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ESSA RESEARCH LABORATORIES

Solar-Geophysical Data

(Prompt Reports)

Number 300—Part I
for July 1969
June 1969

DATA COMPILED BY AERONOMY AND SPACE DATA CENTER
BOULDER, COLORADO

WASHINGTON, D.C.
AUGUST 1969

SOLAR-GEOPHYSICAL DATA

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Edited by:
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For obtaining bulletins on a data exchange basis, send request to World Data Center A, Upper Atmosphere Geophysics, ESSA, Boulder, Colorado 80302.

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* 7.6 - 41 MHz before FB-291

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For explanations of the data contained herein see "Descriptive Text" published in February 1969.

ALERT PERIODS

INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

JULY 1969

JUL. 1969	TIME OF ISSUE UT	ADVANCE GEOPHYSICAL ALERT	WORLDWIDE GEOPHYSICAL ALERT			
			NO.	TYPE	TIMING	ELABORATION
03	0400		03889	Soflare flares one	expected	S09W25, S15E53
04	0400		04890	Soflare flares one	expected	S10W43
05	0400		05891	Soflare	ends	
26	2244	Izmiran Magstorm 26/1230Z				
27	0034	Kakioka Magstorm 26/1155Z				
	0225	Boulder Magstorm exists, Minor 26/1153Z sudden commencement. Storm gradual increase until 27/0100Z.				
	0400		27892	Magstorm	begins	26/1153Z, minor
28	0400		28893	Magstorm	ends	

RELATIVE SUNSPOT NUMBERS

ZURICH, R_Z

DAY	1968 FINAL AUG.	SEPT.	OCT.	NOV.	DEC.	1969 PROVISIONAL JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY
1	98	78	75	89	104	68	92	132	156	90	32	106
2	91	82	73	76	109	75	96	111	143	77	47	111
3	92	119	108	76	113	72	98	103	143	70	74	167
4	94	118	119	81	116	98	86	108	122	73	77	155
5	94	111	118	97	118	117	94	117	101	88	116	131
6	95	96	126	92	117	128	101	123	78	71	157	130
7	100	90	135	92	116	146	122	115	82	57	182	103
8	113	106	112	89	122	150	101	108	77	87	186	121
9	98	128	87	105	130	152	108	113	90	81	179	114
10	90	138	70	111	117	154	85	107	85	100	181	112
11	104	145	95	106	101	138	74	101	92	125	180	109
12	116	150	99	94	68	137	64	85	91	149	174	98
13	142	153	70	94	75	124	55	88	122	155	167	92
14	165	113	76	85	81	119	54	90	139	169	161	69
15	172	88	90	84	84	116	70	114	140	146	148	71
16	170	84	88	84	67	116	87	158	144	121	134	64
17	160	81	82	82	77	100	104	170	155	124	101	71
18	148	85	108	77	93	85	101	211	148	117	92	66
19	136	88	112	80	101	73	126	192	128	120	74	59
20	122	84	114	92	102	76	142	196	124	123	97	54
21	138	90	122	84	107	85	169	204	122	163	84	56
22	143	99	134	81	114	105	213	207	90	178	56	51
23	126	118	136	76	114	88	208	157	72	198	37	43
24	108	149	139	67	125	103	201	146	81	205	33	51
25	86	187	138	80	131	102	198	152	81	182	51	43
26	77	184	133	89	140	99	196	149	78	177	26	49
27	67	176	138	87	148	78	182	156	78	145	35	49
28	49	149	118	73	139	79	159	141	72	136	49	79
29	64	137	114	73	139	82		142	60	88	63	84
30	68	91	112	83	119	80		158	63	54	71	90
31	63		99		117	95		138		50		128
MEAN	109.3	117.2	107.7	86.0	109.8	104.5	120.9	138.5	105.2	120.0	102.1	87.9

1968 yearly mean = 105.9

DAILY SOLAR FLUX AT 2800 MHz
OTTAWA ARO

FLUX ADJUSTED TO 1 A.U., S_a

DAY	1968 AUG.	SEPT.	OCT.	NOV.	DEC.	1969 JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY
1	134.2	129.5*	136.5	153.4*	140.2	139.9	129.8	165.6	188.7	125.0	113.3	149.2
2	134.2	134.2	136.3	151.5*	149.9	142.1	139.0	152.0	191.4	127.8	121.2	162.1
3	140.9*	142.8*	145.2	146.1	149.6	144.1	139.1	147.8	189.8	131.9*	133.4	167.5*
4	135.6	143.2	146.1	140.3	147.9	154.5	137.8	143.9	177.3	135.5	159.0*	169.2
5	135.9	139.6	147.9	132.9	146.6*	162.5	138.9	135.9*	175.7*	154.1	177.8*	166.6
6	148.0	136.0	145.3	131.4	142.9	178.9	138.5	139.4	162.6	138.2	196.4*	165.2
7	139.8	141.1	146.9	129.1	140.2	183.0	140.3	138.1	154.2	129.8	222.2	166.7
8	141.8	149.4	141.6	133.1	141.8	183.1	134.3	137.3	147.6	138.5	238.4*	165.2
9	146.7	149.4	137.3	135.4	145.6	183.3	133.3	141.8	143.8	135.4	235.8	165.8
10	146.6	156.2	134.6	135.2	148.0	169.3	129.6	137.8	148.9	137.7	243.5	164.4
11	150.7	152.5	133.9	132.6*	143.6	168.5*	128.9	136.0	150.8	150.1	246.6*	158.1
12	161.6	156.0	136.8	129.3*	139.0	163.1	124.6	138.5	155.5	160.3	236.7	151.4
13	170.8	150.6	127.2	131.5	131.5	157.2*	126.2	134.0	172.5	154.1	228.7*	145.1
14	185.1*	146.7	132.1	131.3	134.3	153.3	125.0	139.0	179.4	157.7	223.5	134.3
15	185.7	135.7	137.0	133.5	134.1	154.1	124.8	161.8	181.2	158.8	200.5	126.5
16	179.0	132.0	137.2	127.6	127.0	152.8	128.0	174.9	167.1	159.4	174.7	126.1
17	169.2	131.5	142.5	140.5	130.2	149.1	134.3	200.1	154.7*	164.1	157.2	124.2
18	164.8	128.7	149.6	148.0	133.9	144.3	139.4	210.9	146.8*	162.4	153.9	119.9
19	159.8	127.3	153.7	141.3	141.9	131.6	150.0	208.5	146.4	157.6	147.0	118.1
20	159.9	127.4	155.5	139.1	144.7*	128.0	159.1	213.7*	149.3	159.0*	144.9	115.4
21	158.6	133.6*	163.3	133.8	147.1*	131.9	169.2	230.8*	157.2	170.7*	139.7	115.7
22	153.8*	127.5	164.8*	131.0	147.3	133.9	184.7	222.5	147.8*	177.4	133.1*	115.1
23	137.7	126.8	167.0	132.3	146.3	124.8*	201.4*	205.8*	144.1	172.8	131.6	116.5
24	130.8	143.0	173.3	134.2	154.0	130.8	205.8	195.4	144.7	171.4	128.9	115.7
25	124.2	158.1*	171.7	135.3	155.3	134.1	207.1	181.1	147.7	168.5*	120.2	117.8
26	118.0	160.0*	172.5	135.2	154.0	142.2	194.7	191.2*	143.7	163.7	117.2	119.2
27	114.5	157.8	172.8*	134.1	163.5	131.5	197.1	177.7*	135.0	153.5	114.2	126.3
28	119.4	158.8	171.0	129.6	150.7*	129.6	180.5	177.5	134.9	143.2	118.3	135.1
29	121.7	154.0*	191.1	128.2	147.2	129.2		181.9*	128.2	122.6	123.8	137.1
30	125.5	144.3	163.9*	128.6	144.2	126.1		182.9*	129.1	116.7	136.8*	147.0
31	123.5		159.5		139.6	126.4		185.5		111.9		167.0*
MEAN	145.7	142.5	151.4	135.5	143.9	147.8	151.5	170.6	156.5	148.7	167.3	141.1

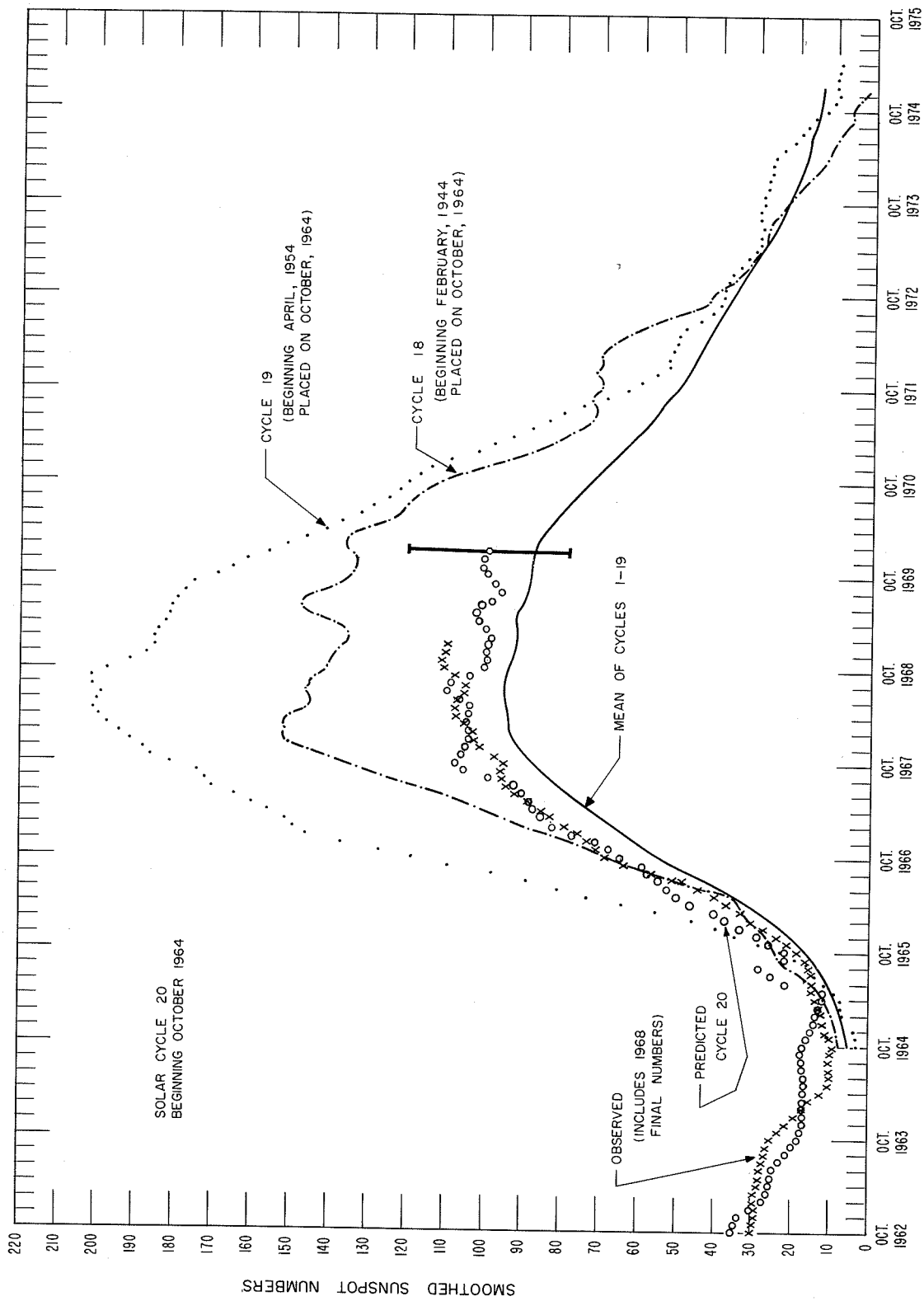
* adjusted for burst

DAILY SOLAR INDICES

JULY 1969

JUL. 1969	YEAR DAY	BARTELS 27-DAY CYCLE NUMBER	SUNSPOT NUMBERS		OBSERVED FLUX OTTAWA 2800	SOLAR FLUX ADJUSTED TO I.A.U.						
			R_Z	$R_{A'}$		AFCRL 15400	AFCRL 8800	AFCRL 4995	OTTAWA 2800	AFCRL 2695	AFCRL 1415	AFCRL 606
01	182	17	106	115	144.3	538	286	258	149.2	135.3	89.0	60.9
02	183	18	111	130	156.8	550	297	266	162.1	147.0	93.7	64.1
03	184	19	167	162	162.0*	547	311	271	167.5*	158.4	98.8	70.3
04	185	20	155	149	163.6	549	308	267	169.2	152.5	97.9	65.8
05	186	21	131	138	161.1	546	301	264	166.6	151.2	100.4	68.3
06	187	22	130	129	159.8	543	300	261	165.2	150.9	99.0	69.3
07	188	23	103	119	161.2	544	294	260	166.7	149.6	101.2	72.7
08	189	24	121	129	159.8	545	298	252	165.2	150.7	100.4	70.2
09	190	25	114	126	160.3	545	291	252	165.8	149.7	96.9	70.9
10	191	26	112	139	159.0	545	289	243	164.4	146.8	100.5	70.9
11	192	27	109	110	152.9	539	285	242	158.1	143.7	99.6	68.1
12	193	1	98	104	146.6	545	281	233	151.4	134.1	94.9	66.5
13	194	2	92	91	140.5	536	276	235	145.1	133.0	96.0	68.0
14	195	3	69	74	130.0	534	267	216	134.3	121.9	84.4	65.0
15	196	4	71	73	122.5	523	265	205	126.5	116.6	76.6	64.1
16	197	5	64	74	122.1	524	264	189	126.1	114.9	76.6	62.5
17	198	6	71	69	120.2	525	263	189	124.2	113.1	77.0	60.8
18	199	7	66	67	116.1	525	263	185	119.9	108.7	72.8	59.3
19	200	8	59	55	114.3	529	261	185	118.1	107.6	73.2	59.4
20	201	9	54	58	111.7	526	258	183	115.4	105.0	71.6	58.5
21	202	10	55	62	112.1	517	261	185	115.7	106.6	72.0	57.3
22	203	11	51	58	111.5	530	252	179	115.1	103.7	67.4	54.8
23	204	12	43	57	112.9	529	260	184	116.5	105.6	70.1	55.7
24	205	13	51	43	112.1	531	262	183	115.7	104.1	70.7	54.8
25	206	14	43	42	114.1	525	262	188	117.8	107.2	72.0	54.8
26	207	15	49	45	115.5	528	265	192	119.2	108.6	72.8	55.5
27	208	16	49	47	123.1	526	266	202	126.3	115.7	76.9	56.4
28	209	17	79	63	131.0	520	271	210	135.1	127.1	79.3	56.7
29	210	18	84	95	133.0	528	273	213	137.1	127.0	82.1	59.9
30	211	19	90	110	142.6	529	279	228	147.0	131.1	85.0	61.8
31	212	20	128	133	162.1*	538	294	258	167.0*	152.0	87.1	62.9
MEAN			87.9	92.5	136.6	534	278	222	141.1	128.4	88.3	62.8

* Adjusted for Burst



PREDICTED AND OBSERVED SUNSPOT NUMBERS

SMOOTHED OBSERVED AND PREDICTED SUNSPOT NUMBERS
CYCLE 20

MONTH	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.
1964										9.6	10.2	11.0
1965	11.7	12.0	12.5	13.6	14.6	15.0	15.5	16.4	17.4	19.7	22.3	24.5
1966	27.7	31.3	34.5	37.4	40.7	44.6	50.3	56.6	63.1	67.6	70.2	72.7
1967	75.0	78.8	82.2	84.6	87.4	91.3	94.1	95.3	95.3	95.0	97.1	100.6
1968	102.6	102.9	104.7	107.2	107.6	106.6	105.2	104.8	107.1	110.0	110.8	110.1
1969	109.4	109.1	108.6	108.5	108.3	107.1	105.2	103.4	102.5	101.4	100.6	100.2
		(3)	(5)	(10)	(14)	(15)	(15)	(16)	(18)	(19)	(20)	(20)
1970	99.1	97.8	96.3	94.0	91.9	89.7	87.5	85.4	83.3	81.1	78.1	75.1
	(21)	(22)	(22)	(21)	(19)	(19)	(19)	(19)	(18)	(18)	(17)	(16)
1971	72.6	70.2	67.9	65.3	62.4	60.3	58.9	57.2	55.1	53.1	51.7	50.4
	(15)	(14)	(14)	(15)	(16)	(18)	(19)	(20)	(20)	(20)	(20)	(21)
1972	49.3	48.2	47.1	46.1	45.1	44.0	42.2	40.4	38.9	37.9	37.0	35.5
	(22)	(23)	(24)	(24)	(24)	(24)	(23)	(24)	(25)	(27)	(27)	(27)
1973	34.0	32.9	31.6	30.3	29.1	27.7	26.6	25.9	25.2	24.3	23.4	22.5
	(27)	(27)	(26)	(26)	(26)	(26)	(25)	(25)	(24)	(23)	(22)	(21)
1974	21.6	20.6	19.8	19.2	18.9	18.5	17.8	17.1	16.6	16.0	15.5	15.2
	(20)	(20)	(20)	(20)	(19)	(19)	(18)	(18)	(18)	(18)	(18)	(18)
1975	15.1	15.2										
	(18)	(19)										

For each month, the upper figure is the observed or predicted Zürich smoothed sunspot number. The lower figure in parenthesis is the corresponding absolute value of the 90% prediction interval, an indication of the uncertainty above and below the predicted number. Observed numbers are those with no prediction intervals.

SOLAR FLARES

PARTIAL LISTING

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

JULY 1969

OBSERVATORY	OBSERVED UT DATE 1969 JUL	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
ONDR	01	0422E	0432		S23	W90	1.000	0182	24.4	10D	1F		V	0423			1.70		CGJ
ONDR	01	0458	0517		S23	W90	1.000	0182	24.5	19	1F		V	0504			1.40		CGJ
MONT	01	0746	0857	0821	S21	W90	1.000		24.6	71	SN		C	0821	.57				
ONDR	01	1019E	1027		S18	E80	.989	0181	7.4	8D	1N		V	1024			2.70		CR
CAPS	01	1024	1035	1027	S18	E70	.951		6.7	11	SN	3	V	1026	.50			180	
ONDR	01	1123	1137D		S13	E77	.978	0181	7.2	14D	2N		V	1127			3.50		C
MEUD	01	1125	1130	1127	S13	E77	.978		7.3	5	SN		C	1127	.83				
MCMA	01	1125E	1135D	•	S13	E78	.982	0181	7.3	10D	SB		P	1128					CE
SANM	01	1518	1634	1521	S14	E75	.971		7.3	76	SF	2	C		.15				DK
SANM	01										SF			1552	.15				
SANM	01										1B			1628	1.29				
MCMA	01	1530E	1610D		S13	E78	.982	0181	7.5	40D	SN		C	1548					EL
HALE	01	1623	1701	1630	S13	E74	.966	0181	7.2	38	1B	1	C	1630	1.55				
MCMA	01	1624	1645D	1630	S13	E78	.982	0181	7.5	21D	1B		C	1630					L
MEUD	01	1625	1635	1628	S13	E75	.971		7.3	10	SN		C	1628	.83				
HOUT	01	1625	1633	1628	S13	E75	.971	0181	7.3	8	1B		C		1.30	3.90			H
MANI	02	0113	0129	0116	S14	E69	.942	0181	7.2	16	1N	2		0116	1.08	2.32			
SACP	02	0114	0119	0115	S13	E68	.936		7.2	5	SN		C		.96	1.78			
KODA	02	0346	0357	0352	S17	E66	.928	0181	7.1	11	1N		V	0350	4.50	4.50	2.36		CK
MANI	02	0347	0358	0349	S13	E70	.947	0181	7.4	11	1N	2		0349	2.27	4.93			
SANM	02	1526	1536	1529	N08	E30	.504		4.9	10	SF	2	C		.65	.75			E
SACP	02	1526	1550	1529	N08	E30	.504		4.9	24	SN		C		1.06	1.10			
HOUT	02	1527	1543	1534	N10	E36	.594		5.3	16	SN		C		.90	1.10			
CAPS	02	1528	1547		N04	E33	.544		5.1	19	SF	4	P	1530	.50	.60		158	
MEUD	02	1530	1537D		N07	E31	.517		5.0	7D	SF		C	1530	.93	1.00			
HURB	02	1536E	1550		N07	E27	.457	0174	4.7	14D	2F						1.60		
WEND	03	0508E	0555D		S14	W38	.661	0166	30.4	47D	2N		V		7.22				
MEUD	03	0725	0730	0726	S12	E55	.836		7.4	5	SF		C	0726	.26	.40			D
HURB	03	0727E	0741D		S10	E48	.761	0181	6.9	14D	1N						1.60		
WEND	03	0740	0756		N05	E21	.359	0174	4.9	16	1F		P		4.13				
MANI	03	0742	0748D	0745	N06	E21	.361		4.9	6D	SN	1		0745	1.39	1.50			
HURB	03	0744E	0753		N07	E20	.347	0174	4.8	9D	2N						2.40		
MEUD	03	0744	0750D	0746	N08	E22	.382	0174	5.0	6D	1N		C	0746	2.06	2.10			
SACP	03	1316	1339	1321	S13	E50	.790		7.3	23	SN		C		.64	.82			
WEND	03	1321	1342D		S17	E49	.792	0181	7.2	21D	1N		V		5.16				
MEUD	03	1324E	1324D		S13	E50	.790		7.3		SN		C	1324	.52	.80			D
ONDR	03	1510	1542		S13	W35	.620	0166	1.0	32	2B		V	1521			4.60		CJ
HURB	03	1514E	1541		S12	W33	.589	0166	1.2	27D	2B						4.30		
SACP	03	1515	1545	1522U	S12	W34	.602	0166	1.1	30	1N		C		3.70	4.02			
HOUT	03	1517	1536	1520	S12	W33	.589	0166	1.2	19	1B		C		2.40	2.70			
WEND	03	1518	1600	1527	S08	W22	.416	0166	2.0	42	2B		P		8.25				
SANM	03	1527E	1549		S11	W35	.610	0166	1.0	22D	1B	2	P	1527	2.27	2.85			E
MEUD	03	1540E	1548		S10	W38	.643		30.8	8D	SF		C	1540	.52	.60			E
SANM	03	1535	1629D		S17	W44	.741	0166	30.3	54D	1N	2	P	1541	1.62	2.40			E
MEUD	03	1540E	1548		S17	W44	.741		30.4	8D	SF		C	1540	.31	.40			
HOUT	03	1615E	1623	1615U	S19	W42	.729		30.5	8D	SB		C		1.20	1.80			
HOUT	03	2350	0020	2358	S15	E37	.654	0181	6.8	30	1F		C		2.50	3.30			E
SACP	04	0000E	0044	0011	S13	E36	.632	0181	6.7	44D	1N		C		4.23	4.68			
MONT	04	1140	1149	1141	S18	E38	.682		7.3	9	1N		C	1141	2.37				
CAPS	04	1146E	1152		S18	E33	.627	0181	7.0	6D	1N	3	P	1147	3.00	3.30		174	CI
CAPS	04	1200E	1247D		N15	E63	.892	0186	9.2	47D	1N	5	P	1206	3.00	7.50		176	
HURB	04	1217E	1253		N08	E61	.873	0186	9.1	36D	2F						1.70		
SACP	04	1223E	1310	1243	N17	E60	.870		9.0	47D	SN		C		1.28	1.92			
HURB	05	1138E	1202		S11	W62	.893	0166	30.8	24D	1N						1.80		
HURB	05	1226E	1311		S14	E15	.388	0181	6.6	45D	3F						2.90		
SACP	05	1226	1333	1243	S13	E16	.387	0181	6.7	67	2N		C		6.21	6.21			
CAPS	05	1227E	1257D	1234	S17	E23	.507	0181	7.2	30D	1N	3	P	1236	3.00	3.40		185	
CAPS	05	1227E	1257D	1231	S19	E23	.526		7.2	30D	SN	3	P	1232	1.50	1.70		170	
CAPF	05	1235E	1320D		S13	E15	.376	0181	6.6	45D	2N		C	1240	9.90	11.04			H
ONDR	05	1240E	1313D		S17	E20	.474	0181	7.0	33D	1F		V	1244			1.80		B
MONT	05	1243E	1314	1248	S13	E17	.398		6.8	31D	1B		C	1248	5.16				
CAPS	06	1237E	1303D		S17	E07	.367	0181	7.1	26D	1F	4	P	1250	3.00	3.00		150	
CAPF	06	1245E	1300D		S21	E09	.437		7.2	15D	SN		P	1250	.41	.46			
CAPF	06	1245E	1300D		S13	E02	.284	0181	6.7	15D	1N		P	1250	3.30	3.36			
KODA	07	0524	0541	0538	S19	W03	.386		7.0	17	SB		C	0528	1.39	1.40	1.80		E
WEND	07	0536E	0557D		S19	W01	.383	0181	7.2	21D	1N		P		5.16				
ONDR	07	0537E	0559		S21	W03	.417	0181	7.0	22D	1B		V	0538			3.00		J
MONT	07	0725	0809	0741	N17	W22	.430		5.7	44	SN		C	0741	1.55				
ONDR	07	0727E	0815		N16	W23	.436	0174	5.6	48D	1N		V	0744			2.40		GHK
HURB	07	0731	0816		N14	W33	.562	0174	4.8	45	1N						2.60		
WEND	07	0734E	0741D		N17	W22	.430	0174	5.7	7D	2N		P		6.19				
CAPS	07	0737E	0816D		N15	W23	.429	0174	5.6	39D	1F	2	P	0743	2.00	2.20		140	C
HURB	07	0843	0856		N13	E60	.866	0191	11.9	13	2B						4.00		H
ONDR	07	0845E	0852		N14	E56	.831	0191	11.6	7D	1B		V	0847			4.30		CJR

SOLAR FLARES

JULY 1969

OBSERVATORY	OBSERVED UT DATE 1969 JUL	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
ARCE	07	1030	1045D	1042	S06	W90	1.000	0166	30.7	15D	1F		C	1042	.48	2.80			H
MCMA	07	1518E	1525D		S18	E73	.966	0192	13.1	7D	SN		P	1518					D
MCMA	07	1518E	1525D		S21	W08	.434	0181	7.0	7D	SN		P	1518	.41	.40			E
HOUT	07	1518	1525	1520	S20	W13	.450		6.7	7	SN		C		1.10	1.20			
HURB	07	1520E	1524D		S15	W08	.344	0181	7.0	4D	1N						1.60		
SANM	07	1520	1525	1521	S18	W07	.384		7.1	5	SB	2	C		.97	1.05			E
MONT	07	1619	1649	1623	S19	E78	.984		13.5	30	1B		C	1623	2.37				
HOUT	07	1620	1630	1622	S32	E80	.993	0192	13.7	10	1N		C		.90	3.00			H
MCMA	07	1620E	1650D	1621	S18	E73	.966	0192	13.2	30D	SB		P	1621					D
HURB	07	1621E	1642D		S16	E67	.934	0192	12.7	21D	2N						2.00		
SANM	07	1624E	1646		S18	E78	.984	0192	13.5	22D	1B	2	P	1624	.65				D
SACP	07	1636E	1645	1639	S17	E73	.965		13.2	9D	SN		C		.42	.92			
CAPS	07	1619	1653		N15	E65	.906	0191	12.6	34	1N	4	P	1624	2.50			180	CJ
SACP	07	1630	1653	1643	N14	E58	.849		12.0	14	SN		C		1.17	1.65			
MONT	07	1633	1651	1641	S12	W11	.325		6.9	18	SN		C	1641	1.65				
MCMA	07	1635E	1650D		S15	W14	.393	0181	6.6	15D	SN		P	1636	1.03	1.10			E
SACP	07	1636E	1706	1638	S13	W12	.348		6.8	30D	SN		C		1.47	1.46			
SANM	07	1645	1651D		S12	W13	.345	0181	6.7	6D	1F	2	P	1645	1.29	1.38			E
HALE	07	1657	1726	1658	S14	W06	.317		7.3	29	SN	2	C	1658	.21	.20			
MONT	08	1424	1503	1442	S11	W23	.456		6.9	39	1N		C	1442	3.09				H
MCMA	08	1425	1505	1431	S12	W24	.477	0181	6.8	40	1N		C	1431	2.06	2.40			EFL
ARCE	08	1431	1459D	1436	S11	W24	.469		6.8	28D	SB		C	1436	1.56	1.80			F
MANI	08	2206	2235	2215	S14	W28	.543	0181	6.8	29	1N	2		2215	2.58	3.15			
HOUT	08	2208	2219D	2218	S14	W28	.543	0181	6.8	11D	1N		C		4.00	4.80			EHL
HALE	08	2212	2316	2217	S11	W28	.522	0181	6.8	64	1B	2	C	2217	2.99	3.50			SUF
HURB	09	0613E	0645D		S22	E06	.444	0188	9.7	32D	1F						2.10		
MANI	09	0639E	0641D		S27	E09	.529	0188	10.0	2D	1F	1		0639	1.86	2.20			
ONDR	09	1238E	1248D		S20	W90	1.000	0170	2.8	10D	1B		V	1240			2.20		ACG
HOUT	09	1249E	1253	1249U	S24	W85	.999		3.2	4D	SN		C		.30	1.00			
HURB	09	1250E	1252D		S20	W80	.990	0170	3.5	2D	1N						1.90		G
CAPS	09	1241E	1250		N20	E79	.980	0195	15.5	9D	1N	3	P	1243	2.00			158	C
CAPS	10	0655E	0709D		S16	W34	.630	0181	7.7	14D	1N	1	S	0655	1.80	2.30		171	
MONT	11	1401	1512	1429	S19	E45	.764		15.0	71	SN		C	1429	2.06				
CAPS	11	1408	1504D		S18	E41	.719	0198	14.7	56D	1F	3	P	1413	2.00	3.00		153	C
ARCE	11	1415	1441	1427	S19	E41	.724		14.7	26	SN		C	1427	.91	1.30			
SACP	11	1424	1507	1436	S18	E46	.770		15.1	43	SN		C		1.27	1.60			
MCMA	11	1432E	1530		S19	E45	.764	0198	15.0	58D	1B		C	1434	1.44	2.30			BF
MCMA	11	1957	2025	2002	S07	W60	.874	0181	7.3	28	SB		C	2002	.77	1.50			E
SACP	11	1959E	2027	2005	S09	W59	.868		7.4	28D	SN		C		.95	1.40			
HALE	11	2000	2032	2002	S09	W59	.868	0181	7.4	32	1B	2	C	2002	1.44	2.90			F
CAPS	12	0731	0743		N15	W10	.255		11.6	12	SN	4	V	0734	.80	.80		182	
CAPF	12	0735E	0747		N15	W10	.255	0191	11.6	12D	1N		P	0738	2.27	2.31			H
MCMA	12	1353	1410D	1354	S20	W65	.928	0181	7.7	17D	SN		C	1354	.21	.60			D
MONT	12	1358	1459D	1431	S19	W66	.933		7.6	61D	1B		C	1431	2.58				
MCMA	12	1420E	1540D	1430	S18	W67	.937	0181	7.6	80D	1B		C	1430	.83	2.70			E
CAPS	12	1420E	1455D	1428	S21	W73	.969	0181	7.1	35D	1N	3	P	1427	2.00			180	FI
SACP	12	1420	1508U	1430	S20	W66	.934	0181	7.6	48U	1N		C		1.37	2.55			
MCMA	13	1108E	1215D		N13	W25	.442	0191	11.6	67D	1N		C	1108	2.06	2.30			FH
MEUD	13	1142	1155		S08	W85	.997		7.1	13	SF		C	1146	.31				
CAPS	13	1145E	1158D		S10	W90	1.000	0181	6.7	13D	1N	3	P	1152	.70			163	
MCMA	13	1146	1155		S12	W90	1.000	0181	6.7	9	SN		C	1148					
MCMA	13	1507	1600	1511	S11	W90	1.000	0181	6.9	53	SB		C	1511					HK
HOUT	13	1508	1523	1513	S09	W90	1.000		6.9	15	SN		C		.50	2.00			H
MEUD	13	1518E	1609		S08	W90	1.000	0181	6.9	51D	1N		C						A
ARCE	14	0813	0832	0817	S13	W21	.455		12.8	19	SN		C	0817	1.01	1.20			EK
CAPS	14	0813E	0837D		S14	W22	.476		12.7	24D	SF	3	P	0820	.50	.50		157	
MONT	14	0813	0834	0816	S14	W21	.464		12.8	21	1N		C	0816	2.37				
MEUD	14	0813	0830	0815	S13	W22	.467		12.7	17	SF		C	0815	.83	.90			E
ONDR	14	0816E	0837D		S13	W23	.479	0192	12.6	21D	1N		V	0817			2.00		HJ
MCMA	14	1415	1505	1432	N20	W14	.356	0197	13.5	50	SB		C	1432	1.13	1.20			
ARCE	14	1425	1510	1433	N20	W12	.336	0197	13.7	45	1B		C	1433	4.74	5.10			I
MONT	14	1426	1511	1431	N20	W12	.336		13.7	45	1B		C	1431	3.40				
ONDR	14	1426E	1450	1429	N20	W16	.378	0197	13.4	24D	1B		V	1429			3.00		JR
CAPS	14	1427E	1521D	1436	N18	W12	.311	0197	13.7	54D	1B	4	P	1432	2.00	2.00		300	
MEUD	14	1428	1455	1432	N20	W11	.327		13.8	27	SN		C	1432	1.96	2.00			
HOUT	14	1429	1432D	1432U	N20	W13	.346		13.6	3D	SN		C		1.70	1.80			
SACP	14	1438E	1519	1441	N20	W13	.346		13.6	41D	SN		C		1.47	1.46			
HOUT	14	2351	0015D	2356	N21	W16	.389	0197	13.8	24D	1N		C		2.40	2.60			E
ONDR	15	1034	1048		N12	W52	.788	0191	11.5	14	1F		V	1039			1.90		CHJ
HURB	15	1112E	1123D		N13	W56	.828	0191	11.3	11D	1N						2.00		
HURB	15	1313E	1325D		N12	W57	.837	0191	11.3	12D	1N						1.80		
SACP	15	1421	1454	1442	N13	W57	.838		11.3	33	SN		C		.74	1.03			

SOLAR FLARES

JULY 1969

OBSERVATORY	OBSERVED UT DATE 1969 JUL	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
ONDR	15	1431E	1457D		N12	W54	.808	0191	11.6	26D	1N		V	1445			2.50		CDHJK
ARCE	15	1431	1438D	1437	N14	W55	.819		11.5	7D	SF		C	1437	.42	.70			H
MONT	15	1433	1504	1441	N13	W55	.819		11.5	31	SN		C	1441	.57				
CAPS	15	1433E	1456D		N14	W57	.838	0191	11.3	23D	1N	2	P	1444	2.50	4.00		161	I
MCMA	15	1438E	1730D	1444	N14	W58	.847	0191	11.3	172D	SB		C	1444	.62	1.20			FK
MEUD	15	1438E	1448		N13	W57	.838		11.3	10D	SF		C	1441	.62	1.10			E
HURB	15	1444E	1500D		N12	W58	.846	0191	11.3	16D	1N						1.90		
SANM	15	1516E	1658D.		N13	W57	.838	0191	11.4	102D	1N	1	P	1526	.48	.95			EK
HURB	15	1532E	1542D		N12	W58	.846		11.3	10D	1N						1.80		
MEUD	15	1630	1642	1635	N13	W58	.847		11.3	12	SF		C	1635	.52	1.00			
MONT	15	1630	1644	1637	N13	W56	.828		11.5	14	SN		C	1637	1.55				
ONDR	15	1634	1643	1637	N12	W55	.818	0191	11.6	9	1N		V	1637			2.30		CJ
SACP	15	1913	1947D	1930	N13	W57	.838		11.5	34D	SN		C		1.37	1.93			
HALE	15	1924	1951	1925	N15	W61	.874		11.2	27	SB	2	C	1925	.93	1.90			H
HOUT	15	1934E	1945	1934U	N12	W60	.864	0191	11.3	11D	1B		C		1.30	2.60			
HALE	16	1838	1910D	1902	N23	W42	.702	0197	13.6	32D	1N	2	C	1902	2.48	3.50			F
SACP	16	1853E	1953	1903	N21	W42	.695	0197	13.6	60D	1N		C		3.05	3.56			
MCMA	16	1855E	2000D		N22	W42	.698	0197	13.6	65D	SF		P	1912	.72	1.00			E
HALE	17	0148	0209	0152	S14	W61	.893	0192	12.5	21	1B	1	C	0152	1.44	3.20			FJV
MITK	17	0529	0550D	0531	S13	W60	.884		12.7	21D	SN		C	0531	.52	1.10			E
ONDR	17	0529E	0540		S13	W57	.859		13.0	11D	SB		V	0530			2.40		CD
WEND	17	0531E	0548		S17	W59	.884	0192	12.8	17D	1N		V		3.09				
HURB	18	0633E	0646D		S16	W70	.952	0192	13.0	13D	1N						1.80		
MONT	18	1016	1031	1025	S15	W88	1.000		11.8	15	1B		C	1025	2.37				
MEUD	18	1017	1030	1023	S16	W78	.984		12.6	13	SN		C	1023	.52				
HURB	18	1025E	1033		N12	E70	.937	0211	23.7	8D	1N						1.80		
HALE	18	1638	1702	1647	S17	W89	1.000	0192	12.0	24	1N	2	C	1647	.62				
MEUD	18	1639	1700	1645	S16	W85	.998		12.3	21	SF		C	1645	.62				
ONDR	18	1645E	1657		S16	W90	1.000	0192	11.9	12D	2F		V	1650			1.80		CDE
HALE	21	0352	0402	0353	S11	E89	1.000	0215	27.8	10	1B	1	C	0353	.31				
HALE	21			0356	S12	E89								0356	.62				
ARCE	21	0810E	0824	0820	S16	W90	1.000	0198	14.6	14D	1F		C	0820	.50	2.80			
MANI	22	0144E	0226D	0150	S16	W41	.715	0209	19.0	42D	1F	1		0150	1.55	2.28			
HURB	23	0612E	0627		N11	E35	.576	0218	25.9	15D	2F						1.80		
ARCE	25	0725E	0732D	0730	S15	W90	1.000	0209	18.6	7D	1F		C	0730	.42	2.40			H
HURB	25	0731E	0739D		S15	E64	.917	0222	30.1	8D	1F						1.50		
MCMA	25	1122	1150	1128	S17	E37	.679	0215	28.2	28	SN		C	1128	1.03	1.40			L
ONDR	25	1123E	1153D		S16	E31	.606	0215	27.8	30D	1N		V	1125			2.00		
HURB	25	1130E	1139D		S16	E26	.550	0215	27.4	9D	1N						1.90		
HURB	26	0735	0750		N12	W38	.617	0211	23.5	15	1F						2.00		
HURB	26	0816	0828		S15	E50	.804	0222	30.1	12	1F						1.40		
ARCE	26	0820E	0830D	0820	S20	E54	.855	0222	30.4	10D	1F		C	0820	1.11	2.10			H
CAPS	26	0824E	0831		S18	E54	.849		30.4	7D	SN	2	V	0827	.70	1.20		163	C
SACP	26	1437	1448	1440	S14	E13	.394		27.6	11	SF		C		.21	.21			
MCMA	26	1438	1450D		S14	E14	.403	0215	27.7	12D	SN		C	1440	.36	.40			E
HURB	26	1447E	1459D		S15	E16	.435	0215	27.8	12D	1F						1.30		G
HURB	26	1557E	1612D		N10	E71	.942	0230	1.0	15D	1B						2.10		
MCMA	26	1606	1645	1609	S20	E48	.804	0222	30.3	39	SN		C	1609	.62	1.00			H
HURB	26	1608E	1615		S14	E49	.791	0222	30.3	7D	1F						1.80		
SACP	26	1608	1627	1612	S19	E48	.800		30.3	19	SF		C		.85	1.11			
HOUT	26	1608	1630	1619	S21	E48	.808	0222	30.3	22	1N		C		1.60	2.60			L
HURB	27	1106E	1213D		S06	E60	.874	0232	1.0	67D	1N						2.10		
HURB	27	1227E	1341D		S06	E60	.874	0232	1.0	74D	1N						2.20		
HALE	28	0359	0437	0410	S09	E52	.807		1.1	38	SF	1	C	0410	.67	1.10			H
MITK	28	0409	0433D		S08	E54	.824	0232	1.2	24D	1N		C	0424	2.48	4.30			E
HURB	28	0712E	0756D		S06	E53	.810	0232	1.3	44D	1F						1.60		
MEUD	28	0738	0744D		S10	E49	.779		1.0	6D	SF		C	0742	.31	.50			D
CAPS	28	0753E	0800D		S10	E52	.810	0232	1.2	7D	1F	3	P	0754	2.00	3.40		150	C
ARCE	28	0855E	1000D	0918	S15	E03	.353	0215	28.6	65D	1F		C	0918	2.46	2.60			
HURB	29	0644E	0652D		S06	E37	.625	0232	1.1	8D	1N						1.50		
MITK	29	0646	0711	0653	S13	W14	.394		28.2	22	SB		C	0653	.62	.70			E
CAPS	29	0651E	0715D		S13	W14	.394		28.2	24D	SN	3	P	0651	1.00	1.00		182	
HURB	29	0653E	0721D		S13	W14	.394	0215	28.2	28D	1N						1.80		
WEND	29	0655E	0713		S13	W14	.394	0215	28.2	18D	1N		P		3.09				
ARCE	29	0735E	0748D	0739	S13	W14	.394		28.3	13D	SF		C	0742	.72	.80			
HURB	29	0738E	0748D		S13	W14	.394	0215	28.3	10D	1B						2.00		
CAPF	29	0738E	0752D		S12	W14	.381		28.3	14D	SN		C	0741	.83	.92			H
ARCE	29	0824	0939	0849	N09	E37	.600	0230	1.1	75	2N		C	0849	6.44	8.20			KF
HURB	29	0833E	0845D		N11	E30	.503		31.6	12D	SN						1.90		

SOLAR FLARES

JULY 1969

OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS					REMARKS
	DATE 1969 JUL	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. %	
HURB	29	0923E	0933D		S15	E07	.369	0222	29.9	10D	2F						2.10		
ARCE	29	1036E	1053	1043	S15	E12	.403		30.3	17D	SF		C	1043	.42	.50			
HURB	29	1046E	1102D		S15	E07	.369	0222	30.0	16D	1N						2.20		
HURB	29	1312E	1358D		S15	E06	.365	0222	30.0	46D	1N						2.00		
HURB	29	1411E	1450D		S15	E06	.365		30.0	39D	SB						1.90		
WEND	29	1417E	1438D		S16	E08	.390	0222	30.2	21D	1N		V		3.09				
HURB	29	1514E	1548D		S15	E03	.354	0222	29.9	34D	1N						2.10		
MITK	30	0145E	0203	0151	S11	E90	1.000	0242	5.8	18D	1B		C	0151	.83				D
MITK	30	0226	0249	0233	S11	E90	1.000	0242	5.9	23	1B		C	0233	.83				D
CAPS	31	0944E	0954D		S10	W46	.748	0215	28.0	10D	1N	2	P	0946	3.00	4.20		165	CF

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.

JULY 1969

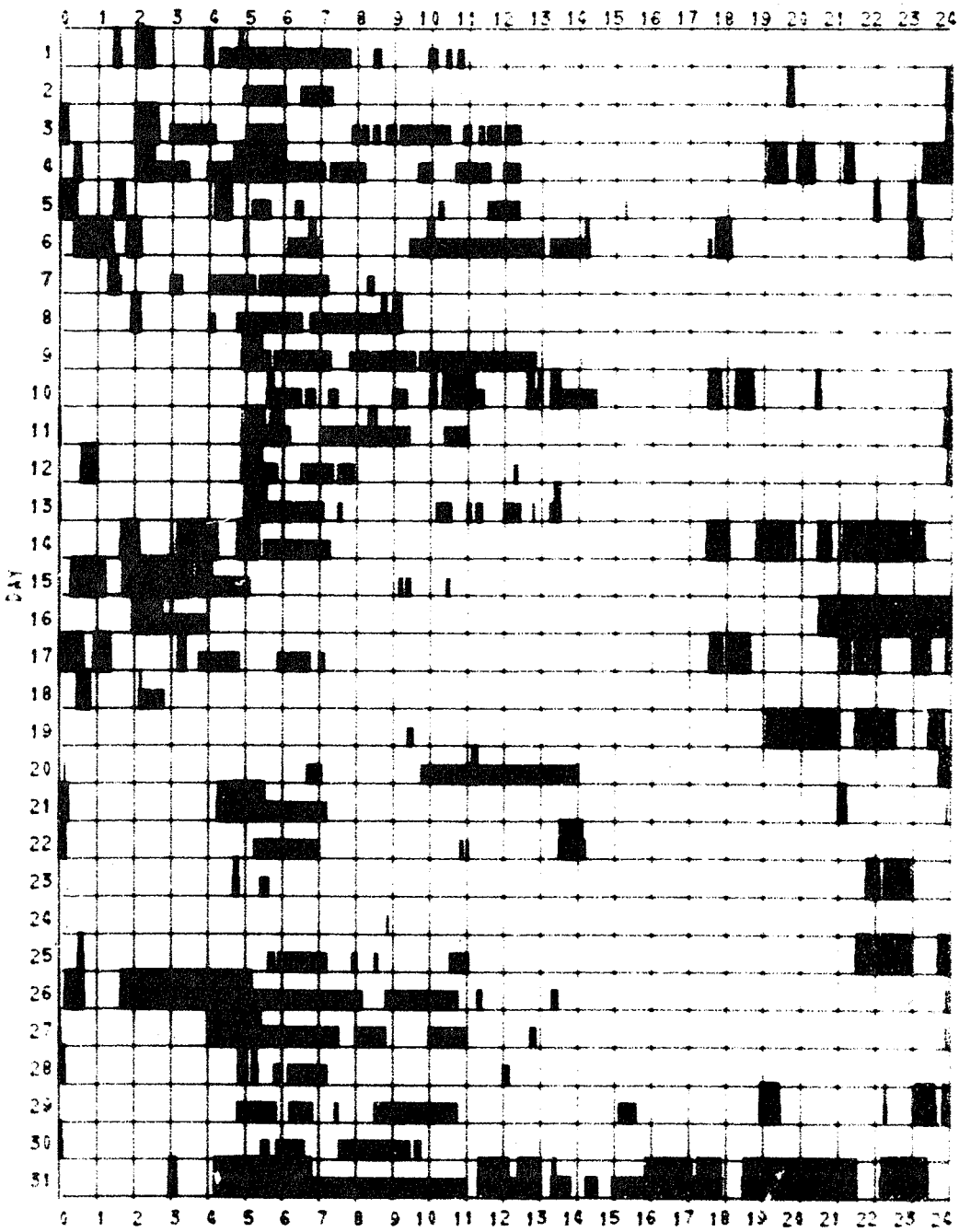
01 0004E S21 W82	01 0306E S22 W86	01 0435E N18 E46	01 0923 S21 W90	01 1324 S09 W07	01 1411 S15 E74
01 1414 S13 E18	01 1650 S14 E75	01 1650 S13 E78	01 1712 S07 W13	01 1713 S08 W13	01 1713 S07 W12
01 1724 N08 W78	01 1740 S13 E74	01 1754 S13 E74	01 2045 S08 W14	01 2047 S08 W14	01 2054 S13 E71
01 2136 S13 E71	02 0324 N07 E38	02 0427 N08 E35	02 0848E N17 W55	02 1118 S13 E64	02 1221 S10 W23
02 1222 S11 W23	02 1227 S13 E62	02 1302 S15 E62	02 1303 S14 E61	02 1628E N07 E54	02 1640 S16 W28
02 1729 N17 E29	02 1738 N08 E29	02 1740 N08 E27	02 1743 N10 E36	03 0059 N10 E25	03 0107 S11 W30
03 0245E S17 W37	03 0438 N07 E46	03 0614E N16 W65	03 0624 S17 W39	03 0632 S17 W38	03 0721E S19 W37
03 0811E S19 W37	03 0855E S35 E20	03 1106 N14 E65	03 1146E S15 W38	03 1333 S18 W41	03 1431E S12 W33
03 1440E S13 W35	03 1732E S19 W44	03 1809E S19 W44	04 0051 S09 W40	04 0152 S21 E42	04 0154 N16 W77
04 0332E S17 W52	04 0715 S16 W52	04 1417 S13 E36	05 0242 S16 E24	05 0449E S18 W60	05 0718 S18 W62
05 0719 S14 E26	05 0719E S18 E29	05 0921E N12 E85	05 0931 S20 E22	05 1422 S10 W63	05 1425E S10 W62
05 1426E S20 W60	05 1433E S11 W68	05 1613 S09 W63	05 1622 S12 W64	05 1622 S15 W65	05 1846 S19 E18
05 1916E S17 E18	05 1947 S17 E18	05 2012 N15 E89	05 2026 S17 E16	06 0424 N14 E16	06 0443E N12 E15
06 0457 S17 E12	06 0504 N12 E72	06 0636E S14 E07	06 0802 S21 E12	06 0803 S23 E14	06 1438 S19 E07
06 1444E S20 E05	06 1846 N14 E65	06 1849 N00 E64	06 2115 S20 E04	06 2323E S22 E04	06 2335 S14 W03
07 0056 S20 E02	07 0340 S17 E07	07 0510E S15 E01	07 0511E S17 E03	07 0548E S22 E15	07 0719 S35 W29
07 0827 N13 E57	07 0858E N17 W24	07 1017 S20 E00	07 1042 N11 E58	07 1510 S16 E75	07 1514 S19 E78
07 1514 S18 E75	07 1525 N14 E58	07 1810 S13 W03	07 2022 S17 W10	07 2124 N16 W31	07 2125 N16 W31
07 2345 S19 E69	08 0335 S17 E65	08 0417 N15 E89	08 1005E N12 E80	08 1026E N29 E75	08 1414 S21 W18
08 1415 S21 W19	08 1415 S21 W19	08 1420E S20 E20	08 1624 S32 E17	08 1643 S25 E16	08 1659 N16 E77
08 1720 N16 E39	08 1725 N14 E40	08 1734 N13 E36	08 1802 S16 W22	08 1803 S18 W24	08 1924 S15 W23
08 2028 S18 W20	08 2029 S14 W20	08 2039 S14 W15	08 2048 S14 W18	08 2106 N15 E72	08 2134 N15 E41
09 0119 N19 W23	09 0128 S15 W81	09 0128 S16 W85	09 0252 N14 E68	09 0304 S19 W73	09 0403 S14 W22
09 0409E S15 W21	09 0442 S29 W30	09 0544E S30 E10	09 0821E S15 W20	09 0850E S15 W22	09 0855E S21 W18
09 1502E S13 W33	09 1542 S13 W33	09 1546E S15 E90	09 1823 S20 W32	09 1916 S20 W32	09 2218 S20 W34
09 2305 N14 E23	09 2306 N16 E22	09 2310E N15 E23	10 0246 S12 W37	10 0247 S13 W40	10 0256 N13 E19
10 0256 N12 E21	10 0332 S15 W34	10 0334 S15 W31	10 0409 S12 W40	10 0920E S20 W40	10 1909 S21 W45
10 1910 S20 W46	10 1951 S14 E53	10 1953 S17 E53	10 2001E S15 E53	10 2104 N12 E09	10 2137 S16 E52
10 2145 S17 E52	10 2223 S12 W49	10 2232E N14 E08	10 2353 N15 W17	11 0023 N13 W19	11 0026 N12 W22
11 0116E S16 E51	11 0251 S18 E24	11 0337 S17 W46	11 0340E S15 W48	11 0352 S17 W45	11 0443 S17 W46
11 1045 S13 E18	11 1150E S12 W57	11 1330E S13 W54	11 1639 S14 W50	11 1643 S13 E41	11 1643 S17 E44
11 1643 S14 E41	11 1725 S13 E14	11 1800 S16 E40	11 1800 S16 E41	11 1815 N14 W04	11 1951 N14 W04
11 1952 N15 W05	11 2010 N15 W05	11 2145 N12 E65	11 2303E S09 W61	12 0439 N14 E28	12 0549 N15 W09
12 0549 S13 W63	12 0553 S16 W66	12 0607 N14 W10	12 0913 N15 W14	12 0920E S19 W70	12 1226E S14 W68
12 1228E S16 W67	12 1800 S17 W72	12 1801 S15 W72	12 1844 N14 E21	12 1844U N15 E21	12 1844E N14 E22
12 2230 S15 W73	13 0148 S14 W74	13 0230 N21 E07	13 0618E N18 E04	13 1041E N16 W24	13 1041 N14 W26
13 1429 S08 W87	13 1646 S24 W43	13 2020 S11 W90	13 2228 S17 W13	14 0006 S05 W90	14 0007 S09 W89
14 0205 N26 W06	14 0218 S14 W20	14 0238 S07 W83	14 1041 S18 W10	14 1041 S17 W12	14 1045E S11 W20
14 1245E N19 W11	14 1303E N19 W12	14 1354E S16 W17	14 1355 S18 W12	14 1355 S17 W14	14 1357E S18 W05
14 1850E N20 W14	14 2139 N19 W17	15 0604E N14 W53	15 0640E N14 W53	15 0737 N14 W54	15 0802E N14 W55
15 0904 N14 W54	15 1010 N20 W23	15 1130E N12 W56	15 1152 N18 W88	15 1225 N13 W54	15 1343E N12 W58
15 1358 N19 W83	15 1401 N20 W88	15 1405E N14 W58	15 1409E N22 W26	15 1646 N13 W56	15 1649 N13 W58
15 1702 N12 W55	15 1710 N13 W58	15 1717E N15 W60	15 1729 S18 E55	15 1820 S14 W41	15 1830E N14 W60
15 1847 S08 W18	15 2309 N22 W31	15 2309E N20 W30	15 2330 N22 W32	15 2332 N23 W33	15 2335E N22 W33
15 2345 N27 W52	16 0125 N21 W31	16 0130 N21 W32	16 0138E N20 W21	16 0644 S17 W47	16 0645E S17 W45
16 0732E S15 W45	16 0750 N11 W70	16 0802E N10 W66	16 0931 N11 E01	16 1239 S17 W51	16 1400E S18 W50
16 1555 N20 W37	16 1746 N23 W42	16 1747 N23 W43	16 1810 S16 W55	16 1813 S17 W55	16 1814E S16 W52
16 1817 N21 W47	16 1817 S16 W53	16 1904 N13 W74	16 1908 N13 W73	17 0300 N14 W88	17 0715 N22 W52
17 0721 N14 W85	17 1922 N25 E04	17 1934 N12 W20	17 1940U N25 E04	18 0741 N22 W63	18 0943 N13 W90
18 0956 N21 W90	18 1115 N22 W64	18 1121 N22 W64	18 1217 S16 W80	18 1220 N25 W02	18 1248 S18 W79
18 1444 N12 W30	18 1447 N15 E63	18 1715E N08 W17	18 1936 N06 W36	18 1945 N10 W28	19 0540 N11 E57
19 0820E N25 W80	19 1358E N06 W48	19 1359U N05 W47	20 0319E N25 W26	20 0427E N21 W85	20 0850 N25 W30
20 1515 S16 W25	20 1836 N14 W59	20 1936 S14 W28	20 1937 S15 W29	20 2011 S13 W89	21 0228 S18 W35
21 0230 S16 W37	21 0326 N14 W65	21 0854E N23 W30	21 0926 S16 W90	21 1237 S16 W90	21 2122 S15 W42
22 1746 N11 E43	22 2011 N11 E42	22 2043 S16 E71	22 2356 N09 E40	23 0002E S15 W56	23 0148E N12 E05
23 0146 N13 E05	23 0545 N10 E35	23 0602E S14 W60	23 1455 N13 W02	23 1500E N12 W01	23 1723 S15 E88
23 1723 S15 E88	23 1726 S15 E89	23 1742 S15 E89	23 1902 S14 E50	23 1927 N22 W18	23 1936 N21 W33
24 0027E S16 E47	24 0233 S18 E88	24 0248E S18 E82	24 0810 S17 E45	24 1441E S13 E75	24 1441 S12 E72
24 1442 S12 E75	24 1722 S14 E39	24 1723 S16 E40	24 1723 S15 E38	24 1724 S17 E39	25 0810E S12 E67
25 0814 S13 E67	25 1238 S14 W90	25 1647 S17 E28	25 1648E S16 E27	25 1752E N11 W32	26 0041 N11 W36
26 1351 N14 W40	26 1352 N15 W41	26 2010 S03 E70	26 2308 N15 W47	26 2308 N14 W46	27 0011 S34 E44
27 0301 S15 E08	27 0730E N16 W51	27 0741 N15 W52	27 0825 N12 W52	27 0825E N12 W55	27 0940E S08 E64
27 1358E S06 E60	27 1400 S07 E62	27 1833E N13 W60	28 0729 S13 E01	28 0831E S16 E04	28 1205 S17 E02
28 1547 S16 W10	28 1604 S16 E04	28 1608 S16 E03	28 1609 S16 E04	28 2205 S13 W09	28 2345 N20 E43
29 0232 S17 E40	29 0319 S15 E62	29 0334 S16 E13	29 0409 S13 W14	29 0548E S12 E42	29 0620E S16 E60
29 0903E N18 E32	29 1609E S15 E06	29 1742 S07 E32	29 1742 S08 E34	29 1848 S14 E10	29 1848 S13 E05
29 2030E S14 W23	29 2142 N11 W55	30 0232 S26 E02	30 0420 S14 E00	30 0421 S13 E01	30 0724 S06 E22
30 1252 S16 E43	30 1303 N14 W90	30 1343 N09 E84	30 1503 S14 W34	30 1506 S15 W36	30 1520E S15 W35
30 1813 S17 W13	30 1813 S17 W14	30 1938E S12 E85	31 0111 S16 W11	31 0247 S12 E14	31 0326 S15 E33
31 0328 S12 E14	31 0919E S10 W46	31 1017 S12 E03			

INTERVALS OF NO FLARE PATROL OBSERVATION

FOR PRECEDING SOLAR FLARE TABLE

JULY 1969

HOUR—UT



Observatories included in total patrol:

Arcetri	Haleakala	Hurbanova	Meudon	Sacramento Peak
Capri-F (German)	Herstmonceux	Kodaikanal	Mitaka	San Miguel
Capri-S (Sweden)	Houston	Manila	Ondrejov	Wendelstein

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 COSMIC NOISE ABSORPTION
SUDDEN ENHANCEMENTS OF ATMOSPHERICS
SUDDEN PHASE ANOMALIES
SUDDEN ENHANCEMENTS OF SIGNAL
SUDDEN FREQUENCY DEVIATIONS

JULY 1969

JUL. 1969	UNIVERSAL TIME START	END	MAX	WIDE SPREAD INDEX	SWF TYPE IMP	IMPORTANCE ABS SCNA	SEA	SPA	SES	SFD	STATIONS	KNOWN FLARE
01	1025	1035	1028	5	S 1						PU NU	1019E
01	1026	1041	1029	1			1				PU	
01	1020	1120	1023	1				13			DE(AA17-13)	
01	1025	1043		1					1		PU	
01	1125	1142	1127	5	S 1-						DA NU PU	1125
01	1127	1155	1135	1			1				PU	
01	1125	1230	1128	1				26			DE(AA17-26)	
01	1127	1152		1					1		PU	
01	1627	1640	1631	5	S 2+						NU DA MC	1623
01	1628	1700	1632	3			1+				A19 A8 A22	
01	1628	1710	1633	1				10			TM(M23-10)	
01	1628	1920	1632					108			TM-JP/ 108	
											CP-JP/ 61	
01	1630		1632						4		CP-JP/ 4	
01	1624	1635	1628	1						06	BO(WWI13-0.6)	
01	1650	1659	1651	1						03	BO(WWI13-0.3)	1650
01	1712	1720	1715	1						03	BO(WWI13-0.3)	1712
02	0113	0140	0116	3	S 1						MA OK	0113
02	0115	0215		1			*				TA	
02	0113	0204	0120	5				38			MA(K18-38,R16-22)	
											TM(M23-10)	
											HA(L20-11)	
02	0113		0114	1						04	HA(WWVH10-0.4,	
											WWVH5-0.2)	
02	0349	0407	0353	1	S 1-						MA	0347
02	0350	0423	0354	1				30			MA(K18-30)	
02	0348	0352	0350	1						04	HA(WWVH5-0.4,	
											WWVH10-0.3)	
03	1515	1609U	1519	5	S 2						WS DA NU TM TR	1510
03	1516	1545	1523	5		63 2					BO AN MC	
03	1517	1618	1527	1			3*				PU	
03	1515	1608	1525	5				317			SL(R16-317)	
											HA(L20-43)	
											DE(AA17-187)	
											AN(O12-36,R16-55,	
											L20-18,L20-18)	
03	1517	1714	1525					288			TM(O13-65)	
											TM-JP/ 288	
											NT-JP/ 216	
											CP-SA/ 180	
03	1516		1521						14		CP-JP/ 72	
											CP-SA/ 14	
											CP-JP/ 14	
											NT-JP/ 9	
03	1517	1552		5					2		PU LO	
03	1516	1543	1516	1						24	BO(WWI13-2.4)	
03	1518	1630	1525	5	S 3-						MC PU SO BY	1518
03	1518	1546		1					2		PU	1527E
04	0005	0050	0010	1				7			HA(L20-7)	0000E
04	0050	0052	0051	1						03	HA(WWVH5-0.3,	0051
											WWVH10-0.1)	
04	1203	1225	1215	1	SL 1						NU	1200E
05	1220	1312	1225	5	S 2						DA NU PU	1226E
05	1232	1252	1239	5			2*				PU A22 A23	
05	1230	1330	1237	5				155			SL(R16-155)	
											DE(AA17-80)	
05	1230		1232					36			NT-JP/ 36	
											CP-JP/ 18	
05	1230		1235						14		CP-JP/ 14	
											NT-JP/ 12	
05	1231	1300	1240	5					1		A1 PU LO	
05	1229	1244	1231	1						05	BO(WWI8-0.5)	
05	1427	1435	1430	1	SL 0						NU	1422
05	1425	1453	1430	1				22			SL(R16-22)	
07	0539	0547	0541	1	S 1-						MA	0536E
07	0538	0600	0542	5				40			SL(R16-40)	
											MA(K18-30)	
08	2207	2220	2215	1						02	BO(WWI11-0.2)	2206

SUDDEN IONOSPHERIC DISTURBANCES

JULY 1969

JUL. 1969	UNIVERSAL TIME START	END	MAX	WIDE SPREAD INDEX	SWF TYPE IMP	IMPORTANCE ABS SCNA	SEA	SPA	SES	SFD	STATIONS	KNOWN FLARE
11	2000	2022	2008	1	SL 1						WS	2000
11	2000	2030	2005	5				7			HA(L20-7)	
											TM(M23-7)	
11	2001	2103	2006					50			TM-JP/ 50	
12	1429	1511	1432	5	S 1						DA NU PU	1420E
12	1432	1456	1439	1			2*				PU	
12	1422	1500	1436	5				40			SL(R16-40)	
											DE(AA17-26)	
											TM(O13-18)	
12	1426	1455	1432					129			TM-JP/ 129	
											CP-JP/ 64	
12	1422		1421						5		CP-JP/ 5	
12	1425	1455		1					1		PU	
13	1519	1535	1522	5	S 1						TR WS	1518E
14	0250	0258	0254	1	S 1-						MA	NF
14	0243	0308	0249	1				9			MA(K18-9)	
14	1430	1455	1433	5	S 1-						DA NU TR PU	1429
14	1431	1450	1435	1			1*				PU	
14	1430	1455	1435	5				68			SL(R16-68)	
											DE(AA17-34)	
											TM(O13-30)	
14	1431	1457		1					1		PU	
14	1429	1432	1431	1						04	BO(WWI11-0.4)	
14	1726	1758	1738	1				4			TM(M23-4)	NF
14	1726	1800	1738					72			TM-JP/ 72	
15	0400	0810	0400	1	S 3+						OK	*
15	1721	1750	1733	1				5			TM(M23-5)	1717E
15	1721	1800	1725					28			TM-JP/ 28	
15	1923	2015	1933	1				11			TM(M23-11)	1924
15	1923	1955	1940					25			TM-JP/ 25	
15	1922	1927	1924	1						02	BO(WWI11-0.2)	
15	2307	2359	2316	1				18			MA(K18-18)	2309E
16	1808	1833	1808	1	S 2						TR	1810
16	1813	1815D	1815	3			1-				A22 A19	
16	1812	1850	1820	1				9			TM(M23-9)	
16	1812	1850	1822					108			TM-JP/ 108	
16	1859	1945	1905	3			1+				A22 A19	1855E
17	0149	0152	0151	1						04	HA(WWVH5-0.4, WWVH10-0.1)	0148
22	0147	0149	0148	1						02	HA(WWVH10-0.2)	0144E
22	2035		2045					54			CP-SA/ 54	2043
22	2035		2045						10		CP-SA/ 10	
24	0238	0258	0244	1				16			MA(K18-16)	0233
24	1608	1612	1609	5	S 1-						WS TR	NF
25	1706	1712	1710	5	S 1-						WS TR	1648E
25	1800	1820	1812	1				43			SL(R16-43)	1752E
27	1349	1425	1353	1					1+		DV	1358E
28	1601	1612	1604	1	S 1-						TR	1604
29	0740	0820	0745	1	S 1+						OK	0738E
29	1038	1130	1041	5				54			SL(R16-54)	1036E
											DE(AA17-26)	
29	1517	1540	1529	1	SL 1-						MC	1514E
31	1612	1628	1618	5	SL 1-						TR WS	*
31	1720	1724	1721	1	S 1-						WS	*
31	1720	1820	1728	1				10			TM(M23-10)	

STATIONS REPORTING FOR JULY 1969:

AAVSO	Debre Zeit	McMath	Slough
Anchorage	Hawaii	Nantucket (Loran-C)	Somerton
Attu	Hiraiso	Neustrelitz	Table Mountain
Bearley	Hobart	Panska Ves	Trinidad
Boulder	Hokkaido (Loran-C)	Paterson	White Sands
Cape Race (Loran-C)	Manila	Poitiers	
Darmstadt	Marcus	Preston	

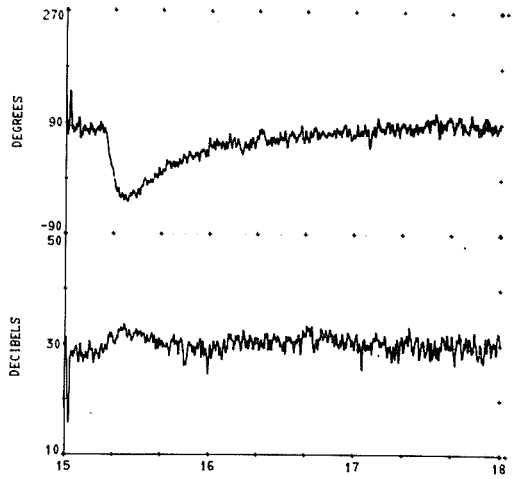
PERIODS OF NO OBSERVATIONS:

DATE	TIME (UT)	STATION
01	1718-1728, 1830-1842	HN, HN
02	1244-1543	HN
03	0420-0446, 0501-0502, 2200-2202	HN, HN, HN
05	2056-2322	HN
09	2030-2056	HN
14	2251-2400	HN
15	0000-0128	HN
21	0400-0408	HN
24	1935-1943	HN
26	2017-2204	HN
27	2017-2204	HN
28	1320-2400	HN
29	0000-2400, 0830-1645	HN, PO
30	0000-2400	HN
31	1711-1750, 2022-2250	HN

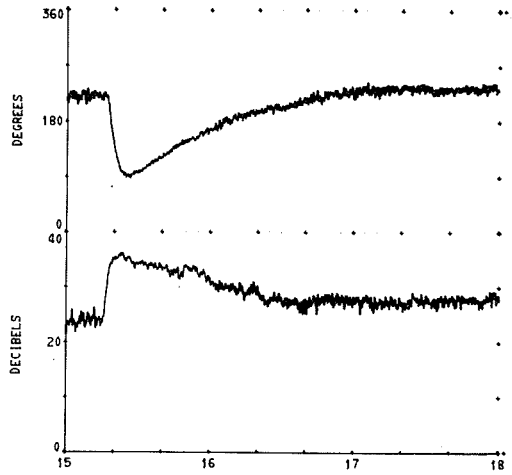
SELECTED SID EVENTS

3 JULY 1969

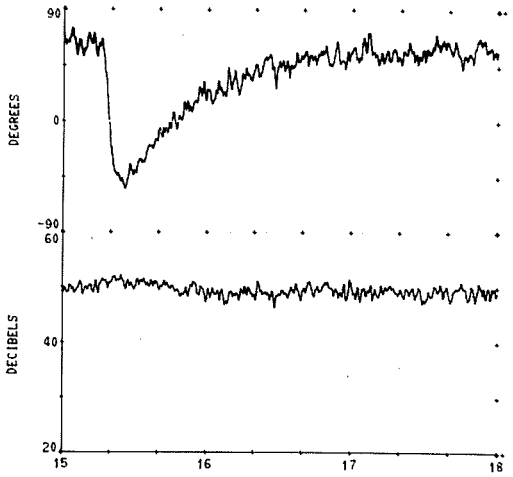
SDL Table Mountain Geophysical Monitoring Station



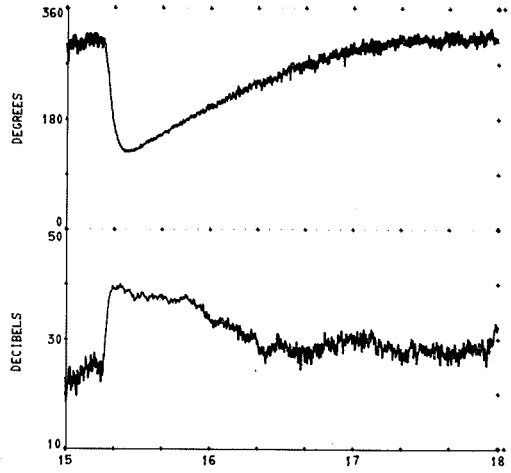
16 kHz GBR Rugby, England



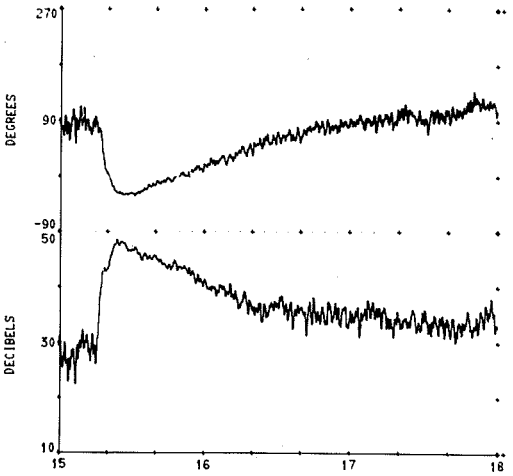
100 kHz Loran-C Cape FEAR N.C.



13.6 kHz Omega Trinidad W.I.

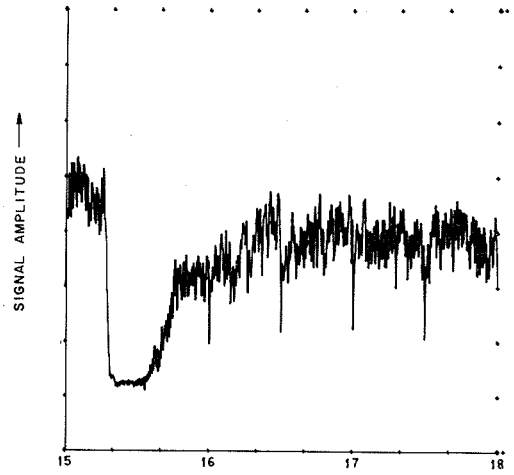


100 kHz Loran-C Jupiter, FLA



100 kHz Loran-C Nantucket MASS

Note: Above data scaled with a twenty second constant.



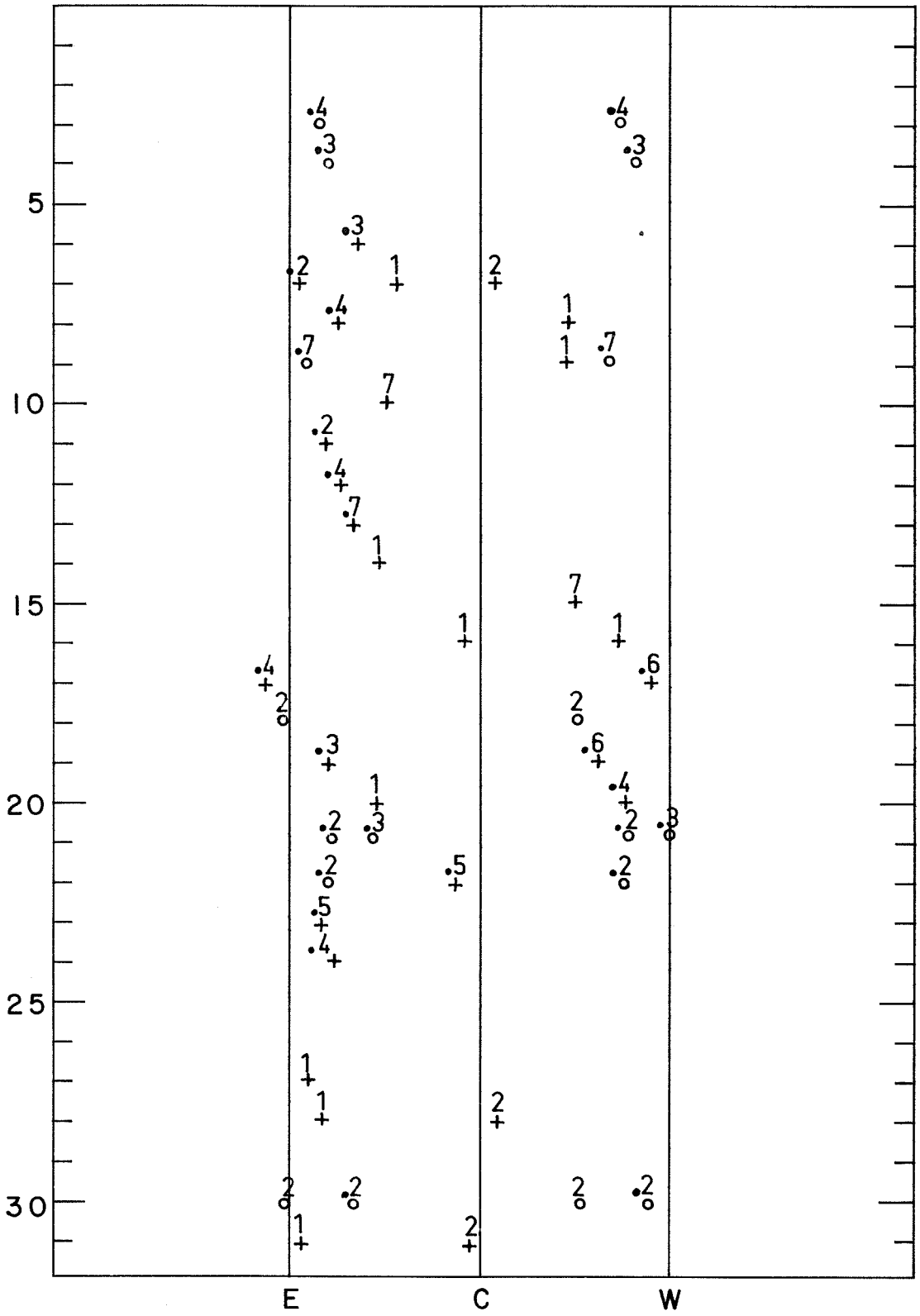
8.9 MHz Amplitude Longbranch, ILL

Note: Above data scaled with a ten second time constant.

SOLAR RADIO EMISSION
INTERFEROMETRIC OBSERVATION

JULY 1969

Nançay 408 MHz



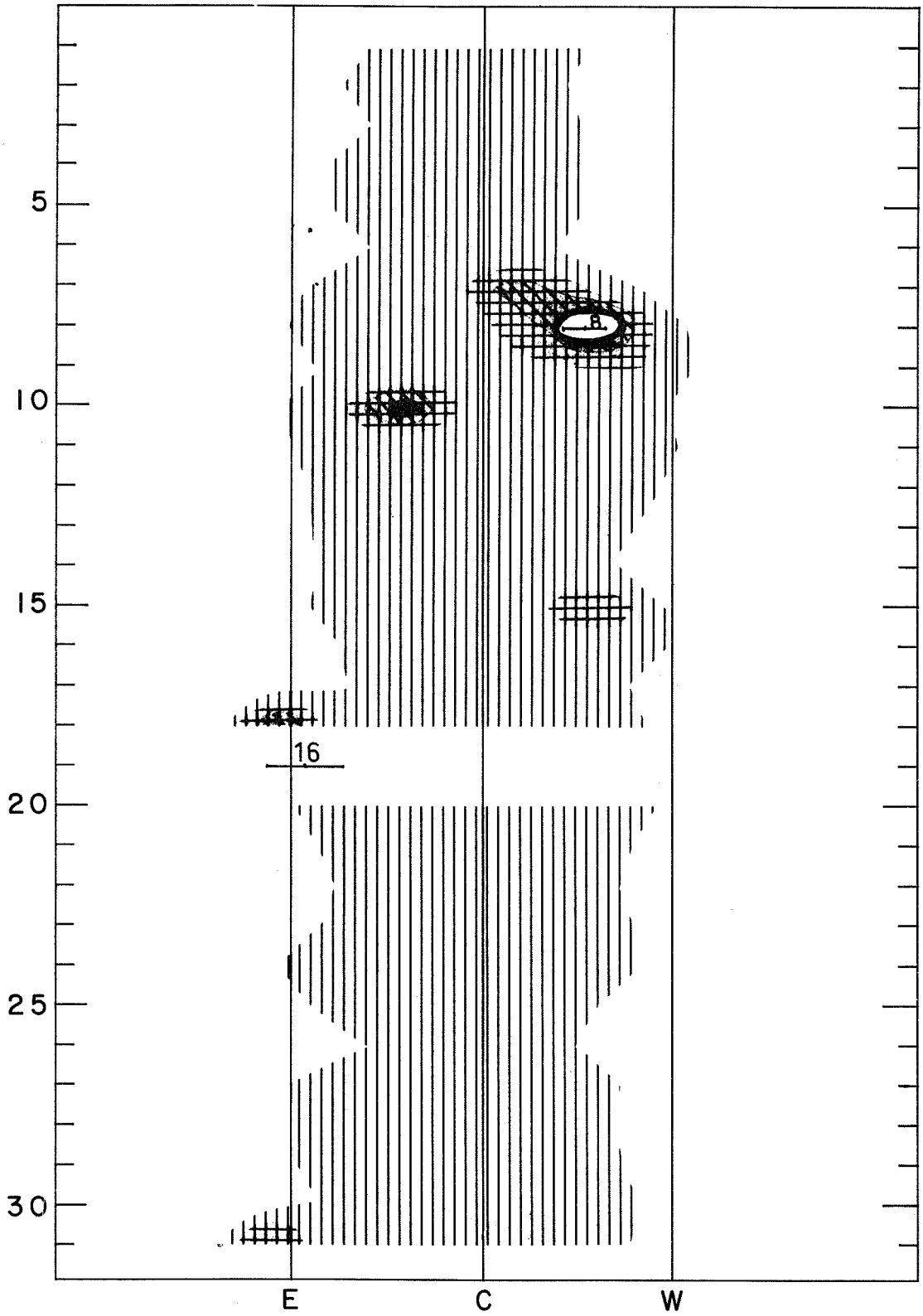
Because of the distance between the main lobes there is sometimes an ambiguity about the position East or West of the Center of Activity. The two possible positions are indicated by circles on the chart.

20
Jul 69

SOLAR RADIO EMISSION
INTERFEROMETRIC OBSERVATION

JULY 1969

Nançay 169 MHz

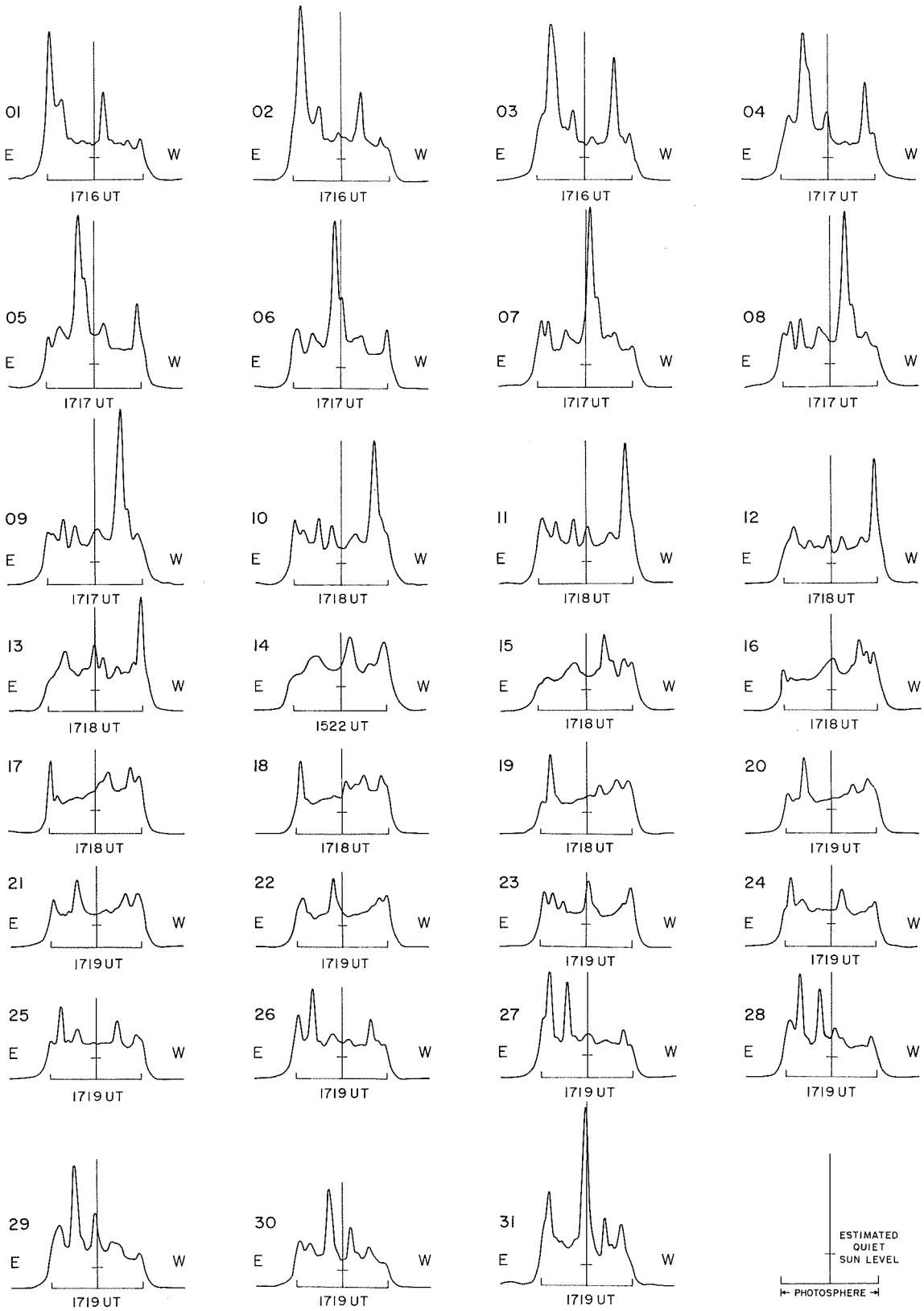


EAST-WEST SOLAR SCANS

July 1969

ALGONQUIN RADIO OBSERVATORY
CANADA

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

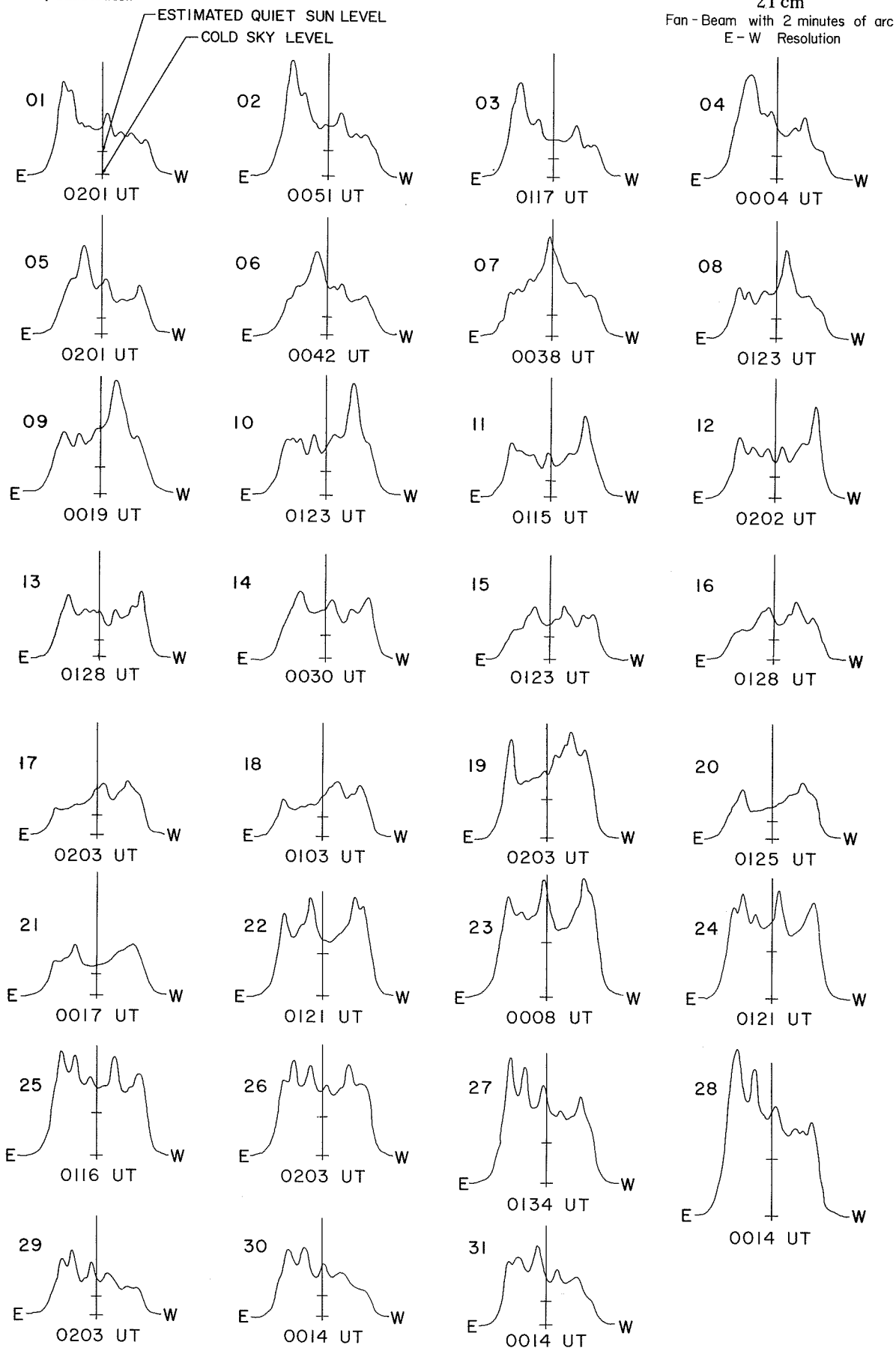


EAST-WEST SOLAR SCANS

JULY 1969

Fleurs, Australia

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

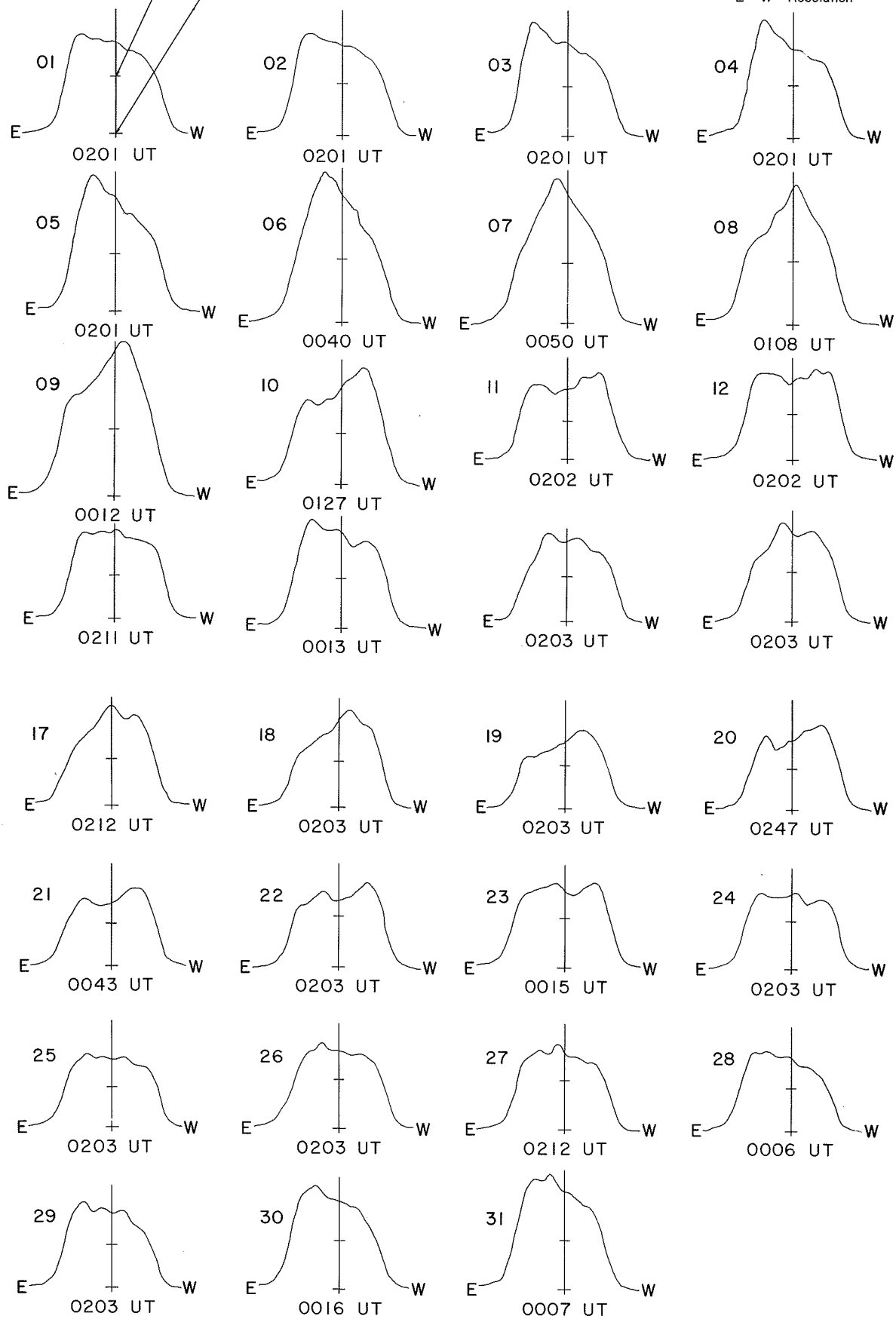


EAST-WEST SOLAR SCANS

JULY 1969

Fleurs, Australia

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



SOLAR WIND VELOCITY
and
CO-ROTATION DELAY TIMES

JULY 1969

NASA - Ames Research Center

DATE	PIONEER VI				PIONEER VII			
1969	Time (Z)	Pass	U_H^+	TAU	Time (Z)	Pass	U_H^+	TAU
July 1	G1607	1294	513.0	-11.49	G1913	1050	293.2	7.47
2	G2218	1295	453.4	-11.53				
3	G2051	1296	588.	-11.4	G0019 G2119	1051 1052	297.0 372.	7.50 7.6
4								
5								
6	G1819	1299	366.	-11.6				
7								
8								
9	G1533	1302	528.	-11.4				
10								
11								
12								
13								
14	G0021	1306	341.1	-11.58	G0225	1026	354.0	7.70
15	G2103	1308	295.0	-11.65				
16					G1746	1065	415	7.70
17								
18	G1643	1311	350.9	-11.53				

No observations July 19 - 31, 1969.

SOLAR WIND

JULY 1969

Massachusettes Institute of Technology

DATE	PIONEER VI						PIONEER VII				
July 1969	Hour (UT)	Velocity (km/sec)	σ	Density (protons/cm^3)	σ	Delay (days)	Hour (UT)	Velocity (km/sec)	σ	Density (protons/cm^3)	σ	Delay (days)
01	15	489	-	3.4	-	11.4	19	326	13			7.5
	16	505	-	1.8	-		20	316	4			
	17	485	21	2.3	.7		21	-	-			
							22	311	11			
02	18	504	5	6.4	.6		23	355	6			
	19	-	-	-	-							
	20	489	3	7.9	.2							
03	17	578	-	3.4	-		00	343	11			7.6
	18	616	4	3.2	.1		01	342	9			
	19	589	-	2.9	-		02	354	14			
							21	401	3			
							22	390	5			
							23	397	4			
06	17	373	6	7.3	.1	11.5						
	18	367	2	8.4	.5							
	19	367	5	8.6	1.1							
09	15	490	-	1.7	-							
	16	-	-	-	-							
	17	483	-	.9	-							
13	22	356	-	6.5	-	11.5						
	23	-	-	-	-							
14	00	351	1	6.3	.1		02	395	21			7.8
	01	350	3	6.7	.8		03	359	18			
15	19	319	35	5.0	3.4							
	20	308	6	6.9	.9							
	21	329	9	7.1	.7							
16							16	422	1			
							17	445	19			
							18	416	7			
							19	409	12			
							20	397	-			
18	14	373	-	12.1	-	11.4						
	15	367	13	9.7	.5							

SOLAR WIND
VELA 3 & 4

JULY 1969

Date July 1969	UT	Spacecraft	Velocity V_{H+} (km/sec)	Density N_{H+} (cm^{-3})
01	2100	VELA-4	448	--
02	1300	4	422	--
03	0700	4	353	--
	1000	4	312	--
	0700	4	353	--
04	0000	3	317	--
	0400	3	285	--
06	0900	4	490	--
	1326	4	249	--
07	0700	4	332	--
	2000	4	353	90.7
08	0600	3	380	--
	1200	3	412	5.5
	1900	3	330	4.2
09	1400	3	380	6.6
10	0000	3	380	2.9
11	1500	4	332	3.7
12	0300	4	353	5.4
	1400	3	455	--
16	0500	4	398	--
18	2000	3	380	--
19	0800	3	344	4.6
21	0100	4	332	3.9
	0500	4	332	5.5
22	0100	4	449	--
	1000	4	312	--
24	0000	3	380	--
27	0100	4	449	8.9
	1300	3	454	--
28	0500	3	455	--
30	0200	4	294	4.1
	1000	4	35	4.5
	1700	4	398	--
31	1730	4	375	--

COSMIC RAY PROTONS

Counting Rates (particles/sec)

Univ. of Chicago

JULY 1969

	Pioneer VI					Pioneer VII				
Date July	Time (UT)	0.6-13 Mev*	13-72 Mev**	72-175 Mev***	>175 Mev	Time (UT)	0.6-13 Mev*	13-72 Mev**	72-175 Mev***	>175 Mev
1	1700	16.4	0.0128	0.0391	0.234	2000	112	0.0308	0.0240	0.121
2	2000	24.7	0.0801	0.0364	0.229	2330	40.8	0.0295	0.0260	0.136
3	2100	19.1	0.027	0.0284	0.131	2130	21.3	0.024	0.0220	0.143
6	1800	29.4	0.0137	0.0394	0.203					
9	1600	41.8	0.0133	0.0339	0.173					
13	2400	1.24	0.0162	0.0419	0.202					
14						0300	3.55	0.0304	0.0208	0.126
15	2000	.493	0.0138	0.0383	0.217					
16						1800	4.80	0.0313	0.0244	0.128
18	1600	.297	0.0165	0.0429	0.210					

* Includes He 0.6-13 Mev/nucleons and electrons ∿0.5 Mev - see J. Retzler and J. A. Simpson, J. Geophys. Res. 74, 9, 2149-2160, 1969 for discussion of the electron response of Pioneer VII.

** Includes He 13 - 72 Mev/nucleon.

*** Includes He >72 Mev/nucleon.

Notes:
(1) Data are subject to future determination of possible saturation during enhanced flux observations.
(2) Pioneer heliographic longitude is given in the solar wind tabulations in terms of "co-rotation" delay time (days).
(3) Unidirectional geometrical factors are 5.8×10^{-4}, 1.15×10^{-4}, 1.7×10^{-4} m^2ster for the four ascending energy intervals given above. The two higher energy intervals have a bidirectional response. See Fan, Pick, Pyle, Simpson, Smith, J. Geophys. Res., 73, 5, 1552-1582, 1968 for a description of the instruments.
(4) Quiescent counting rates are:
Pioneer 6 0.1, 0.01, 0.05, 0.3
Pioneer 7 0.1, 0.03, 0.028, 0.14 counts/sec for the four ascending energy intervals.
(5) Times are only approximate (time accurate to approximately ± 15 minutes).

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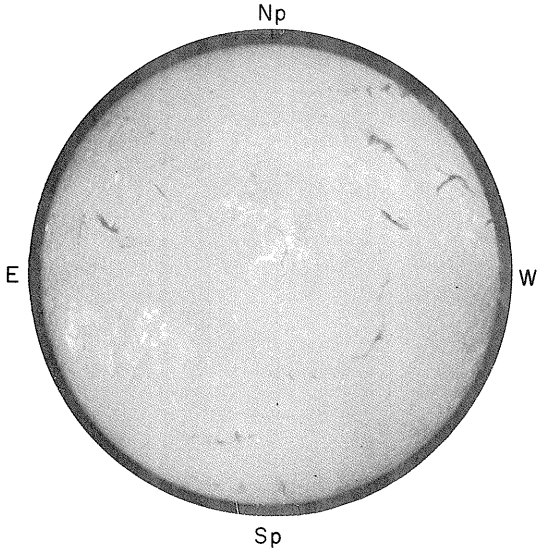
For explanations of the data contained herein see "Descriptive Text" published in February 1969.

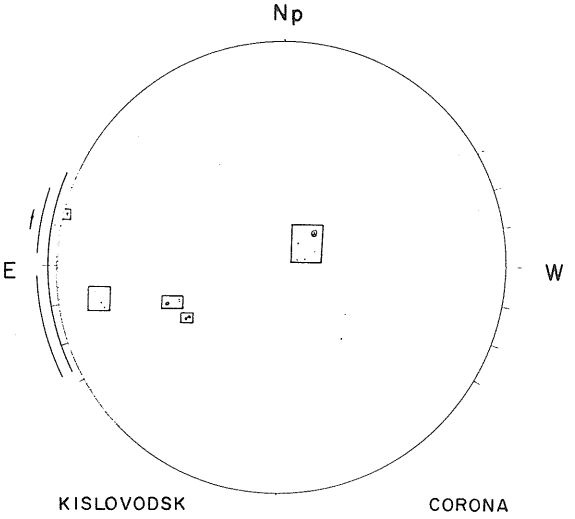
JUNE 1, 1969 (P = -15.53, B_o = -0.63, L_o = 213.04)

BOULDER Hα



1400 UT

ESSA-BOULDER SUNSPOTS



KISLOVODSK CORONA

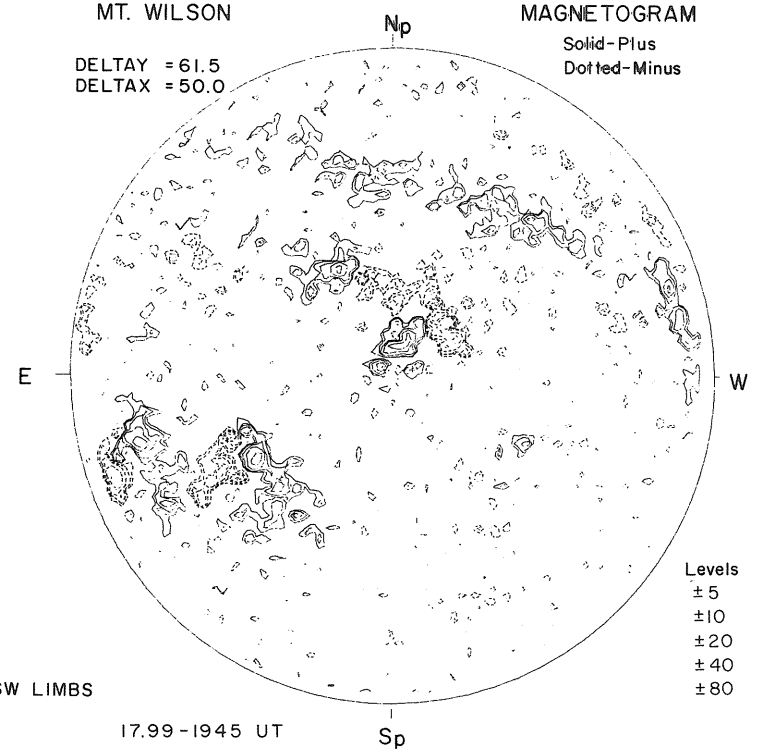
NO DATA ON NW AND SW LIMBS

1730 UT

MT. WILSON MAGNETOGRAM

Solid-Plus
Dotted-Minus

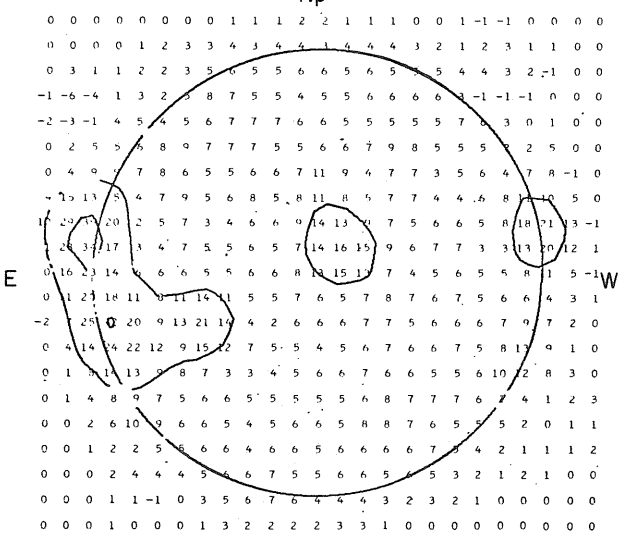
DELTAY = 61.5
DELTAX = 50.0



Levels
±5
±10
±20
±40
±80

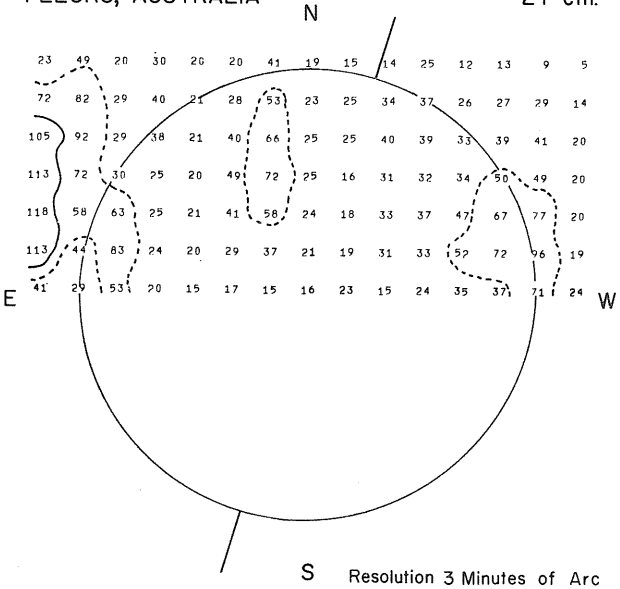
17.99-1945 UT

STANFORD 9.1 cm.



20-21 UT Brightness Unit 5000° K

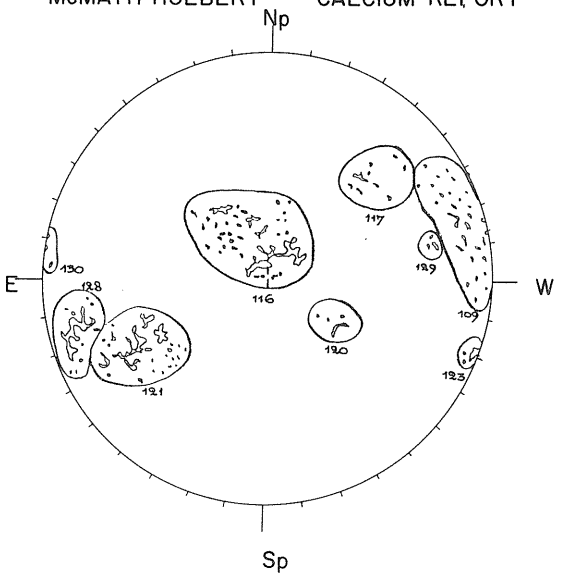
FLEURS, AUSTRALIA 21 cm.



Resolution 3 Minutes of Arc

02-03 UT Brightness Unit 1,700° K

McMATH-HULBERT CALCIUM REPORT



1300 UT

FAIR	0

09-40-3.5
16-34-3.0
20-05-2.5
21-30-3.5
23-10-3.0
28-37-3.0
29-07-2.5
30-11-3.0

JUNE 2, 1969 (P=-15.15, B_o=-0.51, L_o=199.81)

BOULDER Hα

Np

E NO DATA

Sp

ESSA-BOULDER SUNSPOTS

SAC PEAK

Np

W E W E

Sp

1625 UT

CORONA
NO DATA

MT. WILSON

Np

MAGNETOGRAM
Solid-Plus
Dotted-Minus

E NO DATA W

Sp

Levels
±5
±10
±20
±40
±80

STANFORD 9.1 cm.

Np

E W

Sp

20-21 UT Brightness Unit 5000° K

FLEURS, AUSTRALIA 21 cm.

N

W E

S Resolution 3 Minutes of Arc

02-03 UT Brightness Unit 1,700° K

McMATH-HULBERT CALCIUM REPORT

Np

W E W

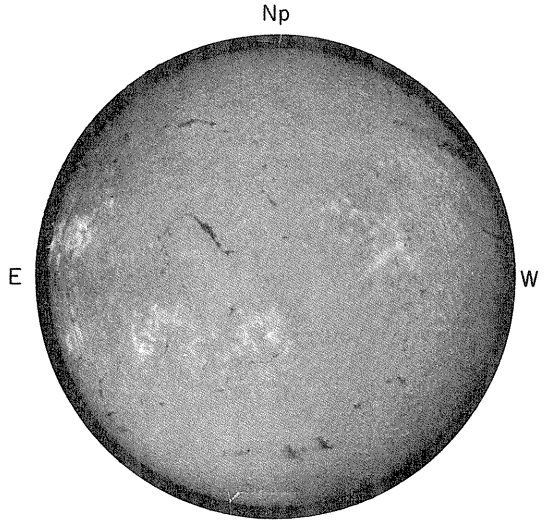
Sp

2005 UT

BAD	M
16 - 34	- 3.0
21 - 30	- 3.0
28 - 35	- 3.0
30 - 31	- 3.5
31 - 12	- 2.5

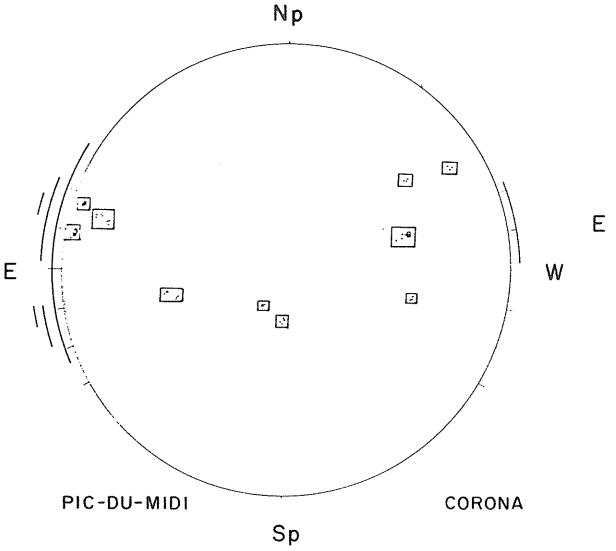
JUNE 3, 1969 (P=-14.78, B_o=-0.39, L_o=186.57)

BOULDER Hα



1530 UT

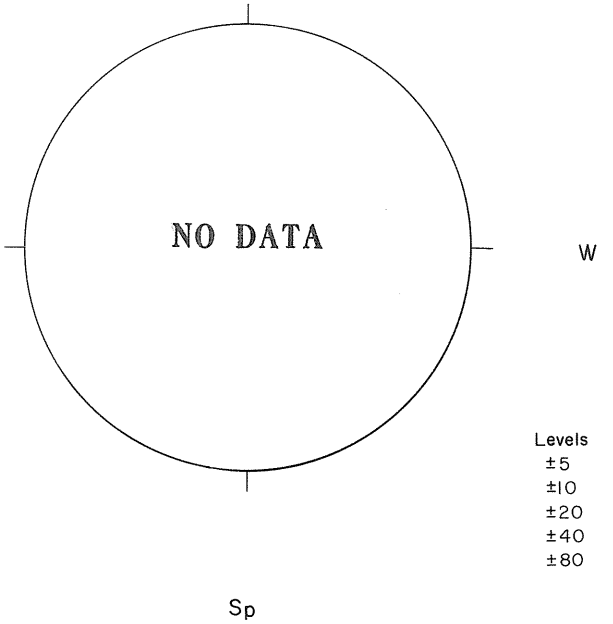
ESSA-BOULDER SUNSPOTS



1345 UT

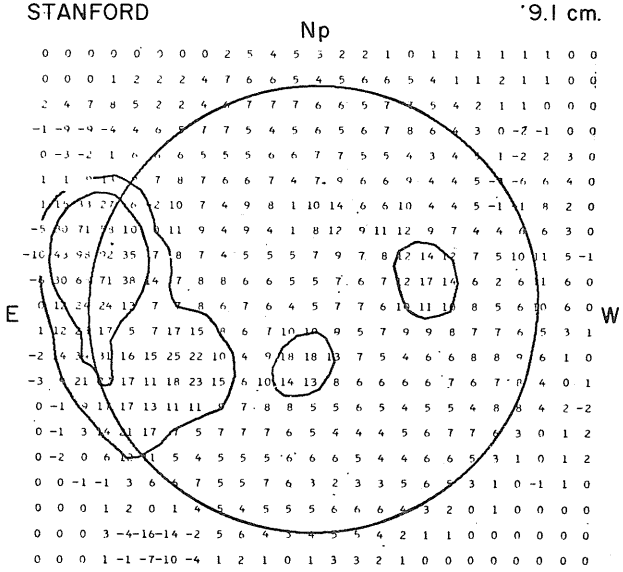
MT. WILSON MAGNETOGRAM

Solid-Plus
Dotted-Minus



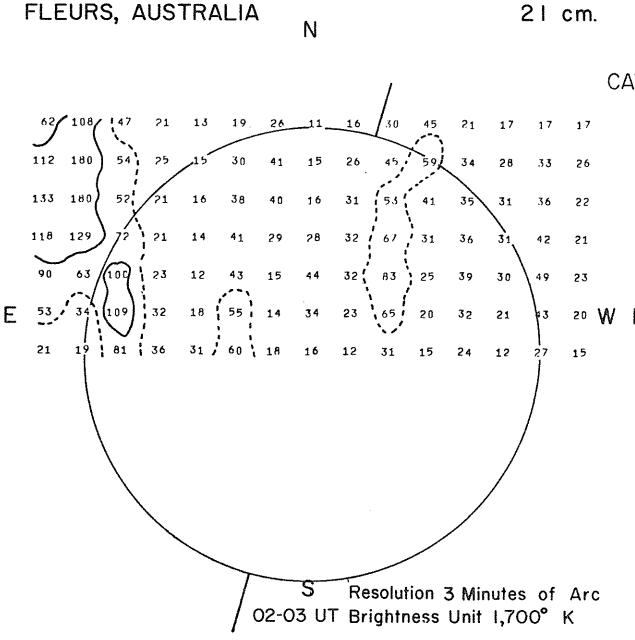
Levels
±5
±10
±20
±40
±80

STANFORD 9.1 cm.



20-21 UT Brightness Unit 5000° K

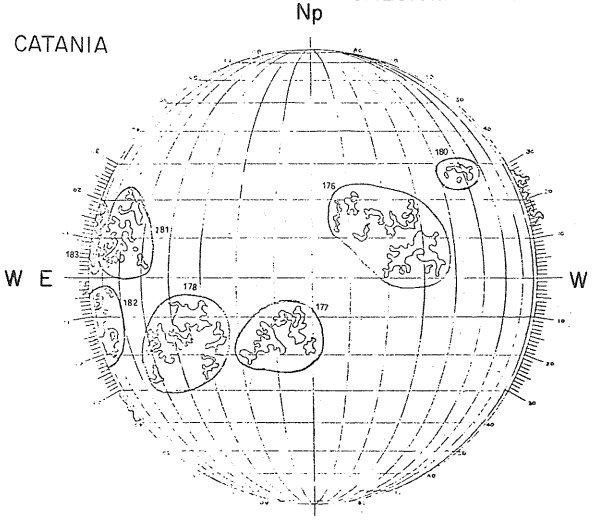
FLEURS, AUSTRALIA 21 cm.



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

CALCIUM REPORT

CATANIA

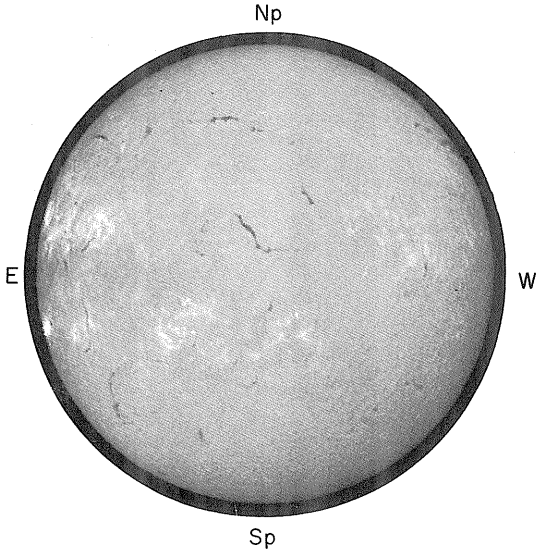


0725 UT

76 - 61 - 3.0
77 - 35 - 3.9
78 - 49 - 3.7
81 - 81 - 3.2
82 - 52
83 - 50

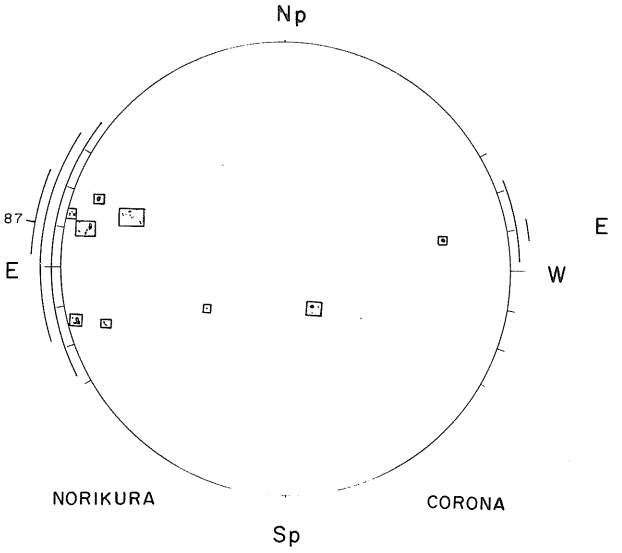
JUNE 4, 1969 (P=-14.39, B_o=-0.27, L_o=173.34)

BOULDER Hα



1350 UT

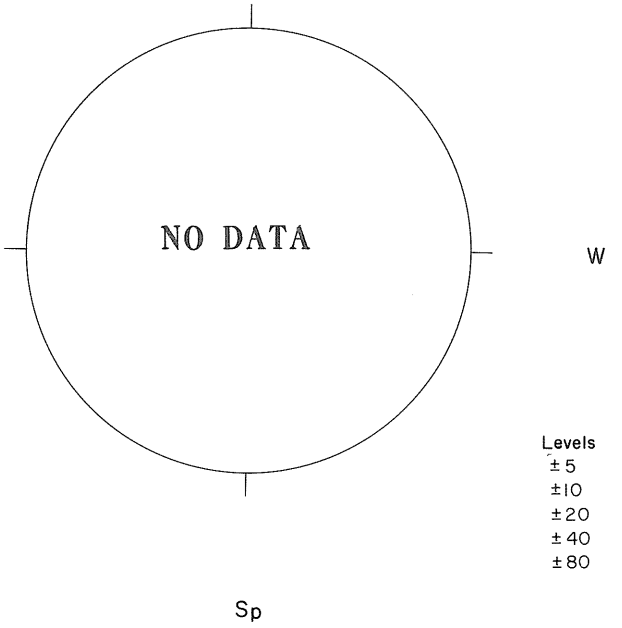
ESSA-BOULDER SUNSPOTS



1430 UT

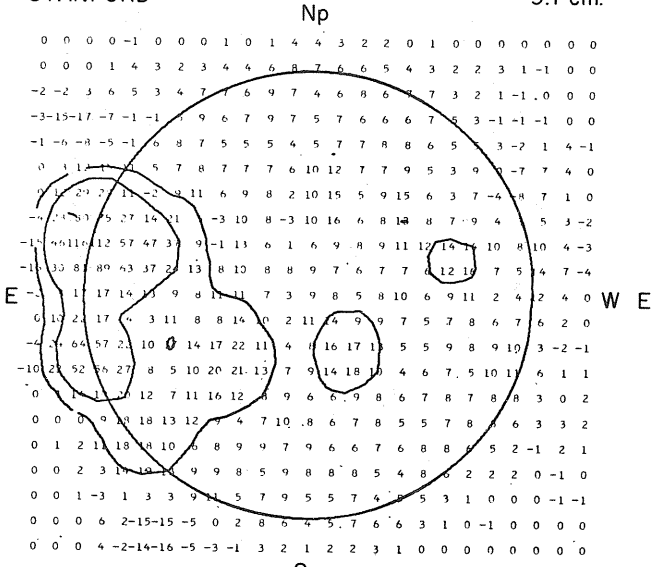
MT. WILSON MAGNETOGRAM

Solid-Plus
Dotted-Minus



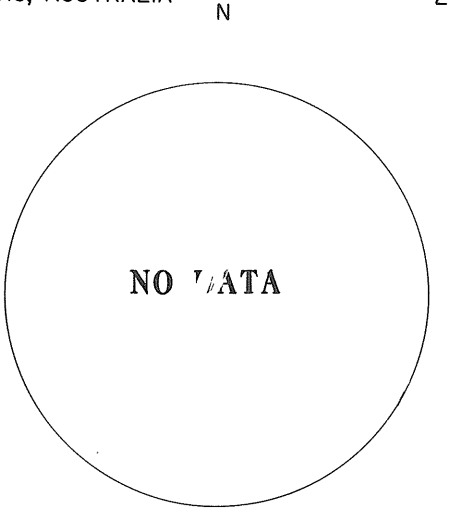
Levels
±5
±10
±20
±40
±80

STANFORD 9.1 cm.



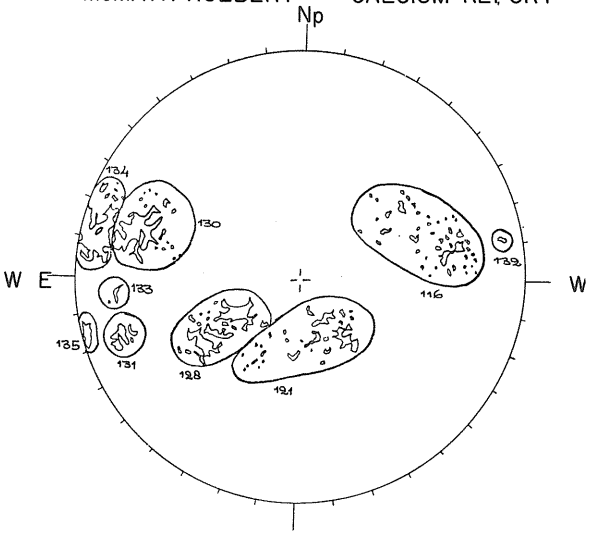
20-21 UT Brightness Unit 5000° K

FLEURS, AUSTRALIA 21 cm.



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

McMATH-HULBERT CALCIUM REPORT

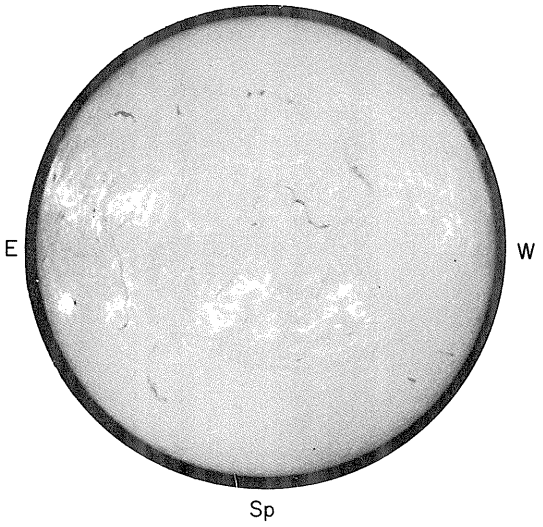


1410 UT

GOOD	M
16	-31 -2.5
21	-28 -2.5
28	-40 -3.0
30	-52 -3.5
31	-17 -3.0
34	-65 -3.5
35	-23 -4.0

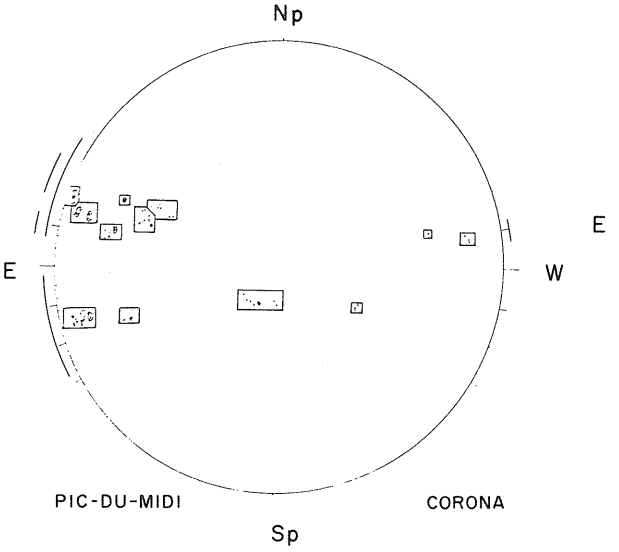
JUNE 5, 1969 (P=-14.00, B_o=-0.15, L_o=160.10)

BOULDER Hα



1330 UT

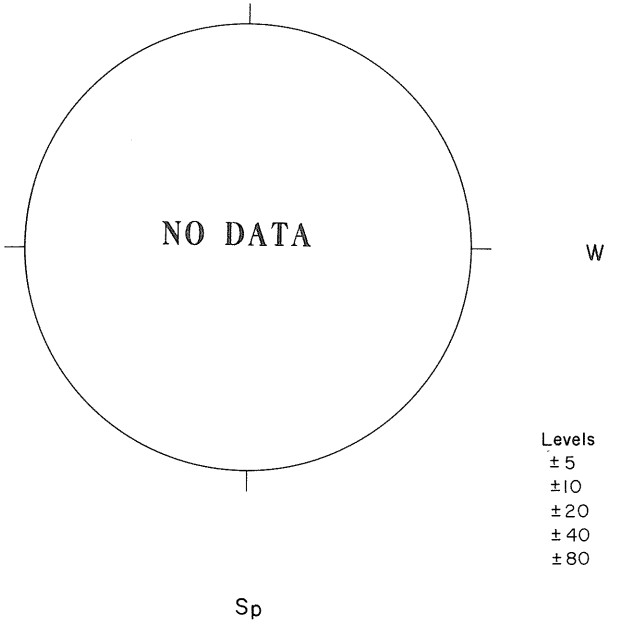
ESSA-BOULDER SUNSPOTS



1430 UT

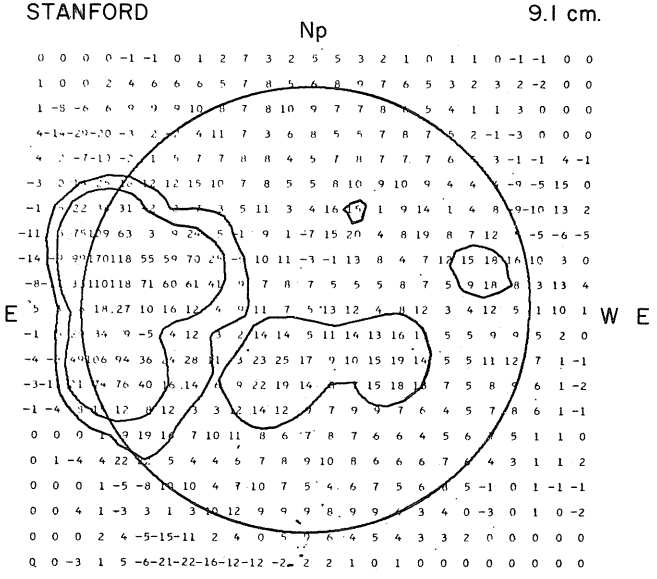
MT. WILSON MAGNETOGRAM

Solid-Plus
Dotted-Minus



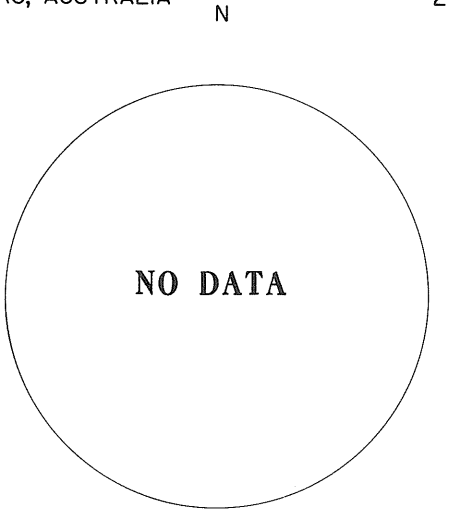
Levels
±5
±10
±20
±40
±80

STANFORD 9.1 cm.



20-21 UT Brightness Unit 5000° K

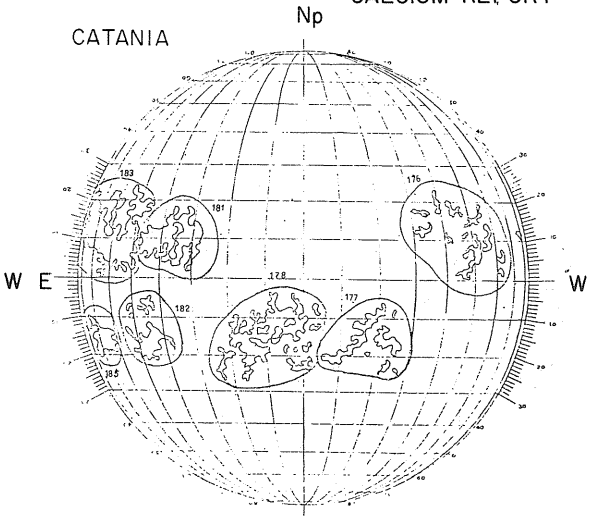
FLEURS, AUSTRALIA 21 cm.



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

CALCIUM REPORT

CATANIA

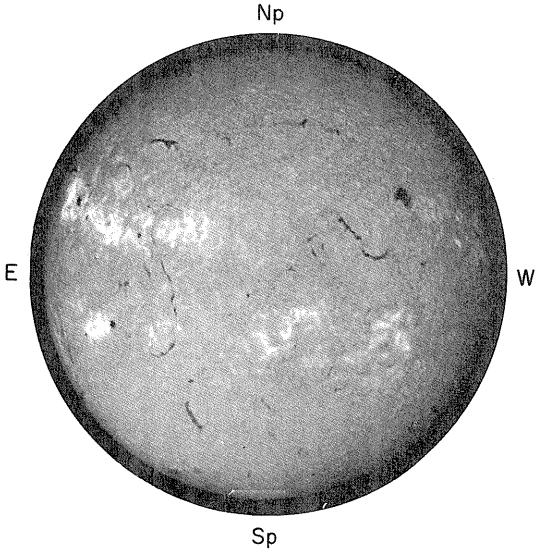


0800 UT

76 - 46 - 2.9
77 - 34 - 3.5
78 - 76 - 4.4
81 - 63 - 4.1
82 - 35 - 4.7
83 - 143 - 5.6
85 - 37 - 6.0

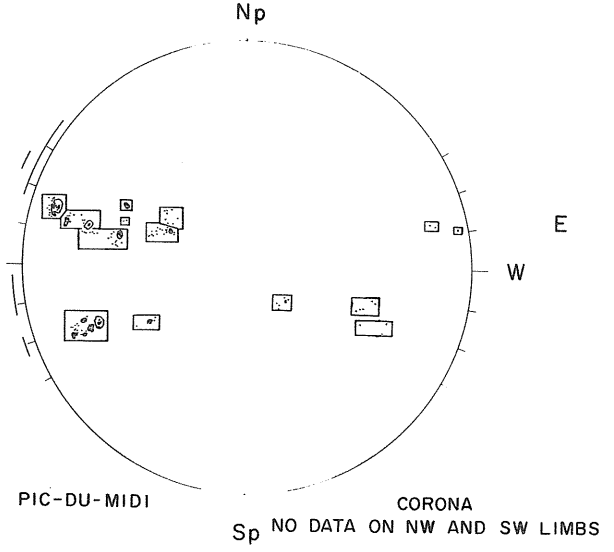
JUNE 6, 1969 (P=-13.61, B_o=-0.03, L_o=146.87)

BOULDER Hα



1403 UT

ESSA-BOULDER SUNSPOTS



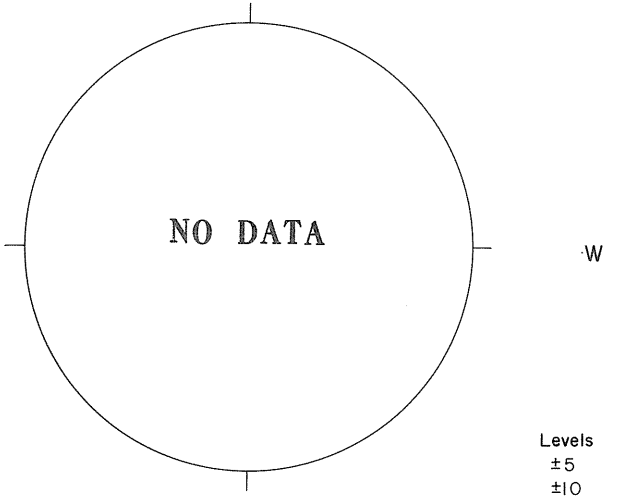
PIC-DU-MIDI CORONA

NO DATA ON NW AND SW LIMBS

1455 UT

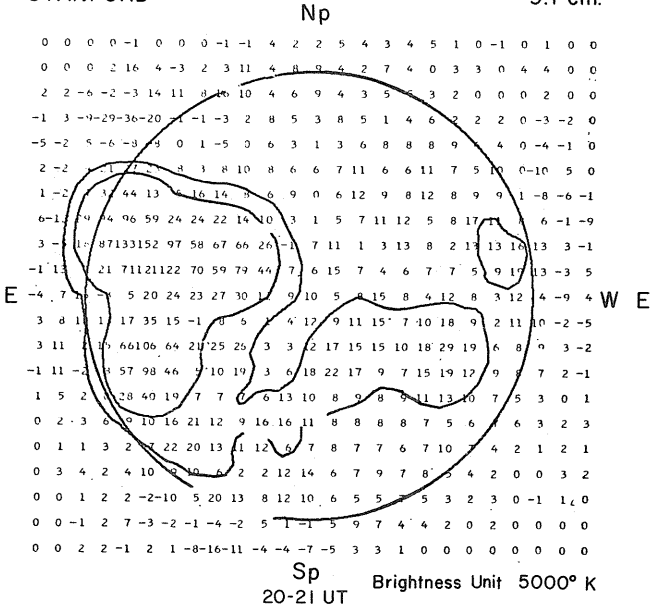
MT. WILSON MAGNETOGRAM

Solid-Plus
Dotted-Minus



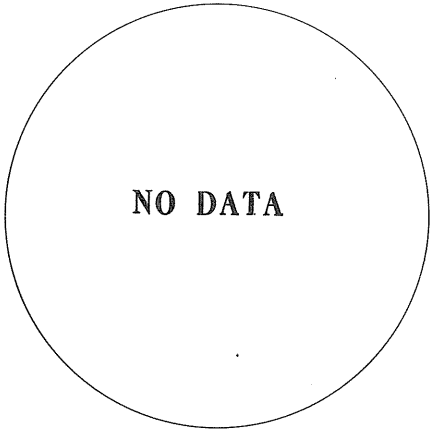
Levels
±5
±10
±20
±40
±80

STANFORD 9.1 cm.



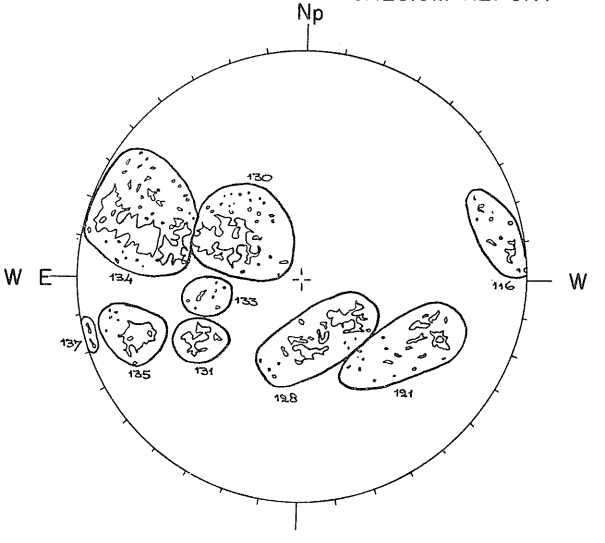
20-21 UT Brightness Unit 5000° K

FLEURS, AUSTRALIA 21 cm.



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

McMATH-HULBERT CALCIUM REPORT

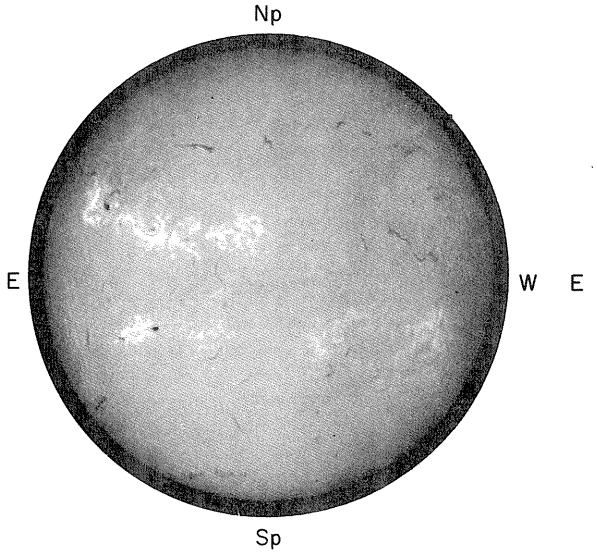


FAIR	M
28	-39 -2.5
30	-53 -3.0
31	-18 -3.0
34	-125 -4.0
35	-38 -3.5

1515 UT

JUNE 7, 1969 (P=-13.21, B_o= 0.09, L_o=133.63)

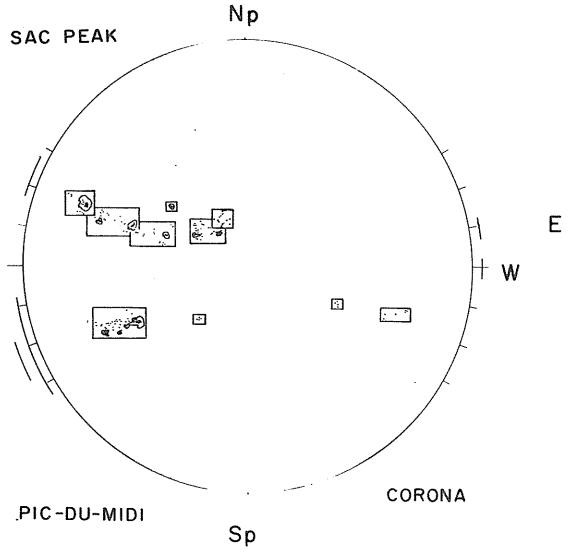
BOULDER — Hα



1433 UT

ESSA-BOULDER — SUNSPOTS

SAC PEAK

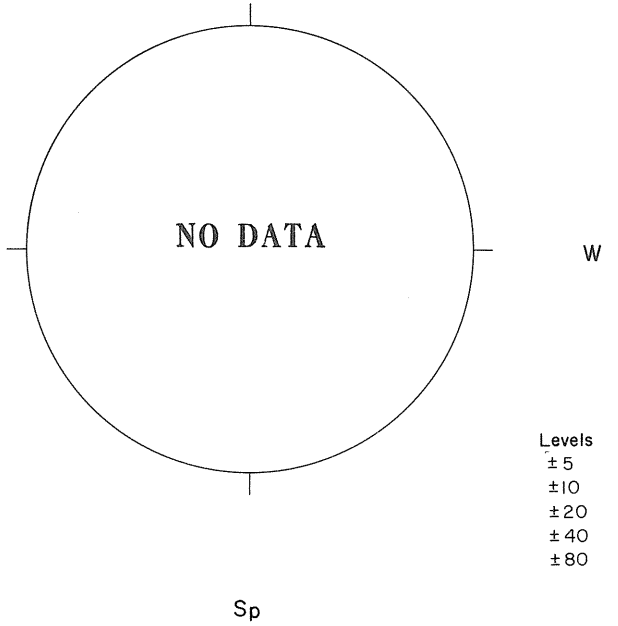


PIC-DU-MIDI — CORONA

1351 UT

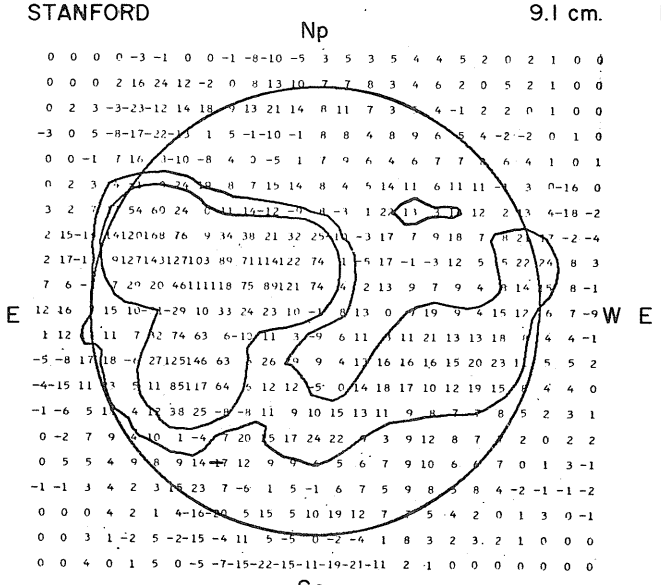
MT. WILSON — MAGNETOGRAM

Solid-Plus
Dotted-Minus



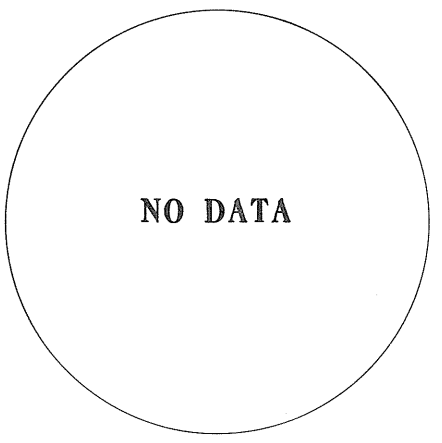
Levels
±5
±10
±20
±40
±80

STANFORD — 9.1 cm.



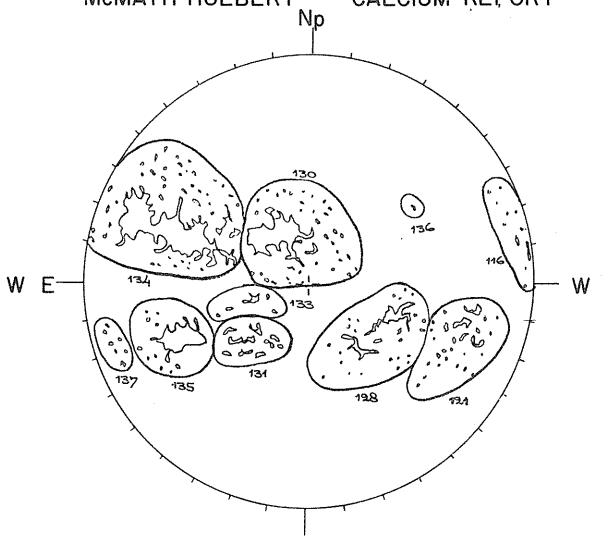
20-21 UT Brightness Unit 5000° K

FLEURS, AUSTRALIA — 21 cm.



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

McMATH-HULBERT — CALCIUM REPORT



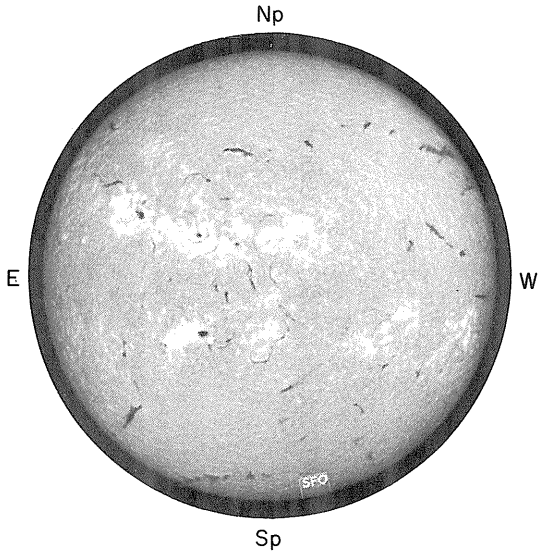
1440 UT

FAIR	0

30 - 58 - 3.0
31 - 16 - 2.5
34 - 135 - 3.5
35 - 36 - 3.5

JUNE 8, 1969 (P=-12.81, B_o= 0.21, L_o=120.40)

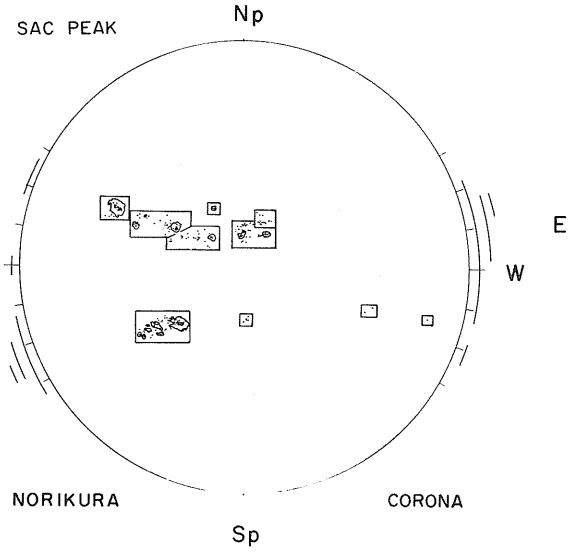
SAC PEAK Hα



1412 UT

ESSA-BOULDER SUNSPOTS

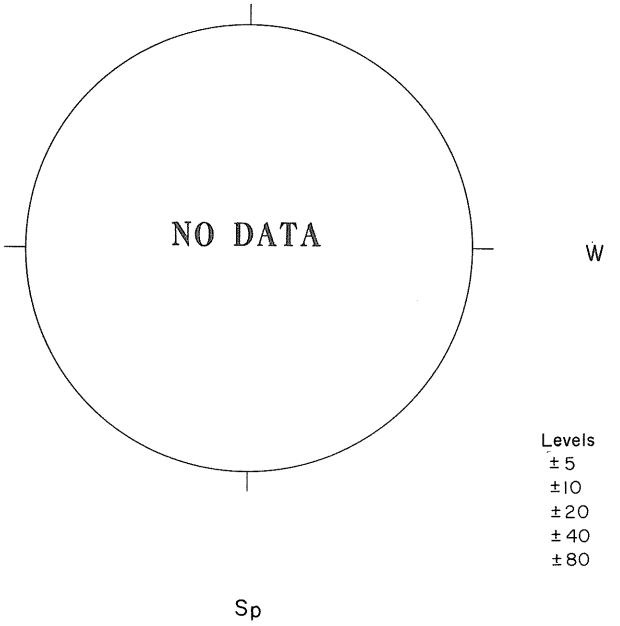
SAC PEAK



1348 UT

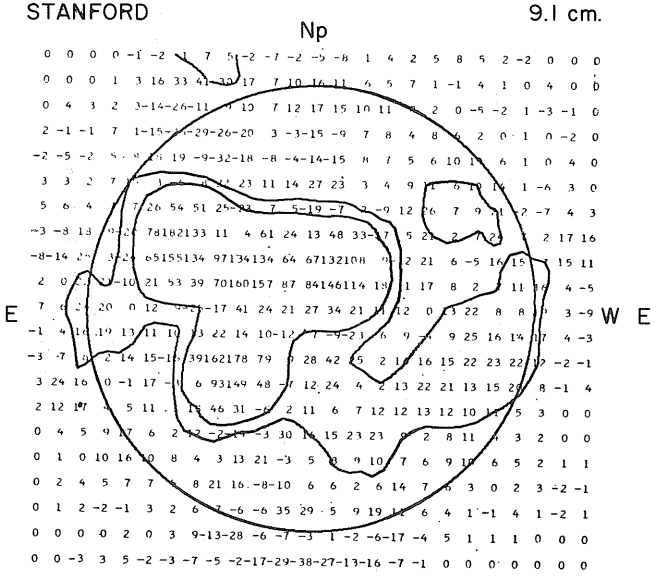
MT. WILSON MAGNETOGRAM

Solid-Plus
Dotted-Minus



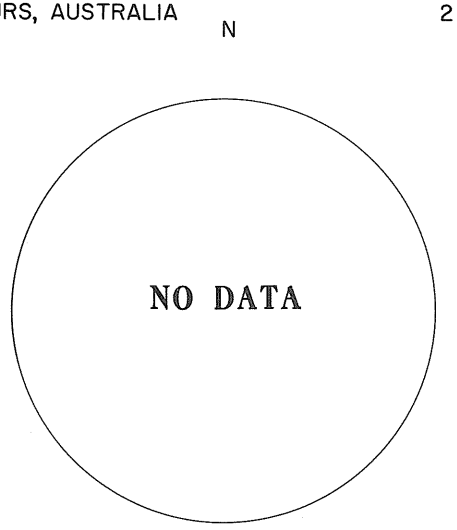
Levels
±5
±10
±20
±40
±80

STANFORD 9.1 cm.



20-21 UT Brightness Unit 5000° K

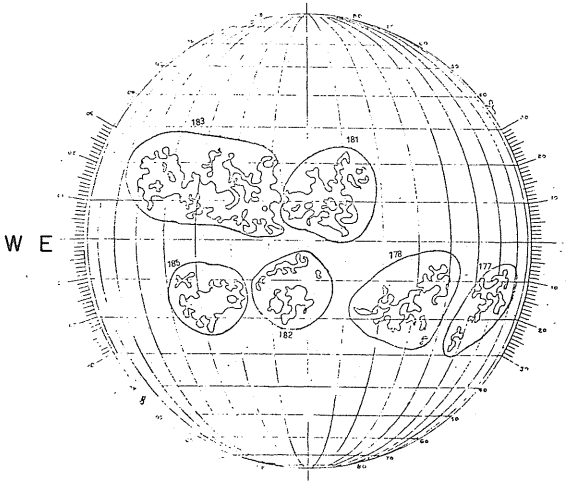
FLEURS, AUSTRALIA 21 cm.



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

CALCIUM REPORT

CATANIA

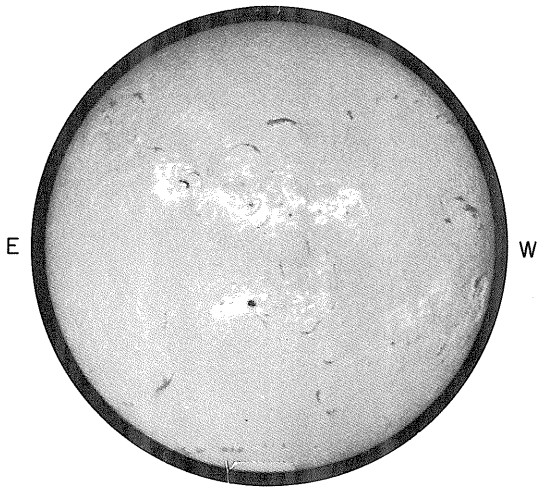


77 -37 -3.2
78 -48 -3.6
81 -64 -3.6
82 -29 -3.2
83 -62 -4.7
85 -59 -5.5

0810 UT

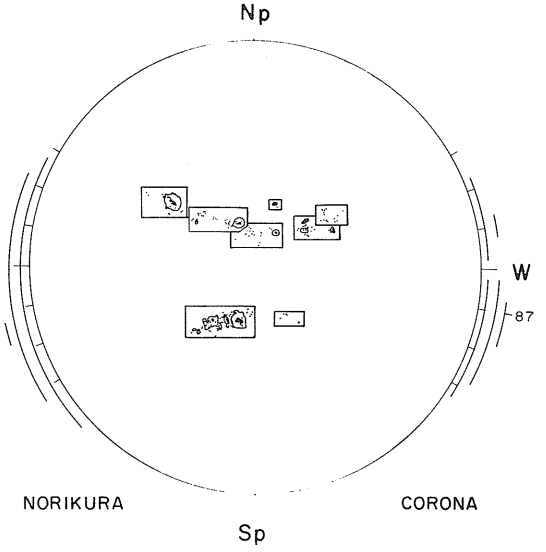
JUNE 9, 1969 (P=-12.40, B_o=0.33, L_o=107.16)

BOULDER Hα



1357 UT

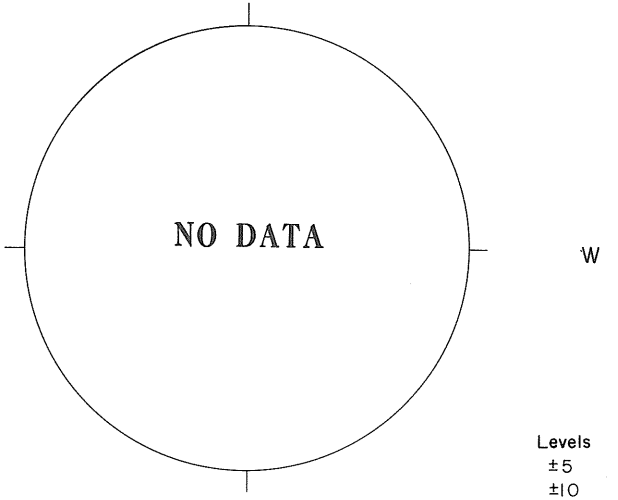
ESSA-BOULDER SUNSPOTS



1430 UT

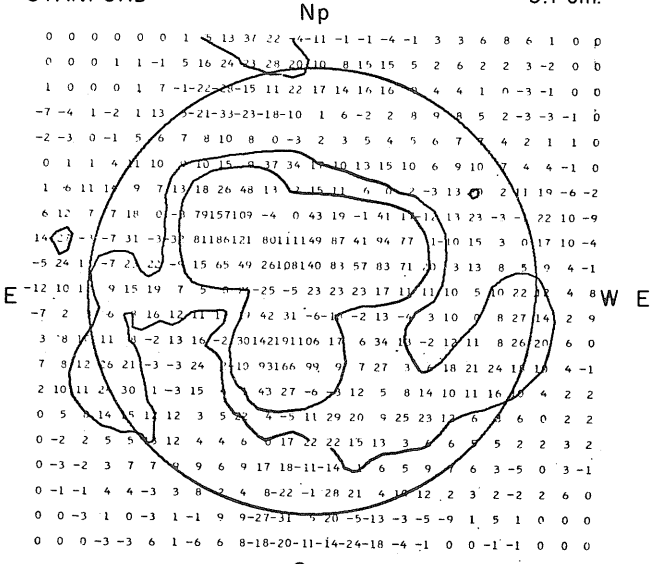
MT. WILSON MAGNETOGRAM

Solid-Plus
Dotted-Minus



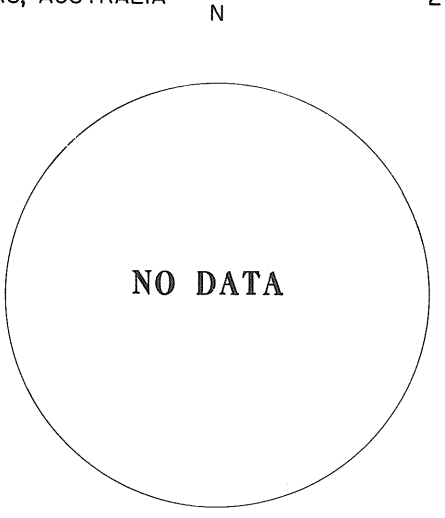
Levels
±5
±10
±20
±40
±80

STANFORD · 9.1 cm.



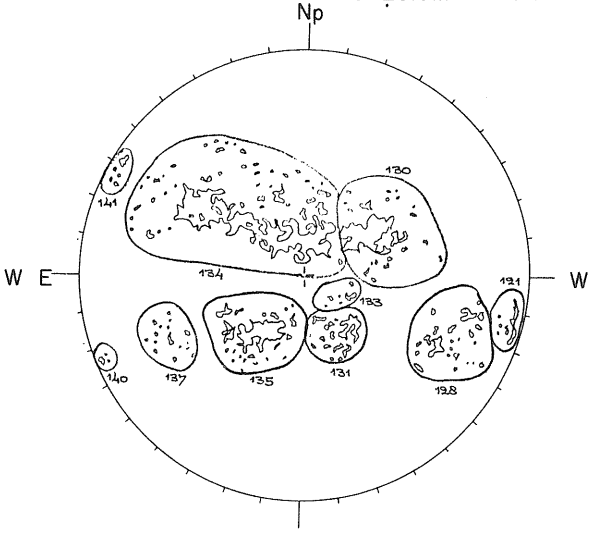
20-21 UT Brightness Unit 5000° K

FLEURS, AUSTRALIA 21 cm.



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

McMATH-HULBERT CALCIUM REPORT

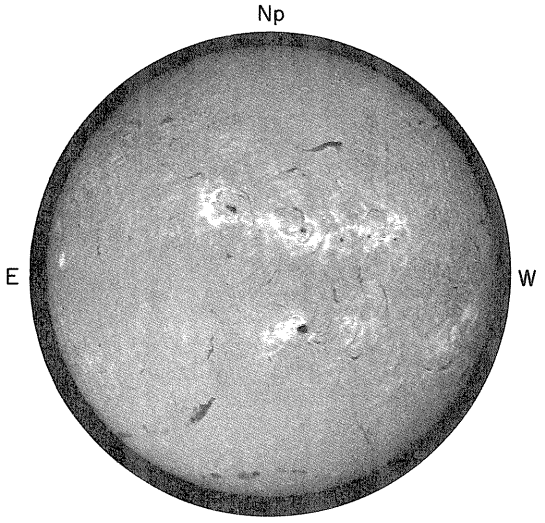


FAIR	D
28-34-2.0	
30-54-3.0	
34-135-3.5	
35-42-3.5	

1235 UT

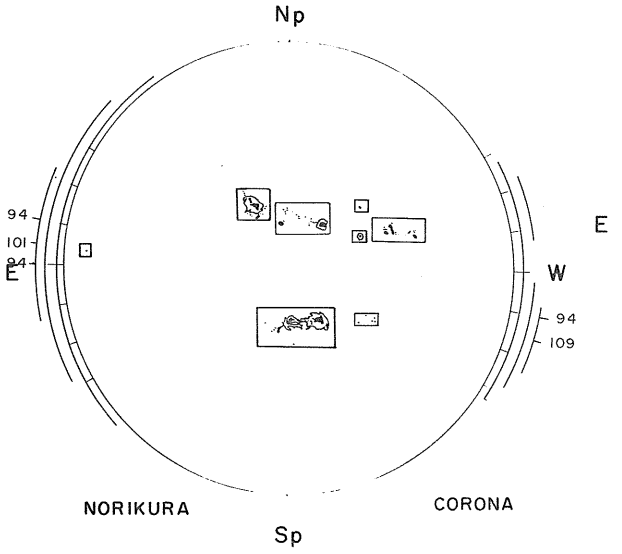
JUNE 10, 1969 (P=-11.99, B_o=0.45, L_o=93.92)

BOULDER Hα



1342 UT

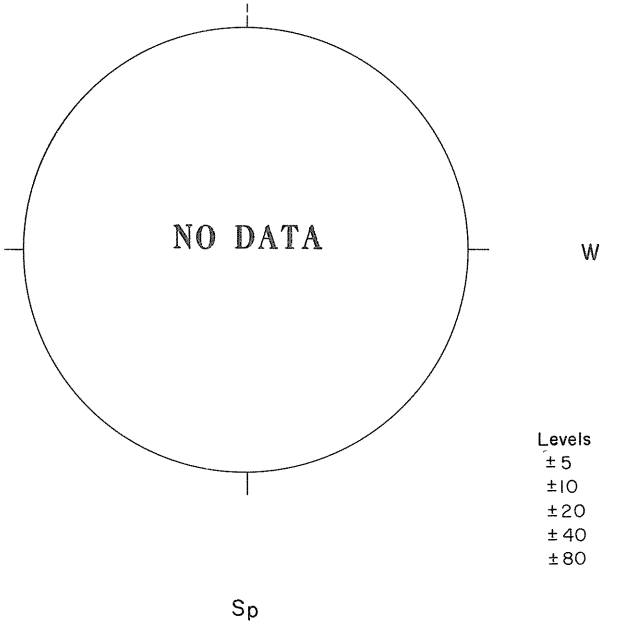
ESSA-BOULDER SUNSPOTS



1545 UT

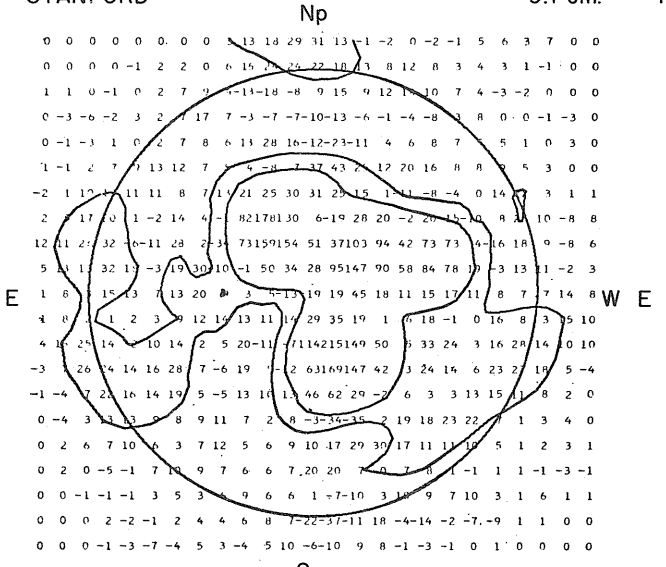
MT. WILSON MAGNETOGRAM

Solid-Plus
Dotted-Minus



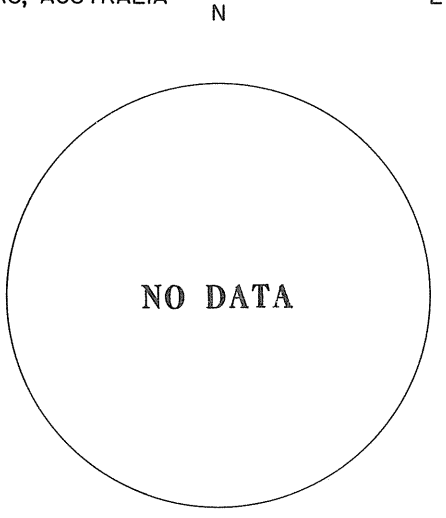
Levels
±5
±10
±20
±40
±80

STANFORD 9.1 cm.



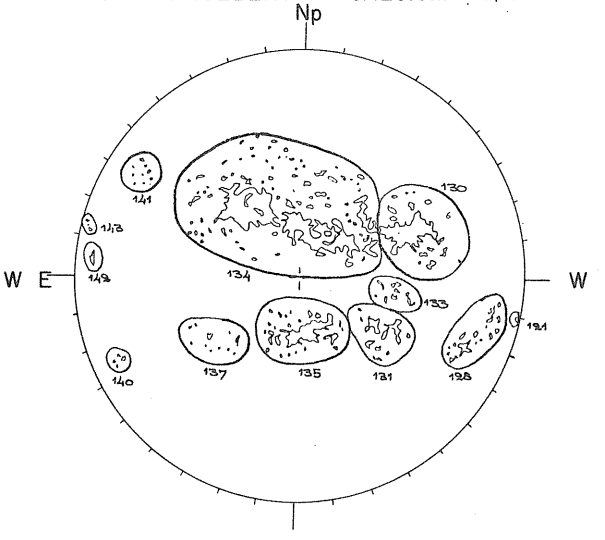
20-21 UT Brightness Unit 5000° K

FLEURS, AUSTRALIA 21 cm.



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

McMATH-HULBERT CALCIUM REPORT

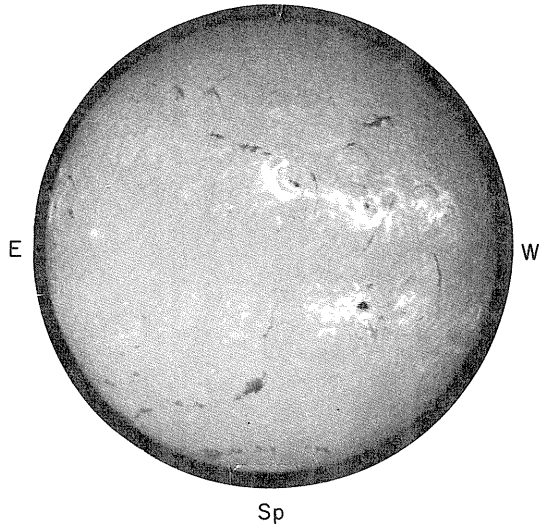


1240 UT

GOOD	D
30-52-3.0	
34-130-3.5	
35-44-3.5	
42-06-3.0	

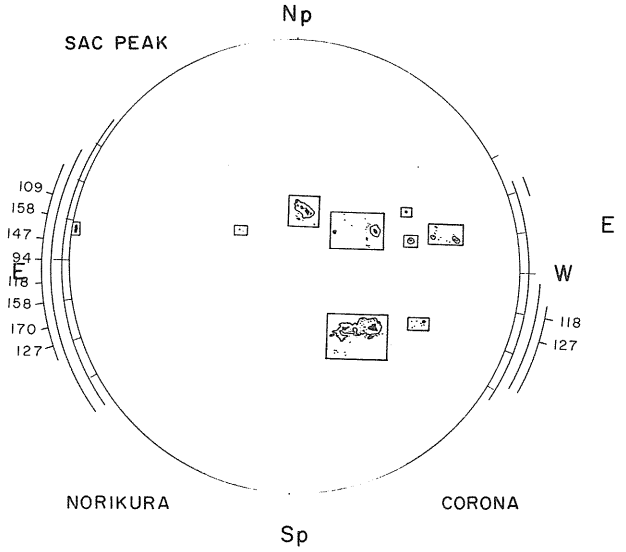
JUNE 11, 1969 (P=-11.58, B_o=0.57, L_o= 80.69)

BOULDER Hα



2007 UT

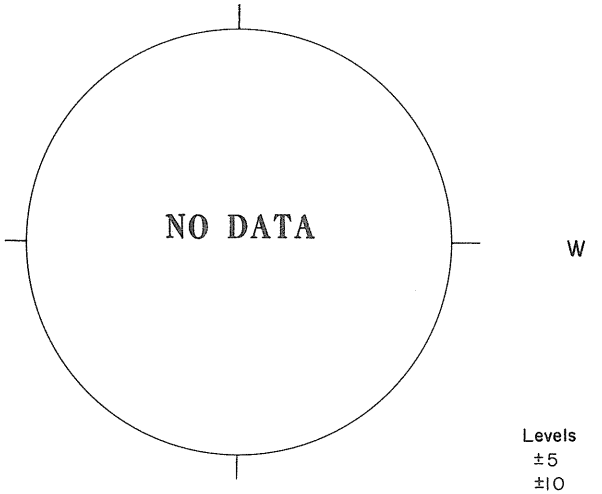
ESSA-BOULDER SUNSPOTS



1451 UT

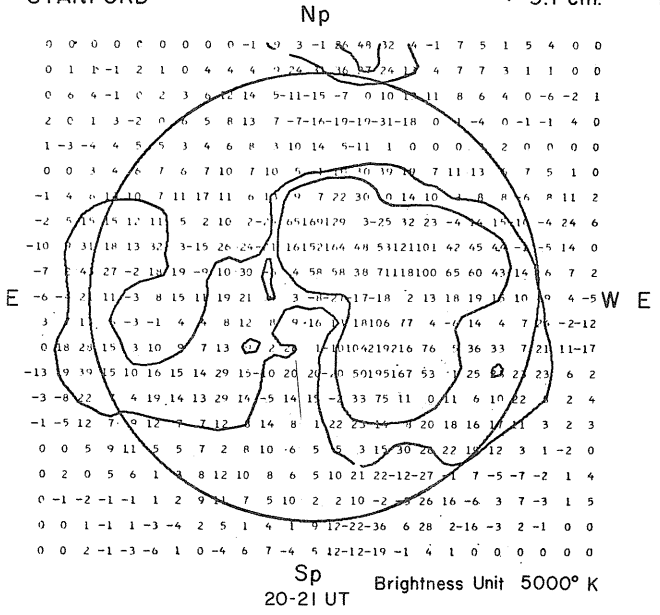
MT. WILSON MAGNETOGRAM

Solid-Plus
Dotted-Minus



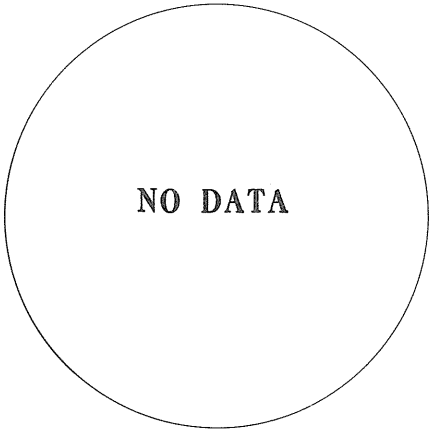
Levels
±5
±10
±20
±40
±80

STANFORD · 9.1 cm.



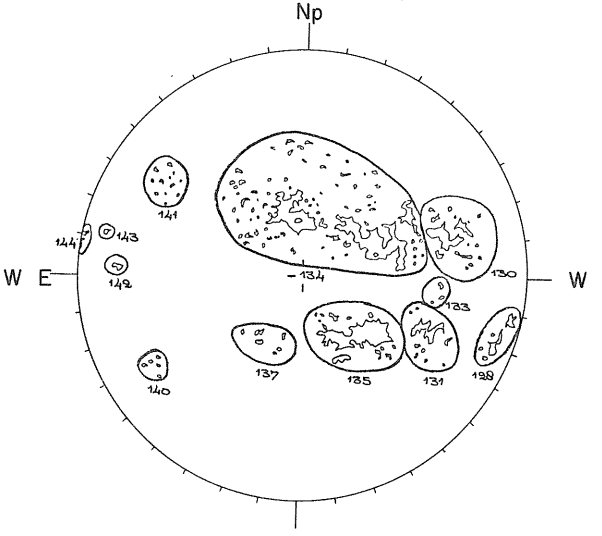
20-21 UT Brightness Unit 5000° K

FLEURS, AUSTRALIA 21 cm.



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

McMATH-HULBERT CALCIUM REPORT



POOR	D
30 - 49	-3.5
34 - 118	-3.5
35 - 48	-3.5

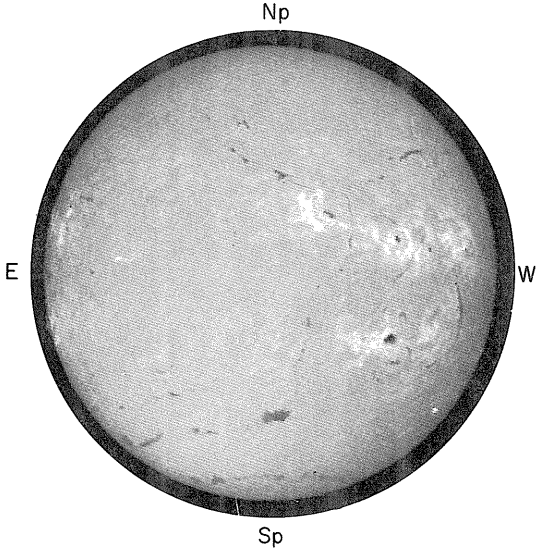
1300 UT

JUNE 12, 1969 (P=-11.16, B_o=0.70, L_o=67.45)

MT. WILSON

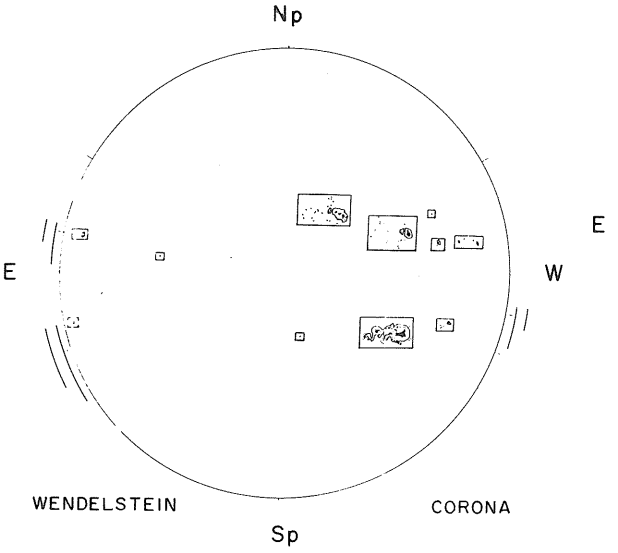
MAGNETOGRAM
Solid-Plus
Dotted-Minus

BOULDER Hα

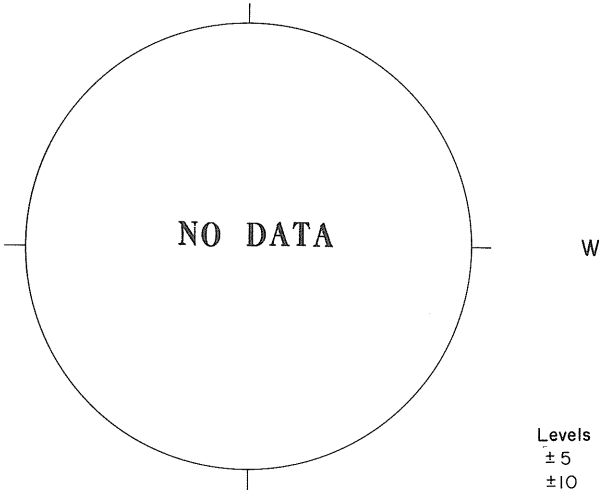


1330 UT

ESSA-BOULDER SUNSPOTS

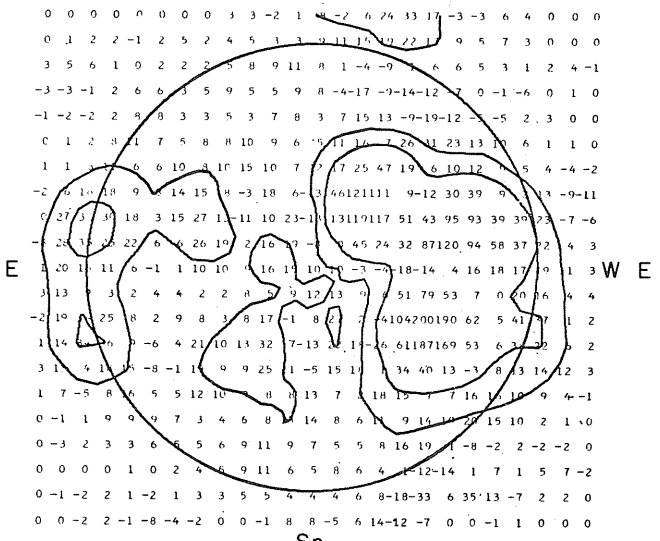


1340 UT



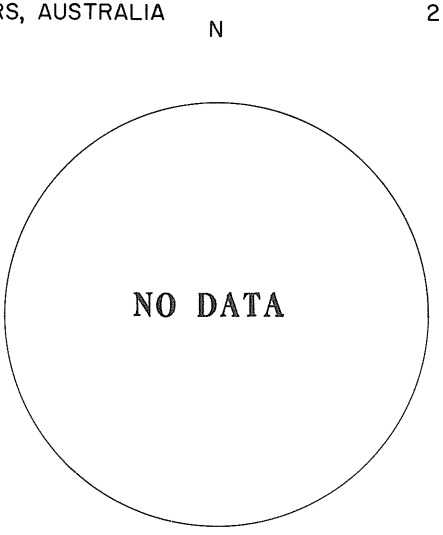
Levels
±5
±10
±20
±40
±80

STANFORD 9.1 cm.



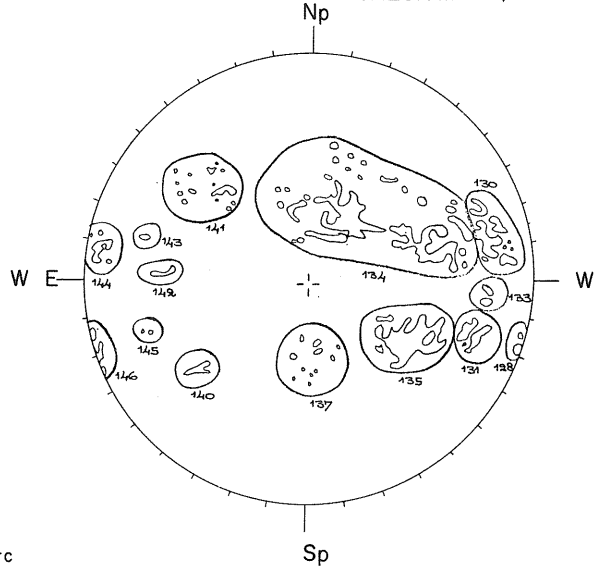
20-21 UT Brightness Unit 5000° K

FLEURS, AUSTRALIA 21 cm.



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

McMATH-HULBERT CALCIUM REPORT

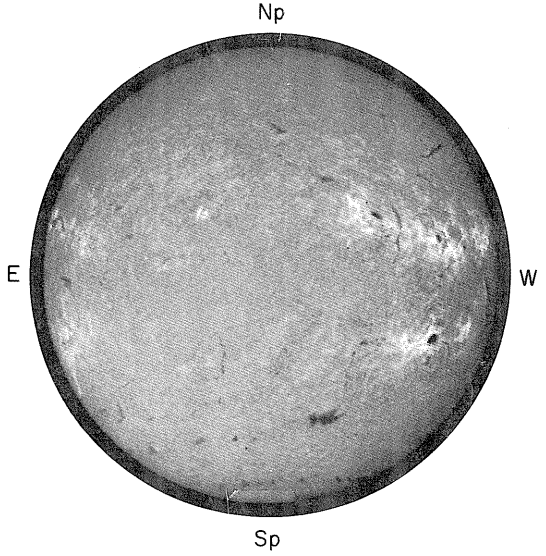


1310 UT

FAIR	S
30-45	3.0
31-14	2.5
34-110	3.5
35-55	3.0
42-04	2.5
44-18	2.5

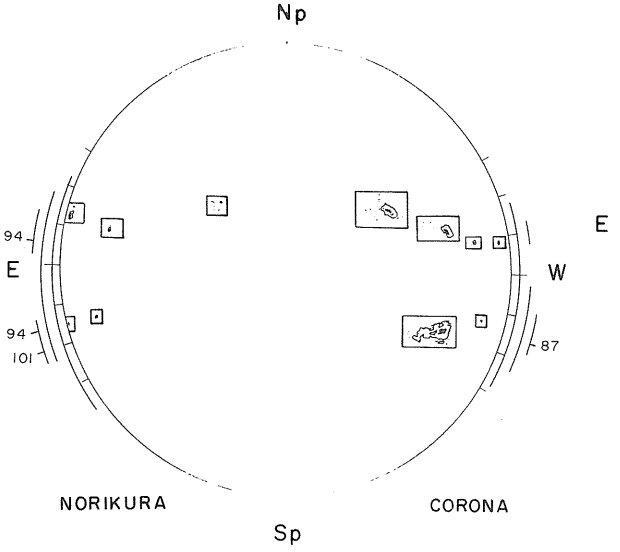
JUNE 13, 1969 (P=-10.74, B_o=0.82, L_o=54.22)

BOULDER Hα



1333 UT

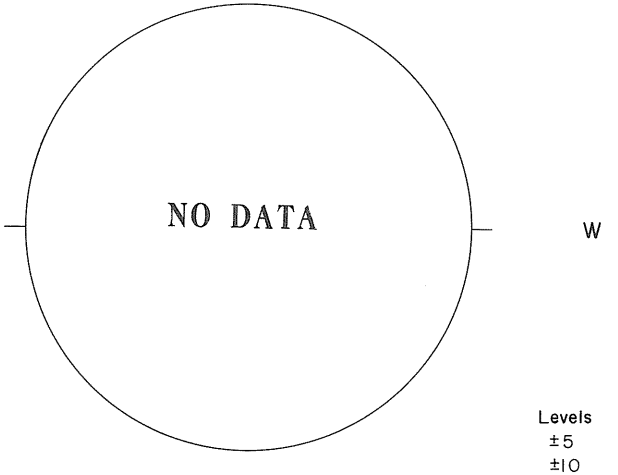
ESSA-BOULDER SUNSPOTS



1410 UT

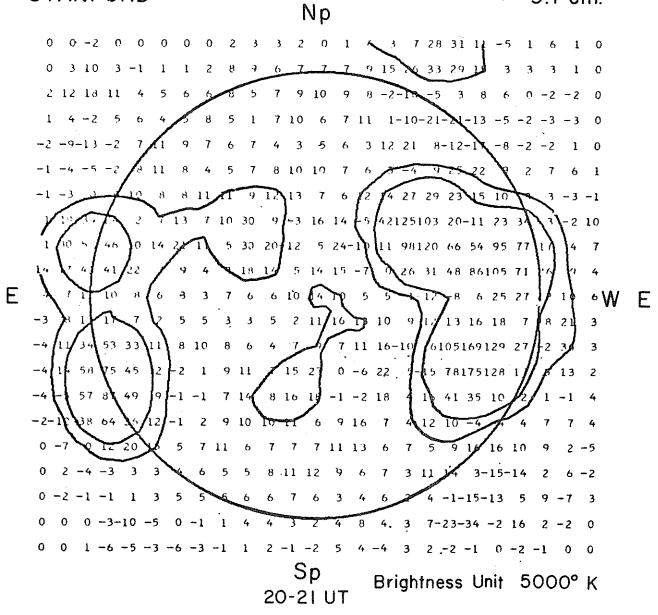
MT. WILSON MAGNETOGRAM

Solid-Plus
Dotted-Minus



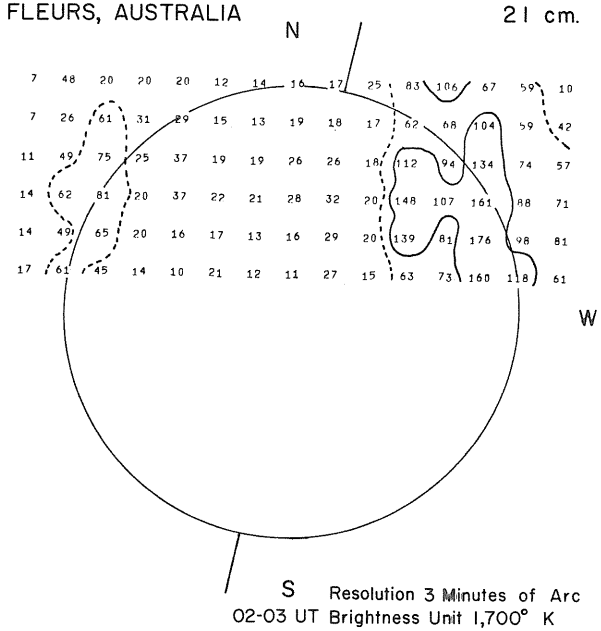
Levels
±5
±10
±20
±40
±80

STANFORD 9.1 cm.



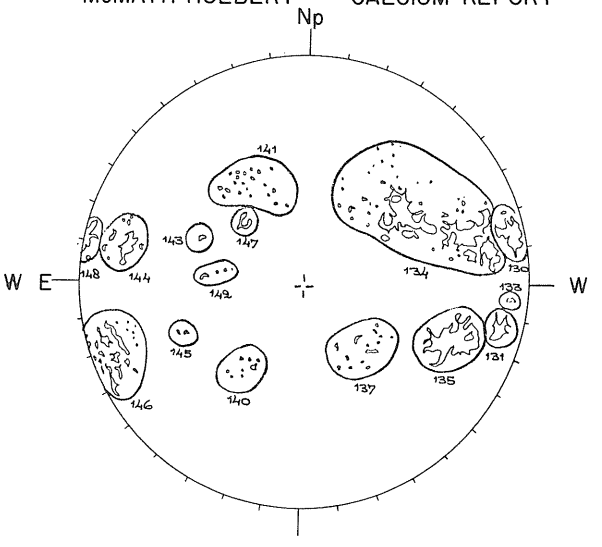
20-21 UT Brightness Unit 5000° K

FLEURS, AUSTRALIA 21 cm.



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

McMATH-HULBERT CALCIUM REPORT

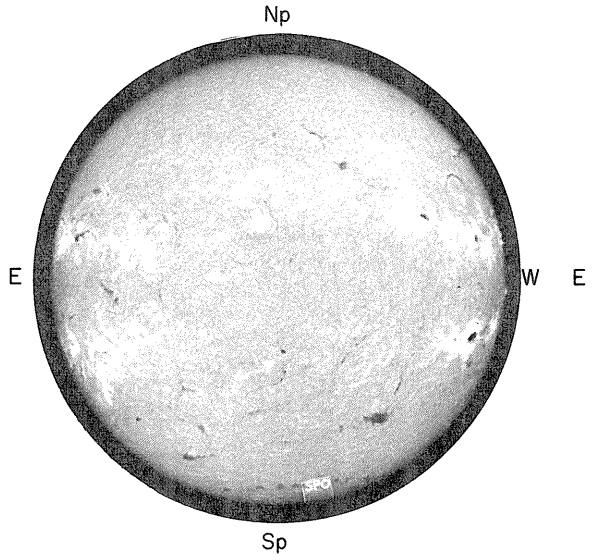


1835 UT

FAIR	M
30	-45-3.0
31	-15-3.0
34	-108-3.5
35	-56-3.0
44	-23-3.0
46	-45-4.5
47	-05-3.0
48	-25-3.0

JUNE 14, 1969 (P=-10.32, B_o= 0.93, L_o=40.98)

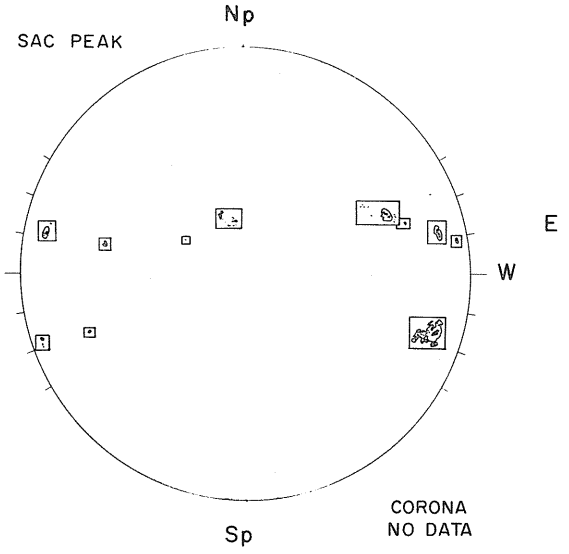
SAC PEAK Hα



1439 UT

ESSA-BOULDER SUNSPOTS

SAC PEAK

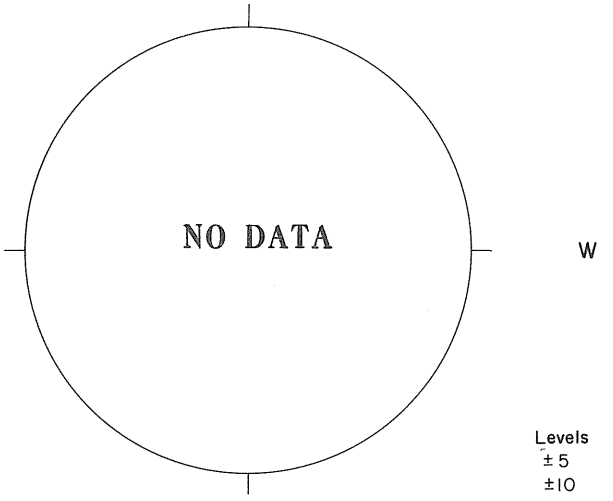


CORONA
NO DATA

1430 UT

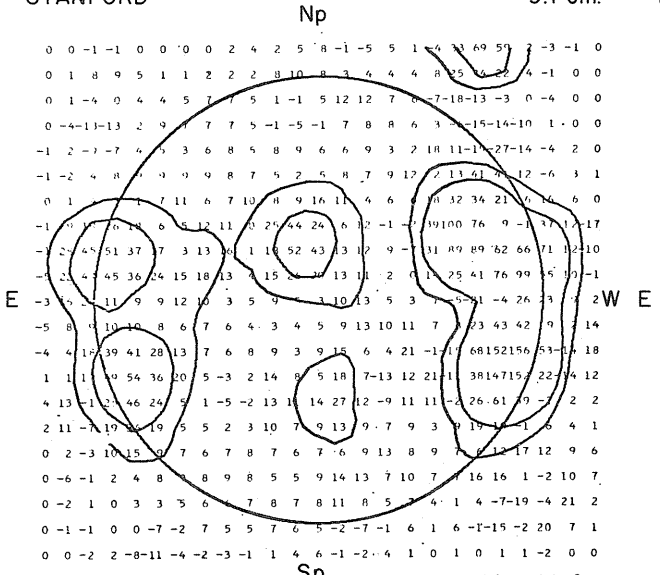
MT. WILSON

MAGNETOGRAM
Solid-Plus
Dotted-Minus



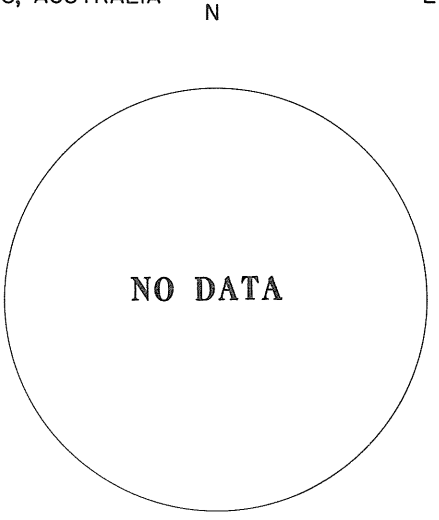
Levels
±5
±10
±20
±40
±80

STANFORD 9.1 cm.



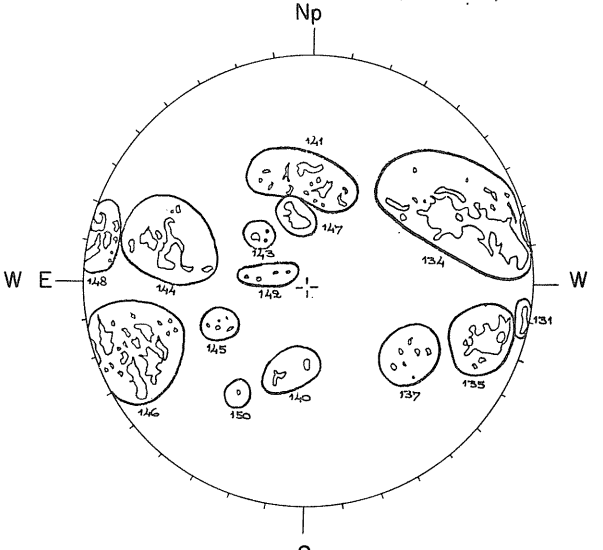
20-21 UT Brightness Unit 5000° K

FLEURS, AUSTRALIA 21 cm.



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

McMATH-HULBERT CALCIUM REPORT

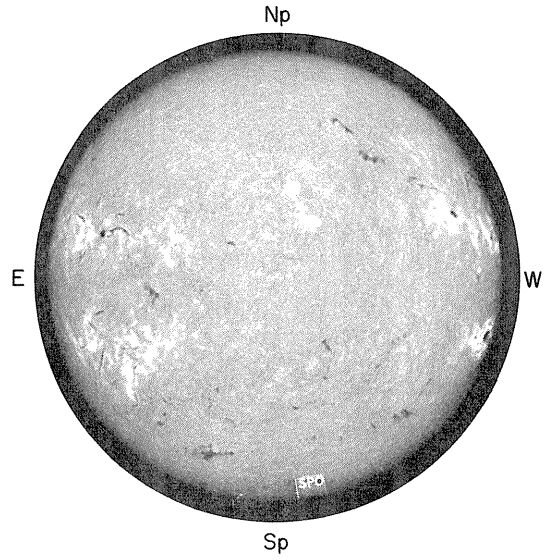


1845 UT

FAIR	S
34-110	-3.5
35-55	-3.0
44-30	-3.0
46-73	-3.5
47-10	-3.0
48-35	-3.5

JUNE 15, 1969 (P = −9.89, B_o = 1.05, L_o = 27.74)

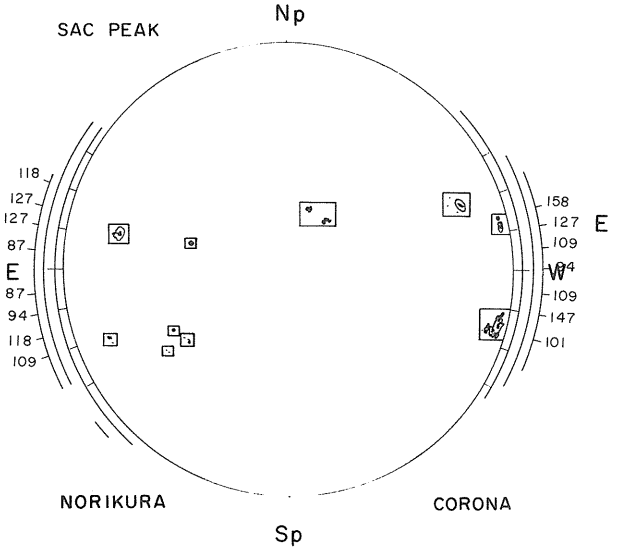
SAC PEAK — Hα



1419 UT

ESSA-BOULDER — SUNSPOTS

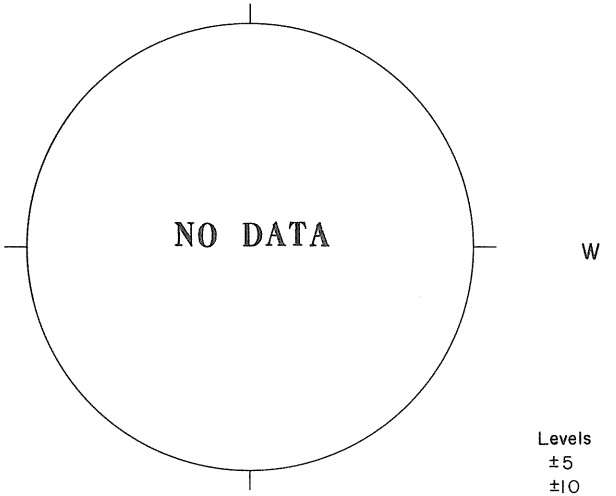
SAC PEAK



1416 UT

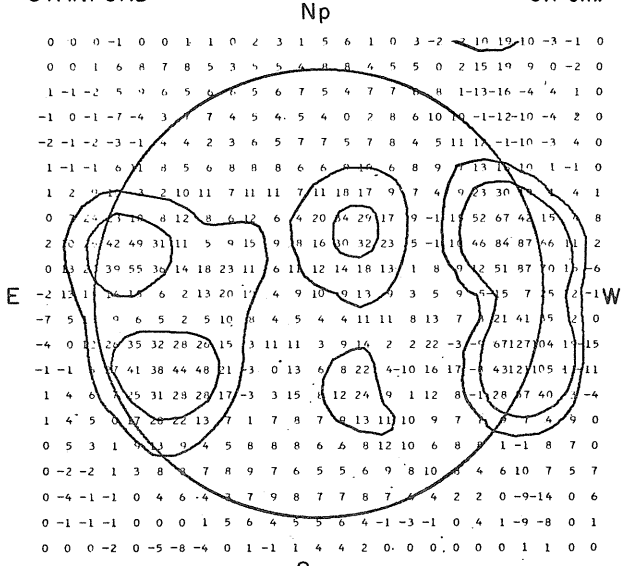
MT. WILSON — MAGNETOGRAM

Solid-Plus
Dotted-Minus



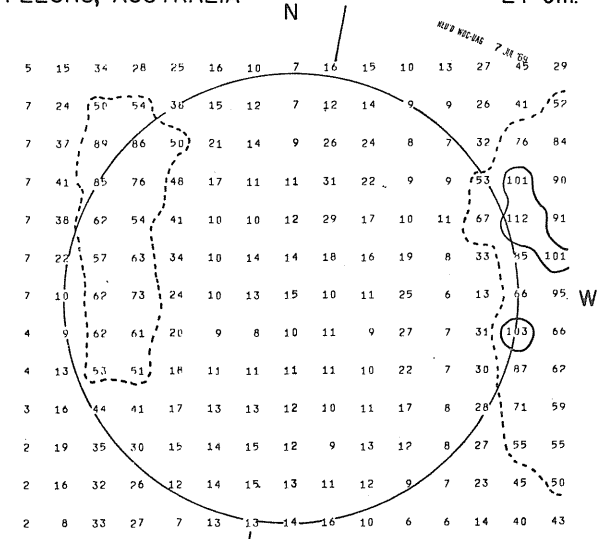
Levels
±5
±10
±20
±40
±80

STANFORD — 9.1 cm.



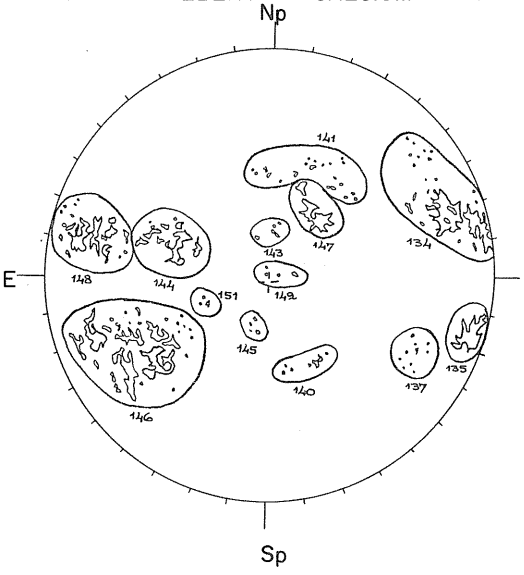
20-21 UT Brightness Unit 5000° K

FLEURS, AUSTRALIA — 21 cm.



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

McMATH-HULBERT — CALCIUM REPORT

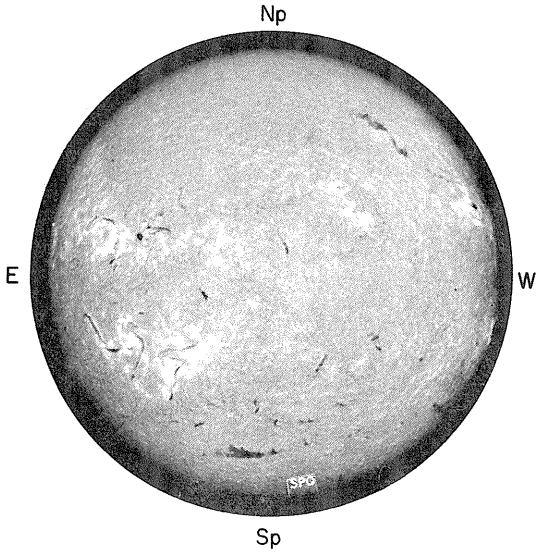


2040 UT

GOOD	M
34	-3.5
35	-3.5
44	-3.0
46	-3.5
47	-3.0
48	-3.5

JUNE 16, 1969 (P=-9.46, B_o= 1.17, L_o=14.51)

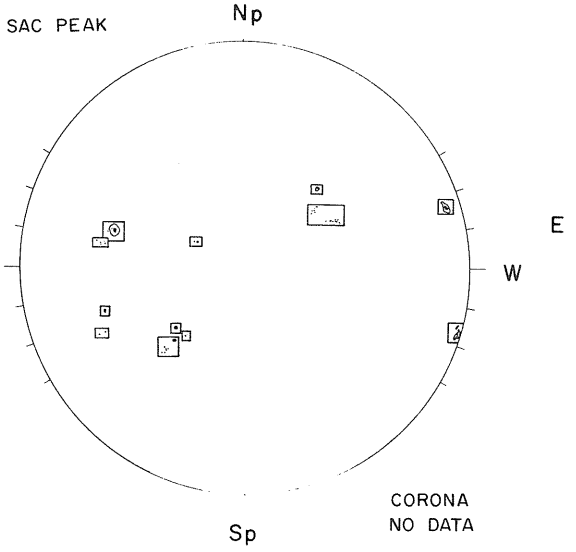
SAC PEAK Hα



1550 UT

ESSA-BOULDER SUNSPOTS

SAC PEAK

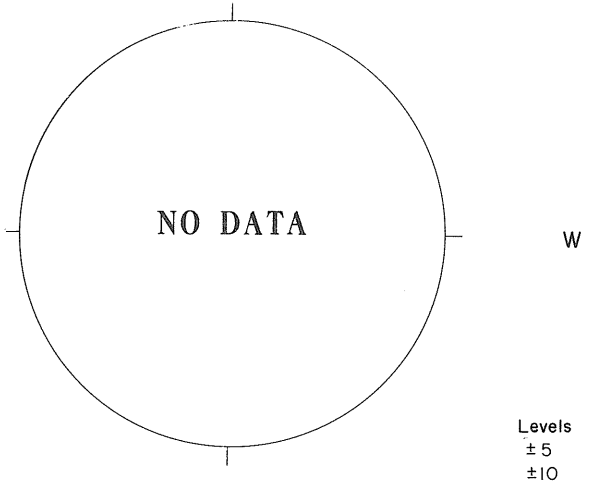


CORONA NO DATA

1441 UT

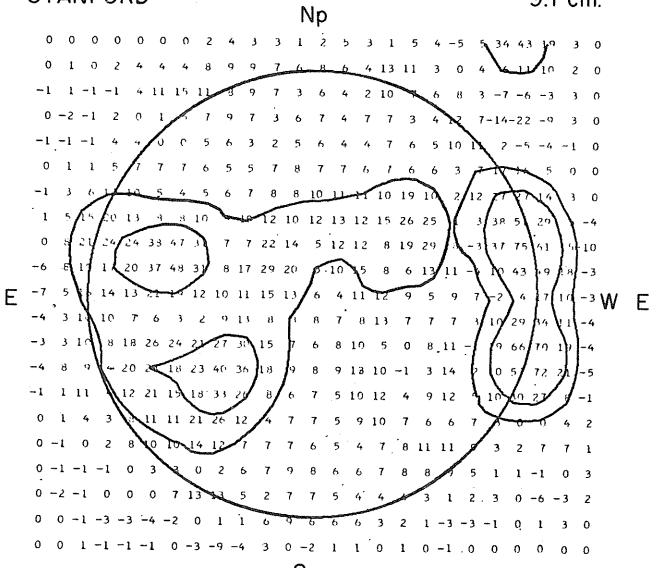
MT. WILSON MAGNETOGRAM

Solid-Plus
Dotted-Minus



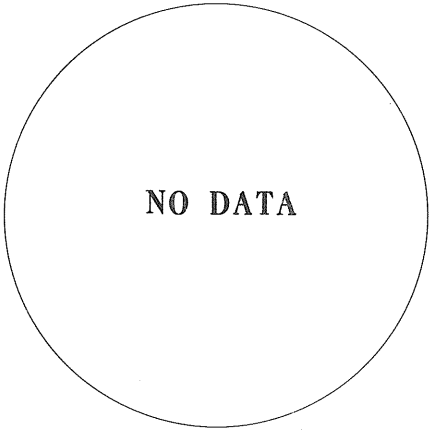
Levels
±5
±10
±20
±40
±80

STANFORD 9.1 cm.



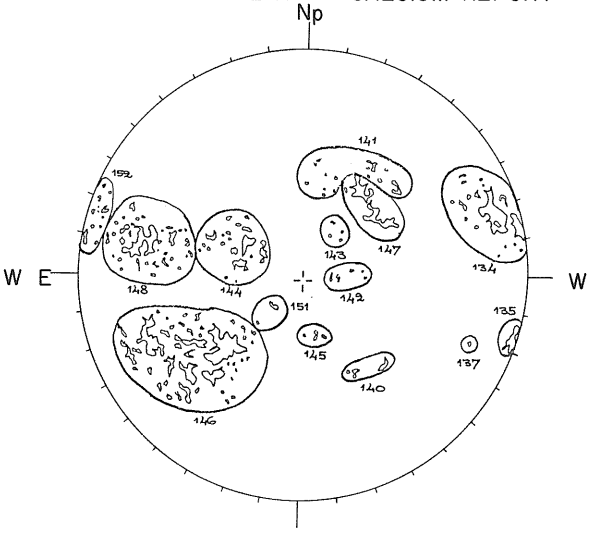
20-21 UT Brightness Unit 5000° K

FLEURS, AUSTRALIA 21 cm.



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

McMATH-HULBERT CALCIUM REPORT

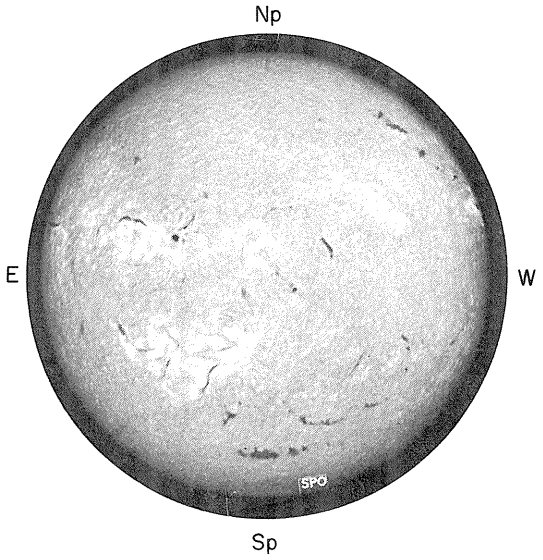


1310 UT

FAIR	D
34-65-3.5	
35-28-3.5	
41-18-2.5	
44-26-3.0	
46-80-3.5	
47-14-3.5	
48-43-3.5	

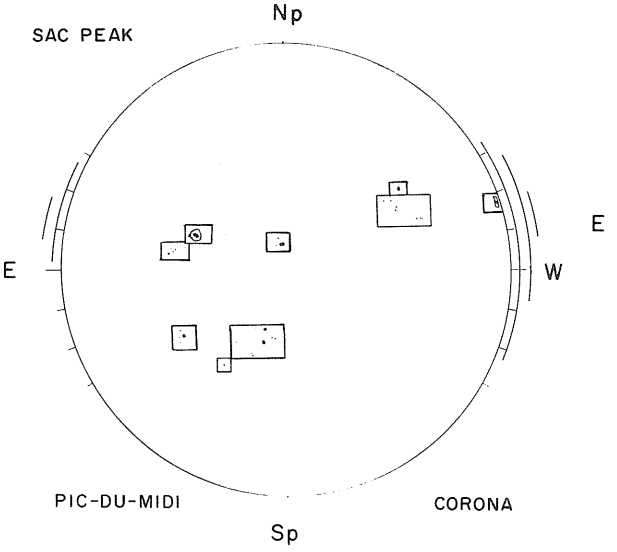
JUNE 17, 1969 (P=-9.03, B_o=1.29, L_o=1.27)

SAC PEAK — Hα



1742 UT

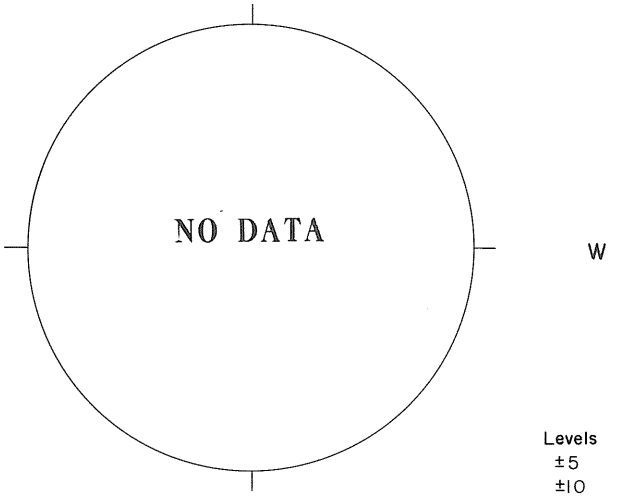
ESSA-BOULDER — SUNSPOTS



1428 UT

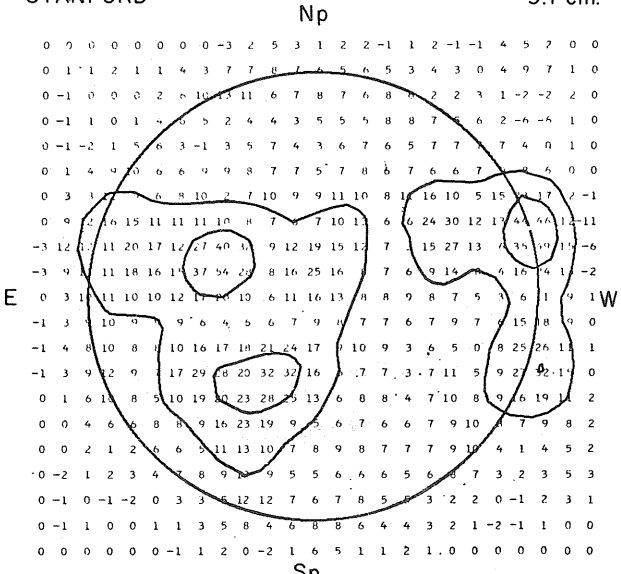
MT. WILSON — MAGNETOGRAM

Solid-Plus
Dotted-Minus



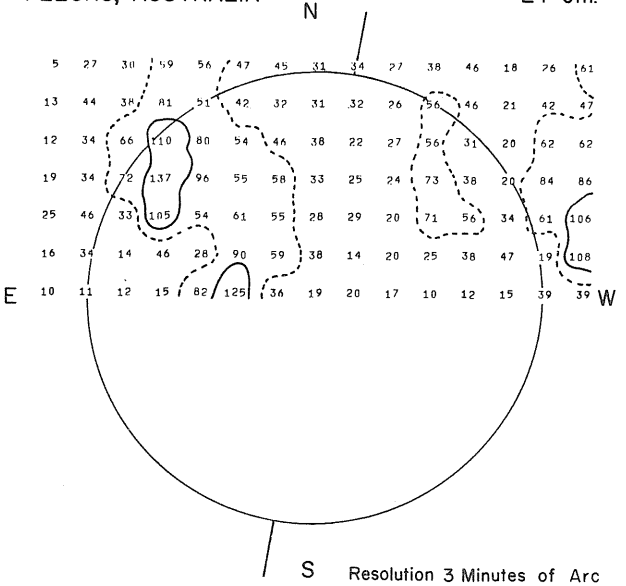
Levels
±5
±10
±20
±40
±80

STANFORD — 9.1 cm.



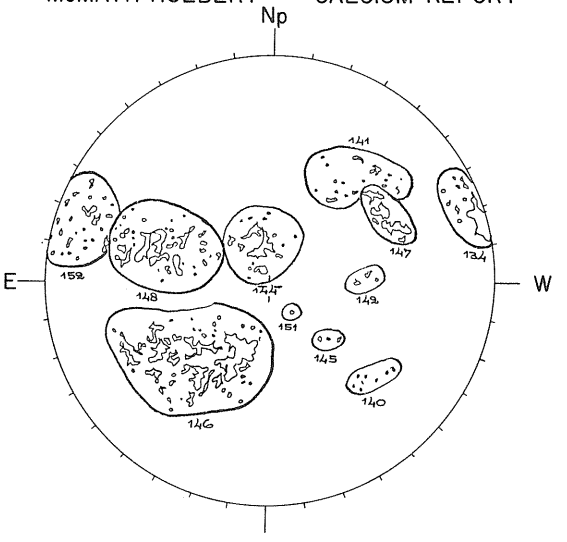
20-21 UT Brightness Unit 5000° K

FLEURS, AUSTRALIA — 21 cm.



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

McMATH-HULBERT — CALCIUM REPORT

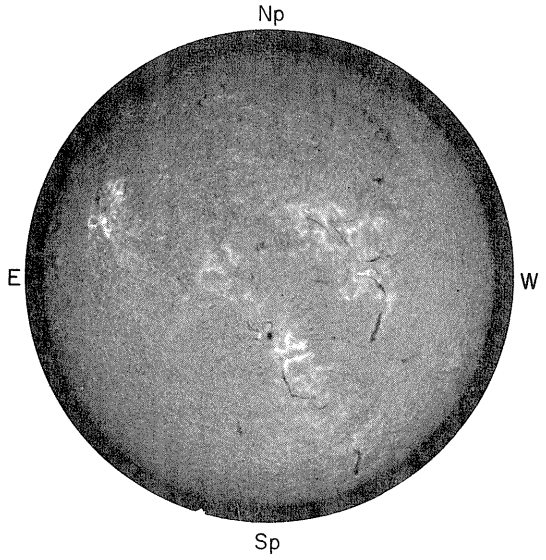


1300 UT

GOOD	D
34-55-3.0	
41-20-3.0	
44-24-3.0	
46-83-3.5	
47-16-3.5	
48-43-3.5	

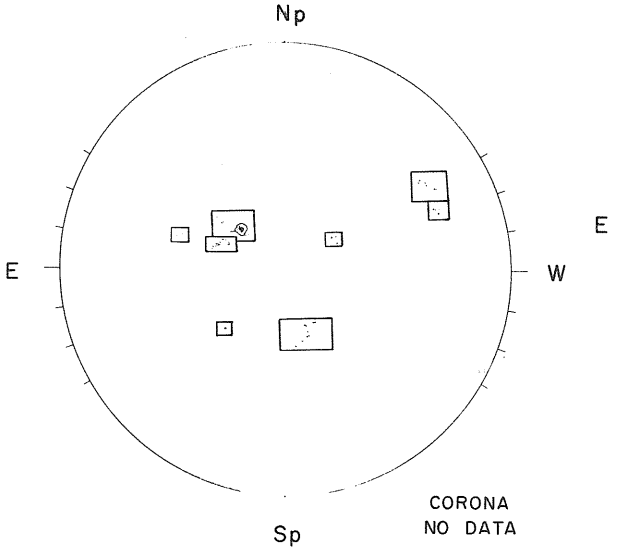
JUNE 18, 1969 (P=-8.59, B_o= 1.41, L_o=348.03)

BOULDER Hα



1306 UT

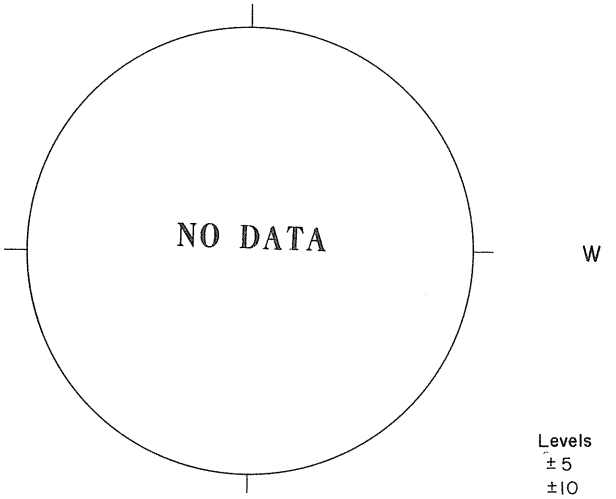
ESSA-BOULDER SUNSPOTS



CORONA
NO DATA

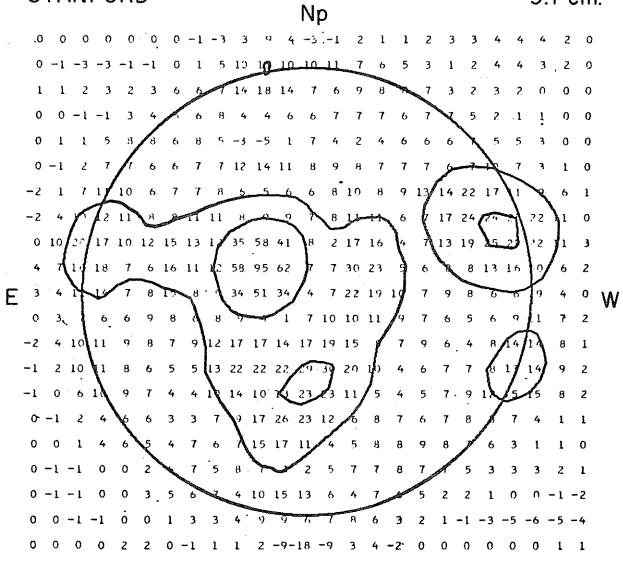
1245 UT

MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus



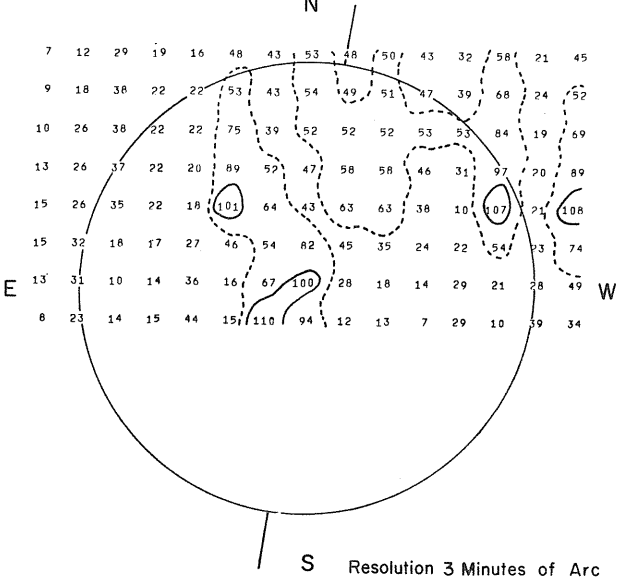
Levels
±5
±10
±20
±40
±80

STANFORD 9.1 cm.



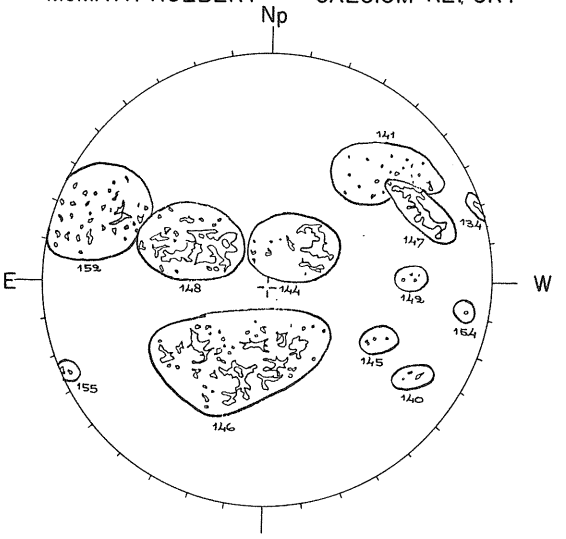
20-21 UT Brightness Unit 5000° K

FLEURS, AUSTRALIA 21 cm.



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

McMATH-HULBERT CALCIUM REPORT

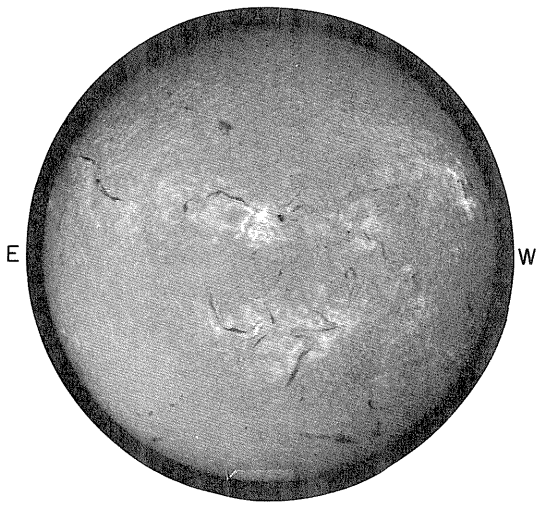


POOR	M
41 - 15 - 2.5	
44 - 26 - 3.0	
46 - 82 - 3.5	
47 - 25 - 3.5	
48 - 41 - 3.5	
52 - 32 - 2.0	

1710 UT

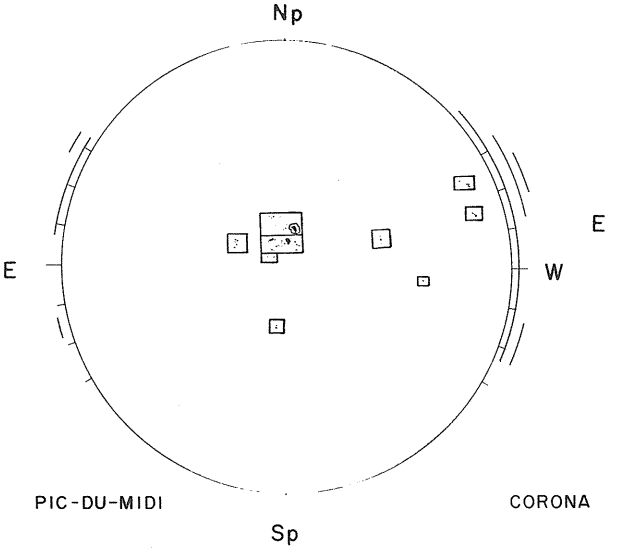
JUNE 19, 1969 (P=-8.16, B_o=1.53, L_o=334.80)

BOULDER — Hα



1356 UT

ESSA-BOULDER — SUNSPOTS

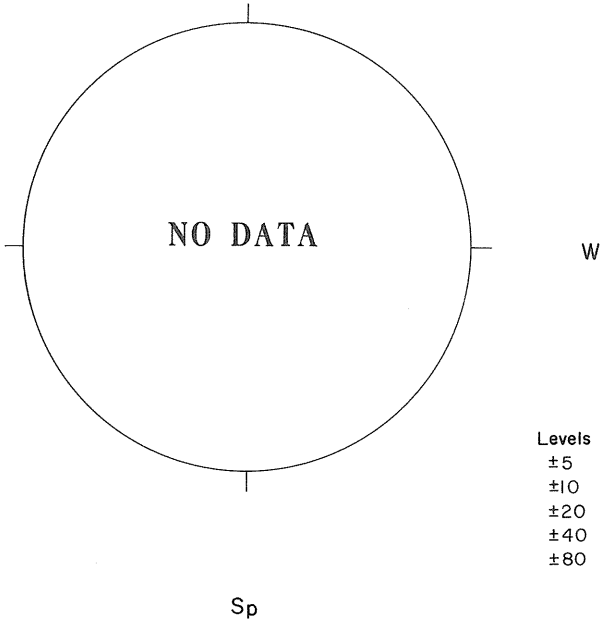


PIC-DU-MIDI — CORONA

1350 UT

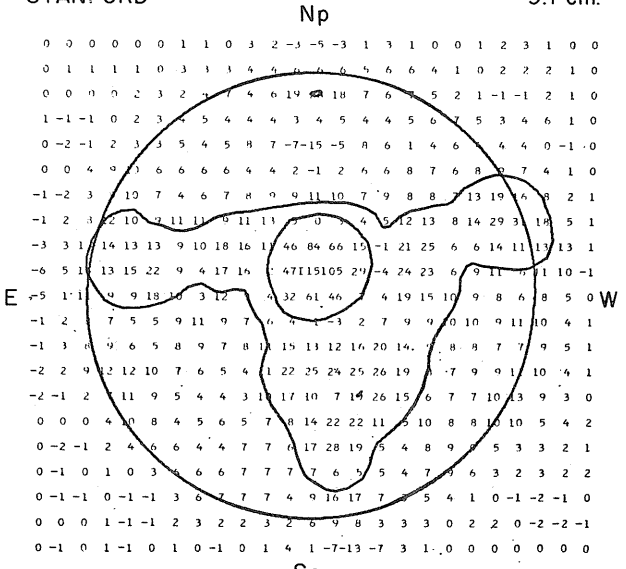
MT. WILSON — MAGNETOGRAM

Solid - Plus
Dotted - Minus



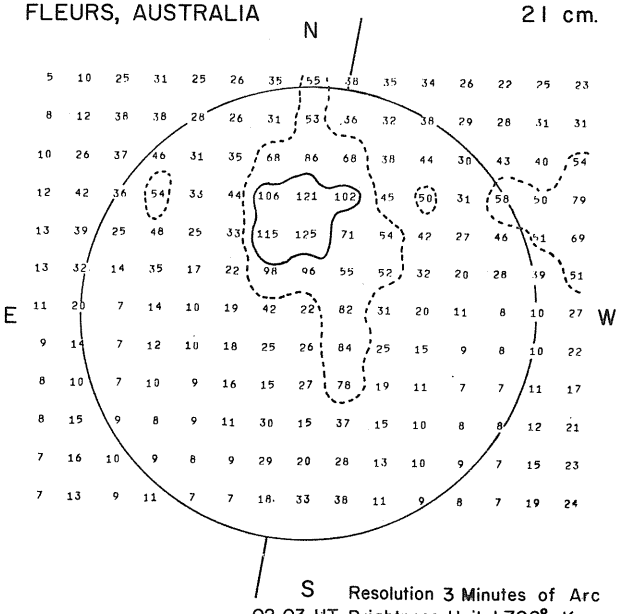
Levels
±5
±10
±20
±40
±80

STANFORD — 9.1 cm.



20-21 UT — Brightness Unit 5000° K

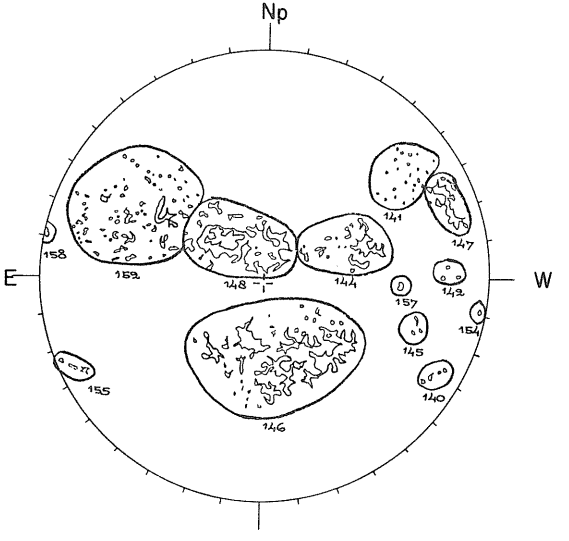
FLEURS, AUSTRALIA — 21 cm.



Resolution 3 Minutes of Arc

02-03 UT — Brightness Unit 1,700° K

McMATH-HULBERT — CALCIUM REPORT

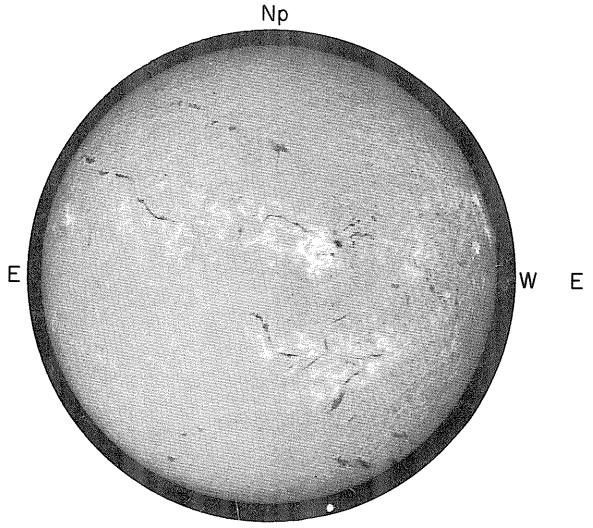


1515 UT

GOOD	M
44-25-3.0	
46-81-3.5	
47-29-3.5	
48-57-3.5	
52-35-2.5	
57-03-2.5	

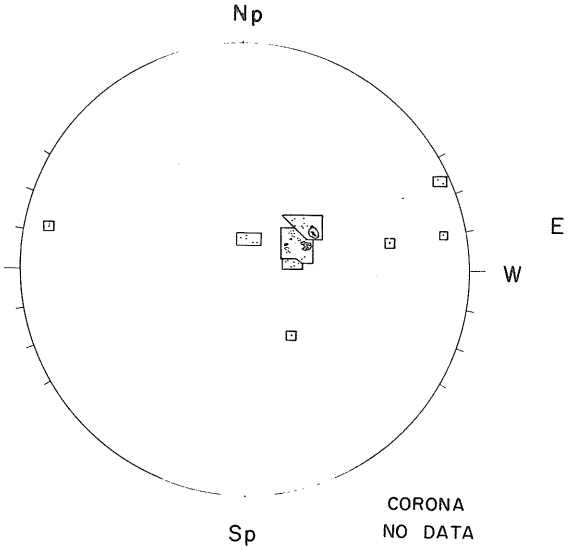
JUNE 20, 1969 (P=-7.72, B_o= 1.65, L_o=321.56)

BOULDER Hα



1606 UT

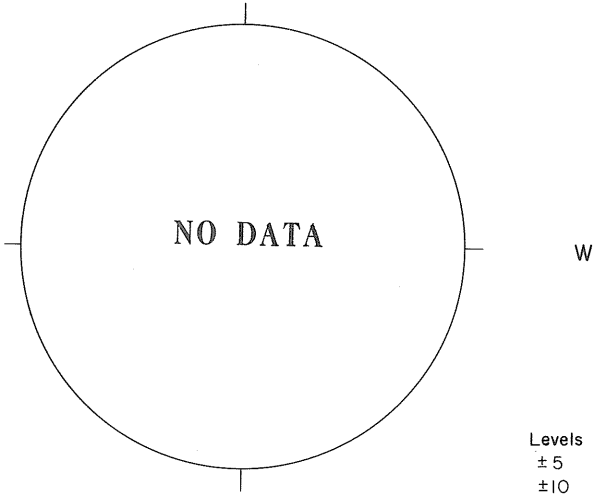
ESSA-BOULDER SUNSPOTS



CORONA
NO DATA

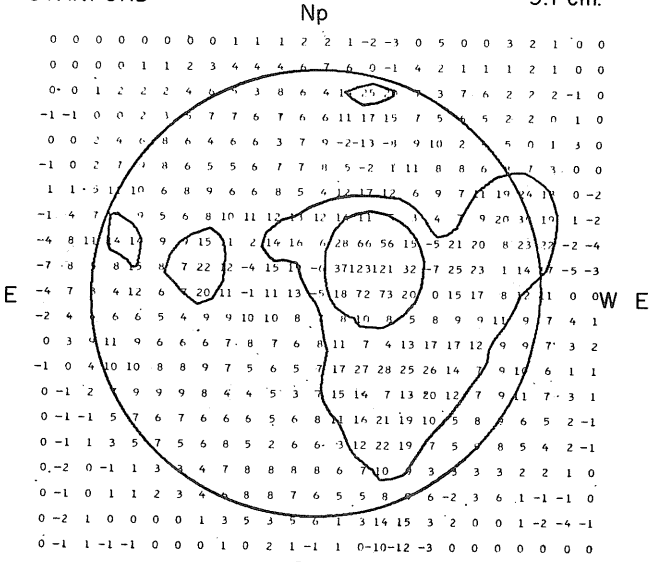
1700 UT

MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus



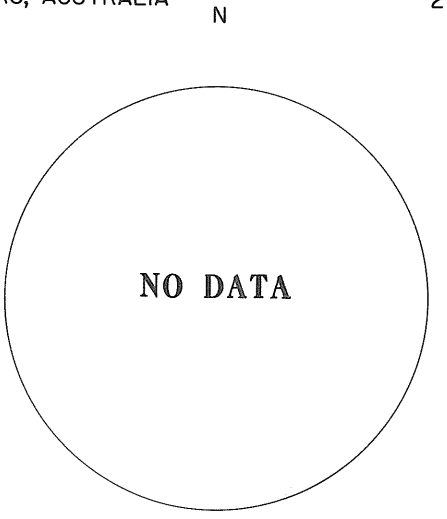
Levels
±5
±10
±20
±40
±80

STANFORD 9.1 cm.



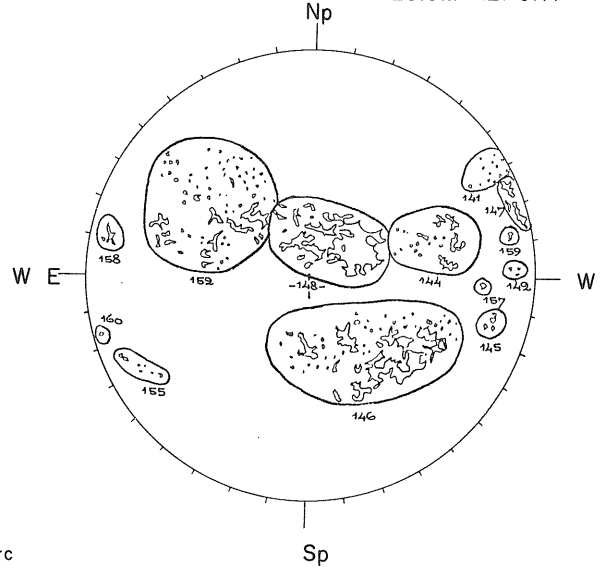
20-21 UT Brightness Unit 5000° K

FLEURS, AUSTRALIA 21 cm.



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

McMATH-HULBERT CALCIUM REPORT

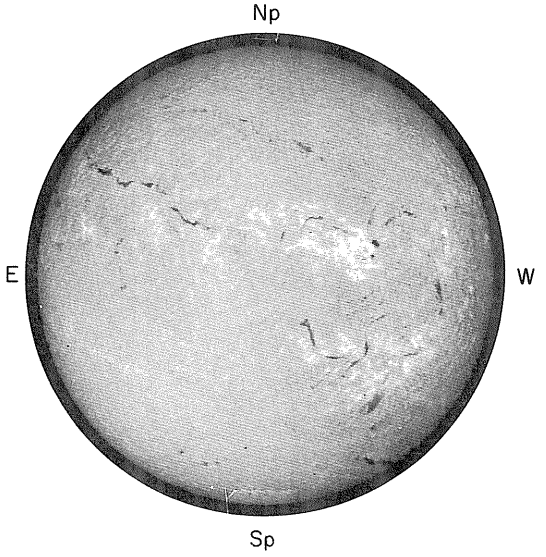


1545 UT

FAIR	M
44-22-2.5	
46-81-3.5	
47-27-3.5	
48-64-3.5	
52-39-2.5	
58-08-2.5	
59-03-2.5	

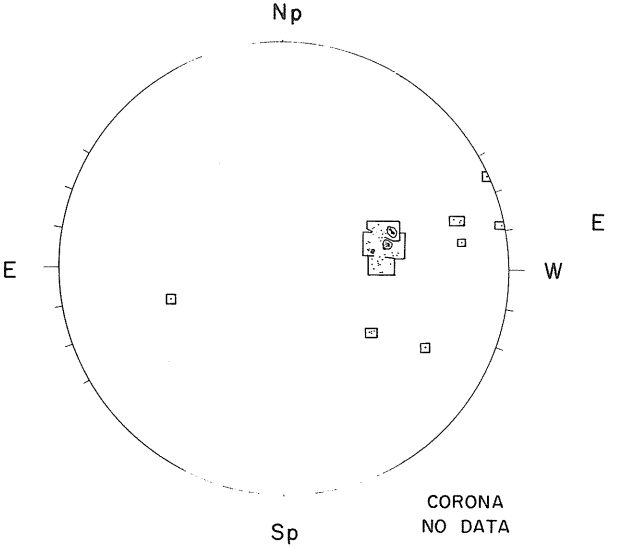
JUNE 21, 1969 (P=-7.27, B_o= 1.76, L_o=308.32)

BOULDER Hα



1331 UT

ESSA-BOULDER SUNSPOTS

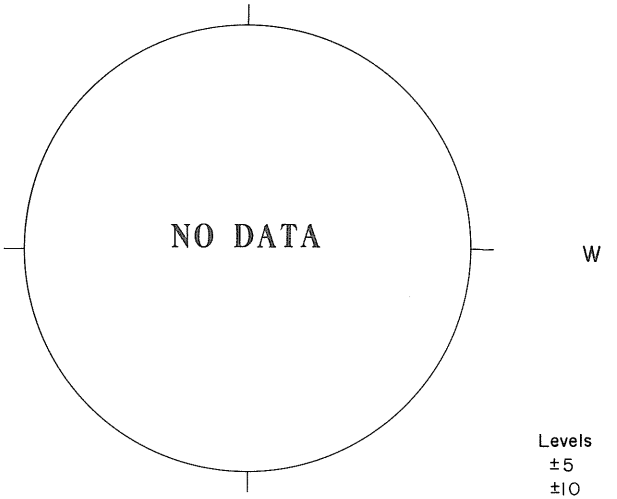


CORONA
NO DATA

1355 UT

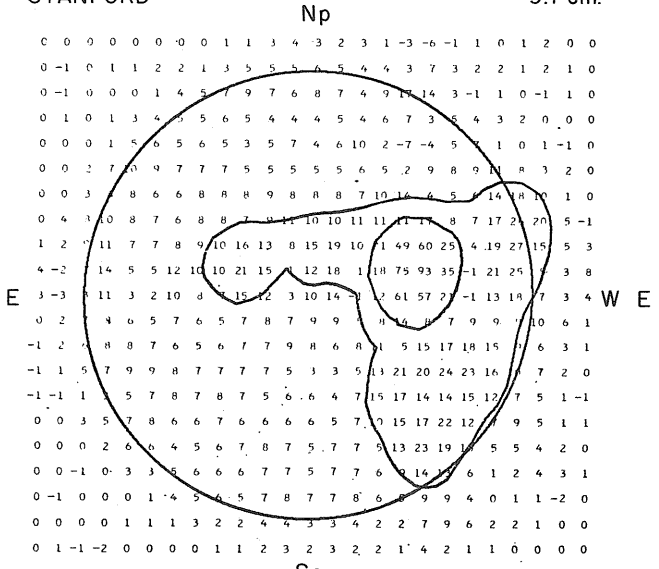
MT. WILSON MAGNETOGRAM

Solid-Plus
Dotted-Minus



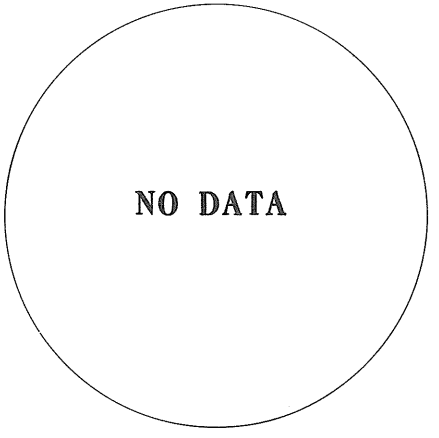
Levels
±5
±10
±20
±40
±80

STANFORD 9.1 cm.



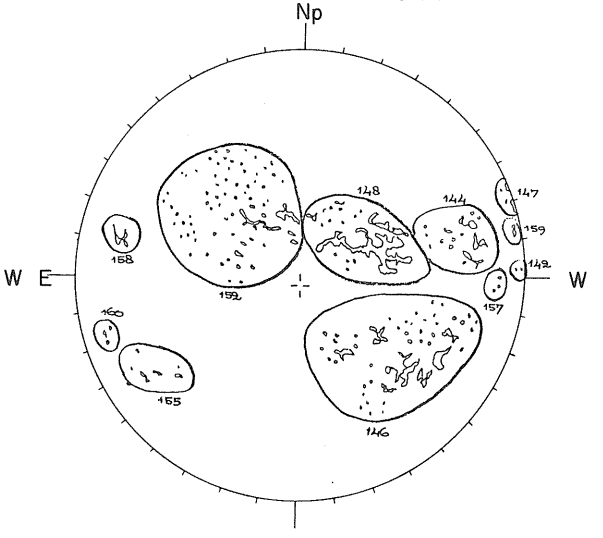
20-21 UT Brightness Unit 5000° K

FLEURS, AUSTRALIA 21 cm.



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

McMATH-HULBERT CALCIUM REPORT

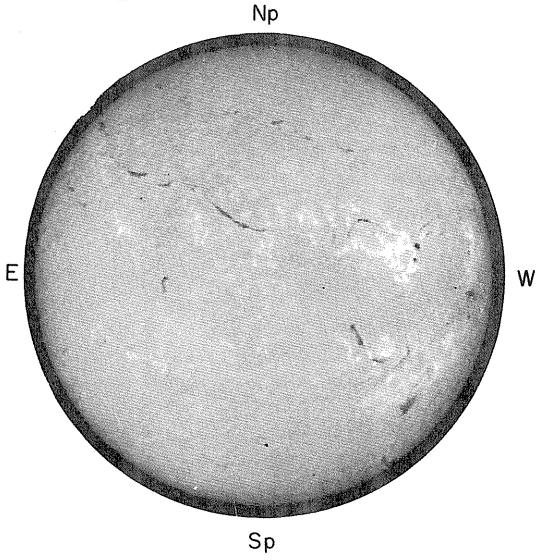


FAIR	0
42-03-2.5	
44-23-2.5	
46-72-3.0	
47-14-2.5	
48-59-3.5	
52-43-2.5	
59-06-3.0	

1305 UT

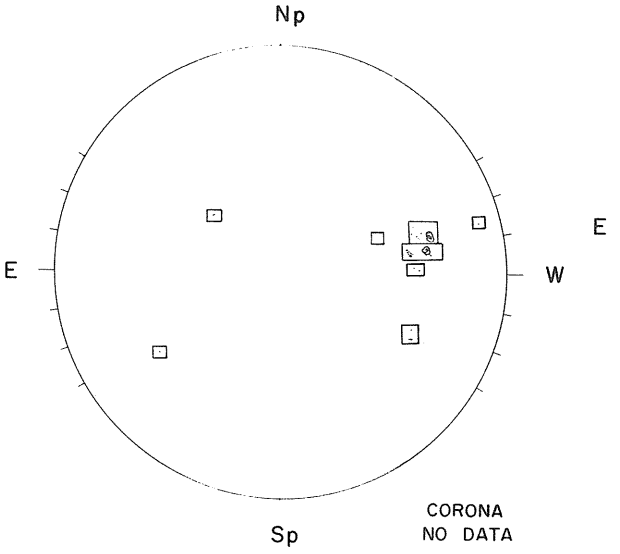
JUNE 22, 1969 (P=-6.83, B_o= 1.88, L_o=295.09)

BOULDER Hα



1351 UT

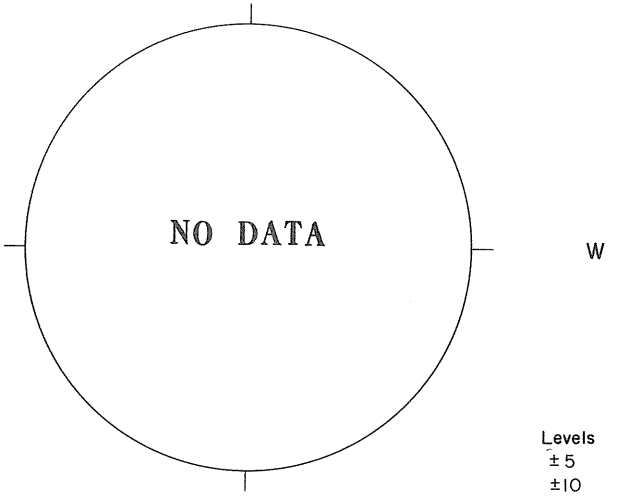
ESSA-BOULDER SUNSPOTS



CORONA
NO DATA

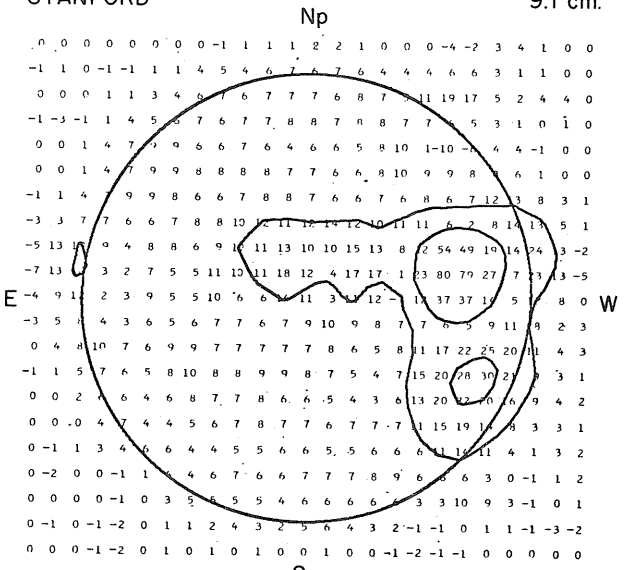
1345 UT

MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus



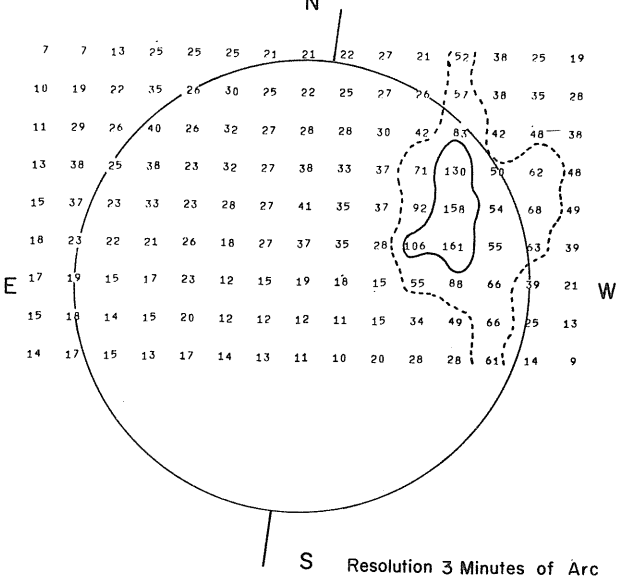
Levels
±5
±10
±20
±40
±80

STANFORD 9.1 cm.



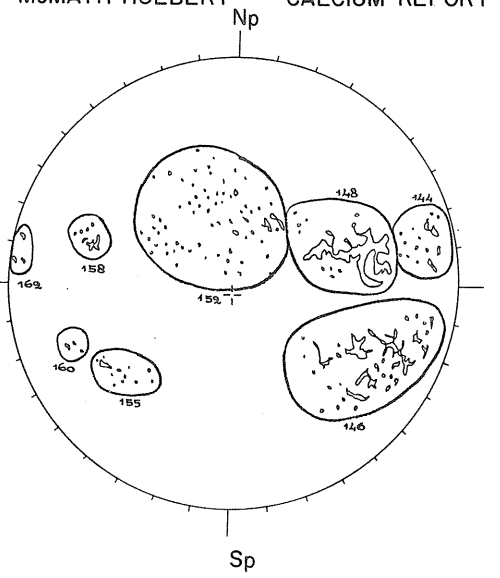
20-21 UT Brightness Unit 5000° K

FLEURS, AUSTRALIA 21 cm.



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

McMATH-HULBERT CALCIUM REPORT



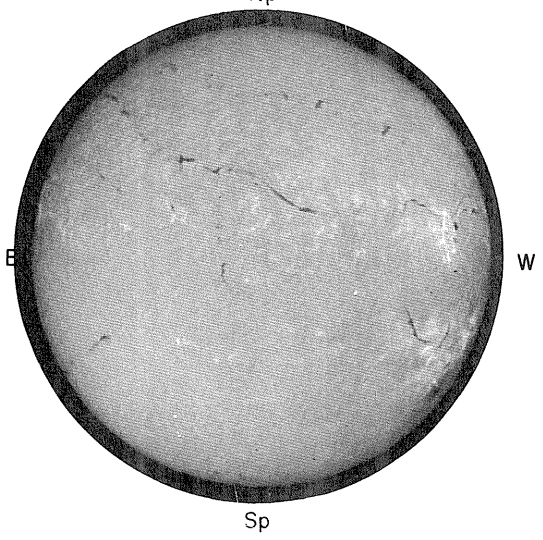
FAIR	O
44-18-2.5	
46-70-3.0	
48-64-3.0	
52-42-2.5	
55-10-2.5	
58-08-2.5	

1415 UT

JUNE 23, 1969 (P=-6.38, B_o=2.00, L_o=281.85)

BOULDER

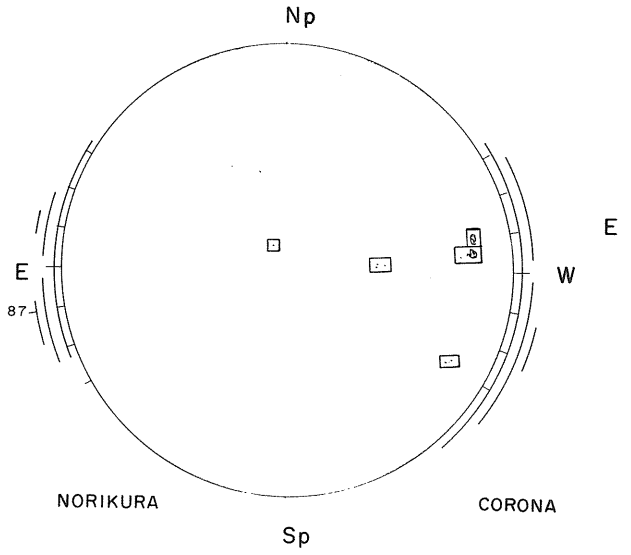
H α



1917 UT

ESSA-BOULDER

SUNSPOTS

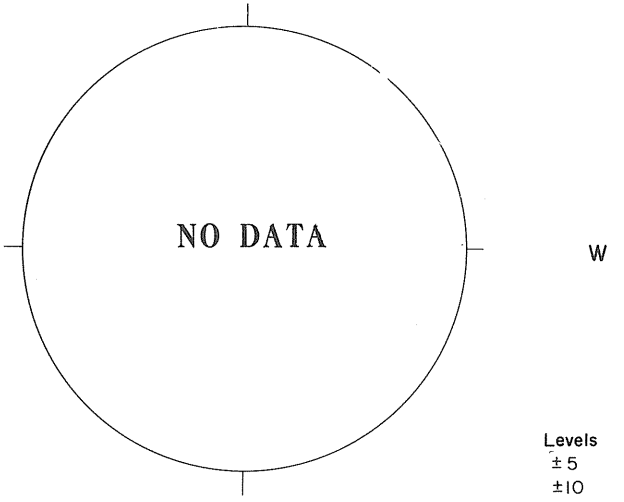


1800 UT

MT. WILSON

MAGNETOGRAM

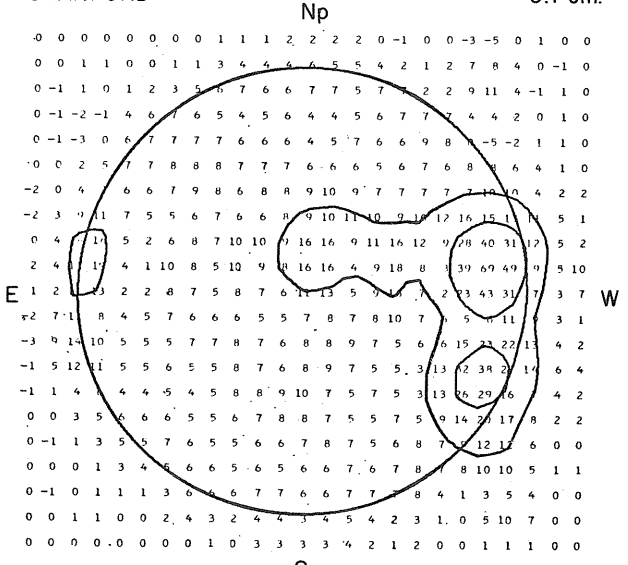
Solid-Plus
Dotted-Minus



Levels
±5
±10
±20
±40
±80

STANFORD

9.1 cm.

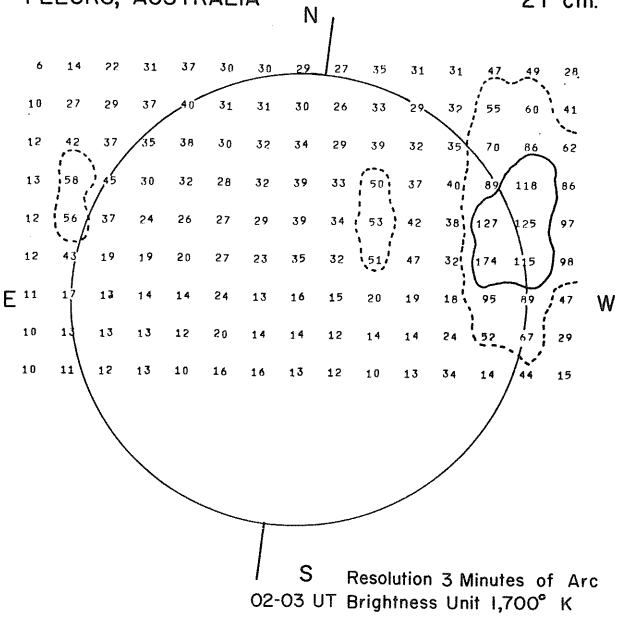


20-21 UT

Brightness Unit 5000° K

FLEURS, AUSTRALIA

21 cm.

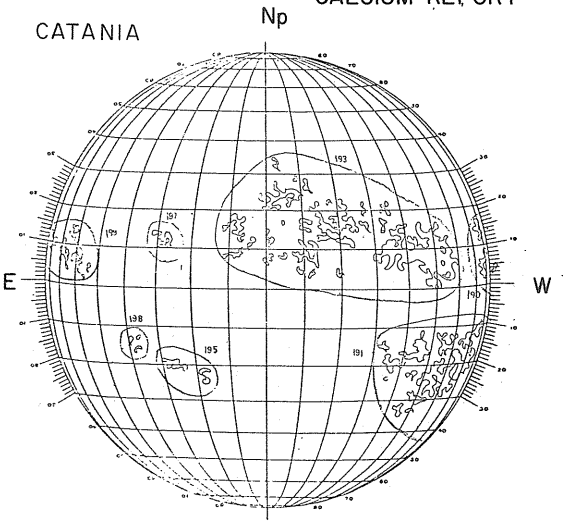


Resolution 3 Minutes of Arc

02-03 UT Brightness Unit 1,700° K

CALCIUM REPORT

CATANIA



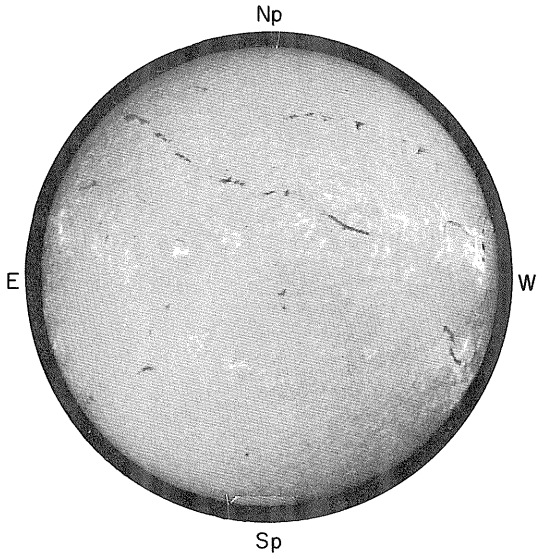
91-109-3.2
93-137-3.8

0720 UT
1245 UT

53
Jun 69

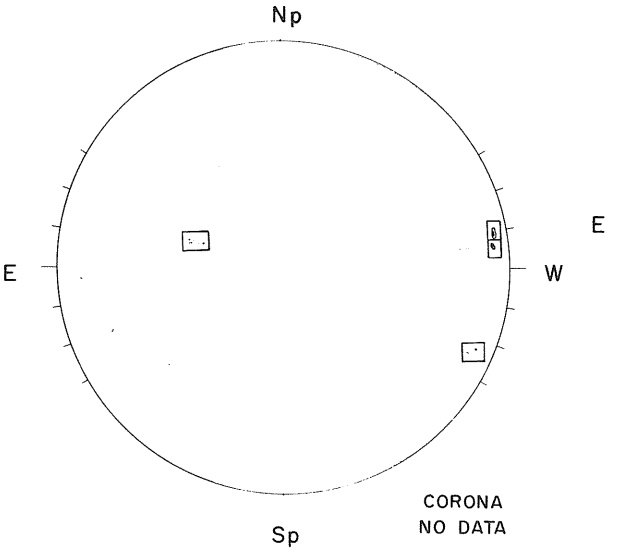
JUNE 24, 1969 (P=-5.94, B_o=2.11, L_o=268.61)

BOULDER Hα



1659 UT

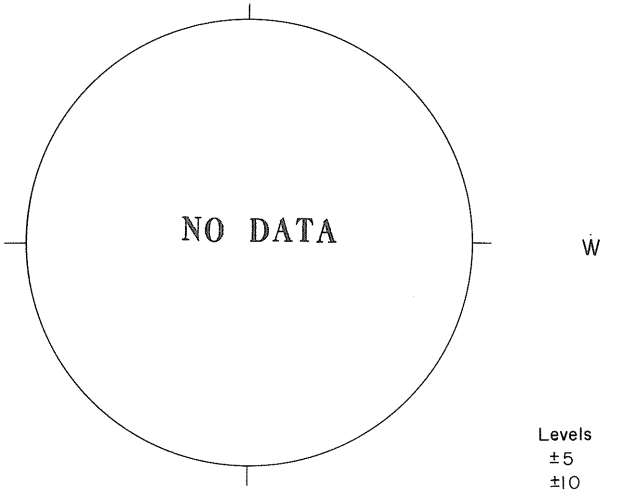
ESSA-BOULDER SUNSPOTS



CORONA
NO DATA

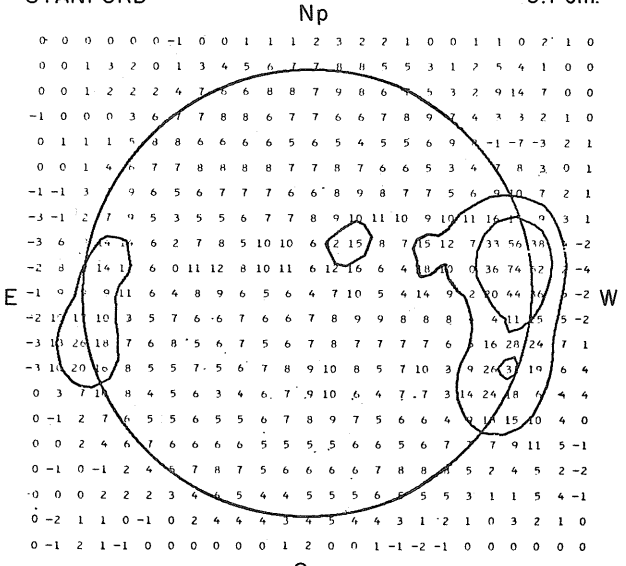
1645 UT

MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus



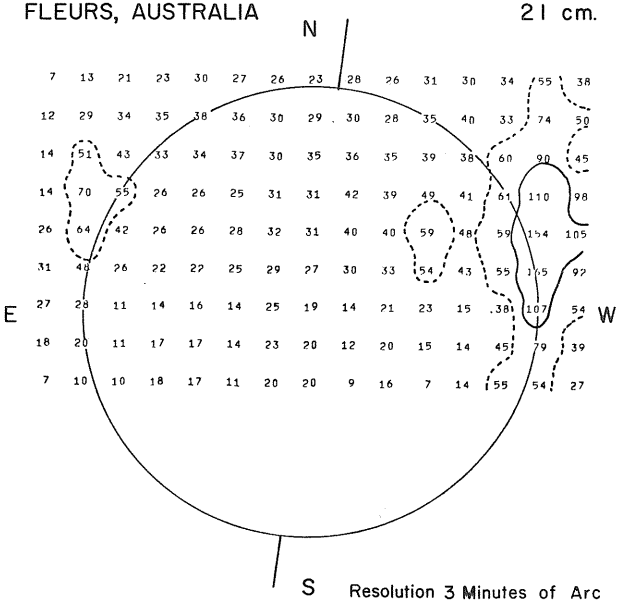
Levels
±5
±10
±20
±40
±80

STANFORD 9.1 cm.



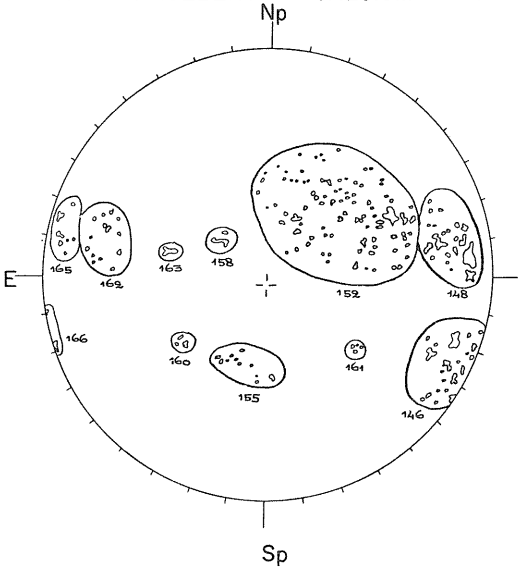
20-21 UT Brightness Unit 5000° K

FLEURS, AUSTRALIA 21 cm.



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

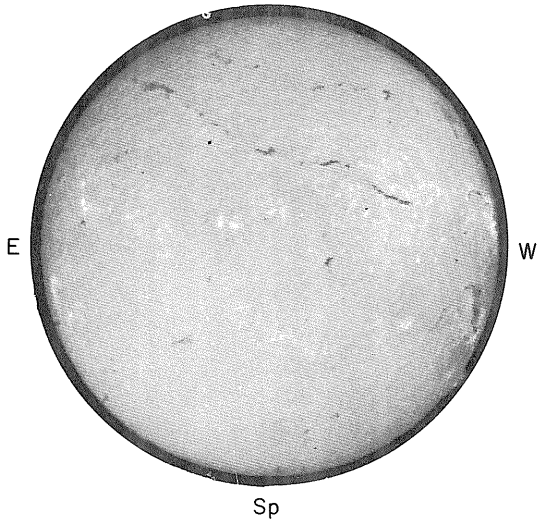
McMATH-HULBERT CALCIUM REPORT



FAIR	D
46-38	-3.0
48-36	-3.5
52-45	-3.5
58-06	-2.5
63-05	-4.0
65-14	-2.5

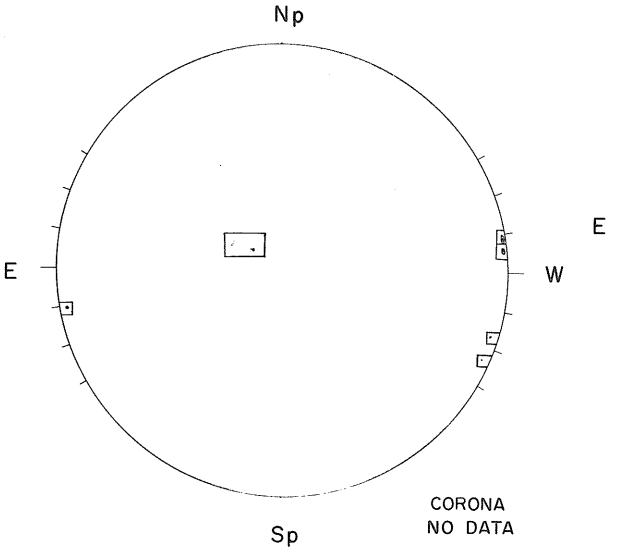
JUNE 25, 1969 (P=-5.49, B_o=2.23, L_o=255.38)

BOULDER — Hα



1358 UT

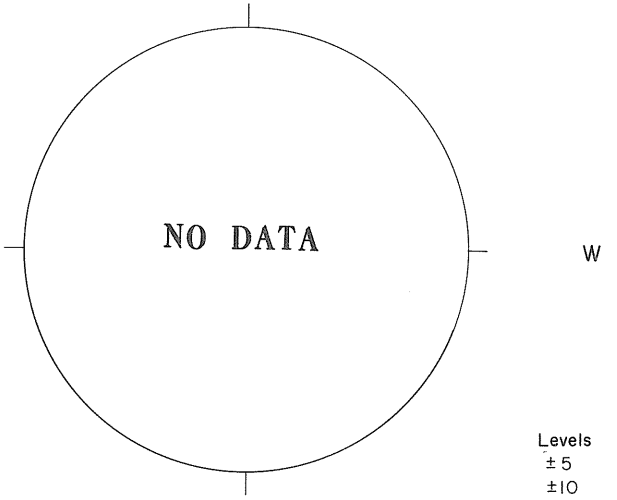
ESSA-BOULDER — SUNSPOTS



1355 UT

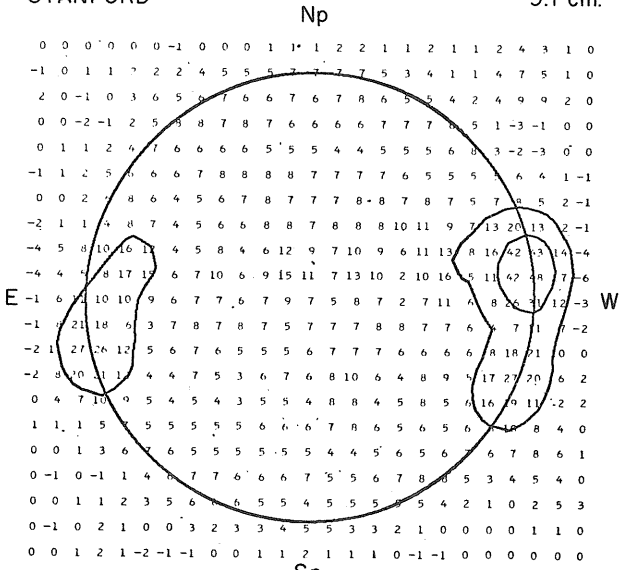
MT. WILSON — MAGNETOGRAM

Solid-Plus
Dotted-Minus



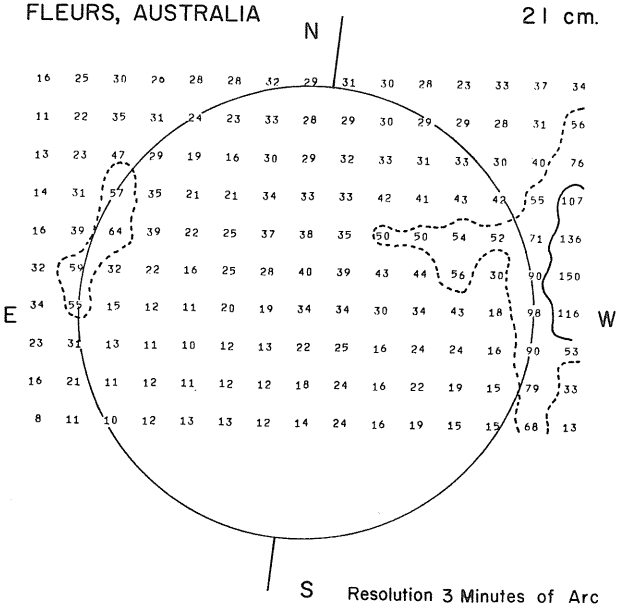
Levels
±5
±10
±20
±40
±80

STANFORD — 9.1 cm.



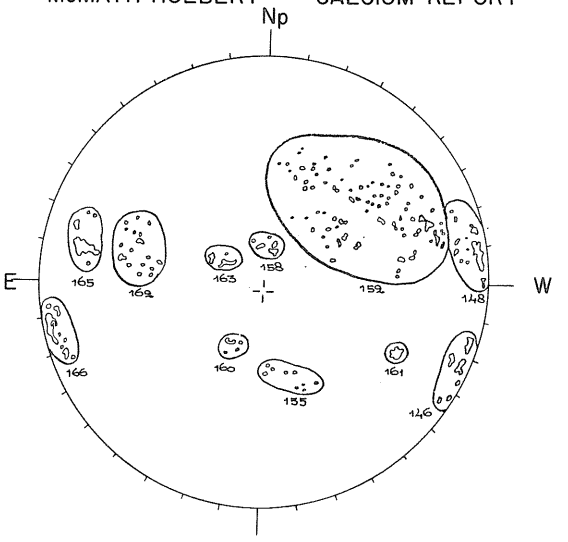
20-21 UT Brightness Unit 5000° K

FLEURS, AUSTRALIA — 21 cm.



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

McMATH-HULBERT — CALCIUM REPORT



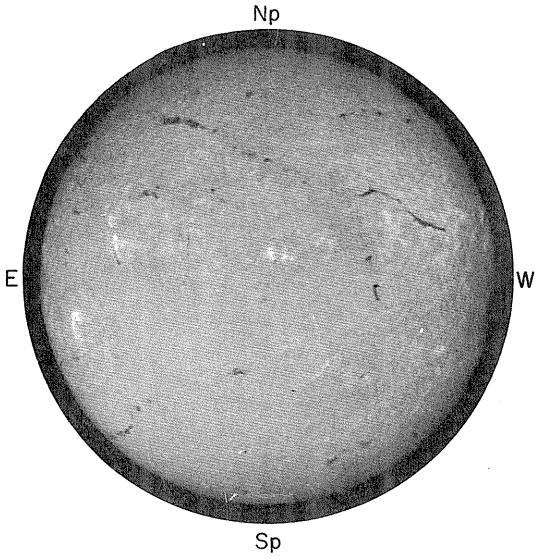
1325 UT

POOR	D
46-30-3.0	
48-34-3.5	
52-45-3.0	
61-05-2.5	
63-05-3.0	
65-19-3.5	
66-15-2.5	

55
Jun 69

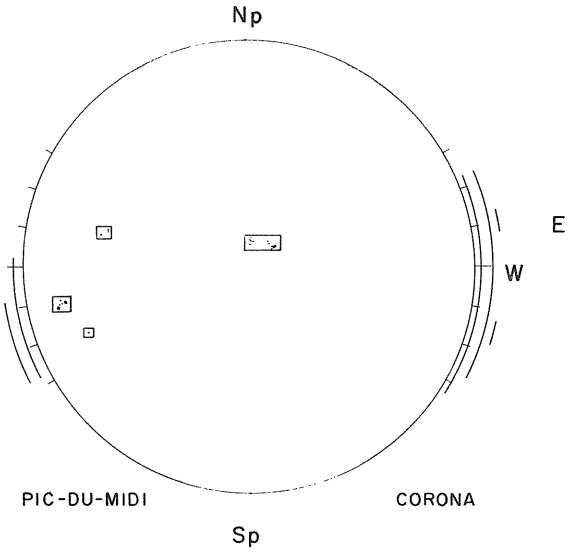
JUNE 26, 1969 (P=-5.04, B_o=2.34, L_o=242.14)

BOULDER — Hα



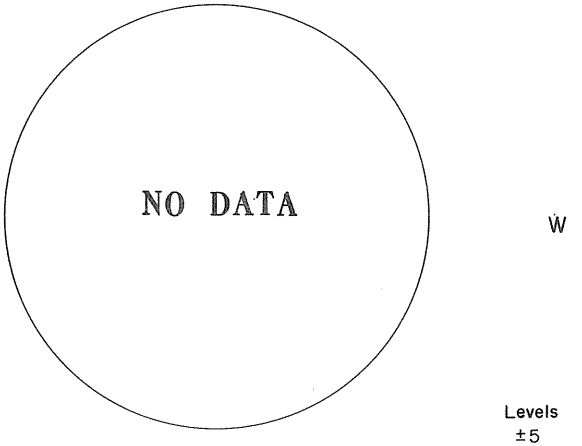
1337 UT

ESSA-BOULDER — SUNSPOTS



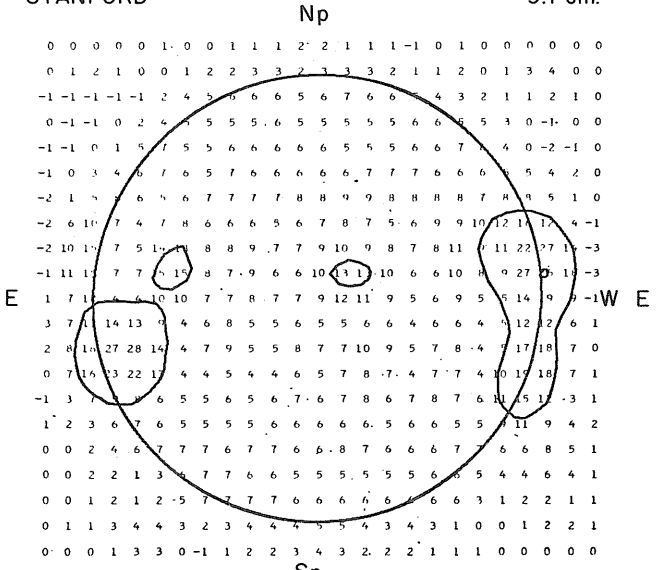
1330 UT

MT. WILSON — MAGNETOGRAM
Solid-Plus
Dotted-Minus



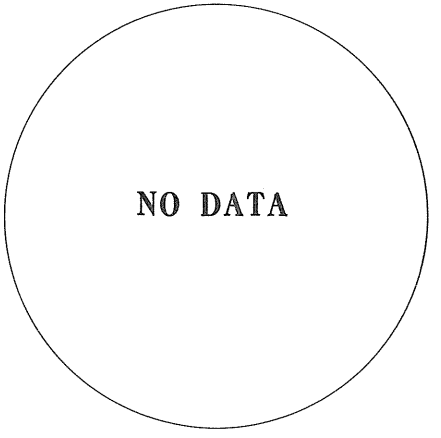
Levels
±5
±10
±20
±40
±80

STANFORD — 9.1 cm.



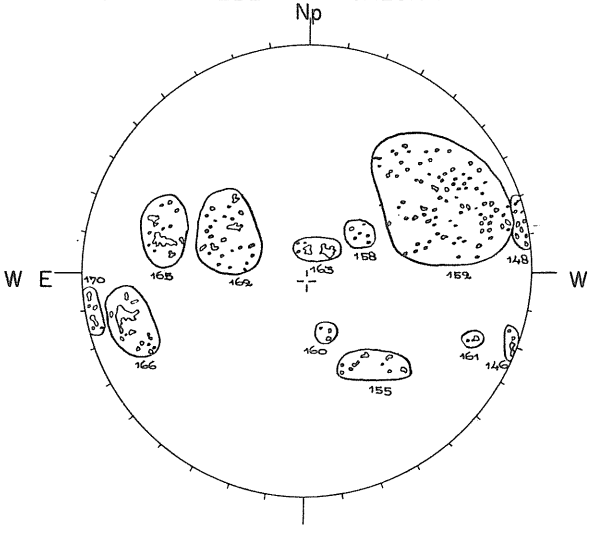
20-21 UT Brightness Unit 5000° K

FLEURS, AUSTRALIA — 21 cm.



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

McMATH-HULBERT — CALCIUM REPORT

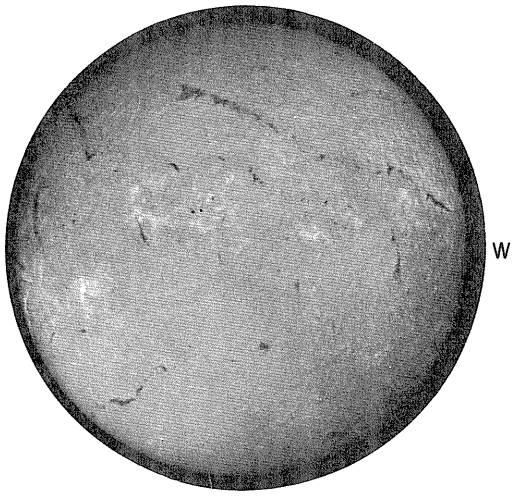


FAIR	D
52 - 42 - 2.0	
63 - 07 - 3.5	
65 - 16 - 3.5	
66 - 17 - 3.5	

1345 UT

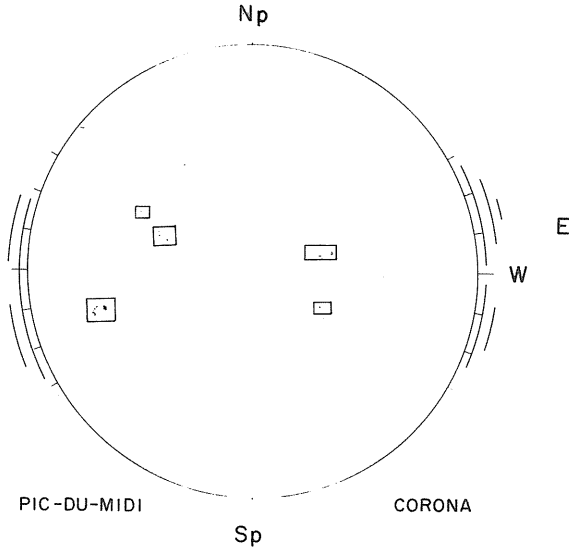
JUNE 27, 1969 (P=-4.59, B_o=2.45, L_o=228.90)

BOULDER Hα



1659 UT

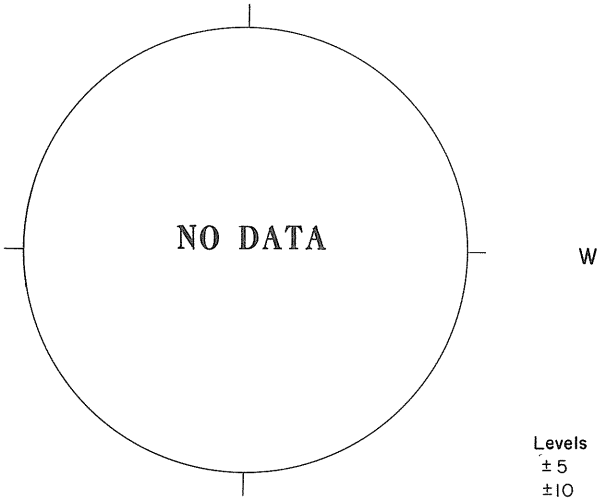
ESSA-BOULDER SUNSPOTS



1400 UT

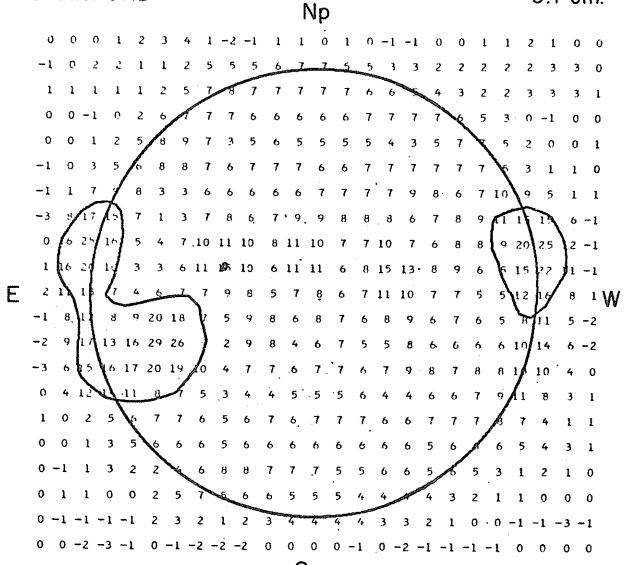
MT. WILSON MAGNETOGRAM

Solid-Plus
Dotted-Minus



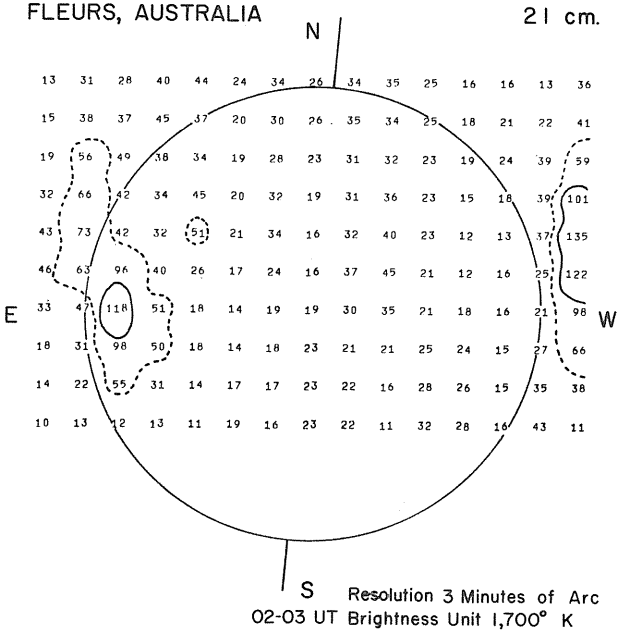
Levels
±5
±10
±20
±40
±80

STANFORD 9.1 cm.



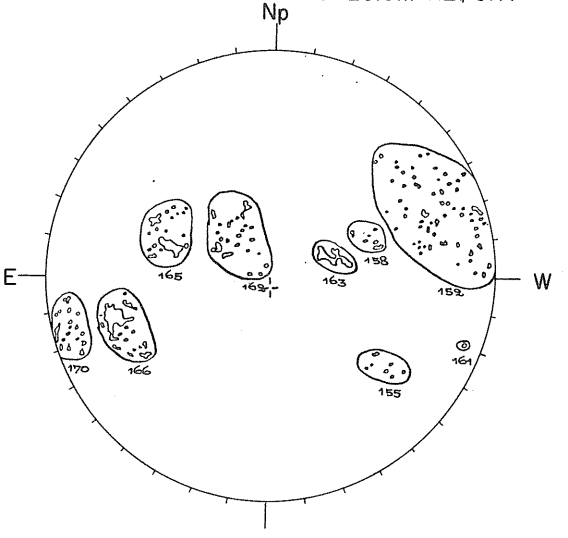
20-21 UT Brightness Unit 5000° K

FLEURS, AUSTRALIA 21 cm.



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

McMATH-HULBERT CALCIUM REPORT

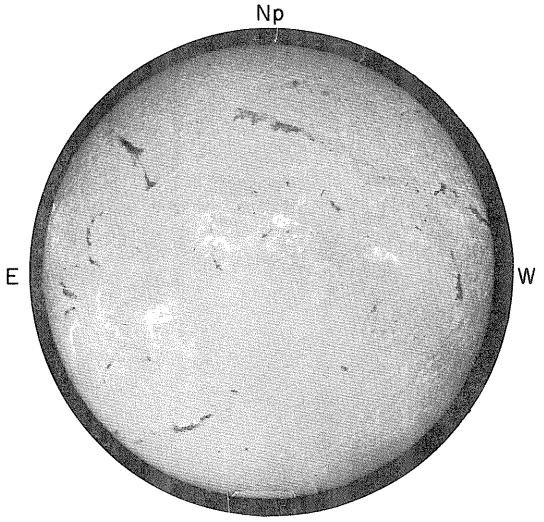


1215 UT

POOR	D
52-40-2.0	
63-09-3.0	
65-16-3.5	
66-20-3.5	

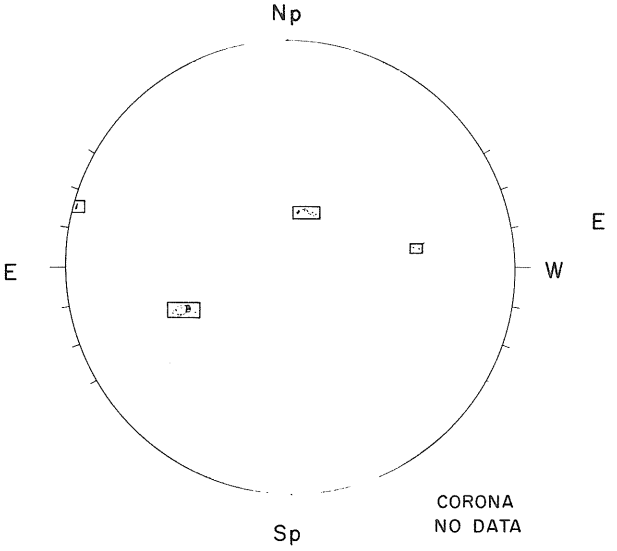
JUNE 28, 1969 (P=-4.13, B_o=2.57, L_o=215.67)

BOULDER Hα



1438 UT

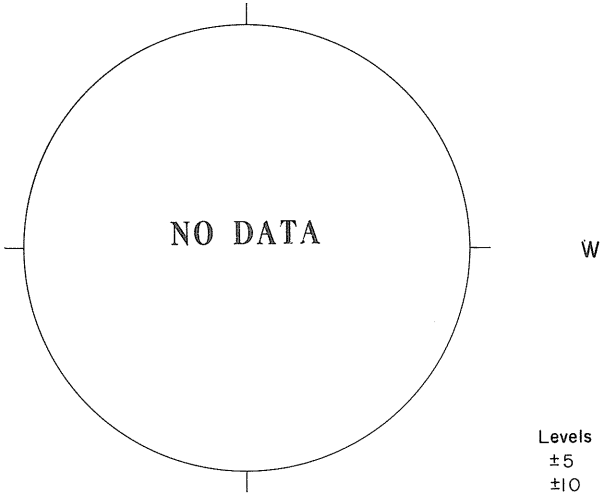
ESSA-BOULDER SUNSPOTS



CORONA
NO DATA

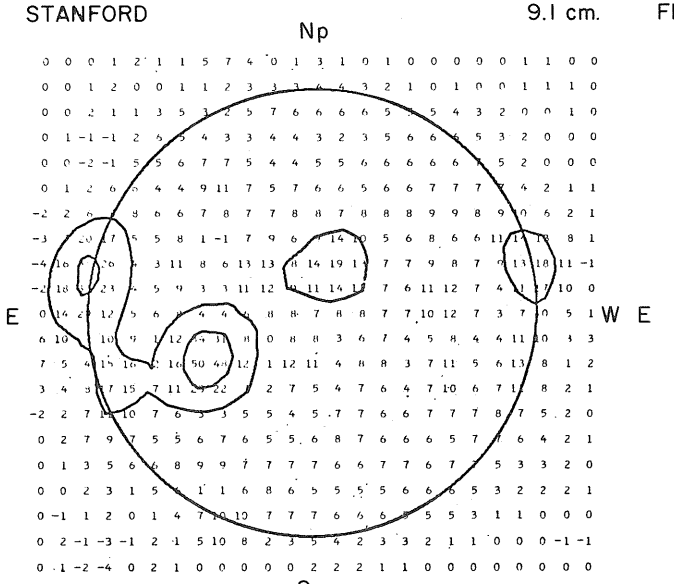
1510 UT

MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus



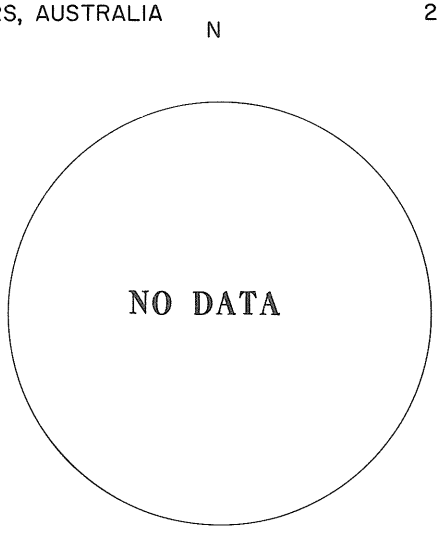
Levels
±5
±10
±20
±40
±80

STANFORD 9.1 cm.



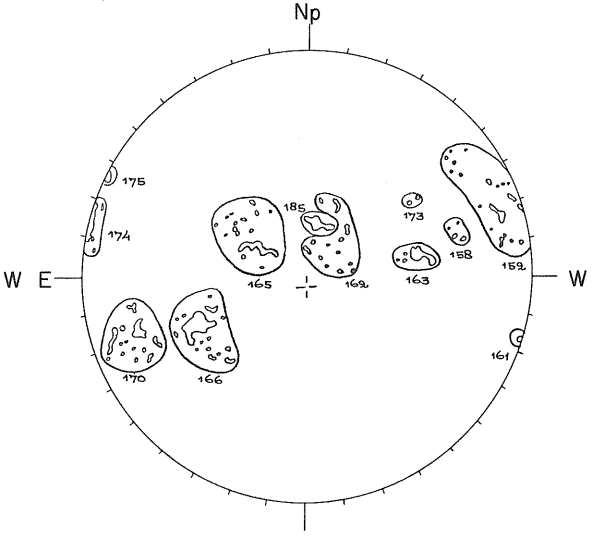
20-21 UT Brightness Unit 5000° K

FLEURS, AUSTRALIA 21 cm.



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

McMATH-HULBERT CALCIUM REPORT

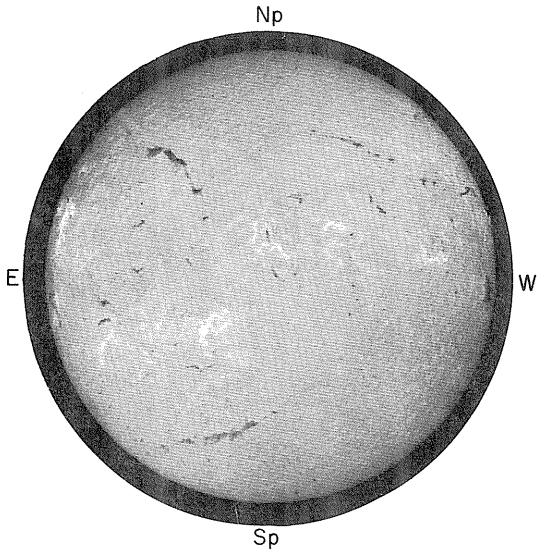


GOOD	S
63-09	-3.0
65-20	-3.5
66-30	-3.0
70-24	-3.5
74-21	-2.5
75-03	-2.5
85-06	-3.0

1250 UT

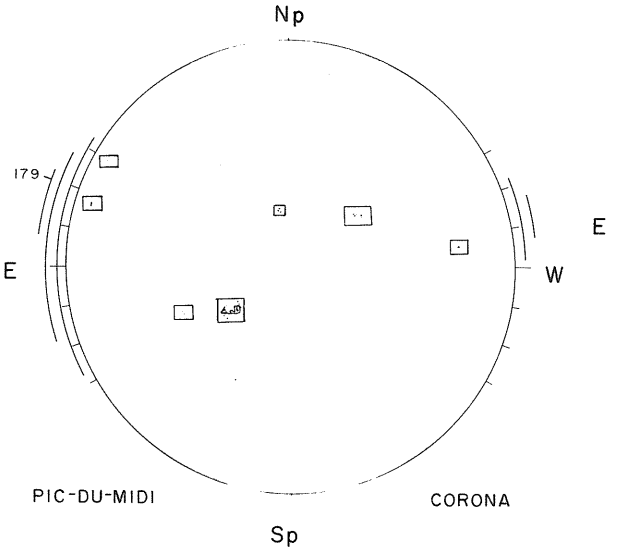
JUNE 29, 1969 (P=-3.68, B_o=2.68, L_o=202.43)

BOULDER Hα



1558 UT

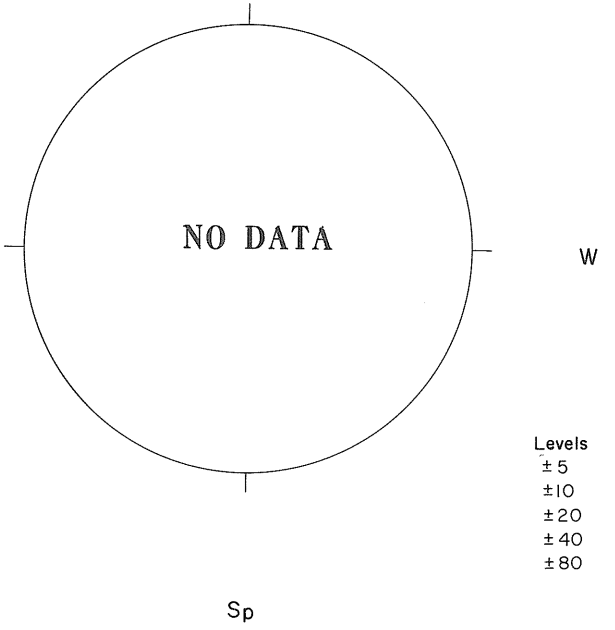
ESSA-BOULDER SUNSPOTS



1630 UT

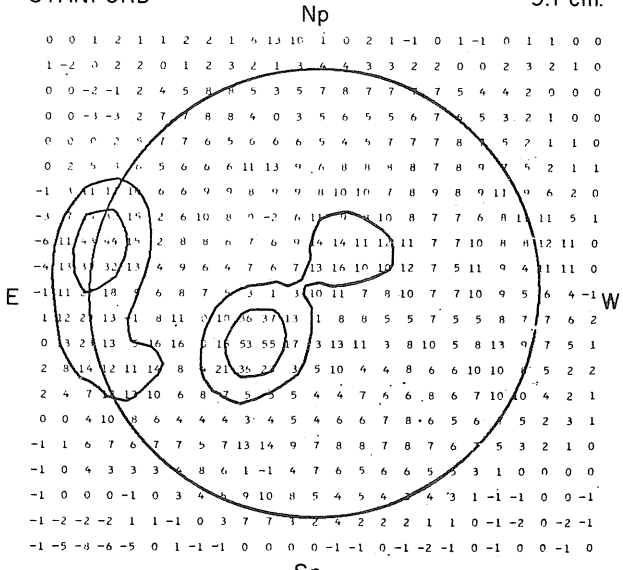
MT. WILSON MAGNETOGRAM

Solid-Plus
Dotted-Minus



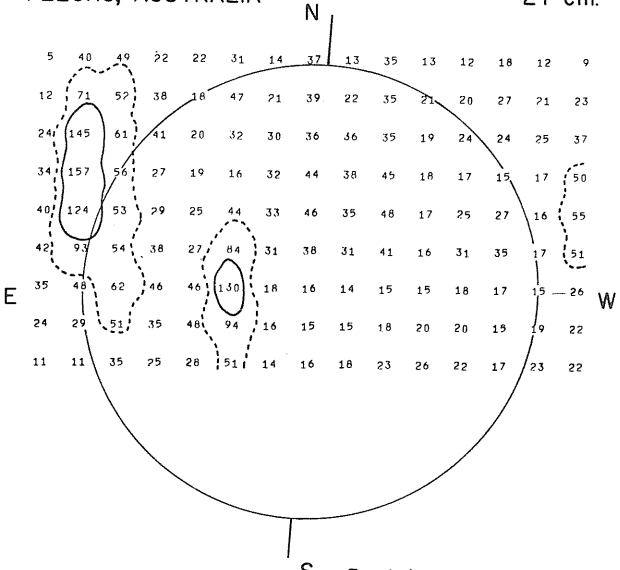
Levels
±5
±10
±20
±40
±80

STANFORD 9.1 cm.



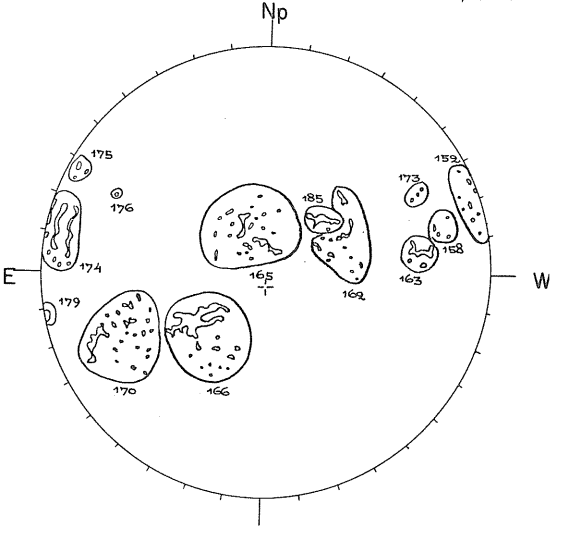
20-21 UT Brightness Unit 5000° K

FLEURS, AUSTRALIA 21 cm.



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

McMATH-HULBERT CALCIUM REPORT

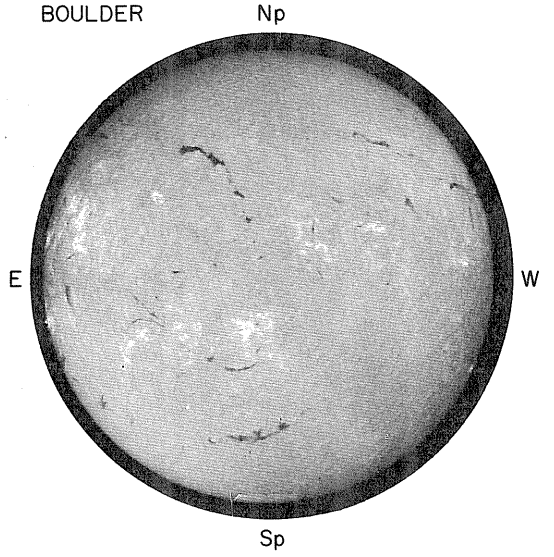


1300 UT

FAIR	0
63-10-3.0	
65-19-3.0	
66-32-3.0	
70-29-2.5	
74-49-3.0	
75-06-2.5	
85-06-2.5	

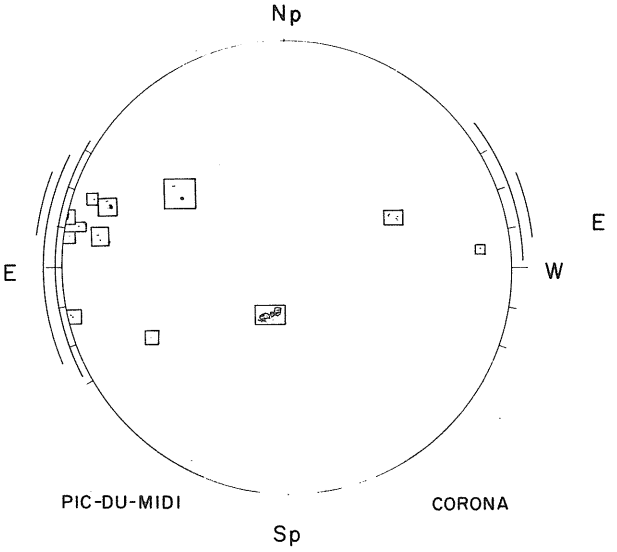
JUNE 30, 1969 (P=-3.23, B_o=2.79, L_o=189.19)

BOULDER — Hα



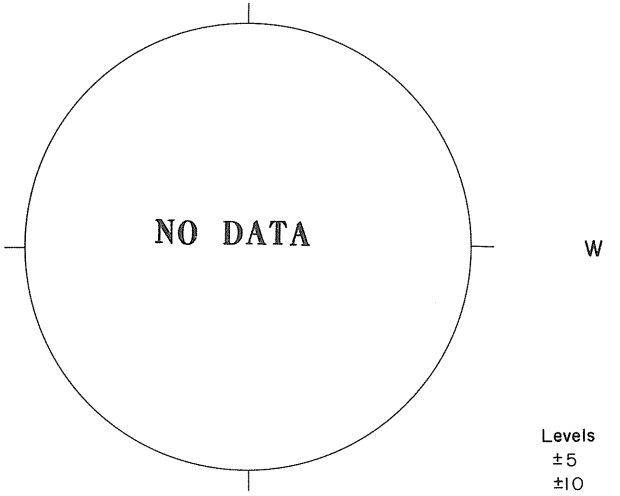
1326 UT

ESSA-BOULDER — SUNSPOTS



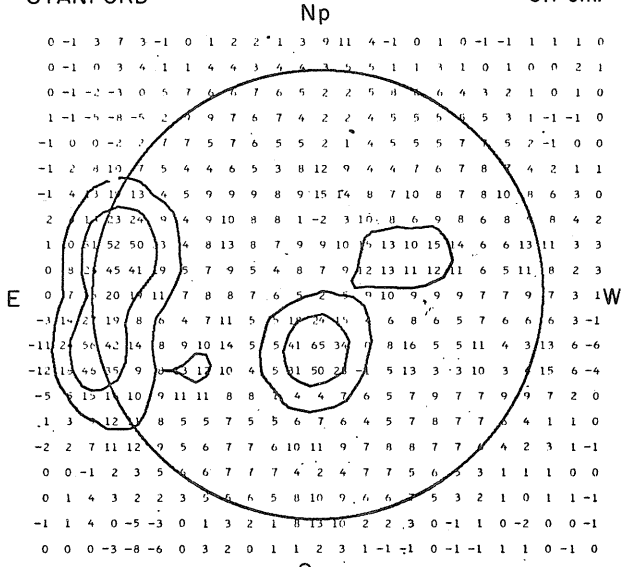
1345 UT

MT. WILSON — MAGNETOGRAM
Solid-Plus
Dotted-Minus



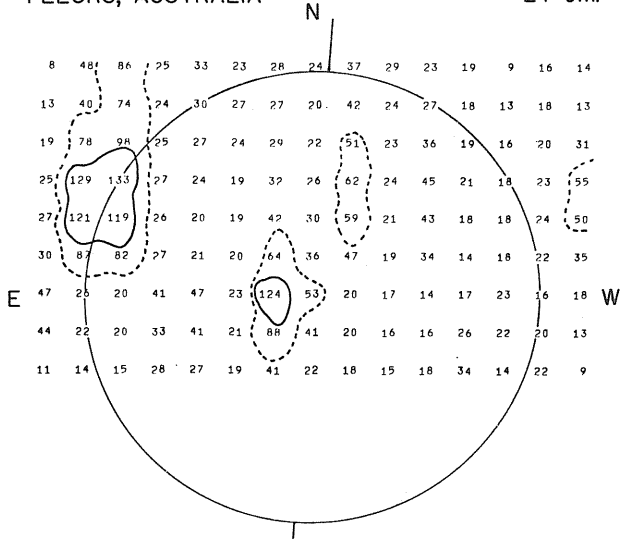
Levels
±5
±10
±20
±40
±80

STANFORD — 9.1 cm.



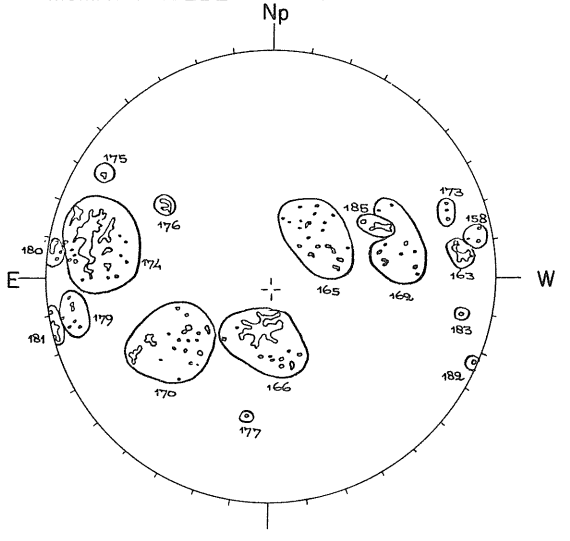
20-21 UT Brightness Unit 5000° K

FLEURS, AUSTRALIA — 21 cm.



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

McMATH-HULBERT — CALCIUM REPORT



1615 UT

V POOR	M
63	-10-2.5
65	-19-3.0
66	-30-3.0
70	-27-2.5
74	-52-3.0
80	-16-3.0
81	-17-3.5
85	-06-2.5

REGIONS OF SOLAR ACTIVITY

MAY 1969

MCMATH REGION 10109 CMP DATE 26.3

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
69	5	19	10109	N00 E00	0	0	0.0
69	5	20	10109	N11 E68	298	3000	3.5
69	5	21	10109	N10 E60	292	7700	3.5
69	5						
69	5	22	10109	N11 E43	292	9500	4.0
69	5						
69	5						
69	5	23	10109	N12 E35	291	10000	3.5
69	5						
69	5						
69	5						
69	5	24	10109	N14 E22	290	10200	3.5
69	5						
69	5						
69	5	25	10109	N14 E10	289	10500	3.5
69	5						
69	5						
69	5	26	10109	N14 W05	291	11000	3.5
69	5						
69	5						
69	5	27	10109	N13 W18	291	10800	3.5
69	5						
69	5						
69	5	28	10109	N13 W32	291	11500	4.0
69	5						
69	5						
69	5	29	10109	N14 W48	294	10000	3.5
69	5						
69	5						
69	5	30	10109	N13 W60	294	8400	4.0
69	5						
69	5	31	10109	N13 W70	289	4600	3.5
69	6	1	10109	N12 W80	285	4000	3.5
69	6	2	10109	N10 W90	278	1500	2.0

RETURN OF REGION 10057 ROTATION 3,5 & 6

SUNSPOT DATA 9.1 CM

MW NO.	LAT CMD	L	MAG.	H	AREA	CNT	C	INT	FLUX
17285	N13 E80	295	(AF)	3	0	0	0		
17285	N12 E64	298	(BP)	3	0	0	0	30	9
17285	N12 E52	296	(AP)	3	40	8	D	15	5
17289	N12 E73	275	(AP)	1	30	4	C		
17285	N12 E40	297	(BP)	4	0	0	0	11	3
17291	N13 E57	280	(AP)	1	0	0	0		
17289	N12 E60	277	(AP)	3	0	0	0		
17285	N13 E24	300	(BP)	4	70	11	D	13	4
17294	N25 E28	296	(B)	2	0	0	0		
17291	N12 E40	284	(AP)	2	0	0	0		
17289	N12 E48	276	(AP)	4	60	12	C		
17285	N12 E10	299	(BP)	3	30	6	D		
17291	N12 E22	287	(AP)	3	0	0	0		
17289	N12 E34	275	(AP)	4	40	14	D		
17285	N11 W04	302	(AP)	4	0	0	0	29	9
17291	N13 E08	290	(B)	3	50	17	D		
17289	N12 E21	277	(AP)	3	70	6	G		
17285	N11 W19	301	(AP)	3	20	3	G	13	4
17291	N13 W08	290	(B)	3	40	19	C		
17289	N13 E07	275	(AP)	3	10	6	C		
17285	N12 W31	301	(AP)	2	10	1	J	8	2
17291	N13 W17	287	(BP)	4	50	10	D		
17289	N14 W04	274	(AP)	3	20	5	C		
17285	N12 W45	301	(AP)	2	10	1	J	9	3
17291	N13 W32	288	(BP)	3	30	16	D		
17289	N13 W19	275	(AP)	3	10	1	J		
17285	N12 W58	301	(AP)	2	0	1	J		
17291	N13 W45	288	(BP)	3	30	6	D		
17289	N13 W31	274	(AP)	2	0	0	0		
17291	N12 W60	290	(BP)	1	110	5	J	14	4
					10	1	J		
					0	1	A	18	5
								8	0
								5	2

MCMATH REGION 10123 CMP DATE 26.5

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
69	5	30	10123	S19 W53	287	700	3.5
69	5	31	10123	S19 W65	284	900	2.5
69	6	1	10123	S19 W78	283	1000	3.0

SUNSPOT DATA 9.1 CM

MW NO.	LAT CMD	L	MAG.	H	AREA	CNT	C	INT	FLUX
17300	S17 W55	285	(AP)	1	0	0	0		
								8	2
								3	1

MCMATH REGION 10129 CMP DATE 28.9

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
69	5	31	10129	N09 W35	254	200	1.5
69	6	1	10129	N10 W43	248	700	2.5
69	6	2	10129	N10 W52	240	500	1.5

SUNSPOT DATA 9.1 CM

MW NO.	LAT CMD	L	MAG.	H	AREA	CNT	C	INT	FLUX
					0	1	A		

MCMATH REGION 10117 CMP DATE 30.3

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
69	5	24	10117	N27 E77	223	400	1.0
69	5	25	10117	N26 E60	226	400	1.0
69	5	26	10117	N27 E47	239	300	1.0
69	5	27	10117	N26 E36	237	400	1.0
69	5	28	10117	N26 E23	236	600	1.5
69	5	29	10117	N26 E10	236	600	1.5
69	5	30	10117	N26 W05	239	700	1.5
69	5	31	10117	N27 W19	238	900	2.0
69	6	1	10117	N26 W32	237	900	2.0
69	6	2	10117	N26 W48	236	1000	2.0

RETURN OF REGION 10057* ROTATION 6

SUNSPOT DATA 9.1 CM

MW NO.	LAT CMD	L	MAG.	H	AREA	CNT	C	INT	FLUX

MCMATH REGION 10132 CMP DATE 30.5

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
69	6	4	10132	N10 W67	232	200	2.0

SUNSPOT DATA 9.1 CM

MW NO.	LAT CMD	L	MAG.	H	AREA	CNT	C	INT	FLUX

MCMATH REGION 10120 CMP DATE 31.1

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
69	5	27	10120	S11 E49	212	100	1.5
69	5	28	10120	S10 E36	223	500	2.5
69	5	29	10120	S12 E20	226	300	2.5
69	5	30	10120	S12 E07	227	400	2.0
69	5	31	10120	S12 W06	225	400	2.0
69	6	1	10120	S12 W18	223	500	2.5
69	6	2	10120	S12 W35	223	500	2.0

SUNSPOT DATA 9.1 CM

MW NO.	LAT CMD	L	MAG.	H	AREA	CNT	C	INT	FLUX
					0	3	B		

The above regions were reported without June data in the last issue.
*An asterisk beside the "Return of Region" number indicates that the new region is only part of the area of the old region.

REGIONS OF SOLAR ACTIVITY

JUNE 1969

MCMATH REGION 10125 CMP DATE 1.0

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
69	5	30	10125	N24 E19	215	200	1.5

SUNSPOT DATA 9.1 CM

MW NO.	LAT CMD	L	MAG.	H	AREA	CNT	C	INT	FLUX

MCMATH REGION 10116 CMP DATE 1.9

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
69	5	25	10116	N08 E85	214	800	2.0
69	5	26	10116	N08 E80	206	2400	2.0
69	5	27	10116	N08 E67	206	3400	4.0
69	5						
69	5	28	10116	N09 E53	206	3400	3.5
69	5						
69	5						
69	5	29	10116	N11 E41	205	4000	3.5
69	5						
69	5						
69	5	30	10116	N11 E28	206	4000	3.5
69	5						
69	5						
69	5	31	10116	N11 E15	204	3700	3.0
69	5						
69	6	1	10116	N16 E05	200	3400	3.0
69	6						
69	6						
69	6	2	10116	N11 W12	200	3400	3.0
69	6	3	10116	N00 E00	0	0	0.0
69	6	4	10116	N11 W35	200	3100	2.5
69	6	5	10116	N00 E00	0	0	0.0
69	6						
69	6	6	10116	N11 W65	203	2500	2.0
69	6						
69	6	7	10116	N12 W78	203	1800	2.0

RETURN OF REGION 10065 ROTATION 3&1

SUNSPOT DATA 9.1 CM

MW NO.	LAT CMD	L	MAG.	H	AREA	CNT	C	INT	FLUX
17295	N08 E79	219	X	0	40	1	J	4	1
17295	N06 E07	275	(B)	2	0	2	A	17	5
17295	N06 E60	210	(BP)	4	70	1	J	14	4
					30	10	C		
17295	N09 E43	213	(BP)	5	110	3	J	13	4
17296	N17 E55	201	(AP)	3	0	0	0		
17298	N05 E48	208	(BF)	4	30	1	J		
17295	N09 E30	213	(AP)	5	170	1	J		
17298	N05 E36	207	(BF)	3	0	0	0		
17296	N16 E42	201	(AP)	3	0	0	0		
17295	N07 E18	212	(BP)	4	140	3	J	7	2
17298	N04 E23	207	(BP)	2	10	9	C		
17296	N16 E28	202	(AP)	2	0	3	B		
17295	N08 E02	214	(AP)	4	160	5	J	6	2
17298	N04 E08	208	(B)	1	0	6	B		
17295	N09 W09	212	(AP)	5	140	3	J	5	1
17302	N04 W07	210	(B)	1	0	0	0		
17298	N07 W04	207	(BP)	2	0	3	C		
17295	N09 W26	212	(AP)	3	90	7	D	5	1
17295	N08 W33	210	(BP)	4	60	3	J	6	2
17295	N09 W49	211	(AP)	3	50	3	J	4	1
17295	N08 W61	211	(AP)	2	0	3	A	4	1
17318	N10 W46	196	(BP)	1	0	1	A		
17295	N08 W74	211	(AP)	1	10	3	J	5	1
17318	N10 W59	196	(B)	1	10	4	C		
								7	2

MCMATH REGION 10126 CMP DATE 2.3

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
69	5	30	10126	S25 E36	198	100	1.5

SUNSPOT DATA 9.1 CM

MW NO.	LAT CMD	L	MAG.	H	AREA	CNT	C	INT	FLUX

MCMATH REGION 10127 CMP DATE 3.8

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
69	5	30	10127	N14 E56	178	100	1.5
69	5	28	10121	S14 E80	179	700	2.0
69	5	29	10121	S14 E71	175	2000	2.5
69	5	30	10121	S15 E60	174	2100	2.5
69	5	31	10121	S16 E48	171	2400	2.5
69	5						

SUNSPOT DATA 9.1 CM

MW NO.	LAT CMD	L	MAG.	H	AREA	CNT	C	INT	FLUX
17297	S13 E77	179	(AF)	3	30	1	J	6	2
17297	S15 E63	167	(AP)	4	60	4	G		
17297	S15 E49	181	(AP)	4	60	3	J		
17297	S15 E36	180	(AP)	3	60	3	J	9	3
17301	S11 E42	174	(AF)	2	0	0	0		

MCMATH REGION 10121 CMP DATE 4.6

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
69	6	1	10121	S19 E35	170	3500	3.5
69	6						
69	6	2	10121	S19 E22	166	2800	3.0
69	6						
69	6	3	10121	N00 E00	0	0	0.0
69	6						
69	6	4	10121	S17 E00	165	2600	2.5
69	6	5	10121	N00 E00	0	0	0.0
69	6						
69	6	6	10121	S18 W28	166	2800	2.0
69	6						
69	6	7	10121	S18 W45	170	2700	2.0
69	6	8	10121	N00 E00	0	0	0.0
69	6	9	10121	S13 W72	172	2000	2.0
69	6	10	10121	S10 W86	173	300	1.0

RETURN OF REGION 10071 ROTATION 2

SUNSPOT DATA 9.1 CM

MW NO.	LAT CMD	L	MAG.	H	AREA	CNT	C	INT	FLUX
17297	S13 E25	178	(AP)	3	20	5	J	7	2
17301	S09 E29	174	(B)	2	0	8	B		
17297	S13 E07	179	(AP)	2	10	4	C	7	2
17301	S10 E14	172	(AF)	2	10	2	C		
17297	S14 E00	177	(AP)	2	10	2	J	7	2
17301	S10 E06	171	(AF)	2	20	3	C		
17297	S10 W11	173	(BF)	2	20	6	C	6	2
17297	S10 W24	174	(B)	1	0	4	A	4	1
17315	S12 W15	165	(AP)	1	0	0	0		
17319	S16 W41	178	(AP)	2	10	3	C	9	3
17297	S11 W33	170	(B)	2	10	4	C		
								5	2
					0	1	A		
								6	2

MCMATH REGION 10136 CMP DATE 5.3

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
69	6	7	10136	N20 W30	155	200	1.5
69	6						
69	6	8	10136	N00 E00	0	0	0.0

SUNSPOT DATA 9.1 CM

MW NO.	LAT CMD	L	MAG.	H	AREA	CNT	C	INT	FLUX
					10	6	B		
					0	4	A		
								5	2

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MCMATH REGION 10128 CMP DATE 6.3

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
69	5	30	10128	S12 E87	147	500	1.5
69	5	31	10128	S13 E75	144	4800	2.5
69	6	1	10128	S15 E62	143	3700	3.0
69	6						
69	6	2	10128	S15 E46	142	3500	3.0
69	6	3	10128	N00 E00	0	0	0.0
69	6	4	10128	S13 E23	142	4000	3.0
69	6	5	10128	N00 E00	0	0	0.0
69	6	6	10128	S15 W04	142	3900	2.5
69	6	7	10128	S13 W19	144	3400	2.0
69	6	8	10128	N00 E00	0	0	0.0
69	6	9	10128	S14 W44	144	3400	2.0
69	6	10	10128	S14 W57	144	2800	2.0
69	6	11	10128	S15 W70	143	2000	2.0
69	6	12	10128	S16 W83	142	800	1.0

RETURN OF REGION 10077 ROTATION 3

SUNSPOT DATA

MW NO.	LAT CMD	L	MAG.	H	AREA	CNT	C	9.1 CM INT	9.1 CM FLUX
								10	3
								12	3
17303	S10 E53	150	(AP)	1	0	2	A	12	4
17304	S07 E56	147	(AP)	1	0	1	A		
17304	S08 E40	146	(B)	1	10	5	C		
17304	S07 E31	146	(BF)	2	10	3	B	11	3
					0	4	A	7	2
17316	S10 E04	146	(BP)	2	20	7	C	8	2
17316	S09 W11	148	(BP)	2	20	10	C	6	2
17316	S09 W29	149		0	0	0	0	4	1
					0	2	B	4	1
								4	1

MCMATH REGION 10130 CMP DATE 7.9

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
69	6	1	10130	N07 E80	125	1100	3.0
69	6	2	10130	N08 E58	130	3100	3.5
69	6						
69	6						
69	6						
69	6	3	10130	N00 E00	0	0	0.0
69	6						
69	6						
69	6						
69	6						
69	6	4	10130	N12 E48	117	4200	3.5
69	6						
69	6						
69	6						
69	6	5	10130	N00 E00	0	0	0.0
69	6						
69	6						
69	6						
69	6						
69	6	6	10130	N12 E20	118	5300	3.0
69	6						
69	6						
69	6						
69	6						
69	6	7	10130	N12 E04	121	5800	3.0
69	6						
69	6						
69	6						
69	6	8	10130	N00 E00	0	0	0.0
69	6						
69	6						
69	6						
69	6	9	10130	N11 W22	122	5400	3.0
69	6						
69	6	10	10130	N11 W35		5200	3.0
69	6	11	10130	N11 W46	119	4900	3.5
69	6	12	10130	N12 W60	119	4500	3.0
69	6						
69	6						
69	6						
69	6	14	10130	N12 W88	118	1000	1.5
69	6						

RETURN OF REGION 10086 ROTATION 2

SUNSPOT DATA

MW NO.	LAT CMD	L	MAG.	H	AREA	CNT	C	9.1 CM INT	9.1 CM FLUX
17305	N12 E81	122	(AP)	2	10	1	J	17	5
17305	N11 E64	122	(AP)	2	10	1	J		
17306	N13 E71	115	(BF)	2	70	1	J		
17307	N16 E81	105	(AP)	2	0	0	0		
17308	N09 E88	98		0	0	0	0		
17305	N12 E56	121	(AP)	3	60	6	D		
17306	N14 E61	116	(AF)	3	0	0	0		
17309	N11 E69	108	(AP)	1	60	1	J		
17307	N16 E74	103	(AF)	3	0	0	0		
17308	N09 E76	101	(BP)	3	160	4	H		
17305	N12 E44	118	(BF)	3	30	12	D		
17314	N08 E49	113	(B)	1	0	0	0		
17307	N15 E58	104	(AF)	3	70	1	J		
17308	N07 E61	101	(BP)	5	0	0	0		
17305	N12 E30	120	(BF)	2	10	7	B	23	7
17314	N09 E35	115	(BP)	3	20	13	C		
17307	N16 E46	104	(BP)	3	0	0	0		
17317	N19 E48	102	(AF)	1	60	1	G		
17308	N07 E48	102	(BY)	4	0	0	0		
17305	N13 E18	119	(BF)	1	0	0	0	32	10
17314	N09 E22	115	(BY)	4	70	35	Q		
17307	N16 E32	105	(AP)	4	60	3	J		
17320	N12 E33	104	(AP)	2	0	0	0		
17308	N07 E34	103	(AP)	4	180	15	D		
17305	N12 E02	118	(BP)	2	0	0	0	49	15
17314	N09 E05	115	(BF)	4	140	60	E		
17307	N16 E16	104	(AP)	4	50	2	J		
17308	N07 E21	99	(BP)	4	120	11	D		
17305	N12 W11	118		0	0	0	0	50	15
17314	N09 W07	114		0	250	67	E		
17307	N16 E03	104		0	50	2	J		
17308	N08 E07	100		0	110	16	C		
					250	40	D	50	15
					10	11	B		
								32	9
17314	N09 W59	116	(BP)	3	90	8	D	24	7
17307	N17 W46	103	(AP)	2	0	0	0		
17308	N09 W46	103	(AP)	4	80	2	J		
17308	N08 W64	104	(AP)	3	70	4	J		
17328	N08 W79	110		0	0	0	0	41	12
17308	N08 W70	101	(BP)	3	0	0	0		

MCMATH REGION 10131 CMP DATE 8.8

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
69	6	2	10131	S17 E86	102	1200	2.5
69	6	3	10131	N00 E00	0	0	0.0
69	6	4	10131	S16 E55	110	1700	3.0
69	6	5	10131	N00 E00	0	0	0.0
69	6	6	10131	S16 E28	110	1800	3.0
69	6	7	10131	S16 E14	111	1300	2.5
69	6	8	10131	N00 E00	0	0	0.0
69	6	9	10131	S15 W09	109	2200	2.0
69	6						
69	6	10	10131	S14 W22		1900	2.0
69	6	11	10131	S13 W35	108	1400	2.0
69	6	12	10131	S13 W49	108	1400	2.5
69	6	13	10131	S13 W64	108	1500	3.0
69	6	14	10131	S12 W78	108	1500	2.0

SUNSPOT DATA

MW NO.	LAT CMD	L	MAG.	H	AREA	CNT	C	9.1 CM INT	9.1 CM FLUX
								10	3
								16	5
17311	S14 E53	109	(B)	1	0	1	A		
17311	S15 E41	109	(B)	3	20	4	B		
17311	S15 E27	110	(BP)	3	30	10	C		
17321	S13 E08	112	(AP)	2	10	6	A		
17321	S13 W06	113		0	10	6	B		
					10	6	B		
					0	1	A		
17321	S12 W51	108	(BP)	3	30	7	D		
17321	S12 W70	110	(AP)	1	20	2	J		
17321	S12 W78	109	(B)	1	0	0	0		

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MCMATH REGION 10133 CMP DATE 8.9

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
69	6	6	10133	S05 E25		400	2.0
69	6	7	10133	S06 E15	110	700	1.5
69	6	9	10133	S06 W08	108	400	1.5
69	6	10	10133	S05 W23	110	400	1.5
69	6	11	10133	S05 W37	110	300	1.0
69	6	12	10133	S04 W54	113	400	1.0
69	6	13	10133	S04 W70	114	300	1.0

RETURN OF REGION 10087 ROTATION 2

SUNSPOT DATA 9.1 CM

MW NO.	LAT CMD	L	MAG.	H	AREA	CNT	C	INT	FLUX

MCMATH REGION 10134 CMP DATE 10.5

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
69	6	4	10134	N13 E75	90	6500	3.5
69	6	5	10134	N00 E00	0	0	0.0
69	6	6	10134	N14 E55	83	12500	4.0
69	6	7	10134	N16 E43	82	13500	3.5
69	6	8	10134	N00 E00	0	0	0.0
69	6	9	10134	N16 E20	80	13500	3.5
69	6	10	10134	N17 E04	83	13000	3.5
69	6	11	10134	N16 W09	82	11800	3.5
69	6	12	10134	N17 W22	81	11000	3.5
69	6	13	10134	N17 W37	81	10800	3.5
69	6	14	10134	N18 W50	80	11000	3.5
69	6	15	10134	N18 W65	82	9800	3.5
69	6	16	10134	N17 W72	79	6500	3.5
69	6	17	10134	N17 W80	73	5500	3.0
69	6	18	10134	N19 W90		900	1.0

RETURN OF REGION 10095, 10088, 10098 ROTATION 2,5 & 6

SUNSPOT DATA 9.1 CM

MW NO.	LAT CMD	L	MAG.	H	AREA	CNT	C	INT	FLUX
17312	N12 E76	86	(BP)	3	180	10	D	51	15
					10	13	C		
17313	N16 E88	74	(AP)	4	0	0	0		
17312	N11 E63	87	(D)	4	450	9	E	62	19
					140	7	D		
17313	N16 E73	77	(BP)	5	450	2	G		
17312	N11 E49	88	(D)	5	450	32	E	59	18
17313	N16 E62	75	(D)	5	640	14	H		
17312	N11 E32	88	(BP)	5	350	41	F	46	14
17313	N16 E46	74	(BP)	6	690	13	H		
17312	N11 E19	88		0	340	60	F	67	20
17313	N16 E32	75		0	700	14	H		
					50	2	J	67	20
					110	16	C		
					340	60	F		
					30	1	J	61	18
17312	N11 W29	86	(BP)	5	430	23	E	65	20
					0	1	J		
17313	N16 W13	70	(BY)	5	560	42	H		
17312	N10 W53	93	(AP)	5	250	8	C	52	16
17313	N16 W34	74	(BY)	5	630	27	H		
17312	N12 W57	88	(BP)	4	0	0	0	13	4
17313	N16 W41	72	(BY)	5	0	0	0		
17312	N10 W80	95		0	0	0	0	47	14
17313	N16 W60	75		0	0	0	0		
17313	N16 W69	74	(AP)	4	0	0	0	29	8
17313	N16 W78	68		0	310	1	H	14	4

MCMATH REGION 10135 CMP DATE 10.5

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
69	6	3	10135	N00 E00	0	0	0.0
69	6	4	10135	S15 E78	87	2300	4.0
69	6	5	10135	N00 E00	0	0	0.0
69	6	6	10135	S16 E52	86	3800	3.5
69	6	7	10135	S15 E40	85	3600	3.5
69	6	8	10135	N00 E00	0	0	0.0
69	6	9	10135	S15 E13	87	4200	3.5
69	6	10	10135	S15 W01		4400	3.5
69	6	11	10135	S15 W14	87	4800	3.5
69	6	12	10135	S15 W29	88	5500	3.0
69	6	13	10135	S15 W45	89	5600	3.0
69	6	14	10135	S15 W58	88	5500	3.0
69	6	15	10135	S15 W72	89	5200	3.5
69	6	16	10135	S15 W80	87	2800	3.5

RETURN OF REGION 10084, & 10089 ROTATION 2 & 3

SUNSPOT DATA 9.1 CM

MW NO.	LAT CMD	L	MAG.	H	AREA	CNT	C	INT	FLUX
17310	S14 E69	108	(B)	1	0	0	0		
17310	S16 E75	87	(BP)	5	170	20	C	29	9
17310	S16 E61	89	(Y)	5	400	24	E	39	12
17310	S16 E47	90	(D)	5	470	38	F	41	12
17310	S16 E31	89	(D)	.5	700	51	F	52	16
17310	S16 E19	88		0	30	66	F	58	17
					30	66	F	58	17
					120	92	F		
					10	5	B		
								80	23
17310	S15 W32	89	(D)	6	450	65	F	88	26
17310	S15 W50	90	(D)	5	220	47	E	62	18
17310	S16 W58	89	(Y)	6	0	0	0	71	21
17310	S16 W76	91		0	0	0	0	60	18
17310	S16 E00	5		0	0	0	0	33	10

MCMATH REGION 10137 CMP DATE 12.4

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
69	6	6	10137	S16 E78	60	600	1.0
69	6	7	10137	S16 E65	60	800	1.5
69	6	8	10137	N00 E00	0	0	0.0
69	6	9	10137	S16 E39	61	800	1.0
69	6	10	10137	S16 E26	61	600	1.0
69	6	11	10137	S16 E11	62	600	1.0
69	6	12	10137	S18 W03	62	700	1.0
69	6	13	10137	S17 W17	61	600	1.0
69	6	14	10137	S17 W30	60	600	1.0
69	6	15	10137	S18 W45	62	500	1.0
69	6	16	10137	S18 W52	59	200	1.0

RETURN OF REGION 10090 ROTATION 5

SUNSPOT DATA 9.1 CM

MW NO.	LAT CMD	L	MAG.	H	AREA	CNT	C	INT	FLUX
								6	2
17322	S17 W06	63	(AP)	1	0	3	A	10	3

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MCMATH REGION 10154 CMP DATE 13.7

CALCIUM PLAGE DATA								SUNSPOT DATA									9.1 CM
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	AREA	CNT	C	INT	FLUX
69	6	18	10154	S08 W65		200	1.0										
69	6	19	10154	S08 W76	45	300	1.0										

MCMATH REGION 10141 CMP DATE 15.0 RETURN OF REGION 10088* ROTATION 6

CALCIUM PLAGE DATA								SUNSPOT DATA									9.1 CM
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	AREA	CNT	C	INT	FLUX
69	6	9	10141	N27 E70		900	1.0										
69	6	10	10141	N29 E54	33	900	1.5										
69	6	11	10141	N27 E41	32	1000	1.0										
69	6	12	10141	N26 E30	29	1200	2.0										
69	6	13	10141	N26 E15	29	1000	2.0										
69	6	14	10141	N66 E02	28	1500	1.5										
69	6	15	10141	N26 W12	29	1300	2.0	17331	N22 W08	23		0	0	0	0		
69	6	16	10141	N26 W19	26	1800	2.5	17331	N22 W22	27	(AP)	3	0	0	0		
69	6	17	10141	N27 W30	23	2000	3.0	17331	N21 W36	26	(AP)	2	20	1	J		
69	6	18	10141	N27 E43		1500	2.5	17331	N23 W46	26	(BP)	2	20	10	C		
69	6	19	10141	N28 W54	21	1300	2.0	17331	N23 W64	28	(BP)	3	20	5	C		
69	6	20	10141	N00 E00	0	0	0.0	17331	N24 W72	27	(B)	2	10	2	C		

MCMATH REGION 10140 CMP DATE 15.1

CALCIUM PLAGE DATA								SUNSPOT DATA									9.1 CM
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	AREA	CNT	C	INT	FLUX
69	6	9	10140	S23 E78	22	800	1.0										
69	6	10	10140	S23 E62	25	500	1.5									11	3
69	6	11	10140	S23 E47	26	500	1.0									9	3
69	6	12	10140	S21 E31	28	500	1.0										
69	6	13	10140	S21 E16	28	400	1.5									7	2
69	6	14	10140	S22 E03	27	600	1.0										
69	6	15	10140	S22 W11	28	600	1.5									9	3
69	6	16	10140	S23 W19	26	400	1.5										
69	6	17	10140	S23 W32	25	400	5.0										
69	6	18	10140	S23 W46		300	1.5										
69	6	19	10140	S24 W59	26	400	1.0										

MCMATH REGION 10147 CMP DATE 15.1

CALCIUM PLAGE DATA								SUNSPOT DATA									9.1 CM
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	AREA	CNT	C	INT	FLUX
69	6	13	10147	N16 E16	28	500	3.0	17325	N16 E13	27	(BF)	2	30	10	D		
69	6	14	10147	N18 E03	27	1000	3.0	17325	N14 E04	27	(BF)	4	0	0	0	18	5
69	6	15	10147	N18 W12	29	1400	3.0	17325	N14 W12	27		0	0	0	0	15	4
69	6	16	10147	N16 W20	27	1400	3.5	17325	N15 W25	30	(B)	3	0	0	0	11	3
69	6	17	10147	N16 W34	27	1600	3.5	17325	N15 W36	26	(BF)	2	50	16	D	13	4
69	6							17335	N18 W32	22	(B)	2	0	0	0		
69	6	18	10147	N18 W46		2500	3.5	17325	N16 W61	41	(B)	2	0	0	0		
69	6							17335	N20 W46	26	(AP)	1	0	3	B		
69	6	19	10147	N18 W59	26	2900	3.5	17325	N16 W64	28	(AF)	2	10	6	C	12	4
69	6	20	10147	N19 W73	27	2700	3.5										
69	6	21	10147	N20 W85	26	1400	2.5						10	1	J		

MCMATH REGION 10159 CMP DATE 15.5

CALCIUM PLAGE DATA								SUNSPOT DATA									9.1 CM
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	AREA	CNT	C	INT	FLUX
69	6	20	10159	N12 W68	22	300	2.5	17338	N11 W64	19	(AF)	3	0	1	A		
69	6							17339	N10 E64	251	(AP)	2	0	2	A		
69	6												0	1	A		

MCMATH REGION 10142 CMP DATE 15.7

CALCIUM PLAGE DATA								SUNSPOT DATA									9.1 CM
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	AREA	CNT	C	INT	FLUX
69	6	10	10142	N04 E70	17	600	3.0										
69	6	11	10142	N03 E56	17	300	2.0										
69	6												0	1	A		
69	6	13	10142	N03 E24	20	300	2.0										
69	6	14	10142	N03 E11	19	300	1.0										
69	6	15	10142	N02 W04	21	300	1.0										
69	6	16	10142	N02 W12	19	300	1.0										
69	6	17	10142	N02 W25	18	900	1.0										

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MCMATH REGION 10143 CMP DATE 15.8

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
69	6	10	10143	N12 E81	6	200	1.0
69	6	11	10143	N12 E66	7	200	1.0
69	6	12	10143	N12 E50	9	200	1.0
69	6	14	10143	N15 E13	17	500	1.5
69	6	15	10143	N15 W01	18	200	2.0
69	6	16	10143	N14 W09	16	200	1.0

SUNSPOT DATA 9.1 CM

MW NO.	LAT CMD	L	MAG.	H	AREA	CNT	C	INT	FLUX

MCMATH REGION 10145 CMP DATE 16.2 RETURN OF REGION 10105 ROTATION 4

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
69	6	12	10145	S13 E48	11	200	1.0
69	6	13	10145	S12 E33	11	200	1.0
69	6	14	10145	S11 E21	9	200	1.0
69	6	15	10145	S12 E05	12	200	1.0
69	6	16	10145	S15 W04	11	300	1.0
69	6	17	10145	S15 W16	9	400	1.0
69	6	18	10145	S13 W32		200	1.0
69	6	19	10145	S14 W44	11	500	1.5
69	6	20	10145	S14 W56	10	300	1.5

SUNSPOT DATA 9.1 CM

MW NO.	LAT CMD	L	MAG.	H	AREA	CNT	C	INT	FLUX

MCMATH REGION 10150 CMP DATE 16.4

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
69	6	14	10150	S28 E20	10	100	1.0

SUNSPOT DATA 9.1 CM

MW NO.	LAT CMD	L	MAG.	H	AREA	CNT	C	INT	FLUX

MCMATH REGION 10157 CMP DATE 16.8

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
69	6	20	10157	S01 W52	6	200	2.0
69	6	21	10157	S01 W62	3	300	2.5

SUNSPOT DATA 9.1 CM

MW NO.	LAT CMD	L	MAG.	H	AREA	CNT	C	INT	FLUX

MCMATH REGION 10151 CMP DATE 17.2

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
69	6	15	10151	S05 E16	1	300	1.0
69	6	16	10151	S07 E08	-0	300	1.0
69	6	17	10151	S07 W06	-0	200	1.5

SUNSPOT DATA 9.1 CM

MW NO.	LAT CMD	L	MAG.	H	AREA	CNT	C	INT	FLUX

MCMATH REGION 10144 CMP DATE 17.8 RETURN OF REGION 10110,10100 ROTATION 2 & 3

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
69	6	11	10144	N08 E86	348	800	1.5
69	6	12	10144	N08 E71	349	1800	2.5
69	6	13	10144	N08 E55	350	2300	3.0
69	6	14	10144	N10 E42	348	3000	3.0
69	6	15	10144	N10 E27	350	2800	3.0
69	6	16	10144	N08 E19	349	3600	3.0
69	6	17	10144	N09 E04	350	3400	3.0
69	6	18	10144	N00 E00	0	0	0.0
69	6	19	10144	N09 W21	348	2500	3.0
69	6	20	10144	N10 W34	348	2200	2.5
69	6	21	10144	N11 W48	349	2300	2.5
69	6						
69	6	22	10144	N12 W62	350	1800	2.5
69	6	23	10144	N00 E00	0	0	0.0

SUNSPOT DATA 9.1 CM

MW NO.	LAT CMD	L	MAG.	H	AREA	CNT	C	INT	FLUX
								10	3
17323	N08 E68	350	(BP)	3	80	3	C	12	4
17323	N08 E50	351	(BP)	3	60	3	C		
17323	N07 E40	352	(BP)	3	0	0	0		
17323	N08 E22	354		0	0	0	0		
17323	N08 E12	354	(AP)	3	0	0	0		
17323	N08 W02	353	(AP)	2	10	3	J	9	3
17323	N09 W15	355	(AP)	2	10	5	J		
17323	N09 W30	354	(AP)	2	10	2	J	10	3
17323	N09 W40	355	(AP)	2	0	1	A		
17340	N14 W55	354	(BF)	3	10	3	C		
17323	N09 W55	354	(AP)	1	0	1	J		
17340	N12 W65	352	(B)	3	0	1	J	8	2
					0	1	A		

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MCMATH REGION 10146 CMP DATE 19.3 RETURN OF REGION 10099, 10108, 10103 ROTATION 2

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT	CMD	L	AREA	INT
69	6	12	10146	S19	E84	336	2000	1.5
69	6	13	10146	S20	E72	333	4500	4.5
69	6	13	10146	S20	E64	341	3300	4.5
69	6							
69	6	14	10146	S20	E60	330	7300	3.5
69	6							
69	6							
69	6							
69	6	15	10146	S20	E45	332	7500	3.5
69	6							
69	6							
69	6	16	10146	S21	E36	332	8000	3.5
69	6							
69	6							
69	6							
69	6	17	10146	S20	E23	331	8300	3.5
69	6							
69	6							
69	6							
69	6	18	10146	S20	E08		8200	3.5
69	6	18	10146	N00	E00	0	0	0.0
69	6							
69	6							
69	6							
69	6	19	10146	S20	W04	331	8100	3.5
69	6	20	10146	S20	W17	331	8100	3.5
69	6	21	10146	S20	W30	331	7200	3.0
69	6	22	10146	S20	W43	331	7000	3.0
69	6	23	10146	N00	E00	0	0	0.0
69	6	24	10146	S20	W68	327	3800	3.0
69	6							
69	6	25	10146	S21	W77	326	3000	3.0
69	6							
69	6	26	10146	S18	W83	318	1100	1.0

SUNSPOT DATA 9.1 CM

MW NO.	LAT	CMD	L	MAG.	H	AREA	CNT	C	INT	FLUX
17324	S14	E72	346	(AP)	2	20	3	J	14	4
17324	S15	E55	346	(AP)	3	20	5	J		
17324	S15	E55	346	(AP)	3	20	5	J		
17327	S17	E78	323	(AP)	2	20	1	J		
17324	S16	E48	344	(BP)	3	0	0	0	19	6
17329	S21	E49	343	(AP)	1	0	0	0		
17330	S25	E58	334	(B)	1	0	0	0		
17327	S17	E70	322	(B)	3	0	0	0		
17329	S19	E26	350		0	0	0	0	19	6
17324	S15	E28	348		0	0	0	0		
17327	S17	E52	324		0	0	0	0		
17329	S17	E17	349	(B)	2	0	0	0	15	4
17324	S14	E18	348	(AP)	2	0	0	0		
17332	S21	E22	344	(AP)	2	0	0	0		
17327	S16	E43	323	(AP)	1	0	0	0		
17324	S14	E05	346	(AP)	2	50	17	D	14	4
17329	S18	E05	346	(BF)	2	0	0	0		
17332	S20	E20	331	(AP)	2	0	1	A		
17327	S16	E27	324	(BP)	3	10	5	C		
17324	S14	W10	350	(AP)	2	0	0	0		
17324	S14	W10	350	(AP)	2	0	0	0		
17329	S17	W10	350	(B)	2	10	11	D		
17332	S20	W05	345	(AP)	2	0	1	A		
17327	S15	E14	326	(AP)	2	10	1	J		
17327	S15	W01	325	(AP)	2	10	1	J	10	3
17327	S15	W11	326	(AP)	2	0	1	A		
17327	S16	W29	328	(AP)	2	10	5	C	9	3
17327	S16	W39	326	(AP)	2	0	4	J	10	3
17346	S21	W52	324	(BP)	3	10	2	J		
17347	S14	W65	323	(B)	2	0	0	0	13	4
17346	S21	W64	322	(B)	3	10	2	D		
17346	S21	W74	322	(AF)	2	0	2	C	12	3
17347	S14	W75	323	(B)	2	0	1	A		
									8	2

MCMATH REGION 10148 CMP DATE 20.2 RETURN OF REGION 10107, 10109* ROTATION 2 & 4

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT	CMD	L	AREA	INT
69	6	13	10148	N11	E80	325	2500	3.0
69	6	14	10148	N12	E75	315	3500	3.5
69	6	15	10148	N12	E66	311	3700	3.5
69	6	16	10148	N11	E48	320	4300	3.5
69	6							
69	6	17	10148	N11	E32	322	4300	3.5
69	6							
69	6	18	10148	N10	E19	0	4100	3.5
69	6							
69	6	19	10148	N11	E07	320	5700	3.5
69	6							
69	6							
69	6							
69	6	20	10148	N10	W06	320	6400	3.5
69	6							
69	6							
69	6							
69	6	21	10148	N12	W18	319	5900	3.5
69	6							
69	6							
69	6	22	10148	N11	W31	319	6400	3.0
69	6							
69	6							
69	6							
69	6	23	10148	N00	E00	0	0	0.0
69	6							
69	6							
69	6	24	10148	N09	W57	316	3600	3.5
69	6							
69	6	25	10148	N09	W70	319	3400	3.5
69	6							
69	6	26	10148	N12	W82	317	1800	1.5

SUNSPOT DATA 9.1 CM

MW NO.	LAT	CMD	L	MAG.	H	AREA	CNT	C	INT	FLUX
17326	N10	E72	329	(AP)	4	380	2	H	21	6
17326	N10	E63	329	(BP)	4	0	0	0	19	6
17326	N10	E47	329		0	0	0	0	24	7
17326	N10	E36	330	(AP)	5	0	0	0	19	6
17334	N07	E40	326	(BP)	2	0	0	0		
17326	N11	E22	329	(AP)	5	320	12	H	25	7
17334	N09	E26	325	(B)	2	0	0	0		
17326	N11	E09	331	(AP)	5	410	24	E		
17334	N08	E15	325	(B)	4	0	0	0		
17326	N11	W05	329	(BP)	5	610	48	E	49	15
17334	N07	W02	326	(BP)	5					
17336	N04	W01	325	(B)	2	0	0	0		
17337	N08	E10	314	(AF)	2	0	5	B		
17326	N11	W15	330	(BP)	5	320	9	C		
17334	N08	W12	327	(BP)	5	250	32	D		
17336	N04	W11	326	(BP)	2	0	6	B		
17337	N09	E00	315	(AF)	2	0	5	B		
17326	N11	W29	328	(AP)	5	620	30	E	42	13
17336	N02	W27	326	(B)	2	0	0	0		
17334	N08	W26	325	(BP)	5					
17326	N10	W41	328	(AP)	5	700	21	E	34	10
17334	N06	W39	326	(BP)	4	0	0	0		
17341	N07	W29	316	(AF)	2	0	0	0		
17342	N08	W19	306	(AF)	1	0	0	0		
17326	N10	W58	330	(AP)	5	500	12	E		
17334	N06	W55	327	(BP)	4					
17345	N04	W26	298	(AP)	2	10	3	C		
17326	N09	W70	328	(AP)	4	580	4	D	35	10
17334	N07	W69	327	(AP)	4	0	0	0		
17326	N10	W80	328		0	510	2	D	23	7
17334	N07	W80	328		0	0	0	0		
									16	5

MCMATH REGION 10152 CMP DATE 23.0 RETURN OF REGION 10109* ROTATION 4 & 6

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT	CMD	L	AREA	INT
69	6	18	10152	N02	W40		200	1.0

SUNSPOT DATA 9.1 CM

MW NO.	LAT	CMD	L	MAG.	H	AREA	CNT	C	INT	FLUX

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MCMATH REGION 10161 CMP DATE 23.0

CALCIUM PLAGE DATA								SUNSPOT DATA								9.1 CM	
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	AREA	CNT	C	INT	FLUX
69	6	22	10161	S17 E05	283	400	2.0										
69	6	24	10161	S16 W18	277	400	2.0										
69	6	25	10161	S16 W39	288	500	2.0										
69	6	26	10161	S16 W52	287	400	1.5										
69	6	27	10161	S16 W67	290	300	1.5										
69	6	28	10161	S16 W82	292	200	1.0									4	1

MCMATH REGION 10182 CMP DATE 24.6

CALCIUM PLAGE DATA								SUNSPOT DATA								9.1 CM	
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	AREA	CNT	C	INT	FLUX
69	6	30	10182	S21 W80	262	200	1.5										

MCMATH REGION 10155 CMP DATE 25.3

CALCIUM PLAGE DATA								SUNSPOT DATA								9.1 CM	
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	AREA	CNT	C	INT	FLUX
69	6	18	10155	S24 E78		400	1.5										
69	6	19	10155	S23 E69	258	800	1.5										
69	6	20	10155	S23 E55	259	600	1.5										
69	6												0	1	A		
69	6	21	10155	S22 E45		1000	1.5										
69	6	22	10155	S22 E32	256	1000	2.5	17344	S20 E35	252	(B)	2	0	1	A		
69	6	24	10155	S22 E06	253	600	1.5										
69	6	25	10155	S22 W18	267	700	2.0										
69	6	26	10155	S22 W19	254	700	1.5										
69	6	27	10155	S22 W33	256	500	1.0										

MCMATH REGION 10158 CMP DATE 25.8 RETURN OF REGION 10129 ROTATION 2

CALCIUM PLAGE DATA								SUNSPOT DATA								9.1 CM	
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	AREA	CNT	C	INT	FLUX
69	6	19	10158	N12 E83	244	600	2.0									4	1
69	6	21	10158	N12 E55	246	800	2.0									4	1
69	6	22	10158	N14 E42	246	800	2.5										
69	6	24	10158	N13 E13	246	600	2.5										
69	6	25	10158	N12 W01	250	600	2.0										
69	6	26	10158	N12 W13	248	500	2.0										
69	6	27	10158	N12 W26	249	500	2.0										
69	6	28	10158	N12 W42	252	400	2.0										
69	6	29	10158	N13 W55	251	400	2.0										
69	6	30	10158	N13 W70	252	400	1.5										
69	7	1	10158	N13 W83	251	200	1.0										

MCMATH REGION 10163 CMP DATE 25.9

CALCIUM PLAGE DATA								SUNSPOT DATA								9.1 CM	
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	AREA	CNT	C	INT	FLUX
69	6	24	10163	N08 E26	233	500	4.0	17349	N08 E20	238	(BP)	3	20	10	C		
69	6	25	10163	N08 E12	237	500	3.0	17349	N08 E09	239	(BP)	4	20	8	D	5	1
69	6	26	10163	N08 W01	236	700	3.5	17349	N08 W06	239	(BP)	4	30	10	D	4	1
69	6	27	10163	N07 W15	238	900	3.0	17349	N06 W23	243	(AP)	2	0	0	O		
69	6	28	10163	N07 W30	240	900	3.0	17349	N07 W37	243	(AP)	2	20	3	C		
69	6	29	10163	N08 W43	239	1000	3.0	17349	N07 W50	244	(AP)	2	20	1	J		
69	6	30	10163	N09 W59	241	1000	2.5	17349	N07 W65	245	(AP)	2	0	1	J		
69	7	1	10163	N09 W73	241	800	1.5	17349	N07 W78	244	(AP)	1	0	1	A		
69	7	2	10163	N10 W85	240	700	1.0										

MCMATH REGION 10183 CMP DATE 26.1

CALCIUM PLAGE DATA								SUNSPOT DATA								9.1 CM	
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	AREA	CNT	C	INT	FLUX
69	6	30	10183	S08 W60	242	100	2.0										

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MCMATH REGION 10173 CMP DATE 26.2

CALCIUM PLAGE DATA								SUNSPOT DATA									9.1 CM	
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	AREA	CNT	C	INT	FLUX
69	6	28	10173	N22 W31	241	300	2.0										
69	6	29	10173	N22 W42	238	300	2.0										
69	6	30	10173	N21 W57	239	300	1.0										

MCMATH REGION 10160 CMP DATE 26.3

CALCIUM PLAGE DATA								SUNSPOT DATA									9.1 CM	
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	AREA	CNT	C	INT	FLUX
69	6	20	10160	S16 E75	239	200	1.5										
69	6	21	10160	S14 E62	239	300	1.0										
69	6	22	10160	S13 E49	239	500	1.5										
69	6	24	10160	S14 E22		300	1.0										
69	6	25	10160	S13 E07	242	300	1.5										
69	6	26	10160	S13 W06	241	300	1.5						0	1	A		

MCMATH REGION 10162 CMP DATE 28.1 RETURN OF REGION 10116* ROTATION 2&4

CALCIUM PLAGE DATA								SUNSPOT DATA									9.1 CM	
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	AREA	CNT	C	INT	FLUX
69	6	22	10162	N09 E75	213	600	1.5									6	2
69	6	24	10162	N09 E49	210	600	2.0										
69	6	25	10162	N10 E36		900	2.0										
69	6	26	10162	N11 E22	213	1200	2.0										
69	6	27	10162	N11 E08	215	1200	2.0	17353	N14 E09	211	(B)	1	0	0	0		
69	6	28	10162	N10 W06	216	1000	3.0	17353	N16 W05	211	(B)	2	30	15	D	7	2
69	6	29	10162	N10 W19	215	1000	1.5	17353	N14 W17	211	(B)	1	10	3	C	3	1
69	6	30	10162	N10 W35	217	0800	2.0	17353	N16 W33	213	(B)	2	20	5	D	5	2
69	7	1	10162	N10 W48	216	1600	3.0									5	2

MCMATH REGION 10185 CMP DATE 29.1

CALCIUM PLAGE DATA								SUNSPOT DATA									9.1 CM	
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	AREA	CNT	C	INT	FLUX
69	7	1	10185	N00 E00	0	0	0.0	17353	N13 W47	213	(AP)	1	10	6	B		
69	7	2	10185	N16 W58	213	1100	3.0	17353	N17 W58	210	(AF)	2	10	4	B	7	2
69	7	3	10185	N16 W72	214	1300	3.5	17353	N17 W74	213	(B)	1	0	0	0	11	3
69	7		10185					17368	N13 W73	212	(B)	1	10	5	C		
69	7	4	10185	N16 W37	165	1200	3.5										

MCMATH REGION 10184 CMP DATE 29.4

CALCIUM PLAGE DATA								SUNSPOT DATA									9.1 CM	
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	AREA	CNT	C	INT	FLUX
69	7	1	10184	N38 W41	209	200	2.0										

MCMATH REGION 10165 CMP DATE 29.9 RETURN OF REGION 10116* ROTATION 2&4

CALCIUM PLAGE DATA								SUNSPOT DATA									9.1 CM	
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	AREA	CNT	C	INT	FLUX
69	6	24	10165	N14 E70	189	1400	2.5									7	2
69	6	25	10165	S14 E56	193	2900	3.5										
69	6	26	10165	N14 E43	192	1600	3.5	17351	N09 E37	196	(AP)	3	0	3	B	5	2
69	6	27	10165	N14 E28	195	1600	3.5						10	1	A		
69	6												10	1	A		
69	6	28	10165	N14 E16	194	2000	3.5									4	1
69	6	29	10165	N14 E05	191	1900	3.0	17356	N17 E03	191	(AP)	1	0	2	B	5	2
69	6	30	10165	N14 W10	192	1900	3.0									5	2
69	7	1	10165	N14 W23	191	2000	3.0									5	2
69	7	2	10165	N14 W37	192	1800	2.5										
69	7	3	10165	N14 W50	192	1900	2.0										
69	7	4	10165	N14 W65	193	1200	1.5									6	2
69	7	5	10165	N16 W80	195	1300	1.5									5	1

REGIONS OF SOLAR ACTIVITY

JUNE 1969

MCMATH REGION 10166 CMP DATE 30.8

				CALCIUM PLAGE DATA					SUNSPOT DATA									9.1 CM	
YR	MO	DA	MC NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	AREA	CNT	C	INT	FLUX
69	6	24	10166	S14	E85	174	300	2.0	17350	S12	E81	177		0	0	0	0	11	3
69	6	25	10166	S13	E70	179	1500	2.5	17350	S11	E70	178	(BF)	3	20	2	J	12	3
69	6	26	10166	S13	E57	178	1700	3.5	17350	S11	E55	178	(B)	3	20	5	D	12	4
69	6	27	10166	S13	E43	180	2000	3.5	17350	S10	E42	178	(BP)	3	30	11	D		
69	6	28	10166	S13	E28	182	3000	3.0	17350	S10	E28	178	(BP)	4	100	16	D	23	7
69	6	29	10166	S13	E16	180	3200	3.0	17350	S10	E16	178	(BP)	5	260	36	D	25	8
69	6								17355	S10	E29	165	(AP)	2	0	0	0		
69	6	30	10166	S13	E02	180	3000	3.0	17350	S10	E02	178	(BY)	5	280	22	D	33	10
69	7	1	10166	S14	W12	180	3300	3.5	17350	S10	W12	178	(BP)	4	300	42	E	34	10
69	7		10166						17366	S10	W05	171	(BP)	2	0	0	0		
69	7	2	10166	S13	W22	177	3700	3.5	17367	S18	W28	180	(BP)	2	10	5	A	35	10
69	7		10166						17350	S10	W25	177	(BP)	4	0	0	0		
69	7		10166						17366	S10	W18	170	(BP)	3	220	40	E		
69	7	3	10166	S13	W35	177	3900	3.5	17367	S19	W42	181	(BP)	4	60	15	D	30	10
69	7		10166						17350	S10	W38	177	(BP)	4	0	0	0		
69	7		10166						17366	S10	W33	172	(BY)	4	410	39	E		
69	7	4	10166	S13	W48	176	4500	3.5	17367	S18	W56	181	(BP)	4	120	16	C	32	9
69	7		10166						17350	S10	W52	177	(BP)	4	130	9	0		
69	7		10166						17366	S10	W50	175	(AP)	3	80	13	C		
69	7		10166												10	7	C		
69	7	5	10166	S13	W62	177	4600	3.0	17367	S18	W68	182	(BP)	4	100	6	C	23	7
69	7		10166						17350	S10	W64	178	(BP)	3	20	2	C		
69	7		10166						17366	S10	W63	177	(AP)	3	20	1	G		
69	7		10166												0	5	B		
69	7	6	10166	S13	W75	177	4100	3.0	17350	S10	W86	183		0	0	0	0	13	4
69	7		10166						17366	S10	W82	179		0	100	1	G		
69	7		10166												40	1	G		
69	7		10166												50	1	G		
69	7		10166												0	2	A		

Notes: The lower part of region 10065 is new plage.
Region 10121 also contains some remnants of region 10075.
Region 10130 also contains some remnants of old regions 10083 and 10085, of the previous rotation.
Region 10185 has developed in the midst of old plage 10162.
No calcium spectroheliograms were secured at the McMath-Hulbert Observatory on June 3, 5, 8 and 23, 1969, and no observations were made at the Mt. Wilson Observatory on June 9 - 11.

SOLAR X-RAYS MEASURED BY SATELLITE
SOLRAD 9-EXPLORER 37

JUNE 1969

NAVAL RESEARCH LABORATORY 1=8A HOURLY AVERAGES (10^{-3} ergs/cm^2/sec.)

DAY \ 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
1	1,56	1,06	0,86	0,64	1,00	0,82	0,38	0,42	0,39	0,40	0,38	0,49	0,53	0,34	0,41	0,63	0,88	1,12	1,31	0,76	0,69	0,53	0,48	0,45
2	1,16	1,42	1,11	1,10	0,75	0,46	0,46	0,51	0,43	1,12	1,20	1,30	1,12	0,53	0,83	0,82	0,91	0,55	0,43	0,45	0,48	0,53	0,51	0,56
3	0,59	2,96	0,80	0,53	6,53	2,29	1,44	4,14	1,15	2,88	3,70	2,02	2,14	1,58	1,33	1,37	1,12	1,30	1,62	2,59	5,17	2,98	1,68	1,51
4	2,45	2,28	4,97	1,30	1,21	1,68	16,1	2,16	1,52	2,03	2,82	2,59	3,85	2,97	2,79	4,61	6,24	11,1	2,81	3,04	2,20	2,08	1,77	1,62
5	3,76	4,18	9,74	4,65	4,33	2,83	2,32	1,69	2,51	3,97	103,	29,6	9,76	7,25	8,22	89,6	40,4	13,5	8,87	6,80	4,94	4,94	5,25	9,25
6	6,56	13,2	9,69	4,08	30,6	50,1	51,6	28,0	19,9	40,6	77,4	8,25	4,36	5,13	2,56	2,84	33,3	7,13	4,34	3,14	5,07	1,55	1,81	5,79
7	25,3	4,64	1,56	1,81	4,10	2,05	1,92	3,57	5,58	3,96	29,5	5,14	3,64	3,74	3,52	2,01	1,62	1,74	2,24	2,55	2,12	1,61	1,28	1,87
8	2,46	1,55	1,49	2,32	2,62	2,68	2,91	4,37	12,3	2,06	2,27	1,47	2,88	2,24	3,65	2,55	2,36	2,59	2,95	3,09	3,53	3,17	2,11	1,64
9	4,32	2,19	1,93	1,81	2,05	2,65	3,40	3,86	2,13	1,76	1,92	1,81	6,06	4,11	3,97	2,27	2,05	1,84	2,03	1,47	2,63	1,78	1,84	1,73
10	1,53	1,51	1,74	1,75	2,23	1,18	1,49	2,37	1,82	1,75	1,63	1,73	1,50	1,38	1,59	1,46	1,93	2,16	2,14	3,40	1,63	1,78	2,03	1,96
11	3,31	5,12	2,78	2,42	1,96	4,42	2,87	2,05	1,90	1,10	2,45	1,58	1,81	2,26	2,12	2,03	48,6	10,9	3,78	2,18	2,11	2,23	2,61	2,61
12	1,81	2,93	1,66	1,79	1,61	1,89	1,98	1,66	1,66	1,65	1,53	1,73	3,32	1,80	1,46	1,63	2,00	1,56	2,19	1,92	1,41	1,60	1,76	1,70
13	2,41	1,94	1,86	1,58	1,46	1,42	1,37	1,66	1,60	1,53	2,22	2,71	1,67	1,85	2,02	3,01	11,9	25,5	18,2	9,83	7,02	5,95	4,70	3,64
14	3,19	3,08	2,77	2,33	3,86	4,42	2,34	2,91	1,81	1,98	4,12	2,72	2,04	1,81	1,74	1,72	1,58	1,60	1,90	1,73	1,55	68,5	43,5	13,5
15	5,26	3,83	2,81	6,06	11,3	1,68	1,38	1,43	2,28	4,96	2,71	2,57	1,92	1,57	1,26	1,37	1,45	2,51	1,28	1,03	1,06	1,00	1,01	1,09
16	1,14	1,07	1,28	1,23	1,45	1,18	1,19	1,10	1,16	1,02	2,00	1,06	1,26	1,32	0,93	0,86	0,86	1,08	1,27	1,66	10,1	31,4	8,08	5,47
17	2,89	1,95	1,53	1,20	1,29	1,22	0,81	0,98	0,92	0,91	0,71	0,74	0,65	0,62	1,12	0,57	0,75	0,72	0,56	0,58	0,58	0,50	0,56	0,57
18	0,49	1,49	0,54	0,66	0,62	0,56	0,78	0,45	0,44	0,63	0,57	0,70	1,09	1,28	1,43	1,26	0,66	1,52	0,59	0,57	0,66	1,02	1,05	1,18
19	1,00	0,70	1,08	0,89	0,55	0,65	0,51	0,42	0,48	0,57	0,43	0,35	0,54	0,35	0,41	0,46	0,51	1,43	4,15	1,05	1,44	0,43	0,50	0,66
20	0,35	0,44	1,15	1,00	0,61	0,38	0,46	0,36	0,33	0,39	0,42	0,45	0,54	1,37	0,53	0,35	0,48	0,47	0,96	0,78	0,46	0,40	0,36	0,35
21	0,55	1,10	0,98	0,46	0,46	0,34	0,30	0,35	0,31	0,32	0,38	0,31	0,46	0,74	0,32	0,33	0,34	0,25	0,26	0,74	0,42	0,44	0,28	0,27
22	0,47	0,37	0,32	0,29	0,29	0,30	0,39	0,40	0,31	0,33	0,60	0,42	0,29	0,33	0,33	0,41	0,53	0,24	0,27	0,36	0,56	0,26	0,44	0,37
23	0,32	0,36	2,09	2,00	0,29	0,26	0,25	0,20	0,24	0,56	0,23	0,31	0,29	0,19	0,27	0,31	0,19	0,54	0,30	0,47	0,31	0,30	0,34	0,30
24	0,59	0,34	0,26	0,52	0,40	0,30	0,27	0,32	0,54	0,28	0,30	0,31	0,36	0,31	0,30	0,40	0,54	0,30	0,40	0,90	0,57	0,27	0,29	0,29
25	0,30	0,51	1,27	0,49	0,39	0,28	0,32	0,30	0,38	0,42	0,32	0,30	0,26	0,30	0,36	0,39	0,29	0,23	0,27	0,34	0,26	0,44	0,32	0,24
26	0,31	0,32	0,24	0,28	0,43	0,45	0,43	0,38	0,38	0,36	0,35	0,41	0,39	0,38	0,39	0,57	0,42	0,60	0,59	0,44	0,50	0,37	0,36	0,40
27	0,37	0,53	0,73	0,36	0,39	0,62	0,64	0,48	0,32	0,25	0,33	0,27	0,37	0,29	0,31	0,28	0,27	0,24	0,21	0,49	0,48	1,36	1,24	0,73
28	0,57	0,59	0,52	0,62	0,47	0,43	0,43	0,40	0,42	0,37	0,38	0,34	0,30	0,31	0,33	0,23	0,20	0,33	0,26	0,26	0,24	0,28	0,29	0,30
29	0,29	0,33	0,31	0,52	0,39	0,39	0,39	0,33	0,34	0,32	0,29	0,39	0,34	0,40	0,33	0,58	0,93	0,52	0,89	0,36	0,39	0,45	0,54	0,47
30	0,60	0,68	0,69	0,69	0,74	4,21	2,62	1,25	0,91	1,28	0,66	0,53	0,55	0,52	0,47	0,59	0,90	0,99	0,88	0,77	0,65	0,70	0,58	0,94

SOLAR X-RAYS MEASURED BY SATELLITE
SOLRAD 9 - EXPLORER 37

JUNE 1969

NAVAL RESEARCH LABORATORY 8=20A HOURLY AVERAGES (10^{-2} ergs/cm^2/sec.)

DAY	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
1	1,93	1,50	1,42	1,27	1,17	1,19	0,94	0,89	0,85	0,85	0,89	1,00	0,96	0,93	0,90	1,04	1,24	1,32	1,51	1,29	1,20	1,08	1,07	1,00
2	1,26	1,45	1,44	1,45	1,30	1,05	1,01	1,03	1,12	1,35	1,42	1,50	1,54	1,18	1,32	1,32	1,39	1,18	1,08	1,02	1,10	1,17	1,12	1,20
3	1,17	2,21	1,31	1,21	3,33	2,43	1,62	2,90	1,67	2,26	2,56	2,06	2,26	1,91	1,75	1,66	1,68	1,78	1,94	2,60	3,48	3,09	2,34	2,23
4	2,72	2,61	3,42	2,19	1,99	2,20	6,65	2,66	2,47	2,55	3,08	3,33	3,81	3,26	2,81	3,82	4,23	7,69	3,27	3,21	2,78	2,74	2,59	2,38
5	3,32	4,04	5,35	4,57	4,04	3,13	3,10	2,46	3,24	3,56	32,5	12,4	6,20	5,30	6,29	35,1	20,1	9,50	6,79	5,75	4,60	4,94	5,03	6,38
6	5,61	8,13	7,36	4,38	10,8	15,8	20,8	16,0	10,9	11,2	24,4	7,42	4,68	4,30	3,52	3,78	13,6	5,68	4,34	3,26	4,43	2,50	2,64	4,45
7	11,1	5,43	2,60	2,78	3,34	2,65	2,74	3,36	4,68	4,08	12,5	4,10	3,84	4,12	3,96	2,94	2,64	2,67	2,90	2,99	2,84	2,43	2,28	2,42
8	2,84	2,39	2,41	2,72	3,04	2,61	3,46	3,18	6,55	3,23	2,91	2,42	2,71	2,86	3,68	2,82	2,97	2,97	3,11	3,71	3,72	4,00	3,00	2,75
9	4,17	3,07	2,73	2,85	2,72	3,12	3,42	3,88	3,23	2,92	2,65	2,91	4,17	3,72	3,56	3,09	2,84	2,79	2,84	2,34	2,97	2,64	2,70	2,54
10	2,48	2,35	2,57	2,55	2,91	2,29	2,31	2,82	2,34	2,58	2,91	2,71	2,44	2,18	2,44	2,43	2,67	2,99	2,74	3,60	2,81	2,74	2,84	2,86
11	3,74	3,96	3,16	3,26	2,60	4,06	3,70	3,16	2,83	2,53	3,06	2,58	2,65	2,95	2,82	2,80	15,7	7,02	4,03	3,13	2,91	3,22	3,53	3,70
12	2,91	3,29	2,76	2,67	2,76	3,06	3,09	3,09	2,97	2,74	2,86	2,92	3,90	2,78	2,52	2,62	2,79	2,61	3,15	2,86	2,61	2,62	2,73	2,75
13	3,55	3,01	2,76	2,70	2,60	2,46	2,49	2,69	2,73	2,80	3,48	3,86	2,87	3,02	3,12	3,59	7,47	15,5	12,5	8,66	6,53	6,27	5,24	4,97
14	4,43	4,08	3,88	3,90	4,15	4,95	3,92	3,95	3,72	3,66	4,28	4,27	3,65	2,99	2,96	2,87	2,85	2,71	3,40	3,25	3,06	18,5	15,0	8,40
15	5,33	4,37	3,82	4,53	7,47	2,56	2,53	2,63	2,96	4,27	4,00	3,54	3,06	2,66	2,42	2,48	2,41	2,93	2,36	2,24	2,19	2,08	2,17	2,17
16	2,17	2,14	2,28	2,17	2,29	2,18	2,18	2,09	2,13	2,02	2,34	1,91	1,92	2,12	1,92	1,80	1,82	1,82	2,04	2,28	3,86	11,9	5,30	3,95
17	3,22	2,52	2,31	2,15	2,10	2,06	1,81	1,84	1,81	1,77	1,59	1,56	1,46	1,44	1,72	1,38	1,45	1,46	1,34	1,26	1,19	1,19	1,23	1,25
18	1,23	1,24	1,24	1,29	1,31	1,18	1,31	1,18	1,14	1,30	1,28	1,34	1,56	1,69	1,77	1,74	1,35	1,56	1,20	1,24	1,35	1,74	1,61	1,51
19	1,54	1,36	1,51	1,50	1,24	1,22	1,16	1,08	1,04	1,10	1,04	0,89	1,01	0,91	0,93	0,98	1,08	1,41	3,30	1,69	1,55	1,01	0,92	1,12
20	0,95	0,95	1,33	1,38	1,13	0,90	0,95	0,91	0,86	0,88	0,91	0,93	0,99	1,41	1,03	0,90	0,92	0,99	1,27	1,15	0,96	0,90	0,92	0,87
21	0,93	1,34	1,23	0,93	0,84	0,60	0,79	0,82	0,83	0,85	0,86	0,78	0,84	1,05	0,79	0,81	0,86	0,80	0,81	1,06	0,83	0,83	0,77	0,78
22	0,94	0,84	0,80	0,76	0,76	0,78	0,86	0,84	0,82	0,79	0,97	0,78	0,77	0,77	0,76	0,77	0,99	0,80	0,70	0,64	0,67	0,67	0,71	0,71
23	0,72	0,74	1,43	1,66	0,73	0,66	0,67	0,66	0,67	0,84	0,67	0,74	0,73	0,69	0,69	0,72	0,76	0,97	0,86	0,84	0,79	0,77	0,79	0,73
24	0,80	0,73	0,73	0,92	0,82	0,74	0,75	0,76	0,96	0,74	0,74	0,74	0,79	0,77	0,75	0,76	0,95	0,84	0,91	1,15	0,91	0,72	0,71	0,75
25	0,76	0,67	1,37	0,98	0,90	0,75	0,75	0,75	0,82	0,86	0,77	0,75	0,74	0,77	0,77	0,86	0,84	0,78	0,75	0,70	0,75	0,72	0,78	0,74
26	0,71	0,75	0,72	0,73	0,83	0,85	0,84	0,81	0,80	0,84	0,82	0,84	0,85	0,85	0,85	0,86	0,91	1,05	1,08	1,00	0,95	0,94	0,84	0,84
27	0,81	0,94	1,08	0,83	0,81	0,97	1,00	0,91	0,77	0,72	0,72	0,70	0,72	0,73	0,72	0,69	0,66	0,62	0,64	0,62	0,87	1,28	1,25	1,08
28	0,97	1,02	0,94	0,99	0,87	0,79	0,83	0,84	0,83	0,85	0,79	0,76	0,75	0,76	0,72	0,65	0,72	0,67	0,79	0,69	0,64	0,63	0,71	0,69
29	0,72	0,77	0,77	0,96	0,86	0,84	0,75	0,74	0,77	0,73	0,73	0,80	0,76	0,76	0,82	0,86	1,19	0,91	0,78	0,82	0,84	0,92	0,93	0,93
30	1,02	1,02	1,10	1,18	1,19	2,72	2,27	1,55	1,36	1,50	1,21	1,08	1,12	1,09	1,00	1,14	1,40	1,61	1,35	1,15	1,22	1,27	1,17	1,34

SOLAR X-RAYS BY SATELLITE

EXPLORER 37

JUNE 1969

NAVAL RESEARCH LABORATORY

OUTSTANDING EVENTS

DAY	START TIME	0.5-3A FLUX XE-5	PEAK TIME	1-8A FLUX XE-4	PEAK TIME	8-20A FLUX XE-3	PEAK TIME	END TIME	COMMENTS
3	0126	24.00	0131	74.00	0132	40.00	0133	0144	
3	0421	27.00	0435	130.00	0441	53.00	0443	0504	
3	0737E	10.00D	0737E	73.00	0742	53.00	0740	0751	X-RAYS DECREASING
3	0922	2.20D	0933D	37.00	0930	25.00D	0933D	0933	
3	0954	11.00	0958	52.00	0959	29.00	1010	1016D	
3	1140	11.00	1142	53.00	1144	28.00	1145	1151	
3	1236	3.30	1240	33.00	1240	25.00D	1243D	1243	
3	1907E	3.30D	1907E	32.00D	1907E	29.00D	1907E	1915	X-RAYS DECREASING
3	2000	29.00D	2007D	88.00D	2007D	40.00D	2007D	2119	
4	0003	4.50	0004	33.00	0005	40.00	0007	0011	
4	0211	31.00	0217	130.00	0218	40.00	0232	0248D	
4	0637E	120.00	0640	340.00	0641	110.00	0642	0701	
4	1030	8.90	1032	62.00	1032	40.00	1053	1054D	
4	1148	3.50	1156	38.00	1156	40.00D	1203D	1203	
4	1205	3.30	1207	33.00D	1210D	40.00D	1210D	1210	
4	1221	16.00	1227	77.00	1227	40.00D	1233D	1233D	
4	1315	12.00	1317	56.00	1319	40.00D	1326D	1326	
4	1503	32.00	1547	96.00	1549	53.00D	1550D	1550D	
4	1628E	4.50	1634	44.00	1634	40.00D	1641D	1641	
4	1643	98.00D	1657D	170.00D	1657D	80.00D	1657D	1657D	
4	1708E	110.00D	1708E	210.00D	1708E	93.00	1712	1728D	
4	1855	3.30D	1855E	32.00D	1900D	40.00	1858	1900	
4	1950	2.20	1959	34.00D	2000D	40.00E	2000E	2000	
5	0042	4.50	0106	54.00	0056	53.00	0104	0144D	
5	0220E	57.00	0229	130.00	0248	67.00	0259	0320D	
5	0408	3.30	0412	34.00	0410	53.00	0411	0414	HIGH BACKGROUND
5	0416	21.00	0427	91.00	0427	53.00	0441	0452	
5	0756	5.60	0758	41.00	0759	40.00D	0804D	0804	
5	0930E	130.00D	1100E	1900.00D	1032E	490.00	1033	1450D	
5	1528E	130.00D	1553E	1200.00D	1528E	410.00	1530	2302	
5	2340E	14.00	2341	130.00	2348	80.00	2353	0041D	X-RAYS DECREASING
6	0001E	23.00	0036	85.00	0002	67.00	0033	0041D	EXTREMELY HIGH
6	0119E	36.00D	0119E	170.00	0144	93.00	0204	0224D	BACKGROUND LEVELS
6	0257E	4.50	0330	49.00	0300	53.00	0349	0358D	WITH FLARES AT
6	0436E	130.00D	0528E	690.00	0513	200.00	0514	0537D	0500,0629,0820,
6	0614E	130.00D	0653E	900.00	0645	290.00	0648	0715D	AND 0946
6	0753E	88.00	0830	300.00	0835	130.00	0847	0854D	
6	0932E	130.00D	1020E	1300.00	1001	270.00	1022	1211	
6	1249E	21.00	1302	91.00	1303	53.00	1329	1347	
6	1518	5.60	1520	38.00	1521	40.00D	1526D	1526	
6	1606E	130.00D	1644E	940.00	1608	240.00	1610	1625D	
6	1625E	130.00D	1630D	430.00D	1630D	140.00D	1630D	1707D	
6	1754	17.00	1823	77.00	1823	53.00	1832	1841	COMPLEX EVENT
6	1955	52.00D	1955E	86.00	1958	53.00	2008	2015	
6	2307	19.00	2311	84.00	2314	53.00D	2326E	2326	
7	0023E	130.00D	0030E	990.00D	0023E	240.00D	0023E	0124D	X-RAYS DECREASING
7	0419	32.00	0432	86.00	0433	53.00	0433	0437D	COMPLEX EVENT
7	0559	6.70	0600	32.00	0603	40.00	0603	0604	
7	0733	21.00	0746	94.00	0750	67.00	0753	0932D	
7	1010E	120.00D	1010E	770.00D	1010E	230.00D	1010E	1216D	X-RAYS DECREASING
7	1216E	4.50	1223	44.00	1224	40.00D	1249E	1249D	
7	1327E	3.30	1350	50.00	1329	53.00	1343	1352	2 EVENTS
7	1355	4.50	1418	44.00	1422	40.00D	1426E	1426D	
7	1842	7.80	1844	38.00	1847	40.00	1847	1850	
7	2050	5.60	2051	35.00	2056	40.00D	2058E	2058	
8	0001E	11.00D	0001E	36.00	0002	40.00	0005	0006	X-RAYS DECREASING
8	0328	12.00	0329	50.00	0330	40.00	0335	0337D	
8	0426E	3.30	0432	38.00	0429	40.00D	0435D	0435	
8	0603	5.60	0622	41.00	0614	40.00D	0629D	0629	
8	0751	100.00	0801	260.00	0801	80.00	0812E	0832D	
8	0945	4.50	0947	36.00	0949	40.00D	0956D	0956	
8	1000	6.70D	1000E	44.00	1003	40.00D	1007D	1007D	
8	1227E	14.00D	1227E	51.00D	1227E	40.00	1229	1232	X-RAYS DECREASING
8	1405E	6.70	1406	50.00	1406	53.00	1422	1455	X-RAYS DECREASING
8	1800	7.80D	1800D	51.00	1805	53.00	1802	1806	
8	1937	6.70	1941	53.00	1943	53.00	1944	1947	
8	1949	4.50	1953	39.00	1954	40.00	1959	2002D	
8	2040E	3.30	2042	38.00	2053	40.00	2104	2112	X-RAYS DECREASING
8	2125	11.00	2119	60.00	2122	53.00	2123	2130	
9	0004	10.00	0009	65.00	0010	53.00	0027E	0041	COMPLEX EVENT
9	0540	3.30	0543	34.00	0549	40.00	0550	0552	
9	0631E	2.20D	0642E	83.00D	0631E	40.00D	0643E	0643	
9	0713	21.00	0716	73.00	0716	40.00D	0728E	0728	
9	1206	24.00	1221	95.00	1226	53.00D	1228D	1228D	COMPLEX EVENT
9	1314	13.00D	1407D	82.00D	1407D	53.00D	1407D	1407D	X-RAYS INCREASING
9	2007	10.00	2009	48.00	2022E	40.00	2021E	2025	
9	2352	7.80	2354	38.00	2355	29.00	2355	2358D	
10	0737	31.00	0738	70.00	0738	40.00	0743E	0743	
10	1710	5.60	1712	39.00	1713	40.00	1714	1716	
10	1856	19.00	1903	71.00	1904	53.00	1906	1915	
10	2356	11.00	0003	56.00	0002	40.00	0010E	0010	
11	0143	71.00	0146	170.00	0148	80.00	0149	0208	
11	0307	5.60	0310	38.00	0313	40.00	0318E	0318	
11	0503	6.70	0506	44.00	0506	40.00	0508E	0508	
11	0511	29.00	0522	91.00	0524	53.00	0528	0529	COMPLEX EVENT
11	0615	7.80	0641	47.00	0641	40.00	0644E	0644	
11	1004	6.70	1005	41.00	1007	40.00	1009E	1009	
11	1326	13.00	1329	46.00	1329	40.00	1335E	1335	
11	1617	130.00D	1652E	1100.00	1629	270.00	1637	1834	
12	0103	24.00	0105	58.00	0106	40.00	0112E	0112	
12	1221	6.70	1231	56.00	1231	53.00	1244E	1245	
12	1849	8.90	1849	45.00	1852	40.00	1855E	1855	
13	1128	5.60	1129	42.00	1130	40.00	1133E	1133	
13	1648E	40.00	1720	300.00	1737	160.00	1749	0150	
14	0448	10.00	0522	67.00	0458	53.00	0550E	0551D	
14	0724	4.50	0727	43.00	0726	53.00	0728	0729D	
14	0901	5.60	0902	38.00	0905	53.00	0907	0908D	
14	1026	20.00	1041	91.00	1044	67.00	1046	1131	
14	2113E	130.00D	2210E	820.00	2122	200.00	2130	0134D	X-RAYS DECREASING
15	0233	3.30	0236	33.00	0235	40.00	0239	0240	
15	0648E	73.00	0406	210.00	0414	110.00	0417	0451D	COMPLEX EVENT
15	0925	32.00	0928	96.00	0929	53.00	0947E	0947D	
15	1119	4.50	1120	36.00	1120	40.00	1125E	1125	
15	1747	33.00	1749	90.00	1750	53.00	1749	1800D	
16	1013	19.00	1014	55.00	1015	40.00	1016	1019	
16	1255	140.00D	1308E	110.00D	1308E	29.00D	1308E	1308	
16	2052E	130.00D	2112E	640.00	2107	190.00	2111	0021	
18	1733	20.00	1736	62.00	1737	40.00	1735	1739	
19	1753E	8.90	1800	55.00	1804	40.00D	1807E	1820D	
19	1820E	7.00	1836	48.00	1838	40.00	1840	1857D	
23	0251	29.00	0253	96.00	0254	40.00	0302E	0305	
24	0046	12.00	0047	33.00	0049	16.00D	0050D	0050D	
30	0522	10.00	0534	60.00	0532	40.00	0540	0607	

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS
JUNE 1969

JUN. 1969 DATE	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT.	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT.	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT.	SPECTRAL TYPE
06 01	0000	0138	HARV										
	0000	0728	CULG				0403	0404.5	1				IIIG,V
	1231	2400	HARV				1405	1406	1				IIIG
			HARV				1408	1409	1				IIIG
			HARV				1512	1513	1				IIIG
	1414	2400	BOUL				1512.3	1512.8	2	1512.3	1512.8	2	III
			BOUL				1523.8	1524.2	2	1523.8	1524.2	2	III
			BOUL				1542.8	1550.2	2	1542.8	1550.2	2	IIIG
	0416	1832	WEIS				1543.1	1543.5	1				IIIB
	0900	0100	SGMR							1543.5	1544.4		IIIB
			SGMR							1549.7	1550.1		IIIB
			BOUL				1704.5	1704.8	1	1704.5	1704.8	1	III
			HARV				1719	1720	2	1719	1720	2	UNCLF
			BOUL				1719	1723.3	3	1719	1723.3	3	IIIG
			SGMR							1719.5	1721		IIIB
			HARV				1722	1723	2	1722	1723	2	IIIG
			SGMR							1722.6	1724		IIIB
			BOUL				1723.3	1811	3	1723.3	1811	3	IV
			SGMR							1730	1830		IV
			HARV				1742	1743	1	1742	1743	1	UNCLF
			SGMR							1745	1750		IIIB
			HARV				1746	1749	2	1746	1749	2	UNCLF
			BOUL				1832.9	1833.2	2	1832.9	1833.2	2	III
	2038	2400	CULG										
06 02	0000	0139	HARV										
	0000	0200	BOUL				0027.3	0029.6	1	0027.3	0029.6	1	IIIG
	0000	0449	CULG				0032.5		1				IIIG
			CULG				0306	0308	1				IIIG
	0417	1832	WEIS										
	0900	0100	SGMR										
	1231	2400	HARV										
	1424	0200	BOUL										
06 03	0000	0140	HARV										
	0415	1832	WEIS										
	0900	0100	SGMR										
	1231	2400	HARV										
	1424	1451	BOUL										
	1520	0202	BOUL										
	2041	2400	CULG										
06 04	0000	0012	HARV										
	0000	0049	CULG										
	0053	0137	CULG										
	0239	0730	CULG										
	0900	0100	SGMR										
	0414	1832	WEIS				1030.2	1031.5	1				UNCLF
	1423	0200	BOUL				1527.8	1528.7	2	1527.8	1528.7	2	IIIG
			WEIS				1528.1	1528.4	1				IIIB
			WEIS				1528.5	1528.7					IIIB
	1231	2400	HARV				1601	1602	1				IIIG
			WEIS				1751.1	1751.3	2				IIIB
			BOUL				1822.5	1825	2	1822.5	1825	2	IIIG
	2039	2400	CULG										
06 05	0000	0142	HARV				0050	0140	1				I
	0000	0730	CULG				0305	0405	1				I
	0515	1830	WEIS				0953.5	1025	3				IV
			WEIS				0954.1	1014.1	3				IIIGG
			WEIS				0957	1014	3				II
	1231	2400	HARV				1340	1807	1	1538	1807	1	I
	1428	0200	BOUL				1428	1823	3	1428	1823	3	CONT
			WEIS				1443	1700	2				IIIGG,DP
			WEIS				1445	1830	2				IV
			HARV	1451	1515	2	1451	1515	2				IV
			HARV				1500	1505	1				II
			HARV				1507	1516	2				UNCLF
			HARV	1515	1646	1							IVN
	0900	0100	SGMR							1528	1610		IV
			HARV				1822	2345	1				IN
			BOUL							1823	2126.8	1	CONT
			HARV	1826	1853	2							IV
			HARV	1853	2020	1							IV
	2224	2247	CULG										
			HARV	2256	2308	2							IIIGG
	2251	2304	CULG				2259.5		1				IIIB
			BOUL				2303.2	2305.6	2	2303.2	2305.6	2	IIIG
	2315	2400	CULG										
06 06	0000	0142	HARV										
	0000	0343	CULG										
	0354	0401	CULG										
	0402	0436	CULG										
	0415	0530	WEIS										
	0437	0729	CULG										
	0643	1835	WEIS				0700	0730	1				IS
	1420	2400	BOUL				1508	1509.1	2	1508	1509.1	2	IIIG
			BOUL							1610.4	1640.5	1	CONT
			BOUL				1612.7	1616.6	2	1612.7	1616.6	2	IIIG

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JUNE 1969

JUN. 1969 DATE	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.	
06 06	1231	2400	HARV				1613	1617	1	1613	1617	1	IIIG
			BOUL				1640.6	1641	1	1640.6	1641	1	III
			BOUL				1817.3	1820.7	2	1817.3	1820.7	2	IIIG
	0900	0100	SGMR							1817.7	1822		IIIG
			HARV				1818	1821	2	1818	1821	2	IIIG
			BOUL				2133.3	2134	2	2133.3	2134	2	III
			HARV				2144	2356	1				IN
	2208	2400	CULG				2210	2252	1				I
			CULG				2210	2255	1				IIIN
			HARV				2224	2226	1				IIIG
			BOUL							2224.2	0008	1	CONT
			HARV				2229	2234	1				IIIG
			HARV				2323	2327	1				IV
			CULG				2355	2400	1				IIIN
06 07	0000	0613	CULG				0000	0032	1				IIIN
	0000	0142	HARV				0026	0140	1				IN
			CULG				0050		1				IIIB
	0000	0200	BOUL				0051.6	0053.5	2	0051.6	0053.5	2	IIIG
			BOUL				0101.5	0106.3	2	0101.5	0106.3	2	IIIG
			CULG				0105	0106.5	1				IIIG
			CULG				0201	0202	1				IIIG
			CULG				0211	0613	1				IIIN
			CULG				0311	0311.5	1				IIIG
			CULG				0351.5	0353	1				IIIG
			CULG				0546	0547	2				IIIG
	0415	1835	WEIS				0546.1	0547.3	2				IIIG,DP
			CULG				0611.5	0612.5	1				IIIG
			WEIS				0749.3	0754	2				IIIGG,RS
			WEIS	0953	0959	1							IV
			WEIS				0954.4	0955.3	1				IIIG
			WEIS				1011.5	1011.7	2				IIIB
			WEIS				1109.5	1109.7	1				IIIB
	1230	2400	HARV	1329	1330	1	1329	1330	2				IIIG
			WEIS				1329.1	1329.8	2				IIIG
			HARV				1431	1432	1	1431	1432	1	IIIG
	1420	2400	BOUL				1431	1920	1	1431	1920	1	CONT
			BOUL				1431.3	1432.5	2	1431.3	1432.5	2	III
			WEIS				1431.4	1432	2				IIIG
			BOUL				1458.9	1505.8	2	1458.9	1505.8	2	IIIG
			HARV				1500	1505	1	1500	1505	1	IIIGG
			WEIS				1500	1505.8	2				IIIG
	0900	0100	SGMR							1502	1508		IIIG
			HARV	1517	1518	2	1517	1518	2				IIIG
			WEIS				1517	1518.3	3				IIIG
			HARV				1559	2000	1				IN
			HARV				1645	1648	1	1645	1647	1	IIIGG
			HARV				1752	1753	2	1752	1753	3	IIIG
			BOUL				1752	1752.8	2	1752	1752.8	2	III
			SGMR							1752.4	1753.5		IIIB
			BOUL				1907.8	1915.3	3	1907.8	1915.3	3	IIIG
			HARV				1909	1915	3	1909	1915	3	IIIGG
			SGMR							1909.2	1915		IIIG
			BOUL							1951.9	1952.4	1	III
			BOUL							2002	2002.7	1	III
			HARV				2026	2400	1				I
			BOUL				2036.5	2037.7	2	2036.5	2037.7	2	III
			SGMR							2037	2038		IIIB
	2152	2400	CULG				2152	2345	1				IIIN
			BOUL				2224.8	2235.7	2	2224.8	2235.7	2	IIIGG
			HARV				2225	2228	1	2226	2228	1	IIIG
			CULG				2225	2229	1				IIIG
			CULG				2231	2236	2				IIIGG
			HARV				2232	2235	2	2233	2235	2	IIIGG
			SGMR							2233.7	2236		IIIG
			CULG				2323	2330	1				IIIG
			CULG				2357	2358	1				IIIG
06 08	0000	0142	HARV				0000	0140	1				IN
	0000	0603	CULG				0028	0033	1				IIIG
	0000	0200	BOUL				0028.4	0033	2	0028.4	0033	2	IIIG
			CULG				0141	0142	1				IIIG.
			CULG				0233	0237	1				IIIGG
			CULG				0241	0243	1				IIIGG
			CULG				0253.5		1				IIIB
			CULG				0303	0308	1				IIIG
			CULG				0336		1				IIIB
			CULG				0517	0525	2				IIIGG,V
	0413	1825	WEIS				0517.9	0525	2				IIIGG,DP
			CULG				0525	0532	1				IIIGG
	0900	0100	SGMR										
			WEIS	1129	1129.2	1							IIIB,RS
	1231	2400	HARV				1327	1716	1				IN
			WEIS				1421	1538	1				IS
	1419	0200	BOUL							1938.2	1938.8	2	III
			BOUL							2057.5	2057.9	2	III
	2141	2400	CULG				2200		1				IIIB

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JUN. 1969 DATE	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.	
06 09	0000	0555	CULG				0053.5		1				IIIB,U
	0000	0142	HARV				0055	0141	1				I
			CULG				0135		1				IIIB
			CULG				0145	0207	1				I
			CULG				0243		1				IIIB
			CULG				0320		1				IIIB
			CULG				0357.5		1				IIIB
			CULG				0401		1				IIIB
			CULG				0452	0555	1				I
	0649	1835	WEIS										
	0900	0100	SGMR										
	1231	2400	HARV				1245	1400	1				I
			HARV				1400	2400	1				IN
	1433	0200	BOUL										
	2147	2400	CULG				2147	2340	1				I
06 10	0000	0639	CULG				0000	0030	1				I
	0000	0143	HARV				0000	0141	1				I
			CULG				0006		1				IIIB
			CULG				0204	0205	1				IIIG
	0426	1836	WEIS				0435	1836	2				IN
			CULG				0528	0639	2				I
			CULG				0538	0639	1				IIIN
	0900	0100	SGMR										
	1231	2400	HARV				1231	2100	2				IC
	1418	0200	BOUL				1444.7	1445.6	1	1444.7	1445.6	1	IIIG
			BOUL				1522.5	1627.2	1	1522.5	1627.2	1	CONT
			BOUL				1607.3	1607.8	2	1607.3	1607.8	2	III
			WEIS				1607.6	1607.8	3				IIIB
			HARV				2100	2400	1				IN
	2138	2400	CULG				2153	2154	1				UNCLF
			CULG				2209	2343	1				I
			CULG				2229	2230	1				IIIG
			CULG				2241	2244	1				IIIG
			CULG				2337		1				IIIG
06 11	0000	0143	HARV				0000	0140	1				IN
	0000	0559	CULG				0009		1				IIIB
			CULG				0040	0041	1				IIIG
			CULG				0149	0150	1				IIIG
			CULG				0235	0256	1				IIIN
			CULG				0350	0559	1				I
	0425	1837	WEIS				0425	1837	1				IN,C
			CULG				0506	0518	1				IIIN
			WEIS				0651.7	0651.9	2				IIIB
			WEIS				0915.2	0915.5	1				IIIG
	1231	2400	HARV	1231	1620	2	1231	2120	2				IC
			HARV				1345	1353	1				IIIGG
	1422	0200	BOUL				1422 E	1645	2	1422 E	1645	2	CONT
			BOUL				1559.4	1607.4	2	1559.4	1607.4	2	IIIG
			HARV				1606	1607	1	1606	1607	1	IIIG
			BOUL				1614.4	1615.2	3	1614.4	1615.2	3	III
			WEIS				1614.8	1615.2	2				IIIB
			HARV				1615		3	1615		3	IIIG,V
	0900	0100	SGMR							1615	1616		IIIB
			BOUL				1618.5	1630.8	3	1618.5	1630.8	3	IIIGG
			HARV				1619	1625	3	1619	1625	3	IIIGG,V,U
			HARV	1619	1643	2	1619	1628	2				IV
			SGMR							1620	1623		IIIG
			WEIS				1620.6	1622.2	3				IIIG
			WEIS				1620.8	1622	3				V
			SGMR							1621	1630		II
			WEIS				1622.2	1623.7	2				V
			WEIS				1622.3	1635	3				II
			HARV				1622.4	1640	3	1624	1628	2	II
			WEIS				1625	1815	2				IV
			SGMR							1630	2000		IV
			BOUL				1633	1648.5	2	1633	1648.5	2	II
			BOUL				1642.5	2030	3	1642.5	2030	3	IV
			HARV	1643	1738	3	1643	1738	3				IV
			HARV	1738	1810	2	1738	1840	2				IV
			HARV				1739	1955	2	1739	1955	2	IIIS
			HARV				1745	1830	2	1745	1830	2	UNCLF
			HARV				2012	2212	1	2018	2212	1	IIIN
			HARV				2018	2019	2				IIIG
			BOUL				2030	0148	2	2030	0148	2	CONT
			HARV	2120	2400	1	2120	2400	1				IC
	2216	2400	CULG				2216	2400	1				I
06 12	0000	0144	HARV				0000	0144	2				IC
	0000	0551	CULG				0000	0245	2				I
			CULG				0137	0315	1				IIIN
			CULG				0245	0550	1				I
	0415	0515	WEIS				0417	0510	1				IS
	0635	1315	WEIS										
	0900	0100	SGMR										
	1231	2400	HARV				1231	2400	1				IN
			HARV				1738	1742	1	1739	1742	1	IIIG
	1428	0200	BOUL				1802	1806.2	2	1802	1806.2	2	IIIG

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JUN. 1969 DATE	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.	
06 12	2145	2400	CULG				2110	2117	1				I
			CULG				2116		1				IIIB
							2143	2144	1				IIIG
06 13	0000	0144	HARV				0000	0118	1				IN
	0000	0557	CULG				0028	0029.5	1				IIIG,U
	1231	2400	HARV	0029		1	0028	0030	2				IIIGG
			CULG				0101	0102.5	1				IIIG,U
			HARV				0101	0103	1				IIIGG
			CULG				0113.5		1				IIIB
			CULG				0440	0525	1				IIIN
			HARV				1231	2322	1				IN
	1430	0200	BOUL							1635.5	1644.1	3	II
	0900	0100	SGMR							1636.5	1647		II
			BOUL							1644.1	1810	1	CONT
	1715	1859	WEIS										
	2153	2400	CULG				2159	2220	1				I
			CULG				2221.5		1				IIIB
			CULG				2229.5		1				IIIB
			CULG				2242	2245	1				IIIG
			CULG				2315		1				IIIB
			HARV				2322	2400	1				I
			CULG				2324	0451	1				I
06 14	0000	0144	HARV				0000	0144	1				IN
	0000	0601	CULG				0112						IIIB
			CULG				0354.5	0435	1				IIIN
			CULG				0545	0601	1				I
	1230	2400	HARV				1230	1551	1				IN
	1428	1517	BOUL				1505.9	1506.2	2	1505.9	1506.2	2	III
			HARV				1506	1507	1	1506	1507	1	IIIG
	1536	2400	BOUL				1536.1	1536.6	2	1536.1	1536.6	2	III
			BOUL				1610.5	1620.4	3	1610.5	1620.4	3	IIIG
			HARV				1614	1615	2	1614	1615	2	IIIG
	0900	0100	SGMR							1614.2	1614.8		IIIB
			BOUL				1710.4	1713.3	1	1710.4	1713.3	1	IIIG
			BOUL				1721.8	1722	1				III
			BOUL				1928.7	1928.9	1				III
			BOUL				2050.4	2057.1	2	2050.4	2057.1	2	IIIG
			HARV				2051	2054	1	2051	2054	1	IIIG
			BOUL				2054	2119	1	2054	2119	1	CONT
			BOUL							2101.9	2105.8	2	IIIG
			HARV				2102	2106	2	2102	2106	2	UNCLF
			HARV				2102	2200	2				I
			BOUL				2119	2300	3	2119	2300	3	CONT
			SGMR							2144	2200		IV
	2154	2400	CULG				2154	2215	1				I,CONT
			HARV	2200	2400	1	2200	2400	1				IN
			CULG				2225	2235	1				IIIN
			BOUL							2300	2355	1	CONT
			CULG				2317	2318	1				I
			CULG				2353	2400	1				I
06 15	0000	0601	CULG				0000	0008	2				I
	0000	0145	HARV				0000	0142	1				IN
			CULG				0015	0015.5	2				IIIG
	0000	0200	BOUL				0015.4	0016	3	0015.4	0016	3	IIIG
			CULG				0406	0556	1				IIIN
	0417	1842	WEIS				0833.5	0833.7	1				IIIB
			WEIS				1112.6	1112.9	1				IIIG
			WEIS				1151.5	1154.2	2				IIIGG
	0900	0100	SGMR							1152.6	1155		IIIG
			SGMR							1308	1308.5		IIIB
			SGMR							1319.2	1322.5		IIIG
	1417	2400	BOUL							1417 E	1836	1	CONT
			BOUL				1421	1423	2	1421	1423	2	IIIG
			BOUL				1511.9	1512.2	2	1511.9	1512.2	2	III
	1216	2400	HARV				1658	2303	1	1658	2303	1	IIIN
			BOUL				1836	0100 D	2	1836	0100 D	2	CONT
			HARV				2026	2029	1	2026	2029	1	IIIG
			HARV	2120	2121	1	2120	2121	1				IIIG
	2142	2400	CULG				2158	2237	1				I
			CULG				2209		1				IIIB
			HARV				2209	2211	2	2209	2211	3	IIIG
			BOUL				2209.1	2216.1	3	2209.1	2216.1	3	IIIG
			SGMR							2209.3	2212		IIIG
			CULG				2210	2211.5	2				IIIG,V
			CULG				2215	2216	1				IIIG
			CULG				2232		1				DP,RS
			CULG				2257	2257.5	1				IIIG,U
			SGMR							2257	2259		IIIG
			BOUL				2257.2	2303.2	3	2257.2	2303.2	3	IIIG
			SGMR							2302.5	2303		IIIB
			CULG				2303	2304	1				IIIG
			CULG				2311	2352	1				IIIN
			CULG				2334		1				DP,RS

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JUN. 1969 DATE	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT.	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT.	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT.	SPECTRAL TYPE
06 16	0000	0145	HARV										
	0000	0605	CULG				0012		1				DP,RS
			CULG				0015		1				IIIB,U
			CULG				0015	0255	1				IIIN
	0000	0200	BOUL				0026.8	0027.2	3	0026.8	0027.2	3	III
			BOUL				0045.2	0046.1	3	0045.2	0046.1	3	IIIG
			CULG				0333	0438	1				N,DP,RS
			CULG				0336	0605	1				IIIN
	0415	1624	WEIS				0622.2	0622.4	1				IIIB
	0900	0100	SGMR										
	1218	2400	HARV				1659	1700	2	1659	1700	3	IIIG
	1430	0200	BOUL				1659.1	1700	2	1659.1	1700	2	IIIG
	1735	1839	WEIS										
			BOUL				1850	2138	1	1850	2138	1	CONT
			HARV				1902	1903	1	1902	1903	1	IIIG
			BOUL				1902.1	1908	2	1902.1	1908	2	IIIG
			HARV				1906	1908	1	1906	1908	2	IIIG
			BOUL				2057.2	2104.2	2	2057.2	2104.2	2	IIIG
			HARV				2134	2135	2				UNCLF
			BOUL				2138	2236	2	2138	2236	2	CONT
	2138	2400	CULG				2154	2159	1				I
			CULG				2155	2216	1				IIIN,U
			HARV	2209	2333	1	2209	2333	1				IN
			HARV	2214	2216	1	2214	2216	2				IIIG
			CULG				2243	2244	1				I
			CULG				2310	2338	1				IIIN
			BOUL				2313.4	2313.8	2	2313.4	2313.8	2	III
			BOUL				2359.9	0000.2	1	2359.9	0000.2	1	III
06 17	0000	0145	HARV				0013	0030	1				IN
	0000	0720	CULG				0044	0046	1				I
			CULG				0056	0720	1				IIIN
	0900	0100	SGMR										
	0414	1840	WEIS				1100.8	1101	1				IIIB
	1430	2400	BOUL				1520	0145 D	2	1520	0145 D	2	CONT
	1217	2400	HARV				1727	1729	2	1727	1729	2	IIIG
			HARV				1737	1742	1	1737	1742	1	IIIG
			HARV				1749	1750	3				IIIG
			WEIS				1749.2	1749.4	2				IIIB
	2040	2400	CULG				2040	2212	1				IIIN
			HARV				2041	2044	1	2041	2044	1	IIIG
			HARV				2240	2241	2				IIIG,U
			CULG				2240	2241	1				IIIG,U
			CULG				2315	2400	1				I
			HARV	2327	2355	1	1833	2355	1				IN
06 18	0000	0225	CULG				0000	0003	1				I
	0000	0145	HARV										
	0000	0200	BOUL				0019.8	0029.6	3	0019.8	0029.6	3	IIIGG
			CULG				0020	0030	1				IIIN
			CULG				0113		1				IIIB
			CULG				0114	0126	1				I
			CULG				0126.5		1				IIIB
			CULG				0214.5		1				IIIG
	0430	0720	CULG				0431	0655	1				I
			CULG				0435	0635	1				IIIN
			CULG				0445		1				IIIB
	0414	1842	WEIS				0457.2	0458	2				IIIG
			CULG				0458	0459	2				IIIG,U
			CULG				0504	0504.5	1				IIIG,U
			WEIS				0504	0504.3	1				IIIG
			WEIS				0506.4	0506.5	1				IIIB
			CULG				0506.5		1				IIIB
			CULG				0614		1				IIIB
			CULG				0625.5		1				IIIG
			WEIS				1200.8	1200.9	1				IIIB
	1217	2400	HARV				1325	1327	2				IIIG
			WEIS				1326.1	1326.5	1				IIIG
			HARV				1508	2202	1	1508	2157	1	IIIN
	1521	2400	BOUL				1521 E	2139	2	1521 E	2139	2	CONT
			HARV				1606		1				U
			HARV	1719	1721	2	1719	1747	1				IN
			WEIS				1730.4	1734.7	2				IIIGG
			BOUL				1731.6	1734.4	3	1731.6	1734.4	3	IIIG
	0900	0100	SGMR							1731.8	1734		IIIG
			HARV	1732	1735	1	1730	1735	3	1731	1734	3	IIIGG,U
			BOUL				1742.1	1747.4	3	1742.1	1747.4	3	II
			BOUL				1906.9	1910.7	3	1906.9	1910.7	3	IIIG
			HARV	1907	1910	3	1907	1910	2	1907	1910	2	IIIGG
			HARV				1915		2				U
			HARV				2000	2235	2				I
	2045	2400	CULG				2105	2107	1				I
			BOUL				2108.3	2120.5	3	2108.3	2120.5	3	IIIGG
			CULG				2109	2113.5	2				IIIGG
			HARV	2109	2115	3	2109	2115	3	2109	2115	3	IIIGG
			SGMR							2109.9	2111		IIIB
			HARV				2118	2120	2	2118	2120	3	IIIG
			CULG				2118	2120.5	1				IIIG
			CULG				2122	2235	2				I,CONT

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JUN. 1969 DATE	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.	
06 18			CULG				2124	2140	1				II
			HARV				2125	2224					DC
			BOUL				2134.9	2138.6	3	2134.9	2138.6	3	II
			BOUL				2139	2230	3	2139	2230	3	CONT
			CULG				2149	2317	1				IIIN
			CULG				2157		2				IIIB
			CULG				2201		2				IIIB
			BOUL				2230	0150 D	1	2230	0150 D	1	CONT
			CULG				2235	2335	1				I
			BOUL				2317.1	2324.6	2	2317.1	2324.6	2	IIIG
			CULG				2335	2400	1				I
			CULG				2336	2350	1				IIIGG
			CULG				2338	2343	2				IIIG,V
			BOUL				2338.1	2343.5	3	2338.1	2343.5	3	IIIG
			CULG				2339	2341	2				IIIG,V
			HARV	2339	2343	2	2338	2344	3	2338	2344	3	IIIGG,V
			HARV				2340	2356	1				I
			BOUL				2344.4	2353	3	2344.4	2353	3	IIIGG
			HARV				2347	2353	1				IIIG
			CULG				2347.5		1				IIIB,U
06 19	0000	0145	HARV										
	0000	0734	CULG				0000	0302	1				I
	0000	0200	BOUL				0015.4	0016.1	3	0015.4	0016.1	3	IIIG
			CULG				0015.5		1				IIIB
			CULG				0029	0030	1				IIIG,U
			BOUL				0029.1	0031	3	0029.1	0031	3	IIIG
			BOUL				0117.4	0120.5	3	0117.4	0120.5	3	IIIG
			CULG				0118	0119	2				IIIG
			CULG				0220.5		1				IIIB
			CULG				0223		1				IIIB
			CULG				0251		1				IIIB
			CULG				0300	0310	1				I
			CULG				0303	0316	1				IIIGG
			CULG				0320		1				IIIB
			CULG				0331.5	0332	2				IIIG
			CULG				0413	0414	2				IIIG
			CULG				0419	0655	2				I
			CULG				0443	0446.5	1				IIIG
			CULG				0445		1				IIIG
	0417	1510	WEIS				0445.1	0445.4	1				IIIB
			CULG				0455	0521.5	1				IIIN
			WEIS				0521.8	0522.1	1				IIIB
			CULG				0523		2				IIIG
	0900	0100	SGMR										
	1217	2400	HARV				1217	1239	1				I
			WEIS				1238.4	1238.6	2				IIIG
	1422	2400	BOUL				1422 E	0150 D	2	1422 E	0150 D	2	CONT
			HARV				1449	1733	1				I
			HARV				1537	2226	1	1537	2226	1	IIIN
			HARV				1724	1727	1	1724	1727	1	IIIG
			HARV				1733	1930	2				IC
			HARV				1741	1757	1	1741	1757	2	IIIS
			HARV				1915	1917	1	1915	1917	1	IIIG
			HARV				1921	1927	1	1921	1927	1	IIIG
			HARV				1930	2257	1				IN
	2047	2400	CULG				2145		1				I
			CULG				2209	2400	1				IIIN
			HARV				2303	2304	2				IIIG
06 20	0000	0145	HARV										
	0000	0734	CULG				0000	0705	1				IIIN
			CULG				0145	0145.5	2				IIIB
	0000	0200	BOUL				0145	0145.9	3	0145	0145.9	3	IIIG
			CULG				0509	0627	2				N,DP,RS
	1217	2400	HARV				1217	1720	1				I
			HARV				1355	1357	3	1356	1357	3	IIIGG,U
			BOUL				1429.2	1429.7	1	1429.2	1429.7	1	III
			BOUL				1445	2010	1	1445	2010	1	CONT
			HARV				1720	1813	2				I
			HARV				1804	1807	3	1804	1807	3	IIIGG,V
			BOUL				1804.1	1806.7	3	1804.1	1806.7	3	III
	0900	0100	SGMR							1804.2	1806.6		IIIG
			HARV				1813	2015	1				I
			HARV				2015	2400	1				IN
			BOUL							2100	2215	1	CONT
	2043	2400	CULG				2135	2220	1				I
			CULG				2211	2212.5	1				IIIG
			BOUL				2215.3	2216	2	2215.3	2216	2	IIIG
			HARV				2216		1	2216		2	IIIG
			CULG				2256.5		1				IIIG
			BOUL				2258.5	2259.8	2	2258.5	2259.8	2	IIIG
			CULG				2305		1				IIIB
			BOUL							2307.9	2308.5	2	III
			CULG				2358.5		1				IIIB
			BOUL							2359.7	0003	2	IIIG

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JUNE 1969

JUN. 1969 DATE	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.	
06 21	0000	0145	HARV				0000	0143	1				IN
	0000	0733	CULG				0001.5		1				IIIB
	0900	0100	SGMR										
	1217	2400	HARV				1320	1620	1				IN
	1418	0200	BOUL							1530	1610	1	CONT
			HARV				1900	1920	1				IN
	1418	0200	BOUL							1935.6	1936	1	III
	2046	2400	CULG				2215	2400	1				I
			CULG				2340		1				IIIB
06 22	0000	0733	CULG				0000	0645	1				I
	0000	0145	HARV				0057	0110	1				IN
			CULG				0106	0436	2				I
			CULG				0604	0705	2				I
			CULG				0642	0650	1				IIIGG
	0900	0100	SGMR										
	1217	2400	HARV				1217	1230	1				I
			HARV				1230	1407	1				IN
	1433	2000	BOUL										
			HARV				1729	2007	1				I
	2047	2400	CULG				2241	2400	1				I
	1217	2400	HARV	2242	2244	1	2232	2400	2				I
	2047	2400	CULG				2303	2400	1				IIIN
06 23	0000	0734	CULG				0000	0004	1				IIIN
			CULG				0000	0011	1				I
	0000	0145	HARV				0000	0050	1				IN
			CULG				0200		1				IIIB
	0900	0100	SGMR										
	1425	0105	BOUL										
	1217	2400	HARV				1454	1517	1				I
	2050	2400	CULG				2237		1				IIIB
			CULG				2241.5		1				IIIB
06 24	0000	0145	HARV										
	0000	0733	CULG										
	1217	2400	HARV				1910	1912	3	1910	1912	3	IIIG
	1433	0200	BOUL							1910	1912.1	3	IIIG
	0900	0100	SGMR							1910.6	1912.8		V B
	2047	2400	CULG										
	1433	0200	BOUL							2333.8	2334.5	1	III
06 25	0000	0146	HARV										
	0000	0733	CULG				0348.5		1				IIIB
			CULG				0440		1				UNCLF
	0900	0100	SGMR										
	0556	1811	WEIS				1251.3	1251.5	1				IIIB
			WEIS				1350.6	1350.8	1				IIIB
	1450	2400	BOUL										
	1217	2400	HARV				2106		3				IIIG
	2047	2400	CULG				2106		1				IIIB,U
			CULG				2245		1				IIIB
06 26	0000	0146	HARV										
	0000	0200	BOUL				0110.5	0113.8	2	0110.5	0113.8	2	IIIG
	0000	0733	CULG				0111		1				IIIG,U
			CULG				0113		1				IIIG,U
			CULG				0210.5	0211	1				IIIG,U
			CULG				0309.5		1				IIIB
	0439	1812	WEIS										
	0900	0100	SGMR										
	1217	2400	HARV										
	1400	0200	BOUL										
06 27	0000	0146	HARV										
	0510	0548	CULG										
	0519	1155	WEIS				0627.8	0628.3	2				IIIG
			WEIS				0630.1	0630.8	2				IIIG
	0900	0100	SGMR										
	1217	2400	HARV										
	1400	1811	WEIS										
	1428	0230	BOUL							1551.5	1552	2	III
			BOUL							2021.9	2022.7	1	III
06 28	0000	0146	HARV										
	0006	0450	CULG										
	0859	1811	WEIS										
	0900	0100	SGMR										
	1217	2400	HARV										
	1423	0229	BOUL										
06 29	0000	0146	HARV										
	1422	2100	BOUL				1546.1	1549.9	3	1546.1	1549.9	3	IIIG
	0900	0100	SGMR							1546.4	1549		IIIG
			BOUL				1556.6	1559.2	3	1556.6	1559.2	3	IIIG
	0805	1809	WEIS				1557.4	1557.6	1				IIIB
			SGMR							1557.6	1600		IIIG
	1336	2400	HARV				1558	1600	1	1558	1559	1	IIIGG
			WEIS				1558.2	1559.1	1				IIIG

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JUNE 1969

JUN. 1969 DATE	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.	
06 29			BOUL				1635	1635.3	1	1635	1635.3	1	III
			BOUL				1721.7	1722.7	2	1721.7	1722.7	2	IIIG
			BOUL				1816.9	1817.2	2	1816.9	1817.2	2	III
			BOUL							1913.9	1914.9	2	III
			BOUL				1935.2	1941.2	2	1935.2	1941.2	2	IIIG
			SGMR							1935.3	1939.2		IIIG
			HARV				1939		2	1939		2	IIIG
			BOUL				1959.6	2001.8	3	1959.6	2001.8	3	IIIG
			HARV				2000	2002	3	2001	2002	3	IIIG
			HARV				2134	2135	1	2134	2135	1	UNCLF
			SGMR							2134	2136		IIIG
			SGMR							2325.8	2326.3		IIIB
			HARV				2328	2329	2	2328		1	IIIGG
06 30	0000	0146	HARV										
	0520	1805	WEIS										
	0900	0100	SGMR							1116.3	1117.5		IIIB
			SGMR							1306	1308		IIIG
	1425	2400	BOUL				1606.4	1608.6	1	1606.4	1608.6	1	IIIG
			BOUL							1747.1	1752.8	1	IIIG
	1216	2400	HARV				1748	1750	1	1748	1750	1	IIIG
			BOUL							1826.6	1829.2	2	IIIG
			BOUL				1944.9	1945.2	1	1944.9	1945.2	1	III
			BOUL				1954.6	1957.5	1	1954.6	1957.5	1	IIIG
			BOUL							2223.2	2224	1	III

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)
JUNE 1969

June 1969	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	5724.79	6246.7	3692.1	5788.75
2	5758.21	6264.4	3709.0	5819.70(23)
3	5776.04	6299.2	3731.6	5840.79
4	5806.21	6324.9	3728.1	5846.50
5	5807.65(23)	6319.4	3725.7	5849.91
6	5796.77(13)	6293.7	3706.2	5832.50
7	5760.38	6292.4	3719.5	5844.50
8	5697.75	6209.9	3655.2	5760.91
9	5619.33	6115.9	3584.7	5668.04
10	5571.16	6046.6	3549.7(32)	5619.08
11	5570.79	6069.3	3568.3(30)	5647.83
12	5586.96	6036.9	3563.6(26)	5631.41
13	5581.96	6066.7	3573.6	5665.54
14	5574.04	6084.1	3572.5	5673.86(22)
15	5597.75	6092.3	3572.2	5670.05(20)
16	5599.04	6104.6	3585.2	5667.91
17	5576.79	6067.8	3564.5	5624.79
18	5582.46	6075.3	3567.0	5621.33
19	5553.13	6031.0	3533.0	5579.54
20	5551.16	6030.2	3527.8	5581.46
21	5566.38	6057.3	3524.7	5579.21
22	5602.91	6093.5	3560.0	5613.46
23	5632.13	6108.0	3576.3	5637.54
24	5627.41	6093.4	3588.2	5649.91
25	5606.21	6087.8	3565.8	5636.08
26	5612.66	6081.3	3584.3	5654.13
27	5625.83	6091.9	3590.2	5681.16
28	5655.33	6129.2	3610.3	5712.50
29	5681.17(23)	6168.9	3622.2	5743.63
30	5702.29	6179.1	3636.3	5748.58

( ) 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.

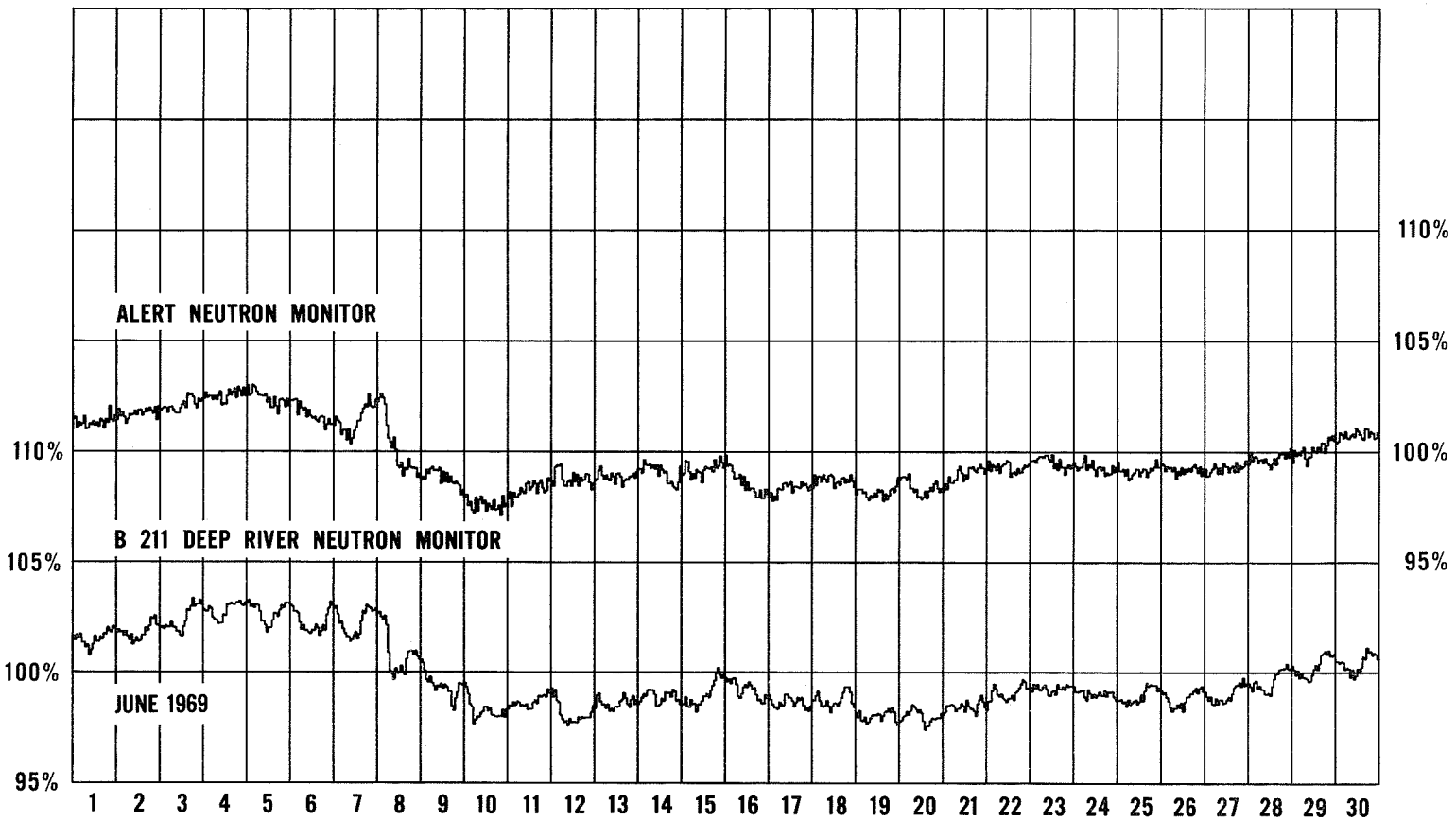
Climax IGC Station B305, Scaling Factor 100.

Dallas Super Neutron Monitor, Scaling Factor 120.

COSMIC RAY INDICES

(Pressure Corrected Hourly Totals)

JUNE 1969



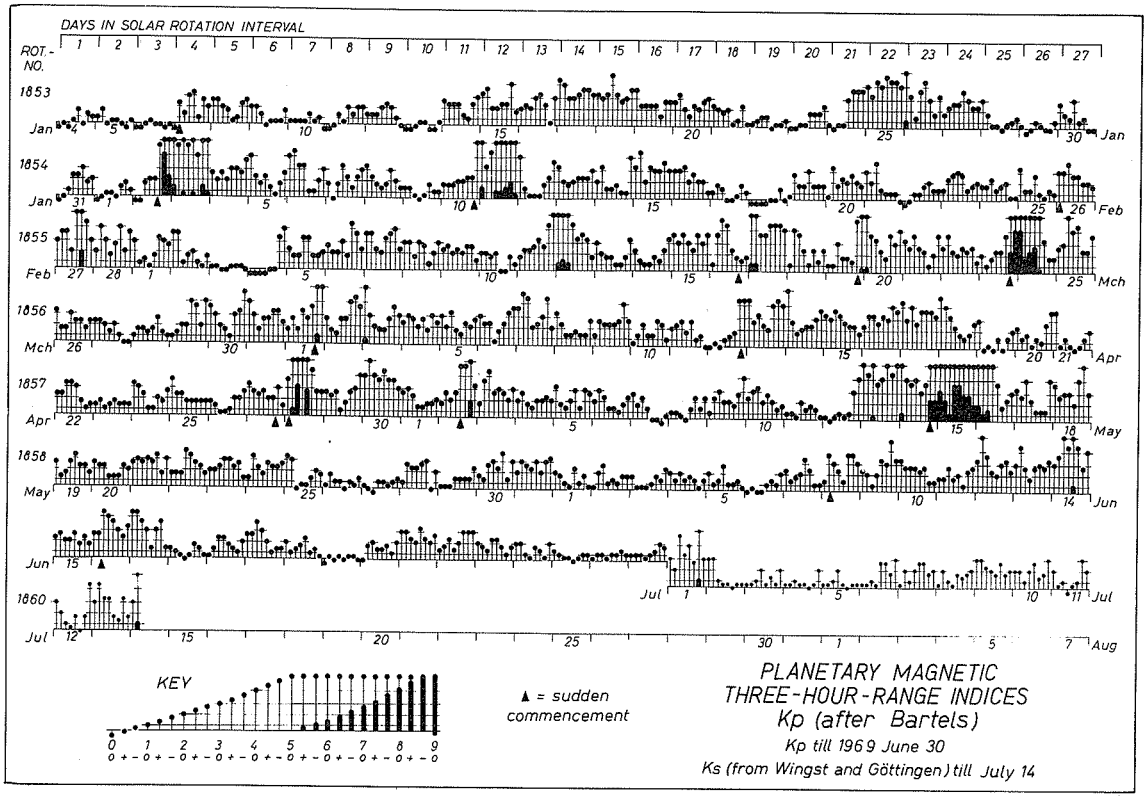
GEOMAGNETIC ACTIVITY INDICES

JUNE 1969

DAY		K_p THREE-HOUR RANGE INDICES 1	2	3	4	5	6	7	8	SUM	C_i	C_p	A_p
1	Q	2	2-	1	1-	2+	1	2-	1-	11	0.2	0.2	5
2		1-	2	3-	1	1+	1	2-	2-	12	0.2	0.3	6
3	Q	2-	1-	1-	1-	1	2-	1+	2+	10	0.2	0.2	5
4		2	1+	2	1+	2-	1+	1-	1+	12-	0.2	0.2	5
5	Q	2	1	1+	3-	1	1	1+	1-	11	0.3	0.2	6
6	QQ	0+	1-	0+	0+	1	1+	1	2	7	0.2	0.1	4
7		2+	1+	2-	2	3+	2+	1	1	15	0.5	0.4	8
8		1+	4-	3	2+	1+	4-	4-	3	22	0.9	0.8	14
9		2+	2	1	2	3+	3	5-	3+	22-	0.8	0.8	15
10		3+	3-	3-	3-	2+	3-	1+	1+	19	0.6	0.6	11
11		2-	2-	3-	2-	2	1	2+	3-	16-	0.4	0.4	8
12	D	3+	5	4-	2+	2	3	3+	2+	25	1.0	1.0	18
13	D	3	4+	3-	2-	3-	3	3-	3+	23+	1.0	0.9	15
14	D	3	4-	5	4+	6-	4+	3-	4	33-	1.3	1.3	32
15		2+	3-	2	2	3-	2-	2+	2-	17+	0.5	0.5	8
16	D	3-	3-	4+	4	4-	3	2+	3+	26	1.1	1.0	18
17	D	4+	4+	4-	3	1+	3	4-	1+	25-	1.0	1.0	18
18	QQ	1+	1	1-	0+	1-	2-	1+	1-	8-	0.2	0.1	4
19		1-	1+	2+	2+	2-	1+	1	2	13-	0.2	0.3	6
20		3-	3-	4-	3	2	1	1+	1+	18-	0.5	0.6	10
21		2	1	1+	2-	2+	1	1+	1-	11+	0.3	0.2	5
22	QQ	0	1-	0+	1-	0+	1-	1-	0+	4-	0.1	0.0	2
23	Q	0+	2-	2	1+	1+	2-	1	2	11+	0.4	0.2	5
24		3	3	2+	2	3+	2+	2	3-	21-	0.6	0.7	12
25		1+	2-	2+	1+	2	3	3	3	18-	0.5	0.5	10
26		2	2-	1+	2+	2+	2-	1	2-	14	0.3	0.3	6
27		2	2	1	1-	2-	1+	1-	2	11+	0.2	0.2	5
28	QQ	1+	1	1-	1-	0+	1-	1	1	7-	0.1	0.1	4
29	QQ	1-	1	1	1-	1	1	1+	1	8-	0.1	0.1	4
30	Q	1	1	1	1-	1	1+	2	2-	10-	0.2	0.2	5
										MEAN	0.47	0.45	9

Preliminary storm sudden commencements (ssc) occurred in June 1969 on the 8th at 0509UT and on the 16th at 0622UT.

GEOMAGNETIC ACTIVITY INDICES



DAILY AVERAGE INDICES Ap

	1968						1969					
DAY	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE
1	10	4	9	16	122	9	8	3	10	24	8	5
2	9	4	10	47	82	6	4	47	9	16	28	6
3	16	12	18	29	35	18	1	54	3	17	15	5
4	10	6	14	3	27	21	3	13	6	11	8	5
5	8	12	12	2	6	25	3	10	10	10	10	6
6	6	16	19	6	7	9	1	16	14	11	8	4
7	7	13	18	15	17	5	9	9	17	20	5	8
8	6	14	48	7	10	11	8	9	11	8	5	14
9	4	13	12	9	22	6	4	4	9	12	11	15
10	35	7	6	6	12	14	3	12	5	6	10	11
11	10	6	6	2	12	6	4	62	18	7	5	8
12	7	6	19	51	3	8	6	10	39	11	8	18
13	22	11	43	30	6	6	1	10	8	20	39	15
14	22	27	29	14	4	3	9	10	8	16	50	32
15	6	22	30	5	3	6	13	18	18	14	131	8
16	9	41	10	5	17	8	10	11	15	17	43	18
17	6	39	6	9	19	4	21	4	38	21	14	18
18	10	19	3	8	22	7	20	1	11	15	20	4
19	8	10	12	11	6	12	11	8	17	5	10	6
20	5	6	7	7	17	24	11	8	22	8	8	10
21	9	4	13	2	7	13	6	8	13	6	13	5
22	19	5	11	1	5	13	4	4	11	10	11	2
23	11	11	22	3	6	14	5	9	47	5	10	5
24	3	19	4	7	5	9	12	6	79	9	10	12
25	7	4	2	6	8	20	29	7	22	9	7	10
26	15	4	4	5	7	4	23	12	10	6	4	6
27	11	5	3	6	10	13	12	32	6	11	3	5
28	8	4	8	5	7	5	5	15	6	60	9	4
29	5	2	9	37	4	9	2		13	12	5	4
30	7	3	7	15	2	8	6		16	27	11	5
31	5	14		112		11	6		15		12	
MEAN	10	12	14	16	17	9	8	15	17	14	17	9

PRINCIPAL MAGNETIC STORMS

JUNE 1969

DATE 1969 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
06 08	0509	06 10 10	TUCS	40.4N	SC	- 1	+50	+ 2	M	06 08	2	5	10	100	10	31
	0508	06 09 00	MBOR	21.3N	SC	--	+37	--	M	06 08	2	4	3	40	10	31
	0507	06 08 23	ALIB	9.5N	SC	- 0.2	+43	- 8	M	06 08	2,3	4	4	104	27	31
	0507	06 08 23	ANNA	1.5N	SC	- 1.5	+80	+21	M	06 --	-	-	4	171	50	31
	0507	06 08 23	TVAN	1.1S	SC	+ 0.1	+82	+90	M	06 --	-	-	2	186	146	31
	0510	06 08 10	KGLN	57.3S	SC	--	--	--	M	06 08	2,3	3	--	--	--	31
06 12	00--	06 14 --	KGLN	57.3S	..	..	..	..	M	06 12	1,2	4	--	--	--	32
										06 13	8	4				32
										06 14	3	4				32
06 13	21--	06 14 23	FRED	49.6N	..	..	..	..	M	06 14	1,2,3	4	21	112	74	32
										06 14	4,5,8	4				32
	21--	06 14 24	IRKU	40.8N	..	..	..	..	M	06 14	3,5,6	5	28	106	40	32
	22--	06 17 18	TUCS	40.4N	..	..	..	..	M	06 14	2	5	15	100	30	32
										06 17	1	5				32
	22--	06 14 20	MBOR	21.3N	..	..	..	..	M	06 14	5,6	5	3	60	20	32
	12--	06 14 20	TOOL	46.7S	..	..	..	..	M	06 14	3	5	13	116	43	32
06 14	04--	06 15 02	ALIB	9.5N	..	..	..	..	M	06 14	2,5	5	5	143	46	32
	0423	06 14 19	GUAM	4.0N	..	..	..	..	M	06 14	2	5	--	50	10	32
	04--	06 15 02	ANNA	1.5N	..	..	..	..	M	-- --	-	-	6	209	71	32
	0350	06 14 22	HUAN	0.6S	..	..	..	..	M	06 14	5,6	5	4	244	35	32
	04--	06 15 02	TVAN	1.1S	..	..	..	..	M	06 --	-	-	4	228	173	32
	0424	06 14 18	PMOR	18.6S	SC	- .5	+16	+11	M	06 14	2,3,5	5	3	110	80	32
	04--	06 14 18	HRMN	33.3S	..	..	..	..	M	06 14	5	5	11	90	55	32
06 16	08--	06 17 09	NEWP	55.1N	..	..	..	..	M	06 16	4	5				33
										06 17	1	5	26	90	127	33

The following observatories reported that no principal magnetic storms occurred during June 1969: Apia, Boulder, College, Gnangara, Honolulu, San Juan and Sitka.

RADIO PROPAGATION QUALITY FIGURES AND FORECASTS

JUNE 1969

North Atlantic, North Pacific

JUN. 1969	WHOLE DAY INDICES: NORTH ATLANTIC	WHOLE DAY INDICES: NORTH PACIFIC	WHOLE DAY INDICES: AVERAGE HIGH LATITUDE	ADVANCE FORECASTS (JC-REPORTS) FOR WHOLE DAY	NORTH ATLANTIC 6-HOURLY QUALITY FIGURES: 00 TO 06	06 TO 12	12 TO 18	18 TO 24	NORTH ATLANTIC SHORT-TERM FORECASTS ISSUED ABOUT ONE HOUR IN ADVANCE OF: 00	06	12	18	NORTH PACIFIC 6-HOURLY QUALITY FIGURES: 00 TO 06	06 TO 12	12 TO 18	18 TO 24	GEOMAGNETIC INDICES: K_{FR} HALF DAY (1)	(2)	A_{FR} OBSERVED	K_{SI} HALF DAY (1)	(2)	A_{SI}
01	7-	6	6+	6	7o	6-	7o	7o	6	5	6	7	6	6	6	6	2	2	6	1	1	4
02	7-	6	6+	7	7o	6o	7-	7-	6	6	6	7	6	6	6	6	3	1	9	2	1	6
03	7-	6	6+	7	7o	6-	7o	7o	6	6	7	7	6	6	6	6	1	2	5	1	2	4
04	7-	6	6+	7	7o	6-	7-	7-	7	6	6	7	6	6	6	6	2	2	7	2	1	6
05	7-	6	6+	7	7o	6+	6+	7-	7	7	7	7	6	6	6	6	2	1	5	2	0	4
06	7-	6	7-	7	7o	7-	7-	7-	7	6	7	6	6	6	6	6	1	1	3	0	1	2
07	7-	6	6+	7	7o	6+	7-	7-	6	7	7	7	6	6	6	6	2	2	6	2	2	8
08	7-	6	6+	7	7o	6+	6+	7-	7	7	6	5	6	6	6	6	3	3	17	2	2	11
09	6+	6	6+	7	7o	6+	6+	6+	6	7	6	6	6	6	6	6	2	3	13	2	3	12
10	6+	6	6o	6	7-	5+	6o	7o	6	6	6	6	6	6	6	6	3	2	12	2	2	9
11	6+	6	6+	5	7o	6+	6o	6+	6	6	6	5	6	6	6	6	2	2	8	2	2	8
12	6o	6	6o	7	7-	6-	6-	6+	6	6	6	6	6	6	6	6	3	2	14	(4)	2	19
13	6+	6	6+	7	7-	6-	7-	6+	5	6	6	7	6	6	6	6	3	3	13	3	3	16
14	6+	6	6o	7	6+	5+	7-	6+	6	7	7	6	6	6	6	6	(4)	(4)	24	(4)	3	22
15	7-	6	6+	6	7-	6o	6+	7-	6	7	7	6	6	6	6	6	2	2	9	3	2	12
16	6+	6	6o	6	7-	5+	7-	6+	7	7	6	6	6	6	6	6	(4)	3	22	(4)	3	17
17	6+	6	6o	6	7-	5+	7-	7-	6	5	6	7	6	6	6	6	(4)	3	19	(4)	2	15
18	7-	6	6+	6	7-	6+	7-	7-	6	7	7	7	6	6	6	6	2	1	4	0	1	2
19	7-	6	7-	7	7o	7o	7o	7-	7	6	7	7	6	6	6	6	2	2	7	2	1	5
20	6+	6	6+	7	7-	6o	6o	7-	7	6	6	7	6	6	6	6	(4)	2	14	3	1	10
21	7-	6	6+	7	7o	6+	7o	7-	6	6	7	7	6	6	6	6	2	1	6	1	1	4
22	7-	6	7-	7	7o	7-	7o	7-	7	6	7	7	6	6	6	6	1	1	3	0	0	2
23	7-	6	6+	6	7o	7-	7-	7-	7	7	7	6	6	6	6	6	2	2	8	2	1	4
24	7-	6	6+	6	7o	7-	7-	7-	6	6	6	6	6	6	6	6	3	2	11	2	2	8
25	7-	6	6+	6	7-	7-	7-	7-	6	6	7	7	6	6	6	6	2	2	7	2	2	7
26	7-	6	6+	7	6+	7-	7-	7-	7	6	7	7	6	6	6	6	2	2	6	2	1	7
27	7-	6	6+	7	7o	6+	7-	7o	7	7	7	7	6	6	6	6	1	2	7	1	1	3
28	7-	6	6+	7	7-	6+	7-	7-	7	6	7	7	6	6	6	6	2	1	3	0	0	2
29	7-	6	6+	7	7-	6+	7o	7o	7	6	7	7	6	6	6	6	1	2	4	1	1	3
30	7-	6	6+	7	7o	6o	7-	7-	7	6	7	7	6	6	6	6	2	1	5	1	1	3

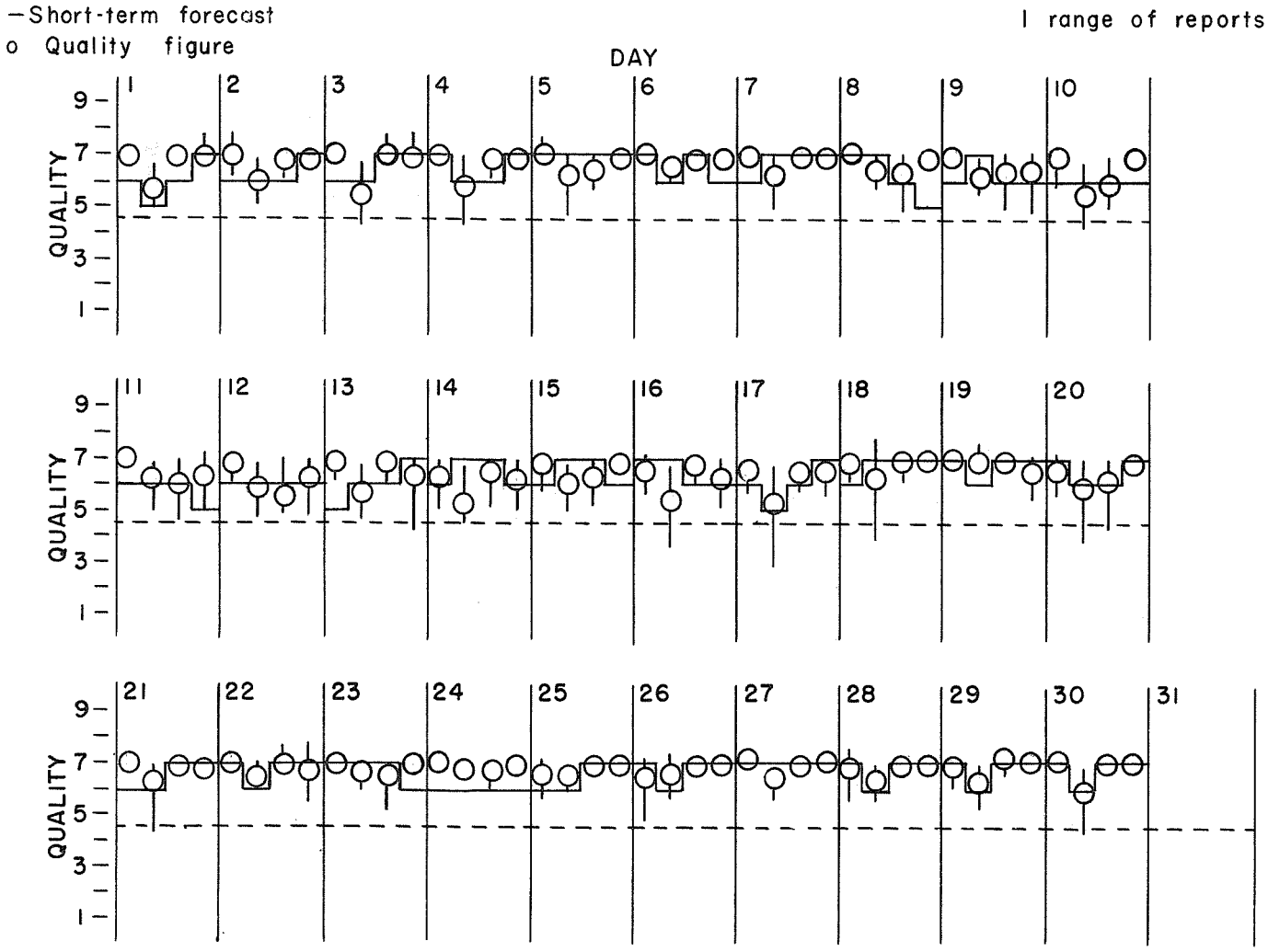
QUIET	P	12	14	13	21	22
	S	18	15	15	9	7
	U	0	1	2	0	1
	F	0	0	0	0	0
DISTURBED	P	0	0	0	0	0
	S	0	0	0	0	0
	U	0	0	0	0	0
	F	0	0	0	0	0

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

RADIO PROPAGATION QUALITY FIGURES AND FORECASTS

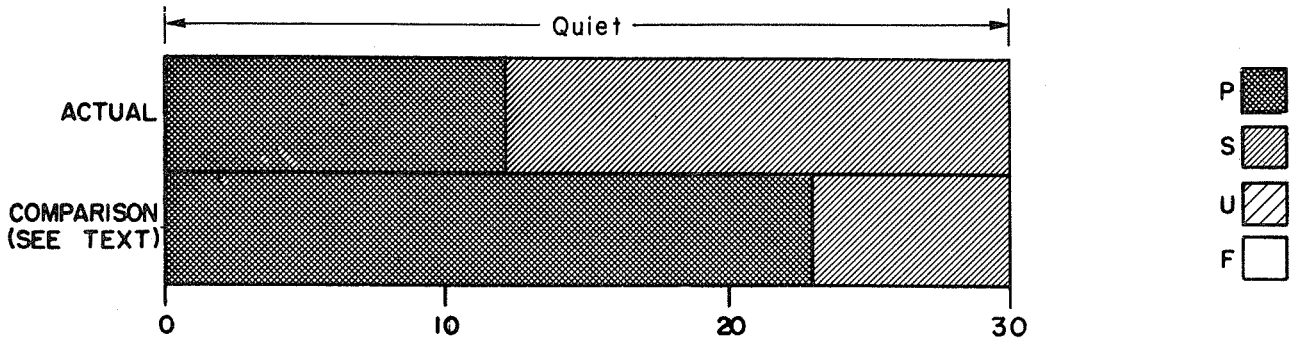
JUNE 1969

North Atlantic



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

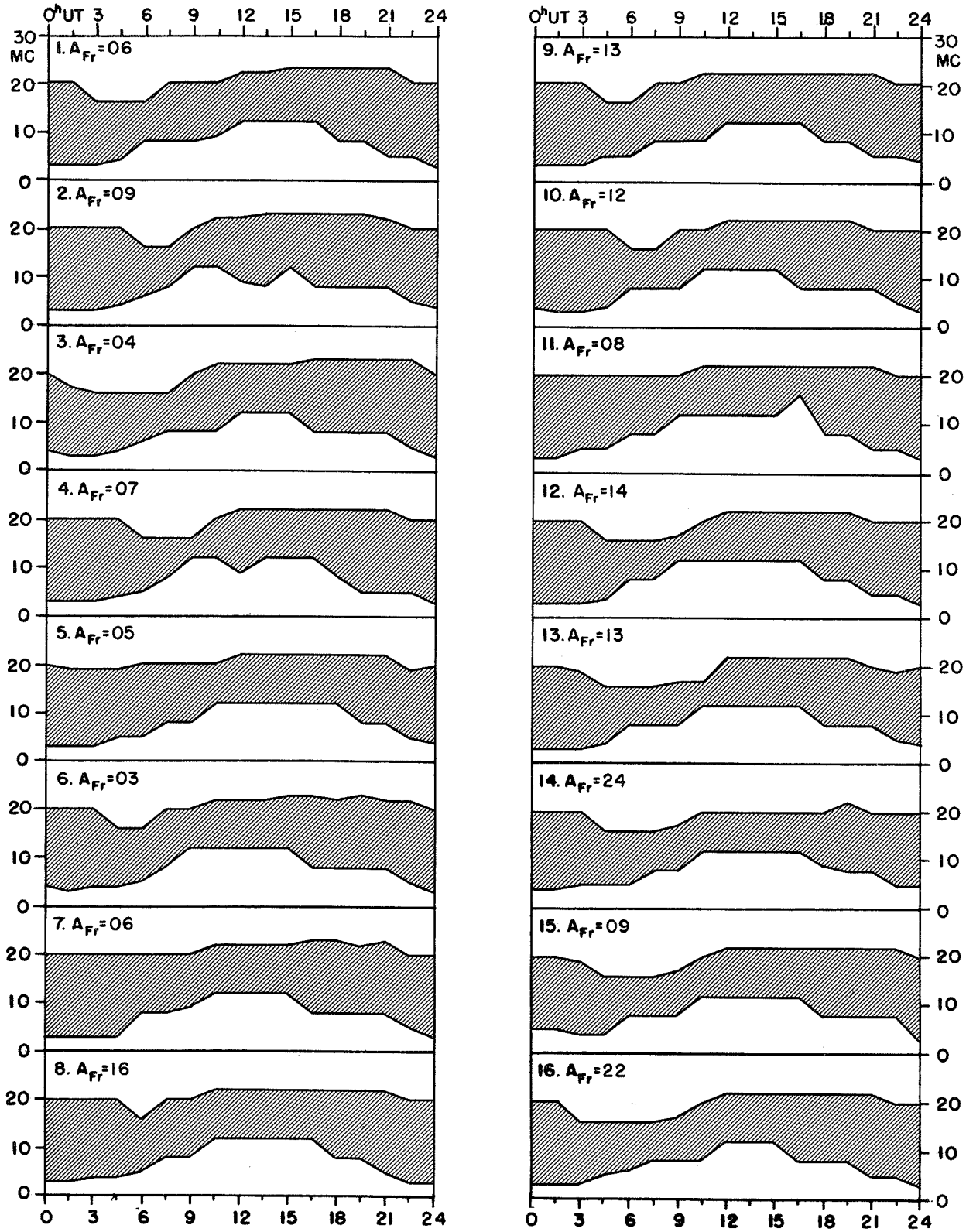
HIGH LATITUDE



TRANSMISSION FREQUENCY RANGES--NORTH ATLANTIC PATH

JUNE 1969

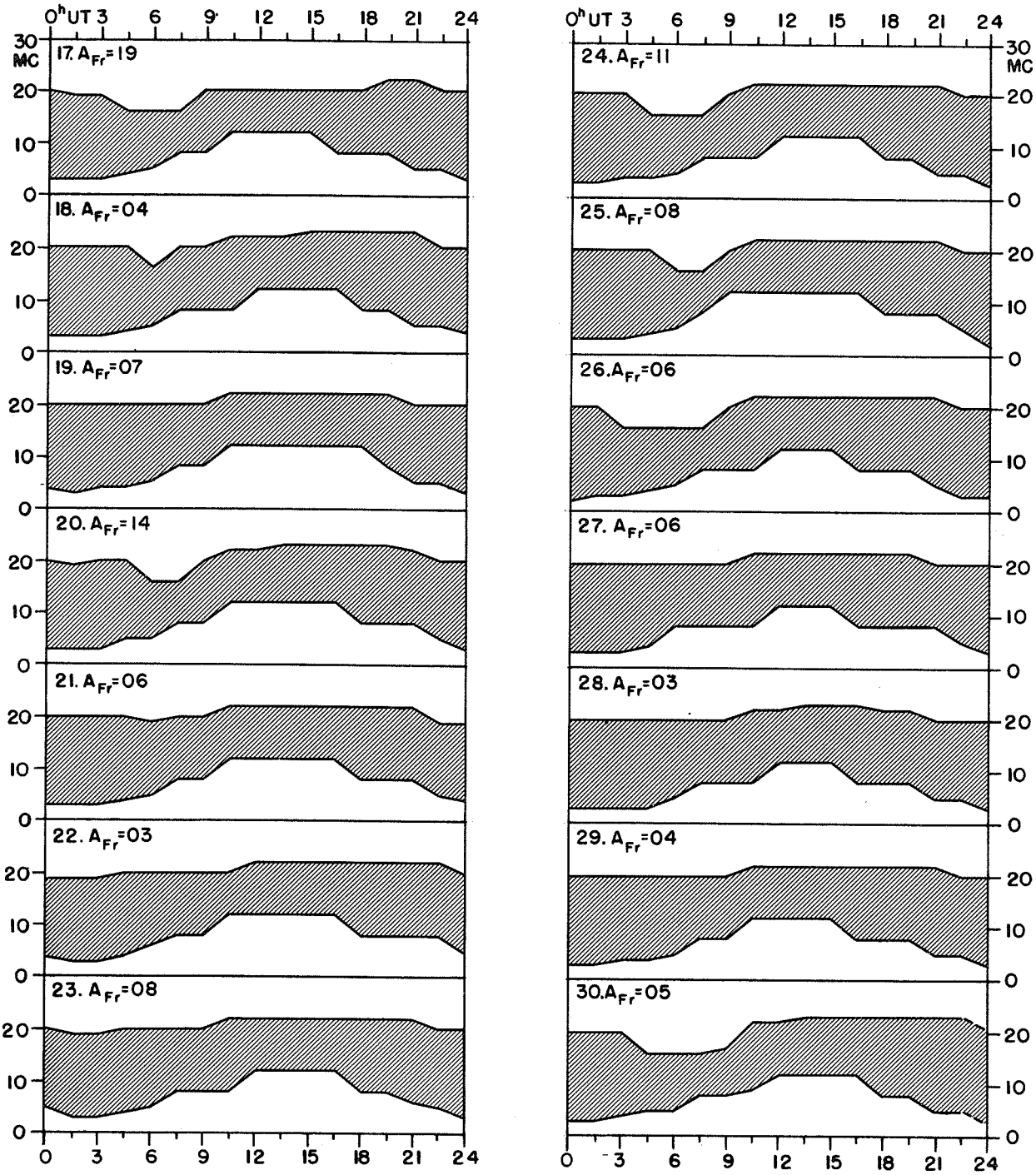
VIc



TRANSMISSION FREQUENCY RANGES--NORTH ATLANTIC PATH

JUNE 1969

VId



Adapted from Observations by Deutsche Bundespost

USCOMM--ESSA--ASHEVILLE--8/28/69--1100