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NATIONAL ENVIRONMENTAL SATELLITE, DATA, AND INFORMATION SERVICE
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SEPTEMBER 1997 NUMBER 637 - Part I

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Data for July, August 1997 and Late Data

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SOLAR-GEOPHYSICAL DATA

Number 637

(Issued in Two Parts)

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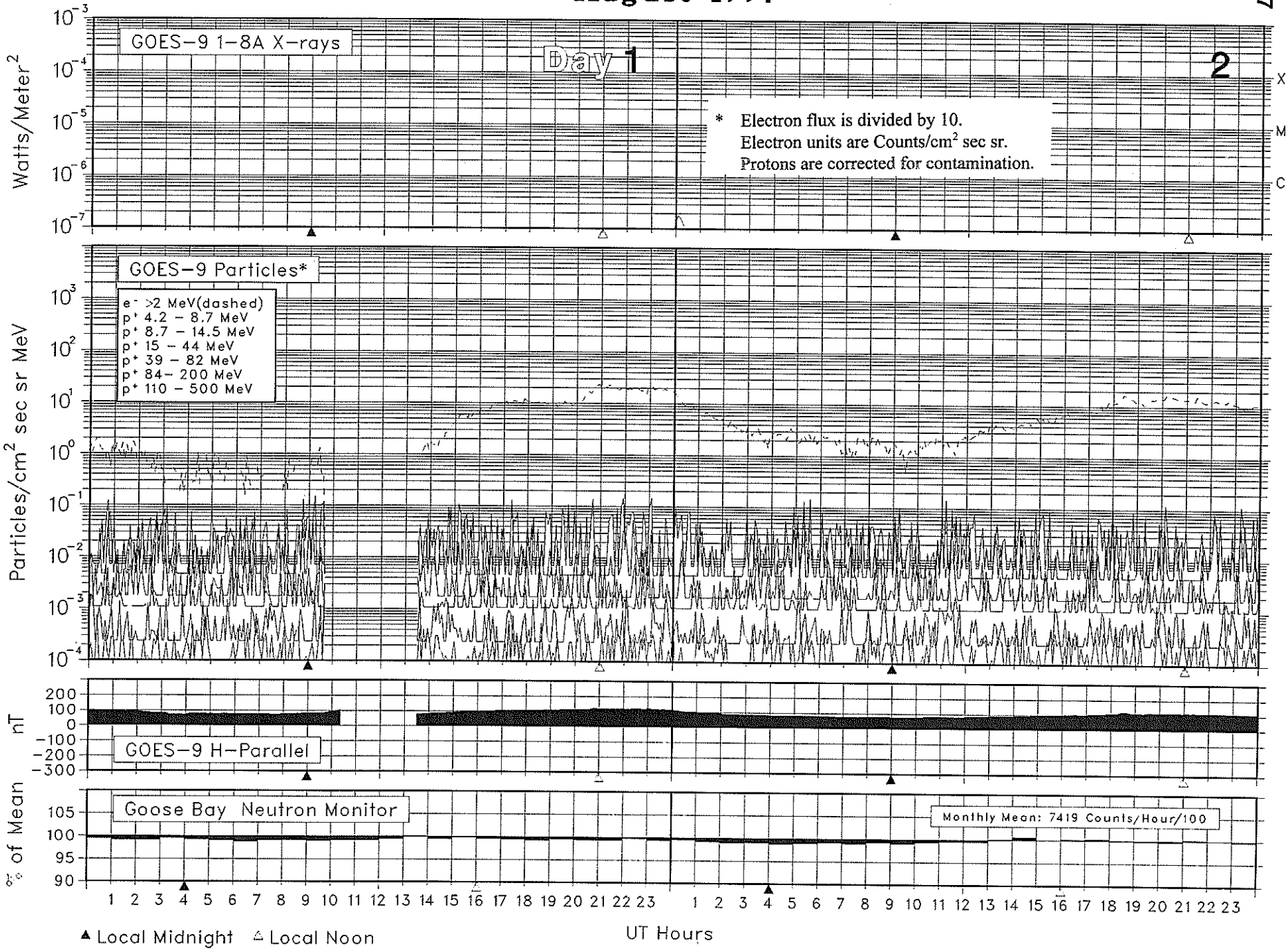

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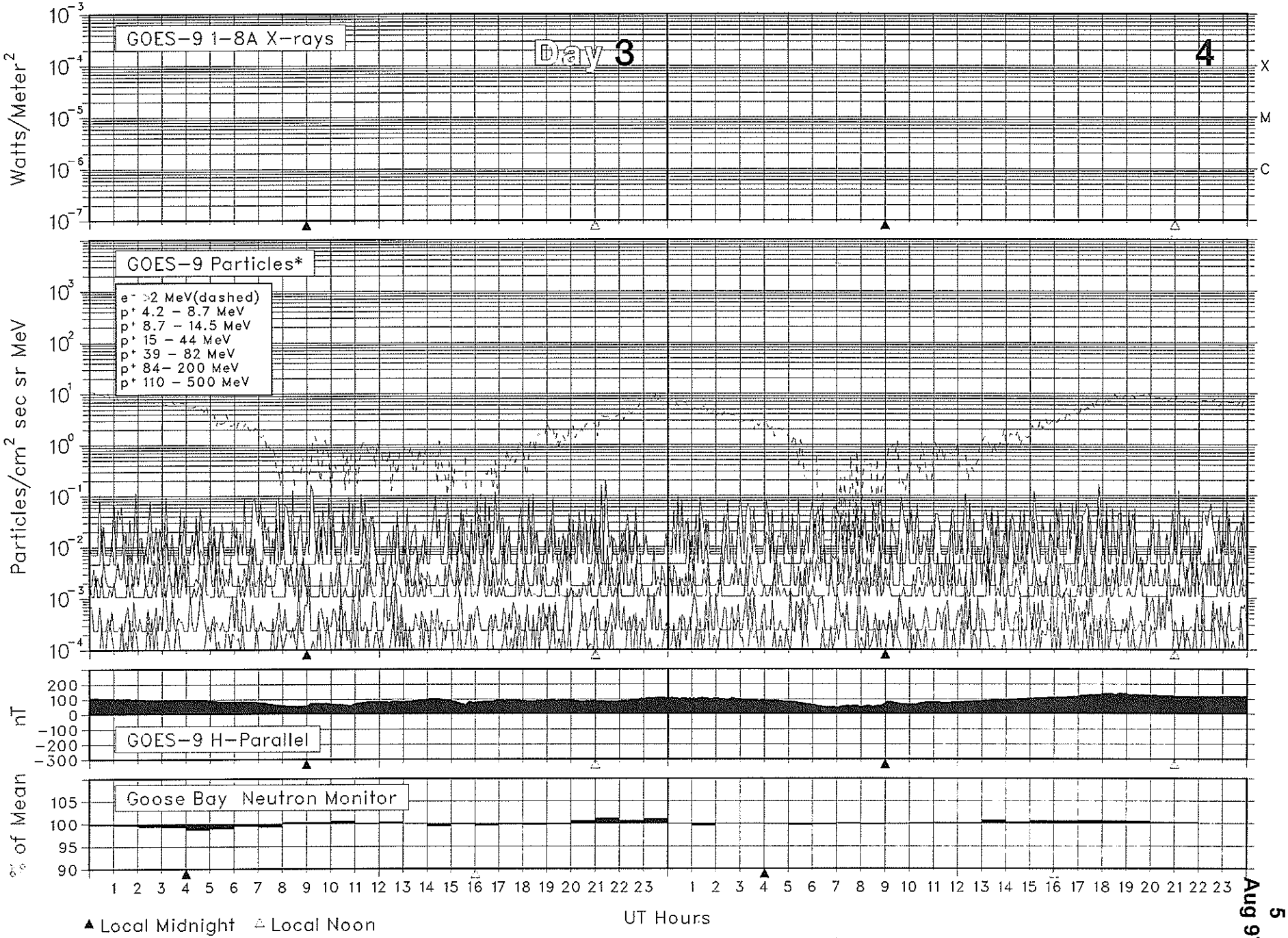

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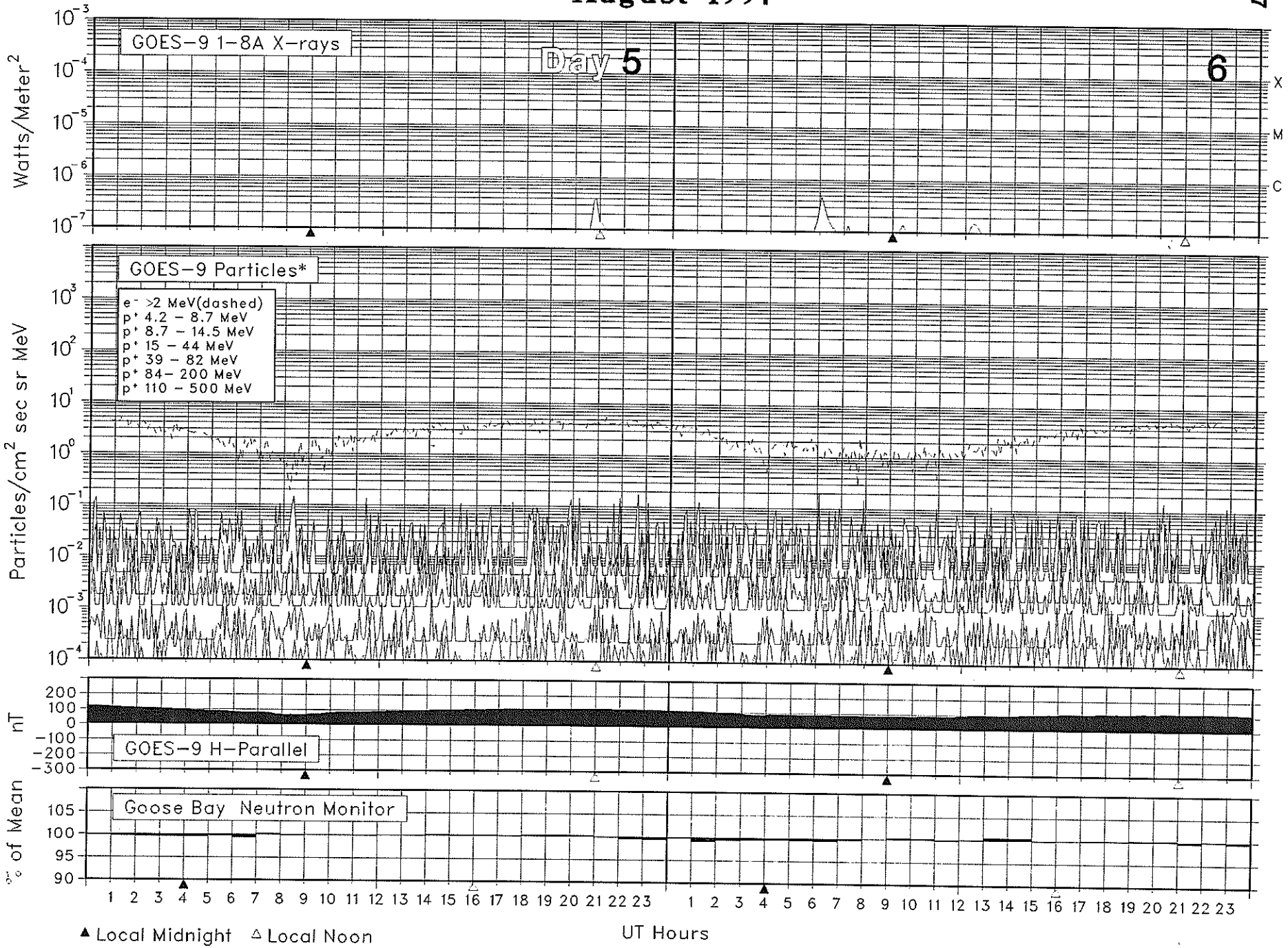

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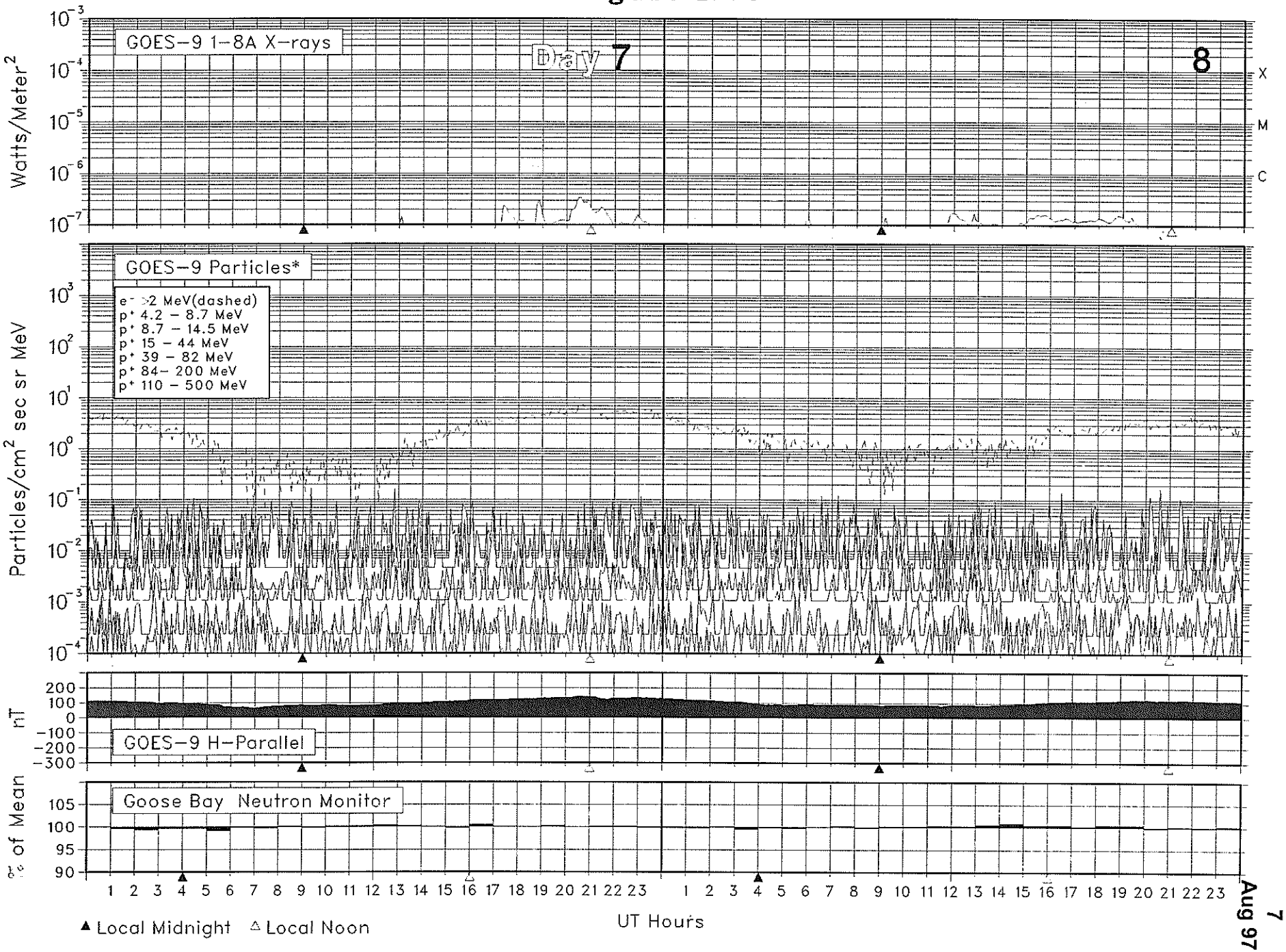

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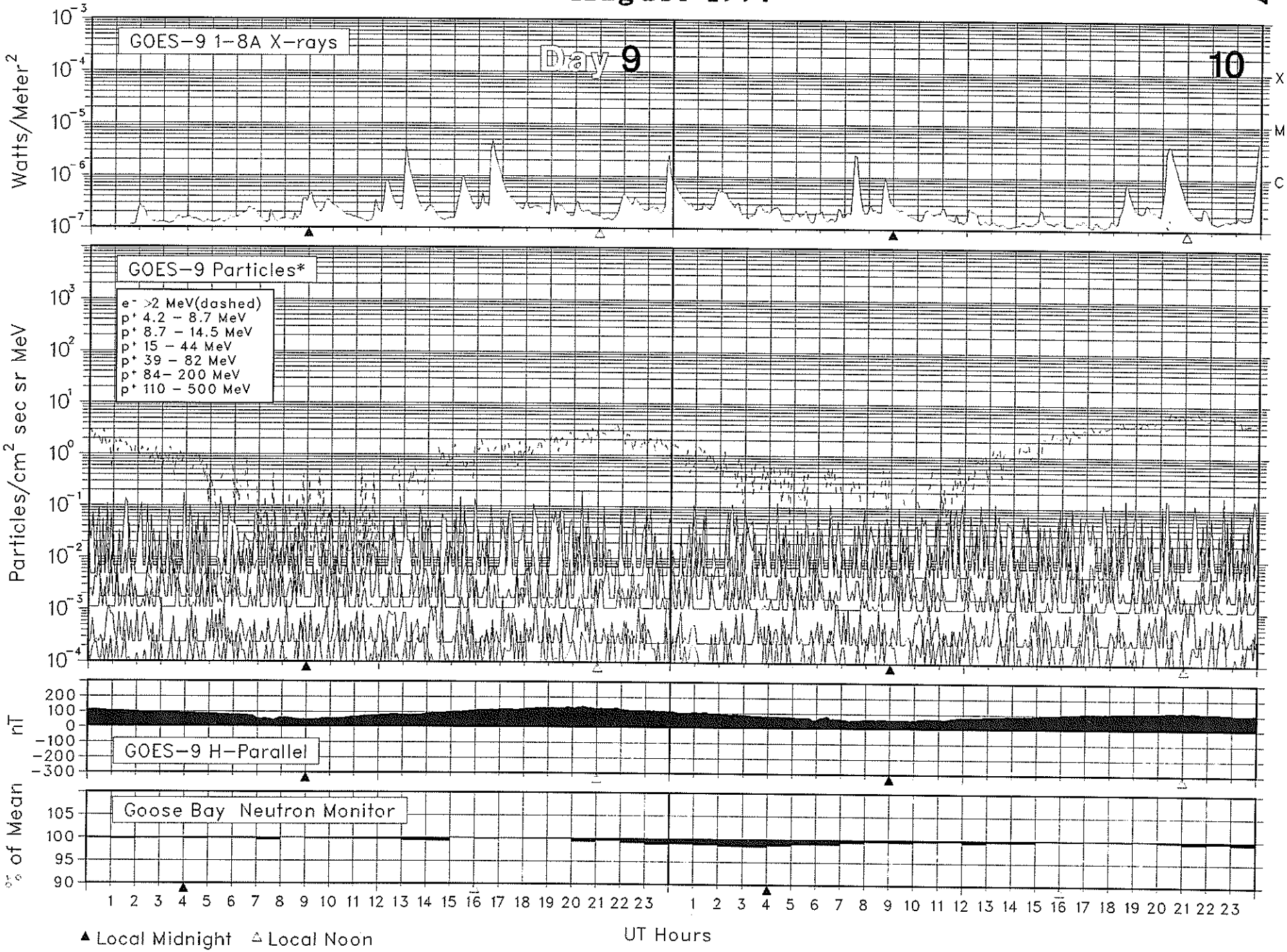

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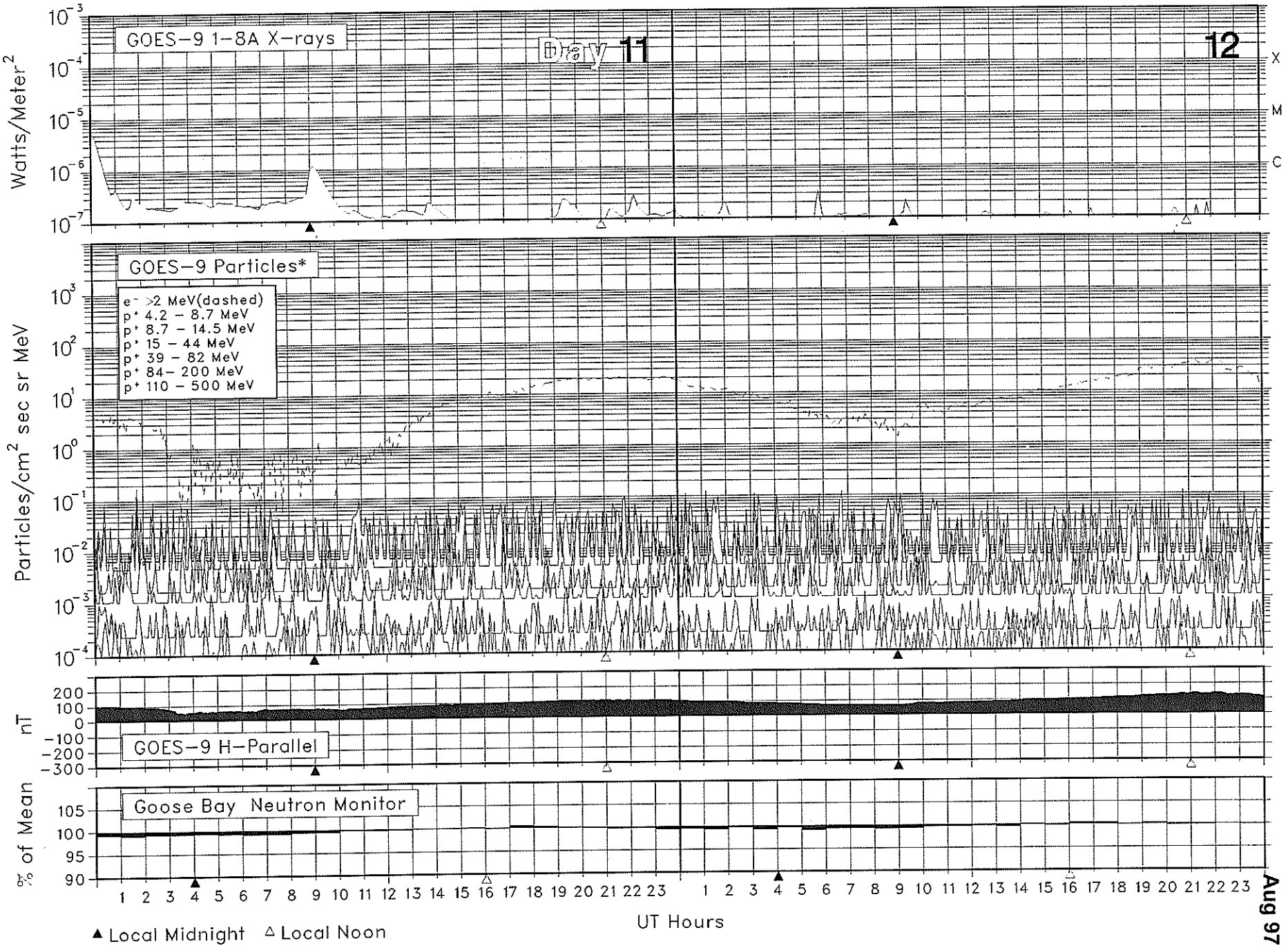

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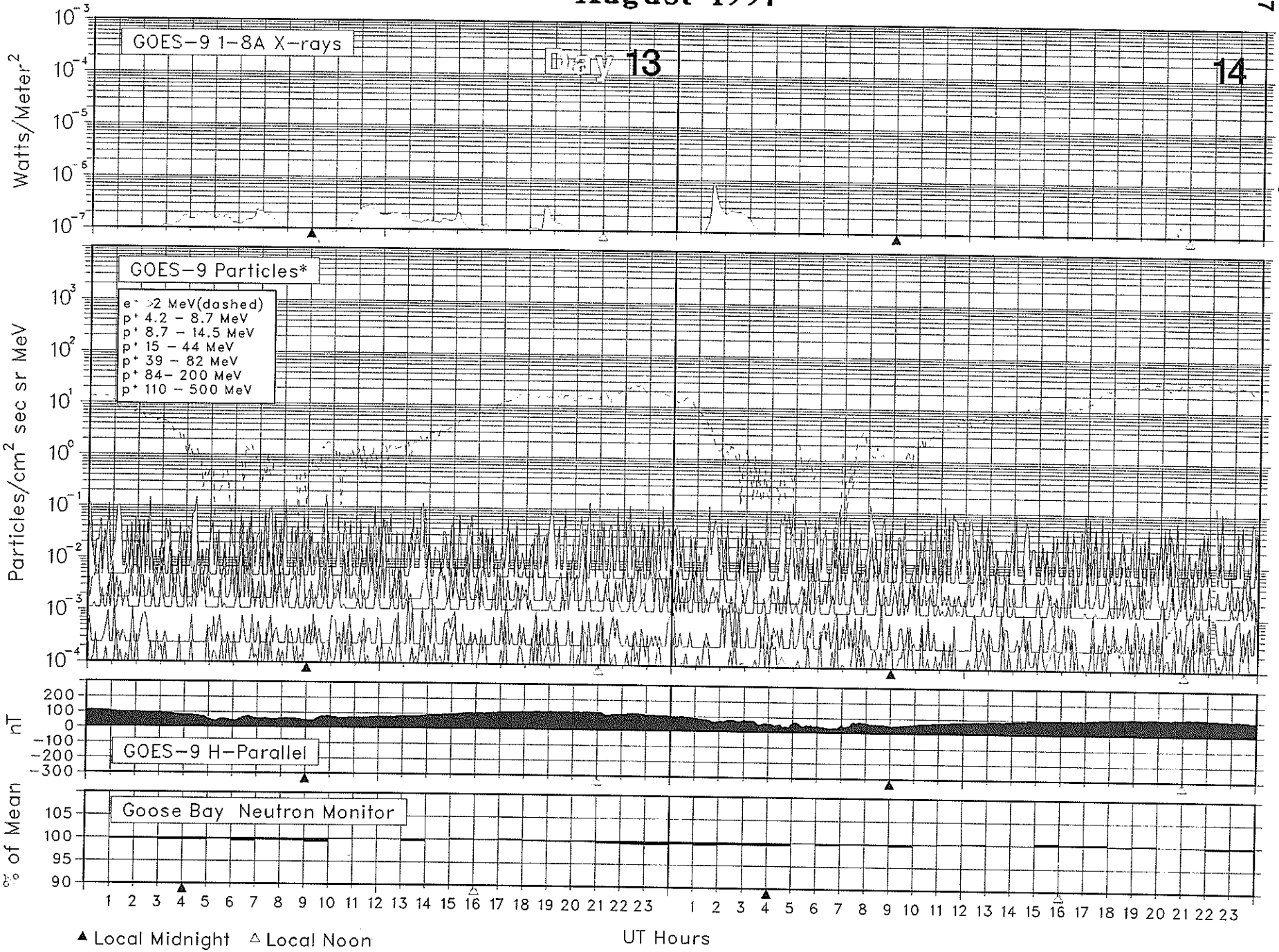

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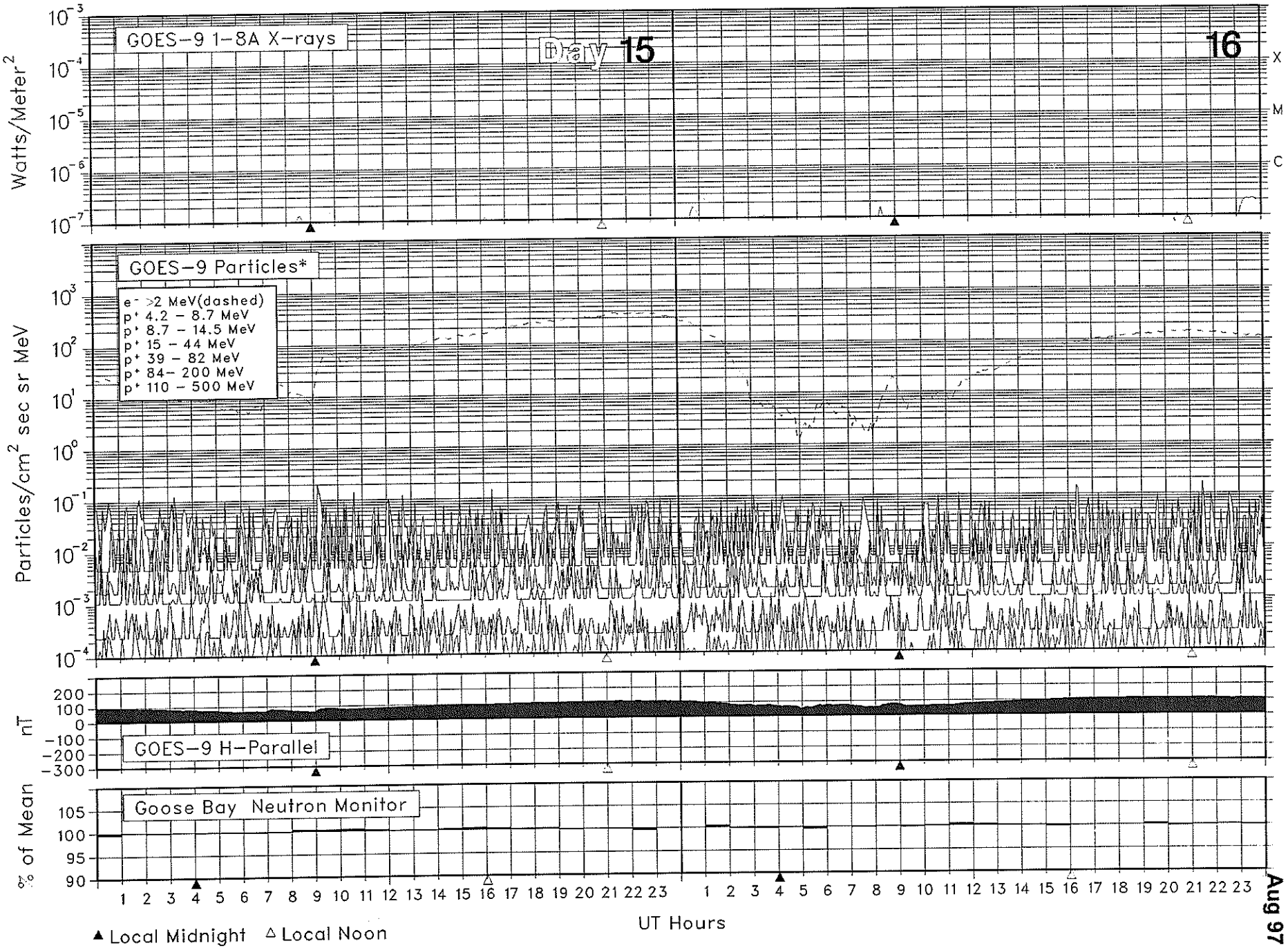

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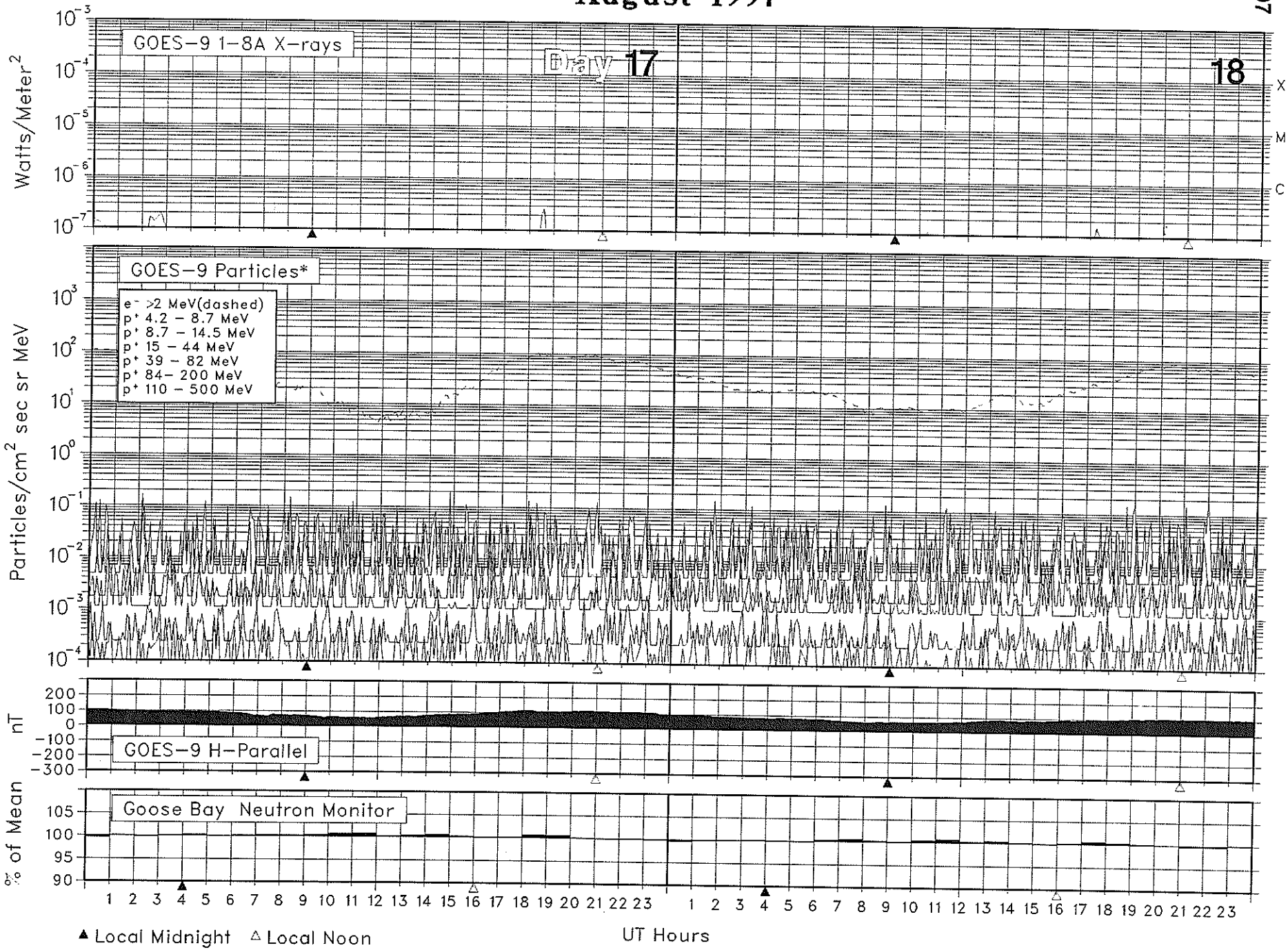

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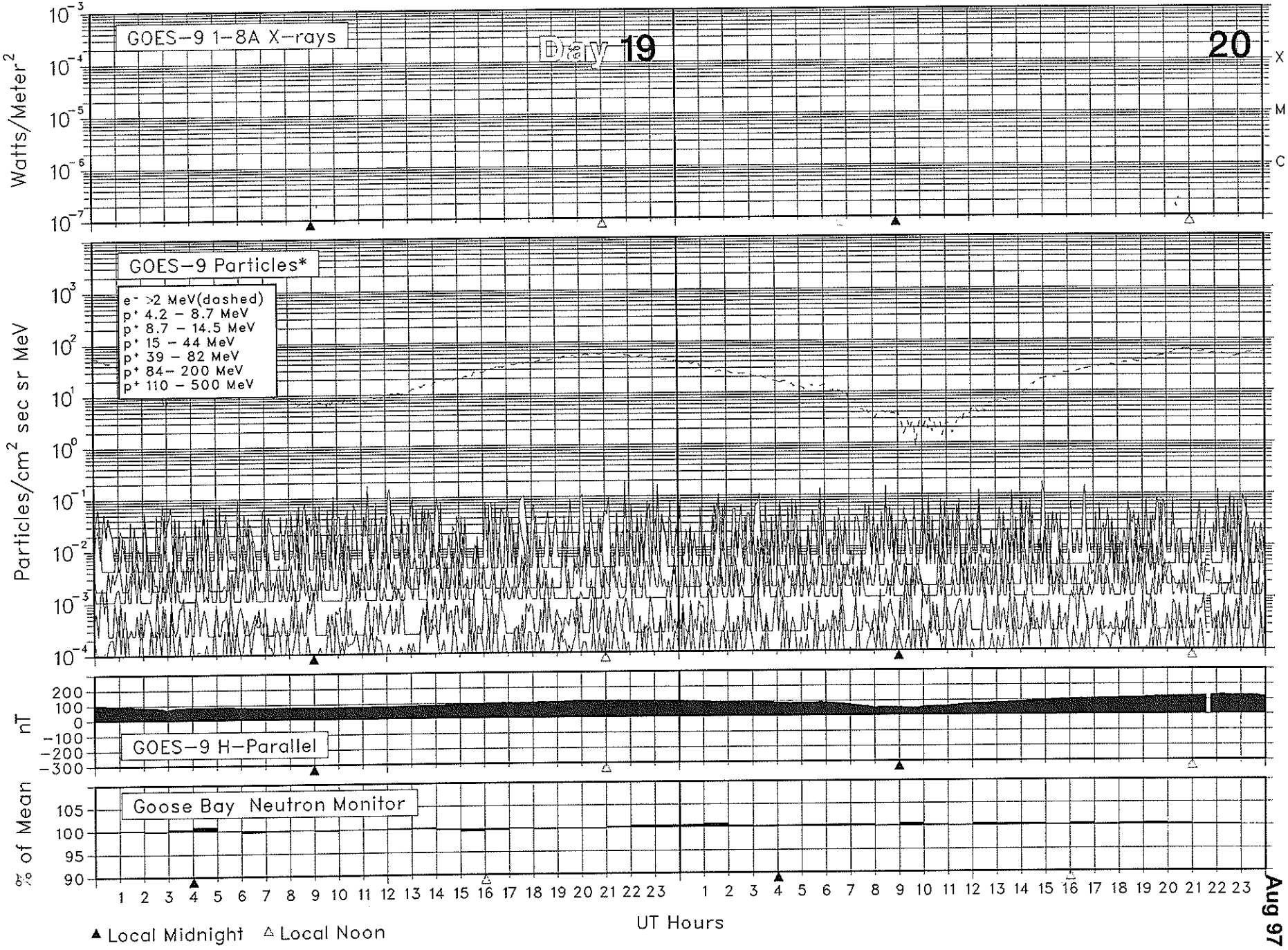

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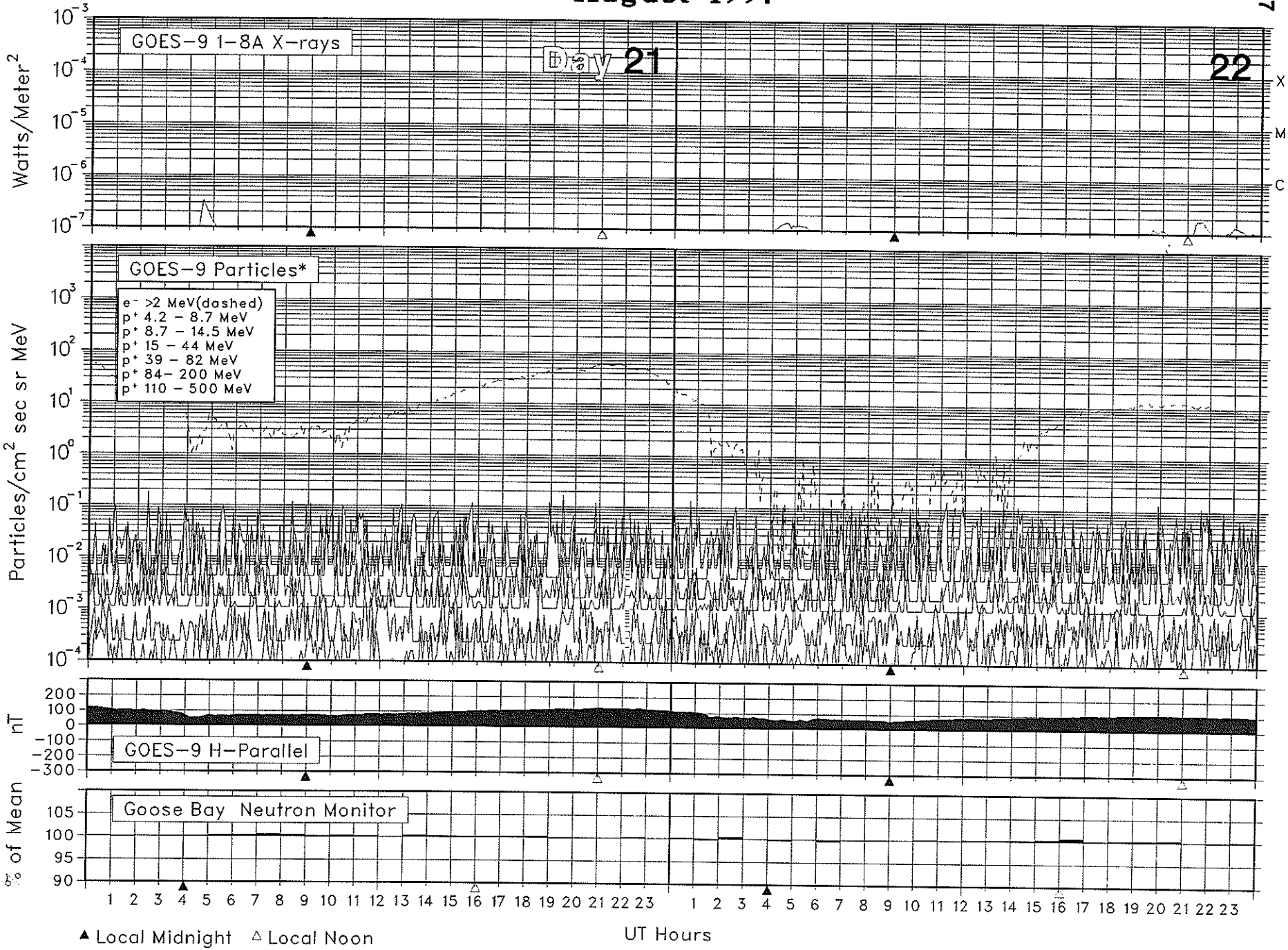

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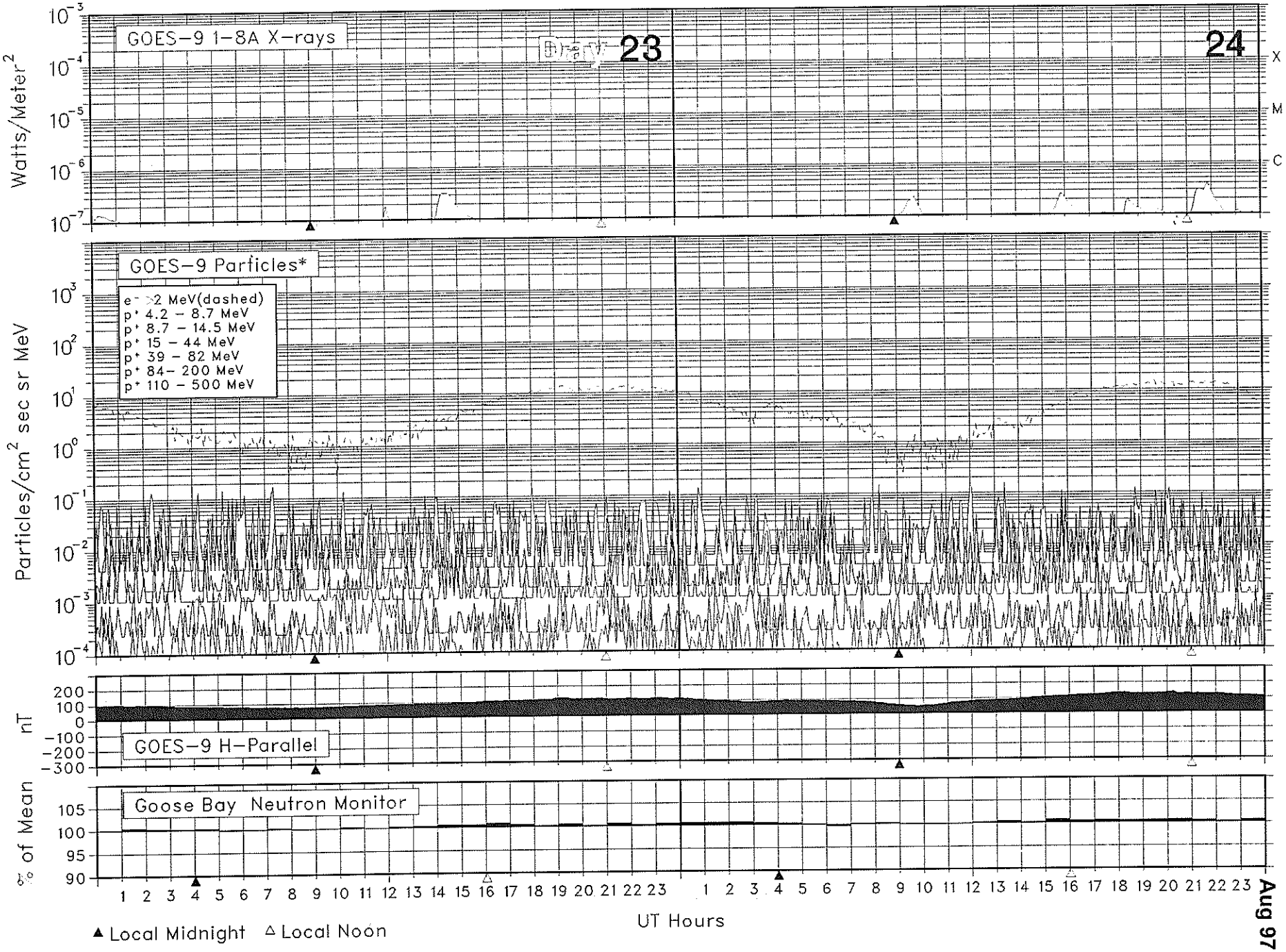

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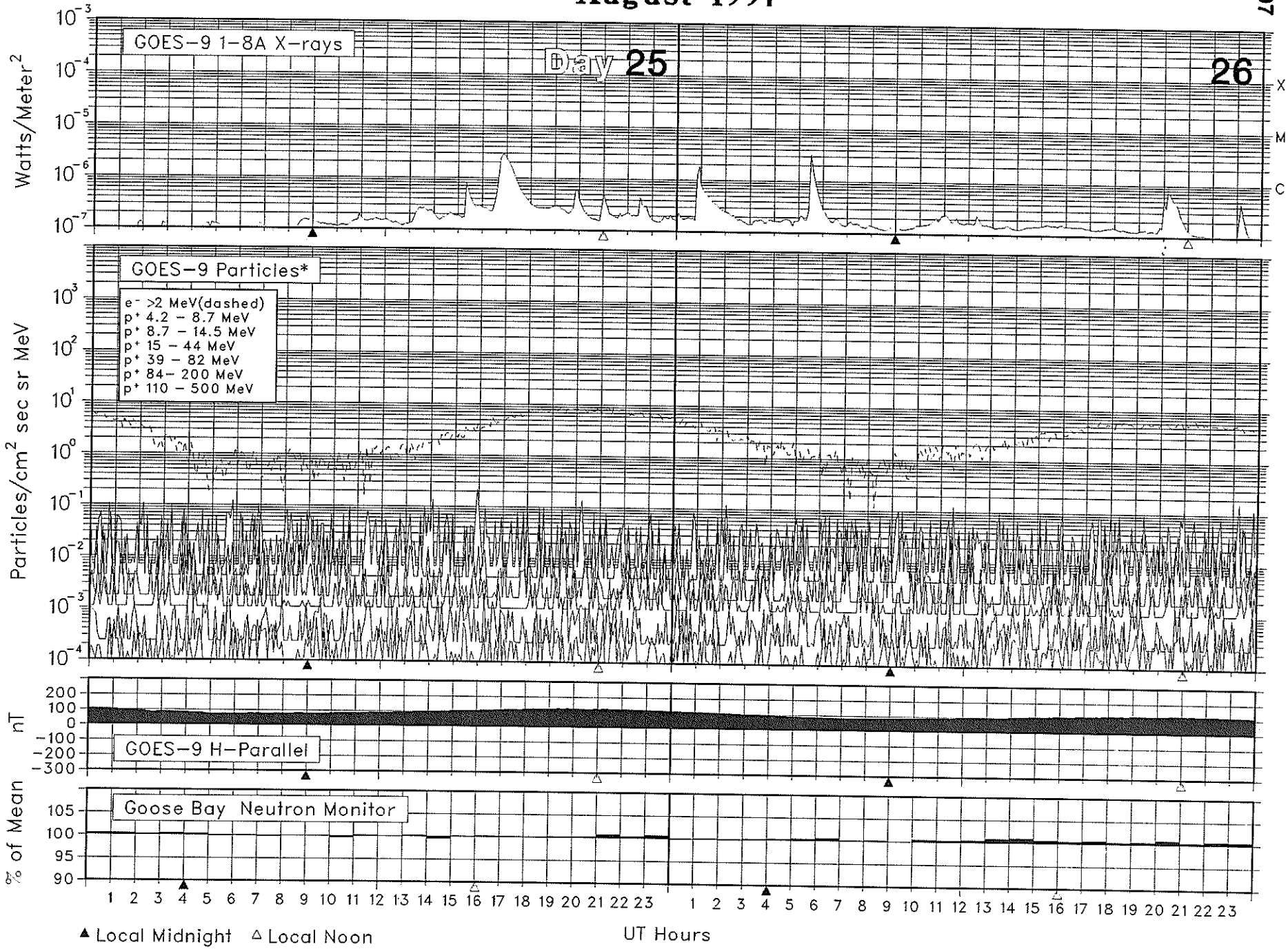

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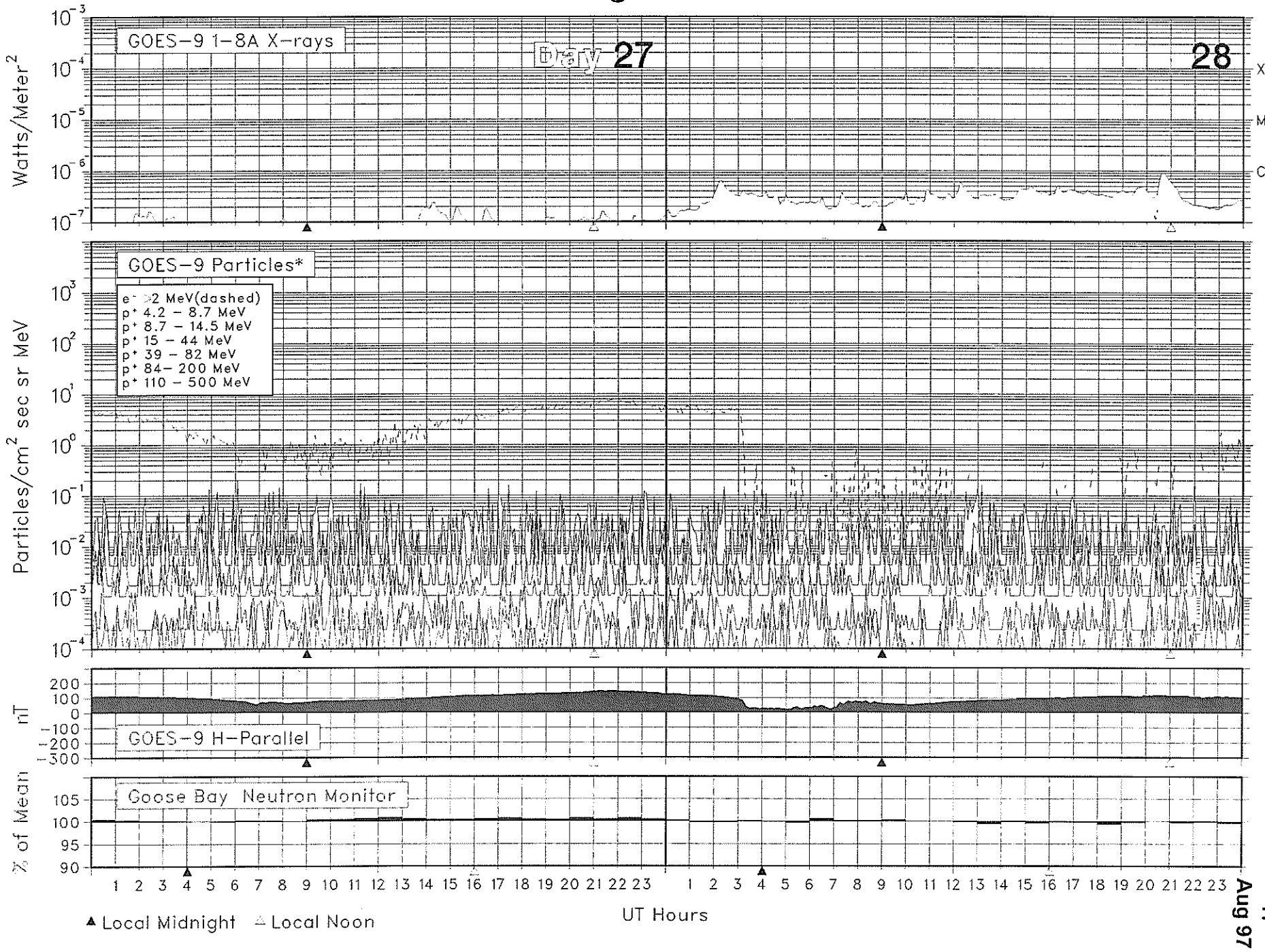

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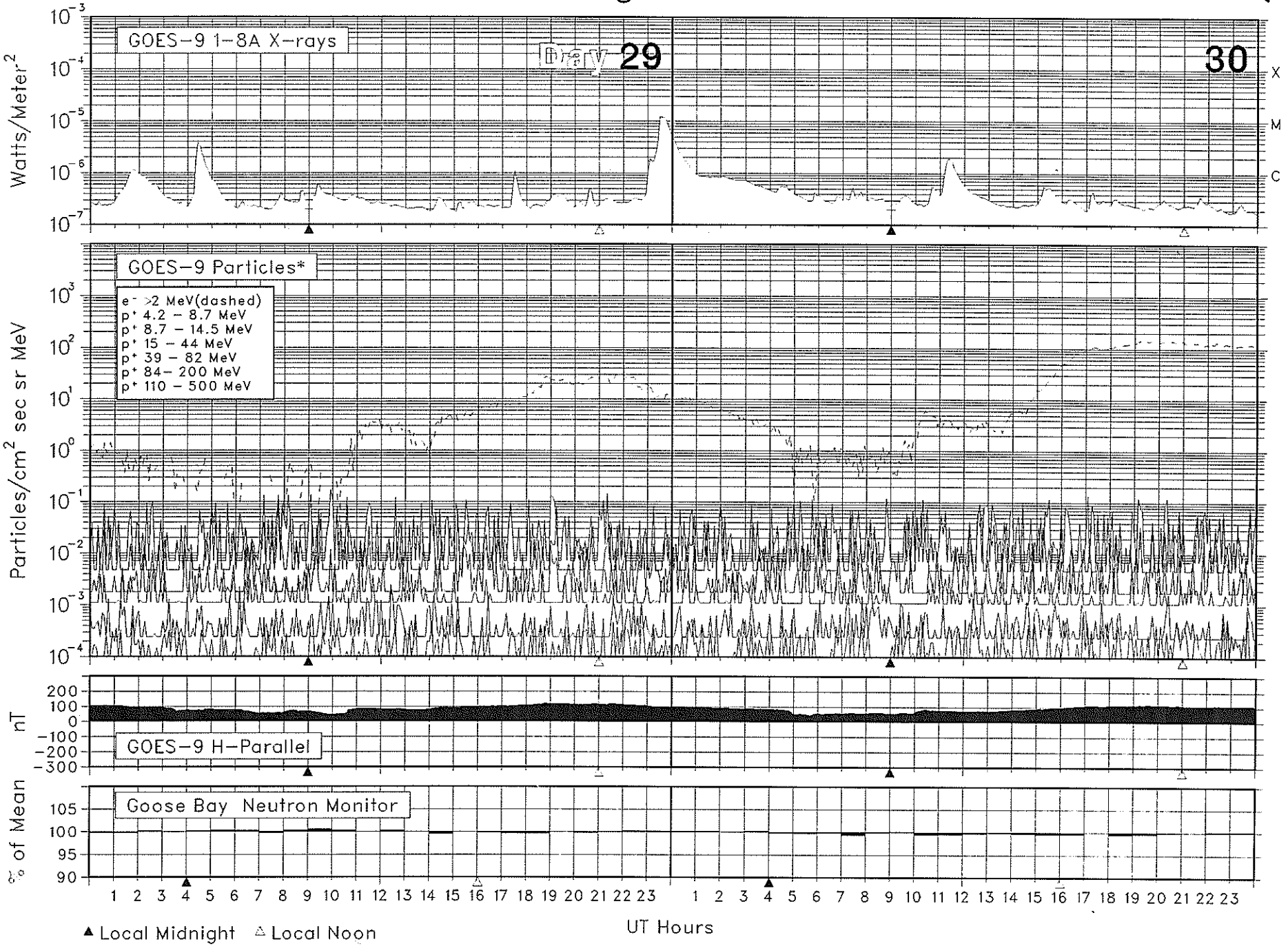

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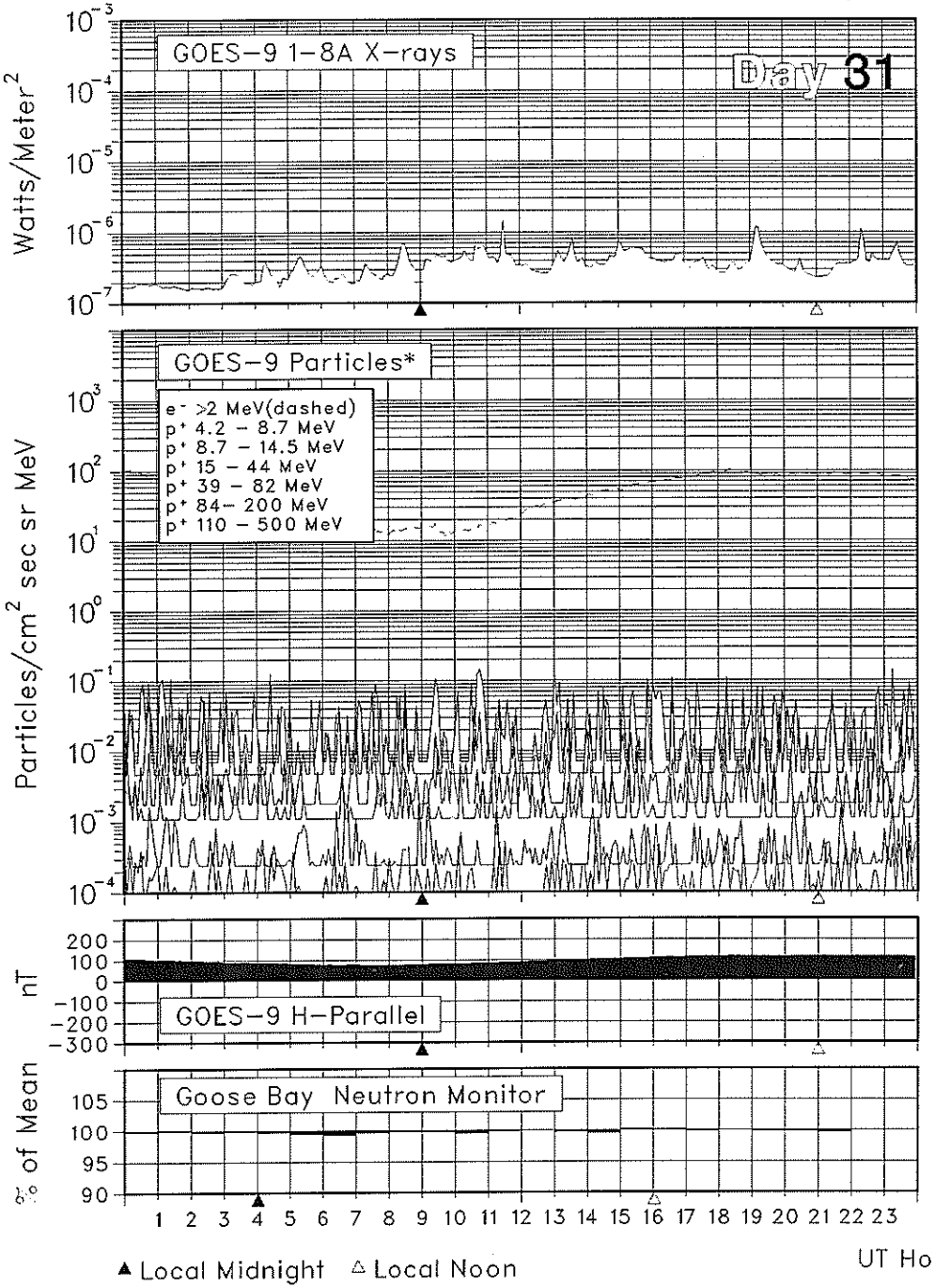


* Electron flux is divided by 10.
Electron units are Counts/cm^2 sec sr.
Protons are corrected for contamination.

A L E R T P E R I O D S
The International Space Environment Service

AUGUST 1997

Julian Day	Date of Issue	Date of Obs	Wolf No.	10-cm Solar Flux	A-index	Location Lat	Location Long	Flares Optical	Flares M	Flares X	Date of Forecast	Region Forecast(1)	Geoadvice(1)
213	01	31	0	70	20			0	0	0	01		SOL: Quiet
								0	0	0	01		MAG: Quiet
								0	0	0	01		PRO: Quiet
214	02	01	0	71	7			0	0	0	02		SOL: Quiet
								0	0	0	02		MAG: Quiet
								0	0	0	02		PRO: Quiet
215	03	02	11	71	3	N06	E65	0	0	0	03	Q	SOL: Quiet
								0	0	0	03		MAG: Quiet
								0	0	0	03		PRO: Quiet
216	04	03	27	72	9	N05	E52	0	0	0	04	Q	SOL: Quiet
						S22	E33	3	0	0	04	Q	MAG: Quiet
								0	0	0	04		PRO: Quiet
217	05	04	12	73	7			0	0	0	05		SOL: Quiet
								0	0	0	05		MAG: Quiet
								0	0	0	05		PRO: Quiet
218	06	05	39	75	2	S21	E06	0	0	0	06	Q	SOL: Quiet
						N21	W35	0	0	0	06	Q	MAG: Quiet
						S20	E53	0	0	0	06	Q	PRO: Quiet
219	07	06	45	77	0	S21	W09	0	0	0	07	Q	SOL: Quiet
						N21	W48	1	0	0	07	Q	MAG: Quiet
						S19	E39	0	0	0	07	Q	PRO: Quiet
220	08	07	55	78	6	S20	W22	0	0	0	08	Q	SOL: Quiet
						N21	W62	8	0	0	08	Q	MAG: Quiet
						S19	E25	0	0	0	08	Q	PRO: Quiet
221	09	08	65	78	6	S19	W37	0	0	0	09	Q	SOL: Quiet
						N23	W74	4	0	0	09	Q	MAG: Quiet
						S20	E11	0	0	0	09	Q	PRO: Quiet
						N21	E62	0	0	0	09	Q	
222	10	09	61	78	7	N21	W86	3	0	0	10	E	SOL: Eruptive
						S20	W01	0	0	0	10	Q	MAG: Quiet
						N26	E49	0	0	0	10	Q	PRO: Quiet
						N21	E21	0	0	0	10	Q	
223	11	10	31	78	8	S20	W15	0	0	0	11	Q	SOL: Eruptive
						N26	E37	0	0	0	11	Q	MAG: Quiet
								0	0	0	11		PRO: Quiet
224	12	11	53	80	8	S20	W30	0	0	0	12	Q	SOL: Quiet
						N25	E20	0	0	0	12	Q	MAG: Quiet
						N14	E74	0	0	0	12	Q	PRO: Quiet
						N26	E75	0	0	0	12	Q	
225	13	12	57	81	5	S20	W42	1	0	0	13	Q	SOL: Quiet
						N26	E07	1	0	0	13	Q	MAG: Quiet
						N15	E61	0	0	0	13	Q	PRO: Quiet
						N26	E63	1	0	0	13	Q	
226	14	13	61	82	10	S20	W55	1	0	0	14	Q	SOL: Quiet
						N26	W07	1	0	0	14	Q	MAG: Quiet
						N14	E49	0	0	0	14	Q	PRO: Quiet
						N26	E52	0	0	0	14	Q	
227	15	14	49	80	16	S19	W68	0	0	0	15	Q	SOL: Quiet
						N26	W22	1	0	0	15	Q	MAG: Quiet
						N14	E36	0	0	0	15	Q	PRO: Quiet
						N27	E38	0	0	0	15	Q	
228	16	15	60	78	8	S20	W82	0	0	0	16	Q	SOL: Quiet

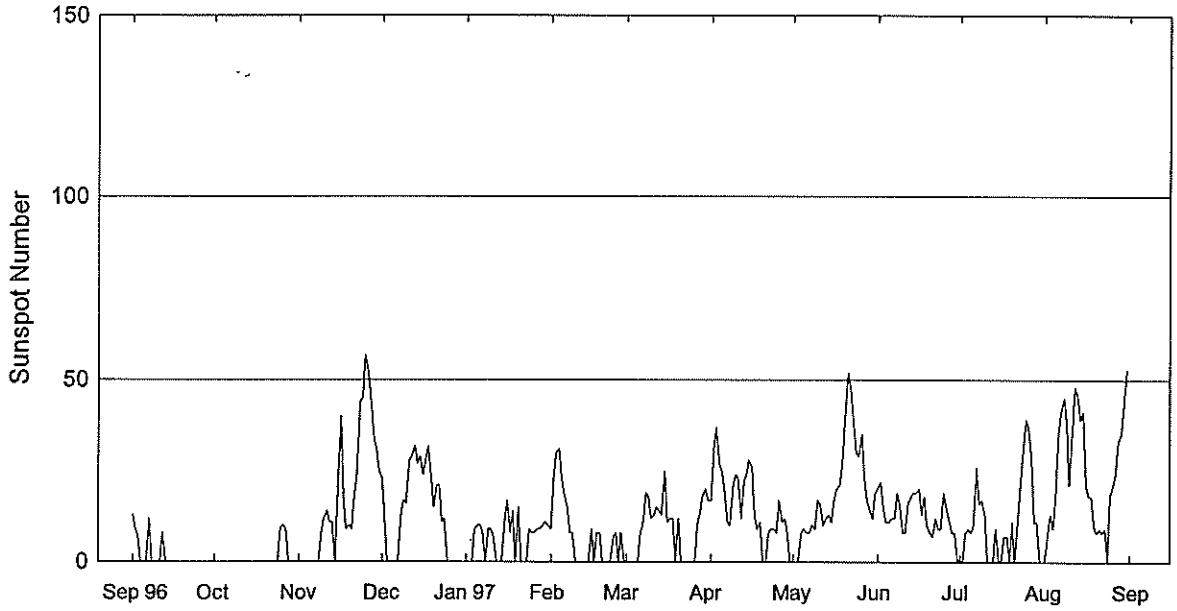
A L E R T P E R I O D S
The International Space Environment Service

AUGUST 1997

Julian Day	Date of Issue	Date of Obs	Wolf No.	10-cm Solar Flux	A-index	Location Lat	Location Long	Flares Optical	Flares M	Flares X	Date of Forecast	Region Forecast(1)	Geoadvice(1)
						N26	W36	0	0	0	16	Q	MAG: Quiet
						N15	E23	0	0	0	16	Q	PRO: Quiet
						N27	E27	0	0	0	16	Q	
						N29	E46	0	0	0	16	Q	
229	17	16	33	78	5	N15	E08	0	0	0	17	Q	SOL: Quiet
						N27	E11	0	0	0	17	Q	MAG: Quiet
						N29	E31	0	0	0	17	Q	PRO: Quiet
230	18	17	23	76	6	N15	W04	0	0	0	18	Q	SOL: Quiet
						N27	W02	0	0	0	18	Q	MAG: Quiet
								0	0	0	18		PRO: Quiet
231	19	18	11	76	7	N14	W17	0	0	0	19	Q	SOL: Quiet
								0	0	0	19		MAG: Quiet
								0	0	0	19		PRO: Quiet
232	20	19	11	74	4	N14	W31	0	0	0	20	Q	SOL: Quiet
								0	0	0	20		MAG: Quiet
								0	0	0	20		PRO: Quiet
233	21	20	11	75	5	N14	W44	0	0	0	21	Q	SOL: Quiet
								0	0	0	21		MAG: Quiet
								0	0	0	21		PRO: Quiet
234	22	21	11	75	9	N13	W60	0	0	0	22	Q	SOL: Quiet
								0	0	0	22		MAG: Quiet
								0	0	0	22		PRO: Quiet
235	23	22	11	76	6	N13	W71	0	0	0	23	Q	SOL: Quiet
								0	0	0	23		MAG: Quiet
								0	0	0	23		PRO: Quiet
236	24	23	11	77	2	N13	W85	0	0	0	24	Q	SOL: Quiet
								0	0	0	24		MAG: Quiet
								0	0	0	24		PRO: Quiet
237	25	24	0	78	4			0	0	0	25		SOL: Quiet
								0	0	0	25		MAG: Quiet
								0	0	0	25		PRO: Quiet
238	26	25	32	82	4	N29	E63	2	0	0	26	E	SOL: Eruptive
						S23	E59	0	0	0	26	Q	MAG: Quiet
								0	0	0	26		PRO: Quiet
239	27	26	30	84	1	N30	E51	4	0	0	27	E	SOL: Eruptive
						S22	E45	0	0	0	27	Q	MAG: Quiet
								0	0	0	27		PRO: Quiet
240	28	27	33	82	2	N29	E37	0	0	0	28	E	SOL: Eruptive
						N17	E26	0	0	0	28	Q	MAG: Quiet
								0	0	0	28		PRO: Quiet
241	29	28	61	91	8			0	0	0	29		SOL: Eruptive
								0	0	0	29		MAG: Quiet
								0	0	0	29		PRO: Quiet
242	30	29	67	92	12	N28	E11	4	0	0	30	E	SOL: Eruptive
						N21	E05	0	0	0	30	Q	MAG: Quiet
						N15	W03	0	0	0	30	Q	PRO: Quiet
243	31	30	69	92	9	N28	W01	3	0	0	31	E	SOL: Eruptive
						N20	W05	0	0	0	31	Q	MAG: Active
						N18	W31	0	0	0	31	Q	PRO: Quiet

STRATWARM ALERTS - NONE

International Relative Sunspot Numbers
Sep 1996 - Aug 1997

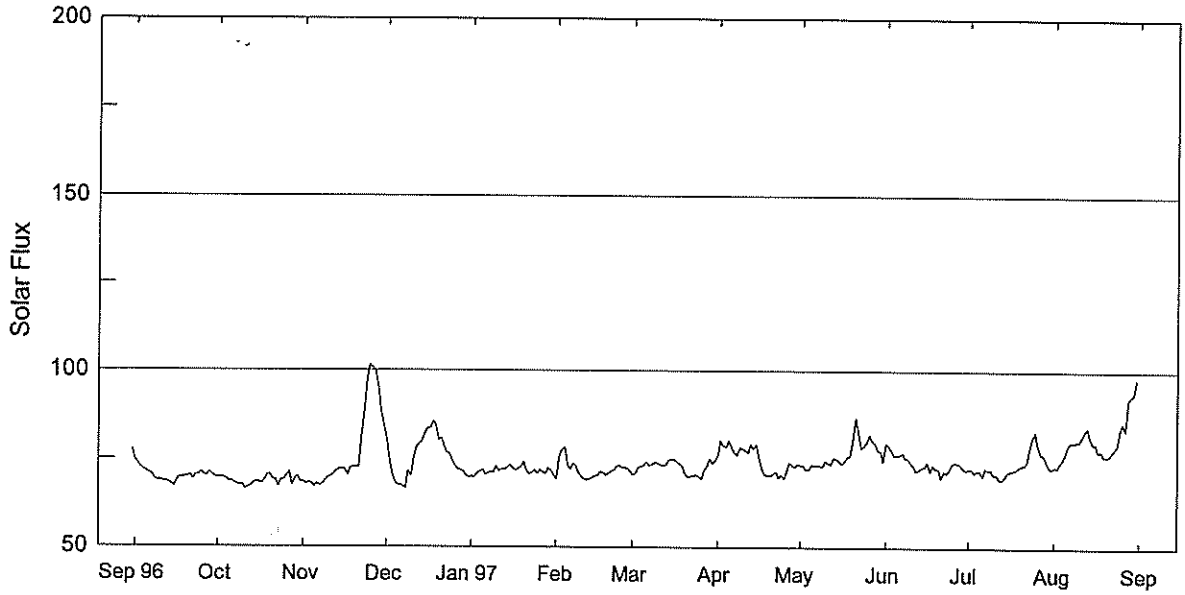


Day	Sep 96	Oct	Nov	Dec	Jan 97*	Feb *	Mar*	Apr*	May*	Jun*	Jul*	Aug*
1	13	0	0	23	0	9	0	17	0	20	0	0
2	9	0	0	12	0	23	0	31	0	22	0	8
3	7	0	0	0	0	30	0	37	0	15	8	13
4	0	0	0	0	9	31	0	27	8	11	9	9
5	0	0	0	0	10	23	0	25	9	11	8	17
6	0	0	0	0	10	18	8	20	8	12	10	36
7	12	0	0	0	8	15	10	11	8	12	26	41
8	0	0	0	13	0	8	19	10	10	19	16	45
9	0	0	8	17	9	8	18	21	9	16	17	38
10	0	0	12	16	9	0	12	24	17	8	13	21
11	0	0	14	28	7	0	13	23	16	8	0	36
12	8	0	11	29	0	0	15	12	10	16	0	48
13	0	0	11	32	0	0	14	22	12	18	0	46
14	0	0	0	27	0	0	13	24	13	19	9	39
15	0	0	20	29	11	0	25	28	11	19	0	41
16	0	0	40	24	17	9	11	26	17	20	0	21
17	0	0	18	28	8	0	12	13	20	13	7	18
18	0	0	9	32	14	8	12	9	21	18	7	18
19	0	0	10	23	0	8	0	11	27	10	0	9
20	0	0	9	15	15	0	12	0	39	8	11	8
21	0	0	18	21	0	0	0	0	52	7	0	9
22	0	0	24	21	0	0	0	8	48	12	11	8
23	0	0	44	11	0	0	0	9	40	9	20	9
24	0	0	45	12	9	7	0	9	30	9	29	0
25	0	9	57	0	8	8	0	8	29	19	39	18
26	0	10	52	0	8	0	0	17	35	15	37	21
27	0	9	45	0	9	8	10	11	23	12	28	24
28	0	0	34	0	9	0	14	12	17	8	11	33
29	0	0	31	0	10		18	8	14	8	11	35
30	0	0	25	0	11		20	0	12	0	0	43
31		0		0	10		17		19		0	53
Mean	1.6	0.9	17.9	13.3	6.5	7.6	8.8	15.8	18.5	13.1	10.5	24.7

* = Provisional.

Penticton 2800 MHz (10.7cm) Solar Flux
Sep 96 - Aug 97

Adjusted to 1 AU



Day	Sep 96	Oct	Nov	Dec	Jan 97	Feb	Mar	Apr	May	Jun	Jul	Aug
1	74.8	69.6	68.5	80.8	70.0	69.2	70.5*	76.2	73.4	79.6	72.4	73.2
2	73.6	69.8	67.9	75.7	69.7	76.2	71.1	80.4	73.3	79.1	72.4	72.9
3	72.4	69.6	68.3	70.7	70.8	77.4	72.8	78.8	72.3	77.4	71.4	74.3
4	72.0	69.4	67.8	68.6	71.4	78.4	72.8	78.6	72.1	76.1	72.0	74.9
5	71.4	68.5	67.1	67.6	71.9	73.3	73.4	80.3	73.6	76.1	72.0	76.9
6	70.8	68.8	68.0	67.6	70.6	72.2	74.2	78.3	73.4	76.4	70.6	79.0
7	70.5	68.2	67.3	67.1	70.9	73.7	73.1	77.0	73.3	76.9	72.6	80.1
8	69.2	67.7	67.8	66.6	71.3	73.2	73.6	76.3	73.3	75.4	72.1	79.9
9	68.8	67.7	68.9	71.5	71.3	71.2	74.1	78.3	73.0	75.3	72.3	80.3
10	68.9	67.4	69.6	70.2	72.9	70.4	73.8	78.0	74.6*	74.2	70.8	80.4
11	68.5	66.4	70.0	75.2	71.6	69.3	73.4	77.4	73.8	73.0	70.9	81.6
12	68.6	66.9	70.7	78.6	72.1	69.1	73.4	76.9	73.7	71.8	69.6	83.0
13	68.1	67.3	71.5	79.2	72.1	69.3	73.3	79.3	75.4	72.3	69.3	84.2
14	67.9	68.2	72.1	80.0	72.4	69.6	74.7	77.9	75.1	72.9	70.3	81.6
15	67.1	68.6	71.9	82.3	73.3	70.1	75.0	79.2	74.7	73.0	71.5	79.6
16	68.7	68.1	72.2	83.5	72.4	70.3	75.0	75.6	73.9	74.4	71.9	79.8
17	69.6	68.0	70.4	83.6	71.7	71.4	74.4	72.3	74.4	71.8	72.2	77.4
18	69.6	69.0	72.4	85.6	72.2	71.2	73.7	70.7	75.8	73.5	72.3	77.7
19	69.8	70.4	72.6	84.6	72.9	70.4	73.1	70.6	76.0	72.4	72.8	76.1
20	69.7	70.6	72.7	80.3	74.3	71.0	71.0	70.4	81.1	72.5	73.5	76.3
21	70.3	69.0	72.6	80.9	71.8	71.6	70.0	70.9	86.9	69.8	73.6	76.3
22	69.1	69.1	80.6	78.9	70.7	71.9	70.1	71.5	83.0	71.8	74.5	77.2
23	70.4	67.1	88.7	76.9	71.1	73.0	70.3	69.7	78.1	71.3	78.1	78.2
24	70.4	69.1	97.3	76.4	71.9	73.1	70.6	70.7	78.9	72.2	81.2	79.4
25	71.2	69.1	101.7	74.7	70.9	72.6	70.2	69.6	80.1	74.1	83.0	83.7
26	70.4	70.3	100.8	73.0	71.9	72.4	69.5	71.8	82.0#	74.2	79.0	85.5
27	70.1	71.2	100.0	72.2	71.3	72.4	71.9	74.1	80.4	74.1	76.8	83.5
28	71.2	67.5	95.4	71.8	70.8	71.5	72.9	73.4	79.5	73.6	76.5	92.3
29	70.3	69.4	88.5	71.4	72.4		75.1	72.9	77.6	72.6	75.0	93.3
30	69.7	69.7	85.1	70.1	71.5		73.8	73.7	77.2	72.1	73.2	93.8
31		68.6		69.8	70.3		74.6		74.5		72.5	98.2
Mean	70.1	68.7	76.9	75.3	71.6	72.0	72.8	75.0	76.3	74.0	73.4	81.0

NOTE: *=Average of 1700 and 2300UT readings. #=1900UT reading.

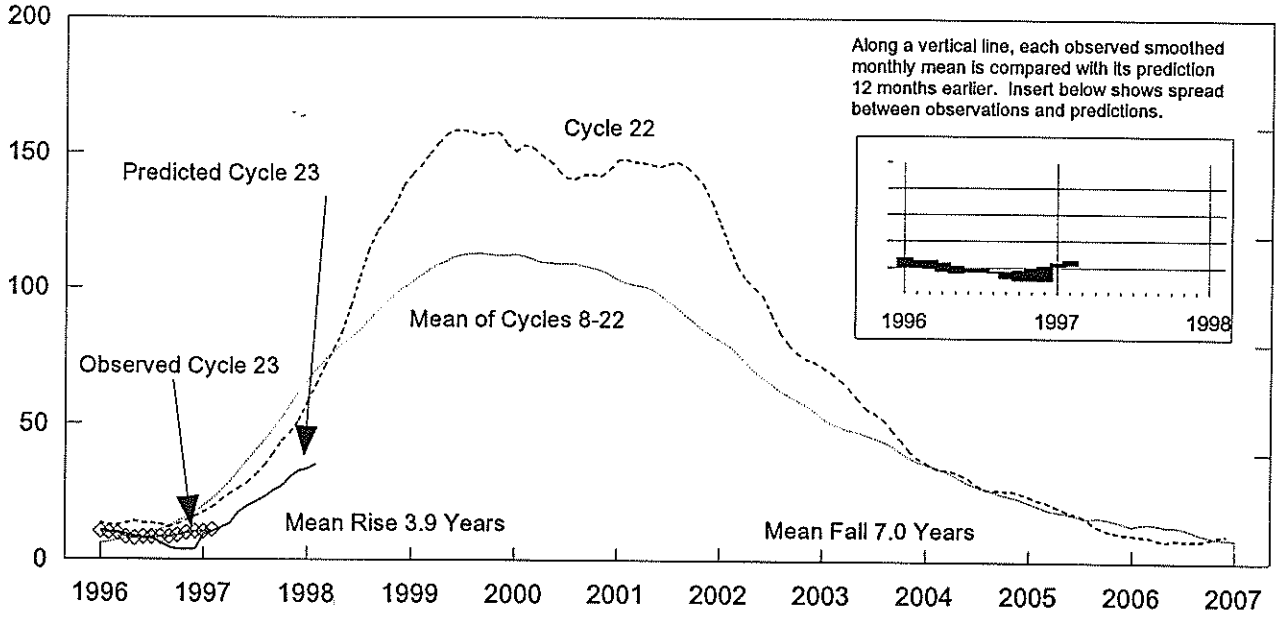
DAILY SOLAR INDICES

August 1997

Day	Day of Year	Bartels Cycle Day	Sunspot Numbers Int	Sunspot Numbers Amer	Obs Flux Penticton (2800)	Solar Flux Adjusted to 1 Astronomical Unit — LEAR (15400)	LEAR (8800)	LEAR (4995)	Pentic (2800)	LEAR (2695)	LEAR (1415)	LEAR (610)	LEAR (410)	LEAR (245)
1	213	15	0	0	71.0	403	191	117	73.2	68	49	27	20	10
2	214	16	8	5	70.8	521	205	118	72.9	71	50	35	24	11
3	215	17	13	16	72.2	525	207	120	74.3	69	50	35	24	11
4	216	18	9	13	72.7	513	205	119	74.9	69	50	35	24	11
5	217	19	17	20	74.8	529	206	120	76.9	70	52	35	24	11
6	218	20	36	42	76.8	537	209	124	79.0	74	53	36	25	20
7	219	21	41	46	77.9	532	206	122	80.1	73	52	35	24	11
8	220	22	45	48	77.8	536	208	124	79.9	75	52	36	24	12
9	221	23	38	39	78.1	530	209	122	80.3	72	55	35	23	13
10	222	24	21	22	78.3	533	209	125	80.4	75	54	35	24	11
11	223	25	36	39	79.5	531	210	126	81.6	76	55	37	25	12
12	224	26	48	53	80.8	531	208	126	83.0	77	55	36	24	11
13	225	27	46	56	82.0	528	208	129	84.2	79	57	36	25	12
14	226	1	39	45	79.5	543	209	125	81.6	79	57	37	25	14
15	227	2	41	35	77.7	533	212	125	79.6	76	56	37	25	11
16	228	3	21	24	77.9	542	208	124	79.8	76	56	37	25	11
17	229	4	18	20	75.6	540	208	124	77.4	75	56	37	26	12
18	230	5	18	13	75.8	538	207	123	77.7	73	54	37	25	12
19	231	6	9	12	74.3	533	207	123	76.1	74	55	36	24	11
20	232	7	8	11	74.6	525	208	122	76.3	72	53	36	25	12
21	233	8	9	11	74.6	534	205	121	76.3	74	53	36	24	12
22	234	9	8	11	75.5	540	202	120	77.2	73	51	35	25	12
23	235	10	9	3	76.5	532	211	123	78.2	74	52	35	25	12
24	236	11	0	1	77.7	539	211	124	79.4	76	53	34	24	12
25	237	12	18	17	82.0	536	211	124	83.7	77	54	36	25	12
26	238	13	21	24	83.8	522	209	127	85.5	81	59	36	27	19
27	239	14	24	30	81.9	533	214	127	83.5	81	59	37	25	12
28	240	15	33	43	90.5	539	219	132	92.3	86	61	38	26	12
29	241	16	35	48	91.5	521	221	140	93.3	88	66	39	27	13
30	242	17	43	57	92.0	537	221	139	93.8	92	67	39	27	17
31	243	18	53	68	96.4	540	213	136	98.2	90	65	39	26	17
MEAN			24.7	28.2	79.0	528	208	124	81.0	76	55	35	24	12

The International numbers shown above are preliminary values; the American numbers are final.

Cycle 23 Smoothed Sunspot Numbers: Observed and Predicted



Smoothed Sunspot Numbers (observed and Predicted) for Parts of Solar Cycles 22 and 23

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Avg
1992	124	115	108	103	100	97	91	84	80	76	74	73	93.8
1993	71	69	67	64	60	56	55	52	48	45	41	38	55.5
1994	37	35	34	34	33	31	29	27	27	27	26	26	30.5
1995	24	23	22	21	19	18	17	16	13	12	11	11	17.3
1996	11	10	10	9	8	9	9	8	9	9	10	11	9.4
1997	11	11	13	14	16	18	21	23	26	30	33	36	21
( )			(2)	(3)	(4)	(6)	(8)	(10)	(12)	(15)	(18)	(21)	(8)
1998	40	44	48	52	57	60	63	66	69	72	76	79	61
( )	(24)	(26)	(30)	(33)	(36)	(39)	(42)	(44)	(45)	(45)	(46)	(47)	(38)

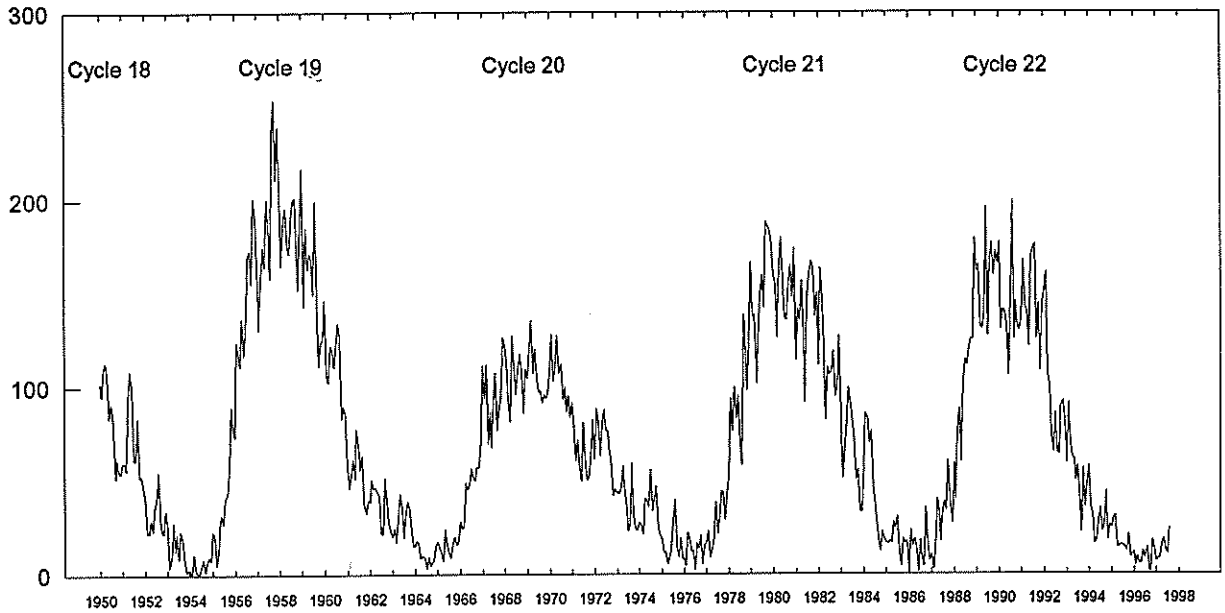
Solar Cycle 22 | Solar Cycle 23 | Min, Max, and Predictions

July 1989 marks the maximum of Solar Cycle 22. May 1996 marks the minimum of Solar Cycle 22 and the onset of Cycle 23.

Observed and Predicted Numbers. For the end of Cycle 22, and the rise and decline of Cycle 23, the table above lists observed smoothed sunspot numbers up to the one that includes the most recent monthly mean. We based these smoothed values on final monthly means through Dec 1996 and on provisional numbers thereafter. Table entries with numbers in parentheses below them denote predictions by the McNish-Lincoln method. (See page 9 in the Jul 1987 supplement to *Solar-Geophysical Data*.) Adding the number in parentheses to the predicted value generates the upper limit of the 90% confidence interval. Subtracting the number from the predicted value generates the lower limit. Consider, for example, the February 1998 prediction. There exists a 90% chance that in February 1998, the actual smoothed number will fall somewhere between 18 and 70.

Points to Ponder. The McNish-Lincoln prediction method generates useful estimates of smoothed, monthly mean sunspot numbers for no more than 12 months ahead. Beyond 12 months, the predictions regress toward the mean of all 15 cycles of observations used in the computation. Moreover, the method remains very sensitive to the date defining the onset of the current cycle, that is, to the date of the most recent sunspot minimum. The new cycle predictions tabulated above are based on the minimum value of 8.0 that occurred in May 1996. For next solar maximum discussions, visit http://www.sec.noaa.gov.

Mean Monthly Sunspot Numbers
Jan 1950 - Aug 1997



Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Mean	
1950	101.6	94.8	109.7	113.4	106.2	83.6	91.0	85.2	51.3	61.4	54.8	54.1	83.9	
1951	59.9	59.9	55.9	92.9	108.5	100.6	61.5	61.0	83.1	51.6	52.4	45.8	69.4	
1952	40.7	22.7	22.0	29.1	23.4	36.4	39.3	54.9	28.2	23.8	22.1	34.3	31.5	
1953	26.5	3.9	10.0	27.8	12.5	21.8	8.6	23.5	19.3	8.2	1.6	2.5	13.9	
1954	0.2	0.5	10.9	1.8	0.8	0.2	4.8	8.4	1.5	7.0	9.2	7.6	4.4	m
1955	23.1	20.8	4.9	11.3	28.9	31.7	26.7	40.7	42.7	58.5	89.2	76.9	38.0	
1956	73.6	124.0	118.4	110.7	136.6	116.6	129.1	169.6	173.2	155.3	201.3	192.1	141.7	
1957	165.0	130.2	157.4	175.2	164.6	200.7	187.2	158.0	235.8	253.8	210.9	239.4	190.2	M
1958	202.5	164.9	190.7	196.0	175.3	171.5	191.4	200.2	201.2	181.5	152.3	187.6	184.8	
1959	217.4	143.1	185.7	163.3	172.0	168.7	149.6	199.6	145.2	111.4	124.0	125.0	159.0	
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	122.3	
1961	57.9	46.1	53.0	61.4	51.0	77.4	70.2	55.8	63.6	37.7	32.6	39.9	53.9	
1962	38.7	50.3	45.6	46.4	43.7	42.0	21.8	21.8	51.3	39.5	26.9	23.2	37.6	
1963	19.8	24.4	17.1	29.3	43.0	35.9	19.6	33.2	38.8	35.3	23.4	14.9	27.9	
1964	15.3	17.7	16.5	8.6	9.5	9.1	3.1	9.3	4.7	6.1	7.4	15.1	10.2	m
1965	17.5	14.2	11.7	6.8	24.1	15.9	11.9	8.9	16.8	20.1	15.8	17.0	15.1	
1966	28.2	24.4	25.3	48.7	45.3	47.7	56.7	51.2	50.2	57.2	57.2	70.4	47.0	
1967	110.9	93.6	111.8	69.5	86.5	67.3	91.5	107.2	76.8	88.2	94.3	126.4	93.8	
1968	121.8	111.9	92.2	81.2	127.2	110.3	96.1	109.3	117.2	107.7	86.0	109.8	105.9	M
1969	104.4	120.5	135.8	106.8	120.0	106.0	96.8	98.0	91.3	95.7	93.5	97.9	105.5	
1970	111.5	127.8	102.9	109.5	127.5	106.8	112.5	93.0	99.5	86.6	95.2	83.5	104.5	
1971	91.3	79.0	60.7	71.8	57.5	49.8	81.0	61.4	50.2	51.7	63.2	82.2	66.6	
1972	61.5	88.4	80.1	63.2	80.5	88.0	76.5	76.8	64.0	61.3	41.6	45.3	68.9	
1973	43.4	42.9	46.0	57.7	42.4	39.5	23.1	25.6	59.3	30.7	23.9	23.3	38.0	
1974	27.6	26.0	21.3	40.3	39.5	36.0	55.8	33.6	40.2	47.1	25.0	20.5	34.5	
1975	18.9	11.5	11.5	5.1	9.0	11.4	28.2	39.7	13.9	9.1	19.4	7.8	15.5	
1976	8.1	4.3	21.9	18.8	12.4	12.2	1.9	16.4	13.5	20.6	5.2	15.3	12.6	m
1977	16.4	23.1	8.7	12.9	18.6	38.5	21.4	30.1	44.0	43.8	29.1	43.2	27.5	
1978	51.9	93.6	76.5	99.7	82.7	95.1	70.4	58.1	138.2	125.1	97.9	122.7	92.5	
1979	166.6	137.5	138.0	101.5	134.4	149.5	159.4	142.2	188.4	186.2	183.3	176.3	155.4	M
1980	159.6	155.0	126.2	164.1	179.9	157.3	136.3	135.4	155.0	164.7	147.9	174.4	154.6	
1981	114.0	141.3	135.5	156.4	127.5	90.9	143.8	158.7	167.3	162.4	137.5	150.1	140.4	
1982	111.2	163.6	153.8	122.0	82.2	110.4	106.1	107.6	118.8	94.7	98.1	127.0	115.9	
1983	84.3	51.0	66.5	80.7	99.2	91.1	82.2	71.8	50.3	55.8	33.3	33.4	66.6	
1984	57.0	85.4	83.5	69.7	76.4	46.1	37.4	25.5	15.7	12.0	22.8	18.7	45.9	
1985	16.5	15.9	17.2	16.2	27.5	24.2	30.7	11.1	3.9	18.6	16.2	17.3	17.9	
1986	2.5	23.2	15.1	18.5	13.7	1.1	18.1	7.4	3.8	35.4	15.2	6.8	13.4	m
1987	10.4	2.4	14.7	39.6	33.0	17.4	33.0	38.7	33.9	60.6	39.9	27.1	29.4	
1988	59.0	40.0	76.2	88.0	60.1	101.8	113.8	111.6	120.1	125.1	125.1	179.2	100.2	
1989	161.3	165.1	131.4	130.6	138.5	196.2	126.9	168.9	176.7	159.4	173.0	165.5	157.6	M
1990	177.3	130.5	140.3	140.3	132.2	105.4	149.4	200.3	125.2	145.5	131.4	129.7	142.6	
1991	136.9	167.5	141.9	140.0	121.3	169.7	173.7	176.3	125.3	144.1	108.2	144.4	145.7	
1992	150.0	161.1	106.7	99.8	73.8	65.2	85.7	64.5	63.9	88.7	91.8	82.6	94.3	
1993	59.3	91.0	69.8	62.2	61.3	49.8	57.9	42.2	22.4	56.4	35.6	48.9	54.6	
1994	57.8	35.5	31.7	16.1	17.8	28.0	35.1	22.5	25.7	44.0	18.0	26.2	29.9	
1995	24.2	29.9	31.1	14.0	14.5	15.6	14.5	14.3	11.8	21.2	9.0	10.0	17.5	
1996	11.5	4.4	9.2	4.8	5.5	11.8	8.2	14.4	1.6	0.9	17.9	13.3	8.6	m
1997	6.5	7.6	8.8	15.8	18.5	13.1	10.5	24.7					13.2	

Values are preliminary after Dec 1996. For the yearly means, each 'M' marks a sunspot cycle maximum and each 'm' a minimum.

Hα SOLAR FLARES

AUGUST 1997

Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp Opt	Imp Xray	Imp See	Obs Type	Area Measurement Time (UT)	Area Measurement Apparent (10-6 Disk)	Area Measurement Corr (Sq Deg)	Remarks
GOES	01	2358	2406	2420						22		B 1.8						1.9E-04
HOLL	03	0020	0023	0034	S21	E45		08	6.5	14	SF		3	E		23		FH
LEAR		0303	0307	0309	S25	E42		08	6.4	6	SF		3	E		48		
RAMY		1058E	1100U	1104	S21	E39		08	6.4	6D	SF		2	E		15		
GOES	06	0559	0606	0612	N20	W38	8069			13	SF	B 4.9						3.0E-04
SVTO		0603	0605	0614	N20	W38	8069	08	3.3	11	SF	B 4.9	3	E		16		
GOES		0919	0925	0934						15		B 1.4						1.1E-04
SVTO	07	0924	0924	0933	N19	W55	8069	08	3.2	9	SF		3	E		14		
SVTO		1035	1035	1046	N19	W56	8069	08	3.2	11	SF		3	E		13		
SVTO		1117	1121	1123	N19	W56	8069	08	3.2	6	SF		3	E		11		
SVTO		1136	1138	1147	N19	W57	8069	08	3.1	11	SF	B 1.1	3	E		20		
GOES		1136	1139	1141	N19	W57	8069			5	SF	B 1.1						1.8E-05
GOES		1235	1238	1241						6		B 1.4						3.8E-05
RAMY		1300	1303	1315	N19	W57	8069	08	3.2	15	SF	B 2.1	4	E		17		
GOES		1302	1306	1308	N19	W57	8069			6		B 2.1						4.6E-05
SVTO		1428	1428U	1437D	N19	W57	8069	08	3.2	9D	SF		3	E		37		
SVTO		1447	1453	1459	N19	W58	8069	08	3.2	12	SF		3	E		20		
RAMY		1723	1724	1730	N19	W58	8069	08	3.3	7	SF		4	E		10		F
GOES		1843	1851	1858						15		B 2.8						2.0E-04
GOES		2008	2037	2100						52		B 3.5						8.2E-04
GOES	08	0905	0909	0914						9		B 1.7						6.9E-05
GOES		1247	1251	1255	N19	W71	8069			8	SF	B 1.8						7.5E-05
RAMY		1249	1252	1259	N19	W71	8069	08	3.1	10	SF	B 1.8	3	E		21		
SVTO		1258E	1259U	1303D	N19	W73	8069	08	3.0	5D	SF	B 1.8	3	E		10		
SVTO		1315	1316	1320	N19	W73	8069	08	3.0	5	SF		3	E		14		
GOES		1442	1445	1447						5		B 1.2						2.9E-05
RAMY		1505	1505	1509	N19	W71	8069	08	3.2	4	SF		3	E		13		
GOES	09	0154	0201	0217						23		B 2.6						2.9E-04
GOES		0722	0727	0731						9		B 2.1						9.2E-05
GOES		0843	0905	0912						29		B 5.2						6.5E-04
GOES		1144	1148	1150						6		B 5.2						1.2E-04
GOES		1204	1213	1222	N19	W86	8069			18	SF	C 1.0						6.7E-04
SVTO		1210	1211	1220	N19	W86	8069	08	2.9	10	SF	C 1.0	2	E		25		
GOES		1254	1302	1306						12		C 3.7						1.4E-03
GOES		1505	1524	1532						27		C 1.1						1.0E-03
RAMY		1602	1603	1607	N20	W82	8069	08	3.4	5	SF		3	E		21		
GOES		1607	1613	1615	N20	W82	8069			8		B 4.9						1.8E-04
GOES		1630	1634	1638	N19	W85	8069			8	SF	C 8.5						2.1E-03
HOLL		1634	1634	1637	N19	W85	8069	08	3.2	3	SF	C 8.5	3	E		64		
GOES		1900	1904	1906						6		B 9.4						1.9E-04
GOES		1913	1917	1923						10		B 3.3						1.7E-04
GOES		2341	2350	2355						14		C 3.2						1.4E-03
GOES	10	0144	0150	0215						31		B 6.1						9.5E-04
GOES		0720	0729	0735						15		C 3.0						1.6E-03
GOES		0836	0842	0849						13		C 1.0						6.4E-04
GOES		1101	1104	1106						5		B 2.9						8.0E-05
GOES		1132	1135	1137						5		B 2.6						6.2E-05
GOES		1459	1504	1507						8		B 3.4						1.2E-04
GOES		1715	1718	1723						8		B 1.6						7.1E-05
GOES		1815	1833	1842						27		B 8.6						7.6E-04
GOES		1920	1924	1927						7		B 3.5						1.2E-04
GOES		2000	2019	2028						28		C 4.6						4.2E-03
GOES		2342	2403	2419						37		C 5.5						7.7E-03
GOES	11	0138	0145	0159						21		B 3.2						3.7E-04
GOES		0854	0909	0929	N22	E02	8072			35	SF	C 1.1						2.0E-03
SVTO		0917E	0918U	0923	N22	E02	8072	08	11.5	6D	SF	C 1.1	3	E		17		
GOES	12	0549	0555	0601	N28	E80	8074			12	SF	B 3.6						1.8E-04
SVTO		0554	0557	0604	N28	E80	8074	08	18.5	10	SF	B 3.6	3	E		17		F
GOES		0927	0932	0937	N25	E16	8073			10	SF	B 2.3						1.1E-04
SVTO		0931	0936	0941	N25	E16	8071	08	13.6	10	SF		3	E		14		F

Hα SOLAR FLARES

AUGUST 1997

Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp Opt	Imp Xray	Imp See	Obs Type	Area Measurement Time (UT)	Area Measurement Apparent (10-6 Disk)	Area Measurement Corr (Sq Deg)	Remarks
LEAR	12	0933	0933	0934D	N11	E68	8073	08	17.5	1D	3F		0	E		648		
SVTO		1240	1241	1248	S20	W38	8070	08	9.6	8	SF		3	E		14		
GOES		1513	1516	1531						18		B 1.2						1.2E-04
GOES		1612	1616	1619						7		B 1.3						5.0E-05
GOES		2146	2151	2154						8		B 1.8						6.1E-05
SVTO	13	0511E	0517	0525	S20	W48	8070	08	9.5	14D	SF		3	E		22		
GOES		0642	0647	0706						24		B 2.1						2.7E-04
GOES		1831	1839	1851	N26	W03	8071			20	SF	B 3.3						3.0E-04
RAMY		1838	1843	1850	N26	W03	8071	08	13.5	12	SF		2	E		14		F
GOES	14	0112	0132	0141	N26	W04	8071			29	SF	C 1.0						7.3E-04
LEAR		0129	0132	0147	N26	W04	8071	08	13.7	18	SF	C 1.0	3	E		30		F
GOES	15	0827	0834	0843						16		B 1.4						1.1E-04
GOES		1605	1611	1619						14		B 1.1						8.9E-05
GOES		1903	1906	1909						6		B 1.2						3.4E-05
GOES	16	0821	0826	0830						9		B 1.4						6.4E-05
GOES		1343	1348	1358						15		B 1.2						9.6E-05
GOES	17	0216	0224	0231						15		B 1.8						1.3E-04
GOES		1829	1834	1838						9		B 3.9						1.3E-04
GOES	18	1019	1023	1027						8		B 1.1						4.6E-05
GOES	21	0428	0435	0446	N29	W34	8074			18	SF	B 3.6						2.7E-04
LEAR		0433	0433	0438	N29	W34	8074	08	18.5	5	SF	B 3.6	3	E		17		
GOES	23	1413	1434	1456						43		B 3.1						7.2E-04
GOES	24	0626	0632	0642						16		B 1.1						9.8E-05
GOES		1829	1834	1843	S23	E72				14	SF	B 2.4						1.5E-04
HOLL		1834	1835	1838	S23	E72		08	30.3	4	SF	B 2.4	3	E		31		
GOES		2116	2151	2203						47		B 3.5						7.4E-04
GOES	25	0149	0154	0158						9		B 1.7						7.1E-05
GOES		0248	0251	0254						6		B 1.2						3.9E-05
HOLL		1407E	1408U	1413D	N30	E82		09	1.0	6D	SF		3	E		23		
GOES		1518	1522	1525	N28	E69	8076			7	SF	C 1.2						2.9E-04
SVTO		1519	1522	1533	N29	E69	8076	08	31.0	14	SF	C 1.2	3	E		50		
HOLL		1519	1522	1534	N30	E82	8076	09	1.1	15	SF	C 1.2	3	E		57		
RAMY		1519	1523	1543	N28	E69	8076	08	31.0	24	SF	C 1.2	3	E		88		
GOES		1625	1715	1729	N27	E69	8076			64	SF	C 1.2						5.4E-03
RAMY		1639	1655	1714	N27	E69	8076	08	31.1	35	SF	C 1.2	3	E		28		F
HOLL		1702	1702	1709	N28	E80	8076	09	1.0	7	SF	C 1.2	3	E		19		F
GOES		2226	2231	2237						11		B 4.2						2.1E-04
GOES	26	0003	0007	0009						6		B 2.6						7.8E-05
GOES		0051	0054	0056	N21	E57	8076			5	SF	C 4.0						6.6E-04
LEAR		0054	0054	0101	N21	E57	8076	08	30.4	7	SF	C 4.0	3	E		41		
GOES		0505	0508	0512						7		B 2.2						8.3E-05
GOES		0526	0532	0535	N26	E55	8076			9	SF	C 4.5						1.2E-03
SVTO		0531E	0532U	0614	N26	E55	8076	08	30.5	43D	SF	C 4.5	2	E		28		F
GOES		1218	1222	1227						9		B 2.3						1.2E-04
GOES		1958	2001	2005						7		B 5.3						1.6E-04
GOES		2008	2013	2019	N29	E54	8076			11	SF	B 8.8						4.5E-04
HOLL		2010	2013	2042	N29	E54	8076	08	31.1	32	SF	B 8.8	3	E		66		H
HOLL		2308	2310	2316	N29	E53	8076	08	31.1	8	SF		3	E		31		
GOES	27	0150	0155	0158						8		B 1.8						7.6E-05
GOES		0224	0227	0229						5		B 1.7						4.3E-05
GOES		0308	0311	0313						5		B 1.4						3.6E-05
RAMY		1514	1517	1523	S23	E38	8077	08	30.6	9	SF		3	E		12		
GOES		1623	1630	1638						15		B 1.9						1.5E-04
GOES		2119	2124	2129						10		B 1.5						8.3E-05
GOES	28	0408	0411	0413						5		B 4.3						1.2E-04

Hα SOLAR FLARES

AUGUST 1997

Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp Opt	Xray	See	Obs Type	Area Measurement Time (UT)	Area Measurement Apparent (10-6 Disk)	Area Measurement Corr (Sq Deg)	Remarks
GOES	28	0715	0720	0728						13		B 3.5						2.3E-04
SVTO		1053	1054	1059	N30	E36	8076	08	31.3	6	SF		3	E		19		
RAMY		1121	1124	1133	N27	E32	8076	08	31.0	12	SF		3	E		25		
SVTO		1122	1124	1131	N26	E31	8076	08	30.9	9	SF		3	E		15		
GOES		1211	1215	1225						14		B 6.2						4.1E-04
HOLL		1618	1619	1623	N27	E31	8076	08	31.1	5	SF		3	E		25		
GOES		2028	2045	2100						32		B 9.3						1.5E-03
GOES	29	0417	0428	0438						21		C 4.0						3.3E-03
GOES		0611	0615	0619	N29	E25	8076			8	SF	B 3.1						1.3E-04
SVTO		0617	0619	0625	N29	E25	8076	08	31.2	8	SF	B 3.1	3	E		16		
GOES		0839	0844	0849						10		B 5.2						2.7E-04
GOES		0918	0924	0930	N31	E24	8076			12	SF	B 6.7						4.1E-04
SVTO		0921	0925U	0945D	N31	E24	8076	08	31.3	24D	SF	B 6.7	3	E		24		F
RAMY		1513	1513	1517	N31	E22	8076	08	31.4	4	SF		3	E		22		F
GOES		1723	1730	1738	N30	E20	8076			15	SF	C 1.0						6.2E-04
RAMY		1727	1729	1754	N30	E20	8076	08	31.3	27	SF	C 1.0	4	E		35		F
HOLL		1728	1729	1741	N27	E17	8076	08	31.0	13	SF	C 1.0	3	E		24		
GOES		2256	2332	2354	N30	E17				58	SF	M 1.4						2.0E-02
HOLL		2314E	2317U	2447	N30	E17	8076	08	31.3	93D	SF	M 1.4	3	E		61		
GOES	30	0548	0552	0555						7		B 4.2						1.6E-04
GOES		0720	0725	0728	N24	E10	8076			8	SF	B 5.7						2.1E-04
LEAR		0723	0725	0733	N24	E10	8076	08	31.1	10	SF	B 5.7	3	E		28		
SVTO		0723	0725U	0734D	N30	E11	8076	08	31.2	11D	SF		3	E		71		F
GOES		1035	1042	1059						24		B 5.5						6.9E-04
GOES		1107	1125	1132	N23	E03	8076			25	SF	C 1.9						2.2E-03
SVTO		1115	1121	1133	N23	E03	8076	08	30.7	18	SF	C 1.9	3	E		18		F
SVTO		1144	1146	1158	N23	E04	8076	08	30.8	14	SF		3	E		28		
SVTO		1509	1525	1536	N28	E05	8076	08	31.0	27	SF		3	E		13		
GOES		1511	1516	1520	N28	E05	8076			9		B 6.3						2.8E-04
GOES		1709	1715	1720						11		B 5.1						2.7E-04
GOES	31	1126	1131	1133	N29	W05	8076			7	SF	C 2.7						5.0E-04
RAMY		1129	1133	1138	N29	W05	8076	08	31.1	9	SF	C 2.7	3	E		26		
SVTO		1350	1351	1358	N27	W14	8076	08	30.5	8	SF		3	E		38		
RAMY		1449	1449	1452	N29	W06	8076	08	31.1	3	SF		4	E		12		
SVTO		1449	1449	1452	N28	W07	8076	08	31.1	3	SF		3	E		12		
SVTO		1504	1504	1513	N28	W07	8076	08	31.1	9	SF		3	E		11		
RAMY		1504	1505	1508	N29	W07	8076	08	31.1	4	SF		4	E		10		
RAMY		1652	1656	1705	N27	W11	8076	08	30.8	13	SF		4	E		21		
GOES		1904	1915	1920	N29	W10	8076			16	SF	C 1.2						8.5E-04
HOLL		1910	1914	1920	N29	W10	8076	08	31.0	10	SF	C 1.2	3	E		39		F
HOLL		1924	1925	1931	N29	W12	8076	08	30.9	7	SF		3	E		19		F
GOES		2218	2223	2226	N30	W12	8076			8	SF	C 1.4						4.8E-04
HOLL		2222	2223	2232	N30	W12	8076	08	31.0	10	SF	C 1.4	3	E		42		
GOES		2237	2241	2247						10		B 4.5						2.4E-04

Beginning with these August 1997 data, we now include all of the GOES X-ray events in addition to the optical flares. All GOES events have the times of the X-ray events, rather than the optical flare times. They also include in the Remarks column the total integrated X-ray flux of the event in Joules/m-squared.

S O L A R R A D I O E M I S S I O N
Selected Fixed Frequency Events

AUGUST 1997

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
26	8800	LEAR	8 S	0053.0	0053.0	1.0	49.0			QL=4 ST=2 TYP=3
	8800	PALE	8 S	0053.0	0053.0	1.0	47.0			QL=4 ST=3 TYP=3
29	2695	LEAR	8 S	2331.0	2331.0	1.0	94.0			QL=4 ST=2 TYP=3
	8800	LEAR	8 S	2331.0	2331.0	U	71.0			QL=4 ST=2 TYP=3
	2695	PALE	8 S	2331.0	2331.0	U	130.0			QL=4 ST=2 TYP=3
	8800	PALE	8 S	2331.0	2331.0	U	54.0			QL=4 ST=2 TYP=3

Reports are received routinely from the following observatories:
LEAR = Learmonth PALE = Palehua SGMR = Sagamore Hill SVTO = San Vito

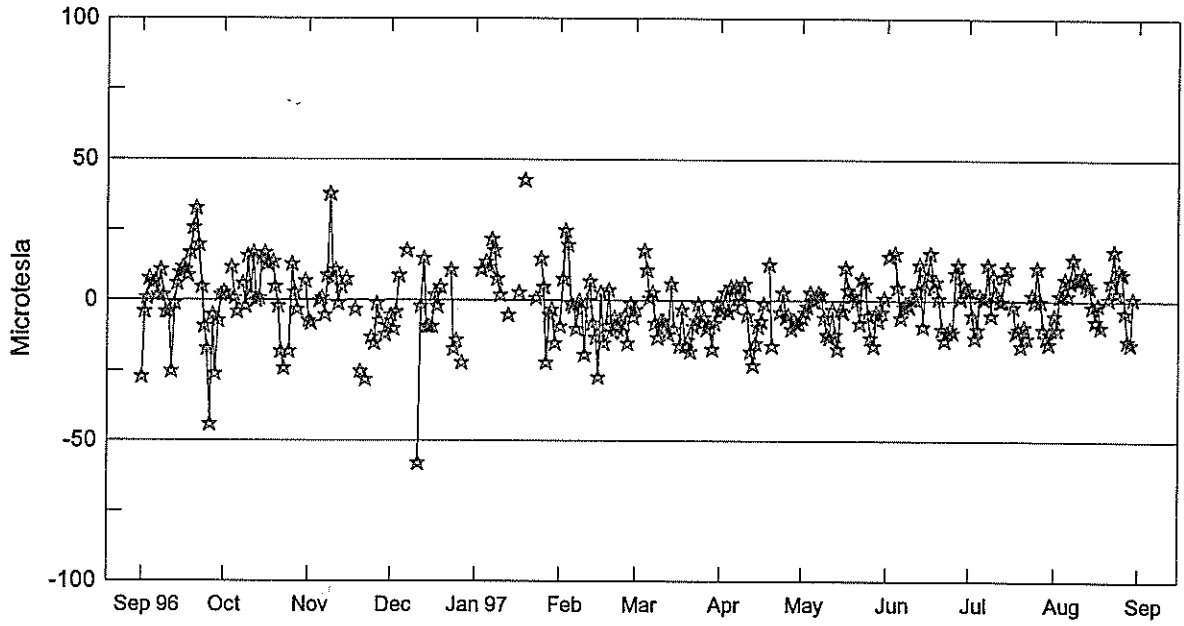
Explanation of Type Code:

1 Simple 1	7 Minor +	24 Rise	30 Post Burst Increase A	43 Onset of 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	33 Absorption	45 Complex
4 Simple 2F	21 Simple 3A	27 Rise and Fall	40 Fluctuation	46 Complex F
5 Simple	22 Simple 3F	28 Precusor	41 Group of Bursts	47 Great Burst
6 Minor	23 Simple 3AF	29 Post Burst Increase	42 Series of Bursts	48 Major

1A Simple 1A	4A Simple 2AF	24PF Post Rise F	27F Rise and Fall F
3A Simple 2A	40 Rise Only	16A Fall A	27AF Rise and Fall AF
21A Simple 3A GRF	40F Rise Only F	260 Fall Only	31A Post Burst Decrease A
2A Simple 1AF	4P Post Rise	26F Fall F	32A Absorption A

RSTN Site Information: Beginning in April 1986, the RSTN sites LEAR, PALE, SGMR, and SVTO fixed frequency solar radio data are periodically adjusted to several world standard stations. These world standard stations include: Kislovodsk, USSR 15,500 MHz; Penticton, Canada 2800 MHz; Hiraiso, Japan 500 and 200 MHz; and Toyokawa, Japan 9400, 3750, 2000 and 1000 MHz.

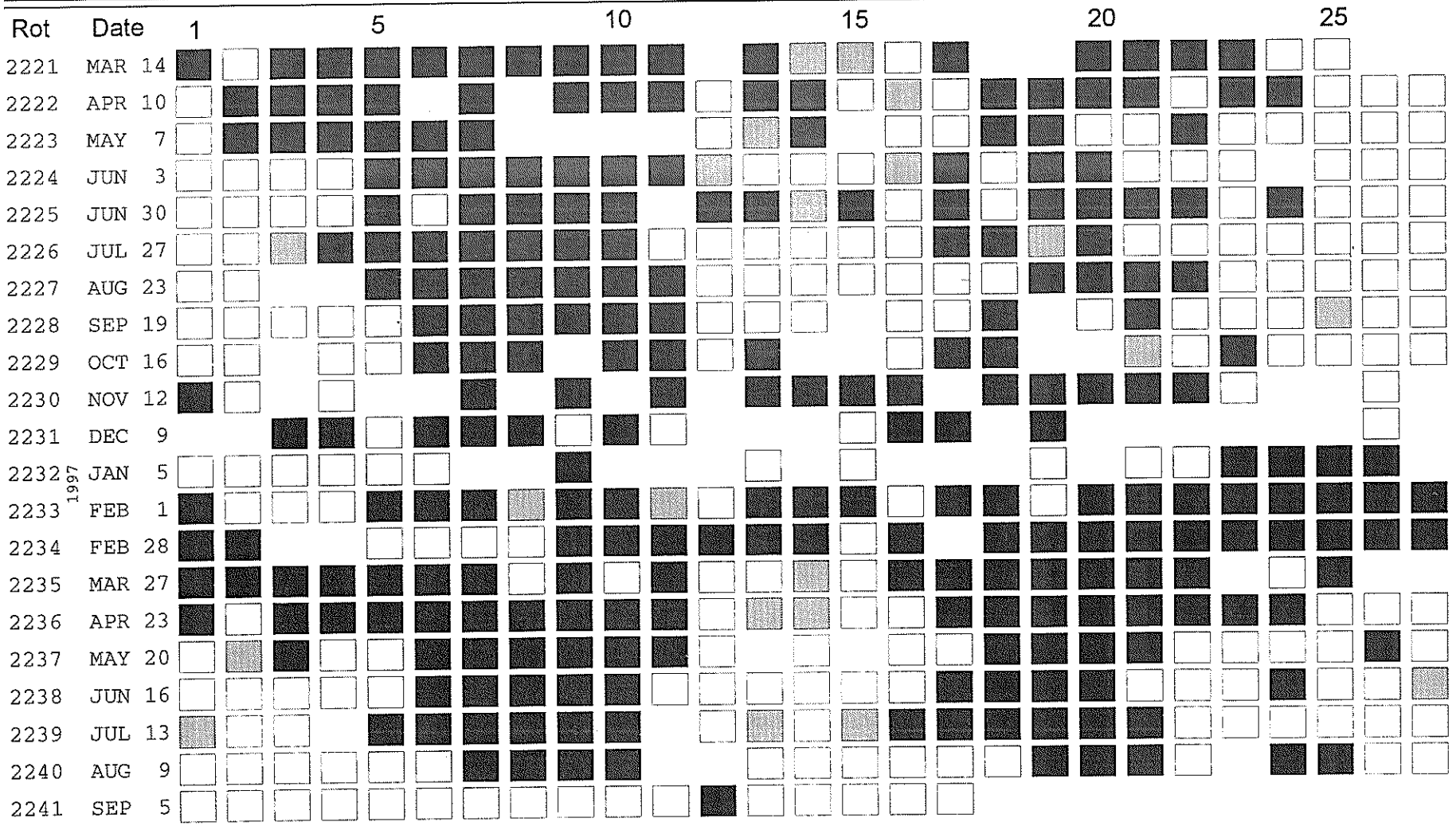
Stanford Mean Solar Magnetic Field (Microtesla)
"Sun-As-A-Star"



Day	Sep 96	Oct	Nov	Dec	Jan 97	Feb	Mar	Apr	May	Jun	Jul	Aug
1	-27	3	-7	-5	---	-9	-3	-4	-6	---	4	-5
2	-4	2	-8	-10	---	8	---	-3	-4	16	-5	-10
3	1	---	---	-4	11	25	---	3	-2	---	-13	2
4	8	12	---	9	---	20	18	-4	3	17	-10	2
5	6	1	0	---	14	-1	11	5	0	5	-2	8
6	7	-4	1	---	12	-2	1	-2	0	-6	1	2
7	2	---	-5	18	22	-10	3	5	3	-2	1	7
8	11	6	9	---	18	0	-8	2	2	-1	13	15
9	2	-2	38	---	8	-3	-13	0	-6	-2	-5	8
10	-4	16	8	---	2	-19	-7	6	-12	1	9	8
11	-4	2	11	-58	---	0	-7	-5	-13	1	3	8
12	-25	17	-1	-2	---	7	-9	-18	-3	4	0	10
13	-1	0	5	15	-5	-8	-12	-23	-12	13	0	6
14	6	1	---	-9	---	-13	6	-15	-17	-9	9	5
15	10	15	8	-9	---	-27	-10	-9	-3	5	12	-2
16	12	17	---	-9	---	3	---	-7	-4	9	---	-7
17	11	13	---	2	3	-15	-16	-1	12	17	-2	-1
18	9	---	-3	-2	---	-9	-3	---	4	5	-11	-9
19	17	14		5	43	4	-16	13	2	7	-10	---
20	26	5	-25	---	---	-11	-14	-16	2	1	-16	---
21	33	-2	---	---	---	-6	-18	---	0	-10	-9	1
22	20	-18	-28	---	---	-9	-9	---	-8	-14	-13	7
23	5	-24	---	11	1	-8	-7	-4	8	-11	---	18
24	-9	---	-13	-17	---	-11	-1	3	6	-10	2	3
25	-17	-18	-15	-14	15	-5	-8	-6	-5	-11	0	11
26	-44	13	-1	---	5	-15	-6	-5	-13	10	12	10
27	-5	3	-7	-22	-22	-1	-10	-10	-16	13	0	-4
28	-26	-3	---	---	-5	-6	-9	-7	-4	1	-10	-14
29	-7	---	-12	---	-3		-17	-8	-7	6	-13	-15
30	2	---	-9	---	-15		-8	-8	-4	4	-15	1
31		7		---	---		-1		1		-10	---

Note: --- Indicates no data available for the day.

STANFORD MEAN SOLAR MAGNETIC FIELD

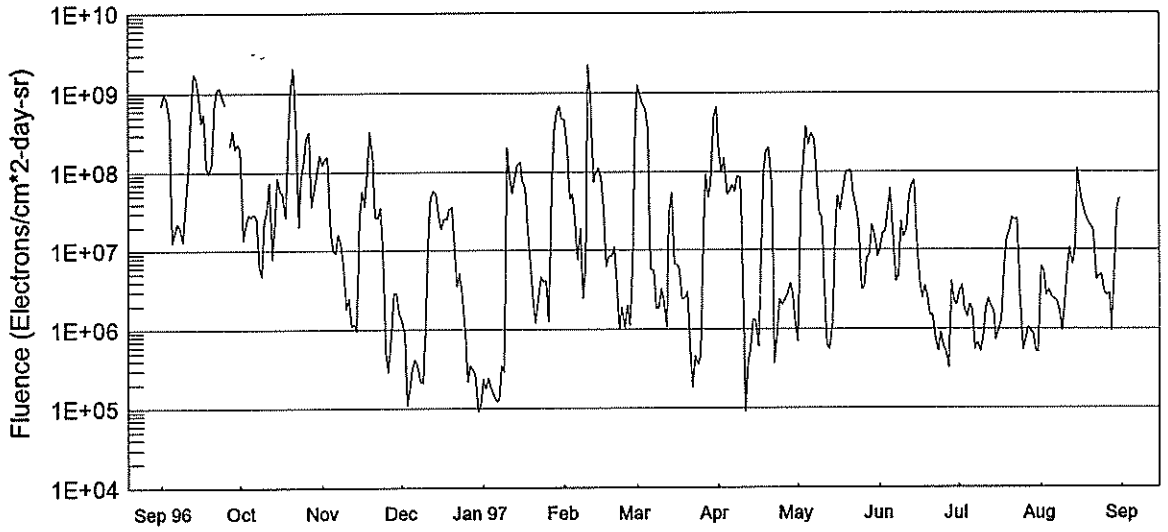


Mean Solar Magnetic Field Polarity: = field > 2 microT; = -2 microT ≤ field ≤ 2 microT

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

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

GOES Daily Electron Fluence
Sep 96 - Aug 97



Day	Sep 96	Oct	Nov	Dec	Jan 97	Feb	Mar	Apr	May	Jun	Jul	Aug
1	7.0E+08	2.0E+08	1.2E+08	1.3E+06	2.3E+05	4.7E+08	1.2E+09	1.8E+08	6.8E+05	1.0E+07	2.9E+06	6.1E+06
2	9.9E+08	1.3E+07	1.4E+08	8.8E+05	1.7E+05	2.0E+08	9.0E+08	1.0E+08	5.2E+07	1.6E+07	3.6E+06	5.4E+06
3	8.3E+08	2.1E+07	1.5E+08	1.0E+05	2.3E+05	4.5E+07	7.0E+08	1.4E+08	1.3E+08	1.6E+07	1.8E+06	2.6E+06
4	4.8E+08	2.8E+07	1.7E+07	1.7E+05	1.8E+05	5.3E+07	6.3E+08	5.2E+07	3.8E+08	3.7E+07	1.4E+06	3.1E+06
5	1.2E+07	2.7E+07	1.0E+07	3.1E+05	1.4E+05	2.4E+07	3.4E+08	5.6E+07	2.2E+08	6.1E+07	2.0E+06	2.5E+06
6	1.7E+07	2.9E+07	9.2E+06	4.1E+05	1.2E+05	7.5E+06	5.6E+06	6.8E+07	3.1E+08	1.3E+07	1.6E+06	2.3E+06
7	2.2E+07	2.6E+07	1.6E+07	3.4E+05	1.2E+05	1.9E+07	5.5E+06	5.6E+07	2.6E+08	3.9E+06	5.5E+05	2.2E+06
8	2.0E+07	6.5E+06	1.2E+07	2.1E+05	3.4E+05	2.4E+06	1.8E+06	8.7E+07	1.1E+08	4.6E+06	6.6E+05	1.7E+06
9	1.2E+07	4.6E+06	6.8E+06	2.0E+05	2.8E+05	6.0E+06	1.8E+06	8.4E+07	2.9E+07	2.3E+07	5.2E+05	9.3E+05
10	3.6E+07	2.4E+07	1.8E+06	9.7E+05	2.0E+08	2.3E+09	3.2E+06	9.8E+06	2.6E+07	1.4E+07	7.6E+05	1.9E+06
11	8.5E+07	3.1E+07	2.4E+06	1.1E+07	8.6E+07	9.7E+08	2.3E+06	9.1E+04	3.1E+06	1.8E+07	1.7E+06	6.3E+06
12	3.8E+08	7.3E+07	1.0E+06	4.7E+07	5.4E+07	7.4E+07	1.0E+06	3.7E+05	6.1E+05	4.8E+07	2.4E+06	1.0E+07
13	1.7E+09	7.7E+06	1.1E+06	5.8E+07	8.2E+07	9.6E+07	2.6E+07	5.7E+05	5.5E+05	6.8E+07	1.9E+06	6.4E+06
14	1.6E+09	2.3E+07	9.4E+05	5.1E+07	1.2E+08	1.1E+08	5.3E+07	1.2E+06	1.2E+06	7.8E+07	1.6E+06	1.0E+07
15	9.7E+08	8.5E+07	2.6E+07	2.7E+07	1.3E+08	8.2E+07	6.6E+06	1.2E+06	1.6E+07	1.4E+07	7.2E+05	1.1E+08
16	4.3E+08	5.8E+07	5.7E+07	1.8E+07	7.9E+07	3.4E+07	6.6E+06	5.9E+05	4.9E+07	3.7E+06	1.0E+06	5.7E+07
17	5.4E+08	5.3E+07	3.7E+07	2.4E+07	6.2E+07	6.1E+06	5.8E+06	9.7E+06	3.2E+07	2.4E+06	1.3E+06	3.8E+07
18	1.2E+08	2.6E+07	1.0E+08	2.5E+07	1.7E+07	8.3E+06	2.4E+06	1.0E+08	5.5E+07	3.4E+06	5.4E+06	2.7E+07
19	9.6E+07	2.2E+08	3.3E+08	3.2E+07	6.8E+06	8.4E+06	2.4E+06	1.8E+08	9.8E+07	2.5E+06	1.3E+07	2.2E+07
20	1.2E+08	1.1E+09	1.4E+08	3.6E+07	2.4E+06	1.1E+07	2.9E+06	2.0E+08	1.0E+08	1.4E+06	1.8E+07	2.0E+07
21	6.5E+08	2.0E+09	2.7E+07	1.1E+07	1.1E+06	3.7E+06	5.6E+05	6.9E+07	1.0E+08	1.5E+06	2.6E+07	1.8E+07
22	1.1E+09	5.0E+08	2.5E+07	3.4E+06	2.6E+06	9.9E+05	1.8E+05	3.6E+05	5.0E+07	7.3E+05	2.4E+07	4.2E+06
23	1.1E+09	2.0E+07	3.5E+07	5.1E+06	4.6E+06	1.8E+06	4.5E+05	8.4E+05	3.6E+07	5.2E+05	2.5E+07	4.5E+06
24	9.3E+08	8.1E+07	7.9E+06	2.8E+06	3.9E+06	1.0E+06	3.5E+05	2.3E+06	2.1E+07	9.0E+05	2.9E+06	4.9E+06
25	7.1E+08	1.4E+08	5.0E+05	9.5E+05	4.0E+06	2.0E+06	4.8E+05	2.0E+06	3.1E+06	6.1E+05	5.4E+05	2.9E+06
26	--	2.8E+08	2.8E+05	2.1E+05	1.2E+06	1.1E+06	1.2E+07	2.3E+06	3.4E+06	5.2E+05	7.2E+05	2.6E+06
27	2.2E+08	3.2E+08	8.9E+05	3.4E+05	5.2E+07	5.7E+06	9.4E+07	2.7E+06	8.0E+06	3.2E+05	1.0E+06	2.7E+06
28	3.4E+08	3.6E+07	2.8E+06	3.0E+05	3.3E+08	2.2E+08	4.7E+07	3.8E+06	8.8E+06	4.0E+06	9.3E+05	9.4E+05
29	2.0E+08	5.7E+07	2.8E+06	2.6E+05	5.7E+08		7.3E+07	2.7E+06	2.1E+07	2.2E+06	8.7E+05	6.9E+06
30	2.3E+08	1.0E+08	1.5E+06	9.0E+04	6.8E+08		4.9E+08	1.2E+06	1.4E+07	2.0E+06	5.1E+05	3.6E+07
31		1.6E+08		1.0E+05	4.7E+08		6.6E+08		8.2E+06		5.0E+05	4.6E+07

NOTE: The electron detector responds significantly to protons above 32 MeV; therefore, electron data are contaminated when a proton event is in progress. These days are indicated with '-999' in the table and are not plotted. '--' indicates data not available. GOES9 data began April, 1996.

CONTENTS

Prompt Reports Number 637 Part I

DATA FOR JULY 1997

SOLAR MAGNETIC FIELD SYNOPTIC CHART

CARRINGTON ROTATION NUMBER 1924

(18 June to 15 July 1997)

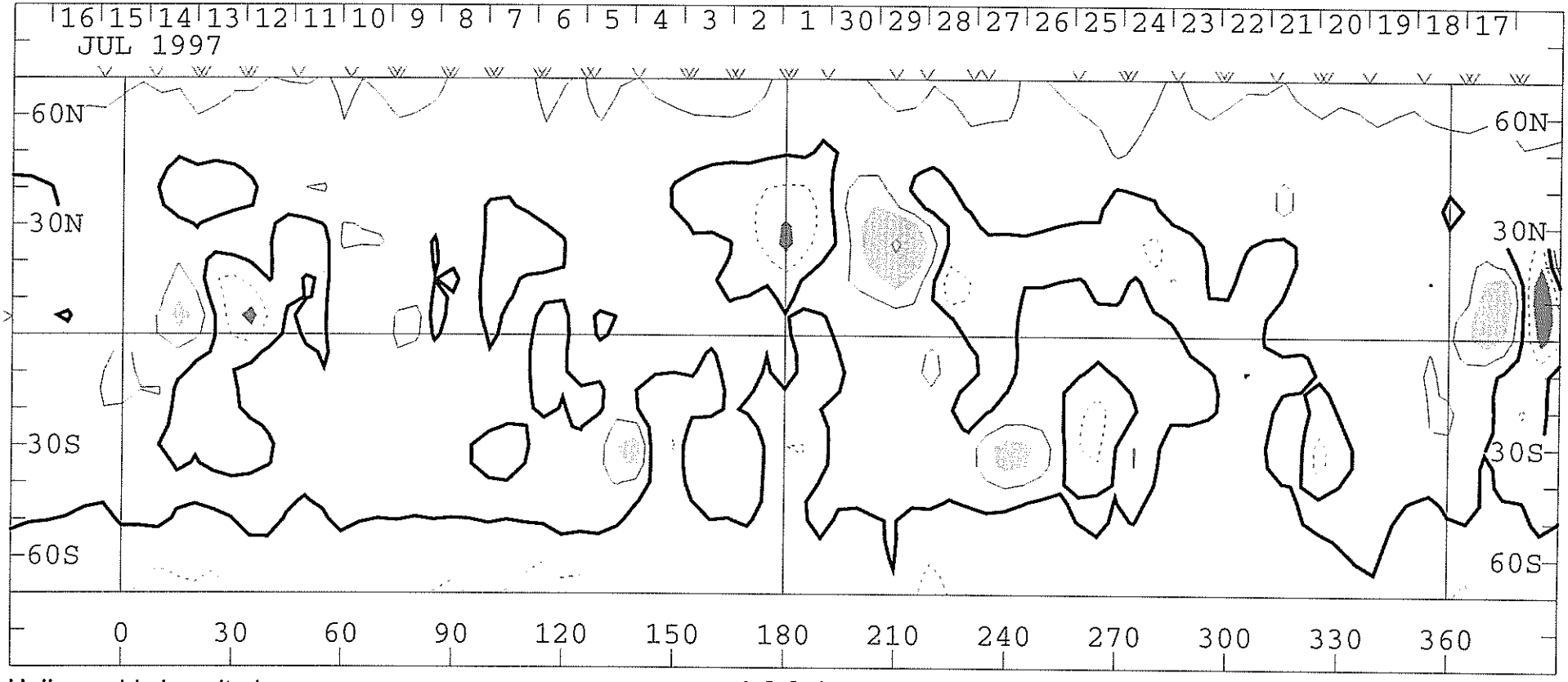
WILCOX SOLAR OBSERVATORY

36 Jul 97

Mean Field

Photospheric Magnetic Field

0, ±100, 500, 1000, 2000 MicroTesla



Heliographic Longitude

1924

SOLAR MAGNETIC FIELD SYNOPTIC CHART

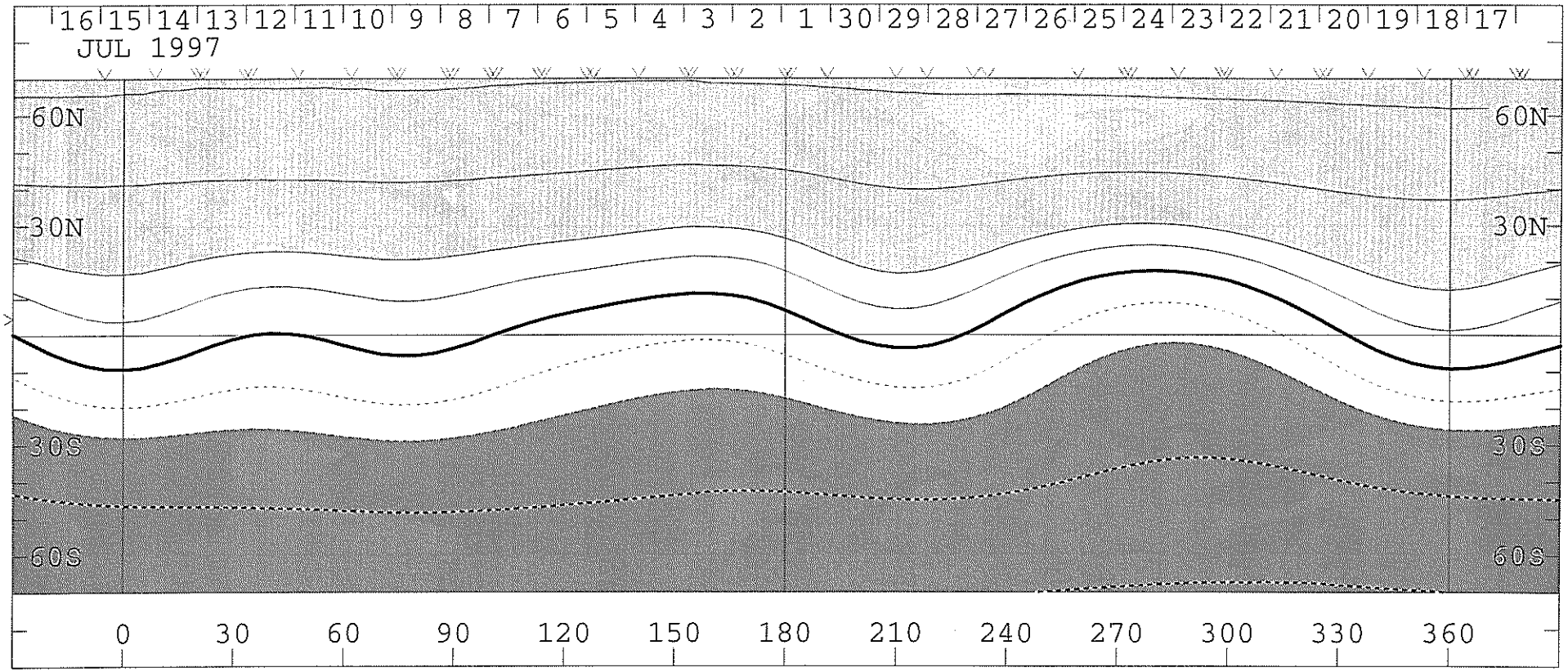
SOURCE SURFACE FIELD

CARRINGTON ROTATION NUMBER 1924

(18 June to 15 July 1997)

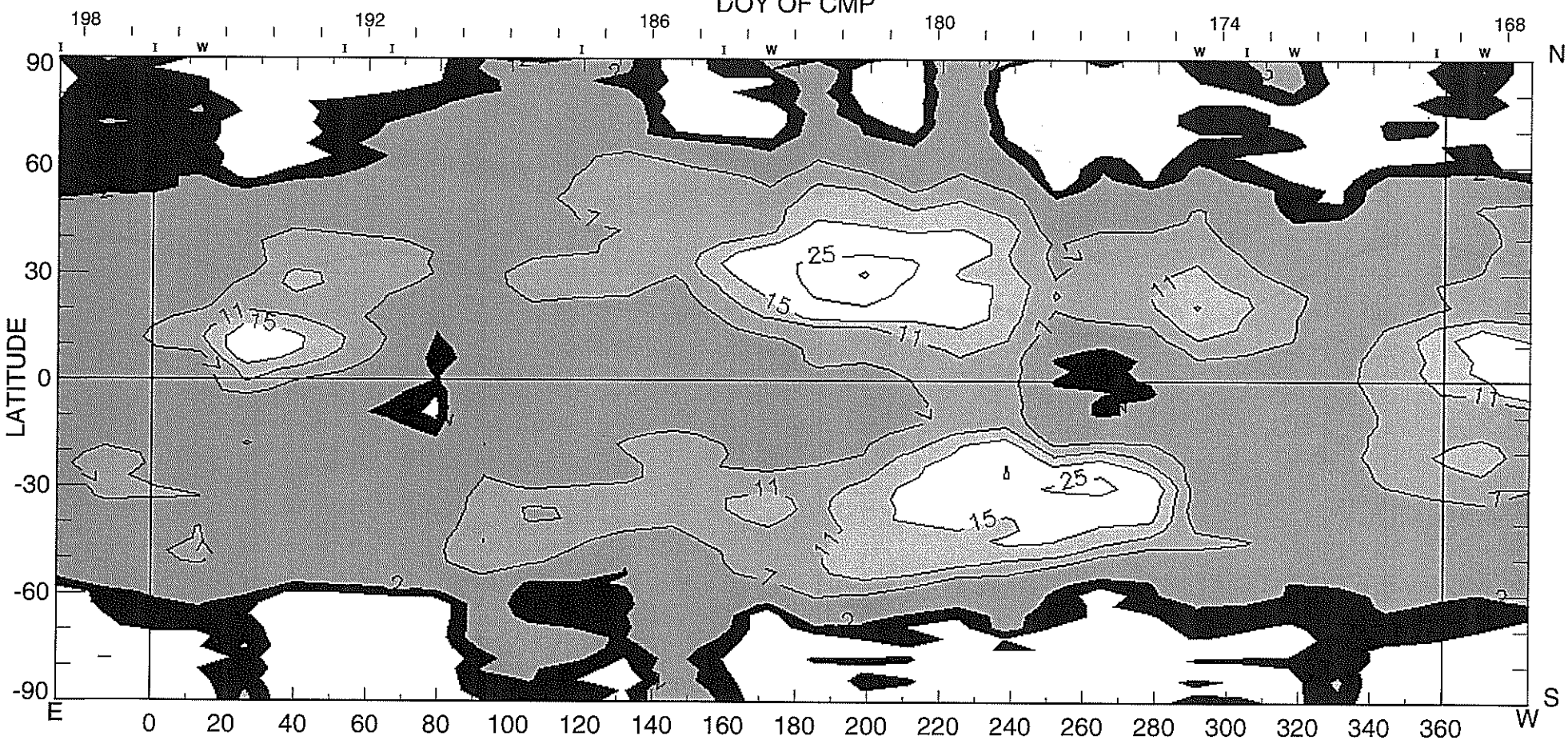
Wilcox Solar Observatory

0, ±1, 2, 5, 10, 20 microTesla



37 Jul 97

CARRINGTON ROTATION NUMBER 1924 ; NSO/SACRAMENTO PEAK FE XIV @ R = 1.15R_o

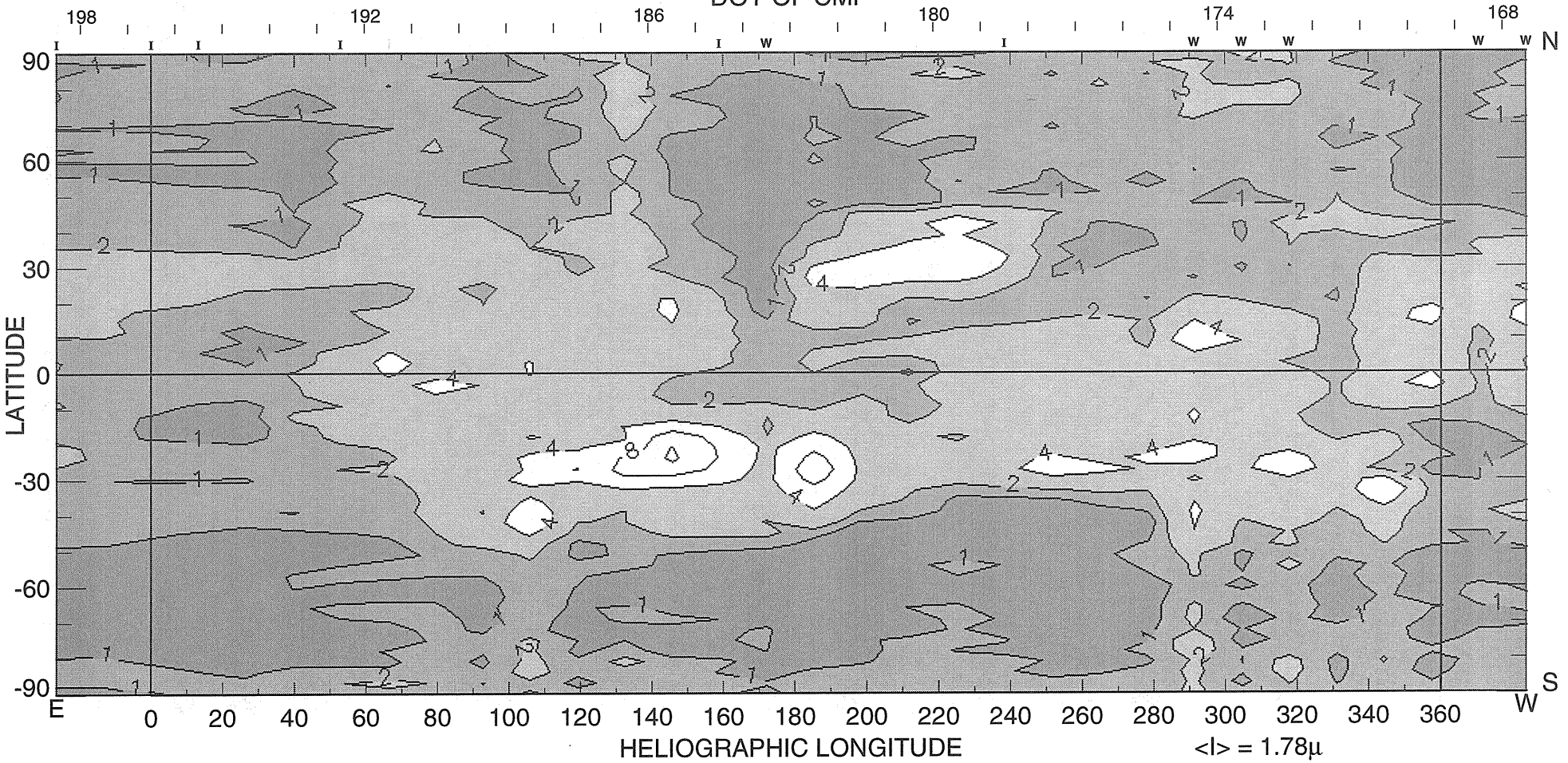


<I> = 5.20μ

(28-Aug-97)

1997 E+W LIMB CONTOURS: 1, 2, 7, 11, 15, 25, 35, 45 MILLIONTHS OF I_o
CORONAL HOLES ARE SHOWN AS WHITE BORDERED BY BLACK

CARRINGTON ROTATION NUMBER 1924 ; NSO/SACRAMENTO PEAK FE X @ R = 1.15R_o



<I> = 1.78μ

(28-Aug-97)

1997 E+W LIMB CONTOURS: 1, 2, 4, 8, 12, 16, 32, 48 MILLIONTHS OF I_o

NOTE: No Ca XV emission observed at Sacramento Peak for rotation 1924.

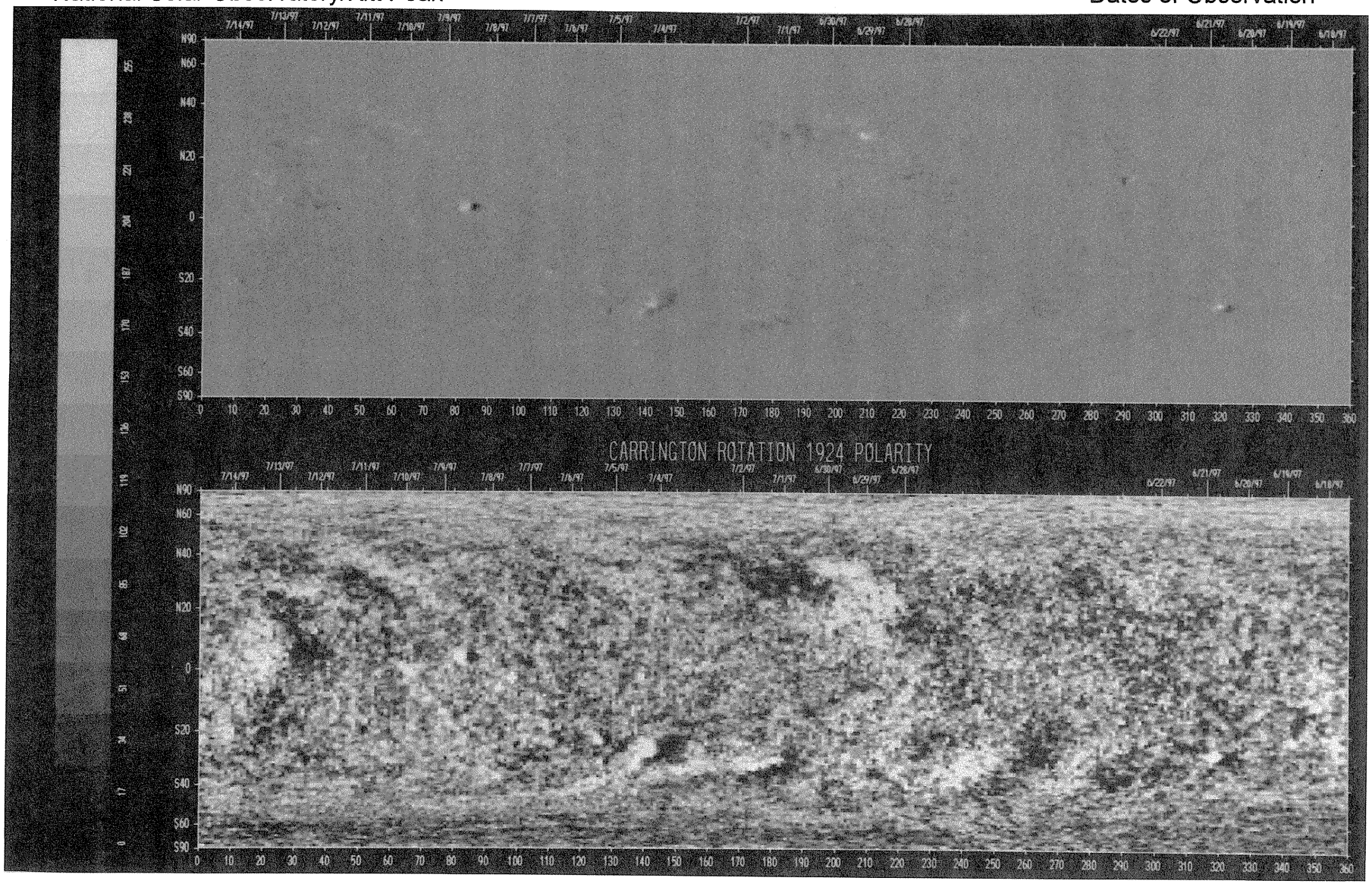
SOLAR MAGNETIC FIELD SYNOPTIC CHART

CARRINGTON ROTATION NUMBER 1924

(18 June to 15 July 1997)

National Solar Observatory/Kitt Peak

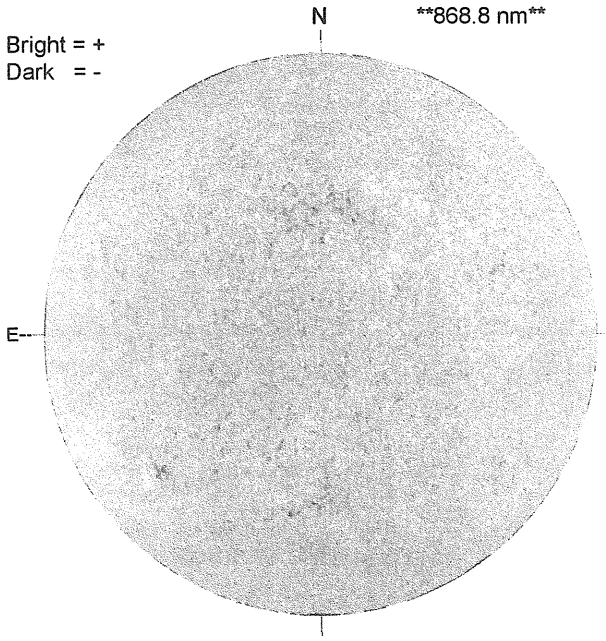
Dates of Observation



Heliographic Longitude

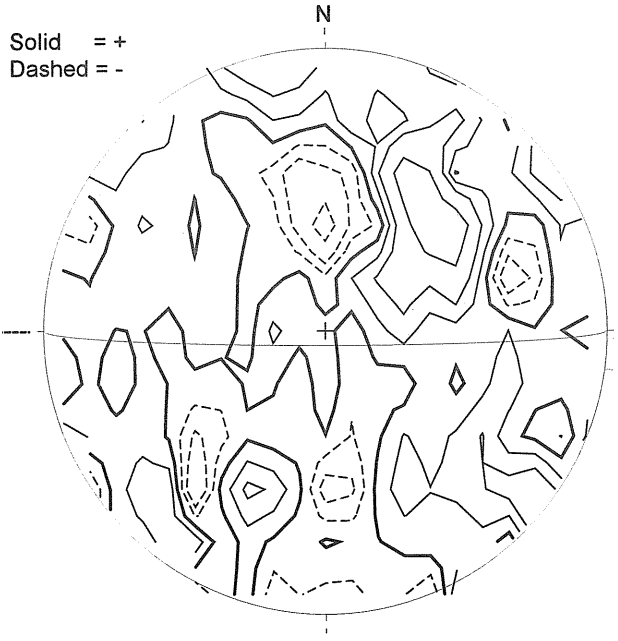
JULY 1, 1997 (P= -2.69, Bo = 2.88, Lo = 191.95)

KITT PEAK MAGNETOGRAM



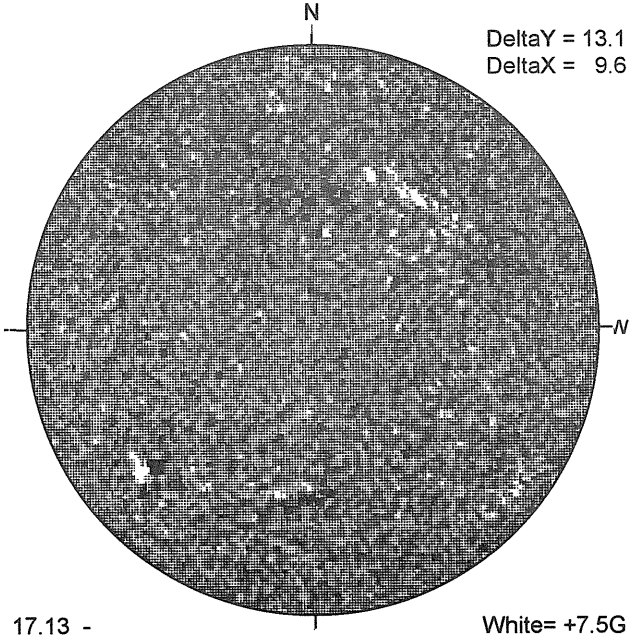
1404 UT

STANFORD MAGNETOGRAM



1944 UT

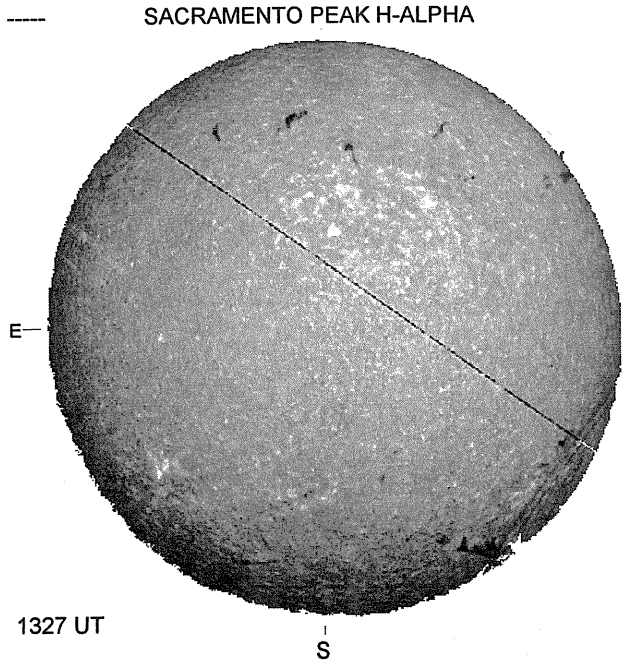
MT. WILSON MAGNETOGRAM



17.13 -
18.04 UT

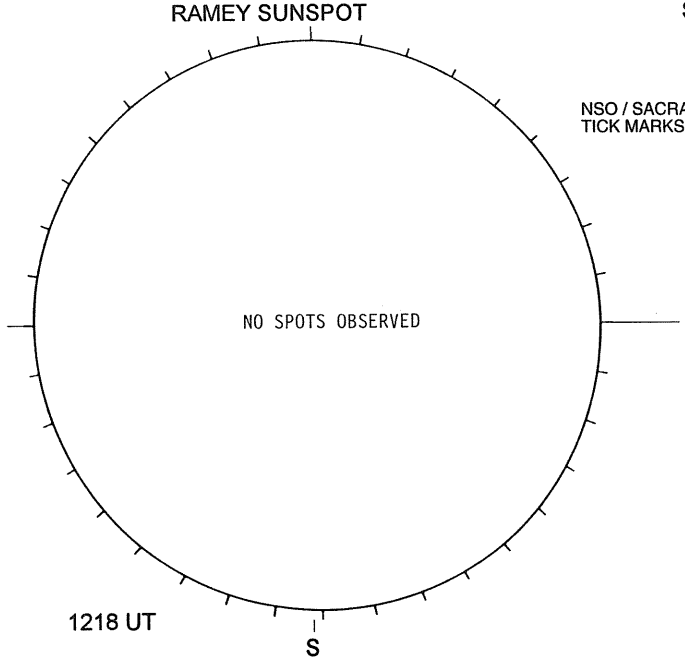
White= +7.5G
Black = -7.5G

SACRAMENTO PEAK H-ALPHA



1327 UT

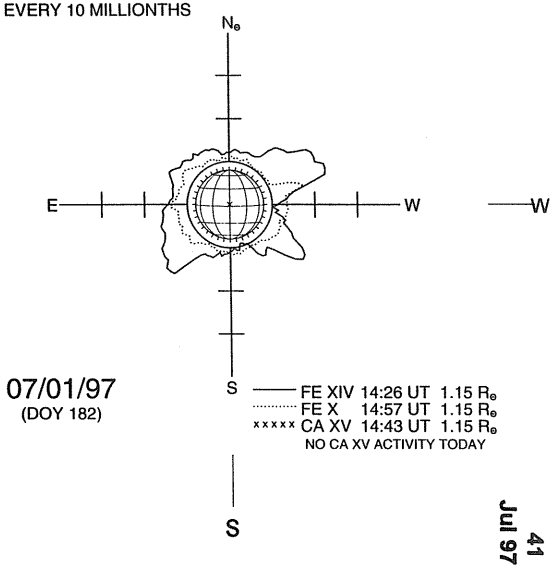
RAMEY SUNSPOT



1218 UT

SACRAMENTO PEAK CORONA (1.15 Radii)----

NSO / SACRAMENTO PEAK CORONAL DATA
TICK MARKS EVERY 10 MILLIONTHS



07/01/97
(DOY 182)

FE XIV 14:26 UT 1.15 R_e
FE X 14:57 UT 1.15 R_e
CA XV 14:43 UT 1.15 R_e
NO CA XV ACTIVITY TODAY

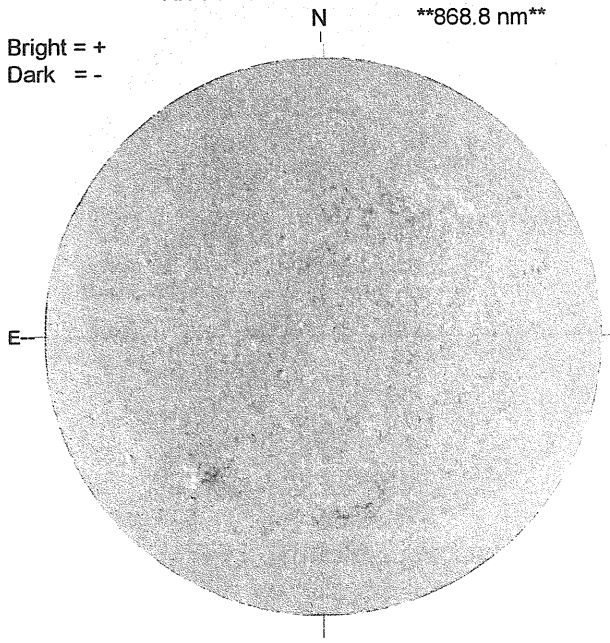
S

JULY 2, 1997 (P= -2.23, Bo = 2.99, Lo = 178.71)

KITT PEAK MAGNETOGRAM

868.8 nm

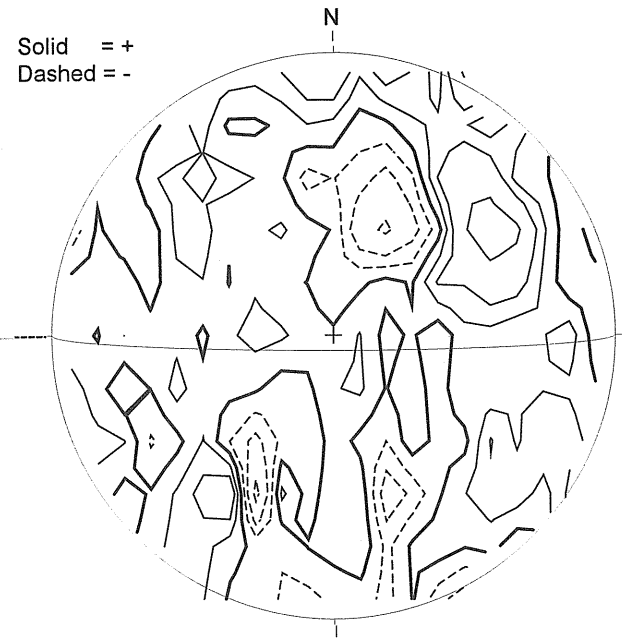
Bright = +
Dark = -



1404 UT

STANFORD MAGNETOGRAM

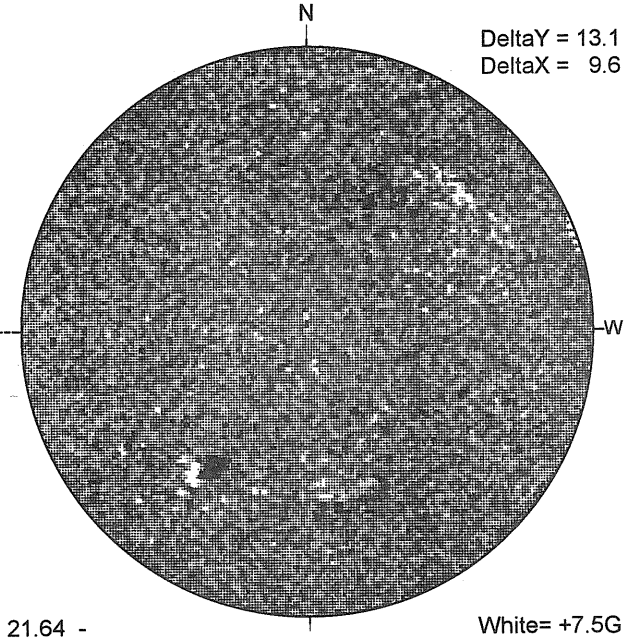
Solid = +
Dashed = -



2140 UT

MT. WILSON MAGNETOGRAM

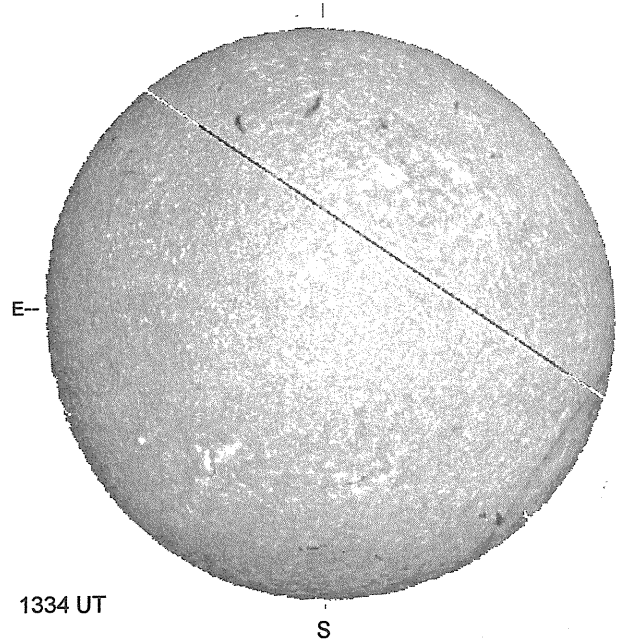
DeltaY = 13.1
DeltaX = 9.6



21.64 -
22.56 UT

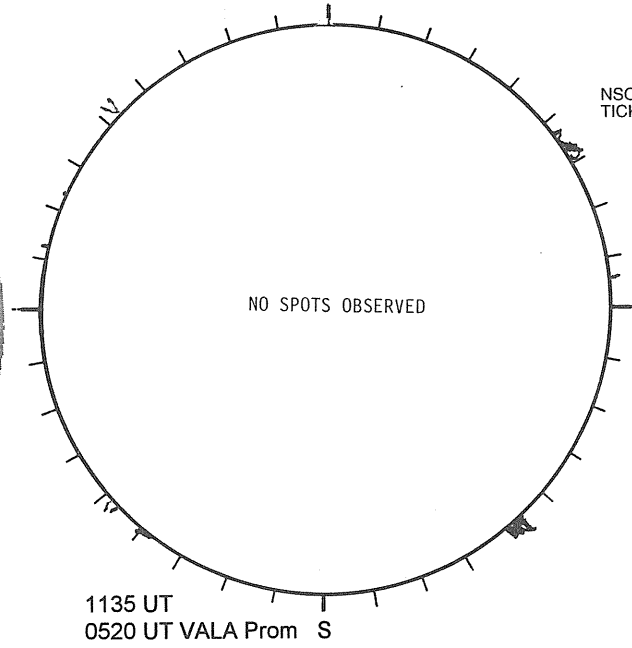
White= +7.5G
Black = -7.5G

----- SACRAMENTO PEAK H-ALPHA



1334 UT

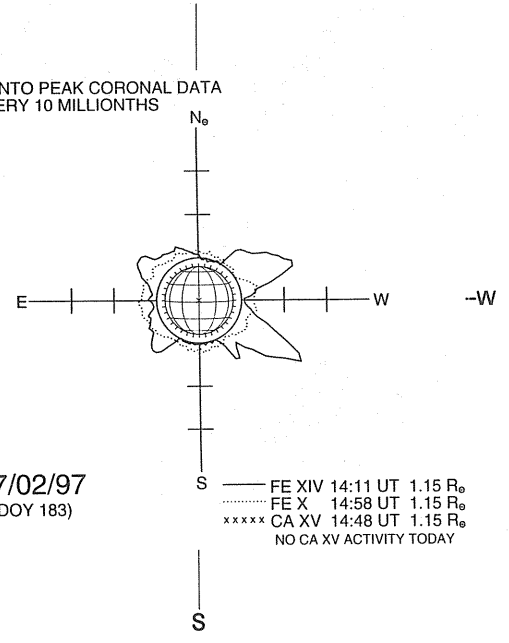
RAMEY SUNSPOT



1135 UT
0520 UT VALA Prom S

SACRAMENTO PEAK CORONA (1.15 Radii)----

NSO / SACRAMENTO PEAK CORONAL DATA
TICK MARKS EVERY 10 MILLIONTHS

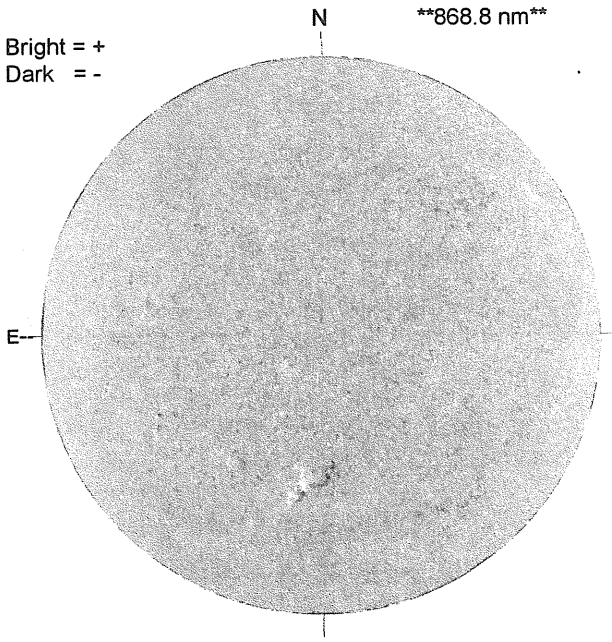


07/02/97
(DOY 183)

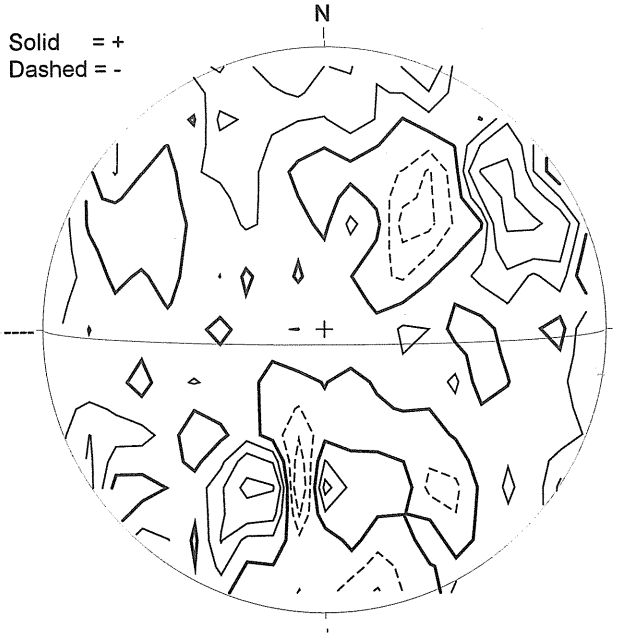
FE XIV 14:11 UT 1.15 Re
FE X 14:58 UT 1.15 Re
CA XV 14:48 UT 1.15 Re
NO CA XV ACTIVITY TODAY

JULY 3, 1997 (P= -1.78, Bo = 3.10, Lo = 165.47)

KITT PEAK MAGNETOGRAM

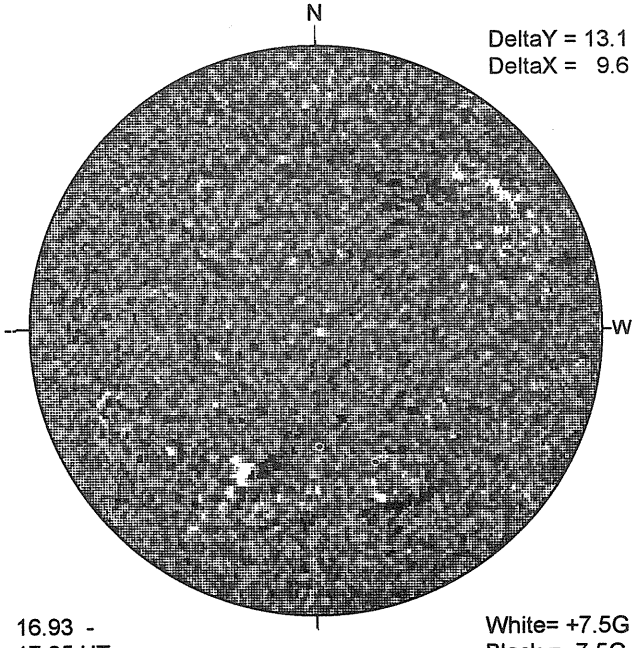


STANFORD MAGNETOGRAM



2028 UT

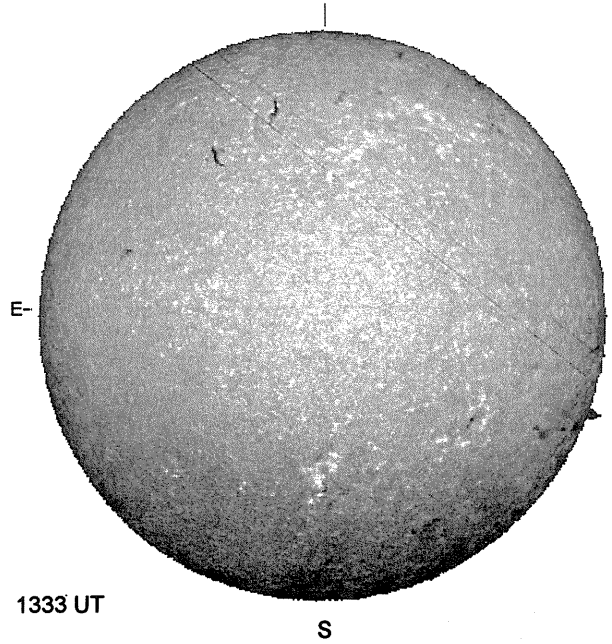
MT. WILSON MAGNETOGRAM



16.93 -
17.85 UT

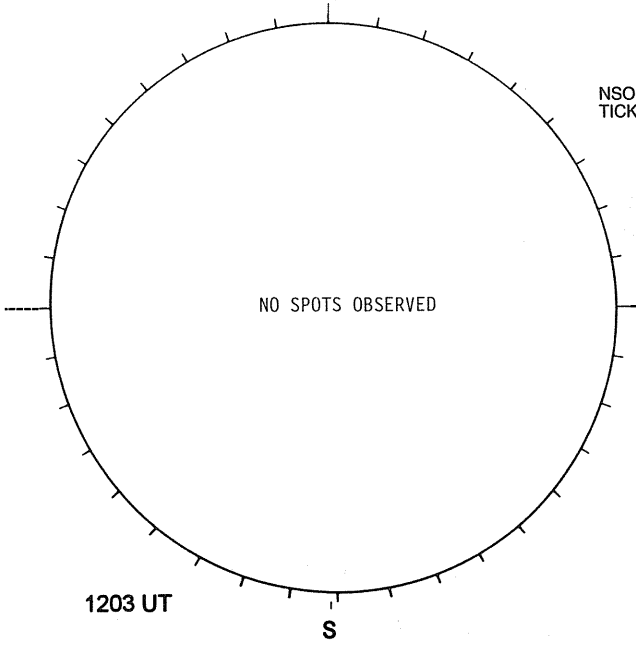
White= +7.5G
Black = -7.5G

SACRAMENTO PEAK H-ALPHA



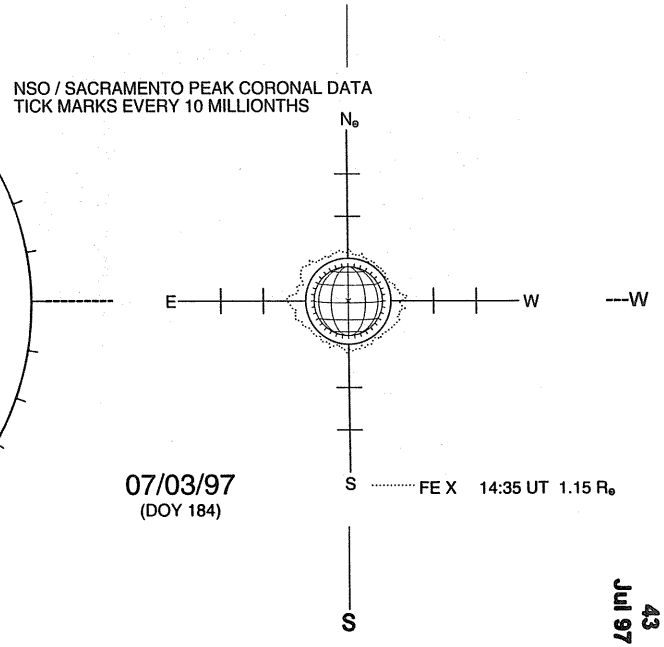
1333 UT

RAMEY SUNSPOT



1203 UT

SACRAMENTO PEAK CORONA (1.15 Radii)----



07/03/97
(DOY 184)

43
Jul 97

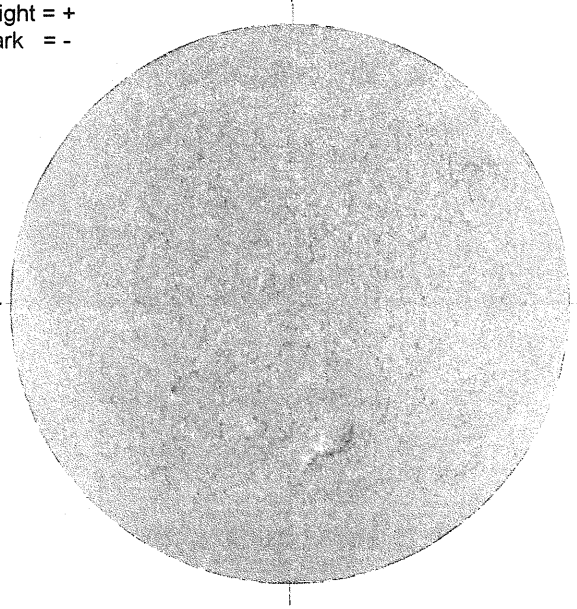
JULY 4, 1997 (P= -1.33, Bo = 3.21, Lo = 152.24)

KITT PEAK MAGNETOGRAM

N **868.8 nm**

Bright = +
Dark = -

E--



1406 UT

STANFORD MAGNETOGRAM

N

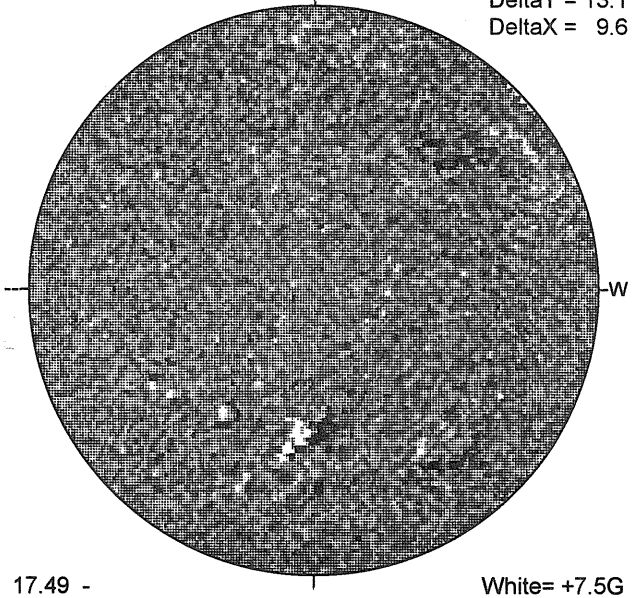
Solid = +
Dashed = -

2213 UT

MT. WILSON MAGNETOGRAM

N

DeltaY = 13.1
DeltaX = 9.6



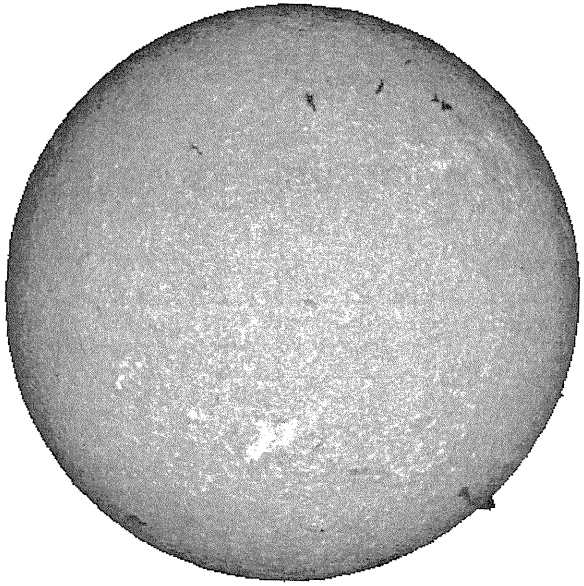
-W

17.49 -
18.40 UT

White= +7.5G
Black = -7.5G

MEUDON H-ALPHA

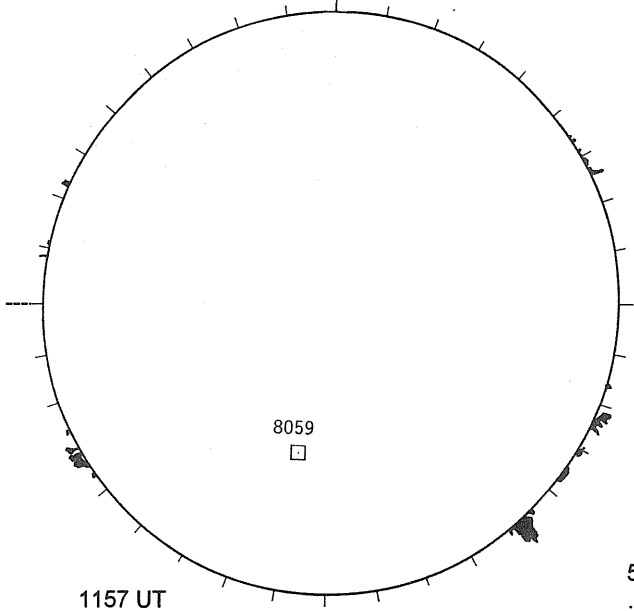
E



1423 UT

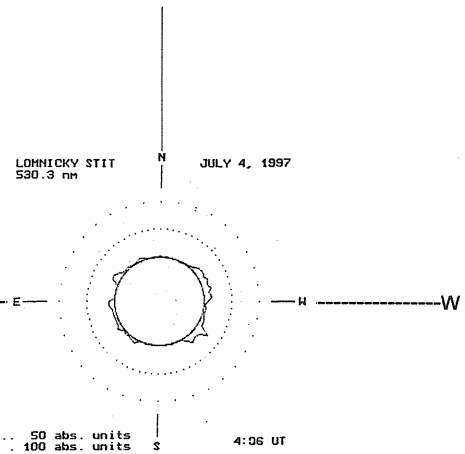
S

RAMEY SUNSPOT



1157 UT
0447 UT LOMN Prom S

LOMNICKY PEAK CORONA (1.04 Radii)----

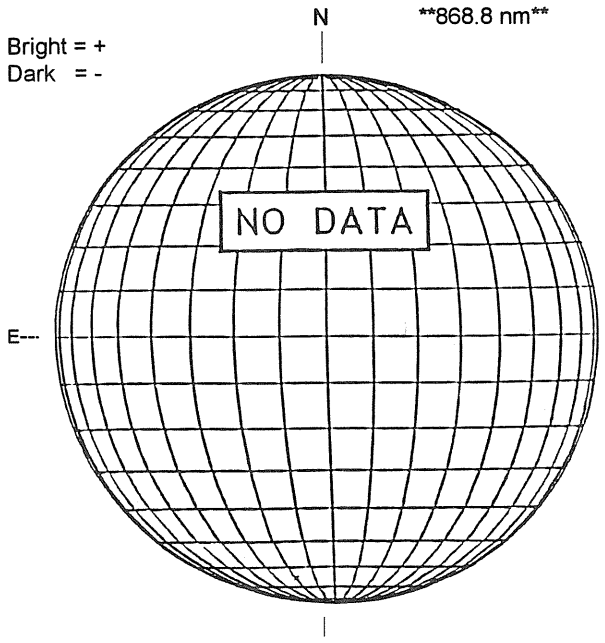


530.3 nm, 0406 UT
... 50 abs. units
. . 100 abs. units

S

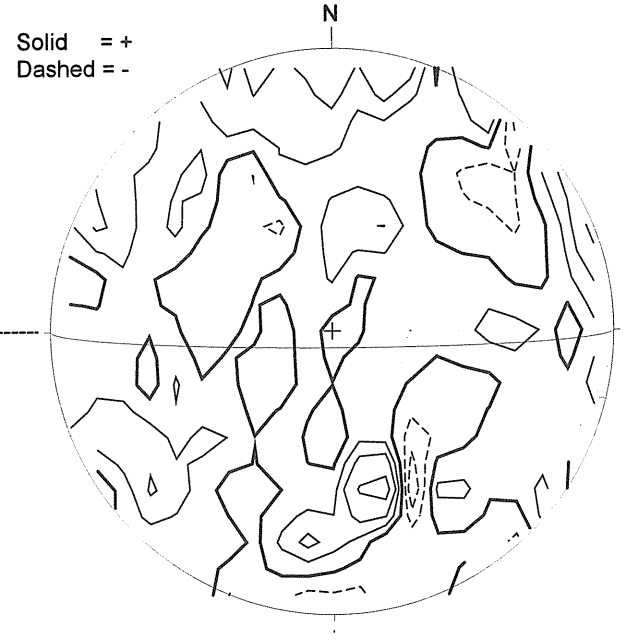
JULY 5, 1997 (P= -0.87, Bo = 3.32, Lo = 139.00)

KITT PEAK MAGNETOGRAM



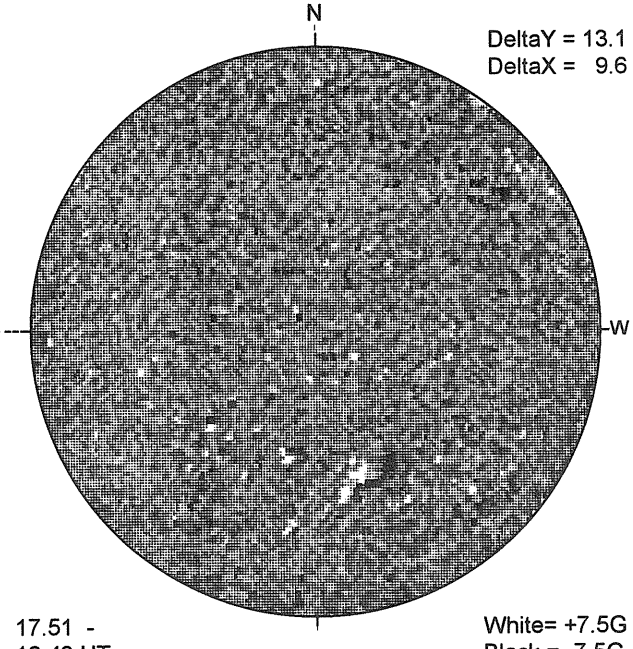
1417 UT

STANFORD MAGNETOGRAM



2016 UT

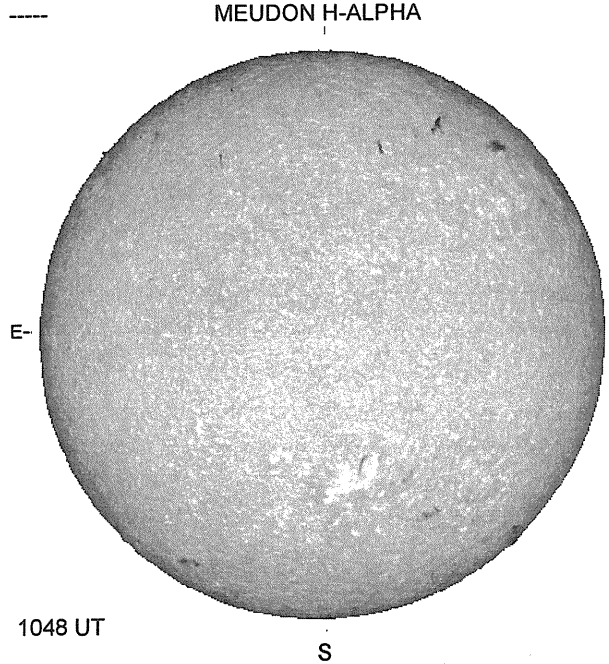
MT. WILSON MAGNETOGRAM



17.51 -
18.43 UT

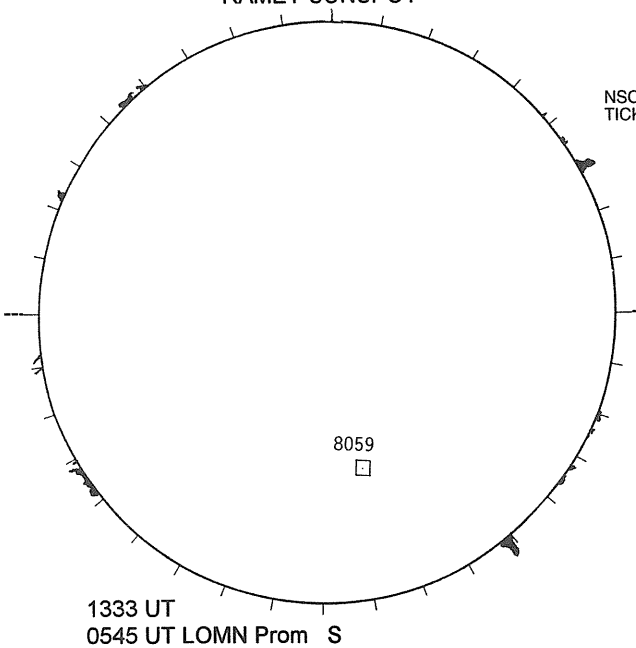
White= +7.5G
Black = -7.5G

MEUDON H-ALPHA



1048 UT

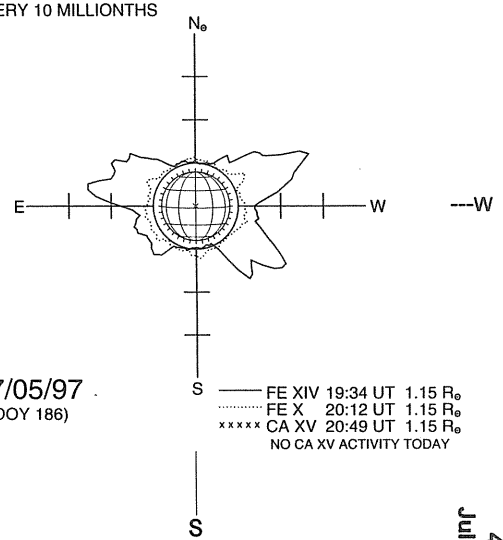
RAMEY SUNSPOT



1333 UT
0545 UT LOMN Prom S

SACRAMENTO PEAK CORONA (1.15 Radii)----

NSO / SACRAMENTO PEAK CORONAL DATA
TICK MARKS EVERY 10 MILLIONTHS



07/05/97
(DOY 186)

FE XIV 19:34 UT 1.15 Re
FE X 20:12 UT 1.15 Re
CA XV 20:49 UT 1.15 Re
NO CA XV ACTIVITY TODAY

S

45
Jul 97

KITT PEAK MAGNETOGRAM

N

868.8 nm

Bright = +
Dark = -

E--

1544 UT

STANFORD MAGNETOGRAM

N

Solid = +
Dashed = -

2046 UT

MT. WILSON MAGNETOGRAM

N

DeltaY = 13.0
DeltaX = 9.6

-W

17.40 -
18.32 UT

White= +7.5G
Black = -7.5G

MEUDON H-ALPHA

E-

0901 UT

S

RAMEY SUNSPOT

Ramy 059
8059

1508 UT

S

SACRAMENTO PEAK CORONA (1.15 Radii)----

NSO / SACRAMENTO PEAK CORONAL DATA
TICK MARKS EVERY 10 MILLIONTHS

N_e

E

W

---W

S

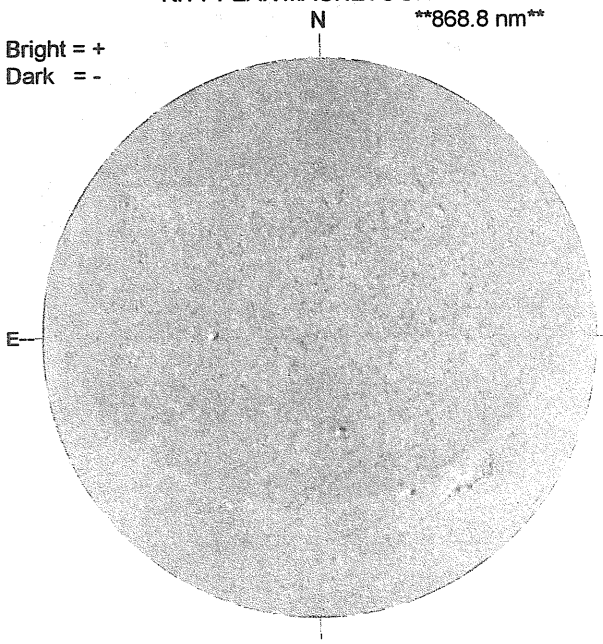
07/06/97
(DOY 187)

FE XIV 17:38 UT 1.15 R_e
FE X 18:09 UT 1.15 R_e
CA XV 18:44 UT 1.15 R_e
NO CA XV ACTIVITY TODAY

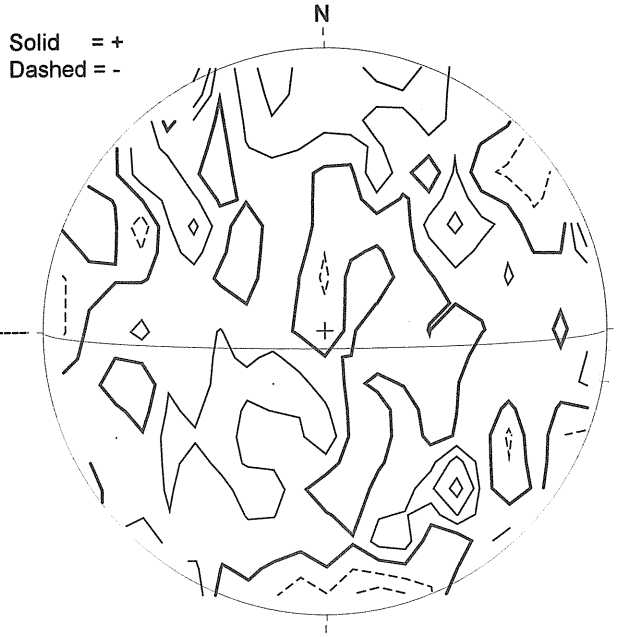
S

JULY 7, 1997 (P= 0.04, Bo = 3.53 Lo = 112.53)

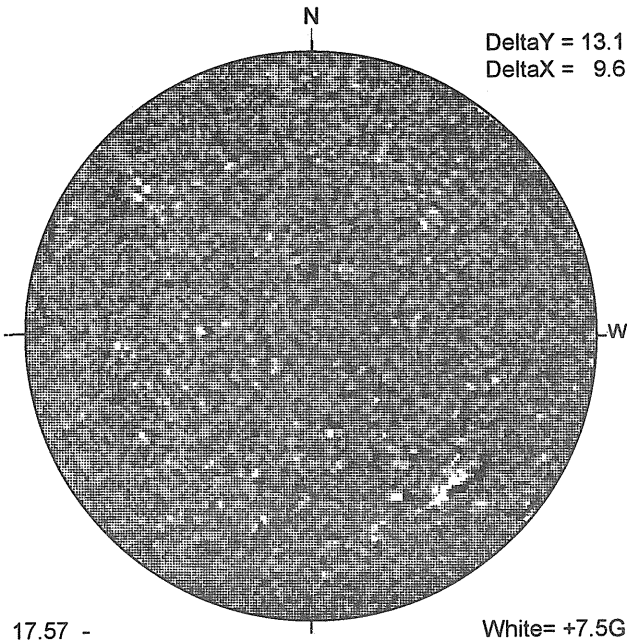
KITT PEAK MAGNETOGRAM



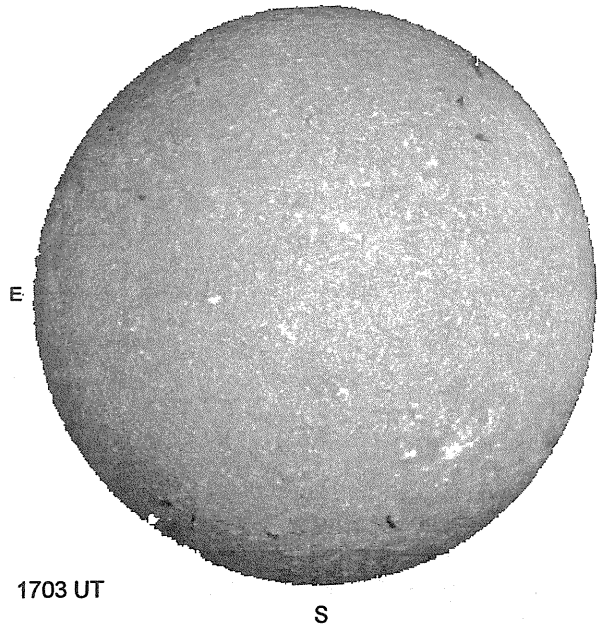
STANFORD MAGNETOGRAM



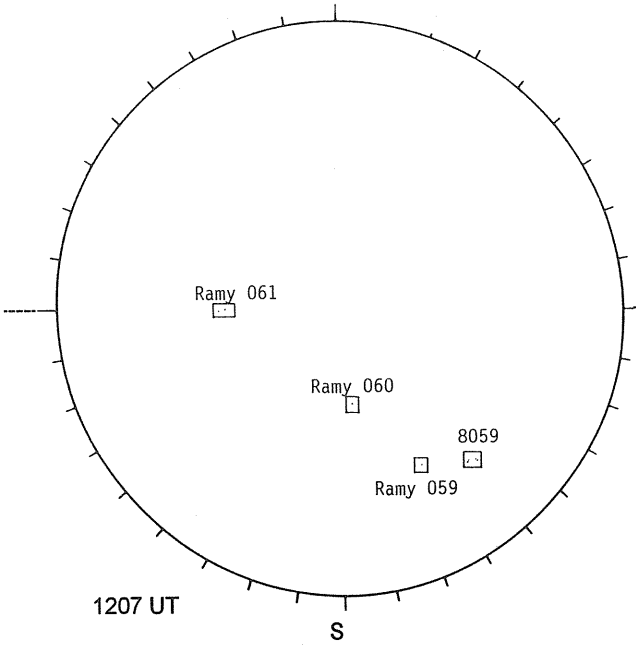
MT. WILSON MAGNETOGRAM



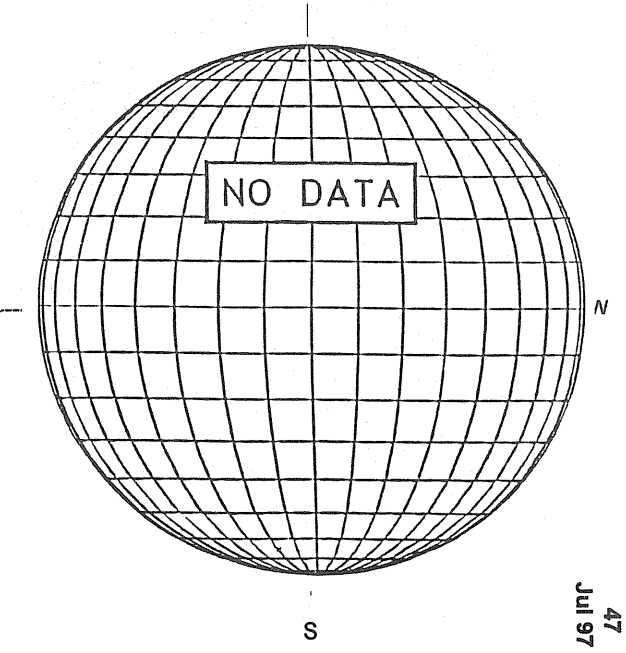
SACRAMENTO PEAK H-ALPHA



RAMEY SUNSPOT



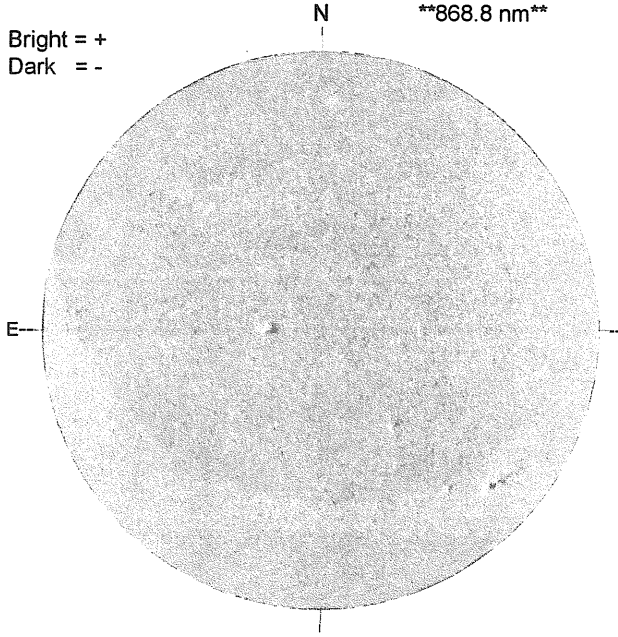
SACRAMENTO PEAK CORONA (1.15 Radii)----



47
Jul 97

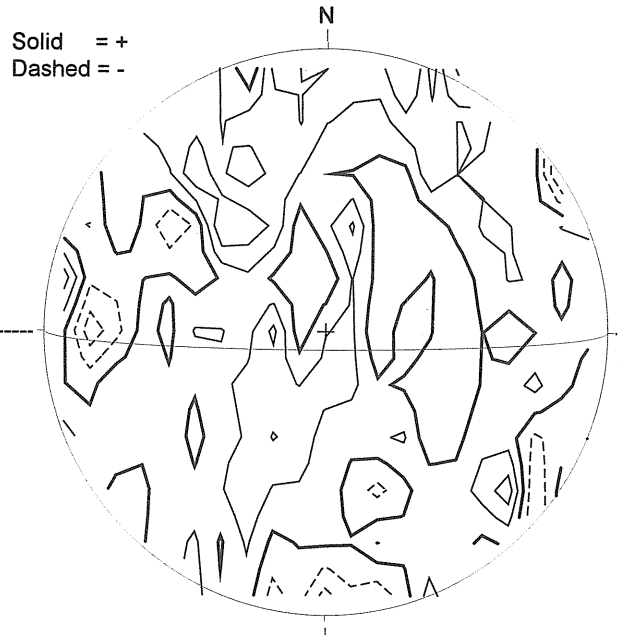
JULY 8, 1997 (P= 0.49, Bo = 3.64, Lo = 99.30)

KITT PEAK MAGNETOGRAM



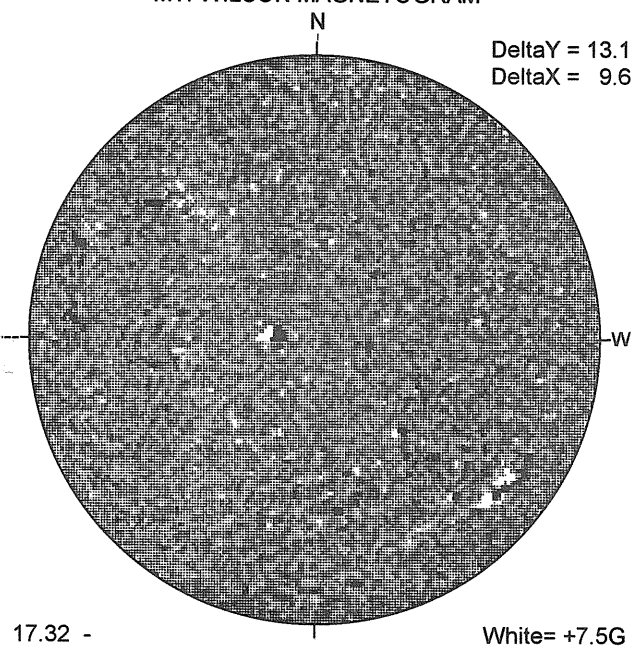
1352 UT

STANFORD MAGNETOGRAM



2024 UT

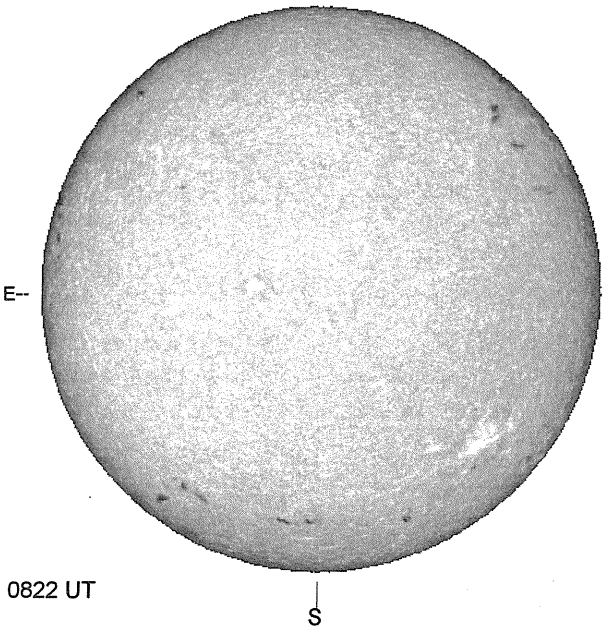
MT. WILSON MAGNETOGRAM



17.32 -
18.23 UT

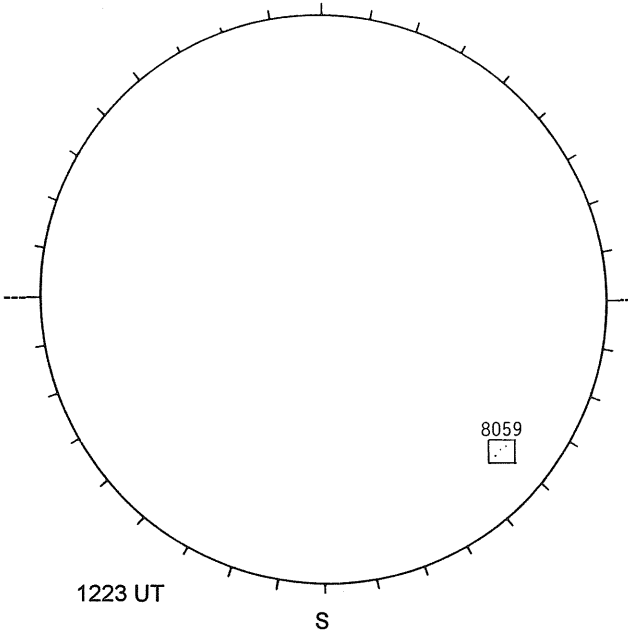
White= +7.5G
Black = -7.5G

MEUDON H-ALPHA



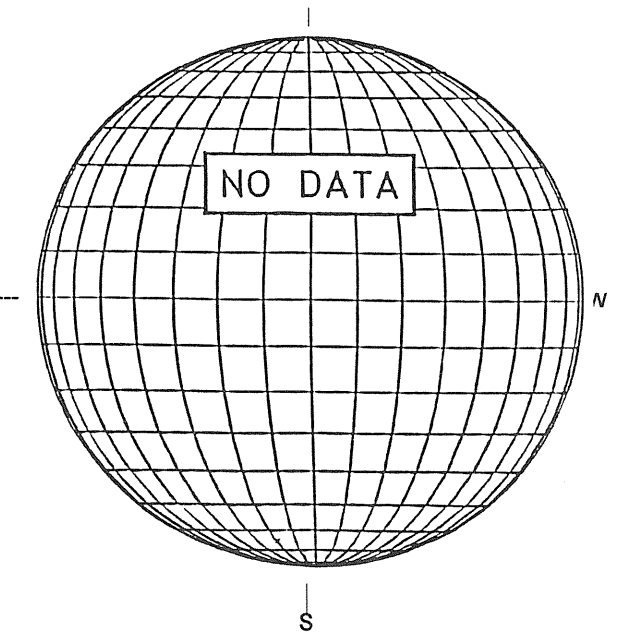
0822 UT

RAMEY SUNSPOT



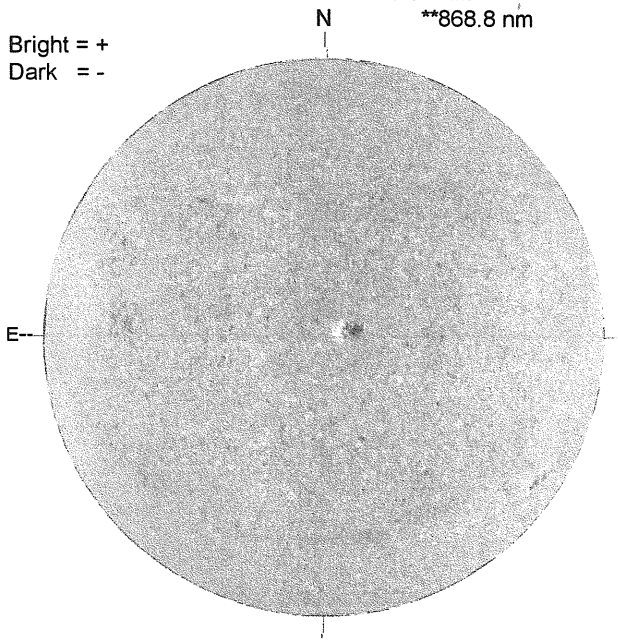
1223 UT

SACRAMENTO PEAK CORONA (1.15 Radii)----



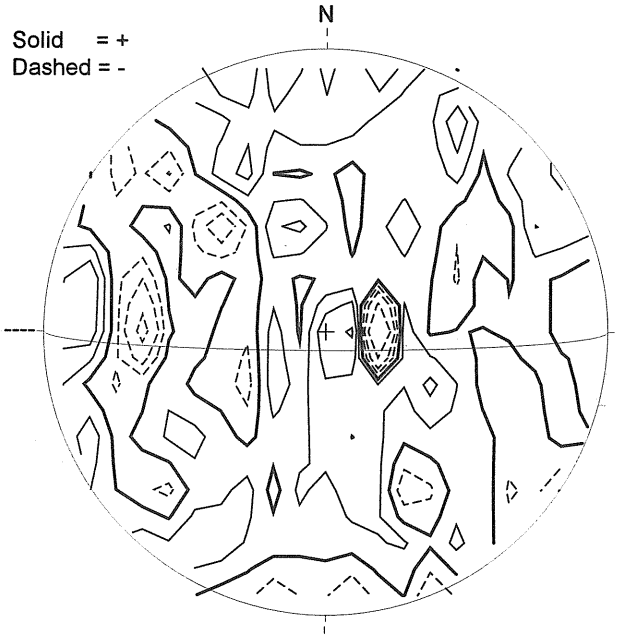
JULY 9, 1997 (P= 0.94, Bo = 3.74, Lo = 86.07)

KITT PEAK MAGNETOGRAM



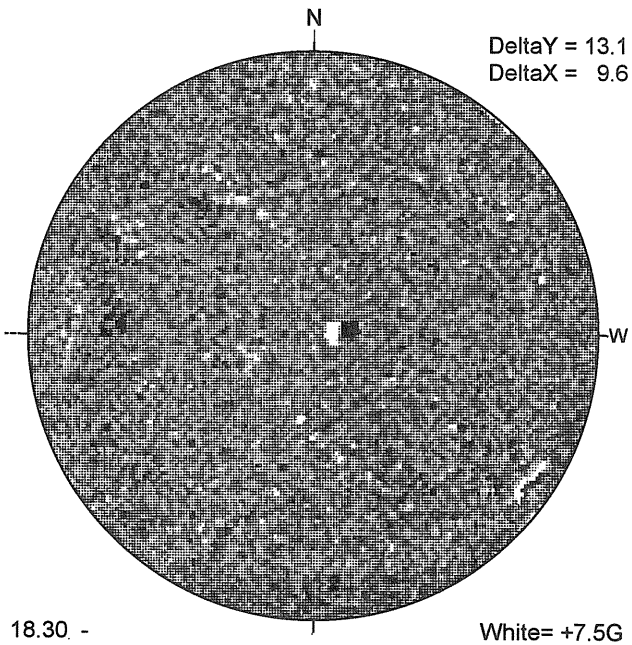
1550 UT

STANFORD MAGNETOGRAM



2013 UT

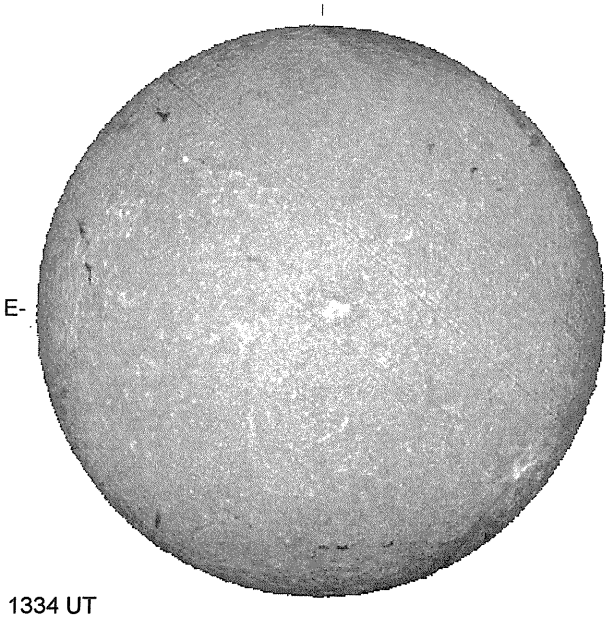
MT. WILSON MAGNETOGRAM



18.30 -
19.22 UT

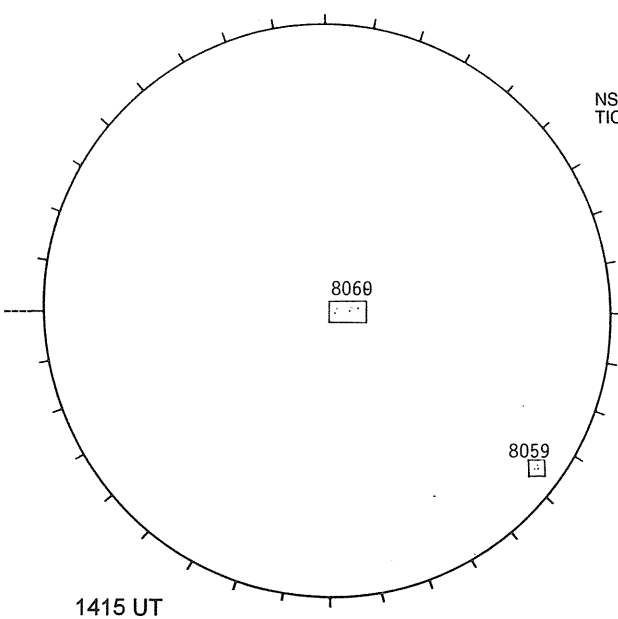
White= +7.5G
Black = -7.5G

----- SACRAMENTO PEAK H-ALPHA



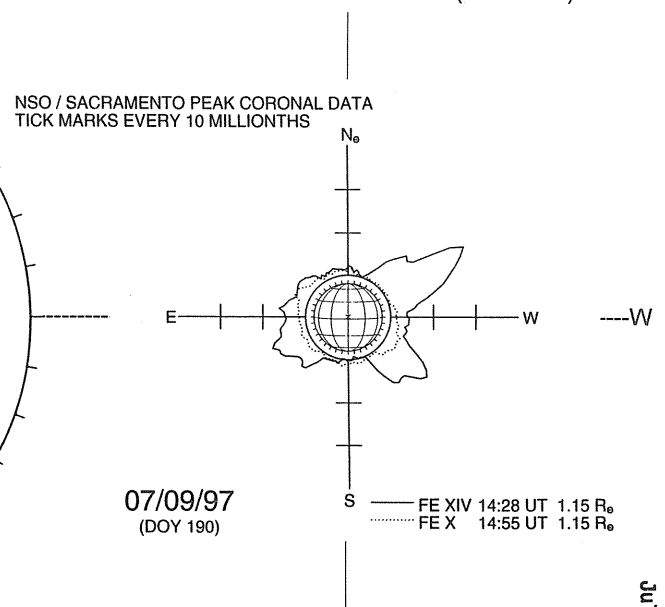
1334 UT

RAMEY SUNSPOT



1415 UT

SACRAMENTO PEAK CORONA (1.15 Radii)----

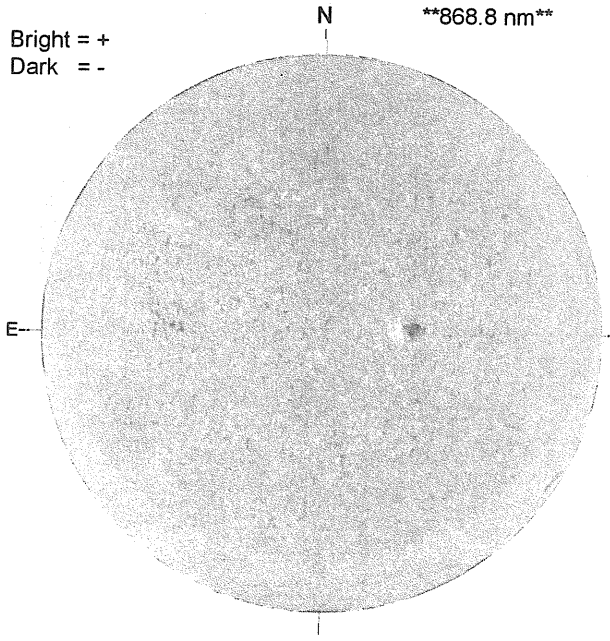


07/09/97
(DOY 190)

49
Jul 97

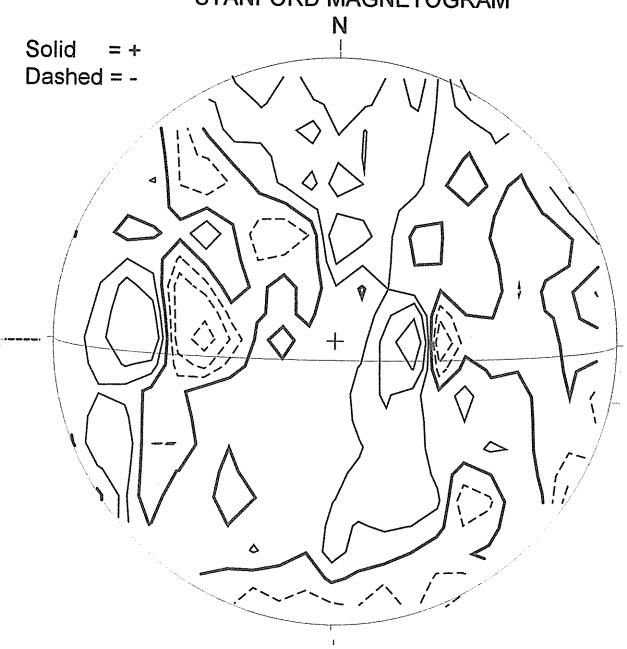
JULY 10, 1997 (P= 1.39, Bo = 3.84, Lo = 72.83)

KITT PEAK MAGNETOGRAM



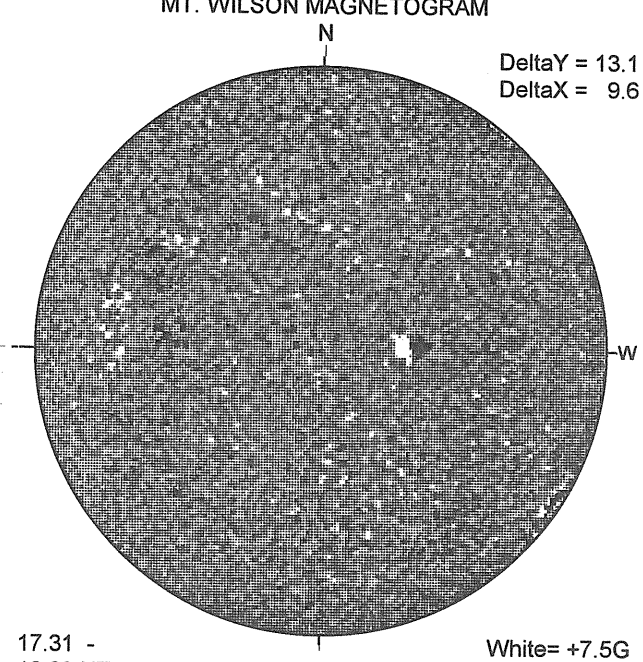
1349 UT

STANFORD MAGNETOGRAM



1954 UT

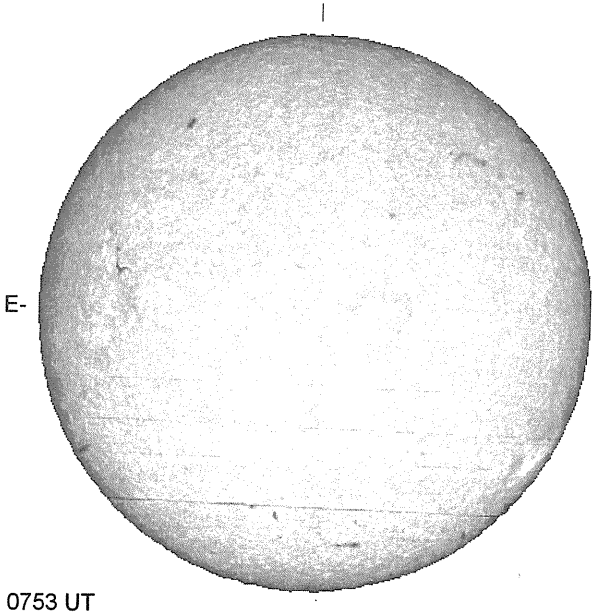
MT. WILSON MAGNETOGRAM



17.31 -
18.23 UT

White= +7.5G
Black = -7.5G

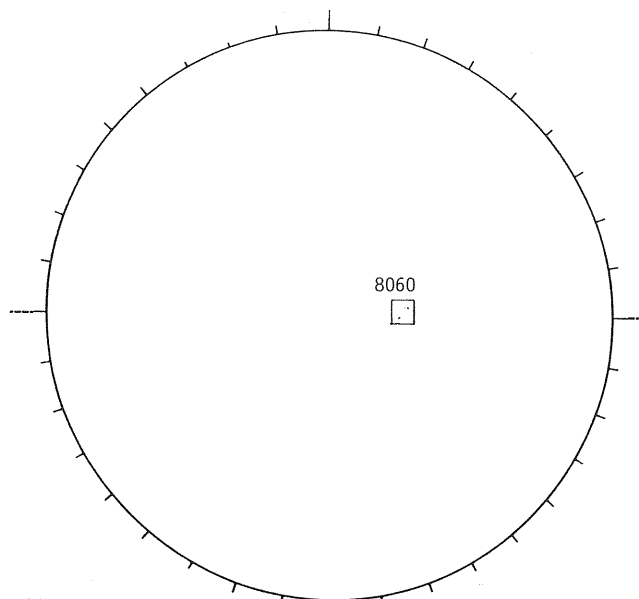
MEUDON H-ALPHA



0753 UT

S

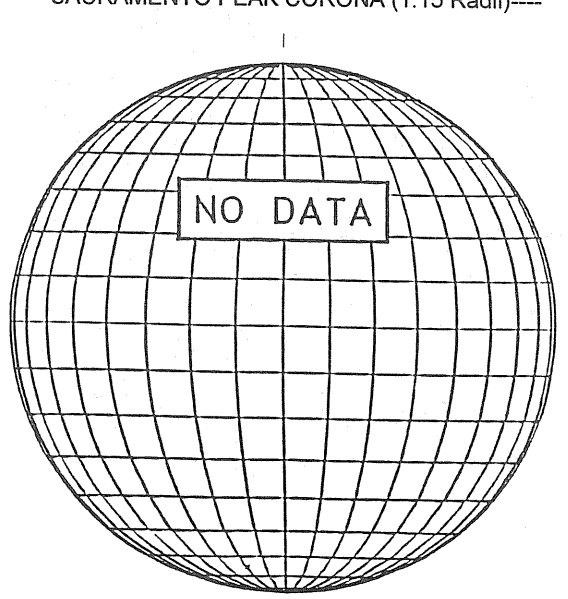
RAMEY SUNSPOT



1238 UT

S

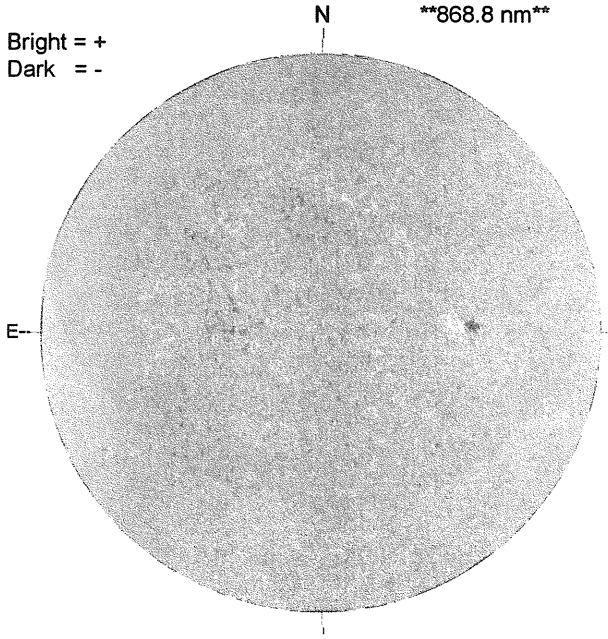
SACRAMENTO PEAK CORONA (1.15 Radii)----



S

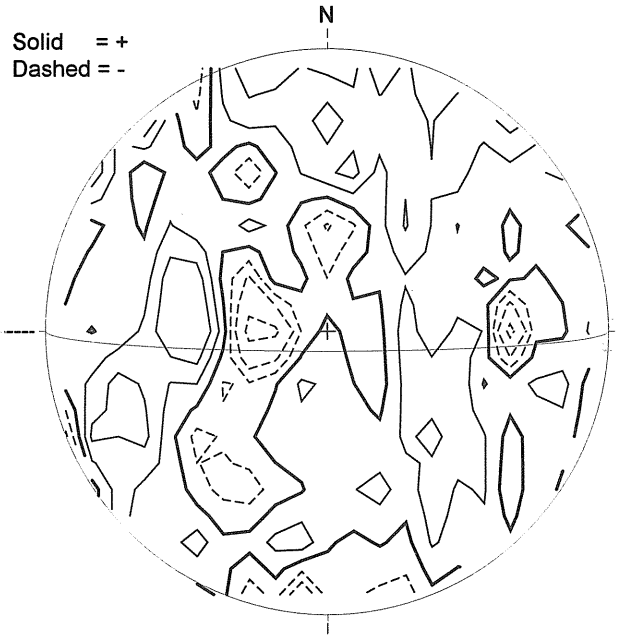
JULY 11, 1997 (P= 1.84 Bo = 3.94, Lo = 59.60)

KITT PEAK MAGNETOGRAM



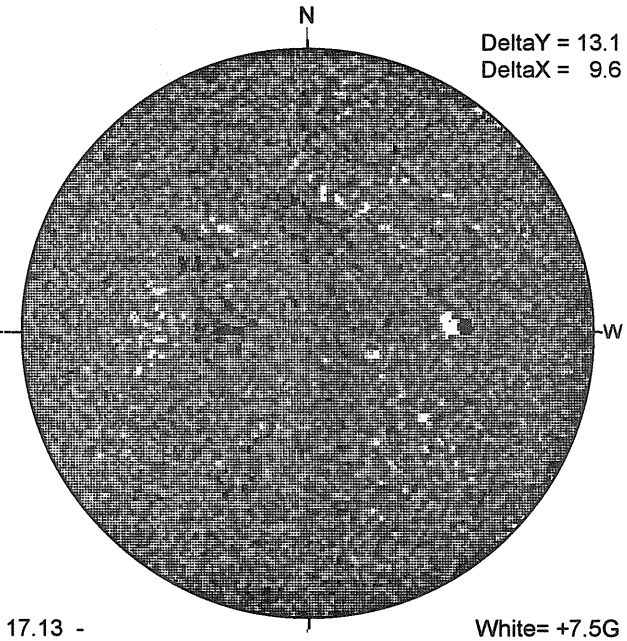
1340 UT

STANFORD MAGNETOGRAM



2224 UT

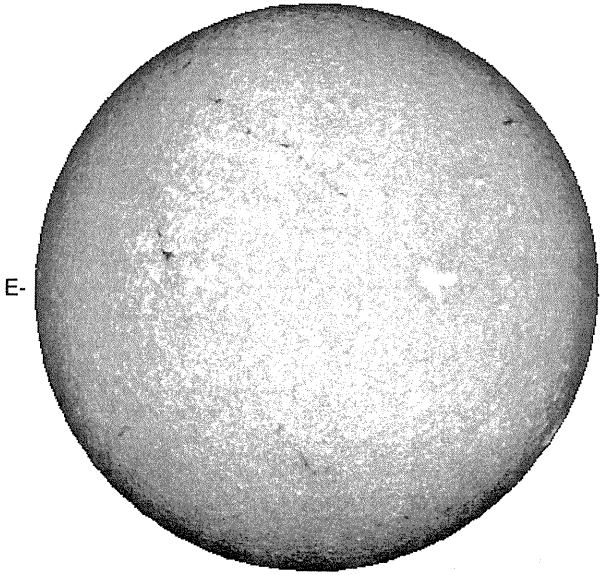
MT. WILSON MAGNETOGRAM



17.13 -
18.05 UT

White= +7.5G
Black = -7.5G

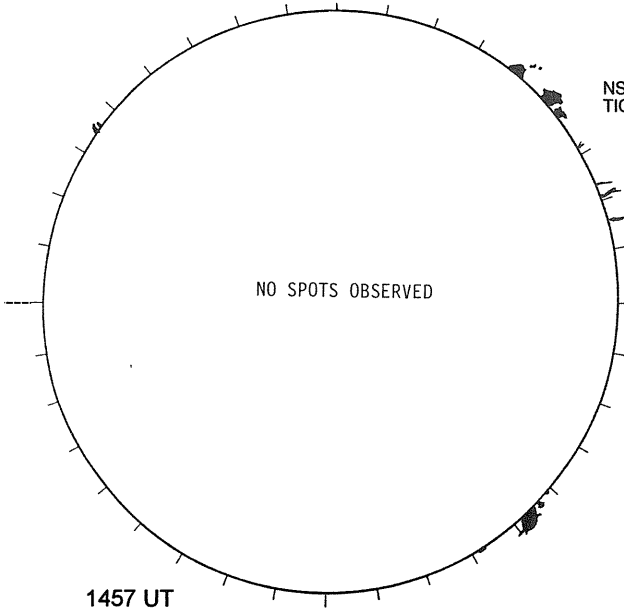
----- MEUDON H-ALPHA



0634 UT

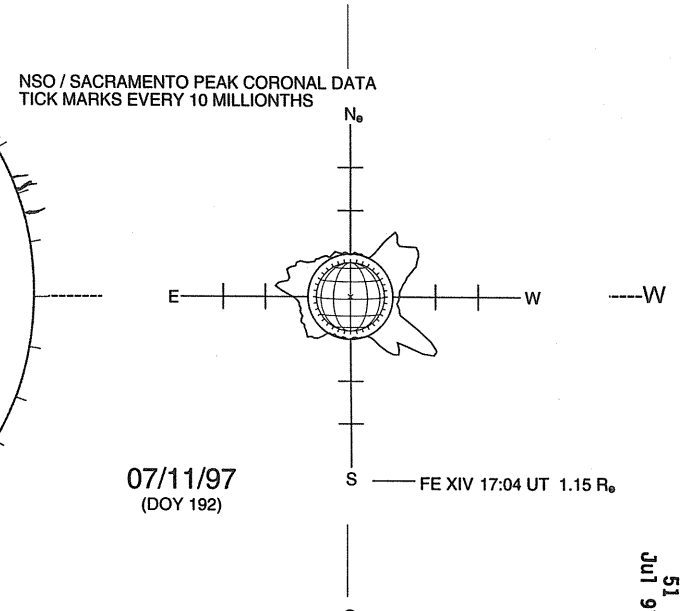
S

RAMEY SUNSPOT



1457 UT
0600 UT LOMN Prom S

SACRAMENTO PEAK CORONA (1.15 Radii)----



07/11/97
(DOY 192)

S

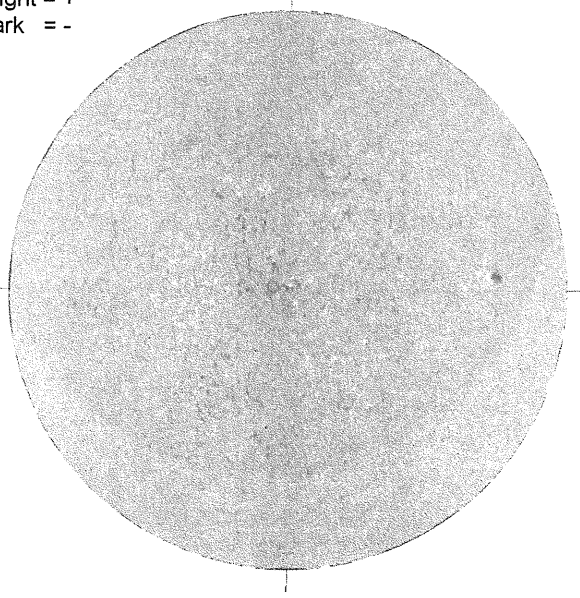
51
Jul 97

JULY 12, 1997 (P= 2.29, Bo = 4.04, Lo = 46.36)

KITT PEAK MAGNETOGRAM

N **868.8 nm**

Bright = +
Dark = -



1506 UT

STANFORD MAGNETOGRAM

N

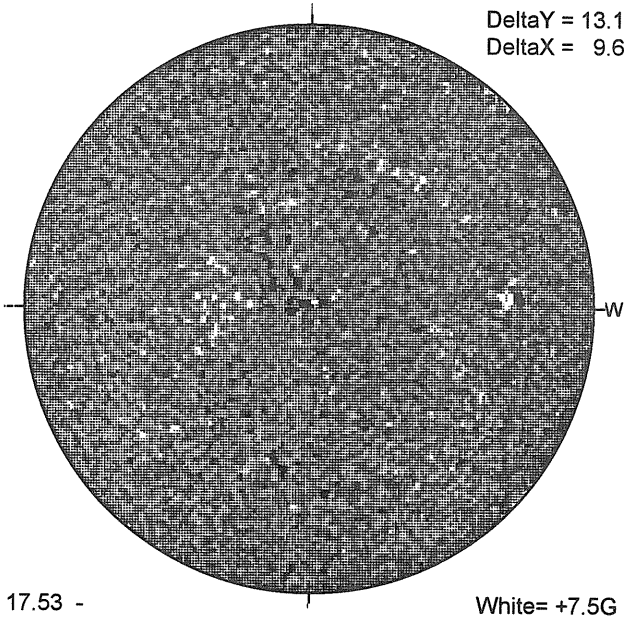
Solid = +
Dashed = -

2149 UT

MT. WILSON MAGNETOGRAM

N

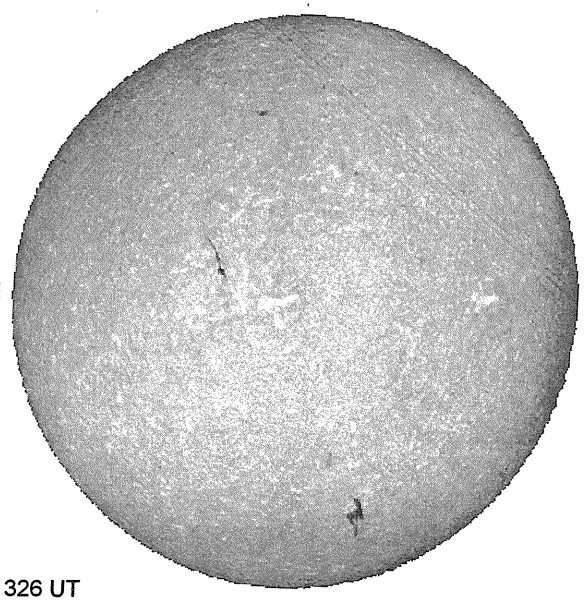
DeltaY = 13.1
DeltaX = 9.6



17.53 -
18.45 UT

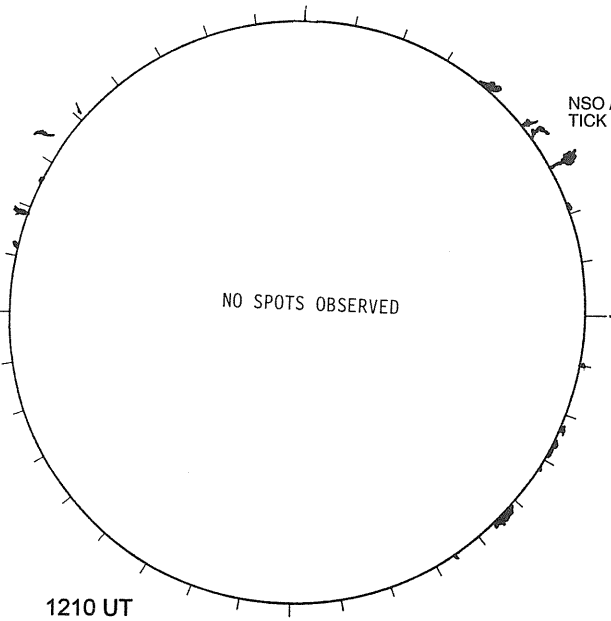
White= +7.5G
Black = -7.5G

SACRAMENTO PEAK H-ALPHA



1326 UT

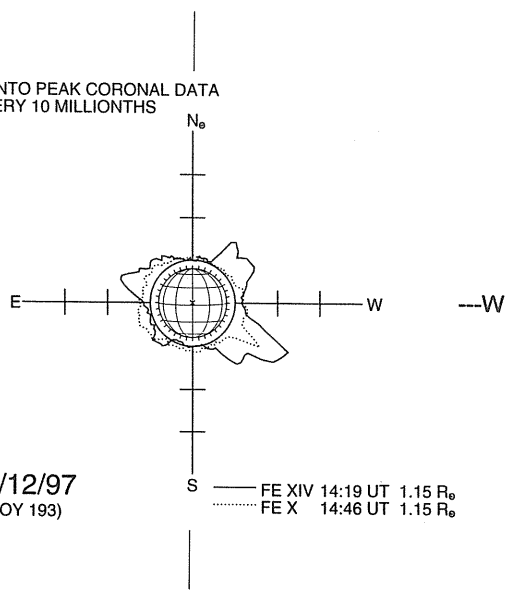
RAMEY SUNSPOT



1210 UT
0352 UT LOMN Prom S

SACRAMENTO PEAK CORONA (1.15 Radii)

NSO / SACRAMENTO PEAK CORONAL DATA
TICK MARKS EVERY 10 MILLIONTHS

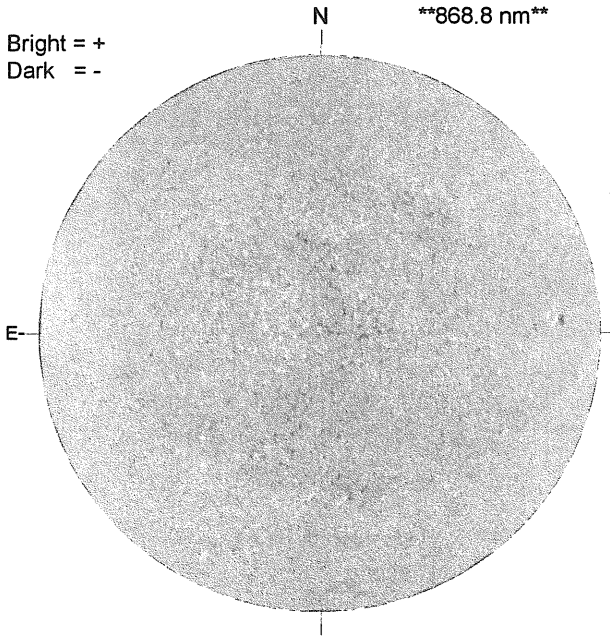


07/12/97
(DOY 193)

FE XIV 14:19 UT 1.15 $R_\odot$
FE X 14:46 UT 1.15 $R_\odot$

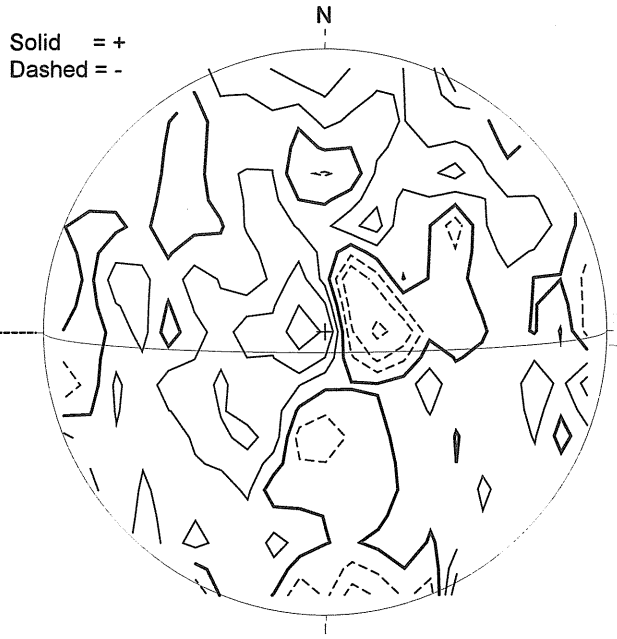
JULY 13, 1997 (P= 2.74, Bo = 4.14, Lo = 33.13)

KITT PEAK MAGNETOGRAM



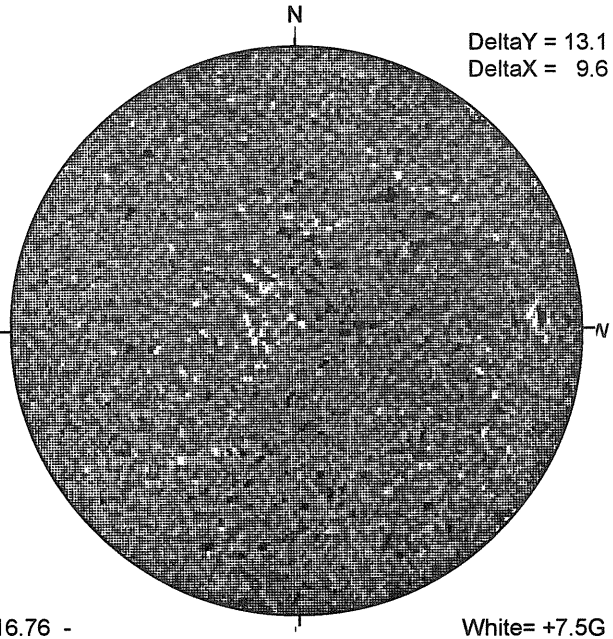
1429 UT

STANFORD MAGNETOGRAM



2113 UT

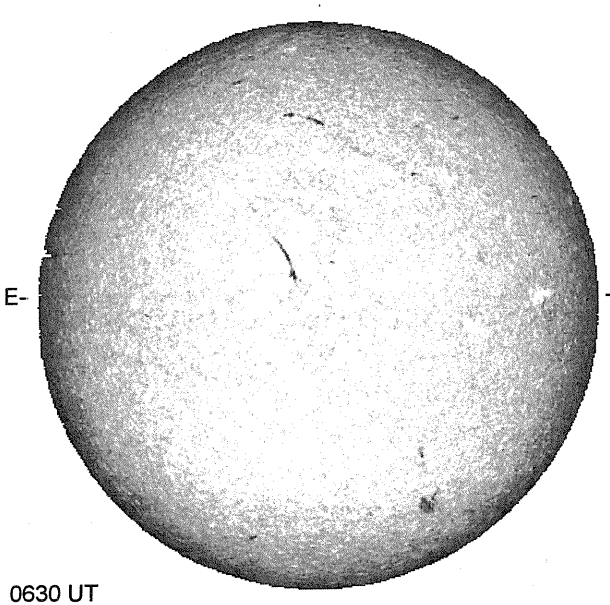
MT. WILSON MAGNETOGRAM



16.76 -
17.67 UT

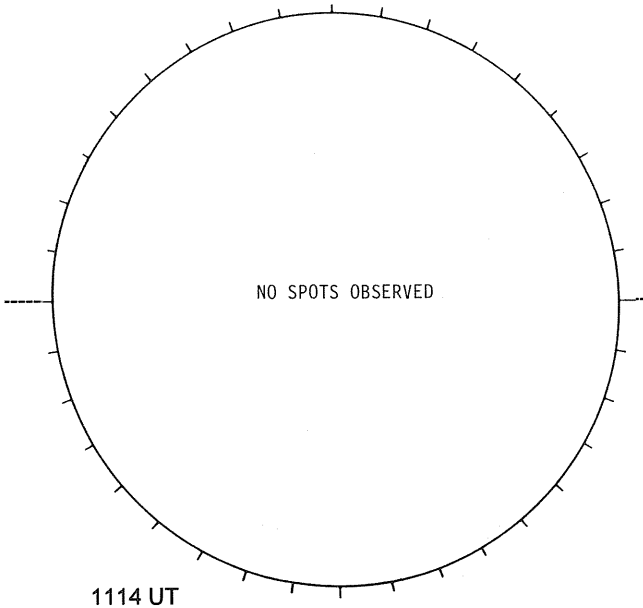
White= +7.5G
Black = -7.5G

MEUDON H-ALPHA



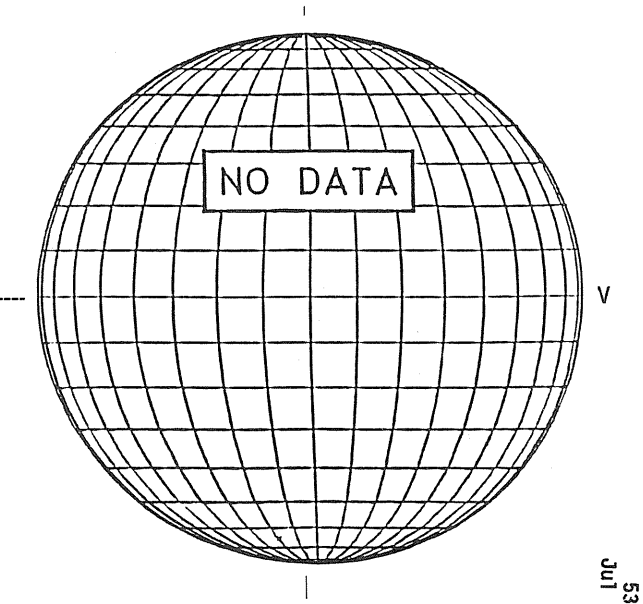
0630 UT

RAMEY SUNSPOT



1114 UT

SACRAMENTO PEAK CORONA (1.15 Radii)----

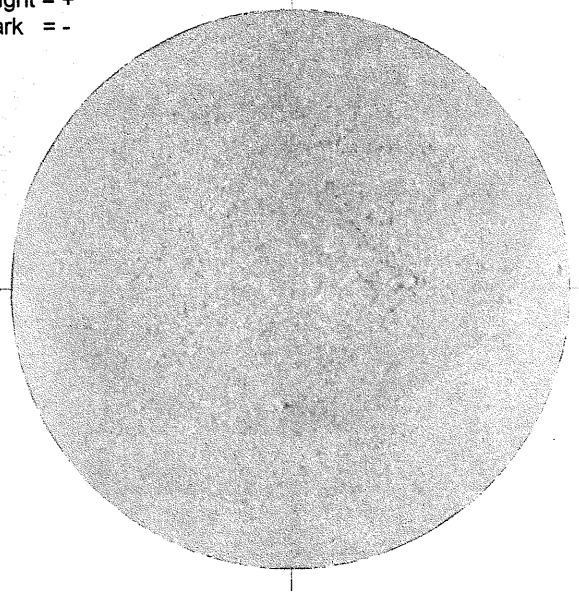


53
Jul 97

JULY 14, 1997 (P= 3.18, Bo = 4.24, Lo = 19.90)

KITT PEAK MAGNETOGRAM

N
868.8 nm
Bright = +
Dark = -
E--



1532 UT

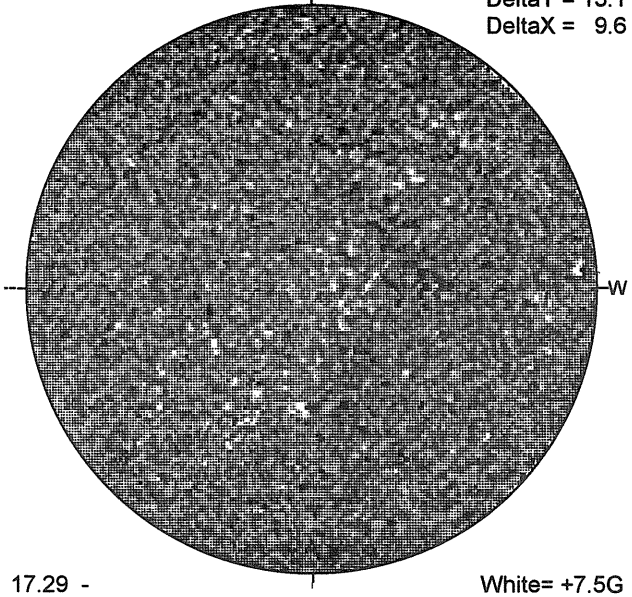
STANFORD MAGNETOGRAM

N
Solid = +
Dashed = -

2042 UT

MT. WILSON MAGNETOGRAM

N
DeltaY = 13.1
DeltaX = 9.6



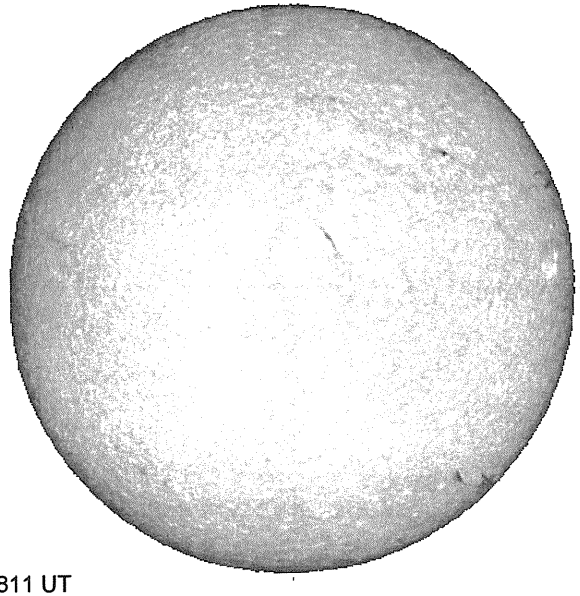
-W

17.29 -
18.21 UT

White= +7.5G
Black = -7.5G

MEUDON H-ALPHA

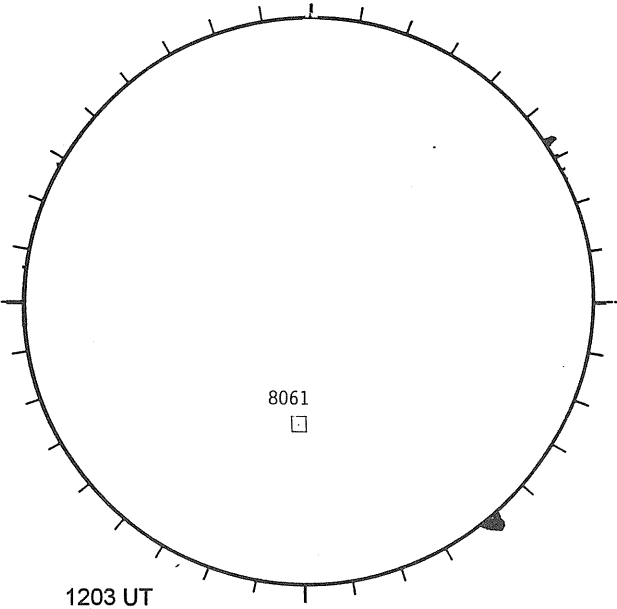
E-



0811 UT

S

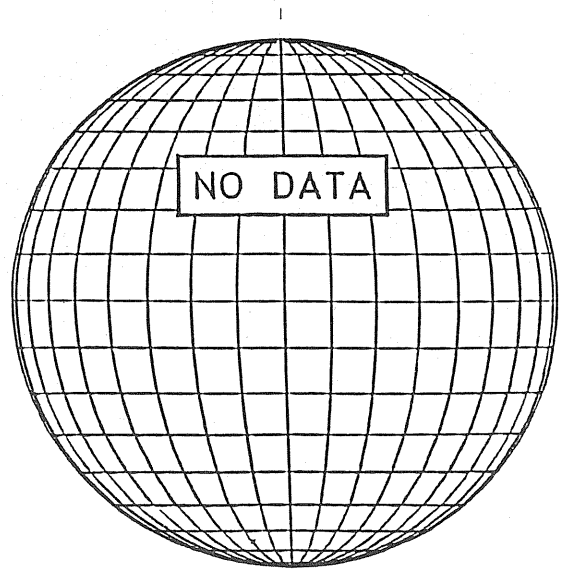
RAMEY SUNSPOT



1203 UT
0535 UT VALA Prom

S

SACRAMENTO PEAK CORONA (1.15 Radii)----

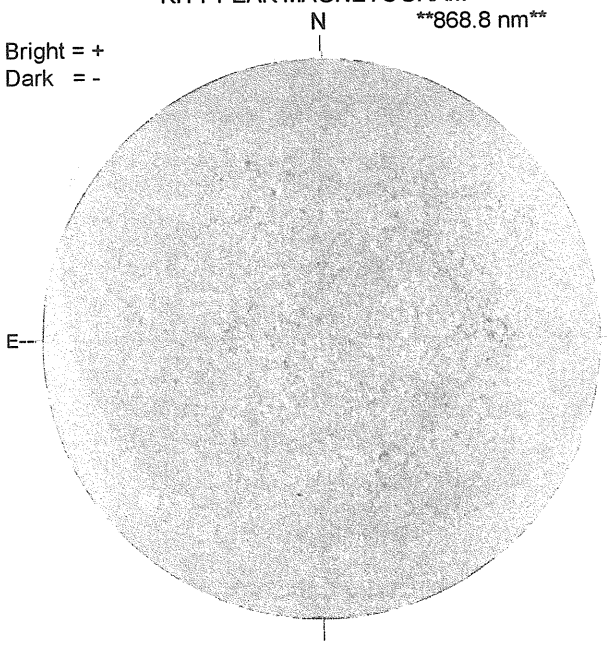


N

S

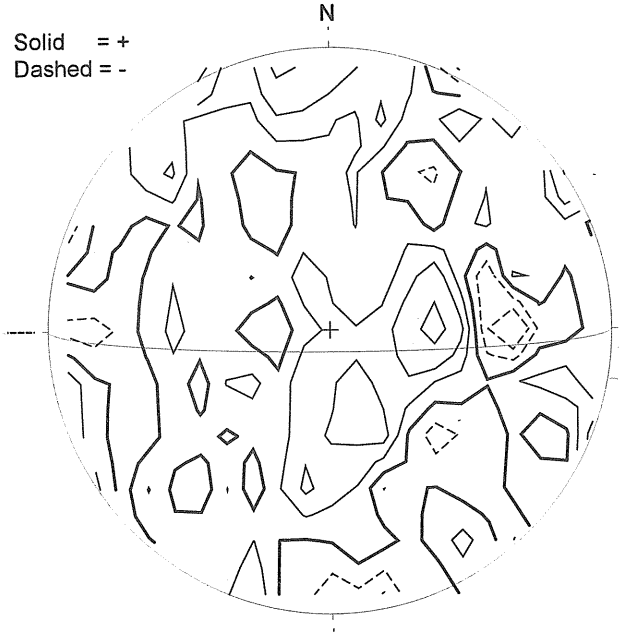
JULY 15, 1997 (P= 3.63, Bo = 4.34, Lo = 6.66)

KITT PEAK MAGNETOGRAM



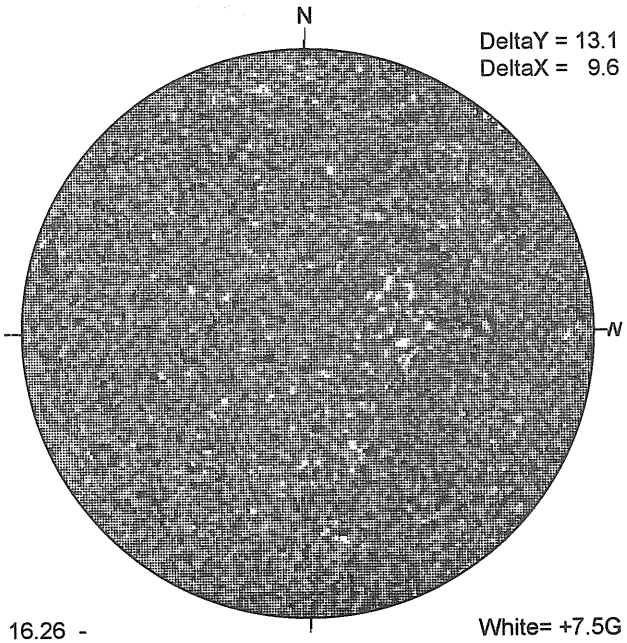
1553 UT

STANFORD MAGNETOGRAM



2152 UT

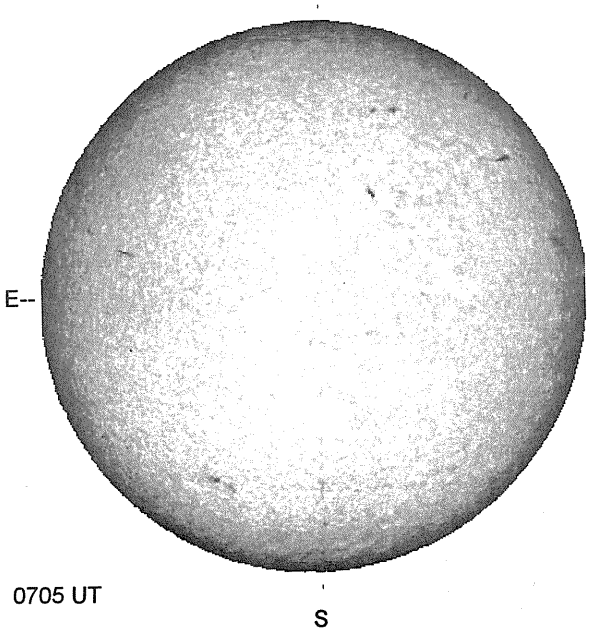
MT. WILSON MAGNETOGRAM



16.26 -
17.17 UT

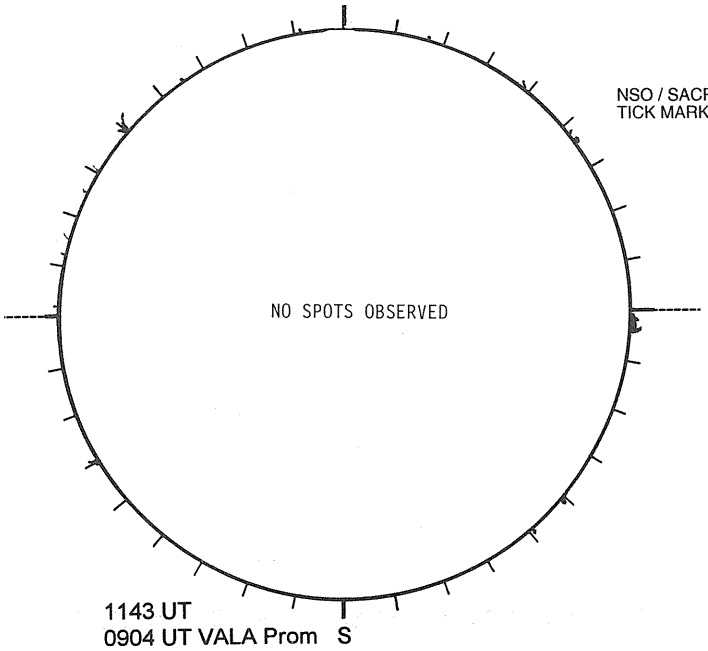
White= +7.5G
Black = -7.5G

MEUDON H-ALHPA



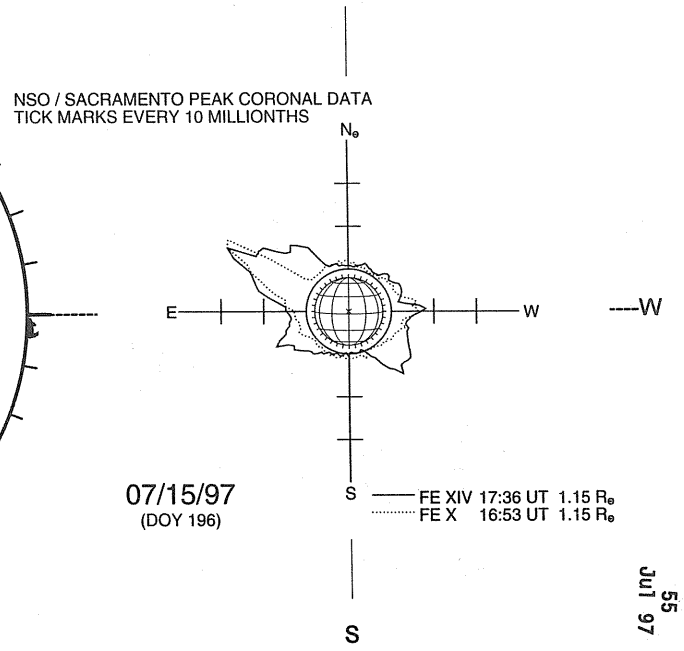
0705 UT

RAMEY SUNSPOT



1143 UT
0904 UT VALA Prom

SACRAMENTO PEAK CORONA (1.15 Radii)----



07/15/97
(DOY 196)

S

55
Jul 97

JULY 16, 1997 (P= 4.07, Bo = 4.44, Lo = 353.43)

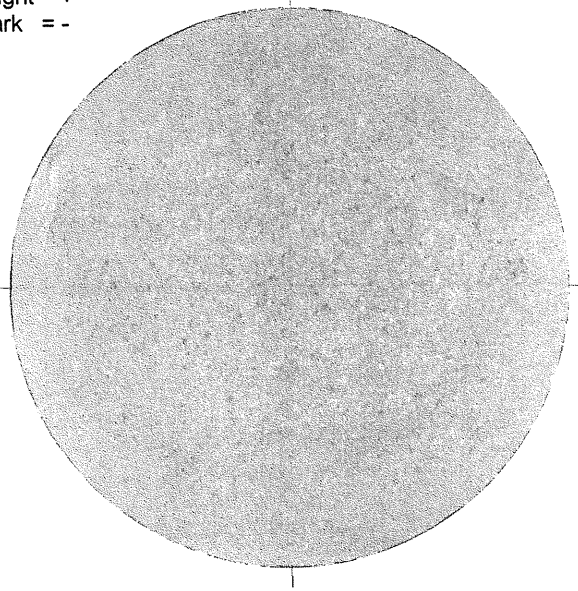
Jul 97

KITT PEAK MAGNETOGRAM

N

868.8 nm

Bright = +
Dark = -



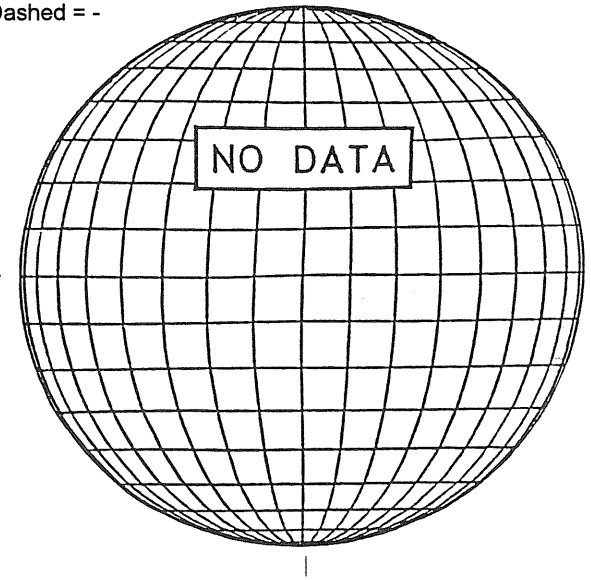
E

1604 UT

STANFORD MAGNETOGRAM

N

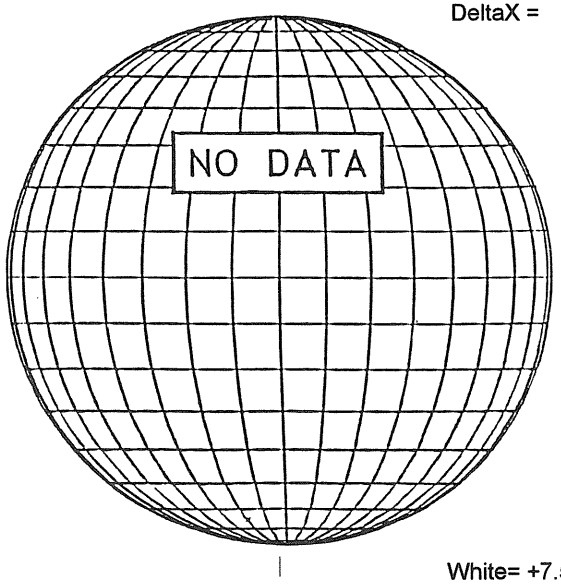
Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

N

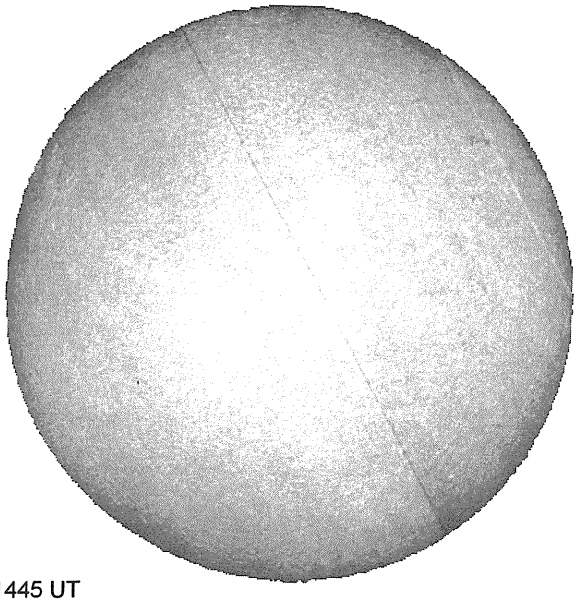
DeltaY =
DeltaX =



W

White= +7.5G
Black = -7.5G

SACRAMENTO PEAK H-ALPHA

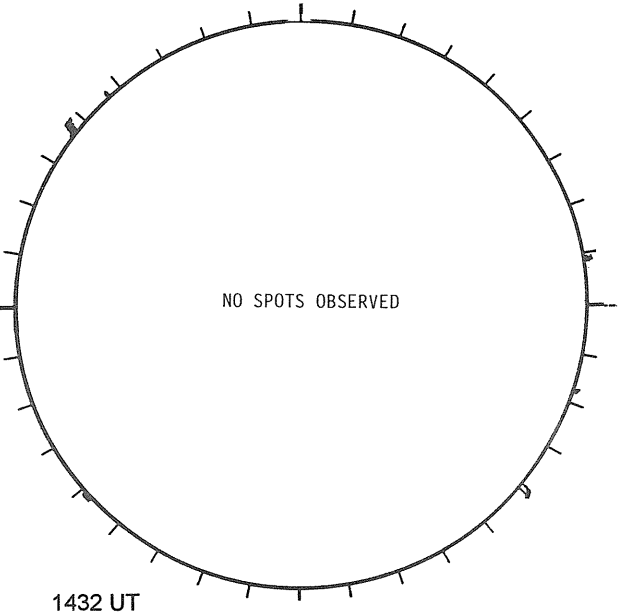


E

1445 UT

S

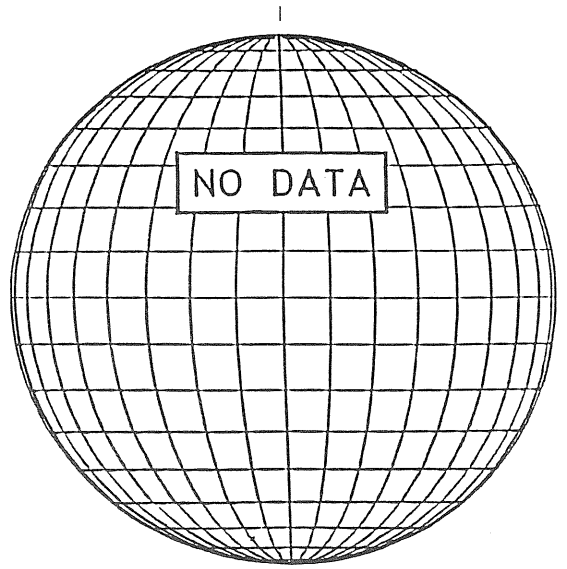
RAMEY SUNSPOT



1432 UT
0640 UT VALA Prom

S

SACRAMENTO PEAK CORONA (1.15 Radii)----

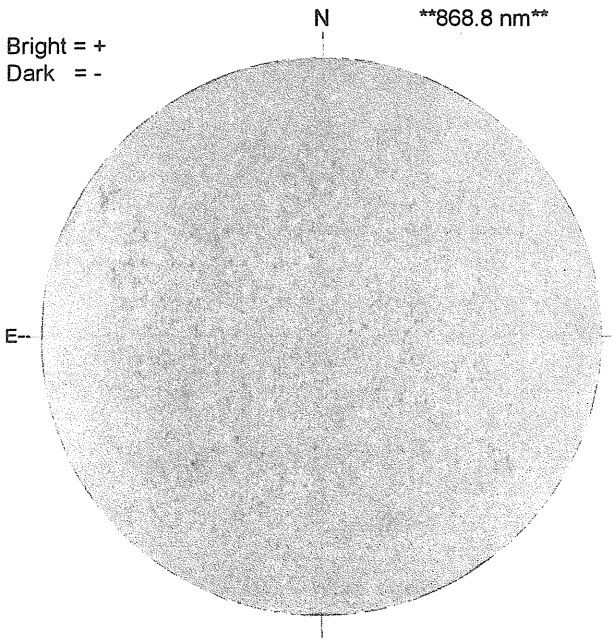


N

S

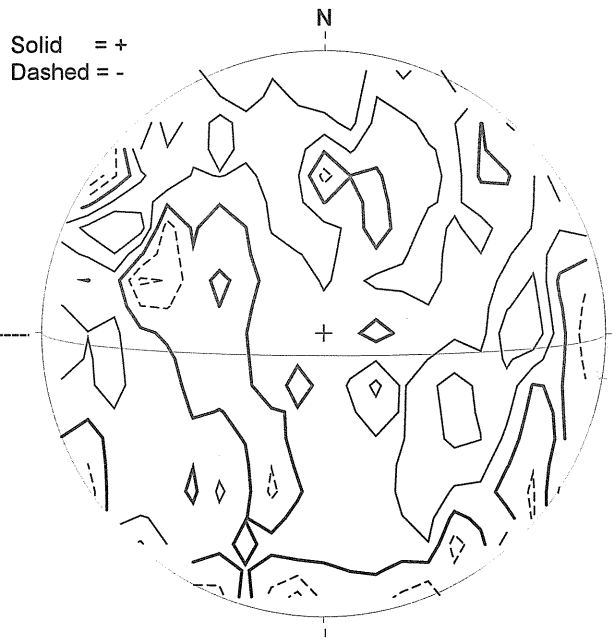
JULY 17, 1997 (P= 4.51, Bo = 4.53, Lo = 340.20)

KITT PEAK MAGNETOGRAM



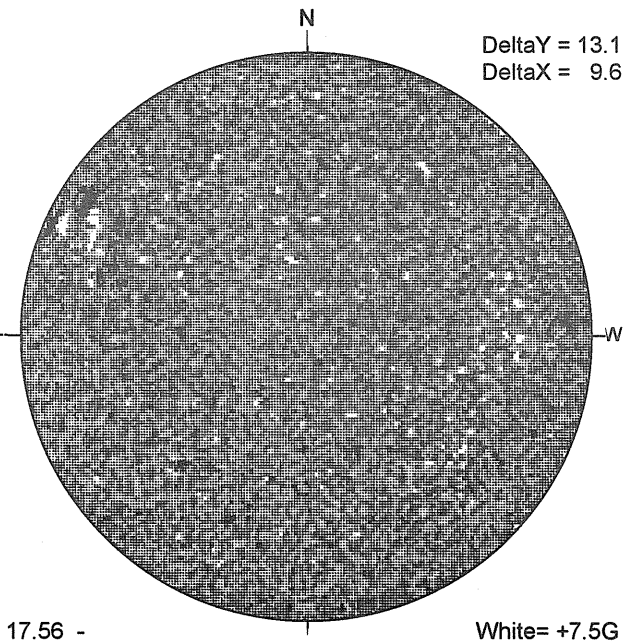
1603 UT

STANFORD MAGNETOGRAM



2312 UT

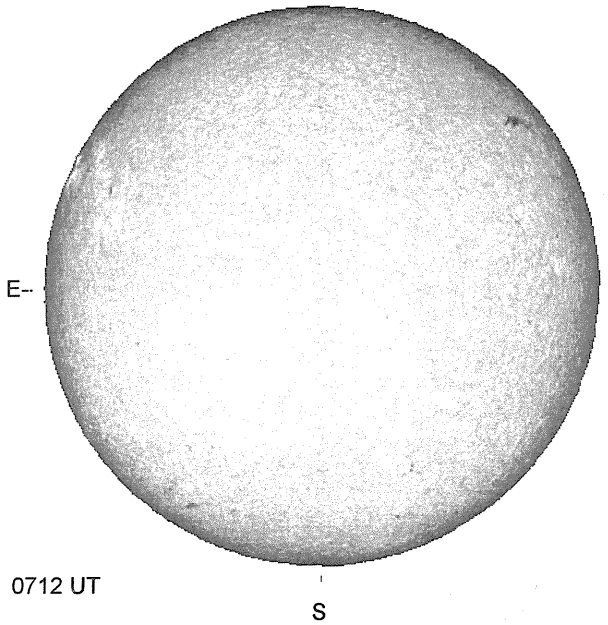
MT. WILSON MAGNETOGRAM



17.56 -
18.48 UT

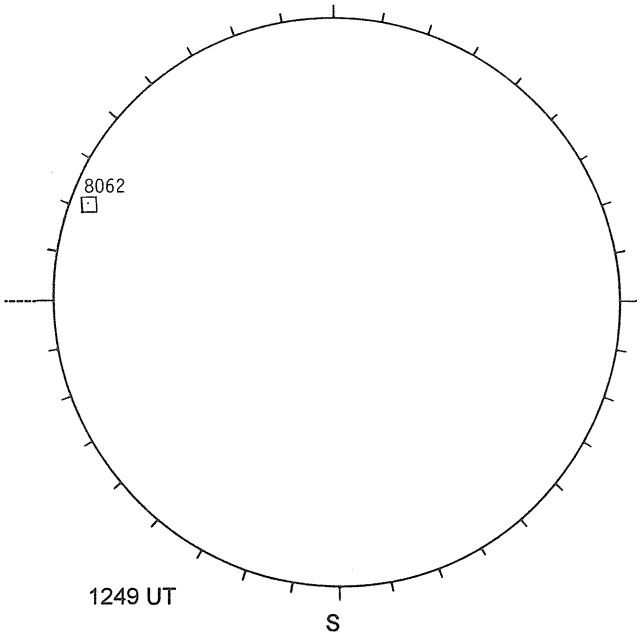
White= +7.5G
Black = -7.5G

MEUDON H-ALPHA



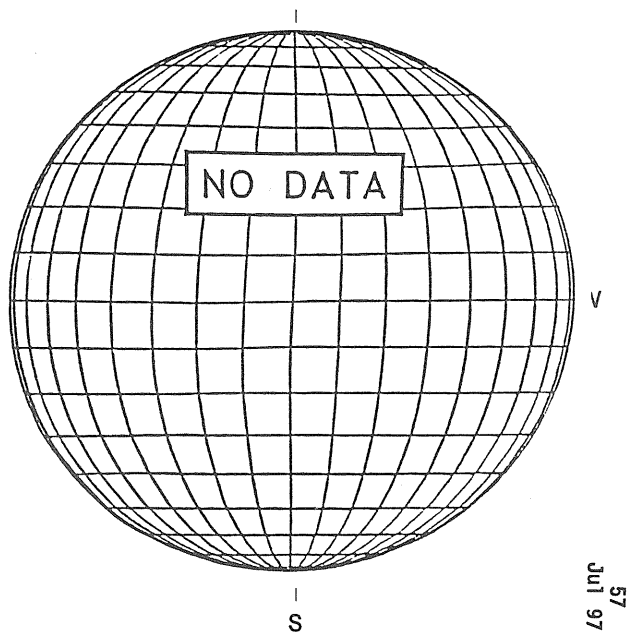
0712 UT

RAMEY SUNSPOT



1249 UT

SACRAMENTO PEAK CORONA (1.15 Radii)----



57 Jul 97

JULY 18, 1997 (P= 4.95, Bo = 4.62, Lo = 326.97)

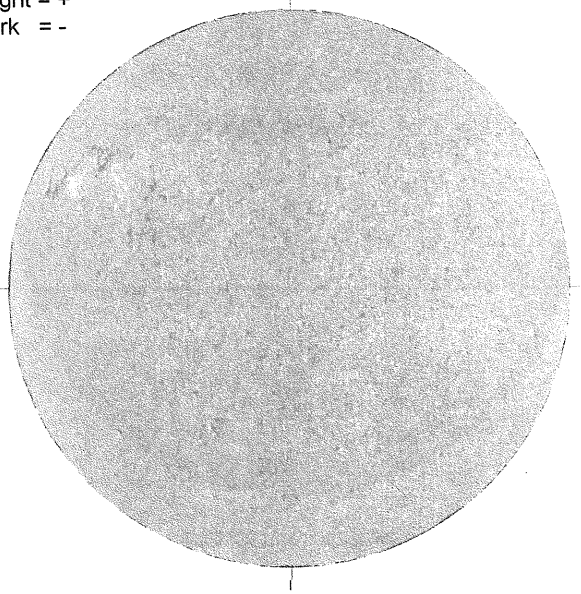
Jul 97 58

KITT PEAK MAGNETOGRAM

N

868.8 nm

Bright = +
Dark = -



1553 UT

STANFORD MAGNETOGRAM

N

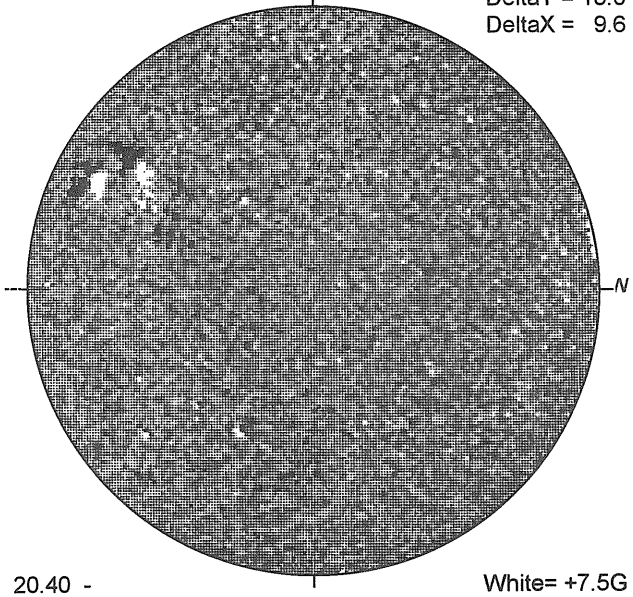
Solid = +
Dashed = -

2303 UT

MT. WILSON MAGNETOGRAM

N

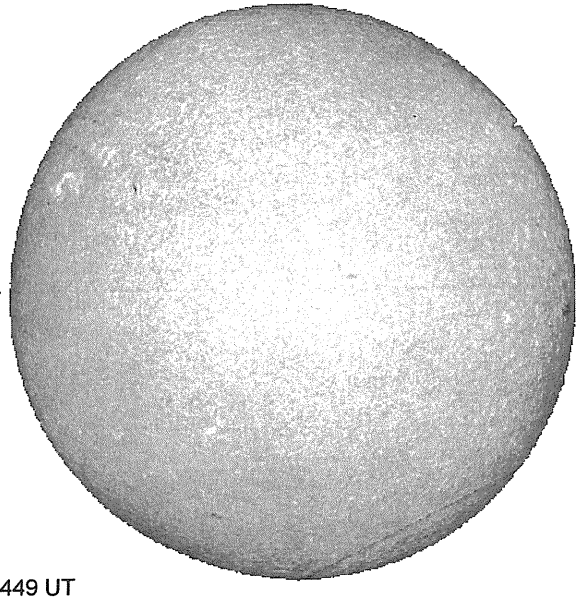
DeltaY = 13.0
DeltaX = 9.6



20.40 -
21.32 UT

White= +7.5G
Black = -7.5G

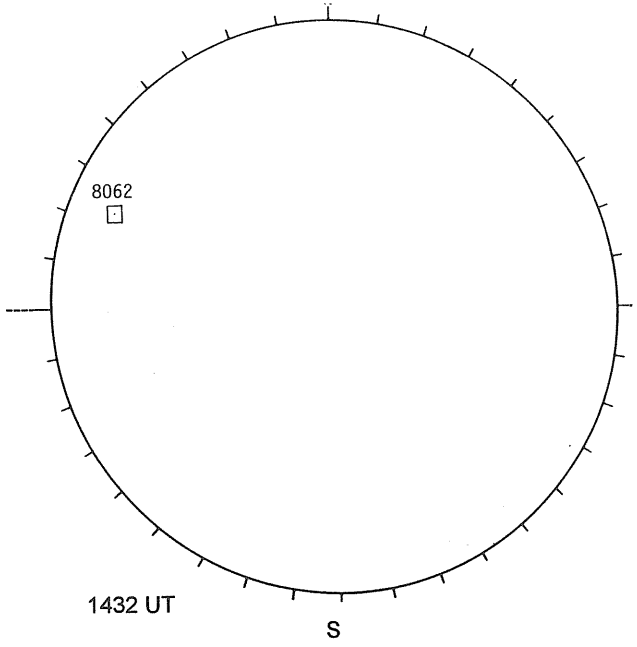
SACRAMENTO PEAK H-ALPHA



1449 UT

S

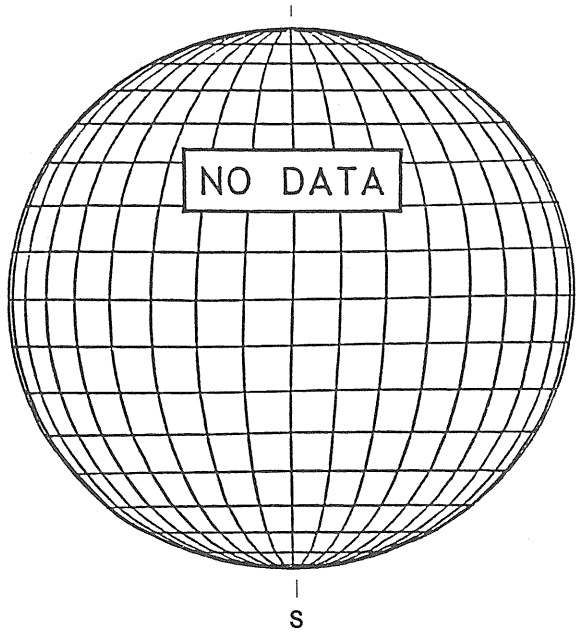
RAMEY SUNSPOT



1432 UT

S

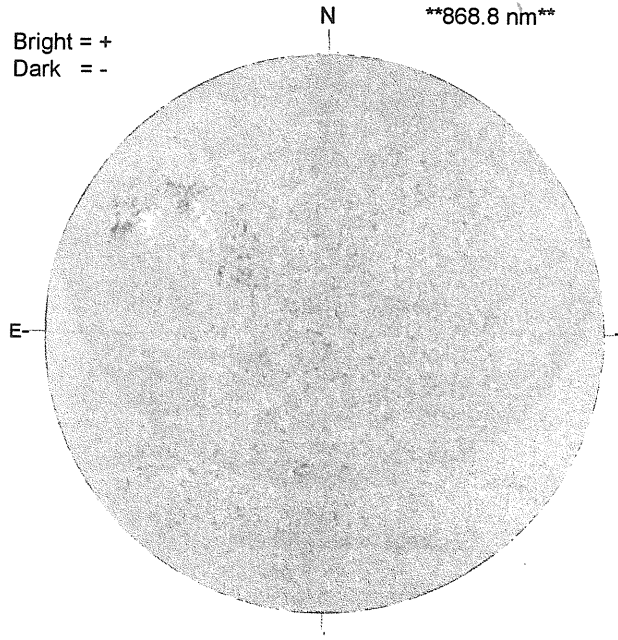
SACRAMENTO PEAK CORONA (1.15 Radii)----



S

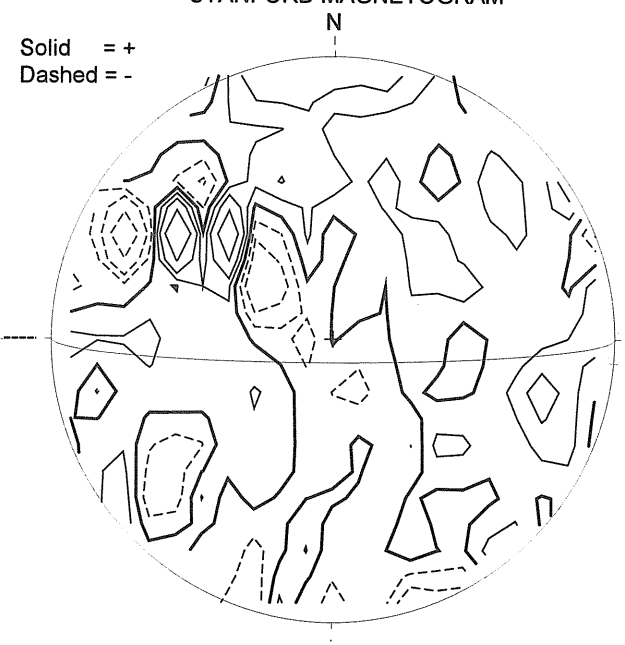
JULY 19, 1997 (P= 5.39, Bo = 4.72, Lo = 313.73)

KITT PEAK MAGNETOGRAM



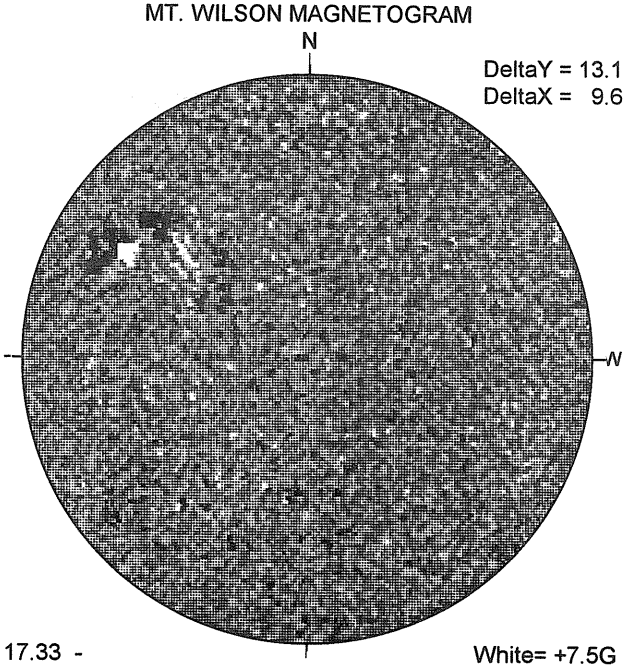
1446 UT

STANFORD MAGNETOGRAM



2135 UT

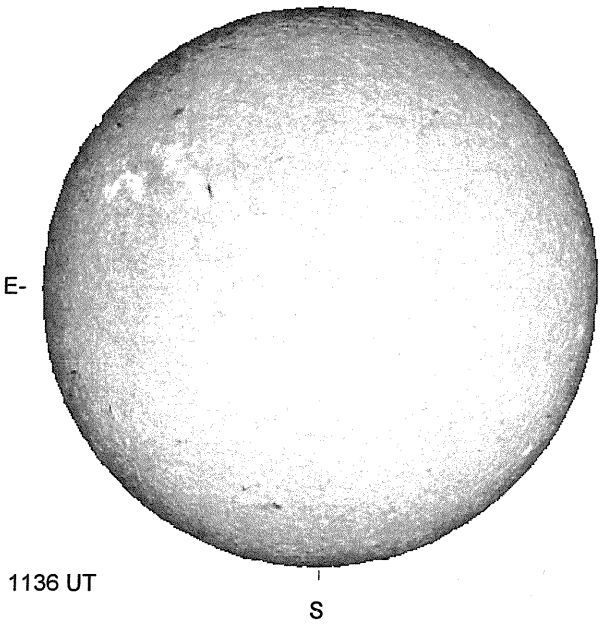
MT. WILSON MAGNETOGRAM



17.33 -
18.25 UT

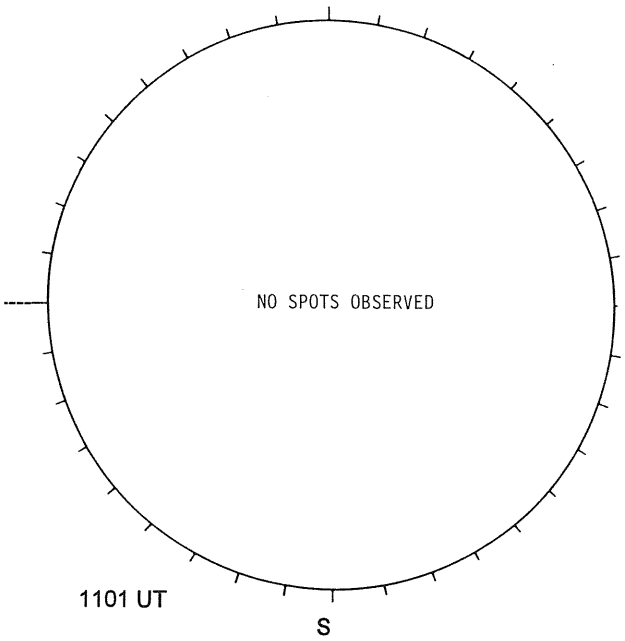
White= +7.5G
Black = -7.5G

MEUDON H-ALPHA



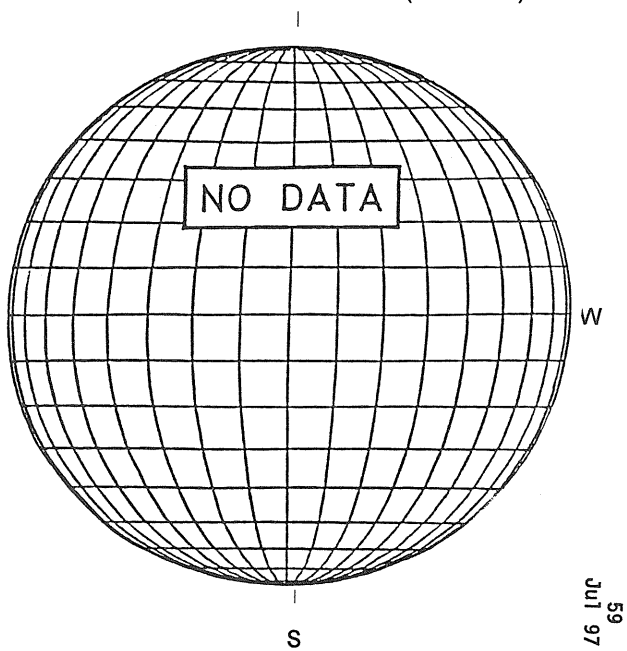
1136 UT

RAMEY SUNSPOT



1101 UT

SACRAMENTO PEAK CORONA (1.15 Radii)----



59
Jul 97

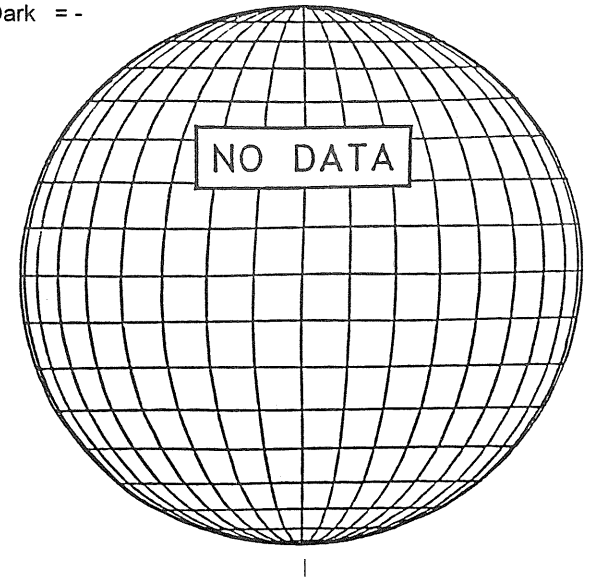
JULY 20, 1997 (P= 5.82, Bo = 4.81 Lo = 300.50)

Jul 97 09

KITT PEAK MAGNETOGRAM

N **868.8 nm**

Bright = +
Dark = -



STANFORD MAGNETOGRAM

N

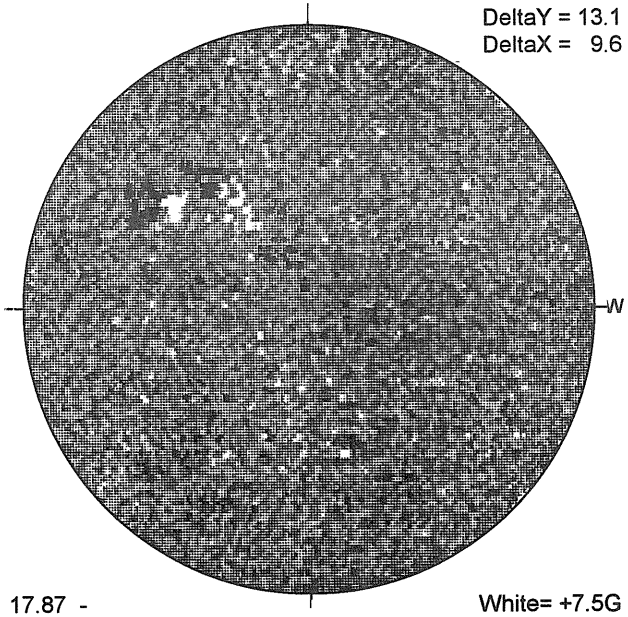
Solid = +
Dashed = -

2103 UT

MT. WILSON MAGNETOGRAM

N

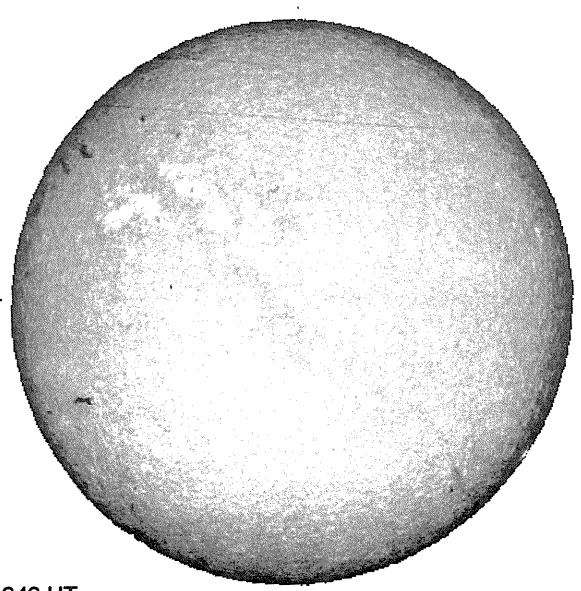
DeltaY = 13.1
DeltaX = 9.6



17.87 -
18.79 UT

White= +7.5G
Black = -7.5G

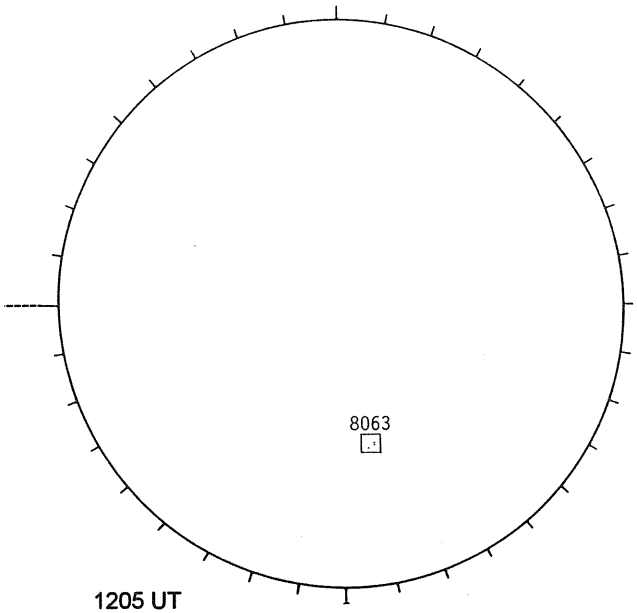
---- MEUDON H-ALPHA



1246 UT

S

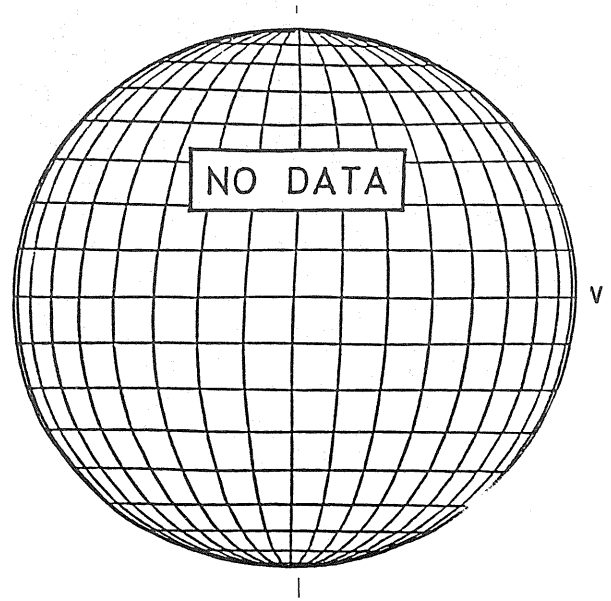
RAMEY SUNSPOT



1205 UT

S

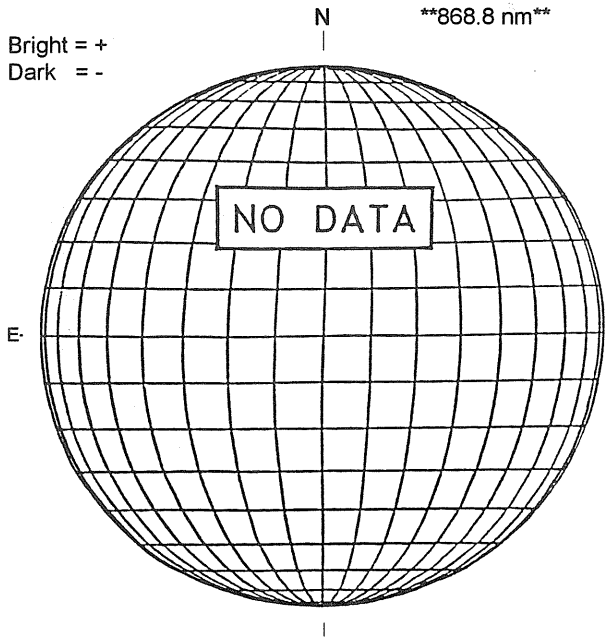
SACRAMENTO PEAK CORONA (1.15 Radii)----



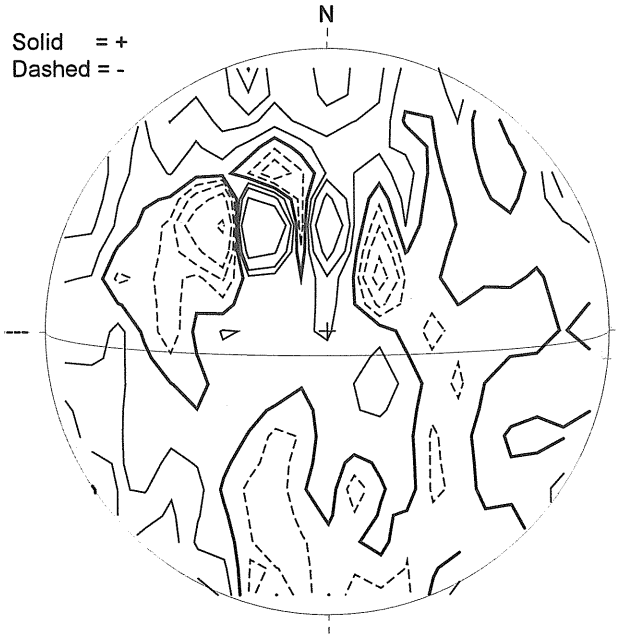
S

JULY 21, 1997 (P= 6.25, Bo = 4.90, Lo = 287.27)

KITT PEAK MAGNETOGRAM

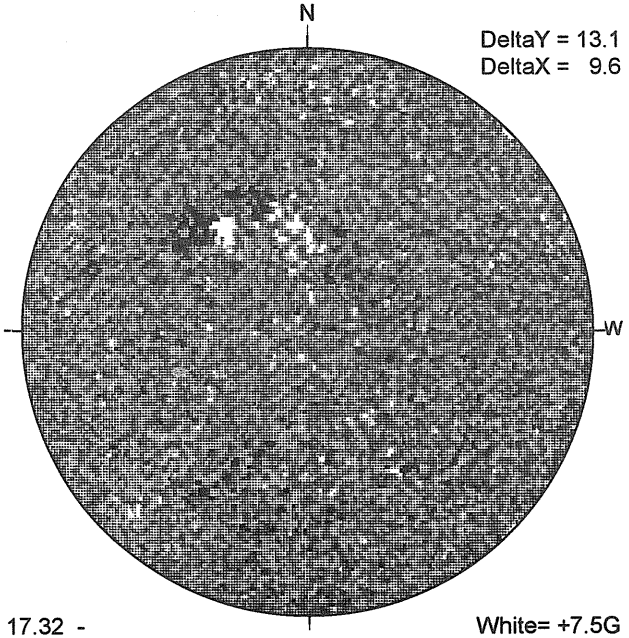


STANFORD MAGNETOGRAM



2218 UT

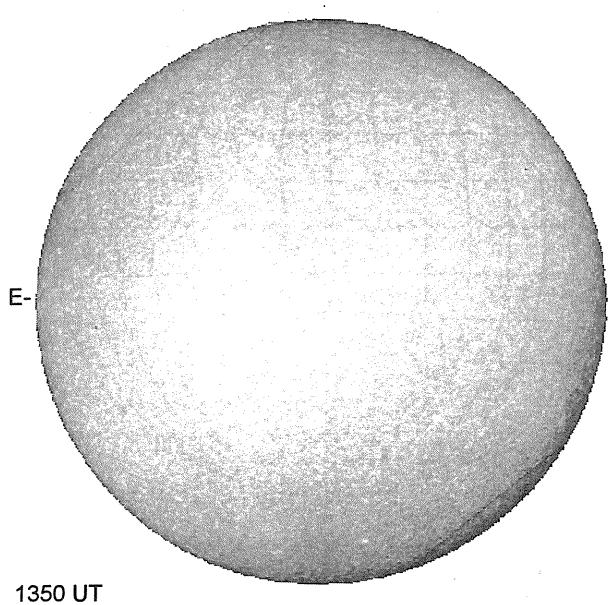
MT. WILSON MAGNETOGRAM



17.32 -
18.24 UT

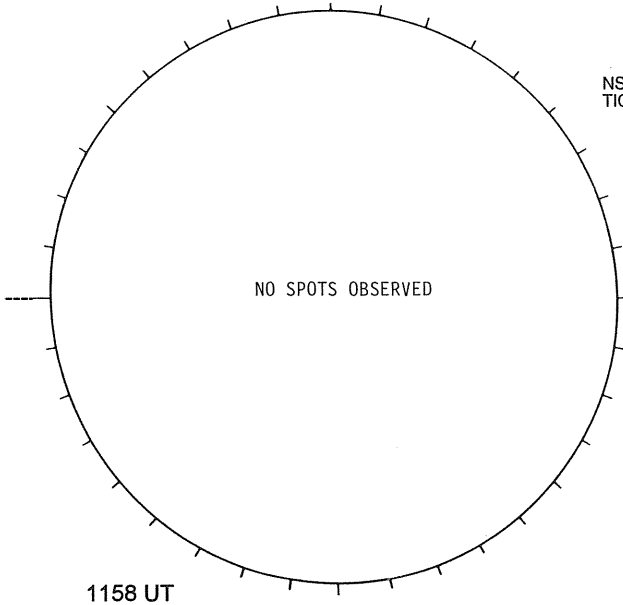
White= +7.5G
Black = -7.5G

SACRAMENTO PEAK H-ALPHA



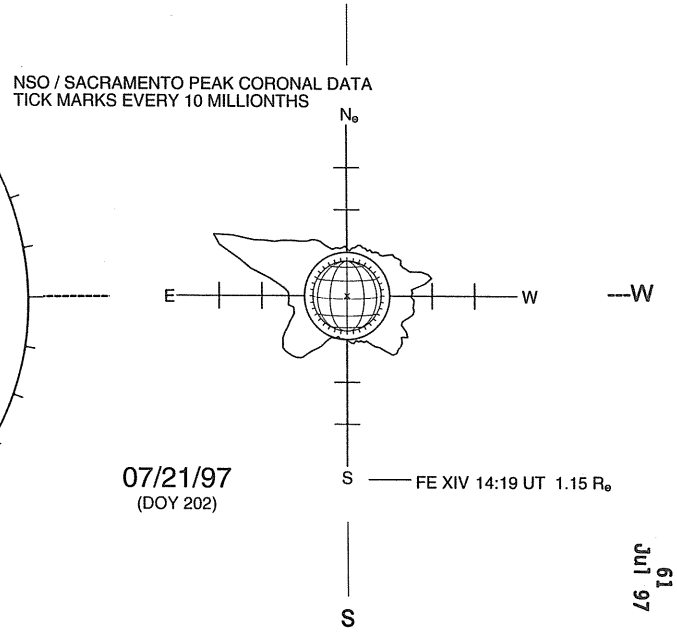
1350 UT

RAMEY SUNSPOT



1158 UT

SACRAMENTO PEAK CORONA (1.15 Radii)----



07/21/97
(DOY 202)

Jul 21 97

KITT PEAK MAGNETOGRAM

N **868.8 nm**

Bright = +
Dark = -

NO DATA

E-

STANFORD MAGNETOGRAM

N

Solid = +
Dashed = -

2039 UT

MT. WILSON MAGNETOGRAM

N

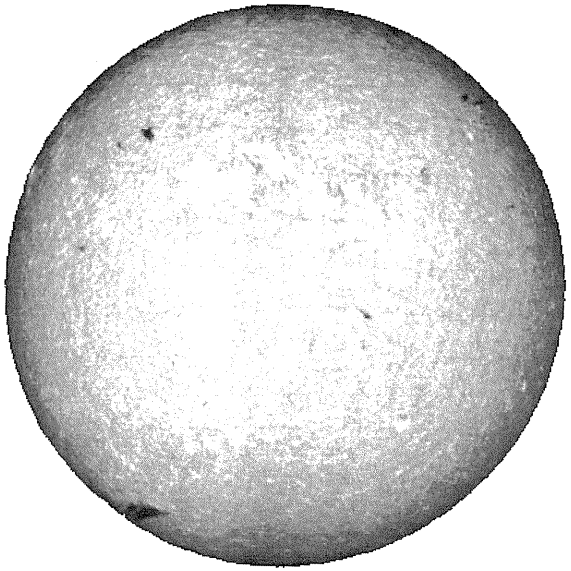
DeltaY =
DeltaX =

NO DATA

-W

White= +7.5G
Black = -7.5G

MEUDON H-ALPHA

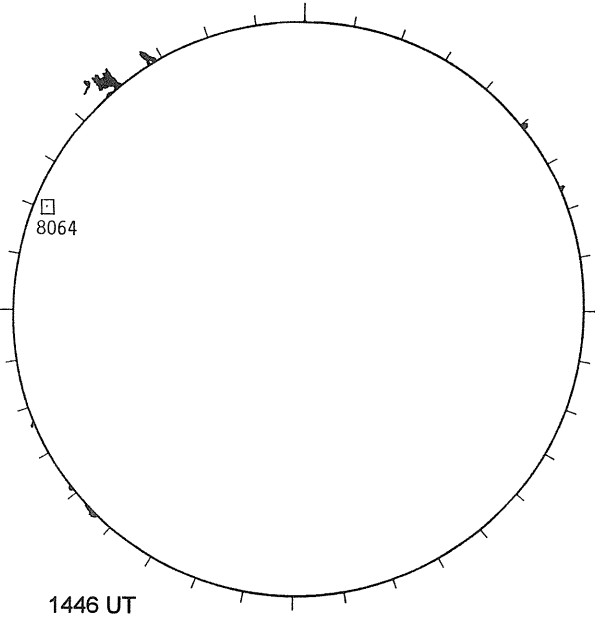


E-

0719 UT

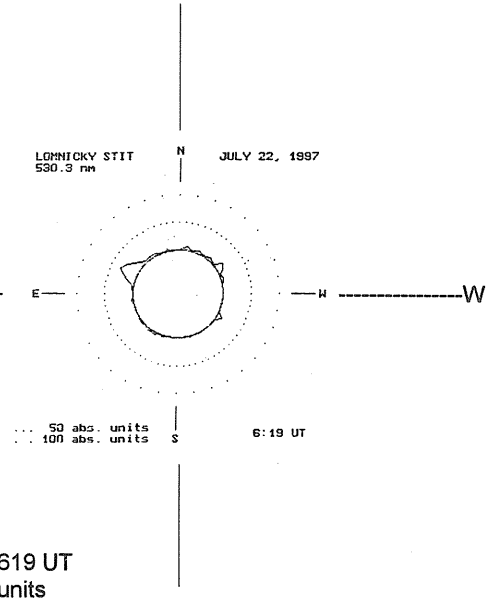
S

RAMEY SUNSPOT



1446 UT
0625 UT LOMN Prom S

LOMNICKY PEAK CORONA (1.04 Radii)



530.0 nm, 0619 UT
.. 50 abs. units
... 100 abs. units

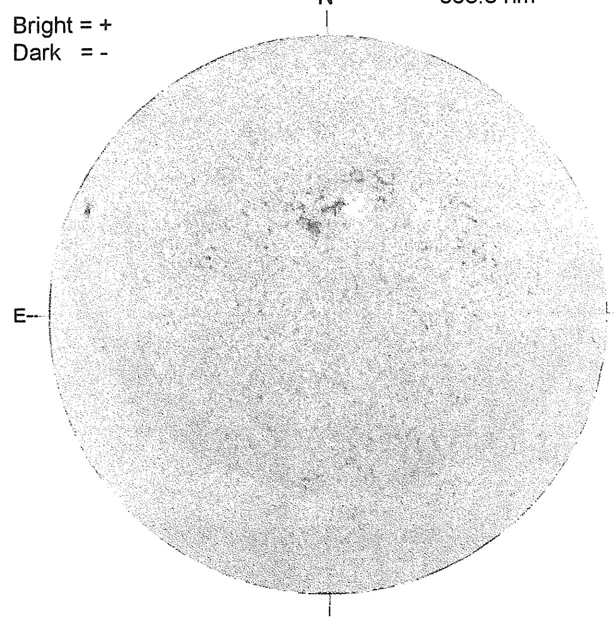
S

JULY 23, 1997 (P= 7.11, Bo = 5.07, Lo = 260.81)

KITT PEAK MAGNETOGRAM

868.8 nm

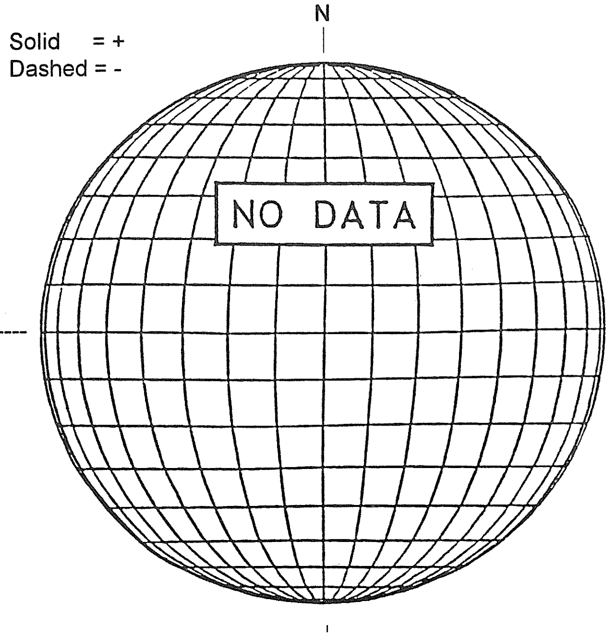
Bright = +
Dark = -



1412 UT

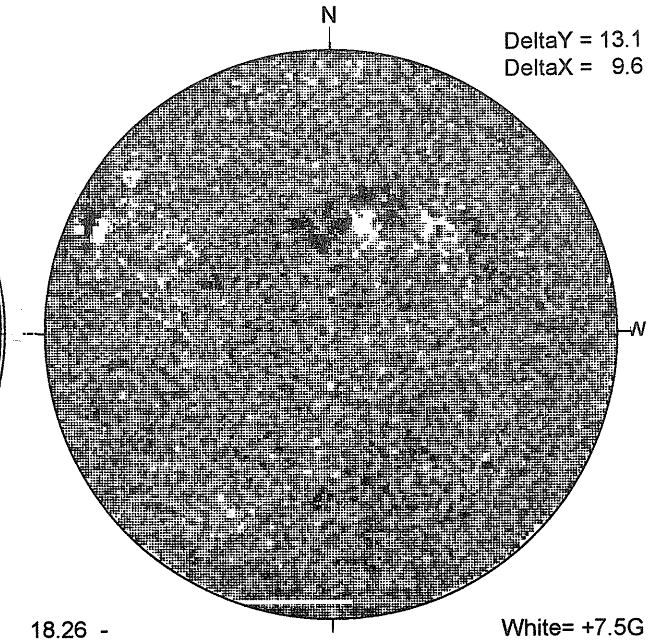
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

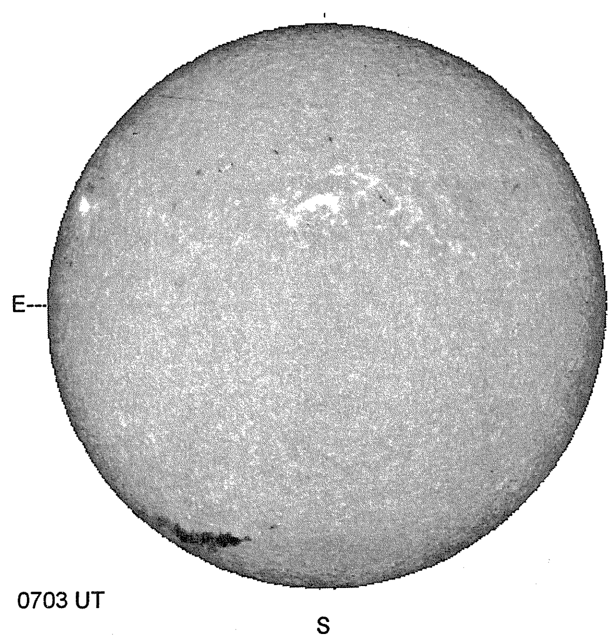
DeltaY = 13.1
DeltaX = 9.6



18.26 -
19.18 UT

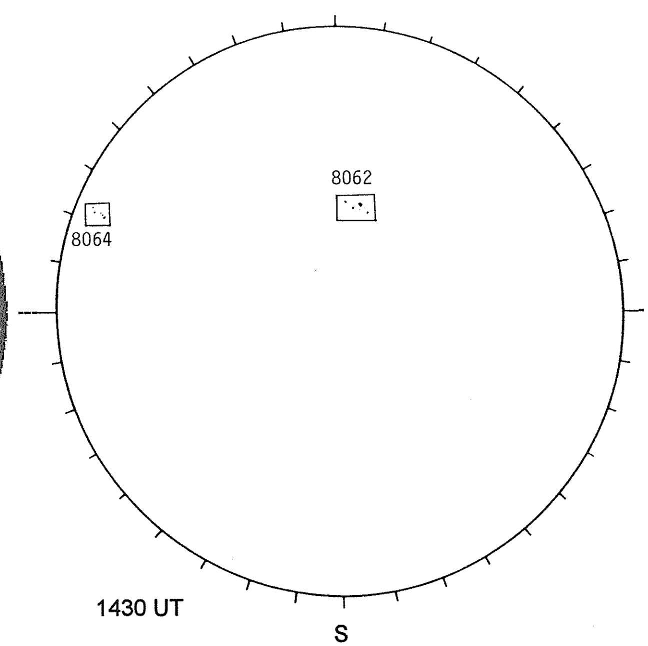
White= +7.5G
Black = -7.5G

MEUDON H-ALPHA



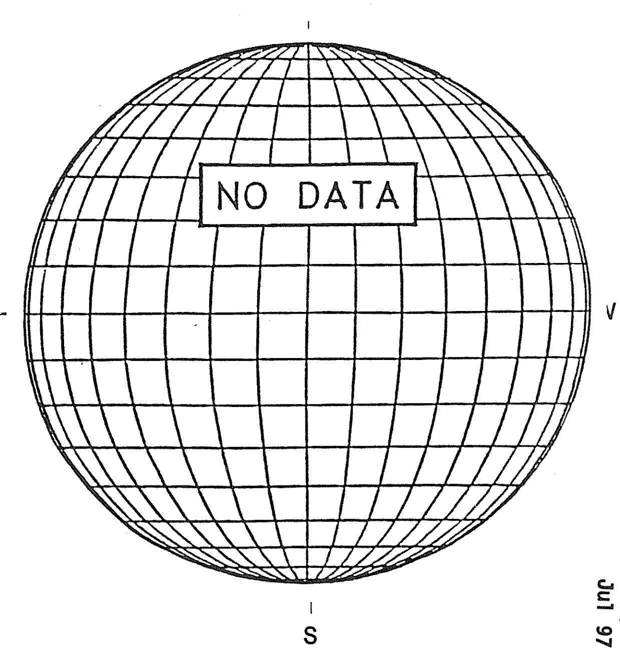
0703 UT

RAMEY SUNSPOT



1430 UT

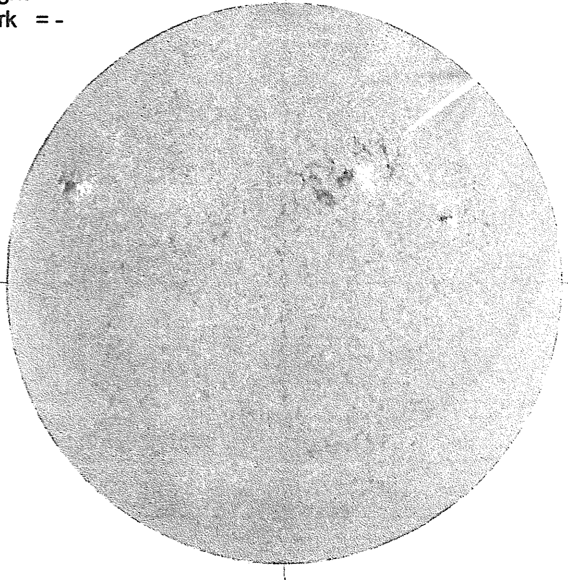
LOMNICKY PEAK CORONA (1.04 Radii)----



JULY 24, 1997 (P = [illegible], B0 = [illegible], L0 = [illegible])

KITT PEAK MAGNETOGRAM **868.8 nm**

Bright = +
Dark = -



1606 UT

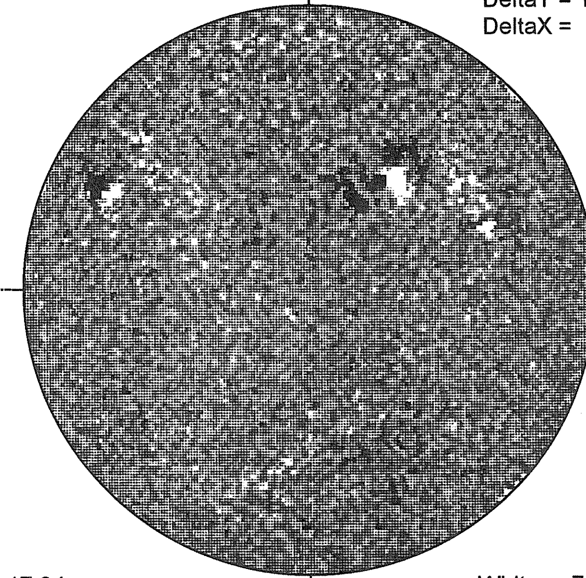
STANFORD MAGNETOGRAM

Solid = +
Dashed = -

2245 UT

MT. WILSON MAGNETOGRAM

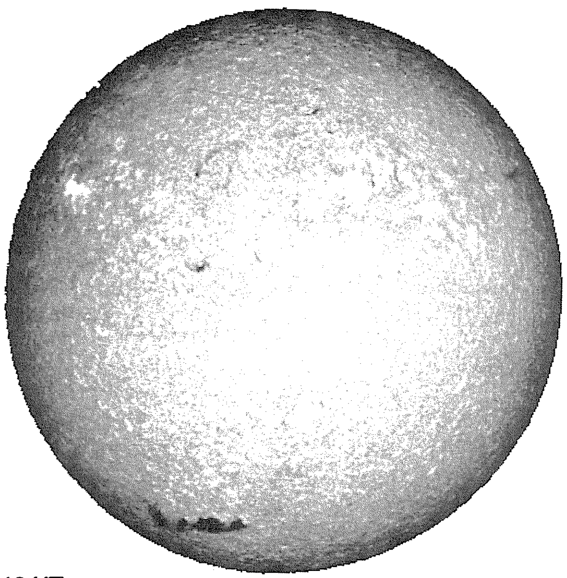
DeltaY = 13.1
DeltaX = 9.6



17.64 -
18.56 UT

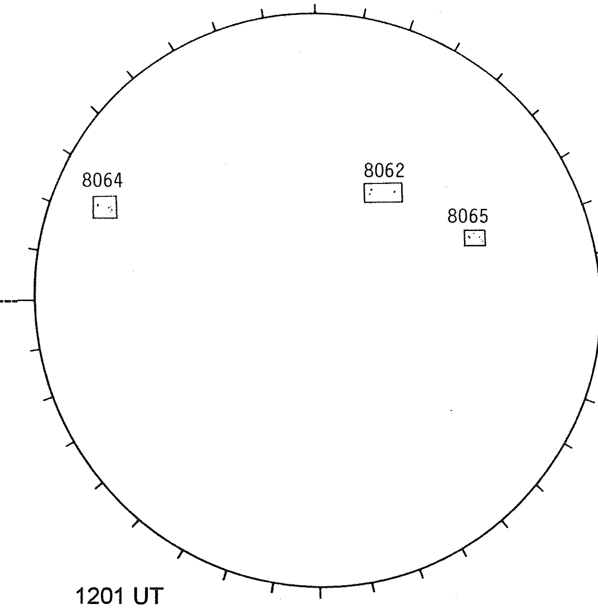
White= +7.5G
Black = -7.5G

MEUDON H-ALPHA



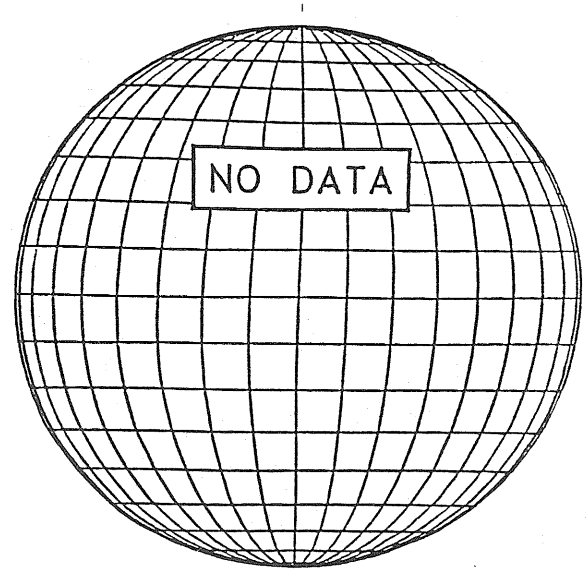
0910 UT

RAMEY SUNSPOT



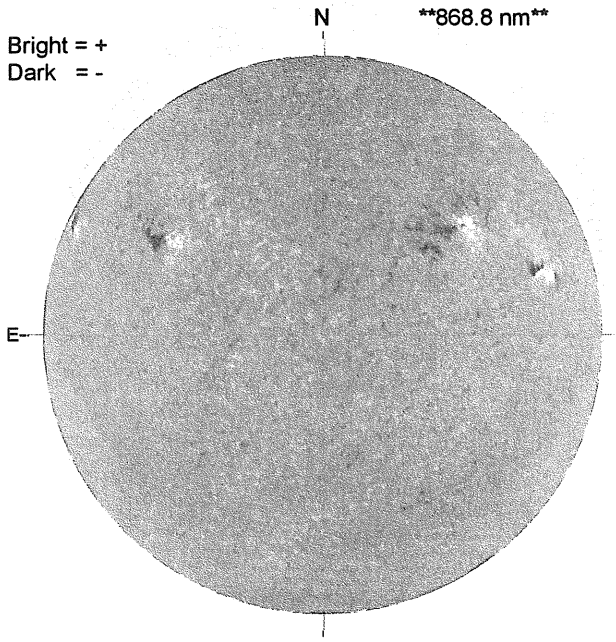
1201 UT

SACRAMENTO PEAK CORONA (1.15 Radii)----

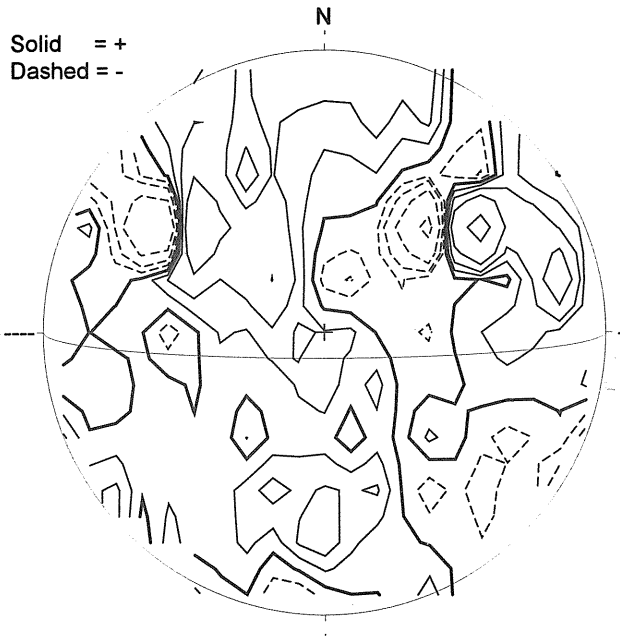


JULY 25, 1997 (P= 7.96, Bo = 5.24, Lo = 234.35)

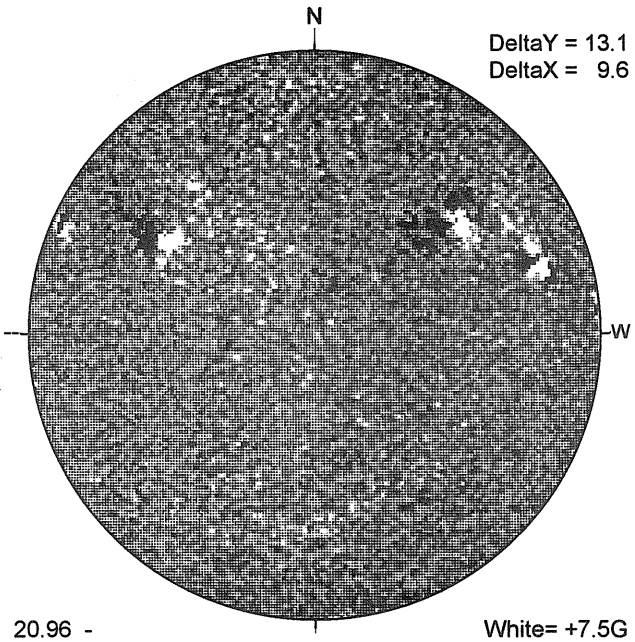
KITT PEAK MAGNETOGRAM



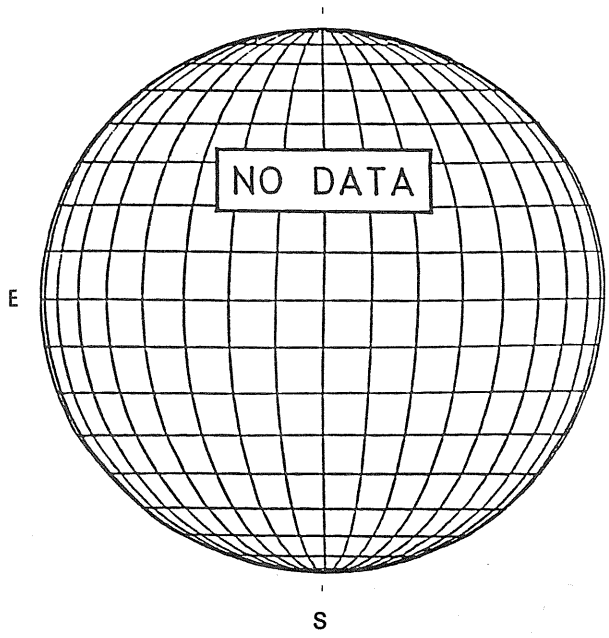
STANFORD MAGNETOGRAM



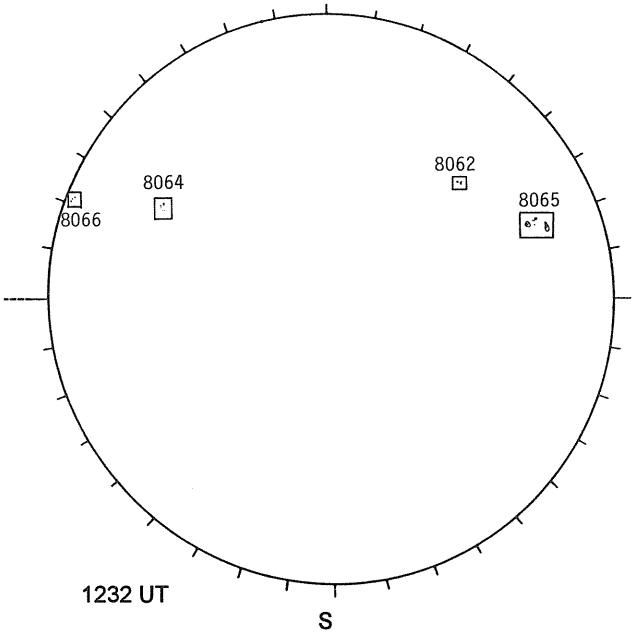
MT. WILSON MAGNETOGRAM



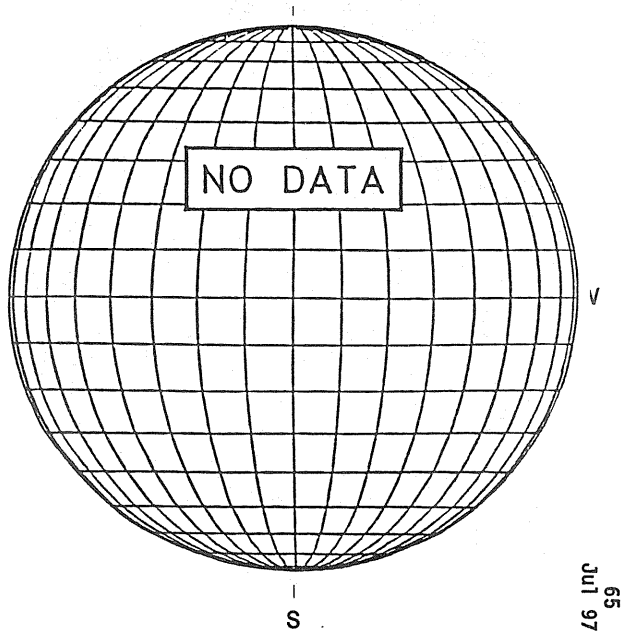
----- SACRAMENTO PEAK H-ALPHA



RAMEY SUNSPOT



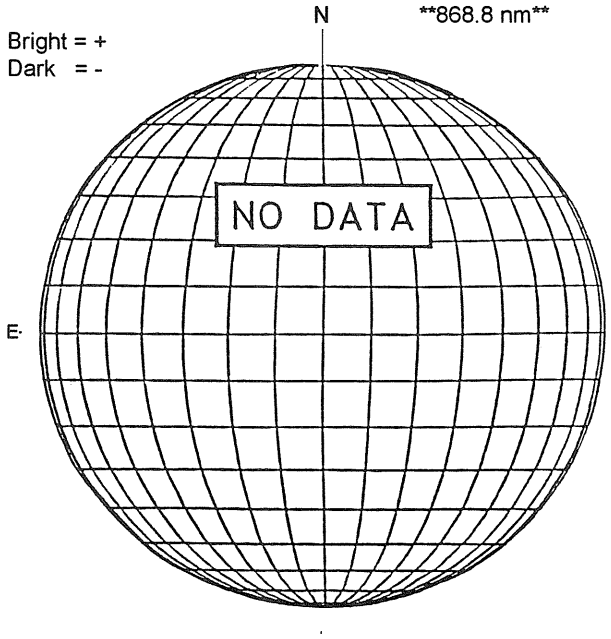
SACRAMENTO PEAK CORONA (1.15 Radii)----



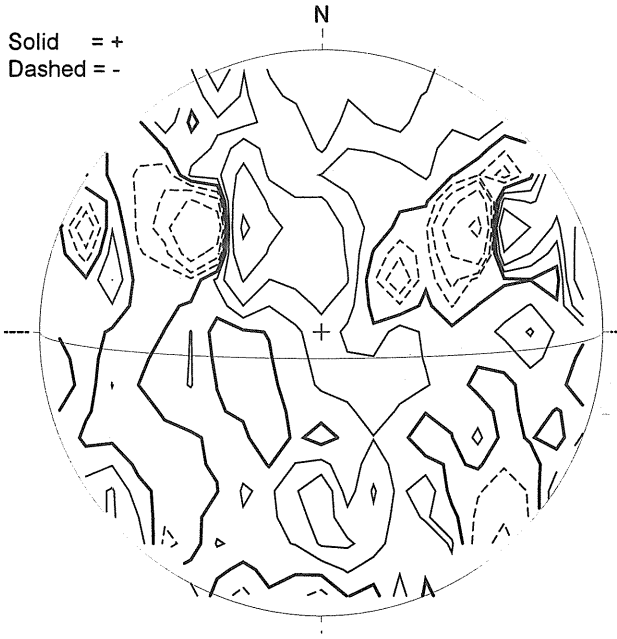
65
Jul 97

JULY 26, 1997 (P= 8.37, Bo = 5.32, Lo = 221.12)

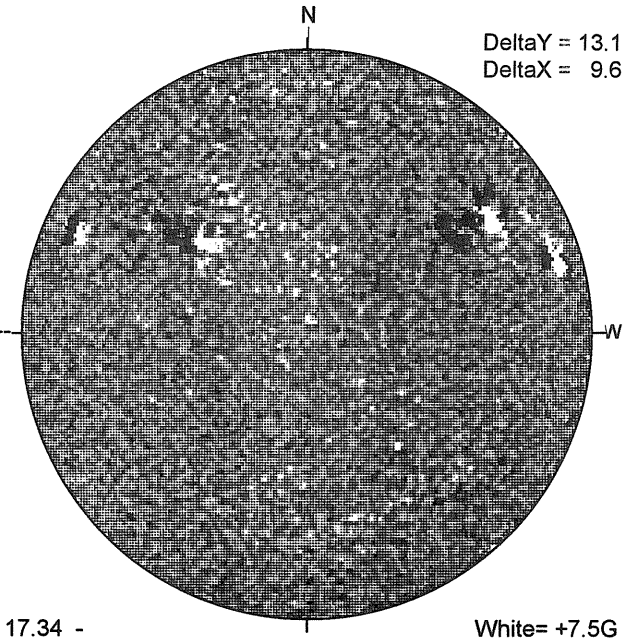
KITT PEAK MAGNETOGRAM



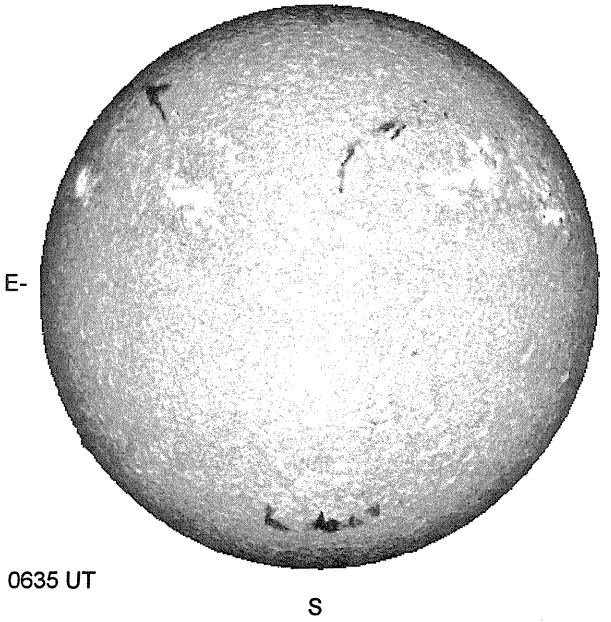
STANFORD MAGNETOGRAM



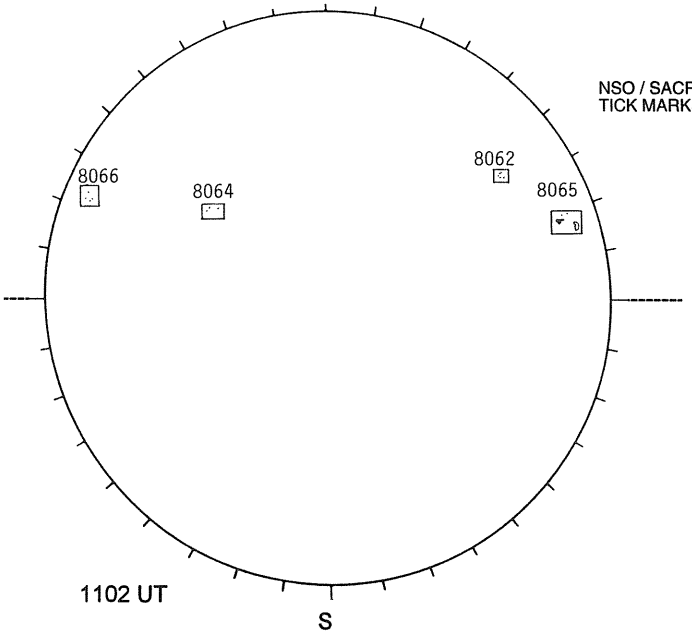
MT. WILSON MAGNETOGRAM



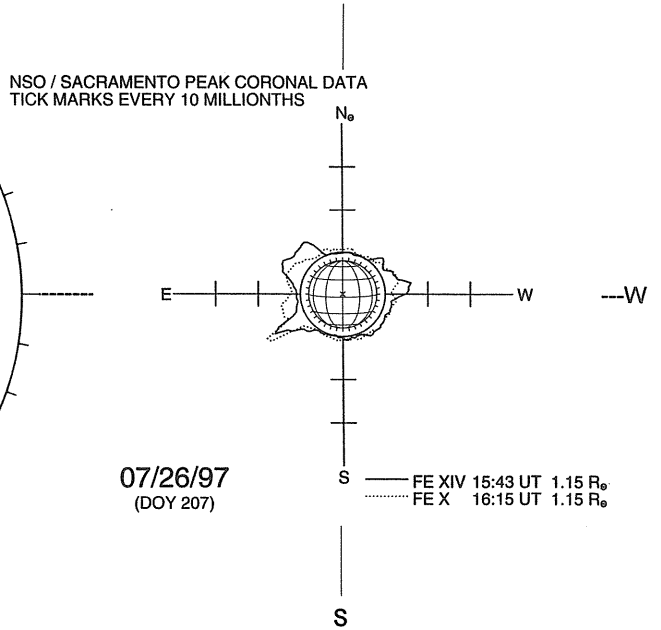
MEUDON H-ALPHA



RAMEY SUNSPOT

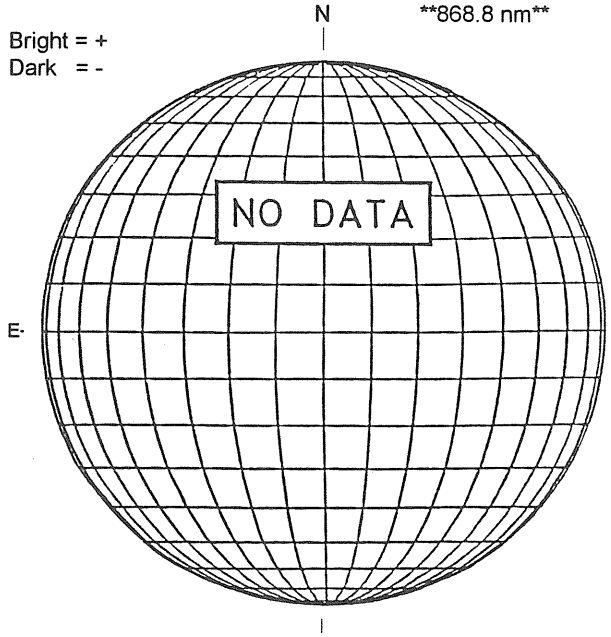


SACRAMENTO PEAK CORONA (1.15 Radii)----

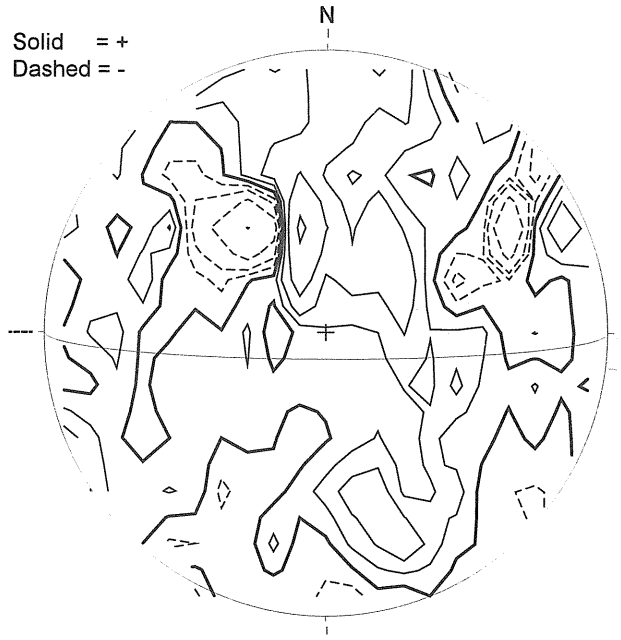


JULY 27, 1997 (P= 8.79, Bo = 5.41, Lo = 207.89)

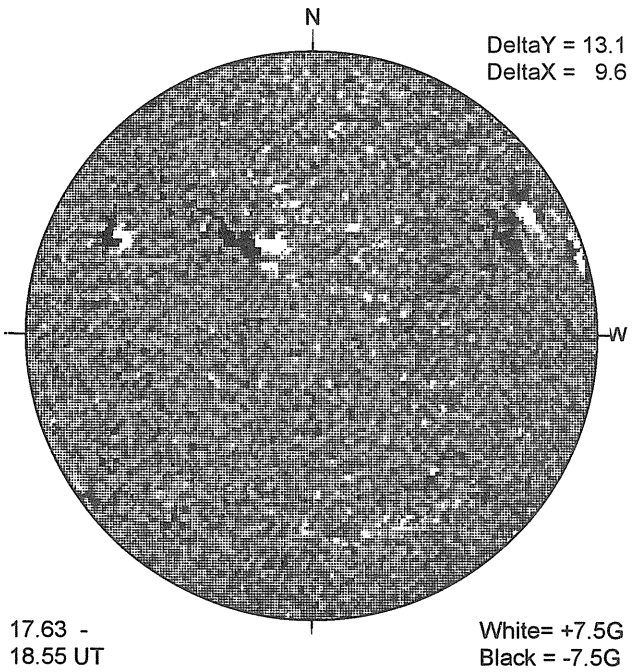
KITT PEAK MAGNETOGRAM



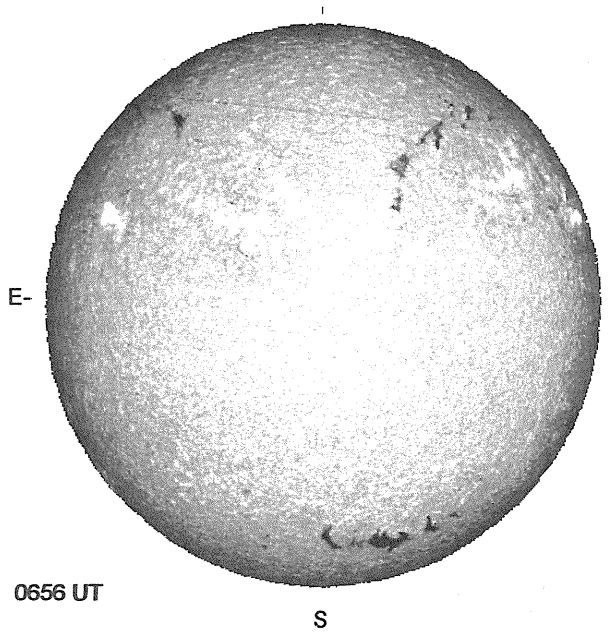
STANFORD MAGNETOGRAM



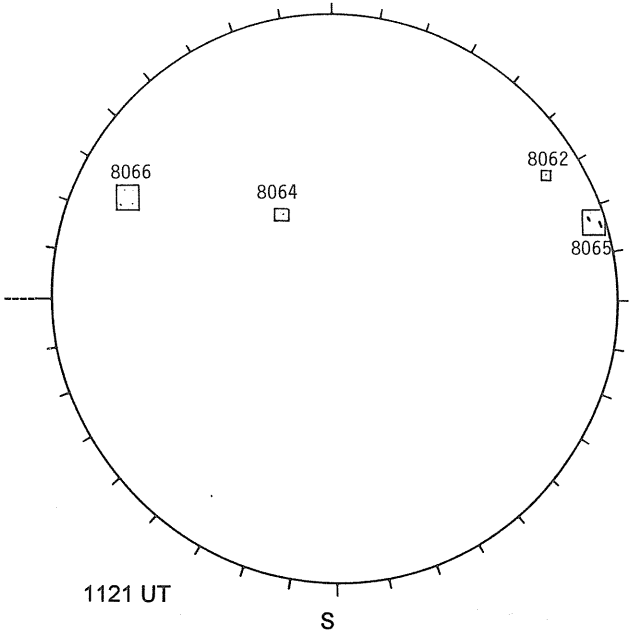
MT. WILSON MAGNETOGRAM



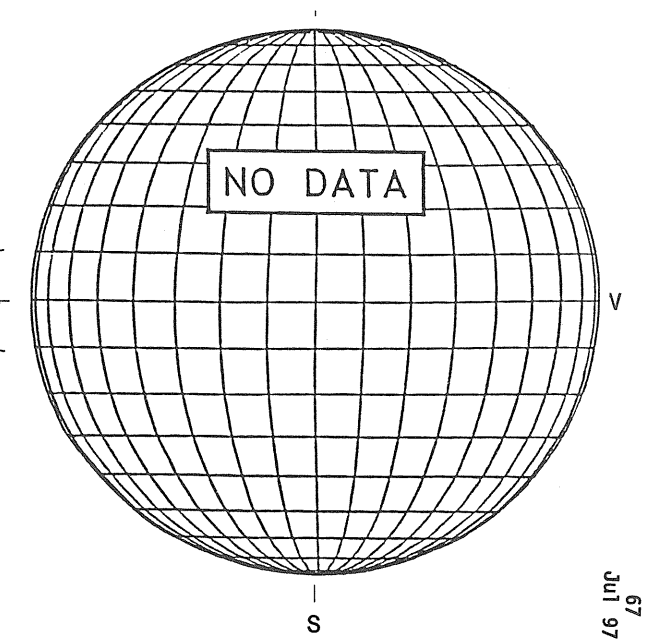
MEUDON H-ALPHA



RAMEY SUNSPOT



SACRAMENTO PEAK CORONA (1.15 Radii)----



Jul 97

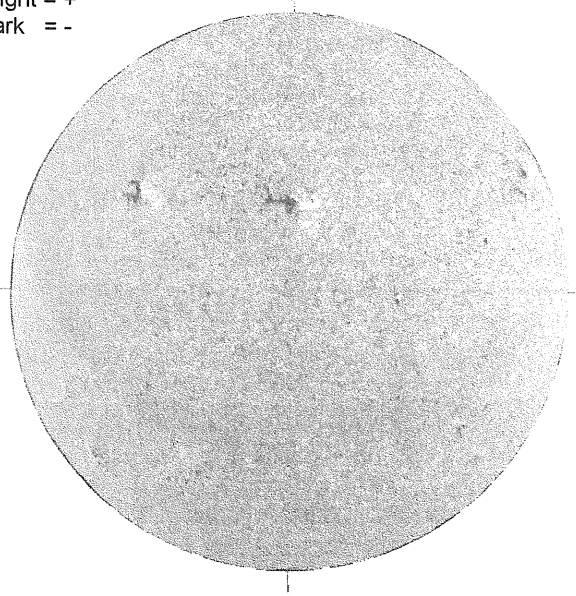
JULY 28, 1997 (P= 9.20, Bo = 5.49, Lo = 194.67)

Jul 97 68

KITT PEAK MAGNETOGRAM

N **868.8 nm**

Bright = +
Dark = -



E--

1521 UT

STANFORD MAGNETOGRAM

N

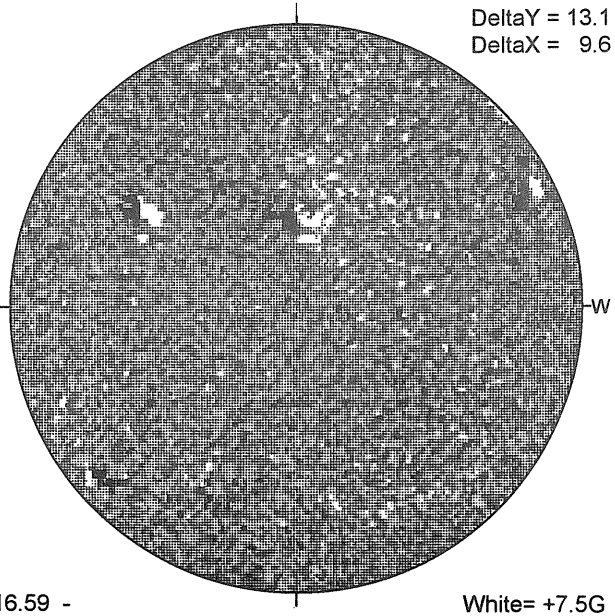
Solid = +
Dashed = -

2000 UT

MT. WILSON MAGNETOGRAM

N

DeltaY = 13.1
DeltaX = 9.6

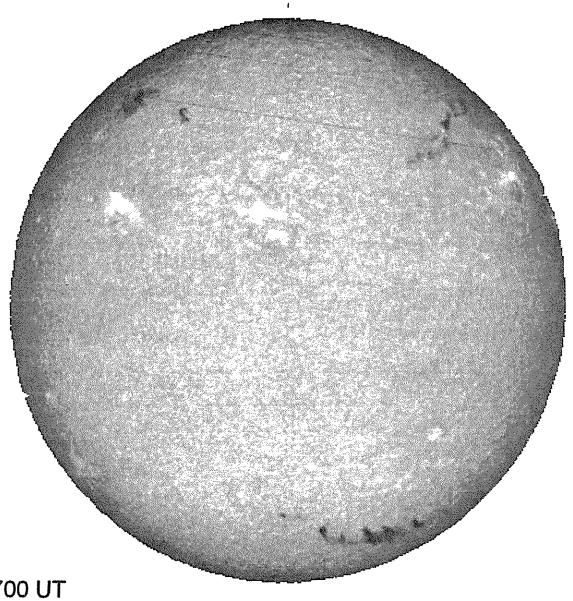


-W

16.59 -
17.51 UT

White= +7.5G
Black = -7.5G

MEUDON H-ALPHA

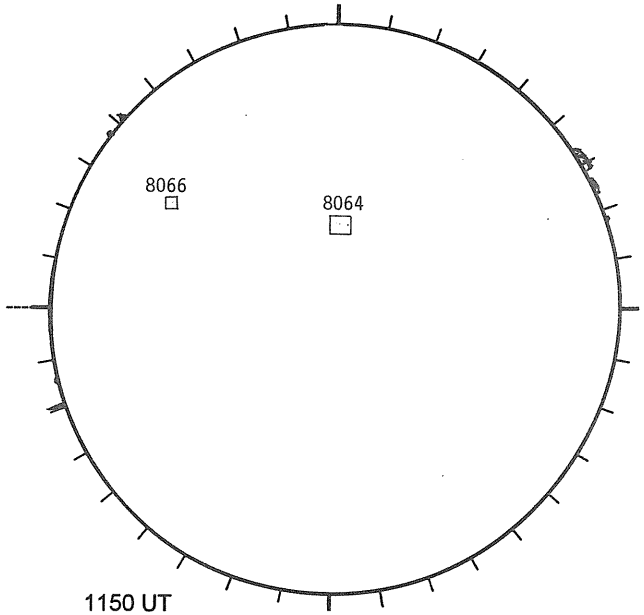


E-

0700 UT

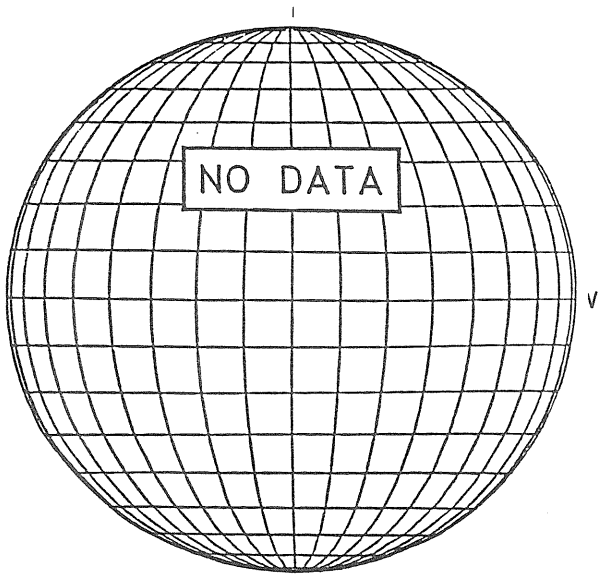
S

RAMEY SUNSPOT



1150 UT
0557 UT VALA Prom S

LOMNICKY PEAK CORONA (1.04 Radii)----

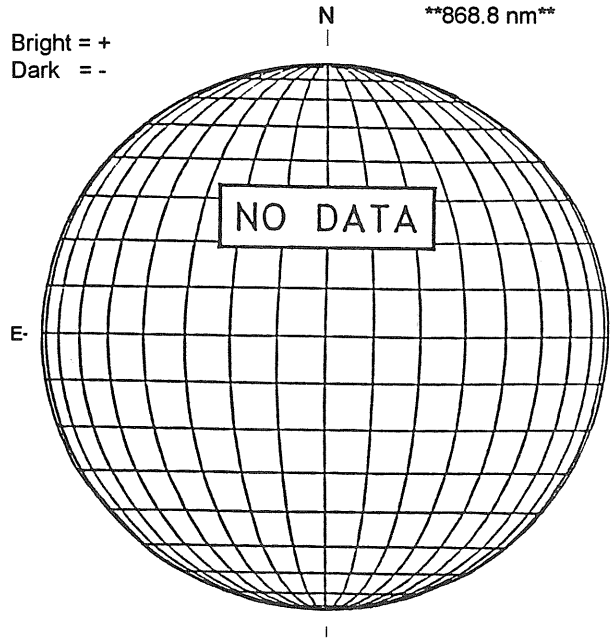


V

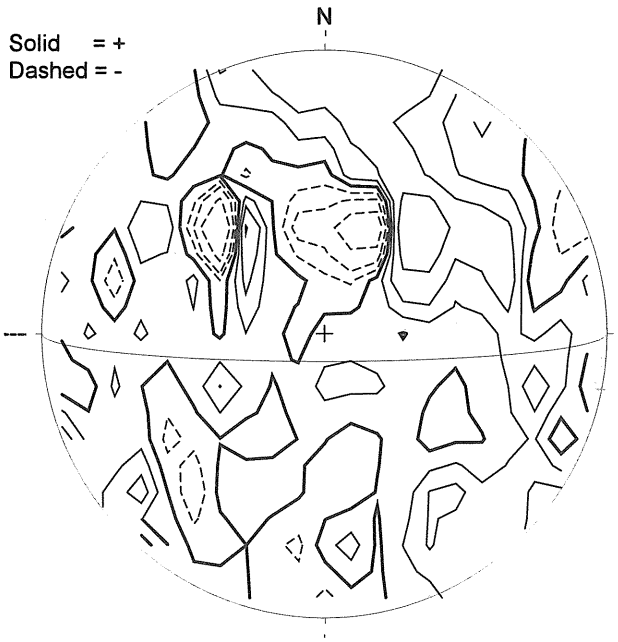
S

JULY 29, 1997 (P= 9.61, Bo = 5.56, Lo = 181.44)

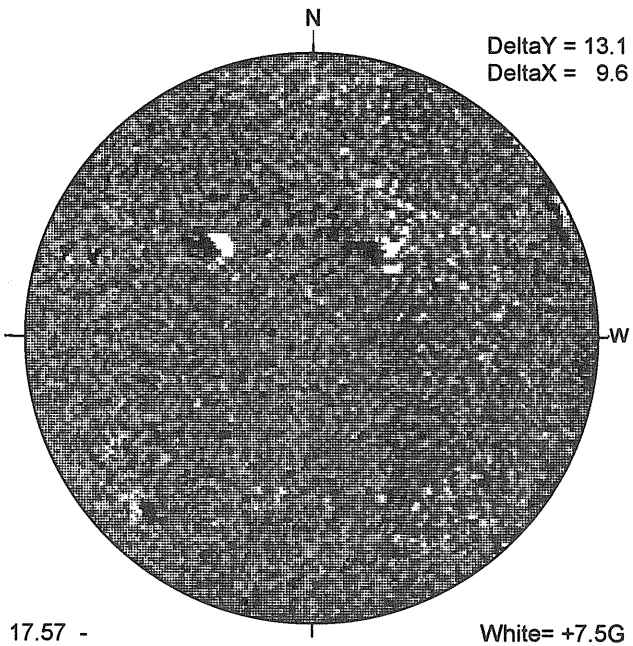
KITT PEAK MAGNETOGRAM



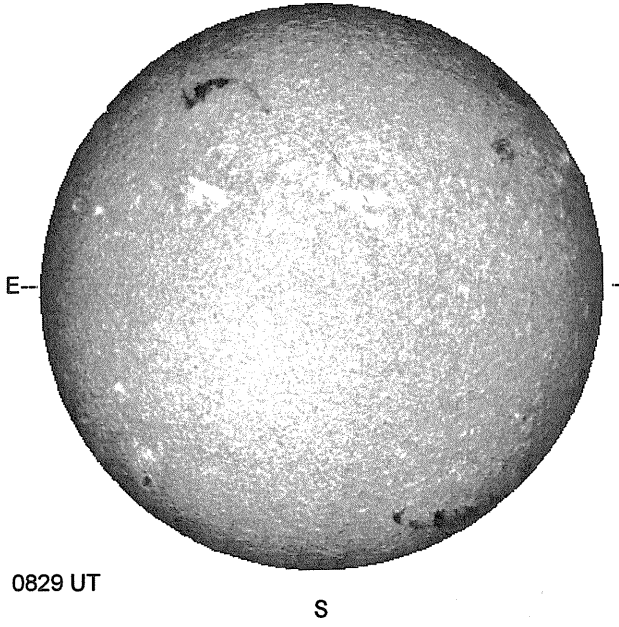
STANFORD MAGNETOGRAM



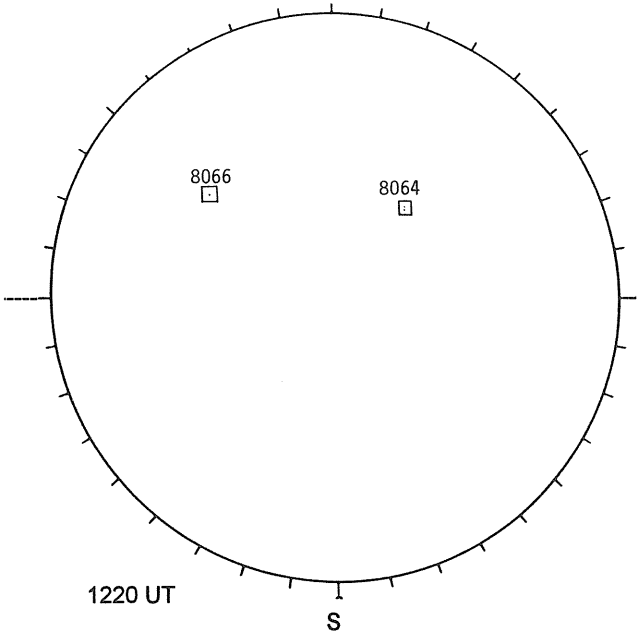
MT. WILSON MAGNETOGRAM



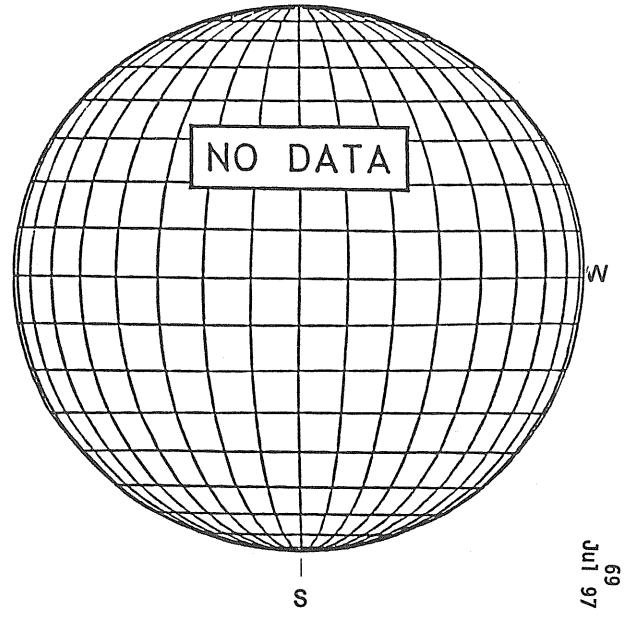
MEUDON H-ALPHA



RAMEY SUNSPOT



LOMNICKY PEAK CORONA (1.04 Radii)----



69
Jul 97

JULY 30, 1997 (P= 10.02, Bo = 5.64, Lo = 168.21)

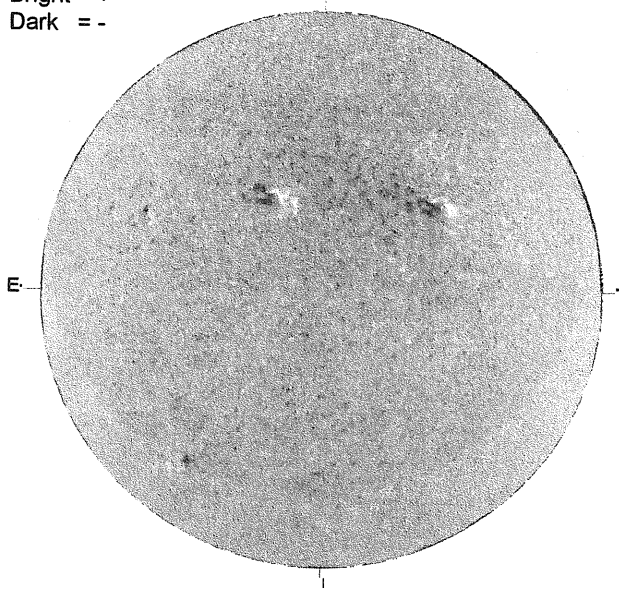
Jul 1 97 70

KITT PEAK MAGNETOGRAM

N

868.8 nm

Bright = +
Dark = -



E

1612 UT

STANFORD MAGNETOGRAM

N

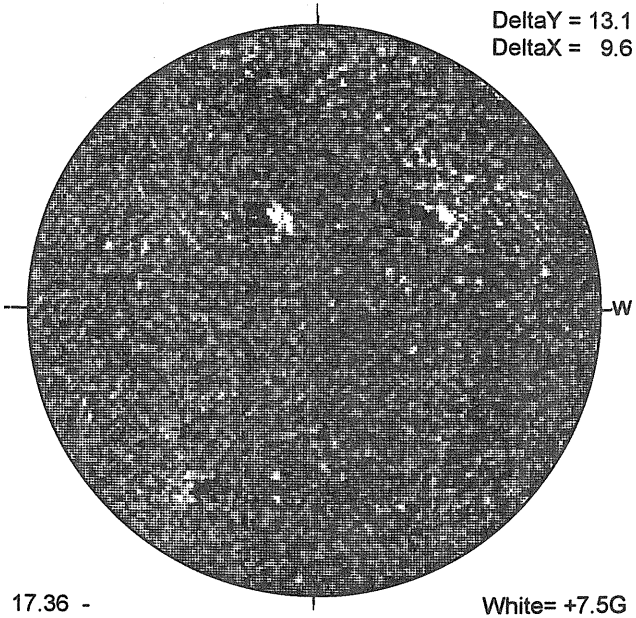
Solid = +
Dashed = -

2127 UT

MT. WILSON MAGNETOGRAM

N

DeltaY = 13.1
DeltaX = 9.6

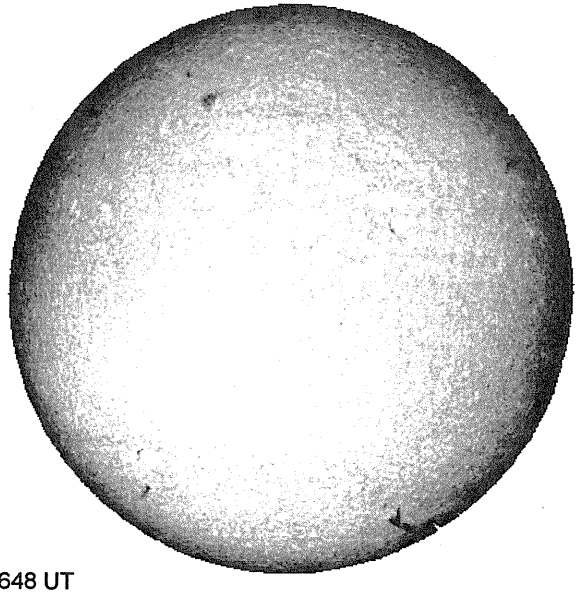


W

17.36 -
18.28 UT

White= +7.5G
Black = -7.5G

MEUDON H-ALPHA

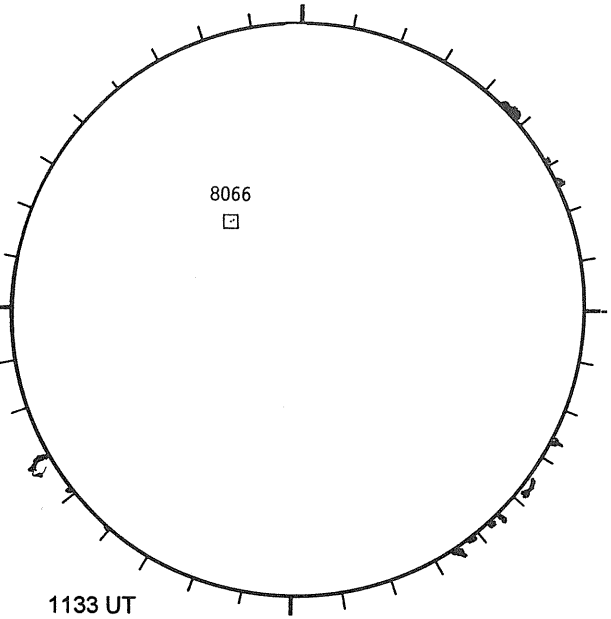


E

0648 UT

S

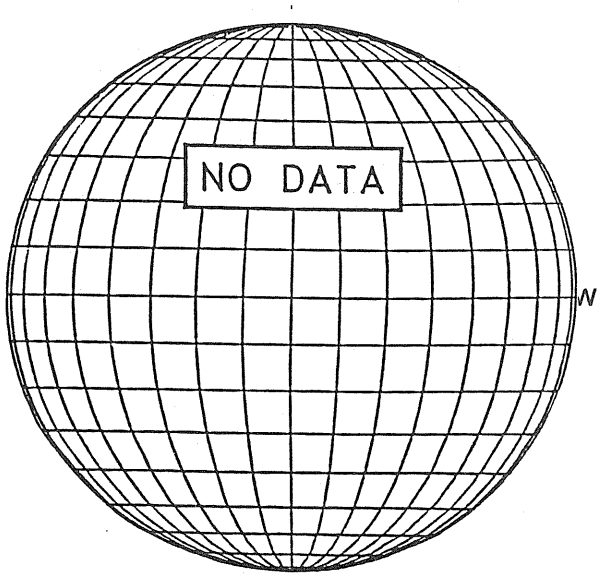
RAMEY SUNSPOT



1133 UT
0958 UT VALA Prom

S

SACRAMENTO PEAK CORONA (1.15 Radii)----

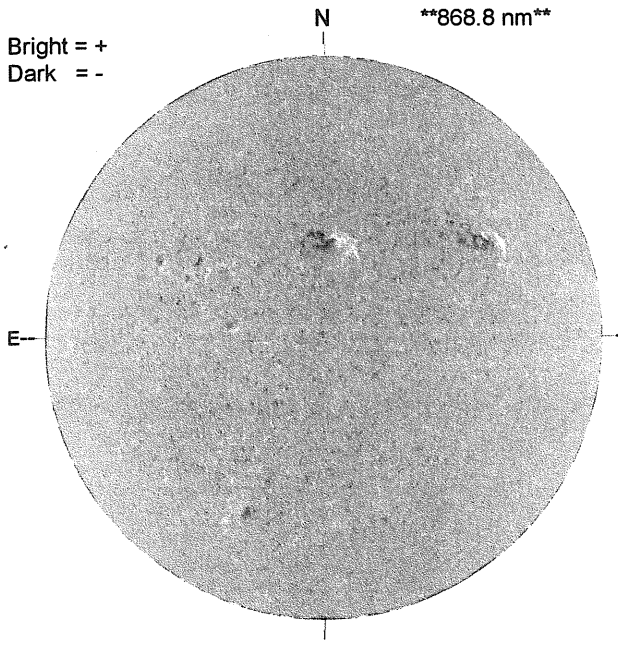


W

S

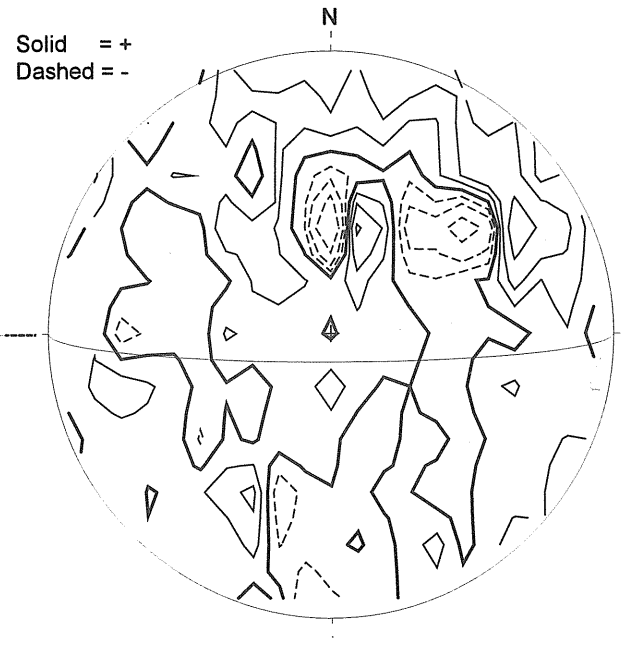
JULY 31, 1997 (P= 10.42, Bo = 5.72, Lo = 154.99)

KITT PEAK MAGNETOGRAM



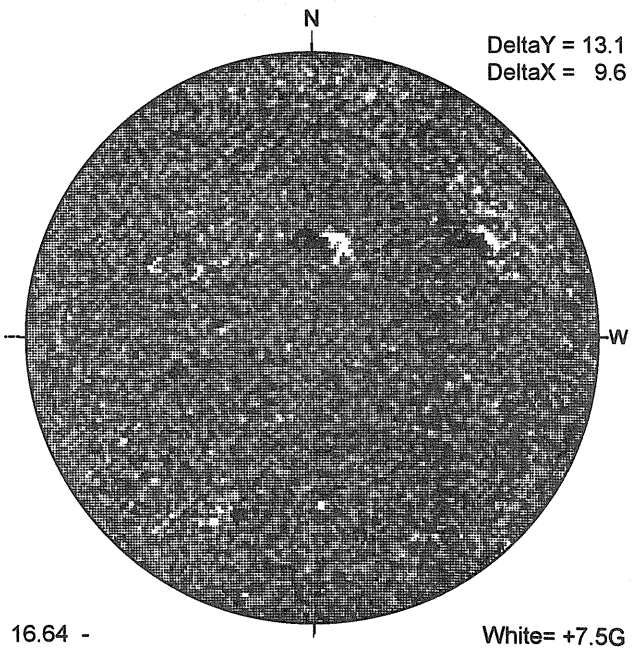
1422 UT

STANFORD MAGNETOGRAM



1841 UT

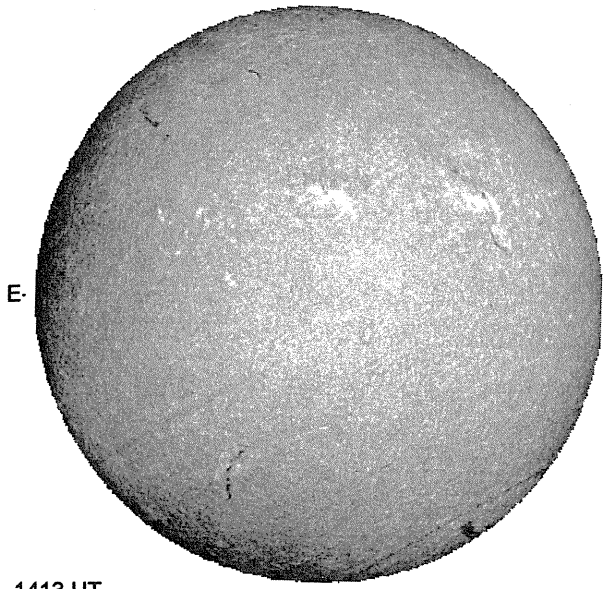
MT. WILSON MAGNETOGRAM



16.64 -
17.56 UT

White= +7.5G
Black = -7.5G

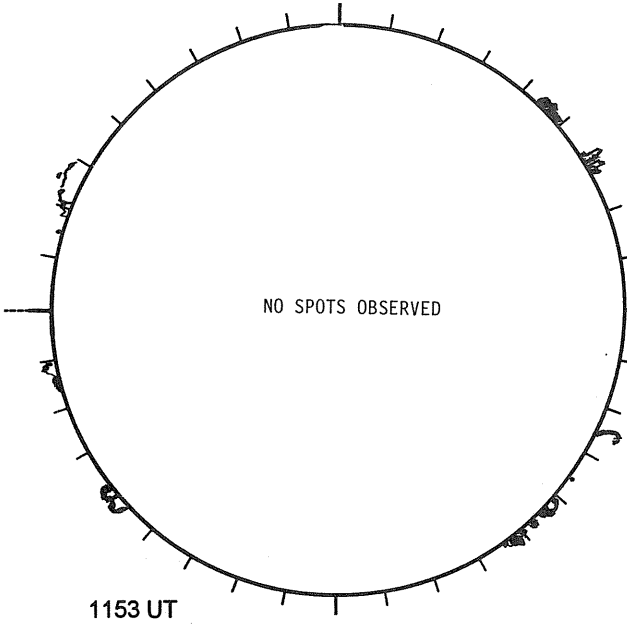
SACRAMENTO PEAK H-ALPHA



1413 UT

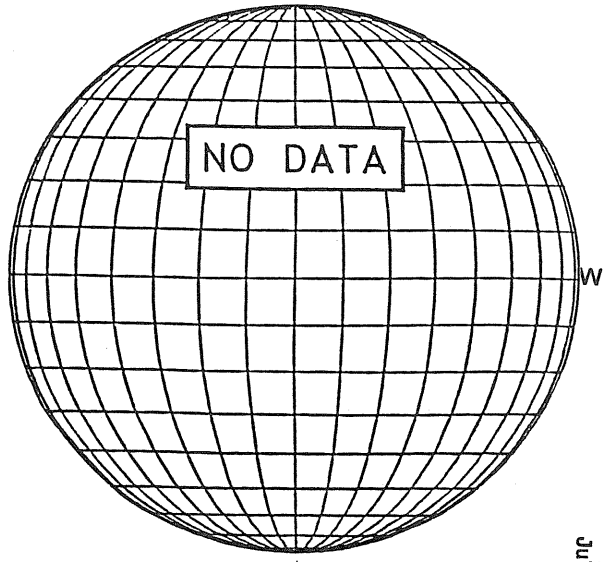
S

RAMEY SUNSPOT



1153 UT
0738 UT VALA Prom S

LOMNICKY PEAK CORONA (1.04 Radii)----



S

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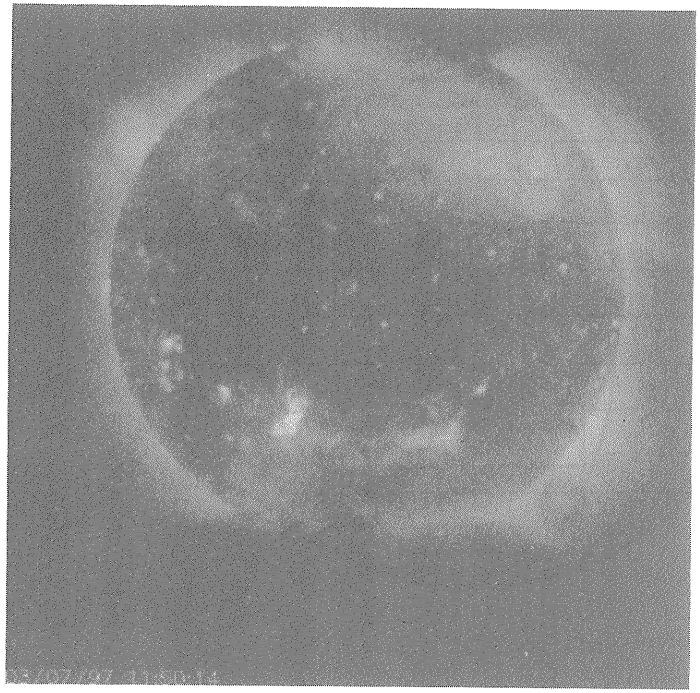
Jul 97

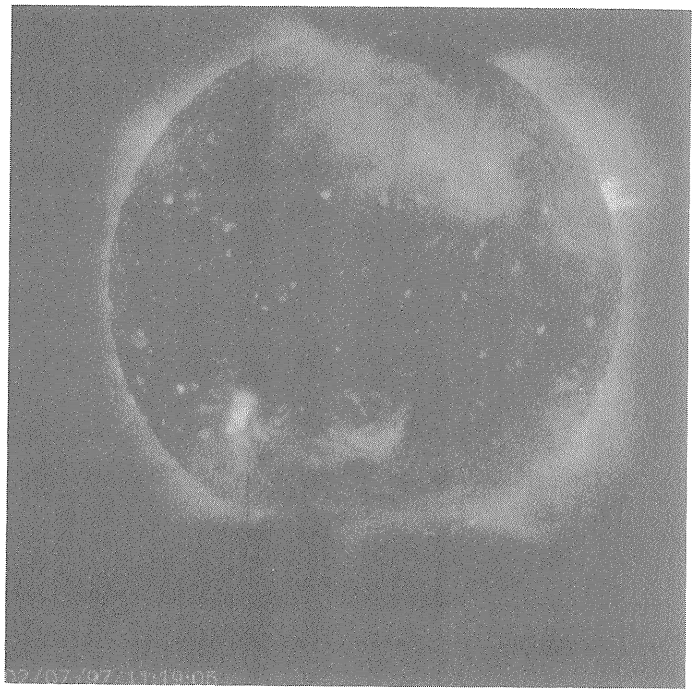
YOHKOH SOFT X-RAY TELESCOPE IMAGES

July
1997

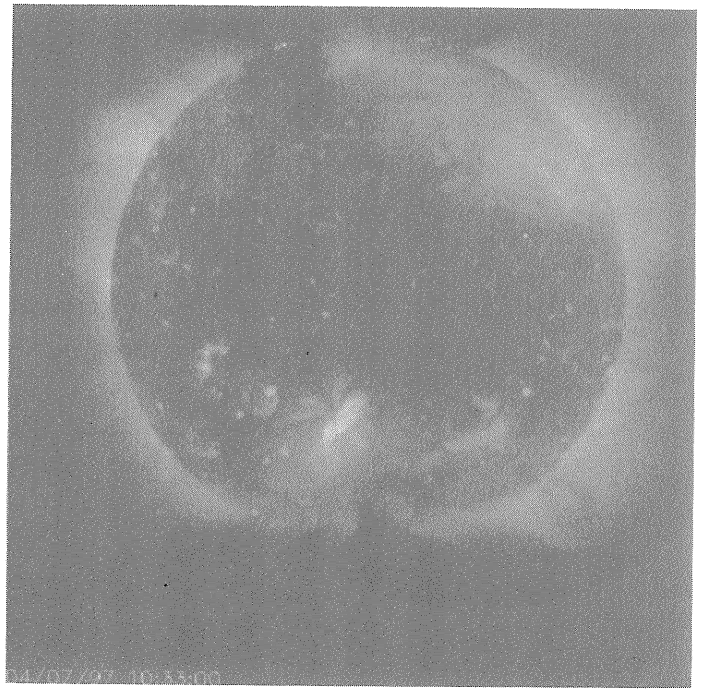
Day 1
11:22:09 UT



Day 3
11:50:14 UT



Day 2
11:19:05 UT



Day 4
10:33:00 UT

YOHKOH SOFT X-RAY TELESCOPE IMAGES

July
1997

Day 1
11:22:09 UT

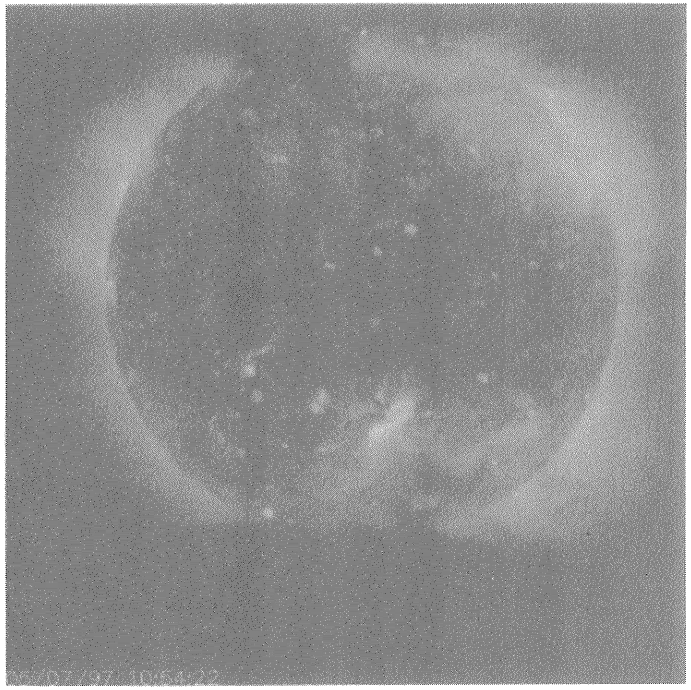
Day 3
11:50:14 UT

Day 2
11:19:05 UT

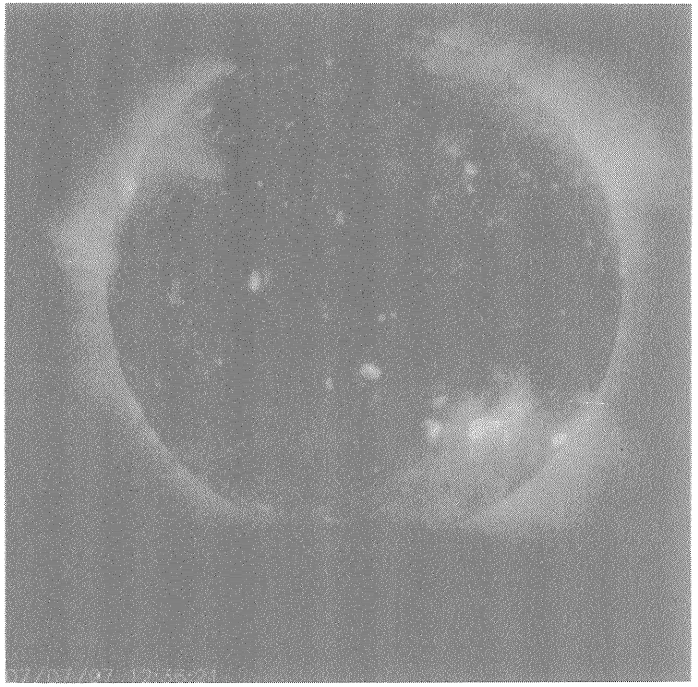
Day 4
10:33:00 UT

YOHKOH SOFT X-RAY TELESCOPE IMAGES

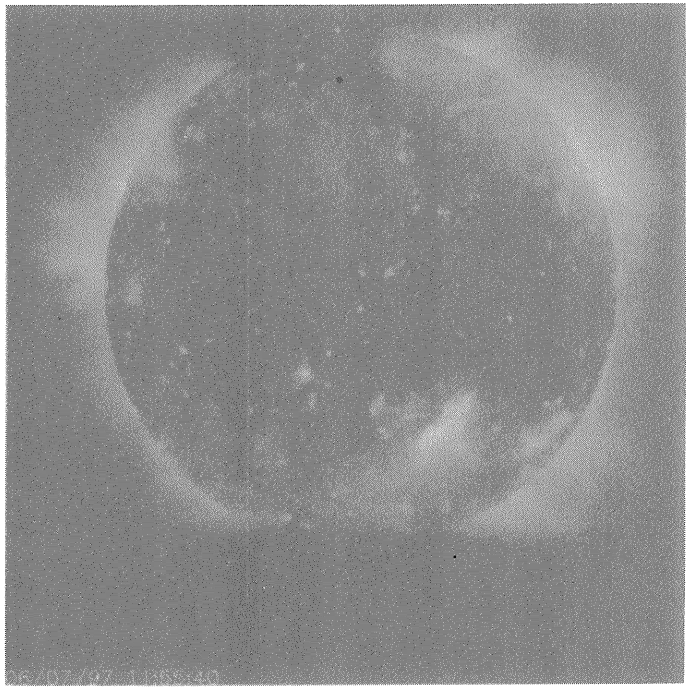
July
1997



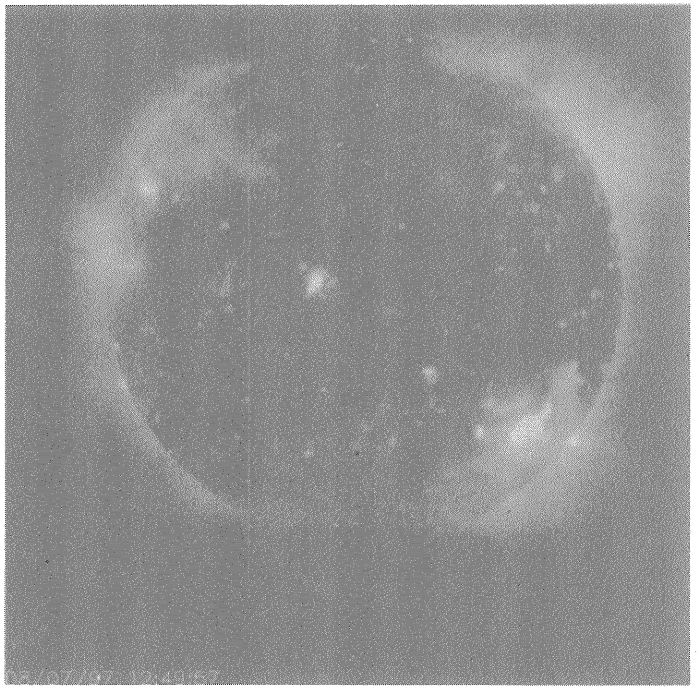
Day 5
10:54:22 UT



Day 7
12:36:21 UT



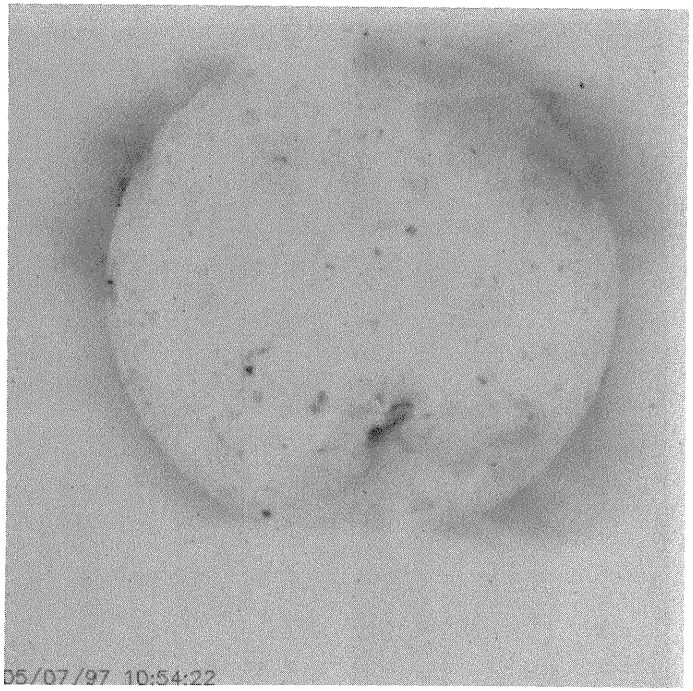
Day 6
11:55:40 UT



Day 8
12:49:57 UT

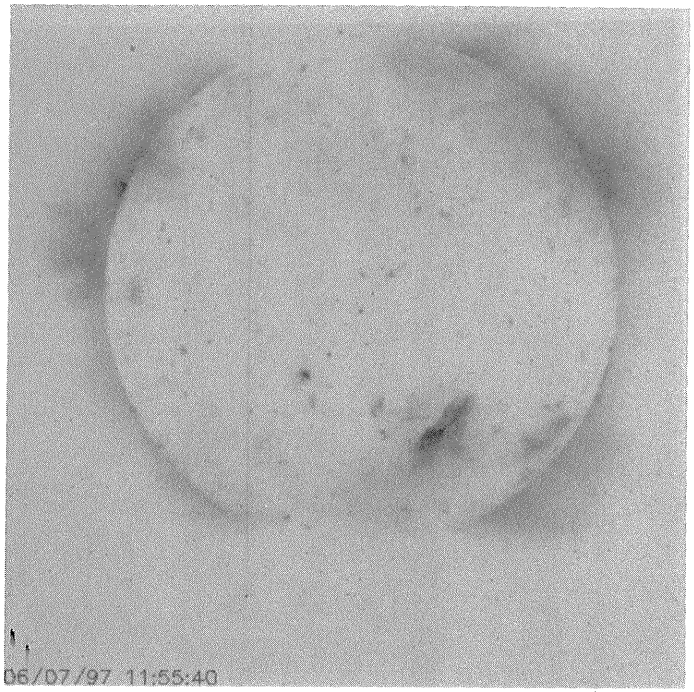
YOHKOH SOFT X-RAY TELESCOPE IMAGES

July
1997

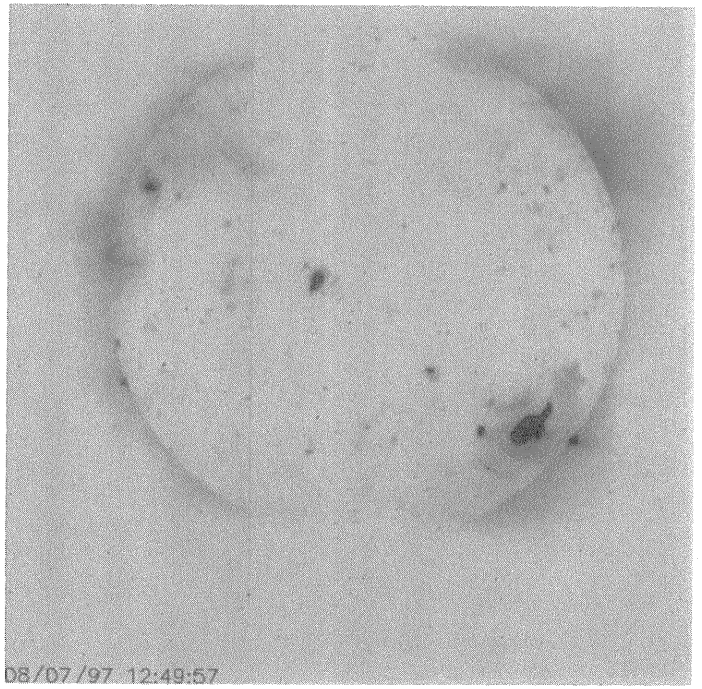


Day 5
10:54:22 UT

Day 7
12:36:21 UT



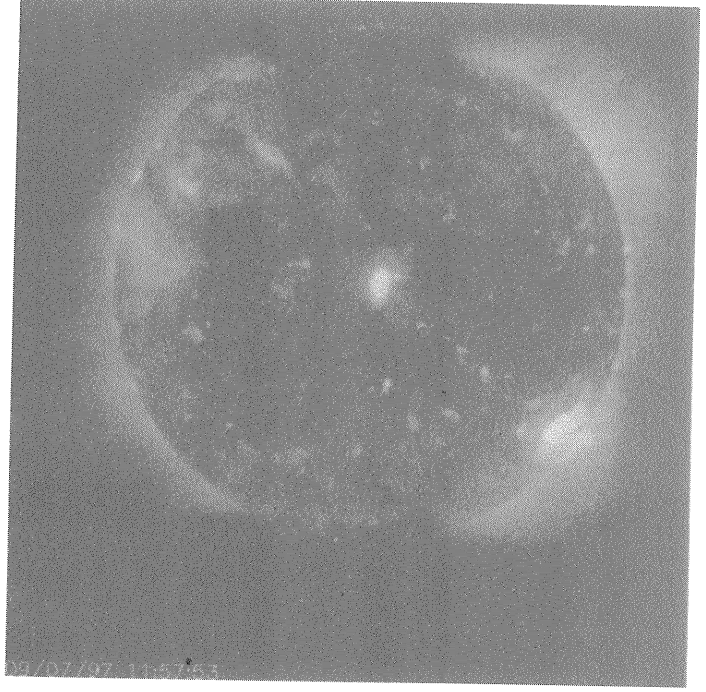
Day 6
11:55:40 UT



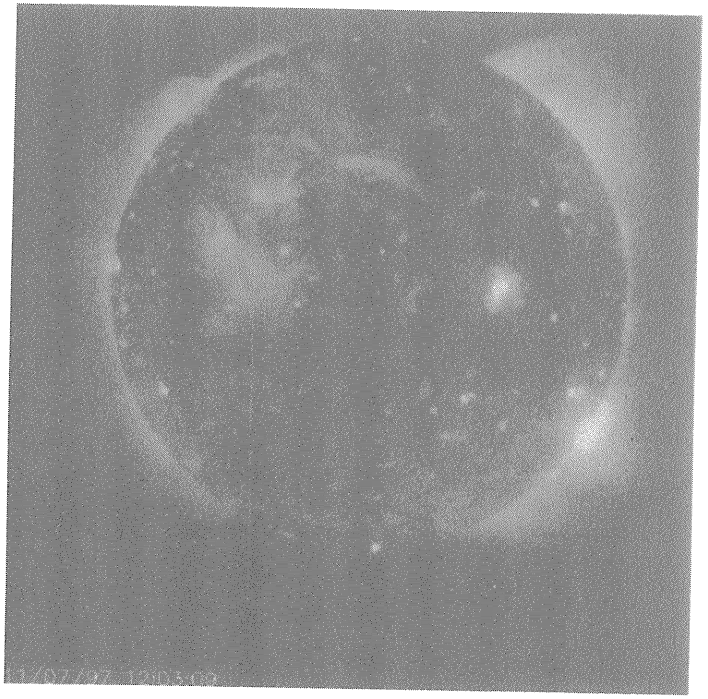
Day 8
12:49:57 UT

YOHKOH SOFT X-RAY TELESCOPE IMAGES

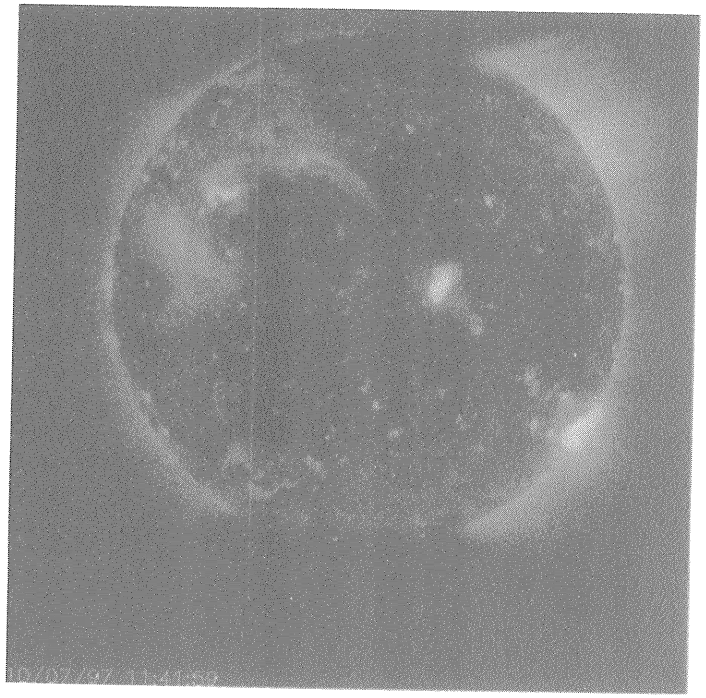
July
1997



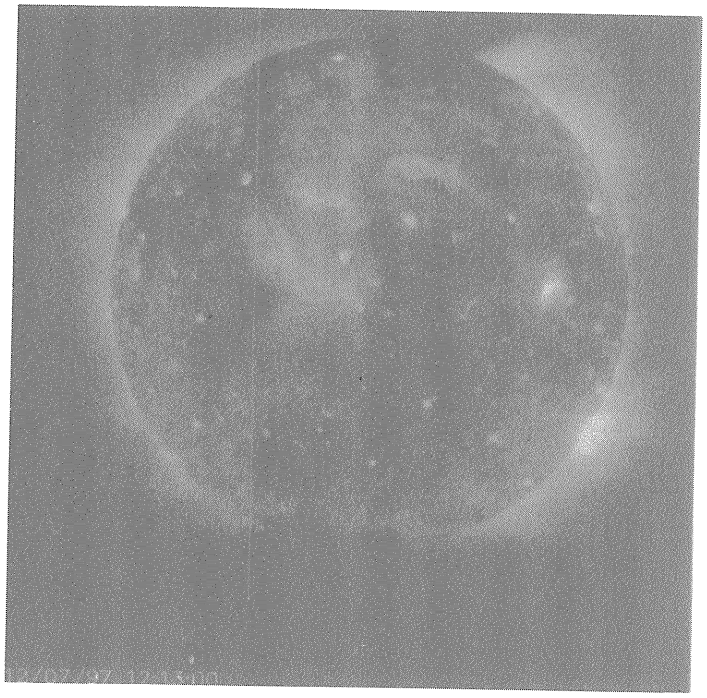
Day 9
11:57:53 UT



Day 11
12:03:09 UT



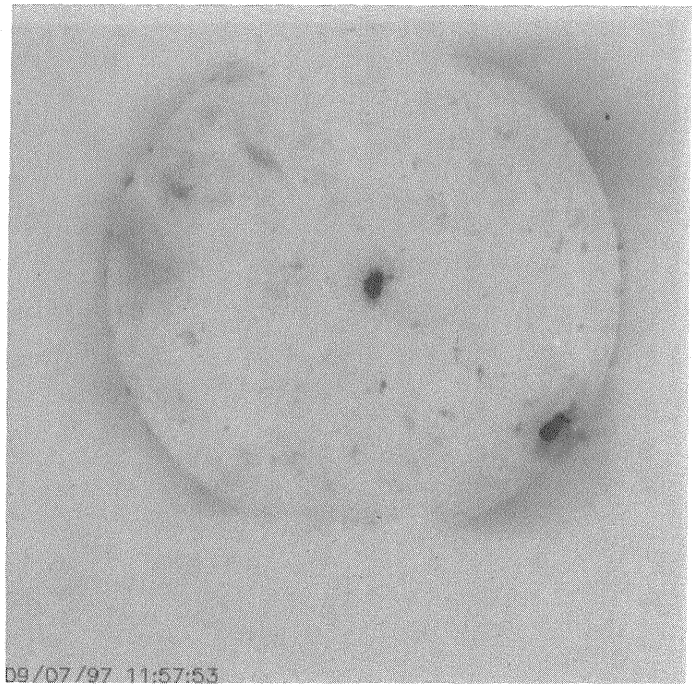
Day 10
11:41:59 UT



Day 12
12:13:00 UT

YOHKOH SOFT X-RAY TELESCOPE IMAGES

July
1997



Day 9
11:57:53 UT

Day 11
12:03:09 UT

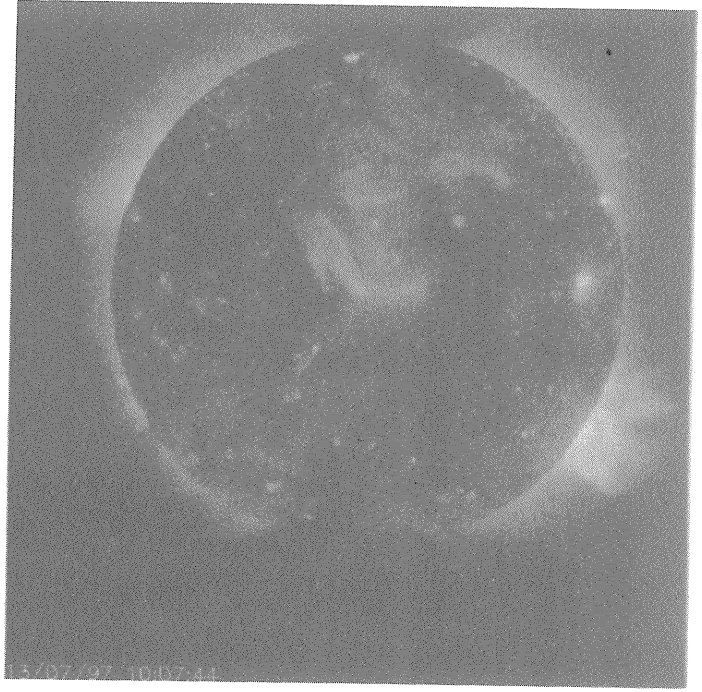
Day 10
11:41:59 UT

Day 12
12:13:00 UT

Jul 97
77

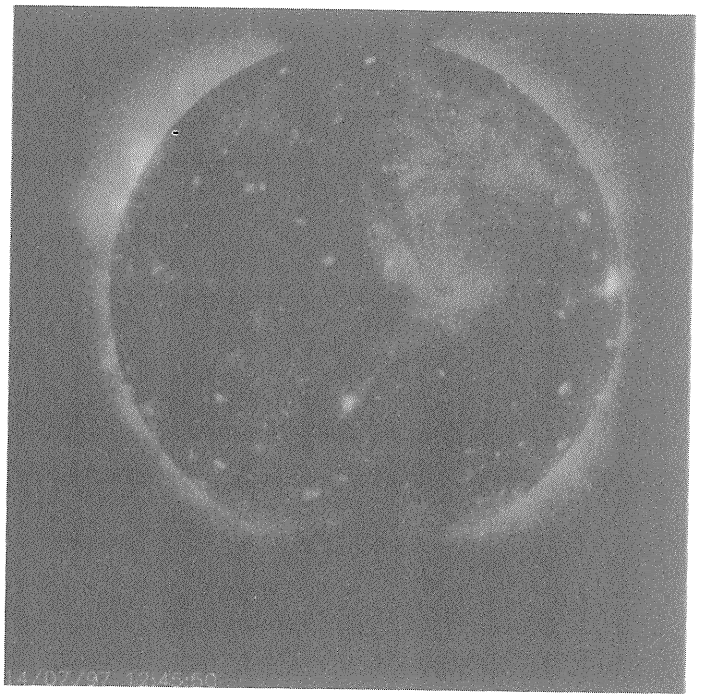
YOHKOH SOFT X-RAY TELESCOPE IMAGES

July
1997

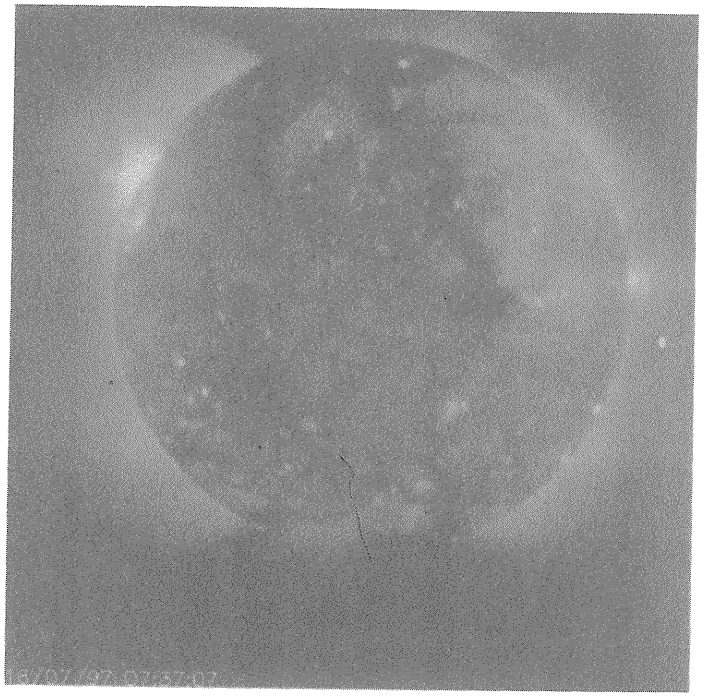


Day 13
10:07:44 UT

Day 15
13:09:10 UT



Day 14
12:45:50 UT

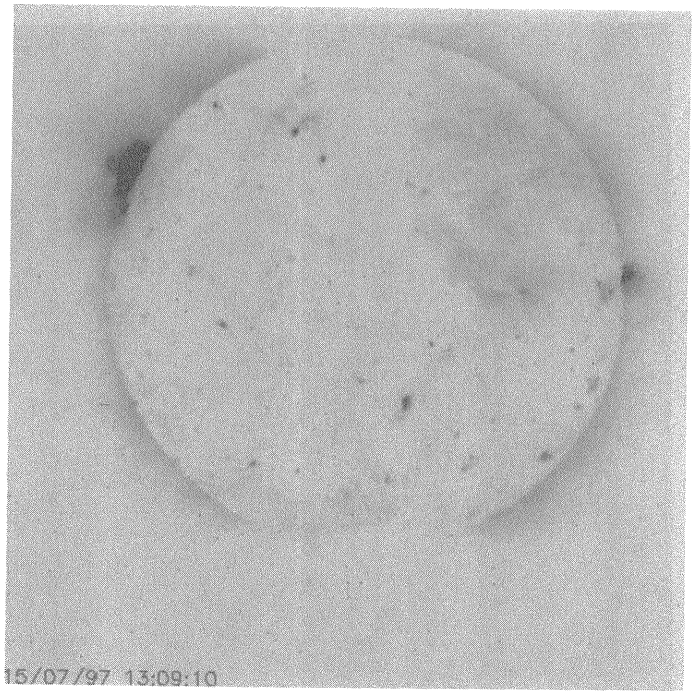


Day 16
07:37:07 UT

YOHKOH SOFT X-RAY TELESCOPE IMAGES

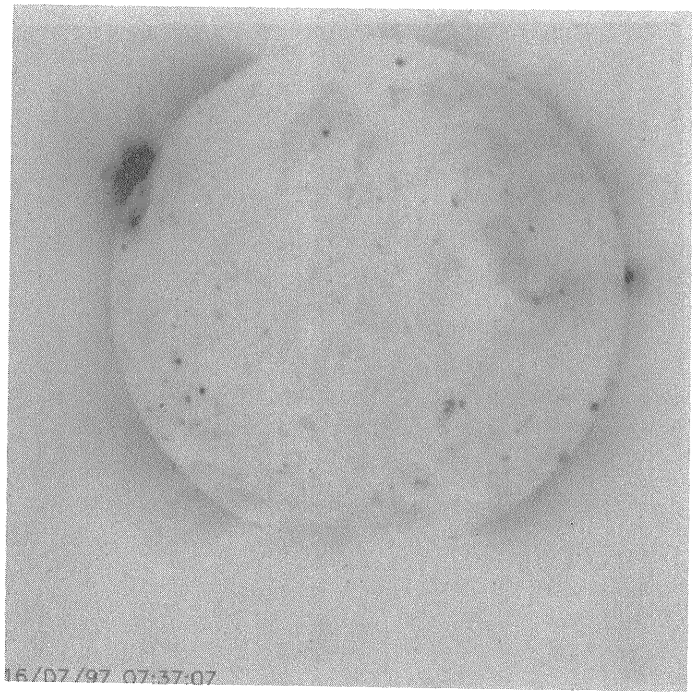
July
1997

Day 13
10:07:44 UT



Day 15
13:09:10 UT

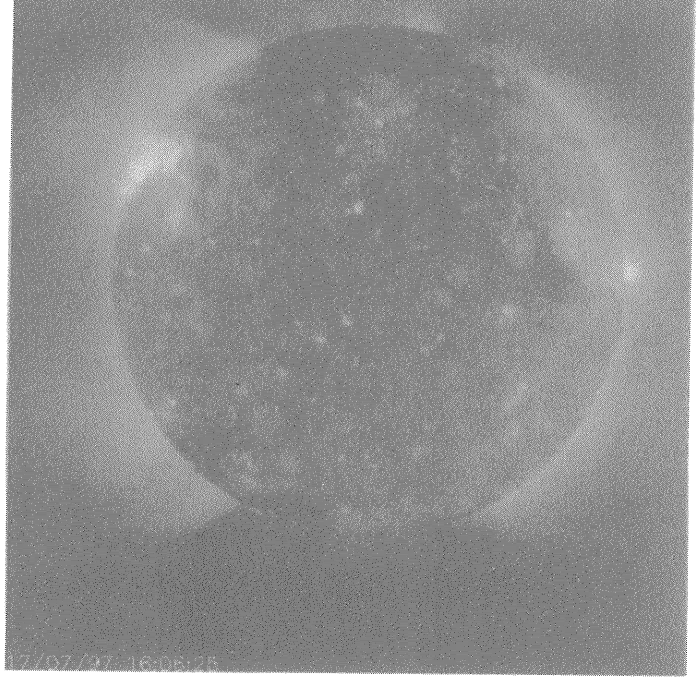
Day 14
12:45:50 UT



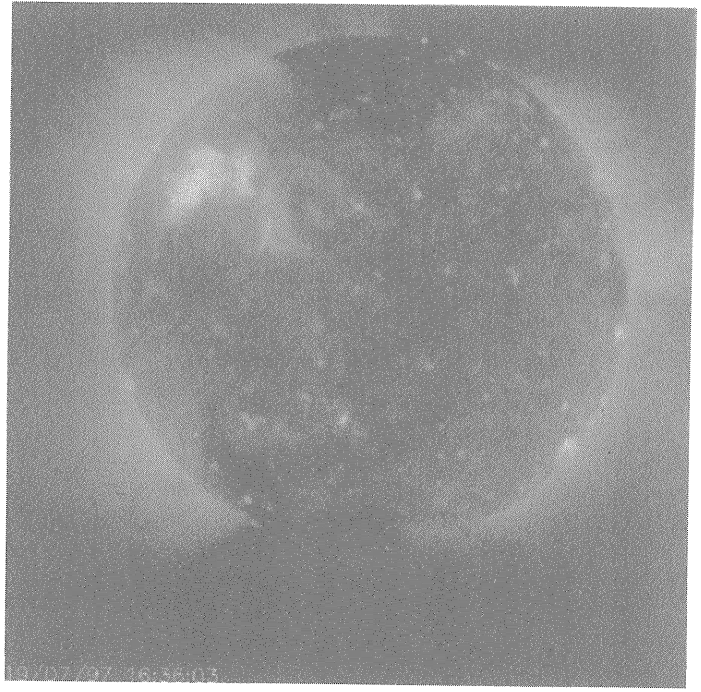
Day 16
07:37:07 UT

YOHKOH SOFT X-RAY TELESCOPE IMAGES

July
1997

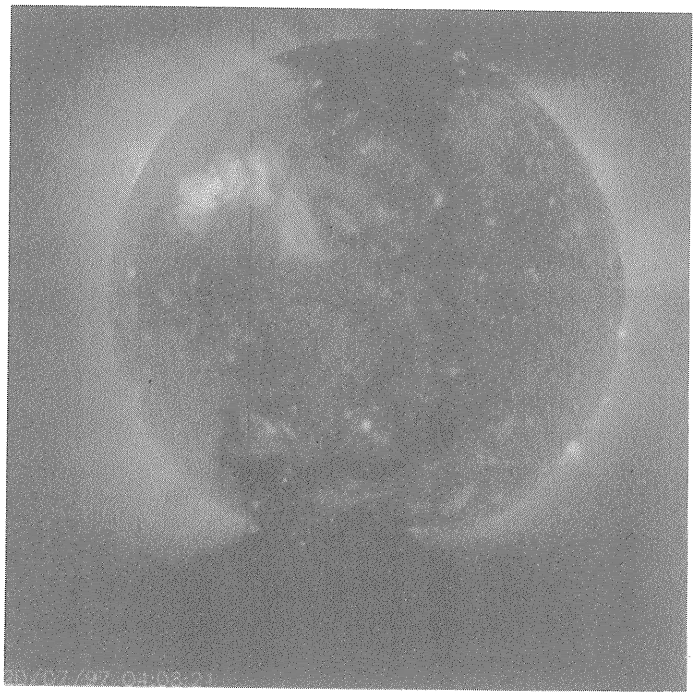


Day 17
16:06:25 UT



Day 19
16:36:03 UT

Day 18
13:07:37 UT



Day 20
04:08:21 UT

Jul 97
80

YOHKOH SOFT X-RAY TELESCOPE IMAGES

July
1997

Day 17
16:06:25 UT

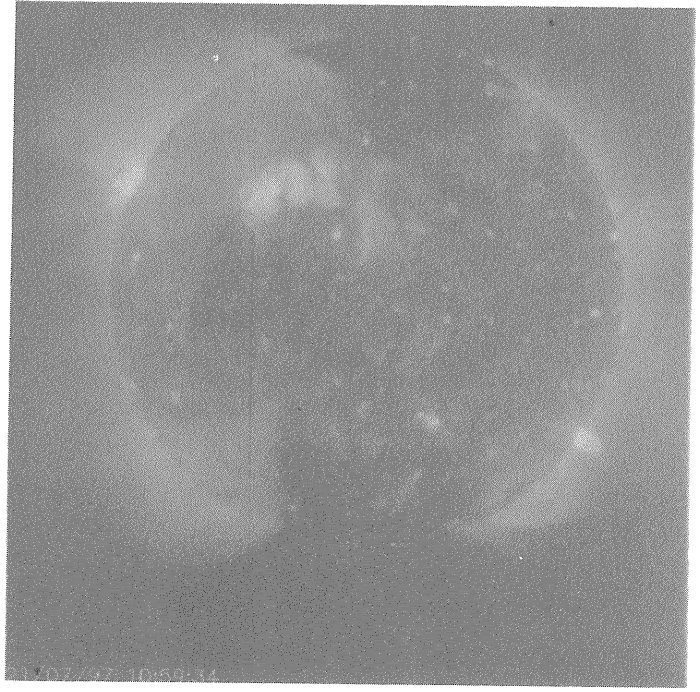
Day 18
13:07:37 UT

Day 19
16:36:03 UT

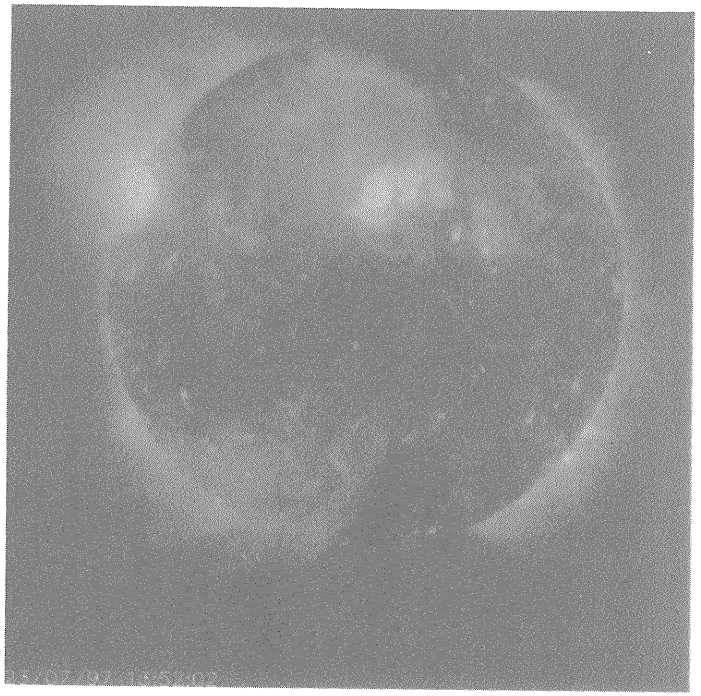
Day 20
04:08:21 UT

YOHKOH SOFT X-RAY TELESCOPE IMAGES

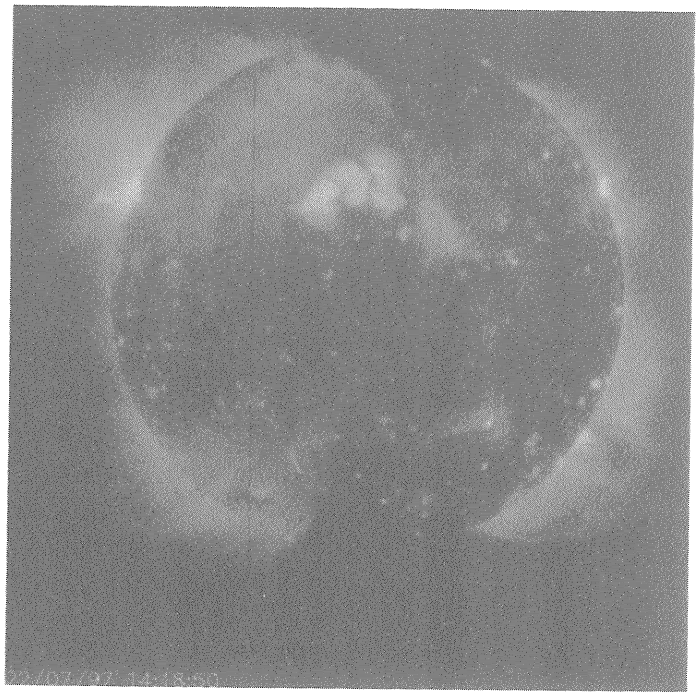
July
1997



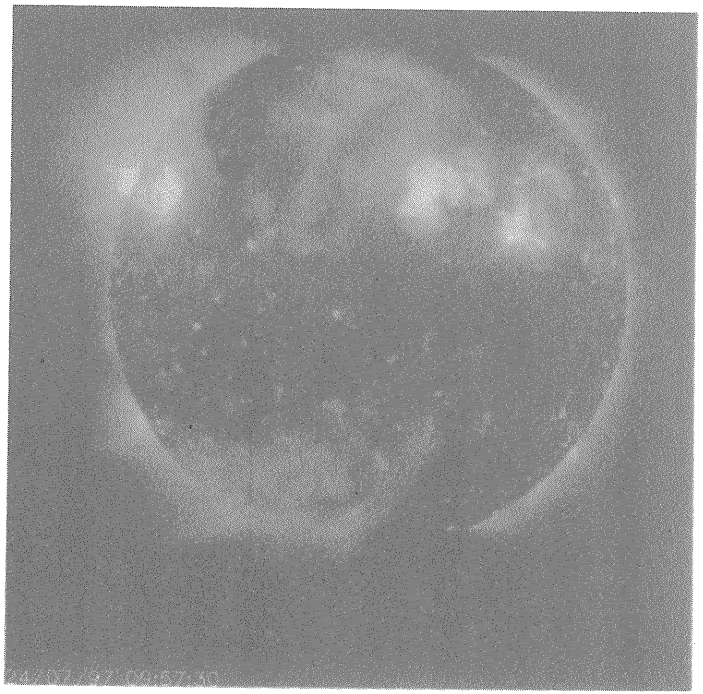
Day 21
10:59:34 UT



Day 23
13:52:02 UT



Day 22
14:18:50 UT



Day 24
09:57:30 UT

YOHKOH SOFT X-RAY TELESCOPE IMAGES

July
1997

Day 21
10:59:34 UT

Day 23
13:52:02 UT

Day 22
14:18:50 UT

Day 24
09:57:30 UT

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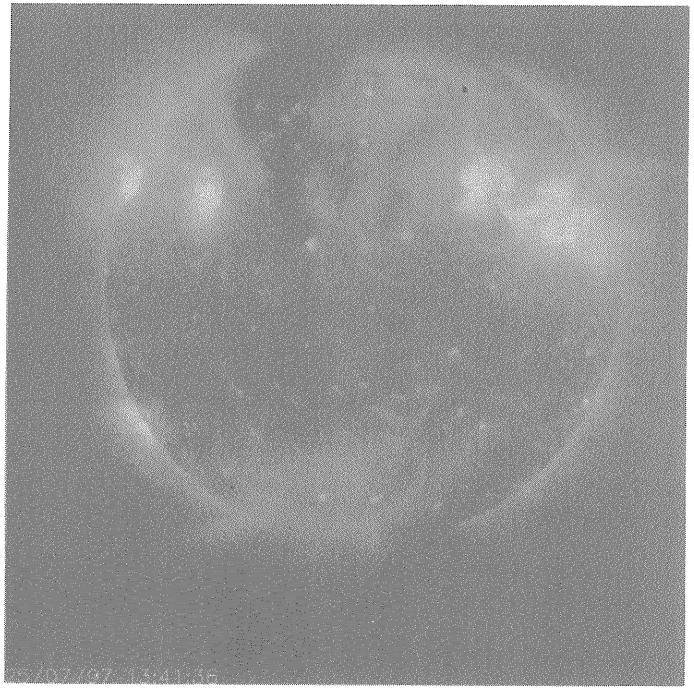
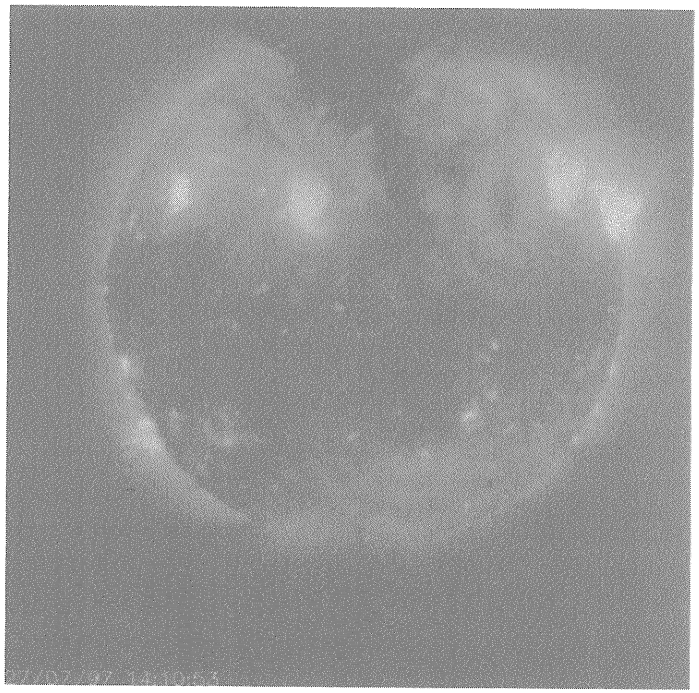
Jul 97

YOHKOH SOFT X-RAY TELESCOPE IMAGES

July
1997

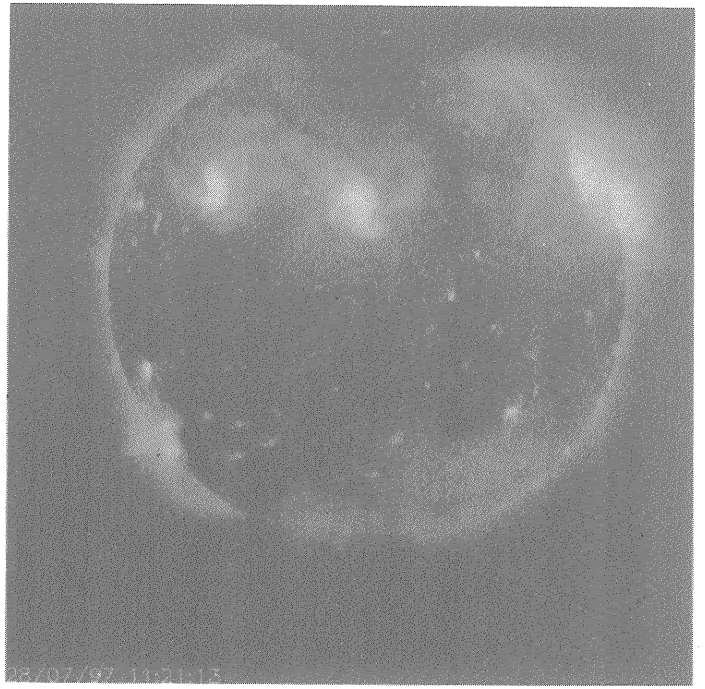


Day 25
13:41:36 UT



Day 27
14:10:53 UT

Day 26
10:41:53 UT



Day 28
11:21:13 UT

YOHKOH SOFT X-RAY TELESCOPE IMAGES

July
1997

Day 25
13:41:36 UT

Day 27
14:10:53 UT

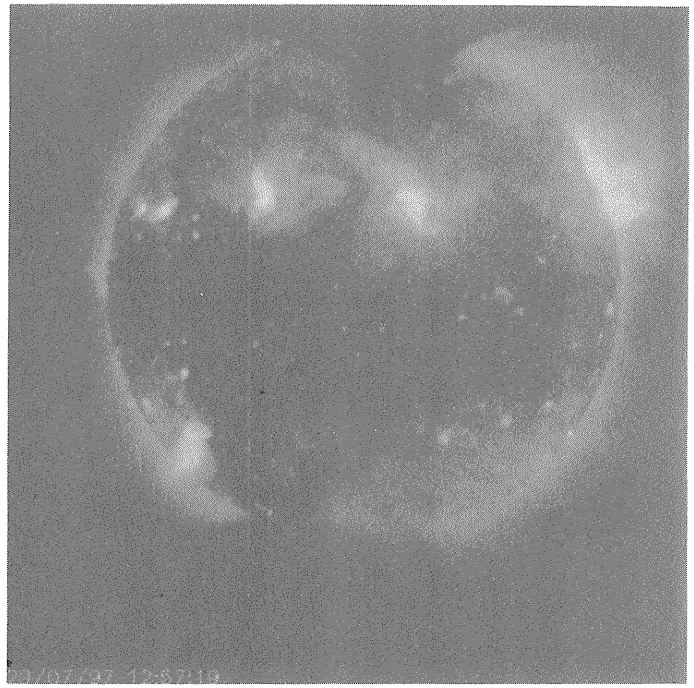
Day 26
10:41:53 UT

Day 28
11:21:13 UT

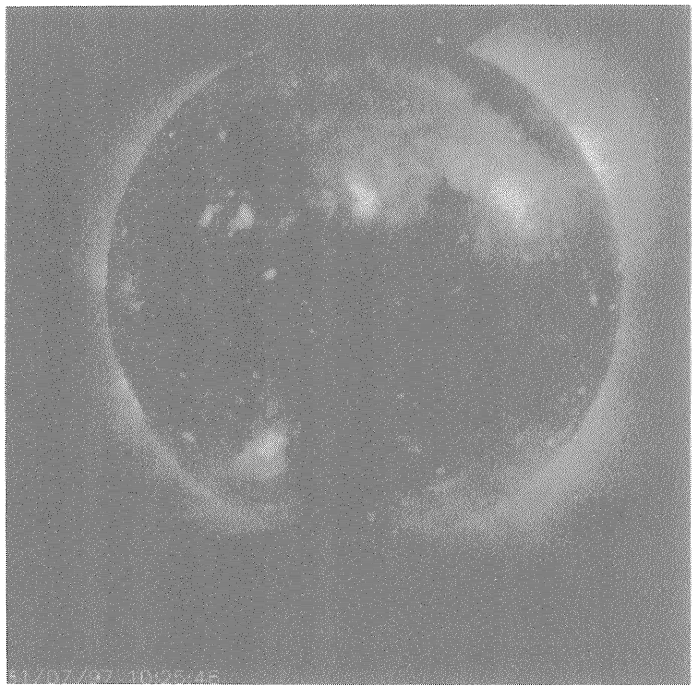
85
Jul 97

YOHKOH SOFT X-RAY TELESCOPE IMAGES

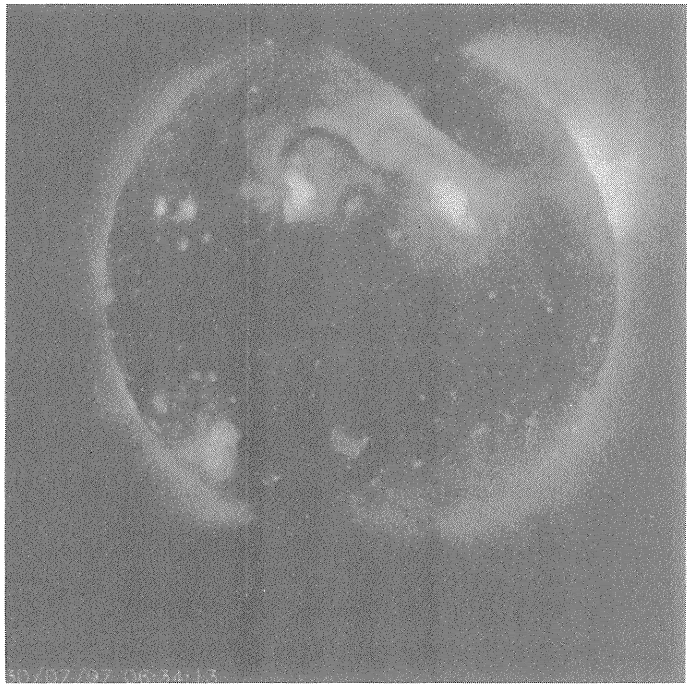
July
1997



Day 29
12:57:19 UT



Day 31
10:25:46 UT



Day 30
06:34:13 UT

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Jul 97

YOHKOH SOFT X-RAY TELESCOPE IMAGES

July
1997

Day 29
12:57:19 UT

Day 30
06:34:13 UT

Day 31
10:25:46 UT

87
Jul 97

S U N S P O T G R O U P S
(Ordered by Central Meridian Passage Date)

JULY 1997

NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Mo Day	Time (UT)	Lat CMD	CMP Mo Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
8059	28453	MWIL	07 01	1430	S27 E45	07 5.1	3	(AF)					
8059		HOLL	07 03	2002	S27 E20	07 5.4		A	AX	20	3	1	3
8059		LEAR	07 04	0003	S31 E15	07 5.2		B	BXO		2	2	3
8059		TACH	07 04	0432	S30 E12	07 5.1			AX	20	3	3	4
8059		SVTO	07 04	0500	S30 E12	07 5.1		A	AX		2	1	3
8059		KAND	07 04	0815	S30 E09	07 5.0			AX		2	1	3
8059		RAMY	07 04	1157	S32 E06	07 5.0		A	AX		2		3
8059	28455	MWIL	07 04	1430	S31 E05	07 5.0	4	(AP)					
8059		HOLL	07 04	1752	S27 E07	07 5.3		A	AX	10	1		3
8059		LEAR	07 05	0106	S30 W02	07 4.9		A	AX		1		3
8059		TACH	07 05	0737	S28 W05	07 4.9			AX	10	1	1	2
8059		KAND	07 05	0835	S30 W05	07 5.0			AX		1		3
8059		RAMY	07 05	1333	S30 W10	07 4.8		A	AX		1		2
8059	28455	MWIL	07 05	1445	S29 W09	07 4.9	3	(G)					
8059	28455	MWIL	07 06	1445	S30 W19	07 5.1	3	(AP)					
8059		HOLL	07 06	1452	S33 W17	07 5.3		A	AX		1		3
8059		RAMY	07 06	1508	S31 W21	07 5.0		A	AX		1		3
8059		TACH	07 07	0434	S31 W26	07 5.1			AX	9	5	2	4
8059		SVTO	07 07	0515	S30 W26	07 5.2		B	BXO	10	4	3	3
8059		KAND	07 07	0840	S31 W29	07 5.1			BXO		2	2	3
8059		RAMY	07 07	1207	S29 W31	07 5.1		B	BXO	20	5	3	3
8059	28455	MWIL	07 07	1430	S29 W32	07 5.1	4	(B)					
8059		HOLL	07 07	1525	S32 W29	07 5.3		B	BXO	40	4	4	2
8059		LEAR	07 08	0011	S31 W36	07 5.2		B	BXO		2	2	3
8059		SVTO	07 08	0441	S30 W40	07 5.0		B	BXO	10	4	4	3
8059		RAMY	07 08	1223	S29 W46	07 4.9		B	BXO	10	4	5	3
8059	28455	MWIL	07 08	1430	S31 W45	07 5.0	4	(B)					
8059		HOLL	07 08	1520	S34 W44	07 5.1		B	BXO	20	4	4	2
8059		TACH	07 09	0432	S32 W51	07 5.1			AX	2	1	1	4
8059		RAMY	07 09	1415	S31 W59	07 4.9		A	AX	10	3	2	1
8059	28455	MWIL	07 09	1430	S32 W56	07 5.2	4	(B)					
8059		HOLL	07 09	1430	S34 W56	07 5.1		A	AX	20	4	2	4
8059		LEAR	07 10	0121	S32 W64	07 5.0		A	AX		2	2	3
8059		SVTO	07 10	0457	S32 W63	07 5.2		B	BXO	30	5	4	3
8058	28454	MWIL	07 02	1430	S21 E47	07 6.2	4	(B)					
8058		HOLL	07 02	1524	S19 E48	07 6.3		B	BXO	20	2	2	2
8058		LEAR	07 03	0305	S22 E42	07 6.3		A	AX		2	1	3
8058		TACH	07 03	0423	S20 E39	07 6.2			AX	5	1	1	4
8058		SVTO	07 03	0545	S22 E39	07 6.2		A	AX		2	1	3
8058		KAND	07 03	0655	S22 E39	07 6.3			AX		2	1	4
8058	28454	MWIL	07 03	1430	S22 E35	07 6.3	4	(AF)					
8059A	28456	MWIL	07 06	1445	S29 W07	07 6.1	3	(AF)					
8059A		HOLL	07 06	1452	S32 W04	07 6.3		A	AX	10	1		3
8059A		RAMY	07 06	1508	S31 W08	07 6.0		A	AX		1		3
8059A		LEAR	07 07	0020	S31 W12	07 6.1		A	BXO		2	3	3
8059A		TACH	07 07	0434	S31 W12	07 6.2			AX	10	1	1	4
8059A		SVTO	07 07	0515	S30 W14	07 6.1		B	CRO	10	2	3	3
8059A		KAND	07 07	0840	S31 W15	07 6.2			AX		1		3
8059A		RAMY	07 07	1207	S30 W18	07 6.1		A	AX		1		3
8059A	28456	MWIL	07 07	1430	S30 W20	07 6.0	3	(B)					
8058A		TACH	07 07	0434	S15 E03	07 7.4			AX	10	1	1	4
8058A		SVTO	07 07	0515	S16 E03	07 7.4		A	AX		1		3
8058A		RAMY	07 07	1207	S15 W02	07 7.3		A	AX		1		3
8058A	28457	MWIL	07 07	1430	S16 W03	07 7.4	4	(AF)					
8058A		HOLL	07 07	1525	S17 W01	07 7.6		A	AX	20	1	1	2
8058A		LEAR	07 08	0011	S15 W07	07 7.5		A	HX		1		3
8058A		SVTO	07 08	0441	S16 W11	07 7.4		A	AX		1		3
8060		RAMY	07 07	1207	N04 E24	07 9.3		B	BXO	10	2	2	3
8060	28458	MWIL	07 07	1430	N04 E23	07 9.3	3	(B)					
8060		HOLL	07 07	1525	N06 E24	07 9.4		B	BXO	20	3	3	2
8060		LEAR	07 08	0011	N04 E18	07 9.3		B	BXO		2	2	3
8060	28458	MWIL	07 08	1430	N04 E09	07 9.3	4	(B)					
8060		HOLL	07 08	1520	N06 E10	07 9.4		A	AX	10	2	1	2
8060		LEAR	07 09	0110	N04 E04	07 9.3		B	BXO	10	6	3	3
8060		TACH	07 09	0432	N05 E01	07 9.3			BR	44	5	3	4

S U N S P O T G R O U P S
(Ordered by Central Meridian Passage Date)

JULY 1997

NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Mo	Day	Time (UT)	Lat	CMD	CMP Mo	Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
8060		SVTO	07	09	0906	N05	W01	07	9.3		B	BXO	20	7	5	3
8060		KAND	07	09	1215	N04	W03	07	9.3			BXO		5	5	3
8060		RAMY	07	09	1415	N04	W04	07	9.3		B	BXO	10	6	5	1
8060		HOLL	07	09	1430	N04	W04	07	9.3		B	BXO	60	9	5	4
8060	28458	MWIL	07	09	1430	N04	W04	07	9.3	5	(B)					
8060		VORO	07	09	2307	N04	W07	07	9.4			AXX	9	1		3
8060		LEAR	07	10	0121	N05	W11	07	9.2		B	BXO	10	7	6	3
8060		TACH	07	10	0434	N05	W12	07	9.3			BR	10	5	5	3
8060		SVTO	07	10	0457	N05	W12	07	9.3		B	BXO	20	8	6	3
8060		RAMY	07	10	1238	N05	W14	07	9.5		B	BXO		4	4	2
8060	28458	MWIL	07	10	1430	N04	W16	07	9.4	3	(AF)					
8060A		TACH	07	14	0425	S20	E07	07	14.7			AX	12	2	2	4
8060A		SVTO	07	14	0450	S20	E09	07	14.9		B	BXO	10	5	3	3
8060A		LEAR	07	14	0525	S20	E08	07	14.8		B	BXO	10	2	3	3
8060A		KAND	07	14	0740	S21	E05	07	14.7			AX		1		4
8060A		RAMY	07	14	1203	S21	E02	07	14.6		A	AX		1		3
8060A	28459	MWIL	07	14	1430	S21	E02	07	14.7	3	(AP)					
8060A		HOLL	07	14	1520	S22	E02	07	14.8		A	AX	10	1		3
8063		SVTO	07	20	0700	S25	W02	07	20.1		B	BXO		2	2	3
8063		LEAR	07	20	0701	S25	W03	07	20.0		B	BXO		2	2	3
8063		KAND	07	20	0830	S25	W03	07	20.1			BXO		2	2	3
8063		RAMY	07	20	1205	S25	W06	07	20.0		B	BXO	10	3	3	3
8063		HOLL	07	20	1440	S26	W07	07	20.1		B	BXO	20	2	3	3
8063	28461	MWIL	07	20	1445	S24	W07	07	20.1	3	(B)					
8065		TACH	07	24	0448	N18	W31	07	21.8			BX	32	3	2	4
8065		SVTO	07	24	0700	N16	W35	07	21.6		B	BXO	10	4	3	3
8065		KAND	07	24	0735	N17	W34	07	21.7			BXO		4	4	4
8065		RAMY	07	24	1201	N17	W36	07	21.8		B	BXO	20	7	4	3
8065		HOLL	07	24	1350	N18	W38	07	21.7		B	CRO	70	8	4	3
8065	28464	MWIL	07	24	1430	N17	W38	07	21.7	4	(B)					
8065		LEAR	07	25	0100	N18	W45	07	21.6		B	DSO	70	12	7	3
8065		TACH	07	25	0442	N18	W46	07	21.7			DRO	139	10	6	4
8065		VORO	07	25	0454	N17	W47	07	21.6			DAI	135	5	5	2
8065		KAND	07	25	0815	N17	W48	07	21.7			DSO		7	7	4
8065		SVTO	07	25	0905	N16	W47	07	21.8		B	DAO	80	7	6	1
8065		RAMY	07	25	1232	N18	W50	07	21.7		B	DSO	140	10	8	3
8065		HOLL	07	25	1420	N17	W52	07	21.6		B	DAO	250	11	10	3
8065	28464	MWIL	07	25	1430	N17	W51	07	21.7	5	(D)					
8065		LEAR	07	26	0020	N17	W57	07	21.7		BG	DSO	10	8	6	3
8065		TACH	07	26	0438	N17	W58	07	21.8			DSX	166	6	11	4
8065		SVTO	07	26	0555	N15	W59	07	21.8		B	DAO	90	9	7	3
8065		KAND	07	26	0635	N17	W60	07	21.7			DSO		9	9	3
8065		RAMY	07	26	1102	N18	W63	07	21.7		B	DAO	140	8	9	4
8065		HOLL	07	26	1420	N17	W65	07	21.6		B	DAO	160	10	8	4
8065	28464	MWIL	07	26	1430	N17	W65	07	21.7	5	(BG)					
8065		LEAR	07	27	0105	N16	W70	07	21.7		B	DAO	120	8	10	3
8065		VORO	07	27	0118	N17	W70	07	21.7			DAO	116	2	7	2
8065		TACH	07	27	0410	N17	W73	07	21.6			CRO	100	2	7	3
8065		SVTO	07	27	0615	N14	W75	07	21.6		B	DAO	130	7	10	3
8065		KAND	07	27	0850	N17	W76	07	21.6			DAO		5	10	3
8065		RAMY	07	27	1121	N18	W76	07	21.7		B	DSO	110	5	9	3
8065		HOLL	07	27	1425	N17	W77	07	21.7		B	DAO	210	5	7	4
8065	28464	MWIL	07	27	1430	N17	W76	07	21.8	4	(B)					
8062		LEAR	07	17	0902	N24	E74	07	23.1		A	AX		1		3
8062		RAMY	07	17	1249	N23	E70	07	22.9		A	AX		2		4
8062	28460	MWIL	07	17	1430	N24	E70	07	23.0	4	(AP)					
8062		HOLL	07	17	1735	N23	E70	07	23.1		A	AX	10	1		3
8062		LEAR	07	18	0030	N24	E65	07	23.0		A	AX		1		3
8062		RAMY	07	18	1432	N22	E56	07	22.9		A	AX		1		3
8062		TACH	07	22	0508	N27	E10	07	23.0			AX	5	1	1	3
8062		KAND	07	22	0740	N27	E11	07	23.2			AX		1		3
8062		TACH	07	23	0500	N28	E02	07	23.4			BR	50	4	2	3
8062		SVTO	07	23	0615	N27	E00	07	23.3		B	CRO	20	5	5	3
8062		KAND	07	23	0805	N27	E00	07	23.3			CAO		7	4	3
8062		RAMY	07	23	1430	N27	W04	07	23.3		B	DRO	30	7	6	1

SUNSPOT GROUPS
(Ordered by Central Meridian Passage Date)

JULY 1997

NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Mo Day	Time (UT)	Lat CMD	CMP Mo Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
8062	28462	MWIL	07 23	1445	N27 W03	07 23.4	5	(B)					
8062		HOLL	07 23	1748	N28 W06	07 23.3		B	DRO	40	7	6	2
8062		VORO	07 23	2252	N27 W08	07 23.3			BXO	24	2	4	2
8062		LEAR	07 24	0020	N27 W08	07 23.4		B	BXO	10	2	4	3
8062		TACH	07 24	0448	N28 W11	07 23.3			BR	51	3	4	4
8062		SVTO	07 24	0700	N26 W13	07 23.3		B	DSO	30	5	6	3
8062		KAND	07 24	0735	N27 W13	07 23.3			BXO		2	5	4
8062		RAMY	07 24	1201	N28 W15	07 23.3		B	DRO	20	3	7	3
8062		HOLL	07 24	1350	N27 W18	07 23.2		B	DRO	40	4	6	3
8062	28462	MWIL	07 24	1430	N28 W17	07 23.3	5	(B)					
8062		LEAR	07 25	0100	N28 W24	07 23.2		B	CRO	30	9	9	3
8062		TACH	07 25	0442	N28 W25	07 23.2			BR	26	5	7	4
8062		VORO	07 25	0454	N28 W28	07 23.0			AXX	15	2		2
8062		KAND	07 25	0815	N27 W28	07 23.2			BXO		4	7	4
8062		SVTO	07 25	0905	N26 W31	07 23.0		B	BXO		2	2	1
8062		RAMY	07 25	1232	N28 W32	07 23.0		A	AX	10	3	1	3
8062		HOLL	07 25	1420	N27 W33	07 23.0		B	BXO	20	4	3	3
8062	28462	MWIL	07 25	1430	N28 W30	07 23.2	4	(BP)					
8062		LEAR	07 26	0020	N28 W38	07 23.0		B	BXO	160	4	4	3
8062		TACH	07 26	0438	N28 W42	07 22.9			AX	11	2	2	4
8062		SVTO	07 26	0555	N26 W43	07 22.9		A	AX		2	2	3
8062		KAND	07 26	0635	N28 W42	07 23.0			AX		2	2	3
8062		RAMY	07 26	1102	N29 W44	07 23.0		A	AX	10	4	2	4
8062		HOLL	07 26	1420	N28 W48	07 22.8		A	AX	10	2	2	4
8062	28462	MWIL	07 26	1430	N28 W47	07 22.9	5	(AP)					
8062		LEAR	07 27	0105	N28 W55	07 22.7		A	AX	10	2	1	3
8062		SVTO	07 27	0615	N26 W55	07 23.0		B	BXO	20	5	10	3
8062		RAMY	07 27	1121	N29 W59	07 22.8		A	AX		1		3
8062	28462	MWIL	07 27	1430	N28 W55	07 23.3	3	(AP)					
8063A	28466	MWIL	07 27	1430	S23 W27	07 25.5	4	(G)					
8064A		KAND	07 28	1100	N14 W06	07 28.0			AX		1		3
8064		VORO	07 22	0312	N23 E84	07 28.6			AXX	7	1		2
8064		HOLL	07 22	1715	N22 E78	07 28.7		A	AX	10	1		3
8064		TACH	07 23	0500	N23 E68	07 28.4			BX	22	4	4	3
8064		SVTO	07 23	0615	N25 E69	07 28.6		B	BXO	20	4	5	3
8064		KAND	07 23	0805	N23 E70	07 28.7			BXO		4	6	3
8064		RAMY	07 23	1430	N22 E67	07 28.7		B	DRO	40	5	8	1
8064	28463	MWIL	07 23	1445	N23 E66	07 28.7	4	(B)					
8064		HOLL	07 23	1748	N23 E65	07 28.7		B	CRO	30	3	7	2
8064		VORO	07 23	2252	N23 E62	07 28.7			BXO	31	2	6	2
8064		LEAR	07 24	0020	N21 E61	07 28.7		B	BXO	20	3	6	3
8064		TACH	07 24	0448	N22 E58	07 28.6			BR	42	4	6	4
8064		SVTO	07 24	0700	N25 E55	07 28.5		B	DRO	40	3	6	3
8064		KAND	07 24	0735	N23 E57	07 28.7			BXO		3	5	4
8064		RAMY	07 24	1201	N22 E54	07 28.6		B	CRO	30	6	9	3
8064		HOLL	07 24	1350	N23 E52	07 28.6		B	BXO	50	5	6	3
8064	28463	MWIL	07 24	1430	N23 E52	07 28.6	4	(B)					
8064		LEAR	07 25	0100	N22 E45	07 28.5		B	BXO	20	4	3	3
8064		TACH	07 25	0442	N24 E42	07 28.4			AX	12	4	2	4
8064		KAND	07 25	0815	N23 E41	07 28.5			AX		2	1	4
8064		SVTO	07 25	0905	N24 E39	07 28.4		B	BXO		2	2	1
8064		RAMY	07 25	1232	N22 E40	07 28.6		B	BXO	20	6	2	3
8064		HOLL	07 25	1420	N23 E39	07 28.6		A	AX	10	2	1	3
8064	28463	MWIL	07 25	1430	N23 E38	07 28.5	4	(AP)					
8064		LEAR	07 26	0020	N23 E32	07 28.5		B	BXO	10	2	2	3
8064		RAMY	07 26	1102	N22 E27	07 28.5		B	BXO	10	4	3	4
8064	28463	MWIL	07 26	1430	N23 E24	07 28.4	4	(AP)					
8064		LEAR	07 27	0105	N22 E15	07 28.2		A	AX	10	2	1	3
8064		KAND	07 27	0850	N22 E12	07 28.3			AX		1	1	3
8064		RAMY	07 27	1121	N22 E12	07 28.4		A	AX		2	1	3
8064		HOLL	07 27	1425	N22 E09	07 28.3		A	AX	10	1		4
8064	28463	MWIL	07 27	1430	N23 E13	07 28.6	4	(B)					
8064		SVTO	07 28	0525	N25 E03	07 28.4		B	BXO	10	7	6	3
8064		RAMY	07 28	1150	N23 W02	07 28.3		B	BXO		3	3	3
8064	28463	MWIL	07 28	1445	N23 W00	07 28.6	4	(BP)					
8064		HOLL	07 28	1616	N24 W01	07 28.6		B	BXO	20	5	5	4

S U N S P O T G R O U P S
(Ordered by Central Meridian Passage Date)

JULY 1997

NOAA/ USAF Group	Mt Wilson Group	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
8064		LEAR	07 29 0020	N23 W07	07 28.5		B	BXO		3	6	3
8064		RAMY	07 29 1220	N24 W16	07 28.3		A	AX		2	1	2
8064	28463	MWIL	07 29 1430	N24 W16	07 28.4	4	(AP)					
8066		RAMY	07 25 1232	N22 E78	07 31.5		B	BXO	20	3	3	3
8066		HOLL	07 25 1420	N23 E78	07 31.6		B	BXO	40	3	4	3
8066	28465	MWIL	07 25 1430	N23 E76	07 31.5	4	(B)					
8066		LEAR	07 26 0020	N22 E70	07 31.4		B	BXO	10	1		3
8066		TACH	07 26 0438	N25 E70	07 31.6			AX	6	2	4	4
8066		SVTO	07 26 0555	N26 E68	07 31.5		B	BXO	10	3	5	3
8066		KAND	07 26 0635	N23 E68	07 31.5			BXO		2	4	3
8066		RAMY	07 26 1102	N23 E66	07 31.5		B	BXO	30	6	5	4
8066		HOLL	07 26 1420	N23 E64	07 31.5		B	BXO	20	3	4	4
8066	28465	MWIL	07 26 1430	N24 E64	07 31.5	4	(B)					
8066		LEAR	07 27 0105	N24 E59	07 31.6		B	BXO	20	3	5	3
8066		TACH	07 27 0410	N24 E53	07 31.3			AX	5	1	1	3
8066		SVTO	07 27 0615	N26 E55	07 31.5		B	BXO	20	4	5	3
8066		KAND	07 27 0850	N23 E55	07 31.6			BXO		2	6	3
8066		RAMY	07 27 1121	N24 E54	07 31.6		B	BXO	10	3	6	3
8066		HOLL	07 27 1425	N23 E48	07 31.3		A	AX	10	1		4
8066	28465	MWIL	07 27 1430	N24 E51	07 31.5	4	(B)					
8066		RAMY	07 28 1150	N26 E41	07 31.7		A	AX		1		3
8066		RAMY	07 29 1220	N27 E28	07 31.7		A	AX		1		2
8066		RAMY	07 30 1133	N24 E15	07 31.6		A	AX		2	1	4

Stations reporting:

HOLL = Holloman
KAND = Kandilli
LEAR = Learmonth
MWIL = Mt. Wilson
PALE = Palehua
RAMY = Ramey
SVTO = San Vito
TACH = Tashkent
VORO = Voroshilov

SUDDEN IONOSPHERIC DISTURBANCES

JULY 1997

Day	Start (UT)	Max (UT)	End (UT)	Imp	Wide Spread Index	Number of Station Reports by Type SWF	SEA	SPA	LF-SPA	SES	Flare (UT)	X-ray Class	NOAA Region
01	0450	0500	0529	1	3		2				No flare		
01	1339	1357U	1440	1	1		1				No flare		
01	1710	1800	1818	1	1		1				No flare		
03	0053	0056	0149	1-	1			1			No flare		
04	0836	0847	0914	1	1		1				No flare		
04	1304	1320	1342	1+	3		2				No flare		
05	0605	0615	0638	2	1		1				No flare		
05	1058	1145	1200	1-	1					1	No flare		
06	1244	1300	1344	1	1		1				No flare		
09	1600	1611	1645	1	1		1				No flare		
10	1258	1320	1443	1	1		1				No flare		
11	0740	0820	0843	1+	1		1				No flare		
11	0918	0930U	1109	1	1		1				No flare		
12	1035	1043	1059	1	1		1				No flare		
12	1521	1537	1723	1-	1			1			1514	C1.2	
12	1550	1559U	1631	1	1		1				No flare		
12	1707	1718	1748	1	1		1				No flare		
13	0647	0735U	0823	1	1		1				No flare		
15	1214	1229	1324	1	1		1				No flare		
16	1332	1343U	1521	1	1		1				No flare		
18	0715	0742	0842	2	1		1				No flare		
18	1431	1449	1557	1	1		1				No flare		
19	1227	1238	1300	1	1		1				No flare		
19	1636	1640	1742	1	1		1				No flare		
23	0955	1005	1030	1	1		1				0954	B2.4	
23	1641	1700	1727	1	1		1				No flare		
25	0450	0459	0521	1	1		1				No flare		
25	0524	0540	0645	1-	5		1	1			0515	C1.2	8065
25	2020	2040	2200	1-	5			2			2011		8065
27	0210	0217	0244	1-	1			1			0209	B8.3	
27	0638	0647	0725	1	1		1				0632	B1.4	
27	1539	1548	1606	1	1		1				No flare		
29	1114	1138	1200	1	1		1				No flare		

* = no flare patrol.

OBSERVATORIES REPORTING FOR JULY 1997

Brazilian Antarctic Station	SPA	Sofia, Bulgaria	SES
Inubo, Japan	SPA	Upice, Czech Republic	SEA
Itapetinga, Brazil	SPA	Ziar nad Hronom, Slovakia	SEA
Panska Ves, Czech Republic	SES, SEA, SWF	Zilina, Slovakia	SEA
Rimavska Sobota, Slovakia	SEA		

Observations are not necessarily continuous.

SOLAR RADIO EMISSION
Spectral Observations

JULY 1997

Day	OBSERVATION Start (UT)	OBSERVATION End (UT)	Sta	EVENT Start (UT)	EVENT End (UT)	EVENT Spectral Class	EVENT Event Remarks	EVENT Int (1-3)	FREQUENCY Lower (MHz)	FREQUENCY Upper (MHz)	Remarks
01	0000	1006	HIRA								
	0416	1750	ONDR								
	0600	1200	IZMI								
			SVTO	0839.0	0840.0	III		2	35U	54U	
	0545	1824	POTS	0839.3	0840.2	III	G	2	40X	170U	
	1922	2400	HIRA								
02	0000	1006	HIRA								
	0340	1822	POTS								
	0416	1751	ONDR								
	0610	1200	IZMI								
	1922	2400	HIRA								
03	0000	1005	HIRA								
	0340	1822	POTS								
	0417	1752	ONDR								
	0600	1200	IZMI								
	1923	2400	HIRA								
04	0000	1005	HIRA								
	0340	1822	POTS								
	0418	1753	ONDR								
	0600	1200	IZMI								
	1923	2400	HIRA								
05	0000	1005	HIRA								
	0340	1822	POTS								
	0418	1750	ONDR								
	0605	1200	IZMI								
	1923	2400	HIRA								
06	0000	1005	HIRA								
	0340	1822	POTS								
	0419	1751	ONDR								
	0600	1200	IZMI								
	1924	2400	HIRA								
07	0000	1005	HIRA								
	0340	1822	POTS								
	0420	1750	ONDR								
	0600	1200	IZMI								
	1925	2400	HIRA								
08	0000	1004	HIRA								
	0340	1822	POTS								
	0420	1750	ONDR								
	0600	1200	IZMI								
	1925	2400	HIRA								
09	0000	1004	HIRA								
	0340	1822	POTS								
	0421	1750	ONDR								
	0605	1200	IZMI								
	1926	2400	HIRA								
			PALE	2239.0	2240.0	III		1	29	53	
10	0000	1004	HIRA								
	0340	1822	POTS								
	0422	1749	ONDR								
	0605	1200	IZMI								
	1927	2400	HIRA								
11	0000	1004	HIRA								
	0423	1748	ONDR								
	0351	1813	POTS	0624.5	0625.1	III	G	2	40X	400	
	0600	1200	IZMI	0624.7	0624.9	III	B, HARM	2	55	270	
			POTS	0642.4	0642.6	UNCLF		1	140	170U	
			POTS	0752.6	0757.3	III	GG	3	40X	450	
	0600	1200	IZMI	0753.8	0753.9	III	B	2	80	175	

SOLAR RADIO EMISSION
Spectral Observations

JULY 1997

Day	OBSERVATION Start (UT)	End (UT)	Sta	EVENT Start (UT)	End (UT)	Spectral Class	Event Remarks	Int (1-3)	FREQUENCY Lower (MHz)	Upper (MHz)	Remarks
11			LEAR	0755.0	0755.0	III		1	30	40	
			SVTO	0755.0	0755.0	III		3	36U	74U	
	0600	1200	IZMI	0755.5	0755.6	III	B	2	45	150	
	0600	1200	IZMI	0755.6	0755.7	V		2	45	80	
			POTS	1551.8	1552.1	III	G	1	120	170U	
	1928	2400	HIRA								
12	0000	1003	HIRA								
	0351	1813	POTS								
	0423	1748	ONDR								
	0600	1200	IZMI								
	1928	2400	HIRA								
13	0000	1003	HIRA								
	0351	1813	POTS								
	0432	1748	ONDR								
	0605	1200	IZMI								
	1928	2400	HIRA								
14	0000	1002	HIRA								
	0351	1813	POTS								
	0425	1745	ONDR								
	0510	1200	IZMI								
	1929	2400	HIRA								
15	0000	1002	HIRA								
	0426	1745	ONDR								
	0610	1200	IZMI								
	0351	1813	POTS	1327.3	1327.4	III	B	1	110U	170U	
			POTS	1352.8	1357.8	III	GG	2	110U	170U	
			POTS	1401.7	1402.5	III	G	1	110U	170U	
			POTS	1419.9	1420.0	III	G	1	110U	170U	
			POTS	1632.9	1633.0	III	B	1	110U	170U	
	1930	2400	HIRA								
16	0000	1002	HIRA								
	0351	1813	POTS								
	0427	1745	ONDR								
	0600	1200	IZMI								
	1931	2400	HIRA								
17	0000	1001	HIRA								
	0351	1813	POTS								
	0428	1743	ONDR								
	0600	1200	IZMI								
	1932	2400	HIRA								
18	0000	1001	HIRA								
	0351	1813	POTS								
	0429	1744	ONDR								
	0600	1200	IZMI								
	1932	2400	HIRA								
19	0000	1000	HIRA								
	0351	1813	POTS								
	0430	1742	ONDR								
	1933	2400	HIRA								
20	0000	0959	HIRA								
	0431	1740	ONDR								
	0351	1813	POTS	1710.0	1710.1	UNCLF		1	150	170U	
			POTS	1712.0	1712.2	III	B	1	40X	170U	
	1933	2400	HIRA								
21	0000	0958	HIRA								
	0403	1800	POTS								
	0432	1740	ONDR								
	1934	2400	HIRA								

SOLAR RADIO EMISSION
Spectral Observations

JULY 1997

Day	OBSERVATION Start (UT)	OBSERVATION End (UT)	Sta	EVENT Start (UT)	EVENT End (UT)	Spectral Class	Event Remarks	Int (1-3)	FREQUENCY Lower (MHz)	FREQUENCY Upper (MHz)	Remarks
22	0000	0958	HIRA								
	0403	1800	POTS								
	0433	1738	ONDR								
	1935	2400	HIRA								
23	0000	0957	HIRA								
	0403	1800	POTS								
	0434	1739	ONDR								
	1936	2400	HIRA								
24	0000	0956	HIRA								
	0403	1800	POTS	0444.0	0445.0	III	G	1	250	350	
			SVTO	0633.0	0633.0	III		2	58U	85U	
			POTS	0633.5	0633.7	III	B,RS	1	40X	130	
			POTS	1140.8	1142.3	III	G	1	110U	170U	
			POTS	1300.8	1306.8	DCIM	FS	2	200U	800X	
	0435	1737	ONDR	1302.0	1308.5	DCIM	G	1	1000X	2000X	
			POTS	1303.3	1310.5	III	GG,C,RS	1	40X	170U	
			POTS	1451.6	1452.8	DCIM		1	250	350	
			POTS	1451.7	1452.0	UNCLF		1	130	150	
	1936	2400	HIRA								
25	0403	1800	POTS	0403 E	1800 U	I	S,C	2	40X	350	
			POTS	0606.5	0630.5	DCIM		2	300	800X	
	0000	0955	HIRA	0611.8	0613.4	III	G	1	400	1000	
	0436	1736	ONDR	0616.6	0617.5	III	G	2	815	1000X	
			HIRA	0616.8	0618.1	III	G	1	400	1300	
			SVTO	0619.0	0816.0	CONT		3	55U	85U	
			ONDR	0629.4	0630.4	DCIM	G	1	1000X	1555X	
			POTS	0857.5	0858.0	III	G	2	40X	170U	
			POTS	1035.8	1036.8	III	G	2	40X	90U	
			POTS	1037.5	1037.6	III	B	2	40X	90U	
			PALE	2018.0	2025.0	III		3	25	62	
			SGMR	2018.0	2024.0	III		3	30	80	
	1937	2400	HIRA	2019.0	2022.7	III	G	3	25X	420	
			SGMR	2024.0	2033.0	II		2	30	80	ESS 2300
			SGMR	2024.0	2033.0	II		3	30	80	ESS 2300
			HIRA	2025.5	2030.7	II	FN	3	25X	70	ESS 1100
			HIRA	2025.5	2031.4	II	SH	3	35	130	ESS 1100
			PALE	2026.0	2033.0	II		3	25	65	ESS 2500
			HIRA	2027.3	2041.9	IV		2	320	2500	
			SGMR	2033.0	2123.0	IV		1	30	80	
			PALE	2034.0	2142.0	IV		3	25	60	
26	0000	0955	HIRA								
	0615	1734	ONDR								
	0403	1800	POTS	0820	0827	I	S,W	1	140	160	
			POTS	0849	0850	I	W	1	150	160	
			POTS	1329.2	1329.5	I	S	2	220	230	
			POTS	1459	1800 U	I	S,W	1	130	170U	
	1938	2400	HIRA								
27	0000	0954	HIRA								
	0403	1800	POTS	0425	1800 U	I	S,W	1	120	350	
	0615	1734	ONDR								
			POTS	0925.8	0926.0	III	G	1	60	250	
	1939	2400	HIRA								
28	0000	0953	HIRA								
	0403	1800	POTS	0513	0519	I	S,W	1	150	170U	
	0615	1734	ONDR								
			POTS	1018	1021	I	S,W	1	150	170U	
			POTS	1324	1428	I	S,W	1	130	170U	
	1939	2400	HIRA								
29	0000	0953	HIRA								
	0403	1800	POTS								
	0441	1732	ONDR								
	1940	2400	HIRA								

S O L A R R A D I O E M I S S I O N
Spectral Observations

JULY 1997

OBSERVATION Day	Start (UT)	End (UT)	Sta	EVENT Start (UT)	End (UT)	Spectral Class	Event Remarks	Int (1-3)	FREQUENCY Lower (MHz)	Upper (MHz)	Remarks
30	0000	0952	HIRA								
	0403	1800	POTS								
	0442	1732	ONDR								
	1941	2400	HIRA								
31	0000	0951	HIRA								
	0403	0522	POTS								
	0619	1729	ONDR								
	0545	1735	POTS	1323.6	1323.7	III	G	1	110U	170U	
	1942	2400	HIRA								
			PALE	1950.0	1951.0	III		1	25	52	
			SGMR	1950.0	1951.0	III		1	30	57	

Event Remarks:

B = Single burst	N = Intermittent activity in this period
C = Underlying continuum (particularly with Type I)	MOV = Moving (Type IV)
DC = Drifting chains	MWB = Meter wave burst
DP = Drifting pairs	RS = Reverse slope burst
FN = Fundamental emission (Type II)	S = Storm in the sense of intermittent but apparently connected actively
FS = Fine structures (Type IV) (includes fiber, pulsations, zebra)	SH = Secondary harmonic emission
G = Small group of bursts (<10)	STA = Stationary (Type IV)
GG = Large group of bursts (>10)	U = U-shaped burst of Type III
H = Herringbone	UE = Uncertain emission (Type II)
HARM = Harmonic	W = Weak

Frequency qualifiers:

X = Extends beyond instrument range
U = Uncertain frequency

Remarks:

SWF = Associated short wave fade observed
FLA = Associated flare observed (class optional)
ESS = Estimated shock speed in km/s (Type II)

Stations Reporting: CULG = Culgoora HIRA = Hiraiso IZMI = Izmiran LEAR = Learmonth
ONDR = Ondrejov PALE = Palehua POTS = Potsdam SGMR = Sagamore Hill SVTO = San Vito

SOLAR RADIO NOISE STORM AT 164 MHZ FROM NANÇAY RADIOHELIOGRAPH

JULY 1997

	HELIOGRAPHICS POSITIONS MEAN VALUES[1]		IMP[2]	OBSERVING TIME[3]	
DAY	E-W	S-N		START(UT)	END(UT)
25/07/97	+0.92	+0.27	1	08H11 E	11H40
25/07/97	+1.19	+0.54	2	08H11 E	11H40
25/07/97	+0.98	+0.30	2	11H40	15H41 D
26/07/97	+1.13	+0.21	1	08H11 E	15H41 D
27/07/97	+1.13	+0.46	1	08H11 E	15H41 D

SOLAR RADIO NOISE STORM AT 327 MHZ FROM NANÇAY RADIOHELIOGRAPH

JULY 1997

	HELIOGRAPHICS POSITIONS MEAN VALUES[1]		IMP[2]	OBSERVING TIME[3]	
DAY	E-W	S-N		START(UT)	END(UT)
25/07/97	+0.77	+0.24	1	8H11 E	15H41 D
25/07/97	+0.94	+0.27	1	8H11 E	15H41 D
26/07/97	+1.08	+0.32	1	9H30	15H41
27/07/97	+1.19	+0.32	1	8H11 E	15H41 D

OTHERS DAYS: NO DETECTABLE NOISE STORM

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[1] POSITIVE E-W AND S-N COORDINATES CORRESPOND TO THE N-W QUADRANT

[2] IMP1: FLUX< 5 SFU IMP2: 5< FLUX < 20 SFU IMP3: 20< FLUX <100 SFU
IMP4: 100< FLUX <300 SFU IMP5> 300 SFU

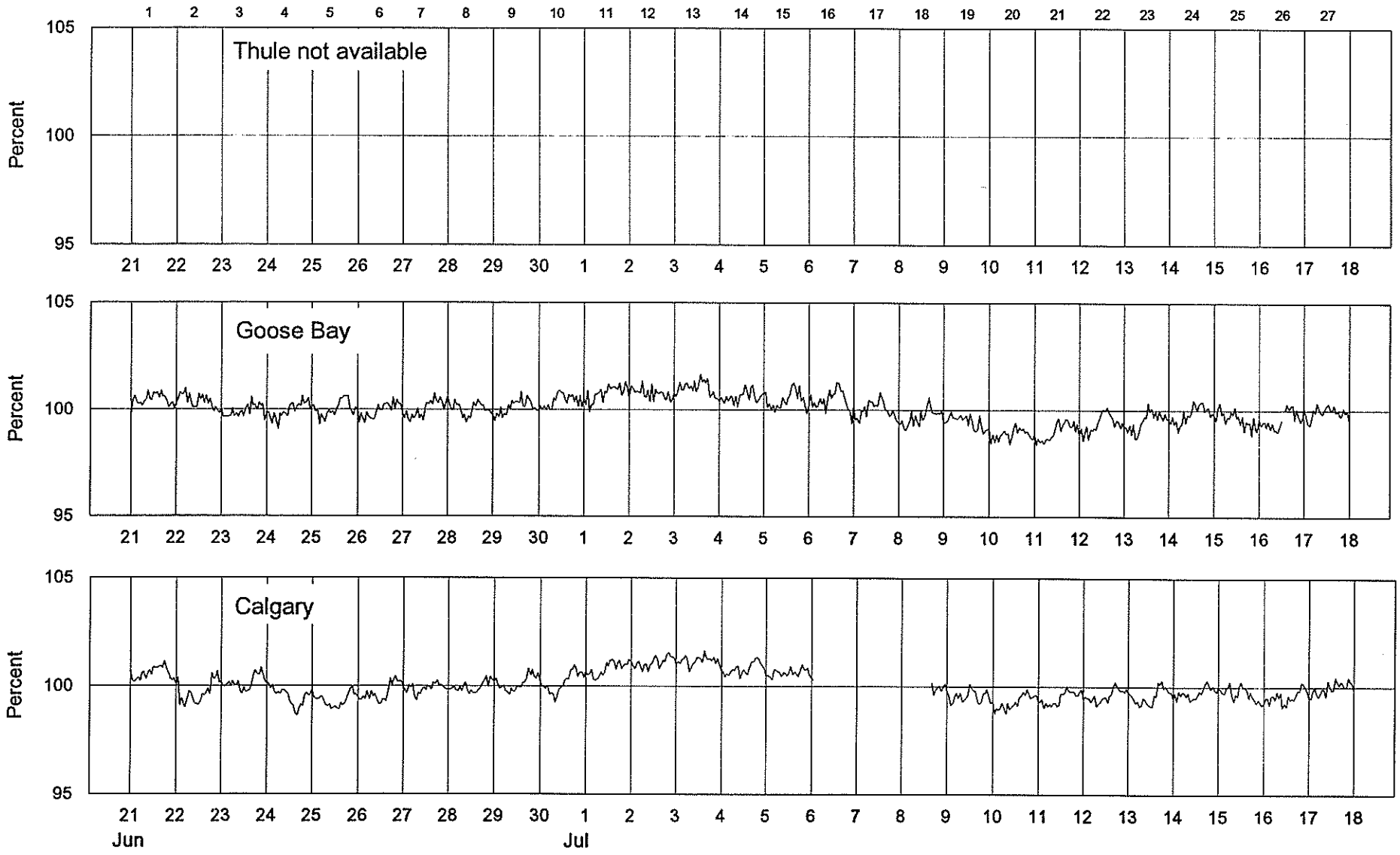
[3] E NOISE STORM IN PROGRESS AT THE BEGINNING OF THE NANÇAY OBSERVATIONS
D NOISE STORM IN PROGRESS AT THE END OF THE NANCAY OBSERVATIONS

COSMIC RAY INDICES
(Neutron Monitor)
JULY 1997

Day	THULE Average (cts/h)/100	GOOSE BAY Average (cts/h)/100	CALGARY Average (cts/h)/300	KIEL Average (cts/h)/100	MOSCOW Average (cts/h)/64	CLIMAX Average (cts/h)/100	BEIJING Average (cts/h)/256	HALEAKALA Average (cts/h)/1000
1	No data	7438.0	4023.2	6362.1	9341.1	4283.4	1931.6	3589.8
2	at time of	7436.7	4035.3	6351.9	9333.0	4296.5	1922.5	3586.0
3	publication	7456.0	4038.3	6354.5	9338.8	4309.9	1933.2	3583.7
4	---	7425.7	4024.0	6350.2	9324.8	4296.7	1942.1	3591.5
5	---	7415.3	4016.7	6341.1	9316.7	4290.5	1935.1	3594.1
6	---	7414.4	4004.2 (2)	6327.4	9324.0	4292.2	1931.1	3586.9
7	---	7383.2	---	6290.8	9280.5	4266.8	1921.3	3567.1
8	---	7356.9	3988.7 (8)	6286.2	9271.6	4241.8	1918.2	3556.9
9	---	7340.6	3974.0	6272.3	9248.3	4233.3	1908.6	3559.0
10	---	7297.8	3963.0	6257.9	9188.5	4229.5	1900.4	3557.0
11	---	7307.9	3970.7	6264.0	9193.0	4232.8	1896.9	3562.5
12	---	7334.4	3975.3	6276.2	9194.5	4229.8	1898.1	---
13	---	7343.6	3974.5	6284.1	9223.2	4234.3	1897.8	3574.3
14	---	7367.3	3980.8	6290.3	9222.7	4236.5	1893.8	3574.7
15	---	7352.0	3980.2	6288.7	9219.3	4232.3	1893.0	3569.8
16	---	7349.4 (23)	3974.5	6299.3	9262.0	4240.5	1893.2	3580.9
17	---	7376.4	3990.0	6320.1	9297.9	4261.8	1899.1	3588.7
18	---	7360.1	3972.3	6299.7	9258.9	4252.5	1896.8	3582.2 (13)
19	---	7355.2	3978.5	6289.5	9233.3	4251.7	1903.1	3577.9
20	---	7357.8	3971.7	6286.2	9235.5	4249.1	1904.9	3575.3
21	---	7383.4	3990.2	6288.1	9238.5	4248.9	1905.1	3579.5
22	---	7384.5	3989.8	6301.2	9245.0	4255.4	1901.5	3569.8
23	---	7405.4	4011.8	6312.6	9267.7	4269.2	1899.6	3572.5
24	---	7403.8	4016.7	6335.3	9283.1	4273.8	1894.3	3579.8
25	---	7401.2	4014.7	6358.7	9319.7	4290.0	1895.5	3582.6
26	---	7437.5	4025.0	6357.0	9342.5	4288.9	1891.5	3584.1
27	---	7446.8	4033.5 (20)	6362.8	9341.0	4295.2	1897.1	3589.2
28	---	7443.2	4026.0 (8)	6352.0	9305.2	4297.8	1899.4	3593.6
29	---	7460.7	4028.0	6350.3	9299.0	4299.0	1905.8	3591.3
30	---	7469.8	4035.5	6366.3	9326.4	4318.7	1906.8	3578.7
31		7396.4	4011.7	6351.8	9298.0	4299.5 (38)	1900.5	3577.1
Mean	---	7390.4	4000.6	6317.1	9276.6	4267.7	1907.0	3496.3

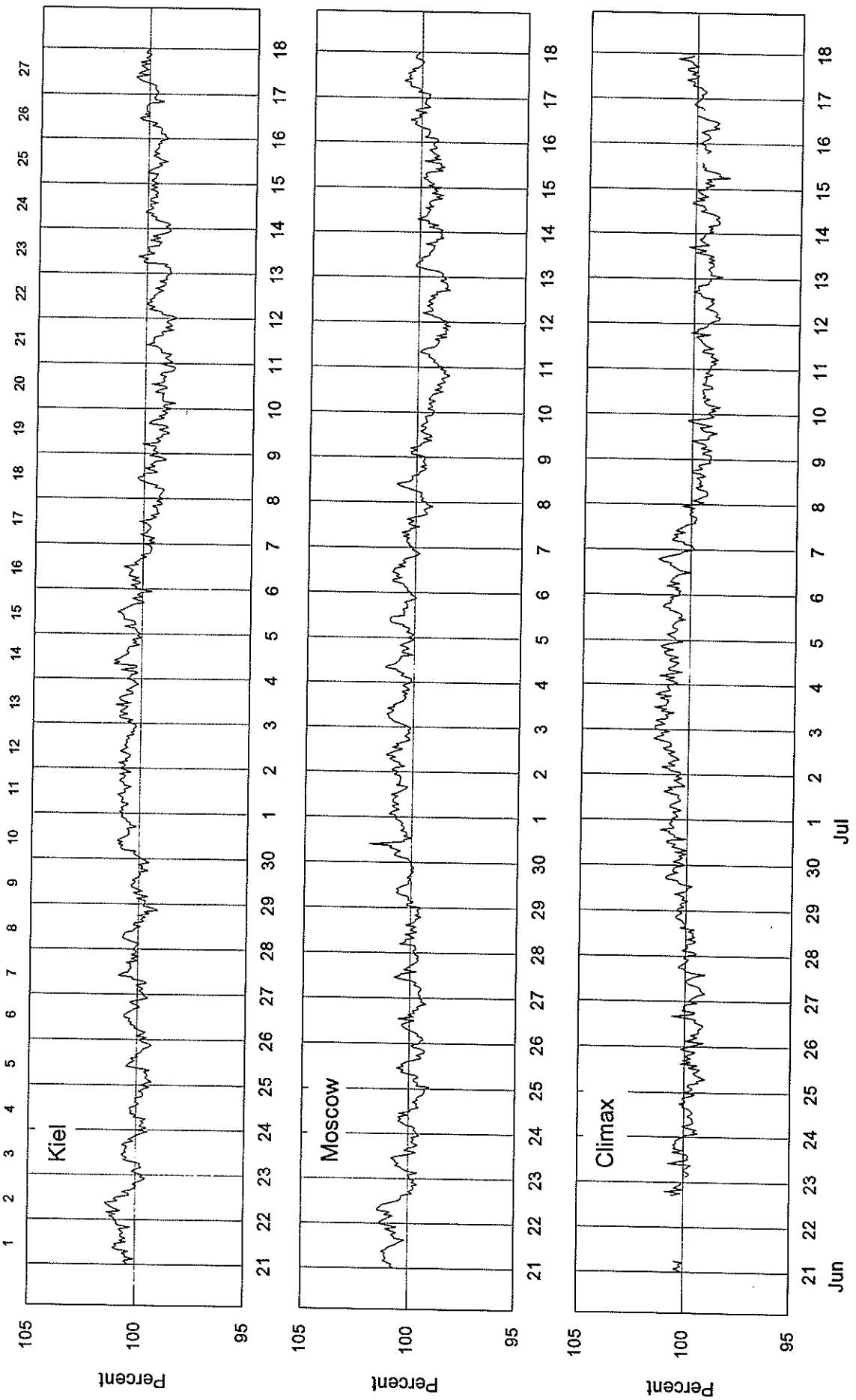
For less than 24-hour coverage, parentheses enclose the number of hours for which data are available. For Climax, parentheses enclose the number of section hours whenever the sum of both sections falls below 40 hours, and for Haleakala, whenever the sum of all three sections falls below 60 hours.

COSMIC RAY INDICES
(Neutron Monitor)
Bartels Rotation 2238 - Beginning 21 Jun 97



Jul 97

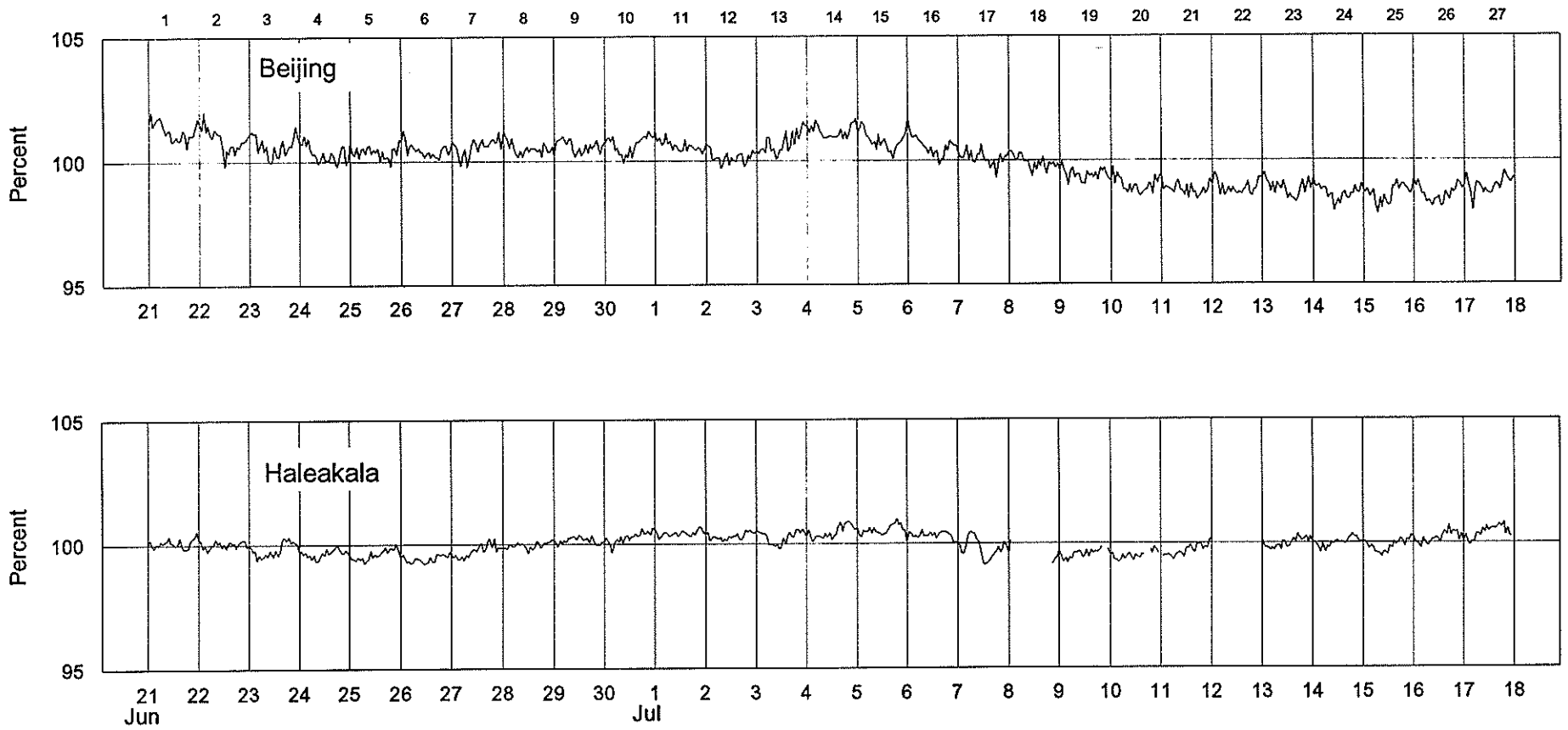
COSMIC RAY INDICES
(Neutron Monitor)
Bartels Rotation 2238 - Beginning 21 Jun 97



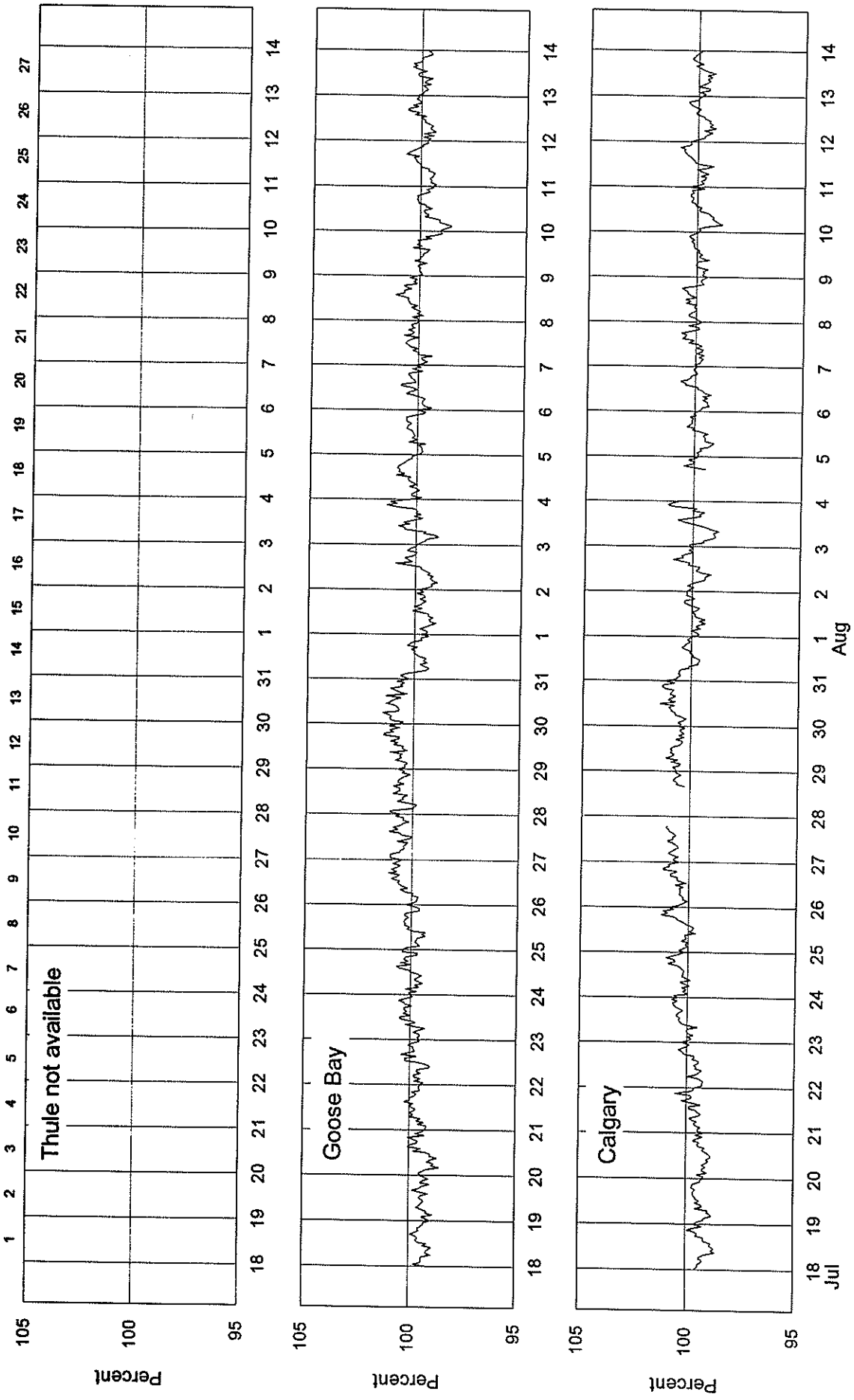
COSMIC RAY INDICES

(Neutron Monitor)

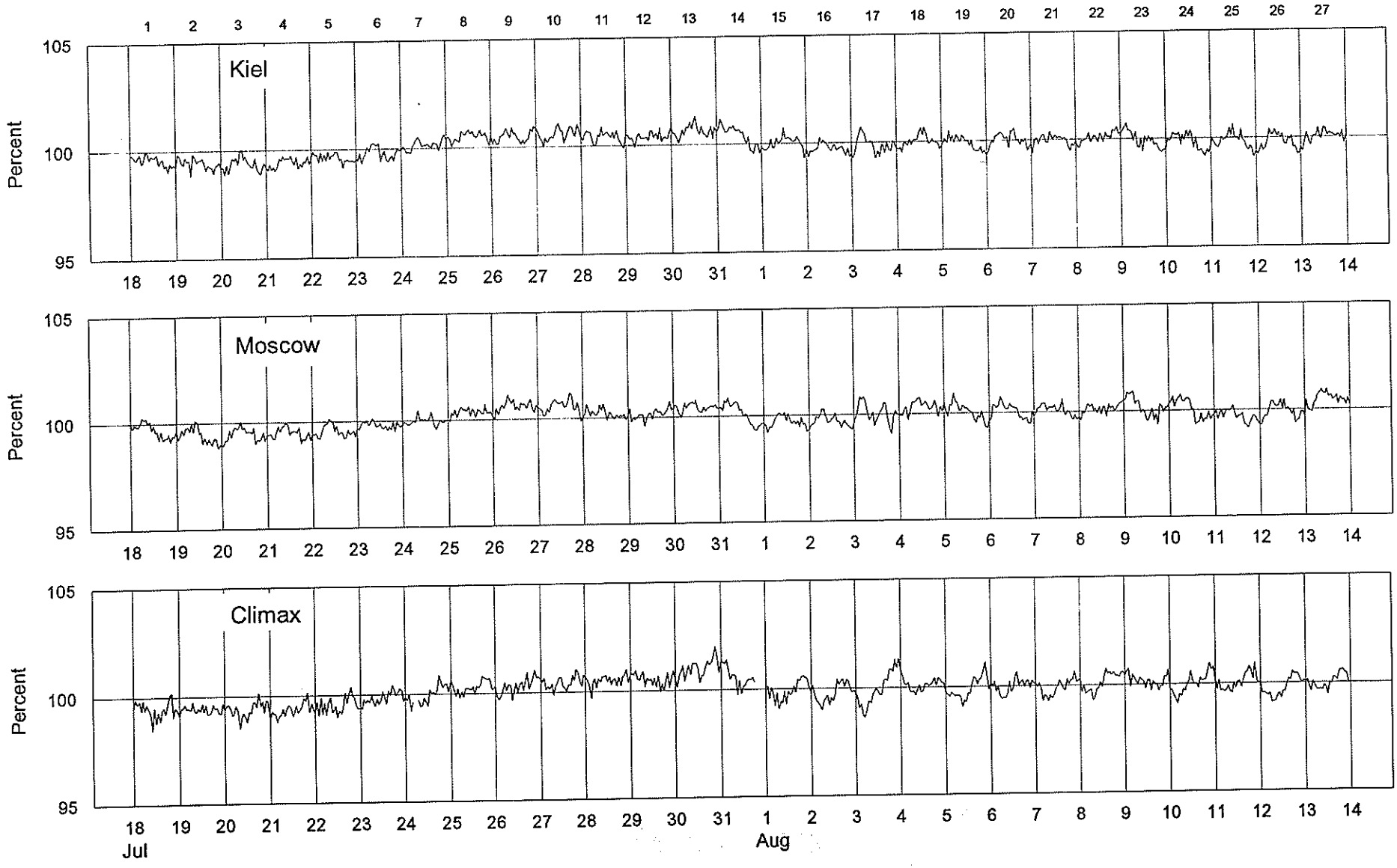
Bartels Rotation 2238 - Beginning 21 Jun 97



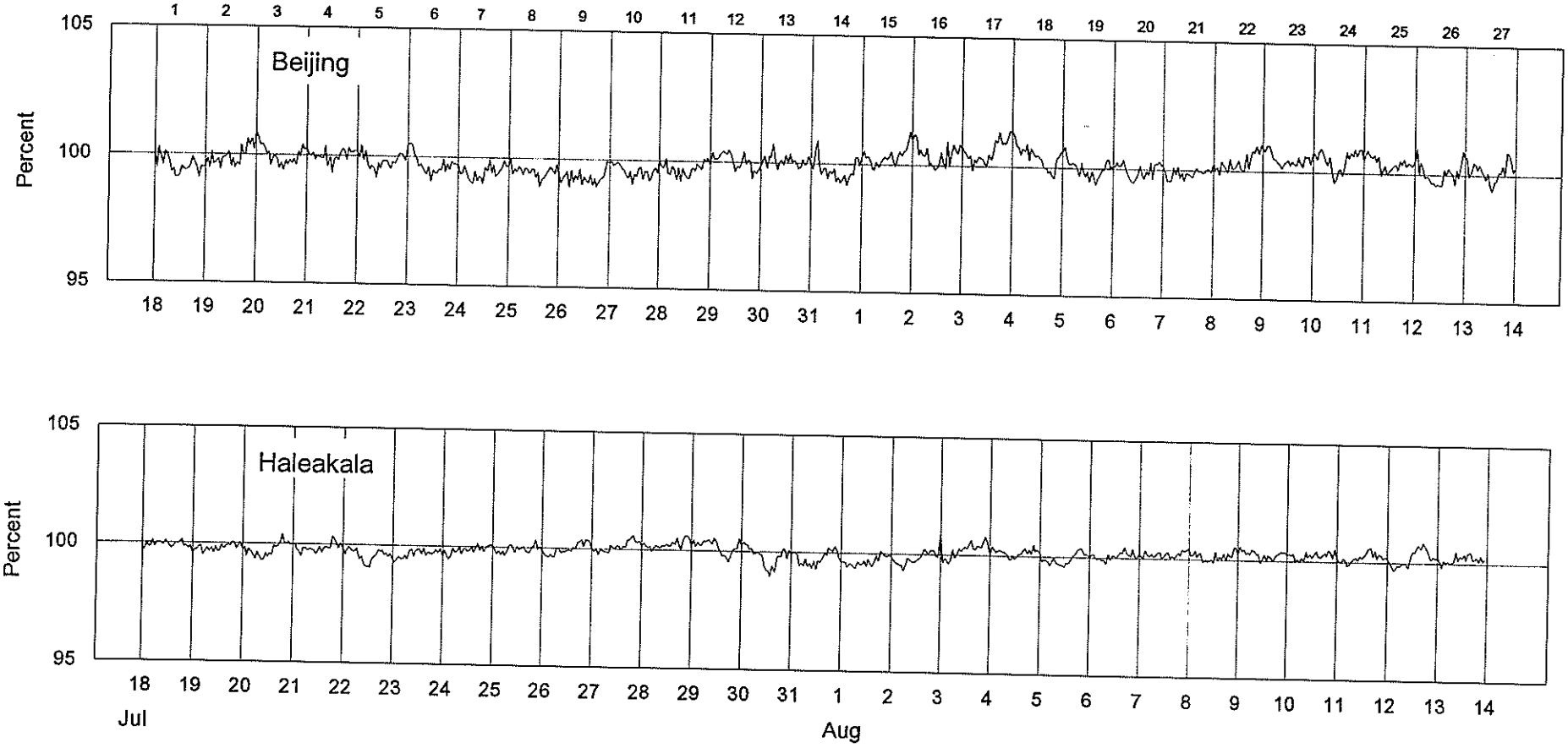
COSMIC RAY INDICES
(Neutron Monitor)
Bartels Rotation 2239 - Beginning 18 Jul 97



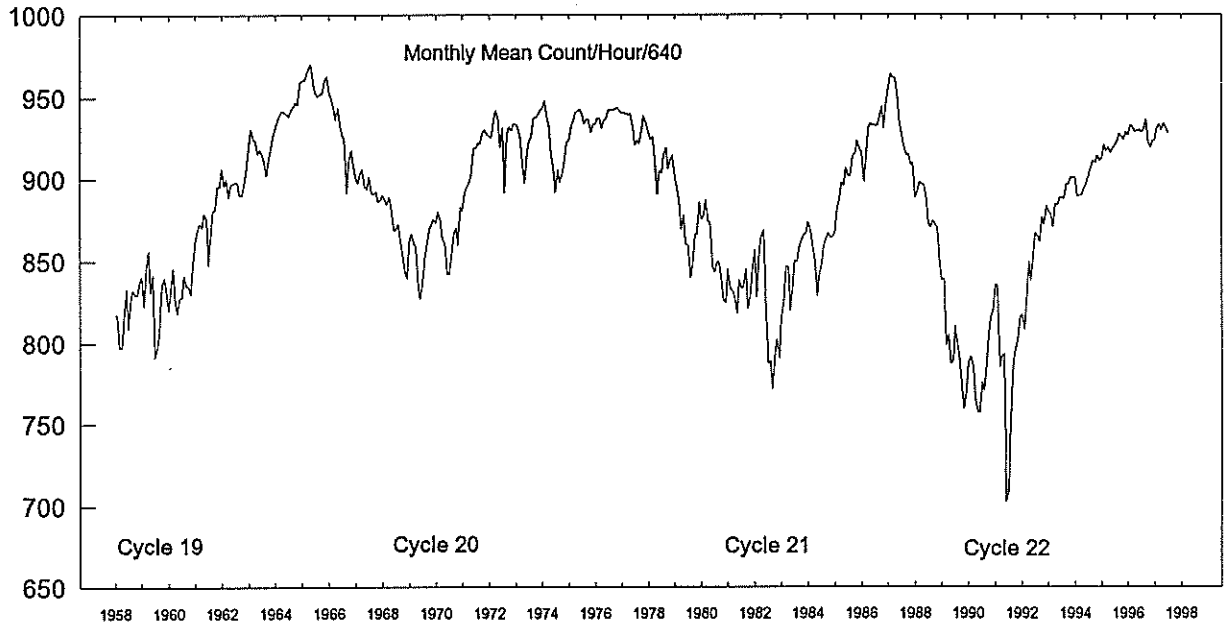
COSMIC RAY INDICES
(Neutron Monitor)
Bartels Rotation 2239 - Beginning 18 Jul 97



COSMIC RAY INDICES
(Neutron Monitor)
Bartels Rotation 2239 - Beginning 18 Jul 97



Moscow Neutron Monitor Pressure-Corrected Values
Jan 1958 - Jul 1997



Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Mean
1958	8171*	8175*	7973*	7971*	8145*	8330*	8087*	8266*	8324*	8291*	8294*	8378*	8200*
1959	8405	8223	8443	8565	8309	8416	7911	7972	8054	8351	8397	8325	8281
1960	8199	8313	8459	8264*	8178*	8272*	8272*	8417	8348	8348	8295	8464	8319*
1961	8619	8682	8731*	8708*	8791*	8759*	8472	8676	8808	8816	8957	8956	8748*
1962	9061	8959	8996	8891	8964*	8974	8977	8977	8908	8902	8973	9056	8940*
1963	9201	9308	9243	9239	9154	9180	9147	9109	9020	9110	9194	9259	9180
1964	9321	9353	9395	9416	9410	9396	9384	9425	9442	9473	9458	9594	9422
1965	9602	9608	9642	9685	9701	9586	9530	9505	9520	9525	9608	9630	9595
1966	9531	9502	9439	9367	9438	9336	9261	9242*	8916	9105*	9178	9094	9284*
1967	9006	8973	9038	9059	8956	8940	9015	8913	8911	8924	8860	8873	8956
1968	8904	8875*	8844*	8892*	8825*	8690*	8689	8725	8635*	8533*	8428	8394	8703*
1969	8628	8666	8606	8584	8334	8261	8378	8510	8612	8689	8731	8751	8562
1970	8735	8799	8749	8639	8608	8418	8420	8540	8656	8702	8596	8827	8641
1971	8805	8921	8952	8982	9028	9185	9190	9219	9215	9285	9302	9276	9113
1972	9260	9254	9367	9419	9364	9192	9311	8916	9275	9319	9298	9336	9275
1973	9333	9321	9258	9107	8975	9160	9233	9263	9368	9376	9392	9423	9267
1974	9431	9481	9390	9327	9153	9062	8916	9054	8983	9027	9092	9222	9178
1975	9238	9317	9361	9405	9415	9425	9395	9339	9370	9361	9285*	9330	9353*
1976	9339	9375	9370	9310	9363	9371	9423	9418	9423	9428	9440	9415	9380
1977	9405	9404	9401	9392	9399	9318	9209	9236	9216	9302	9384*	9341	9334*
1978	9279	9243	9254	9113	8907	9050	9035	9149	9189	9062	9118	9145	9216
1979	9012	8955	8860	8693	8778	8599	8592	8396	8470	8662	8661	8857	8740
1980	8752	8776	8871	8737	8732	8463	8430	8490	8491	8379	8259	8242	8552
1981	8451	8330	8311	8277	8176	8379	8332	8338	8452	8206	8289	8439	8332
1982	8565	8277	8565	8649	8686	8279	7870	7882	7712	7931	8023	7902	8195
1983	8150	8253	8460	8460	8194	8343	8498	8492	8575	8625	8658	8670	8448
1984	8736	8686	8574	8505	8286	8421	8476	8590	8632	8669	8641	8644	8575
1985	8671	8813	8878	8973	8958	9066	9018	9017	9140	9155	9233	9183	9009
1986	9162	8982	9125	9316	9339	9328	9326	9327	9368	9444	9312	9472	9292
1987	9553	9646	9619	9618	9505	9349	9268	9202	9149	9153	9085	9094	9353
1988	8885	8922	8979	8968	8961	8904	8724	8704	8745	8716	8699	8474	8807
1989	8381	8385	7985	8043	7868	7888	8102	7977	7897	7709	7592	7701	7961
1990	7871	7910	7846	7652	7574	7569	7755	7701	7864	8037	8168	8185	7844
1991	8356	8347	7850	7915	7926	7025	7082	7510	7863	7964	8008	8153	7833
1992	8169	8078	8247	8490	8378	8535	8670	8649	8614	8767	8717	8833	8512
1993	8804	8784	8705	8846	8842	8888	8884	8880	8968	8968	9010	9011	8882
1994	9001	8895	8899	8898	8942	8963	9013	9055	9110	9098	9141	9112	9011
1995	9122	9206	9169	9193	9159	9186	9203	9228	9272	9257	9241	9286	9210
1996	9266	9328	9324	9287	9291	9302	9295	9302	9364	9226	9192	9227	9284
1997	9240	9311	9334	9302	9340	9318	9277						9303

Multiply table entries by 64 to obtain hourly counting rate. Moscow, Russia: N55, E37, Alt= 200 m, Cutoff Rigidity= 2.42GV.
NOTE: * Indicates data have been restored using the corresponding data of other cosmic ray stations.

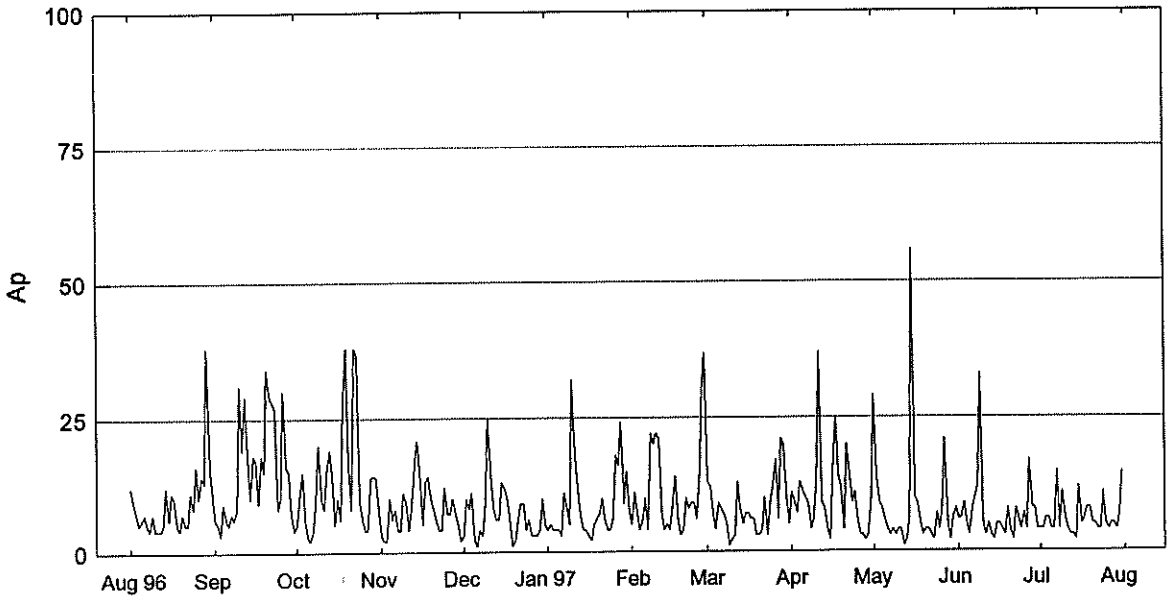
Geomagnetic Activity Indices

July 1997

Day		Kp Three-Hourly Indices 1	2	3	4	5	6	7	8	Sum	Ap	Cp	Km Three-Hourly Indices 1	2	3	4	5	6	7	8	aa Provisional Am	N	S	M	
1	Q5	1	1+	0+	0+	1+	1	1	1	7+	4	0.1	1+	1+	0+	0+	1+	1o	1+	1+	7	9	7	6	10 CC
2		1+	1-	0+	0+	1+	1-	2-	2-	8	4	0.1	2-	1o	0+	1-	1+	1-	2-	1+	8	10	7	6	11 CC
3		2	1+	1	2	2+	2-	0+	1+	12	6	0.3	2+	2-	1+	2+	2+	2-	0+	1+	12	14	9	10	12 CC
4		2-	2-	1+	1-	2-	3-	1+	1	12	6	0.3	2-	2-	1+	1-	2-	2+	1+	1o	10	14	10	9	15 CC
5	Q8	1-	1+	1+	1	2-	1	0+	0+	8-	4	0.1	1o	1+	1+	1o	1+	1+	0+	0+	6	8	7	8	6 CC
6	Q10	1-	2-	1+	2-	1-	0+	1	1-	8	4	0.1	1-	2+	2o	2o	1o	0+	1o	1+	10	11	7	11	7 CK
7	D2*	1	3	2+	2	2+	4-	4	4	22+	15	0.8	1+	3o	3-	3o	2+	3o	3o	3+	26	35	20	19	36
8	Q6	1+	1	1-	1-	1	1	1-	1+	8-	4	0.1	2-	1+	1o	1-	1-	1+	1-	2-	8	10	7	7	10 C
9	D5*	3-	3-	2-	1-	2-	3+	4-	2	18+	11	0.6	3o	3-	2+	1+	2-	3+	3o	2o	21	24	18	15	27
10		1-	1+	2	2+	2-	2-	1+	1	12	6	0.3	1o	1+	3-	3-	2o	2o	2-	1+	14	11	17	16	12
11	Q9	1	1-	1-	1	2-	1-	1+	1+	8+	4	0.1	1o	1+	1o	2-	2+	1+	1+	1+	10	10	14	10	14 CC
12	Q2	1	1-	0+	0	1-	1-	1-	1-	5-	3	0.0	1o	1-	0+	0o	1-	1o	1o	1-	5	7	3	5	5 CC
13	Q3	0+	1	1	1-	1-	1	1-	1-	6	3	0.1	0+	1o	2-	1-	1-	1o	0+	0+	5	6	5	5	6 CC
14	Q1	0+	0+	0+	0+	1-	1	1-	0+	4	2	0.0	0+	0+	1-	1o	1-	1+	1-	0+	5	6	4	4	7 CK
15	D3*	1	2+	2	4-	3-	3+	3-	2+	20	12	0.7	1+	3-	2+	4o	3o	3o	3-	2o	25	21	24	22	23
16		2-	2-	1	1	1+	1	1	1	10-	5	0.2	2-	2-	2-	1o	1o	1-	1+	1-	8	10	5	7	8 CK
17		0+	1	2+	1	1	2-	2	3	12+	6	0.3	0+	1+	2+	2-	1o	2-	2-	3-	12	15	8	9	15 CK
18		2+	3+	2+	2+	2	2-	1-	2-	16+	8	0.5	2+	3+	2+	3-	3-	2-	1o	2-	18	17	17	20	14
19		2-	3	2	2-	3-	2+	2-	2	17	8	0.5	1+	2+	2o	2o	3-	2+	2-	2o	16	24	15	19	21
20		2+	1+	1	2	2	1	1-	1-	11	5	0.2	2o	2o	1o	2+	2-	1-	1o	1-	10	13	11	17	7 KK
21		1-	1	2-	1	1	2-	2-	1+	10	5	0.2	0+	1o	1+	1o	1+	2o	2-	1+	8	12	8	7	12 CC
22		1+	1-	1-	1+	2-	1+	2-	1-	9+	4	0.2	1o	0+	1-	2-	2-	2-	1+	1o	8	10	7	6	11 CC
23		1-	1+	1	1-	1	1-	1+	2+	9	4	0.2	1o	1+	1+	1o	1-	1-	1o	2+	8	10	6	7	10 CC
24	D4*	2-	1+	2+	2+	4-	3-	3	3-	20-	11	0.6	2o	1+	3o	3o	3+	2+	2+	3-	23	20	26	18	28
25		2+	1+	1-	1	1	1	2-	1	10	5	0.2	2+	2-	1+	1+	1+	2-	2-	1o	11	13	7	10	9 CK
26	Q7	1-	1-	1	0+	1-	1	1+	2-	7+	4	0.1	1o	1-	1o	0+	1-	1o	1+	2-	7	8	4	4	8 CC
27		1	1+	1+	1+	2-	2-	1-	2-	11-	5	0.2	2-	1+	2-	2o	2-	2-	1-	2-	11	10	8	8	9 CC
28		2-	1-	1+	1+	2	1+	1-	1-	10-	5	0.2	1o	1-	2-	1+	2+	1+	1o	1-	9	13	6	8	12 CC
29	Q4	1-	1+	1	1-	1	1-	1	1-	7	4	0.1	1-	2-	1-	1o	1+	1-	1o	1-	6	7	6	6	7 CC
30		3	2+	1-	1	0+	0+	1	3	12-	7	0.3	3-	2+	1+	1+	1-	0+	1+	3-	13	16	8	13	11 C
31	D1*	4	4+	3+	3+	2+	2-	1+	2	22+	15	0.9	4o	4o	4-	3+	2+	2-	1+	2o	30	34	21	39	17
Mean											6	0.28									11.9	13.9	10.4		12.1

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	Sa	Prov Ri	Ra	Rs	IMF
1	1+	2-	0+	1-	1+	1+	1+	1+	8	1+	1+	0+	0+	1o	1-	1o	1o	6	72.4	0	0	16	
2	1o	1o	0+	1-	1+	1o	2-	2-	8	2+	1o	0+	1-	1o	1-	2-	1o	8	72.4	0	2	16	
3	2+	2-	2-	3-	2+	2-	1-	1+	14	2+	1+	1-	2o	2-	1+	0+	1o	10	71.4	8	2	15	
4	2o	2-	1+	1-	2-	2+	2-	1o	11	1+	1+	1o	1o	2-	2-	1o	1o	9	72.0	9	8	16	
5	1o	2-	1+	1+	2-	1+	0o	0+	8	1-	1o	1o	1-	1-	1o	0+	0+	5	72.0	8	3	16	
6	1-	3-	2-	3-	1o	1-	1+	1+	11	1-	2o	2+	1+	1-	0+	1-	1o	8	70.6	10	4	14	
7	1+	3o	3-	3-	2+	3+	3+	3+	28	1o	3-	3o	3o	2+	3-	3-	3+	24	72.6	26	22	16	
8	2-	2-	1o	1-	1+	2-	1-	2-	9	1+	1+	1o	1-	0o	1-	1-	2-	6	72.1	16	10	16	
9	3-	3-	2+	1+	2o	4-	3+	2o	22	3o	3-	2+	1+	2-	3-	3-	2o	20	72.3	17	18	16	
10	1o	2-	3-	3-	2o	2o	2-	1+	14	1o	1+	3-	2+	2-	2-	1+	1o	13	70.8	13	2	14	
11	1o	1+	1-	2-	2o	1o	2-	2-	10	1-	2-	1o	2-	2+	2-	1o	1o	10	70.9	0	0	15	
12	1o	1-	1-	0+	1o	1+	1+	1+	7	1o	1-	0o	0o	0+	0+	0+	0+	2	69.6	0	0	13	
13	1-	1+	2-	1o	1-	1o	1-	1o	6	0o	1o	1+	0+	0+	1-	0+	0o	4	69.3	0	0	13	
14	0+	1-	1-	1-	1-	1+	1o	1-	5	0+	0+	1-	1o	1-	1o	0+	0o	4	70.3	9	3	14	
15	2-	3o	3-	4o	3o	3o	3-	2o	27	1+	2o	2o	4-	3+	3-	2+	2-	23	71.5	0	0	15	
16	2-	2o	2-	1+	1o	1+	2-	1+	11	2-	1+	1+	1-	1-	0o	0+	0+	6	71.9	0	0	16	
17	1o	2-	2+	2o	1+	2+	2o	3-	15	0o	1-	2+	1+	1o	1o	1+	2+	9	72.2	7	4	16	
18	2+	3+	3-	3-	3-	2o	1o	2o	20	2+	3+	2+	2+	3-	1+	1-	1o	17	72.3	7	3	16	
19	2-	3-	2+	2-	3o	2+	2o	2+	18	1+	1+	2o	2+	2+	2-	2-	2o	14	72.8	0	0	17	
20	2o	2+	1+	2+	2o	1o	1o	1o	12	2o	2-	1-	3-	1+	0+	1-	0+	9	73.5	11	6	17	
21	0+	1+	2-	1-	1+	2o	2-	2-	10	0+	1o	1-	1o	1o	2-	1+	1-	7	73.6	0	0	17	
22	1+	1-	1-	2-	2o	2-	2-	1+	10	1-	0+	1-	1+	1+	1+	1o	0+	6	74.5	11	7	18	
23	2-	1+	1+	1-	1o	1o	1+	3-	10	0+	1+	1o	1o	1-	0+	0+	2o	6	78.1	20	28	22	
24	2o	1+	3o	3+	3+	2+	2+	3o	24	2-	1o	3-	3o	3+	2o	2+	3-	21	81.2	29	43	26	
25	3-	2-	1+	1+	1+	2-	2-	1+	12	2-	2o	1o	1+	1+	2o	1+	1-	10	83.0	39	45	28	
26	1o	1-	2-	0+	1o	1+	1+	2o	8	1o	1-	0+	0+	1-	1-	1o	1+	5	79.0	37	37	23	
27	1+	1+	2-	2o	2o	2o	1o	2-	12	2o	1+	1+	2-	1+	1+	1-	1+	10	76.8	28	22	21	
28	1+	1-	2o	2-	3-	2o	1o	1o	11	1o	0+	1+	1o	2-	1-	1o	1-	7	76.5	11	5	21	
29	1-	2-	1o	1o	1+	1o	1o	1o	7	1-	1+	1-	1o	1o	1-	1-	0+	6	75.0	11	2	19	
30	3o	3-	1+	1+	1-	0+	2-	3-	14	2+	2+	1o	1o	1-	0+	1o	3-	11	73.2	0	0	17	
31	4+	4+	4o	3+	2+	2o	2-	2o	34	3+	4o	3+	3+	2o	1o	1o	2+	26	72.5	0	0	16	
Mean									13.4									10.4	73.4	10.5	8.9	17.3	

Daily Average Indices Ap
Aug 1996 - Jul 1997

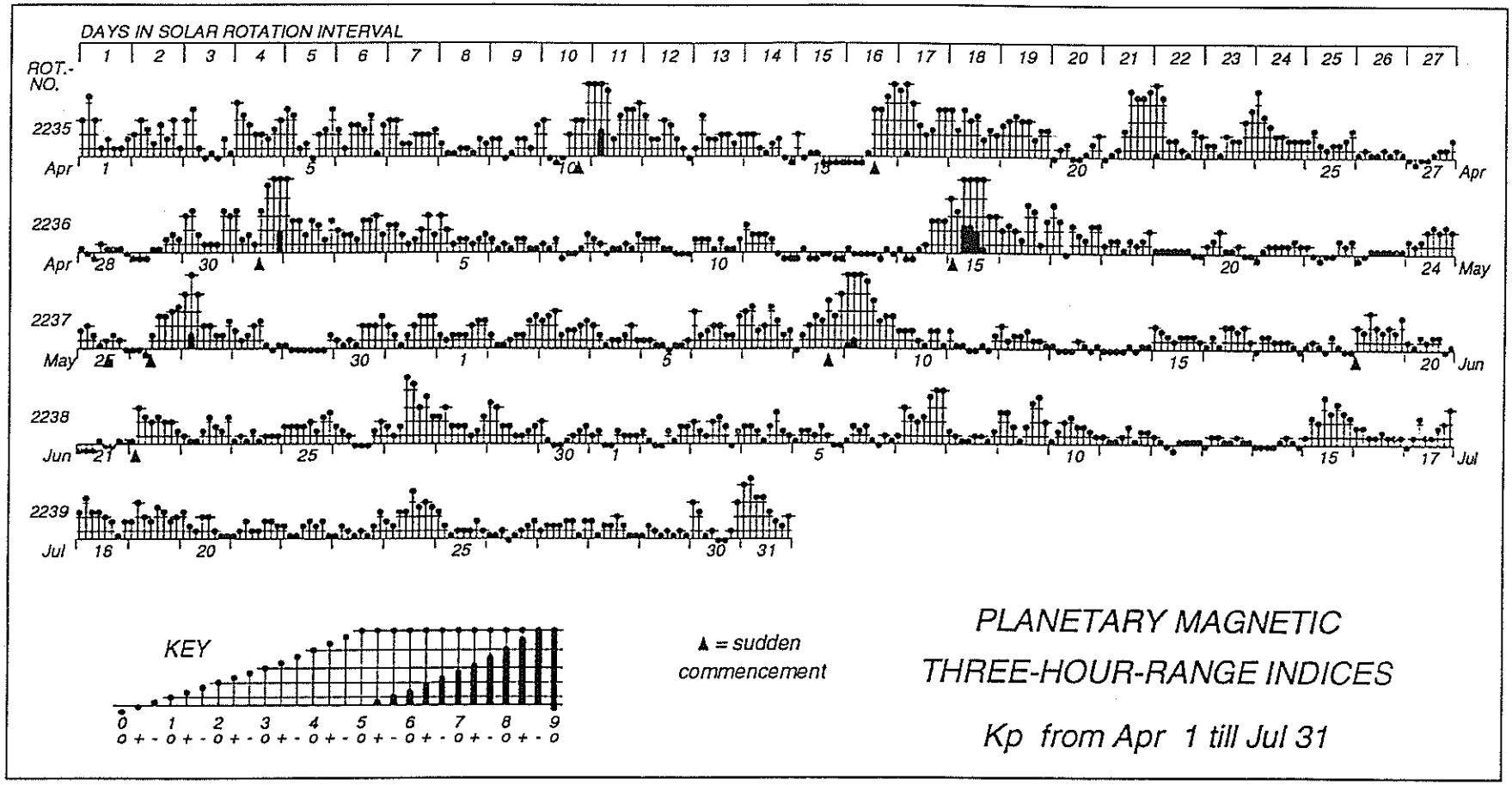


Day	Aug 96	Sep	Oct	Nov	Dec	Jan 97	Feb	Mar	Apr	May	Jun	Jul
1	12	6	5	3	3	4	5	13	11	29	6	4
2	9	5	10	2	10	5	11	12	9	14	6	4
3	7	3	15	2	8	4	7	7	7	9	9	6
4	5	9	6	10	11	4	4	4	13	8	5	6
5	6	6	3	6	2	4	6	9	11	6	3	4
6	7	5	2	8	1	3	10	8	10	4	8	4
7	5	7	4	4	4	11	4	7	9	3	10	15
8	4	6	10	4	3	8	22	5	4	4	12	4
9	7	8	20	11	9	5	20	1	6	3	33	11
10	4	31	10	9	25	32	22	2	13	4	5	6
11	4	19	8	4	14	18	21	3	37	4	3	4
12	4	29	15	8	8	12	7	13	9	1	5	3
13	5	18	19	16	6	7	4	8	8	2	3	3
14	12	10	14	21	6	4	5	5	4	6	2	2
15	6	18	5	15	13	4	4	7	2	56	5	12
16	11	17	10	5	12	3	8	7	15	10	5	5
17	10	9	6	13	10	2	14	6	25	9	4	6
18	5	18	27	14	6	5	6	6	14	5	3	8
19	4	15	38	10	1	6	3	3	12	3	8	8
20	7	34	16	8	2	7	4	3	4	4	4	5
21	5	29	8	6	6	10	10	4	20	4	2	5
22	5	28	38	4	9	6	8	10	15	3	8	4
23	11	27	37	4	9	4	9	3	9	2	6	4
24	8	8	10	12	4	4	9	9	11	7	4	11
25	16	10	6	7	6	6	6	12	6	4	7	5
26	10	30	4	7	3	18	15	17	3	8	4	4
27	14	16	4	10	3	16	30	6	3	21	17	5
28	13	15	14	7	3	24	37	21	2	5	8	5
29	38	7	14	5	4	9		20	3	2	8	4
30	16	4	14	2	10	15		10	10	6	4	7
31	11		7		5	8		5	5	8		15
Mean	9	15	13	8	7	9	11	8	10	8	7	6

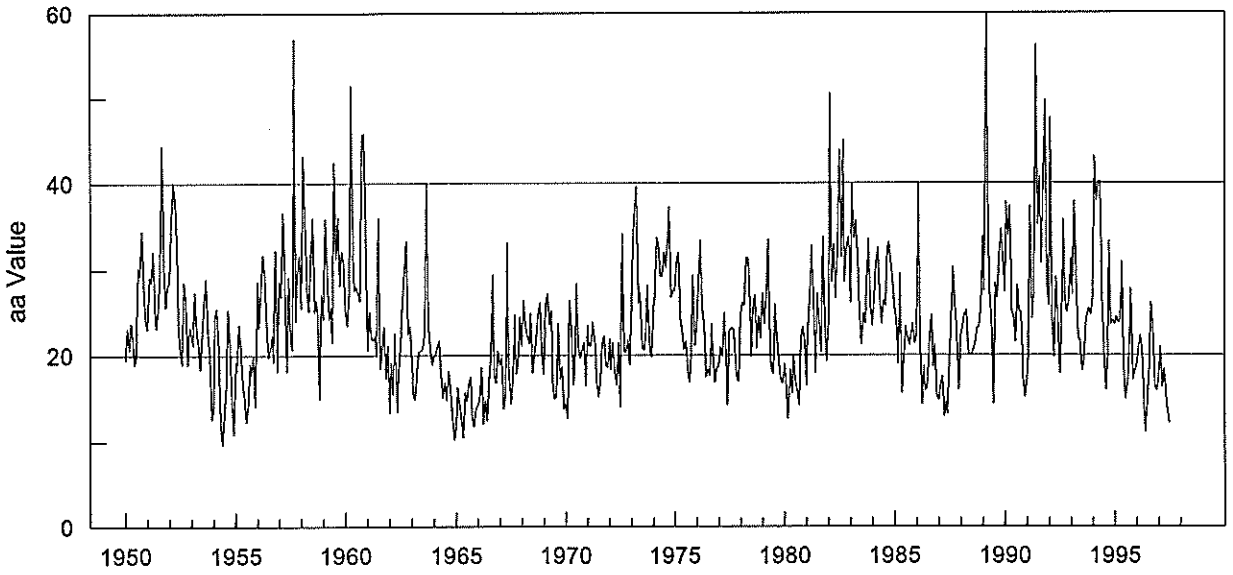
PLANETARY 3-HOUR-RANGE INDICES (Kp) BY 27-DAY SOLAR ROTATION INTERVAL

University of Gottingen

Kp through July 31, 1997



Monthly Mean aa Index Jan 1950 - Jul 1997



Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Mean
1950	19.5	23.2	20.6	23.8	21.7	19.0	19.5	30.2	29.3	34.5	28.0	24.0	24.4
1951	23.1	29.2	28.5	32.1	25.5	23.2	25.2	29.7	44.4	30.3	25.7	28.2	28.8
1952	28.5	34.3	40.1	38.0	33.1	23.8	20.7	19.0	28.5	26.4	18.9	23.4	27.9
1953	22.3	21.2	27.4	22.7	21.4	18.4	22.5	26.1	29.0	22.4	20.2	12.6	22.2
1954	13.9	24.5	25.5	20.6	12.0	9.7	13.1	16.5	25.4	21.1	14.5	10.9	17.3
1955	19.3	18.2	23.6	21.1	16.7	15.1	12.3	14.3	19.1	17.8	19.9	14.1	17.6
1956	28.7	23.3	27.6	31.7	29.3	23.5	19.8	20.7	22.4	19.3	32.3	18.2	24.7
1957	28.7	26.8	36.7	28.8	18.1	29.1	21.7	20.7	57.0	24.0	29.5	31.7	29.4
1958	25.5	43.2	36.1	27.6	25.2	29.7	36.0	25.1	26.5	24.7	15.0	27.2	28.5
1959	24.3	35.9	29.9	24.2	25.7	21.6	42.5	31.2	36.1	28.2	32.1	30.8	30.2
1960	25.2	23.5	27.6	51.5	31.6	27.6	28.1	27.2	26.4	45.6	45.9	34.5	32.9
1961	20.6	25.1	22.0	21.8	22.3	20.1	36.0	18.5	20.7	23.3	17.3	21.1	22.4
1962	13.2	19.2	15.5	22.6	13.4	18.1	21.0	26.2	29.8	33.3	22.5	23.5	21.5
1963	19.3	15.3	14.9	18.2	20.4	20.5	20.8	22.5	40.2	23.5	20.7	18.9	21.3
1964	20.1	20.1	21.0	21.7	17.5	15.1	16.9	14.8	18.2	16.9	13.8	10.3	17.2
1965	11.8	16.3	14.3	12.6	10.5	15.7	14.7	16.8	17.5	13.1	11.7	13.8	14.1
1966	14.2	14.8	18.6	12.0	14.8	12.5	17.1	20.0	29.4	17.5	16.8	20.5	17.3
1967	18.9	19.8	13.8	15.5	33.1	18.6	14.4	17.5	24.7	17.8	18.9	24.5	19.8
1968	21.1	26.5	23.3	22.2	21.4	24.9	18.0	20.1	22.0	24.8	26.2	20.3	22.6
1969	17.8	25.8	27.3	23.6	25.2	16.7	15.0	15.3	23.8	17.2	18.7	13.8	20.0
1970	14.4	12.7	26.4	23.1	16.6	18.3	28.4	21.0	19.7	20.6	21.6	16.5	19.9
1971	23.5	21.2	21.1	23.9	21.1	17.0	15.2	17.1	21.4	22.2	18.8	18.6	20.1
1972	21.9	18.3	21.5	18.1	16.6	21.5	14.0	34.2	20.4	20.4	21.8	18.9	20.6
1973	26.1	32.7	36.9	39.6	26.1	27.3	20.9	20.6	22.8	28.2	20.7	19.9	26.8
1974	25.8	26.4	33.7	32.9	29.2	29.2	32.0	30.2	33.7	37.3	26.8	27.5	30.4
1975	27.6	31.1	32.0	24.3	22.7	20.7	21.7	18.1	16.9	20.2	29.3	21.1	23.8
1976	23.3	28.5	33.4	25.4	23.7	17.5	18.4	17.7	23.7	20.4	16.9	18.6	22.3
1977	18.7	21.0	19.9	24.9	20.1	14.2	22.9	23.2	23.0	20.9	17.3	17.0	20.3
1978	24.6	26.2	25.9	31.3	31.2	28.3	19.9	25.6	27.0	20.8	24.6	22.0	25.6
1979	27.3	23.7	26.9	33.5	21.0	18.3	17.9	26.0	22.0	19.3	17.1	16.8	22.5
1980	19.0	17.3	12.7	18.4	15.6	20.0	17.0	15.9	14.2	21.9	23.3	21.7	18.1
1981	16.5	23.1	26.6	32.8	26.9	18.0	27.2	24.0	20.4	33.7	24.1	19.3	24.4
1982	24.2	50.6	28.5	32.9	26.7	32.1	43.9	31.4	45.1	28.5	33.0	33.8	34.2
1983	26.2	40.0	33.6	35.7	31.6	24.9	21.3	24.9	23.7	28.3	33.5	26.0	29.1
1984	23.5	26.7	30.7	32.5	27.2	23.7	26.4	25.8	32.6	33.1	31.0	29.0	28.5
1985	25.7	24.1	19.0	29.5	15.6	19.9	23.4	22.0	21.2	22.2	23.7	21.4	22.3
1986	22.4	40.0	21.1	14.3	18.8	15.9	16.3	22.3	24.7	18.6	21.2	15.3	20.9
1987	14.8	16.6	17.6	12.9	14.7	13.2	19.3	24.3	30.3	25.8	22.4	16.0	19.0
1988	22.4	23.4	24.8	25.2	20.5	20.0	20.2	20.6	21.4	23.2	23.3	25.5	22.5
1989	33.9	27.5	60.1	32.8	25.7	24.9	14.4	28.4	26.7	31.4	34.7	31.4	31.0
1990	27.4	37.8	33.9	37.4	25.1	24.6	21.6	28.2	25.1	25.1	17.4	15.2	26.6
1991	17.2	20.1	37.3	24.3	27.3	56.2	35.2	40.8	30.7	44.1	49.7	28.0	34.2
1992	25.9	47.7	24.5	19.8	29.1	24.8	17.9	24.1	35.8	27.0	25.0	26.1	27.3
1993	31.2	27.1	37.9	29.2	22.1	21.8	18.2	19.2	23.8	24.6	25.5	24.8	25.5
1994	26.5	43.2	37.9	40.2	40.2	27.2	20.6	16.0	20.2	33.3	23.6	24.1	29.4
1995	23.6	24.5	23.8	24.2	30.9	19.1	14.9	17.0	22.2	27.9	17.2	18.2	22.0
1996	18.8	20.8	22.3	20.5	14.0	11.1	14.7	18.8	26.2	23.5	16.3	15.9	18.6
1997	17.4	21.0	16.3	18.4	15.1	13.7	12.1						16.3

PLANETARY GEOMAGNETIC ACTIVITY

3-HOUR-RANGE INDICES Km AND aa BY 27-DAY SOLAR ROTATION INTERVAL

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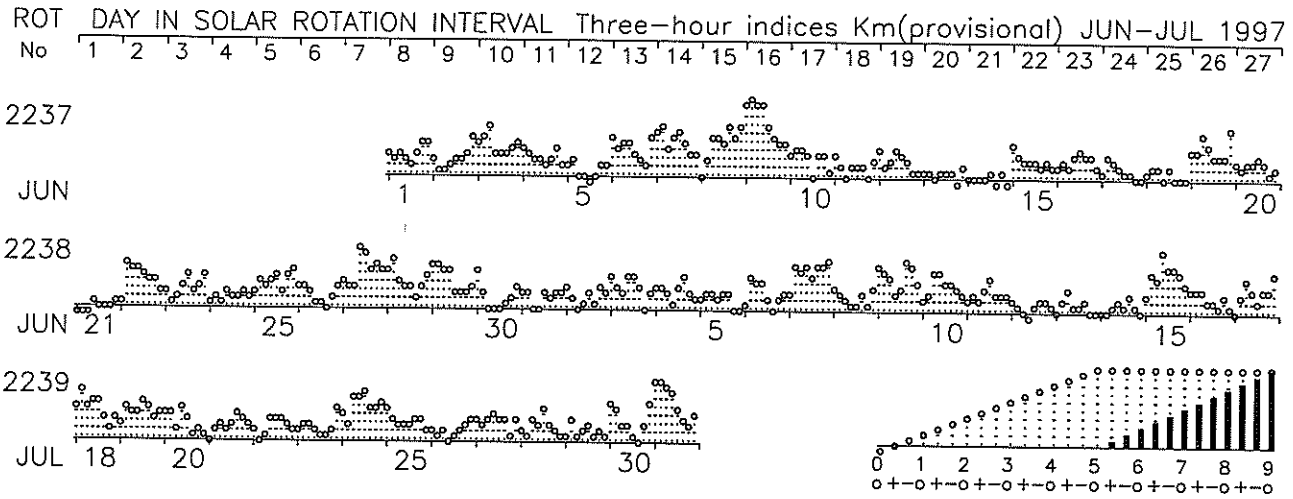
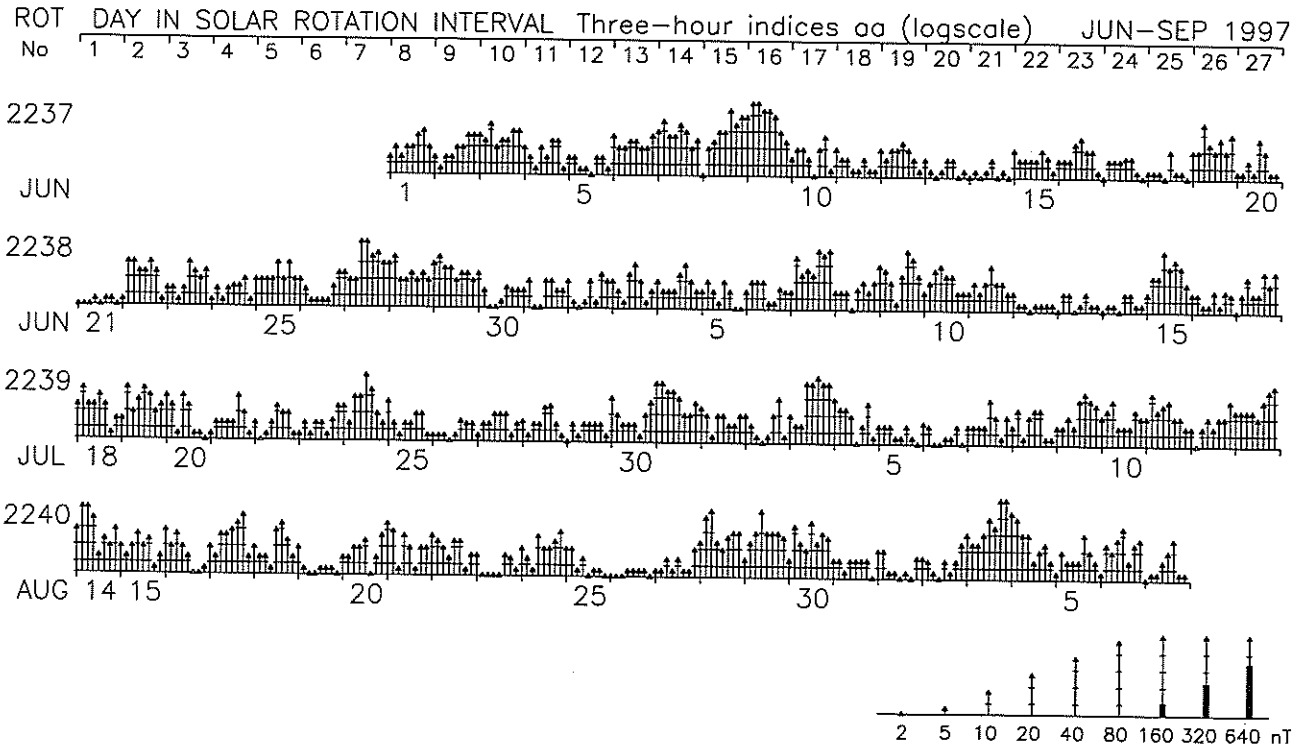


Indices Derivation at Universite Paris Sud; Graph Prepared at ISGI Publication Office.



Indices Derivation at Universite Paris Sud; Graph Prepared at ISGI Publication Office.

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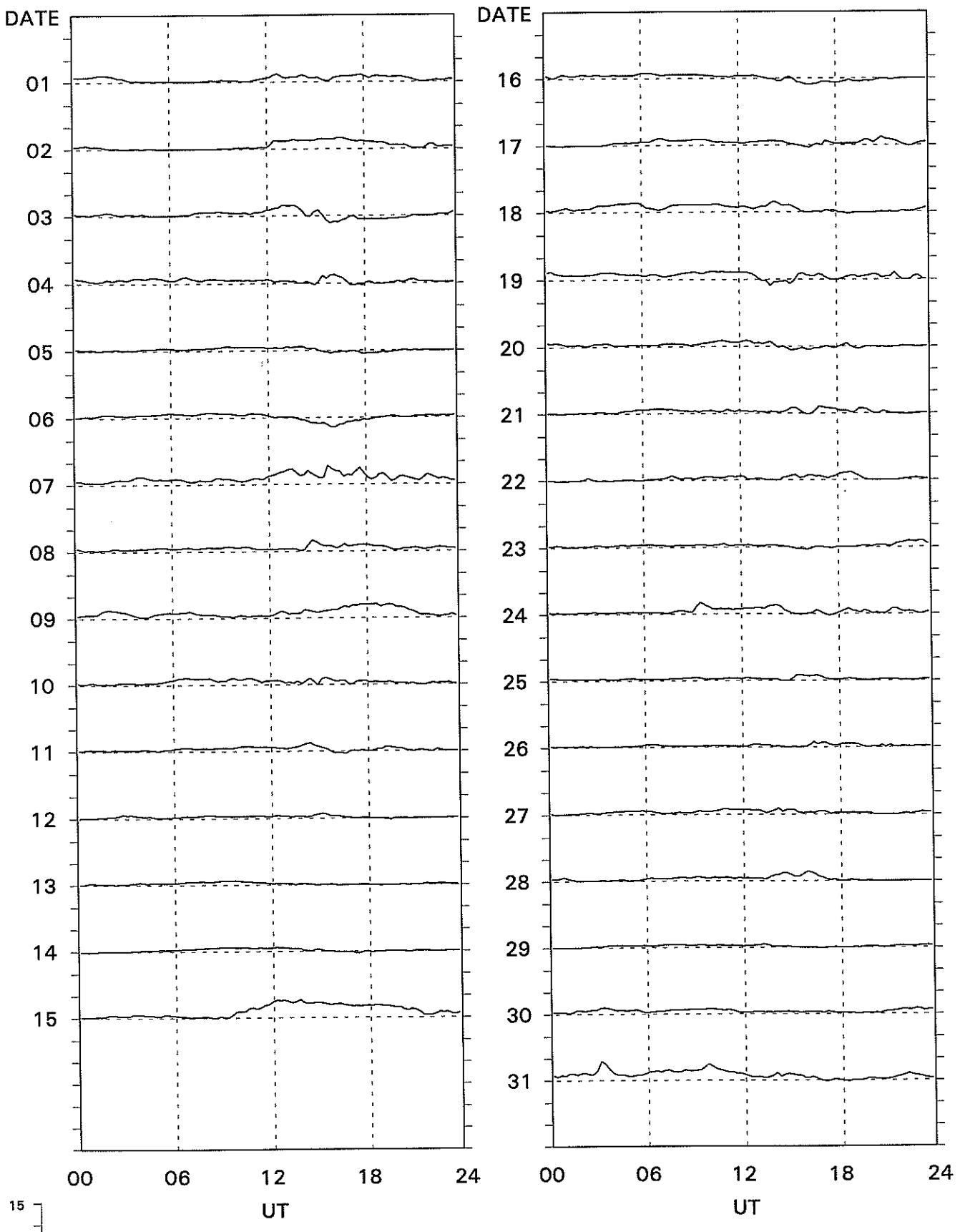


Preliminary Values.

15-min. Values.

Danish Meteorological Institute

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

JULY 1997

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 Day	Hour (UT)
PAF	57.2S	08	17--	..	..	..	..	09(6)	5	10	59	44	09	23
KRC	16.4N	15	0240	..	..	..	..	15(4,5)	5	7	114	43	16	08
UJJ	13.6N	15	0500	..	..	..	..		-	4	117	21	15	22
NGP	11.3N	15	0500	..	..	..	..		-	--	--	--	15	22
ABG	09.4N	15	0500	..	..	..	..	15(4,5)	5	4	122	27	15	22
HYB	07.6N	15	0200	..	..	..	..	15(4,5,6)	5	5	134	20	16	04
GUA	04.3N	15	02--	..	..	..	..	15(4)	5	--	100	10	15	18
PND	02.0N	15	0500	..	..	..	..		-	3	147	51	15	22
ETT	00.7S	15	0200	..	..	..	..		-	--	177	51	15	22
TRD	01.1S	15	0500	..	..	..	..		-	2	175	61	15	22
UJJ	13.6N	17	1700	..	..	..	..		-	5	42	21	20	00
NGP	11.3N	17	1700	..	..	..	..		-	--	--	--	20	00
ABG	09.4N	17	1700	..	..	..	..	19(5)	4	5	44	36	20	00
PND	02.0N	17	1700	..	..	..	..		-	4	55	33	20	00
TRD	01.1S	17	1700	..	..	..	..		-	3	79	41	20	00
UJJ	13.6N	23	1900	..	..	..	..		-	6	84	27	25	23
NGP	11.3N	23	1900	..	..	..	..		-	--	--	--	25	23
ABG	09.4N	23	1900	..	..	..	..		-	5	94	29	25	23
HYB	07.6N	23	1800	..	..	..	..	24(4)	4	6	96	19	25	23
PND	02.0N	23	1900	..	..	..	..		-	5	97	48	25	23
ETT	00.7S	23	1900	..	..	..	..		-	--	99	33	25	22
TRD	01.1S	23	1900	..	..	..	..		-	4	100	57	25	23
HYB	07.6N	24	0910	SC	- 0.2	14	- 2	24(4)	4	6	96	19	25	23
ETT	00.7S	24	0911	SC	- 0.4	15	13		-	--	--	--	25	22
UJJ	13.6N	30	2100	..	..	..	..		-	5	59	23	31	22
NGP	11.3N	30	2100	..	..	..	..		-	--	--	--	31	22
ABG	09.4N	30	2100	..	..	..	..	31(1)	-	5	66	32	31	22
GUA	04.3N	30	21--	..	..	..	..	31(1)	5	--	120	10	31	11
PND	02.0N	30	2100	..	..	..	..		-	3	70	44	31	22
TRD	01.1S	30	2100	..	..	..	..		-	3	107	38	31	22

Stations:

ABG = ALIBAG
AMS = MARTIN DE VIVIES
ANN = ANNAMALAINAGAR
BJI = BEIJING
CAN = CANBERRA
CMO = COLLEGE
CZT = PORT ALFRED
DRV = DUMONT D'URVILLE
ETT = ETAIYAPURAM
FRD = FREDERICKSBURG
GNA = GNANGARA
GUA = GUAM
HER = HERMANUS
HON = HONOLULU
HYB = HYDERABAD
JAI = JAIPUR
KRC = KARACHI
NGP = NAGPUR
PAF = PORT AUX FRANCAIS
PMG = PORT MORESBY
PND = PONDICHERRY
SHL = SHILLONG
SIT = SITKA
TRD = TRIVANDRUM
UJJ = UJJAIN

Stations reporting no events observed: AMS CZT DRV FRD HER

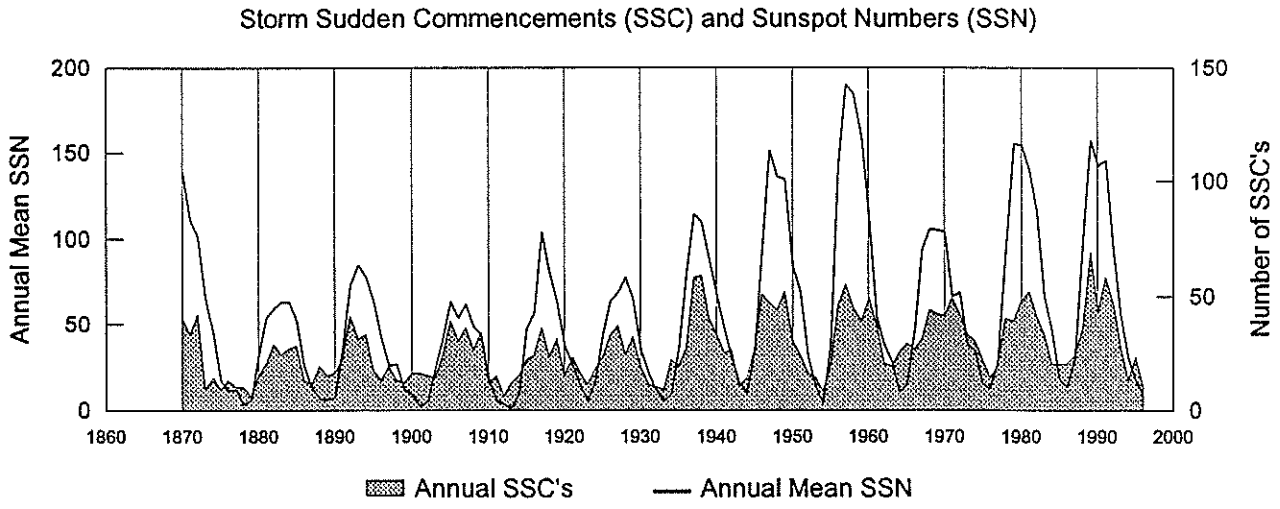
MAGNETIC STORM SUDDEN COMMENCEMENTS AND SOLAR FLARE EFFECTS (PRELIMINARY REPORT ON RAPID MAGNETIC VARIATIONS)

JULY 1997

Storm Sudden Commencements (SSC)			Solar Flare Effects (sfe)		
Day	Time	Quality: Station Group*	Day	Begin-End	Station(s)
15	0311	C: WNG NGK COI SPT LNP	06	1130-1158	NGK
			22	0245-0306	BDV
			31	0045-0051	QUE

REPORTING OBSERVATORIES (up to the 2nd of September 1997):
SOD DOB NUR WNG NGK VAL BDV CLF HRB NAG GCK MMB EBR COI SPT FRD KAK HTY KNY QUE LNP HYB ETT HER CNB

Three-letter codes identify each observatory. Reporting stations have been grouped by the character of the observed event. The letter A means very remarkable; B means fair, but unmistakable; C means very poor, doubtful; and - means no quality figure given. The * means that the SSC, at least in one component, was preceded by a small reversed impulse. SSCs are given only when five or more stations report the event. SFEs include all reports. If an SFE is confirmed by solar or ionospheric events, the name of the station is identified with a plus sign (+).



*U.S. GOVERNMENT PRINTING OFFICE: 1997-573-001/29005

WORLD DATA CENTER A
FOR
SOLAR-TERRESTRIAL PHYSICS

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

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