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Solar - Geophysical Data

Part I (Prompt Reports)

NO. 509 JANUARY 1987

DATA FOR
DECEMBER 1986
NOVEMBER 1986

Michael A. Chinnery, Director
NATIONAL GEOPHYSICAL DATA CENTER
BOULDER, COLORADO

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S O L A R - G E O P H Y S I C A L D A T A

NUMBER 509

(Issued in Two Parts)

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C O N T E N T S

PART I (PROMPT REPORTS)

PART II (COMPREHENSIVE REPORTS)

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Prompt Reports DATA FOR DECEMBER 1986 Number 509 Part I

ALERT PERIODS

INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

Summary of the Geoalert Messages **DECEMBER 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
335	01	30	000	073	010	Spotnil				01	Spotnil		Solquiet, Magquiet.
336	02	01	000	073	012	Spotnil				02	Spotnil		Solquiet, Magquiet.
337	03	02	000	073	007	Spotnil				03	Spotnil		Solquiet, Magquiet.
338	04	03	000	072	006	Spotnil				04	Spotnil		Solquiet, Magquiet.
339	05	04	000	071	008	Spotnil				05	Spotnil		Solquiet, Magquiet.
340	06	05	000	072	005	Spotnil				06	Spotnil		Solquiet, Magquiet.
341	07	06	000	071	004	Spotnil				07	Spotnil		Solquiet, Magquiet.
342	08	07	000	070	005	Spotnil				08	Spotnil		Solquiet, Magquiet.
343	09	08	000	071	005	Spotnil				09	Spotnil		Solquiet, Magquiet.
344	10	09	014	073	005	N26 E39	0	0	0	10	N26 E39	Q	Solquiet, Magquiet.
345	11	10	028	075	009	N26 E25 S28 E68	0 1	0 0	0 0	11	N26 E25 S28 E68	Q Q	Solquiet, Magquiet.
346	12	11	026	075	008	N27 E13 S28 E56	0 0	0 0	0 0	12	N27 E13 S28 E56	Q Q	Solquiet, Magquiet.
347	13	12	023	073	005	N28 E02 S28 E43	1 2	0 0	0 0	13	N28 E02 S28 E43	Q Q	Solquiet, Magquiet.
348	14	13	024	074	005	N28 W11 S29 E31	0 0	0 0	0 0	14	N28 W11 S29 E31	Q Q	Solquiet, Magquiet.
349	15	14	011	074	019	S32 E18	0	0	0	15	S32 E18	Q	Solquiet, Magquiet.
350	16	15	000	073	005	Spotnil				16	Spotnil		Solquiet, Magalert Minor 16.
351	17	16	000	073	010	Spotnil				17	Spotnil		Solquiet, Magnil.
352	18	17	000	074	004	Spotnil				18	Spotnil		Solquiet, Magquiet.
353	19	18	000	074	002	Spotnil				19	Spotnil		Solquiet, Magquiet.
354	20	19	000	073	005	Spotnil				20	Spotnil		Solquiet, Magquiet.
355	21	20	000	073	007	Spotnil				21	Spotnil		Solquiet, Magquiet.
356	22	21	014	073	010	S26 E29	4	0	0	22	S26 E29	Q	Solquiet, Magquiet.
357	23	22	017	074	015	S26 E16	0	0	0	23	S26 E16	Q	Solquiet, Magquiet.
358	24	23	016	072	021	S27 E03	0	0	0	24	S27 E03	Q	Solquiet, Magquiet.
359	25	24	014	072	013	S27 W08	0	0	0	25	S27 W08	Q	Solquiet, Magquiet.
360	26	25	000	072	010	Spotnil				26	Spotnil		Solquiet, Magquiet.

ALERT PERIODS

INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

Summary of the Geoalert Messages **DECEMBER 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
361	27	26	000	072	012	Spotnil				27	Spotnil		Solquiet, Magquiet.
362	28	27	000	072	010	Spotnil				28	Spotnil		Solquiet, Magalert 28/28 Recurrence.
363	29	28	000	072	008	Spotnil				29	Spotnil		Solquiet, Magnil.
364	30	29	000	072	006	Spotnil				30	Spotnil		Solquiet, Magquiet.
365	31	30	000	072	002	Spotnil				31	Spotnil		Solquiet, Magquiet.
001	01	31	012	070	007	N07 E26	0	0	0	01	N07 E26	Q	Solquiet, Magquiet.

[1]Q = quiet, E = eruptive, A = active, P = proton.

INTERNATIONAL (R_I) RELATIVE SUNSPOT NUMBERS

Day	1986 Final Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Prov Oct	Nov	Dec
01	0	18	16	9	15	7	0	12	9	11	46	0
02	0	33	33	10	26	0	0	11	9	14	35	0
03	0	52	34	10	15	0	11	11	8	23	36	0
04	0	55	32	0	12	0	14	11	8	24	37	0
05	0	53	33	0	10	0	18	11	0	24	33	0
06	0	47	33	0	0	0	29	10	11	25	29	0
07	0	52	38	0	0	0	29	8	13	27	24	0
08	0	54	29	9	0	9	29	9	12	20	15	0
09	0	47	22	0	0	0	17	8	10	32	8	12
10	0	35	20	9	0	8	36	0	8	31	9	17
11	0	37	18	13	0	0	39	0	8	23	9	23
12	0	25	13	14	0	0	36	0	0	28	0	24
13	13	22	8	13	0	0	25	0	0	22	0	24
14	16	16	0	26	0	0	16	0	0	0	11	14
15	13	11	10	25	10	0	28	0	0	0	11	0
16	10	0	0	21	12	0	26	9	0	15	11	10
17	0	0	0	13	13	0	28	8	0	16	12	9
18	0	0	0	15	22	0	14	0	0	22	11	0
19	0	0	0	13	27	0	13	0	0	31	12	0
20	0	10	12	16	27	0	18	11	0	39	12	0
21	0	10	13	22	30	0	21	12	0	47	11	11
22	0	10	10	20	27	0	22	12	0	54	10	16
23	0	10	15	42	24	0	14	14	0	67	18	16
24	0	8	14	58	24	0	0	9	0	76	11	13
25	0	11	10	43	22	8	0	9	0	72	9	9
26	7	9	10	43	28	0	0	9	0	60	0	0
27	0	15	11	33	19	0	12	9	0	65	14	0
28	0	10	13	23	18	0	13	9	0	61	0	0
29	0		11	28	19	0	17	9	8	63	8	0
30	10		11	27	13	0	19	9	9	62	0	0
31	10		0		12		17	9		53		0
Mean	2	23	15	18	14	1	18	7	4	36	15	6

The provisional annual mean sunspot number for 1986 is 13.3.

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

ALGONQUIN RADIO OBSERVATORY, OTTAWA

Day	Jan 86	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
01	67.0	81.8	84.1	71.8	72.5	71.1	68.9	72.8	69.8	71.2	87.6*	70.7
02	67.6	86.4*	89.2	70.6	74.3	69.8	68.7	72.3	69.2	71.6	84.1	70.6
03	68.4	96.0	91.1*	70.9	73.8	69.9	68.9	72.9	69.3	72.1	80.8	70.2
04	69.5	97.8*	91.4	71.7	71.6	69.3	69.3	71.6	69.4	70.7	82.3	69.2
05	70.7	99.8	90.5	71.9	70.8	69.3	71.1	71.7	69.6	71.1	81.5	70.0
06	72.2	99.0	89.7*	71.9	69.8	69.8	73.9	72.1	69.5	72.4	80.6	69.1
07	71.6	96.7	87.6	71.9	69.9	70.0	72.1	71.9	69.9	74.3	76.9	68.2
08	71.2	94.3*	85.1	71.8	69.5	70.2	71.6	71.3	69.4	74.8	73.5	69.1
09	72.7	92.5	84.3	72.0	69.8	71.1	72.5	71.3	69.4	74.6	71.9	70.8
10	72.2	93.4*	81.6	72.5	70.9	70.3	75.0	70.5	69.3	73.3	70.4	72.3
11	71.9	95.1	79.3	72.4	71.4	70.1	74.7	68.6	68.8	73.2	69.9	73.0†
12	71.2	88.4	76.9	73.1	70.9	70.5	73.5	68.4	68.8	75.3	71.4	71.1
13	74.3	86.4	74.3	74.2	71.7	70.4	74.2	67.9	69.0	75.1	76.0*	71.5
14	76.4	86.2*	71.9	76.0	71.6	72.1	74.6	68.2	70.0	75.0	74.1	71.4
15	75.1	79.6	69.7	76.0	72.7	71.3	74.0	69.5	71.5	71.8	75.1	70.9
16	75.5*	71.2	68.9	75.8	74.3	70.7	74.4	69.4	70.5	79.1	75.0	70.8
17	74.4	68.3	68.9	75.3	75.3	69.8	74.9	68.9	69.2	82.6	73.8	71.7
18	73.1	68.7	68.9	74.4	78.7	69.9	74.6	69.1	68.8	86.3	73.0	71.4
19	70.2	68.1	68.8	74.9	78.7	69.6	73.3	69.3	68.7	88.6	72.5	71.0
20	69.2	68.1	68.4	75.0	79.6	69.6	73.2	70.7	68.6	92.2	72.5	70.4
21	67.9	66.0	68.5	74.2	79.2	69.2	72.5	70.5	68.8	91.5	74.1	70.6
22	67.3	67.7	69.1	75.1	79.2	69.7	73.2	70.1	68.3	94.4	74.5	71.4
23	67.0	67.7	69.8	82.1	78.8	69.6	71.6	69.6	68.7	97.9	75.8	70.8
24	66.9	68.6	69.5	87.4	79.5	68.4	71.2	69.1	68.8	97.3	77.0	70.0
25	68.0	70.1	69.6	85.7	81.1	68.5	70.9	69.3	69.4	94.4	75.5	70.0
26	67.7	72.0	70.8	84.2*	77.1	68.2	71.1	69.9	68.5	94.2	74.3	69.7
27	67.2	75.2	70.2	83.4	74.7	68.6	71.6	69.1	68.9	94.3	73.6	69.4
28	70.0	77.0	70.4	80.1	74.3	68.3	72.5	68.8	70.3	93.6	73.1	69.2
29	71.2		71.5	77.0	74.3	68.3	74.0	68.8	71.5	91.4	72.4	69.2
30	73.7		71.5	74.7	72.5	68.3	73.6	69.3	71.6	89.8	70.9	69.6
31	76.6		71.5		73.2		72.6	69.6		89.2		68.1
Mean	70.9	81.5	76.2	75.6	74.2	69.7	72.5	70.1	69.4	82.4	75.5	70.4

A = interpolated value; --- = no observation.
* = adjusted for burst in progress at time of measurement; † = uncorrected value - interference during calibration.
The annual mean adjusted 2800 MHz flux for 1986 is 74.7.

DAILY SOLAR INDICES

December 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	335	7	0		72.7	478	238	109	70.7	56	51	43	16	11
02	336	8	0		72.6	478	230	109	70.6	67	51	41	16	12
03	337	9	0		72.3	447	224	107	70.2	62	51	39	17	9
04	338	10	0		71.3	481	233	108	69.2	63	49	40	17	9
05	339	11	0		72.1	425	232	106	70.0	63	50	40	17	9
06	340	12	0		71.2	424	236	107	69.1	68	48	39	16	9
07	341	13	0		70.3	476	236	105	68.2	72	49	39	15	12
08	342	14	0		71.2	478	242	106	69.1	70	49	39	20	10
09	343	15	12		73.0	436	237	107	70.8	65	50	41	17	10
10	344	16	17		74.5	472	241	109	72.3	69	51	41	17	14
11	345	17	23		75.3#	484	248	109	73.0#	78	52	41	17	10
12	346	18	24		73.4	471	242	108	71.1	67	51	40	15	12
13	347	19	24		73.8	434	238	107	71.5	69	52	43	16	9
14	348	20	14		73.7	440	231	106	71.4	69	51	42	18	15
15	349	21	0		73.2	475	258	109	70.9	70	52	41	18	11
16	350	22	10		73.1	464	230	109	70.8	69	52	41	17	11
17	351	23	9		74.1	464	244	108	71.7	68	52	42	17	11
18	352	24	0		73.8	395	227	108	71.4	68	--	42	16	12
19	353	25	0		73.3	424	228	104	71.0	68	52	41	20	11
20	354	26	0		72.7	470	240	107	70.4	67	51	42	20	13
21	355	27	11		72.9	476	238	106	70.6	75	51	43	21	13
22	356	1	16		73.8	476	234	106	71.4	69	51	42	21	12
23	357	2	16		73.2	465	231	104	70.8	68	51	42	19	9
24	358	3	13		72.4	454	236	108	70.0	69	51	37	19	10
25	359	4	9		72.4	441	227	108	70.0	67	50	36	19	10
26	360	5	0		72.1	473	242	107	69.7	67	49	37	18	10
27	361	6	0		71.8	415	239	106	69.4	68	49	41	19	9
28	362	7	0		71.6	475	246	109	69.2	68	49	40	19	10
29	363	8	0		71.6	476	240	108	69.2	67	49	40	19	9
30	364	9	0		72.0	441	237	107	69.6	62	49	40	18	9
31	365	10	0		70.4	470	239	110	68.1	68	49	40	19	8
Mean			6		72.6	457	236	107	70.4	67	50	40	18	11

All sunspot numbers shown above are preliminary values. The American sunspot numbers were unavailable at time of publication.

The observed and the adjusted Ottawa fluxes tabulated here are the "Series C" daily values reported by the Algonquin Radio Observatory, Ottawa, Ontario, Canada. Numbers in parentheses in the column headings denote frequencies in MHz. Qualifiers after an entry have the following meaning:

* = adjusted for burst in progress at time of measurement.
# = uncorrected for interference during calibration.
A = interpolated

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

OBSERVED AND PREDICTED SOLAR ACTIVITY INDICES

DECEMBER 1986

	RELATIVE SUNSPOT NUMBERS						2800 MHz RADIO FLUX	
	International (Ri)		American (Ra)		Derived (Rs)		Adjusted to 1 AU (Sa)	
Date	Monthly Mean	Smoothed	Monthly Mean	Smoothed	Monthly Mean	Smoothed	Monthly Mean	Smoothed
Mar 83	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	12	19.6	18	75.6	74
May	13.7	14*	11.6	12	18.1	18	74.2	74
Jun	1.1	14*	0.8	13	13.3	18	69.7	74
Jul	18.1	14(2)*	17.7	13	16.3	18	72.5	--
Aug	7.4	14(2)*	7.6	13	13.7	17	70.1	--
Sep	3.8	15(3)*	3.5	14	13.0	18	69.4	--
Oct	35.7†	16(4)*	19.8	15	27.0	20	82.4	--
Nov	14.7†	17(5)*	14.7	16	19.5	21	75.5	--
Dec	6.4†	19(7)*	----	17	14.0	22	70.4	--
Jan 87	----	20(8)*	----	19	----	24	----	--
Feb	----	22(10)*	----	20	----	25	----	--
Mar	----	24(11)*	----	22	----	27	----	--
Apr	----	26(14)*	----	24	----	29	----	--
May	----	29(17)*	----	27	----	33	----	--
Jun	----	34(20)*	----	31	----	38	----	--

*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: CYCLES 21 AND 22

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
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	14	14	14	14	15	16	17	19
							(2)	(2)	(3)	(4)	(5)	(7)
1987	20	22	24	26	29	34	38	41	44	47	50	54
	(8)	(10)	(11)	(14)	(17)	(20)	(22)	(25)	(28)	(31)	(33)	(35)
1988	59	64	68	73	76	78	81	85	89	94	100	106
	(39)	(43)	(46)	(49)	(52)	(54)	(54)	(54)	(57)	(60)	(62)	(65)
1989	109	113	116	118	120	121	121	123	123	121	120	119
	(65)	(67)	(71)	(74)	(75)	(75)	(76)	(76)	(75)	(71)	(65)	(59)

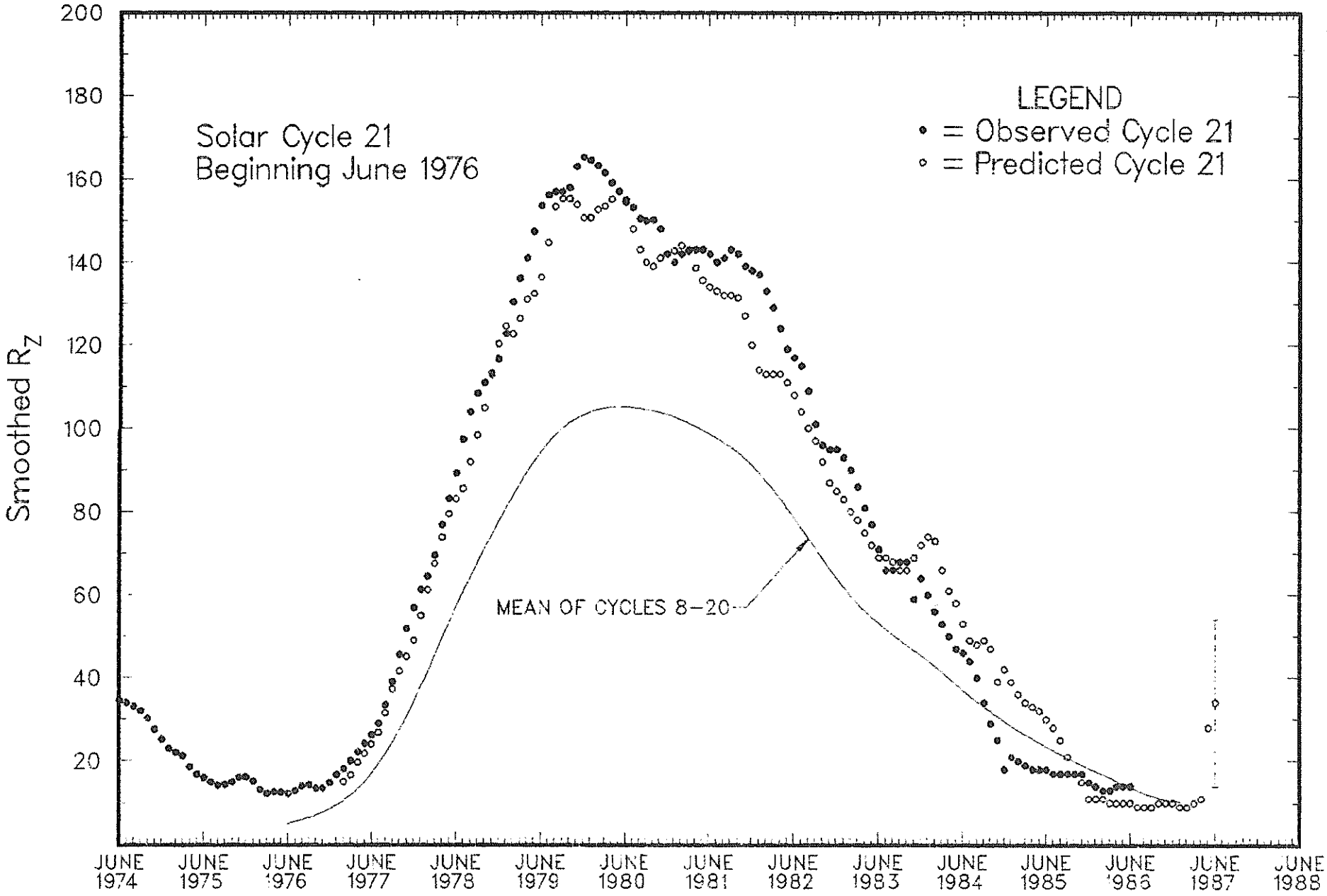
*March 1986 may be the onset of Sunspot Cycle 22.

For the end of Solar Cycle 21, and perhaps the beginning of Cycle 22, the 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, unsmoothed monthly means through September 1986 and on provisional ones thereafter.

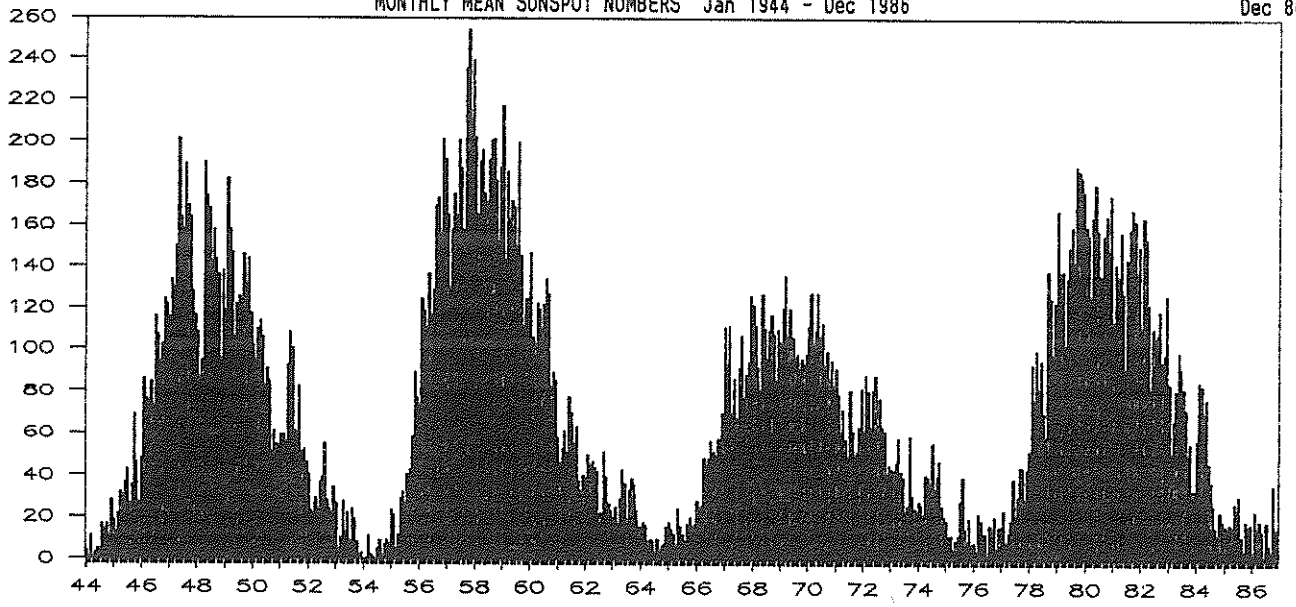
Table entries, with numbers in parentheses below them, denote predictions by the McNish-Lincoln method. (See page 9 in the March 1986 supplement to Solar-Geophysical Data.) Adding the number in parentheses to the predicted value generates the upper limit of the 90% confidence interval; subtracting the number from the predicted value generates the lower limit. Consider, for example, the June 1987 prediction. There exists a 90% chance that in June 1987 the actual smoothed sunspot number will fall somewhere between 14 and 54.

THE MCNISH-LINCOLN PREDICTION METHOD GENERATES USEFUL ESTIMATES OF SMOOTHED, MONTHLY MEAN SUNSPOT NUMBERS FOR NO MORE THAN 12 MONTHS AHEAD. Beyond a year the predictions regress rapidly toward the mean of all 14 cycles used in the computation. Moreover, 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. The new-cycle predictions tabulated above are based on the assumption that the March 1986 value of 13.0 is the minimum. If a smoothed number lower than 13.0 occurs, the predictions will change.

OBSERVED AND 1-YEAR-AHEAD PREDICTED SMOOTHED SUNSPOT NUMBERS



MONTHLY MEAN SUNSPOT NUMBERS Jan 1944 - Dec 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*	14.7*	6.4*	13.4*

*Preliminary

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

H - ALPHA SOLAR FLARES

DECEMBER 1986

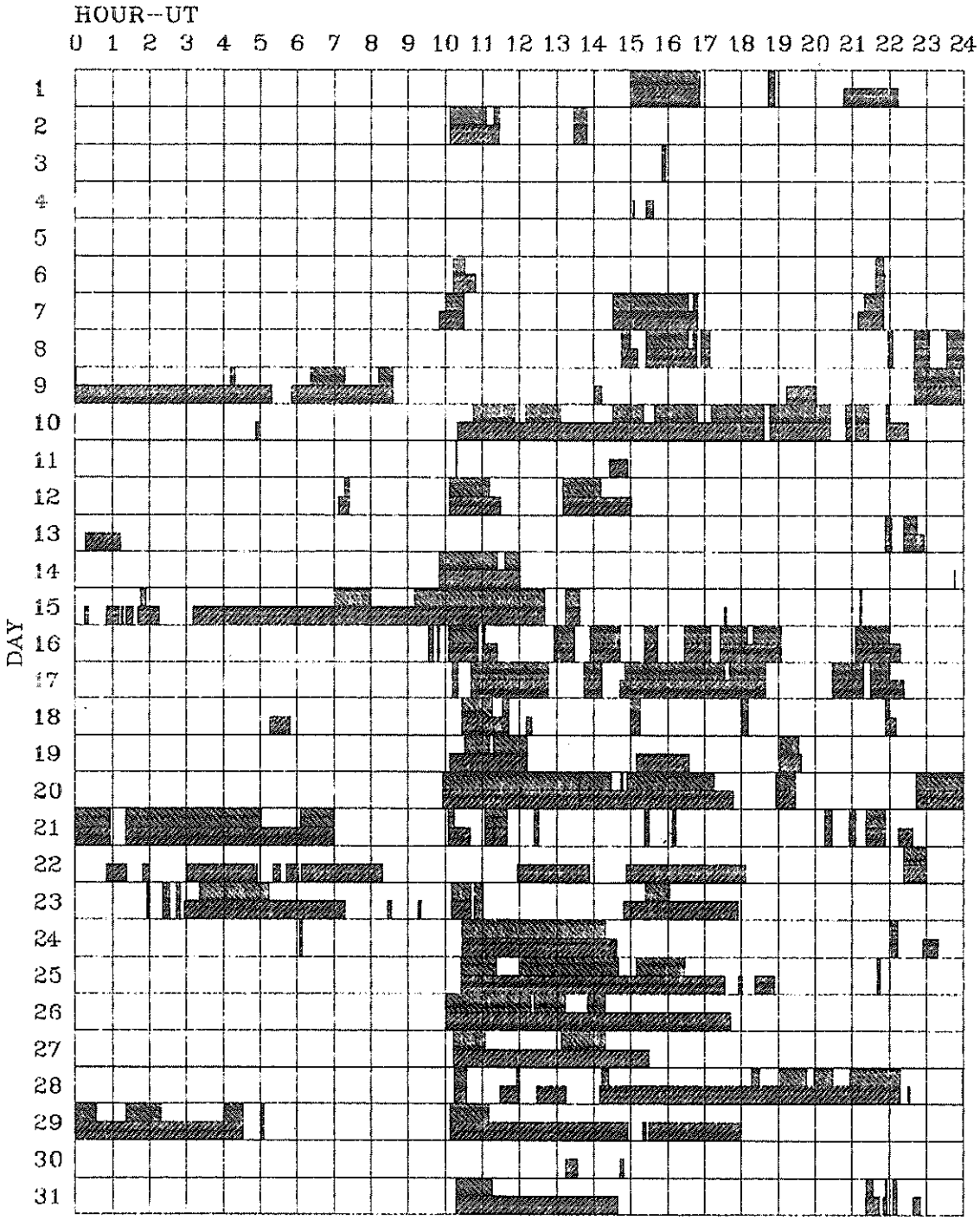
Grp #	Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp Opt	Xray	See	Obs Type	Time (UT)	Area Measurement Apparent (10^{-6} Disk)	Area Measurement Corr (Sq Deg)	Remarks
0001	LEAR	10	0256	0258	0303	S27	E75	4761	12	16.0	7	SF		3	C		19		
0002	RAMY	12	1904	1906	1920	S30	E48	4761	12	16.6	16	SF		3	C		19		
0003	RAMY	12	1917	1918	1922	N27	E04	4760	12	13.1	5	SF		3	C		26		
0004	HOLL	12	2151	2154	2209	S31	E46	4761	12	16.5	18	SF		3	C		80		H
0005	RAMY	21	1339	1342	1416	S26	E35	4762	12	24.3	37	SF		3	C		22		
0006	RAMY	21	1755	1801	1824	S26	E34	4762	12	24.4	29	SN		3	C		35		
0007	RAMY	21	1912	1918	1928	S27	E33	4762	12	24.4	16	SN		3	C		44		
0008	HOLL	21	1950	1951	2001	S28	E31	4762	12	24.2	11	SF		2	C		19		
0009	HOLL	21	2025	2043	2048	S28	E31	4762	12	24.3	23	SF		3	C		28		

"Remarks"

A = Eruptive prominence whose base is less than 90 degrees 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

DECEMBER 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.

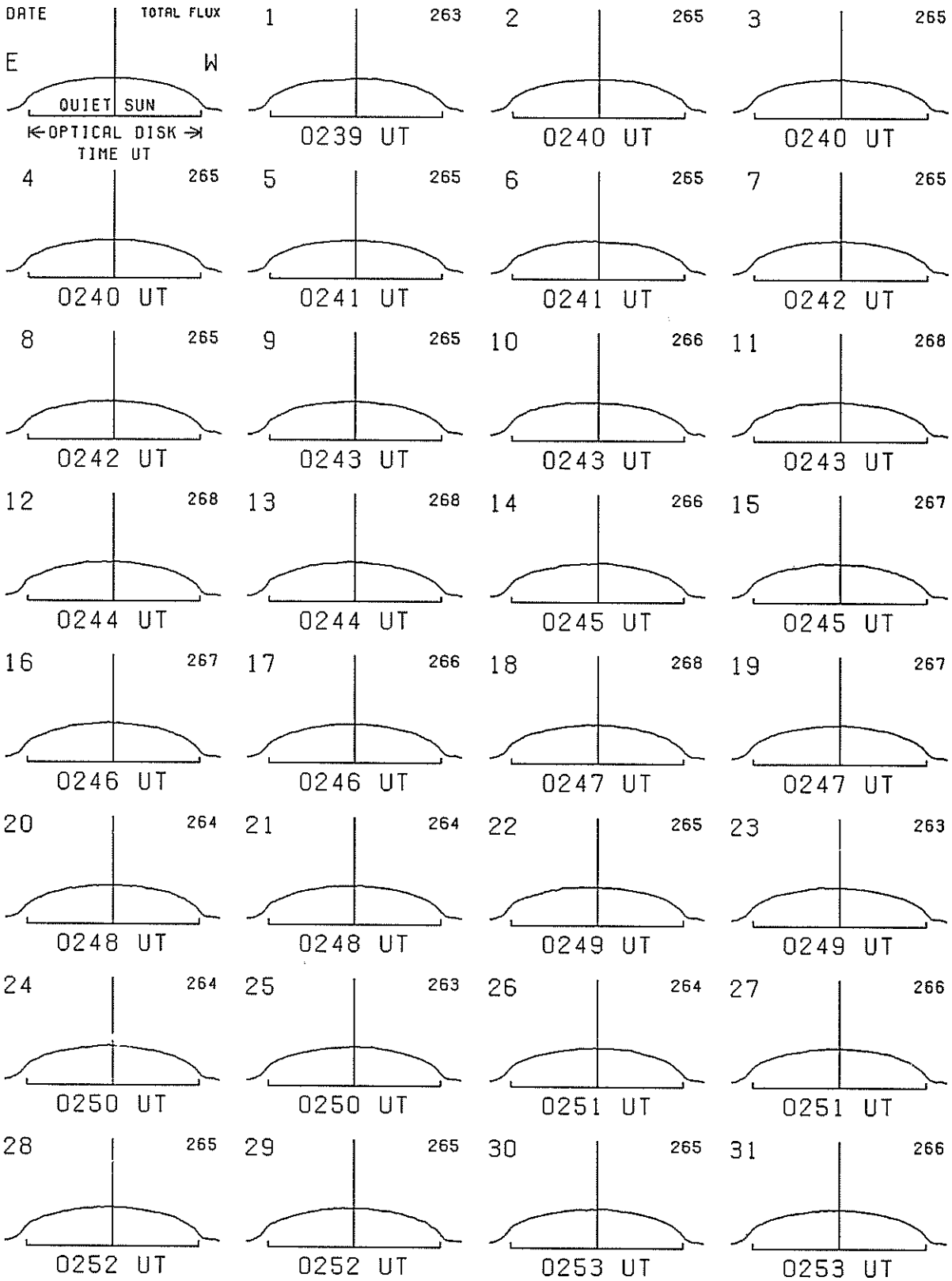
Bucharest	Istanbul	Learmonth	Purple Mt.	Urumqi
Holloman	Kharkov	Manila	Ramey	Wendelstein
		Palehua	San Vito	Yunnan

EAST-WEST SOLAR SCANS

DECEMBER 1986

TOYOKAWA, JAPAN

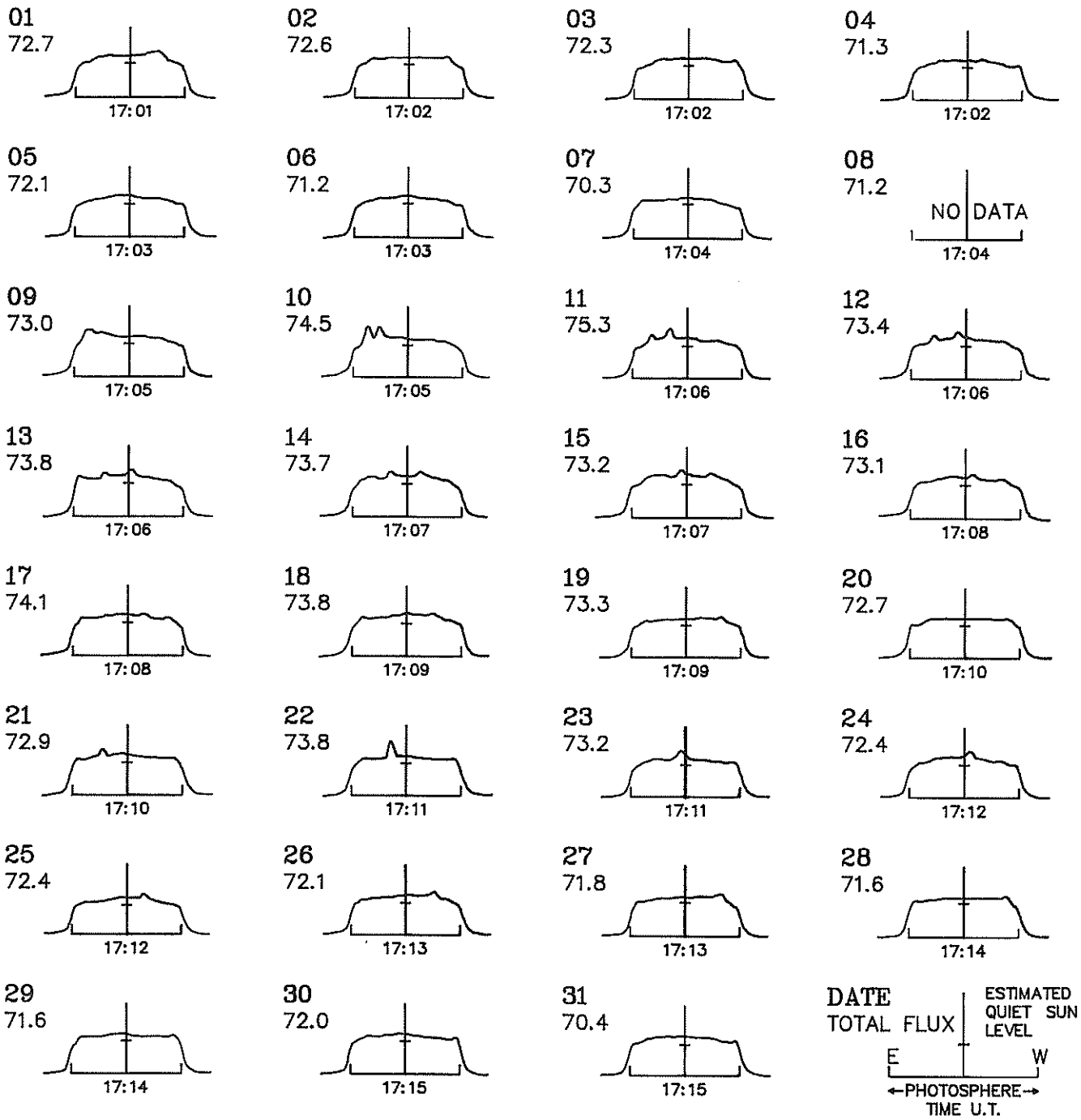
3 CM
FAN BEAM WITH 1.1 MINUTES OF ARC



EAST – WEST SOLAR SCANS
DECEMBER 1986

ALGONQUIN RADIO OBSERVATORY
CANADA

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

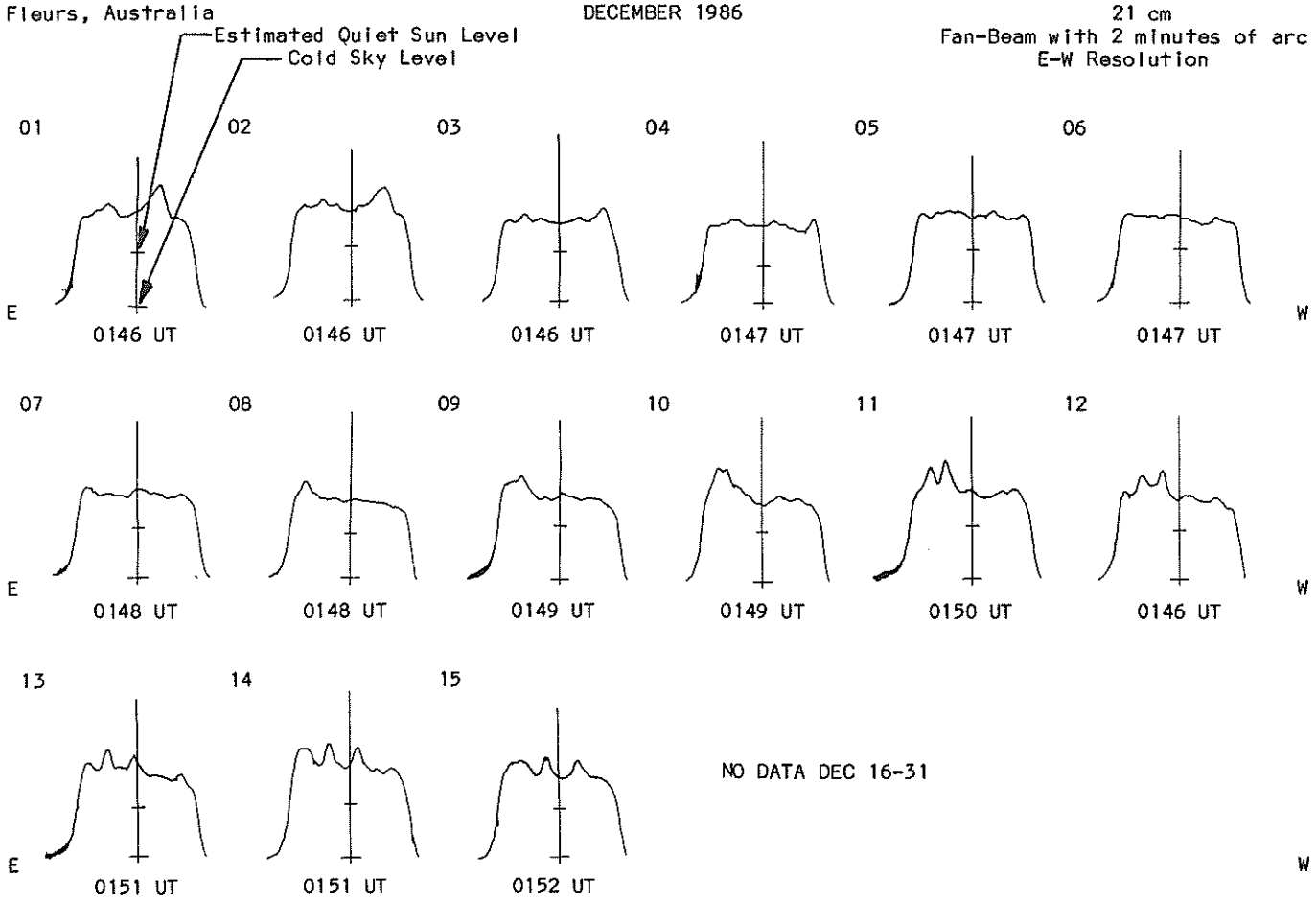


E A S T - W E S T S O L A R S C A N S

Fleurs, Australia

DECEMBER 1986

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



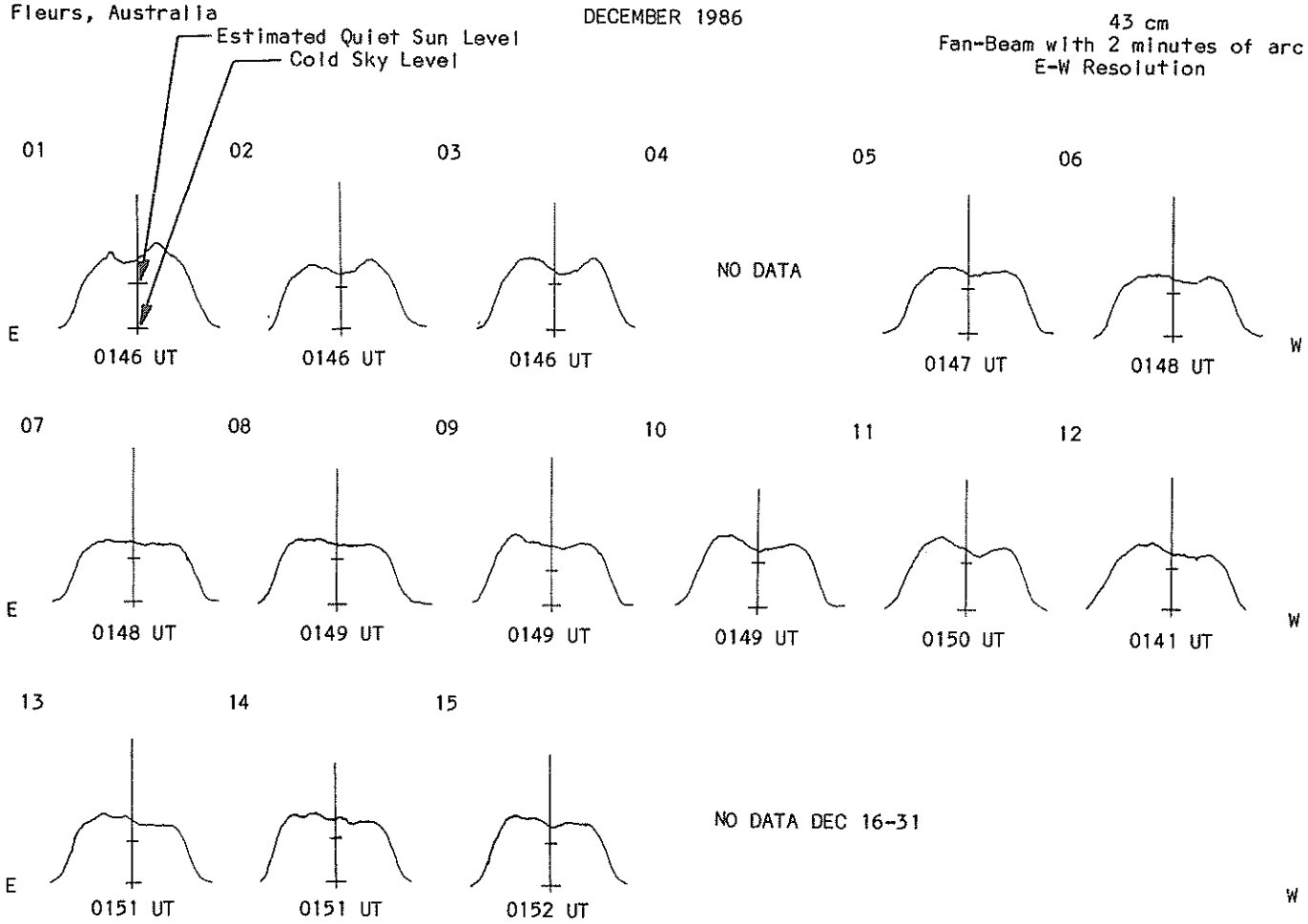
NO DATA DEC 16-31

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

Fleurs, Australia

DECEMBER 1986

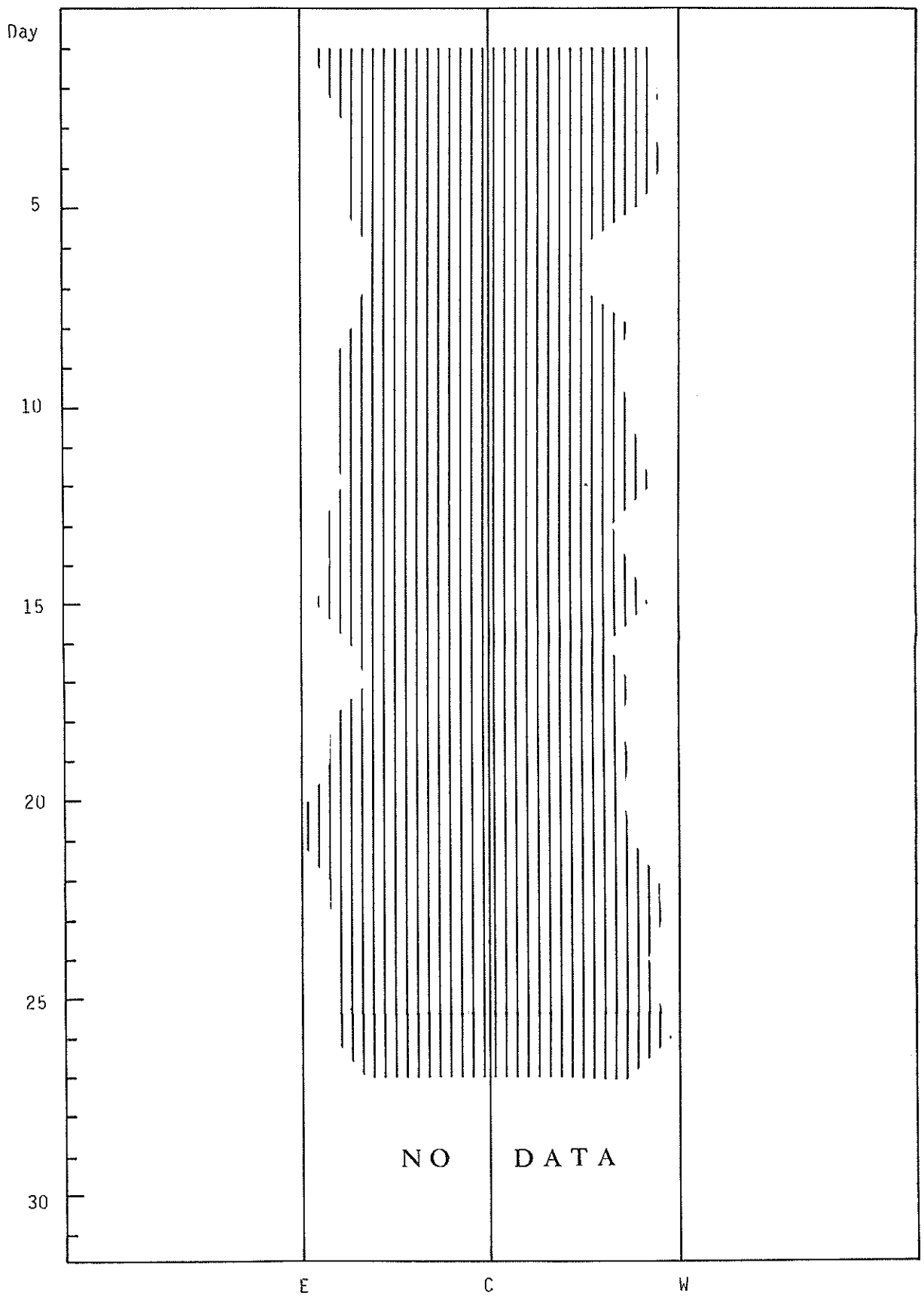
43 cm
Fan-Beam with 2 minutes of arc
E-W Resolution



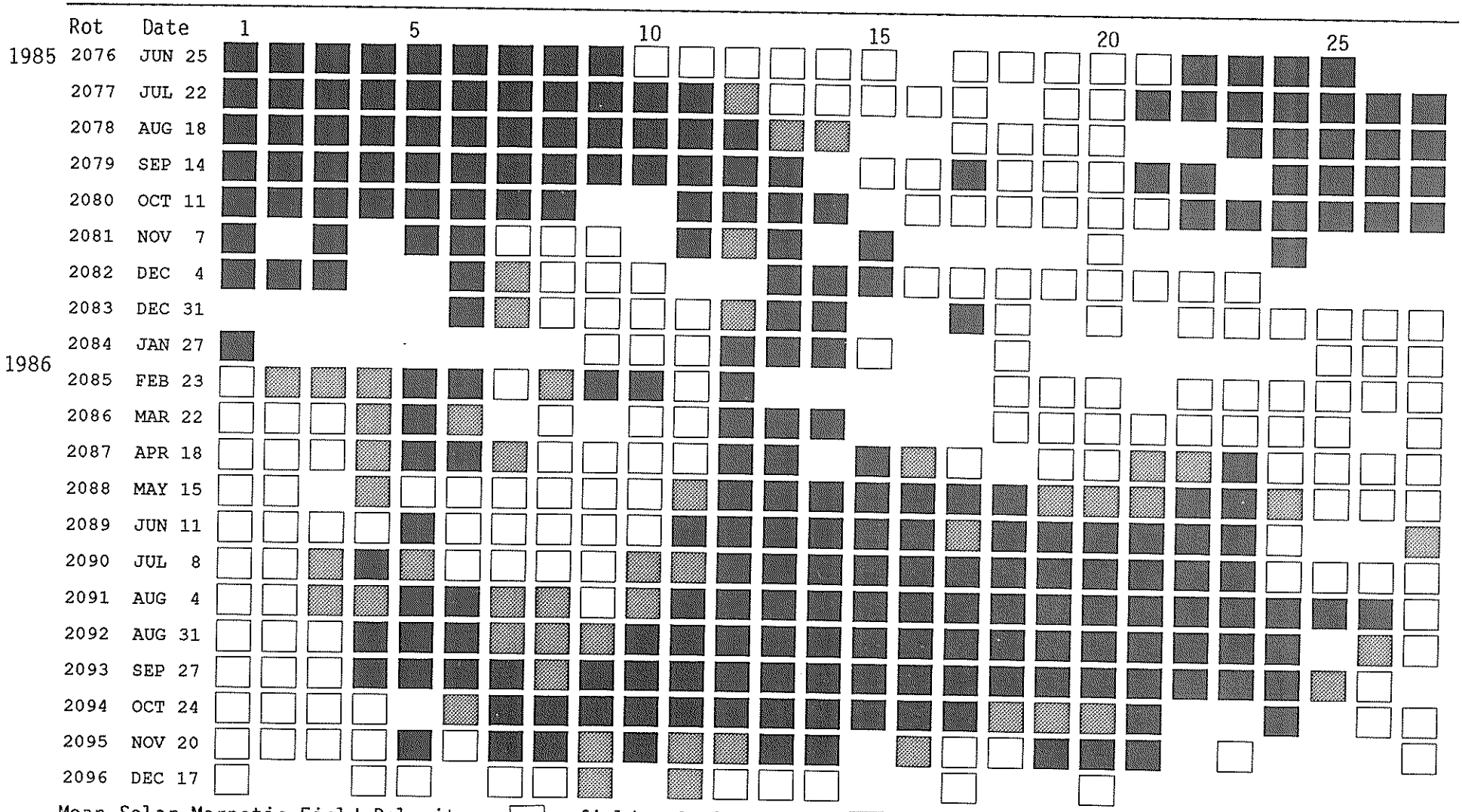
18
Dec 86

SOLAR INTERFEROMETRIC OBSERVATIONS

Nancay DECEMBER 1986 164 MHz



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.

STANFORD MEAN SOLAR MAGNETIC FIELD (MICROTESLA)

Day	1986 Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	•	•	3	10	•	-6	-6	3	4	-7	-11	-1
2	•	•	0	-3	-7	-2	-5	7	5	-7	-11	-10
3	•	•	-7	-14	0	1	-7	4	-6	-6	-12	-11
4	•	5	-7	-16	2	-1	2	10	-6	1	-5	•
5	-3	15	3	•	•	-4	•	10	-3	-7	-10	0
6	1	2	-11	•	2	-4	•	0	0	-6	-7	20
7	14	-8	•	•	2	0	-1	-2	-2	-12	-7	4
8	3	-27	•	6	0	6	10	-5	-1	-15	-5	-9
9	11	-14	•	5	1	4	4	-4	-9	-11	-4	-4
10	12	4	•	5	-5	11	1	-2	-14	-15	-2	-5
11	0	•	•	3	2	5	-5	1	-16	-18	-2	•
12	-19	•	5	5	8	11	0	3	-17	-10	-2	4
13	-14	9	11	3	13	4	3	-1	-18	-8	-5	•
14	•	•	8	8	13	3	5	-12	-19	-9	•	•
15	•	•	•	7	8	-3	5	-17	-15	-10	•	•
16	-12	•	14	•	10	6	2	-21	-10	-10	-21	14
17	21	•	11	8	•	6	-2	-23	-11	-15	•	23
18	•	•	12	5	-2	6	-2	-21	-11	-21	6	•
19	24	•	12	6	3	6	-7	-18	-13	-10	13	•
20	•	9	12	2	9	6	-23	-13	-14	-7	19	22
21	16	18	10	-1	7	-4	-21	-14	-15	1	34	6
22	11	10	8	-5	6	-19	-26	-13	-13	7	29	•
23	12	9	5	-4	9	-23	-16	-15	-9	•	15	9
24	15	1	2	1	10	-16	-12	-8	•	33	-3	8
25	10	1	-1	7	0	-11	-8	-16	1	14	3	0
26	2	0	-3	13	-22	-8	-7	-9	4	11	-9	•
27	-3	-4	0	13	-31	-2	-4	-9	6	6	-8	1
28	•	-4	•	10	-25	-4	-5	-8	9	•	0	9
29	•		14	-3	-14	-3	-3	-3	3	-1	-12	3
30	•		•	-14	-8	-3	-22	5	-3	-6	-2	5
31	•		15		-4		2	12		-9		•

Dot symbol indicates no data available for the day.

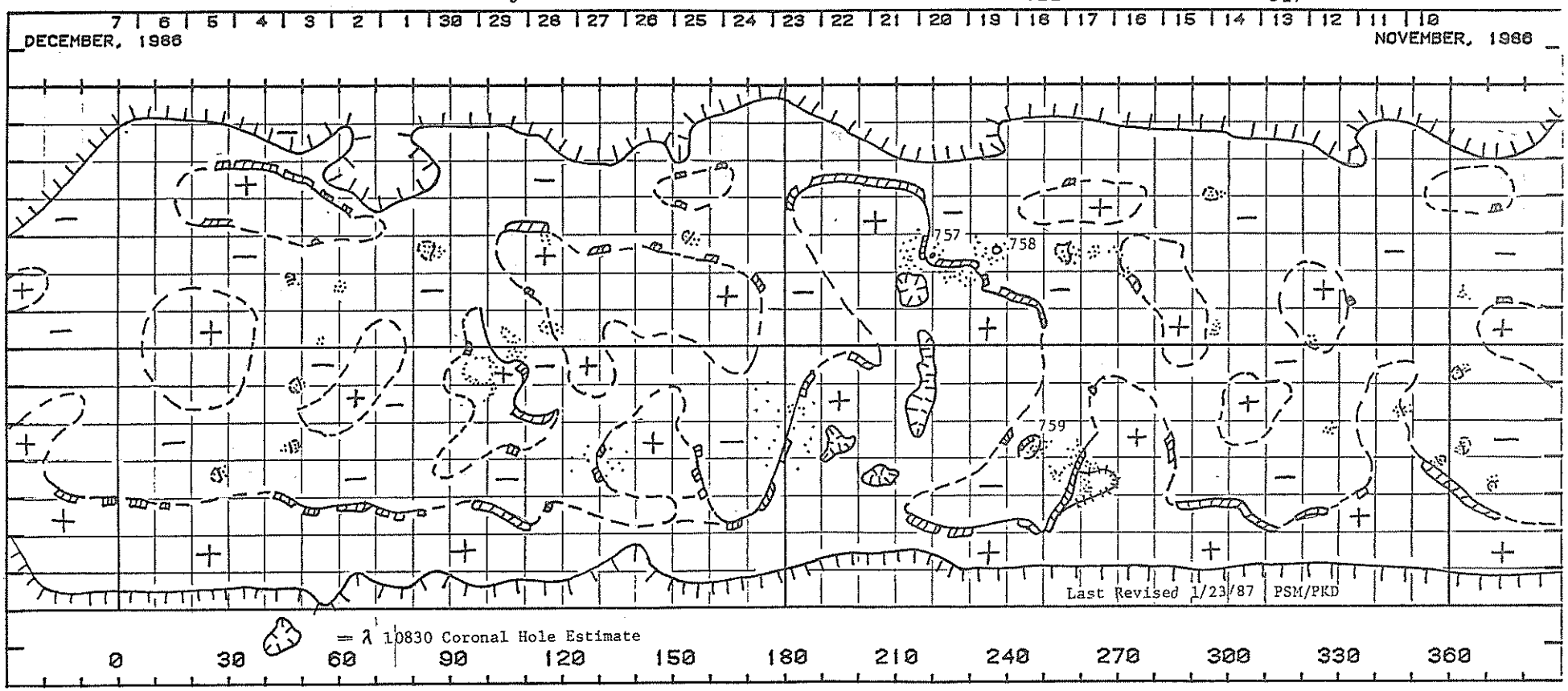
C O N T E N T S

Prompt Reports DATA FOR NOVEMBER 1986 Number 509 Part I

PRELIMINARY H-ALPHA SOLAR SYNOPTIC CHART

CARRINGTON ROTATION NUMBER 1782
(10 November to 7 December 1986)

Dates of Observations Below Days of Year: 327 322 317

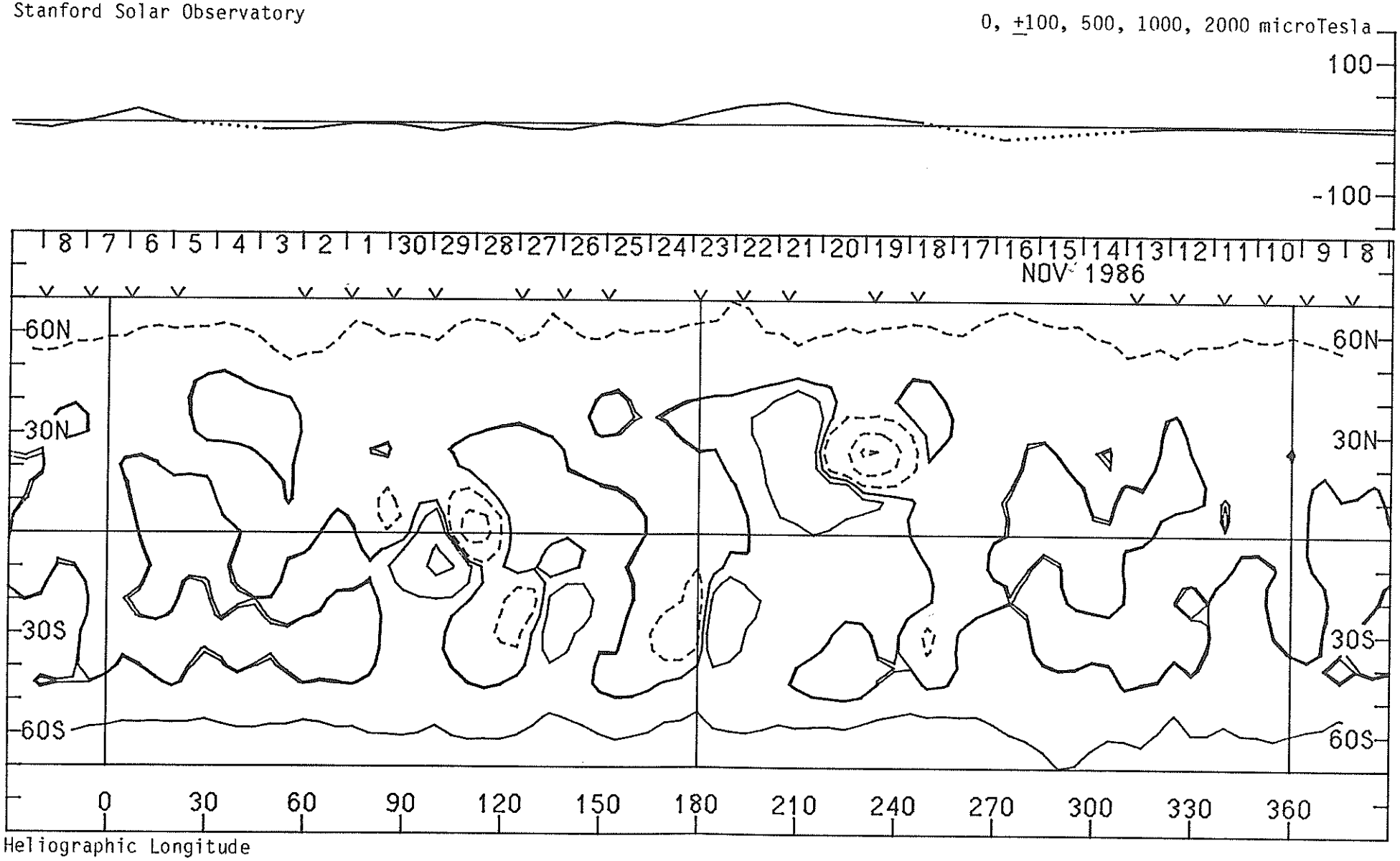


Heliographic Longitude

SOLAR MAGNETIC FIELD SYNOPTIC CHART

CARRINGTON ROTATION NUMBER 1782
(10 November to 7 December 1986)

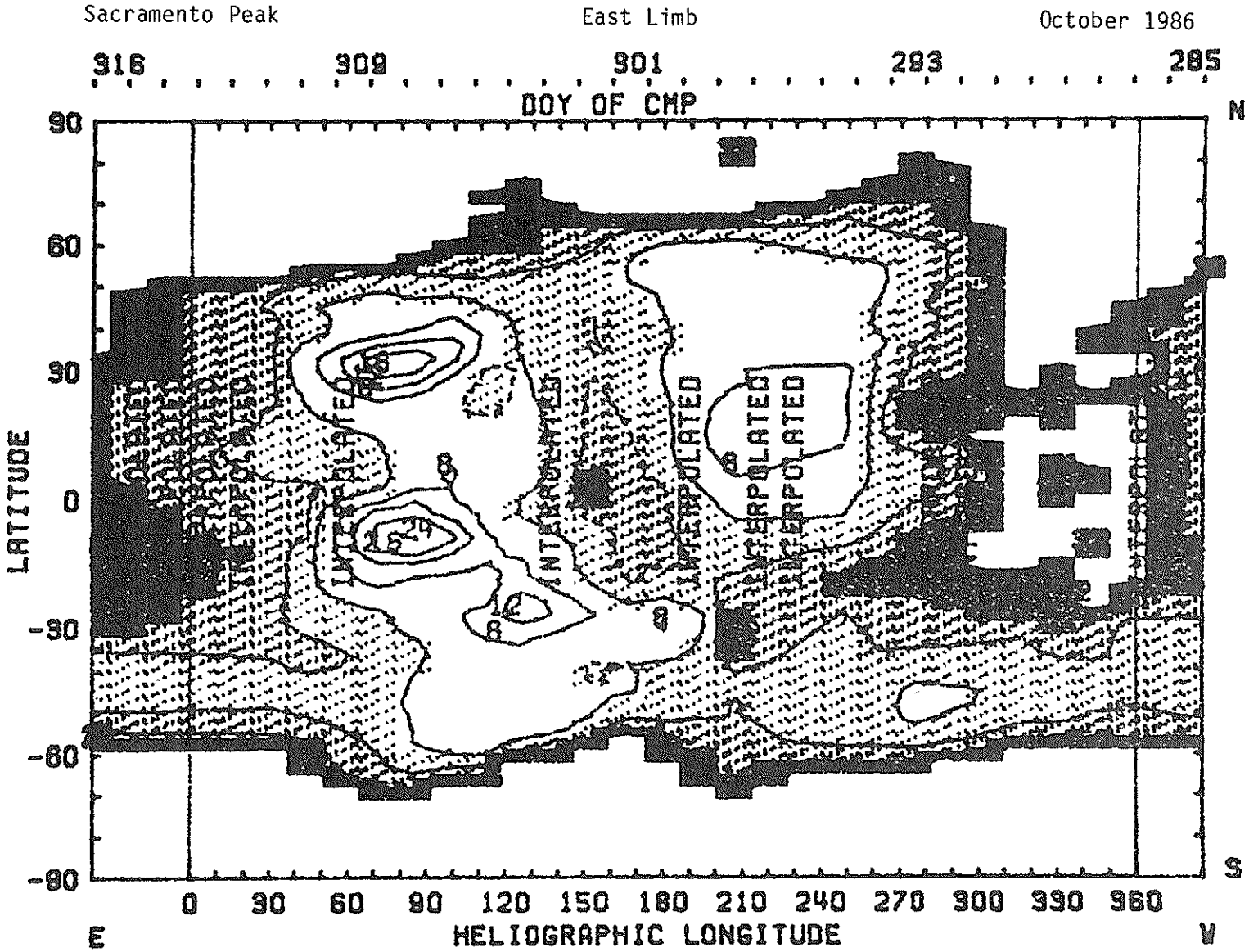
Stanford Solar Observatory



23 Nov 86

CORONAL GREEN LINE SYNOPTIC MAP

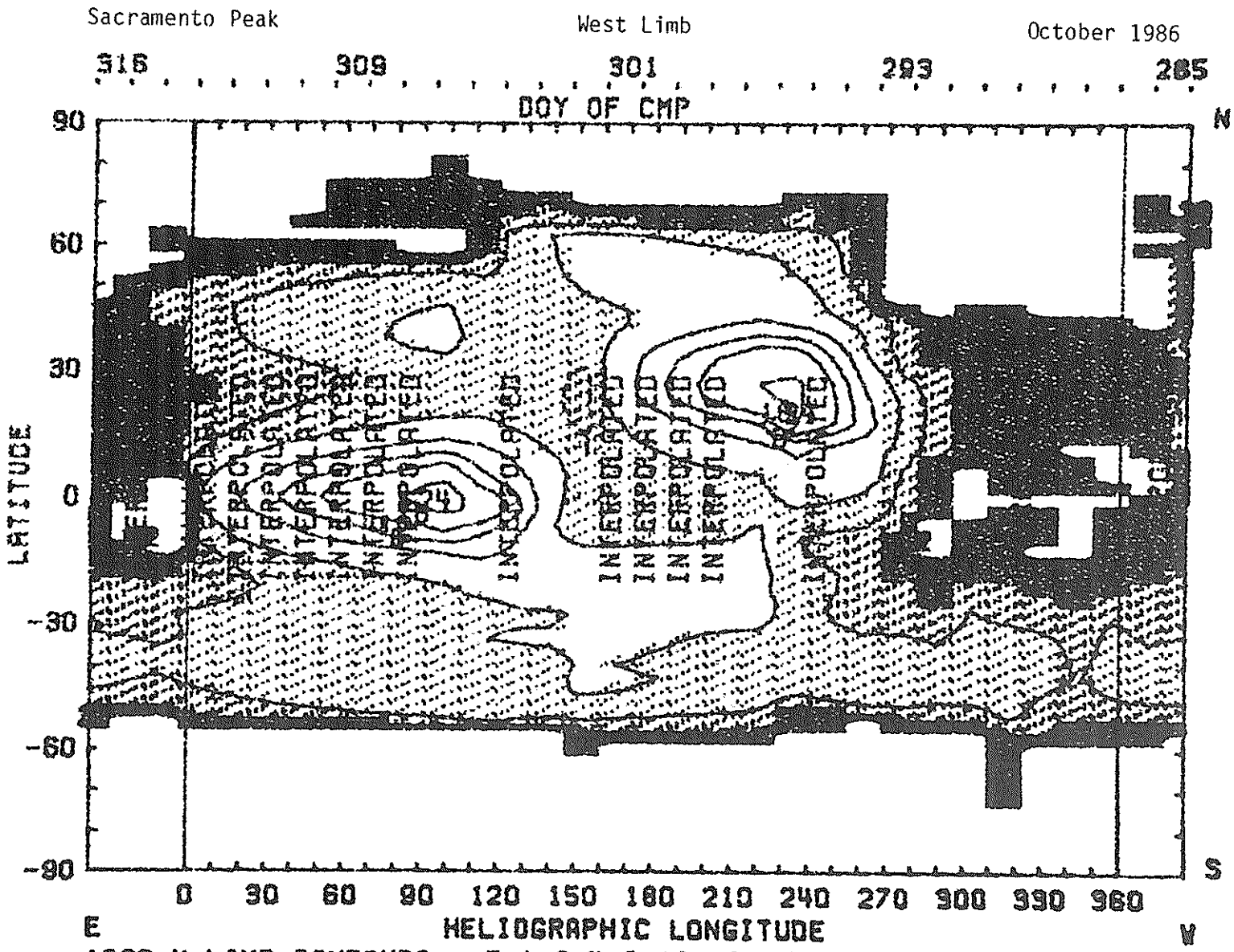
CARRINGTON ROTATION NUMBER 1781
(13 October to 10 November 1986)



1988 E LIMB CONTOURS: .5,1,2,4,8,12,16,24,92 MILLIONTHS OF Io
CORONAL HOLES ARE SHOWN AS WHITE SURROUNDED BY BLACK

CORONAL GREEN LINE SYNOPTIC MAP

CARRINGTON ROTATION NUMBER 1781
(13 October to 10 November 1986)

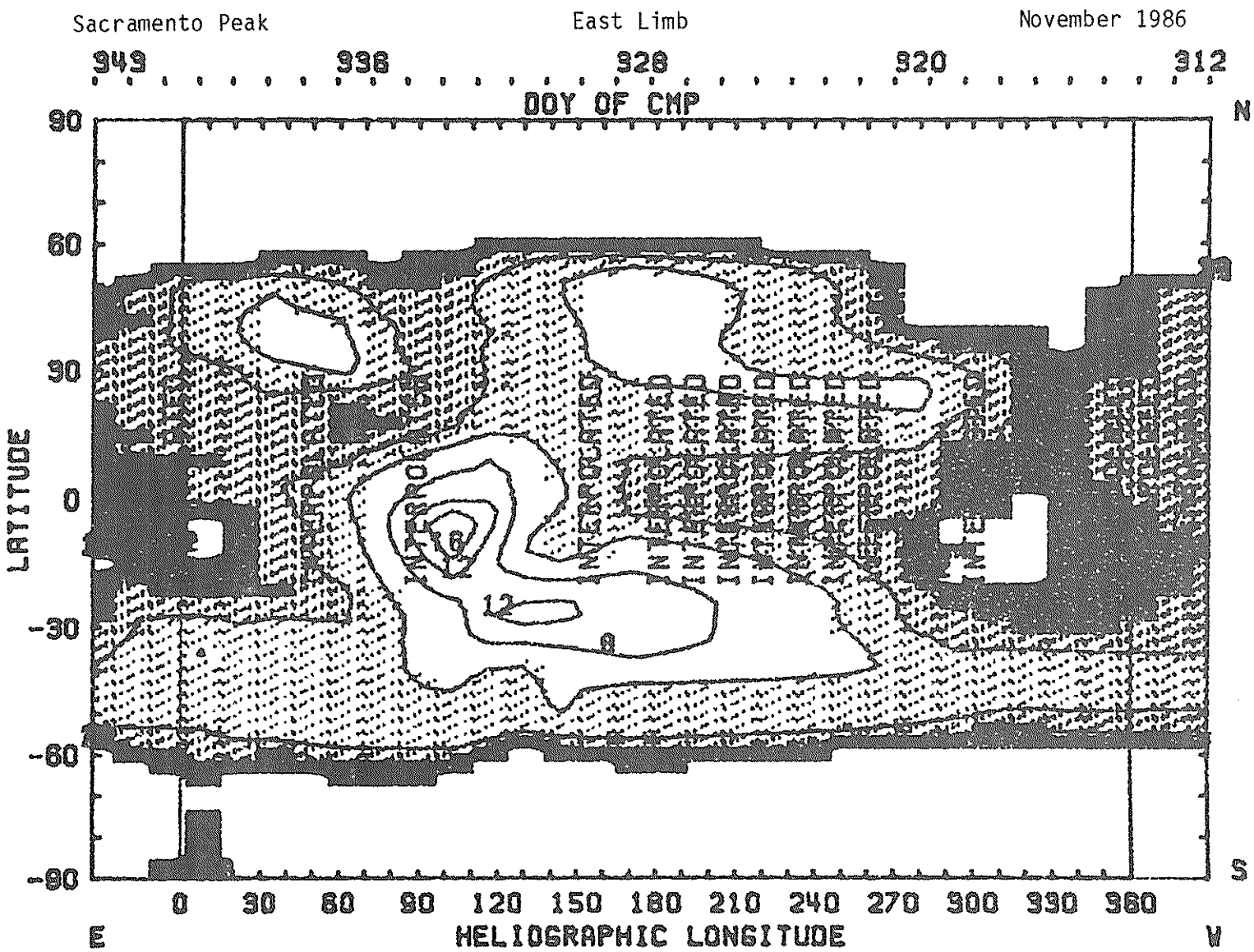


1986 W LIMB CONTOURS: .5,1,2,4,8,12,16,24,32 MILLIONTHS OF $I_\odot$
CORONAL HOLES ARE SHOWN AS WHITE SURROUNDED BY BLACK

25
Nov 86

CORONAL GREEN LINE SYNOPTIC MAP

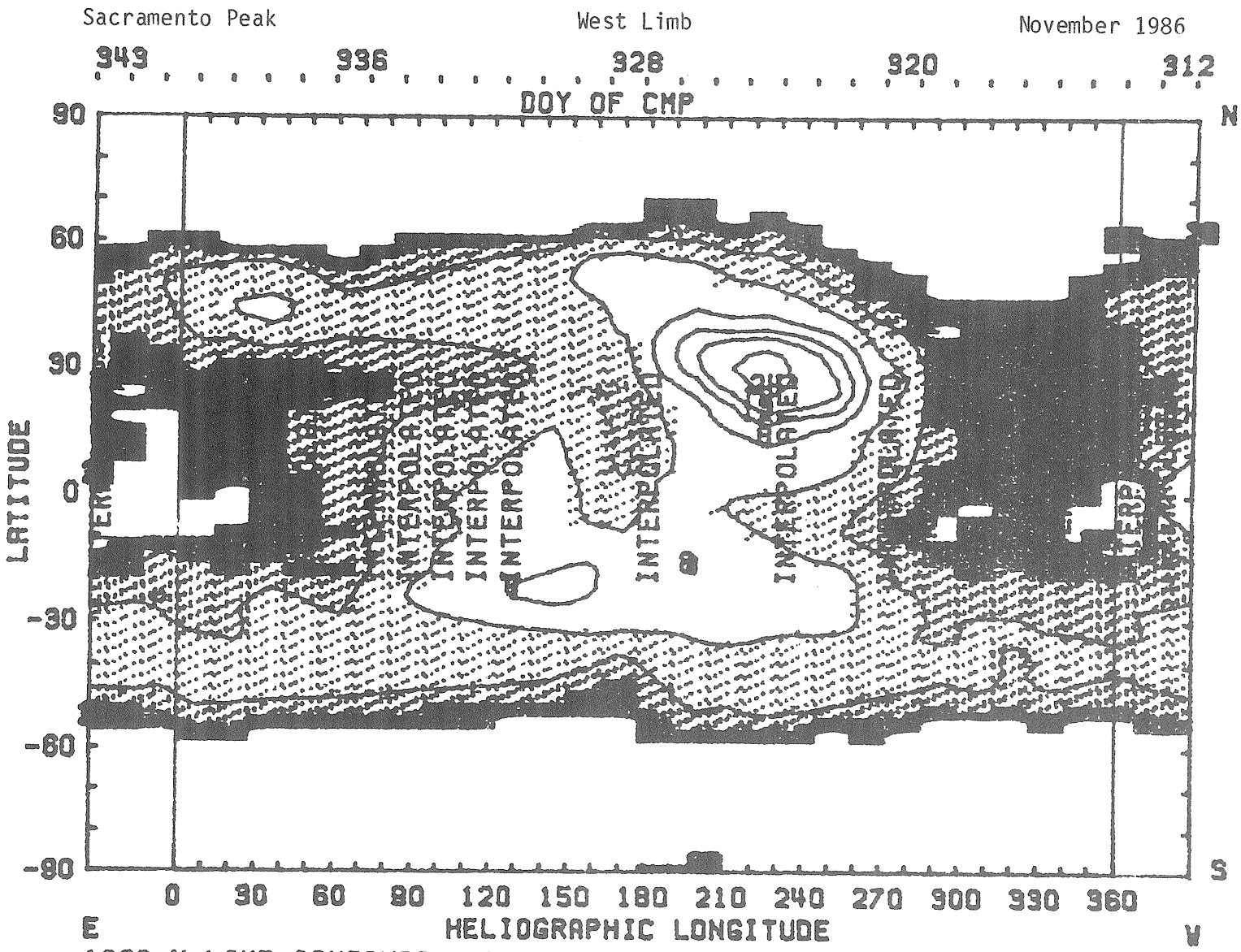
CARRINGTON ROTATION NUMBER 1782
(10 November to 7 December 1986)



1986 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 1782
(10 November to 7 December 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

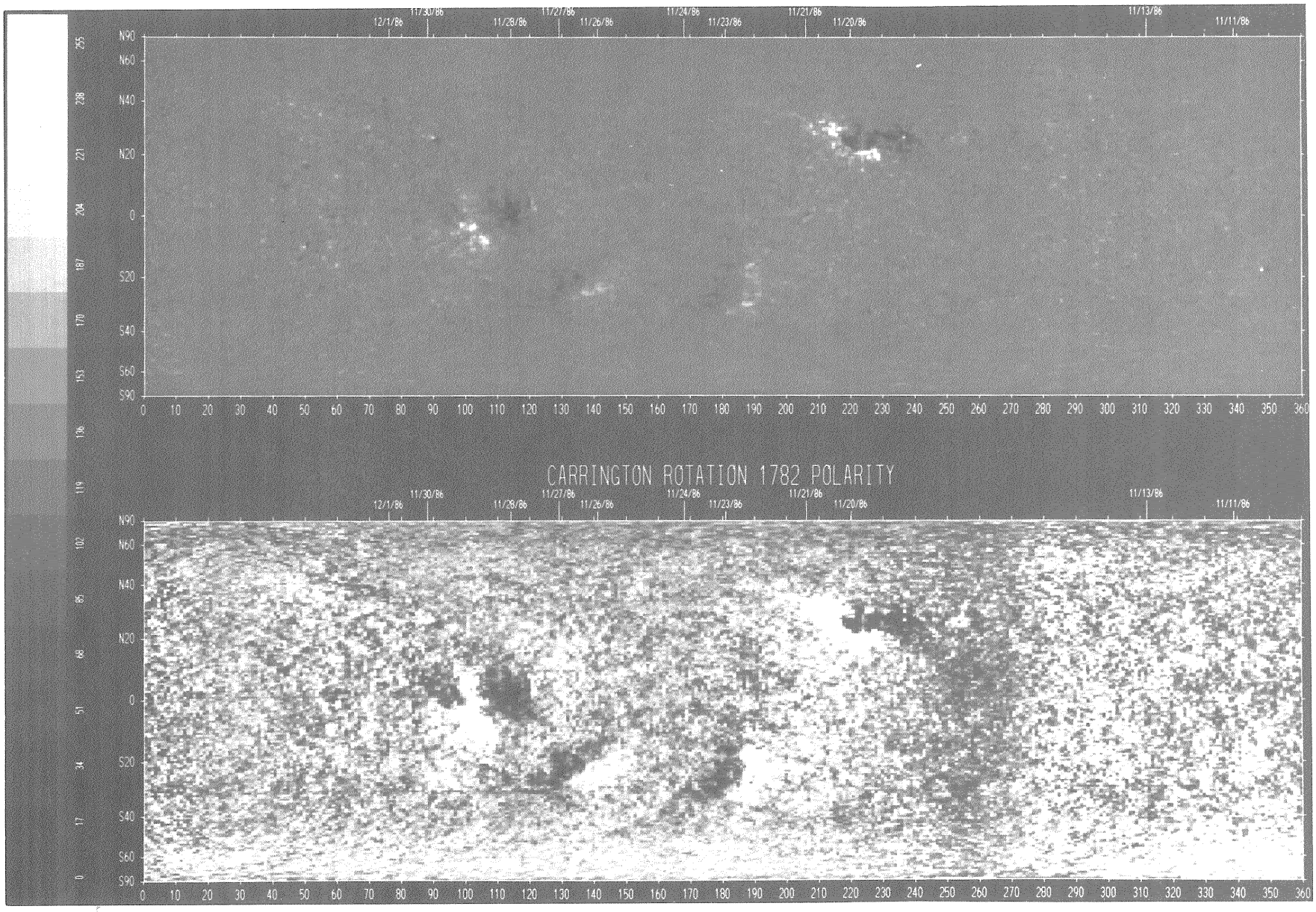
27
Nov 86

SOLAR MAGNETIC FIELD SYNOPTIC CHART

CARRINGTON ROTATION NUMBER 1782
(November 10 to December 7, 1986)

Kitt Peak National Observatory

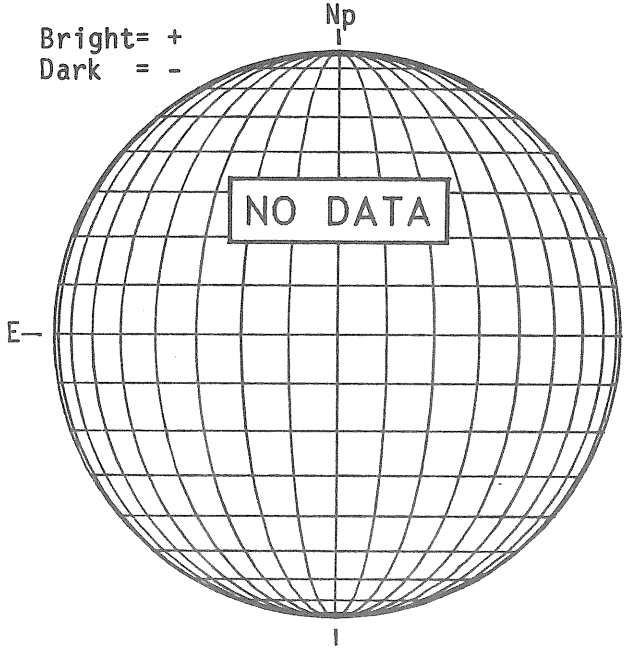
Dates of Observations



N O V E M B E R 01, 1 9 8 6 (P= 24.47, B_0= 4.36, L_0= 119.91)

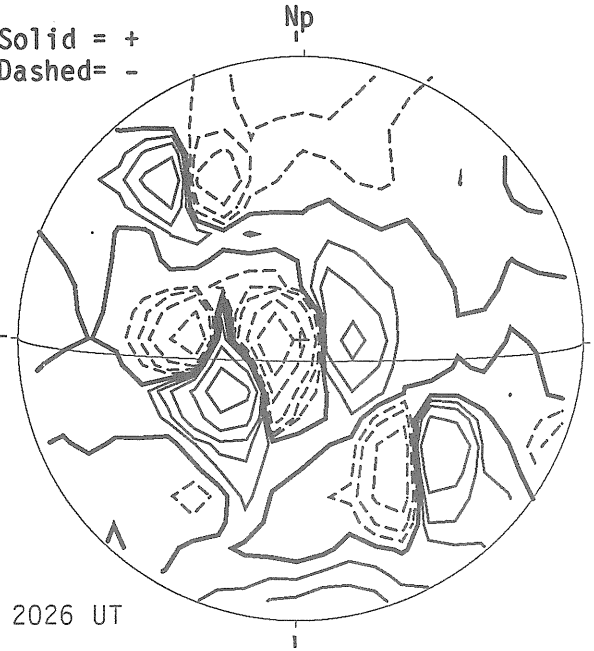
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



STANFORD MAGNETOGRAM

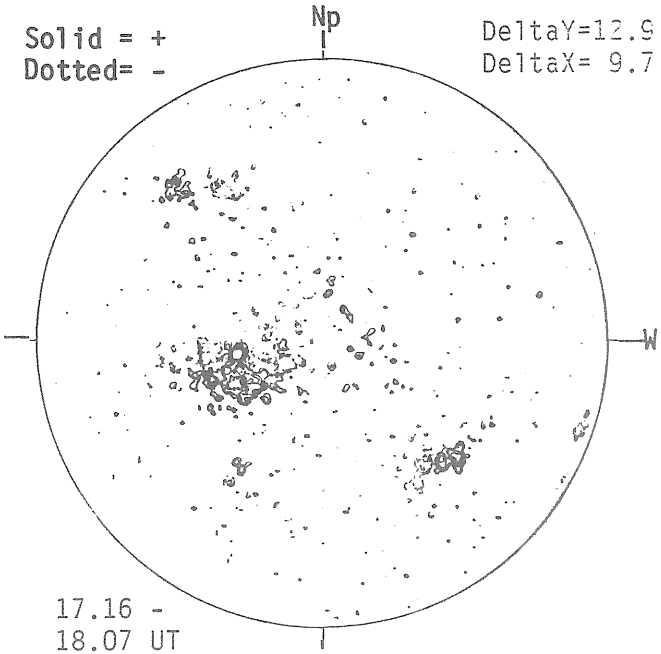
Solid = +
Dashed= -



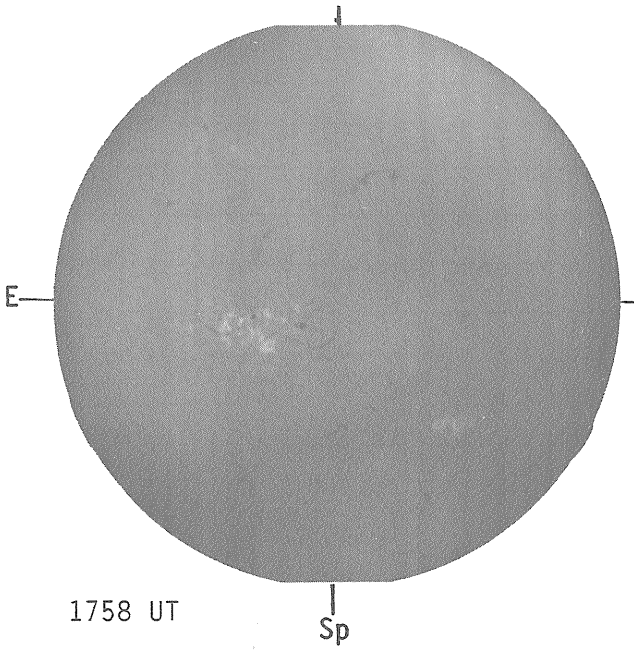
MT. WILSON MAGNETOGRAM

Solid = +
Dotted= -

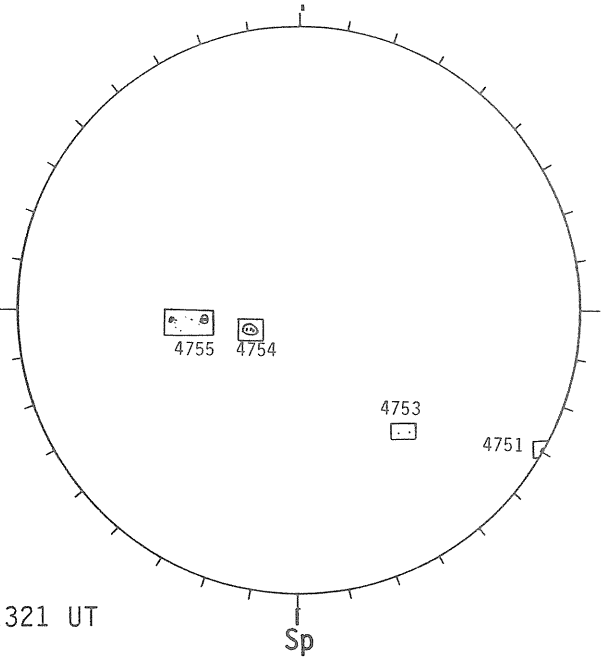
DeltaY=12.9
DeltaX= 9.7



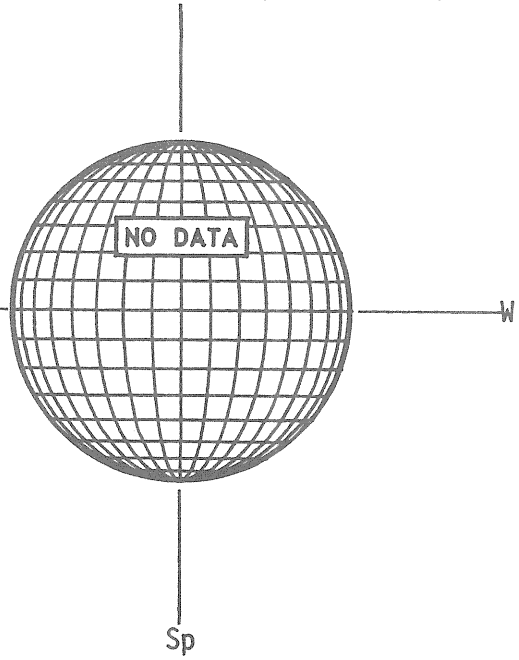
PALEHUA H-ALPHA



RAMEY SUNSPOTS



SACRAMENTO PEAK CORONA (1.15 Radii)



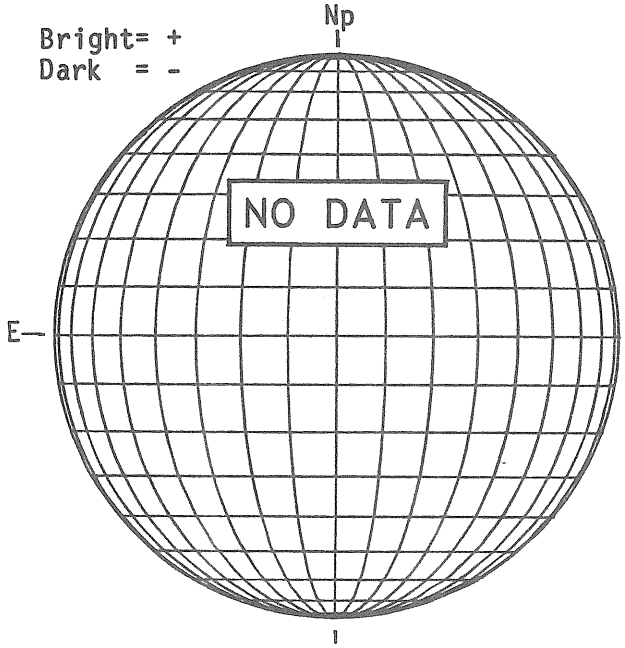
29
Nov 86

N O V E M B E R 02, 1 9 8 6 (P= 24.30, B_o= 4.26, L_o= 106.73)

30
Nov 86

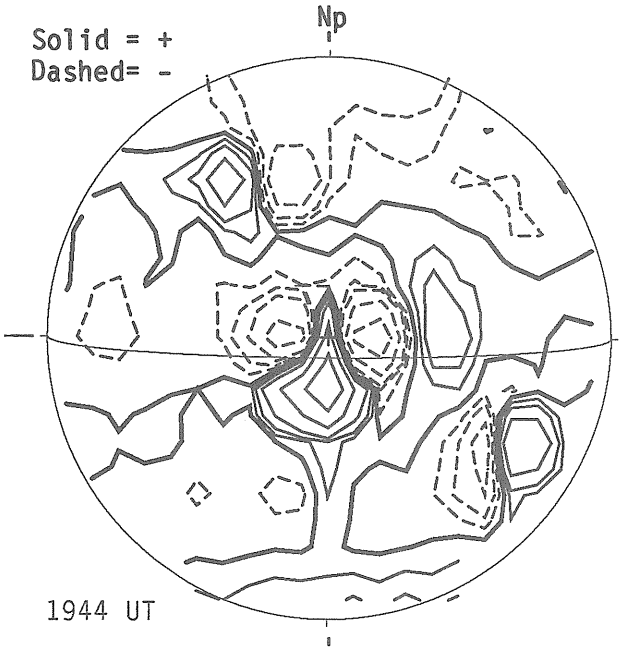
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



STANFORD MAGNETOGRAM

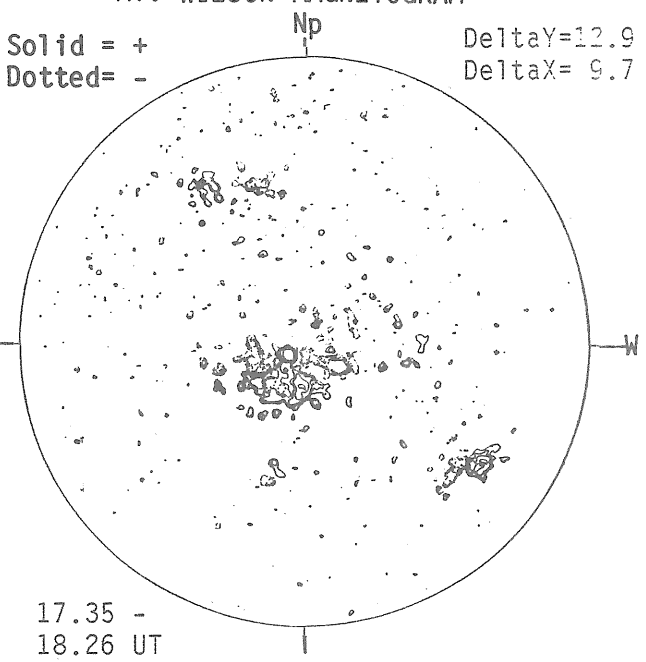
Solid = +
Dashed= -



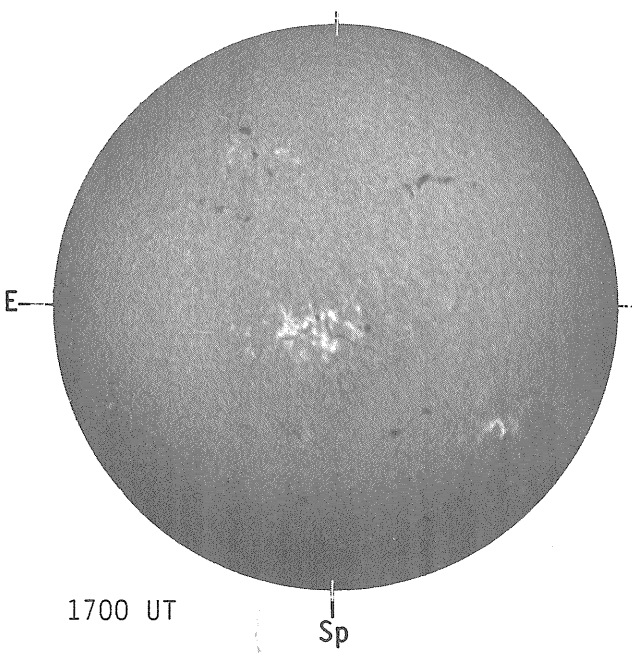
MT. WILSON MAGNETOGRAM

Solid = +
Dotted= -

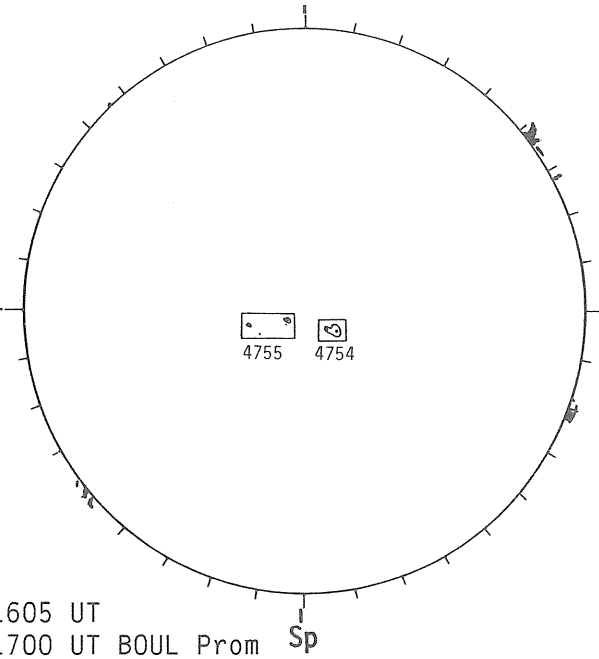
DeltaY=12.9
DeltaX= 9.7



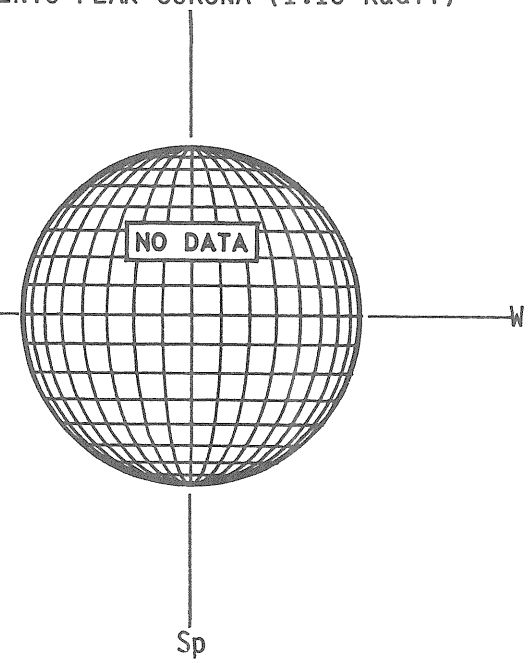
BOULDER H-ALPHA



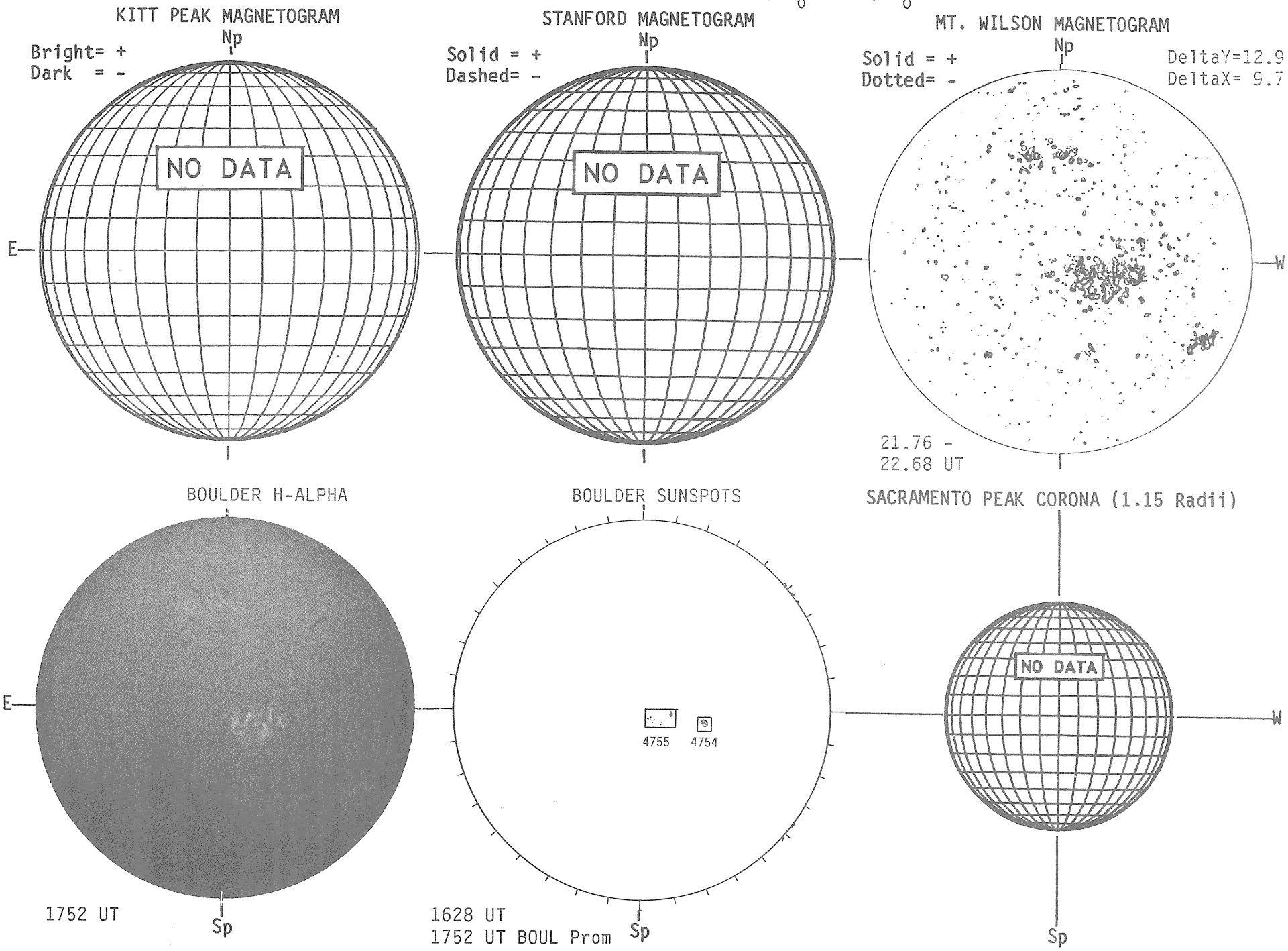
BOULDER SUNSPOTS



SACRAMENTO PEAK CORONA (1.15 Radii)



N O V E M B E R 03, 1 9 8 6 (P= 24.12, B_0= 4.16, L_0= 93.54)

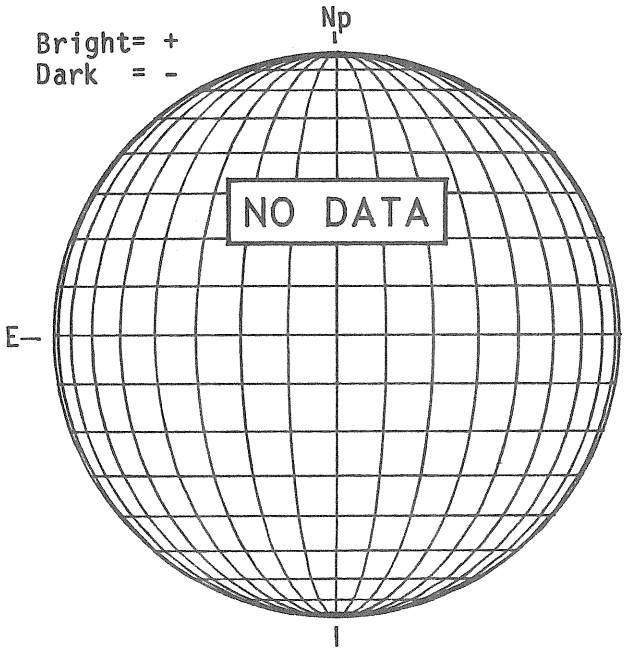


31
Nov 86

N O V E M B E R 04, 1 9 8 6 (P= 23.94, B_0= 4.05, L_0= 80.36)

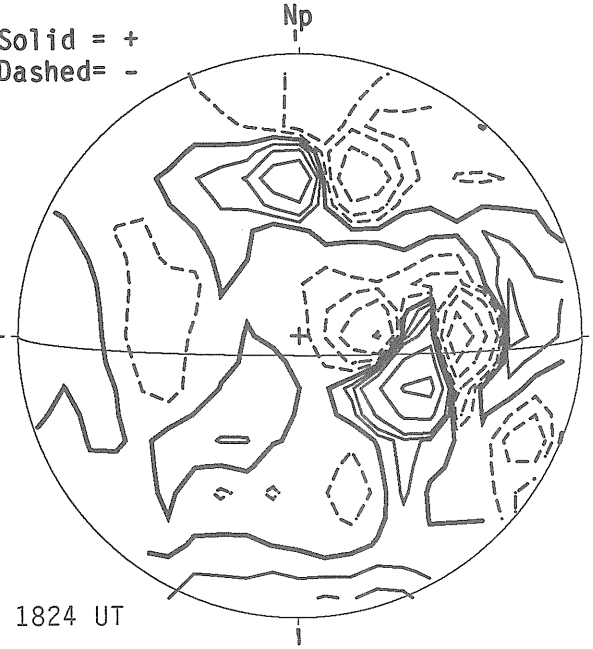
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



STANFORD MAGNETOGRAM

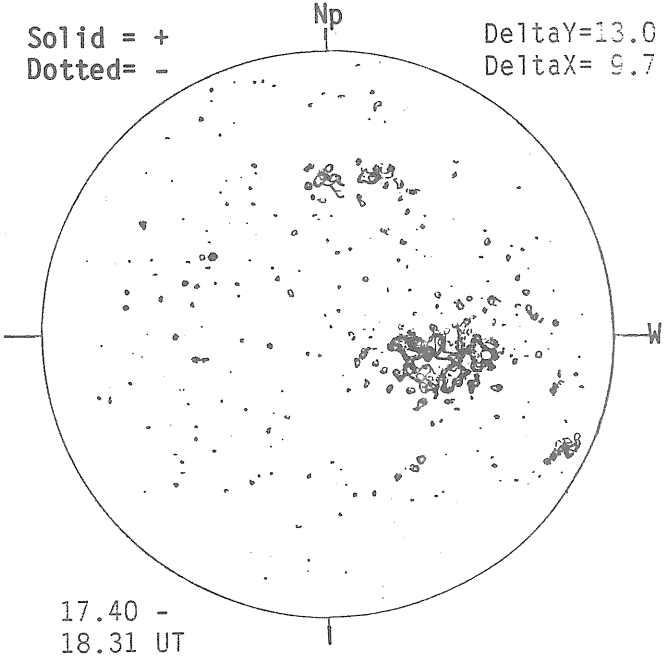
Solid = +
Dashed= -



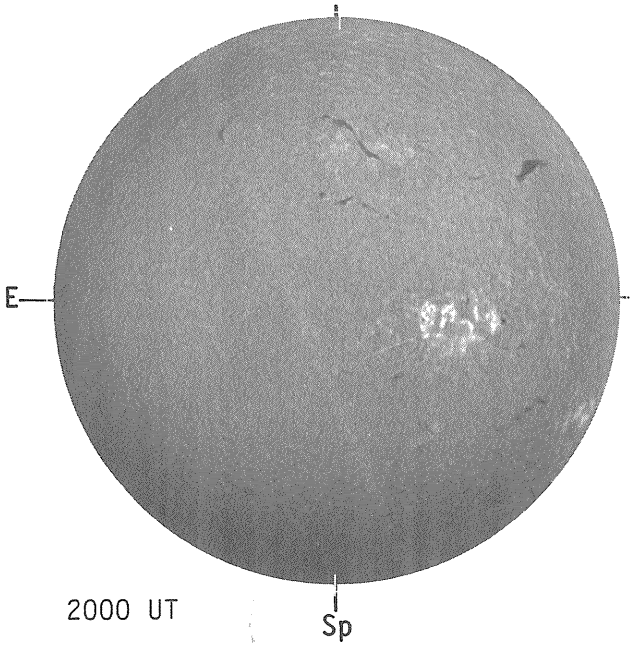
MT. WILSON MAGNETOGRAM

Solid = +
Dotted= -

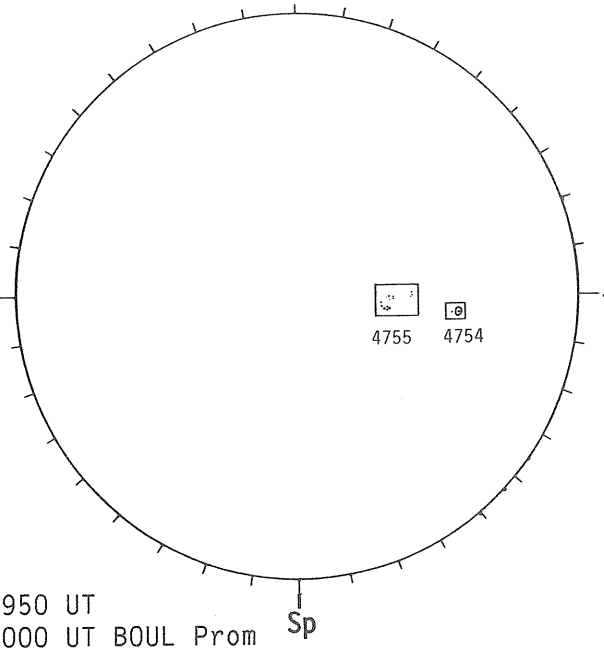
DeltaY=13.0
DeltaX= 9.7



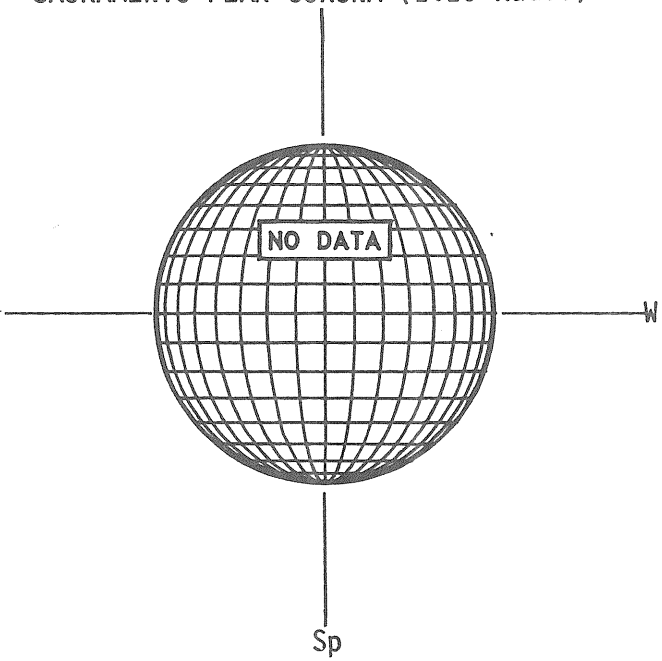
BOULDER H-ALPHA



BOULDER SUNSPOTS



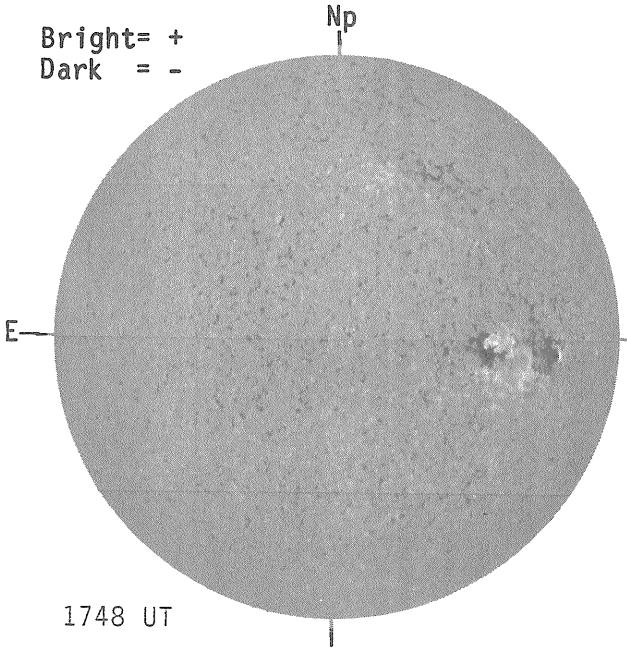
SACRAMENTO PEAK CORONA (1.15 Radii)



N O V E M B E R 05, 1 9 8 6 (P= 23.75, B_0= 3.95, L_0= 67.17)

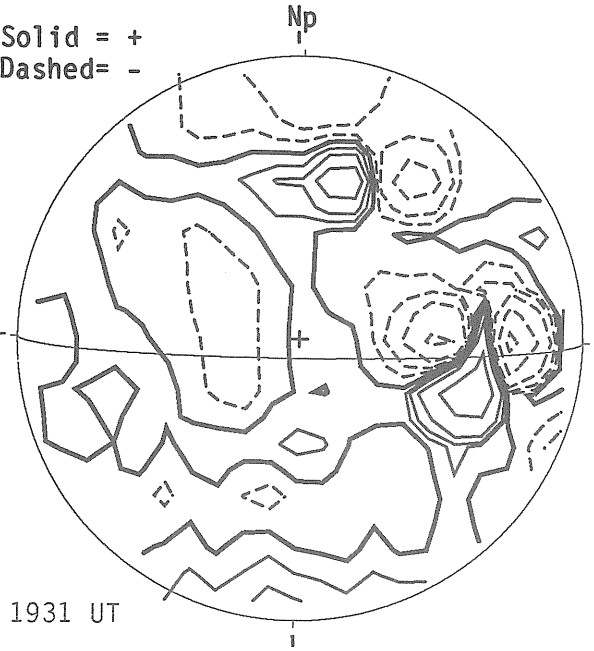
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



STANFORD MAGNETOGRAM

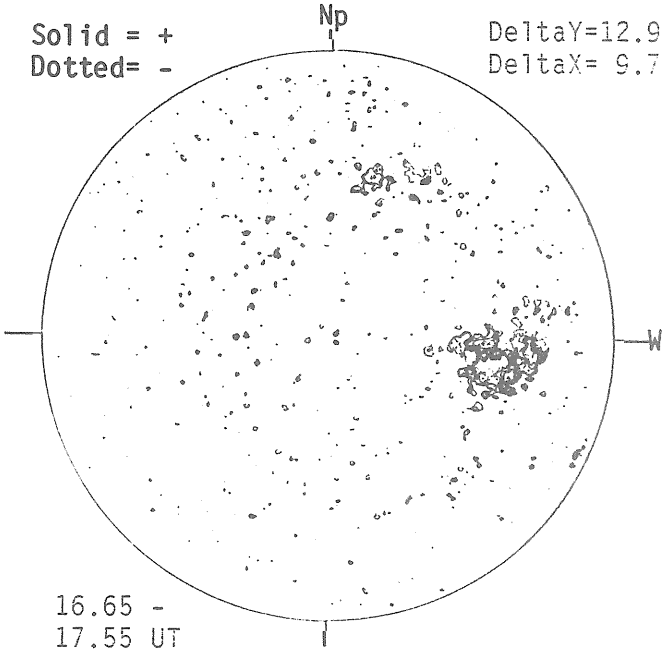
Solid = +
Dashed= -



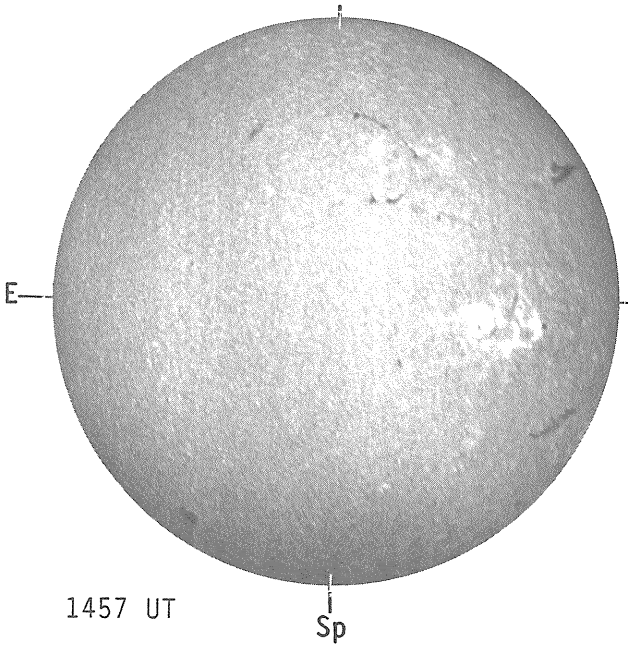
MT. WILSON MAGNETOGRAM

Solid = +
Dotted= -

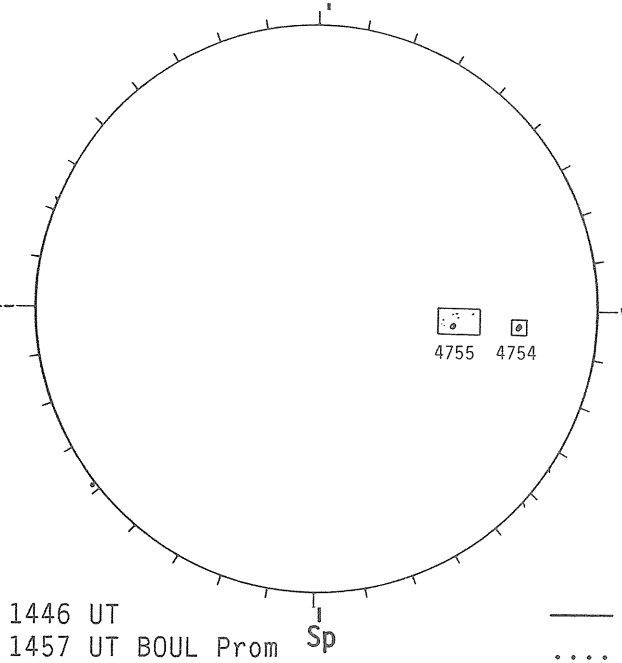
DeltaY=12.9
DeltaX= 9.7



BOULDER H-ALPHA

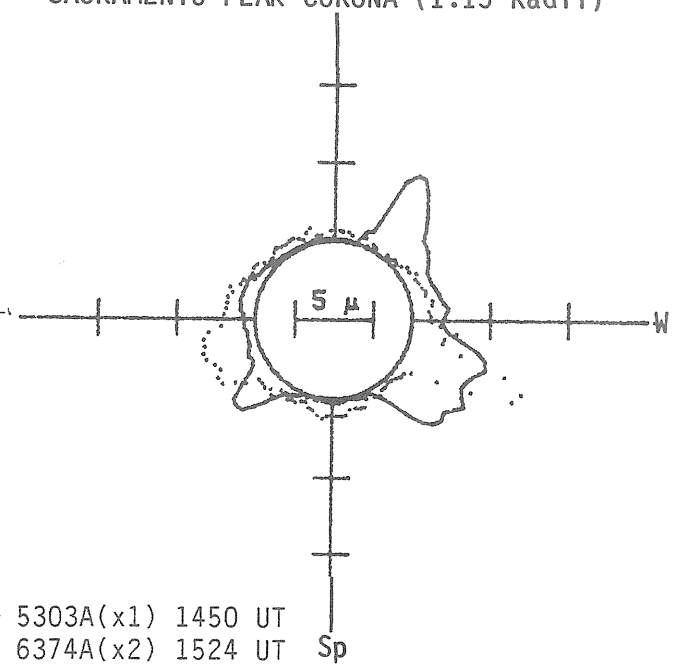


BOULDER SUNSPOTS



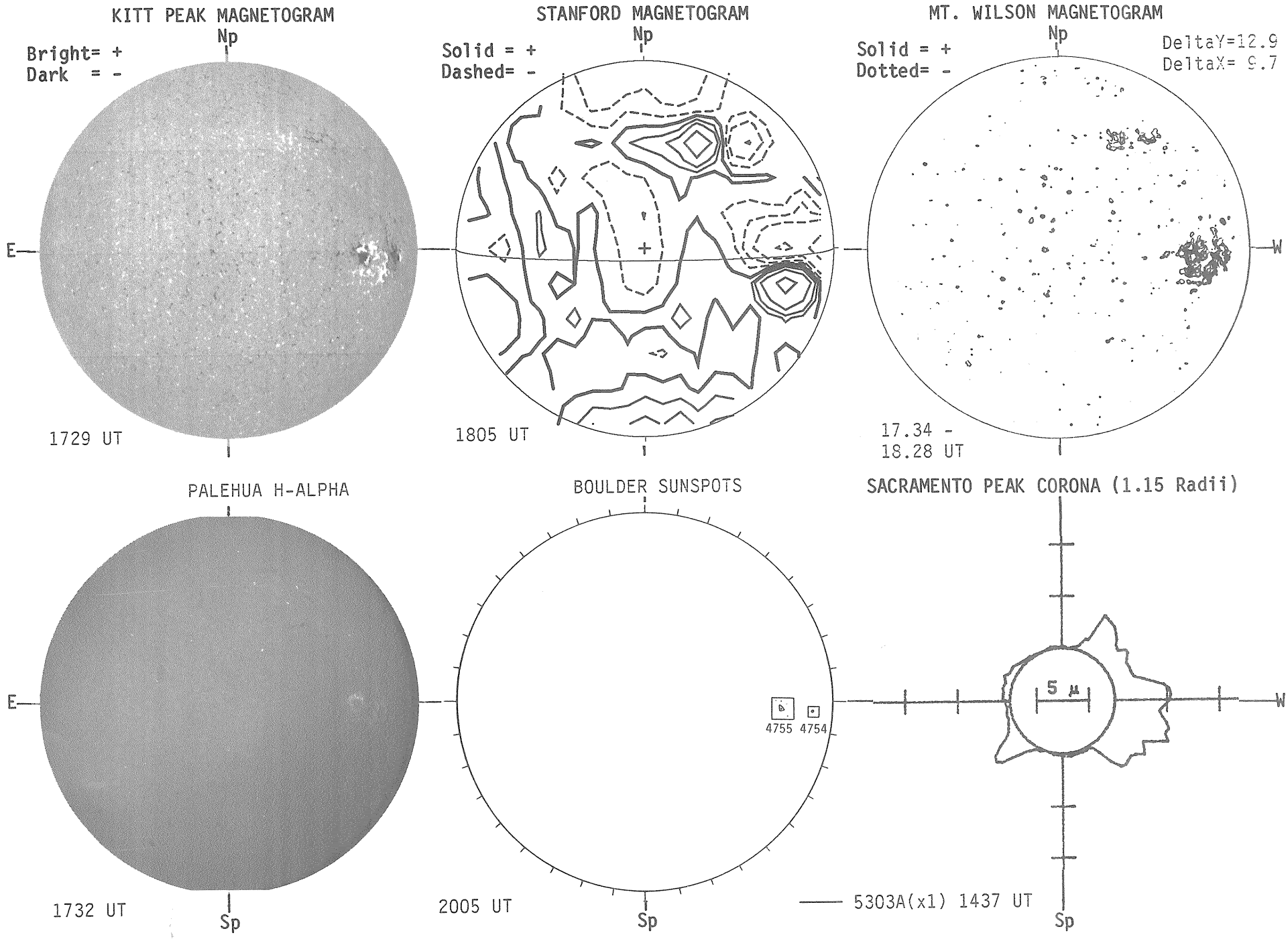
1446 UT
1457 UT BOUL Prom

SACRAMENTO PEAK CORONA (1.15 Radii)

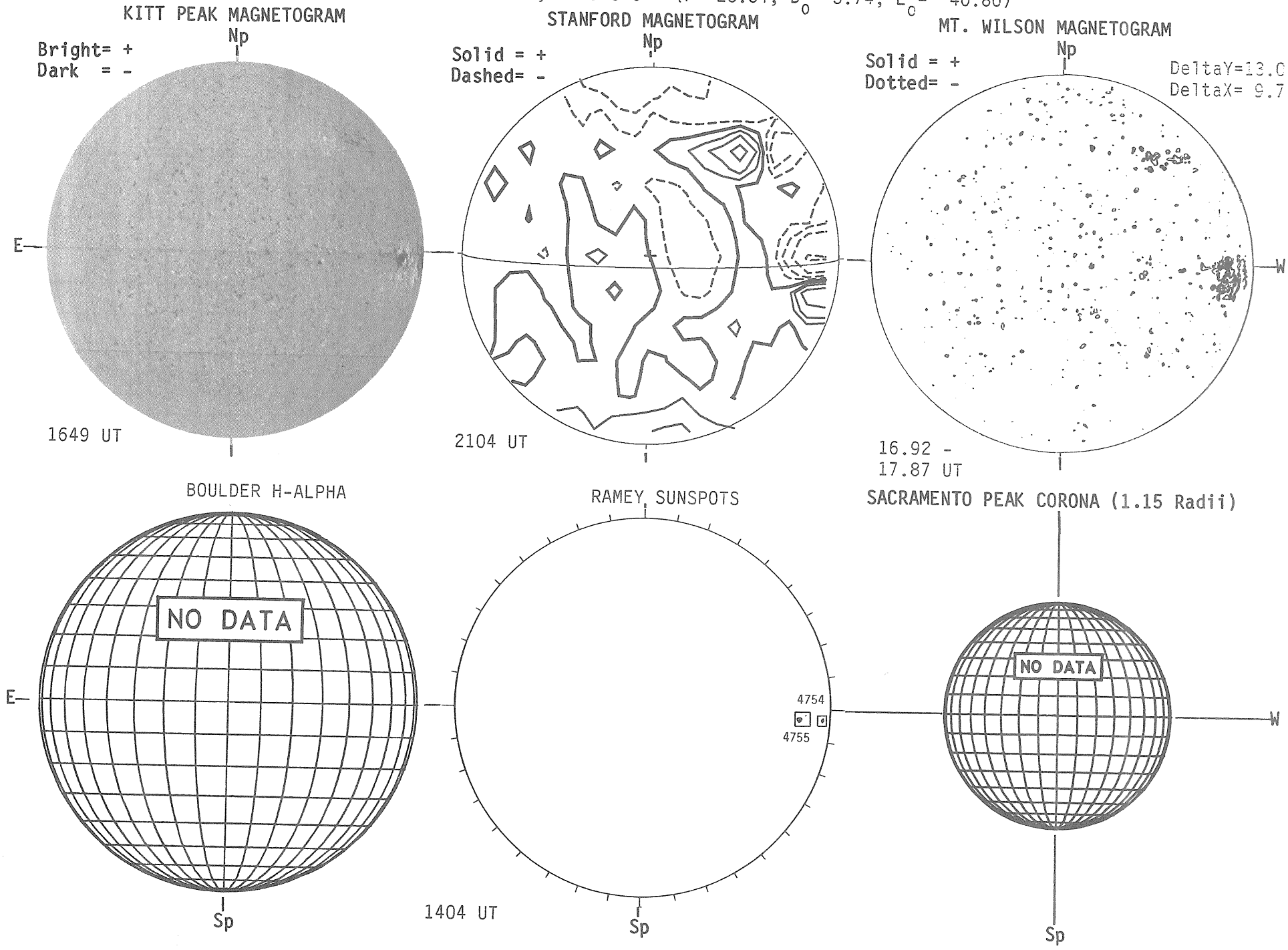


—— 5303A(x1) 1450 UT
.... 6374A(x2) 1524 UT
xxxx 5694A(x6) 1509 UT
NO 5694A ACTIVITY TODAY

N O V E M B E R 06, 1 9 8 6 (P= 23.55, B_0= 3.85, L_0= 53.99)



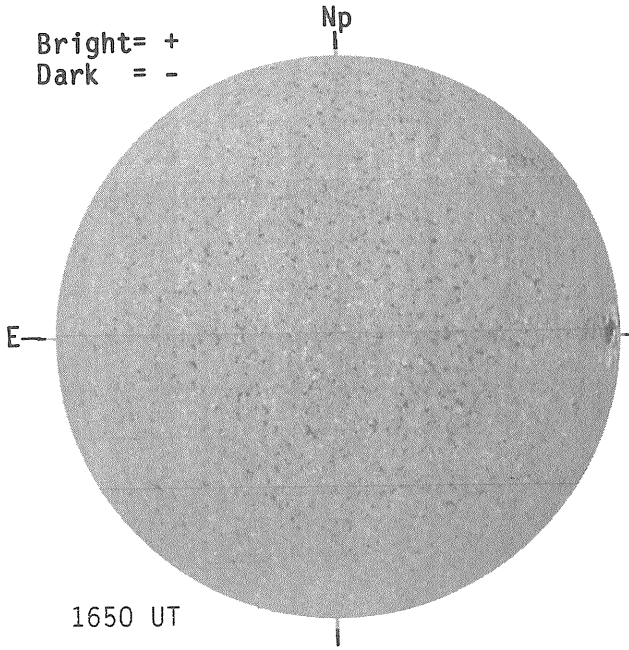
N O V E M B E R 07, 1 9 8 6 (P= 23.34, B_0= 3.74, L_0= 40.80)



N O V E M B E R 08, 1 9 8 6 (P= 23.12, B_0= 3.63, L_0= 27.62)

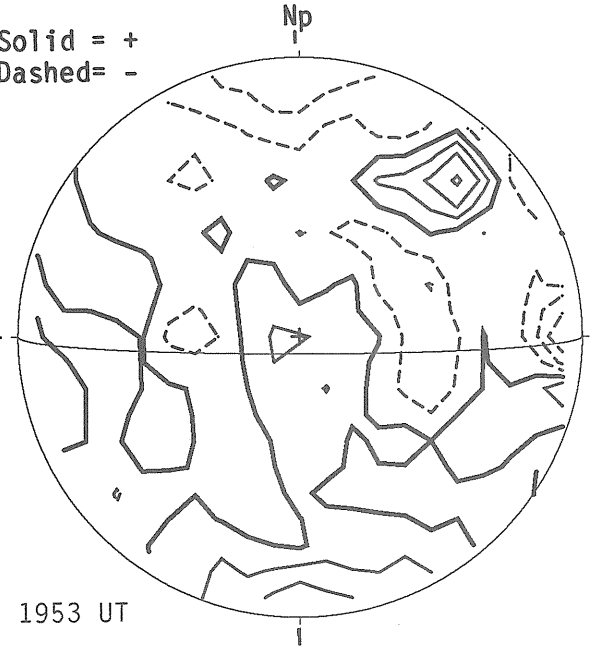
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



STANFORD MAGNETOGRAM

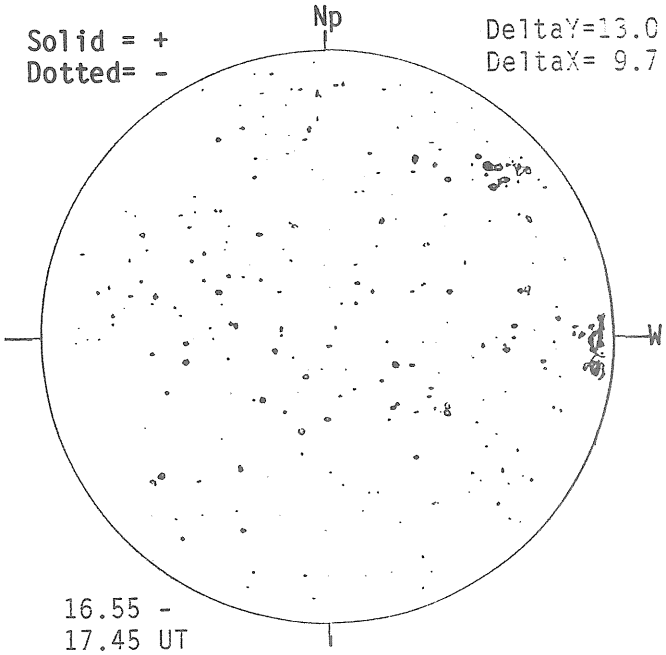
Solid = +
Dashed= -



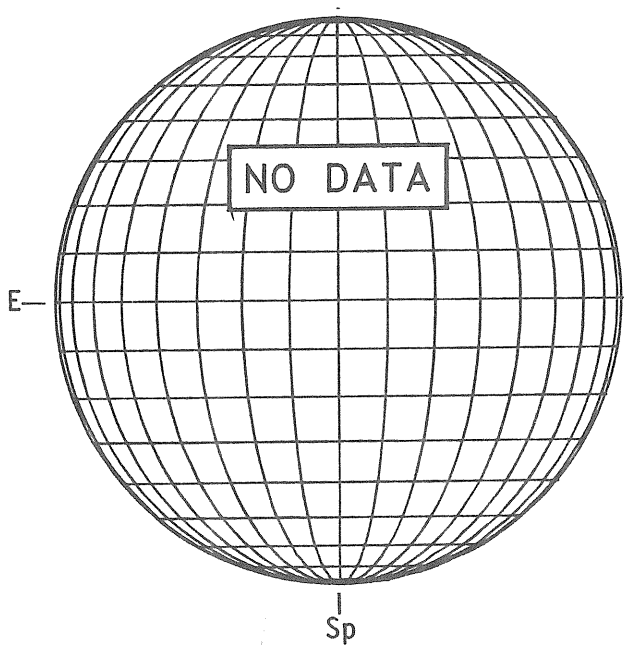
MT. WILSON MAGNETOGRAM

Solid = +
Dotted= -

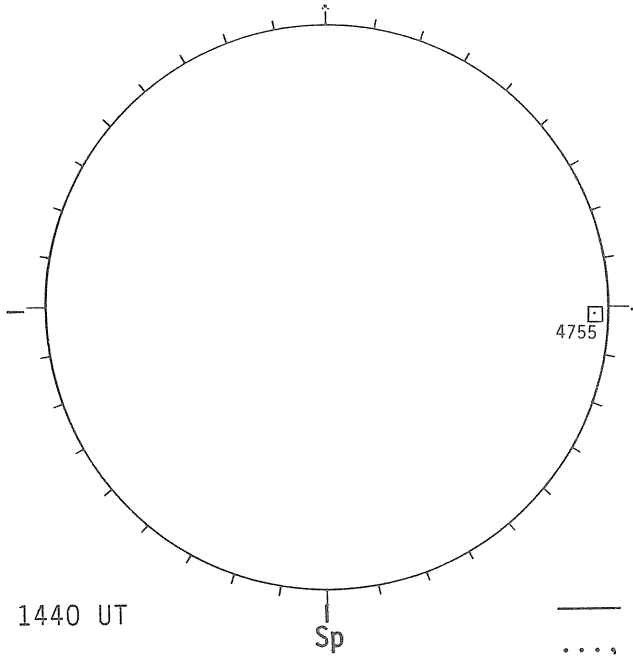
DeltaY=13.0
DeltaX= 9.7



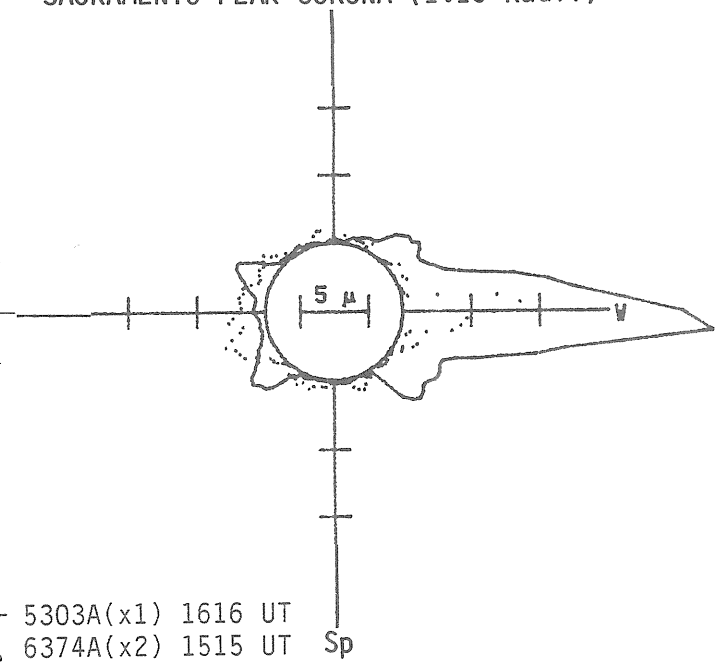
BOULDER H-ALPHA



RAMEY SUNSPOTS



SACRAMENTO PEAK CORONA (1.15 Radii)

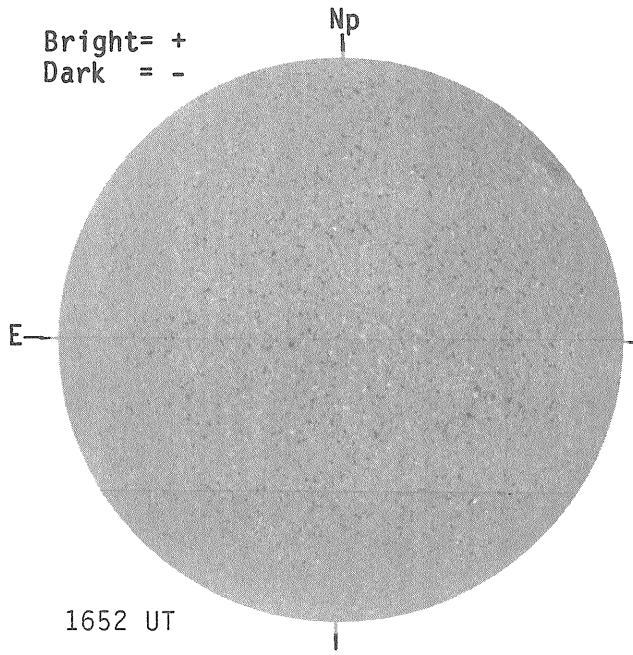


—— 5303A(x1) 1616 UT
...., 6374A(x2) 1515 UT
xxxx 5694A(x6) 1533 UT
NO 5694A ACTIVITY TODAY

N O V E M B E R 09, 1 9 8 6 (P= 22.90, B_0= 3.53, L_0= 14.43)

KITT PEAK MAGNETOGRAM

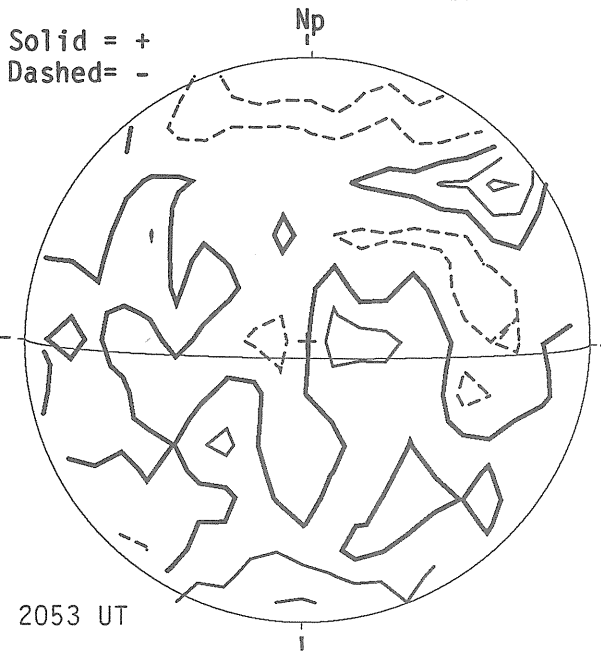
Bright= +
Dark = -



1652 UT

STANFORD MAGNETOGRAM

Solid = +
Dashed= -

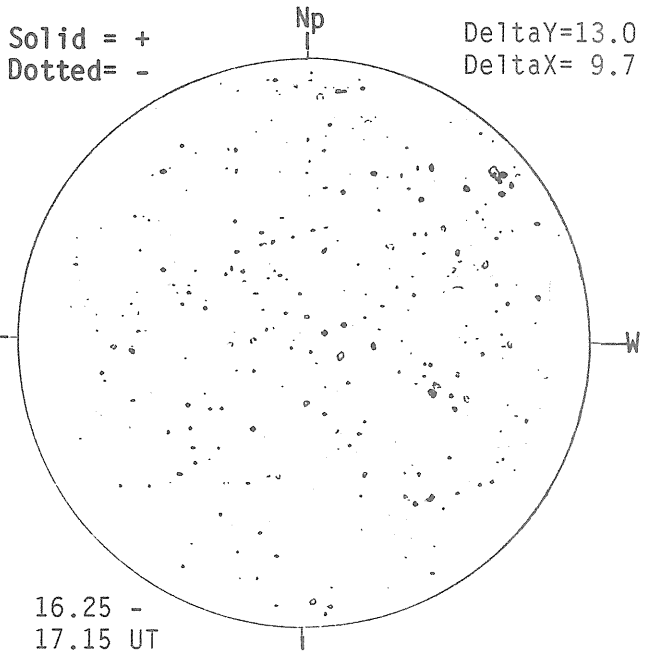


2053 UT

MT. WILSON MAGNETOGRAM

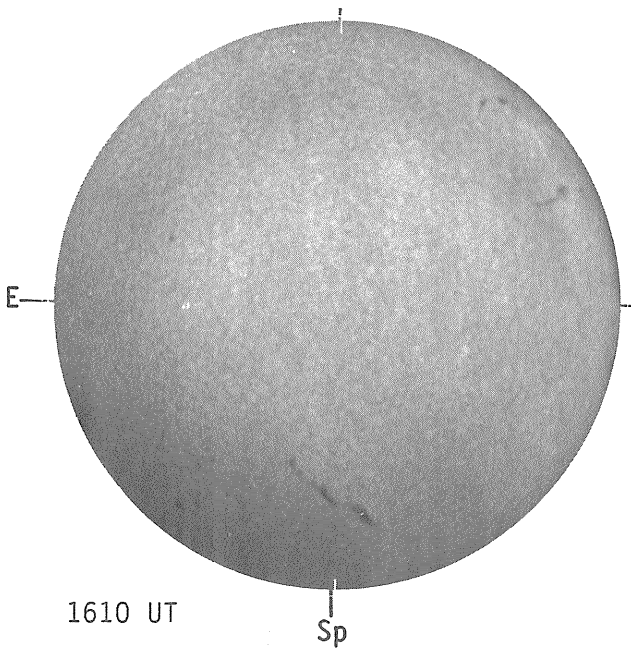
Solid = +
Dotted= -

DeltaY=13.0
DeltaX= 9.7



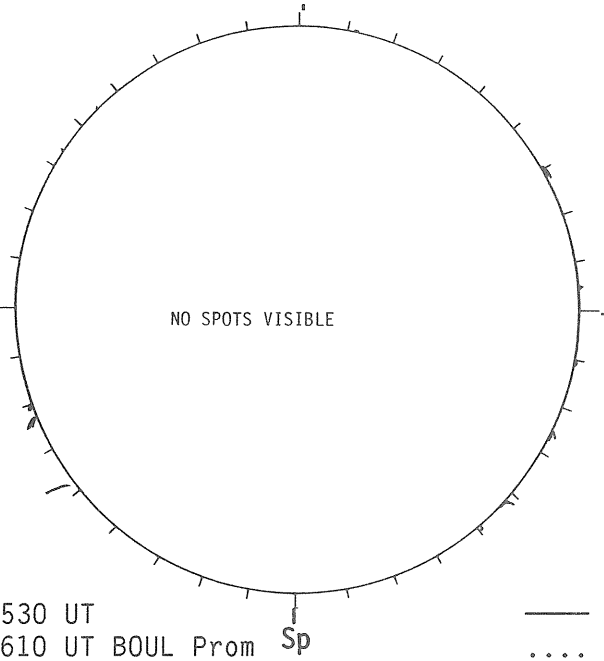
16.25 -
17.15 UT

BOULDER H-ALPHA



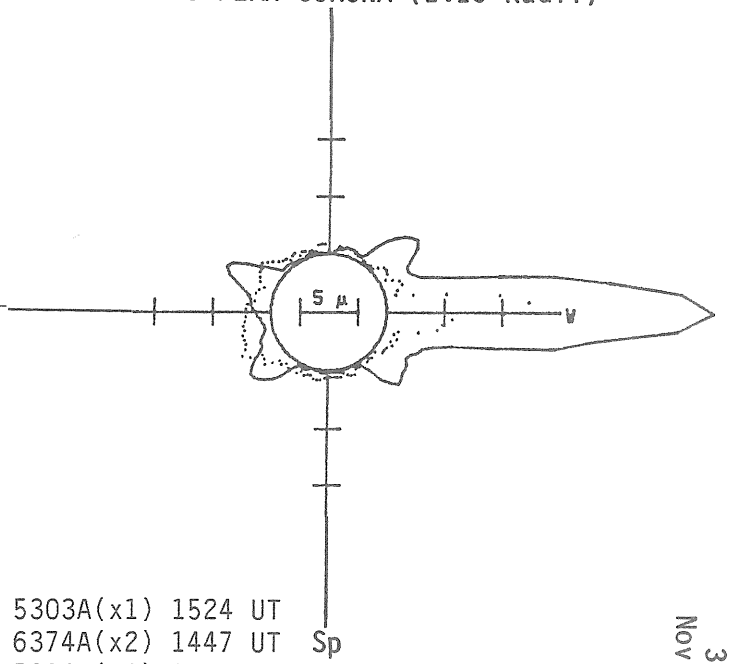
1610 UT

BOULDER SUNSPOTS



1530 UT
1610 UT BOUL Prom

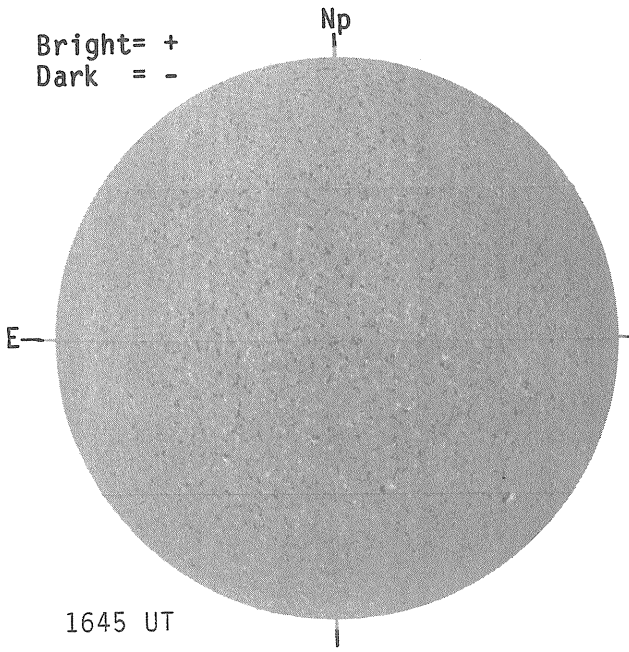
SACRAMENTO PEAK CORONA (1.15 Radii)

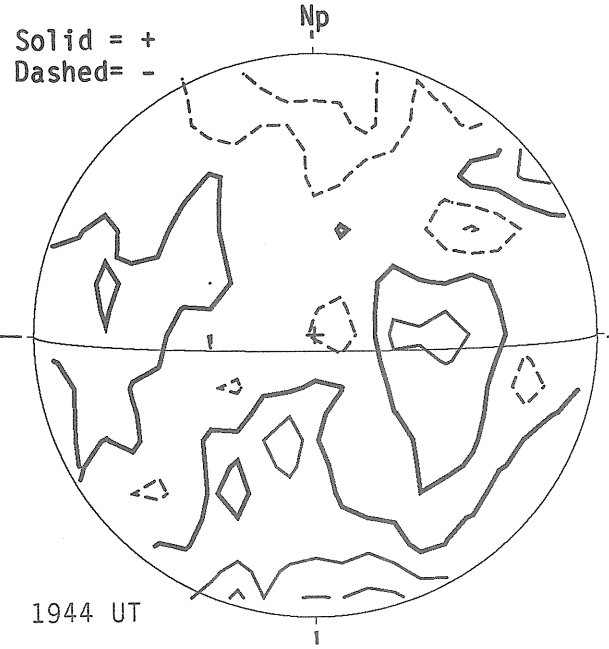


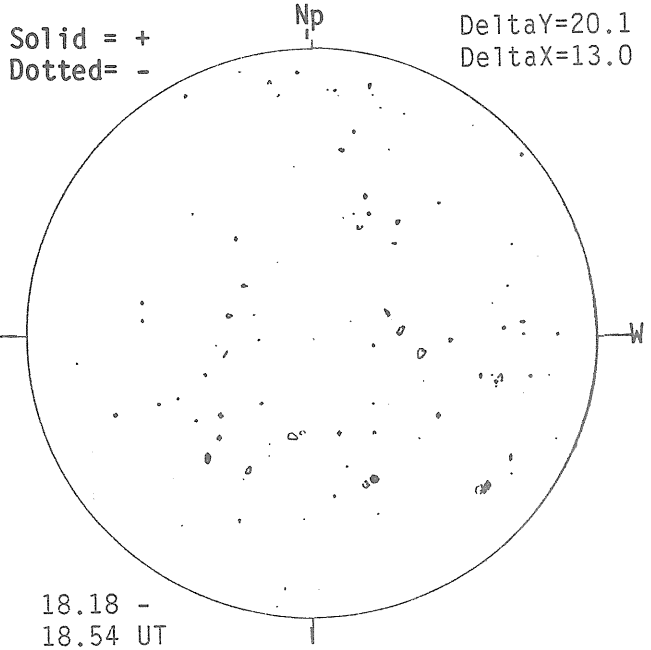
—— 5303A(x1) 1524 UT
.... 6374A(x2) 1447 UT
xxxx 5694A(x6) 1506 UT
NO 5694A ACTIVITY TODAY

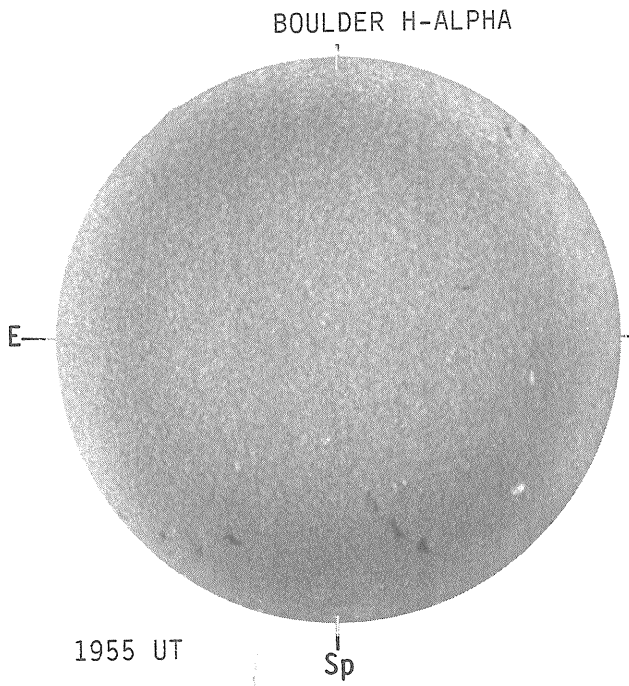
37
Nov 86

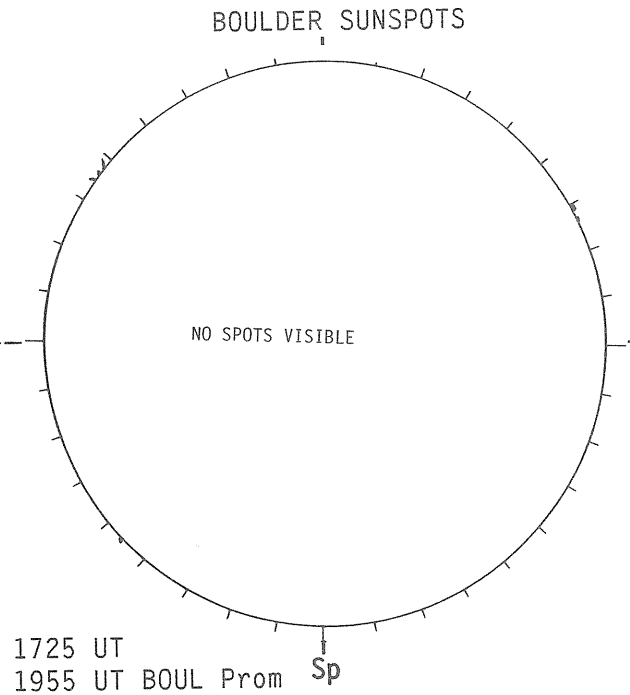
N O V E M B E R 10, 1 9 8 6 (P= 22.67, B_0= 3.42, L_0= 1.25)

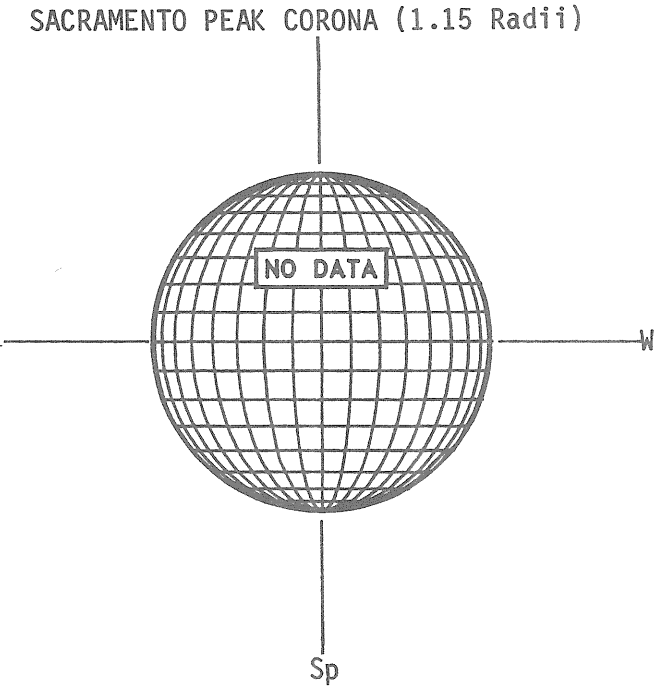




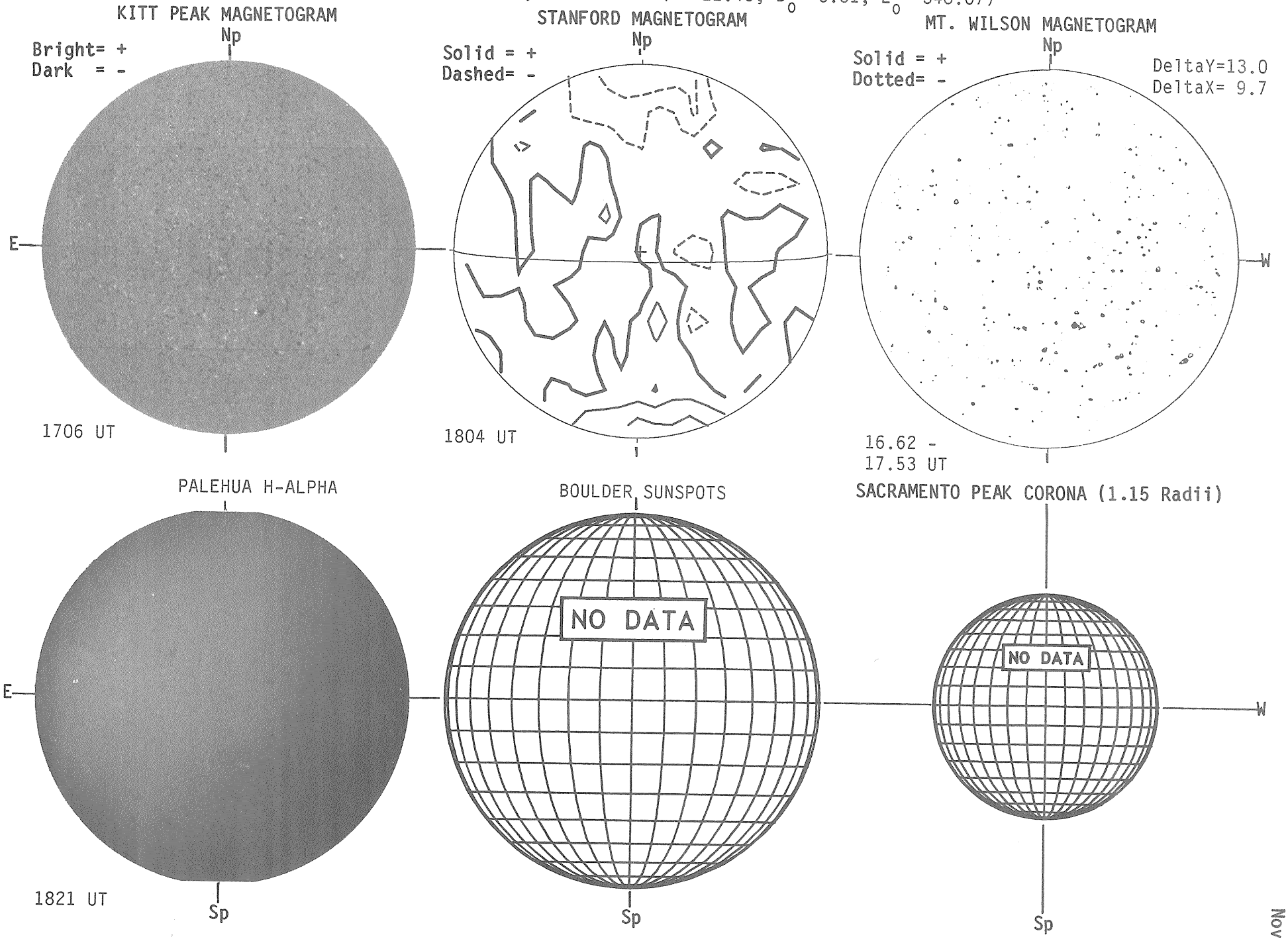




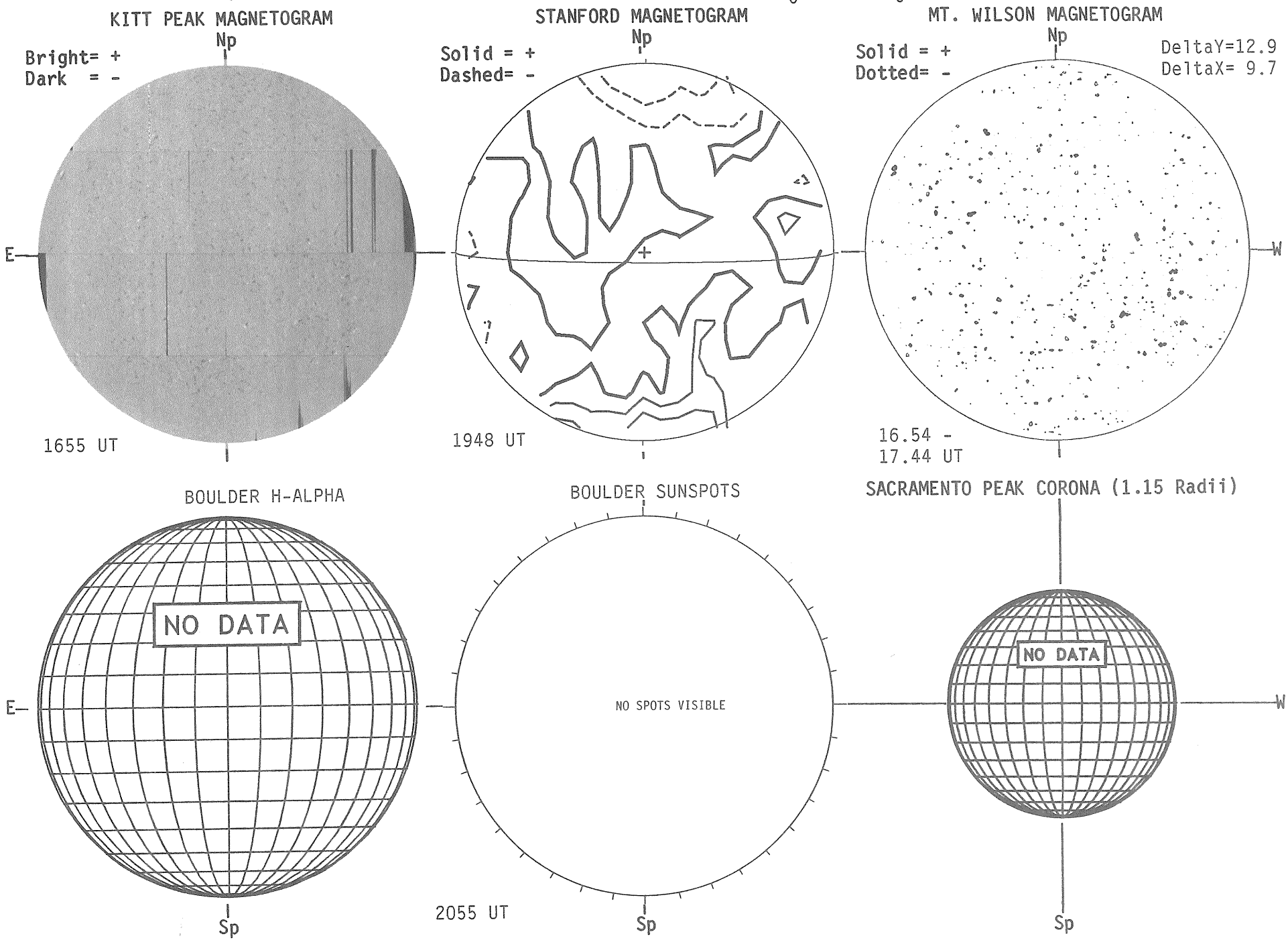




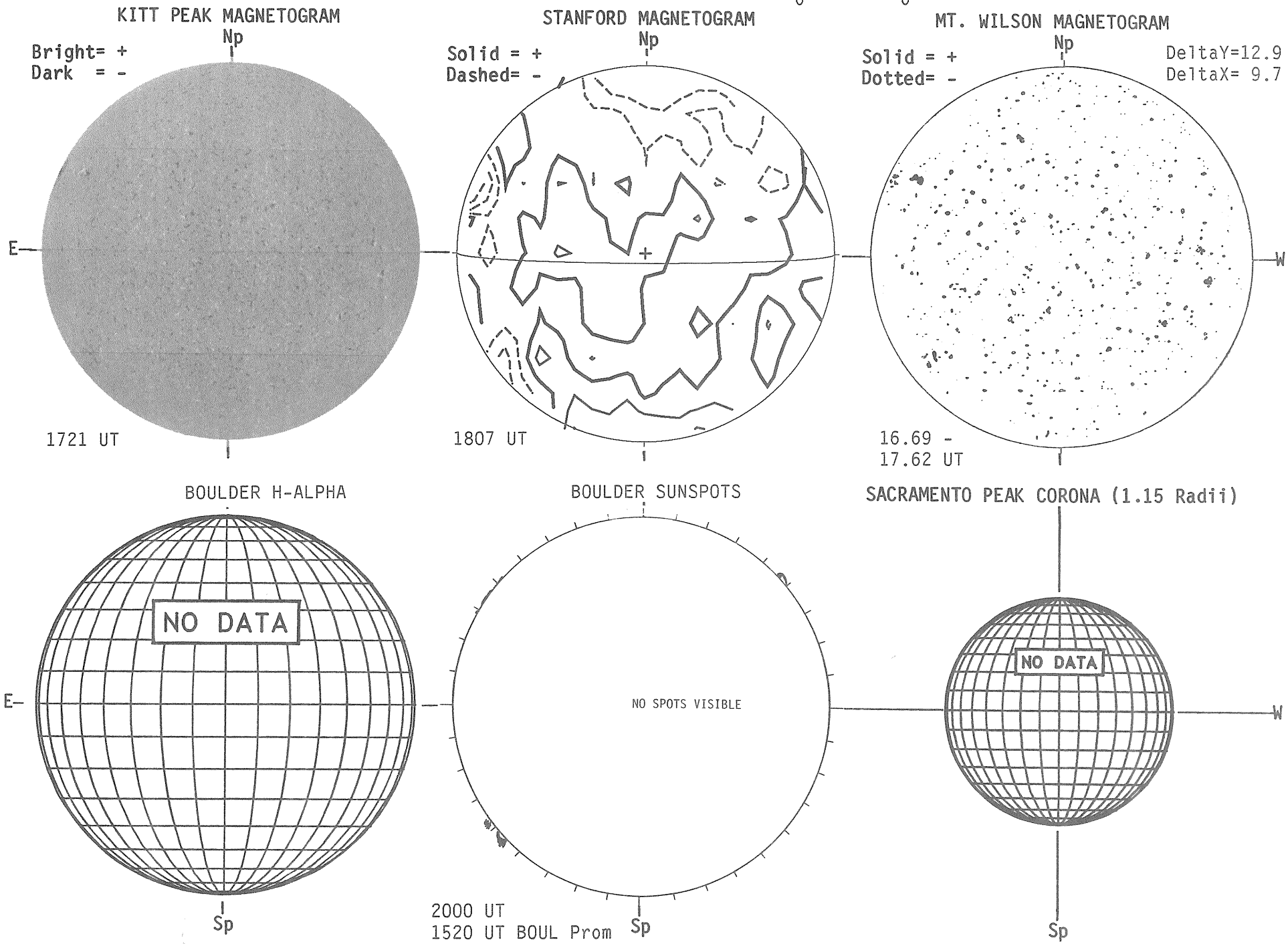
N O V E M B E R 11, 1 9 8 6 (P= 22.43, B_0= 3.31, L_0= 348.07)



N O V E M B E R 12, 1 9 8 6 (P= 22.18, B_0= 3.19, L_0= 334.88)



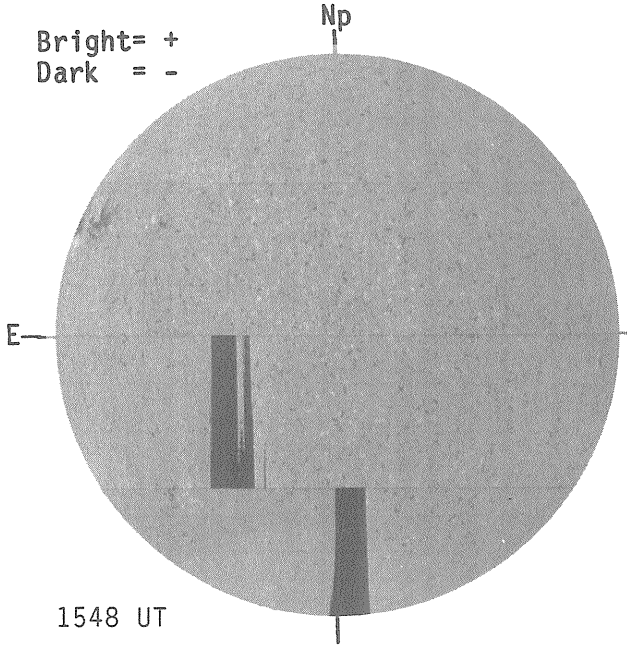
N O V E M B E R 13, 1 9 8 6 (P= 21.93, B_0= 3.08, L_0= 321.70)



N O V E M B E R 14, 1 9 8 6 (P= 21.67, B_0= 2.97, L_0= 308.52)

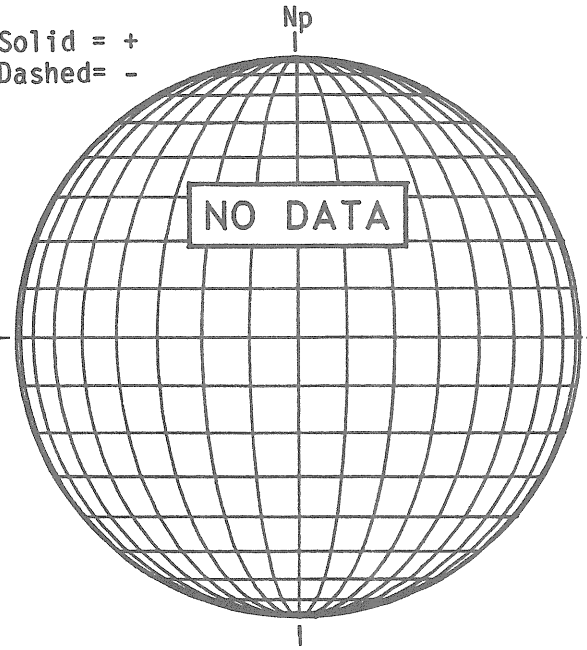
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



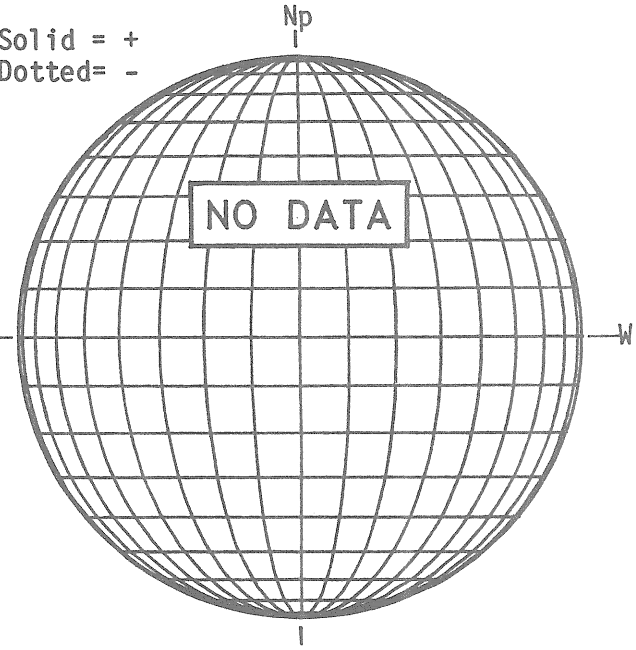
STANFORD MAGNETOGRAM

Solid = +
Dashed= -

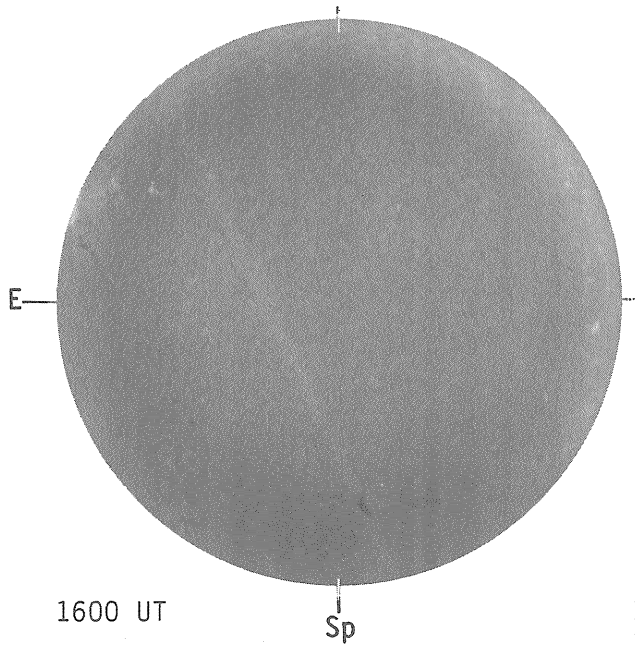


MT. WILSON MAGNETOGRAM

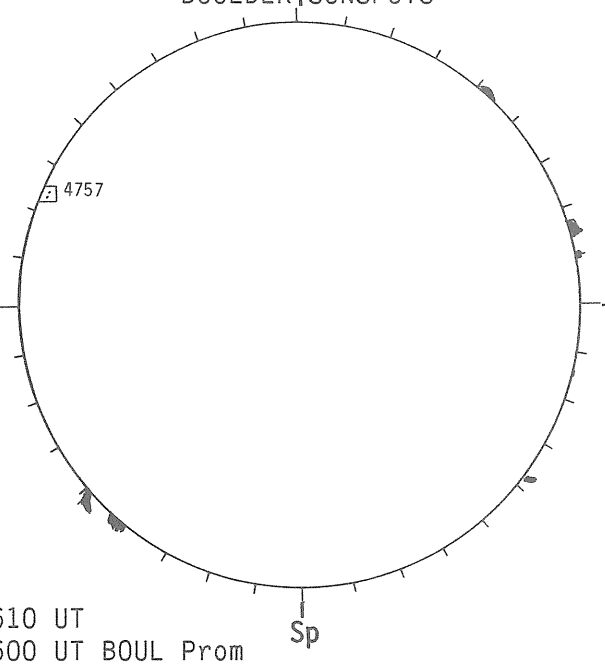
Solid = +
Dotted= -



BOULDER H-ALPHA

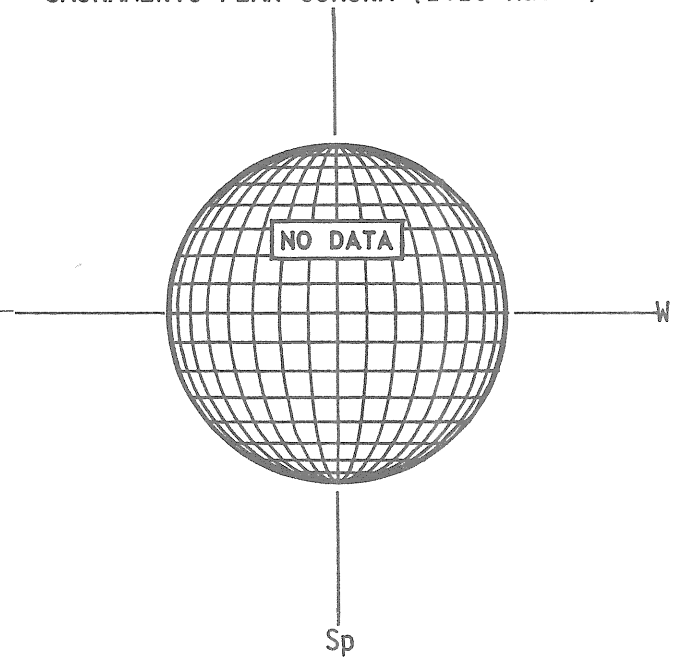


BOULDER SUNSPOTS



1610 UT
1600 UT BOUL Prom

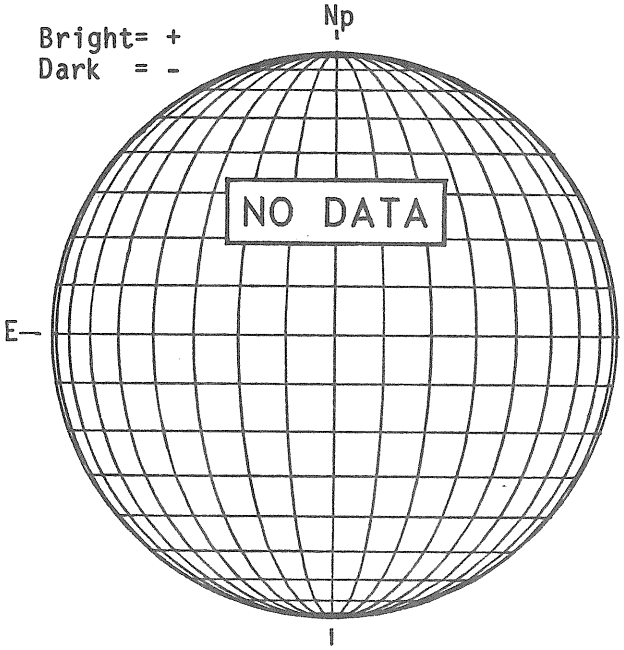
SACRAMENTO PEAK CORONA (1.15 Radii)



N O V E M B E R 15, 1 9 8 6 (P= 21.40, B_0= 2.85, L_0= 295.33)

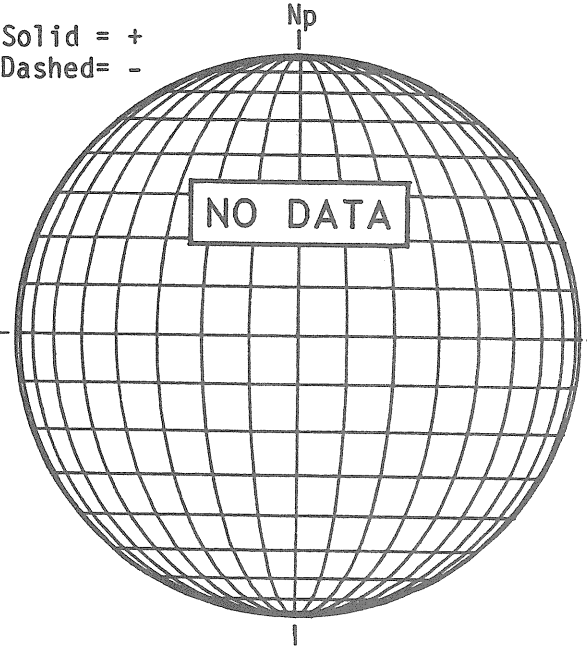
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



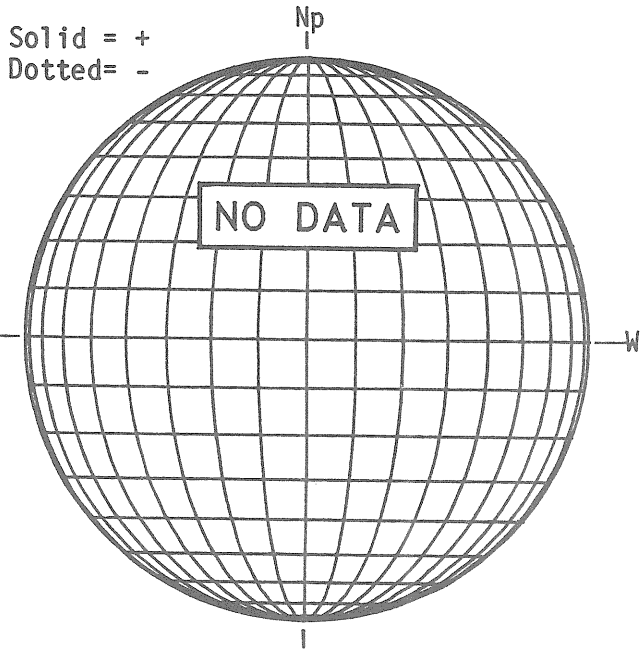
STANFORD MAGNETOGRAM

Solid = +
Dashed= -

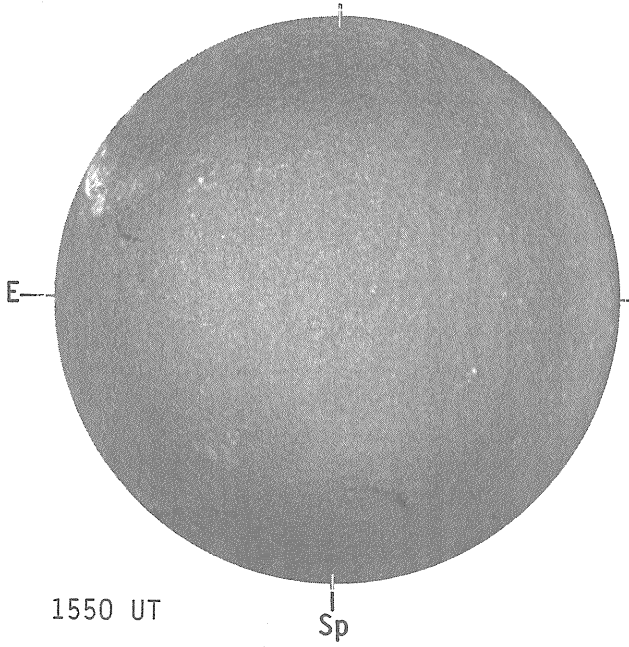


MT. WILSON MAGNETOGRAM

Solid = +
Dotted= -

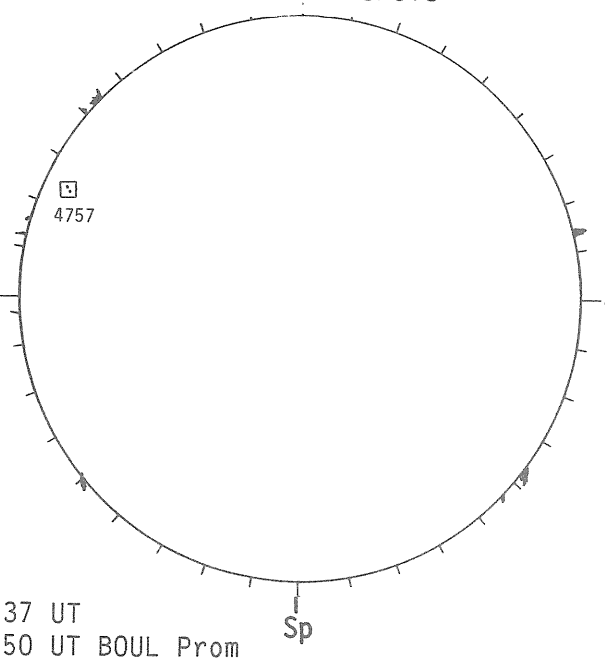


BOULDER H-ALPHA



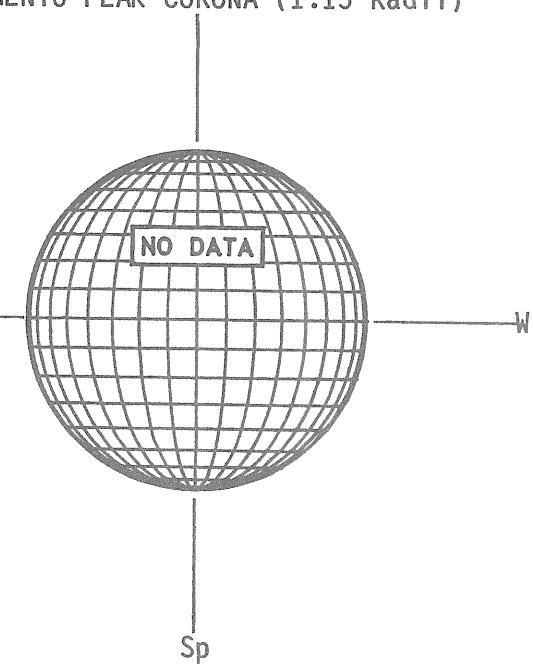
1550 UT

BOULDER SUNSPOTS



1537 UT
1550 UT BOUL Prom

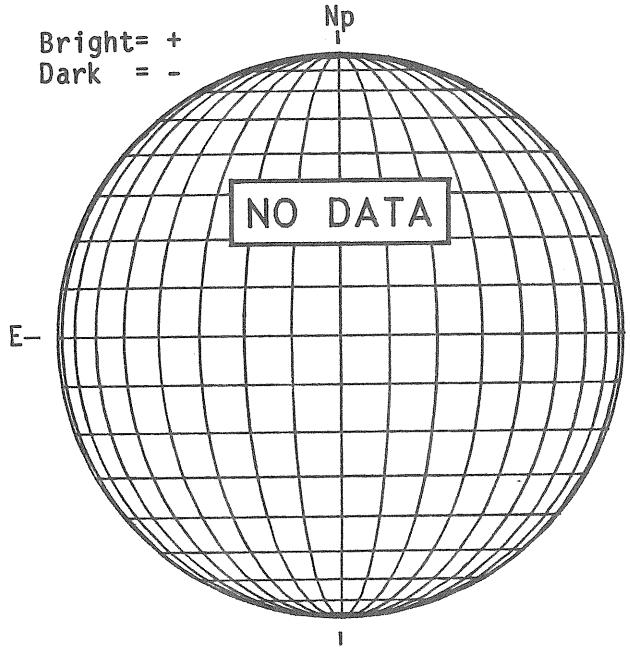
SACRAMENTO PEAK CORONA (1.15 Radii)



N O V E M B E R 16, 1 9 8 6 (P= 21.12, B_0= 2.74, L_0= 282.15)

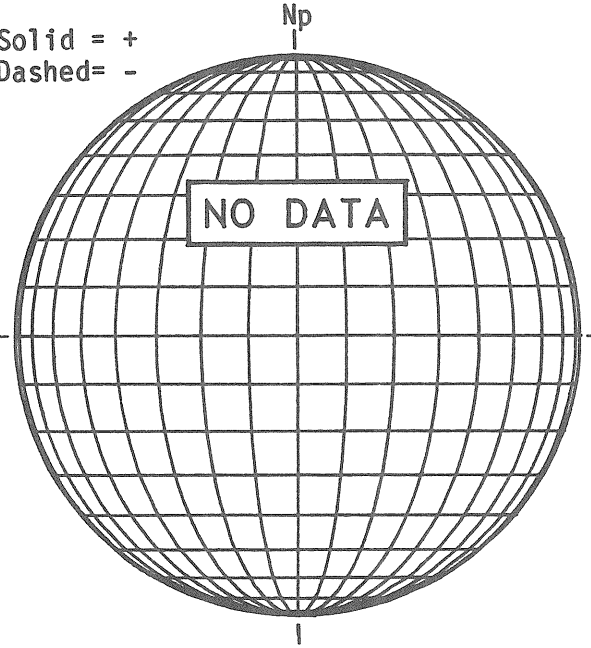
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



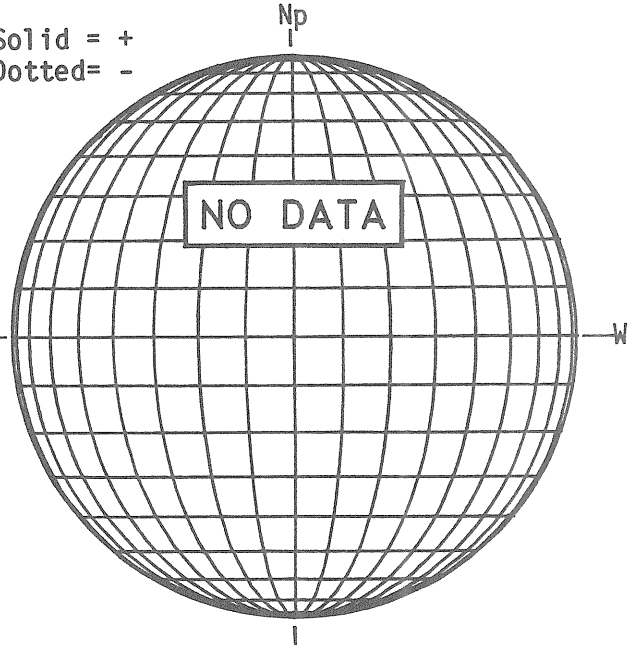
STANFORD MAGNETOGRAM

Solid = +
Dashed= -

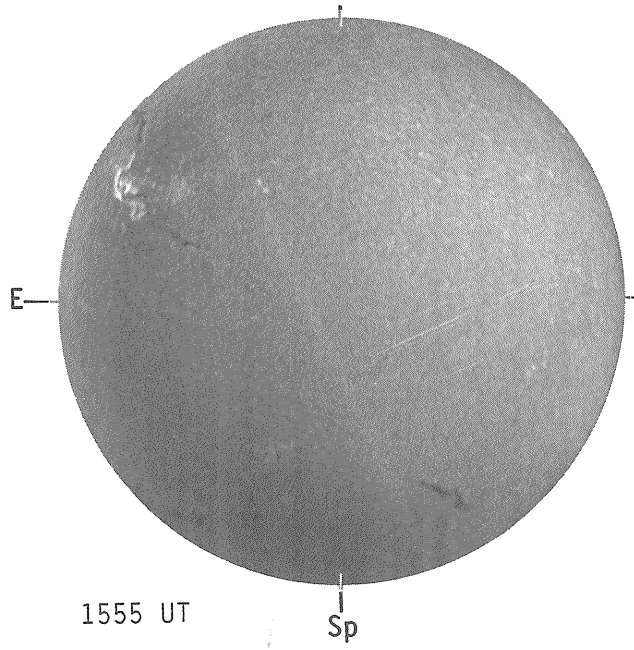


MT. WILSON MAGNETOGRAM

Solid = +
Dotted= -

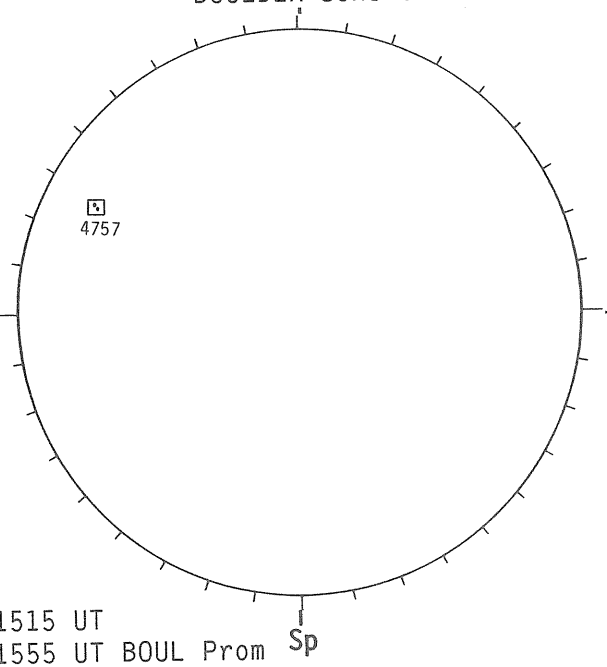


BOULDER H-ALPHA



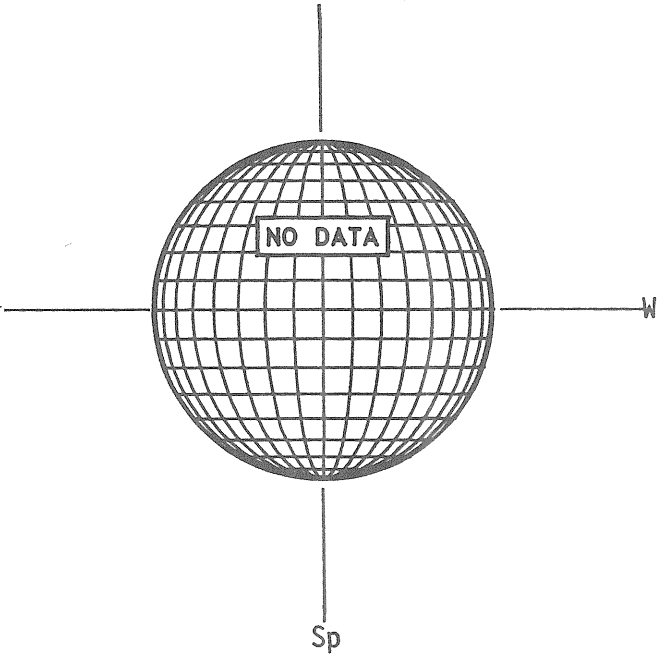
1555 UT

BOULDER SUNSPOTS



1515 UT
1555 UT BOUL Prom

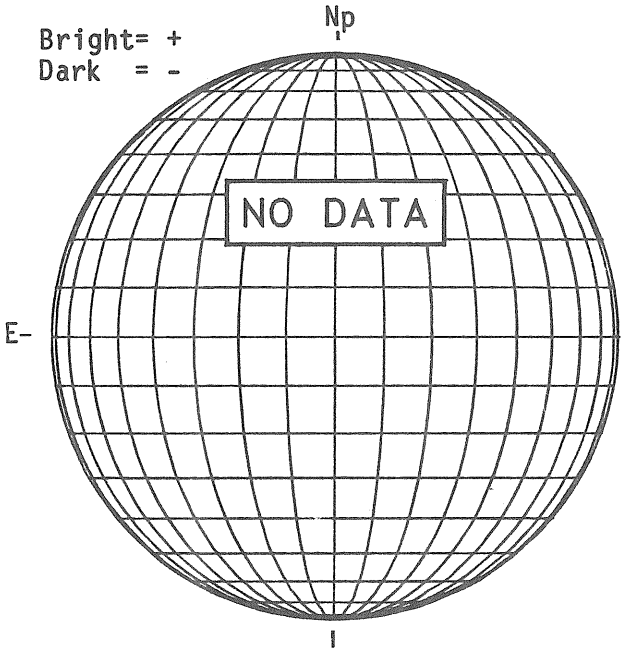
SACRAMENTO PEAK CORONA (1.15 Radii)



N O V E M B E R 17, 1 9 8 6 (P= 20.84, B_0= 2.62, L_0= 268.97)

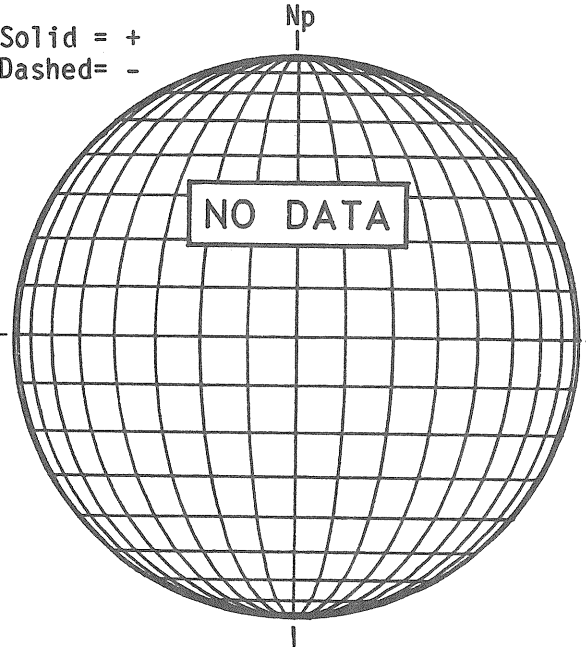
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



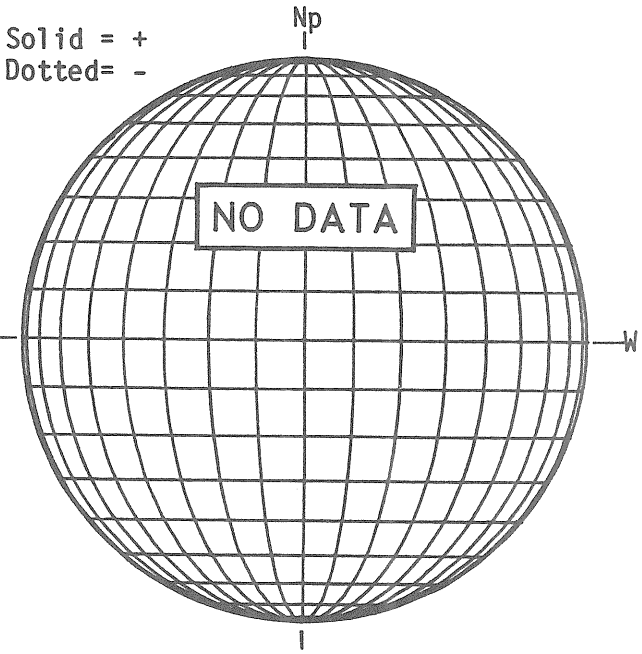
STANFORD MAGNETOGRAM

Solid = +
Dashed= -

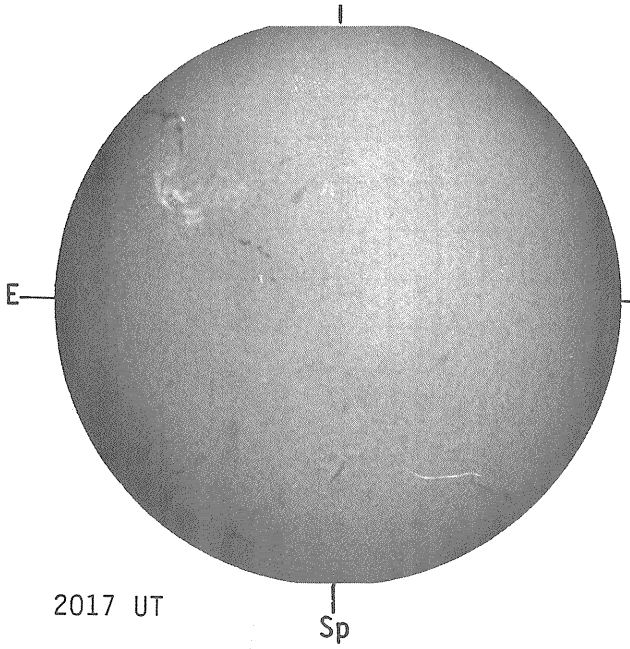


MT. WILSON MAGNETOGRAM

Solid = +
Dotted= -

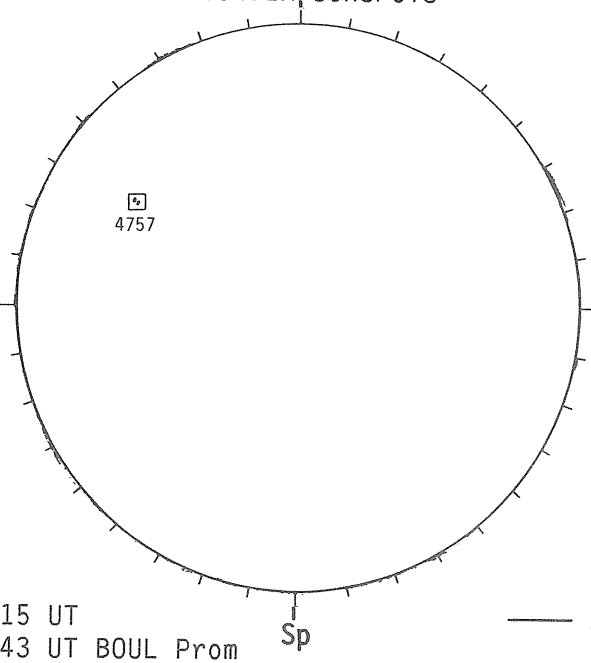


PALEHUA H-ALPHA



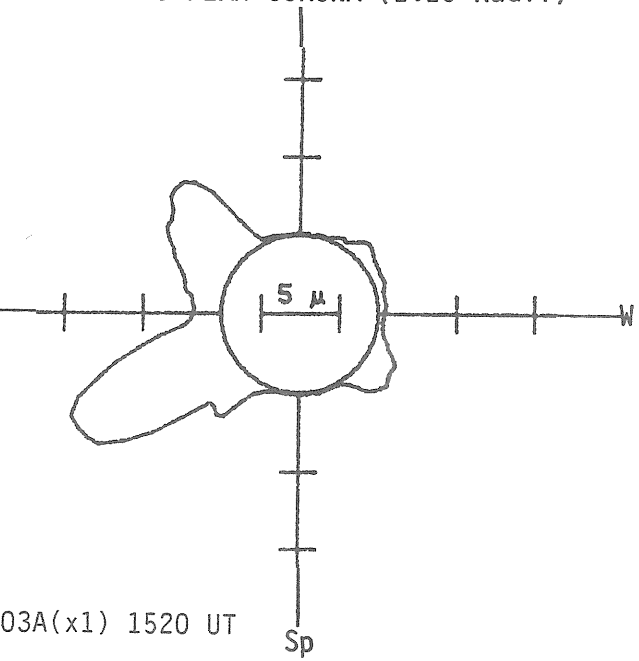
2017 UT

BOULDER SUNSPOTS



1615 UT
1643 UT BOUL Prom

SACRAMENTO PEAK CORONA (1.15 Radii)

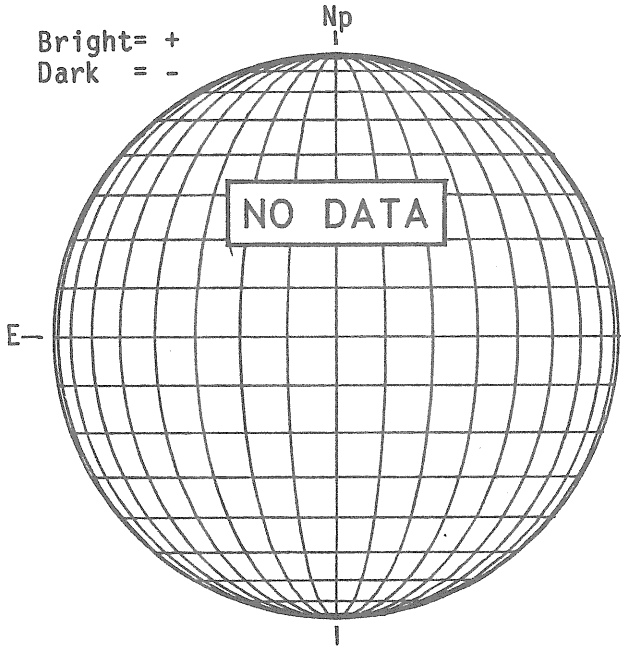


—— 5303A(x1) 1520 UT

N O V E M B E R 18, 1 9 8 6 (P= 20.55, B_0= 2.50, L_0= 255.78)

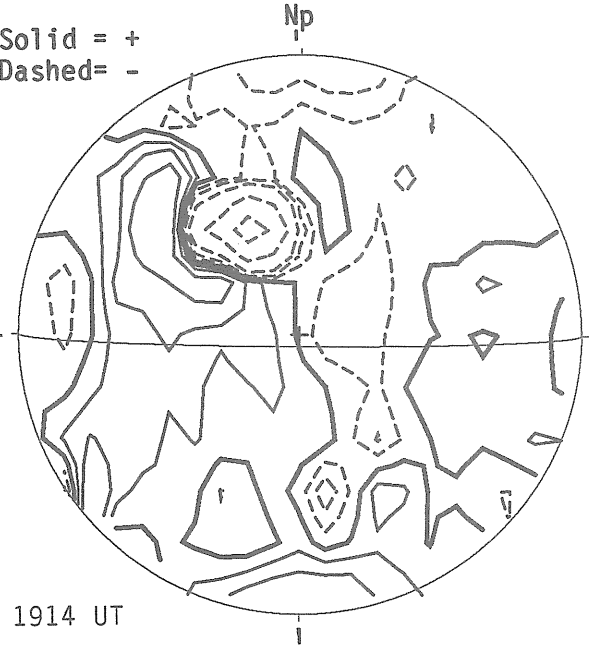
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



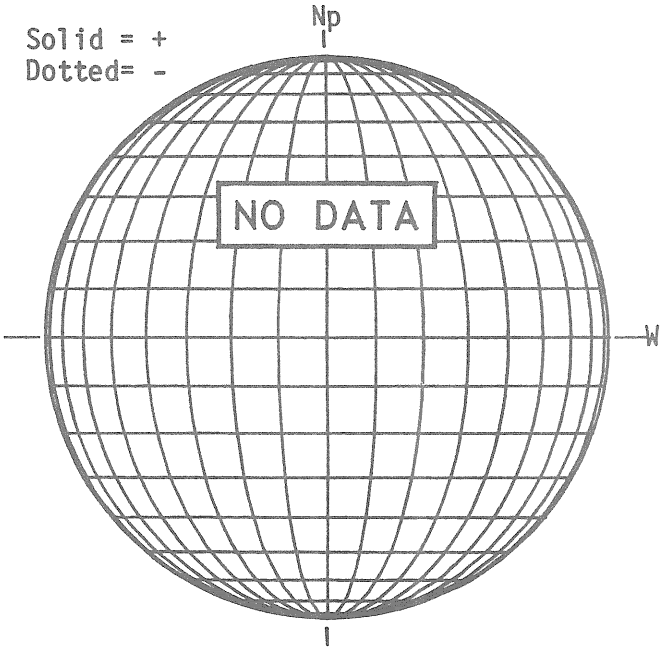
STANFORD MAGNETOGRAM

Solid = +
Dashed= -

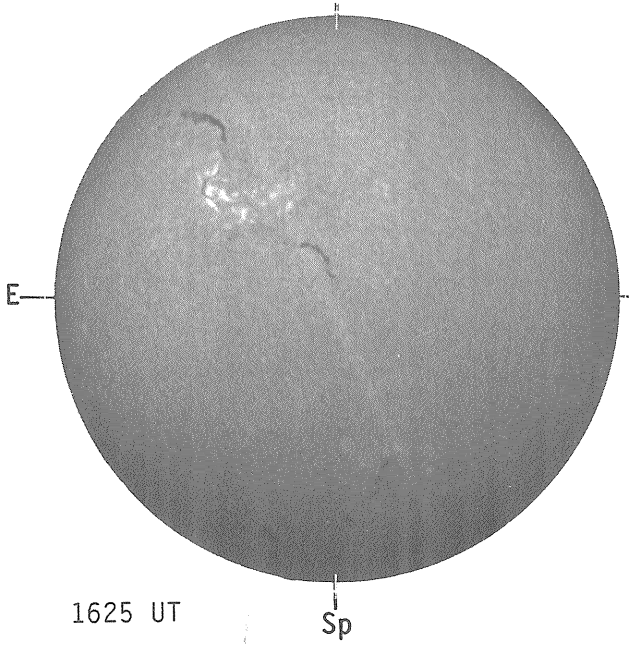


MT. WILSON MAGNETOGRAM

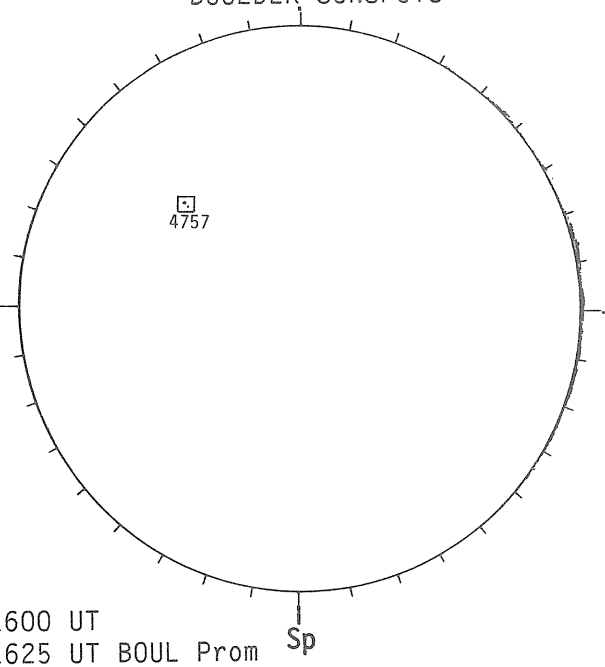
Solid = +
Dotted= -



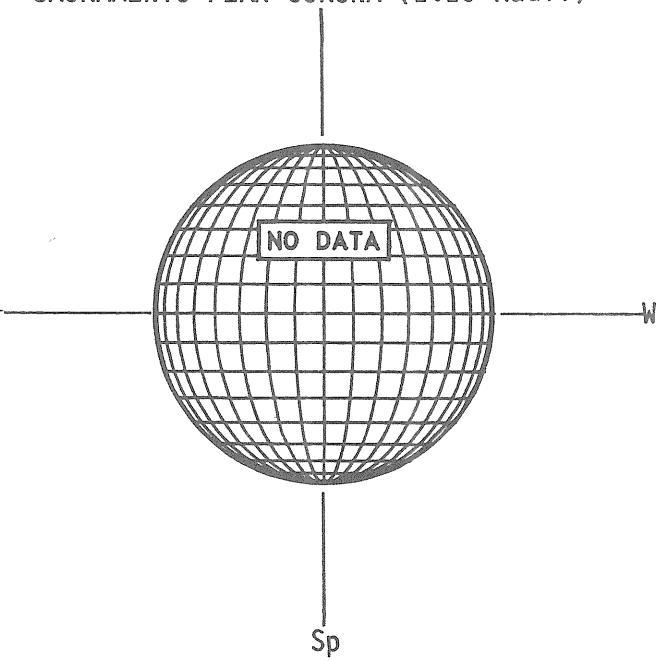
BOULDER H-ALPHA



BOULDER SUNSPOTS



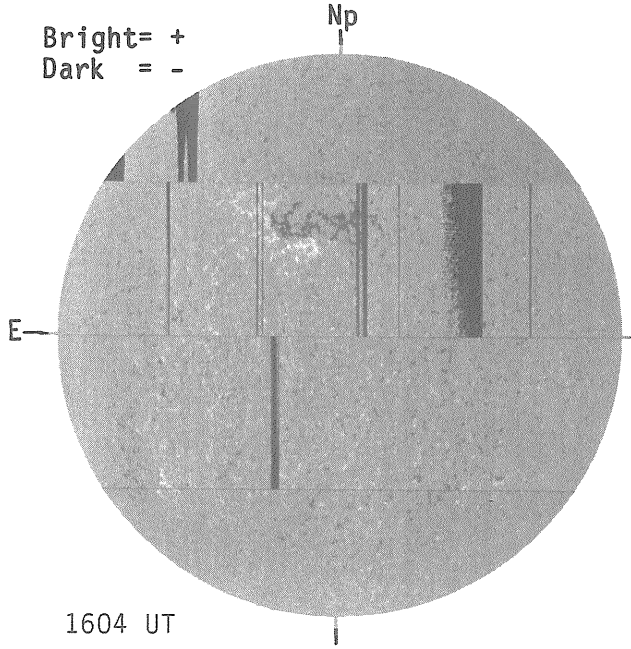
SACRAMENTO PEAK CORONA (1.15 Radii)



N O V E M B E R 19, 1 9 8 6 (P= 20.25, B_o= 2.39, L_o= 242.60)

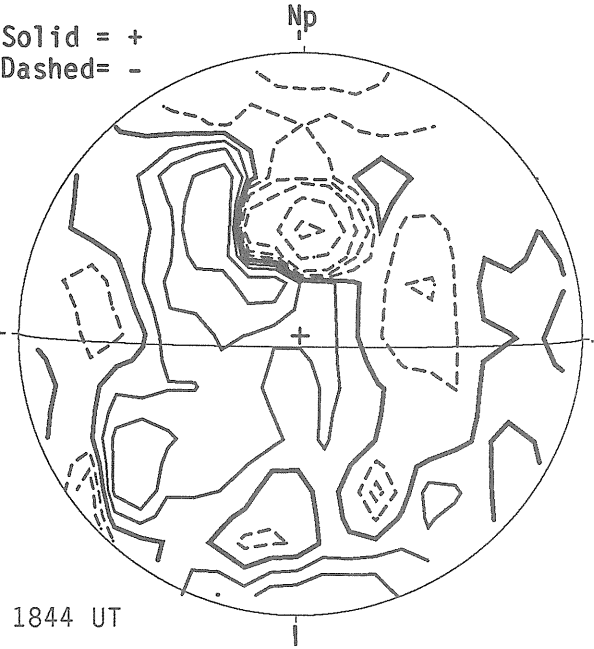
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



STANFORD MAGNETOGRAM

Solid = +
Dashed= -

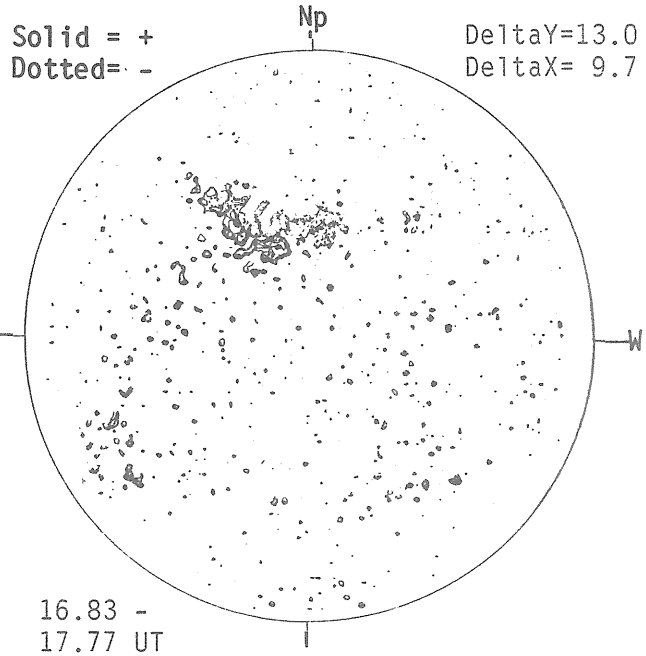


1844 UT

MT. WILSON MAGNETOGRAM

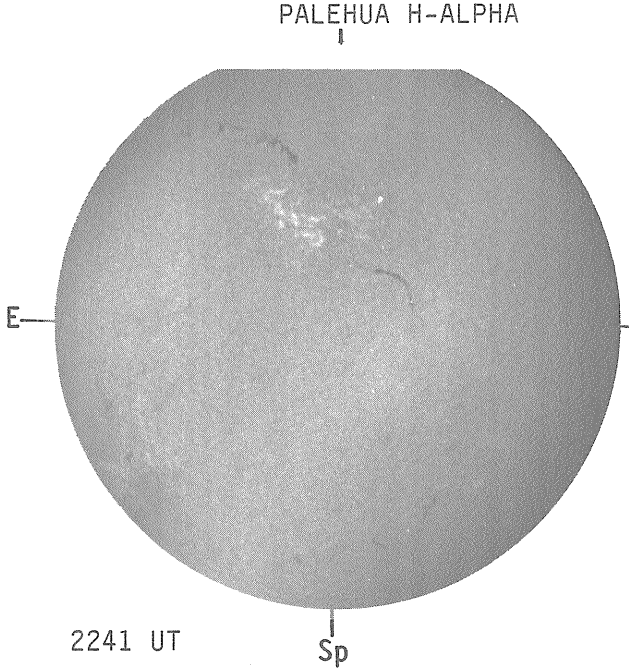
Solid = +
Dotted= -

DeltaY=13.0
DeltaX= 9.7



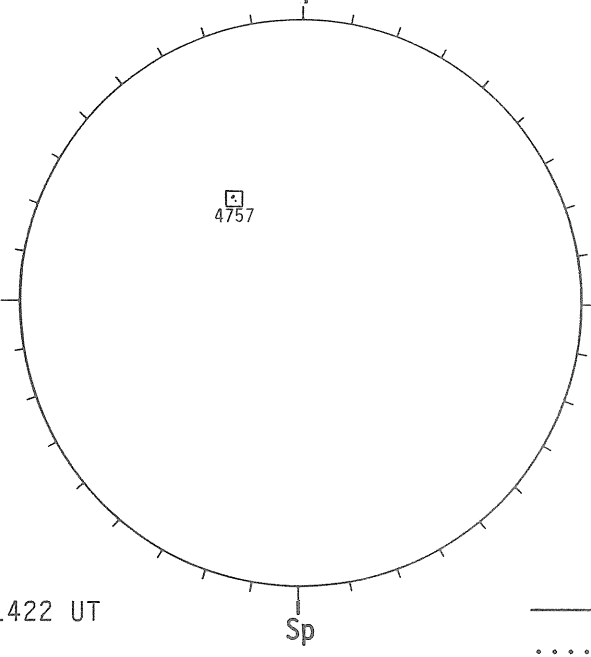
16.83 -
17.77 UT

PALEHUA H-ALPHA



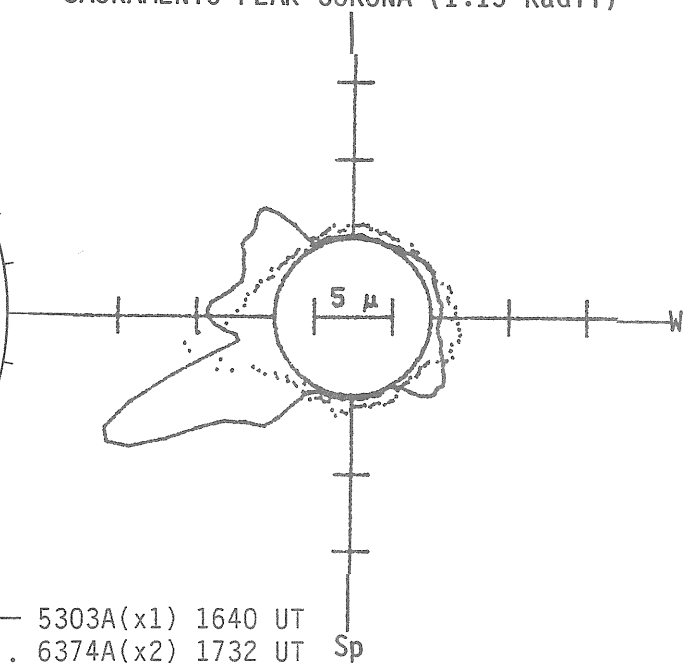
2241 UT

BOULDER SUNSPOTS



1422 UT

SACRAMENTO PEAK CORONA (1.15 Radii)

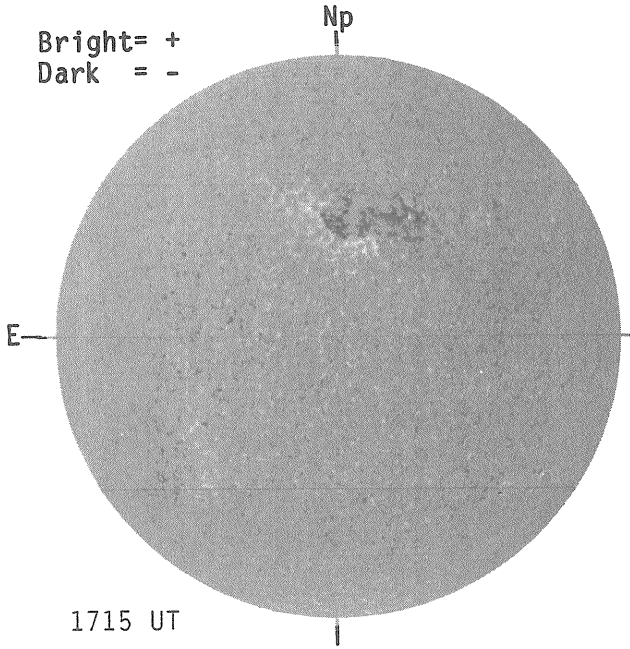


—— 5303A(x1) 1640 UT
.... 6374A(x2) 1732 UT
xxxx 5694A(x6) 1719 UT
NO 5694A ACTIVITY TODAY

N O V E M B E R 20, 1 9 8 6 (P= 19.94, B_0= 2.27, L_0= 229.42)

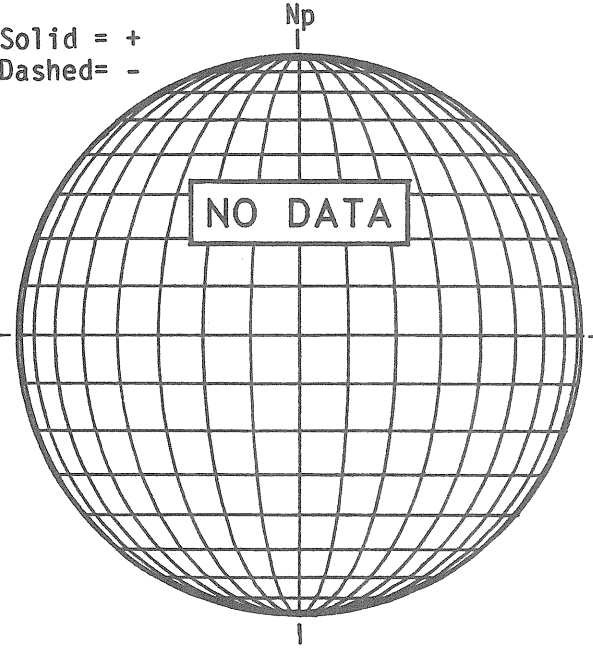
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



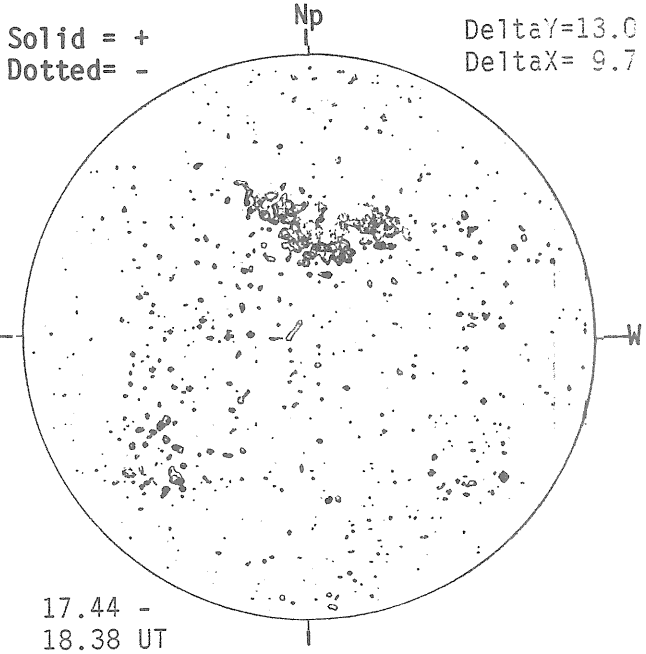
STANFORD MAGNETOGRAM

Solid = +
Dashed= -

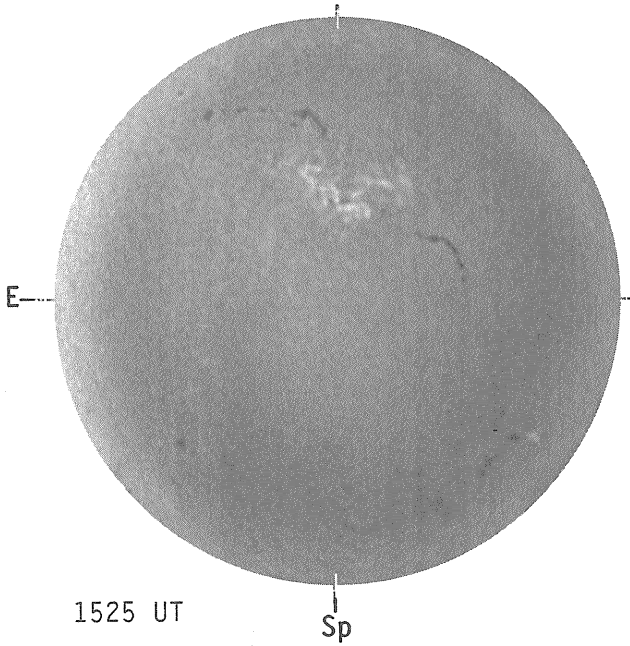


MT. WILSON MAGNETOGRAM

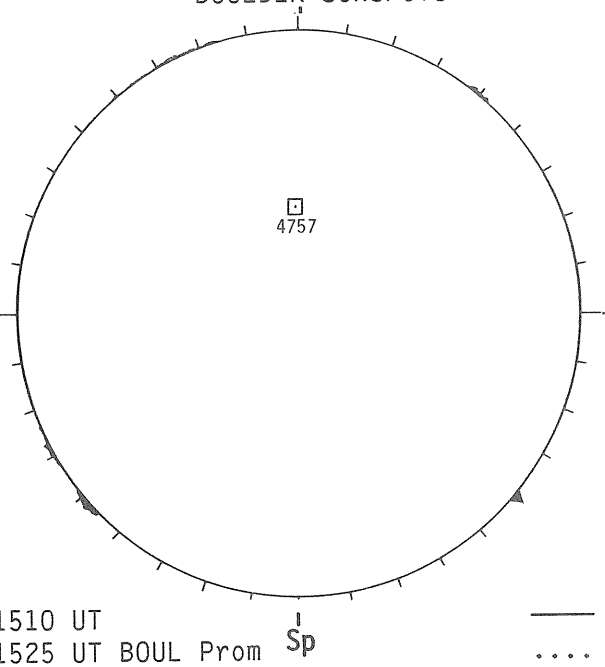
Solid = +
Dotted= -



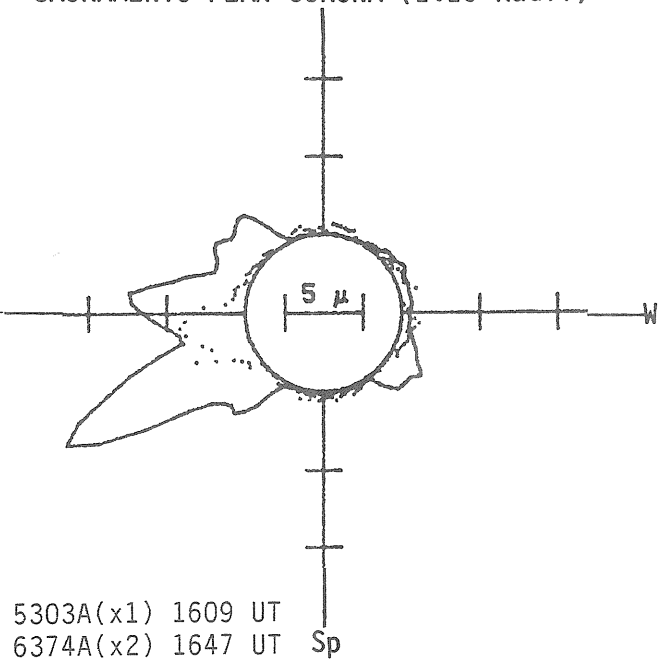
BOULDER H-ALPHA



BOULDER SUNSPOTS



SACRAMENTO PEAK CORONA (1.15 Radii)

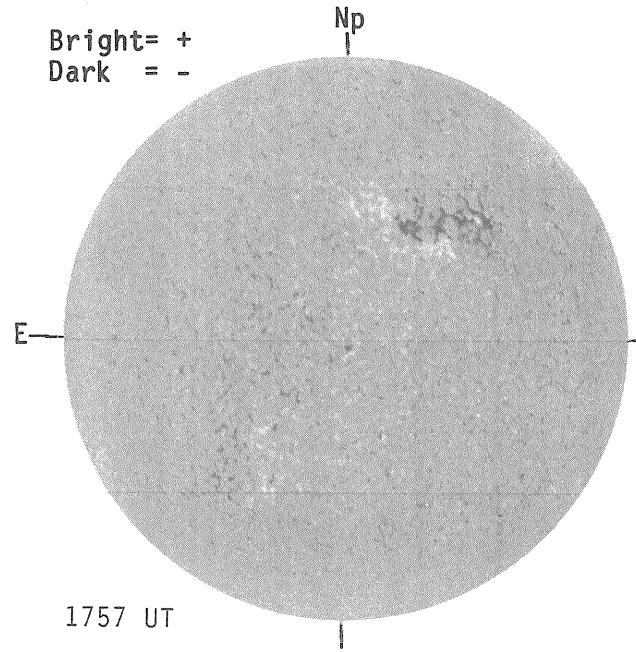


—— 5303A(x1) 1609 UT
.... 6374A(x2) 1647 UT
xxxx 5694A(x6) 1631 UT
NO 5694A ACTIVITY TODAY

N O V E M B E R 21, 1 9 8 6 (P= 19.63, B_0= 2.15, L_0= 216.24)

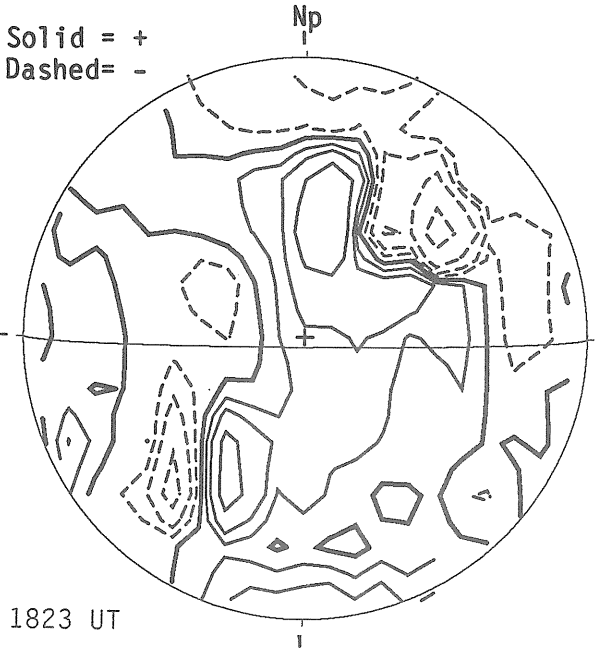
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



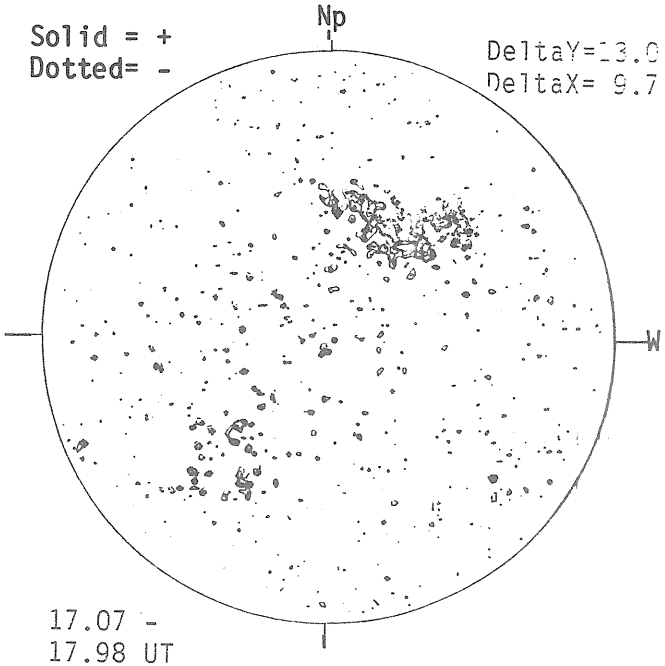
STANFORD MAGNETOGRAM

Solid = +
Dashed= -

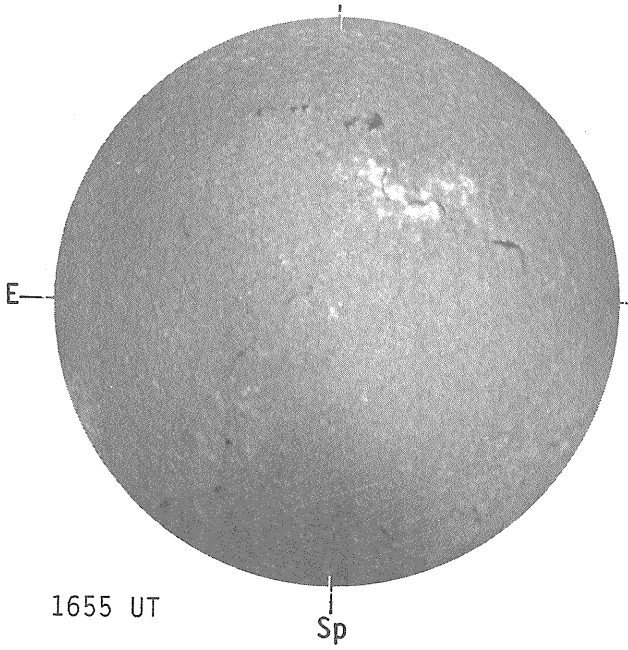


MT. WILSON MAGNETOGRAM

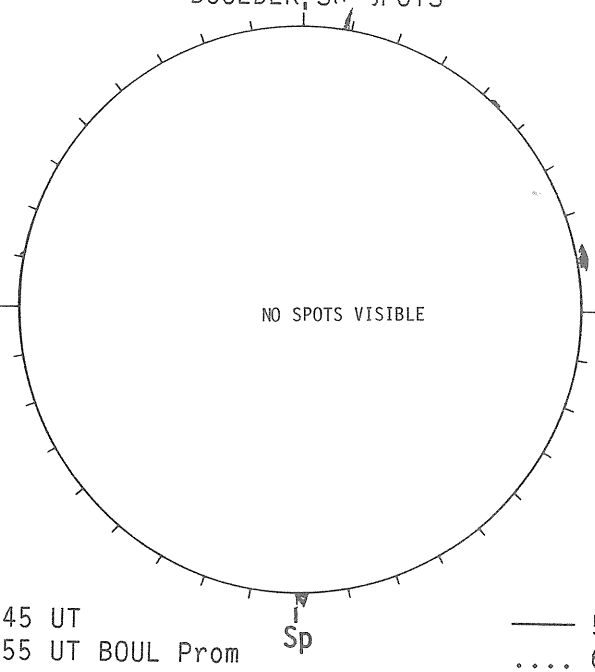
Solid = +
Dotted= -



BOULDER H-ALPHA

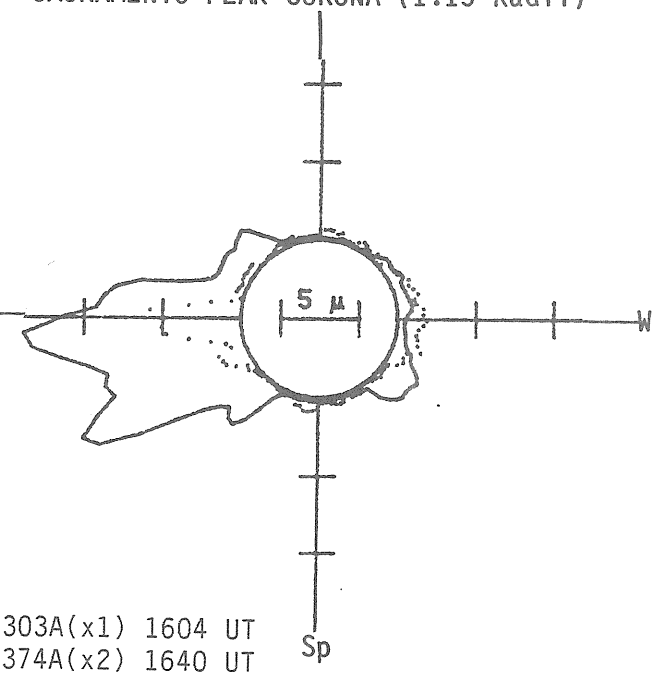


BOULDER SUNSPOTS



1545 UT
1655 UT BOUL Prom

SACRAMENTO PEAK CORONA (1.15 Radii)

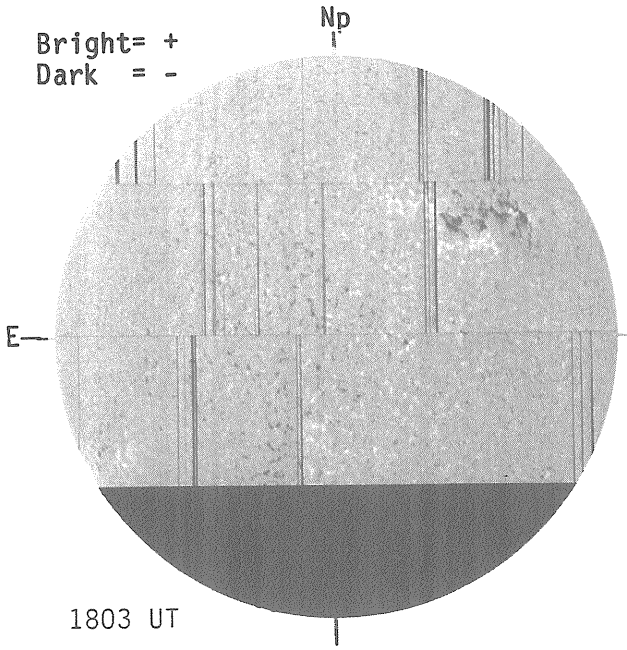


—— 5303A(x1) 1604 UT
.... 6374A(x2) 1640 UT
xxxx 5694A(x6) 1625 UT
NO 5694A ACTIVITY TODAY

N O V E M B E R 22, 1 9 8 6 (P= 19.31, B_0= 2.03, L_0= 203.06)

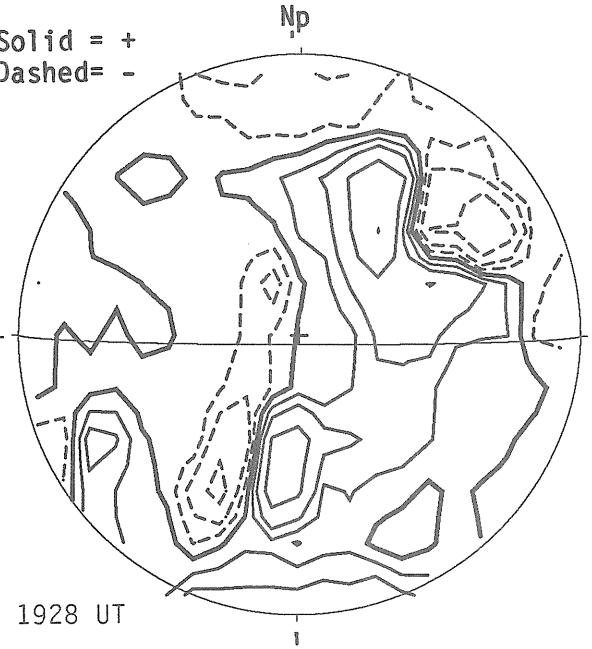
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



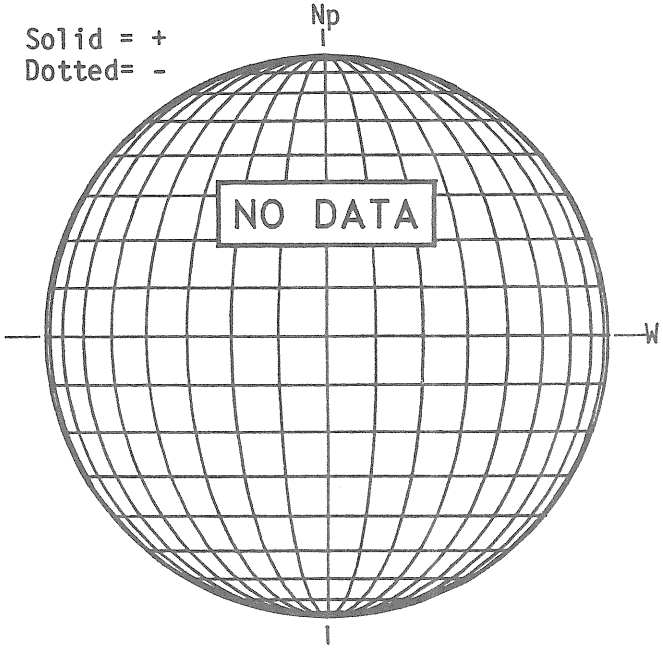
STANFORD MAGNETOGRAM

Solid = +
Dashed= -

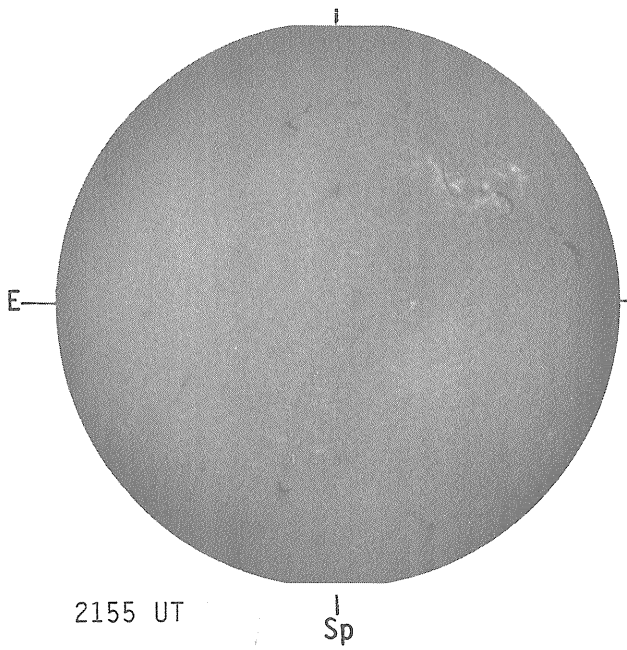


MT. WILSON MAGNETOGRAM

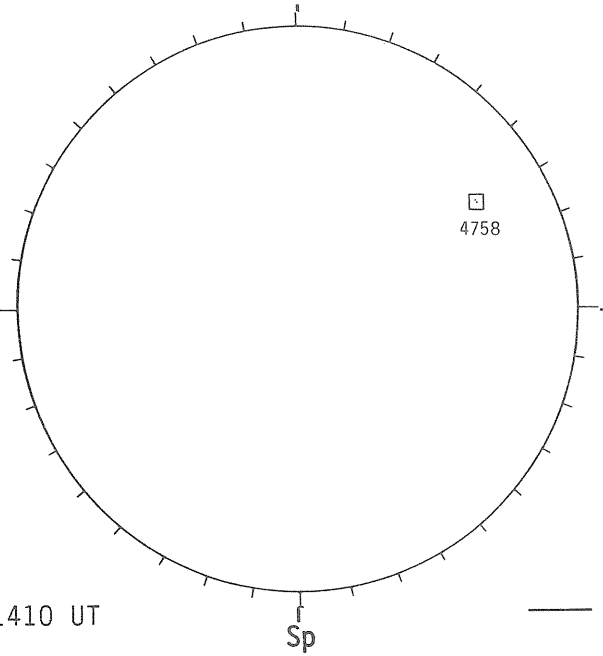
Solid = +
Dotted= -



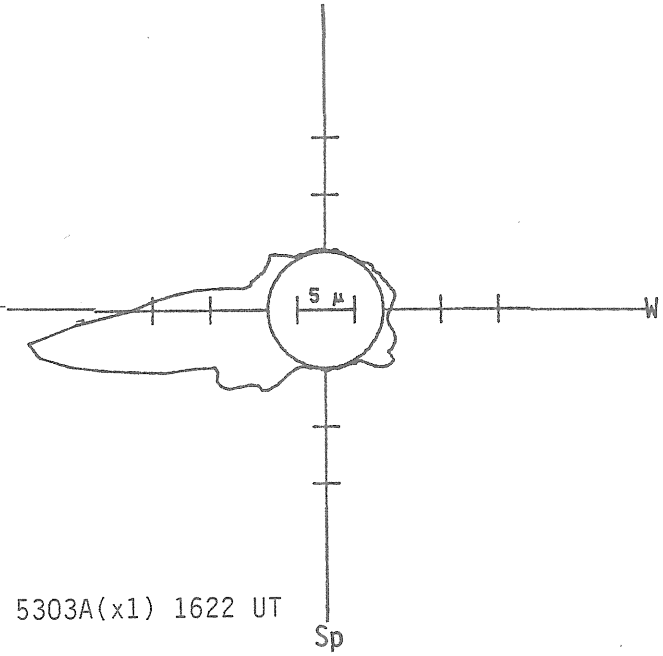
PALEHUA H-ALPHA



RAMEY SUNSPOTS

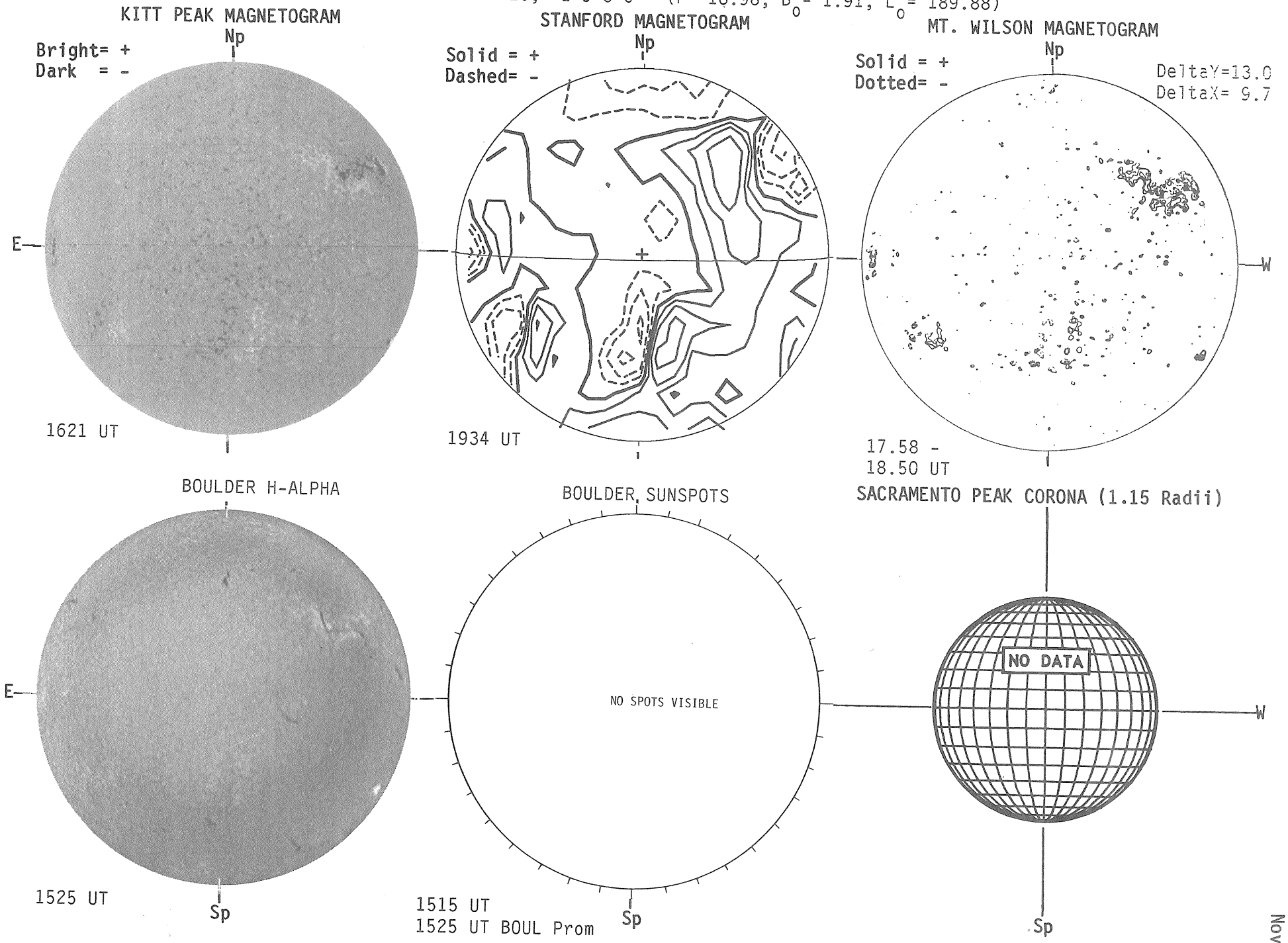


SACRAMENTO PEAK CORONA (1.15 Radii)



—— 5303A(x1) 1622 UT

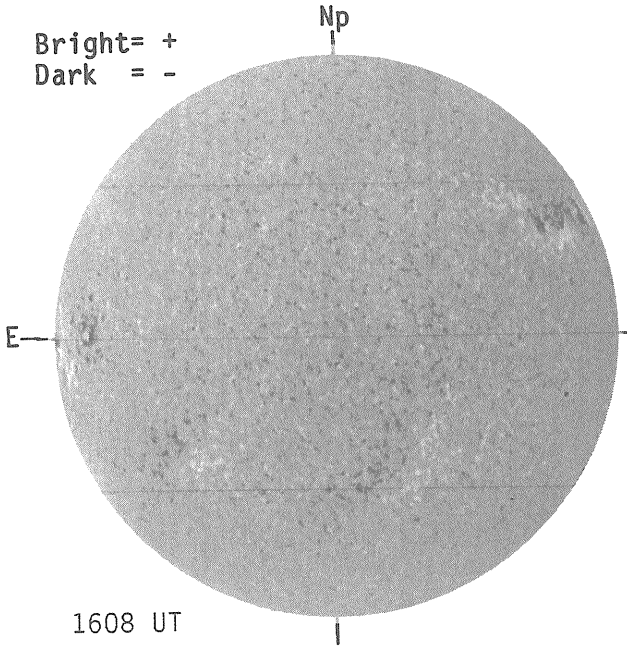
N O V E M B E R 23, 1 9 8 6 (P= 18.98, B_0= 1.91, L_0= 189.88)



N O V E M B E R 24, 1 9 8 6 (P= 18.64, B_0= 1.79, L_0= 176.70)

KITT PEAK MAGNETOGRAM

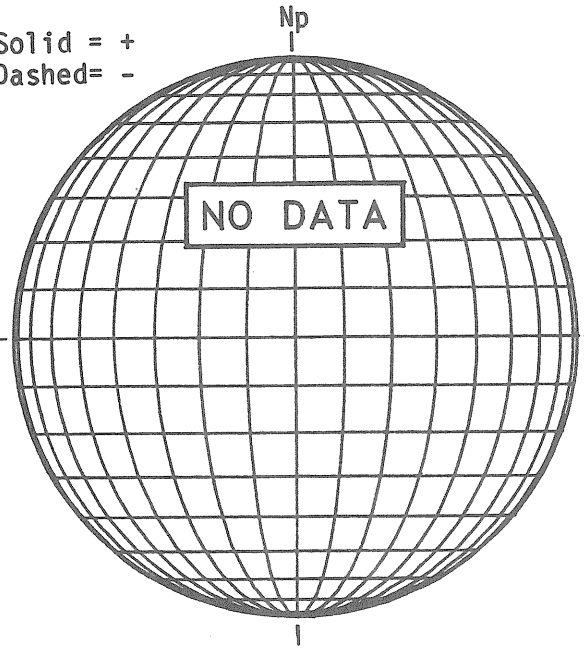
Bright= +
Dark = -



1608 UT

STANFORD MAGNETOGRAM

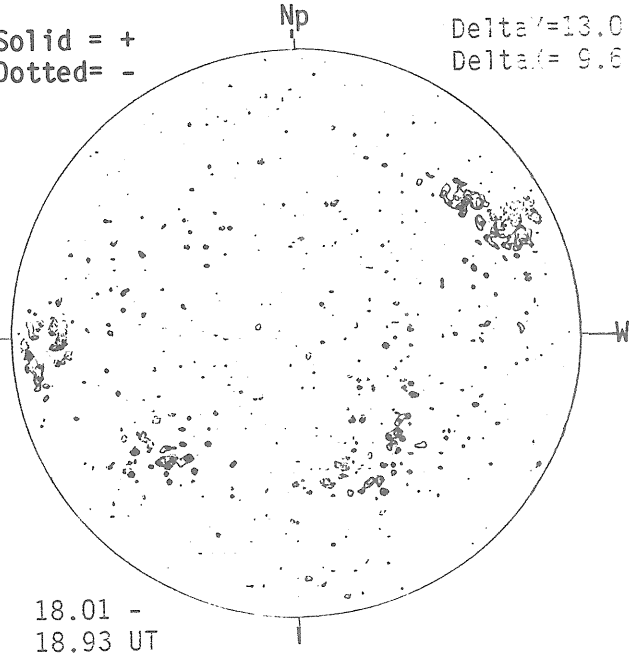
Solid = +
Dashed= -



MT. WILSON MAGNETOGRAM

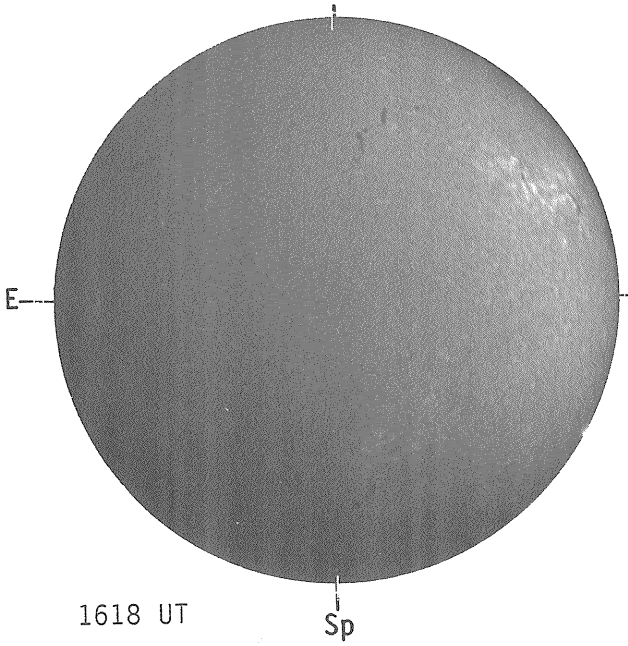
Solid = +
Dotted= -

Delta'=13.0
Delta= 9.6



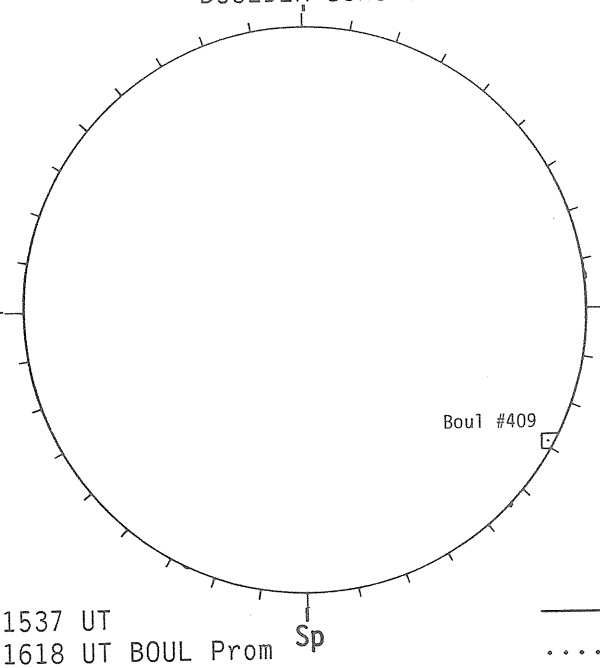
18.01 -
18.93 UT

BOULDER H-ALPHA



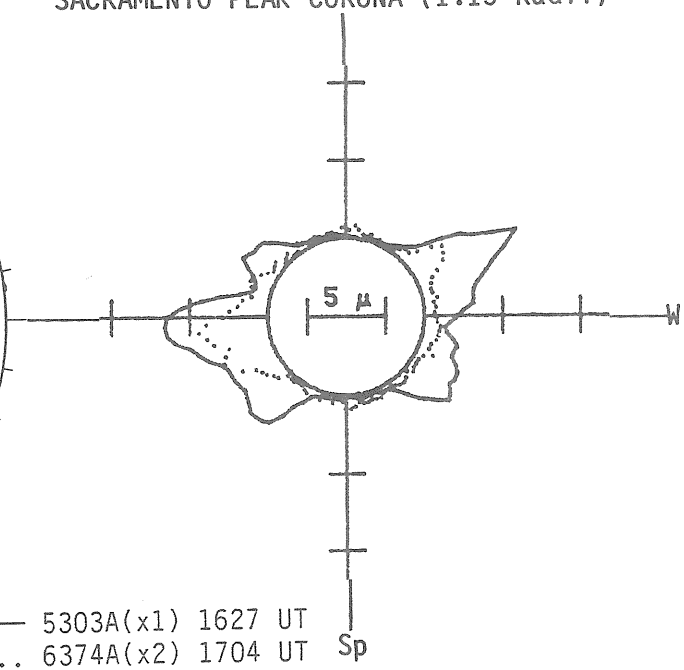
1618 UT

BOULDER SUNSPOTS



1537 UT
1618 UT BOUL Prom

SACRAMENTO PEAK CORONA (1.15 Radii)

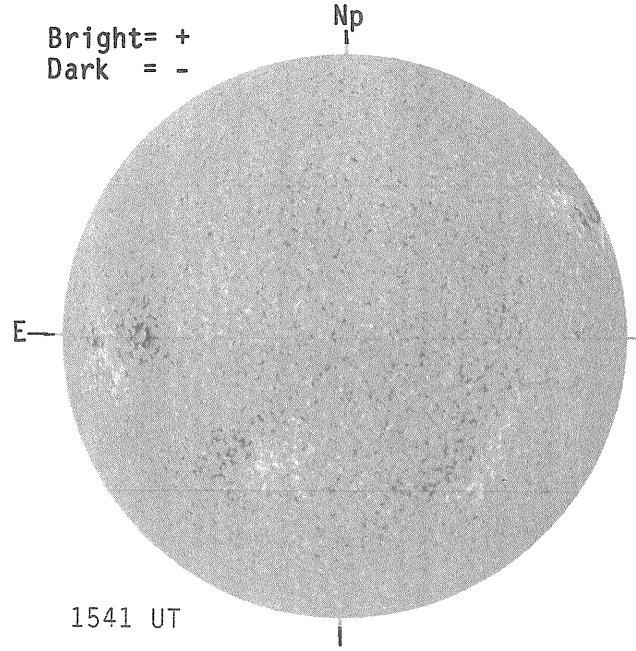


—— 5303A(x1) 1627 UT
.... 6374A(x2) 1704 UT
xxxx 5694A(x6) 1647 UT
NO 5694A ACTIVITY TODAY

N O V E M B E R 25, 1 9 8 6 (P= 18.30, B_0= 1.66, L_0= 163.52)

KITT PEAK MAGNETOGRAM

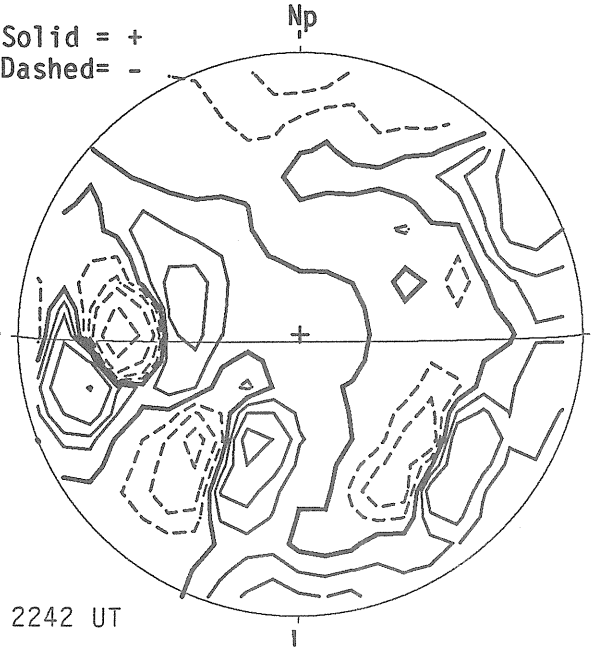
Bright= +
Dark = -



1541 UT

STANFORD MAGNETOGRAM

Solid = +
Dashed= -

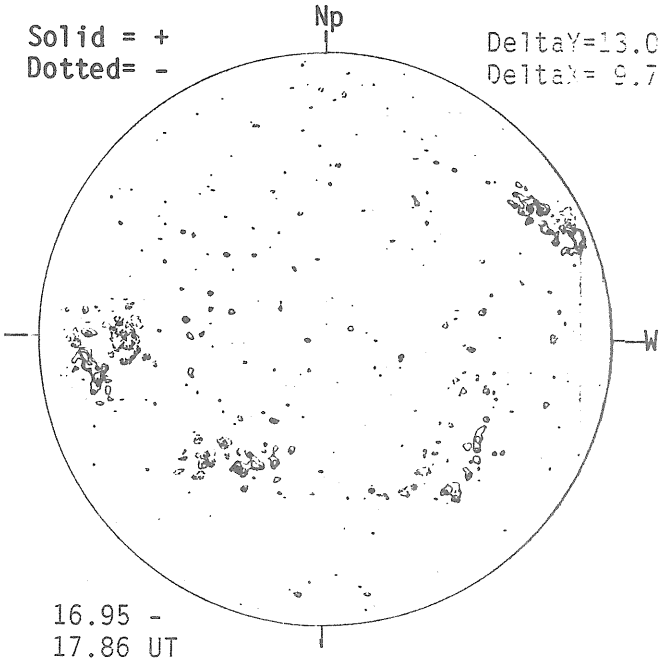


2242 UT

MT. WILSON MAGNETOGRAM

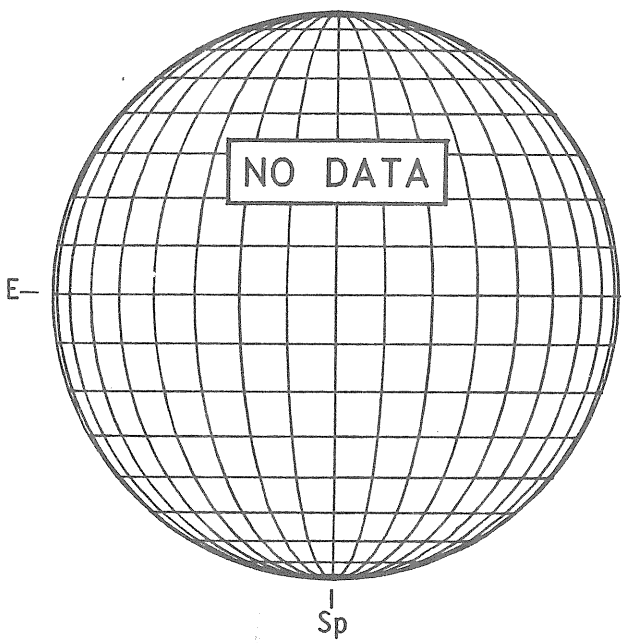
Solid = +
Dotted= -

DeltaY=13.0
DeltaX= 9.7

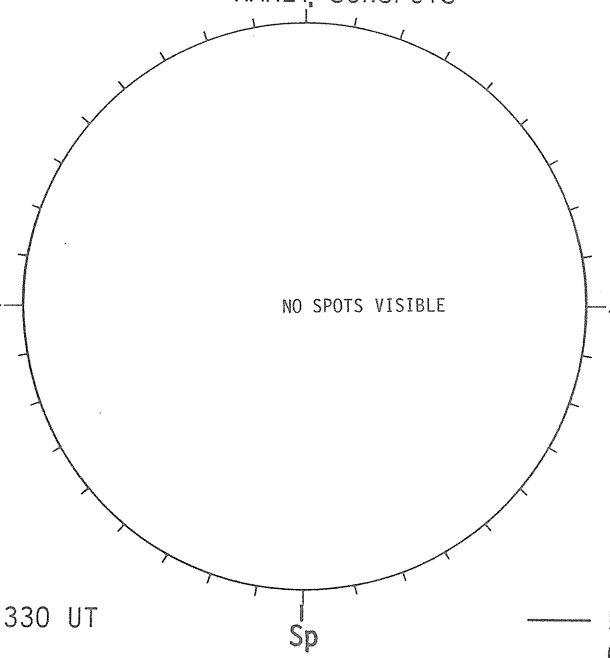


16.95 -
17.86 UT

BOULDER H-ALPHA

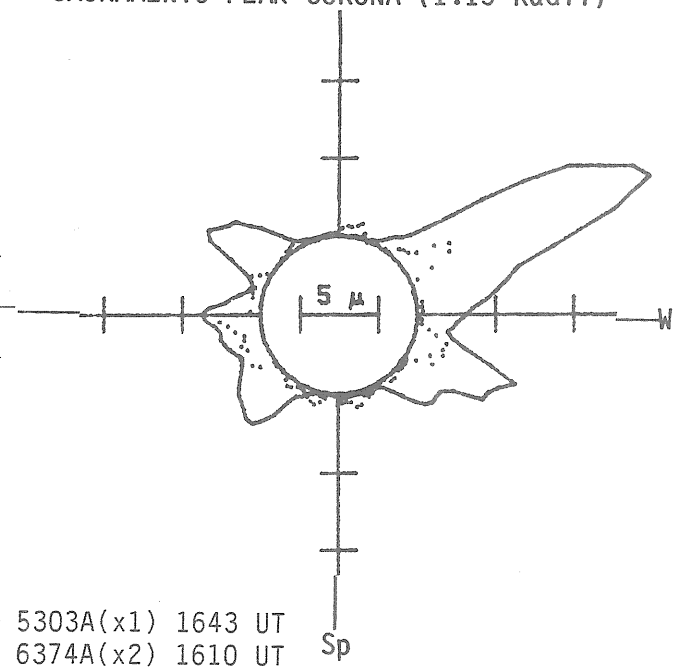


RAMEY SUNSPOTS



1330 UT

SACRAMENTO PEAK CORONA (1.15 Radii)

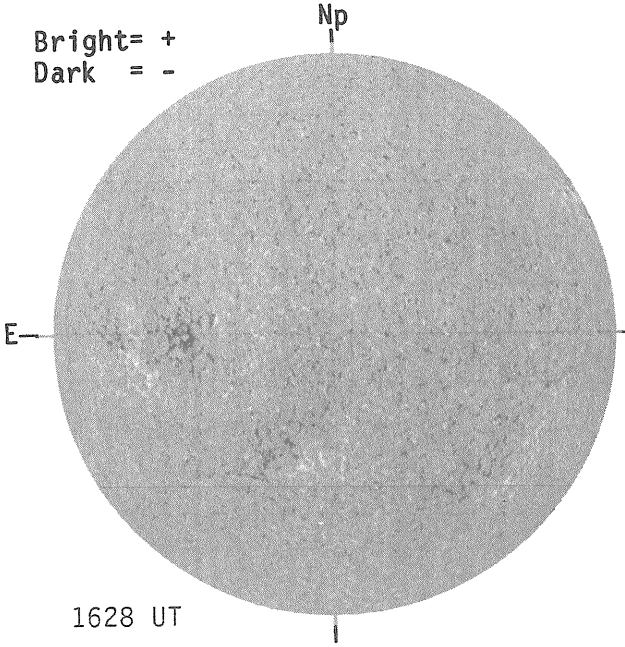


—— 5303A(x1) 1643 UT
.... 6374A(x2) 1610 UT
xxxx 5694A(x6) 1624 UT
NO 5694A ACTIVITY TODAY

N O V E M B E R 26, 1 9 8 6 (P= 17.96, B_0= 1.54, L_0= 150.34)

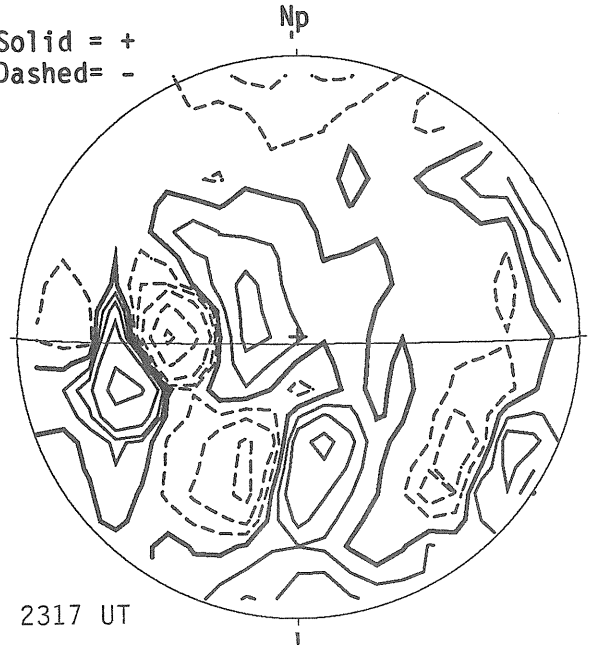
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



STANFORD MAGNETOGRAM

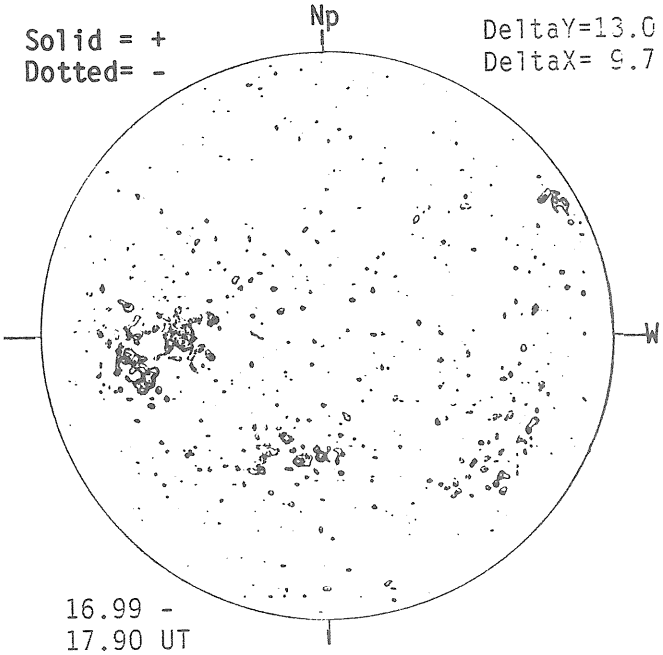
Solid = +
Dashed= -



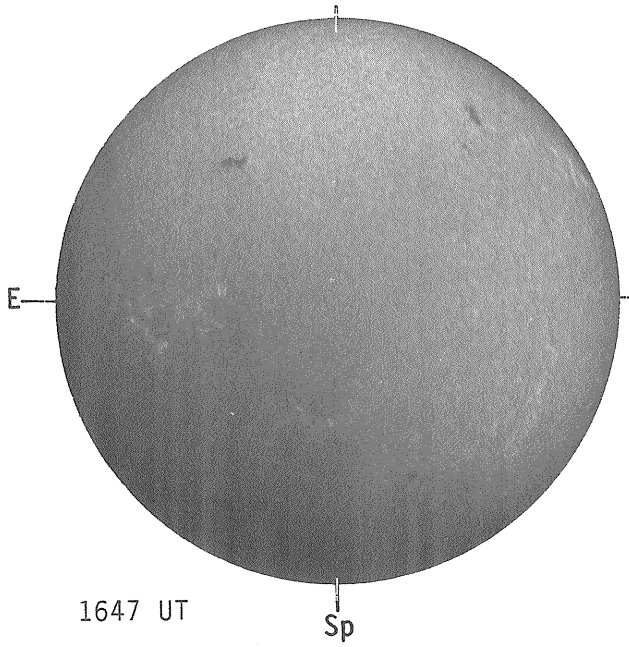
MT. WILSON MAGNETOGRAM

Solid = +
Dotted= -

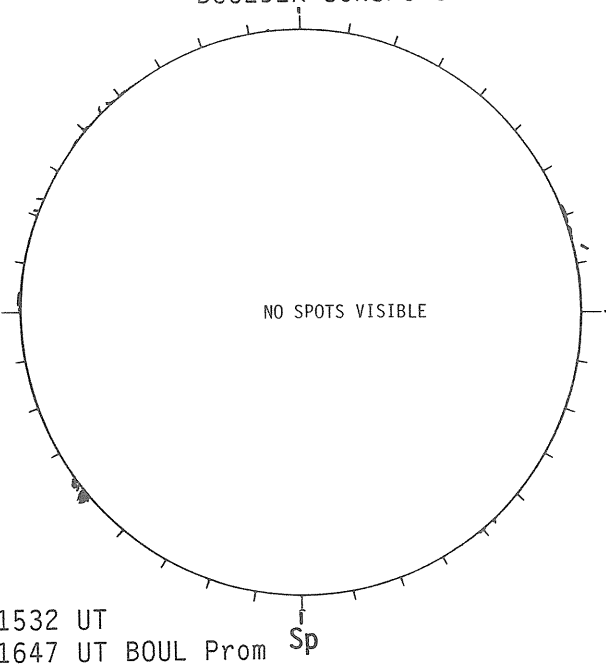
DeltaY=13.0
DeltaX= 9.7



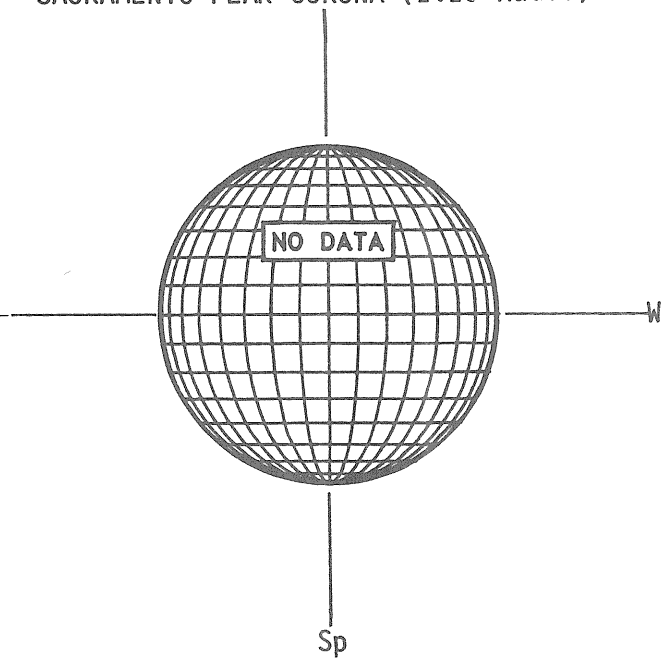
BOULDER H-ALPHA



BOULDER SUNSPOTS



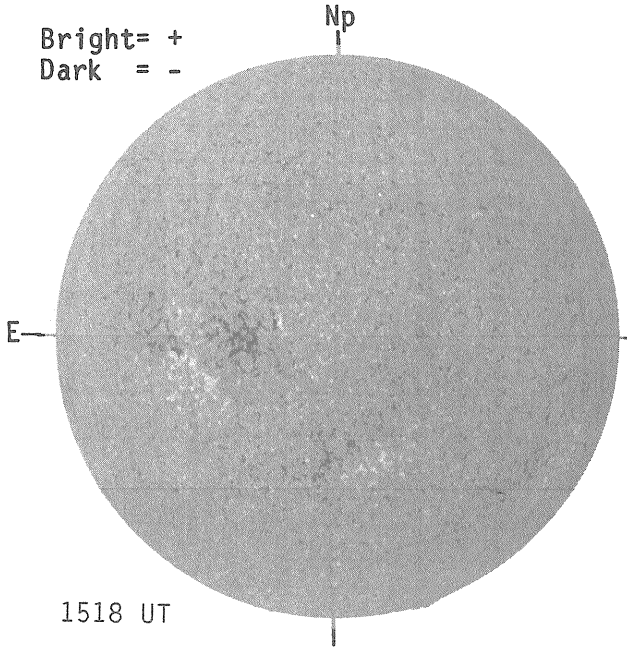
SACRAMENTO PEAK CORONA (1.15 Radii)



N O V E M B E R 27, 1 9 8 6 (P= 17.60, B_o= 1.42, L_o= 137.16)

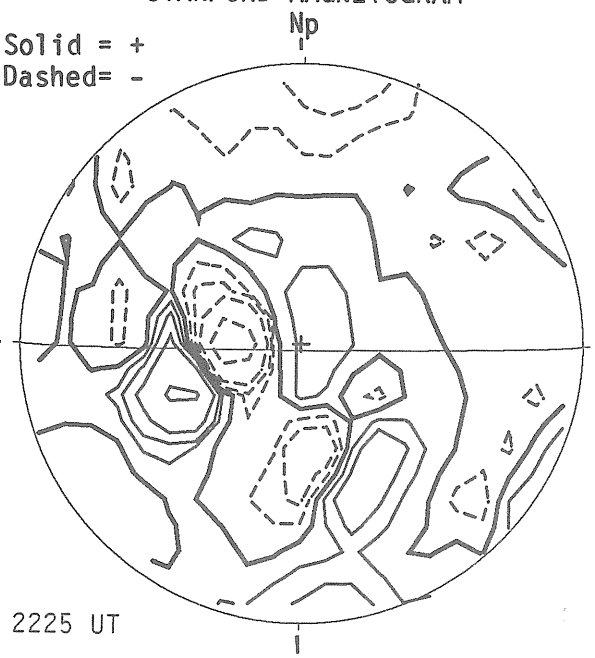
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



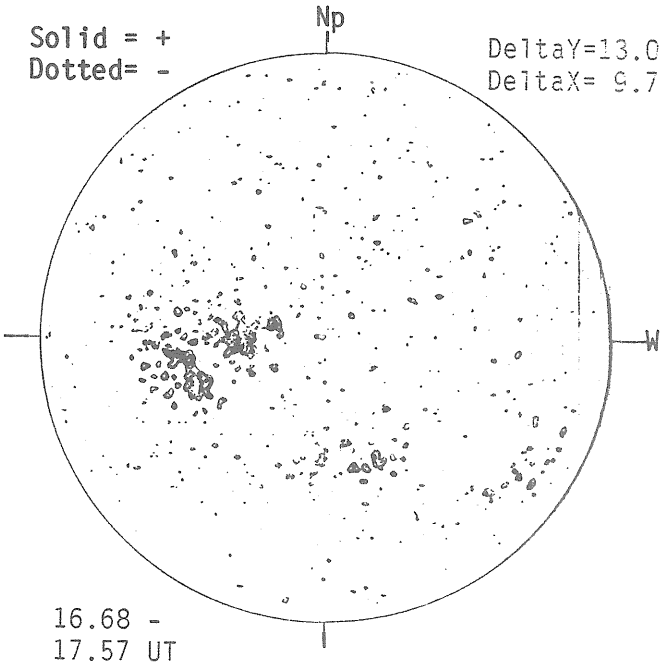
STANFORD MAGNETOGRAM

Solid = +
Dashed= -

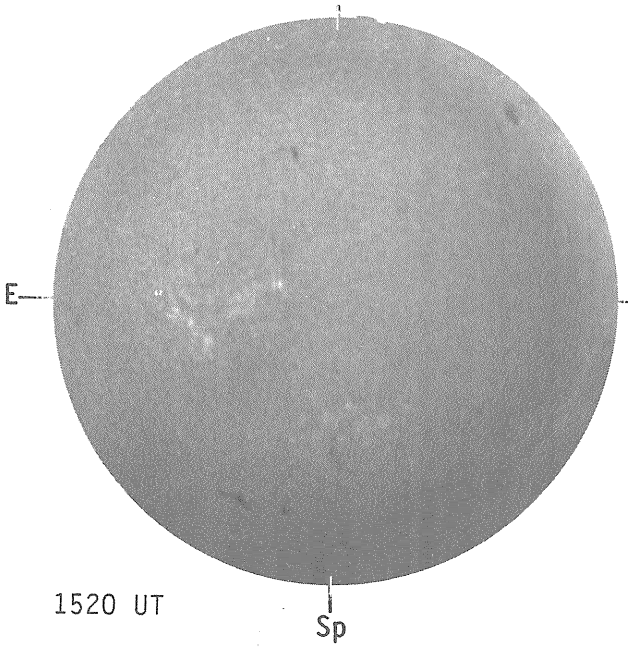


MT. WILSON MAGNETOGRAM

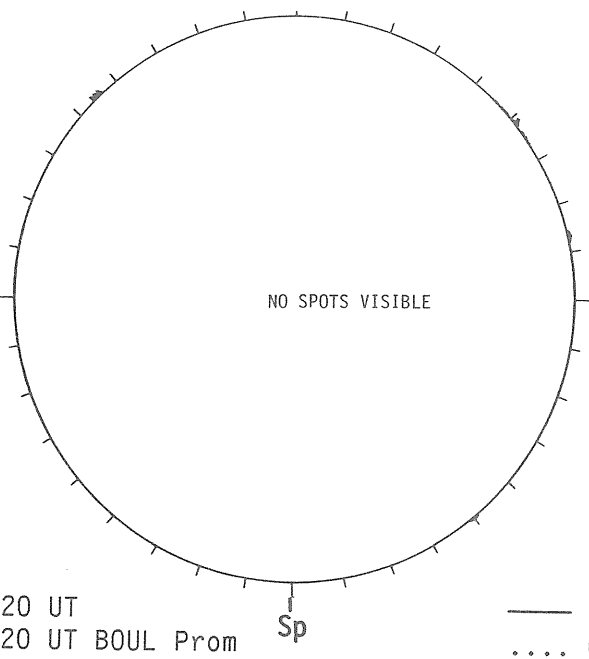
Solid = +
Dotted= -



BOULDER H-ALPHA

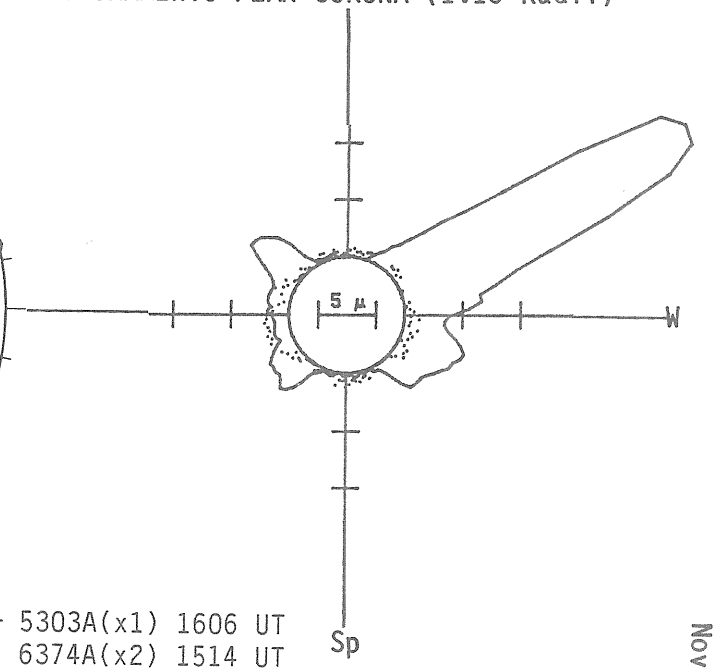


BOULDER SUNSPOTS



1520 UT
1520 UT BOUL Prom

SACRAMENTO PEAK CORONA (1.15 Radii)

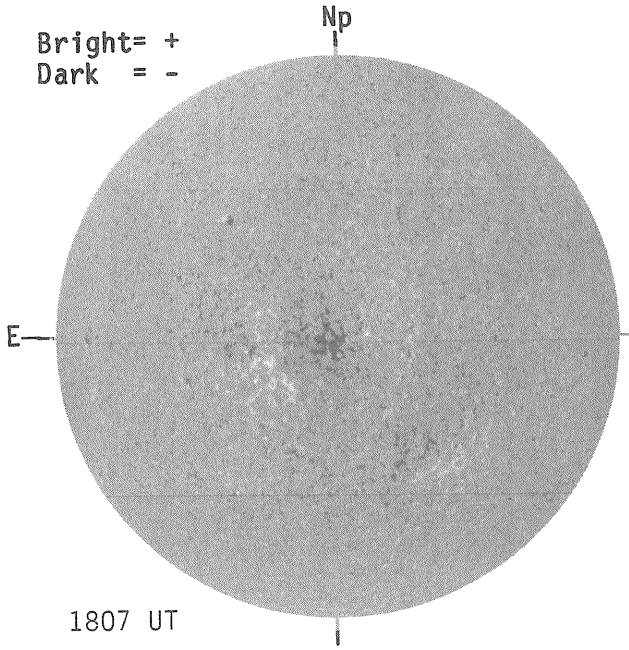


—— 5303A(x1) 1606 UT
.... 6374A(x2) 1514 UT
xxxx 5694A(x6) 1534 UT
NO 5694A ACTIVITY TODAY

N O V E M B E R 28, 1 9 8 6 (P= 17.24, B_0= 1.29, L_0= 123.98)

KITT PEAK MAGNETOGRAM

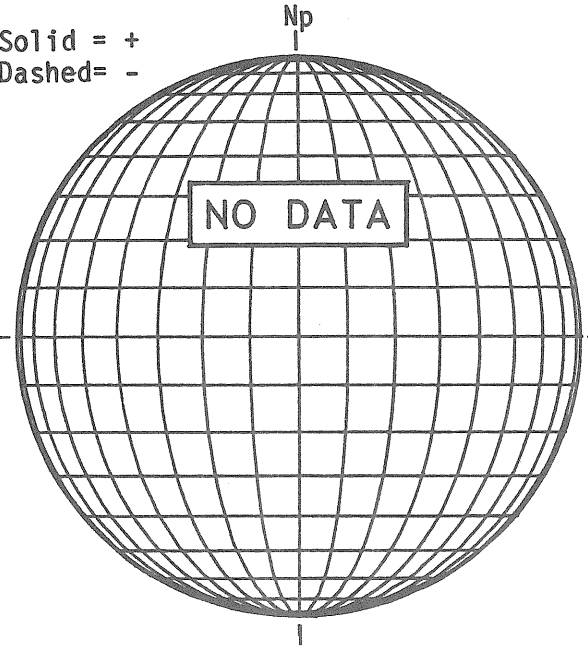
Bright= +
Dark = -



1807 UT

STANFORD MAGNETOGRAM

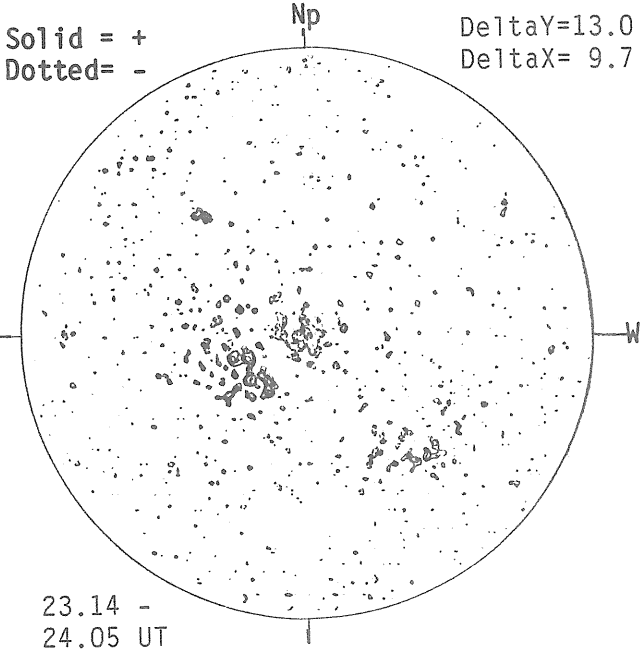
Solid = +
Dashed= -



MT. WILSON MAGNETOGRAM

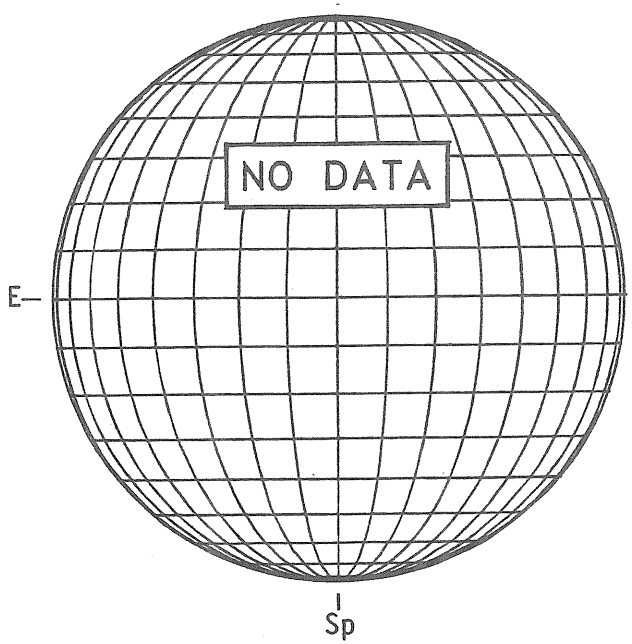
Solid = +
Dotted= -

DeltaY=13.0
DeltaX= 9.7

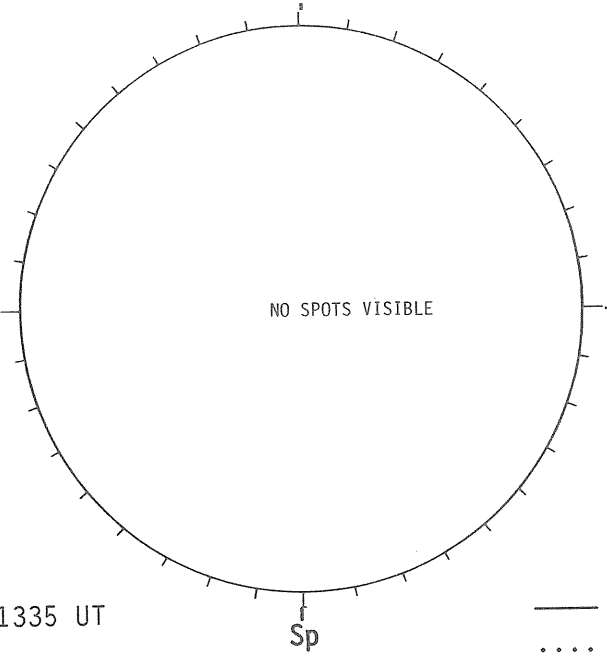


23.14 -
24.05 UT

BOULDER H-ALPHA

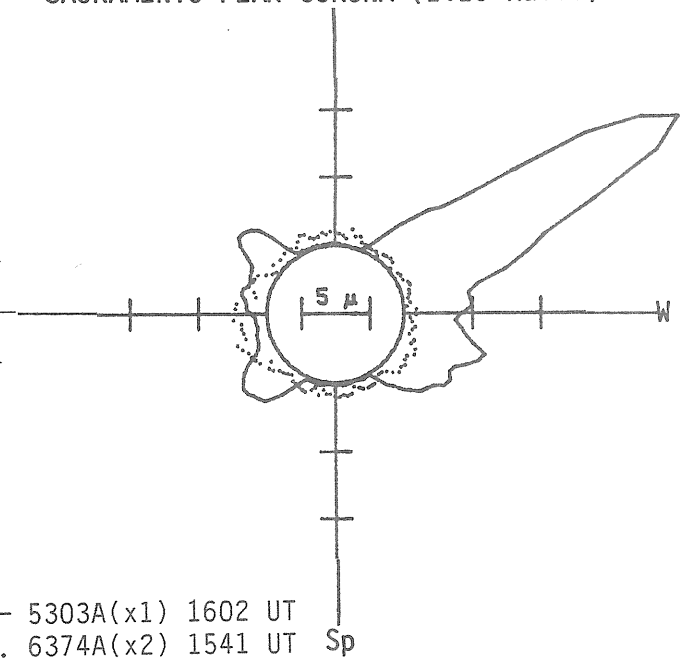


RAMEY SUNSPOTS



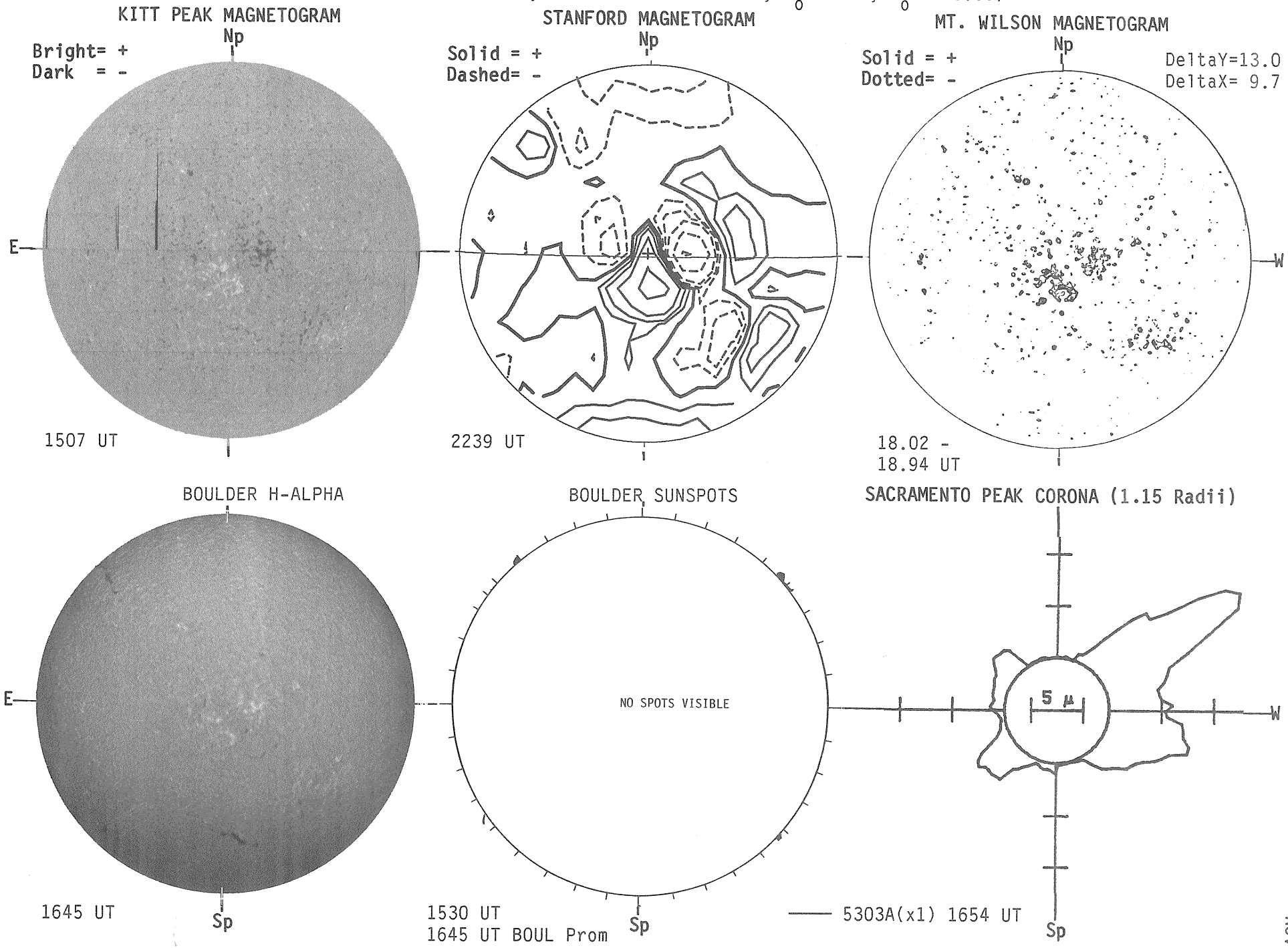
1335 UT

SACRAMENTO PEAK CORONA (1.15 Radii)



—— 5303A(x1) 1602 UT
.... 6374A(x2) 1541 UT
xxxx 5694A(x6) 1526 UT
NO 5694A ACTIVITY TODAY

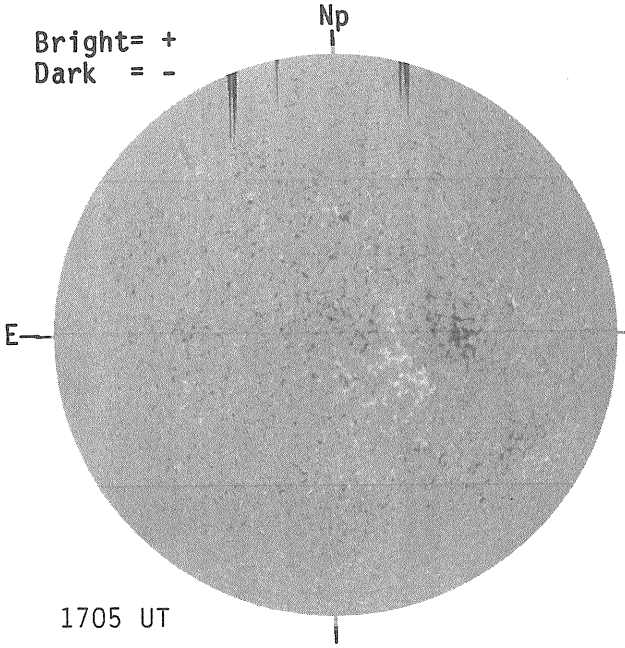
N O V E M B E R 29, 1 9 8 6 (P= 16.87, B_0= 1.17, L_0= 110.80)



N O V E M B E R 30, 1 9 8 6 (P= 16.50, B_0= 1.05, L_0= 97.62)

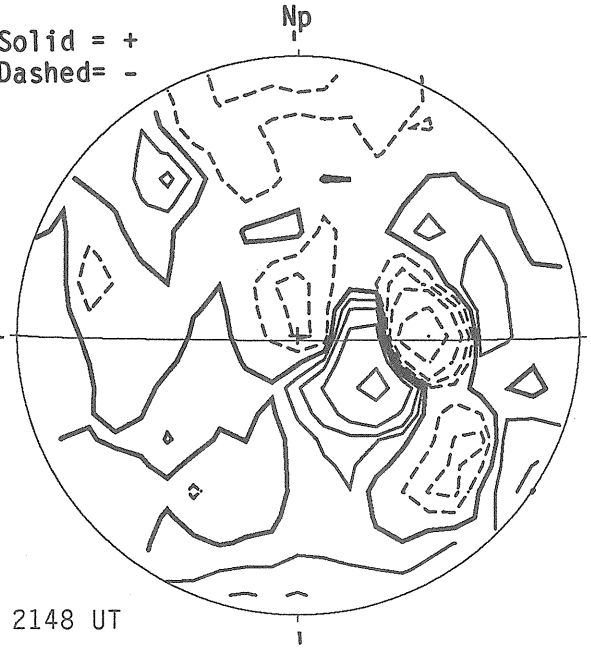
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



STANFORD MAGNETOGRAM

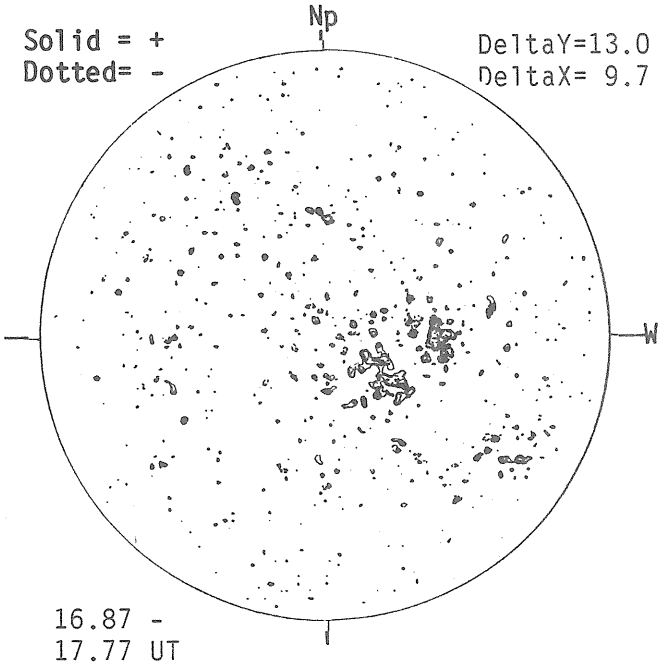
Solid = +
Dashed= -



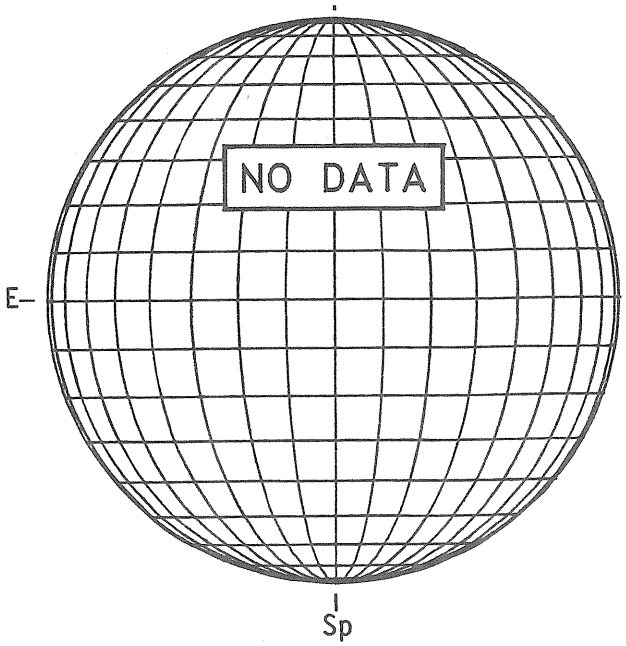
MT. WILSON MAGNETOGRAM

Solid = +
Dotted= -

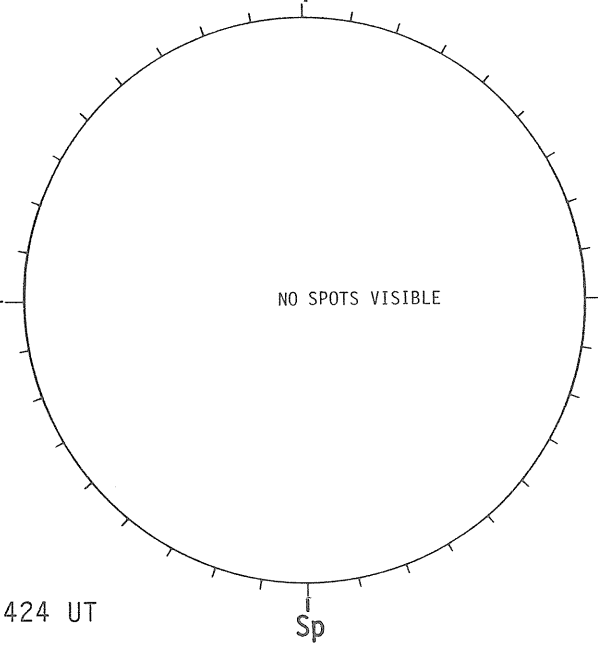
DeltaY=13.0
DeltaX= 9.7



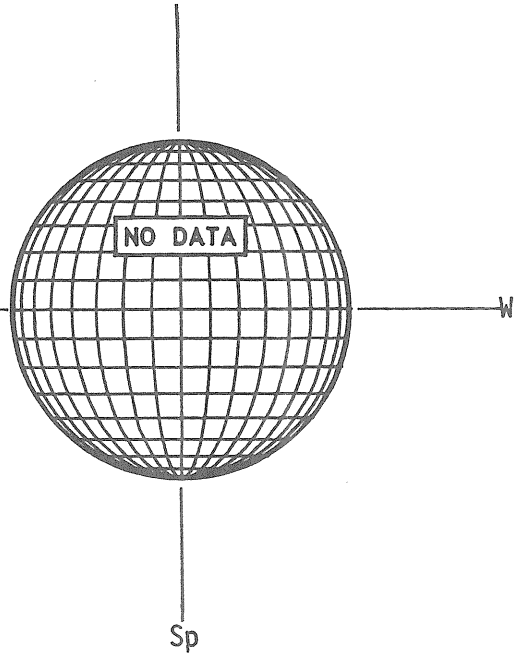
BOULDER H-ALPHA



RAMEY, SUNSPOTS



SACRAMENTO PEAK CORONA (1.15 Radii)



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

NOVEMBER 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
4754		LEAR	10	27	0031	S01	E86	11	2.4		A	HH	60	1	5	3
4754		SVTO	10	27	1111	N00	E79	11	2.4		A	DK	150	1	2	3
4754		RAMY	10	27	1420	N01	E79	11	2.5		A	HK	330	1	3	4
4754	24345	MWIL	10	27	1445	N00	E74	11	2.1	4	(AP)					
4754		BOUL	10	27	1513	N00	E74	11	2.2		A	HS	120	1	2	2
4754		PALE	10	27	1800	S02	E77	11	2.5		A	HH	240	2	3	3
4754		LEAR	10	28	0026	S01	E74	11	2.5		B	DHC	120	2	8	3
4754		CULG	10	28	0440	S02	E68	11	2.3		A	HK	150	2	3	3
4754		SVTO	10	28	0948	S01	E66	11	2.3		A	HK	260	1	3	3
4754		RAMY	10	28	1429	N01	E64	11	2.4		A	HA	200	1	2	3
4754	24345	MWIL	10	28	1430	N00	E63	11	2.3	5	(AP)					
4754		BOUL	10	28	1515	N01	E65	11	2.5		A	HS	80	1	3	3
4754		HOLL	10	28	1610	N00	E62	11	2.3		A	HH	360	2	3	3
4754		PALE	10	28	1810	S02	E61	11	2.3		A	HH	280	1	3	3
4754		LEAR	10	29	0131	N01	E57	11	2.3		A	HH	280	1	7	3
4754		CULG	10	29	0420	N01	E57	11	2.4		A	HH	230	1	3	3
4754		RAMY	10	29	1415	N01	E50	11	2.3		A	HS	300	4	5	3
4754	24345	MWIL	10	29	1450	N00	E49	11	2.3	5	(AP)					
4754		BOUL	10	29	1612	N00	E49	11	2.3		A	HS	230	3	3	2
4754		HOLL	10	29	1630	N01	E49	11	2.3		A	HH	330	3	3	2
4754		PALE	10	29	1835	S02	E49	11	2.4		A	HH	310	3	3	4
4754		CULG	10	30	0450	N00	E40	11	2.2		A	HH	200	1	3	3
4754		LEAR	10	30	0750	S01	E40	11	2.3		A	HK	260	3	3	3
4754		RAMY	10	30	1349	N01	E37	11	2.3		A	HH	220	1	3	4
4754	24345	MWIL	10	30	1515	N00	E35	11	2.2	6	(AP)					
4754		HOLL	10	30	1515	N01	E36	11	2.3		A	HH	300	3	3	3
4754		PALE	10	30	1908	N01	E34	11	2.3		A	HH	240	3	3	2
4754		LEAR	10	31	0033	N01	E32	11	2.4		A	HHO	240	5	5	3
4754		CULG	10	31	0450	N01	E27	11	2.2		A	HS	220	1	2	1
4754	24345	MWIL	10	31	1515	N00	E22	11	2.3	5	(AP)					
4754		RAMY	10	31	1522	N00	E23	11	2.3		A	HH	240	1	3	4
4754		HOLL	10	31	1605	N00	E22	11	2.3		A	HH	260	3	3	3
4754		PALE	10	31	2008	S01	E19	11	2.2		A	HH	200	1	3	2
4754		LEAR	11	01	0030	S01	E16	11	2.2		A	HK	210	3	3	3
4754		SVTO	11	01	1014	N01	E12	11	2.3		A	HH	300	1	3	3
4754		RAMY	11	01	1321	N00	E10	11	2.3		A	HH	170	1	3	3
4754	24345	MWIL	11	01	1500	N00	E09	11	2.3	4	(AP)					
4754		HOLL	11	01	1620	N00	E08	11	2.3		A	HH	240	4	3	3
4754		PALE	11	01	1758	N00	E08	11	2.3		A	HH	300	3	3	3
4754		LEAR	11	02	0315	S01	E04	11	2.4		B	CHO	220	7	6	3
4754		CULG	11	02	0450	N01	E01	11	2.3		A	HK	200	4	3	3
4754		RAMY	11	02	1330	N00	W04	11	2.3		A	HK	240	1	3	4
4754	24345	MWIL	11	02	1500	N00	W05	11	2.3	5	(AP)					
4754		BOUL	11	02	1605	N00	W06	11	2.2		A	HK	210	3	3	2
4754		PALE	11	02	1815	N00	W07	11	2.2		A	HH	220	3	3	3
4754		LEAR	11	03	0020	S01	W10	11	2.3		A	HK	150	5	3	3
4754		CULG	11	03	0440	N01	W13	11	2.2		A	HA	150	3	3	3
4754		RAMY	11	03	1240	N00	W18	11	2.2		A	HS	140	3	3	4
4754	24345	MWIL	11	03	1500	S01	W18	11	2.3	5	(AP)					
4754		BOUL	11	03	1628	S01	W19	11	2.3		B	CKO	150	3	3	2
4754		PALE	11	03	1800	N00	W21	11	2.2		B	CHO	150	3	2	3
4754		LEAR	11	04	0001	S01	W24	11	2.2		B	CHO	60	5	3	4
4754		CULG	11	04	0420	N00	W26	11	2.2		A	HS	90	3	3	2
4754	24345	MWIL	11	04	1450	S01	W32	11	2.2	4	(AP)					
4754		RAMY	11	04	1530	S02	W33	11	2.2		A	HS	160	5	3	3
4754		PALE	11	04	1745	N00	W32	11	2.3		B	CSO	120	6	5	4
4754		HOLL	11	04	1829	S01	W34	11	2.2		A	HS	100	3	3	3
4754		BOUL	11	04	1950	S01	W34	11	2.3		B	CSO	100	3	2	2
4754		LEAR	11	05	0058	S01	W37	11	2.3		B	CSO	60	5	3	3
4754		CULG	11	05	0450	N00	W38	11	2.4		A	HS	100	3	2	4
4754		RAMY	11	05	1445	S01	W45	11	2.2		A	HS	60	2	1	4
4754		BOUL	11	05	1446	S01	W46	11	2.2		A	HS	80	1	2	2
4754	24345	MWIL	11	05	1450	S01	W46	11	2.2	4	(AP)					
4754		HOLL	11	05	1622	S01	W47	11	2.2		A	HS	110	2	2	3
4754		PALE	11	05	1825	S01	W46	11	2.3		A	HS	120	1	2	2
4754		LEAR	11	06	0010	S01	W54	11	2.0		A	HS	20	1	2	3
4754		CULG	11	06	0430	S01	W53	11	2.2		A	HS	70	1	1	3
4754		SVTO	11	06	1111	S02	W57	11	2.2		B	CSO	40	2	2	3

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NOVEMBER 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
4754	24345	MWIL	11	06	1500	S01	W59	11	2.2	4	(AP)					
4754		HOLL	11	06	1612	S01	W61	11	2.1		A	HS	40	2	2	3
4754		PALE	11	06	1827	S02	W62	11	2.1		A	HS	40	1	1	3
4754		BOUL	11	06	2005	S01	W63	11	2.1		A	HS	20	1	1	1
4754		LEAR	11	07	0025	S01	W66	11	2.1		A	HS	50	1	2	3
4754		SVTO	11	07	0753	S01	W70	11	2.1		A	HA	50	1	2	3
4754		RAMY	11	07	1404	S03	W71	11	2.3		A	HS	20	1	1	3
4754	24345	MWIL	11	07	1455	S01	W72	11	2.2	4	(AP)					
4754		HOLL	11	07	1729	S01	W77	11	2.0		A	HS	20	1	1	2
4754		SVTO	11	08	0850	S01	W86	11	1.9		A	AX	10	1		3
4755		CULG	10	30	0450	N02	E58	11	3.5		A	AX		3	2	3
4755		LEAR	10	30	0750	N02	E55	11	3.4		B	BXO	20	6	4	3
4755		RAMY	10	30	1349	N03	E50	11	3.3		B	CRO	30	8	5	4
4755		HOLL	10	30	1515	N02	E49	11	3.3		B	CRO	40	9	5	3
4755	24346	MWIL	10	30	1515	N03	E48	11	3.2	5	(B)					
4755		PALE	10	30	1908	N02	E48	11	3.4		B	CRO	40	8	6	2
4755		LEAR	10	31	0033	N01	E45	11	3.4		B	DSO	110	10	7	3
4755		CULG	10	31	0450	N02	E41	11	3.3		B	CSO	20	8	5	1
4755	24346	MWIL	10	31	1515	N02	E35	11	3.2	5	(B)					
4755		RAMY	10	31	1522	N02	E36	11	3.3		B	DAI	140	12	7	4
4755		HOLL	10	31	1605	N01	E35	11	3.3		B	CSO	150	7	6	3
4755		PALE	10	31	2008	N01	E33	11	3.3		B	DAO	160	8	8	2
4755		LEAR	11	01	0030	N01	E30	11	3.3		B	DAO	170	11	8	3
4755		SVTO	11	01	1014	N02	E24	11	3.2		B	DSI	160	13	8	3
4755		RAMY	11	01	1321	N02	E23	11	3.3		B	DAO	260	11	8	3
4755	24346	MWIL	11	01	1500	N01	E22	11	3.3	3	(B)					
4755		HOLL	11	01	1620	N01	E21	11	3.2		B	DAO	140	12	8	3
4755		PALE	11	01	1758	N01	E20	11	3.2		B	DSO	130	5	9	3
4755		LEAR	11	02	0315	N02	E15	11	3.2		B	DAO	170	16	8	3
4755		CULG	11	02	0450	N03	E15	11	3.3		B	DAO	140	10	8	3
4755		RAMY	11	02	1330	N02	E09	11	3.2		B	DAO	140	16	8	4
4755	24346	MWIL	11	02	1500	N01	E07	11	3.1	4	(B)					
4755		BOUL	11	02	1605	N02	E07	11	3.2		B	DSO	70	6	8	2
4755		PALE	11	02	1815	N01	E07	11	3.3		B	CSO	80	16	8	3
4755		LEAR	11	03	0020	N02	E04	11	3.3		B	DAO	70	14	8	3
4755		CULG	11	03	0440	N02	E01	11	3.3		B	DAO	60	8	8	3
4755		RAMY	11	03	1240	N02	W04	11	3.2		B	CRO	60	12	9	4
4755	24346	MWIL	11	03	1500	N01	W06	11	3.2	4	(B)					
4755		BOUL	11	03	1628	N02	W05	11	3.3		B	CSI	80	9	6	2
4755		PALE	11	03	1800	N01	W06	11	3.3		B	CSO	50	12	8	3
4755		LEAR	11	04	0001	N00	W10	11	3.2		B	CRO	30	14	8	4
4755		CULG	11	04	0420	N02	W12	11	3.3		B	CSO	30	7	8	2
4755	24346	MWIL	11	04	1450	N02	W17	11	3.3	4	(B)					
4755		RAMY	11	04	1530	N01	W18	11	3.3		B	CRO	90	19	8	3
4755		PALE	11	04	1745	N02	W18	11	3.4		B	CRO	90	16	8	4
4755		HOLL	11	04	1829	N02	W20	11	3.3		B	DSO	120	17	8	3
4755		BOUL	11	04	1950	N02	W19	11	3.4		B	BXI	80	15	7	2
4755		LEAR	11	05	0058	N02	W24	11	3.2		B	CRO	70	15	8	3
4755		CULG	11	05	0450	N02	W25	11	3.3		B	DSO	60	13	8	4
4755		RAMY	11	05	1445	N02	W30	11	3.4		B	CAI	90	16	8	4
4755		BOUL	11	05	1446	N02	W30	11	3.4		B	CSO	80	8	8	2
4755	24346	MWIL	11	05	1450	N02	W30	11	3.4	5	(B)					
4755		HOLL	11	05	1622	N02	W32	11	3.3		B	DSO	110	15	8	3
4755		PALE	11	05	1825	N02	W32	11	3.4		B	CSO	160	13	8	2
4755		LEAR	11	06	0010	N02	W36	11	3.3		B	CRO	30	13	8	3
4755		CULG	11	06	0430	N01	W37	11	3.4		B	CAO	60	14	7	3
4755		SVTO	11	06	1111	N03	W40	11	3.5		B	DSO	130	12	8	3
4755	24346	MWIL	11	06	1500	N02	W44	11	3.3	4	(B)					
4755		HOLL	11	06	1612	N01	W45	11	3.3		B	CAO	150	11	9	3
4755		PALE	11	06	1827	N01	W45	11	3.4		G	CAO	110	9	9	3
4755		BOUL	11	06	2005	N00	W46	11	3.4		B	CAO	140	5	6	1
4755		LEAR	11	07	0025	N02	W49	11	3.3		B	CAO	120	7	7	3
4755		SVTO	11	07	0753	N03	W55	11	3.2		B	CAO	100	8	8	3
4755		RAMY	11	07	1404	N00	W58	11	3.2		B	CAO	60	4	5	3
4755	24346	MWIL	11	07	1455	N02	W57	11	3.4	4	(BF)					
4755		HOLL	11	07	1729	N02	W61	11	3.2		B	CSO	60	4	7	2
4755		SVTO	11	08	0850	N02	W71	11	3.1		B	CRO	50	4	9	3

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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
4755		RAMY	11	08	1440	N00	W70	11	3.4		A	HA		1	1	2
4755	24346	MWIL	11	08	1450	N02	W70	11	3.4	3	(AF)					
4755		HOLL	11	08	1540	N01	W72	11	3.3		A	HS	20	1	1	4
4755		PALE	11	08	1743	N01	W75	11	3.1		A	HS	60	1	2	3
4755		CULG	11	09	0445	N00	W77	11	3.4		A	AX		1		2
4755		SVTO	11	09	0850	N02	W82	11	3.2		A	HR	30	1	2	4
4755A	24348	MWIL	11	10	1630	S29	W44	11	7.2	3	(AP)					
4755A		PALE	11	10	1857	S31	W47	11	7.1		A	AX	10	1	1	3
4755B	24349	MWIL	11	11	1450	S18	W07	11	11.1	3	(AP)					
4759		LEAR	11	23	0130	S27	W60	11	18.4		A	AX	10	1	1	3
4759		SVTO	11	23	0845	S26	W65	11	18.3		A	AX	10	1	1	4
4759		HOLL	11	23	1631	S27	W67	11	18.5		B	BXO	10	4	4	4
4759		PALE	11	23	1757	S27	W67	11	18.5		B	BXO	10	5	4	3
4759		LEAR	11	24	0115	S27	W75	11	18.2		B	BXO	30	3	8	3
4759		CULG	11	24	0420	S26	W77	11	18.2		B	BXO		2	3	2
4759	24352	MWIL	11	24	1500	S28	W76	11	18.7	2	X					
4759		BOUL	11	24	1537	S28	W79	11	18.5		A	AX		1	1	2
4759		PALE	11	24	1817	S28	W81	11	18.4		A	AX		1		2
4759		LEAR	11	25	0036	S28	W85	11	18.4		A	AX	10	1	1	3
4758		SVTO	11	20	0826	N26	W13	11	19.3		A	AX	10	1		3
4758	24351	MWIL	11	20	1515	N27	W16	11	19.4	4	(AP)					
4758		SVTO	11	21	1305	N26	W28	11	19.4		A	AX	10	2	2	3
4758		RAMY	11	21	1320	N25	W30	11	19.2		A	AX	10	2	1	3
4758	24351	MWIL	11	21	1515	N26	W28	11	19.5	4	(AP)					
4758		PALE	11	21	1901	N27	W31	11	19.4		A	AX	10	1	1	3
4758		LEAR	11	22	0130	N26	W36	11	19.3		A	AX	10	1	1	3
4758		RAMY	11	22	1410	N24	W44	11	19.2		A	AX	10	2	1	3
4758		HOLL	11	22	1559	N25	W45	11	19.2		A	AX	10	2	1	4
4758		PALE	11	22	2135	N27	W49	11	19.1		A	AX		1		2
4758		LEAR	11	23	0130	N27	W49	11	19.2		A	AX	10	2	4	3
4758		SVTO	11	23	0845	N28	W52	11	19.3		B	BXO	30	2	5	4
4757		LEAR	11	14	0949	N22	E85	11	20.9		B	BXO	50	2	4	1
4757	24350	MWIL	11	14	1445	N24	E77	11	20.6	4	(AP)					
4757		BOUL	11	14	1610	N23	E77	11	20.6		A	BXO	20	2	2	2
4757		PALE	11	14	2050	N23	E75	11	20.6		B	DSO	40	2	3	2
4757		LEAR	11	15	0002	N23	E76	11	20.8		B	DRO	60	2	8	3
4757		SVTO	11	15	0940	N23	E69	11	20.7		B	DRO	100	2	4	3
4757		RAMY	11	15	1143	N24	E68	11	20.7		B	DRO	100	2	2	3
4757		BOUL	11	15	1537	N23	E65	11	20.6		B	BXO	20	2	3	2
4757		PALE	11	15	1925	N23	E65	11	20.8		B	DSO	60	2	4	2
4757	24350	MWIL	11	15	2200	N23	E62	11	20.7	5	(AP)					
4757		LEAR	11	16	0043	N24	E62	11	20.8		B	DRO	20	3	4	3
4757		CULG	11	16	0450	N20	E60	11	20.8		B	DSO	40	2	4	3
4757		SVTO	11	16	1005	N23	E57	11	20.8		B	DRO	70	3	3	3
4757		RAMY	11	16	1237	N24	E54	11	20.7		B	DRO	50	2	3	3
4757		BOUL	11	16	1515	N24	E53	11	20.7		B	BXO	40	2	3	1
4757		HOLL	11	16	1745	N24	E52	11	20.7		B	CRO	30	2	3	3
4757	24350	MWIL	11	16	1800	N24	E52	11	20.8	4	(AP)					
4757		LEAR	11	17	0027	N25	E49	11	20.8		B	DRO	50	3	4	3
4757		CULG	11	17	0500	N20	E46	11	20.7		B	CRO	10	2	3	3
4757		SVTO	11	17	0940	N24	E43	11	20.7		B	DRO	60	3	3	3
4757		RAMY	11	17	1345	N24	E41	11	20.7		B	DSO	30	2	2	4
4757		HOLL	11	17	1518	N24	E40	11	20.7		A	HR	30	2	2	4
4757	24350	MWIL	11	17	1645	N24	E38	11	20.6	4	(AP)					
4757		BOUL	11	17	1650	N24	E39	11	20.7		B	BXO	70	2	3	1
4757		PALE	11	17	2120	N25	E37	11	20.7		A	HR	40	2	2	2
4757		LEAR	11	18	0047	N22	E34	11	20.6		A	HRO	30	2	2	3
4757		SVTO	11	18	1015	N23	E30	11	20.7		A	HR	40	2	3	3
4757		RAMY	11	18	1440	N24	E28	11	20.8		A	HR	10	2	2	4
4757		BOUL	11	18	1600	N23	E26	11	20.7		B	BXO	20	2	2	2
4757		PALE	11	18	1751	N23	E26	11	20.7		B	BXO	20	2	2	3
4757		HOLL	11	18	2034	N23	E25	11	20.8		A	AX	10	2	2	2
4757		LEAR	11	19	0020	N23	E22	11	20.7		A	AX	20	2	2	3

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

NOVEMBER 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
4757		SVTO	11	19	0824	N23	E17	11	20.6		A	AXO	20	2	3	3
4757		BOUL	11	19	1422	N23	E15	11	20.7		B	BXO	30	2	2	1
4757		RAMY	11	19	1445	N24	E14	11	20.7		A	HR	10	2	2	3
4757	24350	MWIL	11	19	1530	N24	E15	11	20.8	4	(AP)					
4757		PALE	11	19	1927	N25	E13	11	20.8		A	AX	30	3	3	2
4757		LEAR	11	20	0020	N23	E09	11	20.7		A	AX	20	3	3	3
4757		SVTO	11	20	0826	N24	E04	11	20.7		A	AXO	20	3	3	3
4757		RAMY	11	20	1320	N24	E02	11	20.7		A	AX	10	2	2	3
4757		BOUL	11	20	1510	N25	E01	11	20.7		A	AX	10	1	1	2
4757	24350	MWIL	11	20	1515	N24	E02	11	20.8	3	(AP)					
4757		HOLL	11	20	1520	N24	E01	11	20.7		A	AX	10	2	1	4
4757		PALE	11	20	1841	N24	E00	11	20.8		A	AX	10	1	1	3
4757		LEAR	11	21	0015	N24	W05	11	20.6		A	AX	10	1	1	3
4757		CULG	11	21	0500	N24	W05	11	20.8		A	HR	10	1	1	3

Stations reporting:

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

NOVEMBER 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
01	0800	0814	0900	1-	3			1		1	0758 UT	C3.1	4754
02	0737	0739	0810	1-	3			1		1	0733 UT	C1.1	4755
06	0536	0539	0614	1-	1			1			0532 UT	C1.0	4755
09	0306	0315	0333	1-	1			1			No flare		
12	1600	1622	1629	1-	1	1					*		
12	1807	1811	1818	1-	1	1					*		
13	0945	0946	1000	1-	3			1	1	1	0932 UT	C1.3	No data
13	1702	1732	1734	1-	1	1					No flare		
13	1817	1834	1846	1-	1	1					No flare		
14	1607	1611	1620	1	1	1					No flare		
15	1904	1908	1909	1-	1	1					No flare		
17	1434	1441	1446	1-	1	1					No flare		
17	1722	1727	1733	1-	1	1					No flare		
19	0824	0829	0910	1	1				1		No flare		
19	1028	1040U	1055	1	1		1				No flare		
19	1354	1430	1432	1-	1	1					No flare		
20	1000	1011	1056	1-	1			1			No flare		
25	1520	1527	1538U	1-	1		1				No flare		
26	1132	1141	1218	1-	1		1				No flare		
27	1226	1235	1327	1-	1		1				No flare		
28	1832	1838	1840	1-	1	1					No flare		
29	1658	1710	1715	1-	1	1					No flare		
30	1627	1635	1640	1-	1	1					No flare		
30	1816	1820	1846	1	1	1					No flare		

* No flare patrol

Observatories Reporting for November 1986**

Ayrshire, Scotland	SES	Latrobe, Pennsylvania, USA	SES
Edenvale, Rep. of S. Africa	SES	Lintong, Peoples Rep. of China	SPA
Darmstadt, German Fed. Rep	SWF	Louisville, Kentucky, USA	SES
Farsta, Sweden	SES	Maui, Hawaii, USA	SWF
Hiraiso, Japan	SWF	Panska Ves, Czechoslovakia	SWF, SES, SEA
Houston, Texas, USA	SES	Paterson, New Jersey, USA	SES
Huancayo, Peru	SWF	Sao Paulo, Brasil	SWF, SES
Inubo, Japan	SPA	Tucson, Arizona, USA	SES
Kuhlungsborn, German Dem. Rep.	SEA, SPA	Upice, Czechoslovakia	SEA
Lake Hiawatha, New Jersey, USA	SES		

**Observations are not necessarily continuous.

S I D s by N O A A/S E S C R E G I O N S

NOVEMBER 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 #																														
4754	1																													
4755		1				1																								
Events with X-ray	1	1				1							1																	
Events with no flare reported									1				2	1	1		2		3	1					1	1	1	1	1	2
Events with no flare patrol												2																		
Events with flare but no region number													1																	
Daily Event Totals	1	1				1			1			2	3	1	1		2		3	1					1	1	1	1	1	2

SOLAR RADIO EMISSION SPECTRAL OBSERVATIONS

NOVEMBER 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
01			LEAR				0006.0	0006.0	1				CONT
			LEAR				0006.0	0131.0	1				CONT
			CULG				0355.0	0355.0	1				III
			CULG				0423.0	0000.0D	1				S
			CULG				0423.0	0632.0	1				I
			LEAR				0914.0	0915.0	1				III
			PALE				1858.0	1859.0	1				V
			PALE				2019.0	2020.0	1				III
			PALE				2049.0	2049.0	1				III
			LEAR				2343.0	2343.0	1				III
			LEAR				2354.0	1018.0	1				CONT
02			LEAR				0122.0	0126.0	2				III
			PALE				0122.0	0126.0	2				III
			CULG				0123.0	0126.0	1				III
			CULG				0227.0	0227.0	2				III
			LEAR				0227.0	0227.0	2				III
			PALE				0227.0	0227.0	1				V
			SVTO				0700.0	0701.0	1				III
			PALE				1727.0	1729.0	2				III
			SGMR				1727.0	1728.0	1				V
			PALE				1920.0	1921.0	1				III
			CULG							2125.0	2128.0	1	III
			PALE				2259.0	2302.0	1				V
			CULG				2300.0	2302.0	1				III
			CULG				2327.0	2332.0	1				III
			LEAR				2327.0	2332.0	1				III
			PALE				2327.0	2332.0	1				V
03			CULG				0025.0	0025.0	1				III
			LEAR				0048.0	0048.0	1				III
			CULG				0049.0	0049.0	1				III
			LEAR				0217.0	0220.0	1				III
			CULG				0218.0	0221.0	1				III
			CULG				0422.0	0425.0	2				III
			LEAR				0423.0	0424.0	2				III
			CULG				0443.0	0443.0	1				III
			LEAR				0443.0	0444.0	1				III
			LEAR				0511.0	0513.0	1				III
			CULG				0512.0	0513.0	1				III
			CULG				0619.0	0619.0	1				III
			CULG				2327.0	2327.0	1				III
04			LEAR				0701.0	0703.0	2				V
			LEAR				0735.0	0735.0	1				III
			CULG							2136.0	2136.0	1	III
05			CULG				2054.0	2055.0	1				III
			CULG				2237.0	2237.0	1				III
			PALE				2243.0	2245.0	1				V
			CULG				2244.0	2246.0	2				III
			LEAR				2244.0	2245.0	1				V
			LEAR				2244.0	2245.0	2				III
			PALE				2248.0	2349.0	1				V
			LEAR				2348.0	2349.0	2				III
			CULG				2349.0	2354.0	2				III
06			LEAR				0003.0	0007.0	1				III
			CULG				0004.0	0008.0	1				III
			LEAR				0010.0	0012.0	1				III
			CULG				0011.0	0012.0	1				III
			LEAR				0021.0	0200.0	1				CONT
			CULG				0142.0	0143.0	1				III
			LEAR				0220.0	0222.0	2				III
			CULG				0221.0	0222.0	2				III
			CULG				0228.0	0228.0	1				III
			LEAR				0230.0	1020.0	1				CONT
			CULG				0245.0	0000.0D	1				I
			CULG				0315.0	0315.0	1				III
			CULG				0711.0	0714.0	1				III
			LEAR				0817.0	0823.0	3				V

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

NOVEMBER 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
06			SGMR				1647.0	1648.0	1				III
			PALE				2159.0	2204.0	2				V
			LEAR				2201.0	2202.0	2				III
07			CULG							0000.0	0035.0	1	I
			LEAR				0329.0	0331.0	2				V
			CULG				0331.0	0332.0	1				III
			LEAR				0427.0	0428.0	1				III
			CULG				0428.0	0428.0	1				III
			CULG				0603.0	0603.0	1				III
			LEAR				0622.0	0625.0	3				V
			CULG				0623.0	0624.0	2				III
			CULG				0623.0	0626.0	2				V
			LEAR				0910.0	0910.0	1				III
	1307	1411	WEIS				1328.9	1329.4	3				IIIG,U
			CULG							2016.0	0000.0	1	I
			CULG							2017.0	0000.0	1	I
			CULG				2159.0	2205.0	2				III
08			CULG							0000.0	0716.0	1	I
			CULG				0625.0	0627.0	1				III
			LEAR				0626.0	0629.0	2				V
			CULG				0628.0	0630.0	1				V
			CULG				0635.0	0635.0	1				III
			CULG				0655.0	0658.0	1				III
	0659	0922	WEIS										
	0949	1213	WEIS				1021.9	1022.1	2				IIIG
	1230	1315	WEIS										
			WEIS				1436.6	1436.8	1				IIIG
			CULG				2148.0	2148.0	1				III
			CULG				2209.0	2211.0	1				III
09			LEAR				0017.0	0018.0	2				III
			PALE				0017.0	0018.0	2				III
			LEAR				0226.0	0229.0	1				III
			PALE				0226.0	0226.0	1				III
			LEAR				0305.0	0305.0	1				III
	1215	1527	WEIS				1402.2	1403.9	3				IIIG
			WEIS				1407.4	1407.6	2				IIIB, U
			WEIS				1416.4	1416.8	3				IIIG
			WEIS				1459.4	1458.5	1				IIIG
10			CULG				0027.0	0027.0	1				III
			LEAR				0110.0	0111.0	2				III
			CULG				0111.0	0111.0	1				III
			CULG				0133.0	0133.0	2				III
			PALE				0133.0	0135.0	2				V
			CULG				0135.0	0135.0	2				III
			CULG				0206.0	0208.0	1				III
			LEAR				0206.0	0207.0	1				V
			CULG				0545.0	0545.0	1				III
	0702	0852	WEIS										
	0946	1441	WEIS										
	1450	1527	WEIS										
			CULG							2103.0	2104.0	1	III
			CULG				2335.0	2337.0	2				III
			PALE				2335.0	2338.0	2				V
11			CULG				0143.0	0145.0	3				V
			PALE				0143.0	0143.0	2				V
			CULG							0323.0	0323.0	1	III
			CULG							0502.0	0502.0	1	III
	0704	1439	WEIS										
12	0708	1524	WEIS										
13	0707	1522	WEIS										
14	0709	1521	WEIS										
15	0713	1049	WEIS										

SOLAR RADIO EMISSION SPECTRAL OBSERVATIONS

NOVEMBER 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
15	1121	1520	WEIS										
16	0712	1519	WEIS										
17	0714	1503	WEIS										
	1509	1518	WEIS										
18	0717	1516	WEIS										
19	0717	1515	WEIS										
20			SGMR				1433.0	1434.0	1				V
	0719	1113	WEIS				1433.4	1434.2	3				III G
			CULG				2322.0	2323.0	1				III
21			CULG				0234.0	0238.0	1				S
			LEAR				0234.0	0237.0	2				III
	0723	1513	WEIS										
			LEAR				0759.0	0759.0	1				III
22	0722	1512	WEIS										
23			LEAR				0142.0	0143.0	1				III
			CULG				0143.0	0143.0	1				III
	0723	1510	WEIS										
24	0727	1510	WEIS										
25			LEAR				0103.0	0103.0	1				III
	0727	0849	WEIS										
	0855	1114	WEIS										
	1123	1510	WEIS										
26	0728	1508	WEIS										
27	0732	1319	WEIS										
	1353	1508	WEIS										
28	0731	1051	WEIS										
	1120	1507	WEIS										
29	0733	1507	WEIS										
30	0730	1506	WEIS										

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

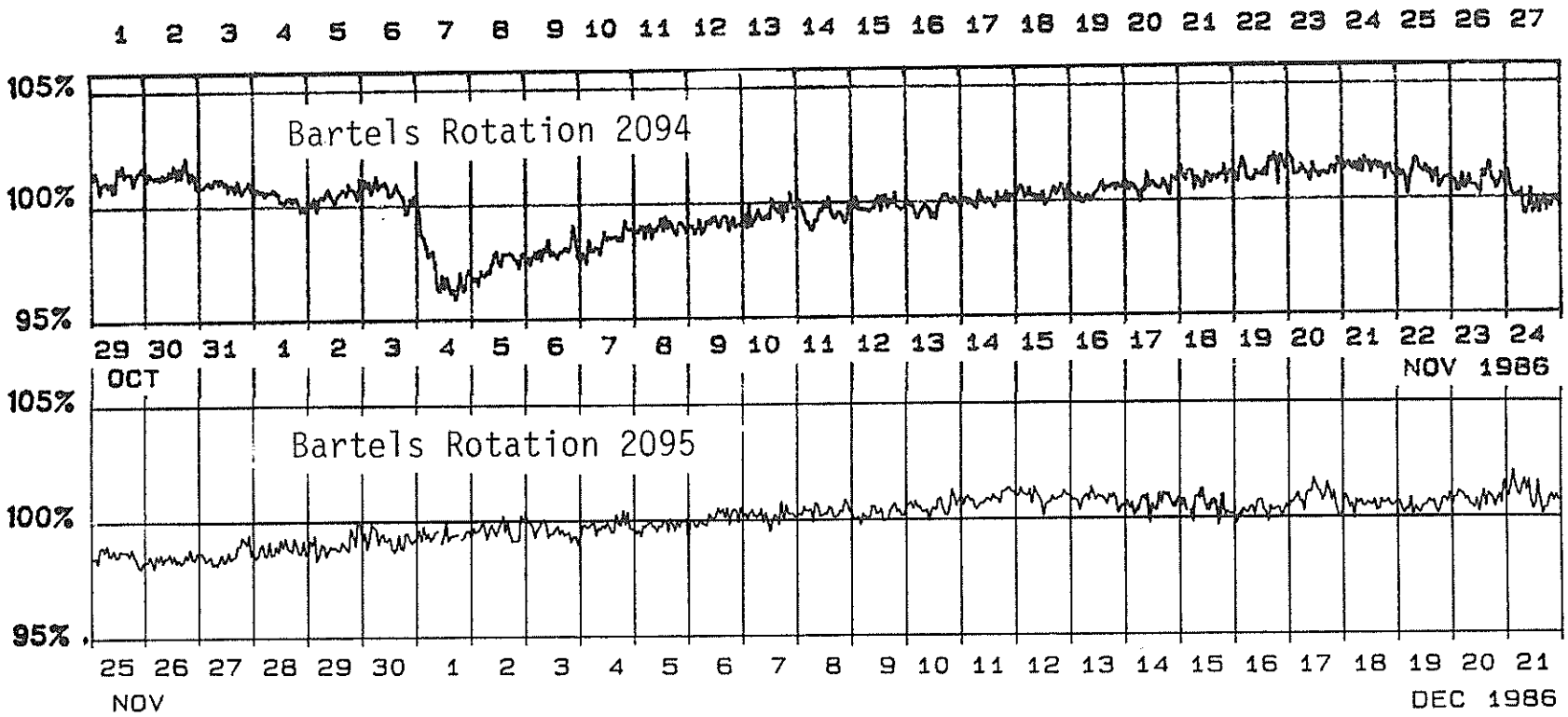
B = Single burst
G = Small group (< 10) of bursts
GG = Large group (> 10) of burst
C = Underlying continuum (particularly with Type I)
S = Storm in the sense of intermittent but apparently connected activity
N = Intermittent activity in this period
U = U-shaped burst of Type III

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:

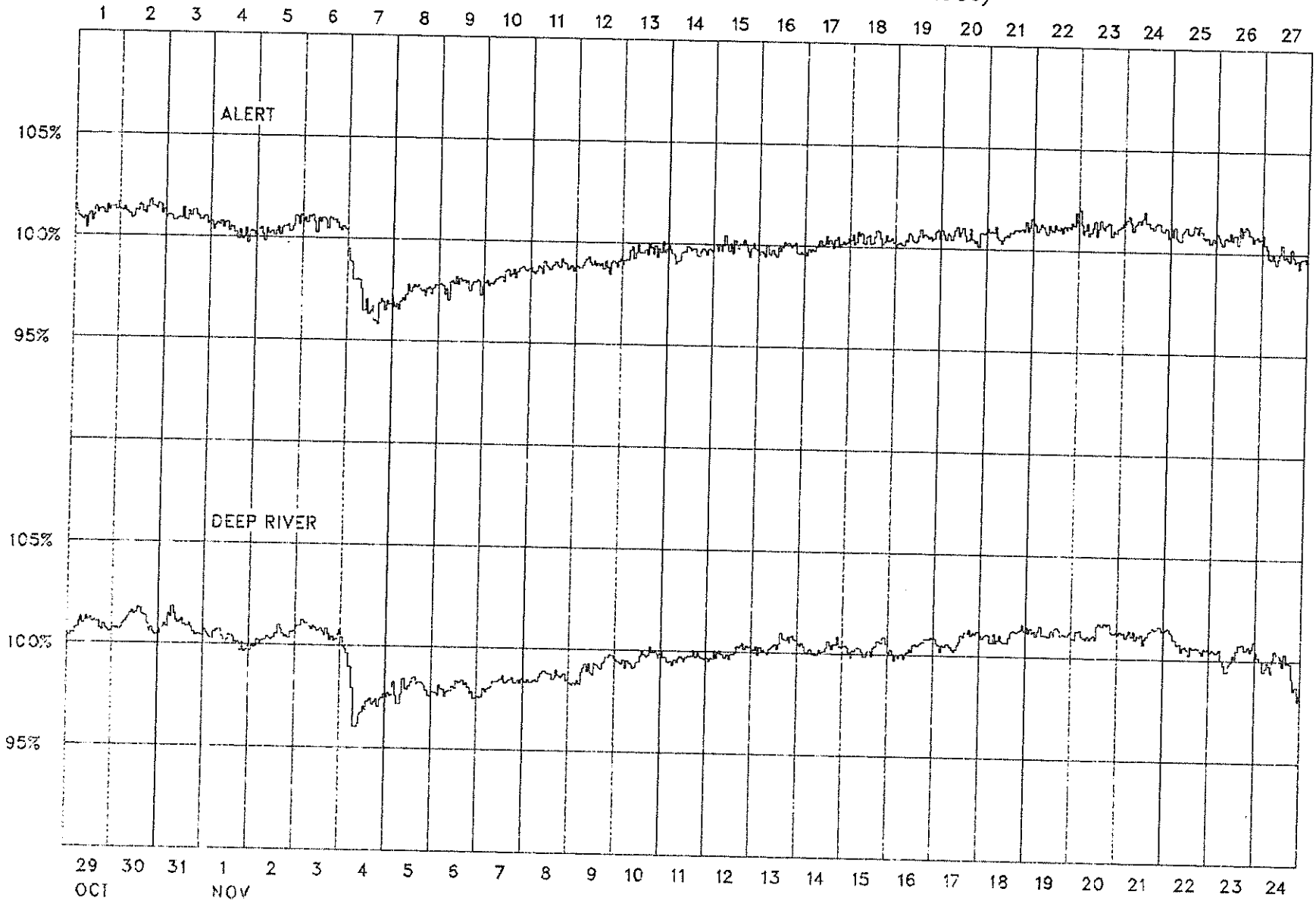
BLEN = Bleien LEAR = Learmonth PALE = Palehua SGMR = Sagamore Hill WEIS = Weissenau

THULE NEUTRON MONITOR



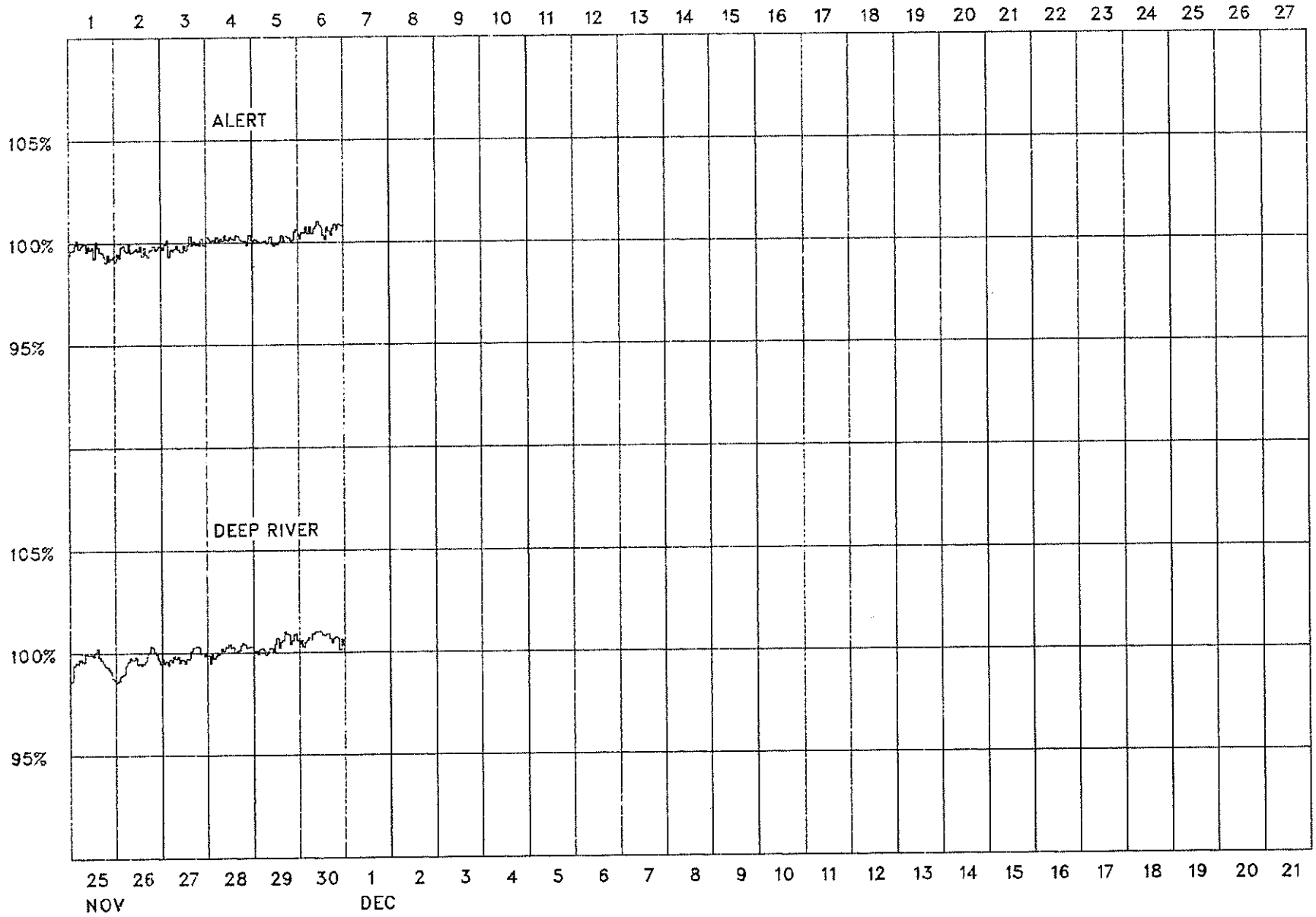
COSMIC RAY INDICES
(Neutron Monitor)

Bartels Rotation 2094 (October 1986–November 1986)



COSMIC RAY INDICES
(Neutron Monitor)

Bartels Rotation 2095 (November 1986–December 1986)



COSMIC RAY INDICES
(Neutron Monitor)

NOVEMBER 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	4536	7399.2	7074.9					
2	4541	7405.0	7080.2					
3	4547	7430.0	7109.8					
4	4390	7162.2	6892.2					
5	4404	7177.5	6907.8					
6	4427	7209.7	6909.5					
7	4448	7245.8	6928.9					
8	4473	7279.7	6956.6					
9	4480	7293.6	6987.6					
10	4502	7339.5	7026.4					
11	4498	7342.0	7031.5					
12	4515	7365.5	7052.5					
13	4512	7355.7	7081.7					
14	4524	7377.4	7073.7					
15	4535	7402.1	7076.0					
16	4538	7406.7	7078.0					
17	4549	7421.6	7107.9					
18	4566	7436.8	7126.3					
19	4579	7457.3	7141.0					
20	4578	7458.6	7144.5					
21	4581	7471.0	7143.5					
22	4567	7438.1	7108.5					
23	4552	7433.2	7078.2					
24	4515	7463.7	7034.4					
25	4501	7334.9	7007.7					
26	4495	7335.0	7010.8					
27	4503	7350.8	7030.0					
28	4513	7375.2	7051.9					
29	4522	7371.7	7071.2					
30	4531	7408.5	7092.0					
Mean	4514	7361.6	7047.2					

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.

GEOMAGNETIC ACTIVITY INDICES

November 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		4	4+	3+	2+	1-	1	1+	1	18	13	0.7	3	3-	3-	2+	1+	1	1+	1+	17	24	13	31	7	
2		1-	1-	2-	2	2-	1+	2+	2-	12	6	0.3	1+	1+	2-	2	2-	1+	2+	2	12	11	11	10	12	C
3	D5*	2	3+	3-	2+	1	3-	3	5	22	16	0.9	3-	3-	2+	2+	1+	3-	3	5-	27	26	29	27	29	
4	D1	6	6	5-	6+	6-	5+	6	5-	45-	67	1.7	6-	5+	4+	5+	5+	5+	6-	4	107	88	93	92	89	
5	D4	5-	5	4	3	2-	1+	2+	2+	24+	20	1.0	5-	4	4-	3-	1+	2-	3-	2+	33	30	28	43	16	
6		3-	3-	2+	2	2	2	4	3+	21	12	0.7	2+	2-	2	2-	2+	2	4-	3-	20	23	16	13	27	
7		3	2-	1	1-	1+	1	0	2	11-	6	0.2	2+	1+	1	1-	1+	1-	0	2+	9	10	6	9	7	CK
8	Q4	2	2-	1	1+	1-	1+	1	0+	9+	4	0.2	2-	1+	1	1	1-	1+	1+	1-	8	7	7	9	5	CC
9	Q3	1	1	1+	1	1	1-	0	0+	6+	3	0.1	1	1	1	1-	1+	0+	0	0+	5	5	4	6	4	CC
10	Q7	1-	1+	0+	0+	1-	1	2+	2+	9	5	0.2	1-	1+	0+	1-	0+	1	3-	2+	9	11	7	4	15	KK
11		3-	5-	4	2	2	2-	2	2-	21-	14	0.8	3-	4+	3+	2+	2	2	2-	2-	25	19	20	27	12	
12		4	3	3-	1+	1	1-	0+	1	14	9	0.5	3+	2	2	1	1	1+	1-	1-	13	15	17	26	7	K
13	Q10	1	0+	1-	1-	2	2	3-	1+	11-	5	0.2	1+	1-	1	1	3-	2	3-	1	12	11	12	6	18	KC
14	Q6	2	1+	1	2-	1	1-	1	1+	10	5	0.2	1+	1+	1	2	1+	1	1	1+	9	9	8	10	9	CK
15		3-	2-	1+	2+	3	4-	3-	3+	21-	12	0.7	2+	1+	2-	2+	3	3+	3-	3+	23	24	26	16	34	
16		3-	2+	2	3-	3-	3+	3-	2-	20	11	0.6	3-	2-	2-	3-	3	3	3-	2	22	21	20	17	25	
17		3-	2	2	2+	2-	2	2	2-	16+	8	0.4	3-	2-	2	2+	2-	2+	2-	2	16	16	14	18	13	
18		2	3-	2-	1	1	0+	1+	1+	11+	6	0.3	2-	2	2-	1	1	1-	1+	1	9	9	11	14	7	CC
19	Q5	0+	1-	0	1-	0+	1+	2+	2+	8	4	0.1	0	0+	0	1	0+	2-	2	2+	8	9	8	4	13	CC
20	Q9	3-	2+	1-	0+	0+	0+	1	2-	9+	5	0.2	2-	2-	1-	1	1	1-	1	2-	8	11	7	12	7	CC
21	Q2	0	0+	1	1-	0	1	1	1	5	3	0.0	0+	1-	1	1	1-	1-	1	1	6	4	6	4	5	CC
22	Q1	0	1+	0+	0+	0	0	1-	1	4-	2	0.0	1-	2-	1-	1-	0+	0+	1-	1	5	4	7	6	5	CC
23		1-	0+	0+	1-	1+	2-	3	5+	13+	12	0.7	1	1-	1-	1-	1+	2+	3+	5	22	21	26	4	43	
24	D3	6-	5+	3-	4	2+	5-	6	6	37-	46	1.5	4+	4+	2+	4-	2+	5-	5+	6-	68	91	47	60	79	
25	D2	5	5-	4	5-	5+	5-	7-	4+	39+	49	1.6	4-	3	3	4+	6-	5	6-	3+	72	90	43	43	91	
26		4	3+	3+	3-	4	4-	1+	1	23+	17	0.9	3+	3-	3-	3-	4-	4-	2-	1+	27	27	22	27	22	
27		3	3	3	2+	2-	1	1-	0+	15	9	0.5	2+	3-	3-	2+	2-	1	0+	1-	14	11	13	19	6	C
28	Q8	0	2	2-	1+	1-	1	2	1+	10	5	0.2	1-	2-	1+	2	1+	1+	2+	1+	11	8	11	9	10	CC
29		2+	2-	1+	1+	3-	4-	3-	2+	18	10	0.6	2-	1+	1+	2-	3	4-	3-	2+	19	20	20	11	29	
30		1-	2	3	3-	3	4-	2+	4+	22-	14	0.8	1	1+	2+	3-	3-	4	3-	4-	27	33	24	13	45	
Mean											13	0.56									22.1	23.1	19.2	21.2	

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-	3-	2+	1+	1+	1+	1+	18	3	3	3-	2	1+	1-	1+	2-	15	87.6*	46	48	33	D	-
2	1+	1	2-	2	2-	2-	2+	1+	11	1+	1+	2	2	2	1-	2+	2+	13	84.1	35	38	29	A	-
3	2+	3-	2+	2+	1+	3-	3	5-	27	3-	3-	2+	2+	2-	3-	3	5-	28	80.8	36	34	25	T	-
4	6-	5+	4	5+	5	5+	5	4	94	6-	5+	5-	6-	6-	6-	6+	4+	120	82.3	37	35	27	A	-
5	5-	4	4	3-	1+	2	2+	2+	34	5	4	4-	3-	1+	2-	3-	2	33	81.5	33	34	26		-
6	2	2-	2+	2-	2+	2	4-	3	20	2+	2-	2	2-	3-	2+	4-	3-	20	80.6	29	29	25	N O	-
7	2+	1+	1	1	1+	1	0+	2	9	2+	1+	1	1-	1+	1-	0	2+	9	76.9	24	20	21	T	-
8	2-	1+	1+	1+	1-	1+	1+	0+	8	2-	2-	1-	1	1-	1+	1+	1-	7	73.5	15	11	17		-
9	1	1-	1-	1-	1+	0+	0	0+	5	1	1	1	1-	1	1-	0	1-	5	71.9	8	7	16	C	-
10	0+	1	0+	0+	1-	1	2+	2+	8	1	2-	0+	1-	0	1-	3-	3-	10	70.4	9	10	14	U R	-
11	2+	4+	3+	2-	2	2	2-	2	24	3	4+	3+	3-	2	2	2-	1+	25	69.9	9	11	13	R	-
12	4-	2	2	1	1-	1+	1-	1-	13	3+	2	2	1	1	1+	1-	1-	12	71.4	0	0	15	E	-
13	1	0+	1-	1-	2+	2+	3-	1	11	1+	1+	1+	1+	3-	2	3-	1+	13	76.0*	0	0	20	N	-
14	1+	1+	1	2	1+	1	1-	1+	9	1+	1	1	2-	2-	1-	1+	1+	8	74.1	11	10	18	T	-
15	2+	1+	2-	2	3	3+	3-	3-	21	2+	1+	2-	3-	3	3+	3	4-	25	75.1	11	9	19	L Y	-
16	2+	2	2-	3-	3	3+	3-	2	22	3	2-	2	3	3-	3-	3-	2	21	75.0	11	11	19		-
17	2+	2-	2-	3-	2-	2	1+	2	15	3-	2-	2+	2+	2-	2+	2	2	17	73.8	12	11	18	A	-
18	2-	2-	2-	1	1+	1-	1+	1	9	2	2+	2	1+	1	0+	1	1	10	73.0	11	12	17	V	-
19	0	0+	0	1-	0+	2-	2+	2-	7	0+	0+	0	1	1-	2	2	3-	9	72.5	12	12	16	A	-
20	2-	2	0+	1-	1+	1-	1	1+	8	2-	2-	1	1+	1	1-	1	2	9	72.5	12	11	16	I L	-
21	0+	0+	1	1	0+	1	1-	1-	4	1-	1	1+	1	1	1-	1+	1+	7	74.1	11	11	18	A	-
22	1-	1+	0	0+	0	0+	1-	1-	4	1-	2	1+	1	0+	0+	1-	1+	6	74.5	10	8	18	B	-
23	0+	0+	1-	0+	1+	2	3	5-	18	1+	1-	1-	1	1+	3-	4-	5	25	75.8	18	15	20	L	-
24	5-	5-	2	3+	2+	4+	5+	5-	58	4	4	3-	4	2+	5	6-	6+	78	77.0	11	10	21	E	-
25	4-	3	3+	5-	5+	5-	6-	4-	71	4-	3-	3	4+	6-	5+	6	3	74	75.5	9	10	20		-
26	3+	2+	3	3	4	4-	2-	1-	29	4-	3-	3-	3-	3-	3+	2-	2	25	74.3	0	0	18		-
27	2+	3-	2+	2+	2-	1+	1-	0+	14	2+	3-	3-	3-	1+	1-	0+	1+	13	73.6	14	15	17		-
28	0+	2-	1+	2	1+	1+	2+	1+	10	1	2-	1+	2-	1+	1+	3-	1+	11	73.1	0	0	17		-
29	2-	1	1+	2-	3	4-	3-	2	19	2	2-	1+	1+	3-	3+	3-	3-	19	72.4	8	9	16		-
30	1-	2-	3-	3-	3	4	3-	4-	27	1+	1+	2-	3-	3-	4	3	4	26	70.9	0	0	15		-
Mean									20.9									23.1	75.5	14.7	14.7	19.5		

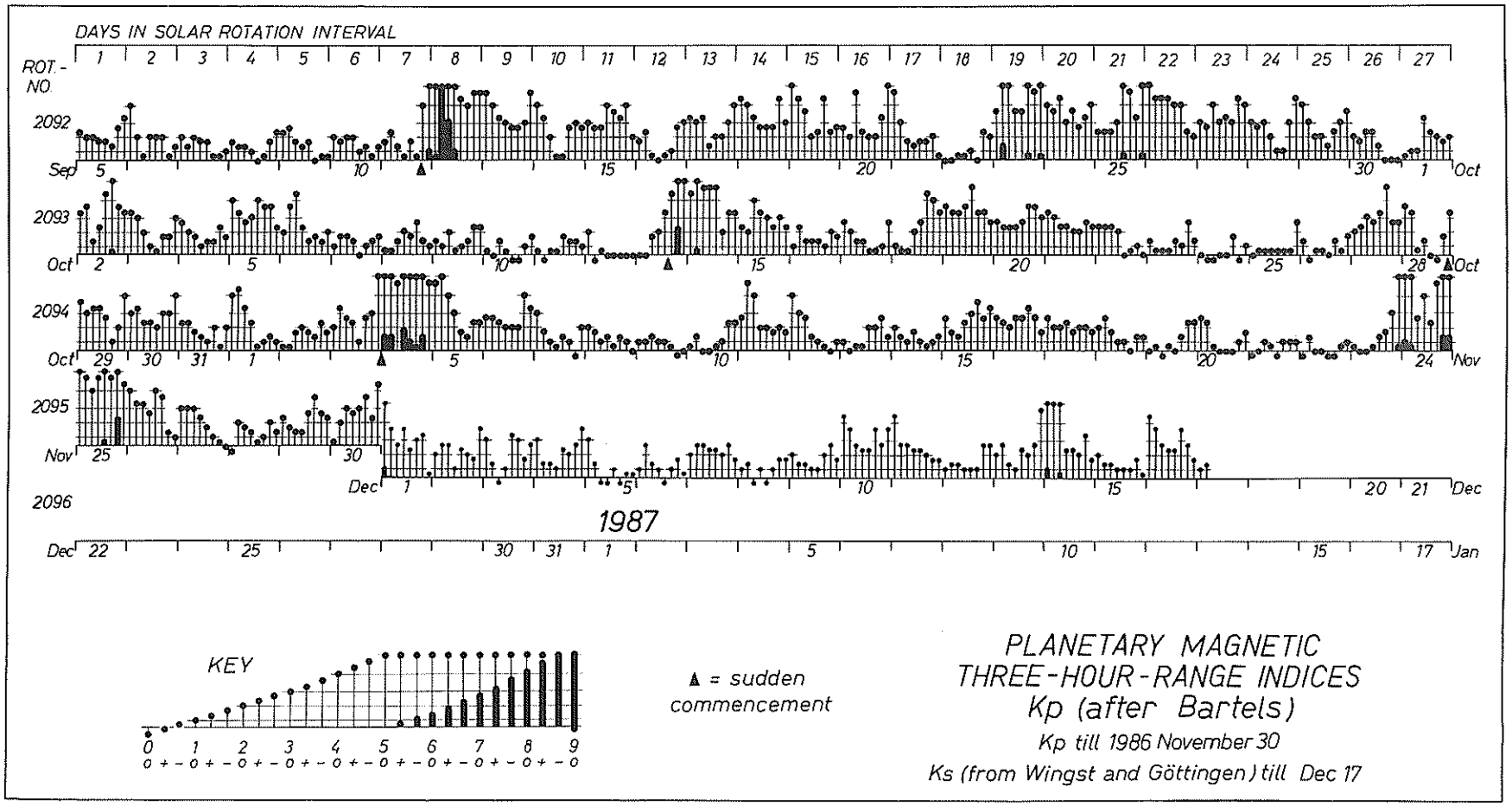
DAILY AVERAGE INDICES Ap

DAY	1985 DEC	1986 JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV
1	15	25	5	18	8	5	15	7	6	9	7	13
2	14	18	6	12	5	43	8	13	5	16	23	6
3	9	10	6	12	14	40	10	8	19	7	9	16
4	12	5	5	8	4	17	7	7	20	7	7	67
5	8	4	7	8	9	17	5	7	9	9	19	20
6	7	20	11	32	4	67	6	5	6	8	12	12
7	5	32	82	33	5	12	12	4	4	5	5	6
8	3	11	202	23	5	7	7	6	7	5	6	4
9	5	14	100	5	13	5	7	6	10	6	6	3
10	17	11	10	2	19	6	13	6	6	6	3	5
11	11	4	20	2	6	6	6	4	7	16	4	14
12	7	5	18	7	10	7	6	6	10	89	2	9
13	30	3	15	21	5	4	6	7	10	22	28	5
14	11	4	19	8	4	3	6	4	5	12	31	5
15	10	5	5	8	7	4	5	4	6	18	14	12
16	6	3	5	6	8	7	5	5	4	7	6	11
17	8	6	9	6	6	8	8	8	5	14	6	8
18	12	7	14	8	7	5	9	6	3	20	13	6
19	41	4	9	9	11	8	5	4	4	21	21	4
20	11	15	17	3	5	5	6	3	15	18	14	5
21	5	27	26	17	7	6	6	6	29	11	11	3
22	6	11	30	22	11	3	8	7	29	4	6	2
23	4	17	35	11	10	8	5	5	25	43	5	12
24	10	12	19	21	12	7	7	15	22	22	2	46
25	6	26	18	27	7	10	3	17	17	26	4	49
26	8	12	26	12	7	8	5	20	12	27	3	17
27	12	37	20	18	4	7	28	16	13	20	16	9
28	35	30	25	14	11	3	18	9	12	13	9	5
29	7	19		8	9	4	11	17	22	13	15	10
30	46	14		5	5	10	9	11	27	5	14	14
31	22	8		7		17		12	16		6	
MEAN	13	14	27	13	8	12	8	8	12	17	11	13

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

University of Gottingen

Kp through November 30, 1986



With Best Wishes for a Happy New Year *Institut für Geophysik Göttingen*

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

NOVEMBER 1986

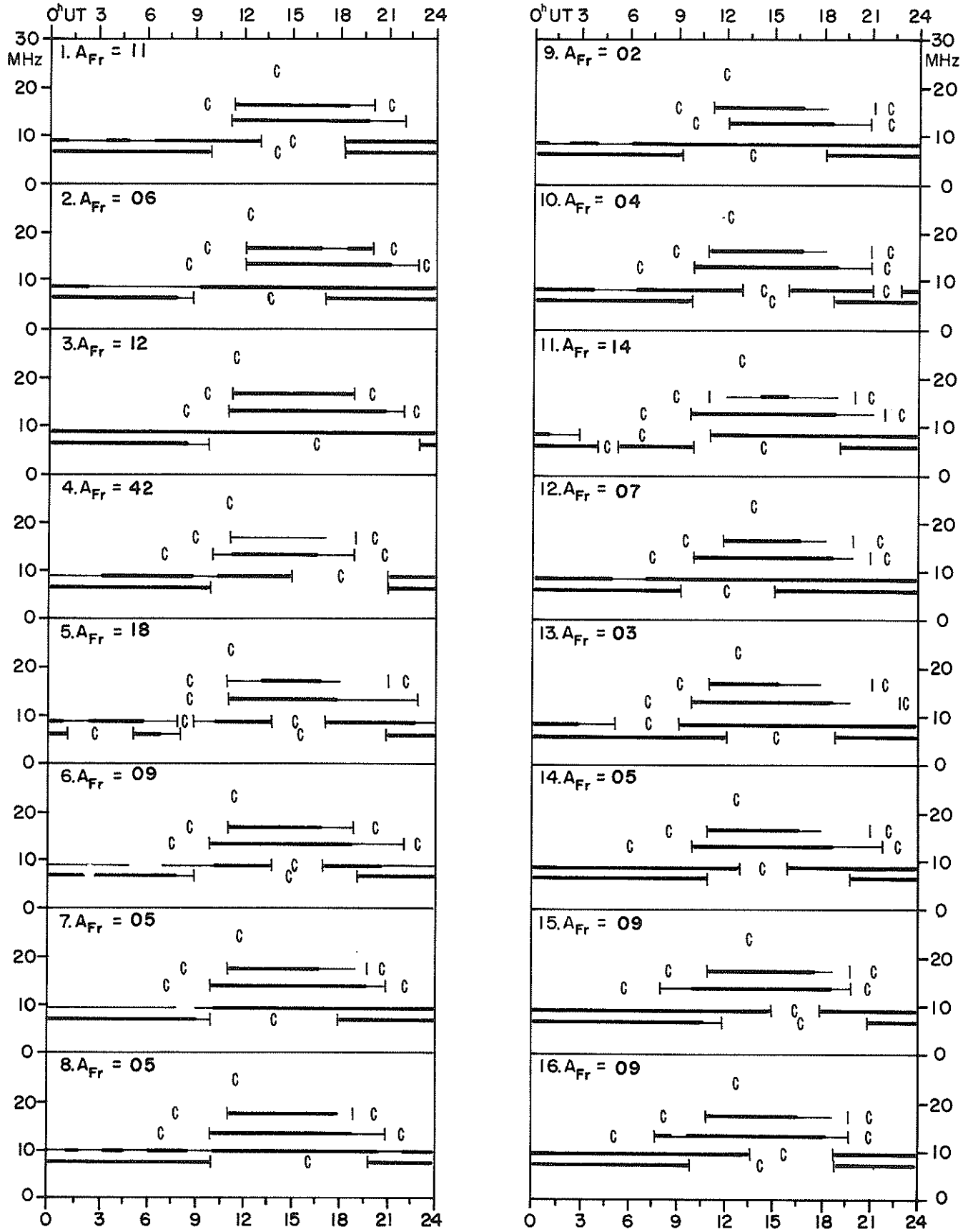
Sta	Geomag Lat	Commencement Day	Time (UT)	Type	SC Amplitudes D (Min)	H (Gamma)	Z (Gamma)	Maximum 3-Hour K Index Day(3-Hour Periods)	K	Ranges D (Min)	H (Gamma)	Z (Gamma)	End Day	Hour (UT)
COL	64.6N	03	2352	SC*	- 21	-175	--	04(2,4,5,6)	7	440	1930	1730	05	12
SIT	60.0N	03	2352	SC*	15 *	- 73 *	- 16 *	04(4)	7	--	--	660	05	11
WIT	54.2N	03	2354	SC*	- 7 *	50	0	04(1,6,7)	6	35	277	114	05	10
FRD	49.6N	03	2353	SC	7	80	- 17	04(1)	6	30	210	77	05	--
BJI	28.5N	03	2353	SC	1.4	61	3	04(2)	7	14	216	33	05	12
HON	21.1N	03	2355	SC	--	--	--	04(1,2)	6	--	--	--	05	12
JAI	17.3N	03	2351	SC	- 3.2	69	- 19		-	9	214	34	05	24
KRC	16.4N	03	2355	SC	- 2.8	70	54	03(8) 04(1,4)	6	9	232	75	07	--
SHL	14.7N	03	2351	SC	- 2.9	60	9		-	6	211	33	05	24
UJJ	13.5N	03	2351	SC	- 2.0	78	- 20		-	7	218	33	05	24
ABG	09.5N	03	2351	SC	- 2.7	65	- 26	03(8) 04(1,4)	6	8	206	45	05	24
HYB	07.6N	03	2353	SC	- 2	72	- 5	03(8) 04(1,4)	6	6	228	31	05	10
GUA	04.0N	03	2353	SC	--	81	- 23	04(1)	7	--	290	50	05	12
ETT	00.6S	03	2353	SC	- 1.8	60	45		-	-6	208	111	05	15
TRD	01.1S	03	2351	SC	- 0.8	71	84		-	4	213	178	05	24
PMG	18.6S	03	2354	SC	--	--	--	03(8) 04(1,2,4)	6	13	240	140	05	12
HER	33.7S	03	2354	SC	7	80	57	03(8) 04(1,4)	6	23	252	176	05	05
GNA	43.2S	03	2354	SC	3.3	34	17	04(4,5)	6	30	170	190	05	10
CNB	43.9S	03	2354	SC*	- 4.4	32 *	25	04(5)	6	30	143	93	05	10
KGL	56.5S	03	2353	SC	17	64	13	04(7)	8	105	864	556	05	11
HYB	07.6N	10	1400	..	..	..	..	11(2)	5	2	88	14	11	23
KRC	16.4N	11	18--	..	..	..	..	11(2)	5	3	57	20	13	05
GUA	04.0N	11	0054	..	..	..	..	11(2)	5	--	110	10	11	09
HYB	07.6N	15	0500	..	..	..	..	15(6)	5	2	95	19	17	03
WIT	54.2N	23	1800	..	..	..	..	25(7)	8	54	348	114	26	04
FRD	49.6N	23	22--	..	..	..	..	23(8) 24(1,8) 25(4,5)	5	29	148	70	26	--
BJI	28.5N	23	13--	..	..	..	..	25(5)	6	13	130	19	26	18
JAI	17.3N	23	1700	..	..	..	..		-	8	163	22	26	24
KRC	16.4N	23	0900	..	..	..	..	24(6)	8	7	170	41	27	12
SHL	14.7N	23	1700	..	..	..	..		-	5	151	15	26	24
UJJ	13.5N	23	1700	..	..	..	..		-	6	158	17	26	24
ABG	09.5N	23	1700	..	..	..	..	24(6)	6	5	172	23	26	24
GUA	04.0N	23	1310	..	..	..	..	23(8)	5	--	40	20	24	07
ETT	00.6S	23	1330	..	..	..	..		-	-5	187	55	25	23
TRD	01.1S	23	1700	..	..	..	..		-	3	192	113	26	24
HER	33.7S	23	17--	..	..	..	..	24(6,7)	6	32	133	153	25	00
GNA	43.2S	23	13--	..	..	..	..	24(7)	6	23	122	130	26	18
CNB	43.9S	23	18--	..	..	..	..	23(8) 24(6,7) 25(5)	5	22	110	60	25	21
COL	64.6N	24	15--	..	..	..	..	25(6)	9	540	3060	1370	26	19
SIT	60.0N	24	16--	..	..	..	..	25(4)	7	--	--	--	25	20
HYB	07.6N	24	0922	SC	- 0.1	18	- 2	24(6) 25(7)	6	4	171	19	26	18
GUA	04.0N	24	0923	..	..	..	..	24(8)	5	--	50	10	25	05
KGL	56.5S	24	0925	SC	8	25	10	24(8) 25(7)	8	142	1144	456	26	10
GUA	04.0N	25	09--	..	..	..	..	25(5)	5	--	60	10	26	00
HER	33.7S	25	08--	..	..	..	..	25(7)	5	27	113	113	26	01
JAI	17.3N	29	0800	..	..	..	..		-	6	88	18	30	24
SHL	14.7N	29	0800	..	..	..	..		-	4	85	13	30	24
UJJ	13.5N	29	0800	..	..	..	..		-	4	87	14	30	24
ABG	09.5N	29	0800	..	..	..	..	30(8)	5	5	90	15	30	24
HYB	07.6N	29	0800	..	..	..	..	29(6) 30(8)	5	4	101	16	01	20
TRD	01.1S	29	0800	..	..	..	..		-	3	109	64	30	24

Stations Reporting:

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

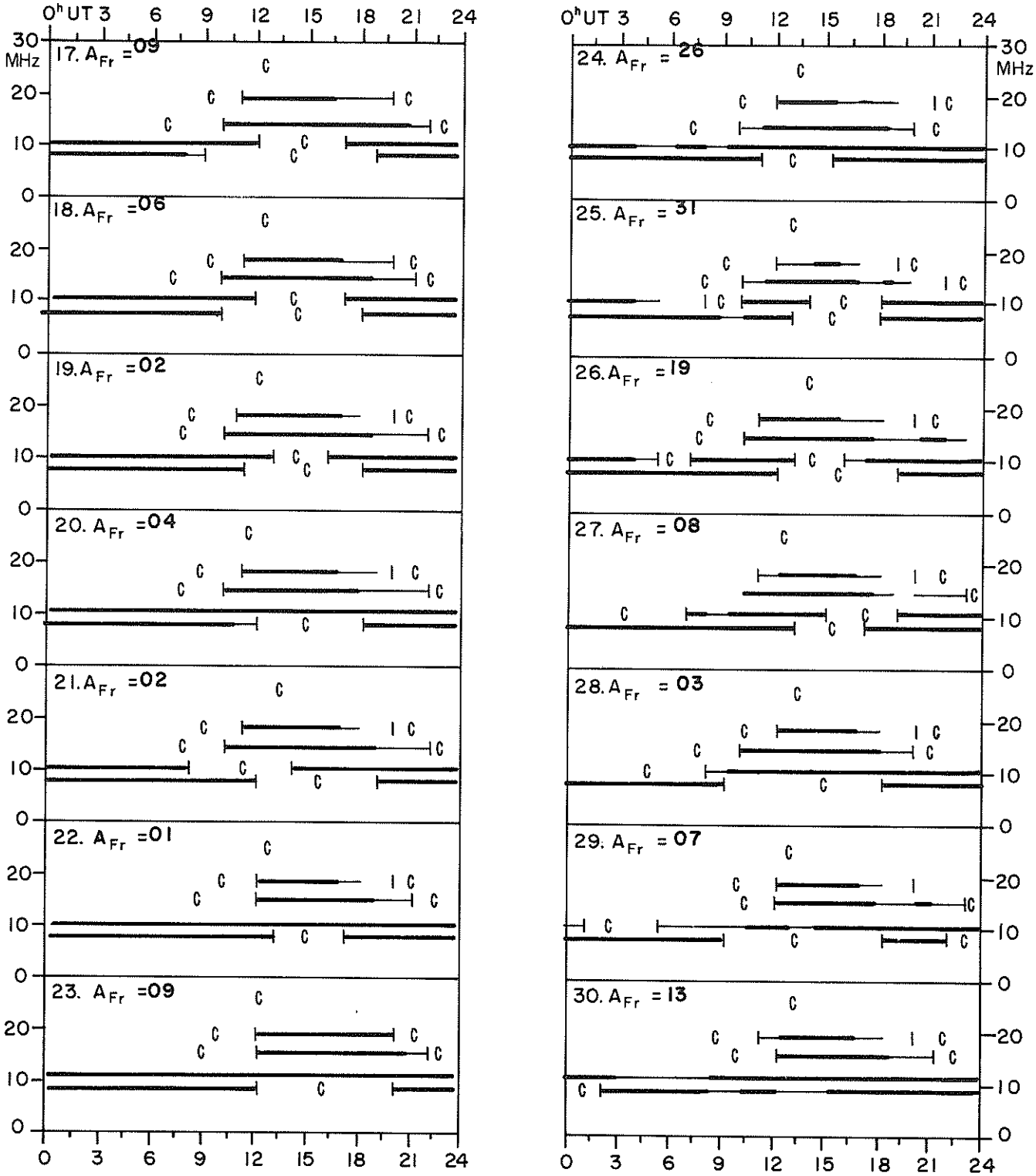
TRANSMISSION FREQUENCY RANGES -- NORTH ATLANTIC PATH

NOVEMBER 1986



TRANSMISSION FREQUENCY RANGES -- NORTH ATLANTIC PATH

NOVEMBER 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.

RADIO PROPAGATION QUALITY INDICES

NOVEMBER 1986

Day	Bracknell	Teheran	New York	Tokyo	Johannesburg	Canberra
1	4.1	6.8	4.4	7.5	6.5	6.6
2	4.9	4.6	5.6	6.4	5.8	6.0
3	5.9	3.0	5.2	6.8	5.8	5.5
4	4.3	2.2	3.5	3.6	5.0	4.0
5	3.3	1.4	1.8	5.3	4.6	2.0
6	3.2	1.7	2.6	4.6	5.1	3.3
7	3.7	3.5	3.8	5.5	5.0	4.5
8	4.1	3.2	4.6	5.6	4.7	4.0
9	3.2	2.2	3.9	4.1	5.8	4.8
10	4.7	3.6	5.2	6.6	5.1	5.8
11	5.1	6.9	3.6	7.3	5.6	6.3
12	4.8	6.7	4.6	6.3	5.7	6.0
13	5.3	6.3	5.7	6.6	4.2	5.8
14	6.0	4.7	6.1	8.3	5.8	6.0
15	6.5	4.9	7.1	8.6	5.1	7.5
16	5.5	4.4	6.0	8.3	6.1	5.6
17	6.3	6.8	6.2	8.2	5.5	5.8
18	5.4	6.6	5.6	7.3	5.0	6.2
19	5.6	6.2	6.6	7.3	4.9	6.1
20	5.5	7.0	6.3	7.2	5.0	6.2
21	6.7	6.8	6.9	7.7	6.6	6.6
22	6.8	6.6	7.3	8.8	6.0	7.3
23	7.0	5.8	8.4	9.1	5.5	7.0
24	6.8	4.5	6.1	8.5	5.9	6.3
25	6.8	5.9	4.3	8.4	6.5	6.0
26	6.7	3.7	4.5	8.1	6.4	4.7
27	5.2	2.4	4.1	6.6	4.8	4.2
28	5.8	3.3	4.2	8.8	5.3	5.3
29	5.6	5.4	5.1	4.7	5.2	6.2
30	5.0	4.5	5.9	6.6	4.4	5.4
Mean	5.3	4.7	5.2	7.0	5.4	5.6

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.

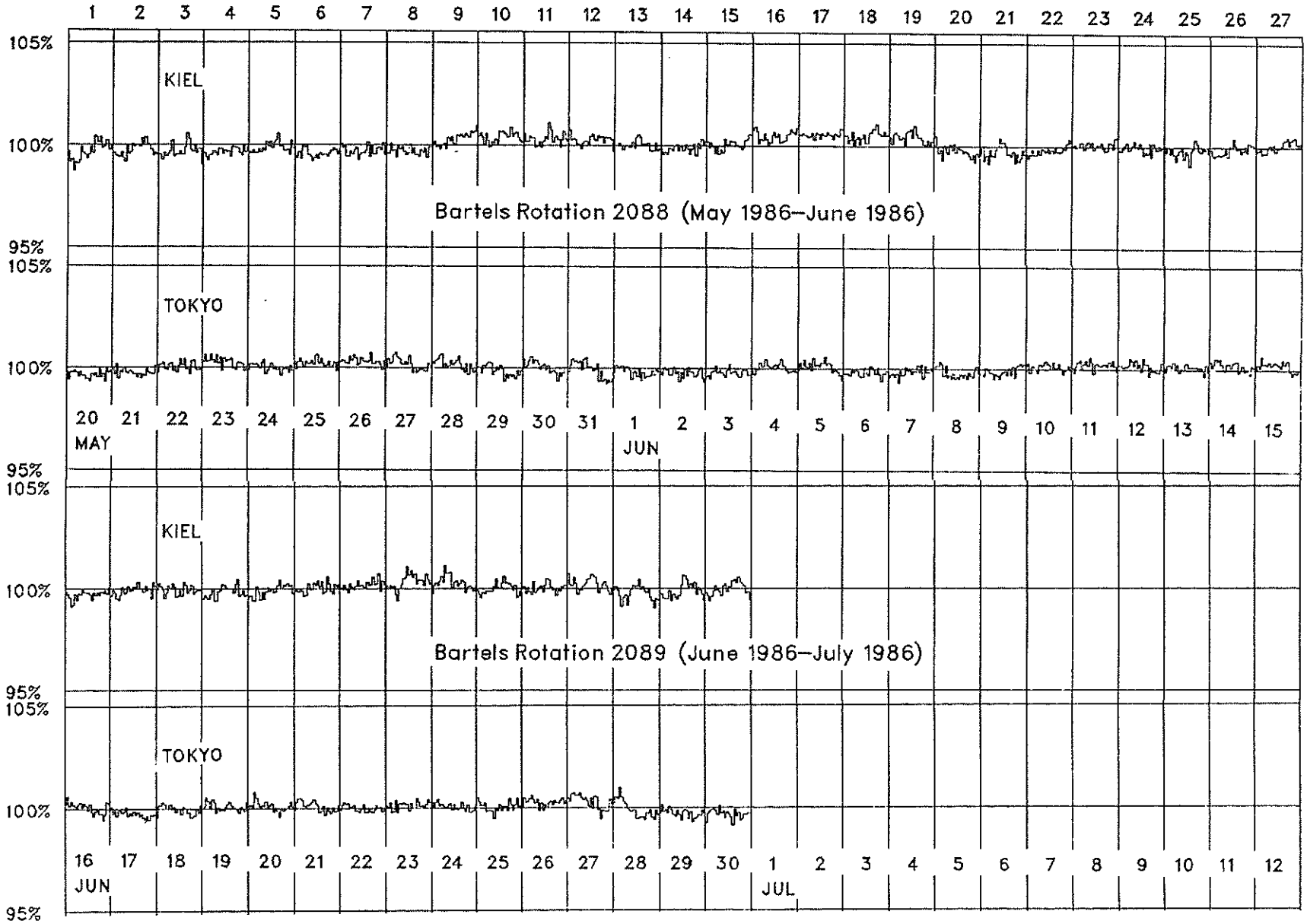
SCALE FOR QUALITY INDICES

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

C O N T E N T S

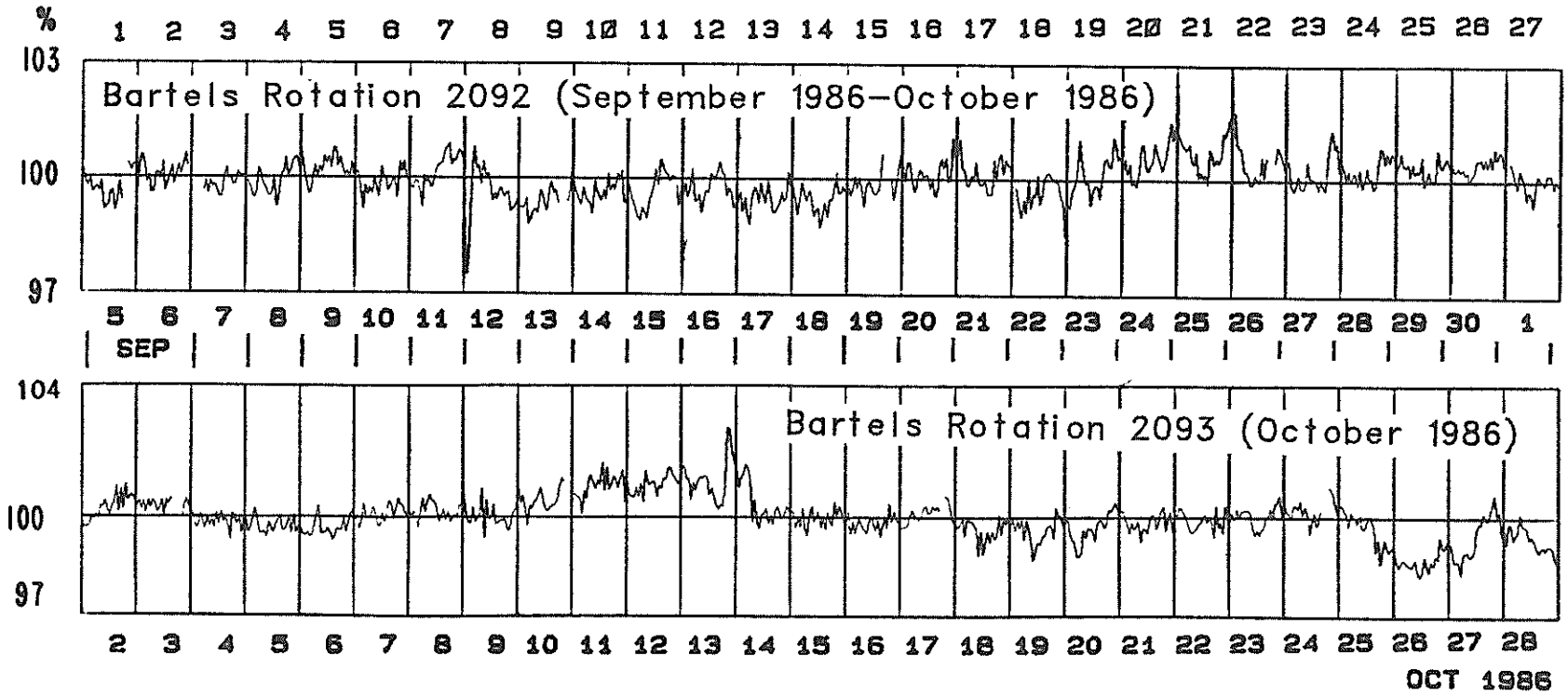
Prompt Reports LATE DATA Number 509 Part I

COSMIC RAY INDICES
(Neutron Monitor)



CLIMAX

COSMIC RAY INDICES
(Neutron Monitor)



COSMIC RAY INDICES
(Neutron Monitor)

OCTOBER 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	4569	7472.7	7127.8	6325.2	4225.8			
2	4574	7478.3	7139.4	6343.7	4241.4			
3	4585	7507.6	7134.6	6351.3	4245.3			
4	4580	7515.1	7131.3	6344.6	4224.6			
5	4577	7504.0	7145.5	6341.6	4219.5			
6	4570	7500.0	7150.5	6335.5	4216.3			
7	4578	7506.7	7161.6	6342.0	4234.9			
8	4600	7540.2	7156.6	6365.5	4237.7			
9	4601	7546.9	7160.9	6367.9	4231.5			
10	4610	7543.2	7193.9	6371.7	4251.9			
11	4618	7551.0	7185.2	6375.6	4270.1			
12	4635	7562.5	7185.0	6383.7	4272.0			
13	4620	7551.3	7167.4	6385.0	4278.1			
14	4582	7486.9	7127.5	6351.2	4248.3			
15	4573	7465.2	7150.9	6336.5	4229.4			
16	4573	7475.1	7149.3	6334.9	4222.3			
17	4582	7480.4	7163.5	6354.9	4234.5			
18	4568	7473.2	7127.1	6354.7	4214.5			
19	4561	7465.7	7093.9(14)	6368.5	4213.3			
20	4563	7465.0	---	6385.8	4216.2			
21	4572	7480.6	7140.2(8)	6372.4	4223.8			
22	4572	7476.9	7132.6	6377.2	4226.3			
23	4589	7498.3	7154.8	6409.4	4231.2			
24	4607	7507.5	7173.4	6390.1	4239.2			
25	4588	7490.8	7154.1	6389.2	4216.8			
26	4551	7430.0(8)	7100.5	6304.8	4175.5			
27	4572	7466.7	7116.8	6318.0	4206.3			
28	4576	7467.8	7116.2	6320.5	4202.9			
29	4577	7456.0	7114.5	6333.0	4200.5			
30	4582	7469.3	7130.6	6340.1	4212.7			
31	4561	7443.4	7119.4	6342.5	4220.0			
Mean	4583	7492.9	7143.5	6355.4	4228.3			

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.

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

OCTOBER 1986

Storm Sudden Commencements (ssc)			Solar Flare Effects (sfe)		
Day	Time	Quality: Station Group*	Day	Begin-End	Station(s)
01	1148	A: COI ALM; C: LNP AMS CZT KGL	02	1446-1452	NCK
13	1054	A: COI; B: TEN MPO; C: WIT CLF SPT ALM	14	0955-1007	TEN
13	1454	B: WNG VAL NCK EBR SPT HVN AMS CZT KGL; C: WIT NGK BDV GCK MMB	15	1532-1558	ALM
28	2126	A: CLF; B: WNG; C: WIT NGK VAL HAD	23	1242-1249	MPO

Reporting Observatories:

SOD DOB NUR WNG WIT NGK VAL HAD BDV CLF NCK GCK MMB EBR
COI SPT FRD ALM KAK KNY TEN LNP HVN MPO GNA AMS VZT 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.

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)

JULY 1986

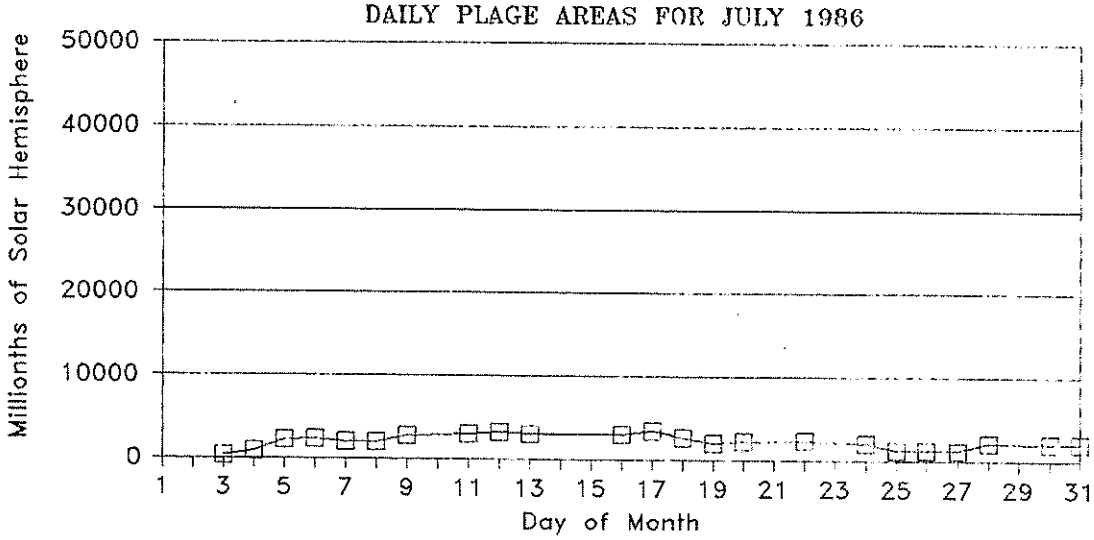
Calcium Plage Region	Sta	Observation Time Mo	Day	(UT)	Lat	CMD	CMP Mo	Day	Intensity	Corrected Area (10-6 Hemi)	NOAA/USAF Sunspot Groups #1	#2	#3
19777	BIGB	07	05	1455	S10	W34	07	3.1	1.3	0090			
19777	BIGB	07	06	1833	S10	W47	07	3.2	1.5	0080			
19776	BIGB	07	03	1657	N28	W04	07	3.4	2.5	0350	4734		
19776	BIGB	07	04	1447	N28	W16	07	3.4	2.7	0890	4734		
19776	BIGB	07	05	1455	N28	W32	07	3.1	3.4	1000	4734		
19776	BIGB	07	06	1833	N28	W47	07	3.1	2.7	1130	4734		
19776	BIGB	07	07	1855	N28	W58	07	3.2	2.0	0750	4734		
19776	BIGB	07	08	1826	N28	W71	07	3.2	1.8	0620	4734		
19776	BIGB	07	09	1647	N28	W85	07	3.0	1.3	0315	4734		
19779	BIGB	07	09	1647	N06	W33	07	7.2	3.7	0550	4736		
19779	BIGB	07	11	1633	N06	W59	07	7.3	2.8	0720	4736		
19779	BIGB	07	12	1617	N06	W70	07	7.4	2.2	0870	4736		
19779	BIGB	07	13	1804	N07	W83	07	7.5	1.6	0761	4736		
19780	BIGB	07	09	1647	S11	W18	07	8.3	1.3	0100			
19781	BIGB	07	12	1617	N02	W45	07	9.3	1.7	0190	4737		
19781	BIGB	07	13	1804	N02	W60	07	9.3	.7	0050	4737		
19782	BIGB	07	12	1617	S23	W28	07	10.5	1.2	0120			
19782	BIGB	07	13	1804	S23	W42	07	10.5	.9	0160			
19778	BIGB	07	05	1455	S01	E84	07	11.9	2.7	1137	4735		
19778	BIGB	07	06	1833	S01	E72	07	12.1	3.5	1170	4735		
19778	BIGB	07	07	1855	S01	E55	07	11.9	3.4	1290	4735		
19778	BIGB	07	08	1826	S01	E42	07	11.9	2.7	1440	4735		
19778	BIGB	07	09	1647	S01	E29	07	11.9	3.0	1850	4735		
19778	BIGB	07	11	1633	S01	E03	07	11.9	2.3	2250	4735		
19778	BIGB	07	12	1617	S01	W10	07	11.9	2.7	2050	4735		
19778	BIGB	07	13	1804	S01	W25	07	11.9	2.4	1990	4735		
19778	BIGB	07	16	1813	S01	W64	07	12.0	2.1	1003	4735		
19778	BIGB	07	17	2118	S01	W79	07	12.0	2.2	0836	4735		
19783	BIGB	07	16	1813	N16	W36	07	14.0	.9	0070			
19784	BIGB	07	16	1813	S02	W21	07	15.2	.7	0070			
19784	BIGB	07	17	2118	S02	W36	07	15.2	1.1	0100			
19785	BIGB	07	16	1813	N03	E40	07	19.7	1.2	0630			
19785	BIGB	07	17	2118	N03	E26	07	19.8	1.2	0450			
19785	BIGB	07	18	1600	N03	E15	07	19.8	1.2	0440			
19785	BIGB	07	19	1652	N03	E03	07	19.9	1.1	0320			
19785	BIGB	07	20	1744	N04	W11	07	19.9	1.5	0260			
19785	BIGB	07	22	1615	N04	W36	07	20.0	1.3	0290			
19785	BIGB	07	24	1632	N04	W63	07	20.0	.8	0244			
19787	BIGB	07	17	2118	S07	E28	07	20.0	1.7	0520	4739		
19787	BIGB	07	18	1600	S07	E16	07	19.9	1.9	0550	4739		
19787	BIGB	07	19	1652	S07	E03	07	19.9	1.7	0265	4739		
19787	BIGB	07	20	1744	S07	W09	07	20.1	1.4	0146	4739		
19786	BIGB	07	16	1813	N07	E59	07	21.2	3.2	1250	4738		
19786	BIGB	07	17	2118	N07	E44	07	21.2	3.0	1525	4738		
19786	BIGB	07	18	1600	N07	E33	07	21.1	2.5	1660	4738		
19786	BIGB	07	19	1652	N07	E23	07	21.4	2.3	1453	4738		
19786	BIGB	07	20	1744	N07	E10	07	21.5	2.2	1394	4738		
19786	BIGB	07	22	1615	N07	W16	07	21.5	2.3	1300	4738		
19786	BIGB	07	24	1632	N07	W43	07	21.5	2.0	1270	4738		
19786	BIGB	07	25	1556	N07	W58	07	21.3	1.9	0890	4738		
19786	BIGB	07	26	1509	N07	W69	07	21.5	1.7	0909	4738		
19786	BIGB	07	27	1849	N07	W81	07	21.7	1.7	0500	4738		
19788	BIGB	07	20	1744	N07	E55	07	24.8	2.3	0400	4740		
19788	BIGB	07	22	1615	N07	E29	07	24.8	2.4	0790	4740		
19788	BIGB	07	24	1632	N07	E03	07	24.9	1.5	0525	4740		
19788	BIGB	07	25	1556	N07	W12	07	24.8	1.8	0300	4740		
19788	BIGB	07	26	1509	N07	W23	07	24.9	1.1	0350	4740		
19788	BIGB	07	27	1849	N07	W40	07	24.8	.8	0270	4740		
19788	BIGB	07	28	1801	N07	W53	07	24.8	.8	0210	4740		
19791	BIGB	08	03	1623	S25	W51	07	30.8	1.1	0080			

DAILY PLAGE SUMMARIES

JULY 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	BIGB	0.8	1	350	350	350	2.5	2.5
04	BIGB	2.0	1	890	890	890	2.7	2.7
05	BIGB	2.8	3	90	1137	2227	1.3	3.4
06	BIGB	3.0	3	80	1170	2380	1.5	3.5
07	BIGB	3.1	2	750	1290	2040	2.0	3.4
08	BIGB	3.1	2	620	1440	2060	1.8	2.7
09	BIGB	6.6	4	100	1850	2815	1.3	3.7
10	No Observations This DAY							
11	BIGB	6.2	2	720	2250	2970	2.3	2.8
12	BIGB	6.4	4	120	2050	3230	1.2	2.7
13	BIGB	4.5	4	50	1990	2961	.7	2.4
14	No Observations This DAY							
15	No Observations This DAY							
16	BIGB	3.5	5	70	1250	3023	.7	3.2
17	BIGB	4.8	5	100	1525	3431	1.1	3.0
18	BIGB	4.9	3	440	1660	2650	1.2	2.5
19	BIGB	3.8	3	265	1453	2038	1.1	2.3
20	BIGB	4.1	4	146	1394	2200	1.4	2.3
21	No Observations This DAY							
22	BIGB	4.8	3	290	1300	2380	1.3	2.4
23	No Observations This DAY							
24	BIGB	2.7	3	244	1270	2039	.8	2.0
25	BIGB	1.4	2	300	890	1190	1.8	1.9
26	BIGB	0.9	2	350	909	1259	1.1	1.7
27	BIGB	0.4	3	270	500	1180	.8	1.7
28	BIGB	1.4	2	210	1890	2100	.8	2.6
29	No Observations This DAY							
30	BIGB	3.6	2	80	1910	1990	1.1	2.5
31	BIGB	3.9	1	1974	1974	1974	2.3	2.3

DAILY PLAGE AREAS FOR JULY 1986



86
Late
Jul 86

BIG BEAR SOLAR OBSERVATORY
ACTIVE REGION SUMMARY

JULY 1986

Region Number	Return Of Region	Rotation Age	First Seen This Rotation	Duration This Rotation
19776	New	1	860703	07 days
19777	New	1	860705	02
19778	New	1	860705	13
19779	New	1	860709	05
19780	New	1	860709	01
19781	New	1	860712	02
19782	New	1	860712	02
19783	New	1	860716	01
19784	New	1	860716	02
19785	New	1	860716	>09
19786	19774	2	860716	>12
19787	New	1	860717	>04
19788	New	1	860720	09

1. No BBSO Calcium K Line Data on July 10, 14, 15, 21, 23 and 29.

2. No KPNO Magnetograms on July 1-4, 7, 13-18, 21 and 22.

3. Contiguous Plages: None

4. Plageless days: July 1 and 2.

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)

AUGUST 1986

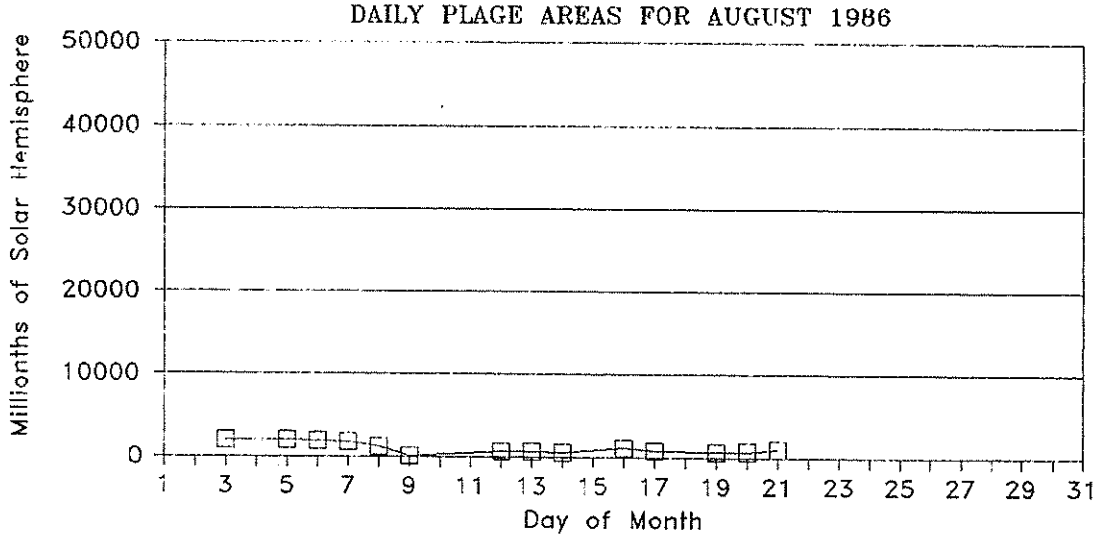
Calcium Plage Region	Sta	Observation Time Mo	Day	(UT)	Lat	CMD	CMP Mo	Day	Intensity	Corrected Area (10-6 Hemi)	NOAA/USAF Sunspot Groups #1	#2	#3
19790	BIGB	07	30	2132	N37	E26	08	2.0	1.1	0080			
19792	BIGB	08	05	1536	N17	W40	08	2.6	1.3	0100			
19789	BIGB	07	27	1849	N08	E76	08	2.5	1.2	0410	4741		
19789	BIGB	07	28	1801	N08	E73	08	3.2	2.6	1890	4741		
19789	BIGB	07	30	2132	N08	E41	08	3.0	2.5	1910	4741		
19789	BIGB	07	31	1848	N08	E29	08	2.9	2.3	1974	4741		
19789	BIGB	08	03	1623	N09	W09	08	3.0	2.2	1930	4741		
19789	BIGB	08	05	1536	N09	W34	08	3.1	2.6	1970	4741		
19789	BIGB	08	06	1715	N09	W48	08	3.1	2.4	1870	4741		
19789	BIGB	08	07	2146	N09	W64	08	3.1	2.1	1790	4741		
19789	BIGB	08	08	1414	N09	W82	08	2.4	2.3	0960	4741		
19793	BIGB	08	08	1414	S21	E10	08	9.3	.9	0240			
19793	BIGB	08	09	1430	S21	W03	08	9.4	.9	0070			
19795	BIGB	08	12	1718	S12	W35	08	10.1	.8	0220			
19795	BIGB	08	13	1713	S12	W45	08	10.3	.8	0110			
19798	BIGB	08	20	1320	N16	W75	08	14.9	2.0	0220			
19803	BIGB	08	16	1551	S26	W11	08	15.8	.7	0110			
19802	BIGB	08	16	1551	N01	E06	08	17.1	1.0	0260	4742		
19802	BIGB	08	17	1626	N01	W07	08	17.2	.9	0240	4742		
19801	BIGB	08	16	1551	N27	E09	08	17.4	1.1	0310			
19801	BIGB	08	17	1626	N27	W06	08	17.2	.9	0080			
19794	BIGB	08	12	1718	N09	E63	08	17.4	.7	0500			
19794	BIGB	08	13	1713	N09	E50	08	17.5	.8	0560			
19794	BIGB	08	14	1556	N09	E37	08	17.4	1.0	0580			
19794	BIGB	08	16	1551	N09	E14	08	17.7	1.3	0460			
19794	BIGB	08	17	1626	N09	W01	08	17.6	1.4	0440			
19794	BIGB	08	19	1354	N09	W25	08	17.7	1.1	0240			
19797	BIGB	08	19	1354	S39	E07	08	20.1	.9	0170			
19804	BIGB	08	19	1354	S13	E47	08	23.1	1.2	0300	4743		
19804	BIGB	08	20	1320	S13	E34	08	23.1	3.1	0510	4743		
19804	BIGB	08	21	1345	S13	E21	08	23.1	3.0	1060	4743		

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

AUGUST 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	BIGB	4.2	2	80	1930	2010	1.1	2.2
04	No Observations This DAY							
05	BIGB	4.2	2	100	1970	2070	1.3	2.6
06	BIGB	2.9	1	1870	1870	1870	2.4	2.4
07	BIGB	1.5	1	1790	1790	1790	2.1	2.1
08	BIGB	0.4	2	240	960	1200	.9	2.3
09	BIGB	0.1	1	70	70	70	.9	.9
10	No Observations This DAY							
11	No Observations This DAY							
12	BIGB	0.3	2	220	500	720	.7	.8
13	BIGB	0.3	2	110	560	670	.8	.8
14	BIGB	0.5	1	580	580	580	1.0	1.0
15	No Observations This DAY							
16	BIGB	1.2	4	110	460	1140	.7	1.3
17	BIGB	0.9	3	80	440	760	.9	1.4
18	No Observations This DAY							
19	BIGB	0.6	3	170	300	710	.9	1.2
20	BIGB	1.4	2	220	510	730	2.0	3.1
21	BIGB	2.9	1	1060	1060	1060	3.0	3.0
22	No Observations This DAY							
23	No Observations This DAY							
24	No Observations This DAY							
25	No Observations This DAY							
26	No Observations This DAY							
27	No Observations This DAY							
28	No Observations This DAY							
29	No Observations This DAY							
30	No Observations This DAY							
31	No Observations This DAY							

DAILY PLAGE AREAS FOR AUGUST 1986



BIG BEAR SOLAR OBSERVATORY
ACTIVE REGION SUMMARY

AUGUST 1986

Region Number	Return Of Region	Rotation Age	First Seen This Rotation	Duration This Rotation
19789	19779	2	860727	13 days
19790	New	1	860730	01
19792	New	1	860805	01
19793	New	1	860808	02
19794	19786	3	860812	08
19795	New	1	860812	02
19797	New	1	860819	≥01
19798	New	1	860820	01
19801	New	1	860816	≥02
19802	New	1	860816	02
19803	New	1	860816	01
19804	New	1	860819	≥03

1. No BBSO Calcium K Line Data on August 1, 4, 11, 15, 18, 19, 22-31.

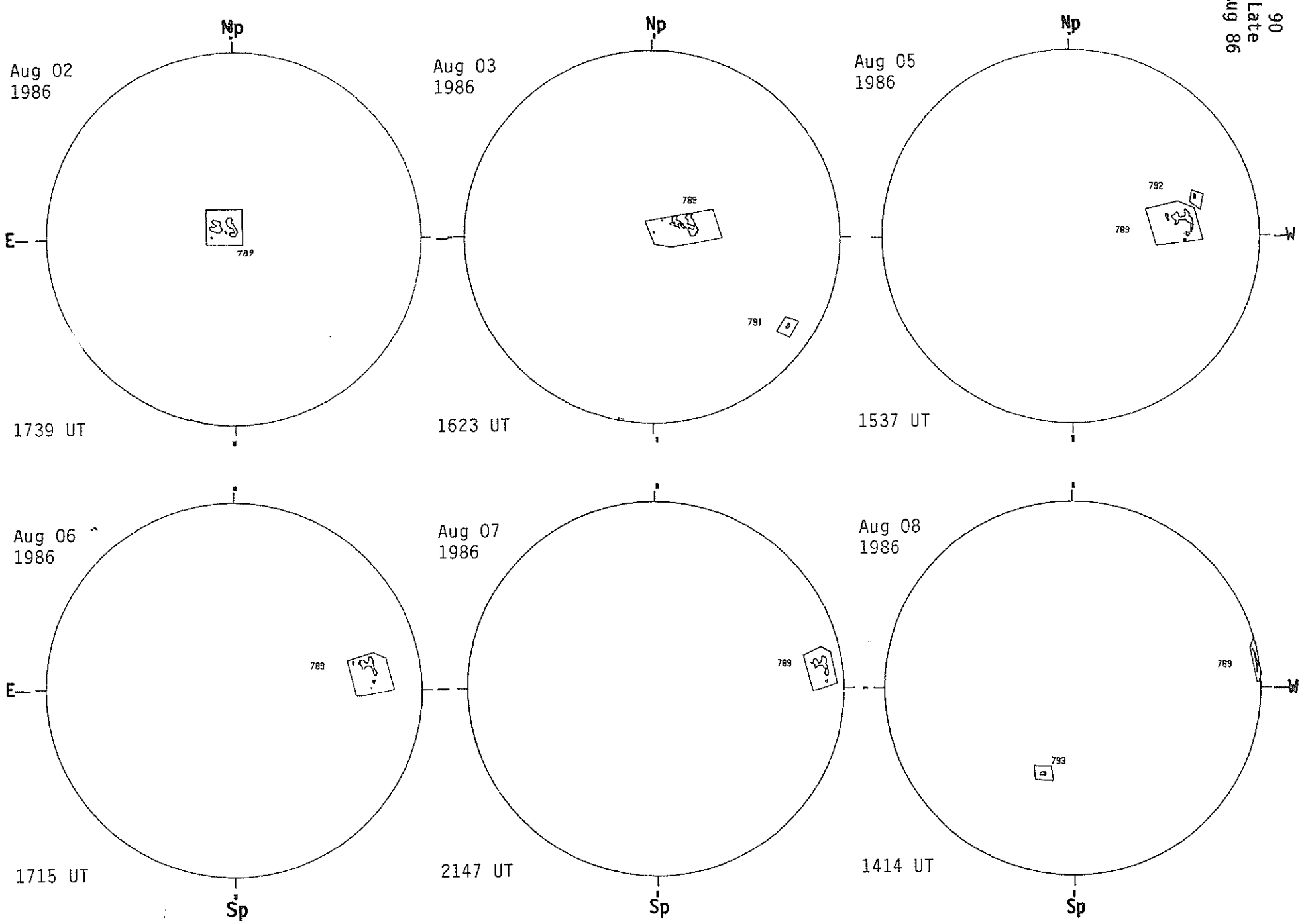
2. No KPNO Magnetograms on August 5, 6, 8-12, 14, 24-26, 28-30.

3. Contiguous Plages: None

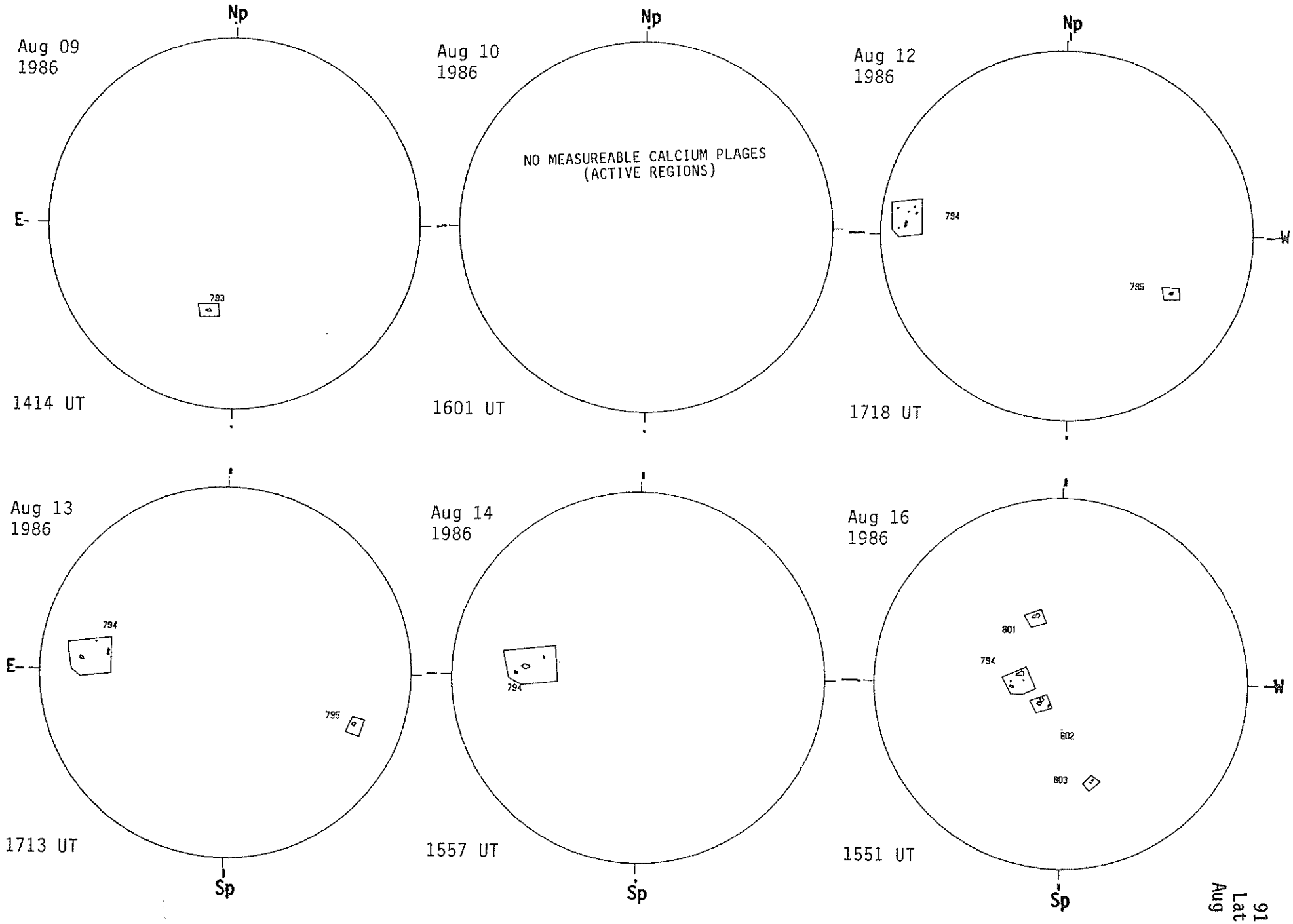
4. Plageless days: August 10.

BIG BEAR SOLAR CALCIUM PLAGE REGIONS

90
Late
Aug 86



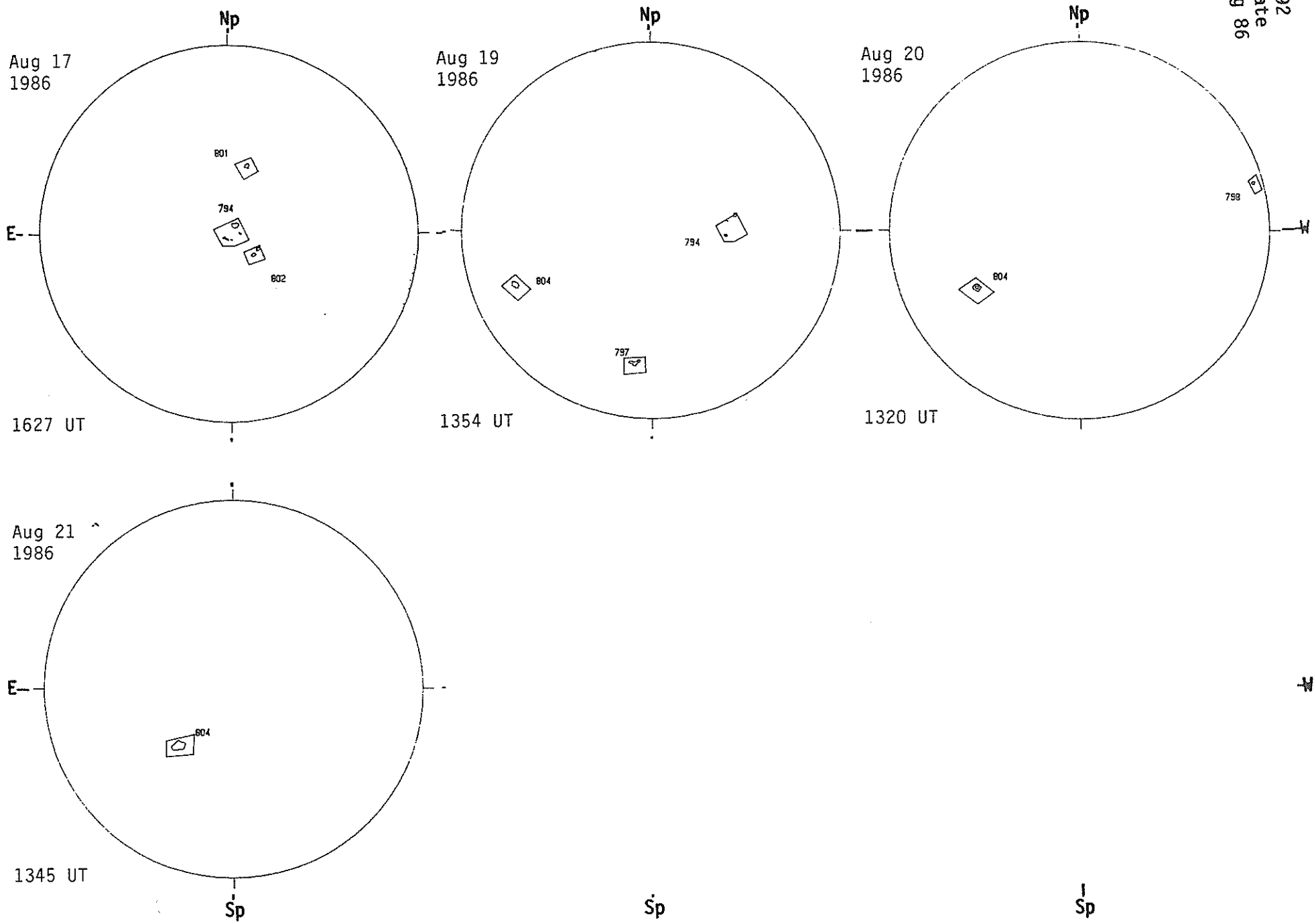
BIG BEAR SOLAR CALCIUM PLAGE REGIONS



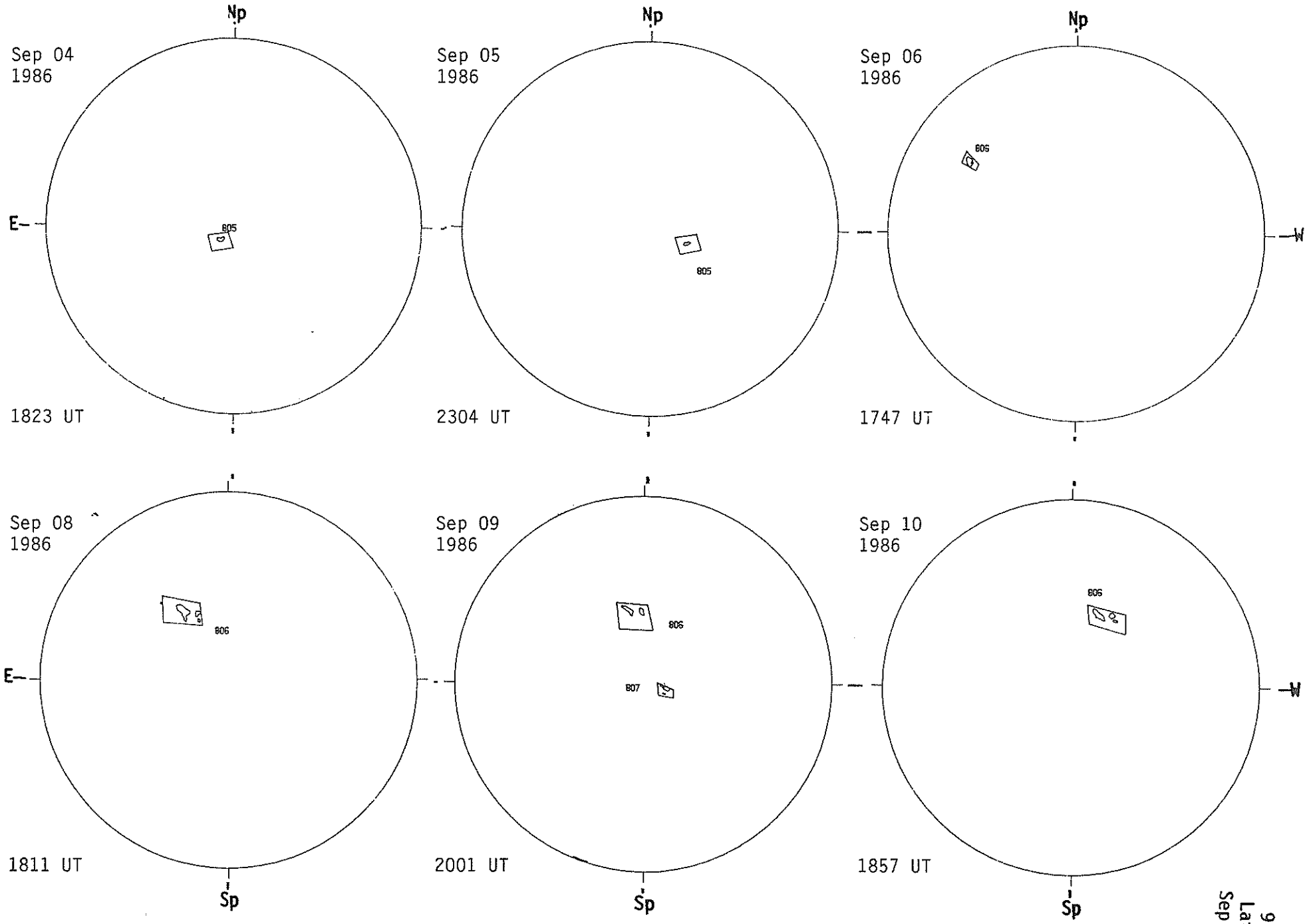
91
Late
Aug 86

BIG BEAR SOLAR CALCIUM PLAGE REGIONS

92
Late
Aug 86



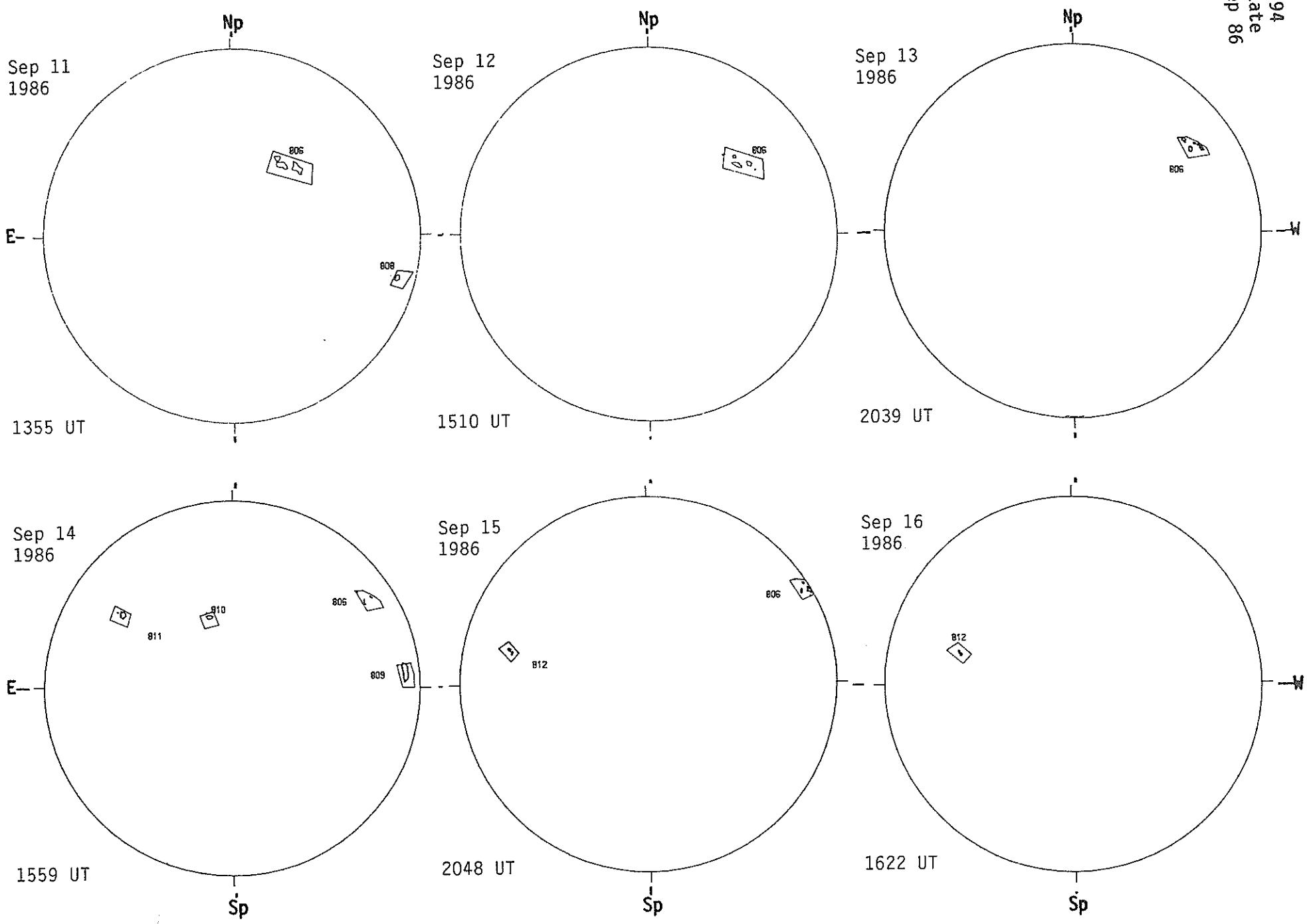
BIG BEAR SOLAR CALCIUM PLAGE REGIONS



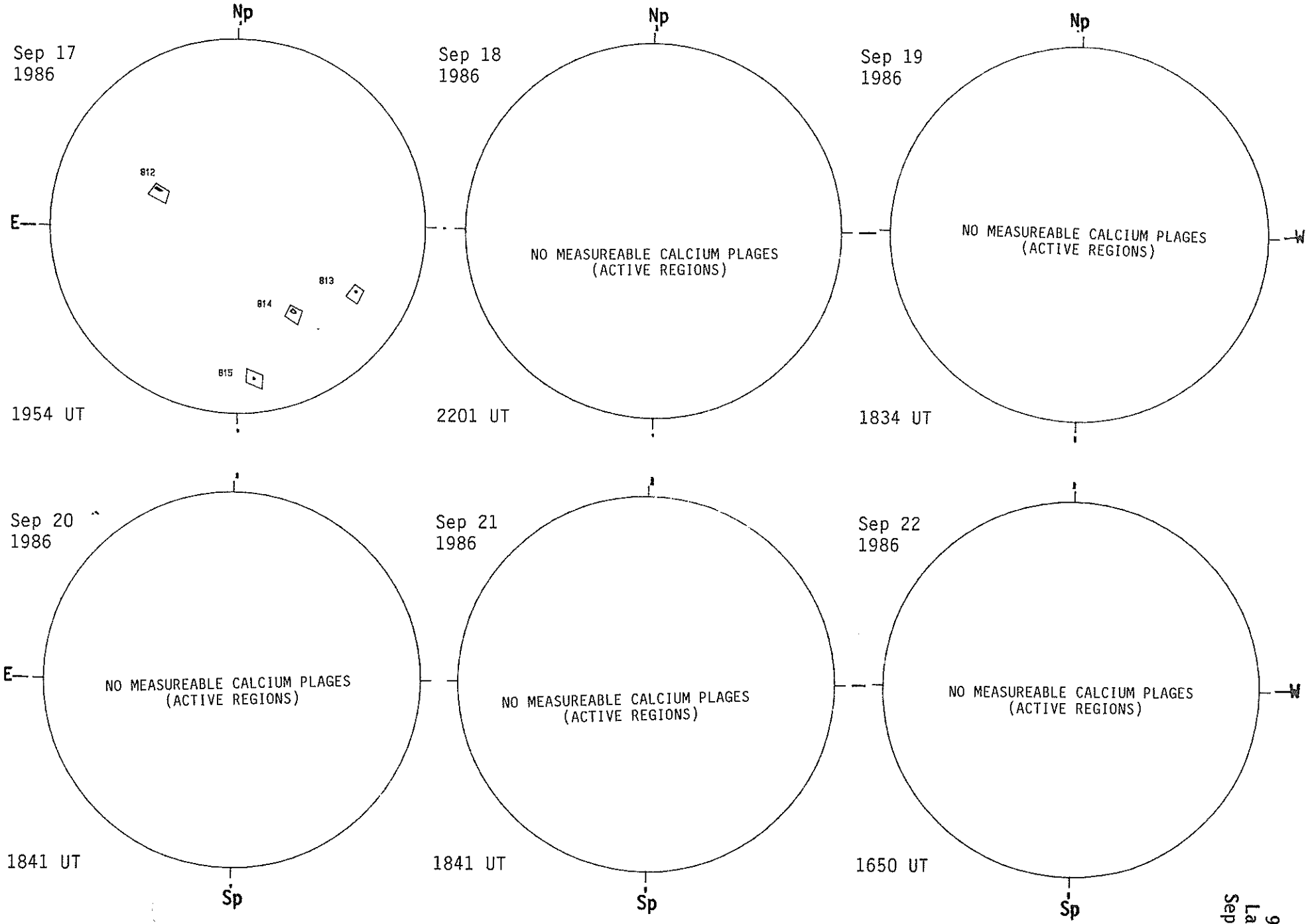
93
Late
Sep 86

BIG BEAR SOLAR CALCIUM PLAGE REGIONS

94
Late
Sep 86

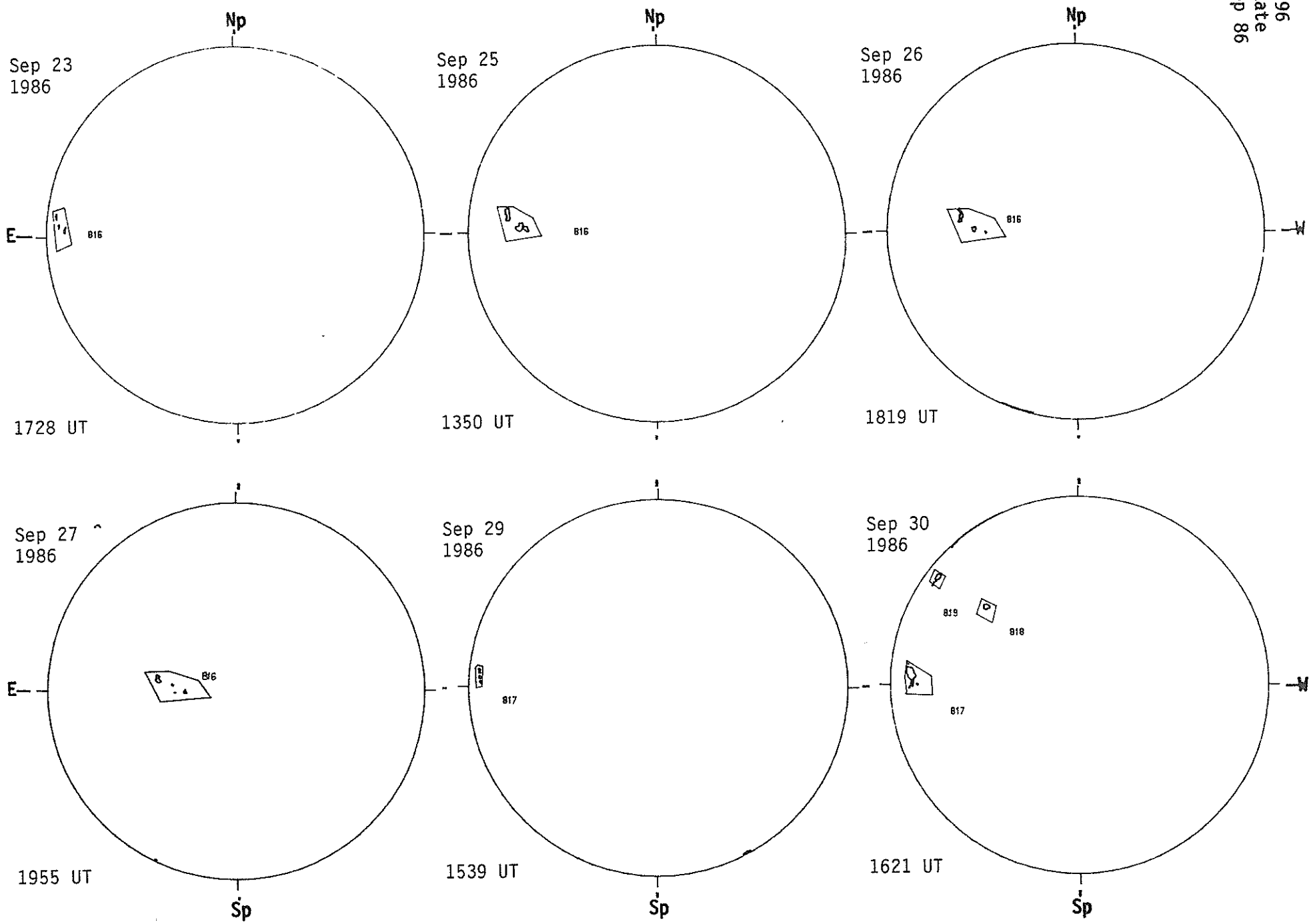


BIG BEAR SOLAR CALCIUM PLAGE REGIONS



95
Late
Sep 86

BIG BEAR SOLAR CALCIUM PLAGE REGIONS



*U.S. GOVERNMENT PRINTING OFFICE: 1987-0-773-027/40007

WORLD DATA CENTER A
FOR
SOLAR-TERRESTRIAL PHYSICS

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:

"Data used in this study were provided by WDC-A for Solar-Terrestrial Physics, NOAA E/GC2, 325 Broadway, Boulder Colorado 80303, USA."