.0		
	2800	OTTA	20	1839	1840	9	2.0	1.1		
	2800	OTTA	20	1950	2005	75	2.2	1.4		
	1415	SGMR	46	1959.2	2002.5	6.1	84.0	10.0		
	2695	SGMR	1	2049.8	2052.8	5.5	5.9	3.0		
	8800	SGMR	3	2050.1	2052.2	4.8	12.0	6.0		
	4995	SGMR	1	2051.2	2052.7	4	7.0	3.5		
	1415	SGMR	1	2051.4	2052.5	4.1	4.0	2.0		
	606	SGMR	1	2051.1	2052.3	4.6	1.0	.5		

SELECTED SOLAR NOISE BURSTS





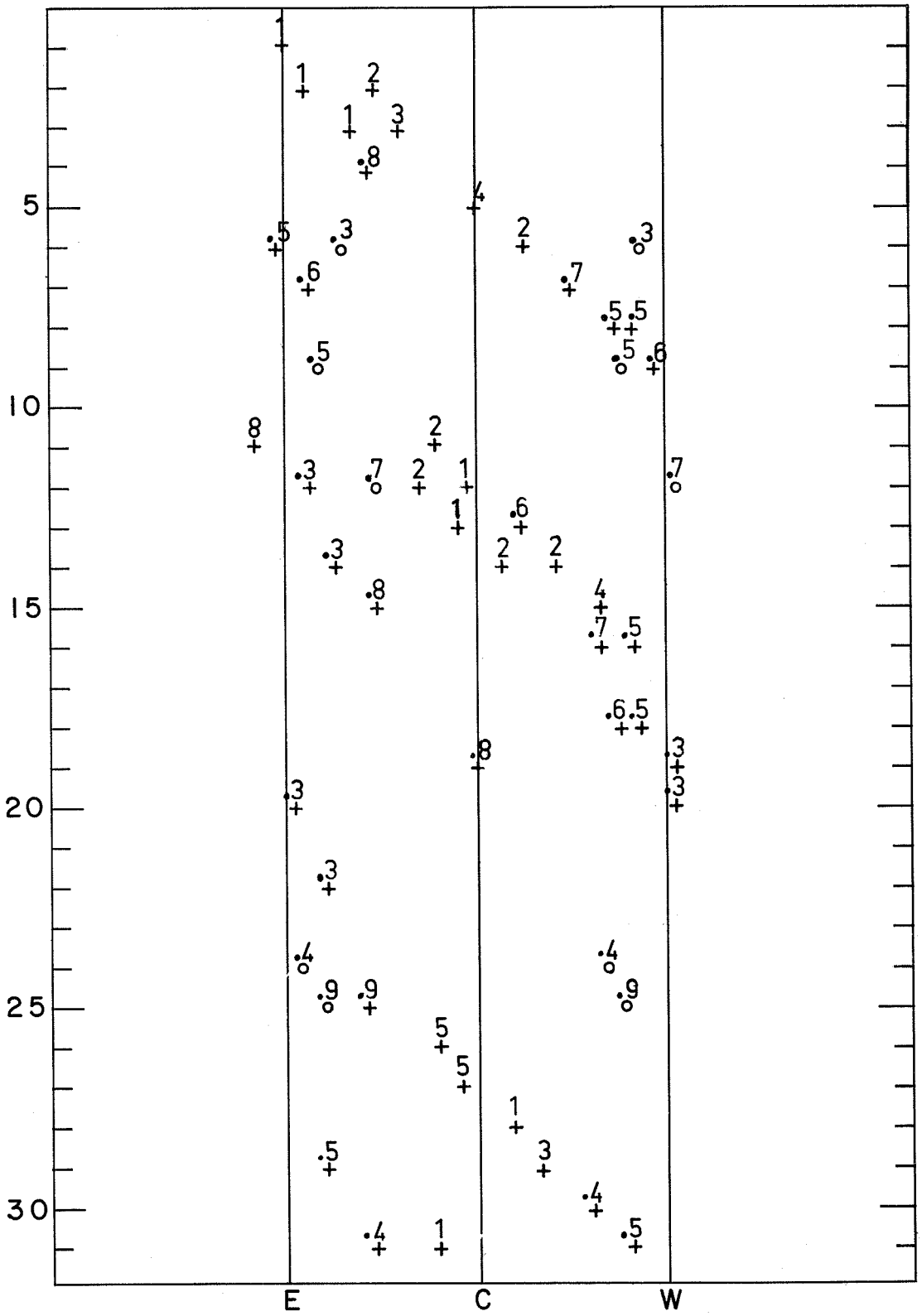


COMPLEX 'F' RADIO BURST-29 DECEMBER, 1968
AT SAGAMORE HILL RADIO OBSERVATORY
HAMILTON, MASS.

SOLAR RADIO EMISSION
INTERFEROMETRIC OBSERVATION

DECEMBER 1968

Nançay 408 MHz



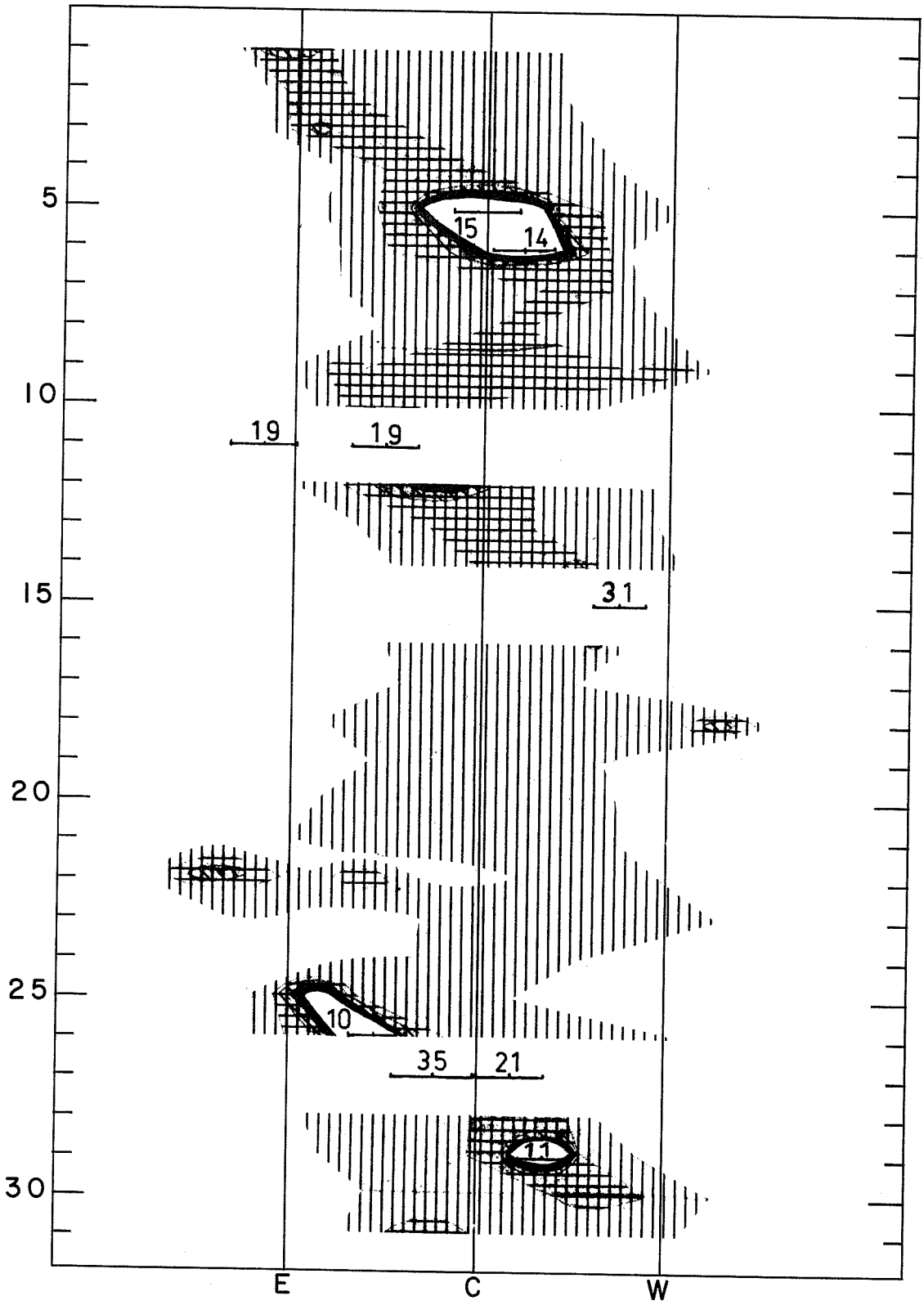
Because of the distance between the main lobes there is sometimes an ambiguity about the position East or West of the Center of Activity. The two possible positions are indicated by circles on the chart.

SOLAR RADIO EMISSION
INTERFEROMETRIC OBSERVATION

DECEMBER 1968

Nançay

169 MHz

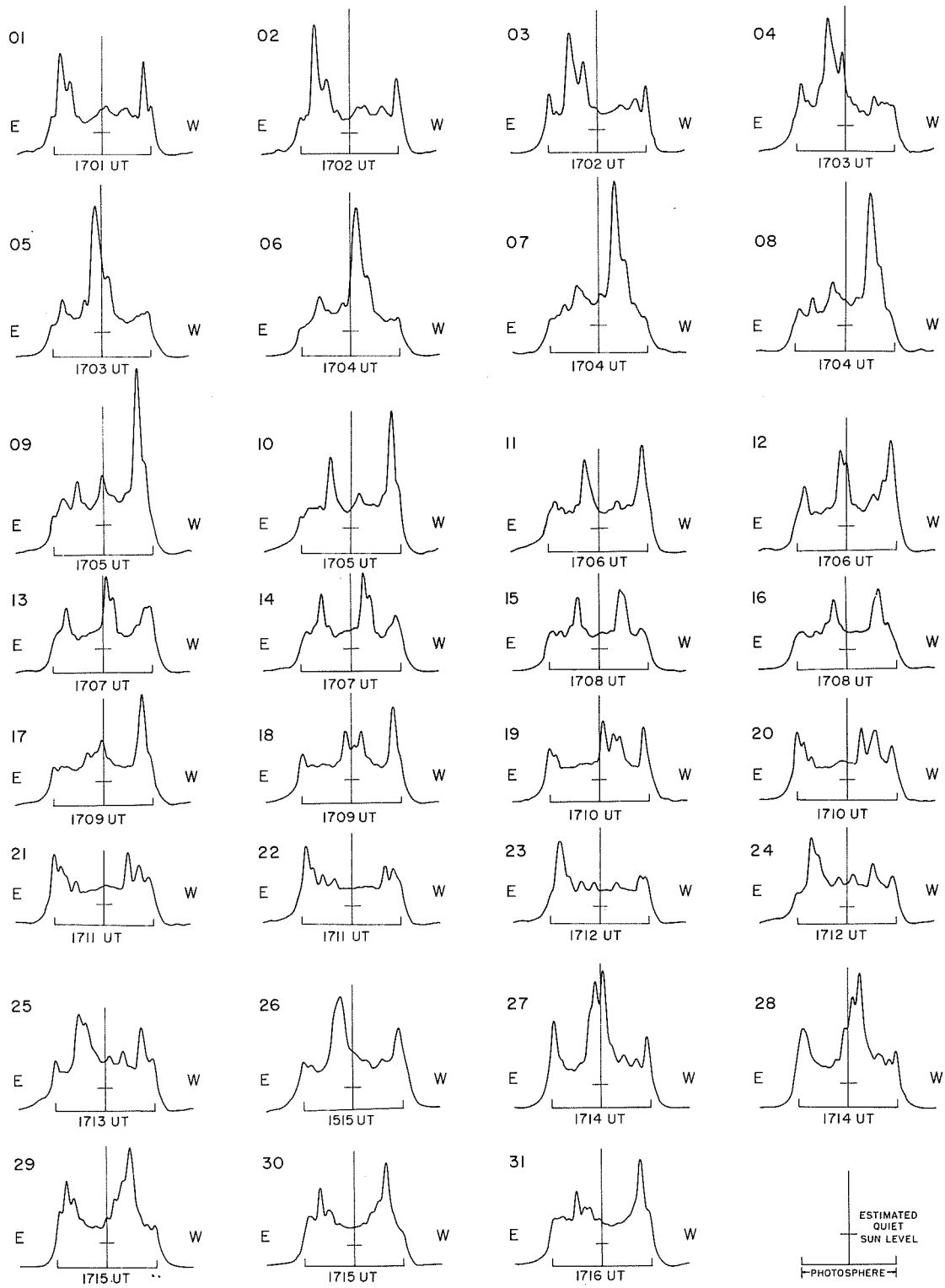


EAST-WEST SOLAR SCANS

December 1968

ALGONQUIN RADIO OBSERVATORY
CANADA

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

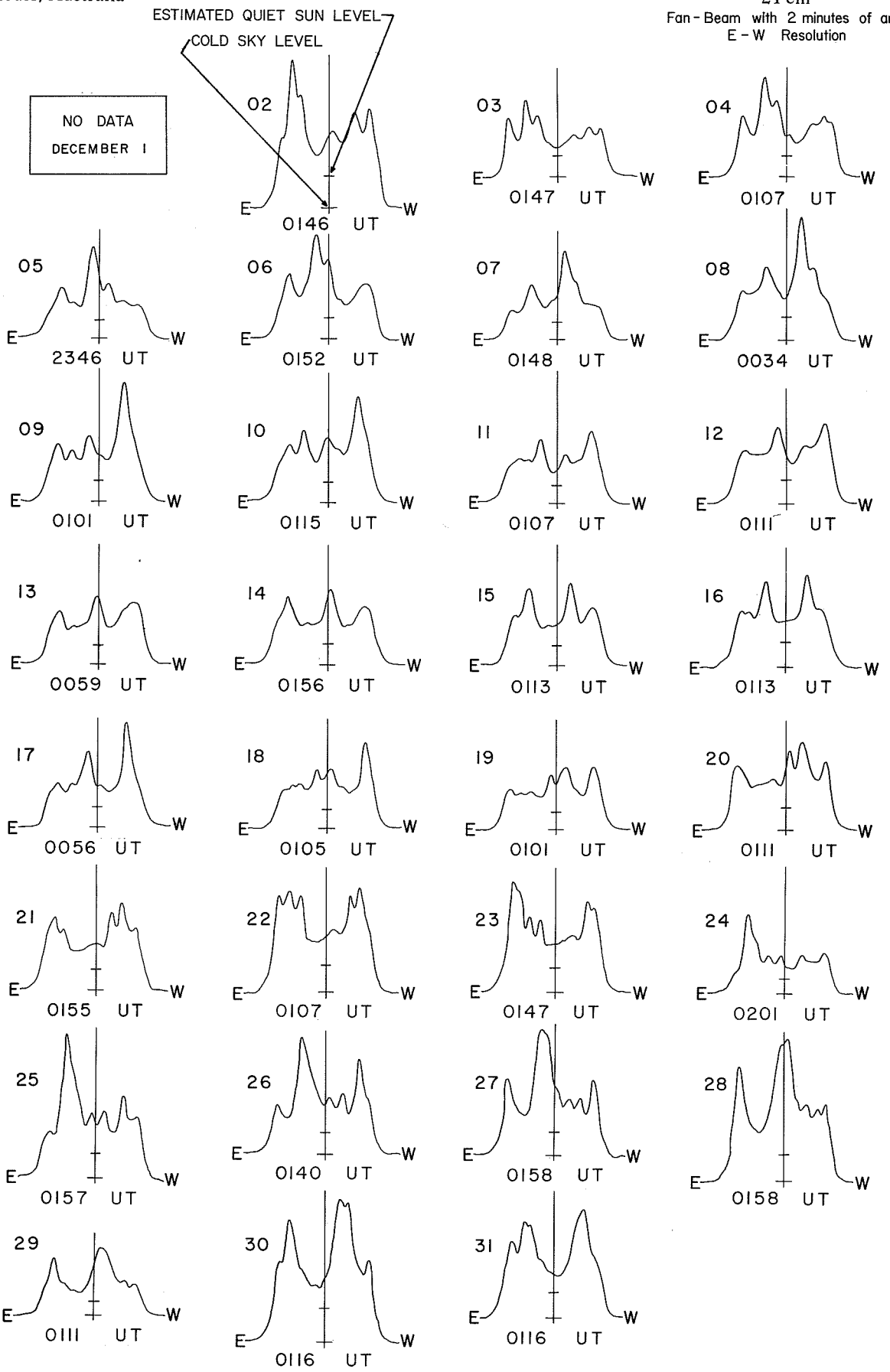


EAST-WEST SOLAR SCANS

DECEMBER 1968

Fleurs, Australia

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

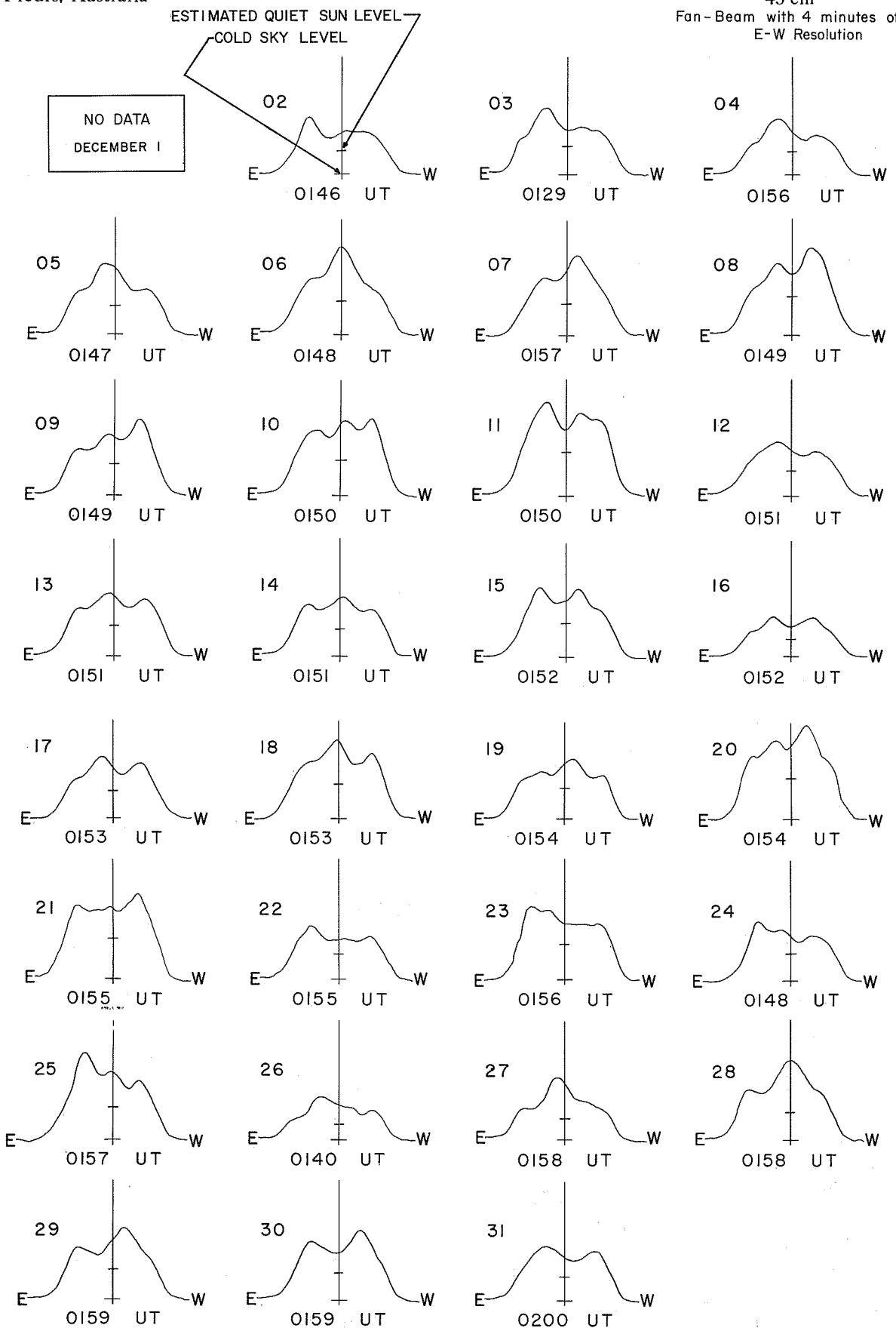


EAST-WEST SOLAR SCANS

DECEMBER 1968

Fleurs, Australia

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



SOLAR WIND VELOCITY
and
CO-ROTATION DELAY TIMES

December 1968

DATE 1968	PIONEER VI				PIONEER VII			
	Time (Z)	Pass	U_H^+	TAU	Time (Z)	Pass	U_H^+	TAU
Dec. 1					G0120	838	463.8	+5.48
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14	G2316	1095	368.0	-13.66				
15	G2106	1096	427.8	-13.52	G0037	851	511.0	+5.54
16					G0040	852	435.1	+5.51
17								
18	G2010	1099	511.0	-13.32	G2153	855	469.9	+5.48
19	G2029	1100	370.7	-13.51	G2141	856	452.3	+5.48
20	G2032	1101	341.3	-13.55	G2350	857	476.7	+5.49
21								
22								
23								
24								
25								
26	G2056	1107	373.3	-13.29	G2135	863	387.6	+5.46
27								
28								
29								
30								
31								

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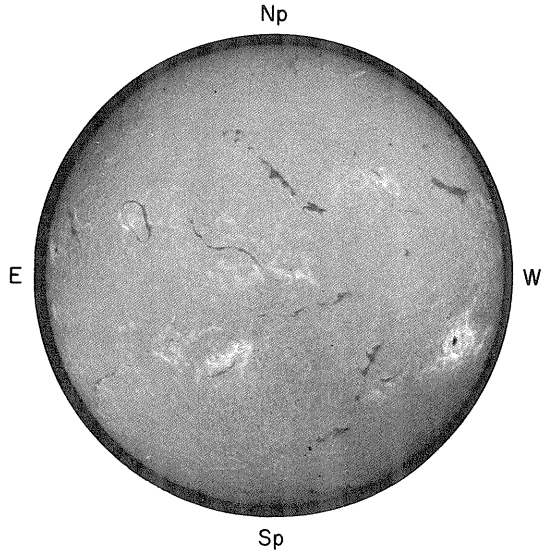
For explanations of the data contained herein see "Descriptive Text" published in February 1968.

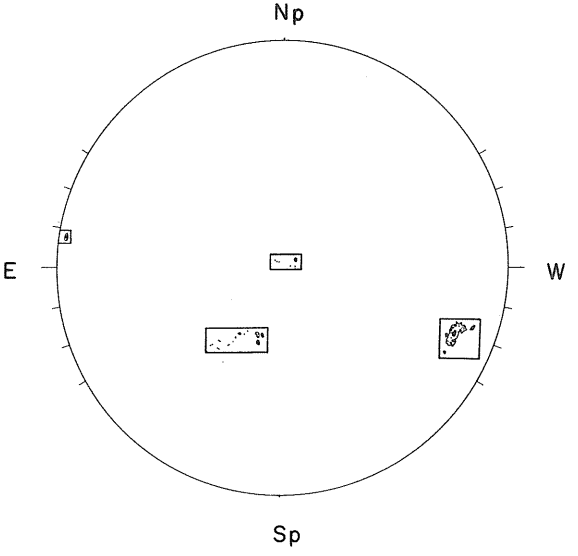
NOVEMBER 1, 1968 (P=24.54, B_o=4.32, L_o=128.63)

BOULDER Hα



1754 UT

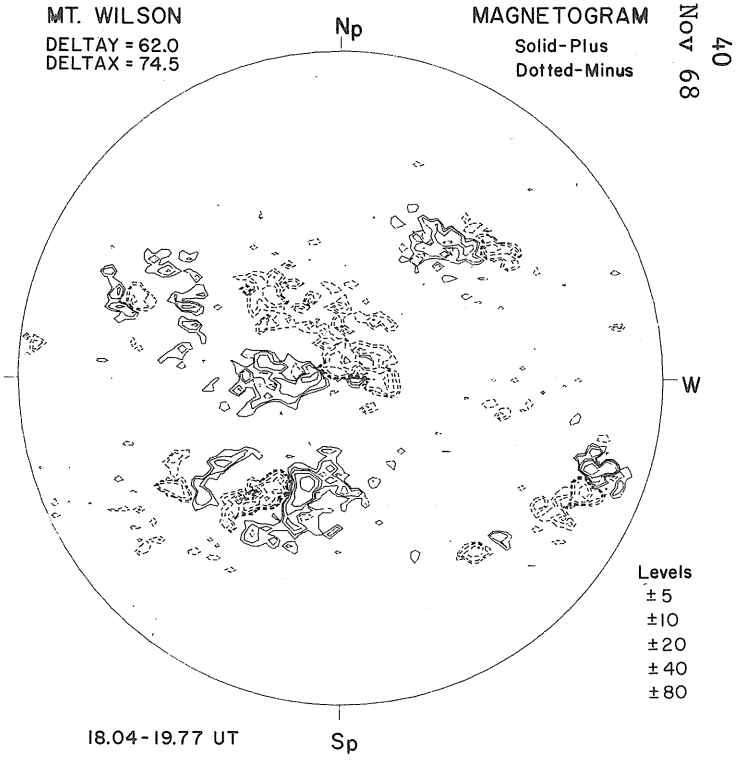
ESSA-BOULDER SUNSPOTS



1600 UT

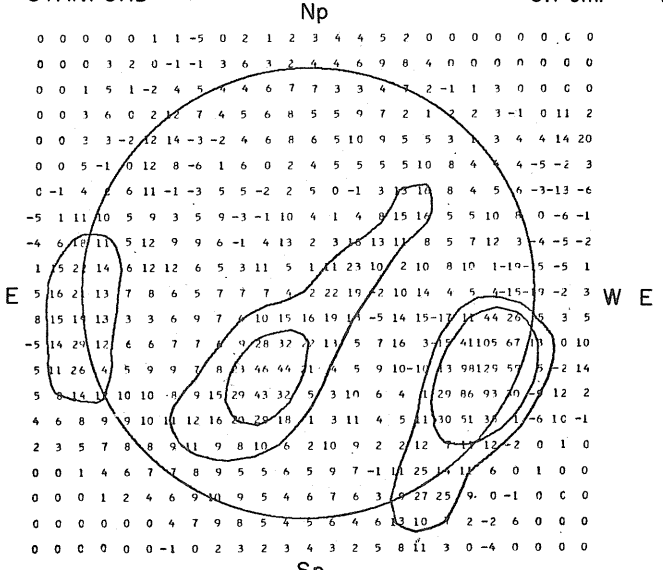
MT. WILSON
DELTAY = 62.0
DELTAX = 74.5

MAGNETOGRAM
Solid-Plus
Dotted-Minus



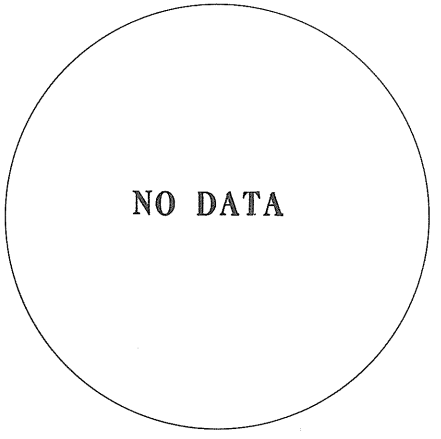
18.04-19.77 UT

STANFORD 9.1 cm.



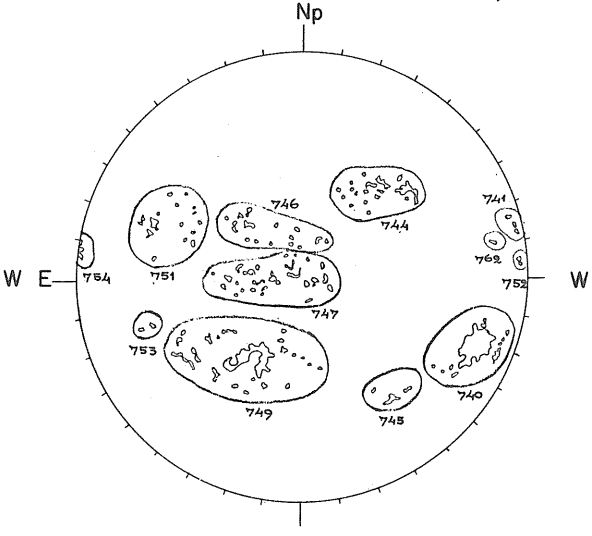
20-21 UT Brightness Unit 5000° K

FLEURS, AUSTRALIA 21 cm.



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

McMATH-HULBERT CALCIUM REPORT

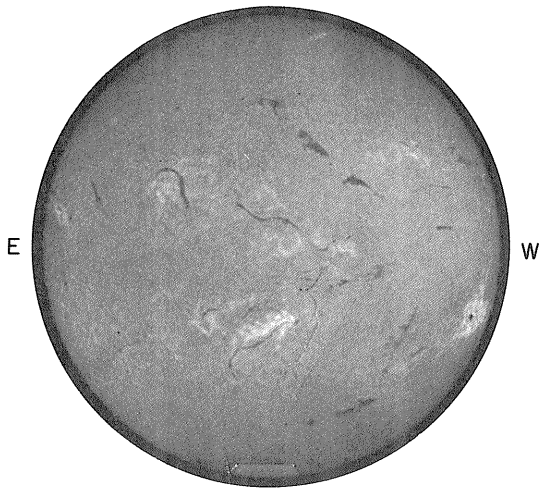


40-56-3.5
44-18-2.5
47-22-2.5
49-38-3.5
51-15-2.5

1330 UT

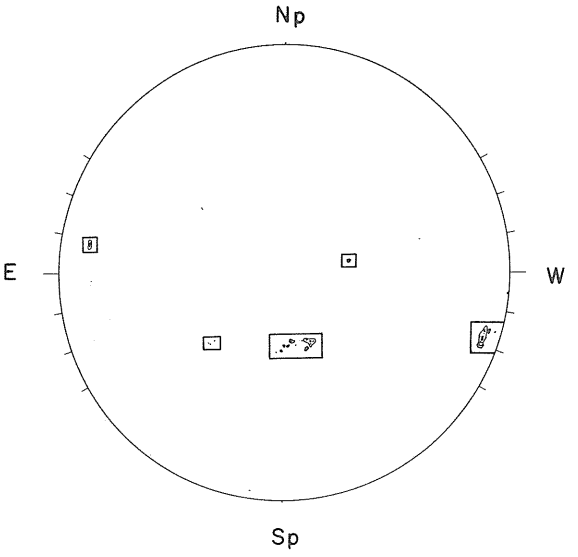
NOVEMBER 2, 1968 (P=24.37, B_o=4.22, L_o=115.44)

BOULDER Hα



1459 UT

ESSA-BOULDER SUNSPOTS

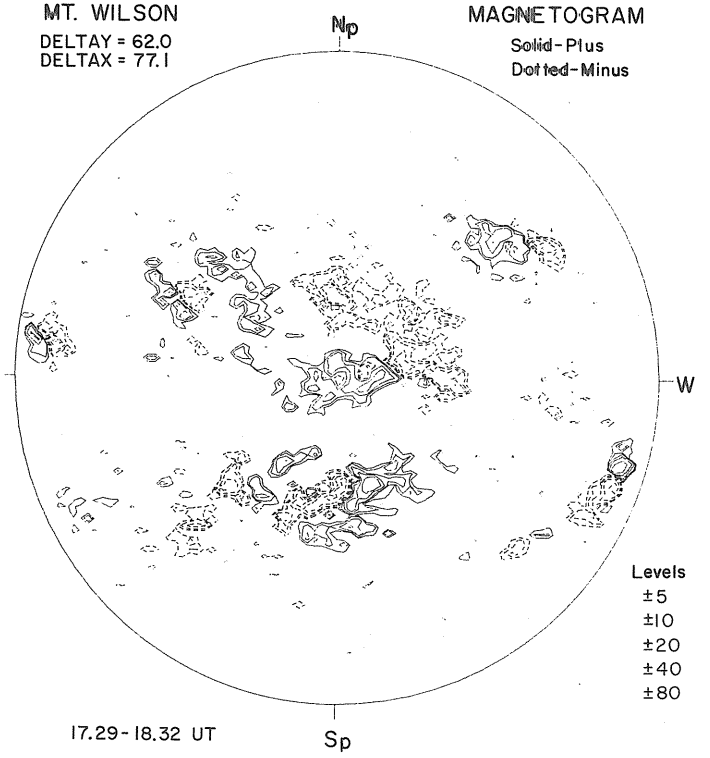


1530 UT

MT. WILSON MAGNETOGRAM

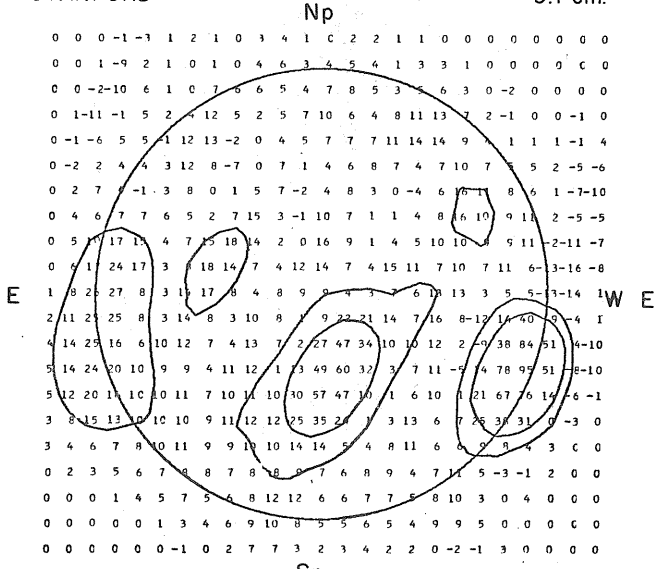
DELTAY = 62.0
DELTAX = 77.1

Solid-Plus
Dotted-Minus



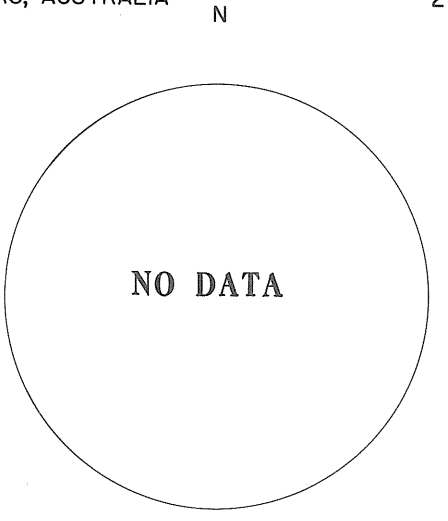
17.29-18.32 UT

STANFORD 9.1 cm.



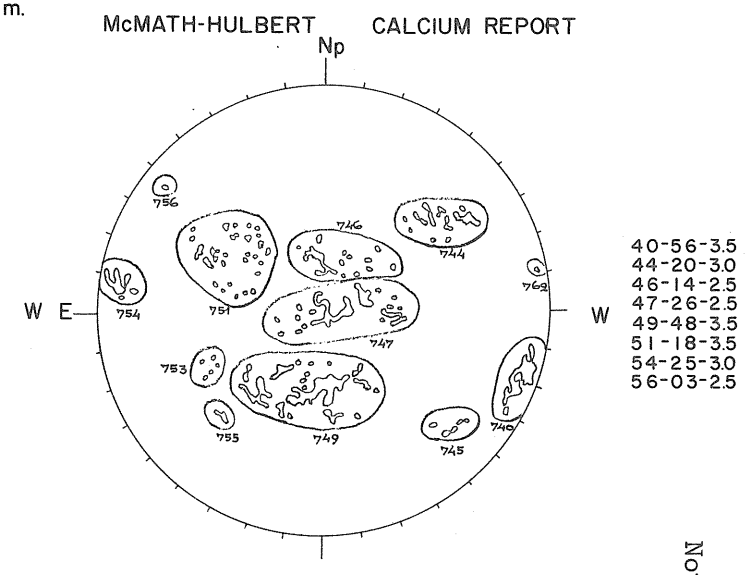
20-21 UT Brightness Unit 5000° K

FLEURS, AUSTRALIA 21 cm.



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

McMATH-HULBERT CALCIUM REPORT



1400 UT

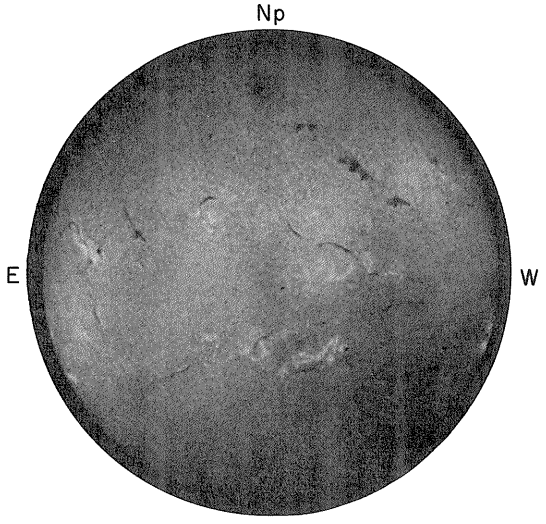
NOVEMBER 3, 1968 (P=24.19, B_o=4.12, L_o=102.26)

MT. WILSON

MAGNETOGRAM
Solid-Plus
Dotted-Minus

BOULDER

Hα

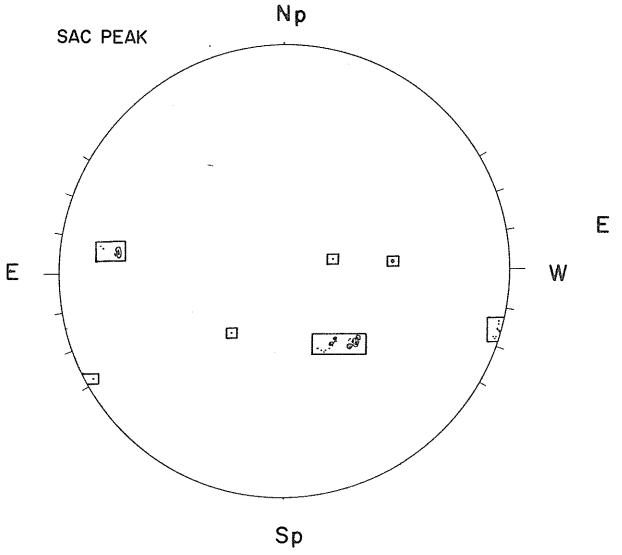


1536 UT

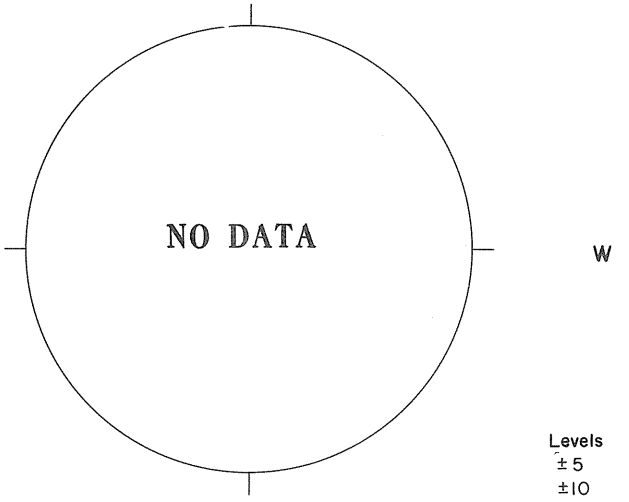
ESSA-BOULDER

SAC PEAK

SUNSPOTS



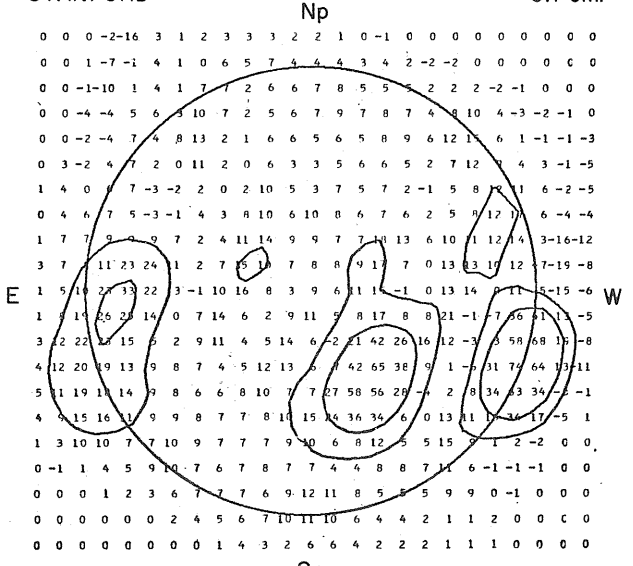
1517 UT



Levels
±5
±10
±20
±40
±80

STANFORD

9.1 cm.

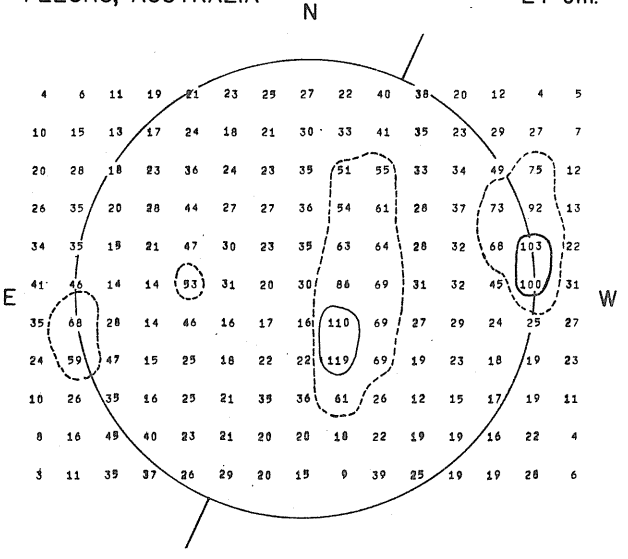


20-21 UT

Brightness Unit 5000° K

FLEURS, AUSTRALIA

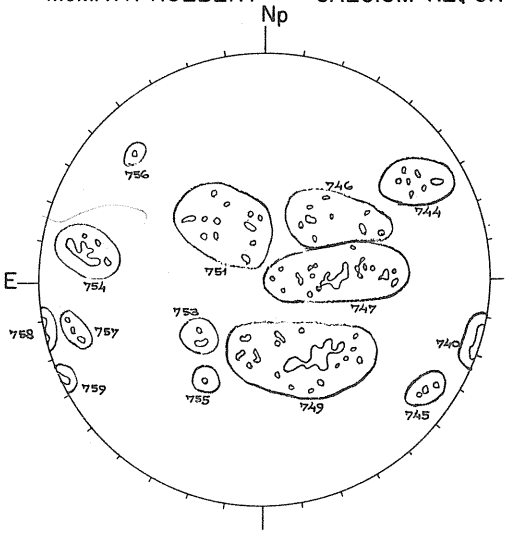
21 cm.



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

McMATH-HULBERT

CALCIUM REPORT

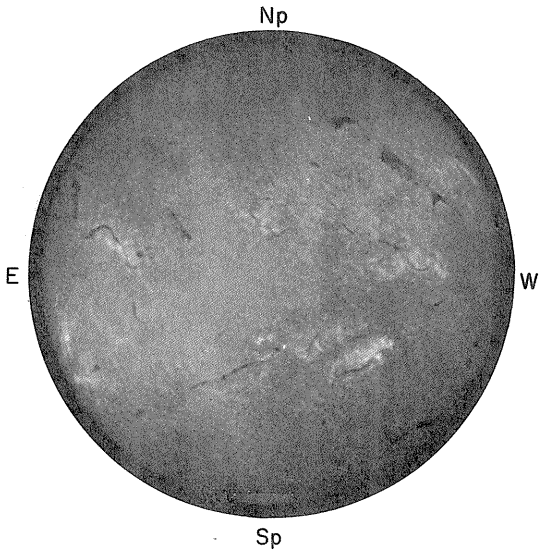


1525 UT

40-30-3.5
44-11-2.5
47-26-2.5
49-46-3.0
51-15-2.5
54-21-3.0
59-12-3.0

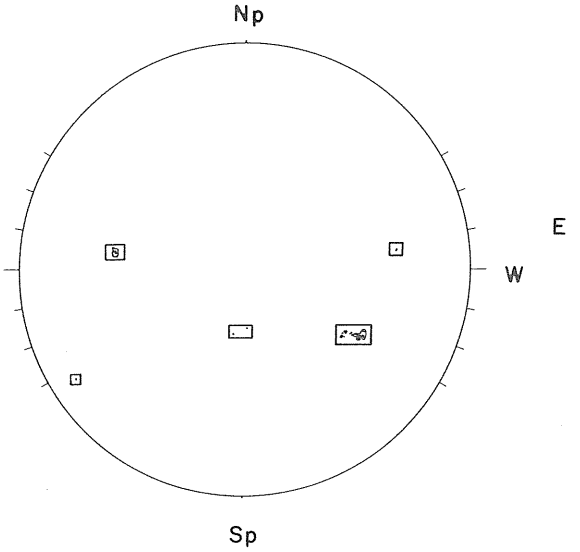
NOVEMBER 4, 1968 (P=24.00, B_o=4.01, L_o=89.07)

BOULDER Hα



1558 UT

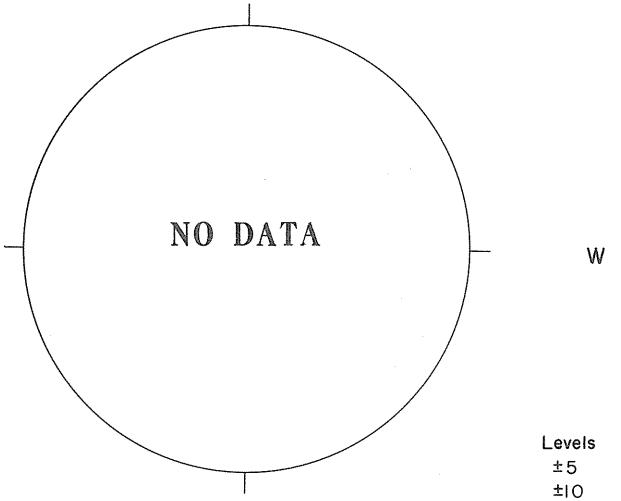
ESSA-BOULDER SUNSPOTS



1540 UT

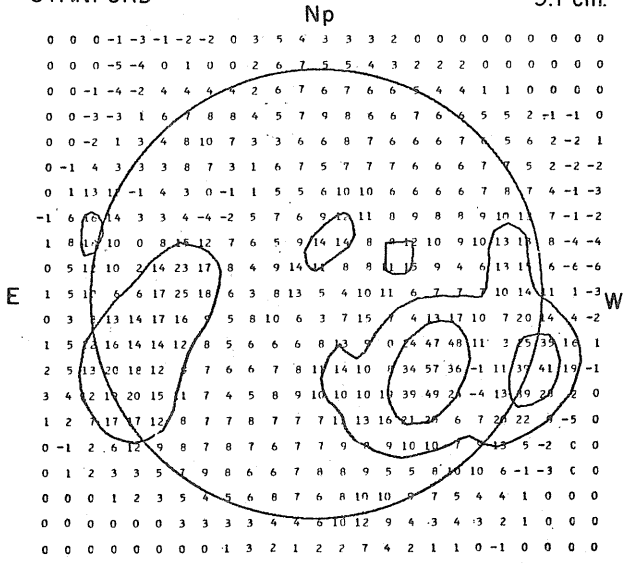
MT. WILSON MAGNETOGRAM

Solid-Plus
Dotted-Minus



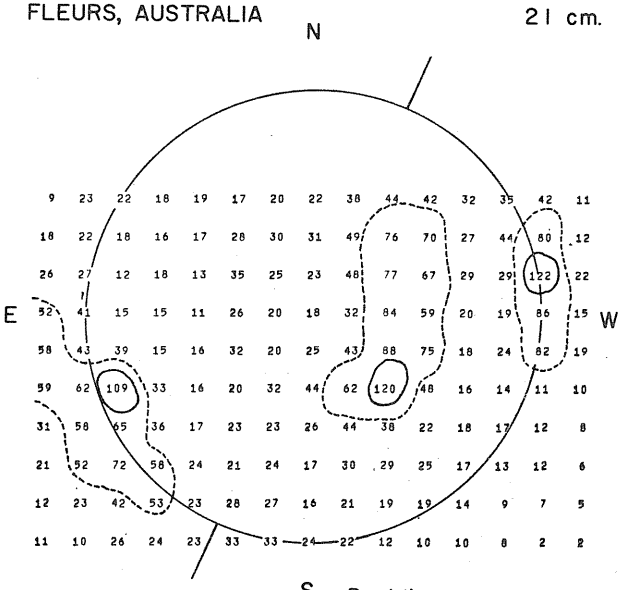
Levels
±5
±10
±20
±40
±80

STANFORD 9.1 cm.



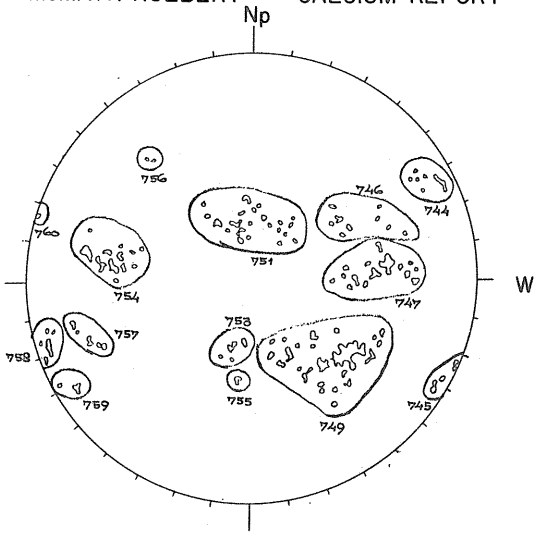
20-21 UT Brightness Unit 5000° K

FLEURS, AUSTRALIA 21 cm.



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

McMATH-HULBERT CALCIUM REPORT

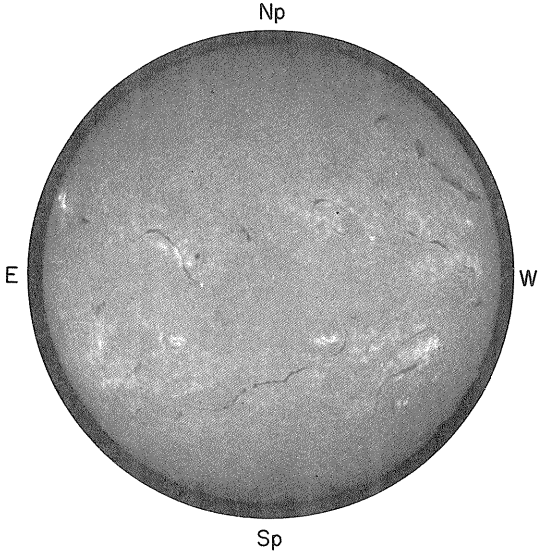


47-22-2.5
49-44-3.5
53-04-2.5
54-17-3.0
58-12-2.5
59-08-2.5

1330 UT

NOVEMBER 5, 1968 (P=23.81, B_o=3.91, L_o=75.89)

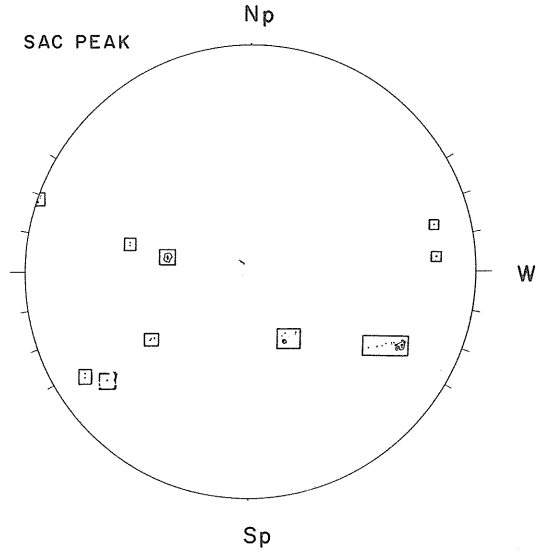
BOULDER Hα



2134 UT

ESSA-BOULDER SUNSPOTS

SAC PEAK

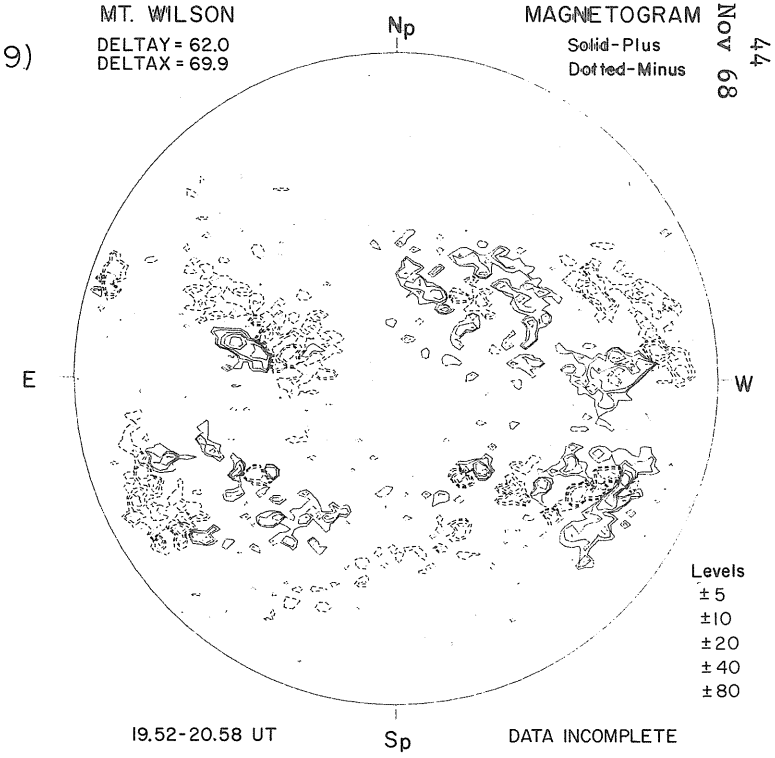


1600 UT

MT. WILSON MAGNETOGRAM

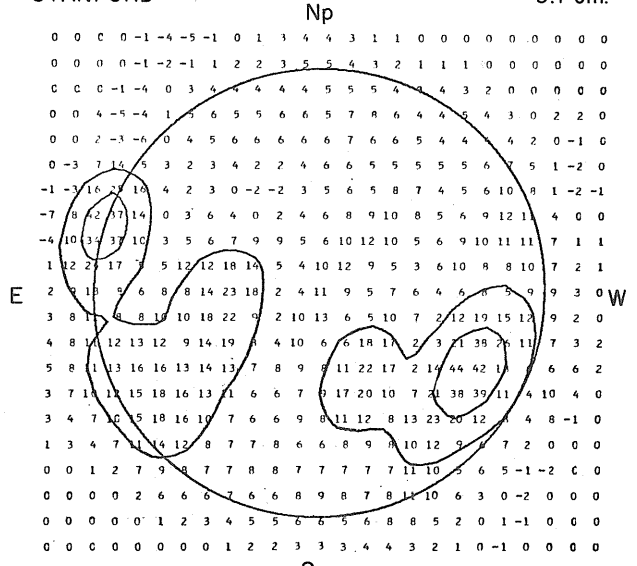
DELTAY = 62.0
DELTAX = 69.9

Solid-Plus
Dotted-Minus



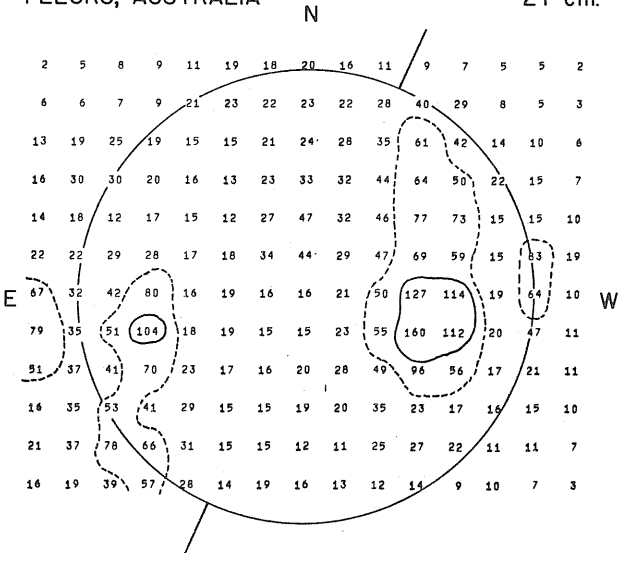
19.52-20.58 UT DATA INCOMPLETE

STANFORD 9.1 cm.



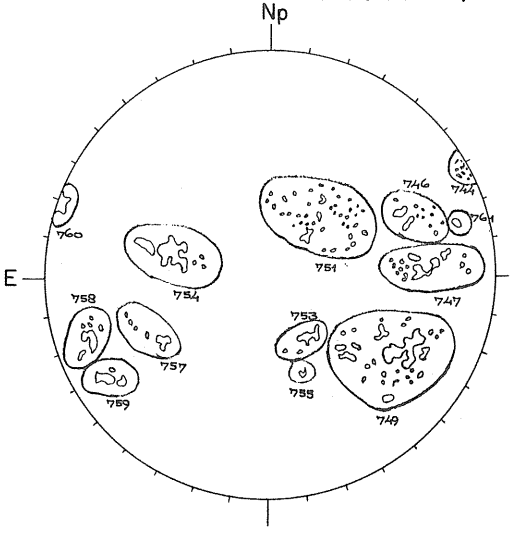
20-21 UT Brightness Unit 5000° K

FLEURS, AUSTRALIA 21 cm.



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

McMATH-HULBERT CALCIUM REPORT

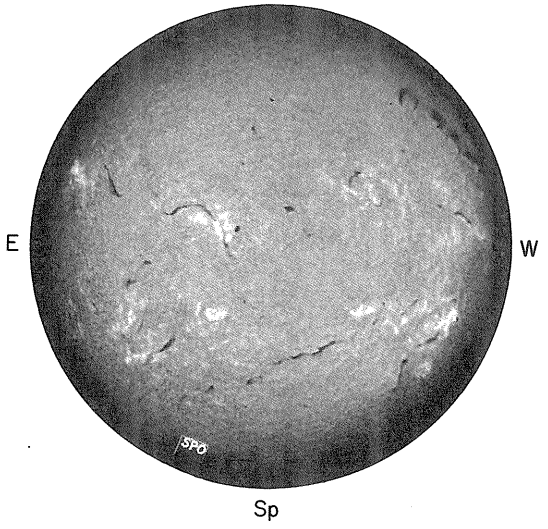


49-43-3.5
53-08-3.0
54-25-3.0
58-15-2.5
59-10-2.5

1330 UT

NOVEMBER 6, 1968 (P=23.60, B_o=3.80, L_o=62.70)

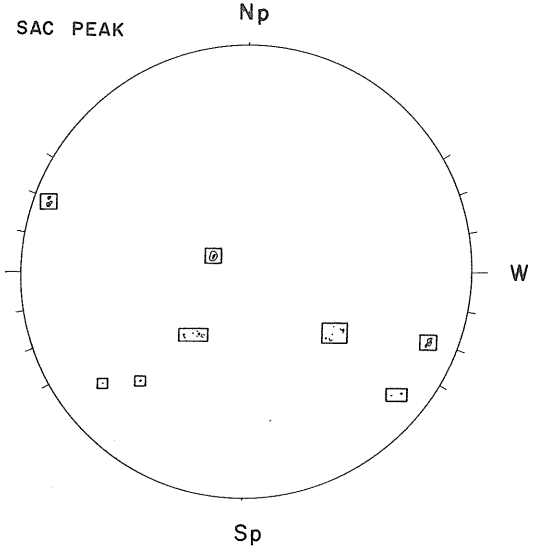
SACRAMENTO PEAK — Hα



1543 UT

ESSA-BOULDER — SUNSPOTS

SAC PEAK

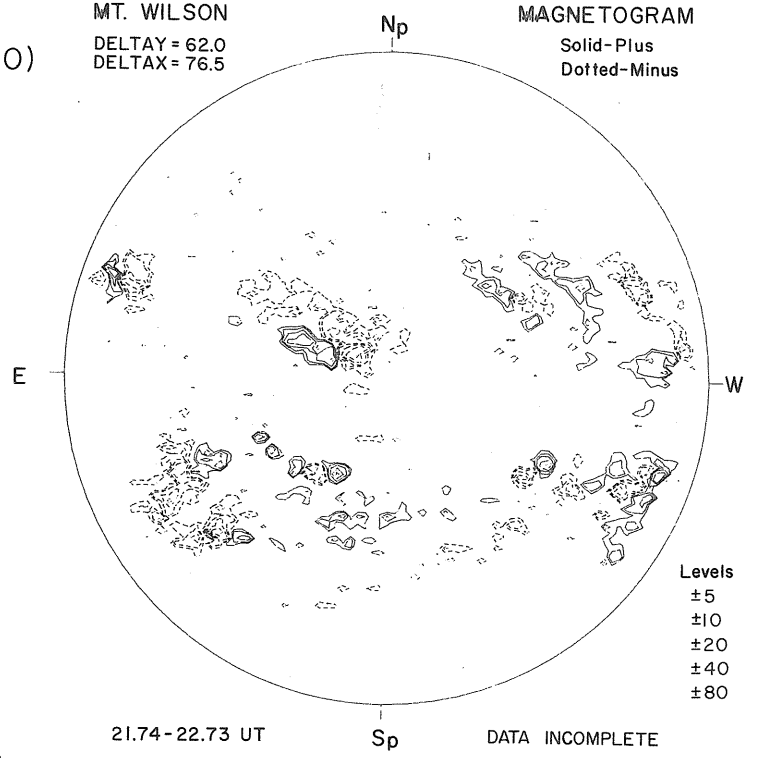


1538 UT

MT. WILSON — MAGNETOGRAM

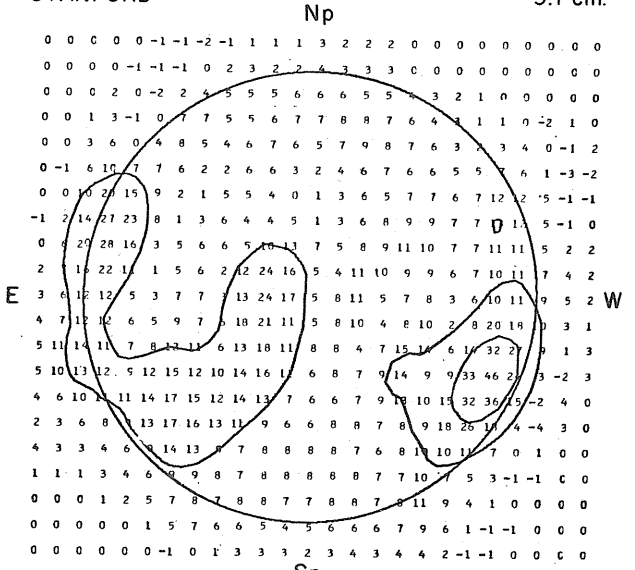
DELTAY = 62.0
DELTAX = 76.5

Solid-Plus
Dotted-Minus



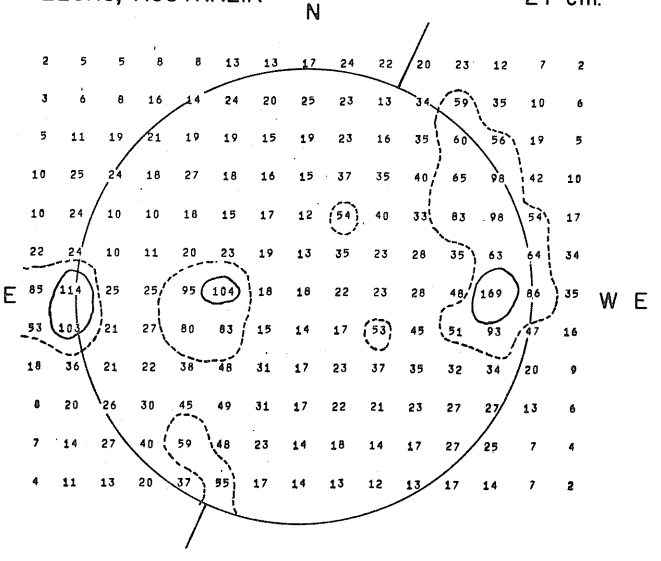
21.74-22.73 UT — DATA INCOMPLETE

STANFORD — 9.1 cm.



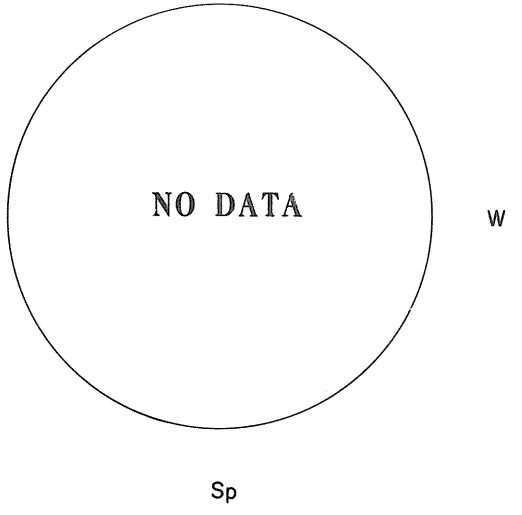
20-21 UT — Brightness Unit 5000° K

FLEURS, AUSTRALIA — 21 cm.



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

McMATH-HULBERT — CALCIUM REPORT



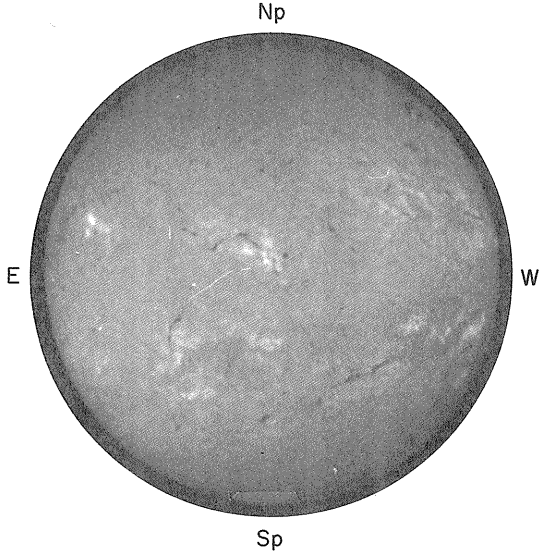
NOVEMBER 7, 1968 (P=23.39, B_o=3.69, L_o=49.52)

MT. WILSON

MAGNETOGRAM
Solid-Plus
Dotted-Minus

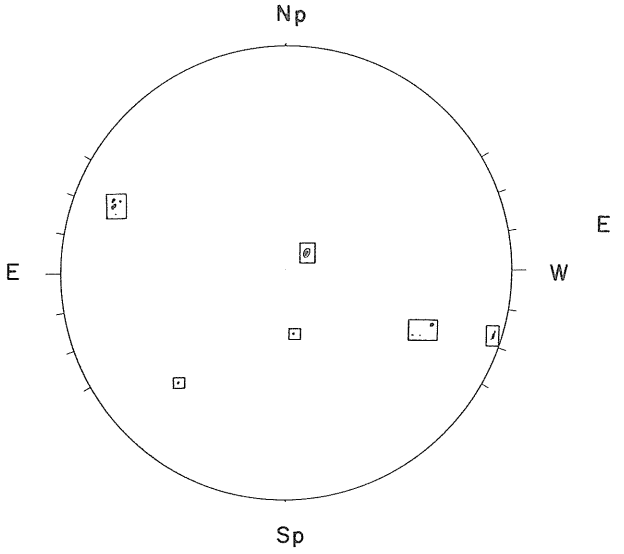
Nov 68 46

BOULDER Hα

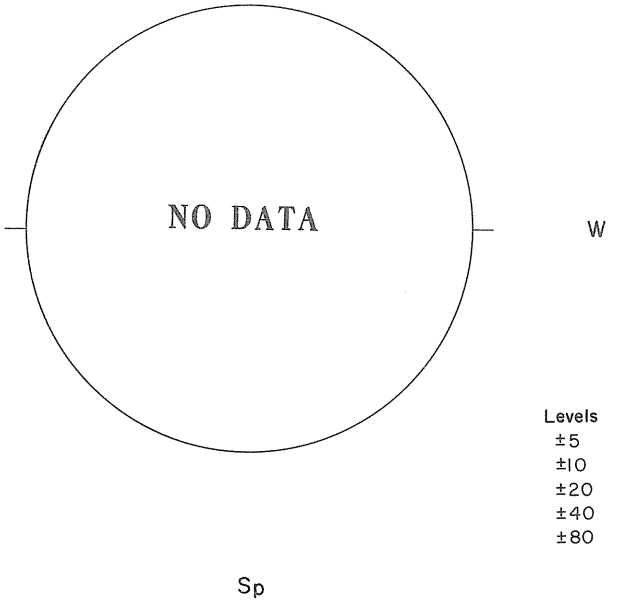


1437 UT

ESSA-BOULDER SUNSPOTS

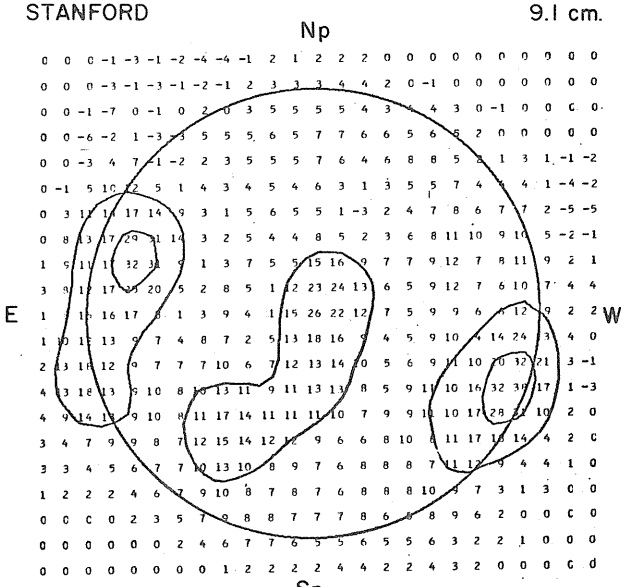


1535 UT



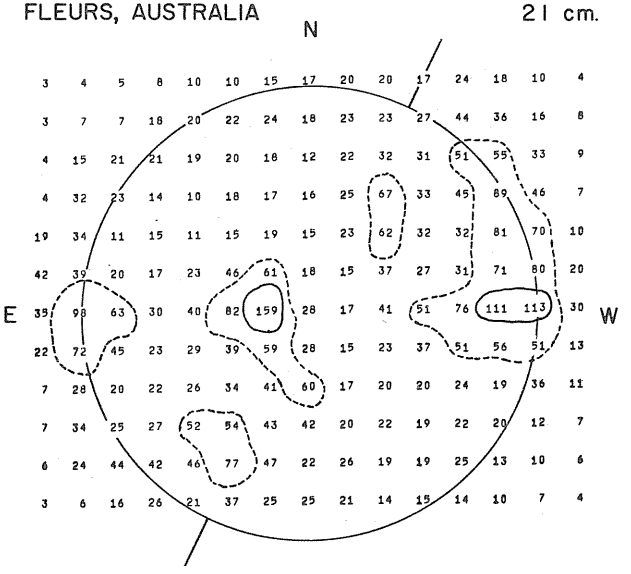
Levels
±5
±10
±20
±40
±80

STANFORD 9.1 cm.



20-21 UT Brightness Unit 5000° K

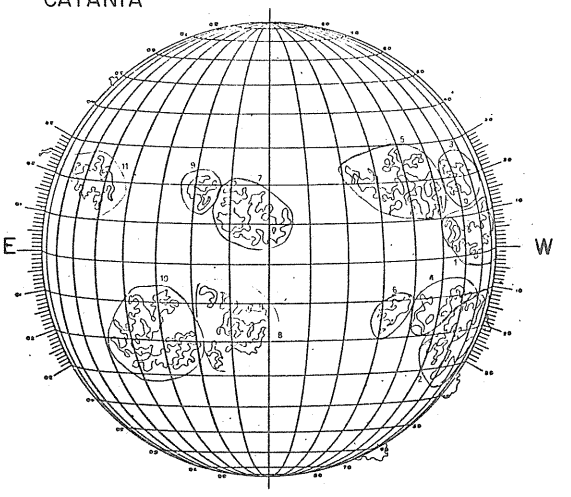
FLEURS, AUSTRALIA 21 cm.



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

CALCIUM REPORT

CATANIA



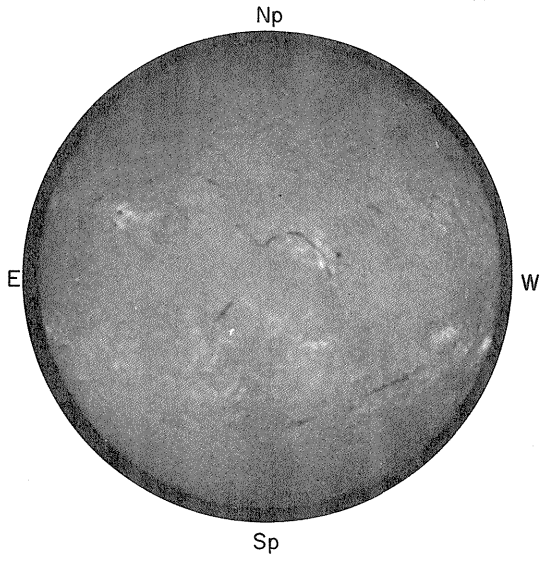
01-63-
02-95-4.1
05-60-
06-12-3.6
07-46-3.8
08-37-
10-70-
11-45-4.3

0830 UT

NOVEMBER 8, 1968 (P=23.17, B_o=3.58, L_o=36.63)

BOULDER

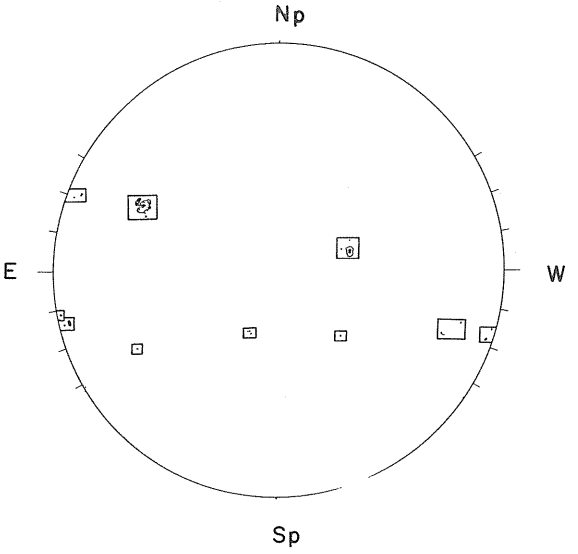
Hα



1452 UT

ESSA-BOULDER

SUNSPOTS



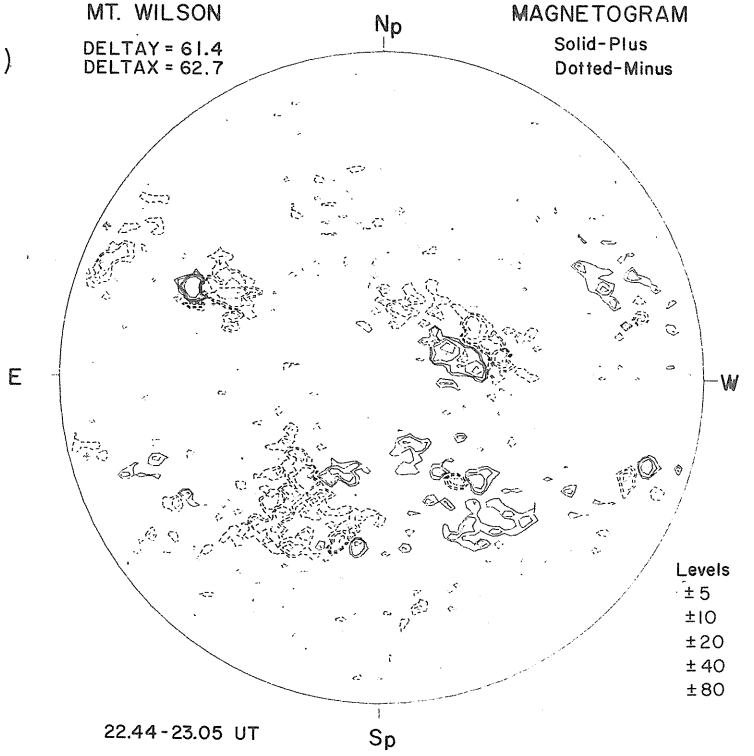
1540 UT

MT. WILSON

DELTAY = 61.4
DELTAX = 62.7

MAGNETOGRAM

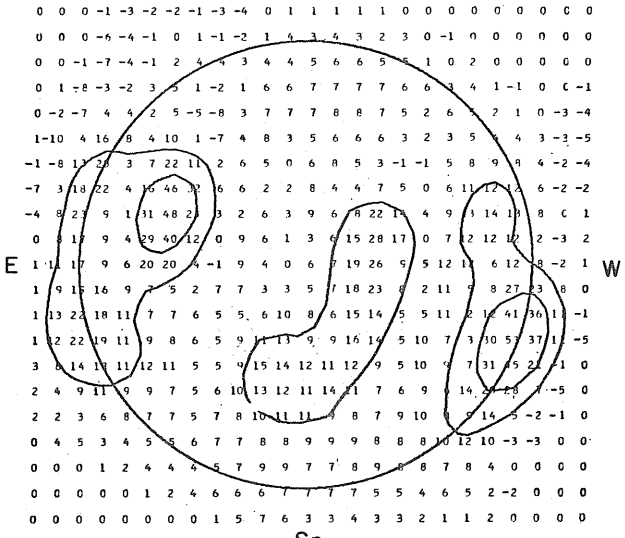
Solid-Plus
Dotted-Minus



22.44-23.05 UT

STANFORD

9.1 cm.

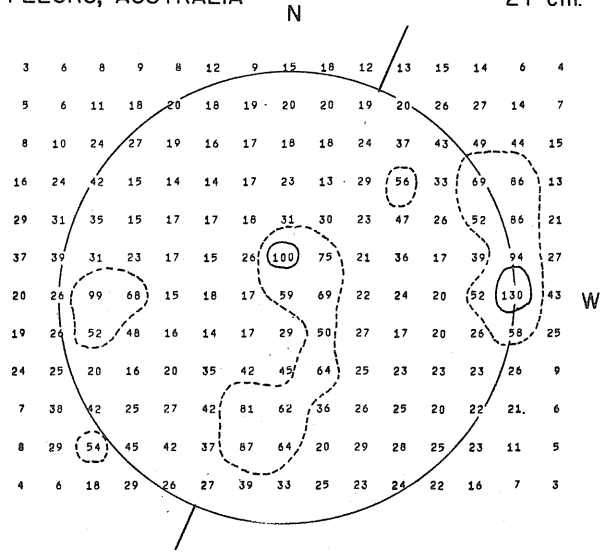


20-21 UT

Brightness Unit 5000° K

FLEURS, AUSTRALIA

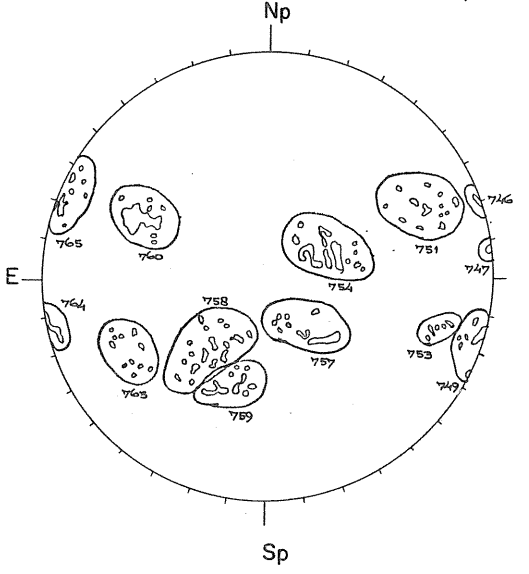
21 cm.



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

McMATH-HULBERT

CALCIUM REPORT

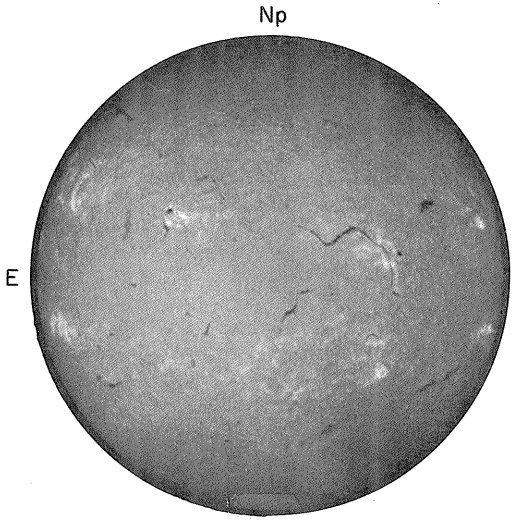


1935 UT

49-24-3.5
51-12-2.5
53-07-3.0
54-25-3.0
57-10-2.5
58-21-2.5
59-12-3.0
60-30-3.5
64-12-2.5
65-20-2.5

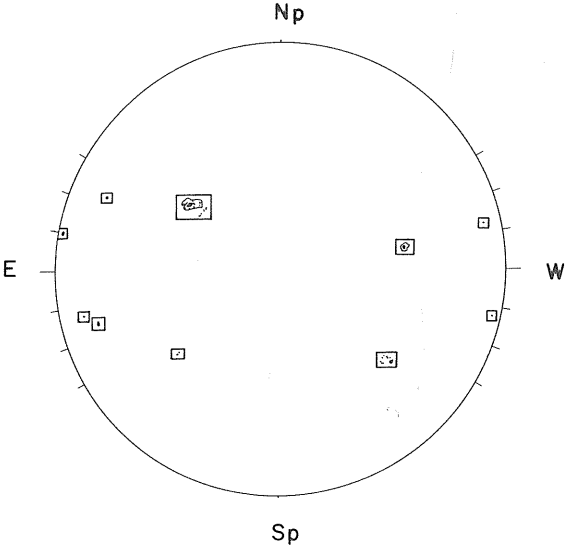
NOVEMBER 9, 1968 (P=22.95, B_o=3.47, L_o=23.15)

BOULDER Hα



1921 UT

ESSA-BOULDER SUNSPOTS

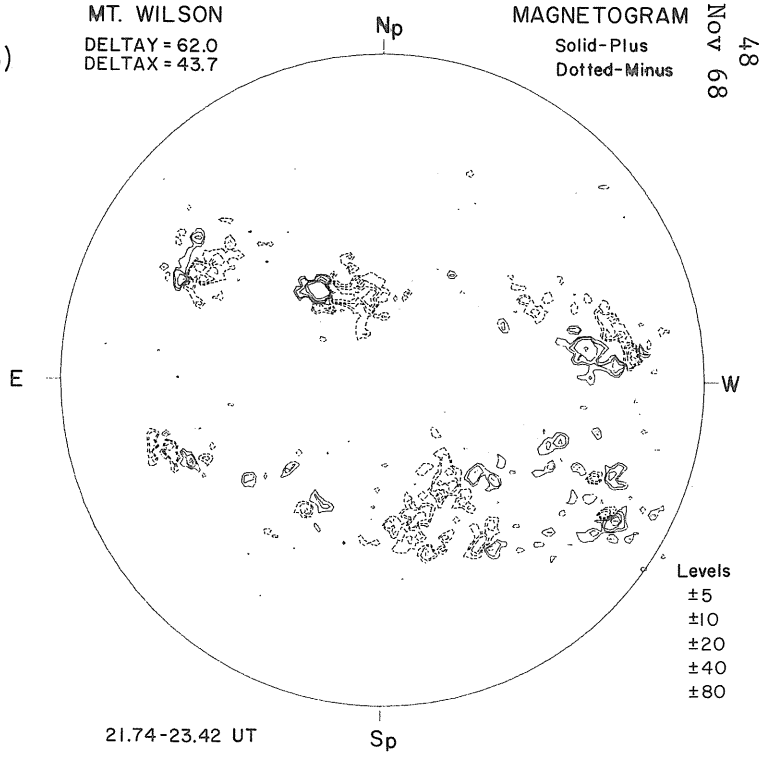


1945 UT

MT. WILSON MAGNETOGRAM

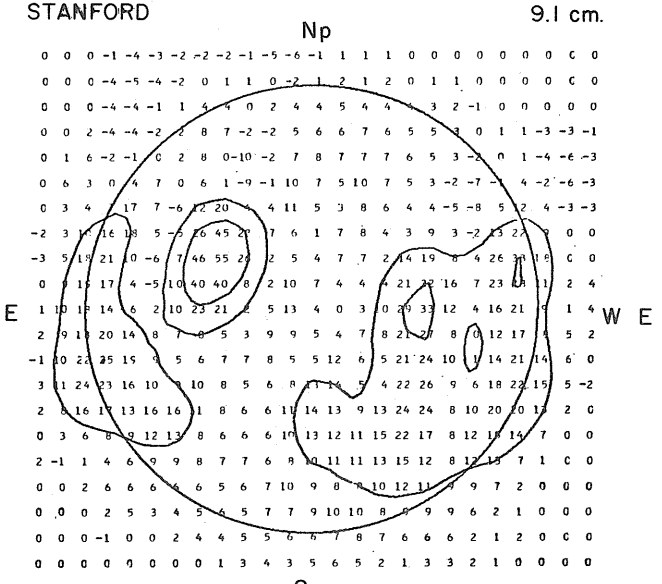
DELTAY = 62.0
DELTAX = 43.7

Solid-Plus
Dotted-Minus



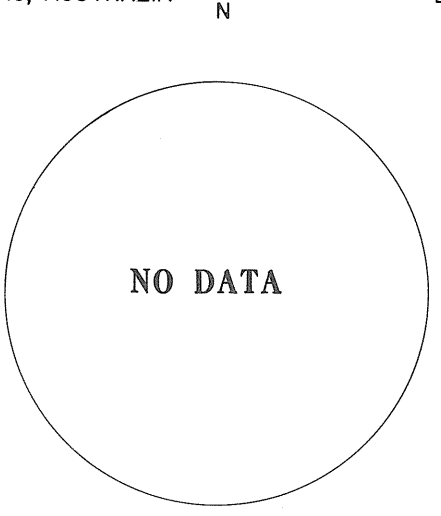
21.74-23.42 UT

STANFORD 9.1 cm.



20-21 UT Brightness Unit 5000° K

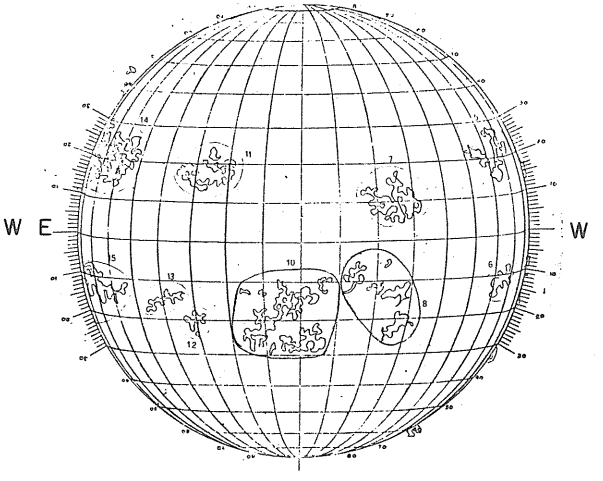
FLEURS, AUSTRALIA 21 cm.



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

CALCIUM REPORT

CATANIA

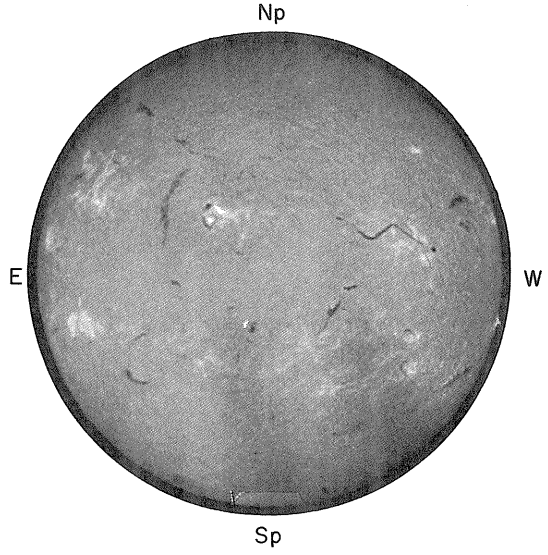


06-16-3.6
05-27-5.5
07-27-4.0
10-49-
11-28-3.6
14-64-
15-40-3.8

1340 UT

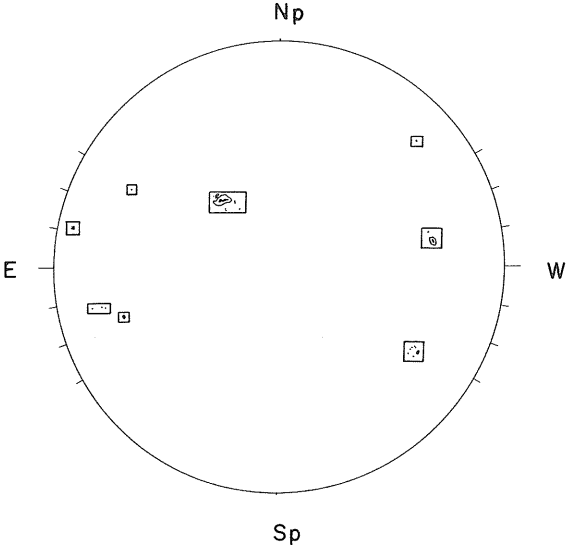
NOVEMBER 10, 1968 (P=22.71, B_o=3.36, L_o=9.96)

BOULDER Hα



1527 UT

ESSA-BOULDER SUNSPOTS

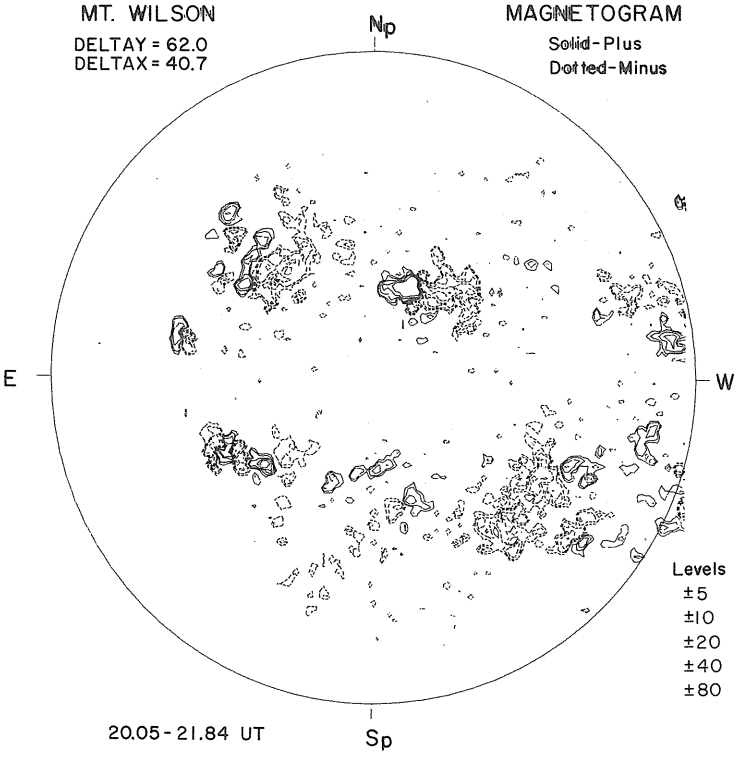


1545 UT

MT. WILSON MAGNETOGRAM

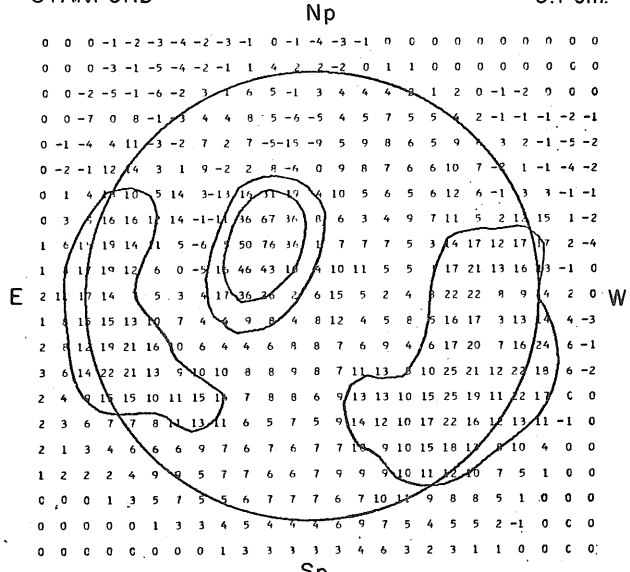
DELTAY = 62.0
DELTAX = 40.7

Solid-Plus
Dotted-Minus



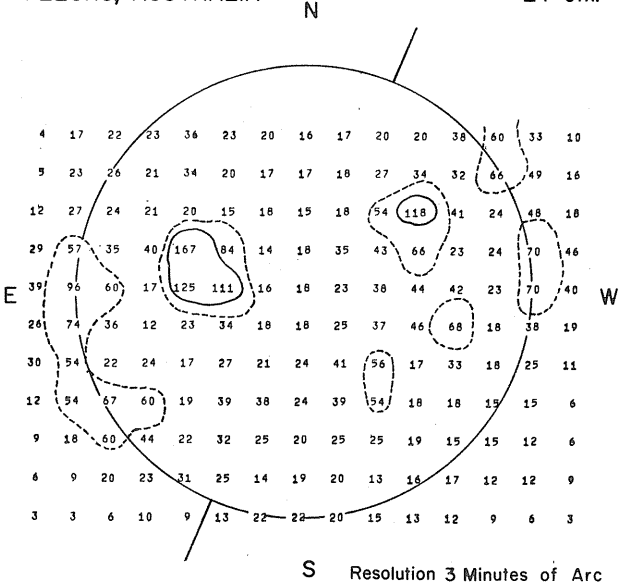
20.05-21.84 UT

STANFORD 9.1 cm.



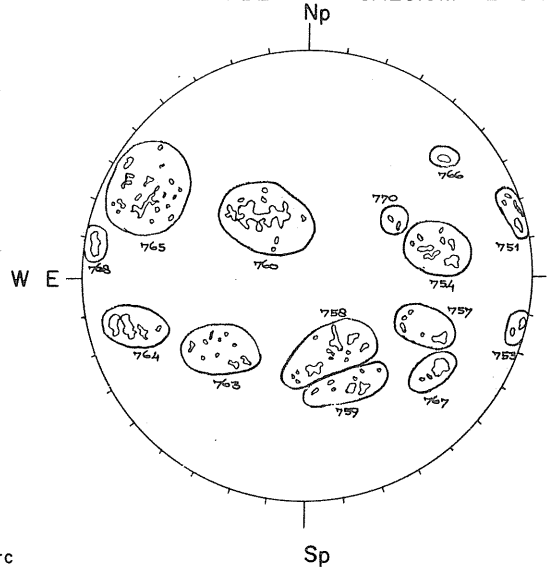
20-21 UT Brightness Unit 5000° K

FLEURS, AUSTRALIA 21 cm.



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

McMATH-HULBERT CALCIUM REPORT

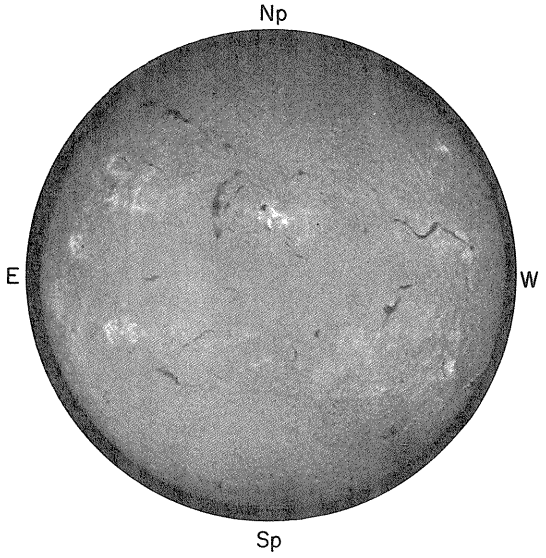


54-18-3.0
57-08-2.5
60-30-3.5
64-30-3.0
65-25-3.0
66-04-2.5
67-12-3.0

1340 UT

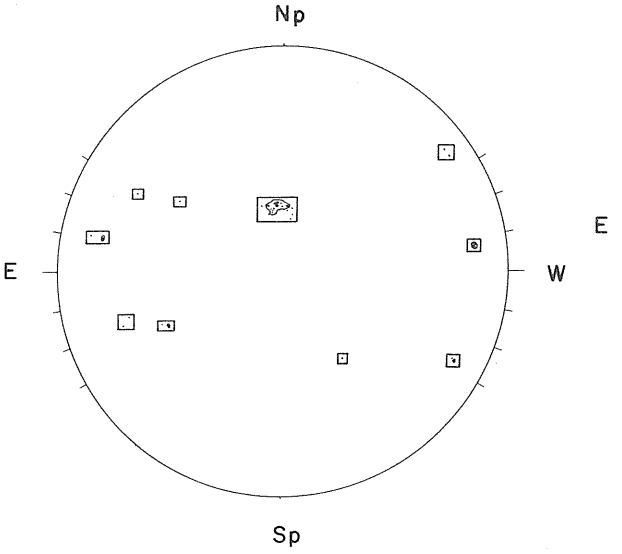
NOVEMBER 11, 1968 (P=22.47, B_o=3.25, L_o=356.78)

BOULDER Hα



1653 UT

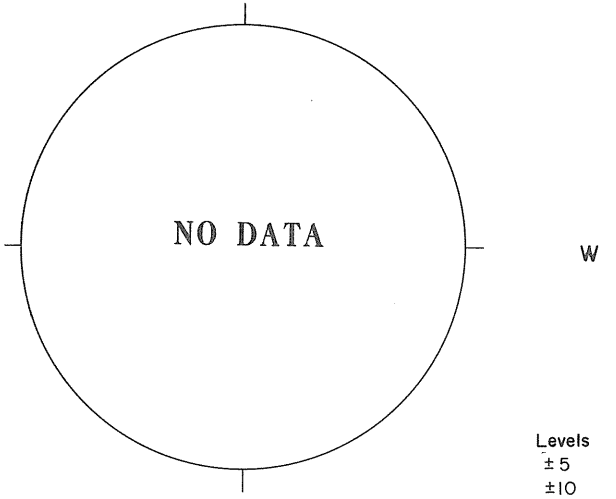
ESSA-BOULDER SUNSPOTS



1645 UT

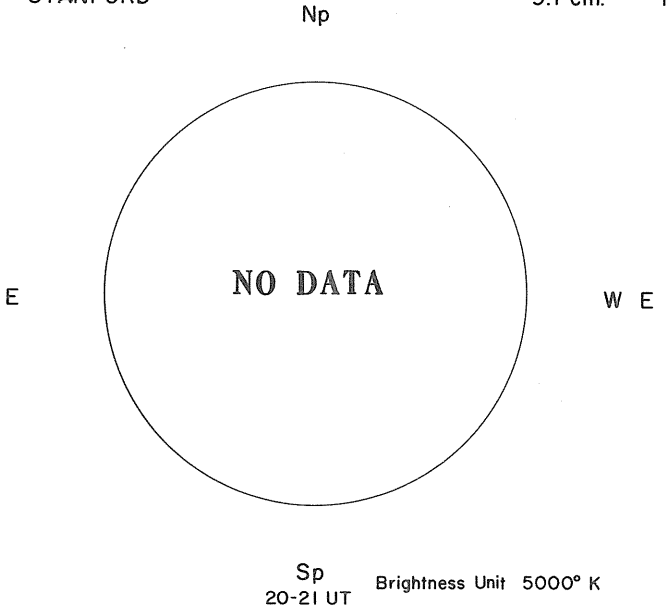
MT. WILSON MAGNETOGRAM

Solid-Plus
Dotted-Minus



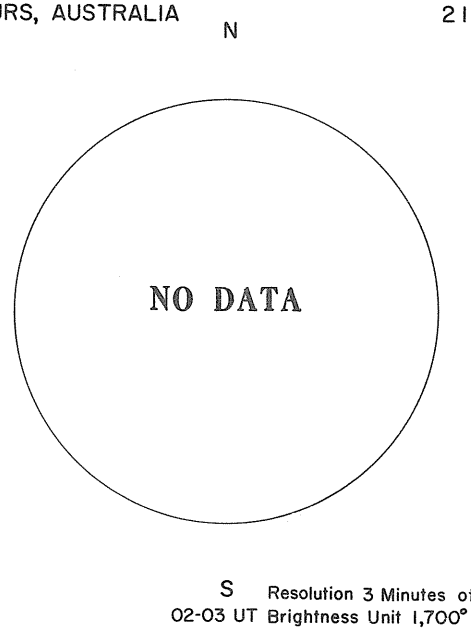
Levels
±5
±10
±20
±40
±80

STANFORD 9.1 cm.



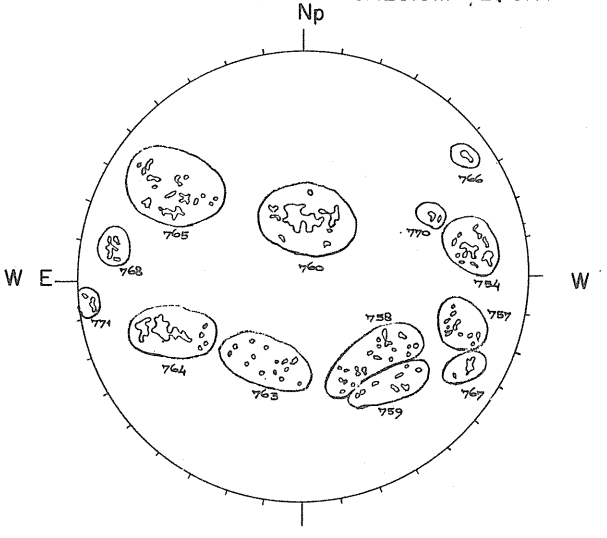
20-21 UT Brightness Unit 5000° K

FLEURS, AUSTRALIA 21 cm.



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

McMATH-HULBERT CALCIUM REPORT

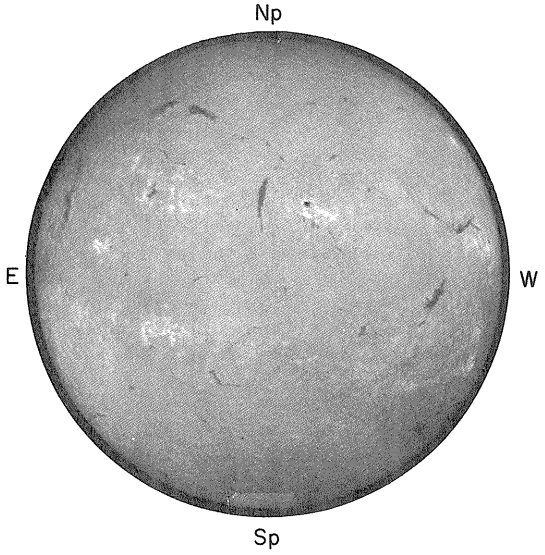


1450 UT

54-18-2.5
60-30-4.0
64-27-3.0
65-28-3.0
66-05-2.5
67-08-3.5
68-12-2.5

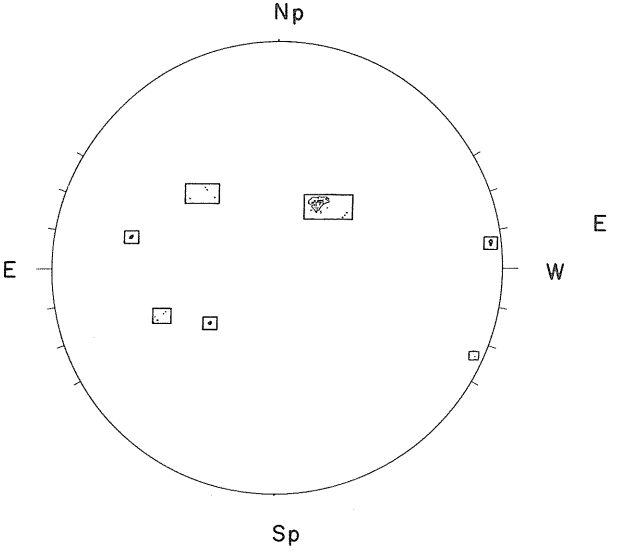
NOVEMBER 12, 1968 (P=22.22, B_o=3.13, L_o=343.60)

BOULDER Hα



1617 UT

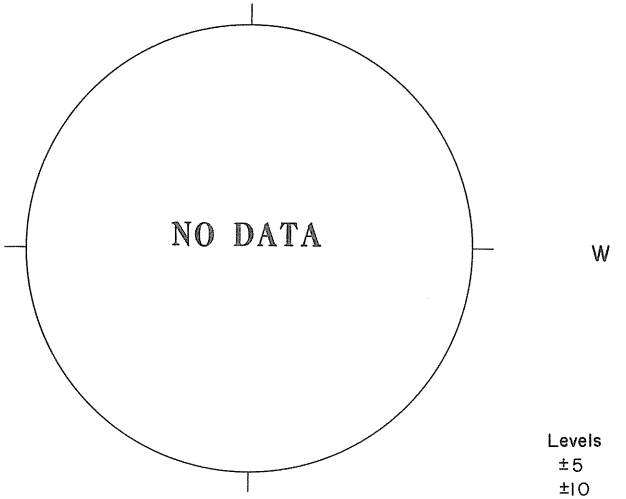
ESSA-BOULDER SUNSPOTS



1720 UT

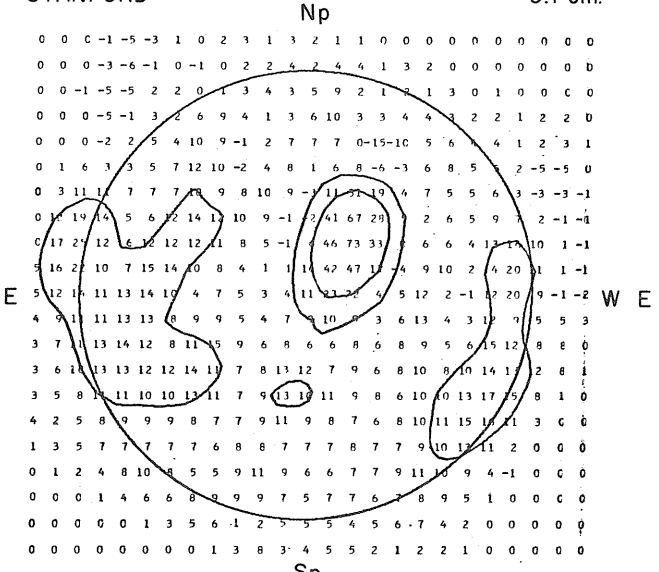
MT. WILSON MAGNETOGRAM

Solid-Plus
Dotted-Minus



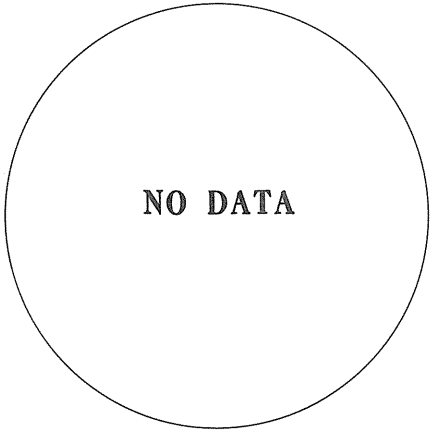
Levels
±5
±10
±20
±40
±80

STANFORD 9.1 cm.



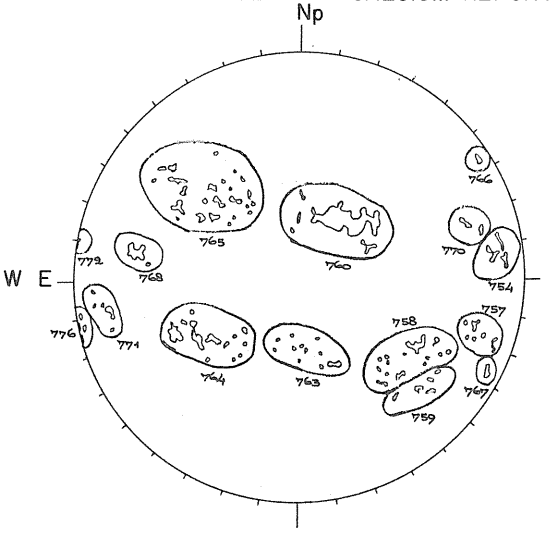
20-21 UT Brightness Unit 5000° K

FLEURS, AUSTRALIA 21 cm.



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

McMATH-HULBERT CALCIUM REPORT

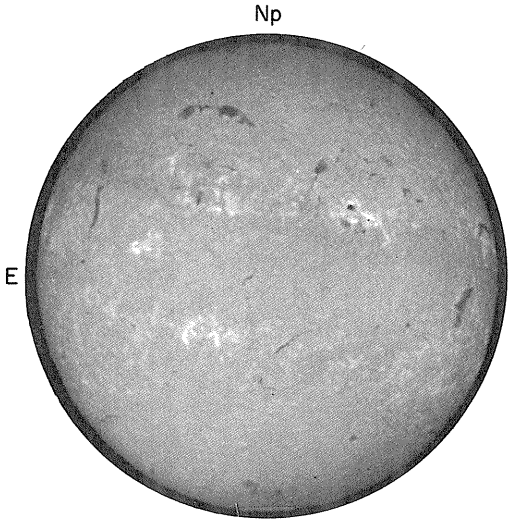


60-30-3.5
64-20-3.0
65-29-3.0
67-06-2.5
68-12-2.5

1400 UT

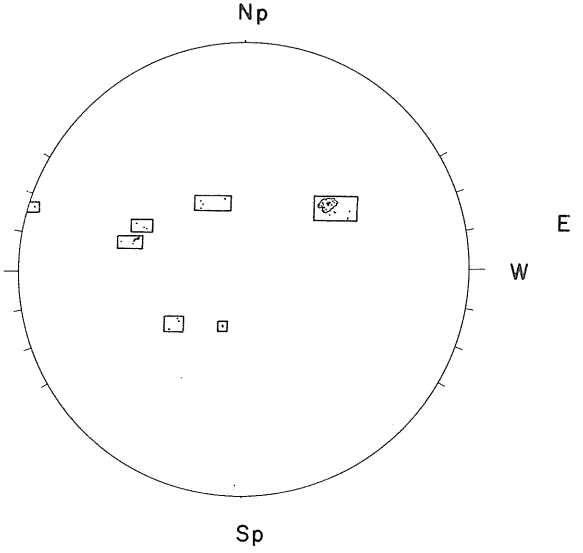
NOVEMBER 13, 1968 (P=21.96, B_o=3.02, L_o=330.41)

BOULDER Hα



1335 UT

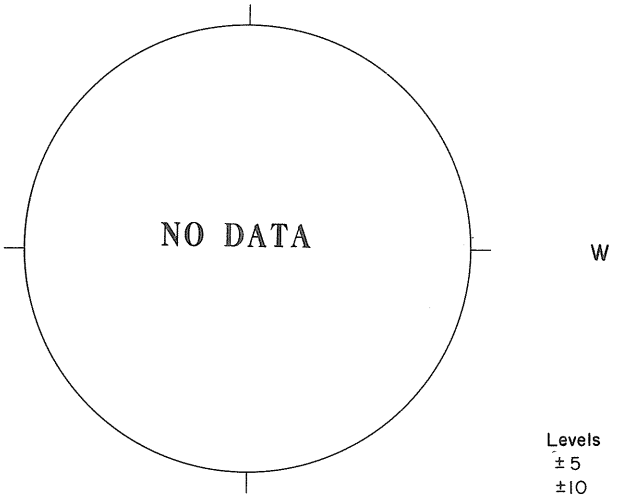
ESSA-BOULDER SUNSPOTS



1508 UT

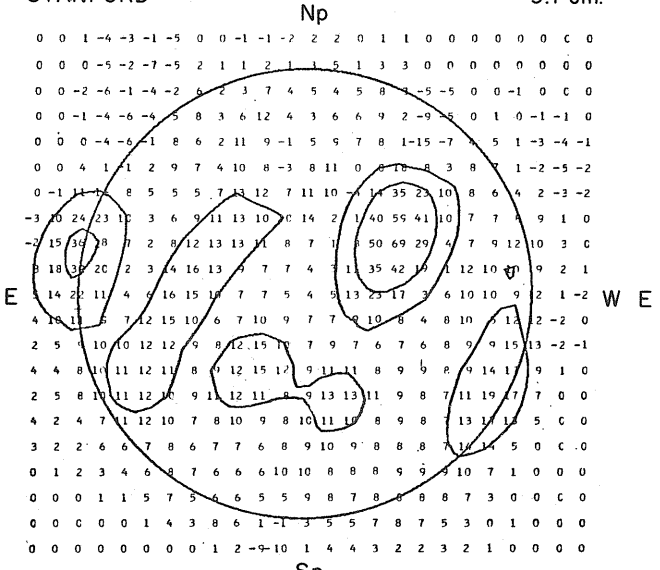
MT. WILSON MAGNETOGRAM

Solid-Plus
Dotted-Minus



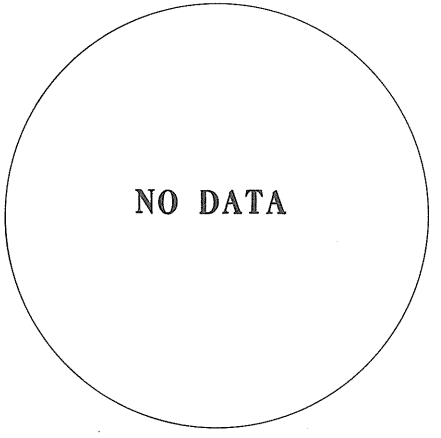
Levels
±5
±10
±20
±40
±80

STANFORD 9.1 cm.



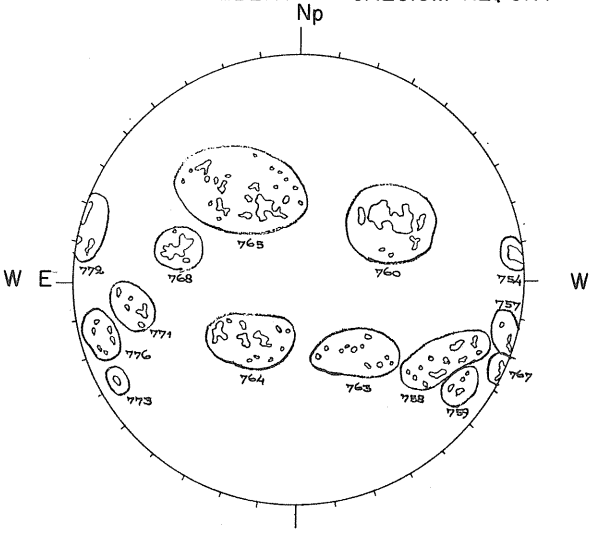
20-21 UT Brightness Unit 5000° K

FLEURS, AUSTRALIA 21 cm.



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

McMATH-HULBERT CALCIUM REPORT

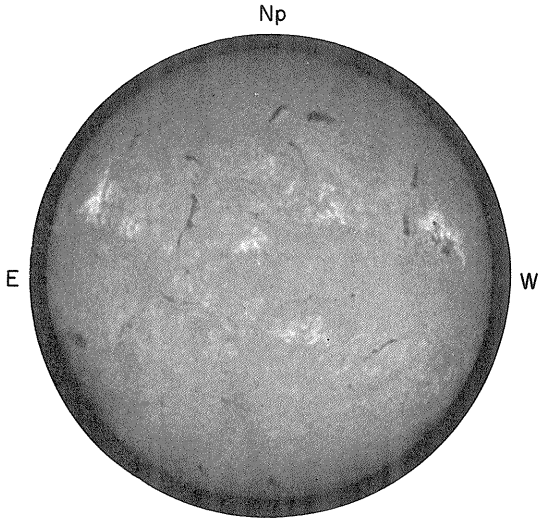


60-32-3.5
64-20-3.0
65-30-3.0
68-12-3.0
72-15-2.5

1345 UT

NOVEMBER 14, 1968 (P=21.70, B_o=2.90, L_o=317.23)

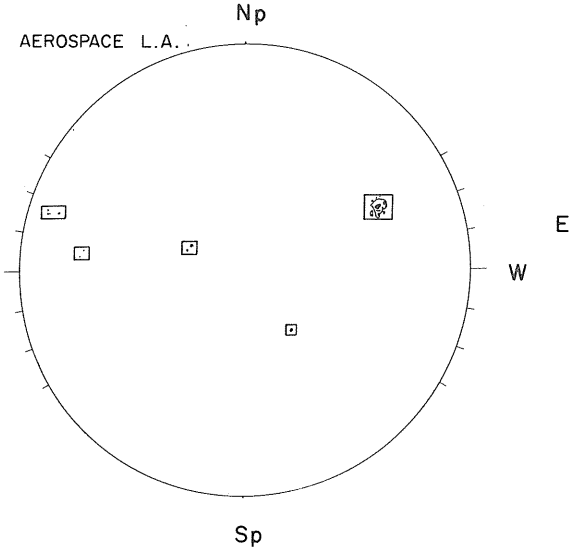
BOULDER Hα



1515 UT

ESSA-BOULDER SUNSPOTS

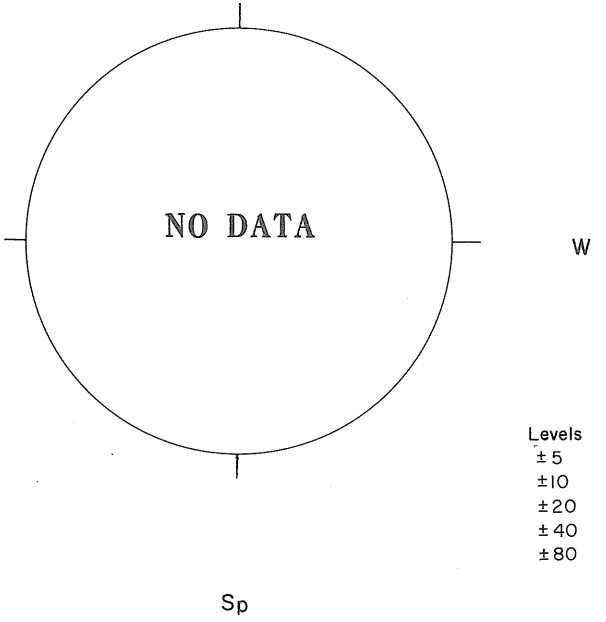
AEROSPACE L.A.



2010 UT

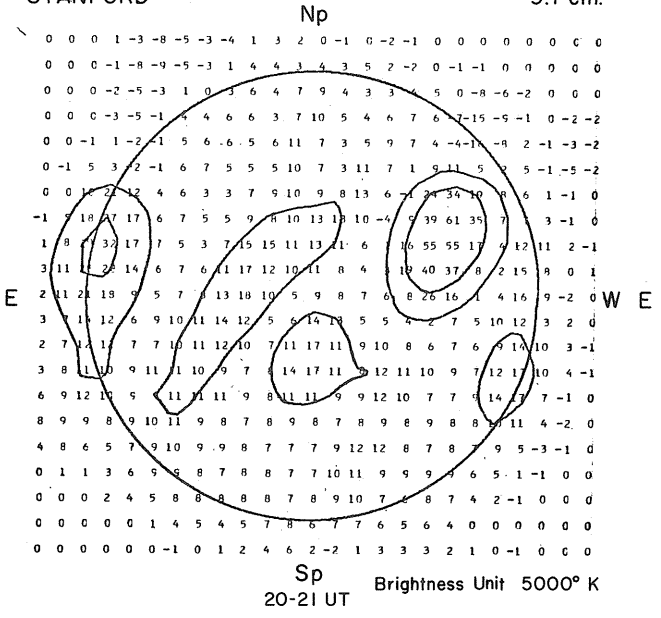
MT. WILSON MAGNETOGRAM

Solid-Plus
Dotted-Minus



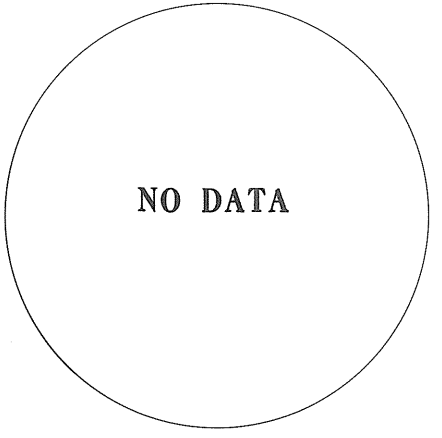
Levels
±5
±10
±20
±40
±80

STANFORD 9.1 cm.



20-21 UT Brightness Unit 5000° K

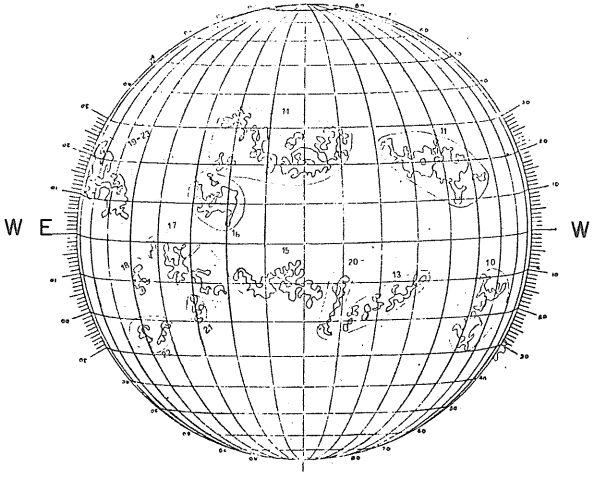
FLEURS, AUSTRALIA 21 cm.



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

CALCIUM REPORT

CATANIA

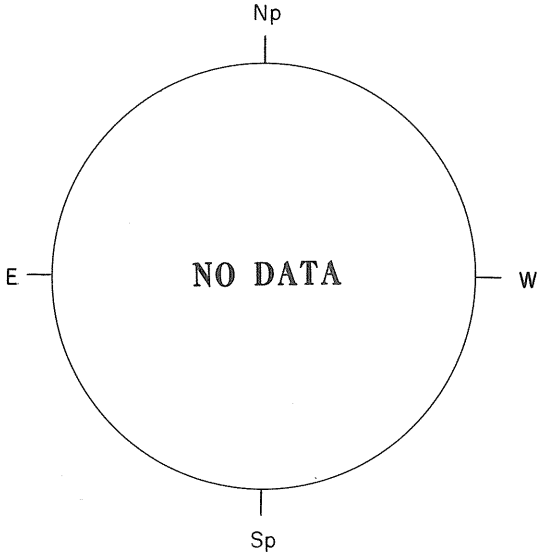


10-37-
11-66-4.2
14-67-3.6
15-33-
16-24-3.6
19
23-99-4.0

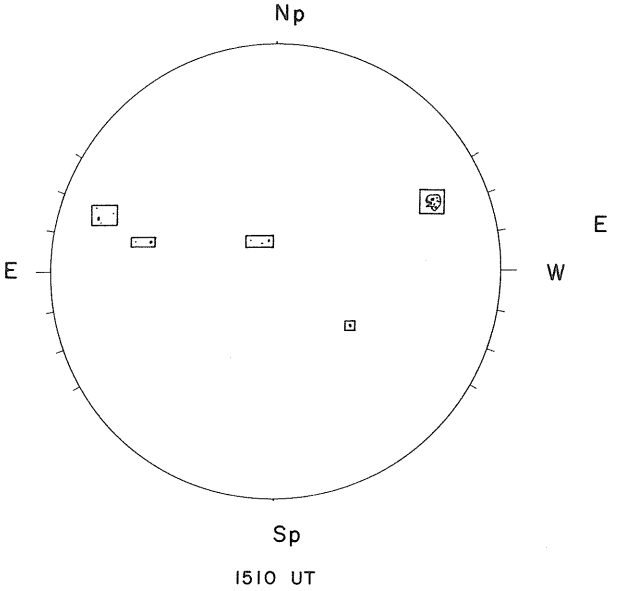
0810 UT

NOVEMBER 15, 1968 (P=21.43, B_o=2.78, L_o=304.05)

BOULDER — H α



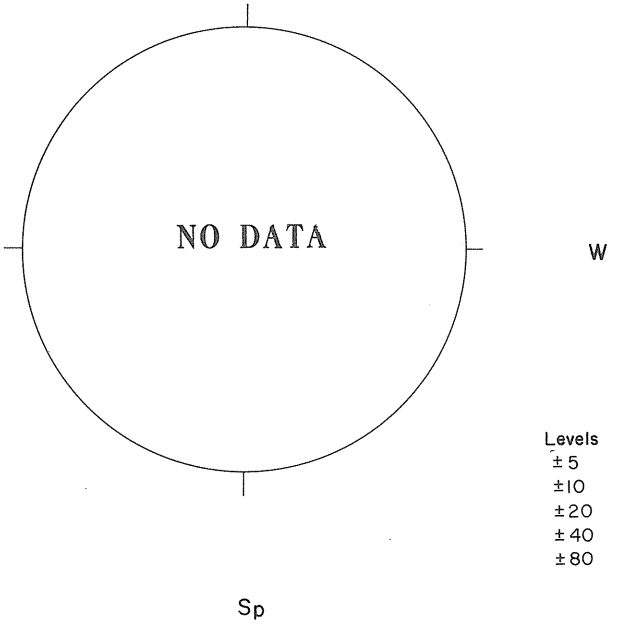
ESSA-BOULDER — SUNSPOTS



1510 UT

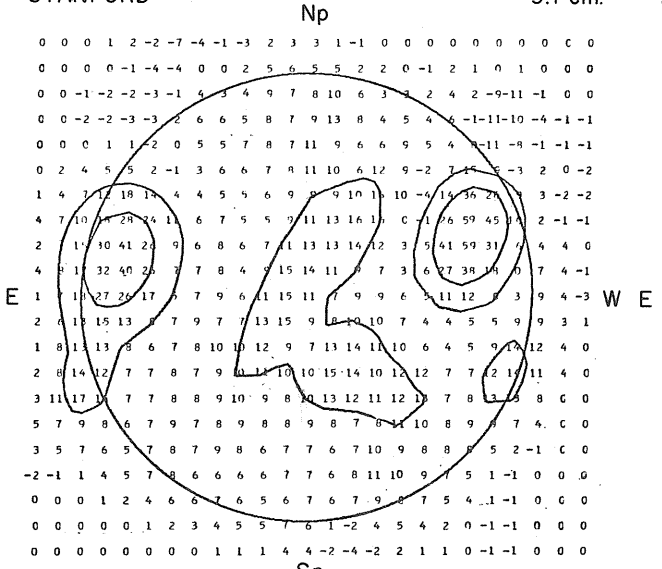
MT. WILSON — MAGNETOGRAM

Solid-Plus
Dotted-Minus



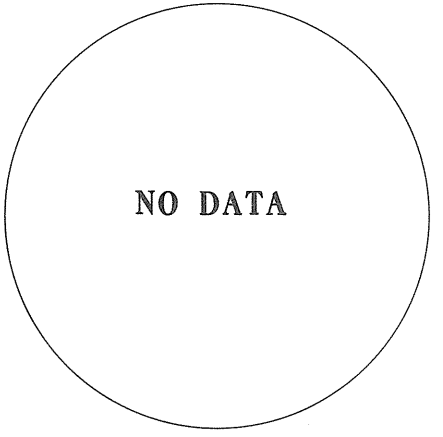
Levels
±5
±10
±20
±40
±80

STANFORD — 9.1 cm.



20-21 UT Brightness Unit 5000° K

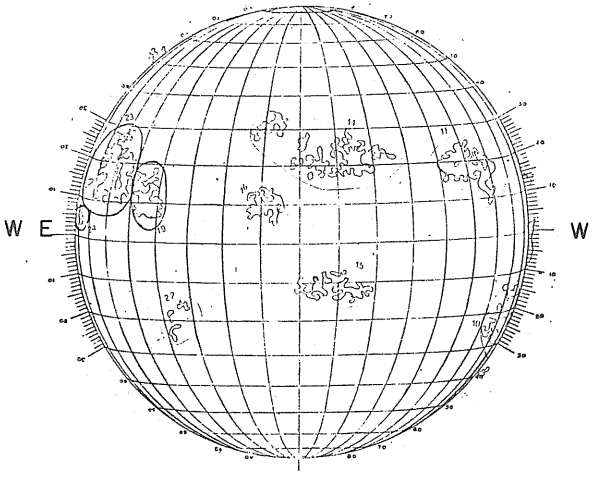
FLEURS, AUSTRALIA — 21 cm.



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

CALCIUM REPORT

CATANIA

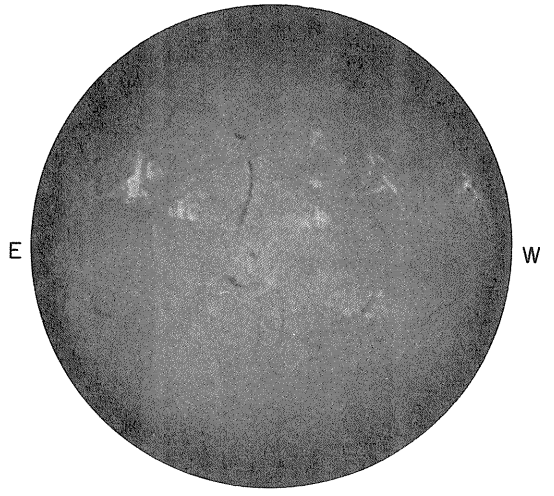


10-52-
11-56-5.3
14-51-3.1
15-19-3.0
23-71-3.6
24-32-

0825 UT

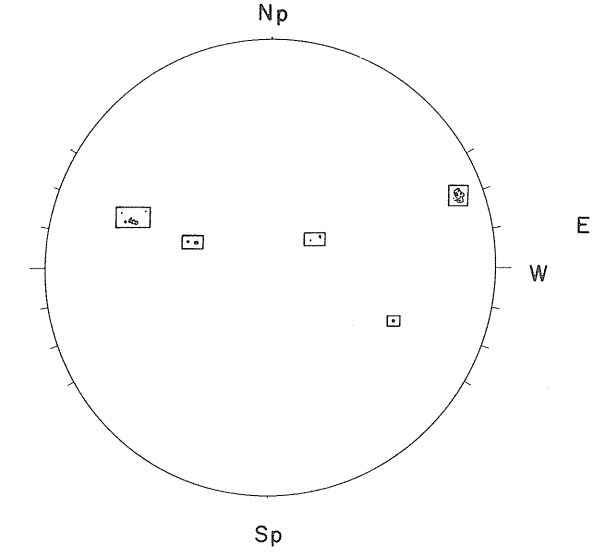
NOVEMBER 16, 1968 (P=21.15 , B_o=2.67, L_o=290.86)

BOULDER Hα



1915 UT

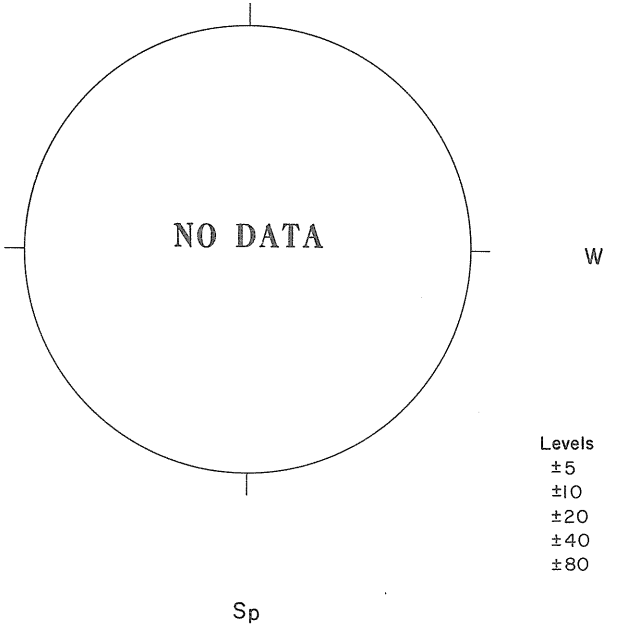
ESSA-BOULDER SUNSPOTS



1905 UT

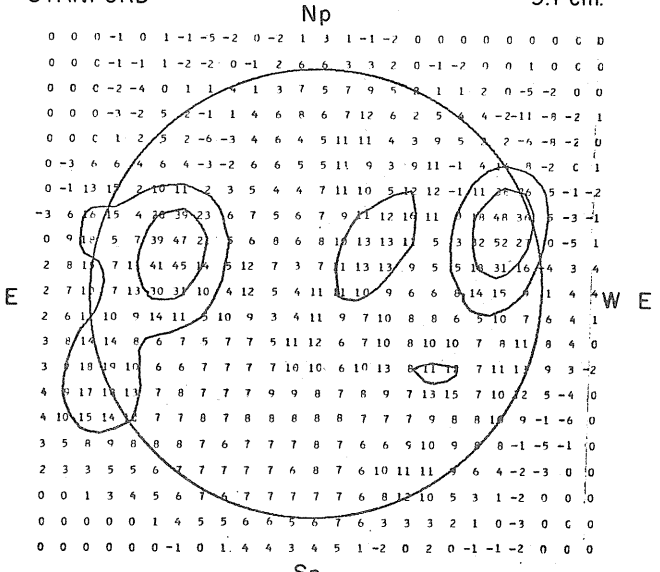
MT. WILSON MAGNETOGRAM

Solid-Plus
Dotted-Minus



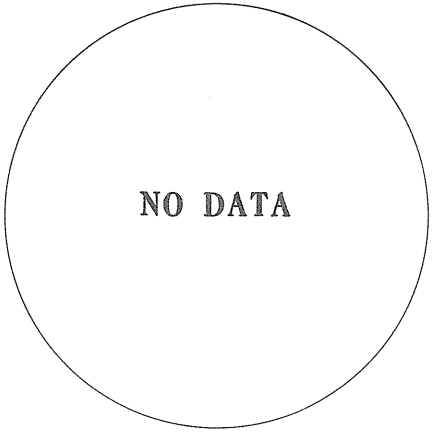
Levels
±5
±10
±20
±40
±80

STANFORD 9.1 cm.



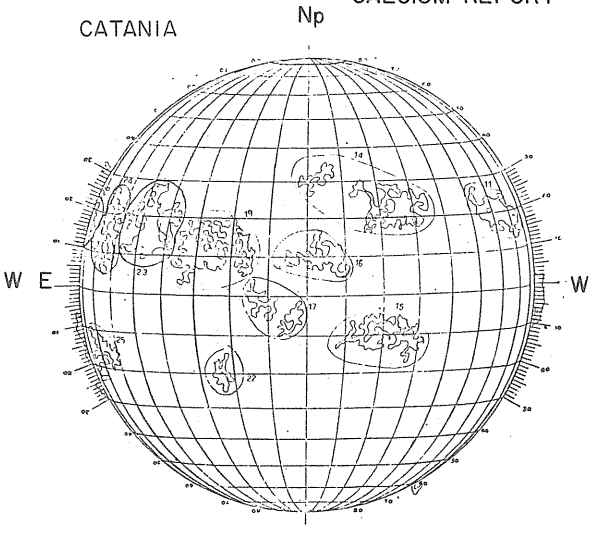
20-21 UT Brightness Unit 5000° K

FLEURS, AUSTRALIA 21 cm.



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

CATANIA CALCIUM REPORT

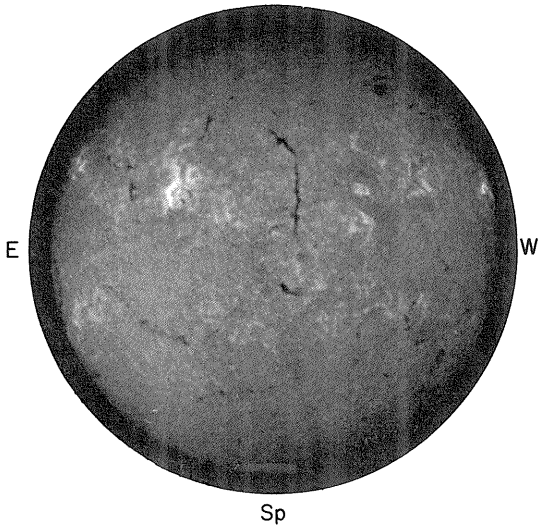


11-56-3.4
15-30-3.0
14-48-4.2
16-23-4.8
19-68-4.4
23-72-6.6
24-41-
26-38-

0940 UT

NOVEMBER 17, 1968 (P=20.86, B_o=2.55, L_o=277.68)

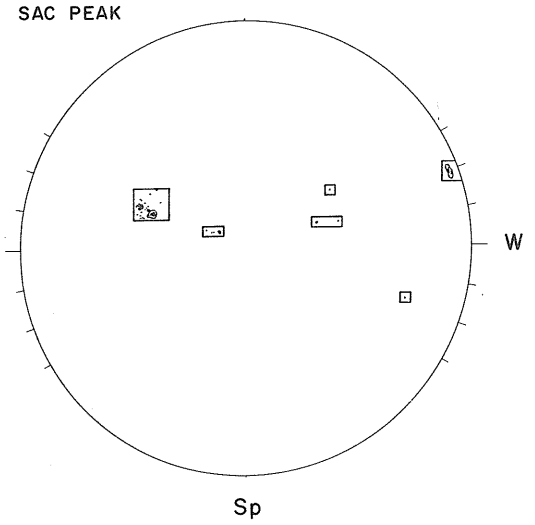
BOULDER Hα



1612 UT

ESSA-BOULDER SUNSPOTS

SAC PEAK

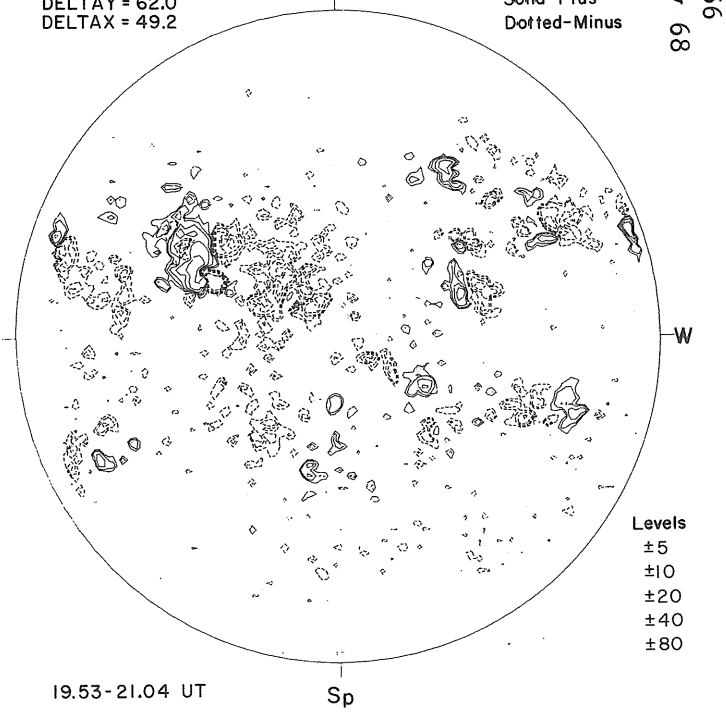


1608 UT

MT. WILSON MAGNETOGRAM

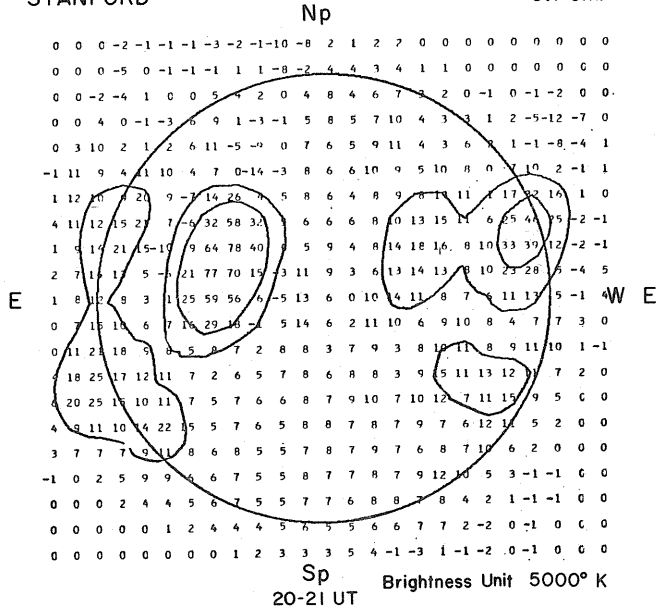
DELTAY = 62.0
DELTAX = 49.2

Solid-Plus
Dotted-Minus



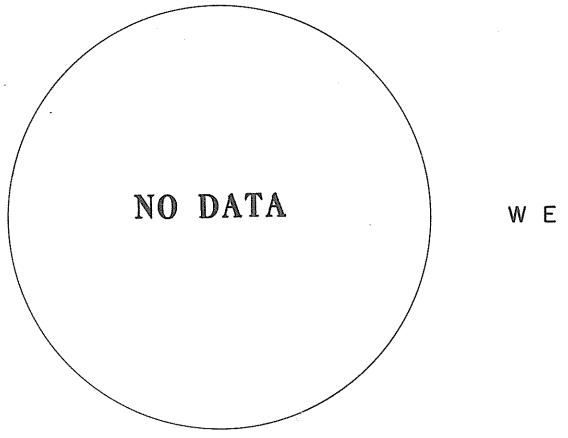
19.53-21.04 UT

STANFORD 9.1 cm.



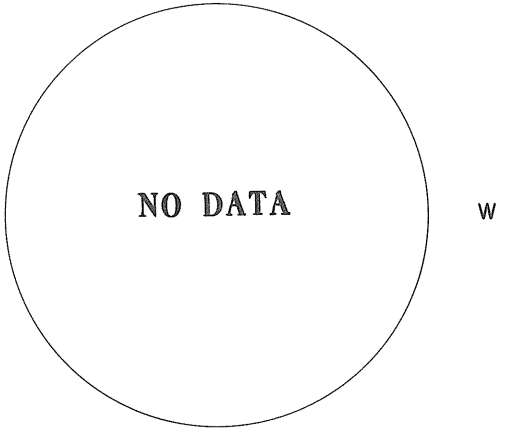
20-21 UT Brightness Unit 5000° K

FLEURS, AUSTRALIA 21 cm.



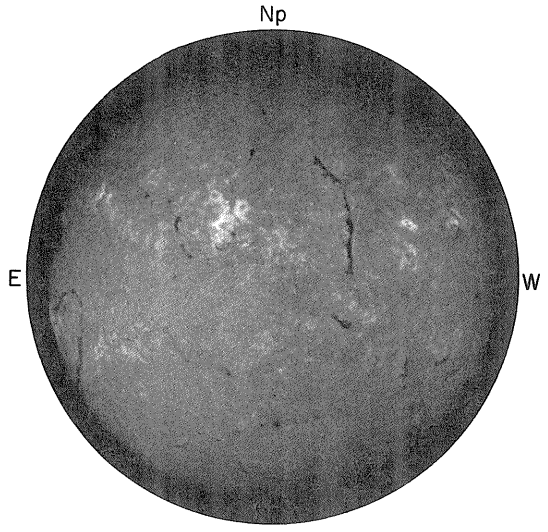
Resolution 3 Minutes of Arc
02-03 UT Brightness Unit 1,700° K

McMATH-HULBERT CALCIUM REPORT



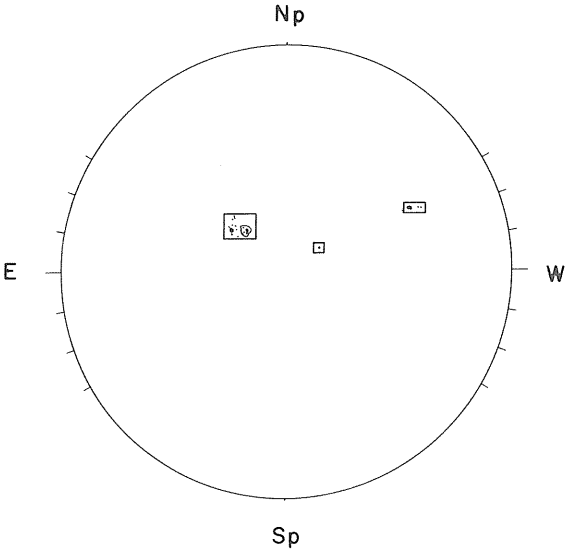
NOVEMBER 18, 1968 (P=20.56, B_o=2.43, L_o=264.50)

BOULDER Hα



1536 UT

ESSA-BOULDER SUNSPOTS

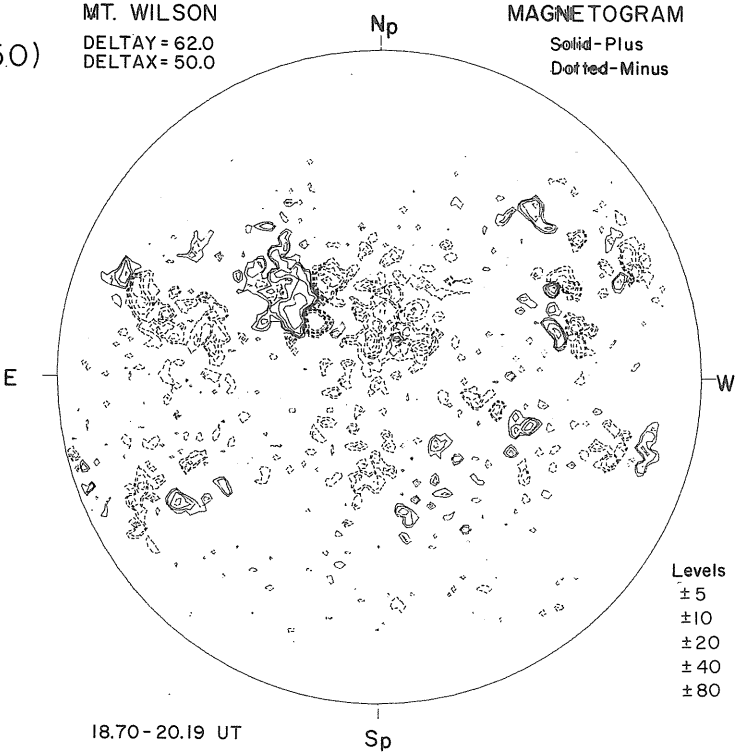


1645 UT

MT. WILSON MAGNETOGRAM

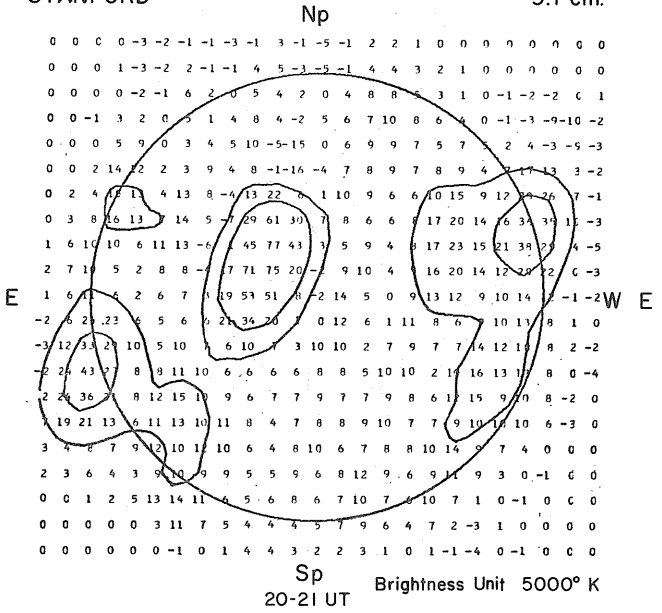
DELTAY = 62.0
DELTAX = 50.0

Solid-Plus
Dotted-Minus



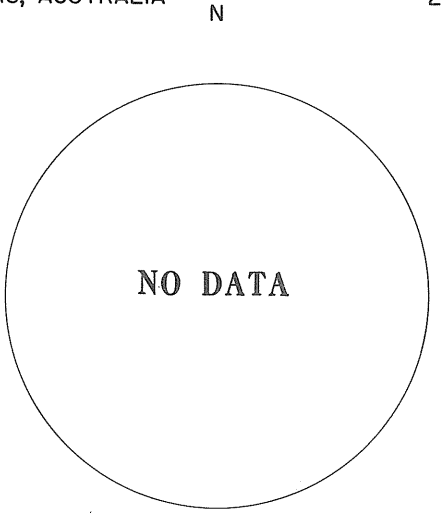
18.70-20.19 UT

STANFORD 9.1 cm.



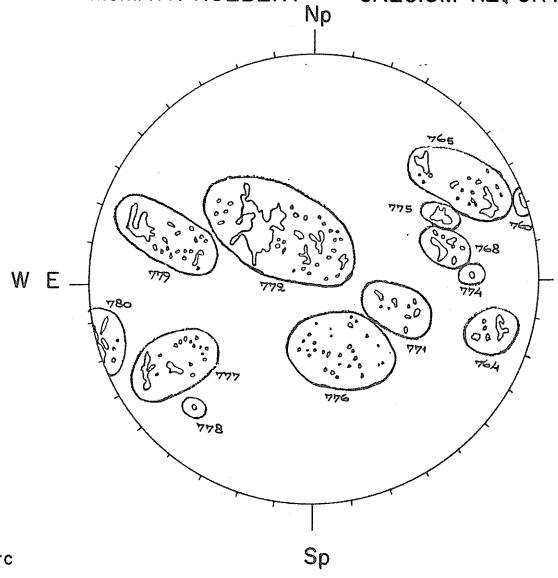
20-21 UT Brightness Unit 5000° K

FLEURS, AUSTRALIA 21 cm.



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

McMATH-HULBERT CALCIUM REPORT

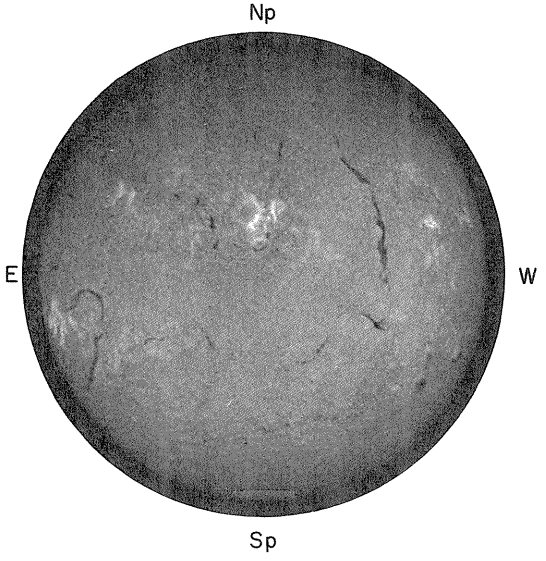


60-10-3.5
64-15-2.5
65-28-3.5
68-12-2.5
71-08-2.5
72-61-3.0
75-10-3.0
77-19-2.5
79-30-3.0
80-39-3.0

1820 UT

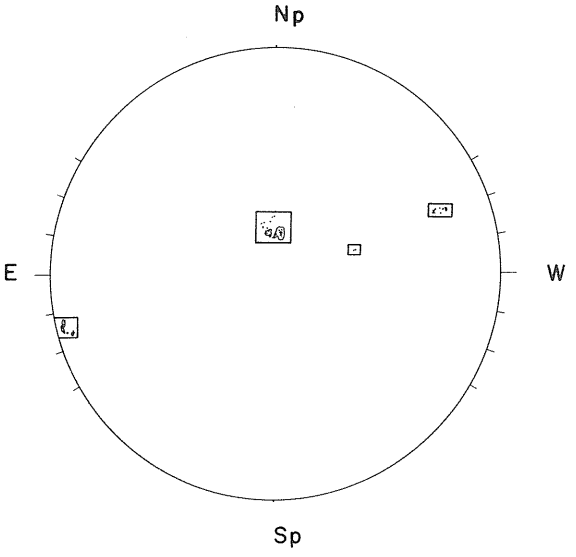
NOVEMBER 19, 1968 (P=20.26, B_o=2.31, L_o=251.32)

BOULDER Hα



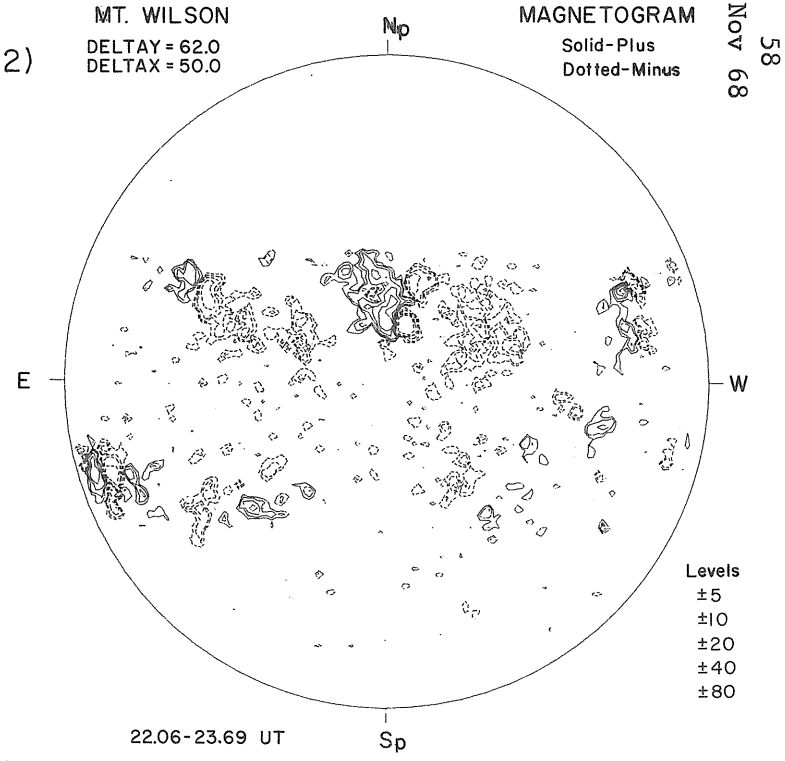
1527 UT

ESSA-BOULDER SUNSPOTS



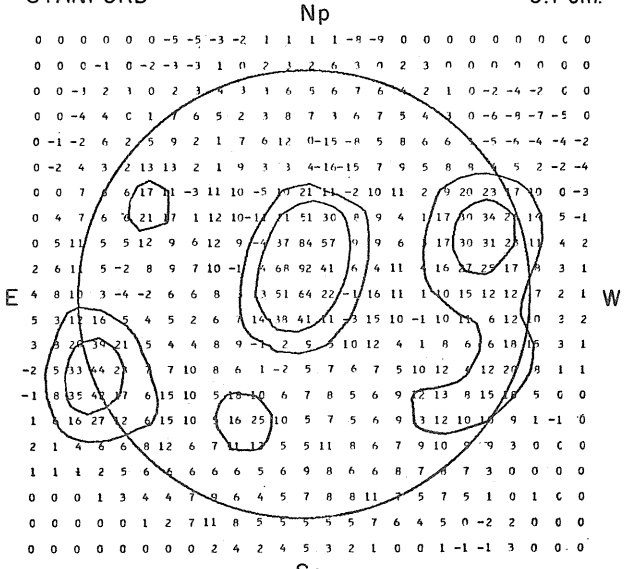
1635 UT

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



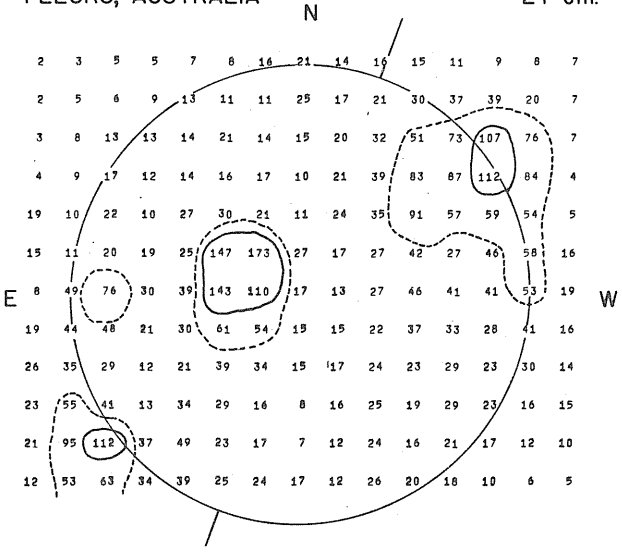
22.06-23.69 UT

STANFORD 9.1 cm.



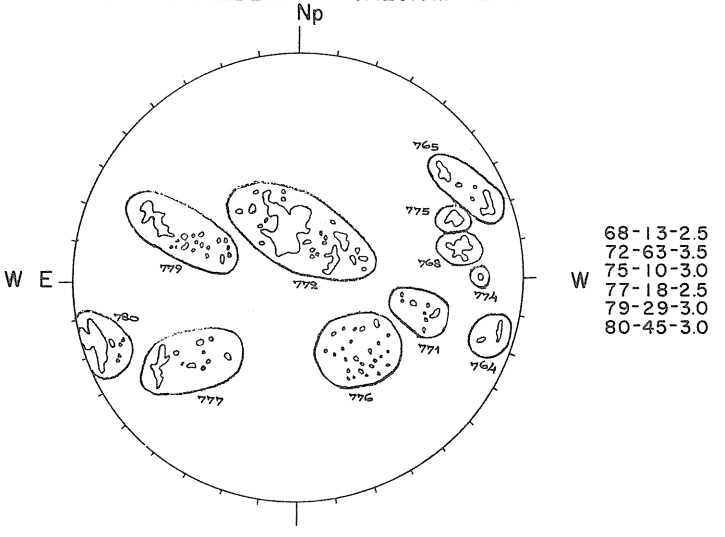
20-21 UT Brightness Unit 5000° K

FLEURS, AUSTRALIA 21 cm.



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

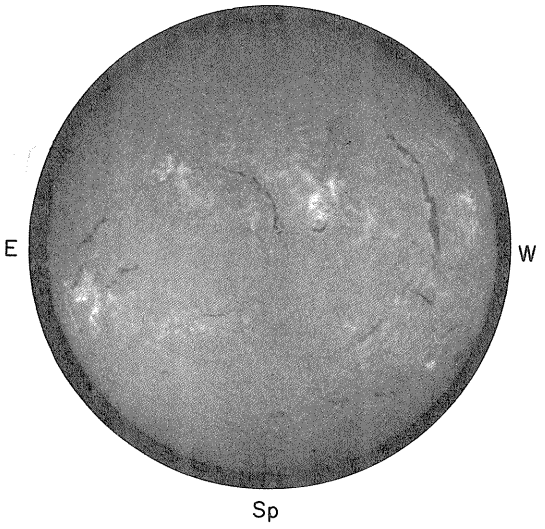
McMATH-HULBERT CALCIUM REPORT



1340 UT

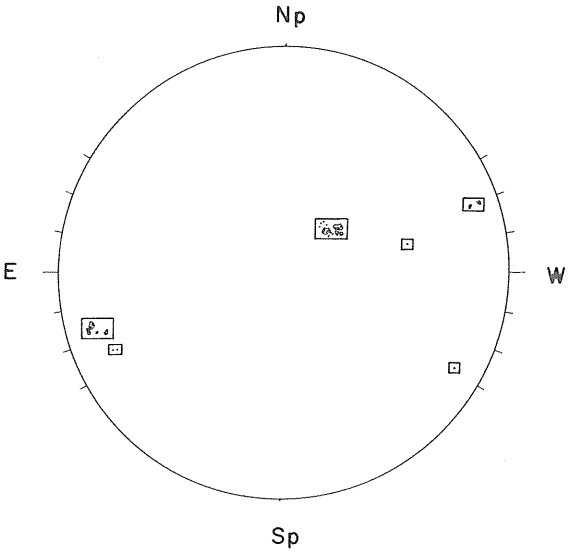
NOVEMBER 20, 1968 (P=19.95, B_o=2.19, L_o=238.14)

BOULDER Hα



1520 UT

ESSA-BOULDER SUNSPOTS

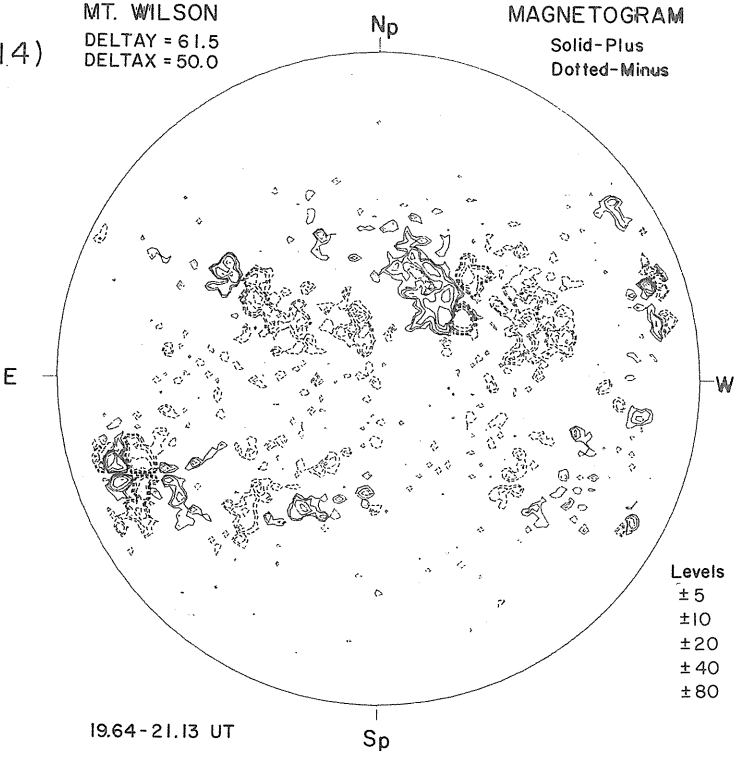


1645 UT

MT. WILSON MAGNETOGRAM

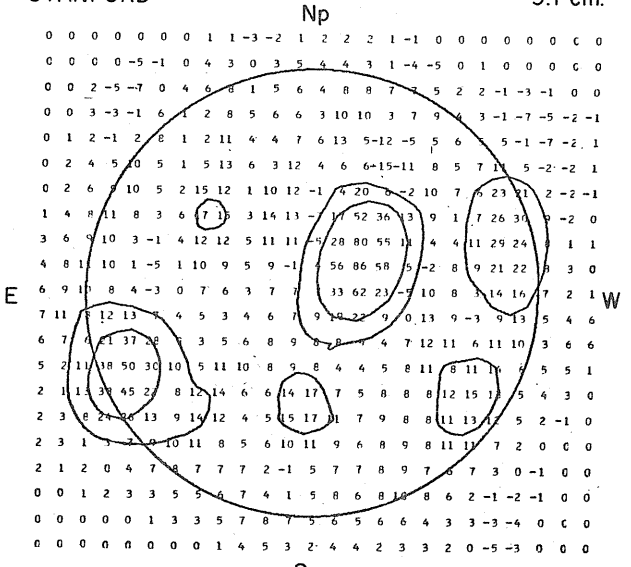
DELTAY = 61.5
DELTAX = 50.0

Solid-Plus
Dotted-Minus



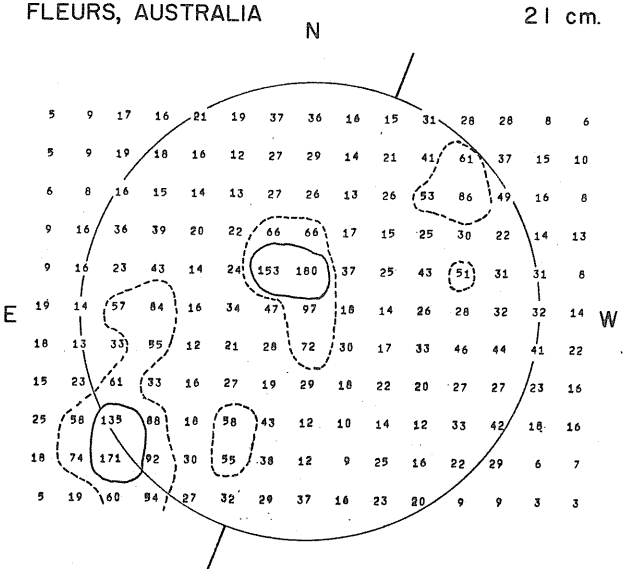
19.64-21.13 UT

STANFORD 9.1 cm.



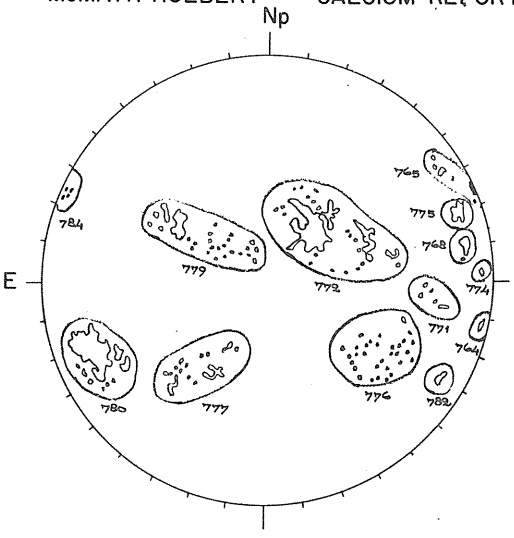
20-21 UT Brightness Unit 5000° K

FLEURS, AUSTRALIA 21 cm.



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

McMATH-HULBERT CALCIUM REPORT

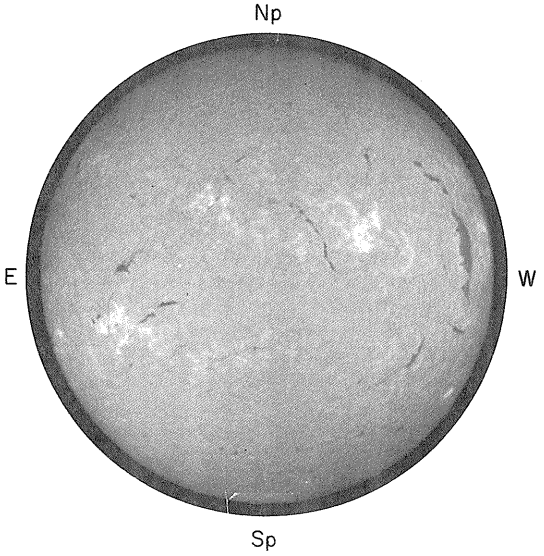


72-59-3.0
75-13-2.5
79-25-3.0
80-46-4.0
82-05-3.0

2005 UT

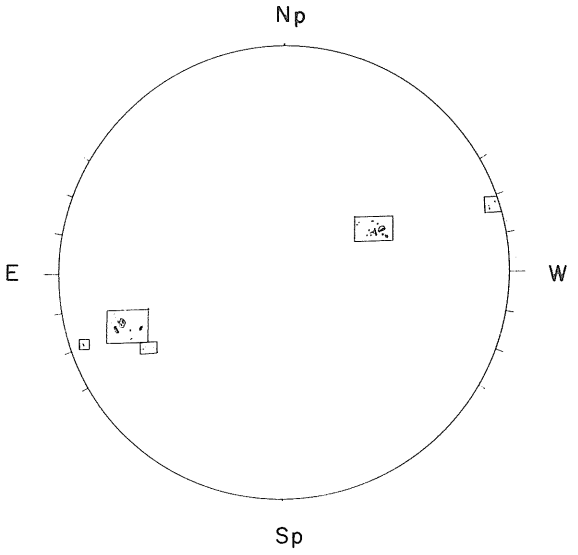
NOVEMBER 21, 1968 (P=19.63, B_o=2.06, L_o=224.96)

BOULDER Hα



1548 UT

ESSA-BOULDER SUNSPOTS

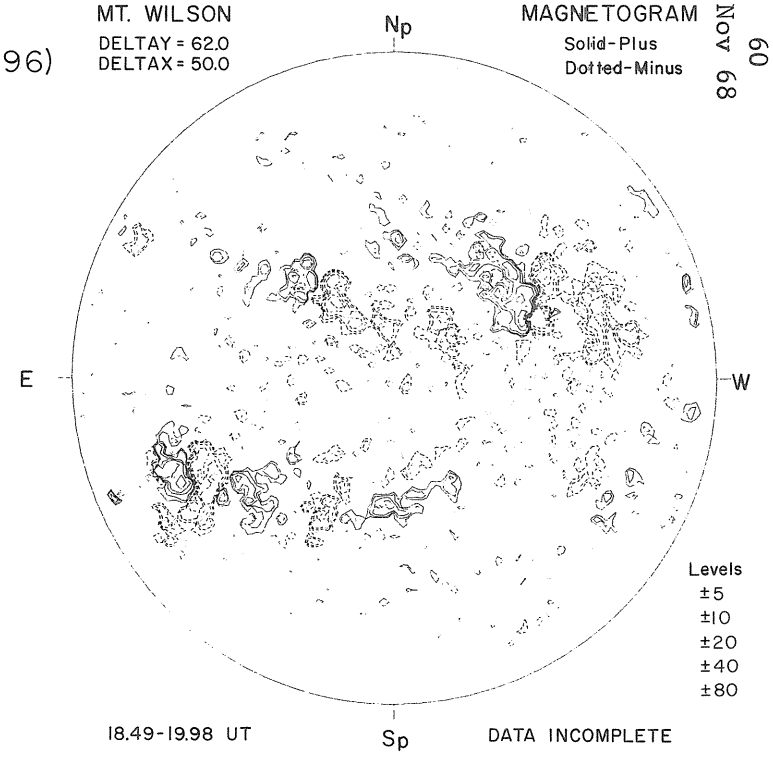


1620 UT

MT. WILSON MAGNETOGRAM

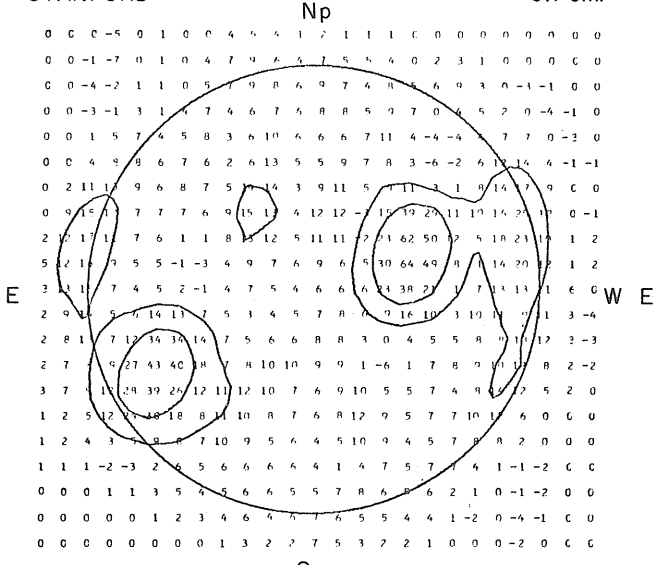
DELTAY = 62.0
DELTAX = 50.0

Solid-Plus
Dotted-Minus



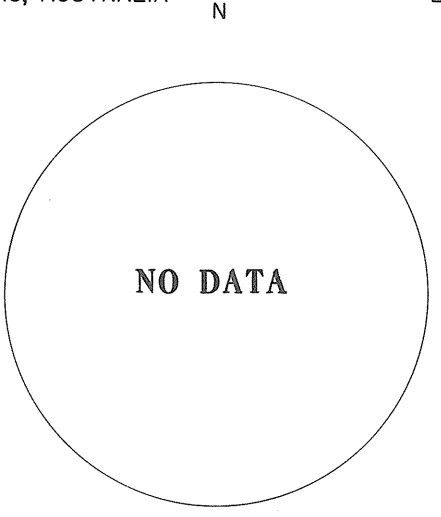
18.49-19.98 UT DATA INCOMPLETE

STANFORD 9.1 cm.



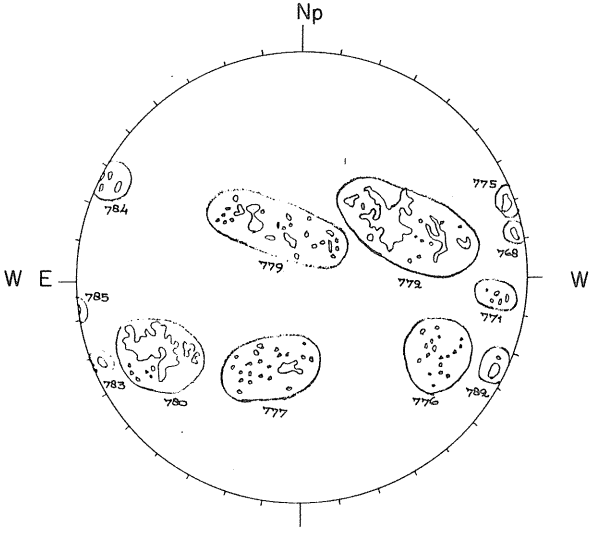
20-21 UT Brightness Unit 5000° K

FLEURS, AUSTRALIA 21 cm.



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

McMATH-HULBERT CALCIUM REPORT

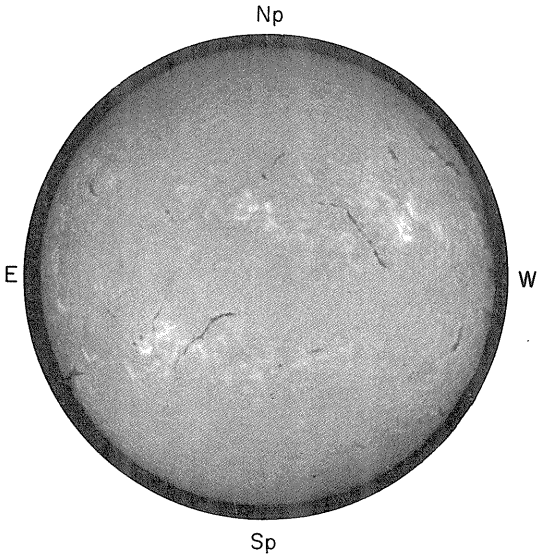


72-58-3.0
79-25-3.0
80-47-3.0
82-10-2.5
83-06-2.5

1715 UT

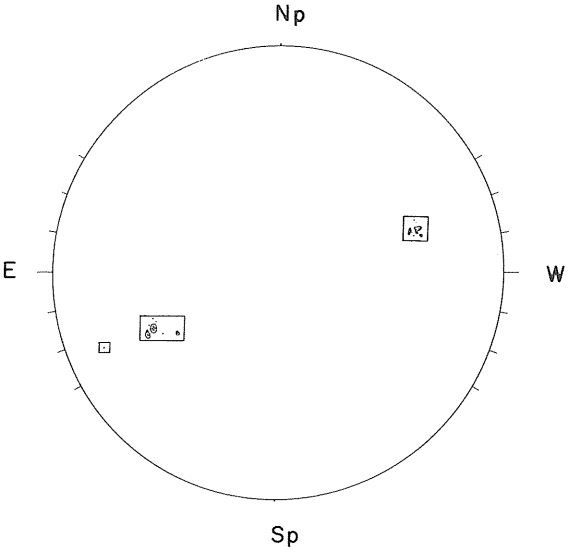
NOVEMBER 22, 1968 (P=19.31, B_o=1.94, L_o=211.78)

BOULDER Hα



1536 UT

ESSA-BOULDER SUNSPOTS

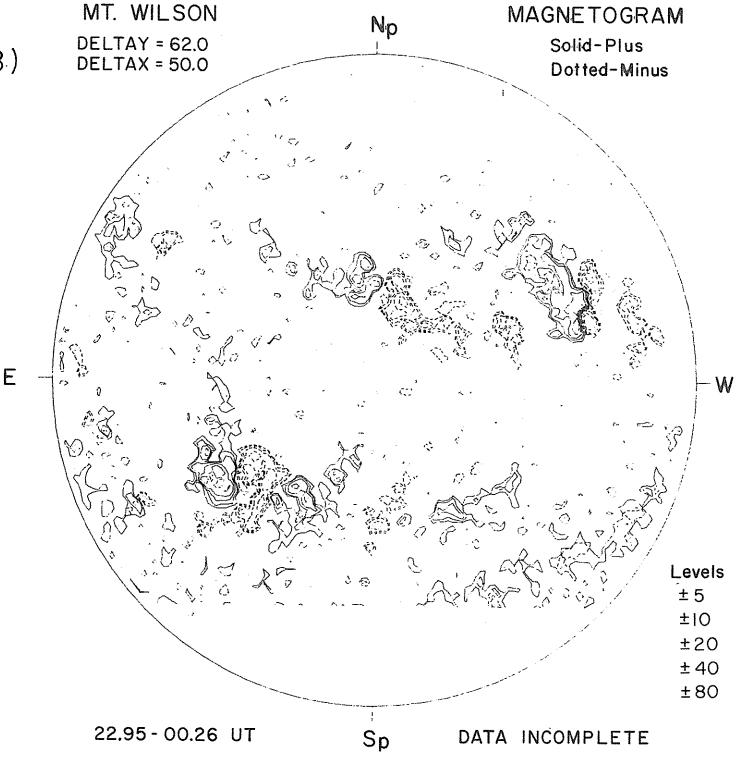


1525 UT

MT. WILSON MAGNETOGRAM

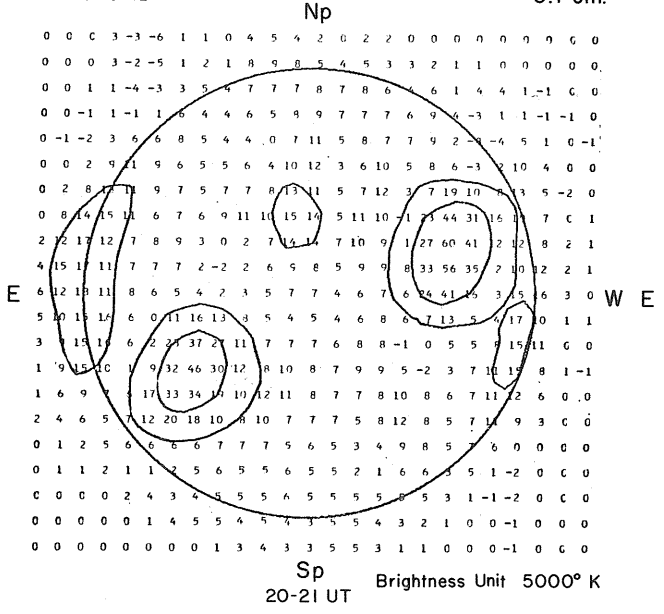
DELTAY = 62.0
DELTAX = 50.0

Solid-Plus
Dotted-Minus



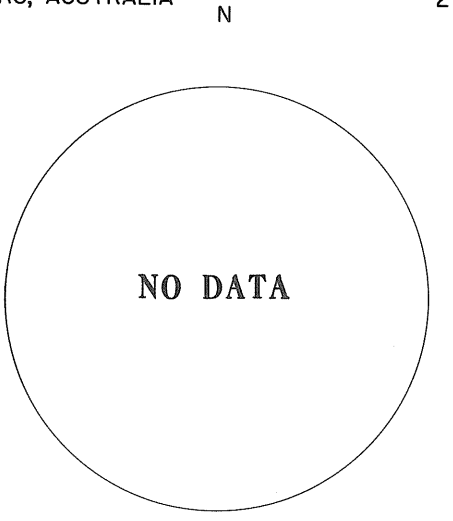
22.95 - 00.26 UT DATA INCOMPLETE

STANFORD 9.1 cm.



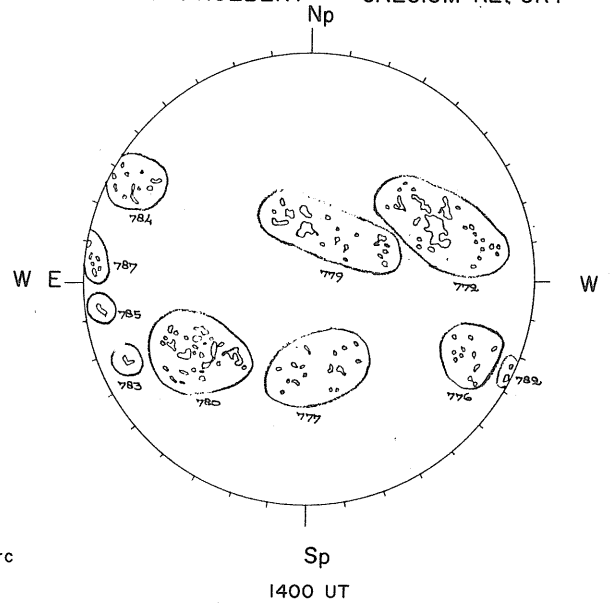
20-21 UT Brightness Unit 5000° K

FLEURS, AUSTRALIA 21 cm.



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

McMATH-HULBERT CALCIUM REPORT



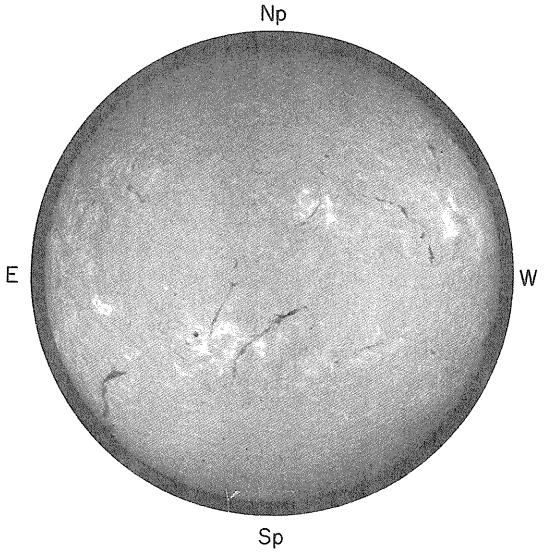
72-54-3.5
79-23-3.0
80-43-3.0
85-06-2.5

1400 UT

Nov 68
61

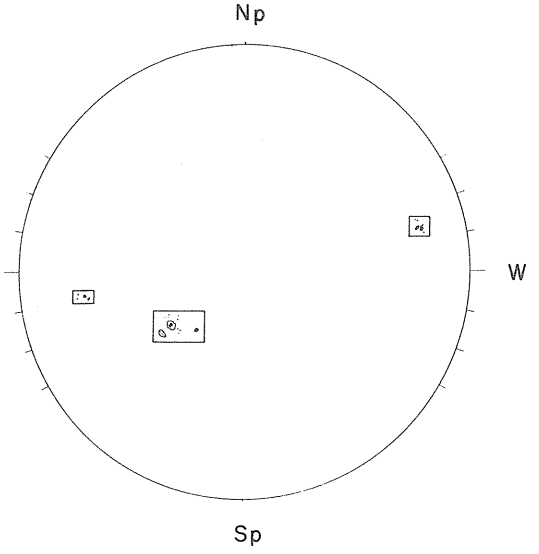
NOVEMBER 23, 1968 (P=18.98 , B_o=1.82, L_o=198.60)

BOULDER Hα



1756 UT

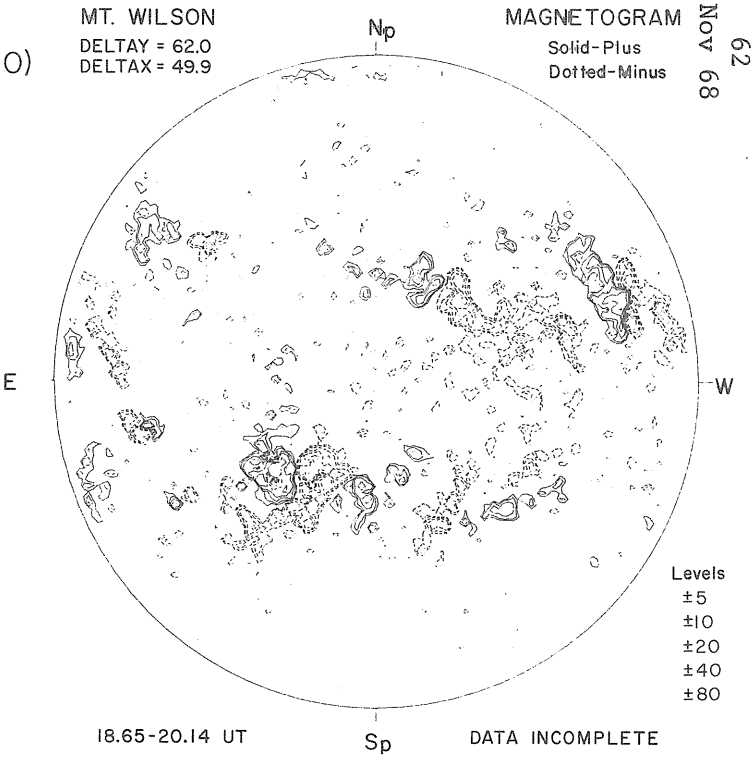
ESSA-BOULDER SUNSPOTS



1807 UT

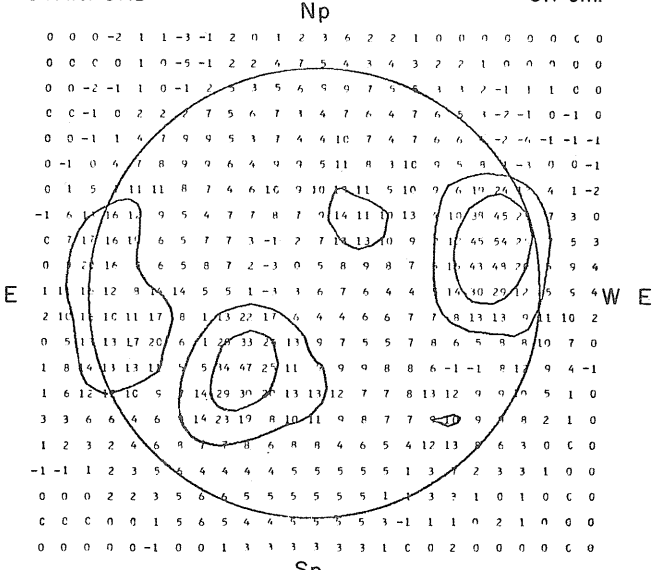
MT. WILSON
DELTAY = 62.0
DELTAX = 49.9

MAGNETOGRAM
Solid-Plus
Dotted-Minus



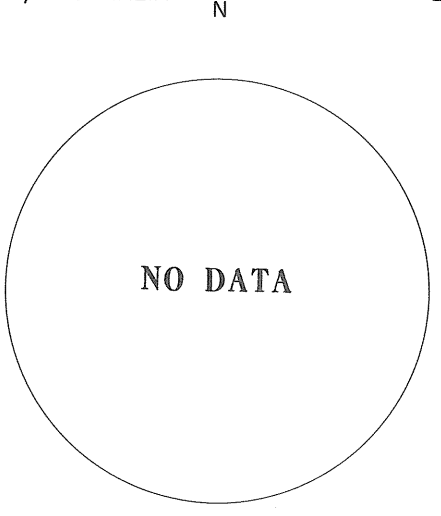
18.65-20.14 UT DATA INCOMPLETE

STANFORD 9.1 cm.



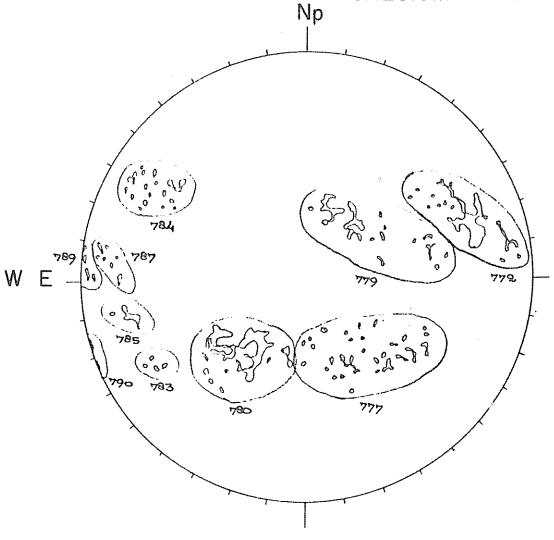
20-21 UT Brightness Unit 5000° K

FLEURS, AUSTRALIA 21 cm.



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

McMATH-HULBERT CALCIUM REPORT

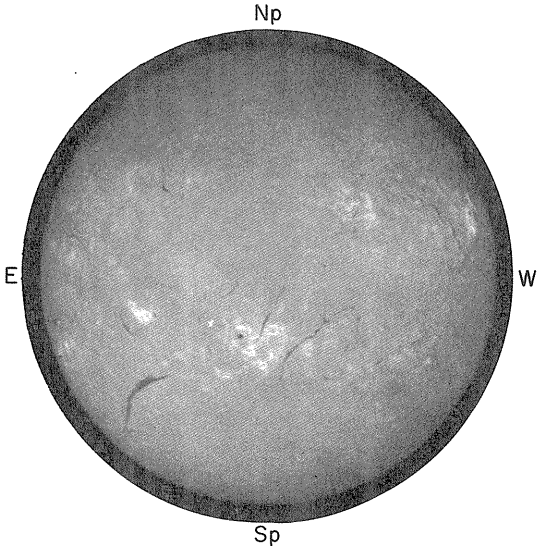


72-49-3.5
79-24-3.0
80-42-3.0
83-03-2.5
85-09-3.5
90-07-2.5

1430 UT

NOVEMBER 24, 1968 (P=18.64, B_o=1.69, L_o=185.42)

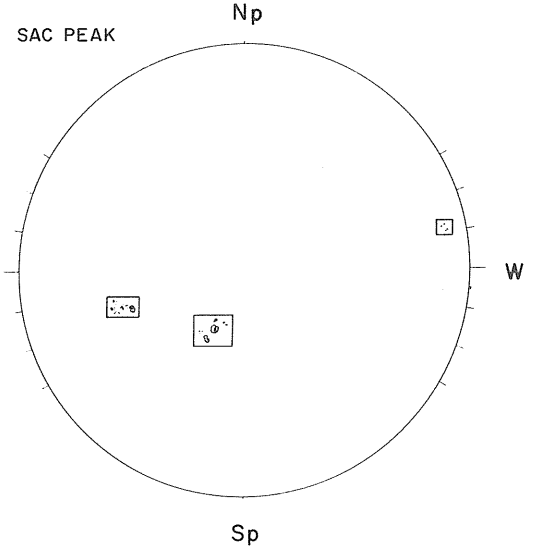
BOULDER Hα



1731 UT

ESSA-BOULDER SUNSPOTS

SAC PEAK

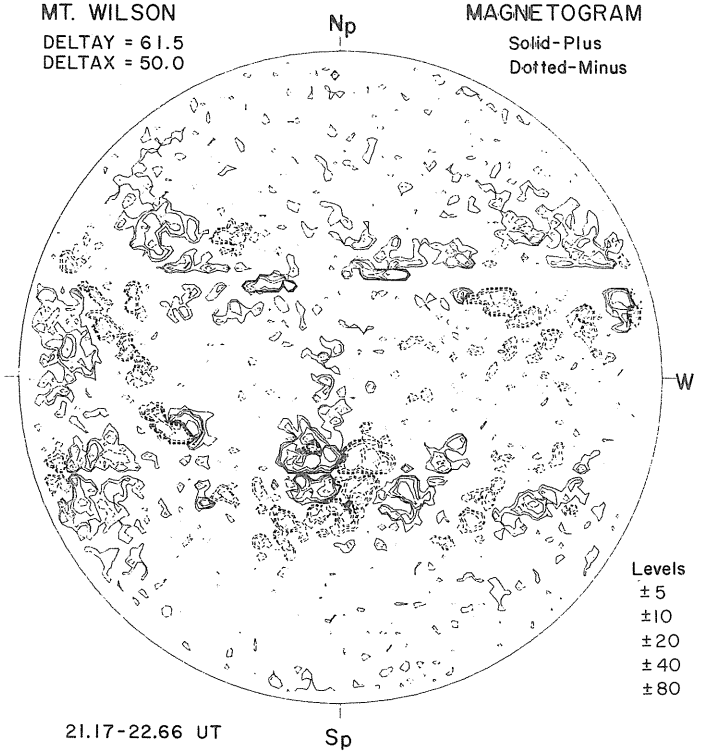


1614 UT

MT. WILSON MAGNETOGRAM

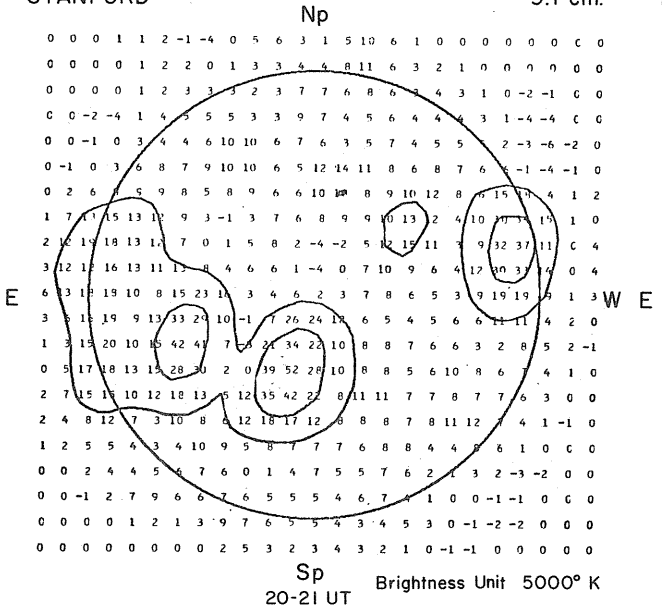
DELTAY = 61.5
DELTAX = 50.0

Solid-Plus
Dotted-Minus



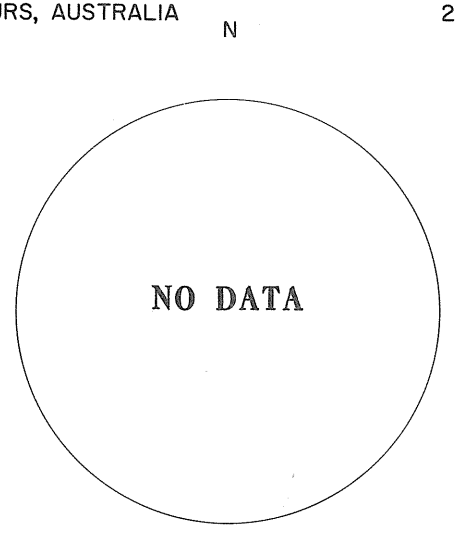
21.17-22.66 UT

STANFORD 9.1 cm.



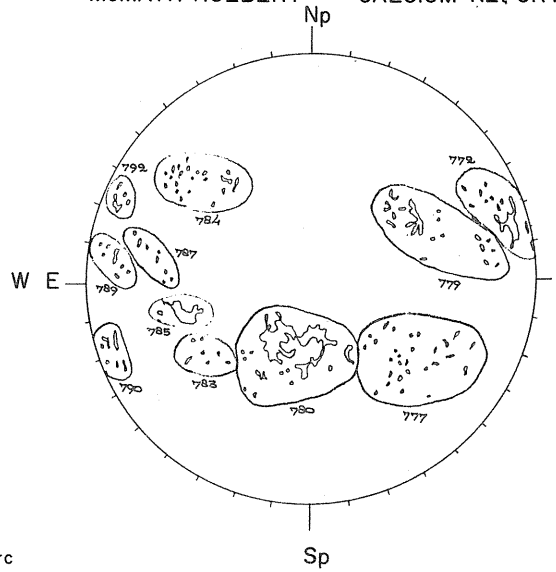
20-21 UT Brightness Unit 5000° K

FLEURS, AUSTRALIA 21 cm.



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

McMATH-HULBERT CALCIUM REPORT

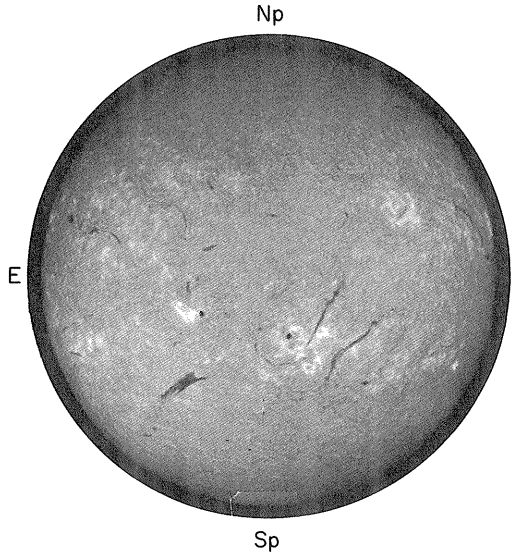


72-46-3.5
77-18-2.5
79-23-3.0
80-48-3.0
85-15-3.5
90-14-2.5

1840 UT

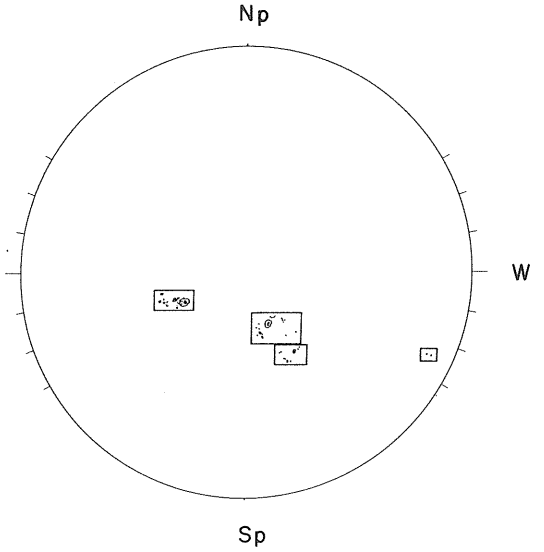
NOVEMBER 25, 1968 (P=18.30, B_o=1.57, L_o=172.24)

BOULDER Hα



1718 UT

ESSA-BOULDER SUNSPOTS



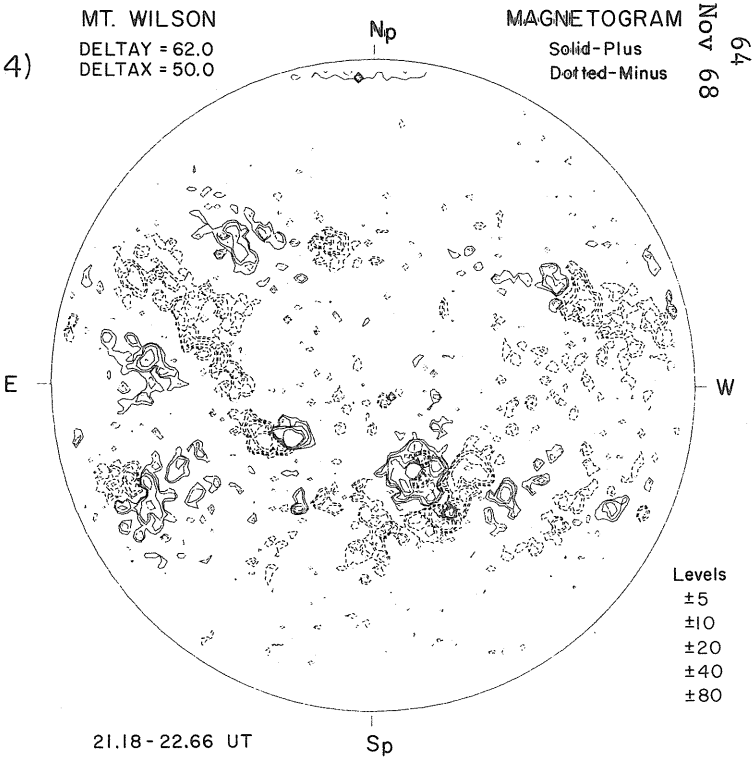
1805 UT

MT. WILSON MAGNETOGRAM

DELTAY = 62.0
DELTAX = 50.0

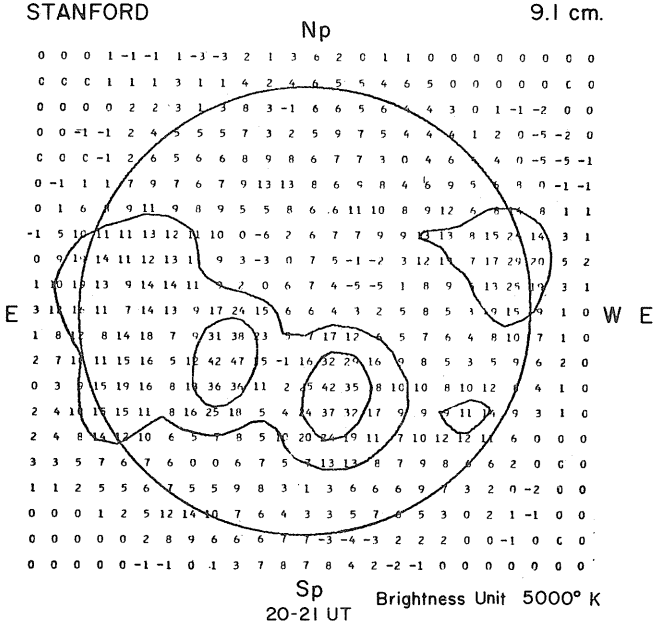
Solid-Plus
Dotted-Minus

Nov 68 64



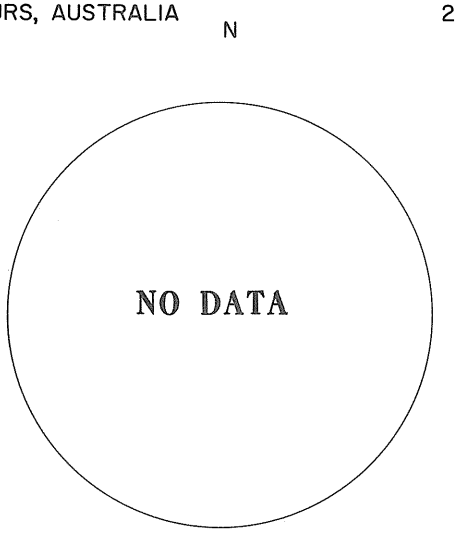
21.18 - 22.66 UT

STANFORD 9.1 cm.



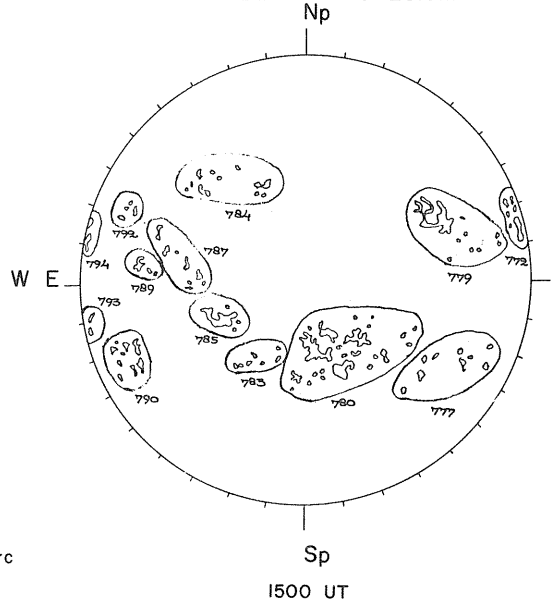
20-21 UT Brightness Unit 5000° K

FLEURS, AUSTRALIA 21 cm.



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

McMATH-HULBERT CALCIUM REPORT



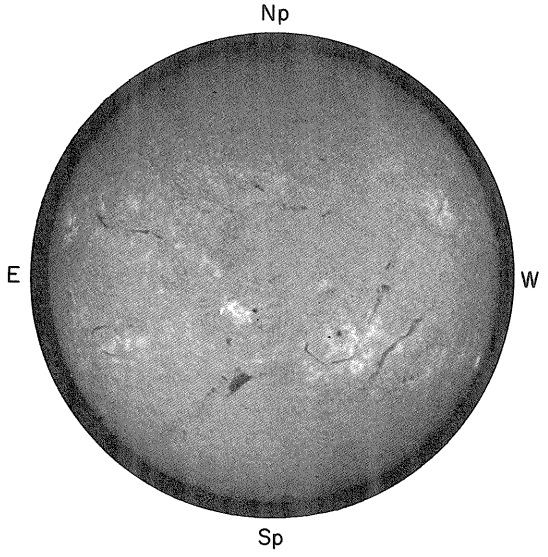
72-25-3.0
77-12-2.5
79-26-2.5
80-47-3.0
85-13-3.5
89-06-2.5
90-14-2.5

1500 UT

NOVEMBER 26, 1968 (P=17.94, B_o=1.44, L_o=159.06)

BOULDER

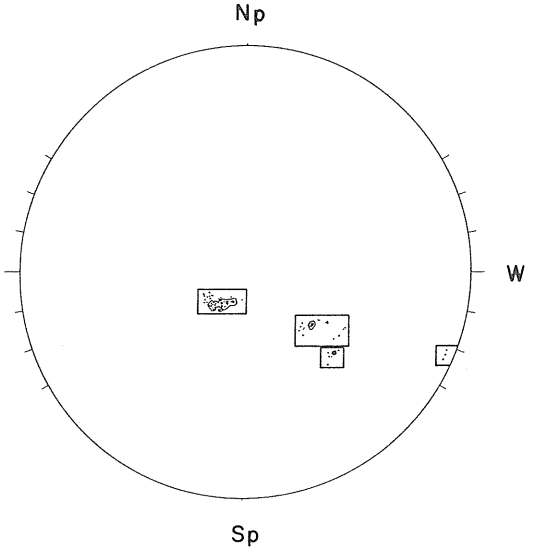
Hα



1511 UT

ESSA-BOULDER

SUNSPOTS



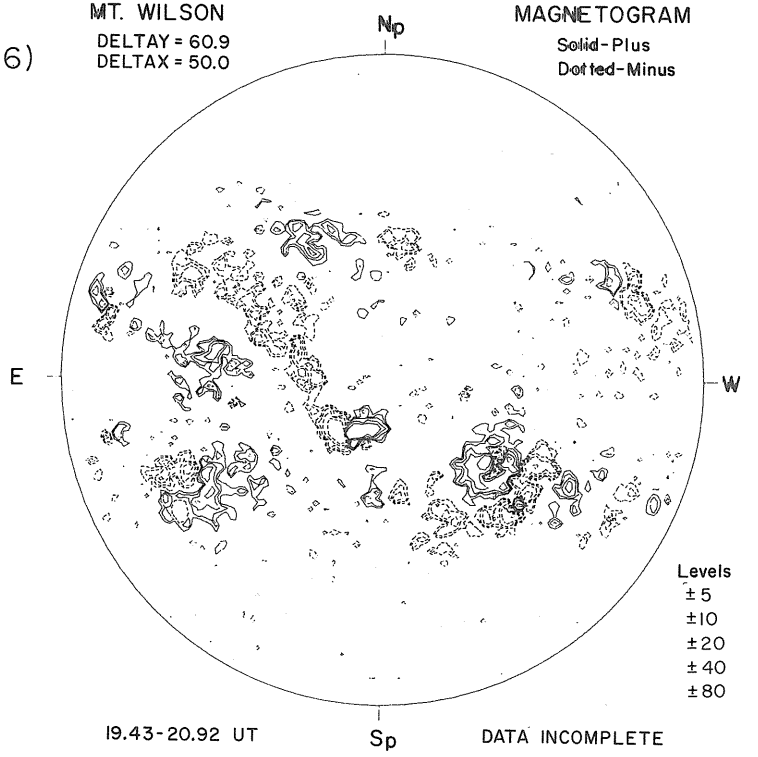
1550 UT

MT. WILSON

DELTAY = 60.9
DELTAX = 50.0

MAGNETOGRAM

Solid-Plus
Dotted-Minus

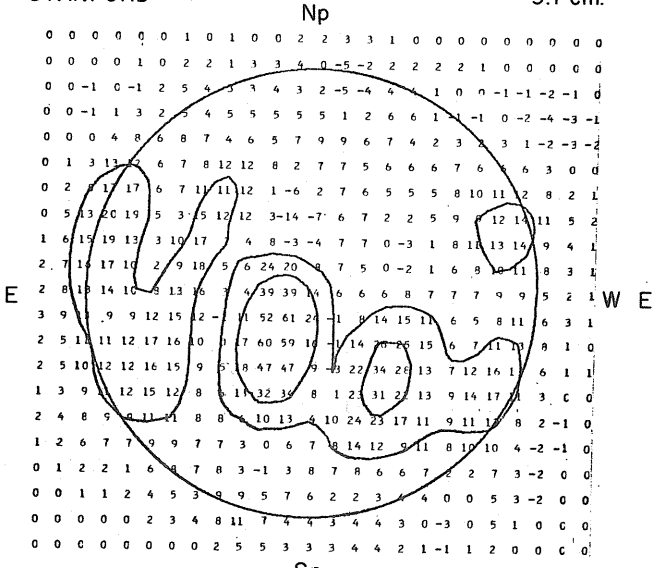


19.43-20.92 UT

DATA INCOMPLETE

STANFORD

9.1 cm.

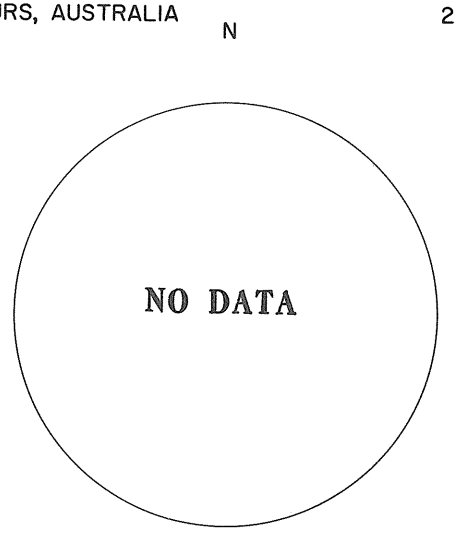


20-21 UT

Brightness Unit 5000° K

FLEURS, AUSTRALIA

21 cm.

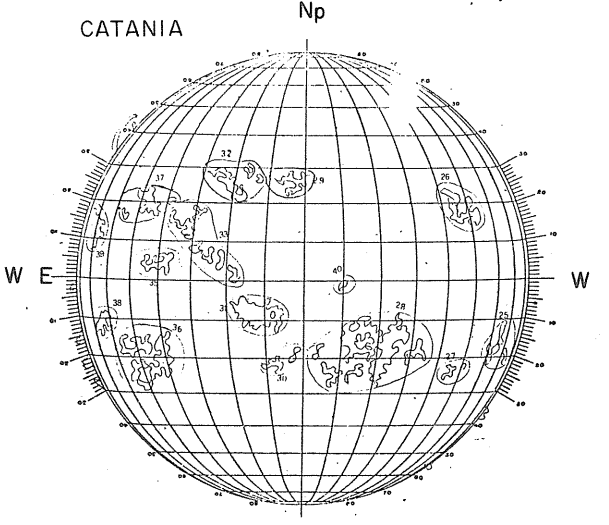


Resolution 3 Minutes of Arc

02-03 UT Brightness Unit 1,700° K

CALCIUM REPORT

CATANIA

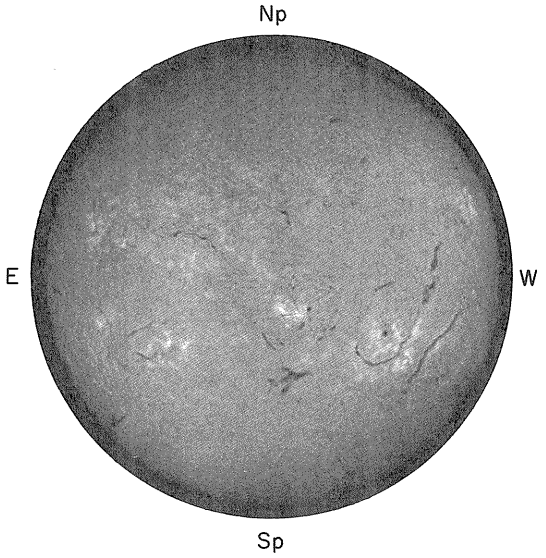


25-17-3.1
28-68-3.4
31-27-3.3
36-46-3.0

0910 UT

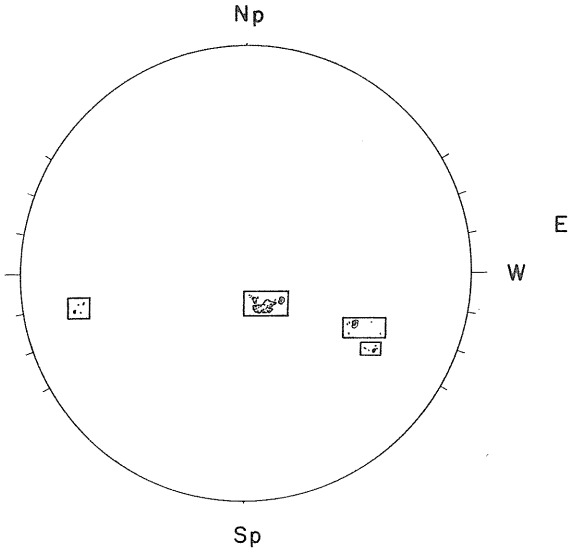
NOVEMBER 27, 1968 (P=17.59, B_o=1.32, L_o=145.88)

BOULDER Hα



1438 UT

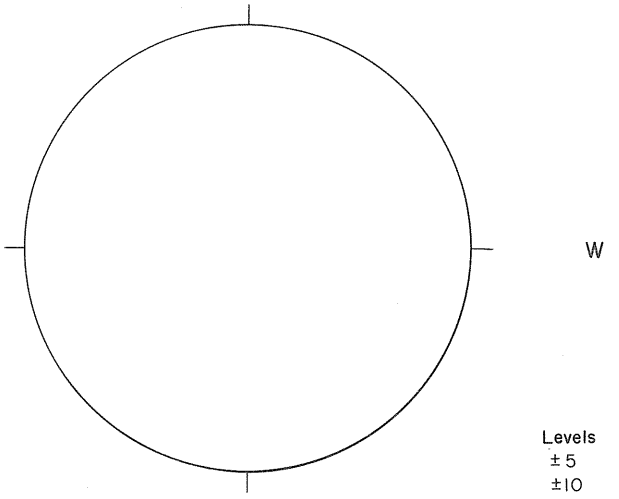
ESSA-BOULDER SUNSPOTS



1620 UT

MT. WILSON MAGNETOGRAM

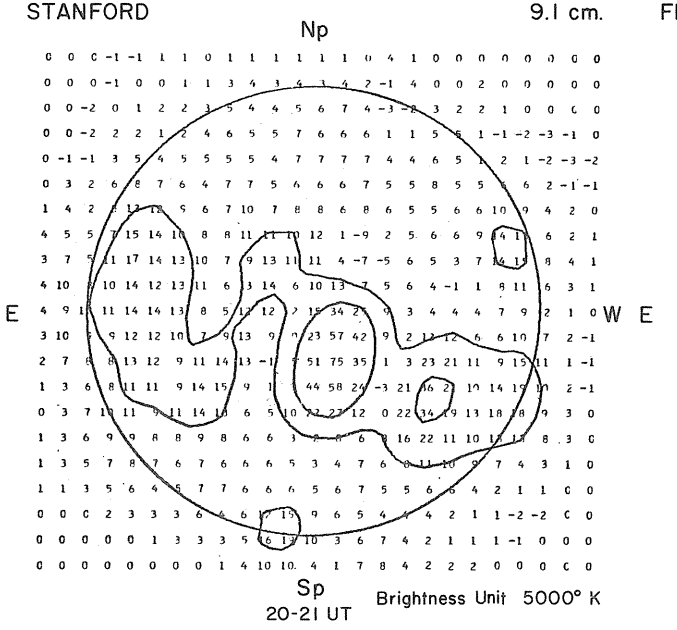
Solid-Plus
Dotted-Minus



Levels
±5
±10
±20
±40
±80

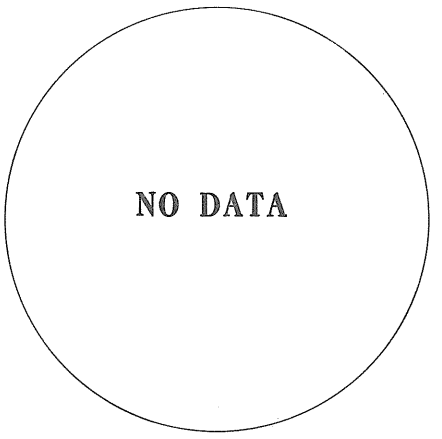
Nov 68 66

STANFORD 9.1 cm.



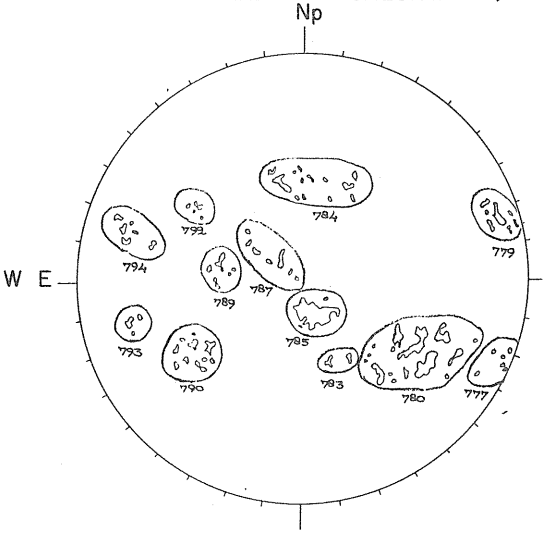
20-21 UT Brightness Unit 5000° K

FLEURS, AUSTRALIA 21 cm.



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

McMATH-HULBERT CALCIUM REPORT

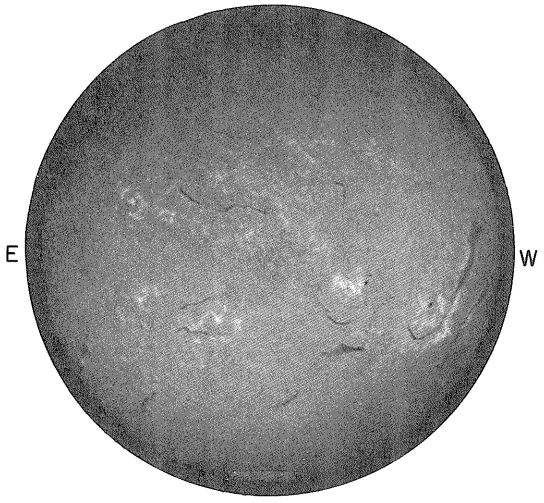


80-45-3.0
85-18-3.5
90-12-2.5

1400 UT

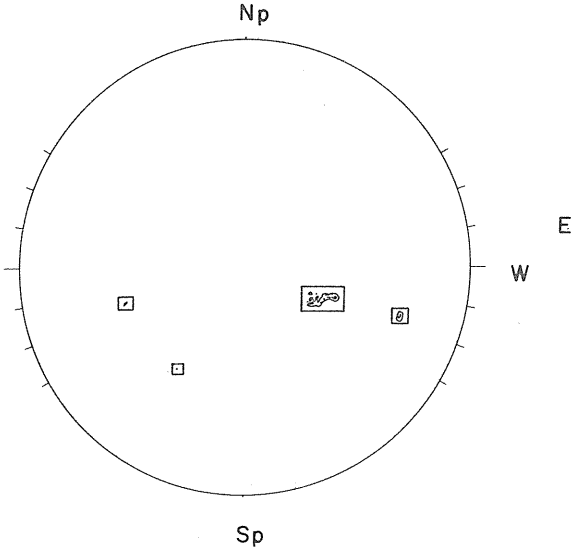
NOVEMBER 28, 1968 (P=17.22, B_o=1.19, L_o=132.70)

BOULDER Hα



1922 UT

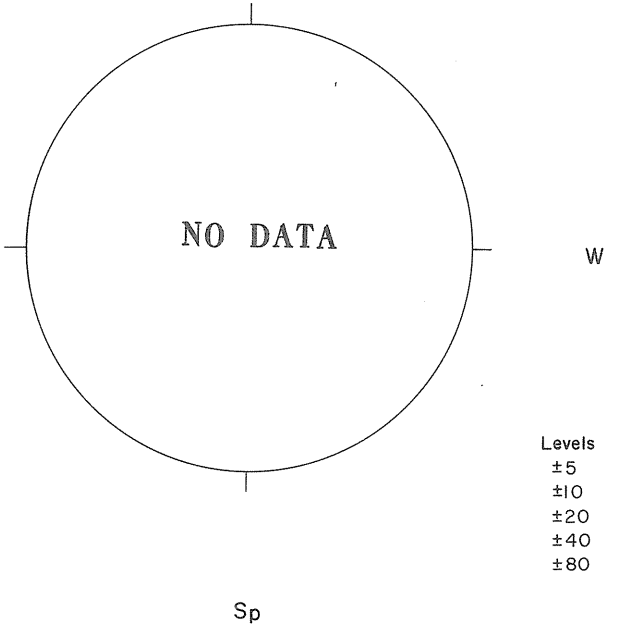
ESSA-BOULDER SUNSPOTS



1858 UT

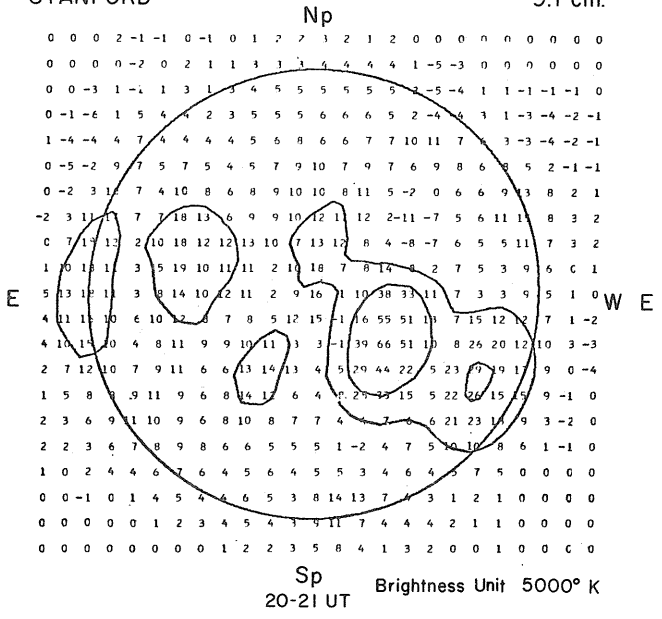
MT. WILSON MAGNETOGRAM

Solid-Plus
Dotted-Minus



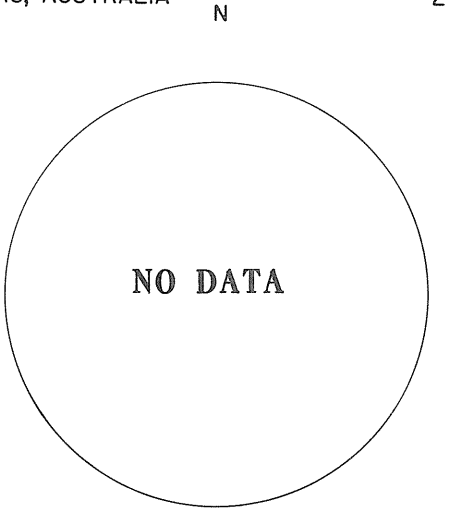
Levels
±5
±10
±20
±40
±80

STANFORD 9.1 cm.



20-21 UT Brightness Unit 5000° K

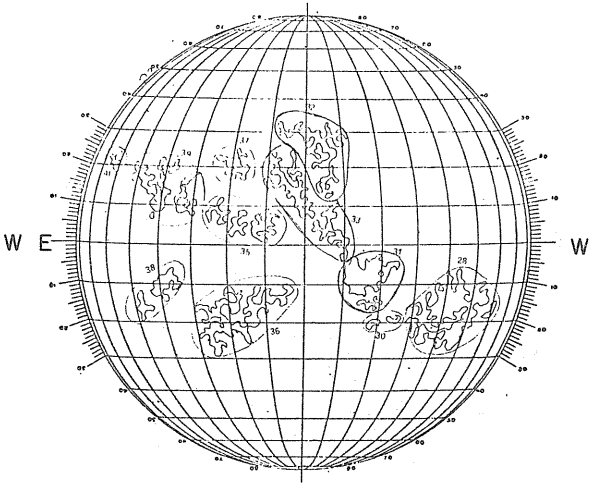
FLEURS, AUSTRALIA 21 cm.



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

CALCIUM REPORT

CATANIA



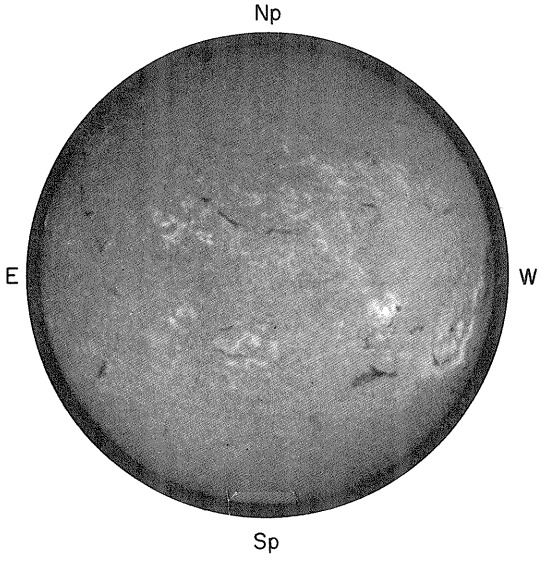
28-96-3.8
31-40-4.1
33-38-
36-18-4.2
39-36-2.8
38-19-3.0

0950 UT

67
Nov 68

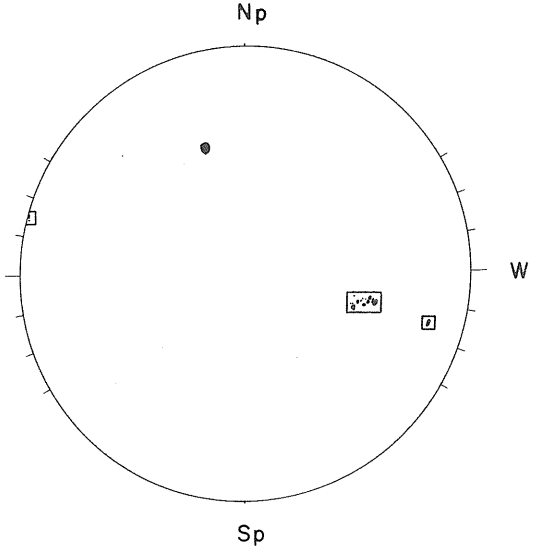
NOVEMBER 29, 1968 (P=16.85, B_o=1.07, L_o=119.52)

BOULDER Hα



1507 UT

ESSA-BOULDER SUNSPOTS

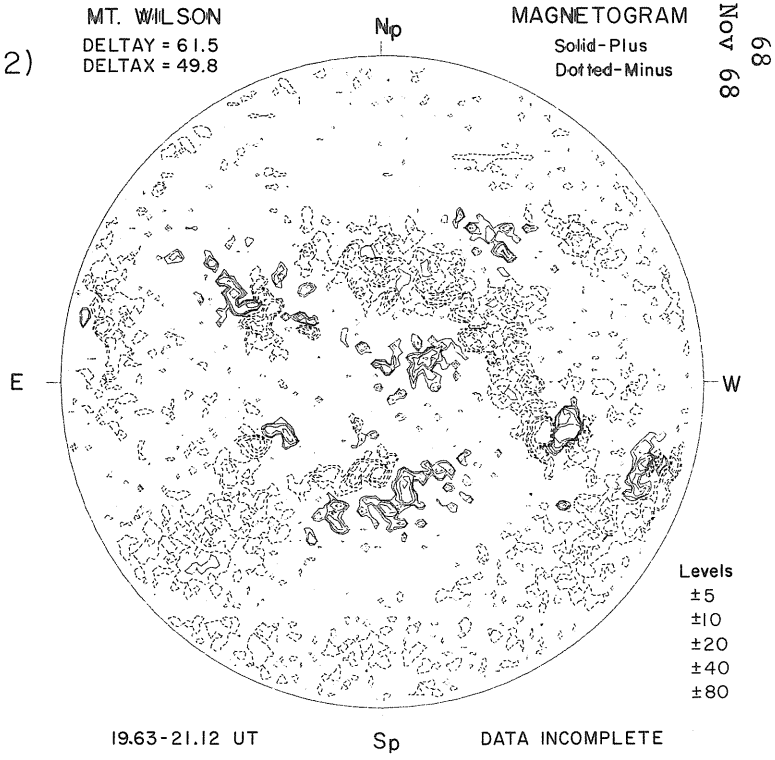


1605 UT

MT. WILSON MAGNETOGRAM

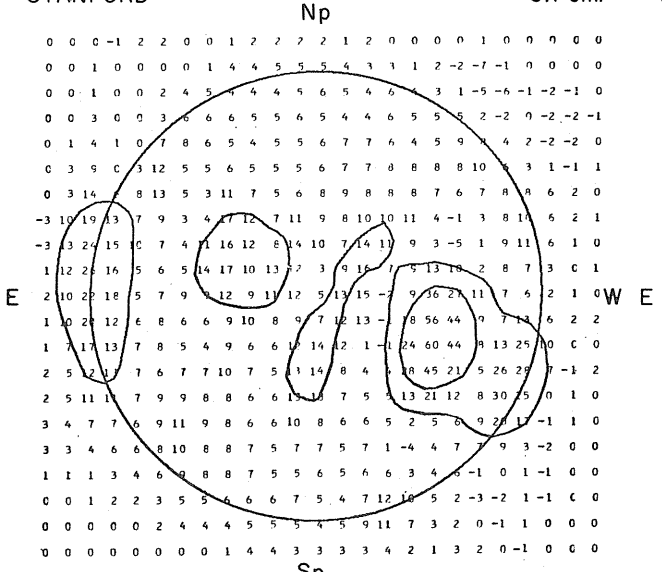
DELTAY = 61.5
DELTAX = 49.8

Solid-Plus
Dotted-Minus



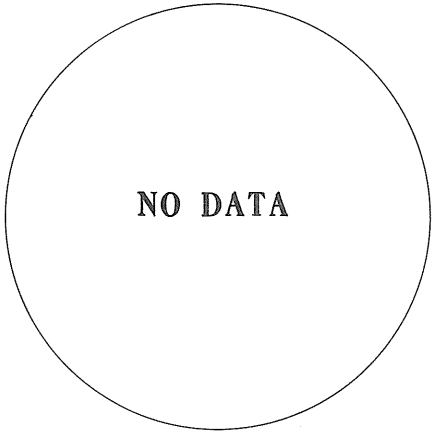
19.63-21.12 UT DATA INCOMPLETE

STANFORD 9.1 cm.



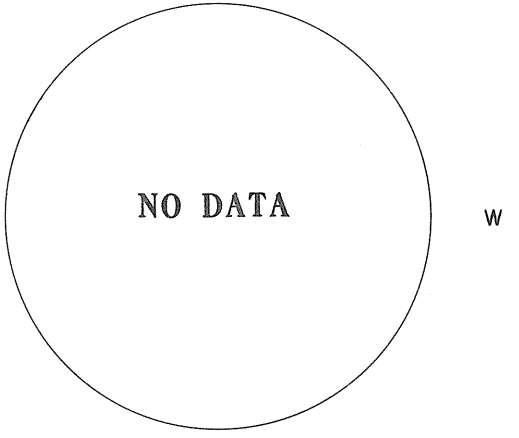
20-21 UT Brightness Unit 5000° K

FLEURS, AUSTRALIA N



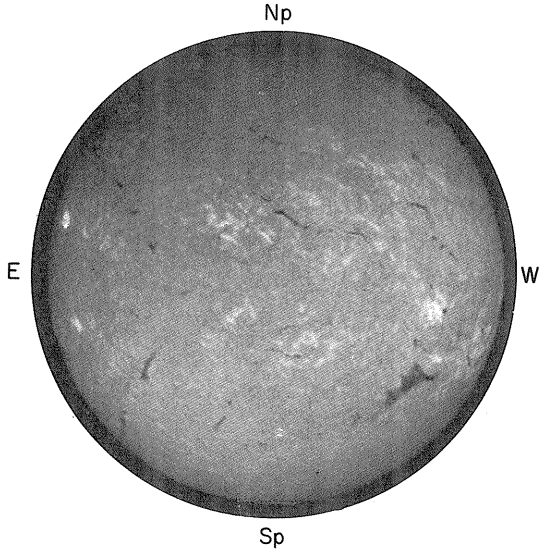
S Resolution 3 Minutes of Arc
02-03 UT Brightness Unit 1,700° K

21 cm. McMATH-HULBERT CALCIUM REPORT



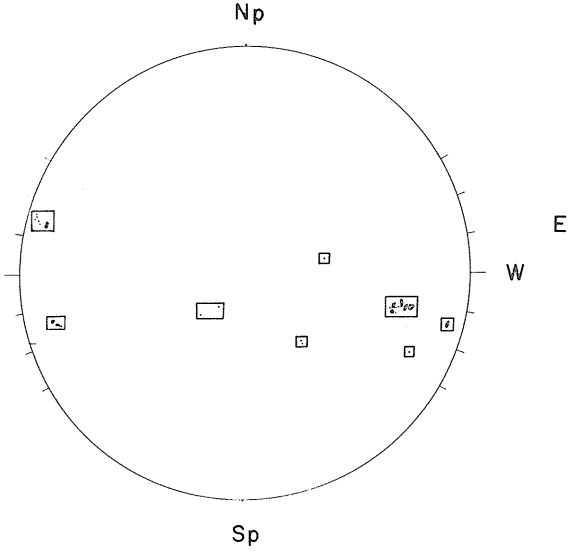
NOVEMBER 30, 1968 (P=16.48, B_o=0.94, L_o=106.34)

BOULDER Hα



1510 UT

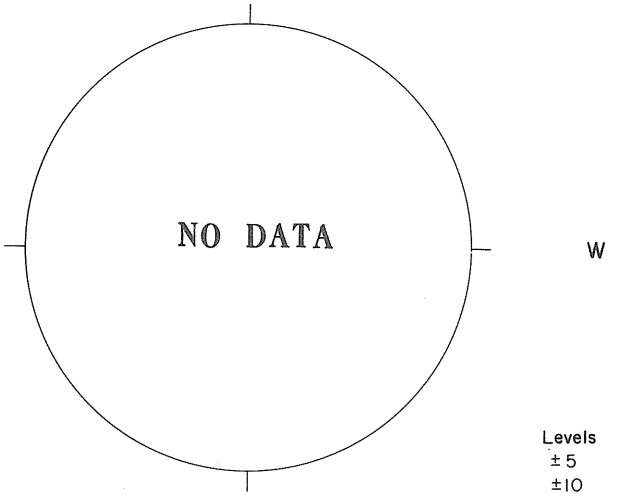
ESSA-BOULDER SUNSPOTS



1600 UT

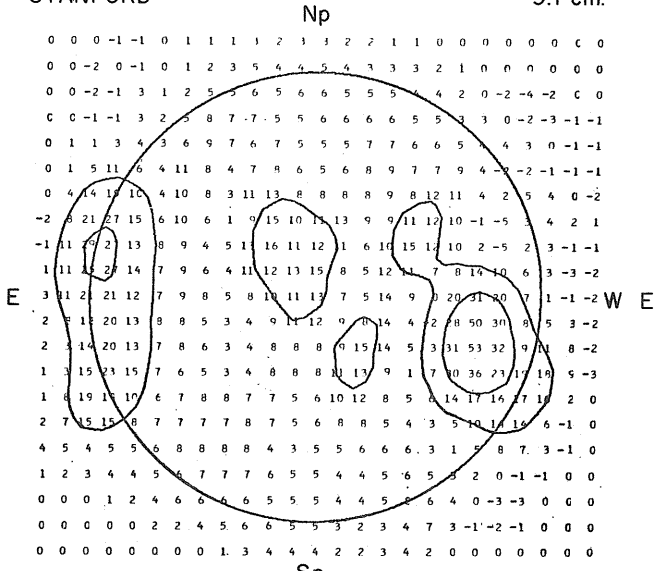
MT. WILSON MAGNETOGRAM

Solid-Plus
Dotted-Minus



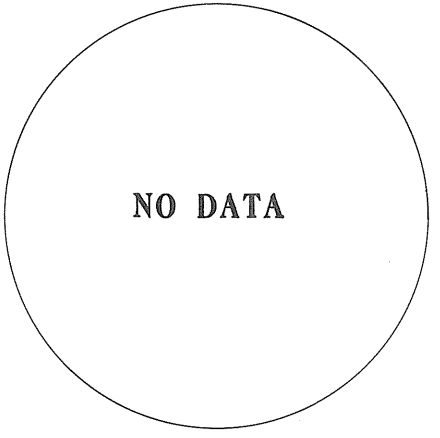
Levels
±5
±10
±20
±40
±80

STANFORD 9.1 cm.



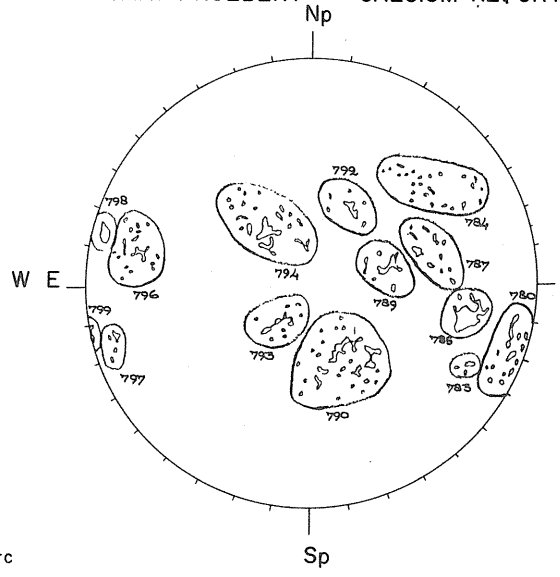
20-21 UT Brightness Unit 5000° K

FLEURS, AUSTRALIA 21 cm.



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

McMATH-HULBERT CALCIUM REPORT



80-36-2.5
83-06-2.5
85-26-3.5
87-14-2.5
90-28-2.5
94-21-2.5
97-09-3.5
98-15-3.5

1705 UT

CORONAL LINE EMISSION INDICES

NOVEMBER 1968

CMP Nov. 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	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
2	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
3	110	129	22	38	133	238	25	42	x	x	x	x	x	x	x	x
4	105	137	14	17	158	299	23	39	x	x	x	x	x	x	x	x
5	96	205	21	31	133	268	11	23	x	x	x	x	x	x	x	x
6	x	x	x	x	x	x	x	x	81	97	16	33	77	95	13	20
7	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
8	x	x	33	86	x	x	12	23	x	x	x	x	x	x	x	x
9	90	129	32	52	124	161	29	53	x	x	x	x	x	x	x	x
10	88	121	x	x	108	153	x	x	x	x	x	x	x	x	x	x
11	63	91	26	45	76	102	20	33	x	x	x	x	x	x	x	x
12	70	106	19	26	87	112	16	22	x	x	x	x	x	x	x	x
13	94	119	24	37	82	103	13	26	x	x	x	x	x	x	x	x
14	89	111	28	40	84	135	12	24	x	x	x	x	x	x	x	x
15	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
16	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
17	x	x	x	x	x	x	x	x	66	84	x	x	91	105	x	x
18	x	x	x	x	x	x	x	x	42	46	x	x	68	100	x	x
19	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
20	115	147	27	51	54	80	8	13	53	82	11	25	80	121	11	19
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	x	x	x	x	x	x	94	139	8	17	50	61	7	10
25	x	x	x	x	x	x	x	x	97	180	34	83	42	47	15	25
26	x	x	x	x	x	x	x	x	118	137	26	41	66	88	14	17
27	x	x	x	x	x	x	x	x	104	126	14	18	103	120	13	16
28	x	x	x	x	x	x	x	x	42	54	16	30	87	93	18	31
29	x	x	x	x	x	x	x	x	67	113	6	15	97	130	8	35
30	x	x	x	x	x	x	x	x	56	75	10	26	100	131	13	23

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

SOLAR X-RAYS BY SATELLITE
EXPLORER 37
NOVEMBER 1968

DAILY AVERAGES FOR NOVEMBER 1968

DATE	44-60 XE-1	8-20 XE-3	0-8 XE-4
1	5.15	21.46	19.21
2	5.45	19.52	16.51
3	4.67	17.29	14.44
4	5.23	16.11	13.93
5	3.55	9.79	7.44
6	3.50	10.02	7.58
7	3.38	8.85	4.83
8	4.10	12.38	9.71
9	3.98	11.72	8.89
10	3.93	12.25	10.31
11	3.55	9.58	6.65
12	3.58	10.93	9.34
13	3.60	14.10	9.82
14	3.55	11.60	8.89
15	4.12	11.11	8.53
16	3.77	10.79	8.56
17	3.90	14.62	12.54
18		15.54	12.94
19	4.43	15.31	12.70
20	3.80	12.28	8.65
21	3.37	10.40	7.40
22	3.50	11.16	7.85
23	3.43	9.08	5.87
24	4.10	10.35	7.81
25	4.40	10.71	7.60
26	3.60	9.95	6.63
27	3.60	9.53	5.82
28	3.30	8.23	4.72
29	3.00	7.38	3.75
30	3.20	9.51	6.23

OUTSTANDING EVENTS FOR NOVEMBER 1968

DATE	STA	START	END	8-20 XE-3	0-8 XE-4	0-3 XE-5	COMMENTS
1	NRL	0000	0002	52.00	86.00	15.00	DECREASING
1	NRL	0512	0519	25.00	32.00	3.30	PEAK
1	NRL	0548	0552	39.00	74.00	21.00	PEAK
1	NRL	0910	0914	230.00	730.00	130.00D	PEAK
1	NRL	1312	1314	25.00	35.00		DECREASING
1	NRL	2008	2010	400.00	2600.00	130.00D	PEAK
2	NRL	0043	0046	25.00	36.00	10.00	PEAK
2	NRL	0102	0109	39.00	69.00	23.00	PEAK
2	NRL	0110	0114	39.00	130.00	67.00	PEAK
2	NRL	0606	0607	64.00	130.00	30.00	PEAK
2	NRL	0932	0933	39.00	77.00	22.00	PEAK
2	NRL	1002	1004	550.00	5300.00	130.00D	INCREASING
2	NRL	1530	1531	52.00	86.00	25.00	
2	NRL	1908	1917	23.00	38.00	7.60	
3	NRL	0300	0300	27.00	55.00	13.00	DECREASING
3	NRL	0712	0713	39.00	86.00	40.00	PEAK
3	NRL	1155	1202	23.00	30.00	3.30	PEAK
3	NRL	1616	1618	39.00	85.00		PEAK
3	NRL	1641	1644	39.00	69.00	25.00	PEAK
3	NRL	1806	1818	25.00	42.00	7.30	
3	NRL	2328	2328	38.00	85.00	26.00	PEAK
4	NRL	0203	0203	22.00	35.00	8.90	PEAK
4	NRL	0238	0242	39.00	80.00	21.00	PEAK
4	NRL	0350	0350	39.00	120.00	9.00D	PEAK
4	NRL	0520	0540	1100.00D	4900.00D	120.00D	
4	NRL	1023	1058	29.00	35.00	2.20	
5	NRL	2050	2100	35.00	85.00	10.00	PEAK
6	NRL	1227	1227	24.00	82.00	34.00	PEAK
8	NRL	2106	2150	21.00	30.00	5.60	PEAK
9	NRL	1225	1225	18.00	34.00	7.80	PEAK
9	NRL	1240	1240	19.00	40.00		PEAK
9	NRL	2040	2042	27.00	60.00	5.60	PEAK
11	NRL	0730	0735	23.00	35.00	3.00	
12	NRL	1429	1431	26.00	86.00		PEAK
13	NRL	0015	0021	27.00	64.00	20.00	PEAK
13	NRL	2111	2114	95.00	280.00	120.00	PEAK
13	NRL	2150	2207	40.00	70.00		PEAK
14	NRL	2046	2052	77.00	210.00	90.00	PEAK
16	NRL	0053	0053	17.00	32.00		PEAK
17	NRL	1414	1456	30.00	50.00	5.50	
17	NRL	1715	1715	23.00	33.00		DECREASING
18	NRL	0040	0040	26.00	59.00	3.30	
18	NRL	0442	0442	64.00	130.00	39.00	DECREASING
18	NRL	1115	1126	920.00	3600.00	140.00D	
18	NRL	1835	1846	39.00	86.00		
18	NRL	1951	1954	39.00	46.00	6.70	PEAK
18	NRL	2315	2317	77.00	390.00	130.00D	PEAK
19	NRL	0218	0218	25.00	41.00	7.80	PEAK
20	NRL	0132	0137	25.00	43.00	8.90	PEAK
20	NRL	1237	1249	23.00	33.00	3.80	
21	NRL	0041	0044	28.00	70.00	15.00D	PEAK
22	NRL	0130	0145	40.00	89.00	17.00	
24	NRL	1047	1050	26.00	43.00	3.30	PEAK
24	NRL	1420	1425	26.00	48.00		PEAK
24	NRL	2040	2042	23.00	55.00	21.00	PEAK
25	NRL	1251	1252	38.00	65.00	7.80	DECREASING
27	NRL	1124	1132	35.00	77.00	8.90	PEAK

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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.	
01	0750	1620	WEIS				0750	1508	2				IS
			WEIS				0851.7	0900.5	2				II
			WEIS	0853	0915	1							IV
			WEIS	0925	0952	2							IV
			WEIS	1208.9	1213	2							III,UNCLF
	1100	2200	SGMR							1210	2015		CONT
			SGMR							1210.5	1211.5		IIIB
			WEIS				1247.8	1248	2				IIIB
			SGMR							1248	1248.5		IIIB
			SGMR							1258	1304		IIIG
			WEIS	1258.3	1304.6	2							IIIGG
			WEIS				1312	1314.5	2				IIIGG
			SGMR							1312	1315.3		IIIG
			WEIS				1326.1	1326.5	1				IIIB
			SGMR							1327	1328		IIIB
	1330	2340	HARV				1330	2340	2				IC
	1317	2350	BOUL				1350 E	1956	2	1350 E	1956	2	CONT
			SGMR							1402.8	1406.5		IIIG
			SGMR							1433	1436.5		IIIG
			HARV	1435	1436	2	1436		1	1436		1	IIIG
			BOUL				1435.3	1435.7	3	1435.3	1435.7	3	III
			WEIS				1435.5	1435.7	1				IIIG
			BOUL				1443.5	1445.2	3	1443.5	1445.2	3	IIIG
			SGMR							1443.5	1446		IIIG
			HARV				1444	2102	2	1444	2102	2	IIIN
			BOUL				1450.9	1454.7	3	1450.9	1454.7	3	IIIG
			HARV	1451	1456	2	1451	1457	2	1451	1455	2	IIIGG
			SGMR							1451	1455		IIIG
			WEIS				1451.2	1455.1	1				IIIGG
			HARV	1514	1515	1	1514	1515	1				IIIG
			SGMR							1525.5	1527		IIIB
			HARV				1617		1	1617		1	IIIG
			SGMR							1626	1632		IIIG
			HARV	1630	1634	2	1628	1634	2	1628	1632	2	IIIGG
			HARV				1700	1702	1	1700	1702	2	IIIG
			HARV				1706	1709	1				UNCL
			SGMR							1708	1709.5		II
			SGMR							1717	1723		IV
			HARV	1758	1800	1	1758	1759	3	1758	1759	3	IIIG
			SGMR							1758	1800		IIIB
			BOUL				1758.3	1759.2	3	1758.3	1759.2	3	IIIG
			BOUL				1818.4	1820	3	1818.4	1820	3	IIIG
			HARV	1819	1823	1	1818	1821	2	1818	1821	2	IIIGG
			SGMR							1819	1820		IIIG
			HARV	1858	2125	1							IIIN
			SGMR							1903.5	1904		IIIB
			SGMR							1930	1931		IIIG
			BOUL							1956	2350 D	3	CONT
			BOUL				1956.1	1957.6	3	1956.1	1957.6	3	III
			HARV	1957	1958	2	1956	1958	2	1956	1958	2	IIIGG
			SGMR							1957	1959.5		IIIG
			HARV	2000	2018	3	2001	2015	2				IIIGG
			SGMR							2003.8	2005		IIIB
			HARV				2004	2005	3	2004	2005	3	IIIGG,V
			BOUL				2004	2005.3	3	2004	2005.3	3	III
			SGMR							2005.5	2014.2		IIIG
			HARV				2007	2011	2				II
			HARV	2028	2029	1	2027	2028	1	2027	2028	2	IIIG
			HARV				2112		2	2112		3	IIIG
			HARV	2242	2245	2	2242	2249	2				IIIGG
			BOUL				2242.7	2245.9	3	2242.7	2245.9	3	IIIG
			HARV				2338		1				IIIG
02	0630	1655	WEIS				0634	1544	2				IS
			WEIS				0841.5	0841.7	2				III
			WEIS				0846.6	0847.2	2				UNCLF
			WEIS				0906.6	0906.9	1				IIIB
			WEIS				0926.1	0927.4	2				IIIG
			WEIS				0947.4	0952.3	2				IIIGG
			WEIS				0952.4	0955.8	2				UNCLF
			WEIS	1001.2	1028.4	3							IV
			WEIS				1003.5	1017.5	2				II
			WEIS				1054.6	1100.7	2				IIIGG
	1100	2200	SGMR							1144	1145.5		IIIB
			WEIS				1228.8	1229.6	2				IIIG
			SGMR							1312.2	1120.5		IIIG
	1318	2345	BOUL				1315 E	1504	2	1315 E	1504	2	CONT
	1330	2339	HARV	1330	1800	1	1330	1740	1				IN
			WEIS				1404.5	1405.1	1				IIIG
			SGMR							1405	1405.8		IIIB
			SGMR							1429	1431.5		IIIG
			BOUL				1439.2	1444.2	3	1439.2	1444.2	3	II
			HARV				1453	1456	1				IIIG
			BOUL				1453	1455.8	3	1453	1455.8	3	IIIG
			HARV	1455	1502	2							IIIGG
			BOUL				1504	1518.2	3	1504	1518.2	3	II
			SGMR							1513.5	1518		IIIG
			HARV	1514		1	1511	1515	1	1514		1	IIIG
			WEIS				1514	1520.6	1				IIIG
			BOUL				1518.2	1607	3	1518.2	1607	3	IV
			HARV	1519	1521	1	1519	1521	2				IIIG

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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.	
02			HARV	1525		1	1524	1528	1				IIIG
			SGMR							1525	1525.8		IIIB
			HARV	1527	1547	3	1530	1544	2				IIIGG
			HARV				1534	1558	2				UNCLF
			BOUL				1607	1644	2	1607	1644	2	CONT
			HARV	1617		1	1617	1618	2	1618		2	IIIG
			HARV				1624	1625	1				IIIG
			HARV	1641	1645	2							IIIG
			BOUL				1746.2	1746.4	2	1746.2	1746.4	2	III
			BOUL				1753	1753.2	2				III
			BOUL				1804	1844	3	1804	1844	3	CONT
			HARV				1805	2020	1	1805	2020	1	IIIN
			HARV	1814	2035	1	1740	2109	2				I
			HARV				1823	1827	2	1823	1825	2	IIIG
			BOUL				1844	2052	2	1844	2052	2	CONT
			HARV				1933	1935	1	1933	1934	1	IIIG
			HARV				2036	2038	1	2037	2038	1	IIIG
			HARV				2042	2043	1				IIIG
	2044	2400	CULG				2044	2123	1				IIIN
			BOUL							2052	2320 D	1	CONT
			HARV	2133	2330	1	2109	2330	1				IN
			HARV	2144	2148	1	2143	2148	1	2144	2147	1	IIIG
			CULG				2144	2152.5	1	2144	2152.5	1	IIIG
			BOUL				2144.2	2152.6	3	2144.2	2152.6	3	IIIGG
			CULG				2146.5	2147	2	2146.5	2147	2	IIIG
			CULG				2308.5	2309	1	2308.5	2309	1	IIIG
			CULG				2338.5	2339	1	2338.5	2339	1	IIIG
03	0000	0644	CULG				0002.5	0003	2	0002.5		1	IIIG
			CULG				0050.5	0051.5	1				I
			CULG				0053		1	0053		1	IIIB
			CULG				0101.5	0102	1	0101.5	0102	1	IIIG
			CULG				0104	0117	1				I
			CULG				0112		1	0112		1	IIIB
			CULG				0208.5	0210.5	1				IIIG
			CULG				0215	0322	1	0215	0322	1	IIIN
			CULG				0223	0235	1				I
			CULG				0227		1	0227		1	IIIB
			CULG				0324	0324.5	2	0324	0324.5	1	IIIG,U
			CULG				0325.5	0345	1	0325.5	0345	1	IIIN
			CULG				0431	0455	1	0431	0455	1	IIIN
			CULG				0447	0448	2	0447	0448	2	IIIG
			CULG				0452.5	0453	1	0452.5	0453	1	IIIG
			CULG				0608		1				IIIB
	0755	1710	WEIS				0755	1321	1				IS
			WEIS				0927.3	0927.6	2				IIIG
			WEIS				0933.6	0936.6	1				IIIGG
			WEIS				1223.8	1224.4	2				IIIG
	1100	2200	SGMR							1229	1405		CONT
			WEIS	1232.8	1243.2	2							IIIGG
			SGMR							1233	1234		IIIB
			SGMR							1239	1240.2		IIIB
	1318	2345	BOUL				1350	1500	1	1350	1500	1	CONT
			BOUL				1457.9	1458.5	3	1457.9	1458.5	3	III
			SGMR							1458.3	1458.8		IIIB
			BOUL				1543.1	1543.3	1	1543.1	1543.3	1	III
			BOUL				1608.1	1608.3	2	1608.1	1608.3	2	III
	1330	2338	HARV	1614	1720	1	1614	1720	1				IN
			HARV				1642		2				IIIG
			BOUL				1642.1	1642.7	2				IIIG
			BOUL				1658.7	1659.1	2	1658.7	1659.1	2	III
			HARV	1709	1710	2	1709	1710	1	1709	1710	1	IIIG
			SGMR							1709.5	1710		IIIB
			BOUL				1709.6	1710	3	1709.6	1710	3	III
			HARV	1715	1716	2	1715	1716	2	1715	1716	2	IIIG
			BOUL				1715.3	1719.9	3	1715.3	1719.9	3	IIIG
			HARV	1718	1720	2	1719	1720	2	1719		1	IIIG
			HARV	1741	1743	2	1741	1743	1				IIIG
			HARV	1934	1935	1	1934	1935	1				IIIG
			BOUL				1934.6	1935.1	2	1934.6	1935.1	2	III
			HARV				1940	2124	1				I
			HARV	1952	2052	1							IN
			HARV	2038	2043	2	2038	2043	2	2038		1	IIIGG
			BOUL				2038.2	2041.1	3	2038.2	2041.1	3	IIIG
	2040	2400	CULG				2222.5	2232	1	2222.5	2232	1	IIIG
			BOUL				2222.9	2224.5	2	2222.9	2224.5	2	III
			BOUL				2231.5	2231.7	2				III
			HARV	2322	2323	2							IIIG
04	0000	0631	CULG				0208.5		1	0208.5		1	IIIB
			CULG				0231.5	0232.5	2				II
			CULG				0349.5	0350	1				IIIG
			CULG				0433.5		2	0433.5		2	IIIB
			CULG				0445	0447.5	1	0445	0447.5	1	IIIG
			CULG				0514	0516.5	2	0515	0516.5	1	IIIG,V,U
			CULG				0517	0550	3	0517.5	0550	3	IIH
			CULG				0518	0521.5	1				CONT
	0710	1705	WEIS				0755	1120	1				IS
			WEIS				0908.1	0908.9	1				IIIG
	1100	2200	SGMR							1244.5	1245		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.	
04			SGMR							1305.5	1308		IIIG
	1330	2337	HARV										
	1318	2346	BOUL				1457.3	1457.7	2	1457.3	1457.7	2	IIIG
			BOUL				1502.5	1503.5	2	1502.5	1503.5	2	IIIG
			BOUL				1522.2	1522.5	2	1522.2	1522.5	2	III
	2145	2400	CULG										
05	0000	0345	CULG				0014	0018	1	0014	0018	1	IIIG
			CULG				0039.5		1	0039.5		1	IIIB
	0420	0425	CULG										
	0438	0534	CULG										
	0536	0547	CULG										
	0554	0613	CULG										
	0723	1555	WEIS										
	1100	2200	SGMR										
	1343	2336	HARV	1343	1345	2	1344		1				IIIG
	1317	2345	BOUL				1724.3	1724.7	1	1724.3	1724.7	1	IIIG
			BOUL							2011.5	2012	1	III
			BOUL				2030.9	2031.2	1	2030.9	2031.2	1	III
	2129	2329	CULG				2146.5		1	2146.5		1	IIIB
			BOUL				2147.1	2147.4	2	2147.1	2147.4	2	III
	2346	2400	CULG										
06	0000	0056	CULG										
	0106	0551	CULG										
	0552	0603	CULG										
	0605	0637	CULG				0631.5		1	0631.5		1	IIIB
	1100	2200	SGMR										
	0751	1550	WEIS				1330	1331.7	2				IIIGG
	1348	2347	BOUL				1447	1447.7	2	1447	1447.7	2	IIIG
			BOUL							1512.4	1513.6	2	III
			BOUL				1524.2	1524.4	2				III
			BOUL				1938.7	1939.7	2	1938.7	1939.7	2	IIIG
	1346	2336	HARV				1939		1	1939		2	IIIG
	2032	2348	CULG				2117	2118	1				IIIG
			CULG				2251	2258	1	2251	2258	1	IIIGG
			BOUL				2253.7	2358.7	2	2253.7	2358.7	2	IIIG
			CULG										
07	0000	0554	CULG										
	0715	1615	WEIS				0822.5	0822.7	1				IIIG
	1100	2200	SGMR										
	1347	2345	BOUL				1625.6	1627.4	2	1625.6	1627.4	2	IIIG
	1345	2336	HARV				1632		1				IIIG
	2050	2400	CULG										
08	0000	0737	CULG				0615	0617	1				I
	0708	1620	WEIS										
	1100	2200	SGMR										
	1345	2335	HARV				1630	1632	1	1631	1632	1	IIIG
	1347	2141	BOUL				1631.2	1632	3	1631.2	1632	3	III
			HARV				1652	1720	1				IN
			HARV				1820	2220	1				IN
	2048	2217	CULG				2050	2315	1	2157	2206	1	I
	2147	2330	BOUL										
			HARV	2210	2211	1	2210	2211	1	2210	2211	1	IIIG
			CULG				2210	2211	1	2210	2211	1	IIIG
			HARV				2220	2330	1				I
	2225	2400	CULG										
09	0000	0702	CULG				0007	0007.5	1				UNCLF
			CULG				0418	0420	1	0418	0420	1	IIIG
			CULG				0431		1				IIIB
	0756	1511	WEIS				0805	1350	1				IN
	1100	2200	SGMR										
	1346	2334	HARV				1346	2334	1				IN
			HARV				1434	1435	1				IIIG
	2057	2400	CULG				2100	2320	1				I
			CULG				2120.5	2124.5	1				IIIG
			HARV				2121	2124	1				IIIG
	1348	2345	BOUL							2134.2	2134.5	1	III
			HARV	2210	2211	1	2210	2211	1				IIIG
			CULG				2210	2211	1	2210	2211	1	IIIG
	1348	2345	BOUL				2210.8	2211.1	1	2210.8	2211.1	1	III
			CULG				2249		1	2249		1	IIIB
			CULG				2256		1	2256		1	IIIB
			BOUL				2256.1	2256.3	1	2256.1	2256.3	1	III
			CULG				2320	2400	2				IC
			CULG				2330	2340	1	2330	2340	1	IIIG
10	0000	0701	CULG				0000	0115	2				IC
			CULG				0115	0523	1				I
	0715	1600	WEIS	0906.3	0906.7	1							IIIG
			WEIS				1138	1138.3	1				IIIG
	1345	2333	HARV				1350	2330	1				IN
	1100	2200	SGMR							1529.5	1533		IIIG
			HARV				1530	1532	1	1530	1532	1	IIIG
	1422	2345	BOUL				1530.1	1532.8	2	1530.1	1532.8	2	IIIG
			BOUL				1829.1	1829.7	2	1829.1	1829.7	2	III
	2059	2400	CULG				2100	2159	1				I

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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.	
10			CULG				2125		1				IIIB
			HARV				2130	2133	1				IIIG
			CULG				2132	2137	1				IIIG
11	0000	0700	CULG				0404.5		1	0404.5		1	IIIB
			CULG				0413		1				IIIB
			CULG				0438	0439	2				IIIG
			CULG				0536		2				IIIB
	0707	1625	WEIS				0706.7	0708.6	2				IIIGG
			WEIS				0710	1527	2				IS
			WEIS				1213.2	1213.4	1				IIIG
			WEIS				1223.2	1223.3	2				IIIB
			WEIS				1224.3	1225	3				IIIGG,V
			WEIS				1225.8	1225.9	1				IIIG
			WEIS				1312.4	1312.5	1				IIIB
			WEIS				1323.3	1326.6	3				IIIGG
			WEIS				1338.9	1340.2	1				IIIG
	1345	2333	HARV	1345	1346	2	1345	1346	3				IIIG
			HARV				1345	1920	1				I
			WEIS				1345.5	1346	3				IIIG
	1346	2345	BOUL				1346	1346.7	3	1346	1346.7	3	III
			HARV	1412	1413	2	1412	1413	3				IIIG
			WEIS	1412.4	1412.7	3							IIIB
			BOUL				1413	1413.4	3	1413	1413.4	3	III
			HARV				1429	1430	2				IIIG
			WEIS				1429.1	1429.4	2				IIIG
			BOUL				1429.7	1430	2				III
			BOUL				1438.1	1442.4	3	1438.1	1442.4	3	IIIGG
	1100	2200	SGMR							1439	1450.5		IIIG
			WEIS				1440.7	1449.7	3				IIIGG,DP
			HARV	1442	1444	2	1441	1450	2	1442	1446	2	IIIGG
			BOUL				1452.2	1452.6	3	1452.2	1452.6	3	III
			BOUL				1457.4	1538	2	1457.4	1538	2	IV
			HARV				1507		1				IIIG
			HARV				1530	1531	1				IIIG
			HARV	1551		2	1550	1551	2				IIIG
			BOUL				1621.4	1629.7	3	1621.4	1629.7	3	IIIG
			HARV				1622	1623	1				IIIG
			HARV	1626	1627	3	1626	1627	3	1626	1627	3	IIIGG,V
			BOUL				1705.1	1705.4	2	1705.1	1705.4	2	III
			HARV				1730	1733	2	1732	1733	2	IIIG
			BOUL				1730.6	1733.9	3	1730.6	1733.9	3	IIIG
			BOUL				1741.6	1741.9	2	1741.6	1741.9	2	III
			HARV				1818	2300	1				IIIN
			HARV				1820	1821	2	1820	1821	2	IIIG
			SGMR							1820	1821		IIIB
			BOUL				1821	1821.9	3	1821	1821.9	3	III
			BOUL				1856.1	1856.4	2				III
			BOUL				1904.2	1908.2	2	1904.2	1908.2	2	IIIG
			HARV				1920	2333	1				IN
			HARV	1930	1933	2	1930	1931	2				IIIG
			BOUL				2015.4	2015.7	1	2015.4	2015.7	1	III
			HARV				2118	2119	2	2118	2119	1	IIIG
	2054	2400	CULG				2119		2	2119		2	IIIB
			BOUL				2119.5	2120.3	3	2119.5	2120.3	3	III
			CULG				2223		1				IIIB
			BOUL				2223.3	2223.5	2	2223.3	2223.5	2	III
			CULG				2249	2330	1				I
			HARV				2254	2255	1				IIIG
			CULG				2254.5	2255	2	2255		2	IIIG
			BOUL				2255.3	2255.8	2	2255.3	2255.8	2	III
			CULG				2300		1				IIIB
			CULG				2304		1				IIIB
			CULG				2326.5	2331.5	2	2326.5	2331.5	2	IIIG,V
			HARV	2327	2329	2	2327	2329	2				IIIG
			BOUL				2327.4	2332	2	2327.4	2332	2	IIIG
			CULG				2352	2414.5	1	2352	2414.5	1	IIIGG,V
12	0000	0425	CULG				0017	0035	1				I
			CULG				0124	0130	1				I
			CULG				0129	0237	1	0129	0130	1	IIIG
	0715	1529	WEIS				0715	1450	2				IS
			WEIS				0718.4	0724.5	2				IIIG
			WEIS				0749.9	0759	3				IIIGG,V
			WEIS				0814	0814.3	1				IIIG
			WEIS				1240.3	1246	2				III,DP,RS
	1345	2333	HARV				1345	2333	1				I
			HARV	1522	1525	1	1522	1527	2				IIIGG
			WEIS				1522.1	1522.9	1				IIIG,DP
			HARV	1544	1546	3	1544	1546	3				IIIG
			HARV	1639	1640	1	1639	1640	2				IIIG
	1522	1750	BOUL				1639.9	1640.2	2				III
			HARV							1643		2	IIIG
			HARV	1643	1647	2	1643	1648	2				IIIGG
			BOUL				1644.9	1648.9	3	1644.9	1648.9	3	IIIG
			HARV							1647		2	IIIG,U
			HARV	1658	1700	1	1658	1700	2				IIIG
			HARV	1726		2	1726		2	1726		2	IIIG
	1100	2200	SGMR							1726	1726.5		IIIB
			BOUL				1726.7	1727.3	3	1726.7	1727.3	3	III

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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.	
12			BOUL				1746.6	1746.9	1	1746.6	1746.9	1	III
			HARV	1753	1756	2	1753	1756	2				IIIGG
	1842	2119	BOUL										
			HARV	1939	1943	1	1939	1941	1				IIIG
			HARV	2123	2124	2	2123	2124	2				IIIG
	2047	2400	CULG				2123	2124	2	2123	2124	1	IIIG
			HARV	2128	2131	2	2128	2130	2				IIIGG
			CULG				2128	2132.5	1	2128	2132.5	1	IIIG
			HARV	2134	2136	2	2134	2136	2				IIIGG
			HARV	2222	2223	1	2222	2223	1				IIIG
	2228	2246	BOUL										
			CULG				2333	2400	1				I
			CULG				2334	2337	2	2335.5	2336.5	2	IIIG,V
	2258	2345	BOUL							2336.4	2337.3	2	IIIG
13	0000	0700	CULG				0000	0131	1				I
			CULG				0014.5	0023	3	0017	0023	3	IIIGG,V,U
			CULG				0445	0630	1				I
			CULG				0530.5	0531	1				IIIG
			CULG				0533.5	0534	2				IIIG
			CULG				0557	0558.5	2				IIIG
			CULG				0647.5	0656	2	0648	0656	2	IIIGG,V,U
	0715	1525	WEIS				0748	0748.5	2				IIIG
			WEIS				0855	1500	1				IS
			WEIS				0913.8	0926.4	2				IIIGG,DP
			WEIS				0939.6	0939.9	2				IIIB
			WEIS				0945.6	0949.5	1				IIIG
			WEIS				1038.1	1039	3				IIIGG
			WEIS				1103.4	1104.7	3				IIIG,V
	1100	2200	SGMR							1240.5	1251		IIIG
			WEIS				1251.6	1252.2	2				IIIG
	1345	2333	HARV				1345	2330	1				I
	1348	2345	BOUL				1429.6	1434.8	1				IIIGG
			BOUL				1434.8	1435	2	1434.8	1435	2	IIIG
			WEIS				1457.5	1457.8	2				IIIG
			HARV				1458		2	1458		2	IIIG
			BOUL				1458.1	1458.4	2	1458.1	1458.4	2	III
			HARV	1530	1531	1	1530	1533	2	1530	1533	2	IIIGG
			SGMR							1531	1532.5		IIIB
			BOUL				1531.2	1533.6	2	1531.2	1533.6	2	IIIG
			SGMR							1533	1533.5		IIIB
			HARV				1633	1642	1	1636	1642	1	IIIGG
			BOUL				1807.2	1807.4	2	1807.2	1807.4	2	III
			BOUL				1837.3	1839.9	2	1837.3	1839.9	2	IIIG
			BOUL				1936.9	1937.2	1	1936.9	1937.2	1	III
			BOUL							2104.7	2105.1	2	III
			HARV	2109	2111	1	2110	2111	1				IIIG
			BOUL				2241.7	2242	2	2241.7	2242	2	III
			BOUL				2247.6	2252.2	2	2247.6	2252.2	2	IIIGG
14	0231	0503	CULG				0231	0437	1				I
			CULG							0438		1	IIIB
	0508	0659	CULG				0603.5	0604	2	0603.5	0604	2	IIIG
	0709	1553	WEIS				0709	1310	1				IS
			WEIS				1045.6	1045.8	2				IIIB
	1100	2200	SGMR										
	1345	2333	HARV				1345	2330	1				IN
	1347	2345	BOUL				1401.5	1405.2	2				IIIG
			BOUL				1425	1455	1				CONT
			BOUL				1453.8	1454.3	2	1453.8	1454.3	2	III
			BOUL				1521.3	1526.9	2	1521.3	1526.9	2	IIIGG
			HARV				1524	1526	1	1524		1	IIIG
			BOUL				1534.8	1535	1	1534.8	1535	1	III
			HARV	1541		2	1541		2				IIIG
			HARV				1617	2128	1	1747	1748	1	IIIN
			HARV				1706	1707	2				IIIG
			BOUL				1707	1707.9	2	1707	1707.9	2	III
			BOUL				1720.9	1721.8	2	1720.9	1721.8	2	IIIG
			BOUL				1724.2	1724.4	1				III
			BOUL				1747.2	1749.7	2	1747.2	1749.7	2	IIIG
			BOUL				1822.4	1824.9	2	1822.4	1824.9	2	IIIG
			HARV				2015	2016	1				IIIG
			BOUL				2015.9	2017.2	2	2015.9	2017.2	2	IIIG
	2049	2400	CULG				2056	2225	1				I
			CULG				2112	2117	1	2112	2117	1	IIIG
			CULG				2127.5		1	2127.5		1	IIIB
			BOUL				2127.9	2128.1	2	2127.9	2128.1	2	III
			CULG				2136	2138	1	2136	2138.5	1	IIIGG
			HARV				2136	2138	1				IIIG
			BOUL				2136.4	2142	2	2136.4	2142	2	IIIGG
			CULG				2144	2145	1				IIIG
			BOUL							2147	2147.2	1	III
			BOUL				2206.2	2206.5	2	2206.2	2206.5	2	III
			CULG				2239	2240	2	2239	2240	2	IIIG
			HARV				2239	2240	2				IIIG
			BOUL				2239.4	2240.3	2	2239.4	2240.3	2	IIIG
			CULG				2325.5		1	2325.5		1	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.	
15	0000	0700	CULG				0000.5	0002.5	2	0000.5	0002.5	2	IIIG
			CULG				0026		2	0026		2	IIIB
			CULG				0026.5	0027.5	1	0026.5	0027.5	1	IIIG
			CULG				0031.5	0032.5	2	0031.5	0032.5	2	IIIG
			CULG				0044	0048	1	0044	0048	1	IIIGG
			CULG				0046		2	0046		2	IIIB
			CULG				0127		1	0127		1	IIIB
			CULG				0135	0135.5	1	0135	0135.5	1	IIIG
			CULG				0143	0145	1	0144	0144.5	1	IIIG
			CULG				0153	0153.5	1	0153	0153.5	1	IIIG
			CULG				0216	0221.5	1	0216	0221	1	IIIG
			CULG				0219	0220	1	0219	0220	2	IIIG
			CULG				0322.5	0331	1	0322.5	0331	1	IIIG
			CULG				0357.5	0358	2	0357.5	0358	2	IIIG
			CULG				0440.5		1	0440.5		1	IIIB
			CULG				0514		1				IIIB
	0710	1605	WEIS	0710	1515	2							IS
	1100	2200	SGMR										
	1345	2333	HARV				1345	2330	1				IN
	1354	2436	BOUL				1406	1411.5	2	1406	1411.5	2	IIIG
			BOUL				1422	1425.5	1	1422	1425.5	1	IIIG
			BOUL				1428	1428.3	1				III
			BOUL				1626.8	1627	2				III
			HARV				1908		1				IIIG
			BOUL				2049.3	2049.5	1	2049.3	2049.5	1	III
	2057	2400	CULG				2102.5	2104.5	1	2102.5	2104.5	1	IIIG
			BOUL				2102.6	2102.8	2	2102.6	2102.8	2	III
	2057	2400	CULG				2204.5	2205	1	2204.5	2205	1	IIIG
			BOUL				2204.6	2204.9	2	2204.6	2204.9	2	III
			BOUL				2244.5	2250.2	2	2244.5	2250.2	2	IIIG
			CULG				2244.5	2250.5	1	2244.5	2250.5	1	IIIG
			HARV				2245		1				IIIG
			HARV				2248	2250	1				IIIG
16	0000	0700	CULG				0015.5		1	0015.5		1	IIIB
			CULG				0035.5	0036.5	1	0035.5	0036.5	1	IIIG
			CULG				0125	0150	1				I
			CULG				0206		2	0206		2	IIIB
			CULG				0229.5		2	0129.5		2	IIIB
			CULG				0255.5	0256	1	0255.5	0256	1	IIIG
			CULG				0316	0317	1	0316	0317	1	IIIG
			CULG				0339.5	0341.5	1	0339.5	0341.5	1	IIIG
			CULG				0523	0537	1	0523	0537	1	IIIGG
			CULG				0651	0652	1	0651	0652	1	IIIG
	0810	1645	WEIS				0810	1505	2				IS
	1100	2200	SGMR										
			WEIS	1155.7	1158.2	3							IIIGG
	1346	2333	HARV				1346	2307	1				IN
			WEIS	1401.5	1413.9	3							IIIGG,DP
			HARV	1402	1404	1	1402	1404	1				IIIG
			HARV	1406	1758	1	1406	1758	1				IIIN
			BOUL				1412	1700	1	1412	1700	1	CONT
			HARV	1451	1452	1							IIIG
			HARV	1603	1604	1							IIIG
			HARV	1717	1719	2	1717	1719	2				IIIGG
			HARV	1819	1822	1	1819	1822	1				IIIG
	2052	2400	CULG				2052	2304	1				I
			CULG				2121	2124	1	2121	2124	1	IIIG
			CULG				2154.5	2156	2	2155.5	2156	2	IIIG,U
			HARV	2155	2156	1	2154	2156	2				IIIG
			HARV	2215		2	2215		1				IIIG
			CULG				2242	2244	1	2242	2244	1	IIIG
			BOUL				2242.8	2243.2	1	2242.8	2243.2	1	III
			CULG				2343		1	2343		1	IIIB
17	0000	0709	CULG				0001.5		1	0001.5		1	IIIB
			CULG				0008	0009	1	0008	0009	1	IIIG
			CULG				0034	0035	2	0035		1	IIIG,U
			CULG				0101.5	0104.5	1	0101.5	0104.5	1	IIIG
			CULG				0106.5	0107.5	2				IIIG,U
			CULG				0659	0703	1				I
			CULG				0659	0707.5	2	0659	0707.5	2	IIIGG,V
	0735	1730	WEIS				0742.3	0742.5	1				IIIB
			WEIS				0753	1400	2				IS
			WEIS				1024	1033.4	2				IIIGG
			WEIS				1223.5	1223.9	2				IIIG
	1345	2333	HARV				1345	2329	1				IN
	1348	2345	BOUL				1639.8	1649.1	3	1639.8	1649.1	3	IIIGG
			HARV				1640		1	1640		1	IIIG
			HARV	1644	1645	2	1644	1645	2	1644	1645	2	IIIG
	1100	2200	SGMR							1645	1646		IIIB
			HARV	1648	1649	1	1648	1649	1	1649		1	IIIG
			BOUL							1811.4	1811.7	1	III
			BOUL				1849.6	1852.1	3	1849.6	1852.1	3	IIIG
			HARV				1850	1852	2	1850	1852	2	IIIGG
			SGMR							1850.5	1853		IIIG
			CULG				2100	2235	1				I
			HARV				2118	2123	1	2118	2123	1	IIIG
			BOUL				2118.4	2127	2	2118.4	2127	2	IIIGG
			CULG				2118.5	2127	1	2118.5	2127	1	IIIGG

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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				2136.5	2146.3	2	2136.5	2146.3	2	IIIG
			CULG				2139	2140.5	1	2139	2140.5	1	IIIG
			CULG				2144.5	2146	1	2144.5	2146	1	IIIG
			HARV	2302		1	2302		2				IIIG
			CULG				2302		2				IIIB
			CULG				2325	2326.5	1	2325	2326.5	1	IIIG
18	0000	0656	CULG				0002.5	0007	1	0002.5	0007	1	IIIG
			CULG				0207	0212.5	1	0207	0212.5	1	IIIG
			CULG				0350.5	0351	1	0350.5	0351	1	IIIG
			CULG							0431.5		1	UNCLF
			CULG				0433	0434	2	0433	0434	2	IIIG
			CULG				0455	0455.5	1	0455	0455.5	1	IIIG
			CULG				0510	0511	1				I
			CULG				0513	0517.5	1	0513	0517.5	1	IIIG
			CULG				0527	0531.5	1	0527	0531.5	1	IIIG
			CULG				0534	0539	2	0534	0539	2	IIIG
			CULG				0619		1	0619		1	IIIB
			CULG				0633	0645	1				I
			CULG				0644	0647	1	0644.5	0647	1	IIIG
	0708	1305	WEIS	1026.5	1034	3							IIIGG
			WEIS	1026.5	1050	3							IV
			WEIS	1026.5	1105	3							II
			WEIS				1045	1104	2				IIIGG,DP
	1100	2200	SGMR										
			WEIS	1122.5	1126	1							III
	1345	2333	HARV				1345	2321	1				IN
	1348	2345	BOUL				1408.5	1409.3	1				IIIG
			BOUL				1423.6	1426.4	1	1423.6	1426.4	1	IIIG
			BOUL				1434.2	1436.7	1	1434.2	1436.7	1	IIIG
	2059	2400	CULG				2150	2200	1				I
			CULG				2151	2151.5	1				IIIG
			BOUL				2151.1	2151.3	2	2151.1	2151.3	2	III
			BOUL				2220.9	2221.2	3	2220.9	2221.2	3	III
			CULG				2221		2	2221		2	IIIB
			CULG				2319	2320	1	2319	2320	1	IIIG
19	0000	0659	CULG				0428.5		1				IIIG
			CULG				0501		1	0501		1	IIIB
	0655	1550	WEIS										
	1345	2333	HARV				1353	1847	1				IN
	1352	1816	BOUL				1435.9	1440.7	1	1435.9	1440.7	1	IIIG
	1831	2015	BOUL										
			HARV	1957	1958	1	1957	1959	2	1957	1959	3	IIIGG
	1100	2200	SGMR							1957.6	1959.4		IIIB
	2030	2345	BOUL				2159.7	2204	1	2159.7	2204	1	IIIG
			BOUL				2256.4	2256.9	1	2256.4	2256.9	1	III
	2041	2400	CULG				2256.5	2257	1	2256.5	2257	1	IIIB,U
			CULG				2327.5		1	2327.5		1	IIIB,U
20	0000	0707	CULG				0447		1				IIIB
	0723	1605	WEIS										
	1100	2200	SGMR										
	1348	2345	BOUL							1455.5	1455.7	1	III
			BOUL				1719.4	1719.8	2	1719.4	1719.8	2	III
	1345	2332	HARV				2204	2205	1				IIIG
	2034	2400	CULG				2204	2205.5	2	2204	2205.5	2	IIIG,V
			BOUL				2204.1	2205.3	3	2204.1	2205.3	3	IIIG
			BOUL				2209.8	2212.5	2	2209.8	2212.5	2	IIIG
			CULG				2210	2212.5	1	2210	2212.5	1	IIIG
			CULG				2232.5		1	2232.5		1	IIIB
			BOUL				2232.5	2237.8	2	2232.5	2237.8	2	IIIG
			CULG				2237.5		1	2237.5		1	IIIB
21	0000	0657	CULG				0051.5		1	0051.5		1	IIIG
			CULG				0125	0128	1	0125	0128	1	IIIG,V
			CULG				0134.5	0139	2	0134.5	0139	2	IIIG
			CULG				0233.5		1	0233.5		1	IIIB
			CULG				0654.5	0655	2	0654.5	0655	2	IIIG,V,U
	0708	1525	WEIS				0802.6	0803.8	3				IIIB,V
			WEIS				0914.4	0914.8	1				IIIB
	1346	2332	HARV				1826	1827	1	1826	1827	2	IIIG
	1347	2345	BOUL				1826.6	1828.1	3	1826.6	1828.1	3	IIIG
	1100	2200	SGMR							1827.1	1828		IIIB
			BOUL				2022	2051	2	2022	2051	2	CONT
	2032	2400	CULG										
			BOUL				2125	2200	1				CONT
22	0000	0646	CULG				0114	0116	1	0114	0116	1	IIIG
			CULG				0117.5	0118.5	1				UNCLF
			CULG				0151		1				IIIB
			CULG				0308	0309	1				IIIG
	0723	1528	WEIS				0845.8	0846.2	1				IIIG
	1100	2200	SGMR										
	1345	2332	HARV										
	1351	2345	BOUL				1628.1	1628.3	1	1628.1	1628.3	1	III
			BOUL							2010.5	2010.8	1	III
	2032	2400	CULG										
			BOUL							2035.3	2035.6	1	III
			BOUL				2222	2223.3	2	2222	2223.3	2	IIIG

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

NOVEMBER 1968

NOV. 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.	
23	0000	0636	CULG				0027		2	0027		2	IIIB
			CULG				0046		1	0046		1	IIIB
			CULG				0158	0202	1	0158	0202	1	IIIG
			CULG				0316	0320.5	1	0316	0320.5	1	IIIG,U
			CULG				0326.5		1	0326.5		1	IIIB
			CULG				0331	0331.5	2	0331	0331.5	2	IIIG
			CULG				0349.5	0351	1				IIIG
			CULG				0453	0455	1	0453	0455	1	IIIG
			CULG				0512	0513	1	0512	0513	1	IIIG
			CULG				0537	0548	1	0537	0543	1	IIIGG,U
			CULG				0539	0540.5	2	0539	0540.5	2	IIIG,V,U
	0730	1515	WEIS				0757	0758.5	1				IIIG
			WEIS				0825.5	0826	2				IIIG
			WEIS				0910.4	0911.8	2				IIIG
			WEIS				0913.8	0914.1	1				III,DP
			WEIS				0919.3	0921	1				IIIG
			WEIS				1025.4	1026	2				III,DP
	1100	2200	SGMR										
			WEIS	1104.9	1105.4	1							IIIG
			WEIS				1105.1	1111.2	1				IIIG
			WEIS				1144.9	1145.2	2				IIIB
			WEIS				1149	1149.4	2				IIIG,DP
			WEIS				1159.7	1159.8	1				IIIG
			WEIS				1318.4	1319.2	1				IIIG
	1345	2332	HARV				1353	2317	1				IN
	1400	2345	BOUL							1958.1	1958.3	1	III
			BOUL				2205.9	2206.2	2	2205.9	2206.2	2	III
	2116	2400	CULG				2206		1	2206		1	IIIB
			CULG				2312	2316	1				I
			CULG				2351.5	2354	1	2351.5	2354	1	IIIG
24	0000	0700	CULG				0012	0012.5	1	0012	0012.5	1	IIIG
			CULG				0014	0015	1	0014	0015	1	IIIG
	0830	1650	WEIS				0840	1045	2				IS
			WEIS				0853	0853.2	1				III
			WEIS				1041	1041.3	1				IIIB
			WEIS				1146.1	1146.4	1				IIIG
			WEIS				1200.5	1201.1	1				IIIG
	1345	2332	HARV				1400	2327	1				IN
	1348	2345	BOUL				1634.4	1634.6	1	1634.4	1634.6	1	III
			BOUL				1700.1	1700.7	1				IIIG
			BOUL				1703.3	1833	2	1703.3	1833	2	CONT
			HARV				1710	1715	1	1710	1715	1	IIIGG
			HARV				1723	1725	1	1723	1725	1	IIIG
			HARV				1731	1811	1	1731	1811	2	IIIN
			BOUL				1822	1831.5	3	1822	1831.5	3	IIIG
	1100	2200	SGMR							1822.5	1824		IIIB
			HARV	1827	1830	1	1822	1833	2	1822	1831	2	IIIGG
			SGMR							1827.5	1828.5		IIIB
			BOUL							1833	2134	1	CONT
			HARV				1936	1939	1				IIIG
			HARV				2014	2031	1				IIIN
	2033	2400	CULG				2037	2040	3	2037	2040.5	3	IIIG,V
			BOUL				2037.1	2041.2	3	2037.1	2041.2	3	III
			HARV	2038	2041	2	2037	2042	2	2037	2042	3	IIIGG
			SGMR							2038	2041		IIIB
			CULG				2041		1	2041		1	IIIB
			CULG				2041	2100	1	2041	2100	1	IIIN
			BOUL				2159.9	2223	2	2159.9	2223	2	CONT
			CULG				2217	2218	1				I
			CULG				2221	2223	1	2221	2223	1	IIIG
			BOUL				2223	2331 D	1	2223	2331 D	1	CONT
			CULG				2251.5		1	2251.5		1	IIIB
			CULG				2259.5	2300	1	2259.5	2300	1	IIIG
			CULG				2304.5		1	2304.5		1	IIIB
			CULG				2310.5	2312	1	2310.5	2312	1	IIIG
			CULG				2326	2326.5	1				IIIG
			CULG				2328	2330	1				I
			CULG				2335	2337	1				I
			CULG				2351.5	2355	2	2351.5	2355	2	IIIG,V
			CULG				2357	2402	1	2357	2402	1	IIIG
25	0000	0659	CULG				0008		1				IIIB
			CULG				0120	0459	1	0120	0459	1	IIIN
			CULG				0151.5		2				IIIB
			CULG				0155	0156	3	0155	0156	3	IIIG
			CULG				0224	0225	2	0224	0225	1	IIIG
			CULG				0239		1	0239		1	IIIB
			CULG				0333.5	0338	3	0333.5	0338	3	IIIGG,V
			CULG				0345	0659 D	1				I
			CULG				0346	0347	2	0346	0347	2	UNCLF
			CULG				0459	0520	2	0459	0520	2	IIIS,U
			CULG				0520	0530	3	0520	0530	3	IIIS
			CULG				0530	0659 D	2	0530	0659 D	1	IIIS
	0654	1510	WEIS				0708	0755	1				IIIGG
			WEIS				0836	1054	2				IIIGG,DP
	1100	2200	SGMR										
			WEIS				1106.1	1106.6	1				IIIG
	1347	2345	BOUL				1353.6	1353.8	1				III
	1401	2332	HARV				1403	1740	1				IN

SOLAR RADIO EMISSION
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NOV. 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.	
25			BOUL				1411.9	1615	1				CONT
			BOUL				1428.4	1430.2	2	1428.4	1430.2	2	IIIG
			BOUL				1514.5	1514.9	3	1514.5	1514.9	3	III
			BOUL				1606.8	1609.5	2	1606.8	1609.5	2	IIIG
			HARV				1658	2017	1	1658	2017	1	IIIN
			BOUL				1702	2017	2	1702	2017	2	CONT
			HARV				1740	2240	1				I
			HARV				1759	1800	2	1759	1800	2	IIIG
			HARV				1858	1859	1	1858	1859	1	IIIG
			BOUL				1929.9	1930.8	3	1929.9	1930.8	3	IIIG
			HARV	1930		1	1930		1	1930		2	IIIG
			HARV				1936	1937	1	1936	1937	1	IIIG
			BOUL				1944.9	1945.7	3	1944.9	1945.7	3	III
			HARV	1945		1	1945	1946	2	1945	1946	2	IIIG
	2021	2400	CULG				2021	2400	1	2021	2400	1	IIIN
			BOUL				2036.2	2036.4	2	2036.2	2036.4	2	III
			CULG				2059.5		2	2059.5		2	IIIB
			BOUL				2100.6	2229.9	1	2100.6	2229.9	1	CONT
			HARV				2205	2209	1				IIIG
			CULG				2205	2230	1	2205	2230	1	IIIG
			HARV				2240	2330	1				IN
			BOUL				2259.3	2308.4	2	2259.3	2308.4	2	IIIGG
			BOUL				2312.7	2312.9	1	2312.7	2312.9	1	III
26	0000	0627	CULG				0000	0420	1	0000	0420	1	IIIN
			CULG				0038.5		1	0038.5		1	IIIB
			CULG				0125	0131	1	0125	0131	1	IIIGG
			CULG				0202.5	0203	2	0202.5	0203	2	IIIG
			CULG				0212	0223	1	0212	0223	1	IIIG
			CULG				0335.5	0340	2	0335.5	0340	2	IIIG
			CULG				0345		2	0345		2	IIIB
			CULG				0420	0533	1	0420	0533	1	IIIS
			CULG				0420	0545	2				I
			CULG				0603	0628 D	1	0603	0628 D	1	IIIN
			CULG				0607	0607.5	1	0607	0607.5	2	IIIG
	0745	1525	WEIS				0751	1430	2				IS
			WEIS				0805	0809.3	1				IIIGG
			WEIS				1021	1024	1				IIIG
			WEIS				1104.1	1104.3	1				IIIB
			WEIS				1124.5	1132.5	1				IIIG
			WEIS				1201.7	1210.7	1				IIIG
			WEIS				1306.7	1308.2	1				IIIG
			WEIS				1327.2	1341.4	2				IIIGG
	1100	2200	SGMR							1329	1334.5		IIIG
	1349	2337	BOUL							1408.2	1409.3	1	IIIG
			BOUL							1417.1	1417.4	1	III
			BOUL				1427	1428	1	1427	1428	1	IIIG
			BOUL				1510.5	1521.6	3	1510.5	1521.6	3	IIIG
	1402	2332	HARV				1521	1838	1	1521	1838	1	IIIN
			BOUL				1539.2	1540.3	2	1539.2	1540.3	2	IIIG
			BOUL				1554.8	1555.1	2	1554.8	1555.1	2	III
			BOUL				1600	1602.2	2	1600	1602.2	2	IIIG
			BOUL				1605.7	1616.6	3	1605.7	1616.6	3	IIIGG
			HARV				1606	1616	1	1606	1616	2	IIIGG
			BOUL				1622.3	1628.1	2	1622.3	1628.1	2	IIIG
			BOUL				1635.2	1635.4	1				III
			BOUL				1653.7	1653.9	1	1653.7	1653.9	1	III
			HARV	1709	1720	1	1402	1740	1				I
			BOUL				1712.2	1721.1	2	1712.2	1721.1	2	IIIGG
			HARV				1717	1720	2	1717	1720	2	IIIG
			SGMR							1719.2	1720		IIIB
			BOUL				1727.5	1728.5	1	1727.5	1728.5	1	IIIG
			BOUL				1800	1838	1	1800	1838	1	CONT
			BOUL				1817.9	1822.5	3	1817.9	1822.5	3	IIIG
			SGMR							1822	1823		IIIB
			SGMR							1826.6	1826.8		IIIB
			BOUL				1930.5	1936.3	1	1930.5	1936.3	1	IIIG
			BOUL				1954.4	1955.9	1	1954.4	1955.9	1	IIIG
			BOUL				2002.2	2002.7	1	2002.2	2002.7	1	III
			BOUL				2027.4	2027.7	2	2027.4	2027.7	2	III
	2031	2400	CULG				2032	2034	1				I
			CULG				2121		1	2121		1	IIIB
			BOUL				2146.5	2148.8	2	2146.5	2148.8	2	IIIG
			CULG				2147	2149	1	2147	2149	1	IIIG
			HARV				2147	2149	1				IIIG
			BOUL				2228.6	2229.2	3	2228.6	2229.2	3	III
			CULG				2229		1	2229		1	IIIB
27	0000	0658	CULG				0029		1	0029		1	IIIB
			CULG				0319.5		1	0319.5		1	IIIB
			CULG				0419	0420	1	0419	0420	1	IIIG
			CULG				0428.5	0429.5	1	0428.5	0429.5	1	IIIG
			CULG				0449	0450.5	1	0449	0450.5	1	IIIG
			CULG				0521.5	0522.5	1	0521.5	0522.5	1	IIIG
			CULG				0619	0622	2	0619	0622	2	IIIG
			CULG				0635.5	0636	2	0635.5	0636	2	IIIG
	1100	2200	SGMR										
	0730	1555	WEIS				1116.4	1118.1	1				III+UNCLF
			WEIS				1217.7	1218.2	1				IIIG
	1401	2332	HARV				1420	1500	1				I

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

NOVEMBER 1968

NOV. 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.	
27	1348	2345	BOUL				1438.8	1439.1	1	1438.8	1439.1	1	III
			BOUL				1443.6	1444.6	2	1443.6	1444.6	2	IIIG
			HARV				1500	1600	1				IN
			BOUL				1544.9	1545.7	3	1544.9	1545.7	3	IIIG
			BOUL				1752.2	1752.5	2	1752.2	1752.5	2	III
			HARV				1804	1806	1	1804	1806	1	IIIG
			BOUL				1804	1806.3	2	1804	1806.3	2	IIIG
			BOUL				1818.9	1823.1	2	1818.9	1823.1	2	IIIG
			HARV				1820	2100	1				I
	2031	2400	CULG										
28	0000	0658	CULG				0544	0545.5	2	0544	0545	2	IIIG+V
	0658	1000	WEIS				0829.4	0829.7	2				IIIB
	1020	1505	WEIS				0838.3	0839.5	1				IIIG
	1100	2200	SGMR										
	1348	2345	BOUL				1539	1538.4	2	1539	1538.4	2	IIIG
			BOUL				1732.4	1738.7	2	1732.4	1738.7	2	IIIG
			BOUL				1850.6	1851.8	2	1850.6	1851.8	2	IIIG
			BOUL							1901.5	1902.5	1	IIIG
			BOUL				1947.9	1949	2	1947.9	1949	2	IIIG
	1401	2332	HARV				1948	1949	1	1949		1	IIIG
	2019	2400	CULG										
29	0000	0628	CULG				0429.5		1				IIIB
	1100	2200	SGMR										
	0830	1525	WEIS				1401.4	1401.6	1				IIIB
	1348	2346	BOUL				1626.5	1626.8	3	1626.5	1626.8	3	III
	1401	2333	HARV				1920	1943	1				IN
	2108	2400	CULG										
30	0000	0705	CULG										
	0800	1550	WEIS										
	1100	2200	SGMR										
	1401	2334	HARV										
	1503	2345	BOUL				1615.1	1620	2	1615.1	1620	2	IIIG
			BOUL				1631.8	1632.1	2	1631.8	1632.1	2	III
			BOUL				1828.6	1829.9	2	1828.6	1829.9	2	III
			BOUL				1933.9	1934.1	1	1933.9	1934.1	1	III
			BOUL				2101.7	2102.6	1	2101.7	2102.6	1	IIIG
			BOUL				2109.3	2109.7	1	2109.3	2109.7	1	III
	2044	2400	CULG				2117		1	2117		1	UNCLF

Errata:
Most of the bursts in the Metric Band reported in the last issue by University of Colorado (BOUL) for October 1968 should have extended through the Dekametric Band. The following times are excepted:

Oct. 2 2024.6 - 2031.7 UT
Oct. 24 1719.6 - 1719.8 UT

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)
NOVEMBER 1968

Nov. 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	5377.54	5852.1	3462.2	5550.63
2	5303.91	5794.2	3423.3	5512.17
3	5344.87	5799.9	3386.6	5468.29
4	5515.50	5982.3	3499.9	5625.63
5	5585.25	6066.1	3580.4	5678.46
6	5663.00	6172.3	3650.6	5770.00
7	5716.83	6231.2	3693.2	5819.88
8	5742.12	6248.5	3702.8	5840.17
9	5778.54	6295.3	3735.4	5885.25
10	5789.25	6318.1	3744.6	5897.75
11	5795.87	6337.1	3749.3	5916.67
12	5762.41	6292.8	3718.5	5869.13
13	5752.75	6281.7	3713.2	5833.26(23)
14	5782.50	6296.0	3724.1	5814.75
15	5748.91(22)	6241.9	3693.8	5788.13
16	5661.04	6153.3	3628.8	5714.96
17	5537.29	6049.1	3566.0	5643.96
18	5622.58	6125.8	3624.9	5746.00
19	5686.67	6217.2	3680.2	5818.17
20	5679.41	6205.6	3646.0	5778.13
21	5625.79	6134.5	3621.2(38)	5745.33
22	5714.88	6203.0	3680.9	5801.25
23	5791.08	6290.3	3727.8(28)	5868.21
24	5801.08	6305.5	3742.6(18)	5882.50
25	5695.25	6160.8	3645.3	5733.75
26	5691.04	6173.5	3643.6	5739.75
27	5728.25	6215.1	3681.7	5790.46
28	5772.71	6252.8	3715.2	5831.63
29	5770.71	6247.7	3734.5	5864.46
30	5801.62	6295.0	3750.5	5874.75

( ) 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.

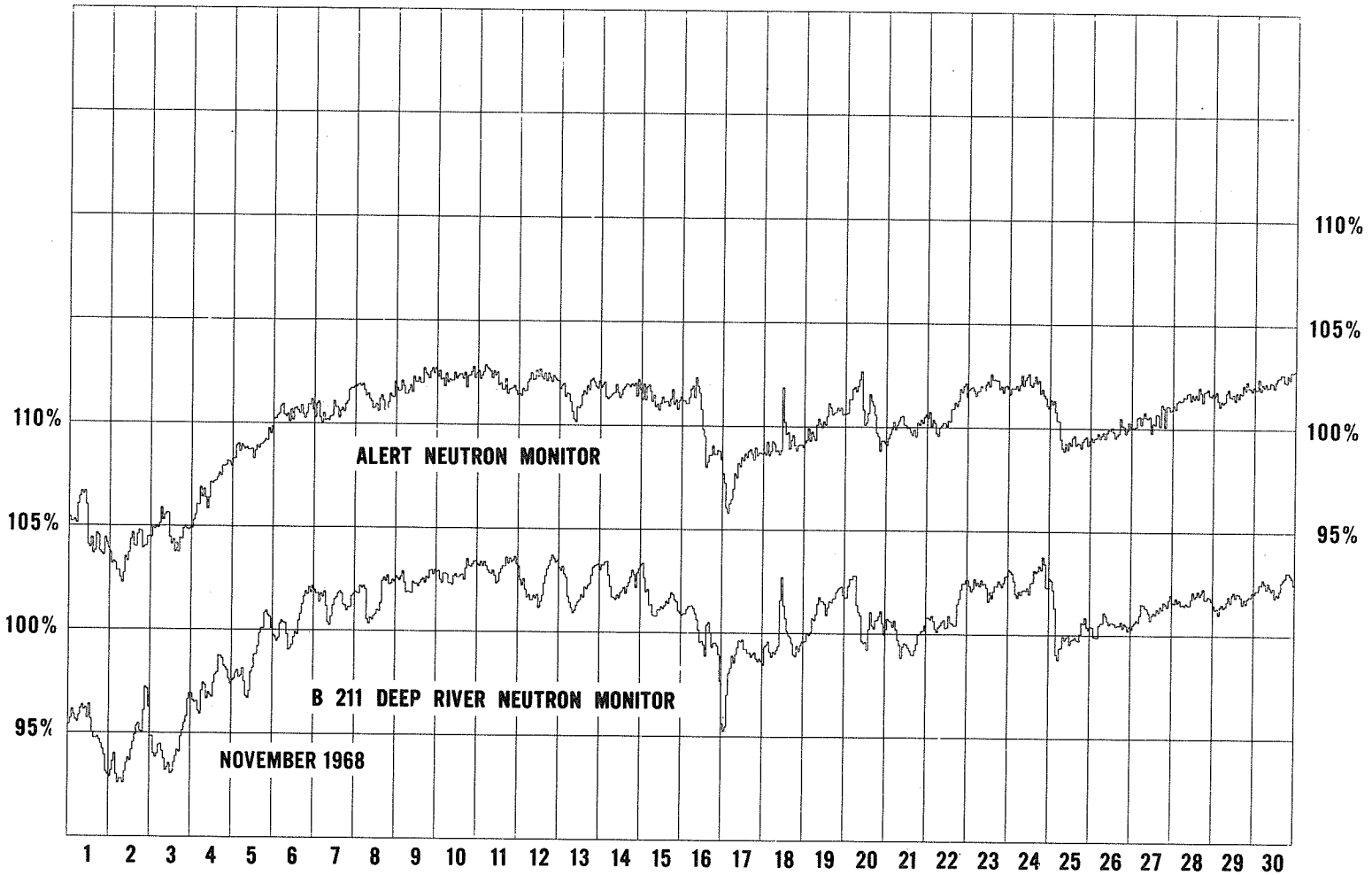
Climax IGC Station B305, Scaling Factor 100.

Dallas Super Neutron Monitor, Scaling Factor 120.

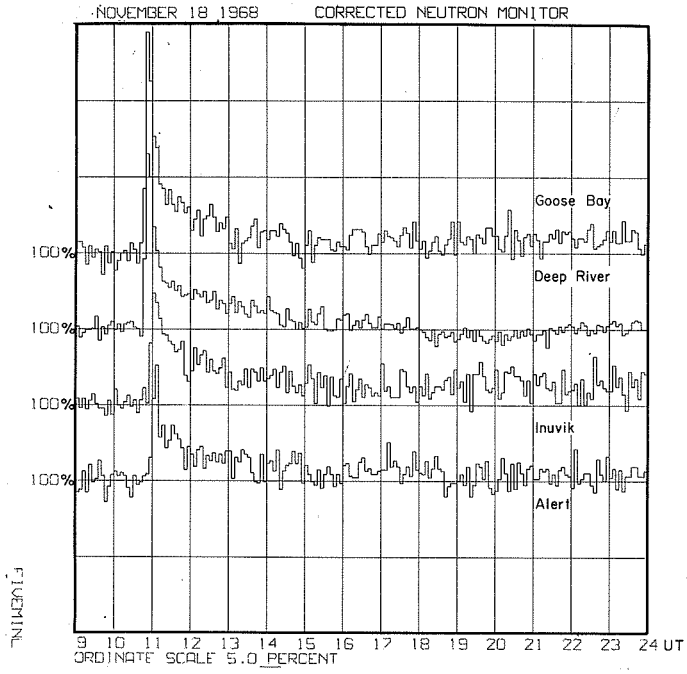
COSMIC RAY INDICES

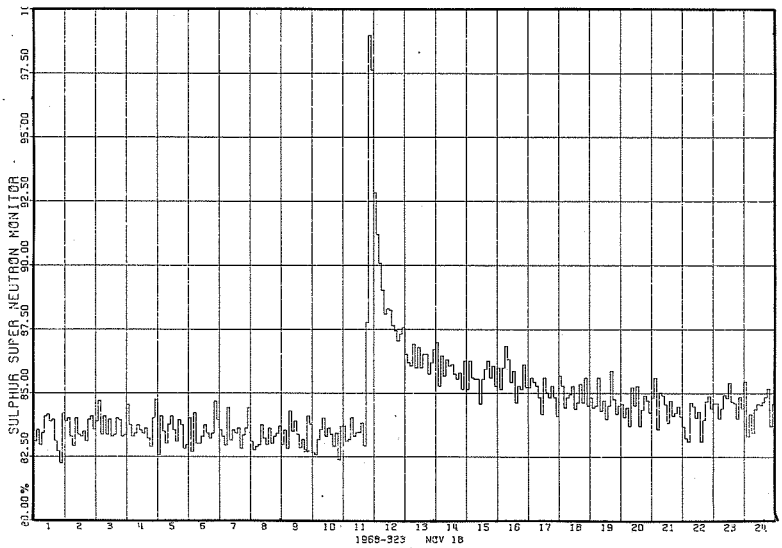
(Pressure Corrected Hourly Totals)

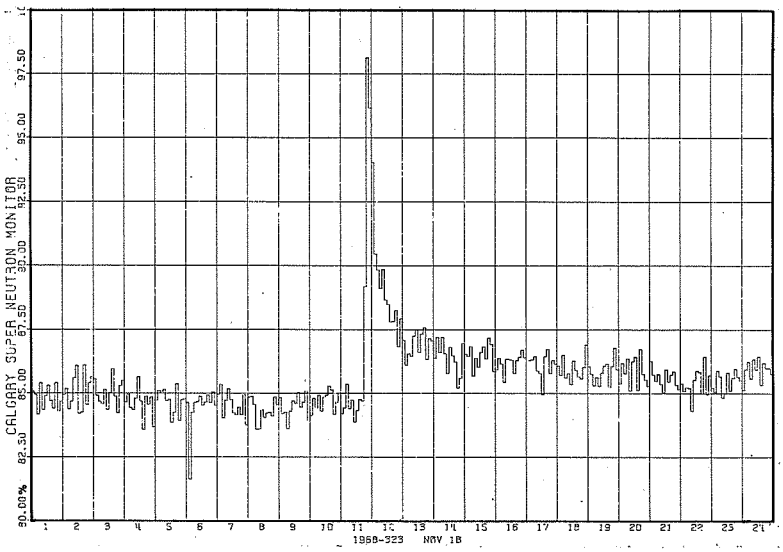
NOVEMBER 1968



COSMIC RAYS
(Neutron Monitors)







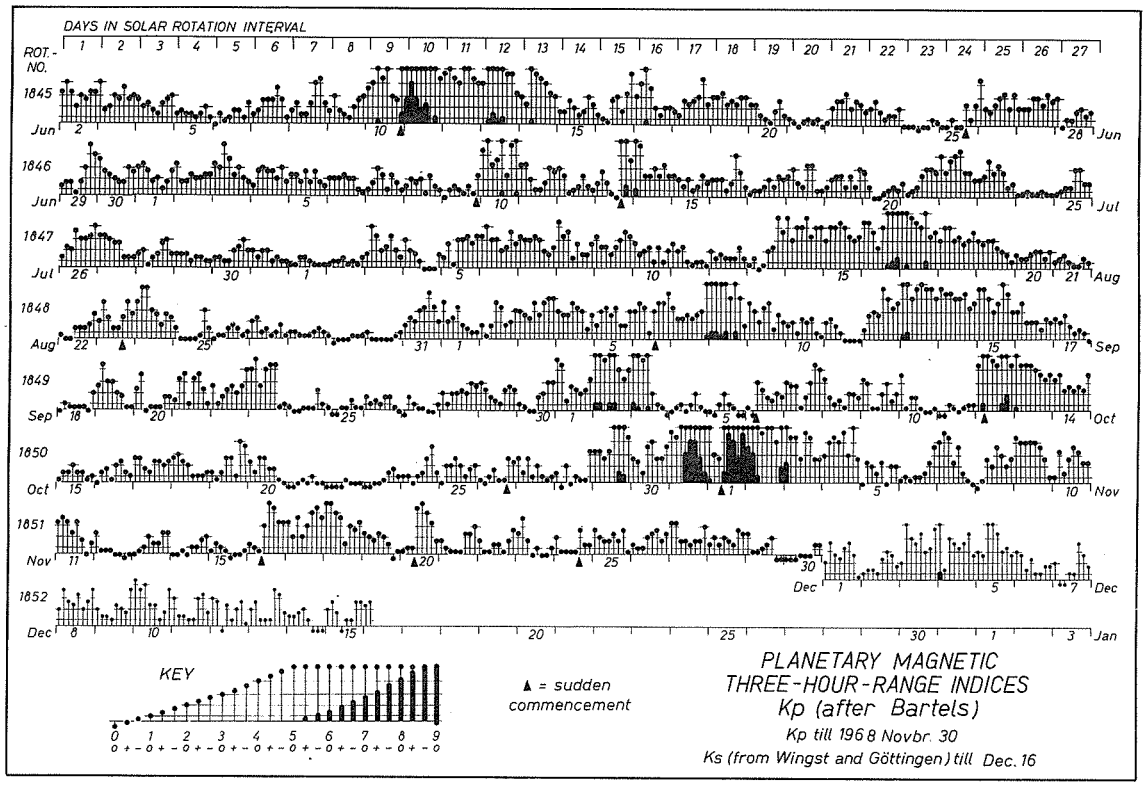
GEOMAGNETIC ACTIVITY INDICES

NOVEMBER 1968

DAY		K_p THREE-HOUR RANGE INDICES 1	2	3	4	5	6	7	8	SUM	C_i	C_p	A_p
1	D	5+	3	3-	6	8+	8	7	8+	49-	1.9	1.9	122
2	D	8-	7+	6-	5-	5	5	4	6+	46-	1.8	1.8	82
3	D	7-	4+	4+	3-	5-	4+	3-	3-	32+	1.4	1.4	35
4	D	3	4	4+	4	5-	3	5	3-	31-	1.2	1.2	27
5		0+	2+	2	1+	2+	0+	2	2	13-	0.4	0.3	6
6		1-	1	1-	1	1	1+	2+	4-	12-	0.5	0.3	7
7		4	5-	4+	2+	4-	1+	1-	0+	21+	0.8	0.9	17
8		0	1-	3-	2	4-	3	2	3-	17-	0.7	0.5	10
9	D	4+	4	4	4	4	4-	3-	1	28-	0.9	1.1	22
10		1	3+	1+	3-	4-	3+	2+	2+	20	0.8	0.7	12
11		3+	4-	3+	2+	3+	2-	0+	1+	19+	0.7	0.7	12
12	QQ	2+	1-	1-	1-	0+	0+	0	0+	5+	0.1	0.1	3
13	Q	0+	1-	1	2	1+	1+	2+	2+	11+	0.3	0.2	6
14	QQ	0+	0+	1-	0+	1	1	2-	2	7+	0.1	0.1	4
15	QQ	1-	1+	1	1-	0	0+	0+	1-	5	0.0	0.0	3
16		1+	1	1-	3	5-	4+	3+	3+	22-	1.1	0.9	17
17		3+	2	4-	2	3	4	4+	4-	26	1.1	1.0	19
18		5-	5-	4	4-	1+	3	3-	3+	27+	1.0	1.1	22
19	Q	2+	2	2-	2+	2	1+	0	1-	12+	0.3	0.3	6
20		1-	1	1	4+	5-	4	3+	2-	21-	1.1	0.9	17
21		2-	1	1-	1-	1-	2+	2+	3	12+	0.3	0.3	7
22	Q	2-	1-	1-	1+	1+	1-	2-	3-	11-	0.3	0.2	5
23	Q	2+	4-	2-	0+	1	0+	0+	1	11-	0.2	0.3	6
24	Q	2	1-	1-	1-	1-	3-	1+	1+	10	0.2	0.2	5
25		3-	2	2-	2-	2+	2-	3-	1-	15+	0.5	0.4	8
26		1+	1	1	2	2+	3-	2-	2+	14+	0.5	0.4	7
27		3+	3+	2-	2-	1+	2-	2-	3	18-	0.6	0.6	10
28		1+	2	1+	2	2-	1+	3-	2+	15-	0.4	0.4	7
29	QQ	2+	1-	1-	1	1+	2	0	0	8	1.0	0.1	4
30	QQ	0	0	0	0+	0+	0+	1+	1+	4-	0.1	0.0	2
										MEAN	0.68	0.60	17

Preliminary sudden commencements (sc) occurred November 1 at 0917 UT, Nov. 16 at 0916 UT, Nov. 20 at 0904 UT and Nov. 24 at 1557 UT.

GEOMAGNETIC ACTIVITY INDICES



DAILY AVERAGE INDICES Ap

DAY	1967 DEC.	1968 JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.
1	33	26	10	10	26	13	17	10	4	9	16	122
2	18	35	19	9	12	14	17	9	4	10	47	82
3	8	9	16	14	13	11	14	16	12	18	29	35
4	7	7	17	16	9	6	9	10	6	14	3	27
5	13	10	8	17	34	4	5	8	12	12	2	6
6	21	16	2	7	36	3	5	6	16	19	6	7
7	20	8	4	5	11	53	11	7	13	18	15	17
8	26	6	14	4	3	7	13	6	14	48	7	10
9	10	3	19	4	2	21	9	4	13	12	9	22
10	6	5	36	15	6	10	36	35	7	6	6	12
11	3	10	51	8	10	17	103	10	6	6	2	12
12	6	13	14	8	11	27	38	7	6	19	51	3
13	5	9	18	5	23	14	48	22	11	43	30	6
14	4	12	5	23	26	11	26	22	27	29	14	4
15	10	10	25	28	14	9	8	6	22	30	5	3
16	8	13	14	26	14	11	13	9	41	10	5	17
17	11	13	18	12	10	15	18	6	39	6	9	19
18	19	10	24	12	8	17	12	10	19	3	8	22
19	30	13	12	11	3	11	14	8	10	12	11	6
20	32	15	35	20	2	19	7	5	6	7	7	17
21	16	8	24	7	4	24	3	9	4	13	2	7
22	12	9	10	5	8	16	10	19	5	11	1	5
23	16	10	5	9	12	13	6	11	11	22	3	6
24	5	10	7	22	8	18	2	3	19	4	7	5
25	3	4	4	19	5	6	4	7	4	2	6	8
26	7	13	4	14	26	4	14	15	4	4	5	7
27	9	9	8	16	20	4	11	11	5	3	6	10
28	5	14	30	12	16	6	6	8	4	8	5	7
29	6	16	18	14	14	9	13	5	2	9	37	4
30	9	11		27	7	10	11	7	3	7	15	2
31	59	8		16		10		5	14		112	
MEAN	14	11	16	13	13	13	17	10	12	14	16	17

PRINCIPAL MAGNETIC STORMS

NOVEMBER 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
11 01	0917	11 04 23	WITT	54.1N	SC	+ 9	+23	0	S	11 01	5,8	8	170	730	450	52
	0917	11 03 17	FRED	49.6N	SC *	- 2	+ 8	- 2	S	11 01	5,8	8	69	446	314	52
	0915	11 03 18	IRKU	40.8N	SC	- 0.8	25	4	S	11 01	5,8	8	44	365	136	52
	0915	11 03 18	HONO	21.1N	SC	- 0	-11	- 4	MS	11 01	5	6	7	213	49	52
	0916	11 03 20	ALIB	9.5N	SC	- 0.3	+17	- 6	MS	11 01	5	7	7	206	62	52
	0917	11 03 22	HYDE	7.6N	SC	- 0.2	+16	- 1	M	11 01	5	7	7	201	29	52
	0916	11 03 17	GUAM	4.0N	SC	02	33	11	MS	11 01	8	6	--	100	20	52
	0916	11 03 20	ANNA	1.5N	SC	- 0.7	+27	+ 9	-	-- --	-	-	7	257	97	52
	0916	11 03 20	HUAN	0.6S	SC	1	16	3	S	11 01	5	9	20	766	101	52
	0916	11 03 20	TVAN	1.1S	SC	+ 0.1	+27	+33	-	-- --	-	-	5	291	223	52
	0915	11 03 18	PMOR	18.6S	SC	+ 0.2	+18	+14	MS	11 01	5	7	12	140	110	52
	0917	11 03 22	HRMN	33.3S	SC	+ 0.8	+15	+ 9	MS	11 01	5,8	7	58	177	245	52
	0916	11 03 16	GNAN	43.2S	SC	+ 2	+24	+12	S	11 01	6	9	71	370	400	52
11 04	0927	11 04 17	GUAM	4.0N	SC	--	12	04	M	11 04	5	5	--	40	10	53
	05--	11 04 23	HRMN	33.3S	••	••	••	••	M	11 04	4	5	16	63	68	53
	0459	11 04 24	TOOL	46.7S	SC	--	+ 6	--	M	11 04	2,3	5	14	107	42	53
11 16	0916	11 18 12	NEWP	55.1N	SC	4	18	3	M	11 18	4	5	31	167	100	54
	0916	11 18 12	WITT	54.1N	SC	+ 9	+17	0	M	11 16	5,6	5				54
										11 17	6,7	5				54
										11 18	1,2	5	60	260	70	54
	0916	11 17 10	FRED	49.6N	SC *	- 2	+14	- 3	M	11 16	5	5	18	81	39	54
	0916	11 18 19	BOUL	49.0N	SC *	- 3	+14	--	M	11 16	6	5	19	140	55	54
	0915	11 18 03	IRKU	40.8N	SC *	2.0	28	2	MS	11 16	6	6	16	145	33	54
	0921	11 18 11	TUCS	40.4N	SC	+ 1	+15	+ 1	M	11 16	5,6	5	10	60	10	54
	0915	11 17 08	SJUA	29.9N	SC	+ 0.3	+11	+ 3	M	11 16	4,5,6,7	5	8	108	16	54
	0915	11 18 05	MBOR	21.3N	SC	+ 0.5*	+29	- 7	M	11 16	5,6	5	6	80	27	54
	0917	11 17 09	HONO	21.1N	SC	- 0	+16	+ 6	M	11 16	5	5	7	79	34	54
	0916	11 17 21	ALIB	9.5N	SC	- 0.4	+17	- 5	M	11 16	5	5	4	153	17	54
										11 17	5,6	5				54
	0917	11 17 22	HYDE	7.6N	SC	- 0.2	+18	- 2	M	11 16	5,6	5	4	147	14	54
										11 17	5,6					54
	0915	11 17 10	GUAM	4.0N	SC	--	24	06	M	11 16	5	5	--	60	20	54
	0916	11 17 21	ANNA	1.5N	SC	- 0.7	+29	+10	-	-- --	-	-	3	151	49	54
	0916	11 17 23	HUAN	0.6S	SC	0	26	4	MS	11 16	5,6	7	9	430	42	54
	0916	11 17 21	TVAN	1.1S	SC	+ 0.1	+27	+35	-	-- --	-	-	3	169	83	54
	0916	11 18 11	APIA	16.1S	SC	0	+20	- 8	M	11 16	5	5	13	148	28	54
	0915	11 18 00	PMOR	18.6S	SC	+ 0.3	+27	+22	M	11 16	5	5	5	110	50	54
	0916	11 18 12	HRMN	33.3S	SC	+ 1.6	+22	+18	M	11 16	5	5	28	141	124	54
										11 17	5	5				54
										11 18	3	5				54
	0915	11 18 10	GNAN	43.2S	SC *	+14 *	+35 *	+11 *	M	11 16	5	5	14	100	94	54
										11 17	6					54
	0915	11 18 12	TOOL	46.7S	SC *	- 1.5	+45	+ 6	M	11 16	5	5	14	159	66	54
11 20	0904	11 20 24	COLL	64.6N	SC *	-11	-38	-62	MS	11 20	5	7	162	1370	460	55
	0904	11 20 16	FRED	49.6N	SC *	- 6	46	- 5	M	11 20	4,5	4	22	116	28	55
	0903	11 20 19	IRKU	40.8N	SC *	4.5	47	6	M	11 20	5	5	12	127	21	55
	0903	11 20 18	TUCS	40.4N	SC	+ 1	+54	+ 4	M	11 20	4	5	4	60	10	55
	0905	11 20 20	ALIB	9.5N	SC	- 0.8	+24	-12	MS	11 20	5	6	3	166	27	55
	0904	11 20 22	HYDE	7.6N	SC	- 0.5	+25	- 3	M	11 20	5,6	6	2	161	11	55
	0904	11 20 19	GUAM	4.0N	SC	01	38	11	M	11 20	5	5	--	50	10	55
	0905	11 20 20	ANNA	1.5N	SC	- 1.5	+41	+19	-	-- --	-	-	3	207	40	55
	0903	11 20 22	HUAN	0.6S	SC	1	35	8	MS	11 20	6	6	8	261	36	55
	0905	11 20 20	TVAN	1.1S	SC	+ 0.3	+46	+48	-	-- --	-	-	3	223	146	55
	0904	11 20 18	PMOR	18.6S	SC	+ 0.8	+42	+34	M	11 20	4,5	5	2	100	60	55
	0904	11 20 21	HRMN	33.3S	SC	+ 1.5	+37	+28	M	11 20	5	5	20	110	144	55
	0904	11 20 24	GNAN	43.2S	SC *	+ 2 *	+40 *	+11 *	M	11 20	5	5	15	93	60	55
	0903	11 20 24	TOOL	46.7S	SC *	- 6.3	+78	+ 5	M	11 20	4	5	12	128	31	55
11 24	1558	-- -- --	HYDE	7.6N	SC	- 0.2	+14	- 1	-	-- --	- -	-	--	--	--	56

Sitka reported that no principal magnetic storms were observed in November 1968.

RADIO PROPAGATION QUALITY FIGURES AND FORECASTS

NOVEMBER 1968

North Atlantic, North Pacific

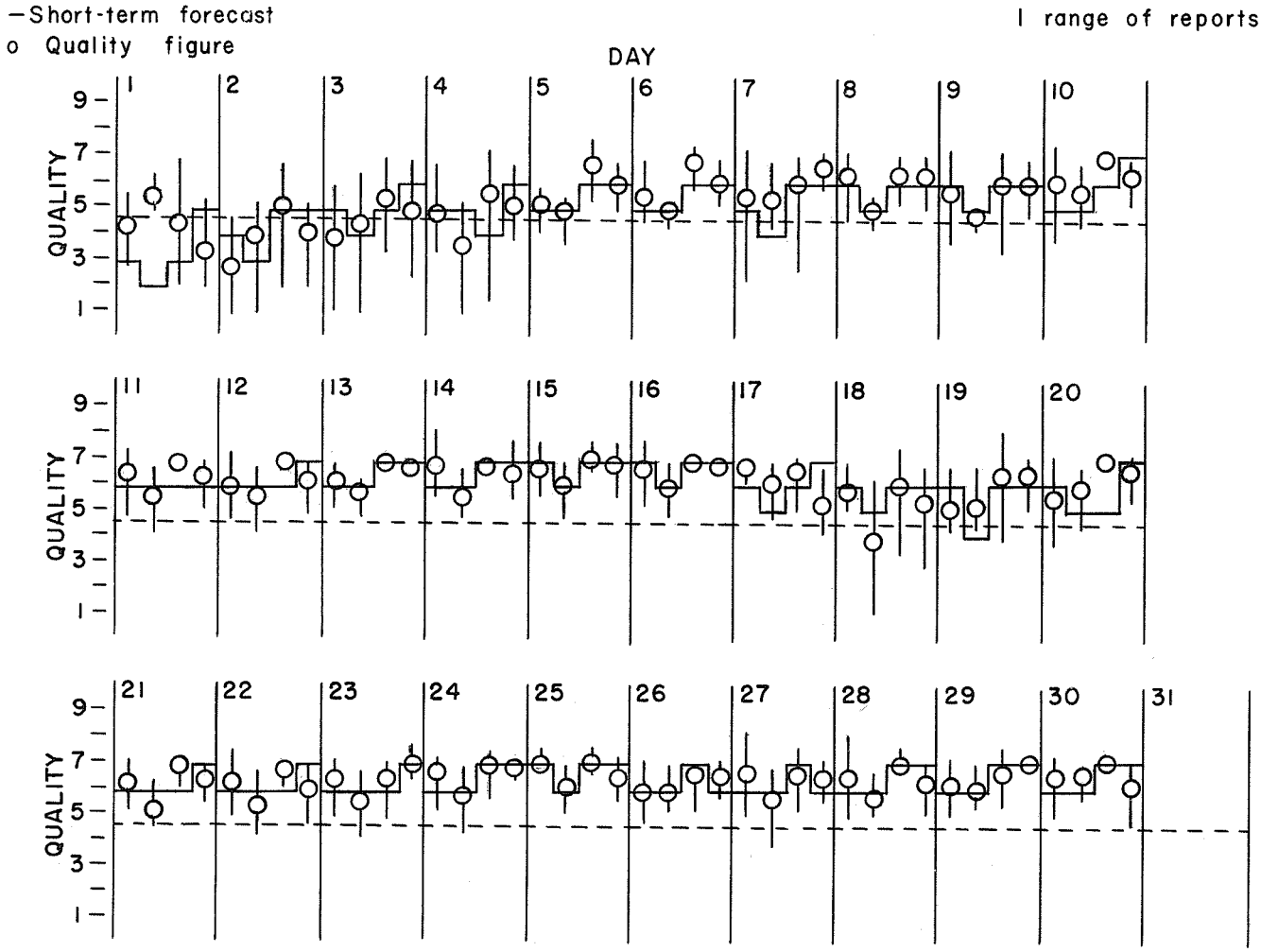
NOV. 1968	WHOLE DAY INDICES: NORTH ATLANTIC	WHOLE DAY INDICES: NORTH PACIFIC	WHOLE DAY INDICES: AVERAGE HIGH LATITUDE	ADVANCE FORECASTS (JC-REPORTS) FOR WHOLE DAY	NORTH ATLANTIC 6-HOURLY QUALITY FIGURES: 00 TO 06	06 TO 12	12 TO 18	18 TO 24	NORTH ATLANTIC SHORT-TERM FORECASTS ISSUED ABOUT ONE HOUR IN 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	(4+)	5	5-	5	4+	6-	4+	3+	3	2	3	5	5	5	5	5	(4)	(7)	101	(4)	(8)	159
02	(4o)	5	(4+)	6	3-	4o	5o	4o	4	3	5	5	5	5	5	5	(5)	(4)	44	(7)	(5)	100
03	5-	5	5o	6	4-	4+	5+	5o	5	4	5	6	5	6	6	5	(4)	3	24	(4)	(4)	36
04	5-	5	5-	7	5o	4-	6-	5+	5	5	4	6	5	5	5	5	3	3	17	(4)	(4)	32
05	6-	5	6-	7	5+	5-	7-	6o	5	5	6	6	5	5	5	6	1	2	4	2	1	6
06	6-	5	5+	7	6-	5o	7-	6o	5	5	6	6	5	5	5	5	1	2	6	0	1	2
07	6-	6	6-	6	6-	5+	6o	7-	5	4	6	6	6	6	6	6	3	1	9	(4)	2	20
08	6o	6	6o	6	6+	5o	6+	6+	6	5	6	6	6	6	6	5	2	2	7	2	3	13
09	6-	5	6-	5	6-	5-	6o	6o	6	5	6	6	5	5	6	5	(4)	2	15	(4)	2	19
10	6+	6	6+	5	6o	6-	7-	6+	5	5	6	7	6	6	6	6	2	2	11	2	3	15
11	6+	6	6+	6	7-	6-	7-	6+	6	6	6	6	6	6	6	6	3	1	10	(4)	1	15
12	6+	6	6+	7	6o	6-	7o	6+	6	6	6	7	6	6	6	6	1	0	1	0	0	1
13	6+	6	6+	7	6o	6-	7o	7-	6	6	7	7	6	6	6	6	1	1	4	0	1	2
14	6+	6	6+	6	7-	6-	7-	7-	6	6	7	7	6	6	6	6	0	2	3	0	1	2
15	7-	6	6+	6	7-	6o	7o	7-	7	6	7	7	6	6	6	6	1	0	2	0	0	1
16	7-	6	6+	6	7-	6o	7o	7-	7	6	7	7	6	6	6	6	1	(4)	19	0	3	10
17	6o	6	6o	6	7-	6o	7-	5+	6	5	6	7	6	6	6	6	3	3	12	2	(4)	16
18	5+	6	6-	6	6-	4-	6o	5+	6	5	6	6	6	6	6	6	(4)	2	16	(4)	2	23
19	6-	5	6-	6	5o	5+	6+	6+	6	4	6	6	6	5	5	6	2	1	5	2	1	4
20	6+	6	6+	6	6-	6-	7-	7-	6	5	5	7	6	6	6	6	2	3	12	1	(4)	20
21	6+	6	6+	6	6+	5+	7-	6+	6	6	6	7	6	6	6	6	1	1	3	0	2	3
22	6o	6	6o	6	6+	5+	7-	6o	6	6	6	7	6	6	6	6	1	2	3	1	1	4
23	6+	6	6+	7	6+	6-	6+	7o	6	6	6	7	6	6	6	6	2	1	6	1	0	2
24	7-	6	6+	7	7-	6-	7-	7-	6	6	7	7	6	6	6	6	1	1	4	0	1	2
25	7-	6	6+	7	7o	6+	7o	7-	7	6	7	7	6	6	6	6	2	2	7	1	2	5
26	6+	6	6+	6	6o	6o	7-	7-	6	6	7	6	6	6	6	6	1	2	5	0	2	5
27	6+	6	6+	6	7-	6-	7-	6+	6	6	7	6	6	6	6	6	2	2	7	2	2	6
28	6+	6	6+	6	7-	6-	7o	6+	6	6	7	7	6	6	6	6	2	2	8	1	2	5
29	6+	6	6o	6	6+	6o	7-	7o	6	6	7	7	6	5	6	6	1	1	3	0	1	2
30	7-	6	6+	6	7-	7-	7o	6o	6	6	7	7	6	6	6	6	0	1	1	0	0	1
QUIET			P	18					16	17	19	16										
			S	9					11	8	8	11										
			U	2					0	0	1	1										
			F	0					0	1	1	0										
DISTURBED			P	0					0	1	0	0										
			S	0					3	3	1	1										
			U	0					0	0	0	1										
			F	1					0	0	0	0										

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

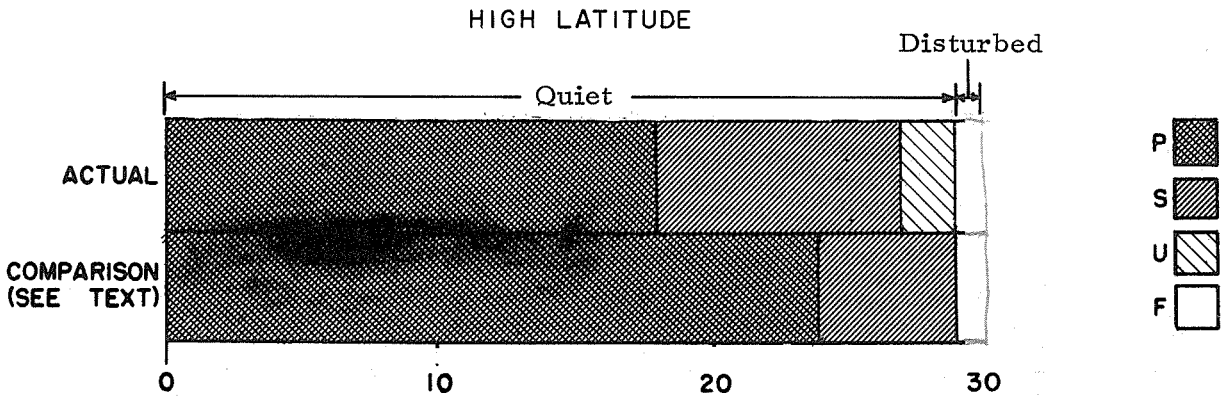
RADIO PROPAGATION QUALITY FIGURES AND FORECASTS

NOVEMBER 1968

North Atlantic

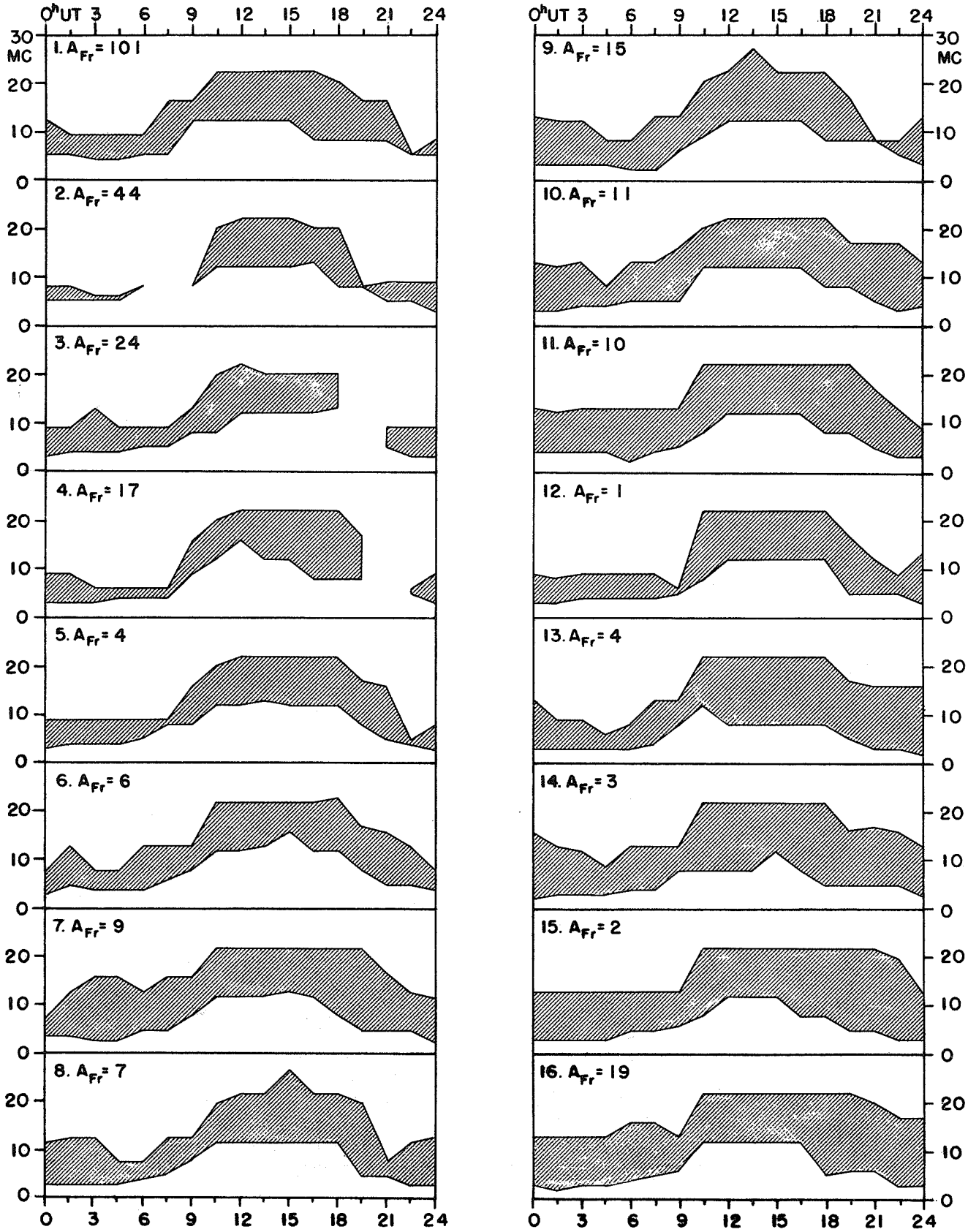


Outcome of advance forecasts - final estimates (1 to 7 days ahead) - High Latitude radio propagation conditions



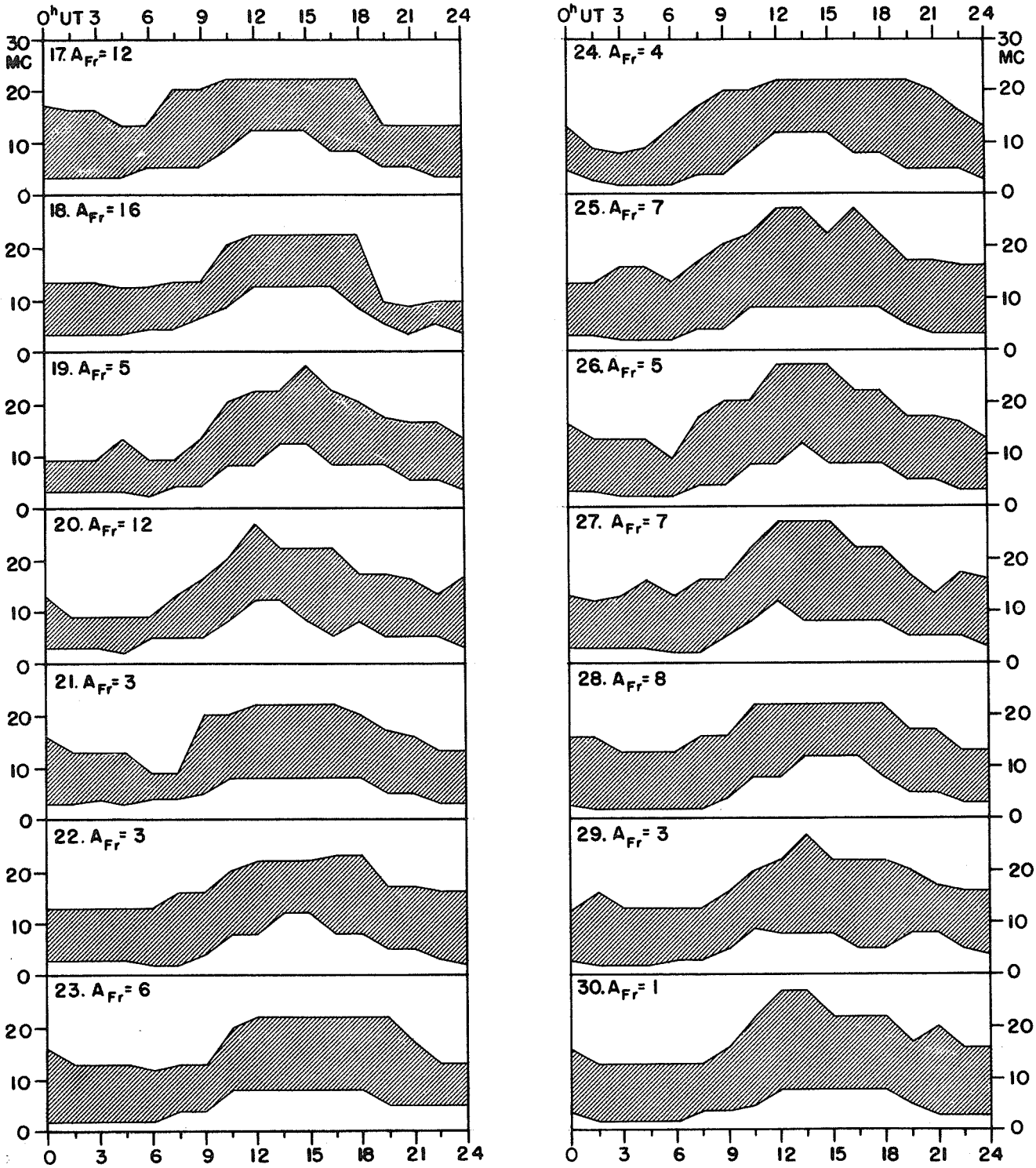
TRANSMISSION FREQUENCY RANGES--NORTH ATLANTIC PATH

NOVEMBER 1968



TRANSMISSION FREQUENCY RANGES--NORTH ATLANTIC PATH

NOVEMBER 1968



Adapted from Observations by Deutsche Bundespost

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

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OBSERVATORY	OBSERVED UT DATE 1968 JULY	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
GRP16309	01	0837	0904	0844	N10	W59	.857	9473	26.9	27	1N				1.34				6 6 5 12
ISTA	01	0830E	0850D		N09	W61	.874	9473	26.8	20D	-N								
LOCA	01	0836	0905	0845	N10	W59	.857	9473	26.9	29	-N		V	0845	.53	1.00			
CAPS	01	0838	0910		N10	W58	.848	9473	27.0	32	1N	3		0840	1.20	2.20		194	F
MEUD	01	0838	0854	0842	N10	W61	.874	9473	26.8	16	-N			0842	.26	.50			D
ARCE	01	0840E	0900D		N08	W60	.865	9473	26.9	20D	-N		C	0845	.48	1.00			
CAPF	01	0845E	0913		N11	W59	.858	9473	26.9	28D	2N		P	0848	4.22	7.77			
GRP16322	02	0017	0035	0021	S15	W69	.943	9486	26.8	18	-N				.82				2 2 2 4
SACP	02	0016	0044	0021	S15	W68	.937	9486	26.9	28	1N		C		1.23	2.28			
HALE	02	0018	0025	0021	S15	W70	.949	9486	26.8	7	-N	1	C	0021	.41				J
324 TACH	02	0527	0533	0530	S13	E43	.714	9493	5.5	6	-N		C	0530	.81	1.10		60	D 4
GRP16325	02	0710	0830	0758	N31	W54	.848	9476	28.2	80	1N				2.27				5 4 3 8
ISTA	02	0710E	0851	0756	N32	W55	.858	9476	28.2	101D	-N								
CAPE	02	0748	0806	0754	N31	W56	.863	9476	28.1	18	1N		C	0754	1.29	2.50			F
CAPS	02	0750E	0840D		N30	W50	.813	9476	28.6	50D	1N	3		0755	2.00	3.40		194	CFI
CAPF	02	0755E	0830		N31	W53	.841	9476	28.4	35D	2N		P	0800	3.53	6.50			
CATA	02	0805E	0845	0805	N30	W58	.875	9476	28.0	40D	-N			0805	.26	.52		178	Z
CATA	02	0805E	0825	0805	N33	W51	.832	9476	28.5	20D	-N			0805	.21	.37		157	
GRP16332	03	0853	0914	0856	N32	W65	.922	9476	28.5	21	-N				.70				9 8 7 11
HERS	03	0850E	0902D	0856U	N32	W66	.928	9476	28.4	12D	-N		P	0854	.72	2.00			E
CANR	03	0853	0915	0854	N33	W65	.924	9476	28.5	22	-N		C		.80	1.80			E
CRON	03	0854	0905	0856	N33	W67	.934	9476	28.3	11	-N		C		.70	1.60			
MANI	03	0854	0915	0856	N30	W64	.914	9476	28.6	21	-N	2		0856	.62	1.20			
CAPS	03	0855E	0920		N32	W60	.892	9476	28.9	25D	1N	3		0858	1.00	2.00		194	F
ONDR	03	0857E	0914		N30	W65	.920	9476	28.5	17D	1N		V	0901			2.10		CJ
ARCE	03	0900E	0900D		N33	W63	.912	9476	28.6		-N		C	0900	.68	1.60			
MEUD	03	0901E	0912D		N32	W68	.938	9476	28.3	11D	-N			0901	.41				E
CAPF	03	0918E	0958		N30	W70	.947	9476	28.1	40D	2N		P	0922	3.53				
GRP16338	03	1601	1619	1607	N10	W89	1.000	9473	27.0	18	-F				.62				4 4 3 10
BOUL	03	1600	1618	1606	N10	W90	1.000	9473	26.9	18	1F		C		.80	3.20			
HOUT	03	1600	1620	1606	N09	W90	1.000	9473	26.9	20	1N		C		.80	3.20			H
MCMA	03	1600	1620	1608	N12	W90	1.000	9473	26.9	20	-F		C	1608					
HUAN	03	1602	1618		N07	W85	.996	9473	27.3	16	-F	1	C	1608	.25				D
GRP16346	03	1950	2021	1954	N28	W81	.987	9476	27.8	31	-N				.43				3 3 2 4
BOUL	03	1950	2012	1954	N30	W80	.984	9476	27.8	22	-N		C		.40	1.40			
HUAN	03	1950	2006	1954	N27	W80	.984	9476	27.8	16	-N	2	C	1954	.45				
MCMA	03	1951	2044	1954	N27	W82	.989	9476	27.7	53	-B		C	1954					D
	03	2205	2253	NO FLARE PATROL															
GRP16348	03	2326	2341	2330	N26	W80	.984	9476	28.0	15	-B				.86				2 2 2 2
VORO	03	2325	2339	2328	N24	W80	.984	9476	28.0	14	1B		C	2328	.99	5.03		98	D
MANI	03	2327	2342	2331	N27	W80	.984	9476	28.0	15	-N	2		2331	.72	1.90			
6 STATIONS REPORTING GROUP 16351. 3 STATIONS OBSERVING AND NOT REPORTING.																			
GRP16351	04	0941	1017	0945	N28	W90	1.000	9476	27.7	36	1N				.89				4 3 3 9
CATA	04	0940E	1035	0945	N28	W90	1.000	9476	27.7	55D	1B			0945	1.44			200	T
MEUD	04	0942	1000		N29	W90	1.000	9476	27.7	18	-F			0946	.31				
CAPE	04	0945E	1015		N28	W90	1.000	9476	27.7	30D	1N		P	0950	.92				T
CAPF	04	1004E	1035D		N28	W87	.997	9476	27.9	31D	2N		P	1008	1.76				A
16351	04	0942	1014	(0950)	N26	W81	.986	9476	28.3	32	*1N								2 2 0 8
CAPS	04	0942E	1008		N27	W82	.989	9476	28.3	26D	1N	3							
ONDR	04	0948E	1020		N25	W80	.984	9476	28.4	32D	1N		V	0950			3.20		H
6 STATIONS REPORTING GROUP 16352. 2 STATIONS OBSERVING AND NOT REPORTING.																			
GRP16352	04	1133	1200	1143	N28	W90	1.000	9476	27.7	27	-N				.62				4 4 4 7
CATA	04	1125	1220D	1145	N29	W90	1.000	9476	27.7	55D	1B			1145	1.22			209	T
CANR	04	1135	1150	1137	N27	W90	1.000	9476	27.7	15	1N		C		.60	2.40			H
CAPE	04	1136	1200	1146	N27	W90	1.000	9476	27.7	24	-N		C	1146	.46				
MEUD	04	1137	1150		N29	W90	1.000	9476	27.7	13	-F			1138	.21				
16352	04	1149	1214	(1157)	N27	W88	.998	9476	27.9	25	*-F				1.00				2 2 1 8
CAPS	04	1149E	1214D		N26	W85	.995	9476	28.1	25D	1N	3		1159	1.00				
MCMA	04	1153E	1200D		N27	W90	1.000	9476	27.7	7D	-F		C	1155					
GRP16354	04	1710	1731	1713	N28	W90	1.000	9476	28.0	21	-N				.60				2 2 2 5
CANR	04	1708	1730	1711	N28	W90	1.000	9476	28.0	22	1N		C		.70	2.80			
HOUT	04	1712	1732	1715	N28	W90	1.000	9476	28.0	20	-N		C		.50	2.00			
	04	1945	1950	NO FLARE PATROL															
	04	1955	2009	NO FLARE PATROL															

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OBSERVATORY	DATE 1968 JULY	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	TIME — UT	MEASUREMENTS MEAS. AREA Sq. Deg.	MEASUREMENTS CORR. AREA Sq. Deg.	MEASUREMENTS MAX. WIDTH Hα	MEASUREMENTS MAX. INT. %	REMARKS
	04	2020	2052	NO FLARE PATROL															
	04	2056	2110	NO FLARE PATROL															
	04	2120	2126	NO FLARE PATROL															
	04	2131	2155	NO FLARE PATROL															
GRP16362	05	1547	1625	1553	N11	E88	.999	9503	12.3	38	1B				1.38				5 5 2 6
MCMA	05	1546	1626D		N10	E90	1.000	9503	12.4	40D	1B		P	1551					
CAPS	05	1546E	1633		N12	E90	1.000	9503	12.4	47D	1B	3							W
ONDR	05	1548E	1616		N13	E82	.989	9503	11.8	28D	2B		V	1554			7.30		CHJR
CANR	05	1549	1610	1553	N09	E90	1.000	9503	12.4	21	1N		C		.70	2.80			H
HALE	05	1600E	1639		N12	E89	1.000	9503	12.3	39D	2N	3	P	1600	2.06				
GRP16366	05	2030	2043	2033	N12	E86	.997	9503	12.3	13	1B				.71				2 2 2 3
HALE	05	2029	2040D	2032	N13	E82	.989	9503	12.0	11D	1B	1	P	2032	.72				FJ
HOUT	05	2030	2043	2033	N11	E90	1.000	9503	12.6	13	1N		C		.70	2.80			
367 HOUT	05	2245	2300	2248	N11	E80	.983	9503	11.9	15	-N		C		.40	1.40			1
368 HOUT	05	2245	2307	2257	S19	E67	.937	9504	11.0	22	-N		C		.50	1.20			1
	05	2320	2355	NO FLARE PATROL															
GRP16371	06	0715	0733	0720	N11	E79	.980	9503	12.2	18	2B				2.49				11 11 9 13
AROS	06	0714	0730	0720	N11	E80	.983	9503	12.3	16	1B		C	0720	2.06				
ISTA	06	0714	0733	0720	N10	E80	.983	9503	12.3	19	1B								
CAPE	06	0714	0730	0719	N11	E80	.983	9503	12.3	16	2B		C	0719	2.67				TV
CRON	06	0715	0729	0719	N11	E79	.980	9503	12.2	14	1B		C		1.40	4.20			
CATA	06	0715E	0745D	0717	N13	E80	.983	9503	12.3	30D	2B			0717	2.72			219	
CANR	06	0715	0728	0719	N11	E79	.980	9503	12.2	13	1N		C		1.30	4.00			
MANI	06	0715E	0726D	0724	N10	E79	.980	9503	12.2	11D	1B	2		0724	1.65	4.24			
CAPS	06	0715E	0732		N08	E78	.977	9503	12.2	17D	2B	3		0719	5.00			290	CY
CAPS	06	0715E	0732		N08	E78	.977	9503	12.2	17D	2B	3		0716					V
KODA	06	0716E	0718D		N11	E82	.989	9503	12.5	2D	2B		S	0717	1.93		2.20		D
ONDR	06	0717E	0735	0721	N13	E76	.969	9503	12.0	18D	2B		V	0721			5.20		CHJR
KHAR	06	0718E	0728		N16	E80	.983	9503	12.3	10D	2N		P	0727	2.58		2.40		
GRP16372	06	0837	0900	0840	N10	E78	.977	9503	12.2	23	1N				1.13				8 8 7 11
CATA	06	0835E	0930D	0840	N12	E79	.980	9503	12.3	55D	1B			0840	1.22			209	
CANR	06	0836	0849	0840	N09	E78	.977	9503	12.2	13	1N		C		1.10	3.40			H
MANI	06	0837E	0840D		N10	E79	.980	9503	12.3	3D	1F	2		0840	.83	2.12			
ONDR	06	0837	0849	0841	N13	E75	.964	9503	12.0	12	1F		V	0841			1.70		CHJ
CRON	06	0838	0847	0840	N13	E79	.980	9503	12.3	9	1N		C		.80	2.40			H
CAPE	06	0838	0850	0840	N09	E78	.977	9503	12.2	12	1F		C	0840	1.33				
ARCE	06	0840E	0840D		N08	E80	.984	9503	12.4		-F		P	0840	.32	1.00			
CAPS	06	0841E	0845D		N08	E78	.977	9503	12.2	4D	1N	3		0844	2.00				CY
GRP16373	06	0946	1029	0956	N14	E89	1.000	9503	13.1	43	1N				1.47				7 7 7 7
CAPE	06	0943	1030	0957	N13	E90	1.000	9503	13.2	47	-N		C	0957	1.21				V
CAPS	06	0943E	1033D		N12	E90	1.000	9503	13.2	50D	2B	3		0957	2.00			265	ACY
CANR	06	0943	0949	0946	N12	E90	1.000	9503	13.2	6	-N		C		.40	1.60			
CANR	06	0943	0952	0944	N17	E90	1.000	9503	13.2	9	-N		C		.30	1.20			H
KHAR	06	0944E	1016D		N16	E86	.997	9503	12.9	32D	2B		P	0954	2.27		8.00		BHKOX
CATA	06	0945	1100	0955	N18	E90	1.000	9503	13.2	75	1B			0955	1.22			269	
CATA	06	0945	1020	0955	N23	E90	1.000	9503	13.2	35	1N			0955	1.73			159	
CAPF	06	0950E	1110D		N12	E85	.995	9503	12.8	80D	1N		P	0953	1.18				A
ARCE	06	0951	1019D	0954	N09	E89	1.000	9503	13.1	28D	2F		C	0954	1.29	6.80			
CANR	06	0951	1033	0957	N12	E90	1.000	9503	13.2	42	1B		C		1.10	4.40			
GRP16375	06	1505	1521	1509	N07	E77	.973	9503	12.4	16	-N				.46				3 2 2 5
MCMA	06	1505	1521	1509	N06	E76	.969	9503	12.3	16	-N		C	1509	.31	1.60			E
HOUT	06	1505	1520	1509	N08	E78	.977	9503	12.5	15	-N		C		.60	1.80			I
CANR	06	1505	1512	1507	N17	E76	.969	9503	12.3	7	1N		C		.80	2.20			E
GRP16376	06	1552	1604	1555	N09	E86	.997	9503	13.1	12	-B				.53				7 7 6 7
CAPS	06	1550E	1600D		N08	E85	.996	9503	13.0	10D	-B	3		1556	.20			225	C
MCMA	06	1551	1603	1555	N09	E88	.999	9503	13.3	12	-B		C	1555					
CANR	06	1551	1600	1553	N08	E81	.987	9503	12.7	9	-N		C		.60	2.00			
BOUL	06	1552	1600	1555	N07	E90	1.000	9503	13.4	8	1B		C		.60	2.40			
SANM	06	1552	1602	1554	N10	E89	1.000	9503	13.3	10	-B		C	1554	.48				A
SANM	06	1552E	1602D	1554	N10	E89	1.000	9503	13.3	10D	-B		C	1554	.48				A
HOUT	06	1553	1600	1556	N09	E80	.984	9503	12.7	7	1B		C		.80	2.70			I
HALE	06	1555E	1621		N12	E89	1.000	9503	13.3	26D	1B	1	P	1555	.52				

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OBSERVATORY	OBSERVED UT DATE 1968 JULY	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
GRP16377	06	1731	1741	1734	N08	E82	.989	9503	12.9	10	-N				.48				5 4 3 5 S
HALE	06	1726	1740	1735	N18	E76	.969	9503	12.4	14	1B	2	C	1735	.72				F
HUAN	06	1730	1739		N08	E85	.996	9503	13.1	9	-F	1	C	1733	.25				D
MCMA	06	1731	1740	1733	N09	E85	.995	9503	13.1	9	-N		C	1733					D
CANR	06	1731	1741	1733	N06	E78	.977	9503	12.6	10	-N		C		.50	1.60			
HOUT	06	1732	1742	1735	N07	E80	.984	9503	12.7	10	1N		C		.70	2.30			
GRP16383	06	2022	2036	2029	N10	E75	.964	9503	12.5	14	-N				.50				3 3 3 4
BOUL	06	2022	2030	2026	N10	E79	.980	9503	12.8	8	1N		C		.80	2.40			EH
HUAN	06	2026E	2037		N11	E73	.955	9503	12.3	11D	-N	1	P	2029	.31				D
HOUT	06	2028U	2041	2031U	N10	E72	.949	9503	12.3	13D	-N		C		.40	1.00			
GRP16387	07	0804	0824	0810	N08	E66	.912	9503	12.3	20	1N				2.06				11 11 9 11
HTPR	07	0755	0815	0800	N07	E65	.905	9503	12.2	20	1B		C	0800	1.13	2.50			E
ISTA	07	0803	0822	0808	N07	E68	.926	9503	12.4	19	1B								
WEND	07	0804E	0822		N08	E63	.889	9503	12.1	18D	1N		V		3.09				
CATA	07	0805	0830	0810	N12	E64	.898	9503	12.1	25	1B			0810	1.27			219	Z
MANI	07	0806	0829	0811	N08	E66	.912	9503	12.3	23	1N	2		0811	1.24	2.57			
CAPE	07	0806	0825	0810	N07	E67	.919	9503	12.4	19	1N		C	0810	2.07	5.20			H
CAPS	07	0806	0821		N08	E68	.925	9503	12.4	15	1B	3		0808	1.80			240	J
CANR	07	0807	0820	0810	N06	E67	.919	9503	12.4	13	1N		C		1.90	4.00			
CAPF	07	0810E	0830		N08	E65	.905	9503	12.2	20D	2N		P	0818	2.94				H
ONDR	07	0810E	0823		N07	E62	.881	9503	12.0	13D	2F		V	0811			2.30		CH
ARCE	07	0811E	0823D		N08	E66	.912	9503	12.3	12D	2F		C	0811	3.06	7.20			
GRP16388	07	0849	0930	0906	N12	E79	.980	9503	13.3	41	-N				.65				4 2 2 12
CAPF	07	0849E	0915D		N13	E85	.995	9503	13.7	26D	2N		P	0851	2.35				A
HTPR	07	0900	0930	0905	N10	E72	.949	9503	12.8	30	-F		C						
ARCE	07	0900	0930D	0905	N11	E86	.997	9503	13.8	30D	1F		C	0905	.52	2.20			
ARCE	07	0907	0930D	0907	N13	E85	.995	9503	13.8	23D	1N		C	0907	.80	3.30			
CAPS	07	0916E	0922D		N11	E72	.949	9503	12.8	6D	-N	3		0920	.50			176	CJ
GRP16389	07	1302	1308	1305	N11	E86	.997	9503	14.0	6	-N				.40				3 3 2 11
CAPS	07	1259E	1309D		N12	E80	.983	9503	13.5	10D	-B	3		1303	.50			201	CH
MCMA	07	1303	1307	1305	N12	E89	1.000	9503	14.2	4	-N		C	1305					DH
CANR	07	1303	1307	1305	N10	E90	1.000	9503	14.3	4	-N		C		.30	1.20			H
6 STATIONS REPORTING GROUP 16393. 3 STATIONS OBSERVING AND NOT REPORTING.																			
GRP16393	07	1705	1833	1744	N12	E70	.938	9503	13.0	88	1N				1.12				3 3 2 8
HTPR	07	1705	1732D		N13	E70	.938	9503	13.0	27D	-N		C						
HOUT	07	1740E	1815	1744U	N12	E68	.926	9503	12.8	35D	1N		C		1.20	2.80			B
MCMA	07	1748E	1850		N12	E72	.949	9503	13.1	62D	1N		C	1748	1.03	3.40			BE
HTPR	07	1755	1755D		N13	E70	.938	9503	13.0		-N		C						
16393	07	1729	1836	1809	N12	E72	.949	9503	13.1	67	*-N				.76				3 3 3 8
SACP	07	1649	1833D	1812	N14	E71	.944	9503	13.0	104D	-N		C		1.02	1.95			
HUAN	07	1729	1837		N11	E72	.949	9503	13.1	68	-F	1	C	1800	.25				D
BOUL	07	1805E	1834	1806U	N10	E72	.949	9503	13.2	29D	1N		C		1.00	2.40			E
GRP16395	07	1912	1945	1916	N13	E40	.651	9499	10.8	33	-N				1.06				4 4 4 5
MCMA	07	1911	2000	1914	N12	E40	.649	9499	10.8	49	-N		C	1914	1.03	1.40			E
HALE	07	1911	1942	1915	N13	E38	.626	9499	10.6	31	-N	1	C	1915	.57	.70			ET
HUAN	07	1913	1933		N14	E40	.654	9499	10.8	20	-N	2	C	1914	1.00	1.12			E
SACP	07	1918E	1926D	1920U	N14	E40	.654	9499	10.8	8D	-N		P		1.63	1.83			
GRP16396	07	2001	2026	(2008)	N08	E68	.925	9503	12.9	25	-N				.44				2 2 2 5
HUAN	07	2000	2026		N08	E68	.925	9503	12.9	26	-N	1	C	2010	.36				
MCMA	07	2001	2009D		N07	E67	.919	9503	12.9	8D	-N		P	2005	.52	1.50			E
GRP16401	08	0050	0109	0052	N16	E65	.906	9503	12.9	19	-N				.34				3 3 3 5
CRON	08	0049	0130	0052	N16	E66	.913	9503	13.0	41	-N		C		.50	1.10			K
HALE	08	0051	0057	0052	N17	E66	.914	9503	13.0	6	-N	2	C	0052	.21				
MANI	08	0052E	0100D		N14	E63	.891	9503	12.8	8D	-F	2		0053	.31	.63			
GRP16402	08	0055	0139	0112	N17	E67	.920	9503	13.1	44	-N				1.03				2 2 1 6
CRON	08	0049	0130	0110	N16	E66	.913	9503	13.0	41	-N								
HALE	08	0100	0148D	0113	N17	E67	.920	9503	13.1	48D	1N	2	P	0113	1.03				T
GRP16408	08	1522	1530	1524	N12	E65	.905	9503	13.5	8	-N				.51				4 4 4 11
MCMA	08	1522	1528	1524	N12	E66	.912	9503	13.6	6	-N		C	1524	.41	1.00			D
LOCA	08	1522	1534	1523	N13	E62	.882	9503	13.3	12	-N		V	1523	.85	1.90			
HUAN	08	1522	1529	1524	N12	E65	.905	9503	13.5	7	-N	1	C	1524	.37	.62			D
MEUD	08	1524E	1527		N12	E65	.905	9503	13.5	3D	-F			1524	.41	.90			C

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GRP16409	08	1557	1620	1602	N14	E30	.521	9499	10.9	23	-N				1.14				11 10 10 13
HUAN	08	1553	1633		N16	E30	.530	9499	10.9	40	-B	2	C	1604	.93	.97			
HUAN	08	1553	1633	1559	N16	E30	.530	9499	10.9	40	-B	2	C	1559	.50	.52			
SACP	08	1554	1640	1601	N14	E29	.507	9499	10.8	46	-N		C		.92	.95			
CATA	08	1555	1635	1605	N15	E30	.525	9499	10.9	40	-B			1635	.87	1.03		204	
MCMA	08	1556	1611D	1559	N14	E31	.534	9499	11.0	15D	-N		C	1559	.41	.50			D
CANR	08	1558	1614	1603	N12	E29	.499	9499	10.8	16	-N		C		1.00	1.20			
MEUD	08	1558	1608	1559	N13	E31	.531	9499	11.0	10	-N			1559	.52	.60			
HALE	08	1558	1617	1600	N15	E27	.484	9499	10.7	19	-B	2	C	1600	.52	.60			W
WEND	08	1558	1623		N15	E30	.525	9499	10.9	25	1N		V		4.13				
BOUL	08	1558	1615	1604	N03	E30	.499	9499	10.9	17	-N		C		1.30	1.60			E
HOUT	08	1600	1612	1604	N13	E28	.488	9499	10.8	12	-N		C		1.00	1.20			
CATA	08	1600	1615	1605	N12	E28	.484	9499	10.8	15	-N			1605	.46	.53		162	
LOCA	08	1604E	1628	1606	N13	E31	.531	9499	11.0	24D	-N		V	1606	1.05	1.20			
GRP16411	08	1632	1652	1636	N13	E58	.848	9503	13.0	20	1N				2.41				9 9 9 11
MCMA	08	1627	1705D	1636	N12	E62	.882	9503	13.3	38D	1B		C	1636	1.80	3.60			E
WEND	08	1630	1659	1636	N15	E61	.875	9503	13.3	29	2B		V		10.31				
MEUD	08	1632	1645		N12	E55	.820	9503	12.8	13	-N			1637	.93	1.60			
HUAN	08	1632	1654	1635	N13	E57	.839	9503	13.0	22	1N	2	C	1635	1.70	2.45			T
CANR	08	1633	1646	1636	N12	E57	.839	9503	13.0	13	1N		C		1.30	2.30			E
BOUL	08	1633	1653	1636	N14	E56	.831	9503	12.9	20	1N		C		1.60	2.90			E
HALE	08	1634	1653	1635	N13	E55	.820	9503	12.8	19	1N	1	C	1635	1.24	2.20			F
HOUT	08	1635	1650	1640	N14	E59	.858	9503	13.1	15	1N		C		1.40	2.70			E
CATA	08	1635	1645	1635	N15	E56	.832	9503	12.9	10	1B			1635	1.44	2.66		309	F
3 STATIONS REPORTING GROUP 16412. 5 STATIONS OBSERVING AND NOT REPORTING.																			
GRP16412	08	1706	1756	1717	N13	E53	.800	9503	12.7	50	1B				3.70				3 3 3 8
SACP	08	1628	1717D	1713	N14	E57	.840	9503	13.0	49D	2B		C		7.18	10.13			
HUAN	08	1705	1825	1717	N13	E57	.839	9503	13.0	80	2B	1	C	1717	3.30	4.64			
HALE	08	1708	1727	1720	N13	E46	.724	9503	12.2	19	-N	2	C	1720	.62	.90			K
HALE	08	1708	1727	1710	N10	E47	.732	9503	12.2	19	-N	2	C	1710	.41	.60			
412 HALE	08	1713	1722	1714	N21	E44	.721	9503	12.0	9	*-F	2	C	1714	.41	.60			CF 8
GRP16413	08	1707	1833	1727	N13	E59	.857	9503	13.1	86	3B				10.04				7 7 7 7
WEND	08	1705	1845	1733	N14	E60	.866	9503	13.2	100	3B		P		24.75				
→ HUAN	08	1705	1825		N13	E57	.839	9503	13.0	80	2B	1	C	1723	5.57	7.85			
MCMA	08	1706	2045	1725	N12	E60	.865	9503	13.2	219	3B		C	1725	7.22	14.00			FKUXZ
HALE	08	1707	1830	1723	N12	E56	.829	9503	12.9	83	3B	2	C	1723	8.46	15.20			FITU
CANR	08	1708	1759U	1725	N13	E58	.848	9503	13.1	51D	3N		C		7.20	13.00			E
BOUL	08	1709	1802	1727	N14	E59	.858	9503	13.1	53	3B		C		8.10	15.40			E
HOUT	08	1710	1800	1728	N13	E58	.848	9503	13.1	50	3B		C		9.00	16.20			E
→ HUAN	08	2000	2006	2002	N12	E62	.882	9503	13.5	6	-F	1	C	2002	.31	.49			D
GRP16416	08	2107	2122	2110	N13	E61	.874	9503	13.5	15	-N				.72				3 3 3 4
SACP	08	2104	2131	2110	N14	E62	.883	9503	13.5	27	-N		C		1.03	1.59			
HALE	08	2108	2117	2109	N14	E60	.866	9503	13.4	9	-N	2	C	2109	.83	1.70			F
HALE	08	2108	2117	2109	N14	E60	.866	9503	13.4	9	-N	2	C	2109	.83	1.70			F
HUAN	08	2110	2117	2111	N12	E61	.874	9503	13.5	7	-F	2	C	2111	.31	.48			D
GRP16421	09	0054	0117	0058	N11	E41	.660	9503	12.1	23	-N				.86				3 3 3 6
HALE	09	0052	0135	0058	N11	E40	.647	9503	12.0	43	-N	2	C	0058	.93	1.20			HL
MANI	09	0054	0115	0059	N10	E42	.671	9503	12.2	21	-F	2		0059	.46	.64			
CRON	09	0055	0100	0058	N11	E41	.660	9503	12.1	5	-N		C		1.20	1.60			H
GRP16428	09	1002	1110	1016	N16	E48	.752	9503	13.0	68	-B				1.62				4 2 2 10
CAPE	09	1002	1110	1027	N18	E46	.734	9503	12.9	68	1N		C	1027	1.93	2.80			F
CANR	09	1002	1029	1004	N14	E46	.725	9503	12.9	27	-N		C		1.10	1.70			E
CAPS	09	1013E	1040D		N13	E50	.769	9503	13.2	27D	-B	3		1036	1.30	1.80		198	CF
CAPF	09	1040E	1105D		N14	E50	.770	9503	13.2	25D	2N		P	1050	5.29	8.72			
GRP16429	09	1109	1136	1114	N07	E38	.615	9503	12.3	27	-N				1.21				4 4 4 8
CATA	09	1105E	1155	1115	N07	E39	.629	9503	12.4	50D	1N			1115	1.73	2.24		186	
CAPS	09	1110	1134D		N06	E38	.615	9503	12.3	24D	-N	3		1112	.60	.80		182	J
CANR	09	1110	1125	1113	N06	E38	.615	9503	12.3	15	-N		C		.80	10.00			
CAPE	09	1111	1130	1114	N07	E38	.615	9503	12.3	19	1N		C	1114	1.70	2.20			
GRP16434	09	1507	1536	1514	N13	E41	.663	9503	12.7	29	-N				.91				6 6 6 10
SACP	09	1501	1548	1509	N11	E41	.660	9503	12.7	47	-N		C		.41	.46			
MCMA	09	1507	1700D		N14	E42	.678	9503	12.8	113D	-N		C	1521	1.03	1.40			FK
HUAN	09	1508	1526	1510	N10	E42	.671	9503	12.8	18	-N	2	C	1510	.37	.42			DT
LOCA	09	1509	1530	1515	N12	E42	.674	9503	12.8	21	-N		V	1515	1.05	1.40			
CAPS	09	1510E	1532D		N09	E39	.631	9503	12.6	22D	-B	3		1515	.50	.70		210	C
CATA	09	1520	1535	1520	N18	E43	.700	9503	12.9	15	-N			1520	.58	.82		182	
CAPS	09	1520	1540D		N15	E43	.692	9503	12.9	20D	1B	3		1526	2.00	3.00		254	J
HUAN	09	1649	1703	1651	N06	E36	.587	9503	12.4	14	-F	2	C	1651	.35	.38			E

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6 STATIONS REPORTING GROUP 16436.					0 STATIONS OBSERVING AND NOT REPORTING.														
GRP16436	09	1808	1859	1816	N13	E40	.651	9503	12.8	51	2B				4.87				5 5 5 5
SACP	09	1805U	1813D	1813U	N14	E40	.653	9503	12.8	8D	2B		P		5.92	6.65			
HALE	09	1808	1917	1817	N13	E40	.651	9503	12.8	69	2B	3	C	1817	4.64	6.10			
HUAN	09	1809	1923	1817	N14	E40	.653	9503	12.8	74	1B	2	C	1817	4.38	5.00			
CANR	09	1809	1840	1815	N13	E40	.651	9503	12.8	31	2N		C		5.00	6.50			E
BOUL	09	1813E	1835	1817	N11	E42	.672	9503	12.9	22D	2B		C		4.40	5.90			
16436	09	1833	1911	1853	N13	E41	.663	9503	12.8	38	*1B				2.56				3 1 1 6
SACP	09	1833E	1911	1836	N13	E41	.663	9503	12.8	38D	1B		C		2.56	2.90			
MCMA	09	1858E	1901D		N12	E44	.699	9503	13.1	3D	-N		P	1858	.83	1.20			BE
HALE	09	1905	1917	1909	N11	E48	.744	9503	13.4	12	-N	3	C	1909	.41	.60			
GRP16446	10	0201	0226	0209	N10	E34	.563	9503	12.6	25	-B				1.35				2 2 2 3
HALE	10	0155	0231	0209	N07	E30	.500	9503	12.3	36	-B	1	C	0209	.62	.70			TH
HALE	10	0158	0259	0209	N13	E38	.624	9503	12.9	61	-N	1	C	0209	.57	.70			TF
MANI	10	0203	0220	0209	N11	E38	.620	9503	12.9	17	-N	2		0209	.57	.72			
MANI	10	0207	0219	0208	N07	E29	.485	9503	12.3	12	-B	2		0208	.93	1.10			
GRP16453	10	0929	1013	0947	N12	E29	.498	9503	12.6	44	1N				2.66				9 9 9 13
ARCE	10	0910	0955D	0915	N05	E28	.469	9503	12.5	45D	-F		C	0915	.61	.70			
CAPE	10	0925	1030	0947	N12	E28	.483	9503	12.5	65	1N		C	0947	2.22	2.60			F
BUCA	10	0925E	1020D		N12	E32	.540	9503	12.8	55D	-N		C	0945	1.36	1.60			
ARCE	10	0925	1000D	0950	N10	E30	.506	9503	12.6	35D	1F		C	0950	2.26	2.60			F
KHAR	10	0933	1010	0945	N13	E26	.458	9503	12.3	37	2N		P	0945	4.43	5.20			E
CAPS	10	0933	1000		N11	E29	.494	9503	12.6	27	1B	3		0947	2.50	4.00		245	J
HTPR	10	0934	1025	0948	N13	E28	.487	9503	12.5	51	-B		C	0948	1.75	2.00			U
CANR	10	0941U	0958U	0943U	N12	E32	.540	9503	12.8	17D	1N		C		1.80	2.20			E
LOCA	10	0945E	1005	0950	N14	E29	.505	9503	12.6	20D	1N		V	0950	2.31	2.70			
CAPF	10	0945E	1010D		N13	E29	.501	9503	12.6	25D	2N		P	0951	5.29	6.15			
GRP16457	10	1449	1515	1453	N12	E36	.595	9503	13.3	26	-N				.78				6 6 6 11
SACP	10	1427	1520	1451	N12	E36	.595	9503	13.3	53	-N		C		.61	.67			
HTPR	10	1447	1515	1450	N12	E37	.609	9503	13.4	28	-F		C	1450	.62	.80			
MCMA	10	1448	1515	1455	N13	E35	.585	9503	13.2	27	-F		C	1455	.62	.80			E
CANR	10	1449	1512	1453	N11	E36	.593	9503	13.3	23	-N		C		1.10	1.40			E
HUAN	10	1449	1511	1456	N12	E36	.595	9503	13.3	22	-N	2	C	1456	.50	.53			E
CAPS	10	1451	1510D		N11	E35	.579	9503	13.2	19D	-N	3		1453	1.20	1.40		166	
GRP16465	10	1852	1907	1857	S32	E66	.951	9513	15.7	15	-N				.41				2 2 2 4
CANR	10	1852	1907	1857	S32	E66	.951	9513	15.7	15	-N		C		.40	1.00			
HUAN	10	1856E	1856D		S31	E66	.950	9513	15.7		-N	1	P	1856	.41				
GRP16468	10	2255	2353	2309	N12	E33	.554	9503	13.4	58	1N				2.26				2 2 2 2
SACP	10	2247	2320D	2304	N12	E32	.540	9503	13.3	33D	1N		C		2.45	2.59			
MANI	10	2303	2353	2314	N11	E34	.566	9503	13.5	50	1N	2		2314	2.06	2.74			
GRP16478	11	1132	1225	1136	N09	E16	.287	9503	12.7	53	-N				1.49				6 6 6 8
MCMA	11	1129E	1226		N10	E14	.262	9503	12.5	57D	-N		C	1136	1.03	1.10			BE
CANR	11	1130	1141	1135U	N10	E16	.292	9503	12.7	11	-N		C		1.30	1.80			E
BUCA	11	1131E	1246D		N11	E19	.344	9503	12.9	75D	-F		C	1143	.75	.80			
CAPE	11	1135	1140D	1137	N07	E16	.279	9503	12.7	5D	-F		P	1137	1.21	1.20			F
CATA	11	1135E	1150	1135	N07	E15	.263	9503	12.6	15D	-B			1135	.23	.24		204	
CATA	11	1135E	1140	1135	N09	E13	.240	9503	12.5	5D	-B			1135	.17	.18		200	
CATA	11	1135E	1220	1135	N14	E17	.335	9503	12.8	45D	-N			1135	1.39	1.48		190	F
CATA	11	1135E	1140	1135	N06	E12	.210	9503	12.4	5D	-N			1135	.58	.60		170	
CAPS	11	1141E	1206D		N09	E18	.319	9503	12.8	25D	1F	3		1144	3.00	3.80		149	
CATA	11	1145	1155	1145	N06	E18	.310	9503	12.8	10	-N			1145	1.04	1.10		151	
6 STATIONS REPORTING GROUP 16484.					0 STATIONS OBSERVING AND NOT REPORTING.														
GRP16484	11	1736	1818	1748	N11	E21	.374	9503	13.3	42	-N				1.65				5 5 5 6
MCMA	11	1731	1930	1747	N10	E20	.354	9503	13.2	119	-B		C	1747	1.29	1.40			FW
HTPR	11	1732	1812D	1748	N12	E22	.394	9503	13.4	40D	-B		C	1748	1.65	1.80			KU
HUAN	11	1734	1830		N12	E21	.379	9503	13.3	56	-N	1	C	1747	1.13	1.14			E
CANR	11	1740	1811	1748	N10	E22	.385	9503	13.4	31	-N		C		1.50	1.70			E
BOUL	11	1742	1805D	1748	N12	E22	.394	9503	13.4	23D	1N		C		2.70	3.00			EK
16484	11	1734	1940	1759	N12	E22	.394	9503	13.4	126	*1B				3.44				3 3 2 6
SACP	11	1729	1940	1801	N13	E22	.400	9503	13.4	131	1B		C		3.88	3.89			
HTPR	11	1732E	1812D	1758	N12	E22	.394	9503	13.4	40D	1B		C	1758	2.99	3.30			
BOUL	11	1742	1805D	1758	N12	E22	.394	9503	13.4	23D	1N		C						EK
485 MCMA	11	2003	2010	2005	N13	W86	.997	9494	5.4	7	-N		C	2005					DH 2
GRP16488	11	2226	2332	2238	N13	W15	.299	9499	10.8	66	1N				3.17				2 2 2 2
SACP	11	2220	2332	2239	N13	W16	.313	9499	10.7	72	2B		C		5.51	5.44			
MANI	11	2232	2240D	2237	N13	W14	.285	9499	10.9	8D	-F	2		2237	.83	.81			
	11	2347	2350	NO FLARE PATROL															

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OBSERVATORY	OBSERVED UT DATE 1968 JULY	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
GRP16489	12	0000	0055	0013	N12	E10	.220	9503	12.8	55	1B				5.78				4 4 4 4
SACP	12	0000E	0035	0009	N12	E08	.195	9503	12.6	35D	2N		C		7.87	7.72			
MANI	12	0000E	0100	0010	N12	E10	.220	9503	12.8	60D	2B	2		0010	8.77	9.18			
HALE	12	0017E	0120		N13	E10	.231	9503	12.8	63D	1B	1	P	0017	2.27	2.30			
CRON	12	0019E	0046	0019E	N11	E11	.224	9503	12.8	27D	1N		C		4.20	4.20			BEL
GRP16499	12	1256	1350	1302	N11	W20	.359	9499	11.0	54	1N				3.34				10 8 8 14
MEUD	12	1232E	1354D		N11	W20	.359	9499	11.0	82D	1B			1306	4.64	4.80			UZ
HTPR	12	1249	1257D		N13	W24	.428	9499	10.7	8D	-N		C						
CAPE	12	1253	1320	1302	N12	W24	.423	9499	10.7	27	1N		C	1302	2.49	2.70			FH
CATA	12	1255	1345D	1300	N11	W21	.374	9499	11.0	50D	1B			1300	3.76	4.07		214	F
CAPS	12	1255E	1455D		N11	W20	.359	9499	11.0	120D	2N	3		1300	5.00	5.40		201	FIK
CAPS	12	1255E	1455D		N11	W20	.359	9499	11.0	120D	2N			1259					V
CANR	12	1257	1322	1304	N13	W22	.399	9499	10.9	25	-N		C		1.70	1.90			E
LOCA	12	1300E	1545	1300	N11	W18	.328	9499	11.2	165D	2N		V	1300	2.31	2.40			FHK
HOUT	12	1301	1315	1305	N11	W19	.343	9499	11.1	14	-N		C		1.50	1.70			E
CAPF	12	1308E	1500D		N11	W19	.343	9499	11.1	112D	2N		P	1313	5.29	5.38			H
ARCE	12	1311E	1337D		N14	W16	.320	9499	11.3	26D	3N		P	1311	13.08	13.80			B
12 STATIONS REPORTING GROUP 16500.					2 STATIONS OBSERVING AND NOT REPORTING.														
GRP16500	12	1341	1522	1415	N11	W21	.374	9499	11.0	101	2N				5.97				9 9 7 14
MCMA	12	1240	1540	1415	N12	W22	.394	9499	10.9	180	2B		C	1415	6.19	6.50			IKLU
HUAN	12	1254	1557		N11	W20	.359	9499	11.0	183	2N	2	C	1407	5.41	5.40			K
CAPS	12	1255E	1455D		N11	W20	.359	9499	11.0	120D	2N			1410	8.10				W
CAPE	12	1336	1433D	1417	N12	W20	.364	9499	11.1	57D	2N		P	1417	4.98	5.40			FH
SACP	12	1339E	1511D	1415	N11	W20	.359	9499	11.1	92D	2N		C		6.34	6.31			
SANM	12	1340E	1530D	1411	N10	W20	.354	9499	11.1	110D	2N		C	1411	8.74	9.23			J
SANM	12	1340	1530	1411	N10	W20	.354	9499	11.1	110	2N		C	1411	8.74	9.23			J
CANR	12	1348	1451	1409	N12	W19	.349	9499	11.2	63	1N		C						
CATA	12	1407	1615	1420	N13	W26	.457	9499	10.6	128	1N			1420	2.02	2.30		186	
ONDR	12	1418E	1506		N11	W18	.328	9499	11.2	48D	3F		V	1419			1.90		BH
16500	12	1346	1640	1359	N11	W19	.343	9499	11.1	174	*2N				5.42				5 5 5 13
LOCA	12	1300E	1545		N11	W18	.328	9499	11.2	165D	2N		V	1400	4.20	4.50			W
BOUL	12	1345	1430	1353	N12	W19	.349	9499	11.1	45	2N		C		6.00	7.20			EHIKL
BOUL	12	1345	1430	1400	N12	W19	.349	9499	11.1	45	2N		C						
HTPR	12	1348E	1630	1402	N11	W20	.359	9499	11.1	162D	2B		C	1402	4.95	5.30			UYZ
CANR	12	1348	1451	1400	N12	W19	.349	9499	11.2	63	1N		C		4.10	4.50			EK
CATA	12	1350E	1650D	1400	N10	W21	.369	9499	11.0	180D	2B			1400	7.83	8.44		251	I
	12	2353	0000	NO FLARE PATROL															
GRP16519	13	1611	1631	1618	N10	W17	.307	9503	12.4	20	-N				.91				4 4 4 7
HALE	13	1608	1627	1618	N11	W18	.327	9503	12.3	19	-N	1	C	1618	1.24	1.30			
MCMA	13	1611	1630	1615	N10	W16	.291	9503	12.5	19	-N		C	1615	.62	.70			E
SACP	13	1612	1641	1619	N10	W18	.322	9503	12.3	29	-N		C		1.02	1.01			
HUAN	13	1613	1627	1618	N10	W17	.307	9503	12.4	14	-B	2	C	1618	.75	.75			E
GRP16523	13	1821	1837	1825	S18	W05	.385	9505	13.4	16	-N				1.26				4 4 4 6
MCMA	13	1819	1844	1824	S18	W04	.382	9505	13.5	25	-N		C	1824	1.03	1.10			E
HALE	13	1821	1833	1824	S18	W05	.385	9505	13.4	12	-N	2	C	1824	1.65	1.80			
HUAN	13	1821	1840	1824	S18	W06	.389	9505	13.3	19	-N	2	C	1824	1.24	1.24			E
BOUL	13	1824	1831	1828U	S18	W06	.389	9505	13.3	7	-F		C		1.10	1.20			
GRP16531	14	0011	0111	0022	N10	W20	.353	9503	12.5	60	-F				1.10				3 3 3 4
SACP	14	0003	0019D	0019	N11	W22	.388	9503	12.4	16D	-F		C		.31	.31			
MANI	14	0019	0050	0024	N10	W19	.337	9503	12.6	31	-F	2		0024	1.29	1.36			
HALE	14	0025E	0132		N10	W20	.353	9503	12.5	67D	-N	2	P	0025	1.70	1.80			
532 CRON	14	0020	0030	0023	N12	W43	.685	9499	10.8	10	-N		C		1.60	1.80			4
GRP16535	14	0640	0725	0650	N11	W23	.403	9503	12.6	45	1N				.83				3 3 2 7
ISTA	14	0640	0725		N12	W23	.407	9503	12.6	45	2F								
CAPS	14	0644E	0707D		N09	W22	.380	9503	12.6	23D	-N	1		0645	.50	.60		175	CJ
CATA	14	0645E	0700D	0650	N11	W25	.433	9503	12.4	15D	-N			0650	1.16	1.30		195	
GRP16541	14	1031	1046	1032	N11	W27	.463	9503	12.4	15	-N				1.13				5 5 5 7
CANR	14	1029	1038	1031	N11	W29	.493	9503	12.3	9	-N		C		.90	1.10			
BUCA	14	1029	1055D		N12	W24	.422	9503	12.6	26D	-N		C	1033	.91	.90			
CAPE	14	1030	1035	1031	N11	W28	.478	9503	12.3	5	-F		C	1031	.92	1.10			V
CAPS	14	1032E	1048D		N10	W23	.399	9503	12.7	16D	1N	3		1035	2.50	2.70		199	CJ
CATA	14	1035	1055	1035	N09	W29	.488	9503	12.3	20	-B			1035	.40	.46		200	
GRP16547	14	1812	1846	1821	N11	E38	.619	9520	17.6	34	-N				1.36				4 3 3 4
SACP	14	1809	1852	1821	N12	E37	.607	9520	17.5	43	-N		C		1.02	1.12			
MCMA	14	1815	1855	1824	N10	E39	.631	9520	17.7	40	1N		C	1824	1.86	2.30			F
CANR	14	1816U	1830	1819	N10	E37	.604	9520	17.5	14D	-N		C		1.20	1.60			E
HUAN	14	1837	1847	1837	N11	E40	.645	9520	17.8	10	-F	1	C	1838	.50	.56			

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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
	JULY																		
	15	0251	0300	NO FLARE PATROL															
GRP16560	15	1513	1527	1517	S15	E89	1.000	9528	22.3	14	-N				.66				8 8 6 9
HTPR	15	1511	1522	1516	S15	E90	1.000	9528	22.4	11	-B		C	1516	.41				Y
SACP	15	1511	1531	1519	S14	E89	1.000	9528	22.3	20	1N		C		1.22				
MCMA	15	1512	1528	1517	S15	E90	1.000	9528	22.4	16	-B		C	1517					D
CAPS	15	1512E	1528D		S15	E88	1.000	9528	22.2	16D	-B	2		1521	.40			230	CH
HUAN	15	1514	1527		S14	E90	1.000	9528	22.4	13	-N	1	C	1518	.72				
LOCA	15	1515	1527	1518	S17	E86	.999	9528	22.1	12	1N		C	1518		2.50			A
CANR	15	1515	1526	1516	S16	E90	1.000	9528	22.4	11	-N		C		.40	1.60			
BOUL	15	1516	1523	1517	S16	E90	1.000	9528	22.4	7	1N		C		.80	3.20			
GRP16567	15	1920	1950	1934	S15	E86	.999	9528	22.3	30	1N				.93				4 3 2 5
HALE	15	1916	1953	1930	S14	E81	.991	9528	21.9	37	1B	2	C	1930	.93				
SACP	15	1919	1957	1942	S13	E85	.998	9528	22.2	38	1B		C		2.25				
HUAN	15	1923	1947		S14	E88	1.000	9528	22.4	24	1F	1	C	1931	.93				
MCMA	15	1925E	1950D	1930	S18	E88	1.000	9528	22.4	25D	1B		C	1930					
	15	2400	0001	NO FLARE PATROL															
GRP16570	16	0029	0054	0033	N08	W45	.705	9503	12.6	25	-N				.86				3 3 3 4
SACP	16	0027	0101	0033	N08	W45	.705	9503	12.6	34	-N		C		1.23	1.44			
HALE	16	0030	0050	0032	N07	W45	.705	9503	12.6	20	-N	1	C	0032	.57	.80			T
MANI	16	0031	0050	0033	N08	W45	.705	9503	12.6	19	-F	2		0033	.77	1.13			
GRP16572	16	0521	0542	0532	N12	W42	.672	9503	13.1	21	-N				.94				5 4 3 6
ONDR	16	0520E	0540		N10	W45	.707	9503	12.8	20D	-N		V	0522			2.00		DR
MANI	16	0521E	0547	0529	N12	W40	.646	9503	13.2	26D	-F	2		0529	.93	.94			
CRON	16	0521	0534	0530	N14	W41	.663	9503	13.1	13	-N		C		.70	1.00			
TACH	16	0522	0545	0528	N12	W42	.672	9503	13.1	23	-B		C	0528	1.19	1.60	2.40	90	DZ
CATA	16	0540E	0555	0540	N11	W41	.658	9503	13.2	15D	-N			0540	.98	1.35		186	B
GRP16582	16	1547	1557	1549	S16	W47	.775	9505	13.1	10	-N				.73				4 4 4 6
SACP	16	1546	1555	1549	S17	W46	.768	9505	13.2	9	-N		C		.71	.90			
HUAN	16	1546	1603	1549	S17	W47	.778	9505	13.1	17	-N	2	C	1549	.62	.79			
CANR	16	1546	1555	1548	S15	W48	.781	9505	13.1	9	-N		C		.90	1.40			
BOUL	16	1548	1553	1549	S16	W48	.784	9505	13.1	5	-N		C		.70	1.10			
GRP16590	16	2132	2204	2141	N12	W55	.818	9503	12.8	32	-N				.95				5 5 5 6
HUAN	16	2131	2152	2139	N11	W57	.837	9503	12.6	21	-N	2	C	2139	1.00	1.38			E
HALE	16	2132	2155	2138	N11	W57	.837	9503	12.6	23	-B	1	C	2138	.88	1.60			TJ
SACP	16	2133	2222	2146	N11	W53	.797	9503	12.9	49	-F		C		1.22	1.60			
BOUL	16	2137E	2144	2139U	N12	W57	.837	9503	12.6	7D	-N		C		.60	1.10			
MCMA	16	2143E	2225D		N14	W50	.768	9503	13.2	42D	-B		C	2149	1.03	1.60			EK
GRP16591	16	2149	2214	2153	N12	W49	.755	9503	13.2	25	-N				.78				3 3 3 5
HUAN	16	2147	2217		N13	W50	.767	9503	13.2	30	-N	1	C	2205	1.03	1.30			E
HALE	16	2149	2216	2151	N13	W50	.767	9503	13.2	27	-B	1	C	2151	.52	.80			TJEK
HOUT	16	2150	2208	2155	N11	W48	.743	9503	13.3	18	-N		C		.80	1.20			EL
5 STATIONS REPORTING GROUP 16600.					0 STATIONS OBSERVING AND NOT REPORTING.														
GRP16600	17	1002	1053	1007	N08	W62	.880	9503	12.8	51	-N				.51				4 4 4 5
HTPR	17	0958	1110	1005	N08	W62	.880	9503	12.8	72	-N		C	1005	.41	.90			E
CAPS	17	1001	1040D		N10	W62	.880	9503	12.8	39D	-N	2		1010	.80			165	H
CANR	17	1004	1036	1011	N08	W62	.880	9503	12.8	32	-N		C		.50	1.00			K
CATA	17	1005	1105	1005	N04	W61	.873	9503	12.8	60	-B			1005	.34	.79		229	
16600	17	1006	1050	1016	N08	W62	.880	9503	12.8	44	*-B				1.03				2 2 1 5
CANR	17	1004	1036	1016	N08	W62	.880	9503	12.8	32	-N		C						
UCCL	17	1008E	1050D		N07	W61	.872	9503	12.8	42D	1B		P	1020	1.03				
GRP16608	18	0110	0146	0119	N08	W71	.943	9503	12.7	36	-N				.70				3 3 3 3
SACP	18	0107	0158	0122	N07	W69	.931	9503	12.9	51	-N		C		.72	1.32			
CRON	18	0113	0145	0115	N08	W74	.959	9503	12.5	32	-N		C		.70	1.80			
MANI	18	0116E	0136		N08	W70	.937	9503	12.8	20D	-N	2		0117	.67	1.44			
610 CATA	18	0925	0945D	0940	N14	E78	.975	9530	24.2	20D	1N			0940	1.16			182	T 3
GRP16612	18	1149	1159	1152	N12	E78	.976	9530	24.3	10	-N				.47				5 5 5 6
MCMA	18	1148	1159	1151	N11	E77	.972	9530	24.3	11	-N		C	1151	.26	1.00			D
CANR	18	1148	1156	1151	N10	E78	.976	9530	24.3	8	-N		C		.30	1.00			
CATA	18	1150	1200	1155	N16	E77	.971	9530	24.3	10	-N			1155	.58			191	
HUAN	18	1151E	1202		N11	E80	.983	9530	24.5	11D	-F	1	C	1154	.21				D
CAPS	18	1153E	1159D		N12	E76	.968	9530	24.2	6D	-F	2		1153	1.00				C

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GRP16613	18	1213	1246	1235	N12	E78	.976	9530	24.4	33	-N				.81				4 4 3 5
CATA	18	1210	1245	1235	N15	E77	.971	9530	24.3	35	-B			1235	.69			214	
HUAN	18	1214	1244		N11	E80	.983	9530	24.5	30	-F	1	C	1233	.25				DK
MCMA	18	1214	1249	1235	N11	E77	.972	9530	24.3	35	-N		C						
MCMA	18	1214	1249	1216	N11	E77	.972	9530	24.3	35	-N		C	1216	.26	1.00			DK
CAPS	18	1233E	1246D		N12	E76	.968	9530	24.2	13D	1N	2		1235	1.50				C
GRP16616	18	1327	1337	1330	N11	E76	.968	9530	24.3	10	-N				.57				5 5 5 8
SACP	18	1325	1340	1331	N11	E74	.959	9530	24.1	15	-F		C		.52	1.08			
CANR	18	1326	1334	1329	N09	E77	.972	9530	24.3	8	-N		C		.70	2.00			
MCMA	18	1327	1340	1330	N10	E75	.963	9530	24.2	13	-B		C	1330	.41	1.60			E
HUAN	18	1329	1335		N10	E78	.976	9530	24.4	6	-F	1	C	1331	.45				
CATA	18	1330	1335	1330	N14	E75	.963	9530	24.2	5	-N			1330	.75			174	T
GRP16618	18	1451	1510	1453	N12	W10	.214	9520	17.9	19	-N				1.00				8 7 7 10
SACP	18	1447	1511	1452	N11	W10	.204	9520	17.9	24	-N		C		.92	.90			
CAPF	18	1449E	1509		N12	W10	.214	9520	17.9	20D	-N		P	1453	1.76	1.79			
HUAN	18	1450	1504	1452	N12	W10	.214	9520	17.9	14	-N	2	C	1452	.75	.75			E
CAPS	18	1451	1510D		N11	W08	.177	9520	18.0	19D	-B	3		1452	1.50	1.50		216	
HTPR	18	1455E	1510		N12	W10	.214	9520	17.9	15D	-N		C	1457	.83	.83			
CATA	18	1455	1520	1455	N10	W11	.211	9520	17.8	25	-B			1455	.80	.83		204	
MCMA	18	1456E	1505D		N13	W10	.224	9520	17.9	9D	-N		P	1456	.41	.40			E
MEUD	18	1519E	1526		N12	W11	.228	9520	17.8	7D	-F			1519	.52	.50			E
621 HUAN	18	1851	1902		N10	W85	.995	9503	12.4	11	-N	1	C	1854	.25				D 2
4 STATIONS REPORTING GROUP 16628. 3 STATIONS OBSERVING AND NOT REPORTING.																			
GRP16628	19	0839	0925	0844	N12	W88	.999	9503	12.8	46	-B				.76				2 2 2 7
HTPR	19	0839	0859D	0844	N14	W90	1.000	9503	12.6	20D	-B		C	0844	.52				
CAPS	19	0847E	0925D		N10	W85	.995	9503	13.0	38D	1N	3		0848	1.00			190	C
16628	19	0902	0910	0906	N13	W90	1.000	9503	12.6	8	#-N				.27				2 2 2 7
CATA	19	0900	0910	0905	N11	W90	1.000	9503	12.6	10	-N			0905	.23			178	
CRON	19	0903	0910	0906	N14	W90	1.000	9503	12.6	7	-N		C		.30	1.20			
GRP16631	19	1312	1345	1321	S14	E38	.670	9528	22.4	33	-N				1.15				8 8 8 9
HTPR	19	1308	1352D	1319	S16	E37	.670	9528	22.3	44D	1N		C	1319	1.75	2.70			
CAPE	19	1310	1400	1321	S14	E38	.670	9528	22.4	50	-N		C	1321	1.06	1.40			
CATA	19	1310	1340D	1320	S14	E34	.623	9528	22.1	30D	-N			1320	.17	.22		158	Z
MCMA	19	1312	1350	1320	S14	E36	.647	9528	22.3	38	-N		C	1320	.93	1.20			EH
SACP	19	1312	1351	1328	S15	E37	.664	9528	22.3	39	-N		C		.83	.93			
CAPS	19	1314E	1335D		S10	E40	.675	9528	22.6	21D	-B	3		1321	.60	.80		204	F
HUAN	19	1314	1340		S14	E38	.670	9528	22.4	26	-N	1	C	1323	.80	.93			E
CATA	19	1315	1340D	1320	S11	E38	.655	9528	22.4	25D	1N			1320	2.32	3.03		197	
CANR	19	1317	1335	1320	S15	E38	.675	9528	22.4	18	-N		C		.90	1.30			E
GRP16641	20	0657	0727	0700	N11	W33	.548	9520	17.8	30	-N				.92				5 5 5 6
HTPR	20	0653	0730	0658	N12	W32	.536	9520	17.9	37	-N		C	0658	.72	.90			
MITK	20	0657	0733	0700	N12	W33	.551	9520	17.8	36	-N		C	0700	1.44	1.70			E
CRON	20	0658	0718	0703	N10	W34	.561	9520	17.7	20	-N		C		.80	1.00			E
CATA	20	0700	0730	0700	N08	W34	.558	9520	17.7	30	-B			0700	1.04	1.27		204	
CAPS	20	0701E	0726		N12	W30	.508	9520	18.0	25D	-F	3		0705	.60	.70		157	F
GRP16643	20	0814	0910	0825	N16	E54	.810	9530	24.4	56	2N				4.13				7 5 5 8
CAPS	20	0810E	0907		N12	E55	.817	9530	24.5	57D	2N	3		0826	5.00	8.50		216	F
HTPR	20	0810	0925	0826	N17	E54	.811	9530	24.4	75	2N		C	0826	3.51	6.00			U
CATA	20	0810	1000	0825	N24	E54	.822	9530	24.4	110	2B			0825	4.34	7.78		272	
MEUD	20	0812	0900		N15	E55	.819	9530	24.5	48	1N			0730	2.89	4.80			F
CAPF	20	0820E	0915D		N11	E53	.797	9530	24.3	55D	2N		P	0827	5.88	9.69			H
CANR	20	0820	0851	0824	N16	E55	.820	9530	24.5	31	1N		C		1.90	3.20			
LOCA	20	0840E	0900D		N13	E53	.798	9530	24.3	20D	1N		S						
GRP16645	20	1009	1052	1019	N17	E46	.727	9530	23.9	43	-N				1.38				4 4 4 6
HTPR	20	1008	1055	1017	N18	E46	.729	9530	23.9	47	-N		C	1017	.52	.70			E
CATA	20	1010	1055	1020	N19	E44	.709	9530	23.7	45	-N			1020	.58	.82		166	
MEUD	20	1014	1027		N20	E47	.745	9530	24.0	13	-F			0918	.31	.40			C
CAPF	20	1015E	1045		N13	E48	.744	9530	24.0	30D	1N		P	1020	2.94	5.14			
CATA	20	1015	1055	1020	N23	E46	.743	9530	23.9	40	-N			1020	.69	1.06		195	
GRP16665	21	1053	1105	1056	N10	W48	.741	9520	17.9	12	-N				.73				3 3 3 6
MEUD	21	1053	1105	1057	N12	W47	.731	9520	17.9	12	-F			1057	.52	.80			D
CAPS	21	1054E	1105D		N09	W49	.752	9520	17.8	11D	-N	3		1057	1.20	1.70		182	C
CATA	21	1055E	1105	1055	N08	W49	.752	9520	17.8	10D	-N			1055	.46	.72		195	

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GRP16671	21	1332	1353	1338	N11	W49	.753	9520	17.9	21	-N				1.09				9 9 9 9
SACP	21	1331	1401	1339	N10	W50	.764	9520	17.8	30	-F		C		1.42	1.79			
LOCA	21	1331	1354	1336	N11	W48	.742	9520	18.0	23	-N		V	1336	1.05	1.60			
MCMA	21	1332	1353	1337	N10	W50	.764	9520	17.8	21	1N		C	1337	1.29	2.00			E
CAPS	21	1332	1354		N10	W48	.741	9520	18.0	22	-B			1338	1.70	2.40			W
CAPS	21	1332	1354		N10	W48	.741	9520	18.0	22	-B	2		1337	1.30	1.80		194	
CAPE	21	1333	1356	1338	N11	W51	.775	9520	17.7	23	-N		C	1338	1.29	2.00			
HTPR	21	1333	1350	1335	N12	W48	.743	9520	18.0	17	-N		C	1335	.41	.70			
MEUD	21	1334	1346	1338	N12	W49	.754	9520	17.9	12	-N			1338	.52	.80			
HUAN	21	1336E	1336D		N12	W51	.776	9520	17.7		-F	1	P	1336	.31	.39			D
CATA	21	1340E	1350D	1340	N07	W50	.763	9520	17.8	10D	1N			1340	1.79	2.91		182	C
	21	2151	2202	NO FLARE PATROL															
GRP16677	22	0459	0530	0506	N14	W89	.999	9533	15.5	31	-F				.71				2 2 2 5
CRON	22	0459	0524	0503	N14	W90	1.000	9533	15.5	25	-F		C		.50	2.00			
TACH	22	0459	0535	0508	N14	W87	.997	9533	15.7	36	1N		C	0508	.91		4.00	60	J
GRP16695	23	0106	0113	0107	S15	E13	.404	9534	24.0	7	-B				1.19				3 3 3 5
HALE	23	0105	0116	0107	S14	E12	.382	9534	23.9	11	-B	1	C	0107	.62	.70			
VORO	23	0106	0114	0107	S15	E14	.413	9534	24.1	8	-B		C	0107	1.82	1.98		93	DK
MITK	23	0107E	0110	0108	S15	E13	.404	9534	24.0	3D	-N		C	0108	1.13	1.20			
GRP16705	23	1311	1421	1320	S17	W32	.623	9524	21.1	70	-N				1.44				3 3 3 8
MCMA	23	1310	1421	1320	S17	W33	.634	9524	21.1	71	-N		C	1320	.83	1.00			E
HUAN	23	1311	1344D		S17	W32	.623	9524	21.1	33D	-N	1	C	1326	.50	.55			ET
CAPS	23	1327E	1358D		S16	W31	.605	9524	21.2	31D	1F	2		1331	3.00	3.60		153	CHJ
	23	2400	0003	NO FLARE PATROL															
GRP16727	24	1609	1644	1620	S16	W08	.384	9534	24.1	35	-N				.93				4 4 4 8
SACP	24	1605	1640D	1624	S15	W06	.358	9534	24.2	35D	-N		C		.81	.81			
HTPR	24	1608	1700	1616	S16	W08	.384	9534	24.1	52	-N		C	1616	.83	.90			
HUAN	24	1613	1631	1617	S16	W08	.384	9534	24.1	18	-N	2	C	1617	.50	.50			E
CATA	24	1622E	1630D	1622	S16	W08	.384	9534	24.1	8D	-B			1622	1.56	1.70		229	
	24	2359	0001	NO FLARE PATROL															
GRP16744	25	1219	1254	1225	S17	W19	.486	9534	24.1	35	-N				.89				4 3 3 7
MCMA	25	1213	1253	1225	S17	W20	.496	9534	24.0	40	-N		C	1225	1.29	1.50			EK
HTPR	25	1220	1250	1225	S16	W18	.465	9534	24.2	30	-F		C	1225	.52	.60			
CATA	25	1225	1300	1225	S18	W20	.507	9534	24.0	35	-N			1225	.87	1.00		195	
MEUD	25	1245	1246	1245	S17	W22	.516	9534	23.9	1	-F								
GRP16750	25	1905	1932	(1915)	S22	W58	.890	9524	21.4	27	1F				1.27				2 2 2 3
MCMA	25	1902	1932		S22	W58	.890	9524	21.4	30	1N		C	1915	1.03	2.30			E
HUAN	25	1908	1922D		S21	W58	.888	9524	21.4	14D	1F	1	P	1915	1.50	2.30			E
	25	1932	1946	NO FLARE PATROL															
	25	1957	2011	NO FLARE PATROL															
	25	2018	2022	NO FLARE PATROL															
	25	2030	2043	NO FLARE PATROL															
751 MCMA	25	2103	2120		S21	W66	.938	9524	20.9	17	-N		C	2112	.41	1.20			EH 1
752 CRON	26	0143	0147	0145	S22	W80	.992	9524	20.1	4	-N		C		.50	1.50			2
GRP16757	26	0818	0825	0819	S21	W75	.978	9524	20.7	7	-N				.59				4 4 4 8
HTPR	26	0815	0822	0818	S22	W70	.960	9524	21.1	7	-N		C	0818	.83				
CRON	26	0819	0823	0820	S22	W80	.992	9524	20.3	4	-N		C		.50	1.50			
ARCE	26	0819	0824D		S17	W81	.993	9524	20.3	5D	-N		C	0819	.38	1.20			
BUCA	26	0820E	0830D		S21	W68	.949	9524	21.2	10D	-F		C	0821	.65				
GRP16764	26	1503	1522	1510	N06	W40	.640	9530	23.6	19	-N				1.09				8 8 8 9
LOCA	26	1458	1520	1508	N06	W36	.585	9530	23.9	22	-N		V	1508	.85	1.10			H
SACP	26	1500	1536	1511	N06	W40	.640	9530	23.6	36	-F		C		.81	.91			
HTPR	26	1500	1518	1510	N07	W42	.666	9530	23.5	18	-N		C	1510	.83	1.00			H
MCMA	26	1502	1522D	1511	N07	W40	.640	9530	23.6	20D	-B		C	1511	1.29	1.70			EHV
HUAN	26	1503	1519	1511	N07	W40	.640	9530	23.6	16	-B	2	C	1511	1.00	1.11			EH
CAPS	26	1504E	1519D		N08	W39	.627	9530	23.7	15D	-N	3		1507	1.00	1.20		172	CH
CATA	26	1505	1525	1510	N03	W40	.642	9530	23.6	20	1B			1510	1.73	2.27		229	HZ
HOUT	26	1510	1520	1512	N06	W41	.653	9530	23.6	10	-N		C		1.20	1.60			H

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GRP16769	26	1934	1947	1937	N07	W39	.627	9530	23.9	13	-N				1.02				5 5 5 5
SACP	26	1933	2005	1937	N07	W39	.627	9530	23.9	32	-N		C		1.22	1.35			
MCMA	26	1934	1942	1936	N07	W39	.627	9530	23.9	8	-N		C	1936	.72	.90			EH
HUAN	26	1934	1941		N07	W39	.627	9530	23.9	7	-N	1	P	1936	.95	1.04			
HALE	26	1935	1942	1937	N08	W39	.627	9530	23.9	7	-N	1	C	1937	.72	.90			
HOUT	26	1936	1944	1938	N08	W40	.640	9530	23.8	8	-N		C		1.50	2.00			H
4 STATIONS REPORTING GROUP 16770.							1 STATIONS OBSERVING AND NOT REPORTING.												
GRP16770	26	2024	2149	2033	N14	E54	.807	9545	30.9	85	-N				.58				3 3 3 5
SACP	26	2022	2149	2036	N16	E54	.809	9545	30.9	87	-F		C		1.23	1.64			
HALE	26	2026	2116D	2029	N14	E53	.797	9545	30.8	50D	-B	2	P	2029	.21	.30			
HUAN	26	2029E	2029D		N12	E56	.826	9545	31.1		-N	1	P	2029	.31	.42			D
16770	26	2027	2153	(2100)	N13	E56	.826	9545	31.1	86	*1B				1.13				2 1 1 4
MCMA	26	2027	2153		N13	E56	.826	9545	31.1	86	1B		C	2100	1.13	2.10			EK
HUAN	26	2116E	2145		N13	E56	.826	9545	31.1	29D	-N	1	P	2116	1.03	1.40			
GRP16773	27	0309	0323	0313	S17	W73	.968	9528	21.7	14	1F				.80				2 2 2 5
TACH	27	0309	0320	0312	S17	W71	.959	9528	21.8	11	1N		C	0312	.93	2.40	2.60	75	D
SIBE	27	0309	0325	0314	S16	W74	.971	9528	21.6	16	1F		C	0314	.66	2.75		58	D
GRP16780	27	0636	0655	0638	S15	W46	.765	9534	23.8	19	-N				1.27				3 3 3 8
HTPR	27	0635	0700	0637	S15	W47	.775	9534	23.7	25	-N		C	0637	.72	1.10			
CRON	27	0637	0650	0639	S15	W46	.765	9534	23.8	13	1N		C		1.70	2.60			E
CAPS	27	0637	0647D		S15	W45	.755	9534	23.9	10D	-B	3		0641	1.40	2.00		201	J
4 STATIONS REPORTING GROUP 16781.							5 STATIONS OBSERVING AND NOT REPORTING.												
GRP16781	27	0636	0750	0659	S17	W43	.743	9534	24.1	74	1N				2.56				2 2 2 9
BUCA	27	0636	0750	0659	S17	W43	.743	9534	24.0	74	1B		C	0659	2.12	3.10			
CAPS	27	0657E	0705D		S16	W43	.739	9534	24.1	8D	1F	3		0700	3.00	4.20		155	CIJ
16781	27	0712	0736	0712	S16	W46	.769	9534	23.9	24	*-F				.88				2 2 2 8
HTPR	27	0712	0736	0712	S15	W47	.775	9534	23.8	24	-F		C	0712	.83	1.20			
MANI	27	0716E	0720D		S17	W45	.763	9534	23.9	4D	-F	2		0717	.93	1.43			
10 STATIONS REPORTING GROUP 16797.							0 STATIONS OBSERVING AND NOT REPORTING.												
GRP16797	28	0719	0750	0723	S16	W59	.884	9534	23.9	31	1B				1.61				7 6 5 9
ISTA	28	0700E	0745		S14	W58	.872	9534	23.9	45D	-B								
BUCA	28	0715	0815	0725	S15	W56	.858	9534	24.1	60	1B		C	0725	1.80	3.40			
CAPS	28	0719	0755		S17	W57	.871	9534	24.0	36	1B	2		0721	2.50	5.00		230	
CANR	28	0719	0727	0720	S16	W60	.892	9534	23.8	8	-N		C		.70	1.40			
HTPR	28	0720	0800	0724	S16	W60	.892	9534	23.8	40	1B		C	0724	1.44	2.80			
CRON	28	0720	0740	0721	S14	W59	.880	9534	23.9	20	1B		C		1.60	3.20			E
MANI	28	0730E	0730D		S17	W62	.908	9534	23.7		1N	2			1.03	2.05			
16797	28	0702	0745	0736	S17	W55	.855	9534	24.2	43	*1N				3.11				4 4 3 9
ISTA	28	0700E	0745		S16	W53	.835	9534	24.3	45D	-B								
WEND	28	0704	0749D		S17	W55	.855	9534	24.2	45D	2N		V		6.19				
CATA	28	0720	0830D	0735	S16	W56	.861	9534	24.1	70D	1B			0735	2.02	4.19		234	
ZURI	28	0735E	0740	0736	S17	W56	.863	9534	24.1	5D	-F		P	0736	1.11	2.20			
5 STATIONS REPORTING GROUP 16798.							7 STATIONS OBSERVING AND NOT REPORTING.												
GRP16798	28	0916	0933	0921	N13	E36	.592	9545	31.1	17	1F				2.58				4 4 3 12
CAPS	28	0843E	0937D		N11	E35	.574	9545	31.0	54D	1F			0921					KV
CAPF	28	0910E	0942		N11	E36	.588	9545	31.1	32D	2F		P	0926	4.70	5.93			
ZURI	28	0919	0926	0921	N15	E37	.610	9545	31.2	7	1F		C	0921	1.74	2.20			
CRON	28	0920	0927	0921	N15	E34	.570	9545	30.9	7	-N		C		1.30	1.60			E
16798	28	0846	0940	(0900)	N11	E36	.588	9545	31.1	54	*-F				1.57				2 2 2 12
CAPS	28	0843E	0937D		N11	E35	.574	9545	31.0	54D	1F	3		0901	2.50	3.00		155	CFI
ARCE	28	0848	0940D		N10	E36	.587	9545	31.1	52D	-F		C	0858	.64	.80			
GRP16805	28	1921	2004	1927	N17	E31	.537	9545	31.1	43	-N				1.66				4 4 4 5
HALE	28	1917	1953	1926	N16	E30	.519	9545	31.1	36	-N	2	C	1926	1.34	1.60			
HUAN	28	1918	1945D		N18	E31	.541	9545	31.1	27D	1F	1	C	1926	2.37	2.50			E
MCMA	28	1923	2015		N18	E32	.554	9545	31.2	52	-N		P	1926	1.03	1.20			E
HOUT	28	1924	1932D	1928U	N15	E32	.542	9545	31.2	8D	1N		C		1.90	2.10			E
	28	2140	2158	NO FLARE PATROL															
	28	2214	2215	NO FLARE PATROL															
	28	2232	2255	NO FLARE PATROL															

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GRP16821	29	1140	1322	1205	N08	E22	.374	9545	31.1	102	1N				2.44				9 8 8 12
MCMA	29	1127	1315	1145	N07	E17	.292	9545	30.8	108	-B		C	1145	.93	1.00			F
WEND	29	1135	1205D		N09	E24	.408	9545	31.3	30D	1F		V		5.16				
CAPF	29	1140	1320D		N06	E23	.389	9545	31.2	100D	1N		P	1145	3.53	3.93			
CATA	29	1140E	1330	1152	N08	E21	.358	9545	31.1	110D	1B			1152	2.20	2.38		251	W
CAPS	29	1141	1205		N09	E22	.376	9545	31.1	24	1B	2		1146	2.00	2.20		201	
HUAN	29	1143E	1205		N08	E22	.374	9545	31.1	22D	-B	1	C	1146	1.34	1.34			T
CANR	29	1143	1155	1145	N07	E22	.373	9545	31.1	12	1N		C		1.90	2.10			
AROS	29	1145E	1310		N09	E16	.280	9545	30.7	85D	1N		P	1200	2.17	2.20			
SACP	29	1234E	1331	1258	N08	E20	.342	9545	31.0	57D	-N		C		1.23	1.22			
GRP16826	29	1436	1510	1446	N07	E18	.308	9545	31.0	34	-N				.91				9 8 7 13
CAPS	29	1432	1527D		N08	E20	.342	9545	31.1	55D	-F	3		1442	.60	.70		157	
SACP	29	1434	1526	1448	N07	E19	.325	9545	31.0	52	-N		C		.41	.40			
MCMA	29	1436	1458	1440	N07	E17	.292	9545	30.9	22	-N		C	1440	.41	.40			E
LOCA	29	1436	1530	1450	N07	E21	.357	9545	31.2	54	1N		V	1450	2.10	2.20			
SANM	29	1438	1504	1449	N06	E18	.308	9545	31.0	26	-F		C	1449	.81	.85			E
BOUL	29	1438	1500	1442	N07	E18	.308	9545	31.0	22	-N		C		1.70	1.90			EK
BOUL	29	1438	1500	1449	N07	E18	.308	9545	31.0	22	-N		C						
HUAN	29	1443E	1456		N07	E18	.308	9545	31.0	13D	-F	2	C	1446	.31	.31			D
ONDR	29	1445E	1500		N06	E14	.241	9545	30.7	15D	-N		V	1452			2.10		CHJ
CATA	29	1455E	1525D	1515	N08	E18	.310	9545	31.0	30D	-B			1515	.58	.61		234	
8 STATIONS REPORTING GROUP 16828. 2 STATIONS OBSERVING AND NOT REPORTING.																			
GRP16828	29	1535	1642	1555	N08	E20	.342	9545	31.1	67	1F				3.43				5 4 4 10
ONDR	29	1529E	1546		N06	E14	.241	9545	30.7	17D	1N		V	1530			2.10		CJ
CAPS	29	1532	1608D		N08	E19	.326	9545	31.1	36D	1N	3		1548	2.50	2.80		171	I
LOCA	29	1532	1648	1555	N07	E19	.325	9545	31.1	76	2N		V	1555	5.04	5.30			
WEND	29	1535	1641		N09	E23	.392	9545	31.4	66	1F		V		5.16				
MCMA	29	1539	1637		N07	E17	.292	9545	30.9	58	-F		C	1546	1.03	1.10			E
16828	29	1553	1637	1613	N08	E17	.293	9545	30.9	44	*-N				1.07				3 3 3 12
SACP	29	1552	1642	1613	N09	E16	.280	9545	30.9	50	-N		C		.61	.60			
HUAN	29	1554	1632		N09	E16	.280	9545	30.9	38	-N	2	C	1609	.50	.50			E
SANM	29	1558E	1605D		N06	E18	.308	9545	31.0	7D	1F		P	1602	2.10	2.19			U
	29	2358	0000	NO FLARE PATROL															
GRP16837	30	0324	0346	0331	N21	E82	.986	9557	5.3	22	-N				.55				3 3 3 5
HALE	30	0317	0343	0331	N24	E80	.980	9557	5.1	26	-N	1	C	0331	.31				
TACH	30	0326	0355	0330	N18	E85	.994	9557	5.5	29	1N		C	0330	.83		5.20	84	DJY
MANI	30	0328	0340	0332	N21	E80	.981	9557	5.1	12	-B	2		0332	.52	1.32			
GRP16840	30	0509	0527	0518	N22	E80	.980	9557	5.2	18	-B				.46				2 2 2 5
MANI	30	0500	0531	0517	N21	E80	.981	9557	5.2	31	-B	2		0517	.52	1.30			
MANI	30	0500	0531	0504	N21	E80	.981	9557	5.2	31	-F	2		0504	.21	.52			
CRON	30	0518	0523	0519	N23	E80	.980	9557	5.2	5	-B		C		.40	1.20			
GRP16847	30	0843	0901	0848	N09	W90	1.000	9530	23.6	18	-N				.41				3 3 2 12
ARCE	30	0840E	0905D		N12	W90	1.000	9530	23.6	25D	-B		C	0851	.35	2.00			
CAPE	30	0844	0902	0848	N08	W90	1.000	9530	23.6	18	-N		C	0848	.46				
HTPR	30	0845	0855		N07	W90	1.000	9530	23.6	10	-F		C						
GRP16856	30	1518	1539	1522	N12	E03	.122	9545	30.9	21	-N				1.47				7 7 7 9
SACP	30	1514	1541	1520	N14	E02	.150	9545	30.8	27	-N		C		1.23	1.20			
BOUL	30	1518	1534	1521	N14	E04	.161	9545	30.9	16	1N		C		3.60	3.60			E
HUAN	30	1518	1538	1522	N13	E02	.133	9545	30.8	20	-N	2	C	1522	.88	.88			E
SANM	30	1518	1529	1521	N13	E03	.138	9545	30.9	11	-F		C	1521	1.30	1.31			E
CAPS	30	1518	1533D		N05	E03	.053	9545	30.9	15D	-N	3		1521	1.50	1.50		160	
MCMA	30	1520E	1600D		N13	E03	.138	9545	30.9	40D	-N		P	1522	.62	.60			EH
CATA	30	1520	1535D	1525	N16	E03	.187	9545	30.9	15D	-B			1525	1.16	1.18		226	
SACP	30	1544	1550	1546	N08	E05	.096	9545	31.0	6	-N		C		.61	.60			
CAPS	30	1551E	1600D		N05	E05	.087	9545	31.0	9D	-F	3		1557	1.20	1.20		153	C
GRP16858	30	1743	1813	1750	N07	E04	.073	9545	31.0	30	-N				1.68				3 3 3 5
SACP	30	1742	1831	1754	N07	E04	.073	9545	31.0	49	-N		C		.81	.81			
WEND	30	1742	1802		N07	E05	.090	9545	31.1	20	1F		V		3.09				
HUAN	30	1744	1806D	1746	N08	E03	.066	9545	31.0	22D	-N	2	C	1746	1.13	1.14			E
GRP16860	30	2028	2126	2032	N07	W01	.030	9545	30.8	58	1B				3.26				4 4 4 4
HOUT	30	2024E	2115	2029	N07	E00	.024	9545	30.9	51D	1N		C		2.10	2.30			E
MCMA	30	2029	2136D	2031	N07	E00	.024	9545	30.9	67D	1B		C	2031	2.06	2.10			EL
HUAN	30	2029	2127	2032	N08	W01	.045	9545	30.8	58	1B	1	C	2032	3.15	3.15			
SACP	30	2029	2240	2034	N07	W01	.030	9545	30.8	131	2N		C		5.71	5.68			

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OBSERVATORY	OBSERVED UT DATE 1968 JULY	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
GRP16865	31	0714	0735	0718	N09	W08	.149	9545	30.7	21	-N				.98				8 7 6 9
CAPE	31	0712	0737	0718	N09	W09	.165	9545	30.6	25	-F		C	0718	1.38	1.40			H
BUCA	31	0714	0729D		N09	W08	.149	9545	30.7	15D	-N		P	0717	1.55	1.60			
ISTA	31	0714	0741	0716	N08	W04	.080	9545	31.0	27	-N								
MANI	31	0714	0720D	0718	N09	W08	.149	9545	30.7	6D	-F	2		0718	.46	.47			
HTPR	31	0715	0735	0719	N08	W08	.144	9545	30.7	20	-F		C	0719	.72	.73			
CAPS	31	0715E	0732D		N09	W08	.149	9545	30.7	17D	-N	2		0719	.60	.60		182	H
CAPF	31	0718E	0732		N09	W08	.149	9545	30.7	14D	-N		P	0719	1.18	1.20			
CATA	31	0740	0750D	0745	N08	W05	.095	9545	30.9	10D	-N			0745	.87	.87		182	
GRP16873	31	1611	1652	1619	N26	E60	.871	9557	5.2	41	-N				.62				2 2 2 5
SACP	31	1608	1713	1617	N24	E59	.861	9557	5.1	65	-N		C		1.02	1.49			
HTPR	31	1614	1630	1620	N28	E60	.874	9557	5.2	16	-N		C	1620	.21	.40			
GRP16874	31	1719	1735	1724	N27	E59	.865	9557	5.1	16	-N				.72				2 2 2 5
SACP	31	1717	1735	1724	N25	E58	.854	9557	5.1	18	-N		C		.71	1.04			
HTPR	31	1721	1725D		N28	E60	.874	9557	5.2	4D	-N		C	1725	.72	1.30			

"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.

Note:
A line of explantion has been added before each flare event having more than one maxima. The total number of stations reporting some part of the event is given. The number of stations observing at the time of the principal maximum but not reporting the event is given in the second statement. 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. GRP numbers may appear several times in order to indicate secondary maxima. An asterisk beside an importance indicates a secondary maximum. The word "GRP" has also been omitted to aid in pointing to this condition.
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 appear to the left of the station code.

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OBSERVATORY	OBSERVED UT DATE 1968 JULY	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
304 HALE	01	0405	0442	0417	S10	W78	.981	9474	25.3	37	-N	1	C	0417	.52				5
305 CRON	01	0450	0457	0452	N10	W60	.866	9473	26.7	7	-F		C		.70	1.30			5
GRP16306	01	0634	0657	(0644)	S13	W84	.996	9474	25.0	23	-F				.54				2 2 2 8
BUCA	01	0630E	0702D		S10	W80	.987	9474	25.3	32D	-F		C	0645	.55				D
MANI	01	0638	0651		S15	W88	1.000	9474	24.7	13	-F	2		0642	.52	1.60			
GRP16307	01	0650	0719	(0654)	N30	W41	.735	9476	28.2	29	-F				.86				3 2 2 9
BUCA	01	0648	0730D		N31	W40	.732	9476	28.3	42D	-F		C	0654	1.10	1.60			
MEUD	01	0652	0705		N30	W42	.744	9476	28.1	13	-F			0654	.62	.90			E
ISTA	01	0700E	0721D		N29	W42	.739	9476	28.1	21D	-N								
GRP16308	01	0753	0825	(0757)	S13	W79	.985	9474	25.4	32	1N				1.97				3 2 2 13
CAPF	01	0753E	0825D		S13	W80	.987	9474	25.3	32D	2N		P	0757	2.94				HL
CAPS	01	0754E	0810D		S13	W78	.982	9474	25.5	16D	-N	3		0756	1.00			170	FJ
ARCE	01	0815E	0815D		S17	W77	.980	9474	25.6		-F		P	0815	.20	.60			
310 CATA	01	1005	1020	1005	S19	W54	.842	9475	27.4	15	-N			1005	.48	.92		150	6
311 CAPS	01	1041E	1058		N28	W40	.715	9476	28.4	17D	-N	3		1044	1.00	1.40		182	CF 8
312 HUAN	01	1309	1316	1311	S14	W61	.889	9486	27.0	7	-F	2	C	1311	.37	.59			E 9
GRP16313	01	1332	1344	1335	N31	W47	.793	9476	28.0	12	-N				.49				2 2 2 9
CATA	01	1330	1345D	1335	N31	W47	.793	9476	28.0	15D	-N			1335	.52	.85		190	
HUAN	01	1333	1343		N30	W47	.789	9476	28.0	10	-N	2	C	1336	.45	.58			E
314 SACP	01	1345	1404	1353	N10	W26	.451	9497	29.6	19	-F		C		.21	.21			10
GRP16315	01	1643	1656	1650	S18	W83	.995	9474	25.5	13	-F				.25				2 2 1 10
HUAN	01	1643	1656		S17	W80	.988	9474	25.7	13	-F	1	C	1646	.25				D
MCMA	01	1643E	1654D	1650	S18	W85	.998	9474	25.3	11D	-F		C	1650					D
316 HUAN	01	1710	1721		N28	W48	.790	9476	28.1	11	-F	2	C	1716	.25	.33			D 8
GRP16317	01	1744	1801	1747	N08	W69	.932	9473	26.6	17	-N				.41				4 4 4 7
MEUD	01	1744	1757		N10	W66	.913	9473	26.8	13	-F			1747	.31				D
HUAN	01	1744	1806	1746	N07	W68	.926	9473	26.6	22	-N	2	C	1746	.31				E
MCMA	01	1744	1805	1746	N06	W68	.926	9473	26.6	21	-N		C	1746	.52	1.40			E
HOUT	01	1745	1756	1748	N08	W74	.960	9473	26.2	11	-N		C		.50	1.10			
318 HOUT	01	1756	1807	1759	S11	W90	1.000	9474	25.0	11	-N		C		.40	1.60			7
319 MCMA	01	1813	1822	1815	N06	W68	.926	9473	26.7	9	-N		C	1815	.62	1.70			E 7
GRP16320	01	1909	1927	1913	S15	W65	.919	9486	26.9	18	-F				.36				3 3 3 5
HALE	01	1907	1936	1914	S15	W65	.919	9486	26.9	29	-N	2	C	1914	.41				
HUAN	01	1909	1920		S14	W65	.918	9486	26.9	11	-F	1	C	1912	.25				D
MCMA	01	1910	1924	1912	S15	W64	.912	9486	27.0	14	-F		C	1912	.41	1.00			E
321 SACP	01	2250	2303	2257	N31	W47	.793	9476	28.4	13	-F		C		.51	.66			3
323 TACH	02	0406	0421	0407	S13	E44	.725	9493	5.5	15	-N		C	0407	.64	.90		56	D 3
326 ARCE	02	0810E	0850D		N14	W78	.977	9473	26.5	40D	1N		C	0810	1.06	3.10			8
GRP16327	02	1157	1220	1201	S17	W90	1.000	9474	25.7	23	-N								2 2 0 7
CAPS	02	1156E	1225		S17	W90	1.000	9474	25.7	29D	1N	3							BC
MCMA	02	1158	1215	1201	S17	W90	1.000	9474	25.7	17	-N		C	1201					
GRP16328	02	1644	1655	1647	N31	W61	.897	9476	28.1	11	-N				.45				4 4 4 8
MCMA	02	1643	1654	1645	N31	W61	.897	9476	28.1	11	-N		C	1645	.36	.70			D
HOUT	02	1644	1652	1648	N31	W62	.904	9476	28.0	8	-N		C		.80	1.70			
HUAN	02	1644E	1659		N30	W60	.889	9476	28.2	15D	-N	2	C	1646	.31	.47			D
MEUD	02	1645E	1646D		N30	W61	.895	9476	28.1	1D	-F			1645	.31	.70			
329 MANI	03	0157	0224	0203	N30	W60	.888	9476	28.6	27	-N	2		0203	.41	.99			2
330 MANI	03	0329	0342	0335	N30	W61	.895	9476	28.6	13	-N	2		0335	.41	.80			3
331 CRON	03	0443	0449	0446	N31	W69	.942	9476	28.0	6	-N		C		.70	1.60			4
333 CANR	03	1034	1044	1036	N29	W74	.964	9476	27.9	10	-N		C		.40	1.10			6

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OBSERVATORY	OBSERVED UT DATE 1968 JULY	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
GRP16334	03	1319	1327	1325	N29	W68	.936	9476	28.5	8	-F				.50				3 3 2 8
HUAN	03	1319	1323		N30	W67	.931	9476	28.5	4	-F	2	P	1322	.25				D
MCMA	03	1319	1327	1325	N30	W65	.920	9476	28.7	8	-F		C	1325					D
CATA	03	1320	1331	1325	N27	W65	.916	9476	28.7	11	-N			1325	.75			178	H
MCMA	03	1331	1350	1336	N29	W78	.978	9476	27.7	19	-F		C	1336					D
335 CATA	03	1430E	1530	1445	N25	W78	.978	9476	27.8	60D	1N			1445	1.73			174	10
GRP16336	03	1535	1548	1535	N25	W76	.970	9476	27.9	13	-F				.58				2 2 1 12
CATA	03	1535	1550D	1535	N24	W80	.984	9476	27.6	15D	-F			1535	.58			141	
ONDR	03	1536E	1546		N26	W72	.954	9476	28.3	10D	-F		V	1537			1.80		CJ
GRP16337	03	1548	1612	1552	N27	W77	.974	9476	27.9	24	-F				.80				2 2 1 9
CANR	03	1548U	1612	1552	N28	W81	.987	9476	27.6	24D	1F		C		.80	2.70			K
CANR	03	1548U	1612	1559	N28	W81	.987	9476	27.6	24D	1F		C						
ONDR	03	1555E	1603D		N26	W72	.954	9476	28.3	8D	-N		V	1556			2.00		CJ
339 CATA	03	1630	1645	1630	N14	W54	.813	9497	29.6	15	-N			1630	.14	.26		180	DG 7
340 HUAN	03	1817	1832	1826	N27	W79	.981	9476	27.8	15	-N	1	C	1826	.25				D 6
341 MCMA	03	1829	1842	1832	N17	W56	.835	9481	29.6	13	-F		C	1832	.31	.60			D 6
342 MCMA	03	1846	1900	1852	N17	W56	.835	9481	29.6	14	-F		C	1852	.31	.60			D 4
343 HUAN	03	1903	1910	1906	N29	W77	.975	9476	28.0	7	-F	1	C	1906	.25				D 4
GRP16344	03	1908	1915	1909	N18	W56	.837	9481	29.6	7	-F				.31				2 2 2 4
HUAN	03	1906	1915	1909	N18	W56	.837	9481	29.6	9	-F	2	C	1909	.31	.43			D
MCMA	03	1909	1915		N17	W56	.835	9481	29.6	6	-F		C	1912	.31	.60			D
GRP16345	03	1914	1944	(1926)	N07	W89	1.000	9473	27.1	30	-F				.31				2 2 1 4
HUAN	03	1914	1942		N07	W88	.999	9473	27.2	28	-N	1	C	1926	.31				
MCMA	03	1920E	1945		N06	W90	1.000	9473	27.1	25D	-F		C	1925					D
347 MCMA	03	1953	2050		N06	W90	1.000	9473	27.1	57	-F		C	2000					D 3
349 CATA	04	0645	0700D	0655	N27	W90	1.000	9476	27.5	15D	1F			0655	.63			138	T 5
350 CATA	04	0815E	0905D	0815	N27	W90	1.000	9476	27.6	50D	1N			0815	.72			153	T 7
GRP16353	04	1400	1414	1407	N27	W90	1.000	9476	27.8	14	-F				.56				5 4 3 10
CAPE	04	1350	1420	1408	N27	W90	1.000	9476	27.8	30	-N		C	1408	.78				
CANR	04	1350	1410	1355	N27	W90	1.000	9476	27.8	20	-F		C		.30	1.20			
MCMA	04	1402	1412	1406	N27	W90	1.000	9476	27.8	10	-F		C	1406					
BOUL	04	1402	1410	1405	N27	W90	1.000	9476	27.8	8	-F		C		.40	1.60			
HOUT	04	1405	1414	1408	N27	W90	1.000	9476	27.8	9	-N		C		.50	2.00			
355 HOUT	04	1759E	1802D	1800U	N32	W75	.969	9476	29.1	3D	-F		C		.40	1.20			5
356 MANI	05	0330E	0335D		N16	E78	.977	9499	11.0	5D	-F	2		0330	.31	.77			4
357 CATA	05	0535E	0545D	0535	N18	W77	.973	9497	29.5	10D	-B			0535	.34			200	6
358 CATA	05	0615	0620	0615	S12	E77	.978	9504	11.0	5	-N			0615	.17			152	9
359 MANI	05	0629	0649	0632	N19	W75	.965	9497	29.6	20	-N	2		0632	.26	.40			9
GRP16360	05	0804	0816	0807	N19	W76	.969	9497	29.6	12	-F				.43				6 5 5 12
BUCA	05	0750E	0825D		N19	W75	.965	9497	29.7	35D	-F		C	0804	.43				D
CATA	05	0800E	0820D	0805	N18	W75	.965	9497	29.7	20D	-B			0805	.58			204	
ARCE	05	0805E	0810D		N21	W80	.983	9497	29.3	5D	-F		P	0805	.29	.90			
MEUD	05	0805	0810	0807	N18	W75	.965	9497	29.7	5	-F			0807	.31				
CAPE	05	0805	0813	0808	N18	W77	.973	9497	29.6	8	-F		C	0808	.55				
CAPF	05	0810E	0915		N11	W87	.998	9497	28.8	65D	2N		P	0810	2.35				A
361 CAPS	05	1406E	1440D		N15	W80	.983	9497	29.6	34D	-N	3		1408	.80			170	CF 9
363 HALE	05	1733	1743	1737	N15	E27	.486	9495	7.8	10	-N	2	C	1737	.72	.80			GH 4
364 HALE	05	1927	1943	1930	N15	E15	.323	9495	6.9	16	-N	1	C	1930	.41	.40			GHJ 2
365 HALE	05	1945	2000	1954	N12	E89	1.000	9503	12.5	15	-N	1	P	1954	.21				J 2
369 HALE	06	0310	0325	0311	N09	E82	.989	9503	12.3	15	-N	2	C	0311	.15				4
370 ONDR	06	0514E	0526		N10	E68	.926	9499	11.3	12D	-F		V	0518			1.50		CDJ 5
374 MCMA	06	1306	1327	1311	N11	E56	.829	9499	10.7	21	-F		C	1311	.41	.80			EB 8

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GRP16378	06	1745	1758	1747	N07	E77	.973	9503	12.5	13	-N				.28				2 2 2 5
HALE	06	1744	1802	1747	N06	E76	.969	9503	12.4	18	-B	2	C	1747	.31				
HUAN	06	1745	1753		N07	E77	.973	9503	12.5	8	-F	1	C	1748	.25				D
379 HUAN	06	1806	1820		N14	E57	.840	9499	11.0	14	-F	1	C	1811	.25	.35			D 4
GRP16380	06	1905	2100	1926	N12	E73	.955	9503	12.3	115	1N				1.34				3 1 1 5
HALE	06	1905	1937	1909	N12	E70	.938	9503	12.0	32	-N	2	C	1909	.21				
HALE	06	1916	2100	1926	N12	E76	.969	9503	12.5	104	1N	2	C	1926	1.34				HF
McMA	06	2012	2020		N10	E75	.964	9503	12.5	8	-F		C	2015					E
HUAN	06	2052	2100		N08	E71	.944	9503	12.2	8	-F	1	C	2057	.41				E
381 HALE	06	1928	1954	1930	S18	E56	.859	9504	11.0	26	-N	2	C	1930	.21	.40			L 5
GRP16382	06	1946	1956	1948	N14	E56	.831	9499	11.0	10	-F				.31				2 2 2 5
McMA	06	1946	1954	1948	N13	E56	.830	9499	11.0	8	-F		C	1948	.41	.70			D
HUAN	06	1947E	1957		N14	E55	.822	9499	10.9	10D	-F	1	C	1950	.21	.29			D
GRP16384	06	2151	2201	2152	N08	E70	.938	9503	12.2	10	-F				.39				2 2 2 5
HALE	06	2150	2202	2152	N08	E70	.938	9503	12.2	12	-N	1	C	2152	.41				
HUAN	06	2151	2159		N08	E70	.938	9503	12.2	8	-F	2	C	2156	.37				E
GRP16385	07	0415	0423	0417	N09	E75	.964	9503	12.8	8	-F				.23				2 2 2 5
HALE	07	0414	0420	0416	N10	E76	.969	9503	12.9	6	-N	1	C	0416	.15				T
MANI	07	0416	0425	0417	N08	E74	.960	9503	12.7	9	-F	2		0417	.31	.71			
2 STATIONS REPORTING GROUP 16386. 10 STATIONS OBSERVING AND NOT REPORTING.																			
386 CATA	07	0610	0755	0610	N20	E90	1.000	9503	14.0	105	-N			0610	.29			195	12
16386	07	0615	0700	0640	N14	E75	.964	9503	12.9	45	#-F				.43				2 1 1 10
BUCA	07	0615E	0700D		N14	E75	.964	9503	12.9	45D	-F		C	0617	.43				D
CATA	07	0625	0655	0640	N14	E67	.919	9503	12.3	30	-N			0640	.40			178	
390 HUAN	07	1439	1448		N09	E69	.932	9503	12.8	9	-F	1	C	1440	.31				13
GRP16391	07	1519	1543	1523	N08	E69	.932	9503	12.8	24	-N				.35				3 3 3 12
SACP	07	1515	1553	1523	N09	E68	.925	9503	12.7	38	-N		C		.31	.54			
CAPS	07	1520	1530D		N07	E68	.926	9503	12.7	10D	-B	3		1521	.50			254	
HUAN	07	1521	1532		N08	E70	.938	9503	12.9	11	-F	2	C	1523	.25				D
GRP16392	07	1625	1715	1633	N14	E44	.703	9499	11.0	50	-N				.38				4 4 3 9
SACP	07	1539	1744	1633	N15	E44	.705	9499	11.0	125	-N		C		.52	.60			
HALE	07	1624	1710	1630	N14	E44	.703	9499	11.0	46	-N	1	C	1630	.26	.40			J
HUAN	07	1625	1707		N14	E44	.703	9499	11.0	42	-N	1	C	1633	.35	.42			D
ONDR	07	1630	1659	1635	N13	E42	.676	9499	10.8	29	-F		V	1635			1.30		CD
GRP16394	07	1754	1810	1759	N12	E45	.711	9499	11.1	16	-N				.66				4 3 3 7
HALE	07	1749	1816	1758	N13	E42	.676	9499	10.9	27	-N	1	C	1758	.57	.80			E
McMA	07	1755E	1825		N11	E45	.710	9499	11.1	30D	1F		C	1812	1.34	2.00			E
HUAN	07	1756	1808		N11	E47	.733	9499	11.3	12	-F	1	C	1800	.21	.25			D
HOUT	07	1757	1807	1759	N12	E45	.711	9499	11.1	10	-N		C		1.20	1.70			
GRP16397	07	2119	2136	2122	N10	E56	.828	9503	12.1	17	-N				.58				3 3 3 3
SACP	07	2118	2142	2121	N11	E56	.829	9503	12.1	24	-N		C		1.02	1.42			
HALE	07	2119	2138	2122	N10	E54	.809	9503	11.9	19	-N	1	C	2122	.36	.60			ET
HUAN	07	2120	2128		N10	E57	.838	9503	12.2	8	-F	1	C	2123	.37	.52			E
GRP16398	07	2328	2340	2331	N11	E69	.932	9503	13.2	12	-N				.31				2 2 2 3
HALE	07	2328	2339	2331	N11	E70	.938	.9503	13.2	11	-N	1	C	2331	.21				T
MANI	07	2328	2340	2330	N11	E68	.926	9503	13.1	12	-N	2		2330	.41	.86			
399 HALE	08	0000E	0008	0003	N07	E57	.837	9503	12.3	8D	-F	1	P	0003	.41	.80			H 4
400 HALE	08	0013	0026	0018	N07	E57	.837	9503	12.3	13	-F	1	C	0018	.52	1.00			H 5
403 HALE	08	0141	0148	0142	N07	E55	.818	9503	12.2	7	-F	1	C	0142	.21	.40			6
404 HALE	08	0406	0411	0408	S15	E35	.634	9504	10.8	5	-F	2	C	0408	.41	.50			6
405 CAPS	08	0945E	0956D		N10	E70	.938	9503	13.7	11D	-N	3		0947	.30			182	11
406 MEUD	08	1001E	1002D		N12	E68	.925	9503	13.5	1D	-N			1001	.31				D 11
407 CATA	08	1355	1400	1355	N09	E50	.765	9503	12.3	5	-N			1355	.34	.54		151	14
GRP16410	08	1623	1630	1624	N06	E49	.753	9503	12.4	7	-F				.57				2 2 2 12
McMA	08	1622	1631	1624	N06	E48	.742	9503	12.3	9	-F		C	1624	.52	.80			E
HALE	08	1623	1629	1624	N06	E49	.753	9503	12.4	6	-F	2	C	1624	.62	.90			H

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GRP16414	08	1815	1821	1816	N12	E30	.513	9499	11.0	6	-F				.60				3 3 3 6
MCMA	08	1814	1820	1816	N12	E30	.513	9499	11.0	6	-F		C	1816	.72	.80			E
HUAN	08	1815	1823	1817	N13	E31	.531	9499	11.1	8	-F	2	C	1817	.37	.39			E
HALE	08	1815	1819	1816	N12	E30	.513	9499	11.0	4	-N	2	C	1816	.72	.80			E
GRP16415	08	1851	1905	1857	N07	E47	.730	9503	12.3	14	-N				.48				3 3 3 5
MCMA	08	1850	1910		N06	E48	.742	9503	12.4	20	-N		C	1856	.41	.60			EL
HALE	08	1851	1904	1857	N07	E46	.718	9503	12.2	13	-N	2	C	1857	.62	.90			H
HUAN	08	1853	1902		N07	E48	.742	9503	12.4	9	-F	1	C	1900	.41	.51			E
GRP16417	08	2131	2144	2139	N12	E30	.513	9499	11.1	13	-N				.33				4 4 4 5
HALE	08	2128	2142	2139	N11	E29	.495	9499	11.1	14	-N	2	C	2139	.41	.50			
HALE	08	2128	2142	2139	N11	E29	.495	9499	11.1	14	-N	2	C	2139	.41	.50			
SACP	08	2129	2148	2139	N12	E30	.513	9499	11.1	19	-N		C		.41	.43			
HUAN	08	2137	2143	2139	N11	E30	.510	9499	11.2	6	-F	2	C	2139	.25	.26			DL
MCMA	08	2139E	2143D		N12	E32	.541	9499	11.3	4D	-N		C	2140	.26	.30			D
418 HALE	08	2308	2314	2309	N11	E42	.673	9503	12.1	6	-N	2	C	2309	.52	.70			4
419 HALE	08	2317	2320	2318	N10	E26	.447	9499	10.9	3	-F	2	C	2318	.31	.30			4
GRP16420	09	0033	0048	0036	N26	E65	.913	9506	13.9	15	-F				.39				2 2 2 6
MANI	09	0033	0046	0036	N25	E65	.912	9506	13.9	13	-N	2		0036	.36	.56			
HALE	09	0033	0049	0036	N27	E64	.908	9506	13.8	16	-F	2	C	0036	.41				
GRP16422	09	0205	0225	0208	N08	E48	.742	9503	12.7	20	-B				.39				2 2 2 5
HALE	09	0205	0230	0206	N08	E47	.730	9503	12.6	25	-B	2	C	0206	.26	.40			L
MANI	09	0205	0220	0210	N07	E48	.742	9503	12.7	15	-N	2		0210	.52	.67			
423 HALE	09	0326	0342	0328	N08	E46	.719	9503	12.6	16	-B	2	C	0328	.26	.40			5
1 STATIONS REPORTING GROUP 16424. 3 STATIONS OBSERVING AND NOT REPORTING.																			
424 CRON	09	0412	0440	0419	N13	E54	.810	9503	13.2	28	-N		C		.60	1.00			EK 4
424 CRON	09	0412	0440	0434	N13	E54	.810	9503	13.2	28	*-N								5
GRP16425	09	0500	0615	0550	N15	E58	.850	9503	13.6	75	-N				.52				2 2 1 9
ISTA	09	0500E	0550D		N16	E60	.867	9503	13.7	50D	-N								
ISTA	09	0500E	0610D	0605	N12	E50	.768	9503	13.0	70D	-N								
CATA	09	0550E	0615	0550	N15	E60	.867	9503	13.7	25D	-N			0550	.52	1.04		158	
GRP16426	09	0500	0520		N08	E44	.694	9503	12.5	20	-N								1 1 0 6
ISTA	09	0500E	0520D		N08	E45	.706	9503	12.6	20D	-N								
ISTA	09	0500E	0515		N08	E43	.682	9503	12.4	15D	-N								
GRP16427	09	0933	0952	0933	N11	E28	.480	9499	11.5	19	-N				.60				3 3 3 8
CANR	09	0931	0944	0933	N11	E27	.465	9499	11.4	13	-N		C		.80	1.00			
CAPS	09	0933E	0942D		N10	E28	.477	9499	11.5	9D	-N	3		0935	.30	.30		188	C
ARCE	09	0935	1000D		N11	E28	.480	9499	11.5	25D	-F		C	0935	.71	.80			
430 CAPS	09	1128	1134D		N09	E25	.429	9499	11.4	6D	-F	3		1131	.80	.90		152	J 8
GRP16431	09	1243	1313	1252	N14	E16	.323	9499	10.7	30	-N				.29				3 3 3 10
SACP	09	1240	1323	1252	N14	E17	.337	9499	10.8	43	-F		C		.31	.30			
HUAN	09	1244	1309	1254	N14	E16	.323	9499	10.7	25	-N	2	C	1254	.25	.25			D
MCMA	09	1246	1307	1250	N14	E16	.323	9499	10.7	21	-N		C	1250	.31	.30			D
GRP16432	09	1309	1334	1314	N12	E48	.745	9503	13.1	25	-N				.59				5 5 5 12
SACP	09	1304	1338	1315	N13	E48	.747	9503	13.1	34	-N		C		.81	1.00			
CAPE	09	1310	1331	1313	N12	E48	.745	9503	13.1	21	-F		C	1313	1.01	1.50			F
HUAN	09	1310	1328	1313	N12	E50	.768	9503	13.3	18	-N	2	C	1313	.31	.39			D
MCMA	09	1310	1340	1313	N11	E47	.733	9503	13.1	30	-N		C	1313	.41	.60			E
CAPS	09	1311	1326D		N12	E49	.757	9503	13.2	15D	-F	3		1314	.40	.60		151	J
GRP16433	09	1401	1419	1404	N07	E37	.601	9503	12.4	18	-F				.24				3 2 2 11
HUAN	09	1400	1419	1404	N07	E37	.601	9503	12.4	19	-F	2	C	1404	.21	.22			D
MCMA	09	1402	1410D	1404	N06	E36	.587	9503	12.3	8D	-N		C	1404	.26	.30			D
CATA	09	1405	1515	1405	N16	E44	.706	9503	12.9	70	-N			1405	.52	.74		158	Z
435 HUAN	09	1710	1716	1712	N09	E37	.604	9503	12.5	6	-F	2	C	1712	.35	.38			E 6
437 MCMA	09	1925E	1936D		N13	E44	.700	9503	13.1	11D	-N		P	1930	.83	1.20			E 5
438 HUAN	09	1944	2014		N10	E39	.632	9503	12.7	30	-F	1	C	1951	.45	.51			2
GRP16439	09	2043	2053	2047	N12	E42	.674	9503	13.0	10	-B				.54				2 2 2 2
HALE	09	2040	2053	2047	N12	E42	.674	9503	13.0	13	-B	3	C	2047	.57	.80			
HUAN	09	2045	2053	2047	N12	E42	.674	9503	13.0	8	-B	1	C	2047	.50	.58			

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GRP16440	09	2135	2141	2137	N13	E42	.676	9503	13.0	6	-N				.56				2 2 2 4
HALE	09	2135	2141	2137	N12	E42	.674	9503	13.0	6	-N	3	C	2137	.57	.80			
HUAN	09	2135	2140	2137	N13	E42	.676	9503	13.0	5	-N	2	C	2137	.55	.64			E
441 HUAN	09	2202	2210	2204	N13	E41	.663	9503	13.0	8	-F	2	C	2204	.25	.28			D 5
GRP16442	09	2237	2251	2242	N07	E31	.516	9503	12.3	14	-F				.42				2 2 2 4
HALE	09	2237	2250	2242	N06	E31	.515	9503	12.3	13	-N	3	C	2242	.21	.20			E
MANI	09	2242E	2252		N07	E30	.501	9503	12.2	10D	-F	2		2242	.62	.71			
443 HALE	10	0014	0024	0018	N12	E39	.635	9503	12.9	10	-F	1	C	0018	.36	.50			T 3
444 HALE	10	0026	0038	0032	N12	E39	.635	9503	12.9	12	-F	1	C	0032	.36	.50			T 3
GRP16445	10	0102	0117	0109	N11	E37	.607	9503	12.8	15	-N				.41				2 2 2 3
HALE	10	0102	0121	0109	N12	E39	.635	9503	13.0	19	-N	1	C	0109	.41	.50			T
MANI	10	0110E	0113		N11	E38	.620	9503	12.9	3D	-N	2		0111	.41	.56			
HALE	10	0115	0145	0126	N08	E33	.546	9503	12.5	30	-F	1	C	0126	.15	.20			T
GRP16447	10	0353	0411	0356	N13	E37	.611	9503	12.9	18	-N				.74				2 2 2 4
HALE	10	0345	0411	0356	N14	E34	.574	9503	12.7	26	-N	1	C	0356	.26	.30			T
HALE	10	0348	0400	0351	N12	E43	.686	9503	13.4	12	-F	1	C	0351	.21	.30			T
HALE	10	0352	0427	0402	N12	E39	.635	9503	13.1	35	-F	1	C	0402	.31	.40			T
CRON	10	0353	0410	0356	N14	E35	.588	9503	12.8	17	-N		C		1.00	1.20			
HALE	10	0408	0429	0416	N07	E30	.500	9503	12.4	21	-N	1	C	0416	.21	.20			T
448 HALE	10	0445	0454D	0449	N12	E43	.686	9503	13.4	9D	-N	1	P	0449	.21	.30			T 5
GRP16449	10	0629	0648	(0637)	N12	E37	.609	9503	13.0	19	-N				.49				4 4 3 8
HTPR	10	0627	0655D		N13	E38	.624	9503	13.1	28D	-N		C	0637	.31	.40			D
BUCA	10	0630E	0642D		N12	E37	.609	9503	13.0	12D	-N		C	0636	.66	.80			
ISTA	10	0630	0644		N12	E38	.622	9503	13.1	14	-F								
CAPS	10	0634E	0644D		N11	E35	.579	9503	12.9	10D	-N	3		0637	.50	.60		174	J
GRP16450	10	0736	0754	0745	N11	E30	.509	9503	12.6	18	-F				.58				2 2 1 13
ISTA	10	0726	0747		N14	E33	.561	9503	12.8	21	-F								
CATA	10	0745	0800	0745	N07	E27	.455	9503	12.3	15	-N			0745	.58	.65		158	
3 STATIONS REPORTING GROUP 16451.					8 STATIONS OBSERVING AND NOT REPORTING.														
GRP16451	10	0835	0902	(0846)	N10	E37	.605	9503	13.1	27	-F				.40				2 2 2 11
CAPS	10	0835E	0853D		N10	E42	.671	9503	13.5	18D	-F	3		0847	.50	.70		157	CJ
BUCA	10	0840E	0902D		N10	E32	.535	9503	12.8	22D	-F		C	0845	.30	.30			
451 MANI	10	0833E	0845	0835	N13	E55	.820	9503	14.5	12D	*-F	2		0835	.36	.61			11
GRP16452	10	0905	0951		N11	E39	.633	9503	13.3	46	-N				.98				2 2 2 13
ARCE	10	0905	0940D	0910	N11	E32	.537	9503	12.8	35D	-N		C	0910	1.03	1.20			
MANI	10	0939	0951	0943	N10	E46	.720	9503	13.9	12	-N	2		0943	.93	1.30			
GRP16454	10	1129	1142	1132	N13	E32	.543	9503	12.9	13	-N				.91				3 3 3 9
CAPE	10	1129	1138	1131	N14	E34	.574	9503	13.0	9	-F		C	1131	.92	1.10			
CAPS	10	1129	1133		N14	E31	.533	9503	12.8	4	-F	2		1130	.50	.60		149	
HTPR	10	1130	1136	1132	N14	E33	.561	9503	13.0	6	-N		C	1132	.31	.40			D
CAPS	10	1132	1152D		N11	E37	.607	9503	13.3	20D	-N	2		1135	1.00	1.30		184	H
CAPS	10	1144	1152D		N10	E27	.462	9503	12.5	8D	-F	2		1146	.50	.60		157	
GRP16455	10	1359	1410	1359	N09	E28	.474	9503	12.7	11	-F				.38				2 2 2 13
HUAN	10	1357	1408	1359	N10	E28	.477	9503	12.7	11	-F	2	C	1359	.25	.25			D
CAPS	10	1400	1412		N08	E28	.472	9503	12.7	12	-N	3		1402	.50	.60		171	
GRP16456	10	1413	1424	1415	N13	E31	.530	9503	12.9	11	-N				.60				5 5 5 12
SACP	10	1411	1417	1414	N13	E31	.530	9503	12.9	6	-N		C		.61	.64			
HTPR	10	1413	1425	1417	N13	E31	.530	9503	12.9	12	-N		C	1417	.31	.40			D
MCMA	10	1413	1426	1415	N13	E32	.543	9503	13.0	13	-N		C	1415	.52	.50			E
HUAN	10	1413	1425		N13	E32	.543	9503	13.0	12	-N	2	C	1416	.55	.58			ET
CAPS	10	1415	1425		N12	E30	.512	9503	12.8	10	-N	3		1416	1.00	1.20		182	
GRP16458	10	1504	1512	1506	N13	E30	.515	9503	12.9	8	-F				.32				3 3 3 10
MCMA	10	1504	1510	1505	N13	E30	.515	9503	12.9	6	-N		C	1505	.31	.40			D
HTPR	10	1504	1515	1507	N13	E30	.515	9503	12.9	11	-F		C	1507	.41	.50			
HUAN	10	1504	1511	1506	N13	E30	.515	9503	12.9	7	-F	2	C	1506	.25	.26			D

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GRP16459	10	1549	1601	1552	N12	E33	.554	9503	13.1	12	-N				.63				7 7 7 10
SACP	10	1545	1600	1550	N13	E32	.543	9503	13.1	15	-N		C		.52	.54			
HUAN	10	1549	1600	1551	N12	E32	.540	9503	13.1	11	-N	2	C	1551	.57	.60			E
MCMA	10	1549	1601	1552	N13	E33	.557	9503	13.1	12	-N		V	1552	.41	.50			EH
CAPS	10	1550E	1558D		N10	E33	.549	9503	13.1	8D	-N	3		1552	1.20	1.40			C
HTPR	10	1550	1600	1553	N13	E32	.543	9503	13.1	10	-N		C	1553	.41	.50			U
SANM	10	1550E	1559D	1553	N11	E32	.537	9503	13.1	9D	-F		C	1553	.48	.57			D
SANM	10	1550	1559	1553	N11	E32	.537	9503	13.1	9	-F		C	1553	.48	.57			D
LOCA	10	1552E	1603	1552	N12	E34	.568	9503	13.2	11D	-N		V	1552	.85	1.00			
460 HUAN	10	1555	1600		S30	E67	.953	9513	15.7	5	-F	1	C	1556	.21				D 10
GRP16461	10	1720	1748	1742	N13	E34	.571	9503	13.3	28	-F				.45				2 2 2 7
HUAN	10	1720	1742D		N12	E32	.540	9503	13.1	22D	-F	1	P	1742	.37	.39			
MCMA	10	1741	1748	1742	N13	E35	.585	9503	13.4	7	-F		C	1742	.52	.60			E
GRP16462	10	1807	1849	1816	N14	E05	.196	9499	11.1	42	-N				.85				3 3 3 5
MCMA	10	1807	1849	1812	N13	E03	.168	9499	11.0	42	-N		C	1812	.41	.40			E
HUAN	10	1810E	1827D		N11	E05	.152	9499	11.1	17D	-N	1	P	1812	.93	.93			E
BOUL	10	1815E	1824D	1820	N17	E08	.265	9499	11.4	9D	-F		C		1.20	1.20			
463 MCMA	10	1819	1829	1824	N29	E43	.742	9506	14.0	10	-F		C	1829	.26	.40			D 4
464 MCMA	10	1828	1849	1830	N13	E31	.530	9503	13.1	21	-N		C	1830	.52	.60			E 4
466 MANI	10	2230E	2236		S13	E70	.948	9518	16.2	6D	-F	2		2230	.21	.45			2
GRP16467	10	2231	2300	2239	N14	W02	.180	9499	10.8	29	-F				.69				2 2 2 2
MANI	10	2231	2242	2235	N13	W02	.163	9499	10.8	11	-F	2		2235	.57	.56			
SACP	10	2237E	2318	2242	N14	W01	.178	9499	10.9	41D	-N		C		.81	.80			
GRP16469	11	0103	0116	0107	N07	E21	.360	9503	12.6	13	-N				.71				3 3 3 3
CRON	11	0102	0115	0106	N06	E21	.359	9503	12.6	13	-N		C		1.10	1.20			
MANI	11	0104	0113	0107	N08	E22	.379	9503	12.7	9	-F	2		0107	.57	.61			
HALE	11	0107E	0120		N07	E20	.344	9503	12.5	13D	-N	1	P	0107	.46	.50			
470 MANI	11	0327	0344	0329	N14	E25	.448	9503	13.0	17	-N	2		0329	.41	.46			4
471 MANI	11	0400	0420	0402	N11	E00	.123	9499	11.2	20	-F	2		0402	1.03	1.04			4
472 MANI	11	0408	0418	0411	N09	E16	.287	9503	12.4	10	-N	2		0411	.21	.22			5
473 HALE	11	0428E	0450		N11	E20	.359	9503	12.7	22D	-F	1	P	0428	.67	.70			E 6
474 MANI	11	0454E	0504	0456	S10	E67	.928	9518	16.2	10D	-F	2		0456	.46	.98			6
GRP16475	11	0716	0730	(0721)	N08	E17	.299	9503	12.6	14	-F				.21				2 2 1 10
ISTA	11	0716	0730		N07	E16	.279	9503	12.5	14	-F								
MANI	11	0719E	0730D		N08	E18	.315	9503	12.7	11D	-F	2		0721	.21	.22			
4 STATIONS REPORTING GROUP 16476. 6 STATIONS OBSERVING AND NOT REPORTING.																			
GRP16476	11	0750	0758	0750	N11	E17	.314	9503	12.6	8	-F				.37				2 2 2 10
BUCA	11	0729E	0801D		N15	E20	.384	9503	12.8	32D	-F		C	0752	.05	.10			D
CATA	11	0750	0755	0750	N07	E14	.247	9503	12.4	5	-N			0750	.69	.72		151	
16476	11	0737	0831	0805	N11	E27	.464	9503	13.3	54	*-F				.70				2 2 1 11
ISTA	11	0737	0825	0805	N12	E23	.409	9503	13.0	48	-F								
CAPS	11	0800E	0836		N10	E30	.506	9503	13.6	36D	-N	3		0811	.70	.80		179	CF
GRP16477	11	0813	0950	0845	N13	E25	.443	9503	13.2	97	-N				1.21				7 5 4 13
BUCA	11	0807E	1256D		N15	E20	.384	9503	12.8	289D	-F		C	0844	.30	.30			
ISTA	11	0819	1000D		N13	E32	.543	9503	13.7	101D	-N								
CAPS	11	0820E	0940		N10	E25	.431	9503	13.2	80D	-B	3		0845	.40	.40		204	CK
HTPR	11	0825	0945D		N12	E22	.394	9503	13.0	80D	-N		C	0858	.72	.80			Z
CAPF	11	0830E	0900D	0845	N11	E22	.389	9503	13.0	30D	1N		P	0845	3.53	3.93			
ARCE	11	0835	1000D		N08	E24	.410	9503	13.2	85D	-F		C	0940	.64	.70			
MANI	11	0840E	0850D		N14	E28	.491	9503	13.5	10D	-N	2		0840	.62	.71			
GRP16479	11	1244	1257	1248	S13	E62	.897	9518	16.2	13	-F				.51				4 4 4 10
CAPE	11	1243	1257	1249	S13	E62	.897	9518	16.2	14	-F		C	1249	.64	1.50			H
MCMA	11	1245	1255	1246	S14	E61	.892	9518	16.1	10	-N		C	1246	.26	.60			E
CATA	11	1245E	1300	1250	S11	E62	.895	9518	16.2	15D	-N			1250	.63	1.46		162	
CAPS	11	1247E	1251D		S15	E62	.901	9518	16.2	4D	-F	3		1248	.50			150	C
480 CATA	11	1310E	1315	1310	S11	E62	.895	9518	16.2	5D	-N			1310	.14	.33		155	C 10

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GRP16481	11	1321	1327	1323	S12	E65	.917	9518	16.4	6	-F				.62				6 6 6 9
CATA	11	1320	1330	1325	S10	E65	.915	9518	16.4	10	-F			1325	.46			148	
CANR	11	1321	1326	1322	S13	E67	.931	9518	16.6	5	-N		C		.50	1.10			E
CAPE	11	1321	1326	1322	S13	E66	.925	9518	16.5	5	-F		C	1322	.92	2.40			V
CAPS	11	1321E	1326D		S13	E65	.918	9518	16.4	5D	1F	3		1323	1.00			155	C
HUAN	11	1321	1325		S13	E65	.918	9518	16.4	4	-F	1	C	1322	.31				E
MCMA	11	1321	1328	1322	S10	E60	.878	9518	16.1	7	-N		C	1322	.52	1.20			E
482 CATA	11	1420	1510	1425	N07	E13	.230	9503	12.6	50	-N			1425	.23	.24		170	9
483 MCMA	11	1616	1635	1624	N18	E26	.486	9503	13.6	19	-F		C	1624	.52	.60			E 5
GRP16486	11	2129	2140	2133	N07	E08	.149	9503	12.5	11	-N				.36				2 2 2 2
SACP	11	2126	2141	2133	N07	E08	.149	9503	12.5	15	-N		C		.41	.40			
MCMA	11	2131	2138	2132	N06	E08	.143	9503	12.5	7	-N		C	2132	.31	.30			D
487 MANI	11	2202E	2213		N14	W81	.986	9494	5.8	11D	-N	2		2203	.31	.81			3
490 MANI	12	0551E	0555		N07	E07	.132	9503	12.8	4D	-F	2		0552	.21	.21			8
491 CATA	12	0700	0705D	0700	N15	E08	.234	9503	12.9	5D	-N			0700	.29	.30		158	6
492 MEUD	12	0744	0758		N12	E12	.247	9503	13.2	14	-F			0750	.31	.30			D 11
493 CAPS	12	0752E	0757D		N28	W88	.998	9494	5.7	5D	-N	1							G 11
GRP16494	12	0831	0844	0835	S30	E45	.818	9513	15.7	13	-F				.71				4 4 4 12
CAPE	12	0828	0840	0830	S30	E45	.818	9513	15.7	12	-F		C	0830	1.06	1.90			
HTPR	12	0829	0845	0830	S32	E45	.828	9513	15.7	16	-N		C	0830	.83	1.50			
CAPS	12	0830E	0840D		S29	E42	.789	9513	15.5	10D	-F	3		0836	.30	.50		149	CG
CATA	12	0835	0850	0835	S28	E46	.815	9513	15.8	15	-N			0835	.63	1.11		195	
GRP16495	12	0845	0905	0848	N11	E13	.253	9503	13.3	20	-F				.64				2 2 2 11
CAPS	12	0845E	0856D		N12	E13	.261	9503	13.3	11D	-N	3		0849	.60	.60		171	J
ARCE	12	0845	0905D	0848	N10	E12	.230	9503	13.3	20D	-F		C	0848	.68	.70			
496 CAPS	12	1048E	1052D		S16	E11	.387	9505	13.3	4D	-F	2		1049	.60	.70		155	CG 8
497 MEUD	12	1155	1208D		N11	W19	.343	9499	11.1	13D	-N			1206	1.55	1.60			9
GRP16498	12	1249	1315	1250	N13	E14	.284	9503	13.6	26	-F				.47				2 2 2 10
MCMA	12	1248	1330	1250	N13	E13	.270	9503	13.5	42	-F		C	1250	.62	.70			E
HUAN	12	1249	1259		N13	E15	.298	9503	13.7	10	-F	2	C	1252	.31	.31			E
GRP16501	12	1440	1459	1445	N10	E01	.106	9503	12.7	19	-F				.34				2 2 2 12
CATA	12	1440E	1505	1445	N10	E01	.106	9503	12.7	25D	-N			1445	.46	.47		190	
HUAN	12	1440	1452	1445	N10	E00	.104	9503	12.6	12	-F	2	C	1445	.21	.21			D
GRP16502	12	1507	1527	1514	N08	W02	.078	9503	12.5	20	-N				.47				3 3 3 11
CATA	12	1505	1530	1515	N08	W03	.087	9503	12.4	25	-B			1515	.29	.29		209	Z
MCMA	12	1508	1524	1512	N08	W01	.072	9503	12.6	16	-F		C	1512	.41	.40			E
CAPS	12	1510E	1517D		N09	W01	.089	9503	12.6	7D	-N	2		1514	.70	.70			C
GRP16503	12	1544	1556	1546	N09	W02	.094	9503	12.5	12	-F				.21				2 2 1 11
HUAN	12	1544	1554	1546	N09	W02	.094	9503	12.5	10	-F	2	C	1546	.21	.21			D
CAPS	12	1546E	1557D		N09	W01	.089	9503	12.6	11D	-N	2							C
GRP16504	12	2013	2153	2018	N07	W05	.101	9503	12.5	100	-N				.32				3 3 3 3
SACP	12	2010	2155	2018	N07	W06	.116	9503	12.4	105	-N		C		.41	.40			
MCMA	12	2015	2150	2017	N08	W02	.078	9503	12.7	95	-F		C	2017	.31	.30			DHK
HUAN	12	2020E	2026D		N07	W06	.116	9503	12.4	6D	-N	1	P	2020	.25	.25			D
505 HUAN	12	2020E	2026D		N13	E11	.244	9503	13.7	6D	-F	1	P	2020	.45	.45			E 3
506 HALE	13	0147	0158	0151	N14	E06	.200	9503	13.5	11	-F	1	C	0151	.62	.60			4
507 HALE	13	0240	0242	0240	N30	W03	.439	9511	12.9	2	-F	1	C	0240	.41	.50			3
508 HALE	13	0240	0253	0245	N17	E59	.859	9520	17.5	13	-F	1	C	0245	.21	.40			3
GRP16509	13	0750	0820	0800	S30	E34	.733	9513	15.9	30	-N				.34				2 2 1 10
ISTA	13	0745E	0810		S30	E33	.725	9513	15.8	25D	-N								
CATA	13	0755	0830	0800	S29	E35	.733	9513	16.0	35	-N			0800	.34	.51		158	
510 CATA	13	0755	0830	0800	N12	W07	.182	9503	12.8	35	-F			0800	.52	.53		148	10
511 CAPE	13	0810	0838	0817	N16	W32	.553	9499	10.9	28	-F		C	0817	.92	1.10			H 11

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OBSERVATORY	OBSERVED UT DATE 1968 JULY	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
GRP16512	13	0930	0949	0935	N14	E02	.175	9503	13.5	19	-N				1.04				4 4 4 9
HTPR	13	0929	0955	0929	N14	E02	.175	9503	13.5	26	-F		C	0929	.62	.62			
BUCA	13	0930	0944		N14	E02	.175	9503	13.5	14	-F		C	0932	.75	.70			
CAPS	13	0930E	0946D		N14	E03	.179	9503	13.6	16D	-B	3		0931	2.00	2.00		200	C
CATA	13	0935E	0950	0935	N14	W01	.173	9503	13.3	15D	-N			0935	.80	.82		190	
GRP16513	13	1018	1105	(1023)	N08	W09	.169	9503	12.8	47	-N				.87				3 3 3 9
BUCA	13	1017E	1101D		N08	W08	.154	9503	12.8	44D	-F		P	1026	.60	.60			
HTPR	13	1018	1105		N08	W09	.169	9503	12.8	47	-N		C	1022	.52	.52			E
CAPS	13	1020E	1035D		N08	W10	.185	9503	12.7	15D	-N	3		1021	1.50	1.50		182	C
514 CAPS	13	1214E	1234		S20	W03	.411	9505	13.3	20D	-F	3		1224	1.00	1.10		143	C 8
GRP16515	13	1359	1406	1400	N10	W16	.291	9503	12.4	7	-F				.36				3 3 3 9
HUAN	13	1358	1407	1400	N10	W16	.291	9503	12.4	9	-F	2	C	1400	.37	.37			T
MCMA	13	1358	1407	1400	N10	W16	.291	9503	12.4	9	-N		C	1400	.41	.40			E
HTPR	13	1400	1405	1401	N10	W17	.307	9503	12.3	5	-F		C	1401	.31	.32			D
GRP16516	13	1402	1411	1405	N24	E78	.976	9520	19.4	9	-F				.50				6 6 5 9
MCMA	13	1401	1410	1404	N25	E84	.992	9520	19.9	9	-F		C	1404					EH
CANR	13	1402	1410	1405	N24	E78	.976	9520	19.4	8	-N		C		.40	1.20			
BOUL	13	1402	1410	1405	N25	E79	.979	9520	19.5	8	-N		C		.40	1.20			
HUAN	13	1402	1408	1403	N24	E76	.968	9520	19.3	6	-F	2	C	1403	.37				D
SACP	13	1404E	1412	1407	N25	E77	.972	9520	19.4	8D	-N		C		.71	1.64			
CAPS	13	1404E	1414		N22	E75	.964	9520	19.2	10D	-F	3		1407	.60			153	DG
GRP16517	13	1452	1534	1453	N10	W17	.307	9503	12.3	42	-N				.73				5 5 5 8
HUAN	13	1451	1502	1453	N10	W16	.291	9503	12.4	11	-N	2	C	1453	.55	.55			
SACP	13	1451	1531	1453	N11	W17	.312	9503	12.3	40	-N		C		.62	.61			
HTPR	13	1451	1510D	1453	N11	W17	.312	9503	12.3	19D	-N		C	1453	.62	.70			
MCMA	13	1451	1610	1453	N10	W16	.291	9503	12.4	79	-B		C	1453	.41	.40			EK
CATA	13	1455	1600D	1455	N08	W18	.314	9503	12.3	65D	-B			1455	1.44	1.53		209	ZK
518 CATA	13	1555E	1605D	1600	S17	W01	.361	9505	13.6	10D	-N			1600	.52	.56		174	9
520 HALE	13	1623	1632	1623	N20	W15	.368	9503	12.6	9	-F	1	C	1623	.41	.40			7
GRP16521	13	1716	1723	1718	N08	W21	.362	9503	12.1	7	-F				.39				3 2 2 6
MCMA	13	1716	1725	1717	N09	W20	.349	9503	12.2	9	-F		C	1717	.41	.40			E
HUAN	13	1716	1721	1718	N07	W22	.376	9503	12.1	5	-F	2	C	1718	.37	.37			E
HALE	13	1722	1728	1725	N15	W12	.277	9503	12.8	6	-F	2	C	1725	.52	.50			F
GRP16522	13	1806	1816	1807	N11	W18	.327	9503	12.4	10	-N				.40				5 5 4 7
MCMA	13	1805	1818	1806	N10	W18	.322	9503	12.4	13	-N		C	1806	.41	.40			E
SACP	13	1805	1821	1806	N11	W19	.343	9503	12.3	16	-F		C		.21	.20			
HUAN	13	1806	1816	1808	N11	W18	.327	9503	12.4	10	-N	2	C	1808	.45	.45			
HALE	13	1806	1814	1806	N11	W19	.343	9503	12.3	8	-N	2	C	1806	.52	.60			
HTPR	13	1806	1813		N11	W17	.312	9503	12.5	7	-F		C						
GRP16524	13	1847	1924	1851	N10	W18	.322	9503	12.4	37	-N				.52				2 1 1 6
MCMA	13	1847	1924	1851	N10	W18	.322	9503	12.4	37	-N		C	1851	.52	.50			E
HUAN	13	1902	1908	1904	N11	W19	.343	9503	12.4	6	-F	2	C	1904	.31	.31			D
525 HALE	13	1920	1924	1921	N11	E53	.798	9520	17.8	4	-F	2	C	1921	.31	.50			6
526 HUAN	13	1954	2028		N08	W15	.266	9503	12.7	34	-F	2	C	2001	.70	.70			E 5
527 HALE	13	2132	2135	2132	N11	W19	.343	9503	12.5	3	-F	2	C	2132	.31	.30			T 3
GRP16528	13	2148	2212	2157	S18	W06	.389	9505	13.5	24	-N				.66				2 2 2 3
HALE	13	2148	2200D	2156	S18	W05	.385	9505	13.5	12D	-N	2	P	2156	.93	1.00			H
HUAN	13	2148	2212	2157	S17	W07	.378	9505	13.4	24	-N	2	C	2157	.39	.40			E
529 HALE	13	2215	2217	2216	N11	W19	.343	9503	12.5	2	-F	2	C	2216	.41	.40			T 2
530 HALE	13	2251	2255	2252	N15	W12	.277	9503	13.1	4	-F	2	C	2252	.41	.40			F 2
533 HALE	14	0344	0347	0345	N08	W28	.471	9503	12.1	3	-N	3	C	0345	.31	.40			5
534 CATA	14	0640	0700	0645	S11	E27	.513	9518	16.3	20	-F			0645	.10	.12		148	7
536 CAPE	14	0702	0710	0704	N14	W49	.758	9499	10.6	8	-N		C	0704	1.21	1.90			H 8
GRP16537	14	0715	0737	0725	S12	E26	.508	9518	16.3	22	-F				.97				4 4 3 11
CATA	14	0715	0750	0725	S11	E27	.513	9518	16.3	35	-N			0725	1.44	1.67		166	
ISTA	14	0715E	0730		S10	E26	.493	9518	16.3	15D	-F								
BUCA	14	0718E	0732D		S14	E26	.524	9518	16.3	14D	-F		P	0723	.66	.70			
CAPS	14	0719E	0727D		S13	E25	.503	9518	16.2	8D	-N	3		0721	.80	.90		184	C

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538 BUCA	14	0845E	0917D		N13	W26	.456	9503	12.4	32D	-F		C	0849	.08	.10			9
539 CATA	14	0905	1000	0935	S12	E26	.508	9518	16.3	55	-N			0935	.58	.67		158	11
GRP16540	14	1010	1035	1015	S13	E24	.491	9518	16.2	25	-F				.49				2 2 2 7
CATA	14	1010	1035	1015	S12	E25	.495	9518	16.3	25	-N			1015	.58	.66		158	
CAPS	14	1015E	1019D		S13	E23	.479	9518	16.2	4D	-F	3		1016	.40	.50		159	CH
GRP16542	14	1255	1322	1300	S13	E22	.467	9518	16.2	27	-N				.56				4 4 4 8
CAPE	14	1254	1320	1300	S13	E23	.479	9518	16.3	26	-N		C	1300	.55	.70			
CANR	14	1255	1311	1258	S14	E23	.488	9518	16.3	16	-N		C		.90	1.00			E
CATA	14	1255	1340	1300	S11	E22	.449	9518	16.2	45	-N			1300	.52	.58		178	
HUAN	14	1256	1315	1300	S12	E21	.445	9518	16.1	19	-N	1	C	1300	.25	.25			D
GRP16543	14	1500	1516	1502	N09	E90	1.000	9523	21.4	16	-F				.21				2 2 1 6
HUAN	14	1500	1522		N08	E90	1.000	9523	21.4	22	-F	1	C	1502	.21				D
MCMA	14	1500	1510	1502	N09	E89	1.000	9523	21.3	10	-N		C	1502					D
544 HUAN	14	1625	1643		N12	W22	.393	9503	13.0	18	-F	2	C	1638	.25	.25			D 4
545 HUAN	14	1702	1717		N08	E88	.999	9523	21.3	15	-F	1	C	1706	.25				D 4
546 HUAN	14	1740	1755		N10	E37	.604	9520	17.5	15	-F	1	C	1742	.21	.22			D 4
GRP16548	14	1820	1844	1827	S12	E19	.421	9518	16.2	24	-F				.36				3 3 3 4
SACP	14	1819	1854	1824	S12	E19	.421	9518	16.2	35	-F		C		.52	.52			
MCMA	14	1820	1840	1830	S12	E20	.433	9518	16.3	20	-F		C	1830	.36	.40			E
HUAN	14	1822	1837		S12	E18	.409	9518	16.1	15	-F	2	C	1827	.21	.21			D
549 SACP	14	2321	2350	2336	S12	E16	.386	9518	16.2	29	-F		C		.51	.51			2
550 CATA	15	0615	0620	0615	N09	W33	.546	9503	12.8	5	-N			0615	.40	.50		170	7
551 CATA	15	0710	0800	0710	N23	E33	.601	9520	17.8	50	-N			0710	.98	1.22		182	10
552 CATA	15	0715	0800	0720	N22	E38	.654	9520	18.2	45	-N			0720	.58	.77		166	9
GRP16553	15	0728	0750	0742	N13	W30	.513	9503	13.1	22	-F				.37				3 2 2 9
BUCA	15	0725	0745		N14	W27	.474	9503	13.3	20	-F		C	0734	.45	.50			
CATA	15	0730	0755	0735	N11	W33	.550	9503	12.8	25	-N			0735	.29	.35		174	
CAPE	15	0748	0753	0749	N09	W44	.694	9503	12.0	5	-F		C	0749	.92	1.30			V
554 CAPS	15	1219E	1230D		S15	E88	1.000	9528	22.1	11D	-N	2		1223	.30				CH 9
555 MCMA	15	1354	1412	1400	N15	W34	.575	9503	13.0	18	-F		C	1400	.26	.30			D 9
GRP16556	15	1423	1427	1425	N12	W46	.721	9503	12.1	4	-F				.26				2 2 2 8
MCMA	15	1423	1427	1425	N12	W45	.709	9503	12.2	4	-F		C	1425	.26	.40			D
HUAN	15	1423	1427	1424	N11	W46	.720	9503	12.1	4	-F	1	C	1424	.25	.29			D
GRP16557	15	1428	1446	1431	S18	W29	.592	9505	13.4	18	-N				.57				5 5 5 8
SACP	15	1427	1450	1431	S17	W28	.572	9505	13.5	23	-N		C		.61	.66			
HTPR	15	1428	1445	1430	S17	W30	.595	9505	13.4	17	-N		C	1430	.31	.40			D
HUAN	15	1428	1442		S18	W29	.592	9505	13.4	14	-N	1	C	1429	.37	.40			E
MCMA	15	1429	1445	1431	S18	W28	.581	9505	13.5	16	-N		C	1431	.36	.50			D
CATA	15	1430	1435D	1430	S19	W28	.589	9505	13.5	5D	-B			1430	1.22	1.52		229	
GRP16558	15	1441	1453	1444	N12	W39	.634	9503	12.7	12	-F				.27				4 4 4 6
SACP	15	1440	1501	1445	N12	W38	.620	9503	12.8	21	-N		C		.31	.34			
MCMA	15	1440	1452	1444	N12	W40	.647	9503	12.6	12	-F		C	1442	.36	.50			E
HTPR	15	1440	1450	1444	N12	W39	.634	9503	12.7	10	-N		C	1444	.21	.30			
HUAN	15	1443	1450	1444	N12	W38	.620	9503	12.8	7	-F	2	C	1444	.21	.22			D
559 MCMA	15	1448	1456	1452	N11	E28	.478	9520	17.7	8	-N		C	1452	.26	.30			E 7
GRP16561	15	1519	1556	1528	N12	W33	.552	9503	13.2	37	-N				.81				6 5 4 10
HUAN	15	1518	1544		N12	W33	.552	9503	13.2	26	-F	1	C	1522	.80	.85			E
HTPR	15	1518	1555	1522	N13	W34	.569	9503	13.1	37	-F		C	1522	.72	.90			E
MCMA	15	1518	1555	1523	N13	W34	.569	9503	13.1	37	-N		C	1523	.83	1.00			EL
CATA	15	1520	1610	1525	N12	W35	.580	9503	13.0	50	-B			1525	.87	1.09		219	
CAPS	15	1523E	1531D		N12	W29	.495	9503	13.5	8D	-F	1							C
SACP	15	1531	1550	1541	N12	W36	.594	9503	12.9	19	-N		C		.71	.77			
GRP16562	15	1534	1633	1545	N10	W47	.731	9503	12.1	59	-N				.25				2 2 2 10
CATA	15	1525	1650D	1545	N07	W47	.729	9503	12.1	85D	-B			1545	.29	.43		204	
HUAN	15	1542	1615		N12	W46	.721	9503	12.2	33	-F	1	C	1551	.21	.25			D

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GRP16563	15	1714	1752	1729	N11	W48	.743	9503	12.1	38	-N				.23				2 2 2 7
SACP	15	1711	1802	1729	N11	W47	.731	9503	12.2	51	-N		C		.21	.25			
HUAN	15	1716	1741		N11	W48	.743	9503	12.1	25	-N	2	C	1727	.25	.30			D
GRP16564	15	1716	1748	1726	N19	E28	.515	9520	17.8	32	-F				1.08				2 2 2 7
MCMA	15	1715	1800	1726	N18	E28	.509	9520	17.8	45	-F		P	1726	1.03	1.20			E
SACP	15	1716	1735	1726	N19	E28	.515	9520	17.8	19	-N		C		1.12	1.17			
6 STATIONS REPORTING GROUP 16565. 1 STATIONS OBSERVING AND NOT REPORTING.																			
GRP16565	15	1746	1835	1819	N13	W35	.583	9503	13.1	49	-N				.74				5 5 5 6
HALE	15	1743	1835	1821	N13	W35	.583	9503	13.1	52	-N	1	C	1821	.52	.60			J
MCMA	15	1748	1840	1815	N13	W35	.583	9503	13.1	52	-N		C	1815	.93	1.20			EL
HUAN	15	1809	1835	1817	N13	W35	.583	9503	13.1	26	-N	2	C	1817	.93	.99			EL
SACP	15	1811	1833	1822	N13	W34	.569	9503	13.2	22	-N		C		.51	.55			
CANR	15	1819E	1834	1820U	N14	W34	.572	9503	13.2	15D	-N		C		.80	1.10			E
16565	15	1748	1814	1752	N12	W32	.538	9503	13.3	26	*-F				.56				4 4 4 6
SACP	15	1746	1810	1753	N11	W30	.507	9503	13.5	24	-F		C		.71	.74			
HTPR	15	1746	1803D	1750	N12	W32	.538	9503	13.3	17D	-F		C	1750	.52	.60			AO
MCMA	15	1748	1840	1752	N13	W35	.583	9503	13.1	52	-N		C	1752	.62	.70			EL
HUAN	15	1750	1803		N12	W31	.524	9503	13.4	13	-F	2	C	1755	.37	.39			D
566 HALE	15	1835	1852	1838	S17	W32	.617	9505	13.4	17	-F	1	C	1838	.15	.20			6
GRP16568	15	2021	2102	2026	N13	W36	.596	9503	13.1	41	-F				.36				2 2 2 5
HALE	15	2020	2125	2028	N13	W36	.596	9503	13.1	65	-F	1	C	2028	.41	.50			
HUAN	15	2021	2039	2023	N12	W36	.594	9503	13.1	18	-F	2	C	2023	.31	.34			D
GRP16569	15	2022	2033	2025	S17	W32	.617	9505	13.4	11	-N				.41				4 4 4 5
SACP	15	2021	2035	2025	S18	W32	.624	9505	13.4	14	-N		C		.51	.56			
HALE	15	2021	2034	2024	S17	W32	.617	9505	13.4	13	-N	1	C	2024	.41	.50			
MCMA	15	2023	2032	2024	S16	W31	.599	9505	13.5	9	-N		C	2024	.36	.40			
HUAN	15	2023	2032	2025	S18	W32	.624	9505	13.4	9	-N	2	C	2025	.37	.41			E
571 HALE	16	0221	0235	0221	N12	W40	.646	9503	13.1	14	-B	1	P	0221	.26	.30			TJ 3
573 CAPS	16	0626E	0639D		N09	E22	.380	9520	17.9	13D	-N	1							C 8
574 CAPS	16	0742E	0749D		N10	E22	.383	9520	18.0	7D	-N	1							C 5
575 CATA	16	0820	0855	0825	N17	E17	.357	9520	17.6	35	-F			0825	.23	.25		126	7
GRP16576	16	0906	0931	0920	N10	W48	.742	9503	12.8	25	-F				.61				3 3 3 8
CATA	16	0905	0935	0910	N10	W49	.753	9503	12.7	30	-N			0910	.52	.81		159	
CAPS	16	0906E	0933D		N10	W45	.707	9503	13.0	27D	-F	1		0906	.50	.70		153	CF
MEUD	16	0906	0926		N11	W49	.754	9503	12.7	20	-F			0918	.52	.70			E
CATA	16	0915	1000	0920	N07	W49	.752	9503	12.7	45	-N			0920	.80	1.29		190	
577 CAPS	16	0930E	0945D		S20	W36	.682	9505	13.7	15D	1N	1		0931	2.00	2.80			CJ 8
578 CATA	16	1010	1035	1015	N18	E16	.354	9520	17.6	25	-N			1015	.63	.68		155	4
579 HUAN	16	1201	1208		S17	W44	.748	9505	13.2	7	-F	1	C	1203	.21	.25			D 6
GRP16580	16	1328	1341	1329	N13	W46	.722	9503	13.1	13	-N				.72				6 6 6 6
HUAN	16	1326	1340	1328	N12	W46	.721	9503	13.1	14	-N	2	C	1328	.57	.68			E
CANR	16	1326	1336	1326	N14	W46	.723	9503	13.1	10	-N		C		.70	1.10			E
SACP	16	1327	1341	1328	N13	W47	.733	9503	13.0	14	-N		C		.71	.86			
CAPS	16	1327E	1339D		N13	W40	.648	9503	13.6	12D	-B	2		1330	.50	.70		290	CF
MCMA	16	1329E	1343		N14	W47	.735	9503	13.0	14D	-N		C	1329	.41	.60			E
CATA	16	1330	1345	1330	N10	W47	.730	9503	13.0	15	1B			1330	1.44	2.17		229	
581 HUAN	16	1451	1520		N10	W54	.807	9503	12.6	29	-F	2	C	1453	.21	.27			D 8
GRP16583	16	1639	1656	1642	N16	W45	.715	9503	13.3	17	-F				.39				3 3 3 6
HALE	16	1639	1649D	1641	N15	W46	.725	9503	13.2	10D	-N	1	P	1641	.21	.30			TJ
BOUL	16	1639	1650	1642U	N17	W43	.694	9503	13.5	11	-F		C		.70	1.00			
HUAN	16	1640	1701		N15	W47	.736	9503	13.2	21	-F	2	C	1645	.25	.30			D
584 HUAN	16	1706	1713	1708	S17	W48	.788	9505	13.1	7	-F	2	C	1708	.21	.26			D 5
585 SACP	16	1742	1820U	1751U	N23	W11	.365	9527	15.9	38D	-N		C		.71	.71			4
586 HUAN	16	1752	1758	1754	S17	W48	.788	9505	13.1	6	-N	2	C	1754	.37	.47			E 4
587 HUAN	16	1845	1852		S12	W02	.284	9518	16.6	7	-F	2	C	1847	.31	.31			E 4
588 HUAN	16	1922	1929		S17	W50	.807	9505	13.1	7	-F	1	C	1923	.31	.41			4

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589 HUAN	16	2024	2029	2026	N14	E09	.226	9520	17.5	5	-F	2	C	2026	.21	.21			D 5
592 SACP	16	2247	2303	2248	S18	E70	.954	9528	22.2	16	-N		C		.21	.42			4
593 SACP	16	2247	2311	2251	N12	W50	.766	9503	13.2	24	-N		C		.31	.38			4
GRP16594	17	0112	0133	0120	N11	W68	.924	9503	12.0	21	-F				.47				2 2 2 4
MANI	17	0112	0135	0119	N10	W70	.937	9503	11.8	23	-N	2		0119	.52	1.11			
SACP	17	0112	0131	0121	N12	W66	.911	9503	12.1	19	-F		C		.41	.69			
595 MANI	17	0317E	0330	0319	N11	W57	.837	9503	12.9	13D	-F	2		0319	.21	.36			3
596 MANI	17	0638E	0655	0644	S18	E62	.907	9528	21.9	17D	-F	2		0644	.41	.83			5
GRP16597	17	0655	0725	0657	N12	E08	.189	9520	17.9	30	-F				1.18				3 3 3 5
MANI	17	0654	0711D	0658	N13	E07	.190	9520	17.8	17D	-F	2		0658	.31	.32			
CATA	17	0655	0725	0655	N12	E08	.189	9520	17.9	30	1N			0655	2.02	2.06		170	
CAPS	17	0659E	0710D		N10	E10	.197	9520	18.0	11D	-F	3		0702	1.20	1.20		157	C
598 UCCL	17	0817E	0901D		N11	E07	.165	9520	17.9	44D	-N		P	0856	1.03	1.04			J 8
599 CAPF	17	0825E	0903D		N33	E88	.997	9530	24.0	38D	2N		P	0828	2.35				A 8
GRP16601	17	1321	1342	1328	N11	W67	.918	9503	12.5	21	-F				.56				2 2 2 5
SACP	17	1317	1351	1330	N11	W66	.911	9503	12.6	34	-F		C		.61	1.02			
HUAN	17	1325	1333	1326	N11	W67	.918	9503	12.5	8	-F	1	C	1326	.50				E
GRP16602	17	1555	1636	1557	S20	E44	.762	9524	21.0	41	-F				.51				2 2 2 7
MCMA	17	1555	1636D	1557	S20	E43	.753	9524	20.9	41D	-N		C	1557	.41	.60			E
CAPS	17	1558E	1603D		S19	E45	.768	9524	21.0	5D	-F	2		1559	.60	1.00		153	CG
603 MCMA	17	1744	1753	1745	S21	E62	.913	9528	22.4	9	-N		C	1745	.31	.70			E 5
604 MCMA	17	1752	1802	1756	N10	E90	1.000	9530	24.5	10	-F		C	1756					6
605 MCMA	17	2010	2040	2025	N25	E90	.999	9530	24.6	30	-F		C	2025					4
GRP16606	17	2154	2205	2156	N22	E90	1.000	9530	24.7	11	-F				.30				2 2 1 3
MCMA	17	2153	2200D		N25	E90	.999	9530	24.7	7D	-F		C	2155					
BOUL	17	2154	2205	2156	N18	E90	1.000	9530	24.7	11	-N		C		.30	1.20			H
607 MANI	18	0012E	0017		N10	E82	.989	9530	24.2	5D	-N	2		0013	.36	.97			4
609 CATA	18	0535E	0600	0540	N15	E80	.982	9530	24.2	25D	-B			0540	.46			219	T 5
GRP16611	18	1030	1120	1030	S11	E20	.427	9537	19.9	50	-F				.29				2 1 1 3
CATA	18	1030	1120	1030	S11	E20	.427	9537	19.9	50	-F			1030	.29	.32		142	
CAPS	18	1044E	1108D		S11	E18	.403	9537	19.8	24D	-N	2		1048	.60	.70		163	CGH
GRP16614	18	1255	1305	(1259)	N10	W80	.983	9503	12.5	10	-N				.26				2 2 2 6
CAPS	18	1255E	1305D		N09	W80	.983	9503	12.5	10D	-B	2		1301	.30				C
HUAN	18	1255	1304		N11	W79	.979	9503	12.6	9	-F	1	C	1257	.21				D
GRP16615	18	1306	1324	1310	N12	E75	.963	9530	24.2	18	-N				.31				3 3 3 6
MCMA	18	1259	1324	1310	N11	E76	.968	9530	24.2	25	-F		C	1310	.21	.90			E
CAPS	18	1310E	1324D		N12	E75	.963	9530	24.2	14D	-N	3		1311	.50				C
CATA	18	1310	1325	1310	N14	E75	.963	9530	24.2	15	-N			1310	.23			182	T
617 MEUD	18	1352E	1358	1352	N12	W10	.214	9520	17.8	6D	-N			1352	.52	.50			CE 8
619 CATA	18	1505	1520	1505	N09	W90	1.000	9503	11.9	15	-F			1505	.40			123	10
7 STATIONS REPORTING GROUP 16620. 2 STATIONS OBSERVING AND NOT REPORTING.																			
GRP16620	18	1545	1639	1621	N10	W09	.181	9520	18.0	54	-N				.83				5 5 5 8
HTPR	18	1540	1635	1616	N06	W11	.192	9520	17.8	55	-N		C	1616	.83	.83			
SACP	18	1549	1645	1627	N11	W11	.219	9520	17.8	56	-F		C		1.12	1.11			
HALE	18	1601E	1634D	1617	N11	W10	.204	9520	17.9	33D	-N	1	P	1617	.46	.50			
MCMA	18	1610E	1619D		N13	W10	.224	9520	17.9	9D	-N		P	1618	.72	.70			E
HOUT	18	1619E	1638	1624	N11	W03	.123	9520	18.5	19D	-N		C		1.00	1.00			R
HOUT	18	1619E	1638	1627	N11	W03	.123	9520	18.5	19D	-N		C						
16620	18	1550	1640	1555	N11	W10	.204	9520	17.9	50	*-F				.72				2 2 2 8
CATA	18	1550	1640	1555	N11	W11	.219	9520	17.8	50	-N			1555	.63	.66		164	
CAPS	18	1558E	1613D		N11	W09	.190	9520	18.0	15D	-F	3		1600	.80	.80		157	C
622 SACP	18	2345	2347D	2346	N16	W18	.359	9520	17.6	2D	-F		P		.52	.51			4
623 CRON	19	0201	0209	0203	N34	E90	.999	9539	25.8	8	-N		C		.30	1.20			3

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624 HALE	19	0410	0412D		S17	E41	.719	9528	22.2	2D	-F	2	P	0412	.21	.30			4
625 HALE	19	0433	0450D	0437	S17	E41	.719	9528	22.3	17D	-N	2	P	0437	.21	.30			4
626 CAPS	19	0604E	0614D		N12	W18	.329	9520	17.9	10D	-N	3		0604	.50	.50			C 6
627 CAPS	19	0833E	0839D		N12	W18	.329	9520	18.0	6D	-F	3		0835	1.00	1.00			C 7
629 CATA	19	0915	0950	0920	N33	E89	.998	9539	26.1	35	1F			0920	.58			135	7
GRP16630	19	1121	1132	1124	S18	E62	.908	9534	24.1	11	-F				.31				2 2 2 6
MCMA	19	1121	1135	1124	S18	E64	.921	9534	24.3	14	-N		C	1124	.31	.80			E
MEUD	19	1124E	1128	1124	S17	E59	.884	9534	23.9	4D	-F			1124	.31	.70			C
GRP16632	19	1506	1530	1509	N11	W21	.370	9520	18.1	24	-F				.64				4 4 4 7
HTPR	19	1505	1520D	1506	N10	W14	.256	9520	18.6	15D	-F		C	1506	.31	.32			
MCMA	19	1506	1545	1510	N11	W26	.446	9520	17.7	39	-N		C	1510	.62	.70			E
SACP	19	1507	1521	1512	N11	W24	.416	9520	17.8	14	-N		C		.61	.62			
CAPS	19	1512E	1523D		N12	W20	.360	9520	18.1	11D	-F	3		1514	1.00	1.00		151	F
GRP16633	19	1631	1651	1635	N26	E75	.964	9530	25.3	20	-F				.26				2 2 2 6
SACP	19	1631	1642	1634	N27	E73	.955	9530	25.2	11	-F		C		.31	.62			
MCMA	19	1631	1700	1635	N25	E77	.971	9530	25.5	29	-F		C	1635	.21	.80			D
GRP16634	19	1703	1739	1708	N18	E67	.918	9530	24.7	36	-F				.57				2 2 2 5
SACP	19	1703	1723	1709	N18	E67	.918	9530	24.7	20	-F		C		.52	.88			
MCMA	19	1703	1755	1707	N17	E66	.911	9530	24.7	52	-N		C	1707	.62	1.50			E
635 MCMA	19	1721	1750		N10	W90	1.000	9503	13.0	29	-F		C						A 4
636 MCMA	19	1915	1935	1918	N11	W28	.476	9520	17.7	20	-N		C	1918	.52	.60			E 1
GRP16637	19	2024	2107	2028	N19	E65	.905	9530	24.7	43	-N				.31				2 2 2 2
MCMA	19	2023	2111	2027	N17	E64	.897	9530	24.6	48	-N		C	2027	.21	.50			EL
SACP	19	2024	2102	2029	N20	E66	.913	9530	24.8	38	-N		C		.41	.69			
GRP16638	19	2142	2205	2148	N17	E63	.890	9530	24.6	23	-N				.32				3 3 3 3
MCMA	19	2140	2208D	2148	N16	E64	.897	9530	24.7	28D	-B		C	2148	.31	.70			E
SACP	19	2140	2212	2148	N18	E62	.883	9530	24.6	32	-F		C		.41	.63			
HUAN	19	2145	2156		N16	E63	.889	9530	24.6	11	-F	1	C	2149	.25	.38			D
639 MEUD	20	0602E	0620		N12	W32	.536	9520	17.9	18D	-F			0602	.83	1.00			E 8
640 CATA	20	0605	0620	0605	N20	E59	.860	9530	24.7	15	-N			0605	.58	1.16		193	8
642 CATA	20	0710	0725	0715	N30	E66	.920	9530	25.2	15	-N			0715	.52			166	6
GRP16644	20	0820	0848	0821	N18	E90	1.000	9539	27.1	28	1N				2.10				1 1 1 7
CRON	20	0820	0848	0821	N18	E90	1.000	9539	27.1	28	1N		C		2.10	3.40			EK
CRON	20	0820	0840	0825	N18	E90	1.000	9539	27.1	20	1N								
GRP16646	20	1054	1115	1055	N10	W38	.616	9520	17.6	21	-N				.55				3 3 3 6
CAPS	20	1053E	1109D		N11	W36	.590	9520	17.8	16D	-N	3		1057	.80	1.00		182	F
HTPR	20	1054	1110	1054	N10	W38	.616	9520	17.6	16	-N		C	1054	.62	.80			U
CATA	20	1055	1120	1055	N08	W39	.628	9520	17.5	25	-N			1055	.23	.30		188	
GRP16647	20	1150	1230	1155	N20	E43	.701	9530	23.7	40	-F				.69				2 2 2 4
CATA	20	1150	1230	1155	N23	E45	.732	9530	23.9	40	-N			1155	.58	.85		182	
CATA	20	1150	1230	1155	N19	E42	.686	9530	23.6	40	-N			1155	.52	.73		162	
CAPS	20	1154E	1205D		N18	E42	.683	9530	23.6	11D	-F	2		1200	.80	1.10		149	CF
648 SACP	20	1417	1436	1429	N11	W36	.590	9520	17.9	19	-F		C		.21	.22			8
649 HUAN	20	1542	1553		N12	W37	.606	9520	17.9	11	-F	1	C	1545	.21	.23			D 7
650 HUAN	20	1632	1643		N12	W37	.606	9520	17.9	11	-F	1	C	1635	.21	.23			D 4
651 HUAN	20	1718	1728		N12	W38	.619	9520	17.9	10	-F	2	C	1721	.25	.27			D 2
652 HALE	20	1820	1832	1821	N11	W40	.644	9520	17.8	12	-N	1	C	1821	.41	.50			FGJ 5
GRP16653	20	1825	1935	1848	N15	W70	.936	9533	15.5	70	-F				.31				2 1 1 4
MCMA	20	1825	1935	1848	N15	W70	.936	9533	15.5	70	-F		C	1848	.31	.90			EHK
HUAN	20	1855	1933		N15	W69	.930	9533	15.6	38	-N	1	C	1914	.45				EH
GRP16654	20	1837	1858	1839	S18	E46	.774	9534	24.2	21	-B				.44				3 3 3 5
MCMA	20	1837	1905	1839	S18	E46	.774	9534	24.2	28	-B		C	1839	.52	.80			E
HALE	20	1837	1858	1839	S18	E45	.765	9534	24.2	21	-B	1	C	1839	.31	.50			G
HUAN	20	1837	1851	1839	S18	E47	.784	9534	24.3	14	-N	1	C	1839	.50	.62			E

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655 HUAN	20	1849	1901		N09	W43	.680	9520	17.6	12	-F	1	C	1852	.25	.28			E 4
656 HALE	20	2114	2125	2115	S18	E43	.745	9534	24.1	11	-B	1	C	2115	.21	.30			FGJ 3
657 HALE	20	2201	2236	2206	S17	E39	.698	9534	23.8	35	-N	1	C	2206	.62	.90			FGJK 4
658 HALE	21	0252	0309	0253	S17	E35	.655	9534	23.7	17	-N	2	C	0253	.41	.50			3
GRP16659	21	0600	0610	0600	S16	E39	.693	9534	24.2	10	-N				.27				2 2 2 6
CATA	21	0600	0610	0600	S15	E40	.699	9534	24.3	10	-B			0600	.14	.20		209	
CAPS	21	0600E	0609D		S17	E37	.677	9534	24.0	9D	-F	3		0602	.40	.60		151	
660 CAPS	21	0600E	0614D		N09	E37	.601	9530	24.0	14D	-F	3		0603	.40	.60		149	J 6
661 CAPS	21	0631E	0703D		N09	E37	.601	9530	24.0	32D	-N	3		0632	.50	.70		160	CJK 6
662 CAPS	21	0826	0833		N28	E58	.862	9539	25.7	7	-F	3		0828	.70	1.30		158	G 6
663 CAPS	21	0847	0851		N15	W71	.942	9533	16.0	4	-F	3		0848	.40			149	G 7
664 CAPS	21	1015E	1031D		S16	E37	.671	9534	24.2	16D	-F	3		1018	1.00	1.40		159	C 6
GRP16666	21	1109	1130	1120	N11	E35	.576	9530	24.1	21	-F				.92				2 2 2 5
CAPS	21	1109E	1128D		N10	E35	.574	9530	24.1	19D	-F	3		1112	1.20	1.40		149	C
CATA	21	1115E	1130D	1120	N12	E35	.578	9530	24.1	15D	-N			1120	.63	.79		190	
667 HTPR	21	1110	1118	1110	N11	W36	.590	9520	18.8	8	-F		C	1110	.31	.40			D 6
GRP16668	21	1135	1205	1142	N20	E39	.654	9530	24.4	30	-F				.86				2 2 2 5
HTPR	21	1135	1205	1144	N18	E34	.584	9530	24.0	30	-F		C	1144	1.03	1.40			U
CATA	21	1140E	1200D	1140	N22	E43	.707	9530	24.7	20D	-N			1140	.69	.98		178	
GRP16669	21	1302	1326	1307	N10	E34	.560	9530	24.1	24	-F				.51				3 3 3 8
MCMA	21	1300	1336	1307	N10	E34	.560	9530	24.1	36	-N		C	1307	.72	.90			E
SACP	21	1303	1321	1307	N11	E33	.548	9530	24.0	18	-F		C		.41	.43			
CAPS	21	1306E	1322D		N10	E34	.560	9530	24.1	16D	-F	1		1309	.40	.50		153	C
670 CAPS	21	1332	1405D		N13	W77	.971	9533	15.8	33D	1F	2		1338	.70			157	8
GRP16672	21	1740	1753	1742	S19	E32	.636	9534	24.1	13	-F				.42				2 2 2 6
HUAN	21	1740	1743D		S19	E32	.636	9534	24.1	3D	-F	1	C	1741	.31	.34			E
MCMA	21	1740	1753	1742	S18	E32	.629	9534	24.1	13	-N		C	1742	.52	.70			E
GRP16673	21	1840	1915	1847	S18	E31	.618	9534	24.1	35	-B				.44				2 2 2 3
MCMA	21	1838	1920	1847	S18	E32	.629	9534	24.2	42	-N		C	1847	.52	.70			EK
HALE	21	1842	1910	1846	S18	E29	.597	9534	24.0	28	-B	3	C	1846	.36	.50			E
GRP16674	21	1949	2050	(1956)	S18	E31	.618	9534	24.2	61	-N				.62				2 1 1 4
MCMA	21	1949	2050		S18	E31	.618	9534	24.2	61	-N		C	1956	.62	.80			E
HUAN	21	2027	2034D		S20	E32	.644	9534	24.3	7D	-F	1	P	2030	.21	.23			D
675 MCMA	21	1956	2011	1958	N27	E53	.820	9530	25.8	15	-N		C	1958	.26	.50			D 3
676 MCMA	21	2059	2118	2101	N13	W88	.999	9533	15.3	19	-N		C	2101					E 5
678 ISTA	22	0600E	0718		N18	W90	1.000	9533	15.5	78D	-F								9
GRP16679	22	1333	1355	1343	S17	E20	.493	9534	24.1	22	-N				1.50				5 4 4 8
LOCA	22	1320	1458	1320	S17	E20	.493	9534	24.1	98	2F		V	1320	4.84	5.60			H
CAPE	22	1326	1405	1341	S16	E19	.472	9534	24.0	39	1F		C	1341	2.17	2.50			F
HTPR	22	1333	1350	1340	S16	E20	.482	9534	24.1	17	-F		C	1340	1.34	1.50			
HUAN	22	1335	1345	1340	S15	E20	.471	9534	24.1	10	-F	2	C	1340	.37	.38			HT
MCMA	22	1338	1600D	1344	S18	E18	.485	9534	23.9	142D	1B		C	1344	2.06	2.30			FKLT
HUAN	22	1340	1351	1345	S19	E22	.534	9534	24.2	11	-N	2	C	1345	.41	.43			E
GRP16680	22	1422	1440	1426	S17	E20	.493	9534	24.1	18	-F				.21				2 1 1 8
HTPR	22	1422	1440	1426	S17	E20	.493	9534	24.1	18	-F		C	1426	.21	.22			D
HUAN	22	1434	1440	1437	S15	E20	.471	9534	24.1	6	-F	2	C	1437	.25	.25			D
681 MCMA	22	1423	1428	1424	S20	W25	.574	9524	20.7	5	-F		C	1424	.26	.30			D 8
682 HUAN	22	1706	1716	1710	S17	E20	.493	9534	24.2	10	-F	2	C	1710	.35	.36			H 6
GRP16683	22	1735	1818	1807	S16	E14	.425	9534	23.8	43	-B				.23				2 2 2 5
HUAN	22	1729	1745		S17	E16	.455	9534	23.9	16	-F	2	C	1732	.25	.25			DH
HALE	22	1740	1821	1805	S16	E12	.408	9534	23.6	41	-B	1	C	1805	.21	.20			JTH
HUAN	22	1755	1814	1808	S16	E15	.433	9534	23.9	19	-N	2	C	1808	.25	.25			DH
684 HALE	22	1841	1850	1845	S17	E12	.422	9534	23.7	9	-N	1	C	1845	.21	.20			TH 4

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GRP16685	22	1912	1939	1918	S18	E13	.443	9534	23.8	27	-B				.37				3 3 3 3
HALE	22	1912	1940	1917	S17	E12	.422	9534	23.7	28	-B	1	C	1917	.41	.50			TH
MCMA	22	1912	1940	1918	S18	E14	.451	9534	23.8	28	-B		C	1918	.26	.30			DH
HUAN	22	1913	1938	1919	S18	E13	.443	9534	23.8	25	-B	2	C	1919	.45	.45			DH
GRP16686	22	1946	2011	(1957)	S18	E14	.451	9534	23.9	25	-F				.23				2 2 2 5
MCMA	22	1945	2015		S18	E14	.451	9534	23.9	30	-N		C	1955	.21	.20			E
HUAN	22	1946	2006		S17	E13	.430	9534	23.8	20	-F	1	C	1958	.25	.25			DH
GRP16687	22	2038	2041	2039	S17	E14	.438	9534	23.9	3	-F				.26				2 2 2 4
HALE	22	2038	2041	2038	S17	E14	.438	9534	23.9	3	-F	1	C	2038	.26	.30			T
HUAN	22	2038	2041	2039	S17	E14	.438	9534	23.9	3	-F	2	C	2039	.25	.25			DH
GRP16688	22	2044	2108	2051	S17	E12	.422	9534	23.8	24	-N				.24				3 3 3 5
HALE	22	2042	2057	2050	S17	E12	.422	9534	23.8	15	-N	1	C	2050	.15	.20			T
HUAN	22	2044	2113	2053	S17	E12	.422	9534	23.8	29	-N	2	C	2053	.31	.31			DHK
MCMA	22	2045	2115	2050	S18	E13	.443	9534	23.8	30	-N		C	2050	.26	.30			DK
GRP16689	22	2121	2130	2122	S18	E12	.436	9534	23.8	9	-F				.24				2 2 2 5
MCMA	22	2120	2128	2122	S18	E12	.436	9534	23.8	8	-N		C	2122	.26	.30			DH
HUAN	22	2121	2131		S17	E12	.422	9534	23.8	10	-F	1	C	2123	.21	.21			DH
GRP16690	22	2137	2204	2144	S18	E12	.436	9534	23.8	27	-B				.26				2 2 2 4
MCMA	22	2136	2208D	2139	S18	E12	.436	9534	23.8	32D	-B		C	2139	.26	.30			DH
HALE	22	2138	2200	2149	S17	E12	.422	9534	23.8	22	-N	1	C	2149	.26	.30			T
GRP16691	22	2324	2348	2328	N18	E23	.438	9530	24.7	24	-N				.83				3 3 3 5
SACP	22	2322	2344	2331	N18	E23	.438	9530	24.7	22	-F		C		.61	.62			
HALE	22	2325	2350	2326	N18	E22	.425	9530	24.6	25	-N	1	C	2326	.52	.60			J
VORO	22	2325	2350	2328	N18	E23	.438	9530	24.7	25	-B		C	2328	1.36	1.52		78	EJK
692 HALE	22	2341	2351	2344	S17	E12	.422	9534	23.9	10	-N	1	C	2344	.26	.30			T 6
693 HALE	23	0012	0023	0017	S16	E09	.388	9534	23.7	11	-F	1	C	0017	.21	.20			HJ 3
694 HALE	23	0045	0058	0055	S16	E09	.388	9534	23.7	13	-F	1	C	0055	.26	.30			HJ 5
696 HALE	23	0248	0323	0251	S16	E11	.402	9534	23.9	35	-F	1	C	0251	.21	.20			LJ 3
697 HALE	23	0328	0409	0331	S16	E11	.402	9534	24.0	41	-F	1	P	0331	.26	.30			J 3
698 HALE	23	0440	0446D	0445	S16	E11	.402	9534	24.0	6D	-N	1	P	0445	.31	.30			3
699 ISTA	23	0545	0600D		S14	E07	.346	9534	23.8	15D	-F								4
700 CATA	23	0818E	0830D	0818	S16	E10	.395	9534	24.1	12D	-N			0818	.34	.38		170	7
701 CATA	23	0850E	0915D	0850	S16	E10	.395	9534	24.1	25D	-N			0850	.40	.44		191	6
702 CATA	23	0930E	0950	0930	S14	E10	.366	9534	24.1	20D	-B			0930	.43	.46		202	5
703 CAPS	23	1146E	1151D		S17	W30	.601	9524	21.2	5D	-N	3		1148	.50	.60		161	CHJ 6
GRP16704	23	1226	1255	1236	S17	W32	.623	9524	21.1	29	-F				.68				2 2 2 8
CAPE	23	1216	1254	1236	S16	W33	.627	9524	21.0	38	-F		C	1236	1.21	1.50			
CATA	23	1235	1255	1235	S17	W31	.612	9524	21.2	20	-N			1235	.14	.18		188	
GRP16706	23	1438	1459	1440	S18	W33	.641	9524	21.1	21	-N				.32				3 3 3 9
MCMA	23	1438	1500	1440	S17	W34	.645	9524	21.1	22	-N		C	1440	.31	.40			D
SACP	23	1438	1451	1441	S18	W32	.630	9524	21.2	13	-N		C		.41	.45			
HUAN	23	1438	1506	1439	S18	W32	.630	9524	21.2	28	-F	2	C	1439	.25	.28			DK
GRP16707	23	1511	1517	1513	S16	E06	.372	9534	24.1	6	-F				.70				2 2 2 7
MCMA	23	1510	1630		S16	E05	.368	9534	24.0	80	-N		C	1520	1.03	1.10			EK
HUAN	23	1511	1517	1513	S16	E06	.372	9534	24.1	6	-F	2	C	1513	.37	.37			T
708 MCMA	23	1522	1610		S18	W31	.620	9524	21.3	48	-F		C	1530	.83	1.00			E 9
709 SACP	23	1527	1552	1531	S16	W35	.650	9524	21.0	25	-N		C		1.84	2.05			9
GRP16710	23	1528	1559	1541	S16	E05	.368	9534	24.0	31	-N				1.84				2 1 1 9
SACP	23	1528	1559	1541	S16	E05	.368	9534	24.0	31	-N		C		1.84	1.83			
HUAN	23	1540	1559		S17	E02	.377	9534	23.8	19	-F	1	C	1553	.25	.25			D
711 HUAN	23	1540E	1555		N10	W80	.983	9520	17.7	15D	-F	1	C	1545	.21				D 9
GRP16712	23	1633	1647	1635	S17	E02	.377	9534	23.8	14	-F				.39				2 2 2 5
MCMA	23	1632	1645D	1635	S17	E01	.376	9534	23.8	13D	-N		C	1635	.52	.60			E
HUAN	23	1634	1647	1635	S17	E02	.377	9534	23.8	13	-F	2	C	1635	.25	.25			D

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713 HTPR	23	1651	1730	1653	S17	W32	.623	9528	21.3	39	-N		C	1653	.21	.30			D 4
GRP16714	23	1655	1744	1700	S16	E03	.362	9534	23.9	49	-N				.56				3 3 3 4
HTPR	23	1653	1758D	1701	S17	E04	.381	9534	24.0	65D	-N		C	1701	.31	.32			T
SACP	23	1655	1716	1700	S16	E04	.365	9534	24.0	21	-N		C		.81	.82			
HUAN	23	1656	1705	1700	S16	E03	.362	9534	23.9	9	-N	2	C	1700	.55	.55			E
HUAN	23	1704	1759		S17	E02	.377	9534	23.9	55	-F	2	C	1728	.52	.52			E
715 HTPR	23	1755	1758D	1756	S17	W32	.623	9528	21.3	3D	-N		C	1756	.31	.40			D 4
716 HUAN	23	1756	1759	1757	S18	W38	.695	9524	20.9	3	-N	2	C	1757	.25	.28			D 4
717 HUAN	23	1903	1915	1904	S16	W38	.683	9524	20.9	12	-F	2	C	1904	.62	.70			E 4
GRP16718	23	1923	2010	(1926)	S17	E02	.377	9534	24.0	47	-N				.62				2 1 1 3
MCMA	23	1923E	2010D		S17	E02	.377	9534	24.0	47D	-N		C	1926	.62	.70			EH
HUAN	23	2009	2014		S17	E02	.377	9534	24.0	5	-F	1	C	2011	.31	.31			D
719 HTPR	24	0517E	0600D	0518	S17	W03	.380	9534	24.0	43D	-N		C						5
720 TACH	24	0518	0523	0519	N12	E90	1.000	9545	31.0	5	-N		C	0520	.91		3.20	60	D 5
721 CATA	24	1005	1030D	1010	S16	W06	.374	9534	24.0	25D	-N			1010	.17	.19		186	5
GRP16722	24	1141	1245	1151	S16	W05	.370	9534	24.1	64	-N				.90				3 3 3 7
CAPS	24	1140E	1225D		S15	W06	.358	9534	24.0	45D	-N	2		1144	1.50	1.70		182	C
HTPR	24	1142	1240	1151	S17	W07	.394	9534	24.0	58	-N		C	1151	.62	.70			
CATA	24	1145E	1250	1150	S16	W06	.374	9534	24.0	65D	-B			1150	.58	.63		206	
CATA	24	1145E	1215	1150	S16	W01	.361	9534	24.4	30D	-N			1150	.29	.31		170	
GRP16723	24	1328	1333	1330	N09	W07	.138	9530	24.0	5	-F				.21				2 2 2 8
HUAN	24	1326	1331		N10	W07	.147	9530	24.0	5	-F	2	C	1327	.25	.25			D
CATA	24	1330	1335	1330	N08	W06	.115	9530	24.1	5	-N			1330	.17	.18		178	
724 SACP	24	1421	1503	1435	N14	W12	.255	9530	23.7	42	-F		C		1.02	1.00			9
GRP16725	24	1428	1435	1429	S15	W06	.358	9534	24.2	7	-F				.30				2 2 2 8
HUAN	24	1426	1435	1428	S15	W06	.358	9534	24.2	9	-F	2	C	1428	.37	.37			ET
CATA	24	1430	1435	1430	S15	W06	.358	9534	24.2	5	-N			1430	.23	.25		190	
GRP16726	24	1542	1556	1546	S16	W08	.384	9534	24.1	14	-F				.62				3 3 3 7
HTPR	24	1540	1600	1545	S16	W08	.384	9534	24.1	20	-F		C	1545	.31	.32			
HUAN	24	1543	1554	1546	S16	W08	.384	9534	24.1	11	-F	2	C	1546	.25	.25			D
CAPS	24	1544E	1555D		S15	W08	.369	9534	24.1	11D	-N	3		1545	1.30	1.40		166	C
728 HUAN	24	1715	1728		S17	W10	.410	9534	24.0	13	-F	2	C	1722	.37	.37			E 5
729 HUAN	24	2017	2025		S17	W52	.828	9524	20.9	8	-F	1	C	2019	.45	.62			2
730 HALE	25	0047	0057	0048	S16	W57	.868	9524	20.8	10	-F	1	C	0048	.31	.60			4
731 HALE	25	0055	0100	0057	N07	W19	.325	9530	23.6	5	-N	1	C	0057	.26	.30			H 4
732 SIBE	25	0240	0332	0308	S15	W60	.889	9524	20.6	52	1F		P	0308	1.16	2.34		65	D 5
733 MITK	25	0515	0523	0518	S17	W17	.467	9534	23.9	8	-F		C	0518	1.13	1.30			E 6
GRP16734	25	0602	0625	0605	S18	W16	.471	9534	24.1	23	-F				.59				2 2 2 8
BUCA	25	0559E	0629D		S17	W16	.458	9534	24.0	30D	-F		C	0611	.60	.70			
CATA	25	0605	0620	0605	S18	W15	.462	9534	24.1	15	-N			0605	.58	.65		182	Z
735 ISTA	25	0640E	0736		S15	W58	.874	9524	20.9	56D	-F								9
736 ISTA	25	0701	0704		N06	W22	.373	9530	23.6	3	-B								9
GRP16737	25	0709	0722	(0711)	S18	W18	.488	9534	23.9	13	-N				.60				2 2 1 8
BUCA	25	0706E	0722D		S17	W17	.467	9534	24.0	16D	-N		C	0711	.60	.70			
ISTA	25	0712	0721		S18	W19	.498	9534	23.9	9	-N								
5 STATIONS REPORTING GROUP 16738.					5 STATIONS OBSERVING AND NOT REPORTING.														
GRP16738	25	0806	0915	0810	S17	W17	.467	9534	24.1	69	-N				.96				4 4 3 10
BUCA	25	0804E	0835D		S16	W15	.437	9534	24.2	31D	-N		C	0816	1.52	1.70			
CATA	25	0805	0935	0810	S19	W17	.492	9534	24.1	90	-N			0810	.87	.99		189	Z
CAPS	25	0807	0810D		S15	W18	.453	9534	24.0	3D	-N	1		0808	.50	.60		166	
ISTA	25	0808	0854		S16	W18	.465	9534	24.0	46	1N								

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16738	25	0841	0858	0845	S15	W16	.434	9534	24.2	17	#-N				.50				4 4 2 10
HTPR	25	0801	0900		S17	W16	.458	9534	24.1	59	-N		C						
BUCA	25	0837E	0844D		S17	W17	.467	9534	24.1	7D	-N		C	0839	.60	.70			
BUCA	25	0842E	0850D		S14	W16	.421	9534	24.2	8D	-N		C	0843	.45	.50			
CATA	25	0845	0855	0845	S16	W15	.437	9534	24.2	10	-N			0845	.40	.45		182	
CAPS	25	0846E	0848D		S13	W16	.410	9534	24.2	2D	-F	1							C
GRP16739	25	0849	0936	0900	N08	W22	.375	9530	23.7	47	-F				1.16				2 2 1 9
ISTA	25	0747	0921		N08	W20	.343	9530	23.8	94	-F								
ISTA	25	0848	0851		N07	W23	.390	9530	23.6	3	-N								
CATA	25	0850	0950	0900	N08	W22	.375	9530	23.7	60	-N			0900	1.16	1.26		178	
GRP16740	25	0949	1009	0950	N08	W23	.391	9530	23.7	20	-F				.29				2 2 2 9
BUCA	25	0947E	1018D		N08	W23	.391	9530	23.7	31D	-F		P	0949	.45	.50			
CATA	25	0950	1000	0950	N07	W23	.390	9530	23.7	10	-N			0950	.13	.15		180	
GRP16741	25	1032	1100	1041	N20	W08	.287	9530	24.8	28	-N				.70				2 2 2 5
HTPR	25	1028	1050	1037	N20	W08	.287	9530	24.8	22	-N		C	1037	.41	.42			
CATA	25	1035	1110	1045	N19	W07	.265	9530	24.9	35	-N			1045	.98	1.04		170	
742 MCMA	25	1132	1214	1135	S25	W05	.509	9549	25.1	42	-N		C	1135	.36	.40			DH 6
743 MCMA	25	1217E	1222		S16	W46	.768	9528	22.1	5D	-N		C	1218	.41	.60			E 6
GRP16745	25	1257	1311	1300	S16	W18	.465	9534	24.2	14	-N				.75				4 4 3 8
SACP	25	1253	1311	1301	S15	W19	.464	9534	24.1	18	-N		C		1.02	1.05			
MCMA	25	1257	1310	1259	S16	W20	.485	9534	24.0	13	-N		C	1259	.52	.60			E
MEUD	25	1258	1305		S16	W19	.475	9534	24.1	7	-F								
CATA	25	1300	1317	1300	S16	W15	.437	9534	24.4	17	-B			1300	.72	.81		200	
746 HUAN	25	1431	1444		S17	W63	.914	9524	20.9	13	-F	1	C	1435	.21				D 10
747 SANM	25	1542E	1556D		S15	W64	.917	9524	20.9	14D	1F		P	1544	.97	2.59			D 7
GRP16748	25	1639	1645	1642	S17	W22	.516	9534	24.0	6	-N				.41				3 3 3 4
HTPR	25	1637	1644	1642	S17	W20	.496	9534	24.2	7	-N		C	1642	.31	.40			
MCMA	25	1639	1645	1642	S17	W22	.516	9534	24.0	6	-N		C	1642	.41	.50			E
HUAN	25	1641	1647		S18	W23	.537	9534	24.0	6	-N	2	C	1642	.50	.51			E
GRP16749	25	1855	1906	1859	S16	W24	.528	9534	24.0	11	-F				.36				2 2 2 4
HUAN	25	1854	1901		S16	W24	.528	9534	24.0	7	-F	1	C	1857	.35	.37			E
HALE	25	1855	1911	1859	S15	W23	.507	9534	24.1	16	-N	1	P	1859	.36	.40			E
753 MANI	26	0235E	0242D		S14	W27	.545	9534	24.1	7D	-F	2		0235	1.35	1.60			3
GRP16754	26	0608	0640	0625	S16	W33	.629	9534	23.8	32	-N				.31				2 1 1 8
HTPR	26	0608	0640	0625	S16	W33	.629	9534	23.8	32	-N		C	0625	.31	.40			
BUCA	26	0615E	0715D		S16	W29	.584	9534	24.1	60D	-F		C	0702	.81	.90			
GRP16755	26	0636	0719	(0644)	S14	W74	.970	9524	20.7	43	-F				.45				2 2 2 9
BUCA	26	0636E	0719D		S15	W75	.974	9524	20.6	43D	-F		C	0644	.60				
CAPS	26	0640E	0654D		S13	W72	.960	9524	20.9	14D	-N	3		0643	.30			176	C
756 BUCA	26	0706E	0715D		N06	W33	.542	9530	23.8	9D	-N		C	0709	.15	.20			6
758 HTPR	26	1053	1057	1054	S16	W34	.640	9534	23.9	4	-N		C	1053	.21	.30			4
GRP16759	26	1229	1240	1234	S21	W77	.984	9524	20.7	11	-F				.60				2 2 1 6
CAPS	26	1229E	1239		S18	W75	.976	9524	20.9	10D	-N	3		1231	.60			165	C
MCMA	26	1229	1240	1234	S23	W78	.988	9524	20.7	11	-F		C	1234					EL
GRP16760	26	1233	1251	1235	N07	W39	.627	9530	23.6	18	-N				.58				4 4 4 6
HTPR	26	1230	1240	1232	N07	W40	.640	9530	23.5	10	-F		C	1232	.21	.60			
MCMA	26	1232	1254	1235	N07	W39	.627	9530	23.6	22	-N		C	1235	.72	.90			E
CAPS	26	1233	1253D		N08	W38	.613	9530	23.7	20D	-B	3		1235	1.00	1.20		210	HK
CATA	26	1235	1255D	1235	N05	W38	.613	9530	23.7	20D	-B			1235	.40	.52		209	Z
GRP16761	26	1243	1256	1246	N07	W39	.627	9530	23.6	13	-F				.47				2 2 2 6
SACP	26	1242	1301	1248	N06	W38	.613	9530	23.7	19	-F		C		.52	.57			
HTPR	26	1243	1250	1244	N07	W40	.640	9530	23.5	7	-F		C	1244	.41	.50			
762 SANM	26	1319	1356D		N09	W38	.614	9530	23.7	37D	-F		P	1322	.97	1.26			D 10
GRP16763	26	1410	1425	1412	S17	W33	.636	9534	24.1	15	-F				.43				3 3 3 9
LOCA	26	1408	1426	1412	S18	W32	.633	9534	24.2	18	-N		V	1412	.63	.80			
HUAN	26	1411	1423		S17	W34	.647	9534	24.0	12	-F	2	C	1414	.25	.28			D
CAPS	26	1413E	1420D		S15	W33	.622	9534	24.1	7D	-F	3		1415	.40	.50		158	C
765 CAPS	26	1543E	1558D		N11	W14	.258	9553	25.6	15D	-F	3		1546	.70	.70		159	CG 9

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766 HUAN	26	1757	1807		N10	W09	.175	9553	26.1	10	-F	1	C	1801	.25	.25			D 7
GRP16767	26	1852	1904	1855	N09	W41	.654	9530	23.7	12	-N				.31				3 3 3 5
MCMA	26	1851	1905	1854	N07	W42	.666	9530	23.6	14	-N		C	1854	.31	.40			E
HALE	26	1852	1909	1856	N10	W40	.641	9530	23.8	17	-N	1	C	1856	.41	.50			
HUAN	26	1854E	1858		N09	W40	.641	9530	23.8	4D	-F	1	P	1854	.21	.23			D
GRP16768	26	1912	1942	1914	N13	E56	.826	9545	31.0	30	-N				.27				3 3 3 5
MCMA	26	1911	1940	1913	N13	E57	.836	9545	31.1	29	-N		C	1913	.31	.60			D
HALE	26	1912	1943	1914	N13	E54	.807	9545	30.9	31	-B	2	C	1914	.26	.40			E
HUAN	26	1915E	1922D		N12	E56	.826	9545	31.0	7D	-F	1	P	1915	.25	.34			CD
GRP16771	26	2115	2124	2116	N07	W42	.666	9530	23.7	9	-N				.63				3 3 3 5
HALE	26	2115	2134D		N08	W42	.666	9530	23.7	19D	-B	1	P	2116	.62	.80			
MCMA	26	2115	2119	2116	N06	W40	.640	9530	23.9	4	-N		C	2116	.52	.70			E
HUAN	26	2116E	2120		N07	W43	.679	9530	23.7	4D	-N	1	P	2116	.75	.87			E
772 HUAN	26	2119	2127		S18	W39	.707	9534	24.0	8	-F	1	C	2120	.31	.36			5
774 SIBE	27	0335	0340	0336	S16	W38	.685	9534	24.3	5	-F		C	0336	1.00	1.26		55	D 4
GRP16775	27	0338	0350	0345	S17	W70	.954	9528	21.9	12	-F				.83				2 2 2 5
TACH	27	0338	0349	0345	S17	W70	.954	9528	21.9	11	1N		C	0345	.93	2.50	2.40	66	D
MANI	27	0343E	0350		S16	W70	.953	9528	21.9	7D	-F	2		0344	.72	1.60			
776 TACH	27	0429	0437	0431	S17	W72	.964	9528	21.8	8	1F		C	0431	.93	2.70	1.60	45	D 3
GRP16777	27	0620	0729	0621	N09	W46	.716	9530	23.8	69	-N				.61				3 2 2 7
HTPR	27	0620	0630	0621	N08	W45	.704	9530	23.9	10	-F		C	0621	.72	.96			
BUCA	27	0620E	0729D		N08	W46	.716	9530	23.8	69D	-N		C	0641	.98	1.30			
CAPS	27	0625E	0629D		N09	W46	.716	9530	23.8	4D	-B	2		0627	.50	.70		195	C
778 MANI	27	0624E	0630	0626	S16	W44	.749	9534	24.0	6D	-F	2		0626	.26	.39			8
GRP16779	27	0624	0637	0628	N12	E50	.764	9545	31.0	13	-F				.63				3 3 3 8
BUCA	27	0624E	0642D		N14	E50	.765	9545	31.0	18D	-F		C	0628	.32	.40			
MANI	27	0624E	0632	0628	N10	E51	.774	9545	31.1	8D	-F	2		0628	.36	.56			
CAPS	27	0625E	0631D		N13	E49	.753	9545	30.9	6D	-N	2		0628	1.20	1.80		161	C
GRP16782	27	0750	0850	(0828)	N08	W43	.679	9530	24.1	60	-F				.53				2 2 2 7
BUCA	27	0750E	0850D		N08	W43	.679	9530	24.1	60D	-N		C	0828	.65	.90			
CAPS	27	0753E	0805D		N08	W42	.666	9530	24.2	12D	-F	3		0754	.40	.60		156	CJ
CAPS	27	0827E	0833D		N08	W42	.666	9530	24.2	6D	-F	2		0828	.40	.60		152	CJ
783 CAPE	27	0925	0937	0929	N06	W51	.774	9530	23.6	12	-N		C	0929	.84	1.30			H 9
GRP16784	27	0950	1023	1003	S17	W44	.753	9534	24.1	33	-N				.56				4 4 4 9
HTPR	27	0950	1020	1000	S15	W45	.755	9534	24.0	30	-N		C	1000	.41	.60			
CATA	27	0950	1025	1005	S20	W43	.758	9534	24.2	35	-B			1005	.29	.44		229	
BUCA	27	0955E	1015D		S17	W44	.753	9534	24.1	20D	-N		P	1004	1.14	1.50			
CAPS	27	1000E	1017D		S15	W44	.745	9534	24.1	17D	-N	3		1003	.40	.60		161	C
785 CAPE	27	1006	1019	1010	N07	W47	.728	9530	23.9	13	-F		C	1010	1.06	1.50			9
786 SACP	27	1320E	1333	1320U	N17	W39	.641	9530	24.6	13D	-N		C		.41	.46			8
787 HUAN	27	1543	1549		N07	W56	.826	9530	23.5	6	-F	1	C	1546	.25	.34			D 6
788 HUAN	27	1645	1653	1647	N08	W32	.528	9553	25.3	8	-N	2	C	1647	.31	.31			E 4
789 HOUT	27	1712	1718	1713	N15	E90	1.000	9557	3.5	6	-N		C		.30	1.20			4
GRP16790	27	1748	1753	1750	N12	E41	.656	9545	30.8	5	-N				.30				2 2 2 4
HUAN	27	1748	1753	1750	N12	E41	.656	9545	30.8	5	-N	1	C	1750	.33	.37			
MCMA	27	1748	1749D		N12	E40	.643	9545	30.7	1D	-N		P	1749	.26	.40			D
791 SACP	27	1817E	1827D	1817U	N15	E42	.674	9545	30.9	10D	-N		P		1.23	1.40			4
792 HUAN	27	1852	1855	1853	N07	W55	.816	9530	23.7	3	-F	2	C	1853	.21	.27			D 2
793 HUAN	27	1938	1947		N16	W44	.700	9530	24.5	9	-F	1	C	1941	.21	.24			D 2
794 HUAN	27	2035E	2057		S16	W55	.852	9534	23.7	22D	-F	1	P	2040	.25	.34			D 2
795 HUAN	27	2221	2227	2222	N11	W27	.459	9553	25.9	6	-F	2	C	2222	.41	.42			E 4
796 HOUT	27	2339	2355	2343	N06	E39	.627	9545	30.9	16	-F		C		.80	1.00			E 3

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GRP16799	28	1055	1111	1058	S17	W61	.901	9534	23.9	16	-N				.40				3 3 3 9
MEUD	28	1055	1108		S17	W62	.908	9534	23.8	13	-N			1057	.26	.50			D
LOCA	28	1055	1115	1058	S17	W60	.894	9534	24.0	20	-N		V	1058	.63	1.30			
CAPS	28	1055E	1110D		S17	W61	.901	9534	23.9	15D	-N	3		1057	.30			170	C
800 MEUD	28	1139	1141		S17	W63	.915	9534	23.8	2	-F								CD 7
801 HUAN	28	1610	1624	1614	N29	W90	.999	9548	21.9	14	-F	2	C	1614	.25				D 10
802 HUAN	28	1635	1643		N07	W70	.937	9530	23.4	8	-F	1	C	1638	.37				E 9
803 HUAN	28	1757	1803	1759	N30	W15	.474	9550	27.6	6	-F	2	C	1759	.21	.21			D 7
804 HUAN	28	1805	1814		N08	E27	.453	9545	30.8	9	-F	1	C	1807	.25	.25			D 7
GRP16806	28	1945	1955	1949	S17	W65	.927	9534	23.9	10	-N				.45				2 2 2 5
HALE	28	1944	1957	1949	S16	W64	.919	9534	24.0	13	-N	2	C	1949	.52				
HUAN	28	1945	1953		S17	W66	.933	9534	23.9	8	-N	1	P	1950	.37				
807 HUAN	28	2037	2045		N08	W70	.937	9530	23.6	8	-F	1	P	2038	.45				E 5
808 HUAN	28	2215E	2219		S16	W67	.938	9534	23.9	4D	-F	1	P	2216	.21				D 2
809 MANI	29	0105E	0109	0106	N07	E24	.405	9545	30.8	4D	-B	2		0106	.15	.17			4
810 MANI	29	0229E	0303D		N07	W71	.943	9530	23.8	34D	-F	2		0230	.21	.46			4
811 MANI	29	0422E	0433	0425	S17	W65	.927	9534	24.3	11D	-N	2		0425	.41	.88			5
GRP16812	29	0600	0815	0800	N09	W78	.976	9530	23.4	135	-N				.50				2 2 1 9
ISTA	29	0600E	0834		N08	W76	.968	9530	23.5	154D	-N								
ISTA	29	0716	0816		N12	W75	.962	9530	23.7	60	-N								
CANR	29	0758	0813	0800	N07	W80	.983	9530	23.3	15	-N		C		.50	1.50			
813 ISTA	29	0637	0804	0650	S17	W68	.945	9534	24.2	87	-N								7
814 MANI	29	0728E	0735	0730	N07	E21	.357	9545	30.9	7D	-N	2		0730	.52	.56			11
815 ISTA	29	0813	0834D		N29	W25	.549	9550	27.5	21D	-F								10
GRP16816	29	0829	0838	0832	N08	E21	.358	9545	30.9	9	-F				1.00				2 2 1 10
CAPS	29	0826E	0839D		N08	E22	.374	9545	31.0	13D	-F	3		0829	1.00	1.10		150	CJ
MEUD	29	0831	0836	0832	N07	E20	.341	9545	30.9	5	-F								D
GRP16817	29	0853	1000	(0858)	N08	E23	.390	9545	31.1	67	-F				.92				2 2 2 11
CAPS	29	0851	0910D		N08	E24	.406	9545	31.2	19D	-N	3		0855	1.00	1.10		168	J
ARCE	29	0855	1000D		N07	E22	.373	9545	31.0	65D	-F		C	0900	.83	.90			
818 ARCE	29	0907	0918D		S12	W71	.955	9534	24.1	11D	-F		C	0911	.22	.50			10
819 CAPS	29	1012E	1025D		N08	E20	.342	9545	30.9	13D	-F	3		1017	1.50	1.60		151	CJ 6
820 CANR	29	1127	1140	1130	N16	W65	.902	9530	24.6	13	1N		C		1.00	2.10			8
822 HUAN	29	1153	1224		N09	W78	.976	9530	23.6	31	-N	1	C	1156	.25				DT 10
3 STATIONS REPORTING GROUP 16823. 8 STATIONS OBSERVING AND NOT REPORTING.																			
GRP16823	29	1155	1310	(1205)	N11	E19	.335	9545	30.9	75	-F				2.24				1 1 1 11
CAPS	29	1205	1250D		N13	E22	.390	9545	31.2	45D	-F			1210	2.30	2.50			W
CAPS	29	1205	1250D		N13	E22	.390	9545	31.2	45D	-F	2		1207	.60	.70		150	FI
16823	29	1210	1305	1225	N12	E20	.355	9545	31.0	55	*-B				1.04				2 1 1 11
CATA	29	1210	1305	1225	N12	E20	.355	9545	31.0	55	-B			1225	1.04	1.12		214	
HUAN	29	1226	1251		N08	E22	.374	9545	31.2	25	-F	2	C	1238	.45	.45			E
824 CANR	29	1433	1445	1436	N07	W83	.991	9530	23.4	12	1N		C		1.00	3.40			12
825 LOCA	29	1435	1507	1439	S12	W72	.960	9534	24.2	32	-N		V	1439		1.00			12
827 SANM	29	1451	1507		N07	W84	.993	9530	23.3	16	-F		C	1454	.32				D 13
829 HUAN	29	1900	1905	1901	N08	E16	.277	9545	31.0	5	-F	2	C	1901	.21	.21			D 5
GRP16830	29	1959	2032	2008	N07	E15	.258	9545	31.0	33	-N				.89				3 3 3 4
MCMA	29	1958	2036		N07	E16	.275	9545	31.0	38	-N		C	2002	.93	1.00			E
HUAN	29	1959	2030		N07	E16	.275	9545	31.0	31	-N	2	C	2008	.62	.62			E
HALE	29	2000	2029	2008	N08	E14	.244	9545	30.9	29	-N	1	C	2008	1.13	1.20			
831 HUAN	29	2126	2148		N08	W85	.995	9530	23.5	22	-F	1	C	2140	.37				E 5

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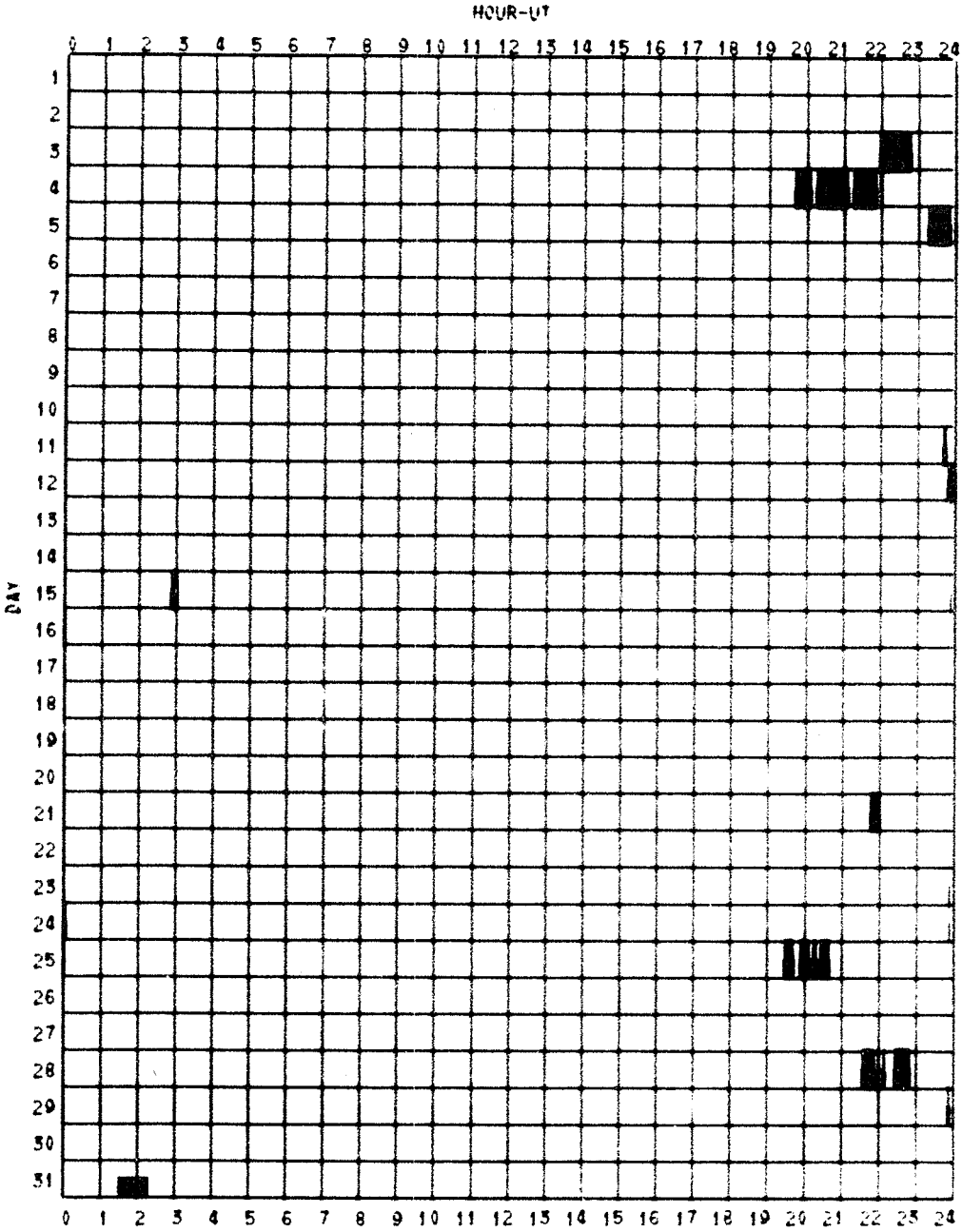
	DATE 1968 JULY	START	END	MAX. PHASE	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hα	MAX. INT. %	
832 HUAN	29	2206	2219	2208	N07	E14	.242	9545	31.0	13	-F	2	C	2208	.25	.25			D 5
GRP16833	29	2210	2227	2214	N24	E86	.995	9557	5.4	17	-F				.31				2 2 2 4
HUAN	29	2209	2225		N23	E88	.998	9557	5.5	16	-F	1	C	2213	.31				
SACP	29	2210	2229	2214	N25	E84	.991	9557	5.2	19	-N		C		.31				
GRP16834	30	0032	0058	0039	N08	E13	.227	9545	31.0	26	-F				.81				2 2 2 4
CRON	30	0032	0100	0038	N07	E14	.242	9545	31.1	28	-F		C		1.40	1.50			
HALE	30	0039E	0055	0039	N08	E11	.194	9545	30.9	16D	-N	1	P	0039	.21	.20			
835 CRON	30	0044	0057	0049	N07	W90	1.000	9530	23.3	13	1F		C		.70	2.80			I 4
836 MANI	30	0154E	0215		N09	W83	.991	9530	23.9	21D	-N	2		0154	.41	1.13			4
838 MANI	30	0414	0425	0418	N09	W87	.998	9530	23.7	11	-N	2		0418	.52	1.55			5
839 MANI	30	0437	0446	0440	N09	W87	.998	9530	23.7	9	-B	2		0440	.57	1.70			5
841 CRON	30	0539	0547	0542	N07	W90	1.000	9530	23.5	8	-N		C		.30	1.20			I 6
842 CATA	30	0600	0605	0600	N10	E08	.157	9545	30.9	5	-N			0600	.58	.57		186	10
843 MANI	30	0609	0619	0613	N09	W87	.998	9530	23.7	10	-N	2		0613	.46	1.39			10
GRP16844	30	0610	0618	0613	N08	W89	1.000	9530	23.6	8	-N				.38				2 2 2 11
MANI	30	0609	0619	0613	N09	W87	.998	9530	23.7	10	-N	2		0613	.46	1.39			
CRON	30	0610	0616	0612	N07	W90	1.000	9530	23.5	6	-N		C		.30	1.20			I
845 MANI	30	0645	0658	0649	N21	E80	.981	9557	5.3	13	-B	2		0649	.21	.53			10
846 CATA	30	0645	0705	0650	N15	E08	.212	9545	30.9	20	-B			0650	1.04	1.07		229	11
848 CAPS	30	0948	0956		N09	E06	.119	9545	30.9	8	-N	3		0951	.50	.50		166	8
849 CATA	30	1035	1050	1035	N09	E10	.182	9545	31.2	15	-N			1035	.52	.53		191	9
850 HUAN	30	1213	1233		S11	W90	1.000	9534	23.8	20	-F	1	C	1216	.25				D 10
851 HUAN	30	1311	1321		N07	W90	1.000	9530	23.8	10	-F	2	C	1313	.21				D 10
852 HUAN	30	1411	1415	1412	N14	E04	.161	9545	30.9	4	-F	2	C	1412	.21	.21			D 12
GRP16853	30	1445	1505	1449	N07	E02	.042	9545	30.8	20	-F				.46				4 4 4 10
SACP	30	1441	1522	1449	N07	E02	.042	9545	30.8	41	-N		C		.71	.71			
MCMA	30	1444	1500D	1448	N07	E04	.073	9545	30.9	16D	-N		C	1448	.41	.40			E
HUAN	30	1445	1501		N07	W01	.030	9545	30.5	16	-F	2	C	1453	.25	.25			D
SANM	30	1450	1456	1451	N06	E02	.035	9545	30.8	6	-F		C	1451	.48	.48			E
854 HUAN	30	1454	1503		S11	W90	1.000	9534	23.9	9	-F	2	C	1457	.21				D 11
855 SACP	30	1501	1521	1510	N23	E78	.973	9557	5.5	20	-F		C		.71	1.70			12
857 BOUL	30	1635	1645	1637	S13	W90	1.000	9534	23.9	10	-N		C		.50	2.00			7
859 HUAN	30	1916	1923		N12	E00	.111	9545	30.8	7	-F	2	P	1919	.25	.25			D 4
GRP16861	30	2134	2145	2138	N09	W05	.105	9545	30.5	11	-N				.61				2 2 2 4
SACP	30	2134	2146	2138	N09	W05	.105	9545	30.5	12	-N		C		.81	.80			
HUAN	30	2134	2143	2137	N09	W05	.105	9545	30.5	9	-N	2	C	2137	.41	.41			EH
862 SACP	31	0108E	0111D	0108U	N06	W04	.070	9545	30.7	3D	-F		P		.81	.80			3
GRP16863	31	0153	0228	0201	N10	W01	.077	9545	31.0	35	-F				1.98				1 1 1 2
SIBE	31	0153	0207	0158	N13	W01	.128	9545	31.0	14	-F		C	0158	1.65	1.76		61	E
SIBE	31	0156	0228	0201	N08	W01	.044	9545	31.0	32	-F		C	0201	1.98	1.92		60	EF
864 ISTA	31	0647	0709		N15	W01	.163	9545	31.2	22	-N								12
866 ARCE	31	0830E	0845D		N33	W48	.791	9550	27.8	15D	-F		C	0835	.35	.60			9
867 ARCE	31	0945	1000D		N11	W08	.166	9545	30.8	15D	-F		C	0945	.64	.60			5
868 ARCE	31	1000E	1000D		N06	W10	.173	9545	30.7		-F		P	1000	.55	.60			5
GRP16869	31	1110	1125	1116	N08	W10	.177	9545	30.7	15	-F				.71				3 2 2 5
CAPE	31	1110	1120	1116	N09	W12	.214	9545	30.6	10	-F		C	1116	1.21	1.20			
HTPR	31	1110	1130	1116	N07	W08	.140	9545	30.9	20	-F		C	1116	.21	.22			D
MCMA	31	1130E	1155	1131	N07	W09	.157	9545	30.8	25D	-N		C	1131	.83	.80			E

SOLAR FLARES
Small or Unconfirmed
JUNE 1968

OBSERVATORY	OBSERVED UT				LOCATION					DURATION — MIN.	IMPORTANCE	OBS.		MEASUREMENTS					REMARKS
	DATE 1968 JULY	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. %	
GRP16870	31	1135	1210	1153	N33	W62	.895	9550	26.8	35	-N				.92				2 1 1 7
CAPE	31	1135	1210	1153	N33	W62	.895	9550	26.8	35	-N		C	1153	.92	2.00			
HTPR	31	1135	1150	1143	N25	W52	.802	9550	27.6	15	-F		C	1143	.21	.40			
871 ONDR	31	1326	1335D		S08	W40	.671	9558	28.6	9D	-N		V	1329			1.60		CDGH 9
872 HUAN	31	1548E	1555		N25	W90	.999	9530	24.9	7D	-F	1	P	1551	.21				D 8
875 HALE	31	2238	2244D	2239	N09	W18	.312	9545	30.6	6D	-F	1	P	2239	.21	.20			3
876 HALE	31	2302	2317	2308	N08	W19	.326	9545	30.5	15	-F	1	C	2308	.31	.30			H 3

INTERVALS OF NO FLARE PATROL OBSERVATION
For Preceding Solar Flare Table

JULY 1968



Observatories included in total patrol:

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

Times of no flare patrol are shown by the shaded area for each day divided into times of no cinematographic patrol (bottom half of day) and times of neither visual nor cinematographic patrol (top half of day).

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

JULY 1968

JULY 1968	UNIVERSAL TIME START	END	MAX	WIDE SPREAD INDEX	SWF TYPE IMP	IMPORTANCE ABS SCNA	SEA	SPA	SES	SFD	STATIONS	KNOWN FLARE
03	0407	0432	0410	3	S 1-						MA OK	NF
07	0226	0310	0240	1				25			MA(K18-25)	NF
07	0227		0229					18			YP-HO/ 18 MR-GE/ 10	
07	0222		0224						20		MR-GE/ 20 YP-HO/ 10	
07	0232		0234					14			YP-HO/ 14	
07	0232		0233						10		YP-HO/ 10	
07	0237		0241					14			YP-HO/ 14	
07	0237		0240						10		YP-HO/ 10	
08	2230	2325	2255	1				51			WO(G18-51)	NF
10	0208	0240	0212	1	S 1-						MA	0203
10	0206	0240	0214	1				15			MA(K18-15)	
10	0205		0215U					57			YP-HO/ 57	
10	0205		0216						20		YP-HO/ 20	
13	1619	1640	1624	1				18			SL(R16-18)	1623
17	1325	1400	1337	1				36			SL(R16-36)	1325
18	0115		0125					32			YP-HO/ 32 MR-GE/ 18	0113
18	0115		0127						20		YP-HO/ 20 MR-GE/ 10	
20	1146	1224	1152	1					2-		DV	1150
30	0841	0910	0900U	1				29			SL(R16-29)	0840E
30	1745	1757	1750	1				6			UM(AA17-6)	1742
31	1614	1645	1619	1				18			SL(R16-18)	1614

Observing Times for July 1968 of stations reporting in time for publication in IER-FB-288 were given on page 23 of that issue.
The following stations were also observing during the month of July 1968: Slough and Trinidad.

Slough was not observing during the following times:

Date	Time (UT)
19	0445-1400
23	1505-1602
29	1145-1250

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

July 1968

University of Iowa

Date 1968	Onset UT	Maximum UT	Peak-Ratio to Quiet Sun	Remarks
1 July	0743	0755	4^-	
3 July	0854	0902	6	
	2329	2332	9	Rapid rise, rapid decline
	2341	2349	4	
4 July	1129	1152	9	Complex rise
5 July	1544	1556	4	Complex structure
6 July	0941	0950	120	Maximum flux $F\ (2\text{-}12\ A°) = 0.28\ \text{erg}\ (\text{cm}^2\ \text{sec})^{-1}$
	1550	1554	4^-	
7 July	1624	~ 1804	~ 4	Slow rise, complex structure
8 July	1708	1721	150	Maximum flux $F\ (2\text{-}12\ A°) = 0.32\ \text{erg}\ (\text{cm}^2\ \text{sec})^{-1}$
9 July	1806	1822	12	
10 July	2259	2326	4	Complex structure
11 July	2359	2415	13	
	--	--	--	Also considerable minor X-ray activity
12 July	1341	1414	6	
14 July	0019	0021	5	
20 July	0813	0834	5	
26 July	2027	2046	4	Complex structure
27 July	0620	0639	4	Complex structure
28 July	0717	0723	6	
29 July	1049	1052	5	Rapid rise, rapid decline
30 July	0517	0519	4^-	Rapid rise, rapid decline
	2027	2032	7	
31 July	1719	1723	4^-	Rapid rise, rapid decline

SOLAR PROTONS BY SATELLITE
EXPLORER 34 (1967-[redacted])

JULY 1968

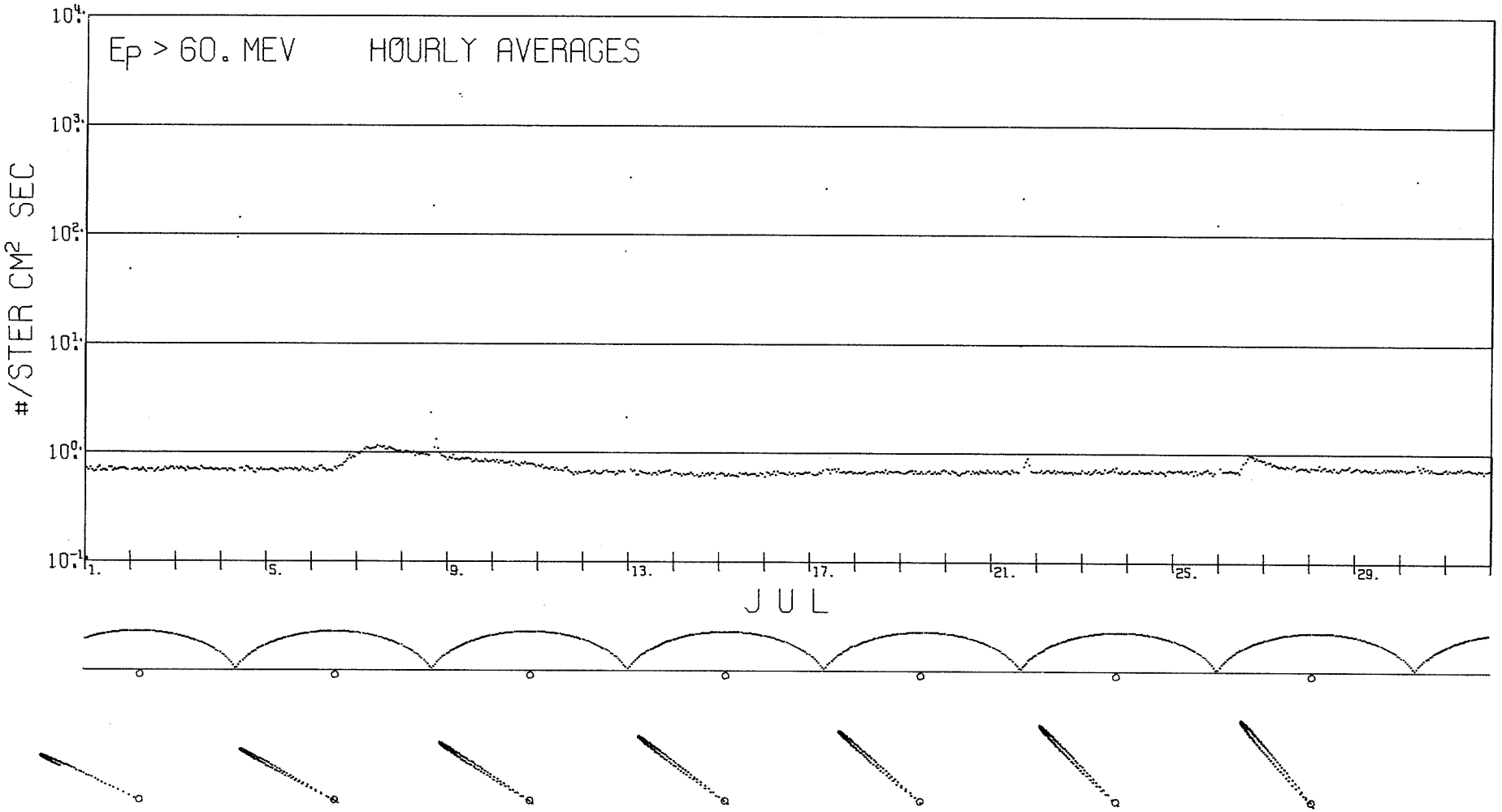
PROTON ENERGY GREATER THAN 60 MEV. HOURLY AVERAGES. IMP F SOLAR PROTON MONITOR. JHU/APL AND GSFC

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
7 1	183	0.71	0.65	0.73	0.65	0.66	0.68	0.71	0.74	0.68	0.68	0.69	0.68	0.73	0.72	0.68	0.70	0.68	0.69	0.72	0.71	0.72	0.70	0.69	47.6
7 2	184	0.68	0.70	0.70	0.71	0.68	0.69	0.71	0.69	0.67	0.69	0.70	0.70	0.66	0.68	0.71	0.68	0.68	0.69	0.73	0.70	0.70	0.72	0.73	0.70
7 3	185	0.73	0.70	0.73	0.72	0.65	0.67	0.72	0.70	0.69	0.70	0.71	0.70	0.69	0.74	0.72	0.69	0.70	0.70	0.72	0.70	0.69	0.70	0.71	0.68
7 4	186	0.70	0.70	0.71	0.68	0.70	0.70	0.69	0.68	93.3	142.	0.71	0.72	0.67	0.75	0.73	0.70	0.70	0.66	0.65	0.70	0.69	0.71	0.69	0.69
7 5	187	0.65	0.66	0.70	0.70	0.69	0.68	0.66	0.71	0.70	0.69	0.71	0.70	0.72	0.70	0.69	0.71	0.70	0.68	0.69	0.72	0.72	0.69	0.70	0.68
7 6	188	0.67	0.71	0.66	0.69	0.74	0.76	0.71	0.70	0.68	0.69	0.69	0.67	0.73	0.70	0.74	0.75	0.75	0.80	0.82	0.86	0.94	0.89	0.92	0.90
7 7	189	0.95	0.98	1.00		1.06	1.12	1.08	1.08	1.09	1.09	1.11	1.15	1.12	1.10	1.13	1.08	1.07	1.10	1.09	1.06	1.05	1.04	1.03	1.03
7 8	190	0.99	1.01	1.03	1.01	1.01	0.99	1.01	0.94	0.99	0.96	0.97	0.96	0.95	0.96	0.93	2.31	183.	1.10	1.33	1.09	0.98	0.93	0.91	0.89
7 9	191	0.85	0.89	0.85	0.96	0.86	0.87	0.84	0.87	0.88	0.87	0.87	0.88	0.86	0.82	0.83	0.87	0.84	0.82	0.84	0.82	0.86	0.84	0.82	0.83
7 10	192	0.85	0.82	0.85	0.79	0.83	0.83	0.80	0.80	0.81	0.83	0.76	0.81	0.79	0.77	0.76	0.80	0.79	0.82	0.79	0.79	0.78	0.79	0.77	0.75
7 11	193	0.76	0.76	0.77	0.72	0.73	0.72	0.71	0.73	0.73	0.69	0.72	0.68	0.68	0.68	0.71	0.73	0.69	0.66	0.65	0.62	0.66	0.63	0.66	0.65
7 12	194	0.67	0.67	0.67	0.68	0.64	0.65	0.68	0.65	0.64	0.63	0.65	0.67	0.69	0.66	0.66	0.67	0.66	0.63	0.64	0.67	0.66	0.67	0.66	2.10
7 13	195	330.	0.69	0.67	0.69	0.63	0.62	0.67	0.66	0.65	0.65	0.63	0.66	0.62	0.65	0.65	0.63	0.67	0.65	0.66	0.66	0.67	0.67	0.69	0.63
7 14	196	0.65	0.65	0.64	0.64	0.62	0.63	0.63	0.64	0.63	0.66	0.64	0.62	0.62	0.60	0.61	0.65	0.61	0.63	0.64	0.62	0.65	0.65	0.58	0.62
7 15	197	0.63	0.65	0.63	0.61	0.62	0.64	0.61	0.62	0.61	0.62	0.60	0.65	0.63	0.64	0.65	0.63	0.62	0.64	0.63	0.64	0.62	0.61	0.65	0.63
7 16	198	0.61	0.66	0.65	0.62	0.64	0.68	0.63	0.68	0.64	0.65	0.65	0.64	0.63	0.66	0.64	0.65	0.61	0.65	0.65	0.64	0.64	0.65	0.66	0.64
7 17	199	0.66	0.64	0.62	0.62	0.64	0.66	0.65	0.69	261.	0.71	0.70	0.65	0.70	0.71	0.68	0.71	0.66	0.66	0.67	0.65	0.67	0.68	0.68	0.65
7 18	200	0.66	0.65	0.66	0.65	0.67	0.68	0.64	0.65	0.65	0.66	0.64	0.68	0.67	0.66	0.67	0.66	0.70	0.65	0.68	0.68	0.66	0.67	0.67	0.68
7 19	201	0.67	0.65	0.65	0.66	0.67	0.68	0.69	0.65	0.68	0.64	0.65	0.67	0.65	0.65	0.68	0.68	0.65	0.65	0.67	0.65	0.66	0.65	0.68	0.69
7 20	202	0.65	0.67	0.65	0.68	0.67	0.66	0.64	0.63	0.65	0.66	0.66	0.69	0.69	0.66	0.68	0.66	0.68	0.65	0.69	0.67	0.66	0.66	0.70	0.67
7 21	203	0.66	0.65	0.67	0.65	0.66	0.64	0.67	0.69	0.69	0.67	0.66	0.70	0.68	0.68	0.66	9.66	217.	0.76	0.84	0.90	0.79	0.69	0.67	0.68
7 22	204	0.68	0.68	0.71	0.66	0.67	0.70	0.71	0.67	0.68	0.70	0.66	0.69	0.68	0.69	0.67	0.68	0.66	0.68	0.67	0.66	0.68	0.66	0.66	0.66
7 23	205	0.70	0.67	0.66	0.68	0.64	0.66	0.68	0.71	0.67	0.69	0.67	0.67	0.71	0.67	0.68	0.70	0.72	0.69	0.74	0.68	0.66	0.69	0.67	0.66
7 24	206	0.67	0.70	0.66	0.67	0.67	0.66	0.70	0.68	0.68	0.66	0.68	0.68	0.66	0.71	0.67	0.66	0.66	0.69	0.67	0.66	0.64	0.68	0.70	0.68
7 25	207	0.67	0.65	0.70	0.68	0.70	0.67	0.67	0.68	0.66	0.69	0.70	0.64	0.70	0.65	0.67	0.66	0.68	0.70	0.71	0.67	0.67	0.63	0.66	124.
7 26	208		0.74	0.65	0.69	0.68	0.69	0.70	0.69	0.68	0.68	0.68	0.66	0.74	0.81	0.85	0.92	0.98	0.95	0.94	0.89	0.92	0.89	0.88	0.87
7 27	209	0.66	0.61	0.83	0.63	0.79	0.66	0.79	0.78	0.76	0.77	0.76	0.74	0.77	0.75	0.74	0.77	0.79	0.72	0.72	0.75	0.74	0.72	0.74	0.72
7 28	210	0.71	0.75	0.74	0.73	0.72	0.79	0.71	0.75	0.75	0.72	0.71	0.73	0.71	0.75	0.70	0.69	0.71	0.74	0.72	0.73	0.74	0.76	0.71	0.72
7 29	211	0.72	0.74	0.73	0.65	0.71	0.72	0.71	0.70	0.72	0.69	0.70	0.74	0.70	0.69	0.70	0.72	0.70	0.73	0.72	0.72	0.72	0.70	0.73	0.71
7 30	212	0.72	0.72	0.71	0.69	0.70	0.70	0.71	0.71	321.	0.80	0.74	0.70	0.77	0.74	0.74	0.70	0.73	0.71	0.71	0.69	0.69	0.69	0.69	0.71
7 31	213	0.73	0.65	0.72	0.71	0.71	0.71	0.73	0.71	0.74	0.71	0.72	0.72	0.72	0.71	0.70	0.70	0.68	0.72	0.71	0.70	0.66	0.70	0.71	0.71

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

JULY 1968



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Jul 68

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

JULY 1968

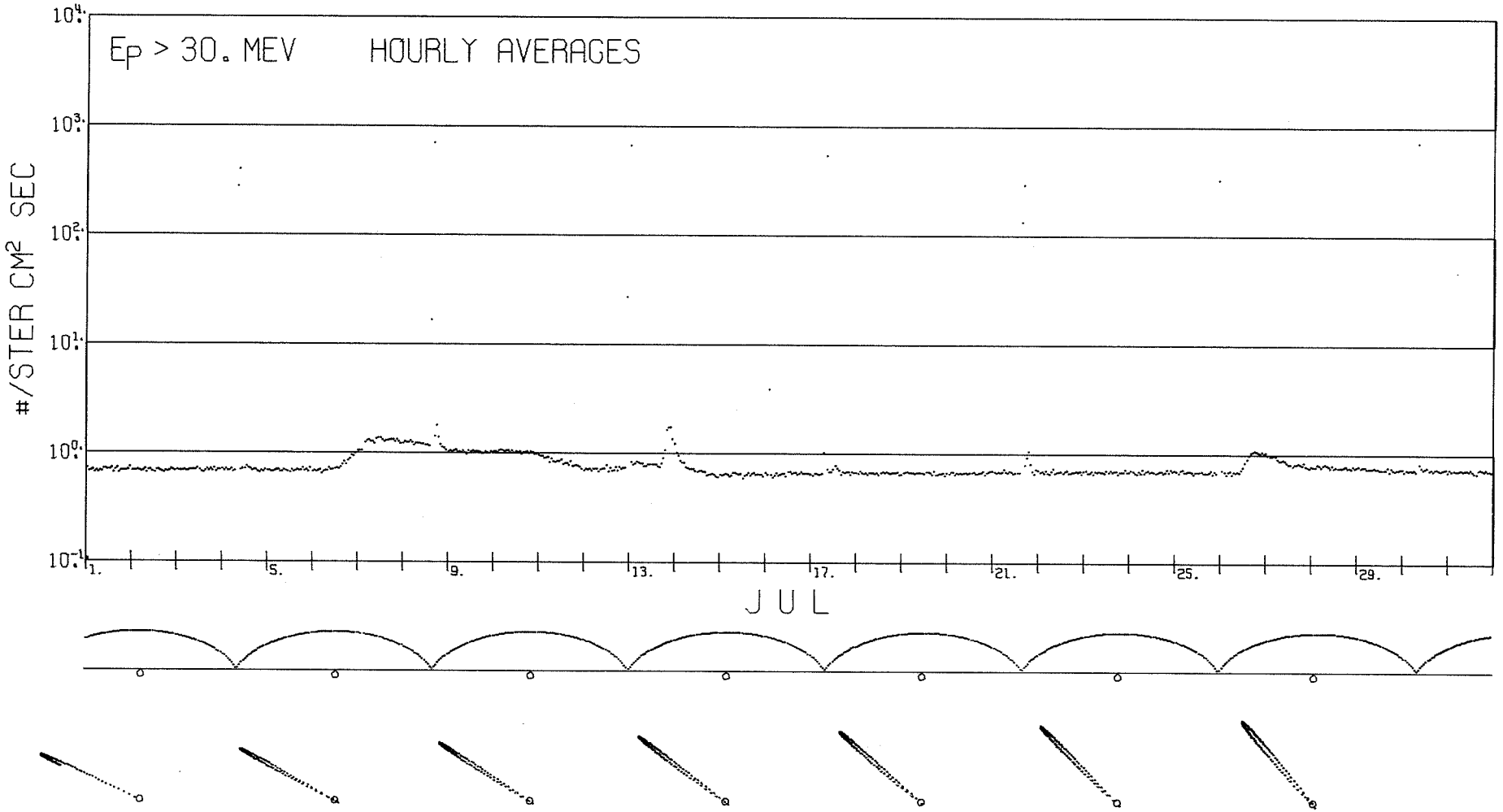
PROTON ENERGY GREATER THAN 30 MEV. HOURLY AVERAGES. INF F SOLAR PROTON MONITOR. JHU/APL AND GSFC

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
7 1	183	0.72	0.68	0.69	0.71	0.67	0.69	0.66	0.69	0.67	0.71	0.71	0.70	0.70	0.72	0.66	0.70	0.72	0.66	0.69	0.68	0.69	0.69	0.70	0.74
7 2	184	0.69	0.69	0.69	0.70	0.69	0.67	0.69	0.71	0.66	0.70	0.70	0.68	0.66	0.70	0.70	0.68	0.68	0.67	0.69	0.67	0.69	0.71	0.70	0.69
7 3	185	0.70	0.69	0.69	0.69	0.70	0.68	0.68	0.70	0.70	0.69	0.71	0.72	0.70	0.67	0.67	0.69	0.71	0.69	0.71	0.69	0.73	0.67	0.70	0.70
7 4	186	0.71	0.69	0.71	0.69	0.69	0.71	0.68	0.68	279.	405.	0.70	0.71	0.72	0.76	0.72	0.71	0.69	0.71	0.70	0.67	0.66	0.69	0.67	0.70
7 5	187	0.69	0.68	0.67	0.68	0.68	0.70	0.70	0.68	0.67	0.71	0.69	0.67	0.66	0.70	0.68	0.69	0.70	0.69	0.69	0.73	0.69	0.70	0.67	0.72
7 6	188	0.68	0.69	0.68	0.69	0.70	0.66	0.68	0.69	0.68	0.73	0.70	0.70	0.71	0.73	0.71	0.75	0.79	0.83	0.79	0.86	0.88	0.95	0.94	0.99
7 7	189	1.05	1.05	1.05		1.24	1.29	1.32	1.27	1.27	1.23	1.33	1.37	1.37	1.33	1.27	1.29	1.29	1.33	1.31	1.31	1.26	1.33	1.27	1.23
7 8	190	1.23	1.27	1.25	1.26	1.29	1.25	1.18	1.23	1.22	1.23	1.20	1.19	1.17	1.17	1.16	16.5	695.	1.42	1.78	1.39	1.19	1.14	1.10	1.08
7 9	191	1.02	1.05	1.03	1.04	1.07	1.03	1.04	1.00	1.05	1.01	0.98	1.05	1.04	1.05	1.03	1.03	1.02	1.01	1.00	0.99	1.03	1.00	1.00	1.03
7 10	192	1.03	1.03	1.00	1.04	1.06	1.05	1.03	1.04	1.05	1.00	1.04	1.01	1.04	1.01	1.03	0.97	1.02	1.01	1.03	1.00	1.04	1.01	0.98	0.96
7 11	193	0.95	0.94	0.93	0.90	0.89	0.91	0.82	0.88	0.83	0.82	0.83	0.83	0.86	0.79	0.80	0.86	0.77	0.83	0.75	0.76	0.76	0.76	0.74	0.72
7 12	194	0.69	0.71	0.70	0.71	0.69	0.71	0.72	0.71	0.68	0.70	0.71	0.71	0.77	0.68	0.72	0.69	0.69	0.74	0.69	0.74	0.72	0.73	0.73	26.7
7 13	195	659.	0.83	0.79	0.80	0.83	0.82	0.80	0.81	0.75	0.76	0.78	0.79	0.79	0.79	0.78	0.76	0.74	0.81	0.91	1.07	1.63	1.72	1.72	1.36
7 14	196	1.23	1.01	0.95	0.85	0.82	0.82	0.75	0.73	0.72	0.72	0.72	0.69	0.67	0.69	0.69	0.67	0.67	0.63	0.64	0.63	0.65	0.63	0.61	0.60
7 15	197	0.64	0.63	0.64	0.65	0.63	0.62	0.62	0.66	0.67	0.65	0.64	0.64	0.59	0.63	0.64	0.66	0.63	0.65	0.66	0.63	0.63	0.64	0.64	0.61
7 16	198	0.66	0.64	3.90	0.64	0.60	0.63	0.67	0.62	0.63	0.65	0.64	0.62	0.67	0.67	0.65	0.66	0.66	0.63	0.65	0.67	0.65	0.65	0.65	0.65
7 17	199	0.63	0.63	0.65	0.65	0.63	0.64	0.65	1.00	536.	0.71	0.67	0.68	0.72	0.77	0.72	0.70	0.64	0.68	0.66	0.68	0.68	0.64	0.67	0.67
7 18	200	0.66	0.65	0.65	0.67	0.65	0.67	0.64	0.66	0.66	0.66	0.64	0.66	0.64	0.66	0.67	0.66	0.67	0.66	0.65	0.67	0.66	0.67	0.68	0.64
7 19	201	0.64	0.67	0.67	0.68	0.66	0.66	0.66	0.65	0.66	0.66	0.66	0.66	0.65	0.67	0.67	0.66	0.64	0.69	0.64	0.64	0.65	0.65	0.67	0.63
7 20	202	0.66	0.65	0.68	0.68	0.64	0.66	0.65	0.66	0.65	0.66	0.66	0.65	0.66	0.66	0.67	0.65	0.65	0.66	0.66	0.68	0.64	0.66	0.67	0.68
7 21	203	0.62	0.67	0.67	0.68	0.66	0.67	0.71	0.68	0.67	0.69	0.68	0.65	0.66	0.67	0.66	131.	291.	0.78	0.92	1.05	0.80	0.69	0.66	0.71
7 22	204	0.70	0.68	0.69	0.66	0.70	0.66	0.65	0.69	0.73	0.66	0.68	0.68	0.69	0.67	0.69	0.71	0.67	0.67	0.68	0.67	0.69	0.68	0.69	0.64
7 23	205	0.68	0.70	0.66	0.67	0.69	0.65	0.69	0.67	0.69	0.68	0.67	0.66	0.70	0.67	0.70	0.67	0.69	0.69	0.65	0.67	0.67	0.68	0.71	0.67
7 24	206	0.67	0.70	0.68	0.67	0.65	0.69	0.67	0.72	0.67	0.68	0.70	0.68	0.69	0.67	0.67	0.68	0.69	0.68	0.66	0.67	0.72	0.67	0.72	0.68
7 25	207	0.70	0.69	0.67	0.70	0.71	0.68	0.67	0.69	0.68	0.67	0.65	0.68	0.67	0.67	0.69	0.67	0.66	0.66	0.68	0.70	0.65	0.69	0.67	323.
7 26	208		0.71	0.68	0.65	0.69	0.71	0.65	0.68	0.68	0.69	0.67	0.71	0.76	0.84	0.89	0.97	1.04	1.05	1.07	1.05	1.03	1.01	1.05	1.02
7 27	209	1.02	0.97	0.95	0.94	0.97	0.96	0.89	0.87	0.86	0.88	0.87	0.84	0.81	0.80	0.78	0.80	0.80	0.81	0.80	0.78	0.83	0.78	0.75	0.74
7 28	210	0.77	0.76	0.76	0.80	0.78	0.76	0.78	0.80	0.79	0.78	0.75	0.79	0.75	0.76	0.75	0.74	0.74	0.76	0.77	0.74	0.74	0.72	0.78	0.75
7 29	211	0.76	0.76	0.74	0.76	0.76	0.73	0.73	0.73	0.73	0.75	0.72	0.73	0.72	0.71	0.72	0.72	0.76	0.69	0.75	0.72	0.70	0.72	0.71	0.73
7 30	212	0.72	0.69	0.71	0.70	0.72	0.71	0.71	0.69	714.	0.81	0.75	0.73	0.75	0.76	0.72	0.73	0.70	0.73	0.73	0.71	0.70	0.71	0.73	0.74
7 31	213	0.69	0.72	0.70	0.71	0.70	0.70	0.71	0.71	0.70	0.72	0.71	0.70	0.73	0.70	0.67	0.67	0.72	0.72	0.71	0.70	0.73	0.70	0.71	0.69

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

JULY 1968



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Jul 68

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

JULY 1968

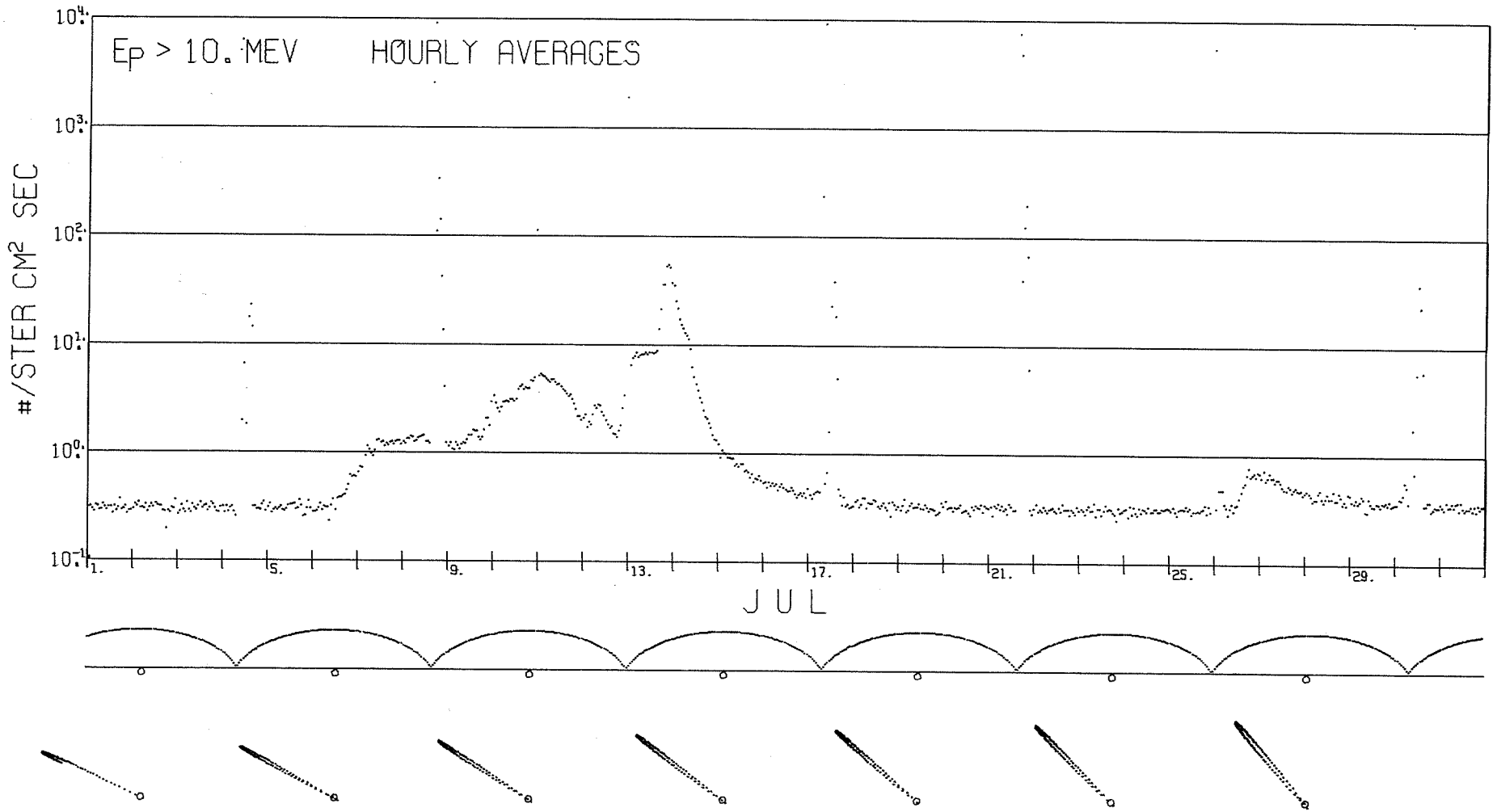
PROTON ENERGY GREATER THAN 10 MEV. HOURLY AVERAGES. IMP F SOLAR PROTON MONITOR. JHU/APL AND GSFC

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
7 1	183	0.32	0.32	0.30	0.29	0.32	0.32	0.29	0.30	0.33	0.31	0.29	0.32	0.31	0.28	0.32	0.29	0.31	0.37	0.30	0.30	0.32	0.27	0.29	0.29
7 2	184	0.30	0.33	0.32	0.34	0.31	0.31	0.30	0.33	0.28	0.31	0.33	0.31	0.34	0.33	0.32	0.32	0.29	0.28	0.20	0.29	0.28	0.31	0.30	0.37
7 3	185	0.27	0.28	0.32	0.30	0.28	0.34	0.29	0.28	0.33	0.31	0.30	0.32	0.35	0.31	0.32	0.33	0.29	0.31	0.34	0.33	0.31	0.28	0.28	0.32
7 4	186	0.32	0.28	0.32	0.29	0.31	0.32	0.29	0.26	5081	6361	1.96	6.62	1.82	17.5	23.2	14.6	0.32	0.32	0.30	0.30	0.30	0.33	0.35	0.29
7 5	187	0.31	0.34	0.28	0.30	0.31	0.30	0.31	0.32	0.29	0.29	0.30	0.33	0.33	0.33	0.34	0.30	0.31	0.36	0.32	0.26	0.26	0.31	0.36	0.31
7 6	188	0.29	0.29	0.29	0.31	0.34	0.30	0.32	0.31	0.32	0.23	0.32	0.37	0.30	0.38	0.38	0.39	0.40	0.41	0.45	0.51	0.62	0.61	0.62	0.61
7 7	189	0.66	0.74	0.72		0.93	1.16	1.07	1.00	0.94	1.05	1.29	1.33	1.24	1.27	1.15	1.23	1.17	1.24	1.28	1.19	1.28	1.30	1.29	1.20
7 8	190	1.28	1.21	1.34	1.36	1.44	1.39	1.27	1.31	1.37	1.39	1.42	1.45	1.28	1.26	1.23	257	711	004	110.	341.	142.	42.6	13.6	4.10
7 9	191	1.16	1.26	1.08	1.67	1.25	1.18	1.10	1.21	1.24	1.22	1.32	1.46	1.46	1.64	1.59	1.59	1.41	1.33	1.40	1.63	2.09	2.09	1.81	2.95
7 10	192	3.40	2.90	2.57	2.39	2.65	2.93	2.97	2.99	2.96	3.13	3.16	3.03	3.14	3.87	4.12	4.27	3.87	3.98	3.97	3.98	4.72	4.61	4.97	113.
7 11	193	5.18	5.32	5.15	5.03	4.91	4.68	4.64	4.82	4.73	4.55	4.23	4.34	4.09	3.87	3.69	3.50	3.32	3.45	3.13	2.86	2.55	2.19	2.18	2.03
7 12	194	2.10	2.25	1.73	1.95	1.83	2.27	2.75	2.56	2.78	2.72	2.38	2.22	2.00	1.84	1.70	1.75	1.52	1.48	1.39	1.61	1.81	2.60	3.40	1896
7 13	195	5929	6.43	7.51	7.69	6.52	7.73	8.08	8.22	8.15	8.48	8.21	8.48	8.55	8.39	8.47	8.75	14.0	21.4	36.1	36.1	52.4	54.6	51.8	37.1
7 14	196	34.9	26.2	21.6	17.4	15.4	14.2	12.8	12.3	11.4	9.09	6.28	5.11	4.35	3.82	3.24	2.95	2.50	2.17	2.10	1.90	1.73	1.49	1.34	1.32
7 15	197	1.23	0.91	1.07	1.00	0.95	0.92	0.92	0.91	0.91	0.77	0.81	0.76	0.81	0.81	0.69	0.70	0.67	0.60	0.64	0.55	0.59	0.58	0.62	0.57
7 16	198	0.53	0.55	0.49	0.55	0.51	0.54	0.50	0.53	0.46	0.49	0.53	0.49	0.46	0.45	0.45	0.49	0.46	0.42	0.39	0.41	0.43	0.41	0.44	0.39
7 17	199	0.48	0.42	0.39	0.43	0.44	0.45	0.44	234.	11396	0.53	0.67	1.60	23.1	38.7	18.5	5.00	0.48	0.42	0.34	0.40	0.33	0.35	0.32	0.32
7 18	200	0.33	0.37	0.38	0.32	0.34	0.39	0.40	0.32	0.36	0.35	0.35	0.38	0.37	0.33	0.32	0.34	0.36	0.32	0.31	0.36	0.27	0.37	0.34	0.31
7 19	201	0.33	0.31	0.34	0.38	0.30	0.31	0.34	0.36	0.33	0.33	0.33	0.35	0.32	0.31	0.34	0.33	0.30	0.32	0.31	0.30	0.28	0.28	0.29	0.36
7 20	202	0.33	0.37	0.32	0.33	0.33	0.30	0.33	0.32	0.32	0.34	0.29	0.30	0.31	0.29	0.27	0.33	0.31	0.34	0.33	0.32	0.35	0.30	0.34	0.32
7 21	203	0.32	0.33	0.27	0.34	0.33	0.35	0.31	0.34	0.31	0.32	0.28	0.35	0.33	0.31	0.31	7500	4864	40.5	124.	197.	67.5	6.16	0.32	0.29
7 22	204	0.32	0.35	0.30	0.31	0.30	0.33	0.31	0.29	0.31	0.32	0.33	0.31	0.29	0.33	0.30	0.35	0.31	0.31	0.32	0.28	0.32	0.30	0.28	0.33
7 23	205	0.31	0.32	0.31	0.29	0.32	0.34	0.31	0.31	0.36	0.27	0.32	0.32	0.28	0.31	0.35	0.31	0.32	0.31	0.30	0.28	0.25	0.32	0.29	0.30
7 24	206	0.32	0.32	0.27	0.34	0.28	0.33	0.30	0.28	0.32	0.30	0.32	0.31	0.30	0.33	0.30	0.30	0.32	0.32	0.30	0.30	0.32	0.31	0.32	0.33
7 25	207	0.32	0.30	0.33	0.30	0.26	0.32	0.32	0.32	0.31	0.34	0.31	0.32	0.28	0.30	0.30	0.31	0.30	0.32	0.32	0.35	0.29	0.34	0.30	5555
7 26	208		0.33	0.47	0.48	0.48	0.36	0.33	0.28	0.33	0.36	0.31	0.35	0.35	0.40	0.46	0.52	0.55	0.66	0.78	0.63	0.66	0.69	0.63	0.71
7 27	209	0.65	0.62	0.73	0.55	0.63	0.68	0.62	0.62	0.57	0.61	0.60	0.57	0.51	0.49	0.48	0.52	0.50	0.46	0.49	0.50	0.48	0.46	0.48	0.44
7 28	210	0.45	0.47	0.45	0.43	0.38	0.40	0.39	0.45	0.48	0.41	0.37	0.40	0.45	0.40	0.40	0.47	0.38	0.39	0.45	0.41	0.36	0.38	0.35	0.44
7 29	211	0.43	0.36	0.37	0.35	0.36	0.38	0.42	0.40	0.31	0.30	0.40	0.37	0.34	0.33	0.36	0.36	0.34	0.36	0.36	0.37	0.35	0.38	0.34	0.35
7 30	212	0.36	0.36	0.41	0.39	0.43	0.56	0.52	0.37	9341	1.75	0.69	5.63	37.2	23.5	5.95	0.35	0.35	0.38	0.38	0.32	0.33	0.34	0.34	0.34
7 31	213	0.36	0.35	0.32	0.38	0.35	0.34	0.37	0.34	0.37	0.38	0.32	0.38	0.34	0.32	0.33	0.33	0.35	0.32	0.35	0.32	0.36	0.33	0.35	0.35

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

JULY 1968



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The Solar and Geophysical Calendar Record is continued with provisional data in the "Abbreviated Calendar Record." It is published for the year 1966 in IQSY Notes No. 17-21 and for January 1967 onward in STP Notes No. 1-3. Also see UAG-4 (above).

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