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Solar - Geophysical Data

Part I (Prompt Reports)

NO. 486 FEBRUARY 1985

DATA FOR
JANUARY 1985
DECEMBER 1984

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

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NUMBER 486

(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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*Solar radio noise bursts observed at Athens, Learmonth, Manila, Palehua and Sagamore Hill during Aug 1979 through Oct 1980 appear in SOLAR-GEOPHYSICAL DATA, No. 461, Part II, pages 103-235.

GOES Solar Proton Events 1976-Apr 1984 -- 476B118
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Prompt Reports DATA FOR JANUARY 1985 Number 486 Part I

ALERT PERIODS
INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

SUMMARY OF THE GEOALERT MESSAGES JANUARY 1985

NO	DI	DO	WOLF	10CM	A	LOC	TOT	M	X	OUTSTANDING EVENTS	DA	LOC	DE	ALERTS
001	01	31	000	072	017	SPOTNIL					01	SPOTNIL		SOLQUIET MAGALERT 01/02
002	02	01	000	070	021	SPOTNIL					02	SPOTNIL		SOLQUIET MAGALERT 02
003	03	02	000	070	014	SPOTNIL					03	SPOTNIL		SOLQUIET MAGNIL
004	04	03	000	070	010	SPOTNIL					04	SPOTNIL		SOLQUIET MAGQUIET
005	05	04	000	070	010	SPOTNIL					05	SPOTNIL		SOLQUIET MAGQUIET
006	06	05	000	069	008	SPOTNIL					06	SPOTNIL		SOLQUIET MAGQUIET
007	07	06	011	070	008	N07W22	0	0	0		07	N07W22	Q	SOLQUIET MAGQUIET
008	08	07	000	070	028	SPOTNIL					08	SPOTNIL		SOLQUIET MAGQUIET
009	09	08	011	070	012	S06E63	0	0	0	MAGSTORM 08/1413 UT	09	S06E63	Q	SOLQUIET MAGALERT 09 RECURRENCE
010	10	09	023	070	033	N17W18 N07E49	0 0	0 0	0 0		10	N17W18 N07E49	Q Q	SOLQUIET MAGALERT 10
011	11	10	000	070	022	SPOTNIL					11	SPOTNIL		SOLQUIET MAGNIL
012	12	11	000	070	019	SPOTNIL					12	SPOTNIL		SOLQUIET MAGALERT MINOR 12/XX RECURRENCE
013	13	12	000	071	018	SPOTNIL					13	SPOTNIL		SOLQUIET MAGALERT MINOR 13/XX RECURRENCE
014	14	13	016	075	017	S07E06	0	0	0		14	S07E06	Q	SOLQUIET MAGNIL
015	15	14	029	075	010	S07W07	5	0	0		15	S07W07	Q	SOLQUIET MAGQUIET
016	16	15	027	075	009	S08W21	2	0	0		16	S08W21	E	SOLQUIET MAGQUIET
017	17	16	027	077	012	S07W35	3	0	0		17	S07W35	Q	SOLQUIET MAGQUIET
018	18	17	040	078	007	S07W48	6	0	0		18	S07W48	Q	SOLQUIET MAGQUIET
019	19	18	027	077	009	S07W61	0	0	0		19	S07W61	Q	SOLQUIET MAGQUIET
020	20	19	056	078	009	S07W75 S10W13	1 3	0 0	0 0		20	S07W75 S10W13	Q Q	SOLQUIET MAGQUIET

ALERT PERIODS
INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

SUMMARY OF THE GEOALERT MESSAGES JANUARY 1985

NO	DI	DO	WOLF	10CM	A	LOC	TOT	M	X	OUTSTANDING EVENTS	DA	LOC	DE	ALERTS
						N04E41	0	0	0			N04E41	Q	
021	21	20	081	091	008	S06W89	0	0	0		21	S06W89	Q	SOLALERT
						S10W25	7	1	0			S10W25	A	21/XX
						N04E30	0	0	0			N04E30	Q	MAGQUIET
						S06E51	0	0	0			S06E51	Q	
022	22	21	067	087	017	S10W39	20	6	1	PRESTO TENFLARE 1100 FLUX	22	S10W39	A	PROTON
						N05E13	0	0	0	UNITS 22/0058 UT. XRAY EVENT		N05E13	Q	ARRIVAL
						S07E39	0	0	0	X4/2B S08W38 21/2350 UT		S07E39	Q	ALERT 22
														SOLALERT
														22/XX
														MAGQUIET
023	23	22	059	088	011	S10W52	7	0	1	PRESTO PROTON EVENT BEGAN	23	S10W52	A	SOLALERT
						N05W00	0	0	0	22/0420 UT 14 P/CM2/SEC/STER>		N05W00	Q	23/26
						S06E25	0	0	0	10MEV MAX AT 22/0550 UT		S06E25	Q	MAGALERT
														23/XX
														PROTON NIL
024	24	23	040	085	028	S10W66	13	1	0		24	S10W66	A	SOLALERT
						N06W16	0	0	0			N06W16	Q	24/26
														MAGALERT
														24/26
														MAJOR FLARE
025	25	24	030	081	010	S10W78	6	0	0		25	S10W78	E	SOLNIL
						N06W28	0	0	0			N06W28	Q	MAGALERT
														25/28
														RECURRENCE
026	26	25	029	076	014	S10W91	0	0	0		26	S10W91	Q	SOLQUIET
						N06W41	0	0	0			N06W41	Q	MAGALERT
														MINOR 26/28
														RECURRENCE
027	27	26	000	073	010	SPOTNIL					27	SPOTNIL		SOLQUIET
														MAGALERT
														MINOR 27/29
														RECURRENCE
028	28	27	000	072	010	SPOTNIL					28	SPOTNIL		SOLQUIET
														MAGALERT
														MINOR 28/29
														RECURRENCE
029	29	28	000	072	045	SPOTNIL					29	SPOTNIL		SOLQUIET
														MAGALERT
														MINOR 29
														RECURRENCE
030	30	29	000	071	016	SPOTNIL				PRESTO MAGALERT 28/07XX UT	30	SPOTNIL		SOLQUIET
														MAGALERT
														MINOR 30
031	31	30	000	070	015	SPOTNIL					31	SPOTNIL		SOLQUIET
														MAGNIL
032	01	31	026	070	018	N19W01	0	0	0		32	N19W01	Q	SOLQUIET
						S14W01	0	0	0			S14W01	Q	MAGQUIET

PRESTO MESSAGES (THE RAPID REPORT OF MAJOR EVENTS) JANUARY 1985

PRESTO KAKIOKA 09/0130 UT MAGSTORM 08/1413 UT
PRESTO SYDNEY 22/0010 UT XRAY EVENT X4/2B S08W38 21/2358 UT
PRESTO SYDNEY 22/0010 UT TENFLARE 958 FLUX UNITS 21/2358 UT
PRESTO BOULDER 22/0125 UT TENFLARE 1100 FLUX UNITS 22/0000 UT DURATION 14 MINUTES
PRESTO BOULDER 22/0125 UT XRAY EVENT X4/2B S08W38 21/2350 UT DURATION 53 MINUTES
PRESTO BOULDER 22/0305 UT TENFLARE 1100 FLUX UNITS 22/0058 UT DURATION 75 MINUTES
PRESTO BOULDER 22/0305 UT TENFLARE 110 FLUX UNITS 22/0222 UT DURATION 1 MINUTES
PRESTO TOYOKAWA 22/0310 UT TENFLARE 980 FLUX UNITS 21/2356 UT
PRESTO BOULDER 22/0440 UT PROTON EVENT BEGAN 22/0415 UT 14 P/CM2/SEC/STER>10MEV MAX AT 22/0550 UT
PRESTO KAKIOKA 29/0050 UT MAGSTORM 28/07XX UT

INTERNATIONAL* (R_I) RELATIVE SUNSPOT NUMBERS

Day	1984 Final Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	1984 Prov Oct	Nov	Dec	1985 Jan
01	110	74	103	109	48	33	14	45	7	16	19	0
02	82	78	94	89	44	36	17	50	9	14	24	0
03	67	66	88	69	45	61	19	61	10	11	19	0
04	61	54	81	52	34	80	25	58	11	14	22	0
05	66	65	61	38	30	72	18	53	0	12	14	0
06	76	49	70	27	23	61	24	32	0	0	21	0
07	79	51	50	35	34	64	27	21	0	0	16	0
08	94	64	33	54	31	74	32	20	12	11	23	12
09	115	60	36	72	26	63	35	13	14	13	21	14
10	123	46	12	85	31	74	31	10	17	21	15	0
11	118	65	21	94	37	57	29	9	25	30	25	0
12	108	72	28	100	39	54	31	9	18	21	26	13
13	82	79	24	118	41	44	28	9	11	16	27	16
14	77	88	32	111	50	34	27	0	12	13	25	26
15	80	112	59	85	80	30	23	8	14	13	25	25
16	53	117	60	97	83	25	23	12	19	11	30	26
17	51	105	56	83	73	21	18	0	24	11	24	29
18	50	95	73	70	62	26	17	0	25	13	11	26
19	54	90	82	74	51	22	11	10	25	15	10	27
20	54	103	69	70	53	18	16	0	16	27	9	63
21	76	98	68	65	43	12	12	9	22	36	13	59
22	100	87	55	77	48	22	10	10	12	36	12	53
23	121	89	59	83	54	25	19	8	11	41	11	39
24	117	80	80	86	58	38	24	8	10	47	13	33
25	117	97	99	75	44	30	36	7	10	59	21	20
26	101	97	124	87	49	25	49	0	9	44	18	0
27	78	96	121	86	40	9	41	0	8	39	14	8
28	78	98	125	69	41	9	37	0	0	34	15	0
29	88	94	120	74	50	12	34	0	8	30	16	9
30		107	107	70	42	16	27	8	14	25	10	0
31		113		63		12	36		18		14	15
Mean	85	84	70	76	46	37	26	16	13	22	18	16

*International sunspot numbers have replaced the Zurich values since January 1981.
The yearly mean sunspot number equaled 66.6 in 1983.

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

ALGONQUIN RADIO OBSERVATORY, OTTAWA

Day	Feb 85	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan 85
01	154.6	143.6	135.7	153.7	116.1	101.7	84.0	94.1	72.0	69.5	77.0	68.4
02	142.0*	138.2	134.6*	139.3*	111.3	103.6	86.3	93.2	74.8	70.1	76.8	67.8
03	131.4	122.5	128.8*	123.1	109.6	104.8	88.4	94.5	75.2	72.0	77.9	67.7
04	126.0	114.4*	129.5	113.5*	106.8	105.7	85.7	91.9	75.2	72.2	75.9	67.8
05	114.2	109.3	118.7	114.9	104.6	104.4*	85.7	89.8	74.0	71.7	73.4	67.0
06	111.8	109.5	112.1*	108.1	98.9	100.3	89.9	85.9	73.2	71.0	73.0	67.9
07	113.6	105.0	107.8	118.3	97.3	100.1	92.4	85.2	73.5	70.1	72.7	68.1
08	127.2	103.8	100.7	121.9	94.6	101.1	94.0	83.4	74.6	70.5	74.1	67.4
09	139.9	102.4	94.9	138.3	93.6	104.5	94.4	80.6	73.5	72.7	74.5	68.1
10	136.7*	98.8	93.9	150.9	92.3	101.3	95.4	79.1	74.1	75.8	75.7	67.4
11	141.1*	98.6	97.3	147.9	93.2	96.8	90.8	77.8	74.3	73.1	78.9	67.7
12	135.8*	102.3*	107.2	148.2*	93.0	94.7	88.0	76.5	73.9	72.8	77.8	68.4
13	128.4	114.7	113.7	151.4	98.6	92.6	86.5	75.0	74.7	71.6	76.2	72.6
14	120.3*	121.1	118.8	146.9	110.2	92.2*	84.0	74.5	73.2	72.0	75.8	72.3
15	113.4	134.4	119.7	139.6	116.5*	92.2	82.6	73.3	76.4	72.9	74.9	72.4
16	114.5*	124.0	117.2	137.3	110.3	90.1	83.1	73.4	76.6	70.7	74.2	74.7
17	116.5	129.1	122.9*	130.1	109.5*	87.3	81.0	74.6	76.2	71.0	72.6	75.8
18	122.2*	125.8*	119.9	131.9	108.9	85.5	79.1	73.8	76.5	71.7	70.2	74.1
19	128.4*	126.5	112.5*	137.6	107.8	84.7	76.2	74.6	74.2	72.3	71.0	75.4
20	134.6	126.3	124.1*	138.0	106.6	84.8	75.6	74.1	73.5	74.8	69.9	81.7*
21	143.8	122.4	127.7	145.3*	103.4*	86.7	77.2	75.1	73.2	78.3	69.7	84.9*
22	158.0	122.7	130.8	130.1	104.6	86.3	75.7	75.9	74.5	78.2	70.7	85.3
23	166.1	115.1	136.6*	130.0	105.3	87.3	76.0	76.1	72.7	79.3	71.3	82.5
24	172.9*	113.0	142.9	126.9	103.6	86.8	81.6	76.2	70.8	81.1	71.8	78.2
25	169.4*	111.6	152.4	125.7*	104.6	85.9	83.0	74.6	70.2	83.1	72.2	73.9
26	164.2	120.2	174.0	121.0	100.1	83.4	87.7	74.3	69.4	82.5	72.3	71.0
27	154.3	129.1*	183.7*	120.3	101.5	83.0	90.4	73.5	68.6	82.5*	72.0	69.5
28	148.8	135.9	182.6*	118.5	99.5	82.5	88.6	73.1	69.3	81.0	72.2	69.6
29	148.1	138.1*	178.2*	121.0	100.3	82.3	90.3	71.7	68.2	77.1	72.1	68.7
30		143.8	170.8	119.7A	101.1	82.2	91.8	72.4	68.8	76.4	71.4	68.3
31	143.7		115.9		83.0	93.1*		69.8			70.0	69.9A
Mean	137.2	120.8	129.7	131.1	103.5	92.2	85.8	78.9	73.1	74.6	73.5	72.1

A = interpolated value; --- = no observation.
*Adjusted for burst in progress at time of measurement.
The yearly mean 2800 MHz flux adjusted to 1 astronomical unit equaled 119.8 in 1983.

DAILY SOLAR INDICES

JANUARY 1985

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)	PALE (610)	PALE (410)	PALE (245)
01	1	10	0	0	70.7	455	226	105	68.4	66	56	50	21	10
02	2	11	0	0	70.1	---	---	---	67.8	--	--	48	21	12
03	3	12	0	0	70.0	573	279	103	67.7	64	55	44	19	12
04	4	13	0	0	70.1	563	269	101	67.8	65	60	46	20	9
05	5	14	0	0	69.3	573	273	102	67.0	68	56	48	20	9
06	6	15	0	2	70.2	572	265	102	67.9	67	51	48	20	9
07	7	16	0	0	70.4	553	270	102	68.1	62	58	47	20	14
08	8	17	12	9	69.7	567	268	95	67.4	62	--	47	20	8
09	9	18	14	3	70.4	---	---	---	68.1	--	--	48	20	8
10	10	19	0	0	69.7	548	261	99	67.4	62	52	45	20	8
11	11	20	0	0	70.0	568	276	100	67.7	64	53	47	20	8
12	12	21	13	2	70.7	565	267	102	68.4	66	54	47	20	7
13	13	22	16	17	75.1	571	273	108	72.6	70	56	49	21	10
14	14	23	26	23	74.8	570	270	---	72.3	73	57	--	--	--
15	15	24	25	20	74.9	566	270	---	72.4	69	56	45	18	10
16	16	25	26	25	77.2	---	---	---	74.7	--	--	45	20	11
17	17	26	29	24	78.3	566	281	112	75.8	72	57	45	19	8
18	18	27	26	24	76.5	576	277	91	74.1	72	57	47	20	11
19	19	1	27	27	77.9	547	272	109	75.4	74	59	56	22	32
20	20	2	63	46	84.4*	581	296	124	81.7*	83	64	66	57	50
21	21	3	59	44	87.7*	---	---	---	84.9*	---	---	52	31	49
22	22	4	53	42	88.0	579	280	120	85.3	104	82	51	27	13
23	23	5	39	33	85.1	577	280	117	82.5	104	78	50	22	13
24	24	6	33	30	80.7	573	277	111	78.2	---	74	49	24	21
25	25	7	20	15	76.3	525	274	108	73.9	71	58	--	--	--
26	26	8	0	6	73.3	569	277	104	71.0	66	55	49	21	10
27	27	9	8	7	71.7	568	270	104	69.5	65	56	49	21	8
28	28	10	0	0	71.8	570	270	92	69.6	64	55	52	21	12
29	29	11	9	0	70.8	573	267	104	68.7	73	54	49	20	10
30	30	12	0	0	70.4	574	274	96	68.3	69	52	48	21	8
31	31	13	15	8	72.0A	567	270	105	69.9A	68	57	50	21	10
Mean			16	13	74.5	563	272	104	72.1	69	57	49	22	14

*Adjusted for burst in progress at time of measurement.

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

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

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

OBSERVED AND PREDICTED SOLAR ACTIVITY INDICES

JANUARY 1985

Date	RELATIVE SUNSPOT NUMBERS: Zurich or Internat (Ri) Monthly Mean	Zurich or Internat (Ri) Smoothed	American (Ra) Monthly Mean	American (Ra) Smoothed	Derived (Rs) Monthly Mean	Derived (Rs) Smoothed	2800 MHz RADIO FLUX Adjusted to 1 AU (Sa) Monthly Mean	2800 MHz (Sa) Smoothed
Feb 81	141.3	142	143.7	146	153.5	152	199.5	198
Mar	135.5	143	149.2	149	157.5	156	203.2	202
Apr	156.4	143	169.2	149	180.7	158	224.7	204
May	127.5	143	141.3	149	152.8	159	198.9	204
Jun	90.9	142	99.0	147	112.9	158	161.9	203
Jul	143.8	140	154.3	146	152.1	157	198.2	203
Aug	158.7	141	170.4	147	182.1	158	226.0	203
Sep	167.3	143	174.5	148	177.7	158	221.9	204
Oct	162.4	142	157.0	146	178.6	156	222.8	202
Nov	137.5	139	138.8	142	157.6	151	203.3	197
Dec	150.1	138	145.0	140	155.5	149	201.4	195
Jan 82	111.1	137	110.4	139	124.2	148	173.4	195
Feb	163.6	133	161.0	134	163.6	144	208.9	191
Mar	153.8	129	155.5	130	163.0	139	208.3	186
Apr	122.0	124	121.9	124	113.9	134	162.9	182
May	82.2	120	82.6	120	97.7	129	147.9	177
Jun	110.4	117	113.5	118	129.6	127	177.4	175
Jul	106.1	115	113.3	117	116.0	125	164.8	174
Aug	107.6	109	110.5	111	123.9	120	172.1	168
Sep	118.8	101	117.8	103	118.5	112	167.1	161
Oct	94.7	96	90.1	97	111.8	106	160.9	155
Nov	98.1	95	93.2	95	114.8	103	163.7	153
Dec	127.0	95	145.0	95	146.7	101	193.2	151
Jan 83	84.3	93	82.8	93	86.7	98	137.7	148
Feb	51.0	90	53.4	90	67.2	94	119.6	145
Mar	66.5	86	60.5	85	64.7	90	117.3	141
Apr	80.7	82	74.5	81	67.5	85	119.9	136
May	99.2	77	97.7	77	86.1	80	137.1	131
Jun	91.1	70	93.1	69	92.4	72	143.0	124
Jul	82.2	66	82.2	63	77.4	66	129.1	118
Aug	71.8	66	69.2	63	75.7	66	127.5	118
Sep	50.3	68	47.4	66	57.0	67	110.2	119
Oct	55.8	68	52.3	66	58.6	67	111.7	120
Nov	33.3	59	30.2	65	35.6	67	90.4	120
Dec	33.4	64	32.3	62	35.7	65	90.5	118
Jan 84	57.0	60	54.4	58	59.4	61	112.4	115
Feb	85.4	56	81.5	54	86.2	58	137.2	101
Mar	83.5	53	83.0	51	68.5	55	120.8	108
Apr	69.7	50*	66.5	48	78.1	52	129.7	105
May	76.4	47*	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	43	37.6	39	92.2	99
Aug	25.5	43(3)*	24.5	42	30.7	38	85.8	---
Sep	15.7	41(4)*	13.6	40	23.2	36	78.9	---
Oct	12.6†	40(6)*	9.8	39	16.9	35	73.1	---
Nov	22.4†	38(7)*	19.4	37	18.6	34	74.6	---
Dec	18.2†	37(8)*	17.0	36	17.4	33	73.5	---
Jan 85	16.5†	35(9)*	---	35	15.9	31	72.1	---
Feb	---	34(9)*	---	33	---	30	---	---
Mar	---	33(10)*	---	32	---	29	---	---
Apr	---	32(11)*	---	31	---	28	---	---
May	---	31(12)*	---	30	---	27	---	---
Jun	---	29(13)*	---	29	---	26	---	---
Jul	---	28(12)*	---	27	---	25	---	---

*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. All tabulated entries of the American sunspot number are final values. 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.

†International numbers replaced the Zurich values in January 1981.

SMOOTHED OBSERVED AND PREDICTED SUNSPOT NUMBERS FOR CYCLE 21

JANUARY 1985

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1976	15	13	12	13	13	12*	13	14	14	13	14	15
1977	17	18	20	22	24	26	29	33	39	46	52	57
1978	61	65	70	77	83	89	97	104	108	111	113	118
1979	124	131	137	141	147	153	155	155	156	158	162	165*
1980	164	163	161	159	156	155	153	150	150	150	148	143
1981	140	142	143	143	143	142	140	141	143	142	139	138
1982	137	133	129	124	119	117	115	109	101	96	95	95
1983	93	90	86	82	71	71	66	66	68	68	59	64
1984	60	56	53	50	47	46	44	43 (3)	41 (4)	40 (6)	38 (7)	37 (8)
1985	35 (9)	34 (9)	33 (10)	32 (11)	31 (12)	29 (13)	28 (12)	27 (12)	26 (11)	25 (11)	24 (12)	24 (12)
1986	23 (13)	23 (13)	22 (13)	21 (13)	19 (13)	18 (13)	17 (13)	16 (13)	15 (12)	14 (12)	14 (11)	13 (11)

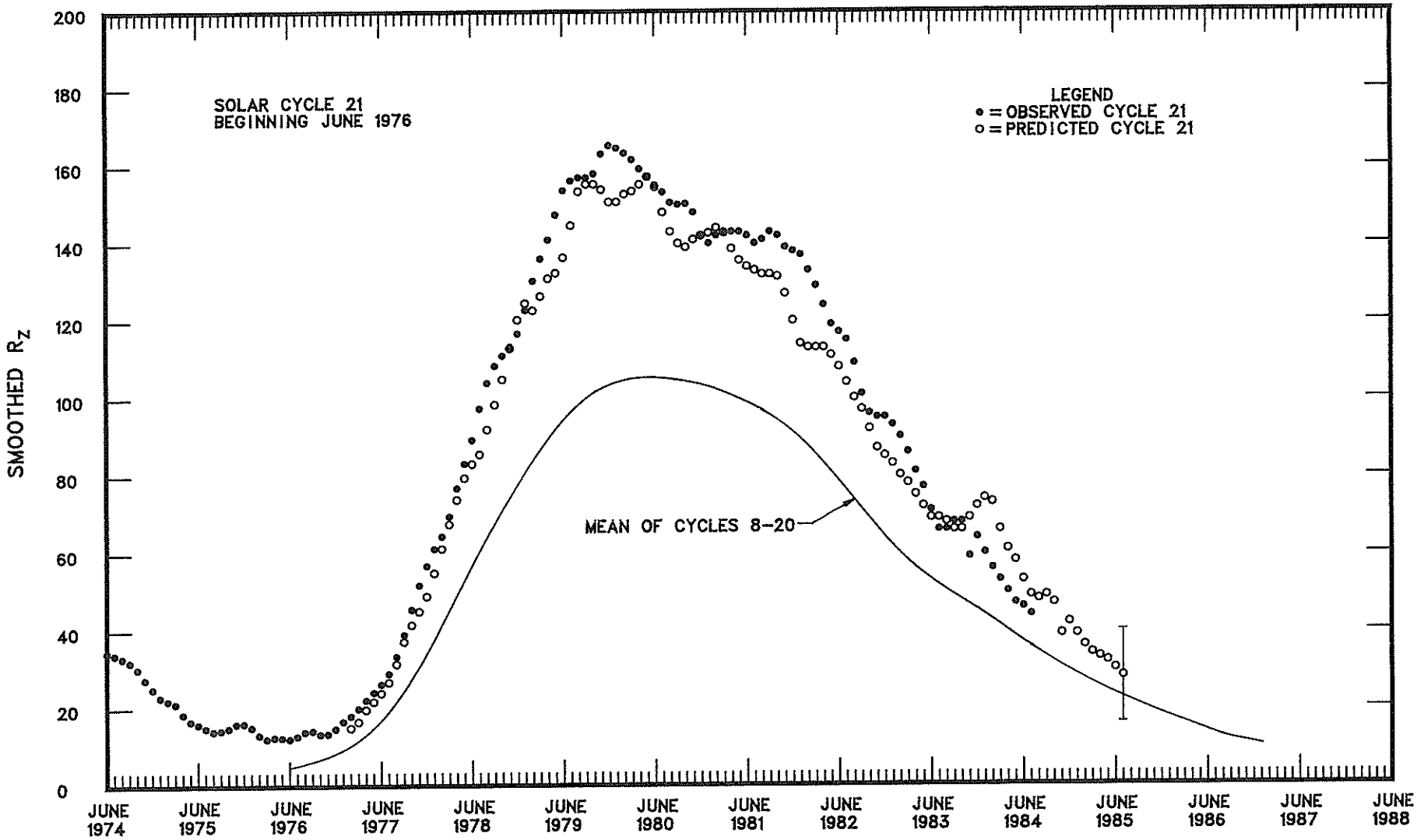
An asterisk marks the minimum and the maximum of Sunspot Cycle 21.

For the current solar cycle, this table gives observed smoothed sunspot numbers up to the one calculated from the most recently measured monthly mean. These smoothed observed values are based on final monthly mean Zurich numbers through 1980, on final international numbers through September 1984, and on provisional international numbers thereafter. Some table entries after the June 1976 value will change slightly, when we incorporate final data for 1984.

The entries with numbers in parentheses below them denote predictions by the McNish-Lincoln method. (See page 10 in the February 1985 edition of the "Solar-Geophysical Data" supplement.) Adding the number in parentheses to the predicted value generates the upper limit of the 90% confidence interval; subtracting the number in parentheses from the predicted value generates the lower limit. Consider, for example, the July 1985 prediction tabulated above. There exists a 90% chance that in July 1985 the actual smoothed sunspot number will fall somewhere between 16 and 40.

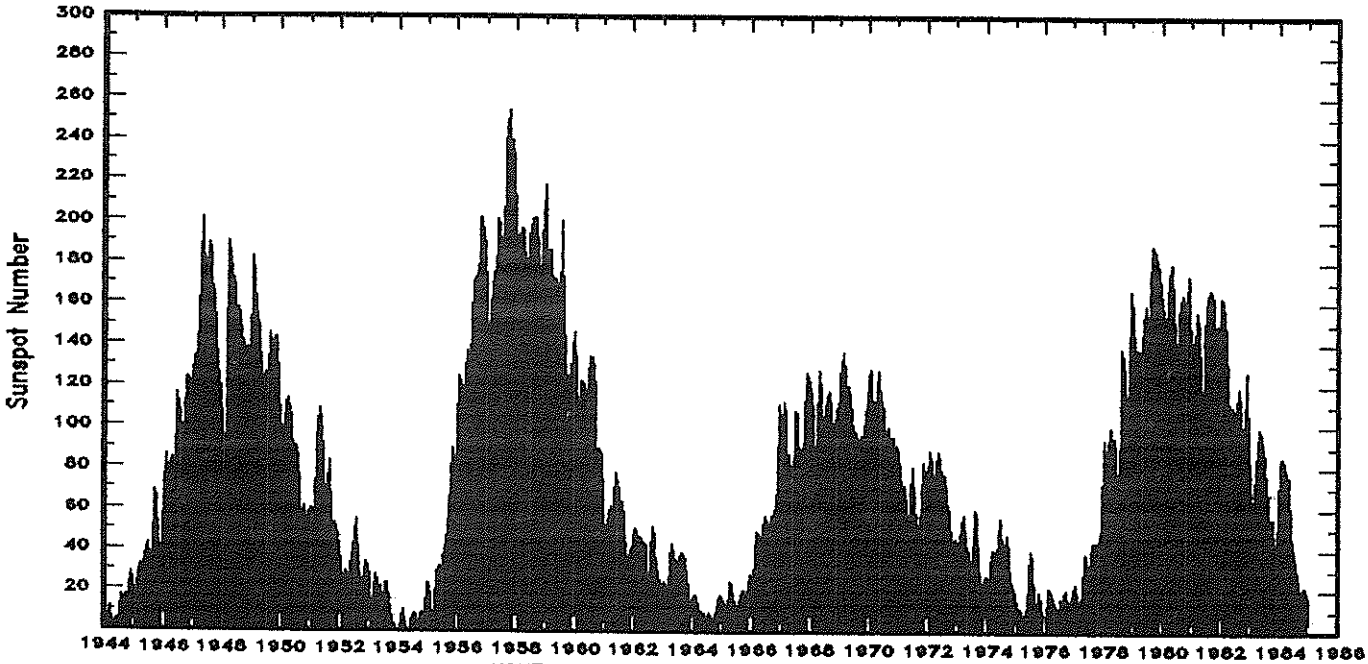
THE MCNISH-LINCOLN PREDICTION METHOD GENERATES USEFUL ESTIMATES OF SMOOTHED SUNSPOT NUMBERS FOR NO MORE THAN 12 MONTHS AHEAD. Beyond a year the predictions regress rapidly toward the mean of all 13 cycles of data used in the computation. Furthermore, the method is very sensitive to the date defined as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

OBSERVED AND ONE-YEAR-AHEAD PREDICTED SMOOTHED SUNSPOT NUMBERS



MONTHLY MEAN SUNSPOT NUMBERS
January 1944 — January 1985

11
Jan 85



MONTHLY MEAN SUNSPOT NUMBERS

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
1961	57.9	46.1	53.0	61.4	51.0	77.4	70.2	55.9	63.6	37.7	32.6	40.0
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
1984	57.0	85.4	83.5	69.7	76.4	46.1	37.4	25.5	15.7	12.6*	22.4*	18.2*
1985	16.5*											

*Provisional

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

JANUARY 1985

Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp Opt	Imp Xray	Obs See	Obs Type	Area Measurement Time (UT)	Area Measurement Apparent (10^{-6} Disk)	Area Measurement Corr (Sq Deg)	Remarks
LEAR	01	0707	0716	0732	S11	W44	4611	12	29.1	25	SF		3	C		43		
GOES	13	1828	1836	1842						14		C 2.1						
LEAR	14	0035	0036	0046	S08	E07	4616	01	14.5	11	SF		3	C		45		
LEAR	14	0417	0418	0421	S09	E03	4616	01	14.4	4	SF		3	C		39		F
LEAR	14	0439	0443	0445	S08	E05	4616	01	14.6	6	SF		3	C		30		F
LEAR	14	0622	0625	0630	S09	E03	4616	01	14.5	8	SF		3	C		23		F
LEAR	14	0919	0922	0942	S09	E01	4616	01	14.5	23	SF		3	C		79		FE
LEAR	15	0128	0132	0133	S09	W09	4616	01	14.4	5	SF		3	C		22		
PALE	15	1912	1916U	2004	S08	W17	4616	01	14.5	52	1N	C 3.1	3	C		203		ZH
RAMY	15	1934E		2120D	S08	W17	4616	01	14.5	106D	SB	C 3.1	3	C		183		FH
LEAR	16	0657	0701	0710	S08	W24	4616	01	14.5	13	SF		3	C		54		F
RAMY	16	1350E	1415U	1424D	S08	W29	4616	01	14.4	34D	1B		3	C		208		ZE
PALE	16	1917	1919	1925	S09	W31	4616	01	14.5	8	SF		3	C		34		
RAMY	16	1917E	1922U	1952D	S10	W32	4616	01	14.4	35D	SB		3	C		37		FE
YUNN	17	0324	0331	0337	S10	W38		01	14.3	13	SN			C		113	1.5	DH
LEAR	17	0327E	0329	0342	S09	W37	4616	01	14.4	15D	SF		3	C		49		
LEAR	17	0555	0559	0607	S08	W39	4616	01	14.3	12	SF		3	C		28		H
LEAR	17	0751	0752	0804	S12	W39	4616	01	14.4	13	SF		3	C		32		H
LEAR	17	0901	0903	0906	S11	W39	4616	01	14.4	5	SF		3	C		27		H
LEAR	17	1001	1003	1007	S11	W40	4616	01	14.4	6	SF		3	C		83		H
RAMY	17	1120E	1205	1240D	N20	W90	4615	01	10.6	80D	SB		3	C		49		
RAMY	17	1402	1410	1425	S11	W31	4616	01	15.2	23	SN		3	C		37		
RAMY	17	1502	1540	1540D	N20	W90	4615	01	10.7	38D	SB		3	C		61		
LEAR	19	0702	0704	0715	S06	W65	4616	01	14.4	13	SF		3	C		20		F
HOLL	19	1631	1643	1656	S10	W10		01	18.9	25	SF		3	C		26		UF
HOLL	19	2138	2146	2152	S10	W13	4617	01	18.9	14	SF		3	C		40		
PALE	19	2250	2250	2259	S10	W11	4617	01	19.1	9	SF		3	C		26		
LEAR	20	0011	0018	0030	S10	W11	4617	01	19.2	19	SN	C 2.3	3	C		139		FH
PALE	20	0016	0017	0030	S09	W11	4617	01	19.2	14	SN	C 2.3	3	C		46		F
MANI	20	0115E	0115U	0116D	S10	W14				1D	SF		1	V		39	.4	F
PALE	20	0227	0234U	0302D	S09	W13	4617	01	19.1	35D	SF	C 1.3	3	C		62		F K
PALE	20	0227	0251	0302D	S09	W13	4617	01	19.1	35D	SF		3	C		36		K
PURP	20	0236E	0241	0329	S11	W15		01	19.0	53D	SN	C 1.3		C	0241	46	.5	E
YUNN	20	0241E	0245U	0258D	S10	W13		01	19.1	17D	SB	C 1.3		P	0245	126	1.3	E
YUNN	20	0359E	0400U	0410D	N04	E40		01	23.1	11D	SN			P	0400	79	1.1	D
YUNN	20	0359E	0408	0410D	S08	W13		01	19.2	11D	SN			P		79	.8	
GOES	20	1252	1257	1300						8		C 2.1						
GOES	20	1325	1336	1351						26		C 2.2						
KANZ	20	1330	1338	1350	S10	W23				20	SF		2					
GOES	20	1410	1437	1453						43		C 2.6						
HOLL	20	1926	1938	1948	S08	W25	4617	01	18.9	22	SF		3	C		46		
HOLL	20	2039	2055	2155	S09	W24	4617	01	19.0	76	1B	M 4.1	3	C		302		ZFK
HOLL	20	2039	2102	2155	S09	W24	4617	01	19.0	76	SB		3	C		184		K
PALE	20	2044	2046	2130	S08	W24	4617	01	19.1	46	1B		3	C		388		K
PALE	20	2044	2051	2130	S08	W24	4617	01	19.1	46	1B	M 4.1	3	C		248		UFK
HOLL	20	2307	2310	2314	S10	W23	4617	01	19.2	7	SF		3	C		45		F
PALE	20	2353		2407	S09	W23	4617	01	19.3	14	SF		3	C		22		
LEAR	20	2354	2412	2428	S10	W25	4617	01	19.1	34	SN	C 2.0	3	C		90		F
PALE	21	0009	0012	0026	S09	W23	4617	01	19.3	17	SN	C 2.0	3	C		79		H
LEAR	21	0032	0033	0035	S09	W25	4617	01	19.1	3	SF		3	C		27		H
LEAR	21	0040	0042	0046	S09	W25	4617	01	19.1	6	SF		3	C		27		H
PURP	21	0103	0122U	0143	S11	W27		01	19.0	40	SN			C	0122	119	1.4	E
PURP	21	0200	0221	0226D	S10	W29		01	18.9	26D	SB	C 2.0		C	0221	68	.8	
LEAR	21	0204	0219	0234	S09	W29	4617	01	18.9	30	SN	C 2.0	3	C		186		F
YUNN	21	0208	0222	0229	S08	W31		01	18.8	21	1B	C 2.0		C		246	3.0	T
LEAR	21	0239	0245	0453	S10	W30	4617	01	18.8	134	SN		3	C		120		K
LEAR	21	0239	0354	0453	S10	W30	4617	01	18.8	134	1B	M 2.2	3	C		324		ZFK
PURP	21	0242E	0248U	0304	S11	W25		01	19.2	22D	SN			C	0248	160	1.8	
YUNN	21	0244	0248	0307	S11	W26		01	19.1	23	SN			C		92	1.1	T
YUNN	21	0303E	0304	0314	S09	W30		01	18.9	11D	SN			P		123	1.5	FT
YUNN	21	0343	0353	0415	S09	W30		01	18.9	32	1B	M 2.2		C		246	2.9	FT
PURP	21	0344	0351	0406	S11	W28		01	19.0	22	1B	M 2.2		C	0351	224	2.6	
LEAR	21	0455	0506	0659	S11	W29	4617	01	19.0	124	1B	M 1.1	3	C		235		ZF
YUNN	21	0510E	0512U	0525	S11	W29		01	19.0	15D	1N	M 1.1		P	0512	231	2.7	
YUNN	21	0517E	0517	0525	S11	W30		01	19.0	8D	1N			C		189	2.2	FKT
YUNN	21	0706	0718	0734	S07	W30		01	19.0	28	2F	C 1.9		C		538	6.4	T

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

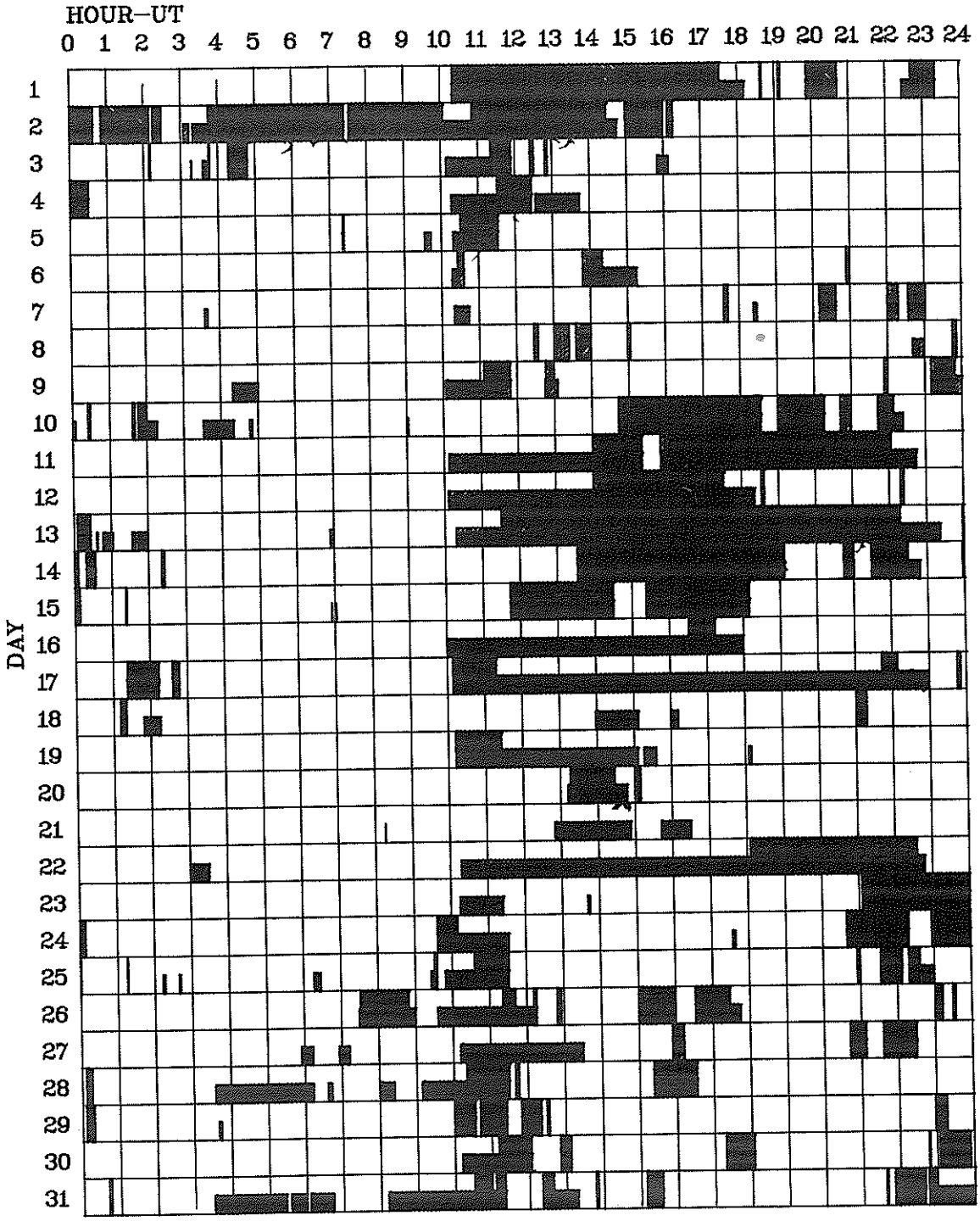
JANUARY 1985

Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp Opt	Imp Xray	See	Obs Type	Time (UT)	Area Measurement Apparent (10^{-6} Disk)	Area Measurement Corr (Sq Deg)	Remarks
LEAR	21	0707	0708	0722	S09	W28	4617	01	19.2	15	SN	C 1.9	3	C		53		FE
YUNN	21	0806E	0806	0818	S10	W35		01	18.7	12D	SN			P		46	.6	DT
YUNN	21	0824	0830	0836	S11	W35		01	18.7	12	SF			C		63	.8	T
LEAR	21	0955	1008	1023	S10	W32	4617	01	19.0	28	SN	C 4.6	3	C		115		F
WEND	21	0959	1008	1038	S08	W33		01	18.9	39	SN	C 4.6		C	1008	69	.9	
KANZ	21	1005E	1005U	1021	S11	W31				16D	SN		1					
WEND	21	1042	1046	1059	S05	W31		01	19.1	17	SN	C 8.8		C	1046	75	.9	H
ATHN	21	1046	1048	1054	S11	W30		01	19.2	8	SB	C 8.8		V	1048	32	.4	
KANZ	21	1048	1052	1054D	S09	W31				6D	SB		1					
RAMY	21	1302	1315	1358	S08	W33	4617	01	19.1	56	SN	C 1.8	3	C		73		FH
RAMY	21	1410	1425	1821	S08	W34	4617	01	19.0	251	SB	M 2.4	3	C		125		FEK
RAMY	21	1410	1517	1821	S08	W34	4617	01	19.0	251	1B		3	C		225		K
HOLL	21	1426E	1428	1541D	S11	W36	4617	01	18.9	75D	SN	M 2.4	3	C		131		K
HOLL	21	1426E	1518	1541D	S11	W36	4617	01	18.9	75D	1B		3	C		250		FEK
GOES	21	1514	1518	1549			4617			35		M 1.2						
GOES	21	1611	1618	1623			4617			12		C 2.2						
HOLL	21	1631E	1653	1819	S09	W35	4617	01	19.1	108D	SB	M 3.3	3	C		169		F K
HOLL	21	1631E	1738	1819	S09	W35	4617	01	19.1	108D	SN		3	C		154		K
PALE	21	1730E	1734U	1757	S08	W34	4617	01	19.2	27D	SN		2	C		150		F
PALE	21	1802	1805	1808D	S08	W34	4617	01	19.2	6D	SF		2	C		45		F
HOLL	21	1855	1912	1927	S09	W38	4617	01	18.9	32	SN		3	C		35		F
PALE	21	1859	1902	1912	S09	W40	4617	01	18.8	13	SF		2	C		30		
PALE	21	2037	2041	2054	S08	W36	4617	01	19.1	17	SF		3	C		46		K
PALE	21	2037	2048	2054	S08	W36	4617	01	19.1	17	SF		3	C		51		K
PALE	21	2116	2118	2126	S08	W37	4617	01	19.1	10	SN		3	C		26		F
PALE	21	2127	2130	2200	S08	W38	4617	01	19.0	33	1B	M 1.2	3	C		201		K
PALE	21	2127	2132	2200	S08	W38	4617	01	19.0	33	1B	M 1.2	3	C		185		FEK
PALE	21	2209	2210	2327	S06	W34	4617	01	19.4	78	SN	C 3.0	3	C		45		F K
PALE	21	2209	2236	2327	S06	W34	4617	01	19.4	78	SN		3	C		60		K
LEAR	21	2308	2320	2343	S10	W40	4617	01	18.9	35	SN		3	C		44		F
HOLL	21	2324	2328	2355D	S09	W42	4617	01	18.8	31D	SN		3	C		74		K
HOLL	21	2324	2355	2355D	S09	W42	4617	01	18.8	31D	1N	X 4.7	3	C		231		F K
LEAR	21	2346	2411	2637	S11	W39	4617	01	19.0	171	2B	X 4.7	3	C		678		ZUK
LEAR	21	2346	2438	2637	S11	W39	4617	01	19.0	171	1N		3	C		207		K
MANI	22	0058E		0058D	S10	W39				171D	SF		1	V		75	.9	F
YUNN	22	0143E	0152U	0303D	S11	W42		01	18.9	80D	2N			P	0152	630	8.7	BFW
LEAR	22	0356	0357	0408	S09	W41	4617	01	19.1	12	SN		3	C		41		
LEAR	22	0427	0427	0434	S12	W43	4617	01	18.9	7	SF		3	C		21		F
LEAR	22	0505	0513	0542	S10	W43	4617	01	19.0	37	SN		3	C		51		F
LEAR	22	0728	0729	0745	S09	W42	4617	01	19.1	17	SN		3	C		72		
ATHN	22	1100	1104	1128	S10	W45		01	19.1	28	1B	C 3.1		V	1104	223	3.2	
GOES	22	1628	1633	1637						9		C 1.1						
RAMY	22	2054	2056	2152	S11	W53	4617	01	18.9	58	SB		3	C		186		
LEAR	23	0019E	0019	0042	S12	W54	4617	01	18.9	23D	SN		3	C		50		
LEAR	23	0340	0402	0453	S13	W56	4617	01	18.9	73	SF		3	C		77		K
LEAR	23	0340	0414	0453	S13	W56	4617	01	18.9	73	SN	C 1.1	3	C		113		K
LEAR	23	0653	0654	0701	S13	W57	4617	01	19.0	8	SF		3	C		33		
LEAR	23	0709	0710	0716	S12	W58	4617	01	18.9	7	SF		3	C		42		
ATHN	23	0725	0732	0818	S10	W56		01	19.1	53	1N			V	0732	255	5.1	
LEAR	23	0725	0734	0827	S12	W59	4617	01	18.9	62	1N		3	C		292		K
LEAR	23	0725	0740	0827	S12	W59	4617	01	18.9	62	1B	M 1.3	3	C		278		K
YUNN	23	0727E	0738	0816D	S10	W61		01	18.7	49D	2B	M 1.3		P		246	5.2	F
LEAR	23	0846	0848	0859	S12	W59	4617	01	18.9	13	SF		3	C		33		
LEAR	23	0907	0912	0923	S10	W57	4617	01	19.1	16	SF		3	C		40		
GOES	23	1109	1115	1125			4617			16		C 3.6						
RAMY	23	1140	1146	1236	S10	W59	4617	01	19.0	56	SB		3	C		65		K
RAMY	23	1140	1157	1236	S10	W59	4617	01	19.0	56	SB	C 5.8	3	C		115		FEK
ATHN	23	1200	1204U	1215D	S08	W57		01	19.2	15D	SN	C 5.8		V	1204	64	1.3	
RAMY	23	1238	1241	1256	S11	W58	4617	01	19.2	18	SB	C 2.5	3	C		38		
RAMY	23	1730	1732	1753	S11	W63	4617	01	19.0	23	SB	C 2.0	3	C		69		K
RAMY	23	1730	1741	1753	S11	W63	4617	01	19.0	23	SN		3	C		43		K
LEAR	24	0044	0045	0113	S11	W67	4617	01	19.0	29	SB	C 4.0	3	C		62		E
MANI	24	0045E		0045D	S10	W58				29D	2B		1	V		358	6.3	E
LEAR	24	0444	0444	0446	S11	W70	4617	01	18.9	2	SF		3	C		18		
LEAR	24	0447	0448	0453	S12	W69	4617	01	19.0	6	SF		3	C		22		
LEAR	24	0533	0533	0535	S11	W69	4617	01	19.0	2	SF		3	C		26		
LEAR	24	0548	0554	0616	S11	W70	4617	01	19.0	28	SF	C 1.8	3	C		54		
GOES	24	1122	1128	1134			4617			12		C 3.0						
RAMY	24	1135E	1137U	1158	S10	W71	4617	01	19.1	23D	SN		3	C		71		
YUNN	27	0213	0216	0221	N05	W57		01	22.8	8	SN			C		31	.6	G

INTERVALS OF NO FLARE PATROL OBSERVATION

FOR PRECEDING SOLAR FLARE TABLE

JANUARY 1985



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

Athens	Istanbul	Learmonth	Peking	Ramey
Holloman	Kodaikanal	Palehua	Purple Mt.	Wendelstein
				Yunnan

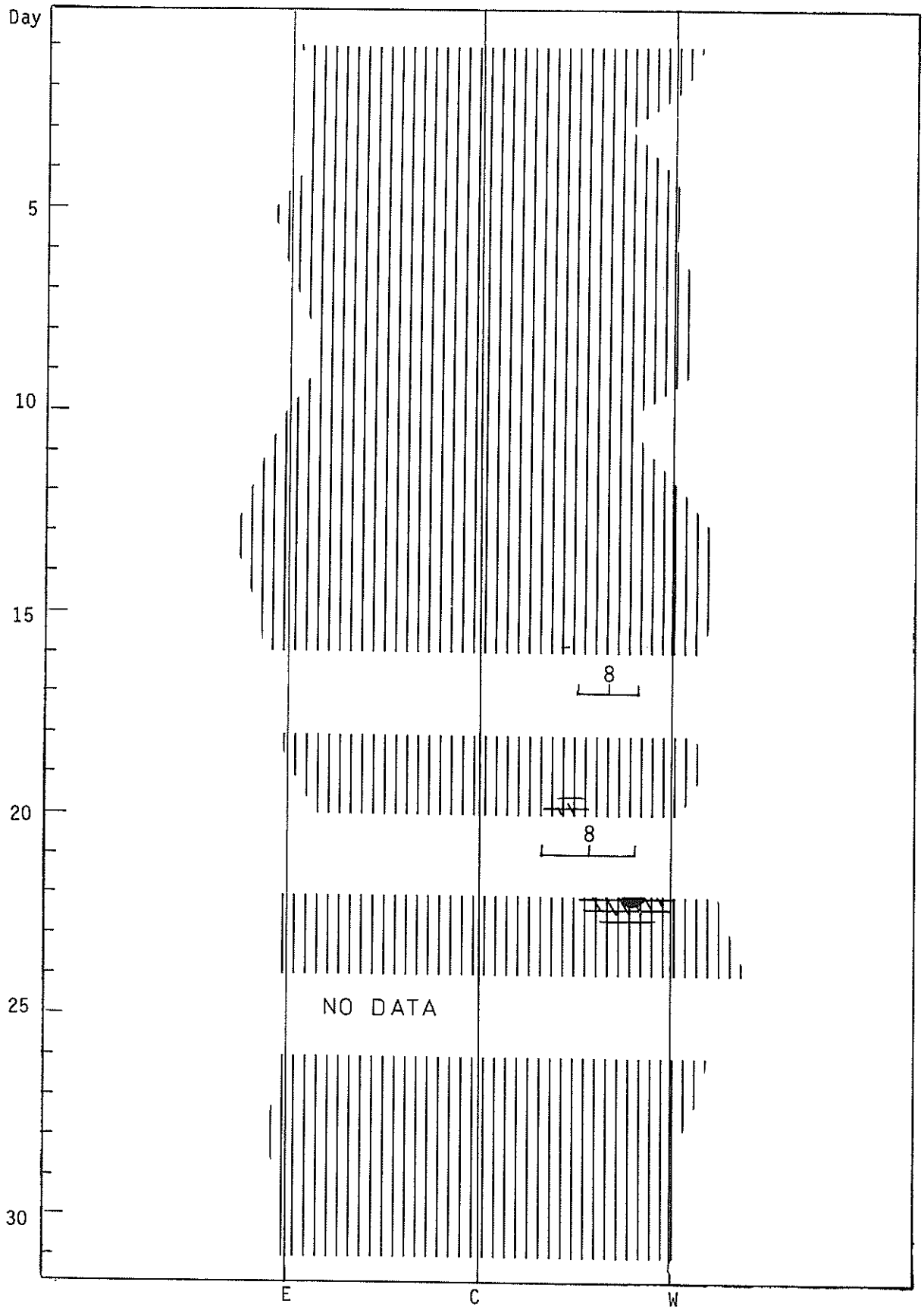
SOLAR INTERFEROMETRIC OBSERVATIONS

15
Jan 85

Nancay

JANUARY 1985

169 MHz

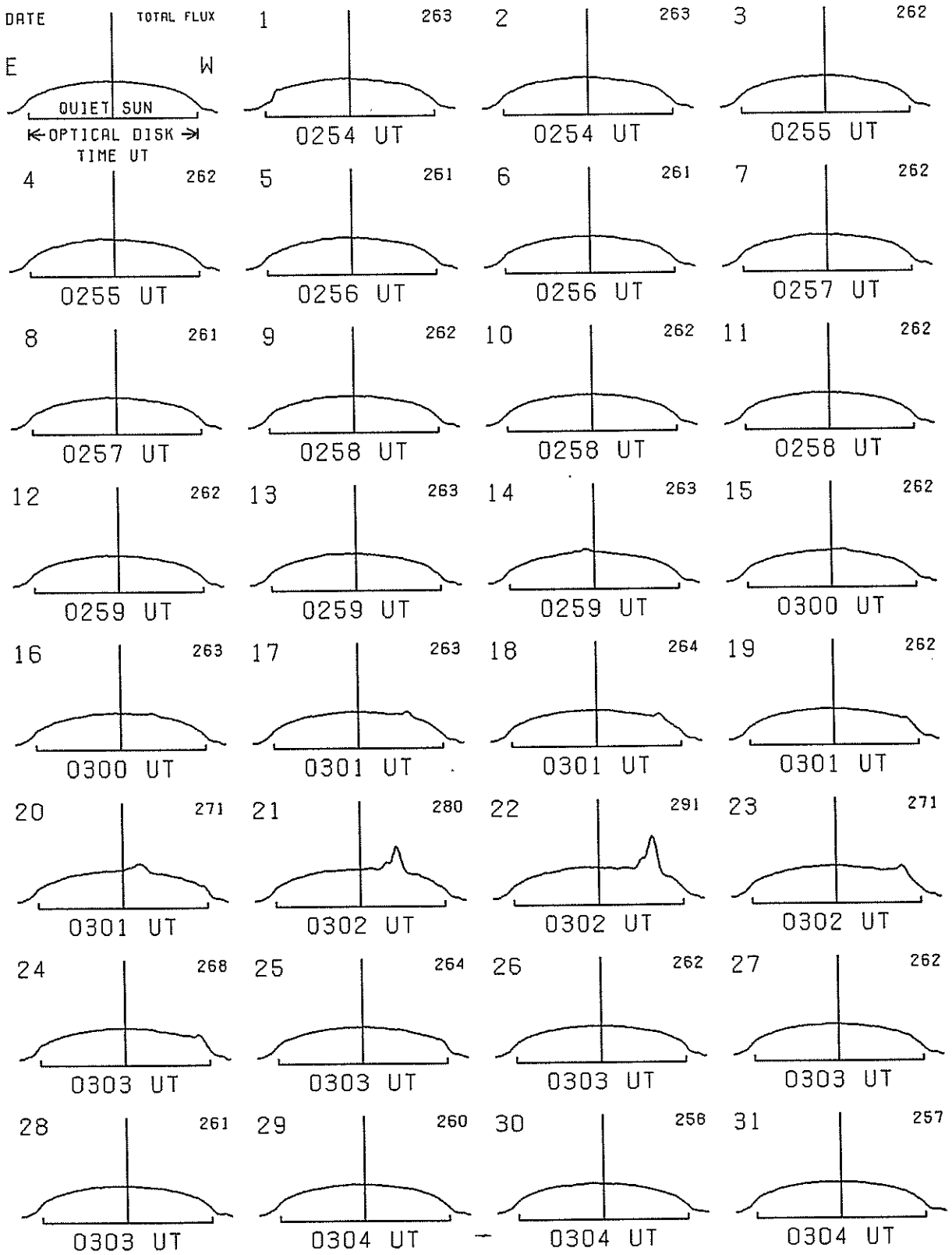


16
Jan 85

EAST-WEST SOLAR SCANS
JANUARY 1985

TOYOKAWA, JAPAN

3 CM
FAN BEAM WITH 1.1 MINUTES OF ARC

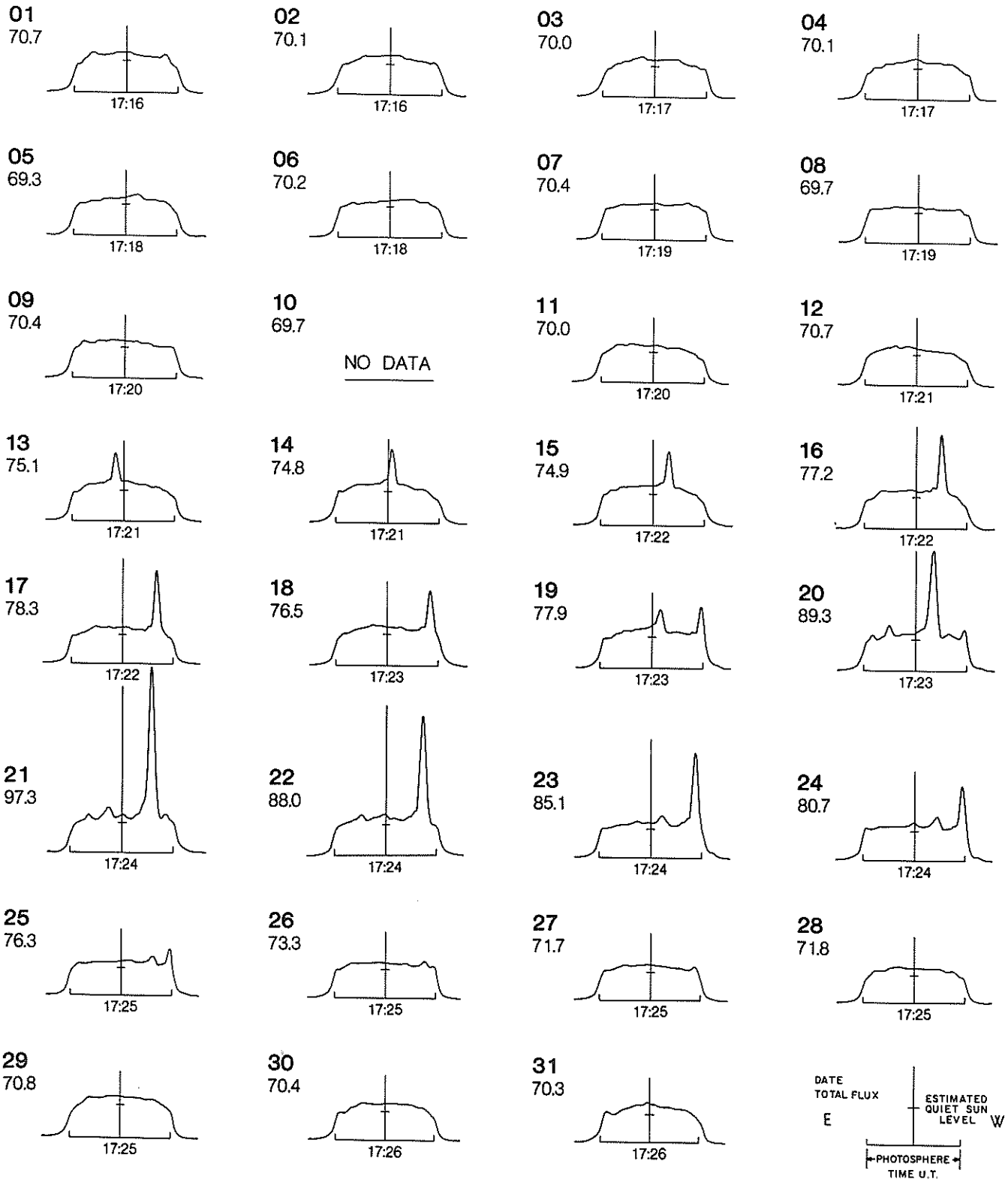


EAST-WEST SOLAR SCANS

JANUARY 1985

ALGONQUIN RADIO OBSERVATORY
CANADA

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

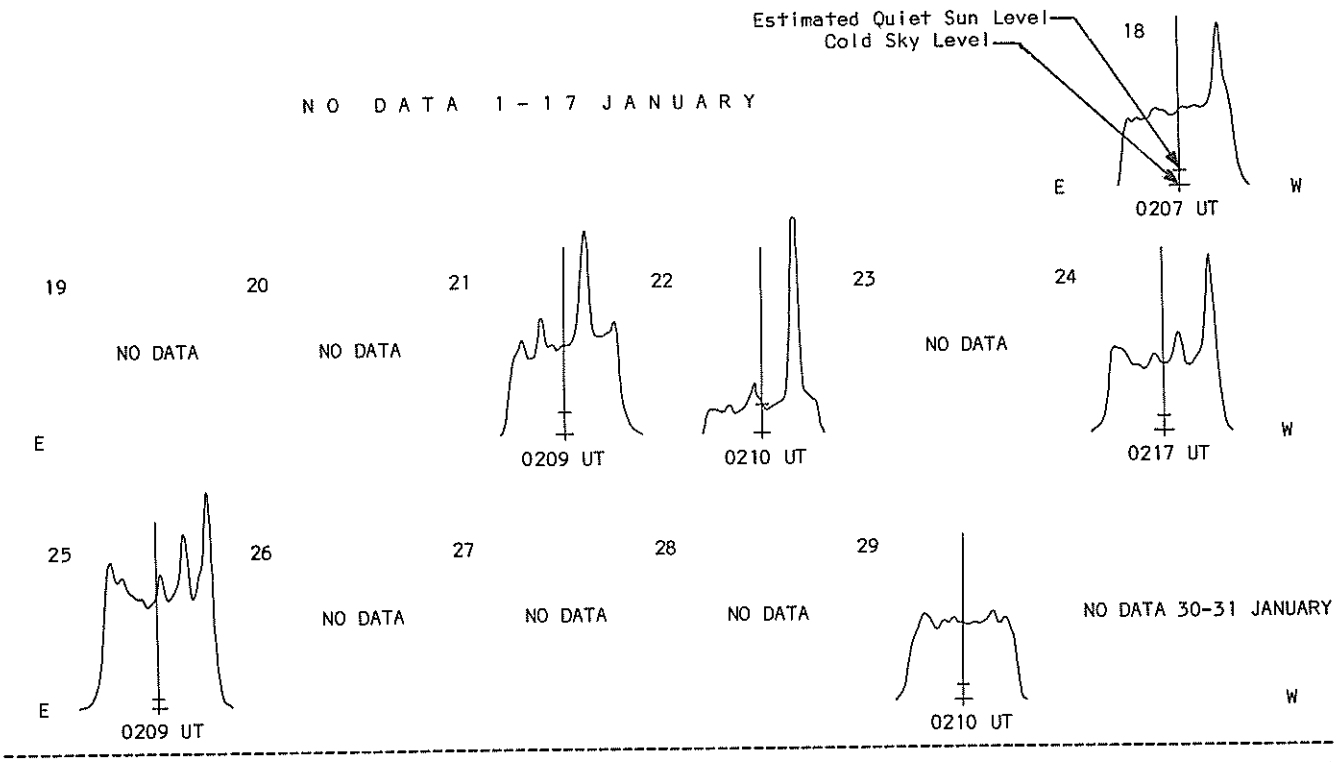


E A S T - W E S T S O L A R S C A N S

Fleurs, Australia

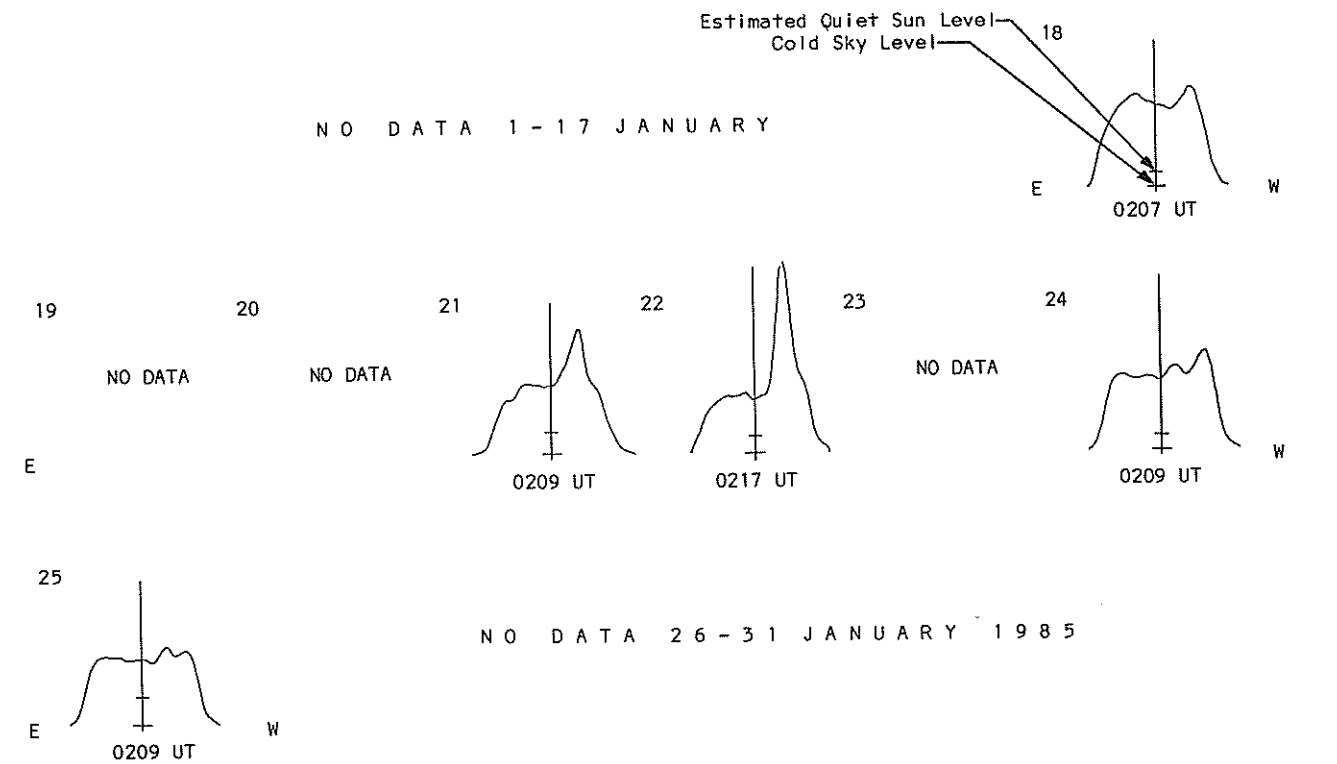
JANUARY 1985

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



Fleurs, Australia

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



SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

JANUARY 1985

Day	Freq	Sta	Type		Start (UT)	Time of Maximum (UT)	Duration (Min)	Flux Density Peak (10^{-22} W/m^2 Hz)	Flux Density Mean (10^{-22} W/m^2 Hz)	Int	Remarks
13	2800	OTTA	22	GRF	1833.0	1837.0	37.0	1.6	0.8		
14	2800	OTTA	1	S	1602.2	1603.0	5.0	8.4	2.1		
15	2800	OTTA	21	GRF	1910.0	1935.0	105.0	3.8	2.0		
	2800	OTTA	46F	C	1911.8	1914.3	9.0	38.0	9.2		
	2695	SGMR	4	S/F	1912.1	1914.5	3.4	46.0			QL=6 ST=2 TYP=3
	8800	PALE	47	GB	1912.3	1914.3	3.8	81.0			QL=6 ST=2 TYP=5
	8800	SGMR	47	GB	1912.3	1914.3	3.8	79.0			QL=6 ST=2 TYP=5
	2800	OTTA	2	S/F	1934.0	1937.0	10.0	5.2	2.4		
	2695	SGMR	4	S/F	1934.5	1936.6	2.3	13.0			QL=6 ST=3 TYP=3
	2800	OTTA	1	S	1947.0	1949.0	8.0	1.0	0.5		
16	2800	OTTA	22	GRF	1710.0	1925.0	155.0	2.0	1.0		
17	2800	OTTA	1	S	1444.8	1445.0	1.0	2.2	1.0		
19	8800	LEAR	8	S	0702.0	0702.1	.8	6.0			QL=6 ST=2 TYP=3
20	2695	LEAR	4	S/F	0909.1	0910.1	2.7	8.0			QL=6 ST=2 TYP=3
	8400	BERN	3	S	1254.0U	1255.5U	8.0U	25.0			Only paper record
	2800	OTTA	21	GRF	1330.0	1625.0	330.0D	6.6			
	2800	OTTA	8	S	1354.2	1354.5	.4	4.8			
	2800	OTTA	8	S	1824.4	1824.7	.5	2.2	1.1		
	2800	OTTA	240	R	1910.0	1930.0	20.0	2.6	1.3		
	2800	OTTA	21	GRF	2035.0		140.0D	21.0			
	2800	OTTA	4	S/F	2044.0	2046.0	9.0	102.0	16.6		
	8800	SGMR	47	GB	2044.5	2047.1	2.6	160.0			QL=4 ST=3 TYP=5
	8800	PALE	47	GB	2044.6	2045.6	17.2	250.0			QL=6 ST=2 TYP=5
	2695	PALE	47	GB	2044.8	2046.0	7.8	94.0			QL=6 ST=2 TYP=5
	2695	SGMR	47	GB	2045.1	2045.8	2.0	70.0			QL=4 ST=3 TYP=5
21	8800	LEAR	4	S/F	0345.6	0351.3	18.5	30.0			QL=6 ST=2 TYP=3
	8800	LEAR	47	GB	0504.6	0505.6	3.5	100.0			QL=6 ST=2 TYP=5
	2695	LEAR	47	GB	0505.1	0506.3	2.7	52.0			QL=6 ST=2 TYP=5
	8400	BERN	4	S/F	1045.7	1046.3	7.0	87.0			
	2695	LEAR	47	GB	1046.0	1046.3	1.0	94.0			QL=6 ST=2 TYP=5
	8800	ATHN	47	GB	1046.0	1047.0	2.0	56.0			QL=1 ST=2 TYP=5
	2695	ATHN	47	GB	1046.0	1047.0	2.0	80.0			QL=1 ST=2 TYP=5
	2800	OTTA	21	GRF	1335.0	1455.0	190.0	11.4	5.7		
	2695	ATHN	4	S/F	1415.0	1416.0	4.0	7.0			QL=6 ST=2 TYP=3
	8800	ATHN	4	S/F	1415.0	1417.0	6.0	20.0			QL=6 ST=2 TYP=3
	2800	OTTA	1	S	1445.8	1446.5	1.5	2.0	1.0		
	8400	BERN	3	S	1514.7	1516.4	10.0U	159.0			
	8800	SGMR	47	GB	1515.3	1516.3	4.0	160.0			QL=6 ST=2 TYP=5
	2800	OTTA	3	S	1515.5	1517.0	4.5	14.2	7.1		
	8800	ATHN	47	GB	1516.0	1517.0	4.0	160.0			QL=5 ST=2 TYP=5
	2695	ATHN	4	S/F	1516.0	1517.0	4.0	19.0			QL=5 ST=2 TYP=3
	2695	SGMR	4	S/F	1516.3	1516.8	2.5	17.0			QL=6 ST=2 TYP=3
	2800	OTTA	30	PBI	1520.0	1520.0	30.0	3.2	1.6		
	2800	OTTA	2	S/F	1537.0	1537.9	1.0	3.8			
	2800	OTTA	46F	C	1648.0	1653.3	17.0	22.0	7.9		
	2800	OTTA	21	GRF	1648.0	1745.0	275.0	17.6	8.4		
	8800	SGMR	47	GB	1649.1	1651.6		150.0			QL=6 ST=3 TYP=5
	2695	SGMR	8	S	1651.3	1651.6		19.0			QL=6 ST=3 TYP=3
	2800	OTTA	1	S	1711.5	1713.0	4.0	7.4	3.2		
	2695	PENT	2	S/F	2129.0	2130.5	4.0	7.8	3.5		
	8800	PALE	47	GB	2129.3	2129.8	2.0	74.0			QL=6 ST=2 TYP=5
	2695	PENT	29	PBI	2133.0	2133.0	15.0	2.4	1.2		
	2695	PENT	3	S	2208.5	2209.8	2.0	16.4	8.2		
	2695	PENT	29	PBI	2210.5	2210.5	4.0	3.4	1.7		
	8800	LEAR	49	GB	2353.1	2354.8	18.4	35.0			QL=6 ST=2 TYP=7
	8800	PALE	49	GB	2353.3	0000.1	22.2	2500.0			QL=6 ST=2 TYP=7
	2695	LEAR	49	GB	2358.1	2359.8	13.4	1100.0			QL=6 ST=2 TYP=7
	2695	PALE	49	GB	2358.3	2359.8	14.3	980.0			QL=6 ST=2 TYP=7
22	2695	LEAR	47	GB	0011.5	0025.8	20.6	280.0			QL=6 ST=3 TYP=5
	8800	LEAR	47	GB	0011.5	0026.3	20.6	73.0			QL=6 ST=3 TYP=5
	2695	PALE	47	GB	0018.3	0018.6	1.0	81.0			QL=6 ST=2 TYP=5
	2695	PALE	47	GB	0022.1	0024.6	12.2	32.0			QL=6 ST=2 TYP=5

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

JANUARY 1985

Day	Freq	Sta	Type		Start (UT)	Time of Maximum (UT)	Duration (Min)	Flux Density Peak (10^{-22} W/m^2 Hz)	Flux Density Mean (10^{-22} W/m^2 Hz)	Int	Remarks
22	8800	PALE	47	GB	0022.1	0030.8	12.2	110.0			QL=6 ST=2 TYP=5
	8800	LEAR	47	GB	0032.1	0055.1	25.9	76.0			QL=6 ST=3 TYP=5
	2695	LEAR	47	GB	0032.1	0055.8	25.9	360.0			QL=6 ST=3 TYP=5
	2695	PALE	47	GB	0047.1	0048.3	36.9	64.0			QL=6 ST=2 TYP=5
	8800	PALE	47	GB	0048.1	0048.1	31.4	18.0			QL=6 ST=2 TYP=5
	8800	LEAR	47	GB	0058.0	0058.1	30.0	68.0			QL=6 ST=3 TYP=5
	2695	LEAR	47	GB	0058.0	0059.8	62.8	310.0			QL=6 ST=3 TYP=5
	8800	ATHN	4	S/F	1102.0	1104.0	5.0	9.0			QL=5 ST=2 TYP=3
	2695	ATHN	4	S/F	1102.0	1104.0	5.0	3.0			QL=5 ST=2 TYP=3
	2800	OTTA	8	S	1631.9	1631.9	.5	2.2	0.8		
	2800	OTTA	21	GRF	1855.0	1900.0	25.0	1.6	0.9		
	2800	OTTA	1	S	1855.2	1856.0	2.5	1.6	0.8		
	2800	OTTA	1	S	2055.3	2055.5	1.0	3.2	1.6		
23	8800	ATHN	47	GB	0724.0	0727.0	7.0	97.0			QL=6 ST=2 TYP=5
	2695	ATHN	4	S/F	0724.0	0727.0	11.0	11.0			QL=6 ST=2 TYP=3
	8800	LEAR	47	GB	0726.6	0727.1	3.5	83.0			QL=6 ST=2 TYP=5
	2695	LEAR	4	S/F	0726.8	0727.1	2.5	23.0			QL=6 ST=2 TYP=3
	2800	OTTA	1	S	1731.0	1732.2	6.0	1.4	0.7		
	2800	OTTA	20	GRF	1905.0	1935.0	115.0	3.2	1.6		
	2695	PENT	20	GRF	2110.0	2130.0	50.0	1.2	0.6		

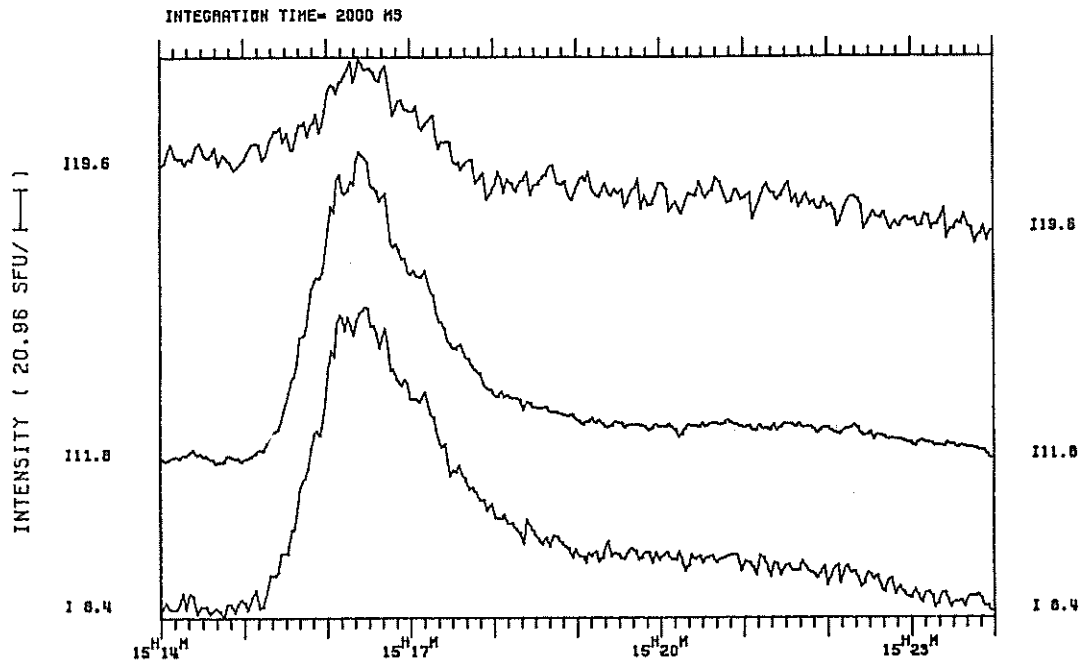
Observatories:
BERN = Berne MANI = Manila OTTA = Ottawa ARO PENT = Penticton SGMR = Sagamore Hill
LEAR = Learmonth ATHN = Athens PALE = Palehua

Explanation of Type Code:

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

Remarks:
QL = Quality (1=poor to 6=excellent)
ST = Status (1=real time; 2=final; 3=correction; 4=deletion)
TYP= Type (1=noise storm;2=rise in base level;3=minor;4=group;5=major;6=major plus;7=Castelli U-type burst)

INSTITUTE OF APPLIED PHYSICS, UNIVERSITY OF BERN, SWITZERLAND



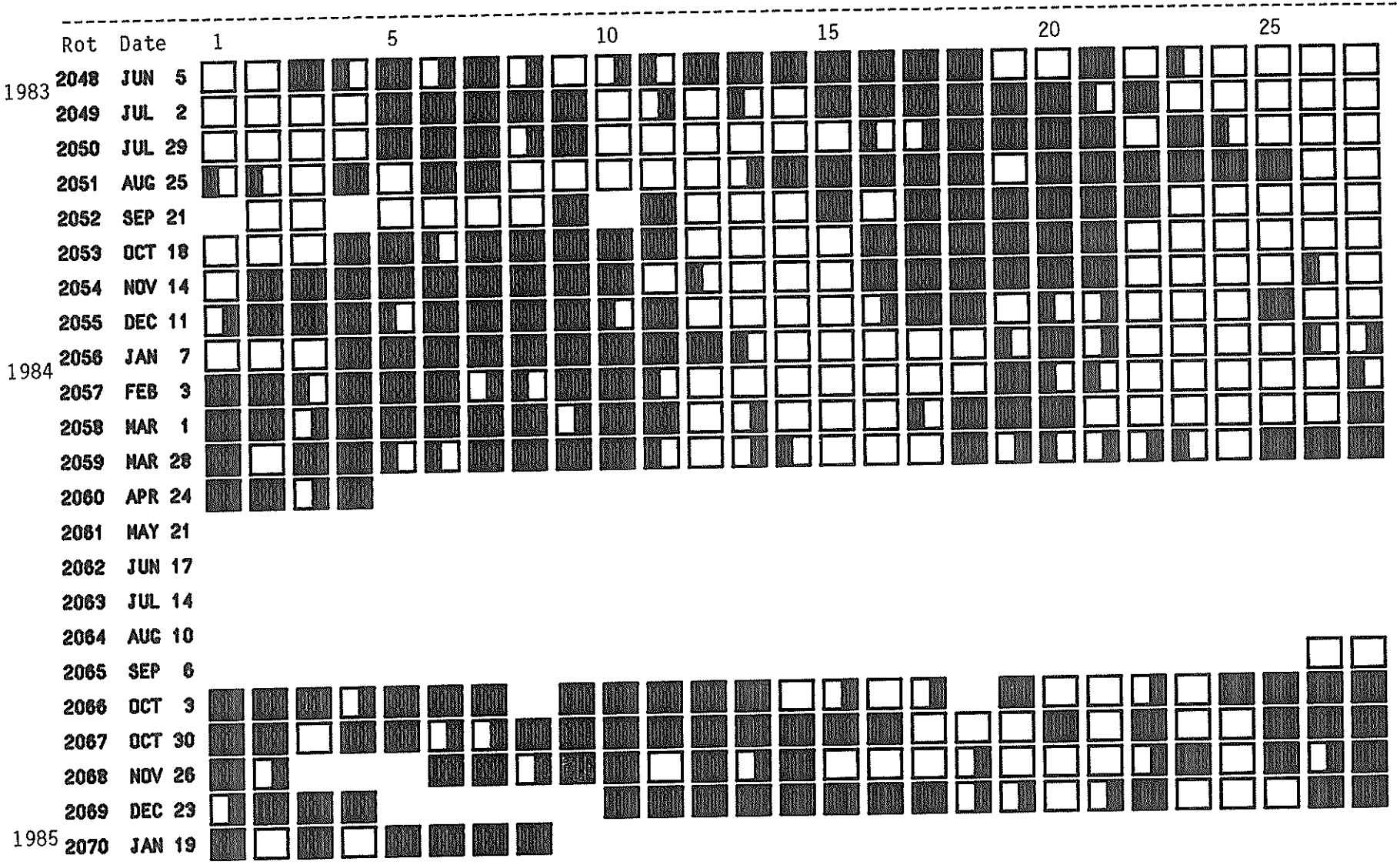
UT ON JAN. 21 1985

VOSTOK INFERRED INTERPLANETARY MAGNETIC FIELD
PRELIMINARY DATA

February 1984 - January 1985

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

VOSTOK INFERRED INTERPLANETARY MAGNETIC FIELD

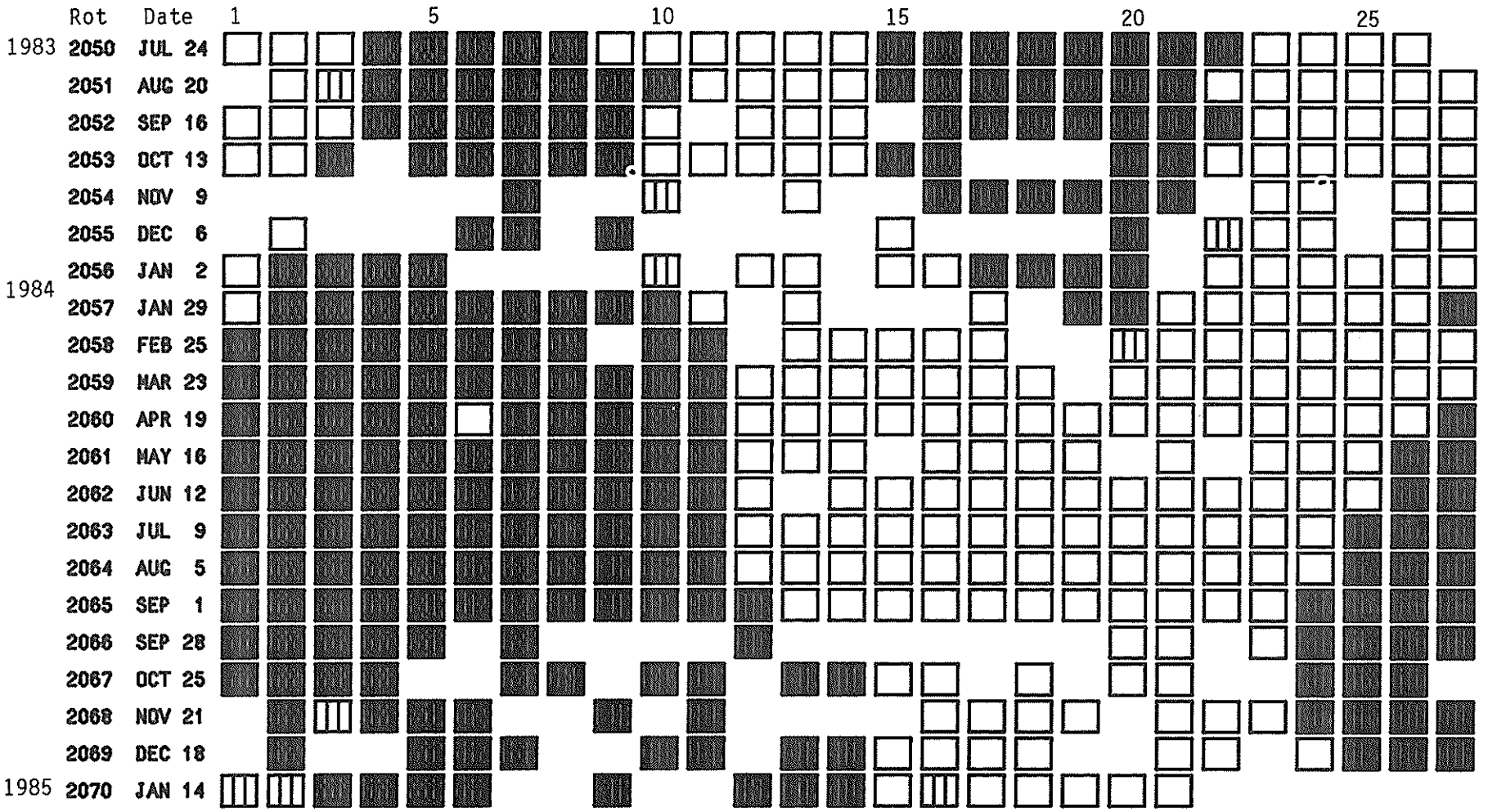


Inferred Interplanetary Magnetic Field Polarity:

No box = no data available ■ = definitely towards the Sun □ = definitely away from the Sun

The chart shows the daily inferences of the polarity of the interplanetary magnetic field based principally on the magnetograms produced by the magnetometer at the Vostok Antarctic Station of the USSR.

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	Feb 84	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan 85
1	-41	-79	-34	56	24	38	17	-38	-42	-13	-32	5
2	-63	-66	-23	53	27	44	-2	-20	-63	·	·	14
3	-62	-55	9	40	42	33	-35	-42	·	-64	·	21
4	-43	·	29	36	·	62	-40	-58	-76	-37	·	38
5	-19	-31	34	24	66	41	-44	-77	·	·	·	·
6	-8	-2	31	15	·	5	-37	-86	·	-22	15	·
7	-4	·	38	15	65	-28	-50	-89	·	-4	28	37
8	16	62	41	30	53	-41	-82	-95	·	10	44	26
9	·	58	25	7	24	-62	-83	-81	-21	12	30	·
10	61	45	·	19	-18	-56	-73	-55	·	·	·	6
11	·	47	17	47	-37	-66	-84	-27	·	16	39	-10
12	·	35	31	42	-47	-70	-91	-8	·	·	27	-8
13	·	·	46	32	-57	-96	-71	3	·	48	12	-10
14	15	·	56	20	-63	-91	-67	11	·	24	-10	-1
15	·	-1	56	-5	-61	-102	-13	10	·	·	-12	1
16	-14	19	52	-39	-75	-93	6	12	·	·	-20	-7
17	-23	55	28	-62	-73	-59	11	21	32	-4	-11	-3
18	3	76	21	-57	-89	-39	21	23	36	-25	·	-25
19	29	82	-40	-58	-59	-11	18	49	·	-23	-8	-35
20	39	87	-53	-62	-66	14	19	52	15	·	·	·
21	31	57	-52	-59	-52	9	21	44	-7	·	·	·
22	36	4	-18	-66	-31	31	26	34	-32	-6	-24	-30
23	19	-33	-14	-68	11	7	39	20	-38	1	-35	·
24	-33	-47	9	-79	·	30	47	-5	-24	-15	-46	·
25	-59	-59	-17	-76	37	22	52	-26	-14	-10	·	-9
26	-74	-57	-34	-42	33	26	31	-35	-18	-20	·	-12
27	-72	-51	-49	13	16	53	25	-26	-15	·	-23	-2
28	-74	-49	-40	57	26	43	11	-19	-32	·	-22	32
29	-78	-20	-15	66	15	54	-4	-19	·	-45	·	0
30		-35	28	·	32	36	-13	-30	·	·	-9	19
31		-21		38		31	-36		-71		-3	28

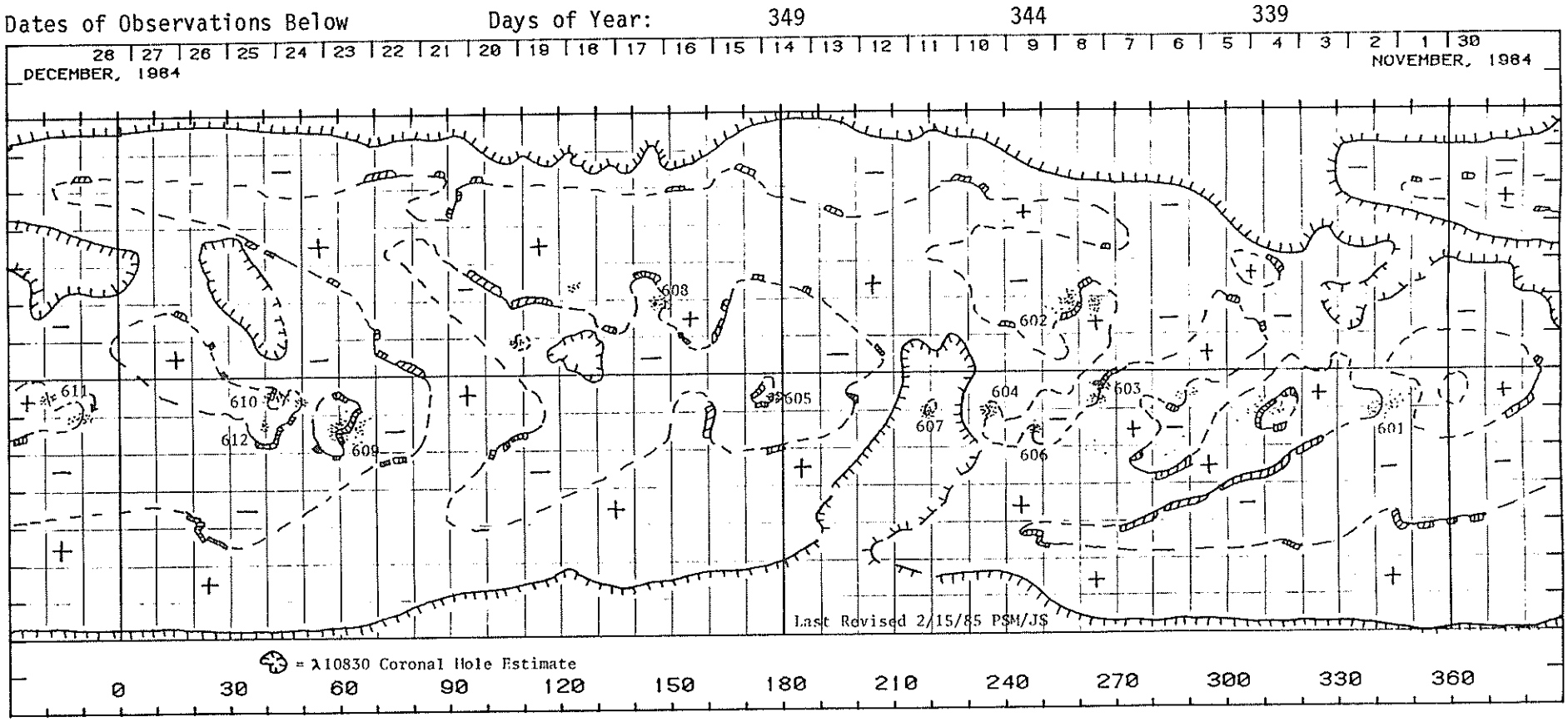
Dot symbol indicates no data available for the day.

C O N T E N T S

Prompt Reports DATA FOR DECEMBER 1984 Number 486 Part I

PRELIMINARY H-ALPHA SOLAR SYNOPTIC CHART

CARRINGTON ROTATION NUMBER 1756
(December 1 to December 28, 1984)

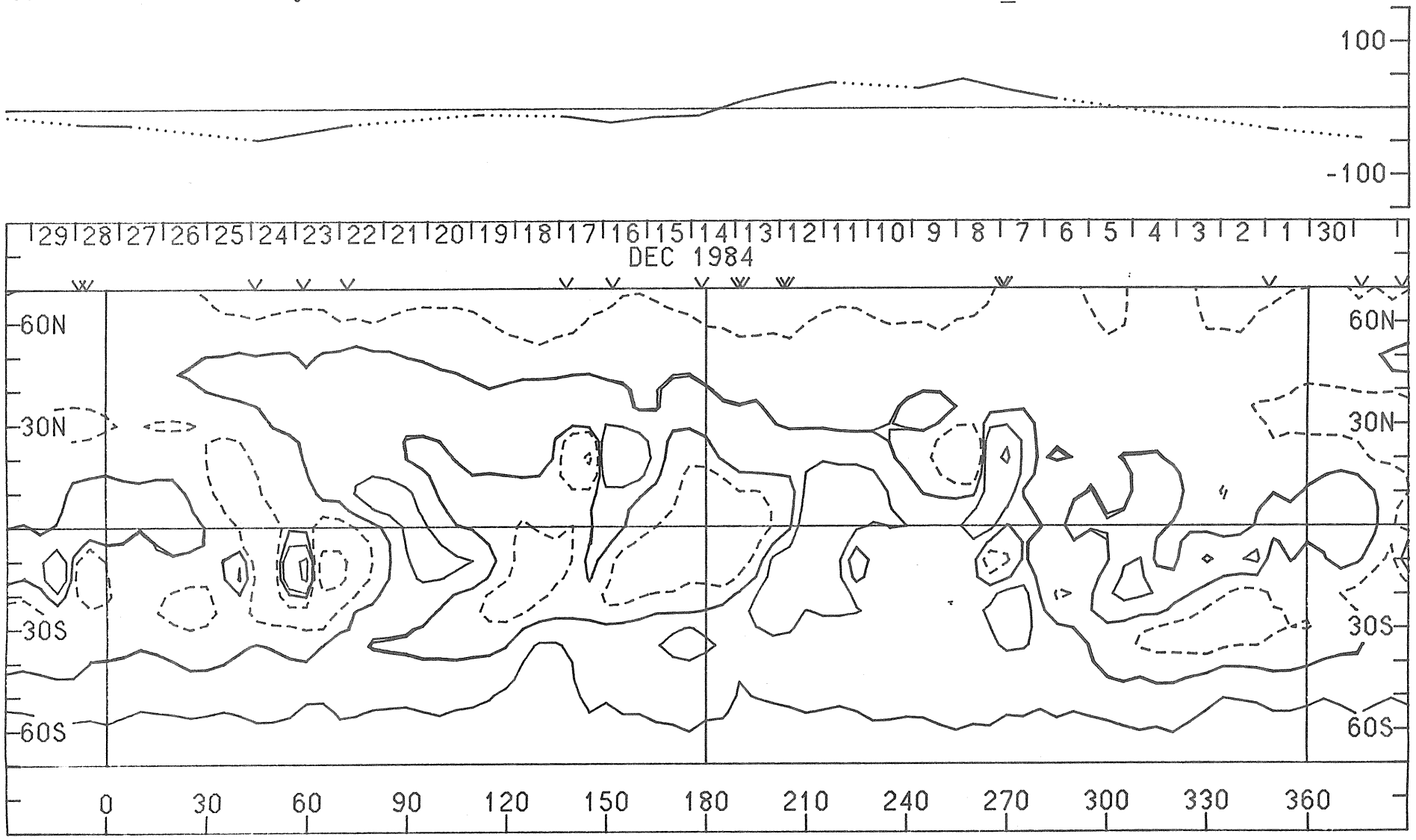


SOLAR MAGNETIC FIELD SYNOPTIC CHART

CARRINGTON ROTATION NUMBER 1756
(December 1 to December 28, 1984)

Stanford Solar Observatory

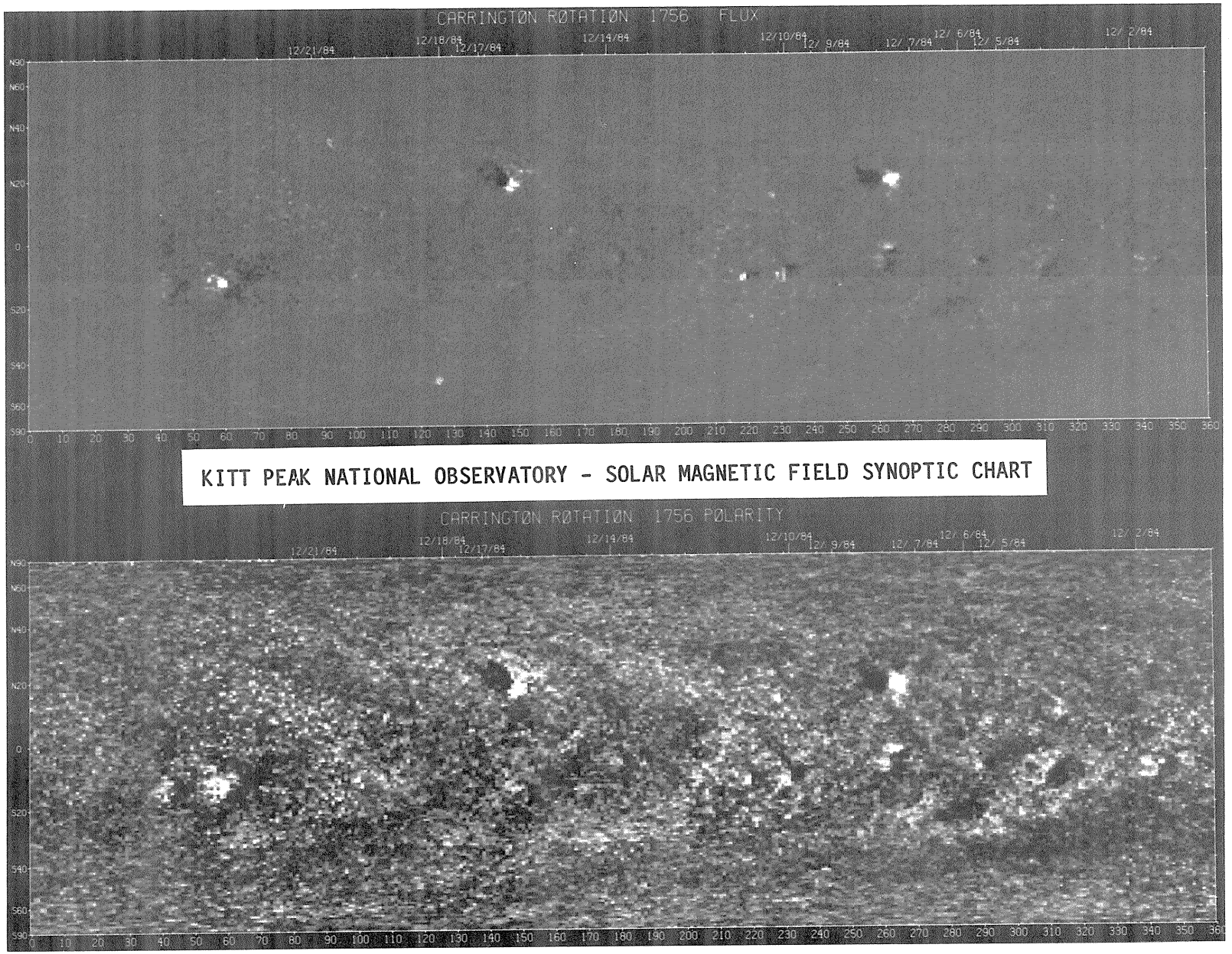
0, ±100, 500, 1000, 2000 microTesla



Heliographic Longitude

27
Dec 84

28
Dec 84

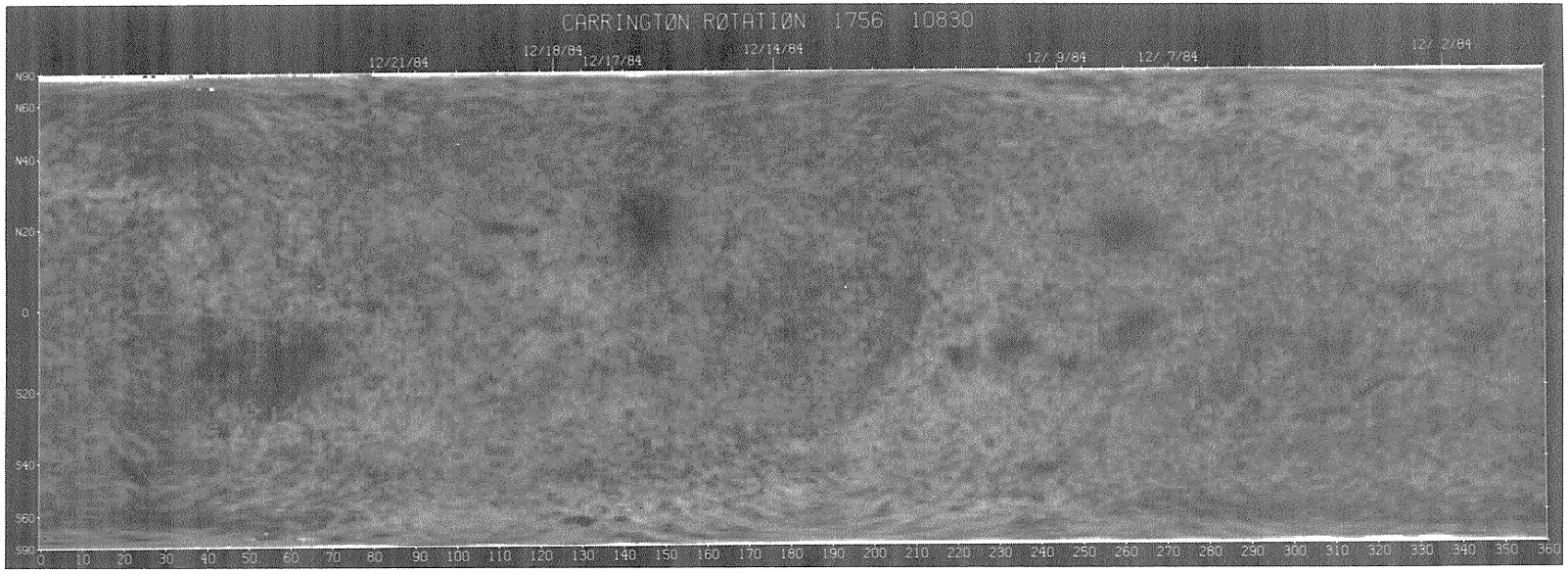

CARRINGTØN RØTATIØN 1756 FLUX
12/21/84
12/18/84
12/17/84
12/14/84
12/10/84
12/ 9/84
12/ 7/84
12/ 6/84
12/ 5/84
12/ 2/84
N90
N60
N40
N20
0
S20
S40
S60
S80
S90
0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200 210 220 230 240 250 260 270 280 290 300 310 320 330 340 350 360
KITT PEAK NATIONAL OBSERVATORY - SOLAR MAGNETIC FIELD SYNOPTIC CHART
CARRINGTØN RØTATIØN 1756 PØLARITY
12/21/84
12/18/84
12/17/84
12/14/84
12/10/84
12/ 9/84
12/ 7/84
12/ 6/84
12/ 5/84
12/ 2/84
N90
N60
N40
N20
0
S20
S40
S60
S80
S90
0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200 210 220 230 240 250 260 270 280 290 300 310 320 330 340 350 360

HELIUM 10830 ANGSTROM SYNOPTIC MAP OF THE SOLAR CORONA

CARRINGTON ROTATION NUMBER 1756
(December 1 to December 28, 1984)

Kitt Peak National Observatory

Dates of Observations



Heliographic Longitude

Regions for which no observations were available are black.
Irregularly shaped light areas mark either coronal holes or filament cavities.
Gray-scale display represents the strength of the helium 10830A absorption line.

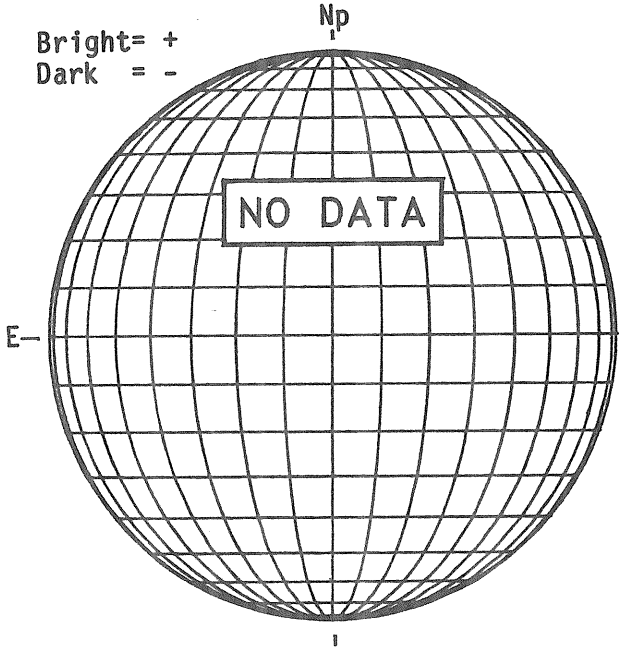
29
Dec 84

D E C E M B E R 01, 1 9 8 4 (P= 16.03, B_0= 0.83, L_0= 359.45)

30 Dec 84

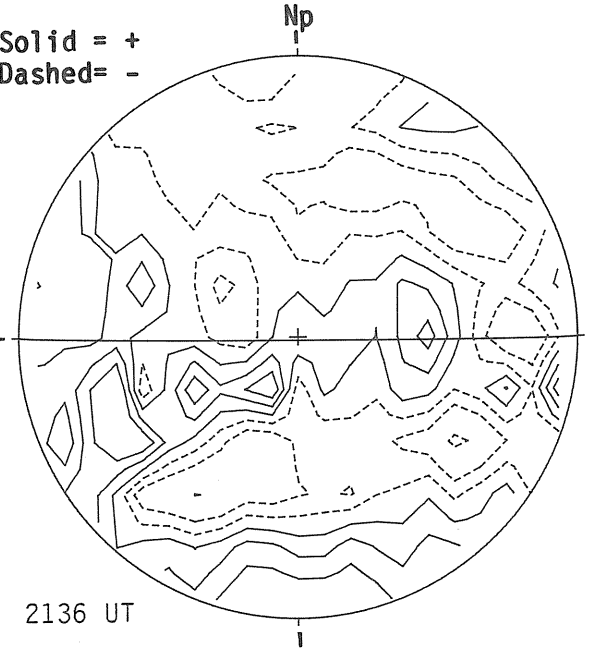
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



STANFORD MAGNETOGRAM

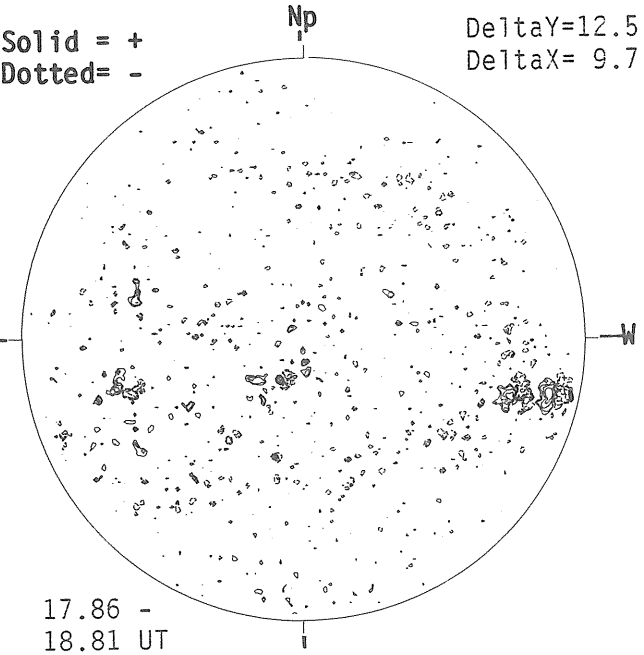
Solid = +
Dashed= -



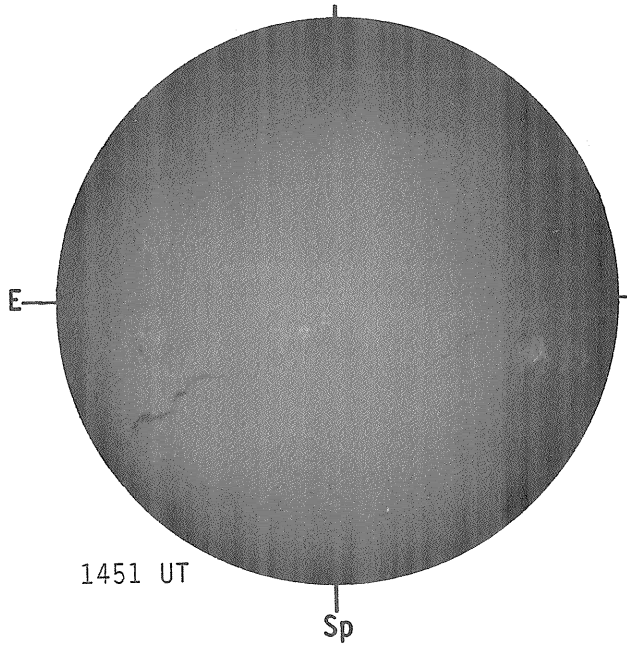
MT. WILSON MAGNETOGRAM

Solid = +
Dotted= -

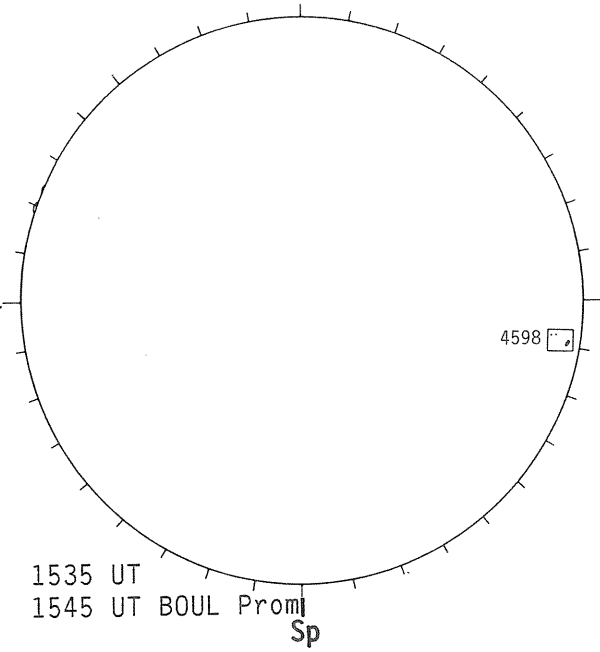
DeltaY=12.5
DeltaX= 9.7



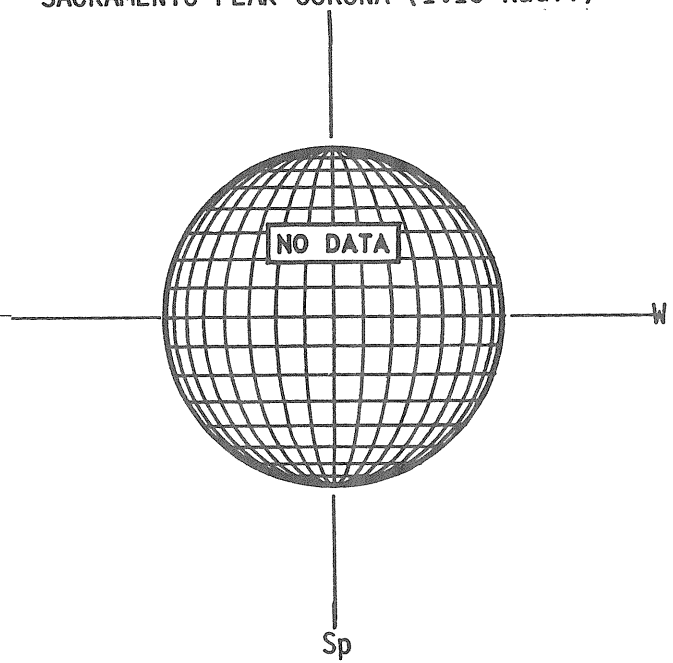
SACRAMENTO PEAK H-ALPHA



BOULDER SUNSPOTS



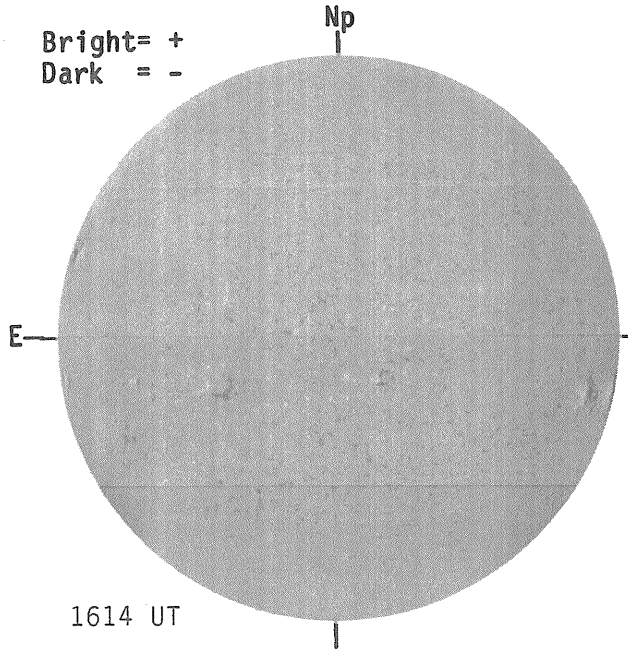
SACRAMENTO PEAK CORONA (1.15 Radii)



D E C E M B E R 02, 1 9 8 4 (P= 15.64, B_o= 0.70, L_o= 346.27)

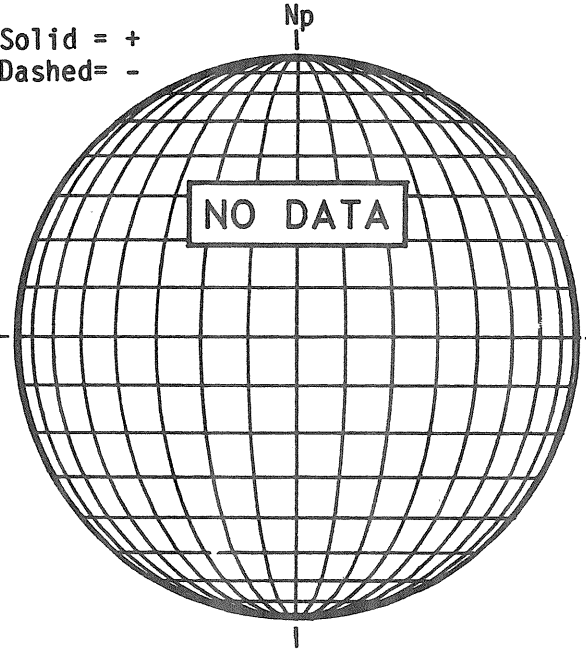
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



STANFORD MAGNETOGRAM

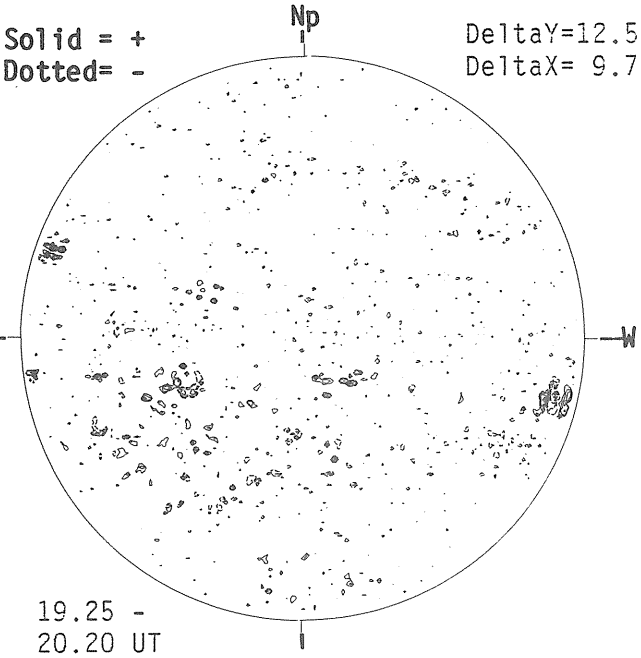
Solid = +
Dashed= -



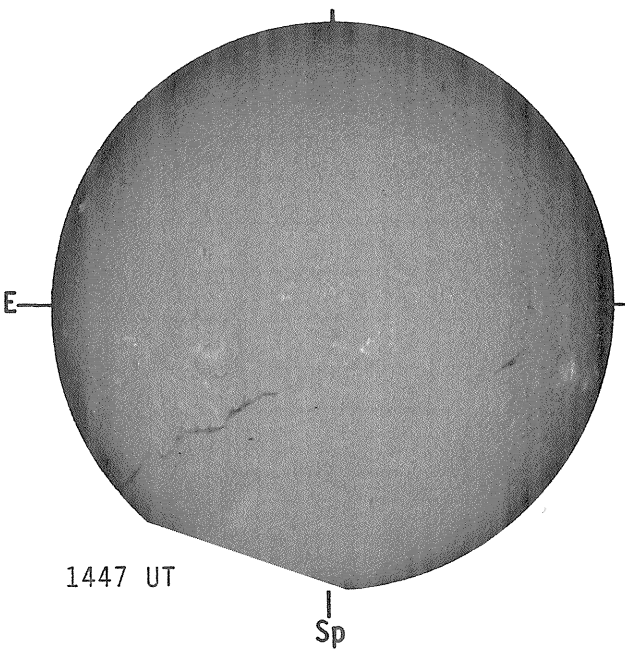
MT. WILSON MAGNETOGRAM

Solid = +
Dotted= -

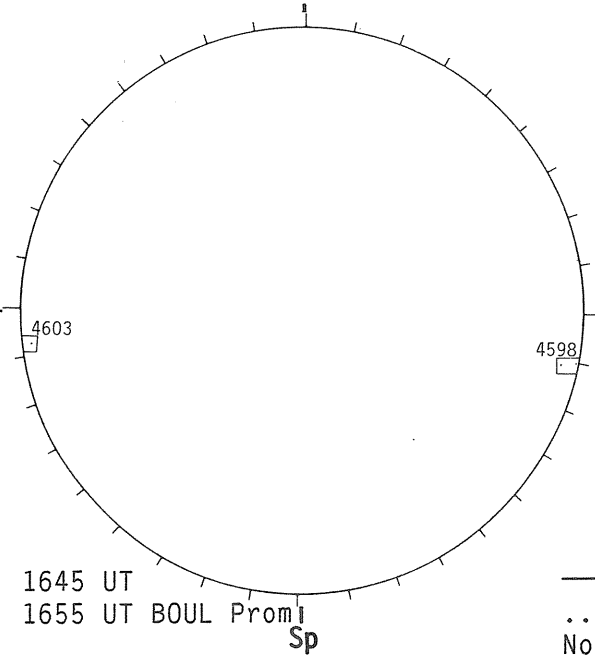
DeltaY=12.5
DeltaX= 9.7



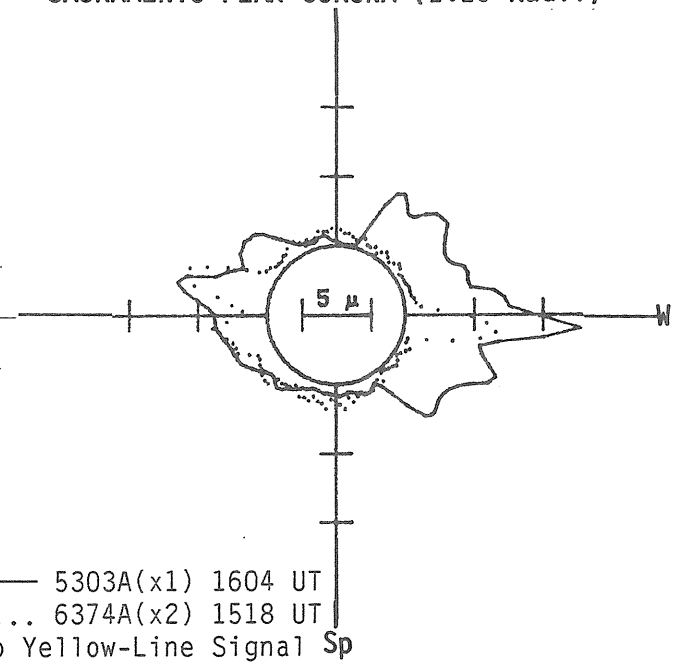
SACRAMENTO PEAK H-ALPHA



BOULDER SUNSPOTS

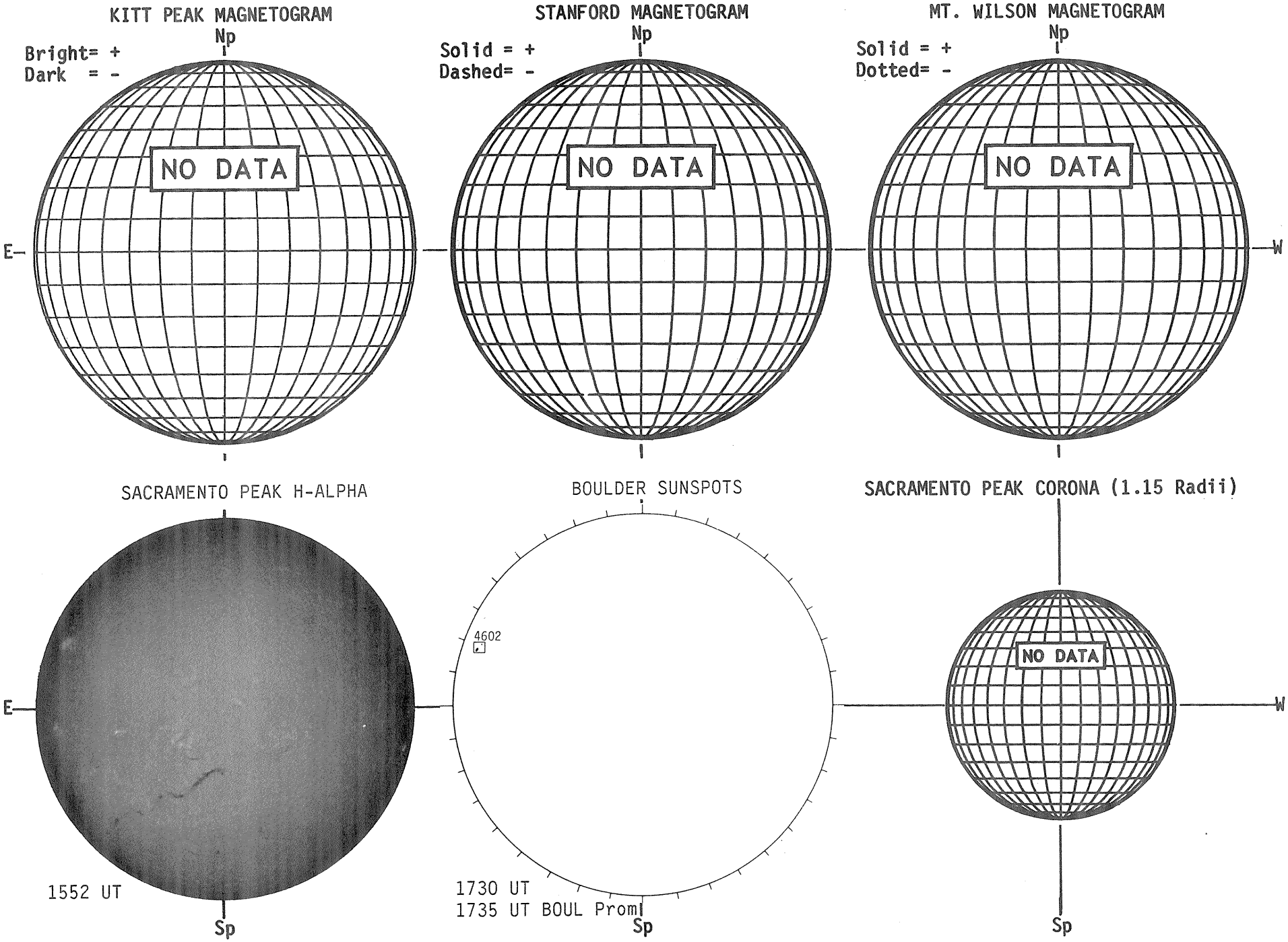


SACRAMENTO PEAK CORONA (1.15 Radii)

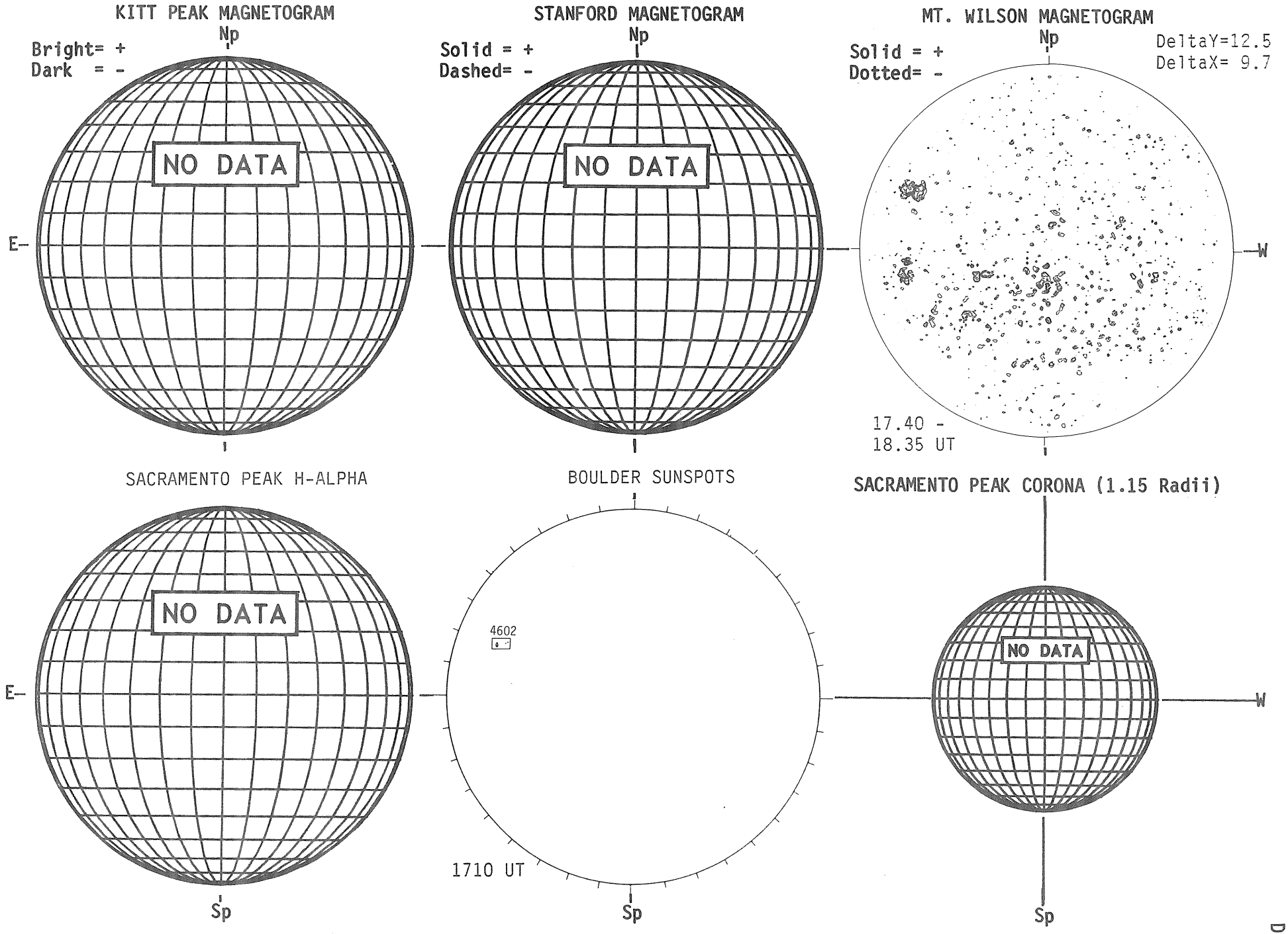


—— 5303A(x1) 1604 UT
.... 6374A(x2) 1518 UT
No Yellow-Line Signal

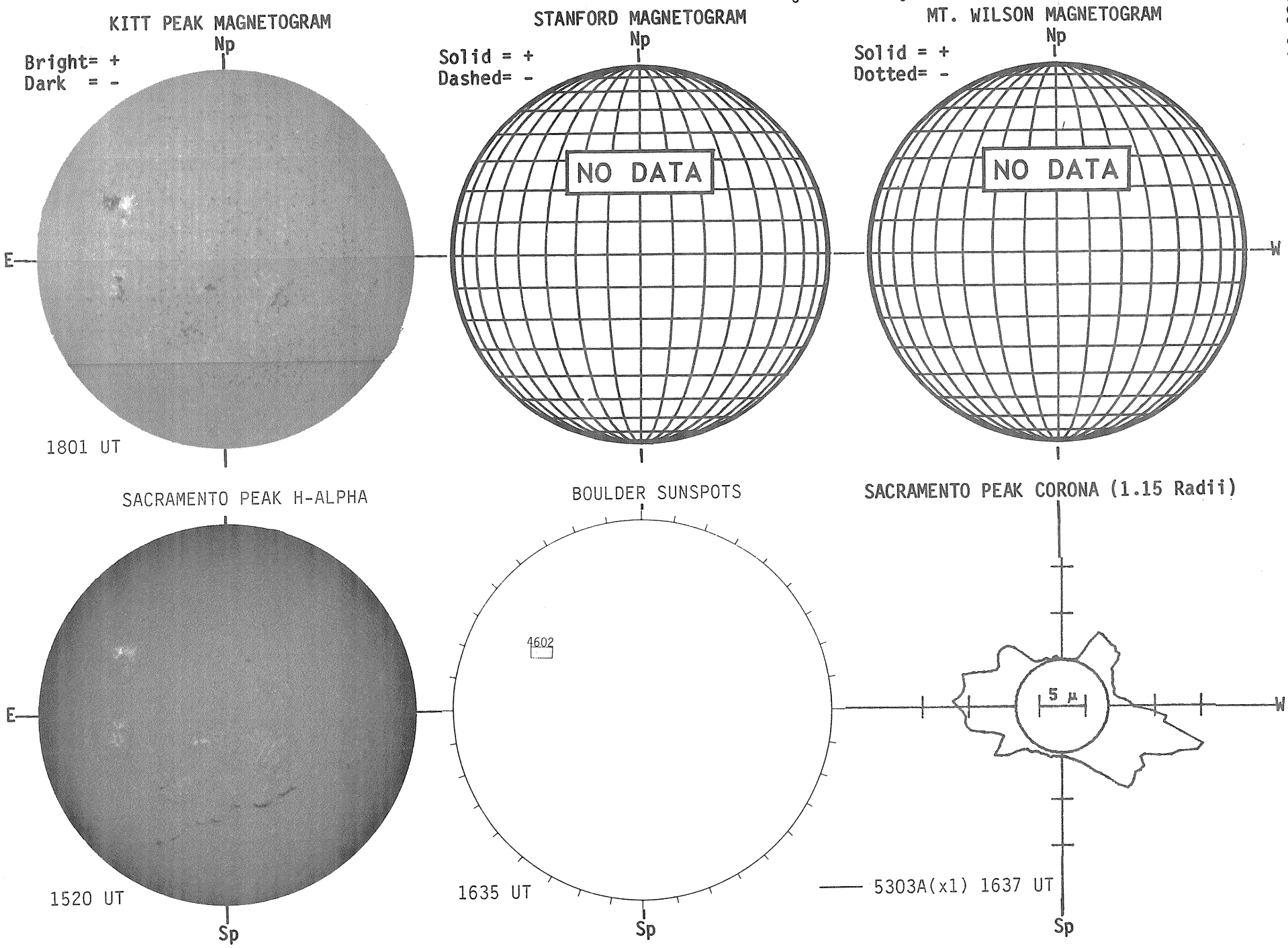
D E C E M B E R 03, 1 9 8 4 (P= 15.25, B_0= 0.57, L_0= 333.09)



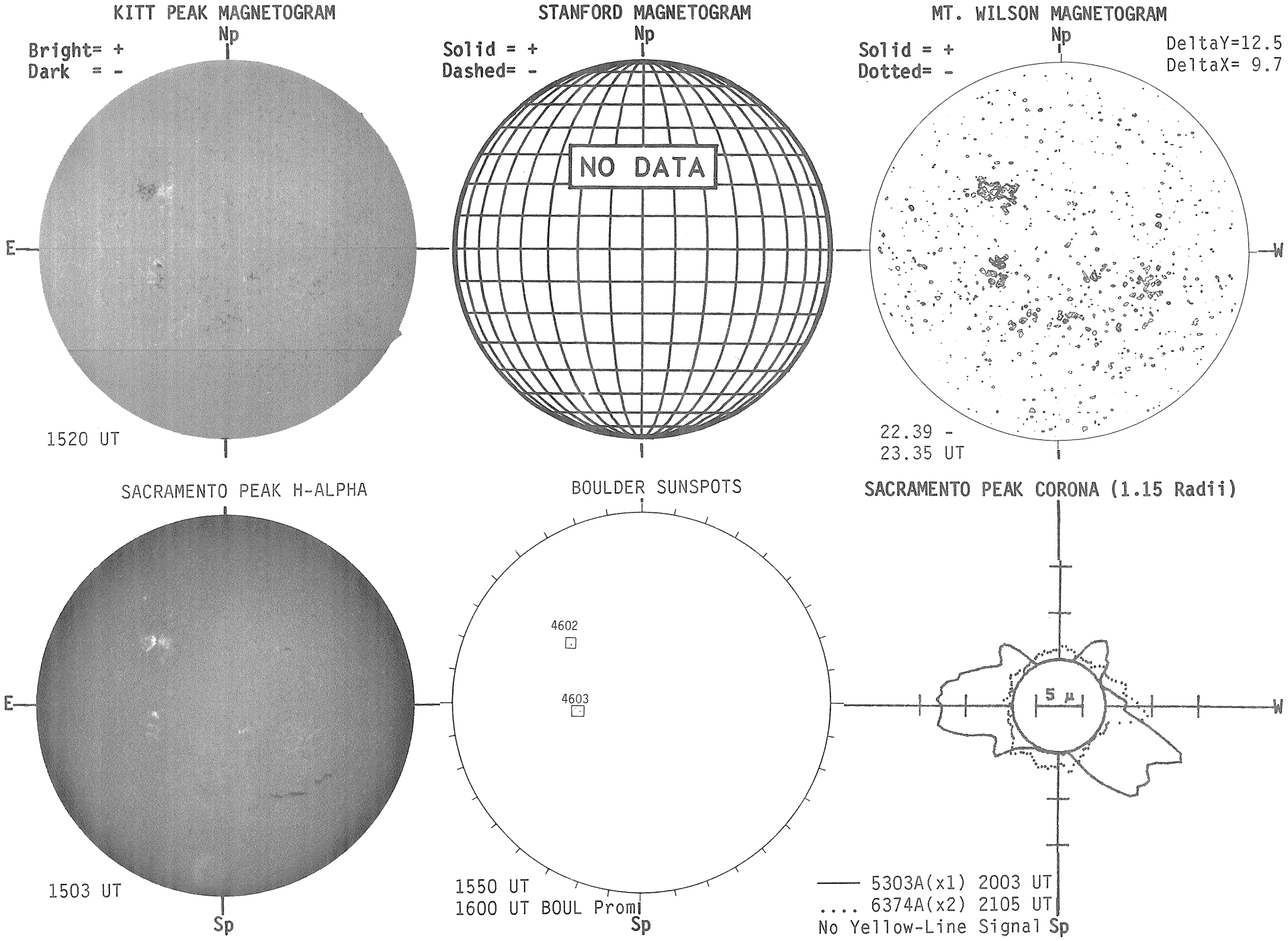
D E C E M B E R 04, 1 9 8 4 (P= 14.85, B_o= 0.45, L_o= 319.91)



D E C E M B E R 05, 1 9 8 4 (P= 14.44, B_0= 0.32, L_0= 306.74)



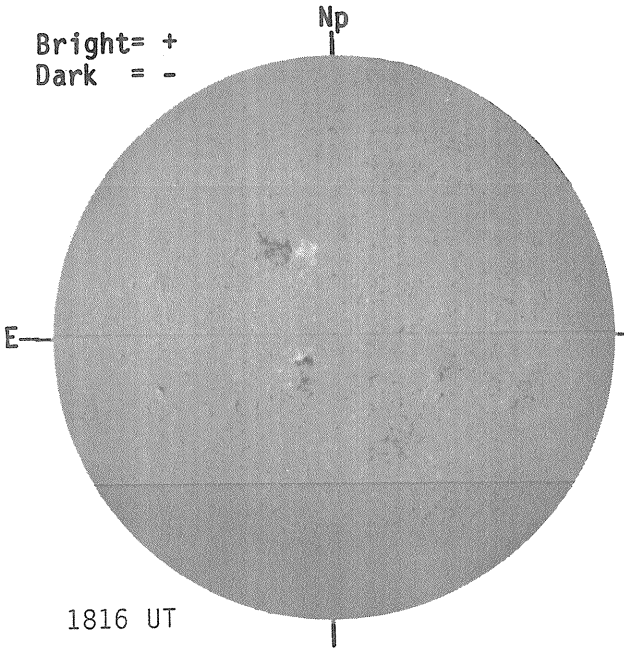
D E C E M B E R 06, 1 9 8 4 (P= 14.03, B_0= 0.19, L_0= 293.56)



D E C E M B E R 07, 1 9 8 4 (P= 13.61, B_0= 0.06, L_0= 280.38)

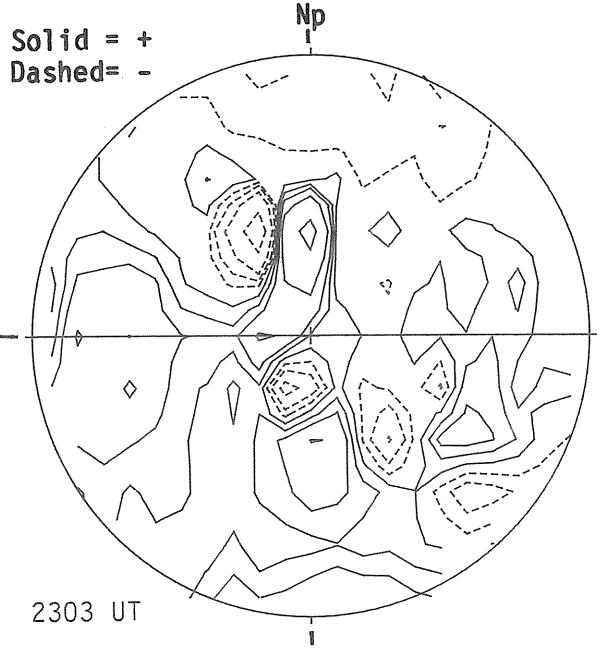
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



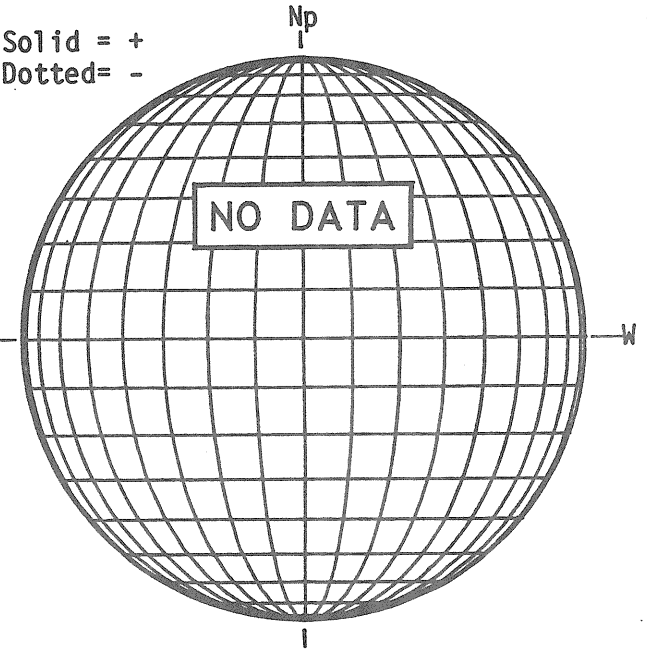
STANFORD MAGNETOGRAM

Solid = +
Dashed= -

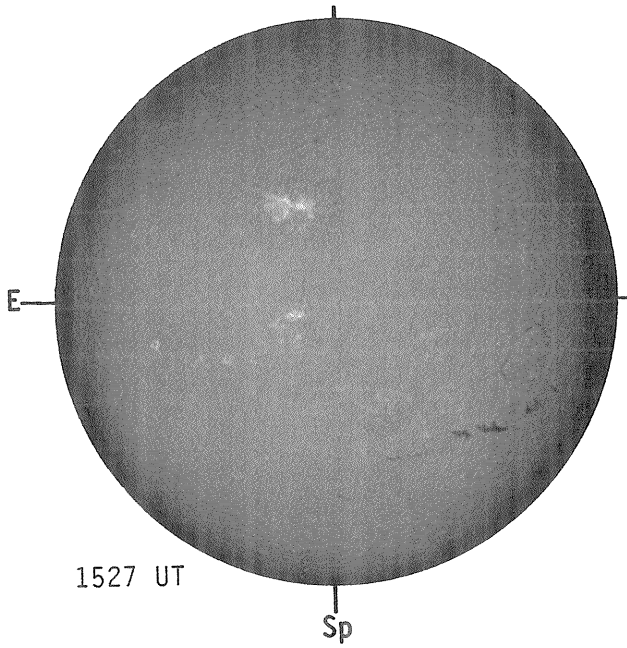


MT. WILSON MAGNETOGRAM

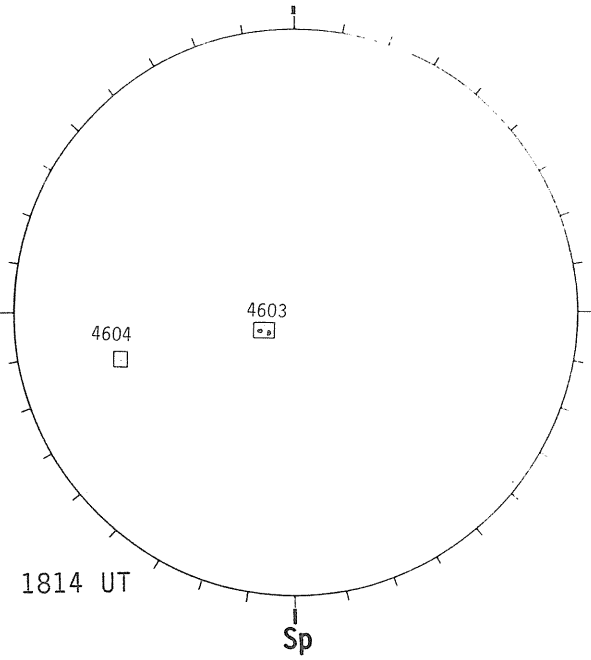
Solid = +
Dotted= -



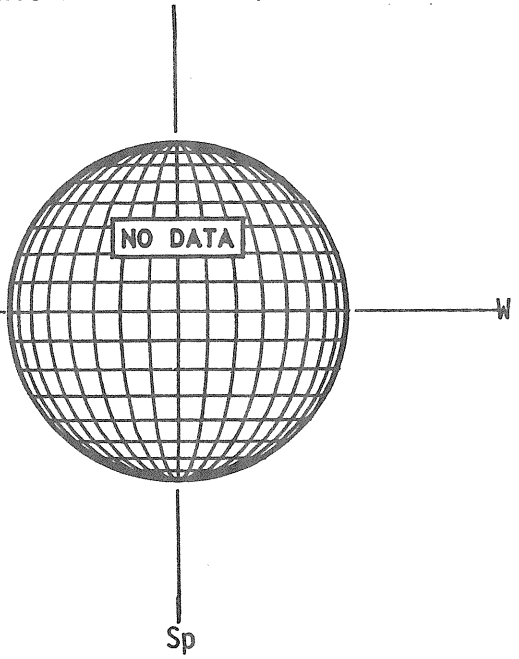
SACRAMENTO PEAK H-ALPHA



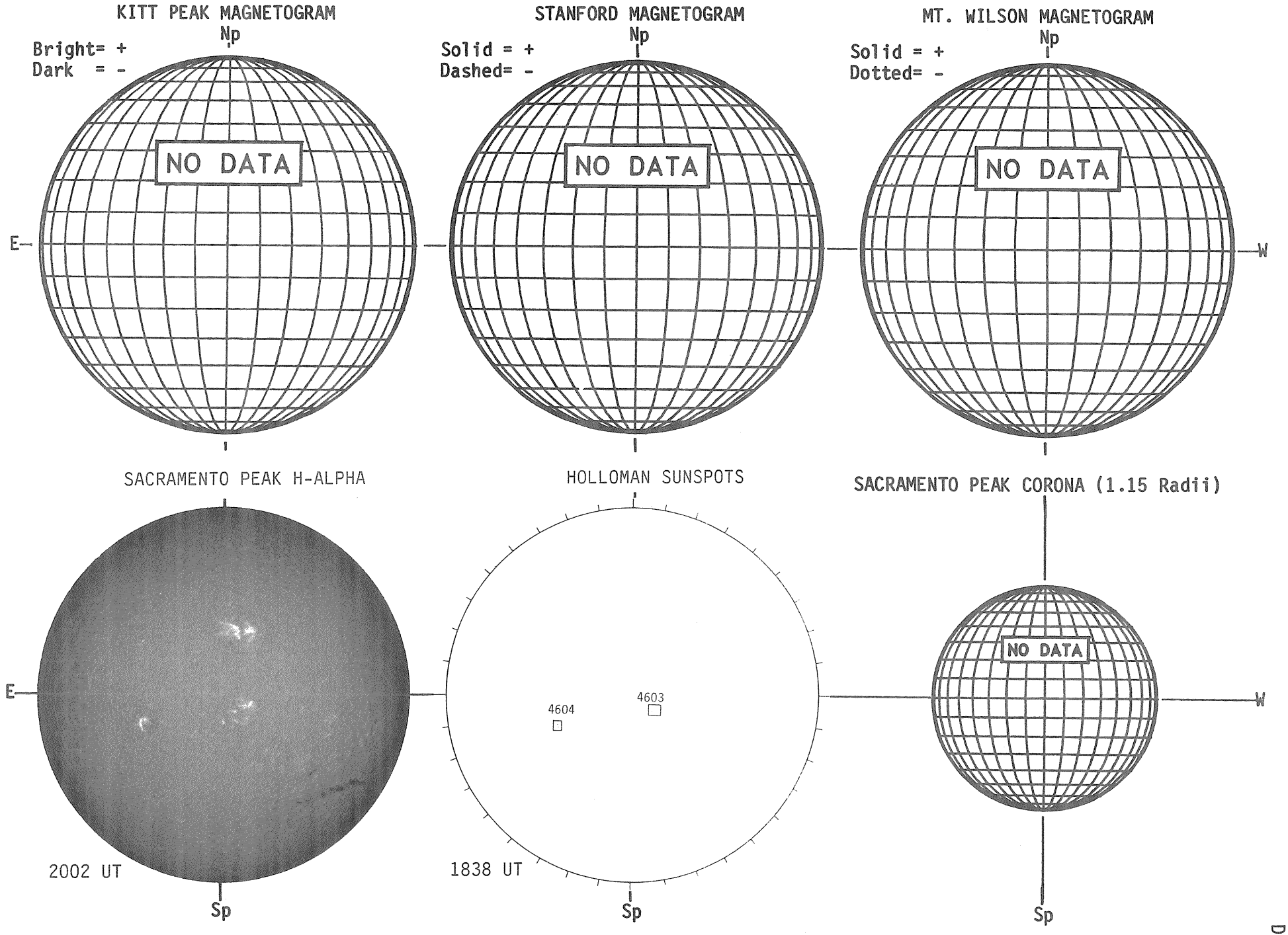
HOLLOMAN SUNSPOTS



SACRAMENTO PEAK CORONA (1.15 Radii)



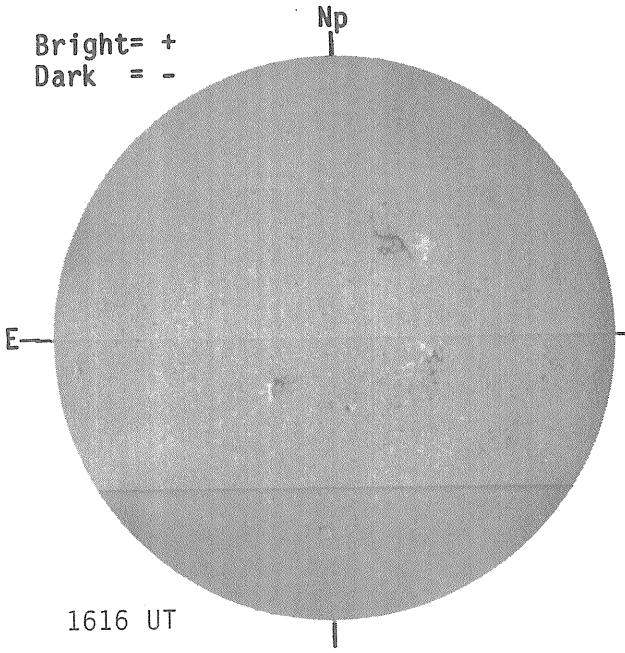
D E C E M B E R 08, 1 9 8 4 (P= 13.19, B_0=-0.07, L_0= 267.20)



D E C E M B E R 09, 1 9 8 4 (P= 12.76, B_0=-0.19, L_0= 254.03)

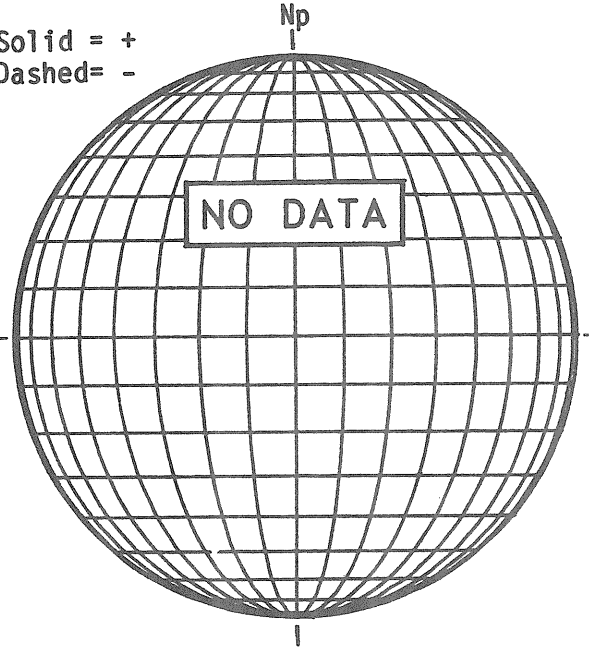
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



STANFORD MAGNETOGRAM

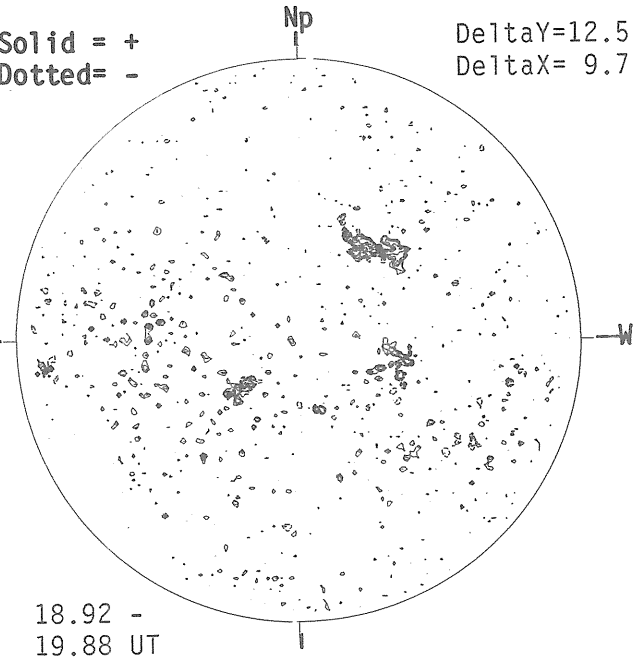
Solid = +
Dashed= -



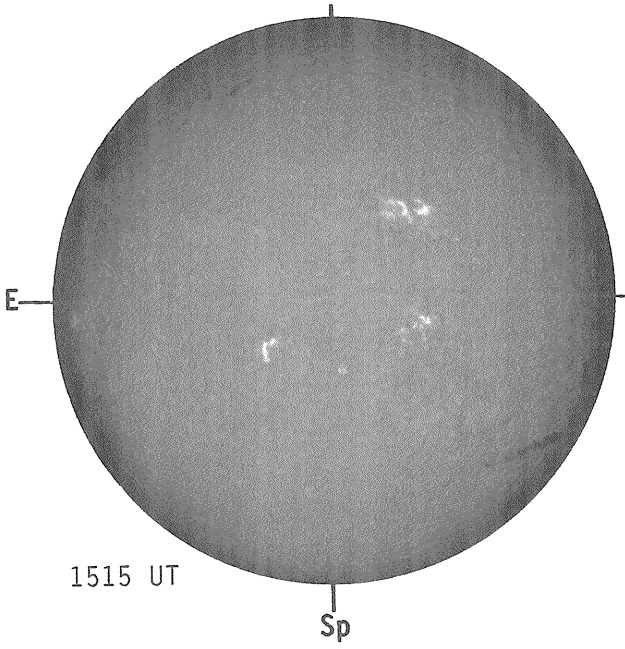
MT. WILSON MAGNETOGRAM

Solid = +
Dotted= -

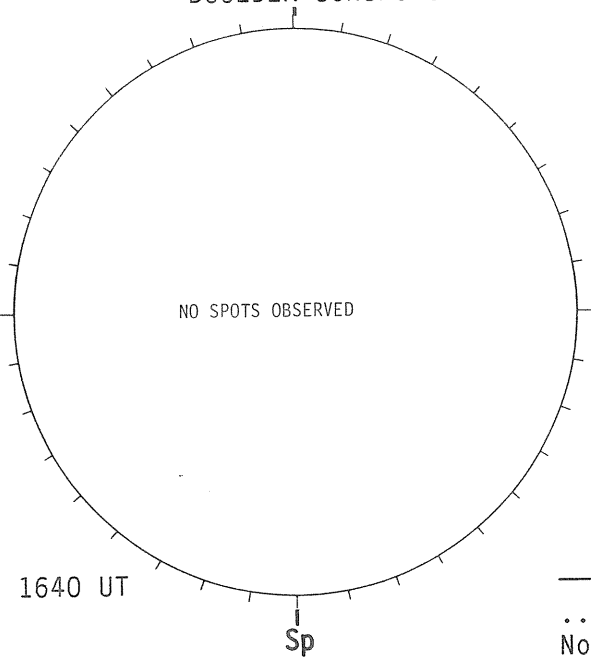
DeltaY=12.5
DeltaX= 9.7



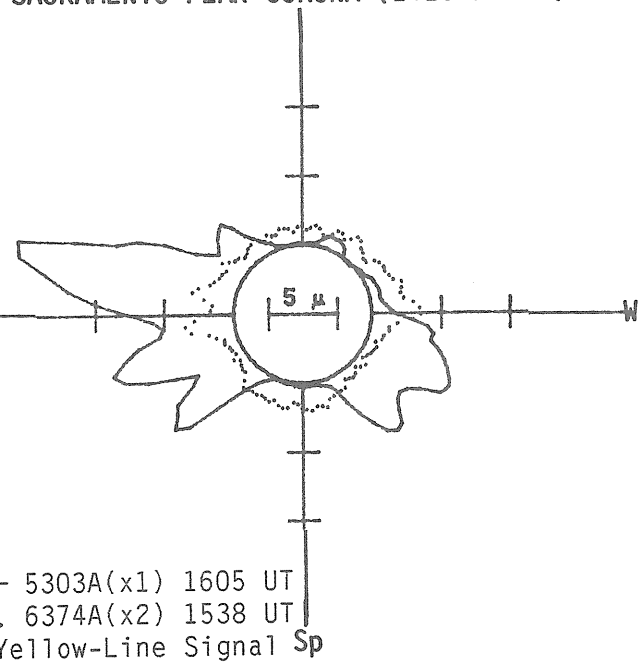
SACRAMENTO PEAK H-ALPHA



BOULDER SUNSPOTS



SACRAMENTO PEAK CORONA (1.15 Radii)

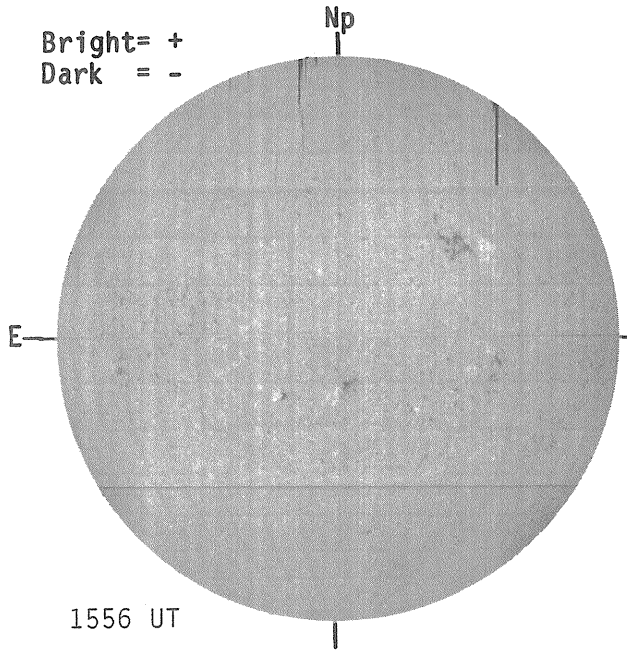


—— 5303A(x1) 1605 UT
.... 6374A(x2) 1538 UT
No Yellow-Line Signal

D E C E M B E R 10, 1 9 8 4 (P= 12.33, B_0=-0.32, L_0= 240.85)

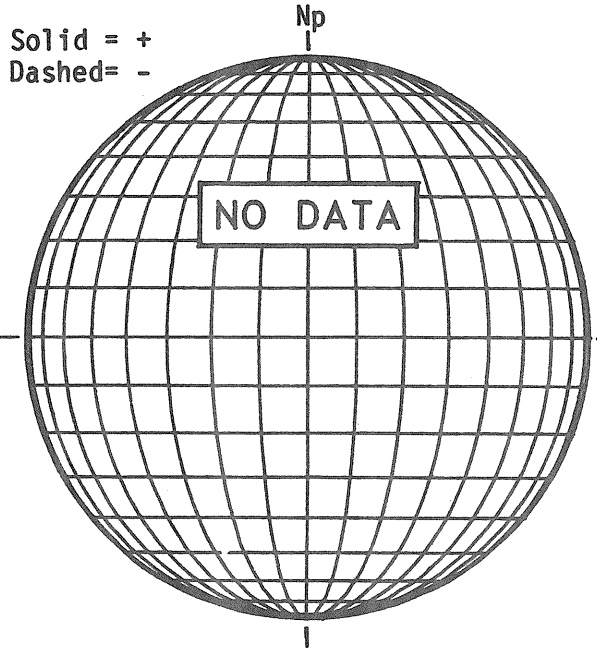
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



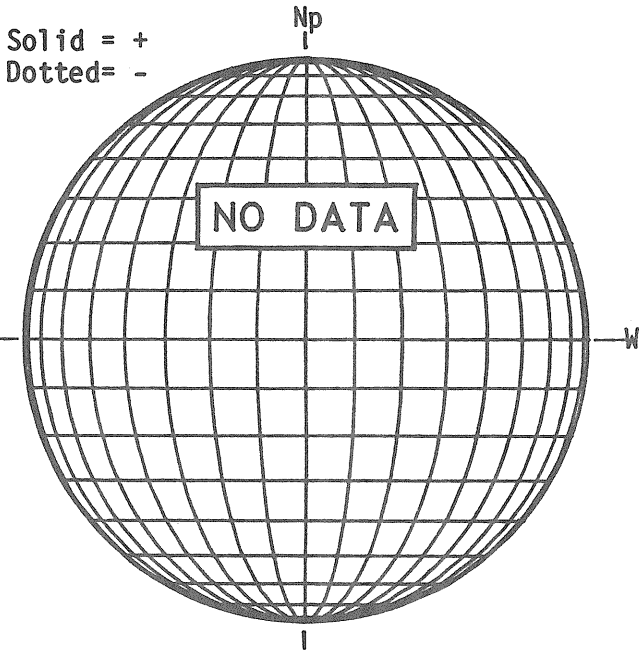
STANFORD MAGNETOGRAM

Solid = +
Dashed= -

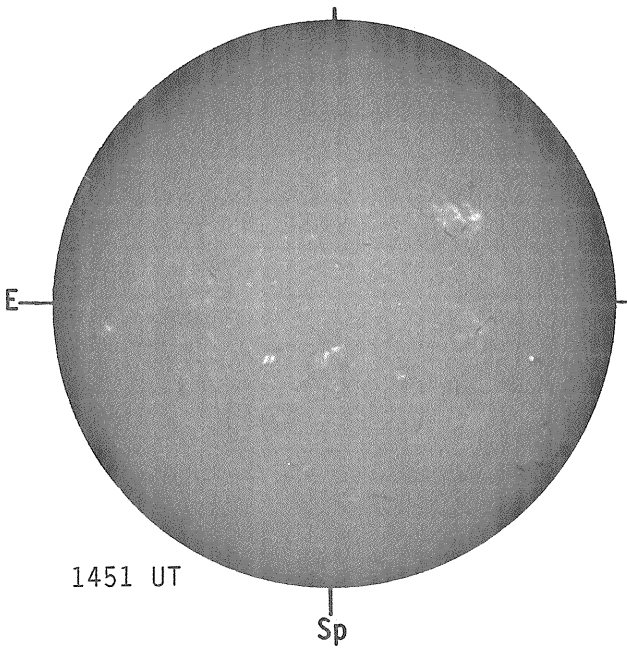


MT. WILSON MAGNETOGRAM

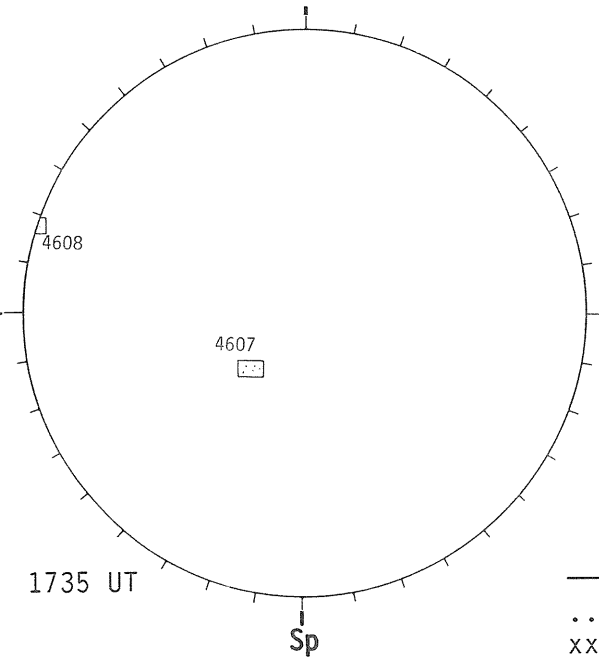
Solid = +
Dotted= -



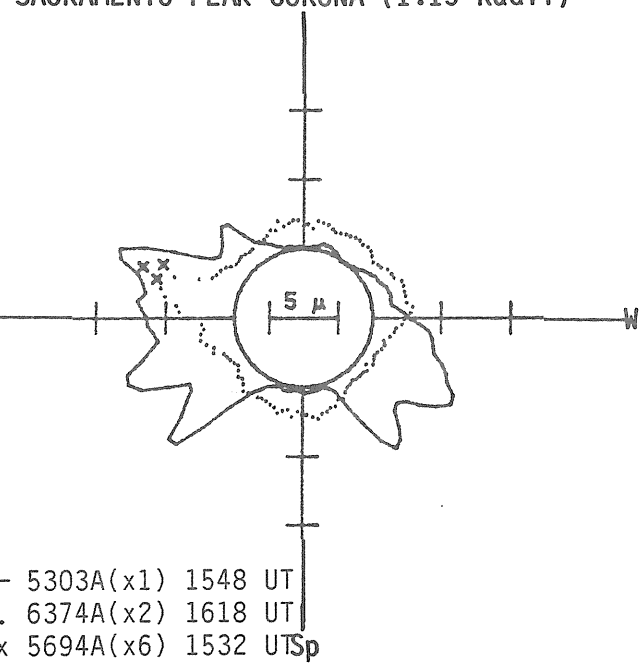
SACRAMENTO PEAK H-ALPHA



HOLLOMAN SUNSPOTS



SACRAMENTO PEAK CORONA (1.15 Radii)

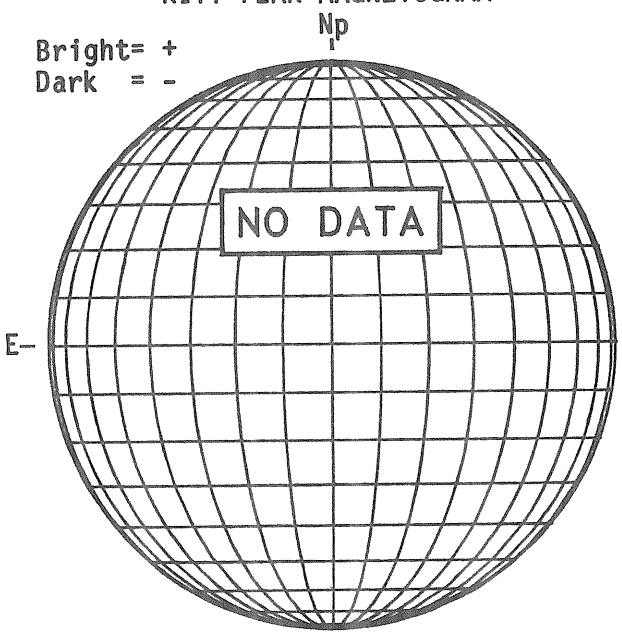


—— 5303A(x1) 1548 UT
.... 6374A(x2) 1618 UT
xxxx 5694A(x6) 1532 UT

D E C E M B E R 11, 1 9 8 4 (P= 11.90, B_0=-0.45, L_0= 227.67)

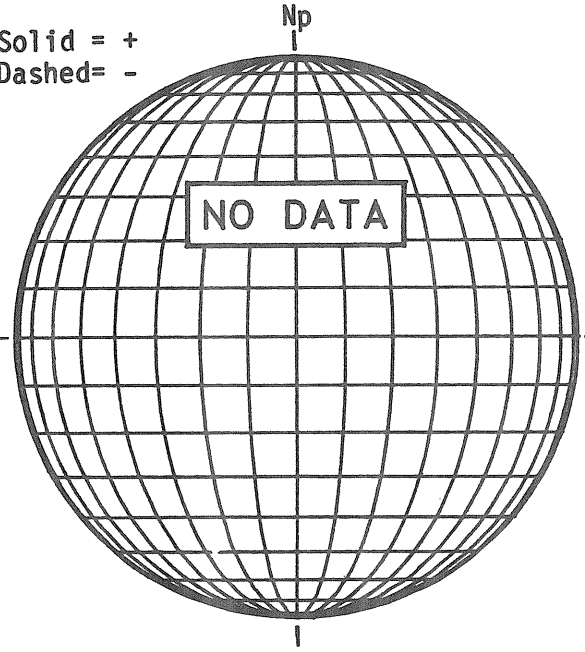
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



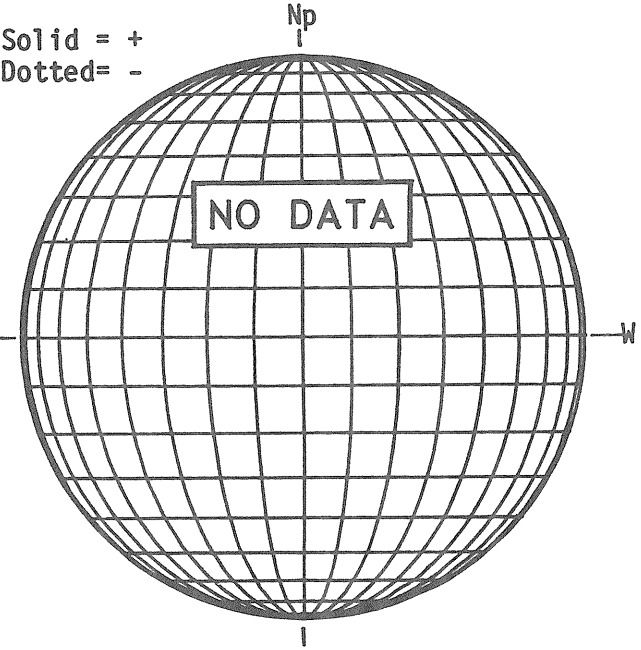
STANFORD MAGNETOGRAM

Solid = +
Dashed= -

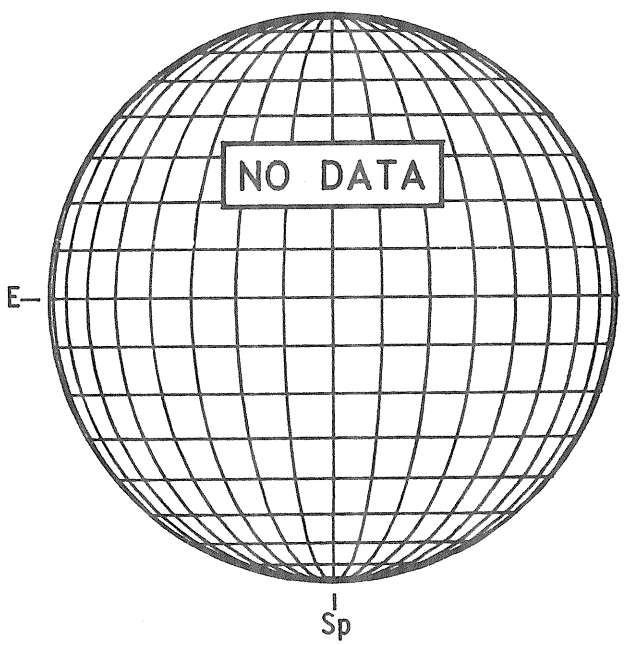


MT. WILSON MAGNETOGRAM

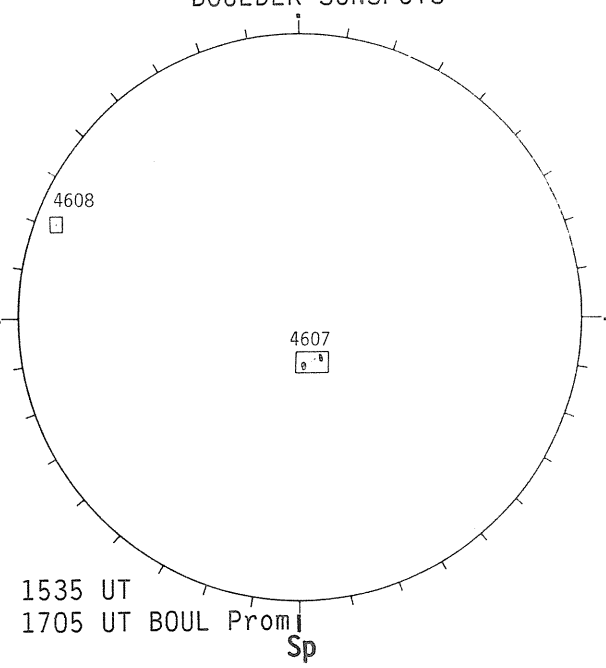
Solid = +
Dotted= -



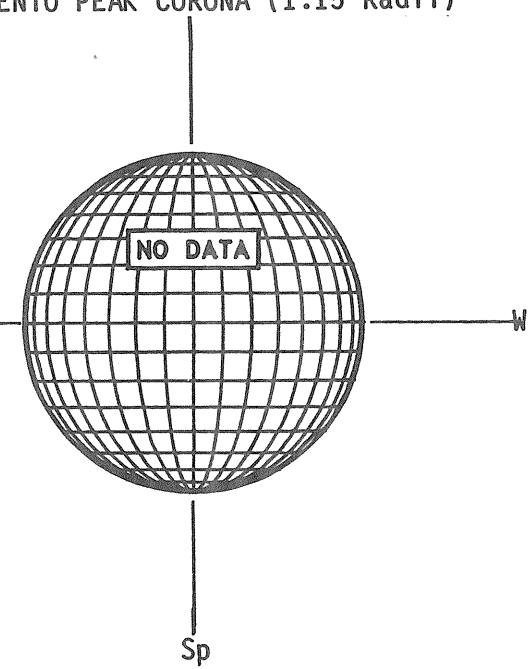
BOULDER H-ALPHA



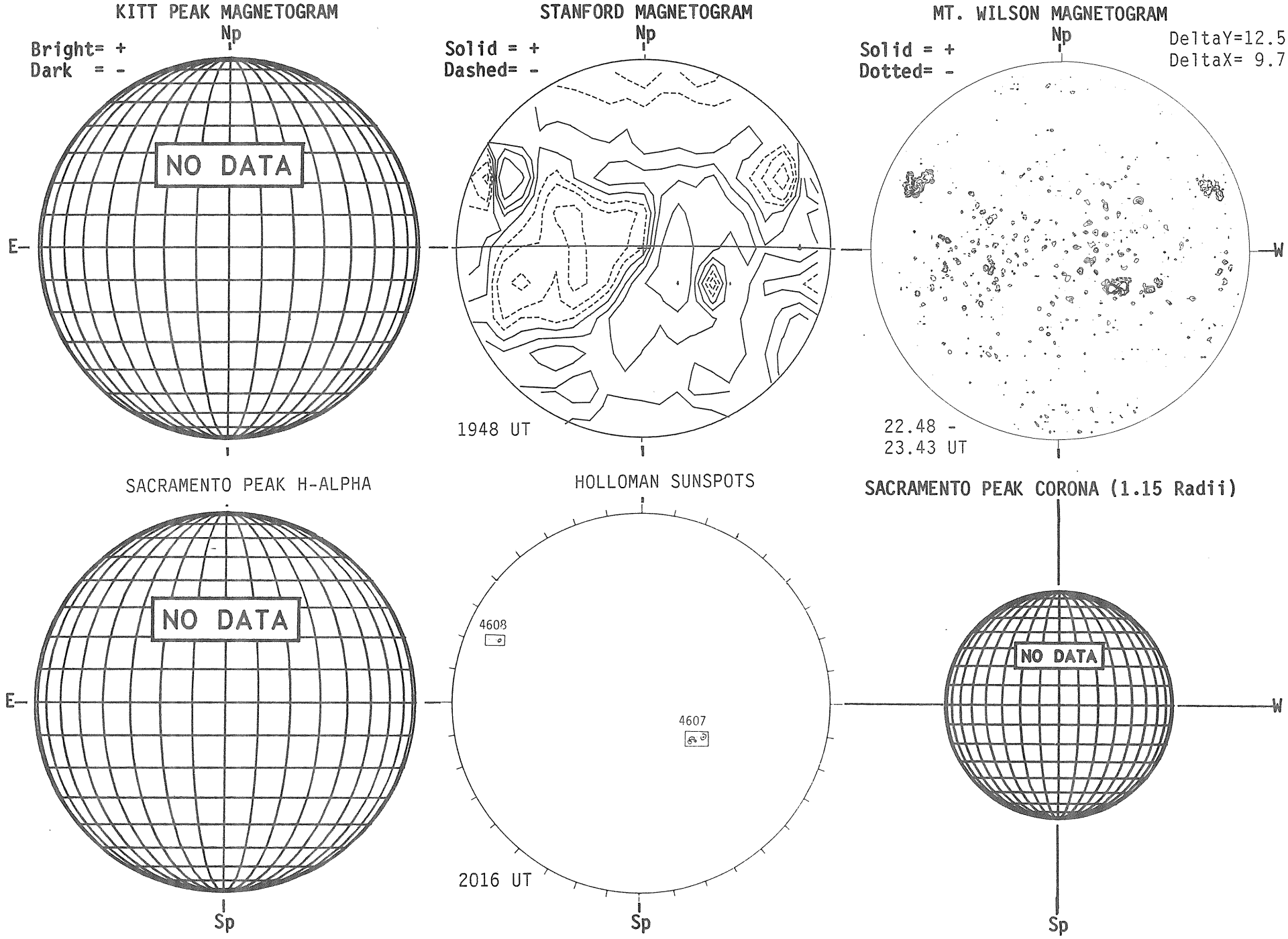
BOULDER SUNSPOTS



SACRAMENTO PEAK CORONA (1.15 Radii)



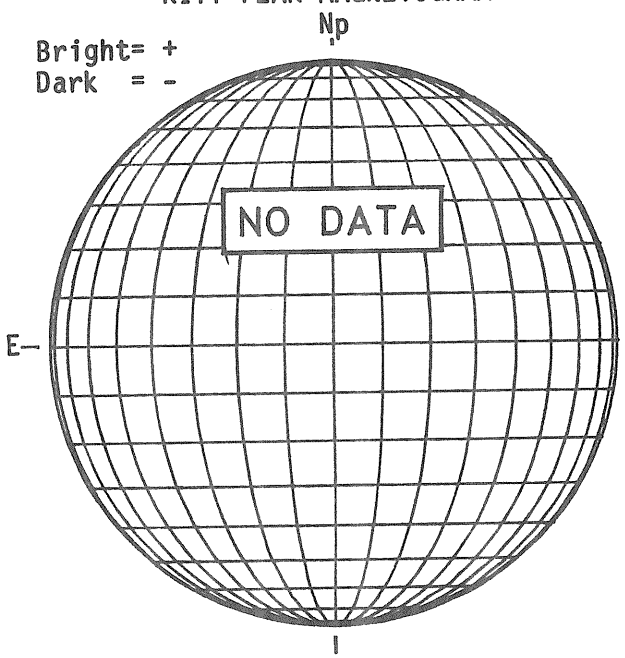
D E C E M B E R 12, 1 9 8 4 (P= 11.46, B_0=-0.58, L_0= 214.50)



D E C E M B E R 13, 1 9 8 4 (P= 11.01, B_0=-0.70, L_0= 201.32)

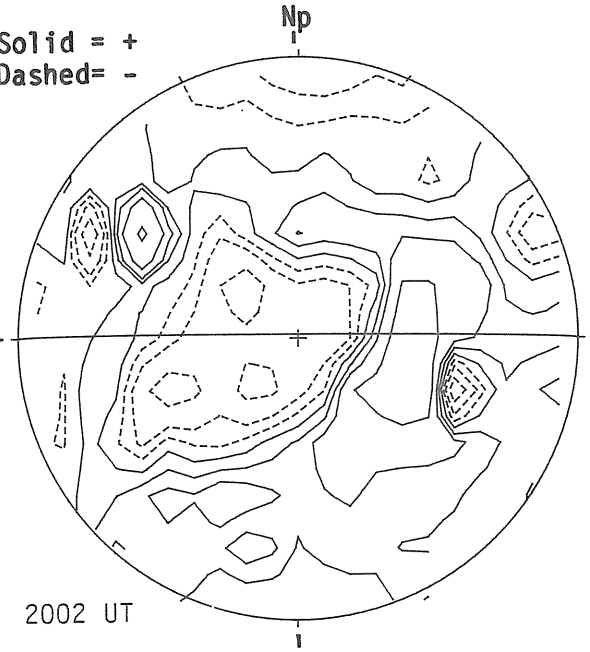
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



STANFORD MAGNETOGRAM

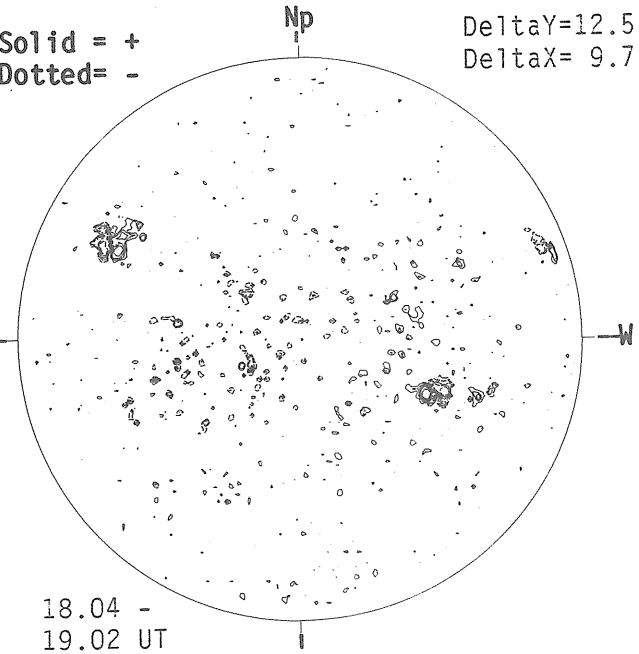
Solid = +
Dashed= -



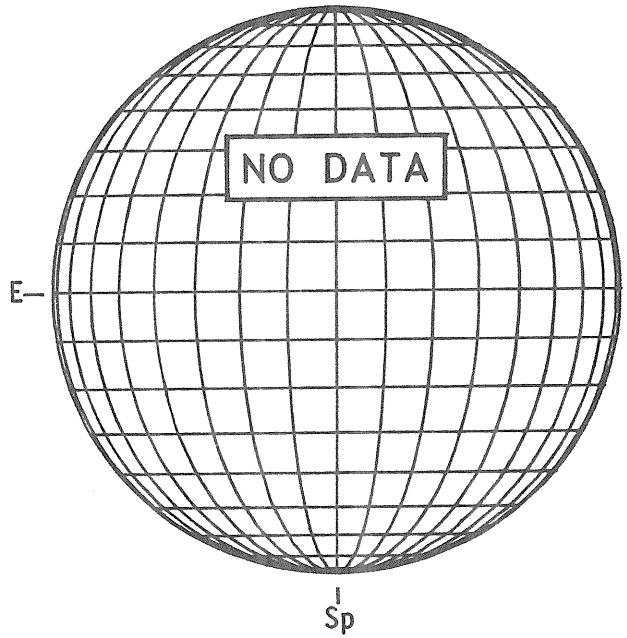
MT. WILSON MAGNETOGRAM

Solid = +
Dotted= -

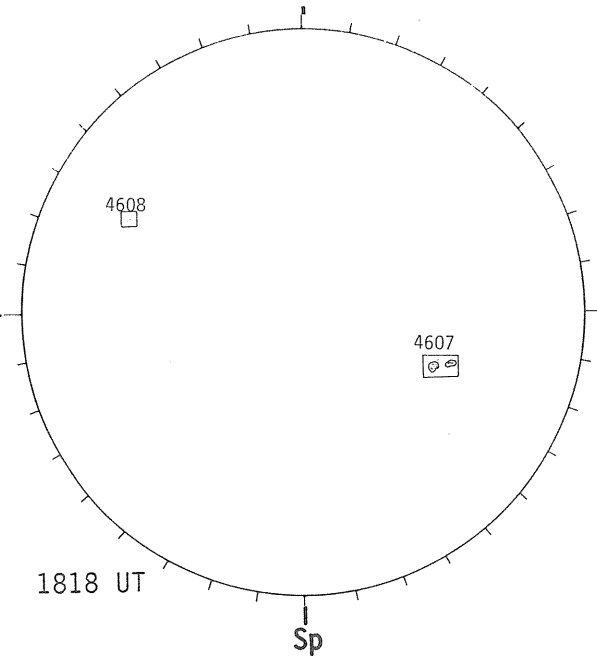
DeltaY=12.5
DeltaX= 9.7



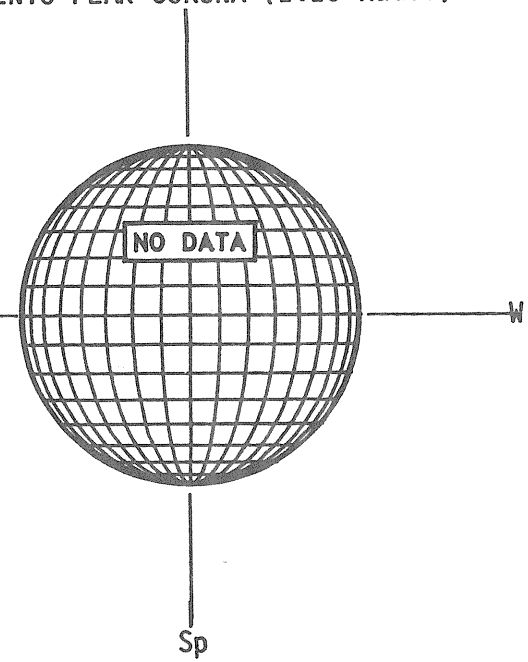
SACRAMENTO PEAK H-ALPHA



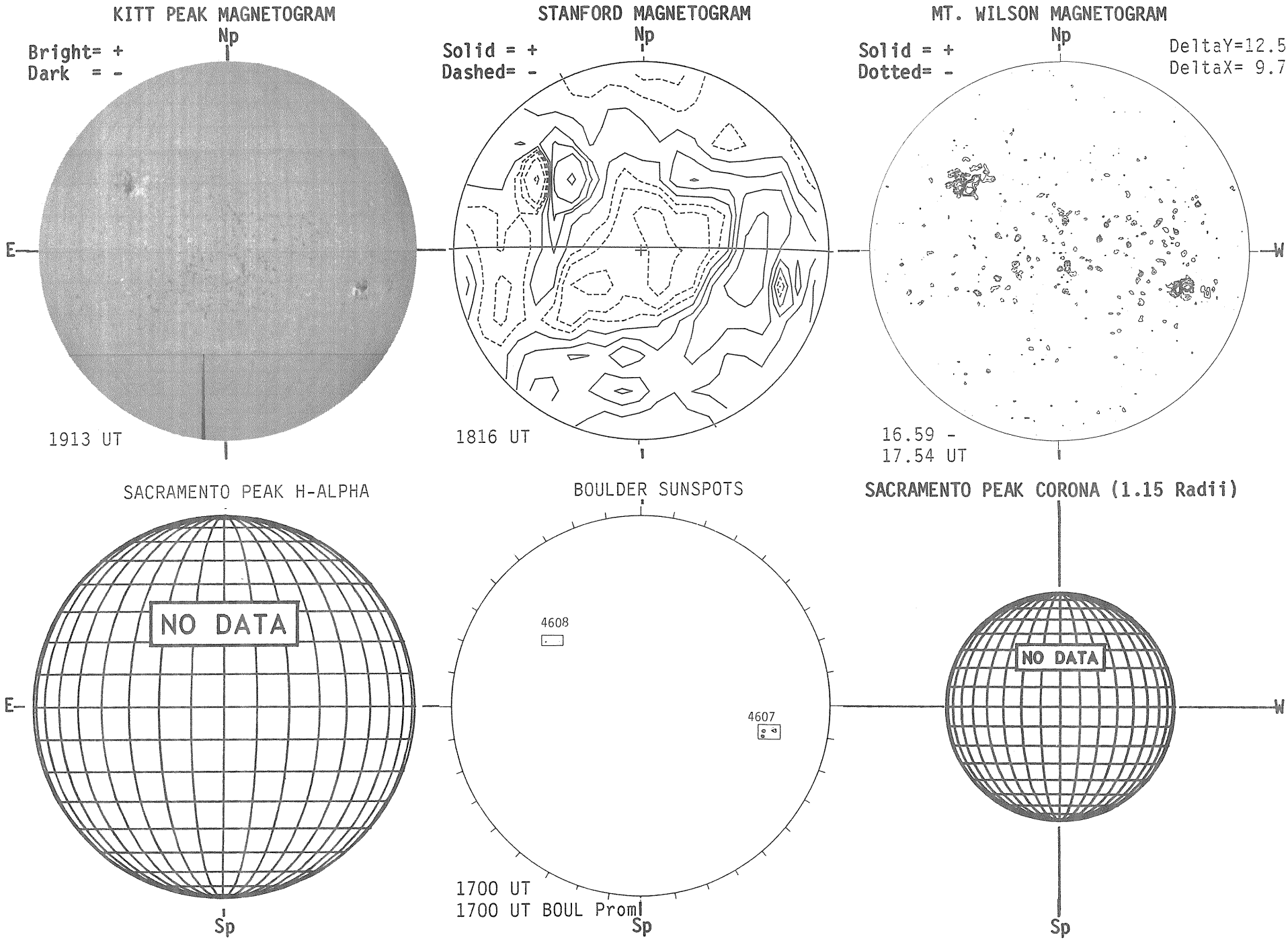
HOLLOMAN SUNSPOTS



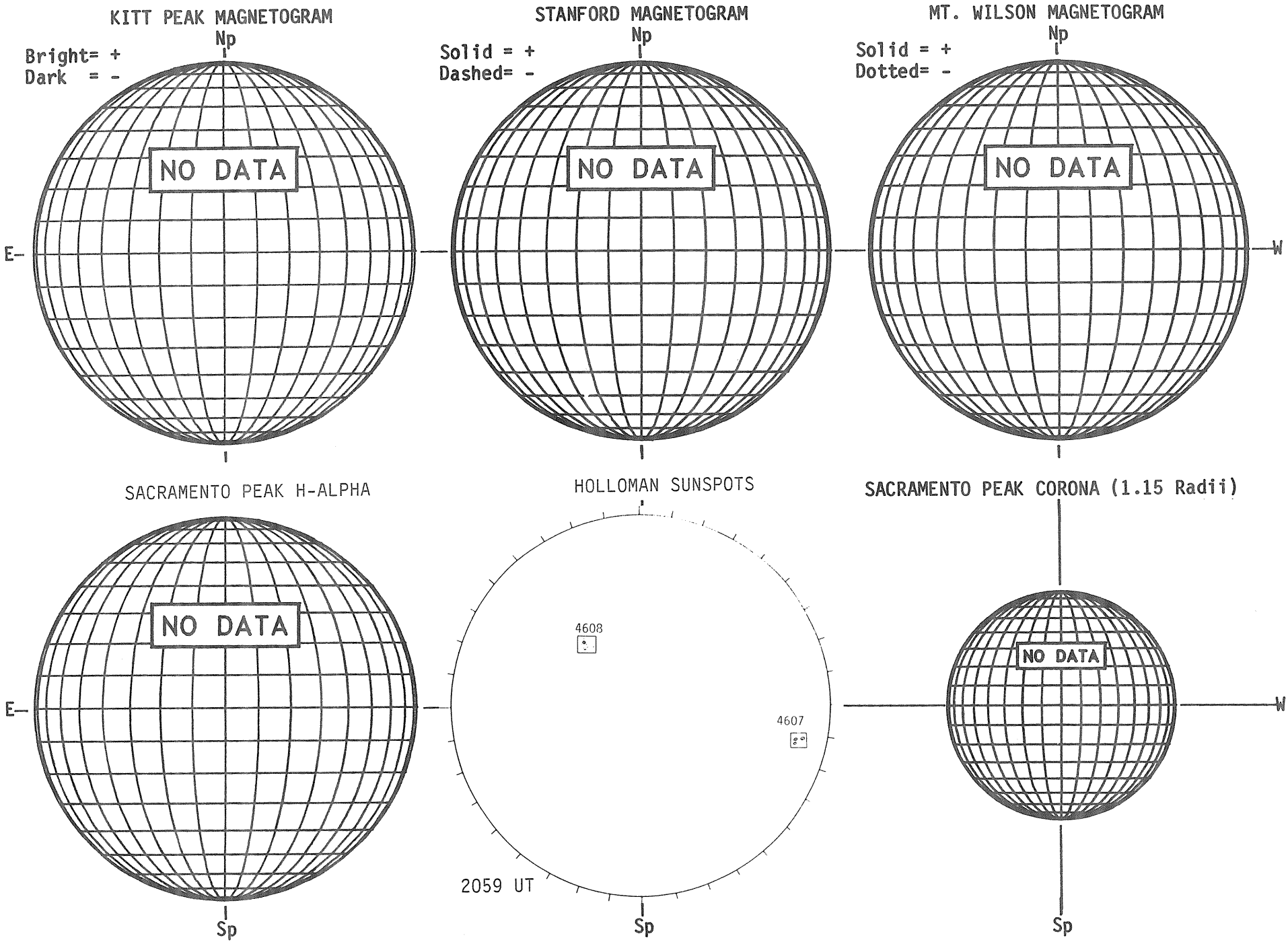
SACRAMENTO PEAK CORONA (1.15 Radii)



D E C E M B E R 14, 1 9 8 4 (P= 10.56, B_0=-0.83, L_0= 188.15)



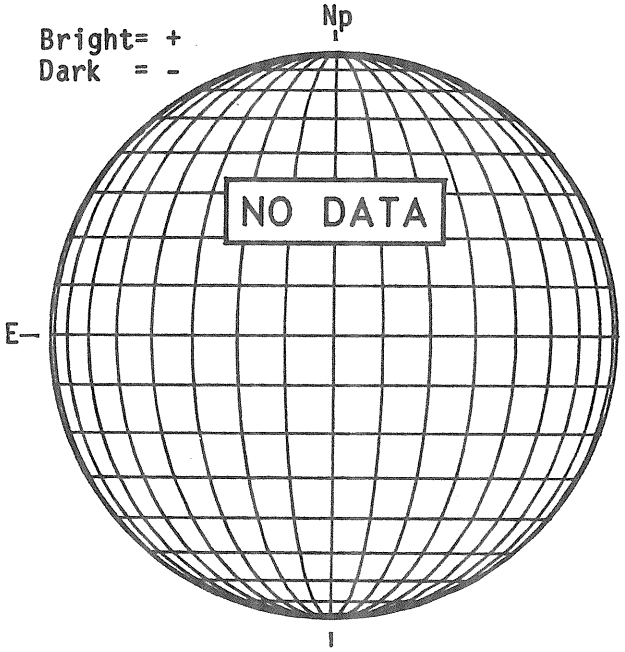
D E C E M B E R 15, 1 9 8 4 (P= 10.11, B_0=-0.96, L_0= 174.97)



D E C E M B E R 16, 1 9 8 4 (P= 9.66, B_0=-1.09, L_c= 161.80)

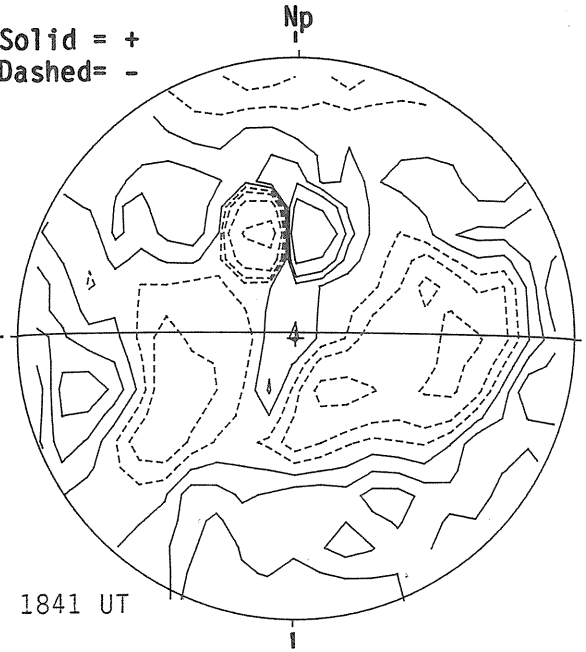
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



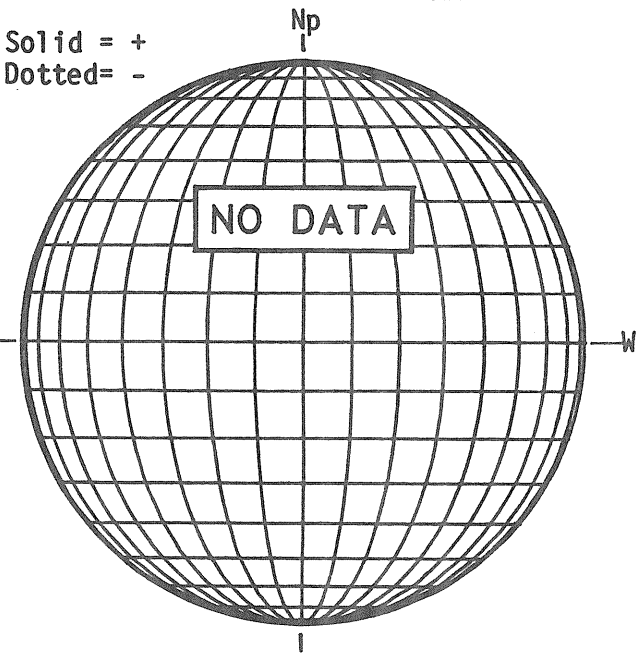
STANFORD MAGNETOGRAM

Solid = +
Dashed= -

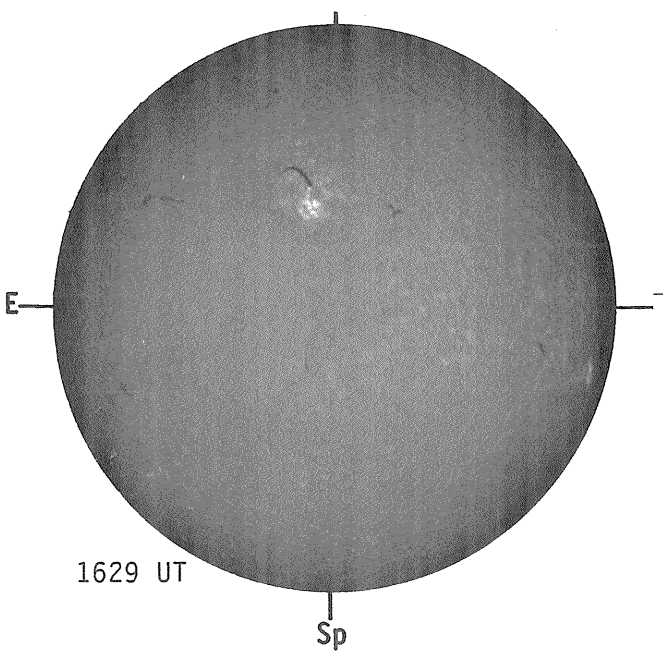


MT. WILSON MAGNETOGRAM

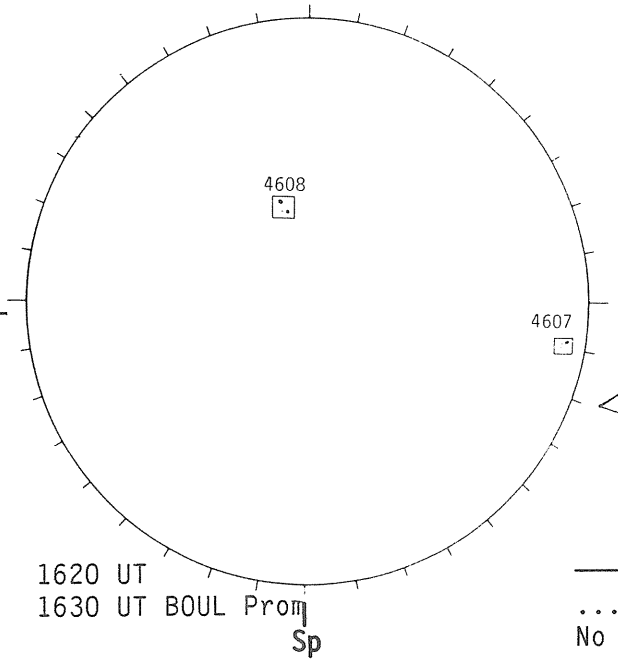
Solid = +
Dotted= -



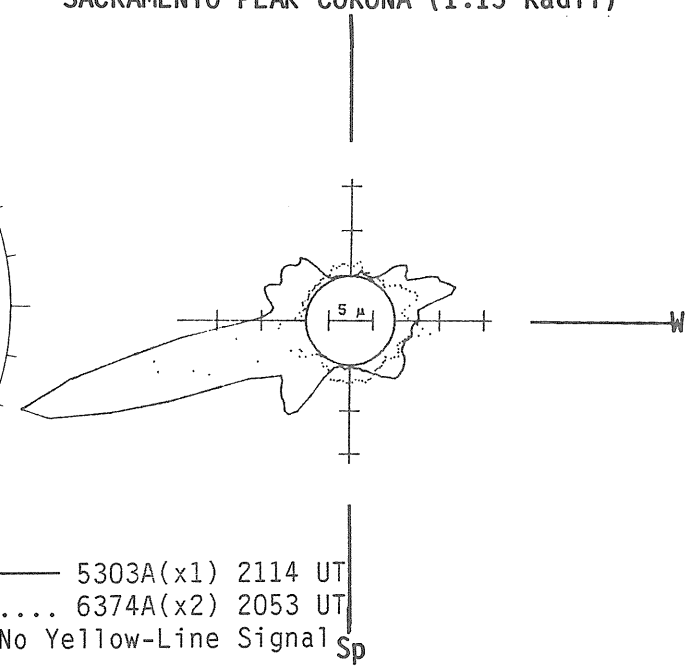
SACRAMENTO PEAK H-ALPHA



BOULDER SUNSPOTS



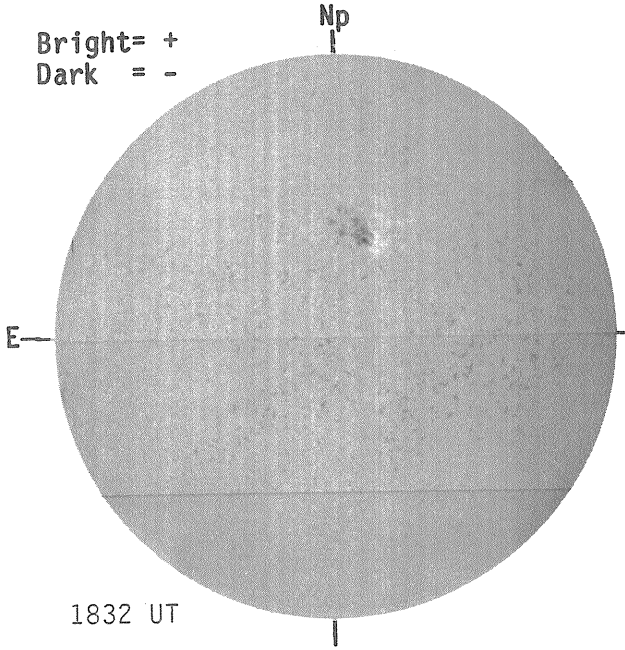
SACRAMENTO PEAK CORONA (1.15 Radii)



D E C E M B E R 17, 1 9 8 4 (P= 9.20, B_0=-1.21, L_0= 148.62)

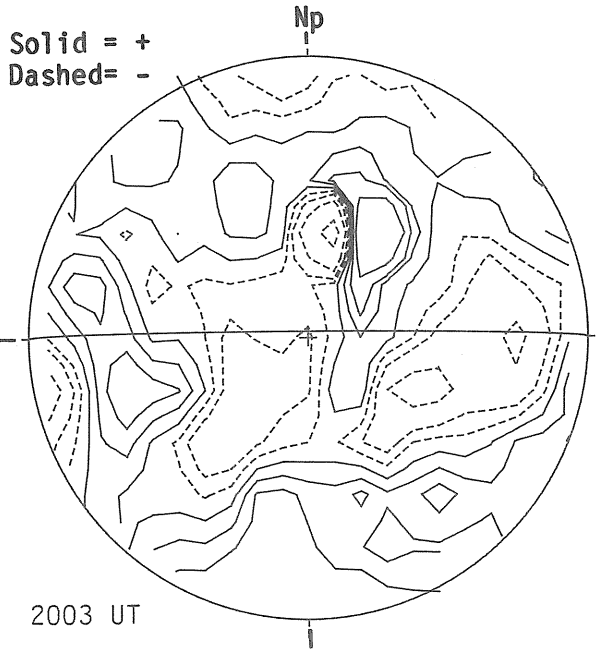
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



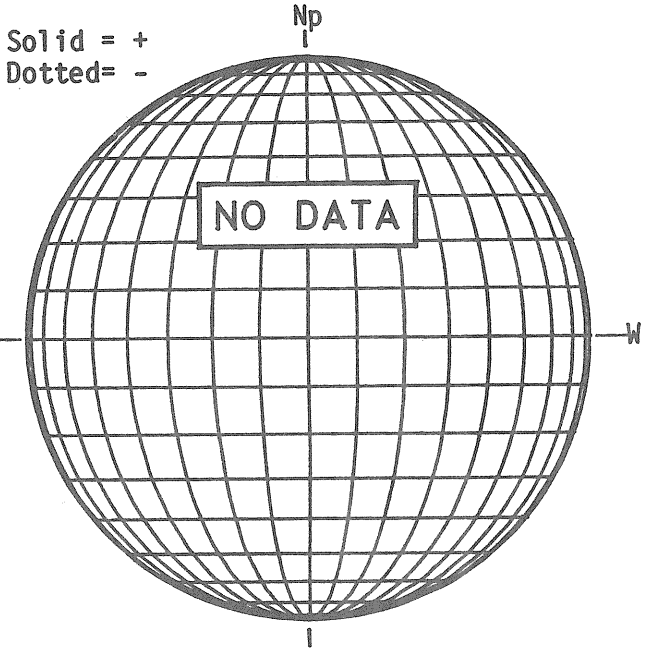
STANFORD MAGNETOGRAM

Solid = +
Dashed= -

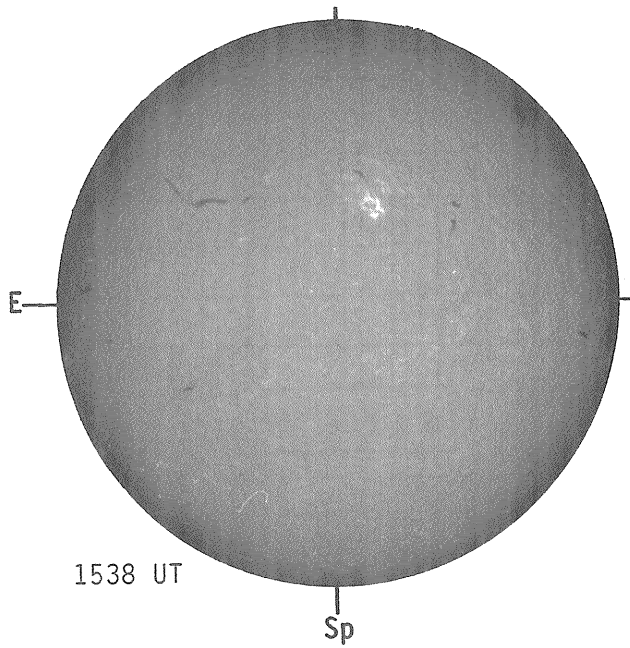


MT. WILSON MAGNETOGRAM

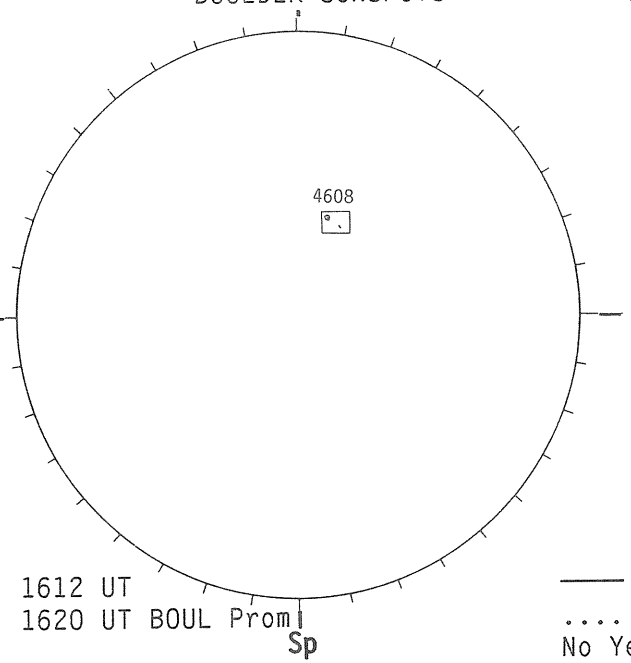
Solid = +
Dotted= -



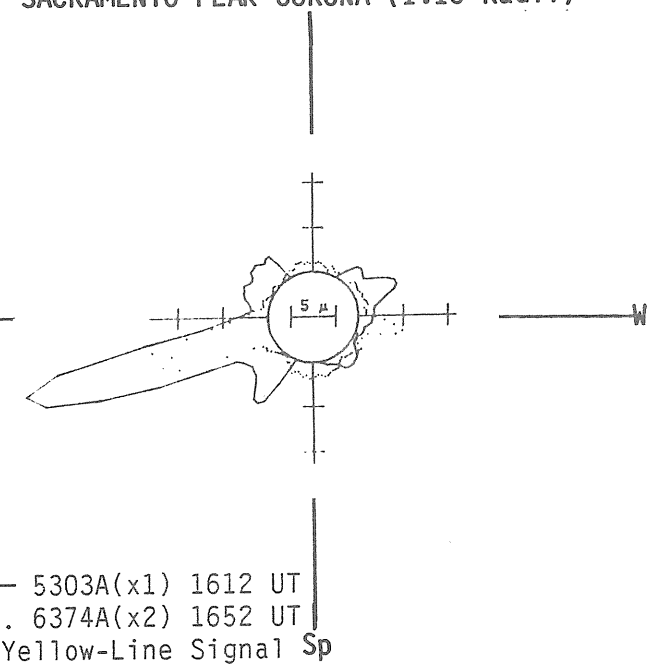
SACRAMENTO PEAK H-ALPHA



BOULDER SUNSPOTS

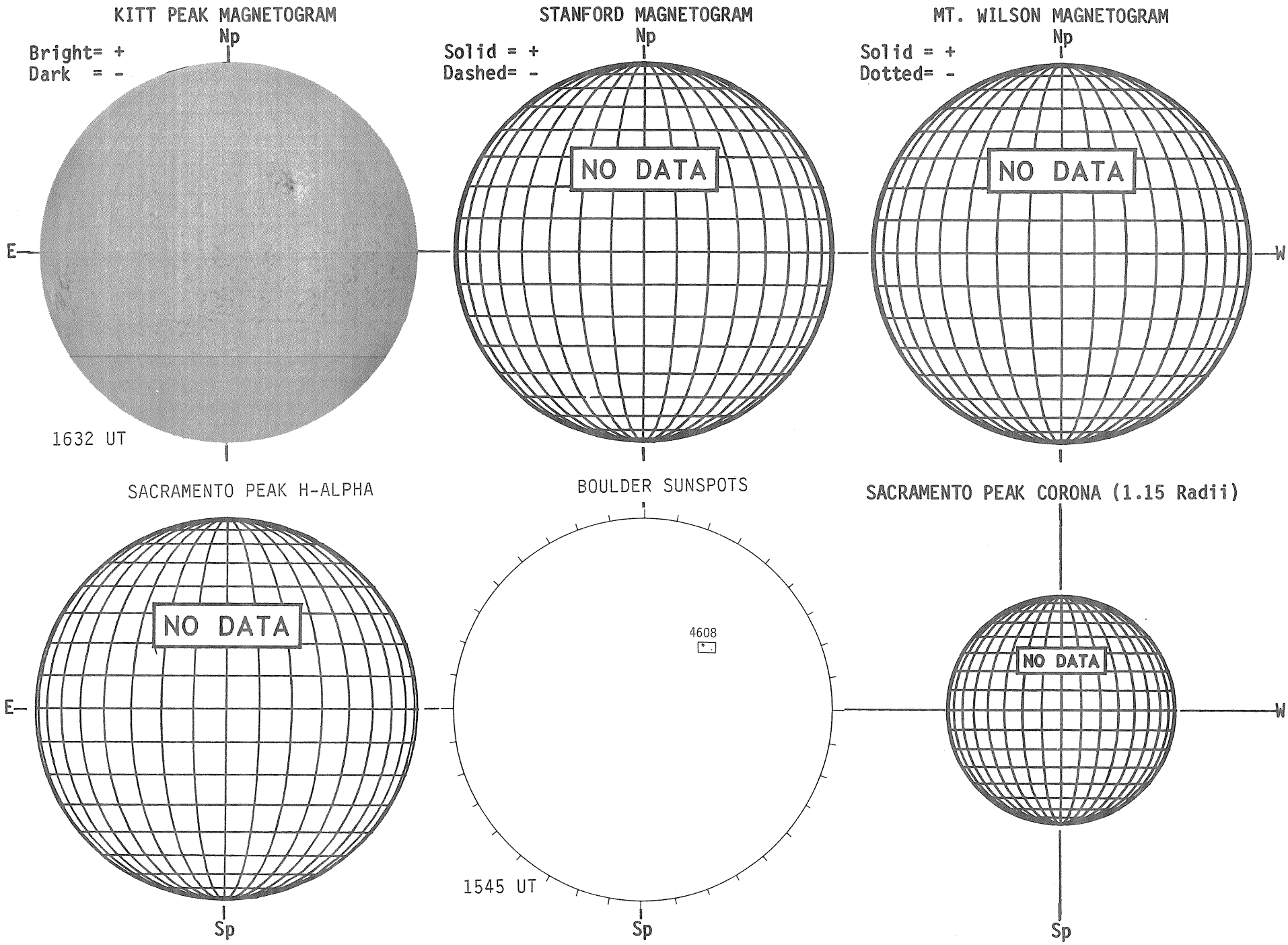


SACRAMENTO PEAK CORONA (1.15 Radii)

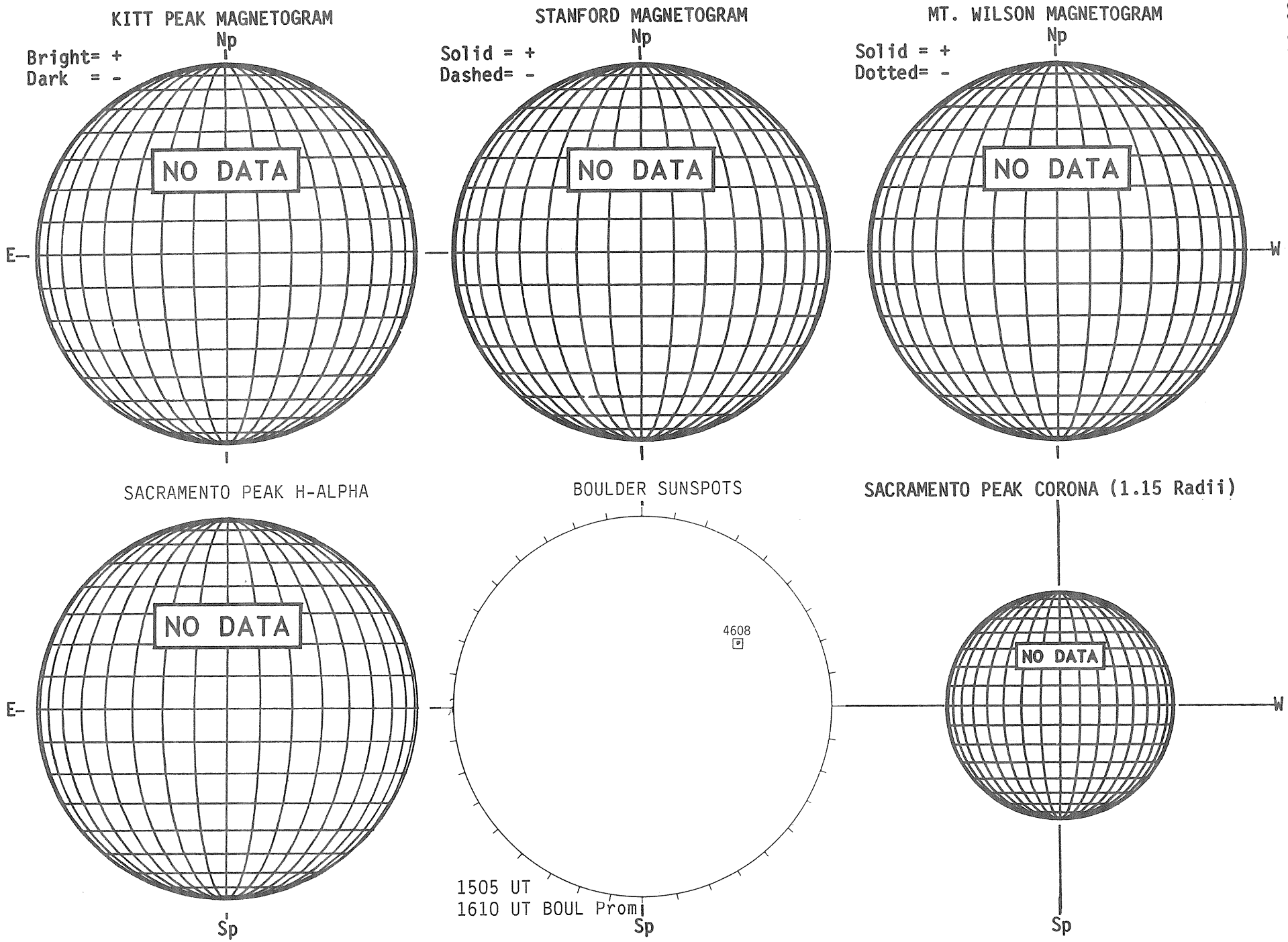


—— 5303A(x1) 1612 UT
.... 6374A(x2) 1652 UT
No Yellow-Line Signal

D E C E M B E R 18, 1 9 8 4 (P= 8.74, B_0=-1.34, L_0= 135.45)



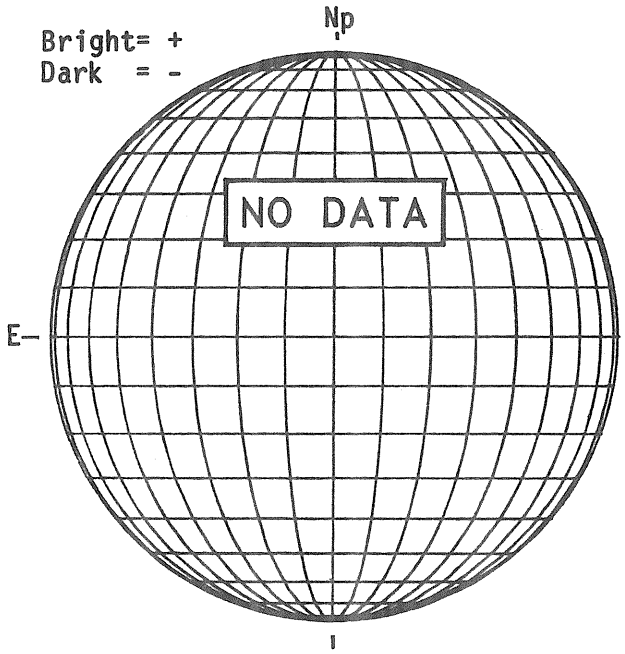
D E C E M B E R 19, 1 9 8 4 (P= 8.27, B_0=-1.46, L_0= 122.28)



D E C E M B E R 20, 1 9 8 4 (P= 7.80, B_0=-1.59, L_0= 109.10)

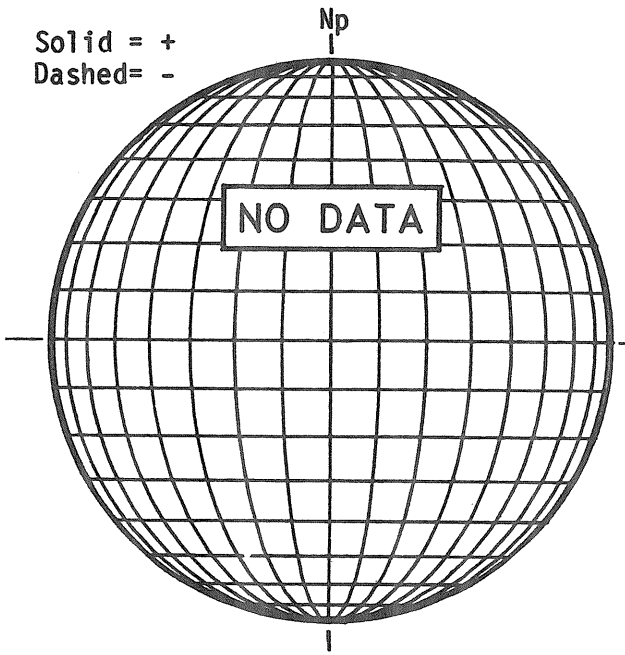
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



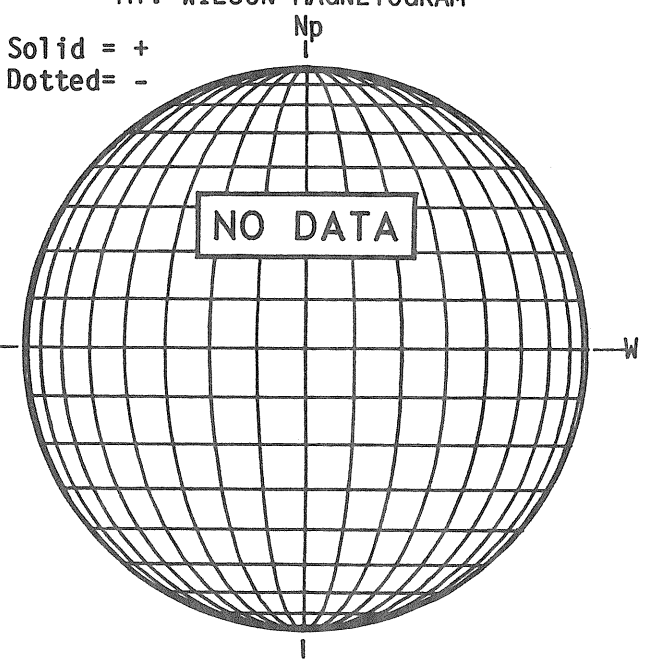
STANFORD MAGNETOGRAM

Solid = +
Dashed= -

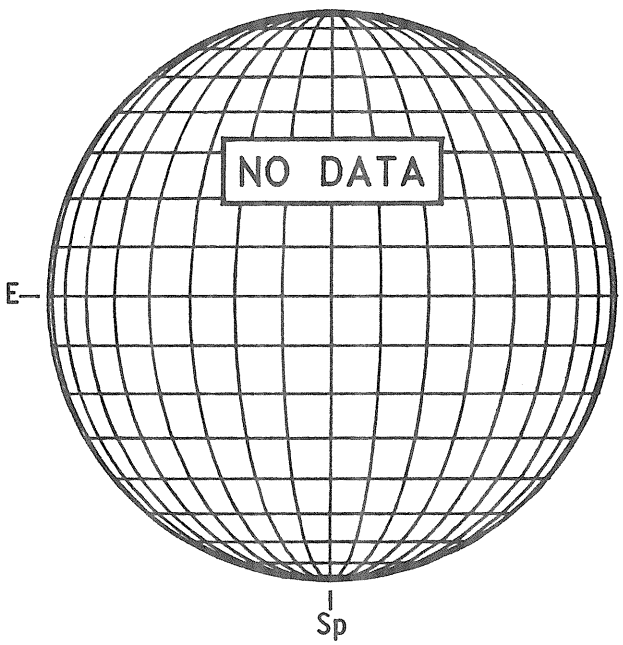


MT. WILSON MAGNETOGRAM

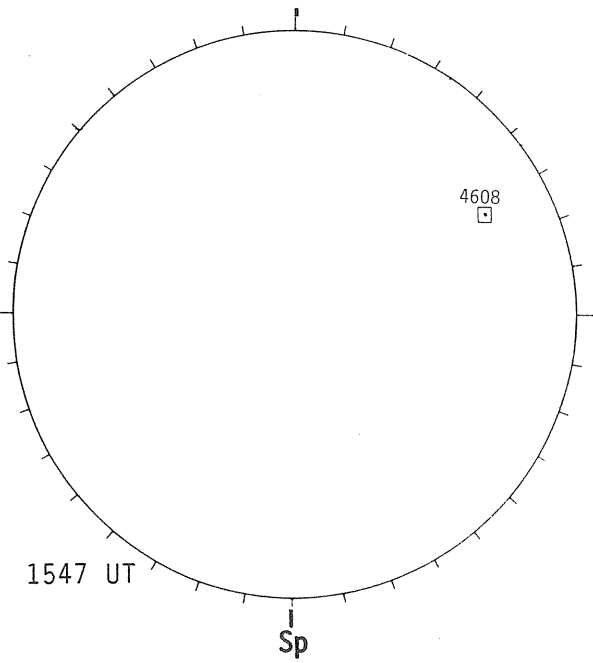
Solid = +
Dotted= -



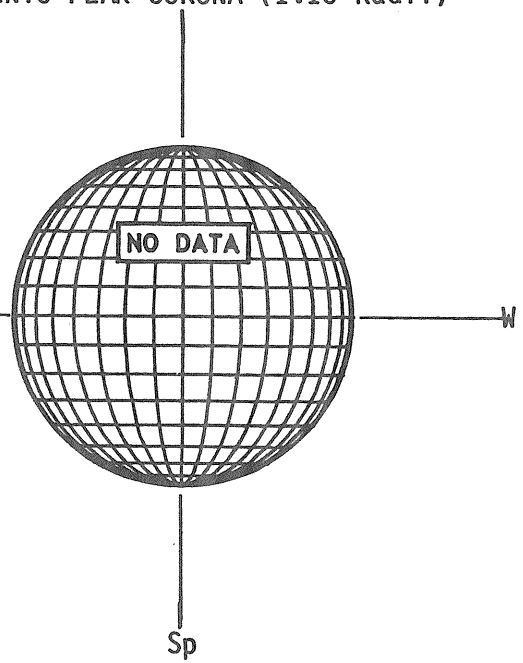
SACRAMENTO PEAK H-ALPHA



BOULDER SUNSPOTS



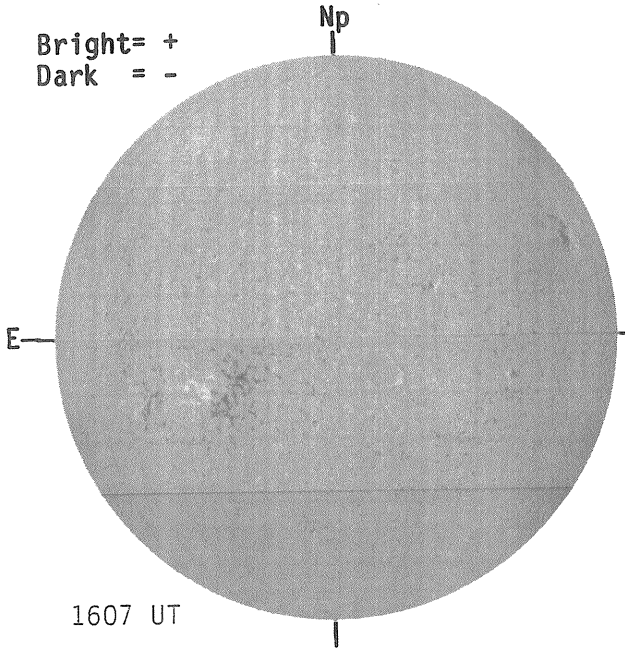
SACRAMENTO PEAK CORONA (1.15 Radii)



D E C E M B E R 21, 1 9 8 4 (P= 7.33, B_0=-1.71, L_0= 95.93)

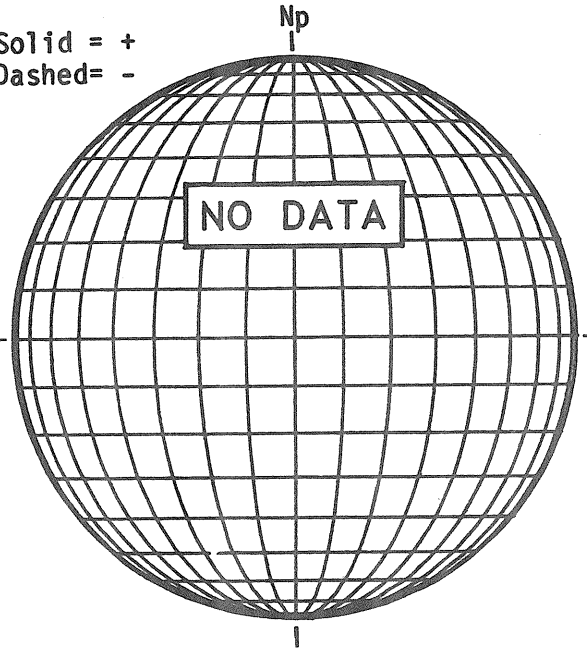
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



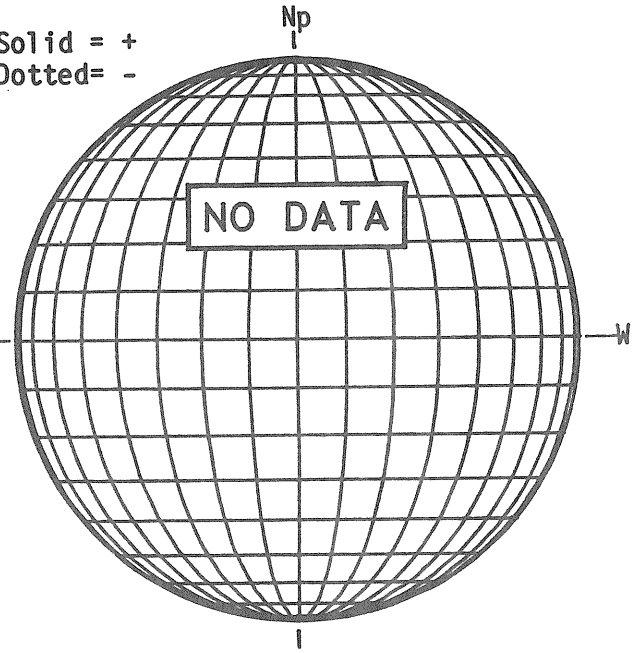
STANFORD MAGNETOGRAM

Solid = +
Dashed= -

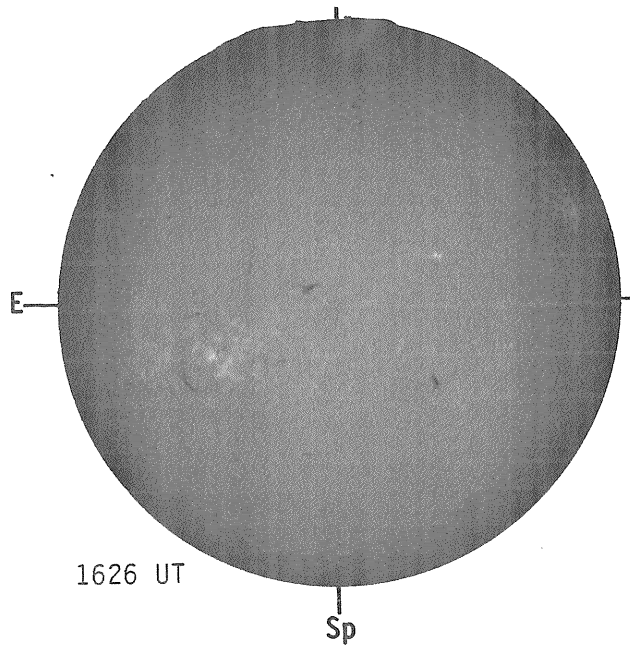


MT. WILSON MAGNETOGRAM

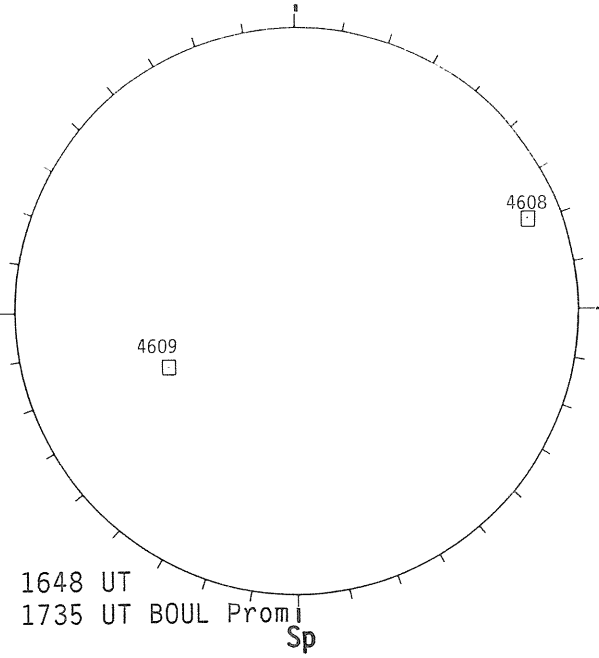
Solid = +
Dotted= -



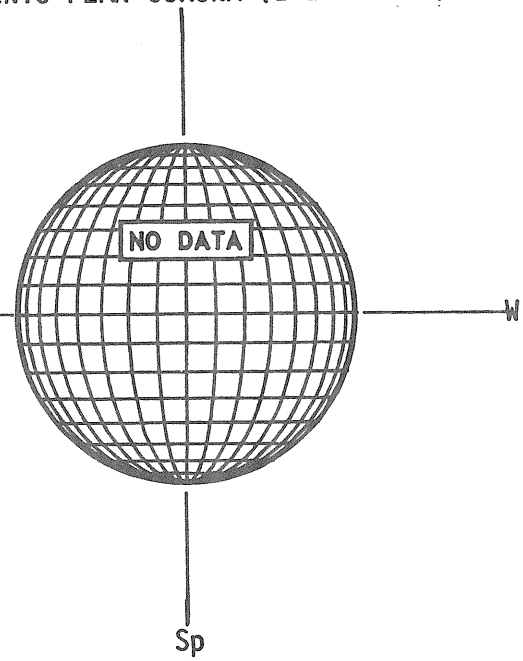
SACRAMENTO PEAK H-ALPHA



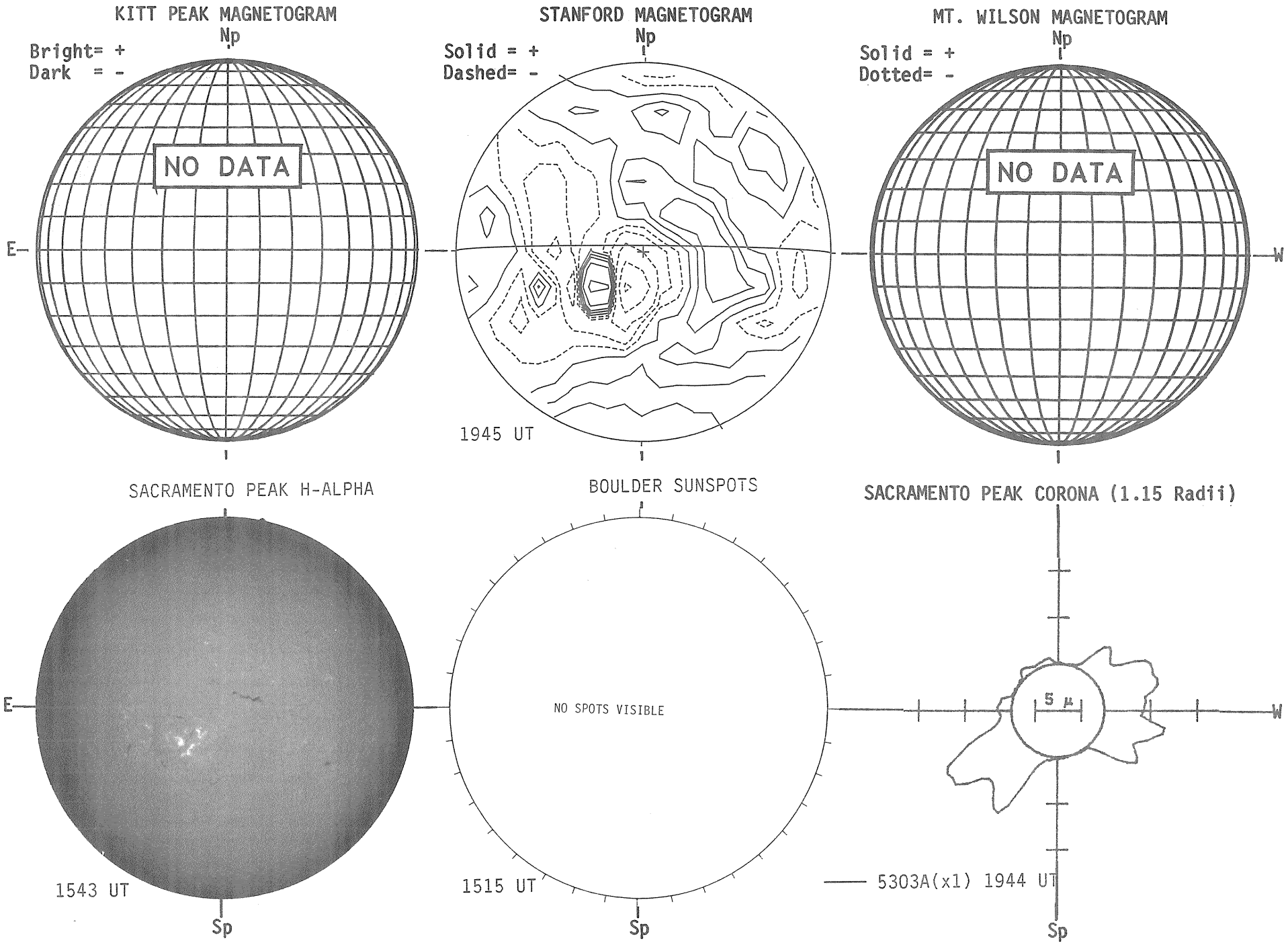
HOLLOMAN SUNSPOTS



SACRAMENTO PEAK CORONA (1.15 Radii)



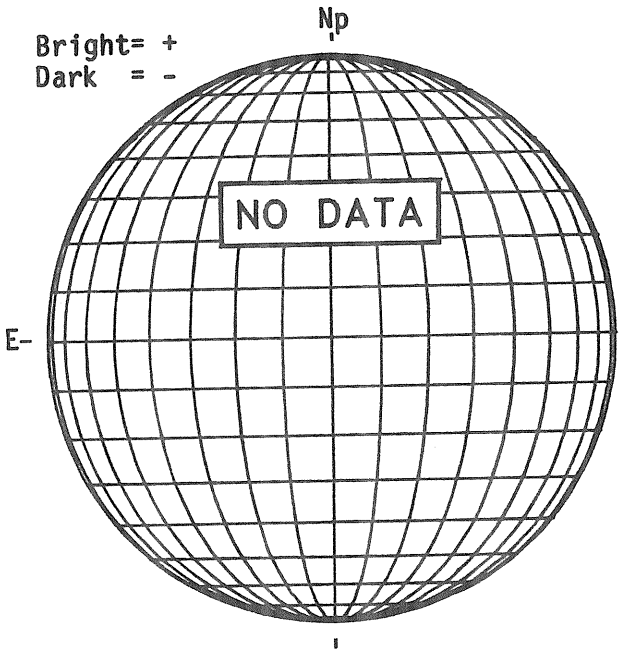
D E C E M B E R 22, 1 9 8 4 (P= 6.86, B_0=-1.84, L_0= 82.76)



D E C E M B E R 23, 1 9 8 4 (P= 6.38, B_0=-1.96, L_0= 69.58)

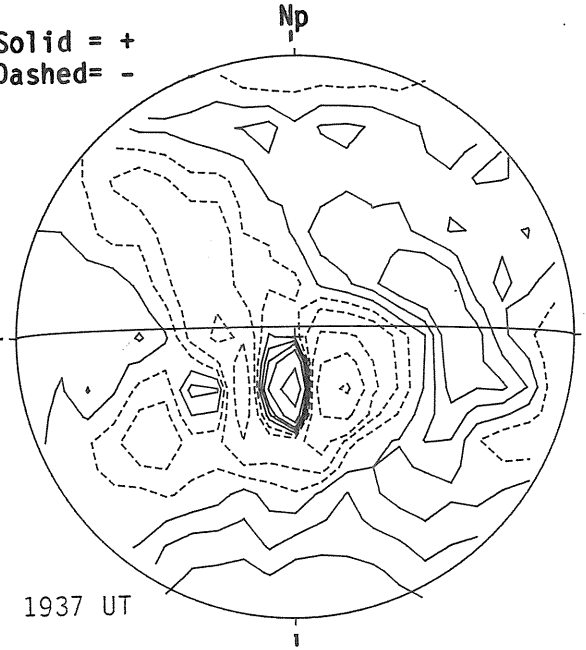
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



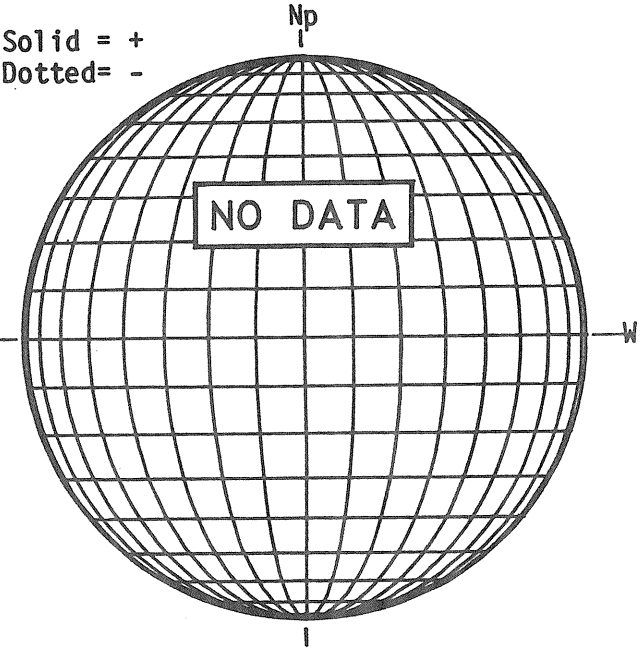
STANFORD MAGNETOGRAM

Solid = +
Dashed= -

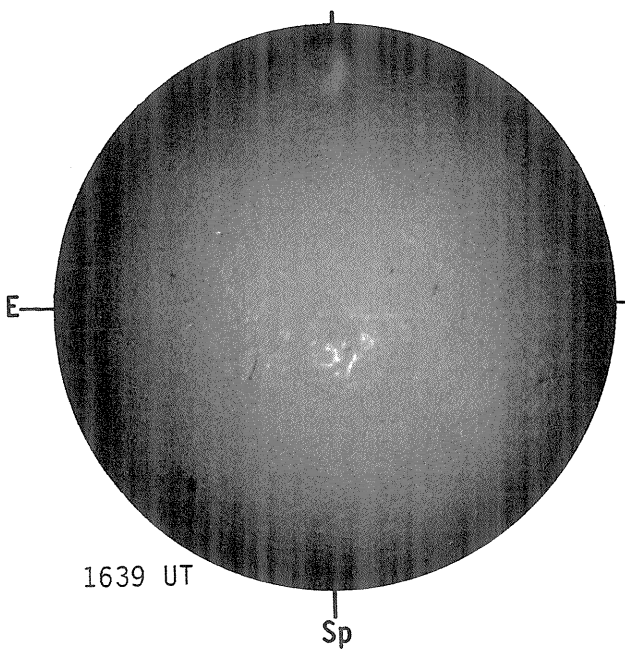


MT. WILSON MAGNETOGRAM

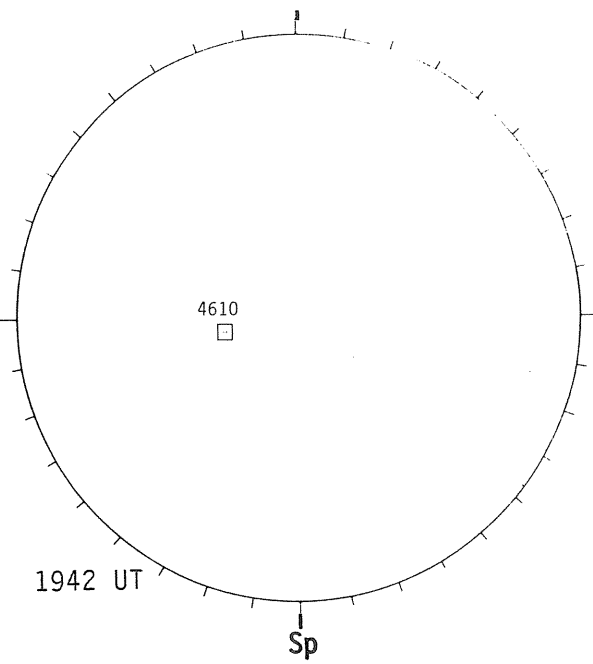
Solid = +
Dotted= -



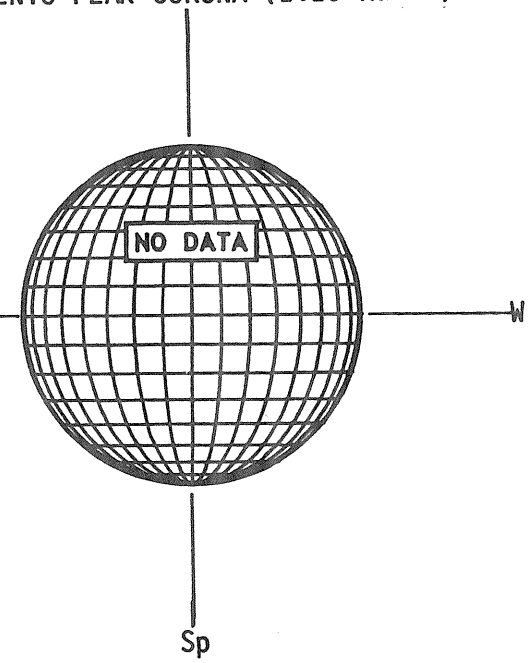
SACRAMENTO PEAK H-ALPHA



HOLLOMAN SUNSPOTS



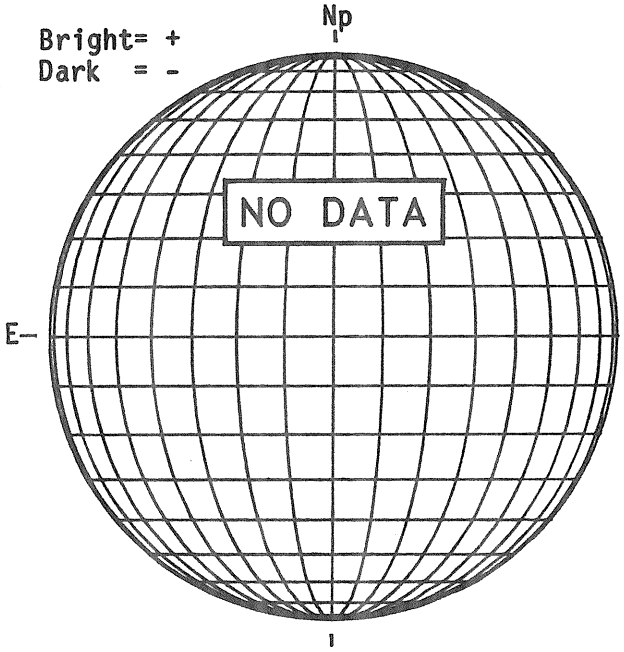
SACRAMENTO PEAK CORONA (1.15 Radii)



D E C E M B E R 24, 1 9 8 4 (P= 5.91, B_0=-2.09, L_0= 56.41)

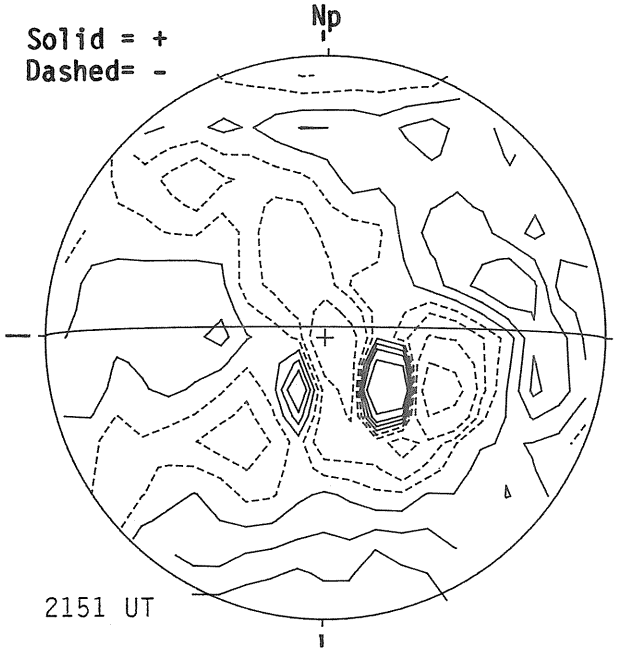
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



STANFORD MAGNETOGRAM

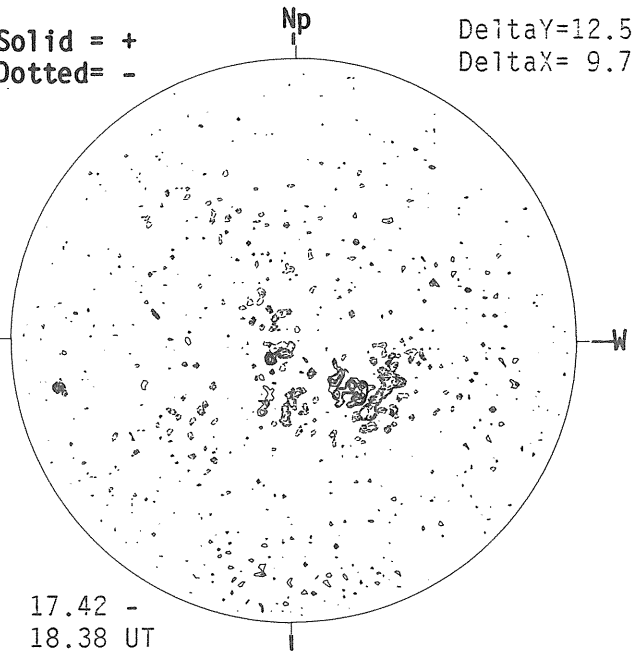
Solid = +
Dashed= -



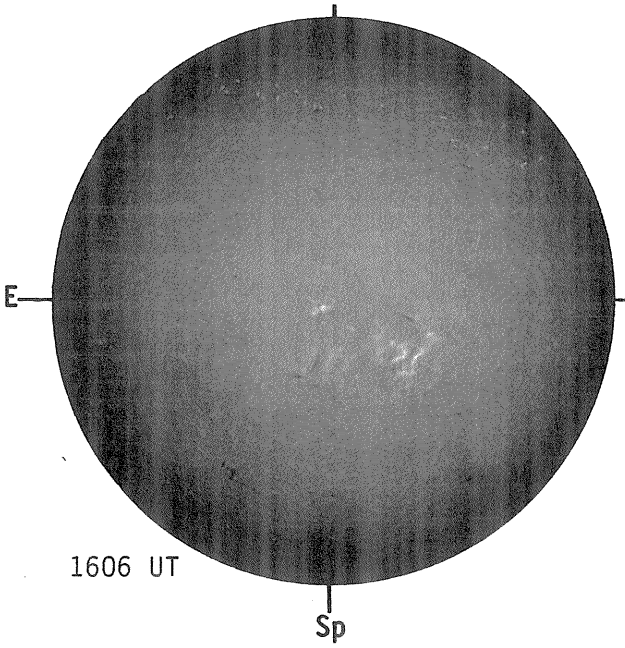
MT. WILSON MAGNETOGRAM

Solid = +
Dotted= -

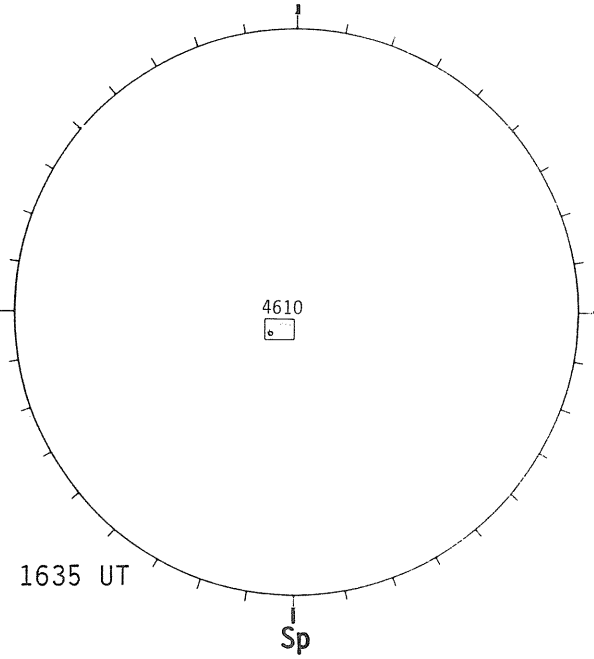
DeltaY=12.5
DeltaX= 9.7



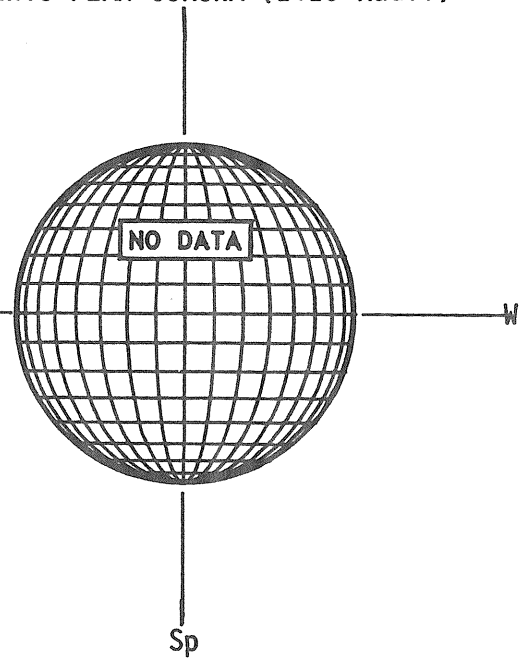
SACRAMENTO PEAK H-ALPHA



HOLLOMAN SUNSPOTS



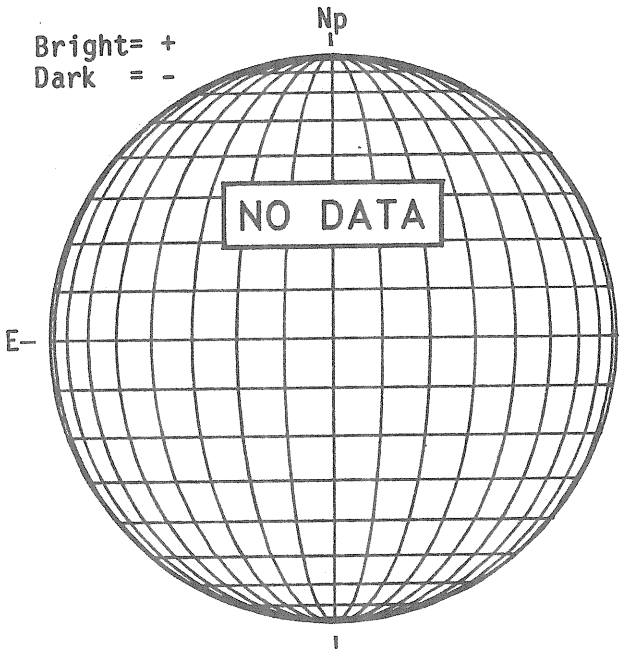
SACRAMENTO PEAK CORONA (1.15 Radii)



D E C E M B E R 25, 1 9 8 4 (P= 5.43, B_0=-2.21, L_0= 43.24)

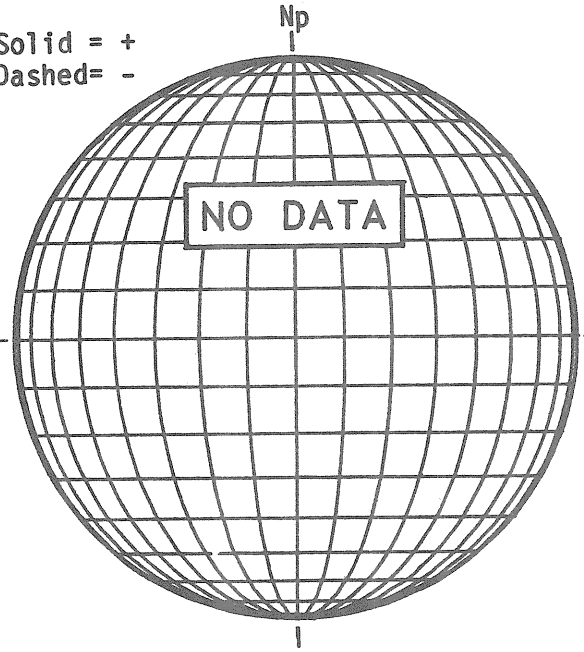
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



STANFORD MAGNETOGRAM

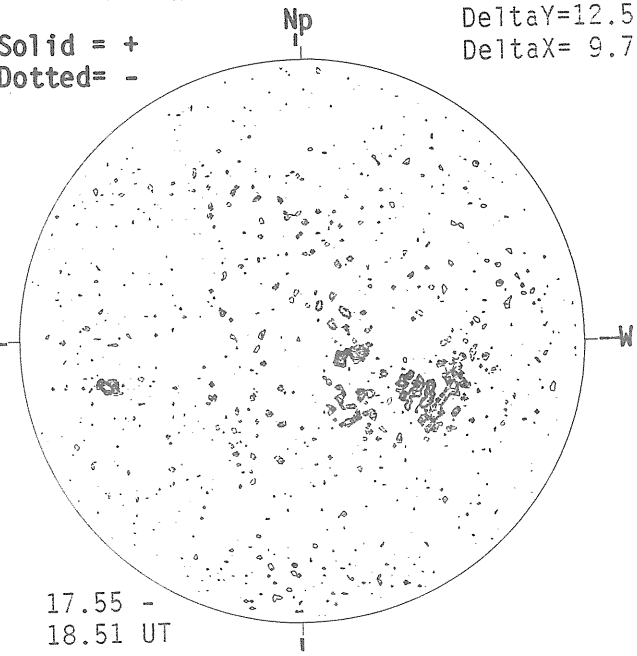
Solid = +
Dashed= -



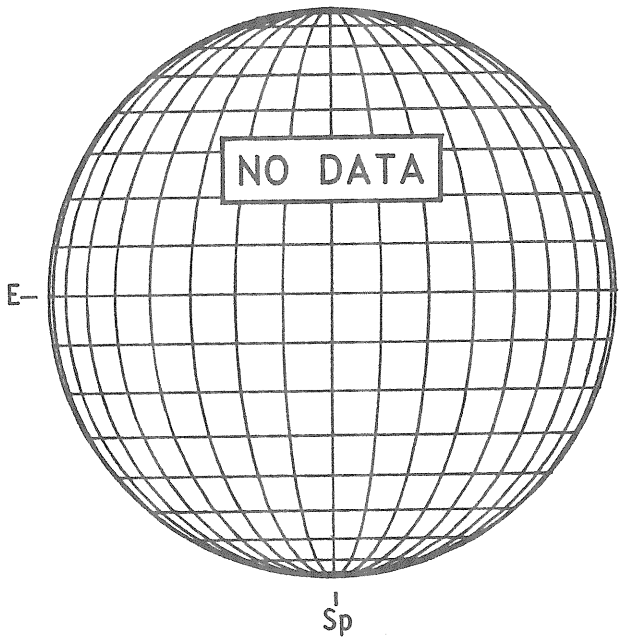
MT. WILSON MAGNETOGRAM

Solid = +
Dotted= -

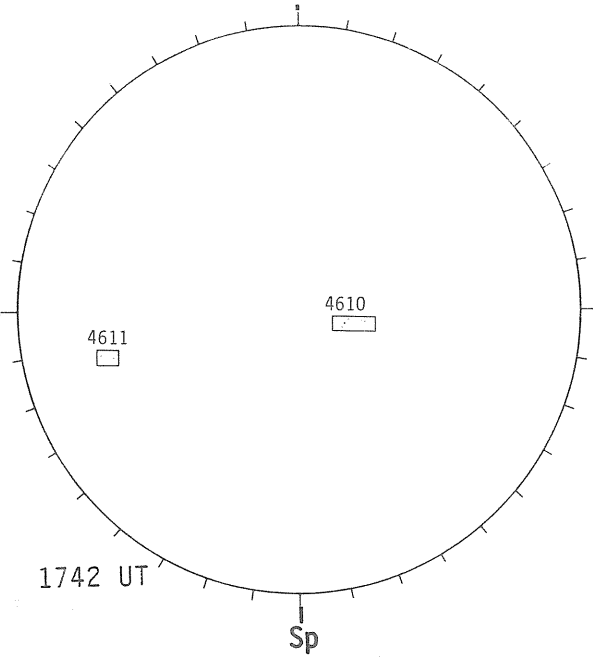
DeltaY=12.5
DeltaX= 9.7



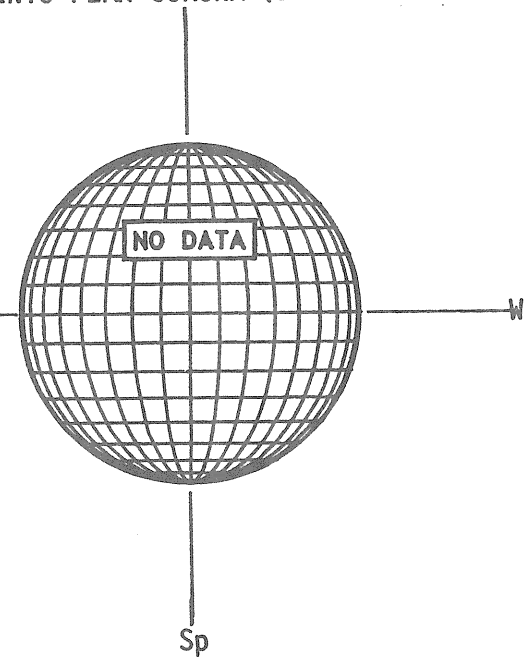
SACRAMENTO PEAK H-ALPHA



HOLLOMAN SUNSPOTS



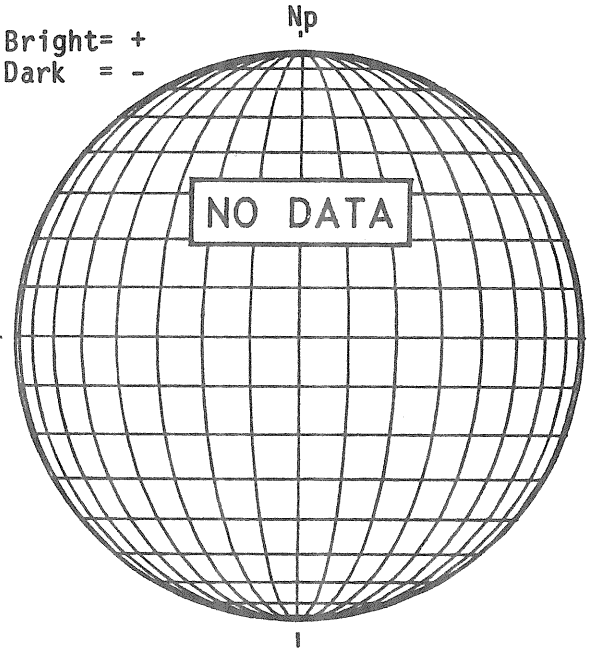
SACRAMENTO PEAK CORONA (1.15 Radii)



D E C E M B E R 26, 1 9 8 4 (P= 4.95, B_0=-2.33, L_0= 30.07)

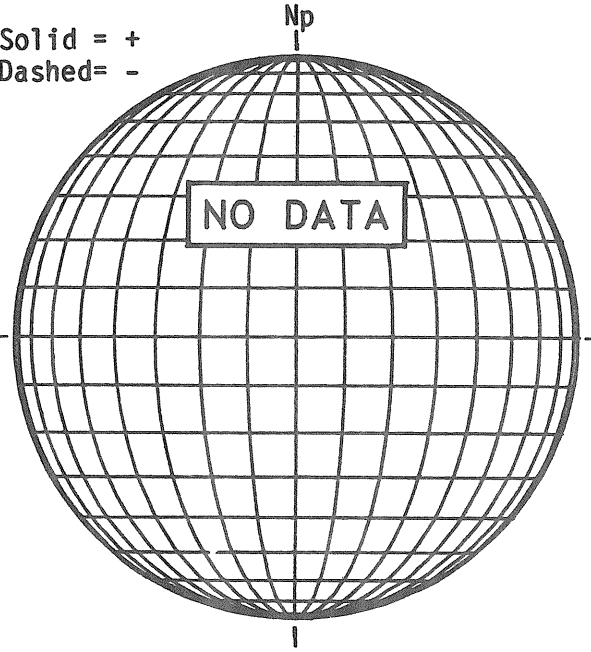
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



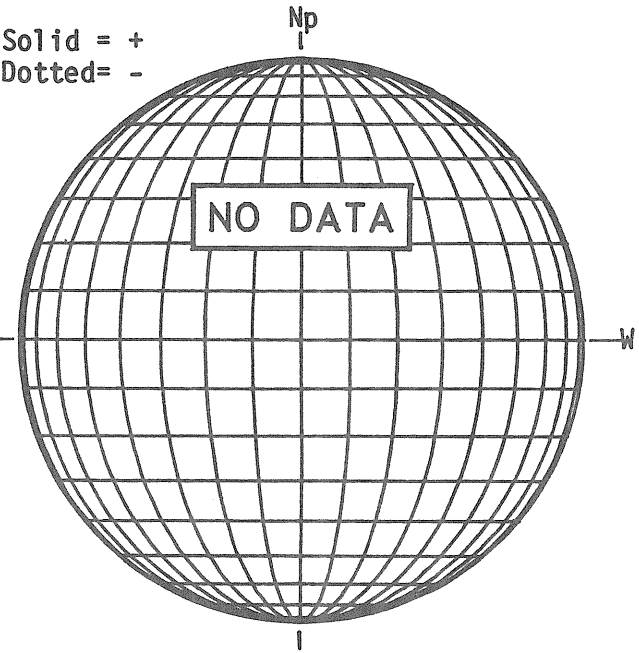
STANFORD MAGNETOGRAM

Solid = +
Dashed= -

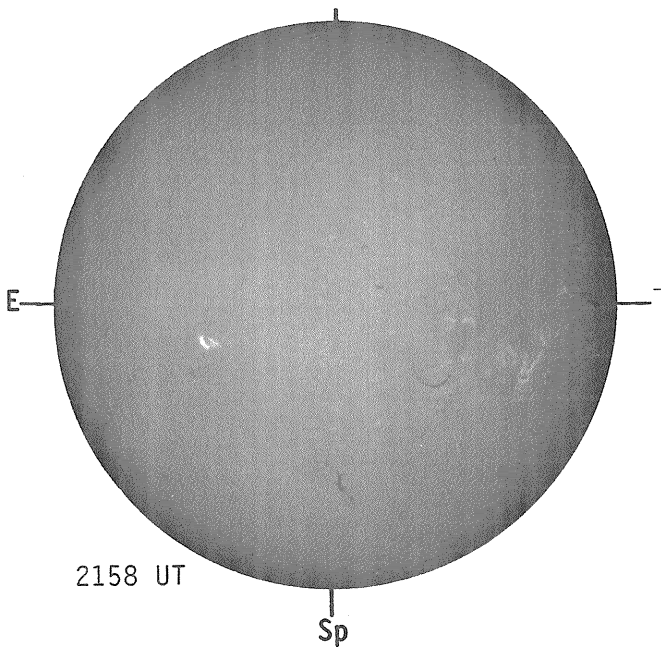


MT. WILSON MAGNETOGRAM

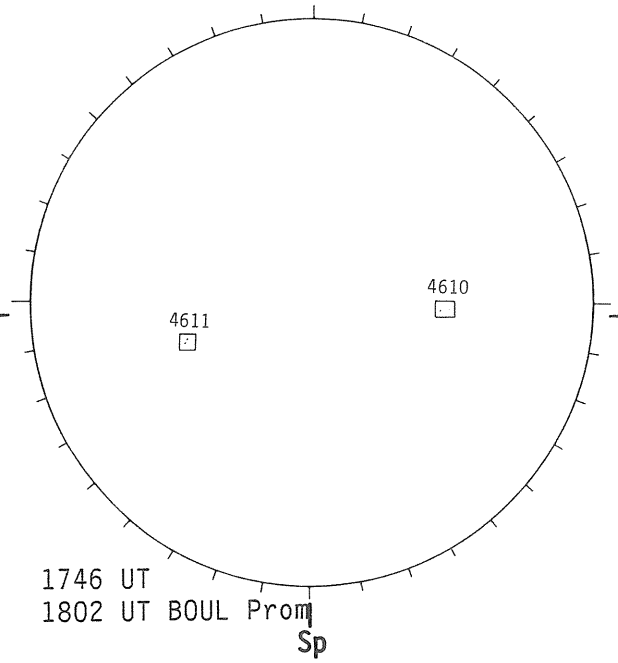
Solid = +
Dotted= -



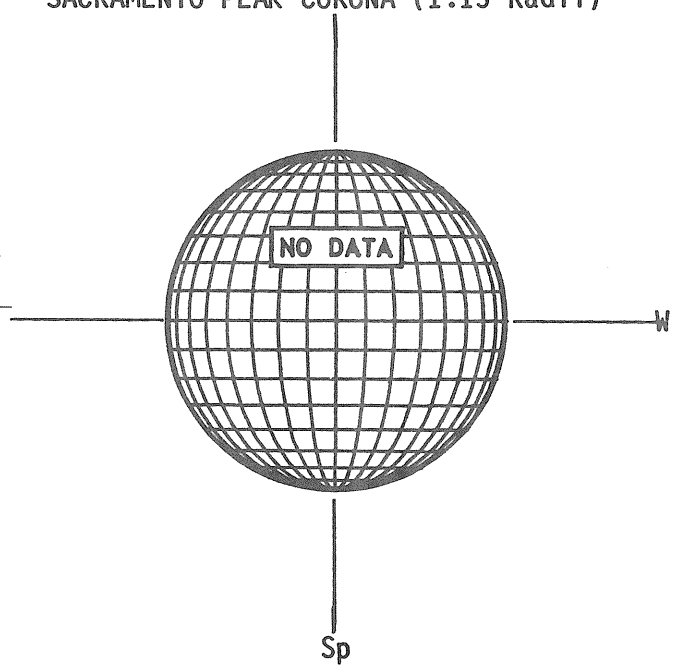
SACRAMENTO PEAK H-ALPHA



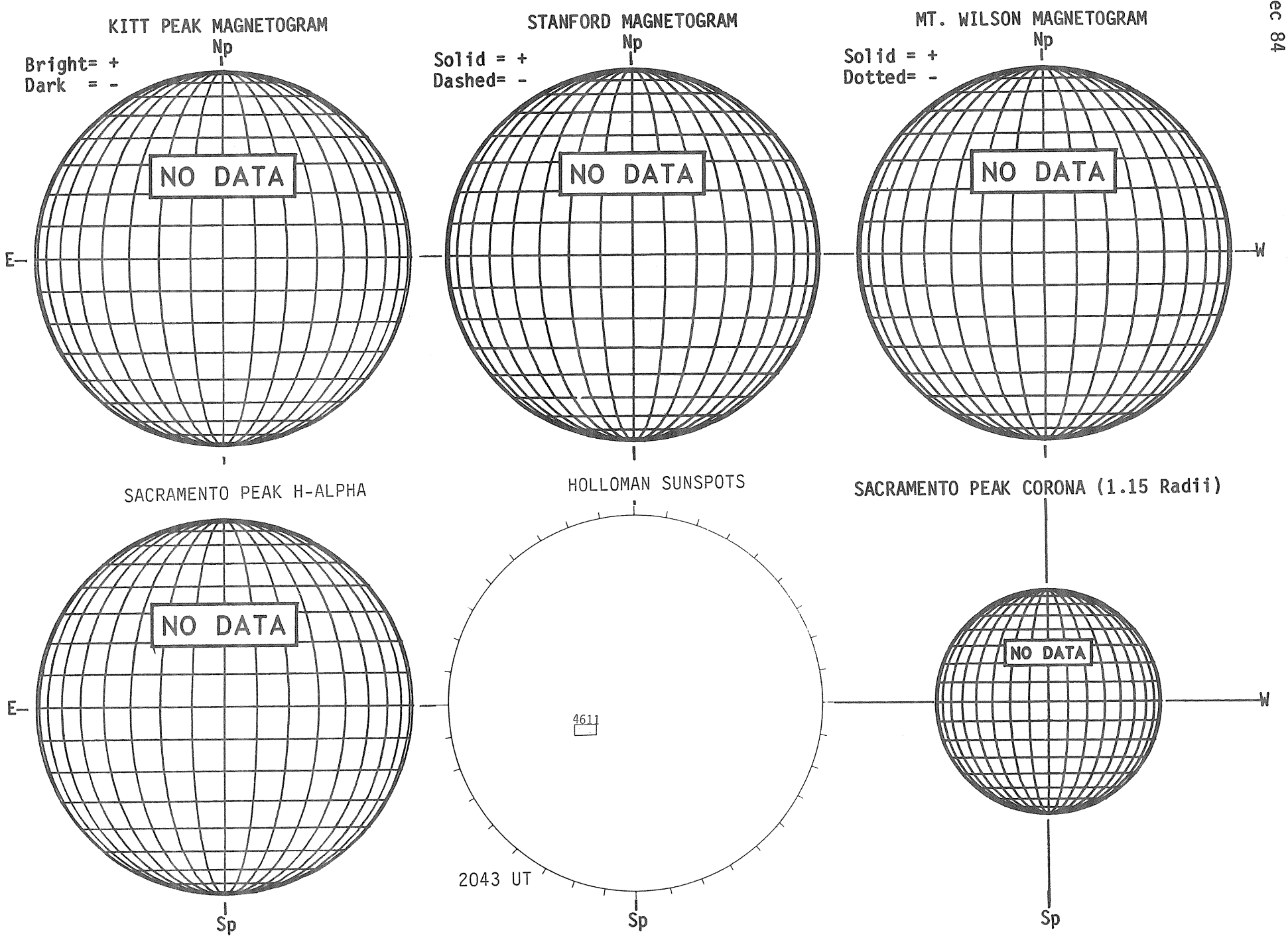
BOULDER SUNSPOTS



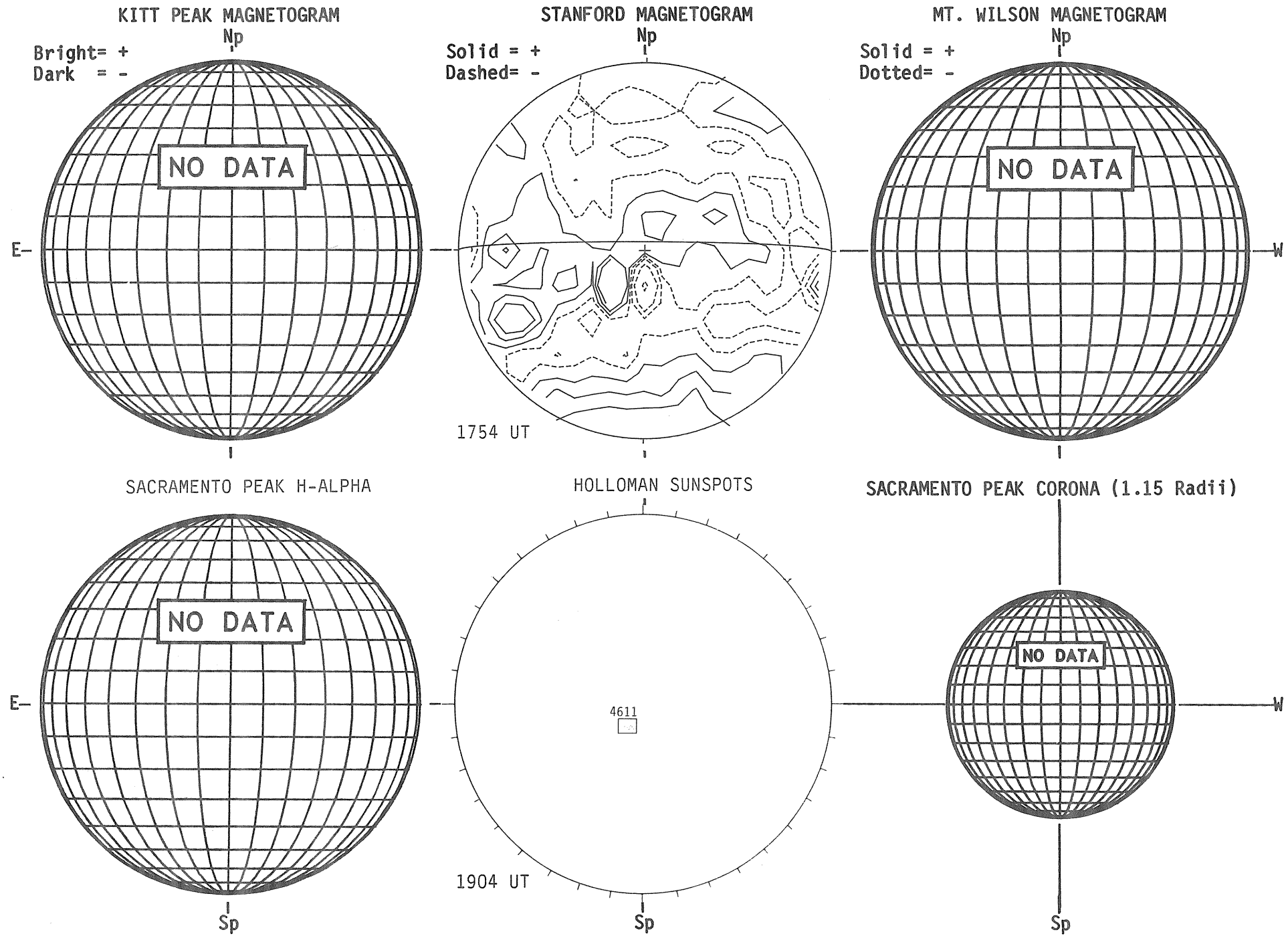
SACRAMENTO PEAK CORONA (1.15 Radii)



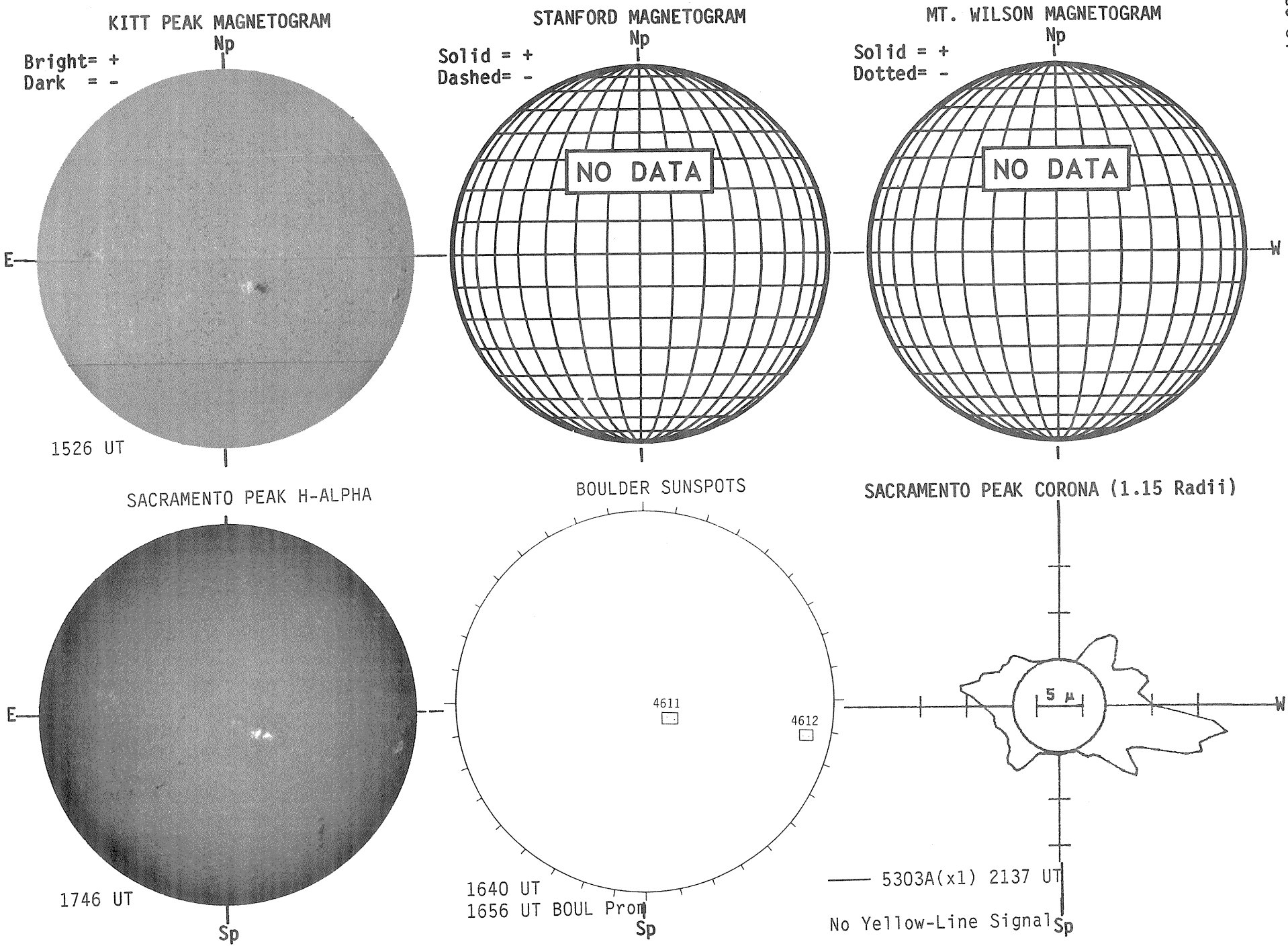
D E C E M B E R 27, 1 9 8 4 (P= 4.46, B_0=-2.45, L_0= 16.90)



D E C E M B E R 28, 1 9 8 4 (P= 3.98, B_0=-2.57, L_0= 3.73)



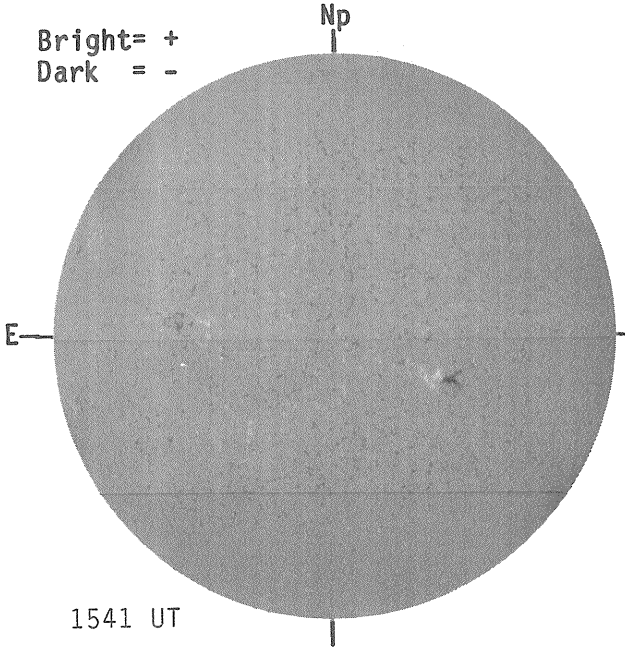
D E C E M B E R 29, 1 9 8 4 (P= 3.50, B_0=-2.69, L_0= 350.56)



D E C E M B E R 30, 1 9 8 4 (P= 3.01, B_0=-2.81, L_0= 337.38)

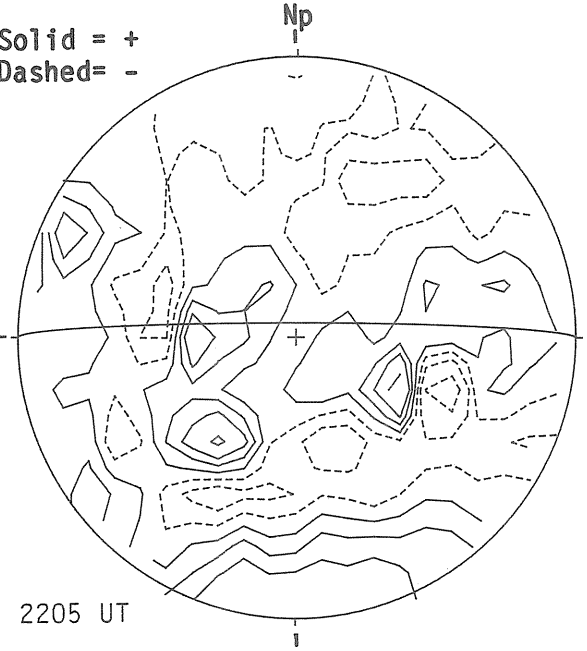
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



STANFORD MAGNETOGRAM

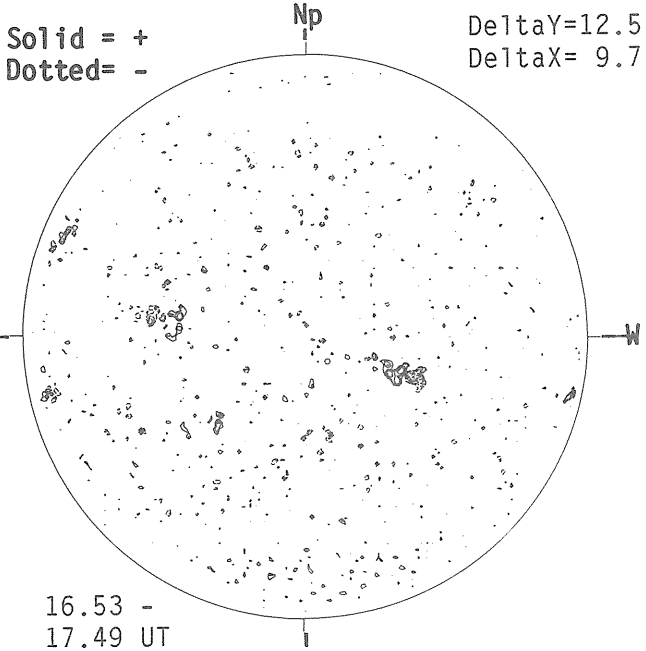
Solid = +
Dashed= -



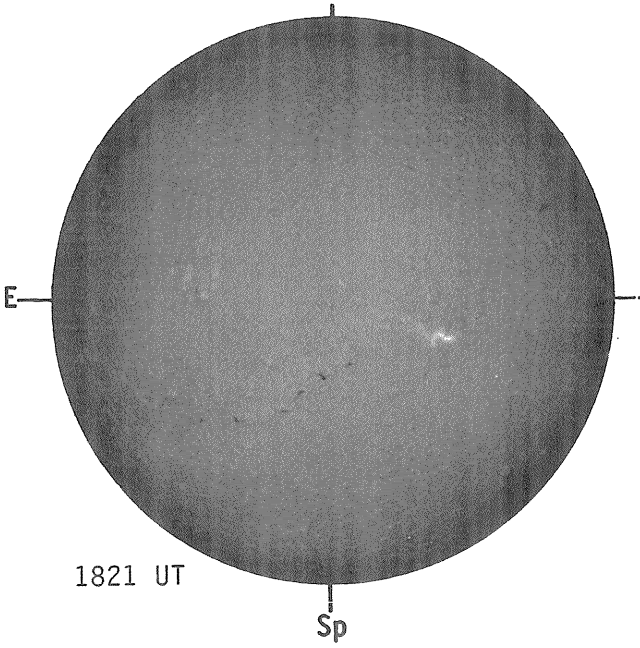
MT. WILSON MAGNETOGRAM

Solid = +
Dotted= -

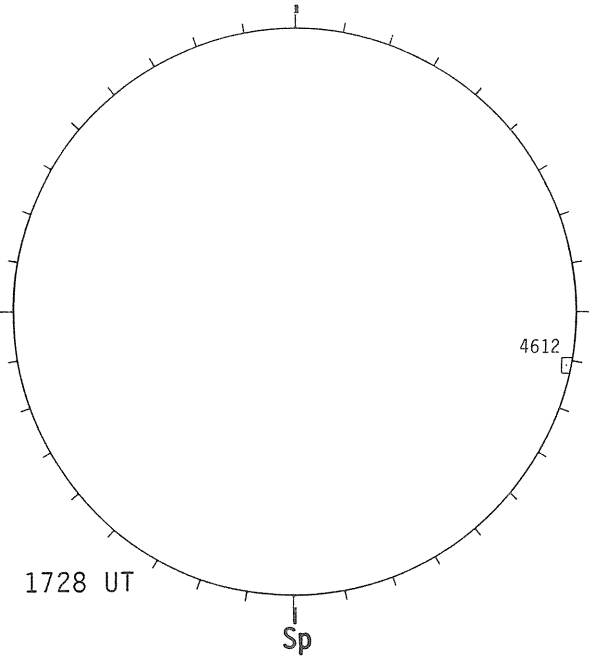
DeltaY=12.5
DeltaX= 9.7



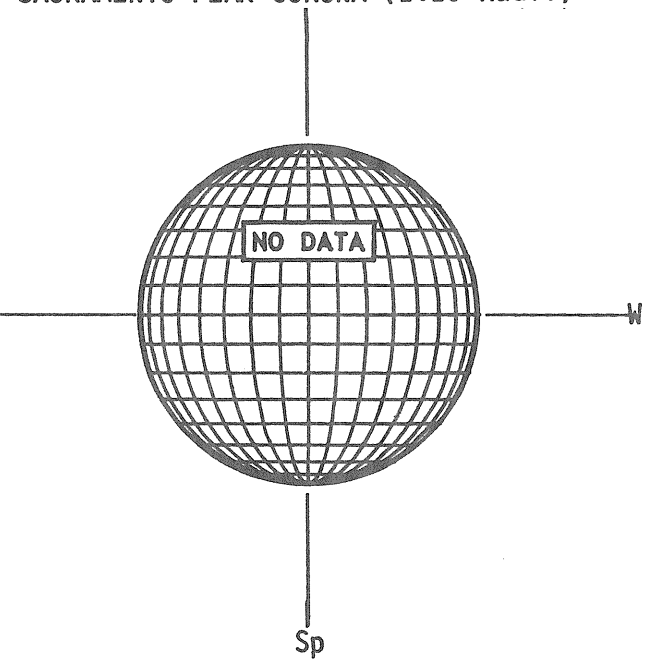
SACRAMENTO PEAK H-ALPHA



HOLLOMAN SUNSPOTS



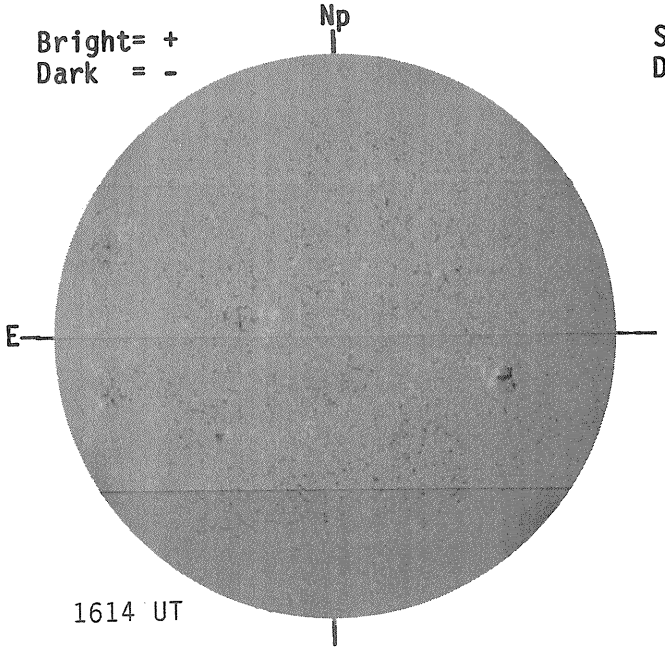
SACRAMENTO PEAK CORONA (1.15 Radii)



D E C E M B E R 31, 1 9 8 4 (P= 2.53, B_0=-2.93, L_0= 324.21)

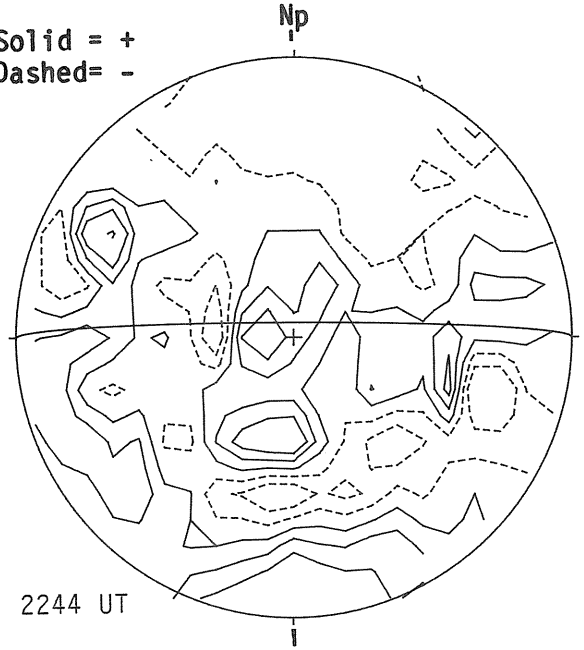
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



STANFORD MAGNETOGRAM

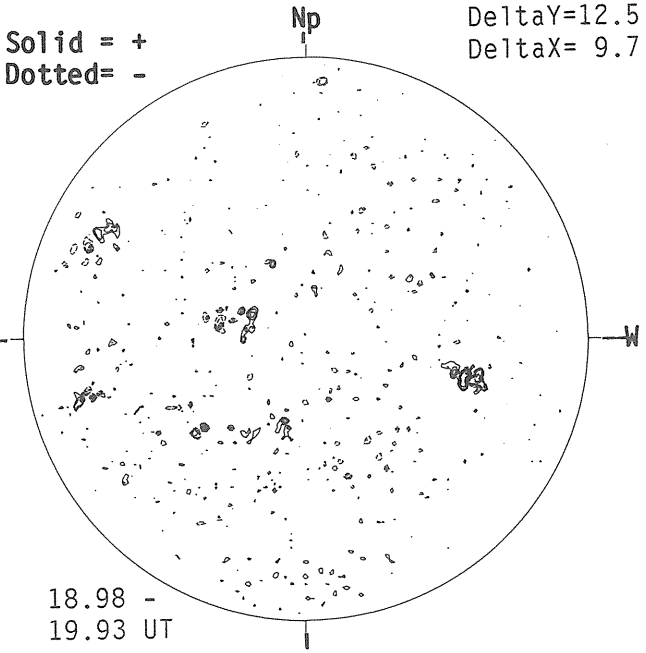
Solid = +
Dashed= -



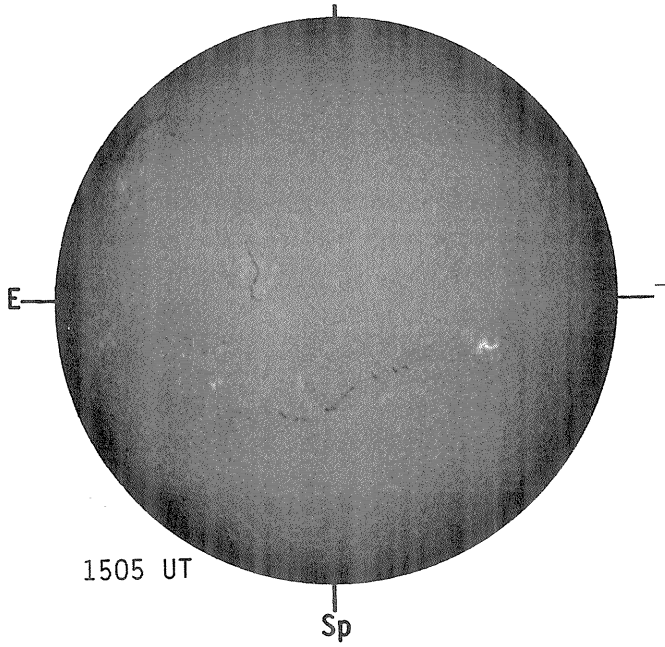
MT. WILSON MAGNETOGRAM

Solid = +
Dotted= -

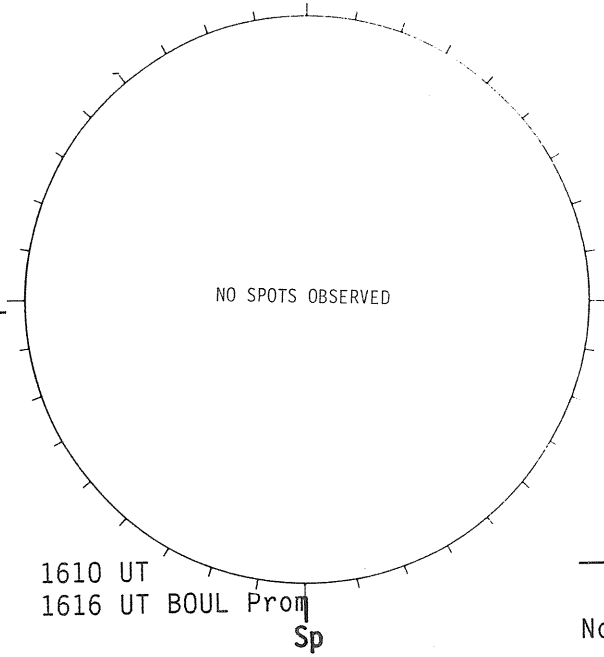
DeltaY=12.5
DeltaX= 9.7



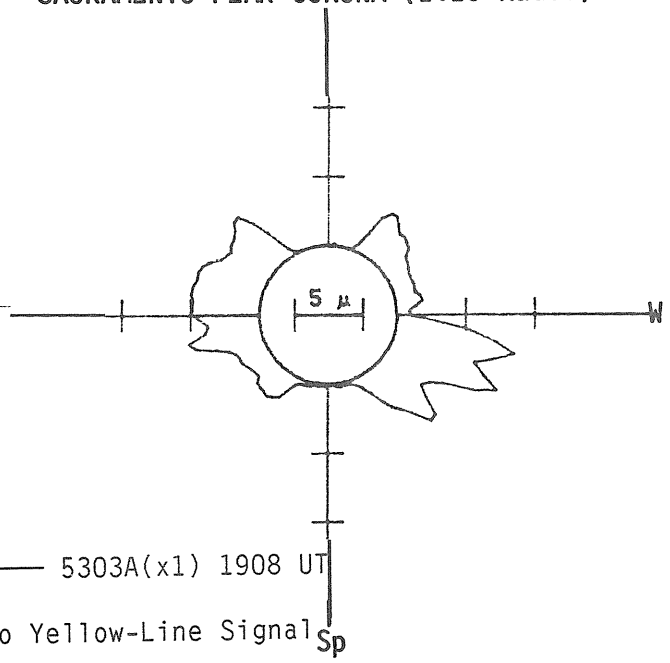
SACRAMENTO PEAK H-ALPHA



BOULDER SUNSPOTS



SACRAMENTO PEAK CORONA (1.15 Radii)



R E G I O N S O F S U N S P O T A C T I V I T Y
(ORDERED BY CENTRAL MERIDIAN PASSAGE DATE)

DECEMBER 1984

NOAA/ USAF Region	Mt Wilson Region	Sta	Observation Time Mo	Day	(UT)	Lat	CMD	CMP Mo	Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
4601		RAMY	12	01	1238	S06	E07	12	2.1		B	BXO	20	4	2	4
4601	24179	MWIL	12	01	1630	S07	E04	12	2.0	3	(B)					
4601		HOLL	12	01	1755	S06	E04	12	2.0		B	BXO	10	2	3	2
4601		MANI	12	02	0016	S06	E02	12	2.2			AXX	10	1	1	2
4601		LEAR	12	02	0020	S06	E02	12	2.2		A	AXX	10	1	1	2
4601A		LEAR	12	03	0244	S07	E41	12	6.2		B	BXO	10	2	2	2
4601A		LEAR	12	04	0000	S08	E30	12	6.2		A	AXX	10	1	1	3
4602		LEAR	12	02	0020	N17	E88	12	8.7		A	AXX	10	1	1	2
4602		HOLL	12	02	1614	N18	E77	12	8.5		B	BXO		3	5	3
4602	24181	MWIL	12	02	1630	N17	E78	12	8.6	3	(BF)					
4602		PALE	12	02	1915	N15	E75	12	8.5		A	AXX	20	1	1	2
4602		MANI	12	03	0108	N18	E72	12	8.5			AXX	20	1		2
4602		LEAR	12	03	0244	N18	E72	12	8.6		B	BXO	10	3	5	2
4602		RAMY	12	03	1410	N18	E65	12	8.5		B	DAO	30	2	3	3
4602		BOUL	12	03	1730	N18	E65	12	8.7		B	CRO	70	2	5	2
4602		HOLL	12	03	1910	N17	E63	12	8.6		B	DRO	30	4	4	2
4602		LEAR	12	04	0000	N18	E58	12	8.4		B	DRO	40	6	6	3
4602		RAMY	12	04	1335	N18	E51	12	8.4		B	DAO	100	14	6	3
4602	24181	MWIL	12	04	1515	N18	E50	12	8.4	3	(B)					
4602		BOUL	12	04	1710	N16	E47	12	8.3		B	DRO	40	4	6	2
4602		PALE	12	04	1825	N16	E50	12	8.6		B	CRO	50	3	5	3
4602		MANI	12	04	2332	N18	E47	12	8.6			C X	40	3	7	2
4602		ATHN	12	05	0930	N18	E44	12	8.7			DSO	40	2	7	1
4602		RAMY	12	05	1310	N19	E38	12	8.4		B	DAO	60	15	6	3
4602		BOUL	12	05	1635	N18	E34	12	8.3		B	BXO	10	3	5	2
4602		HOLL	12	05	1713	N18	E37	12	8.5		B	BXO	40	7	6	2
4602		PALE	12	05	1904	N17	E35	12	8.5		B	BXO	30	6	6	2
4602		MANI	12	06	0021	N18	E34	12	8.6			CRO	40	8	6	3
4602		LEAR	12	06	0529	N19	E33	12	8.7		B	CSO	20	3	3	2
4602		ATHN	12	06	0930	N18	E30	12	8.7		A	AXO	10	1	1	1
4602		RAMY	12	06	1355	N19	E27	12	8.6		B	BXO	20	5	4	2
4602		BOUL	12	06	1550	N18	E22	12	8.3		A	AXX	10	1	1	2
4602		HOLL	12	06	1607	N18	E27	12	8.7		B	BXO	10	2	4	3
4602	24181	MWIL	12	06	1730	N17	E24	12	8.6	3	(AF)					
4602		MANI	12	07	0042	N18	E21	12	8.6			AXX	10	1	1	3
4602		LEAR	12	07	0050	N17	E21	12	8.6		A	AXX	10	1	1	2
4602		RAMY	12	07	1400	N19	E09	12	8.3		A	AXX	10	2	1	4
4602		RAMY	12	09	1324	N19	W14	12	8.5		B	BXO	10	3	3	4
4603		HOLL	12	02	1614	S08	E76	12	8.4		A	AXX		1		3
4603		BOUL	12	02	1645	S07	E75	12	8.3		A	AXX	30	1	1	3
4603		MANI	12	03	0108	S07	E73	12	8.5			BXO	50	4	1	2
4603		RAMY	12	03	1410	S08	E63	12	8.3		A	AXX	20	1	1	3
4603		LEAR	12	04	0000	S08	E56	12	8.2		A	AXX	10	1	1	3
4603		PALE	12	04	1825	S06	E47	12	8.3		A	AXX	20	5	3	3
4603		MANI	12	06	0021	S07	E32	12	8.4			BXO	10	3	2	3
4603		LEAR	12	06	0529	S04	E28	12	8.3		B	BXO	20	3	3	2
4603		ATHN	12	06	0930	S04	E26	12	8.3		B	BXO	20	2	3	1
4603		RAMY	12	06	1355	S03	E22	12	8.2		B	DAO	40	8	2	2
4603		BOUL	12	06	1550	S03	E19	12	8.1		B	BXO	10	3	3	2
4603		HOLL	12	06	1607	S03	E22	12	8.3		B	BXO	30	7	3	3
4603	24182	MWIL	12	06	1730	S05	E21	12	8.3	4	(B)					
4603		MANI	12	07	0042	S04	E16	12	8.2			DRO	40	4	3	3
4603		LEAR	12	07	0050	S04	E16	12	8.2		B	DRO	30	7	3	2
4603		ATHN	12	07	0725	S04	E11	12	8.1		B	BXO	20	3	3	1
4603		RAMY	12	07	1400	S04	E09	12	8.3		B	DAO	40	6	3	4
4603		HOLL	12	07	1814	S04	E07	12	8.3		B	DRO	30	5	4	3
4603		LEAR	12	08	0115	S04	E03	12	8.3		B	CRO	30	5	3	3
4603		ATHN	12	08	0900	S03	W03	12	8.2			CSO	60	8	4	3
4603		RAMY	12	08	1234	S05	W05	12	8.1		B	CAO	40	9	3	3
4603		HOLL	12	08	1838	S04	W07	12	8.3		B	CRO	10	6	3	3
4603		PALE	12	08	2020	S05	W08	12	8.2		B	BXO	10	3	3	2
4603		MANI	12	08	2338	S04	W09	12	8.3			BXO	10	4	3	3
4603		LEAR	12	09	0050	S05	W10	12	8.3		B	BXO	20	3	1	1
4603		ATHN	12	09	1040	S03	W13	12	8.5		A	AXX	10	1		1
4603		RAMY	12	09	1324	S06	W18	12	8.2		A	AXX		1		4
4603		HOLL	12	09	1551	S04	W19	12	8.2		A	AXX		1		3
4603A		RAMY	12	09	1324	S15	W02	12	9.4		B	BXO	10	2	2	4

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4603A		HOLL	12	09	1551	S14	W02	12	9.5		A	AXX		1		3
4604		HOLL	12	07	1814	S10	E38	12	10.6		A	AXX		1		3
4604		LEAR	12	08	0115	S09	E34	12	10.6		A	AXX	10	1	1	3
4604		ATHN	12	08	0900	S09	E29	12	10.6			BRO	20	4	3	3
4604		RAMY	12	08	1234	S11	E28	12	10.6		B	BXO	50	11	4	3
4604		HOLL	12	08	1838	S09	E24	12	10.6		A	AXX		2	1	3
4604		PALE	12	08	2020	S11	E22	12	10.5		A	AXO	10	4	2	2
4604		MANI	12	08	2338	S11	E21	12	10.6			BXO	10	5	3	3
4604		LEAR	12	09	0050	S09	E20	12	10.5		B	BXO	10	2	1	1
4604		RAMY	12	09	1324	S09	E13	12	10.5		B	BXO	20	4	3	4
4604		HOLL	12	09	1551	S09	E12	12	10.6		B	BXO		2	3	3
4604	24183	MWIL	12	09	1700	S09	E11	12	10.5	3	(AP)					
4604		PALE	12	09	1925	S10	E09	12	10.5		A	AXX	10	2	2	2
4604		ATHN	12	10	0700	S13	E17	12	11.6		B	BXO	10	2	2	3
4604		RAMY	12	10	1400	S12	E14	12	11.6		B	DAO	20	6	3	3
4604		HOLL	12	10	1735	S12	E12	12	11.6		B	BXO	20	5	4	3
4607		PALE	12	10	1925	S12	E10	12	11.6		B	BXO	20	7	4	3
4607		MANI	12	10	2337	S12	E07	12	11.5			DSO	100	12	5	3
4607		LEAR	12	11	0017	S12	E08	12	11.6		B	DAO	110	15	5	3
4607		ATHN	12	11	0635	S12	E03	12	11.5			DAO	50	10	5	2
4607		RAMY	12	11	1510	S12	W01	12	11.6		B	DAO	130	14	5	4
4607		BOUL	12	11	1535	S12	W03	12	11.4		B	DSO	90	5	5	2
4607	24185	MWIL	12	11	1700	S12	W02	12	11.6	5	(B)					
4607		PALE	12	11	1935	S12	W04	12	11.5		B	DSO	160	10	6	2
4607		MANI	12	11	2354	S12	W06	12	11.5			DHO	150	12	6	2
4607		LEAR	12	12	0135	S11	W08	12	11.5		B	DHO	130	11	6	1
4607		ATHN	12	12	0725	S13	W10	12	11.6		B	DSO	230	12	7	3
4607		RAMY	12	12	1623	S12	W15	12	11.6		B	DAO	250	17	7	3
4607		PALE	12	12	1910	S10	W17	12	11.5		B	DSO	210	15	7	3
4607	24185	MWIL	12	12	1930	S10	W17	12	11.5	4	(B)					
4607		HOLL	12	12	2016	S12	W17	12	11.6		BG	DAO	260	10	6	2
4607		LEAR	12	13	0640	S11	W23	12	11.5		B	DAO	190	8	6	1
4607		ATHN	12	13	0700	S12	W24	12	11.5			DAO	210	10	7	3
4607		RAMY	12	13	1540	S12	W28	12	11.5		B	DAO	200	6	7	3
4607		HOLL	12	13	1818	S11	W29	12	11.6		B	DAO	170	7	6	3
4607		PALE	12	13	1925	S11	W31	12	11.5		B	DAO	150	8	6	4
4607		LEAR	12	14	0000	S12	W33	12	11.5		B	DAO	150	11	6	3
4607		MANI	12	14	0034	S11	W32	12	11.6			DAO	160	6	6	3
4607		BOUL	12	14	1700	S09	W44	12	11.4		B	DSO	100	7	6	2
4607	24185	MWIL	12	14	1900	S12	W43	12	11.6	4	(BF)					
4607		PALE	12	14	1950	S10	W45	12	11.4		B	DAO	120	5	6	2
4607		LEAR	12	15	0017	S12	W46	12	11.5		B	CSO	100	4	6	2
4607		ATHN	12	15	0750	S11	W49	12	11.6			DAO	90	4	5	2
4607		RAMY	12	15	1356	S13	W55	12	11.4		B	DAO	190	6	6	3
4607	24185	MWIL	12	15	1615	S12	W54	12	11.6	5	(BF)					
4607		PALE	12	15	1905	S09	W57	12	11.5		B	DSO	90	3	5	4
4607		LEAR	12	16	0020	S12	W58	12	11.6		B	DSO	30	3	5	2
4607		ATHN	12	16	0640	S11	W61	12	11.7			DSO	70	3	6	2
4607		RAMY	12	16	1515	S13	W67	12	11.6		B	DAO	100	6	7	3
4607		HOLL	12	16	1606	S12	W68	12	11.5		B	DSO	50	3	6	3
4607		BOUL	12	16	1620	S09	W68	12	11.6		B	CRO	70	3	4	2
4607		PALE	12	16	1920	S09	W70	12	11.6		B	DSO	50	3	5	3
4607		LEAR	12	17	0009	S11	W70	12	11.7		B	DAO	60	3	5	2
4607		ATHN	12	17	0700	S10	W77	12	11.5		A	AXX	50	1	1	2
4607		RAMY	12	17	1350	S13	W79	12	11.6		B	DAO	80	2	4	3
4607		HOLL	12	17	1614	S11	W82	12	11.5		B	CAO	10	2	6	3
4605		RAMY	12	09	1324	S06	E67	12	14.6		A	AXX		1		4
4605		HOLL	12	09	1551	S05	E65	12	14.5		A	AXX		1		3
4605	24184	MWIL	12	09	1700	S06	E65	12	14.6	2	(AP)					
4605		LEAR	12	10	0004	S07	E62	12	14.6		A	AXX	10	1	1	4
4608		HOLL	12	10	1735	N17	E82	12	17.0		A	AXX		1	1	3
4608		PALE	12	10	1925	N16	E80	12	16.9		A	AXX	10	1	1	3
4608		MANI	12	10	2337	N16	E76	12	16.7			AXX	20	2	1	3
4608		LEAR	12	11	0017	N17	E75	12	16.7		A	HSX	20	1	1	3
4608		RAMY	12	11	1510	N20	E73	12	17.2		B	DAO	20	3	10	4
4608	24186	MWIL	12	11	1700	N18	E68	12	16.9	3	(B)					
4608		PALE	12	11	1935	N17	E71	12	17.2		B	BXO	50	3	10	2

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4608		MANI	12	11	2354	N17	E67	12	17.1			CRO	70	3	9	2
4608		LEAR	12	12	0135	N19	E65	12	17.0		B	CSO	20	3	8	1
4608		ATHN	12	12	0725	N16	E61	12	16.9		A	AXX	30	1	1	3
4608		RAMY	12	12	1623	N18	E56	12	16.9		B	CAO	40	6	7	3
4608		PALE	12	12	1910	N17	E58	12	17.2		B	BXO	30	4	8	3
4608	24186	MWIL	12	12	1930	N19	E55	12	17.0	4	(BP)					
4608		HOLL	12	12	2016	N18	E55	12	17.0		B	CSO	20	3	8	2
4608		LEAR	12	13	0640	N19	E50	12	17.1		B	BXO	20	3	6	1
4608		ATHN	12	13	0700	N18	E45	12	16.7			AXX	30	1	2	3
4608		RAMY	12	13	1540	N19	E44	12	17.0		B	BXO	30	6	6	3
4608		HOLL	12	13	1818	N20	E42	12	17.0		B	CSO	20	2	1	3
4608		PALE	12	13	1925	N17	E44	12	17.2		B	BXO	20	6	7	4
4608		LEAR	12	14	0000	N18	E41	12	17.1		B	CRO	20	5	6	3
4608		MANI	12	14	0034	N19	E40	12	17.1			CRO	40	9	6	3
4608		BOUL	12	14	1700	N18	E28	12	16.8		B	BXO	10	2	4	2
4608	24186	MWIL	12	14	1900	N18	E31	12	17.2	3	(B)					
4608		PALE	12	14	1950	N17	E30	12	17.1		B	BXO	30	6	6	2
4608		LEAR	12	15	0017	N18	E27	12	17.1		B	BXO	20	4	6	2
4608		ATHN	12	15	0750	N19	E24	12	17.2			CSO	20	4	4	2
4608		RAMY	12	15	1356	N18	E21	12	17.2		B	CAO	50	11	5	3
4608	24186	MWIL	12	15	1615	N18	E20	12	17.2	5	(BF)					
4608		PALE	12	15	1905	N17	E18	12	17.2		B	CRO	30	6	4	4
4608		LEAR	12	16	0020	N18	E15	12	17.2		B	DSO	80	7	3	2
4608		ATHN	12	16	0640	N18	E12	12	17.2			CSO	40	6	3	2
4608		RAMY	12	16	1515	N18	E07	12	17.2		B	DAO	80	12	5	3
4608		HOLL	12	16	1606	N18	E06	12	17.1		B	DSO	110	6	4	3
4608		BOUL	12	16	1620	N18	E05	12	17.1		B	DSO	40	4	3	2
4608		PALE	12	16	1920	N18	E05	12	17.2		B	DSO	80	13	4	3
4608		LEAR	12	17	0009	N18	E02	12	17.2		B	DAO	110	12	3	2
4608		ATHN	12	17	0700	N17	W03	12	17.1		B	CSO	70	4	4	2
4608		RAMY	12	17	1350	N16	W06	12	17.1		B	DAO	60	11	4	3
4608		BOUL	12	17	1612	N18	W08	12	17.1		B	CSO	30	4	4	2
4608		HOLL	12	17	1614	N20	W08	12	17.1		B	DSO	60	4	5	3
4608		PALE	12	17	1850	N18	W08	12	17.2		B	DAO	60	3	4	3
4608		MANI	12	18	0120	N17	W11	12	17.2		B	CSO	30	4	5	2
4608		LEAR	12	18	0310	N18	W12	12	17.2		B	DAO	40	5	4	4
4608		BOUL	12	18	1545	N18	W21	12	17.1		B	CSO	20	2	4	2
4608		RAMY	12	18	1620	N18	W22	12	17.0		B	CAO	50	3	4	3
4608		PALE	12	18	1925	N19	W22	12	17.1		B	CSO	30	3	5	2
4608		HOLL	12	18	2152	N19	W22	12	17.2		B	CSO	20	2	1	2
4608		LEAR	12	19	0110	N19	W25	12	17.1		B	CSO	10	2	1	3
4608		MANI	12	19	0126	N18	W25	12	17.2			CSO	20	3	2	3
4608		RAMY	12	19	1911	N18	W36	12	17.1		B	CAO	30	2	3	2
4608		PALE	12	19	2145	N21	W35	12	17.2		A	HSX	30	1	1	2
4608		MANI	12	19	2325	N18	W36	12	17.2			HRX	10	1	1	3
4608		LEAR	12	20	0001	N18	W37	12	17.2		A	AXX	10	1	1	3
4608		RAMY	12	20	1329	N17	W43	12	17.3		A	HAX	20	1	1	3
4608		PALE	12	20	1940	N22	W47	12	17.2		A	AXX	10	1	1	2
4608		HOLL	12	20	2040	N18	W49	12	17.1		A	HSX	50	1	2	2
4608		LEAR	12	21	0130	N17	W51	12	17.2		A	AXX	10	1	1	2
4608		RAMY	12	21	1350	N18	W58	12	17.2		A	AXX	10	1	1	4
4608		HOLL	12	21	1648	N18	W59	12	17.2		A	AXX		1	1	3
4608	24186	MWIL	12	21	1700	N18	W59	12	17.2	2	(AF)					
4608		PALE	12	21	1955	N22	W60	12	17.2		A	AXX		1	1	2
4608A		RAMY	12	20	1329	N08	W07	12	20.0		A	AXX		1		3
4608A		HOLL	12	20	2040	N08	W11	12	20.0		B	BXO	10	3	3	2
4608A		LEAR	12	21	0130	N08	W13	12	20.1		B	BXO	10	2	3	2
4608A		RAMY	12	22	1510	N09	W32	12	20.2		A	AXX	10	1	1	2
4609		LEAR	12	21	0130	S14	E36	12	23.8		A	AXX	10	1	1	2
4609		RAMY	12	21	1350	S13	E29	12	23.8		A	AXX	10	1	1	4
4609		HOLL	12	21	1648	S13	E27	12	23.7		A	AXX		1		3
4609A		ATHN	12	22	0825	S09	E26	12	24.3		A	AXX	10	1		1
4609A		RAMY	12	22	1510	S08	E23	12	24.4		A	AXX	10	1	1	2
4609A		PALE	12	22	1909	S07	E28	12	24.9		A	AXX		1		3
4609A		HOLL	12	22	1941	S05	E28	12	24.9		A	AXX		1		3
4609B		RAMY	12	29	1338	S15	W59	12	25.1		A	AXX	10	2	1	4
4609B	24189	MWIL	12	30	1545	S13	W77	12	24.8	2	(AP)					

R E G I O N S O F S U N S P O T A C T I V I T Y
(ORDERED BY CENTRAL MERIDIAN PASSAGE DATE)

DECEMBER 1984

NOAA/ USAF Region	Mt Wilson Region	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
4610		LEAR	12	22	0020	S08	E33	12	24.5		B	BXO	10	2	3	2
4610		RAMY	12	23	1310	S05	E19	12	25.0		B	BXO	10	3	3	4
4610		HOLL	12	23	1942	S05	E15	12	24.9		A	AXX		2	1	3
4610		LEAR	12	24	0023	S05	E12	12	24.9		B	BXO	20	3	2	3
4610		ATHN	12	24	0730	S07	E08	12	24.9		B	CSO	20	3	4	3
4610		RAMY	12	24	1425	S05	E06	12	25.0		B	DAO	40	8	3	3
4610	24187	MWIL	12	24	1630	S04	E03	12	24.9	4	(B)					
4610		HOLL	12	24	1635	S05	E05	12	25.1		B	CSO	30	7	5	2
4610		MANI	12	24	2341	S05	E01	12	25.1			CSO	30	4	5	2
4610		RAMY	12	25	1358	S05	W08	12	25.0		B	BXO	10	5	4	2
4610		HOLL	12	25	1742	S05	W12	12	24.8		B	BXO	10	5	6	3
4610		MANI	12	25	2353	S05	W12	12	25.1			BXO	10	3	3	2
4610		LEAR	12	26	0033	S05	W12	12	25.1		B	BXO	20	3	3	2
4610		ATHN	12	26	1130	S02	W22	12	24.8		B	BXO	10	2	2	1
4610		RAMY	12	26	1645	S05	W26	12	24.8		A	AXX	10	1	2	3
4610	24187	MWIL	12	26	1715	S05	W27	12	24.7	2	(AP)					
4610		BOUL	12	26	1746	S04	W28	12	24.6		A	BXO	10	2	3	3
4610		LEAR	12	27	0053	S04	W32	12	24.6		B	AXX		2	1	3
4612		BOUL	12	29	1640	S13	W60	12	25.2		B	BXO	20	2	4	2
4612		HOLL	12	29	1746	S13	W60	12	25.2		A	AXX		1		3
4612		PALE	12	29	2116	S12	W61	12	25.3		A	AXX	10	1	1	1
4612		HOLL	12	30	1728	S13	W78	12	24.8		A	AXX		1		3
4612		PALE	12	30	1926	S08	W80	12	24.8		A	AXX	10	1	1	4
4611		MANI	12	24	2341	S10	E55	12	29.1			BXO	10	3	2	2
4611		RAMY	12	25	1358	S11	E45	12	29.0		B	BXO	10	4	2	2
4611		HOLL	12	25	1742	S11	E43	12	29.0		B	BXO	10	3	4	3
4611		MANI	12	25	2353	S10	E40	12	29.0			CRO	30	4	4	2
4611		LEAR	12	26	0033	S10	E39	12	29.0		B	BXO	20	4	4	2
4611		ATHN	12	26	1130	S10	E32	12	28.9		B	CAO	20	2	4	1
4611		RAMY	12	26	1645	S10	E30	12	29.0		B	CRO	40	8	5	3
4611	24188	MWIL	12	26	1715	S11	E29	12	28.9	3	(BP)					
4611		BOUL	12	26	1746	S09	E27	12	28.8		B	CSO	20	3	3	3
4611		HOLL	12	26	2114	S11	E27	12	28.9		B	CRO	20	6	4	3
4611		MANI	12	26	2338	S10	E24	12	28.8			CRO	20	4	3	3
4611		LEAR	12	27	0053	S10	E23	12	28.8		B	BXO	10	4	3	3
4611		ATHN	12	27	0620	S10	E21	12	28.8			CRO	20	4	3	2
4611		RAMY	12	27	1440	S11	E19	12	29.0		B	CAO	20	15	5	3
4611		PALE	12	27	1925	S10	E16	12	29.0		B	BXO	20	5	5	3
4611		HOLL	12	27	2043	S11	E15	12	29.0		B	BXO	10	4	6	2
4611		LEAR	12	28	0004	S10	E12	12	28.9		B	BXI	30	16	6	3
4611		MANI	12	28	0139	S10	E12	12	29.0			BXO	10	9	5	3
4611		ATHN	12	28	0735	S10	E10	12	29.1			BXO	30	6	6	1
4611		RAMY	12	28	1415	S11	E05	12	29.0		B	CAO	20	15	6	3
4611	24188	MWIL	12	28	1530	S11	E05	12	29.0	3	(BF)					
4611		HOLL	12	28	1904	S11	E04	12	29.1		B	BXO	20	11	5	1
4611		PALE	12	28	1915	S09	E02	12	29.0		B	BXO	30	15	6	3
4611		LEAR	12	29	0003	S10	E00	12	29.0		B	BXO	20	8	5	2
4611		MANI	12	29	0117	S10	W01	12	29.0			BXO	20	6	5	3
4611		RAMY	12	29	1338	S11	W07	12	29.0		B	BXO	20	4	4	4
4611		BOUL	12	29	1640	S07	W08	12	29.1		B	BXO	10	2	3	2
4611		HOLL	12	29	1746	S09	W09	12	29.1		B	BXO	10	5	4	3
4611	24188	MWIL	12	29	2100	S10	W12	12	29.0	3	(AP)					
4611		PALE	12	29	2116	S09	W13	12	28.9		B	BXO	10	3	3	1
4611		LEAR	12	30	0004	S09	W14	12	29.0		A	AXX	10	1	1	3
4611		MANI	12	30	0005	S10	W14	12	29.0			AXX	10	1	1	3
4611		PALE	12	30	1926	S09	W26	12	28.9		A	AXX		1		4
4611		RAMY	12	30	1945	S11	W26	12	28.9		A	HAX	20	1	1	3
4611		LEAR	12	31	0047	S11	W29	12	28.9		A	AXX	10	1	1	3

SUDDEN IONOSPHERIC DISTURBANCES

December 1984

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
02	0816	0827	0855	1-	1		1				No Flare		
02	0913	0926	0948	1-	1		1				0905 UT		No data
10	0214	0221	0258	1-	1			1			0212 UT	C1.2	
11	1358	1406	1426	1-	1		1				No Flare		
12	1146	1203U	1222	1-	1		1				No Flare		
12	1452	1506U	1532	1-	1		1				No Flare		
13	0311	0312	0321	1-	1				1		No Flare		
13	1011	1017	1040	1-	1		1				No Flare		
20	1215	1223U	1307	1-	1		1				No Flare		
21	0241	0300	0339	1-	1				1		0236 UT		4609
23	0417	0421	0431	1-	1				1		No Flare		
23	1132	1142U	1202	1-	1		1				No Flare		
25	0032	0044	0136	1-	1			1			No Flare		

* No flare patrol

SIDs by NOAA/SESC REGION

December 1984

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	31
Region Number 4609																					1										
X-Ray										1																					
No Flare		1									1	2	2							1			2		1						
No Flare Patrol																															
No Data		1																													
Event Totals		2								1	1	2	2							1	1		2		1						

OBSERVATORIES REPORTING FOR DEC 1985*

Ayrshire, Scotland (AY)	SES	Lintong, China (LT)	SPA
Darmstadt, GFR (DA)	SWF	Louisville, Kentucky, USA (A26)	SES
Durban, South Africa (A58)	SES	Maui, Hawaii, USA (MI)	SWF
Edenvale, South Africa (A52)	SES	Panska Ves, Czechoslovakia (PU)	SEA, SWF, SES
Farsta, Sweden (FA)	SES	Paterson, New Jersey, USA (A46)	SES
Glenorchy, Tasmania, Australia (GN)	SES	Sao Paulo, Brasil (UM)	SPA, SES
Hiraiso, Japan (HI)	SWF	St. Cloud, Minnesota, USA (SC)	SES
Hobart, Tasmania, Australia (TA)	SEA	Tavares, Florida, USA (A49)	SES
Houston, Texas, USA (A50)	SES	Tournai, Belgium (TB)	SES
Inubo, Japan (IN)	SPA	Tucson, Arizona, USA (A9)	SES
Latrobe, Pennsylvania, USA (A19)	SES	Upice, Czechoslovakia (UI)	SEA
		Valley Cottage, New York, USA (A01)	SES

*Observations are not necessarily continuous for each reporting station.
Errata: SIDs, p. 80, September 1984, No. 481 -- Values in "No Flare Patrol" column should be in "No Flare".

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

DECEMBER 1984

Day	Observation Start (UT)	Observation End (UT)	Sta	Decimetric Band Start (UT)	Decimetric Band End (UT)	Decimetric Band Int (1-3)	Metric Band Start (UT)	Metric Band End (UT)	Metric Band Int (1-3)	Dekametric Band Start (UT)	Dekametric Band End (UT)	Dekametric Band Int (1-3)	Spectral Type
01	0000	0721	CULG										
	0733	1449	WEIS										
	0835	1508	BLEN				1130.4	1130.6	1				III G
	2020	2400	CULG										
			LEAR				2140.8	2141.5	1				III
02	0000	0540	CULG										
	0722	1508	BLEN										
	1007	1145	WEIS										
	1249	1448	WEIS										
	2025	2400	CULG										
03	0000	0722	CULG										
	0742	1448	WEIS										
	2022	2400	CULG				2108.0	2111.0	1				III G
			CULG				2206.0		1				III G
04	0000	0722	CULG										
	0838	1448	WEIS				1358.8	1359.4	1				III G
	2022	2400	CULG										
			LEAR				2122.0	0000.0	1				CONT
05	0000	0723	CULG										
	0740	1134	WEIS										
	0830	1500	BLEN										
	1139	1415	WEIS										
	2023	2400	CULG										
			PALE				2125.3	2125.8					III
			PALE				2141.1	2141.6					III
06	0000	0723	CULG										
	0741	1446	WEIS										
	0830	0842	BLEN										
			SGMR				1336.6	1337.1	1				III
			SGMR				1917.8	1918.1	1				III
	2025	2400	CULG										
07	0000	0723	CULG										
	0745	1447	WEIS										
	0830	0947	BLEN										
	1352	1500	BLEN										
	2026	2400	CULG										
08	0000	0724	CULG										
	0741	1036	WEIS										
	0830	1500	BLEN										
	1046	1446	WEIS										
	2025	2400	CULG										
			CULG				2332.0		1				III G
09	0000	0724	CULG				0302.5		1				III B
			CULG				0531.0		1				III B
	0744	1446	WEIS										
	0830	1500	BLEN										
	2025	2400	CULG										
10			LEAR				0504.3	0507.1	1				III
	0000	0725	CULG				0504.5	0507.0	2				III GG
	0744	1445	WEIS										
	0830	1500	BLEN										
			LEAR				2124.0	1043.0	1				CONT
	2025	2400	CULG				2145.0	2147.5	1				III G
			CULG				2151.0	2152.0	1				III G
			CULG				2157.0	2400.0	1				IS,C
			CULG				2204.5	2205.0	3	2204.5	2205.0	1	III B
			CULG				2247.0	2249.0	1				III G
			CULG				2255.0	2345.0	1				III N
11	0000	0634	CULG				0000.0	0634.0	2				IS,C
			CULG				0039.5	0323.5	1				III N
	0800	0928	WEIS				0809.0	1126.0	1				IN

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

DECEMBER 1984

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
11	0835	1442	BLEN	0835.0E	1442.0D	1	0835.0E	1442.0D	2				I,DC,C
	0934	1446	WEIS				0905.6	0905.8	1				IIIB
			WEIS				0906.8	0906.9	1				IIIB
			WEIS				0937.6	0937.8	1				IIIG
			WEIS				0957.6	0957.7	1				IIIB
			WEIS				1053.5	1053.6	1				IIIB
			WEIS				1056.8	1057.4	1				IIIB,RS
			WEIS				1057.3	1057.4	1				RS
			WEIS				1108.1	1108.4	1				RS
			SGMR				1719.8	1720.3	1				V
			SGMR				1733.8	1734.1	1				III
			SGMR				1738.6	1739.1	1				V
			SGMR				2004.6	2007.3	1				V
			SGMR				2016.6	2018.8	1				V
			SGMR				2023.8	2024.3	1				V
	2054	2400	CULG										
12	0000	0730	CULG				0343.5		1				IIIB
			CULG				0430.0	0715.0	1				IIIS
			CULG				0430.0	0730.0	1				IS
	0749	1445	WEIS				0958.1	0948.2	1				IIIB
			WEIS				1024.7	1024.8	1				RS
			WEIS				1027.8	1027.9	2				DP
			WEIS				1040.8	1041.4	1				RS
			WEIS				1046.8	1046.9	1				RS
	0835	1442	BLEN				1049.4	1050.2	2				III
			WEIS				1049.4	1050.3	1				IIIG
			WEIS				1054.6	1054.7	1				RS
			WEIS				1252.6	1252.7	1				IIIB
			WEIS				1353.3	1353.9	1				IIIG
			WEIS				1430.7	1430.9	1				RS
			WEIS				1432.3	1432.4	1				RS
	2100	2400	CULG				2100.0	2308.0	1				IIIS
			LEAR				2152.0	1043.0	1				CONT
			LEAR				2152.0	1044.0	1				CONT
			LEAR				2232.8	2233.6	1				III
13	0000	0730	CULG				0001.0	0730.0	1				IIIS
			LEAR				0115.1	0115.1	3				III
			PALE				0115.3	0115.6	3				III
			CULG				0115.5	0116.0	3				IIIB
			LEAR				0139.0	0139.6	2				III
			PALE				0139.3	0139.5	1				III
			CULG				0236.0	0237.0	2				IIIG
			CULG				0311.0	0312.0	2				IIIG
	0747	1445	WEIS				0903.6	0906.6	1				RS
			WEIS				0923.7	0927.9	1				RS
			WEIS				0928.3	0928.4	1				IIIB
			WEIS				0942.1	0942.6	1				
			WEIS				1003.7	1008.9	1				RS
			WEIS				1019.0	1019.2	1				RS
			WEIS				1029.1	1029.2	1				DP
			WEIS				1036.4	1036.5	2				DP
			WEIS				1040.7	1041.2	1				RS
			WEIS				1104.8	1104.9	1				DP
			WEIS				1106.6	1107.8	1				RS
			WEIS				1156.1	1156.3	1				DP,RS
			WEIS				1227.6	1227.7	1				IIIB
			WEIS				1233.8	1233.9	2				RS
			WEIS				1240.7	1245.8	1				I
			WEIS				1252.2	1252.7	2				RS
			WEIS				1307.3	1316.6	2				RS
			SGMR				1343.1	1343.6	1				V
			WEIS				1343.4	1344.2	2				IIIG
	0835	1440	BLEN				1343.5	1343.7	1				III
			WEIS				1414.1	1414.9	2				IIIG
	2130	2400	CULG										
14	0000	0630	CULG										
			LEAR				0643.5	0841.0	1				CONT
	0749	0956	WEIS										

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

DECEMBER 1984

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
14	0840	1440	BLEN										
	0901	1445	WEIS				1327.7	1328.0	2				IIIB,U
	2030	2400	CULG										
15			LEAR				0400.8	0402.5	2				V
	0000	0715	CULG				0401.0	0403.0	2				IIIG
			LEAR				0402.5	8103.0	2				I
	0840	1302	BLEN										
	0927	1352	WEIS				1047.1	1047.2	1				IIIB
	2030	2400	CULG										
			PALE				2345.3	2345.6	1				III
16	0000	0728	CULG										
	0917	1445	WEIS										
	2028	2400	CULG										
17	0000	0728	CULG										
	0753	1154	WEIS										
	1158	1446	WEIS										
	2150	2400	CULG										
18	0000	0729	CULG										
	0755	1446	WEIS										
	0840	1440	BLEN										
			LEAR				0939.8	0940.3	1				III
	2029	2400	CULG										
19	0000	0729	CULG										
	0840	1440	BLEN										
	0853	1446	WEIS										
	2030	2400	CULG										
20	0000	0728	CULG										
	0753	1059	WEIS										
	0840	1440	BLEN										
	1119	1546	WEIS										
	2033	2400	CULG										
21	0000	0729	CULG				0345.0	0348.5	2				IIIG
			LEAR				0345.8	0348.3	1				V
	0758	1446	WEIS										
	0840	1440	BLEN										
	2030	2400	CULG										
22	0000	0730	CULG										
	0812	1447	WEIS										
	0840	1440	BLEN										
	2031	2400	CULG										
23	0000	0730	CULG										
	0755	1131	WEIS										
	0840	1440	BLEN										
	1135	1238	WEIS										
	1306	1548	WEIS										
	2031	2342	CULG										
24	0015	0731	CULG										
	0838	1448	WEIS										
	0840	1440	BLEN										
	2031	2400	CULG										
25	0000	0730	CULG										
	0758	0810	WEIS										
	0825	1329	WEIS				0834.5	0834.8	1				IIIG
	0840	1440	BLEN										
	2030	2400	CULG										
26	0000	0730	CULG										
	0813	1248	WEIS										
	0840	1440	BLEN										
	1251	1450	WEIS										

SOLAR RADIO EMISSION SPECTRAL OBSERVATIONS

DECEMBER 1984

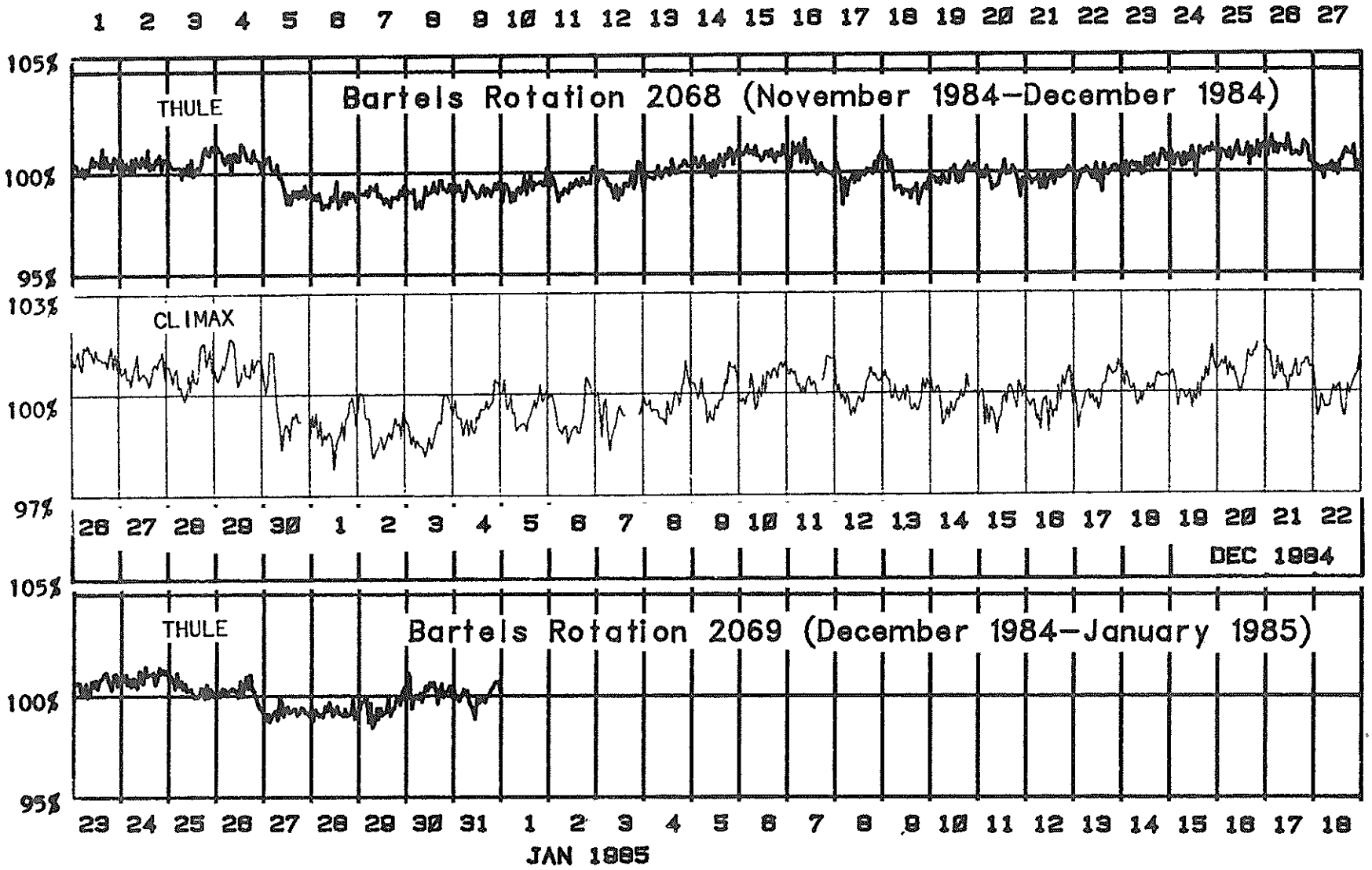
Day	Observation Start (UT)	Observation End (UT)	Sta	Decimetric Band Start (UT)	Decimetric Band End (UT)	Decimetric Band Int (1-3)	Metric Band Start (UT)	Metric Band End (UT)	Metric Band Int (1-3)	Dekametric Band Start (UT)	Dekametric Band End (UT)	Dekametric Band Int (1-3)	Spectral Type
27	0758	1449	WEIS										
	0840	1228	BLEN										
28	0757	1451	WEIS										
29	0840	1440	BLEN										
	0757	1221	WEIS				1018.2	1018.4	1				III B
	1246	1318	WEIS										
30	0840	1440	BLEN										
	0853	1453	WEIS										
31	0801	1454	WEIS										
	0840	1440	BLEN										

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

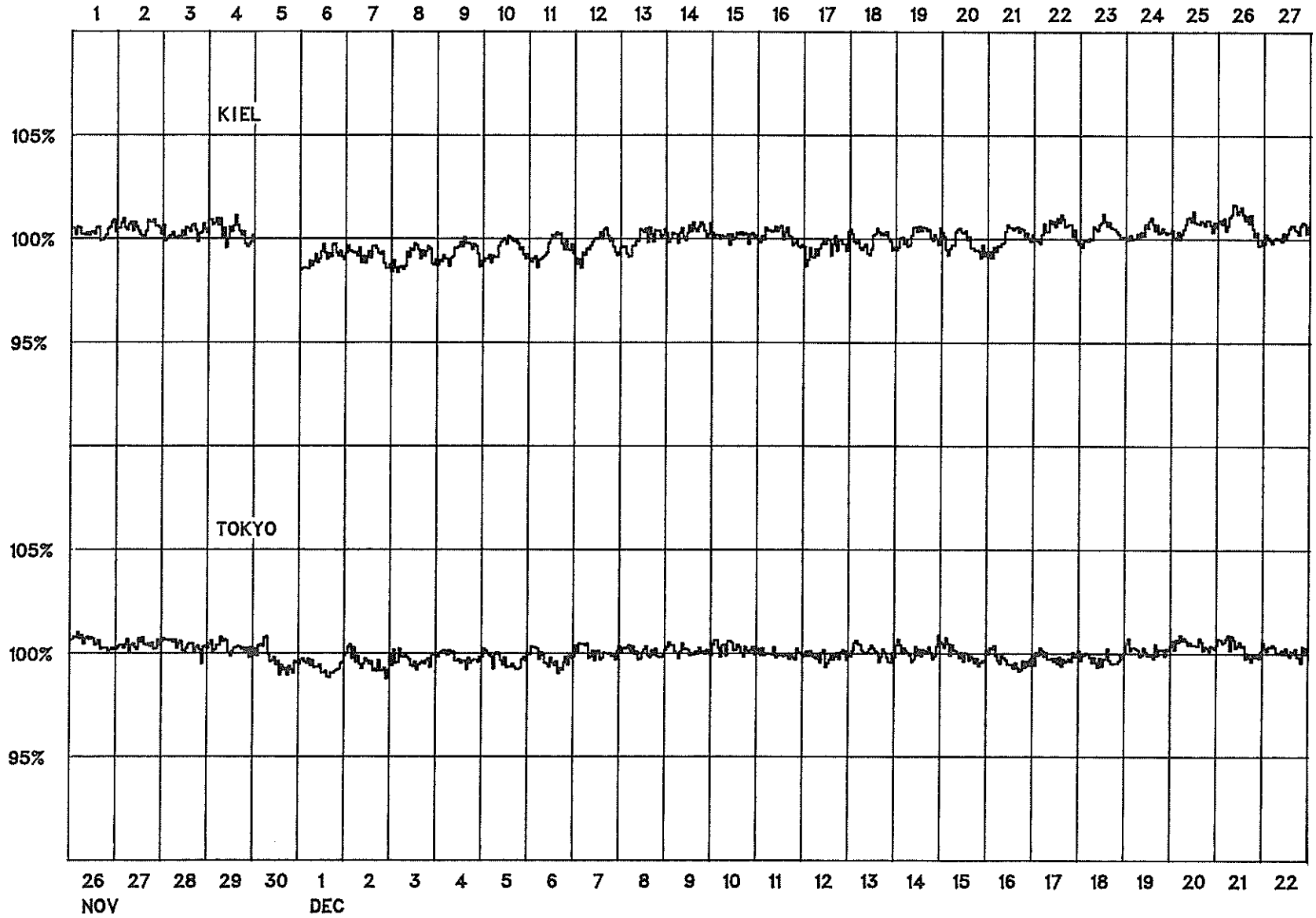
RS = Reverse slope burst
DP = Drifting pairs
DC = Drifting Chains
H = Herringbone
W = Weak
P = Pulsations
CONT = Continuum
UNCLF = Unclassified activity
DCIM = Fast drift

COSMIC RAY INDICES
(Neutron Monitor)



COSMIC RAY INDICES
(Neutron Monitor)

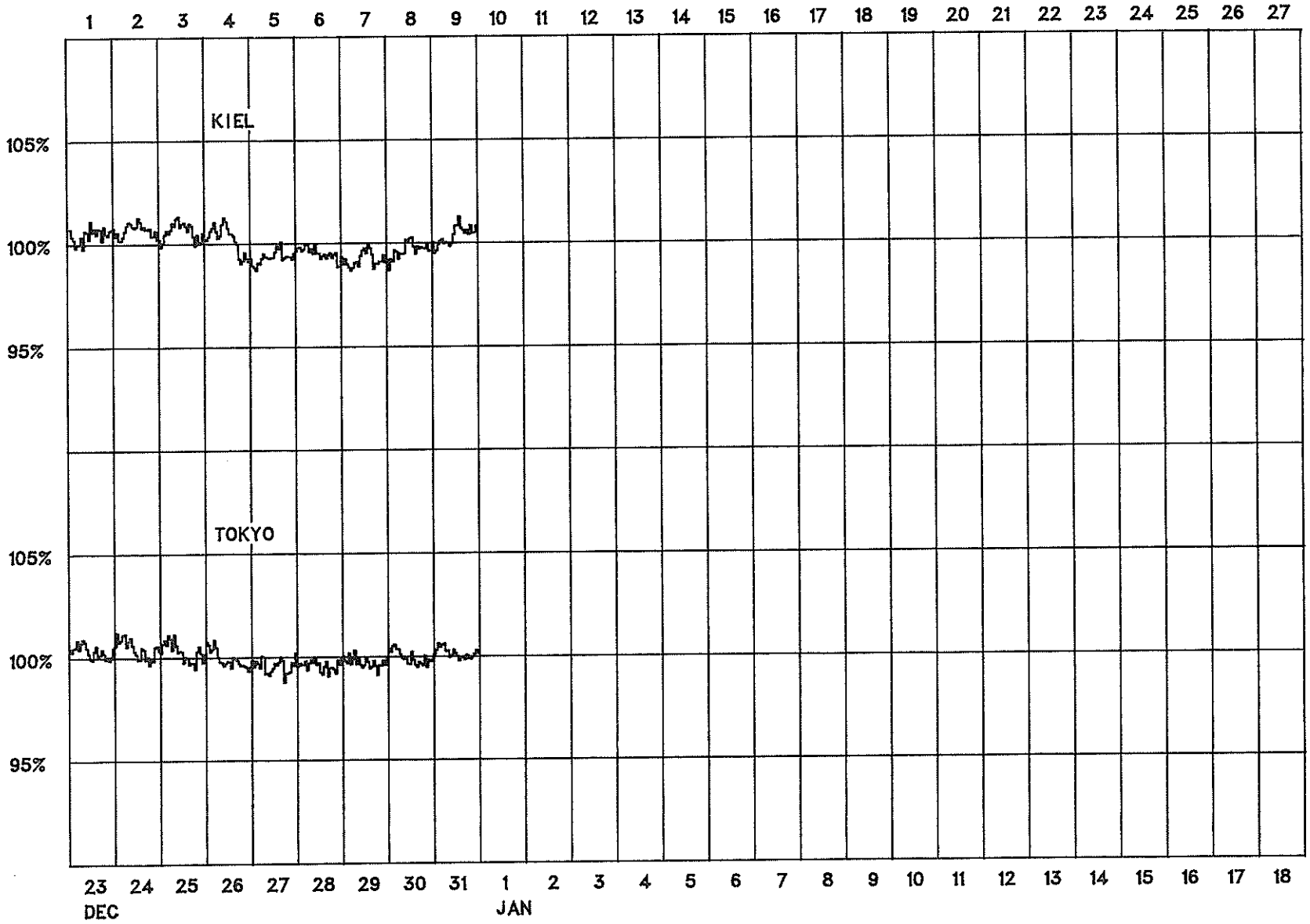
Bartels Rotation 2068 (November 1984–December 1984)



71
Dec 84

COSMIC RAY INDICES
(Neutron Monitor)

Bartels Rotation 2069 (December 1984–January 1985)



COSMIC RAY INDICES
(Neutron Monitor)

December 1984

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	4183			5811.4	3802.0	1158	3558.9	1720.1(28)
2	4190			5819.5	3802.7	1162	3567.3	---
3	4195			5811.5	3801.1	1165	3571.2	---
4	4201			5826.6	3820.9	1169	3575.6	---
5	4207			5836.2	3825.6	1169	3570.7	1737.4(14)
6	4212			5837.5	3818.3	1170	3573.4	1728.3
7	4215			5844.8	3816.4(36)	1171	3584.7	1731.5
8	4240			5865.0	3832.0	1174	3585.1	1732.7
9	4260			5885.0	3842.8	1174	3588.0	1736.3
10	4274			5873.5	3851.4	1171	3591.7	1739.8
11	4257			5874.6	3860.2	1166	3582.0	1739.3
12	4233			5842.5	3844.2	1168	3578.1	1738.0
13	4211			5860.9	3841.5	1169	3585.7	1734.7
14	4230			5873.9	3835.0	1170	3587.1	1740.0
15	4224			5854.5	3830.2	1151	3581.9	1737.4
16	4225			5868.6	3832.0	1150	3571.1	1732.4
17	4232			5893.8	3843.7	1144	3575.7	1735.5
18	4253			5885.8	3849.9	1153	3573.5	1732.9
19	4270			5887.1	3851.1	1151	3587.7	1736.8
20	4276			5903.9	3871.4	1150	3599.2	1737.0(26)
21	4280			5914.3	3868.5	1150	3593.1	1741.6
22	4252			5882.8	3839.5	1145	3587.5	1741.2
23	4257			5897.2	3854.9	1146	3594.7	1743.4
24	4269			5909.7	3864.6	1154	3598.4	1743.7
25	4244			5905.2	3836.5	1154	3592.6	1737.3
26	4236			5883.1	3825.3	1149	3579.7	1735.1(26)
27	4197			5830.2	3793.3	1144	3567.3	1732.0(4)
28	4196			5842.1	3808.6	1148	3567.6	1730.4
29	4206			5822.9	3813.9	1146	3573.0	1726.3
30	4240			5848.3	---	1149	3580.7	1731.8
31	4229			5889.4	---	1145	3588.1	1737.1(32)
Mean	4232			5863.9	3833.8	1158	3581.0	1735.6

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

GEOMAGNETIC ACTIVITY INDICES

December 1984

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	Am	aa Provisional N	S	M	
1		3	4	4-	3	3	1	2-	3+	23-	15	0.9	3-	3+	3	3	3-	1	2	3+	25	25	21	27	18	
2	D5	5-	5	4+	3	2+	4-	4	4-	31-	27	1.2	4	4	4-	3-	2+	4-	4-	3+	41	52	30	45	38	
3		3+	3+	4	3+	4-	4	4	3	29-	22	1.1	3-	3-	3+	3	3	4-	4-	3-	32	40	27	27	40	
4	D4	3	3-	5	4-	3	5-	4+	5-	31	28	1.2	3-	2	4+	3+	3+	4+	4	4	42	59	25	29	55	
5		4+	3+	4-	4-	3	4-	3-	3	27+	20	1.0	3+	3-	3-	3	3-	3+	3-	3-	28	35	21	31	26	
6		4-	3+	4-	4+	4-	3+	3+	4	29+	22	1.1	3+	3	3	4-	3+	3	3+	3+	35	46	25	29	43	
7		4-	4-	3	4-	3+	4-	3+	2	26+	18	1.0	3+	3	3-	3+	3+	3+	3	2-	30	34	27	29	32	
8	Q7A	3-	3	2	2+	1+	1	1+	2+	16	8	0.4	2	2	2	2	1	1	1-	2	12	17	13	20	11	
9	Q3	3-	1	0+	1-	1	2-	2	2	11+	6	0.3	2+	1-	0+	1	1-	2-	2-	2	9	15	7	10	13	CK
10	Q9A	2-	3	2+	2	3-	3-	2-	2-	18-	9	0.5	2-	2+	2	2	3-	3-	2-	2-	17	16	19	18	18	
11		1-	2+	1+	2+	4-	3+	4	5+	23	19	1.0	1	2+	1+	3-	3+	3	4-	5-	31	32	25	13	45	
12		5	5-	2+	3	2+	2	2-	2-	23-	17	0.9	4-	4-	2	3	2+	2-	1+	2-	24	26	21	34	14	
13		5-	6	3+	3+	4-	3+	3	2	29+	27	1.2	4+	5-	3+	3	3+	3	3	2	41	44	38	51	32	
14	Q6A	2-	1+	1	2+	2	3-	2	3	16	8	0.4	1+	1-	1	2+	2	3-	2-	3-	14	18	13	11	21	
15		3	3-	3-	3-	2+	2+	5+	6-	27-	24	1.2	3-	2-	2	2+	2+	2+	5-	5-	33	56	26	18	65	
16	D1	4	4	4+	4	4-	4	5	5+	34+	33	1.3	3+	3+	3+	4	4-	4-	4+	5-	49	56	39	41	53	
17	D3	4	4	4-	3+	4+	4+	5-	4	32+	28	1.2	3	3	3	3	4	4-	4+	4-	41	54	32	33	54	
18		3	3+	3-	3	3	4-	2+	3	24	15	0.9	2+	3-	2+	3-	3	3	2	2+	22	31	18	22	28	
19	Q5A	2+	2-	3-	2-	3-	1	2	1+	15+	8	0.4	2-	1+	2-	1+	3-	1+	2	1+	12	14	11	11	15	K
20	Q4	2+	1+	1+	1	2-	2+	2+	1	13+	6	0.3	1+	1	1	1	2	2+	2	1	11	13	10	8	15	CC
21	Q10A	0+	2+	2-	2	2+	3	4	4+	20	13	0.8	0+	2-	2-	2	2+	3	4	4-	25	26	29	12	43	
22	Q8A	3-	2-	1	2-	1+	3-	2+	3	16+	9	0.5	2	1+	2-	1+	1+	3-	2+	3	16	19	15	14	21	
23		3-	3+	3-	3	2+	3+	3+	4-	24+	16	0.9	2+	3-	3-	3	2+	3	3	3	27	30	26	27	30	
24	Q1	2-	2	1-	1	1-	1+	1-	1	9	4	0.2	1+	1	1	1+	1	2-	1	1+	8	8	8	9	8	C
25	Q2	2	3-	2+	1	0+	0	1	1+	11-	5	0.2	2+	2+	2+	1+	0+	0	1	2-	11	7	14	16	6	C
26		2+	4+	4-	4-	4	4-	5-	4+	31-	26	1.2	2+	3+	3+	4+	4+	3+	4+	4-	47	40	41	29	52	
27		3-	1+	1-	2+	4+	3+	3	5-	22+	17	0.9	2+	1+	1	2	5-	3+	3	4+	33	30	21	11	40	
28	D2	4	4-	5+	3+	3+	5-	4	5-	33	31	1.3	3+	3-	5-	3+	3+	4	4-	4	47	62	37	41	59	
29		4-	5-	3+	5-	3	3+	4	4	31-	26	1.2	3	4-	3	4	3	3+	4-	4-	39	50	36	41	45	
30		3+	4-	4	3+	3	3	4-	4+	28+	21	1.1	3	3	3+	3-	3+	3-	4-	4	35	42	36	31	47	
31		4-	3+	3	4-	5-	4	4	4-	30	24	1.2	3	3	3-	4-	5-	4-	4-	3	40	43	37	31	50	
Mean											18	0.87									28.3	33.6	24.2	29.0	

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_1	R_a	R_s	IMF	
1	3-	4-	3+	3	3	1	2	3+	27	3-	3-	3-	3	2+	1	2-	4-	23	77.0	19	21	21	T	-
2	4	4	4-	2+	2+	4-	4	4-	41	4	4	4-	3-	3-	3+	4-	3	40	76.8	24	23	21	T	-
3	2+	3-	3+	3	3	4-	4-	3-	32	3-	3-	3	3-	3+	3+	4-	3	31	77.9	19	17	22	AT	-
4	3-	2	5-	4-	3+	4+	4	4+	47	3-	2+	4-	3	3+	4	4-	4-	37	75.9	22	19	20	T	-
5	3+	2+	3-	3	3	3+	3-	3-	29	3	3-	3-	3	2+	3	3-	3	26	73.4	14	15	17	T	-
6	3	3+	3+	4	4-	3+	3	3+	38	4-	3-	3-	3	3	2+	3+	3+	31	73.0	21	19	17	A	-
7	3+	3+	2+	4-	4-	4-	3+	2-	33	3	3	3-	3	3	3	3-	2-	27	72.8	16	15	17	T	-
8	2	2+	2-	2+	1+	1	1	2	12	2	2	2+	2	1-	1-	0+	2-	11	74.1	23	18	18	AT	-
9	2	0+	0+	1	1-	2	2	2	9	3-	1-	0+	1-	1-	1+	1+	2-	9	74.5	21	14	18	T	-
10	2-	2+	2	2	3-	3	1+	2-	17	2-	3-	2+	2+	3	2+	2	2-	17	75.7	15	15	20	A	-
11	1	2	1+	3-	4-	3+	4-	5-	33	1+	2+	2-	3-	3+	3	3+	4+	28	78.9	25	25	23	A	-
12	4-	4	2+	3+	3-	2	1+	2-	27	4-	3+	2	3-	2	1+	1+	2-	20	77.8	26	31	22	A	-
13	4+	5-	3	4-	3+	4-	3	2	44	4	5-	3+	3-	4-	3-	3-	2	38	76.2	27	28	20	AT	-
14	1	1	1	3-	2+	3-	2	3	16	1+	1-	1	2-	2-	2+	1+	2+	12	75.8A	25	26	20	A	-
15	3	2	2+	3-	2+	2+	5	5	39	2+	2-	2	2	2+	2-	4+	4+	28	74.9	25	26	19	A	-
16	3+	3+	4-	4	4	4	5-	5-	54	4-	3+	3+	4-	4-	3	4	5-	45	74.2	30	29	18	A	-
17	3+	3+	3	3	5-	4	5-	4-	47	3	3-	3	3	4-	4-	4	4-	36	72.6	24	19	16	AT	-
18	3-	3-	2+	3	3	3+	2+	2+	26	2+	2	2+	3-	3-	2+	2-	2	18	70.2	11	11	14	T	-
19	2-	1+	2	1+	3-	1+	2	2-	14	1+	1+	1+	1+	2+	1+	2	1+	11	71.0	10	10	15	A	-
20	2-	1	1+	1-	2+	3-	2+	1-	11	1+	1	1-	1	1+	2+	2	1+	10	69.9	9	11	13	T	-
21	0	2	2-	2	2+	3	4	4-	24	1-	2-	1+	2+	2+	3	4+	4	26	69.7	13	11	13	AT	-
22	2+	1	2-	1+	1+	3-	2+	3-	16	2	2	2	2-	1+	3-	2+	3+	18	70.7	12	7	14	T	-
23	2+	3-	3-	3-	2+	3+	3+	3+	26	3-	3-	3	3+	2+	3	3-	3-	26	71.3	11	2	15	AT	-
24	1+	1+	1-	1	1	2-	1	1	8	1+	1-	1+	1+	1	1+	1+	2-	8	71.8	13	13	16	T	-
25	2-	2+	2+	1+	0+	0	1-	1+	9	3-	2+	3-	1+	0+	0+	1+	2+	13	72.2	21	18	16	T	-
26	2+	4-	3	4	4	4-	4+	4-	45	3-	3	3+	5-	5-	3	5-	4-	49	72.3	18	24	16	T	-
27	2+	1+	1	2	5-	3+	3	5-	33	2	2-	1+	2	4+	3+	3	4+	32	72.0	14	16	16	-	-
28	3+	3-	5	3-	3+	4+	4-	4+	49	3+	3-	4+	4-	3+	4	4-	4-	45	72.2	15	14	16	-	-
29	3+	4	3	4	3-	3+	4	4-	42	3	3+	3	4	3	3	4-	4-	37	72.1	16	10	16	-	-
30	3	3	3+	3	3+	3-	4	4+	38	3-	3	3+	2+	4-	3-	3+	4-	32	71.4	10	12	15	-	-
31	3	3-	3-	4-	5	4-	4-	3+	42	3	3	3-	3+	4+	4-	4-	3	38	70.0	14	8	14	-	-
Mean									29.9									26.5	73.5	18.2	17.0	17.4		

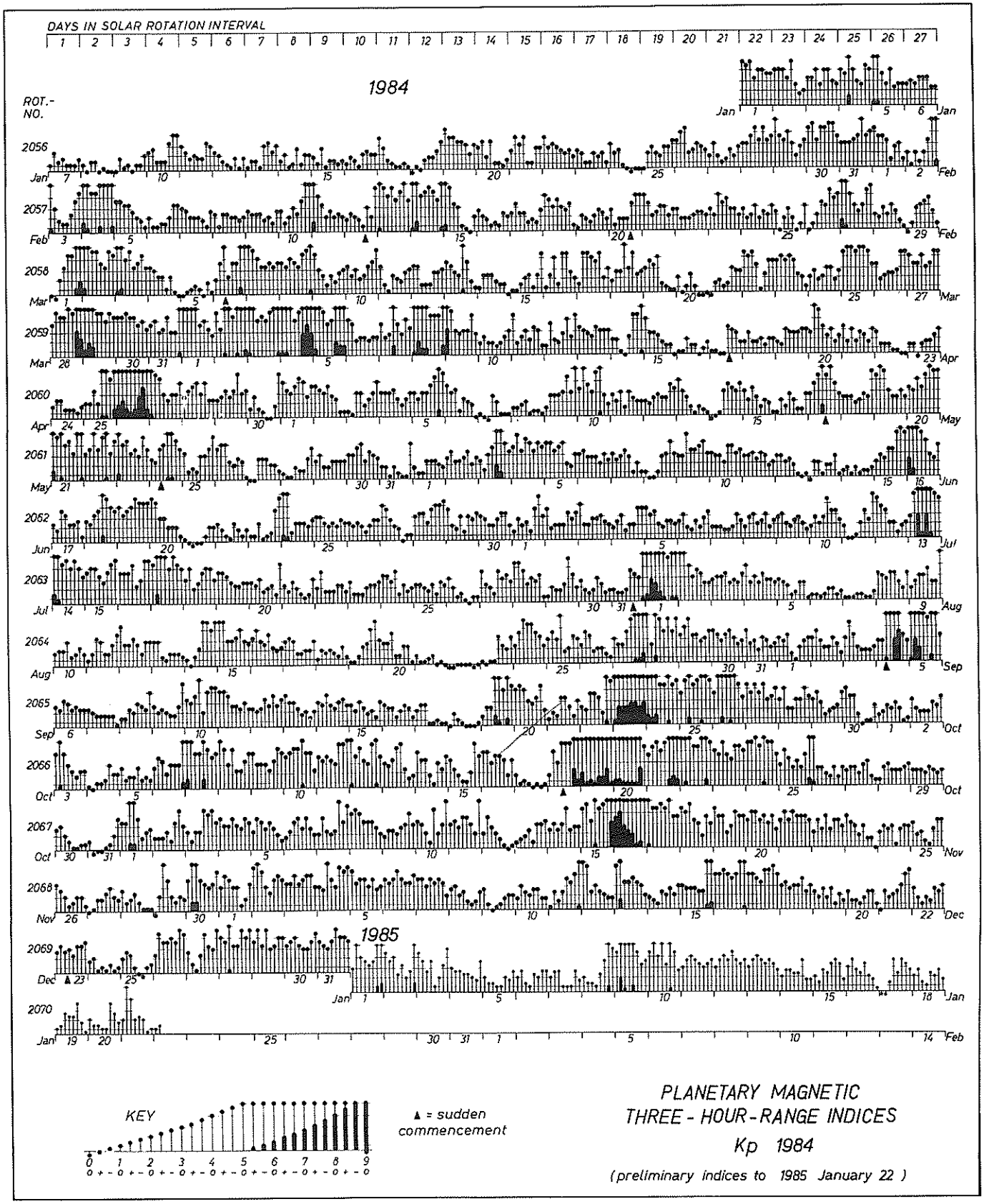
DAILY AVERAGE INDICES Ap

DAY	1984 JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	28	16	32	34	22	7	14	75	11	7	27	15
2	20	20	38	46	13	12	12	24	12	10	12	27
3	20	19	35	42	12	32	12	14	12	20	18	22
4	30	54	9	84	13	26	12	14	59	6	18	28
5	26	14	4	57	27	19	12	7	63	7	13	20
6	14	8	31	12	10	12	10	4	12	21	14	22
7	5	9	26	25	4	10	7	4	6	43	20	18
8	3	7	29	58	5	10	10	14	11	24	20	8
9	4	9	13	37	19	20	9	17	12	20	12	6
10	14	21	17	8	27	15	14	8	25	29	18	9
11	10	21	9	13	10	11	11	11	17	28	20	19
12	5	12	11	15	12	7	13	15	13	32	8	17
13	9	36	19	15	9	6	62	8	11	17	10	27
14	6	43	6	18	12	4	40	20	14	15	14	8
15	6	19	9	10	9	24	25	22	10	14	52	24
16	6	7	16	4	7	42	25	15	8	19	112	33
17	7	9	22	8	32	11	43	11	6	3	35	28
18	6	17	18	7	12	27	19	6	3	43	22	15
19	19	7	12	12	22	29	14	14	36	75	21	8
20	9	13	4	20	30	16	12	10	21	63	20	6
21	12	14	7	11	44	3	8	3	10	47	22	13
22	12	8	21	5	32	6	9	1	22	46	14	9
23	6	15	18	6	30	11	8	8	112	27	10	16
24	5	10	10	6	30	22	12	23	52	39	10	4
25	10	7	34	33	16	10	8	18	43	22	10	5
26	16	16	16	103	14	8	6	10	42	14	8	26
27	8	34	23	26	7	10	14	36	25	8	7	17
28	22	8	60	17	8	21	18	36	16	8	6	31
29	21	10	52	18	9	12	12	21	12	7	13	26
30	32		29	9	17	12	8	16	11	7	36	21
31	23		25		7		17	12		6		24
MEAN	13	17	21	25	17	15	16	16	24	23	21	18

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

University of Gottingen

Kp through December 31, 1984



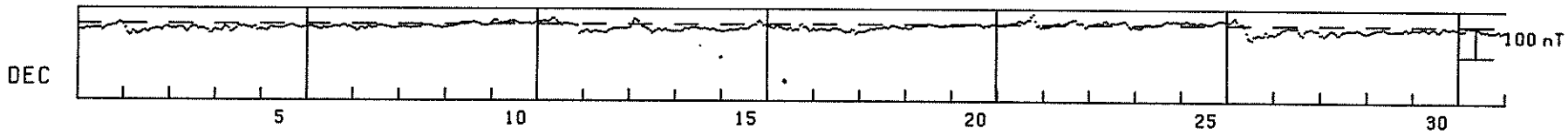
NASA/GODDARD SPACE FLIGHT CENTER

HOURLY EQUATORIAL DST VALUES(PROVISIONAL)

DECEMBER 1984

UNIT=NT

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24 (U.T.)
1	-19	-19	-21	-17	-15	-18	-16	-15	-14	-14	-15	-14	-21	-16	-11	-8	-8	-7	-5	-5	0	5	1	-4
2	-16	-31	-37	-33	-24	-30	-35	-31	-30	-25	-22	-26	-27	-22	-18	-18	-16	-18	-18	-22	-14	-10	-11	-14
3	-17	-14	-17	-13	-12	-12	-14	-20	-27	-22	-14	-9	-10	-11	-18	-16	-15	-16	-20	-22	-30	-28	-22	-18
4	-21	-22	-24	-18	-10	-11	-17	-26	-24	-19	-16	-5	-8	-10	-7	-9	-12	-12	-17	-11	-10	-20	-18	-19
5	-18	-21	-21	-17	-11	-11	-13	-13	-14	-14	-14	-12	-10	-7	-5	-3	-5	-10	-11	-13	-14	-12	-10	-9
6	-8	-8	-10	-12	-12	-16	-18	-16	-11	-14	-13	-12	-12	-8	-7	-8	-11	-7	-3	-3	-9	-9	-11	-14
7	-17	-23	-19	-12	-12	-16	-16	-10	-10	-14	-12	-11	-6	-5	-5	-7	-9	-10	-11	-13	-13	-14	-12	-9
8	-10	-9	-9	-10	-12	-13	-11	-9	-12	-10	-10	-3	-3	-3	-3	-4	-6	-9	-9	-8	-10	-13	-11	-11
9	-9	-7	-8	-7	-3	-3	-1	2	6	4	5	4	3	7	7	5	2	0	-3	-4	-5	-4	-1	6
10	11	14	12	4	3	2	6	6	10	11	9	9	8	3	1	2	4	3	4	5	0	2	7	8
11	7	10	11	12	10	9	14	20	19	11	4	3	-3	4	3	3	0	1	-2	-5	-4	-30	-24	-26
12	-20	-18	-24	-29	-24	-22	-23	-25	-25	-25	-27	-27	-21	-18	-15	-13	-14	-14	-12	-12	-13	-13	-12	-11
13	-8	10	18	14	9	-2	-8	-9	-13	-15	-22	-28	-24	-20	-15	-16	-22	-17	-16	-20	-20	-23	-23	-23
14	-22	-23	-23	-19	-13	-13	-15	-11	-10	-10	-9	-13	-14	-14	-13	-13	-16	-19	-16	-14	-18	-22	-21	-23
15	-24	-22	-19	-18	-17	-19	-18	-17	-16	-12	-14	-15	-14	-13	-8	-4	-1	-1	8	13	6	-4	-1	-1
16	-7	-11	-13	-9	-4	-10	-9	-13	-16	-18	-13	-12	-20	-18	-15	-18	-4	1	-9	-8	-14	-22	-19	-13
17	-19	-18	-16	-14	-17	-15	-19	-19	-18	-14	-13	-13	-15	-16	-21	-24	-25	-25	-24	-17	-19	-30	-25	-23
18	-25	-23	-22	-19	-18	-13	-16	-15	-10	-12	-12	-12	-7	-11	-12	-7	-3	-5	-6	-8	-9	-12	-11	-10
19	-12	-14	-12	-7	-3	-3	-3	-5	-3	-2	-3	1	1	-1	-2	-3	-5	-7	-7	-6	-4	-5	-3	-2
20	-5	-3	-3	-2	-1	-2	-2	1	1	0	-1	1	2	1	0	-4	-8	-4	-4	-4	0	1	1	0
21	-2	-1	-3	-3	0	2	4	5	4	7	13	13	9	6	11	15	17	27	35	12	-5	-1	-11	-7
22	-8	-6	-6	-4	1	4	4	6	2	-1	3	5	7	12	14	17	15	6	3	6	4	-7	-6	0
23	0	2	4	6	7	5	3	12	14	8	2	8	7	5	7	10	9	13	12	4	-5	-9	-4	-7
24	-8	-9	-9	-5	1	2	2	1	-1	-1	2	1	2	3	8	12	14	10	11	13	12	12	10	10
25	11	11	15	11	5	9	8	4	5	9	10	7	5	3	3	4	6	9	13	15	16	14	11	12
26	9	11	18	24	14	2	4	6	-4	-24	-40	-45	-48	-35	-33	-30	-32	-35	-31	-20	-32	-27	-27	-30
27	-28	-23	-21	-15	-12	-11	-7	-5	-9	-10	-9	-10	-20	-27	-32	-19	-13	-13	-10	-12	-16	-17	-18	-28
28	-28	-33	-29	-23	-18	-16	-18	-23	-30	-28	-21	-18	-17	-15	-14	-17	-17	-14	-13	-15	-18	-21	-24	-25
29	-23	-20	-17	-16	-13	-12	-13	-11	-6	-13	-17	-17	-18	-18	-15	-16	-17	-15	-17	-11	-10	-17	-13	-10
30	-12	-12	-13	-12	-7	-9	-10	-15	-16	-10	-8	-11	-18	-18	-12	-5	-3	-8	-11	-8	-7	-8	-11	-9
31	-15	-16	-13	-4	-1	-4	-5	-5	-4	-7	-11	-15	-14	-15	-14	-20	-18	-18	-19	-15	-14	-21	-18	-16



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Dec 84

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

DECEMBER 1984

Sta	Geomag Lat	Commencement Time Day	(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 Hour Day	(UT)
HYB	07.6N	03	0600	..	..	..	..	04(6,7)	5	3	62	14	05	02
WIT	54.2N	04	1400	..	..	..	..	04(6,7)	6	23	137	32	05	03
IRK	41.0N	06	0500	..	..	..	..	07(5)	5	15	101	20	07	21
WIT	54.2N	11	1600	..	..	..	..	11(8)	6	37	117	43	12	04
FRD	49.6N	11	19--	..	..	..	..	13(2)	6	26	118	38	13	--
IRK	41.0N	11	0700	..	..	..	..	11(8)	6	23	71	24	12	20
HYB	07.6N	11	0600	..	..	..	..	11(5,6,8)	4	3	101	5	12	15
COL	64.6N	13	0100	SC*	7	103	14	13(4,5)	6	86	950	420	13	22
HYB	07.6N	13	0101	SC	- 0.2	13	0	13(2,5)	4	3	104	15	13	22
GUA	04.0N	13	0101	SC	..	3	..	13(1)	5	--	110	20	13	17
COL	64.6N	15	18--	..	..	..	..	16(4) 17(3,4,5,6)	6	239	1290	760	19	00
WIT	54.2N	15	2000	..	..	..	..	15(7,8) 16(6,7,8)	6	36	195	48	17	01
FRD	49.6N	15	19--	..	..	..	..	15(7,8) 16(8)	5	15	122	34	18	--
IRK	41.0N	15	1400	..	..	..	..	15(7) 17(5)	6	27	99	29	18	22
JAI	17.3N	15	2000	..	..	..	..			6	79	21	17	21
UJJ	13.5N	15	2000	..	..	..	..			5	77	20	17	21
ABG	09.5N	15	2000	..	..	..	..	15(7,8) 17(7)	5	4	85	29	17	21
HYB	07.6N	15	1600	..	..	..	..	15(7,8) 17(7)	5	4	89	19	17	23
TRD	01.1S	15	2000	..	..	..	..			3	114	53	17	21
HER	33.7S	16	06--	..	..	..	..	16(7)	5	14	58	62	17	03
KGL	56.5S	16	1033	SC	6	48	8	16(7,8)	5	37	220	200	17	03
COL	64.6N	26	02--	..	..	..	..	26(4)	7	190	1400	610	27	02
BJI	28.5N	26	02--	..	..	..	..	26(4)	6	6	112	15	26	24
JAI	17.3N	26	0800	..	..	..	..			5	107	36	27	24
UJJ	13.5N	26	0800	..	..	..	..			4	95	31	27	24
ABG	09.5N	26	0800	..	..	..	..	26(4,5,7) 27(5)	5	3	103	35	27	24
HYB	07.6N	26	0000	..	..	..	..	26(4,5,7) 27(5)	5	3	128	22	28	01
GUA	04.0N	26	0128	..	..	..	..	26(5)	5	--	160	30	26	18
TRD	01.1S	26	0800	..	..	..	..			2	101	77	27	24
FRD	49.6N	27	10--	..	..	..	..	27(8) 28(3) 29(2) 01(2,7,8)	5	24	115	41	03	--
IRK	41.0N	27	0900	..	..	..	..	31(5)	6	21	139	23	31	22
KGL	56.5S	27	1000	..	..	..	..	28(7)	5	26	216	200	29	06
GUA	04.0N	31	0900	..	..	..	..	31(5)	5	--	50	10	31	20

ABG = ALIBAG
ANN = ANNAMALAINAGAR
BJI = BEIJING
CNB = CANBERRA
COL = COLLEGE
FRD = FREDERICKSBURG
GNA = GNANGARA
GUA = GUAM
HER = HERMANUS
HON = HONOLULU
HUA = HUANCAYO
HYB = HYDERABAD
IRK = IRKUTSK
JAI = JAIPUR
KGL = KERGUELEN
PMG = PORT MORESBY
SHL = SHILLONG
SIT = SITKA
TRD = TRIVANDRUM
UJJ = UJJAIN
WIT = WITTEVEEN

RADIO PROPAGATION QUALITY INDICES

DECEMBER 1984

Day	Bracknell	Teheran	New York	Tokyo	Canberra
1	7.4	4.6	7.2	5.8	6.4
2	5.8	6.1	4.4	4.4	5.5
3	5.0	5.9	5.8	4.0	4.5
4	5.1	5.2	6.4	3.9	6.3
5	4.7	5.4	o.4	4.3	4.6
6	5.4	5.3	6.5	4.4	4.6
7	5.4	7.0	5.8	5.0	5.0
8	4.9	6.6	6.8	3.3	3.8
9	7.4	6.9	8.1	3.9	4.8
10	5.6	6.1	7.4	4.7	4.5
11	7.6	6.1	7.3	5.7	5.1
12	6.0	4.1	4.9	6.1	5.6
13	4.6	7.1	5.6	5.3	4.0
14	6.9	7.2	5.1	4.8	5.3
15	5.5	3.9	5.5	4.1	4.9
16	5.5	4.6	3.8	5.0	4.6
17	6.1	6.0	4.8	4.7	3.9
18	5.7	6.4	6.1	3.8	6.0
19	6.1	4.7	6.4	4.2	5.0
20	3.7	5.7	6.3	4.9	5.4
21	4.7	5.8	7.5	5.8	5.1
22	4.4	4.8	6.7	5.8	5.2
23	4.1	3.5	6.7	4.7	5.5
24	3.8	4.5	4.9	4.2	4.2
25	4.1	4.6	3.7	3.8	5.6
26	3.8	4.3	4.4	4.6	4.6
27	3.9	2.7	5.2	5.4	5.6
28	3.0	2.7	4.0	5.7	3.6
29	4.1	3.8	3.8	6.2	4.2
30	4.2	3.6	4.4	6.1	5.7
31	5.9	5.4	5.4	5.9	5.3
Mean	5.2	5.2	5.7	4.9	5.0

CALCULATION OF QUALITY INDICES (Q)

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

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

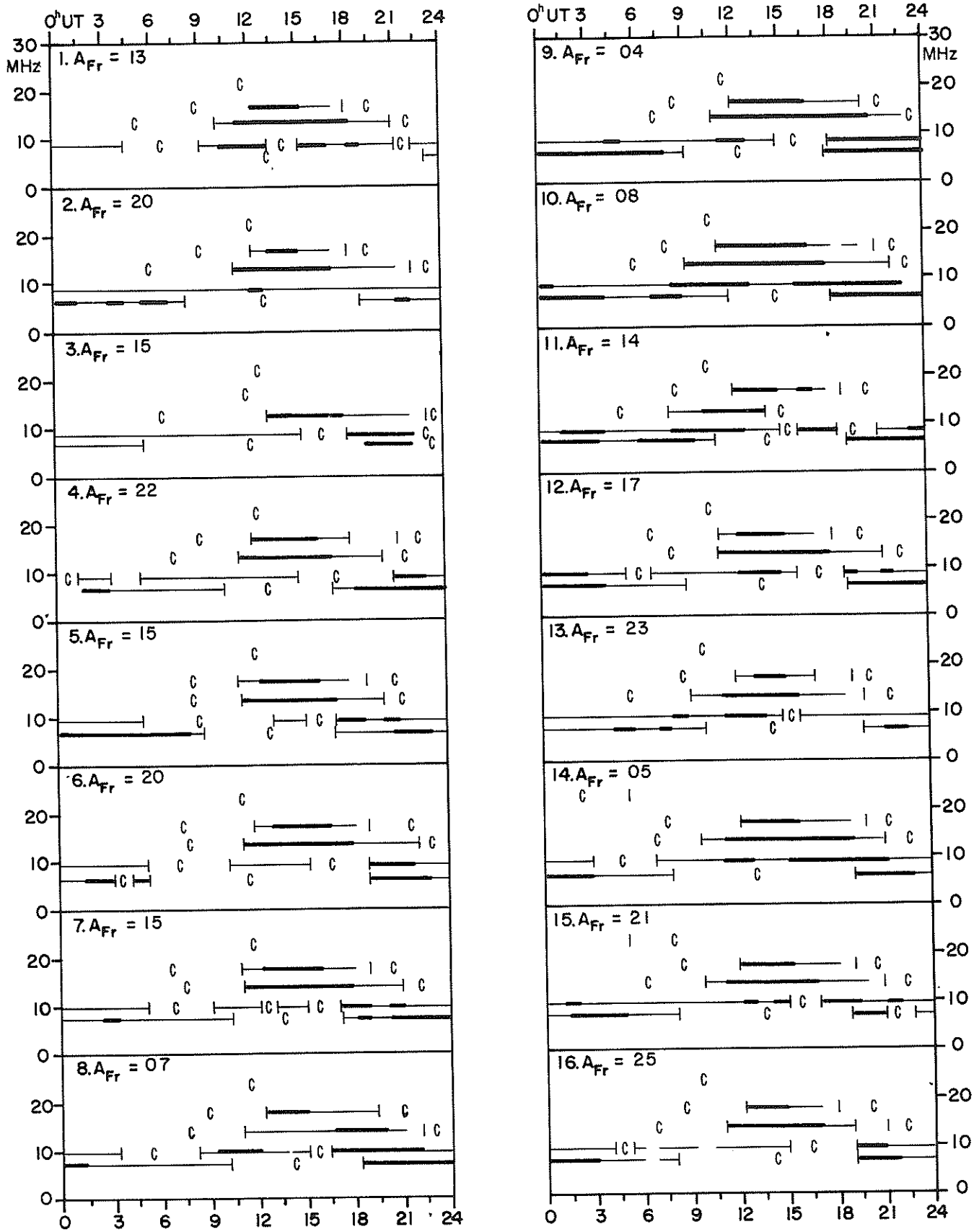
The quality indices vary from 0.0 to 9.9 where 6.0 is normal. Conditions are "normal" (index = 6.0), if they correspond to the average of the preceeding 27 days.

SCALE FOR QUALITY INDICES

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

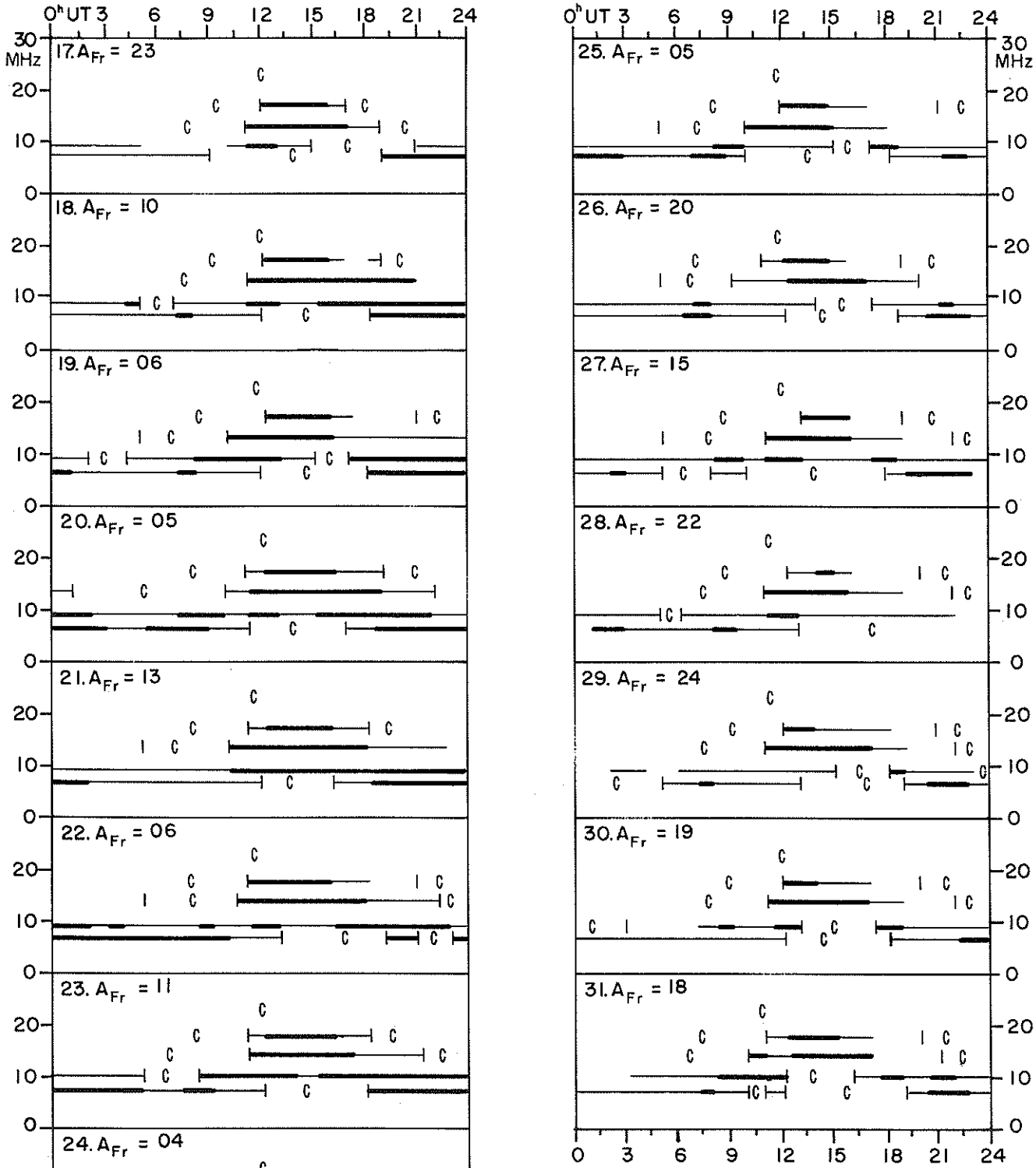
TRANSMISSION FREQUENCY RANGES -- NORTH ATLANTIC PATH

DECEMBER 1984



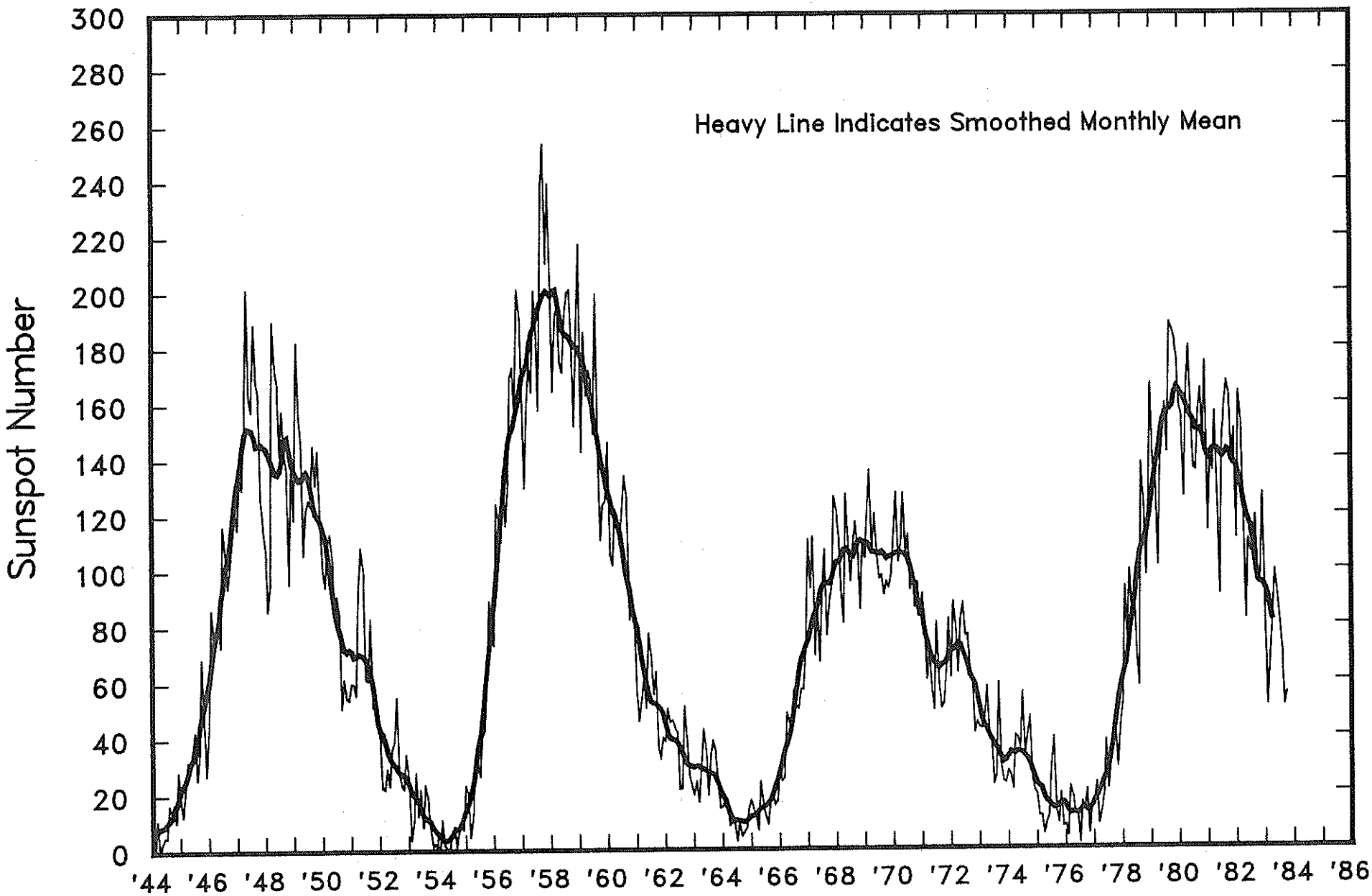
TRANSMISSION FREQUENCY RANGES -- NORTH ATLANTIC PATH

DECEMBER 1984



Field strengths from five frequencies, 6.4, 8.6, 13.0, 17.0 and 22.5 MHz, observed on a Norddeich-New York circuit are represented above. Heavy solid lines represent field strengths $\geq$ -12 dB above 1 µV/m (transmitter power reduced to 1 kW). Observed field strengths between -12 dB above 1 µV/m and -40 dB above 1 µV/m are represented by the fine line.

MONTHLY MEAN SUNSPOT NUMBERS
January 1944 – October 1983



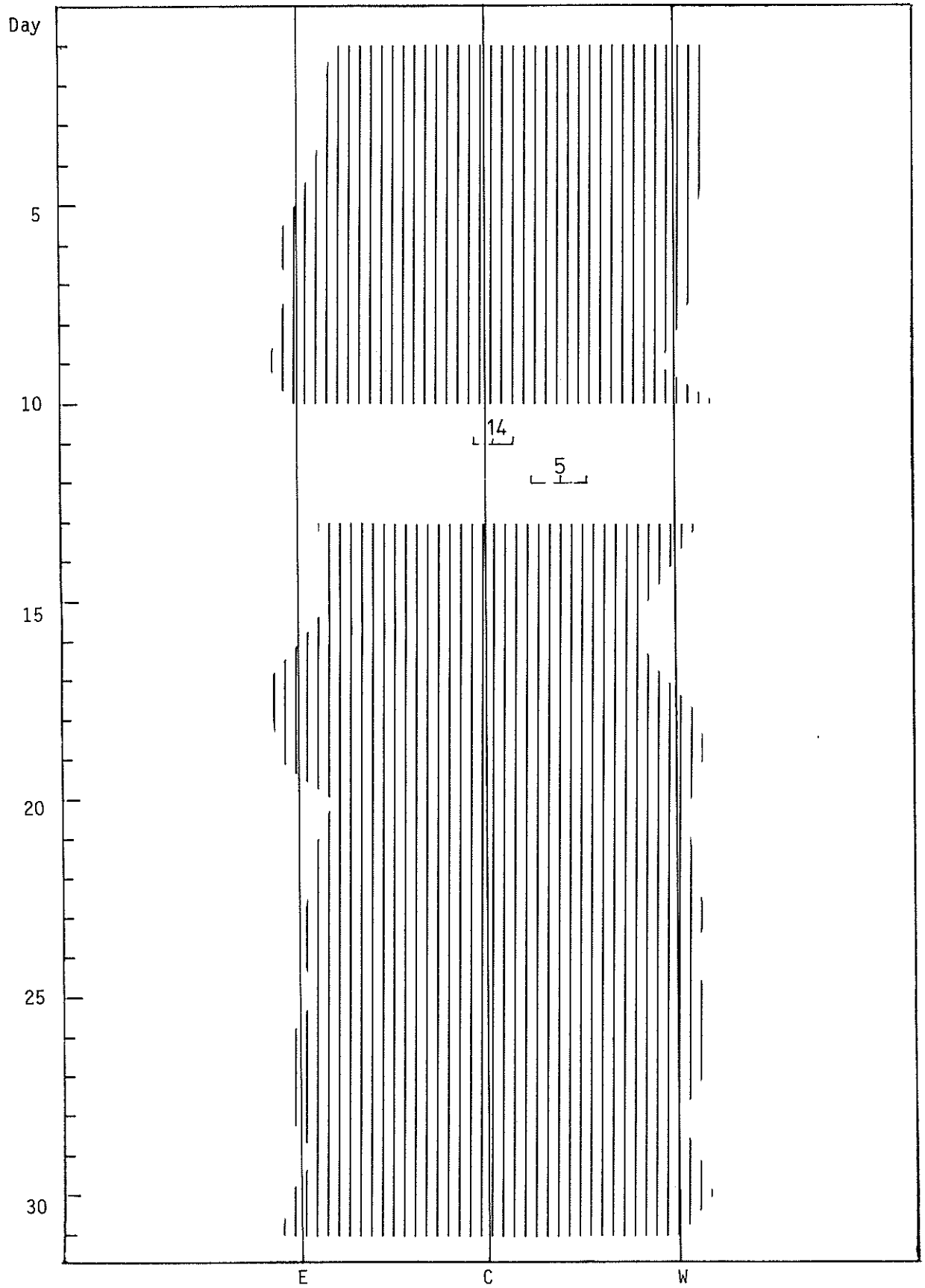
C O N T E N T S

Prompt Reports LATE DATA Number 486 Part I

84
Late
Dec 84

SOLAR INTERFEROMETRIC OBSERVATIONS

Nancay DECEMBER 1984 169 MHz

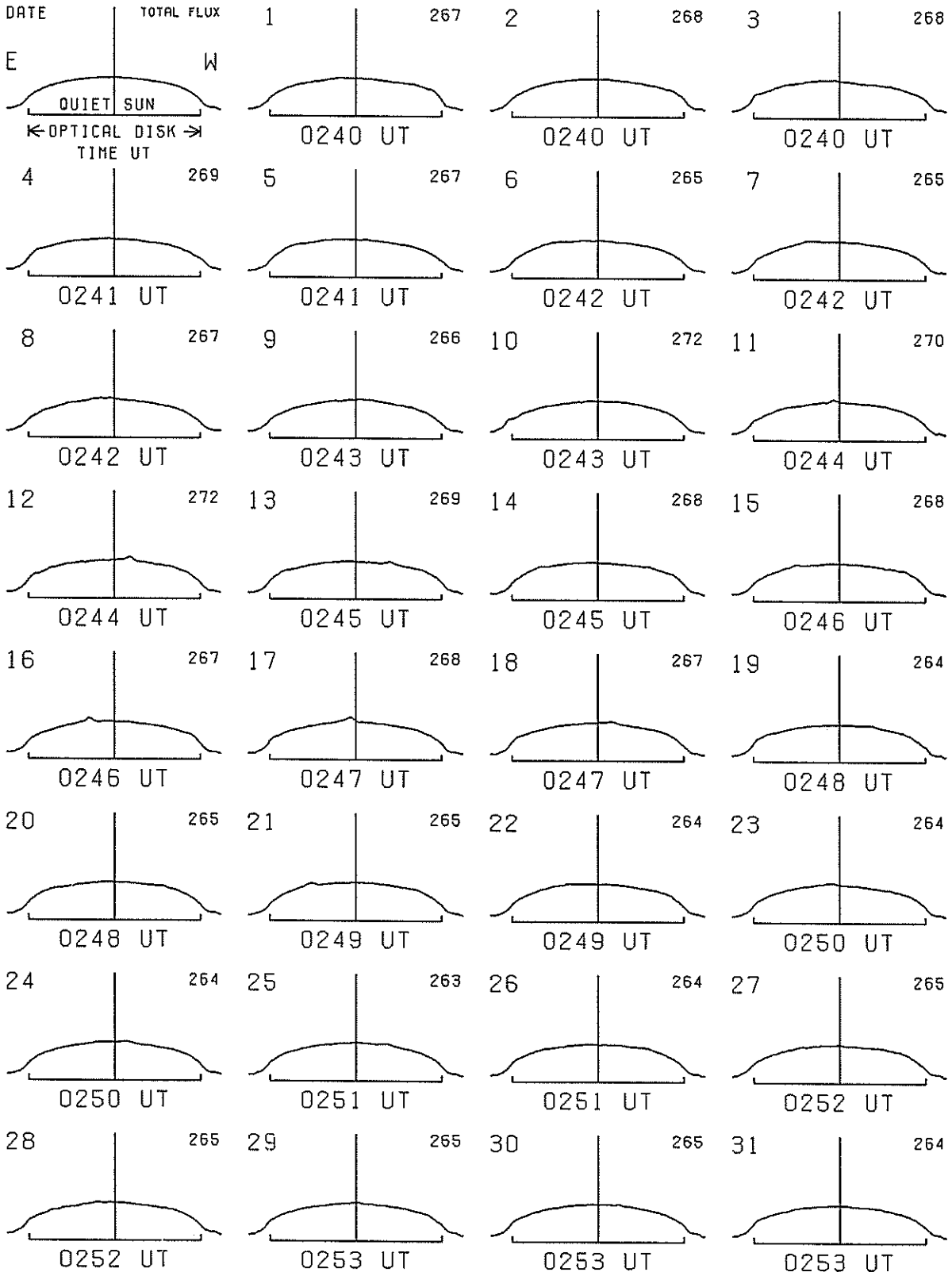


EAST-WEST SOLAR SCANS

DECEMBER 1984

TOYOKAWA, JAPAN

3 CM
FAN BEAM WITH 1.1 MINUTES OF ARC



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Late
Sep 84

PIONEER XII (VENUS ORBITER)
ONE-HOUR MAGNETIC FIELD AVERAGES AT APOAPSIS

SEPTEMBER 1984

Day	Time (UT)	NanoTeslas in Spacecraft Coordinates (Bx)sc	(By)sc	(Bz)sc	Bt	Region W-Wake
1	1130	---	---	---	---	
2	1130	---	---	---	---	
3	1130	---	---	---	---	
4	1130	2.45	-9.43	-5.39	11.78	
5	1130	9.65	-3.24	2.82	13.00	
6	1130	6.98	-6.65	0.21	12.47	
7	1130	---	---	---	---	
8	1130	10.55	-0.91	1.10	12.79	
9	1130	-6.47	-21.68	3.73	23.32	
10	1130	---	---	---	---	
11	1130	-8.45	6.86	2.10	12.25	
12	1130	---	---	---	---	
13	1130	---	---	---	---	
14	1130	---	---	---	---	
15	1130	-5.47	5.73	4.32	10.15	
16	1130	-3.36	2.44	-2.52	9.00	
17	1130	-3.85	0.97	-1.31	7.93	
18	1130	0.98	4.53	2.77	7.95	
19	1130	---	---	---	---	
20	1130	4.15	5.48	0.93	8.50	
21	1130	-5.54	-2.28	-2.68	6.77	
22	1130	---	---	---	---	
23	1130	11.36	0.59	0.02	11.44	
24	1130	5.98	-2.22	-0.77	6.57	
25	1130	1.55	-1.79	0.30	3.54	
26	1120	4.17	-9.77	-6.38	13.31	
27	1120	12.21	-12.25	1.20	20.12	
28	1120	12.15	-1.60	2.63	15.91	
29	1120	3.59	-5.57	-1.31	10.60	
30	1120	9.19	-0.41	-2.46	11.96	

PIONEER XII (VENUS ORBITER)
ONE-HOUR MAGNETIC FIELD AVERAGES AT APOAPSIS

OCTOBER 1984

Day	Time (UT)	NanoTeslas in Spacecraft Coordinates (Bx)sc	(By)sc	(Bz)sc	Bt	Region W-Wake
1	1120	4.73	3.06	-2.39	12.23	
2	1120	11.89	1.91	3.42	13.08	
3	1120	5.47	-23.05	-5.56	26.55	
4	1120	7.22	-1.00	2.96	11.88	
5	1120	2.63	-5.92	-19.56	21.00	
6	1120	---	---	---	---	
7	1120	---	---	---	---	
8	1120	1.22	9.94	1.01	14.19	
9	1120	-5.56	4.81	3.23	10.02	
10	1120	-2.73	12.09	0.21	13.78	
11	1120	-13.67	4.08	1.73	16.39	
12	1120	-6.44	-1.99	-2.16	11.22	
13	1120	-4.01	5.68	-0.89	9.11	
14	1120	-6.51	4.24	-0.32	9.40	
15	1120	-5.83	2.35	-1.81	7.33	
16	1120	---	---	---	---	
17	1110	-2.22	8.66	-0.69	10.48	
18	1110	-3.91	5.96	1.74	7.80	
19	1110	-7.16	4.11	-3.52	10.08	
20	1110	5.11	-6.70	0.71	9.71	
21	1110	-6.75	-12.01	-3.26	15.14	
22	1110	8.64	-6.68	-3.94	12.10	
23	1110	7.30	-5.67	-9.80	13.55	
24	1110	6.79	0.14	4.61	13.41	
25	1110	18.53	-20.53	6.86	28.93	
26	1110	8.83	-10.07	1.44	13.87	
27	1110	7.27	0.12	1.27	11.02	
28	1110	---	---	---	---	
29	1110	11.03	-2.18	0.38	11.28	
30	1110	7.74	-6.51	0.39	11.09	
31	1110	11.69	-0.69	-2.70	12.53	

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PIONEER XII (VENUS ORBITER)
ONE-HOUR MAGNETIC FIELD AVERAGES AT APOAPSIS

NOVEMBER 1984

Day	Time (UT)	NanoTeslas in Spacecraft Coordinates (Bx)sc	(By)sc	(Bz)sc	Bt	Region W-Wake
1	1110	6.84	1.30	-1.72	8.78	
2	1110	9.94	-5.71	0.13	11.76	
3	1110	2.67	-7.92	-1.66	8.90	
4	1100	2.79	1.88	-21.68	21.94	
5	1100	12.58	-10.54	6.55	18.39	
6	1100	---	---	---	---	
7	1100	---	---	---	---	
8	1100	---	---	---	---	
9	1100	---	---	---	---	
10	1100	---	---	---	---	
11	1100	---	---	---	---	
12	1100	-7.33	-2.85	-6.49	10.19	
13	1100	-4.99	3.05	-3.60	9.43	
14	1100	-5.01	6.66	0.57	8.79	
15	1100	-0.07	0.73	7.33	9.79	
16	1100	7.29	10.49	-8.82	15.53	
17	1100	-8.62	-6.83	-32.32	34.26	
18	1100	5.52	-4.33	-2.22	8.54	
19	1100	-2.73	-1.91	-4.40	7.08	
20	1100	-4.85	4.15	-1.89	8.29	
21	1100	-5.02	4.64	0.92	7.27	
22	1100	11.43	-9.76	-1.38	15.63	
23	1100	15.03	-5.43	-2.86	16.40	
24	1100	7.21	-4.32	2.23	10.93	
25	1100	6.75	-2.40	3.45	9.95	
26	1100	12.03	-1.38	1.33	13.92	
27	1050	6.34	0.26	2.91	9.41	
28	1050	8.49	-1.78	0.83	9.87	
29	1050	---	---	---	---	
30	1050	15.71	-10.61	-6.19	21.21	

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

NOVEMBER 1984

Storm Sudden Commencements (ssc)			Solar Flare Effects (sfe)		
Day	Time	Quality: Station Group*	Day	Begin-End	Station(s)
14	2355	B: WNG FRD; C: DOU BVD SPT	10	1256-1500 UT	NGK
			11	0805-0812 UT	CLF
			22	1209-1230 UT	ALM

Reporting Observatories:

SOD NUR WNG WIT NGK HAD BDV CLF GCK MMB EBR
COI SPT FRD ALM KAK HTY LNP GNA CAA CZT KGL DUM

*Three-letter codes identify each observatory.

SOLAR WIND

Interplanetary Scintillations

NOVEMBER 1984

DATE	DOY	UT HR	VMID KM/S	ERR	VPK KM/S	ERR	RATING 1-4	SOURCE	ELONG DEG	LAT DEG	DIST AU	DLON DEG	LAG DAY	ROTATION NUMBER
841101	306	4	315	13	333	18	2	3C459	132	7	1.22	-10	.53	1754.67
	306	11	544	75	577	25	2	3C144	135	3	1.23	10	1.58	1754.74
	306	17	379	24	397	25	3	3C273	34	5	.56	56	2.06	1754.67
	306	19	366	22	366	14	3	3C295	67	24	.92	12	.52	1754.73
	306	21	504	48	502	14	3	3C298	21	55	.36	59	2.07	1754.73
841102	307	2	332	67	334	48	2	3C409	92	16	1.05	-12	-.60	1754.76
	307	3	387	9	405	9	3	3C446	116	7	1.16	-13	-.19	1754.78
	307	5	514	12	516	12	3	3C459	131	7	1.22	-10	.02	1754.81
841103	308	17	485	37	482	37	2	3C273	36	4	.59	54	2.53	1754.77
	308	19	645	64	640	37	2	3C295	68	23	.93	12	.68	1754.88
	308	21	488	*	492	*	2	3C298	22	50	.37	59	2.10	1754.79
841104	309	10	705	52	630	46	2	3C144	138	3	1.24	9	1.30	1754.88
	309	12	537	*	523	*	2	3C161	120	-4	1.18	9	1.31	1754.86
	309	15	529	*	595	*	2	3C222	78	-1	.98	16	1.18	1754.86
	309	17	755	87	642	39	2	3C273	37	4	.60	52	2.99	1754.84
	309	18	723	103	853	121	2	3C283	22	-38	.37	58	2.81	1754.85
	309	19	484	29	496	24	2	3C295	68	23	.93	11	.55	1754.88
	309	20	596	23	600	85	3	3C298	23	48	.39	60	2.64	1754.83
841105	310	14	446	48	410	44	2	3C216	96	9	1.07	16	1.51	1754.86
	310	14	510	*	549	*	2	3C222	79	-1	.99	16	1.20	1754.89
	310	15	531	*	529	*	2	3C237	72	1	.95	18	1.19	1754.90
	310	17	645	23	558	27	2	3C273	38	4	.62	52	2.80	1754.87
841106	311	19	638	60	705	47	3	3C298	24	45	.41	58	2.69	1754.91
841107	312	14	495	*	441	*	2	3C222	81	-1	1.00	16	1.24	1754.96
	312	17	618	37	571	22	3	3C273	40	3	.64	50	2.75	1754.94
	312	19	713	*	790	*	2	3C295	69	21	.93	12	.72	1755.03
	312	20	557	57	606	20	2	3C298	25	43	.42	58	2.49	1754.94
841108	313	15	535	35	659	28	3	3C237	75	0	.97	18	1.22	1755.01
	313	19	564	51	622	45	2	3C298	25	41	.42	60	2.61	1754.97
841109	314	11	512	48	504	70	2	3C161	124	-5	1.19	10	1.44	1755.03
	314	15	366	*	371	*	3	3C237	76	0	.97	18	1.20	1754.99
	314	17	506	14	510	34	3	3C273	42	3	.67	49	2.46	1755.00
	314	20	594	25	594	42	2	3C298	26	39	.44	60	2.78	1755.01
841110	315	14	655	*	609	*	2	3C222	84	-1	1.01	16	1.25	1755.10
	315	15	597	127	594	28	3	3C237	77	0	.98	17	1.20	1755.10
	315	17	994	311	926	213	2	3C273	43	3	.68	48	3.05	1755.08
	315	19	594	26	586	17	3	3C298	27	38	.45	58	2.70	1755.05
841111	316	14	416	*	410	*	2	3C222	85	-2	1.02	17	1.36	1755.08
	316	17	641	23	636	23	2	3C273	44	2	.69	45	2.55	1755.09
	316	20	473	*	484	*	2	3C298	27	36	.45	58	2.28	1755.07
841112	317	11	400	113	511	93	2	3C161	126	-5	1.20	8	1.56	1755.09
	317	15	515	69	622	30	3	3C237	79	0	.99	17	1.24	1755.15
	317	20	728	91	780	240	2	3C298	28	35	.47	58	3.05	1755.13
841113	318	14	623	54	588	51	2	3C237	80	0	.99	17	1.26	1755.21
	318	18	442	72	449	59	2	3C283	30	-28	.50	53	1.93	1755.14
841114	319	3	589	19	523	41	2	3C446	104	6	1.11	-15	-.81	1755.30
	319	15	534	24	552	35	3	3C237	81	0	1.00	17	1.29	1755.23
841115	320	4	589	34	581	45	3	3C459	118	6	1.17	-12	-.36	1755.32
	320	11	438	34	449	28	2	3C161	129	-5	1.21	8	1.51	1755.22
	320	21	386	*	356	*	2	3C298	30	31	.50	56	1.85	1755.20
841116	321	1	333	50	364	35	2	3C409	82	16	1.00	-12	-.89	1755.28
	321	11	439	16	445	91	2	3C161	129	-5	1.21	8	1.52	1755.26
	321	13	571	25	591	26	2	3C216	106	7	1.12	15	1.51	1755.30
	321	14	459	49	453	44	2	3C222	90	-2	1.04	16	1.40	1755.28
	321	14	511	*	513	*	2	3C237	83	-1	1.01	18	1.36	1755.29
841117	322	11	487	26	484	84	2	3C161	130	-5	1.21	8	1.41	1755.31
	322	19	635	24	636	24	3	3C298	32	28	.53	56	2.83	1755.31
841122	327	16	438	50	452	74	2	3C273	55	1	.82	35	1.89	1755.47
	327	17	693	43	688	43	2	3C283	38	-22	.62	47	2.54	1755.51
841124	329	12	500	62	485	58	2	3C196	123	7	1.19	12	1.58	1755.57
	329	13	381	*	465	*	2	3C222	98	-3	1.08	15	1.56	1755.53
	329	14	494	35	466	24	3	3C237	91	-1	1.05	16	1.39	1755.58

SOLAR WIND

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NOVEMBER 1984

DATE	DOY	UT HR	VMID KM/S	ERR	VPK KM/S	ERR	RATING 1-4	SOURCE	ELONG DEG	LAT DEG	DIST AU	DLON DEG	LAG DAY	ROTATION NUMBER
841125	330	13	369	*	359	*	2	3C222	99	-3	1.09	16	1.62	1755.56
	330	16	434	21	431	21	2	3C273	58	0	.85	32	1.77	1755.58
	330	16	568	65	552	50	2	3C283	41	-20	.66	45	2.25	1755.60
	330	18	362	*	352	*	2	3C298	38	20	.62	49	1.75	1755.56
841126	331	14	462	*	458	*	3	3C237	93	-2	1.06	16	1.43	1755.64
841130	335	3	477	30	365	35	2	3C459	103	5	1.11	-15	-.72	1755.85
	335	10	517	8	513	8	3	3C161	140	-7	1.24	5	1.25	1755.80
	335	11	456	23	440	10	3	3C196	128	6	1.21	9	1.53	1755.77
	335	12	513	13	504	13	4	3C216	119	6	1.18	12	1.52	1755.79
	335	13	536	14	541	25	4	3C237	97	-2	1.08	17	1.53	1755.80
	335	15	495	21	514	30	4	3C273	63	0	.89	28	1.70	1755.79
	335	16	543	15	563	15	4	3C283	46	-17	.72	40	2.10	1755.79
	335	17	924	*	943	*	2	3C295	80	15	.99	11	.79	1755.89
	335	18	720	18	709	33	4	3C298	43	17	.68	45	2.57	1755.80

VMID IS A MEAN AND VPK IS A MAXIMUM VELOCITY IN THE IPS SCATTERING REGION.
THE REGIONS CENTROID IS SPECIFIED BY LAT, DIST, DLON.
LAG AND ROTATION NUMBER GIVE MAPPING TO EARTH AND SUN AT VMID.
* INDICATES NO ERROR AVAILABLE, SINCE ONLY TWO ANTENNAS WERE OPERATING.

SOLAR WIND

Interplanetary Scintillations

DECEMBER 1984

DATE	DOY	UT HR	VMID KM/S	ERR	VPK KM/S	ERR	RATING 1-4	SOURCE	ELONG DEG	LAT DEG	DIST AU	DLON DEG	LAG DAY	ROTATION NUMBER
841201	336	5	448	72	465	62	3	3C48	140	7	1.24	-6	.54	1755.84
	336	11	360	20	354	53	3	3C196	129	6	1.21	10	1.88	1755.76
	336	12	373	21	377	20	3	3C216	120	6	1.18	11	1.75	1755.77
	336	13	493	*	524	*	2	3C222	105	-4	1.12	14	1.53	1755.83
	336	13	544	30	559	23	3	3C237	98	-2	1.08	16	1.50	1755.84
	336	15	532	21	560	56	3	3C273	64	0	.90	26	1.58	1755.84
	336	16	541	16	508	27	2	3C283	46	-17	.72	40	2.09	1755.82
	336	18	635	73	642	58	3	3C298	43	16	.68	45	2.45	1755.83
841202	337	1	564	172			2	3C446	86	4	1.02	-18	-1.25	1755.96
	337	5	434	15	435	57	2	3C48	139	7	1.24	-6	.56	1755.87
	337	12	235	43	271	49	2	3C216	121	5	1.18	11	2.31	1755.68
	337	13	850	*	814	*	2	3C222	106	-4	1.12	15	1.37	1755.93
	337	16	500	17	520	16	3	3C283	47	-17	.73	40	2.04	1755.85
	337	18	829	155	842	170	3	3C298	44	15	.69	44	2.68	1755.89
841203	338	2	736	25	735	25	3	3C459	100	5	1.09	-15	-.94	1756.02
	338	5	746	18	731	18	3	3C48	139	7	1.24	-7	.08	1755.99
	338	13	543	*	535	*	2	3C222	107	-4	1.12	14	1.50	1755.91
	338	15	817	46	812	28	3	3C273	66	0	.91	24	1.59	1755.95
	338	16	511	73	480	39	3	3C283	48	-16	.74	39	2.04	1755.89
	338	18	777	35	768	23	2	3C298	45	14	.71	44	2.61	1755.92
841204	339	2	247	22	258	29	3	3C459	99	5	1.09	-15	-.49	1755.86
	339	13	591	*	578	*	2	3C222	108	-4	1.13	14	1.47	1755.96
	339	15	736	21	739	44	4	3C273	67	0	.92	22	1.49	1755.99
	339	16	426	25	437	17	4	3C283	49	-16	.75	38	1.84	1755.91
	339	18	843	26	827	26	4	3C298	46	14	.72	42	2.57	1755.96
841205	340	2	588	30			2	3C459	98	4	1.08	-15	-.89	1756.07
	340	5	766	*	788	*	3	3C48	137	6	1.24	-7	.07	1756.07
	340	13	701	130	719	63	2	3C237	102	-3	1.10	14	1.36	1756.02
841206	341	5	740	*	756	*	2	3C48	136	6	1.23	-8	-.01	1756.10
	341	13	492	*	504	*	2	3C237	103	-3	1.11	16	1.60	1756.01
	341	15	840	35	828	26	3	3C273	69	-1	.93	21	1.42	1756.07
	341	16	499	17	478	14	3	3C283	51	-15	.78	36	1.88	1756.00
	341	18	868	32	866	32	4	3C298	48	13	.74	41	2.55	1756.04
841207	342	4	544	*	568	*	2	3C48	135	6	1.23	-8	.22	1756.10
	342	13	554	80	505	69	2	3C237	104	-3	1.11	16	1.57	1756.06
	342	15	831	*	786	*	3	3C273	70	-1	.94	20	1.40	1756.11
	342	16	660	217			2	3C283	52	-15	.79	35	2.03	1756.07
	342	18	796	25	792	25	3	3C298	49	12	.75	40	2.44	1756.08
841208	343	4	706	*	759	*	2	3C48	134	6	1.23	-8	.02	1756.17
	343	12	474	*	474	*	2	3C222	112	-4	1.15	13	1.53	1756.08
	343	13	379	14	369	27	3	3C237	105	-3	1.12	15	1.68	1756.04
	343	16	396	12	397	34	4	3C283	53	-14	.80	34	1.67	1756.05
	343	17	908	*	908	*	2	3C295	84	13	1.01	11	.83	1756.18
	343	17	984	165	960	94	2	3C298	50	12	.77	38	2.43	1756.12
841209	344	1	269	34	279	58	3	3C446	79	3	.99	-17	-1.39	1756.09
	344	4	790	70			2	3C48	133	6	1.22	-9	-.16	1756.22
	344	13	409	*	461	*	2	3C237	107	-3	1.12	14	1.66	1756.09
	344	16	450	23	420	14	3	3C283	54	-14	.81	34	1.77	1756.10
	344	17	721	39	734	77	4	3C298	51	11	.78	38	2.27	1756.14
841210	345	1	326	37	349	88	2	3C446	78	3	.98	-17	-1.39	1756.18
	345	2	451	15	427	110	3	3C459	93	4	1.06	-16	-.94	1756.22
	345	4	456	76	483	69	2	3C48	133	6	1.22	-9	.24	1756.18
	345	12	406	*	415	*	2	3C222	114	-4	1.16	13	1.71	1756.12
	345	13	400	78	384	61	2	3C237	108	-3	1.13	14	1.64	1756.12
	345	15	467	17	473	27	2	3C273	73	-1	.96	17	1.09	1756.17
	345	15	423	12	422	34	4	3C283	55	-14	.82	32	1.66	1756.13
	345	17	767	24	745	24	3	3C298	52	10	.79	37	2.27	1756.19
841211	346	12	394	*	386	*	2	3C222	115	-5	1.16	13	1.72	1756.15
	346	13	468	28	452	118	2	3C237	109	-3	1.13	15	1.63	1756.18
	346	15	454	13	453	13	4	3C273	74	-1	.96	18	1.20	1756.20
	346	15	493	22	475	32	3	3C283	56	-13	.83	32	1.76	1756.19
	346	17	503	*	509	*	2	3C295	85	13	1.02	10	.85	1756.23

SOLAR WIND

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DATE	DOY	UT HR	VMID KM/S	ERR	VPK KM/S	ERR	RATING 1-4	SOURCE	ELONG DEG	LAT DEG	DIST AU	DLON DEG	LAG DAY	ROTATION NUMBER
841212	347	2	338	45	322	67	2	3C459	91	4	1.05	-15	-.88	1756.24
	347	4	493	10	485	10	4	3C48	131	6	1.22	-9	.17	1756.27
	347	10	363	6	376	23	3	3C196	138	5	1.24	7	1.77	1756.17
	347	12	334	38	307	64	2	3C222	116	-5	1.16	12	1.85	1756.15
	347	13	336	*	379	*	2	3C237	110	-3	1.14	15	1.89	1756.15
	347	14	535	26	555	19	3	3C273	75	-1	.97	18	1.22	1756.25
	347	15	762	44	738	79	3	3C283	57	-13	.84	31	1.95	1756.27
	347	17	666	47	634	49	3	3C298	53	9	.80	36	2.13	1756.25
841213	348	1	522	61	520	76	2	3C446	75	3	.97	-17	-1.44	1756.36
	348	4	606	22	621	23	3	3C48	130	6	1.21	-9	-.04	1756.34
	348	12	598	*	607	*	2	3C222	117	-5	1.17	12	1.43	1756.29
	348	13	665	*	643	*	2	3C237	111	-3	1.14	14	1.44	1756.31
	348	14	547	*	573	*	2	3C273	76	-1	.97	17	1.22	1756.29
	348	15	703	*	737	*	2	3C283	58	-13	.85	29	1.82	1756.30
	348	16	512	*	523	*	2	3C295	86	13	1.02	11	.91	1756.30
	348	18	535	*	533	*	2	3C298	54	9	.81	35	1.98	1756.27
841214	349	4	411	96	392	95	2	3C48	129	6	1.21	-9	.25	1756.31
	349	14	591	*	609	*	2	3C273	77	-2	.98	18	1.32	1756.34
	349	17	553	40	586	26	3	3C298	55	8	.82	34	1.94	1756.31
841215	350	2	548	32	549	19	3	3C459	88	3	1.03	-16	-1.12	1756.43
	350	12	360	*	385	*	2	3C222	119	-5	1.18	13	1.88	1756.28
	350	12	417	*	427	*	2	3C237	113	-4	1.15	14	1.75	1756.31
	350	14	373	*	401	*	2	3C273	78	-2	.98	18	1.30	1756.31
	350	15	721	51	732	57	3	3C283	60	-12	.87	27	1.74	1756.38
	350	16	544	*	546	*	2	3C295	87	12	1.03	11	.90	1756.38
	350	17	520	*	536	*	2	3C298	56	8	.83	32	1.80	1756.34
841216	351	4	788	19	711	21	2	3C48	127	5	1.20	-10	-.24	1756.48
	351	12	602	*	620	*	2	3C237	114	-4	1.16	14	1.53	1756.40
	351	14	767	34	765	35	3	3C273	79	-2	.99	17	1.29	1756.44
	351	15	824	*	824	*	2	3C283	61	-12	.87	28	1.83	1756.43
	351	16	447	*	454	*	2	3C295	88	12	1.03	10	.91	1756.39
	351	17	633	26	642	27	4	3C298	57	8	.84	32	1.99	1756.40
841217	352	4	685	38	561	49	2	3C48	126	5	1.20	-9	-.14	1756.50
	352	12	508	*	589	*	2	3C222	121	-5	1.18	12	1.56	1756.41
	352	12	565	*	601	*	2	3C237	115	-4	1.16	14	1.56	1756.43
	352	15	759	*	754	*	2	3C283	62	-12	.88	26	1.72	1756.46
	352	17	773	23	735	21	3	3C298	58	7	.85	31	1.99	1756.45
841218	353	0	251	31	250	8	3	3C446	70	3	.94	-20	-1.96	1756.42
	353	4	529	18	432	15	2	3C48	125	5	1.20	-10	-.03	1756.50
	353	12	480	*	528	*	2	3C237	116	-4	1.16	13	1.65	1756.44
	353	14	788	*	772	*	2	3C273	81	-2	1.00	17	1.28	1756.51
	353	16	571	*	599	*	2	3C295	89	12	1.04	10	.91	1756.50
	353	17	745	*	787	*	2	3C298	59	7	.86	30	1.90	1756.49
841219	354	20	416	*	408	*	2	3C368	34	54	.56	5	-1.59	1756.59
841220	355	1	493	47	499	21	3	3C459	83	3	1.01	-16	-1.20	1756.61
	355	4	442	81	433	65	2	3C48	124	5	1.19	-10	.03	1756.55
	355	12	541	*	570	*	2	3C237	118	-4	1.17	14	1.64	1756.53
	355	15	617	95	620	46	2	3C283	65	-11	.91	23	1.45	1756.55
	355	16	599	*	616	*	2	3C295	90	11	1.04	10	.91	1756.57
	355	17	656	29	609	21	3	3C298	61	6	.87	27	1.71	1756.56
	355	20	599	*	584	*	2	3C368	34	54	.56	6	-.91	1756.65
	355	23	326	*	283	*	2	3C409	57	26	.84	-17	-2.22	1756.61
841221	356	3	388	22	378	28	3	3C48	123	5	1.19	-10	.13	1756.56
	356	12	476	*	473	*	2	3C237	119	-4	1.18	12	1.62	1756.55
	356	15	752	*	764	*	2	3C283	66	-10	.91	22	1.47	1756.61
	356	17	507	18	503	12	3	3C298	62	5	.88	26	1.56	1756.57
841222	357	1	457	44	456	19	3	3C459	81	3	1.00	-17	-1.27	1756.67
	357	3	728	32	727	52	3	3C48	122	5	1.19	-10	-.28	1756.69
	357	11	648	51	679	53	2	3C216	137	3	1.24	7	1.22	1756.64
	357	12	489	51	497	56	3	3C237	120	-4	1.18	13	1.65	1756.59
	357	14	545	45	548	25	3	3C273	85	-2	1.02	17	1.36	1756.62
	357	15	796	82	705	82	2	3C283	67	-10	.92	23	1.53	1756.65

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841222	357	16	468	*	525	*	2	3C295	91	11	1.05	10	.95	1756.61
	357	17	439	12	413	21	3	3C298	63	5	.89	26	1.52	1756.59
841223	358	3	636	71	618	27	2	3C48	121	5	1.18	-11	-.27	1756.72
	358	11	582	*	612	*	2	3C222	126	-6	1.20	11	1.50	1756.65
	358	14	598	29	593	49	3	3C273	86	-3	1.02	17	1.36	1756.67
	358	16	547	*	551	*	2	3C295	92	11	1.05	10	.92	1756.67
	358	20	416	*	469	*	2	3C368	34	53	.56	12	-1.06	1756.71
841224	359	3	413	10	437	12	3	3C48	120	5	1.18	-11	-.04	1756.68
	359	12	363	*	377	*	2	3C237	122	-5	1.19	12	1.84	1756.61
	359	14	408	*	418	*	2	3C273	87	-3	1.03	17	1.42	1756.65
	359	15	544	30	522	89	2	3C283	69	-10	.93	20	1.28	1756.70
	359	15	402	*	443	*	2	3C295	92	11	1.05	11	1.05	1756.66
	359	17	425	38	427	57	2	3C298	65	4	.91	25	1.46	1756.66
841225	360	3	416	32	467	13	2	3C48	119	4	1.18	-11	-.08	1756.72
	360	12	478	*	476	*	2	3C237	123	-5	1.19	12	1.64	1756.70
	360	14	433	15	434	15	3	3C273	88	-3	1.03	16	1.38	1756.69
	360	16	479	*	471	*	2	3C295	93	11	1.06	11	1.04	1756.73
	360	17	534	41	516	17	3	3C298	66	4	.91	23	1.44	1756.72
	361	0	357	9	363	10	3	3C446	62	4	.88	-28	-2.71	1756.83
841226	361	1	430	13	441	12	3	3C459	77	2	.98	-16	-1.30	1756.81
	361	3	405	11	411	41	3	3C48	118	4	1.17	-11	-.05	1756.76
	361	11	529	*	536	*	2	3C222	129	-6	1.21	11	1.56	1756.75
	361	12	553	*	560	*	2	3C237	124	-5	1.19	12	1.56	1756.75
	361	17	572	*	575	*	2	3C298	67	3	.92	22	1.44	1756.77
	361	19	344	48	340	15	3	3C368	35	51	.57	16	-1.09	1756.79
841227	362	11	499	*	521	*	2	3C222	130	-6	1.21	10	1.57	1756.78
	362	12	462	*	470	*	2	3C237	125	-5	1.20	12	1.73	1756.76
	362	14	465	*	498	*	2	3C273	90	-3	1.04	17	1.45	1756.78
	362	14	583	*	583	*	2	3C283	72	-9	.95	18	1.20	1756.82
	362	15	642	*	644	*	2	3C295	94	10	1.06	9	.89	1756.84
	362	16	528	*	537	*	2	3C298	68	3	.93	22	1.40	1756.80
	362	19	452	*	476	*	2	3C368	35	50	.57	19	-.33	1756.85
841228	363	11	543	*	530	*	2	3C222	131	-6	1.22	10	1.50	1756.83
	363	12	504	*	516	*	2	3C237	126	-5	1.20	11	1.61	1756.81
	363	13	621	*	618	*	2	3C273	91	-3	1.05	17	1.40	1756.85
	363	15	617	*	649	*	2	3C295	94	10	1.06	11	1.00	1756.87
	363	16	563	*	580	*	2	3C298	69	3	.93	21	1.39	1756.84
	363	19	600	*	600	*	2	3C368	35	50	.57	21	.23	1756.90
841229	364	11	542	*	563	*	2	3C222	132	-6	1.22	11	1.57	1756.86
	364	11	884	*	923	*	2	3C237	127	-5	1.20	12	1.30	1756.92
	364	13	465	*	523	*	2	3C273	92	-3	1.05	16	1.45	1756.85
	364	15	650	*	666	*	2	3C295	95	10	1.07	10	.93	1756.91
	364	16	631	*	659	*	2	3C298	69	2	.93	20	1.29	1756.89
	364	19	542	*	539	*	2	3C368	35	49	.57	21	.13	1756.92
841231	366	11	748	*	743	*	2	3C222	134	-6	1.23	10	1.30	1756.98
	366	11	598	*	629	*	2	3C237	129	-5	1.21	11	1.51	1756.95
	366	13	565	*	574	*	2	3C273	94	-3	1.06	16	1.40	1756.95
	366	14	531	*	556	*	2	3C283	76	-9	.97	17	1.19	1756.95
	366	16	820	*	864	*	2	3C298	71	1	.95	19	1.29	1757.00

VMID IS A MEAN AND VPK IS A MAXIMUM VELOCITY IN THE IPS SCATTERING REGION.
THE REGIONS CENTROID IS SPECIFIED BY LAT, DIST, DLON.
LAG AND ROTATION NUMBER GIVE MAPPING TO EARTH AND SUN AT VMID.
* INDICATES NO ERROR AVAILABLE, SINCE ONLY TWO ANTENNAS WERE OPERATING.

COSMIC RAY INDICES
(Neutron Monitor)

August 1984

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	4149	6706.0	6354.3	5768.4	3803.6	1157	3542.7	1726.6(28)
2	4158	6742.4	6389.7	5785.0	3799.5	1154	3540.6	1728.4(10)
3	4157	6720.0	6387.1	5778.4	3795.5	1153	3536.0	1723.3
4	4166	6754.8	6404.8	5783.7	3804.6	1155	3540.7	1724.9
5	4167	6769.3	6419.6	5801.0	3808.7	1156	3539.2	1727.3
6	4182	6796.8	6417.0	5818.6	3798.5	1154	3538.4	1721.0(14)
7	4203	6816.1	6432.5	5824.8	3798.3	1154	3540.5	1742.1
8	4193	6799.3	6425.3	5809.4	3794.0	1147	3537.2	1737.6(26)
9	4177	6776.0	6394.5	5797.8	3791.6	1146	3536.4	1732.6(36)
10	4187	6782.4	6418.6	5828.1	3801.0	1150	3540.3	1743.0
11	4196	6777.5	6435.6	5825.1	3805.6	1151	3537.7	1737.5
12	4193	6755.9	6423.5	5827.0	3800.4	1149	3542.2	1736.6
13	4203	6774.1	6437.5	5850.0	3813.7	1151	3547.5	1746.1
14	4197	6804.7	6426.6	5841.6	3812.3	1152	3540.8	1736.9
15	4197	6785.7	6423.6	5833.9	3810.3	1150	3536.2	1731.1
16	4197	6812.9	6439.3	5845.4	3811.5	1157	3540.7	1728.9(28)
17	4202	6799.2	6485.5	5857.6	3826.2	1163	3550.0	1732.2
18	4218	6808.8	6519.7	5867.2	3846.7	1164	3561.7	1744.8
19	4244	6873.5	6491.0	5864.2	3821.0	1170	3551.7	1734.6
20	4220	6820.8	6529.4	5857.7	3844.7(28)	1168	3571.7	1739.6
21	4221	6825.5	6468.5	5857.1	3836.1	1163	3538.1	1732.7
22	4218	6810.1	6460.5	5846.8	3812.1	1159	3532.6	1729.9
23	4208	6820.5	6469.6	5850.3	3815.6	1159	3539.5	1732.4(34)
24	4189	6782.7	6457.1	5834.8	3811.6	1159	3543.0	1738.4
25	4192	6767.6	6457.4	5841.4	3807.9	1157	3543.5	1742.3
26	4192	6768.5	6470.4	5855.7	3818.8	1159	3544.4	1744.8
27	4203	6817.5	6482.3	5856.0	3834.4	1161	3549.7	1742.9(34)
28	4206	6800.3	6458.1	5869.9	3838.2	1166	3556.3	---
29	4226	6815.5	---	5884.2	3848.1	1168	3558.5	---
30	4227	6833.0	6504.9	5889.1	3864.0	1172	3557.7	---
31	4232	6871.2	6527.6	5885.9	3861.0	1173	3555.3	---
Mean	4197	6793.2	6447.1	5836.6	3816.6	1158	3544.9	1735.6

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

COSMIC RAY INDICES
(Neutron Monitor)

September 1984

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	4243	6911.3	6536.6	5900.4	3866.6(38)	1174	3557.9	---
2	4250	6921.1	6545.3	5909.8	3865.0	1175	3563.8	---
3	4246	6905.4	6550.8	5903.3	3867.3(26)	1170	3564.2	---
4	4218	6885.8	6481.9	5871.7	---	1167	3548.0(23)	---
5	4197	6817.9	6439.7	5842.0	---	1167	3549.9	---
6	4183	6780.9	6441.3	5802.1	3800.7(6)	1152	3543.5	---
7	4185	6800.1	6429.4	5798.9	3784.9	1149	3537.8	---
8	4195	6818.6	6431.8	5835.2	3802.1	1149	3527.7	1734.6
9	4194	6802.6	6442.7	5848.7	3815.3	1152	3524.4	1731.1
10	4223	6865.5	6456.6	5868.7	3844.5	1159	3529.3	1734.2
11	4217	6849.4	6450.0	5851.3	3836.2	1158	3533.0	1736.4
12	4229	6851.9	6477.0	5841.1	3834.2	1158	3545.2	1740.9
13	4234	6838.3	6479.4	5840.1	3838.7	1158	3547.2	1736.5(32)
14	4231	6830.9	6490.3	5862.4	3846.5	1164	3541.5	1736.5
15	4240	6817.3	6526.7	5854.1	3846.2	1166	3539.7	1736.6
16	4232	6790.3	6528.0	5848.0	3841.2	1165	3539.1	1737.8
17	4244	6784.3	6519.1	5869.0	3848.3	1163	3552.2	1739.3
18	4248	6816.1	6524.5	5889.5	3844.3	1165	3556.2	1746.0
19	4240	6810.7	6497.0	5876.4	3836.5	1167	3558.0	1748.1
20	4223	6791.0	6476.1	5855.9	3829.8	1164	3554.6	1745.6(38)
21	4248	6842.0	6520.8	5893.8	3859.4	1170	3562.7	1736.3
22	4254	6851.9	6513.8	5910.2	3864.6	1167	3574.9	1738.5
23	4219	6802.4	6453.9	5893.3	3855.7	1168	3576.4	1739.0
24	4208	6776.8	6458.8	5872.6	3845.0	1156	3567.6	1736.7
25	4229	6800.9	6446.2	5862.7	3832.3	1154	3559.3	1734.5
26	4226	6827.5	6486.2	5873.9	3844.0	1150	3572.5	1738.4
27	---	6837.9	6514.4	5868.1	3856.9	1159	3577.5	1735.0
28	---	6844.5	6524.9	5882.9	3863.2	1165	3574.9	1737.5
29	4246	6832.6	6539.0	5893.1	3873.5	1170	3572.8	1739.6
30	4247	6819.0	6550.8	5894.4	3867.3	1170	3574.0	1741.0
Mean	4227	6830.9	6491.1	5867.1	3843.9	1162	3554.2	1738.3

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

COSMIC RAY INDICES
(Neutron Monitor)

October 1984

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	4255	6832.4	6564.3	5920.0	3866.3	1171	3578.4	1743.7
2	4262	6835.7	6569.8	5912.0	3859.1	1171	3574.9	1744.4
3	4259	6824.5	6557.8	5913.2	3859.0	1169	3571.7	1740.5
4	4248	6805.5	6539.5	5902.6	3853.2	1165	3569.9	1740.8
5	4249	6805.8	6550.9	5914.4	3848.1	1167	3569.2	1743.4
6	4145	6658.0	6431.4	5775.0	3761.4	1148	3547.8	1733.9
7	4219	6762.2	6479.1	5839.0	3819.5	1164	3573.5	1743.8
8	4227	6791.1	6471.2	5836.4	3818.1	1162	3570.9	1739.8
9	4224	6750.2	6473.7	5828.8	3818.3	1158	3565.9	1735.4
10	4213	6773.5	6476.5	5844.5	3841.0	1160	3555.7	1735.4
11	4228	6787.5	6488.8	5844.2	3847.8	1165	3560.0	1729.0
12	4229	6775.2	6502.7	5853.6	3861.0	1167	3551.4	1727.6(38)
13	4226	6761.6	6501.8	5842.0	3848.6	1166	3557.5	1739.3
14	4212	6762.8	6514.2	5837.3	3859.1	1166	3569.9	1740.2
15	4214	6789.8	6520.3	5859.2	3877.3	1168	3582.0	1746.6
16	4236	6811.5	6516.5	5861.1	3867.2	1172	3582.1	1749.7
17	4256	6812.8	6540.1	5884.2	3878.9	1173	3574.5	1752.1
18	4240	6784.1	6520.2	5887.0	3882.5	1177	3578.1	1747.4
19	4204	6748.7	6465.9	5842.3	3858.2	1169	3565.0	1733.7(38)
20	4204	6735.5	6449.9	5839.9	3836.9(38)	1171	3563.3	1728.6
21	4200	6721.0	6442.9	5813.5	3838.7	1167	3565.9	1726.1
22	4206	6741.0	6458.8	5822.9	3835.6	1170	3570.0	1729.1
23	4221	6769.4	6493.6	5843.3	3840.4	1169	3567.9	1725.3
24	4223	6772.6	6500.6	5853.0	3853.5	1170	3569.0	1727.0
25	4242	6794.2	6503.7	5881.7	3855.8	1173	3575.0	1729.9(38)
26	4204	6728.3	6439.0	5813.2	3806.6	1161	3564.6	1727.9
27	4214	6747.5	6450.9	5831.6	3824.9	1161	3558.6	1729.1
28	----	6756.0	6474.5	5852.7	3832.6	1167	3567.1	1730.9
29	4242	6755.8	6515.5	5855.9	3837.4	1171	3576.6	1730.6
30	4240	6775.8	6528.5	5857.3	3840.7	1176	3588.6	1732.1
31	4247	6779.4	6551.9	5877.4	3863.2	1175	3590.3	1733.5
Mean	4226	6772.6	6499.9	5856.1	3845.1	1167	3569.5	1736.0

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

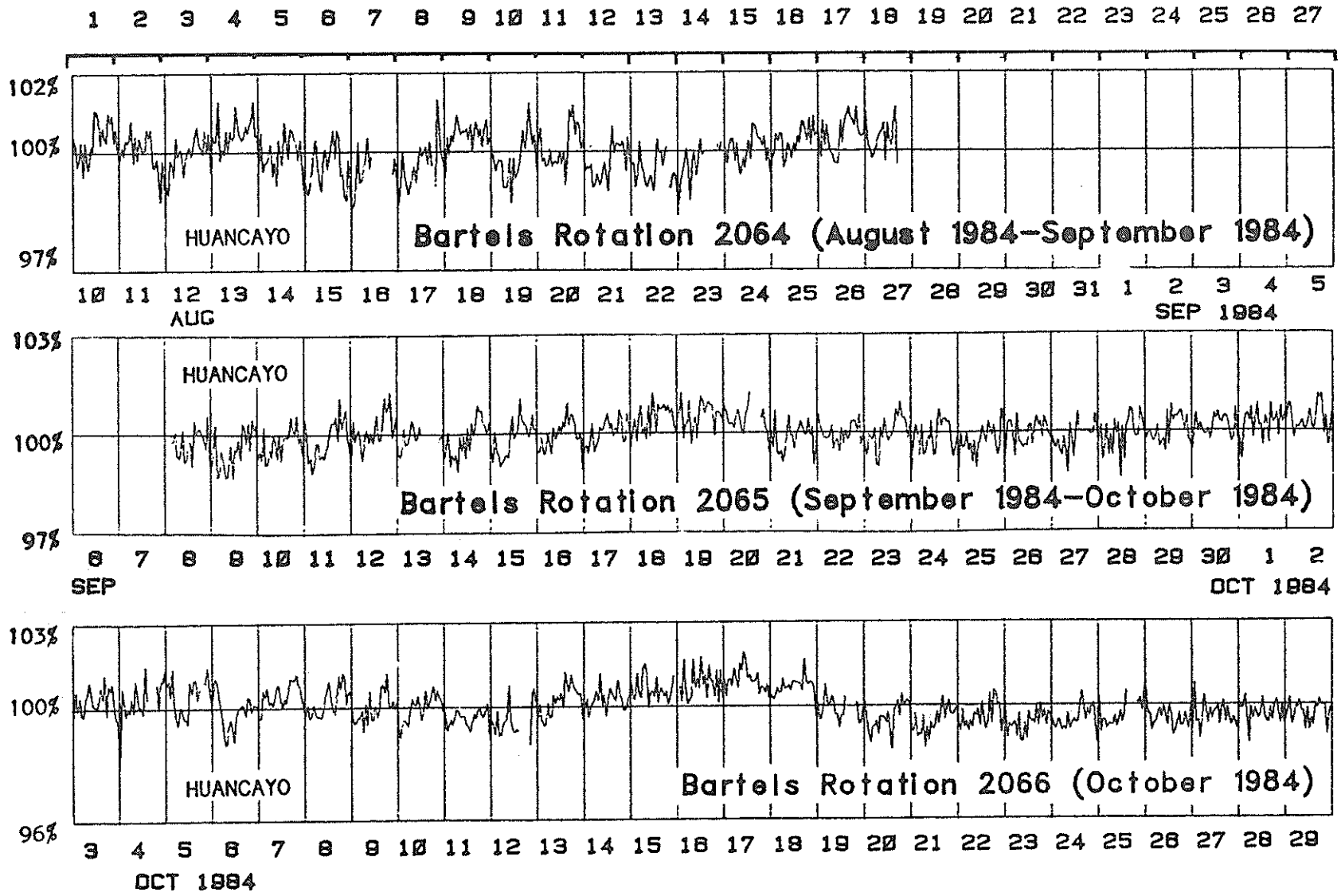
COSMIC RAY INDICES
(Neutron Monitor)

November 1984

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	4196	6726.0	6483.9	5844.1	3836.3	1170	3576.0	1729.4
2	4176	6678.6	6443.3	5805.9	3786.5	1162	3552.1	1716.2
3	4195	6694.0	6476.9	5830.4	3822.2	1166	3556.9	1722.6
4	4211	6731.8	6471.1	5859.7	3829.8	1168	3565.5	1724.6
5	4200	6698.3	6466.5	5847.7	3818.6	1168	3556.5	1720.7
6	4196	6729.0	6497.4	5849.7	3819.1	1169	3557.3	1726.1
7	4208	6743.0	6506.4	5841.4	3830.6	1171	3561.6	1725.7
8	4213	6762.6	6498.0	5843.5	3831.0	1172	3563.0	1729.3
9	4200	6751.3	6467.6	5819.9	3813.5	1168	3560.5	1731.7
10	4197	6738.0	6456.8	5810.0	3806.7	1168	3560.8	1728.4
11	4209	6743.6	6455.3	5831.3	3811.0	1169	3556.5	1732.0
12	4207	6754.0	6455.8	5846.3	3814.1	1173	3566.3	1732.7
13	4226	6777.8	6490.0	5865.1	3823.6	1174	3571.4	1735.4
14	4193	6711.8	6475.0	5830.6	3814.9	1166	3566.8	1730.7
15	4158	6650.4	6391.1	5795.8	3773.6	1160	3532.4	1723.8(38)
16	4160	6675.3	6436.5	5835.5	3845.3	1178	3571.5	1735.2
17	4159	6672.0	6423.2	5789.3(13)	3808.4	1161	3550.0	1726.3
18	4172	6690.6	6409.7	5797.1(12)	3793.9	1155	3542.2	1721.0
19	4163	6690.8	6432.8	5795.6	3796.6	1156	3543.4	1723.0
20	4172	6690.8	6446.6	5812.8	3793.8	1162	3556.3	1729.3
21	4186	6709.1	6467.3	5828.7	3799.2	1154	3564.4	1726.5
22	4208	6750.4	6478.5	5842.5	3801.5	1152	3568.9	1728.7(34)
23	4213	6770.5	6484.0	5860.2	3810.0	1157	3572.3	1731.9
24	4227	6787.7	6492.8	5872.3	3841.2	1162	3574.8	1735.5
25	4242	6819.8	6507.4	5884.9	3865.0	1170	3596.0	1739.4
26	4254	6838.1	6525.8	5899.6	3884.0	1176	3601.6	1740.2
27	4258	6840.8	6528.3	5891.9	3868.8	1167	3597.2	1742.8
28	4257	6828.0	6538.8	5888.6	3866.3	1165	3596.7	1746.3
29	4269	6845.0	6556.9	5894.4	3874.2	1168	3593.4	1745.2(36)
30	4214	6760.0	6475.5	5856.2	3827.0	1166	3573.0	1733.6
Mean	4205	6742.0	6474.7	5842.3	3823.7	1166	3566.8	1730.5

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

COSMIC RAY INDICES
(Neutron Monitor)



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Late
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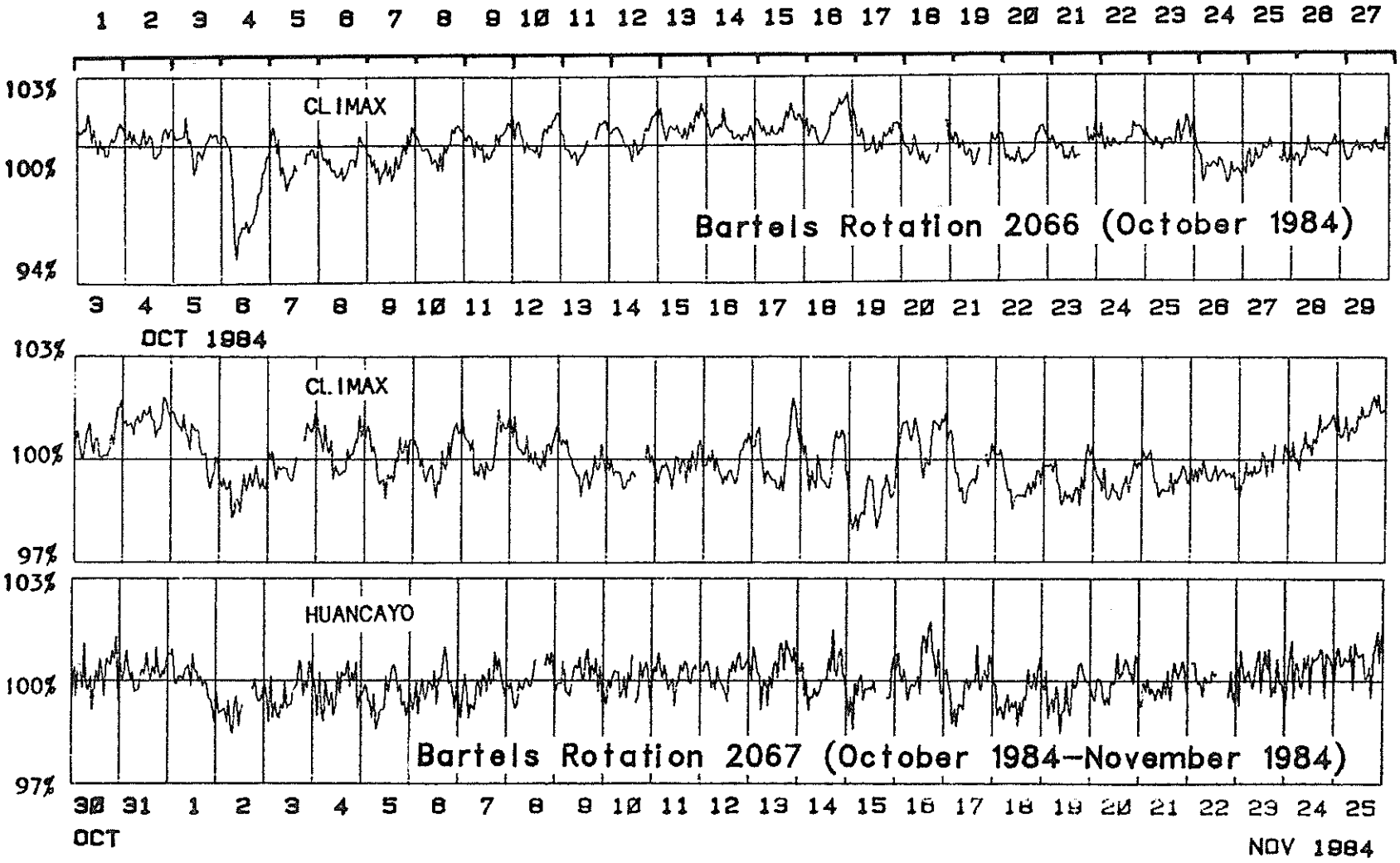
COSMIC RAY INDICES
(Neutron Monitor)



ERRATA: JUNE 1984 CLIMAX DATA PUBLISHED IN SGD 480 PART I, PAGE 85, AUGUST 1984 ISSUE, WERE IN ERROR. CORRECTED CLIMAX DATA APPEAR HERE.

COSMIC RAY INDICES
(Neutron Monitor)

June 1984

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	4121	6722.8	6351.0	5718.1	3615.3	1129	3544.5	1725.9(38)
2	4084	6681.7	6305.8	5678.4	3608.9	1124	3522.4	1717.5
3	4064	6655.6	6278.6	5641.7	3593.2	1115	3499.7	1706.9(38)
4	4086	6696.9	6338.1	5690.7	3591.4	1127	3521.7	1711.2
5	4080	6702.1	6329.4	5674.1	3608.7	1124	3524.4	1712.6(38)
6	4059	6656.4	6253.1	5648.9	3628.8	1121	3509.4	1700.7(38)
7	4074	6679.2	6218.6	5659.7	3656.7	1120	3513.2	1699.6(22)
8	4094	6709.7	6251.0	5673.2	3673.0	1127	3515.3	1704.0(16)
9	4090	6710.0	6258.7	5679.8	3656.2	1136	3513.4	1703.9(14)
10	4091	6708.5	6259.6	5676.7	3601.3	1137	3504.0	---
11	4097	6685.1	6265.5	5690.5	3595.0(36)	1137	3510.8	---
12	4112	6657.2	6292.5	5701.4	3605.8	1132	3515.8	---
13	4131	6673.7	6308.8	5711.3	3608.2	1134	3511.9	---
14	4158	6702.1	6353.1	5741.1	3591.8	1137	3522.8	---
15	4169	6719.8	6397.0	5748.0	3624.9	1138	3528.2	---
16	4110	6637.4	6299.1	5680.0	3639.5	1131	3526.3	---
17	4110	6608.7	6292.6(23)	5667.0	3660.4	1128	3512.5	---
18	4094	6578.5	6238.7	5670.7	3665.2	1131	3504.3	---
19	4080	6568.7	6227.7	5641.7	3663.9	1126	3501.1	1705.6
20	4110	6624.8	6284.1	5682.2	3664.7	1129	3509.6	1709.8
21	4123	6641.1	6303.6	5710.2	3664.3	1132	3504.2	1707.2(38)
22	4133	6657.8	6342.1	5734.4	3633.8	1137	3506.3	1714.8
23	4117	6649.3	6344.5	5761.0	3649.4	1137	3509.8	1718.8
24	4128	6654.9	6346.2	5743.4	3652.5	1142	3525.5	1720.4
25	4165	6713.9	6398.0	5766.0	3672.1	1144	3520.6	1726.6
26	4144	6692.1	6381.5	5754.8	3659.8	1144	3523.4	1725.3
27	4178	6749.3	6411.0	5782.9	3636.8	1147	3533.0	1726.3
28	4155	6710.0	6360.9	5768.6	3645.4	1144	3528.7	1720.4(30)
29	4127	6625.9	6321.5	5734.7	3640.8	1135	3514.3	0.0
30	4141	6676.2	6341.5	5736.2	3649.0	1133	3529.5	1719.3(6)
Mean	4114	6671.7	6311.8	5705.6	3635.4	1133	3516.9	1714.8

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

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

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