MARCH 2009 NUMBER 775 - Part I

Solar-Geophysical Data prompt reports

Data for January 2009 and February 2009
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NATIONAL GEOPHYSICAL DATA CENTER
Christopher G. Fox, Director
Boulder, Colorado

SOLAR-GEOPHYSICAL DATA

Number 775

(Issued in Two Parts)

Editor: Edward H. Erwin

Division Chief: William F. Denig
Solar-Terrestrial Physics Division

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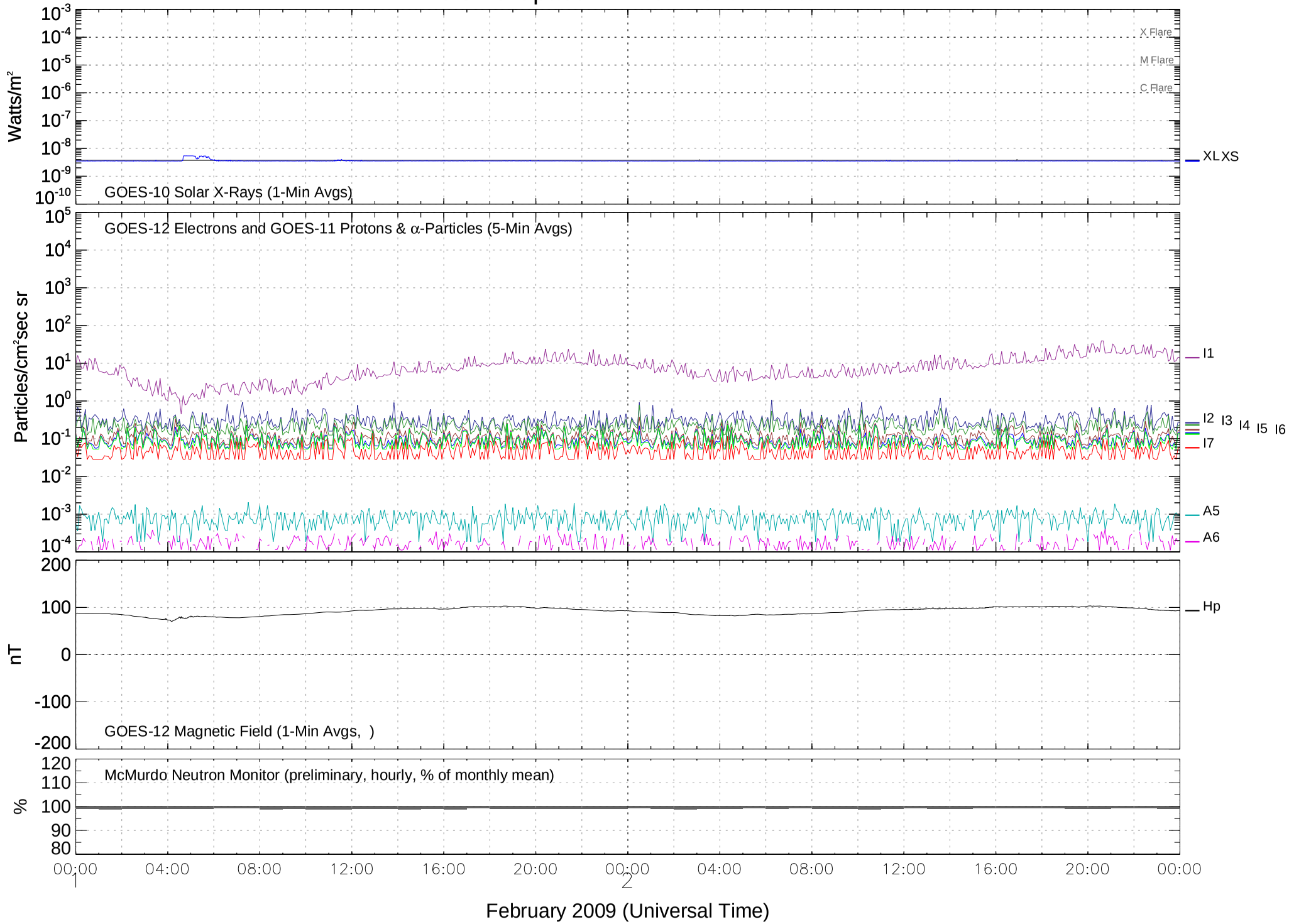

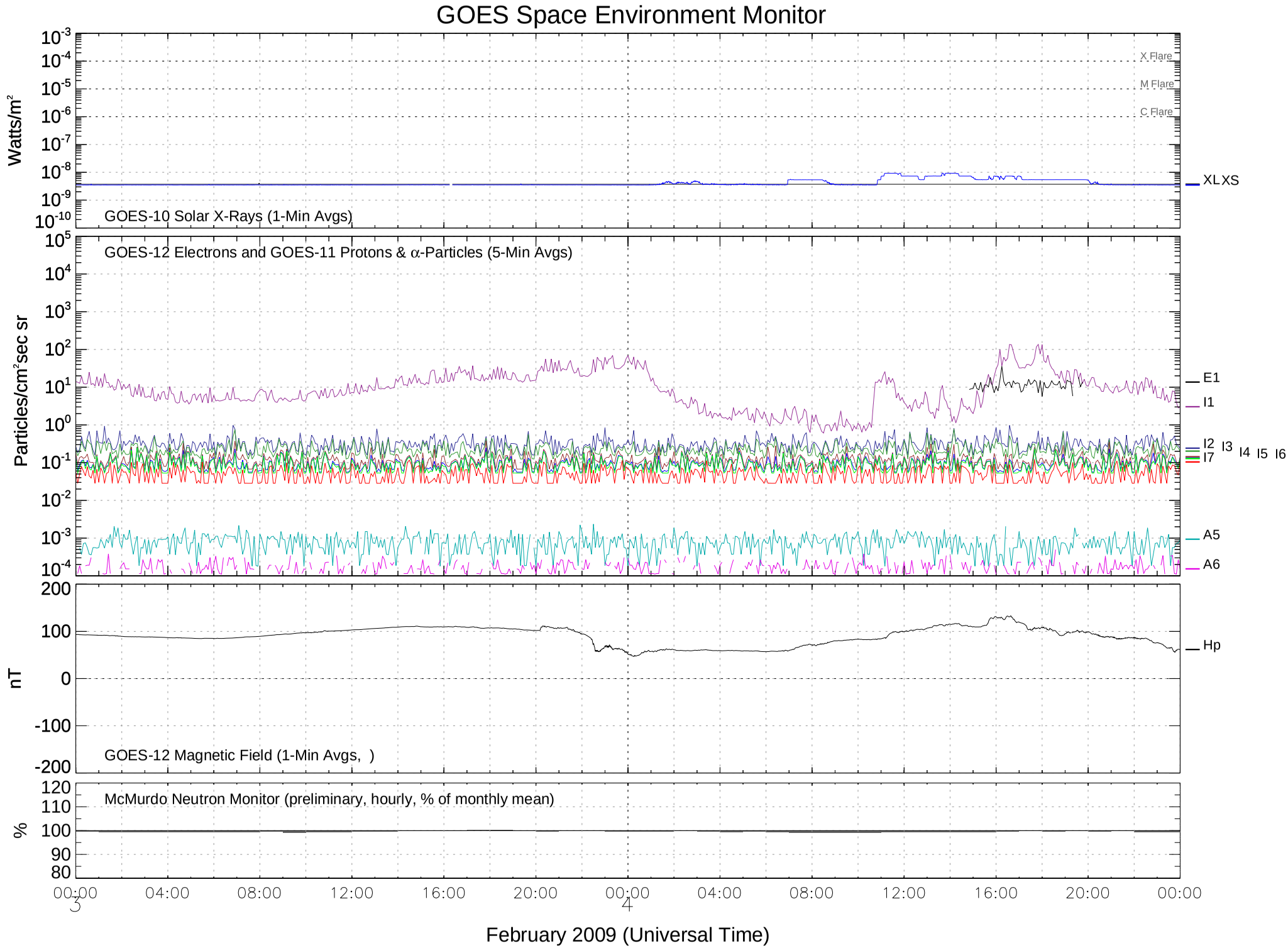
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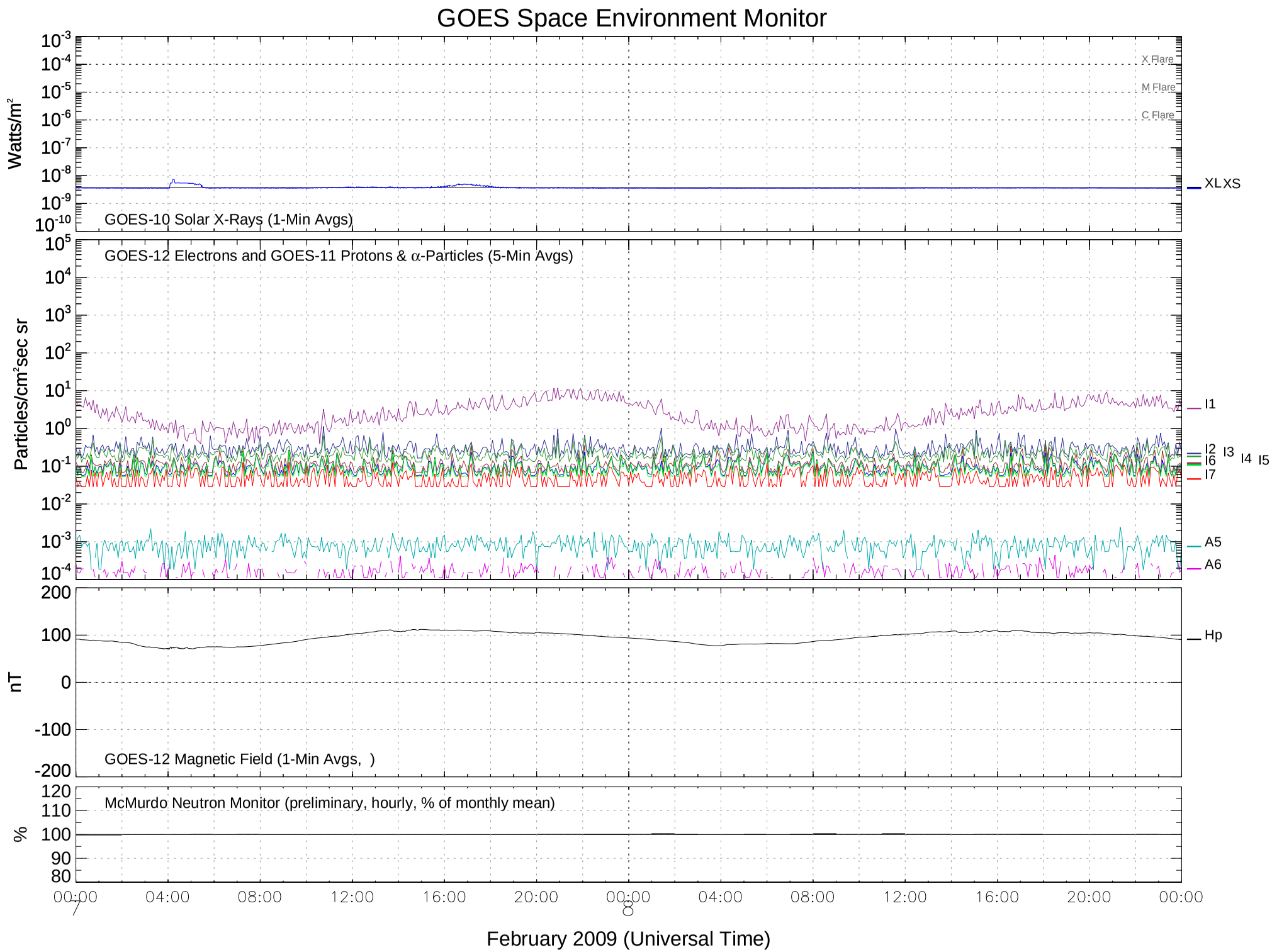
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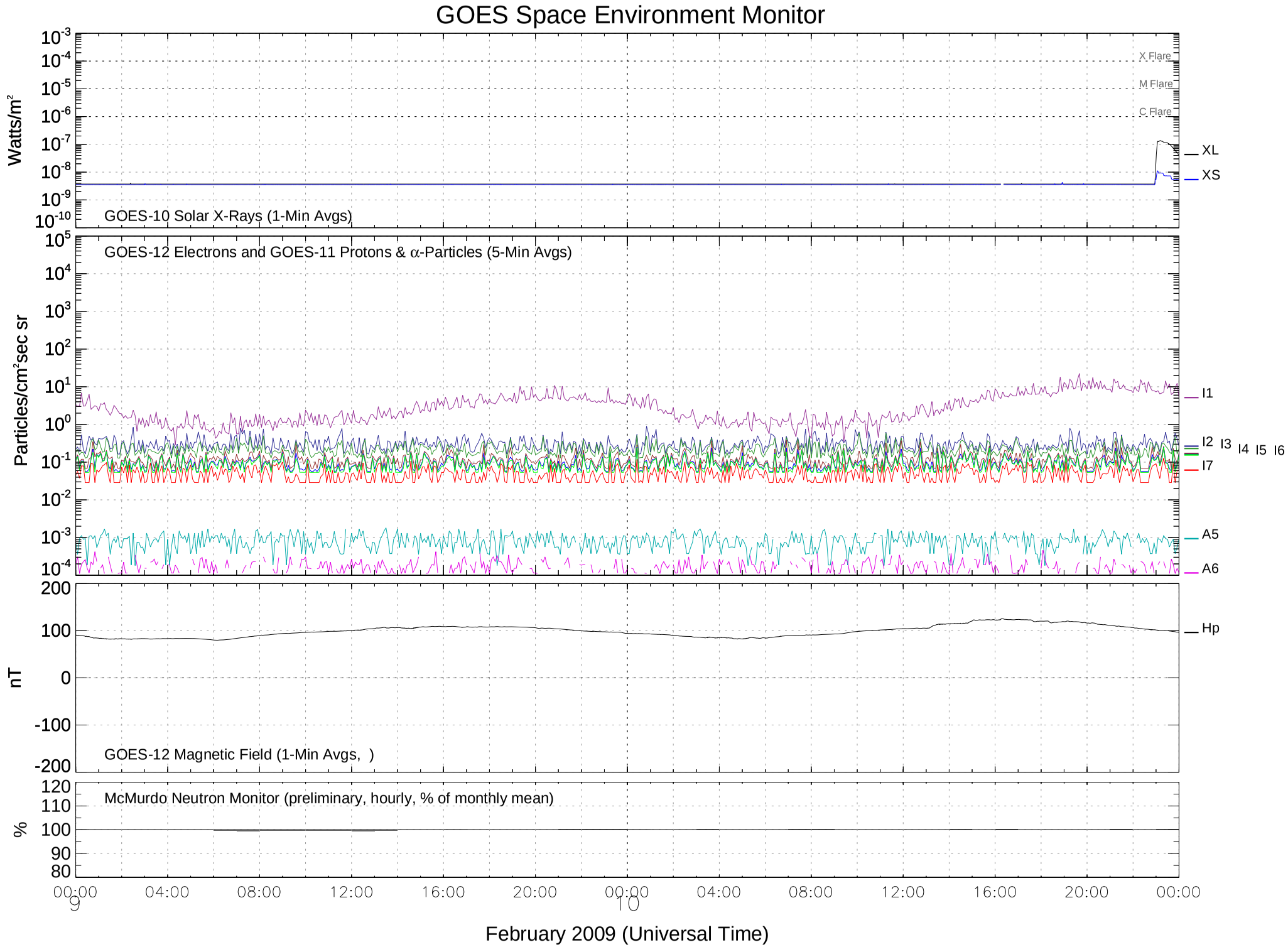
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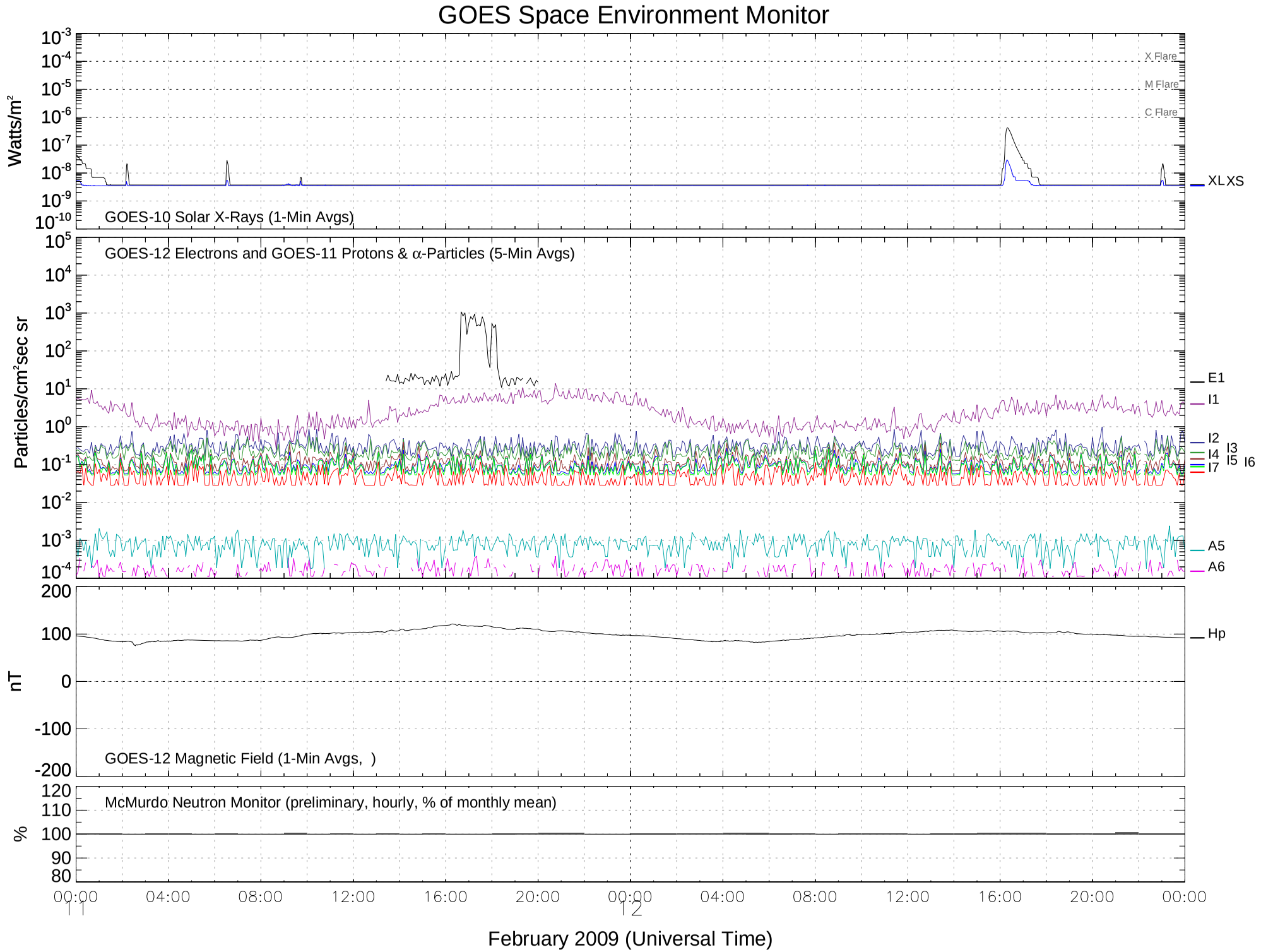
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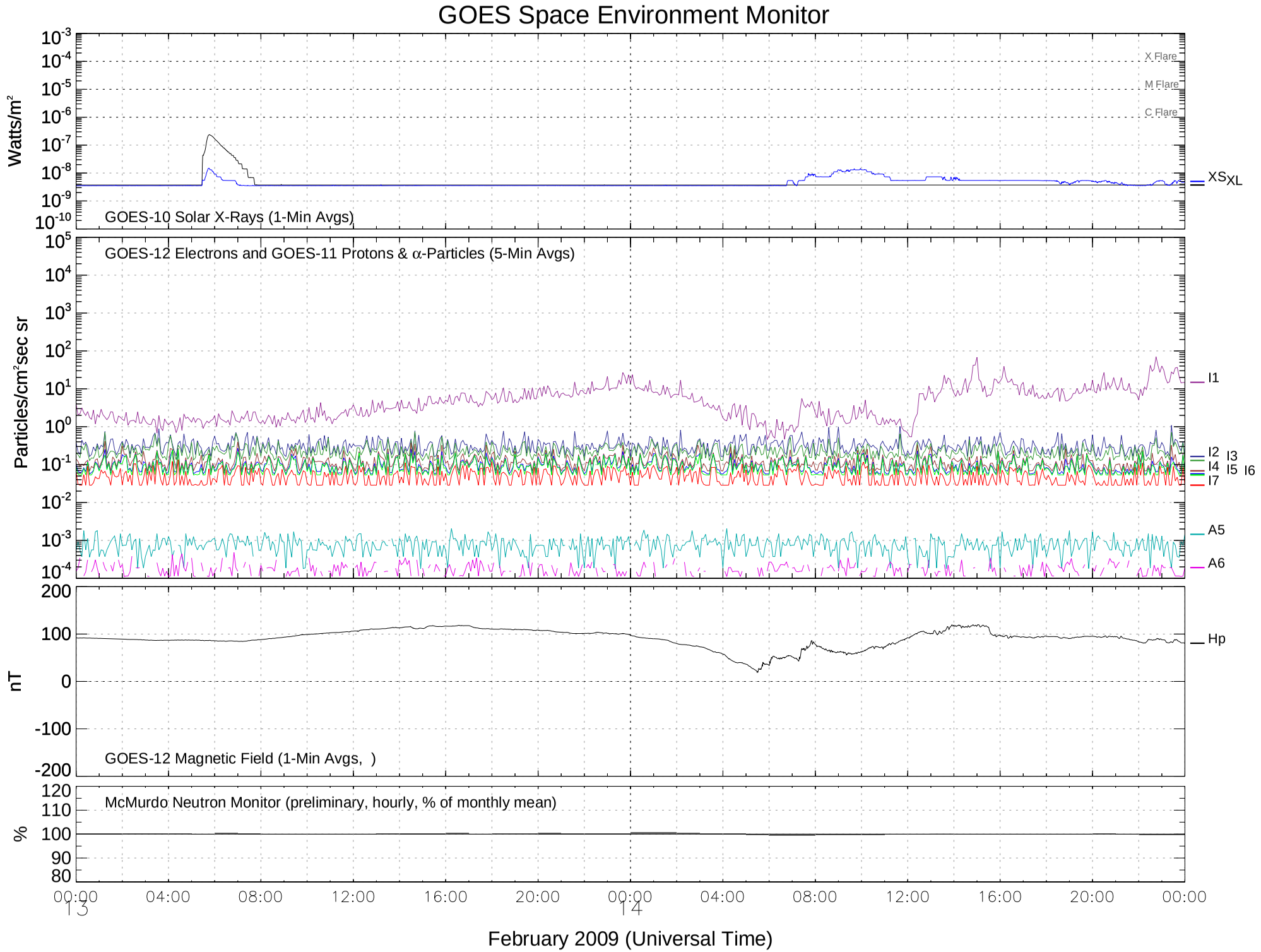
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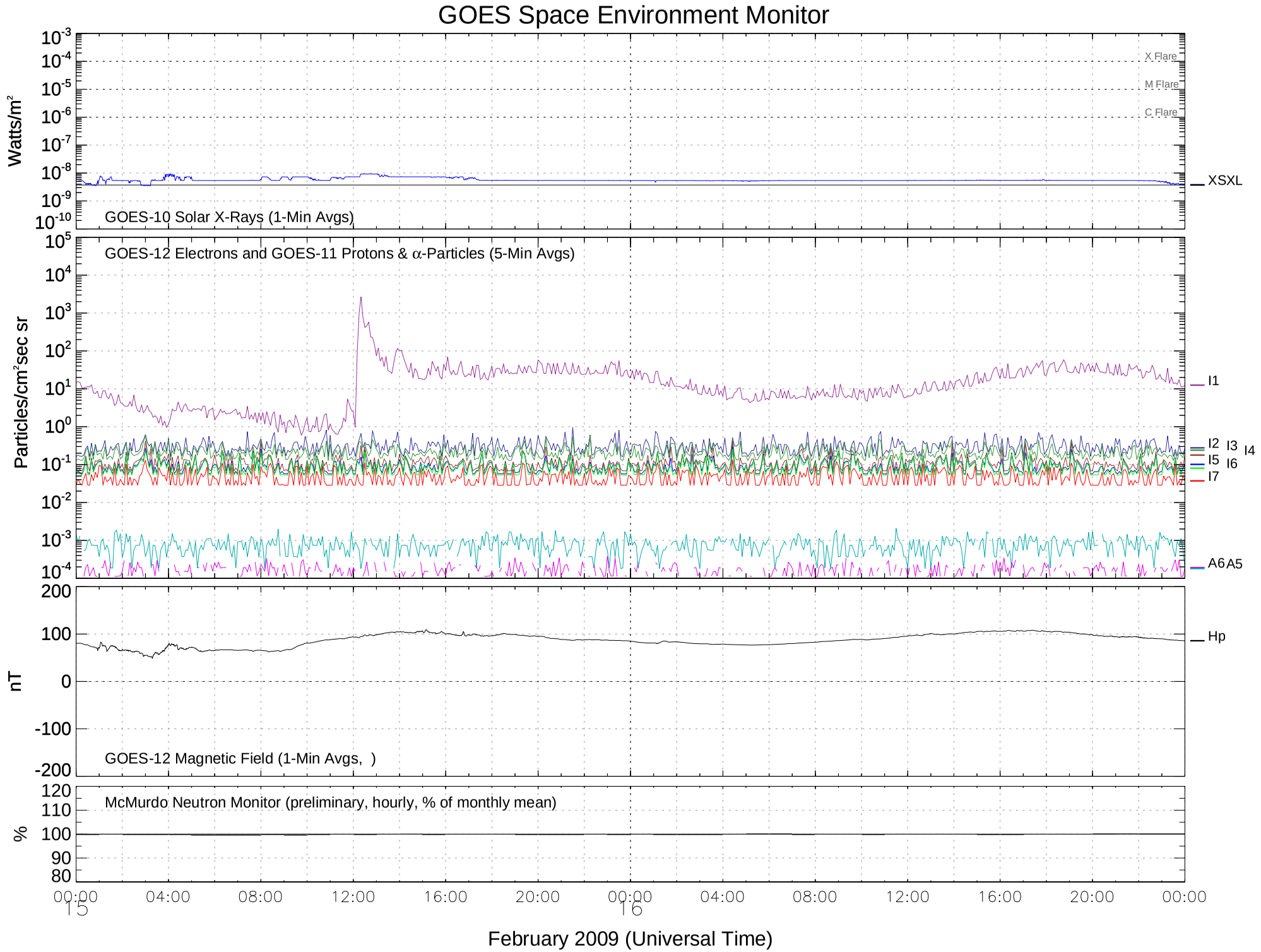
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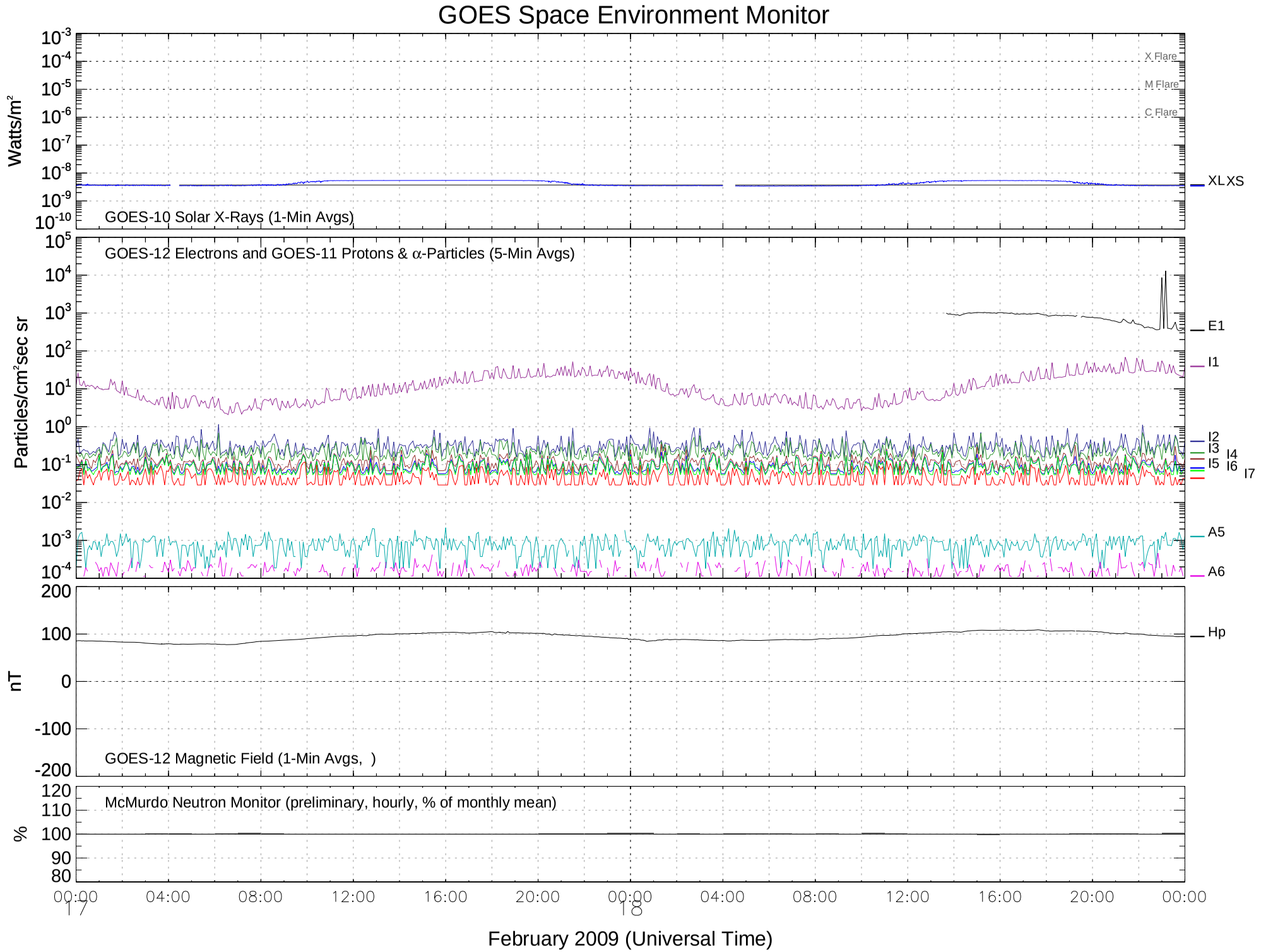
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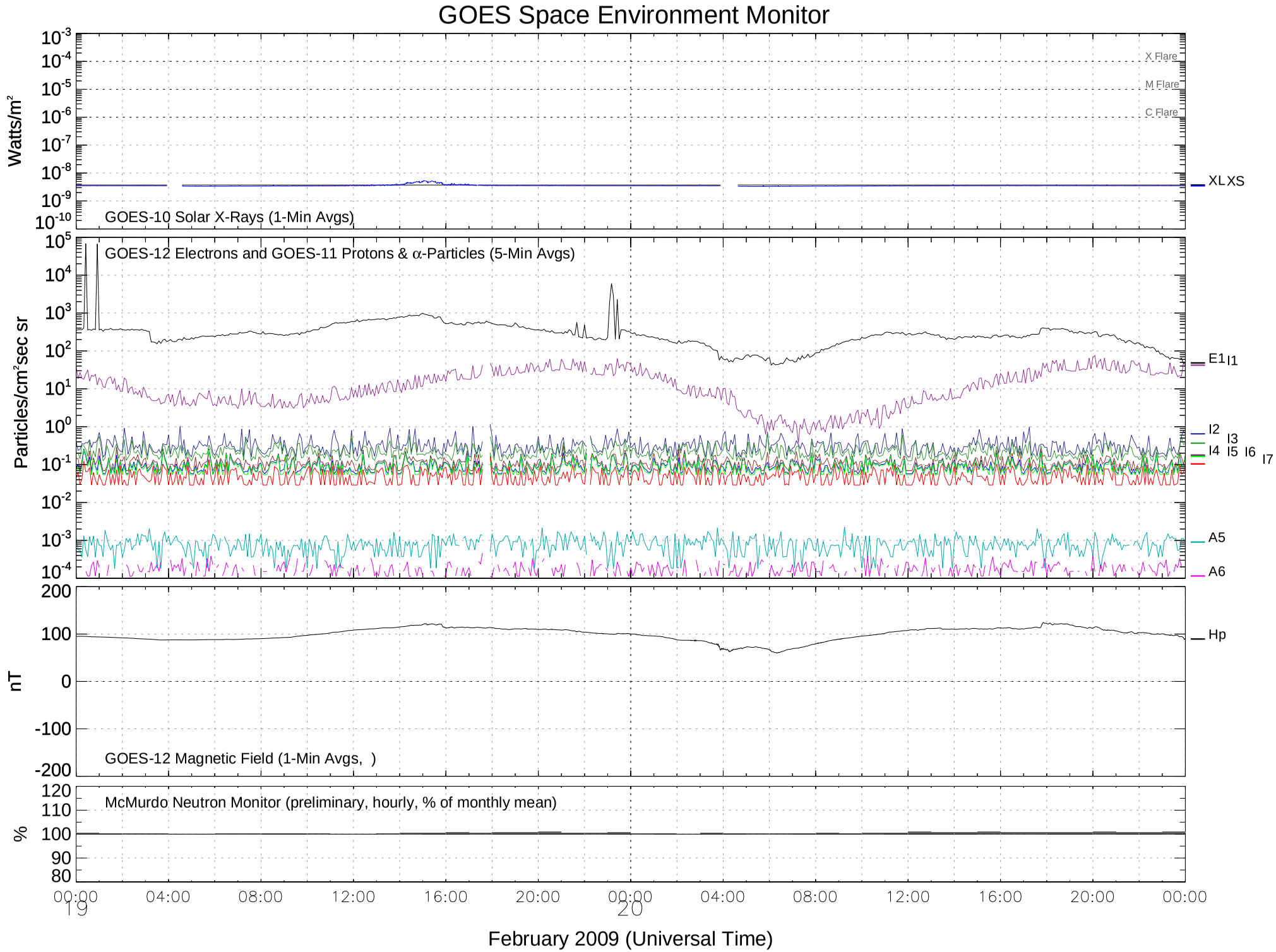
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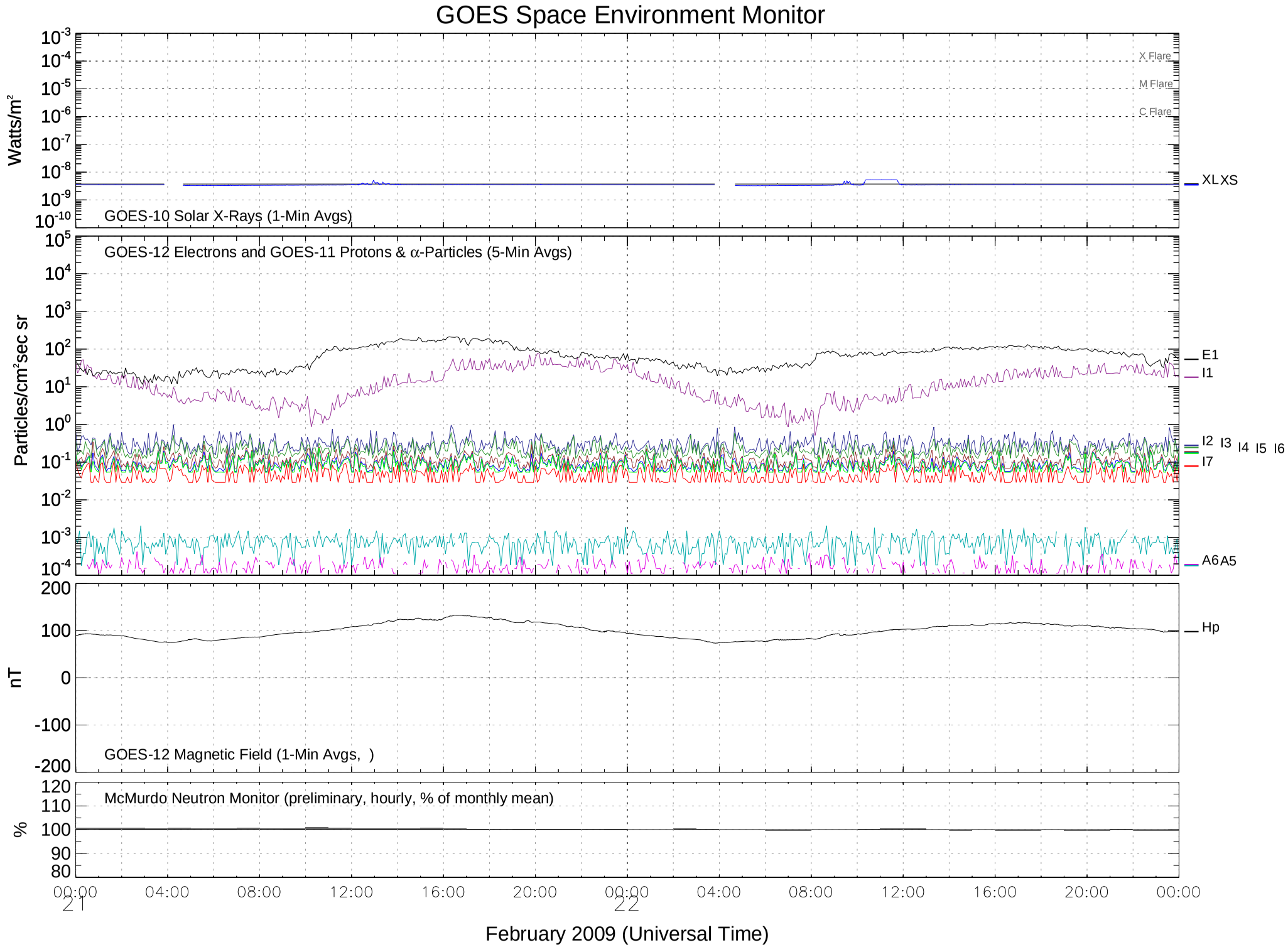
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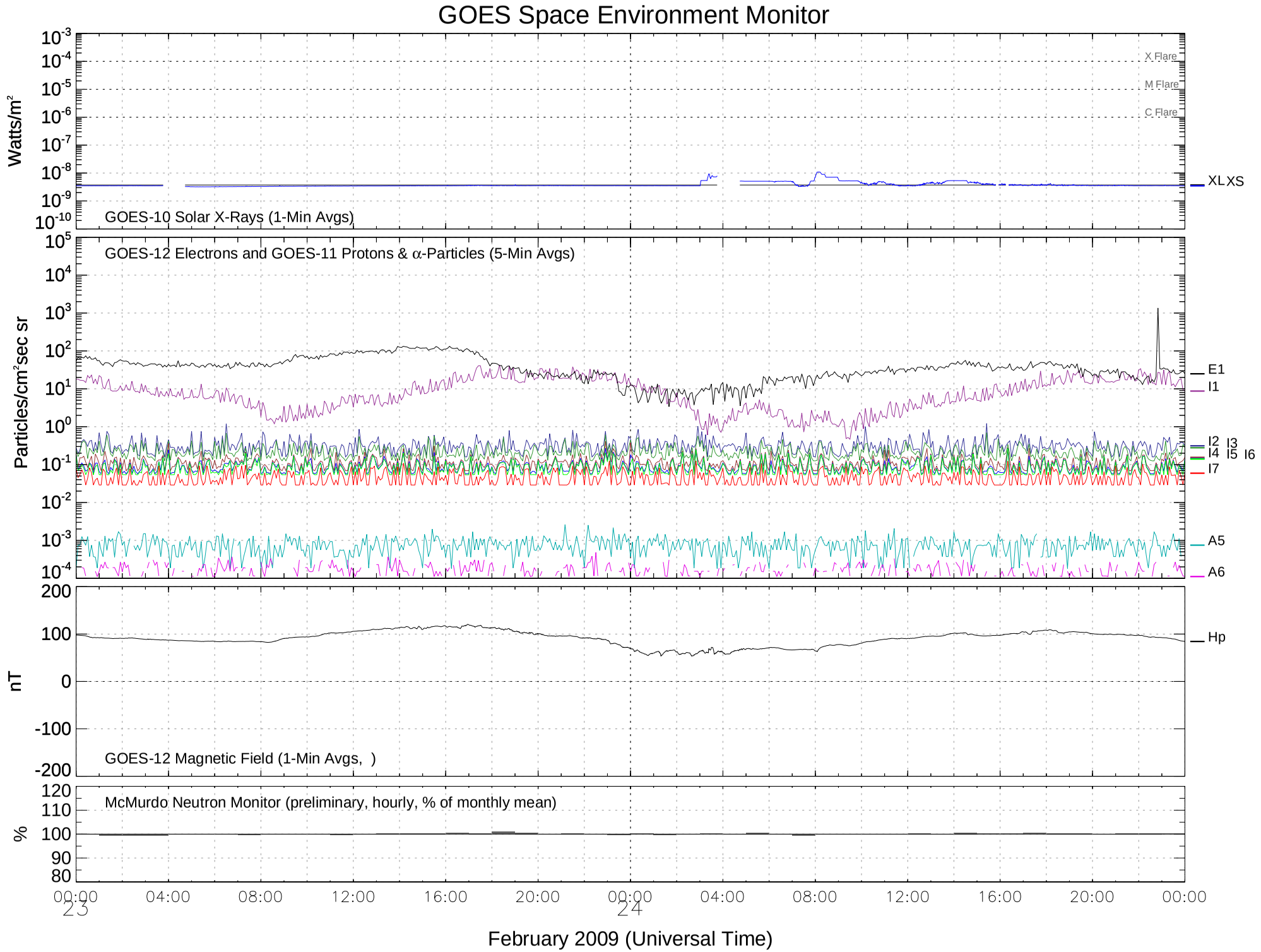
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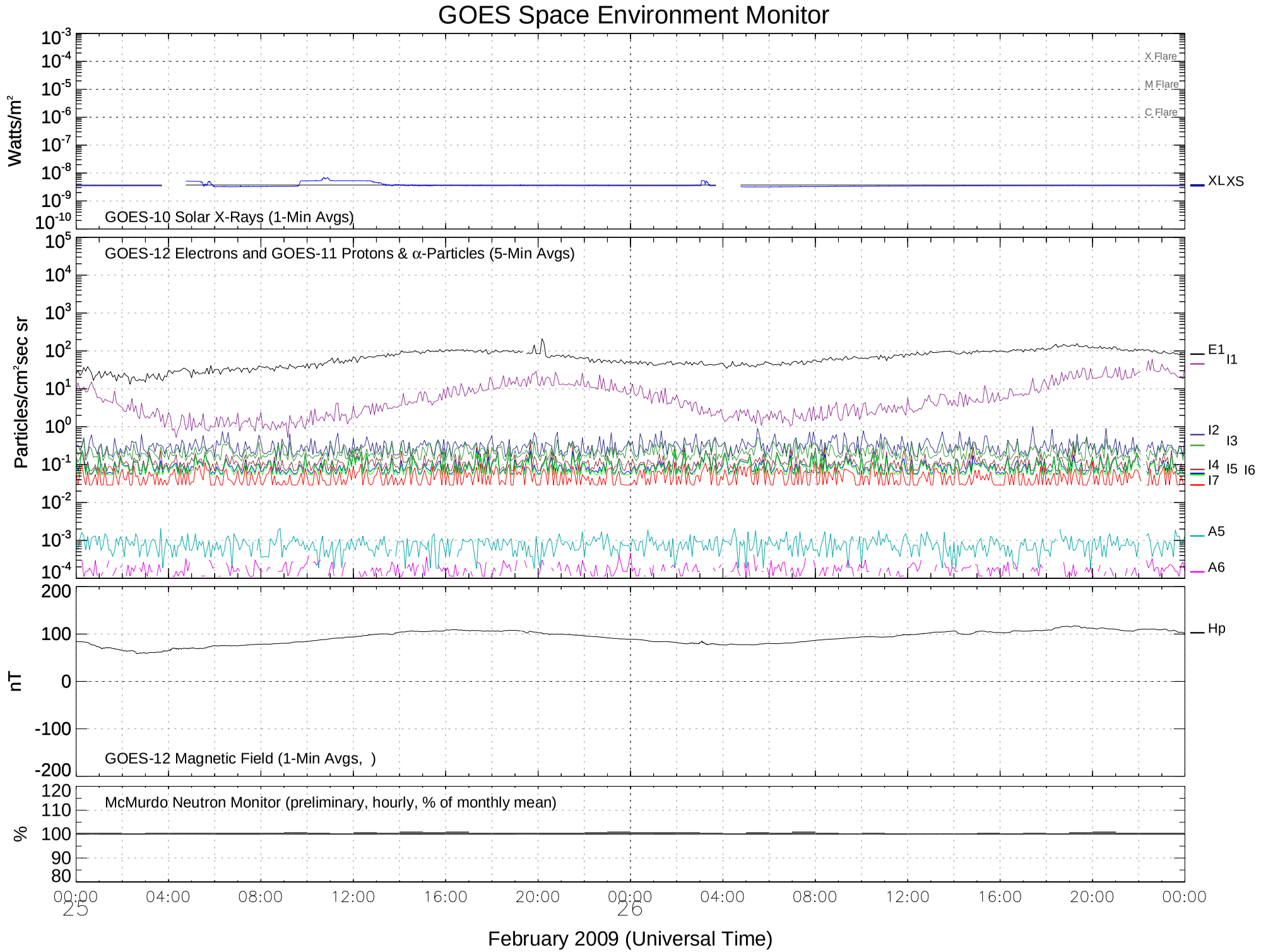
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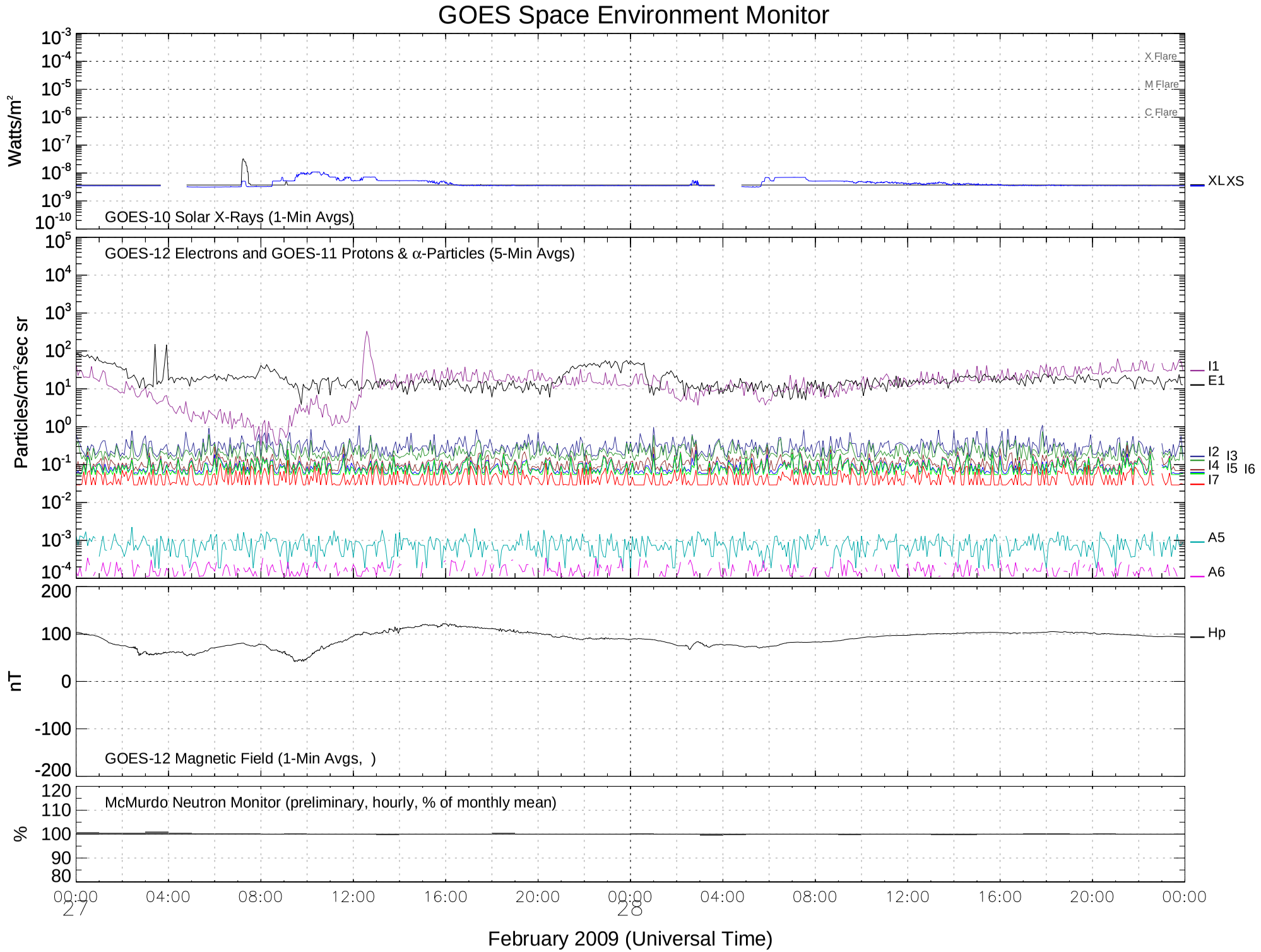
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February 2009 (Universal Time)

A L E R T P E R I O D S
The International Space Environment Service
FEBRUARY 2009

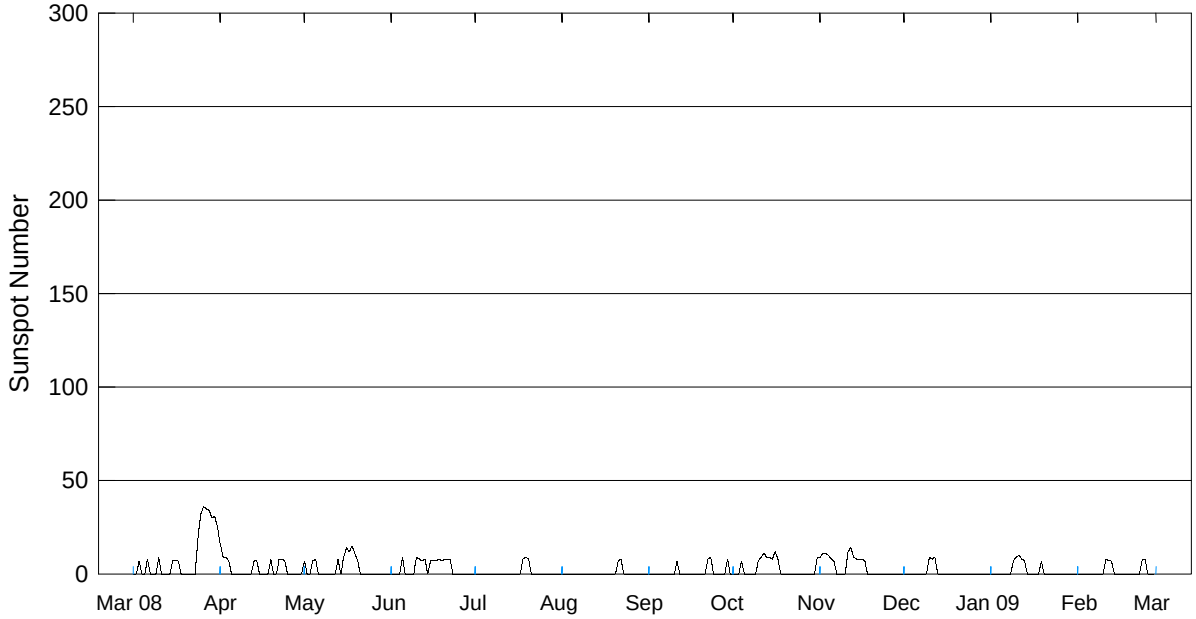
Julian Day	Date of Issue	Date of Obs	Wolf No.	10-cm Solar Flux	A-index	Rgn No.	Location Lat	Location Lon	Flares Opt	Flares M	Flares X	Date of Fcst	Region Fcst(1)	Geoadvice(1)
032	01	31	0	69	8				0	0	0	01		SOL: Quiet
									0	0	0	01		MAG: Quiet
									0	0	0	01		PRO: Quiet
033	02	01	0	70	2				0	0	0	02		SOL: Quiet
									0	0	0	02		MAG: Quiet
									0	0	0	02		PRO: Quiet
034	03	02	0	69	1				0	0	0	03		SOL: Quiet
									0	0	0	03		MAG: Quiet
									0	0	0	03		PRO: Quiet
035	04	03	0	69	3				0	0	0	04		SOL: Quiet
									0	0	0	04		MAG: Quiet
									0	0	0	04		PRO: Quiet
036	05	04	0	70	15				0	0	0	05		SOL: Quiet
									0	0	0	05		MAG: Quiet
									0	0	0	05		PRO: Quiet
037	06	05	0	70	7				0	0	0	06		SOL: Quiet
									0	0	0	06		MAG: Quiet
									0	0	0	06		PRO: Quiet
038	07	06	0	70	2				0	0	0	07		SOL: Quiet
									0	0	0	07		MAG: Quiet
									0	0	0	07		PRO: Quiet
039	08	07	0	71	2				0	0	0	08		SOL: Quiet
									0	0	0	08		MAG: Quiet
									0	0	0	08		PRO: Quiet
040	09	08	0	71	0				0	0	0	09		SOL: Quiet
									0	0	0	09		MAG: Quiet
									0	0	0	09		PRO: Quiet
041	10	09	0	71	0				0	0	0	10		SOL: Quiet
									0	0	0	10		MAG: Quiet
									0	0	0	10		PRO: Quiet
042	11	10	0	68	2				0	0	0	11		SOL: Quiet
									0	0	0	11		MAG: Quiet
									0	0	0	11		PRO: Quiet
043	12	11	11	70	4	11012	S06	E62	0	0	0	12	Q	SOL: Quiet
									0	0	0	12		MAG: Quiet
									0	0	0	12		PRO: Quiet
044	13	12	11	70	2	11012	S05	E48	0	0	0	13	Q	SOL: Quiet
									0	0	0	13		MAG: Quiet
									0	0	0	13		PRO: Quiet
045	14	13	11	70	2	11012	S06	E34	0	0	0	14	Q	SOL: Quiet
									0	0	0	14		MAG: Quiet
									0	0	0	14		PRO: Quiet
046	15	14	0	70	18				0	0	0	15		SOL: Quiet
									0	0	0	15		MAG: Quiet
									0	0	0	15		PRO: Quiet
047	16	15	0	70	10				0	0	0	16		SOL: Quiet
									0	0	0	16		MAG: Quiet
									0	0	0	16		PRO: Quiet
048	17	16	0	70	3				0	0	0	17		SOL: Quiet
									0	0	0	17		MAG: Quiet
									0	0	0	17		PRO: Quiet

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

FEBRUARY 2009

Julian Day	Date of Issue	Date of Obs	Wolf No.	10-cm Solar Flux	A-index	Rgn No.	Location Lat	Location Lon	Flares Opt	Flares M	Flares X	Date of Fcst	Region Fcst(1)	Geoadvice(1)
049	18	17	0	71	1				0	0	0	18		SOL: Quiet
									0	0	0	18		MAG: Quiet
									0	0	0	18		PRO: Quiet
050	19	18	0	70	2				0	0	0	19		SOL: Quiet
									0	0	0	19		MAG: Quiet
									0	0	0	19		PRO: Quiet
051	20	19	0	69	1				0	0	0	20		SOL: Quiet
									0	0	0	20		MAG: Quiet
									0	0	0	20		PRO: Quiet
052	21	20	0	69	4				0	0	0	21		SOL: Quiet
									0	0	0	21		MAG: Quiet
									0	0	0	21		PRO: Quiet
053	22	21	0	71	3				0	0	0	22		SOL: Quiet
									0	0	0	22		MAG: Quiet
									0	0	0	22		PRO: Quiet
054	23	22	0	70	5				0	0	0	23		SOL: Quiet
									0	0	0	23		MAG: Quiet
									0	0	0	23		PRO: Quiet
055	24	23	0	71	4				0	0	0	24		SOL: Quiet
									0	0	0	24		MAG: Quiet
									0	0	0	24		PRO: Quiet
056	25	24	12	71	7	11013	N26	E20	0	0	0	25	Q	SOL: Quiet
									0	0	0	25		MAG: Quiet
									0	0	0	25		PRO: Quiet
057	26	25	14	71	3	11013	N26	E07	0	0	0	26	Q	SOL: Quiet
									0	0	0	26		MAG: Quiet
									0	0	0	26		PRO: Quiet
058	27	26	12	70	2	11013	N26	W06	0	0	0	27	Q	SOL: Quiet
									0	0	0	27		MAG: Quiet
									0	0	0	27		PRO: Quiet
059	28	27	0	69	9				0	0	0	28		SOL: Quiet
									0	0	0	28		MAG: Quiet
									0	0	0	28		PRO: Quiet

International Relative Sunspot Numbers
Mar 2008 - Feb 2009

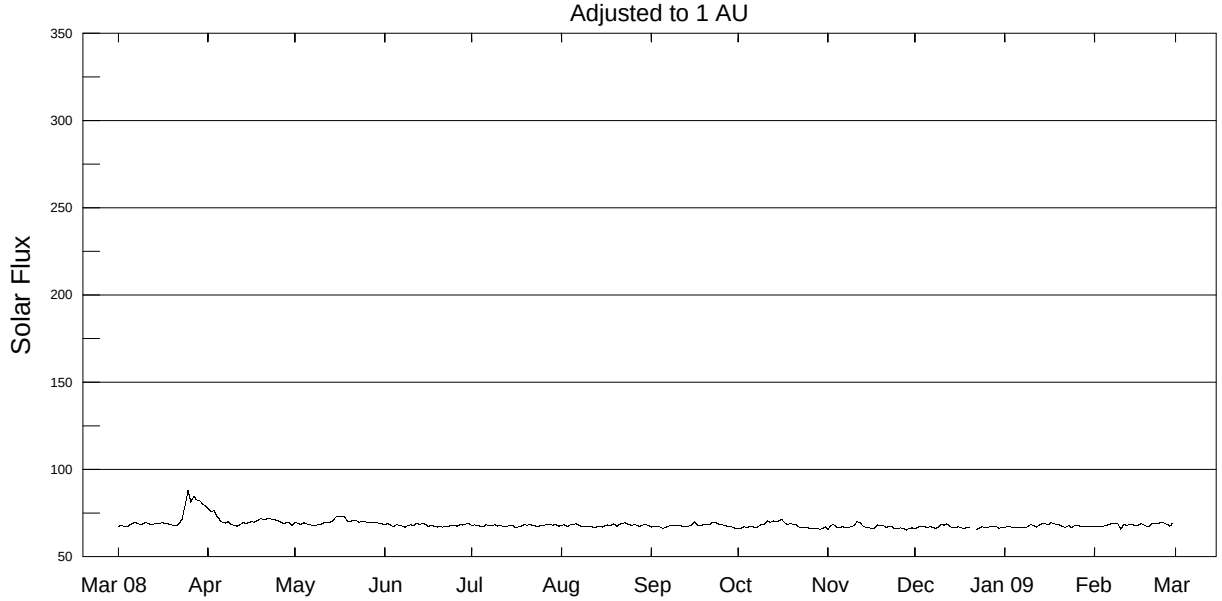


Day	Mar 08	Apr	May	Jun	Jul	Aug	Sep	Oct*	Nov*	Dec*	Jan 09*	Feb*
1	0	16	7	0	0	0	0	0	9	0	0	0
2	0	9	0	0	0	0	0	0	11	0	0	0
3	7	9	0	0	0	0	0	0	11	0	0	0
4	0	7	7	0	0	0	0	7	10	0	0	0
5	0	0	8	9	0	0	0	0	8	0	0	0
6	8	0	0	0	0	0	0	0	7	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	0	7	0
10	9	0	0	9	0	0	0	7	0	9	9	0
11	0	0	0	8	0	0	7	9	12	8	10	8
12	0	0	0	0	0	0	0	11	14	9	8	7
13	0	7	8	8	0	0	0	9	9	0	7	7
14	0	7	0	7	0	0	0	9	8	0	0	0
15	7	0	9	7	0	0	0	8	8	0	0	0
16	7	0	14	7	0	0	0	12	8	0	0	0
17	7	0	12	7	0	0	0	8	7	0	0	0
18	0	0	15	8	8	0	0	0	0	0	0	0
19	0	8	11	7	9	0	0	0	0	0	7	0
20	0	0	7	8	8	0	0	0	0	0	0	0
21	0	0	0	8	0	7	0	0	0	0	0	0
22	0	8	0	8	0	8	8	0	0	0	0	0
23	0	8	0	0	0	0	9	0	0	0	0	0
24	19	7	0	0	0	0	0	0	0	0	0	8
25	32	0	0	0	0	0	0	0	0	0	0	8
26	36	0	0	0	0	0	0	0	0	0	0	0
27	35	0	0	0	0	0	0	0	0	0	0	0
28	34	0	0	0	0	0	0	0	0	0	0	0
29	30	0	0	0	0	0	8	0	0	0	0	
30	31	0	0	0	0	0	0	0	0	0	0	
31	25		0		0	0		9		0	0	
Mean	9.3	2.9	3.2	3.4	0.8	0.5	1.1	2.9	4.1	0.8	1.5	1.4

* = Provisional.

Penticton 2800 MHz (10.7cm) Solar Flux
Mar 2008 - Feb 2009

Adjusted to 1 AU



Day	Mar 08	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan 09	Feb
1	67.4	77.7	69.6	68.5	67.8	68.1	67.0	65.9	65.6	66.2	66.6	67.5
2	68.0	75.9	69.2	69.0	68.2	68.2	67.2	66.4	68.0	67.0	67.6	67.1
3	67.3	76.4	68.5	68.2	67.7	67.4	67.3	67.2	68.3	67.2	67.2	67.3
4	67.2	73.1	69.5	67.1	67.6	68.2	67.0	66.6	66.8	67.6	66.6	67.5
5	68.2	71.1	68.8	68.4	67.3	68.4	66.3	67.4	66.5	66.8	66.9	68.1
6	69.3	69.5	68.4	67.9	68.3	68.9	66.8	67.2	67.3	67.1	66.5	68.2
7	69.5	69.3	67.8	67.6	67.7	68.0	67.6	66.6	66.5	67.0	66.7	69.2
8	68.8	70.0	67.7	66.9	67.8	67.3	68.0	67.5	67.0	66.4	66.5	69.3
9	68.5	68.2	68.6	68.0	68.3	67.3	68.0	68.5	67.1	66.7	67.4	68.8
10	69.4	68.1	68.7	68.2	67.6	67.4	68.1	68.7	67.9	68.7	68.5	65.8
11	69.3	67.4	69.4	67.8	67.9	67.5	67.8	70.5	70.0	68.0	67.7	68.5
12	68.5	68.5	69.5	69.2	67.1	66.9	67.1	69.7	69.5	68.8	67.0	68.0
13	68.7	69.7	69.7	68.6	67.4	67.0	67.2	70.5	67.6	67.5	68.2	68.3
14	69.1	69.0	70.5	69.2	67.8	67.6	67.6	70.0	66.8	66.6	68.9	68.4
15	68.8	69.7	72.7	68.6	67.9	67.0	68.2	70.5	66.7	66.7	68.8	67.9
16	69.6	70.0	73.2	67.4	66.7	67.8	70.1	71.4	66.2	67.2	68.5	67.9
17	69.1	69.8	72.8	68.1	67.1	68.2	67.7	69.5	66.2	66.6	69.6	69.0
18	69.0	70.8	73.3	67.5	67.4	67.8	67.8	68.6	68.2	66.2	68.8	68.2
19	68.4	71.7	70.5	67.0	68.5	68.9	68.4	69.0	67.7	67.0	68.6	67.4
20	67.9	71.5	70.2	67.3	68.0	67.4	68.4	68.6	67.9	66.9	68.1	67.6
21	67.7	71.6	70.8	67.0	68.4	68.7	68.4	68.2	66.8	*	67.2	69.1
22	69.1	72.1	71.0	67.5	68.0	69.1	69.6	67.0	67.3	65.5	66.9	68.8
23	71.5	71.5	69.6	67.5	67.6	69.4	69.8	66.5	67.2	66.3	67.8	69.3
24	79.0	71.2	70.3	68.0	67.5	68.6	68.8	66.7	66.1	67.1	66.6	69.5
25	88.2	70.7	70.1	68.1	67.9	68.0	68.6	66.7	66.0	67.0	67.7	69.3
26	81.2	69.9	69.8	67.5	68.1	68.3	68.0	66.0	66.5	67.0	67.8	68.6
27	84.5	69.0	69.7	68.3	68.4	68.0	67.6	66.1	66.4	67.1	67.6	67.6
28	82.6	69.4	69.6	68.1	68.3	67.4	67.3	66.2	65.2	67.5	67.4	69.3
29	82.4	69.6	69.9	68.8	68.1	68.1	67.0	65.8	66.4	67.5	67.3	
30	80.4	68.0	69.0	68.9	68.5	68.4	66.4	65.9	66.5	66.3	67.1	
31	79.1		68.8		67.5	67.9		67.1		67.0	67.4	
Mean	72.2	70.7	69.9	68.0	67.8	68.0	67.8	67.8	67.1	67.0	67.3	68.3

* = No data available.

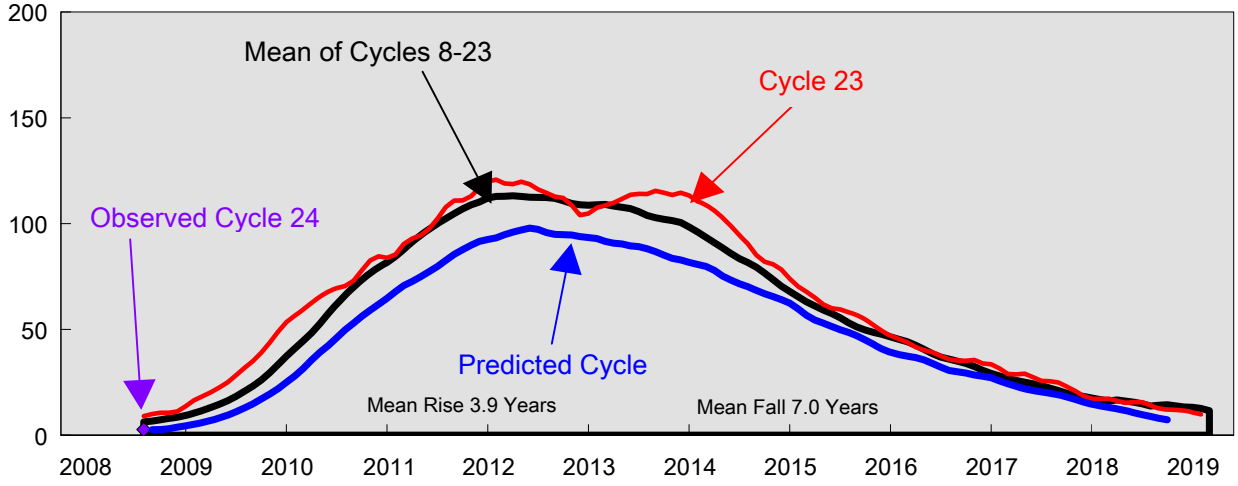
DAILY SOLAR INDICES
FEBRUARY 2009

Day	Day of Year	Bartels Cycle Day	Sunspot Numbers Int	Sunspot Numbers Amer	Obs Flux Penticton (2800)	SGMR (15400)	SGMR (8800)	SGMR (4995)	Penticton (2800)	SGMR (2695)	SGMR (1415)	SGMR (610)	SGMR (410)	SGMR (245)
						-----Solar Flux Adjusted to 1 Astronomical Unit--------								
1	32	5	0	0	69.5	452	200	125	67.5	61	53	39	21	11
2	33	6	0	0	69.1	451	209	126	67.1	61	55	39	21	11
3	34	7	0	0	69.3	452	214	127	67.3	63	56	40	23	12
4	35	8	0	0	69.5	459	212	124	67.5	65	53	39	23	11
5	36	9	0	0	70.1	459	214	125	68.1	72	53	41	23	11
6	37	10	0	0	70.1	458	211	125	68.2	67	54	40	22	10
7	38	11	0	0	71.1	456	213	126	69.2	60	56	41	22	11
8	39	12	0	0	71.2	456	212	128	69.3	65	55	40	22	11
9	40	13	0	0	70.7	459	212	125	68.8	63	54	40	21	12
10	41	14	0	1	67.6	457	214	126	65.8	64	54	40	22	11
11	42	15	8	3	70.3	457	211	132	68.5	64	56	39	22	11
12	43	16	7	5	69.7	441	221	129	68.0	65	55	39	22	11
13	44	17	7	1	70.1	428	212	125	68.3	67	54	39	22	11
14	45	18	0	0	70.1	457	211	124	68.4	61	54	38	21	11
15	46	19	0	0	69.6	456	209	125	67.9	65	53	39	22	11
16	47	20	0	0	69.5	457	210	125	67.9	62	55	39	22	11
17	48	21	0	0	70.6	454	210	127	69.0	62	55	39	22	11
18	49	22	0	0	69.8	458	214	125	68.2	62	55	39	21	11
19	50	23	0	0	68.9	445	206	123	67.4	67	55	37	21	10
20	51	24	0	0	69.2	---	217	132	67.6	62	52	39	22	11
21	52	25	0	0	70.6	---	203	129	69.1	60	55	39	22	10
22	53	26	0	0	70.3	452	216	125	68.8	66	55	40	21	11
23	54	27	0	0	70.8	447	215	126	69.3	63	57	39	22	11
24	55	1	8	5	71.0	460	210	127	69.5	65	54	39	22	11
25	56	2	8	3	70.7	455	212	124	69.3	65	54	39	21	11
26	57	3	0	1	69.9	451	214	125	68.6	67	55	40	22	11
27	58	4	0	0	68.9	451	218	127	67.6	64	56	39	21	11
28	59	5	0	0	70.6	455	219	126	69.3	65	56	40	22	10
29														
30														
31														
MEAN			1.4	0.7	70.0	453	212	126	68.3	64	54	39	21	10

NOTE: Radio flux values are from Sagamore Hill, Massachusetts, USA.

Cycle 24 Smoothed Sunspot Numbers: Observed and Predicted

PRELIMINARY Based on August 2008 Smoothed Data



Smoothed Sunspot Numbers (Observed and Predicted) for Parts of Solar Cycles 23 and 24

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Avg
1996	10	10	10	9	8*	9	8	8	8	9**	10	10	8
1997	11	11	14	17	18	20	23	25	28	32	35	39	23
1998	44	49	53	57	59	63	65	68	69	71	73	78	62
1999	83	85	84	85	90	93	94	98	102	108	111	111	95
2000	113	117	120	120.8+	119	119	120	119	116	115	113	112	107
2001	109	104	105	108	109	110	112	114	114	114	115	115	111
2002	114	115	113	111	109	106	103	99	95	91	85	82	102
2003	81	79	74	70	68	65	62	60	60	58	57	57	66
2004	53	49	47	46	46	42	40	39	38	36	35	35	42
2005	35	34	34	32	29	29	29	27	26	26	25	23	29
2006	21	19	17	17	17	16	15	16	16	14	13	13	16
2007	12	12	11	10	9	8	7	6	6	6	6	5	8
2008	4	4	3	3	4	3	3	2.7###	3	3	3	4	3
									(1)	(1)	(2)	(3)	(1)
2009	5	5	6	7	8	10	11	13	15	17	19	22	12
	(4)	(5)	(6)	(8)	(9)	(10)	(12)	(14)	(17)	(19)	(21)	(24)	(12)

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

* May 1996 marks Cycle 23's mathematical minimum. ** October 1996 marks the consensus minimum.

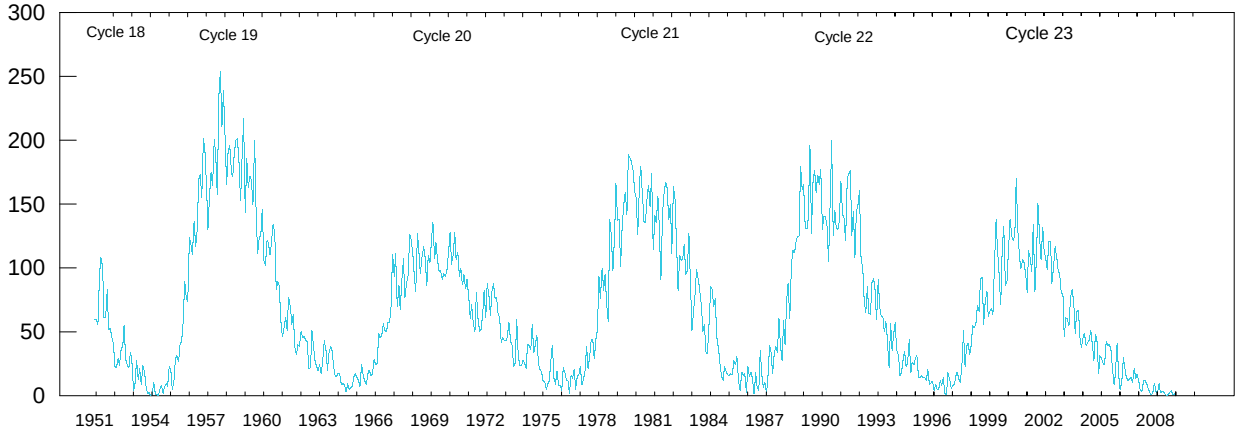
\+ April 2000 marks Cycle 23 maximum. ## - Preliminary Cycle 24 Minumum

NOTE: This is a preliminary prediction using August 2008 as solar minimum.

OBSERVED AND PREDICTED NUMBERS: For the end of Cycle 23, and the rise and decline of Cycle 24, 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 Jun 2008 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 August 2009 prediction. There exists a 90% chance that in August 2009, the actual smoothed sunspot will fall somewhere between 0 and 27.

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 16 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 a PRELIMINARY minimum of August, 2008. This will be updated monthly until the actual minimun is reached.

Mean Monthly Sunspot Numbers
Jan 1951 - Feb 2009



Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Mean	
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	21.1	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	5.7	7.6	8.7	15.5	18.5	12.7	10.4	24.4	51.3	22.8	39.0	41.2	21.5	
1998	31.9	40.3	54.8	53.4	56.3	70.7	66.6	92.2	92.9	55.5	74.0	81.9	64.3	
1999	62.0	66.3	68.8	63.7	106.4	137.7	113.5	93.7	71.5	116.7	133.2	84.6	93.2	
2000	90.1	112.9	138.5	125.5	121.6	124.9	170.1	130.5	109.7	99.4	106.8	104.4	119.6	M
2001	95.6	80.6	113.5	107.7	96.6	134.0	81.8	106.4	150.7	125.5	106.5	132.2	111.0	
2002	114.1	107.4	98.4	120.7	120.8	88.3	99.9	116.4	109.3	97.5	95.5	80.8	104.0	
2003	79.7	46.0	61.1	60.0	54.6	77.4	83.3	72.7	48.7	65.5	67.3	46.5	63.9	
2004	37.7	45.8	49.1	39.3	41.5	43.2	51.0	40.9	27.7	48.0	43.5	17.9	40.4	
2005	31.3	29.1	24.8	24.2	42.7	39.3	40.1	36.4	21.9	8.7	18.0	41.1	29.8	
2006	15.4	4.7	10.8	30.2	22.2	13.9	12.2	12.9	14.4	10.5	21.4	13.6	15.2	
2007	16.8	10.7	4.5	3.4	11.7	12.1	9.7	6.0	2.4	0.9	1.7	10.1	7.5	
2008	3.3	2.1	9.3	2.9	3.2	3.4	0.8	0.5	1.1	2.9	4.1	0.8	2.9	
2009	1.5	1.4											1.5	

Values are preliminary afterSep 08. For the yearly means, each 'M' marks a sunspot cycle maximum and each 'm' a minimum.

Hà S O L A R F L A R E S
FEBRUARY 2009

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

No Reports

"Remarks"

A = Eruptive prominence whose base is less than 90 degrees from central meridian.
B = Probably the end of a more important flare.
C = Invisible 10 minutes before.
D = Brilliant point.
E = Two or more brilliant points.
F = Several eruptive centers.
G = No visible spots in the neighborhood.
H = Flare accompanied by high-speed dark filament.
I = Active region very extended.
J = Distinct variations of plage intensity before or after the flare.
K = Several intensity maxima.
L = Existing filaments show signs of sudden activity.
M = White-light flare.
N = Continuous spectrum shows effects of polarization.
O = Observations have been made in the H and K lines of Ca II.
P = Flare shows Helium D3 in emission.
Q = Flare shows Balmer continuum in emission.
R = Marked asymmetry in H-alpha line suggests ejection of high-velocity material.
S = Brightness follows disappearance of filament in same position.
T = Region active all day.
U = Two bright branches, parallel or converging.
V = Occurrence of an explosive phase; important, expansion within roughly 1 minute that often includes a significant intensity increase.
W = Great increase in area after time of maximum intensity.
X = Unusually wide H-alpha line.
Y = System of loop-type prominences.
Z = Major sunspot umbra covered by flare.

Observation Type: C=Cinematographic, E=Electronic, P=Photographic, V=Visual

X - R A Y S O L A R F L A R E S
FEBRUARY 2009

Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp Xray	Total Integrated Flux(1)	Total Area(2)	Total(3) Intensity
GOES 10		2300	2311	2342			11012			42	B 1.3	2.8E-04		
GOES 12		1610	1619	1631			11012			21	B 4.1	3.5E-04		
GOES 13		0535	0547	0604						29	B 2.3	3.2E-04		

Note 1: Total integrated flux computed from the event start time to end if available (units=J/m*2).
Note 2: Total area is derived from SXI imagery in units of squared arc seconds of the largest flaring area.
Note 3: Total intensity is derived from SXI imagery in units of data numbers/second of the largest flaring area.

TABLE FORMAT CHANGE: Data are from the GOES full disk xray monitor supplemented with Solar Xray Imager (SXI) from January, 2004, to April 12, 2007. Positions, areas, and intensities are taken from SXI imagery using the largest flare event on the disk. Only the largest event is selected during multiple flares on the disk.

IMPORTANT NOTE: The xray sensor on GOES 12 was turned off on April 12, 2007, at 2250UT. The GOES SXI instrument is also inoperative. GOES 10 backup for xray data. Effective April 13, 2007, xray flare locations will be determined by optical flare reports. Xray event times will still be from the xray data.

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

Outstanding Occurrences

FEBRUARY 2009

Day	Freq	Sta	Type	Start (UT)	Time of Maximum (UT)	Duration (Min)	Flux Density Peak (10 -22 W/m 2 Hz)	Flux Density Mean	Int	Remarks
07	245	LEAR	4 S/F	1009.0	1011.0	3.0	170.0			QL=4 ST=2 TYP=3

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

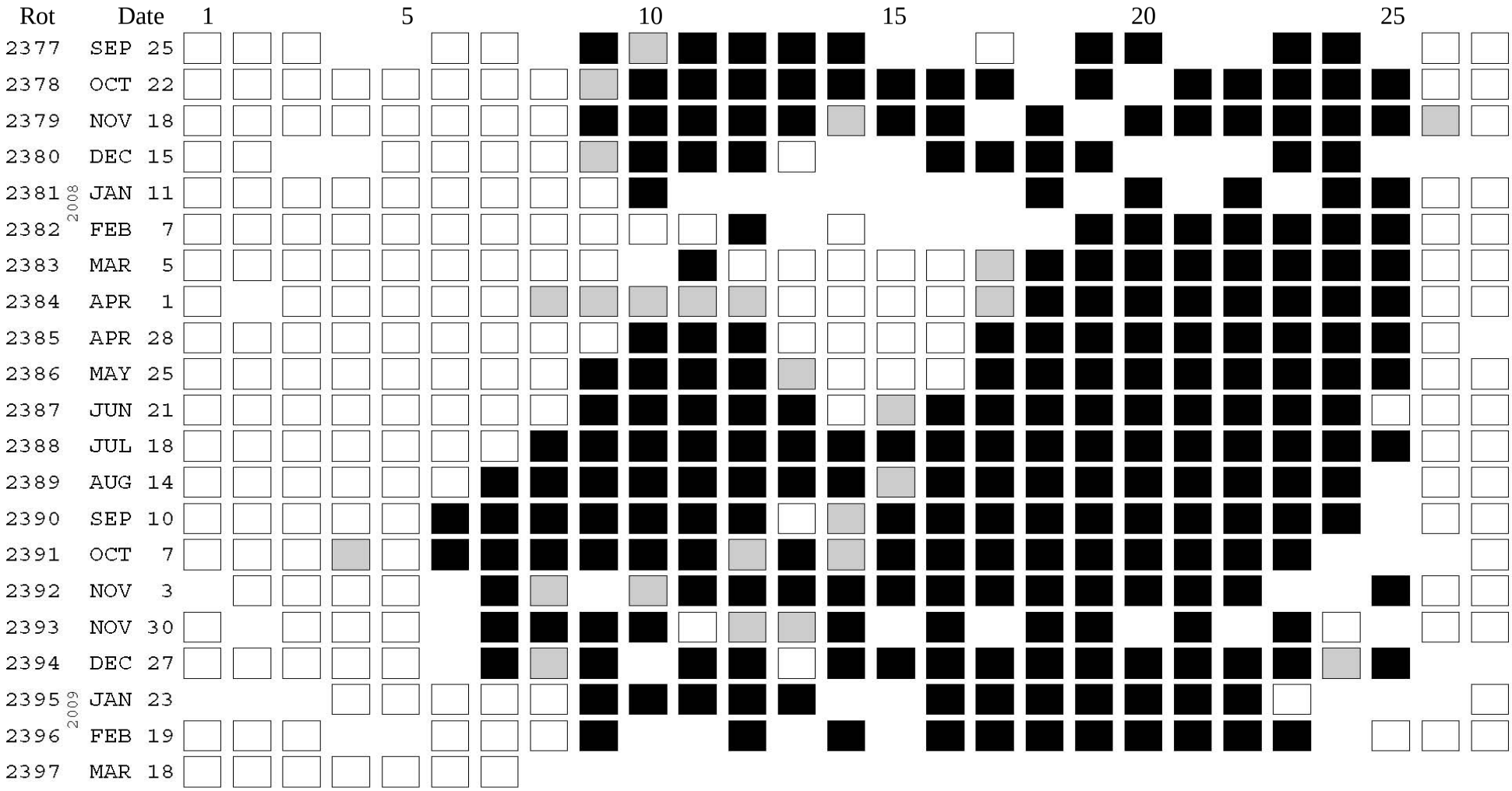
Explanation of Type Code:

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	4O Rise Only	16A Fall A	27AF Rise and Fall AF
21A Simple 3A GRF	4OF Rise Only F	26O 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; and Hiraiso, Japan 500 and 200 MHz.

STANFORD MEAN SOLAR MAGNETIC FIELD



Mean Solar Magnetic Field Polarity:

= field > 2 microT;

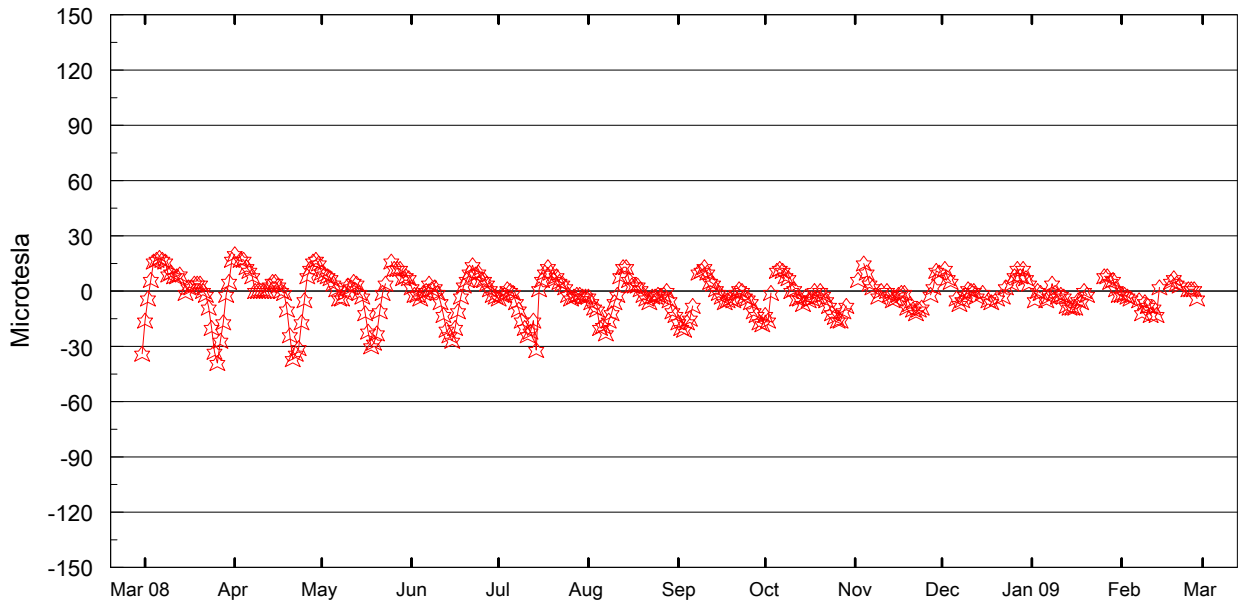
= -2 microT ≤ field ≤ 2 microT

= field < -2 microT;

No box = no data available

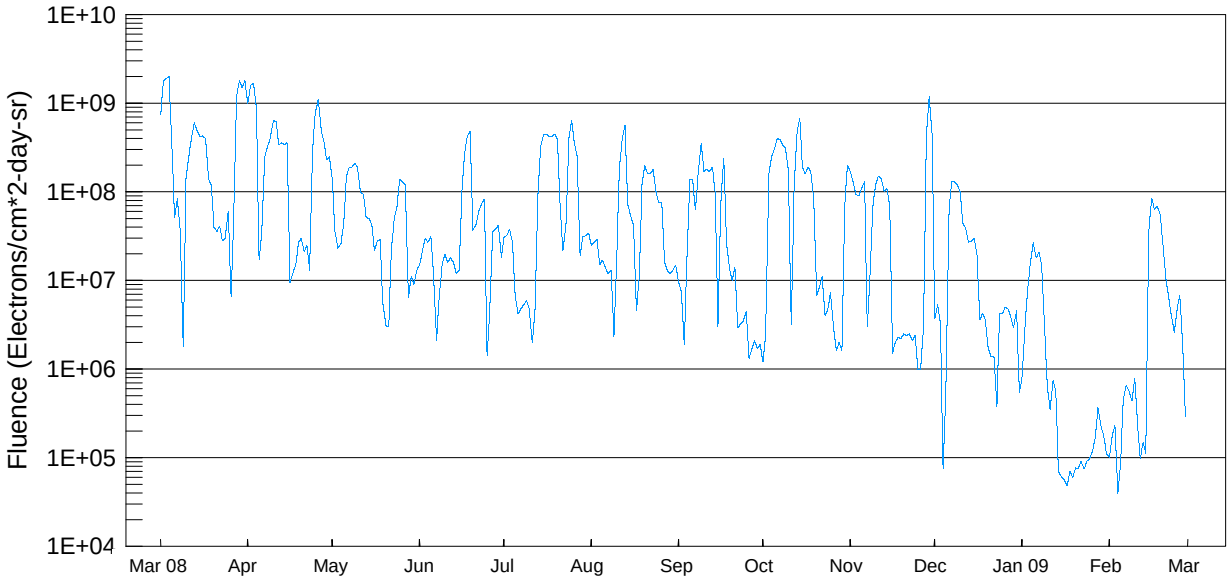
Observations are taken at 2000 UT. Rotation numbers given are the Bartels series, but the dates are not; these dates are five days earlier, to mark times of occurrence of phenomena on the Sun that affect the Earth during the given Bartels Rotation.

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



Day	Mar 08	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan 09	Feb
1	-16	20	10	2	-4	-3	-17	-13	---	---	---	-2
2	-4	---	9	-2	-2	-6	-20	-16	6	12	-5	-2
3	6	17	8	-2	-2	-9	-21	-1	---	7	0	-3
4	16	17	7	-4	1	-10	-17	---	15	5	-1	-4
5	17	13	4	-1	0	-20	-15	11	10	---	---	---
6	18	11	1	0	-1	-19	-8	12	4	-4	-5	---
7	17	8	-4	4	-6	-23	---	11	2	-7	-3	-5
8	16	0	-4	1	-10	-16	10	8	---	-5	4	-12
9	9	0	-1	2	-16	-12	11	7	-3	-2	-1	-6
10	10	0	3	-1	-20	-6	13	0	0	1	-3	-8
11	8	0	2	-6	-24	-2	10	1	---	0	-2	-13
12	8	0	5	-13	-22	8	5	-4	0	0	-3	-9
13	9	3	4	-21	-16	13	4	-4	-2	-3	-8	-13
14	---	5	-1	-24	-32	13	1	-7	-5	---	-9	2
15	-1	5	-3	-27	1	6	-1	-3	-4	-1	-9	---
16	2	3	-12	-20	6	3	-3	-5	-2	---	-9	---
17	2	0	-22	-11	10	3	-6	-4	-1	-5	-5	---
18	4	-1	-30	-3	13	3	-5	0	-1	-6	-6	5
19	4	-10	-28	3	10	1	-4	-3	-9	---	0	7
20	4	-24	-23	6	6	-2	-5	0	-7	-4	-2	4
21	0	-37	-11	10	8	-4	-1	-2	-10	---	---	3
22	-2	-34	-1	14	5	-6	1	-5	-12	-3	---	---
23	-9	-31	4	9	4	-3	0	-8	-10	2	---	---
24	-20	-17	---	10	2	-3	-3	-12	-9	---	---	1
25	-33	-5	16	6	-2	-2	-4	-14	---	4	---	1
26	-39	8	12	6	-4	-3	-6	-16	---	8	8	1
27	-27	12	12	4	-3	-2	-11	-16	-2	12	8	-4
28	-17	16	12	1	-2	0	-13	-11	2	8	5	---
29	-2	17	7	-2	-2	-5	-17	-8	11	12	6	
30	5	15	8	-3	-3	-11	-18	---	10	7	1	
31	17		7		-3	-13		---		4	-2	

GOES Daily Electron Fluence
Mar 2008 - Feb 2009



Day	Mar 08	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan 09	Feb
1	7.5E+08	1.0E+09	1.4E+08	1.5E+07	3.1E+07	2.5E+07	9.4E+06	1.2E+06	1.7E+08	3.7E+06	8.3E+05	1.0E+05
2	1.8E+09	1.6E+09	3.6E+07	2.1E+07	3.2E+07	2.7E+07	7.3E+06	2.5E+06	1.3E+08	5.4E+06	2.9E+06	1.8E+05
3	1.9E+09	1.7E+09	2.3E+07	3.0E+07	3.8E+07	2.9E+07	1.9E+06	1.6E+08	9.4E+07	3.3E+06	8.1E+06	2.3E+05
4	2.0E+09	8.9E+08	2.6E+07	2.7E+07	2.7E+07	1.5E+07	2.0E+07	2.5E+08	9.1E+07	7.5E+04	1.6E+07	3.9E+04
5	3.6E+08	1.7E+07	4.2E+07	3.1E+07	6.6E+06	1.7E+07	1.4E+08	3.0E+08	1.1E+08	6.5E+05	2.7E+07	8.6E+04
6	5.1E+07	3.6E+07	1.5E+08	1.1E+07	4.2E+06	1.4E+07	1.4E+08	4.0E+08	1.3E+08	6.3E+07	1.8E+07	4.5E+05
7	8.4E+07	2.5E+08	1.9E+08	2.1E+06	4.8E+06	1.2E+07	6.2E+07	3.9E+08	3.0E+06	1.3E+08	2.1E+07	6.6E+05
8	3.8E+07	3.2E+08	1.9E+08	6.7E+06	5.4E+06	1.3E+07	1.6E+08	3.4E+08	1.1E+07	1.3E+08	1.4E+07	5.6E+05
9	1.8E+06	4.0E+08	2.1E+08	1.5E+07	5.9E+06	2.3E+06	3.6E+08	3.1E+08	7.0E+07	1.2E+08	2.7E+06	4.4E+05
10	1.4E+08	6.4E+08	1.9E+08	2.0E+07	4.7E+06	1.8E+07	1.7E+08	1.8E+08	1.2E+08	1.0E+08	6.2E+05	7.9E+05
11	2.5E+08	6.2E+08	1.0E+08	1.6E+07	2.0E+06	1.9E+08	1.8E+08	3.2E+06	1.5E+08	4.4E+07	3.5E+05	2.4E+05
12	4.1E+08	3.4E+08	9.4E+07	1.8E+07	4.3E+06	4.0E+08	1.7E+08	1.1E+08	1.4E+08	3.9E+07	7.5E+05	9.7E+04
13	6.0E+08	3.6E+08	5.2E+07	1.6E+07	7.8E+07	5.7E+08	1.9E+08	4.5E+08	1.0E+08	2.7E+07	5.7E+05	1.5E+05
14	4.9E+08	3.4E+08	5.0E+07	1.2E+07	3.2E+08	7.2E+07	1.0E+08	6.8E+08	1.1E+08	2.8E+07	7.0E+04	1.1E+05
15	4.2E+08	3.6E+08	4.3E+07	1.3E+07	4.4E+08	5.4E+07	3.0E+06	1.9E+08	6.8E+07	3.0E+07	6.0E+04	3.6E+07
16	4.3E+08	9.4E+06	2.2E+07	9.6E+07	4.5E+08	4.1E+07	7.3E+07	1.6E+08	1.5E+06	1.9E+07	5.6E+04	8.5E+07
17	4.0E+08	1.2E+07	2.8E+07	2.7E+08	4.2E+08	4.5E+06	2.4E+08	1.9E+08	2.0E+06	3.6E+06	4.8E+04	6.3E+07
18	1.4E+08	1.5E+07	2.9E+07	4.3E+08	4.2E+08	1.1E+07	2.6E+07	1.7E+08	2.3E+06	4.3E+06	7.1E+04	6.9E+07
19	1.2E+08	2.7E+07	5.6E+06	4.8E+08	4.5E+08	1.2E+08	1.4E+07	8.0E+07	2.2E+06	3.6E+06	5.9E+04	5.6E+07
20	4.0E+07	3.0E+07	3.1E+06	3.7E+07	3.9E+08	2.0E+08	1.0E+07	6.7E+06	2.5E+06	1.7E+06	7.7E+04	2.7E+07
21	3.6E+07	2.1E+07	3.0E+06	4.3E+07	6.4E+07	1.6E+08	1.4E+07	8.4E+06	2.4E+06	1.4E+06	7.6E+04	1.1E+07
22	4.1E+07	2.5E+07	2.3E+07	6.0E+07	2.2E+07	1.6E+08	2.9E+06	1.1E+07	2.5E+06	1.4E+06	9.1E+04	6.8E+06
23	2.8E+07	1.3E+07	5.0E+07	7.3E+07	4.5E+07	1.8E+08	3.2E+06	4.0E+06	2.1E+06	3.8E+05	7.5E+04	4.2E+06
24	3.0E+07	3.0E+08	7.0E+07	8.3E+07	4.0E+08	9.6E+07	3.5E+06	4.7E+06	2.4E+06	4.2E+06	9.2E+04	2.6E+06
25	6.0E+07	7.8E+08	1.4E+08	1.4E+06	6.4E+08	7.5E+07	4.5E+06	7.3E+06	1.0E+06	4.2E+06	9.8E+04	4.7E+06
26	6.6E+06	1.1E+09	1.3E+08	4.8E+06	3.5E+08	7.7E+07	1.3E+06	3.1E+06	1.0E+06	5.0E+06	1.2E+05	6.8E+06
27	5.7E+07	5.0E+08	1.2E+08	3.6E+07	2.5E+08	1.6E+07	1.7E+06	1.6E+06	2.8E+06	4.8E+06	1.7E+05	2.0E+06
28	1.2E+09	3.7E+08	6.4E+06	3.8E+07	1.9E+07	1.3E+07	2.1E+06	2.0E+06	4.5E+08	3.9E+06	3.7E+05	2.9E+05
29	1.8E+09	2.3E+08	1.1E+07	4.2E+07	3.1E+07	1.2E+07	1.7E+06	1.6E+06	1.2E+09	2.9E+06	2.3E+05	
30	1.5E+09	2.5E+08	9.1E+06	1.8E+07	3.2E+07	1.3E+07	1.9E+06	7.0E+07	4.5E+08	4.6E+06	1.8E+05	
31	1.8E+09		1.3E+07		3.4E+07	1.5E+07		2.0E+08		5.4E+05	1.1E+05	

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.
NOTE: GOES9 data began April, 1996 and ended on 26 July, 1998. GOES12 is primary satellite as of 15 May 2003.

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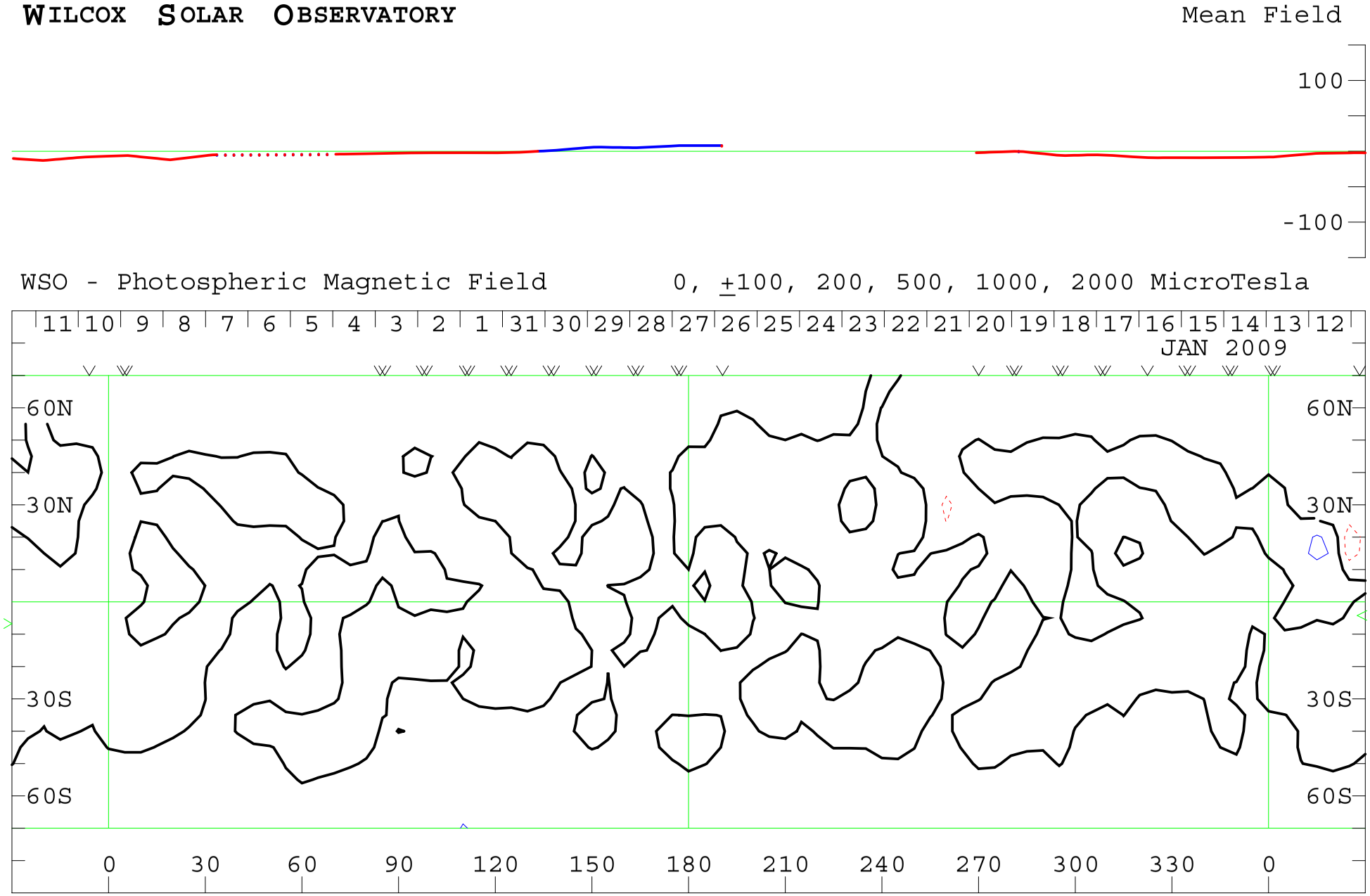
SOLAR MAGNETIC FIELD SYNOPTIC CHART

CARRINGTON ROTATION NUMBER 2079

(13 Jan 2009 - 10 Feb 2009)

WILCOX SOLAR OBSERVATORY

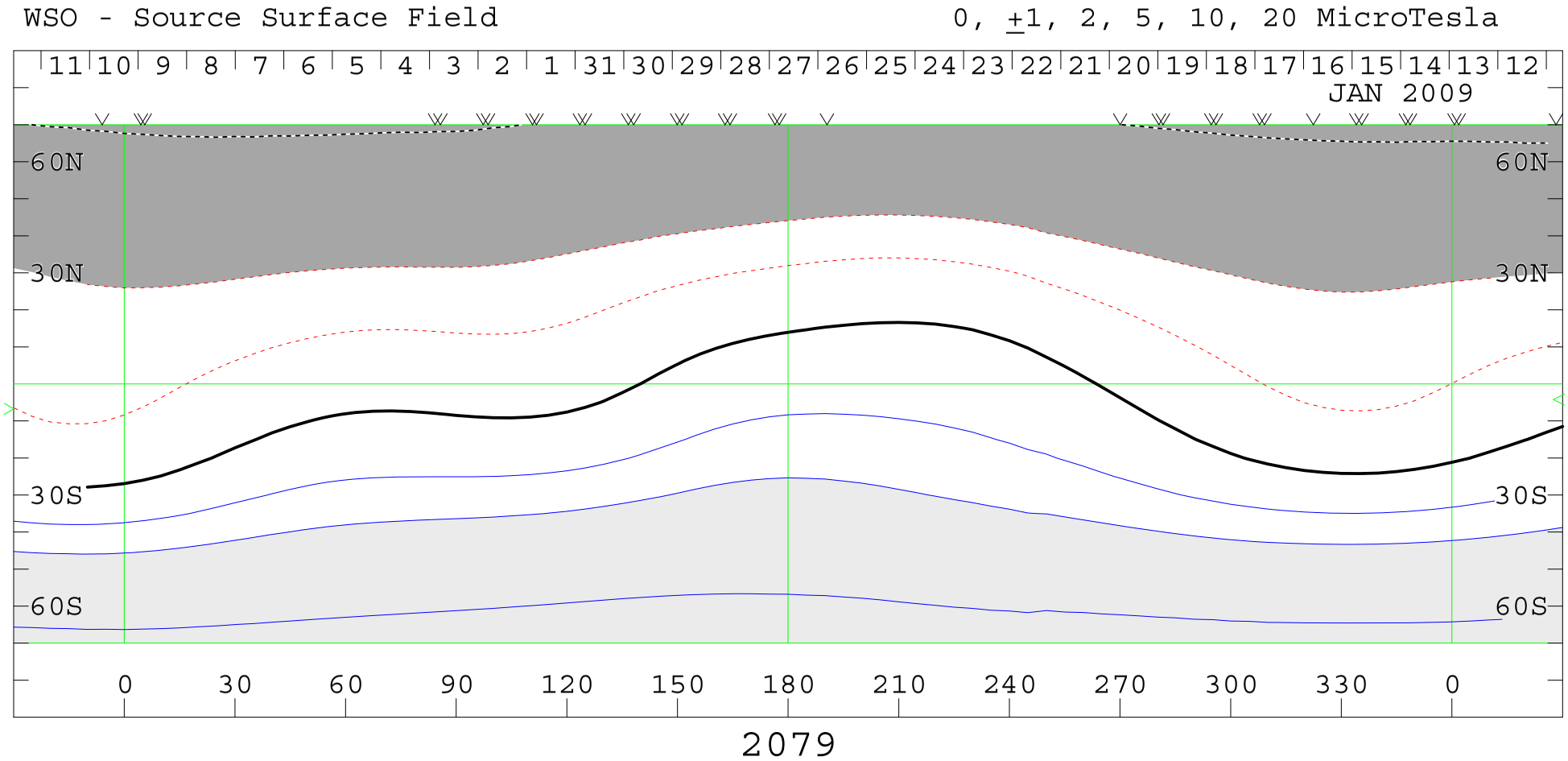


S O L A R M A G N E T I C F I E L D S Y N O P T I C C H A R T

SOURCE SURFACE FIELD

CARRINGTON ROTATION NUMBER 2079

(13 Jan 2009 - 10 Feb 2009)

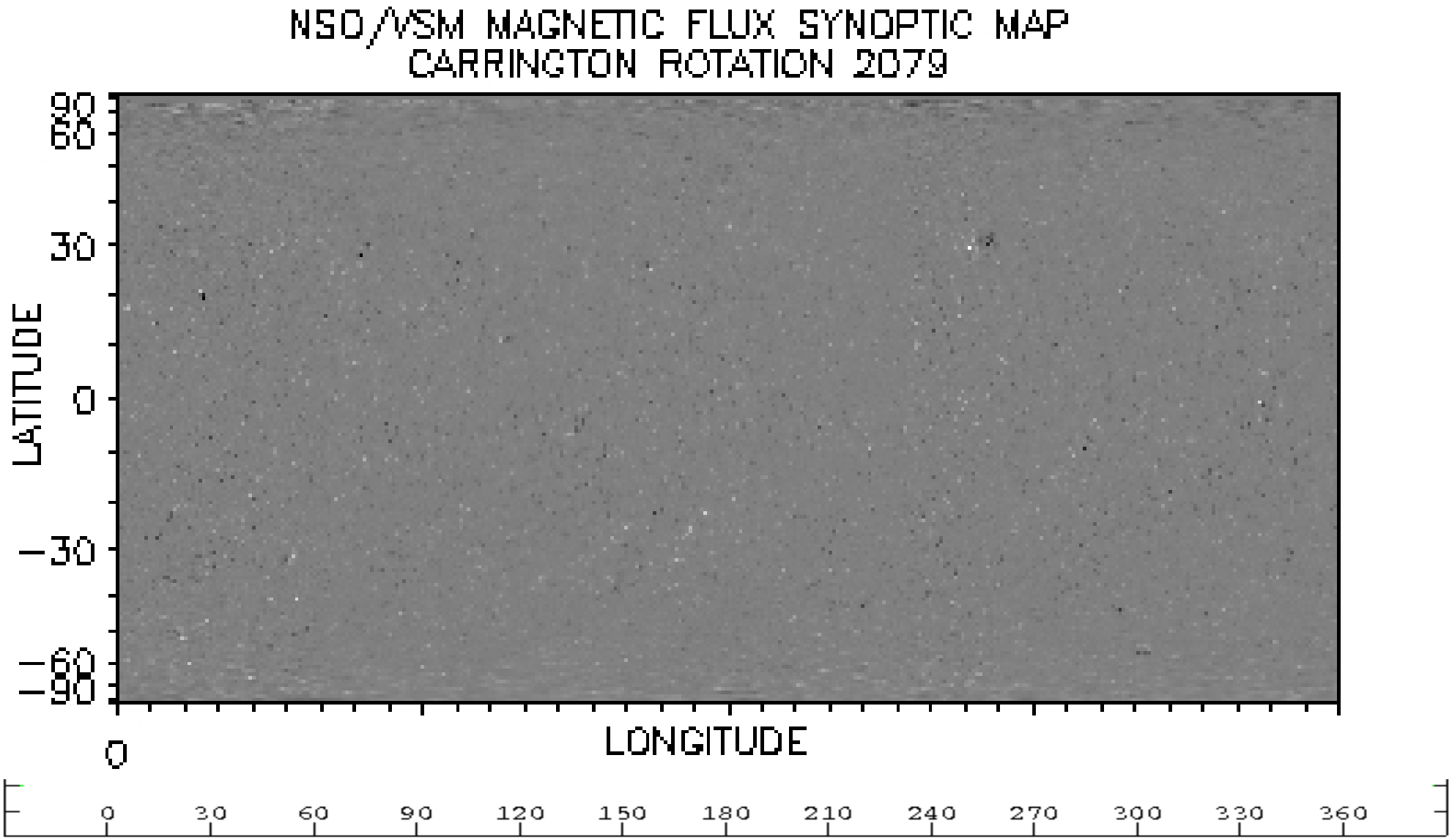


SOLAR MAGNETIC FIELD SYNOPTIC CHART

CARRINGTON ROTATION NUMBER 2079

(13 Jan 2009 to 10 Feb 2009)

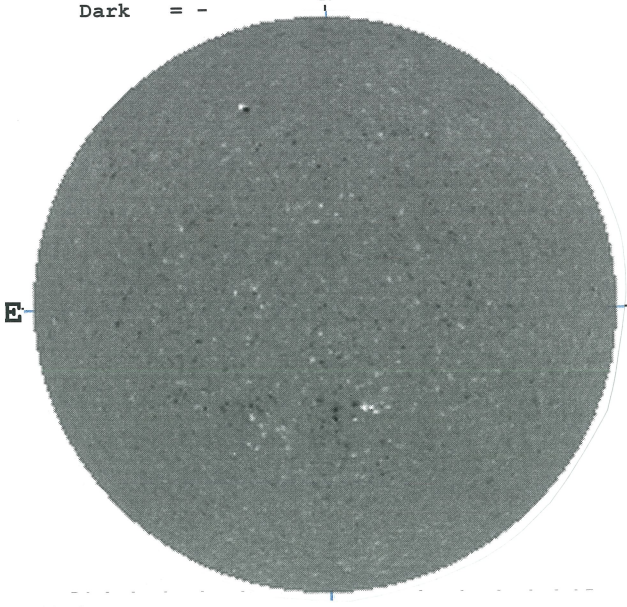
National Solar Observatory/Kitt Peak



Heliographic Longitude

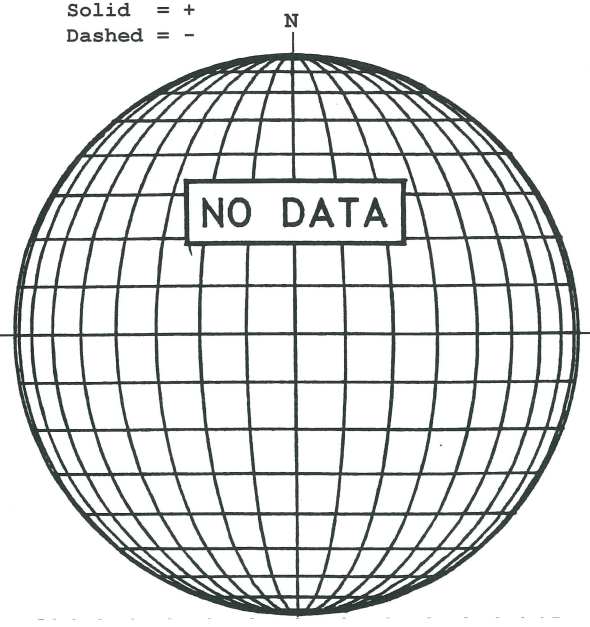
January 01, 2009 (P= 1.99, Bo=-3.04, Lo= 170.42)

KITT PEAK MAGNETOGRAM -- SOLIS
Bright = +
Dark = -
** 854.2NM **

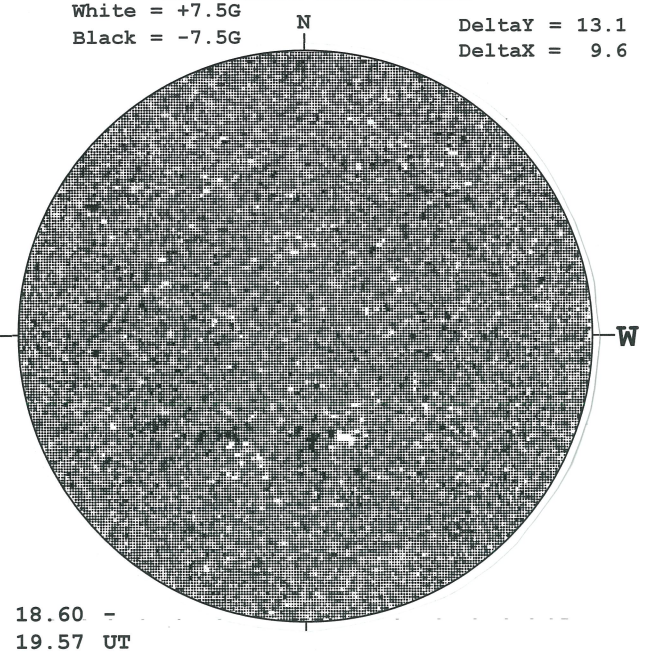


1850 UT

STANFORD MAGNETOGRAM
Solid = +
Dashed = -

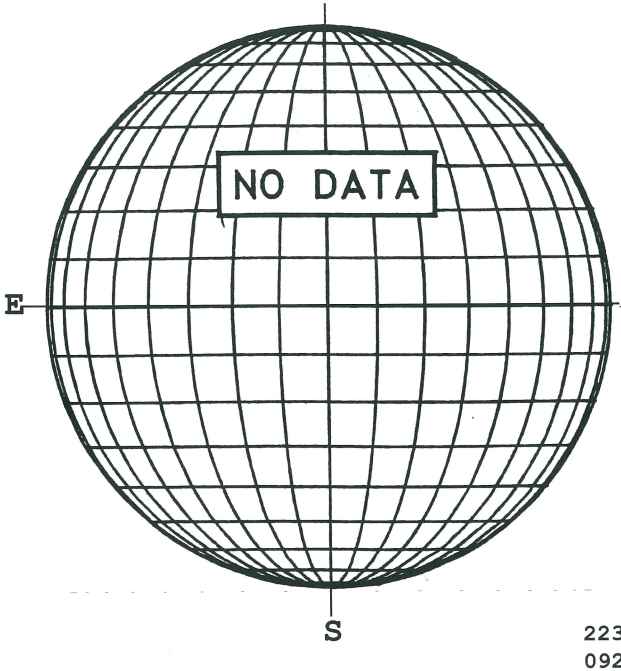


MT. WILSON MAGNETOGRAM
White = +7.5G
Black = -7.5G
DeltaY = 13.1
DeltaX = 9.6

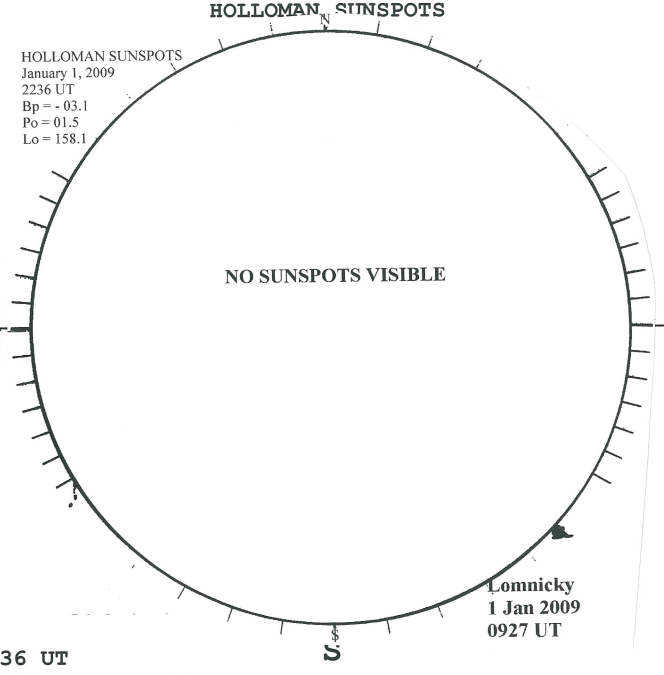


18.60 -
19.57 UT

MUANA LOA H-ALPHA

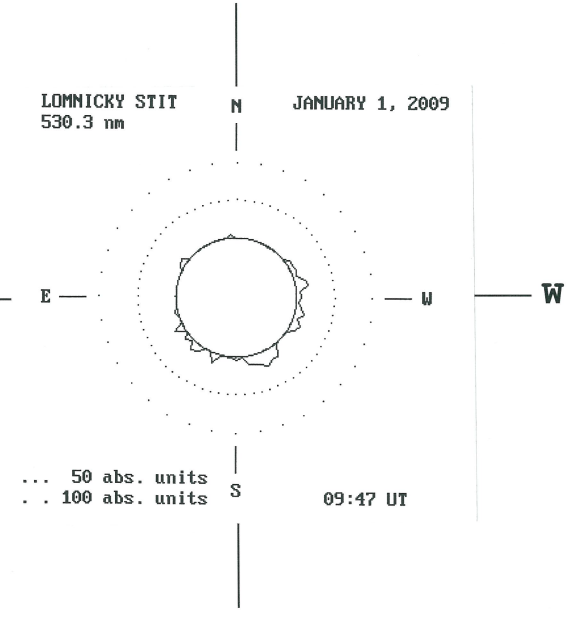


HOLLOMAN SUNSPOTS



2236 UT
0927 UT LOMN PROM

LOMNICKY PEAK CORONA (1.04 Radii)------

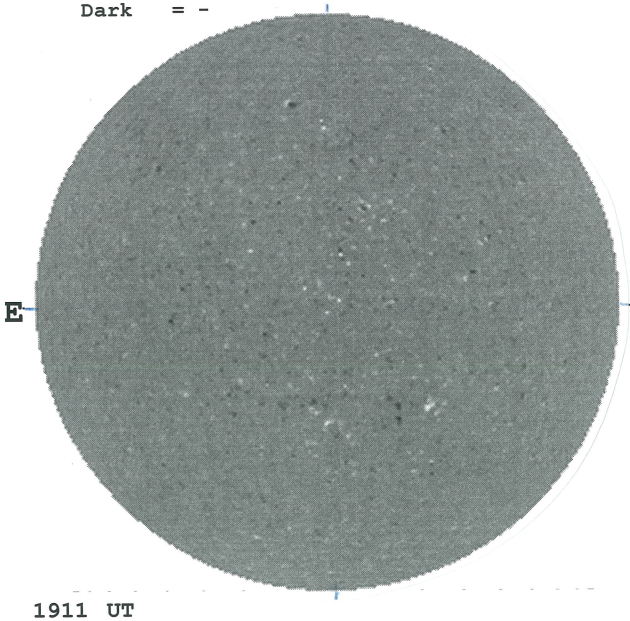


January 02, 2009 (P= 1.50, Bo=-3.15, Lo= 157.25)

KITT PEAK MAGNETOGRAM -- SOLIS

Bright = +
Dark = -

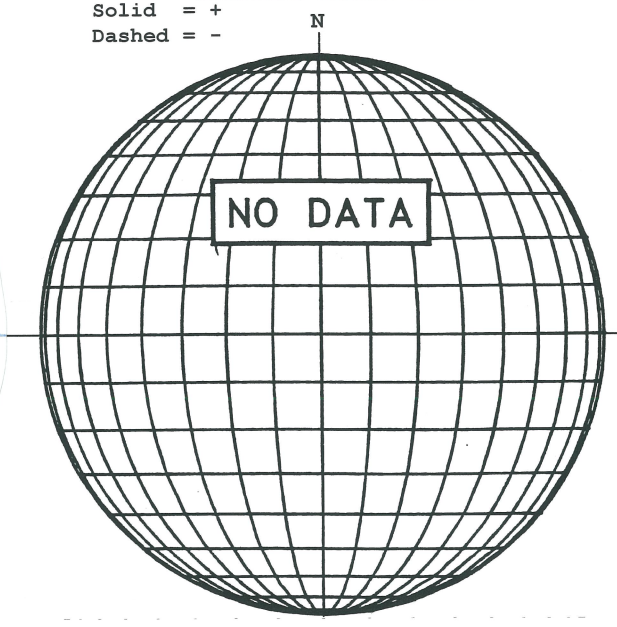
** 854.2NM **



1911 UT

STANFORD MAGNETOGRAM

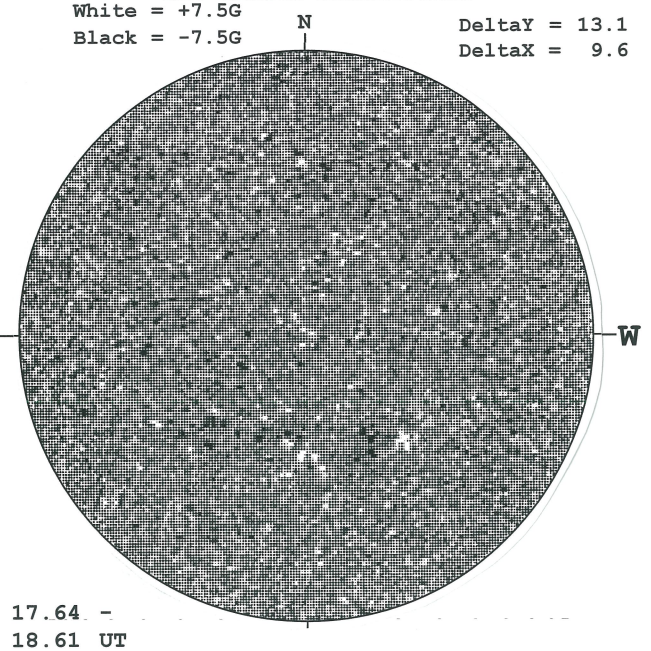
Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

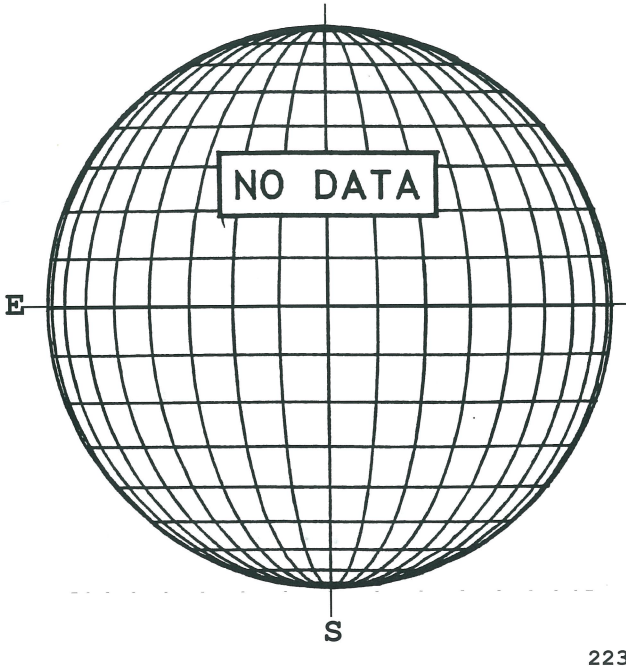
White = +7.5G
Black = -7.5G

DeltaY = 13.1
DeltaX = 9.6



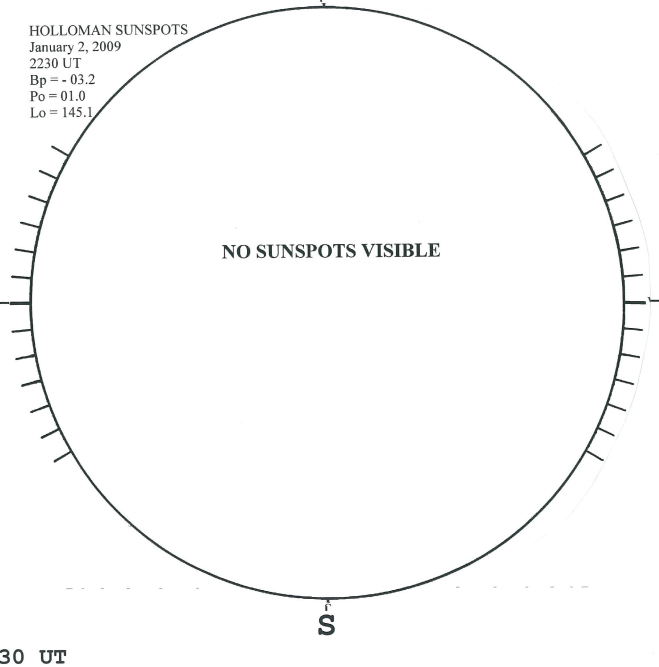
17.64 -
18.61 UT

MEUDON H-ALPHA

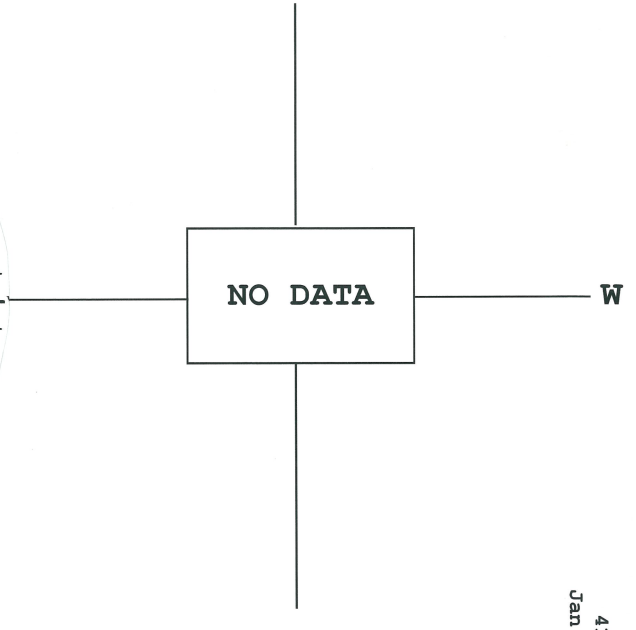


2230 UT

HOLLOMAN SUNSPOTS



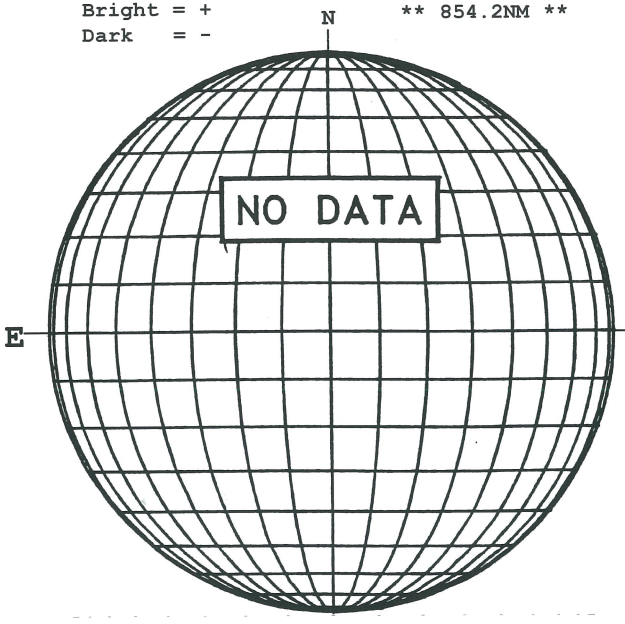
SACRAMENTO PEAK CORONA (1.15 Radii)-----



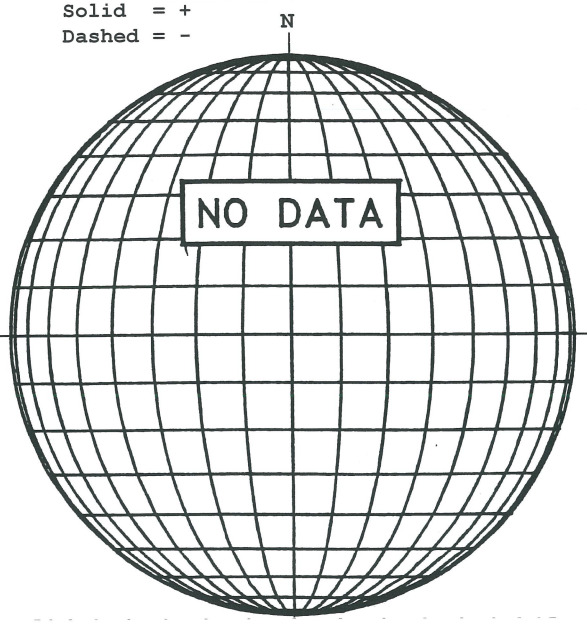
41
Jan 09

January 03, 2009 (P= 1.02, Bo=-3.27, Lo= 144.08)

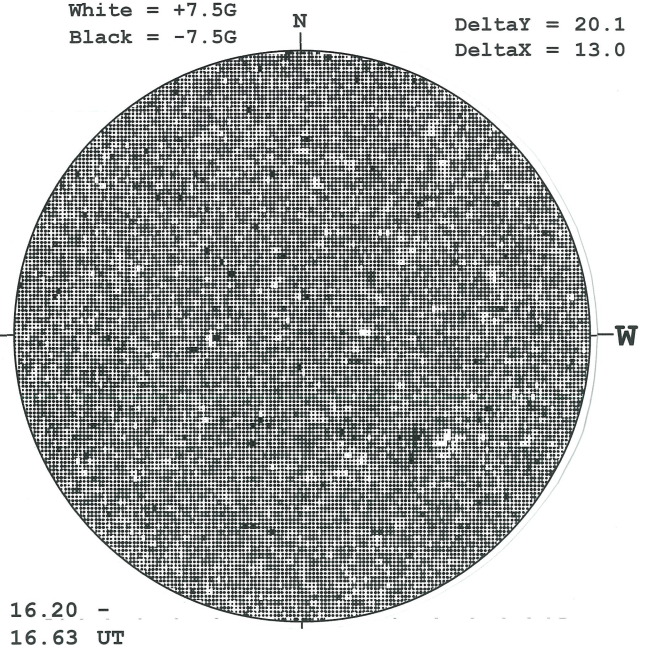
KITT PEAK MAGNETOGRAM -- SOLIS
Bright = +
Dark = -
** 854.2NM **



STANFORD MAGNETOGRAM
Solid = +
Dashed = -

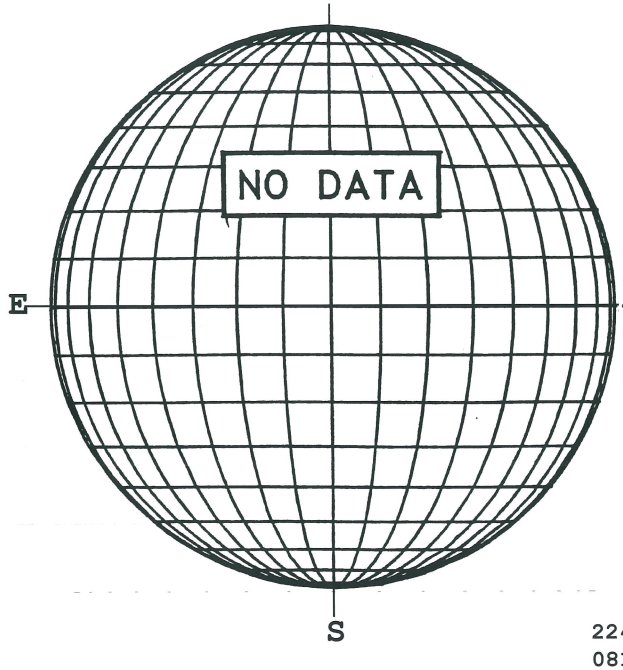


MT. WILSON MAGNETOGRAM
White = +7.5G
Black = -7.5G
DeltaY = 20.1
DeltaX = 13.0

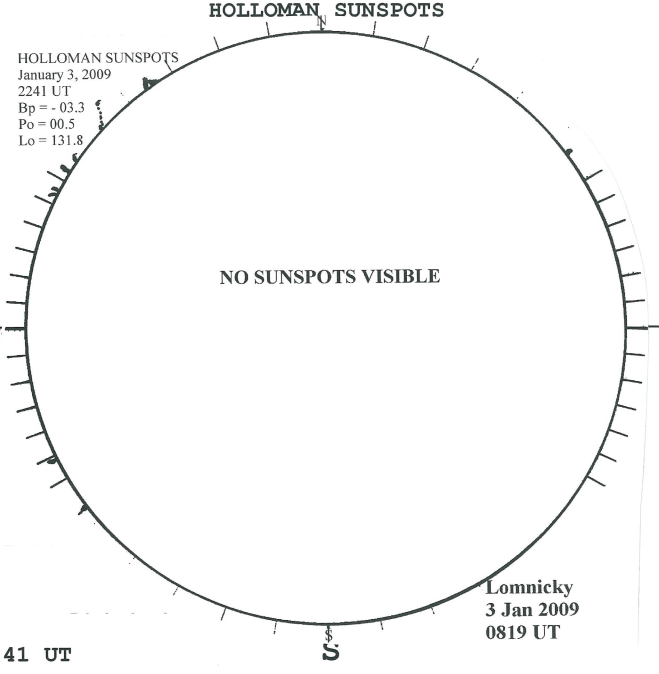


16.20 -
16.63 UT

BIG BEAR H-ALPHA

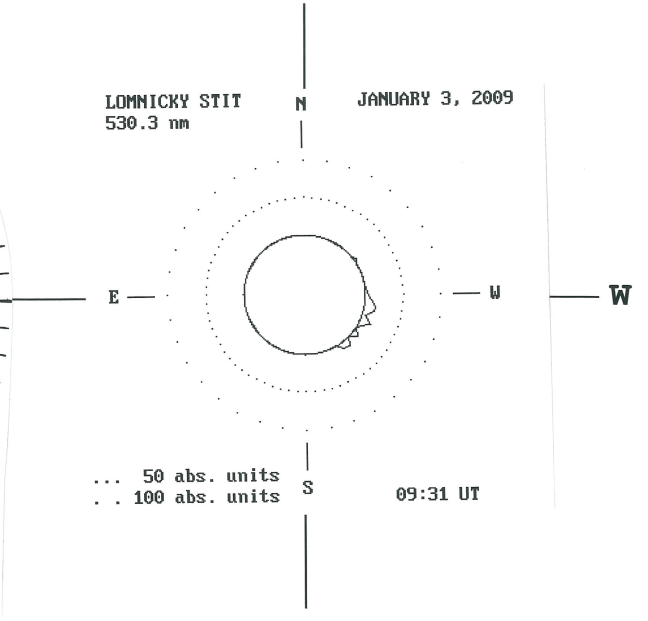


HOLLOMAN SUNSPOTS



2241 UT
0819 UT LOMN PROM

LOMNICKY PEAK CORONA (1.04 Radii)------

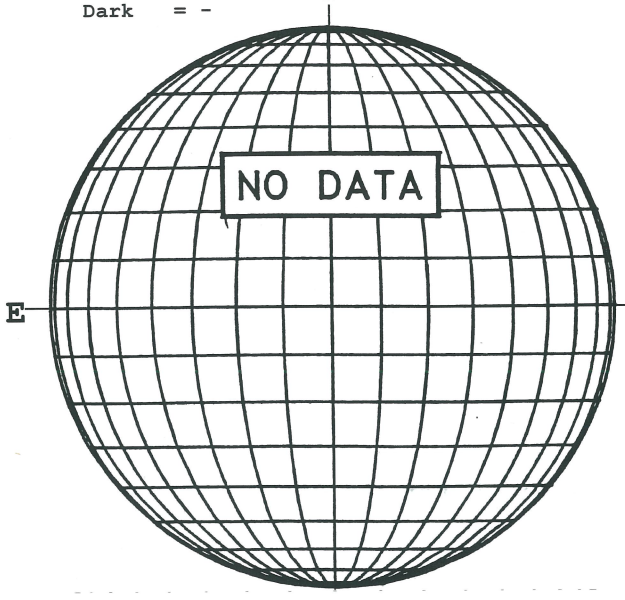


January 04, 2009 (P= 0.53, Bo=-3.38, Lo= 130.91)

KITT PEAK MAGNETOGRAM -- SOLIS

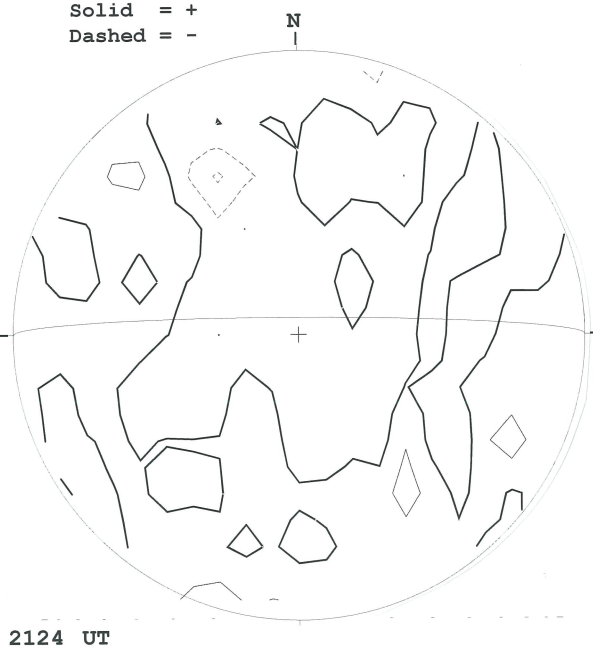
Bright = +
Dark = -

** 854.2NM **



STANFORD MAGNETOGRAM

Solid = +
Dashed = -

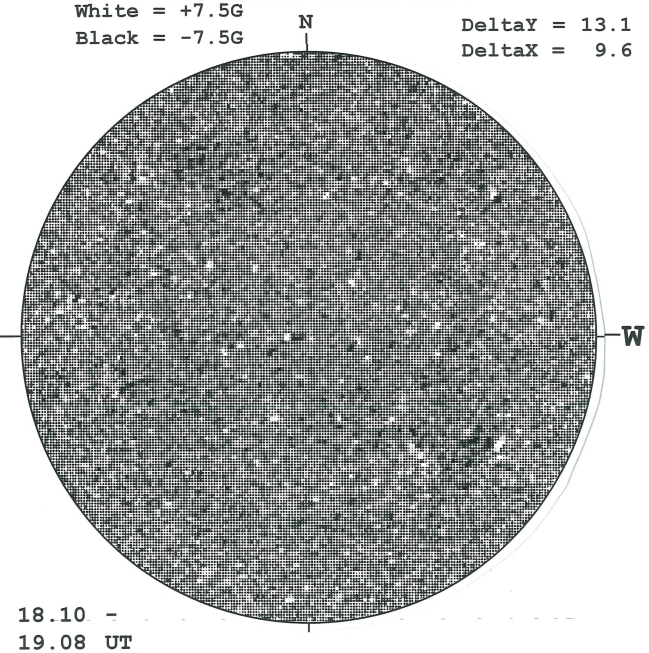


2124 UT

MT. WILSON MAGNETOGRAM

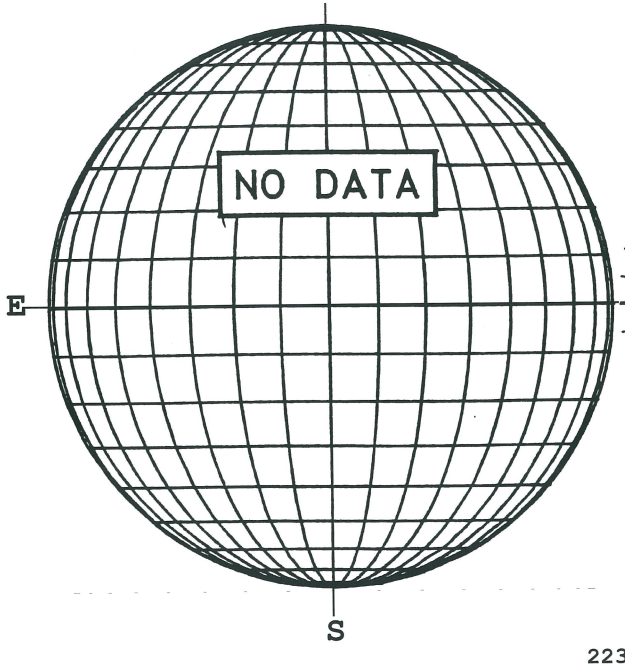
White = +7.5G
Black = -7.5G

DeltaY = 13.1
DeltaX = 9.6



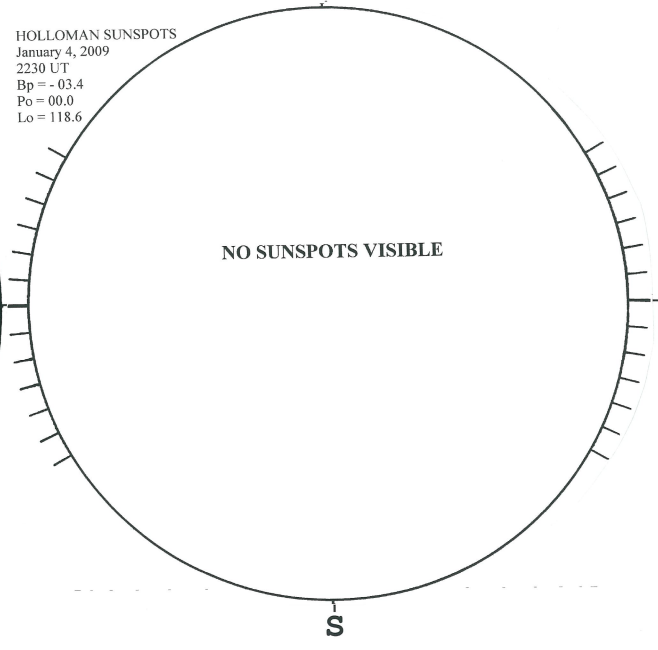
18.10 -
19.08 UT

BIG BEAR H-ALPHA

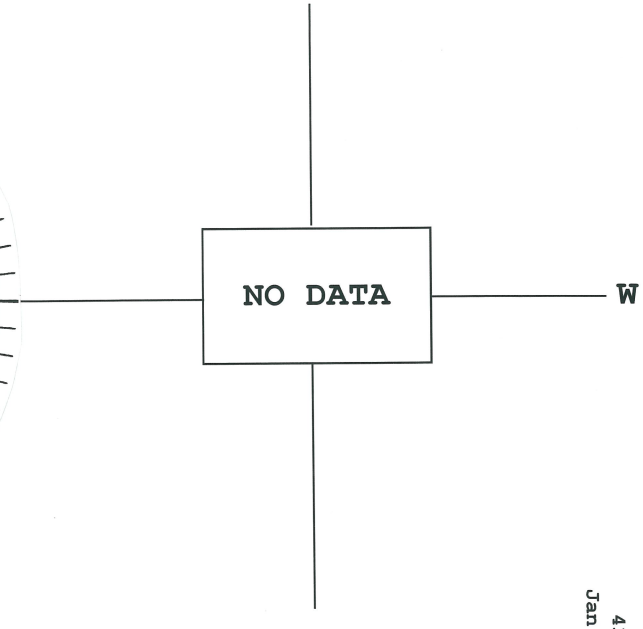


2230 UT

HOLLOMAN SUNSPOTS



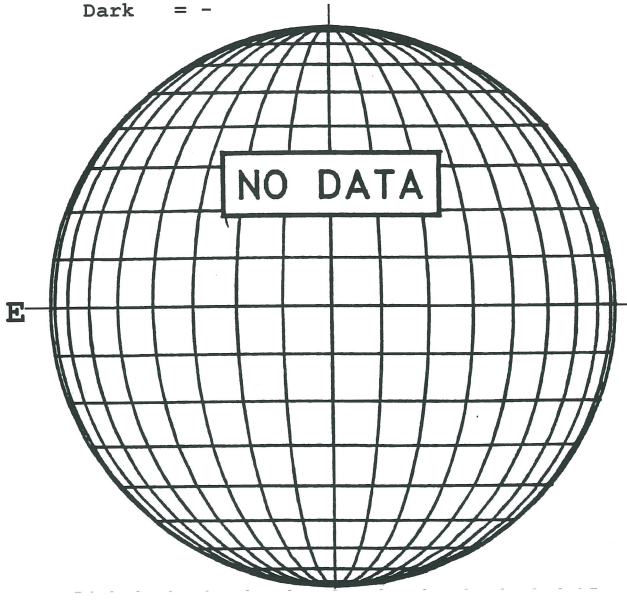
SACRAMENTO PEAK CORONA (1.15 Radii)----



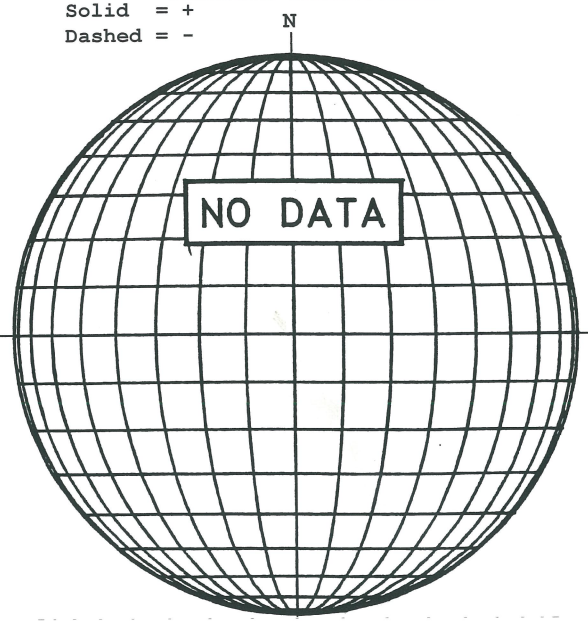
43
Jan 09

January 05, 2009 (P= 0.05, Bo=-3.50, Lo= 117.74)

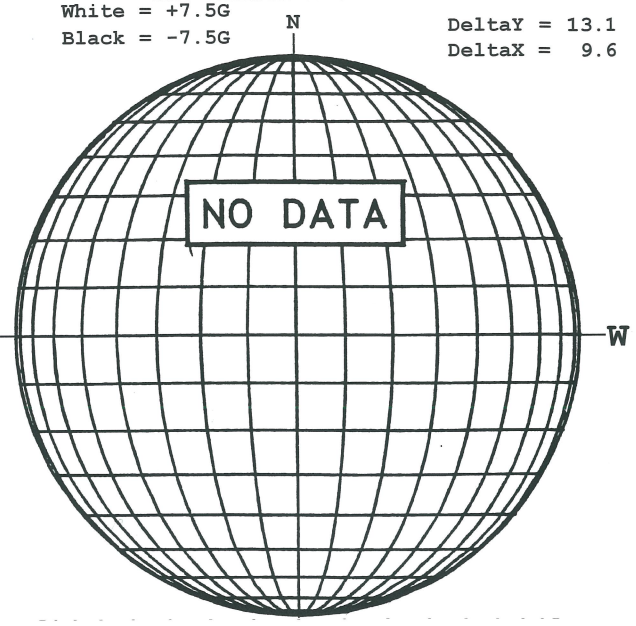
KITT PEAK MAGNETOGRAM -- SOLIS
Bright = +
Dark = -
** 854.2NM **



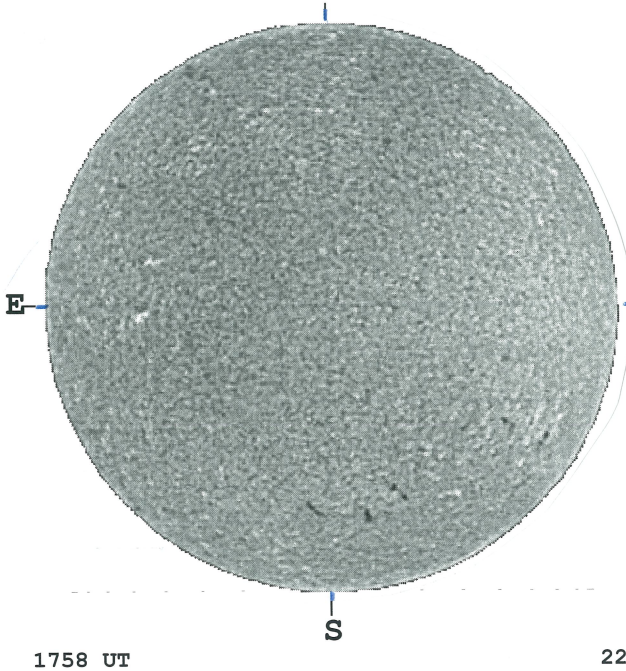
STANFORD MAGNETOGRAM
Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM
White = +7.5G
Black = -7.5G
DeltaY = 13.1
DeltaX = 9.6

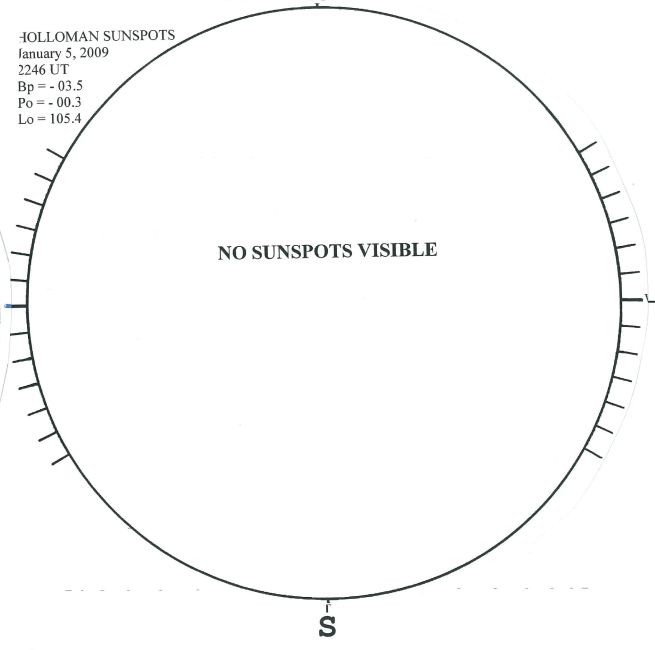


MONA LOA H-ALPHA



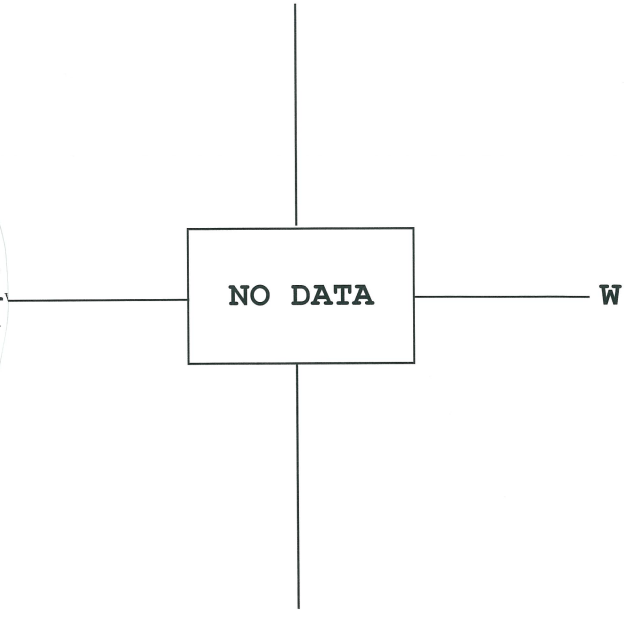
1758 UT

HOLLOMAN SUNSPOTS



2246 UT

SACRAMENTO PEAK CORONA (1.15 Radii)-----

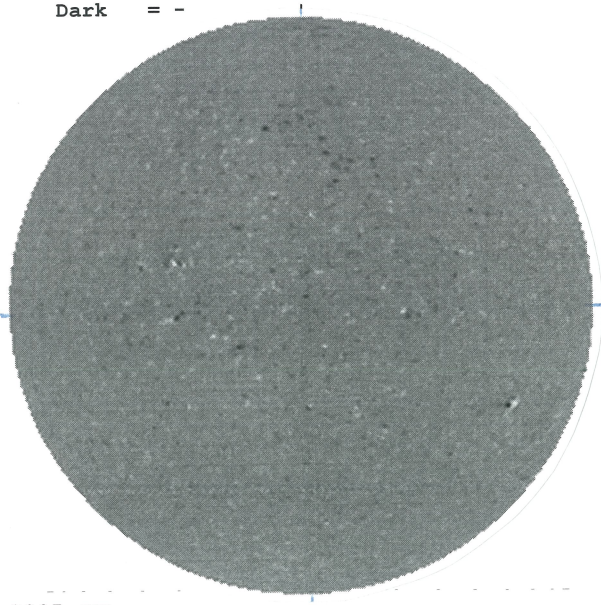


January 06, 2009 (P= -0.44, Bo=-3.61, Lo= 104.57)

KITT PEAK MAGNETOGRAM -- SOLIS

Bright = +
Dark = -

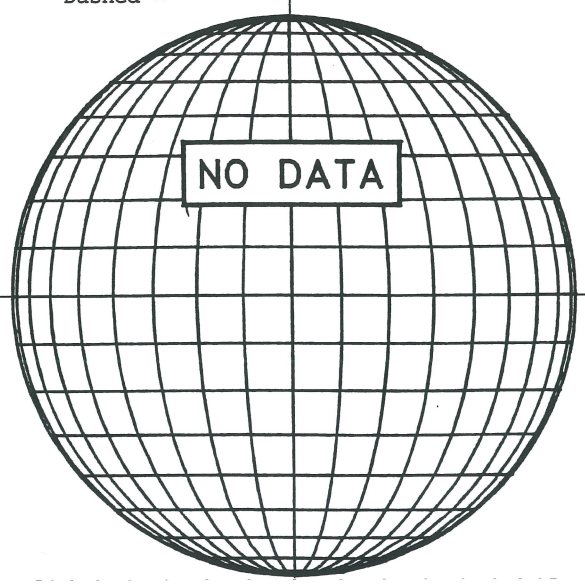
** 854.2NM **



2005 UT

STANFORD MAGNETOGRAM

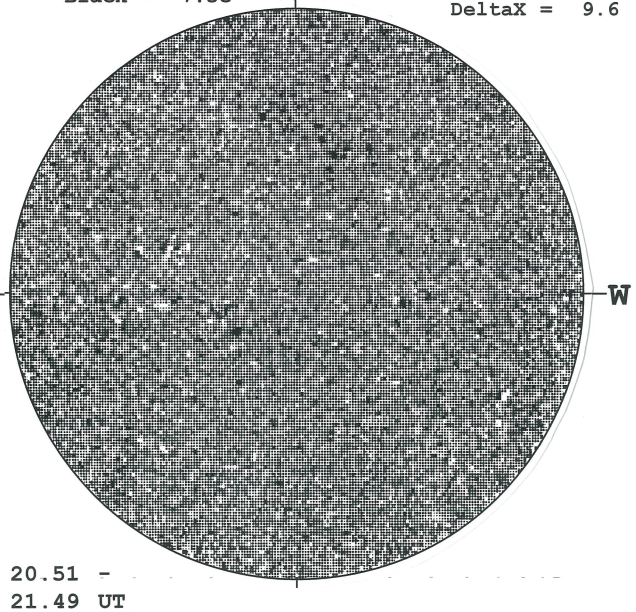
Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

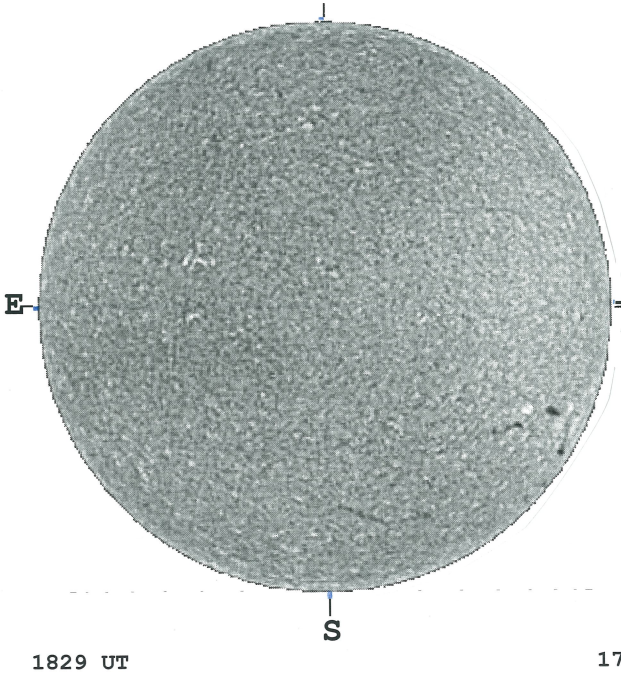
White = +7.5G
Black = -7.5G

DeltaY = 13.1
DeltaX = 9.6



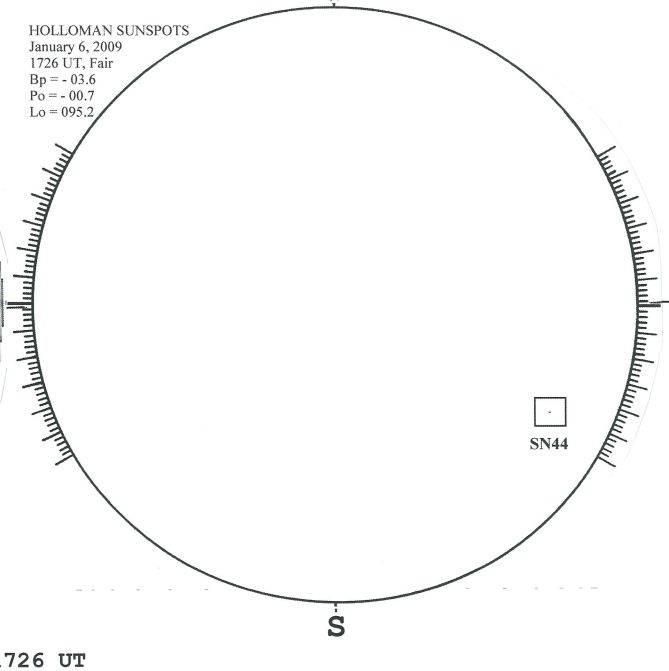
20.51 -
21.49 UT

--- MUANA LOA H-ALPHA



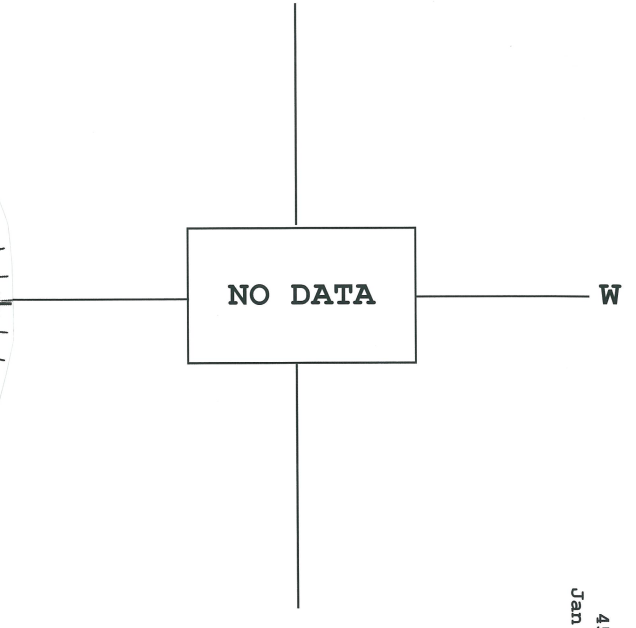
1829 UT

HOLLOMAN SUNSPOTS



1726 UT

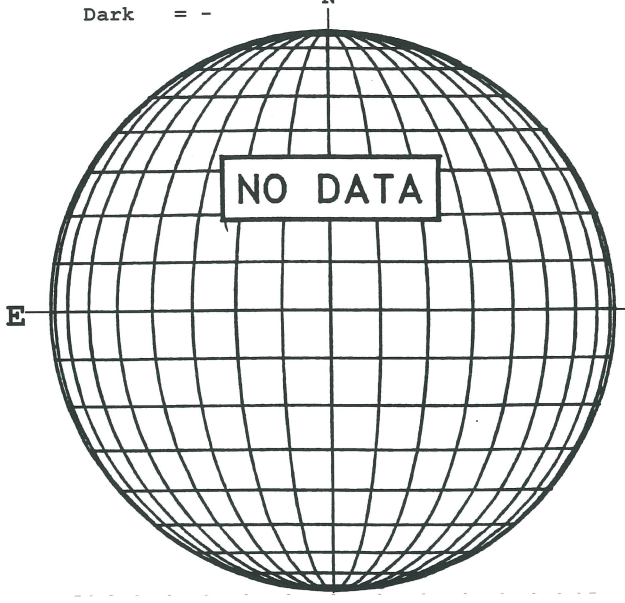
SACRAMENTO PEAK CORONA (1.15 Radii)----



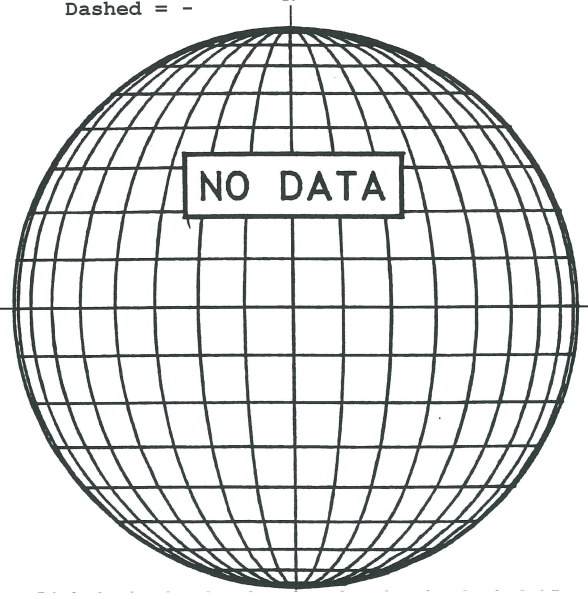
45
Jan 09

January 07, 2009 (P= -0.92, Bo=-3.72, Lo= 91.40)

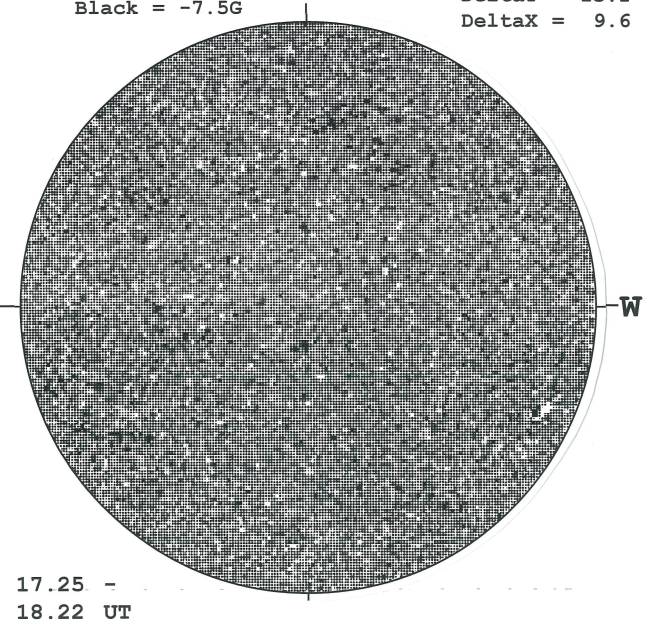
KITT PEAK MAGNETOGRAM -- SOLIS
Bright = +
Dark = -
** 854.2NM **



STANFORD MAGNETOGRAM
Solid = +
Dashed = -

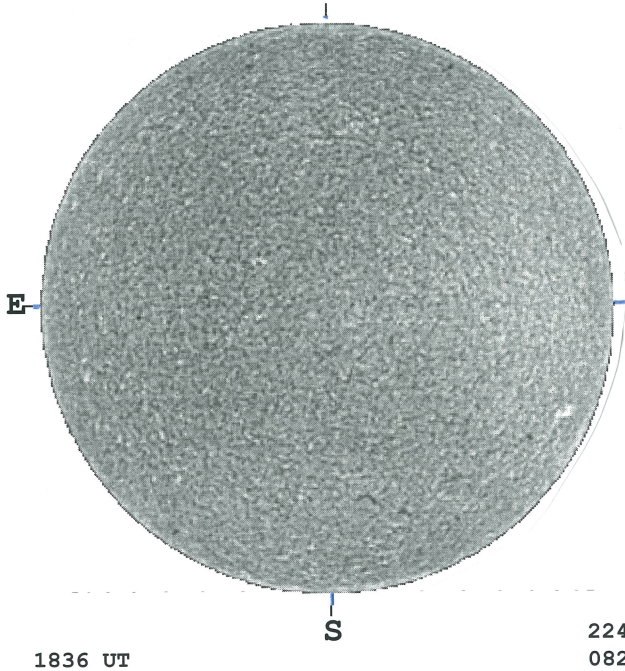


MT. WILSON MAGNETOGRAM
White = +7.5G
Black = -7.5G
DeltaY = 13.1
DeltaX = 9.6



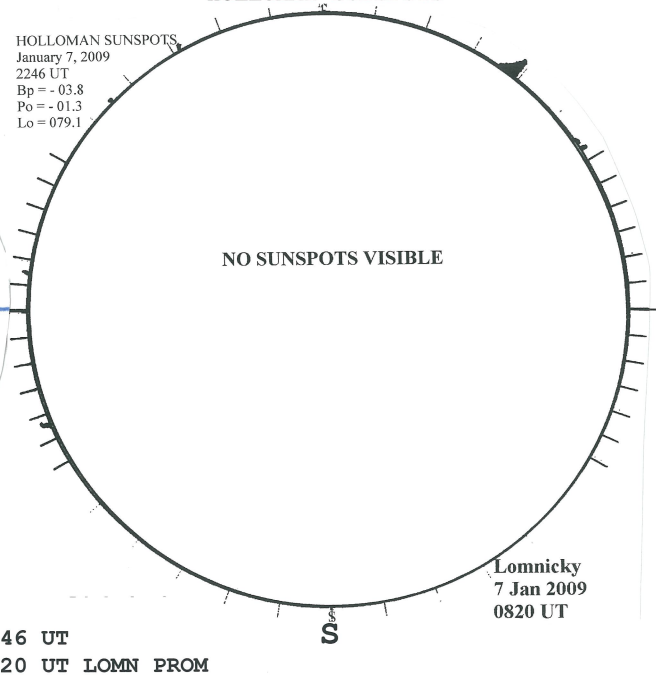
17.25 -
18.22 UT

MUANA LOA H-ALPHA



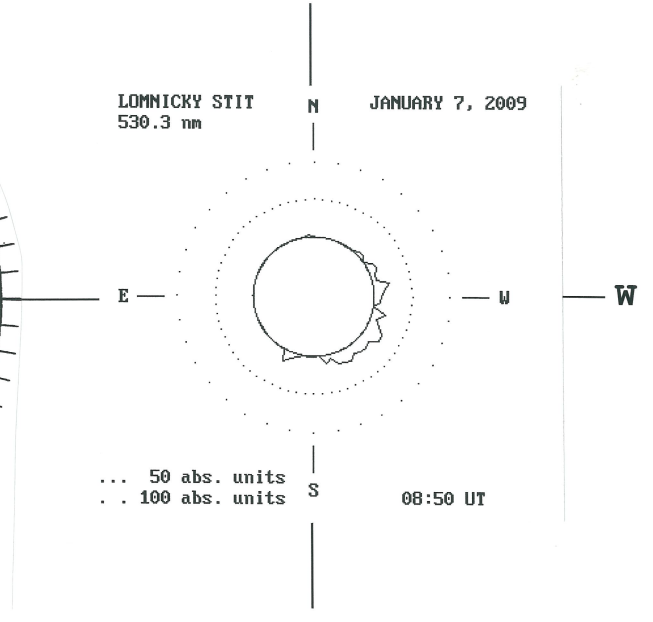
1836 UT

HOLLOMAN SUNSPOTS



2246 UT
0820 UT LOMN PROM

LOMNICKY PEAK CORONA (1.04 Radii)------

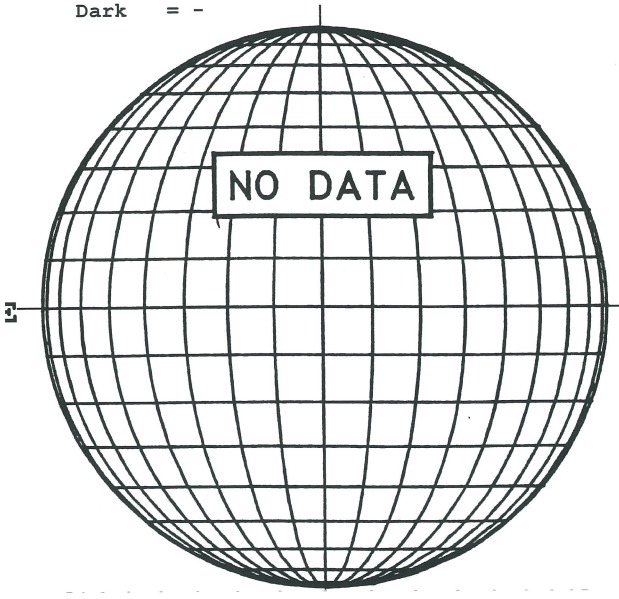


January 08, 2009 (P= -1.40, Bo=-3.83, Lo= 78.23)

KITT PEAK MAGNETOGRAM -- SOLIS

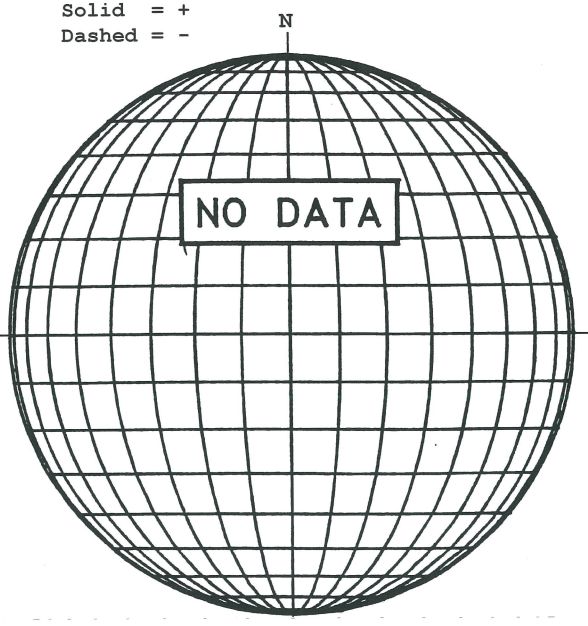
Bright = +
Dark = -

** 854.2NM **



STANFORD MAGNETOGRAM

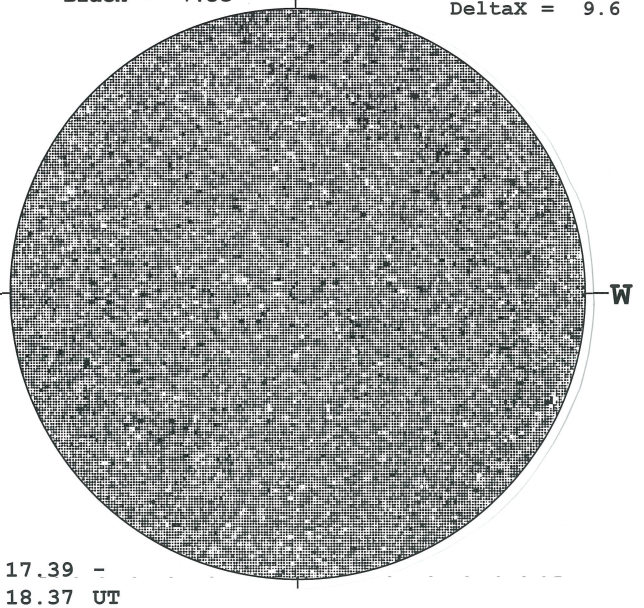
Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

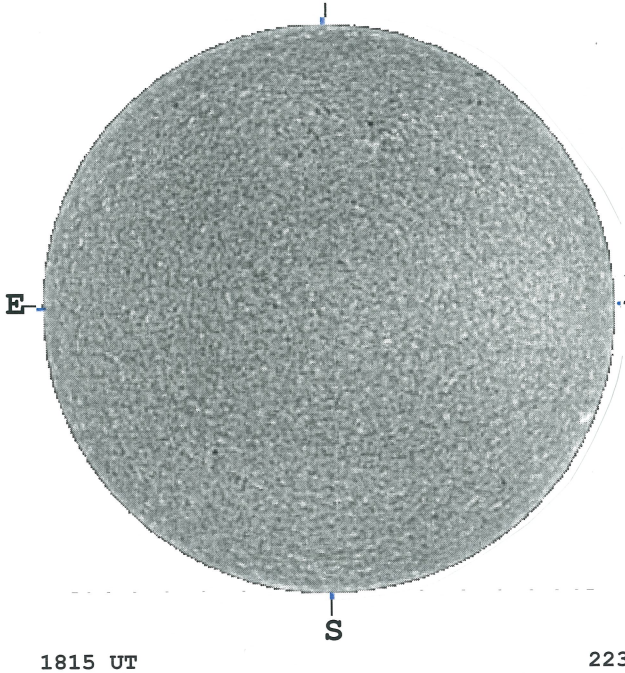
White = +7.5G
Black = -7.5G

DeltaY = 13.1
DeltaX = 9.6



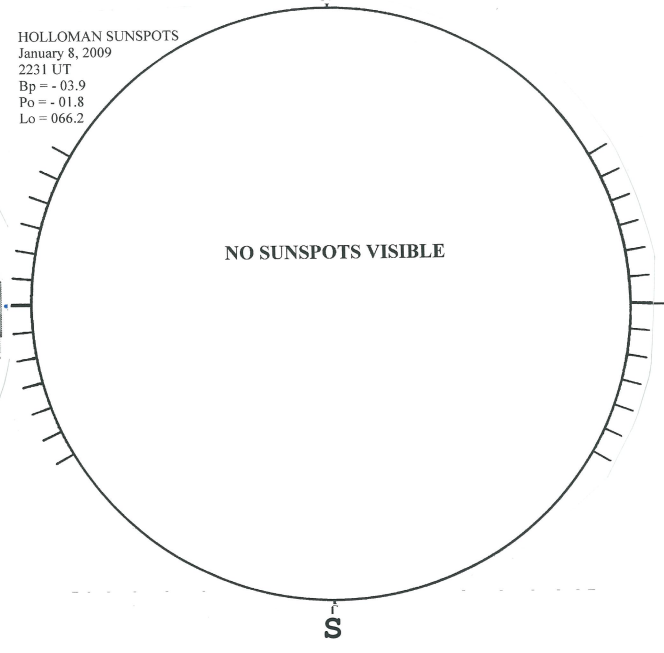
17.39 -
18.37 UT

MUANA LOA H-ALPHA



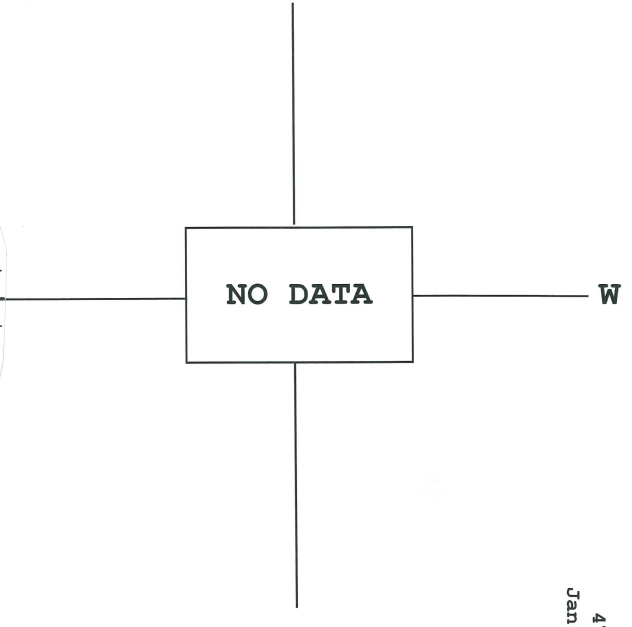
1815 UT

HOLLOMAN SUNSPOTS



2231 UT

SACRAMENTO PEAK CORONA (1.15 Radii)-----



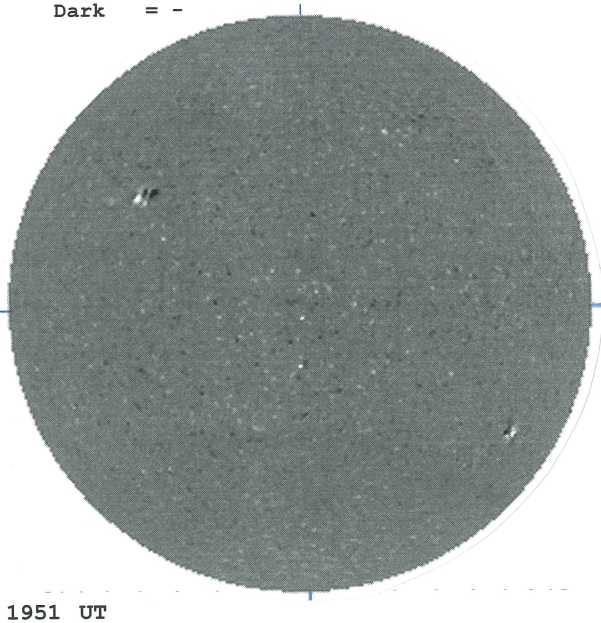
47
Jan 09

January 09, 2009 (P= -1.88, Bo=-3.94, Lo= 65.06)

KITT PEAK MAGNETOGRAM -- SOLIS

Bright = +
Dark = -

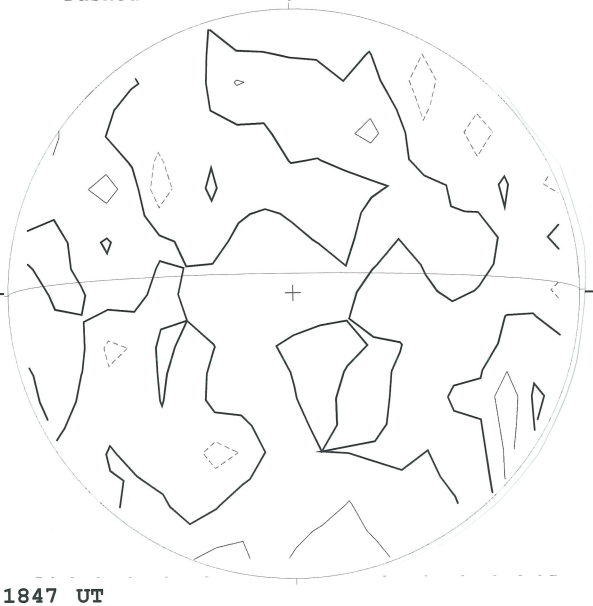
** 854.2NM **



1951 UT

STANFORD MAGNETOGRAM

Solid = +
Dashed = -

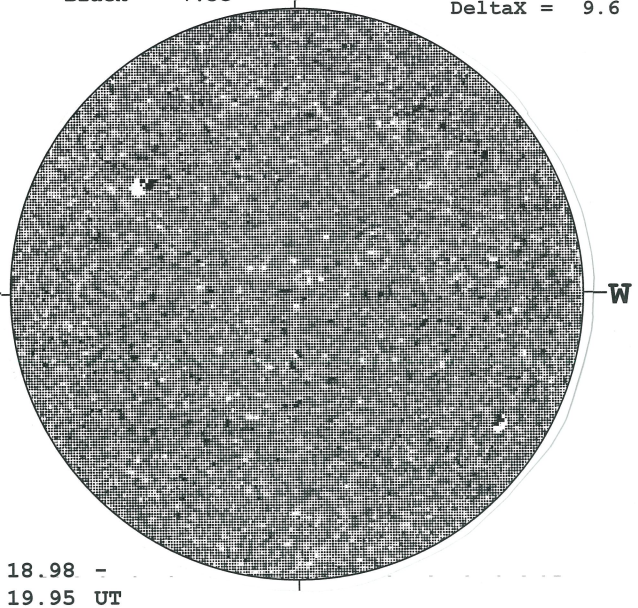


1847 UT

MT. WILSON MAGNETOGRAM

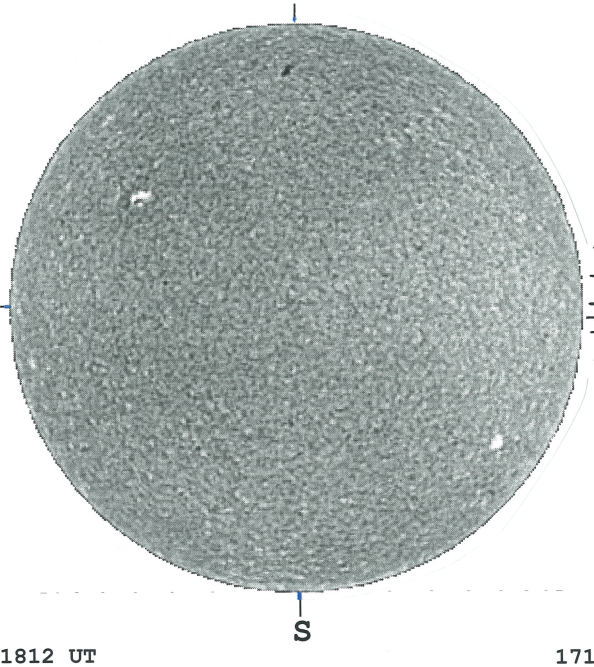
White = +7.5G
Black = -7.5G

DeltaY = 13.1
DeltaX = 9.6



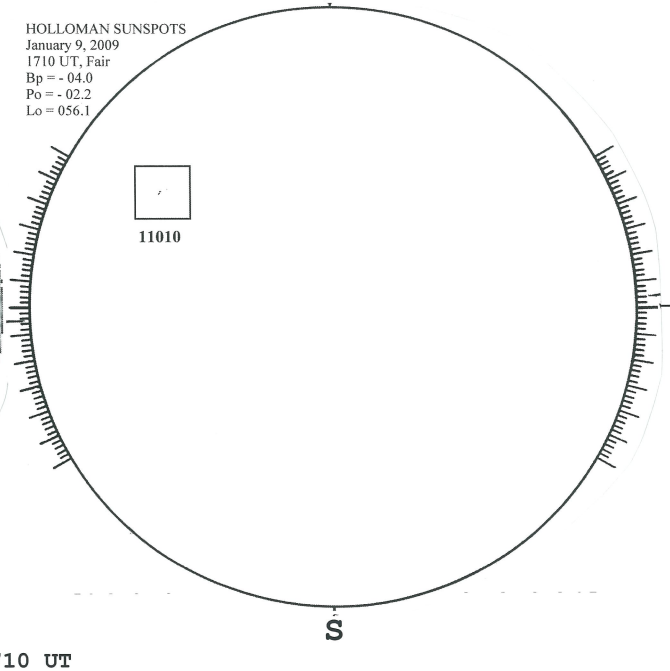
18.98 -
19.95 UT

MUANA LOA H-ALPHA



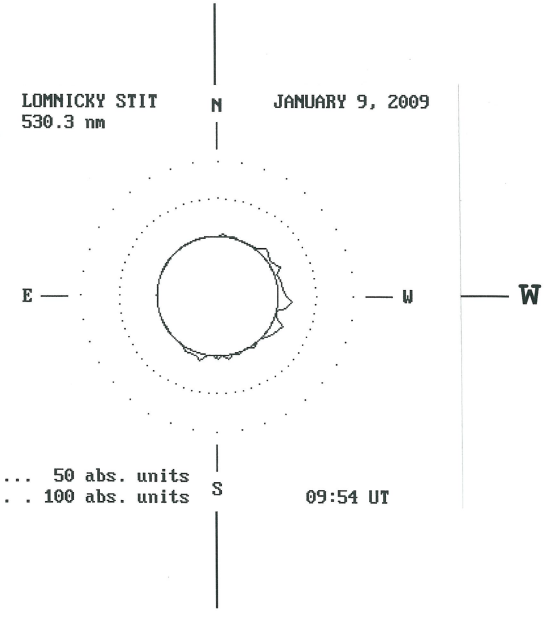
1812 UT

HOLLOMAN SUNSPOTS



1710 UT

LOMNICKY PEAK CORONA (1.04 Radii)------

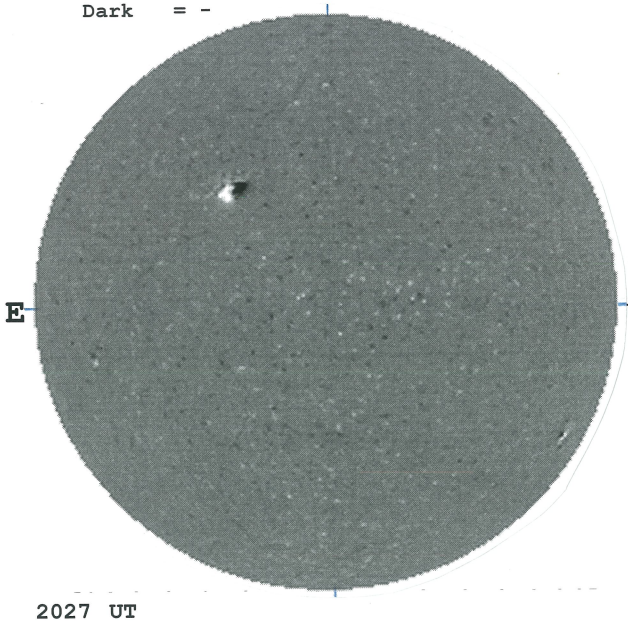


January 10, 2009 (P= -2.36, Bo=-4.05, Lo= 51.89)

KITT PEAK MAGNETOGRAM -- SOLIS

Bright = +
Dark = -

** 854.2NM **



2027 UT

STANFORD MAGNETOGRAM

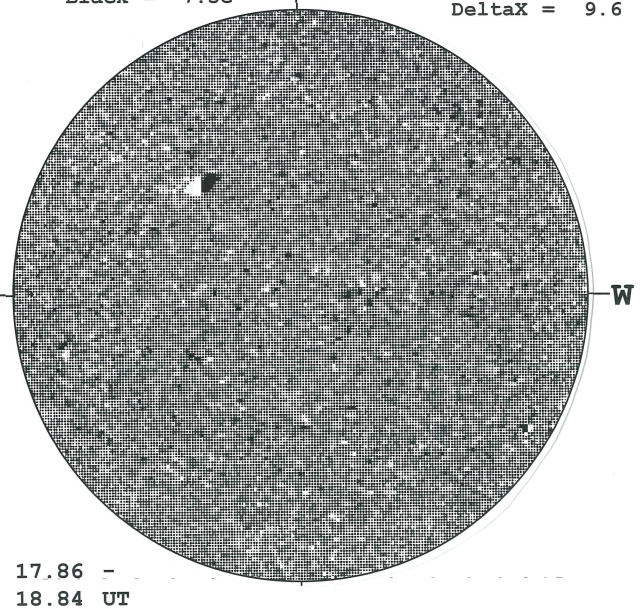
Solid = +
Dashed = -

1919 UT

MT. WILSON MAGNETOGRAM

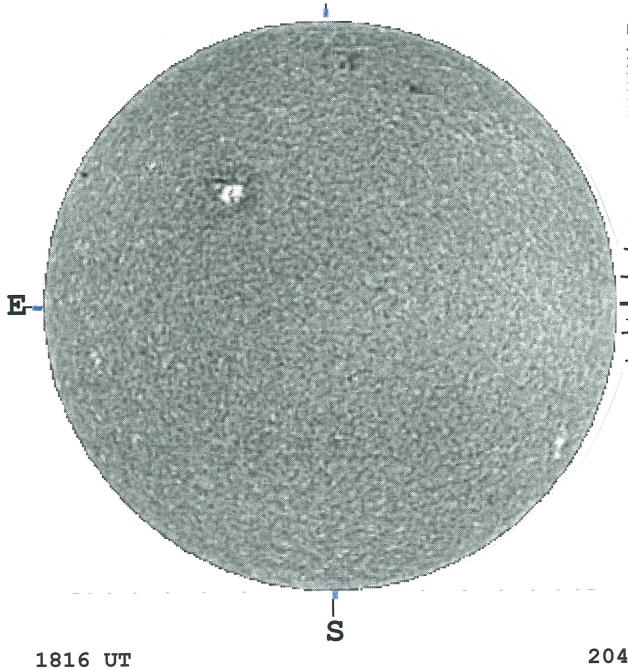
White = +7.5G
Black = -7.5G

DeltaY = 13.1
DeltaX = 9.6



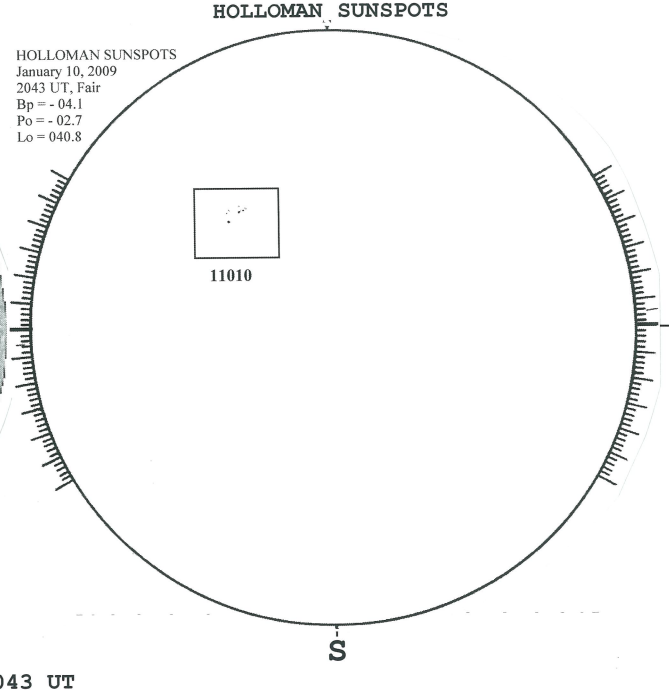
17.86 -
18.84 UT

MUANA LOA H-ALPHA



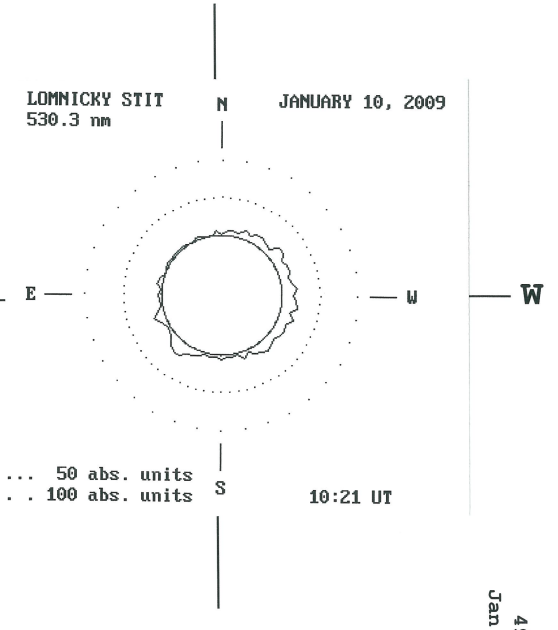
1816 UT

HOLLOMAN SUNSPOTS



2043 UT

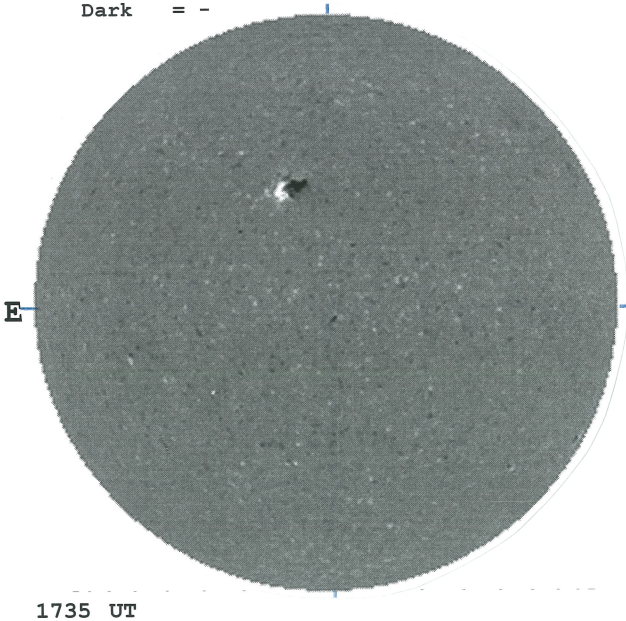
LOMNICKY PEAK CORONA (1.04 Radii)------



49
Jan 09

January 11, 2009 (P= -2.84, Bo=-4.15, Lo= 38.73)

KITT PEAK MAGNETOGRAM -- SOLIS
Bright = +
Dark = -
** 854.2NM **

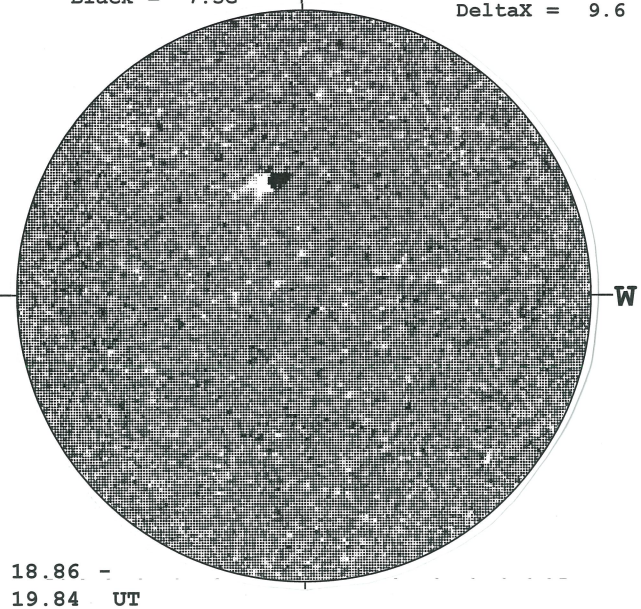


1735 UT

STANFORD MAGNETOGRAM
Solid = +
Dashed = -

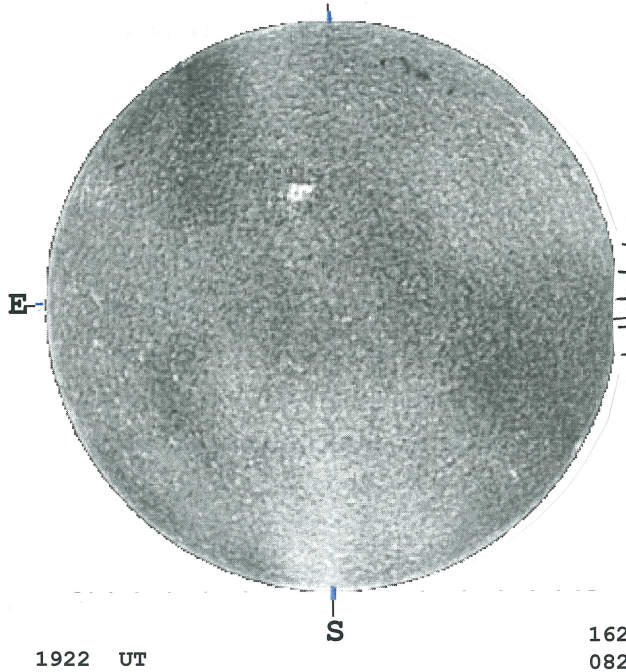
1911 UT

MT. WILSON MAGNETOGRAM
White = +7.5G
Black = -7.5G
DeltaY = 13.1
DeltaX = 9.6



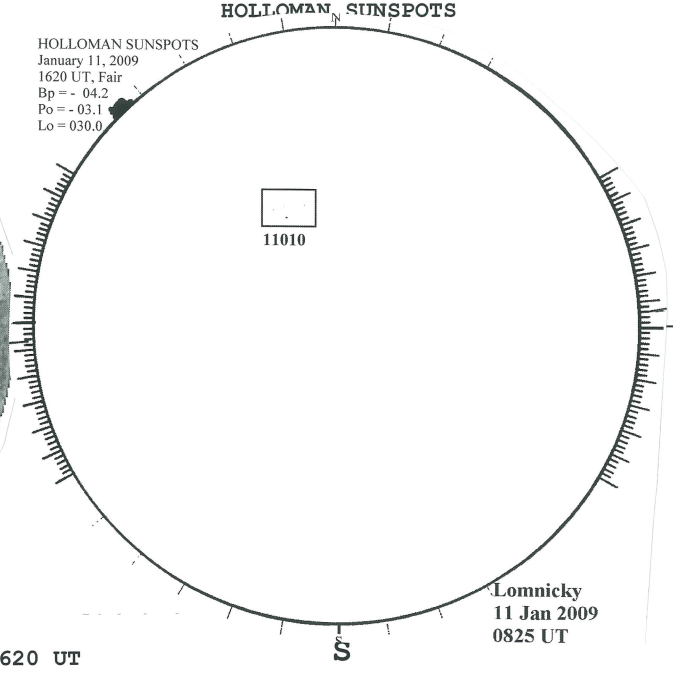
18.86 -
19.84 UT

MUANA LOA H-ALPHA



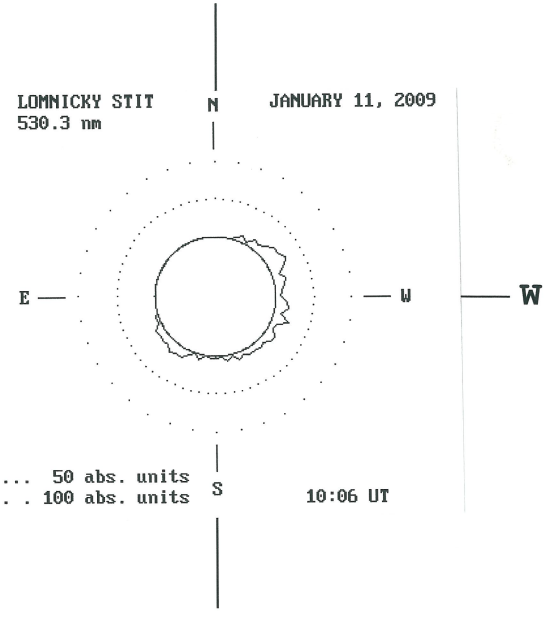
1922 UT

HOLLOMAN SUNSPOTS



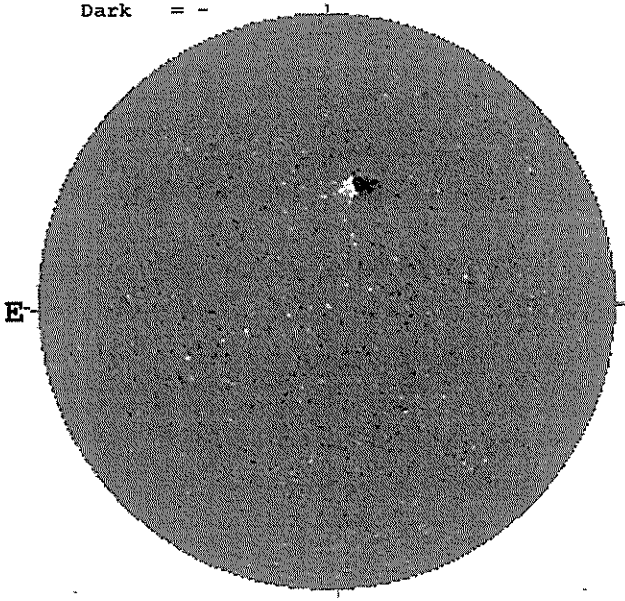
1620 UT
0825 UT LOMN PROM

LOMNICKY PEAK CORONA (1.04 Radii)



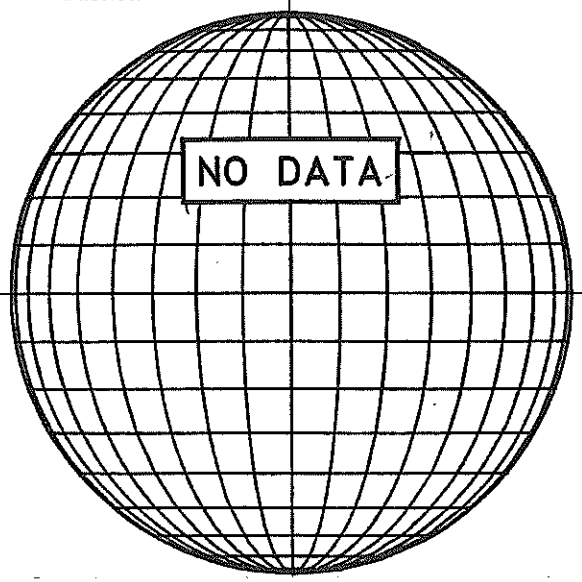
January 12, 2009 (P= -3.31, Bo=-4.26, Lo= 25.56)

KITT PEAK MAGNETOGRAM -- SOLIS
Bright = +
Dark = -
** 854.2NM **

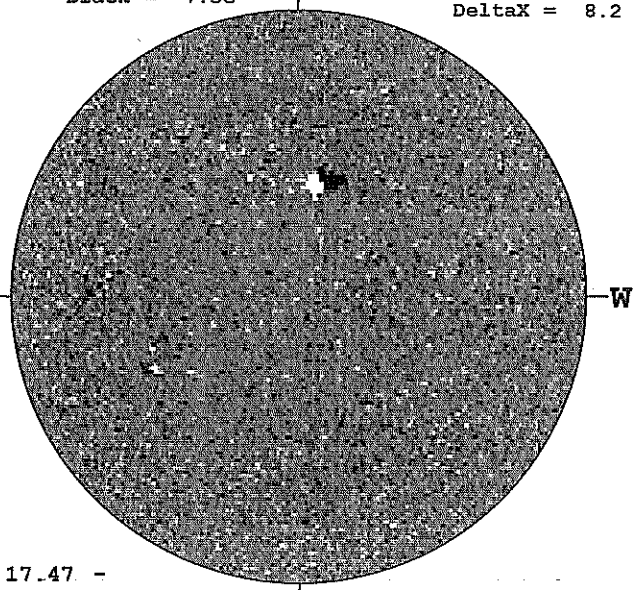


1916 UT

STANFORD MAGNETOGRAM
Solid = +
Dashed = -

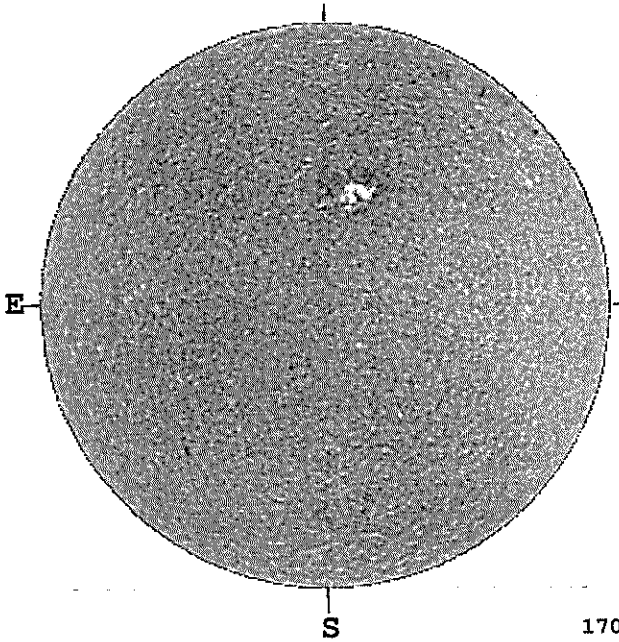


MT. WILSON MAGNETOGRAM
White = +7.5G
Black = -7.5G
DeltaY = 13.1
DeltaX = 8.2



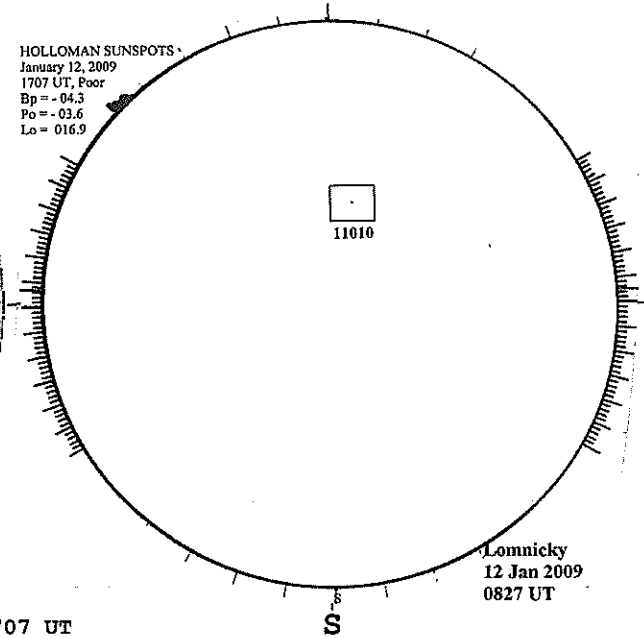
17.47 -
18.45 UT

MUANA LOA H-ALPHA



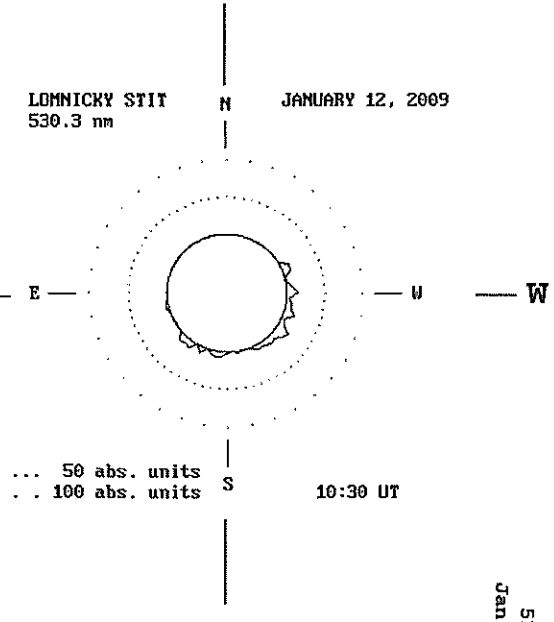
1940 UT

HOLLOMAN SUNSPOTS



1707 UT
0827 UT LOMN PROM

LOMNICKY PEAK CORONA (1.04 Radii)------



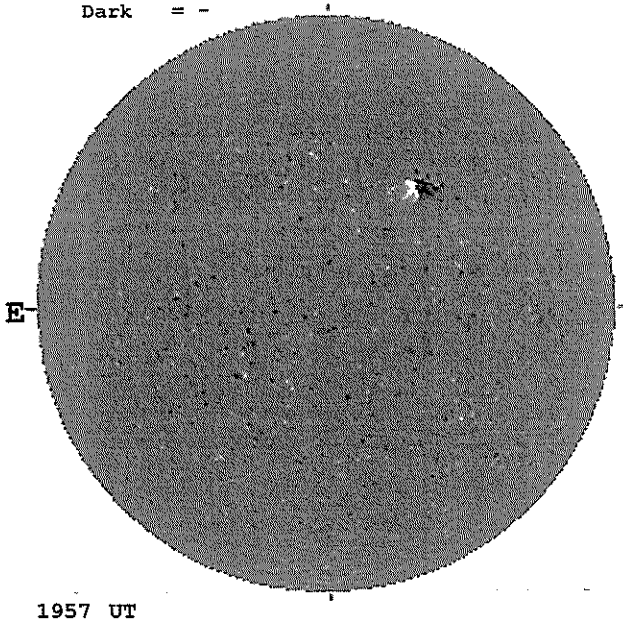
51
Jan 09

January 13, 2009 (P= -3.79, Bo=-4.36, Lo= 12.39)

KITT PEAK MAGNETOGRAM -- SOLIS

Bright = +
Dark = -

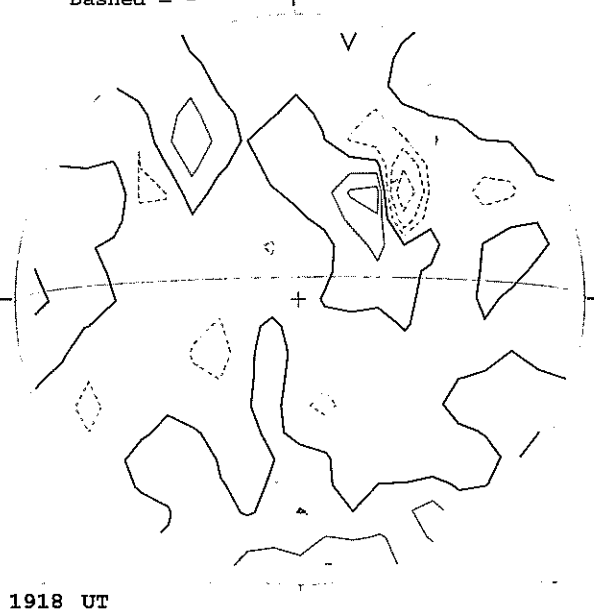
** 854.2NM **



1957 UT

STANFORD MAGNETOGRAM

Solid = +
Dashed = -

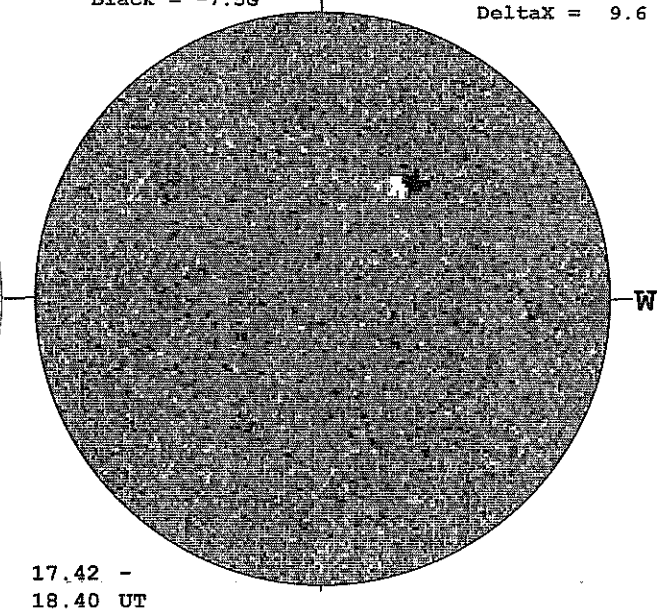


1918 UT

MT. WILSON MAGNETOGRAM

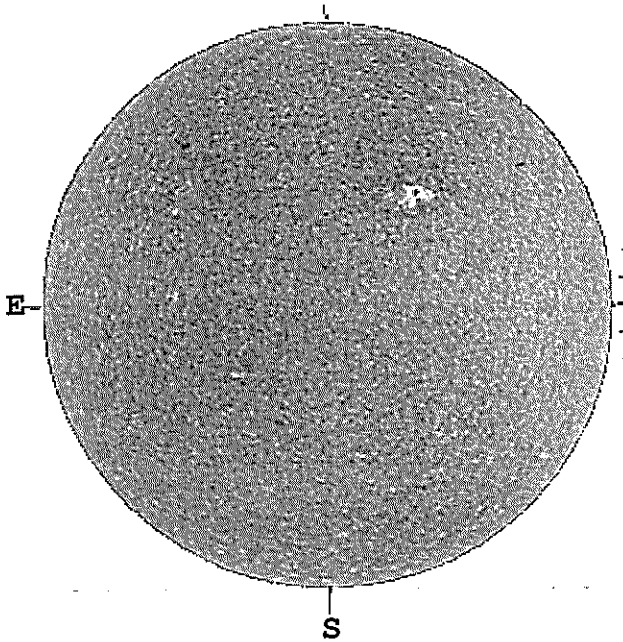
White = +7.5G
Black = -7.5G

DeltaY = 13.1
DeltaX = 9.6



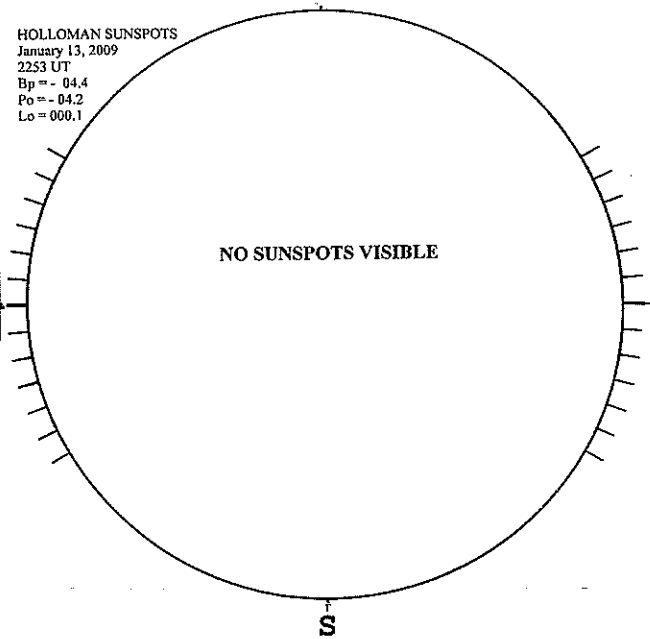
17.42 -
18.40 UT

MUANA LOA H-ALPHA



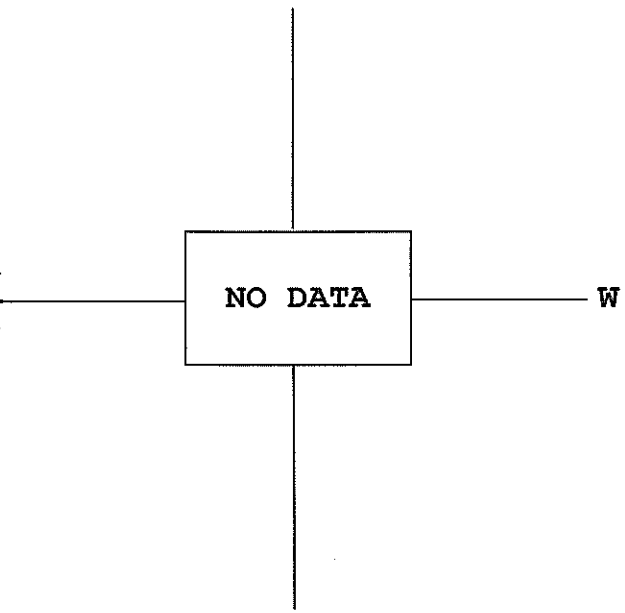
1821 UT

HOLLOMAN SUNSPOTS



2253 UT

SACRAMENTO PEAK CORONA (1.15 Radii)-----

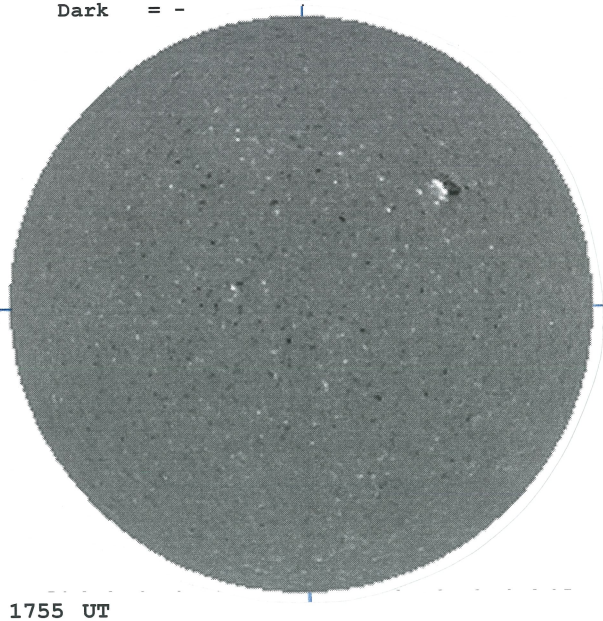


January 14, 2009 (P= -4.26, Bo=-4.46, Lo= 359.22)

KITT PEAK MAGNETOGRAM -- SOLIS

Bright = +
Dark = -

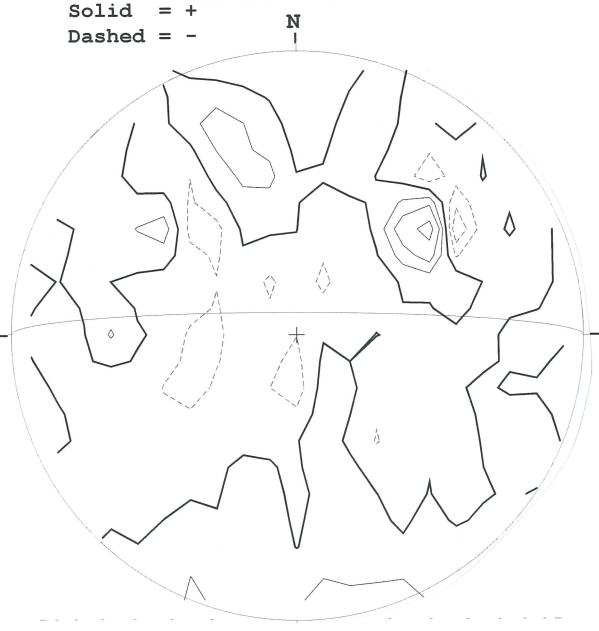
** 854.2NM **



1755 UT

STANFORD MAGNETOGRAM

Solid = +
Dashed = -

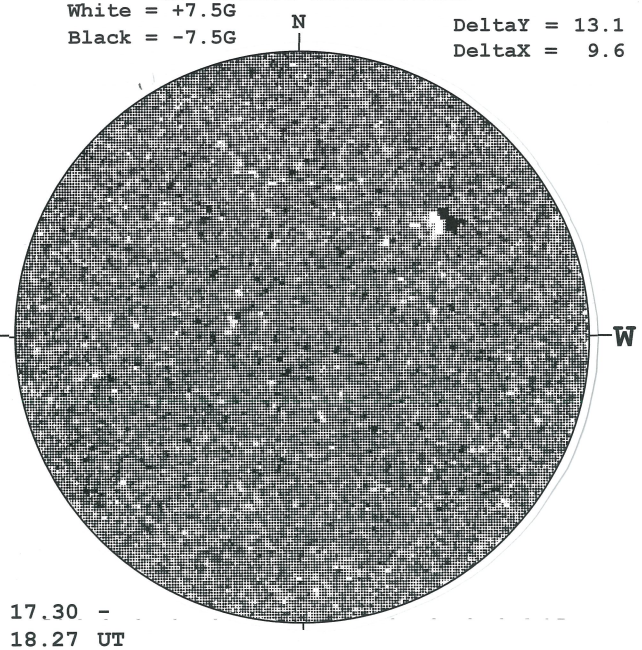


1921 UT

MT. WILSON MAGNETOGRAM

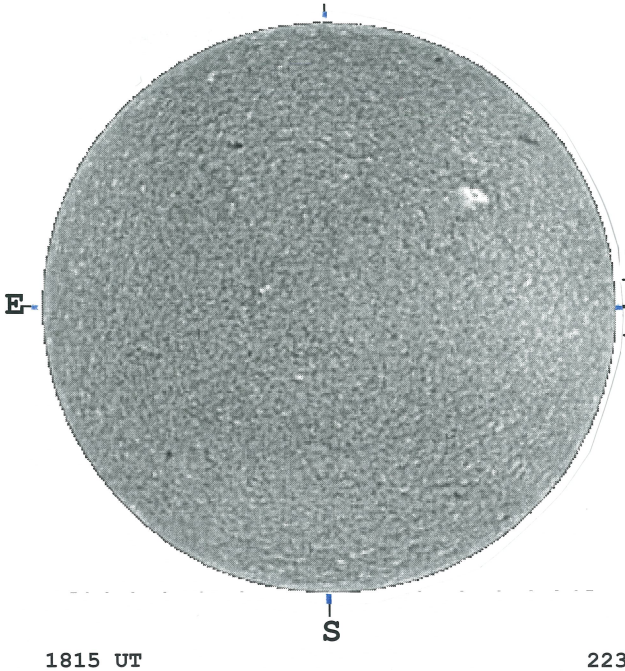
White = +7.5G
Black = -7.5G

DeltaY = 13.1
DeltaX = 9.6



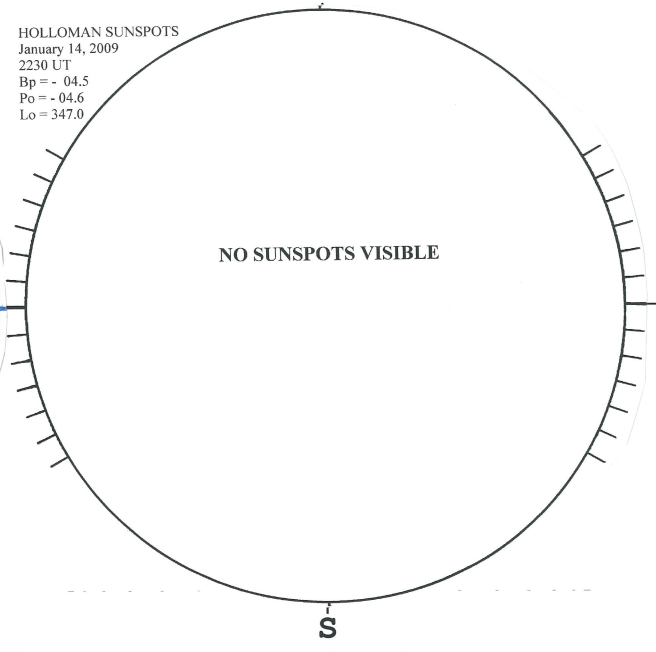
17.30 -
18.27 UT

MUANA LOA H-ALPHA



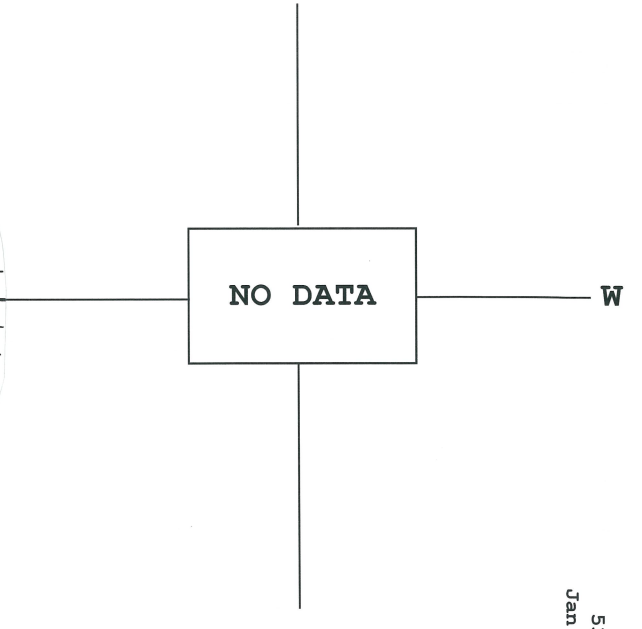
1815 UT

HOLLOMAN SUNSPOTS



2230 UT

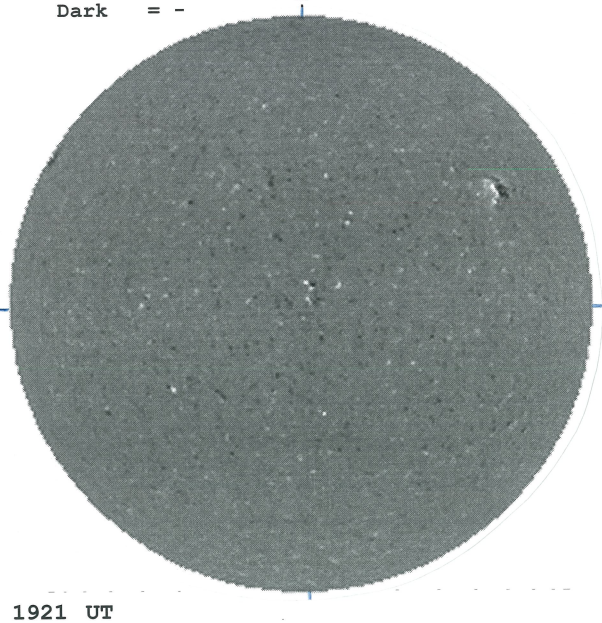
SACRAMENTO PEAK CORONA (1.15 Radii)-----



53
Jan 09

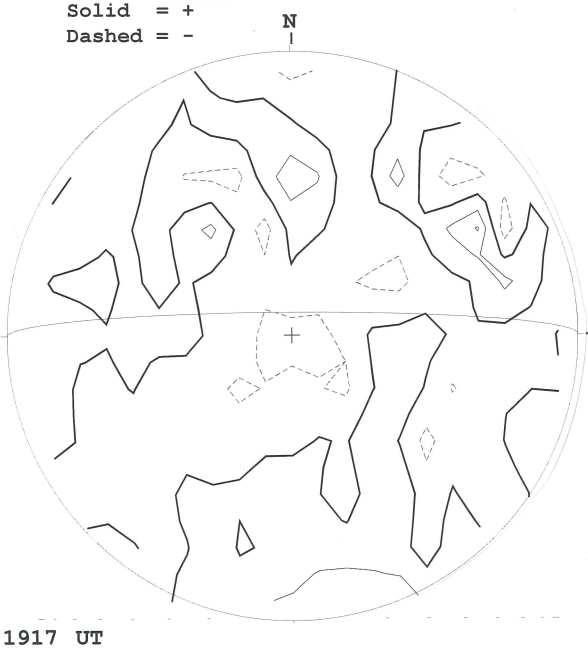
January 15, 2009 (P= -4.73, Bo=-4.56, Lo= 346.05)

KITT PEAK MAGNETOGRAM -- SOLIS
Bright = +
Dark = -
** 854.2NM **



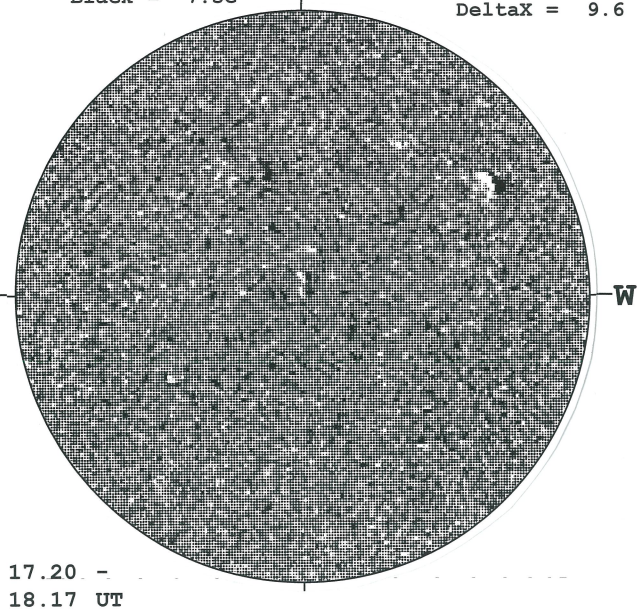
1921 UT

STANFORD MAGNETOGRAM
Solid = +
Dashed = -



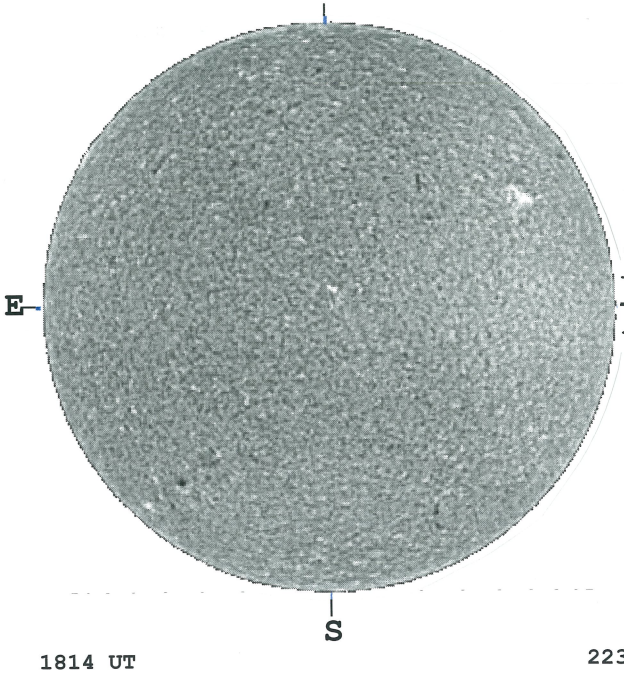
1917 UT

MT. WILSON MAGNETOGRAM
White = +7.5G
Black = -7.5G
DeltaY = 13.1
DeltaX = 9.6



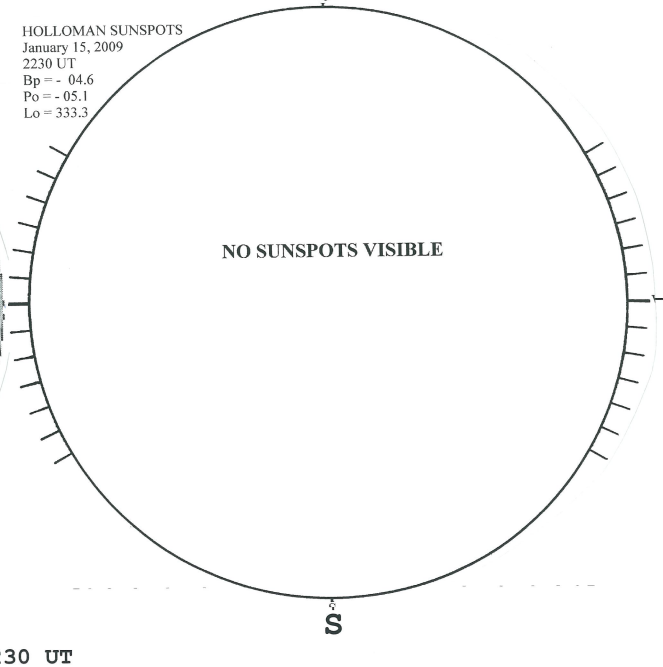
17.20 -
18.17 UT

MUANA LOA H-ALPHA



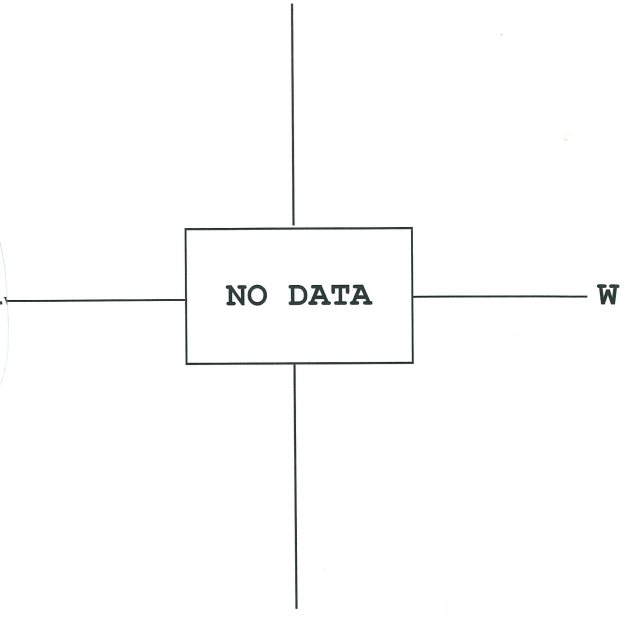
1814 UT

HOLLOMAN SUNSPOTS



2230 UT

SACRAMENTO PEAK CORONA (1.15 Radii)-----

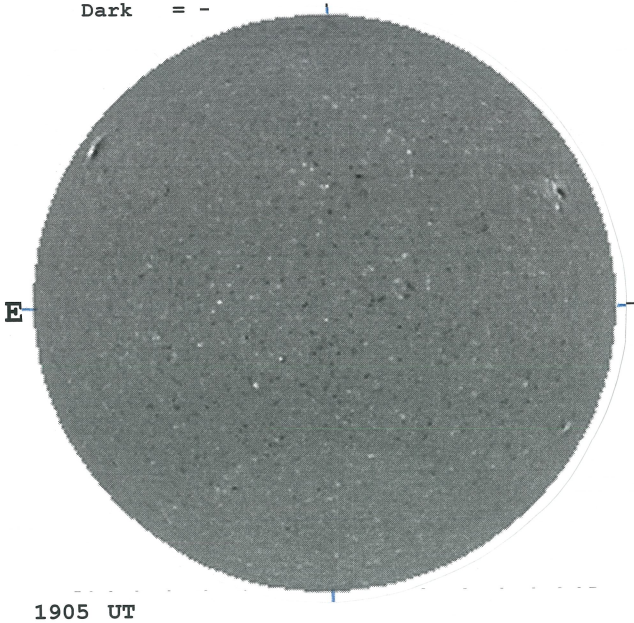


January 16, 2009 (P= -5.20, Bo=-4.66, Lo= 332.89)

KITT PEAK MAGNETOGRAM -- SOLIS

Bright = +
Dark = -

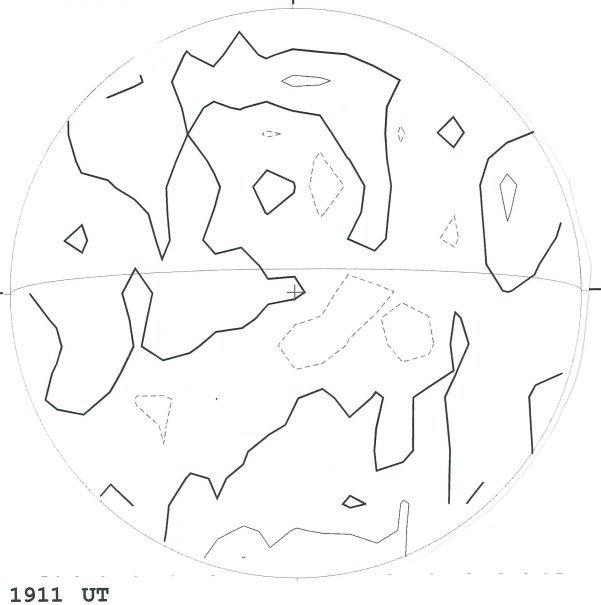
** 854.2NM **



1905 UT

STANFORD MAGNETOGRAM

Solid = +
Dashed = -

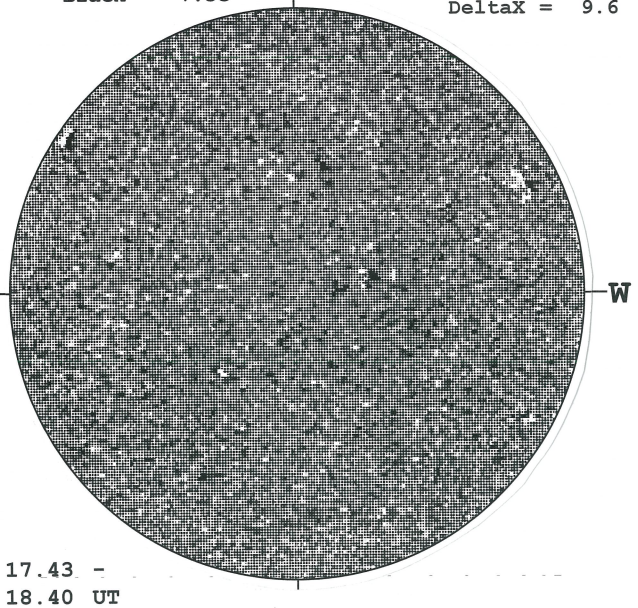


1911 UT

MT. WILSON MAGNETOGRAM

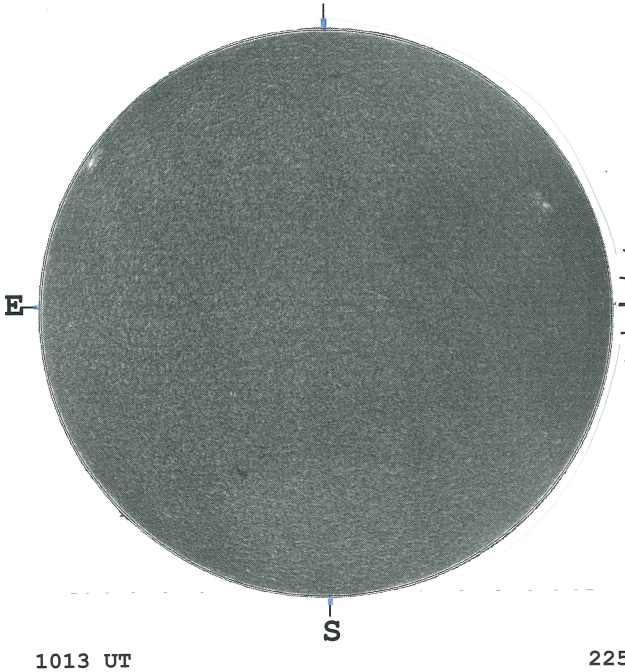
White = +7.5G
Black = -7.5G

DeltaY = 13.1
DeltaX = 9.6



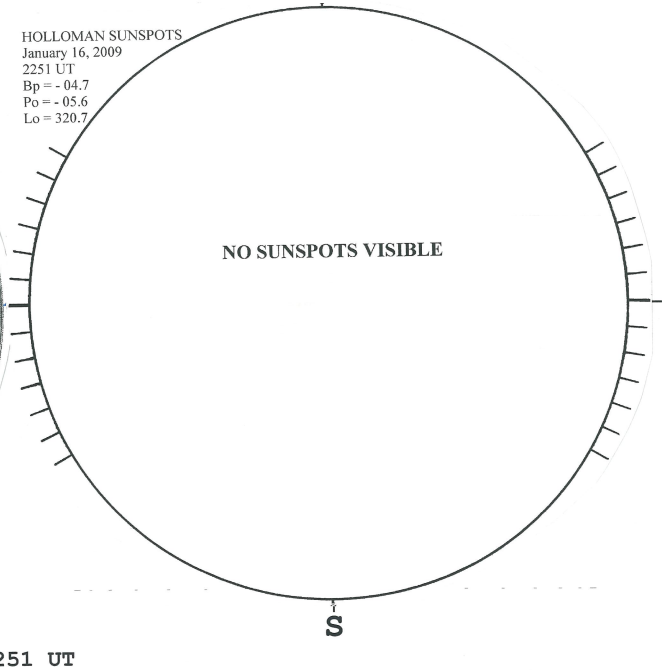
17.43 -
18.40 UT

KANZELHOHE H-ALPHA



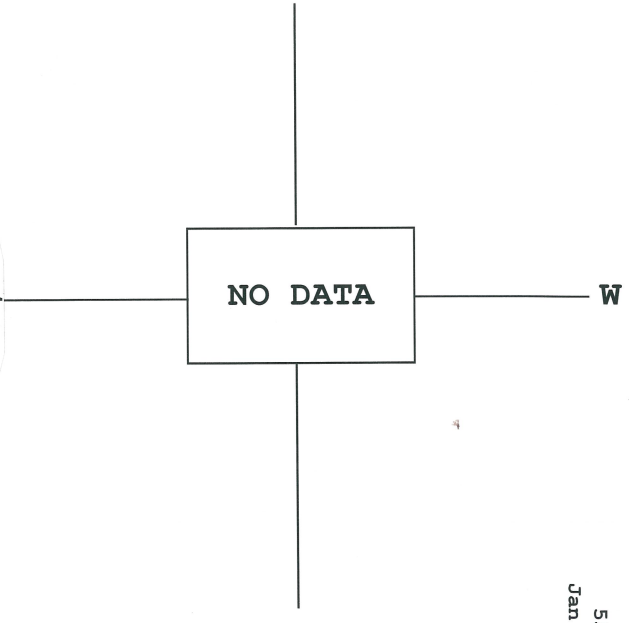
1013 UT

HOLLOMAN SUNSPOTS



2251 UT

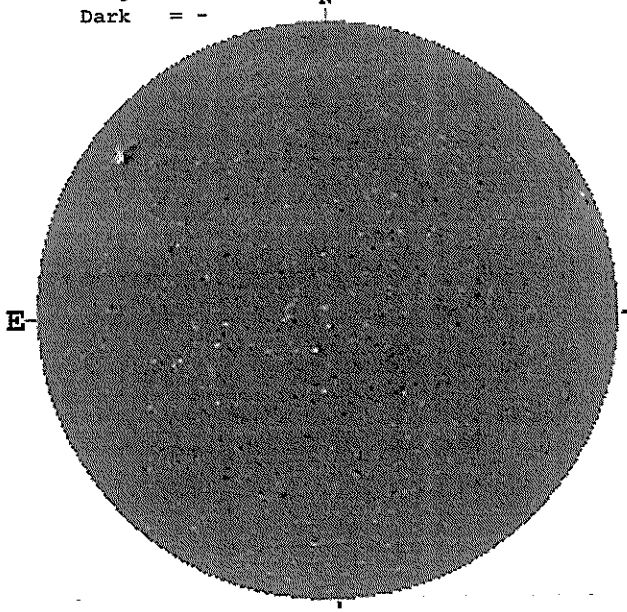
SACRAMENTO PEAK CORONA (1.15 Radii)-----



55
Jan 09

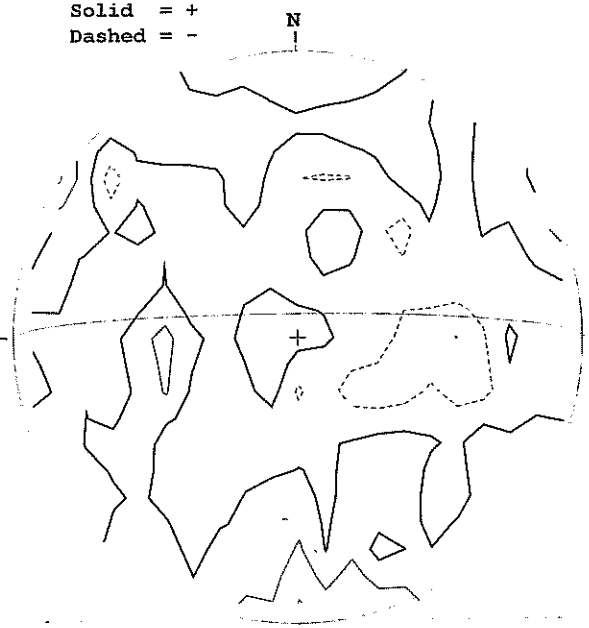
January 17, 2009 (P= -5.66, Bo=-4.76, Lo= 319.72)

KITT PEAK MAGNETOGRAM -- SOLIS
Bright = +
Dark = -
** 854.2NM **



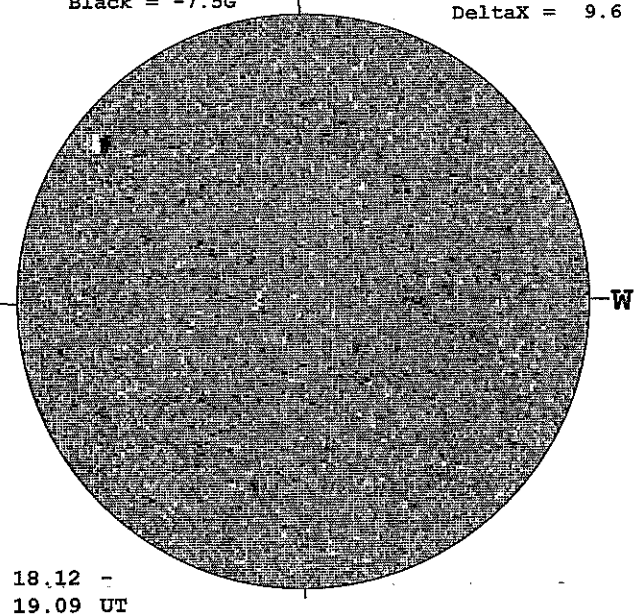
1955 UT

STANFORD MAGNETOGRAM
Solid = +
Dashed = -



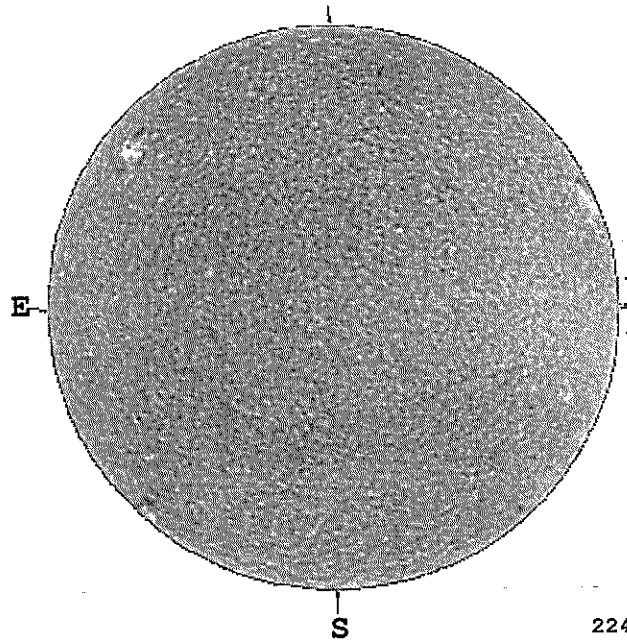
1918 UT

MT. WILSON MAGNETOGRAM
White = +7.5G
Black = -7.5G
DeltaY = 13.1
DeltaX = 9.6



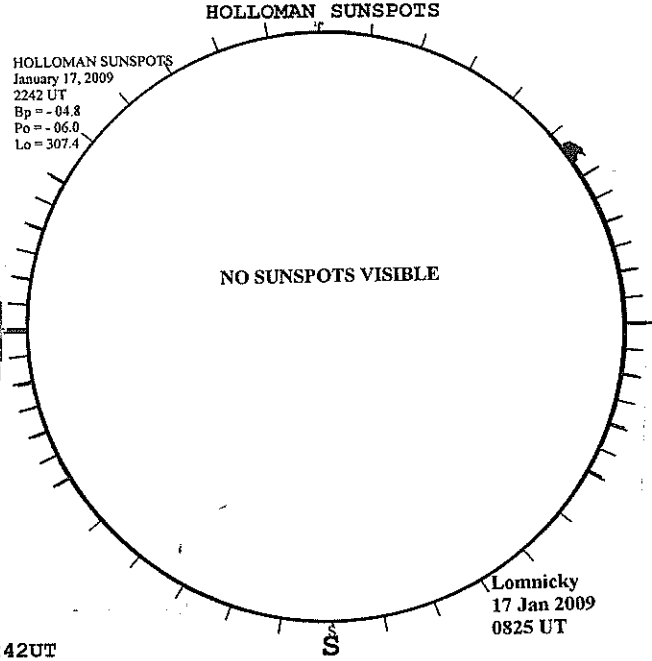
18.12 -
19.09 UT

MUANA LOA H-ALPHA



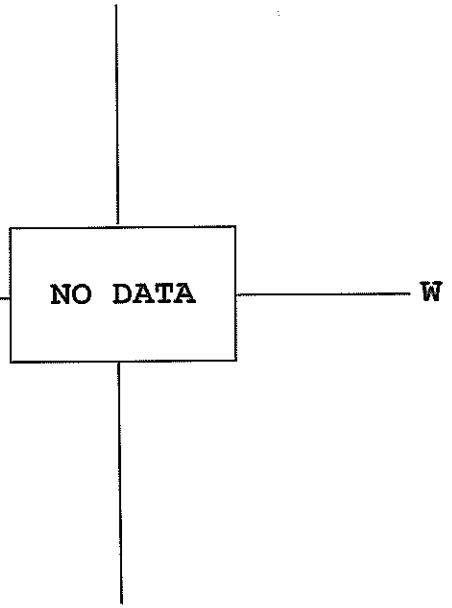
1817 UT

HOLLOMAN SUNSPOTS



2242UT
0825 UT LOMN PROM

SACRAMENTO PEAK CORONA (1.15 Radii)-----

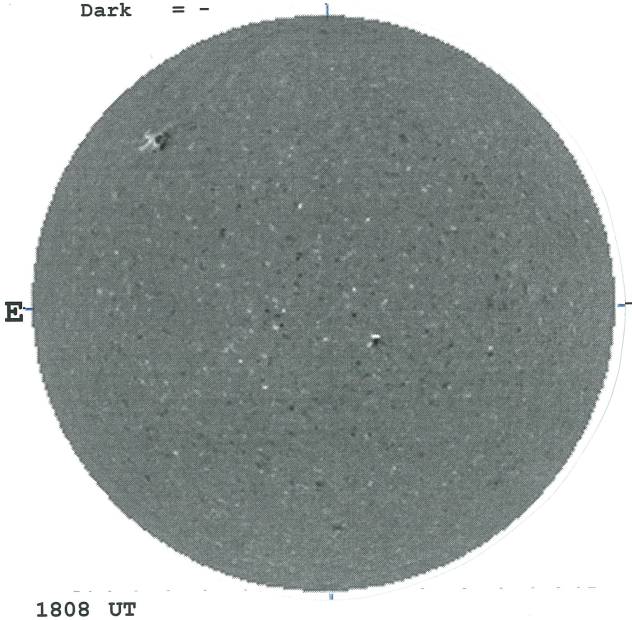


January 18, 2009 (P= -6.12, Bo=-4.86, Lo= 306.55)

KITT PEAK MAGNETOGRAM -- SOLIS

Bright = +
Dark = -

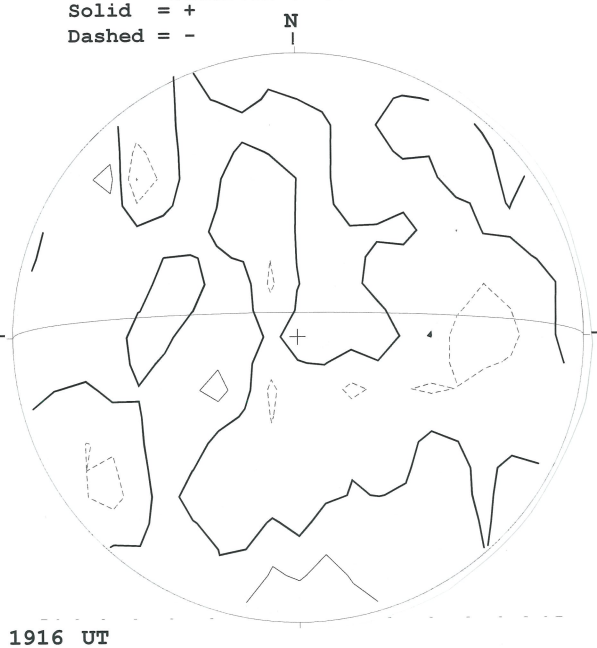
** 854.2NM **



1808 UT

STANFORD MAGNETOGRAM

Solid = +
Dashed = -

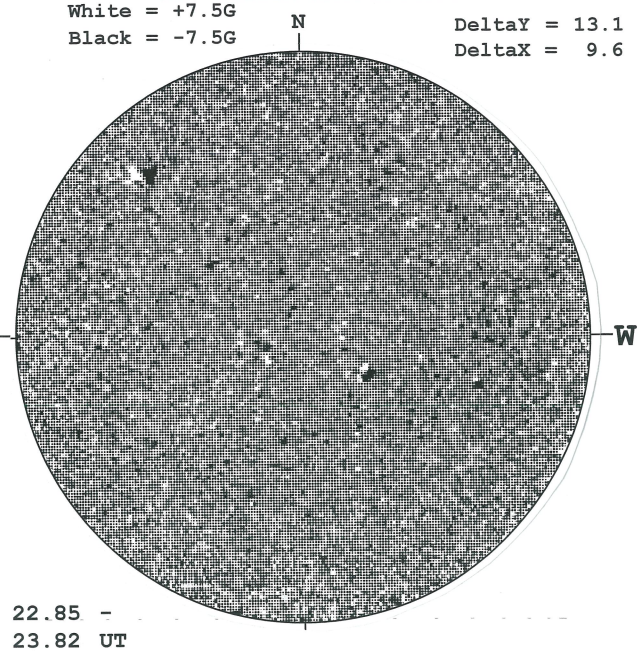


1916 UT

MT. WILSON MAGNETOGRAM

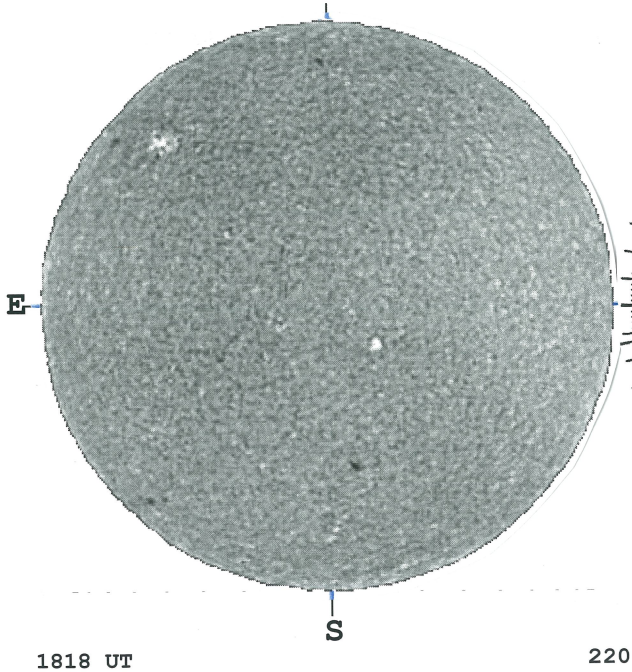
White = +7.5G
Black = -7.5G

DeltaY = 13.1
DeltaX = 9.6



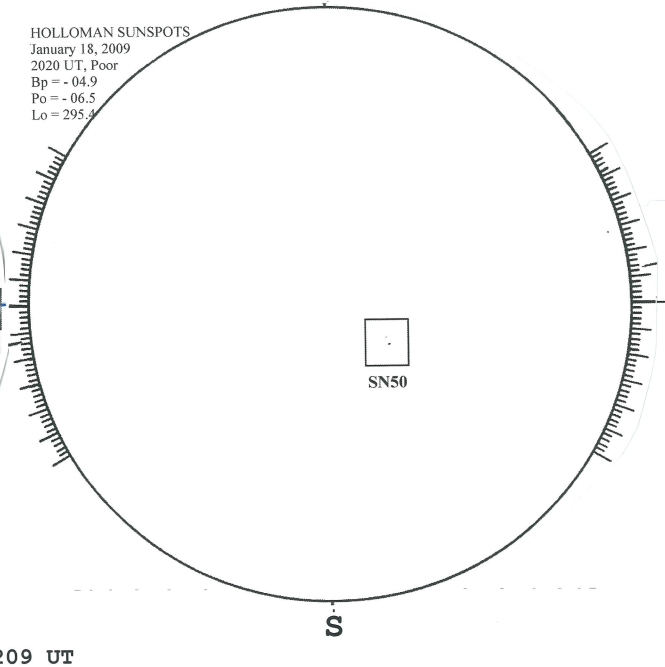
22.85 -
23.82 UT

MUANA LOA H-ALPHA



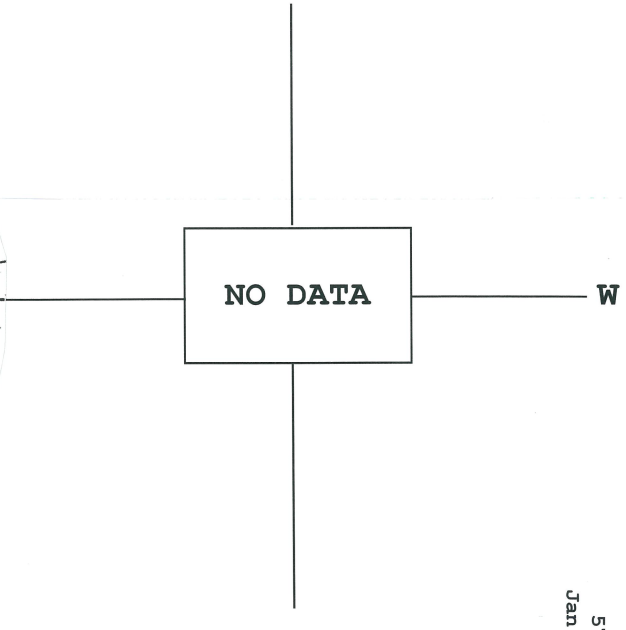
1818 UT

HOLLOMAN SUNSPOTS



2209 UT

SACRAMENTO PEAK CORONA (1.15 Radii)-----



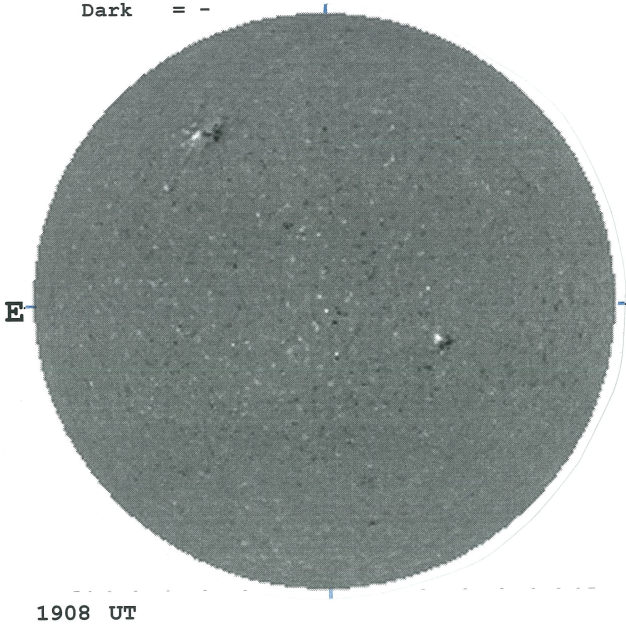
57
Jan 09

January 19, 2009 (P= -6.58, Bo=-4.95, Lo= 293.38)

KITT PEAK MAGNETOGRAM -- SOLIS

Bright = +
Dark = -

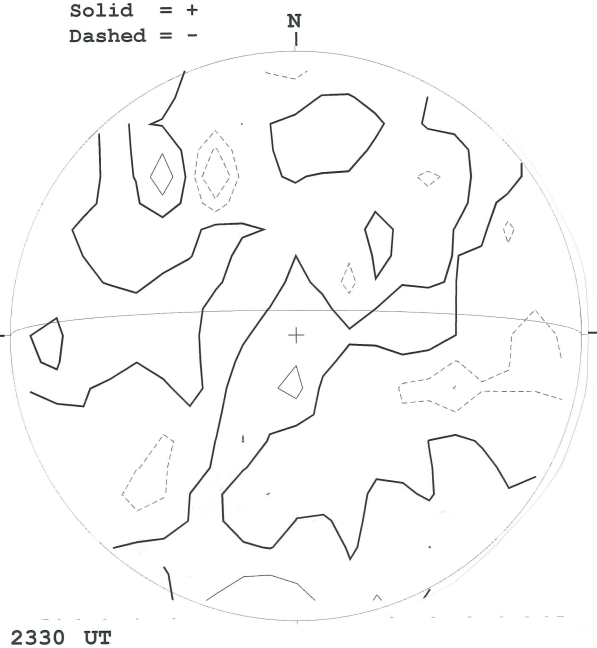
** 854.2NM **



1908 UT

STANFORD MAGNETOGRAM

Solid = +
Dashed = -

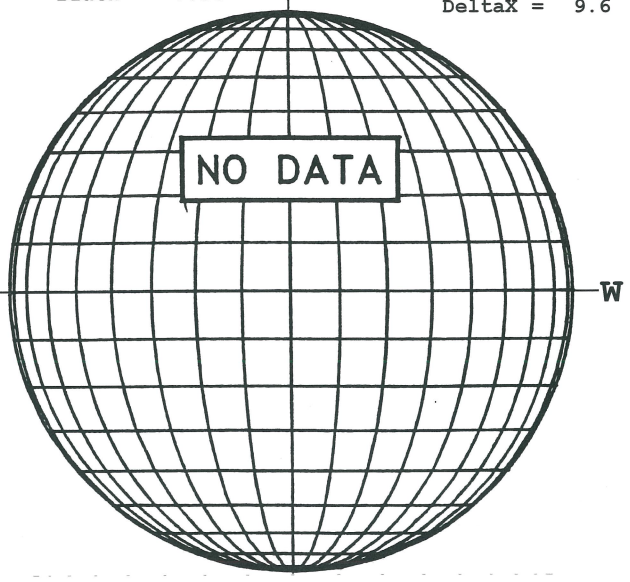


2330 UT

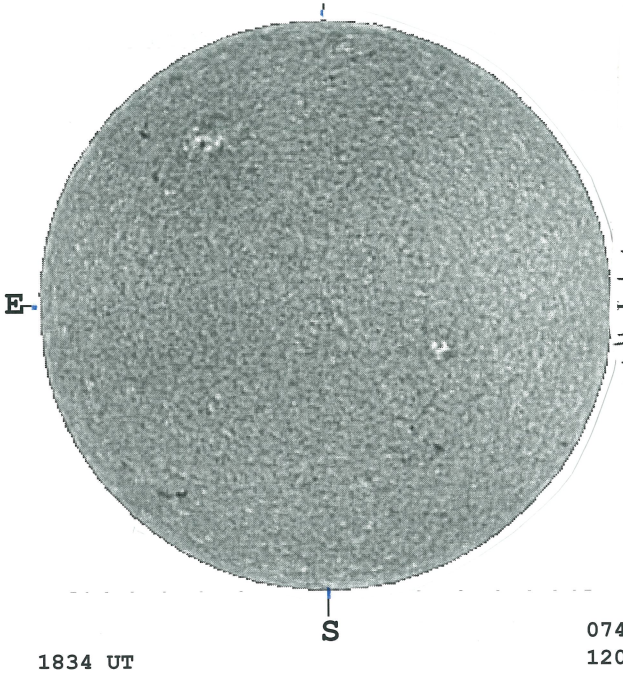
MT. WILSON MAGNETOGRAM

White = +7.5G
Black = -7.5G

DeltaY = 13.1
DeltaX = 9.6

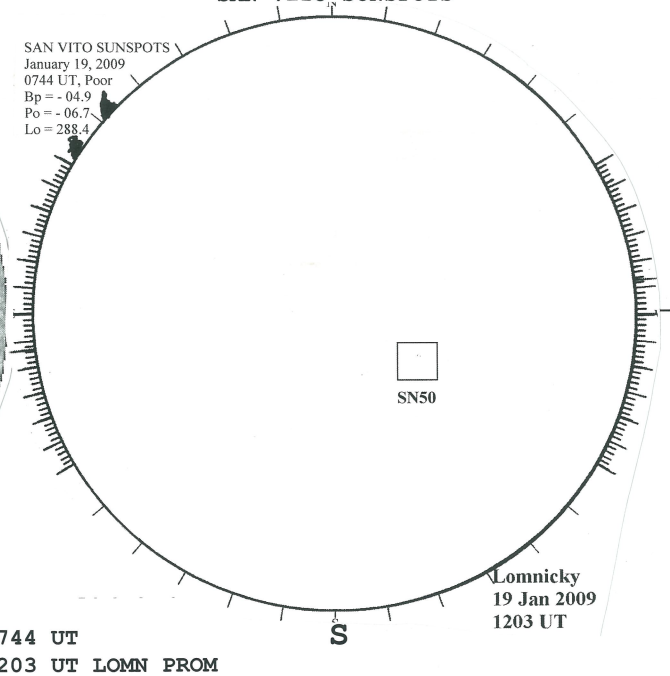


MUANA LOA H-ALPHA



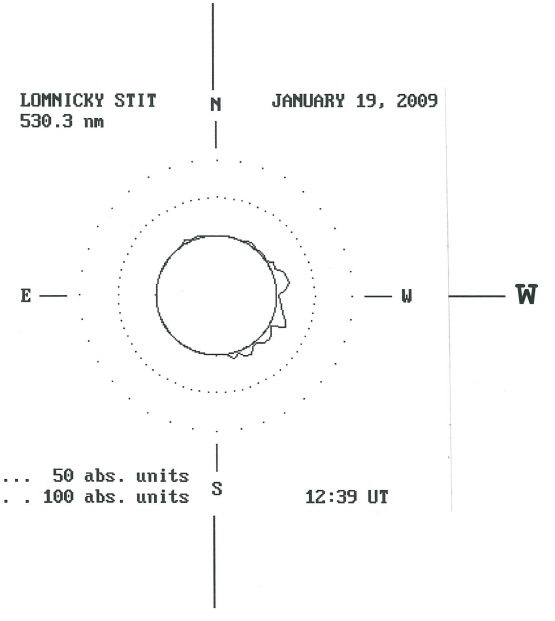
1834 UT

SAN VITO SUNSPOTS



0744 UT
1203 UT LOMN PROM

LOMNICKY PEAK CORONA (1.04 Radii)------

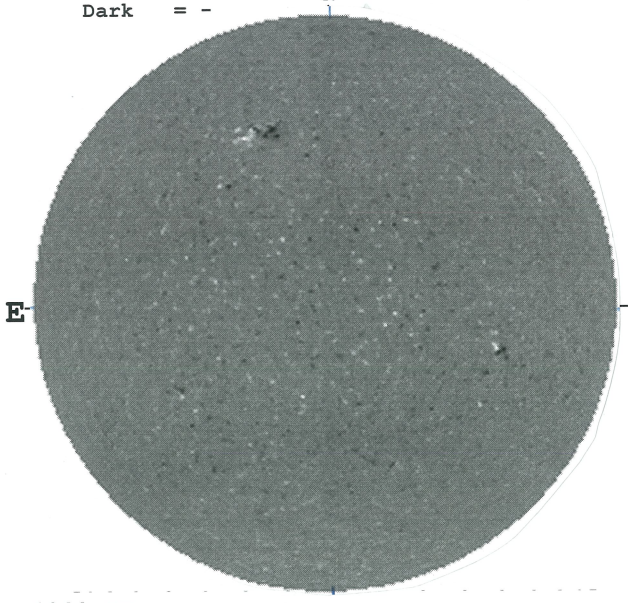


January 20, 2009 (P= -7.04, Bo=-5.05, Lo= 280.22)

KITT PEAK MAGNETOGRAM -- SOLIS

Bright = +
Dark = -

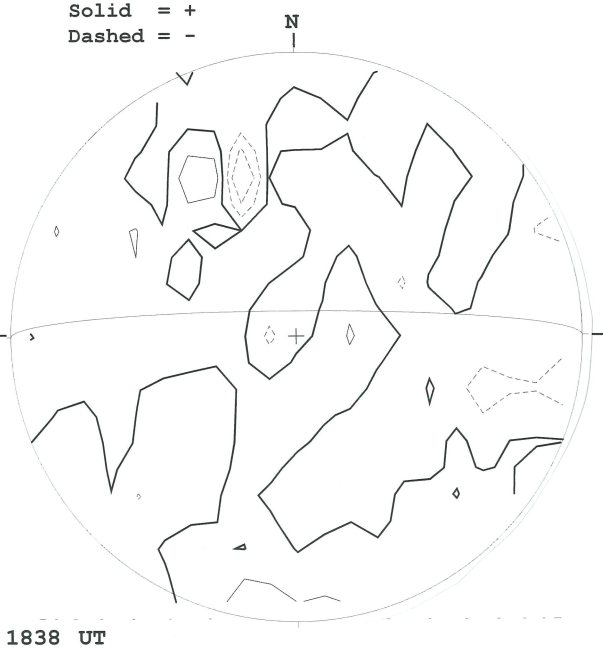
** 854.2NM **



1944 UT

STANFORD MAGNETOGRAM

Solid = +
Dashed = -

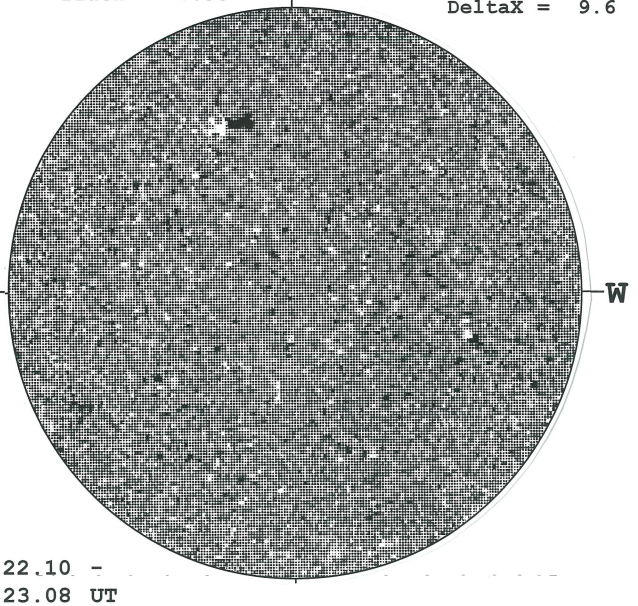


1838 UT

MT. WILSON MAGNETOGRAM

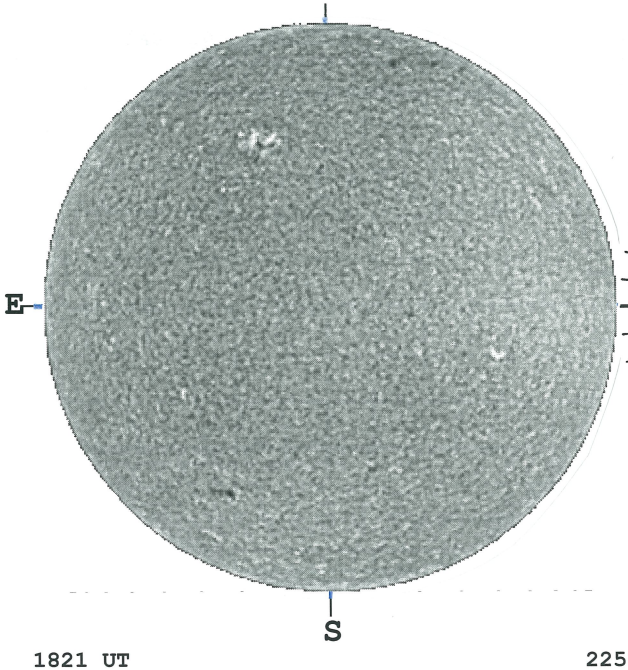
White = +7.5G
Black = -7.5G

DeltaY = 13.1
DeltaX = 9.6



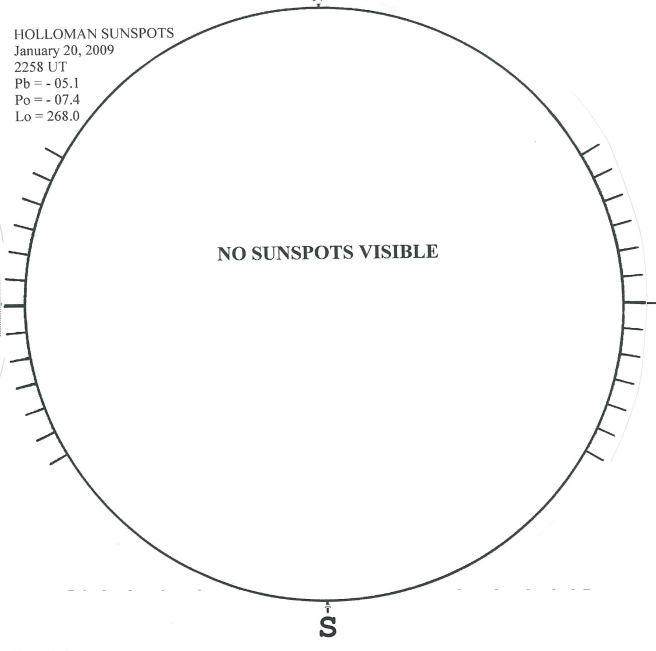
22.10 -
23.08 UT

MUANA LOA H-ALPHA



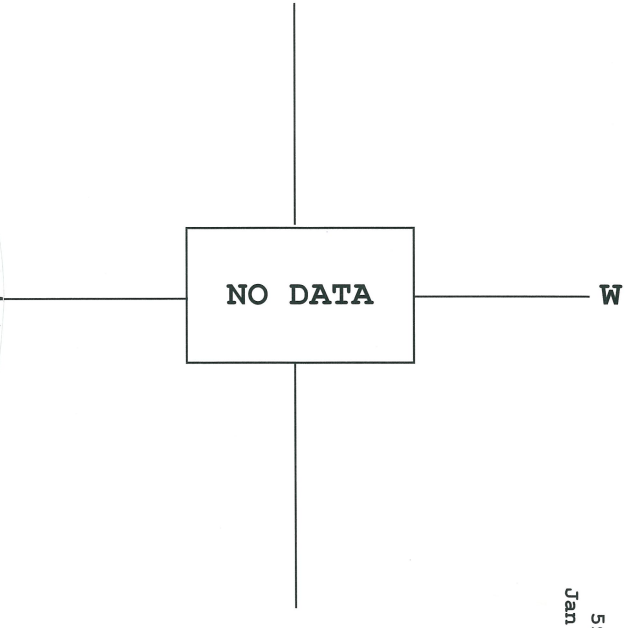
1821 UT

HOLLOMAN SUNSPOTS



2258 UT

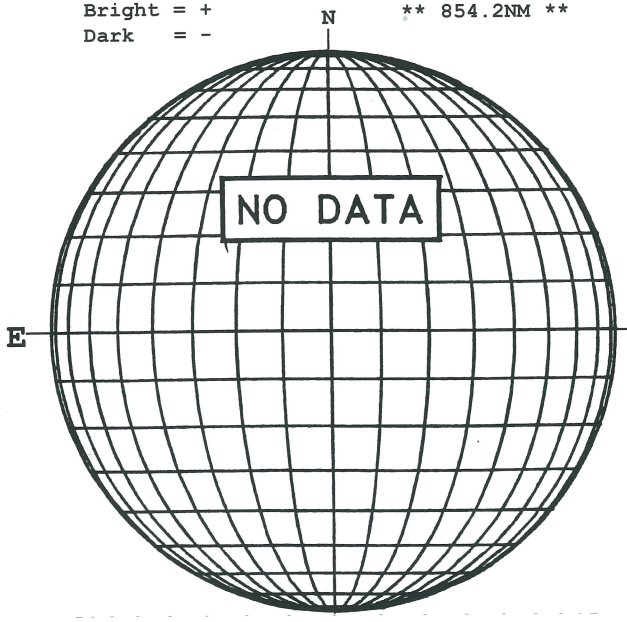
SACRAMENTO PEAK CORONA (1.15 Radii)-----



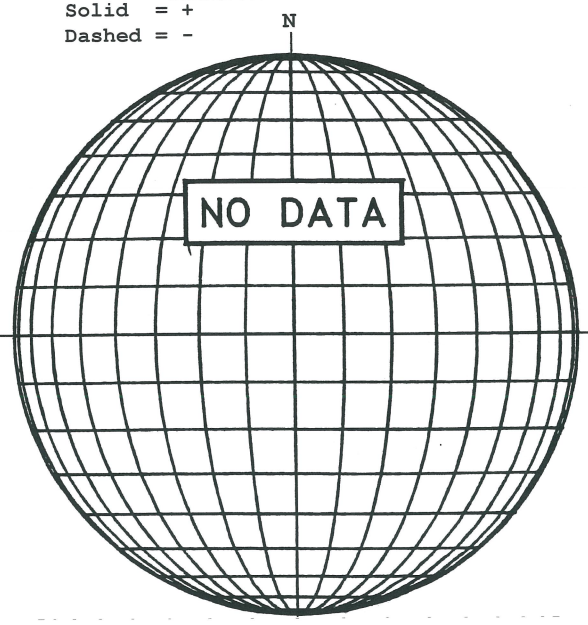
59
Jan 09

December 21, 2008 (P= 7.27, Bo=-1.70, Lo= 315.31)

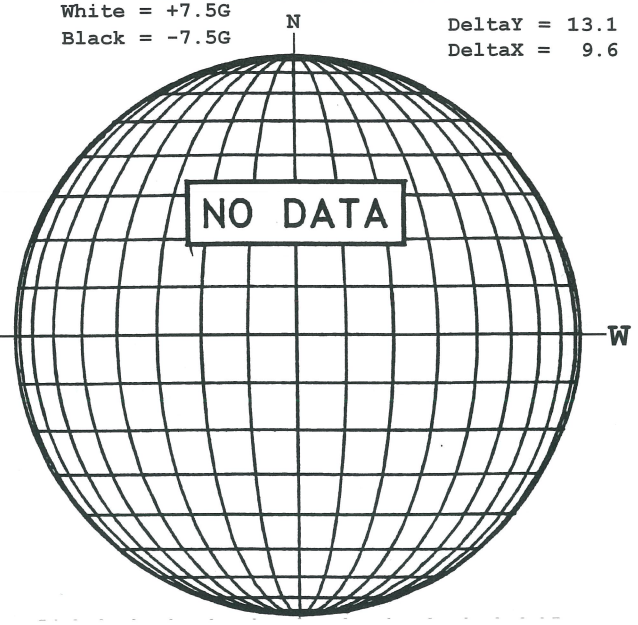
KITT PEAK MAGNETOGRAM -- SOLIS
Bright = +
Dark = -
** 854.2NM **



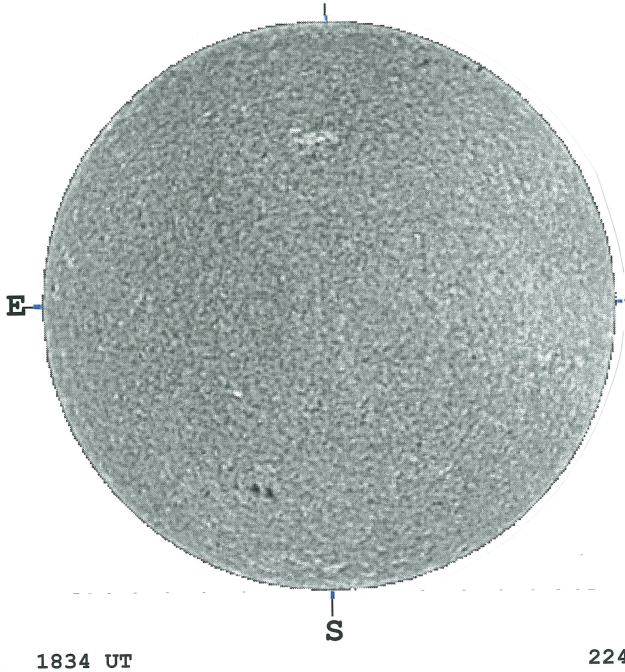
STANFORD MAGNETOGRAM
Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM
White = +7.5G
Black = -7.5G
DeltaY = 13.1
DeltaX = 9.6

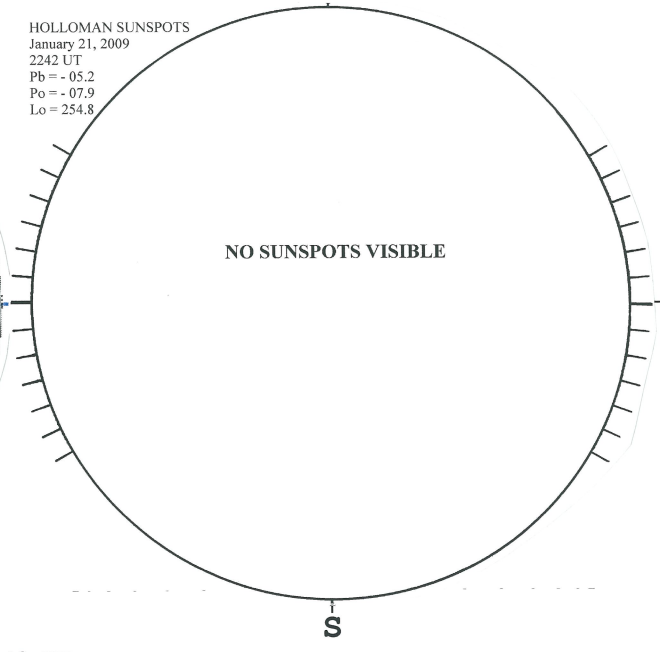


MUANA LOA H-ALPHA



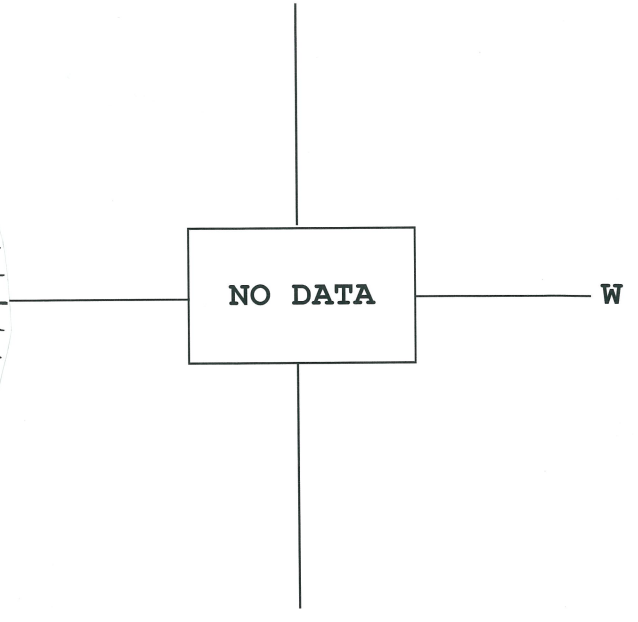
1834 UT

HOLLOMAN SUNSPOTS



2242 UT

SACRAMENTO PEAK CORONA (1.15 Radii)-----

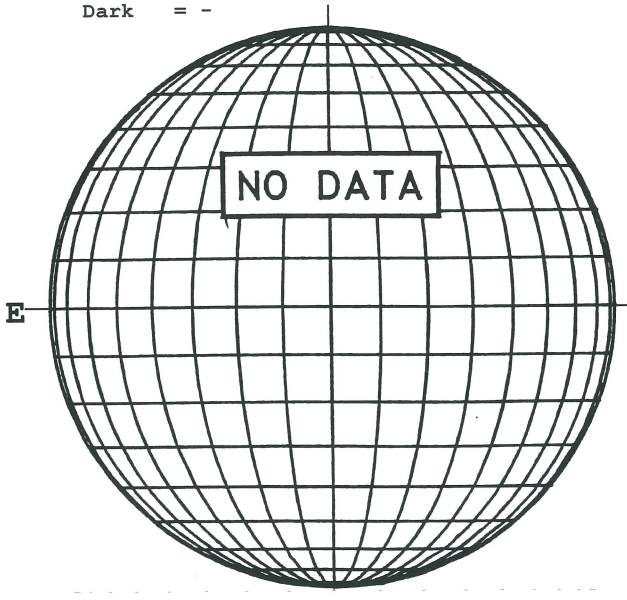


January 22, 2009 (P= -7.94, Bo=-5.23, Lo= 253.88)

KITT PEAK MAGNETOGRAM -- SOLIS

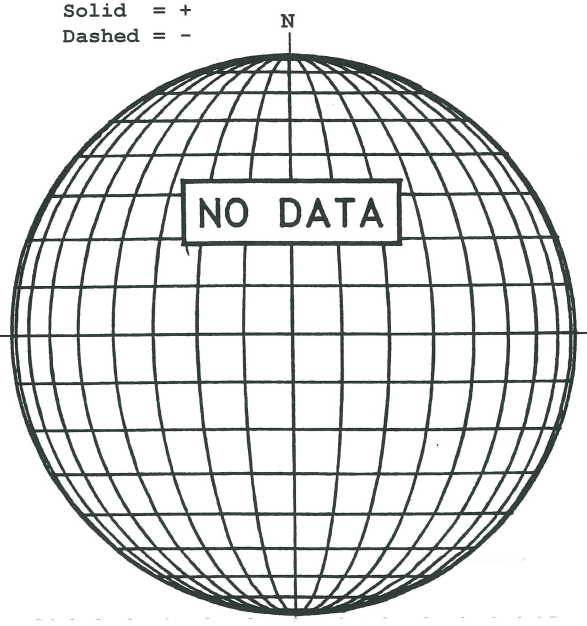
Bright = +
Dark = -

** 854.2NM **



STANFORD MAGNETOGRAM

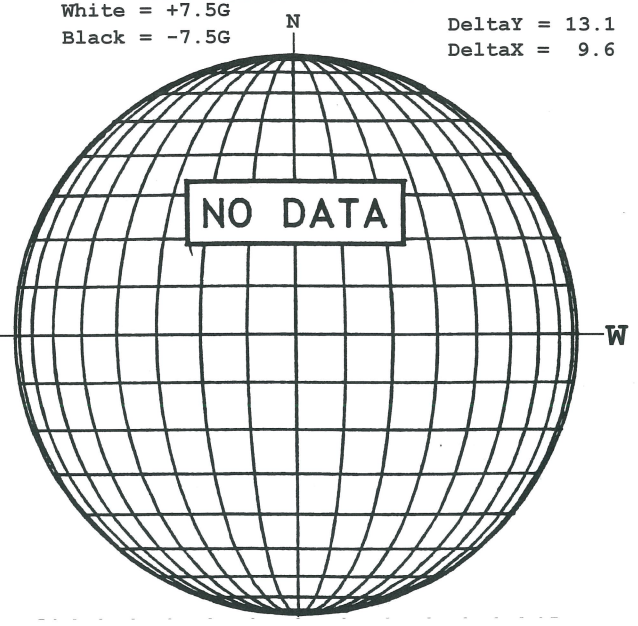
Solid = +
Dashed = -



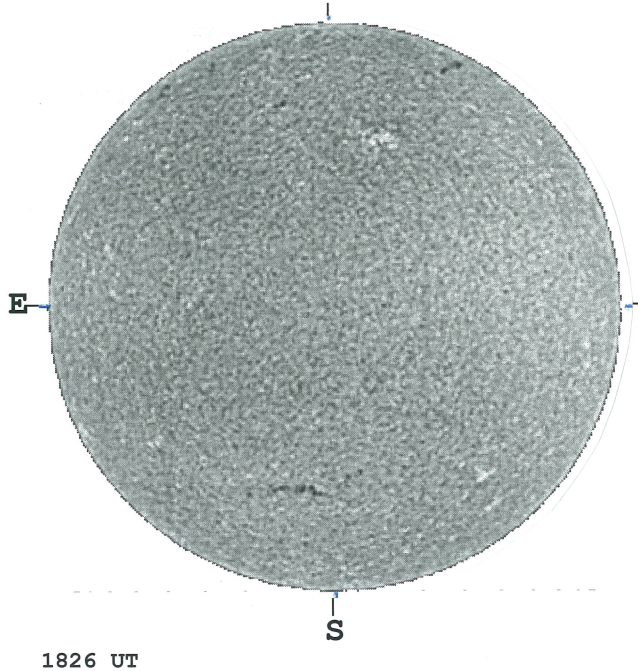
MT. WILSON MAGNETOGRAM

White = +7.5G
Black = -7.5G

DeltaY = 13.1
DeltaX = 9.6

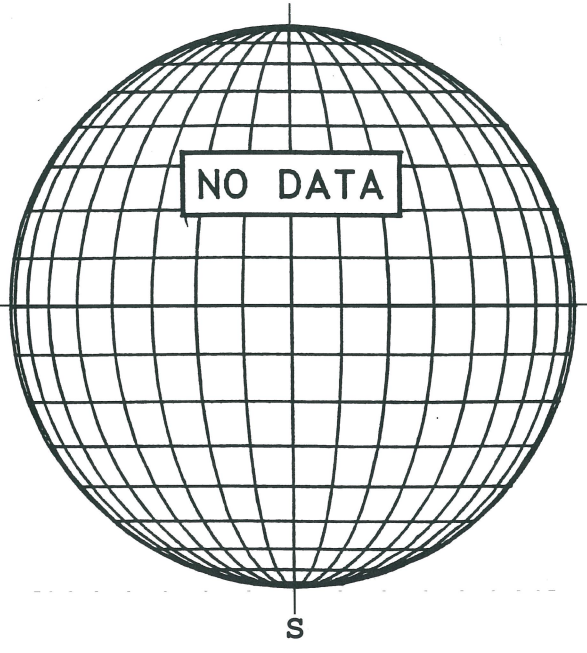


MUANA LOA H-ALPHA

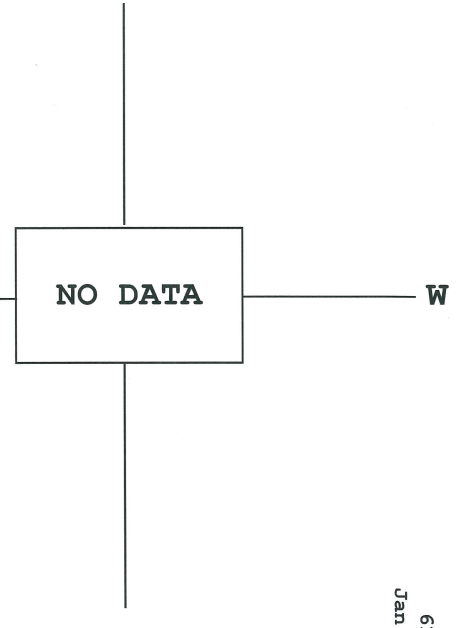


1826 UT

HOLLOMAN SUNSPOTS



SACRAMENTO PEAK CORONA (1.15 Radii)-----



61
Jan 09

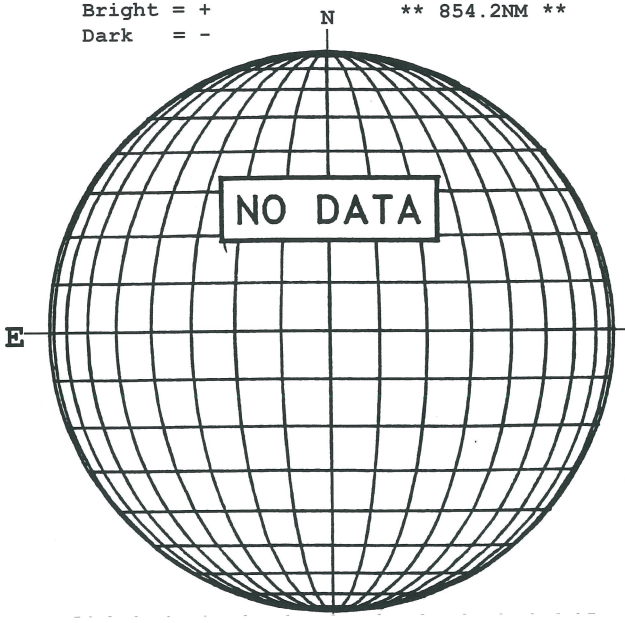
January 23, 2009 (P= -8.38, Bo=-5.32, Lo= 240.72)

Jan 09 60

KITT PEAK MAGNETOGRAM -- SOLIS

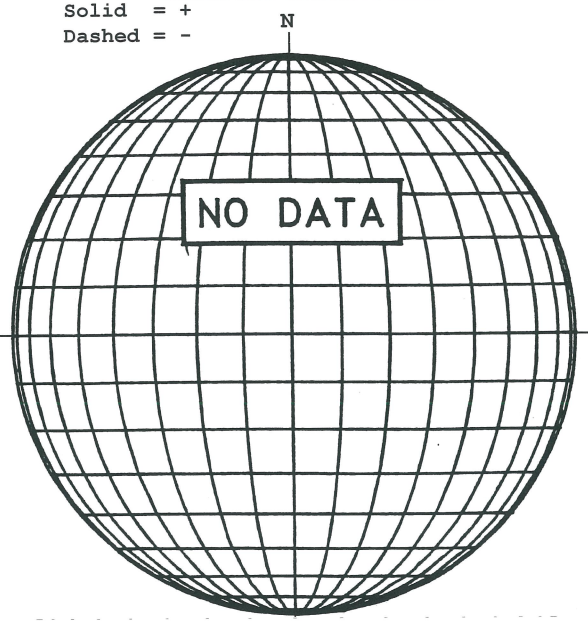
Bright = +
Dark = -

** 854.2NM **



STANFORD MAGNETOGRAM

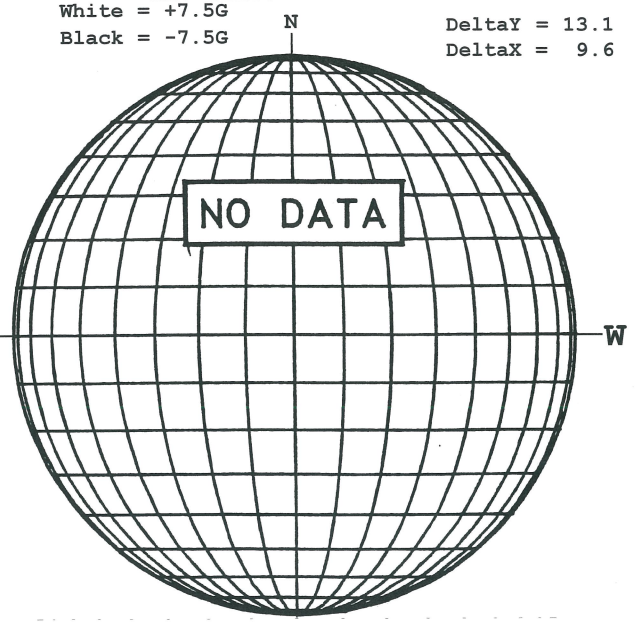
Solid = +
Dashed = -



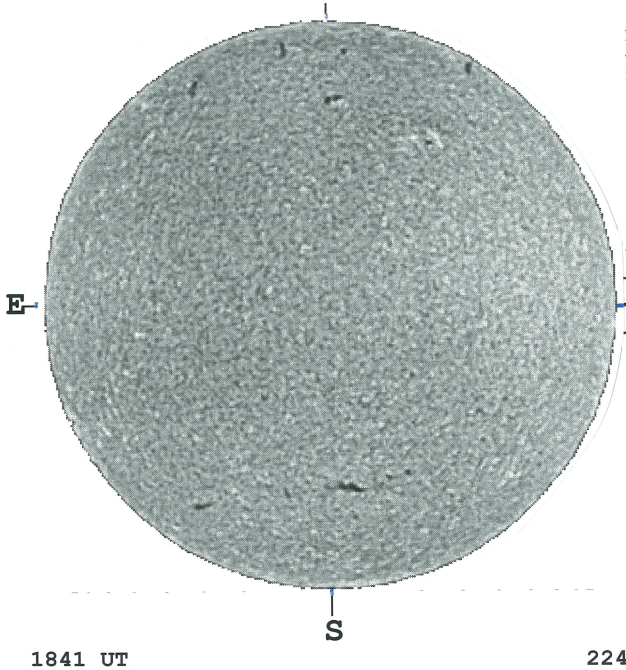
MT. WILSON MAGNETOGRAM

White = +7.5G
Black = -7.5G

DeltaY = 13.1
DeltaX = 9.6

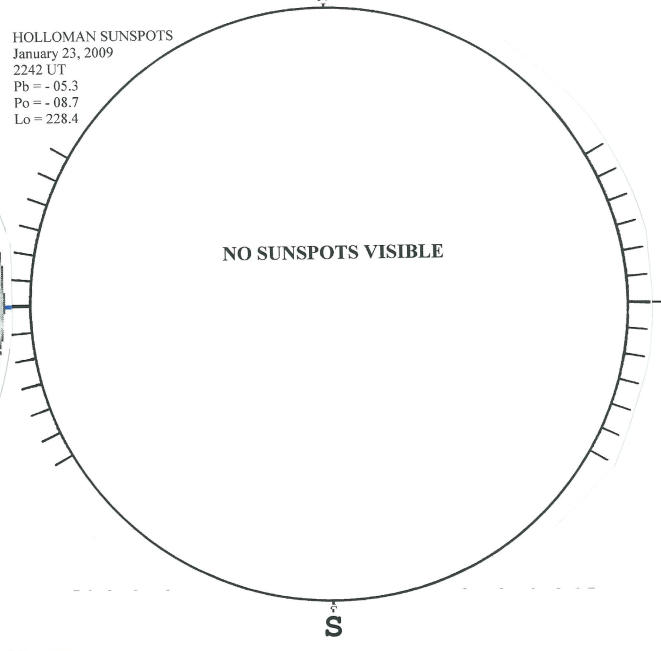


MUANA LOA H-ALPHA



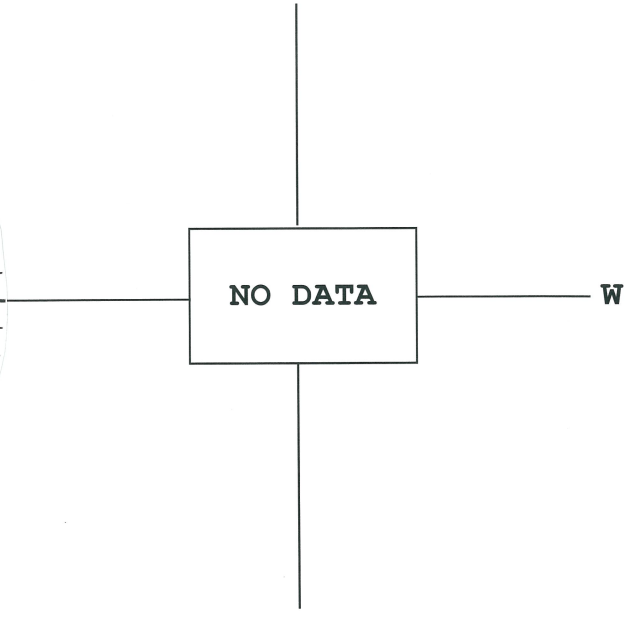
1841 UT

HOLLOMAN SUNSPOTS



2242 UT

SACRAMENTO PEAK CORONA (1.15 Radii)-----

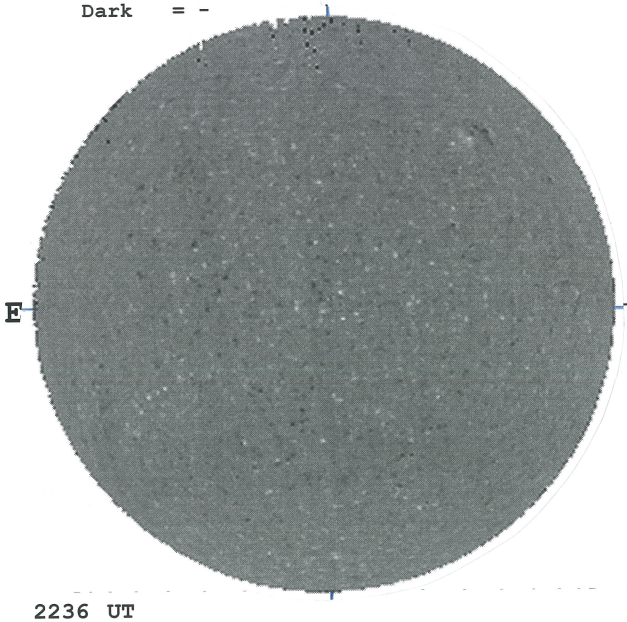


January 24, 2009 (P= -8.83, Bo=-5.40, Lo= 227.55)

KITT PEAK MAGNETOGRAM -- SOLIS

Bright = +
Dark = -

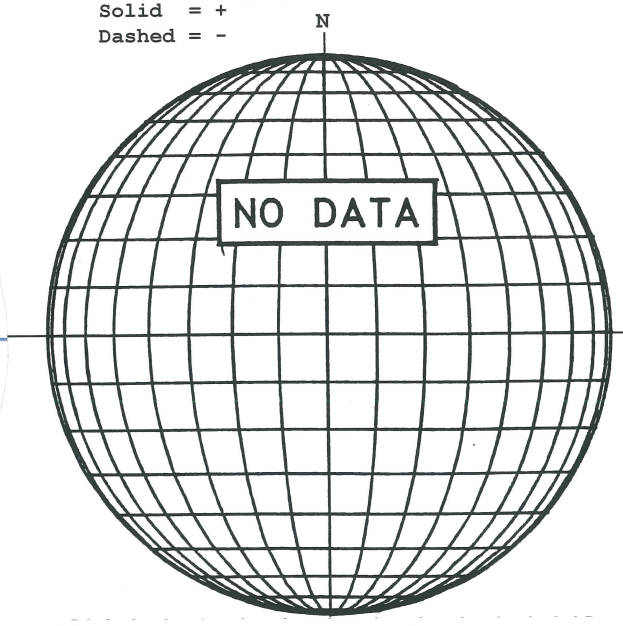
** 854.2NM **



2236 UT

STANFORD MAGNETOGRAM

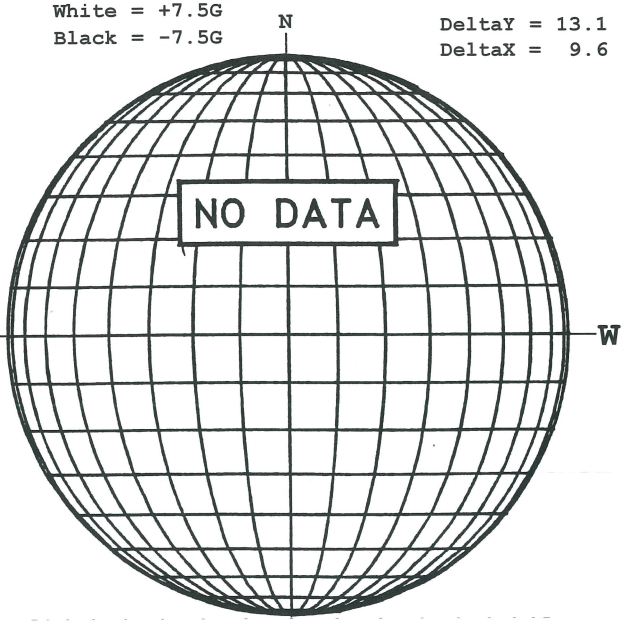
Solid = +
Dashed = -



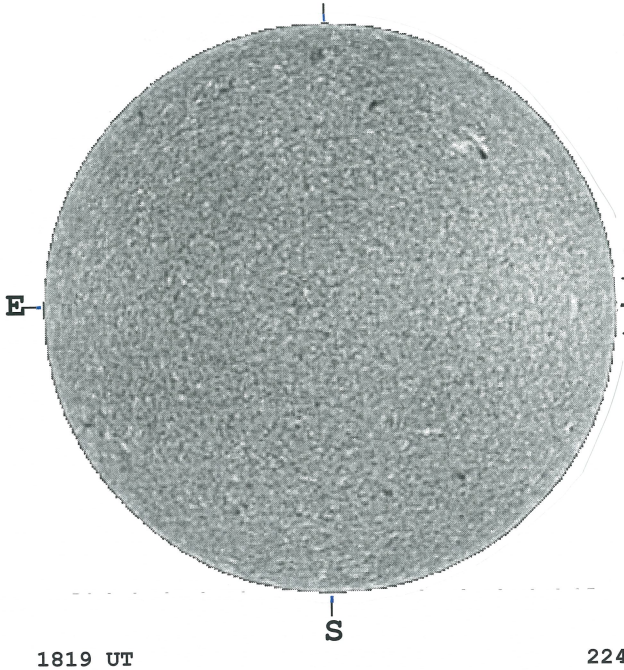
MT. WILSON MAGNETOGRAM

White = +7.5G
Black = -7.5G

DeltaY = 13.1
DeltaX = 9.6

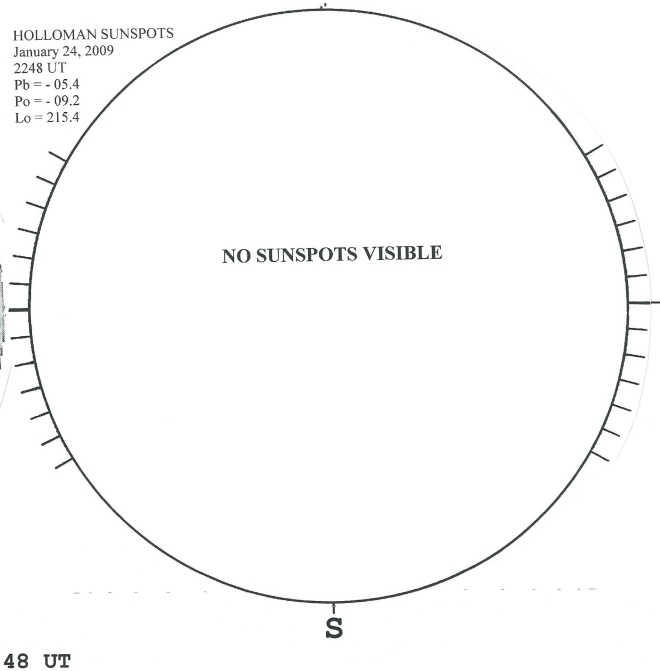


MUANA LOA H-ALPHA



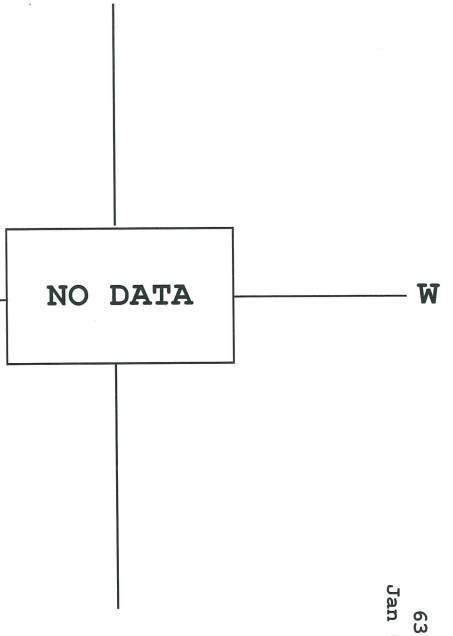
1819 UT

HOLLOMAN SUNSPOTS



2248 UT

SACRAMENTO PEAK CORONA (1.15 Radii)-----



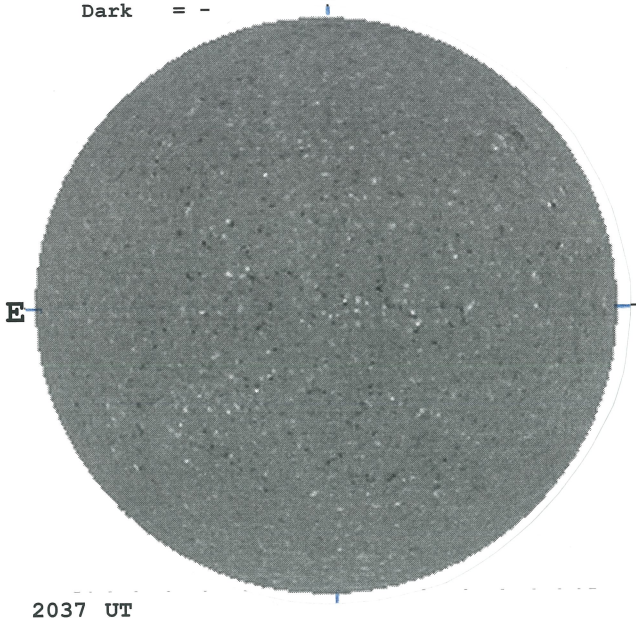
January 25, 2009 (P= -9.27, Bo=-5.49, Lo= 214.39)

Jan 09 62

KITT PEAK MAGNETOGRAM -- SOLIS

Bright = +
Dark = -

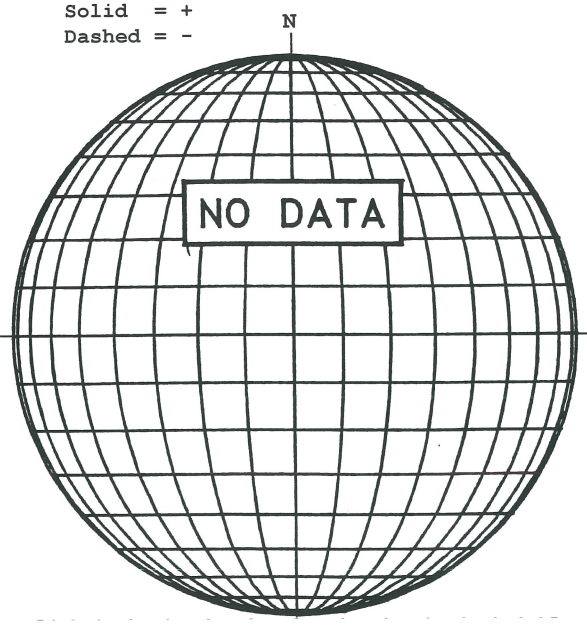
** 854.2NM **



2037 UT

STANFORD MAGNETOGRAM

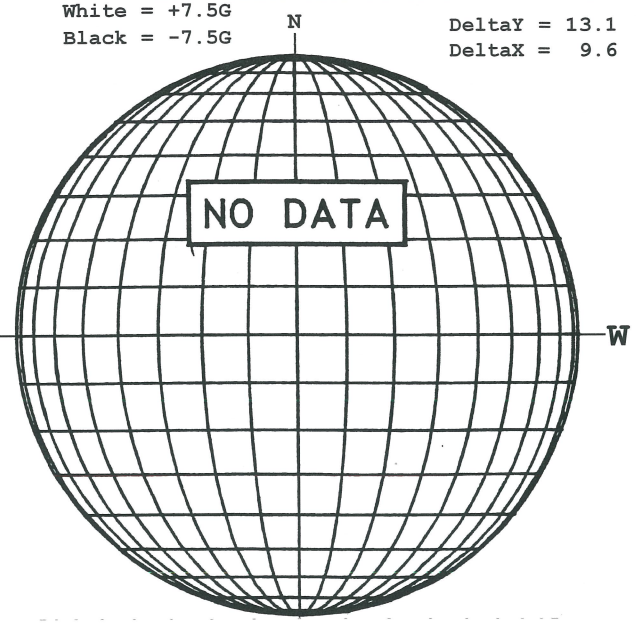
Solid = +
Dashed = -



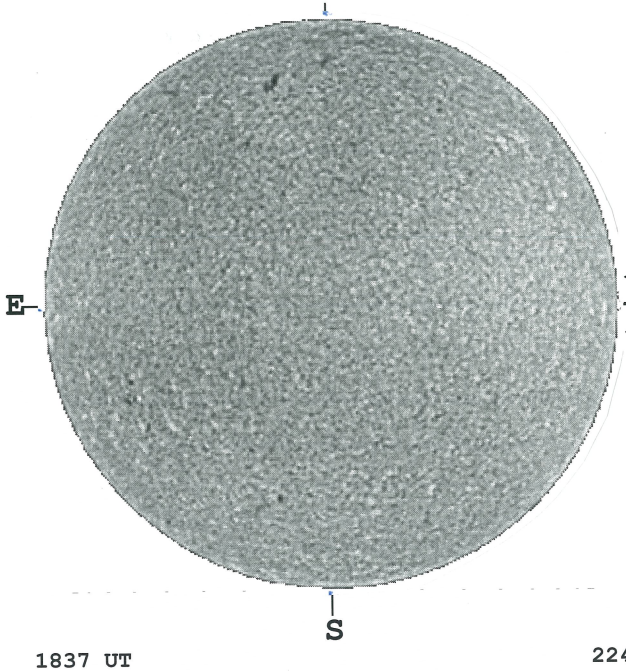
MT. WILSON MAGNETOGRAM

White = +7.5G
Black = -7.5G

DeltaY = 13.1
DeltaX = 9.6

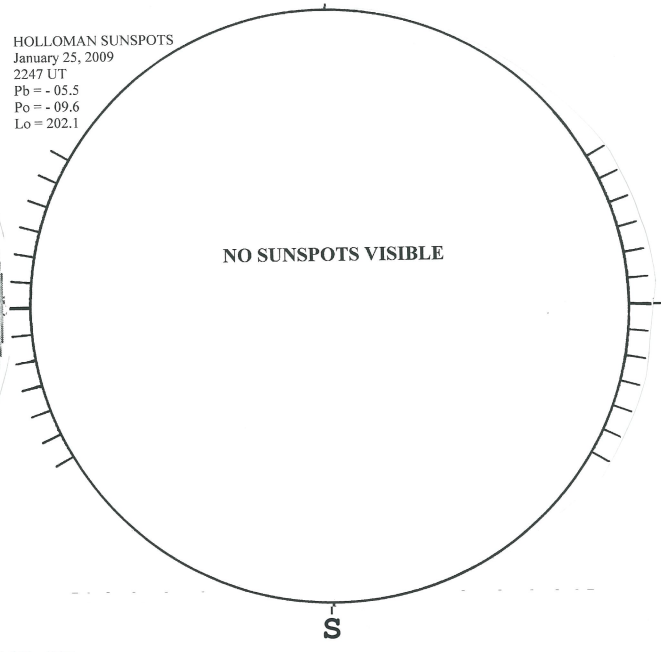


MUANA LOA H-ALPHA



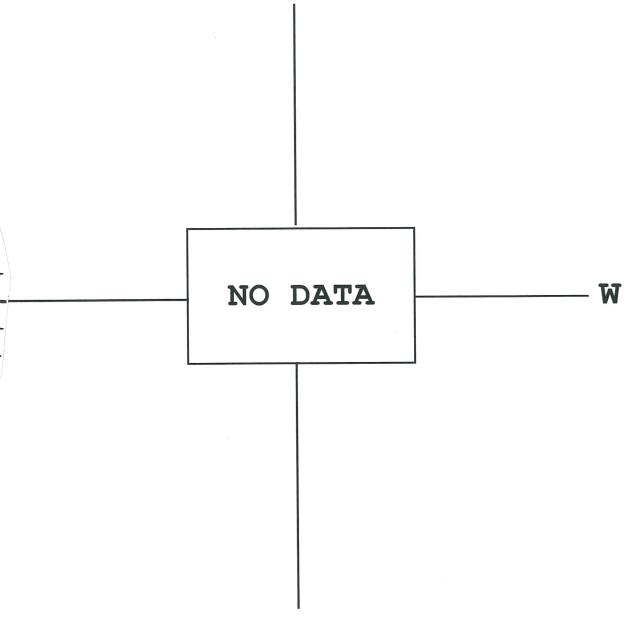
1837 UT

HOLLOMAN SUNSPOTS



2247 UT

SACRAMENTO PEAK CORONA (1.15 Radii)-----

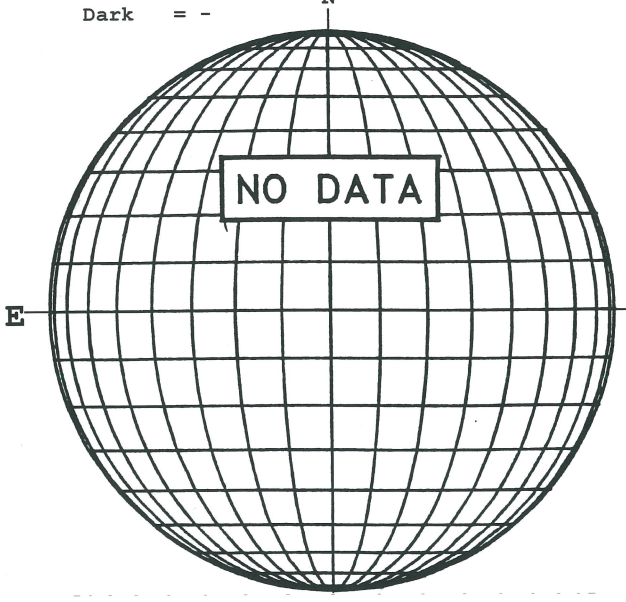


January 26, 2009 (P= -9.70, Bo=-5.57, Lo= 201.22)

KITT PEAK MAGNETOGRAM -- SOLIS

Bright = +
Dark = -

** 854.2NM **



STANFORD MAGNETOGRAM

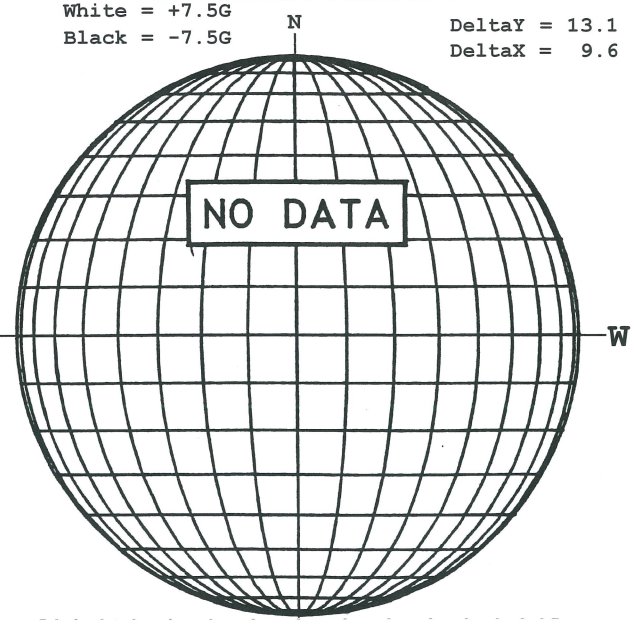
Solid = +
Dashed = -

1932 UT

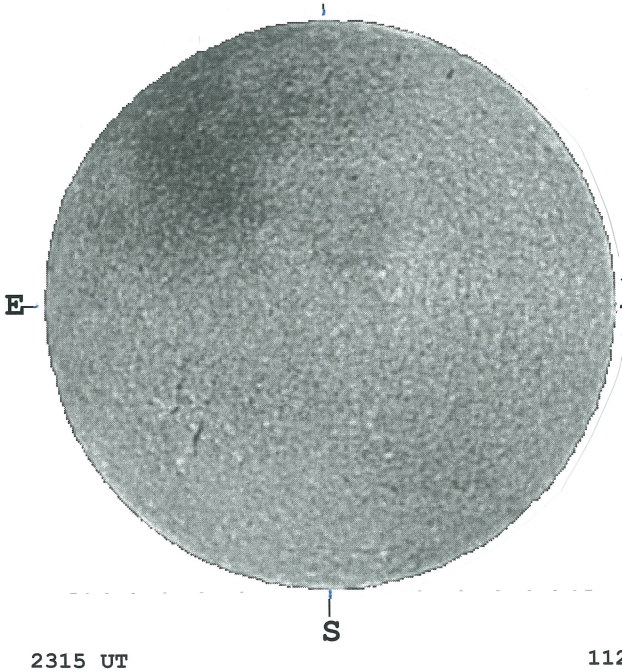
MT. WILSON MAGNETOGRAM

White = +7.5G
Black = -7.5G

DeltaY = 13.1
DeltaX = 9.6

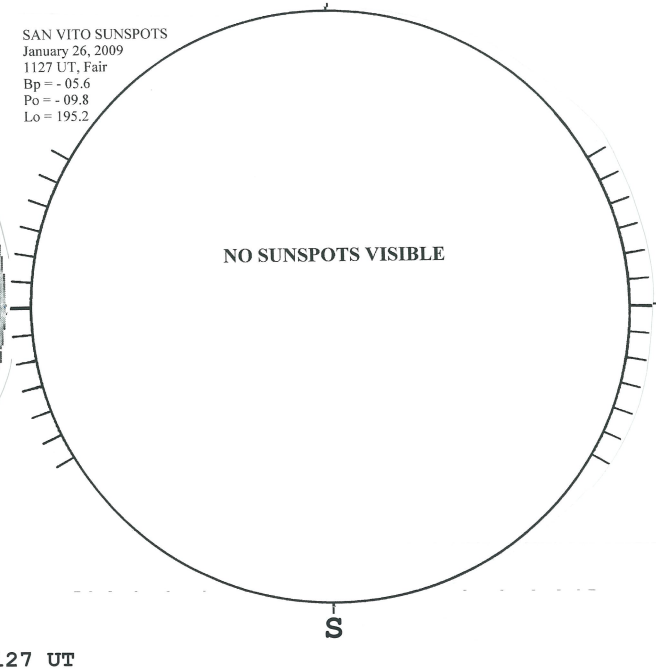


MUANA LOA H-ALPHA



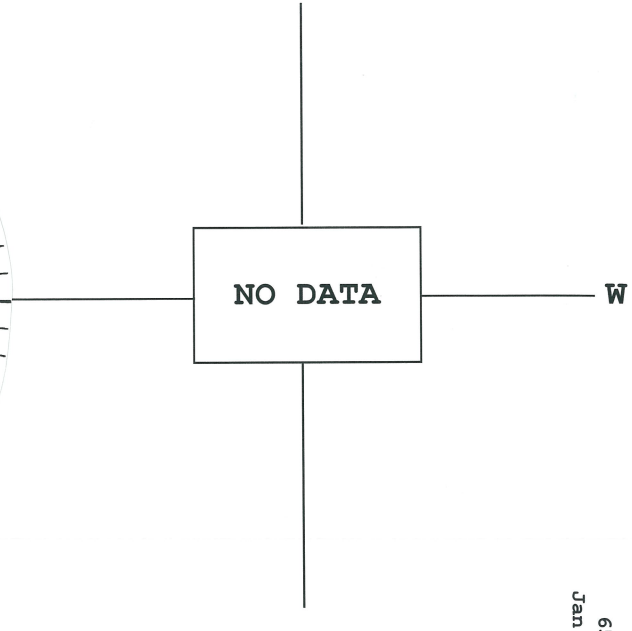
2315 UT

SAN VITO SUNSPOTS



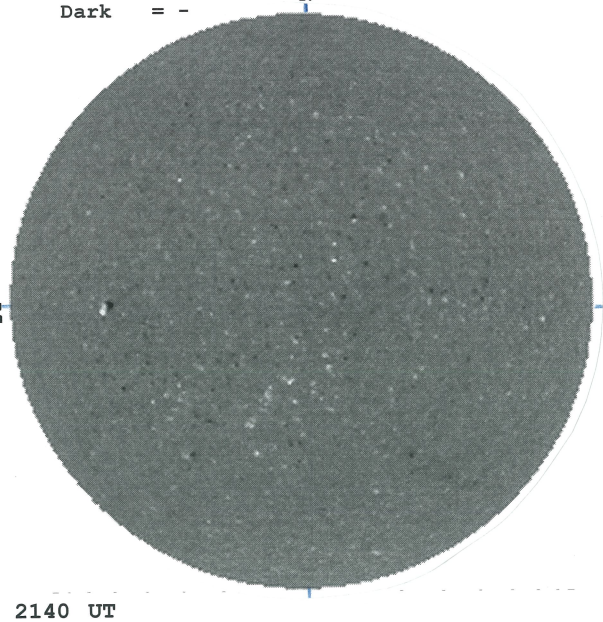
1127 UT

SACRAMENTO PEAK CORONA (1.15 Radii)-----



January 27, 2009 (P=-10.13, Bo=-5.65, Lo= 188.05)

KITT PEAK MAGNETOGRAM -- SOLIS
Bright = +
Dark = -
** 854.2NM **

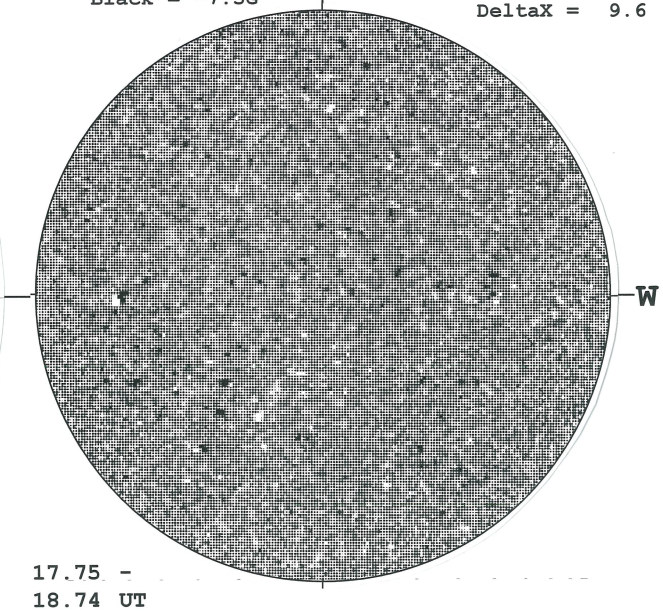


2140 UT

STANFORD MAGNETOGRAM
Solid = +
Dashed = -

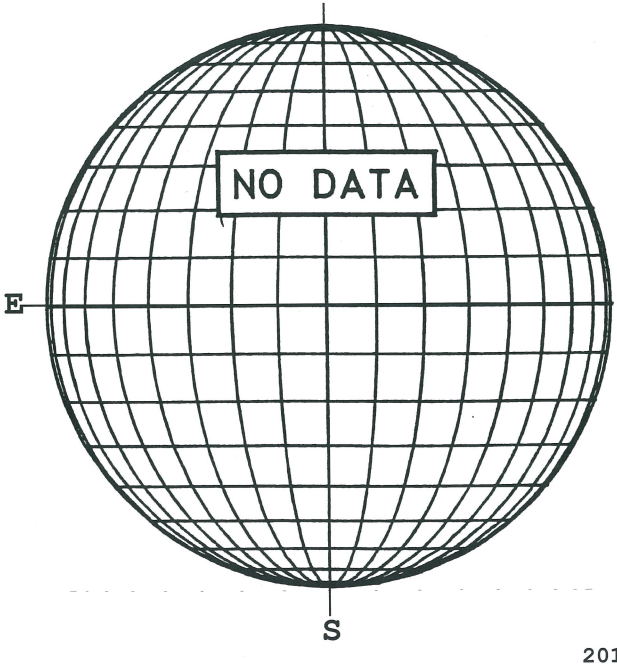
1908 UT

MT. WILSON MAGNETOGRAM
White = +7.5G
Black = -7.5G
DeltaY = 13.1
DeltaX = 9.6



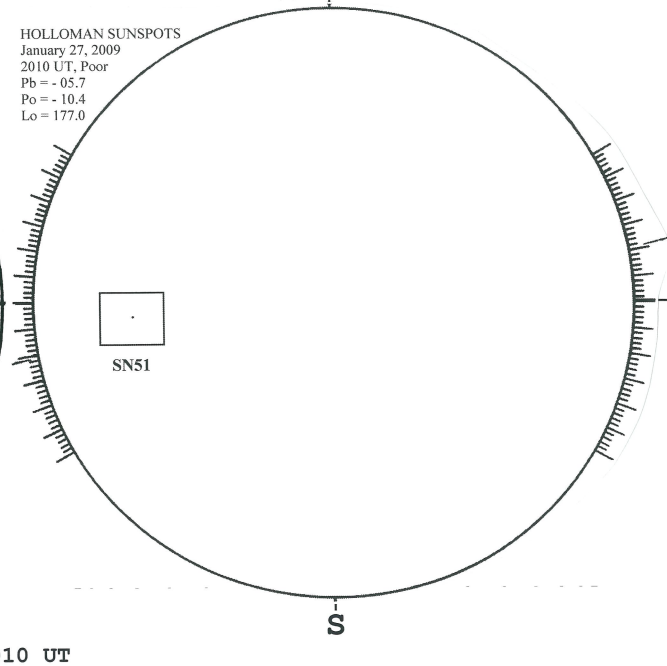
17.75 -
18.74 UT

MUANA LOA H-ALPHA

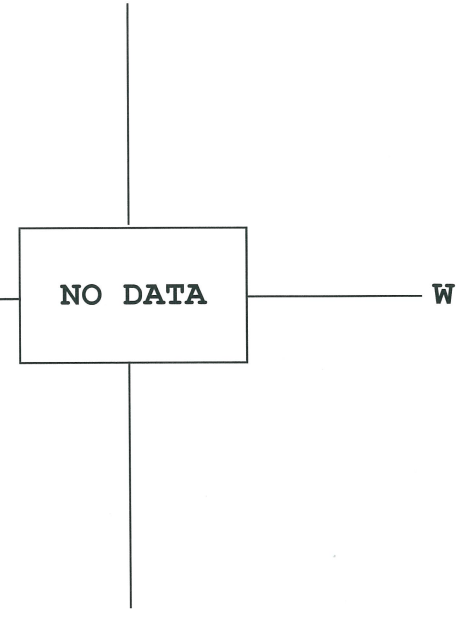


2010 UT

HOLLOMAN SUNSPOTS



SACRAMENTO PEAK CORONA (1.15 Radii)-----

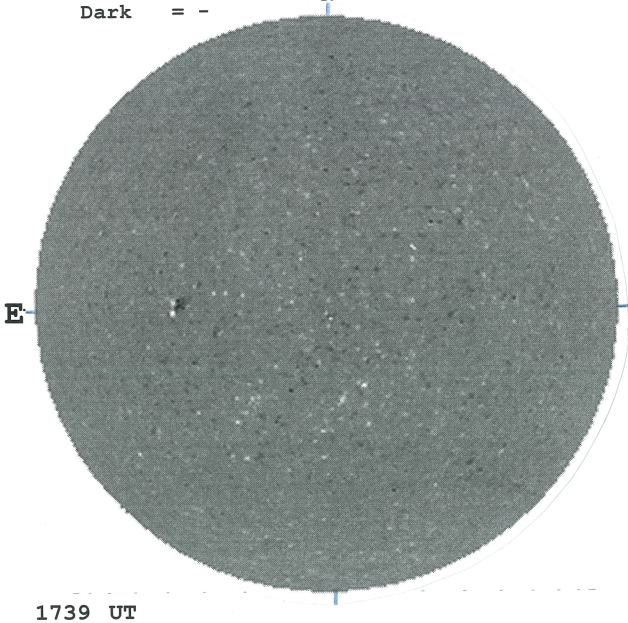


January 28, 2009 (P=-10.56, Bo=-5.73, Lo= 174.89)

KITT PEAK MAGNETOGRAM -- SOLIS

Bright = +
Dark = -

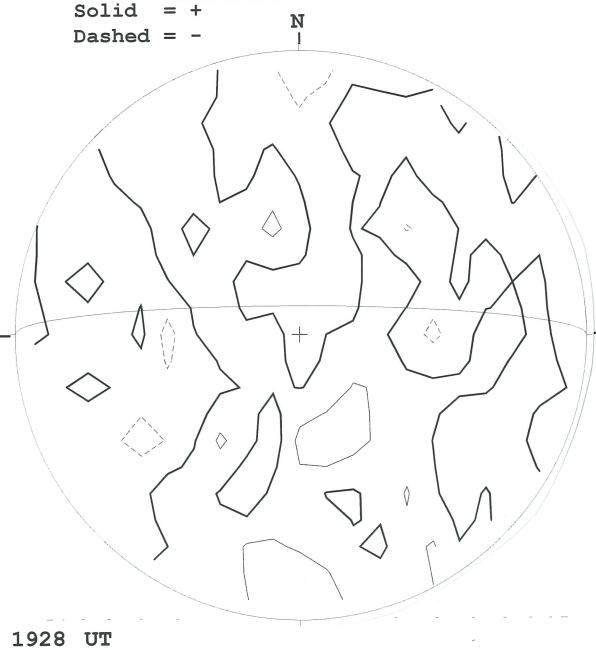
** 854.2NM **



1739 UT

STANFORD MAGNETOGRAM

Solid = +
Dashed = -

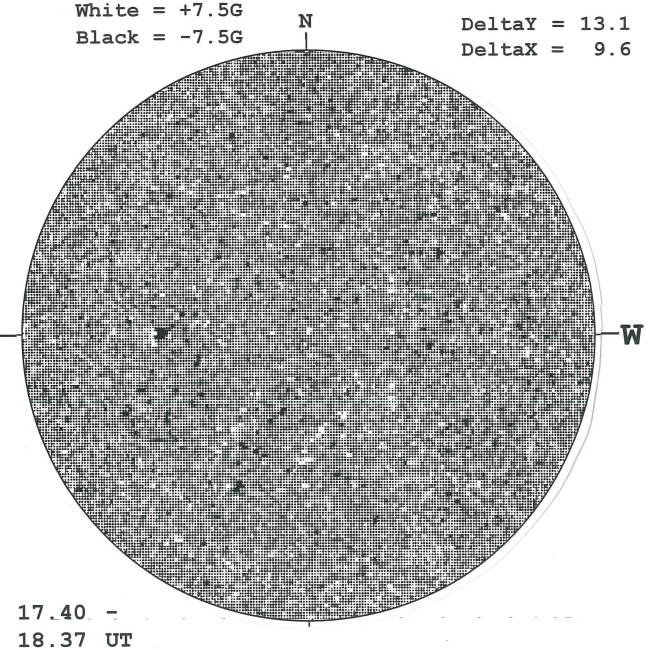


1928 UT

MT. WILSON MAGNETOGRAM

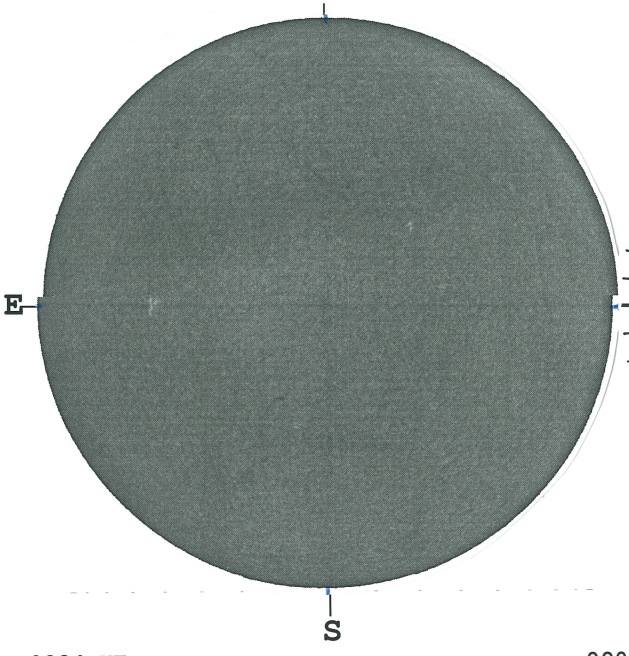
White = +7.5G
Black = -7.5G

DeltaY = 13.1
DeltaX = 9.6



17.40 -
18.37 UT

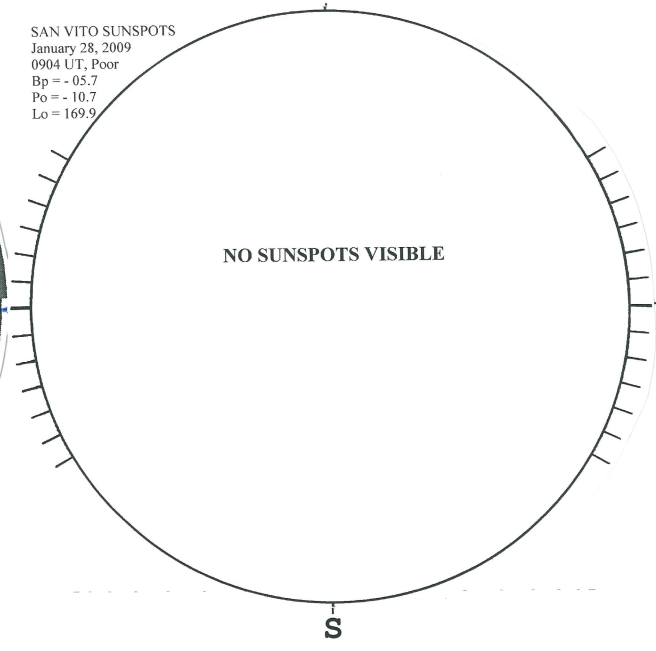
CATANIA H-ALPHA



0834 UT

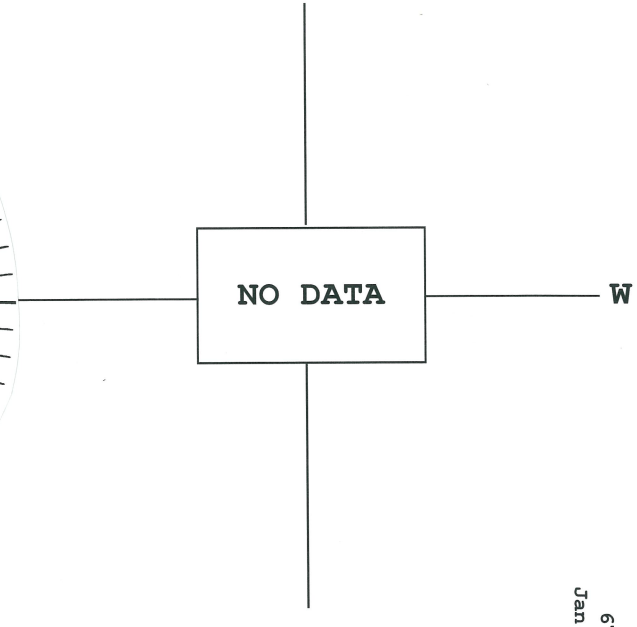
SAN VITO SUNSPOTS

SAN VITO SUNSPOTS
January 28, 2009
0904 UT, Poor
Bp = - 05.7
Po = - 10.7
Lo = 169.9



0904 UT

SACRAMENTO PEAK CORONA (1.15 Radii)-----



67
Jan 09

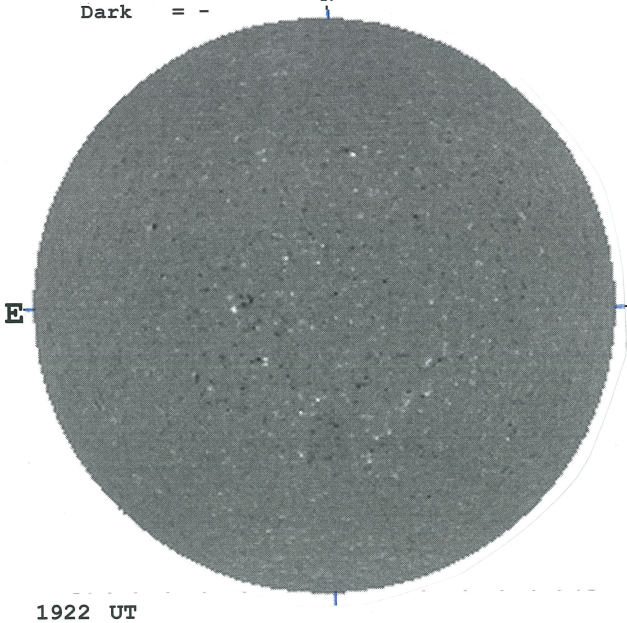
January 29, 2009 (P=-10.98, Bo=-5.81, Lo= 161.72)

Jan 09 66

KITT PEAK MAGNETOGRAM -- SOLIS

Bright = +
Dark = -

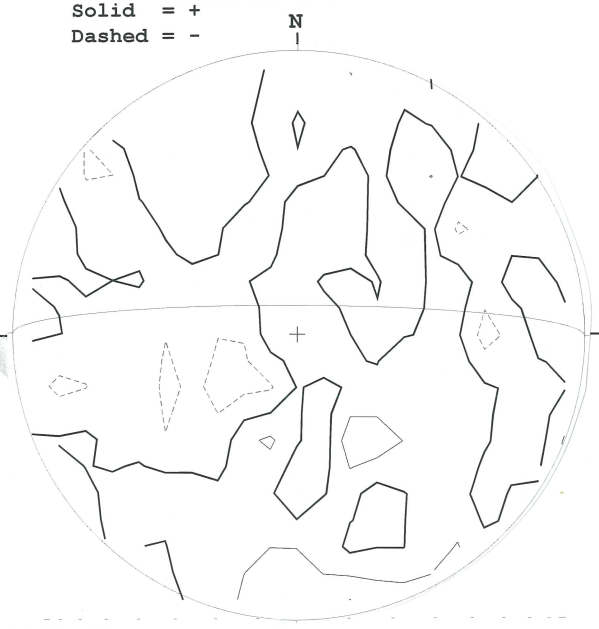
** 854.2NM **



1922 UT

STANFORD MAGNETOGRAM

Solid = +
Dashed = -

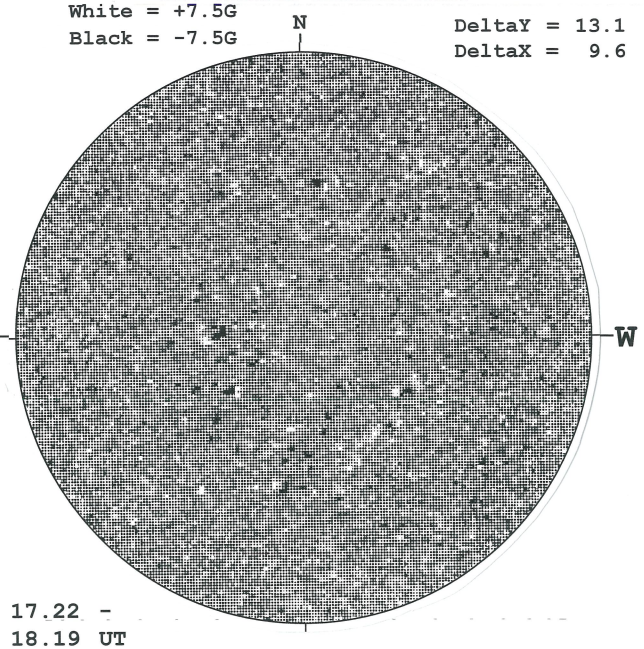


1910 UT

MT. WILSON MAGNETOGRAM

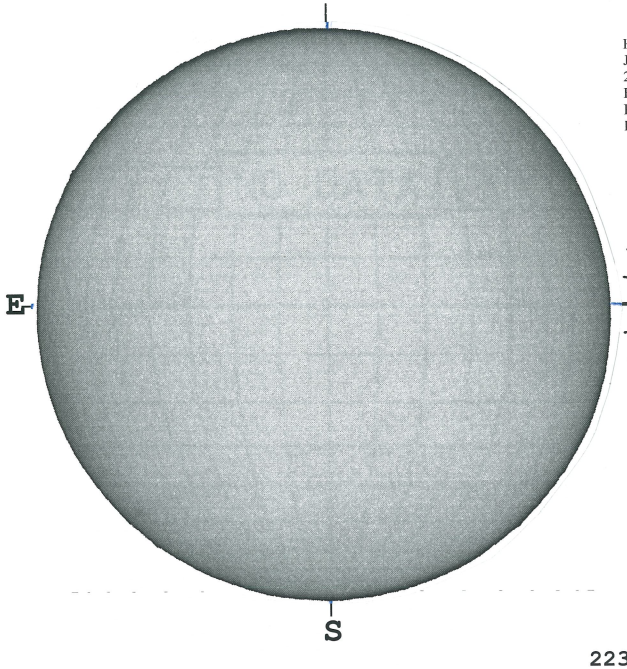
White = +7.5G
Black = -7.5G

DeltaY = 13.1
DeltaX = 9.6



17.22 -
18.19 UT

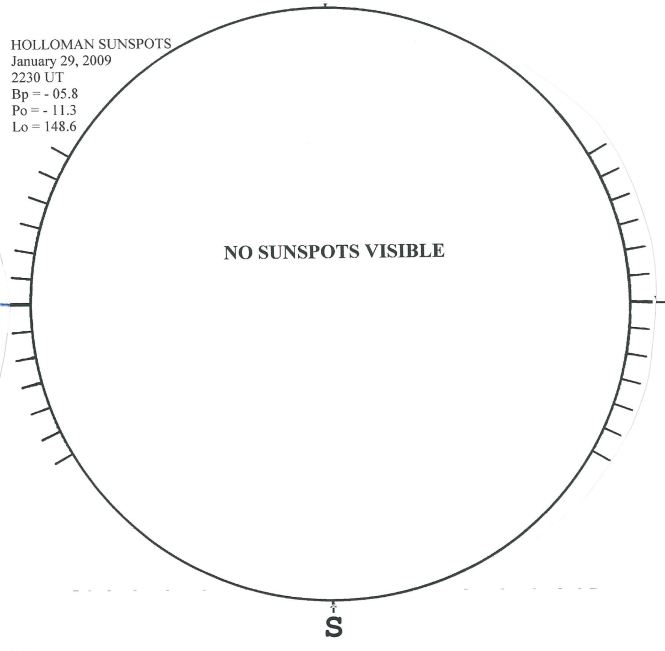
KANZELHOHE H-ALPHA



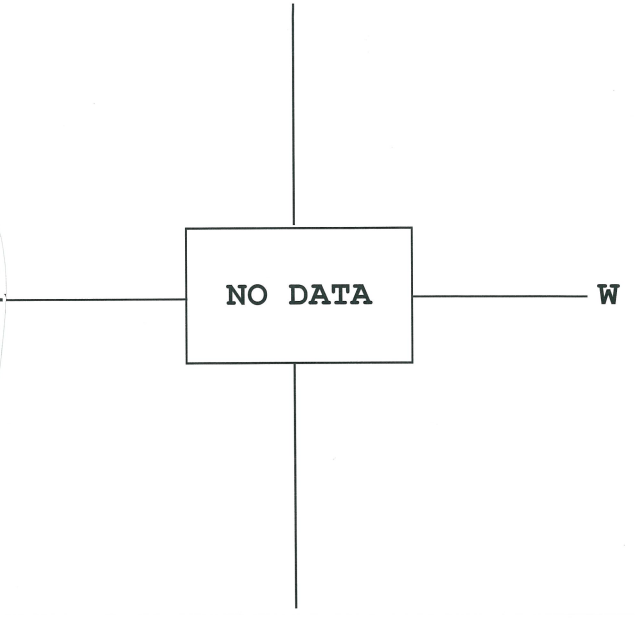
2230 UT

HOLLOMAN SUNSPOTS

HOLLOMAN SUNSPOTS
January 29, 2009
2230 UT
Bp = - 05.8
Po = - 11.3
Lo = 148.6



SACRAMENTO PEAK CORONA (1.15 Radii)-----

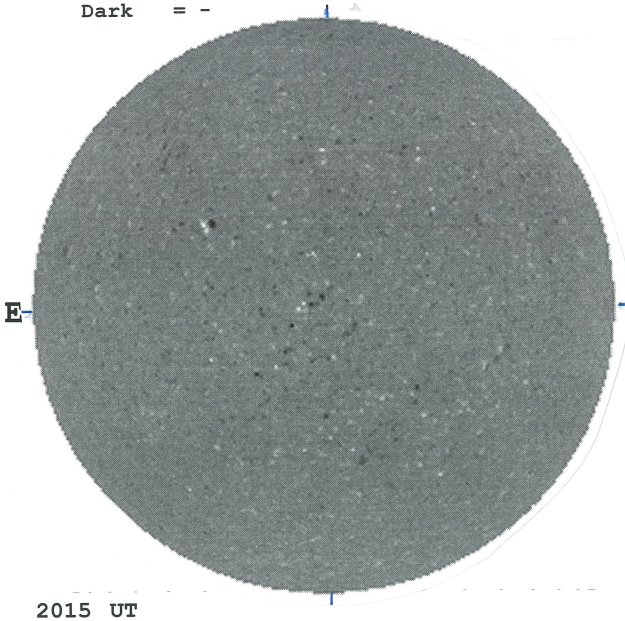


January 30, 2009 (P=-11.40, Bo=-5.89, Lo= 148.56)

KITT PEAK MAGNETOGRAM -- SOLIS

Bright = +
Dark = -

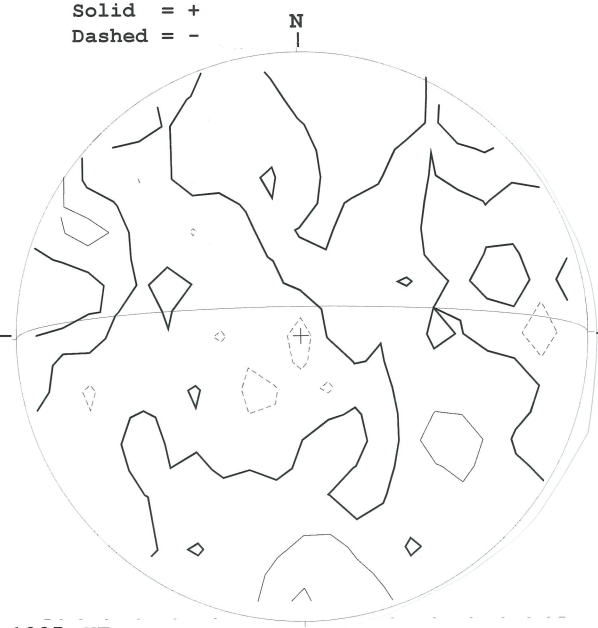
** 854.2NM **



2015 UT

STANFORD MAGNETOGRAM

Solid = +
Dashed = -

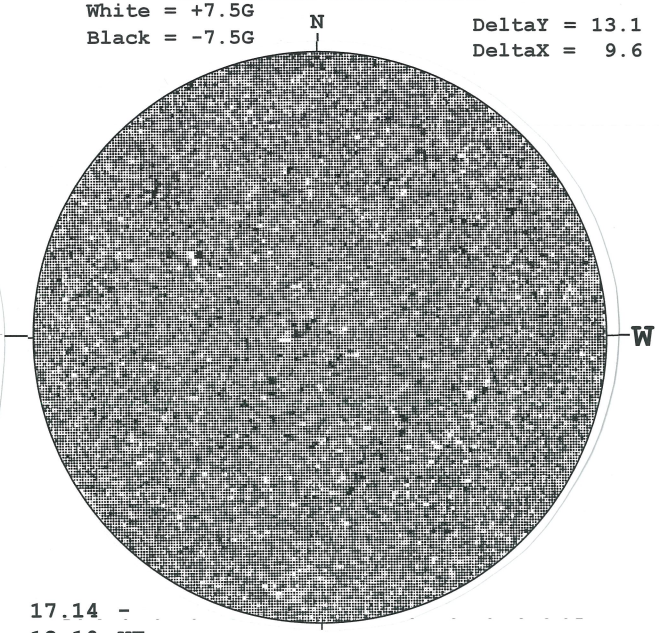


1905 UT

MT. WILSON MAGNETOGRAM

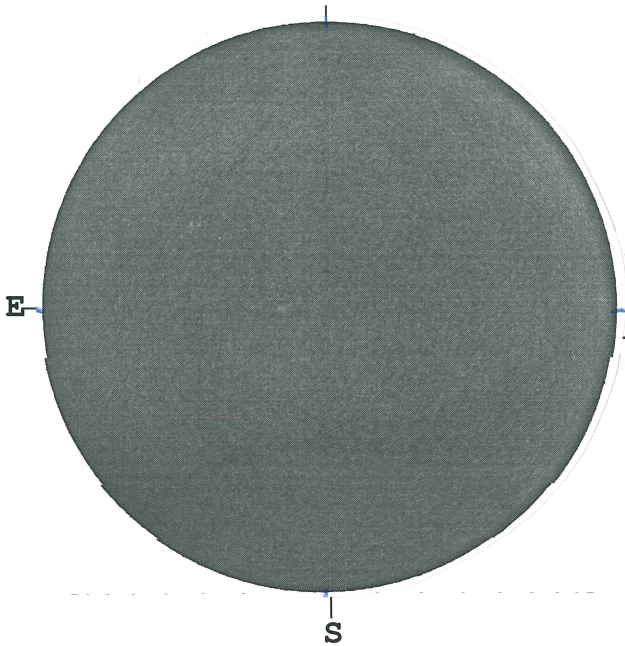
White = +7.5G
Black = -7.5G

DeltaY = 13.1
DeltaX = 9.6



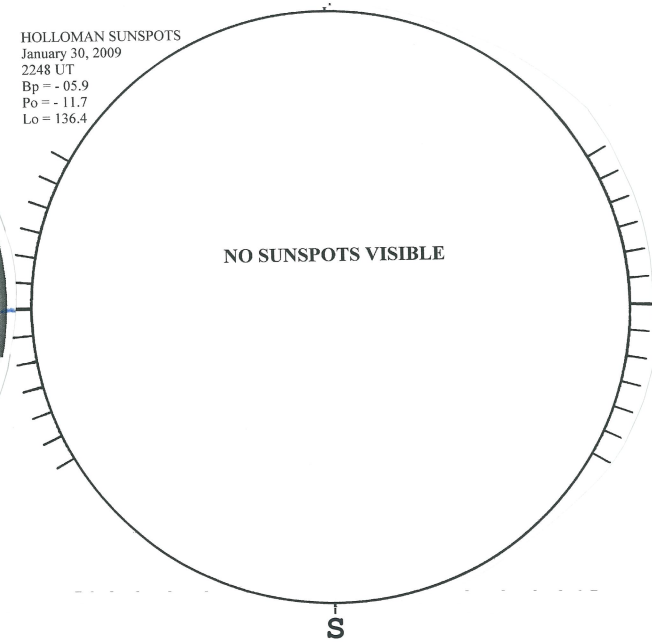
17.14 -
18.10 UT

CATANIA H-ALPHA



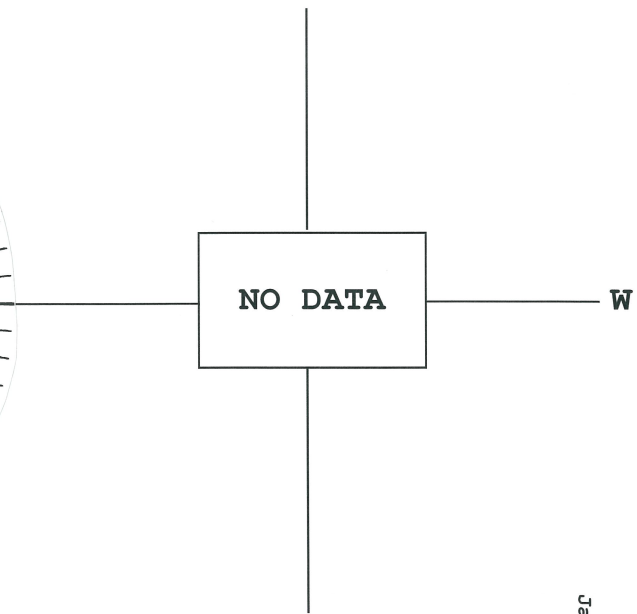
1056 UT

HOLLOMAN SUNSPOTS



2248 UT

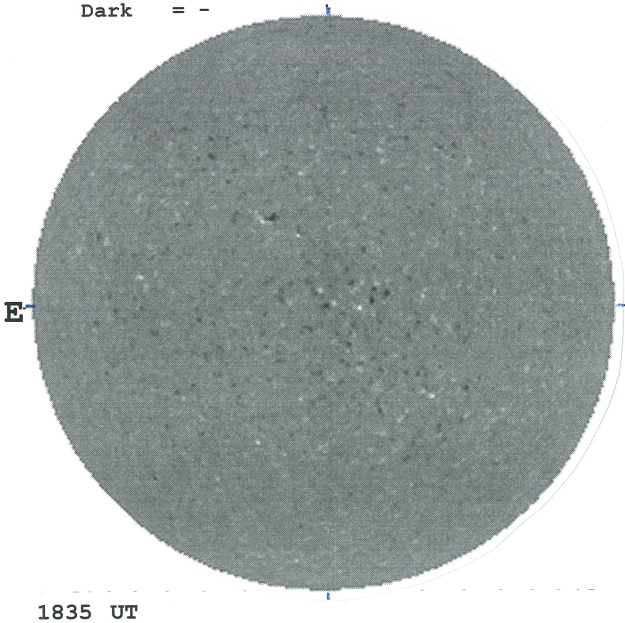
SACRAMENTO PEAK CORONA (1.15 Radii)-----



69
Jan 09

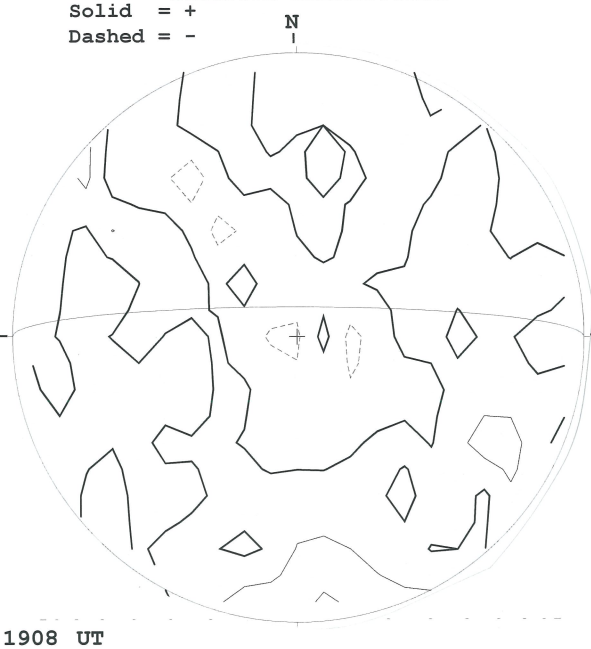
January 31, 2009 (P=-11.81, Bo=-5.96, Lo= 135.39)

KITT PEAK MAGNETOGRAM -- SOLIS
Bright = +
Dark = -
** 854.2NM **



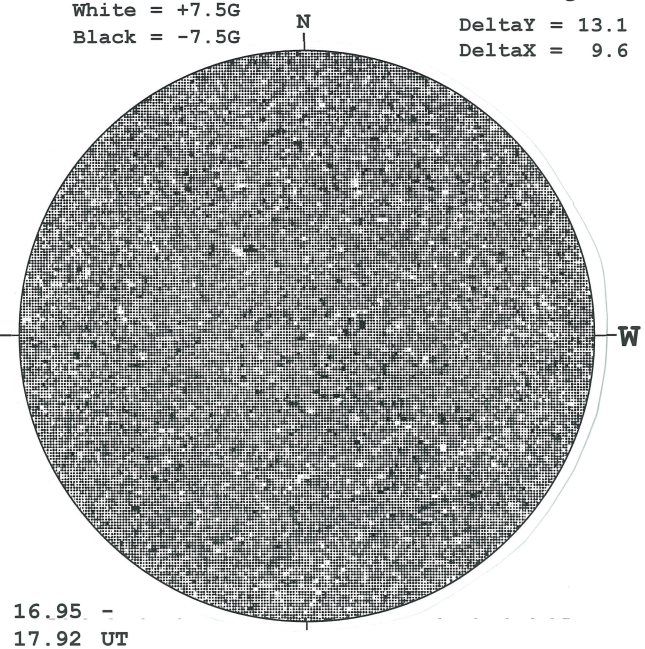
1835 UT

STANFORD MAGNETOGRAM
Solid = +
Dashed = -



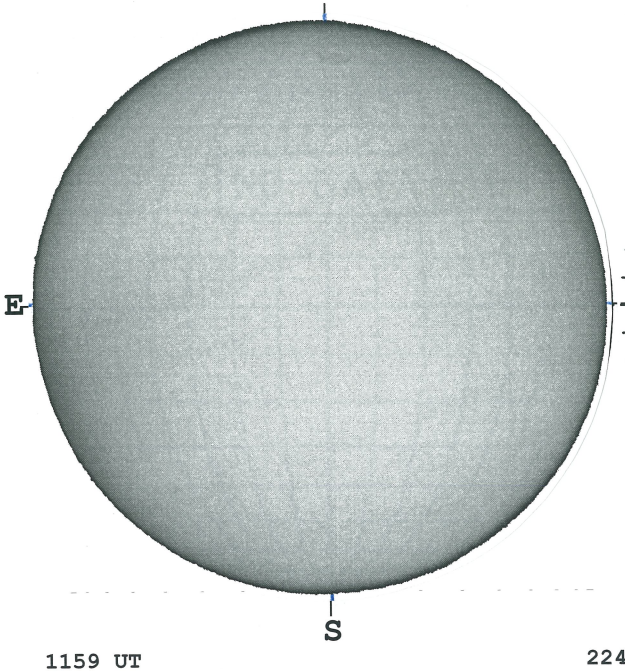
1908 UT

MT. WILSON MAGNETOGRAM
White = +7.5G
Black = -7.5G
DeltaY = 13.1
DeltaX = 9.6



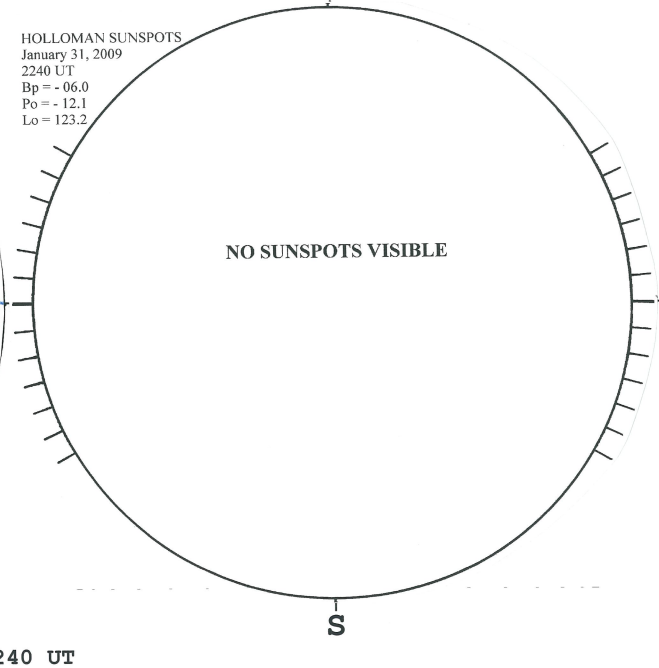
16.95 -
17.92 UT

MEUDON H-ALPHA



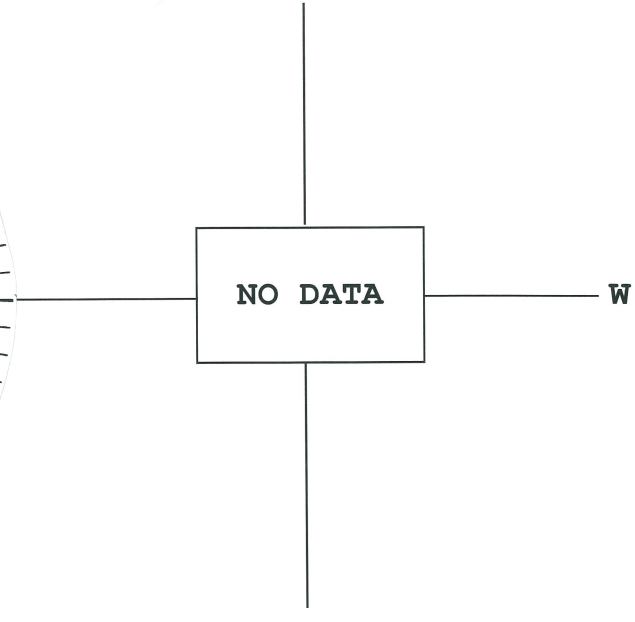
1159 UT

HOLLOMAN SUNSPOTS

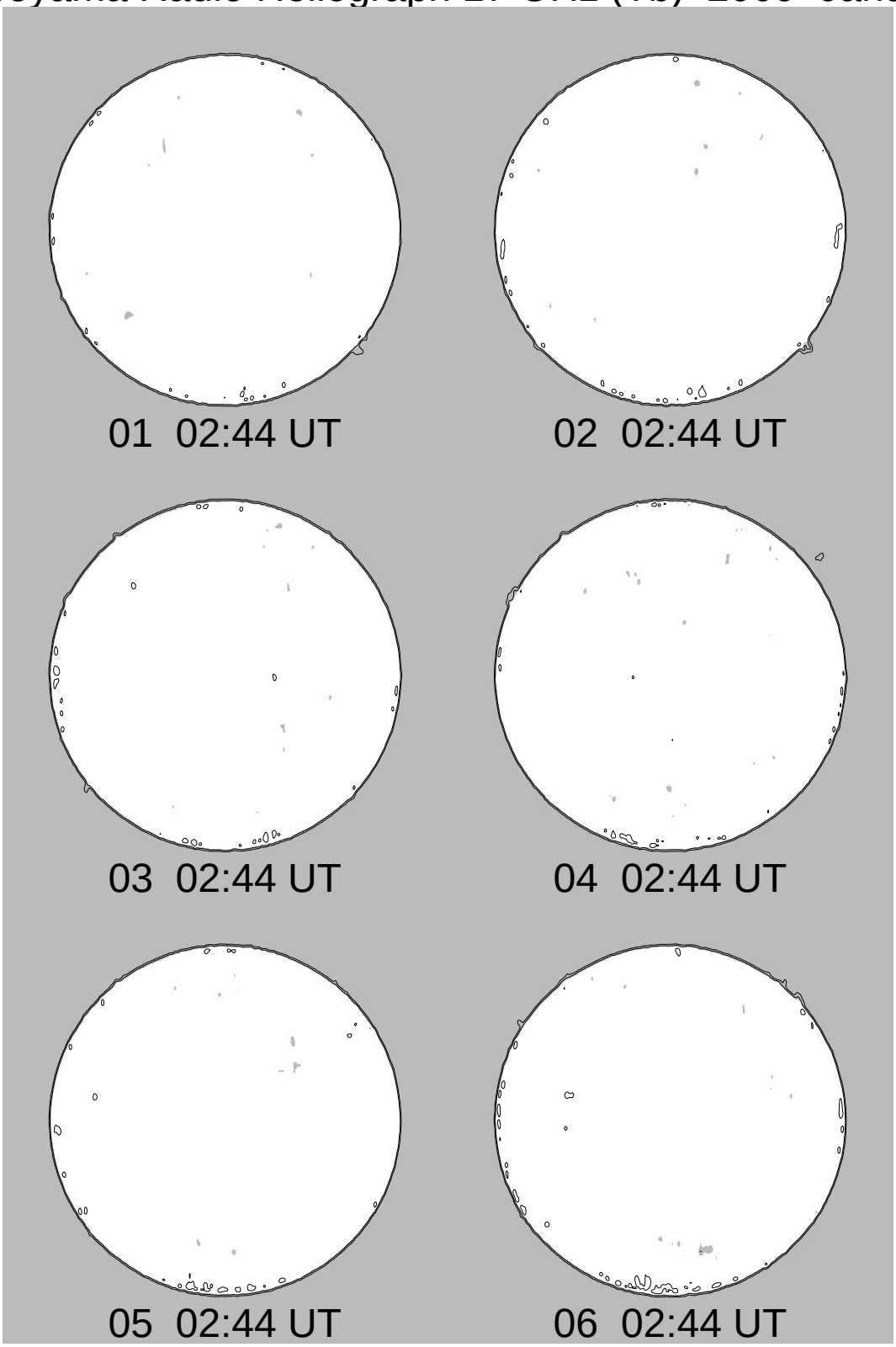


2240 UT

SACRAMENTO PEAK CORONA (1.15 Radii)-----

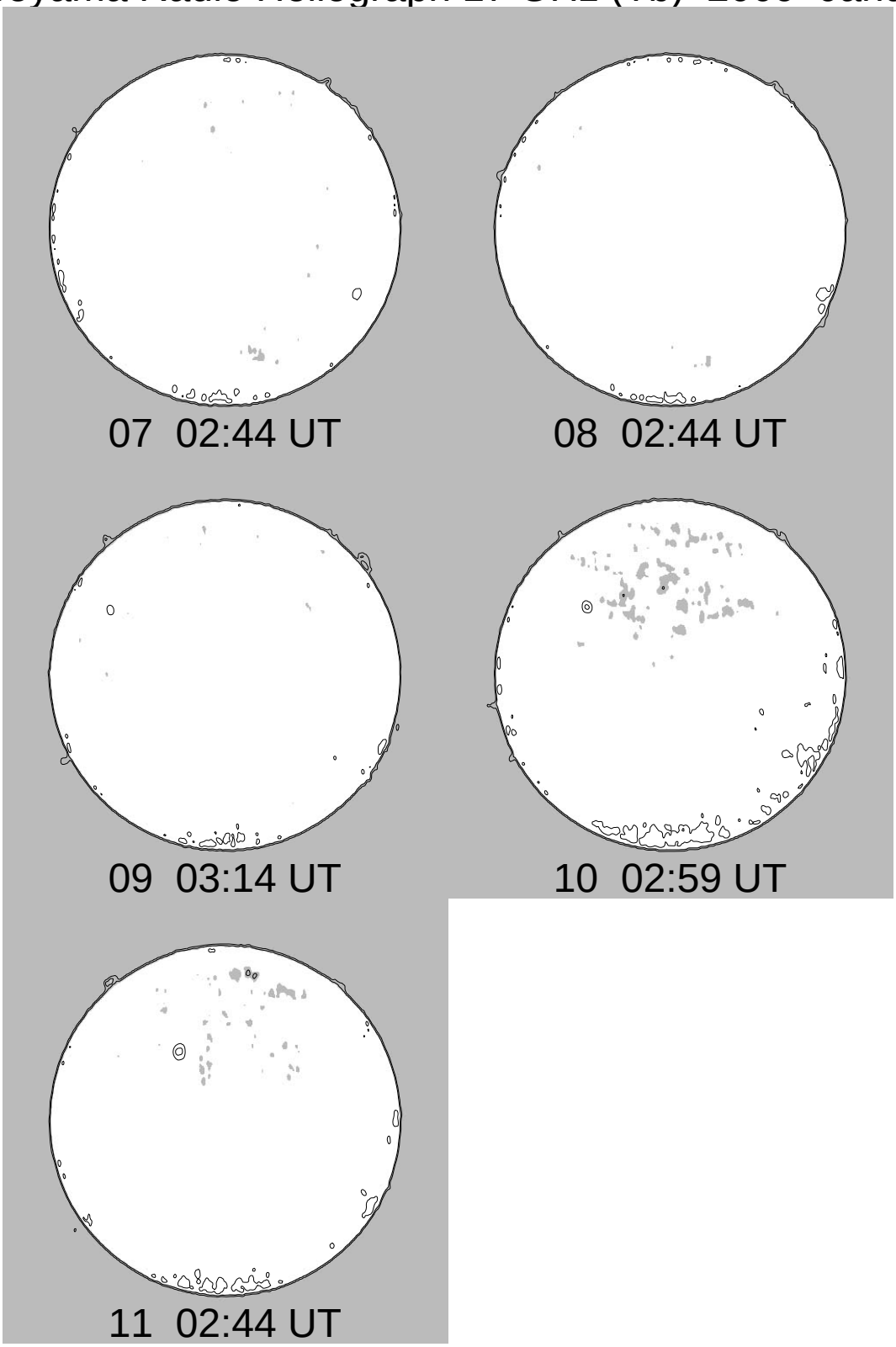


Nobeyama Radio Heliograph 17 GHz (Tb) 2009 January



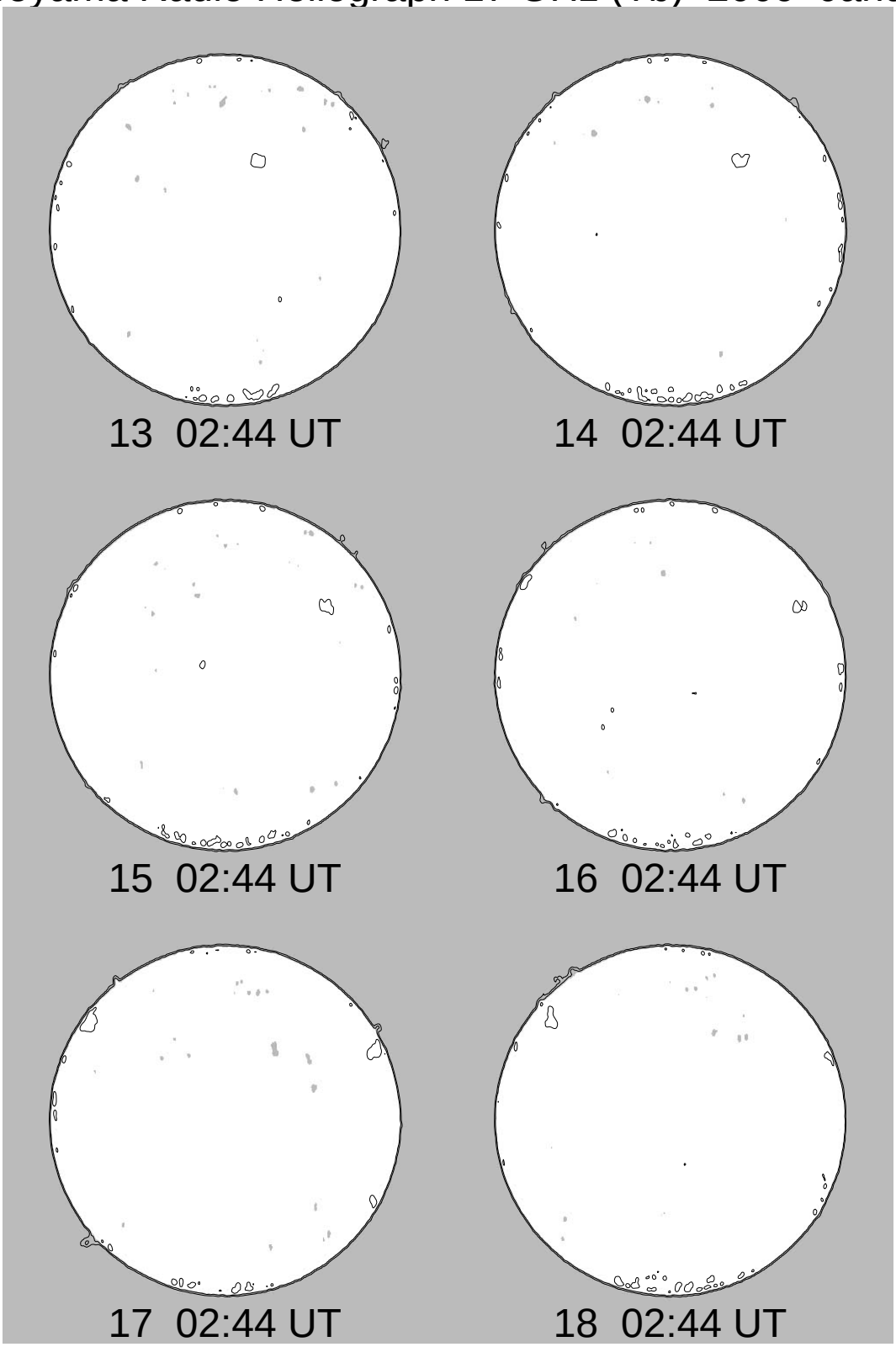
Contour Levels Tb=[5,8,12,20,50,100] x 10^3 K
Grey level Tb <= 9,500 K

Nobeyama Radio Heliograph 17 GHz (Tb) 2009 January



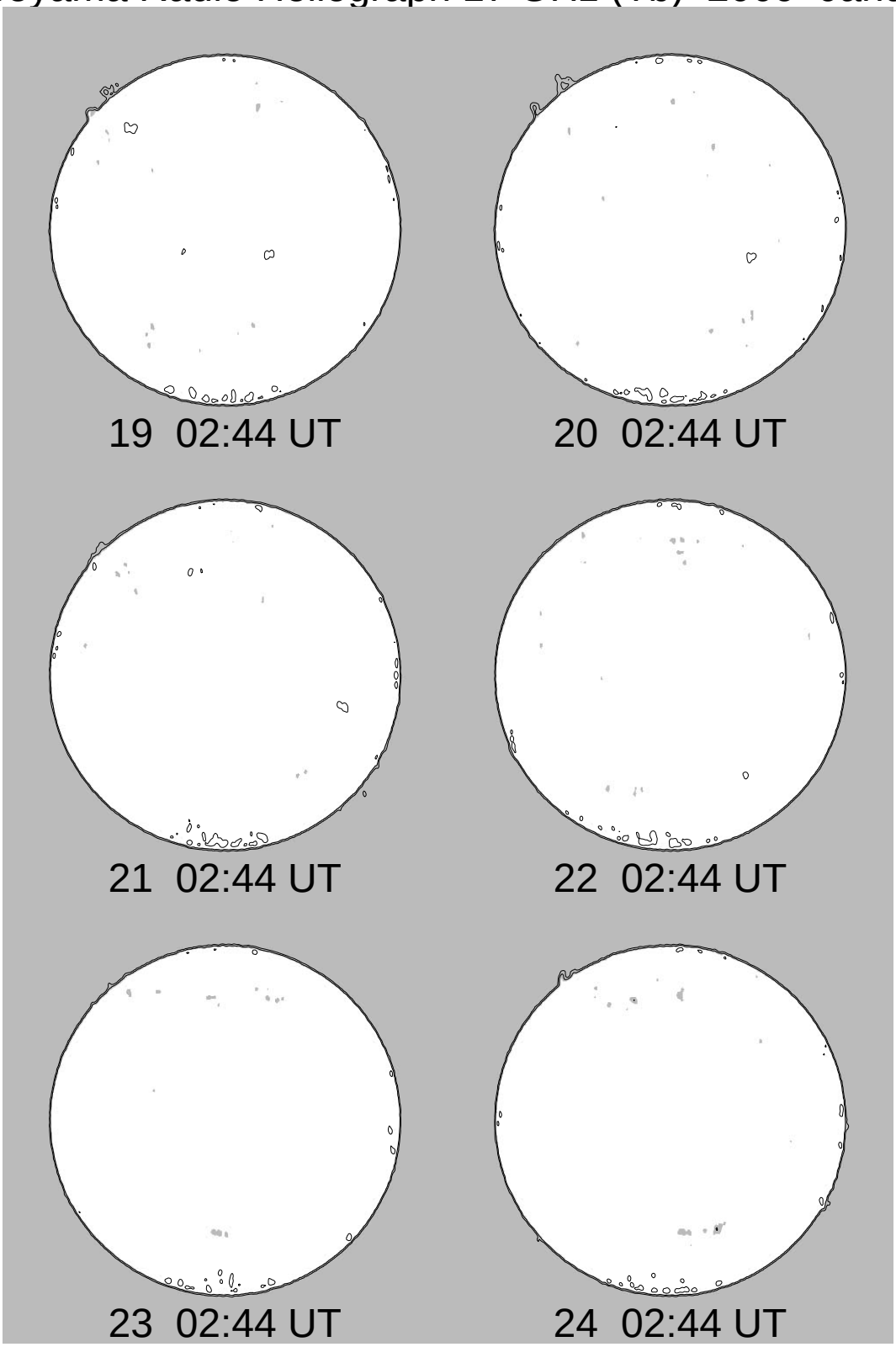
Contour Levels Tb=[5,8,12,20,50,100] x 10^3 K
Grey level Tb <= 9,500 K

Nobeyama Radio Heliograph 17 GHz (Tb) 2009 January



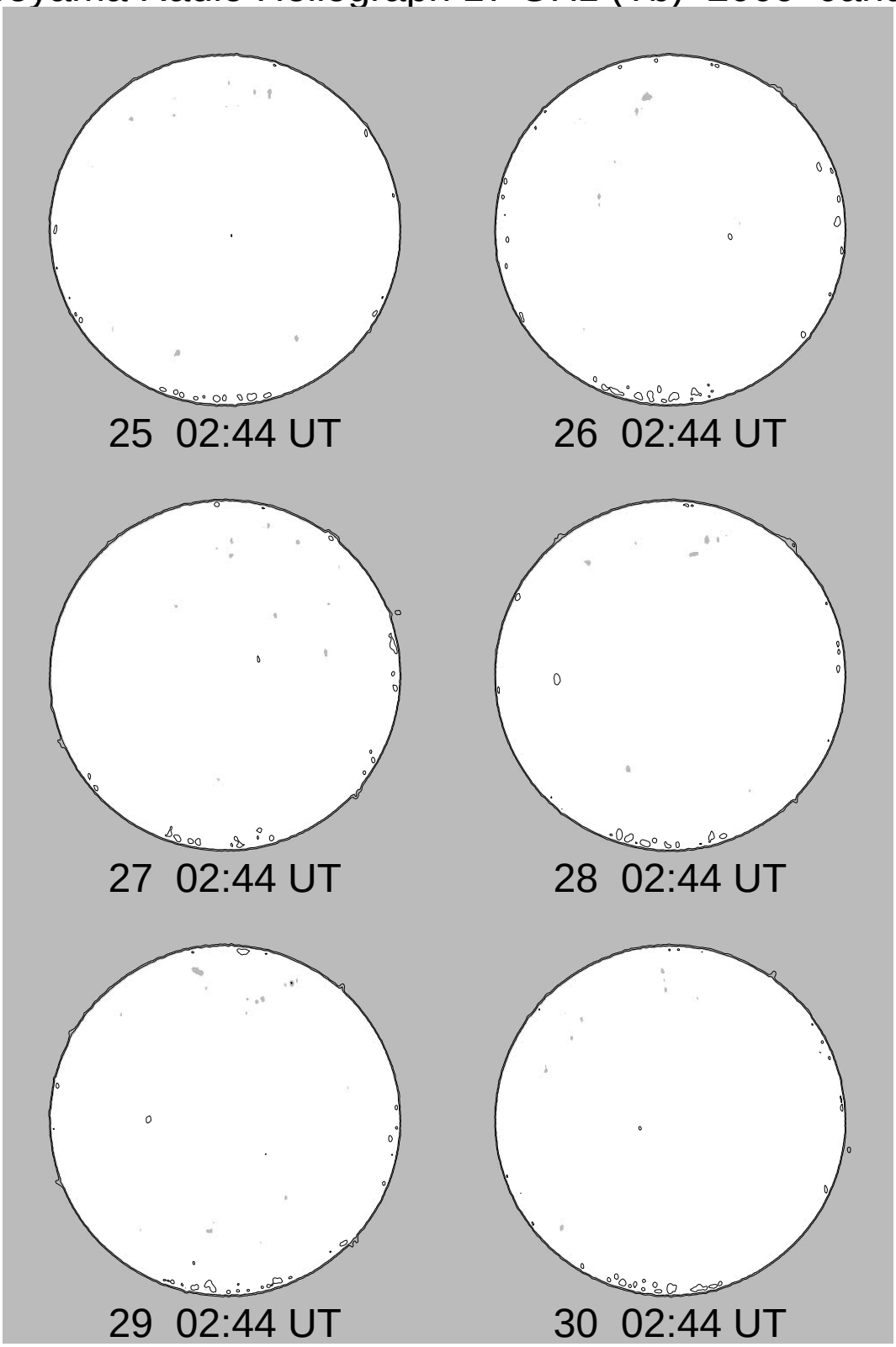
Contour Levels Tb=[5,8,12,20,50,100] x 10^3 K
Grey level Tb <= 9,500 K

Nobeyama Radio Heliograph 17 GHz (Tb) 2009 January



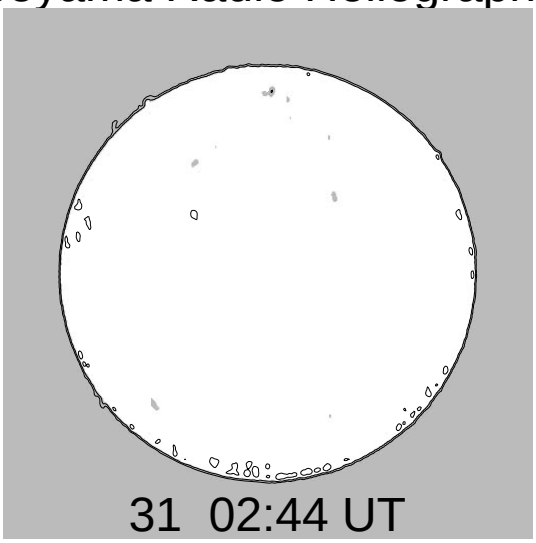
Contour Levels Tb=[5,8,12,20,50,100] x 10^3 K
Grey level Tb <= 9,500 K

Nobeyama Radio Heliograph 17 GHz (Tb) 2009 January



Contour Levels Tb=[5,8,12,20,50,100] x 10^3 K
Grey level Tb <= 9,500 K

Nobeyama Radio Heliograph 17 GHz (Tb) 2009 January



Contour Levels Tb=[5,8,12,20,50,100] x 10^3 K
Grey level Tb <= 9,500 K

S U N S P O T G R O U P S
(Ordered by Central Meridian Passage Date)
January 2009

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
11010A		HOLL	01	06	1726	S22	W50	01	2.9		A	AXX	10	1	1	3
11010A		LEAR	01	07	0125	S24	W55	01	2.8		A	AXX	20	1	1	3
11010		LEAR	01	09	0231	N18	E45	01	12.5		A	AXX	10	1	1	3
11010		PURP	01	09	0650	N20	E42	01	12.5			AXX	3	1	1	3
11010		KAND	01	09	0925	N19	E41	01	12.5			BXO		4	5	2
11010		HOLL	01	09	1710	N19	E35	01	12.4		B	BXO	30	4	3	3
11010		LEAR	01	10	0058	N20	E32	01	12.5		B	BXO	20	3	4	3
11010		PURP	01	10	0145	N20	E32	01	12.5			DSO	8	3	3	3
11010		VORO	01	10	0205	N20	E30	01	12.4			BXO	23	4	3	3
11010		KAND	01	10	1140	N18	E25	01	12.4			BXI		12	6	2
11010		HOLL	01	10	2043	N19	E19	01	12.3		B	DSO	40	11	6	3
11010		PURP	01	11	0104	N19	E17	01	12.3			DSO	34	8	5	3
11010		LEAR	01	11	0132	N19	E17	01	12.4		B	BXO	50	13	6	3
11010		SVTO	01	11	0943	N18	E15	01	12.5		B	BXO	60	9	6	2
11010		HOLL	01	11	1620	N18	E07	01	12.2		B	BXO	30	8	6	3
11010		LEAR	01	12	0032	N19	E03	01	12.2		B	BXO	30	7	6	3
11010		PURP	01	12	0038	N17	E06	01	12.5			CSI	11	5	5	3
11010		SVTO	01	12	0742	N18	E02	01	12.5		A	AXX	20	3	1	2
11010		KAND	01	12	0800	N19	W01	01	12.2			BXO		3	5	3
11010		HOLL	01	12	1707	N17	W05	01	12.3		A	AXX	10	1	1	2
11010		PURP	01	13	0200	N17	W08	01	12.5			AXX	2	1	1	3
11010		LEAR	01	13	0446	N18	W10	01	12.4		A	AXX	10	1	1	3
11010		KAND	01	13	0845	N17	W11	01	12.5			AX		2	1	3
11010		PURP	01	14	0102	N17	W20	01	12.5			AXX	2	1	1	3
11011		HOLL	01	18	2029	S12	W11	01	18.0		B	BXO	20	2	3	2
11011		VORO	01	18	2354	S12	W13	01	18.0			CAO	11	2	0	3
11011		LEAR	01	19	0152	S12	W14	01	18.0		B	BXO	20	3	3	3
11011		SVTO	01	19	0744	S12	W16	01	18.1		A	AXX	20	3	2	2
11011B		HOLL	01	27	2010	S07	E42	01	31.0		A	AXX	10	1	1	2

Stations reporting:

HOLL = Holloman LEAR = Learmonth PURP = Purple Mountain TACH = Tashkent
KAND = Kandilli PALE = Palehua SVTO = San Vito VORO = Voroshilov

SUDDEN IONOSPHERIC DISTURBANCES
JANUARY 2009

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
08	1432	1441	1504	1	1						*		
09	1316	1329	1429	1	1						*		
10	1234	1242U	1306	1	1						*		
10	1318	1344U	1407	1	1						*		
11	1335	1348	1432	1	1						*		

OBSERVATORIES REPORTING FOR JANUARY 2009

Upice, Czech Republic SEA

Observations are not necessarily continuous.
* = No Flare Patrol

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

Spectral Observations

JANUARY 2009

OBSERVATION				EVENT				FREQUENCY			
Day	Start (UT)	End (UT)	Sta	Start (UT)	End (UT)	Spectral Class	Event Remarks	Int (1-3)	Lower (MHz)	Upper (MHz)	Remarks
01	0000	0739	HIRA								
	0000	0800	CULG								
	0839	1333	ONDR								
	0900	1445	BLEN								
	2000	2400	CULG								
	2143	2400	HIRA								
02	0000	0740	HIRA								
	0000	0800	CULG								
	0838	1334	ONDR								
	2000	2400	CULG								
	2143	2400	HIRA								
03	0000	0741	HIRA								
	0000	0800	CULG								
	0838	1336	ONDR								
	0850	1445	BLEN								
	2000	2400	CULG								
	2143	2400	HIRA								
04	0000	0741	HIRA								
	0000	0800	CULG								
	0837	1337	ONDR								
	0850	1445	BLEN								
	2000	2400	CULG								
	2144	2400	HIRA								
05	0000	0742	HIRA								
	0000	0800	CULG								
	0836	1339	ONDR								
	0850	1445	BLEN								
	2000	2400	CULG								
	2144	2400	HIRA								
06	0000	0743	HIRA								
	0000	0800	CULG								
	0836	1341	ONDR								
	0850	1450	BLEN								
	2000	2400	CULG								
	2144	2400	HIRA								
07	0000	0744	HIRA								
	0000	0800	CULG								
	0835	1342	ONDR								
	0850	1450	BLEN								
	2000	2400	CULG								
	2144	2400	HIRA								
08	0000	0745	HIRA								
	0000	0800	CULG								
	0834	1344	ONDR								
	0850	1450	BLEN								
	2000	2400	CULG								
	2144	2400	HIRA								
09	0000	0746	HIRA								
	0000	0800	CULG								
	0833	1346	ONDR								
	0850	1450	BLEN								
	2000	2400	CULG								
	2143	2400	HIRA								
10	0000	0747	HIRA								
	0000	0800	CULG								
	0832	1348	ONDR								
	0850	1455	BLEN								
	2000	2400	CULG								
	2143	2400	HIRA								

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

Spectral Observations

JANUARY 2009

OBSERVATION				EVENT					FREQUENCY		
Day	Start (UT)	End (UT)	Sta	Start (UT)	End (UT)	Spectral Class	Event Remarks	Int (1-3)	Lower (MHz)	Upper (MHz)	Remarks
11	0000	0747	HIRA								
	0000	0800	CULG								
	0831	1349	ONDR								
	0845	1500	BLEN								
	2000	2400	CULG								
	2143	2400	HIRA								
12	0000	0748	HIRA								
	0000	0800	CULG								
	0830	1351	ONDR								
	0845	1500	BLEN								
	2000	2400	CULG								
	2143	2400	HIRA								
13	0000	0749	HIRA								
	0000	0800	CULG								
	0829	1353	ONDR								
	0845	1500	BLEN								
	2000	2400	CULG								
	2143	2400	HIRA								
14	0000	0750	HIRA								
	0000	0800	CULG								
	0827	1355	ONDR								
	0845	1500	BLEN								
	2000	2400	CULG								
15	0000	0800	CULG								
	0845	1500	BLEN								
	0929	1345	ONDR								
	2000	2400	CULG								
16	0000	0800	CULG								
	0826	1359	ONDR								
	0845	1500	BLEN								
	2000	2400	CULG								
17	0000	0800	CULG								
	0824	1401	ONDR								
	0845	1505	BLEN								
	2000	2400	CULG								
18			LEAR	0503.0	0503.0	III		1	25	59	S=2 C=
	0000	0800	CULG	0504.0	0504.0	III	B	1	20	90	
	0822	1403	ONDR								
	0845	1505	BLEN								
	2000	2400	CULG								
19	0000	0800	CULG								
	0821	1405	ONDR								
	0845	1510	BLEN								
	2000	2400	CULG								
20	0000	0800	CULG								
	0820	1407	ONDR								
	0830	1515	BLEN								
	2000	2400	CULG								
21	0000	0800	CULG								
	0818	1410	ONDR								
	0830	1515	BLEN								
	2000	2400	CULG								
22	0000	0800	CULG								
	0817	1412	ONDR								
	0820	1515	BLEN								
	2000	2400	CULG								
23	0000	0800	CULG								

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

Spectral Observations

JANUARY 2009

OBSERVATION				EVENT				FREQUENCY			
Day	Start (UT)	End (UT)	Sta	Start (UT)	End (UT)	Spectral Class	Event Remarks	Int (1-3)	Lower (MHz)	Upper (MHz)	Remarks
23	0819	1414	ONDR								
	0820	1515	BLEN								
	2000	2400	CULG								
24	0000	0800	CULG								
	0813	1416	ONDR								
	1005	1515	BLEN								
	2000	2400	CULG								
25	0000	0800	CULG								
	0811	1403	ONDR								
	0820	1520	BLEN								
	2000	2400	CULG								
26	0000	0800	CULG								
	0809	1420	ONDR								
	0820	1520	BLEN								
	2000	2400	CULG								
27	0000	0800	CULG								
	0808	1423	ONDR								
	0820	1525	BLEN								
	2000	2400	CULG								
28	0806	1425	ONDR								
	0820	1525	BLEN								
29	0000	0800	CULG								
	0804	1427	ONDR								
	0820	1525	BLEN								
	2000	2400	CULG								
30	0000	0800	CULG								
	0802	1429	ONDR								
	0820	1525	BLEN								
	2000	2400	CULG								
31	0000	0800	CULG								
	0800	1432	ONDR								
	0820	1530	BLEN								
	2000	2400	CULG								

Event Remarks:

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

Frequency qualifiers:

X = Extends beyond instrument range
U = Uncertain frequency

Remarks:

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

Stations Reporting:

CULG = Culgoora IZMI = Izmiran LEAR = Learmonth ONDR = Ondrejov BLEN = Bleien
PALE = Palehua POTS = Potsdam SGMR = Sagamore Hill SVTO = San Vito

NOTE 1: Beginning June 26, 2001, the Bleien observatory changed to higher frequencies (1-4Ghz).
NOTE 2: Potsdam has reduced sensitivity in the 400-800 MHz range.

SOLAR RADIO NOISE STORM AT 150.9 MHZ

FROM NANÇAY RADIOHELIOGRAPH

JANUARY 2009

	HELIOGRAPHICS POSITIONS MEAN VALUES[1]		IMP[2]	OBSERVING TIME[3]	
DAY	E-W	S-N		START(UT)	END(UT)

SOLAR RADIO NOISE STORM AT 327 MHZ

FROM NANÇAY RADIOHELIOGRAPH

JANUARY 2009

	HELIOGRAPHICS POSITIONS MEAN VALUES[1]		IMP[2]	OBSERVING TIME[3]	
DAY	E-W	S-N		START(UT)	END(UT)

OTHERS DAYS: NO DETECTABLE NOISE STORM

- For the days marked by an asterisk, intense ionopheric gravity waves are observed during the whole day. Without a mode detailed analysis leadind to increase uncertainties in the deviation , the positions which are indicated are estimated within 0.2 R

** Following a large burst

*** importance not well determined due to the proximity off the very strong other source

**** no flux measurements available

---

[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

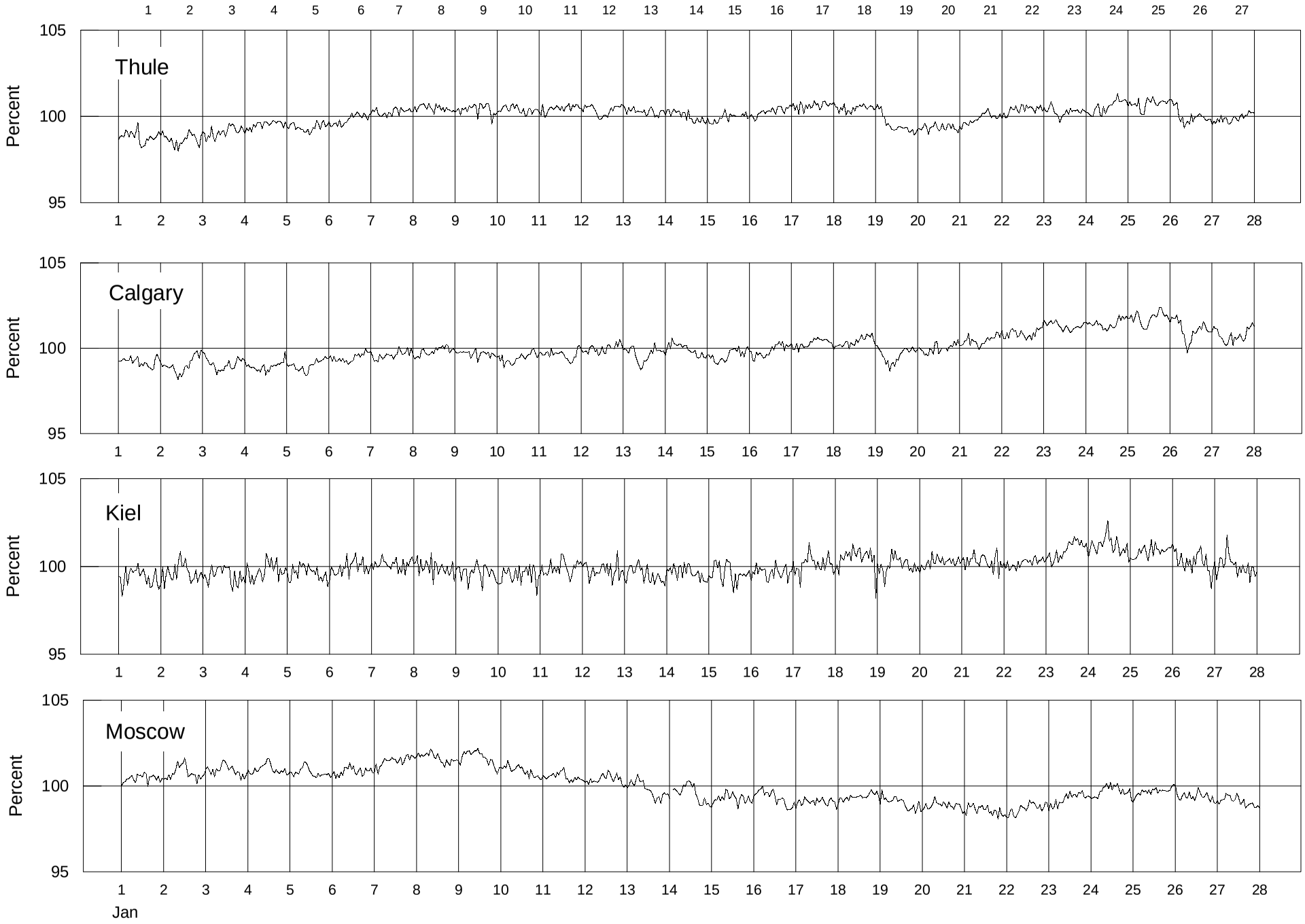
COSMIC RAY INDICES
(Neutron Monitor)
JANUARY 2009

Day	THULE 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	4618.0	4017.5	6420.3	9641.6		2118.5	
2	4611.1	4009.8	6436.4	9671.4		2113.3	
3	4631.5	4012.5	6427.2	9686.1		2111.5	
4	4650.5	4006.7	6442.2	9691.8		2112.1	
5	4644.2	4009.2	6435.9	9674.7		2116.6	
6	4664.5	4026.8	6454.1	9680.2		2117.9	
7	4685.5	4034.2	6466.7	9737.6	data	2116.2	data
8	4695.5	4041.8	6454.3	9755.9	not	2120.8	not
9	4692.2	4037.0	6437.9	9755.8	available	2130.9	available
10	4691.7	4026.5	6426.9	9682.7		2120.6	
11	4694.5	4034.7	6453.1	9650.6		2130.4	
12	4690.1	4048.7	6444.8	9635.4		2126.2	
13	4687.3	4035.8	6428.4	9579.6		2123.8	
14	4674.2	4046.7	6437.1	9555.9(23)		2131.9	
15	4670.0	4032.8	6435.4	9527.5		2128.5	
16	4686.0	4043.7	6437.3	9533.5		2133.3	
17	4702.0	4061.8	6468.1	9509.0		2130.6	
18	4696.0	4065.0	6489.3	9539.3		2138.8	
19	4652.3	4033.5	6463.9	9503.3		2114.2	
20	4642.9	4049.2	6474.0	9489.2		2118.1	
21	4667.1	4067.3	6477.1	9463.3		2132.1	
22	4690.9	4084.2	6472.1	9472.3		2148.8	
23	4686.5	4102.7	6519.0	9526.6		2143.6	
24	4698.9	4107.8	6534.9	9569.9		2132.3	
25	4707.4	4121.5	6513.7	9567.6		2117.8	
26	4675.6	4094.0	6477.7	9541.4		2119.7	
27	4668.0	4080.3	6461.2	9513.3		2111.0	
28	4677.4	4095.3	6458.2	9521.7		2102.2	
29	4661.2	4084.5	6448.5	9530.3		2096.0	
30	4671.7	4089.2	6448.6	9549.1		2107.8	
31	4650.4	4078.5	6440.1	9514.7		2108.5	
Mean	4672.0	4054.2	6457.6	9589.5		2121.7	

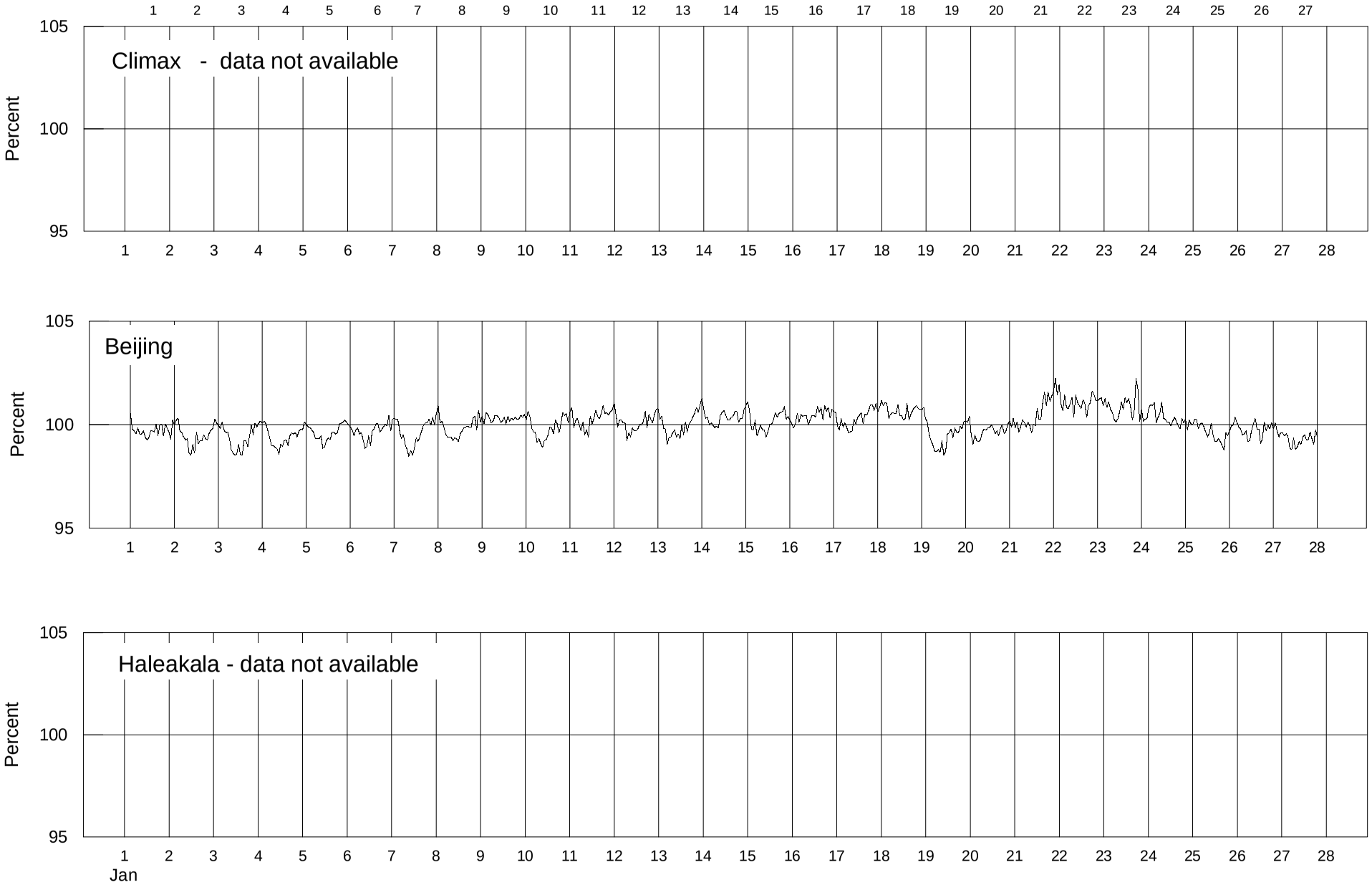
For less than 24-hour coverage, parentheses enclose the number of hours for which data are available. For Climax, parentheses enclose the number of section hours whenever the sum of both sections falls below 40 hours, and for Haleakala, whenever the sum of all three sections falls below 60 hours.

COSMIC RAY INDICES
(Neutron Monitor)

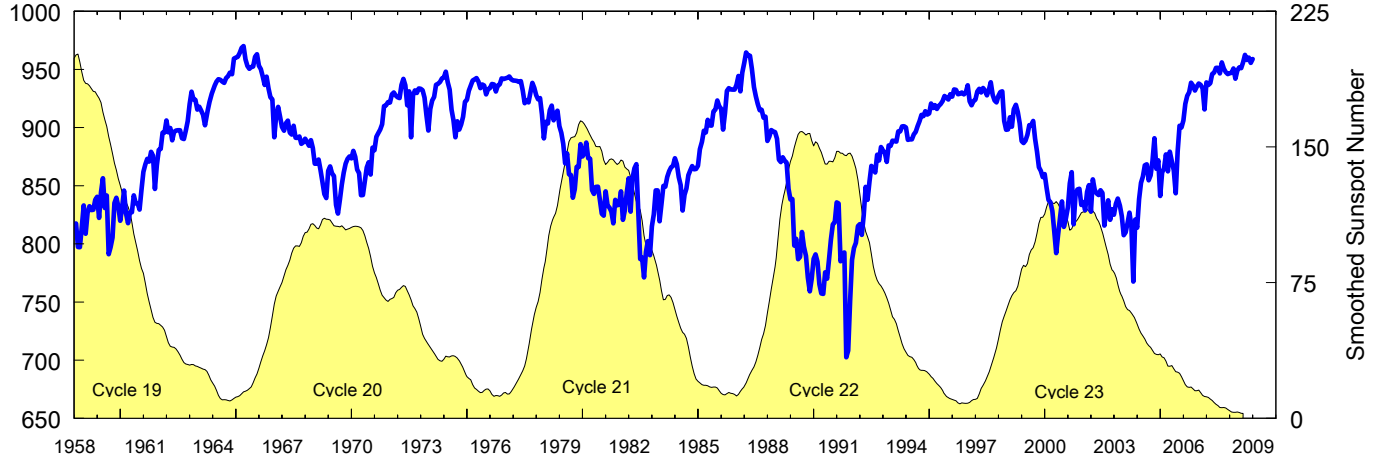
Bartels Rotation 2394 - Beginning 1 Jan 2009



COSMIC RAY INDICES
(Neutron Monitor)
Bartels Rotation 2394 - Beginning 1 Jan 2009



Moscow Neutron Monitor Pressure-Corrected Values
Jan 1958 - Jan 2009



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	9322	9390	9281	9233	9217	9297
1998	9273	9306	9312	9057	8981	8983	9088	9007	9157	9196	9133	9036	9127
1999	8883	8867	8887	8937	9021	9018	9058	8904	8794	8660	8627	8574	8853
2000	8600	8481	8377	8358	8283	8107	7921	8081	8224	8365	8146	8215	8263
2001	8314	8521	8617	8168	8428	8468	8473	8334	8359	8289	8447	8505	8410
2002	8277	8555	8462	8434	8420	8462	8438	8157	8289	8374	8207	8297	8364
2003	8251	8344	8398	8329	8238	8075	8099	8178	8268	8150	7675	8209	8185
2004	8139	8385	8525	8580	8676	8684	8546	8589	8715	8909	8646	8718	8593
2005	8411	8614	8649	8770	8624	8792	8707	8632	8436	8793	9015	9001	8704
2006	9061	9204	9273	9303	9385	9361	9318	9353	9379	9367	9339	9156	9292
2007	9389	9367	9381	9461	9473	9513	9514	9465	9561	9506	9477	9460	9464
2008	9467	9472	9508	9420	9490	9518	9512	9560	9625	9581	9602	9556	9526
2009	9590												9590

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.

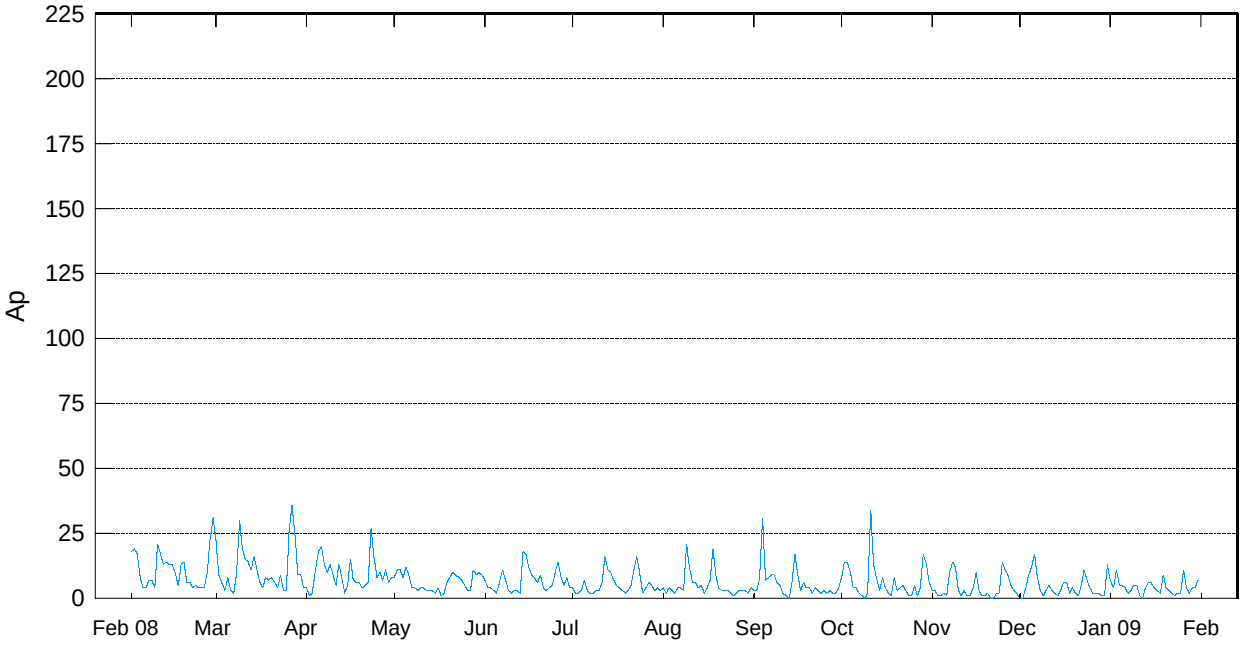
Geomagnetic Activity Indices

JANUARY 2009

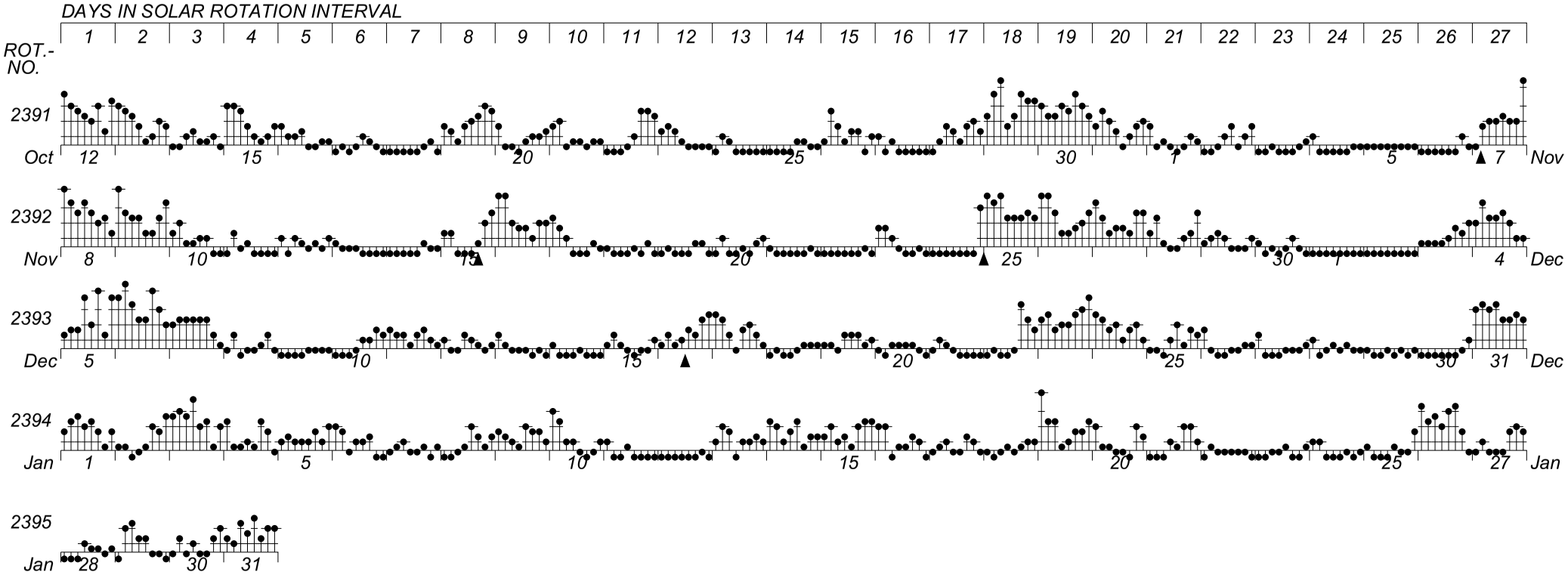
Day		Kp Three-Hourly Indices 1	2	3	4	5	6	7	8	Sum	Ap	Cp	Km Three-Hourly Indices 1	2	3	4	5	6	7	8	Am	aa Provisional N	S	M	
1	D4*	2-	2+	3-	2	2+	2-	1-	2-	15	7	0.4	1o	2-	2+	3-	2+	2-	1-	1+	13	16	16	16	16
2		1-	1-	0	0+	1-	2	2-	3-	9-	4	0.2	1o	1-	0+	1-	1-	2o	2o	2+	9	11	10	7	14 C
3	D1*	3-	3	3-	4-	2	2+	1-	2	19	11	0.6	3-	3-	2o	3+	2-	3-	1+	2-	19	24	18	27	15
4		2+	1-	1-	1	1-	2+	2-	0+	10-	5	0.2	2-	1-	1-	1+	1o	2o	2-	1-	8	13	8	8	14 CC
5		1	1+	1	1	1	2-	1	2	10	5	0.2	1o	1o	1+	1+	2-	2o	1+	1+	10	12	11	9	14 CC
6		2	2-	0+	1	1	1+	0	0	7+	4	0.1	1+	1o	0+	1+	1o	2-	0o	0o	6	7	8	9	6 CC
7	Q7	0+	1-	1	0+	0+	1-	0	1-	4	2	0.0	0o	1-	1o	1-	0+	1o	0o	1o	4	5	6	5	6 CC
8		0	0	0+	1-	2	1+	1-	1+	6+	3	0.1	0+	0o	1-	1o	2o	2-	1o	1+	7	8	8	4	11 CC
9		2-	1+	1	1-	2	2-	2-	1	11	5	0.2	1+	1+	1+	1-	2o	2+	2-	1+	11	14	12	11	15 C
10		3	2+	1	1	0+	0	0+	1	9	5	0.2	2+	2o	1+	2-	0+	0o	0+	1-	8	11	11	17	5 CC
11	Q4	1	0	0	1-	0	0	0	0	2-	1	0.0	1o	0+	0o	1-	0o	0+	0o	0o	2	4	4	5	3 CC
12	Q1	0	0	0	0	0	0	0+	0	0+	0	0.0	0o	0o	0o	0o	0o	0o	1-	1-	2	3	3	2	4 CC
13		1	2	2-	0	1	1	1+	1	9	4	0.1	1o	1+	2-	0+	2-	1+	1o	1+	9	11	12	13	10 CC
14		2+	2	1	2-	2+	1-	1+	1+	13-	6	0.3	2+	1o	1o	2o	2+	1o	2-	1+	12	13	13	13	13 CC
15		1+	2	1	1+	1-	2	2+	2+	13	6	0.3	1+	1+	1o	2-	1+	2o	3-	2+	12	15	12	9	18 C
16		2	2	0	1-	1-	1+	1	0	8-	4	0.1	2o	2-	1-	1o	1+	1o	1-	0o	8	8	11	12	6 CC
17	Q10	0+	1-	1	0+	0+	1+	1	0+	5+	3	0.1	0+	0+	1-	0+	1-	1+	1+	0+	5	5	8	5	8 CC
18	Q8	0+	0	0+	1-	0+	1-	1	1	4+	2	0.0	0+	0o	0+	1+	1o	1o	1+	2-	6	4	9	4	9 CK
19	D3*	4	2+	2+	1-	1	2-	2-	2+	16	9	0.5	4o	2+	3-	1+	1+	2+	2o	2+	20	20	18	23	15
20		2	1-	1-	0+	0+	0	2	1+	7+	4	0.1	2-	1o	1o	1-	1-	0+	2-	1o	7	9	10	11	8 CC
21		0	0	0	1	1-	2	2	1	7-	3	0.1	0o	0o	1-	1o	1+	2+	2-	1o	7	10	9	4	14 CC
22	Q2	0	1-	0+	0+	0+	0+	0+	0	2+	2	0.0	0o	0+	0+	1-	1-	1o	1-	0o	3	4	7	5	5 CC
23	Q3	0	0	0+	0+	1-	0	0	1-	2	1	0.0	0+	0o	1-	0+	1-	0+	0o	1-	3	5	6	4	7 CC
24	Q5	1	1	0	0	0	0+	0	0+	3-	2	0.0	1-	0+	0o	0o	0o	0+	0+	1-	2	6	3	4	5 CC
25	Q9	1-	0	0	0	1-	0+	0+	2-	4-	2	0.0	1-	0+	0+	0+	1+	0+	1-	2+	6	7	10	4	12 CK
26	D2*	3+	2+	3-	2	3	3+	2-	0+	19-	11	0.6	3-	3-	3-	2+	3+	3o	2-	1-	22	19	39	31	27
27		0+	1	0+	0+	0+	2-	2	2-	8-	4	0.1	1-	1o	1-	1o	1-	2o	2-	1+	8	10	9	5	14 CK
28	Q6	0	0	0	1	1-	1-	0+	1-	3+	2	0.0	0o	0o	0+	1+	1-	1-	1-	1o	4	4	7	4	7 CC
29		0	2	2+	1+	1+	0+	0+	0	8-	4	0.1	0+	1+	2o	2-	1+	1-	0+	0+	7	7	9	10	5 CC
30		0+	1+	0+	1	0+	0+	1+	2	7	4	0.1	0+	1-	1-	2-	0+	1o	1+	2o	7	9	10	8	11 CC
31	D5*	1+	1	2+	2-	3-	1+	2	2	14+	7	0.3	2-	1+	2+	2o	3-	2-	2-	2o	15	14	15	12	17 C
Mean											4	0.16									8.5	10.0	10.8	10.3	

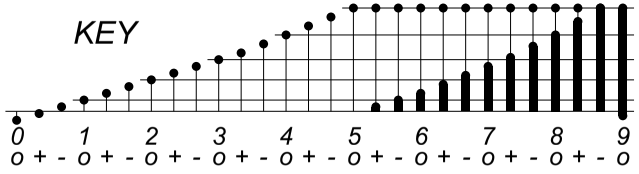
Day	Kn Three-Hourly Indices 1	2	3	4	5	6	7	8	An	Ks Three-Hourly Indices 1	2	3	4	5	6	7	8	As	Sa	Prov Ri	Ra	Rs	IMF
1	1o	2-	2+	3-	2+	2-	0+	1+	13	1+	1+	2+	3-	2o	2-	1-	1+	13	66.6	0	0	10	
2	1-	1-	0o	0+	1o	2o	2-	2+	8	1o	1o	1-	1o	1-	2o	2o	2+	10	67.6	0	0	11	
3	3-	2+	2o	4-	2o	3o	1o	2-	20	2+	3-	2o	3o	2-	3-	1+	2-	18	67.2	0	0	11	
4	1+	1o	1-	2-	1o	2+	2o	0+	9	2-	0+	0+	1o	1o	2-	1+	1-	7	66.6	0	0	10	
5	1o	1-	1+	1+	1+	2+	1+	2-	10	1-	1o	1+	1+	2o	2-	1+	1+	9	66.9	0	0	10	
6	1+	1o	0o	1+	1+	2o	0o	0o	6	1+	1o	1-	1+	1o	1+	0o	0+	6	66.5	0	0	10	
7	0o	0+	1o	0+	0+	1+	0o	1-	4	0o	1o	1o	1-	1-	1-	0o	1o	4	66.7	0	1	10	
8	0o	0o	0+	1-	2o	2o	1-	1o	6	0+	0o	1-	1+	2+	1+	1+	2-	8	66.5	0	0	10	
9	1o	1o	1o	0o	2o	2o	2-	1o	9	1+	2-	2-	1o	2o	3-	2-	1+	13	67.4	7	6	11	
10	2+	1+	1o	1+	1-	0o	0+	1-	7	2+	2+	1+	2-	0o	0o	1-	1o	9	68.5	9	11	12	
11	1-	0o	0o	1o	0o	1-	0o	0o	2	1o	1-	0o	1-	0o	0o	0o	0o	2	67.7	10	11	11	
12	0o	0o	0o	0o	0o	0o	1-	0+	1	0+	0+	0o	0o	0o	0o	1-	1o	2	67.0	8	7	10	
13	1-	1+	1+	0o	1+	1o	1+	1o	6	1+	2-	2+	1o	2o	1+	1-	1+	11	68.2	7	1	12	
14	2o	1o	1+	2-	3-	1o	2o	1+	12	3-	1+	1o	2+	2o	1o	1+	2-	13	68.9	0	0	12	
15	1+	1+	1o	1+	1o	2o	3-	2-	11	2-	1o	1o	2-	1+	2-	3-	3-	13	68.8	0	0	12	
16	2-	2-	0+	0+	1o	1+	1o	0o	6	3-	2o	1o	1+	1+	1o	1-	0+	9	68.5	0	0	12	
17	0o	0+	1-	0o	0+	1+	1+	0+	4	1-	1-	1-	1-	1-	1+	1+	0+	6	69.6	0	0	13	
18	0+	0o	0o	1o	0+	1-	1o	1o	4	0+	0+	0+	2-	1+	1o	2-	2+	8	68.8	0	0	12	
19	4-	2+	2+	1o	1o	2+	2o	2+	19	4o	3-	3-	2-	2-	2o	2o	2o	22	68.6	7	2	12	
20	1+	0+	1-	0o	1-	0+	2-	1o	5	2+	1+	1+	1o	1o	0+	2-	1o	9	68.1	0	0	12	
21	0o	0o	0o	1o	2-	2+	2o	1-	7	0o	0o	1o	1o	1+	2o	1+	1+	8	67.2	0	0	11	
22	0o	0+	0o	0+	0+	1o	0+	0o	2	0o	0+	1-	1-	1o	1o	1o	0o	4	66.9	0	0	10	
23	0o	0o	0+	0o	0+	0o	0o	0+	1	0+	0o	1-	1o	1-	0+	0+	1+	4	67.8	0	0	11	
24	1-	0+	0o	0o	0+	0+	0o	0+	2	1-	1-	0o	0o	0o	0+	0+	1+	3	66.6	0	0	10	
25	1-	0o	0o	0o	1-	1-	0+	2o	4	1-	1-	1-	1-	1+	0+	1-	3-	8	67.7	0	0	11	
26	3-	2-	3-	2+	4-	3o	2o	0o	21	3o	3o	3o	2+	3+	3o	2-	1+	24	67.8	0	0	11	
27	0o	1-	0+	0+	1-	2o	2o	1+	7	1o	1o	1-	1+	1o	2-	2-	1+	8	67.6	0	0	11	
28	0o	0o	0o	1+	1-	1-	0+	1-	3	0+	0+	1-	1+	1-	1-	1-	1+	5	67.4	0	0	11	
29	0o	1o	2+	2-	1o	1-	0o	0o	6	1o	2-	2o	2-	1+	1-	0+	1-	8	67.3	0	1	11	
30	0o	1-	0+	1+	0+	1o	1o	2o	6	0+	1-	1o	2o	1-	1-	1+	2+	8	67.1	0	0	10	
31	1o	1-	2+	2o	3-	1+	2o	2o	14	2o	2o	3-	2-	3-	2-	2-	2-	16	67.4	0	0	11	
Mean									7.6									9.3	67.6	1.5	1.3	11.0	

Daily Average Indices Ap
Feb 2008 - Jan 2009



Day	Feb 08	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan 09
1	18	22	4	8	7	4	4	3	8	3	0	7
2	19	9	1	11	4	2	2	3	14	3	0	4
3	17	6	2	11	4	2	4	8	14	1	4	11
4	8	3	11	8	3	3	3	31	10	1	9	5
5	4	8	18	12	2	7	2	7	4	2	12	5
6	4	3	20	9	6	3	4	8	4	1	17	4
7	7	2	13	4	11	2	4	9	2	10	8	2
8	7	10	10	4	7	2	3	9	1	14	3	3
9	4	30	13	3	3	3	21	6	0	12	1	5
10	21	19	9	4	2	3	12	5	2	3	3	5
11	17	15	5	4	3	6	6	2	34	1	5	1
12	13	14	13	3	3	16	6	1	13	3	3	0
13	14	11	8	3	2	11	4	0	8	1	2	4
14	13	16	2	3	18	10	5	6	3	1	1	6
15	13	11	5	2	17	7	2	17	8	4	3	6
16	10	6	15	4	12	5	4	9	4	10	6	4
17	5	4	7	1	9	4	7	3	2	3	6	3
18	13	8	6	2	8	3	19	6	1	1	2	2
19	14	7	6	6	6	2	9	4	8	1	4	9
20	6	8	4	8	9	3	4	4	3	2	2	4
21	6	6	5	10	4	5	3	2	4	0	1	3
22	4	4	6	9	3	11	3	4	5	0	5	2
23	5	9	27	8	4	16	3	3	3	2	11	1
24	4	3	16	7	5	10	2	2	1	2	7	2
25	4	3	8	5	10	2	1	3	1	14	4	2
26	4	26	10	3	14	4	2	2	5	11	2	11
27	10	36	7	3	8	6	3	3	1	9	2	4
28	23	24	11	11	5	5	3	2	4	5	2	2
29	31	9	6	9	8	3	3	2	17	3	1	4
30		9	8	10	4	4	2	4	13	2	1	4
31		4		9		3	4		6		13	7
Mean	11	11	9	6	7	5	5	6	7	4	4	4

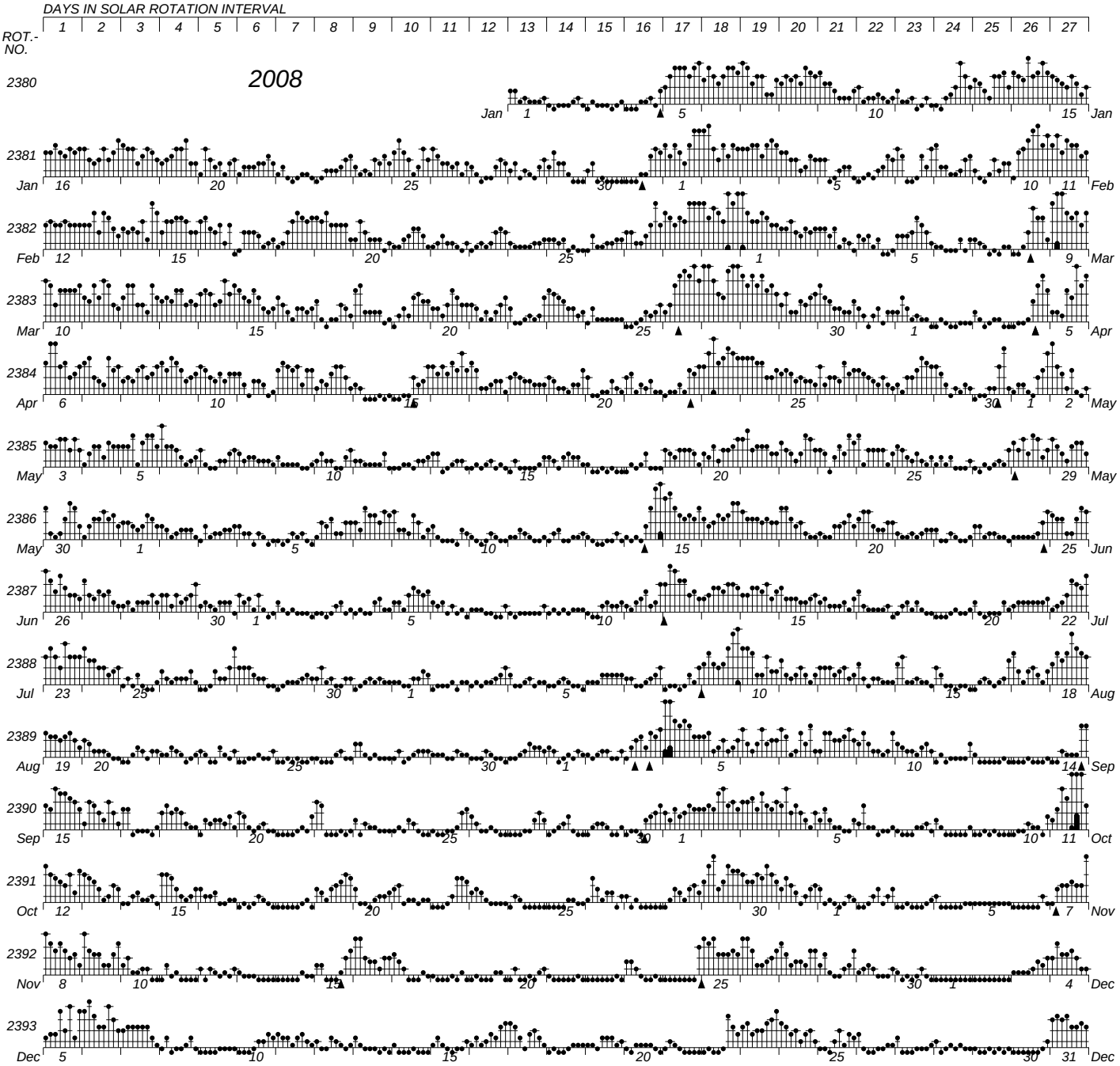




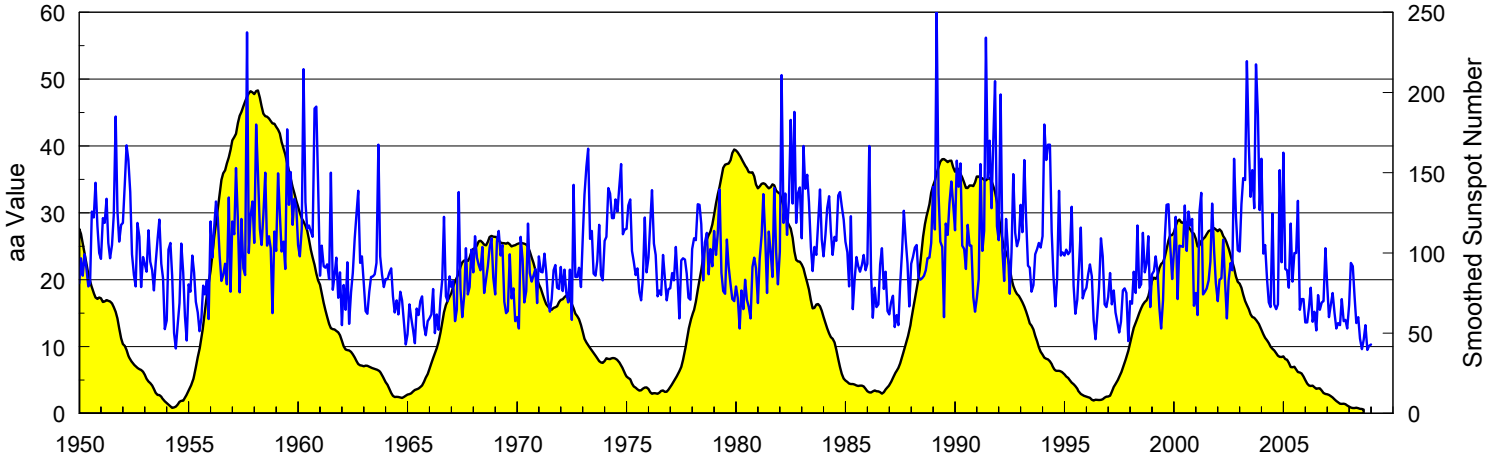
▲ = sudden commencement

PLANETARY MAGNETIC THREE-HOUR-RANGE INDICES

Kp till 2009 Jan 31


DAYS IN SOLAR ROTATION INTERVAL
ROT.-NO.
2008
2380
2381
2382
2383
2384
2385
2386
2387
2388
2389
2390
2391
2392
2393
KEY
0 1 2 3 4 5 6 7 8 9
o + - o + - o + - o + - o + - o + - o + - o + - o
▲ = sudden commencement
PLANETARY MAGNETIC
THREE-HOUR-RANGE INDICES
Kp 2008

Monthly Mean aa Index Jan 1950 - Jan 2009



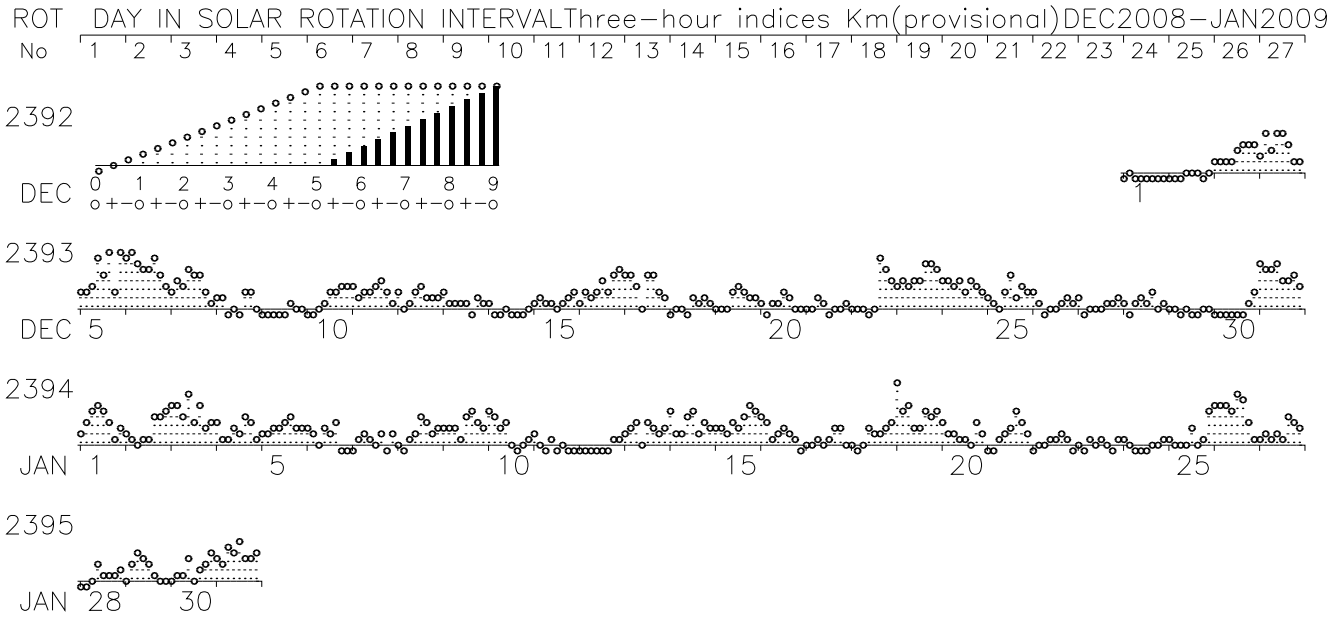
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Mean
1950	19.5	23.2	20.6	23.8	21.7	19.0	19.5	30.2	29.3	34.5	28.0	24.0	24.4
1951	23.1	29.2	28.5	32.1	25.5	23.2	25.2	29.7	44.4	30.3	25.7	28.2	28.8
1952	28.5	34.3	40.1	38.0	33.1	23.8	20.7	19.0	28.5	26.4	18.9	23.4	27.9
1953	22.3	21.2	27.4	22.7	21.4	18.4	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	13.7	18.4	18.7	18.0	10.8	16.1
1998	16.8	16.4	21.2	18.0	28.1	18.8	19.3	27.0	21.1	22.4	26.5	15.9	21.0
1999	20.8	21.3	23.5	21.3	15.8	12.7	16.9	26.2	31.2	31.3	25.1	20.1	22.2
2000	24.2	29.4	17.1	25.1	25.0	24.9	31.1	24.3	30.2	28.1	29.1	16.1	25.4
2001	18.0	14.7	30.2	33.0	17.8	18.2	18.7	19.9	22.7	31.4	24.4	19.5	22.4
2002	16.8	20.0	20.2	26.0	19.9	14.2	19.9	22.5	21.4	38.1	29.3	24.4	22.7
2003	24.2	31.3	35.2	34.9	52.7	40.2	32.4	36.4	30.7	52.2	44.7	30.4	37.1
2004	38.1	23.9	25.2	20.1	16.6	15.9	29.9	16.3	15.6	16.3	36.4	22.6	23.1
2005	39.0	21.6	21.4	18.8	28.4	19.7	24.0	24.0	31.8	15.5	17.1	17.1	23.2
2006	13.6	13.6	15.8	18.8	13.7	15.2	12.4	17.7	15.5	16.6	16.8	24.7	16.2
2007	19.2	14.4	16.3	18.0	15.0	12.7	13.5	13.2	17.1	13.8	14.0	12.7	15.0
2008	16.2	22.5	22.0	17.5	13.5	14.4	11.2	9.6	11.0	13.2	9.5	10.1	14.2
2009	10.3												10.3

PLANETARY GEOMAGNETIC ACTIVITY

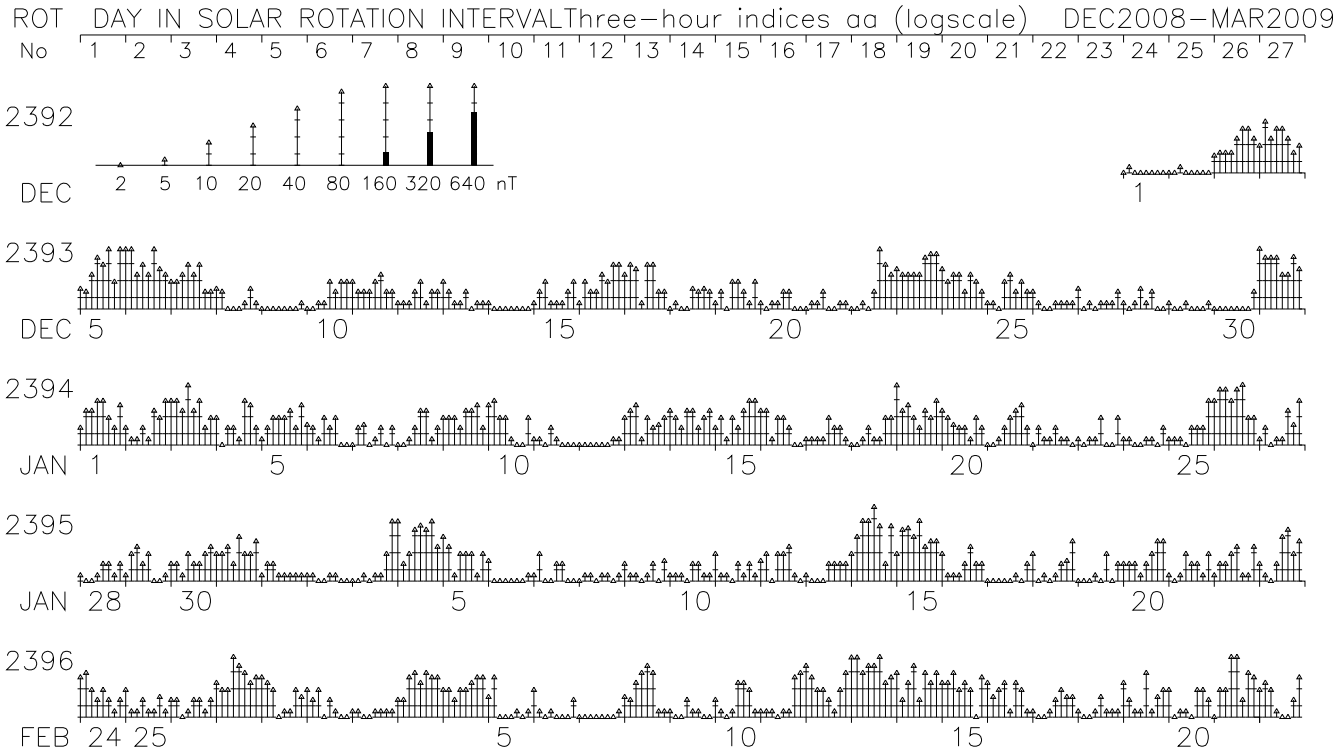
3-HOUR-RANGE INDICES Km AND aa BY 27-DAY SOLAR ROTATION INTERVAL

ISGI PUBLICATION OFFICE - EMail : ISGI.PUBOFF@cetp.ipsl.fr

CETP, 4 Avenue de Neptune, F-94107 Saint Maur des Fosses CEDEX - FRANCE



Indices Derivation at C.E.T.P.; Graph Prepared at ISGI Publication Office.



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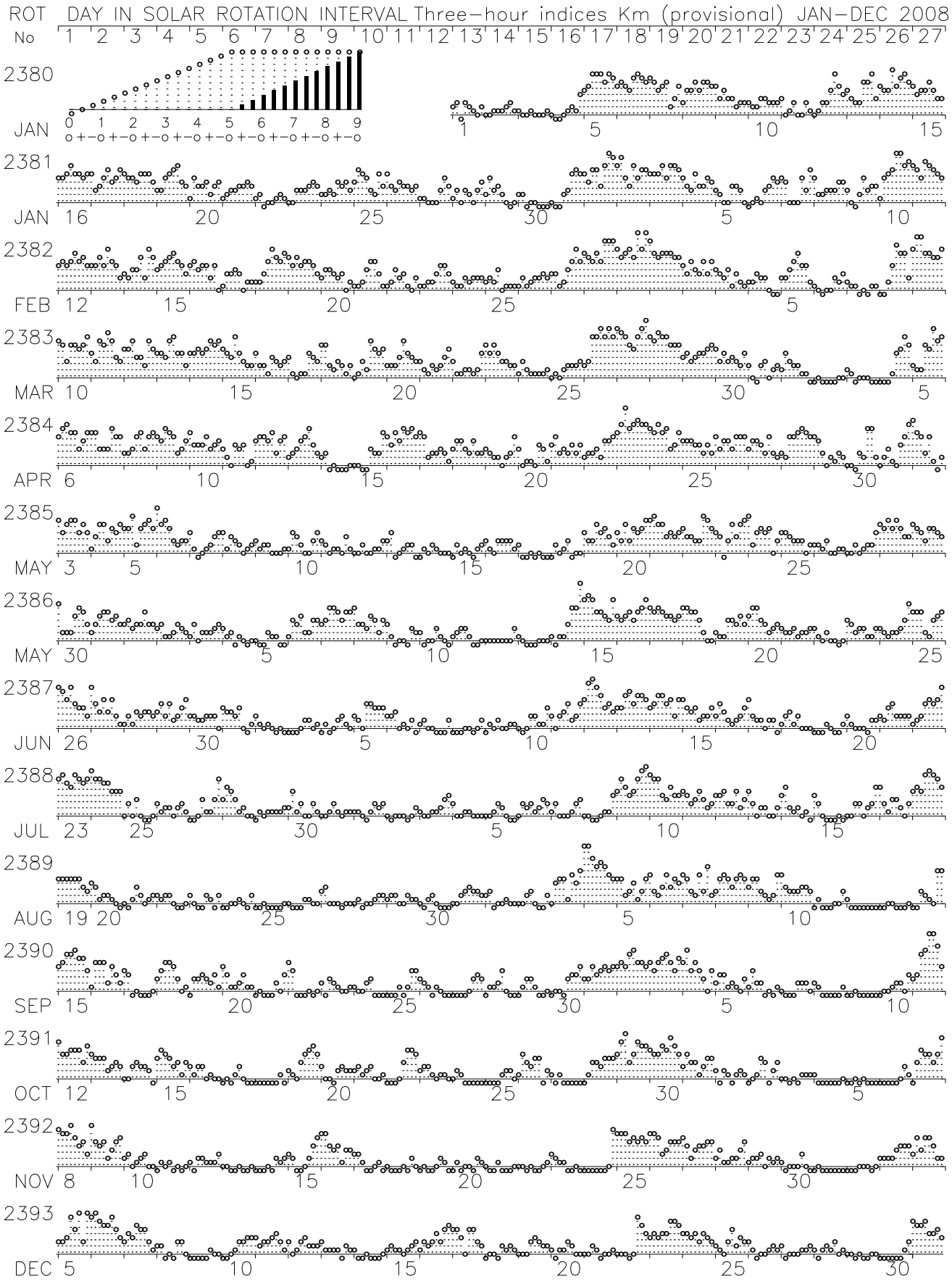
PLANETARY GEOMAGNETIC ACTIVITY – MUSICAL DIAGRAM OF Km 2008



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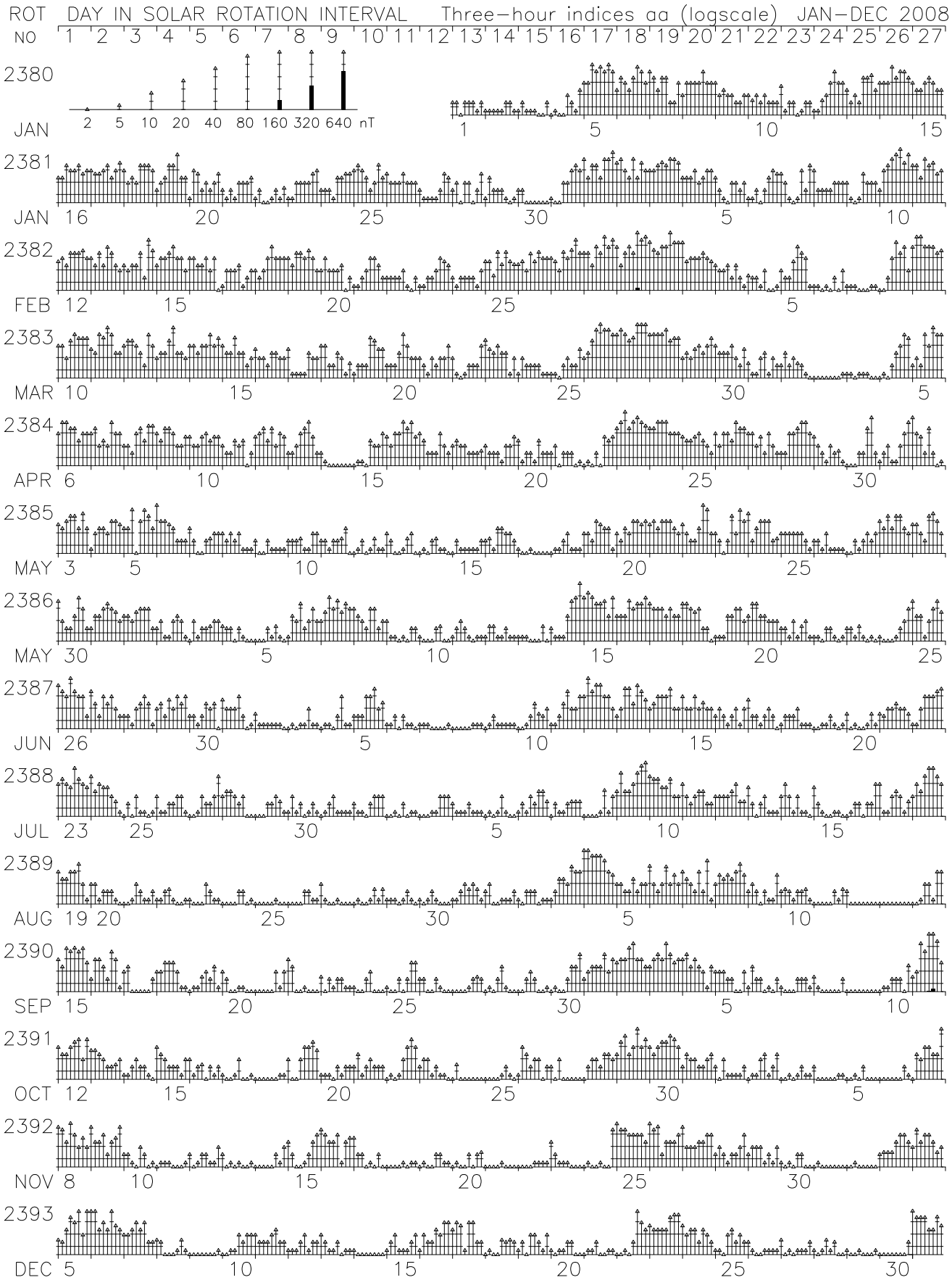
PLANETARY GEOMAGNETIC ACTIVITY – MUSICAL DIAGRAM OF aa 2008

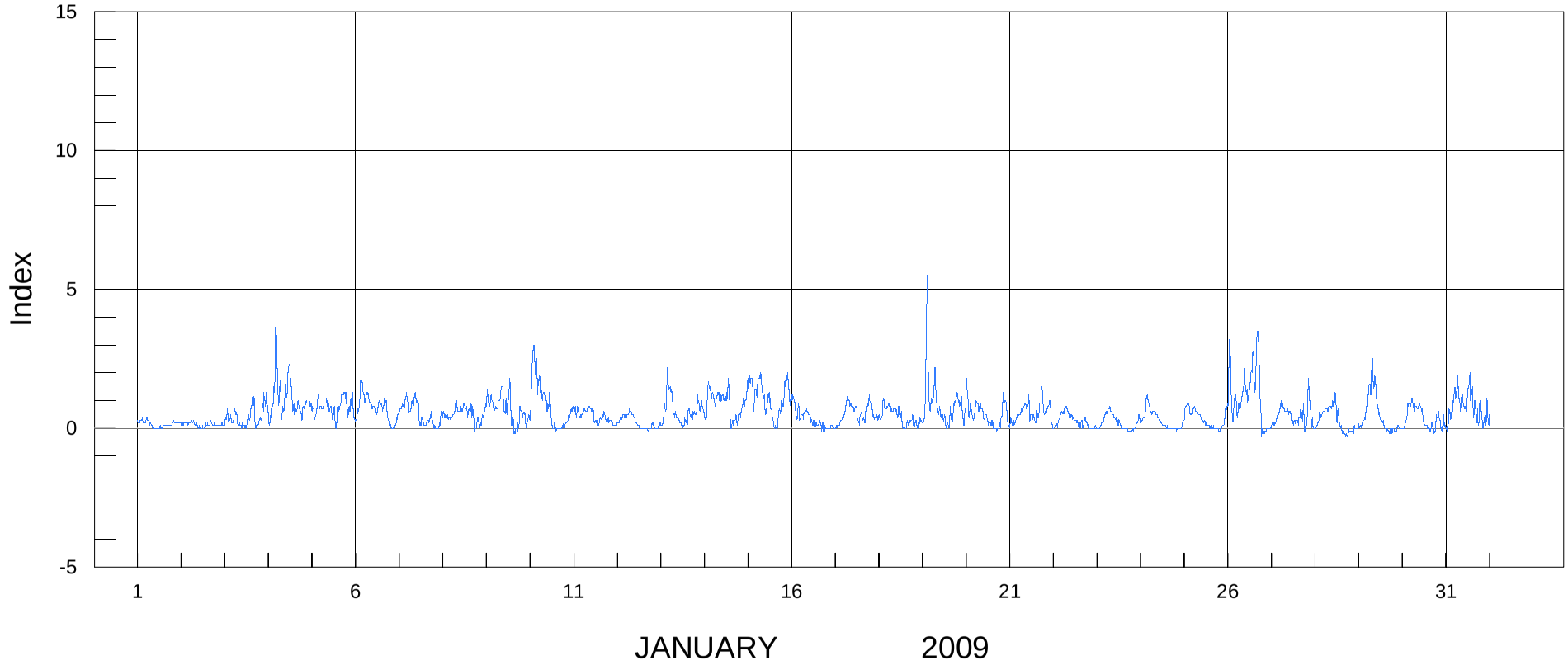


Indices Derivation at C.E.T.P.; Graph Prepared at ISGI Publication Office.

Polar Cap Index

Qaanaaq - Thule

WDC C1 for Geomagnetism, Copenhagen



Data Source: Geomagnetism and Space Physics
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
JANUARY 2009

Sta	Geomag Lat	Commencement Day	Commencement Time (UT)	Type	SC Amplitudes D (Min)	SC Amplitudes H (Gamma)	SC Amplitudes Z (Gamma)	Maximum 3-Hour K Index Day(3-Hour Periods)	K	Ranges D (Min)	Ranges H (Gamma)	Ranges Z (Gamma)	End Day	End Hour (UT)
HYB	07.6N	02	1400	..	..	..	..	3(4)	4	3	43	21	04	03
HYB	07.6N	13	0200	..	..	..	..	14(4)	4	3	70	20	14	22
HYB	07.6N	15	0600	..	..	..	..	15(5,6,7) 16(1,2,3)	3	2	34	14	16	20
JAI	17.4N	19	0000	..	..	..	..		-	3	35	17	19	24
NGP	11.3N	19	0000	..	..	..	..		-	3	35	13	19	24
ABG	09.4N	19	0000	..	..	..	..	19(2)	4	2	36	32	19	24
PND	02.0N	19	0000	..	..	..	..		-	3	55	27	19	24
TIR	00.6S	19	0000	..	..	..	..		-	3	79	32	19	24
JAI	17.4N	25	2200	..	..	..	..		-	3	99	18	26	22
NGP	11.3N	25	2200	..	..	..	..		-	3	100	13	26	22
ABG	09.4N	25	2200	..	..	..	..	16(2,3,5)	4	3	104	22	26	22
HYB	07.6N	25	1800	..	..	..	..	26(3,5)	4	3	104	08	26	22
PND	02.0N	25	2200	..	..	..	..		-	4	94	28	26	22
TIR	00.6S	25	2200	..	..	..	..		-	3	121	50	26	22
HYB	07.6N	30	0900	..	..	..	..	30(8)	3	3	61	20	31	24

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

JANUARY 2009

Storm Sudden Commencements (SSC)			Solar Flare Effects (sfe)		
Day	Time	Quality: Station Group*	Day	Begin-End	Station(s)
25	2224	C: BDV GCK SPT GUI	14	0119-0153	GUI
			25	1200-1212	GUI

REPORTING OBSERVATORIES (up to 04-03-2009):
NUR NGK VAL DOU BDV CLF HRB NAG GCK MMB EBR SPT KAK KNY GUI HYB GNA 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 (+).

Note that we have included data of the Antartic Station LIVINGSTONE (62º 39' 44" S, 60º23' 41" W) -- Luis F.

Criterion on Provisional SSC data

From December 2002, we are giving as provisional SSC only the SSC reported by more than 4 observatories. This is a change with respect to the previous criterion according to which we used to give the SSC reported by more than 5 observatories. The change, pending IAGA confirmation, has been provisionally taken because of the decreasing number of reporting observatories in order to keep the homogeneity of the data. The idea is to keep the same minimum percentage of the observatories reporting an SSC, relative to the total number of reporting observatories, to be considered as a probable SSC.