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Solar - Geophysical Data

Part I (Prompt Reports)

NO. 507 NOVEMBER 1986

DATA FOR
OCTOBER 1986
SEPTEMBER 1986

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4	Jan 59 - Dec 59	Microfilm	12	Oct 66 - Dec 66	Microfilm	20	Jan 71 - Jun 71	Microfilm
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INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

Summary of the Geoalert Messages OCTOBER 1986

Julian Day	Date of Issue	Date of Observation	Wolf No.	10-cm Solar Flux	A-index	Location °Lat °Long	Flares Total	M	X	Date of Forecast	Location °Lat °Long	Region Forecast[1]	Geoalerts
274	01	30	011	071	007	N07 E61	0	0	0	01	N07 E61	Q	Solquiet, Magquiet.
275	02	01	012	071	010	N07 E48	1	0	0	02	N07 E48	Q	Solquiet, Magquiet.
276	03	02	025	072	018	N07 E35	0	0	0	03	N07 E35	Q	Solquiet, Magquiet.
						N35 E48	2	0	0		N35 E48	Q	
277	04	03	026	072	012	N08 E21	1	0	0	04	N08 E21	Q	Solquiet, Magquiet.
						N34 E33	0	0	0		N34 E33	Q	
278	05	04	027	071	007	N08 E08	0	0	0	05	N08 E08	Q	Solquiet, Magquiet.
						N35 E21	0	0	0		N35 E21	Q	
279	06	05	023	071	011	N08 W06	0	0	0	06	N08 W06	Q	Solquiet, Magquiet.
						N34 E08	0	0	0		N34 E08	Q	
280	07	06	029	073	013	N34 W05	5	0	0	07	N34 W05	Q	Solquiet, Magquiet.
						S03 E05	1	0	0		S03 E05	Q	
281	08	07	041	074	006	N07 W31	1	0	0	08	N07 W31	Q	Solquiet, Magquiet.
						N34 W18	0	0	0		N34 W18	Q	
						S03 W10	0	0	0		S03 W10	Q	
282	09	08	022	075	020	N35 W31	1	0	0	09	N35 W31	Q	Solquiet, Magquiet.
283	10	09	043	075	006	N35 W43	0	0	0	10	N35 W43	Q	Solquiet, Magquiet.
						S01 W32	0	0	0		S01 W32	Q	
						S04 W30	0	0	0		S04 W30	Q	
284	11	10	042	074	007	N35 W58	0	0	0	11	N35 W58	Q	Solquiet, Magquiet.
						S03 W47	0	0	0		S03 W47	Q	
						S06 W41	0	0	0		S06 W41	Q	
285	12	11	037	074	005	N35 W70	4	0	0	12	N35 W70	Q	Solquiet, Magquiet.
						S15 W49	1	0	0		S15 W49	Q	
						S05 W56	0	0	0		S05 W56	Q	
286	13	12	037	076	004	N35 W83	0	0	0	13	N35 W83	E	Solquiet, Magquiet.
						S03 W78	6	0	0		S03 W78	Q	
						S04 W72	0	0	0		S04 W72	Q	
287	14	13	037	076	020	N35 W98	0	0	0	14	N35 W98	Q	Solquiet, Magalert
						S03 W93	3	0	0		S03 W93	E	Minor 14/16
						S04 W84	0	0	0		S04 W84	Q	Recurrence.
288	15	14	000	075	020	Spotnil				15	Spotnil		Solquiet, Magalert Minor 15/17 Recurrence.
289	16	15	000	072	020	Spotnil				16	Spotnil		Solquiet, Magalert 16/17 Recurrence.
290	17	16	012	080	011	N21 E85	0	0	0	17	N21 E85	E	Solquiet, Magalert 17/17 Recurrence.

ALERT PERIODS
INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

Summary of the Geoalert Messages OCTOBER 1986

Julian Day	Date of Issue	Date of Observation	Wolf No.	10-cm Solar Flux	A-index	Location °Lat °Long	Flares Total	M	X	Date of Forecast	Location °Lat °Long	Region Forecast[1]	Geoalerts
291	18	17	014	083	010	N21 E72	0	0	0	18	N21 E72	A	Solquiet, Magnil.
292	19	18	021	087	012	N23 E61	18	0	0	19	N23 E61	A	Solalert 19/20, Magquiet.
293	20	19	030	089	019	N23 E47	8	1	0	20	N23 E47	A	Solalert 20/21, Magalert Minor 20/22 Recurrence.
		Presto:	Boulder	Tenflare 1300 flux units 19/0044 UT.									
			Toyokawa	Tenflare 1700 flux units 19/0006 UT.									
			Sydney	Soflare Culgoora 2B N19 E64, start 19/0023 UT, maximum 19/0036 UT, end 19/0138 UT.									
294	21	20	045	093	013	N23 E34	6	0	0	21	N23 E34	A	Solalert 21/22, Magalert Minor 21/22 Recurrence.
						S27 E71	0	0	0		S27 E71	Q	
295	22	21	049	092	016	N23 E21	1	0	0	22	N23 E21	Q	Solalert 22, Magalert Minor 22/23 Recurrence.
						S27 E60	0	0	0		S27 E60	Q	
296	23	22	064	095	011	N23 E08	4	0	0	23	N23 E08	Q	Solnil, Magnil.
						S27 E46	1	0	0		S27 E46	Q	
						S15 E56	0	0	0		S15 E56	Q	
297	24	23	078	099	008	N23 W05	13	0	0	24	N23 W05	Q	Solquiet, Magquiet.
						S27 E34	7	0	0		S27 E34	Q	
						S16 E42	5	0	0		S16 E42	Q	
298	25	24	081	098	002	N24 W18	8	0	0	25	N24 W18	E	Solquiet, Magquiet.
						S27 E21	0	0	0		S27 E21	Q	
						S16 E29	0	0	0		S16 E29	Q	
						S22 E81	0	0	0		S22 E81	Q	
299	26	25	072	096	002	N24 W32	10	0	0	26	N24 W32	E	Solquiet, Magquiet.
						S27 E09	0	0	0		S27 E09	Q	
						S15 E14	0	0	0		S15 E14	Q	
						S23 E62	0	0	0		S23 E62	Q	
300	27	26	062	095	003	N24 W45	5	0	0	27	N24 W45	E	Solquiet, Magquiet.
						S27 W06	1	0	0		S27 W06	Q	
						S15 W02	0	0	0		S15 W02	Q	
						S22 E48	1	0	0		S22 E48	Q	
301	28	27	075	096	015	N23 W54	0	0	0	28	N23 W54	Q	Solquiet, Magquiet.
						S27 W18	0	0	0		S27 W18	Q	
						S16 W15	0	0	0		S16 W15	Q	
						S22 E37	0	0	0		S22 E37	Q	
						N00 E73	0	0	0		N00 E73	Q	
302	29	28	065	095	010	N24 W70	3	0	0	29	N24 W70	Q	Solquiet, Magquiet.
						S29 W33	1	0	0		S29 W33	Q	
						S16 W29	0	0	0		S16 W29	Q	
						S21 E21	2	0	0		S21 E21	Q	
						S01 E59	0	0	0		S01 E59	Q	

ALERT PERIODS
INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

Summary of the Geoalert Messages OCTOBER 1986

Julian Day	Date of Issue	Date of Observation	Wolf No.	10-cm Solar Flux	A-index	Location °Lat °Long	Flares Total	Flares M	Flares X	Date of Forecast	Location °Lat °Long	Region Forecast[1]	Geoalerts
303	30	29	065	093	015	N26 W82	0	0	0	30	N26 W82	Q	Solquiet, Magquiet.
						S27 W46	0	0	0		S27 W46	Q	
						S15 W40	4	0	0		S15 W40	Q	
						S21 E09	0	0	0		S21 E09	Q	
						N01 E45	0	0	0		N01 E45	Q	
304	31	30	080	091	012	N24 W98	0	0	0	31	N24 W98	Q	Solquiet, Magquiet.
						S27 W60	0	0	0		S27 W60	Q	
						S16 W55	0	0	0		S16 W55	Q	
						S23 W05	3	0	0		S23 W05	Q	
						N01 E31	3	0	0		N01 E31	Q	
						N02 E46	4	0	0		N02 E46	Q	
305	01	31	042	091	007	S27 W73	0	0	0	01	S27 W73	Q	Solquiet, Magquiet.
						N00 E18	0	0	0		N00 E18	Q	
						N01 E31	0	0	0		N01 E31	Q	

[1]Q = quiet, E = eruptive, A = active, P = proton.
[2]Presto message is a rapid report of a major event.

INTERNATIONAL (R_I) RELATIVE SUNSPOT NUMBERS

Day	1985 Final Nov	Dec	1986 Final Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Prov Oct
01	0	0	0	18	16	9	15	7	0	12	9	11
02	0	16	0	33	33	10	26	0	0	11	9	14
03	0	13	0	52	34	10	15	0	11	11	8	23
04	0	0	0	55	32	0	12	0	14	11	8	24
05	16	18	0	53	33	0	10	0	18	11	0	24
06	19	26	0	47	33	0	0	0	29	10	11	25
07	19	15	0	52	38	0	0	0	29	8	13	27
08	18	12	0	54	29	9	0	9	29	9	12	20
09	25	16	0	47	22	0	0	0	17	8	10	32
10	15	15	0	35	20	9	0	8	36	0	8	31
11	17	18	0	37	18	13	0	0	39	0	8	23
12	19	19	0	25	13	14	0	0	36	0	0	28
13	30	18	13	22	8	13	0	0	25	0	0	22
14	44	30	16	16	0	26	0	0	16	0	0	0
15	48	47	13	11	10	25	10	0	28	0	0	0
16	39	66	10	0	0	21	12	0	26	9	0	15
17	43	63	0	0	0	13	13	0	28	8	0	16
18	37	52	0	0	0	15	22	0	14	0	0	22
19	30	40	0	0	0	13	27	0	13	0	0	31
20	28	24	0	10	12	16	27	0	18	11	0	39
21	18	17	0	10	13	22	30	0	21	12	0	47
22	12	11	0	10	10	20	27	0	22	12	0	54
23	10	0	0	10	15	42	24	0	14	14	0	67
24	0	0	0	8	14	58	24	0	0	9	0	76
25	0	0	0	11	10	43	22	8	0	9	0	72
26	0	0	7	9	10	43	28	0	0	9	0	60
27	0	0	0	15	11	33	19	0	12	9	0	65
28	0	0	0	10	13	23	18	0	13	9	0	61
29	0	0	0		11	28	19	0	17	9	8	63
30	0	0	10		11	27	13	0	19	9	9	62
31		0	10		0		12		17	9		53
Mean	16	17	2	23	15	18	14	1	18	7	4	36

The yearly mean sunspot number equaled 17.9 in 1985.

DAILY SOLAR FLUX AT 2800 MHz (10.7 CM) ADJUSTED TO 1 AU

ALGONQUIN RADIO OBSERVATORY, OTTAWA

Day	Nov 85	Dec	Jan 86	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct
01	69.0	67.8	67.0	81.8	84.1	71.8	72.5	71.1	68.9	72.8	69.8	71.2
02	68.8	68.4	67.6	86.4*	89.2	70.6	74.3	69.8	68.7	72.3	69.2	71.6
03	68.0	68.5	68.4	96.0	91.1*	70.9	73.8	69.9	68.9	72.9	69.3	72.1
04	67.6	68.3	69.5	97.8*	91.4	71.7	71.6	69.3	69.3	71.6	69.4	70.7
05	68.5	69.7	70.7	99.8	90.5	71.9	70.8	69.3	71.1	71.7	69.6	71.1
06	70.0	71.1	72.2	99.0	89.7*	71.9	69.8	69.8	73.9	72.1	69.5	72.4
07	71.8	71.9	71.6	96.7	87.6	71.9	69.9	70.0	72.1	71.9	69.9	74.3
08	73.7	73.0	71.2	94.3*	85.1	71.8	69.5	70.2	71.6	71.3	69.4	74.8
09	72.9	75.2	72.7	92.5	84.3	72.0	69.8	71.1	72.5	71.3	69.4	74.6
10	72.5	75.6	72.2	93.4*	81.6	72.5	70.9	70.3	75.0	70.5	69.3	73.3
11	74.7	76.6	71.9	95.1	79.3	72.4	71.4	70.1	74.7	68.6	68.8	73.2
12	74.7	77.3	71.2	88.4	76.9	73.1	70.9	70.5	73.5	68.4	68.8	75.3
13	74.3	75.6	74.3	86.4	74.3	74.2	71.7	70.4	74.2	67.9	69.0	75.1
14	76.9	76.4	76.4	86.2*	71.9	76.0	71.6	72.1	74.6	68.2	70.0	75.0
15	82.2*	80.2	75.1	79.6	69.7	76.0	72.7	71.3	74.0	69.5	71.5	71.8
16	78.8	83.7	75.5*	71.2	68.9	75.8	74.3	70.7	74.4	69.4	70.5	79.1
17	77.4	80.2	74.4	68.3	68.9	75.3	75.3	69.8	74.9	68.9	69.2	82.6
18	77.3	78.4	73.1	68.7	68.9	74.4	78.7	69.9	74.6	69.1	68.8	86.3
19	75.6	77.5	70.2	68.1	68.8	74.9	78.7	69.6	73.3	69.3	68.7	88.6
20	75.7	75.4*	69.2	68.1	68.4	75.0	79.6	69.6	73.2	70.7	68.6	92.2
21	73.7	75.1	67.9	66.0	68.5	74.2	79.2	69.2	72.5	70.5	68.8	91.5
22	73.1	73.5	67.3	67.7	69.1	75.1	79.2	69.7	73.2	70.1	68.3	94.4
23	72.8	71.2	67.0	67.7	69.8	82.1	78.8	69.6	71.6	69.6	68.7	97.9
24	71.9	69.9	66.9	68.6	69.5	87.4	79.5	68.4	71.2	69.1	68.8	97.3
25	70.3	67.3	68.0	70.1	69.6	85.7	81.1	68.5	70.9	69.3	69.4	94.4
26	69.5	66.3	67.7	72.0	70.8	84.2*	77.1	68.2	71.1	69.9	68.5	94.2
27	69.8	66.2	67.2	75.2	70.2	83.4	74.7	68.6	71.6	69.1	68.9	94.3
28	69.0	66.2	70.0	77.0	70.4	80.1	74.3	68.3	72.5	68.8	70.3	93.6
29	69.1	66.0	71.2		71.5	77.0	74.3	68.3	74.0	68.8	71.5	91.4
30	68.8	66.3	73.7		71.5	74.7	72.5	68.3	73.6	69.3	71.6	89.8
31		66.6	76.6		71.5		73.2		72.6	69.6		89.2
Mean	72.6	72.4	70.9	81.5	76.2	75.6	74.2	69.7	72.5	70.1	69.4	82.4

A = interpolated value; --- = no observation.
*Adjusted for burst in progress at time of measurement; †corrected for antenna drift.
The yearly mean 2800 MHz flux adjusted to 1 astronomical unit equaled 74.7 in 1985.

DAILY SOLAR INDICES

October 1986

Day	Julian Day	Bartels Cycle Day	Sunspot Numbers Int	Sunspot Numbers Amer†	Obs Flux Ottawa (2800)	Solar Flux Adjusted to 1 Astronomical Unit SGMR (15400)	SGMR (8800)	SGMR (4995)	Ottawa (2800)	SGMR (2695)	SGMR (1415)	SGMR (610)	SGMR (410)	SGMR (245)
01	274	27	11		71.1	479	228	107	71.2	66	51	32	18	8
02	275	1	14		71.5	472	235	109	71.6	67	52	32	22	8
03	276	2	23		72.0	484	228	110	72.1	68	52	32	18	8
04	277	3	24		70.7	479	224	108	70.7	68	51	32	18	8
05	278	4	24		71.1	486	236	108	71.1	66	52	32	18	8
06	279	5	25		72.5	---	---	---	72.4	--	--	--	--	--
07	280	6	27		74.4	490	240	111	74.3	69	55	34	19	8
08	281	7	20		75.0	486	238	111	74.8	74	53	34	19	7
09	282	8	32		74.8	478	232	109	74.6	68	55	32	18	8
10	283	9	31		73.5	488	237	109	73.3	67	53	33	18	7
11	284	10	23		73.5	479	239	109	73.2	67	52	32	18	7
12	285	11	28		75.6	478	235	109	75.3	70	53	33	19	8
13	286	12	22		75.5	473	241	121	75.1	69	53	31	18	8
14	287	13	0		75.4	470	228	110	75.0	68	53	30	18	9
15	288	14	0		72.2	---	---	---	71.8	--	--	--	--	--
16	289	15	15		79.7	486	233	115	79.1	71	54	34	19	9
17	290	16	16		83.2	477	240	118	82.6	79	56	35	21	19
18	291	17	22		87.0	489	250	127	86.3	83	59	37	22	14
19	292	18	31		89.3	487	241	129	88.6	82	61	36	22	12
20	293	19	39		93.0	486	243	134	92.2	89	60	37	21	12
21	294	20	47		92.3	482	241	131	91.5	88	56	35	20	9
22	295	21	54		95.4	486	237	132	94.4	95	63	36	20	9
23	296	22	67		98.9	479	242	135	97.9	94	67	37	21	10
24	297	23	76		98.4	488	235	129	97.3	95	67	37	21	12
25	298	24	72		95.5	487	238	129	94.4	93	68	38	21	13
26	299	25	60		95.3	462	246	---	94.2	93	65	39	22	14
27	300	26	65		95.5	461	249	127	94.3	92	69	34	21	11
28	301	27	61		94.8	478	244	127	93.6	91	67	39	22	13
29	302	1	63		92.7	487	248	126	91.4	92	68	38	23	13
30	303	2	62		91.1	479	250	128	89.8	89	68	33	22	16
31	304	3	53		90.6	489	247	123	89.2	88	68	42	24	22
Mean			36		83.0	480	238	119	82.4	79	58	34	20	10

*Adjusted for burst in progress at time of measurement.
†Data unavailable at time of publication.

The observed and the adjusted Ottawa fluxes tabulated above are the "Series C" daily values reported by the Algonquin Radio Observatory, Ottawa, Ontario, Canada. The letter "A" following an entry designates an interpolated flux. Numbers in parentheses in the column headings denote frequencies in MHz.

Equipment problems produced the gaps shown here in the Air Weather Service's Sagamore Hill (SGMR) observations.

The international and American sunspot numbers shown above are preliminary values.

OBSERVED AND PREDICTED SOLAR ACTIVITY INDICES

OCTOBER 1986

Date	RELATIVE SUNSPOT NUMBERS International (Ri) Monthly Mean	International (Ri) Smoothed	American (Ra) Monthly Mean	American (Ra) Smoothed	Derived (Rs) Monthly Mean	Derived (Rs) Smoothed	2800 MHz RADIO FLUX Adjusted to 1 AU (Sa) Monthly Mean	Sa Smoothed
Jan 83	84.3	93	82.8	93	86.7	98	137.7	148
Feb	51.0	90	53.4	90	67.2	94	119.6	145
Mar	66.5	86	60.5	85	64.7	90	117.3	141
Apr	80.7	82	74.5	81	67.5	85	119.9	136
May	99.2	77	97.7	77	86.1	80	137.1	131
Jun	91.1	70	93.1	69	92.4	72	143.0	124
Jul	82.2	66	82.2	63	77.4	66	129.1	118
Aug	71.8	66	69.2	63	75.7	66	127.5	118
Sep	50.3	68	47.4	66	57.0	67	110.2	119
Oct	55.8	68	52.3	66	58.6	67	111.7	120
Nov	33.3	59	30.2	65	35.6	67	90.4	120
Dec	33.4	64	32.3	62	35.7	65	90.5	118
Jan 84	57.0	60	54.4	58	59.4	61	112.4	115
Feb	85.4	56	81.5	54	86.2	58	137.2	101
Mar	83.5	53	83.0	51	68.5	55	120.8	108
Apr	69.7	50	66.5	48	78.1	52	129.7	105
May	76.4	48	72.1	45	79.6	49	131.1	103
Jun	46.1	46	45.2	44	49.8	48	103.5	102
Jul	37.4	44	36.2	42	37.6	39	92.2	99
Aug	25.5	40	24.5	38	30.7	41	85.8	95
Sep	15.7	34	13.6	32*	23.2	35	78.9	90
Oct	12.0	29	9.8	27*	16.9	31	73.1	86
Nov	22.8	25	19.4	23*	18.6	26	74.6	72
Dec	18.7	22	17.0	20*	17.4	23	73.5	79
Jan 85	16.5	20	14.5	19*	15.9	21	72.1	77
Feb	15.9	20	16.3	18*	15.7	20	71.9	76
Mar	17.2	19	11.8*	16*	16.3	19	72.5	75
Apr	16.2	18	17.1*	17*	19.8	19	75.7	75
May	27.5	18	24.0*	17*	26.6	19	82.0	75
Jun	24.2	18	22.2*	16*	22.8	19	78.5	75
Jul	30.7	17	30.8*	16*	25.8	19	81.3	75
Aug	11.1	17	10.7*	15*	17.2	19	73.3	75
Sep	3.9	17	3.4*	16*	13.8	20	70.2	76
Oct	18.6	17*	16.5*	16*	18.1	20	74.2	76
Nov	16.2	17*	16.4*	15*	16.4	19	72.6	75
Dec	17.3	15*	10.1*	14*	16.2	19	72.4	75
Jan 86	2.5	14*	2.3*	12*	14.6	18	70.9	74
Feb	23.2	13*	23.8*	11*	26.0	17	81.5	74
Mar	15.1	13*	12.5*	11*	20.3	17	76.2	73
Apr	18.5	14*	13.8*	10	19.6	18	75.6	74
May	13.7	13(1)*	11.6*	10	18.1	17	74.2	--
Jun	1.1	12(3)*	0.8*	9	13.3	16	69.7	--
Jul	18.1	11(4)*	17.7*	8	16.3	15	72.5	--
Aug	7.4	10(4)*	7.6*	8	13.7	14	70.1	--
Sep	3.8	10(5)*	3.5*	8	13.0	13	69.4	--
Oct	35.7†	10(5)*	----	8	27.0	13	82.4	--
Nov	----	10(5)*	----	8	----	12	----	--
Dec	----	10(6)*	----	8	----	12	----	--
Jan 87	----	10(7)*	----	8	----	12	----	--
Feb	----	10(8)*	----	9	----	12	----	--
Mar	----	10(9)*	----	9	----	12	----	--
Apr	----	11(11)*	----	9	----	12	----	--

*An asterisk marks either a value of the observed 12-month running mean or of a predicted 12-month average that is based in part on preliminary observations.

Underlined entries indicate predicted values and parentheses enclose the absolute value of the 90% confidence limits. The two columns headed "Derived" represent a sunspot number computed from a linear regression equation between the 2800 MHz solar flux (adjusted to 1 astronomical unit) and the Zurich sunspot number.

SMOOTHED OBSERVED AND PREDICTED SUNSPOT NUMBERS FOR CYCLE 21

OCTOBER 1986

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1976	15	13	12	13	13	12*	13	14	14	13	14	15
1977	17	18	20	22	24	26	29	33	39	46	52	57
1978	61	65	70	77	83	89	97	104	108	111	113	118
1979	124	131	137	141	147	153	155	155	156	158	162	165*
1980	164	163	161	159	156	155	153	150	150	150	148	143
1981	140	142	143	143	143	142	140	141	143	142	139	138
1982	137	133	129	124	120	117	115	109	101	96	95	95
1983	93	90	86	82	71	71	66	66	68	68	67	64
1984	60	56	53	50	48	47	44	40	34	29	25	22
1985	21	20	19	18	18	18	17	17	17	17	17	15
1986	14	13	13	14	13 (1)	12 (3)	11 (4)	10 (4)	10 (5)	10 (5)	10 (5)	10 (6)
1987	10 (7)	10 (8)	10 (9)	11 (11)	11 (13)	12 (14)	13 (15)	13 (16)	14 (18)	15 (21)	16 (24)	18 (27)

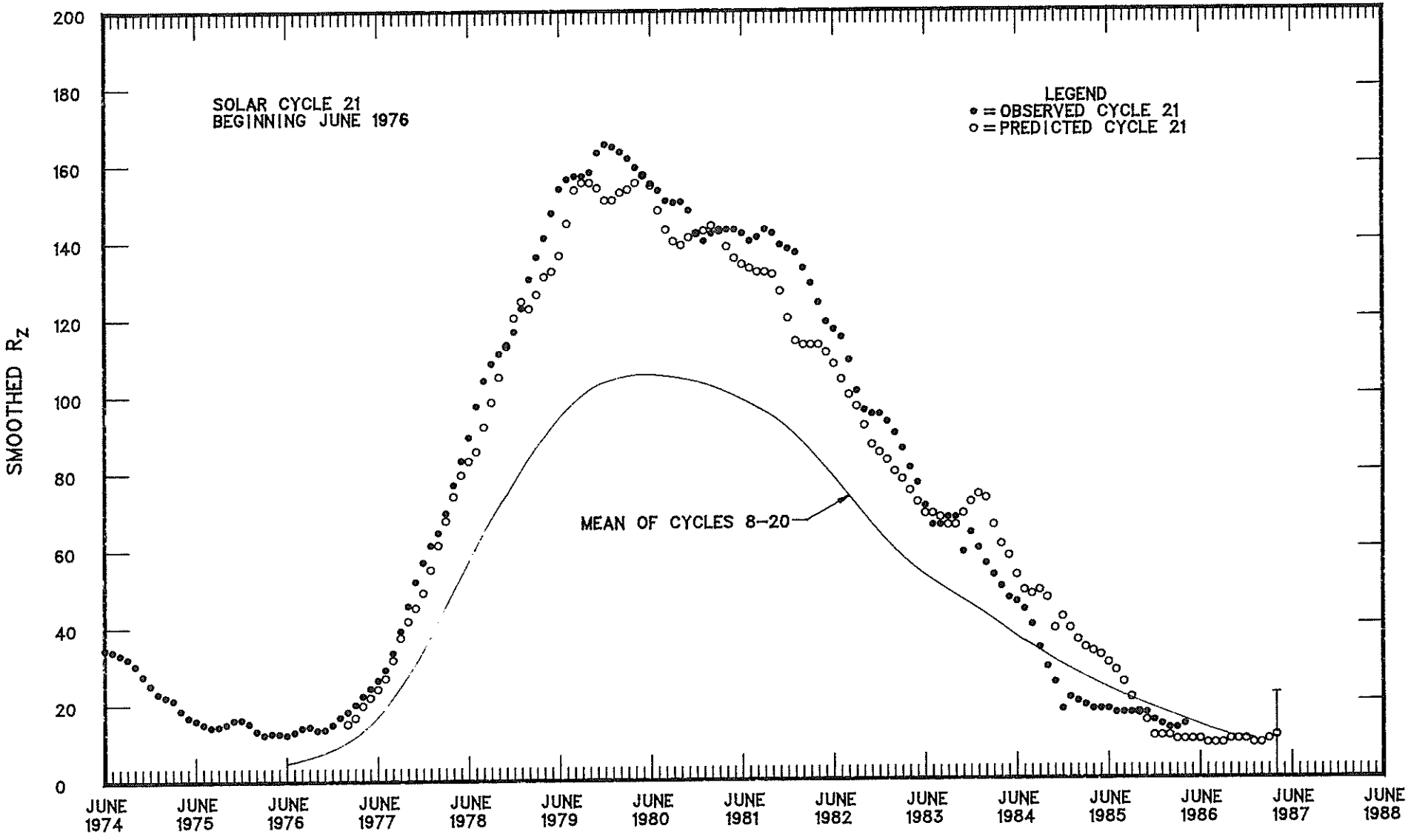
An asterisk marks the minimum and the maximum of Sunspot Cycle 21.

For the current solar cycle, this table gives observed smoothed sunspot numbers up to the one calculated from the most recently measured monthly mean. These smoothed observed values are based on final monthly mean Zurich numbers through 1980, on final international numbers through September 1986, and on provisional international numbers thereafter.

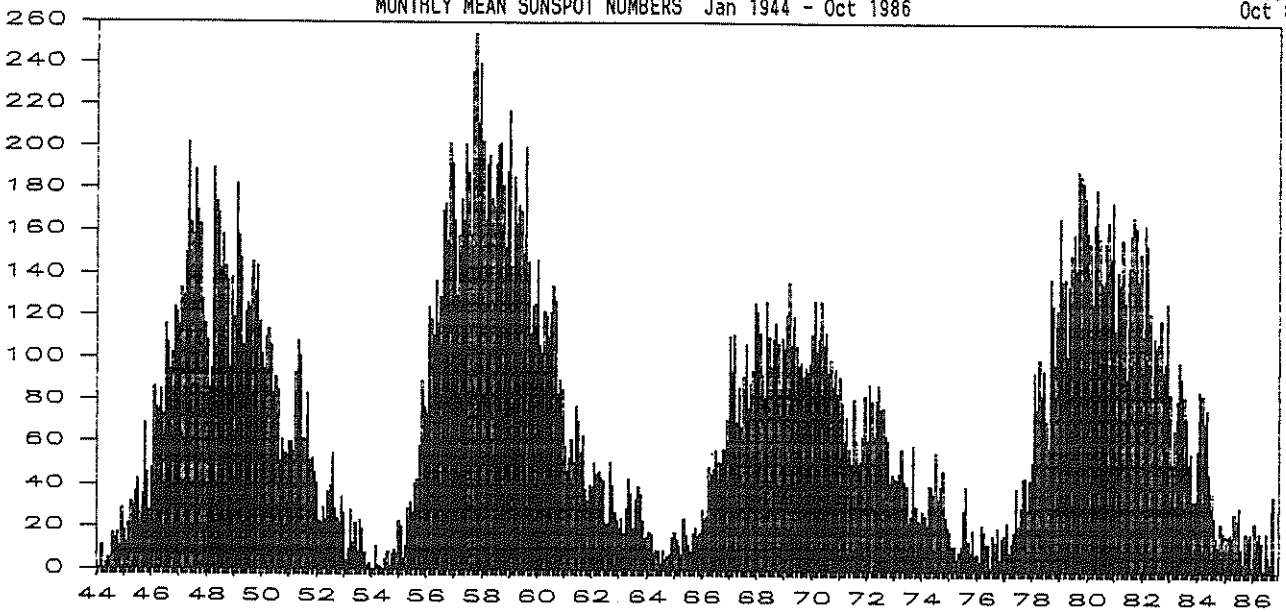
The entries with numbers in parentheses below them denote predictions by the McNish-Lincoln method. (See page 9 in the March 1986 edition of the "Solar-Geophysical Data" supplement.) Adding the number in parentheses to the predicted value generates the upper limit of the 90% confidence interval; subtracting the number in parentheses from the predicted value generates the lower limit. Consider, for example, the April 1987 prediction tabulated above. There exists a 90% chance that in April 1987 the actual smoothed sunspot number will fall somewhere between 0 and 22.

THE MCNISH-LINCOLN PREDICTION METHOD GENERATES USEFUL ESTIMATES OF SMOOTHED SUNSPOT NUMBERS FOR NO MORE THAN 12 MONTHS AHEAD. Beyond a year the predictions regress rapidly toward the mean of all 13 cycles of data used in the computation. Furthermore, the method is very sensitive to the date defined as the beginning of the current sunspot cycle, that is, to the date of the most recent sunspot minimum. In "Solar-Geophysical Data," Issues 390-401, we based the current cycle predictions on March 1976 as the end of cycle 20 and the onset of the new cycle 21. Later studies, including one published by M. Waldmeier, showed that June 1976 was more appropriately the minimum epoch. We therefore generated this table using the June 1976 date.

OBSERVED AND ONE-YEAR-AHEAD PREDICTED SMOOTHED SUNSPOT NUMBERS



MONTHLY MEAN SUNSPOT NUMBERS Jan 1944 - Oct 1986



Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Mean
1944	3.7	0.5	11.0	0.3	2.5	5.0	5.0	16.7	14.3	16.9	10.8	28.4	9.6 m
1945	18.5	12.7	21.5	32.0	30.6	36.2	42.6	25.9	34.9	68.8	46.0	27.4	33.2
1946	47.6	86.2	76.6	75.7	84.9	73.5	116.2	107.2	94.4	102.3	123.8	121.7	92.6
1947	115.7	133.4	129.8	149.8	201.3	163.9	157.9	188.8	169.4	163.6	128.0	116.5	151.6 M
1948	108.5	86.1	94.8	189.7	174.0	167.8	142.2	157.9	143.3	136.3	95.8	138.0	136.3
1949	119.1	182.3	157.5	147.0	106.2	121.7	125.8	123.8	145.3	131.6	143.5	117.6	134.7
1950	101.6	94.8	109.7	113.4	106.2	83.6	91.0	85.2	51.3	61.4	54.8	54.1	83.9
1951	59.9	59.9	55.9	92.9	108.5	100.6	61.5	61.0	83.1	51.6	52.4	45.8	69.4
1952	40.7	22.7	22.0	29.1	23.4	36.4	39.3	54.9	28.2	23.8	22.1	34.3	31.5
1953	26.5	3.9	10.0	27.8	12.5	21.8	8.6	23.5	19.3	8.2	1.6	2.5	13.9
1954	0.2	0.5	10.9	1.8	0.8	0.2	4.8	8.4	1.5	7.0	9.2	7.6	4.4 m
1955	23.1	20.8	4.9	11.3	28.9	31.7	26.7	40.7	42.7	58.5	89.2	76.9	38
1956	73.6	124.0	118.4	110.7	136.6	116.6	129.1	169.6	173.2	155.3	201.3	192.1	141.7
1957	165.0	130.2	157.4	175.2	164.6	200.7	187.2	158.0	235.8	253.8	210.9	239.4	190.2 M
1958	202.5	164.9	190.7	196.0	175.3	171.5	191.4	200.2	201.2	181.5	152.3	187.6	184.8
1959	217.4	143.1	185.7	163.3	172.0	168.7	149.6	199.6	145.2	111.4	124.0	125.0	159
1960	146.3	106.0	102.2	122.0	119.6	110.2	121.7	134.1	127.2	82.8	89.6	85.6	112.3
1961	57.9	46.1	53.0	61.4	51.0	77.4	70.2	55.8	63.6	37.7	32.6	39.9	53.9
1962	38.7	50.3	45.6	46.4	43.7	42.0	21.8	21.8	51.3	39.5	26.9	23.2	37.6
1963	19.8	24.4	17.1	29.3	43.0	35.9	19.6	33.2	38.8	35.3	23.4	14.9	27.9
1964	15.3	17.7	16.5	8.6	9.5	9.1	3.1	9.3	4.7	6.1	7.4	15.1	10.2 m
1965	17.5	14.2	11.7	6.8	24.1	15.9	11.9	8.9	16.8	20.1	15.8	17.0	15.1
1966	28.2	24.4	25.3	48.7	45.3	47.7	56.7	51.2	50.2	57.2	57.2	70.4	47
1967	110.9	93.6	111.8	69.5	86.5	67.3	91.5	107.2	76.8	88.2	94.3	126.4	93.8
1968	121.8	111.9	92.2	81.2	127.2	110.3	96.1	109.3	117.2	107.7	86.0	109.8	105.9 M
1969	104.4	120.5	135.8	106.8	120.0	106.0	96.8	98.0	91.3	95.7	93.5	97.9	105.5
1970	111.5	127.8	102.9	109.5	127.5	106.8	112.5	93.0	99.5	86.6	95.2	83.5	104.5
1971	91.3	79.0	60.7	71.8	57.5	49.8	81.0	61.4	50.2	51.7	63.2	82.2	66.6
1972	61.5	88.4	80.1	63.2	80.5	88.0	76.5	76.8	64.0	61.3	41.6	45.3	68.9
1973	43.4	42.9	46.0	57.7	42.4	39.5	23.1	25.6	59.3	30.7	23.9	23.3	38
1974	27.6	26.0	21.3	40.3	39.5	36.0	55.8	33.6	40.2	47.1	25.0	20.5	34.5
1975	18.9	11.5	11.5	5.1	9.0	11.4	28.2	39.7	13.9	9.1	19.4	7.8	15.5
1976	8.1	4.3	21.9	18.8	12.4	12.2	1.9	16.4	13.5	20.6	5.2	15.3	12.6 m
1977	16.4	23.1	8.7	12.9	18.6	38.5	21.4	30.1	44.0	43.8	29.1	43.2	27.5
1978	51.9	93.6	76.5	99.7	82.7	95.1	70.4	58.1	138.2	125.1	97.9	122.7	92.5
1979	166.6	137.5	138.0	101.5	134.4	149.5	159.4	142.2	188.4	186.2	183.3	176.3	155.4 M
1980	159.6	155.0	126.2	164.1	179.9	157.3	136.3	135.4	155.0	164.7	147.9	174.4	154.6
1981	114.0	141.3	135.5	156.4	127.5	90.9	143.8	158.7	167.3	162.4	137.5	150.1	140.4
1982	111.2	163.6	153.8	122.0	82.2	110.4	106.1	107.6	118.8	94.7	98.1	127.0	115.9
1983	84.3	51.0	66.5	80.7	99.2	91.1	82.2	71.8	50.3	55.8	33.3	33.4	66.6
1984	57.0	85.4	83.5	69.7	76.4	46.1	37.4	25.5	15.7	12.0	22.8	18.7	45.9
1985	16.5	15.9	17.2	16.2	27.5	24.2	30.7	11.1	3.9	18.6	16.2	17.3	17.9
1986	2.5	23.2	15.1	18.5	13.7	1.1	18.1	7.4	3.8	35.7*			13.9*

*Preliminary

For the yearly means, each "M" marks a sunspot cycle maximum and each "m" a minimum.

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Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp Opt	Xray	See	Obs Type	Time (UT)	Area Measurement Apparent (10^{-6} Disk)	Corr (Sq Deg)	Remarks
HOLL	01	1732	1743	1755	N08	E56	4746	10	05.9	23	SF		3	C		28		
RAMY	02	1242	1243	1246	N33	E52		10	06.6	4	SF		3	C		19		
HOLL	03	2318	2324	2334	N05	E25	4746	10	05.8	16	SF		3	C		40		FH
BUCA	06	0830	0831	0840	N34	E04		10	06.7	10	SN			C	0831	172	2.0	D
WEND	06	0953		1034	N35	E03		10	06.6	41	SN			C	0954	80	1.0	
RAMY	06	1529	1530	1537	S03	E10		10	07.4	8	SF		3	C		45		
HOLL	06	1531	1531	1547	S04	E11		10	07.5	16	SF		3	C		49		H
HOLL	07	1646	1654	1702	N06	W26	4746	10	05.7	16	SF		3	C		54		
RAMY	07	1653	1654	1700	N06	W27	4746	10	05.7	7	SF		3	C		35		
HOLL	07	2215	2224	2234	N35	W16	4747	10	06.6	19	SF		3	C		83		
LEAR	11	0531	0532	0548	N35	W57	4747	10	06.7	17	SF		3	C		28		F
RAMY	11	1327	1331	1359	S01	W63	4748	10	06.8	32	SF		3	C		13		
RAMY	11	1404	1407	1419	N35	W55	4747	10	07.2	15	SF		3	C		19		
RAMY	12	1102	1105	1109	S04	W69	4748	10	07.3	7	SF		3	C		15		
RAMY	12	1113	1116	1119	S03	W68	4748	10	07.4	6	SF		3	C		26		
RAMY	12	1149	1151	1206	S04	W71	4748	10	07.2	17	SF		3	C		19		
RAMY	12	1210	1219	1221	S03	W71	4748	10	07.2	11	SF		3	C		14		
RAMY	12	1647	1655	1704	S04	W73	4748	10	07.2	17	SF		3	C		40		
LEAR	13	0009	0011	0014	S04	W76	4748	10	07.3	5	SF	C 1.1	3	C		12		
LEAR	13	0429	0430	0432	S03	W84	4748	10	06.9	3	SF		3	C		16		
PALE	13	1721	1723	1730	S04	W90	4748	10	07.0	9	SF		3	C				
RAMY	13	1723	1724	1730	S04	W90	4748	10	07.0	7	SF		3	C		15		
HOLL	13	1723	1724	1730	S05	W85	4748	10	07.4	7	SF		3	C		16		
GOES	14	0833	0852	0930						57		C 1.0						
GOES	14	1143	1159	1222						39		C 1.0						
GOES	14	1338	1450	1503						85		C 2.2						
GOES	14	2154	2223	2257						63		C 3.3						
GOES	15	2112	2142	2142						30		C 1.1						
ISTA	16	0840	0842	0850	N30	E90		10	23.4	10	SB							A
GOES	16	1417	1431	1443						26		C 2.9						
GOES	16	2201	2204	2218						17		C 1.5						
PALE	16	2223	2227	2234	N24	E82	4750	10	23.3	11	SF		3	C		53		FH
HOLL	17	0013	0015	0018	N24	E73	4750	10	22.6	5	SF		3	C		39		
GOES	17	0046	0051	0055						9		C 2.0						
GOES	17	0343	0424	0526						103		C 3.7						
RAMY	17	1322	1331	1335	N24	E71	4750	10	23.0	13	SN		3	C		23		
RAMY	17	1540	1559	1608	N21	E72	4750	10	23.2	28	SN		3	C		31		
RAMY	17	1622	1633	1648	N22	E73	4750	10	23.3	26	SF		3	C		36		
PALE	17	1745	1746	1751	N24	E71	4750	10	23.2	6	SN		3	C		24		
HOLL	17	1804	1819	1837	N24	E71	4750	10	23.2	33	SF		3	C		43		
RAMY	17	1814	1819	1827	N24	E71	4750	10	23.2	13	SF		3	C		57		
HOLL	17	1840	1844	1853	N24	E71	4750	10	23.3	13	SF		3	C		27		
HOLL	17	1858	1858	1905	N27	E82	4750	10	24.2	7	SF		3	C		17		
PALE	17	1958	1959	2001D	N21	E71	4750	10	23.3	30	SN		3	C		39		
HOLL	17	1958	2002	2010	N21	E70	4750	10	23.2	12	SF		3	C		53		
PALE	17	2043	2044	2049	N23	E73	4750	10	23.5	6	SN		3	C		35		
HOLL	17	2043	2044	2052	N23	E74	4750	10	23.6	9	SF		3	C		33		
HOLL	17	2253	2253	2258	N24	E71	4750	10	23.4	5	SF		3	C		11		
HOLL	17	2317	2317	2327	N22	E73	4750	10	23.6	10	SF		3	C		11		
LEAR	18	0012	0012	0017	N22	E69	4750	10	23.3	5	SF	C 2.0	3	C		38		
LEAR	18	0029	0032	0039	N19	E67	4750	10	23.1	10	1N	C 1.6	3	C		107		
LEAR	18	0130	0131	0138	N20	E69	4750	10	23.3	8	SF		3	C		40		
LEAR	18	0144	0146	0148	N23	E76	4750	10	23.9	4	SF		3	C		17		
LEAR	18	0342	0343	0347	N21	E68	4750	10	23.4	5	SF	C 1.8	3	C		27		F

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Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp Opt	Imp Xray	Imp See	Obs Type	Time (UT)	Area Measurement Apparent (10^{-6} Disk)	Area Measurement Corr (Sq Deg)	Remarks
LEAR	18	0404	0406	0416	N18	E73	4750	10	23.7	12	SF	C 1.3	3	C		21		F
GOES	18	0514	0520	0535						21		C 1.5						
LEAR	18	0722	0727	0730	N19	E69	4750	10	23.6	8	SF		3	C		27		F
RAMY	18	1055	1108	1149	N22	E62	4750	10	23.2	54	1F		3	C		121		
RAMY	18	1202	1247	1255	N20	E66	4750	10	23.5	53	SB	C 1.1	3	C		49		
RAMY	18	1321	1323	1342	N23	E67	4750	10	23.7	21	SF		3	C		30		
RAMY	18	1344	1344	1349	N23	E64	4750	10	23.5	5	SF		3	C		23		
RAMY	18	1356	1401	1410	N23	E66	4750	10	23.7	14	SF		3	C		41		
RAMY	18	1509	1509	1512	N23	E65	4750	10	23.6	3	SF		3	C		15		
HOLL	18	1738	1745	1749	N20	E62	4750	10	23.5	11	SF		3	C		17		
HOLL	18	1800	1801	1821	N20	E62	4750	10	23.5	21	SF		3	C		23		
HOLL	18	1833	1836	1838	N20	E63	4750	10	23.6	5	SF		3	C		16		
PALE	18	2239	2242	2248	N21	E59	4750	10	23.5	9	SF		3	C		32		
HOLL	18	2241	2242	2244	N20	E58	4750	10	23.4	3	SF		3	C		18		
HOLL	18	2355	2356U	2358D	N19	E55	4750	10	23.2	3D	SN		3	C		29		
LEAR	18	2356	2356	2359	N18	E57	4750	10	23.3	3	SF		3	C		25		
PALE	19	0015	0041	0156	N24	E61	4750	10	23.7	101	2B	M 4.7	3	C		371		UE
LEAR	19	0017	0043	0210	N21	E62	4750	10	23.8	113	2B	M 4.7	3	C		406		UE
LEAR	19	0635	0639	0645	N19	E50	4750	10	23.1	10	SF		3	C		32		
LEAR	19	0655	0655	0703	N21	E54	4750	10	23.4	8	SF		3	C		17		F
GOES	19	0953	0959	1005						12		C 1.1						
RAMY	19	1204	1204	1215	N21	E53	4750	10	23.6	11	SF		3	C		27		
HOLL	19	1619	1637	1644	N21	E50	4750	10	23.5	25	SF	C 1.1	3	C		47		
RAMY	19	1622	1637	1645	N23	E48	4750	10	23.4	23	SN	C 1.1	3	C		70		
PALE	19	2110E	2115	2128	N21	E48	4750	10	23.6	18D	SN	C 5.2	2	C		129		E
HOLL	19	2225	2226	2230	N22	E47	4750	10	23.5	5	SF		3	C		18		
LEAR	20	0323	0325	0331	N22	E45	4750	10	23.6	8	SF	C 1.1	2	C		104		F
LEAR	20	0756	0759	0808	N22	E43	4750	10	23.6	12	1N	C 1.6	3	C		172		FH
RAMY	20	1243	1243	1256	N23	E41	4750	10	23.7	13	SF		3	C		25		
RAMY	20	1447E	1448	1456	N22	E41	4750	10	23.8	9D	SF		3	C		22		
HOLL	20	1630	1632	1645	N24	E36	4750	10	23.5	15	SN		3	C		110		U
RAMY	20	1631	1632	1637	N24	E34	4750	10	23.3	6	SB		3	C		89		
PALE	20	1910	1911	1918	N26	E41	4750	10	24.0	8	SF		3	C		68		F
LEAR	21	0842	0849	0911	N25	E33	4750	10	23.9	29	SF		3	C		52		F
HOLL	22	1533	1542	1556	N26	E18	4750	10	24.0	23	SF		3	C		40		
HOLL	22	1547	1551	1559	S25	E54	4751	10	26.8	12	SF		3	C		31		
HOLL	22	1629E	1634	1658	N24	E16	4750	10	23.9	29D	SF		3	C		66		
PALE	22	1902	1905	1919	N26	E16	4750	10	24.0	17	SF		3	C		87		F
HOLL	22	1903	1903	1923	N22	E08	4750	10	23.4	20	SF		3	C		38		
LEAR	22	2353	2357	2413	N25	E13	4750	10	24.0	20	SF		3	C		48		
LEAR	23	0103	0106	0135	N24	E12	4750	10	24.0	32	SN	C 1.9	3	C		94		F
PALE	23	0105	0106	0127	N26	E12	4750	10	24.0	22	SN	C 1.9	3	C		79		F
PALE	23	0229	0230	0233	N26	E10	4750	10	23.9	4	SF		3	C		24		
LEAR	23	0229	0230	0241	N24	E10	4750	10	23.9	12	SF		3	C		46		F
LEAR	23	0401	0402	0419	N24	E06	4750	10	23.6	18	SN		3	C		46		F
URUM	23	0401	0403	0420	N26	E09		10	23.9	19	SB			C		164	1.8	E
LEAR	23	0544	0544	0551	N24	E08	4750	10	23.8	7	SF		3	C		22		F
RAMY	23	1200	1201	1213	S26	E41	4751	10	26.7	13	SF		3	C		51		
RAMY	23	1215	1217	1219	S25	E41	4751	10	26.7	4	SF		3	C		21		
RAMY	23	1218	1223	1232	N25	E05	4750	10	23.9	14	SF		3	C		50		
RAMY	23	1359	1410	1416	S26	E42	4751	10	26.8	17	SF		3	C		133		
RAMY	23	1411	1414	1427	S15	E48	4752	10	27.2	16	SF		3	C		28		
RAMY	23	1411	1415	1418	N23	E01	4750	10	23.7	7	SF		3	C		47		
RAMY	23	1420	1425	1427	N23	E01	4750	10	23.7	7	SF		3	C		117		
HOLL	23	1518E	1530U	1605	S15	E49	4752	10	27.3	47D	SF		3	C		46		
RAMY	23	1518	1557	1631	S16	E48	4752	10	27.3	73	SF		3	C		88		
RAMY	23	1548	1603	1613	N23	E00	4750	10	23.6	25	SF		3	C		90		
RAMY	23	1619	1623	1644	N20	E00	4750	10	23.7	25	SF		3	C		77		
RAMY	23	1619	1629	1702	S27	E38	4751	10	26.6	43	SF		2	C		58		
RAMY	23	1633	1658	1713D	S16	E47	4752	10	27.2	40D	SF		2	C		48		
RAMY	23	1647	1657	1703	N23	E00	4750	10	23.7	16	SF		2	C		40		

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Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp Opt	Imp Xray	See	Obs Type	Time (UT)	Area Measurement Apparent (10^{-6} Disk)	Area Measurement Corr (Sq Deg)	Remarks
HOLL	23	1701	1719	1731	N25	E03	4750	10	23.9	30	SF		3	C		87		
PALE	23	1705E	1707	1715	S16	E51	4752	10	27.6	10D	SF		2	C		24		
PALE	23	1710	1713	1735	N25	E06	4750	10	24.2	25	SN		3	C		82		
RAMY	23	1759	1804	1811	N23	W01	4750	10	23.7	12	SF		2	C		26		
HOLL	23	1813	1814	1824	N25	E03	4750	10	24.0	11	SF		3	C		46		
PALE	23	1814	1814	1820	N26	E03	4750	10	24.0	6	SF		3	C		27		F
HOLL	23	2323	2334	2341	S15	E43	4752	10	27.2	18	SF		3	C		83		
LEAR	24	0013E	0013	0017	N23	W04	4750	10	23.7	4D	SF		3	C		31		F
LEAR	24	0121	0126	0149	N23	W04	4750	10	23.7	28	SF		3	C		77		F
LEAR	24	0408	0409	0416	N24	W07	4750	10	23.6	8	SF		3	C		33		F
LEAR	24	0424	0430	0454	N25	W02	4750	10	24.0	30	SF		3	C		109		F
URUM	24	0429	0436	0446	N26	W04		10	23.9	17	SN			C		168	1.9	EU
LEAR	24	0519	0538	0610	N25	W03	4750	10	24.0	51	1N	C 1.4	3	C		299		F
URUM	24	0529	0535	0555	N27	W03		10	24.0	26	1B	C 1.4		C		231	2.6	U
GOES	24	1239	1242	1244						5		C 2.4						
HOLL	24	1508	1509	1525	N23	W12	4750	10	23.7	17	SF		3	C		43		
PALE	24	1848	1849	1857D	N22	W14	4750	10	23.7	9D	SF		3	C		84		F
PALE	24	2006	2008	2026	N22	W15	4750	10	23.7	20	SF		3	C		56		F
RAMY	24	2006	2008	2026	N22	W12	4750	10	23.9	20	SF		3	C		96		F
HOLL	24	2007	2007	2025	N23	W12	4750	10	23.9	18	SF		3	C		51		F
LEAR	24	2323	2324	2345	N23	W14	4750	10	23.9	22	SF		3	C		78		F
HOLL	24	2324		2331D	N23	W16	4750	10	23.7	7D	SF		3	C		66		F
LEAR	25	0120	0120	0131	N22	W17	4750	10	23.7	11	SN		3	C		47		F
LEAR	25	0221	0221	0227	N26	W14	4750	10	24.0	6	SF		3	C		20		F
LEAR	25	0330	0331	0336	N25	W16	4750	10	23.9	6	SF		3	C		48		F
LEAR	25	0353	0354	0401	N25	W16	4750	10	23.9	8	SF		3	C		50		F
URUM	25	0353	0355	0400	N25	W17		10	23.8	7	SN			C		164	1.9	EU
URUM	25	0423	0424	0430	N23	W18		10	23.8	7	1N			C		206	2.3	ET
LEAR	25	0424	0424	0435	N22	W17	4750	10	23.9	11	SN		3	C		97		F
URUM	25	0607	0610	0620	N25	W18		10	23.9	13	1B	C 4.1		C		411	4.8	EFTU
LEAR	25	0608	0608	0623	N26	W17	4750	10	23.9	15	1B	C 4.1	3	C		284		Z
LEAR	25	0716	0723	0742	N26	W17	4750	10	24.0	26	SF		3	C		155		F
RAMY	25	1518	1619	1628	N21	W24	4750	10	23.8	70	SN		3	C		54		
HOLL	25	1542	1552	1604	N22	W25	4750	10	23.7	22	SF		3	C		189		F
HOLL	25	1620	1620	1626	N22	W26	4750	10	23.7	6	SF		3	C		31		F
HOLL	25	1759	1813	1818	N22	W27	4750	10	23.7	19	SF		3	C		28		F
RAMY	25	1832	1905	1910	N23	W24	4750	10	23.9	38	SF		3	C		37		FU
HOLL	25	1838	1840	1845	N23	W26	4750	10	23.8	7	SF		3	C		32		F
LEAR	26	0153	0153	0202	N24	W29	4750	10	23.8	9	SF		3	C		39		
LEAR	26	0256	0257	0303	N26	W28	4750	10	23.9	7	SF		3	C		28		F
LEAR	26	0347	0347	0353	N25	W29	4750	10	23.9	6	SF		3	C		25		F
LEAR	26	0824	0833	0836	S28	E03	4751	10	26.6	12	SF		3	C		42		ZF
LEAR	26	0854	0854	0907	N26	W29	4750	10	24.1	13	SF		3	C		22		F
RAMY	26	1811	1811	1832	N21	W39	4750	10	23.8	21	SF		3	C		21		
HOLL	26	2221	2224	2229	S21	E53	4753	10	31.0	8	SF		3	C		27		
LEAR	27	0303	0307	0314	N24	W42	4750	10	23.9	11	SF		3	C		43		F
LEAR	27	0358	0401	0405	S22	E49	4753	10	30.9	7	SF		3	C		17		
RAMY	27	1056	1125	1153	N21	W48	4750	10	23.8	57	SN		3	C		58		
RAMY	27	1532	1534	1555	N21	W50	4750	10	23.8	23	SN		3	C		42		
HOLL	27	2109	2111	2118	N23	W53	4750	10	23.8	9	SF		3	C		19		
LEAR	28	0238	0240	0245	N28	W52	4750	10	24.0	7	SF		3	C		28		
RAMY	28	1309	1311	1410	S27	W23	4751	10	26.7	61	SN		3	C		55		F
RAMY	28	1613	1613	1621	S21	E28	4753	10	30.8	8	SN		3	C		39		F
HOLL	28	1613	1613	1622	S21	E29	4753	10	30.9	9	SF		3	C		41		F
HOLL	28	1950	1951	2001	N22	W61	4750	10	24.1	11	SF		3	C		23		
HOLL	28	2125	2126	2133	N22	W61	4750	10	24.2	8	SF	C 1.2	3	C		23		F
HOLL	28	2135	2139	2141	N22	W61	4750	10	24.2	6	SF		3	C		23		
RAMY	29	1504	1505	1512	N03	E49	4754	11	02.3	8	SF		3	C		26		
HOLL	29	1857	1901	1907D	S17	W38	4752	10	26.9	10D	SF		2	C		49		
PALE	29	1858	1859	1903	S17	W39	4752	10	26.8	5	SN		3	C		52		

H - ALPHA S O L A R F L A R E S

OCTOBER 1986

Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp Opt	Imp Xray	See	Obs Type	Time (UT)	Area Measurement Apparent (10^{-6} Disk)	Area Measurement Corr (Sq Deg)	Remarks
PALE	29	2046	2046	2051	S17	W41	4752	10	26.7	5	SF		3	C		19		F
LEAR	30	0439	0440	0451	S21	E10	4753	10	31.0	12	SF		3	C		37		F
LEAR	30	0512	0512	0517	N02	E57	4754	11	03.5	5	SF		3	C		22		
LEAR	30	0543	0545	0600	S21	E08	4753	10	30.8	17	SF		3	C		42		F
LEAR	30	0625	0626	0630	N02	E56		11	03.4	5	SF		3	C		33		
GOES	30	0953	0958	1001						8		C 1.0						
GOES	30	1006	1008	1009						3		C 1.0						
RAMY	30	1100E	1102U	1115	N03	E51		11	03.3	15D	SF		3	C		33		
RAMY	30	1240	1240	1246	N01	E52		11	03.4	6	SF		3	C		16		
RAMY	30	1348	1349	1359	S29	W51	4751	10	26.6	11	SN		3	C		37		
RAMY	30	1714	1715	1719	N02	E51	4755	11	03.5	5	SN		3	C		30		
LEAR	31	0357	0359	0413	N02	E43	4755	11	03.4	16	SF		3	C		24		
LEAR	31	0523	0524	0537	N02	E42	4755	11	03.4	14	SF		3	C		32		
HOLL	31	1522	1525	1530	S14	W62	4752	10	26.9	8	SF		3	C		15		
GOES	31	2059	2215	2400D						181D		C 1.8						
HOLL	31	2116	2143	2240	N00	E32	4755	11	03.3	84	SF		3	C		57		F
HOLL	31	2159	2217U	2225	N00	E25	4754	11	02.8	26	SF	C 1.8	3	C		66		F

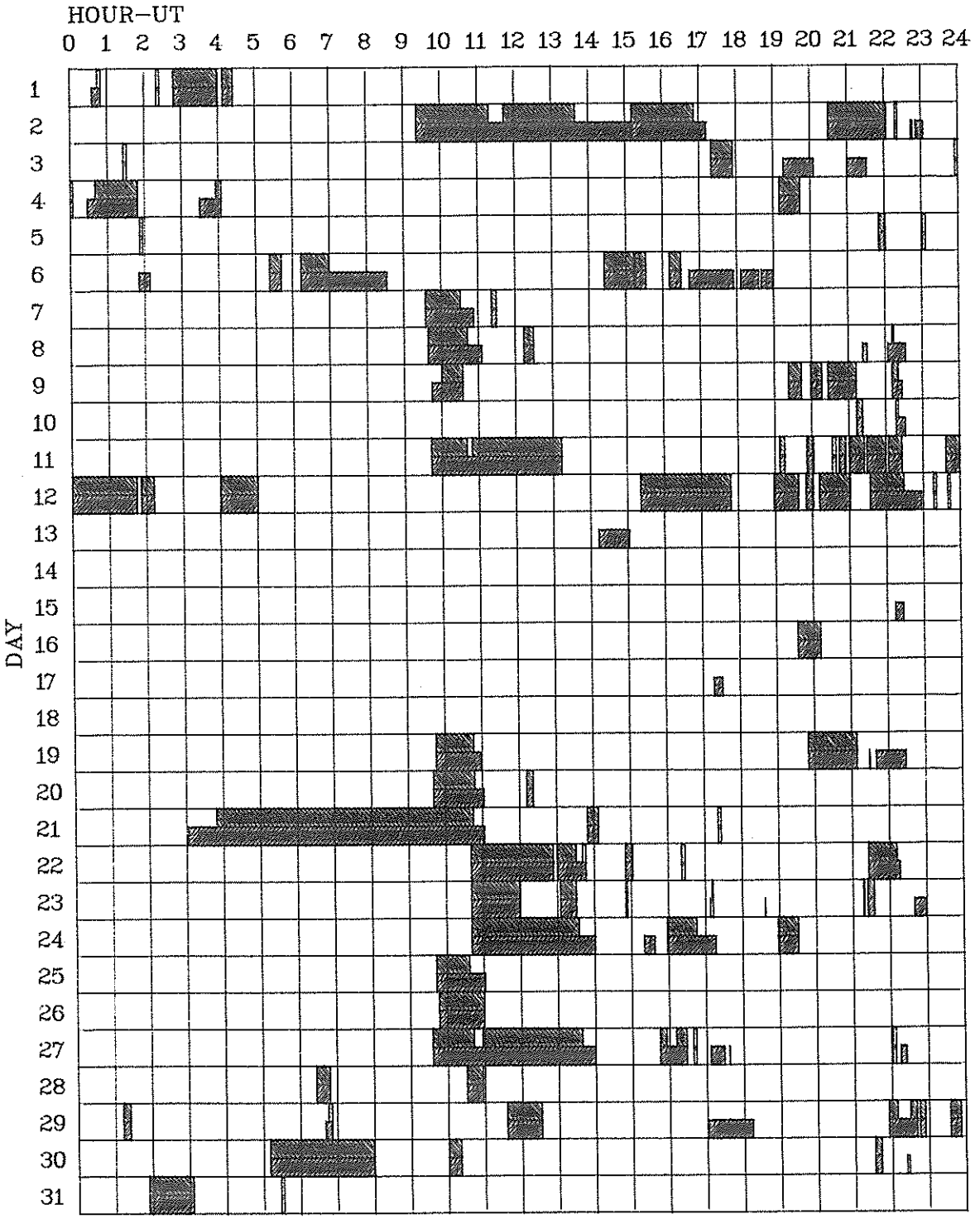
"Remarks":

A = Eruptive prominence whose base is less than 90° from central meridian.
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 visible spots in the neighborhood.
H = Flare accompanied by high-speed dark filament.
I = Active region very extended.
J = Distinct variations of plage intensity before or after the flare.
K = Several intensity maxima.
L = Existing filaments show signs of sudden activity.
M = White-light flare.
N = Continuous spectrum shows effects of polarization.
O = Observations have been made in the H and K lines of Ca II.
P = Flare shows helium D3 in emission.
Q = Flare shows Balmer continuum in emission.
R = Marked asymmetry in H-alpha line suggests ejection of high-velocity material.
S = Brightness follows disappearance of filament in same position.
T = Region active all day.
U = Two bright branches, parallel or converging.
V = Occurrence of an explosive phase: important, expansion within roughly 1 minute that often includes a significant intensity increase.
W = Great increase in area after time of maximum intensity.
X = Unusually wide H-alpha line.
Y = System of loop-type prominences.
Z = Major sunspot umbra covered by flare.

INTERVALS OF NO FLARE PATROL OBSERVATION

FOR PRECEDING SOLAR FLARE TABLE

OCTOBER 1986



Times of no flare patrol, shown here as shaded areas, combine reports from the observatories listed below. Portions of a panel completely shaded mark dates and times of no patrol of any kind, that is, of neither visual nor cinematographic; portions of a panel with only the bottom half shaded mark times of strictly visual patrol.

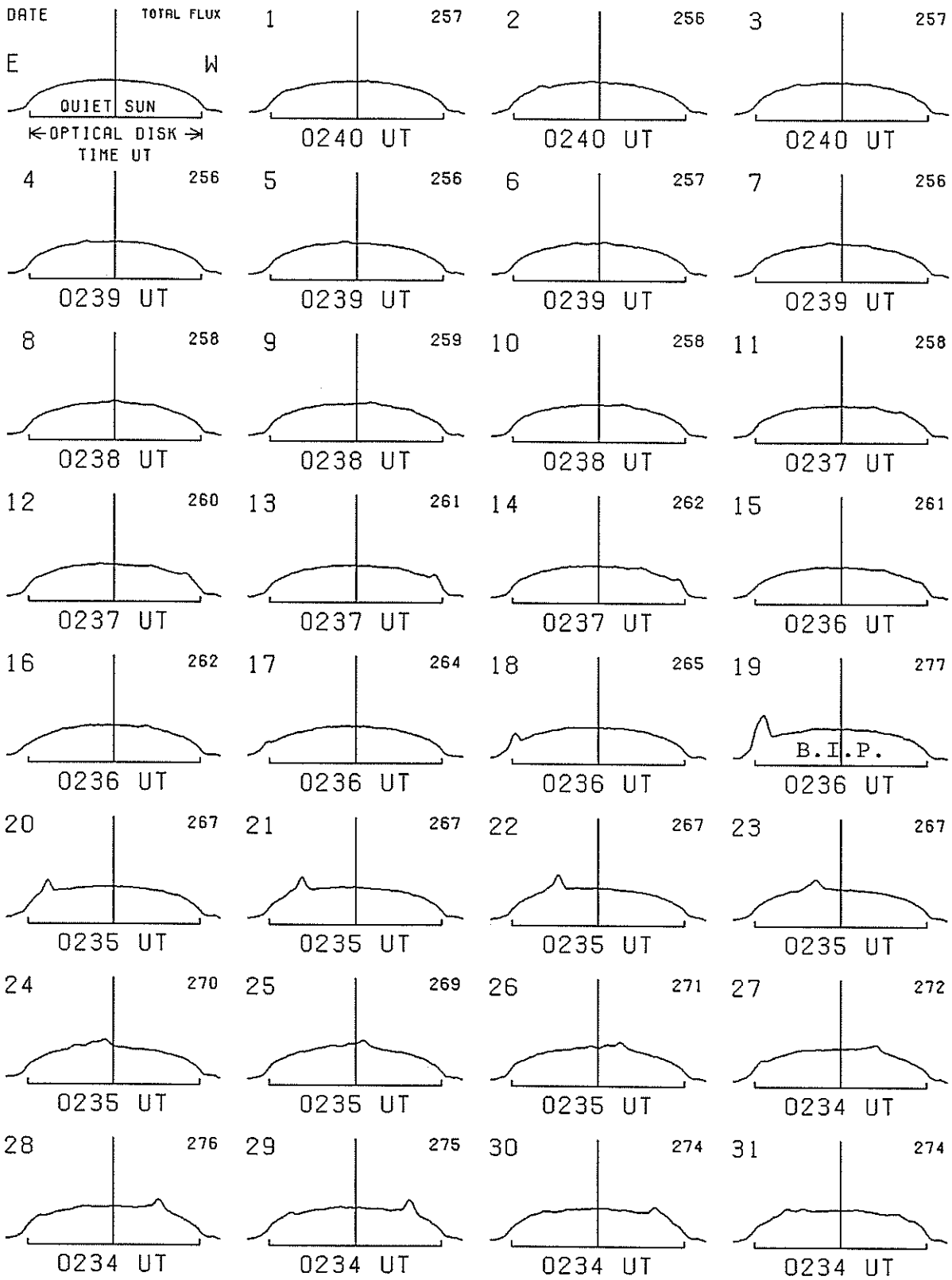
Athens	Holloman	Learmonth	Manila	Ramey
Bucharest	Istanbul	Kodaikanal	Palehua	Urumqi
				Wendelstein

EAST-WEST SOLAR SCANS

OCTOBER 1986

TOYOKAWA.JAPAN

3 CM
FAN BEAM WITH 1.1 MINUTES OF ARC



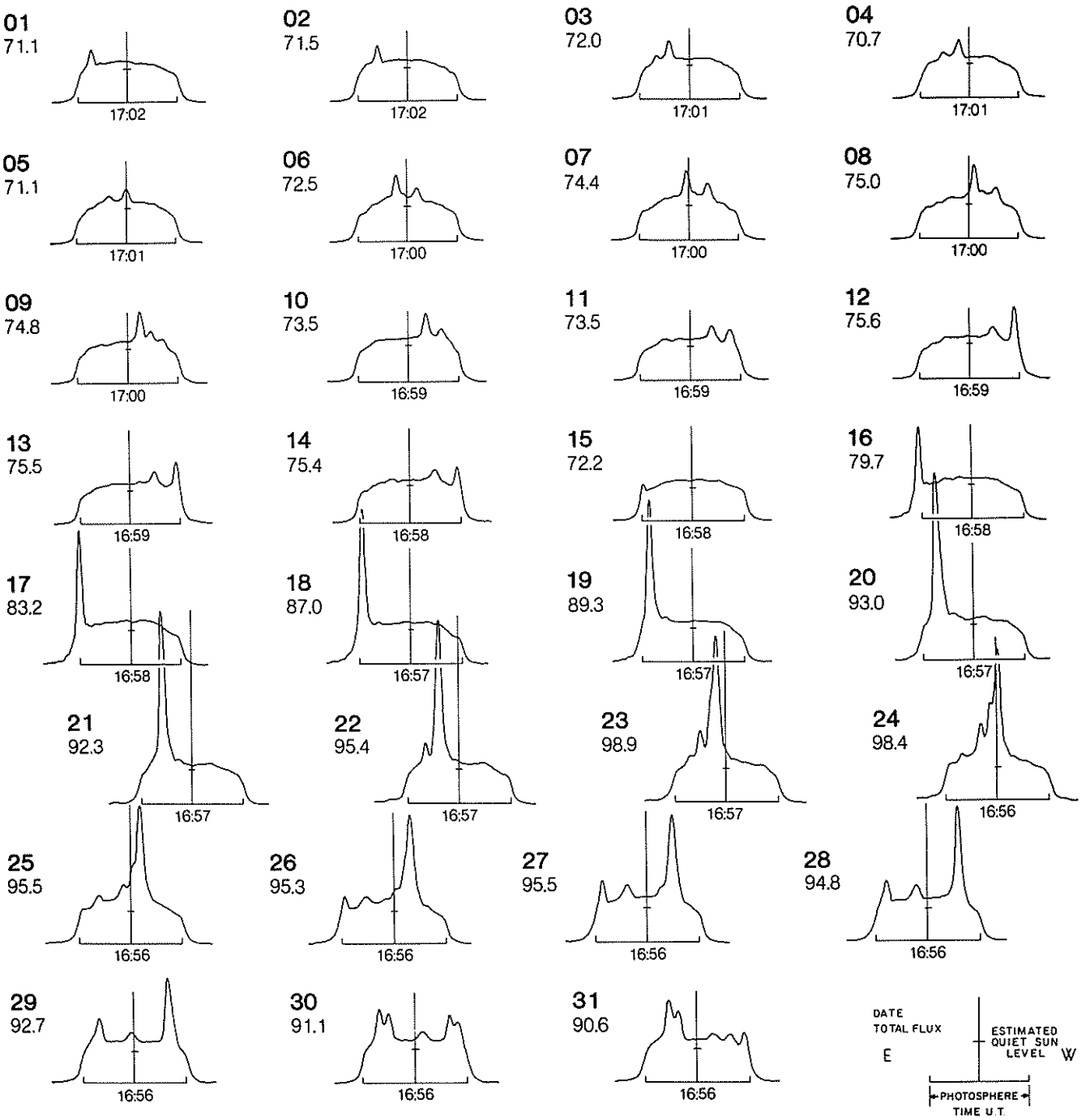
20
Oct 86

EAST-WEST SOLAR SCANS

OCTOBER 1986

ALGONQUIN RADIO OBSERVATORY
CANADA

10·7 cm
Fan Beam with 1·5 minutes of arc
E-W Resolution

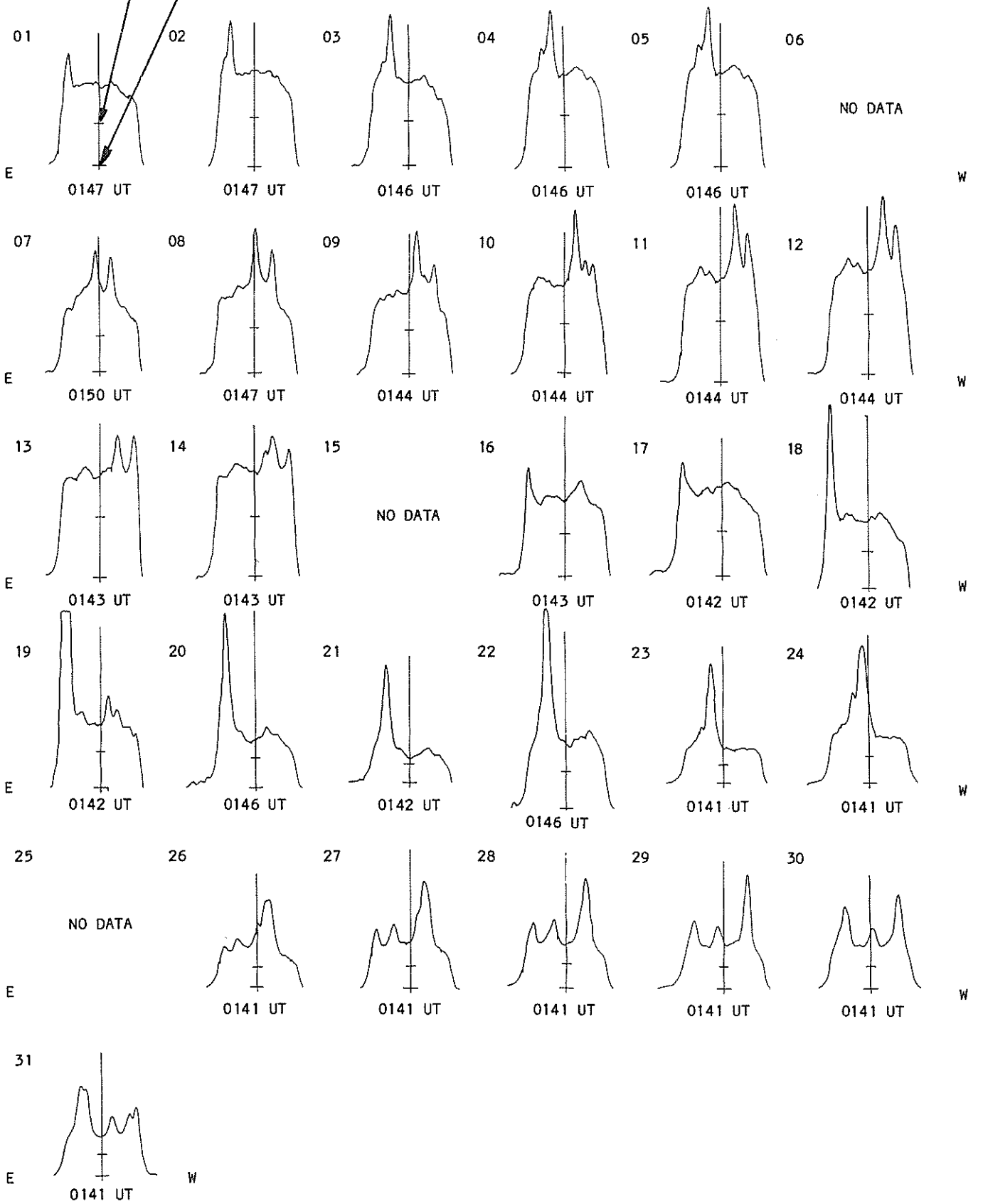


E A S T - W E S T S O L A R S C A N S

Fleurs, Australia

OCTOBER 1986

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



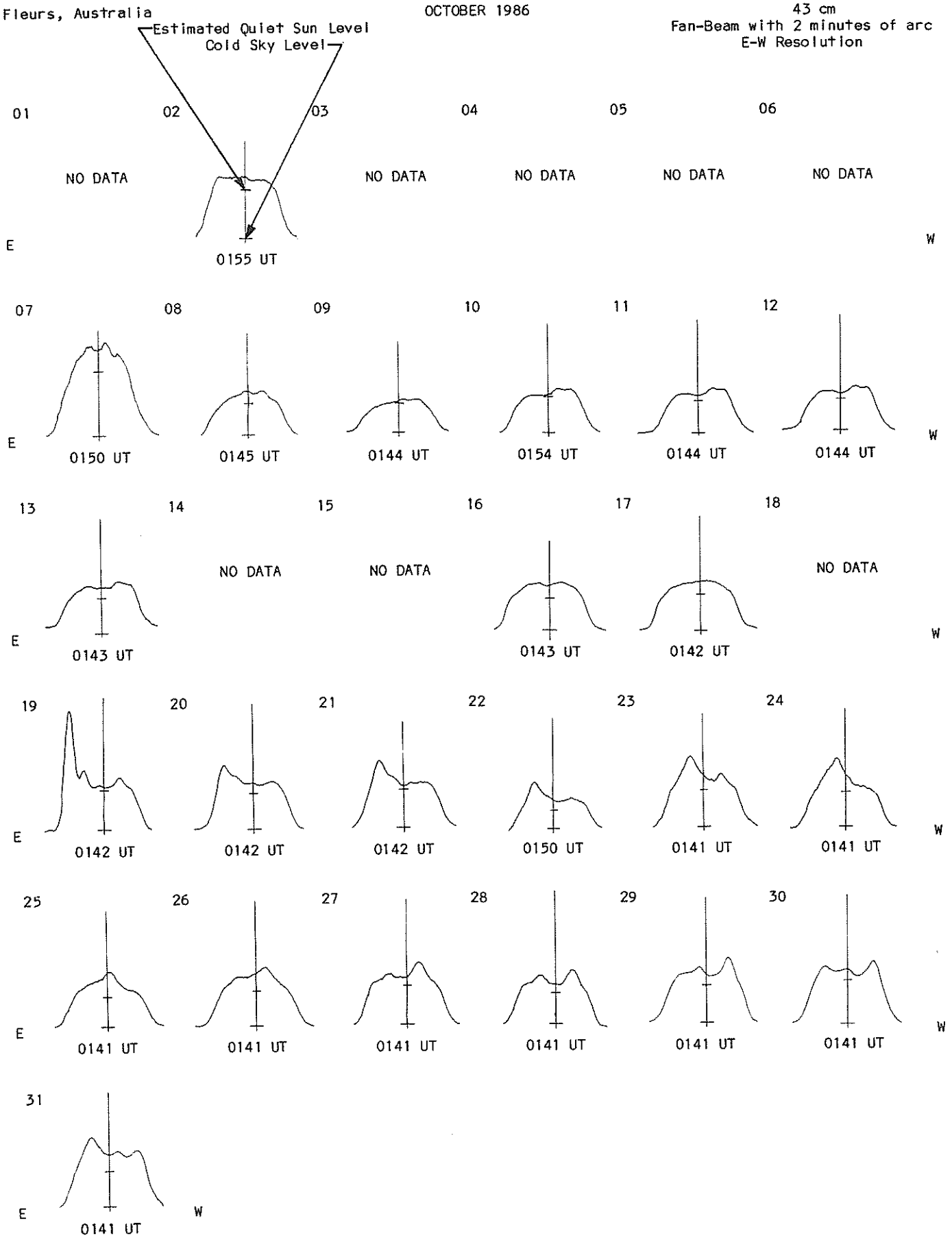
22
Oct 86

E A S T - W E S T S O L A R S C A N S

Fleurs, Australia

OCTOBER 1986

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



SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

OCTOBER 1986

Day	Freq	Sta	Type		Start (UT)	Time of Maximum (UT)	Duration (Min)	Flux Density Peak (10^{-22} W/m^2 Hz)	Flux Density Mean (10^{-22} W/m^2 Hz)	Int	Remarks
05	2695	SGMR	8	S	1939.0E	1940.0	1.0D	9.0			QL=1 ST=3 TYP=3
10	2800	OTTA	1	S	1233.0	1233.9	2.0	1.4	.7		
17	2695	SGMR	8	S	2043.0E	2043.0	1.0D	20.0			QL=5 ST=2 TYP=3
	2695	PALE	4	S/F	2043.0E	2043.0	85.0D	30.0			QL=3 ST=2 TYP=3
	8800	SGMR	4	S/F	2043.0E	2043.0	51.0D	55.0			QL=5 ST=3 TYP=3
	8800	PALE	47	GB	2043.0E	2043.0	1416.0D	60.0			QL=3 ST=2 TYP=5
	2800	OTTA	8	S	2043.0	2043.1	.5	33.5	8.4		
18	2800	OTTA	21	GRF	1232.0	1249.0	18.0	1.9	.9		
	2800	OTTA	8	S	1245.7	1248.0	2.3U	3.9	1.0		
19	2695	LEAR	49	GB	0018.0E	0043.0	89.0D	1300.0			QL=5 ST=2 TYP=6
	8800	LEAR	49	GB	0024.0E	0043.0	83.0D	2100.0			QL=5 ST=2 TYP=6
	2695	PALE	49	GB	0024.0E	0044.0	86.0D	1400.0			QL=1 ST=2 TYP=6
	8800	PALE	49	GB	0024.0E	0044.0	86.0D	2000.0			QL=1 ST=2 TYP=6
	2800	OTTA	20	GRF	1830.0	1906.0	90.0	3.5	1.4		
	2800	OTTA	8	S	2031.6	2031.9	.5	4.2	2.1		
	2800	OTTA	1	S	2106.2	2106.6	2.2	7.2	3.6		
	2800	OTTA	3	S	2108.5	2112.5	5.5	26.1	10.4		
	2800	OTTA	29	PBI	2114.0	2114.2	15.0D	5.2			
20	8800	LEAR	4	S/F	0324.0E	0324.0	1416.0D	20.0			QL=5 ST=2 TYP=3
	8800	SVTO	8	S	1446.0E	1446.0	1.0D	44.0			QL=5 ST=2 TYP=3
	2800	OTTA	1	S	1630.0	1631.0	7.0	1.8	.7		
	2800	OTTA	20	GRF	1745.0	1810.0	120.0	1.2	.7		
21	8800	LEAR	4	S/F	0818.0E	0818.0	1236.0D	31.0			QL=5 ST=2 TYP=3
	2800	OTTA	1	S	1824.5	1825.1	35.0	2.0	1.2		
22	8800	SGMR	47	GB	1901.0E	1902.0	6.0D	59.0			QL=1 ST=3 TYP=5
	8800	SGMR	47	GB	1902.0E	1902.0	5.0D	59.0			QL=1 ST=2 TYP=5
	8800	PALE	47	GB	1902.0E	1902.0	7.0D	80.0			QL=5 ST=2 TYP=5
	8800	LEAR	8	S	2340.0E	2340.0	1.0D	15.0			QL=5 ST=2 TYP=3
23	8800	LEAR	4	S/F	0001.0E	0001.0	20.0D	14.0			QL=5 ST=2 TYP=3
	8800	PALE	4	S/F	0104.0E	0106.0	5.0D	38.0			QL=5 ST=2 TYP=3
	8800	LEAR	47	GB	0104.0E	0106.0	5.0D	55.0			QL=5 ST=2 TYP=5
	8800	LEAR	8	S	0228.0E	0229.0	1.0D	16.0			QL=5 ST=2 TYP=3
	2800	OTTA	21	GRF	1450.0	1910.0	390.0	3.4	1.4		
	2800	OTTA	20	GRF	1711.5	1713.7	14.5	6.9	2.8		
24	8800	SGMR	47	GB	1238.0E	1238.0	4.0D	110.0			QL=1 ST=3 TYP=5
	8800	SVTO	47	GB	1238.0E	1238.0	10.0D	170.0			QL=1 ST=2 TYP=5
	2800	OTTA	20	GRF	1847.0	1849.0	13.0	3.9	1.8		
	2800	PENT	20	GRF	2004.5	2006.7	10.5	8.7	2.6		
25	8800	LEAR	8	S	0119.0E	0120.0	1.0D	37.0			QL=5 ST=2 TYP=3
	8800	LEAR	47	GB	0423.0E	0423.0	2.0D	95.0			QL=5 ST=2 TYP=5
	8800	LEAR	47	GB	0607.0E	0608.0	4.0D	150.0			QL=5 ST=2 TYP=5
	8800	SVTO	47	GB	0607.0E	0608.0	1073.0D	160.0			QL=5 ST=1 TYP=5
	8800	LEAR	8	S	0615.0E	0616.0	2.0D	10.0			QL=5 ST=2 TYP=3
	2800	OTTA	22	GRF	1506.0	1544.0	74.0	3.5	2.1		
28	2800	OTTA	20	GRF	1245.0	1416.0	145.0	3.2	1.6		

Observatories

ATHN = Athens
BERN = Berne
LEAR = Learmonth
MANI = Manila
OTTA = Ottawa
PALE = Palehua
PENT = Penticton
SGMR = Sagamore Hill
SVTO = San Vito

Explanation of Type Code:

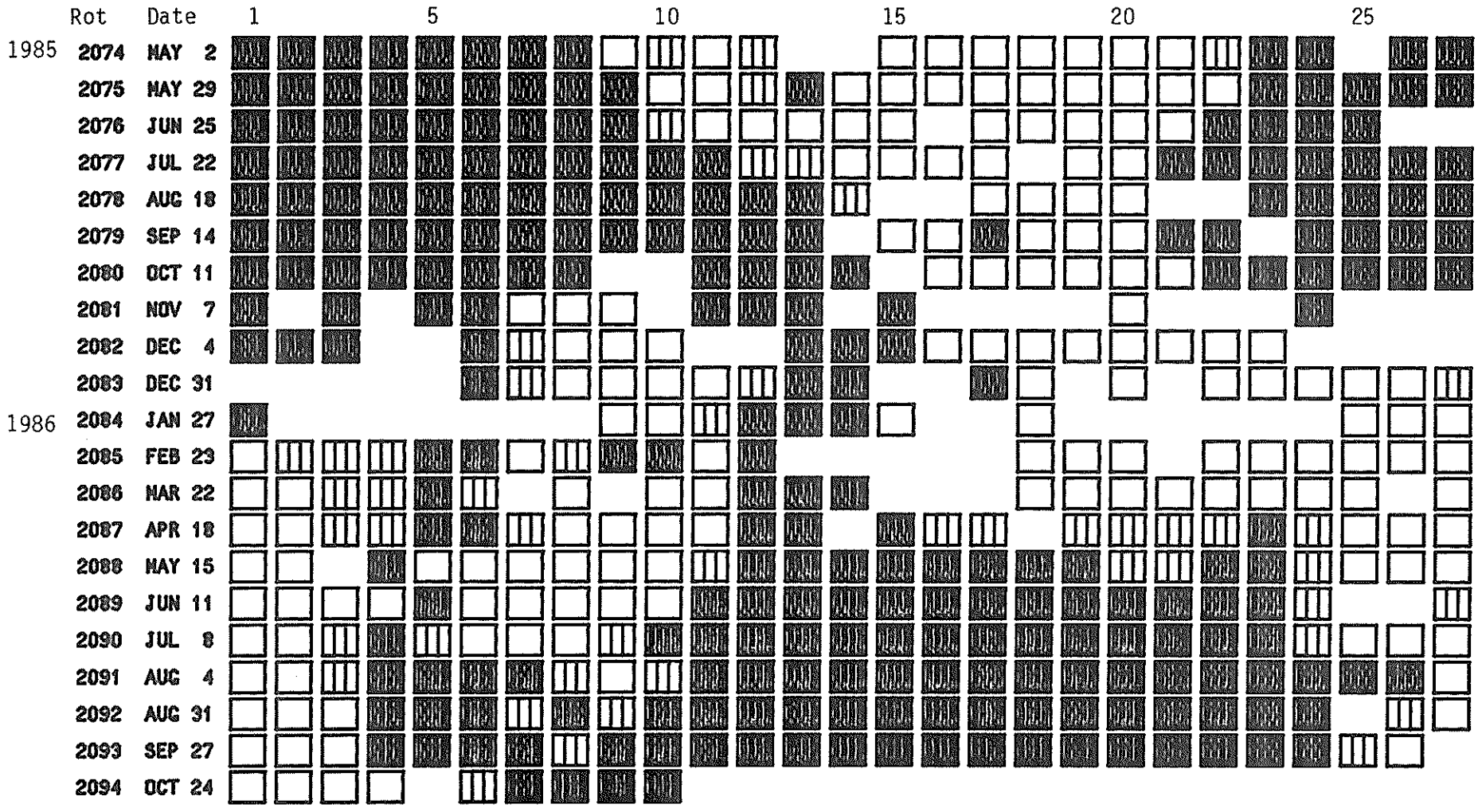
1 Simple 1
2 Simple 1F
3 Simple 2
4 Simple 2F
5 Simple
6 Minor
7 Minor +
8 Spike
20 Simple 3
21 Simple 3A
22 Simple 3F
23 Simple 3AF
24 Rise
25 Rise A
26 Fall
27 Rise and Fall
28 Precursor
29 Post Burst Increase
30 Post Burst Increase A
31 Post Burst Decrease
33 Absorption
40 Fluctuation
41 Group of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

STANFORD MEAN SOLAR MAGNETIC FIELD (MICROTESLA)

Day	1985 Nov	Dec	1986 Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct
1	-7	•	•	•	3	10	•	-6	-6	3	4	-7
2	-10	•	•	•	0	-3	-7	-2	-5	7	5	-7
3	-8	•	•	•	-7	-14	0	1	-7	4	-6	-6
4	-15	-16	•	5	-7	-16	2	-1	2	10	-6	1
5	-16	-20	-3	15	3	•	•	-4	•	10	-3	-7
6	-25	-25	1	2	-11	•	2	-4	•	0	0	-6
7	-26	•	14	-8	•	•	2	0	-1	-2	-2	-12
8	•	•	3	-27	•	6	0	6	10	-5	-1	-15
9	-17	-14	11	-14	•	5	1	4	4	-4	-9	-11
10	•	1	12	4	•	5	-5	11	1	-2	-14	-15
11	-6	13	0	•	•	3	2	5	-5	1	-16	-18
12	-5	8	-19	•	5	5	8	11	0	3	-17	-10
13	5	3	-14	9	11	3	13	4	3	-1	-18	-8
14	11	•	•	•	8	8	13	3	5	-12	-19	-9
15	6	•	•	•	•	7	8	-3	5	-17	-15	-10
16	•	-18	-12	•	14	•	10	6	2	-21	-10	-10
17	-3	-20	21	•	11	8	•	6	-2	-23	-11	-15
18	-2	-21	•	•	12	5	-2	6	-2	-21	-11	-21
19	-11	3	24	•	12	6	3	6	-7	-18	-13	-10
20	•	11	•	9	12	2	9	6	-23	-13	-14	-7
21	-5	15	16	18	10	-1	7	-4	-21	-14	-15	1
22	•	22	11	10	8	-5	6	-19	-26	-13	-13	7
23	•	28	12	9	5	-4	9	-23	-16	-15	-9	•
24	•	15	15	1	2	1	10	-16	-12	-8	•	33
25	•	21	10	1	-1	7	0	-11	-8	-16	1	14
26	15	8	2	0	-3	13	-22	-8	-7	-9	4	11
27	•	•	-3	-4	0	13	-31	-2	-4	-9	6	6
28	•	•	•	-4	•	10	-25	-4	-5	-8	9	•
29	•	•	•		14	-3	-14	-3	-3	-3	3	-1
30	-8	•	•		•	-14	-8	-3	-22	5	-3	-6
31		•	•		15		-4		2	12		-9

Dot symbol indicates no data available for the day.

STANFORD MEAN SOLAR MAGNETIC FIELD



Mean Solar Magnetic Field Polarity: □ = field > 2 microT; ▥ = -2 microT ≤ field ≤ 2 microT

■ = field <-2 microT; No box = no data available

Observations are taken at 2000 UT. Rotation numbers given are the Bartels series, but the dates are not; these dates mark times of occurrence of phenomena on the Sun that affect the Earth during the given Bartels Rotation.

25
Oct 86

C O N T E N T S

Prompt Reports DATA FOR SEPTEMBER 1986 Number 507 Part I

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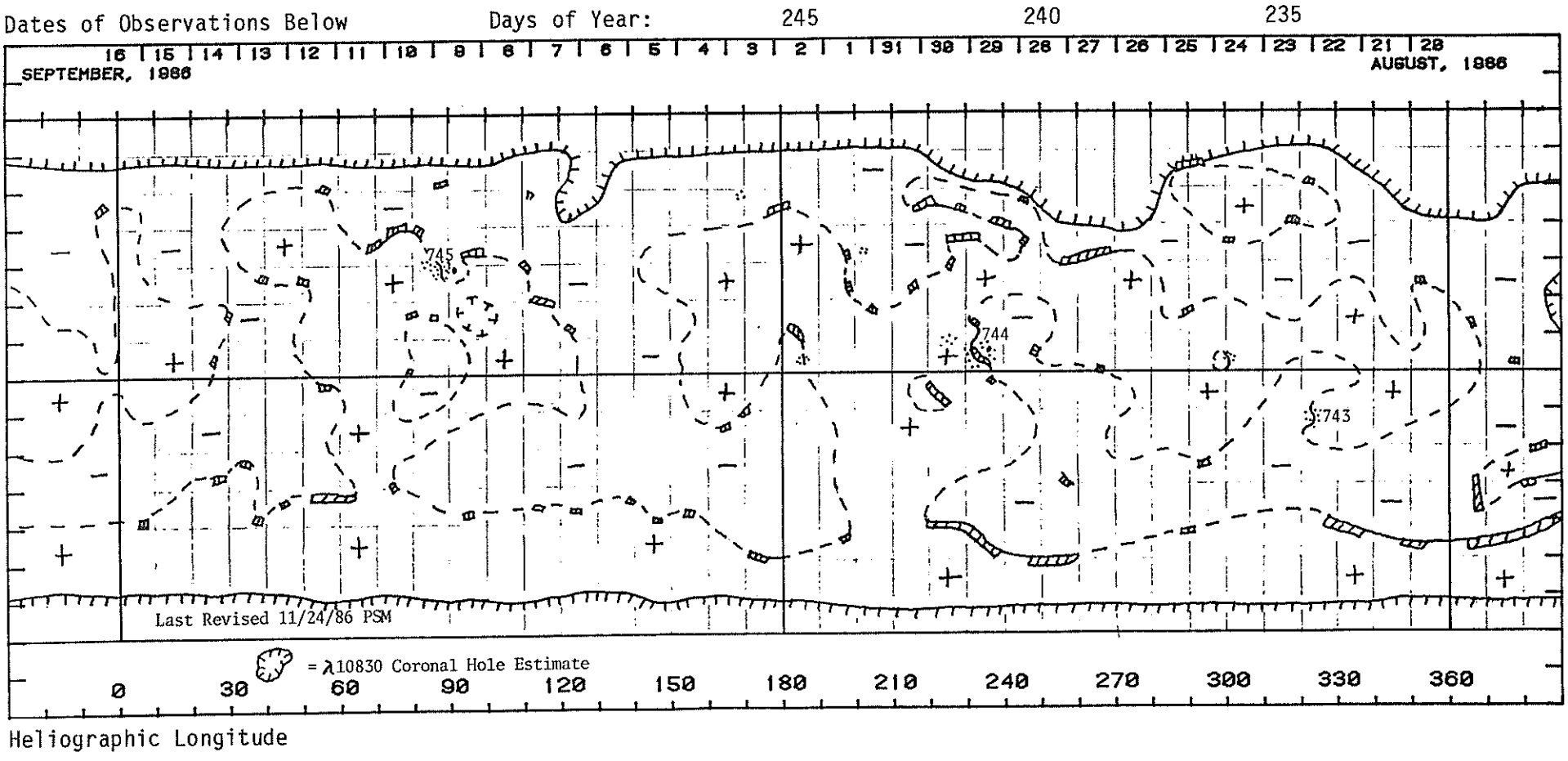
PRELIMINARY H-ALPHA SOLAR SYNOPTIC CHART

CARRINGTON ROTATION NUMBER 1779
(August 20 to September 16, 1986)

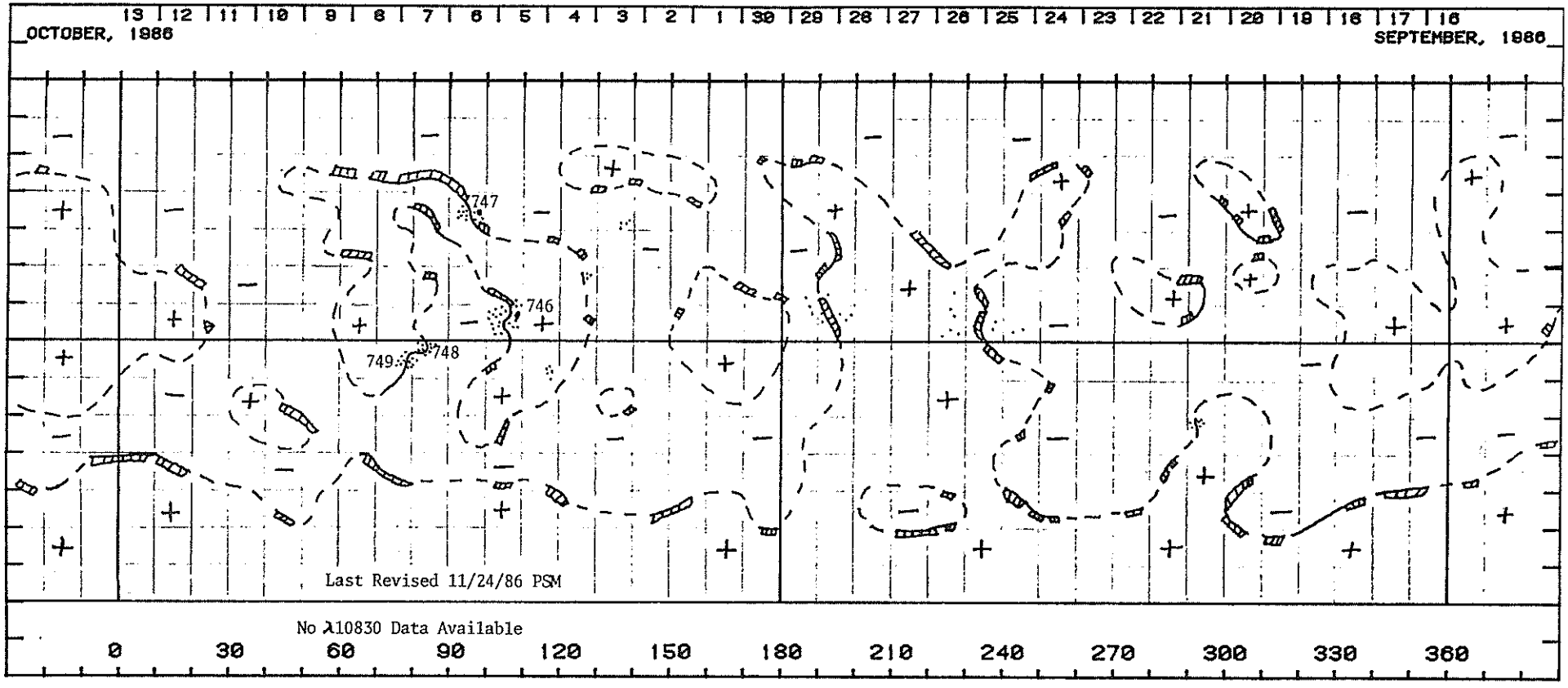


P R E L I M I N A R Y H - ALPHA S O L A R S Y N O P T I C C H A R T

CARRINGTON ROTATION NUMBER 1780

(September 16 to October 13, 1986)

Dates of Observations Below Days of Year: 271 266 261



Heliographic Longitude

29
Sep 86

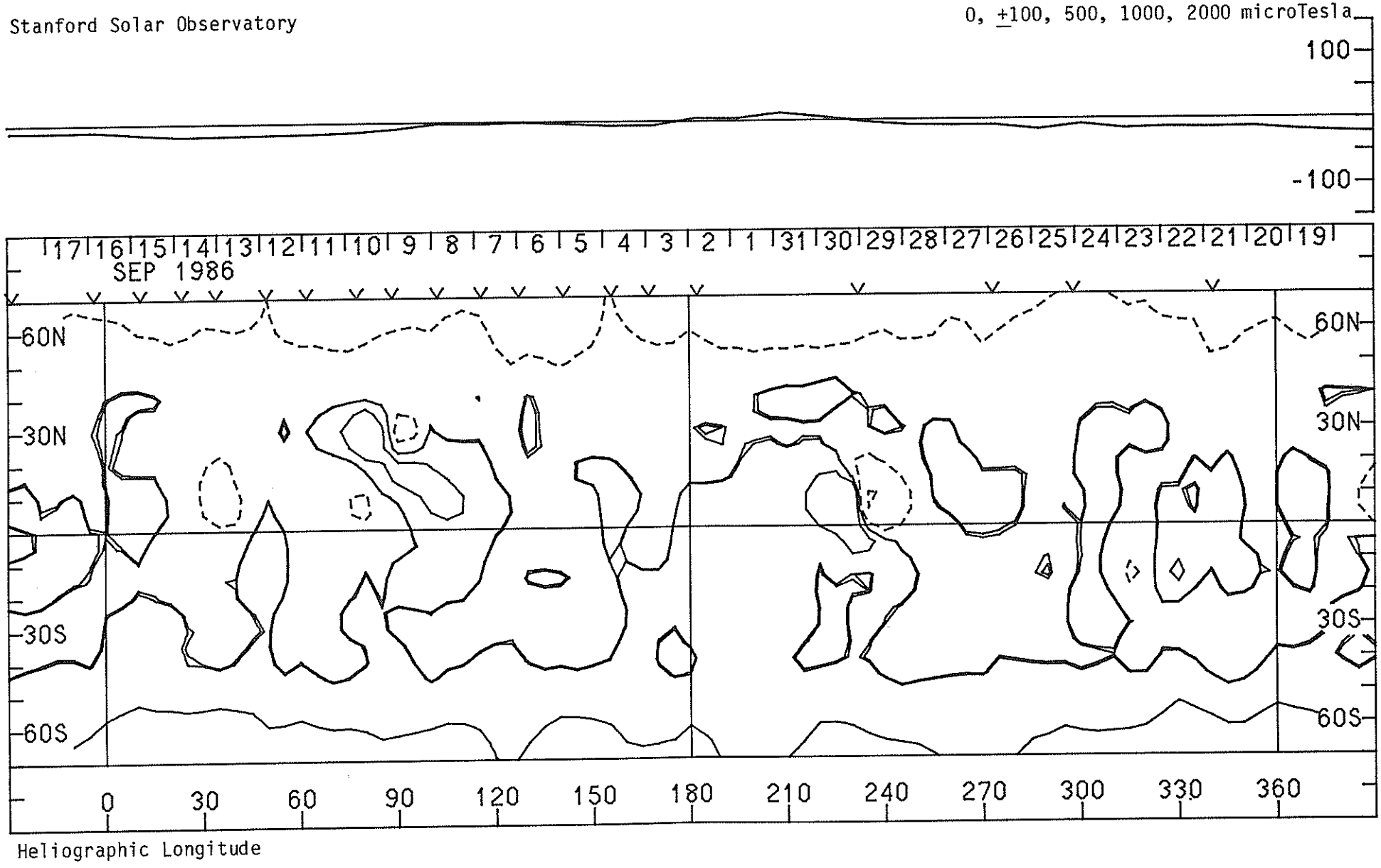
SOLAR MAGNETIC FIELD SYNOPTIC CHART

CARRINGTON ROTATION NUMBER 1779
(August 20 to September 16, 1986)

30 Sep 86

Stanford Solar Observatory

0, ±100, 500, 1000, 2000 microTesla



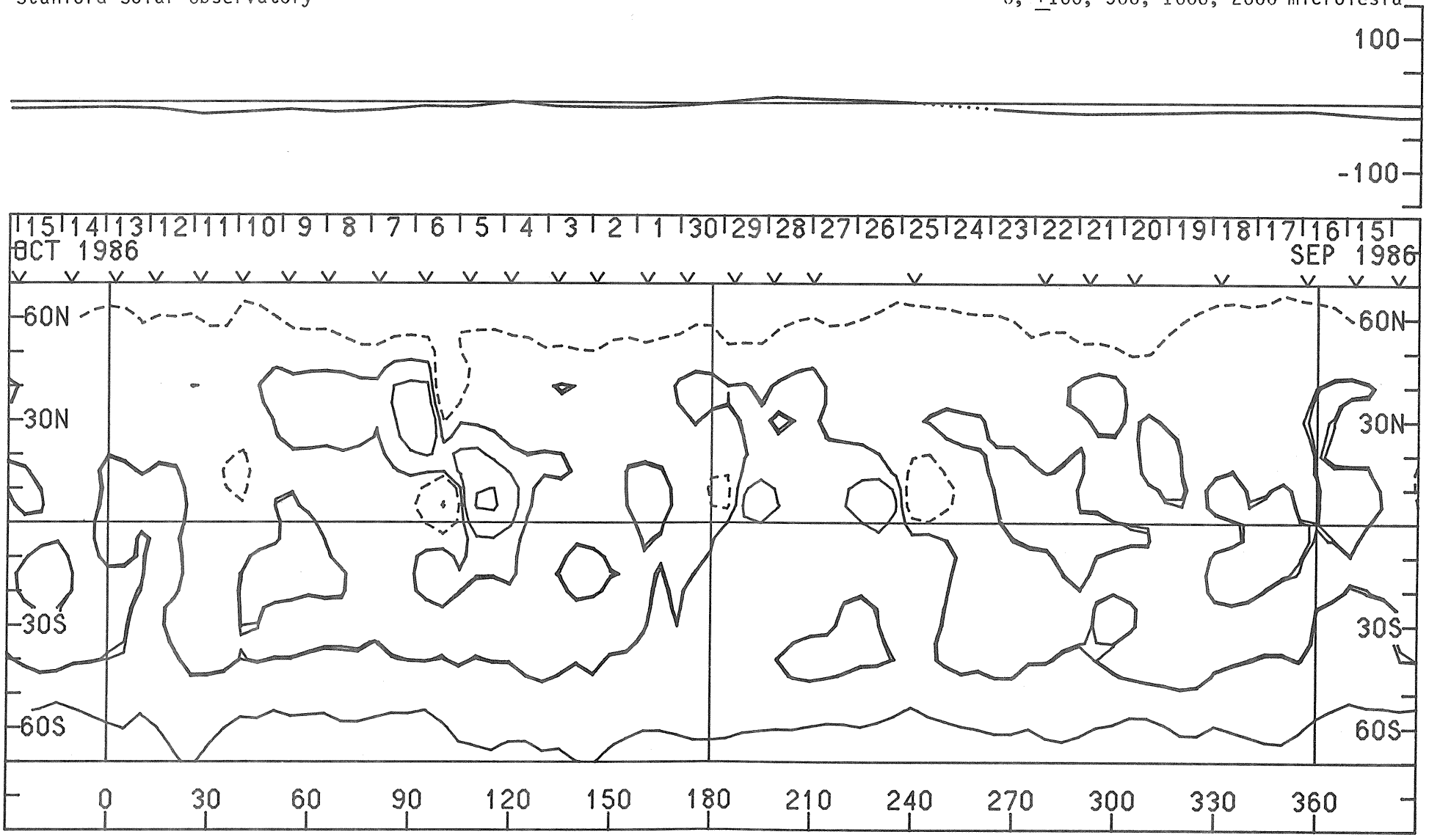
SOLAR MAGNETIC FIELD SYNOPTIC CHART

CARRINGTON ROTATION NUMBER 1780

(September 16 to October 13, 1986)

Stanford Solar Observatory

0, ±100, 500, 1000, 2000 microTesla



Heliographic Longitude

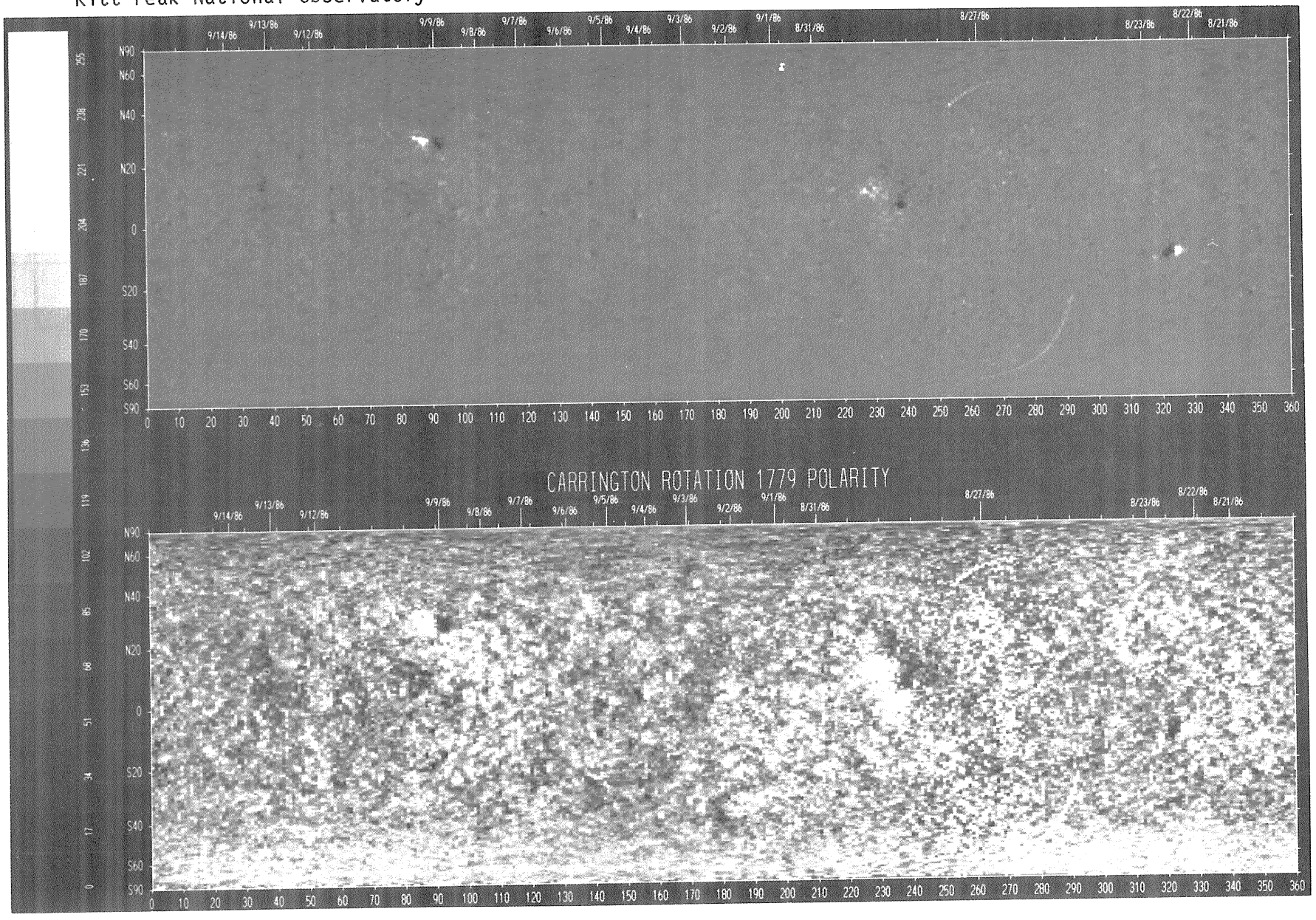
31
Sep 86

SOLAR MAGNETIC FIELD SYNOPTIC CHART

CARRINGTON ROTATION NUMBER 1779
(August 20 to September 16, 1986)

Kitt Peak National Observatory

Dates of Observations

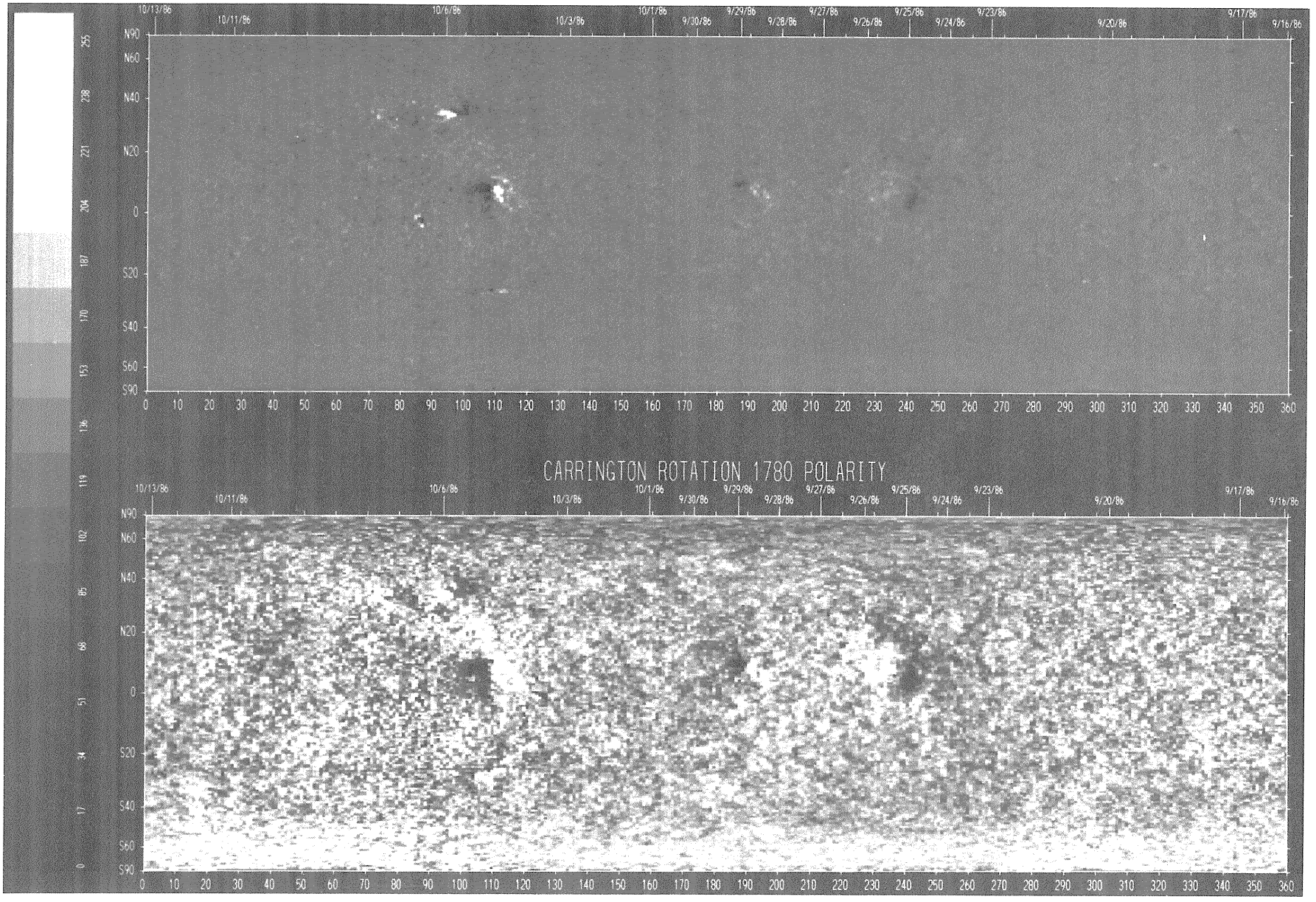


S O L A R M A G N E T I C F I E L D S Y N O P T I C C H A R T

CARRINGTON ROTATION NUMBER 1780
(September 16 to October 13, 1986)

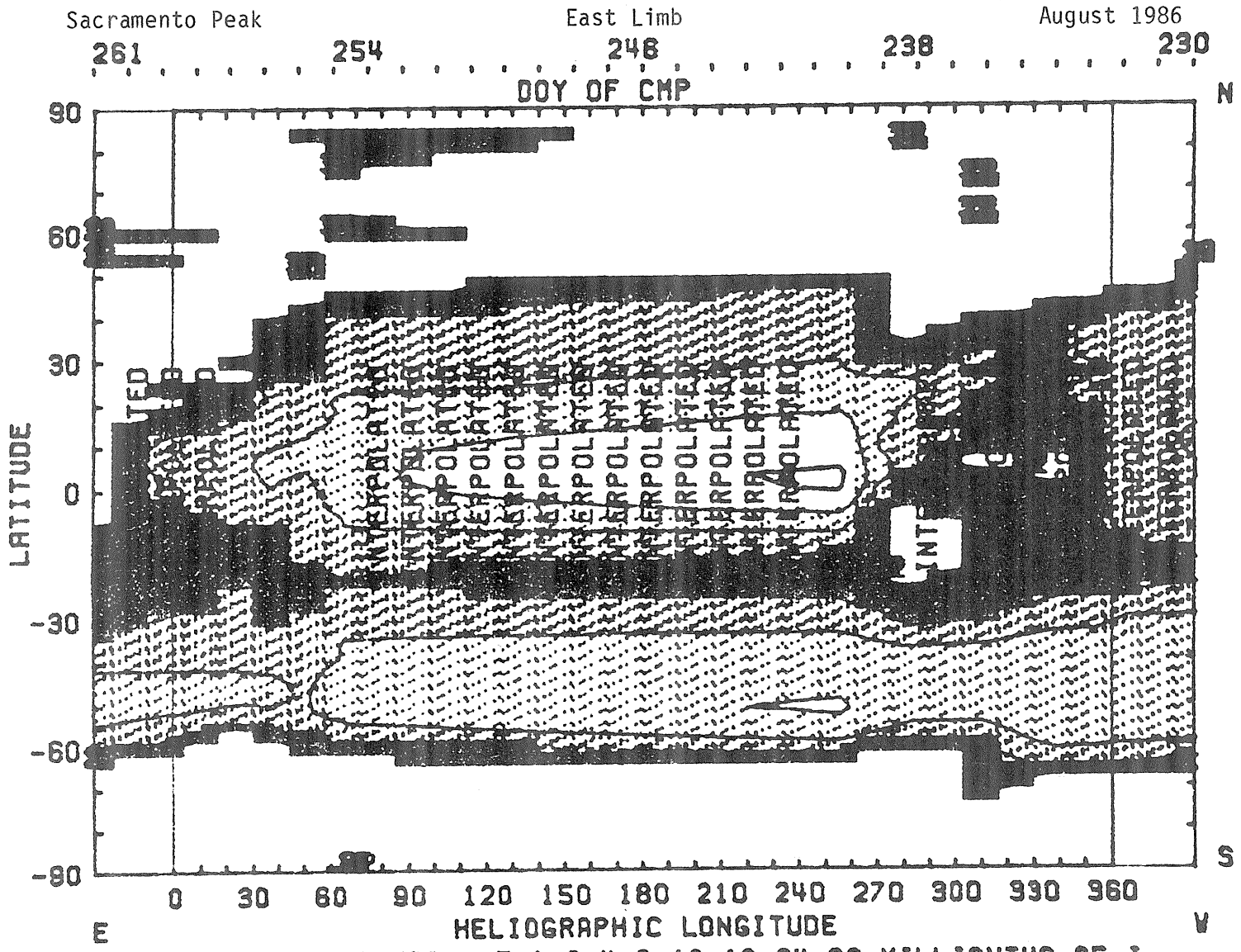
Kitt Peak National Observatory

Dates of Observations



CORONAL GREEN LINE SYNOPTIC MAP

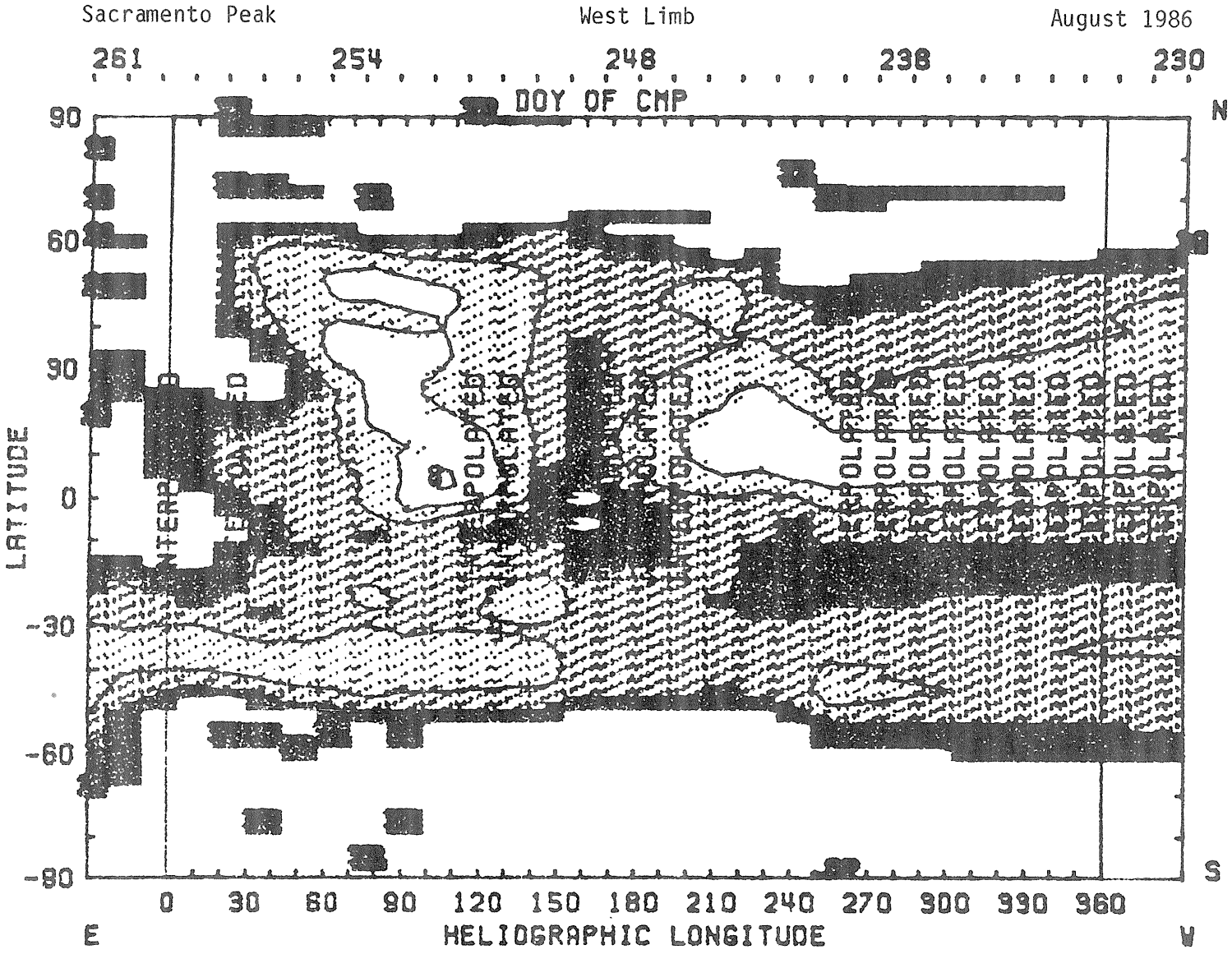
CARRINGTON ROTATION NUMBER 1779
(August 20 to September 16, 1986)



1988 E LIMB CONTOURS: .5,1,2,4,8,12,16,24,32 MILLIONTHS OF Io
CORONAL HOLES ARE SHOWN AS WHITE SURROUNDED BY BLACK

CORONAL GREEN LINE SYNOPTIC MAP

CARRINGTON ROTATION NUMBER 1779
(August 20 to September 16, 1986)

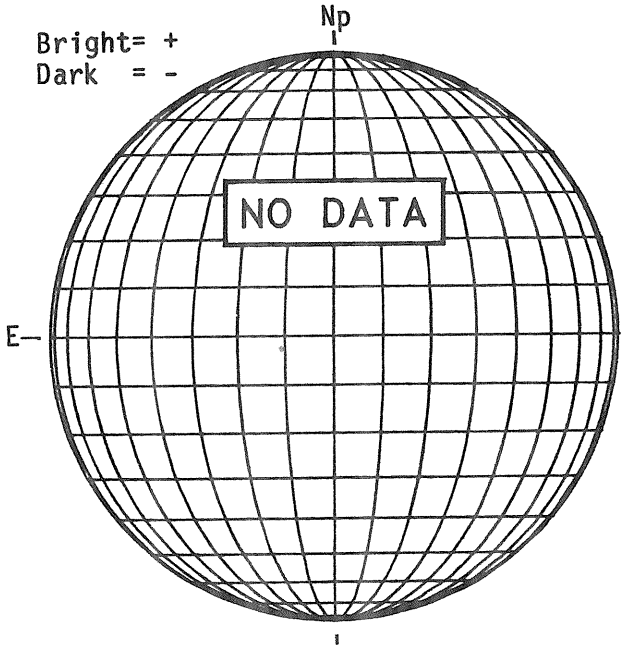


1986 W LIMB CONTOURS: .5,1,2,4,8,12,16,24,32 MILLIONTHS OF Io
CORONAL HOLES ARE SHOWN AS WHITE SURROUNDED BY BLACK

S E P T E M B E R 01, 1 9 8 6 (P= 20.99, B_0= 7.08, L_0= 204.89)

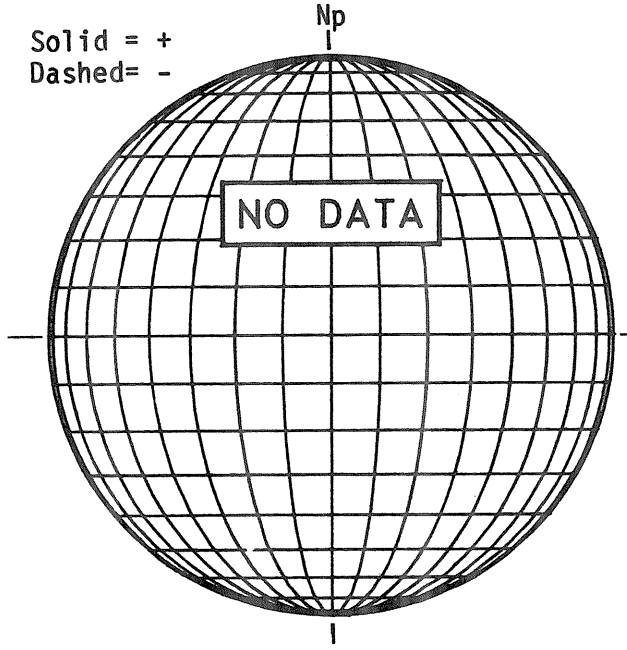
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



STANFORD MAGNETOGRAM

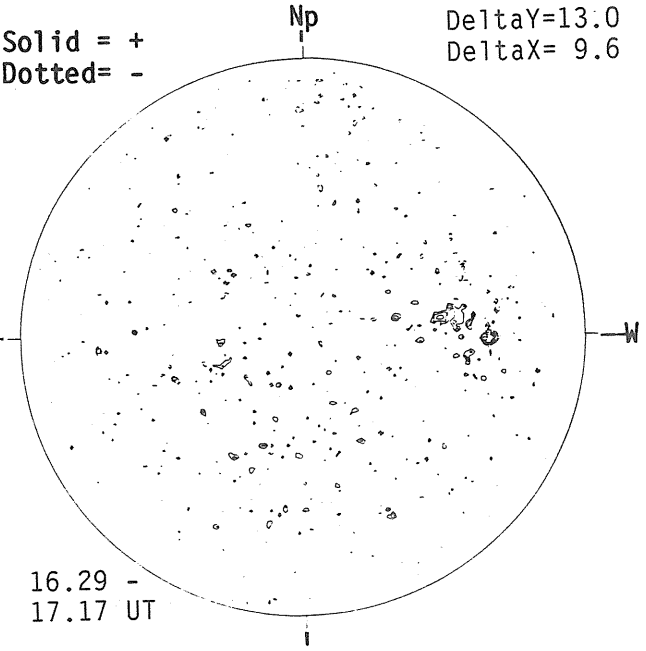
Solid = +
Dashed= -



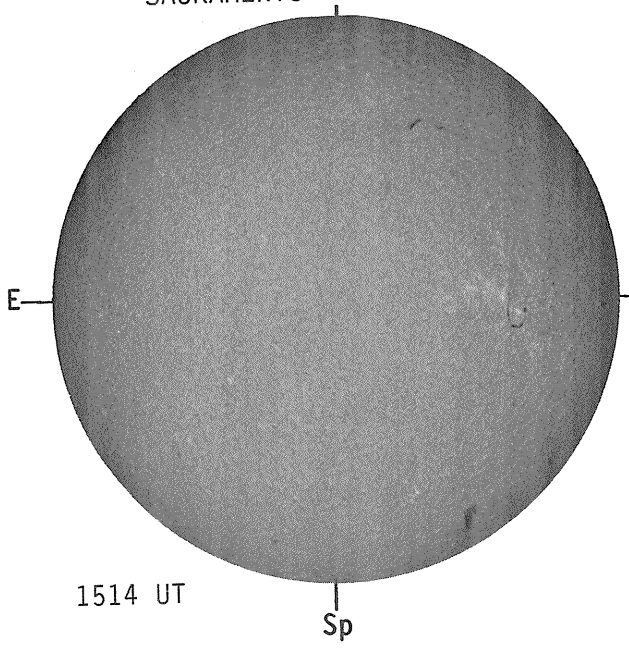
MT. WILSON MAGNETOGRAM

Solid = +
Dotted= -

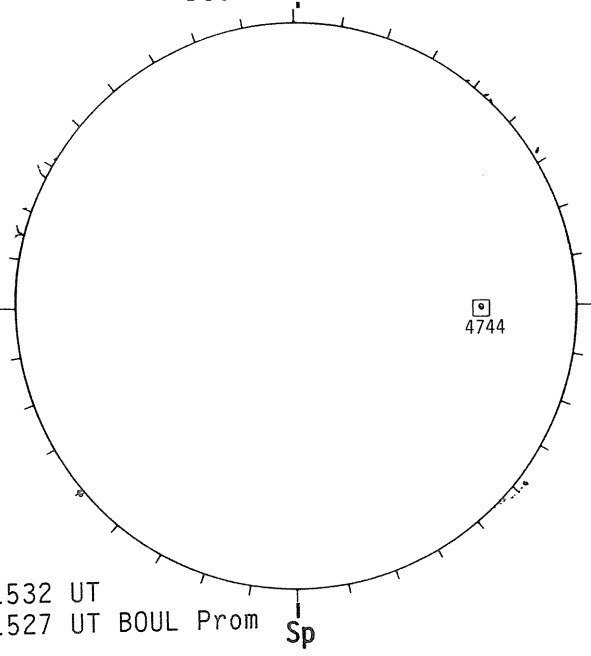
DeltaY=13.0
DeltaX= 9.6



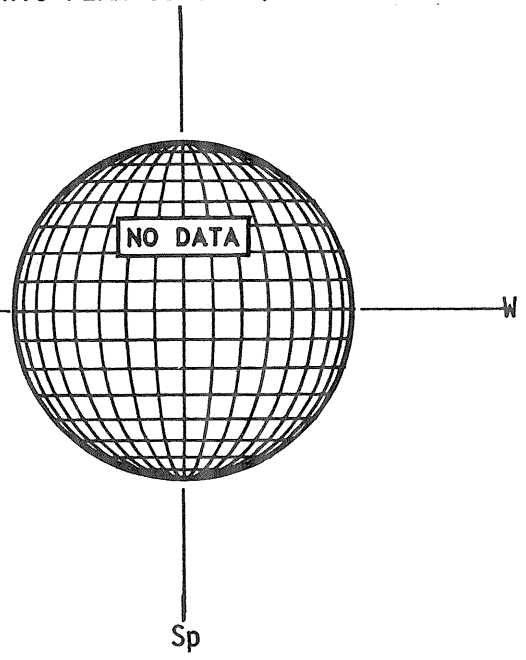
SACRAMENTO PEAK H-ALPHA



BOULDER SUNSPOTS

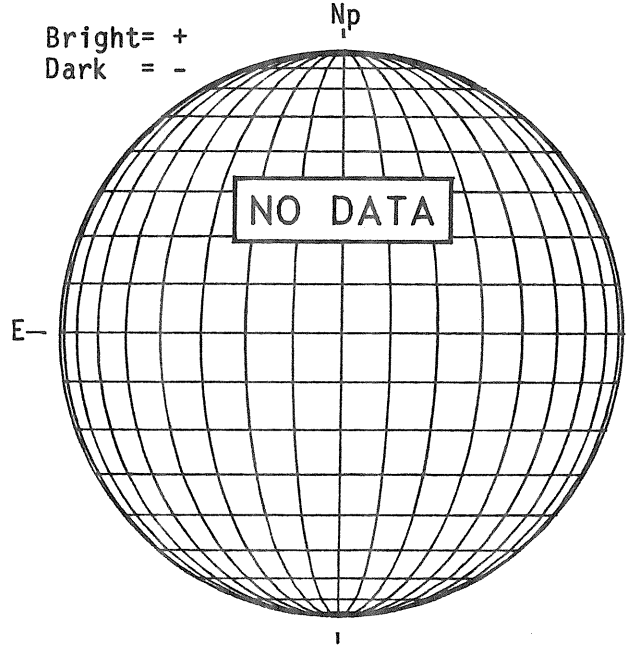


SACRAMENTO PEAK CORONA (1.15 Radii)

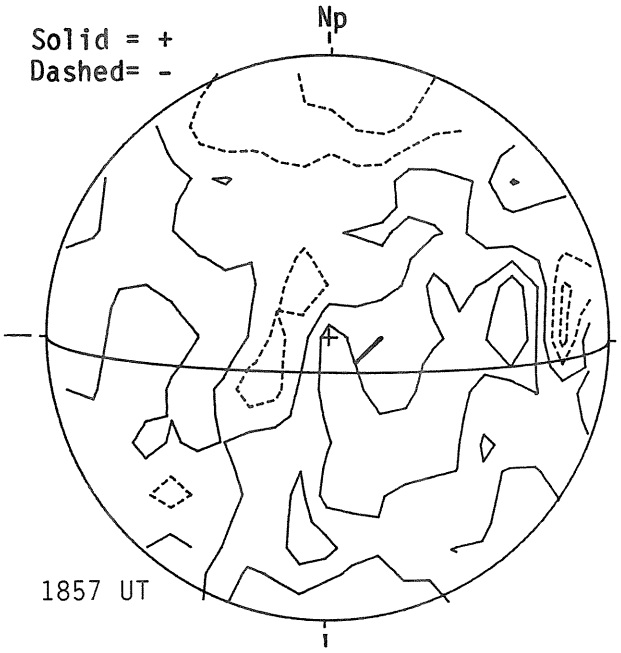


S E P T E M B E R 02, 1 9 8 6 (P= 21.24, B_0= 7.10, L_0= 191.68)

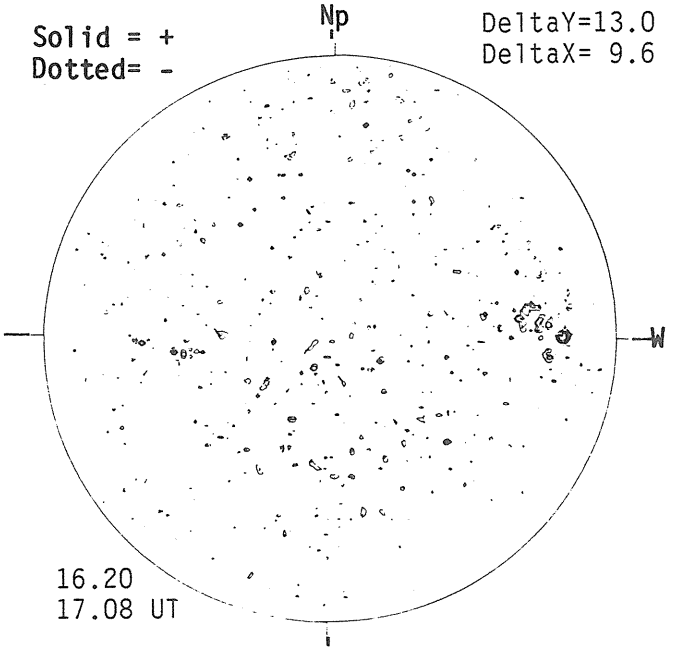
KITT PEAK MAGNETOGRAM



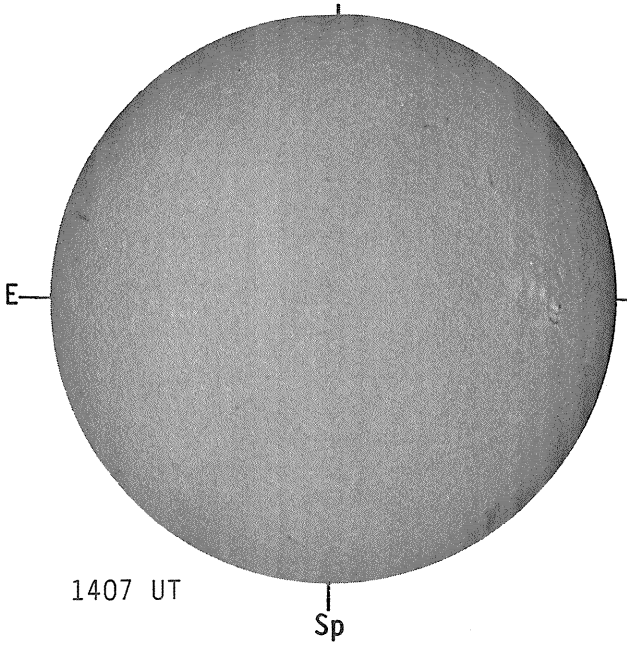
STANFORD MAGNETOGRAM



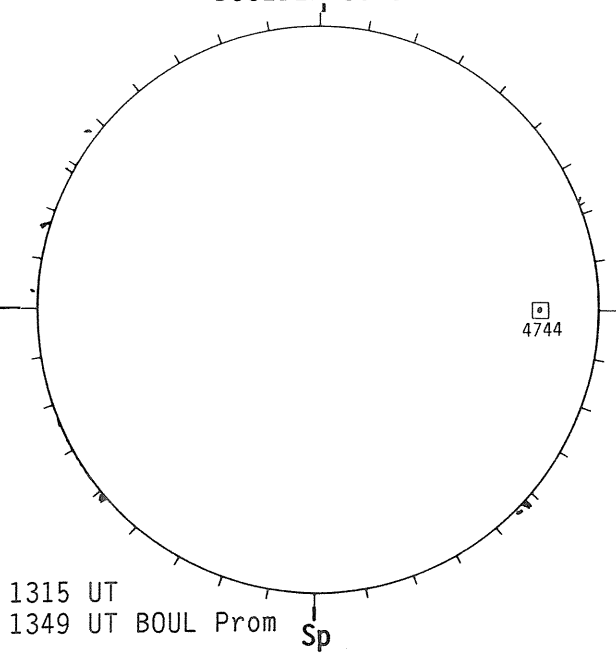
MT. WILSON MAGNETOGRAM



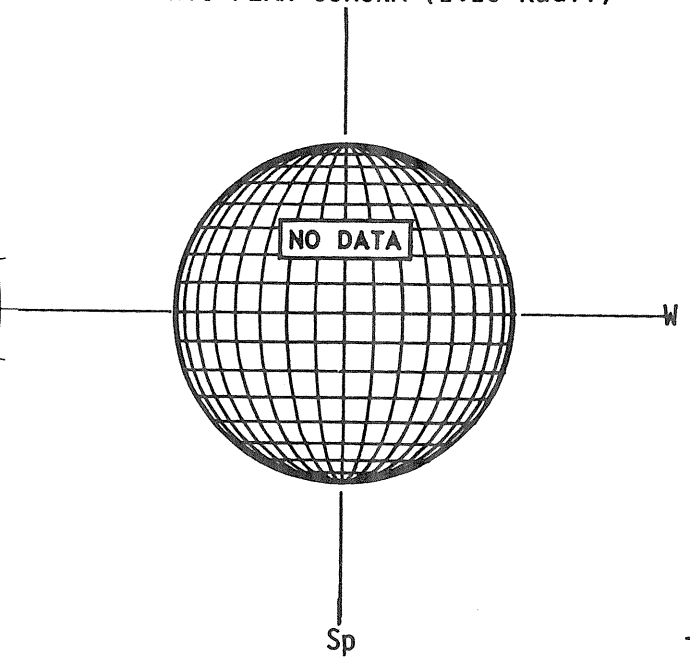
SACRAMENTO PEAK H-ALPHA



BOULDER SUNSPOTS

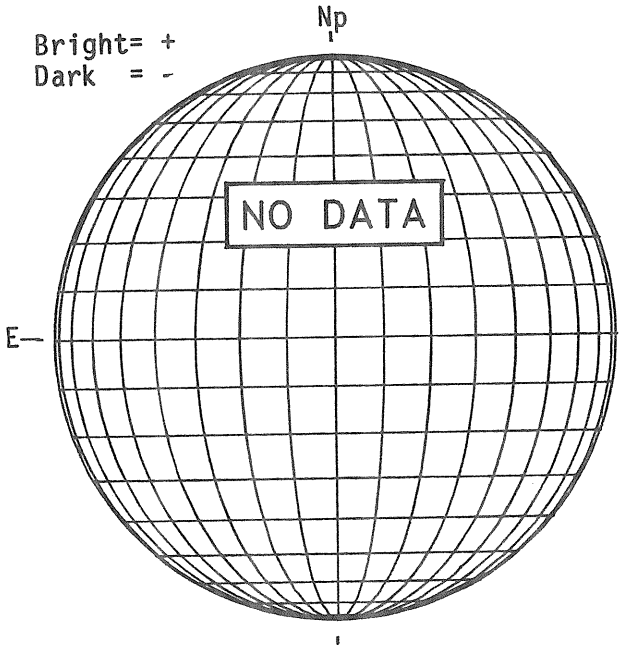


SACRAMENTO PEAK CORONA (1.15 Radii)

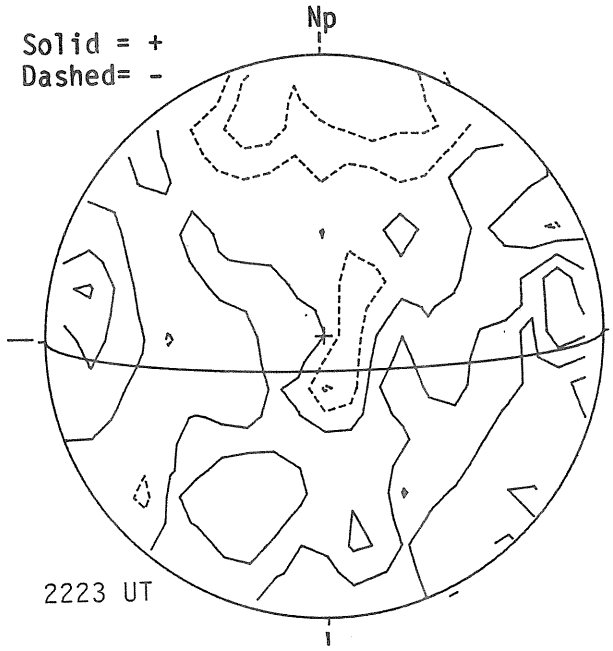


S E P T E M B E R 03, 1 9 8 6 (P= 21.48, B_0= 7.11, L_0= 178.48)

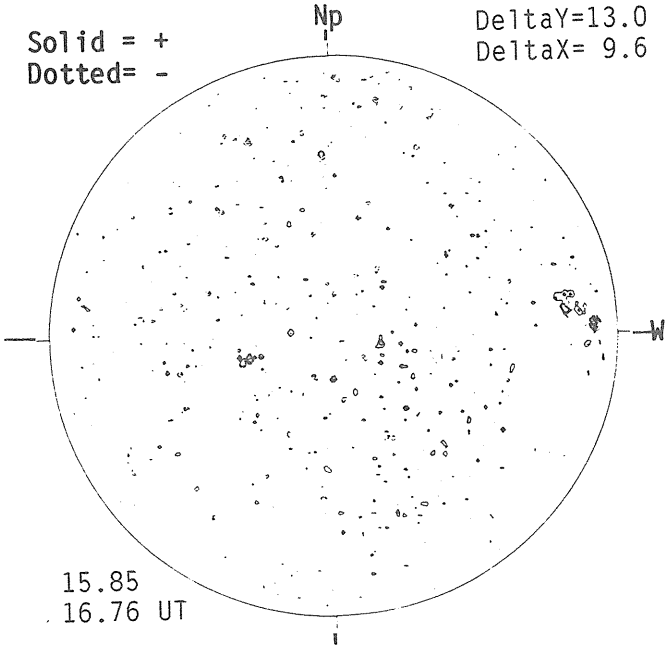
KITT PEAK MAGNETOGRAM



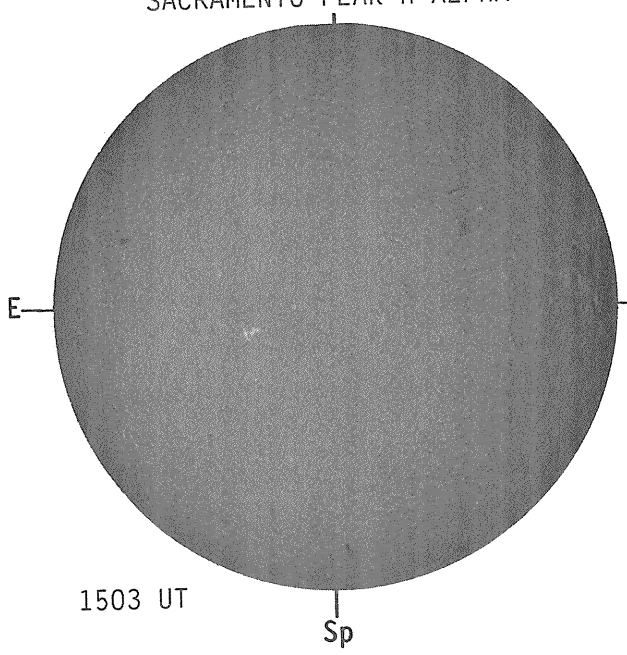
STANFORD MAGNETOGRAM



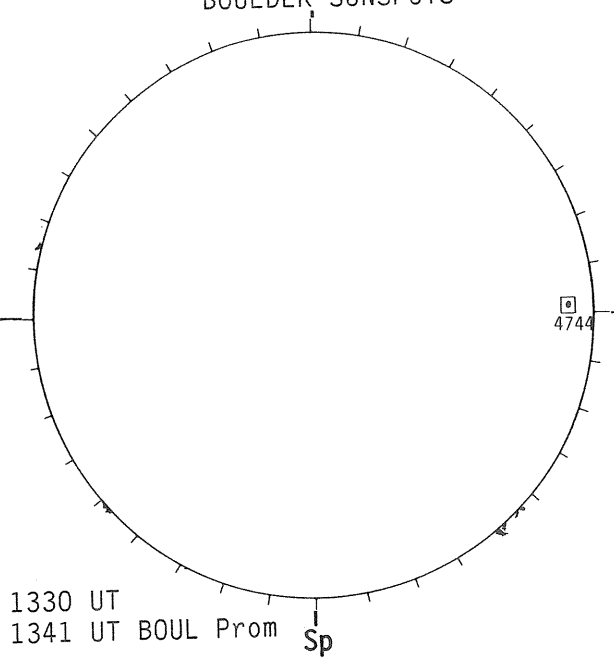
MT. WILSON MAGNETOGRAM



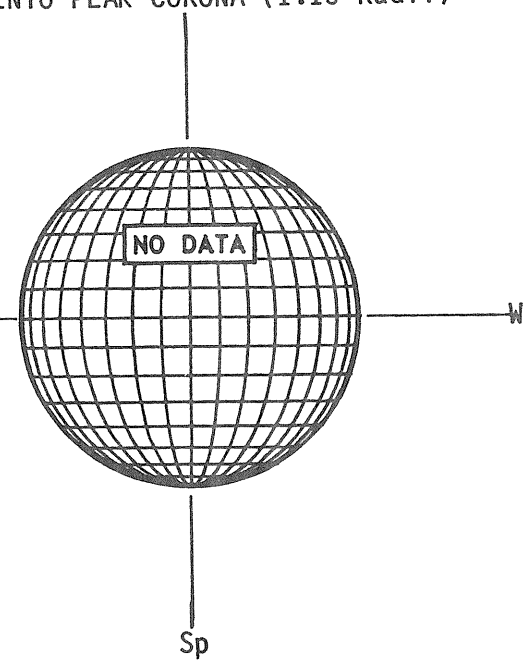
SACRAMENTO PEAK H-ALPHA



BOULDER SUNSPOTS

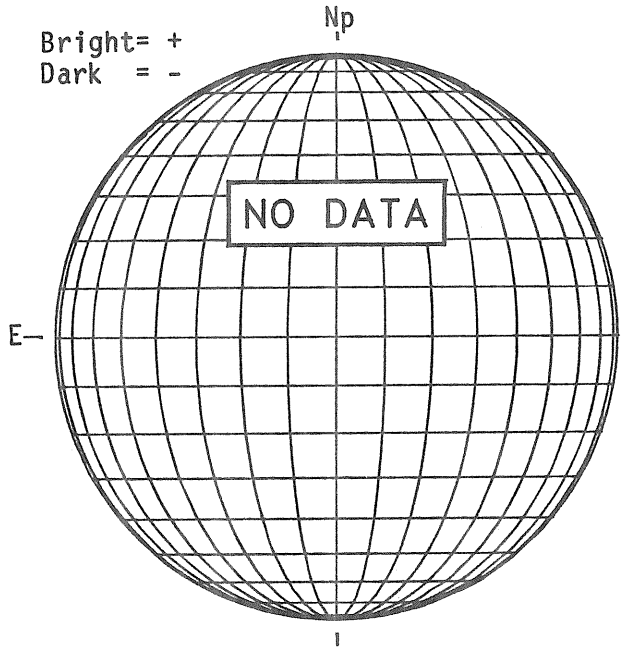


SACRAMENTO PEAK CORONA (1.15 Radii)

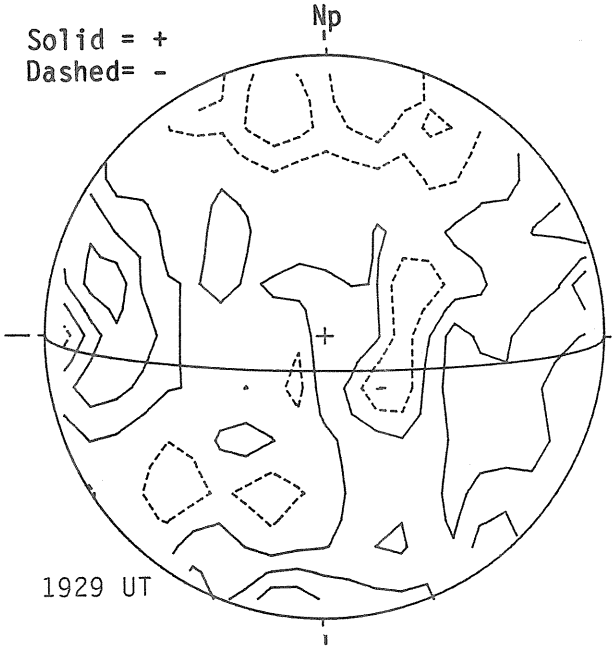


S E P T E M B E R 04, 1 9 8 6 (P= 21.72, B_0= 7.12, L_0= 165.27)

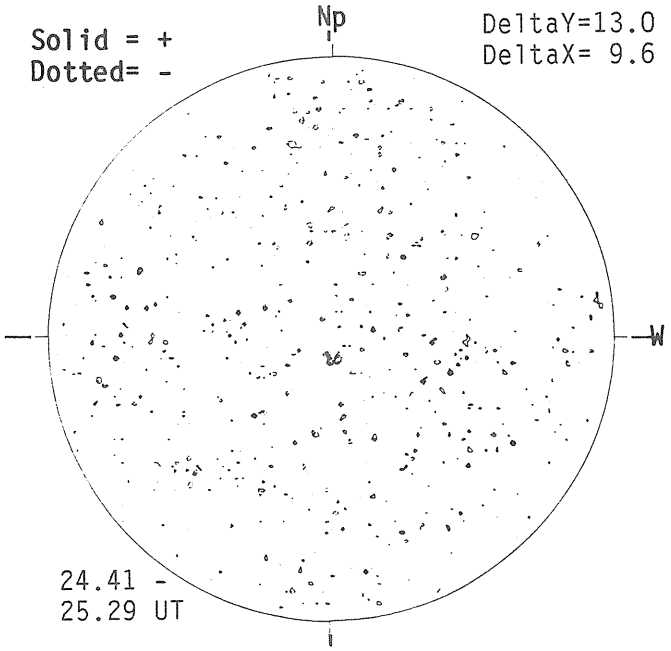
KITT PEAK MAGNETOGRAM



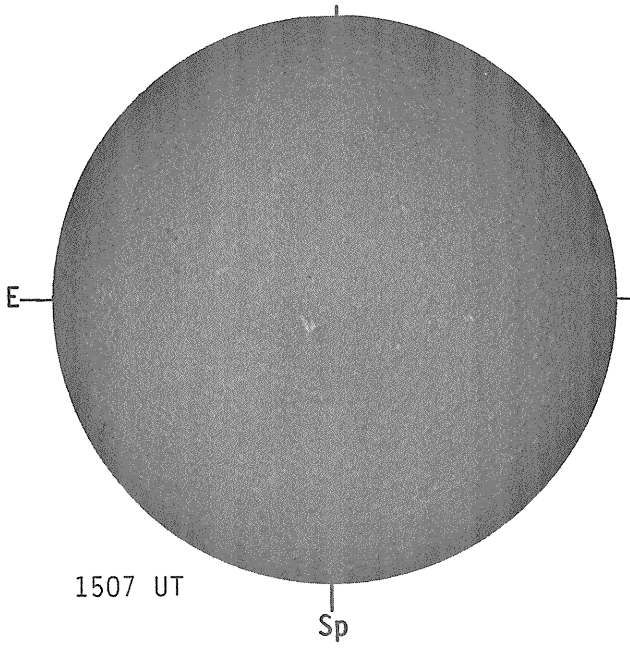
STANFORD MAGNETOGRAM



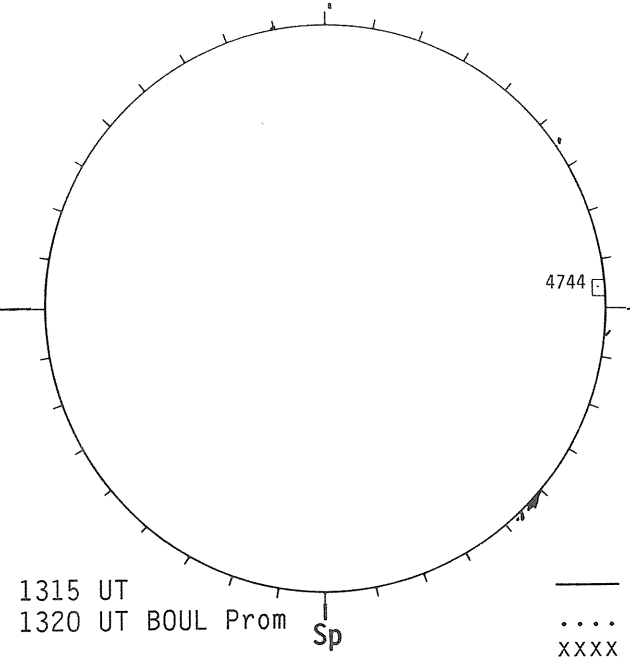
MT. WILSON MAGNETOGRAM



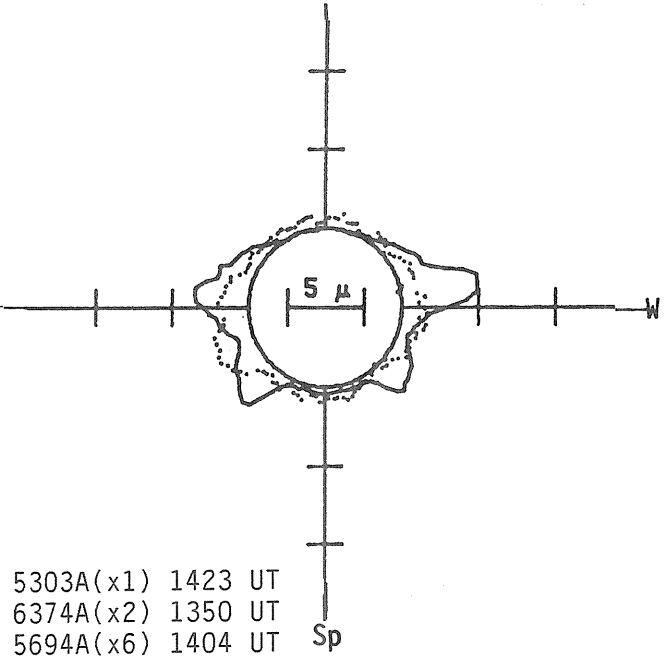
SACRAMENTO PEAK H-ALPHA



BOULDER SUNSPOTS



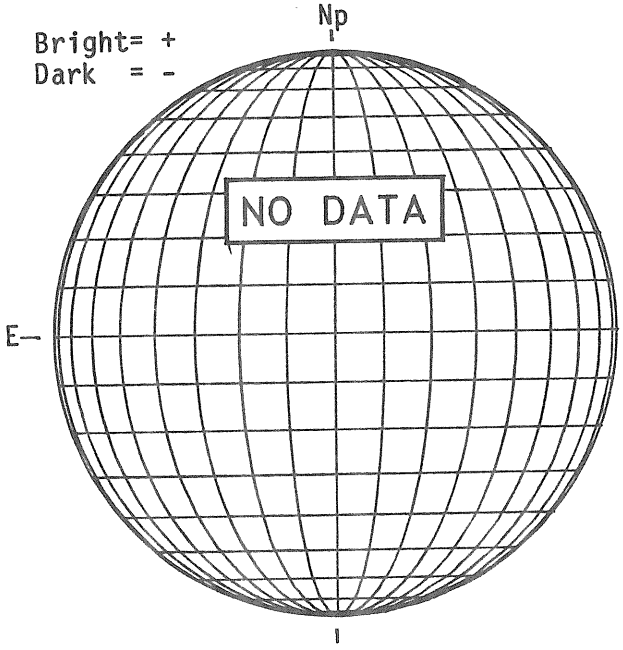
SACRAMENTO PEAK CORONA (1.15 Radii)



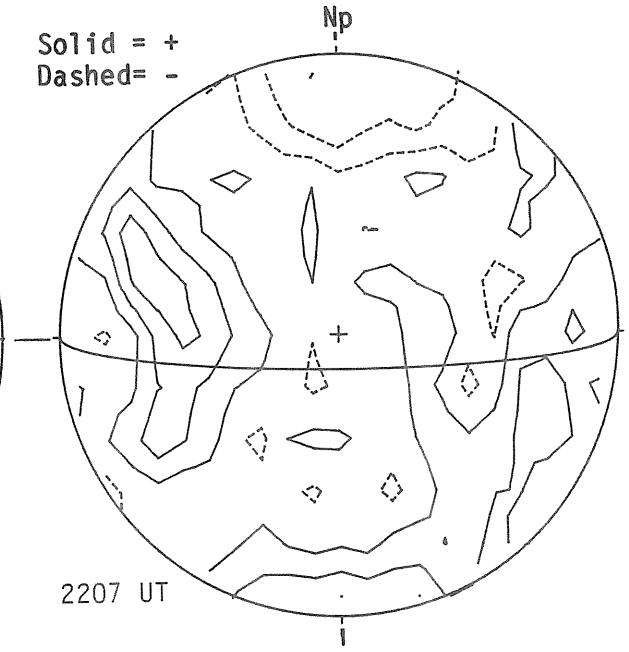
—— 5303A(x1) 1423 UT
.... 6374A(x2) 1350 UT
xxxx 5694A(x6) 1404 UT
NO 5694A ACTIVITY TODAY

S E P T E M B E R 05, 1 9 8 6 (P= 21.96, B_0= 7.13, L_0= 152.06)

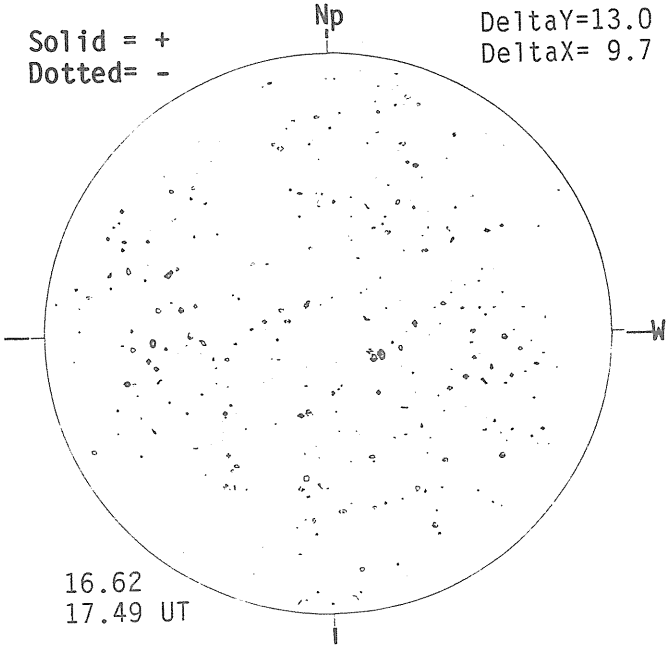
KITT PEAK MAGNETOGRAM



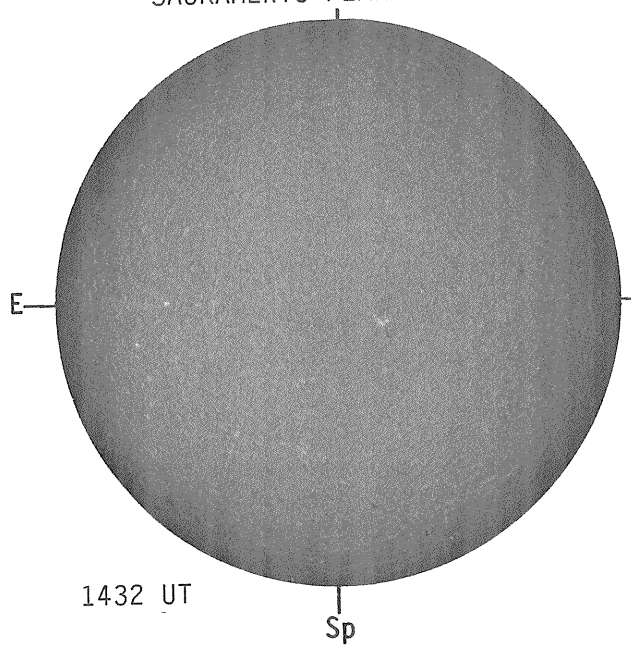
STANFORD MAGNETOGRAM



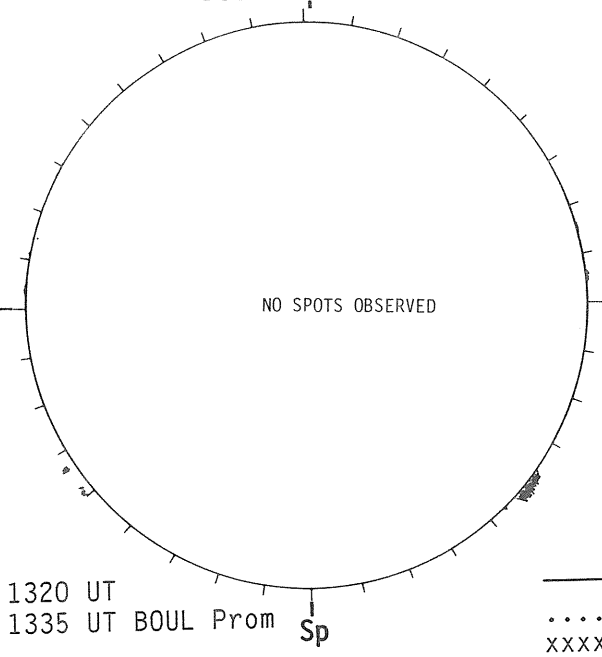
MT. WILSON MAGNETOGRAM



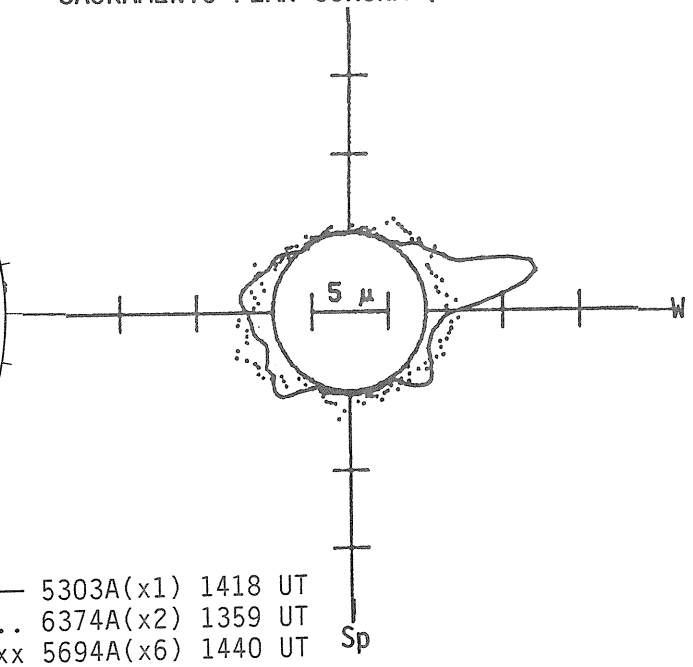
SACRAMENTO PEAK H-ALPHA



BOULDER SUNSPOTS



SACRAMENTO PEAK CORONA (1.15 Radii)

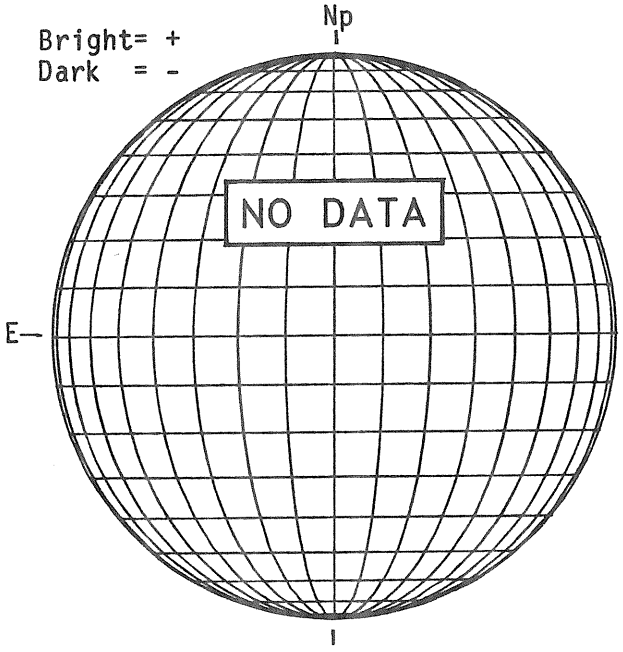


—— 5303A(x1) 1418 UT
.... 6374A(x2) 1359 UT
xxxx 5694A(x6) 1440 UT
NO 5694A ACTIVITY TODAY

S E P T E M B E R 06, 1 9 8 6 (P= 22.19, B_0= 7.14, L_0= 138.85)

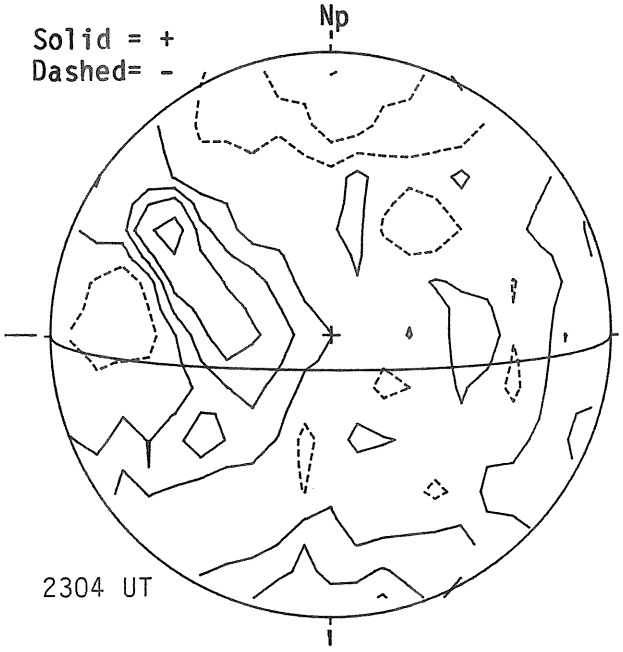
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



STANFORD MAGNETOGRAM

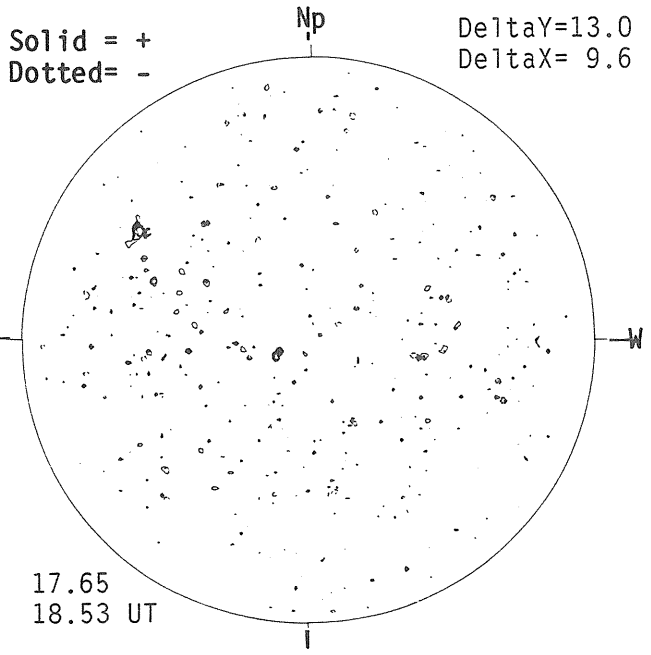
Solid = +
Dashed= -



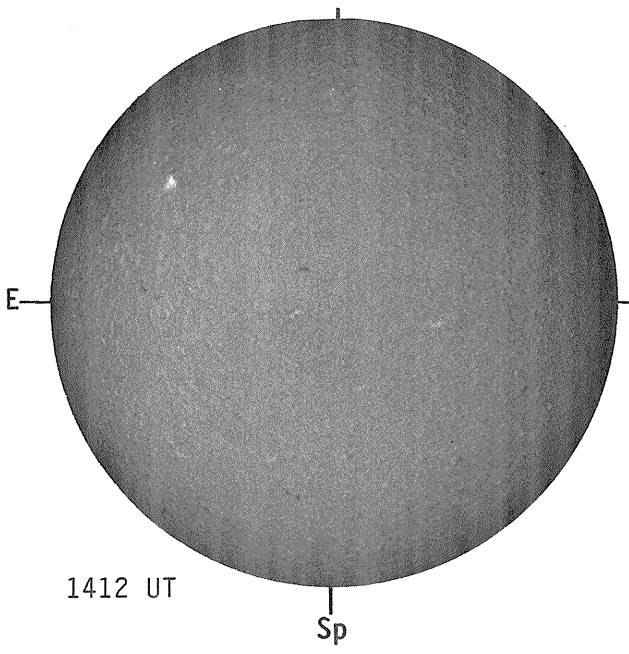
MT. WILSON MAGNETOGRAM

Solid = +
Dotted= -

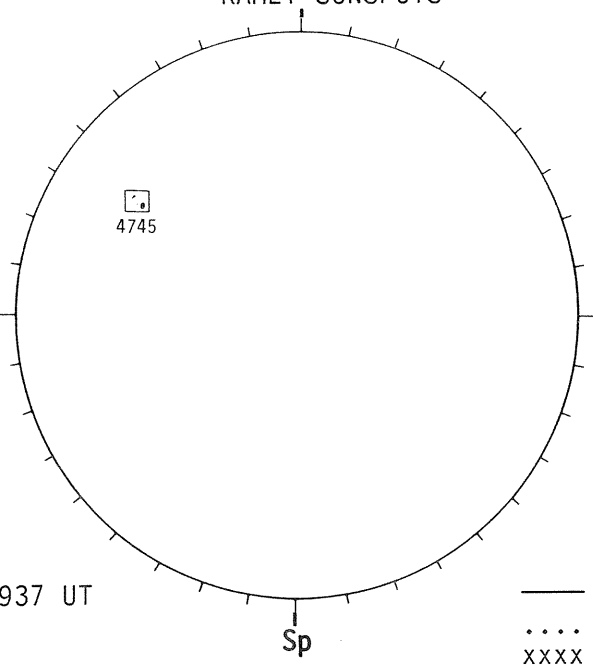
DeltaY=13.0
DeltaX= 9.6



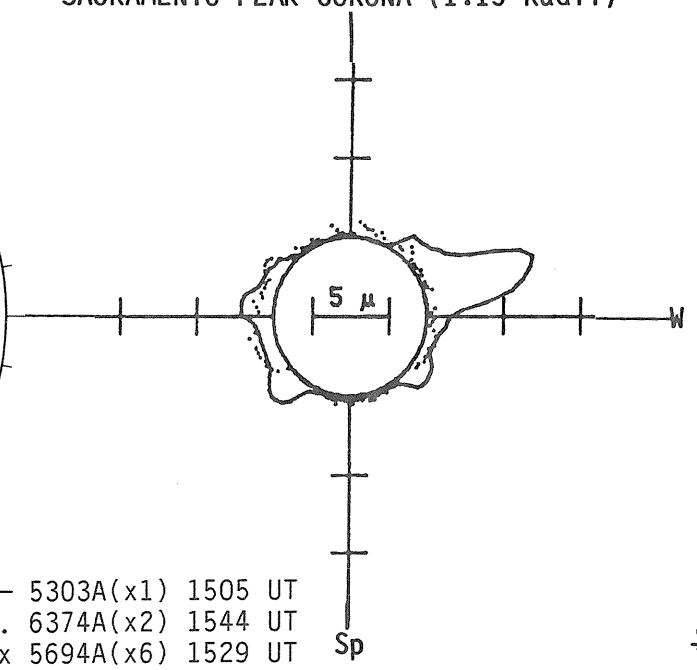
SACRAMENTO PEAK H-ALPHA



RAMEY SUNSPOTS



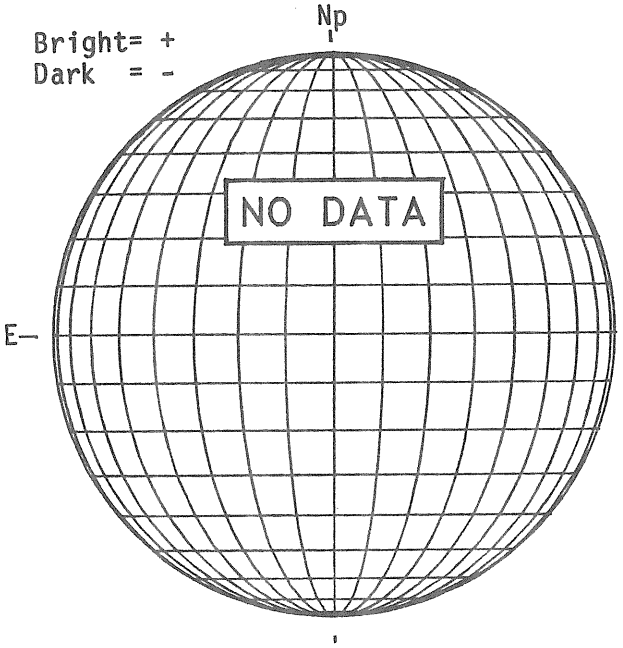
SACRAMENTO PEAK CORONA (1.15 Radii)



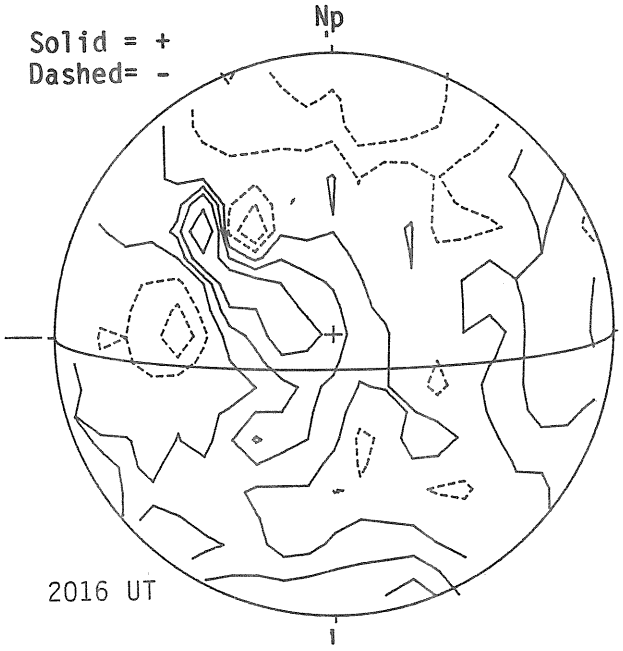
—— 5303A(x1) 1505 UT
.... 6374A(x2) 1544 UT
xxxx 5694A(x6) 1529 UT
NO 5694A ACTIVITY TODAY

S E P T E M B E R 07, 1 9 8 6 (P= 22.41, B_0= 7.14, L_0= 125.65)

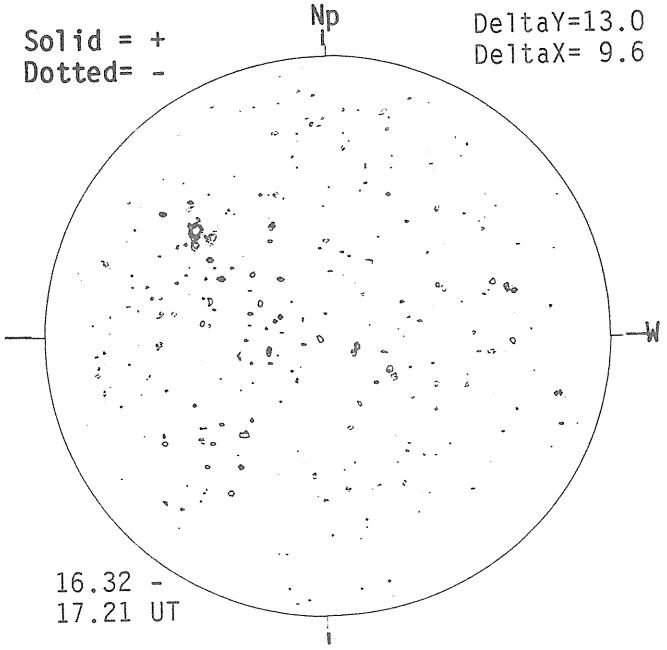
KITT PEAK MAGNETOGRAM



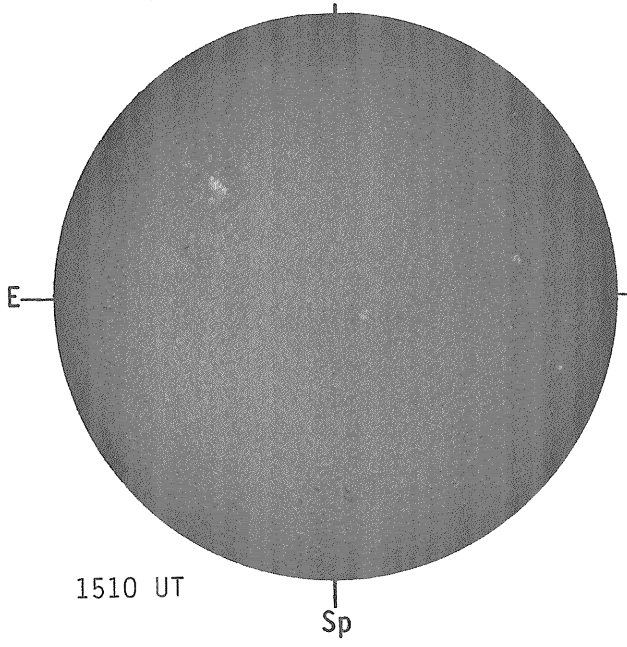
STANFORD MAGNETOGRAM



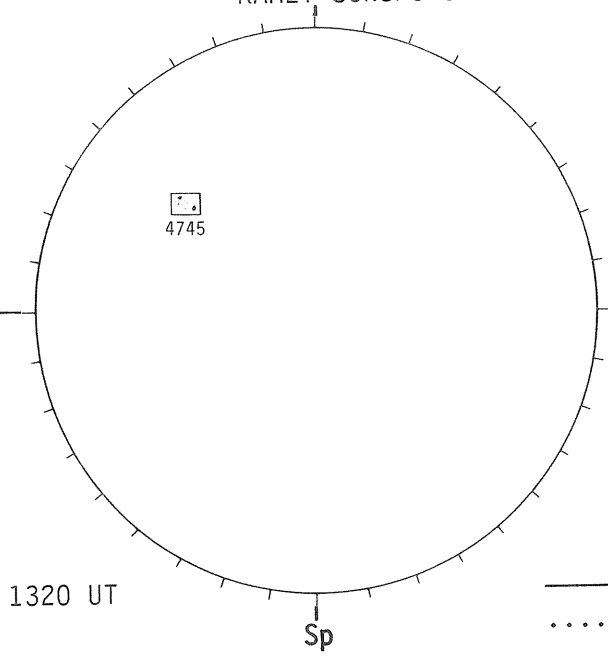
MT. WILSON MAGNETOGRAM



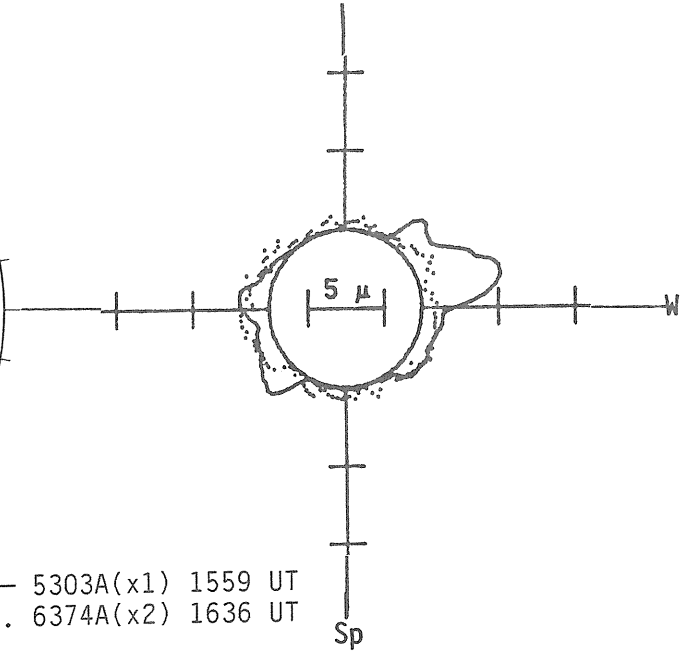
SACRAMENTO PEAK H-ALPHA



RAMEY SUNSPOTS

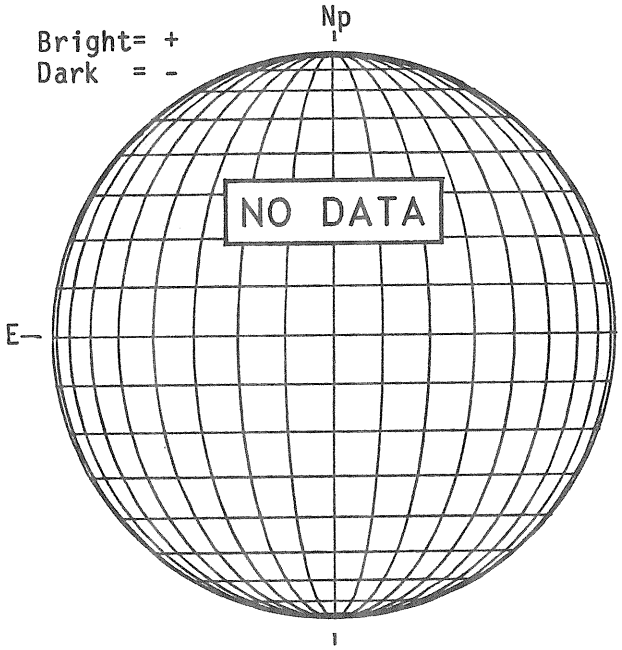


SACRAMENTO PEAK CORONA (1.15 Radii)

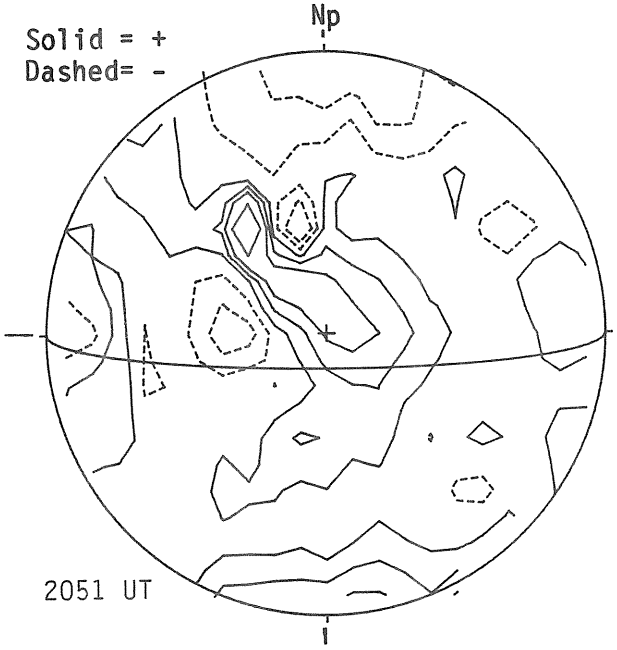


S E P T E M B E R 08, 1 9 8 6 (P= 22.63, B_0= 7.15, L_0= 112.44)

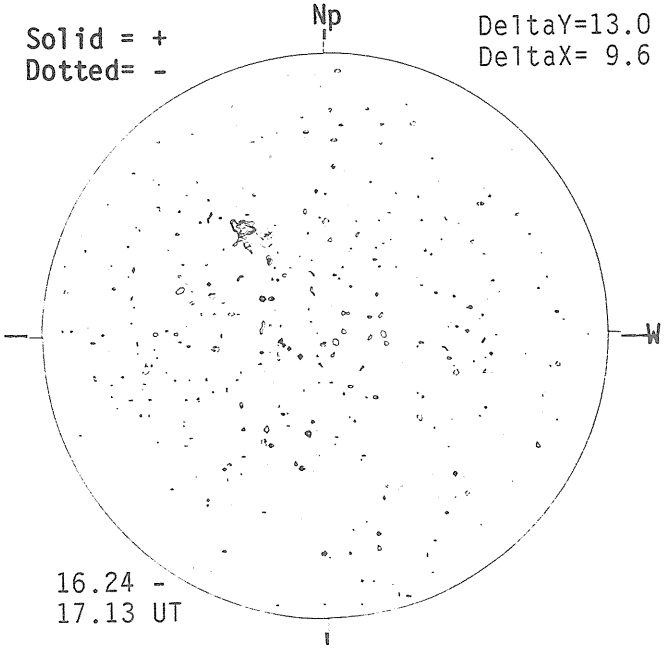
KITT PEAK MAGNETOGRAM



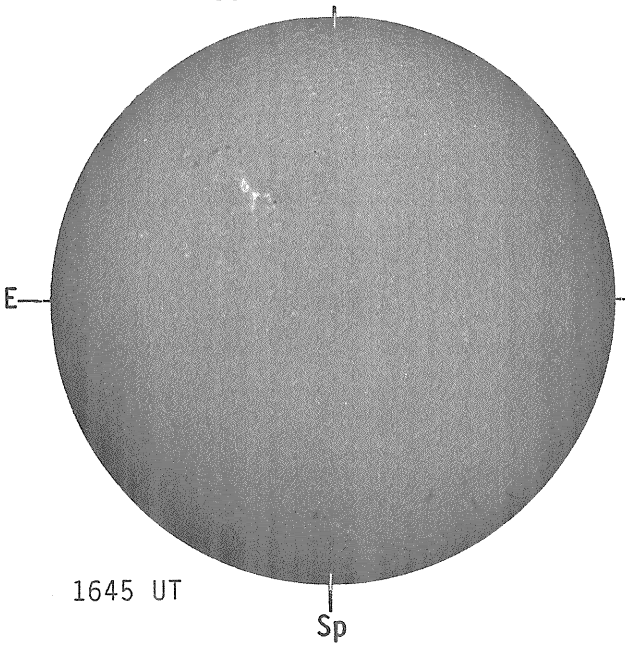
STANFORD MAGNETOGRAM



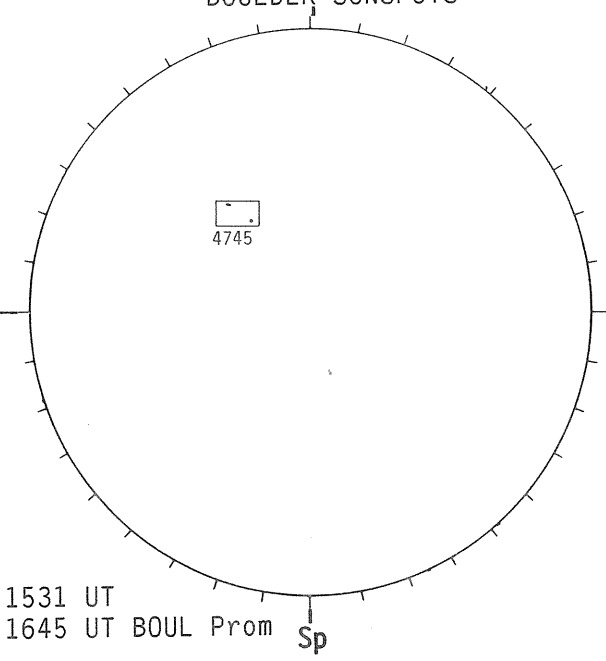
MT. WILSON MAGNETOGRAM



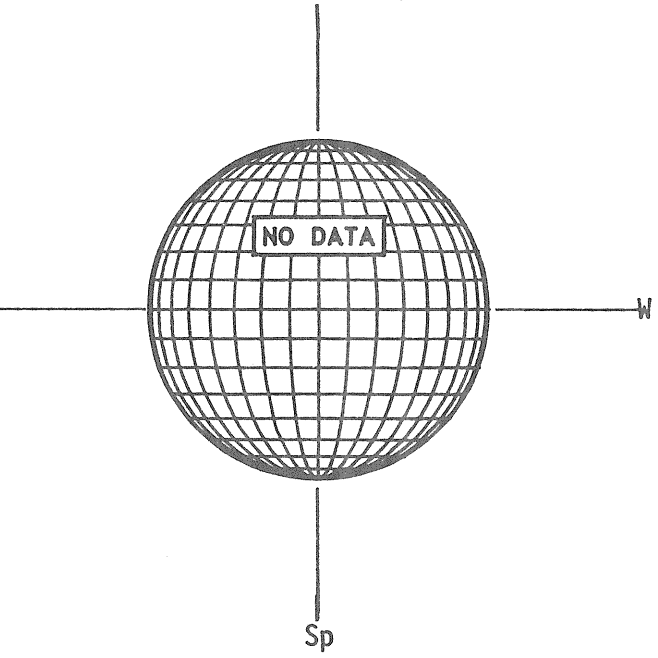
BOULDER PEAK H-ALPHA



BOULDER SUNSPOTS

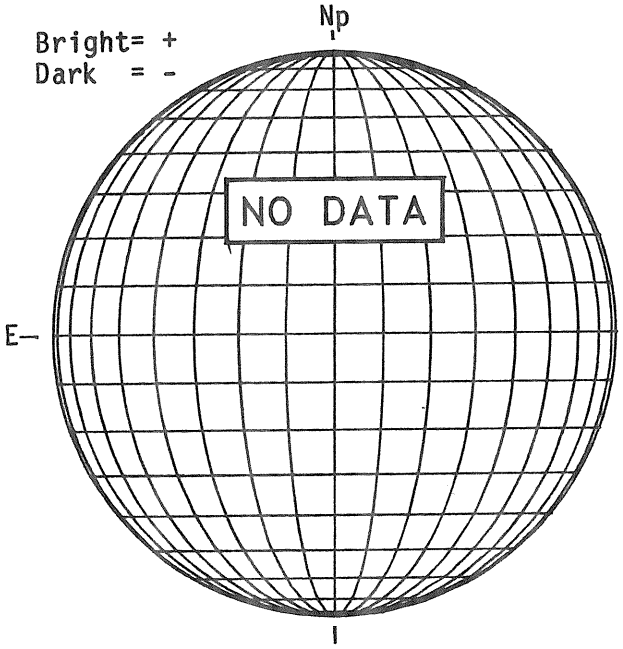


SACRAMENTO PEAK CORONA (1.15 Radii)

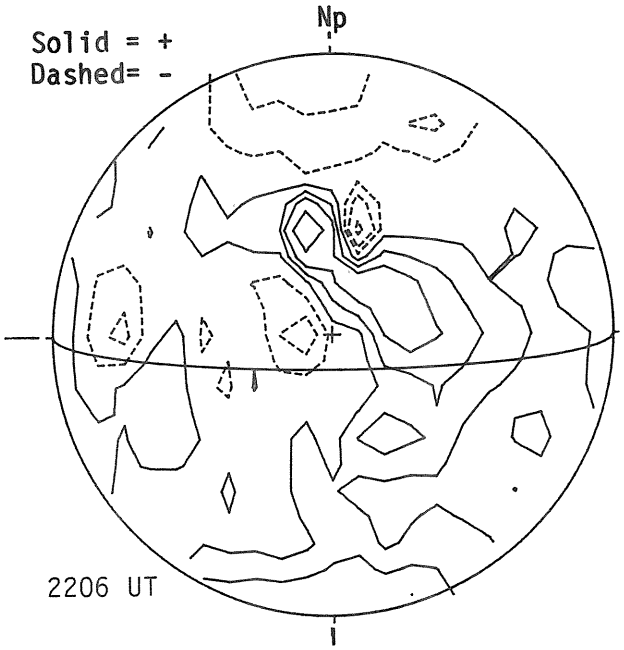


S E P T E M B E R 09, 1 9 8 6 (B_0= 22.84, B_0= 7.15, L_0= 99.24)

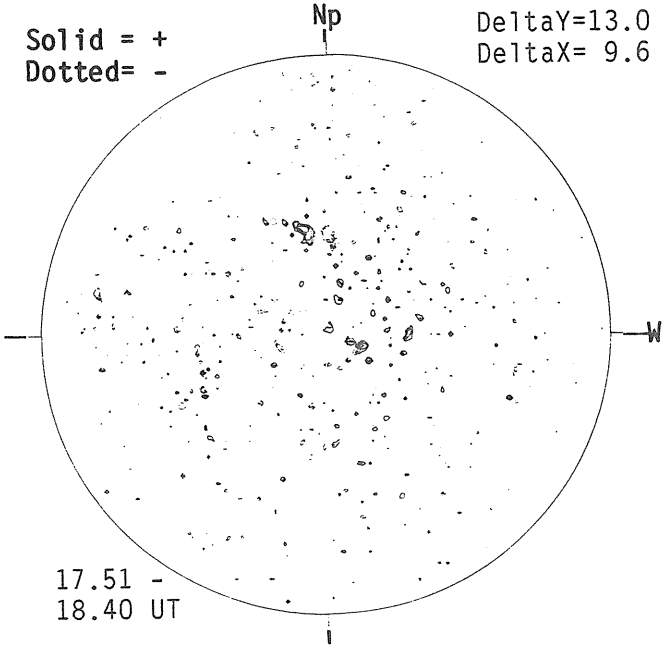
KITT PEAK MAGNETOGRAM



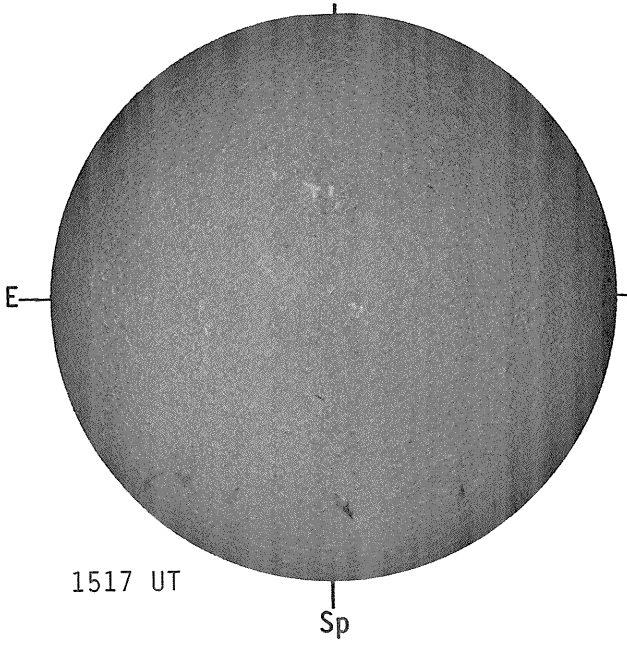
STANFORD MAGNETOGRAM



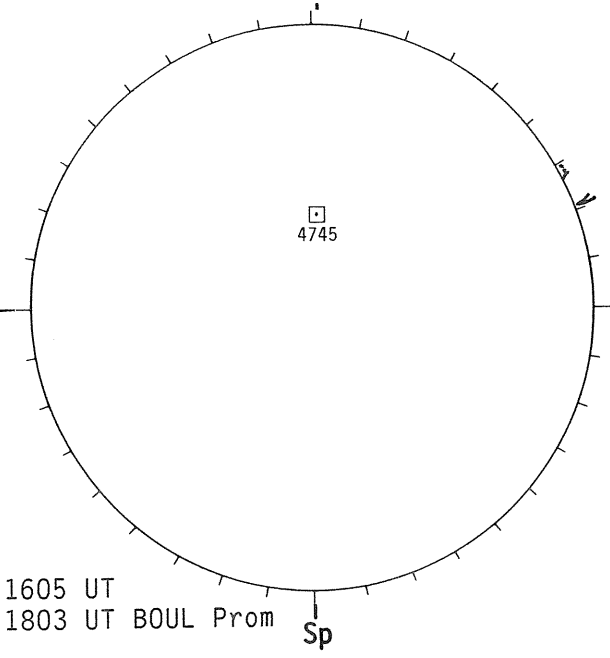
MT. WILSON MAGNETOGRAM



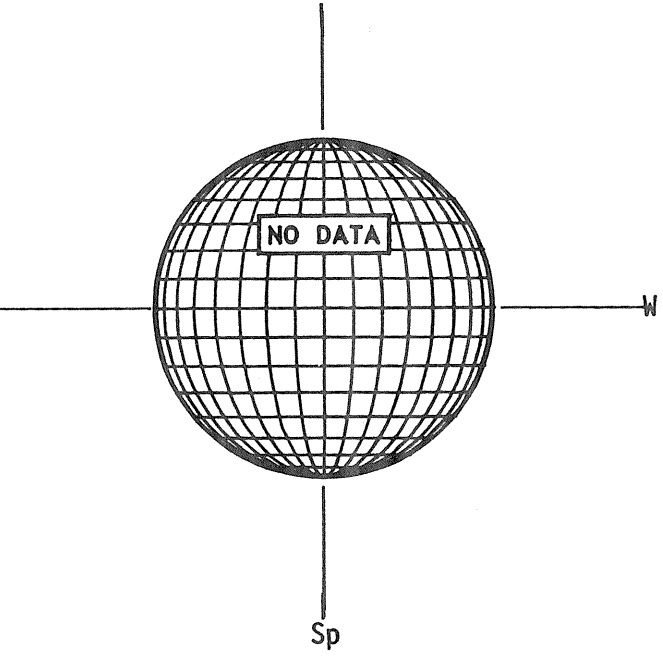
SACRAMENTO PEAK H-ALPHA



BOULDER SUNSPOTS



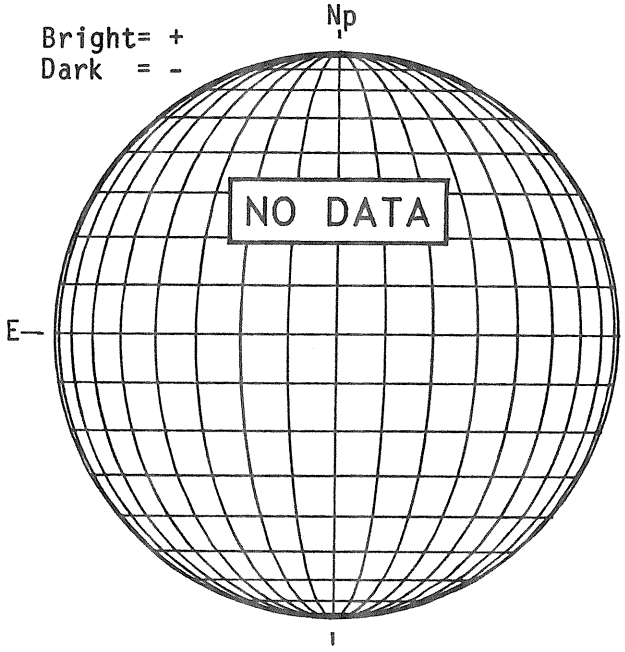
SACRAMENTO PEAK CORONA (1.15 Radii)



S E P T E M B E R 10, 1 9 8 6 (P= 23.04, B_0= 7.14, L_0= 86.03)

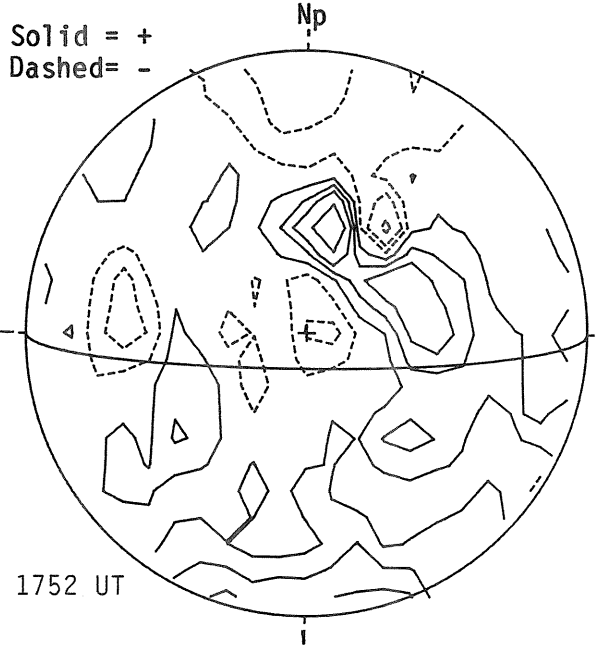
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



STANFORD MAGNETOGRAM

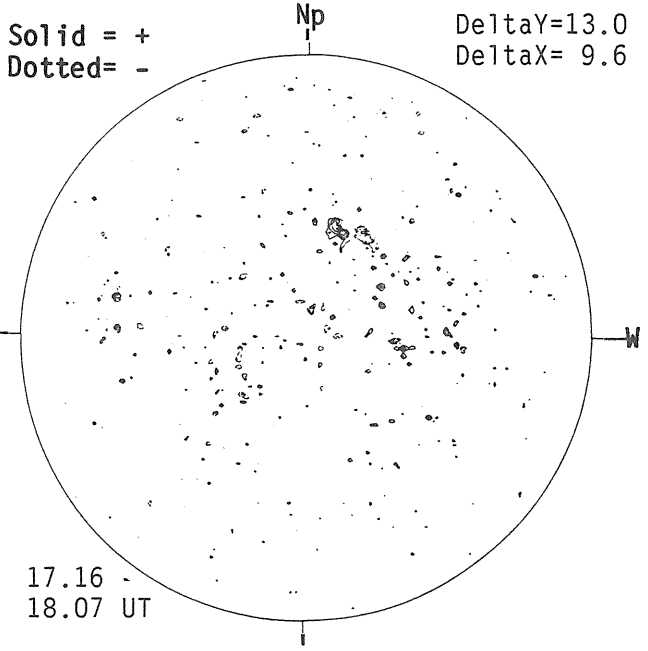
Solid = +
Dashed= -



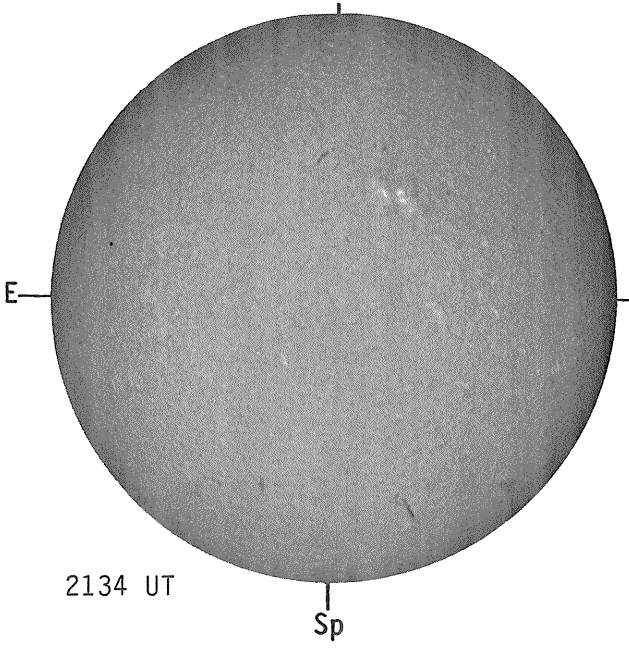
MT. WILSON MAGNETOGRAM

Solid = +
Dotted= -

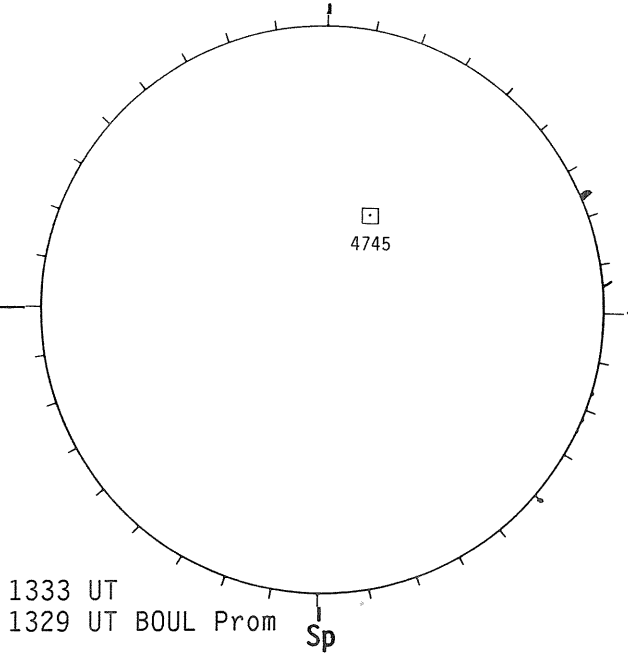
DeltaY=13.0
DeltaX= 9.6



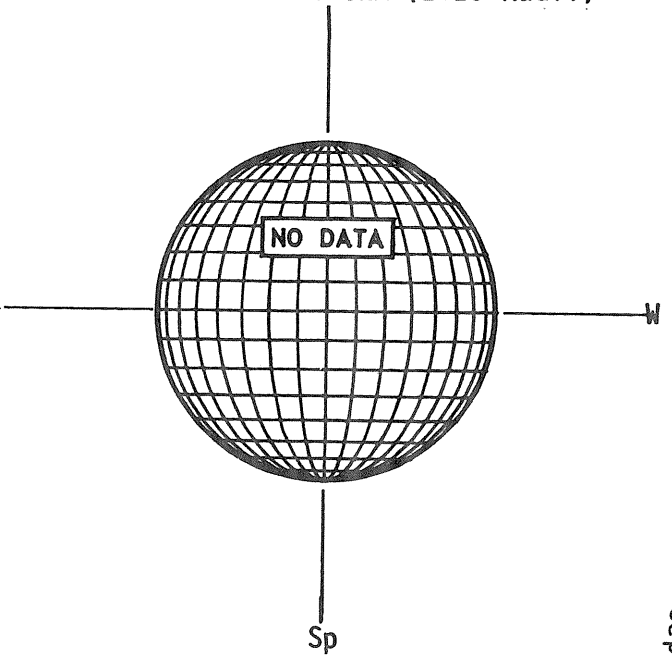
SACRAMENTO PEAK H-ALPHA



BOULDER SUNSPOTS

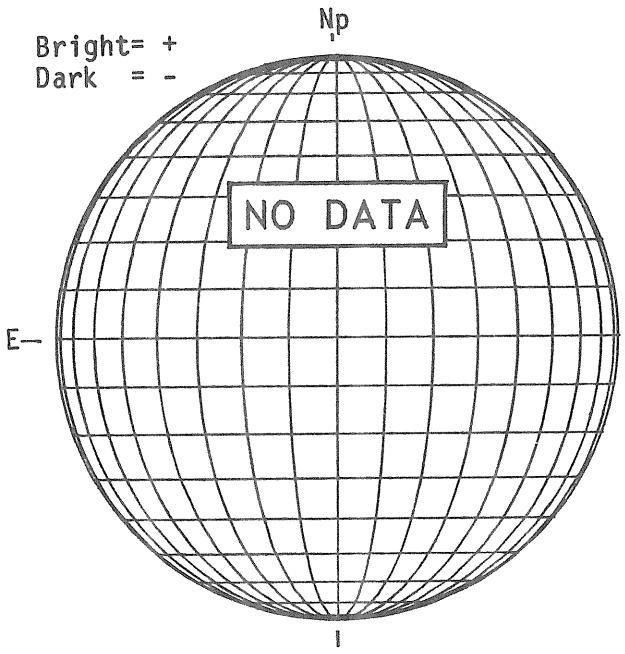


SACRAMENTO PEAK CORONA (1.15 Radii)

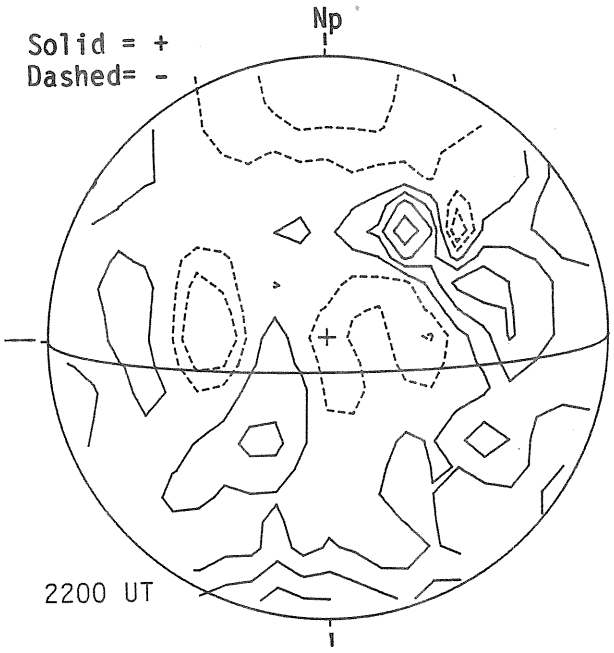


S E P T E M B E R 11, 1 9 8 6 (P= 23.24, B_0= 7.14, L_0= 72.83)

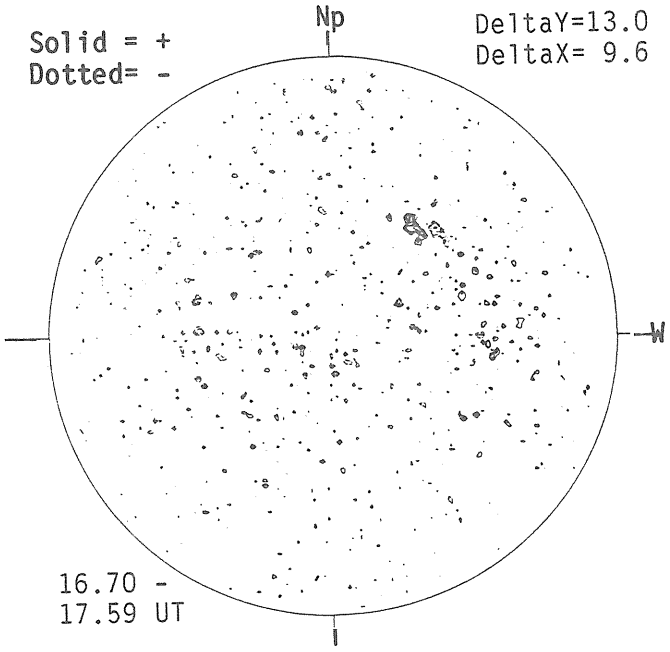
KITT PEAK MAGNETOGRAM



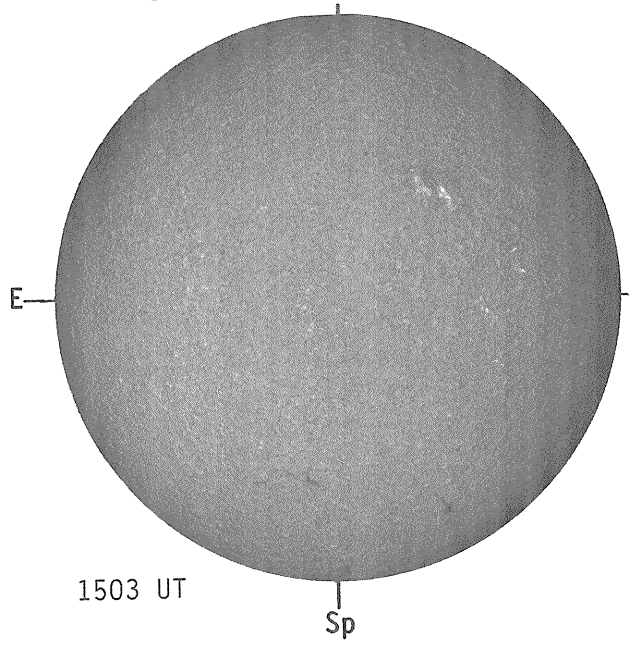
STANFORD MAGNETOGRAM



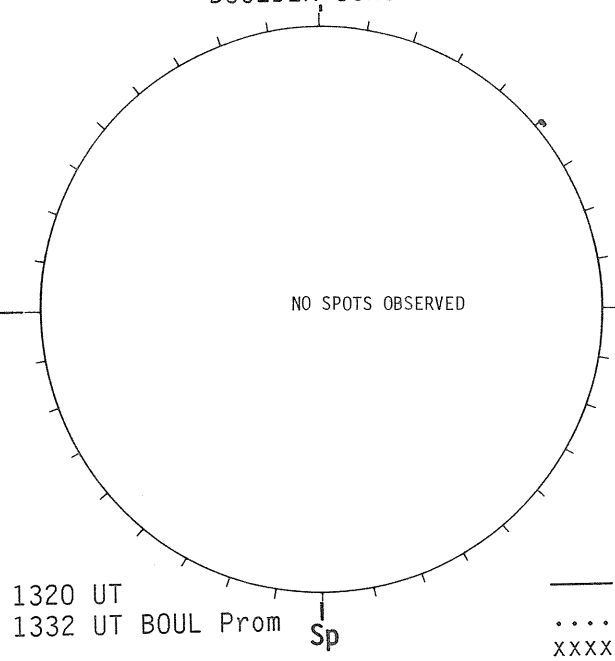
MT. WILSON MAGNETOGRAM



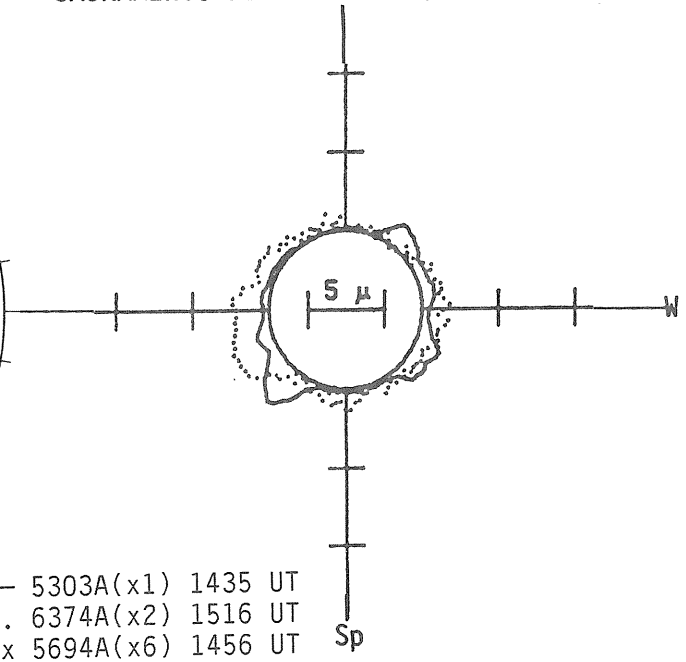
SACRAMENTO PEAK H-ALPHA



BOULDER SUNSPOTS



SACRAMENTO PEAK CORONA (1.15 Radii)

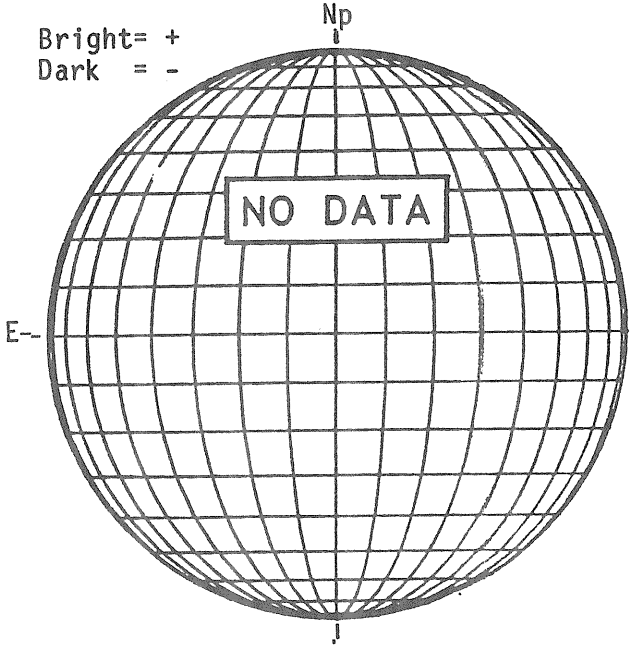


—— 5303A(x1) 1435 UT
.... 6374A(x2) 1516 UT
xxxx 5694A(x6) 1456 UT
NO 5694A ACTIVITY TODAY

S E P T E M B E R 12, 1 9 8 6 (P= 23.43, B_0= 7.14, L_0= 59.62)

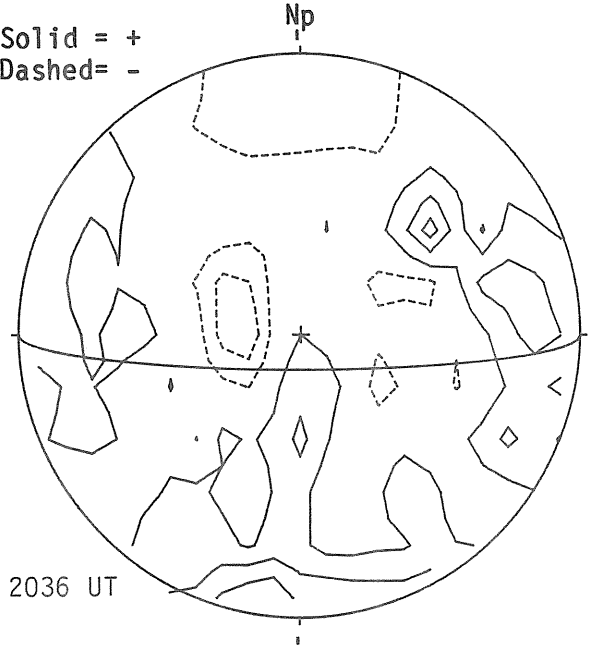
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



STANFORD MAGNETOGRAM

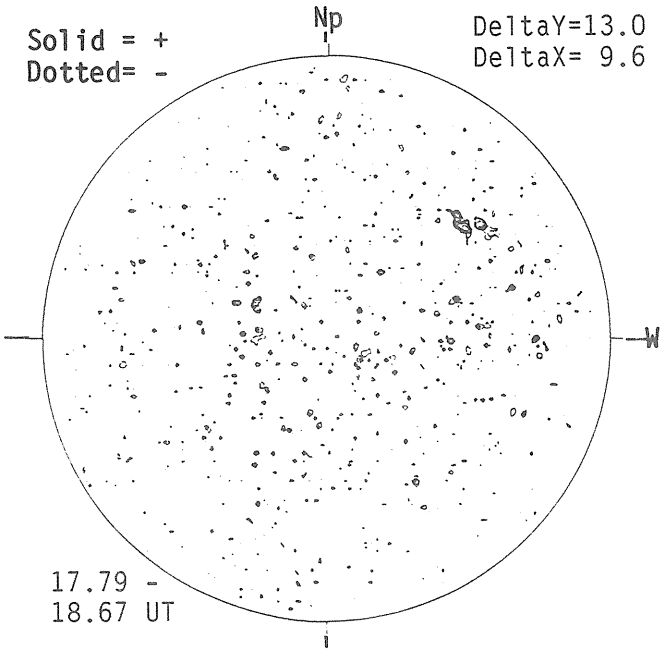
Solid = +
Dashed= -



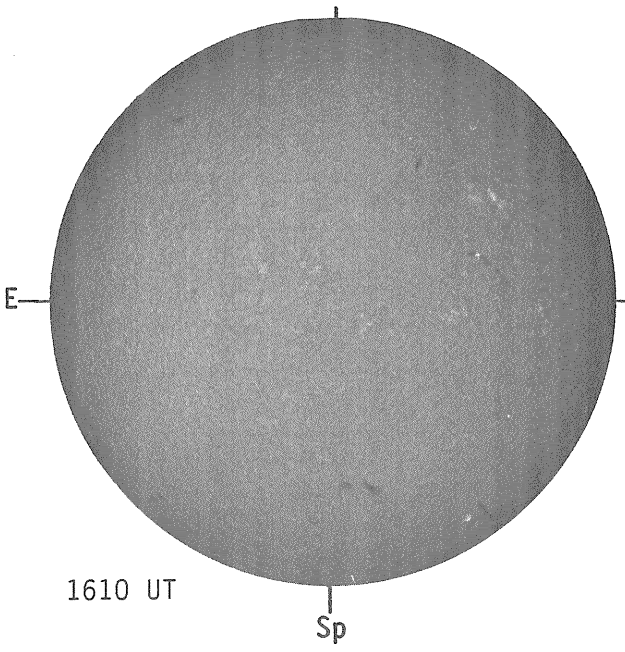
MT. WILSON MAGNETOGRAM

Solid = +
Dotted= -

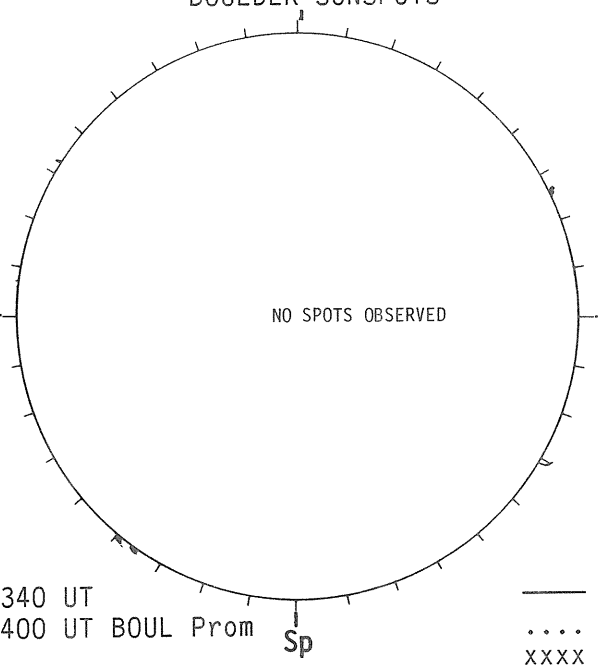
DeltaY=13.0
DeltaX= 9.6



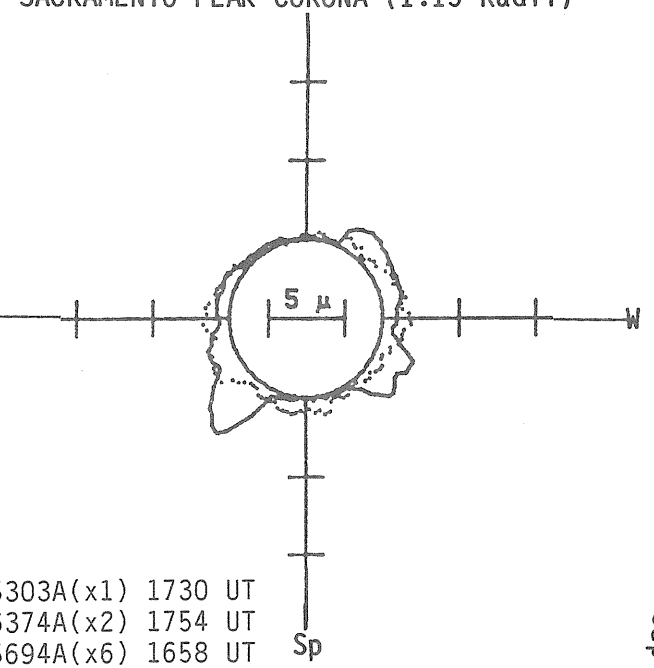
SACRAMENTO PEAK H-ALPHA



BOULDER SUNSPOTS



SACRAMENTO PEAK CORONA (1.15 Radii)

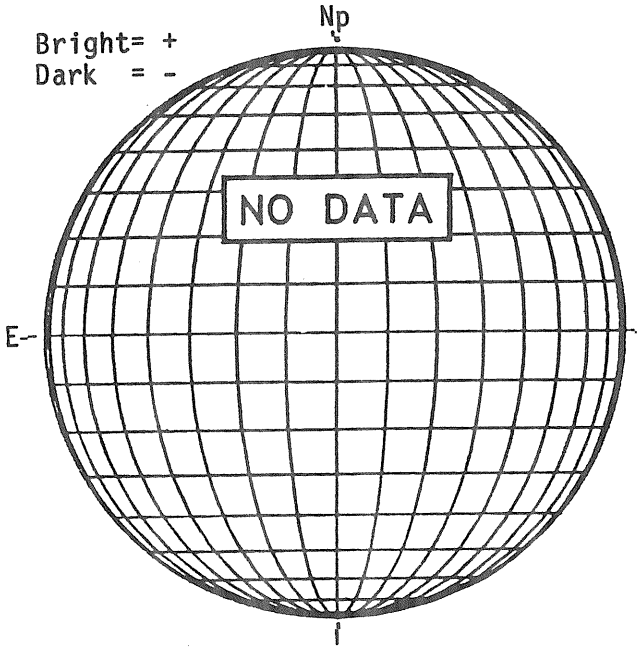


—— 5303A(x1) 1730 UT
.... 6374A(x2) 1754 UT
xxxx 5694A(x6) 1658 UT
NO 5694A ACTIVITY TODAY

S E P T E M B E R 13, 1 9 8 6 (P= 23.62, B_0= 7.13, L_0= 46.42)

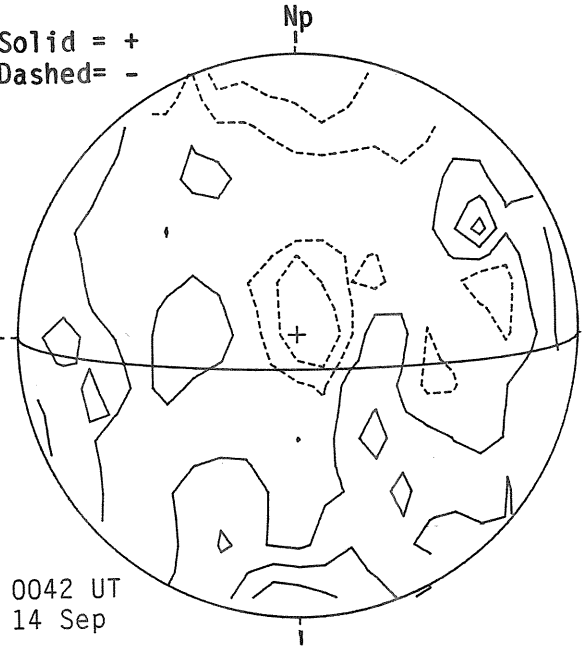
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



STANFORD MAGNETOGRAM

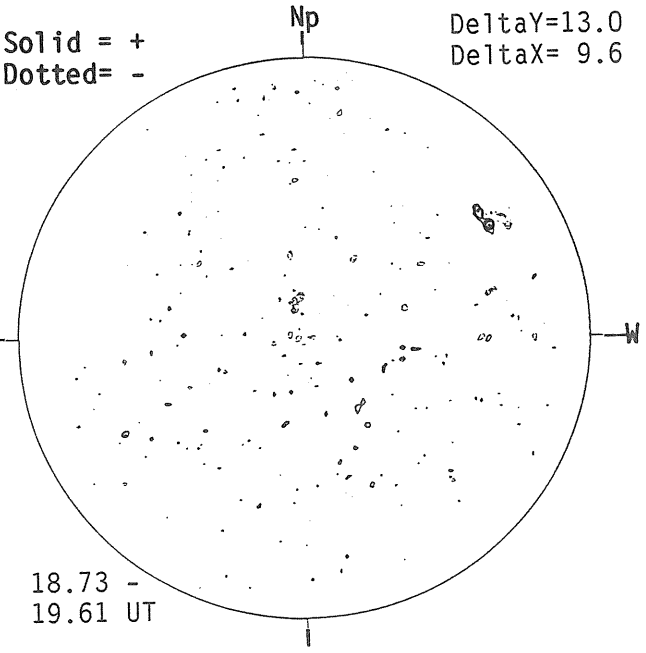
Solid = +
Dashed= -



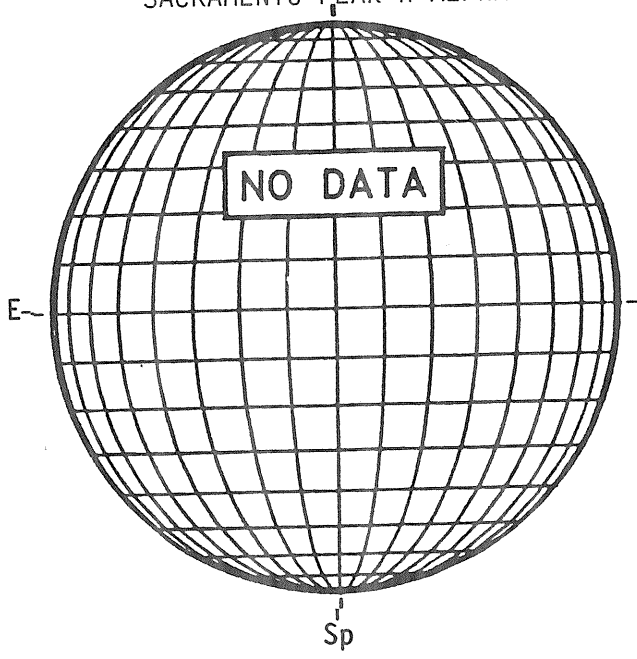
MT. WILSON MAGNETOGRAM

Solid = +
Dotted= -

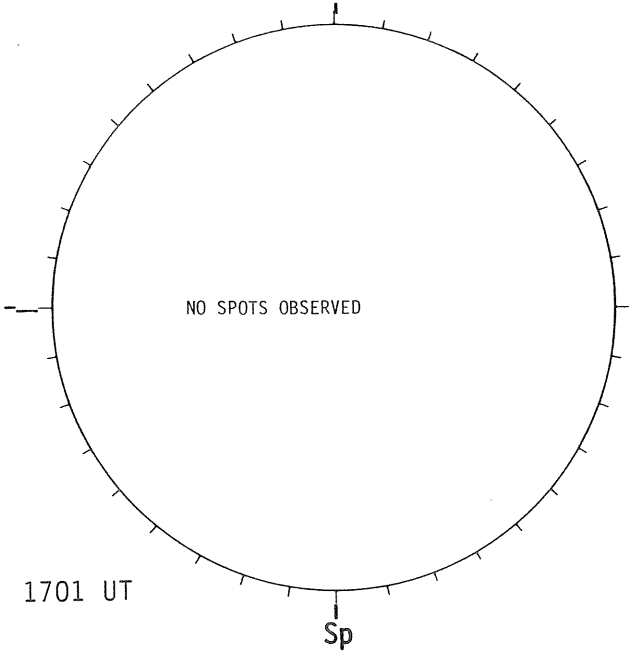
DeltaY=13.0
DeltaX= 9.6



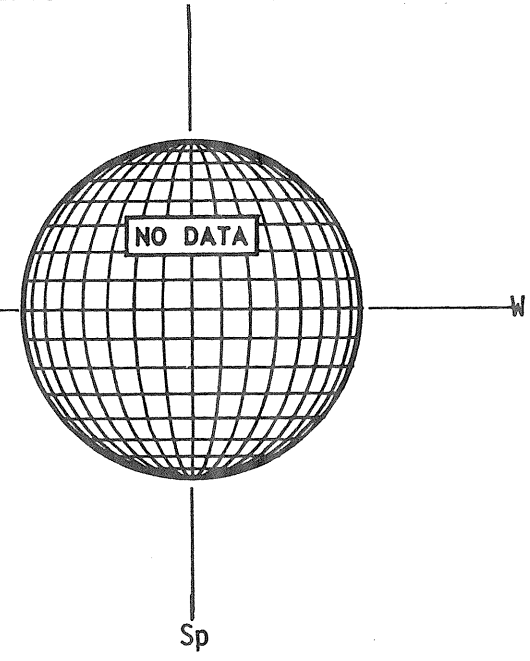
SACRAMENTO PEAK H-ALPHA



RAMEY SUNSPOTS



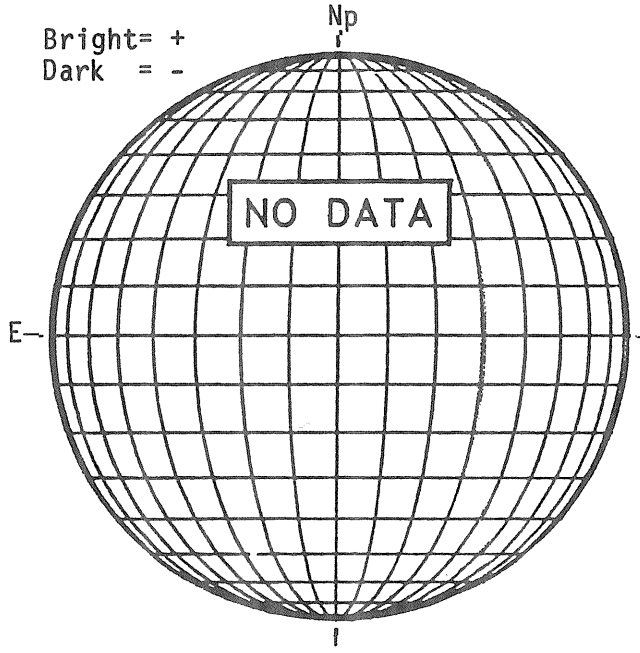
SACRAMENTO PEAK CORONA (1.15 Radii)



S E P T E M B E R 14, 1 9 8 6 (P= 23.80, B_0= 7.12, L_0= 33.21)

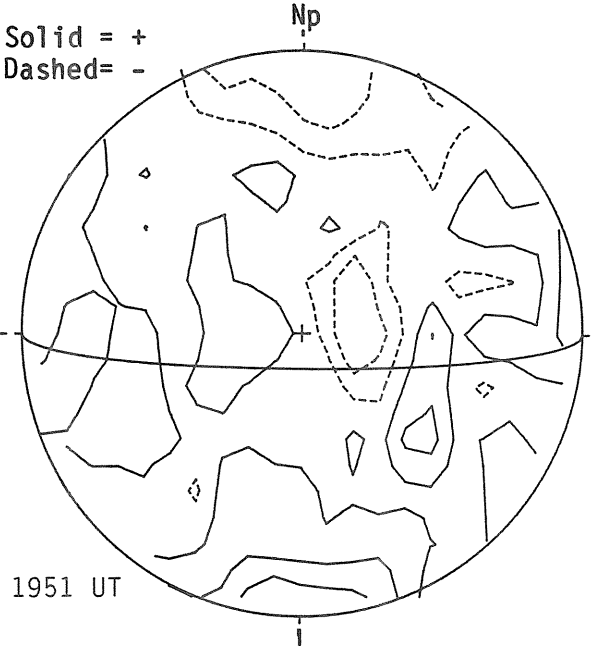
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



STANFORD MAGNETOGRAM

Solid = +
Dashed= -

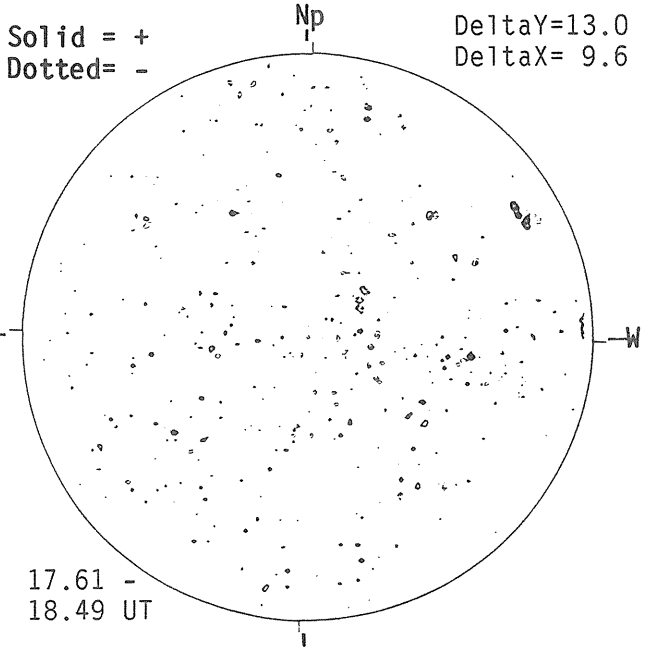


1951 UT

MT. WILSON MAGNETOGRAM

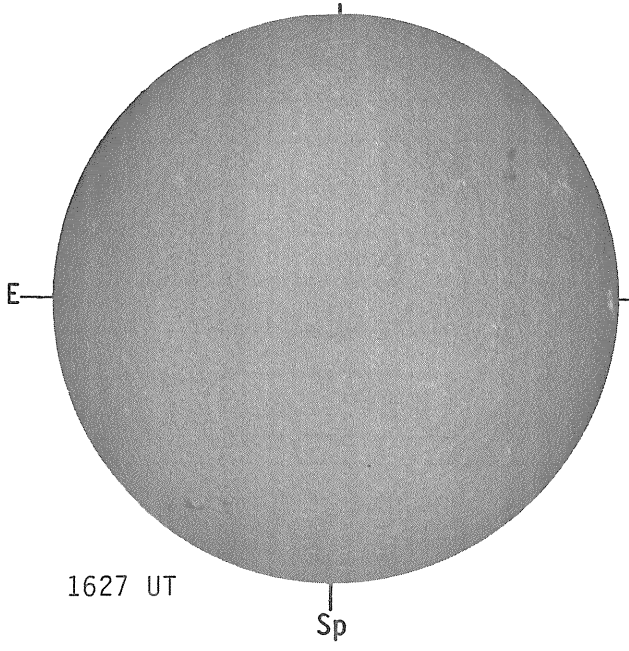
Solid = +
Dotted= -

DeltaY=13.0
DeltaX= 9.6



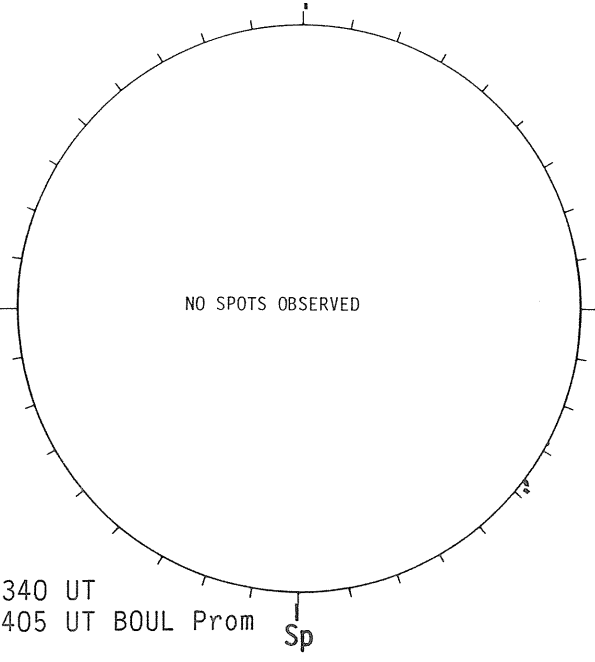
17.61 -
18.49 UT

SACRAMENTO PEAK H-ALPHA



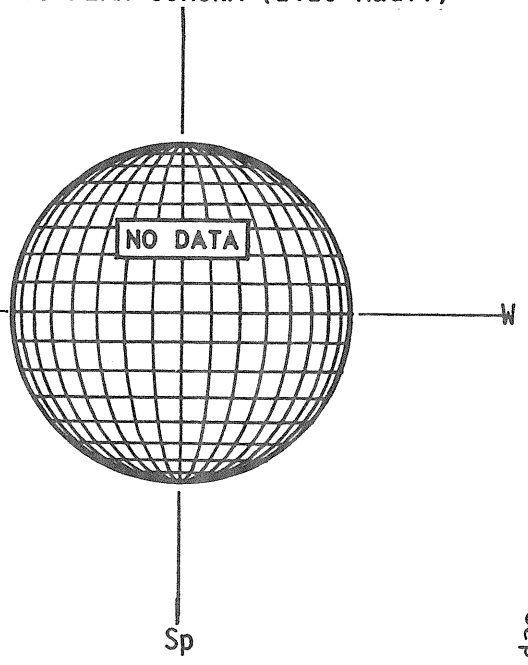
1627 UT

BOULDER SUNSPOTS



1340 UT
1405 UT BOUL Prom

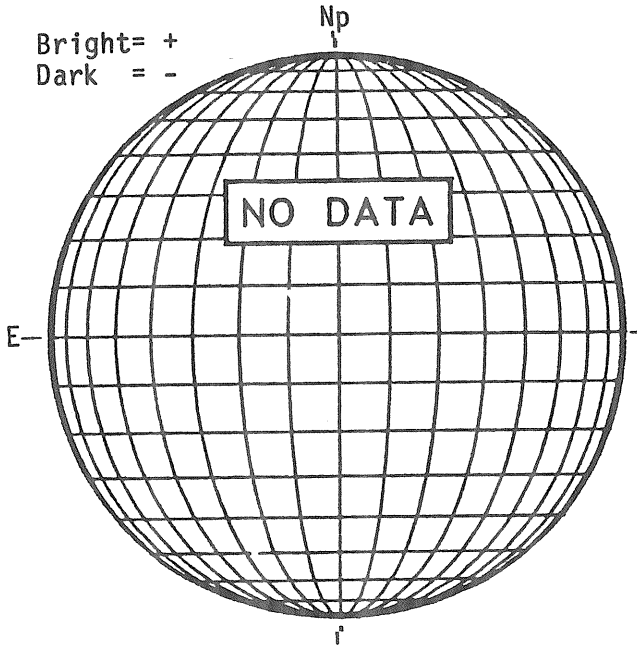
SACRAMENTO PEAK CORONA (1.15 Radii)



S E P T E M B E R 15, 1 9 8 6 (P= 23.98, B_0= 7.11, L_0= 20.01)

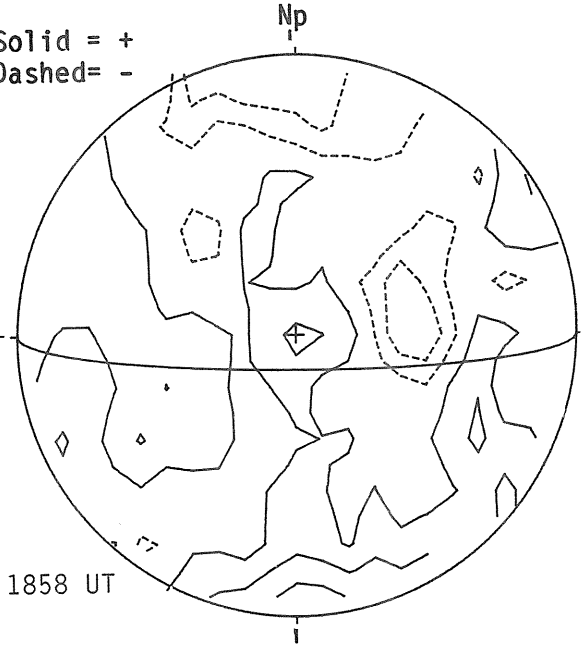
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



STANFORD MAGNETOGRAM

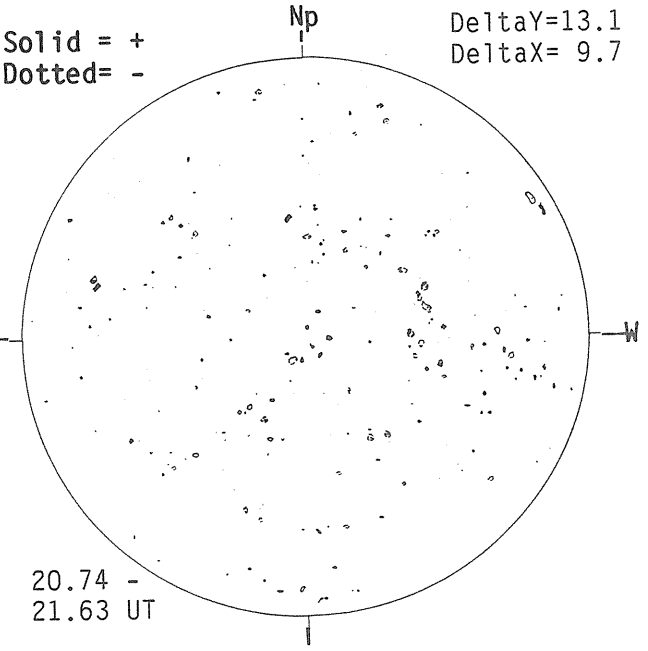
Solid = +
Dashed= -



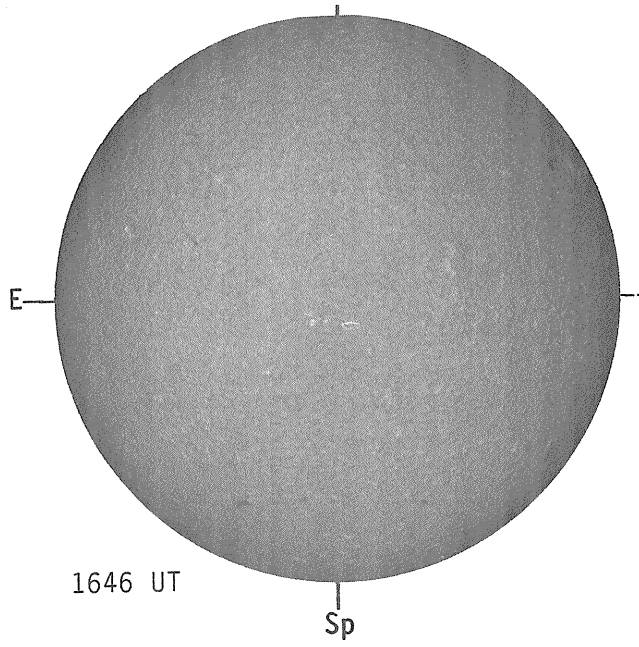
MT. WILSON MAGNETOGRAM

Solid = +
Dotted= -

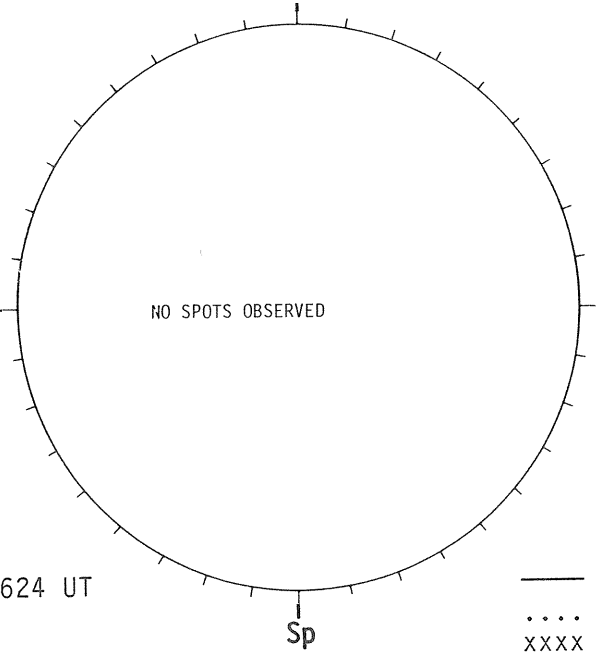
DeltaY=13.1
DeltaX= 9.7



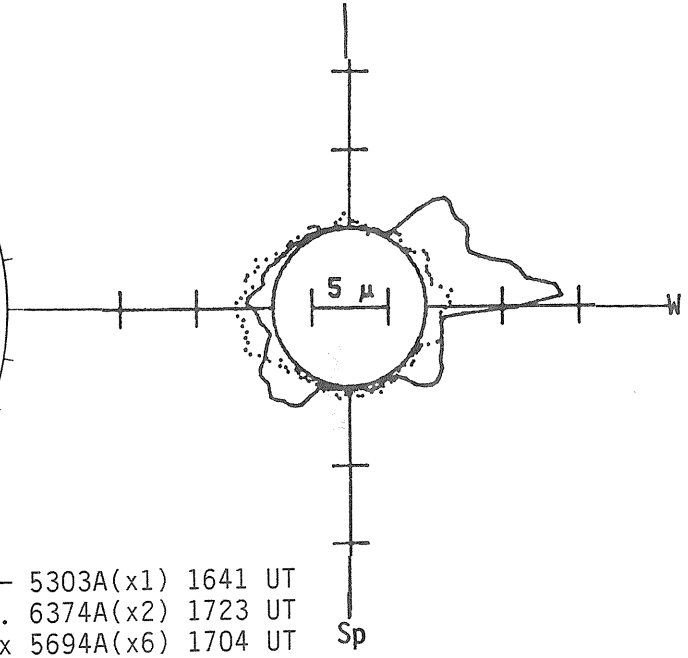
SACRAMENTO PEAK H-ALPHA



BOULDER SUNSPOTS



SACRAMENTO PEAK CORONA (1.15 Radii)

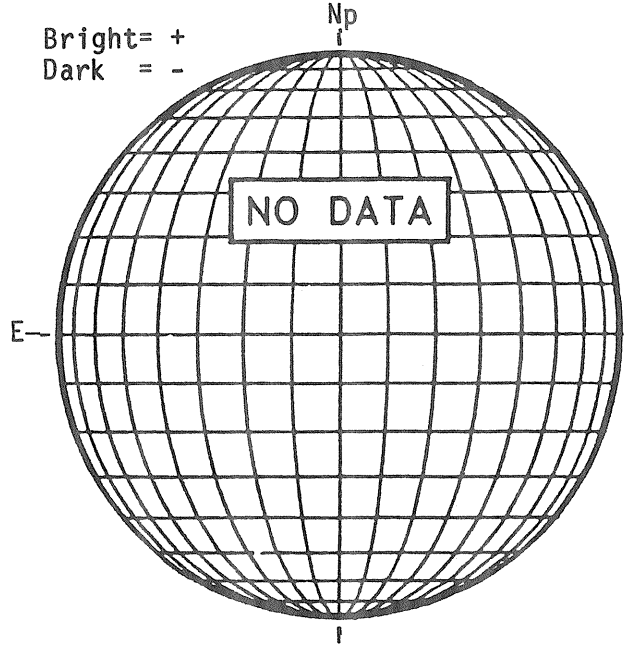


—— 5303A(x1) 1641 UT
.... 6374A(x2) 1723 UT
xxxx 5694A(x6) 1704 UT
NO 5694A ACTIVITY TODAY

S E P T E M B E R 16, 1 9 8 6 (P= 24.15, B_0= 7.09, L_0= 6.81)

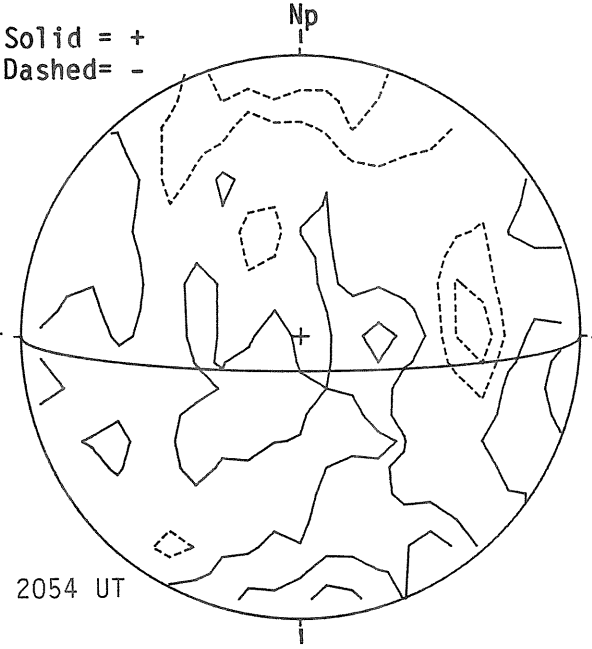
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



STANFORD MAGNETOGRAM

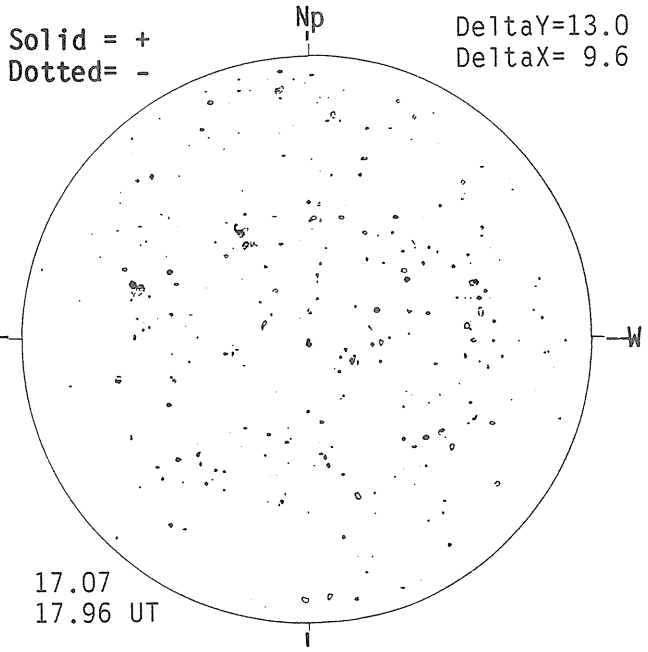
Solid = +
Dashed= -



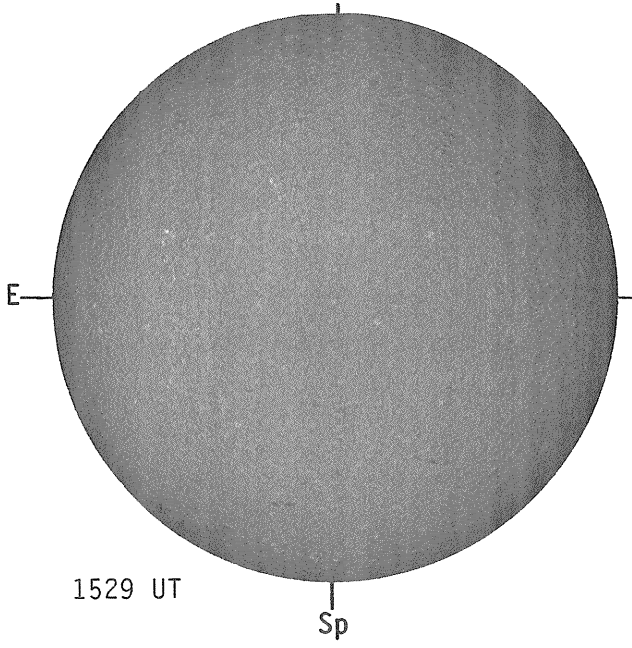
MT. WILSON MAGNETOGRAM

Solid = +
Dotted= -

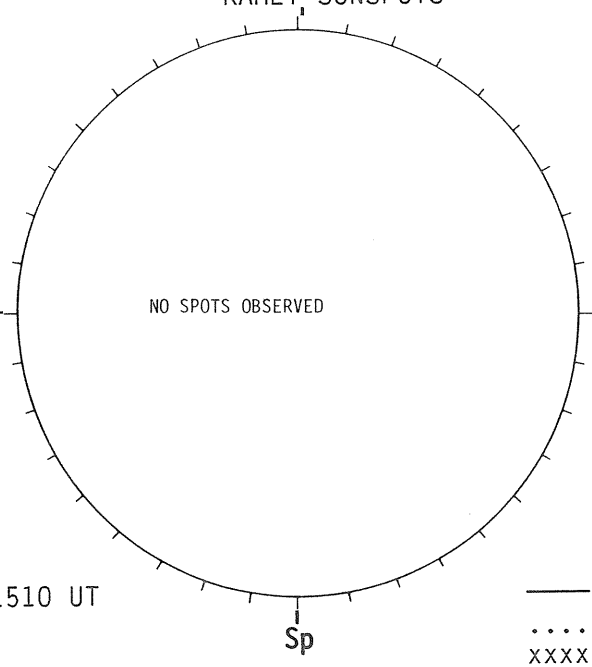
DeltaY=13.0
DeltaX= 9.6



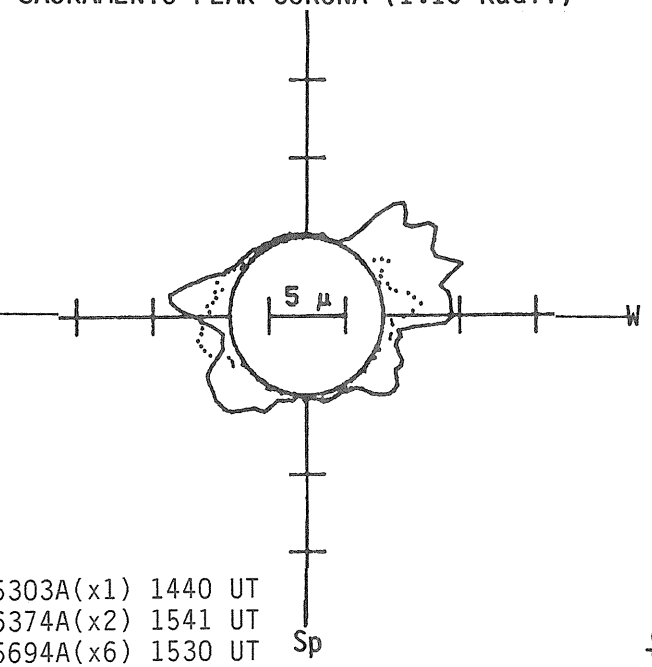
SACRAMENTO PEAK H-ALPHA



RAMEY SUNSPOTS



SACRAMENTO PEAK CORONA (1.15 Radii)

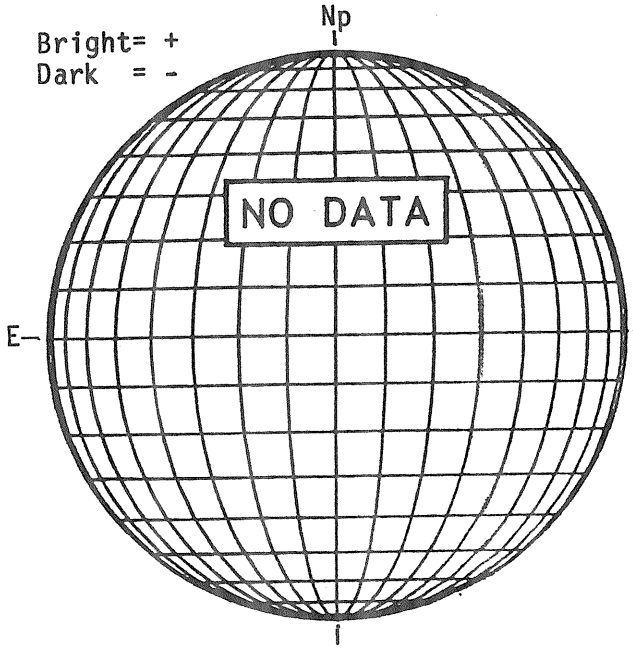


—— 5303A(x1) 1440 UT
.... 6374A(x2) 1541 UT
xxxx 5694A(x6) 1530 UT
NO 5694A ACTIVITY TODAY

S E P T E M B E R 17, 1 9 8 6 (P= 24.31, B_0= 7.08, L_0= 353.61)

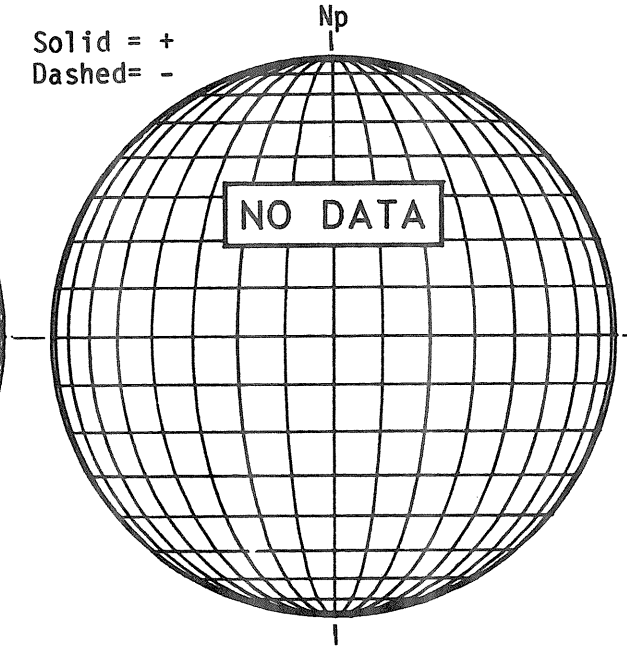
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



STANFORD MAGNETOGRAM

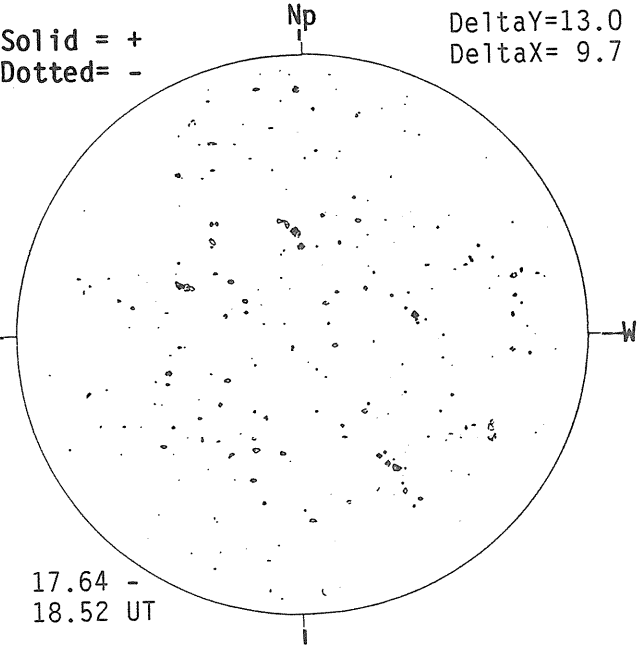
Solid = +
Dashed= -



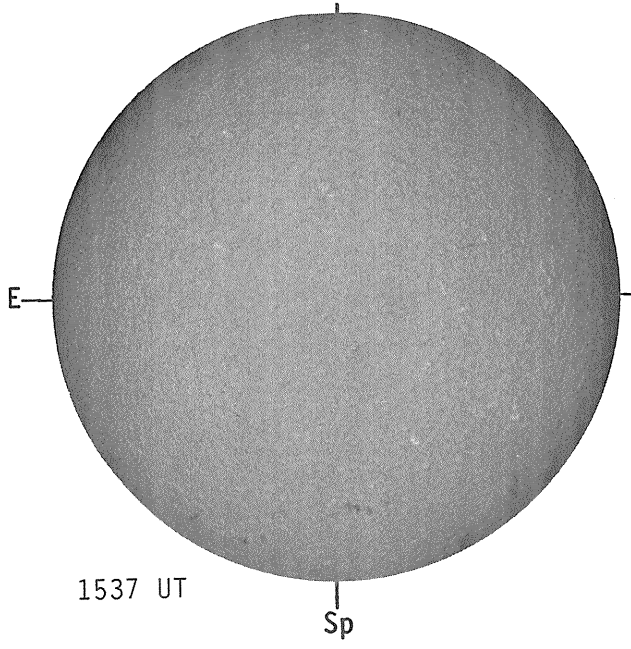
MT. WILSON MAGNETOGRAM

Solid = +
Dotted= -

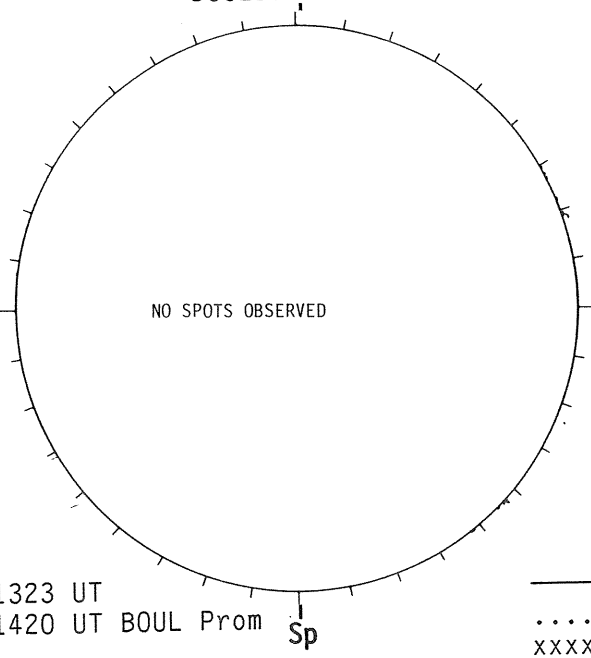
DeltaY=13.0
DeltaX= 9.7



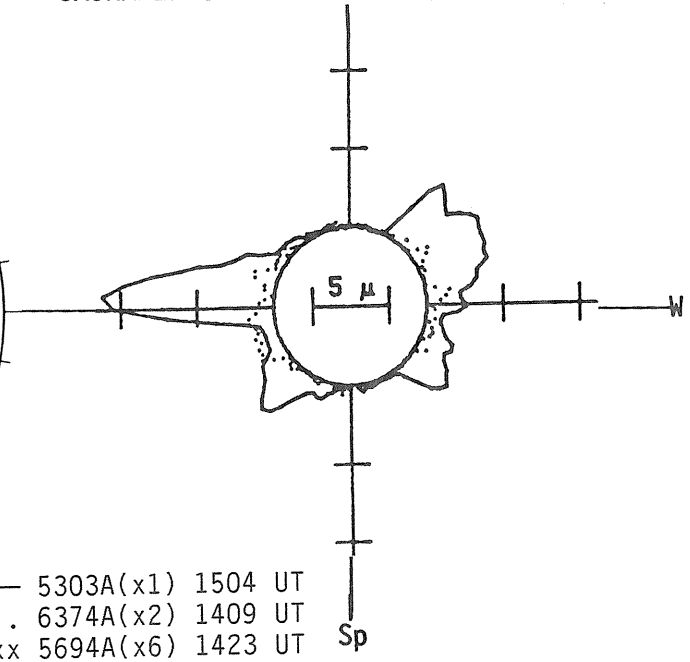
SACRAMENTO PEAK H-ALPHA



BOULDER SUNSPOTS



SACRAMENTO PEAK CORONA (1.15 Radii)

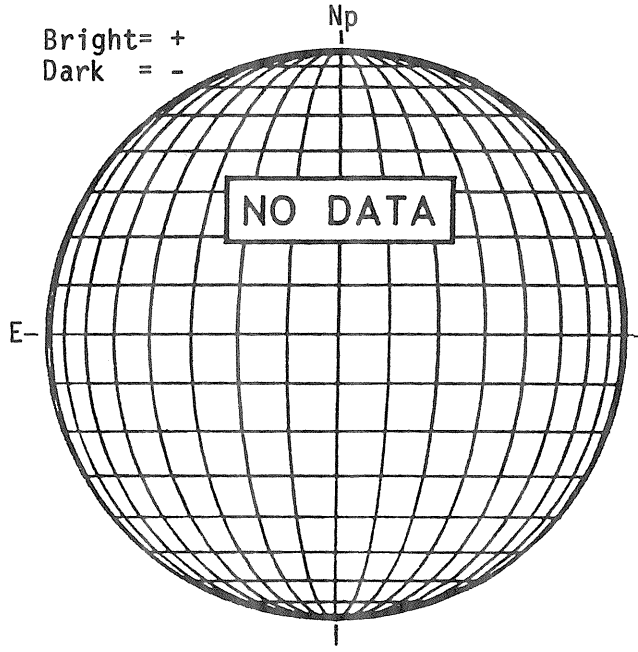


—— 5303A(x1) 1504 UT
.... 6374A(x2) 1409 UT
xxxx 5694A(x6) 1423 UT
NO 5694A ACTIVITY TODAY

S E P T E M B E R 18, 1 9 8 6 (P= 24.47, B_0= 7.06, L_0= 340.40)

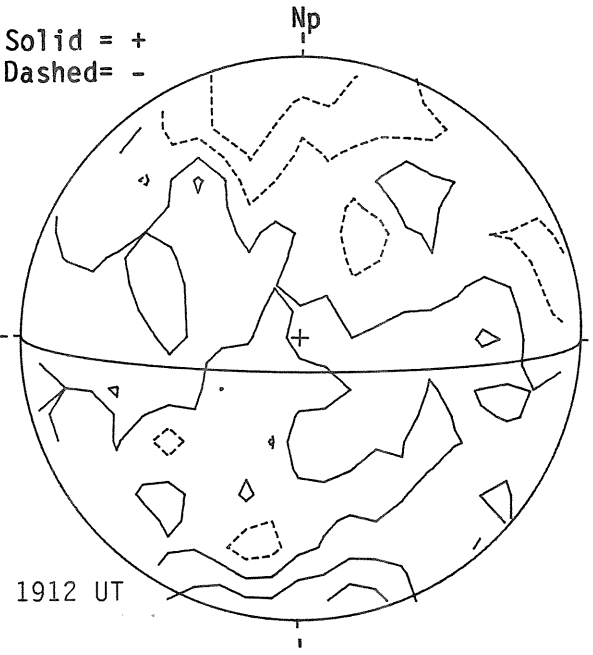
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



STANFORD MAGNETOGRAM

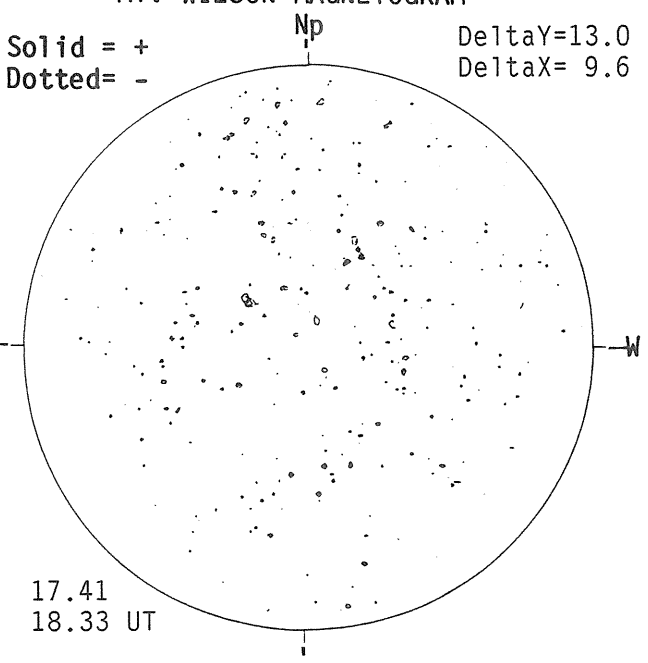
Solid = +
Dashed= -



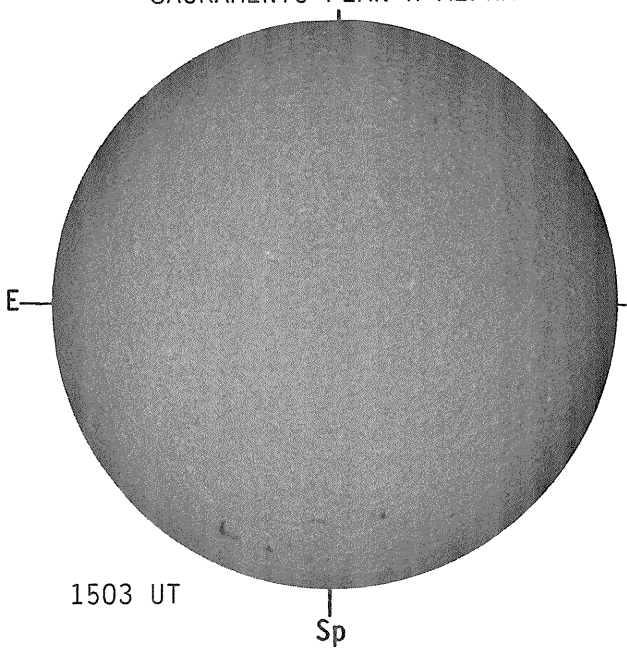
MT. WILSON MAGNETOGRAM

Solid = +
Dotted= -

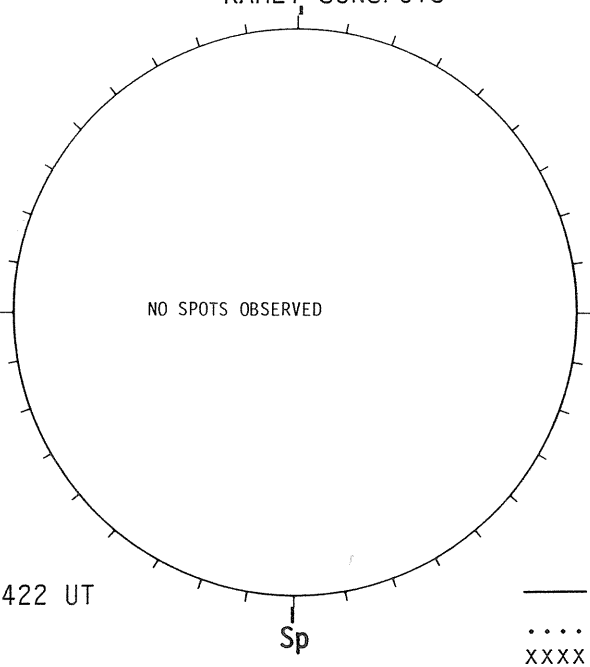
DeltaY=13.0
DeltaX= 9.6



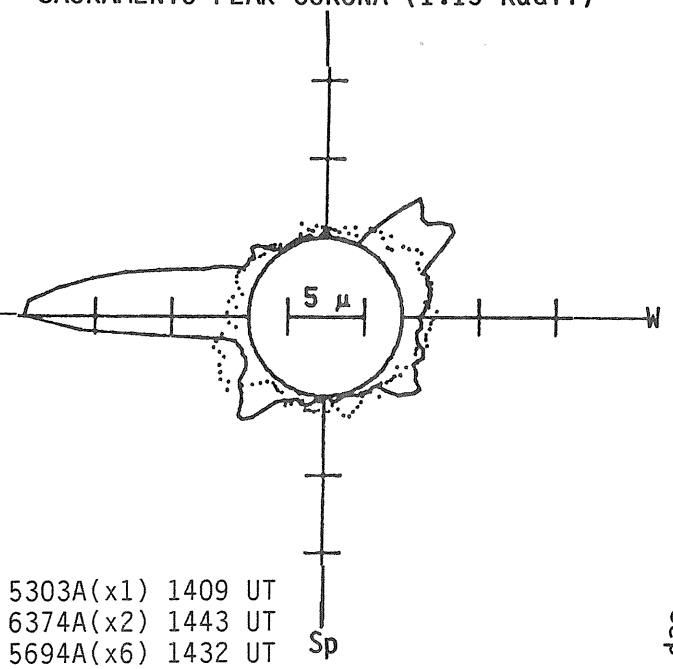
SACRAMENTO PEAK H-ALPHA



RAMEY SUNSPOTS



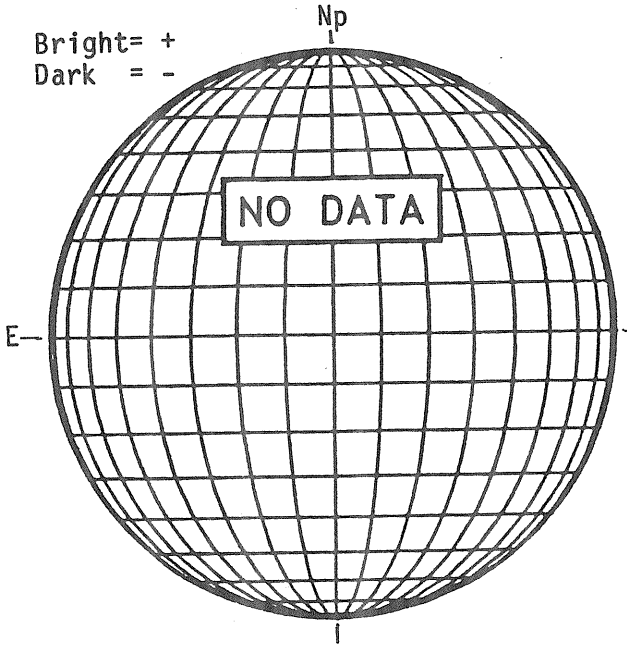
SACRAMENTO PEAK CORONA (1.15 Radii)



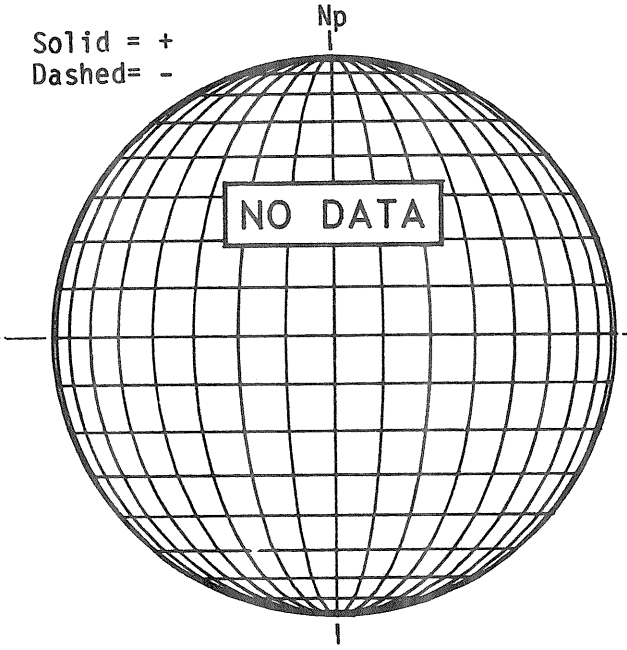
—— 5303A(x1) 1409 UT
.... 6374A(x2) 1443 UT
xxxx 5694A(x6) 1432 UT
NO 5694A ACTIVITY TODAY

S E P T E M B E R 19, 1 9 8 6 (P= 24.62, B_0= 7.04, L_0= 327.20)

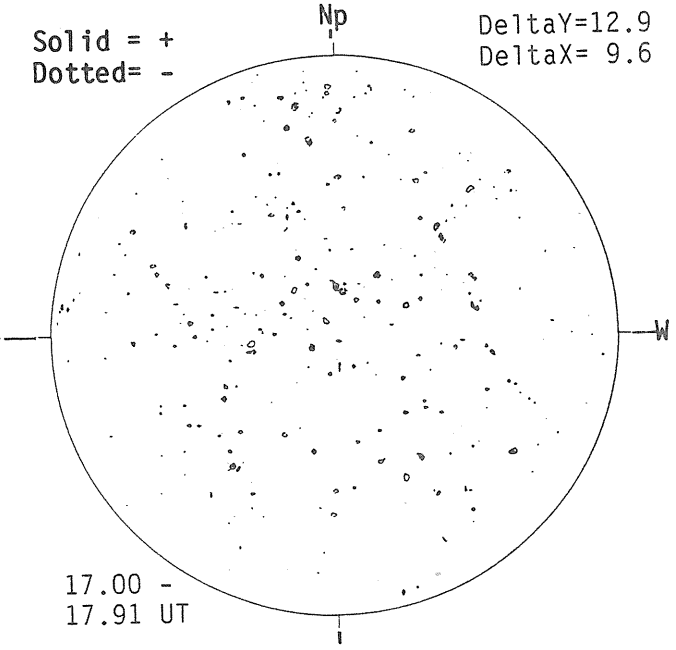
KITT PEAK MAGNETOGRAM



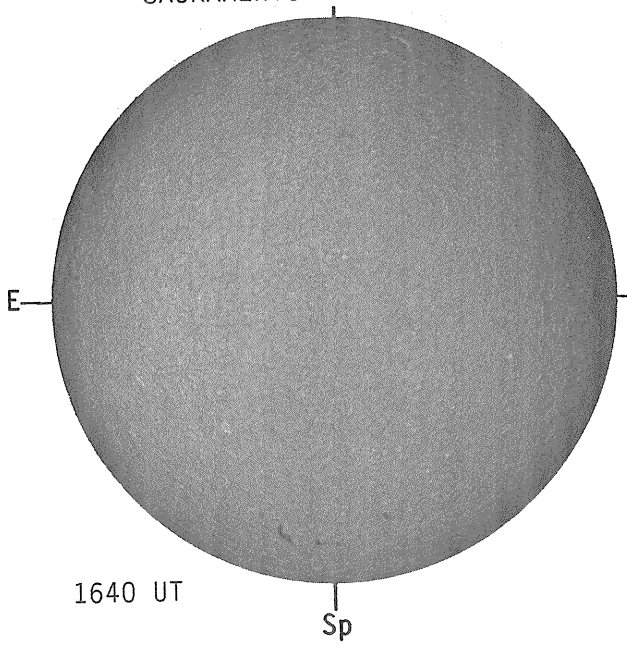
STANFORD MAGNETOGRAM



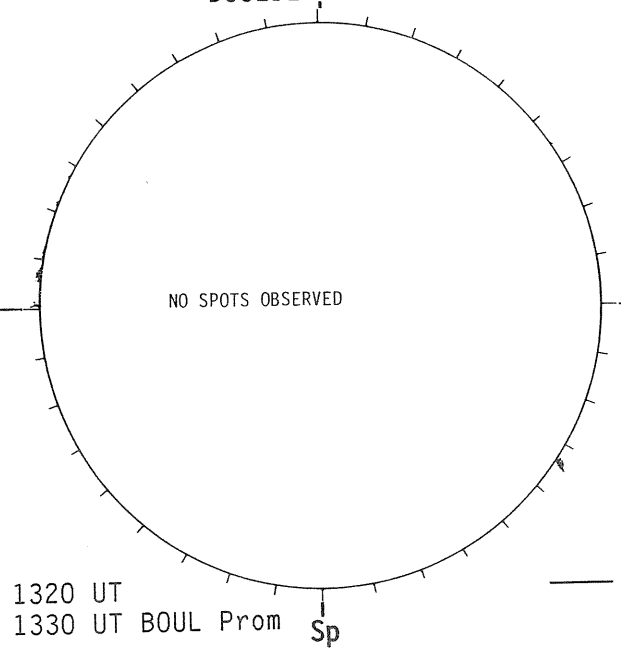
MT. WILSON MAGNETOGRAM



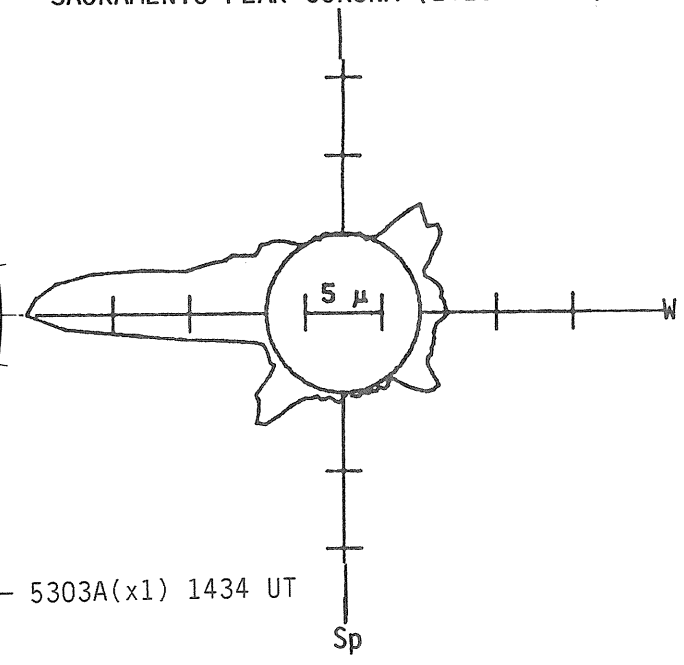
SACRAMENTO PEAK H-ALPHA



BOULDER SUNSPOTS

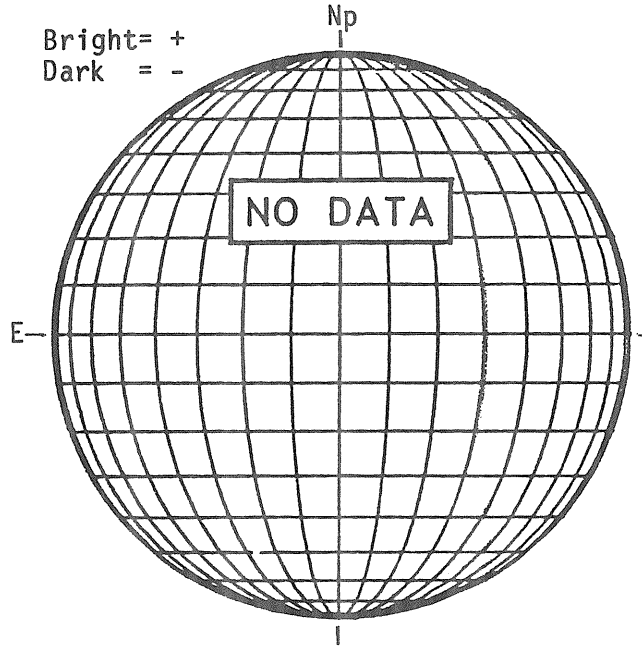


SACRAMENTO PEAK CORONA (1.15 Radii)

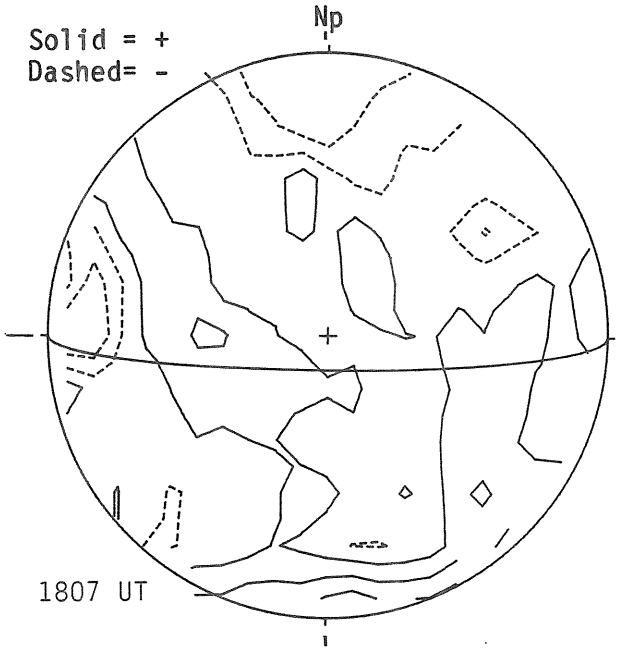


S E P T E M B E R 20, 1 9 8 6 (P= 24.76, B_0= 7.02, L_0= 314.00)

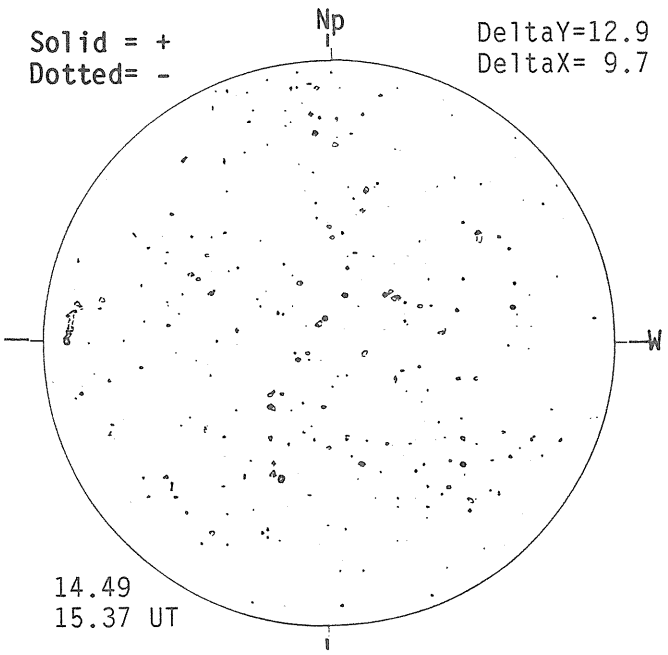
KITT PEAK MAGNETOGRAM



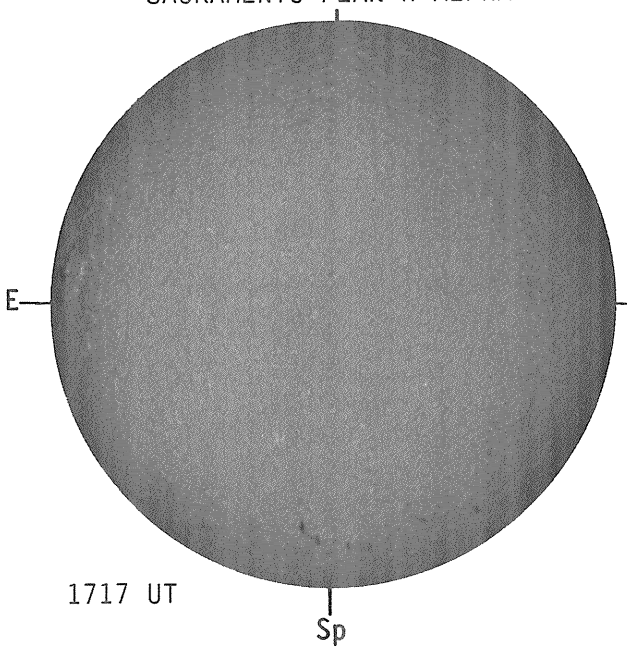
STANFORD MAGNETOGRAM



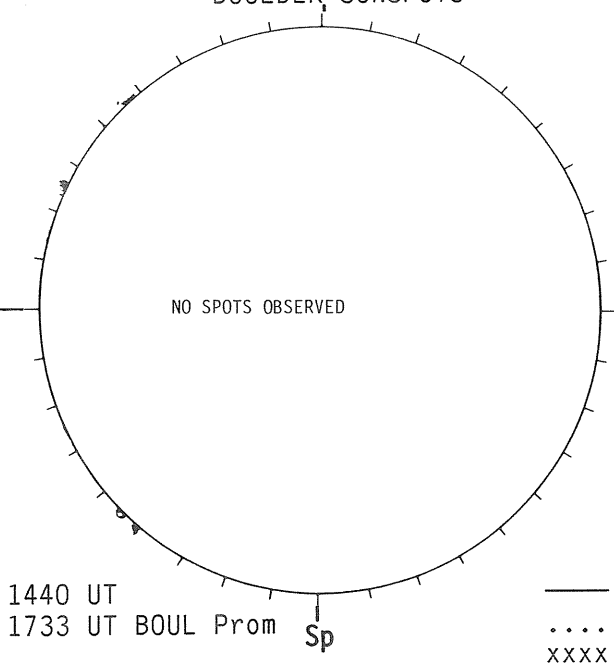
MT. WILSON MAGNETOGRAM



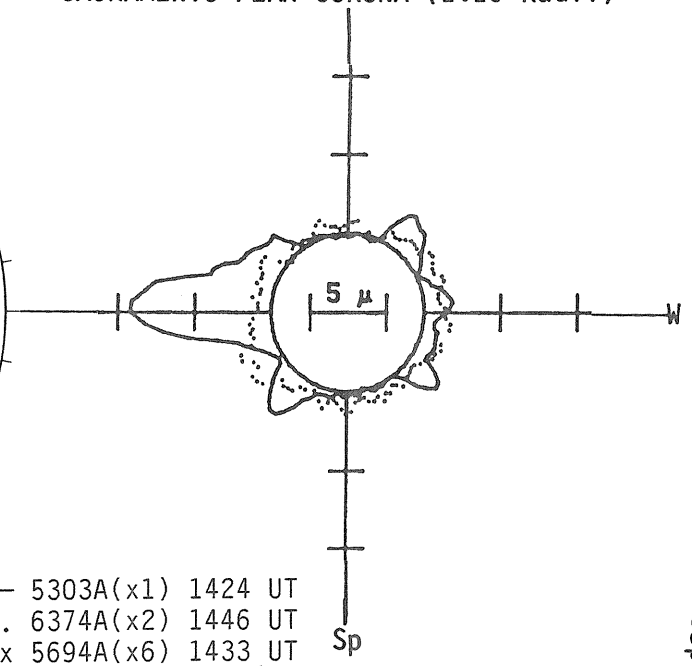
SACRAMENTO PEAK H-ALPHA



BOULDER SUNSPOTS



SACRAMENTO PEAK CORONA (1.15 Radii)

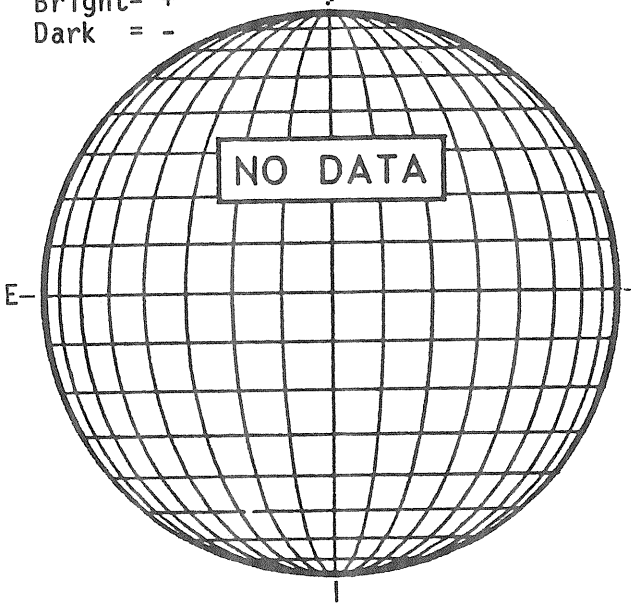


—— 5303A(x1) 1424 UT
.... 6374A(x2) 1446 UT
xxxx 5694A(x6) 1433 UT
NO 5694A ACTIVITY TODAY

S E P T E M B E R 21, 1 9 8 6 (P= 24.90, B_0= 6.99, L_0= 300.80)

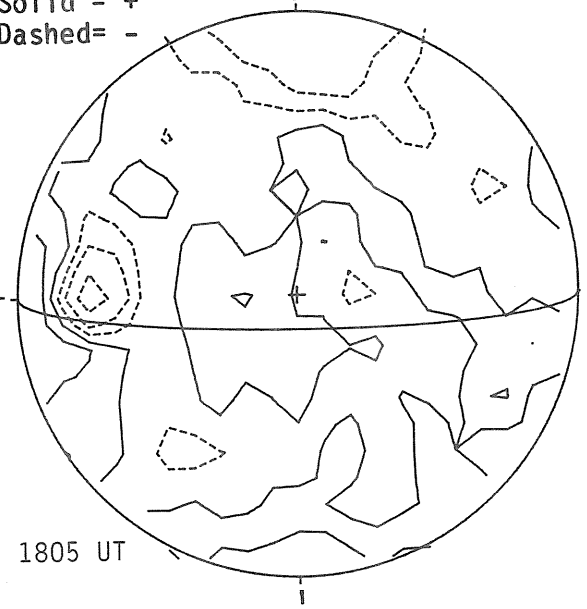
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



STANFORD MAGNETOGRAM

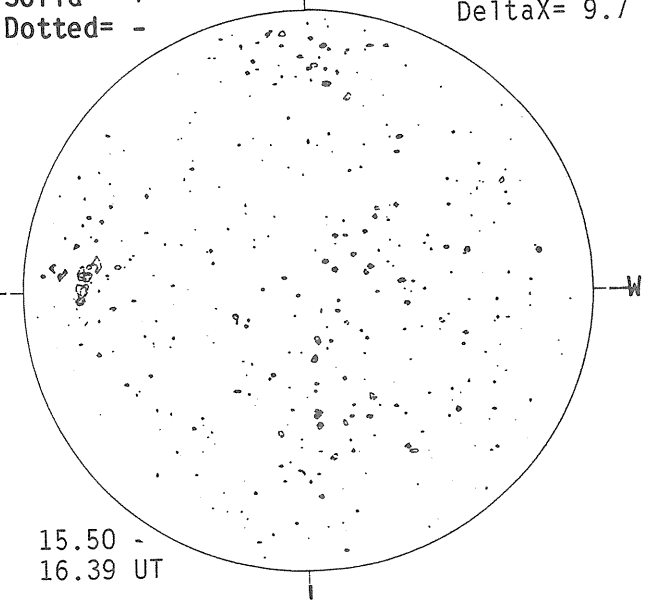
Solid = +
Dashed= -



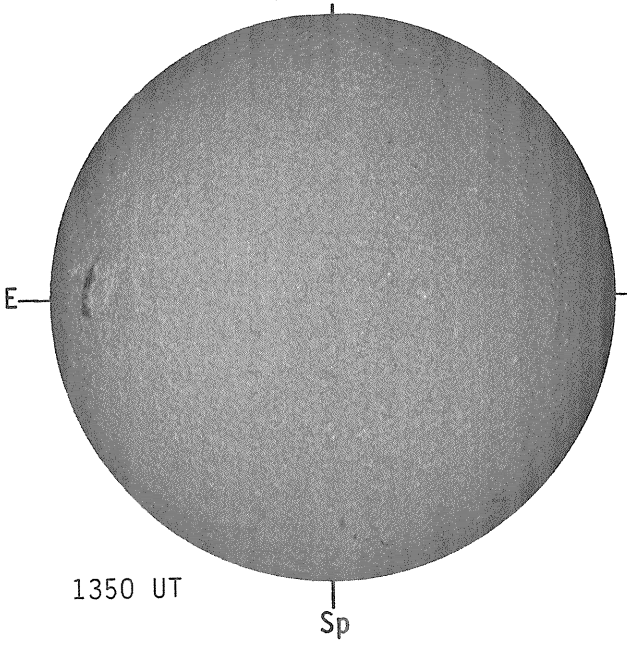
MT. WILSON MAGNETOGRAM

Solid = +
Dotted= -

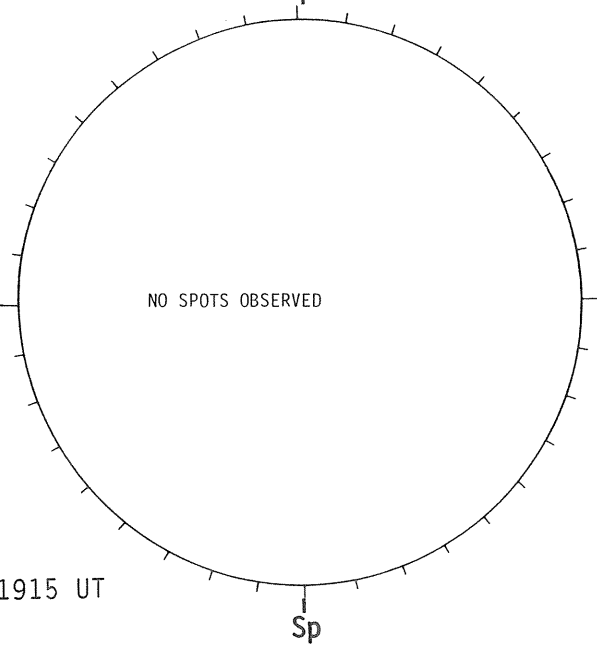
DeltaY=12.9
DeltaX= 9.7



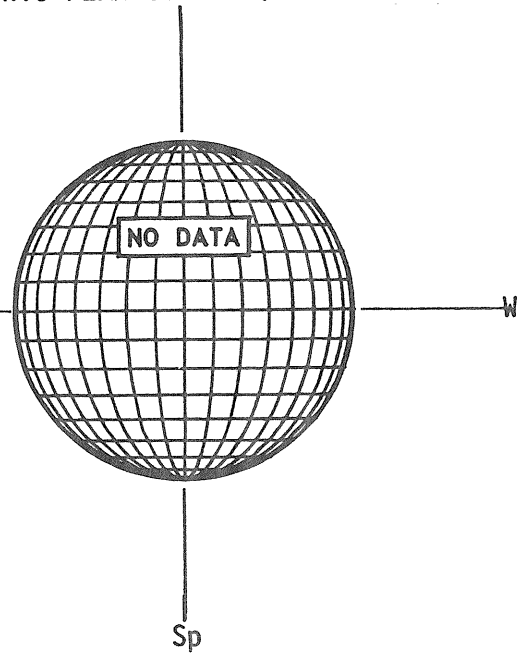
SACRAMENTO PEAK H-ALPHA



BOULDER SUNSPOTS

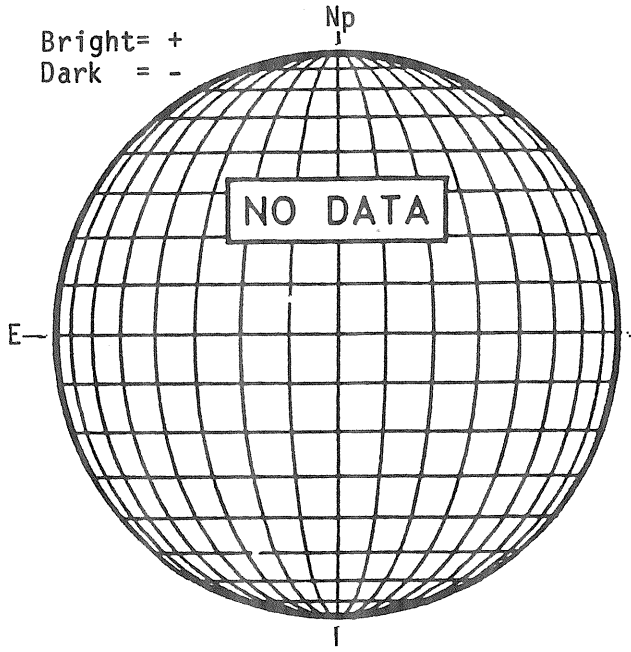


SACRAMENTO PEAK CORONA (1.15 Radii)

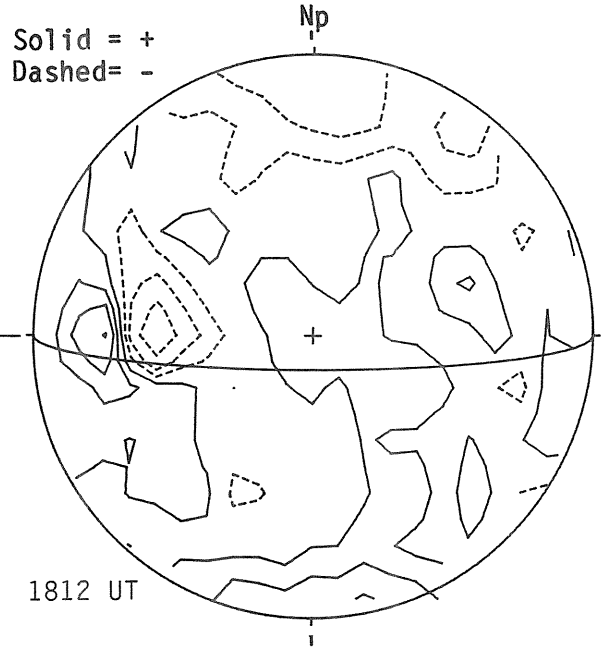


S E P T E M B E R 22, 1 9 8 6 (P= 25.03, B_0= 6.97, L_0= 287.60)

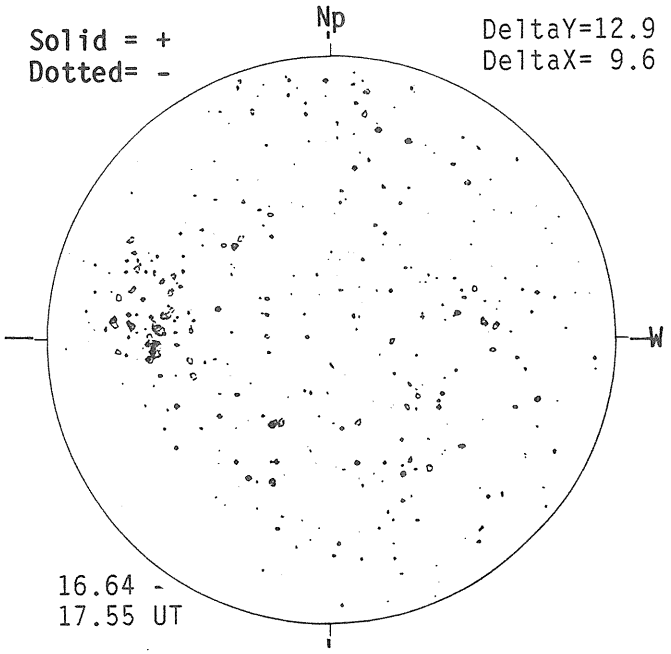
KITT PEAK MAGNETOGRAM



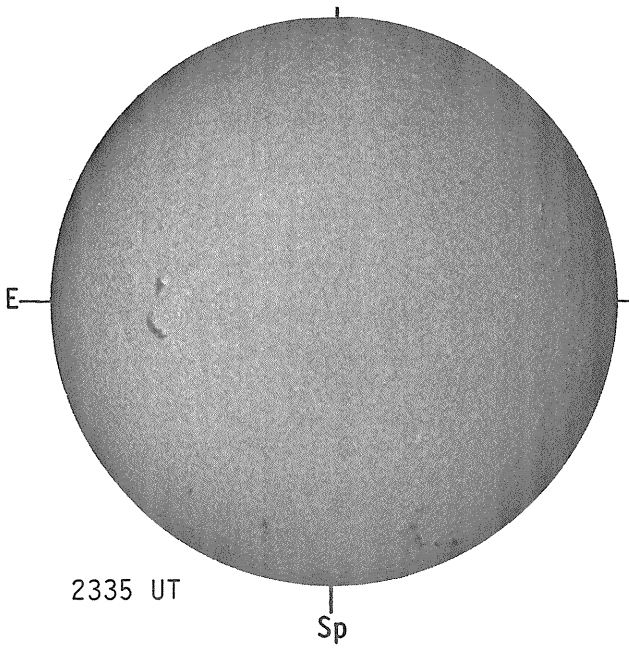
STANFORD MAGNETOGRAM



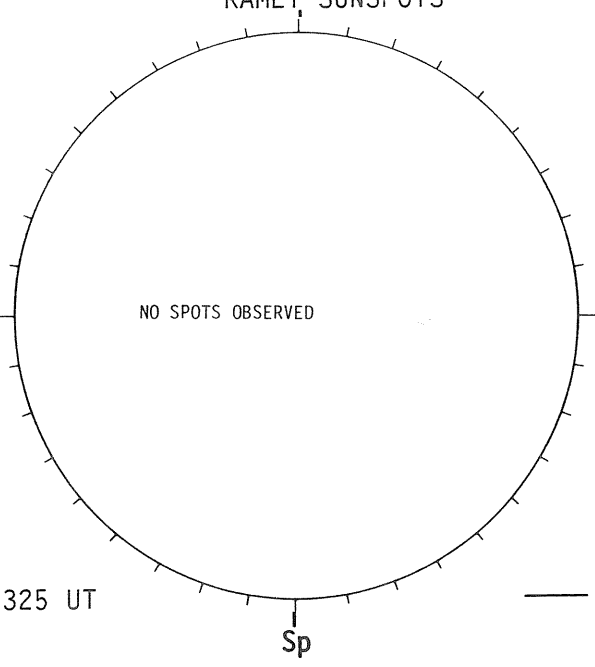
MT. WILSON MAGNETOGRAM



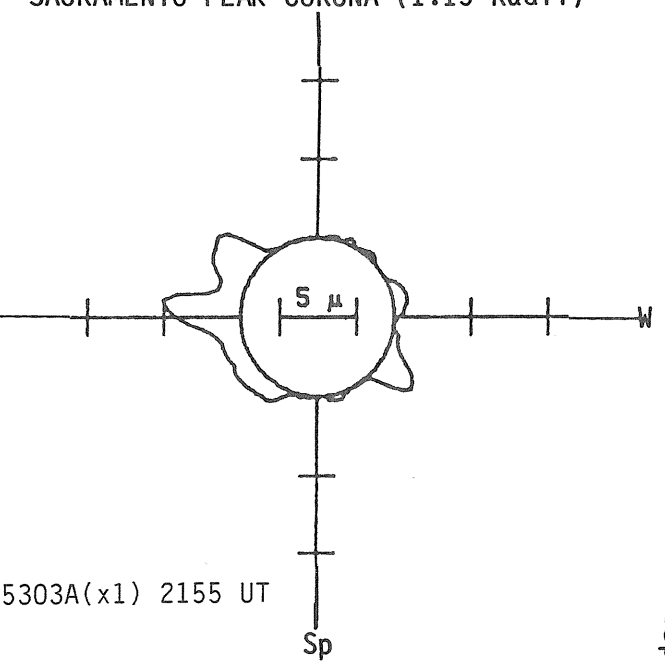
SACRAMENTO PEAK H-ALPHA



RAMEY SUNSPOTS



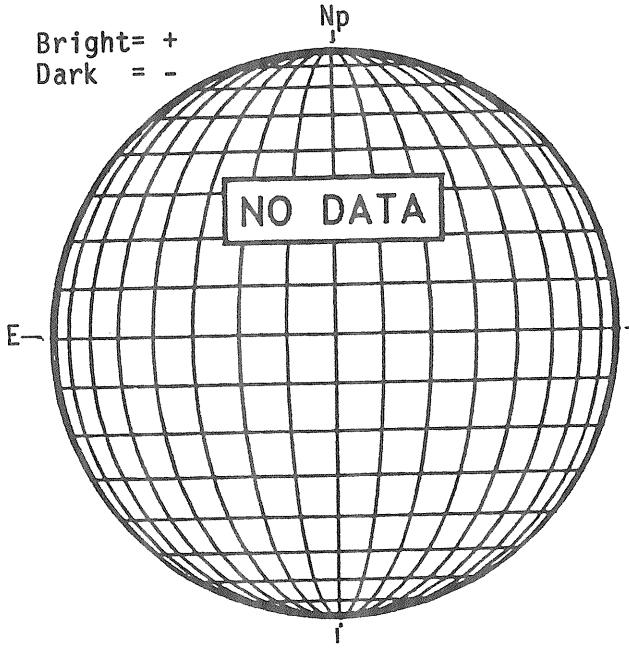
SACRAMENTO PEAK CORONA (1.15 Radii)



S E P T E M B E R 23, 1 9 8 6 (P= 25.15, B_0= 6.94, L_0= 274.40)

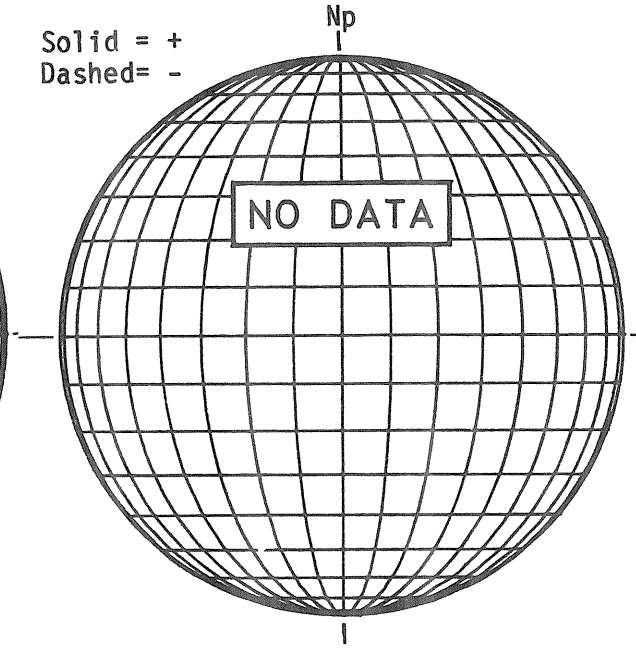
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



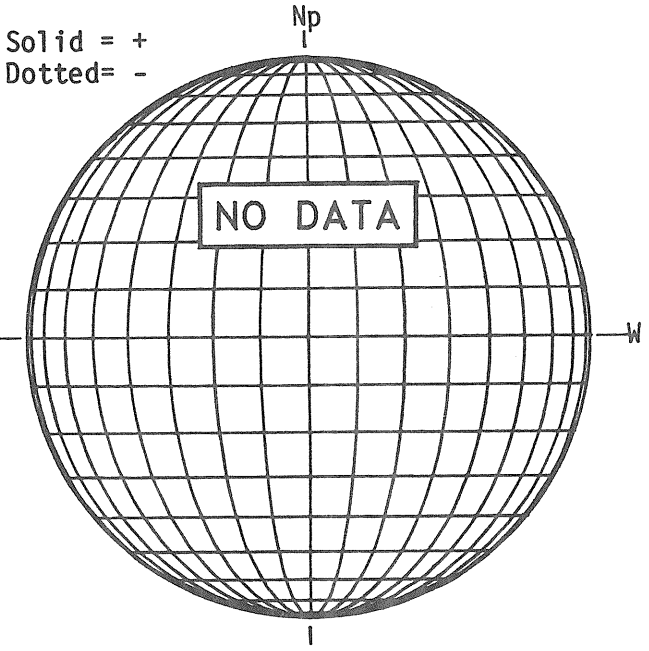
STANFORD MAGNETOGRAM

Solid = +
Dashed= -

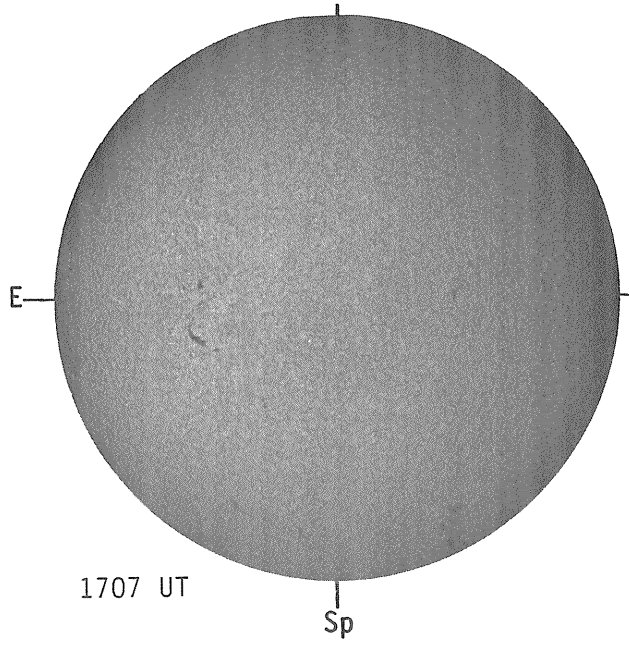


MT. WILSON MAGNETOGRAM

Solid = +
Dotted= -

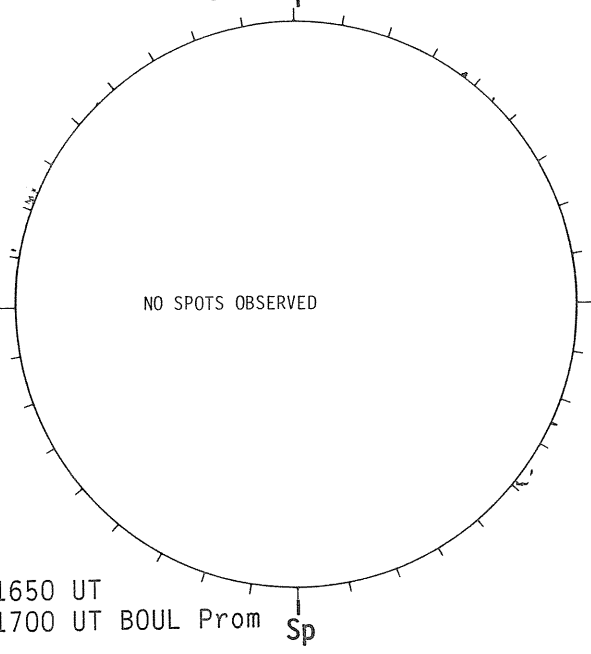


SACRAMENTO PEAK H-ALPHA



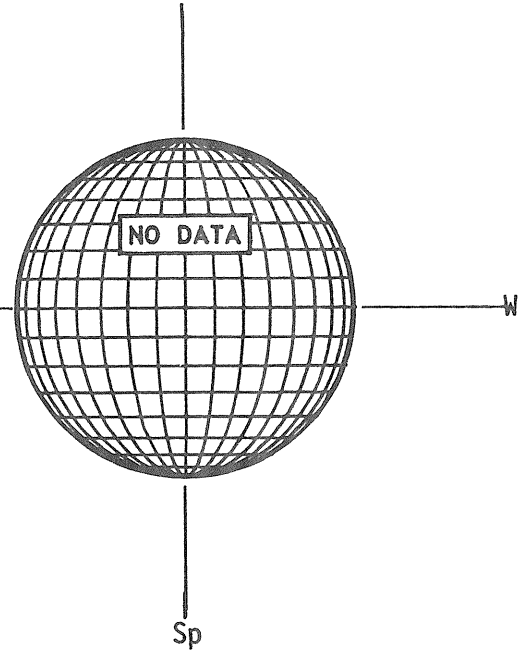
1707 UT

BOULDER SUNSPOTS



1650 UT
1700 UT BOUL Prom

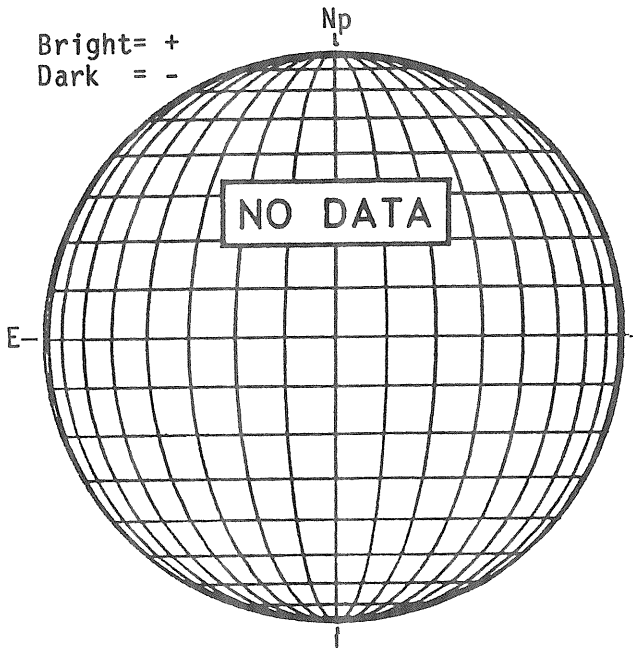
SACRAMENTO PEAK CORONA (1.15 Radii)



S E P T E M B E R 24, 1 9 8 6 (P= 25.27, B_0= 6.91, L_0= 261.20)

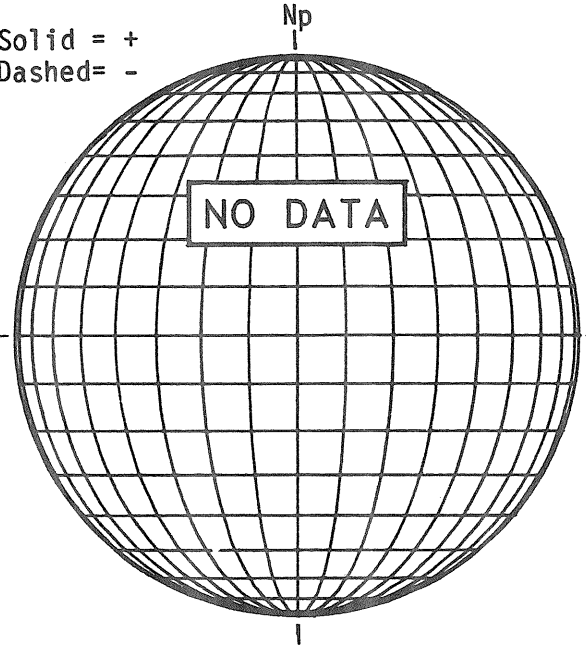
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



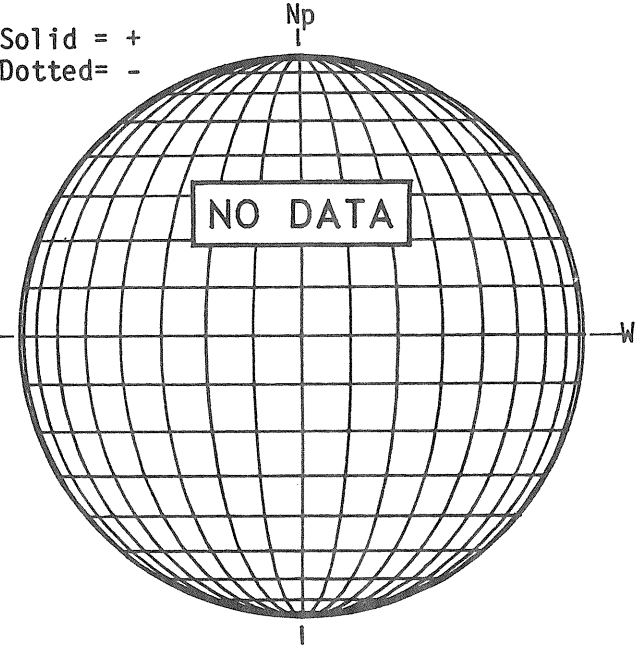
STANFORD MAGNETOGRAM

Solid = +
Dashed= -

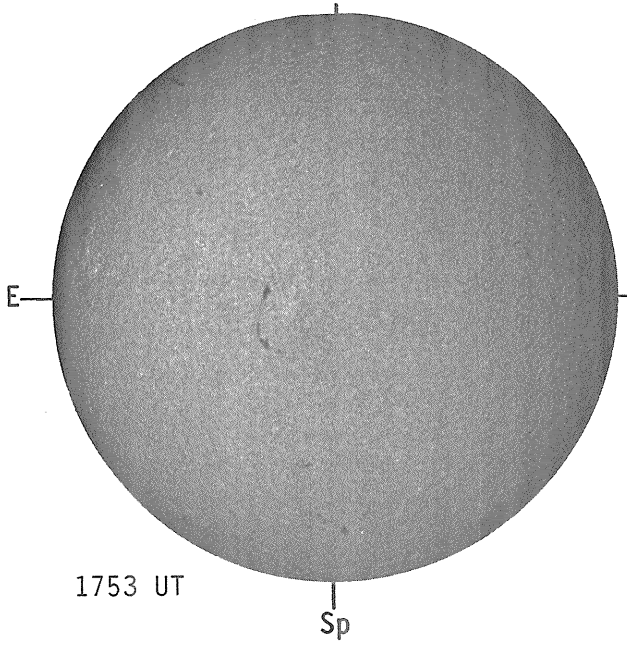


MT. WILSON MAGNETOGRAM

Solid = +
Dotted= -

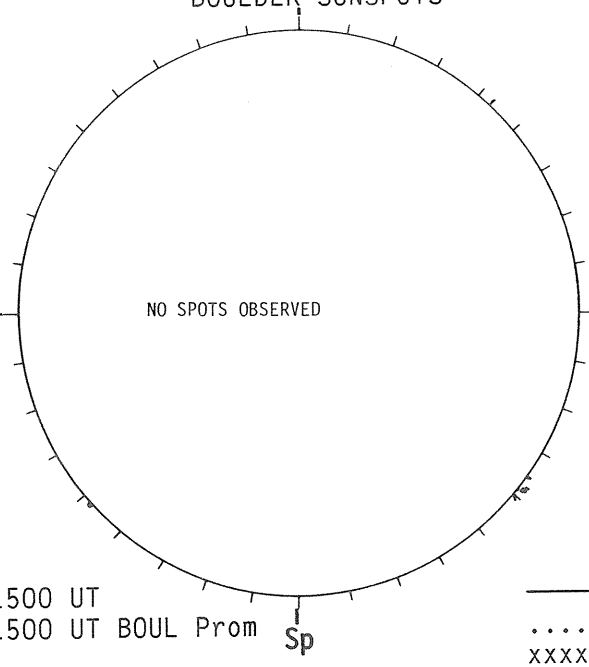


SACRAMENTO PEAK H-ALPHA



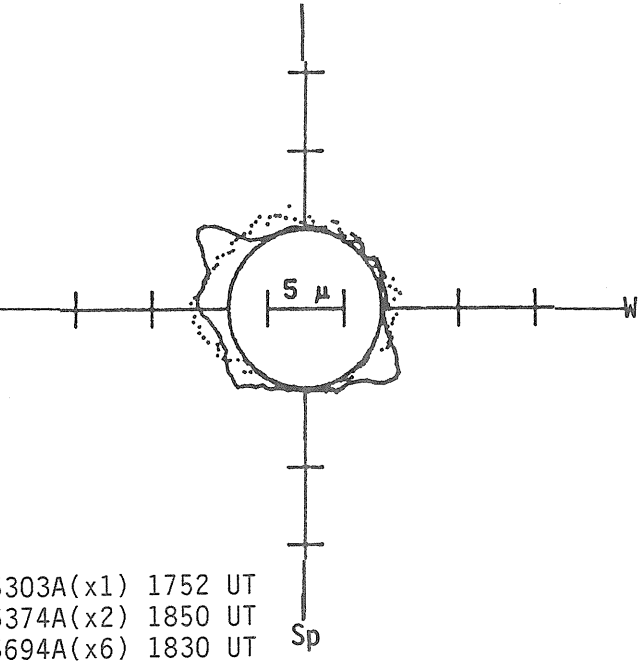
1753 UT

BOULDER SUNSPOTS



1500 UT
1500 UT BOUL Prom

SACRAMENTO PEAK CORONA (1.15 Radii)

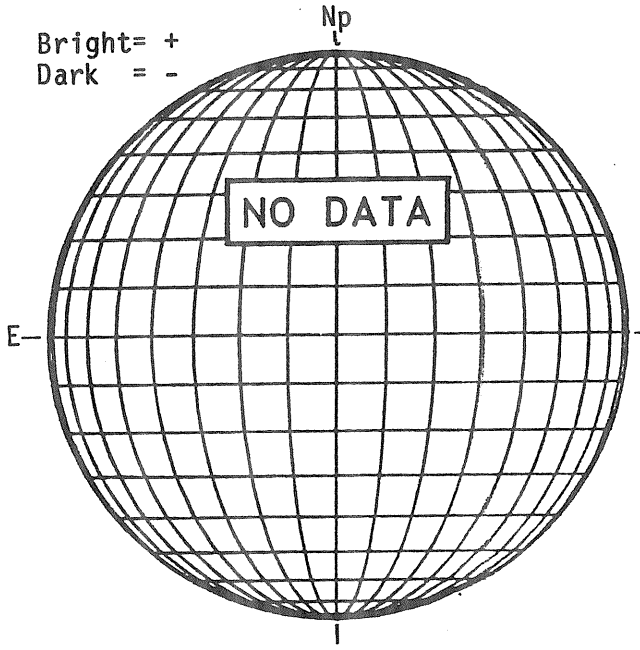


—— 5303A(x1) 1752 UT
.... 6374A(x2) 1850 UT
xxxx 5694A(x6) 1830 UT
NO 5694A ACTIVITY TODAY

S E P T E M B E R 25, 1 9 8 6 (P= 25.38, B_0= 6.88, L_0= 248.00)

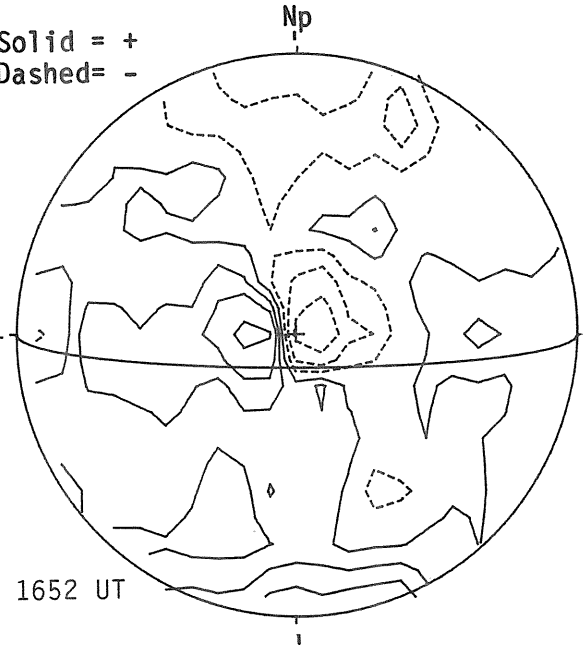
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



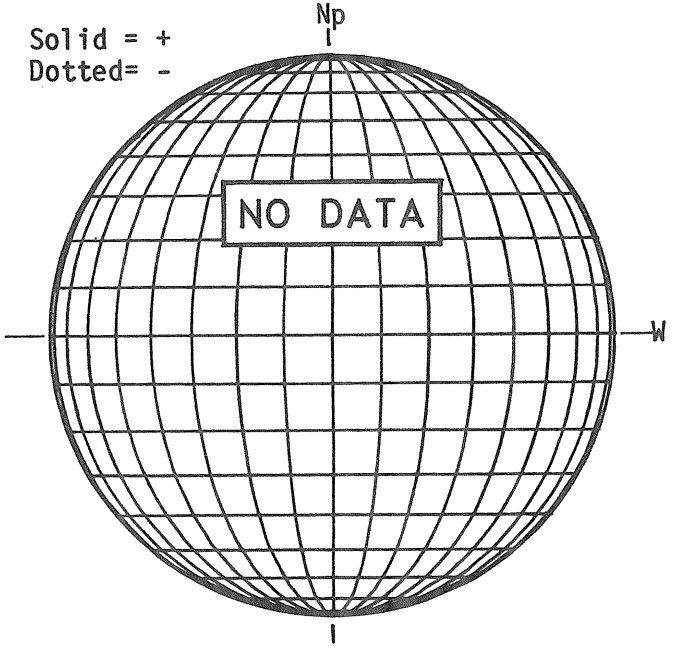
STANFORD MAGNETOGRAM

Solid = +
Dashed= -

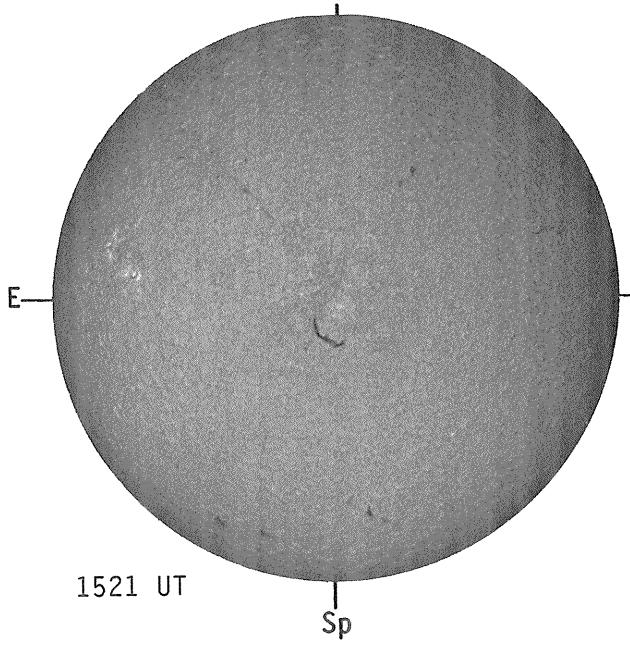


MT. WILSON MAGNETOGRAM

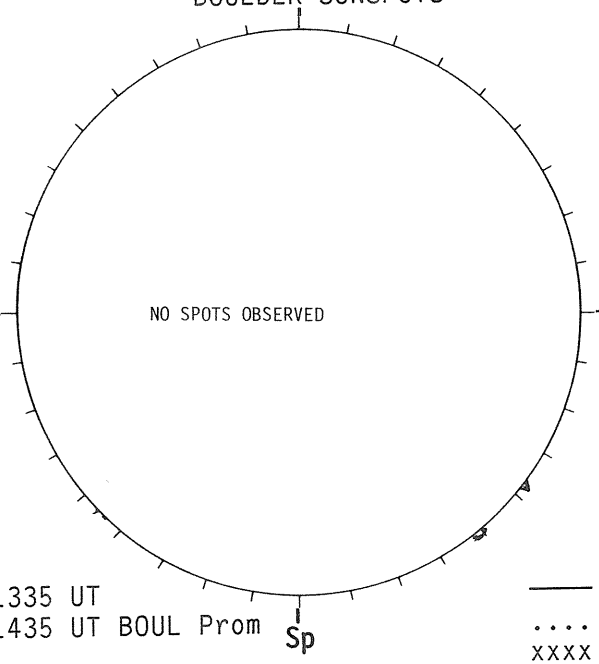
Solid = +
Dotted= -



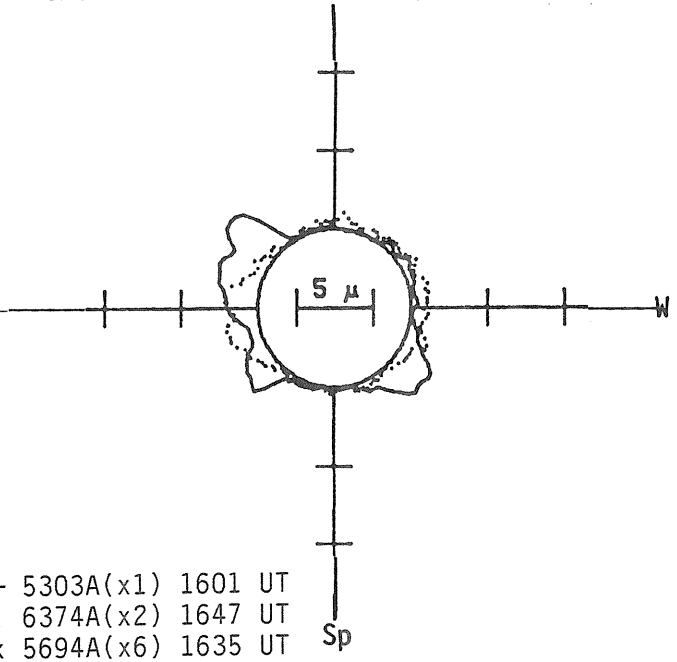
SACRAMENTO PEAK H-ALPHA



BOULDER SUNSPOTS



SACRAMENTO PEAK CORONA (1.15 Radii)

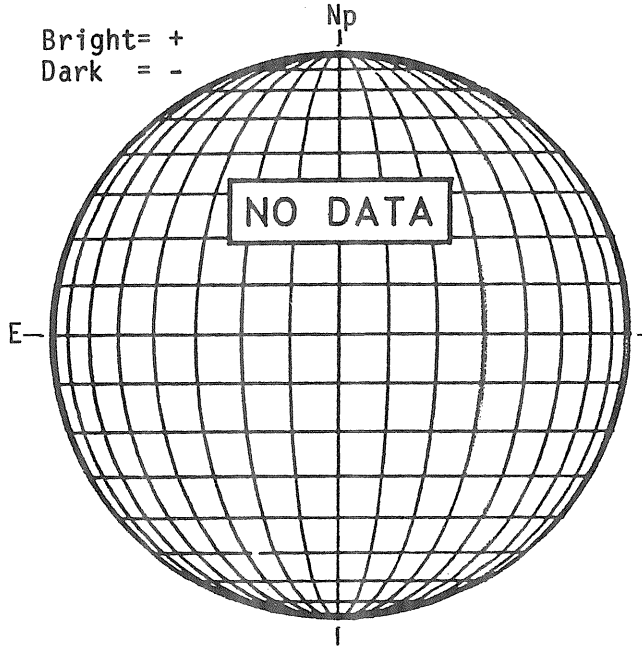


—— 5303A(x1) 1601 UT
.... 6374A(x2) 1647 UT
xxxx 5694A(x6) 1635 UT
NO 5694A ACTIVITY TODAY

S E P T E M B E R 26, 1 9 8 6 (P= 25.49, B_0= 6.84, L_0= 234.81)

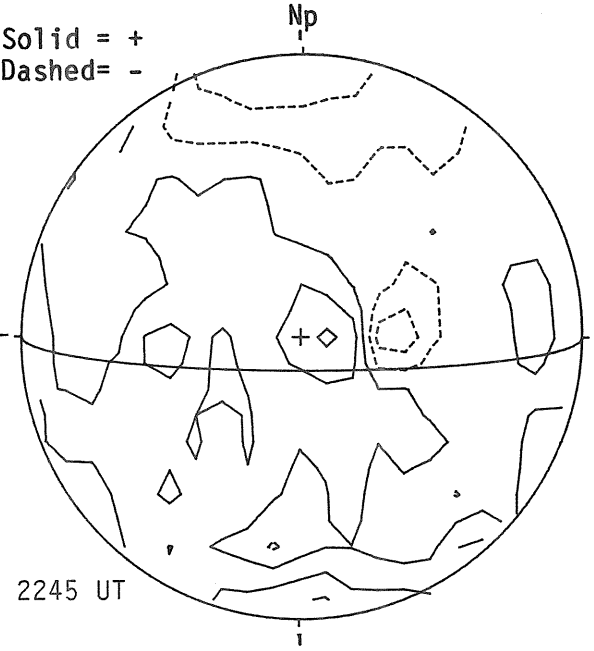
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



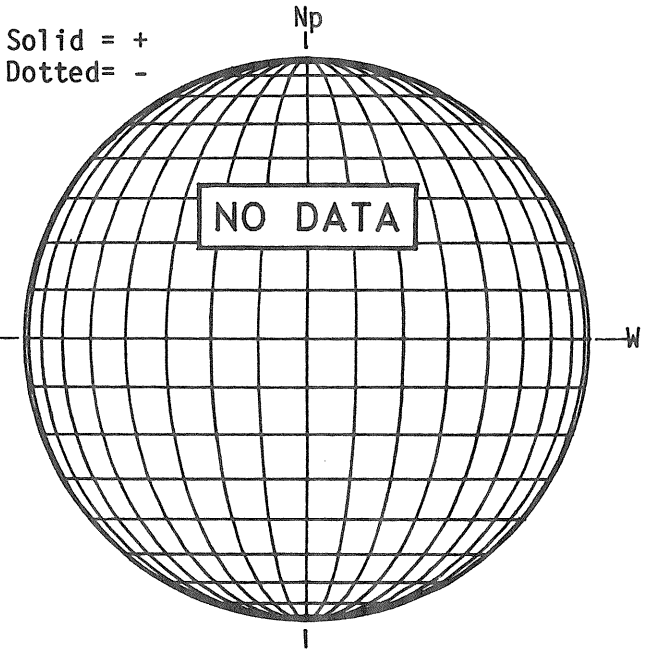
STANFORD MAGNETOGRAM

Solid = +
Dashed= -

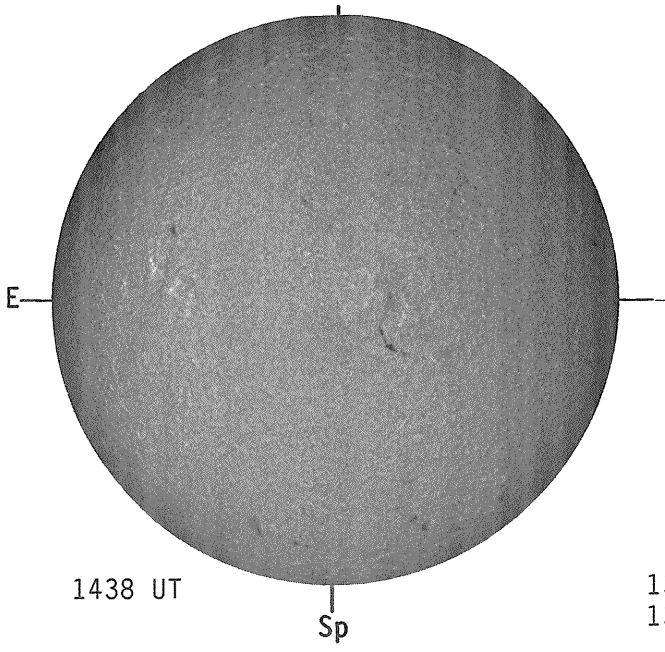


MT. WILSON MAGNETOGRAM

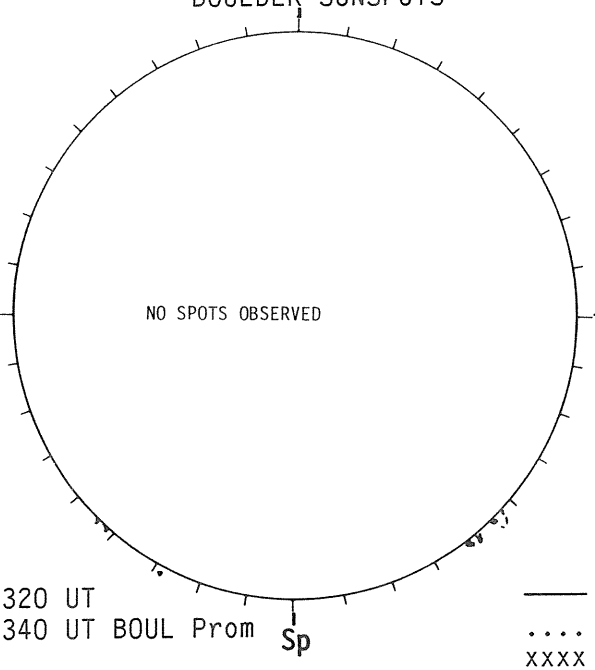
Solid = +
Dotted= -



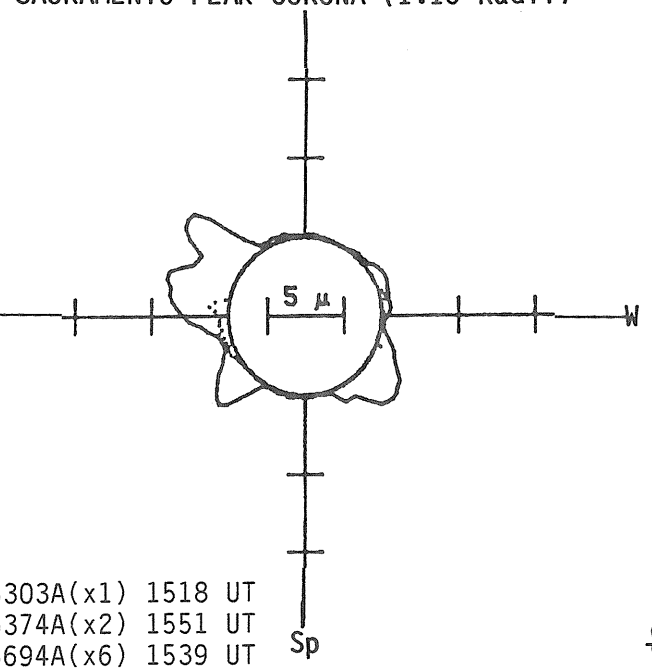
SACRAMENTO PEAK H-ALPHA



BOULDER SUNSPOTS



SACRAMENTO PEAK CORONA (1.15 Radii)



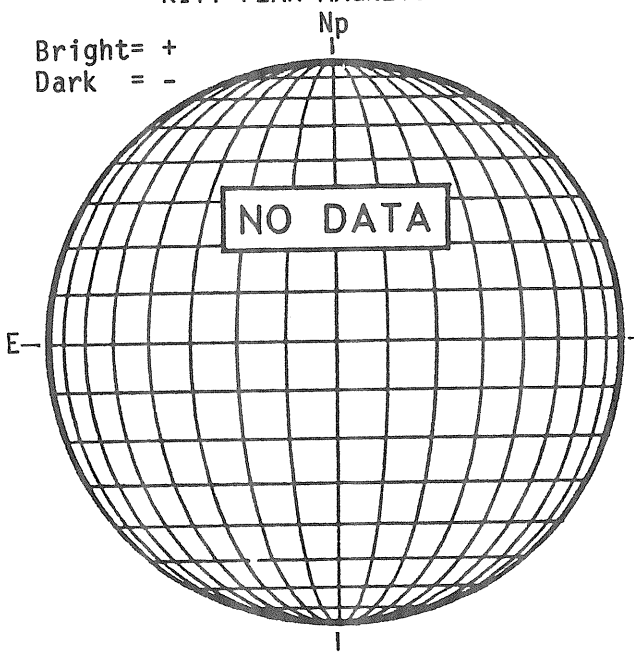
—— 5303A(x1) 1518 UT
.... 6374A(x2) 1551 UT
xxxx 5694A(x6) 1539 UT
NO 5694A ACTIVITY TODAY

61
Sep 86

S E P T E M B E R 27, 1 9 8 6 (P= 25.58, B_0= 6.81, L_0= 221.61)

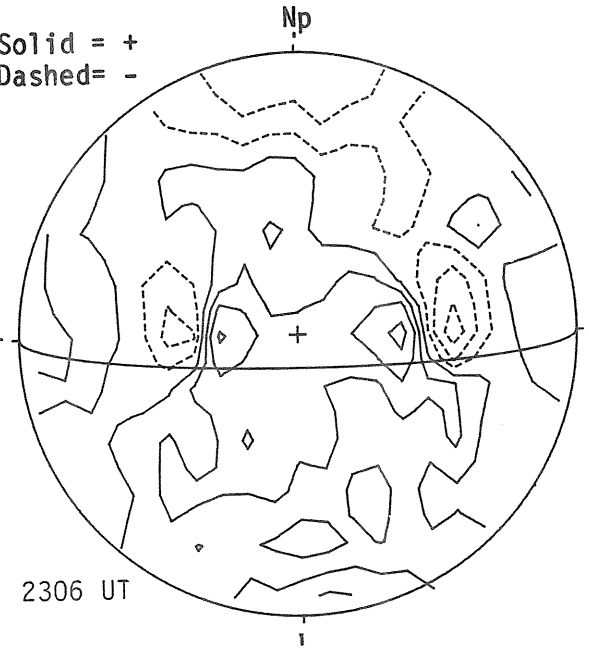
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



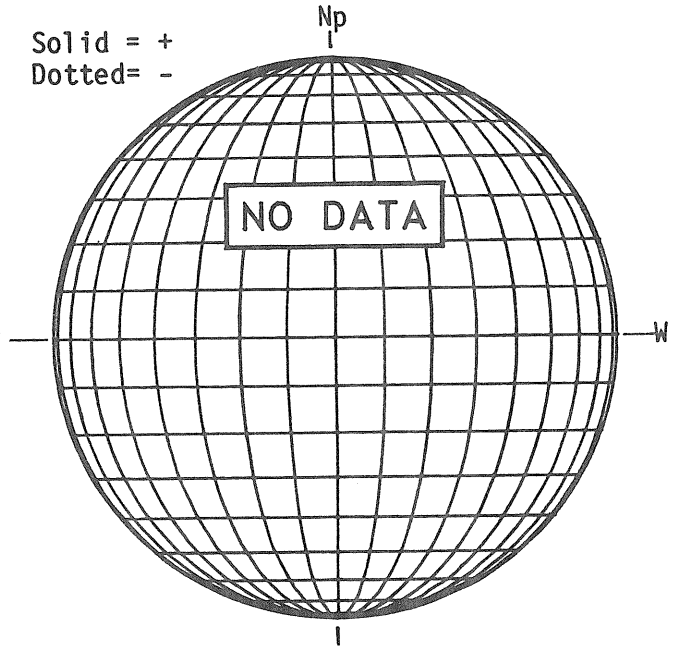
STANFORD MAGNETOGRAM

Solid = +
Dashed= -

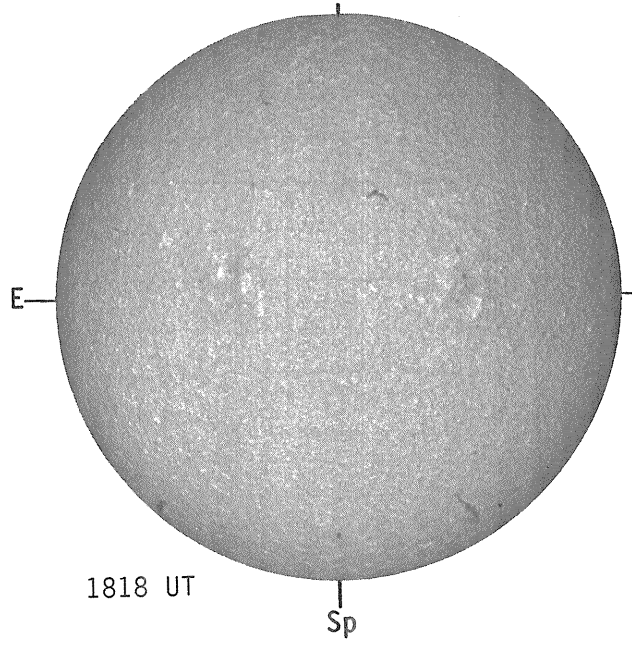


MT. WILSON MAGNETOGRAM

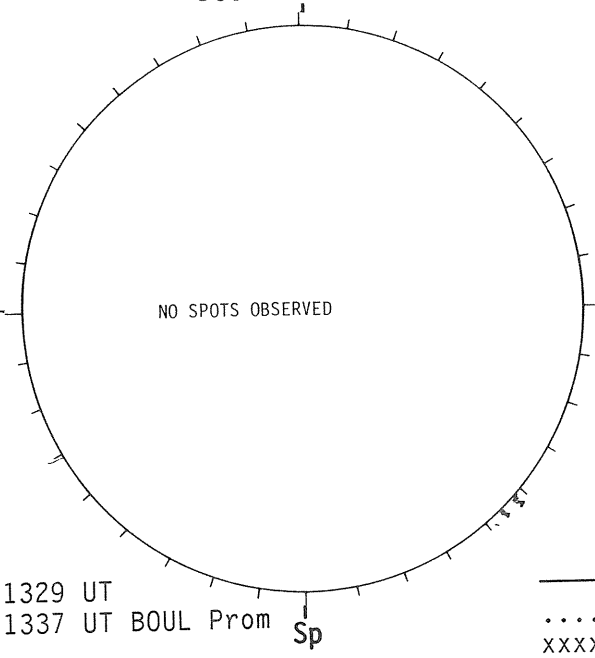
Solid = +
Dotted= -



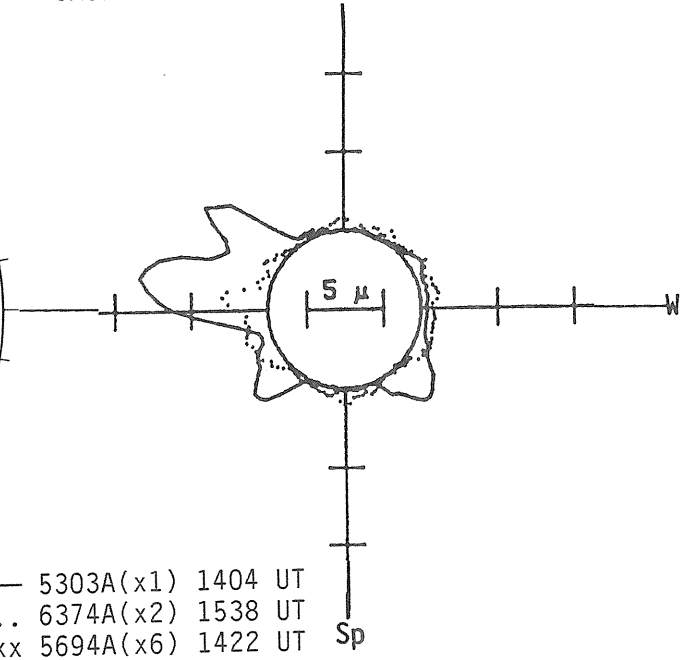
SACRAMENTO PEAK H-ALPHA



BOULDER SUNSPOTS



SACRAMENTO PEAK CORONA (1.15 Radii)

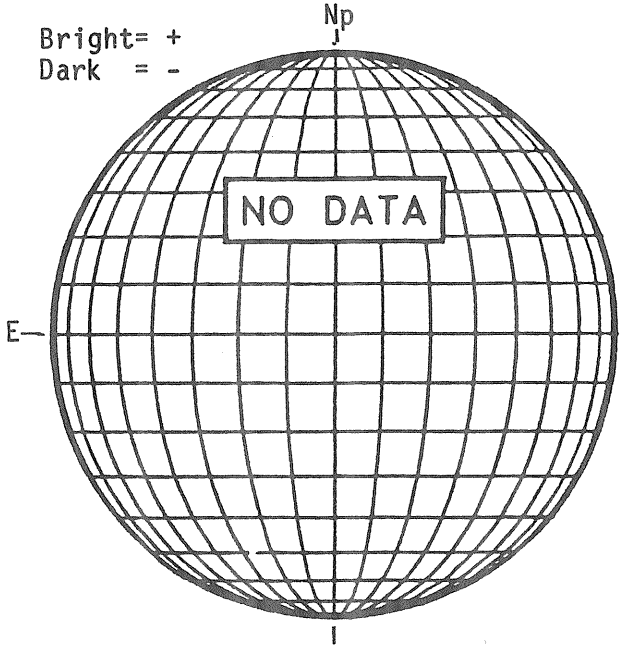


—— 5303A(x1) 1404 UT
.... 6374A(x2) 1538 UT
xxxx 5694A(x6) 1422 UT
NO 5694A ACTIVITY TODAY

S E P T E M B E R 28, 1 9 8 6 (P= 25.67, B_0= 6.77, L_0= 208.41)

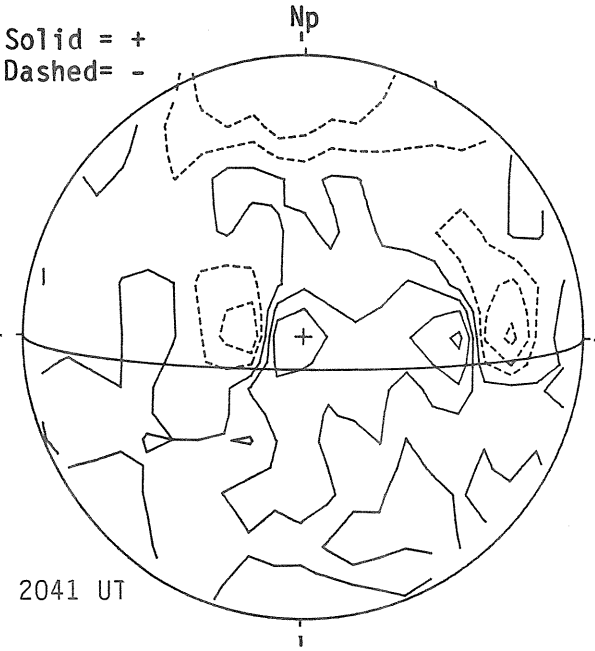
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



STANFORD MAGNETOGRAM

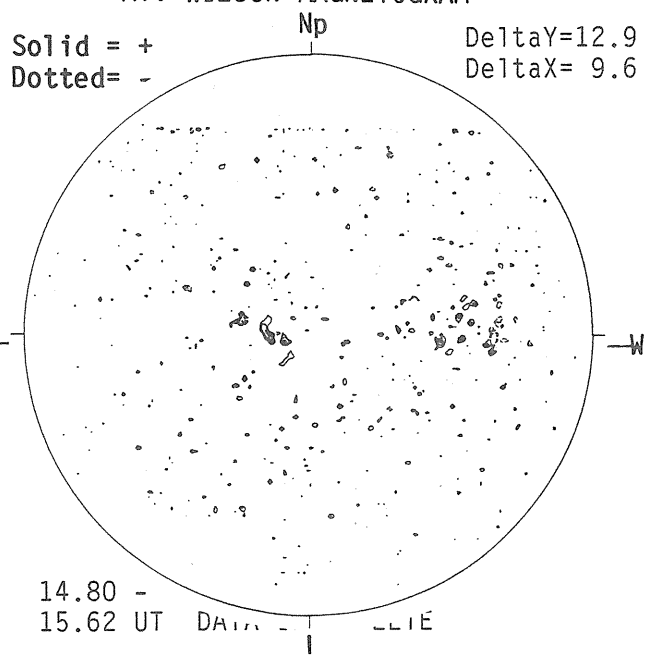
Solid = +
Dashed= -



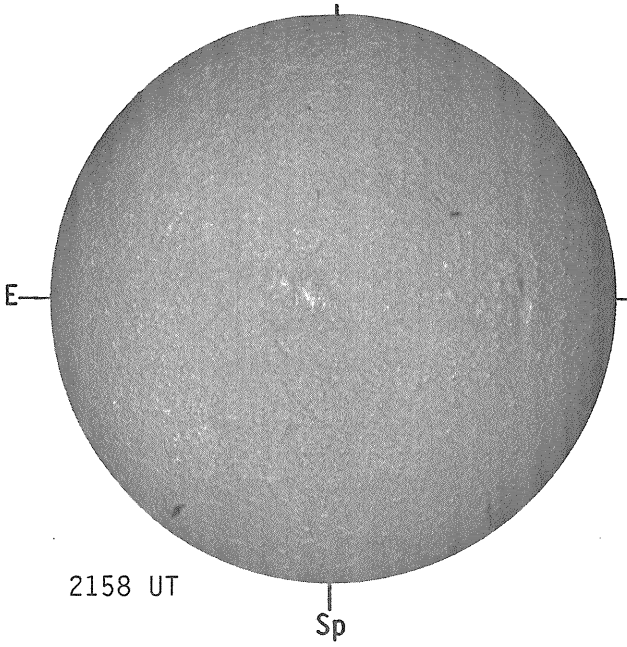
MT. WILSON MAGNETOGRAM

Solid = +
Dotted= -

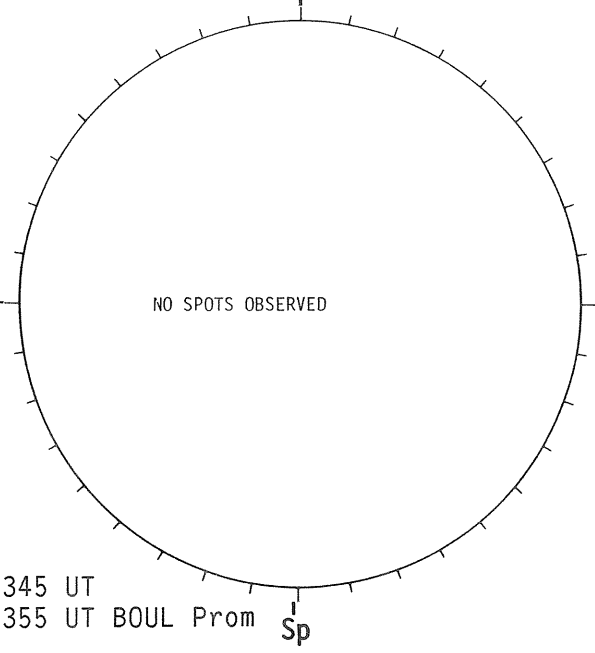
DeltaY=12.9
DeltaX= 9.6



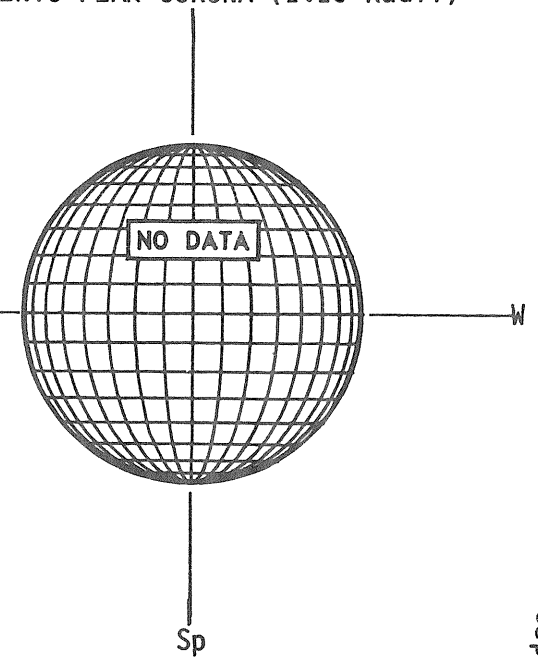
SACRAMENTO PEAK H-ALPHA



BOULDER SUNSPOTS

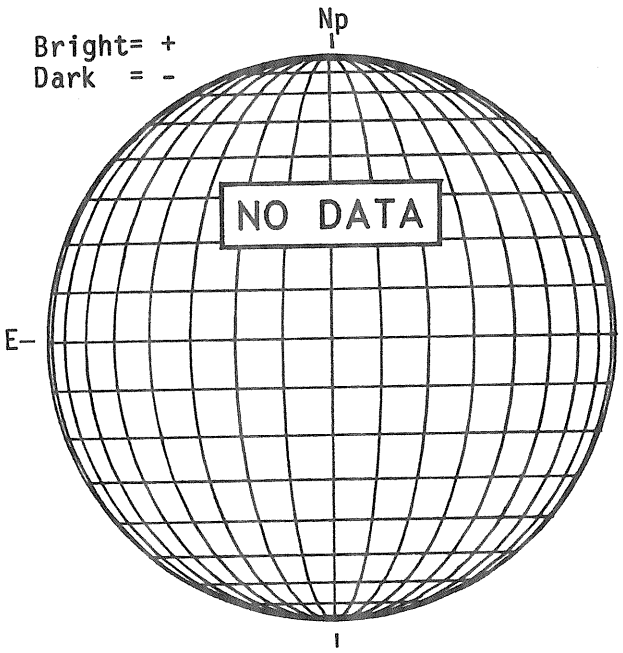


SACRAMENTO PEAK CORONA (1.15 Radii)

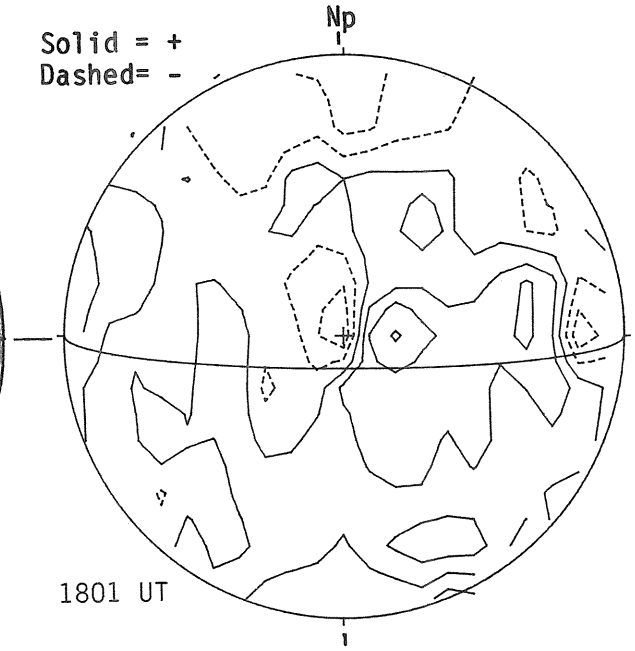


S E P T E M B E R 29, 1 9 8 6 (P= 25.76, B_0= 6.73, L_0= 195.21)

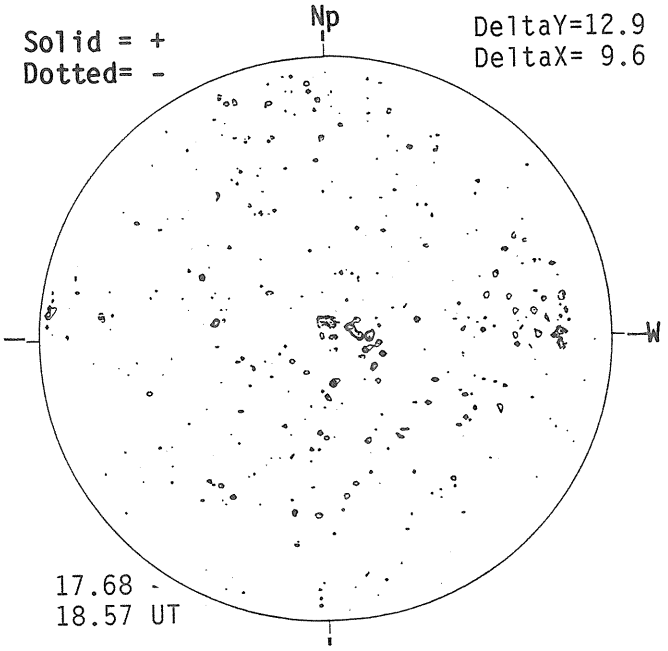
KITT PEAK MAGNETOGRAM



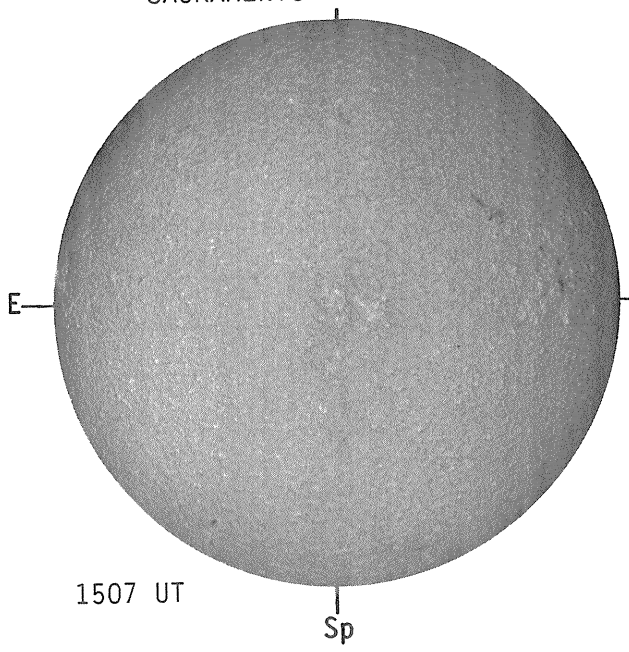
STANFORD MAGNETOGRAM



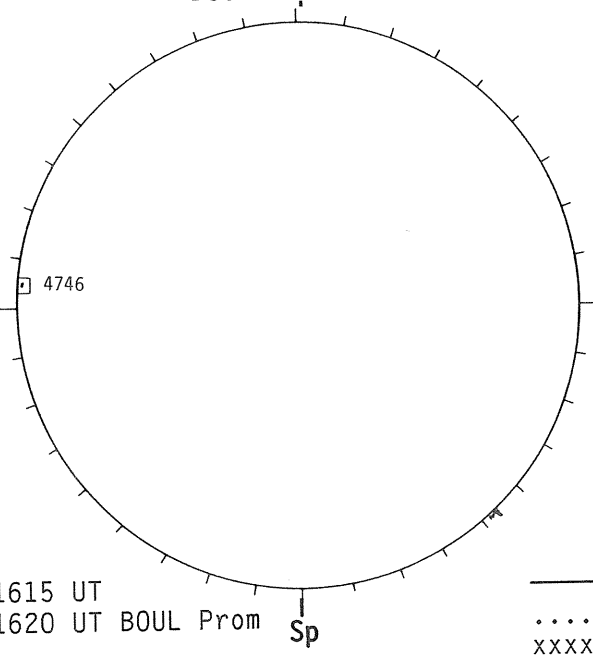
MT. WILSON MAGNETOGRAM



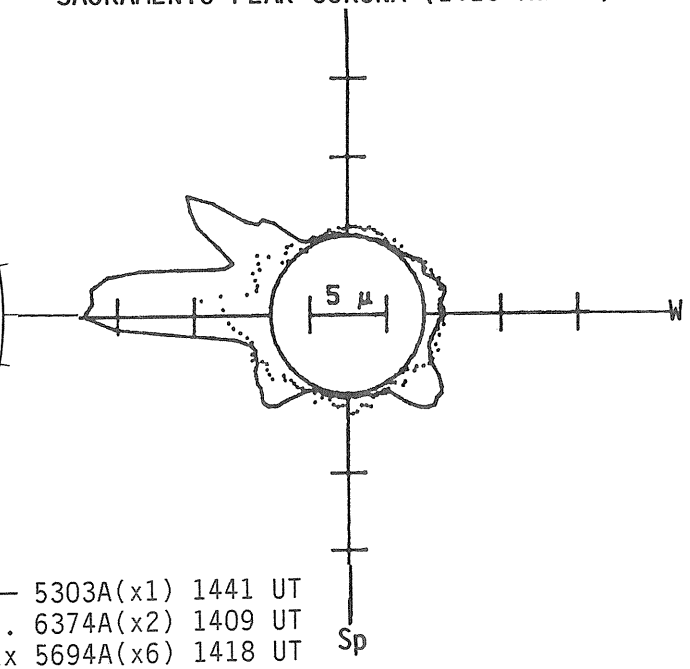
SACRAMENTO PEAK H-ALPHA



BOULDER SUNSPOTS



SACRAMENTO PEAK CORONA (1.15 Radii)

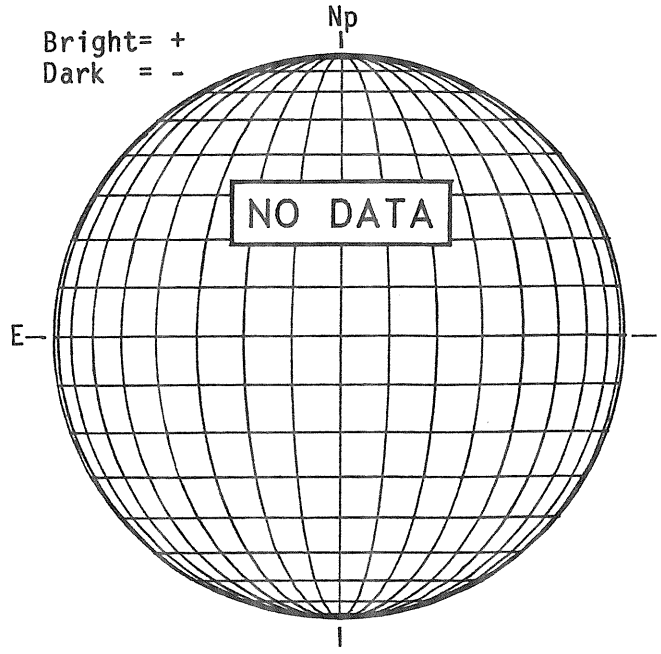


—— 5303A(x1) 1441 UT
.... 6374A(x2) 1409 UT
xxxx 5694A(x6) 1418 UT
NO 5694A ACTIVITY TODAY

S E P T E M B E R 30, 1 9 8 6 (P= 25.84, B_0= 6.69, L_0= 182.02)

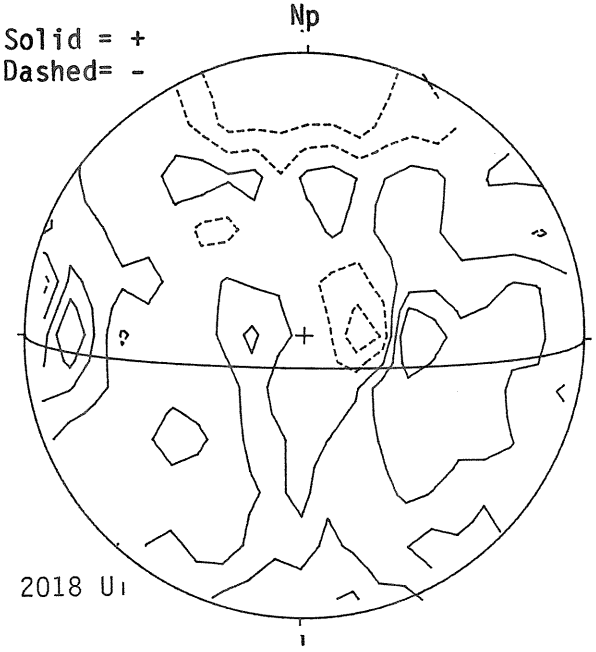
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



STANFORD MAGNETOGRAM

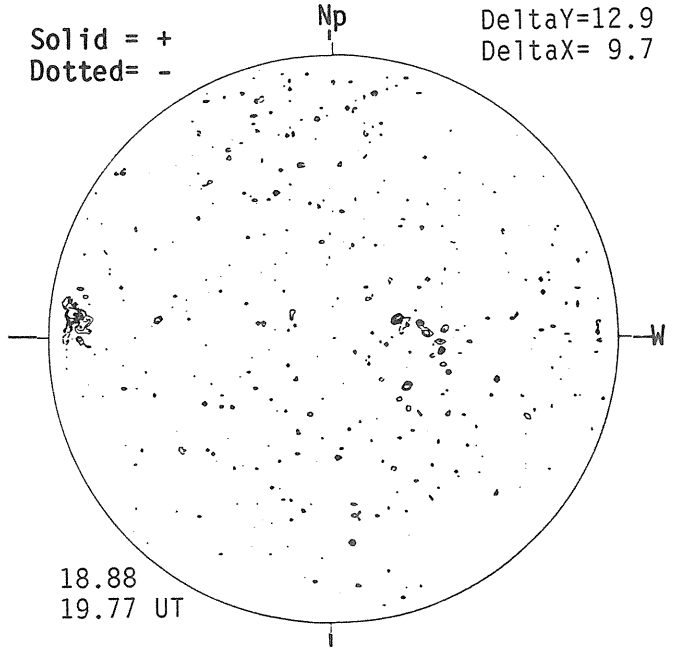
Solid = +
Dashed= -



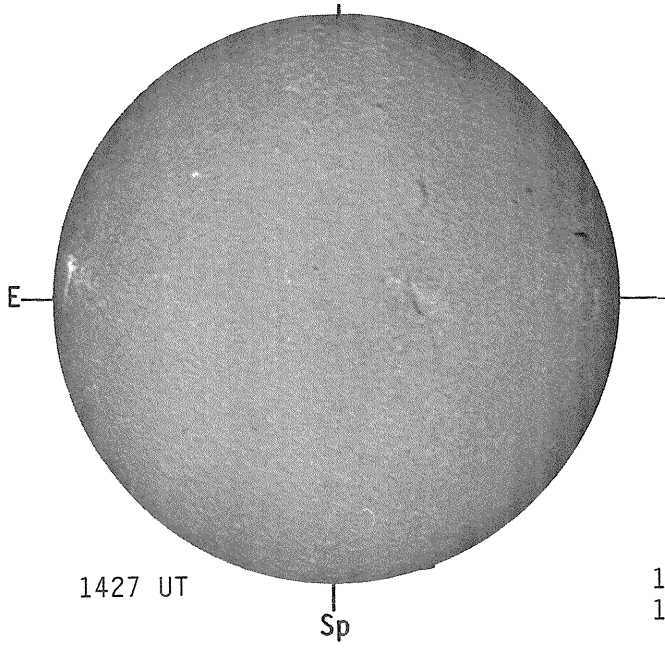
MT. WILSON MAGNETOGRAM

Solid = +
Dotted= -

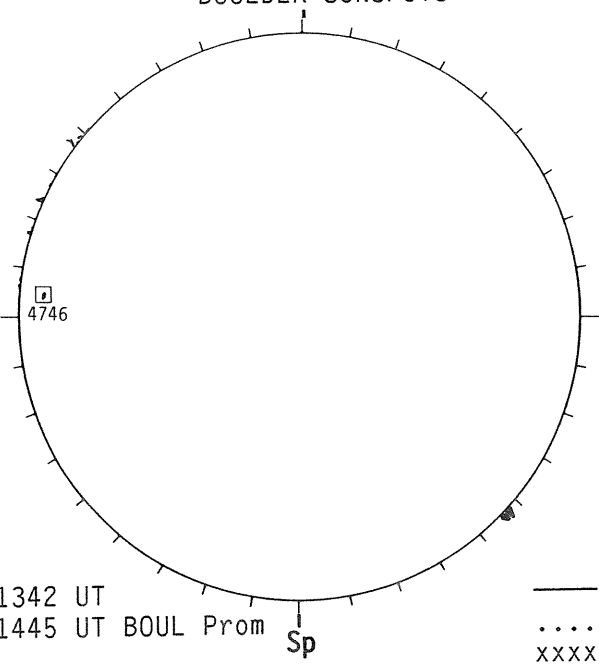
DeltaY=12.9
DeltaX= 9.7



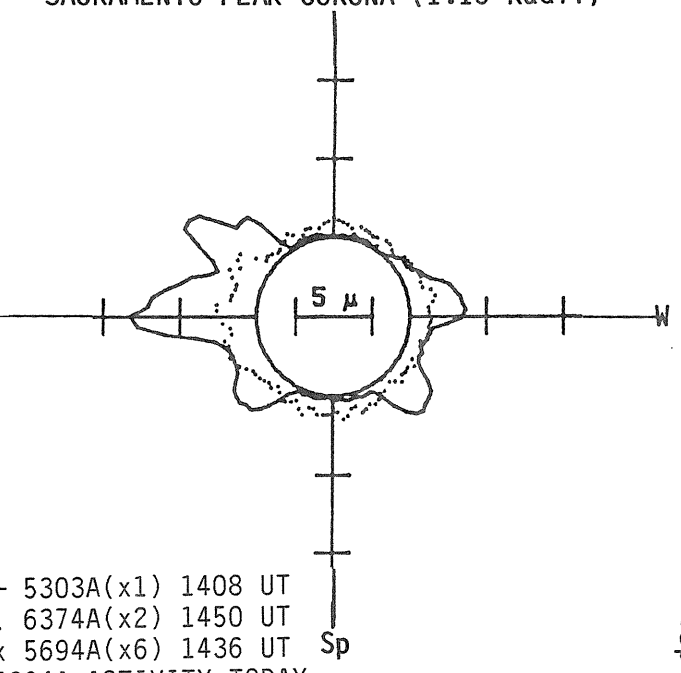
SACRAMENTO PEAK H-ALPHA



BOULDER SUNSPOTS



SACRAMENTO PEAK CORONA (1.15 Radii)



—— 5303A(x1) 1408 UT
.... 6374A(x2) 1450 UT
xxxx 5694A(x6) 1436 UT
NO 5694A ACTIVITY TODAY

S U N S P O T G R O U P S
(ORDERED BY CENTRAL MERIDIAN PASSAGE DATE)

SEPTEMBER 1986

NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Mo	Day	Time (UT)	Lat	CMD	CMP Mo	Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
4744A		LEAR	09	03	0758	N02	E23	09	5.0		A	AX	10	1	1	3
	24333	MWIL	09	06	1430	N04	E08	09	7.2	4	(AF)					
4744B		HOLL	09	14	1635	N02	W89	09	8.0		A	AX		1		4
4745	24334	MWIL	09	06	1430	N27	E42	09	9.9	5	(B)					
4745		HOLL	09	06	1433	N28	E43	09	10.0		B	CRO	30	3	4	3
4745		RAMY	09	06	1937	N29	E40	09	9.9		B	CRO	30	3	4	2
4745		PALE	09	06	2205	N28	E40	09	10.0		B	CRO	40	5	4	2
4745		LEAR	09	07	0036	N26	E38	09	10.0		B	BXO	30	5	4	3
4745		CULG	09	07	0500	N28	E36	09	10.0		B	DRO	60	9	6	3
4745		RAMY	09	07	1320	N28	E32	09	10.0		B	CAO	60	11	5	3
4745	24334	MWIL	09	07	1415	N28	E30	09	9.9	4	(B)					
4745		HOLL	09	07	1418	N28	E30	09	9.9		B	CRO	40	7	5	3
4745		PALE	09	07	1847	N28	E27	09	9.9		B	CRO	40	13	8	2
4745		LEAR	09	08	0019	N27	E25	09	10.0		B	CSO	40	5	7	2
4745		RAMY	09	08	1340	N28	E18	09	10.0		B	CRO	30	4	6	4
4745		HOLL	09	08	1415	N28	E17	09	9.9		B	BXO	30	4	7	3
4745	24334	MWIL	09	08	1415	N28	E18	09	10.0	4	(BG)					
4745		BOUL	09	08	1531	N26	E16	09	9.9		B	BXO	40	2	7	2
4745		PALE	09	08	1915	N29	E15	09	10.0		B	CRO	20	2	7	2
4745		LEAR	09	09	0045	N27	E12	09	10.0		B	CRO	20	4	7	2
4745		CULG	09	09	0310	N27	E08	09	9.7		A	AX	10	1	1	2
4745		RAMY	09	09	1400	N27	E01	09	9.7		A	AX	10	1	1	3
4745	24334	MWIL	09	09	1400	N28	E01	09	9.7	4	(AP)					
4745		HOLL	09	09	1410	N28	E00	09	9.6		A	AX	10	1	1	4
4745		BOUL	09	09	1605	N26	W01	09	9.6		A	AX	10	1	1	2
4745		LEAR	09	10	0042	N27	W05	09	9.6		A	AX	10	1	1	2
4745		CULG	09	10	0430	N28	W06	09	9.7		A	AX	10	1	1	3
4745		BOUL	09	10	1333	N26	W11	09	9.7		A	AX	10	1	1	1
4745	24334	MWIL	09	10	1400	N28	W12	09	9.6	3	(AF)					
4745		RAMY	09	10	1409	N27	W13	09	9.6		A	AX	10	1	1	3
4745		HOLL	09	10	1600	N28	W14	09	9.6		A	AX	10	1	1	3
4745		PALE	09	10	1815	N28	W14	09	9.7		A	AX		1		4

Stations reporting:

BOUL = Boulder
CULG = Culgoora
HOLL = Holloman
LEAR = Learmonth
MWIL = Mt. Wilson
PALE = Palehua
RAMY = Ramey

SUDDEN IONOSPHERIC DISTURBANCES

SEPTEMBER 1986

Day	Start (UT)	Max (UT)	End (UT)	Imp	Wide-spread Index	Number of Station Reports by Type SWF	SEA	SPA	LF-SPA	SES	Known Flare	X-ray Class	NOAA/SESC Region
06	1032	1044	1112	1 -	1		1				No Flare		
08	1644	1659	1734	1-	3			1		2	1643 UT	C2.6	4745
18	0856	0928U	1027	1	1		1				No Flare		

Observatories Reporting for September 1986*

Amherst, New Hampshire, USA	SES	Latrobe, Pennsylvania, USA	SES
Ayshire, Scotland	SES	Louisville, Kentucky, USA	SES
Edenvale, South Africa	SES	Maui, Hawaii, USA	SWF
Farsta, Sweden	SES	Panska Ves, Czechoslovakia	SEA, SWF, SES
Hiraiso, Japan	SWF	Paterson, New Jersey, USA	SES
Houston, Texas, USA	SES	Sao Paulo, Brasil	SPA, SES
Inubo, Japan	SPA	Tucson, Arizona, USA	SES
Latrobe, Pennsylvania, USA	SES	Upice, Czechoslovakia	SES
		Valley Cottage, New York, USA	SES

*Observations are not necessarily continuous

SIDs by NOAA/SESC REGIONS

SEPTEMBER 1986

Day:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Events in Region #																														
4745								1																						
Events with X-ray								1																						
Events with No Flare Reported						1												1												
Events with No Flare Patrol																														
Events with No Region Numbers																														
Daily Event Totals						1		1										1												

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

SEPTEMBER 1986

Observation Day	Start (UT)	End (UT)	Sta	Decimetric Band Start (UT)	End (UT)	Int (1-3)	Metric Band Start (UT)	End (UT)	Int (1-3)	Dekametric Band Start (UT)	End (UT)	Int (1-3)	Spectral Type
03			CULG				0308.0	0308.0	1				III
			LEAR				0308.0	0308.0	1				III
			CULG				0622.0	0622.0	1				III
			CULG				0653.0	0653.0	1				III
08			CULG				0103.0	0103.0	1				III
			CULG				0515.0	0625.0	2				S
			LEAR				0515.0	0516.0	1				III
			LEAR				0620.0	0624.0	1				V
			PALE				1738.0	1738.0	1				V
			SGMR				1738.0	1739.0	1				V
24			LEAR				2230.0	2231.0	2				III

The symbols used under the column heading SPECTRAL TYPE have the following definitions:

B = Single burst
G = Small group (< 10) of bursts
GG = Large group (> 10) of burst
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
W = Weak
P = Pulsations
CONT = Continuum
UNCLF = Unclassified activity
DCIM = Fast drift

Stations Reporting:

BLEN = Bleien LEAR = Learmonth PALE = Palehua SGMR = Sagamore Hill WEIS = Weissenau

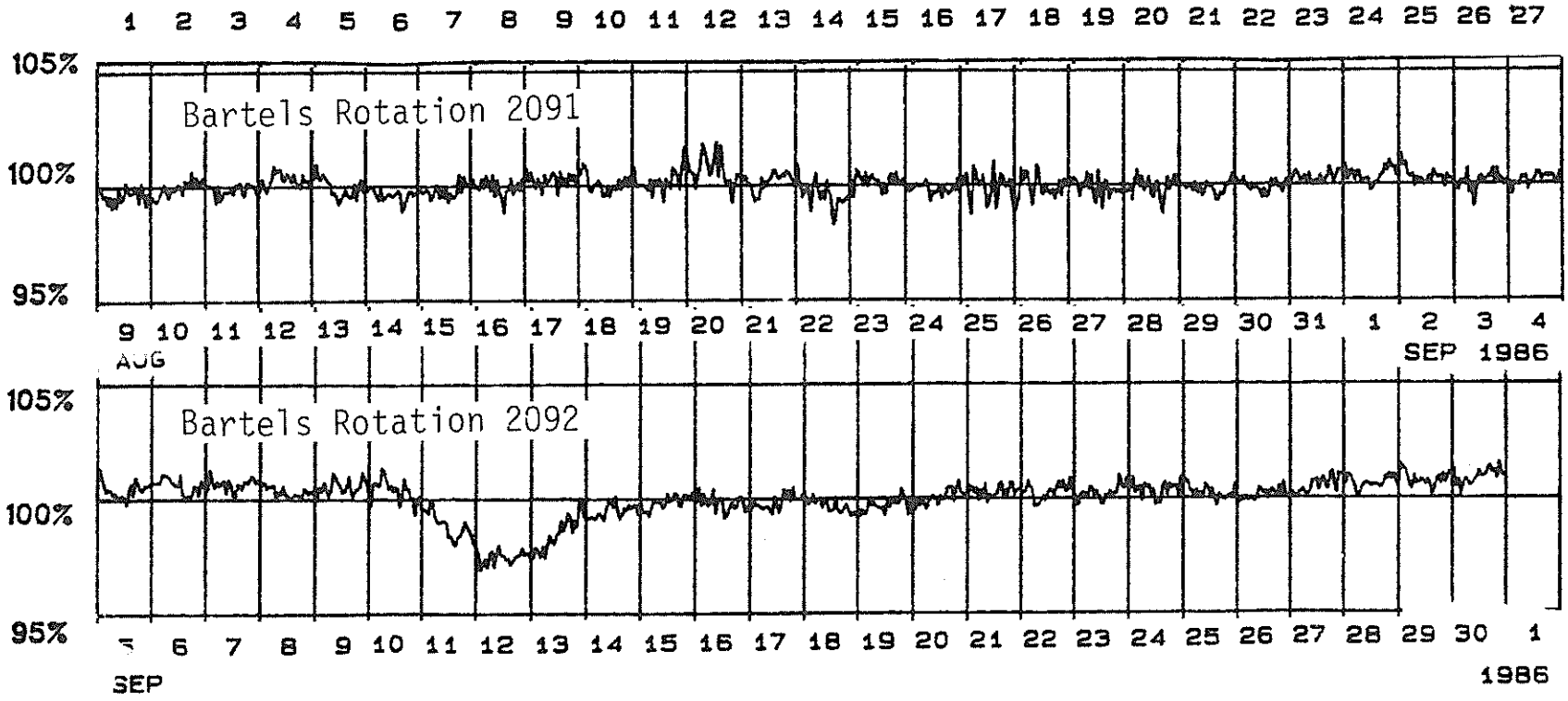
COSMIC RAY INDICES
(Neutron Monitor)

SEPTEMBER 1986

Day	THULE Average (cts/h)/100	ALERT Average (cts/h)/100	DEEP RIVER Average (cts/h)/300	KIEL Average (cts/h)/100	CLIMAX Average (cts/h)/100	PREDIGTSTUHL Average (cts/h)/100	TOKYO Average (cts/h)/256	HUANCAYO Average (cts/h)/100
1	4555	7476.1	7095.9	6330.3			3662.1	
2	4551	7440.0	7081.2	6332.0			3648.7	
3	4541	7437.2	7079.9	6332.6			3648.7	
4	4546	7451.4	7091.4	6316.2			3661.5	
5	4545	7452.5	7096.0	6322.2			3657.9	
6	4552	7462.2	7126.7	6344.5			3664.0	
7	4555	7471.8	7141.0	6354.8			3666.1	
8	4539	7457.9	7129.6	6346.8			3660.5	
9	4549	7482.0	7124.8	6360.6			3665.4	
10	4541	7455.9	7101.3	6339.3			3652.5	
11	4470	7378.2	7104.8	6332.1			3662.6	
12	4409	7331.6	6981.2	6277.8			3661.7	
13	4458	7362.8	7029.2	6293.3			3655.5	
14	4501	7397.2	7066.3	6299.5			3660.1	
15	4518	7426.3	7081.3	6314.5			3659.6	
16	4515	7406.6	7093.2	6301.7			3657.5	
17	4519	7403.5	7061.4	6279.8			3650.2	
18	4509	7405.0	7051.7	6284.0			3649.5	
19	4511	7395.0	7064.4	6283.0			3657.8	
20	4527	7432.5	7081.3	6286.2			3656.6	
21	4539	7449.4	7100.9	6309.4			3657.3	
22	4537	7440.0	7093.3	6295.4			3663.5	
23	4534	7442.5	7078.0	6316.3			3669.8	
24	4542	7454.7	7097.2	6322.3			3674.5	
25	4534	7441.1	7092.5	6327.9			3675.0	
26	4531	7443.6	7083.6	6326.7			3683.6	
27	4549	7457.4	7096.4	6316.4			3677.5	
28	4554	7463.1	7093.5	6295.9			3676.8	
29	4561	7471.2	7091.4	6306.2			3671.7	
30	4567	7475.5	7087.6	6312.2			3670.5	
Mean	4529	7435.5	7086.6	6315.3			3662.6	

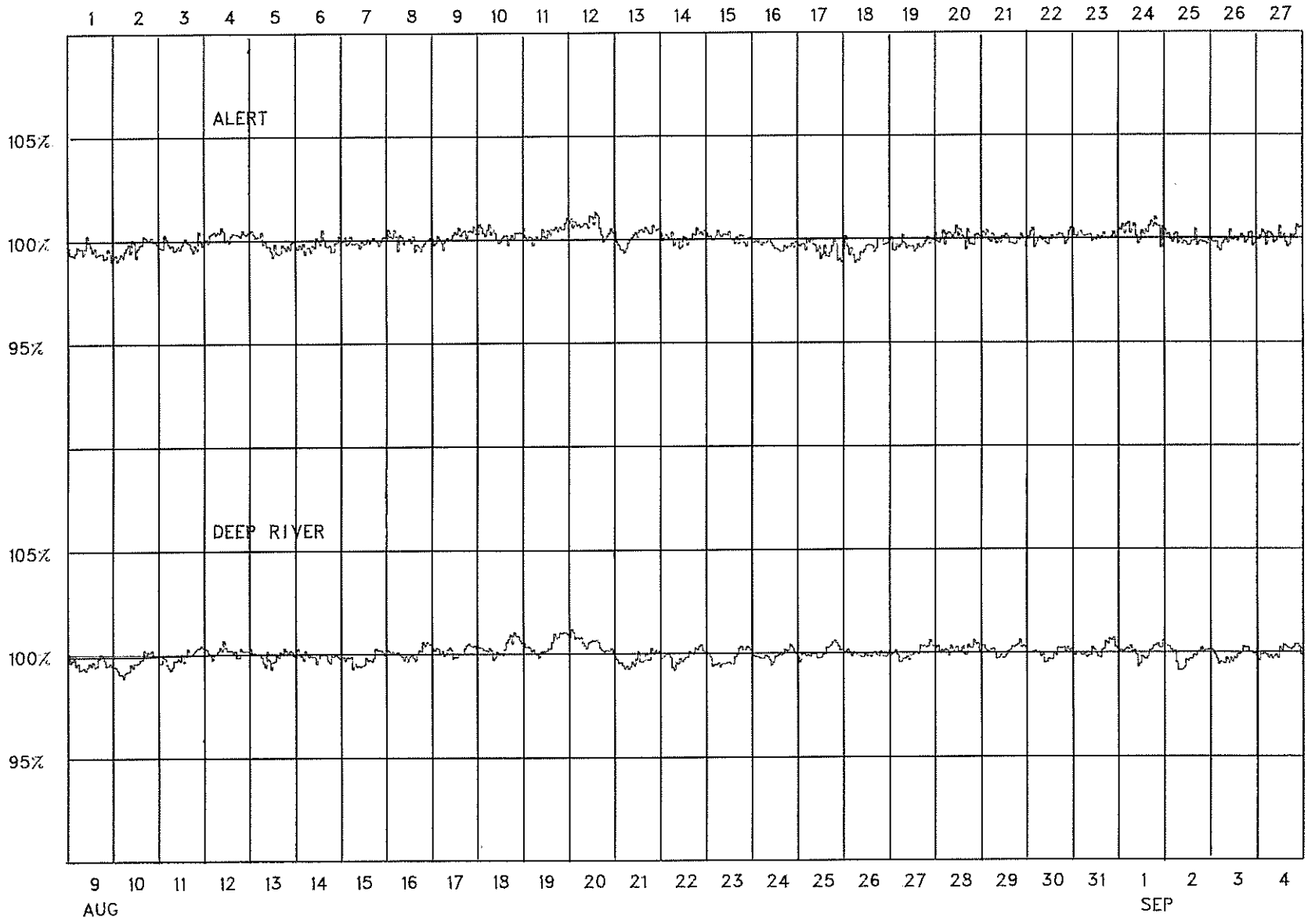
For less than 24-hour coverage, parentheses enclose the number of hours for which data are available.
For Climax and Huancayo, parentheses enclose the number of section hours whenever the sum of both sections falls below 40 hours.

THULE NEUTRON MONITOR



COSMIC RAY INDICES
(Neutron Monitor)

Bartels Rotation 2091 (August 1986–September 1986)



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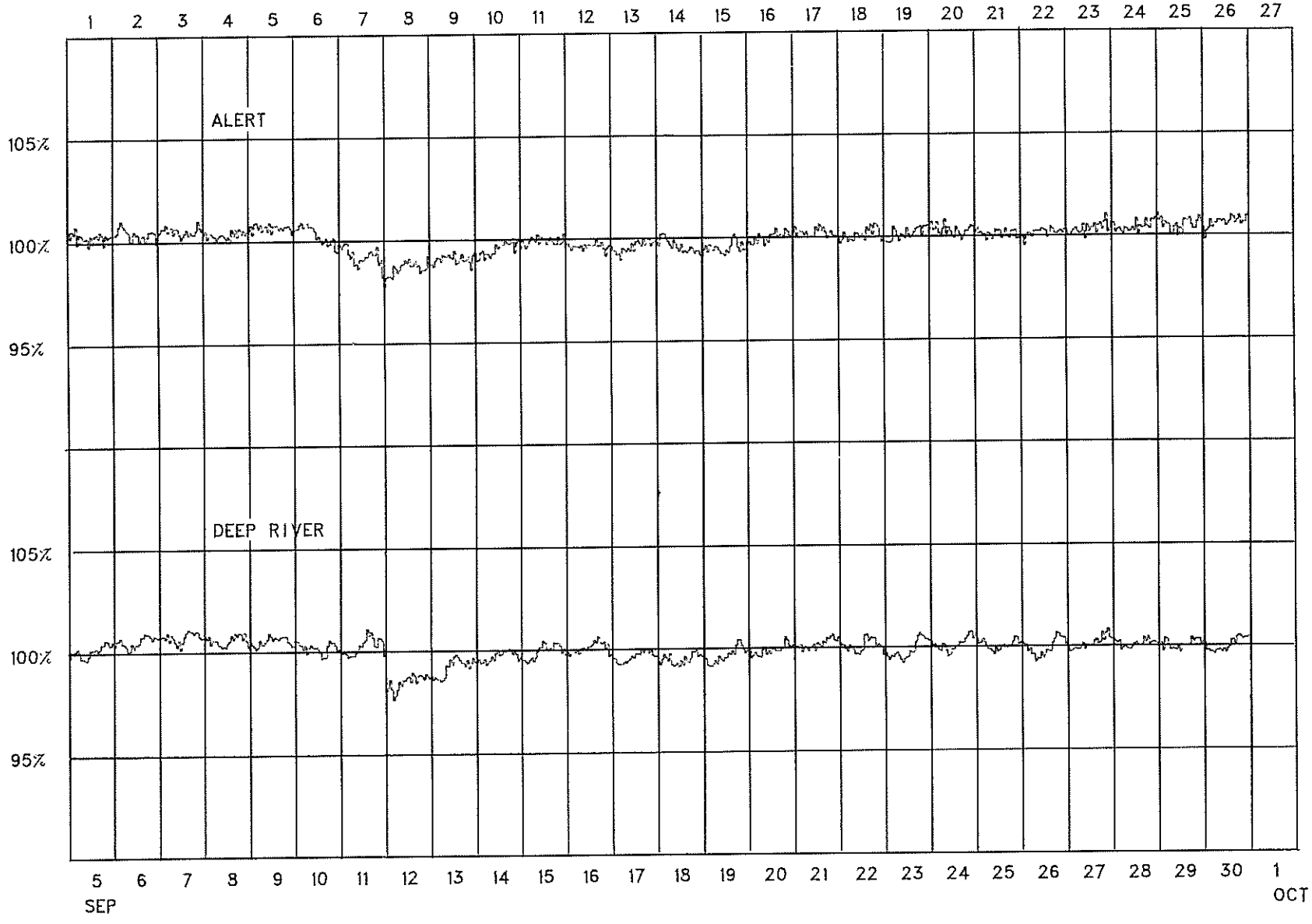
Sep 86

COSMIC RAY INDICES
(Neutron Monitor)

Bartels Rotation 2092 (September 1986–October 1986)



GEOMAGNETIC ACTIVITY INDICES

September 1986

Day		Kp Three-Hourly Indices 1	2	3	4	5	6	7	8	Sum	Ap	Cp	Km Three-Hourly Indices 1	2	3	4	5	6	7	8	aa Provisional Am	N	S	M	
1		3+	3	2+	2-	1	1	2-	3-	17-	9	0.5	3-	3-	2+	2+	1+	1+	2-	3-	17	20	17	24	14	
2		4-	4+	4-	3+	3-	2	2-	1+	23-	16	0.9	3	4	3+	3	3	2+	1+	2-	29	27	24	36	16	
3	Q7A	2	2	1	1	1	2	1+	3	13+	7	0.3	2-	2	1	1+	1	2	1	3-	12	14	9	10	14	CK
4	Q9A	3	2+	1	0+	2-	2-	2	2+	14+	7	0.4	3-	2+	1	0+	1+	2-	2+	2+	13	16	11	13	15	
5		2+	2	2	2-	2-	1+	3-	3+	17	9	0.5	3-	2-	2-	2-	2-	2	3-	3-	16	24	13	15	22	
6	Q10A	4	2	1-	2	2	2	1-	1+	15-	8	0.4	3+	2-	1	2+	2	2-	1-	1+	14	22	10	17	15	
7	Q3	2	1+	2	2-	2-	1-	1-	1	11	5	0.2	2-	1+	2-	2-	2-	1-	1-	1-	9	12	8	11	9	CC
8	Q2	2-	1+	1+	1	0+	1-	2-	2+	10+	5	0.2	2	1+	2-	1-	0+	1-	1+	2	9	10	6	7	11	CC
9	Q6	2+	3-	2-	1+	2-	0+	1-	1-	11+	6	0.3	2-	3-	2	1+	1+	0+	1	0+	10	12	11	16	7	CC
10	Q5	2	2-	2	2	1	1+	1-	1+	12	6	0.2	1+	1+	2	2	1+	1	1-	1+	10	14	9	13	10	CC
11		2-	2+	1+	1-	2-	1-	4	6-	18	16	0.9	2-	2-	1+	1-	2-	1-	3+	5	23	27	17	9	35	
12	D1	5+	9-	7+	6-	4+	4	5-	5-	45-	89	1.8	5	7+	7-	5+	4-	3+	4	4-	112	113	83	142	53	
13		5-	4	3+	3	3-	3-	3	5-	28	22	1.1	4	4-	3+	4-	2+	2+	3	4	38	38	30	35	32	
14		4	3+	2	1-	1-	3-	3	3-	19	12	0.7	4-	3	2	1+	1-	3-	3-	3-	21	23	15	19	20	
15		3	3-	3-	4	4-	3+	4	2	25+	18	1.0	2+	2	3-	4-	4	3+	3	2-	29	31	28	24	36	
16	Q8A	2-	2+	1-	0+	1-	1	3-	3	12+	7	0.3	2	2	1	0+	1-	1	2+	3	12	13	7	5	15	K
17		3+	3	3+	1+	2	2	3	4	22	14	0.8	3-	3-	3	1	2	2-	3-	4-	22	26	14	18	23	
18		4+	4	3+	3-	3-	3-	4+	3	27	20	1.0	4-	4-	3	3-	2+	2+	4	3-	33	36	22	29	30	
19		5	4+	4-	2	2+	4+	2+	3-	27-	21	1.1	5-	4	3+	2+	2+	4	2+	2+	37	36	34	37	33	
20		3-	2	5-	2+	2	2	3+	5	24	18	1.0	2+	2-	4	2	2	2-	3	4+	28	33	20	19	34	
21		5-	3	2-	1+	2-	2-	2	1-	17-	11	0.6	4-	3-	1+	1+	2-	1+	2+	1-	16	20	9	17	12	
22	Q1	0+	0+	1-	1-	1	0+	2+	2	8-	4	0.1	0+	1-	0+	1-	1+	0+	2	2	7	8	4	2	11	C
23	D2	4-	6	5	4-	4-	5+	5-	5+	37+	43	1.5	4-	5-	4+	3	3+	5-	4	5-	59	64	42	48	59	
24	D5	4	4-	4+	3	4-	3-	3+	4	29-	22	1.1	4-	4-	4	3	3+	2+	3	4	40	31	30	32	29	
25	D4	2+	2+	2+	3	5+	5-	3+	5+	29-	26	1.2	2	2+	2	3+	4+	4-	3-	5-	38	39	32	20	52	
26	D3	5	4+	4+	4+	4	4	2+	2	30+	27	1.2	4+	4-	3+	4	4-	4-	2+	2	41	48	41	53	37	
27		3	3-	4	3	3+	3	4+	4	27+	20	1.0	3	2+	4-	3	3	2+	4	3+	33	34	25	24	37	
28		3	3-	3	2	1	1	3	4+	20	13	0.7	3-	2+	3-	2-	1+	1+	3	4+	23	26	15	19	23	
29		4	3	2	2	1+	2+	3	4-	21+	13	0.8	3+	2+	2-	2-	2-	3-	3	3+	23	29	17	20	27	
30	Q4	2	2-	2+	2+	1+	0+	0+	0+	11-	5	0.2	1+	1+	1+	2	1+	0+	0+	0+	8	9	8	12	5	C
Mean											17	0.73									26.1	28.7	20.4	24.7		

Day	Kn Three-Hourly Indices 1	2	3	4	5	6	7	8	An	Ks Three-Hourly Indices 1	2	3	4	5	6	7	8	As	S_a	Prov R_I	R_a	R_s	IMF	
1	3-	3	2	3-	1+	1+	2	3-	18	3-	2+	2+	2	1	1	2-	3-	16	69.8	8	9	13	D	-
2	3	4	4-	3	3+	3-	1+	2	32	3+	4	3	3	3	2	2-	1+	27	69.2	8	9	13	A	-
3	2-	2+	1+	2-	2-	2	1+	3-	13	2-	2	0+	1	0+	2-	1-	3-	10	69.3	8	9	13	T	-
4	2+	2+	1+	1-	2-	2+	2+	2+	14	3-	2+	1	0	1+	1	2+	2+	12	69.4	8	8	13	A	-
5	2+	2-	2	2	2	2+	3-	3	18	3-	2-	2-	1+	2-	2-	2+	2+	15	69.6	8	0	13		-
6	3+	2-	1+	2	2+	2+	1	2-	16	3	2-	1	2+	2	1+	1-	1+	13	69.5	10	11	13	N	-
7	2-	1+	2	2	2-	1	1	1	10	1+	1+	2-	1+	1+	1-	0+	1-	7	69.9	13	13	13	O	-
8	2-	1+	2	1	0+	1+	2-	2	10	2	1+	1+	0+	0+	0+	1	2	8	69.4	11	11	13	T	-
9	2-	3-	3-	2-	2	1	1+	1-	13	1+	3-	2-	1+	1	0	1-	0	8	69.4	9	9	13	C	-
10	2-	1+	2+	2+	2-	1+	1	2-	12	1+	2-	2-	1+	1-	1-	0+	1-	8	69.3	8	7	13	U	-
11	2-	2	1+	1	2-	1+	4-	5	26	2-	2-	1	1-	1+	0	3+	5-	20	68.8	8	0	12	R	-
12	5	7	6+	5+	4-	3+	4	4-	102	5+	8-	7	5	3+	4-	4	4-	122	68.8	0	0	12	E	-
13	4	3+	4-	4-	2+	3-	3-	4	37	4+	4-	3	3+	2+	2-	3	4+	38	69.0	0	0	13	N	-
14	4-	3-	2+	1+	1	3	3-	2+	21	4-	3	1+	1	1-	2+	3-	3-	20	70.0	0	0	14	T	-
15	2+	2+	3-	4-	4	3+	3+	2	30	2+	2	2	4-	4	4-	3	1	28	71.5	0	0	15	L	-
16	2-	2	1	1-	1-	1+	2+	3+	13	2	2+	1-	0+	0+	1-	2	3-	11	70.5	0	0	14	Y	-
17	3-	3-	3-	1+	2	2-	3-	4-	22	3-	3-	3	1	2-	2-	3	4-	23	69.2	0	0	13	A	-
18	4-	4-	3	3	2+	3-	4	3-	33	4	3+	3	3-	2+	2+	4	3-	33	68.8	0	0	12	V	-
19	5-	4-	3+	2+	3-	4	2+	2+	38	5-	4+	3	2	2+	4-	2+	2+	36	68.7	0	0	12	A	-
20	2+	1+	4	2	2	2	3+	4+	28	3-	2	4-	2	2-	2-	3	4+	27	68.6	0	0	12	I	-
21	4-	3	2-	1+	2	2-	2+	1	19	3+	3-	1	1+	1+	1	2+	0+	14	68.8	0	0	12	L	-
22	0+	1-	0+	1	1+	0+	3-	2	8	1-	0+	0	0+	1	0	2-	2-	5	68.3	0	0	12	A	-
23	3+	5-	5-	3	3+	5-	4	4+	59	4+	4+	4	3	4-	4+	4	5	59	68.7	0	0	12	B	-
24	4-	4-	4	3	4-	2+	3	4-	39	4-	4	4	3	3+	2+	3	4	41	68.8	0	0	12	L	-
25	2	2+	2+	3-	5-	4-	3	5-	39	2	2+	2-	4-	4+	4-	2+	5-	38	69.4	0	0	13	E	-
26	4+	4-	3+	4+	4-	4-	2+	2	43	4+	4-	4-	4-	4-	4-	2	2	39	68.5	0	0	12		-
27	3-	2+	4	3+	3	3-	4	3+	35	3	2+	3+	3	3	2	4	3+	32	68.9	0	0	12		-
28	3-	2	3-	2	1+	2-	3	4+	24	3-	2+	3	1+	1	1-	3-	4+	22	70.3	0	0	14		-
29	3+	2	2-	2	2	3-	3	3+	23	4-	2+	2-	2-	1+	2+	3	3+	23	71.5	8	8	15		-
30	1+	1+	2-	2+	1+	1-	1-	1-	9	2-	1+	1+	2-	1	0	0	0+	7	71.6	9	10	15		-
Mean									26.8									25.4	69.4	3.9	3.5	13.0		

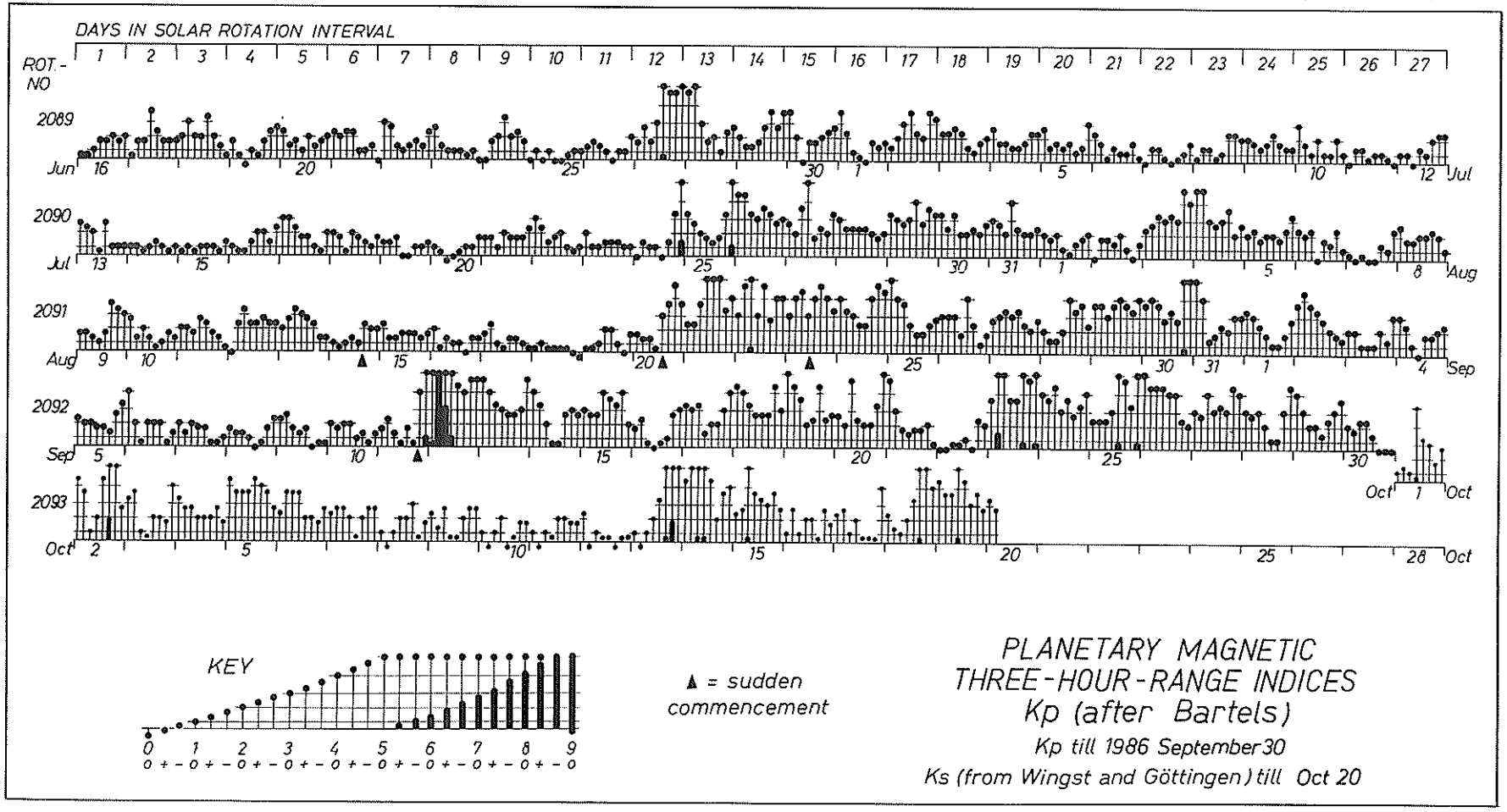
D A I L Y A V E R A G E I N D I C E S Ap

DAY	1985 OCT	NOV	DEC	1986 JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3	15	15	25	5	18	8	5	15	7	6	9
2	5	32	14	18	6	12	5	43	8	13	5	16
3	11	28	9	10	6	12	14	40	10	8	19	7
4	12	16	12	5	5	8	4	17	7	7	20	7
5	66	10	8	4	7	8	9	17	5	7	9	9
6	41	13	7	20	11	32	4	67	6	5	6	8
7	27	7	5	32	82	33	5	12	12	4	4	5
8	16	6	3	11	202	23	5	7	7	6	7	5
9	6	14	5	14	100	5	13	5	7	6	10	6
10	6	19	17	11	10	2	19	6	13	6	6	6
11	16	10	11	4	20	2	6	6	6	4	7	16
12	12	4	7	5	18	7	10	7	6	6	10	89
13	20	24	30	3	15	21	5	4	6	7	10	22
14	8	17	11	4	19	8	4	3	6	4	5	12
15	18	16	10	5	5	8	7	4	5	4	6	18
16	17	10	6	3	5	6	8	7	5	5	4	7
17	15	14	8	6	9	6	6	8	8	8	5	14
18	22	15	12	7	14	8	7	5	9	6	3	20
19	14	14	41	4	9	9	11	8	5	4	4	21
20	6	3	11	15	17	3	5	5	6	3	15	18
21	16	5	5	27	26	17	7	6	6	6	29	11
22	17	8	6	11	30	22	11	3	8	7	29	4
23	13	4	4	17	35	11	10	8	5	5	25	43
24	8	4	10	12	19	21	12	7	7	15	22	22
25	9	6	6	26	18	27	7	10	3	17	17	26
26	4	6	8	12	26	12	7	8	5	20	12	27
27	4	20	12	37	20	18	4	7	28	16	13	20
28	4	8	35	30	25	14	11	3	18	9	12	13
29	11	37	7	19		8	9	4	11	17	22	13
30	3	52	46	14		5	5	10	9	11	27	5
31	6		22	8		7		17		12	16	
MEAN	14	15	13	14	27	13	8	12	8	8	12	17

PLANETARY 3-HOUR-RANGE INDICES (Kp) BY 27-DAY SOLAR ROTATION INTERVAL

University of Gottingen

Kp through September 30, 1986



P R I N C I P A L M A G N E T I C S T O R M S

SEPTEMBER 1986

Sta	Geomag Lat	Commencement Day	Commencement Time (UT)	Type	SC Amplitudes D (Min)	SC Amplitudes H (Gamma)	SC Amplitudes Z (Gamma)	Maximum 3-Hour K Index Day(3-Hour Periods)	Ranges K	Ranges D (Min)	Ranges H (Gamma)	Ranges Z (Gamma)	End Day	End Hour (UT)
KRC	16.4N	10	07--	..	..	..	..		-	--	--	--	16	16
SIT	60.0N	11	1836	SC	- 5	8	5	11(2)	8	--	--	720	13	12
WIT	54.2N	11	1836	SC	- 4	78	0	12(2)	7	66	334	194	13	05
FRD	49.6N	11	1836	SC	2	33	- 5	12(2)	7	48	315	310	14	--
BJI	28.5N	11	1836	SC	1.2	38	3	12(2)	7	17	277	52	14	07
HON	21.1N	11	1836	SC	0.9	19.4	54	12(1,2)	7	--	--	--	--	--
JAI	17.3N	11	1835	SC	- 1.0	35	- 7		-	10	233	36	15	24
SHL	14.7N	11	1835	SC	- 3	29	7		-	8	233	36	15	24
UJJ	13.5N	11	1835	SC	- 0.5	38	- 8		-	8	228	43	15	24
ABG	09.5N	11	1835	SC	- 0.9	32	- 7	12(1)	6	10	217	66	15	24
HYB	07.6N	11	1836	SC	- 0.3	34	- 1	12(2,3)	7	6	228	43	13	10
ANN	01.5N	11	1835	SC	10	38	22		-	9	215	111	15	24
ETT	00.6S	11	1836	SC	- 0.7	26	26		-	-7	236	119	13	10
TRD	01.1S	11	1835	SC	- 0.1	27	43			6	263	85	15	24
HER	33.7S	11	1836	SC	1	23	17	12(2,3)	6	41	178	94	13	05
GNA	43.2S	11	1836	SC*	44 *	17	19 *	12(2)	6	22	280	120	14	07
CNB	43.9S	11	1838	SC*	26 *	17	2	12(2,3)	6	23	270	164	12	20
KGL	56.5S	11	1836	SC	4	17	8	12(2)	9	123	1100	376	14	08
HER	33.7S	13	21--	..	..	..	..	13(8)	5	15	47	53	14	03
HYB	07.6N	14	1500	..	..	..	..	15(4,5)	5	6	114	45	15	22
KRC	16.4N	16	16--	..	..	..	..	18(7)	5	6	55	40	22	--
HYB	07.6N	17	1600	..	..	..	..	18(7)	5	6	59	47	19	21
KGL	56.5S	18	1837	SC	5	24	12	18(7) 19(1,2,6)	4	9	200	112	19	17
JAI	17.3N	22	1800	..	..	..	..		-	6	95	32	26	24
KRC	16.4N	22	18--	..	..	..	..	23(2)	6	4	98	35	30	07
SHL	14.7N	22	1800	..	..	..	..		-	5	87	33	26	24
UJJ	13.5N	22	1800	..	..	..	..			6	88	33	26	24
ABG	09.5N	22	1800	..	..	..	..	23(2,3) 25(5) 26(1)	5	6	82	48	26	24
HYB	07.6N	22	1800	..	..	..	..	23(2,3)	5	4	86	44	24	09
ETT	00.6S	22	1800	..	..	..	..		-	-5	134	66	26	21
TRD	01.1S	22	1800	..	..	..	..		-	4	139	73	26	24
GNA	43.2S	22	19--	..	..	..	..	25(4,5)	5	20	90	80	28	08
WIT	54.2N	23	0200	..	..	..	..	23(7,8)	6	31	150	74	23	23
FRD	49.6N	23	02--	..	..	..	..	23(2,3,6,8) 24(3) 25(5,8) 26(1) 27(3) 28(8)	5	27	123	56	29	--
HER	33.7S	23	01--	..	..	..	..	23(8)	5	26	91	106	24	02
HER	33.7S	25	21--	..	..	..	..	25(8)	5	9	55	42	26	06

Stations Reporting:

ABG = ALIBAG
ANN = ANNAMALAINAGAR
BJI = BEIJING
CNB = CANBERRA
COL = COLLEGE
ETT = ETAIYAPURAM
FRD = FREDERICKSBURG
GNA = GNANGARA
HER = HERMANUS
HON = HONOLULU
HYB = HYDERABAD
JAI = JAIPUR
KRC = KARACHI
KGL = KERGUELEN
SHL = SHILLONG
SIT = SITKA
TRD = TRIVANDRUM
UJJ = UJJAIN
WIT = WITTEVEEN

RADIO PROPAGATION QUALITY INDICES

SEPTEMBER 1986

Day	Bracknell	Teheran	New York	Tokyo	S. Africa	Canberra
1	6.5	7.2	6.4	8.1	7.3	6.9
2	6.5	5.3	5.2	7.2	7.6	6.2
3	6.0	6.8	7.4	9.1	7.9	6.6
4	7.7	7.4	7.3	9.2	7.6	8.4
5	7.0	7.2	7.2	8.5	6.8	7.9
6	6.7	7.0	5.8	9.1	7.1	6.9
7	7.4	7.1	6.9	9.2	5.8	6.6
8	6.6	7.0	7.9	9.0	7.0	6.6
9	6.4	6.9	7.2	9.1	7.8	7.0
10	7.8	8.0	7.6	9.5	8.0	8.1
11	8.0	7.6	6.8	8.6	7.0	7.7
12	4.4	5.5	1.1	5.2	6.2	4.6
13	6.9	7.0	1.9	5.6	7.4	5.7
14	5.3	6.3	3.4	6.9	7.6	3.4
15	6.7	5.5	4.6	7.6	5.5	5.1
16	5.6	4.9	6.4	8.3	6.8	5.2
17	6.0	5.5	5.6	8.4	7.5	7.3
18	6.4	6.4	4.4	8.1	7.1	7.1
19	5.6	5.9	5.3	7.8	7.6	5.5
20	6.4	6.1	6.0	8.7	6.1	5.9
21	5.4	5.8	4.7	7.8	6.8	7.3
22	5.7	5.2	6.4	7.3	6.6	7.5
23	6.2	5.1	5.3	6.7	7.7	7.3
24	5.9	5.0	4.5	5.7	5.9	6.1
25	6.8	4.7	4.0	6.3	6.9	6.9
26	4.8	3.1	3.1	5.1	4.7	5.0
27	4.9	4.1	4.7	5.5	7.5	7.0
28	5.1	4.7	5.9	7.6	7.3	5.9
29	5.8	5.4	6.8	8.1	7.2	6.8
30	5.6	5.3	6.1	7.5	7.2	6.8
Mean	6.2	6.0	5.5	7.7	7.0	6.5

CALCULATION OF QUALITY INDICES (Q)

From all 24 hourly field strength values and from all frequencies of the same circuit a median field strength value is calculated (FD). This daily value is compared with the average value (FA) of the preceeding 27 days (1 sun rotation).

$$Q = 6.0 + 20 \log(FD/FA)/3.0$$

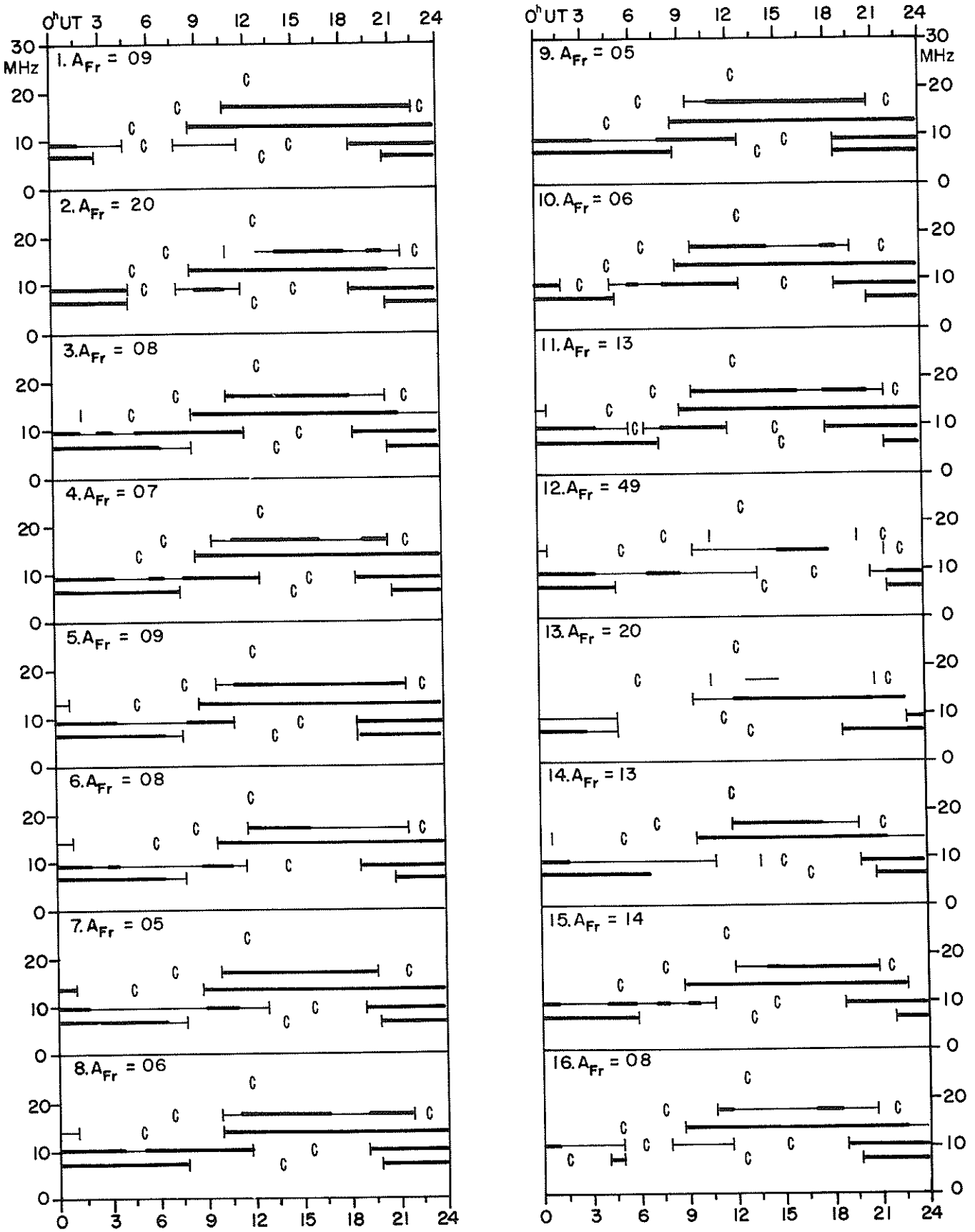
The quality indices vary from 0.0 to 9.9 where 6.0 is normal. Conditions are "normal" (index = 6.0), if they correspond to the average of the preceeding 27 days.

SCALE FOR QUALITY INDICES

0.0 - 1.0 = very poor
1.1 - 3.0 = poor
3.1 - 5.0 = fair
5.1 - 7.0 - normal
7.1 - 9.0 = good
9.1 - 9.9 = very good

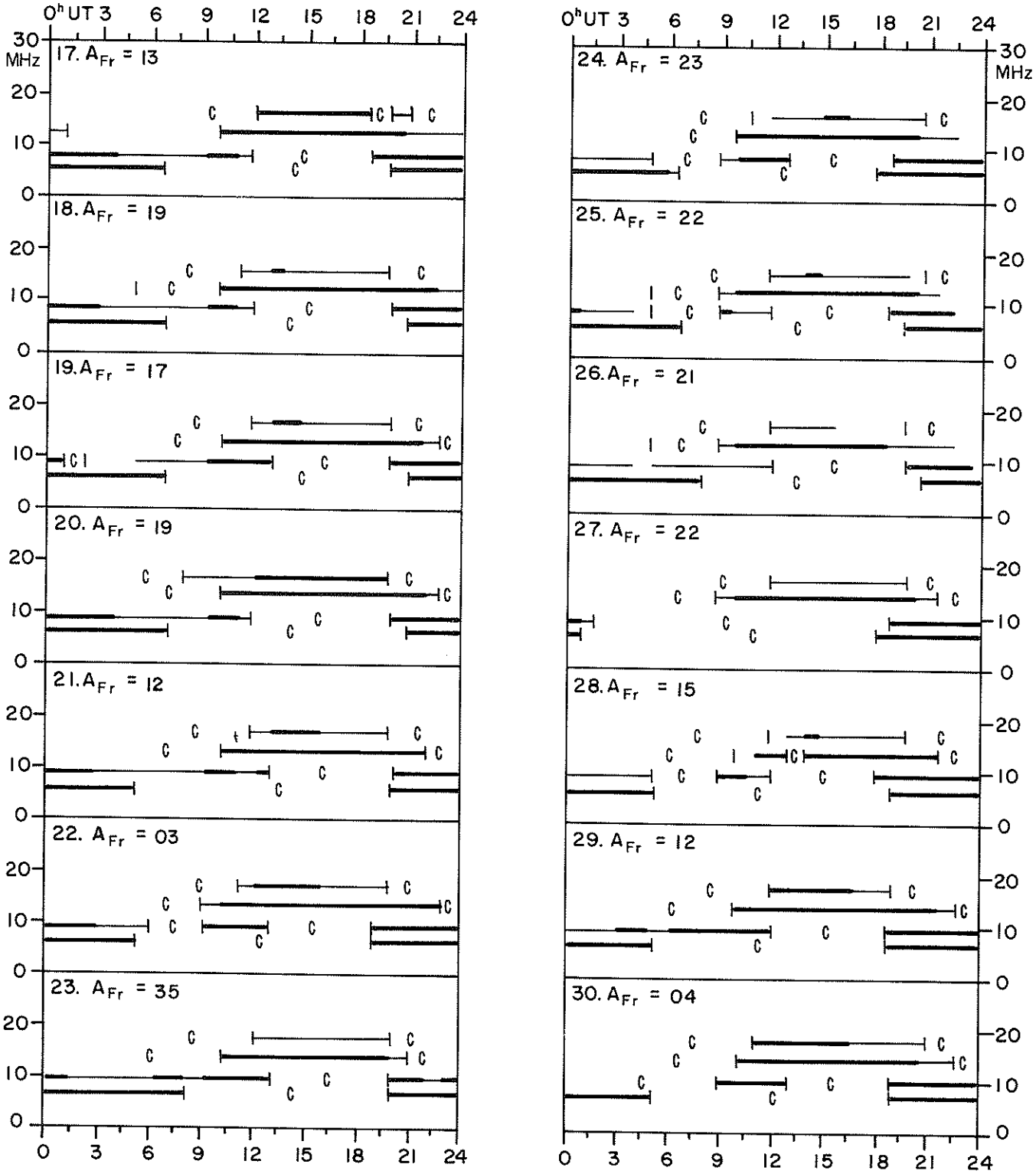
TRANSMISSION FREQUENCY RANGES -- NORTH ATLANTIC PATH

SEPTEMBER 1986



TRANSMISSION FREQUENCY RANGES -- NORTH ATLANTIC PATH

SEPTEMBER 1986



Field strengths from four frequencies, 6.4, 8.6, 13.0, and 17.0 MHz, observed on a Norddeich-New York circuit are represented above. Heavy solid lines represent field strengths ≥ -12 dB above 1 μV/m (transmitter power reduced to 1 kW). Observed field strengths between -12 dB and -40 dB above 1 μV/m are represented by the fine line.

C O N T E N T S

Prompt Reports LATE DATA Number 507 Part I

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SOLAR RADIO EMISSION
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SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JUNE 1986

Observation				Decimetric Band			Metric Band			Dekametric Band			
Day	Start (UT)	End (UT)	Sta	Start (UT)	End (UT)	Int (1-3)	Start (UT)	End (UT)	Int (1-3)	Start (UT)	End (UT)	Int (1-3)	Spectral Type
01	0415	1840	BLEN										
02	0415	1840	BLEN										
03	0415	1840	BLEN										
04	0415	1840	BLEN										
05	0415	1524	BLEN										
06	1015	1840	BLEN										
07	0415	1840	BLEN										
08	0415	1840	BLEN										
09	0415	1840	BLEN										
10	0415	1840	BLEN										
11	0415	0627	BLEN										
12	0425	1810	BLEN										
13	0425	1810	BLEN										
14	0425	1810	BLEN										
15	0425	1810	BLEN										
16	0425	0827	BLEN										
18	0957	1810	BLEN										
19	0420	1810	BLEN										
20	0420	1810	BLEN										
21	0420	1810	BLEN										
22	0420	1810	BLEN										
23	0420	0943	BLEN										
24	1445	1810	BLEN										
25	0420	1810	BLEN										
26	0420	1810	BLEN										
27	0420	1810	BLEN										
28	0420	1810	BLEN										
29	0420	1443	BLEN										
30	1020	1805	BLEN										

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JULY 1986

Day	Observation Start (UT)	Observation End (UT)	Sta	Decimetric Band Start (UT)	Decimetric Band End (UT)	Decimetric Band Int (1-3)	Metric Band Start (UT)	Metric Band End (UT)	Metric Band Int (1-3)	Dekametric Band Start (UT)	Dekametric Band End (UT)	Dekametric Band Int (1-3)	Spectral Type
01	0430	1805	BLEN										
02	0430	1805	BLEN										
03	0430	1805	BLEN										
04	0430	1805	BLEN										
05	0430	1007	BLEN										
07	1007	1805	BLEN										
08	0435	1805	BLEN				1043.8	1043.9	1				III RS
			BLEN	1532.2	1539.4	2	1532.2	1539.4	3				III GG
09	0435	1805	BLEN										
10	0435	1805	BLEN	1606.7	1606.8	2	1606.7	1606.8	2				III RS
11	0435	1805	BLEN	0443.8	0707.0	2	0443.8	0707.0	1				IV P,F
			BLEN	0457.5	0458.4	2	0457.5	0458.4	1				III G,RS
			BLEN	1108.5	1108.8	2							III
12	0435	1054	BLEN				0740.2	0740.3	2				III B
15	1741	1810	BLEN										
16	0435	1810	BLEN										
17	0435	1810	BLEN										
18	0435	1810	BLEN										
19	0430	1805	BLEN										
20	0430	1456	BLEN										
21	1018	1800	BLEN										
22	0430	1800	BLEN										
23	0430	1800	BLEN										
24	0430	1800	BLEN										
25	0450	1800	BLEN										
26	0450	1255	BLEN										
30	0807	1800	BLEN										
31	0450	1800	BLEN										

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

AUGUST 1986

Observation				Decimetric Band			Metric Band			Dekametric Band			
Day	Start (UT)	End (UT)	Sta	Start (UT)	End (UT)	Int (1-3)	Start (UT)	End (UT)	Int (1-3)	Start (UT)	End (UT)	Int (1-3)	Spectral Type
01	0450	1800	BLEN										
02	0500	1750	BLEN										
03	0500	1750	BLEN										
04	0500	1239	BLEN										
06	0817	1750	BLEN										
07	0500	1750	BLEN										
08	0500	1750	BLEN										
09	0515	1745	BLEN										
10	0515	1745	BLEN										
11	0515	1348	BLEN										
12	1014	1745	BLEN										
13	0515	1745	BLEN										
14	0515	1745	BLEN										
15	0515	1745	BLEN										
16	0515	1745	BLEN										
17	0515	1623	BLEN										

SACRAMENTO PEAK OBSERVATORY CORONAL GREEN LINE SYNOPTIC MAPS

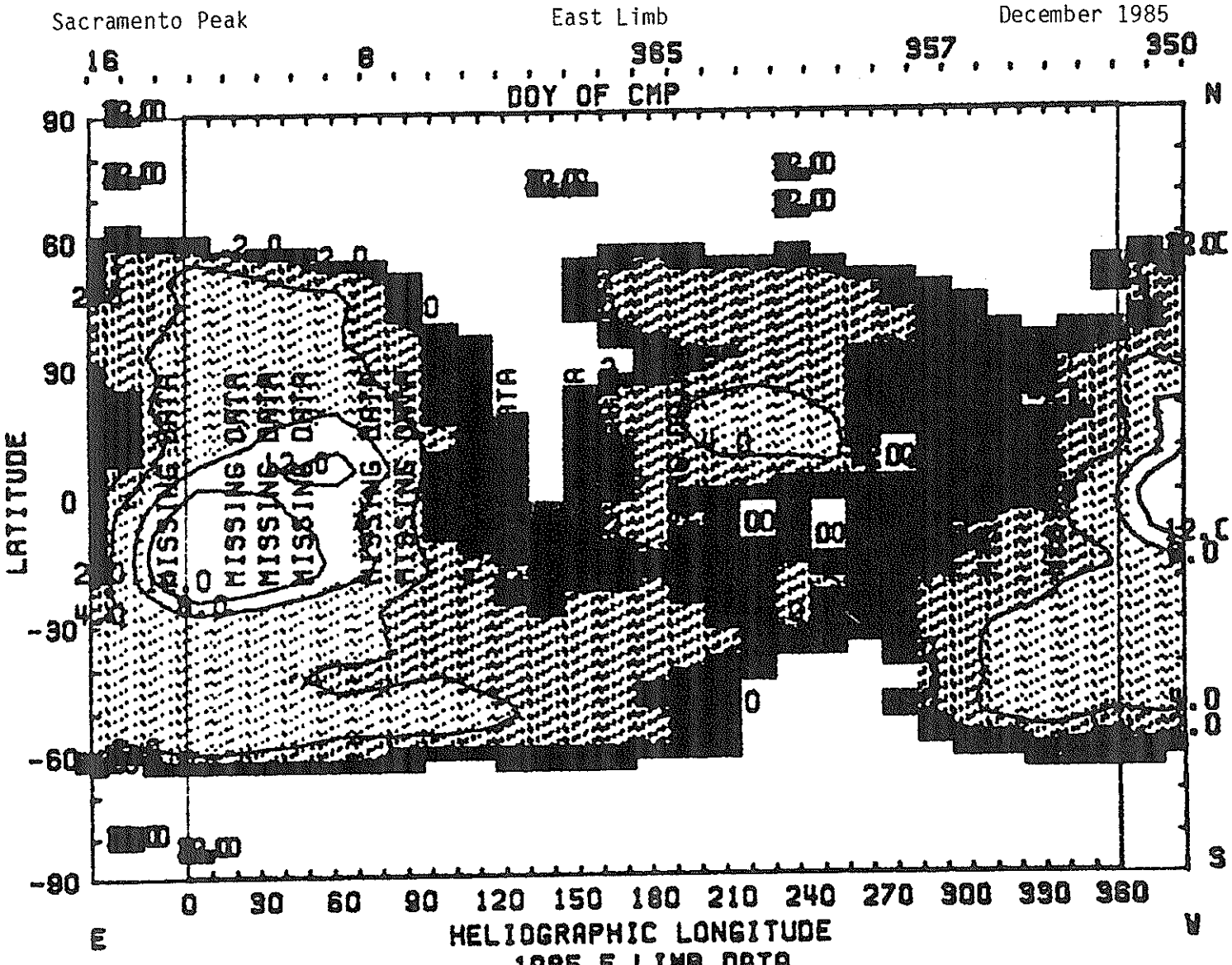
Information about the coronal scans made at the National Solar Observatory at Sacramento Peak is found in the "Solar-Geophysical Data Explanation of Data Reports" on page 19 (March 1986 issue). These synoptic charts show the activity measured at the East limb and the West limb. The data are shifted to central meridian passage dates. This gives an opportunity to view the evolution of structures over the fourteen day passage time.

Contour levels are 0.5, 1, 2, 4, 8, 12, 16, 24, and 32 millionths of the intensity of the center of the disk at 5303A. The gray levels are as follows:

(i) intensity = 0 to 0.5 millionths, white;
(ii) 0.5 to 1.0, black;
(iii) 1.0 to 2.0, dark hatch;
(iv) 2.0 to 4.0, light hatch;
(v) >4.0, white.

CORONAL GREEN LINE SYNOPTIC MAP

CARRINGTON ROTATION NUMBER 1770
(December 17 to January 14, 1986)



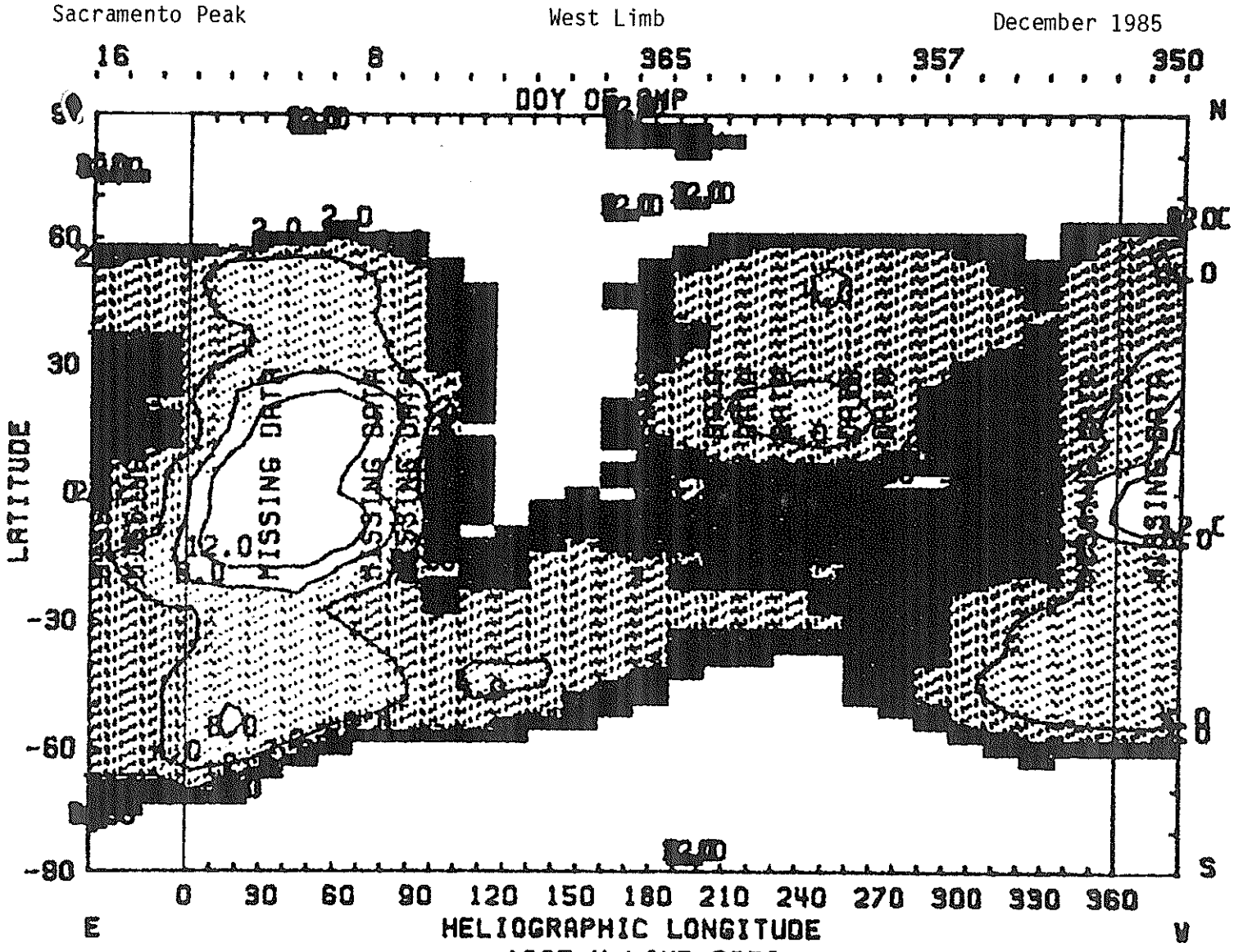
1985 E LIMB DATA

CORONAL HOLES ARE SHOWN AS WHITE SURROUNDED BY BLACK

CORONAL GREEN LINE SYNOPTIC MAP

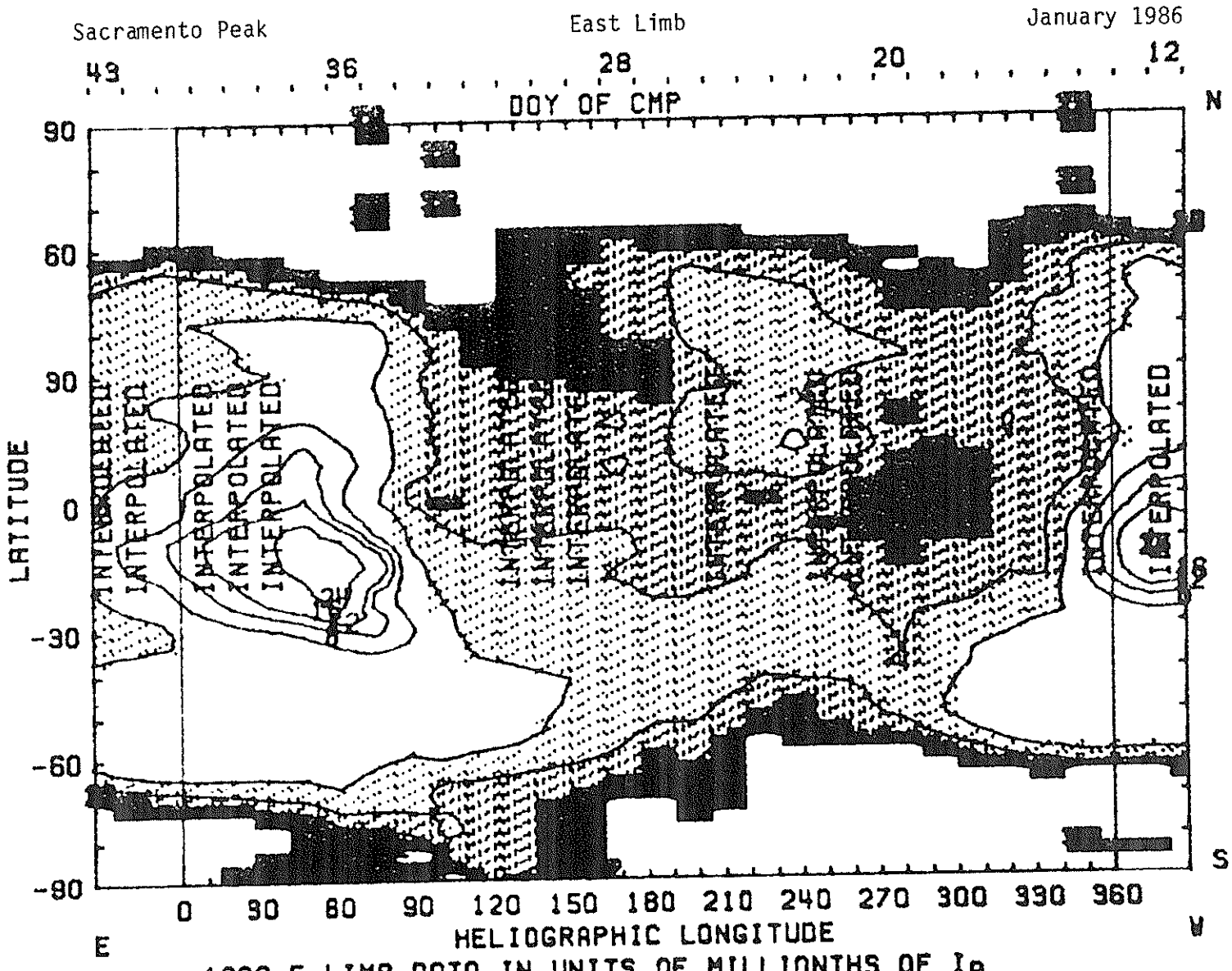
CARRINGTON ROTATION NUMBER 1770

(December 17 to January 14, 1986)



CORONAL GREEN LINE SYNOPTIC MAP

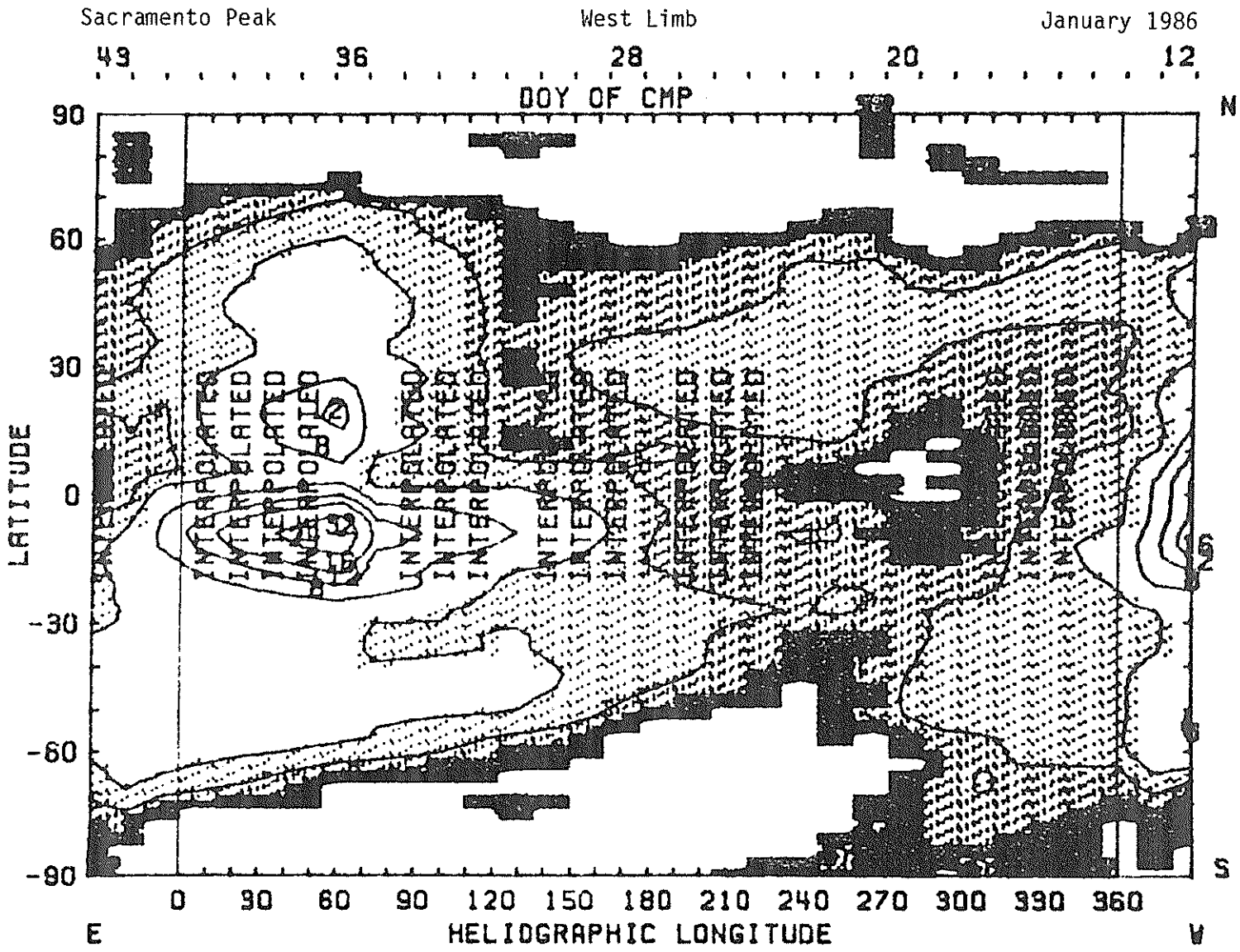
CARRINGTON ROTATION NUMBER 1771
(January 14 to February 10, 1986)



1986 E LIMB DATA IN UNITS OF MILLIONTHS OF Io
CORONAL HOLES ARE SHOWN AS WHITE SURROUNDED BY BLACK

CORONAL GREEN LINE SYNOPTIC MAP

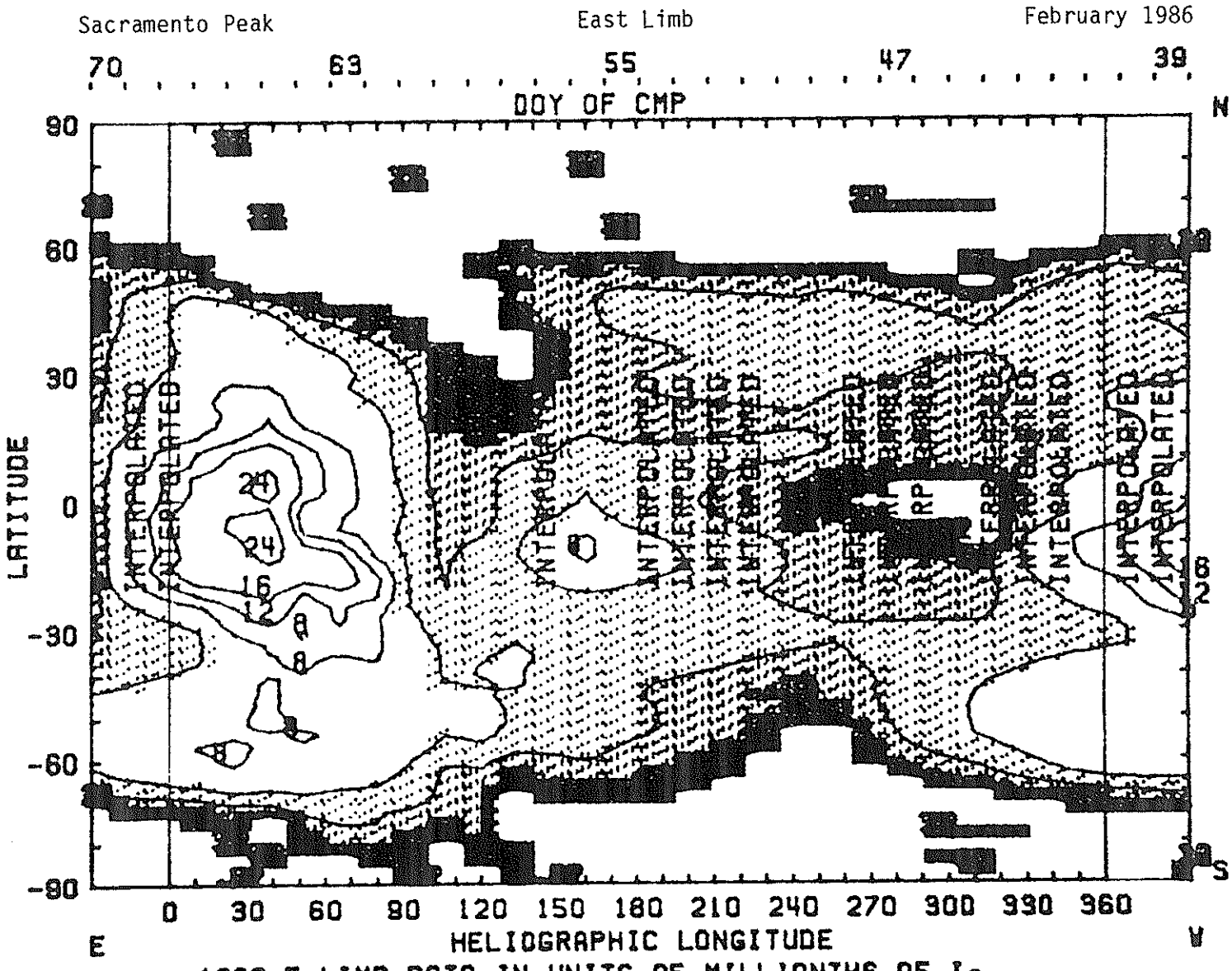
CARRINGTON ROTATION NUMBER 1771
(January 14 February 10, 1986)



1986 W LIMB DATA IN UNITS OF MILLIONTHS OF Io
CORONAL HOLES ARE SHOWN AS WHITE SURROUNDED BY BLACK

CORONAL GREEN LINE SYNOPTIC MAP

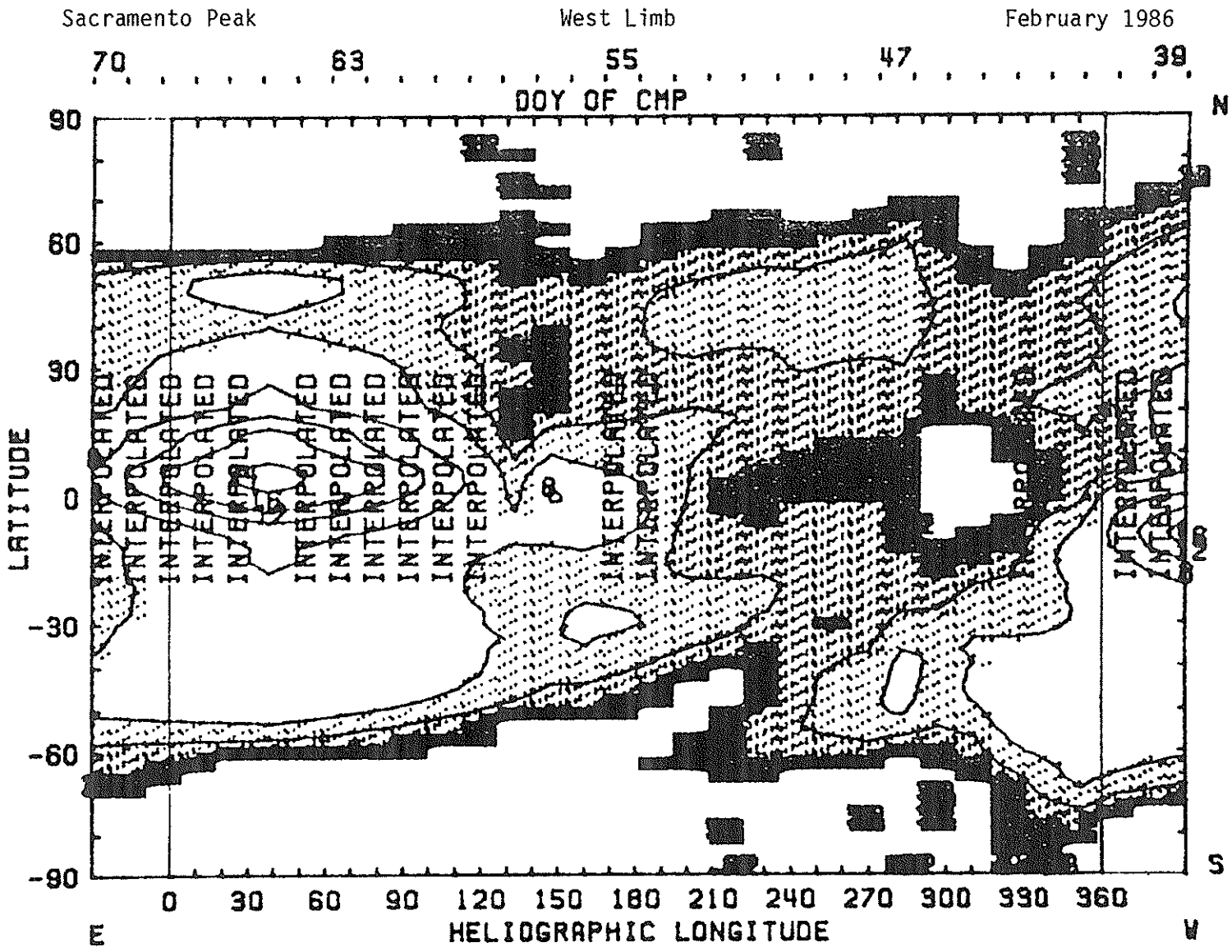
CARRINGTON ROTATION NUMBER 1772
(February 10 to March 9, 1986)



1986 E LIMB DATA IN UNITS OF MILLIONTHS OF Io
CORONAL HOLES ARE SHOWN AS WHITE SURROUNDED BY BLACK

CORONAL GREEN LINE SYNOPTIC MAP

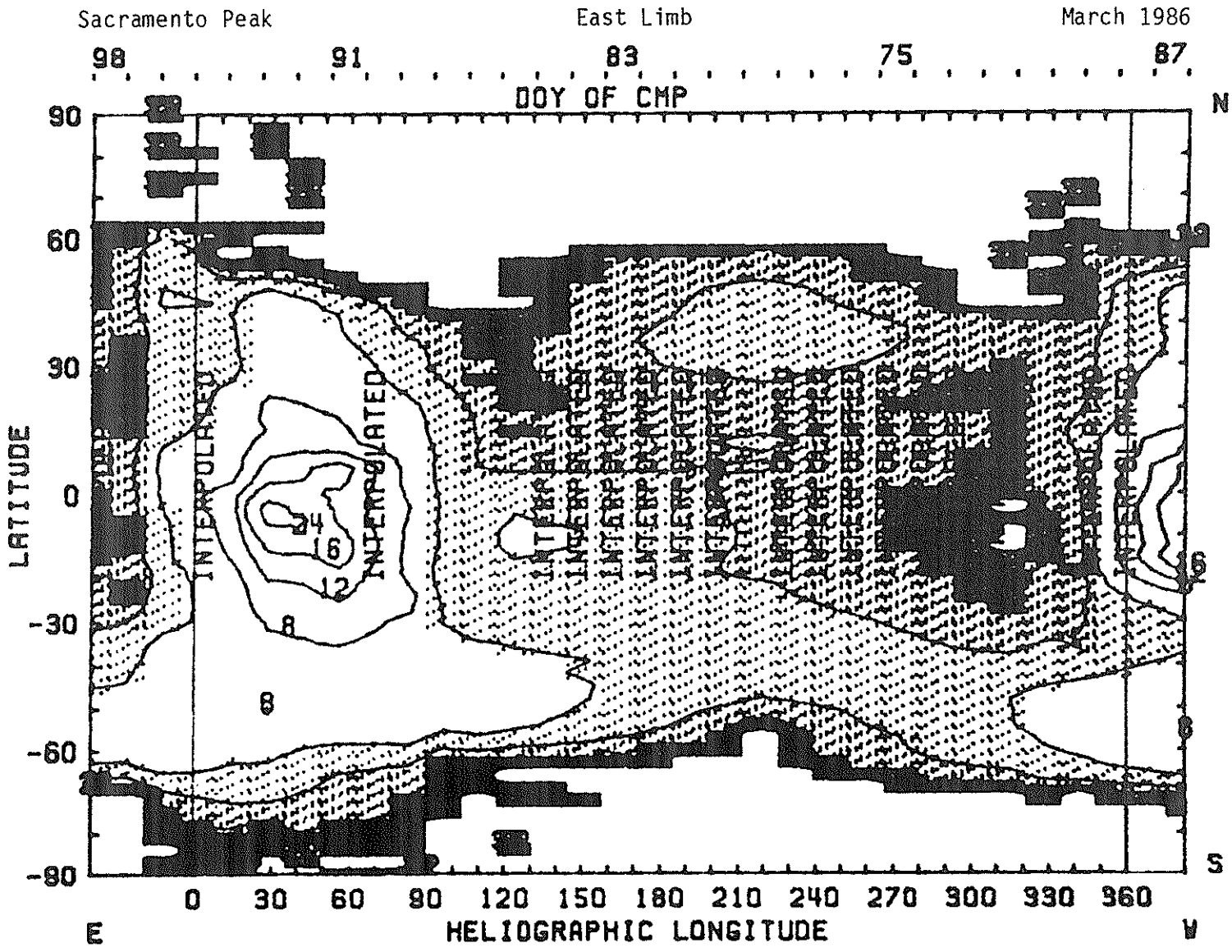
CARRINGTON ROTATION NUMBER 1772
(February 10 to March 9, 1986)



1986 W LIMB DATA IN UNITS OF MILLIONTHS OF Io
CORONAL HOLES ARE SHOWN AS WHITE SURROUNDED BY BLACK

CORONAL GREEN LINE SYNOPTIC MAP

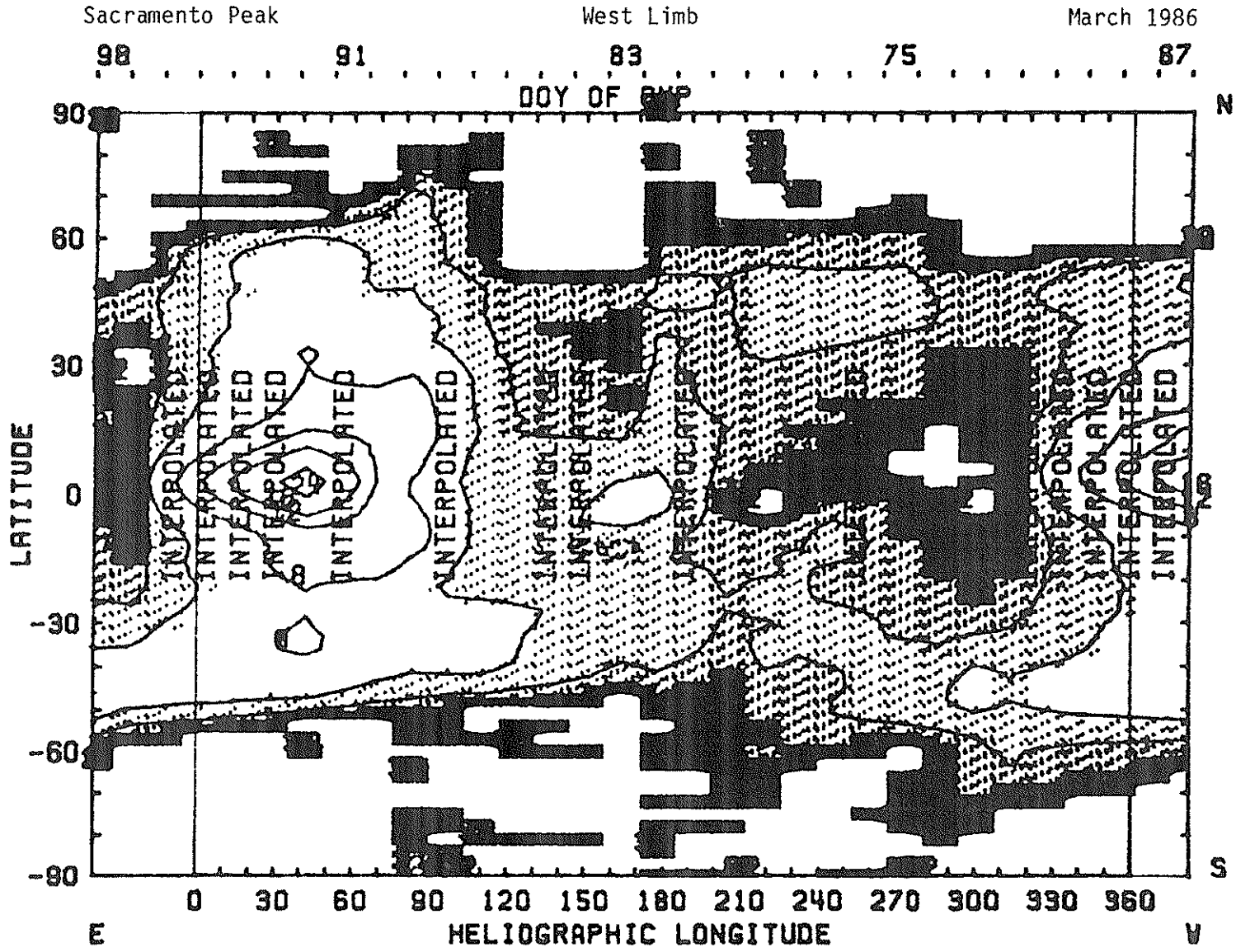
CARRINGTON ROTATION NUMBER 1773
(March 9 to April 6, 1986)



1986 E LIMB DATA IN UNITS OF MILLIONTHS OF Io
CORONAL HOLES ARE SHOWN AS WHITE SURROUNDED BY BLACK

CORONAL GREEN LINE SYNOPTIC MAP

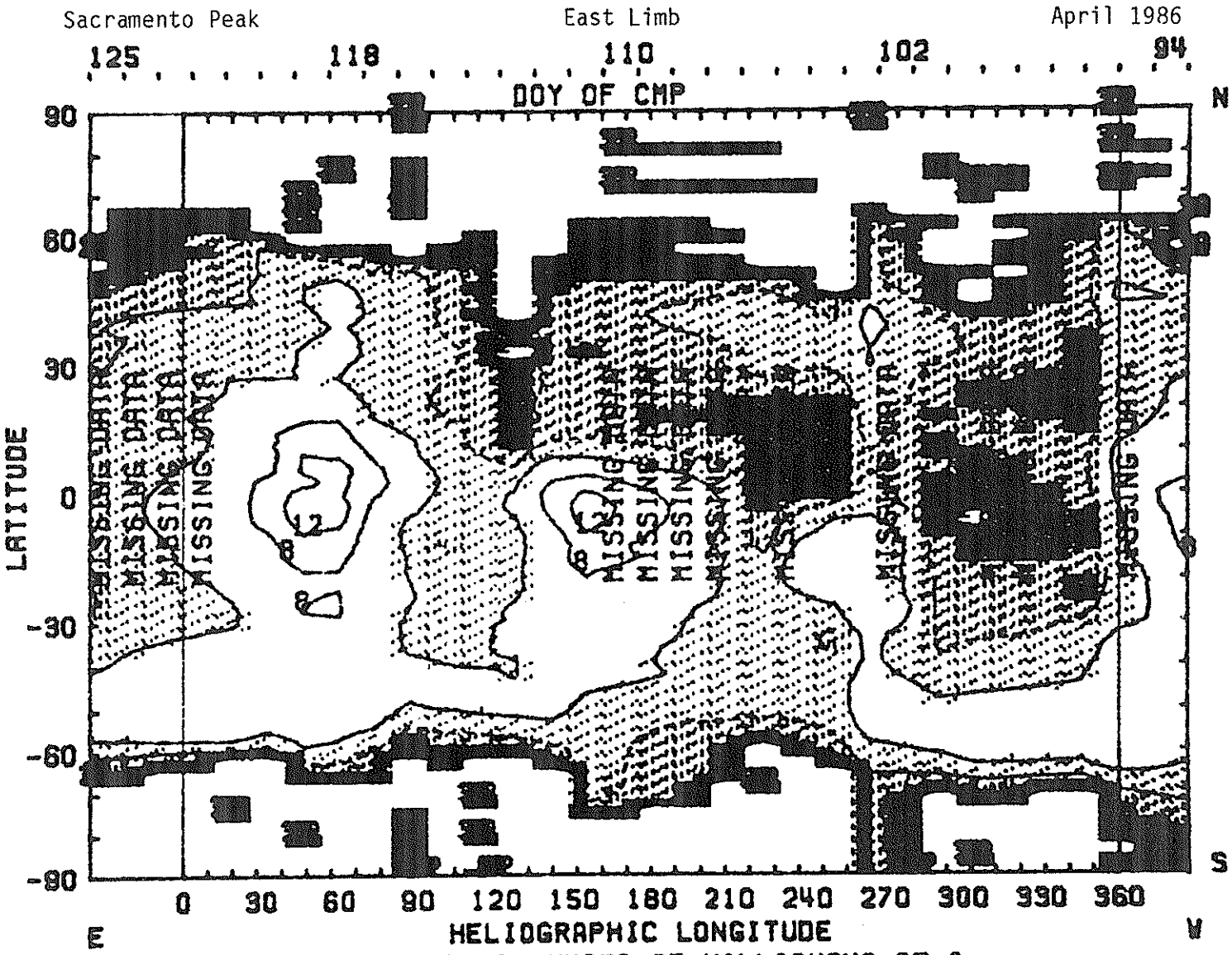
CARRINGTON ROTATION NUMBER 1773
(March 9 to April 6, 1986)



1986 W LIMB DATA IN UNITS OF MILLIONTHS OF Io
CORONAL HOLES ARE SHOWN AS WHITE SURROUNDED BY BLACK

CORONAL GREEN LINE SYNOPTIC MAP

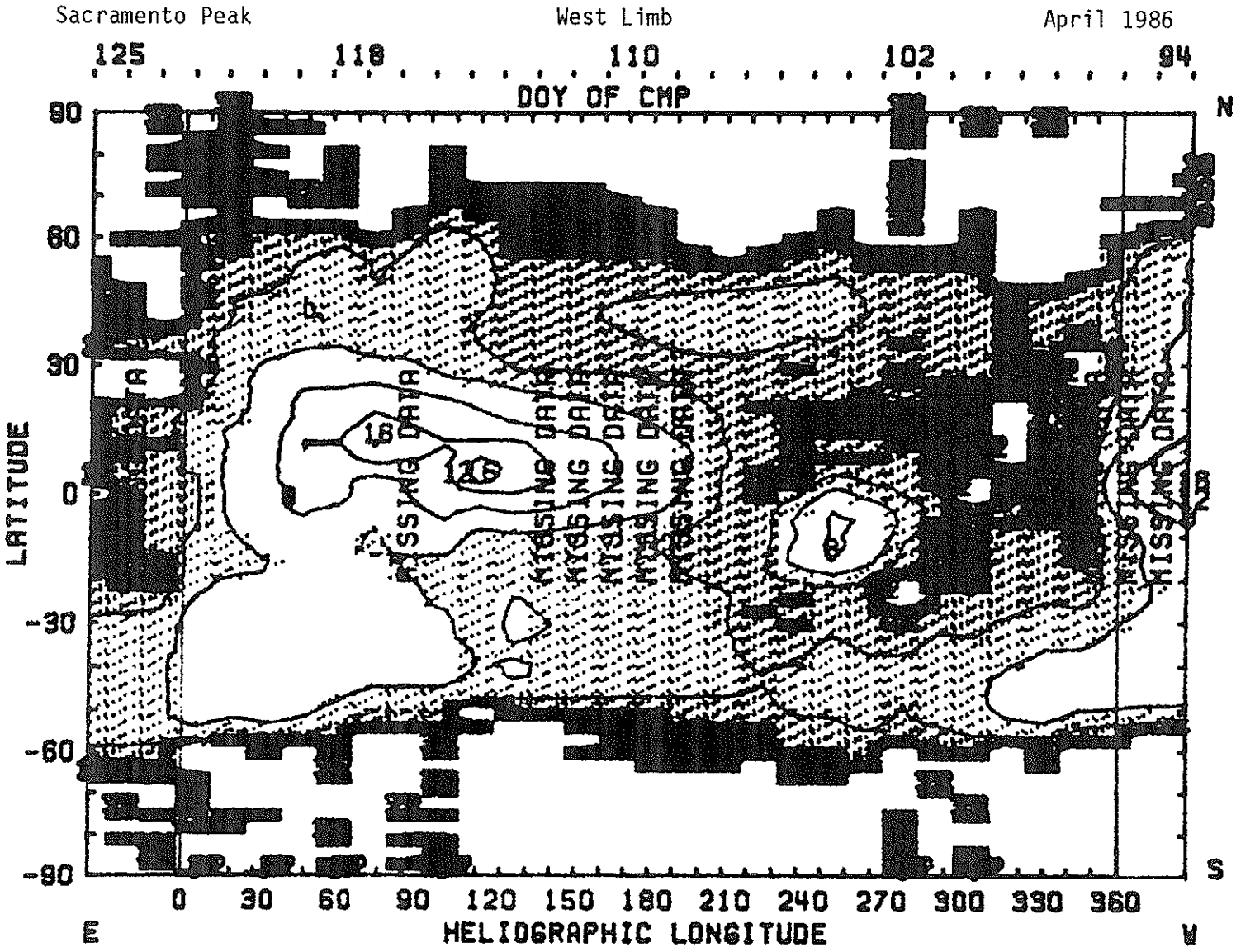
CARRINGTON ROTATION NUMBER 1774
(April 6 to May 6, 1986)



1986 E LIMB DATA IN UNITS OF MILLIONTHS OF Io
CORONAL HOLES ARE SHOWN AS WHITE SURROUNDED BY BLACK

CORONAL GREEN LINE SYNOPTIC MAP

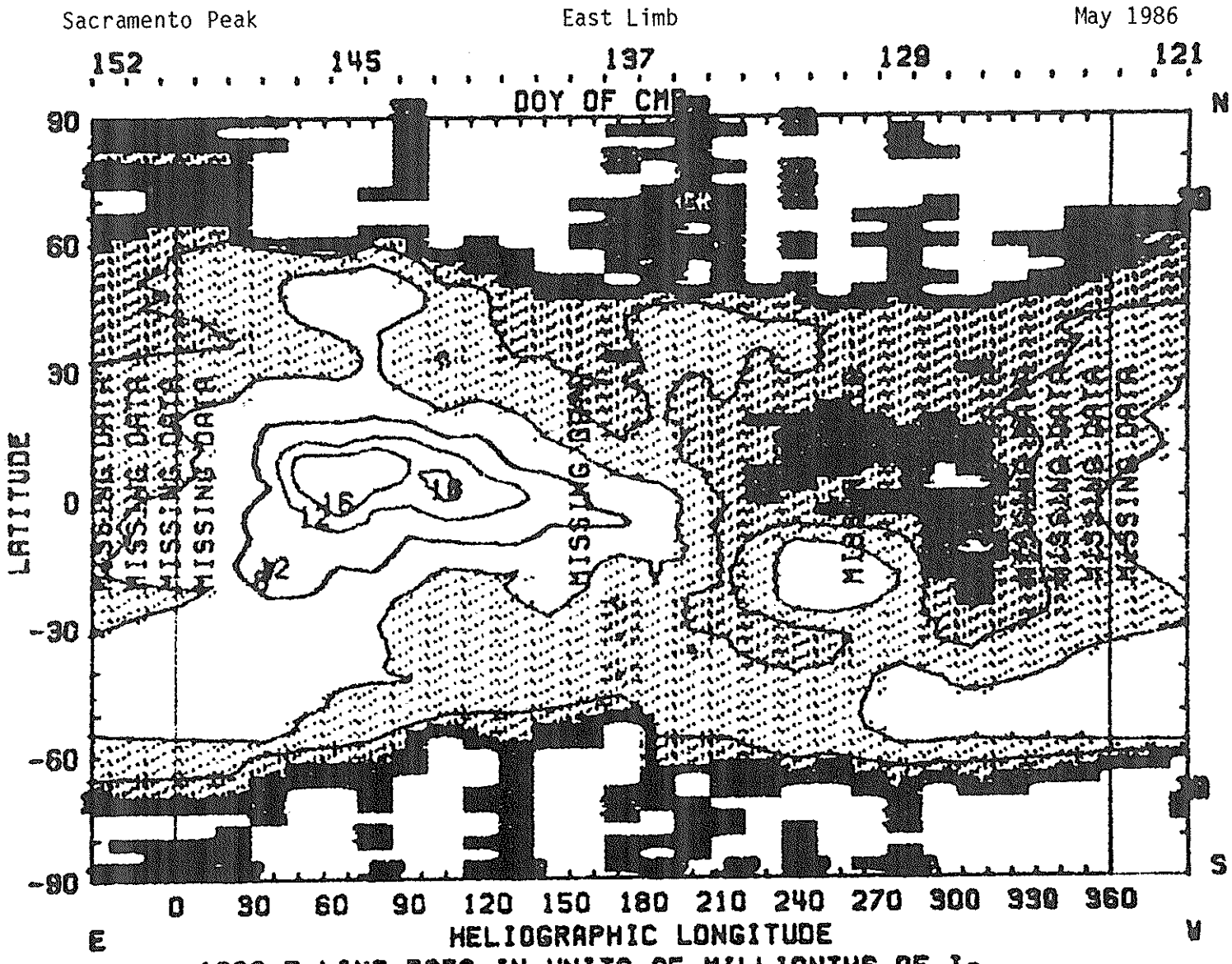
CARRINGTON ROTATION NUMBER 1774
(April 6 to May 6, 1986)



1986 W LIMB DATA IN UNITS OF MILLIONTHS OF $I_\odot$
CORONAL HOLES ARE SHOWN AS WHITE SURROUNDED BY BLACK

CORONAL GREEN LINE SYNOPTIC MAP

CARRINGTON ROTATION NUMBER 1775
(May 3 to May 30, 1986)

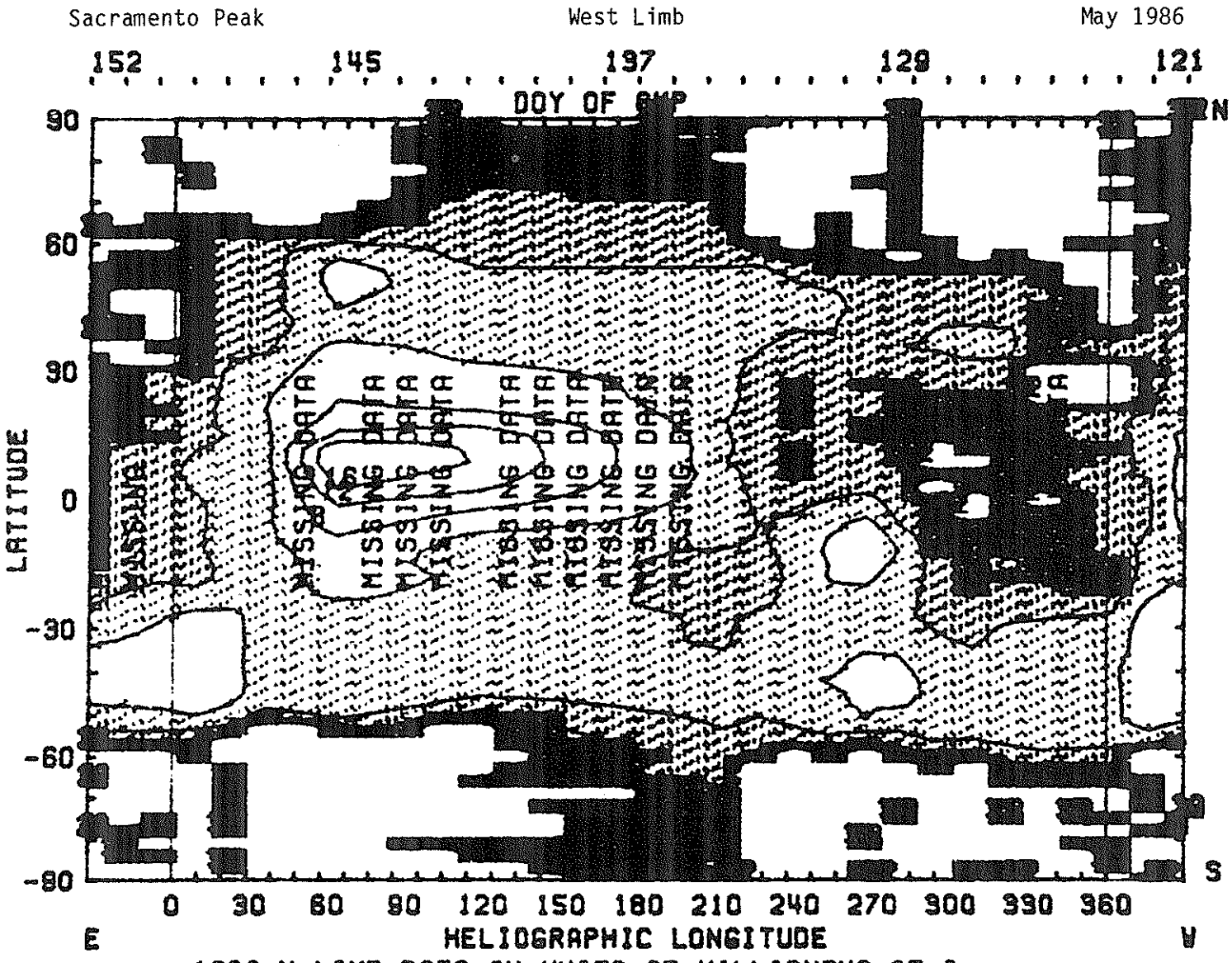


1986 E LIMB DATA IN UNITS OF MILLIONTHS OF Ie
CORONAL HOLES ARE SHOWN AS WHITE SURROUNDED BY BLACK

CORONAL GREEN LINE SYNOPTIC MAP

CARRINGTON ROTATION NUMBER 1775

(May 3 to May 30, 1986)

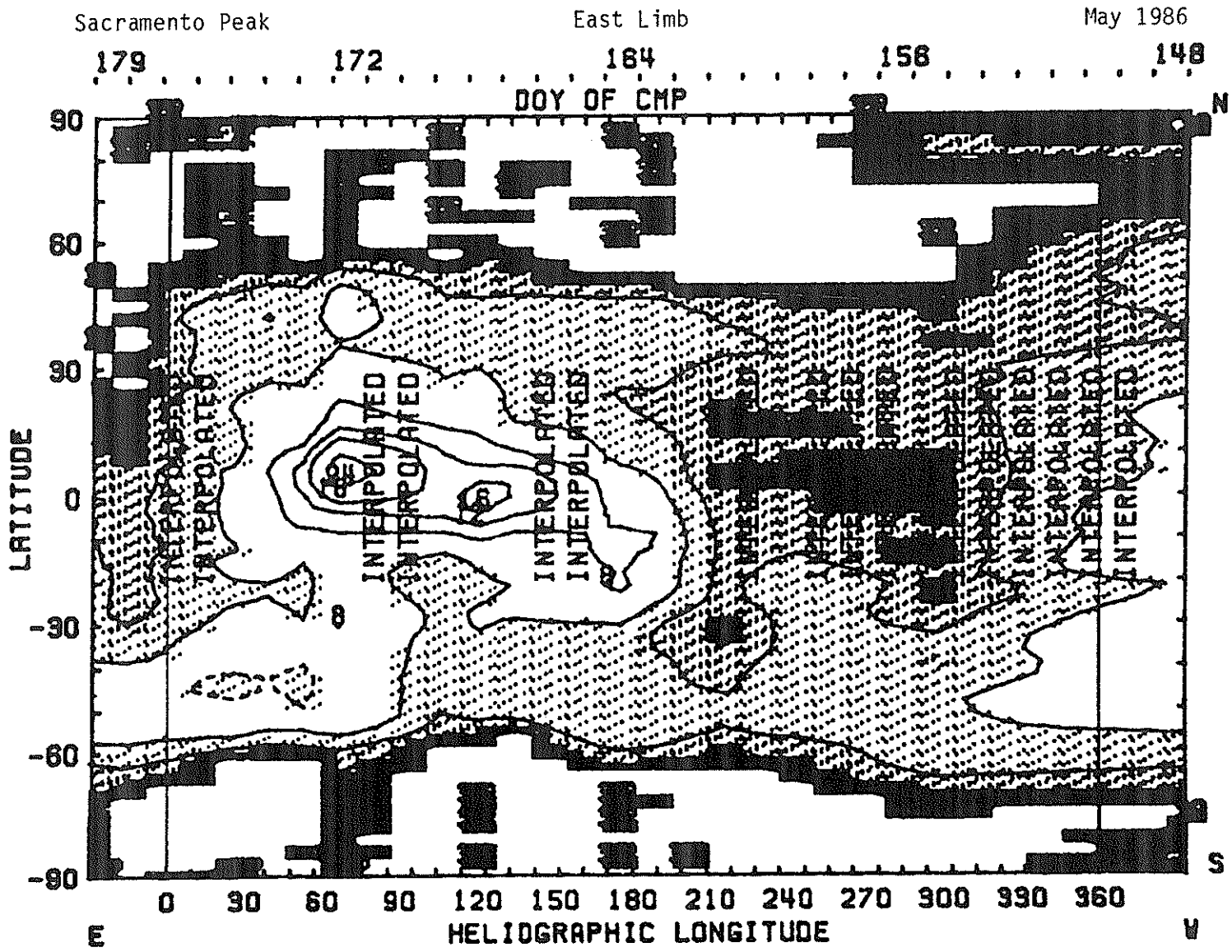


1986 W LIMB DATA IN UNITS OF MILLIONTHS OF Ie

CORONAL HOLES ARE SHOWN AS WHITE SURROUNDED BY BLACK

CORONAL GREEN LINE SYNOPTIC MAP

CARRINGTON ROTATION NUMBER 1776
(May 30 to June 26, 1986)

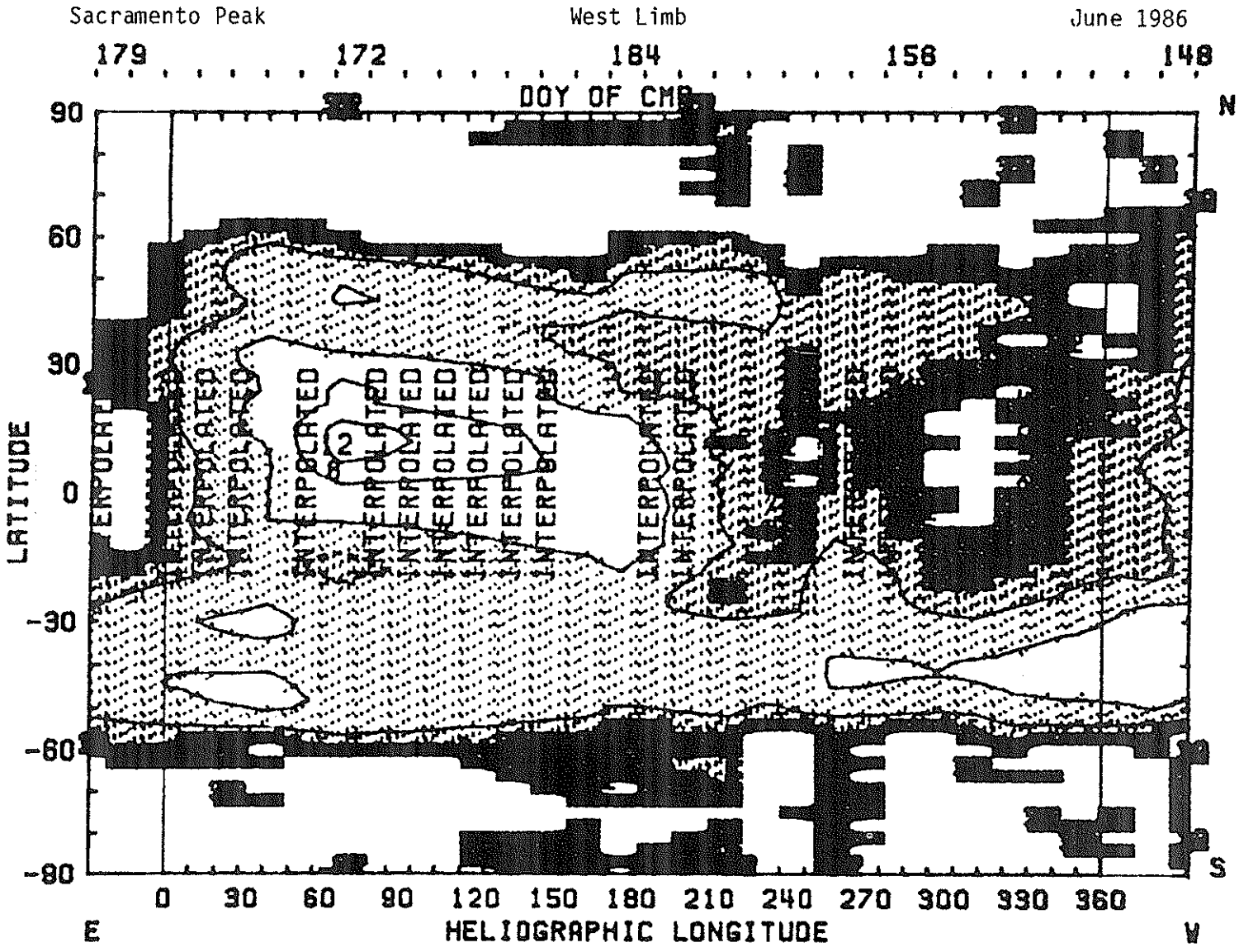


1986 E LIMB DATA IN UNITS OF MILLIONTHS OF Io
CORONAL HOLES ARE SHOWN AS WHITE SURROUNDED BY BLACK

CORONAL GREEN LINE SYNOPTIC MAP

CARRINGTON ROTATION NUMBER 1776

(May 30 to June 26, 1986)

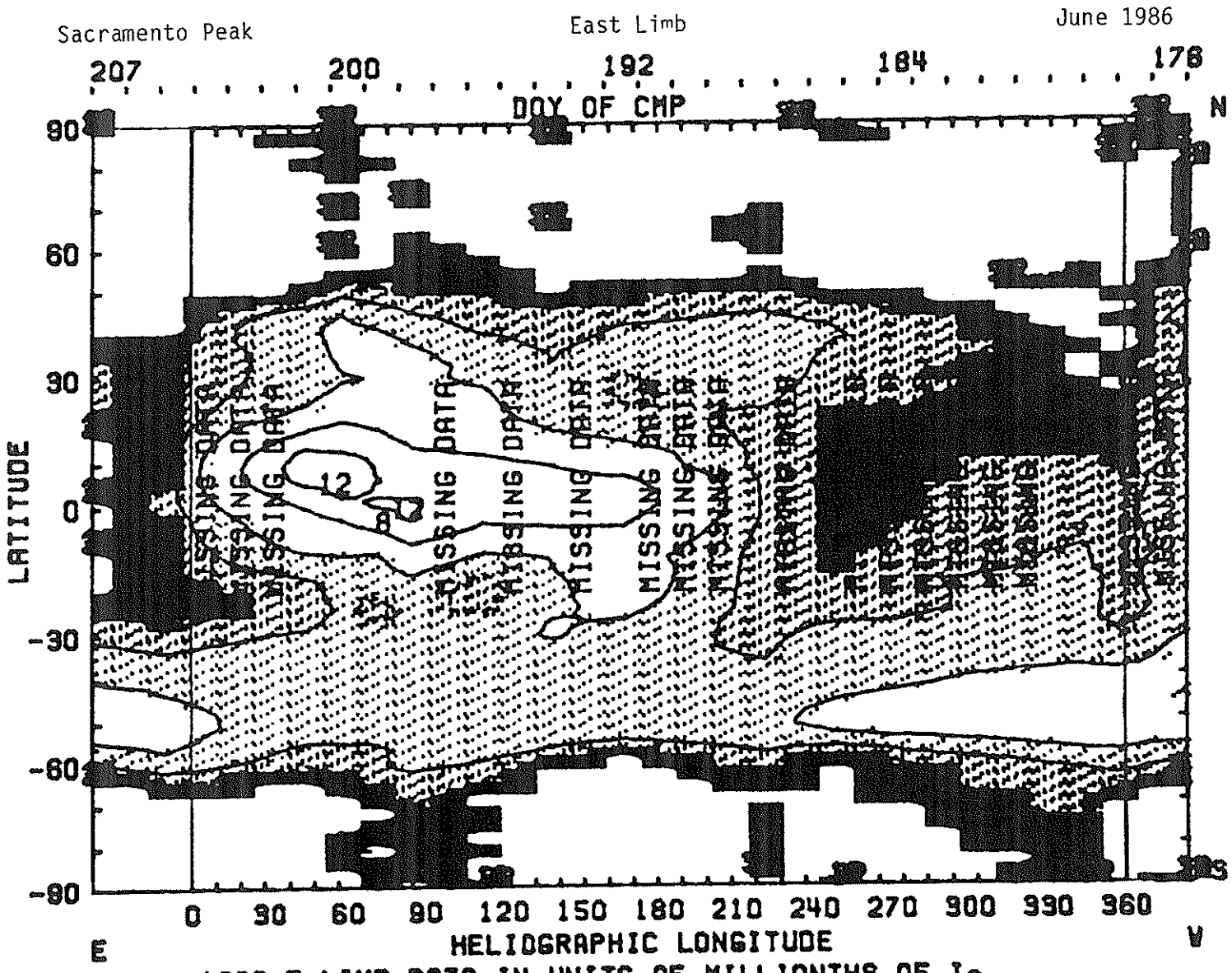


1986 W LIMB DATA IN UNITS OF MILLIONTHS OF Io

CORONAL HOLES ARE SHOWN AS WHITE SURROUNDED BY BLACK

CORONAL GREEN LINE SYNOPTIC MAP

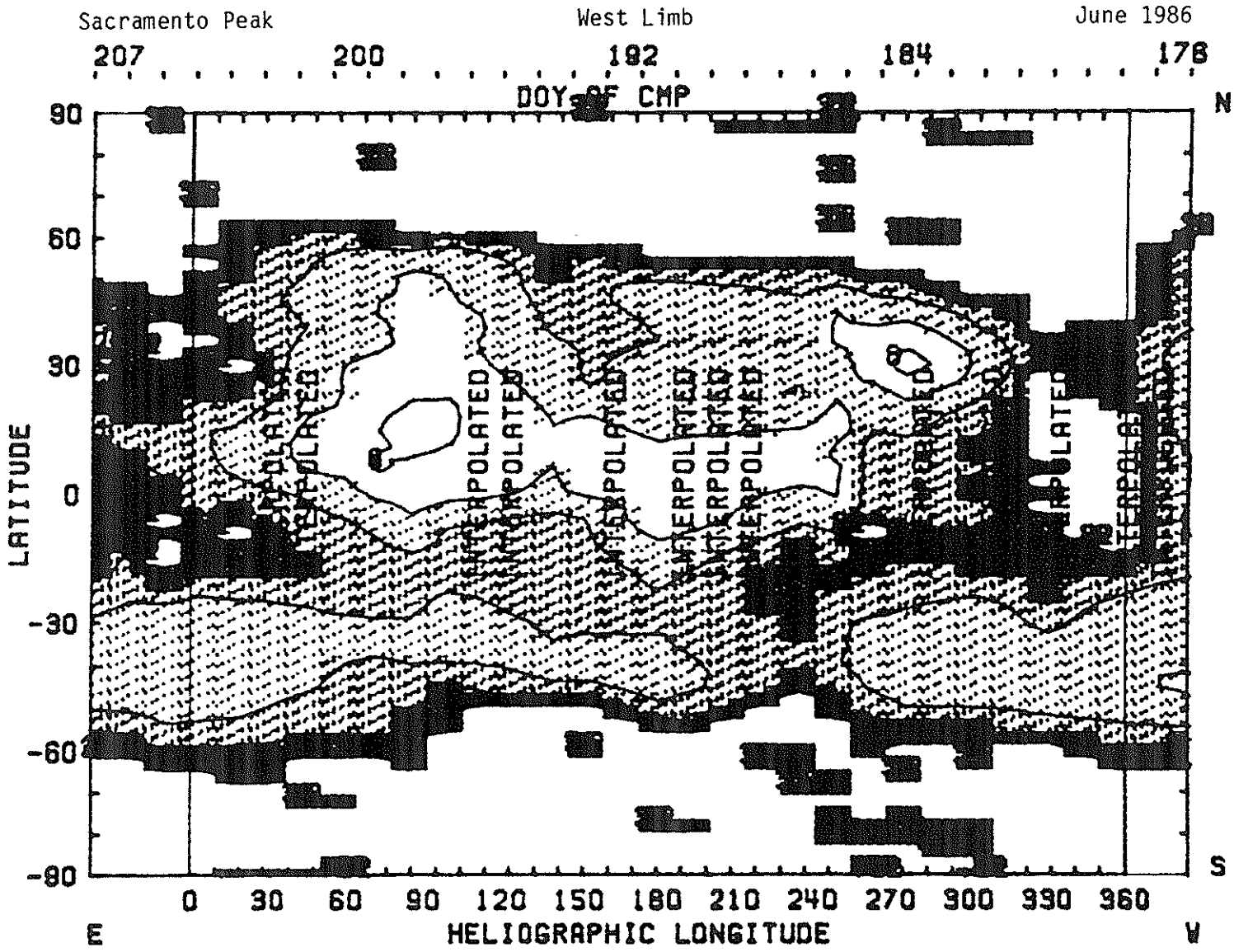
CARRINGTON ROTATION NUMBER 1777
(June 26 to July 24, 1986)



1986 E LIMB DATA IN UNITS OF MILLIONTHS OF Io
CORONAL HOLES ARE SHOWN AS WHITE SURROUNDED BY BLACK

CORONAL GREEN LINE SYNOPTIC MAP

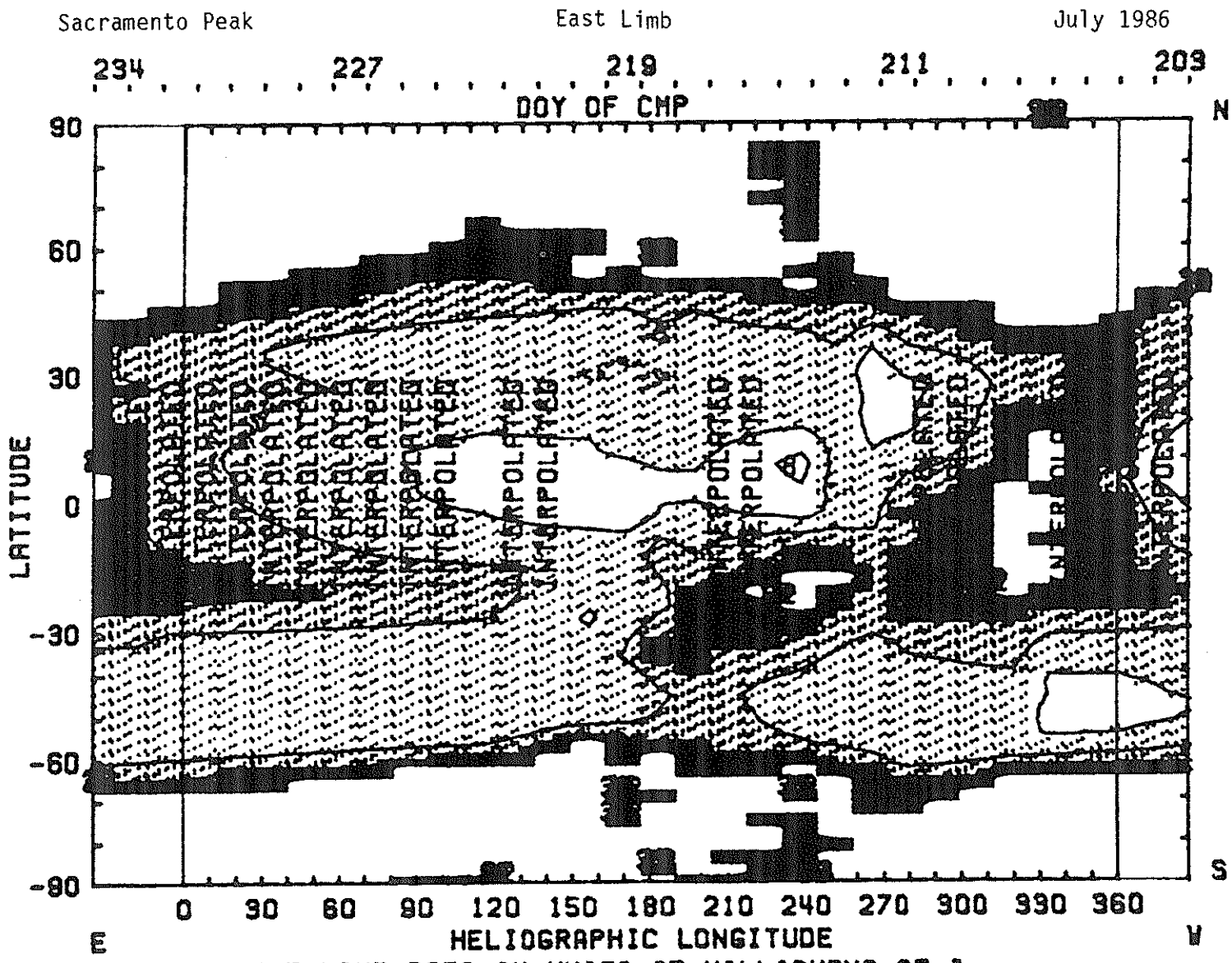
CARRINGTON ROTATION NUMBER 1777
(June 26 to July 24, 1986)



1986 W LIMB DATA IN UNITS OF MILLIONTHS OF Io
CORONAL HOLES ARE SHOWN AS WHITE SURROUNDED BY BLACK

CORONAL GREEN LINE SYNOPTIC MAP

CARRINGTON ROTATION NUMBER 1778
(July 26 to August 20, 1986)



1986 E LIMB DATA IN UNITS OF MILLIONTHS OF Io
CORONAL HOLES ARE SHOWN AS WHITE SURROUNDED BY BLACK

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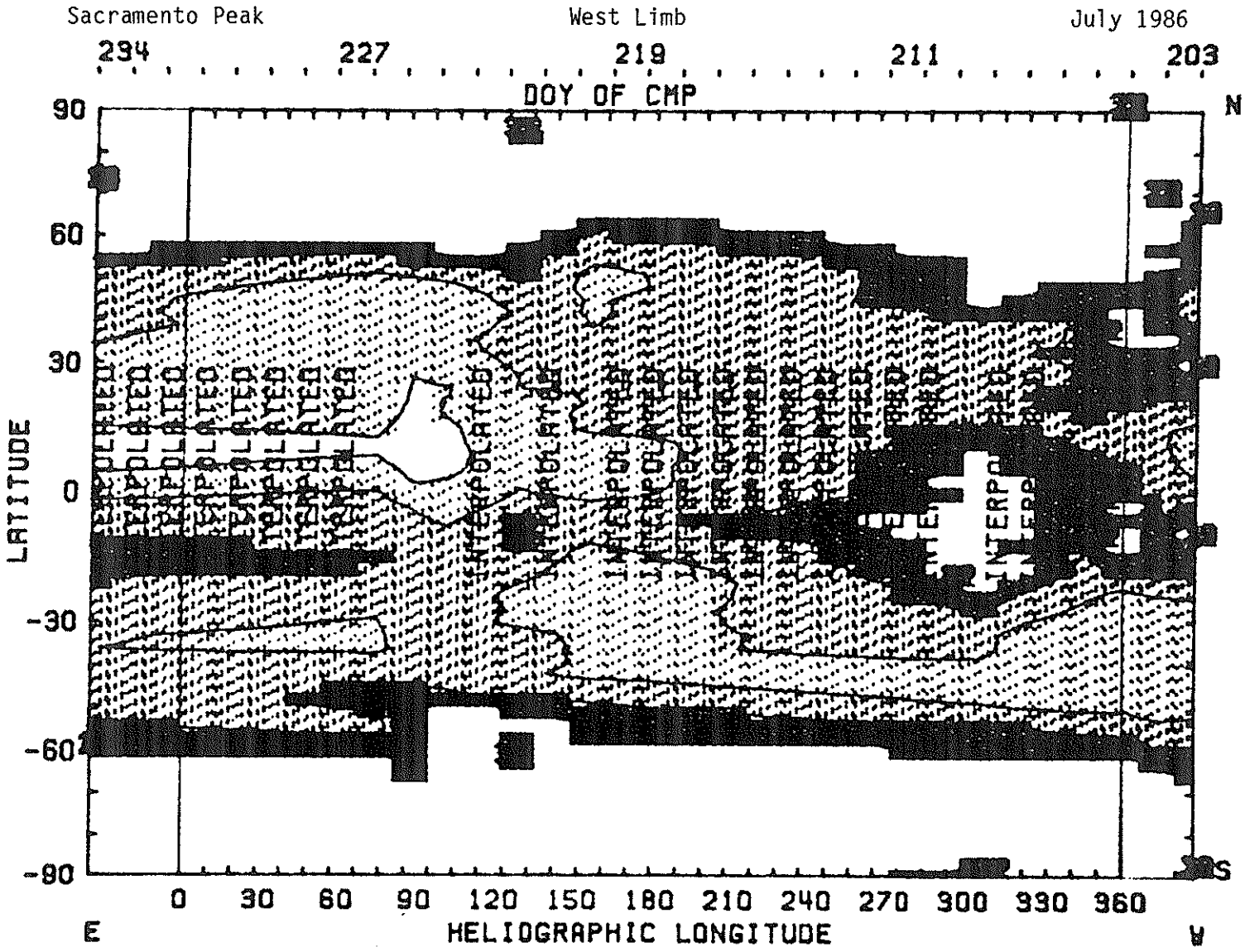
CORONAL GREEN LINE SYNOPTIC MAP

CARRINGTON ROTATION NUMBER 1778
(July 26 to August 20, 1986)



1986 W LIMB DATA IN UNITS OF MILLIONTHS OF Io
CORONAL HOLES ARE SHOWN AS WHITE SURROUNDED BY BLACK

COSMIC RAY INDICES
(Neutron Monitor)

AUGUST 1986

Day	THULE Average (cts/h)/100	ALERT Average (cts/h)/100	DEEP RIVER Average (cts/h)/300	KIEL Average (cts/h)/100	CLIMAX Average (cts/h)/100	PREDIGTSTUHL Average (cts/h)/100	TOKYO Average (cts/h)/256	HUANCAYO Average (cts/h)/100
1	4513	7386.9	7049.1	6291.0	4179.4		3673.7	
2	4513	7418.5	7040.5	6300.5	4173.9		---	
3	4501	7417.1	7043.9	6281.9	4166.4		---	
4	4487	7387.0	7031.5	6279.8	4173.3		3663.1	
5	4506	7391.2	7033.7	6292.9	4171.5		3662.3	
6	4522	7416.5	7036.8	6291.1	4170.4		3654.8	
7	4512	7410.0	7035.5	6297.5	4171.9		3651.7	
8	4513	7405.3	7048.5	6308.0	4180.8		3652.1	
9	4519	7407.7	7063.1	6307.6	4182.9(38)		3650.3	
10	4533	7421.6	7063.4	6319.2	4186.5		3657.9	
11	4529	7430.1	7083.1	6332.2	4187.2		3662.8	
12	4550	7463.8	7103.0	6336.1	4203.7(36)		3667.6	
13	4533	7433.0	7088.0	6337.7	4205.3		3669.6	
14	4519	7428.1	7084.9	6345.6	4204.9		3667.2	
15	4527	7439.8	7075.9	6352.3	4211.5		3661.9	
16	4534	7442.9	7097.7	6352.5	4210.8		3667.3	
17	4548	7458.3	7103.2	6362.5	4210.9		---	
18	4540	7463.6	7116.1	6364.7	4211.0		3658.5	
19	4548	7468.4	7122.7	6364.4	4209.3		3658.9	
20	4566	7492.7	7127.1	6382.1	4217.0		3666.2	
21	4543	7455.4	7070.4	6341.5	4195.3		3662.5	
22	4517	7451.7	7082.1	6334.5	4195.9		3658.2	
23	4544	7451.5	7077.3	6352.7	4199.1		3658.0	
24	4528	7424.4	7085.5	6332.4	4195.9		3657.3	
25	4532	7410.5	7095.9	6331.4	4201.1		3662.2	
26	4533	7411.7	7088.5	6351.1	4204.6(30)		3660.3	
27	4531	7425.3	7094.2	6346.1	----		3663.3	
28	4531	7451.4	7105.8	6343.2	----		3662.0	
29	4529	7445.5	7102.0	6340.7	----		3662.0	
30	4531	7448.5	7091.0	6332.5	----		3660.0	
31	4551	7454.7	7099.9	6342.2	----		3667.9	
Mean	4528	7432.7	7078.7	6330.6	4192.8		3661.1	

For less than 24-hour coverage, parentheses enclose the number of hours for which data are available.
For Climax and Huancayo, parentheses enclose the number of section hours whenever the sum of both sections falls below 40 hours.

WDC-C2 FOR GEOMAGNETISM, KYOTO UNIVERSITY

HOURLY EQUATORIAL DST VALUES(PROVISIONAL)

APRIL 1986

UNIT=NT

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24 (U.T.)
1	-16	-15	-7	-14	-16	-14	-14	-13	-15	-26	-27	-27	-26	-22	-18	-19	-19	-18	-18	-18	-19	-18	-16	-17
2	-20	-24	-21	-17	-13	-14	-17	-20	-23	-25	-25	-25	-24	-23	-24	-25	-22	-19	-17	-13	-13	-12	-16	-20
3	-25	-30	-35	-37	-38	-32	-35	-37	-31	-29	-26	-28	-27	-24	-22	-20	-18	-18	-23	-24	-23	-19	-18	-19
4	-19	-15	-13	-13	-15	-16	-18	-19	-18	-19	-19	-20	-21	-22	-23	-23	-26	-26	-23	-22	-20	-20	-18	-16
5	-16	-14	-12	-13	-17	-19	-19	-17	-17	-15	-14	-9	-11	-12	-11	-10	-7	-13	-23	-23	-24	-29	-32	-29
6	-24	-19	-16	-15	-17	-20	-20	-20	-20	-21	-22	-21	-19	-18	-16	-14	-12	-14	-17	-17	-18	-20	-20	-18
7	-15	-14	-15	-11	-11	-14	-16	-16	-13	-11	-8	-7	-6	-9	-12	-14	-17	-18	-18	-16	-18	-20	-21	-21
8	-20	-16	-15	-11	-8	-7	-7	-6	-7	-16	-26	-28	-23	-22	-22	-19	-17	-15	-15	-12	-11	-12	-13	-12
9	-12	-10	-13	-19	-27	-26	-20	-10	-13	-14	-10	-3	-10	-18	-27	-30	-31	-33	-32	-32	-29	-30	-32	-35
10	-43	-35	-24	-24	-34	-41	-48	-50	-56	-53	-42	-33	-30	-31	-32	-37	-40	-37	-37	-36	-37	-39	-36	-33
11	-31	-29	-26	-28	-31	-33	-31	-30	-30	-31	-31	-31	-30	-30	-30	-30	-30	-25	-21	-19	-21	-21	-23	-24
12	-25	-27	-25	-25	-27	-28	-32	-29	-30	-32	-30	-34	-33	-34	-35	-37	-38	-36	-35	-36	-37	-40	-42	-38
13	-34	-29	-27	-25	-24	-22	-20	-20	-21	-22	-24	-25	-25	-24	-24	-20	-17	-17	-18	-20	-24	-24	-27	-28
14	-29	-29	-28	-27	-26	-23	-19	-15	-13	-14	-16	-15	-14	-15	-17	-20	-18	-16	-16	-15	-17	-21	-20	-19
15	-20	-19	-17	-17	-12	-7	-7	-5	-6	-5	-6	-8	-10	-12	-7	-4	-6	-9	-5	-8	-5	-5	-9	-14
16	-23	-24	-22	-20	-18	-15	-12	-10	-12	-15	-19	-22	-16	-15	-16	-16	-22	-24	-23	-19	-15	-14	-13	-12
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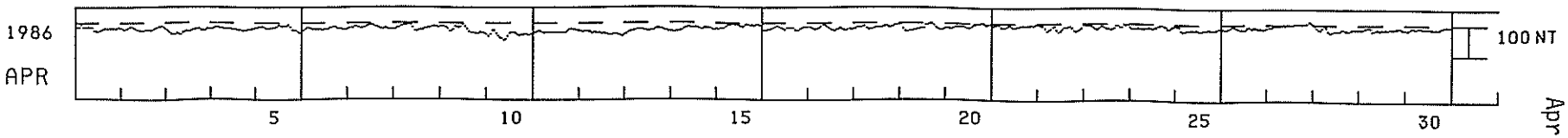

105
Late
Apr 86

HOURLY EQUATORIAL DST VALUES(PROVISIONAL)

JUNE 1986

UNIT=NT

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
																							U.T.	
1	-27	-34	-32	-26	-24	-24	-25	-23	-21	-21	-21	-21	-19	-17	-12	-12	-15	-21	-20	-23	-22	-23	-25	-28
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10	-21	-21	-18	-18	-15	-8	-8	-12	-19	-28	-26	-19	-22	-21	-23	-21	-17	-16	-18	-19	-19	-15	-18	-20
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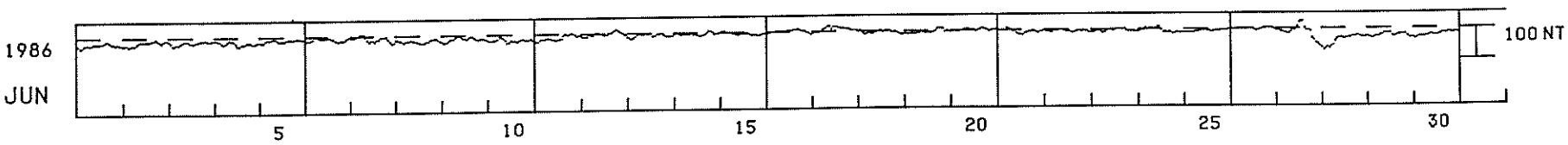

WDC-C2 FOR GEOMAGNETISM, KYOTO UNIVERSITY

HOURLY EQUATORIAL DST VALUES(PROVISIONAL)

JULY 1986

UNIT=NT

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24 (U.T.)
1	-20	-15	-19	-21	-23	-26	-23	-21	-20	-20	-22	-21	-19	-17	-16	-15	-16	-16	-19	-17	-14	-10	-4	-4
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3	-13	-15	-17	-19	-21	-22	-20	-20	-24	-27	-24	-20	-20	-20	-23	-22	-21	-20	-16	-11	-10	-7	-6	-7
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7	0	0	0	-5	-8	-8	-5	-4	-2	-1	0	0	-2	-5	-5	-6	-9	-7	-4	-2	-2	-4	-2	-2
8	-5	-4	-3	-3	-2	-3	-1	3	3	1	-1	0	0	4	4	0	-4	-9	-14	-17	-18	-21	-20	-15
9	-16	-14	-12	-13	-17	-19	-16	-12	-6	-7	-6	-10	-16	-18	-15	-10	-6	-5	-5	-7	-7	-5	-3	-5
10	-11	-16	-15	-14	-14	-13	-10	-9	-10	-13	-17	-17	-15	-11	-10	-7	-3	-1	-4	-5	-3	1	0	-3
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21	10	5	3	6	12	15	10	7	5	5	9	5	6	10	11	10	12	14	13	14	13	7	1	-3
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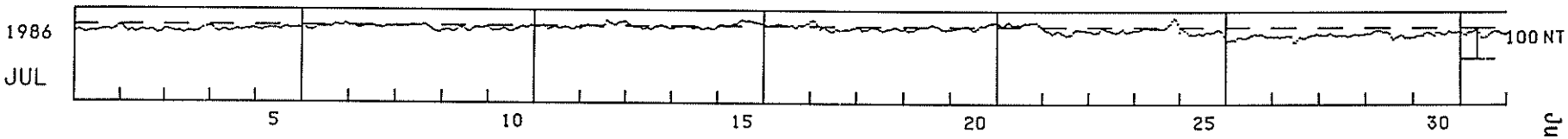

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Late
Jul 86

MAGNETIC STORM SUDDEN COMMENCEMENTS AND SOLAR FLARE EFFECTS
(PRELIMINARY REPORT ON RAPID MAGNETIC VARIATIONS)

JULY 1986

Storm Sudden Commencements (ssc)			Solar Flare Effects (sfe)		
Day	Time	Quality: Station Group*	Day	Begin-End	Station(s)
24	2116	A: CLF B: WNG NGK NCK HVN: C: DOB WIT TEN (si: A: EBR, MPO; sfe: QUE)	01 15 23	1127-1130 1044-1054 0705-0713	MPO AQU BDV

Underlines indicate confirming geophysical effects.

Reporting Observatories:

DOB NUR WNG WIT NGK HAD BDV CLF NCK GCK
MMB AQU EBR COI SPT FRD KAK HTY KNY QUE
TEN LNP HVN MPO GNA AMS CZT KGL DUM

MAGNETIC STORM SUDDEN COMMENCEMENTS AND SOLAR FLARE EFFECTS
(PRELIMINARY REPORT ON RAPID MAGNETIC VARIATIONS)

AUGUST 1986

Storm Sudden Commencements (ssc)			Solar Flare Effects (sfe)		
Day	Time	Quality: Station Group*	Day	Begin-End	Station(s)
20	1351	A: SOD DOB COI FRD QUE MPO; B: WNG WIT HAD BDV NCK GCK MMB EBR SPT KAK HTY KNY TEN LNP GNA AMS KGL; C: NGK CLF	12 18 28	1352-1405 1141-1154 0942-0944	CLF NCK MPO NCK

Underlines indicate confirming geophysical effects.

Reporting Observatories:

SOD DOB NUR WNG WIT NGK HAD BDV CLF NCK GCK MMB EBR COI SPT
FRD KAK HTY KNY QUE TEN LNP HVN MPO GNA AMS CZT KGL DUM

*Three-letter codes identify each observatory. Reporting stations have been grouped by the character of the observed event. The letter A means very remarkable; B means fair, ordinary, but unmistakable; and C means very poor, doubtful.

†The symbol si stands for a sudden magnetic change not classifiable as a storm sudden commencement.

†The symbol bps stands for bay-like pulsations.

C A L C I U M P L A G E R E G I O N S
(ORDERED BY CENTRAL MERIDIAN PASSAGE DATE)

MARCH 1986

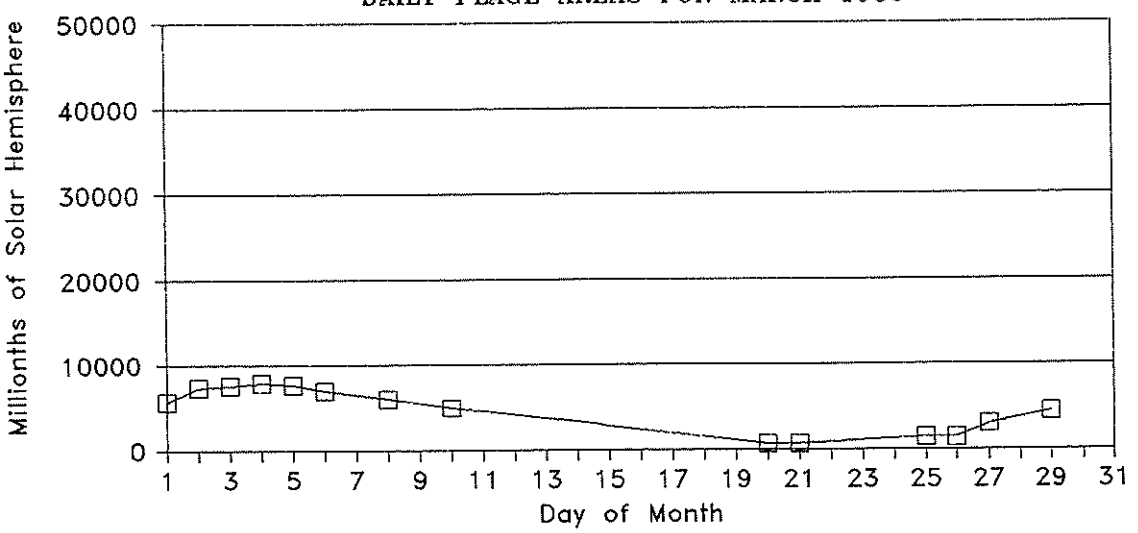
Calcium Plage Region	Sta	Observation Time Mo	Day	(UT)	Lat CMD	CMP Mo	Day	Intensity	Corrected Area (10-6 Heml)	NOAA/USAF Sunspot Groups #1	#2	#3
19717	BIGB	03	02	1459	N02 W08	03	2.0	3.4	0440	4718		
19717	BIGB	03	03	1457	N02 W21	03	2.0	3.2	0500	4718		
19717	BIGB	03	04	1514	N02 W35	03	2.0	1.8	0310	4718		
19717	BIGB	03	05	1427	N02 W47	03	2.1	1.8	0344	4718		
19716	BIGB	03	02	1459	N17 W00	03	2.6	1.7	0100			
19713	BIGB	02	26	1412	S14 E80	03	4.6	2.2	1929			
19713	BIGB	02	27	1420	S14 E67	03	4.7	2.1	1830			
19713	BIGB	02	28	1417	S14 E53	03	4.6	2.7	1760			
19713	BIGB	03	01	1422	S14 E41	03	4.7	2.7	1580			
19713	BIGB	03	02	1459	S14 E27	03	4.7	2.6	1442			
19713	BIGB	03	03	1457	S14 E14	03	4.7	2.5	1456			
19713	BIGB	03	04	1514	S14 E01	03	4.7	1.9	1550			
19713	BIGB	03	05	1427	S14 W12	03	4.7	2.0	1407			
19713	BIGB	03	06	1420	S14 W25	03	4.7	2.0	1320			
19713	BIGB	03	08	1619	S14 W53	03	4.7	1.5	1070			
19713	BIGB	03	10	1429	S14 W79	03	4.6	1.7	0690			
19714	BIGB	02	28	1417	N01 E78	03	6.4	1.5	1241	4717		
19714	BIGB	03	01	1422	N02 E78	03	7.4	4.0	3004	4717		
19714	BIGB	03	02	1459	N02 E64	03	7.4	3.3	4683	4717		
19714	BIGB	03	03	1457	N02 E51	03	7.4	3.6	4830	4717		
19714	BIGB	03	04	1514	N02 E38	03	7.5	3.7	6041	4717		
19714	BIGB	03	05	1427	N01 E23	03	7.3	3.8	5474	4717		
19714	BIGB	03	06	1420	N01 E10	03	7.3	3.8	4884	4717		
19714	BIGB	03	08	1619	N01 W18	03	7.3	3.5	4969	4717		
19714	BIGB	03	10	1429	N01 W43	03	7.4	3.2	4270	4717		
19720	BIGB	03	06	1420	S07 E45	03	10.0	1.6	0120			
19718	BIGB	03	05	1427	S01 E79	03	11.5	1.8	0417			
19718	BIGB	03	06	1420	S01 E66	03	11.5	1.7	0247			
19722	BIGB	03	20	1409	S12 W23	03	18.8	2.7	0560	4719		
19722	BIGB	03	21	1353	S12 W36	03	18.9	2.5	0660	4719		
19723	BIGB	03	20	1409	S49 E31	03	23.2	2.0	0090	4719A		
19725	BIGB	03	25	1612	N04 E47	03	29.2	2.7	0930	4720	4719B	
19725	BIGB	03	26	1359	N04 E34	03	29.1	2.4	0960	4720	4719B	
19725	BIGB	03	27	1358	N03 E18	03	28.9	2.6	0780	4720	4719B	
19725	BIGB	03	29	2235	N03 W14	03	28.9	1.7	0600	4720	4719B	
19727	BIGB	03	27	1358	N04 E24	03	29.4	2.7	0210			
19727	BIGB	03	29	2235	N05 W07	03	29.4	2.3	0280			
19726	BIGB	03	25	1612	S10 E79	03	31.6	1.8	0533			
19726	BIGB	03	26	1359	S10 E69	03	31.8	1.9	0450			
19726	BIGB	03	27	1358	S13 E53	03	31.6	2.2	0420			
19726	BIGB	03	29	2235	S13 E22	03	31.6	1.6	0350			

D A I L Y P L A G E S U M M A R I E S

MARCH 1986

Day	Sta	Plage Index	Plage Count	Smallest Plage (Millionths	Largest Plage of Solar	Total Area Hemisphere)	Smallest Intensity	Largest Intensity
01	BIGB	6.8	5	110	3004	5714	1.1	4.0
02	BIGB	11.9	6	100	4683	7405	1.3	3.4
03	BIGB	15.9	6	100	4830	7551	1.2	3.6
04	BIGB	20.7	3	310	6041	7901	1.8	3.7
05	BIGB	22.3	4	344	5474	7642	1.8	3.8
06	BIGB	20.9	5	120	4884	7039	1.4	3.8
07	No Observations This DAY							
08	BIGB	17.4	2	1070	4969	6039	1.5	3.5
09	No Observations This DAY							
10	BIGB	10.0	2	690	4270	4960	1.7	3.2
11	No Observations This DAY							
12	No Observations This DAY							
13	No Observations This DAY							
14	No Observations This DAY							
15	No Observations This DAY							
16	No Observations This DAY							
17	No Observations This DAY							
18	No Observations This DAY							
19	No Observations This DAY							
20	BIGB	1.5	2	90	560	650	2.0	2.7
21	BIGB	1.3	1	660	660	660	2.5	2.5
22	No Observations This DAY							
23	No Observations This DAY							
24	No Observations This DAY							
25	BIGB	1.8	2	533	930	1463	1.8	2.7
26	BIGB	2.2	2	450	960	1410	1.9	2.4
27	BIGB	3.5	4	210	1559	2969	2.2	2.7
28	No Observations This DAY							
29	BIGB	8.1	4	280	3250	4480	1.6	3.4
30	No Observations This DAY							
31	No Observations This DAY							

DAILY PLAGE AREAS FOR MARCH 1986



BIG BEAR SOLAR OBSERVATORY
ACTIVE REGION SUMMARY

MARCH 1986

Region Number	Return Of Region	Rotation Age	First Seen This Rotation	Duration This Rotation
19713	19705	3	860226	>12
19714	19709	2	860228	14
19716	New	1	860302	1
19717	New	1	860303	4
19718	New	1	860305	3
19719	New	1	860306	1 days
19720	New	1	860306	1
19722	New	1	860320	5
19723	New	1	860320	1
19725	New (in location of 19717)	1	860323	>8
19726	19713	4	860325	7
19727	New	1	860326	4

1. No BBSO CaK Data on March 7-9, 11-19, 22-24, 28, 30 and 31.

2. No KPNO Magnetograms on March 9-11, 14, 17, 18 and 31.

3. Contiguous Plages: None

CALCIUM PLAGE REGIONS
(ORDERED BY CENTRAL MERIDIAN PASSAGE DATE)

APRIL 1986

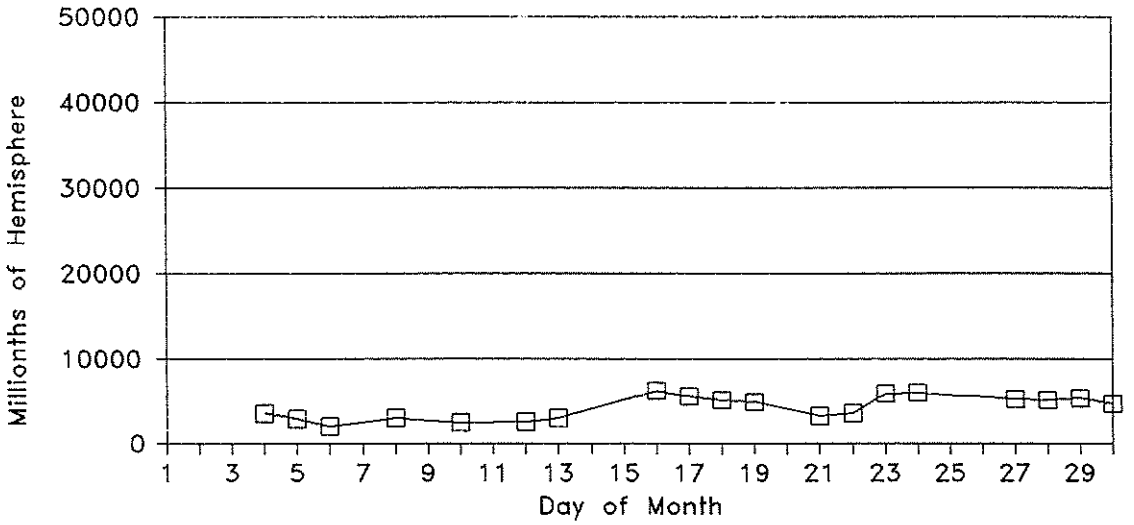
Calcium Plage Region	Sta	Observation Time Mo	Day	(UT)	Lat	CMD	CMP Mo	Day	Intensity	Corrected Area (10-6 Hemi)	NOAA/USAF Sunspot Groups #1	#2	#3
19728	BIGB	03	27	1358	N02	E80	04	2.5	2.7	1559	4721		
19728	BIGB	03	29	2235	N01	E56	04	3.1	3.4	3250	4721		
19728	BIGB	04	04	1334	N01	W19	04	3.1	2.6	3010	4721		
19728	BIGB	04	05	1414	N01	W32	04	3.2	2.4	2500	4721		
19728	BIGB	04	06	1627	N01	W47	04	3.2	2.0	1790	4721		
19728	BIGB	04	08	1426	N01	W73	04	3.1	1.6	1292	4721		
19730	BIGB	04	04	1334	N41	E50	04	8.6	2.3	0220			
19729	BIGB	04	04	1334	S30	E55	04	8.9	3.0	0300			
19729	BIGB	04	05	1414	S30	E41	04	8.8	3.3	0400			
19729	BIGB	04	06	1627	S30	E27	04	8.8	1.9	0280			
19731	BIGB	04	08	1426	S13	E74	04	14.2	3.2	1700	4723		
19731	BIGB	04	10	1330	S13	E49	04	14.2	3.3	2500	4723		
19731	BIGB	04	12	1739	S13	E21	04	14.3	3.2	2600	4723		
19731	BIGB	04	13	1409	S13	E09	04	14.3	3.3	3040	4723		
19731	BIGB	04	16	1340	S13	W30	04	14.3	2.5	1940	4723		
19731	BIGB	04	17	1316	S13	W43	04	14.3	2.5	1820	4723		
19731	BIGB	04	18	1309	S13	W57	04	14.2	2.3	1400	4723		
19731	BIGB	04	19	1312	S13	W72	04	14.1	2.4	1383	4723		
19732	BIGB	04	16	1340	S08	E50	04	20.3	3.0	1820	4724		
19732	BIGB	04	17	1316	S08	E37	04	20.3	2.6	1440	4724		
19732	BIGB	04	18	1309	S08	E24	04	20.3	2.3	1480	4724		
19732	BIGB	04	19	1312	S08	E10	04	20.3	2.2	1350	4724		
19732	BIGB	04	21	1407	S08	W17	04	20.3	2.0	1320	4724		
19732	BIGB	04	22	1311	S08	W30	04	20.3	2.2	1210	4724		
19732	BIGB	04	23	1400	S08	W43	04	20.3	2.3	1160	4724		
19732	BIGB	04	24	1312	S08	W56	04	20.3	2.2	0750	4724		
19733	BIGB	04	16	1340	N01	E58	04	20.9	3.4	2520	4725	4725A	
19733	BIGB	04	17	1316	N01	E44	04	20.8	3.0	2290	4725	4725A	
19733	BIGB	04	18	1309	N01	E31	04	20.9	2.5	2220	4725	4725A	
19733	BIGB	04	19	1312	N01	E18	04	20.9	2.5	2210	4725	4725A	
19733	BIGB	04	21	1407	N01	W09	04	20.9	2.4	1760	4725	4725A	
19733	BIGB	04	22	1311	N01	W22	04	20.9	2.4	1690	4725	4725A	
19733	BIGB	04	23	1400	N01	W35	04	21.0	2.5	1526	4725	4725A	
19733	BIGB	04	24	1312	N01	W48	04	21.0	2.6	1300	4725	4725A	
19734	BIGB	04	21	1407	N02	E47	04	25.1	4.1	0190	4726		
19734	BIGB	04	22	1311	N02	E29	04	24.7	3.8	0390	4726		
19734	BIGB	04	23	1400	N02	E13	04	24.5	3.7	2470	4726		
19734	BIGB	04	24	1312	N02	E01	04	24.6	3.2	2690	4726		
19734	BIGB	04	27	1435	N02	W44	04	24.3	3.3	3210	4726		
19734	BIGB	04	28	1415	N02	W58	04	24.3	2.9	3020	4726		
19734	BIGB	04	29	1450	N02	W71	04	24.3	3.2	3190	4726		
19734	BIGB	04	30	1639	N02	W81	04	24.6	2.8	2491	4726		
19736	BIGB	04	24	1312	N34	E16	04	25.8	1.5	0110			
19735	BIGB	04	22	1311	N07	E66	04	27.5	3.0	0290	4727		
19735	BIGB	04	23	1400	N06	E48	04	27.2	3.5	0790	4727		
19735	BIGB	04	24	1312	N06	E35	04	27.2	3.7	1170	4727		
19735	BIGB	04	27	1435	N06	W09	04	26.9	2.4	1010	4727		
19735	BIGB	04	28	1415	N06	W22	04	26.9	2.0	0670	4727		
19735	BIGB	04	29	1450	N06	W35	04	27.0	1.9	0970	4727		
19735	BIGB	04	30	1639	N06	W50	04	26.9	3.9	1080	4727		
19735	BIGB	05	01	1256	N06	W60	04	27.1	3.8	1290	4727		
19735	BIGB	05	02	1319	N06	W74	04	27.1	3.6	1731	4727		
19737	BIGB	05	02	1319	N06	W51	04	28.8	2.9	0720	4728		
19737	BIGB	05	03	1827	N06	W73	04	28.4	2.8	1062	4728		
19739	BIGB	04	27	1435	N06	E28	04	29.7	1.7	1020			
19739	BIGB	04	28	1415	N06	E15	04	29.7	1.4	1490			
19739	BIGB	04	29	1450	N06	E01	04	29.7	.7	1150			
19739	BIGB	04	30	1639	N06	W13	04	29.7	1.0	1120			
19739	BIGB	05	01	1256	N06	W25	04	29.8	1.0	1120			
19739	BIGB	05	02	1319	N06	W37	04	29.9	.8	0720			
19738	BIGB	05	03	1827	N36	W43	04	30.3	1.6	0115			

DAILY PLAGE SUMMARIES

APRIL 1986

Day	Sta	Plage Index	Plage Count	Smallest Plage (Millionths	Largest Plage of Solar	Total Area Hemisphere)	Smallest Intensity	Largest Intensity
01	No Observations This DAY							
02	No Observations This DAY							
03	No Observations This DAY							
04	BIGB	8.0	3	220	3010	3530	2.3	3.0
05	BIGB	5.9	2	400	2500	2900	2.4	3.3
06	BIGB	2.8	2	280	1790	2070	1.9	2.0
07	No Observations This DAY							
08	BIGB	1.8	2	1292	1700	2992	1.6	3.2
09	No Observations This DAY							
10	BIGB	5.1	1	2500	2500	2500	3.3	3.3
11	No Observations This DAY							
12	BIGB	7.5	1	2600	2600	2600	3.2	3.2
13	BIGB	9.6	1	3040	3040	3040	3.3	3.3
14	No Observations This DAY							
15	No Observations This DAY							
16	BIGB	11.8	3	1820	2520	6280	2.5	3.4
17	BIGB	11.0	3	1440	2290	5550	2.5	3.0
18	BIGB	9.4	3	1400	2220	5100	2.3	2.5
19	BIGB	9.0	3	1350	2210	4943	2.2	2.5
20	No Observations This DAY							
21	BIGB	7.2	3	190	1760	3270	2.0	4.1
22	BIGB	7.6	4	290	1690	3580	2.2	3.8
23	BIGB	15.7	4	790	2470	5946	2.3	3.7
24	BIGB	15.3	5	110	2690	6020	1.5	3.7
25	No Observations This DAY							
26	No Observations This DAY							
27	BIGB	11.4	3	1010	3210	5240	1.7	3.3
28	BIGB	7.7	3	670	3020	5180	1.4	2.9
29	BIGB	5.3	3	970	3190	5310	.7	3.2
30	BIGB	4.6	3	1080	2491	4691	1.0	3.9

DAILY PLAGE AREAS FOR APRIL 1986



BIG BEAR SOLAR OBSERVATORY
ACTIVE REGION SUMMARY

APRIL 1986

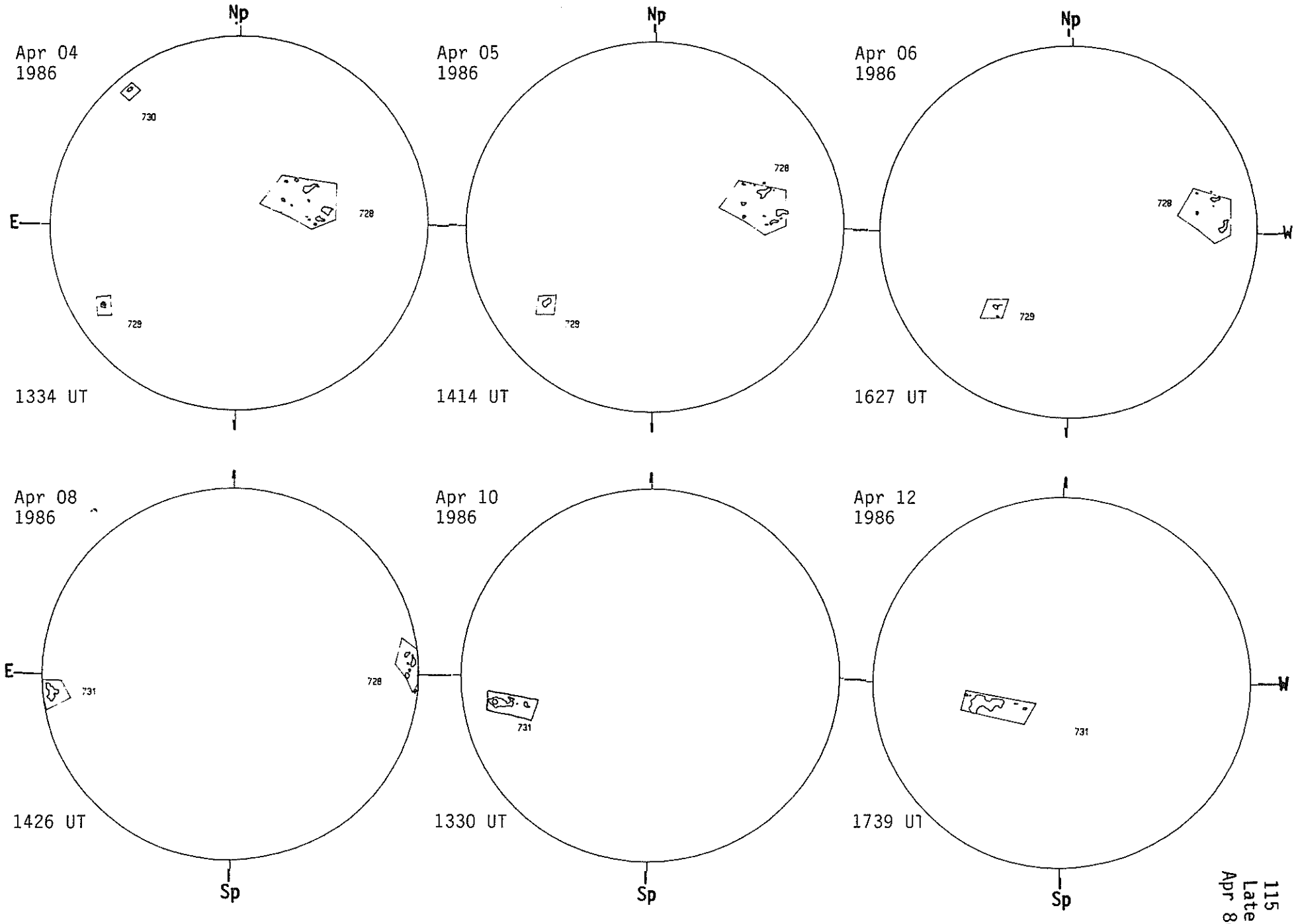
Region Number	Return Of Region	Rotation Age	First Seen This Rotation	Duration This Rotation
19728	19714	3	860327	13 days
19730	New	1	860404	01
19729	New	1	860404	≥03
19731	19722 and New	2 & 1	860408	13
19732	New	1	860416	≥09
19733	New	1	860416	≥09
19734	New	1	860421	10
19736	New	1	860424	≥01
19735	New	1	860422	11
19737	New	1	860502	≥02
19739	19728	4	860427	≥06

1. No BBSO CaK Data on April 01-03, 7, 9, 11, 14, 15, 25 and 26.

2. No KPNO Magnetograms on April 2, 6, 7, 10, 14 and 16.

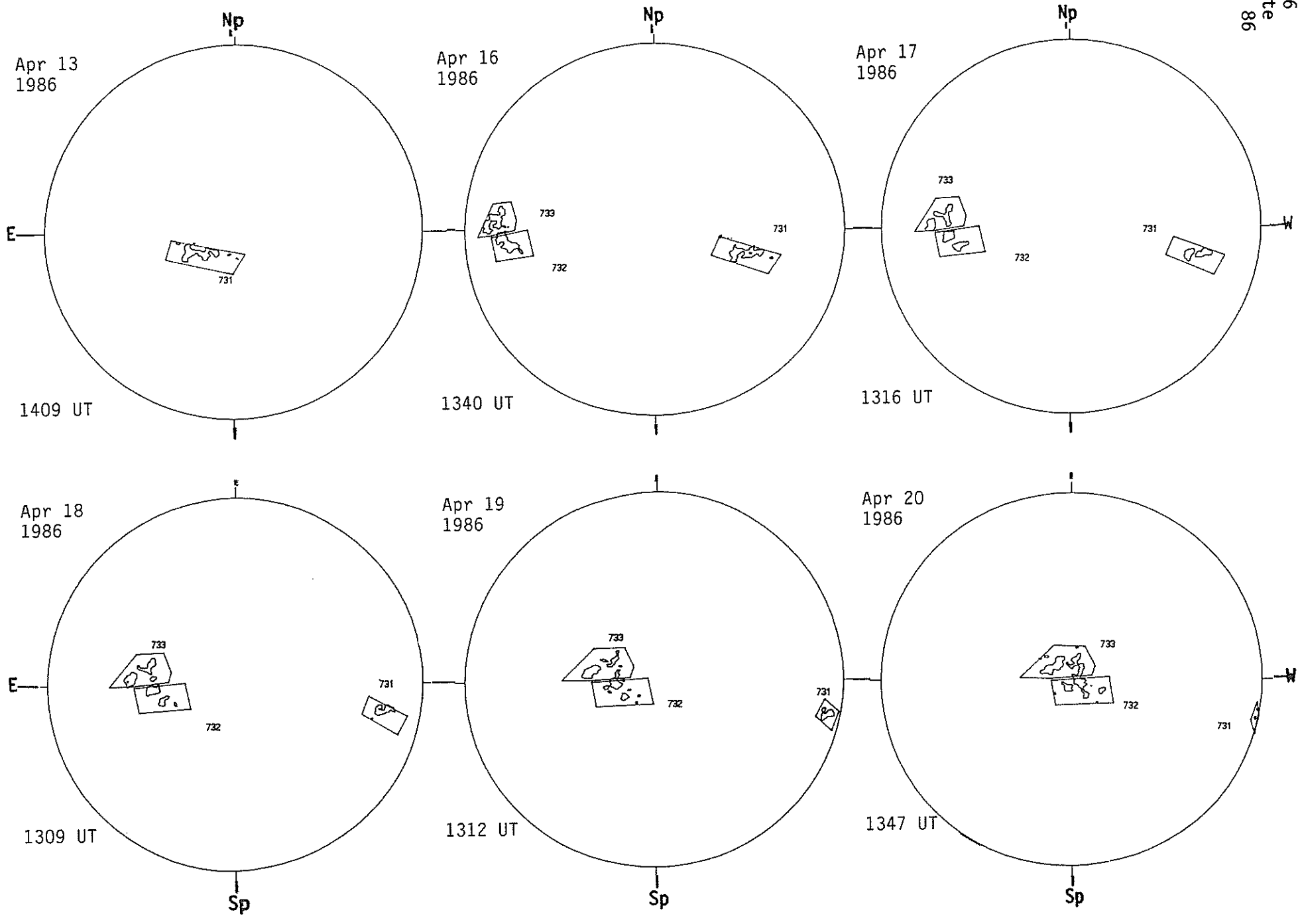
3. Contiguous Plages: 19732 and 19733

BIG BEAR SOLAR CALCIUM PLAGE REGIONS

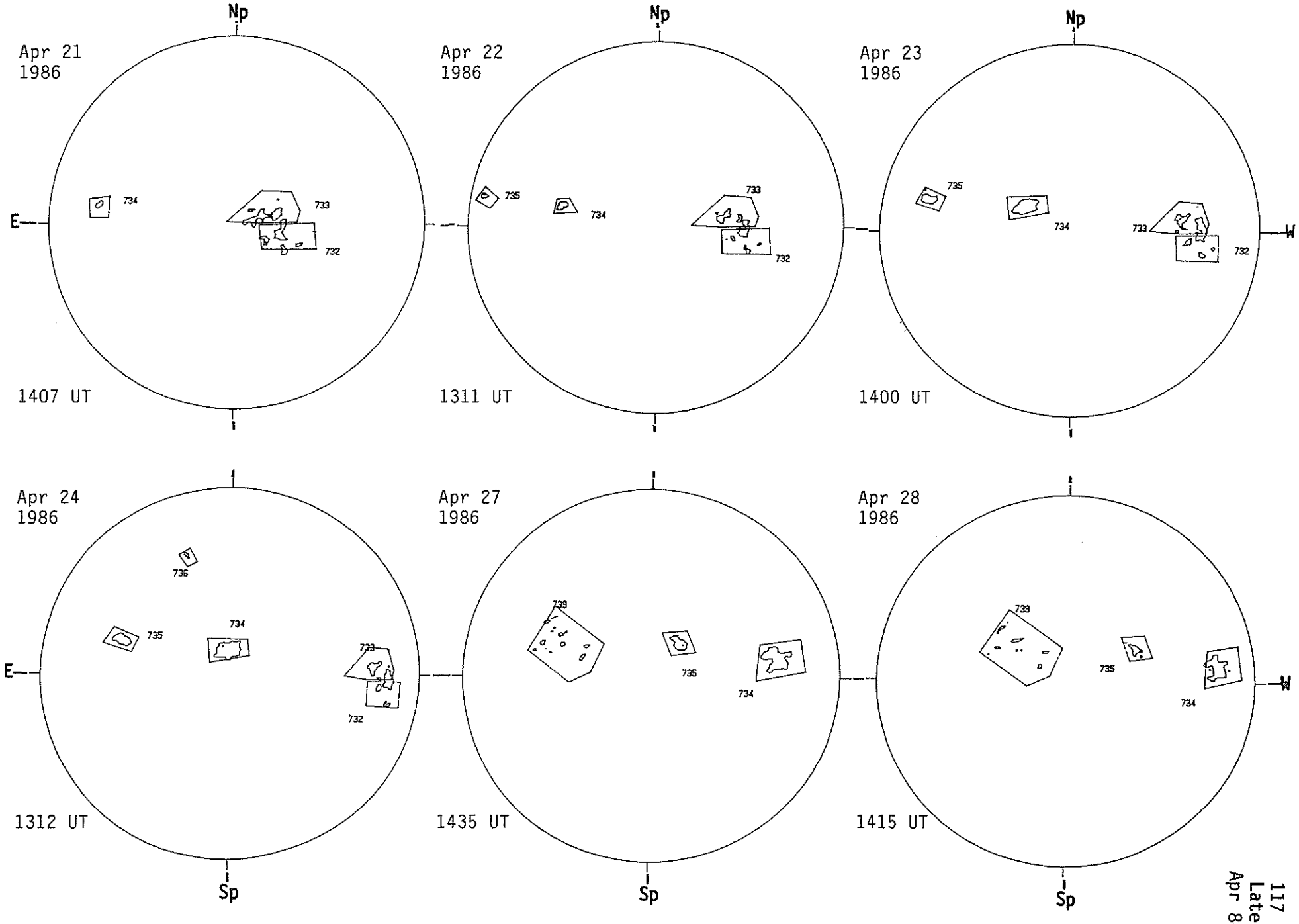


115
Late
Apr 86

BIG BEAR SOLAR CALCIUM PLAGE REGIONS

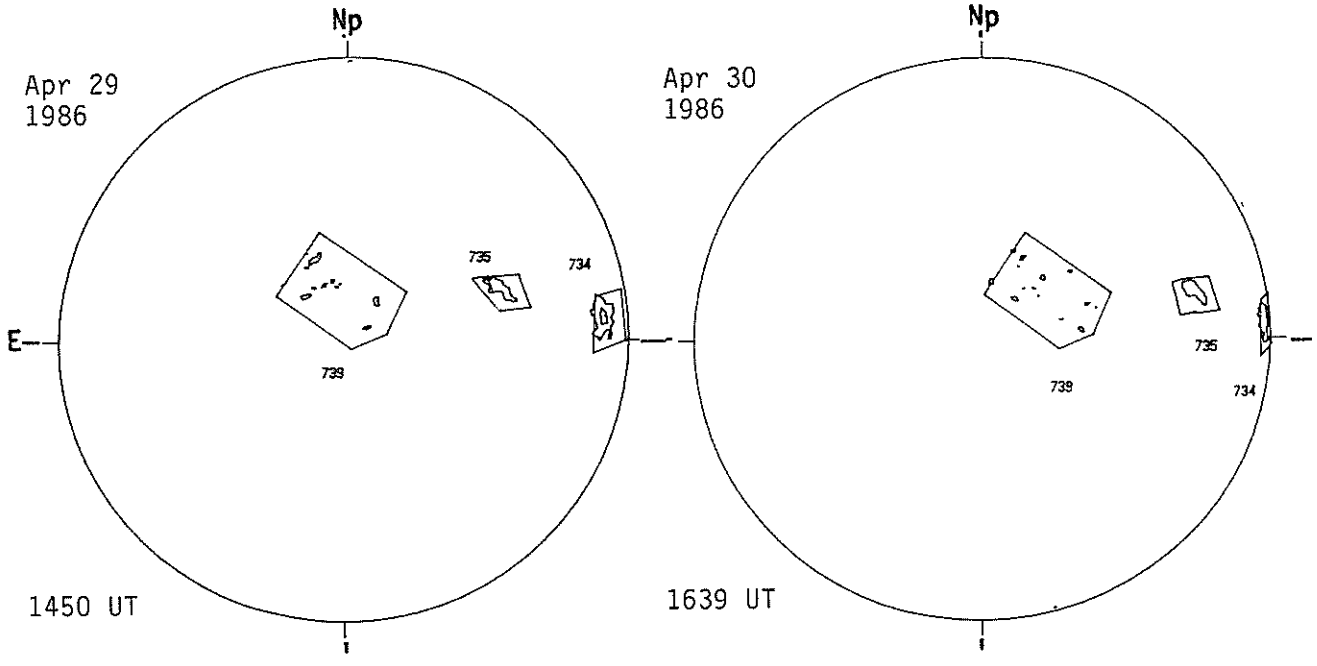


BIG BEAR SOLAR CALCIUM PLAGE REGIONS

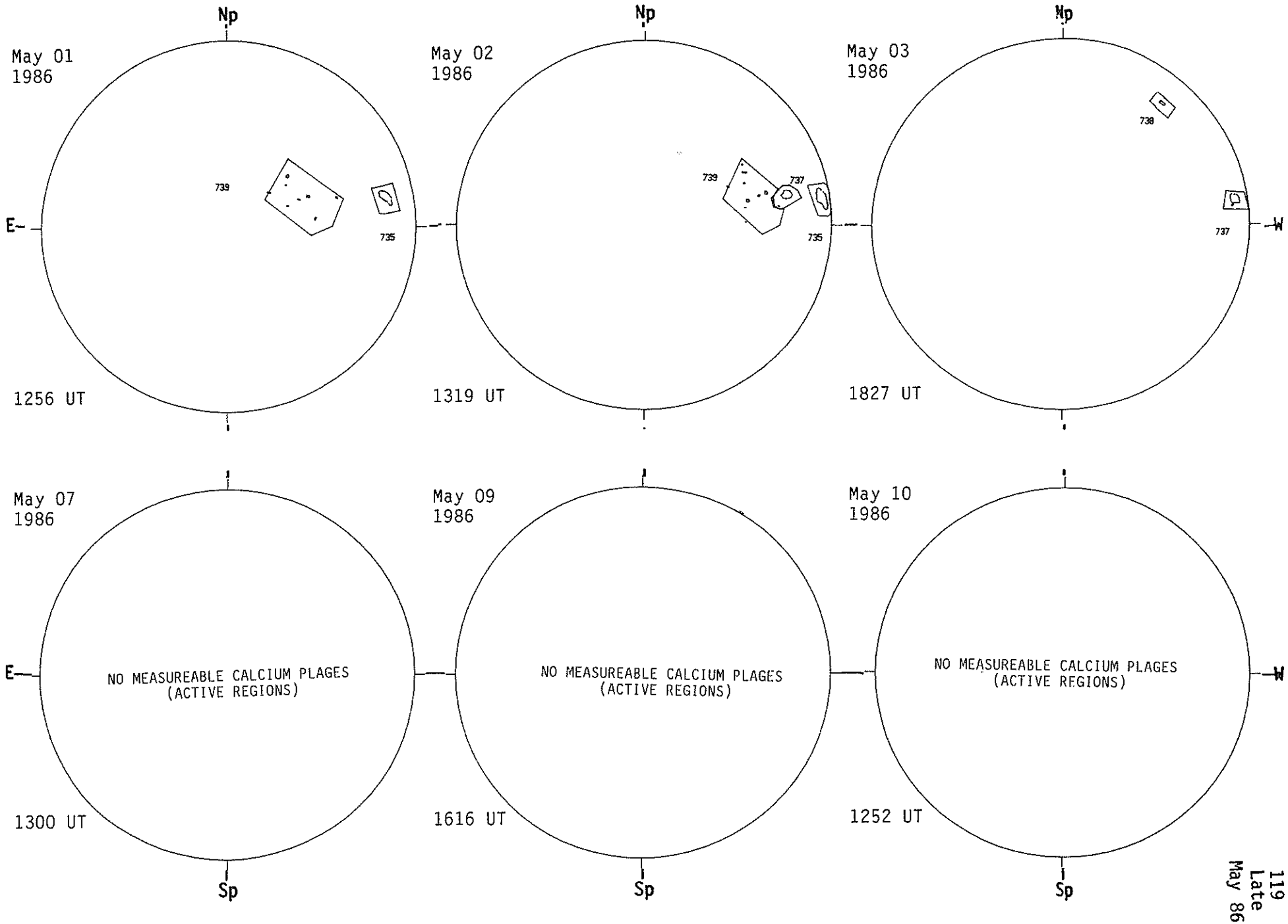


117
Late
Apr 86

BIG BEAR SOLAR CALCIUM PLAGE REGIONS



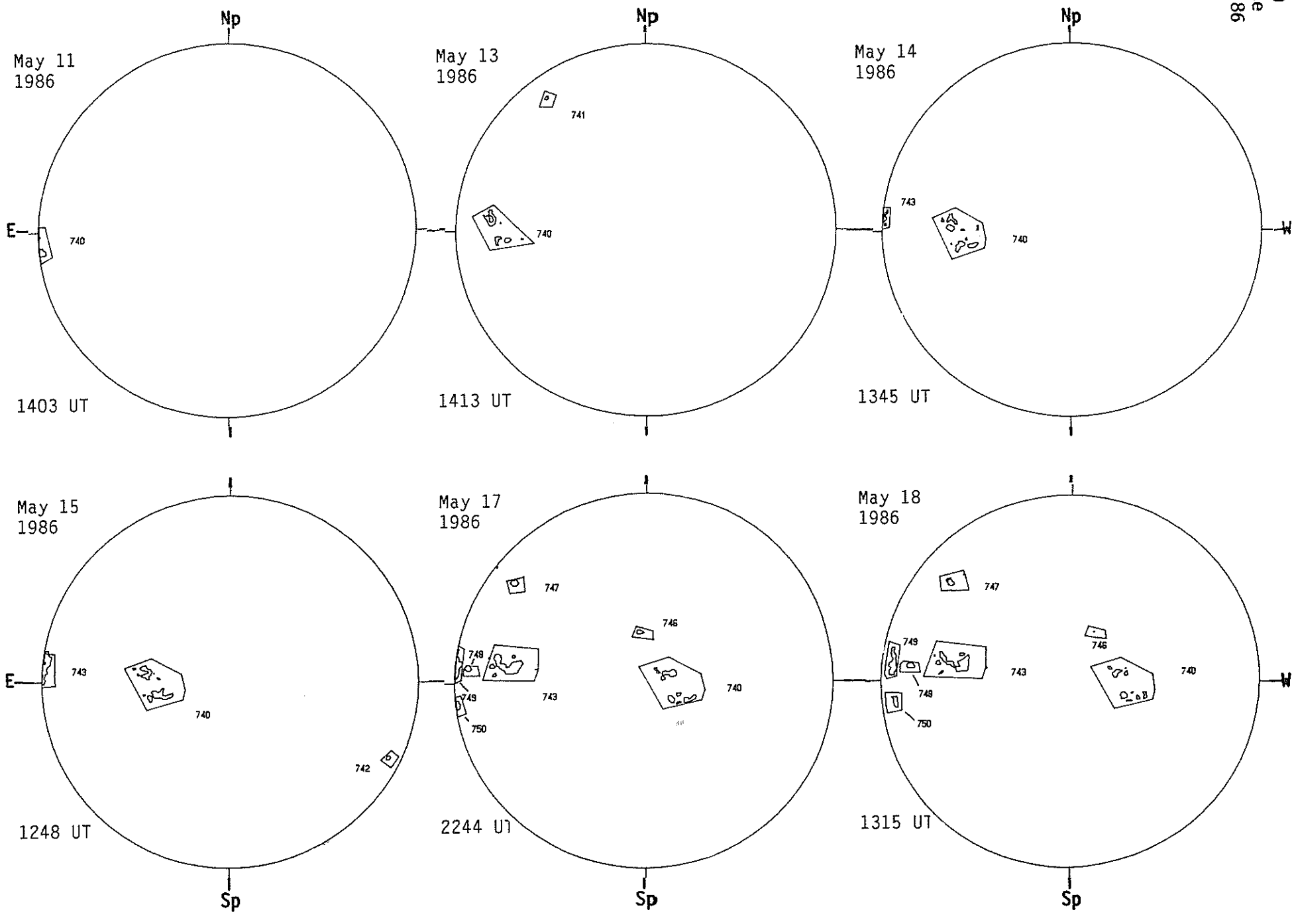
BIG BEAR SOLAR CALCIUM PLAGE REGIONS



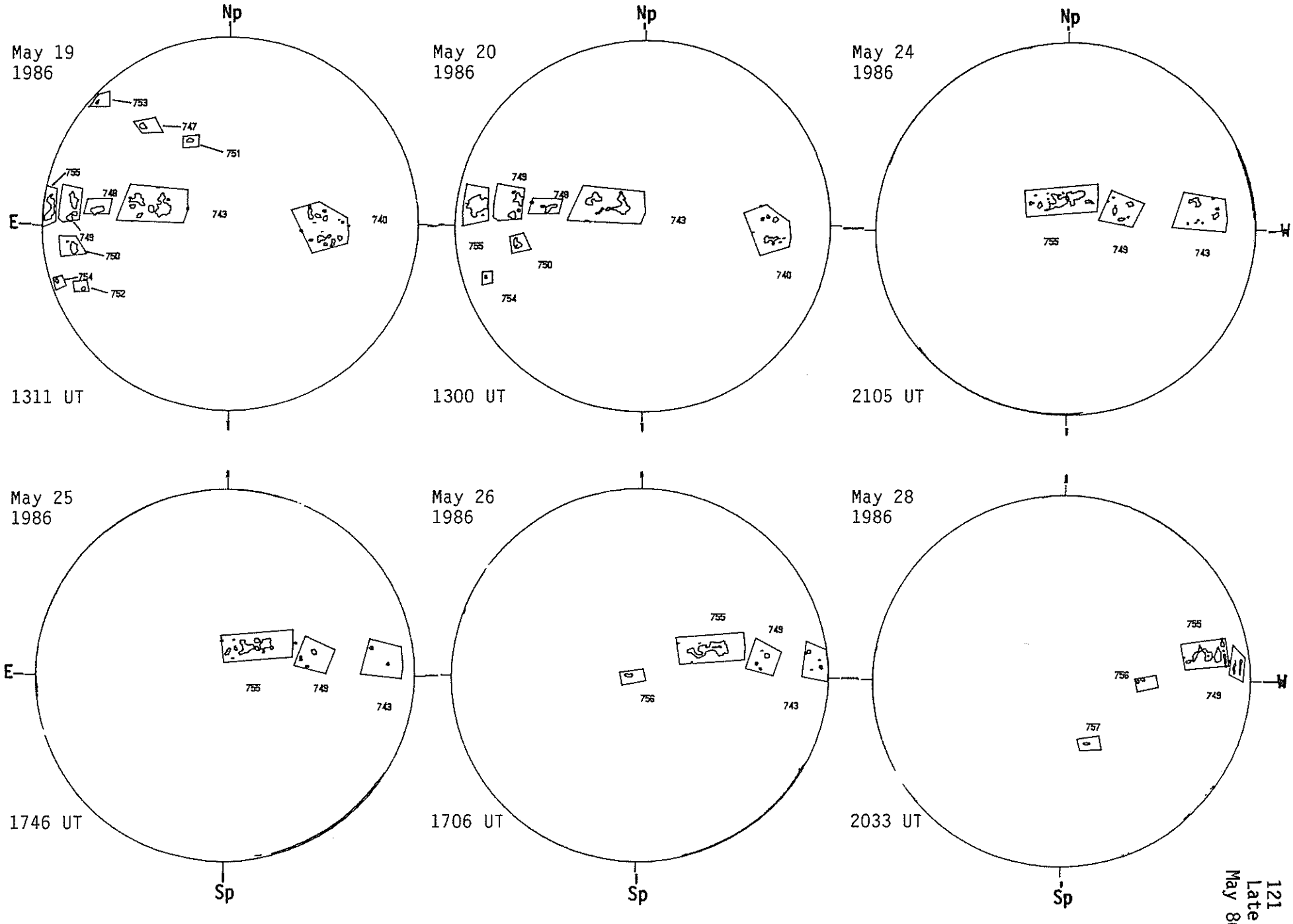
119
Late
May 86

BIG BEAR SOLAR CALCIUM PLAGE REGIONS

120
Late
May 86

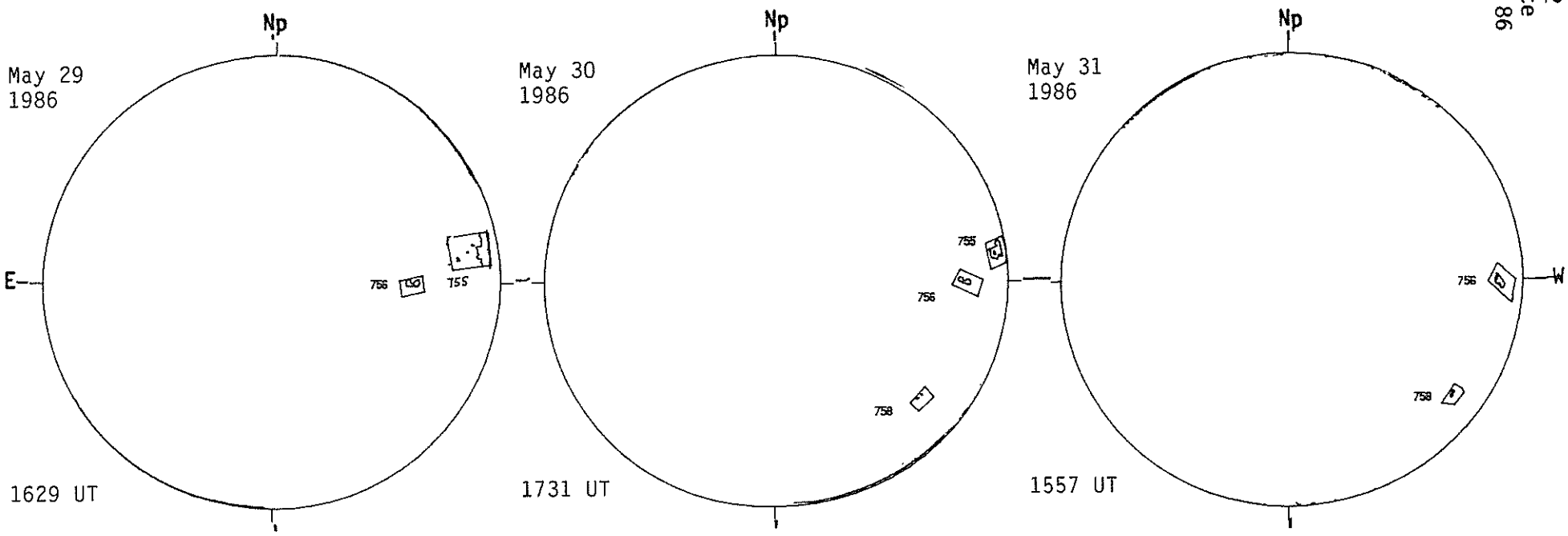


BIG BEAR SOLAR CALCIUM PLAGE REGIONS



121
Late
May 86

BIG BEAR SOLAR CALCIUM PLAGE REGIONS



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The ICSU Panel on WDCs has recommended that it would be appropriate courtesy to acknowledge in publications that data were obtained from the originating station or investigator through the intermediary of the WDCs. The following statement is suggested:

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