JUNE 2004 NUMBER 718 - Part I

Solar-Geophysical Data prompt reports

Data for April and May 2004
Explanation of Data Reports Issued as Number 515 (Supplement) July 1987

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JUNE 2004 NUMBER 718 - Part I

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Data for April and May 2004

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NATIONAL GEOPHYSICAL DATA CENTER
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Boulder, Colorado

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SOLAR-GEOPHYSICAL DATA

Number 718

(Issued in Two Parts)

Editor: Helen E. Coffey

Chief: Herbert W. Kroehl
Solar-Terrestrial Physics Division

Staff: Edward H. Erwin

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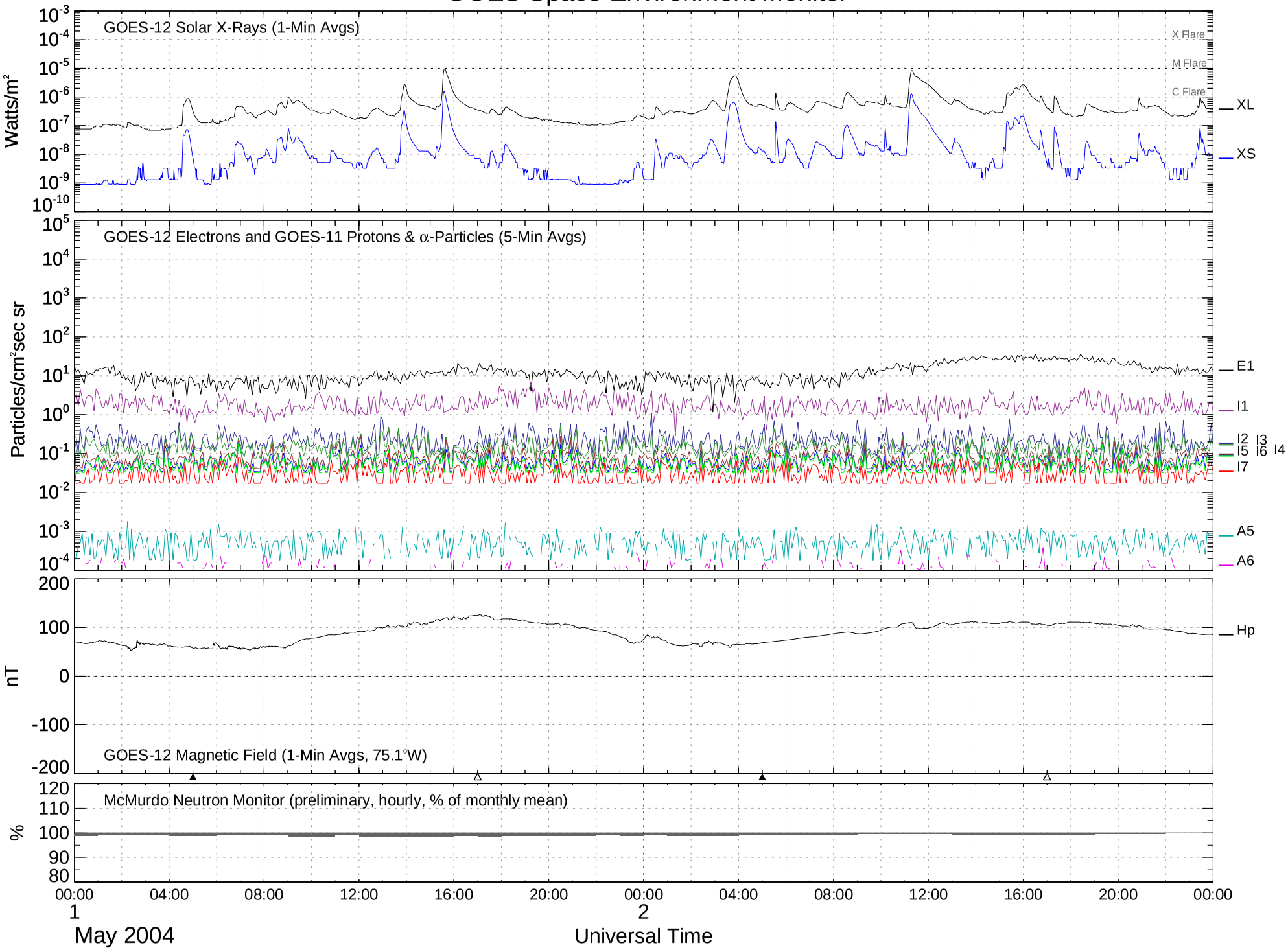

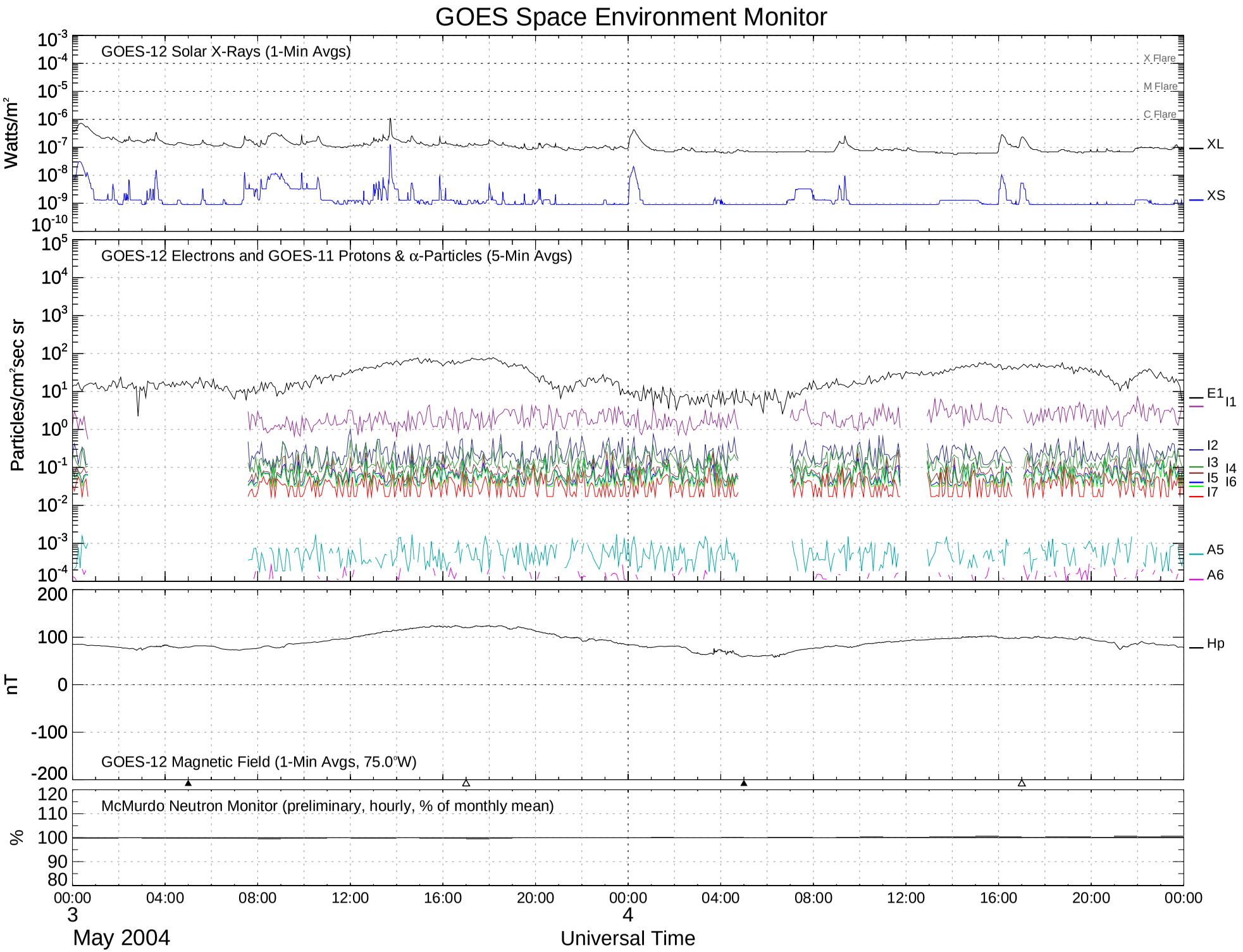
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Watts/m²
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GOES-12 Electrons and GOES-11 Protons & α-Particles (5-Min Avgs)
Particles/cm²sec sr
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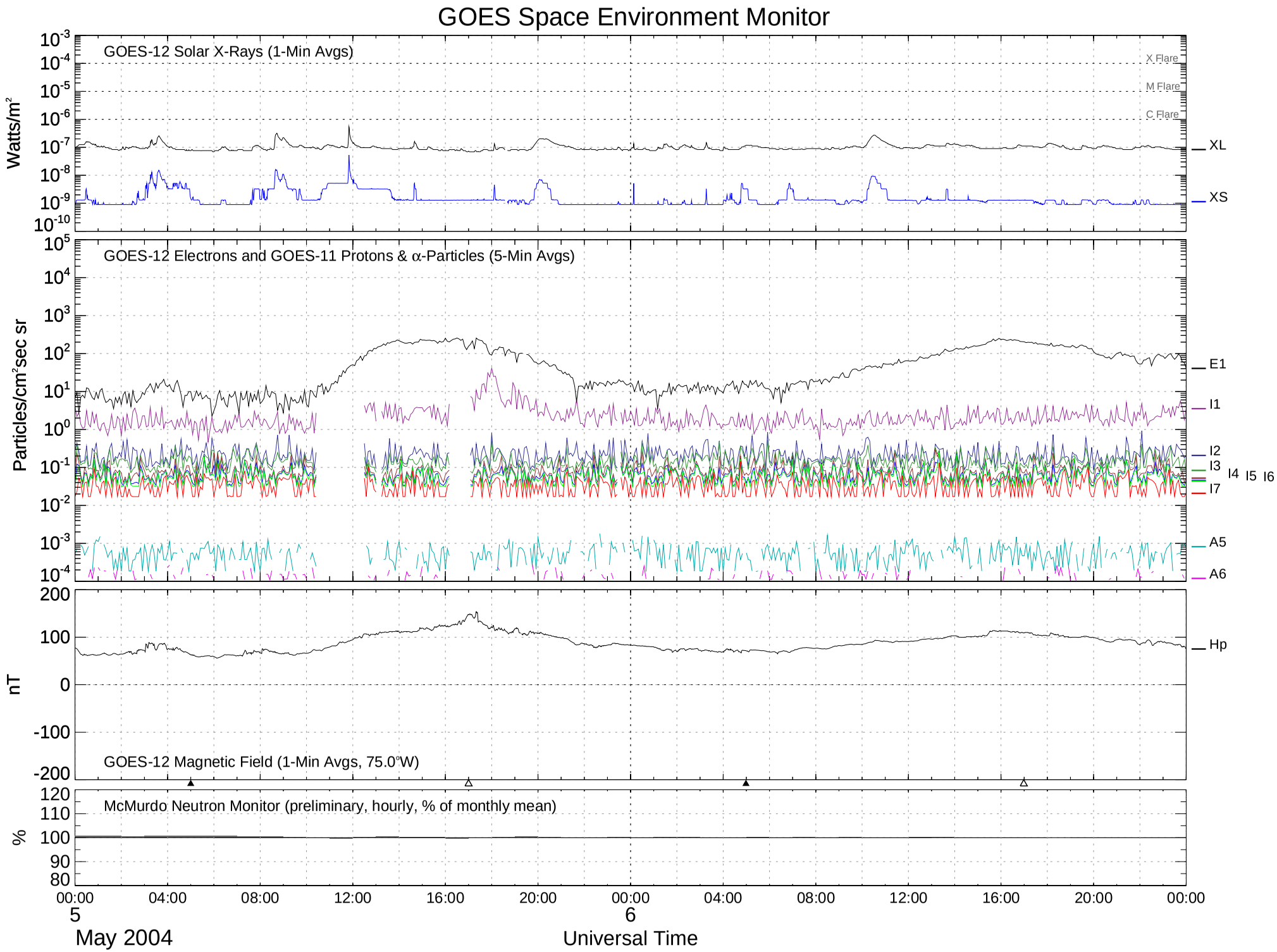
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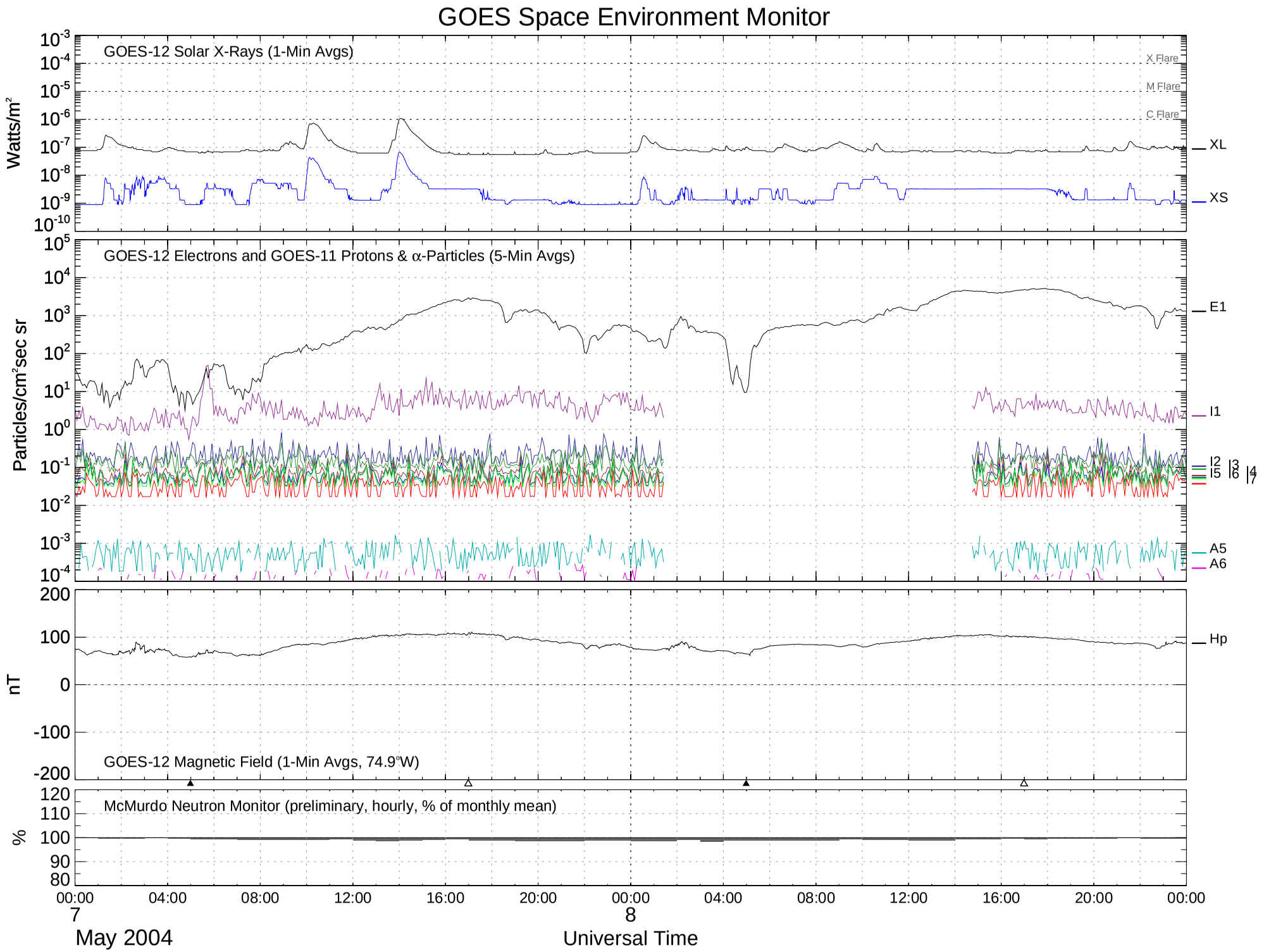
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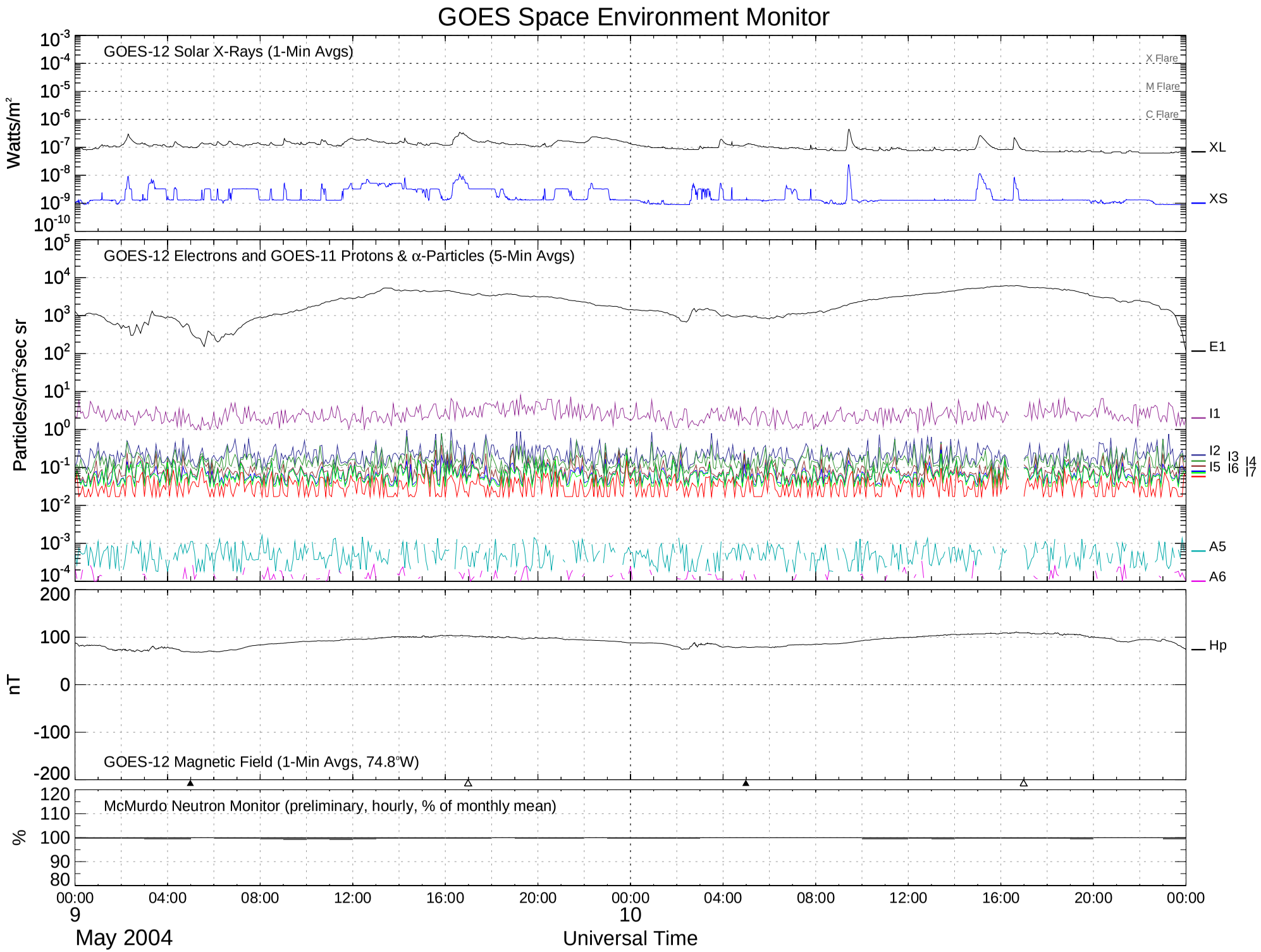
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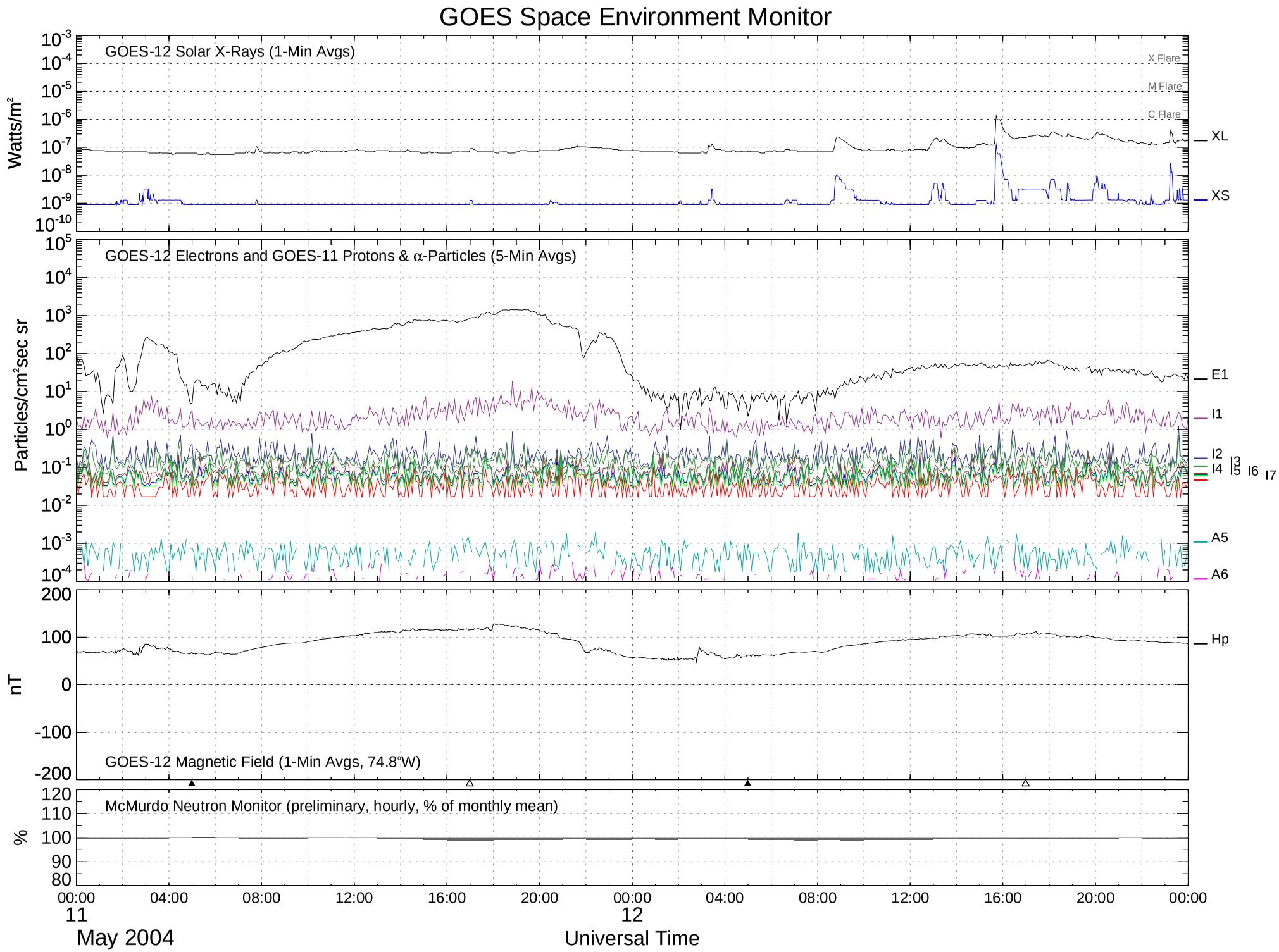
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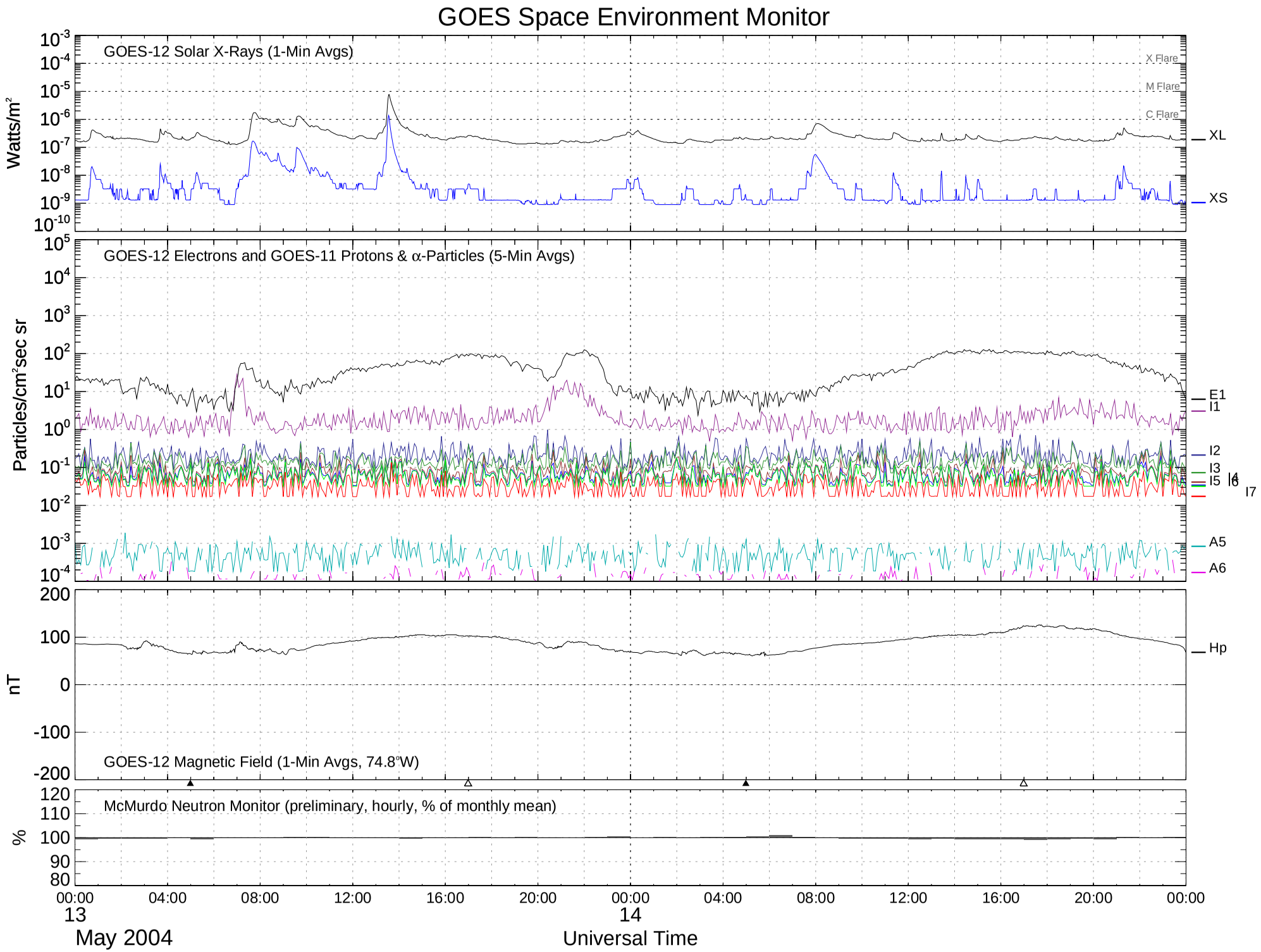
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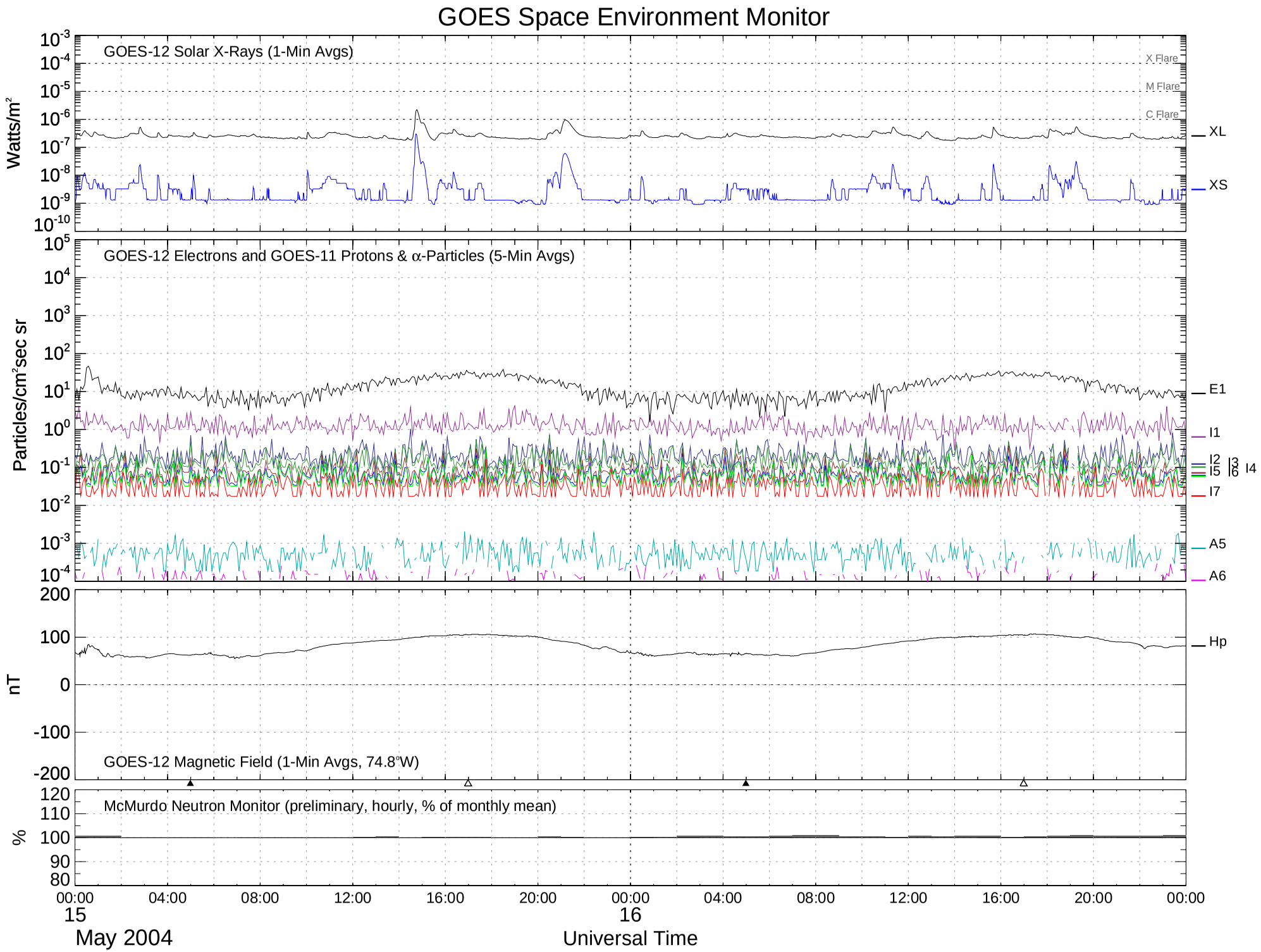
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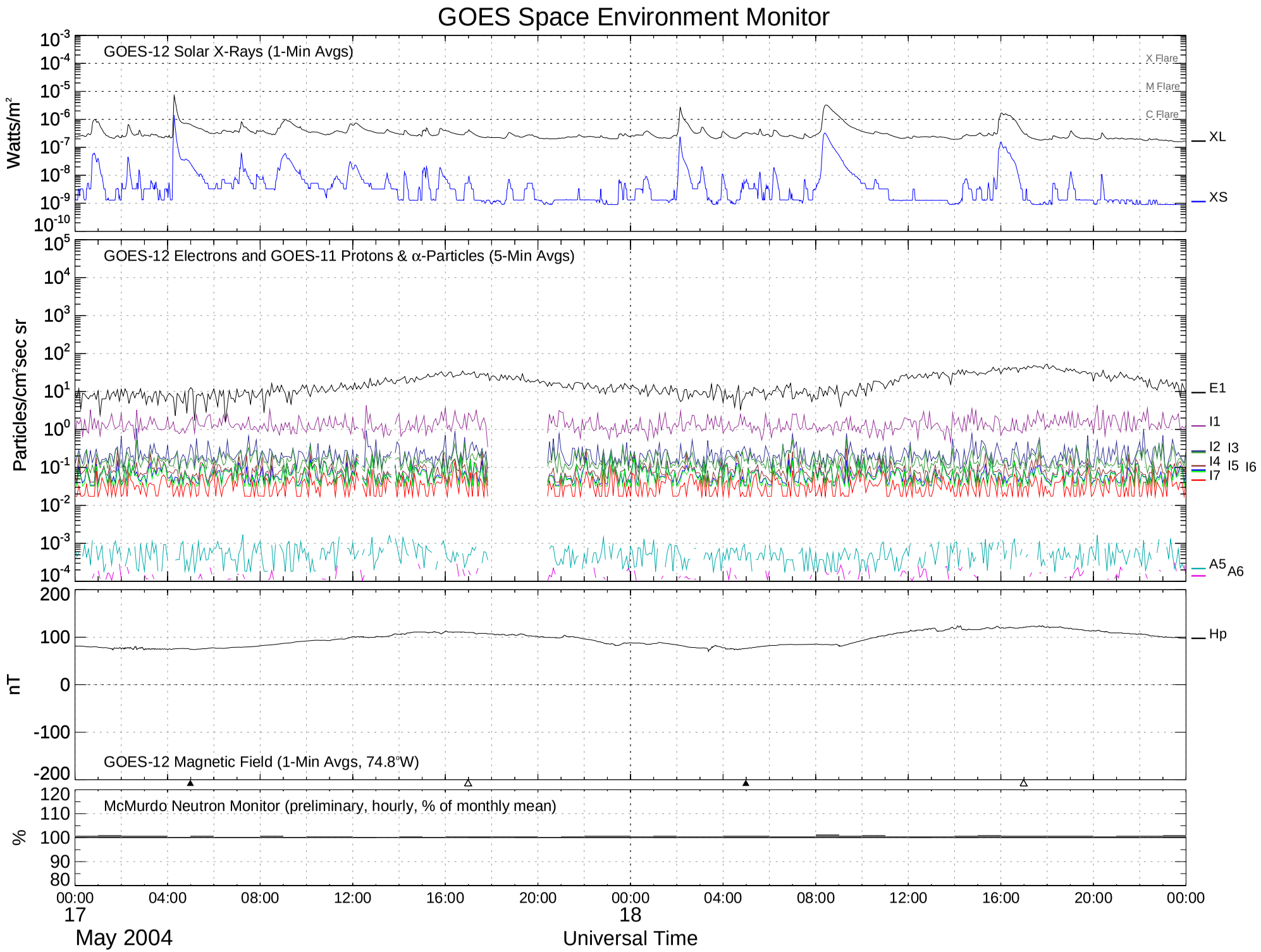
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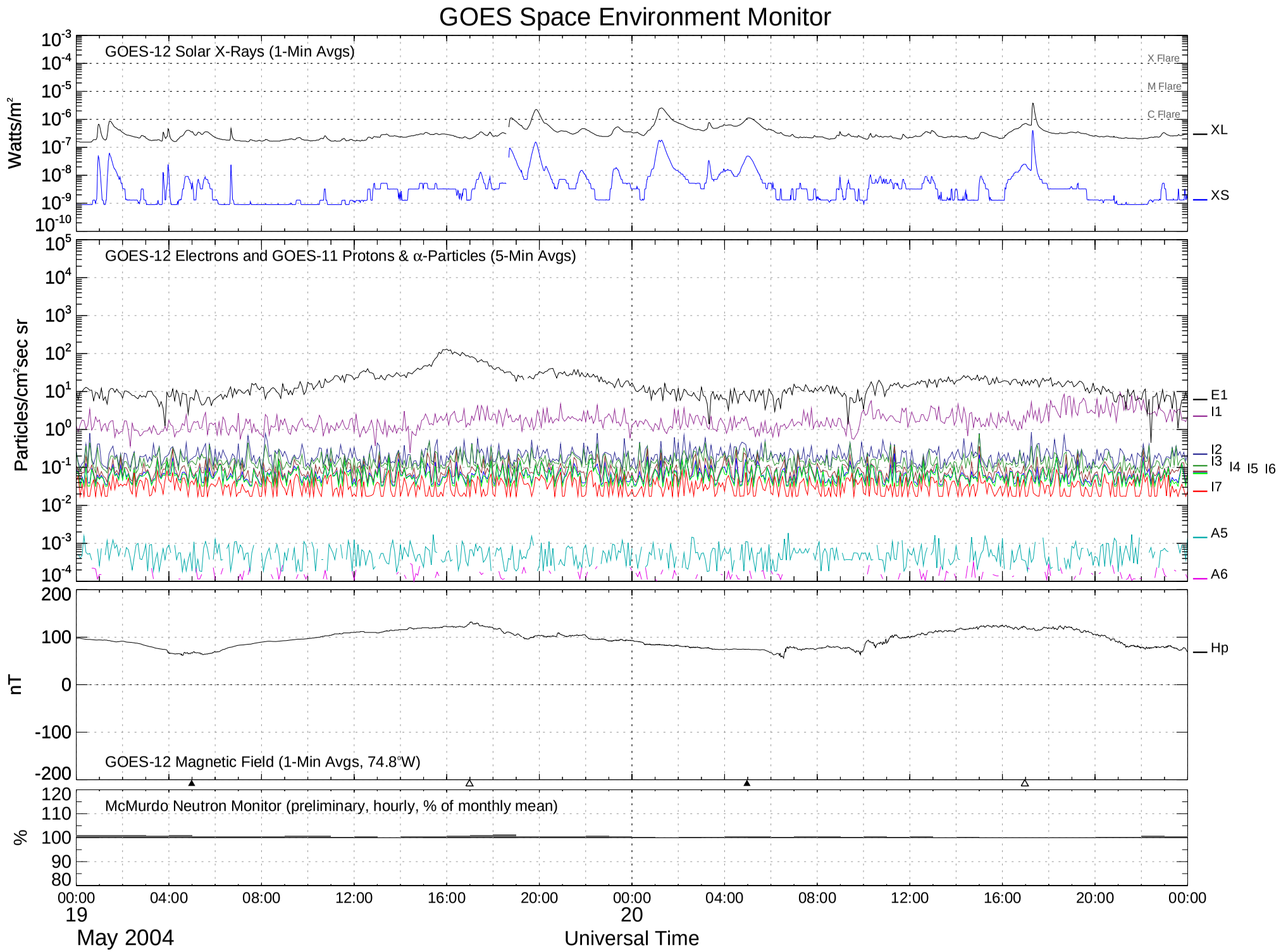
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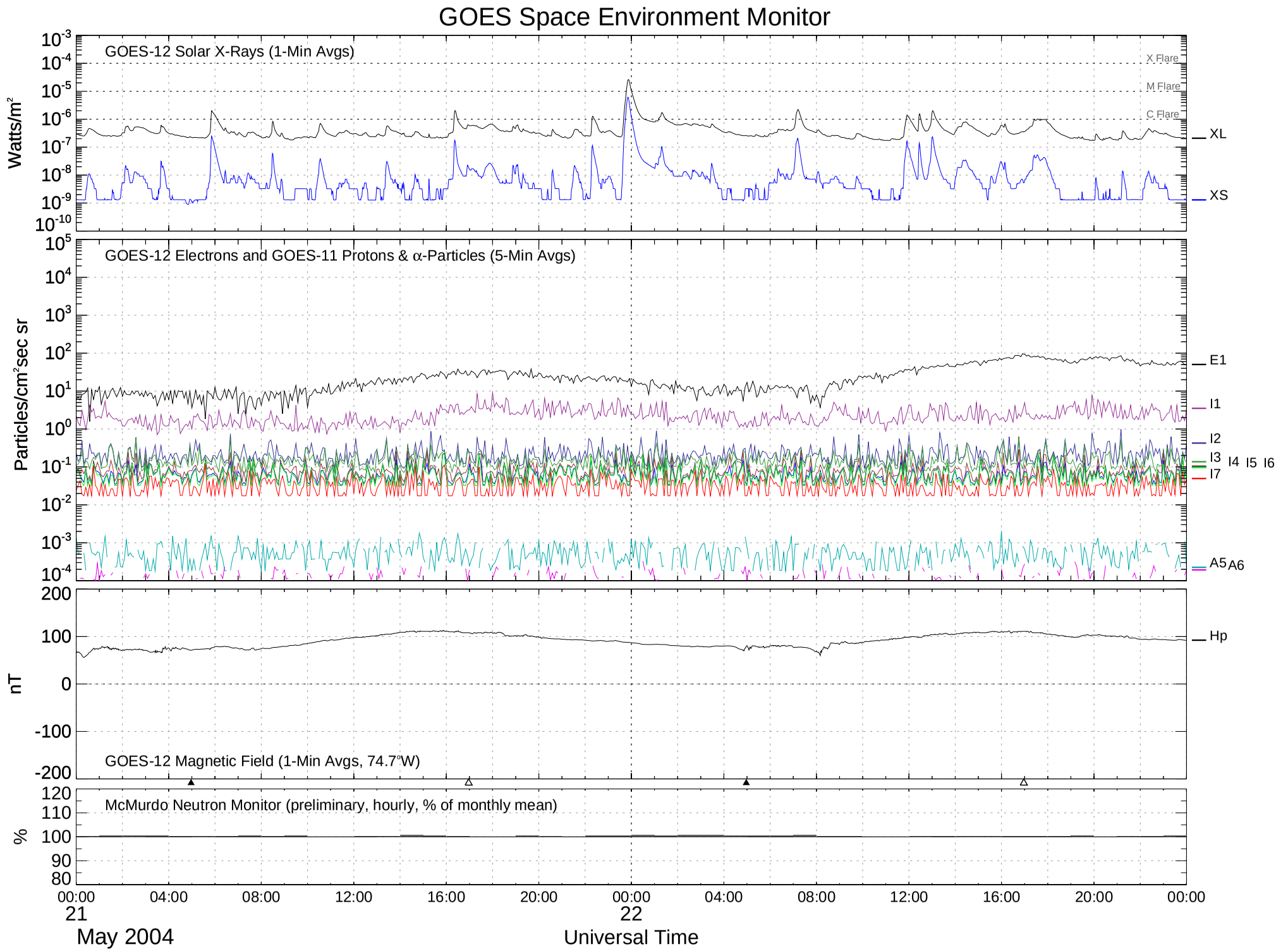
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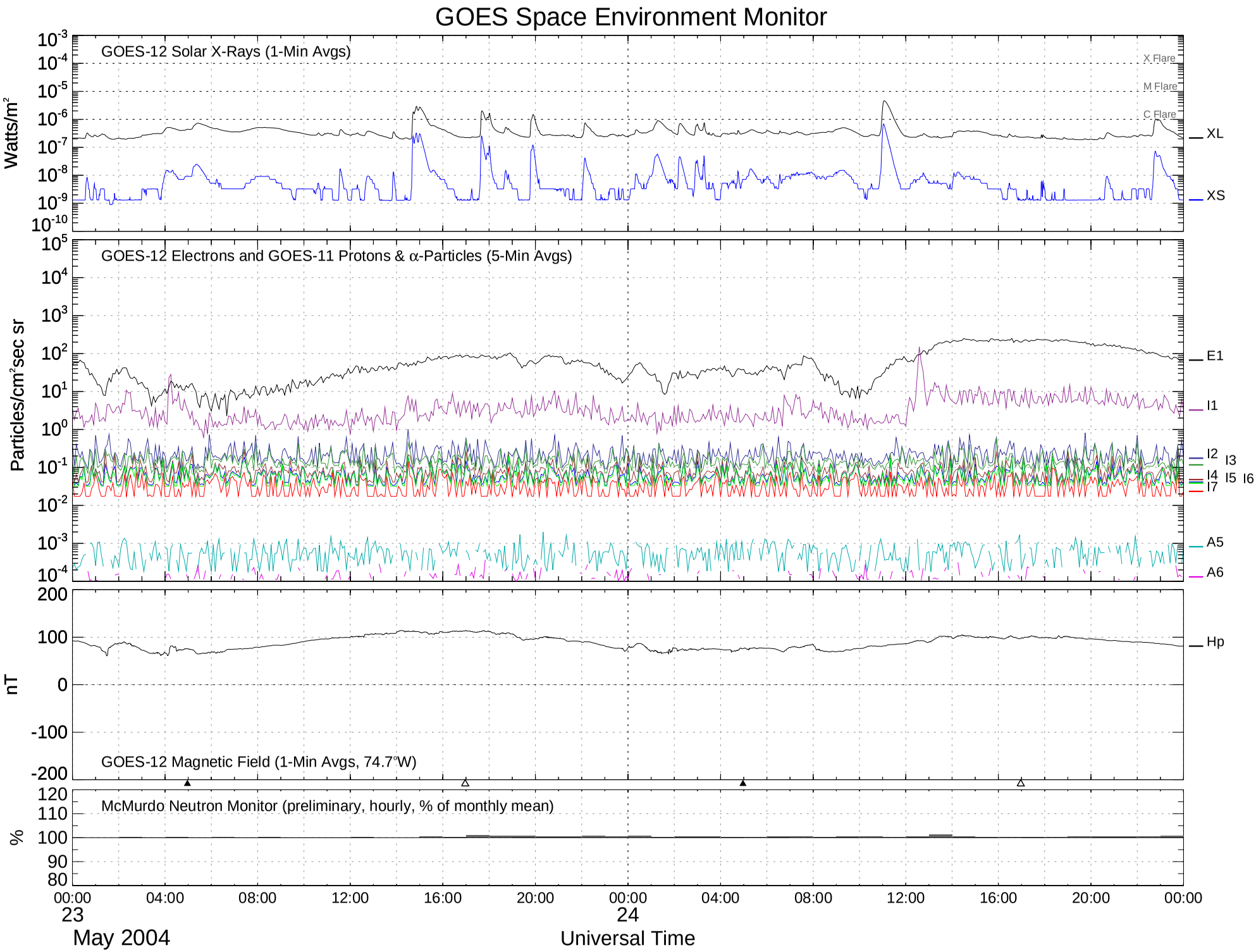
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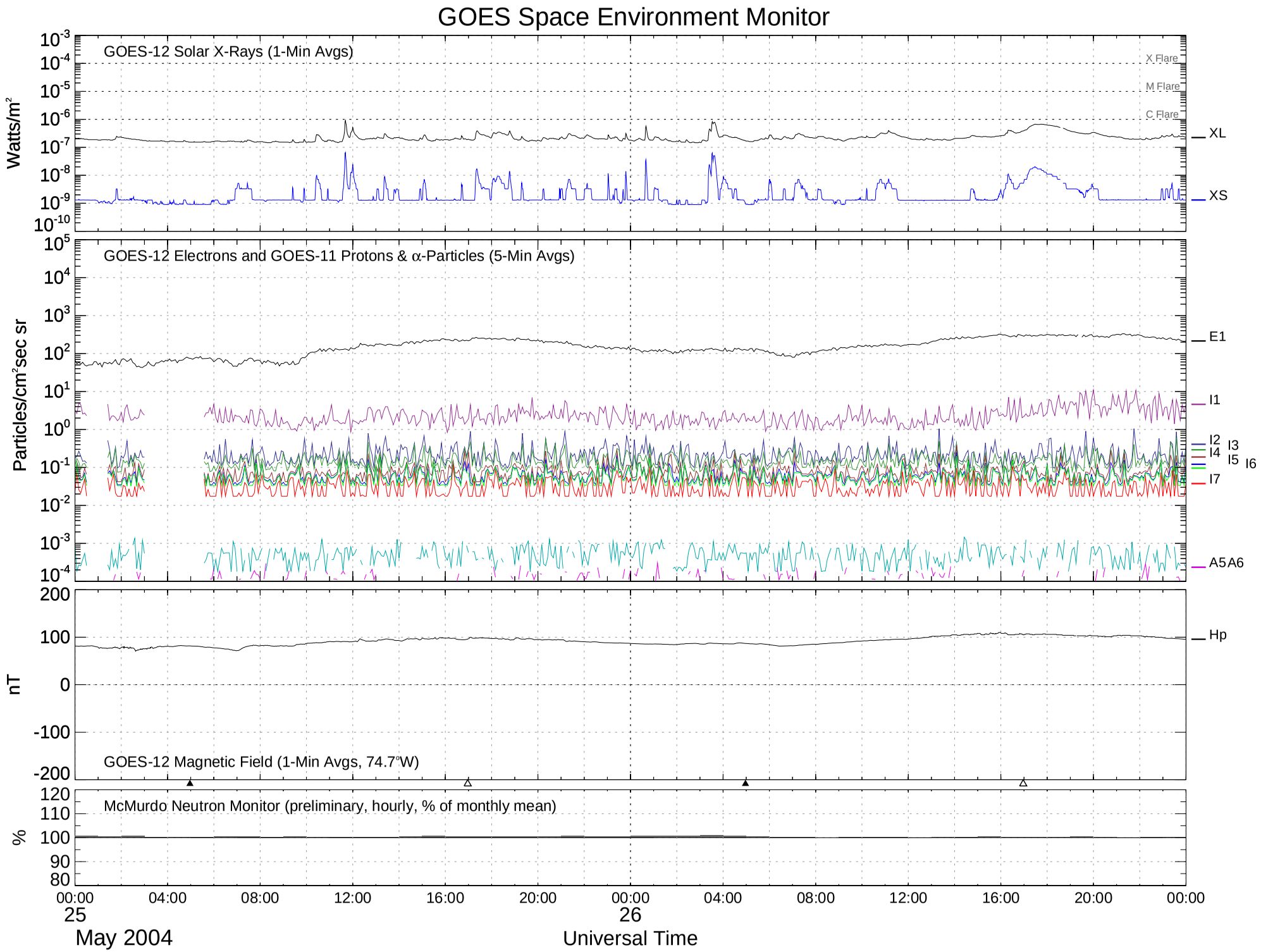
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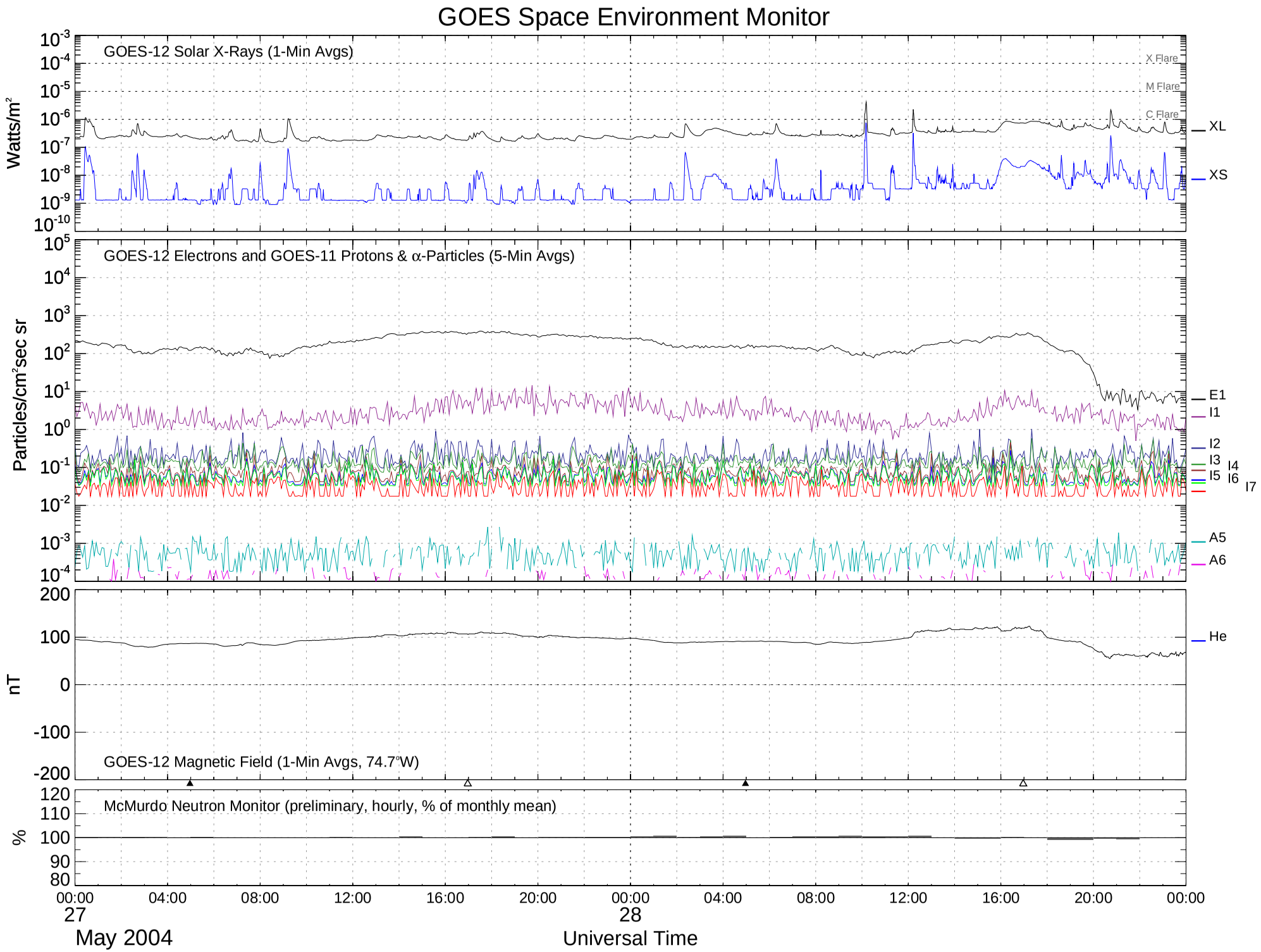
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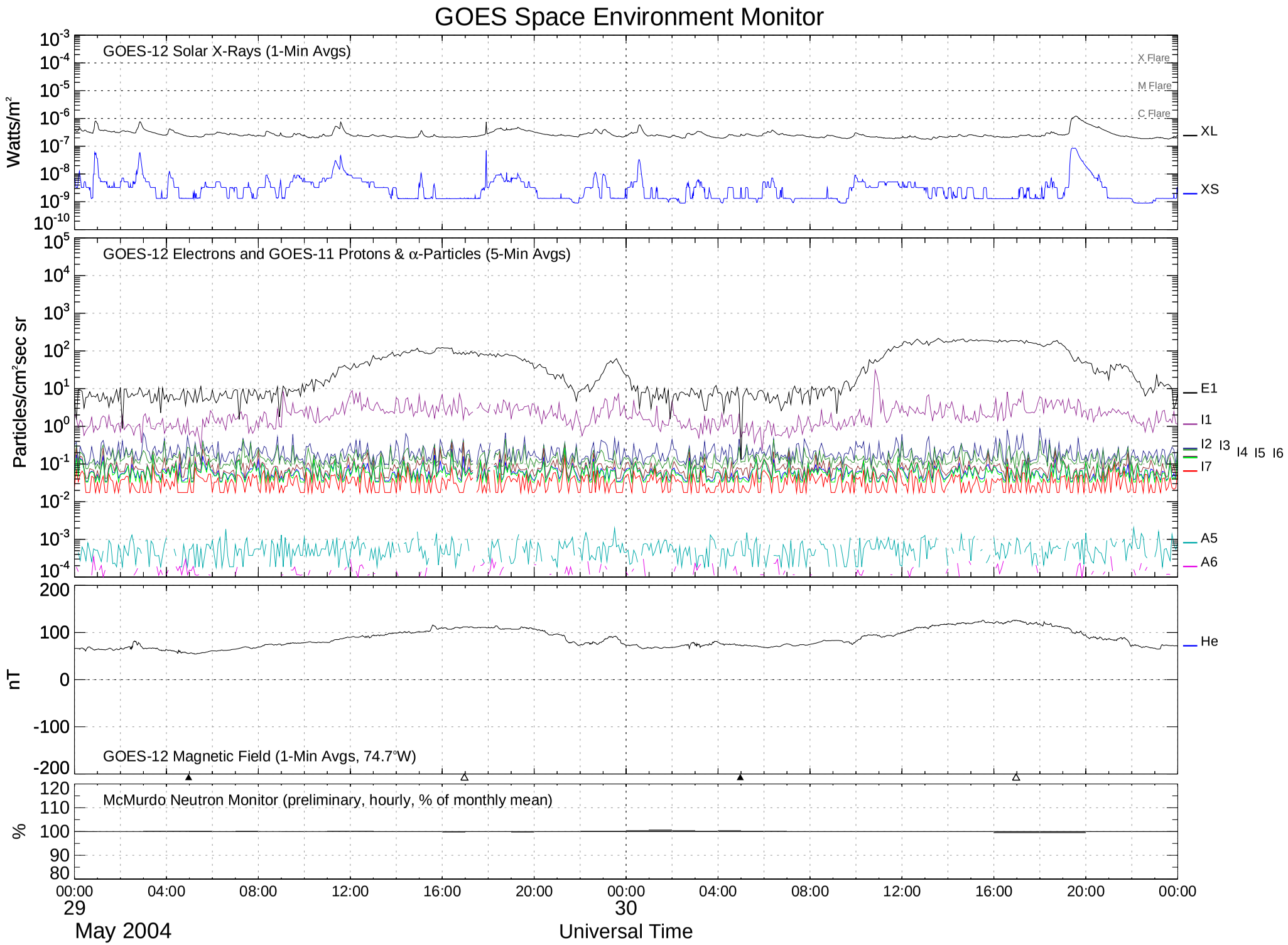
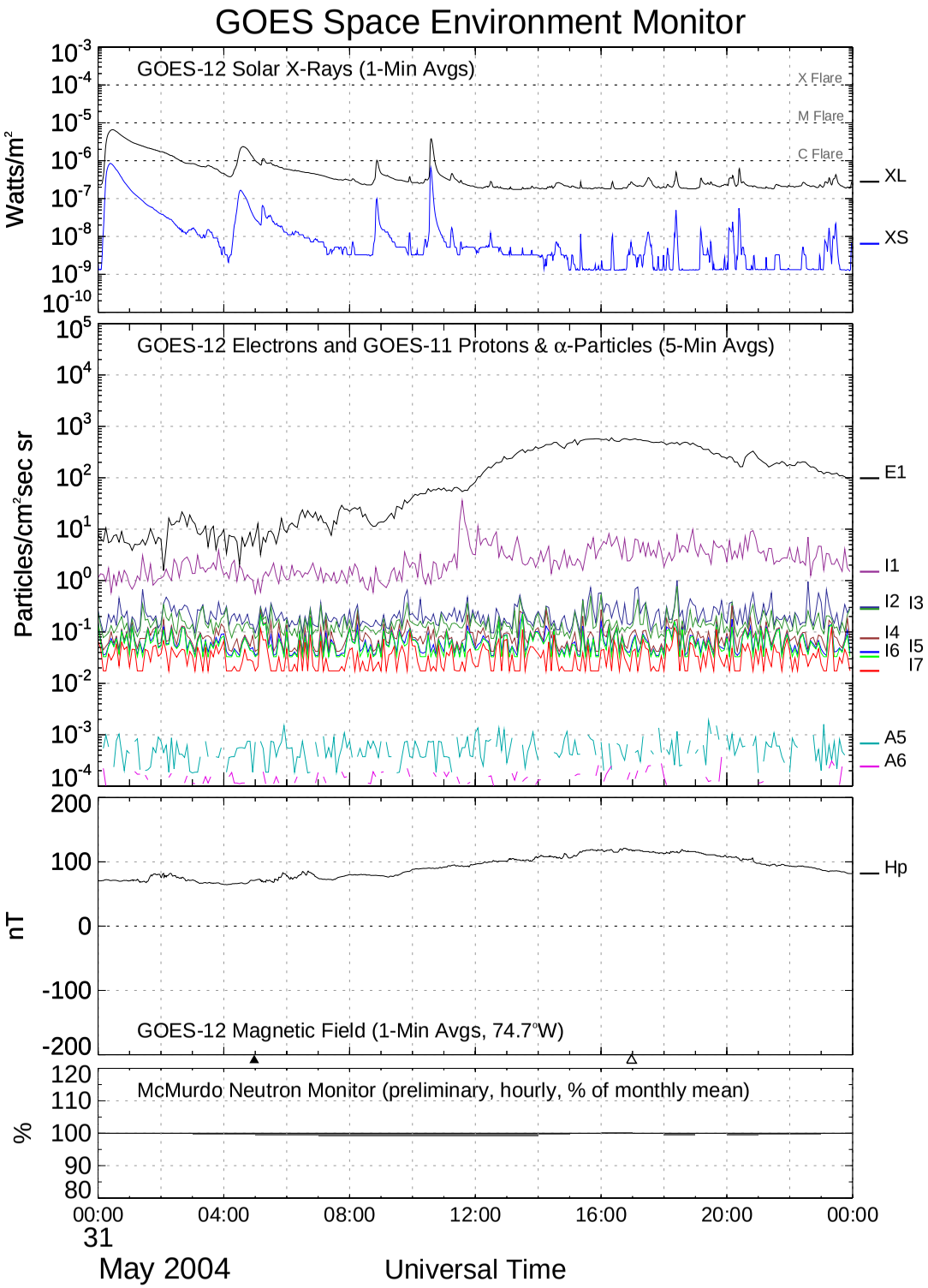
28
Universal Time


GOES Space Environment Monitor
GOES-12 Solar X-Rays (1-Min Avgs)
X Flare
M Flare
C Flare
Watts/m²
XL
XS
GOES-12 Electrons and GOES-11 Protons & α-Particles (5-Min Avgs)
Particles/cm²sec sr
E1
I1
I2 I3 I4 I5 I6
I7
A5
A6
He
nT
GOES-12 Magnetic Field (1-Min Avgs, 74.7°W)
McMurdo Neutron Monitor (preliminary, hourly, % of monthly mean)
%
00:00 04:00 08:00 12:00 16:00 20:00 00:00 04:00 08:00 12:00 16:00 20:00 00:00
29
May 2004
30
Universal Time


GOES Space Environment Monitor
GOES-12 Solar X-Rays (1-Min Avgs)
X Flare
M Flare
C Flare
Watts/m²
XL
XS
GOES-12 Electrons and GOES-11 Protons & α-Particles (5-Min Avgs)
Particles/cm²sec sr
E1
I1
I2
I3
I4
I6
I5
I7
A5
A6
Hp
nT
GOES-12 Magnetic Field (1-Min Avgs, 74.7°W)
McMurdo Neutron Monitor (preliminary, hourly, % of monthly mean)
%
00:00
04:00
08:00
12:00
16:00
20:00
00:00
31
May 2004
Universal Time

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

MAY 2004

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)
092	01	31	95	121	10	10581	S05	W15	0	0	0	01	Q	SOL: Eruptive
						10582	N14	W09	6	0	0	01	E	MAG: Quiet
						10585	S15	W01	0	0	0	01	Q	PRO: Quiet
						10587	S13	E37	0	0	0	01	Q	
093	02	01	100	113	6	10581	S05	W28	0	0	0	02	Q	SOL: Eruptive
						10582	N14	W22	0	0	0	02	E	MAG: Quiet
						10585	S15	W14	0	0	0	02	Q	PRO: Quiet
						10587	S13	E24	0	0	0	02	Q	
						10588	S12	E74	0	0	0	02	Q	
094	03	02	99	108	4	10581	S05	W41	0	0	0	03	Q	SOL: Eruptive
						10582	N14	W35	0	0	0	03	E	MAG: Quiet
						10585	S15	W27	0	0	0	03	Q	PRO: Quiet
						10587	S13	E11	0	0	0	03	E	
						10588	S12	E64	0	0	0	03	Q	
095	04	03	68	107	26	10581	S05	W55	0	0	0	04	Q	SOL: Eruptive
						10582	N14	W51	0	0	0	04	Q	MAG: Active
						10587	S13	W03	0	0	0	04	E	PRO: Quiet
						10588	S12	E51	0	0	0	04	Q	
096	05	04	69	109	19	10581	S04	W68	0	0	0	05	Q	SOL: Quiet
						10582	N14	W66	0	0	0	05	Q	MAG: Active
						10587	S14	W17	0	0	0	05	Q	PRO: Quiet
						10588	S16	E40	0	0	0	05	Q	
097	06	05	85	109	22	10581	S04	W83	0	0	0	06	Q	SOL: Eruptive
						10582	N14	W81	0	0	0	06	Q	MAG: Active
						10587	S14	W31	0	0	0	06	Q	PRO: Quiet
						10588	S15	E25	1	1	0	06	Q	
						10589	N10	E54	0	0	0	06	Q	
098	07	06	66	101	23	10582	N14	W96	0	0	0	07	Q	SOL: Eruptive
						10587	S13	W45	0	0	0	07	Q	MAG: Active
						10588	S15	E14	3	1	0	07	E	PRO: Quiet
						10589	N10	E43	0	0	0	07	Q	
099	08	07	57	98	13	10587	S13	W59	0	0	0	08	Q	SOL: Eruptive
						10588	S17	E01	0	0	0	08	Q	MAG: Active
						10589	N11	E29	0	0	0	08	Q	PRO: Quiet
						10590	S09	W71	0	0	0	08	Q	
100	09	08	33	94	18	10588	S13	W72	0	0	0	09	Q	SOL: Eruptive
						10588	S16	W13	1	0	0	09	Q	MAG: Minor
									0	0	0	09		PRO: Quiet
101	10	09	18	90	17	10588	S15	W26	1	0	0	10	Q	SOL: Eruptive
									0	0	0	10		MAG: Active
									0	0	0	10		PRO: Quiet
102	11	10	20	88	12	10588	S15	W38	0	0	0	11	Q	SOL: Eruptive
									0	0	0	11		MAG: Active
									0	0	0	11		PRO: Quiet
103	12	11	16	90	10	10588	S15	W55	1	0	0	12	P	SOL: Eruptive
									0	0	0	12		MAG: Active
									0	0	0	12		PRO: IP
104	13	12	37	91	13	10591	S15	W68	1	0	0	13	Q	SOL: Eruptive
						10591	S15	E01	0	0	0	13	Q	MAG: Active
									0	0	0	13		PRO: Quiet
105	14	13	41	93	7	10588	S13	W80	0	0	0	14	Q	SOL: Quiet
						10591	S16	W13	0	0	0	14	Q	MAG: Quiet
						10592	S12	E59	0	0	0	14	Q	PRO: Quiet

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

MAY 2004

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)
106	15	14	69	95	5	10588	S13	W92	0	0	0	15	Q	SOL: Eruptive
						10591	S16	W25	1	0	0	15	E	MAG: Quiet
						10592	S12	E46	0	0	0	15	Q	PRO: Quiet
						10593	S20	E43	0	0	0	15	Q	
						10594	N15	E69	0	0	0	15	Q	
107	16	15	60	97	6	10591	S16	W38	1	1	0	16	E	SOL: Eruptive
						10592	S12	E33	0	0	0	16	Q	MAG: Quiet
						10593	S20	E30	0	0	0	16	Q	PRO: Quiet
						10594	N15	E56	0	0	0	16	Q	
108	17	16	53	97	15	10591	S16	W52	0	0	0	17	Q	SOL: Eruptive
						10592	S11	E19	0	0	0	17	Q	MAG: Quiet
						10594	N15	E40	0	0	0	17	Q	PRO: Quiet
						10595	S09	E68	0	0	0	17	Q	
109	18	17	55	98	9	10591	S16	W65	0	0	0	18	Q	SOL: Eruptive
						10592	S11	E06	0	0	0	18	Q	MAG: Quiet
						10594	N15	E27	0	0	0	18	Q	PRO: Quiet
						10595	S09	E55	0	0	0	18	Q	
110	19	18	92	109	12	10591	S17	W79	0	0	0	19	Q	SOL: Eruptive
						10592	S10	W08	0	0	0	19	Q	MAG: Quiet
						10593	S18	W11	0	0	0	19	Q	PRO: Quiet
						10594	N15	E14	0	0	0	19	Q	
						10595	S08	E40	0	0	0	19	Q	
						10596	S08	E60	0	0	0	19	Q	
111	20	19	108	113	7	10592	S10	W21	0	0	0	20	Q	SOL: Eruptive
						10593	S18	W24	0	0	0	20	Q	MAG: Quiet
						10594	N15	E00	0	0	0	20	Q	PRO: Quiet
						10595	S07	E27	0	0	0	20	Q	
						10596	S09	E44	2	0	0	20	E	
112	21	20	96	111	7	10593	S19	W37	0	0	0	21	Q	SOL: Eruptive
						10594	N15	W13	0	0	0	21	Q	MAG: Quiet
						10595	S07	E13	0	0	0	21	Q	PRO: Quiet
						10596	S09	E31	1	0	0	21	E	
						10597	S06	W60	0	0	0	21	Q	
113	22	21	98	113	9	10593	S18	W51	0	0	0	22	Q	SOL: Eruptive
						10595	S06	E00	0	0	0	22	Q	MAG: Quiet
						10596	S07	E19	5	0	0	22	E	PRO: Quiet
						10597	S06	W72	0	0	0	22	Q	
						10598	S05	W30	0	0	0	22	Q	
114	23	22	90	117	8	10593	S19	W64	0	0	0	23	Q	SOL: Eruptive
						10595	S07	W14	1	0	0	23	Q	MAG: Quiet
						10596	S08	E04	11	1	0	23	E	PRO: Quiet
						10597	S07	W84	6	0	0	23	Q	
						10598	S07	W45	0	0	0	23	Q	
115	24	23	63	115	17	10595	S07	W26	0	0	0	24	Q	SOL: Eruptive
						10596	S08	W09	0	0	0	24	E	MAG: Quiet
						10597	S08	W91	12	2	0	24	E	PRO: Quiet
116	25	24	64	112	11	10595	S08	W38	0	0	0	25	Q	SOL: Eruptive
						10596	S09	W21	0	0	0	25	Q	MAG: Quiet
						10599	N14	E51	2	0	0	25	E	PRO: Quiet
117	26	25	45	107	12	10599	S08	W36	0	0	0	26	Q	SOL: Eruptive
						10599	N16	E28	7	1	0	26	E	MAG: Quiet
									0	0	0	26		PRO: Quiet
118	27	26	47	100	6	10596	S08	W52	0	0	0	27	Q	SOL: Eruptive
						10599	N15	E14	2	0	0	27	E	MAG: Quiet
						10600	N18	W06	0	0	0	27	Q	PRO: Quiet

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

MAY 2004

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)
119	28	27	28	95	5	10599	S08	W67	0	0	0	28	Q	SOL: Eruptive
						10599	N14	E02	0	0	0	28	Q	MAG: Quiet
									0	0	0	28		PRO: Quiet
120	29	28	32	90	10	10599	S08	W79	0	0	0	29	Q	SOL: Quiet
						10599	N15	W11	0	0	0	29	Q	MAG: Quiet
									0	0	0	29		PRO: Quiet
121	30	29	25	89	5	10599	S07	W92	0	0	0	30	Q	SOL: Eruptive
						10599	N16	W26	0	0	0	30	Q	MAG: Quiet
									0	0	0	30		PRO: Quiet

(1) Region Forecast and Flare (SOL) Advice
- Q = Quiet (<50% probability of C-class flares)
- E = Eruptive (C-class flares expected, probability >=50%)
- A = Active (M-class flares expected, probability >=50%)
- M = Major (X-class flares expected, probability >=50%)
- P = Proton (Proton flares expected, probability >=50%)
- W = Warning (activity levels are expected to increase, but no numerical forecast given)
- / = No forecast available

Magnetic (MAG) Geoadvice

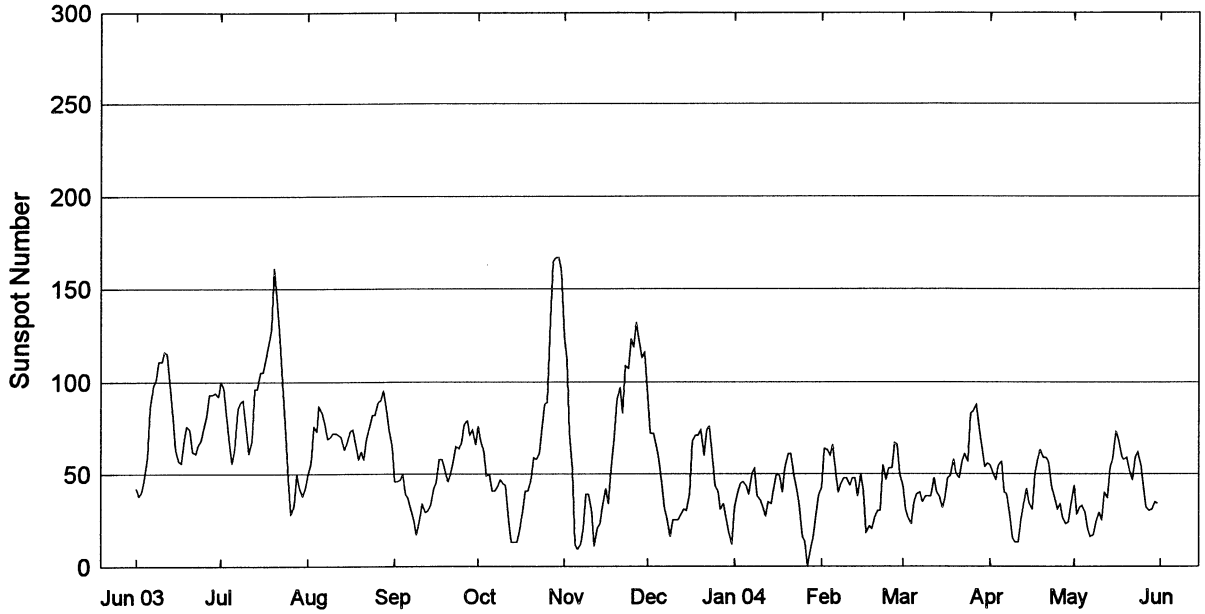
'Quiet'		
'Active'	conditions expected	(A>=20 or K=4)
'Minor'	storm expected	(A>=30 or K=5)
'Major'	storm expected	(A>=50 or K>=6)
'Severe'	storm expected	(A>=100 or K>=7)
'IP'	magstorm in progress	(A>=30 or K>=4)
'Warning'	(activity levels are expected to increase, but no numerical forecast given)	
'/'	no forecast available	

Proton (PRO) Geoadvice

'Quiet'		
'Proton'	event expected	(10pfu at >10MeV)
'Major'	proton event expected	(100pfu at >100 MeV)
'IP'	proton event in progress	(>10 MeV)
'Warning'	(activity levels are expected to increase, but no numerical forecast given)	
'/'	no forecast available	

STRATWARM ALERTS - NONE

International Relative Sunspot Numbers
Jun 2003- May 2004

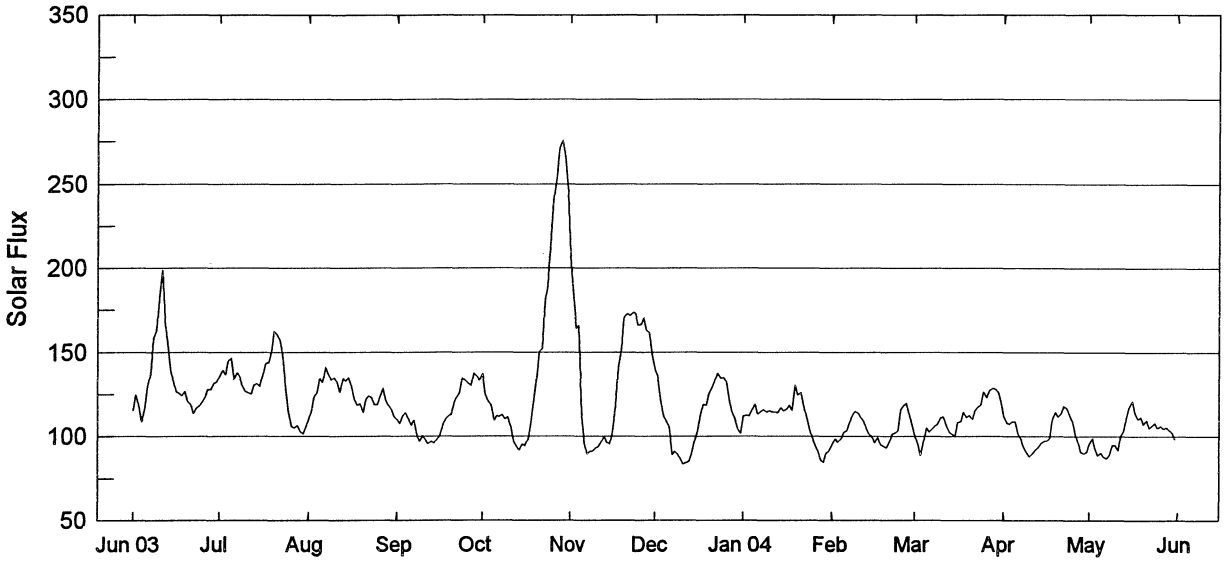


Day	Jun 03	Jul	Aug	Sep	Oct	Nov	Dec	Jan 04*	Feb*	Mar*	Apr*	May*
1	42	100	49	46	76	124	92	32	43	44	55	44
2	38	97	56	46	68	112	72	40	64	31	51	28
3	40	80	76	47	62	72	72	45	63	26	47	32
4	47	67	73	50	49	52	66	46	60	23	55	33
5	59	56	87	39	50	12	59	44	66	35	57	29
6	86	63	83	37	41	9	45	39	51	39	40	20
7	98	85	78	30	41	12	32	50	40	40	39	16
8	101	89	69	25	43	21	26	53	45	35	27	17
9	111	90	70	17	47	39	16	38	48	38	15	24
10	111	74	72	25	45	39	25	36	48	38	13	29
11	116	61	72	34	44	30	25	32	44	38	13	25
12	115	68	71	29	25	11	25	27	48	48	25	40
13	96	96	70	30	13	21	28	35	48	40	35	37
14	81	96	63	33	13	23	31	34	38	38	42	54
15	63	105	67	42	13	33	30	43	50	32	34	58
16	57	105	73	46	19	42	39	50	41	37	31	73
17	56	112	74	58	30	34	68	49	18	48	50	69
18	68	121	67	58	41	52	71	40	22	49	58	60
19	76	128	58	52	41	70	71	54	20	58	63	58
20	74	161	62	46	47	90	74	61	26	50	59	59
21	62	146	58	50	59	97	60	61	30	48	59	52
22	61	123	69	57	58	83	74	49	30	57	57	47
23	66	100	76	65	61	109	76	42	55	61	43	59
24	68	78	82	64	75	107	59	34	47	57	38	62
25	76	47	82	67	88	123	44	16	53	83	31	55
26	82	28	89	77	89	119	40	13	53	84	34	43
27	93	33	90	79	133	132	31	0	67	88	26	32
28	93	50	95	71	165	121	34	8	66	76	23	30
29	94	43	85	74	167	113	26	16	50	66	24	31
30	92	38	74	66	167	116	17	27		54	34	35
31		42	65		160		12	38		56		34
Mean	77.4	83.3	72.7	48.7	65.5	67.3	46.5	37.2	46.0	48.9	39.3	41.5

* = Provisional.

Penticton 2800 MHz (10.7cm) Solar Flux
Jun 2003 - May 2004

Adjusted to 1 AU



Day	Jun 03	Jul	Aug	Sep	Oct	Nov	Dec	Jan 04	Feb	Mar	Apr	May
1	115.5	135.6	110.6	110.1	137.1	207.2	139.3	112.2	94.5	100.0	112.6	95.7
2	124.8	139.3	114.7	107.6	125.0	187.4	135.4	112.6	98.5	97.1	108.1	99.1
3	117.8	136.7	123.6	112.4	120.3	164.2	120.3	112.3	96.6	88.9	107.4	92.8
4	108.7	144.8	126.0	114.1	119.0	165.6#	112.5	115.5	98.6	95.9	109.0	88.9
5	117.0	146.7	134.4	109.8	109.6	112.1	108.5	119.0	102.5	105.0	108.9	90.1
6	129.4	134.0	132.4	106.6	112.0	96.1	105.7	113.4	103.7	102.9	101.6	88.0
7	137.2	137.8	140.9	109.4	111.8	89.4	89.3	114.9	108.1	104.6	98.4	86.8
8	158.0	135.7	136.6	100.3	113.1	91.0	90.9	116.1	113.1	106.3	93.8	88.9
9	163.1	130.2	133.6	97.3	110.5	91.2	89.4	114.4	114.7	107.2	90.3	95.0
10	182.0	126.9	134.7	100.6	111.4	92.8	86.5	115.3	113.5	111.1	88.1	94.8
11	198.9	126.1	132.7	98.0	105.4	93.7	83.4	114.6	111.2	111.7	90.0	92.0
12	168.6	125.5	126.6	95.6	97.4	96.7	84.5	114.4	109.3	106.2	91.8	100.9
13	155.8	130.7	134.3	97.3	94.0	100.0	85.0	114.1	105.1	102.6	93.6	103.0
14	137.7	131.4	133.1	95.8	91.9	96.8	89.5	117.1	101.1	101.3	95.8	112.1
15	132.8	129.9	134.7	98.4	95.3	95.6	97.7	115.2	99.6	100.3	97.4	117.9
16	126.5	137.5	130.1	100.4	94.6	102.0	103.0	116.4	96.3	108.5	97.6	121.0
17	125.8	143.2	122.3	107.0	98.1	118.2	113.8	118.6	99.5	108.8	99.0	113.7
18	124.3	144.3	118.7	110.2	107.8	141.0	119.1	115.6	95.4	114.4	110.0	110.4
19	126.8	150.8	119.5	112.1	119.4	151.5	118.6	130.3	94.2	111.3	114.5	111.4
20	120.8	162.4	114.5	112.9	133.9	171.0	125.9	124.8	93.2	112.7	111.8	107.2
21	118.8	160.7	122.0	120.9	150.2	172.8	129.1	126.0	96.0	110.4	113.9	109.6
22	113.9	157.4	123.7	123.5	152.0#	171.9	133.2	117.9	101.7	115.6	118.4	105.0
23	117.2	148.7	122.9	125.7	181.3#	173.8	137.4	111.6	102.1	117.6	116.6	106.6
24	118.3	129.2	119.0	134.3	188.5	172.8	134.4	104.1	103.4	119.0	112.9	107.9
25	120.2	115.1	119.0	133.4	219.0	166.3	134.6	99.1	116.1	126.4	108.4	105.1
26	122.9	105.9	123.4	131.8	240.6*	166.5	132.7	95.0	118.4	123.2	100.9	106.1
27	128.1	104.9	128.3	130.3	254.0	170.1	122.4#	90.8	119.8	127.2	96.4	104.6
28	128.1	106.6	121.1	137.6	270.9	163.2	115.1	85.9	113.6	128.6	90.7	105.2
29	131.6	103.0	118.7	135.6	275.4#	161.4	110.7	84.8	108.0	128.3	89.8	104.0
30	132.5	101.7	116.2	133.3	267.6	148.6	104.2	89.9		126.4	90.8	102.4
31		105.2	111.8		245.2		102.1	91.6		121.0		98.1
Mean	133.4	131.9	125.2	113.4	150.1	137.7	111.4	110.4	104.4	111.0	101.9	102.1

NOTE: # - 1700 or 1800UT reading, burst in progress at 2000UT.

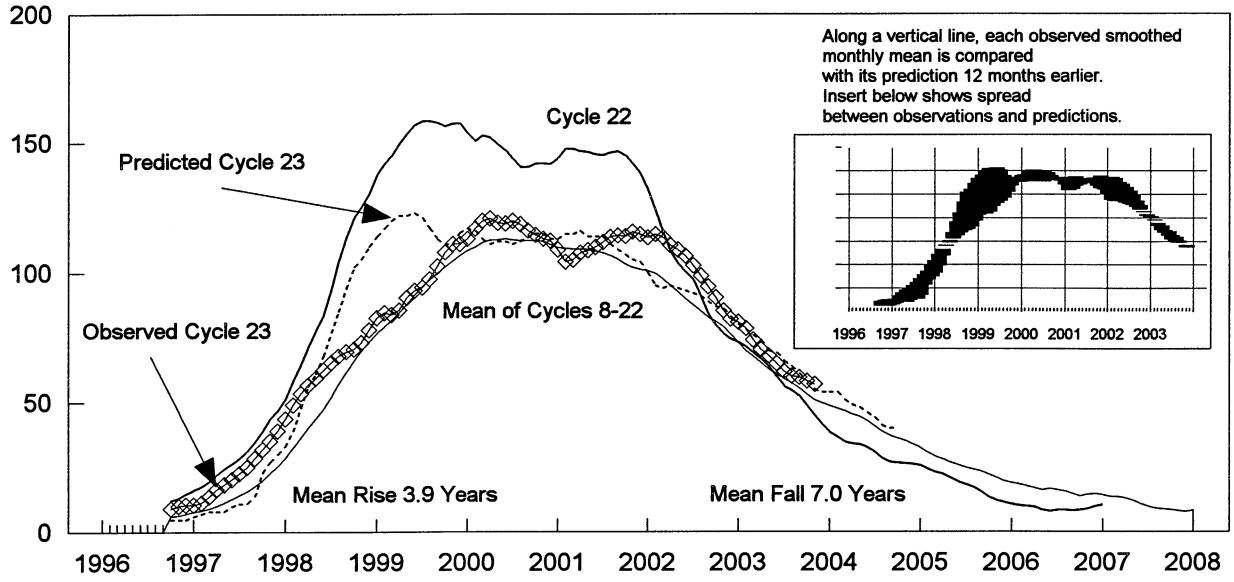
DAILY SOLAR INDICES

May 2004

	Day	Bartels	Sunspot		Obs Flux		-----Solar Flux Adjusted to 1 Astronomical Unit-------							
	of	Cycle	Numbers		Penticton	SGMR	SGMR	SGMR	Penticton	SGMR	SGMR	SGMR	SGMR	SGMR
Day	Year	Day	Int	Amer	(2800)	(15400)	(8800)	(4995)	(2800)	(2695)	(1415)	(610)	(410)	(245)
1	122	23	44	40	94.2	531	229	161	95.7	101	61	44	46	26
2	123	24	28	33	97.5	530	236	161	99.1	106	62	36	28	12
3	124	25	32	40	91.3	508	225	152	92.8	99	58	38	28	14
4	125	26	33	37	87.4	526	231	151	88.9	98	57	37	28	13
5	126	27	29	30	88.5	514	226	145	90.1	95	56	37	30	13
6	127	1	20	24	86.4	520	223	146	88.0	93	57	33	27	11
7	128	2	16	20	85.2	522	217	140	86.8	91	55	37	29	10
8	129	3	17	21	87.2	517	220	147	88.9	97	56	35	28	11
9	130	4	24	28	93.2	517	236	153	95.0	100	60	38	29	13
10	131	5	29	31	93.0	519	232	152	94.8	99	61	38	29	16
11	132	6	25	32	90.2	520	213	140	92.0	94	60	37	28	10
12	133	7	40	43	98.8	525	228	165	100.9	105	62	39	31	17
13	134	8	37	45	100.8	522	236	159	103.0	110	64	40	30	16
14	135	9	54	62	109.6	515	226	167	112.1	112	66	39	33	34
15	136	10	58	70	115.3	530	226	171	117.9	124	70	39	36	36
16	137	11	73	82	118.3	481	234	173	121.0	124	69	33	30	18
17	138	12	69	79	111.1	529	228	164	113.7	118	70	38	30	14
18	139	13	60	73	107.8	524	222	163	110.4	117	69	39	31	13
19	140	14	58	70	108.8	531	236	166	111.4	116	66	36	28	12
20	141	15	59	63	104.6	535	237	166	107.2	113	66	38	27	10
21	142	16	52	57	106.9	531	233	164	109.6	114	66	37	26	11
22	143	17	47	54	102.4	501	242	167	105.0	116	64	38	29	19
23	144	18	59	65	104.0	515	239	164	106.6	113	65	35	27	13
24	145	19	62	74	105.2	509	240	166	107.9	112	66	37	27	16
25	146	20	55	65	102.4	523	243	167	105.1	113	65	36	29	27
26	147	21	43	48	103.3	471	238	162	106.1	113	64	33	25	13
27	148	22	32	38	101.8	528	218	156	104.6	113	62	35	26	10
28	149	23	30	33	102.4	442	217	150	105.2	110	63	34	25	9
29	150	24	31	36	101.2	531	238	163	104.0	109	60	34	26	10
30	151	25	35	41	99.6	---	226	160	102.4	106	59	35	26	11
31	152	26	34	38	95.4	525	228	155	98.1	102	58	34	26	13
MEAN			41.5	47.4	99.8	516	229	158	102.1	107	62	36	28	15

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

Cycle 23 Smoothed Sunspot Numbers: Observed and Predicted



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

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Avg
1994	37	35	34	34	33	31	29	27	27	27	26	26	31
1995	24	23	22	21	19	18	17	15	13	12	11	11	17
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	56	66
												(3)	
2004	55	54	52	51	50	48	46	44	42	41	40	38	47
	(6)	(8)	(9)	(10)	(10)	(11)	(13)	(15)	(16)	(18)	(18)	(19)	(13)

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

*** May 1996 marks Cycle 22's mathematical minimum. ** October 1996 marks the consensus minimum NGDC is now using.**

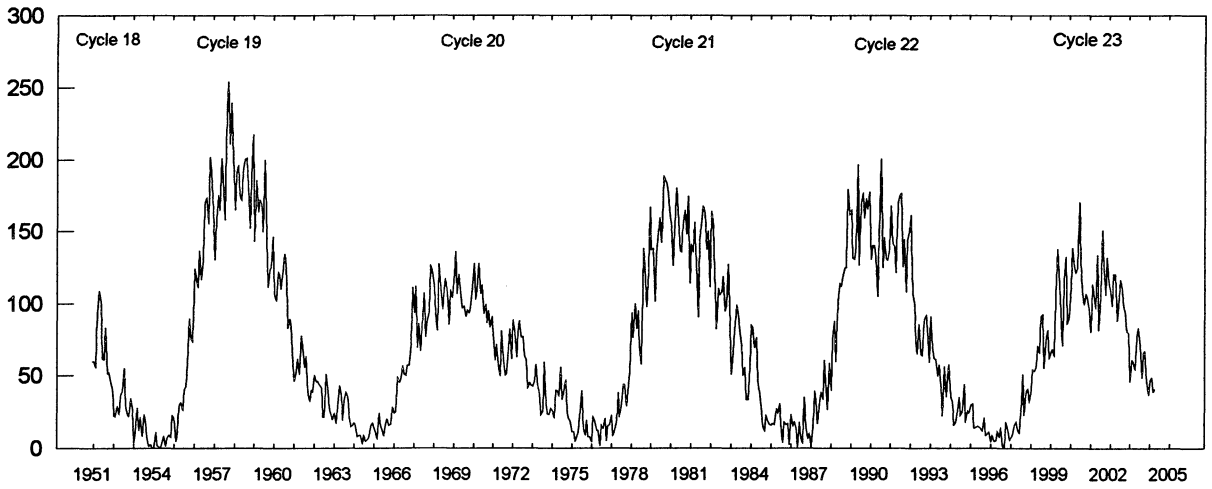
+ April 2000 marks Cycle 23 maximum.

Observed and Predicted Numbers. For the end of Cycle 22, and the rise and decline of Cycle 23, the table above lists observed smoothed sunspot numbers up to the one that includes the most recent monthly mean. We based these smoothed values on final monthly means through Dec 2003 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 November 2004 prediction. There exists a 90% chance that in November, the actual smoothed number will fall somewhere between 22 and 58.

Points to Ponder. The McNish-Lincoln prediction method generates useful estimates of smoothed, monthly mean sunspot numbers for no more than 12 months ahead. Beyond 12 months, the predictions regress toward the mean of all 15 cycles of observations used in the computation. Moreover, the method remains very sensitive to the date defining the onset of the current cycle, that is, to the date of the most recent sunspot minimum. The new cycle predictions tabulated above are based on the consensus minimum value of 8.8 that occurred in October 1996.

Note: Please visit http://www.sec.noaa.gov for solar minimum and Cycle 23 discussions.

Mean Monthly Sunspot Numbers
Jan 1951 - May 2004



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	85.0	72.7	48.8	65.6	67.2	47.0	63.9	
2004	37.2	46.0	48.9	39.3	41.5								42.6	

Values are preliminary after December, 2003. For the yearly means, each 'M' marks a sunspot cycle maximum and each 'm' a minimum.

Hα SOLAR FLARES

MAY 2004

Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP	Mo	Day	Dur (Min)	Imp Opt	Xray	See	Obs Type	Time (UT)	Area Measurement Apparent (10-6 Disk)	Corr (Sq Deg)	Remarks
GOES	01	0212	0216	0229			10601				17		B 1.3						1.2E-04
GOES		0431	0447	0457	S10	W25	10601				26	SF	B 8.9						9.6E-04
LEAR		0443	0446	0453	S10	W25	10601		04	29.4	10	SF		3	E		11		F
GOES		0644	0652	0713			10601				29		B 4.7						7.4E-04
GOES		0830	0844	0851			10601				21		B 6.4						6.6E-04
GOES		0857	0903	0909			10601				12		B 9.5						5.7E-04
GOES		1343	1355	1402			10601				19		C 2.8						1.9E-03
GOES		1526	1536	1545			10601				19		C 9.5						6.3E-03
GOES		1731	1735	1744			10601				13		B 3.8						2.8E-04
GOES		1802	1813	1825			10601				23		B 4.5						5.3E-04
GOES	02	0026	0032	0042			10601				16		B 4.5						3.5E-04
GOES		0237	0255	0306			10601				29		B 7.6						1.0E-03
GOES		0325	0351	0402	S10	W38	10601				37	SF	C 5.4						7.5E-03
LEAR		0334	0338	0349	S10	W38	10601		04	29.4	15	SF		3	E		22		
GOES		0531	0534	0537	S08	W38	10601				6	SF	C 1.3						3.1E-04
GOES		0553	0610	0624			10601				31		B 6.3						9.8E-04
GOES		0657	0719	0754			10601				57		B 7.0						1.9E-03
GOES		0822	0836	0851			10601				29		C 1.4						1.9E-03
GOES		1007	1011	1014			10601				7		C 1.1						3.5E-04
GOES		1106	1119	1136	S08	W42	10601				30	SF	C 8.3						9.2E-03
SVTO		1113	1115	1129	S08	W42	10601		04	29.4	16	SF		3	E		25		F
GOES		1300	1314	1323			10601				23		B 7.4						9.9E-04
GOES		1507	1601	1615			10601				68		C 2.6						6.8E-03
GOES		1641	1645	1648			10601				7		C 1.0						4.0E-04
GOES		1715	1719	1727			10601				12		C 1.1						5.6E-04
GOES		1834	1843	1903			10601				29		B 5.7						8.3E-04
GOES		2047	2053	2057			10601				10		B 8.8						3.7E-04
GOES		2317	2327	2331			10601				14		B 9.7						4.9E-04
GOES	03	0224	0227	0229							5		B 2.4						6.5E-05
GOES		0332	0337	0340			10601				8		B 3.3						1.3E-04
GOES		0722	0726	0730			10601				8		B 2.5						9.3E-05
GOES		0805	0809	0811			10601				6		B 1.7						5.4E-05
GOES		0822	0846	0906							44		B 3.2						7.2E-04
GOES		0950	0954	0956			10601				6		B 2.6						6.6E-05
GOES		1258	1301	1303							5		B 2.1						5.5E-05
GOES		1322	1325	1327			10601				5		B 2.7						6.8E-05
GOES		1340	1343	1346			10601				6		C 1.0						2.7E-04
GOES		1435	1439	1443							8		B 2.5						1.1E-04
GOES		1548	1552	1554			10601				6		B 2.3						6.1E-05
GOES		1757	1800	1811			10601				14		B 1.9						1.4E-04
GOES		2005	2009	2015			10601				10		B 1.3						7.3E-05
GOES		2049	2052	2054							5		B 1.3						3.3E-05
GOES		2359	2415	2425			10601				26		B 4.2						4.5E-04
GOES	04	0918	0922	0924							6		B 2.5						7.2E-05
GOES		1558	1609	1620			10601				22		B 2.8						2.7E-04
GOES		1653	1702	1711			10605				18		B 2.3						2.1E-04
GOES	05	0313	0319	0321			10605				8		B 1.8						7.4E-05
GOES		0330	0338	0343			10605				13		B 2.5						1.7E-04
GOES		0835	0843	0851			10603				16		B 3.1						2.3E-04
GOES		1146	1150	1152			10605				6		B 5.4						1.1E-04
GOES		1437	1440	1444			10605				7		B 1.6						5.8E-05
GOES		1804	1807	1810			10601				6		B 1.3						3.8E-05
GOES	06	0124	0132	0137							13		B 1.3						9.4E-05
GOES		0313	0316	0318			10601				5		B 1.4						3.9E-05
GOES	07	0112	0120	0141			10604				29		B 2.7						3.8E-04
GOES		0956	1018	1038							42		B 7.3						1.4E-03
GOES		1337	1403	1423	S12	W36	10605				46	SF	C 1.0						1.7E-03
HOLL		1359	1402	1410	S12	W36	10605		05	4.9	11	SF		3	E		18		FH
GOES	08	0026	0034	0044			10604				18		B 2.6						2.5E-04
GOES		0404	0408	0413							9		B 1.1						5.4E-05
GOES		1029	1037	1043			10605				14		B 1.3						1.0E-04

Hα SOLAR FLARES

MAY 2004

Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp Opt	Imp Xray	Obs See	Obs Type	Area Measurement Time (UT)	Area Measurement Apparent (10-6 Disk)	Area Measurement Corr (Sq Deg)	Remarks
GOES	08	2349	2352	2355						6		B 1.1						3.6E-05
GOES	09	0214	0218	0221						7		B 2.9						1.1E-04
GOES		0859	0903	0909						10		B 2.0						1.0E-04
GOES		1412	1415	1417						5		B 2.1						5.5E-05
GOES		1617	1637	1659			10608			42		B 3.4						6.6E-04
GOES	10	0348	0355	0404			10604			16		B 1.9						1.6E-04
GOES		0744	0747	0749						5		B 1.1						3.0E-05
GOES		0918	0926	0931			10606			13		B 4.4						2.2E-04
GOES		1459	1507	1517			10606			18		B 2.6						2.4E-04
GOES		1630	1635	1643			10604			13		B 2.2						1.3E-04
GOES	11	0743	0747	0752						9		B 1.0						5.0E-05
GOES	12	0314	0327	0332			10608			18		B 1.2						1.2E-04
GOES		0842	0852	0912			10609			30		B 2.3						3.4E-04
GOES		1537	1543	1557	S01	E40	10609			20	SF	C 1.3						9.9E-04
HOLL		1542	1543	1549	S01	E40	10609	05	15.6	7	SF		3	E		41		FH
GOES		2310	2315	2320			10609			10		B 4.0						1.7E-04
GOES	13	0038	0046	0104						26		B 4.1						5.4E-04
GOES		0337	0341	0345			10609			8		B 4.5						1.6E-04
GOES		0729	0745	0821	S03	E33	10609			52	SF	C 1.7						3.5E-03
LEAR		0741	0743	0800	S03	E33	10609	05	15.8	19	SF		3	E		13		F
GOES		0930	0940	0952			10609			22		C 1.3						1.5E-03
GOES		1324	1334	1340	S02	E30	10609			16	SF	C 7.7						4.0E-03
HOLL		1328	1330	1412	S02	E30	10609	05	15.8	44	SF		3	E		56		FE
GOES	14	0737	0743	0807						30		B 7.0						8.1E-04
GOES		1118	1123	1138			10609			20		B 3.3						3.6E-04
GOES		1322	1326	1329			10609			7		B 3.1						1.1E-04
GOES		1426	1430	1436			10609			10		B 2.9						1.6E-04
GOES		2115	2119	2124						9		B 4.9						2.3E-04
GOES	15	0002	0025	0035						33		B 3.9						6.1E-04
GOES		0244	0249	0253			10609			9		B 5.2						2.4E-04
GOES		0333	0336	0340			10609			7		B 3.3						1.3E-04
GOES		1000	1004	1008			10609			8		B 3.4						1.4E-04
GOES		1434	1446	1453			10609			19		C 2.2						1.4E-03
GOES		1534	1551	1604			10609			30		B 3.2						5.1E-04
GOES		1603	1622	1628			10609			25		C 4.4						5.2E-04
GOES		2059	2112	2125			10609			26		B 9.4						1.2E-03
GOES	16	0025	0030	0035						10		B 3.8						2.1E-04
GOES		1116	1121	1126						10		B 5.4						2.9E-04
GOES		1536	1541	1548			10607			12		B 5.2						2.9E-04
GOES		1802	1808	1834			10614			32		B 4.5						7.3E-04
GOES	17	0041	0051	0104	S04	W26	10609			23	SF	B 9.9						1.1E-03
LEAR		0047	0100	0107	S04	W26	10609	05	15.1	20	SF		3	E		14		UF
GOES		0213	0219	0224			10612			11		B 6.5						3.3E-04
GOES		0244	0247	0250			10607			6		B 4.0						1.3E-04
GOES		0411	0417	0422	S05	W80	10614			11	SF	C 7.0						2.1E-03
LEAR		0417	0418	0423	S05	W80	10614	05	11.2	6	SF		3	E		36		
GOES		0708	0712	0716			10614			8		B 8.1						3.3E-04
GOES		1412	1415	1421			10614			9		B 3.9						2.0E-04
GOES		1543	1548	1603			10614			20		B 4.7						5.1E-04
GOES	18	0201	0209	0214	N10	W42	10612			13	1F	C 2.6						1.1E-03
LEAR		0205	0209	0227	N10	W42	10612	05	14.9	22	1F		3	E		153		ZU
GOES		0355	0400	0408			10617			13		B 3.6						2.6E-04
GOES		0532	0536	0538	S09	E06	10617			6	SF	B 4.5						1.5E-04
LEAR		0534	0537	0540	S09	E06	10617	05	18.7	6	SF		3	E		14		F
GOES		0608	0612	0622			10614			14		B 4.1						3.1E-04
GOES		0728	0732	0739						11		B 3.0						1.8E-04
GOES		0812	0827	0849			10615			37		C 3.2						5.0E-03
GOES		1550	1602	1635	N17	E48	10615			45	SF	C 1.6						3.5E-03

Hα SOLAR FLARES

MAY 2004

Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp Opt	Imp Xray	Obs See	Obs Type	Area Measurement Time (UT)	Area Measurement Apparent (10-6 Disk)	Area Measurement Corr (Sq Deg)	Remarks
HOLL	18	1554	1556	1606	N16	E46	10615	05	22.1	12	SF		3	E		37		F
HOLL		1608	1610	1620	N17	E48	10615	05	22.3	12	SF		3	E		11		
GOES		2018	2022	2027						9		B 3.2						1.5E-04
GOES	19	0052	0058	0103	S10	W66	10606			11	SF	B 6.7						3.2E-04
LEAR		0057	0100	0104	S10	W66	10606	05	14.1	7	SF		3	E		25		F
GOES		0118	0127	0140	N09	W61	10612			22	SF	B 8.7						8.4E-04
LEAR		0123	0124	0127	N09	W61	10612	05	14.5	4	SF		3	E		27		F
GOES		0342	0346	0349						7		B 3.4						1.2E-04
GOES		0354	0358	0401						7		B 4.5						1.5E-04
GOES		0637	0641	0643	N10	W60	10612			6	SF	B 4.6						1.1E-04
LEAR		0641	0641	0645	N10	W60	10612	05	14.8	4	SF		3	E		42		
SVTO		0641	0642	0644	N13	W61	10612	05	14.7	3	SF		3	E		14		
GOES		1841	1847	1901						20		C 1.1						1.2E-03
GOES		1929	1951	2028						59		C 2.2						4.0E-03
GOES	20	0104	0118	0128			10618			24		C 2.5						3.1E-03
GOES		0315	0320	0325						10		B 7.7						4.1E-04
GOES		0440	0504	0521			10618			41		C 1.1						2.7E-03
GOES		0856	0859	0902						6		B 3.5						1.1E-04
GOES		1714	1719	1723			10618			9		C 3.7						1.4E-03
GOES	21	0204	0214	0218			10618			14		B 5.7						4.2E-04
GOES		0337	0341	0349			10618			12		B 6.1						3.7E-04
GOES		0546	0551	0604			10618			18		C 2.0						1.5E-03
GOES		0825	0830	0833			10618			8		B 8.3						2.9E-04
GOES		1027	1034	1040			10618			13		B 7.0						4.4E-04
GOES		1320	1327	1336			10618			16		B 5.7						4.5E-04
GOES		1616	1623	1628	S10	W42	10617			12	SF	C 2.0						9.4E-04
HOLL		1620	1621	1634	S10	W42	10617	05	18.5	14	SF		3	E		36		F
GOES		1850	1905	1908			10618			18		B 6.3						5.7E-04
GOES		2032	2036	2040			10617			8		B 4.3						1.8E-04
GOES		2213	2220	2229			10615			16		C 1.2						8.3E-04
GOES		2335	2352	2359	S10	E53	10618			24	SF	M 2.6						1.6E-02
LEAR		2340	2351	2420	S12	E54	10618	05	26.0	40	SF		3	E		58		F
HOLL		2343	2356	2416	S10	E53	10618	05	26.0	33	SF		3	E		84		F
GOES	22	0116	0119	0123						7		C 1.7						6.7E-04
GOES		0702	0712	0719	S12	E50	10618			17	SF	C 2.2						1.5E-03
LEAR		0710	0715	0730	S12	E50	10618	05	26.1	20	SF		3	E		36		F
SVTO		0711E	0711U	0714	S14	E51	10618	05	26.1	3D	SF		3	E		16		
GOES		1145	1155	1206			10618			21		C 1.4						1.2E-03
GOES		1223	1227	1232			10618			9		C 1.5						5.9E-04
GOES		1255	1302	1308			10618			13		C 2.0						1.1E-03
HOLL		1608	1608	1613	S09	E41	10618	05	25.7	5	SF		3	E		18		F
GOES		1720	1734	1759			10618			39		C 1.0						2.2E-03
GOES		2001	2006	2012			10618			11		B 2.9						1.6E-04
GOES		2110	2115	2122			10618			12		B 3.8						2.3E-04
GOES	23	1130	1135	1143			10618			13		B 4.3						3.0E-04
GOES		1348	1353	1357			10618			9		B 3.6						1.7E-04
GOES		1437	1452	1513	S10	E30	10618			36	SF	C 2.9						4.2E-03
HOLL		1441	1452	1510	S10	E30	10618	05	25.9	29	SF		3	E		68		F
GOES		1735	1742	1750	S10	E28	10618			15	SF	C 2.0						1.2E-03
HOLL		1739	1741	1807	S10	E28	10618	05	25.8	28	SF		3	E		44		F
GOES		1758	1801	1803			10618			5		C 1.6						4.2E-04
GOES		1944	1954	2001	S10	E32	10618			17	SF	C 1.4						1.0E-03
HOLL		1948	1948	2005	S10	E32	10618	05	26.2	17	SF		3	E		15		F
GOES		2202	2209	2220			10618			18		B 7.4						5.9E-04
GOES	24	0208	0216	0226			10618			18		B 7.0						6.2E-04
GOES		0251	0300	0304			10618			13		B 6.7						4.0E-04
GOES		0314	0318	0320			10618			6		B 7.5						2.2E-04
GOES		1053	1104	1118			10618			25		C 4.6						4.5E-03
GOES		2239	2248	2306	N20	W36	10615			27	SF	C 1.0						1.3E-03
HOLL		2247	2247	2249	N20	W36	10615	05	22.2	2	SF		3	E		13		
HOLL		2254	2256	2257	N20	W34	10615	05	22.3	3	SF		3	E		13		
GOES	25	1022	1027	1037			10618			15		B 2.8						2.3E-04

Hα SOLAR FLARES

MAY 2004

Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp Opt	Imp Xray	Obs See	Obs Type	Area Measurement Time (UT)	Area Measurement Apparent (10-6 Disk)	Area Measurement Corr (Sq Deg)	Remarks
GOES	25	1135	1141	1144			10618			9		B 9.0						2.9E-04
GOES		1152	1200	1203			10618			11		B 5.1						2.4E-04
GOES		1319	1323	1329			10618			10		B 3.0						1.6E-04
GOES		1501	1506	1508			10618			7		B 2.7						1.1E-04
GOES		1716	1722	1732			10618			16		B 3.8						3.1E-04
GOES		1843	1847	1850			10618			7		B 3.8						1.4E-04
GOES		2300	2303	2305			10618			5		B 2.7						7.5E-05
GOES		2345	2348	2350			10618			5		B 3.1						7.5E-05
GOES	26	0036	0040	0043	S11	W03	10618			7	SF	B 5.7						1.6E-04
LEAR		0039	0039	0044	S11	W03	10618	05	25.8	5	SF		3	E		15		
GOES		0319	0332	0343	S11	W02	10618			24	SF	B 8.2						7.8E-04
LEAR		0323	0335	0350	S11	W02	10618	05	26.0	27	SF		3	E		58		F
GOES		0556	0601	0603			10618			7		B 2.7						1.0E-04
GOES		1105	1109	1113			10618			8		B 3.9						1.7E-04
GOES		1705	1744	1804			10619			59		B 7.3						2.2E-03
GOES	27	0021	0027	0043	S08	W12	10618			22	SF	C 1.1						1.1E-03
LEAR		0025	0026	0041	S08	W12	10618	05	26.1	16	SF		3	E		21		F
GOES		0225	0230	0235			10618			10		B 4.2						2.2E-04
GOES		0239	0242	0246			10618			7		B 7.0						2.4E-04
GOES		0256	0300	0306			10618			10		B 3.8						2.1E-04
GOES		0637	0645	0648			10618			11		B 4.2						2.4E-04
GOES		0755	0800	0804			10618			9		B 4.5						1.8E-04
GOES		0907	0913	0919			10619			12		C 1.0						5.1E-04
GOES		1711	1714	1717						6		B 3.2						9.8E-05
GOES		1822	1826	1831						9		B 2.3						1.1E-04
GOES	28	0217	0223	0232			10618			15		B 6.9						4.7E-04
GOES		0613	0618	0622			10618			9		B 7.0						3.1E-04
GOES		0810	0814	0816						6		B 4.0						1.2E-04
GOES		1003	1011	1013			10618			10		C 4.1						1.1E-03
GOES		1112	1119	1124						12		B 4.9						2.9E-04
GOES		1209	1213	1215			10618			6		C 2.2						4.2E-04
GOES		1312	1316	1318						6		B 5.1						1.5E-04
HOLL		1355	1355	1358	S11	W46	10618	05	25.1	3	SF		3	E		18		H
GOES		1834	1837	1839						5		B 8.9						2.3E-04
GOES		1906	1909	1912						6		B 6.3						2.0E-04
GOES		2041	2045	2049	S10	W39	10618			8	SF	C 2.1						6.8E-04
HOLL		2044	2046	2050	S10	W39	10618	05	25.9	6	SF		3	E		84		FH
GOES		2105	2111	2121						16		B 8.9						7.4E-04
GOES		2259	2305	2308	S11	W51	10618			9	SF	B 8.0						3.2E-04
HOLL		2304	2304	2307	S11	W51	10618	05	25.1	3	SF		3	E		19		
GOES	29	0049	0056	0102			10618			13		B 8.0						5.0E-04
GOES		0246	0251	0256			10618			10		B 7.6						4.0E-04
GOES		0817	0823	0835						18		B 3.4						3.4E-04
GOES		1132	1135	1138						6		B 7.4						2.2E-04
GOES		1751	1755	1757			10618			6		B 7.5						1.5E-04
GOES	30	0029	0035	0041			10618			12		B 5.9						3.6E-04
GOES		1915	1934	1956			10618			41		C 1.2						2.3E-03
GOES	31	0007	0028	0100	S09	W72	10618			53	SF	C 6.5						1.4E-02
HOLL		0013	0022	0044	S09	W72	10618	05	25.6	31	SF		3	E		63		FH
LEAR		0014E	0015	0042	S07	W71	10618	05	25.7	28D	SF		3	E		29		ZF
GOES		0423	0437	0451			10618			28		C 2.3						3.1E-03
GOES		0511	0516	0520			10618			9		C 1.1						5.5E-04
GOES		0847	0852	0856			10618			9		C 1.0						3.9E-04
GOES		0952	0955	0957						5		B 3.8						9.9E-05
GOES		1030	1036	1040			10618			10		C 3.8						1.3E-03
GOES		1112	1115	1119			10618			7		B 4.5						1.7E-04
GOES		1518	1521	1523			10618			5		B 2.7						6.5E-05
GOES		1618	1622	1624			10618			6		B 2.8						8.4E-05
GOES		1819	1823	1825			10618			6		B 5.0						1.4E-04
GOES		1907	1911	1915			10618			8		B 3.4						1.4E-04
GOES		2002	2011	2014			10618			12		B 4.0						2.4E-04
GOES		2020	2024	2026			10618			6		B 6.2						1.6E-04

Hα SOLAR FLARES

MAY 2004

Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp Opt	Imp Xray	Obs See	Obs Type	Area Measurement Time (UT)	Area Measurement Apparent (10-6 Disk)	Area Measurement Corr (Sq Deg)	Remarks
GOES	31	2312	2315	2317						5		B 3.5						9.5E-05
GOES		2320	2328	2331			10618			11		B 4.3						2.2E-04
GOES		2355	2416	2430			10618			35		B 6.7						1.0E-03

"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

NOTE: Beginning July 1997, the times of all GOES X-ray events are now included in this table.

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

Selected Fixed Frequency Events

MAY 2004

Day	Freq	Sta	Type	Start (UT)	Time of Maximum (UT)	Duration (Min)	Flux Density Peak (10 -22 W/m 2 Hz)	Flux Density Mean (10 -22 W/m 2 Hz)	Int	Remarks
12	2695	SGMR	8 S	1542.0	1543.0	1.0	47.0			QL=4 ST=2 TYP=3
	2695	SVTO	8 S	1542.0	1543.0	1.0	46.0			QL=4 ST=2 TYP=3
	2695	SVTO	8 S	1543.0	1543.0	U	40.0			QL=4 ST=3 TYP=3
17	2695	LEAR	4 S/F	0414.0	0416.0	3.0	20.0			QL=4 ST=2 TYP=3
	8800	LEAR	8 S	0415.0	0416.0	2.0	50.0			QL=4 ST=2 TYP=3
	2695	SGMR	8 S	1433.0	1433.0	U	53.0			QL=4 ST=2 TYP=3
18	2695	SVTO	4 S/F	0815.0	0816.0	5.0	79.0			QL=4 ST=2 TYP=3
20	2695	SGMR	8 S	1716.0	1716.0	U	46.0			QL=4 ST=2 TYP=3
21	2695	SGMR	8 S	2216.0	2216.0	1.0	89.0			QL=4 ST=2 TYP=3
	2695	PALE	8 S	2217.0	2217.0	U	98.0			QL=4 ST=2 TYP=3
	8800	LEAR	48 C	2346.0	2350.0	9.0	550.0			QL=4 ST=2 TYP=8
	2695	LEAR	4 S/F	2348.0	2350.0	7.0	220.0			QL=4 ST=2 TYP=3
	2695	PALE	4 S/F	2349.0	2350.0	6.0	220.0			QL=4 ST=2 TYP=3
	8800	PALE	4 S/F	2349.0	2351.0	5.0	340.0			QL=4 ST=2 TYP=3
31	8800	SGMR	8 S	1033.0	1033.0	1.0	88.0			QL=2 ST=2 TYP=3
	2695	SVTO	8 S	1033.0	1033.0	U	28.0			QL=4 ST=2 TYP=3
	8800	SVTO	8 S	1033.0	1033.0	1.0	120.0			QL=4 ST=2 TYP=3

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

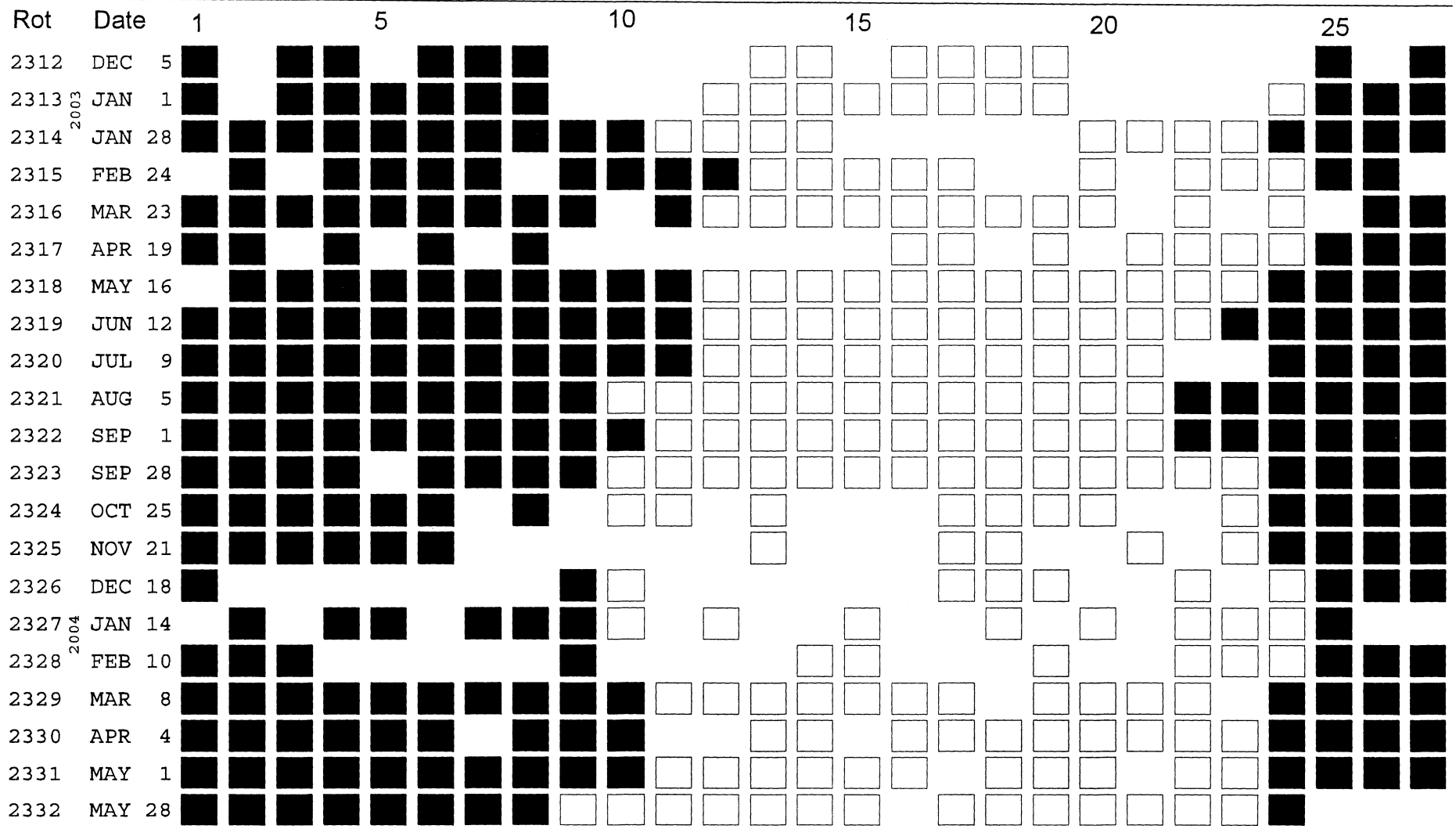
Explanation of Type Code:

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

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

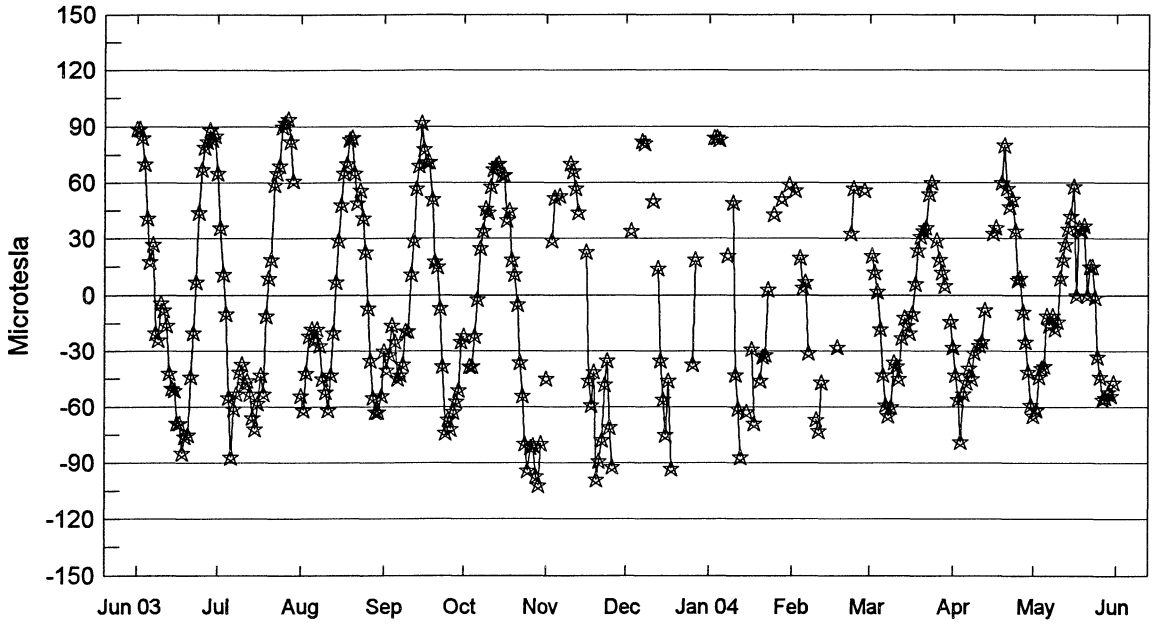
RSTN Site Information: Beginning in April 1986, the RSTN sites LEAR, PALE, SGMR, and SVTO fixed frequency solar radio data are periodically adjusted to several world standard stations. These world standard stations include: Kislovodsk, USSR 15,500 MHz; Penticton, Canada 2800 MHz; and Hiraiso, Japan 500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

STANFORD MEAN SOLAR MAGNETIC FIELD



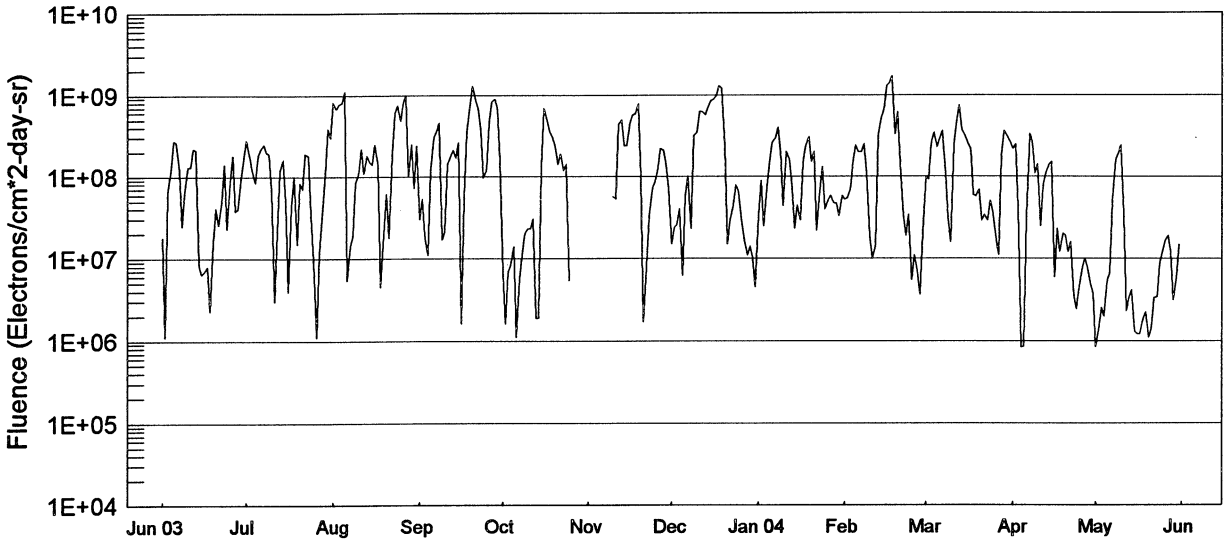
Observations are taken at 2000 UT. Rotation numbers given are the Bartels series, but the dates are not; these dates are five days earlier, to mark times of occurrence of phenomena on the Sun that affect the Earth during the given Bartels Rotation.

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



Day	Jun 03	Jul	Aug	Sep	Oct	Nov	Dec	Jan 04	Feb	Mar	Apr	May
1	89	65	-54	-30	-22	-45	—	—	—	—	-28	-65
2	89	36	-62	-40	—	—	—	—	56	21	-43	-62
3	84	11	-42	-32	-38	29	34	84	—	12	-56	-44
4	70	-10	-22	-16	-38	52	—	84	20	2	-79	-39
5	41	-55	-18	-25	-22	—	—	83	4	-18	-53	-38
6	18	-87	-24	-45	-2	53	—	—	7	-43	-47	-11
7	27	-61	-18	-43	25	—	82	—	-31	-59	-39	-16
8	-20	-53	-27	-37	34	—	81	21	—	-65	-45	-11
9	-24	-41	-45	-19	46	—	—	—	—	-60	-31	-18
10	-4	-37	-52	-19	44	70	—	49	-67	-36	—	-14
11	-8	-48	-62	11	58	66	50	-43	-73	-38	-27	9
12	-16	-46	-43	29	67	57	—	-61	-47	-45	-25	19
13	-42	-53	-20	57	69	44	14	-87	—	-23	-8	27
14	-50	-66	7	69	70	—	-35	—	—	-12	—	35
15	-51	-72	29	92	64	—	-56	-63	—	-16	—	42
16	-69	-58	48	78	64	23	-75	—	—	-20	33	58
17	-69	-43	65	71	40	-46	-46	-29	—	-10	36	—
18	-85	-53	70	71	45	-59	-93	-69	-28	6	—	36
19	-76	-11	83	51	19	-41	—	—	—	24	60	34
20	-75	9	84	18	11	-99	—	-46	—	31	80	37
21	-44	19	65	15	-5	-89	—	-33	—	34	57	—
22	-20	59	49	-7	-36	-78	—	-32	—	36	47	15
23	7	65	56	-38	-54	-48		3	33	54	51	15
24	44	69	41	-74	-80	-35	—	—	57	60	34	-1
25	67	90	23	-67	-94	-71	—	43	—	—	8	-33
26	79	92	-7	-72	-82	-92	-37	—	—	29	9	-44
27	82	94	-35	-63	-81	—	19	—	—	19	-9	-56
28	88	82	-55	-57	-97	—	—	51	56	12	-25	-55
29	83	61	-63	-51	-102	—	—	—	—	5	-41	-52
30	85	—	-63	-25	-80		—	—		—	-59	-54
31		—	-54		—		—	59		-14		-47

GOES Daily Electron Fluence
Jun 2003 - May 2004



Day	Jun 03	Jul	Aug	Sep	Oct	Nov	Dec	Jan 04	Feb	Mar	Apr	May
1	1.8E+07	2.8E+08	8.1E+08	3.0E+07	6.7E+06	-999	1.5E+07	3.3E+07	5.3E+07	9.9E+07	2.2E+08	8.3E+05
2	1.1E+06	1.8E+08	6.8E+08	5.4E+07	1.6E+06	-999	2.4E+07	8.8E+07	5.5E+07	9.2E+07	2.5E+08	1.4E+06
3	6.5E+07	1.2E+08	7.7E+08	1.9E+07	6.9E+06	-999	2.6E+07	2.5E+07	7.1E+07	2.6E+08	4.1E+07	2.5E+06
4	1.2E+08	8.5E+07	8.2E+08	1.1E+07	8.2E+06	-999	4.0E+07	7.2E+07	1.6E+08	3.4E+08	8.3E+05	2.0E+06
5	2.7E+08	1.8E+08	1.1E+09	1.2E+08	1.4E+07	-999	6.2E+06	1.5E+08	2.4E+08	2.3E+08	8.5E+05	5.4E+06
6	2.6E+08	2.2E+08	5.4E+06	3.0E+08	1.1E+06	-999	5.9E+07	2.6E+08	2.0E+08	2.9E+08	3.3E+07	6.6E+06
7	1.2E+08	2.5E+08	1.4E+07	3.6E+08	5.7E+06	-999	1.0E+08	2.9E+08	2.0E+08	3.6E+08	3.3E+08	5.2E+07
8	2.5E+07	2.0E+08	1.9E+07	4.5E+08	1.1E+07	-999	2.3E+07	4.0E+08	2.5E+08	1.1E+08	2.6E+08	1.6E+08
9	6.4E+07	1.9E+08	8.3E+07	1.7E+07	2.0E+07	-999	3.2E+08	2.0E+08	1.1E+08	3.1E+07	1.1E+08	1.9E+08
10	1.3E+08	7.0E+07	1.1E+08	2.1E+07	2.3E+07	5.6E+07	3.5E+08	4.4E+07	1.9E+07	1.6E+07	1.4E+08	2.4E+08
11	1.3E+08	3.0E+06	2.2E+08	1.4E+08	2.3E+07	5.4E+07	6.2E+08	2.0E+08	1.0E+07	2.5E+08	2.5E+07	3.4E+07
12	2.2E+08	2.1E+07	1.1E+08	1.7E+08	3.0E+07	4.4E+08	6.3E+08	1.6E+08	1.4E+07	4.7E+08	7.8E+07	2.3E+06
13	2.1E+08	1.2E+08	1.8E+08	2.1E+08	1.9E+06	5.0E+08	5.7E+08	7.3E+07	3.2E+08	7.4E+08	1.1E+08	3.3E+06
14	8.3E+06	1.6E+08	1.5E+08	1.7E+08	1.9E+06	2.4E+08	7.1E+08	2.3E+07	5.0E+08	3.8E+08	1.4E+08	4.1E+06
15	6.4E+06	5.0E+07	1.4E+08	2.6E+08	1.3E+08	2.4E+08	8.4E+08	4.5E+07	6.7E+08	3.2E+08	1.5E+08	1.3E+06
16	6.9E+06	4.0E+06	2.5E+08	1.6E+06	6.8E+08	4.6E+08	9.0E+08	2.9E+07	1.3E+09	2.6E+08	5.9E+06	1.2E+06
17	8.0E+06	4.5E+07	1.4E+08	5.5E+07	5.0E+08	5.7E+08	1.0E+09	1.5E+08	1.4E+09	2.2E+08	2.3E+07	1.2E+06
18	2.3E+06	9.9E+07	4.5E+06	3.5E+08	3.6E+08	5.8E+08	1.3E+09	2.4E+08	1.7E+09	6.0E+07	1.2E+07	1.8E+06
19	1.6E+07	1.5E+07	1.5E+07	6.5E+08	3.1E+08	7.7E+08	1.2E+09	3.0E+08	3.3E+08	5.7E+07	2.0E+07	2.2E+06
20	4.1E+07	8.4E+07	6.2E+07	1.3E+09	2.3E+08	9.6E+07	2.3E+08	1.5E+08	6.1E+08	6.9E+07	1.9E+07	1.1E+06
21	2.6E+07	7.1E+07	1.8E+07	8.7E+08	1.4E+08	1.7E+06	1.5E+07	2.0E+08	1.4E+08	2.9E+07	1.2E+07	1.4E+06
22	4.9E+07	1.9E+08	1.9E+08	6.8E+08	1.9E+08	5.8E+06	2.9E+07	2.2E+07	3.3E+07	3.4E+07	1.6E+07	3.3E+06
23	1.4E+08	1.8E+08	6.0E+08	3.7E+08	1.2E+08	3.3E+07	4.4E+07	6.6E+07	1.9E+07	2.9E+07	3.5E+06	3.4E+06
24	2.3E+07	3.5E+07	7.5E+08	9.7E+07	1.4E+08	7.1E+07	7.8E+07	1.3E+08	3.4E+07	5.1E+07	2.4E+06	8.9E+06
25	8.7E+07	9.4E+06	4.9E+08	1.2E+08	5.3E+06	8.7E+07	6.5E+07	4.0E+07	5.5E+06	3.7E+07	4.3E+06	1.2E+07
26	1.8E+08	1.1E+06	8.2E+08	4.5E+08	-999	1.2E+08	2.8E+07	5.1E+07	1.1E+07	2.0E+07	7.5E+06	1.7E+07
27	3.8E+07	1.2E+07	1.0E+09	8.3E+08	-999	2.2E+08	1.7E+07	5.9E+07	7.7E+06	1.1E+07	1.0E+07	1.9E+07
28	4.0E+07	3.2E+07	1.0E+08	8.9E+08	-999	2.1E+08	1.1E+07	4.7E+07	3.6E+06	1.8E+08	7.9E+06	1.2E+07
29	9.4E+07	1.1E+08	2.5E+08	7.0E+08	-999	1.4E+08	1.4E+07	4.7E+07	2.0E+07	3.6E+08	4.8E+06	3.1E+06
30	1.7E+08	3.9E+08	7.2E+07	1.6E+08	-999	7.1E+07	1.0E+07	3.3E+07		3.1E+08	3.8E+06	5.9E+06
31		3.0E+08	2.4E+08		-999		4.5E+06	5.9E+07		2.7E+08		1.5E+07

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

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

CONTENTS

Prompt Reports Number 718 Part I

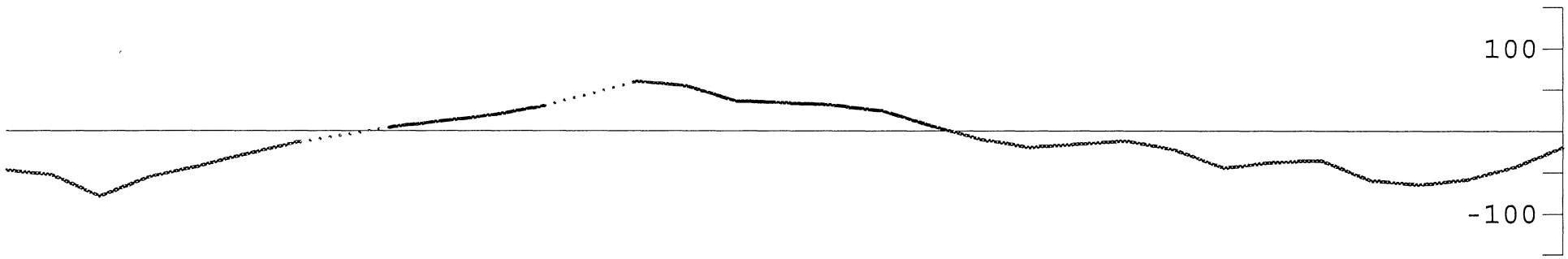
DATA FOR **APRIL 2004**

SOLAR MAGNETIC FIELD SYNOPTIC CHART

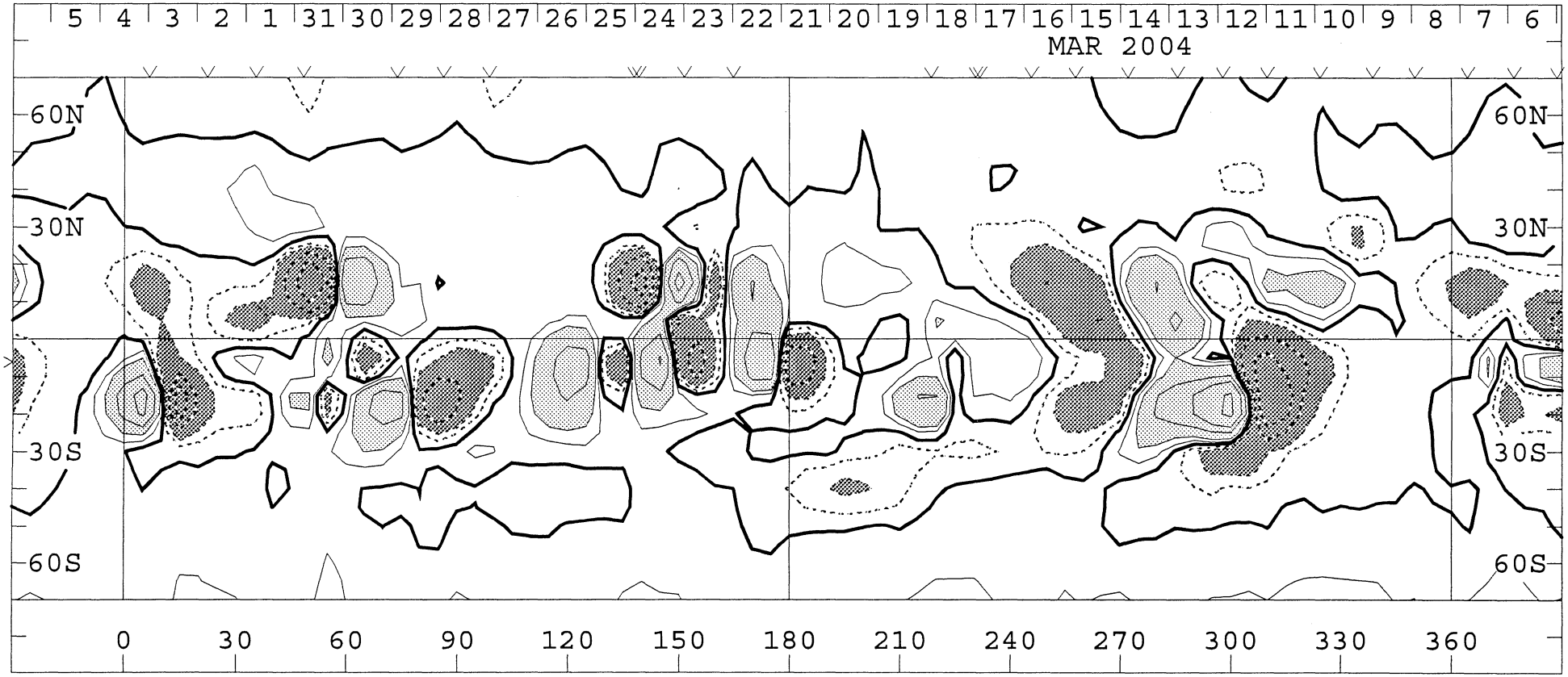
CARRINGTON ROTATION NUMBER 2014

(8 March to 4 April 2004)

WILCOX SOLAR OBSERVATORY



WSO - Photospheric Magnetic Field 0, ±100, 200, 500, 1000, 2000 MicroTesla



Heliographic Longitude

SOLAR MAGNETIC FIELD SYNOPTIC CHART

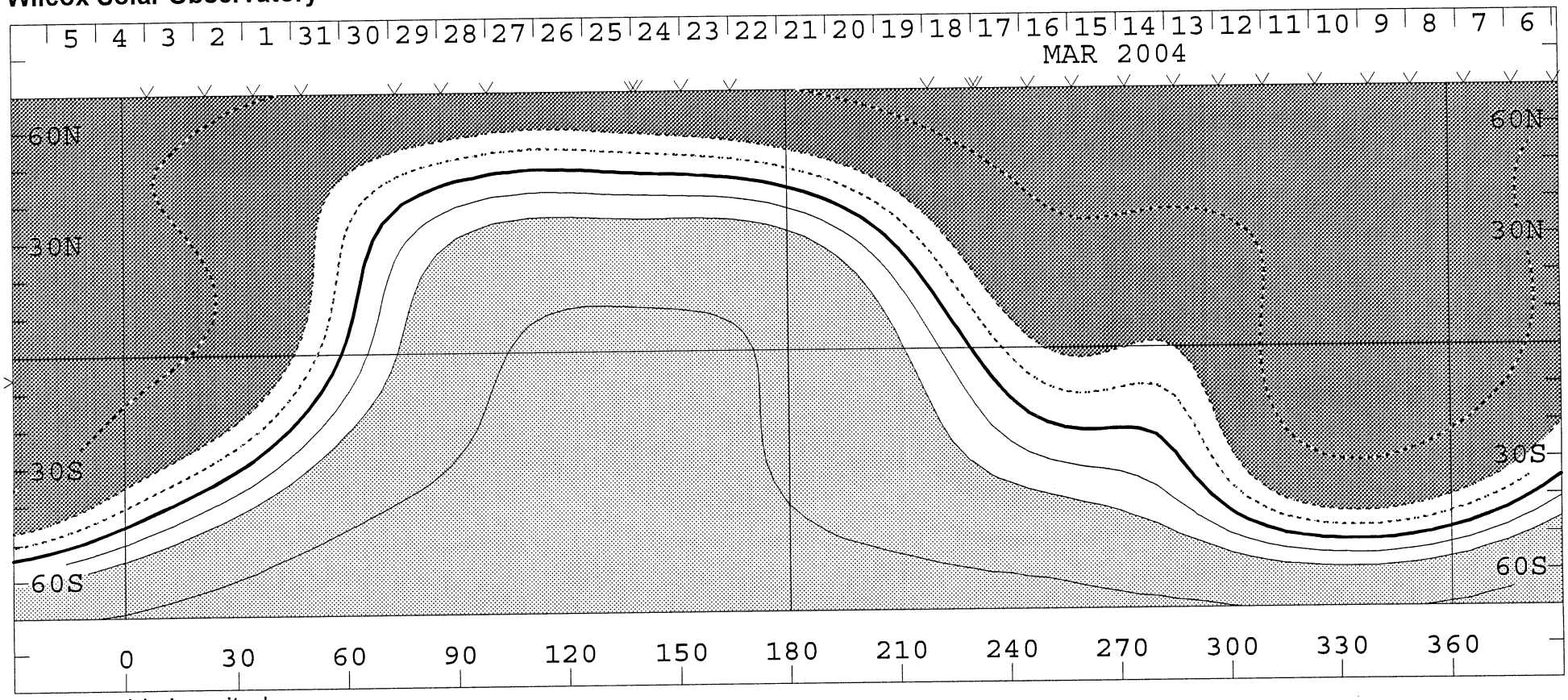
SOURCE SURFACE FIELD

CARRINGTON ROTATION NUMBER 2014

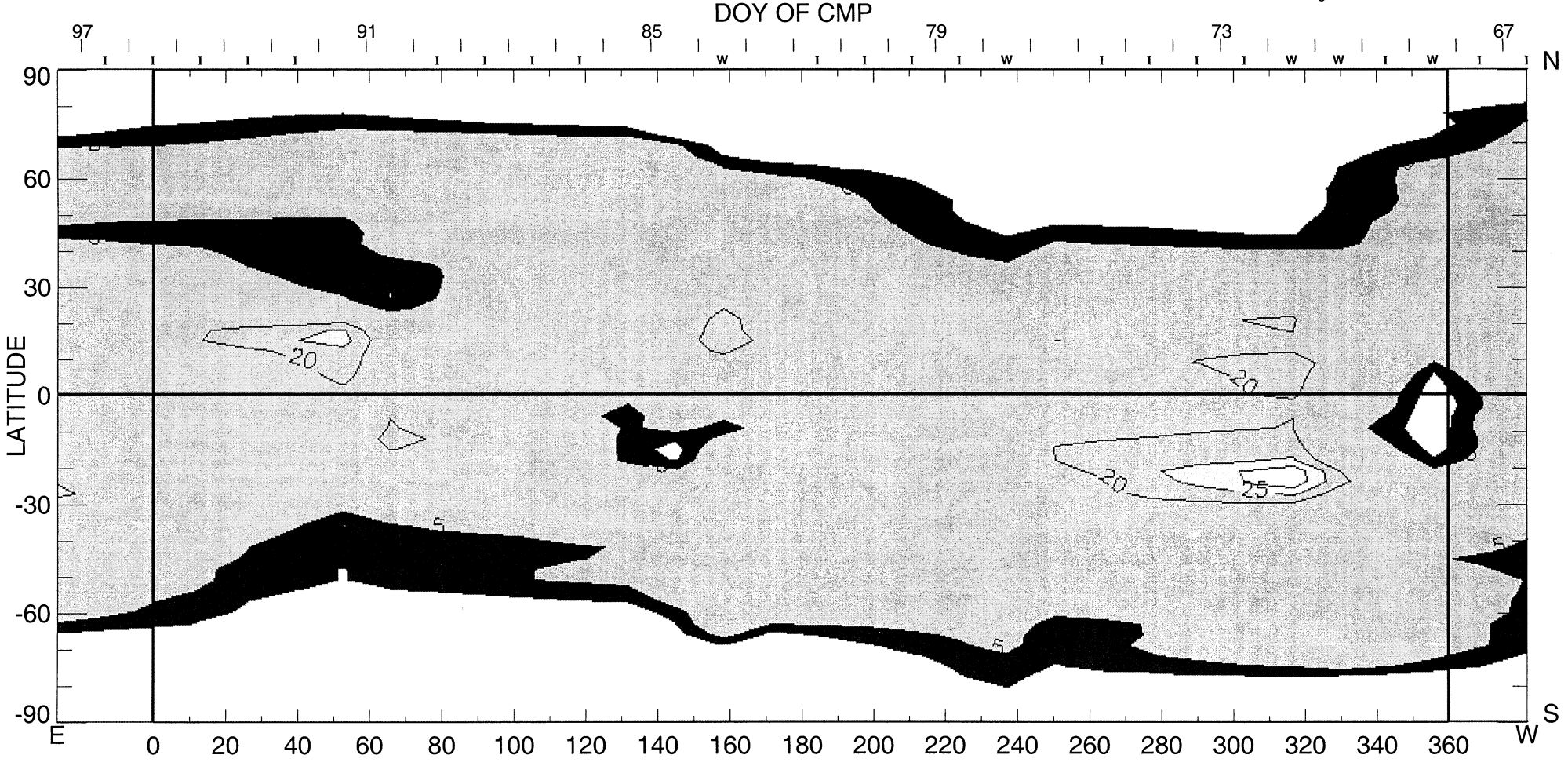
(8 March to 4 April 2004)

Wilcox Solar Observatory

0, ±1, 2, 5, 10, 20 microTesla



CARRINGTON ROTATION NUMBER 2014 ; NSO/SACRAMENTO PEAK FE XIV @ R = 1.15R_o



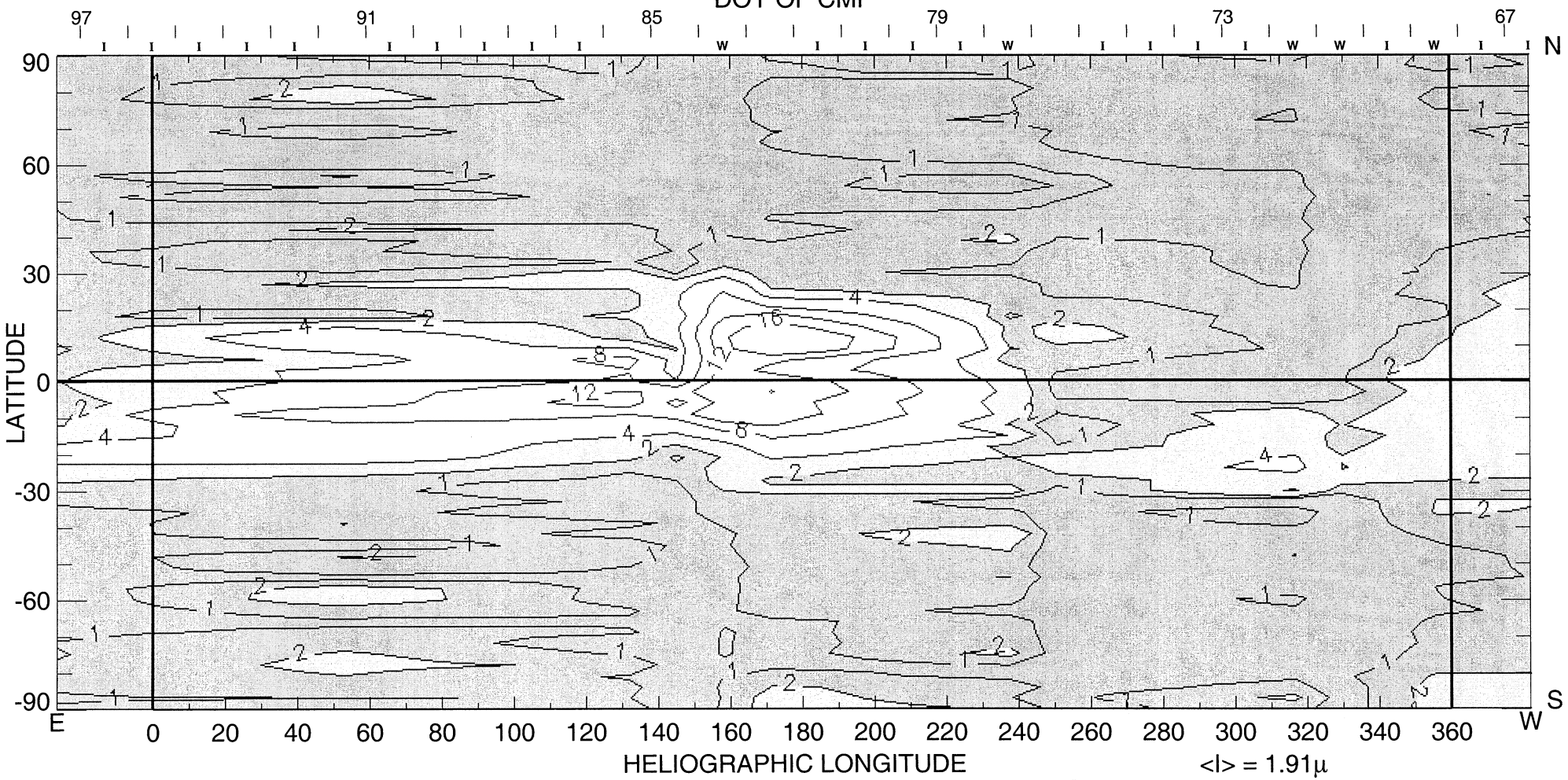
<I> = 7.25μ

(08-Jul-04) 2004 E+W LIMB CONTOURS: 3, 5, 20, 25, 30, 40, 50, 60, 80, 100, 120 MILLIONTHS OF I_o

CORONAL HOLES ARE SHOWN AS WHITE BORDERED BY BLACK

tex Thu Jul 8 20:00:28 2004

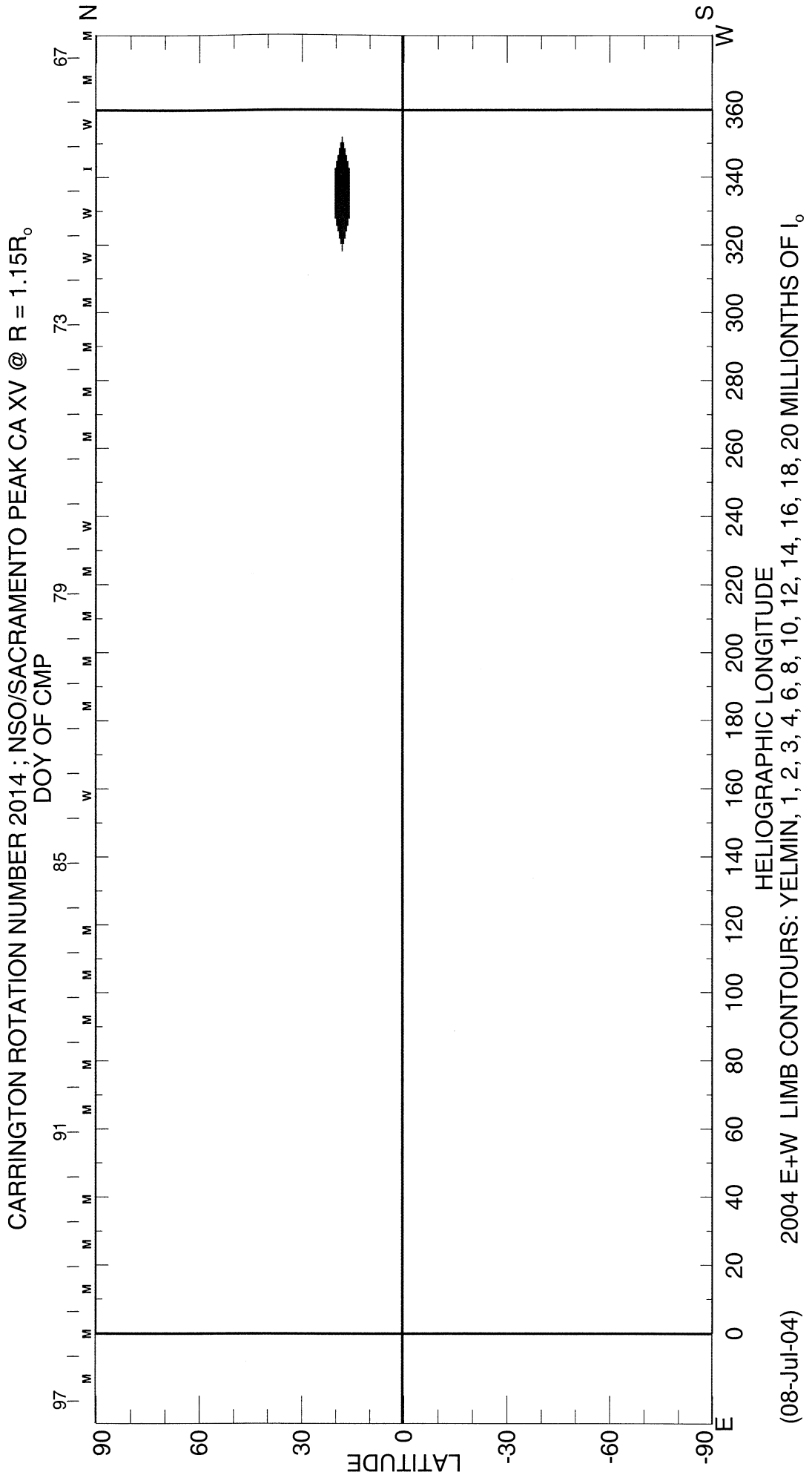
CARRINGTON ROTATION NUMBER 2014 ; NSO/SACRAMENTO PEAK FE X @ R = 1.15R_o



(08-Jul-04)

2004 E+W LIMB CONTOURS: 1, 2, 4, 8, 12, 16, 32, 48 MILLIONTHS OF I_o

tex Thu Jul 8 20:00:12 2004



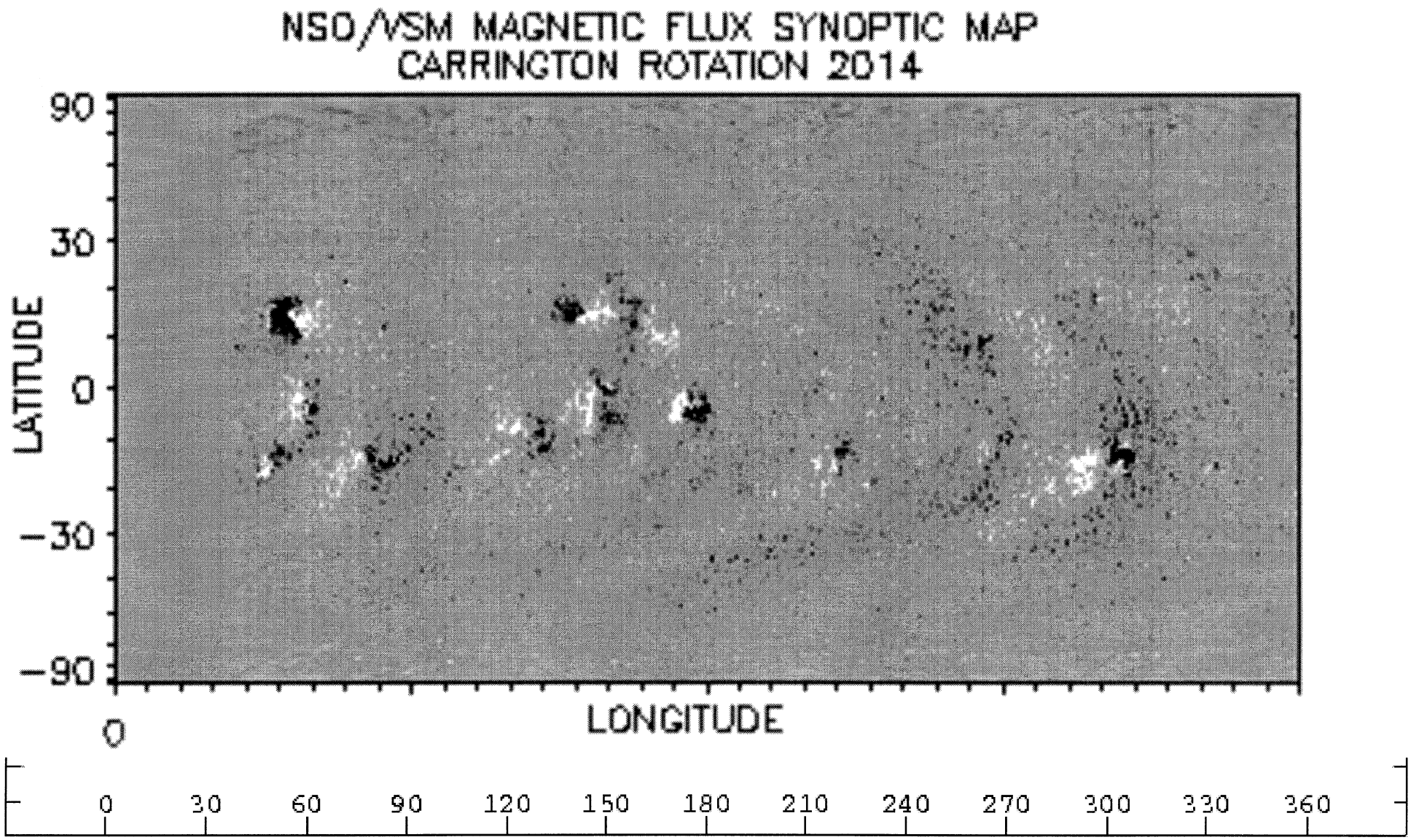
tex Thu Jul 8 19:59:54 2004

SOLAR MAGNETIC FIELD SYNOPTIC CHART

CARRINGTON ROTATION NUMBER 2014

(8 March to 4 April 2004)

National Solar Observatory/Kitt Peak

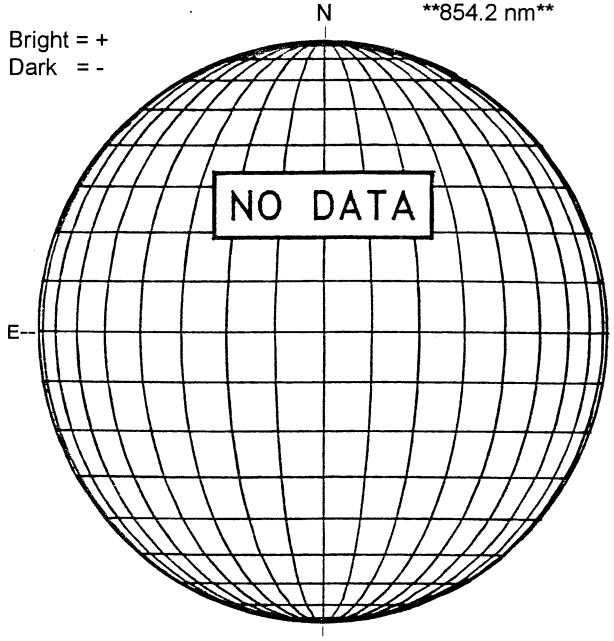


Heliographic Longitude

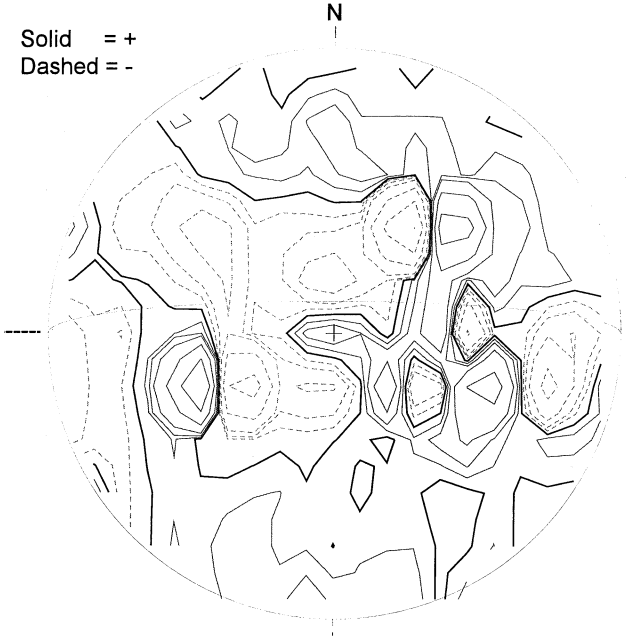
43
Apr 04

APRIL 1, 2004 (P= -26.18, Bo = -6.53, Lo = 45.86)

KITT PEAK MAGNETOGRAM--SOLIS

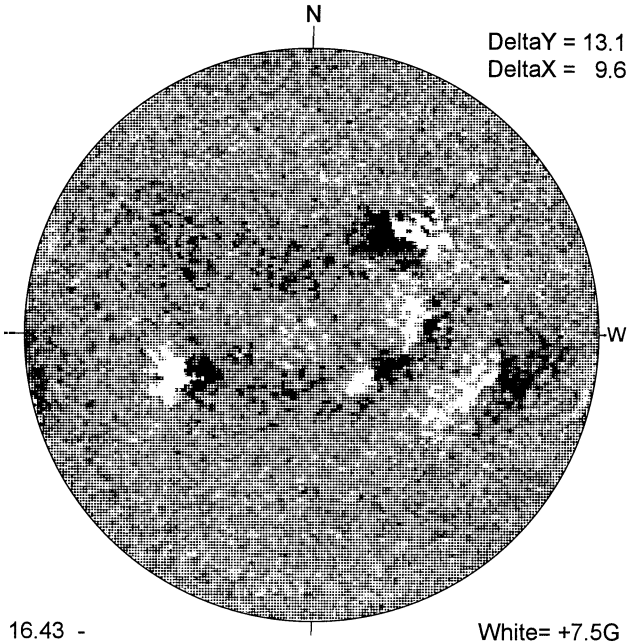


STANFORD MAGNETOGRAM



1850 UT

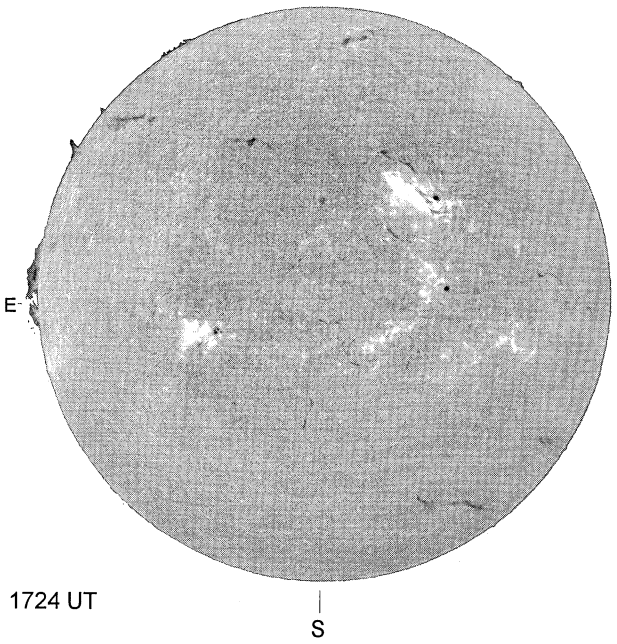
MT. WILSON MAGNETOGRAM



16.43 -
17.38 UT

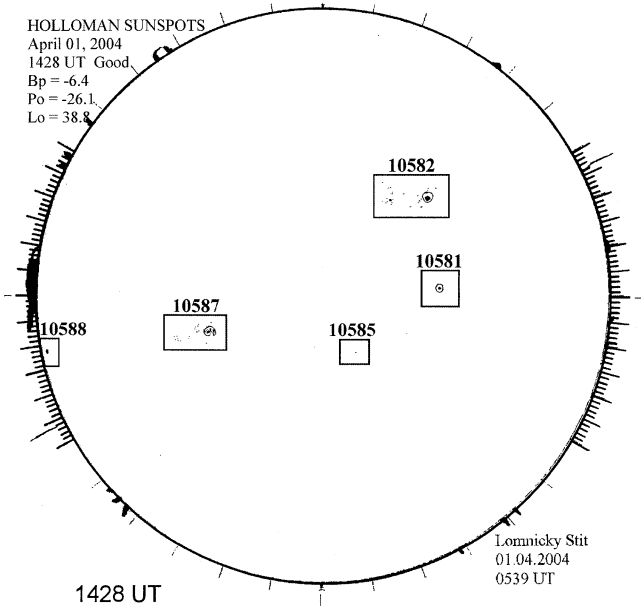
White= +7.5G
Black = -7.5G

BIG BEAR H-ALPHA



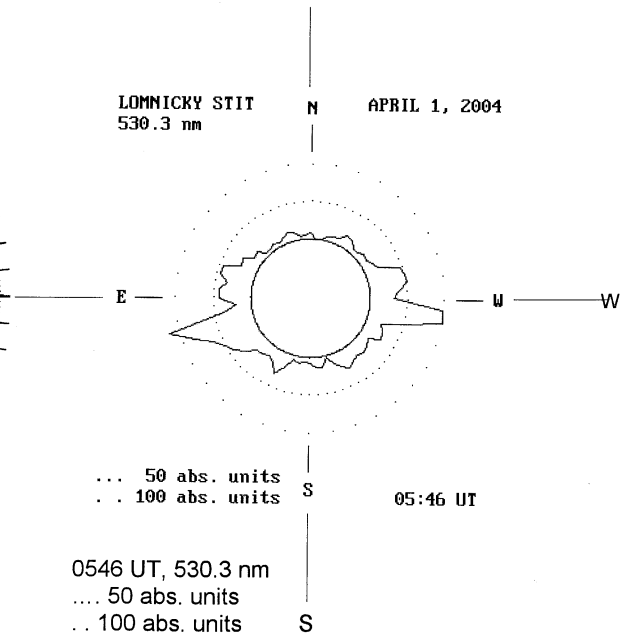
1724 UT

HOLLOMAN SUNSPOT



1428 UT
0539 UT LOMN Prom S

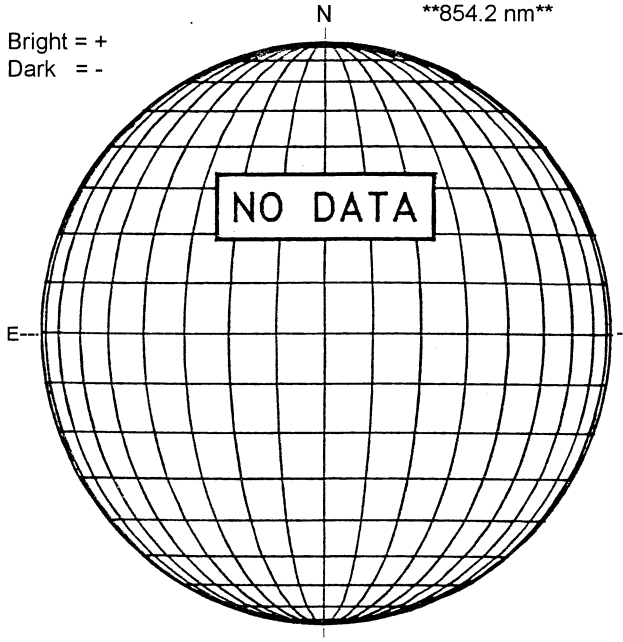
LOMNICKY PEAK CORONA (1.04 Radii)----



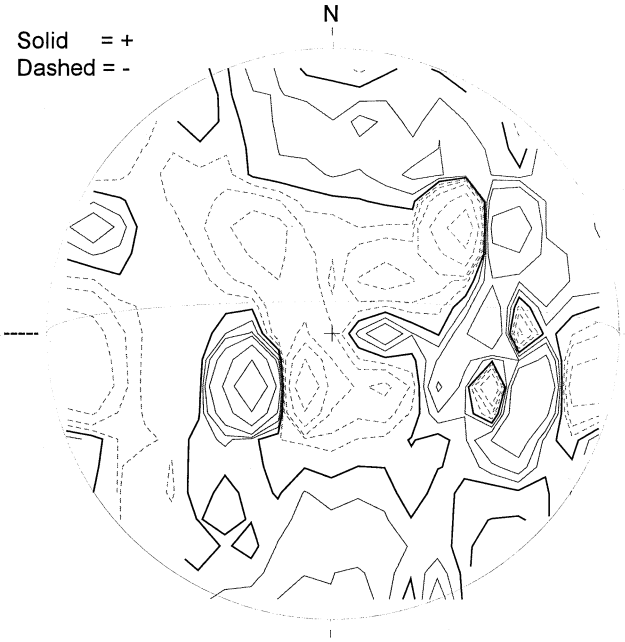
0546 UT, 530.3 nm
.... 50 abs. units
. . 100 abs. units
S

APRIL 2, 2004 (P= -26.22, Bo = -6.47, Lo = 32.67)

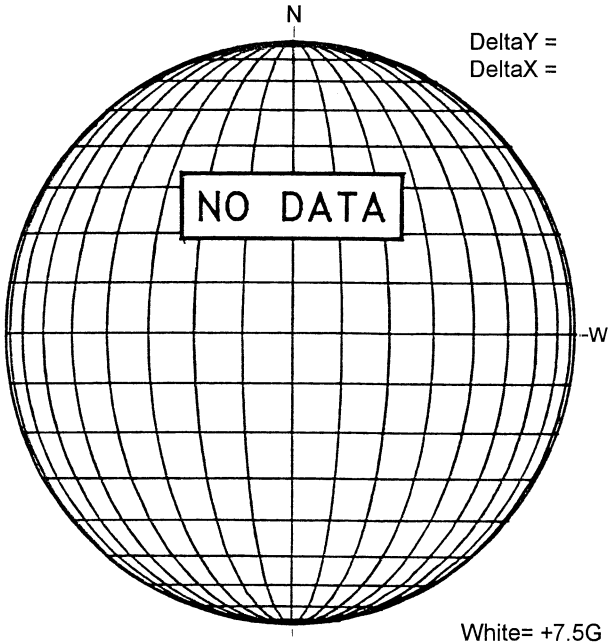
KITT PEAK MAGNETOGRAM--SOLIS



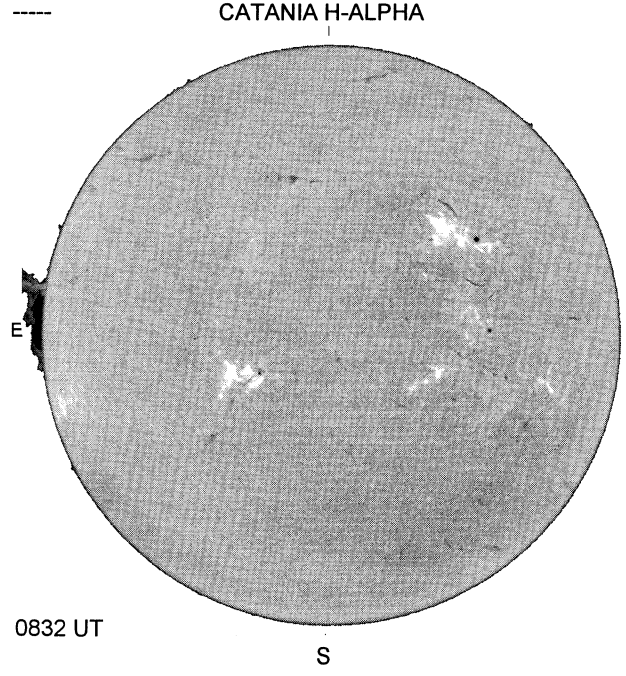
STANFORD MAGNETOGRAM



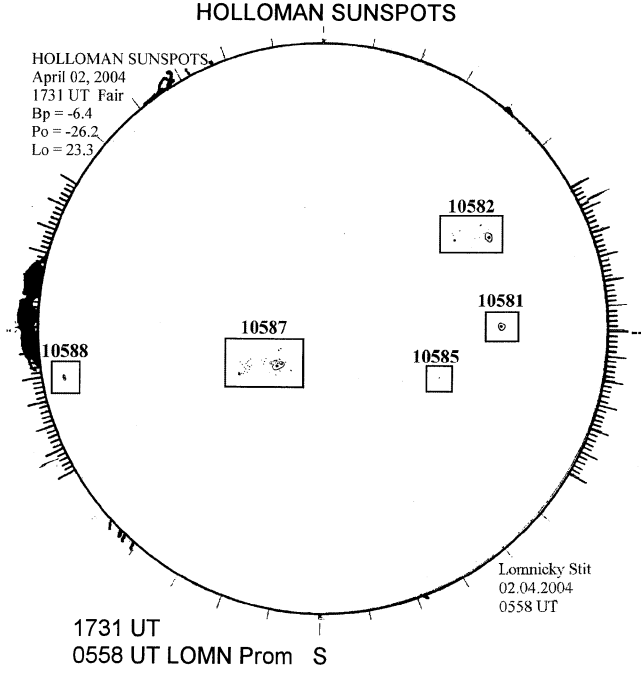
MT. WILSON MAGNETOGRAM



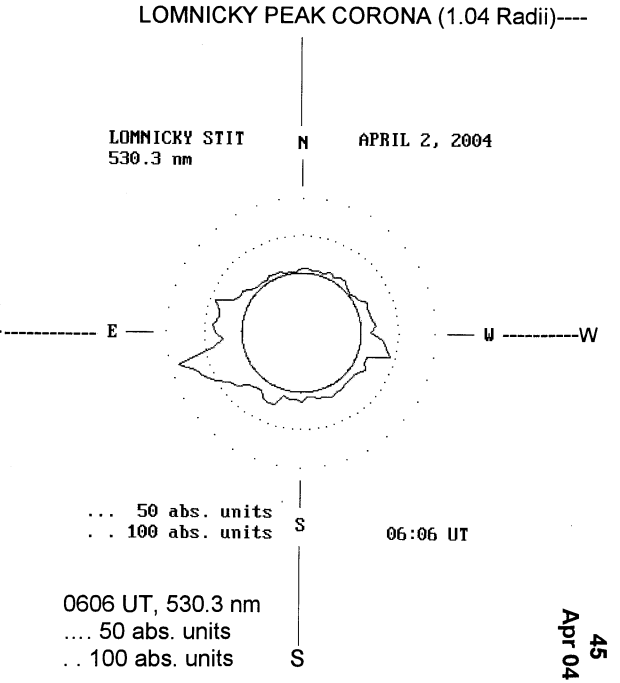
CATANIA H-ALPHA



HOLLOMAN SUNSPOTS

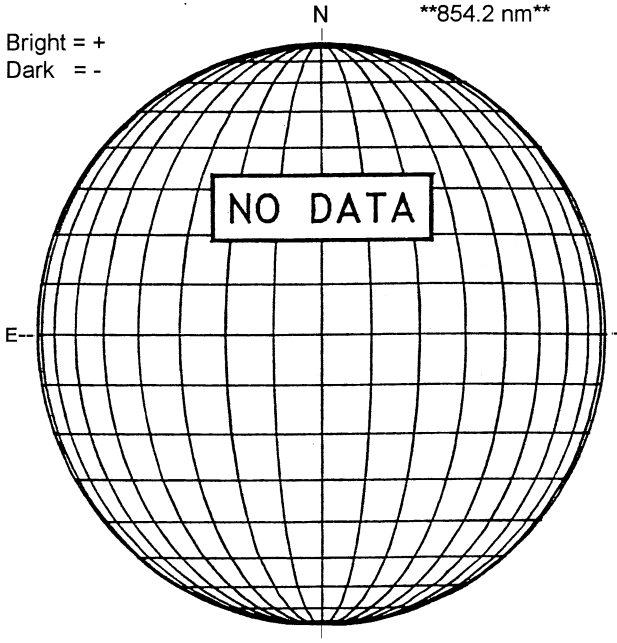


LOMNICKY PEAK CORONA (1.04 Radii)----



APRIL 3, 2004 (P= -26.25, Bo = -6.41, Lo = 19.47)

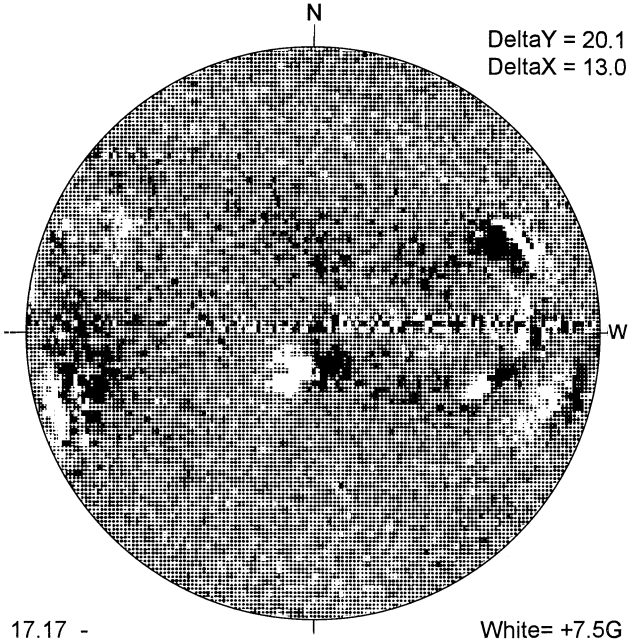
KITT PEAK MAGNETOGRAM--SOLIS



STANFORD MAGNETOGRAM

2309 UT

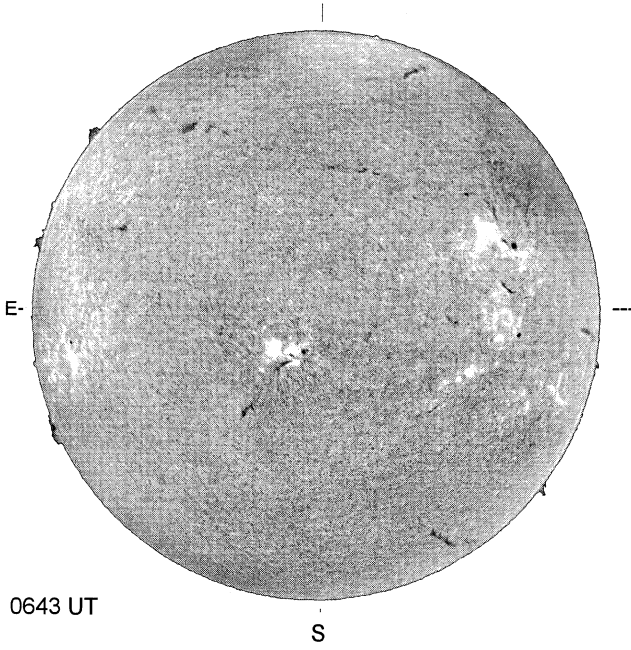
MT. WILSON MAGNETOGRAM



17.17 -
17.59 UT

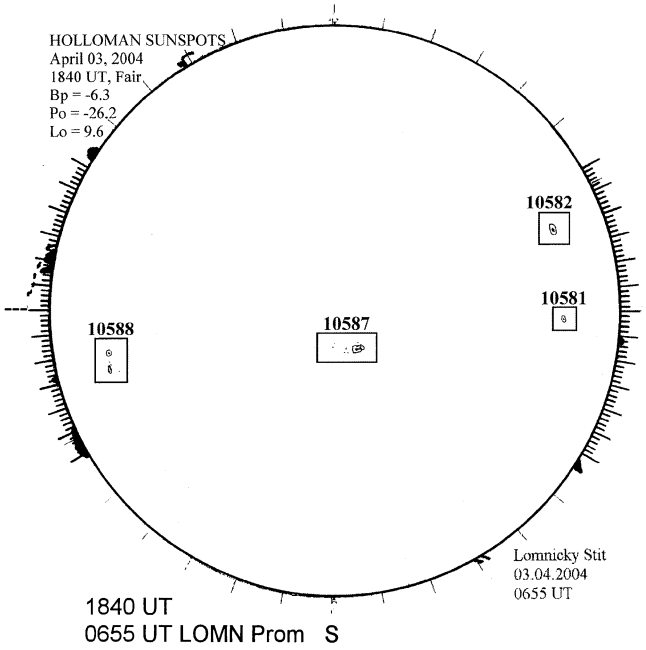
White= +7.5G
Black = -7.5G

KANZELHOHE H-ALPHA



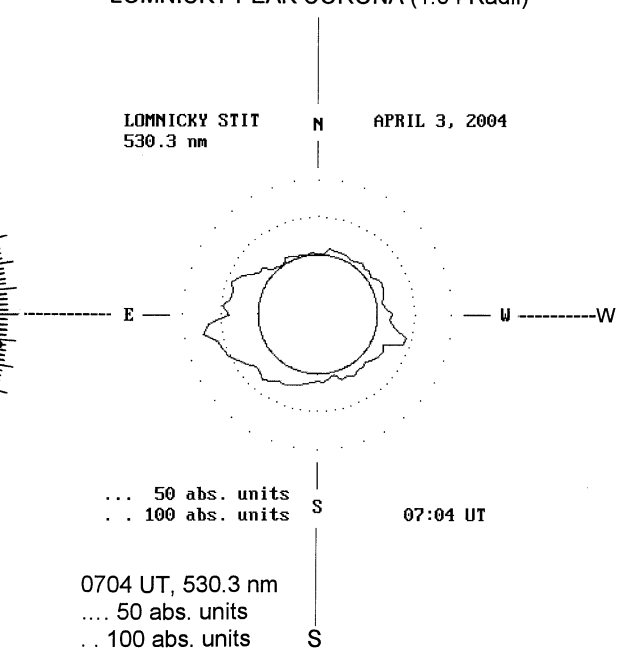
0643 UT

HOLLOMAN SUNSPOTS



1840 UT
0655 UT LOMN Prom S

LOMNICKY PEAK CORONA (1.04 Radii)----



0704 UT, 530.3 nm
.... 50 abs. units
. . 100 abs. units
S

APRIL 4, 2004 (P= -26.27, Bo = -6.35, Lo = 6.28)

KITT PEAK MAGNETOGRAM--SOLIS

854.2 nm

Bright = +
Dark = -

N

E--

NO DATA

STANFORD MAGNETOGRAM

Solid = +
Dashed = -

N

NO DATA

MT. WILSON MAGNETOGRAM

N

DeltaY = 13.1
DeltaX = 9.6

W

16.09 -
17.04 UT

White= +7.5G
Black = -7.5G

KANZELHOHE H-ALPHA

E-

0733 UT

S

LEARMONTH SUNSPOTS

LEARMONTH SUNSPOTS
April 04, 2004
0035 UT Fair
Bp = -6.3
Po = -26.2
Lo = 6.6

10582
10581
10587
10588

0035 UT

S

SACRAMENTO PEAK CORONA (1.15 Radii)----

NO DATA

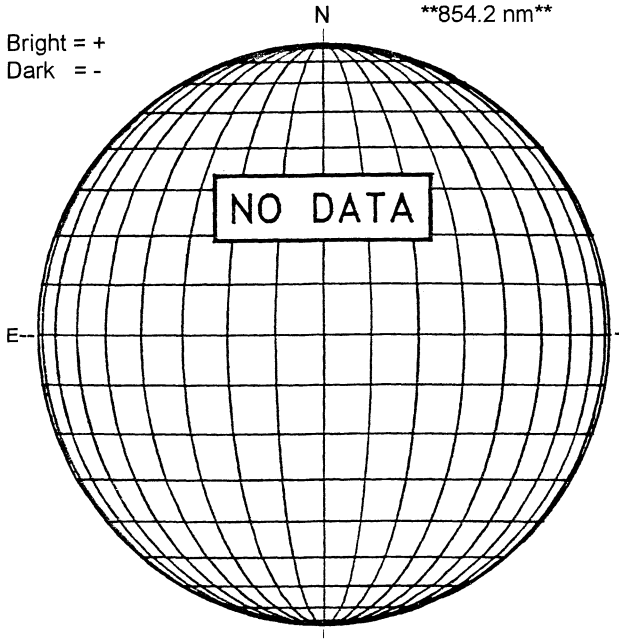
S

APRIL 5, 2004 (P= -26.28, Bo = -6.29, Lo = 353.08)

KITT PEAK MAGNETOGRAM--SOLIS

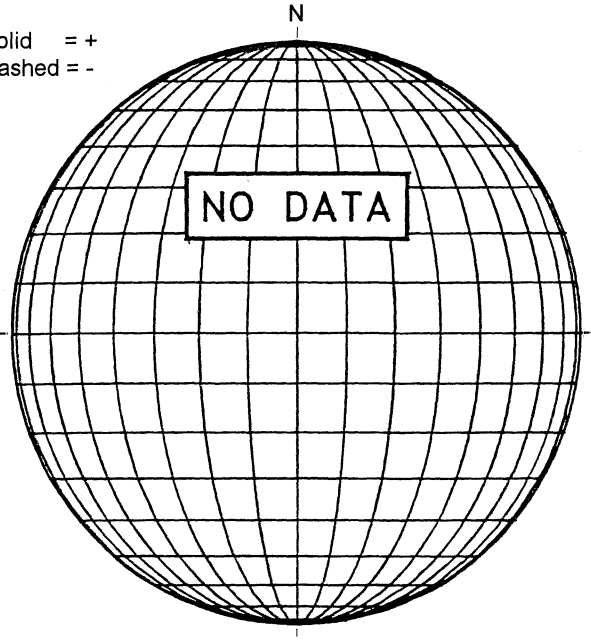
854.2 nm

Bright = +
Dark = -



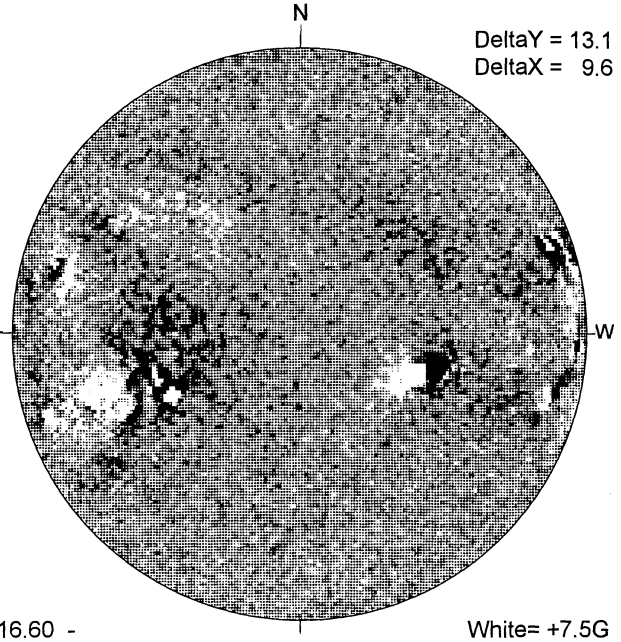
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

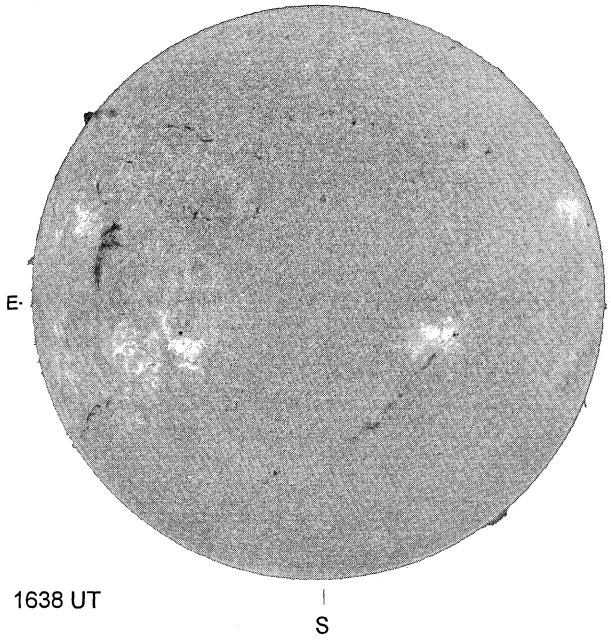
DeltaY = 13.1
DeltaX = 9.6



16.60 -
17.54 UT

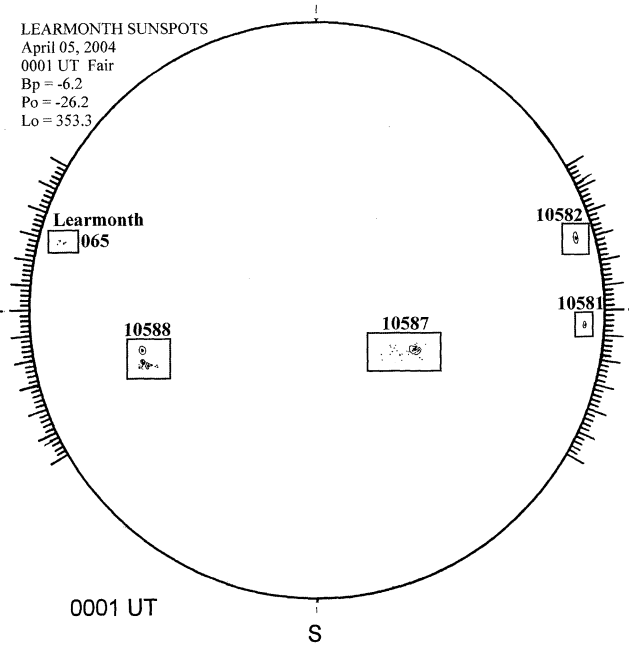
White= +7.5G
Black = -7.5G

BIG BEAR H-ALPHA



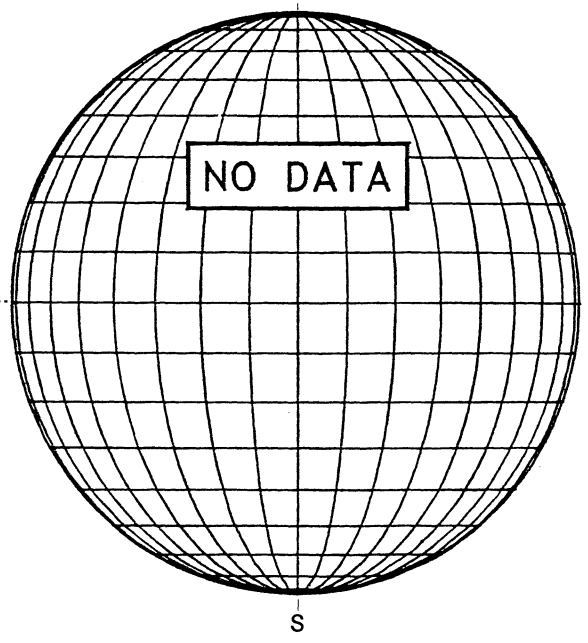
1638 UT

LEARMONTH SUNSPOTS



0001 UT

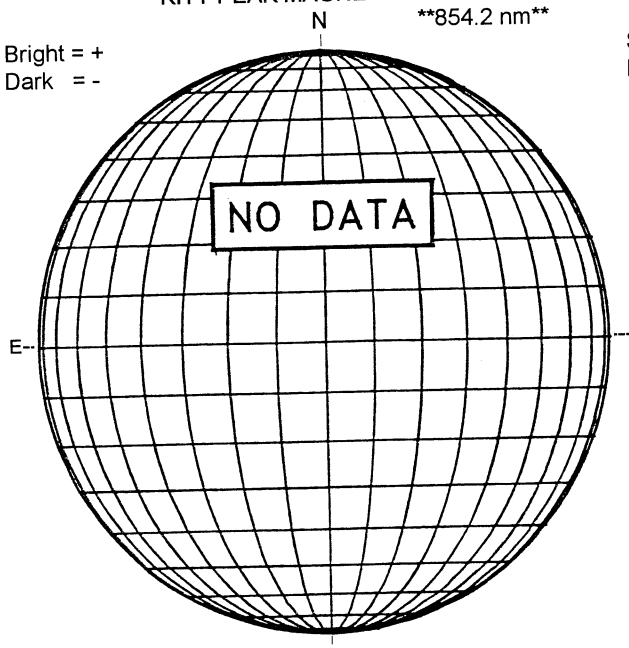
LOMNICKY PEAK CORONA (1.04 Radii)----



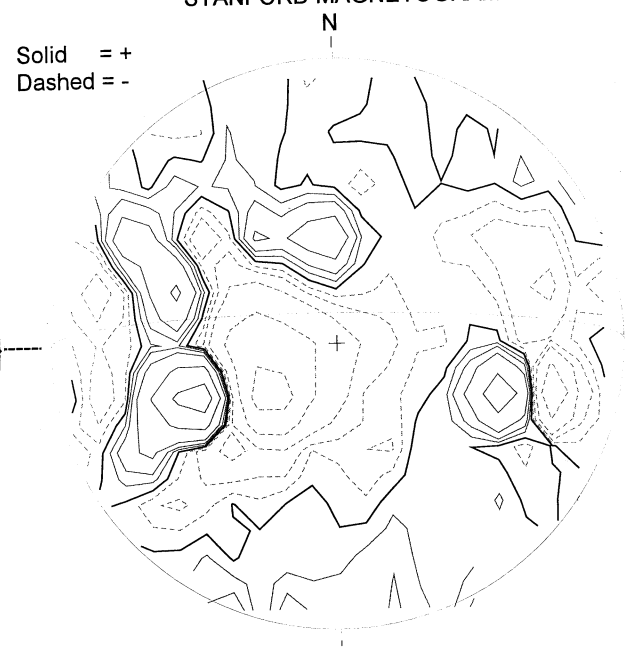
APRIL 6, 2004 (P= -26.29, Bo = -6.23, Lo = 339.89)

KITT PEAK MAGNETOGRAM--SOLIS

854.2 nm

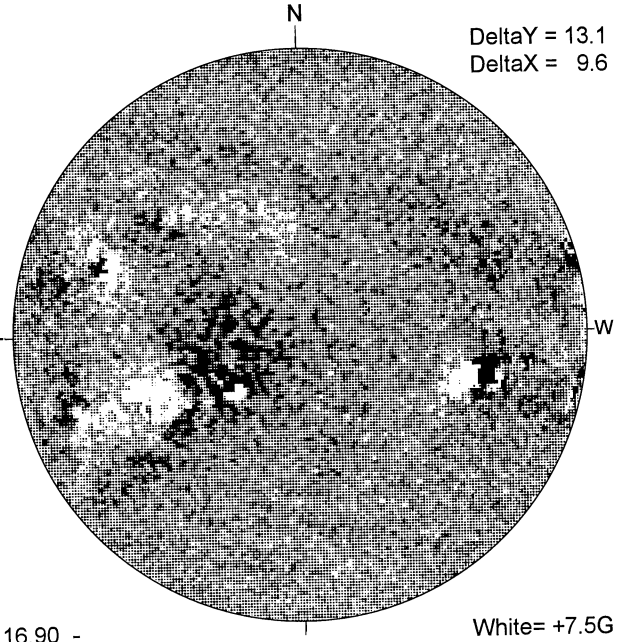


STANFORD MAGNETOGRAM



2126 UT

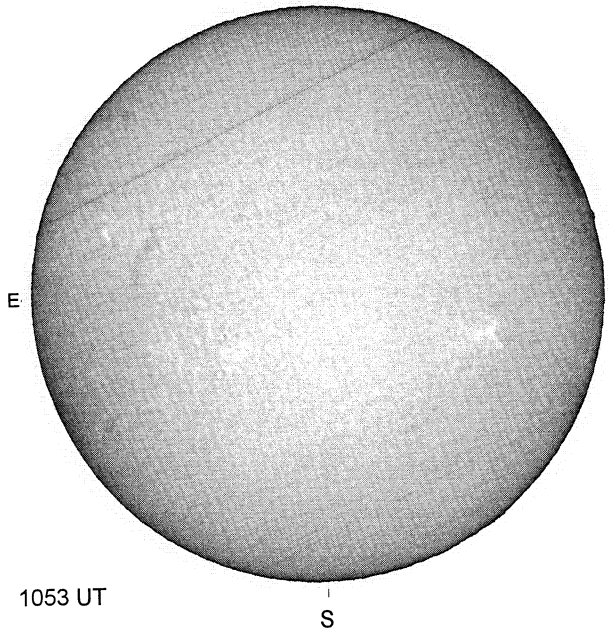
MT. WILSON MAGNETOGRAM



16.90 -
17.84 UT

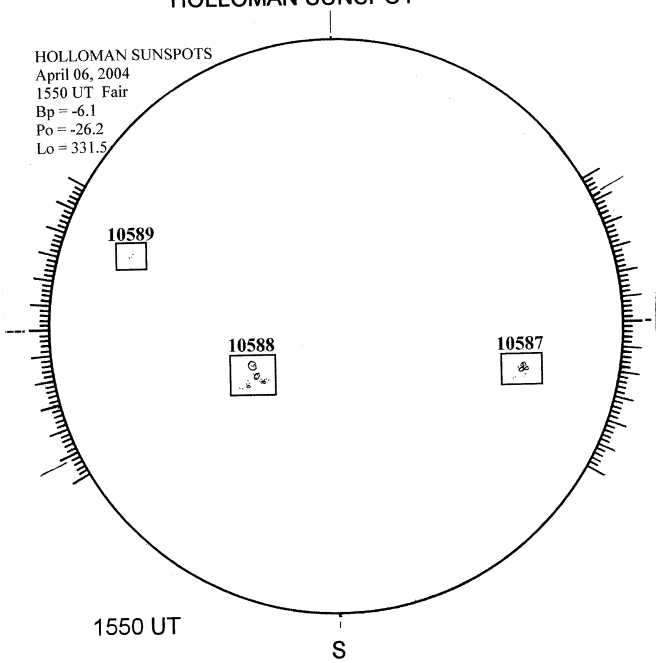
White= +7.5G
Black = -7.5G

MEUDON H-ALPHA



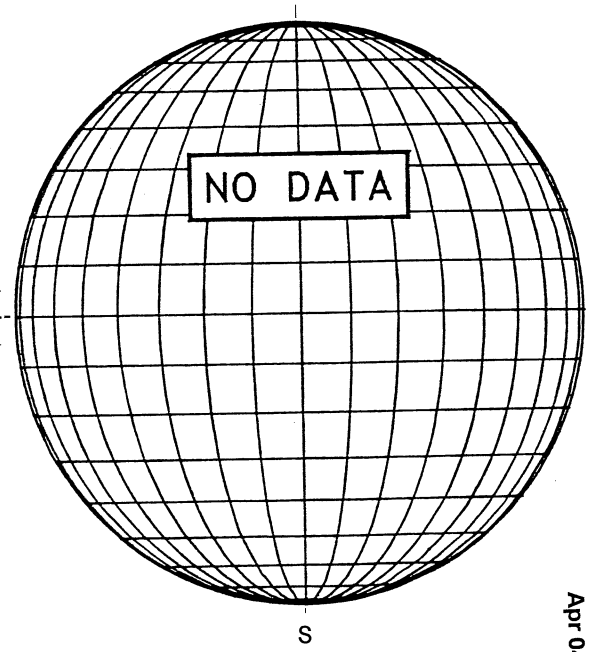
1053 UT

HOLLOMAN SUNSPOT



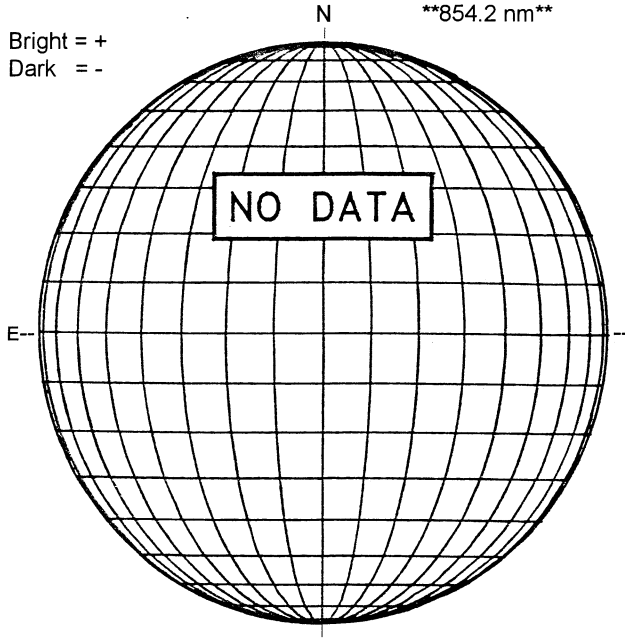
1550 UT

LOMNICKY PEAK CORONA (1.04 Radii)----

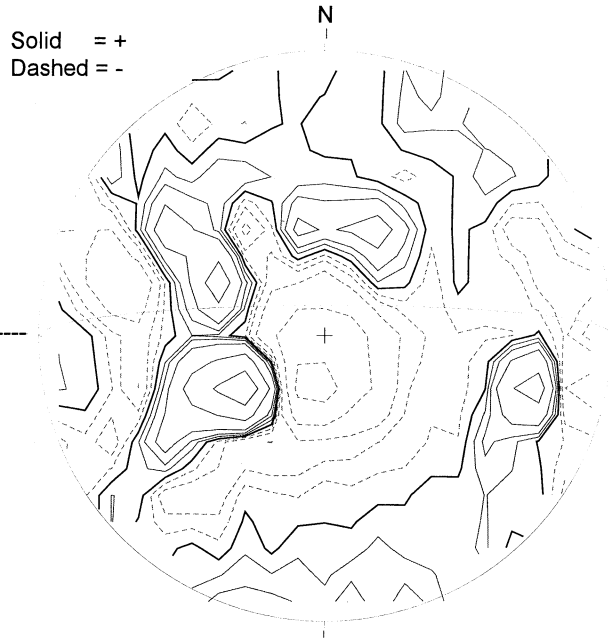


APRIL 7, 2004 (P= -26.29, Bo = -6.17, Lo = 326.69)

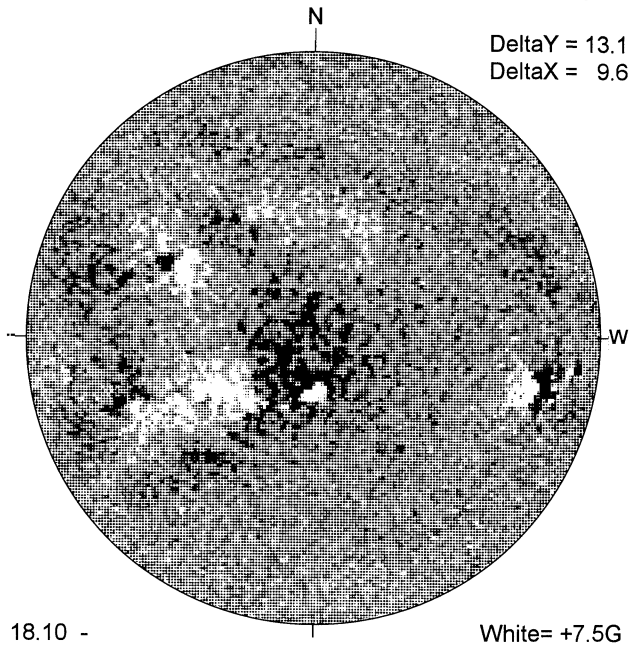
KITT PEAK MAGNETOGRAM--SOLIS



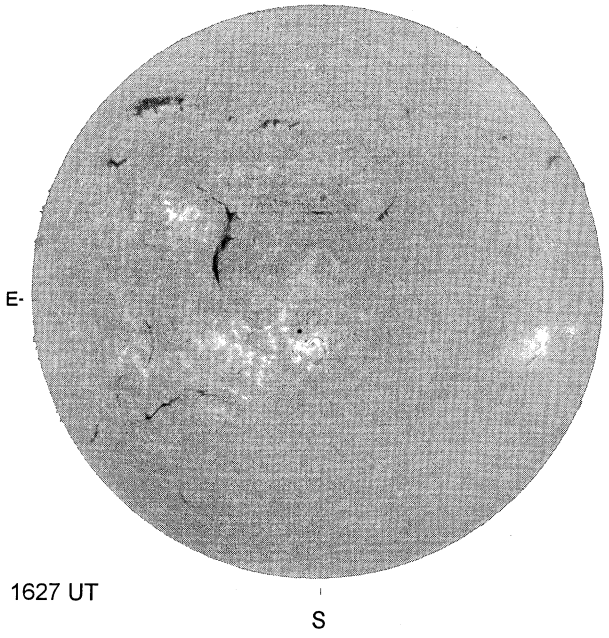
STANFORD MAGNETOGRAM



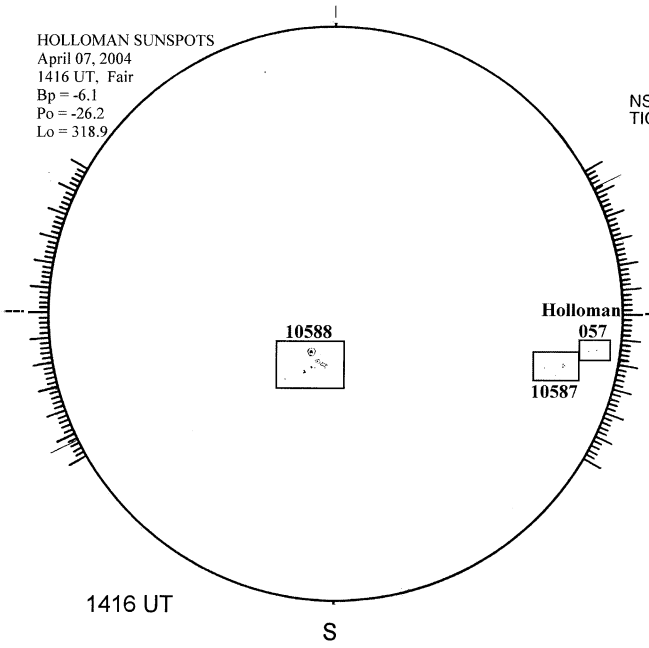
MT. WILSON MAGNETOGRAM



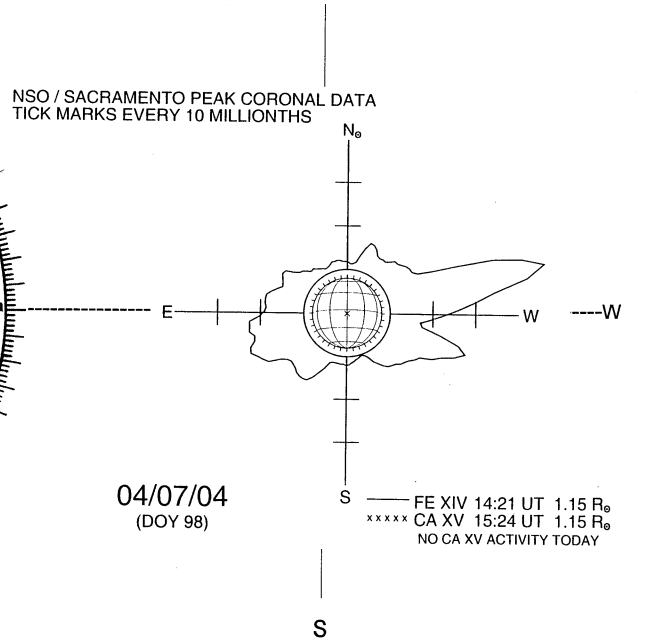
BIG BEAR H-ALPHA



HOLLOMAN SUNSPOTS



SACRAMENTO PEAK CORONA (1.15 Radii)----

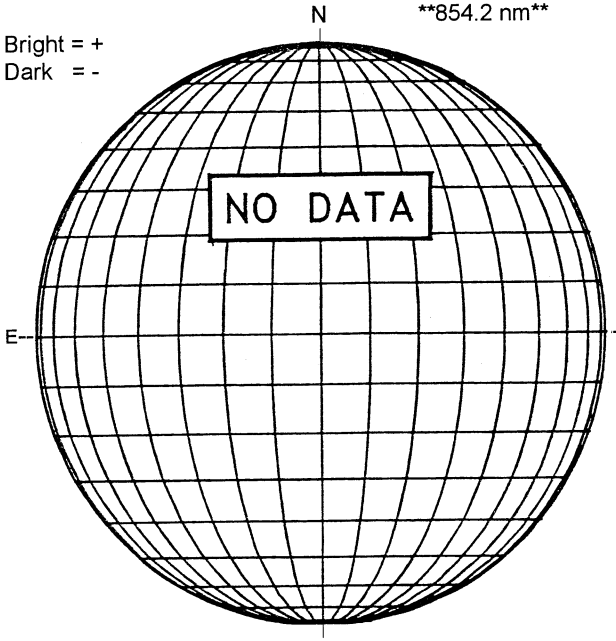


APRIL 8, 2004 (P= -26.28, Bo = -6.10, Lo = 313.49)

KITT PEAK MAGNETOGRAM--SOLIS

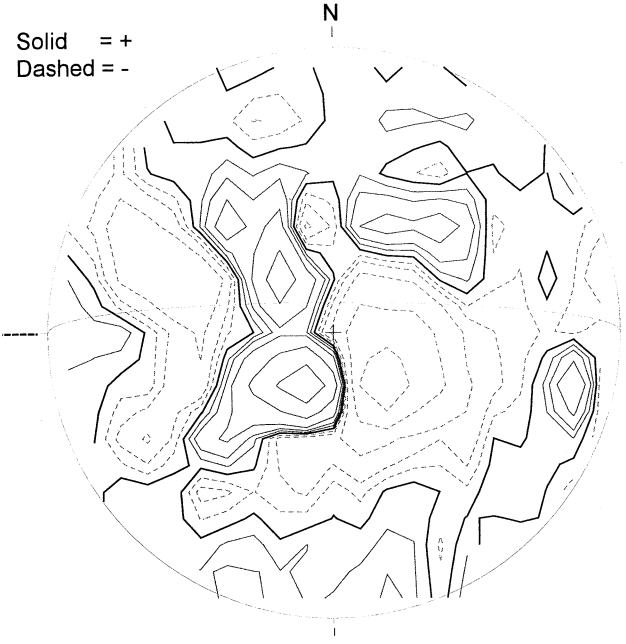
854.2 nm

Bright = +
Dark = -



STANFORD MAGNETOGRAM

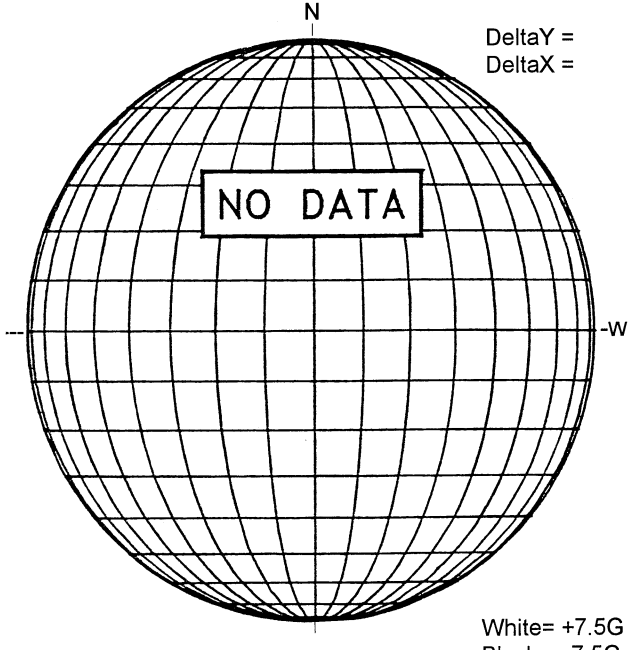
Solid = +
Dashed = -



2049 UT

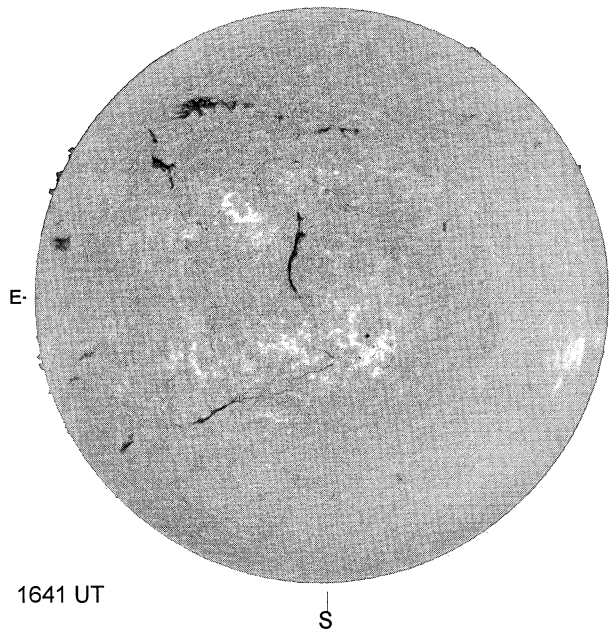
MT. WILSON MAGNETOGRAM

DeltaY =
DeltaX =



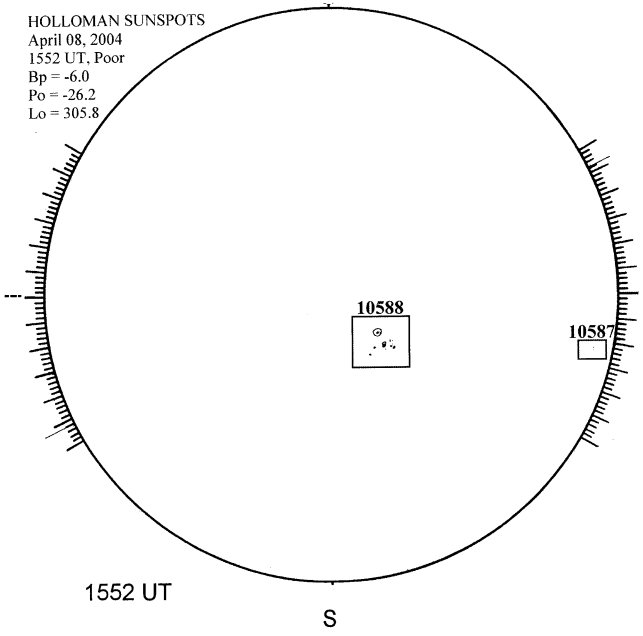
White= +7.5G
Black = -7.5G

BIG BEAR H-ALPHA



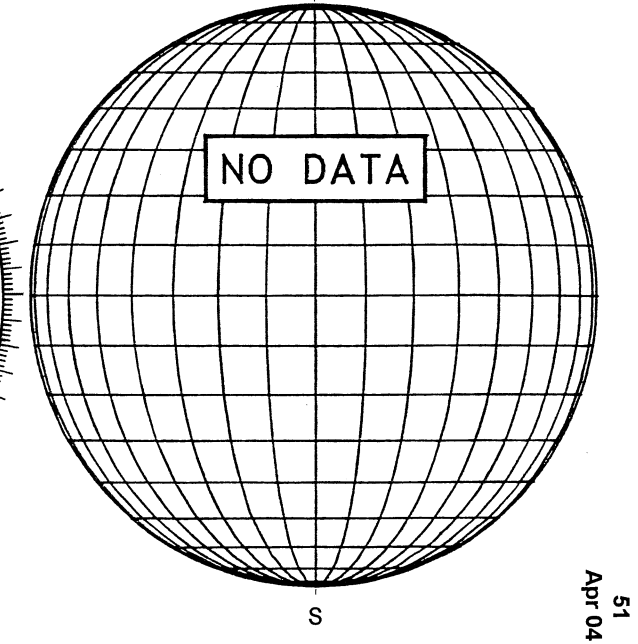
1641 UT

HOLLOMAN SUNSPOTS



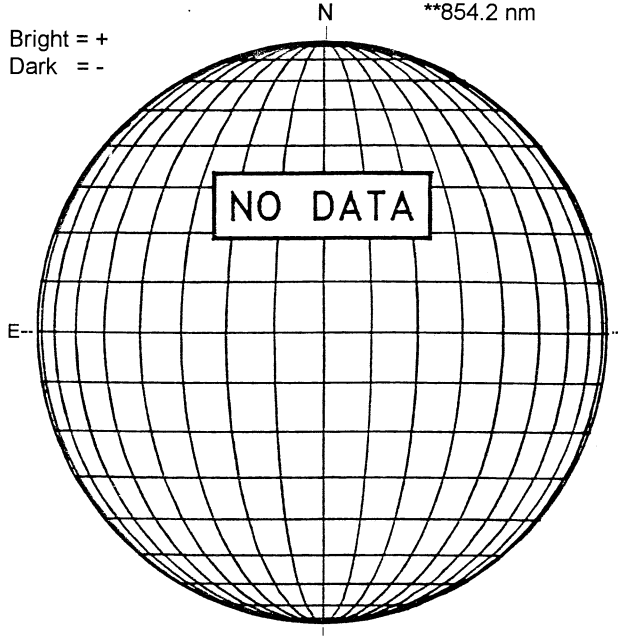
1552 UT

SACRAMENTO PEAK CORONA (1.15 Radii)----

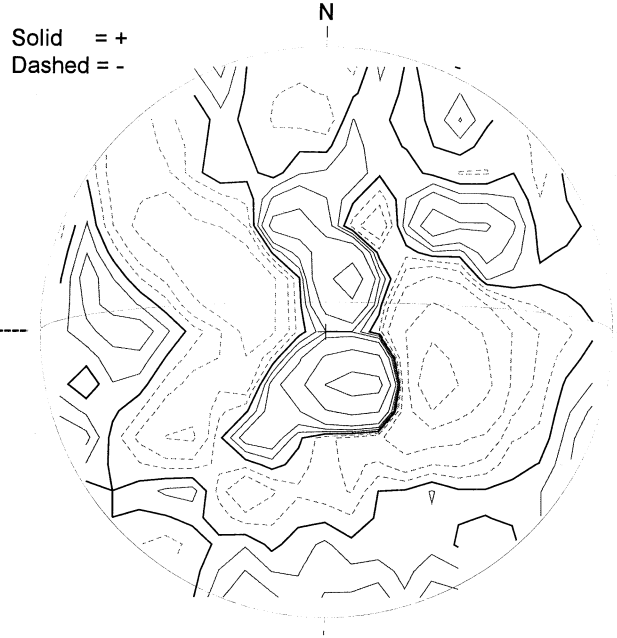


APRIL 9, 2004 (P= -26.27, Bo = -6.03, Lo = 300.29)

KITT PEAK MAGNETOGRAM--SOLIS

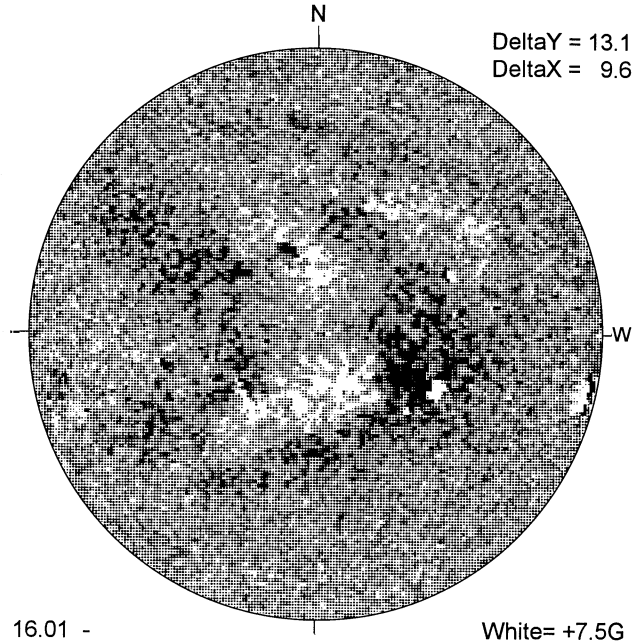


STANFORD MAGNETOGRAM



2106 UT

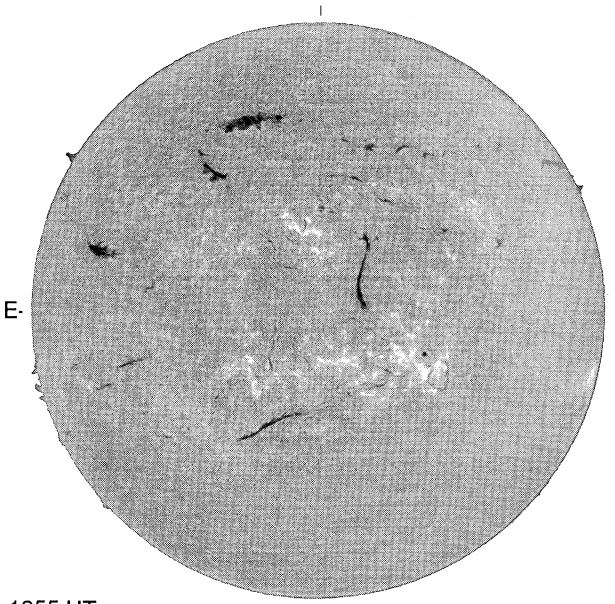
MT. WILSON MAGNETOGRAM



16.01 -
16.95 UT

White= +7.5G
Black = -7.5G

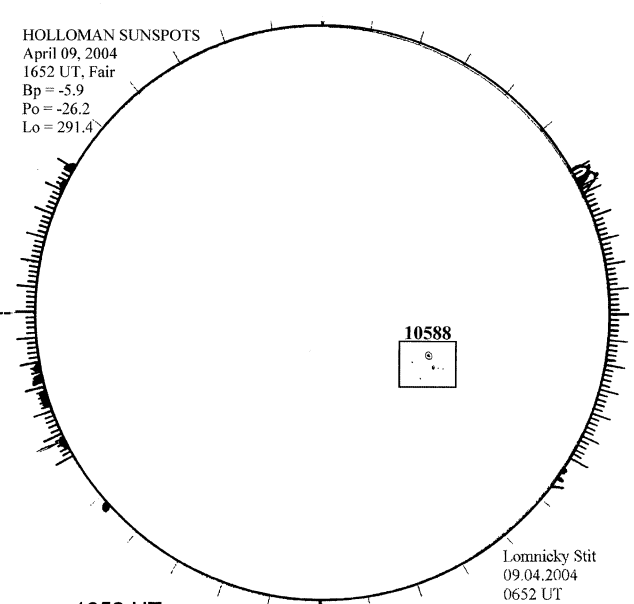
BIG BEAR H-ALPHA



1655 UT

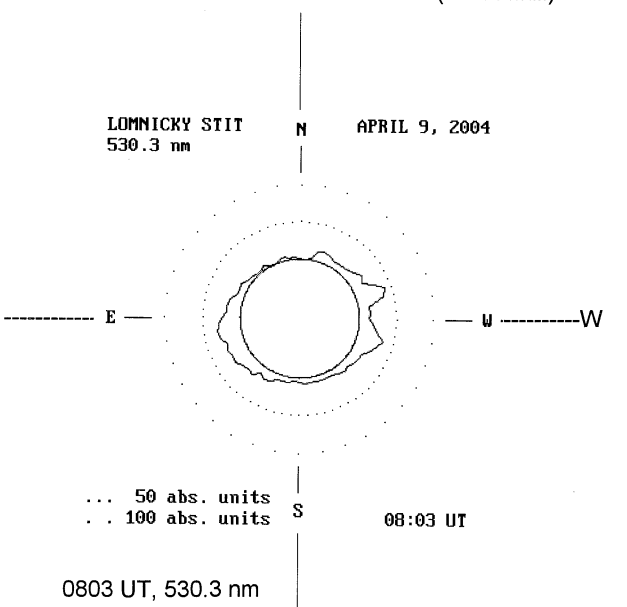
S

HOLLOMAN SUNSPOT



1652 UT
0652 UT LOMN Prom S

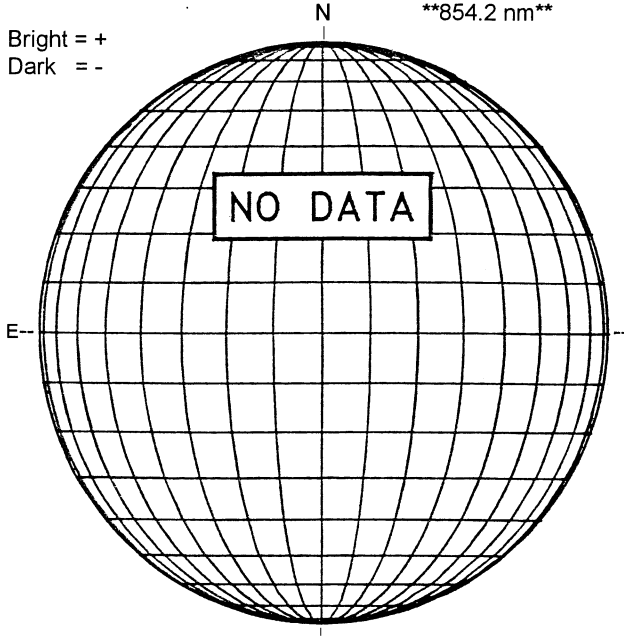
LOMNICKY PEAK CORONA (1.04 Radii)----



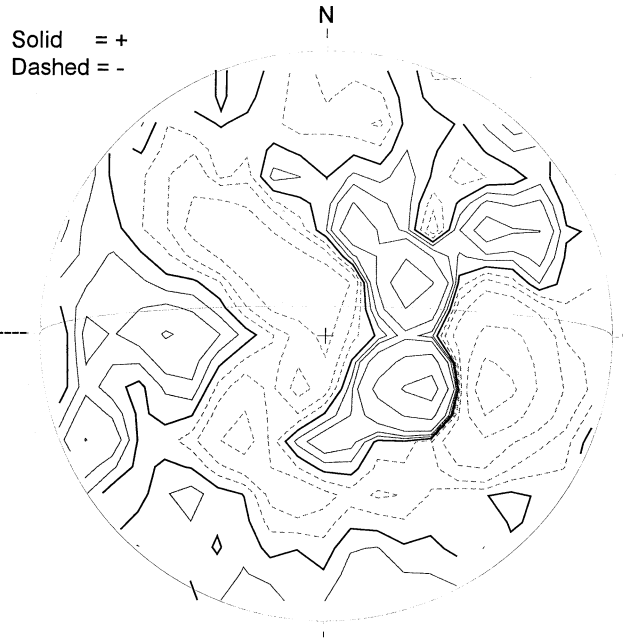
0803 UT, 530.3 nm
.... 50 abs. units
. . 100 abs. units S

APRIL 10, 2004 (P= -26.25, Bo = -5.96 Lo = 287.09)

KITT PEAK MAGNETOGRAM--SOLIS

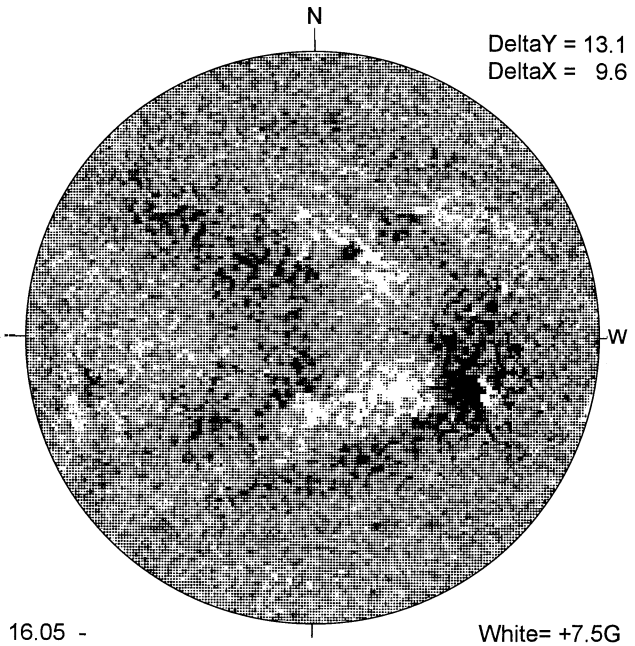


STANFORD MAGNETOGRAM



2224 UT

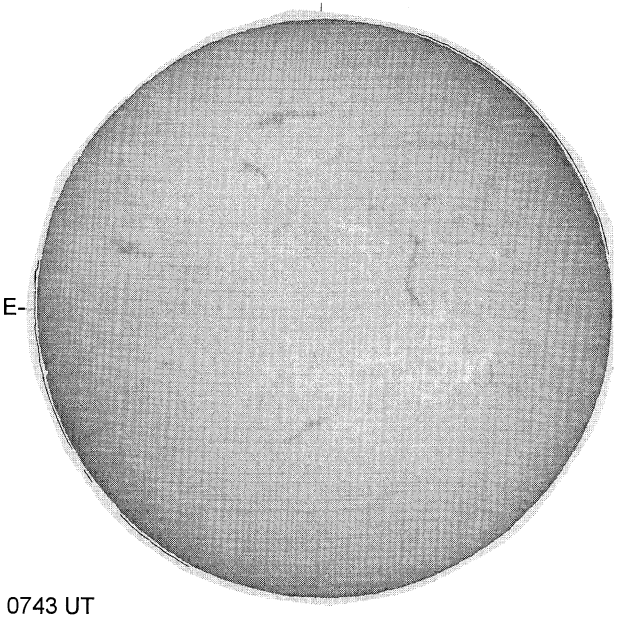
MT. WILSON MAGNETOGRAM



16.05 -
16.99 UT

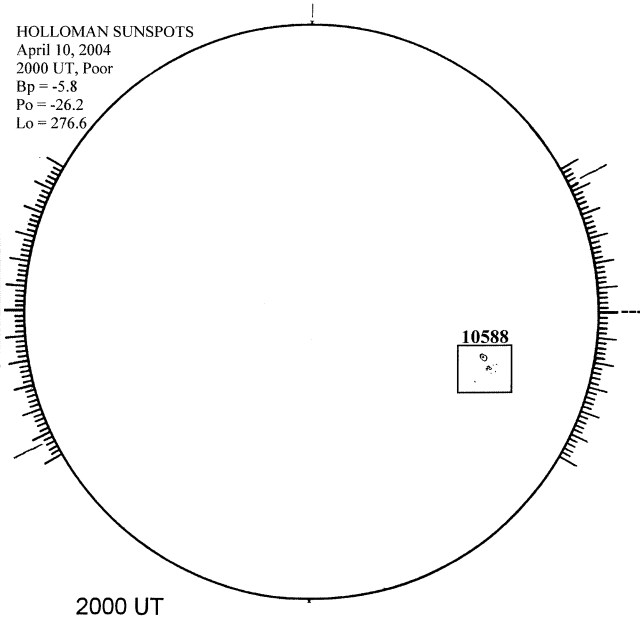
White= +7.5G
Black = -7.5G

----- MEUDON H-ALPHA



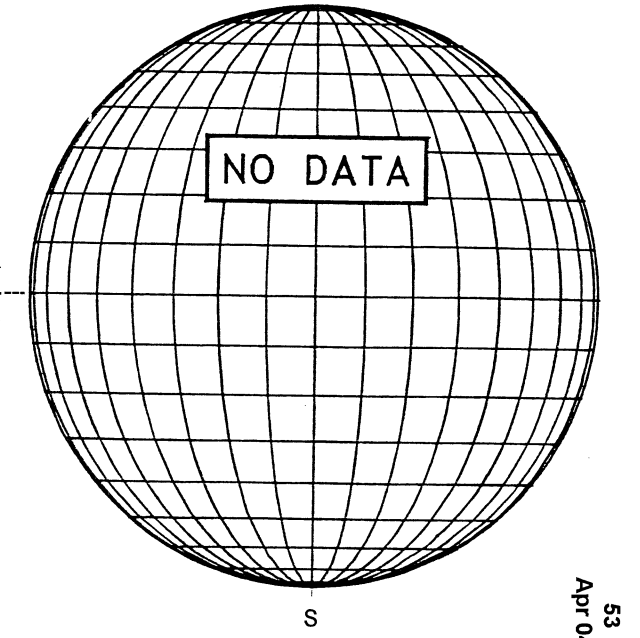
0743 UT

HOLLOMAN SUNSPOTS



2000 UT

SACRAMENTO PEAK CORONA (1.15 Radii)----



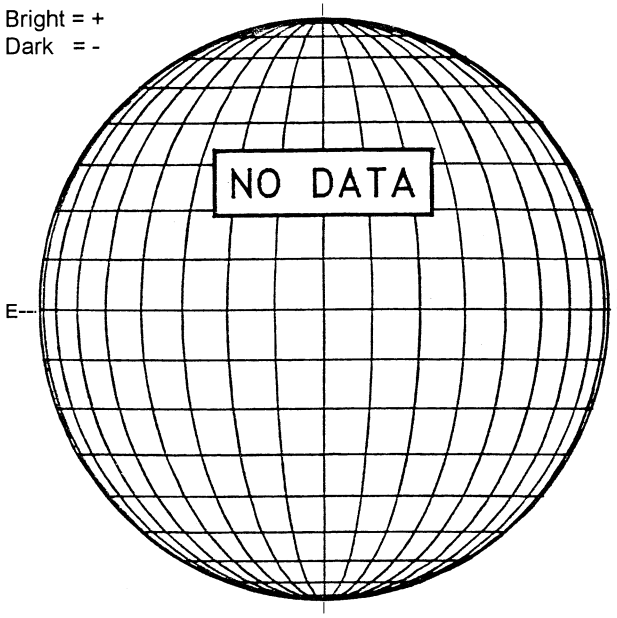
53
Apr 04

APRIL 11, 2004 (P= -26.22, Bo = -5.89, Lo = 273.89)

KITT PEAK MAGNETOGRAM--SOLIS

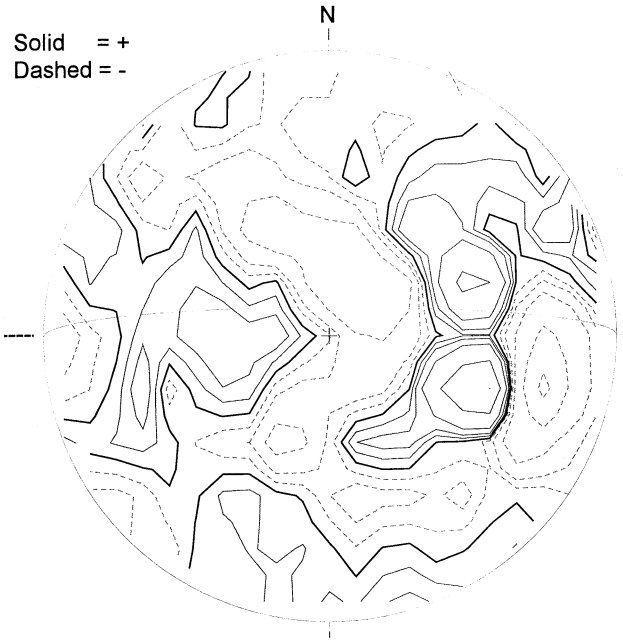
854.2 nm

Bright = +
Dark = -



STANFORD MAGNETOGRAM

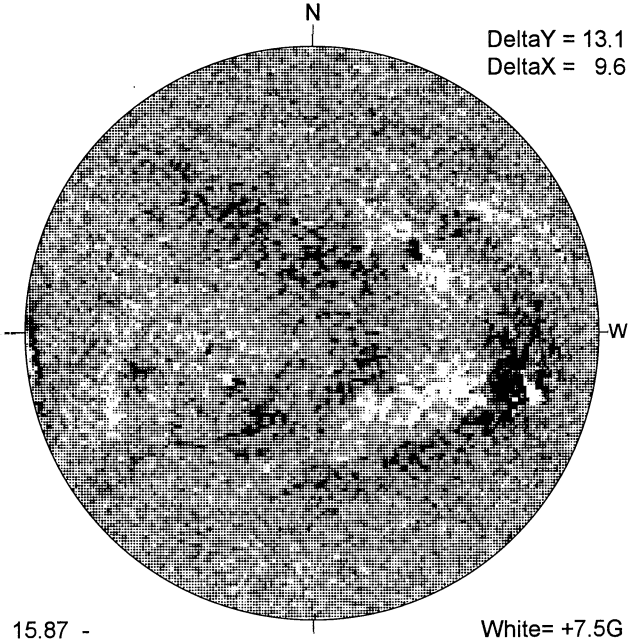
Solid = +
Dashed = -



2053 UT

MT. WILSON MAGNETOGRAM

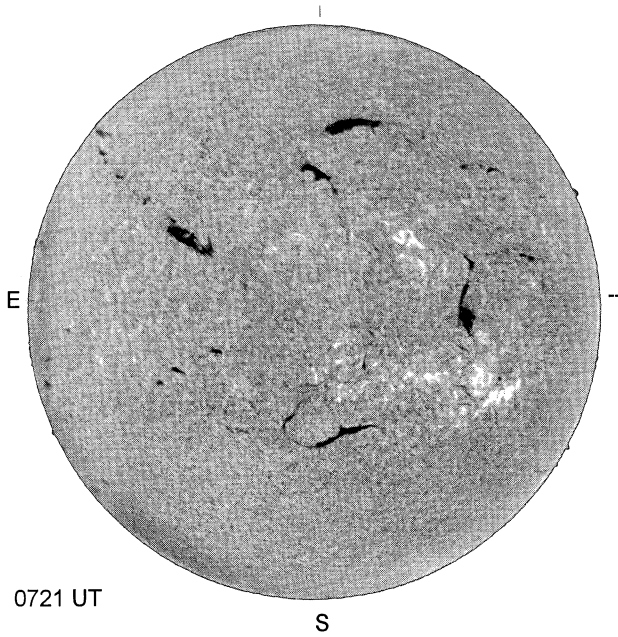
DeltaY = 13.1
DeltaX = 9.6



15.87 -
16.81 UT

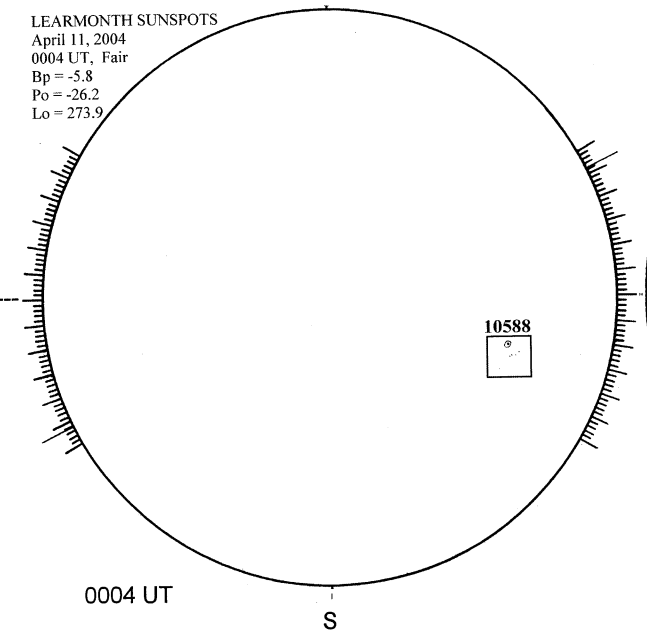
White= +7.5G
Black = -7.5G

KANZELHOHE H-ALPHA



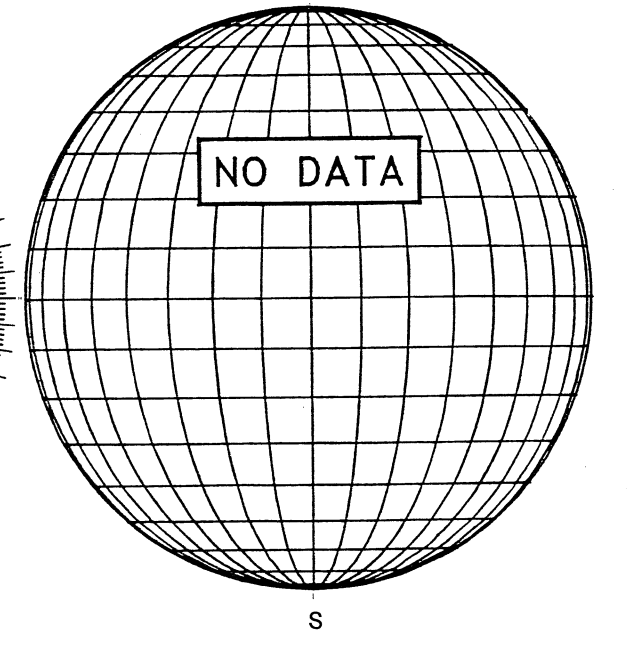
0721 UT

LEARMONTH SUNSPOTS



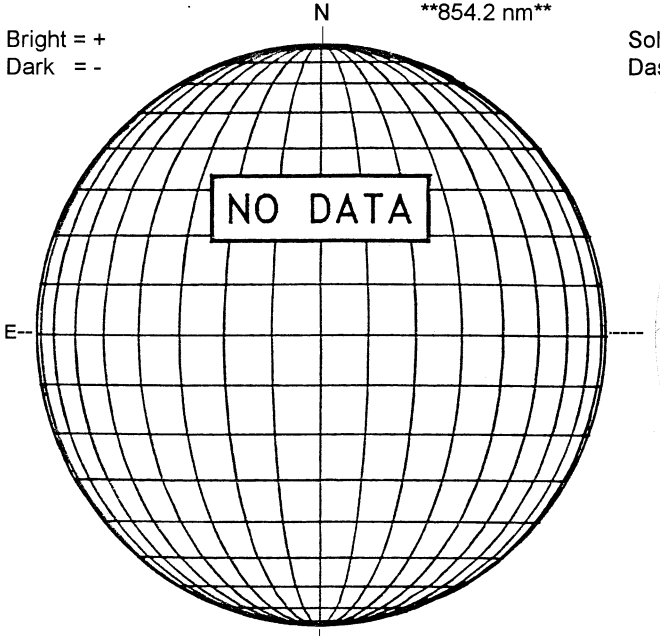
0004 UT

LOMNICKY PEAK CORONA (1.04 Radii)----

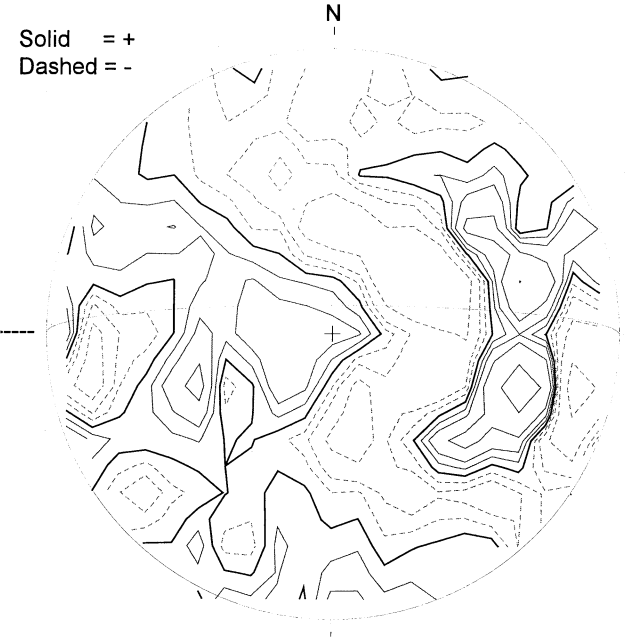


APRIL 12, 2004 (P= -26.18, Bo = -5.82, Lo = 260.69)

KITT PEAK MAGNETOGRAM--SOLIS

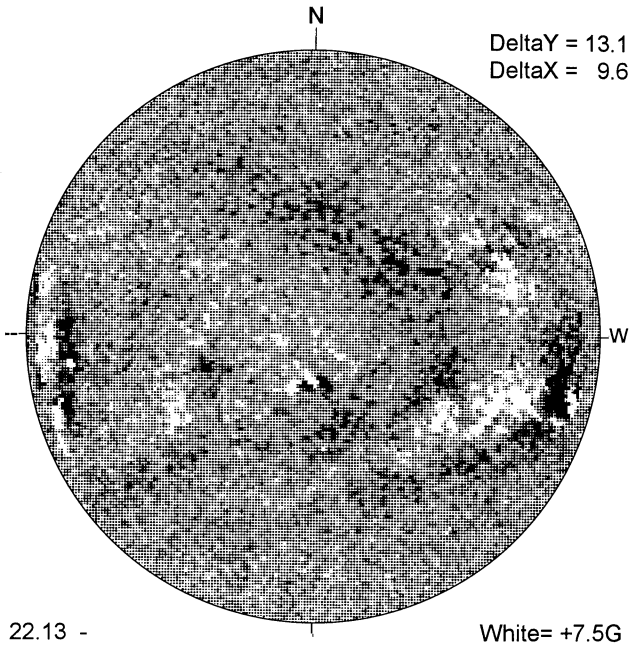


STANFORD MAGNETOGRAM



2108 UT

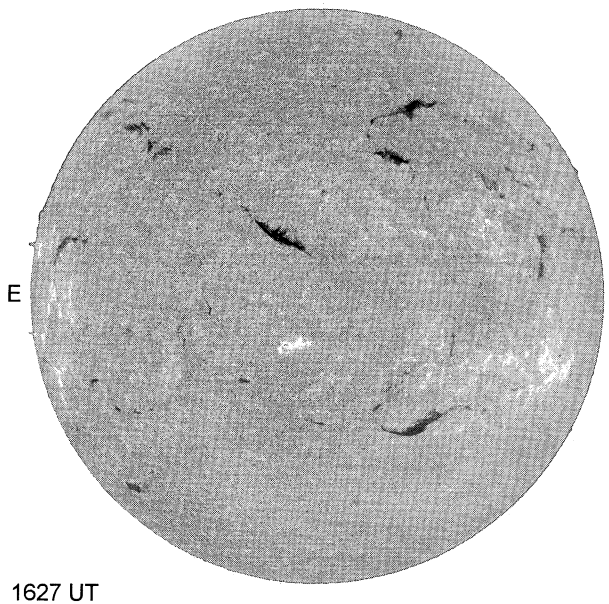
MT. WILSON MAGNETOGRAM



22.13 -
23.08 UT

White= +7.5G
Black = -7.5G

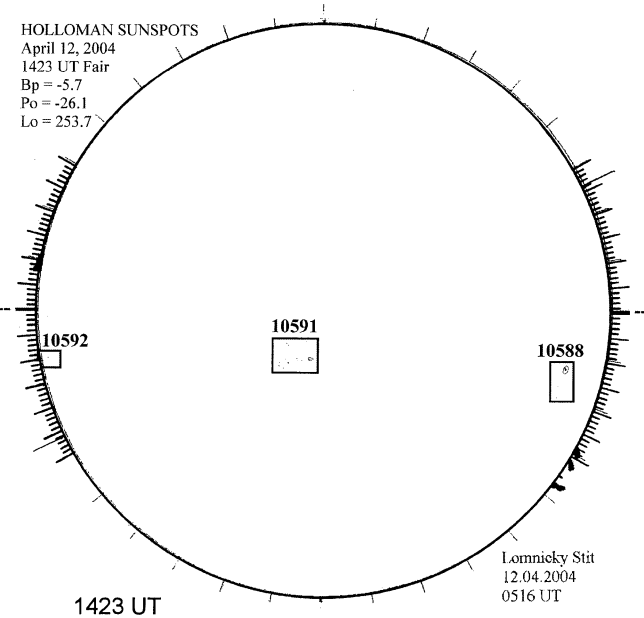
---- BIG BEAR H-ALPHA



1627 UT

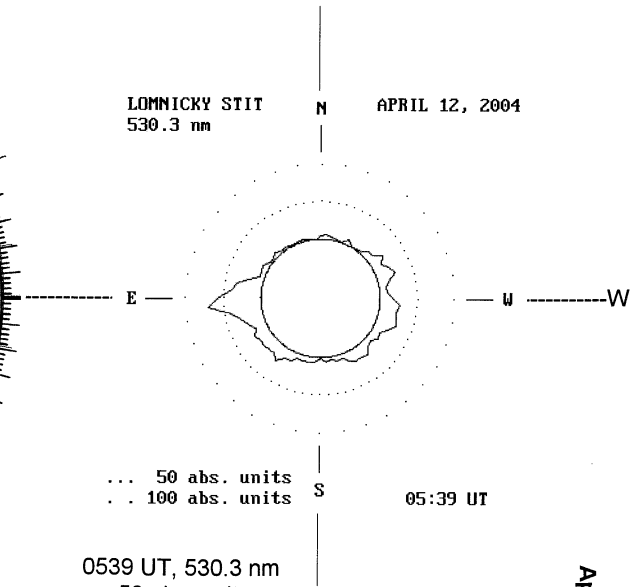
S

HOLLOMAN SUNSPOTS



1423 UT
0516 UT LOMN Prom S

LOMNICKY PEAK CORONA (1.04 Radii)----



0539 UT, 530.3 nm
.... 50 abs. units
. . 100 abs. units

S

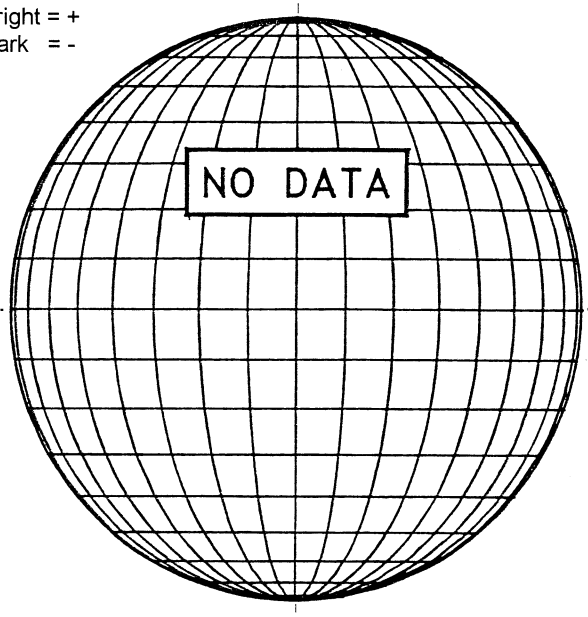
55
Apr 04

APRIL 13, 2004 (P= -26.14, Bo = -5.74, Lo = 247.49)

KITT PEAK MAGNETOGRAM--SOLIS

N **854.2 nm**

Bright = +
Dark = -

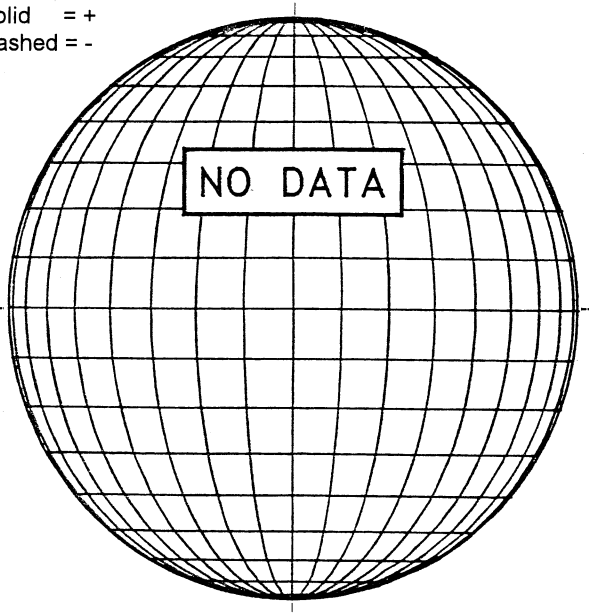


E--

STANFORD MAGNETOGRAM

N

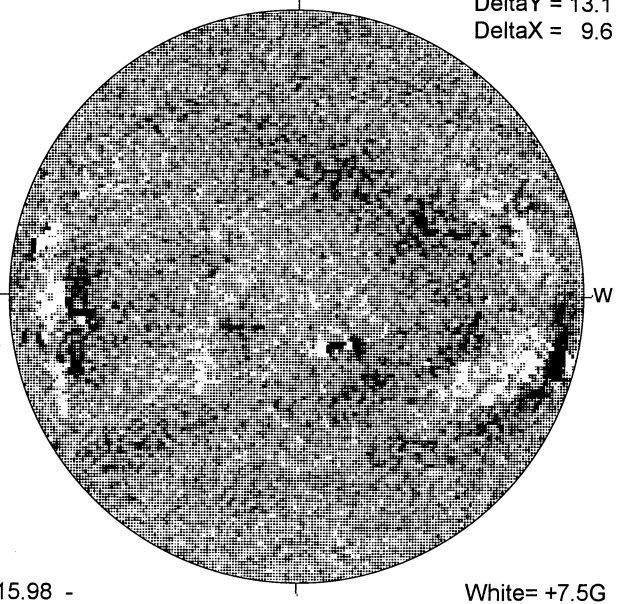
Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

N

DeltaY = 13.1
DeltaX = 9.6

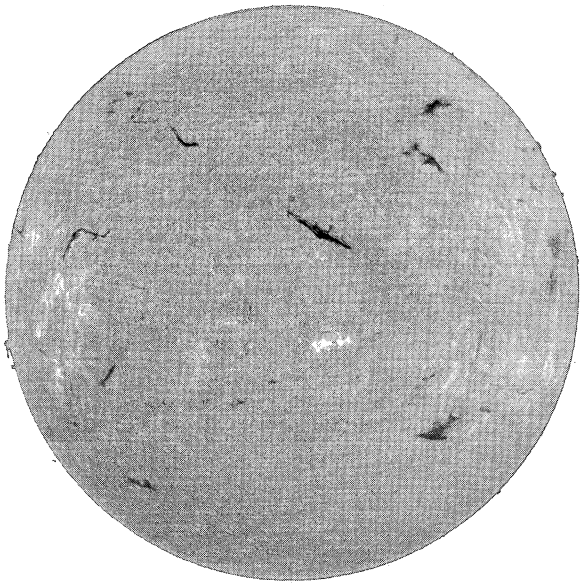


--W

15.98 -
16.92 UT

White= +7.5G
Black = -7.5G

BIG BEAR H-ALPHA

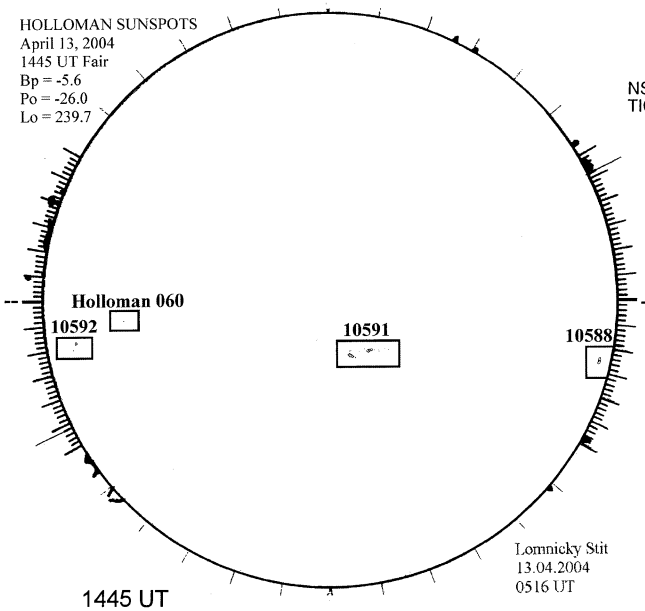


E-

1555 UT

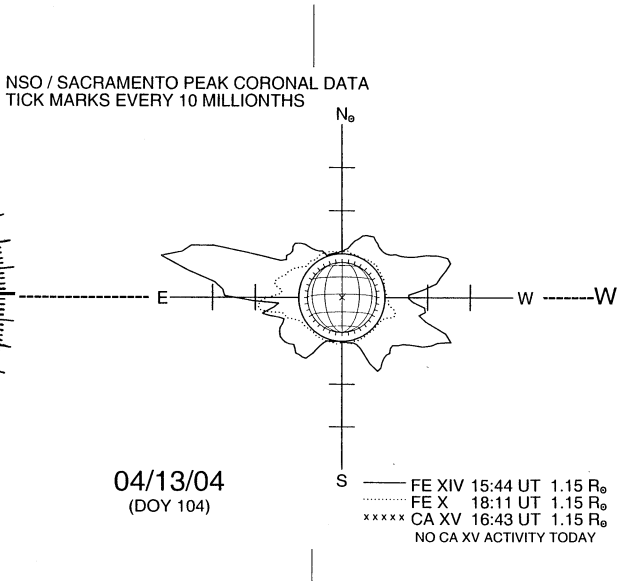
S

HOLLOMAN SUNSPOTS



1445 UT
0516 UT LOMN Prom S

SACRAMENTO PEAK CORONA (1.15 Radii)----



S

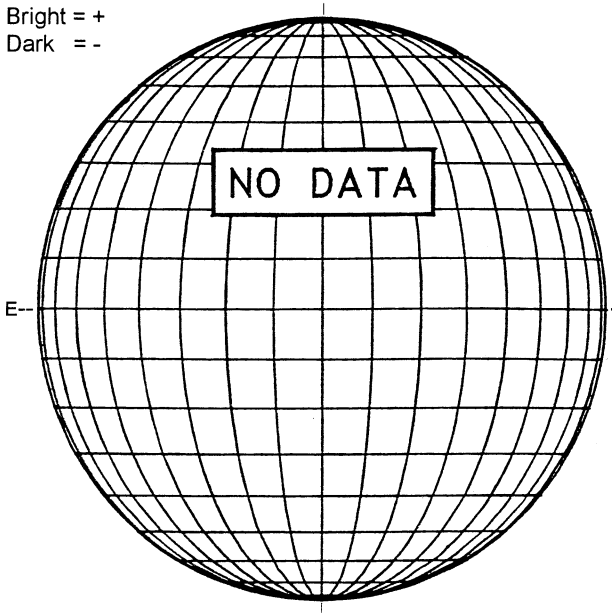
APRIL 14, 2004 (P= -26.08, Bo = -5.66, Lo = 234.28)

KITT PEAK MAGNETOGRAM--SOLIS

N

854.2 nm

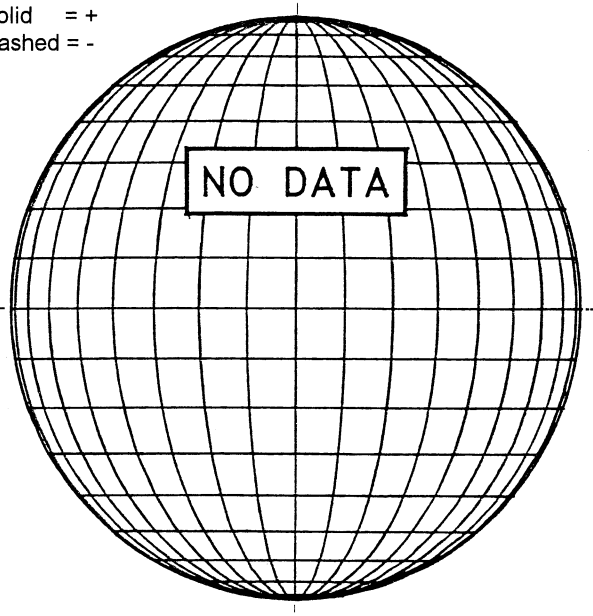
Bright = +
Dark = -



STANFORD MAGNETOGRAM

N

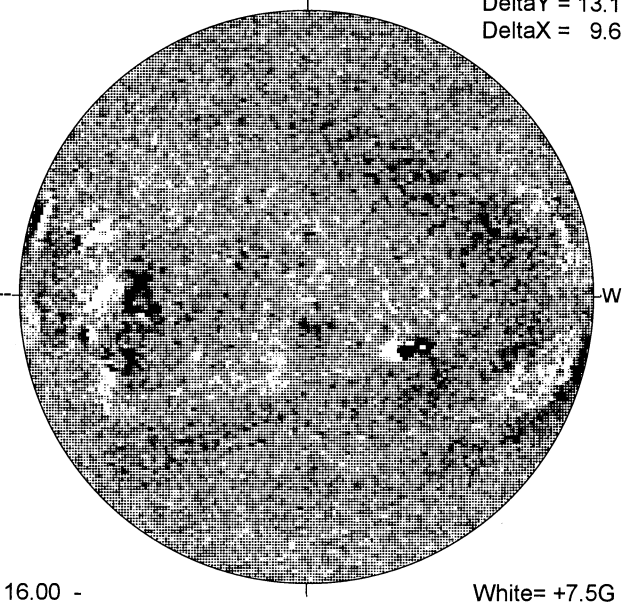
Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

N

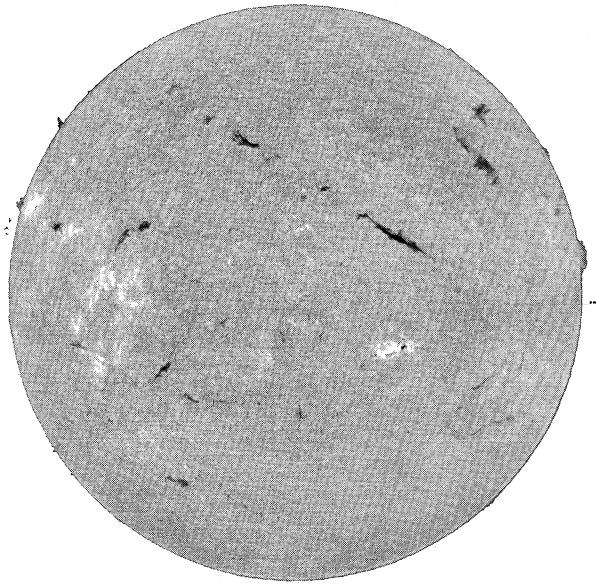
DeltaY = 13.1
DeltaX = 9.6



16.00 -
16.94 UT

White= +7.5G
Black = -7.5G

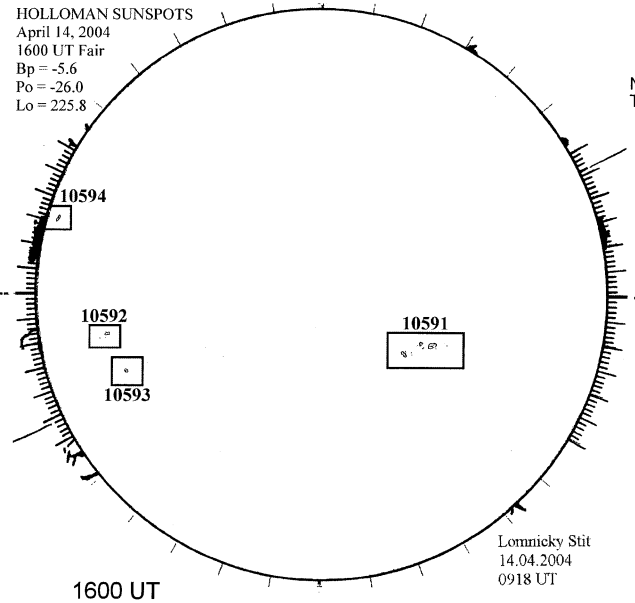
BIG BEAR H-ALPHA



1616 UT

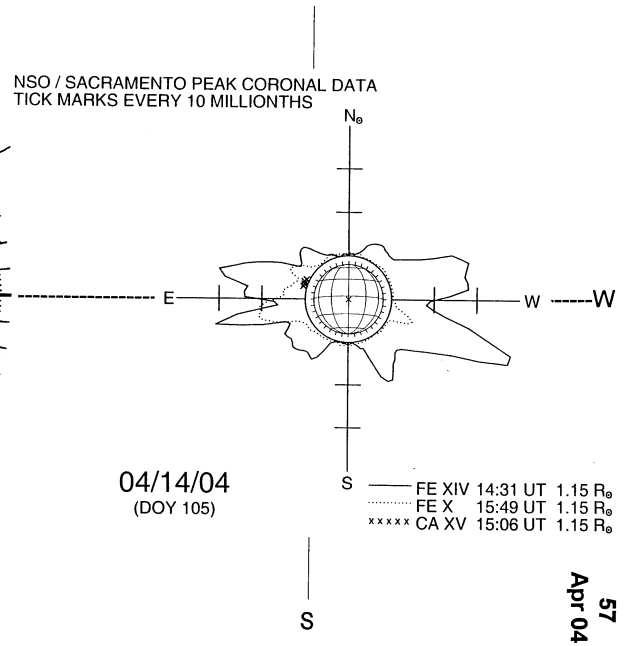
S

HOLLOMAN SUNSPOT



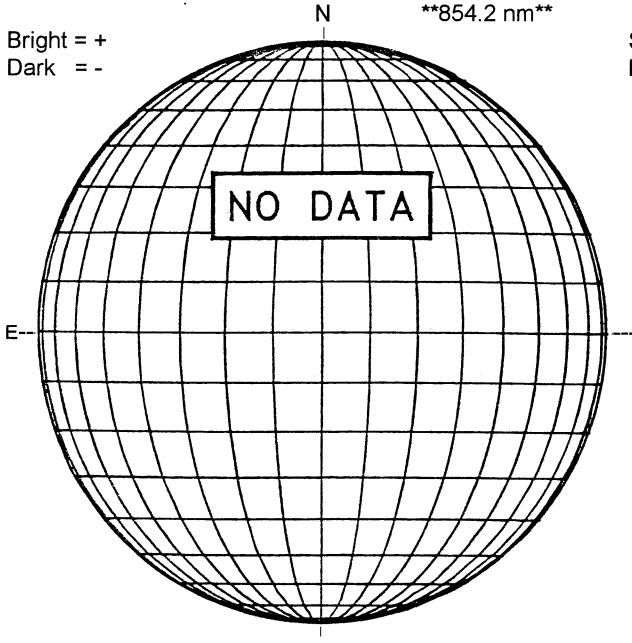
1600 UT
0918 UT LOMN Prom S

SACRAMENTO PEAK CORONA (1.15 Radii)----

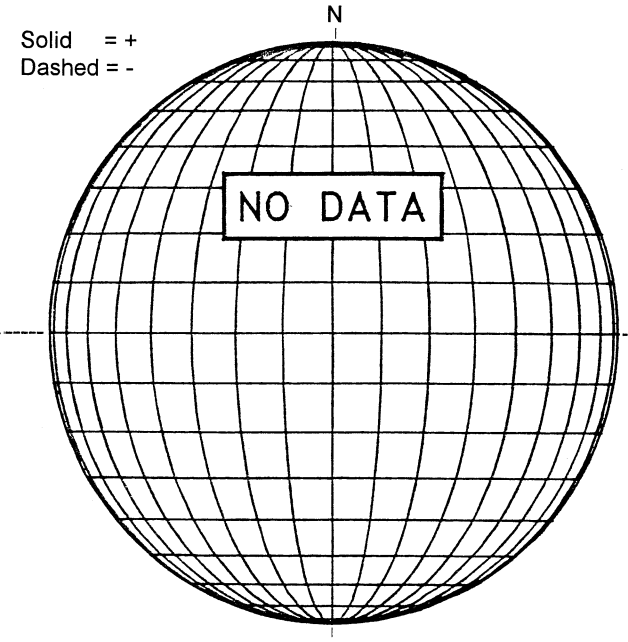


APRIL 15, 2004 (P= -26.03, Bo = -5.59, Lo = 221.08)

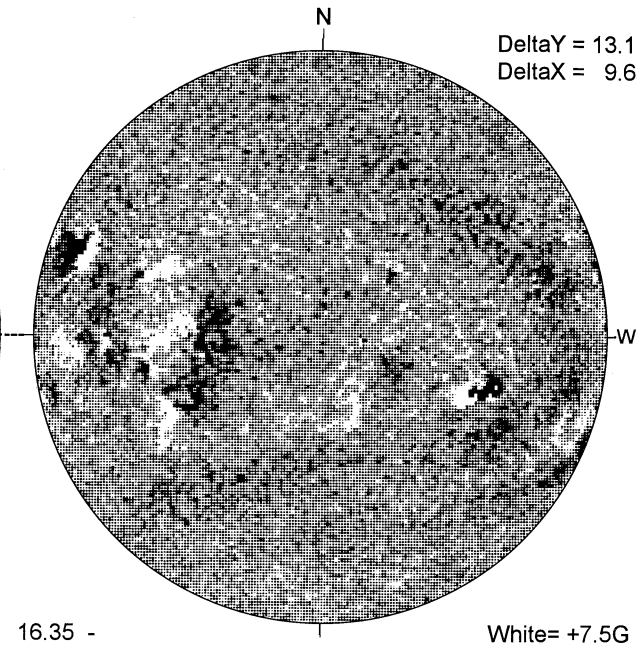
KITT PEAK MAGNETOGRAM--SOLIS



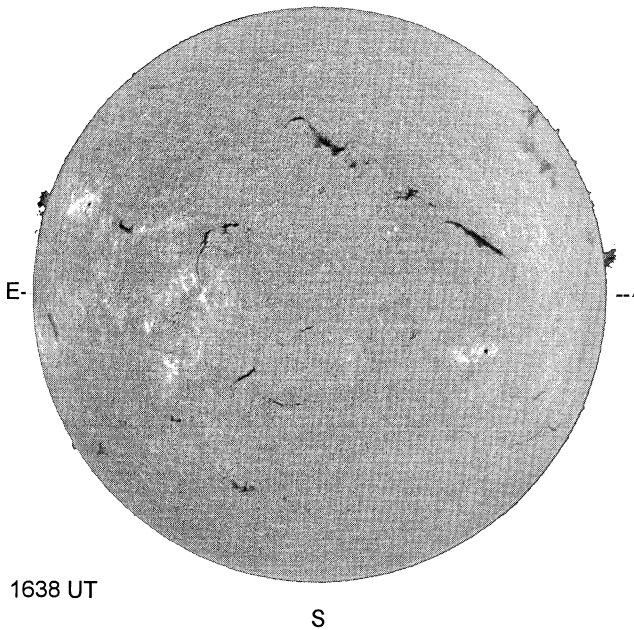
STANFORD MAGNETOGRAM



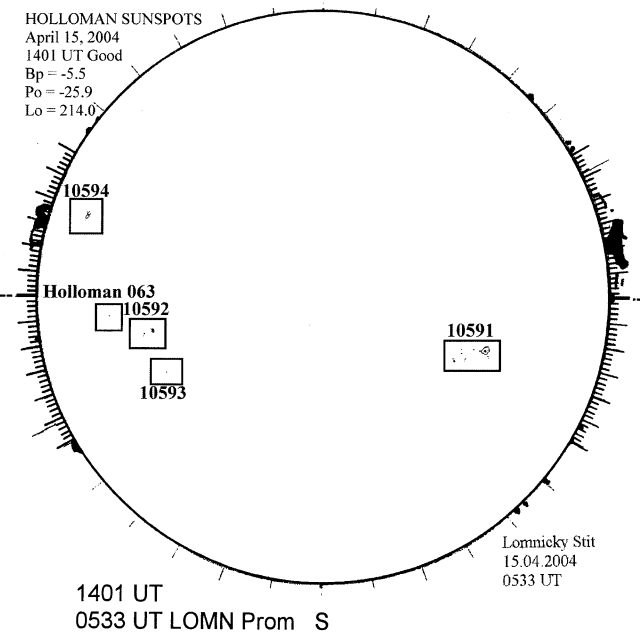
MT. WILSON MAGNETOGRAM



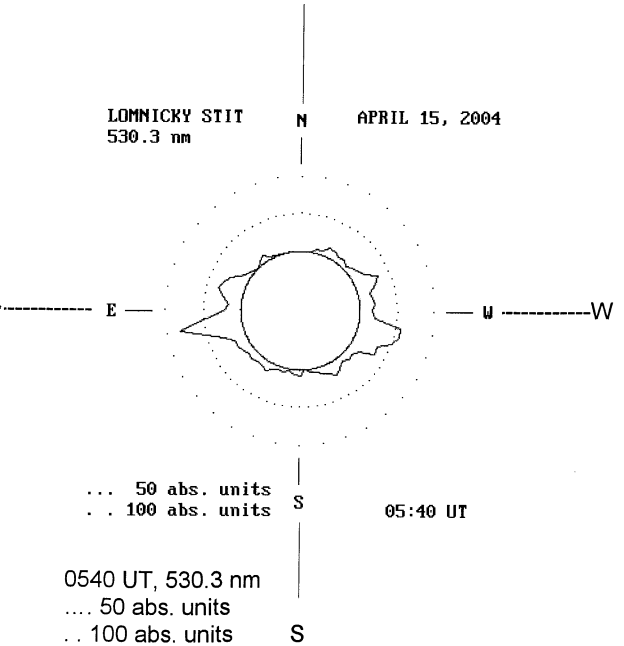
BIG BEAR H-ALPHA



HOLLOMAN SUNSPOT



LOMNICKY PEAK CORONA (1.04 Radii)----

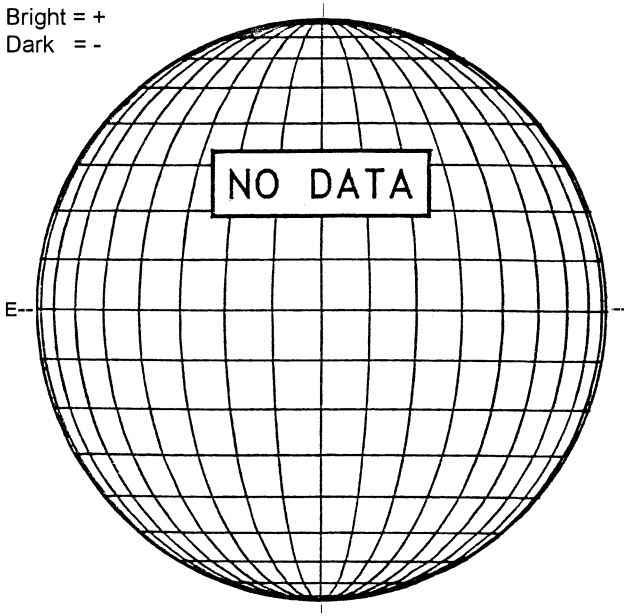


APRIL 16, 2004 (P= -25.96, Bo = -5.51, Lo = 207.88)

KITT PEAK MAGNETOGRAM--SOLIS

N **854.2 nm**

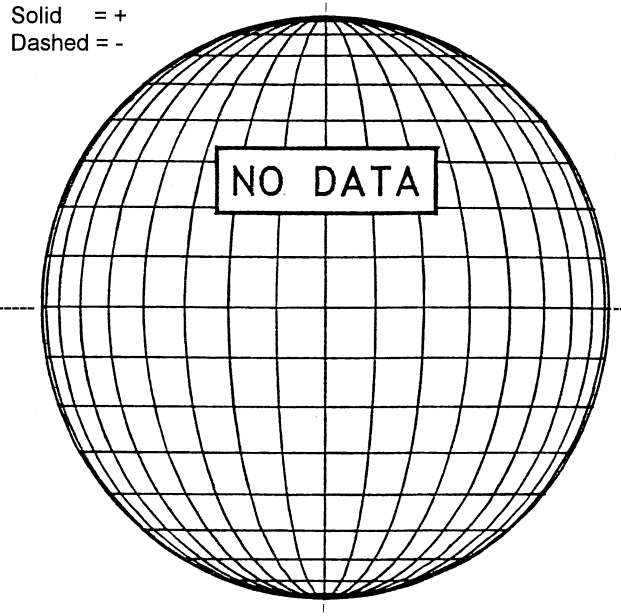
Bright = +
Dark = -



STANFORD MAGNETOGRAM

N

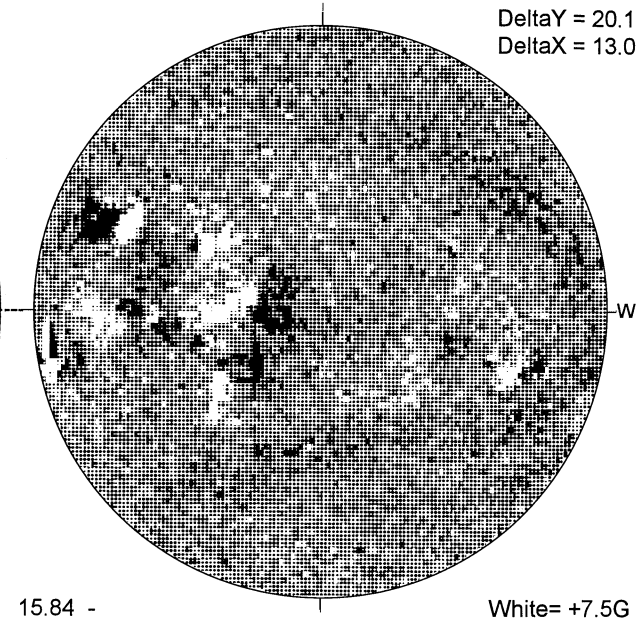
Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

N

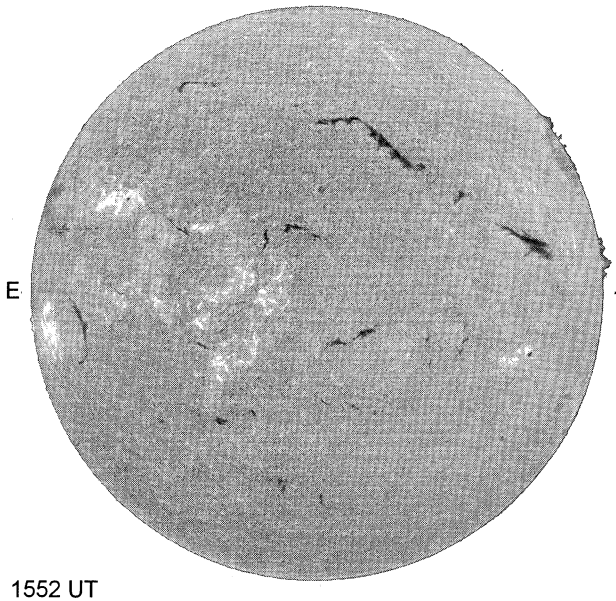
DeltaY = 20.1
DeltaX = 13.0



15.84 -
16.26 UT

White= +7.5G
Black = -7.5G

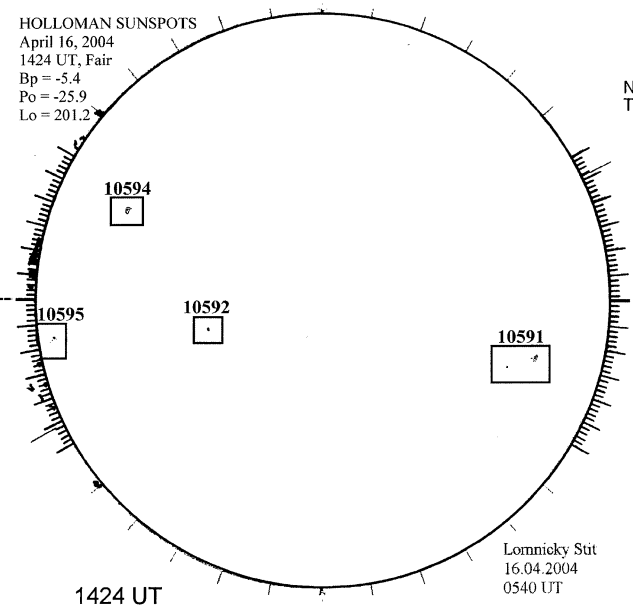
----- BIG BEAR H-ALPHA



1552 UT

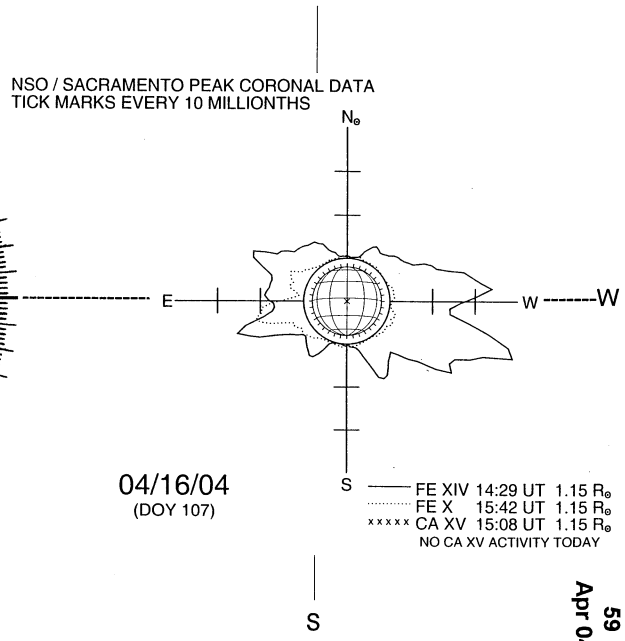
S

HOLLOMAN SUNSPOT



1424 UT
0540 UT LOMN Prom S

SACRAMENTO PEAK CORONA (1.15 Radii)----



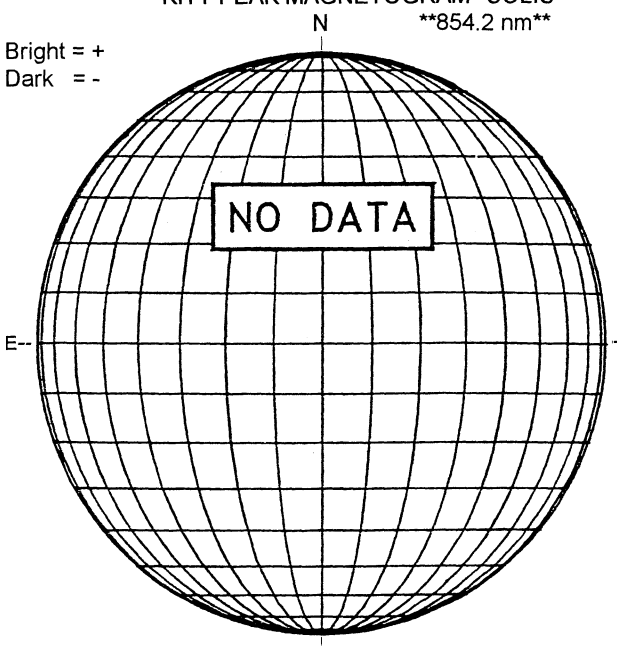
S

APRIL 17, 2004 (P= -25.89, Bo = -5.42, Lo = 194.67)

KITT PEAK MAGNETOGRAM--SOLIS

854.2 nm

Bright = +
Dark = -



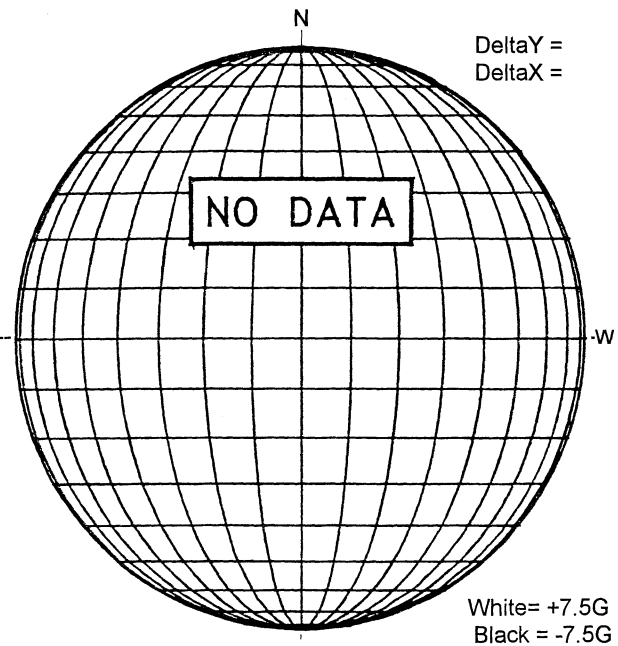
STANFORD MAGNETOGRAM

Solid = +
Dashed = -

2255 UT

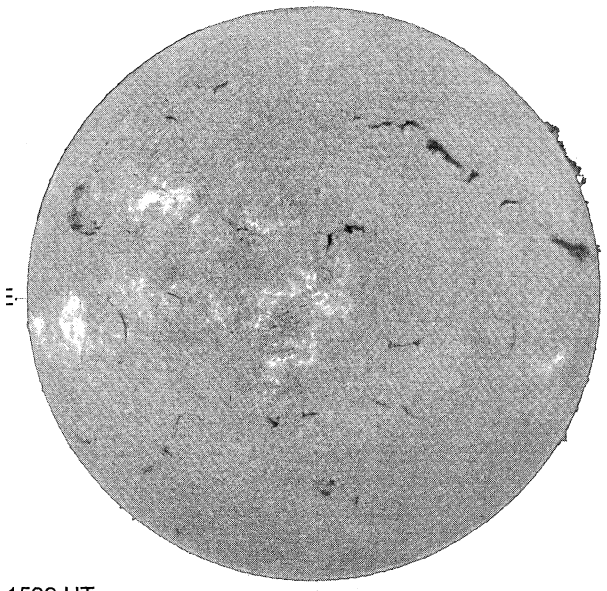
MT. WILSON MAGNETOGRAM

DeltaY =
DeltaX =



White= +7.5G
Black = -7.5G

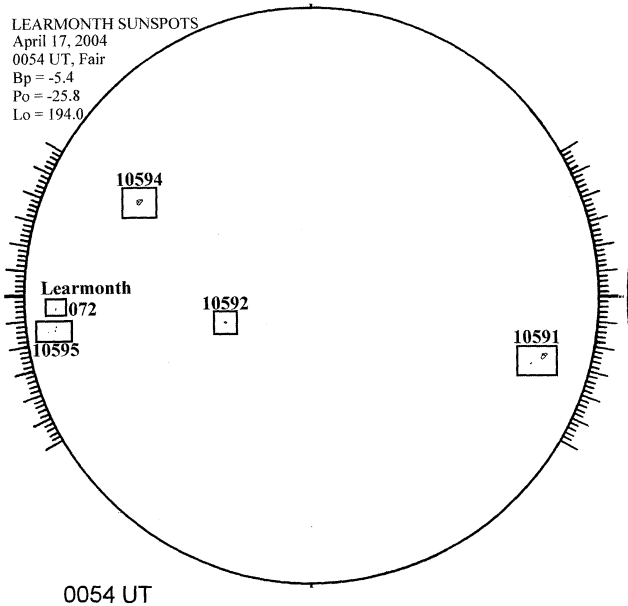
BIG BEAR H-ALPHA



1539 UT

S

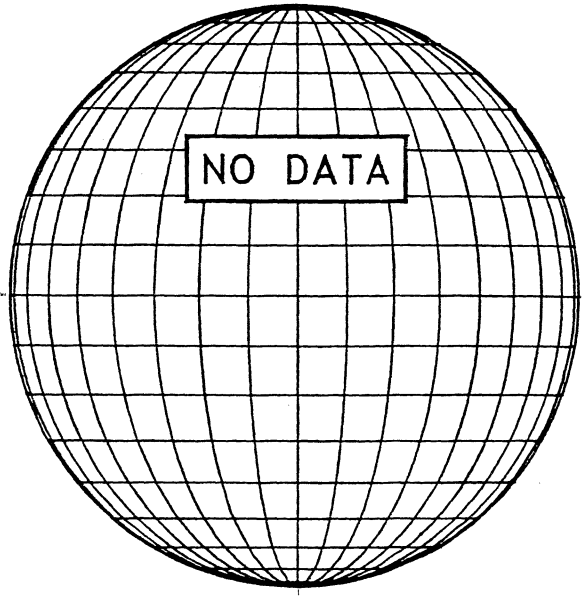
LEARMONTH SUNSPOTS



0054 UT

S

SACRAMENTO PEAK CORONA (1.15 Radii)----



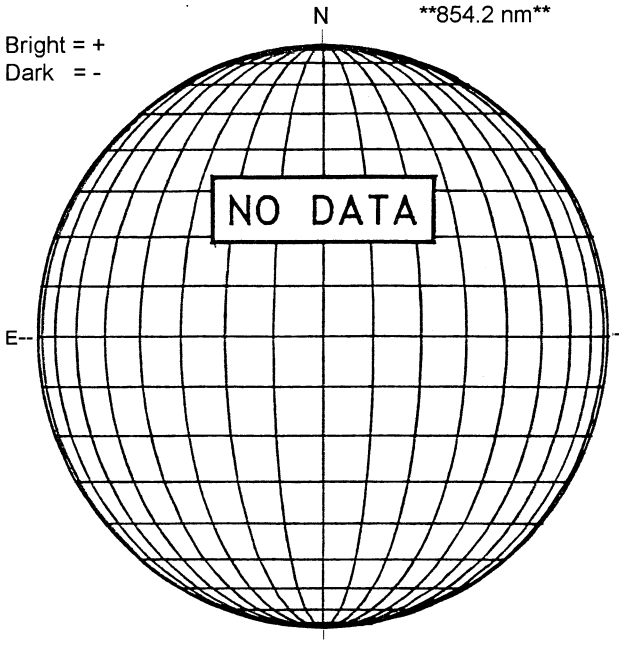
S

APRIL 18, 2004 (P= -25.81, Bo = -5.34, Lo = 181.47)

KITT PEAK MAGNETOGRAM--SOLIS

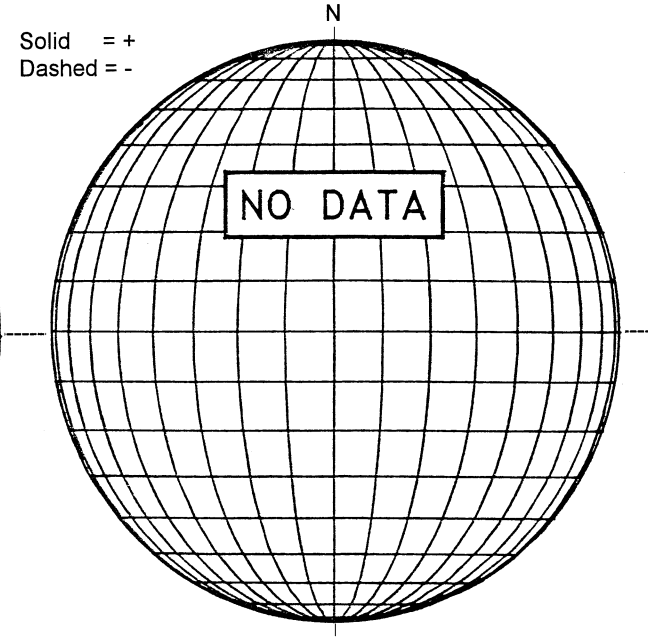
854.2 nm

Bright = +
Dark = -



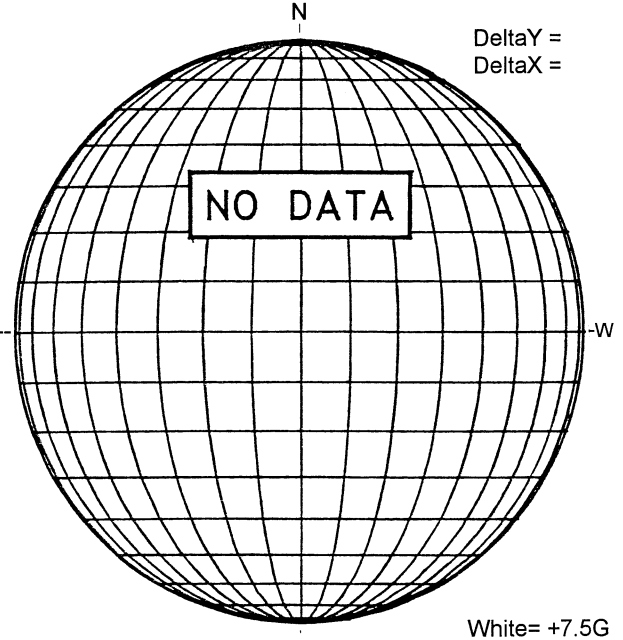
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



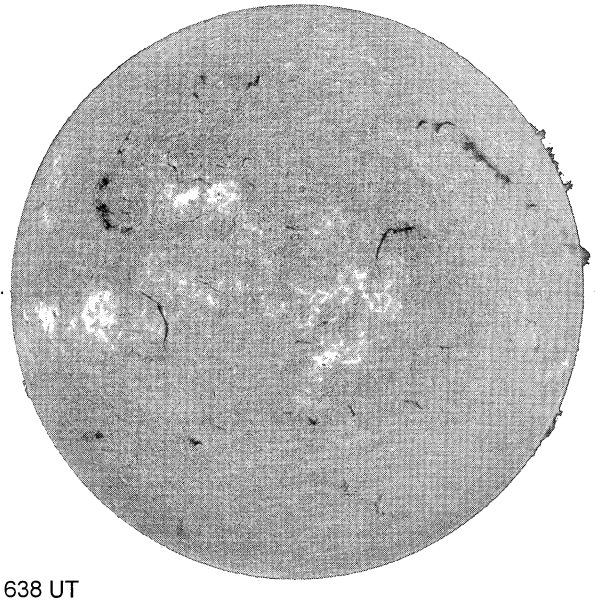
MT. WILSON MAGNETOGRAM

DeltaY =
DeltaX =



White= +7.5G
Black = -7.5G

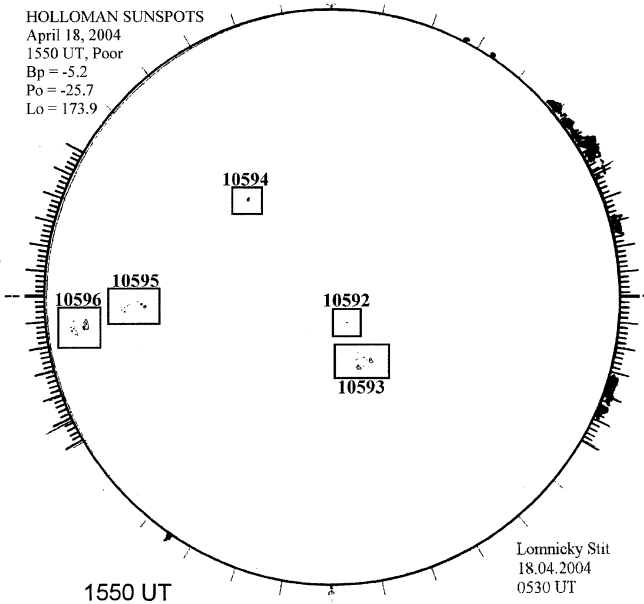
BIG BEAR H-ALPHA



1638 UT

S

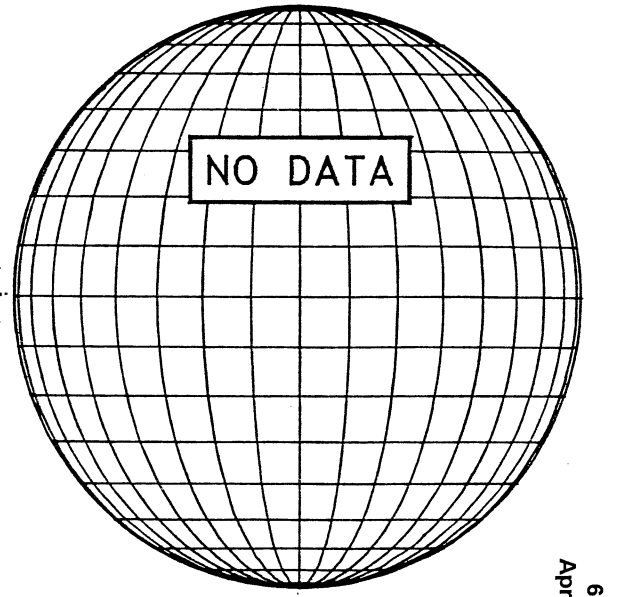
HOLLOMAN SUNSPOT



1550 UT
0530 UT LOMN Prom

S

LOMNICKY PEAK CORONA (1.04 Radii)----



S

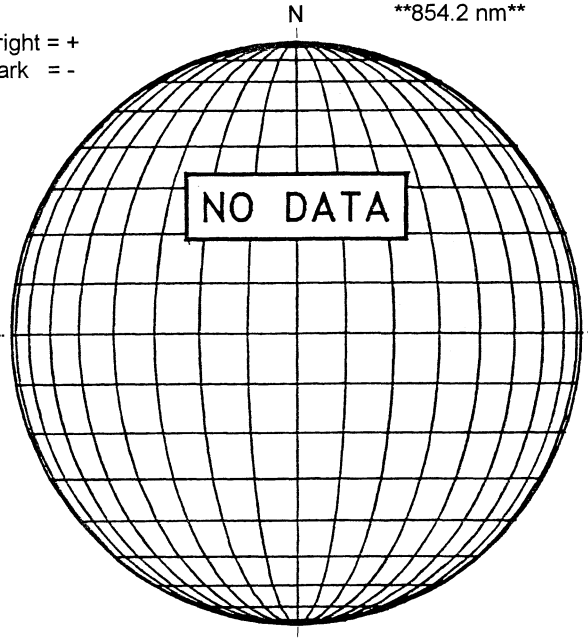
61
Apr 04

APRIL 19, 2004 (P= -25.72, Bo = -5.26, Lo = 168.26)

KITT PEAK MAGNETOGRAM--SOLIS

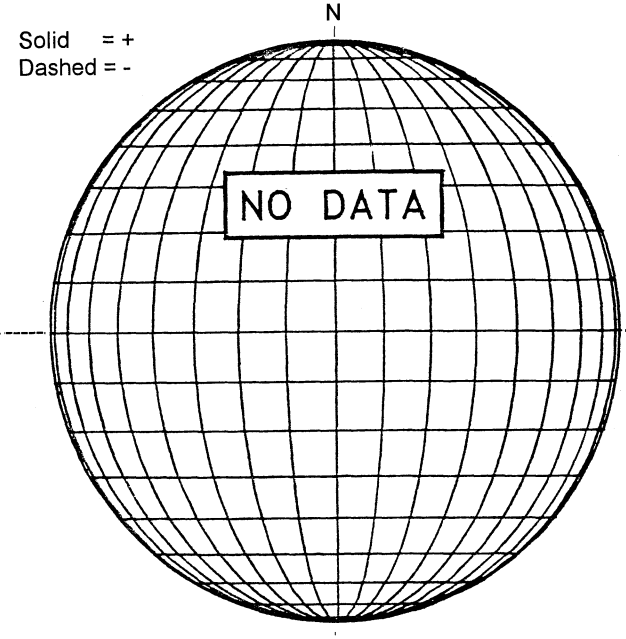
854.2 nm

Bright = +
Dark = -



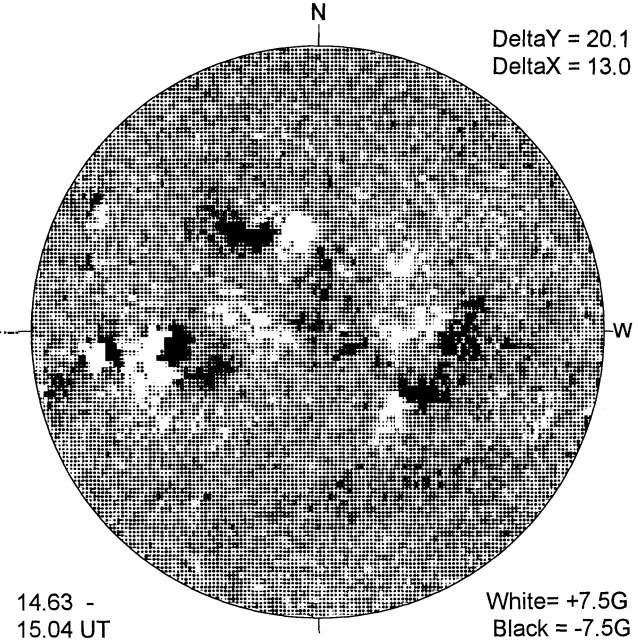
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

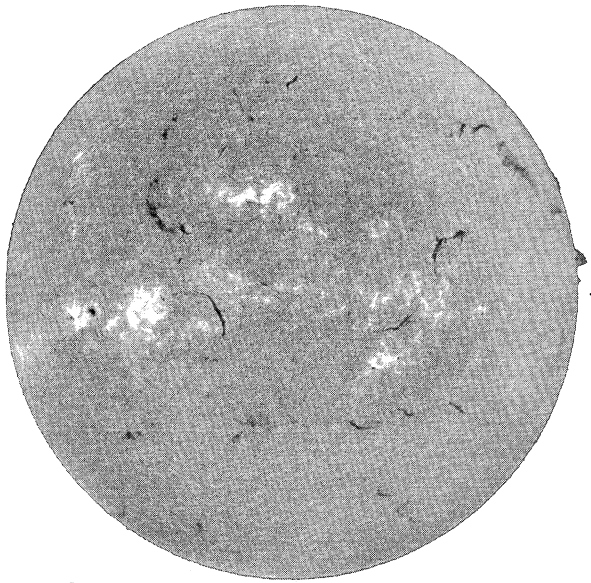
DeltaY = 20.1
DeltaX = 13.0



14.63 -
15.04 UT

White= +7.5G
Black = -7.5G

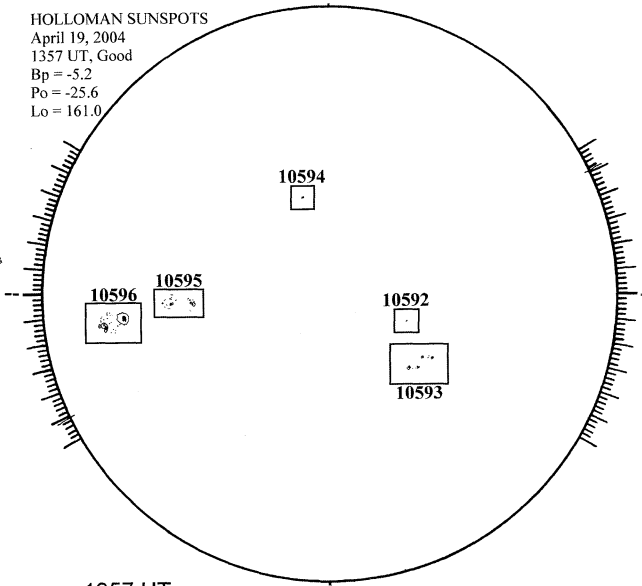
BIG BEAR H-ALPHA



1649 UT

S

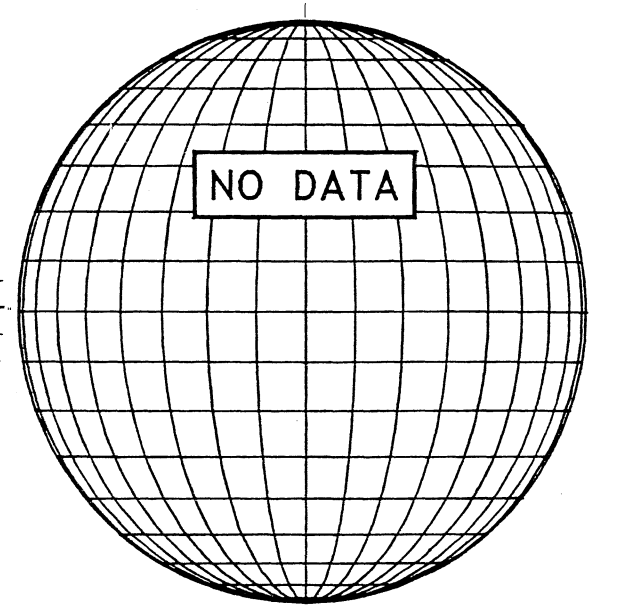
HOLLOMAN SUNSPOT



1357 UT

S

SACRAMENTO PEAK CORONA (1.15 Radii)----



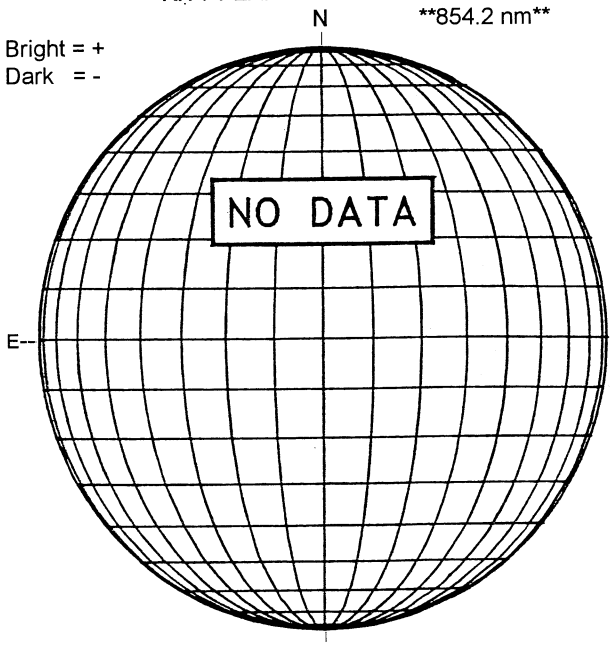
S

APRIL 20, 2004 (P= -25.62, Bo = -5.17, Lo = 155.05)

KITT PEAK MAGNETOGRAM--SOLIS

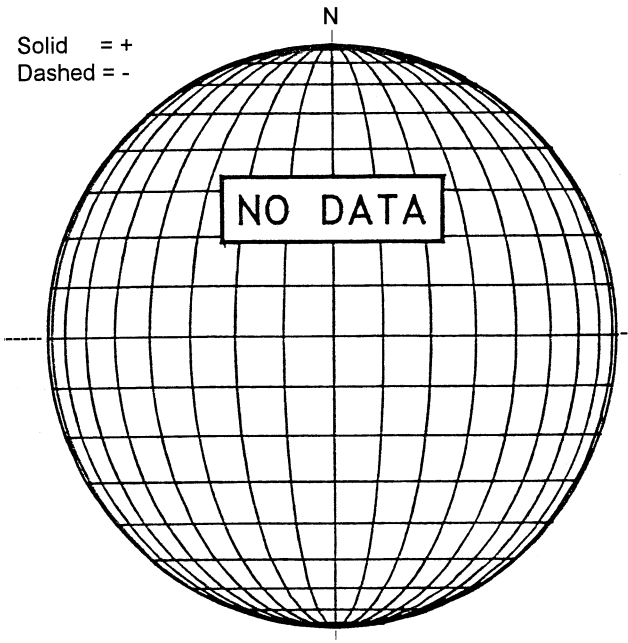
854.2 nm

Bright = +
Dark = -



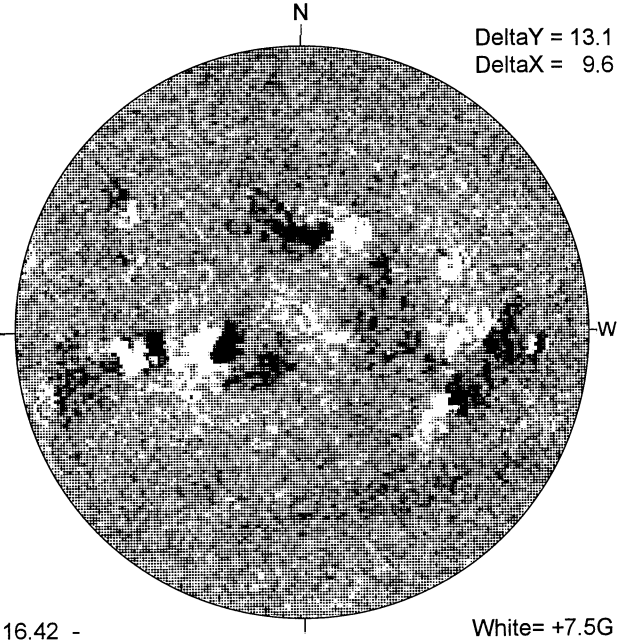
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

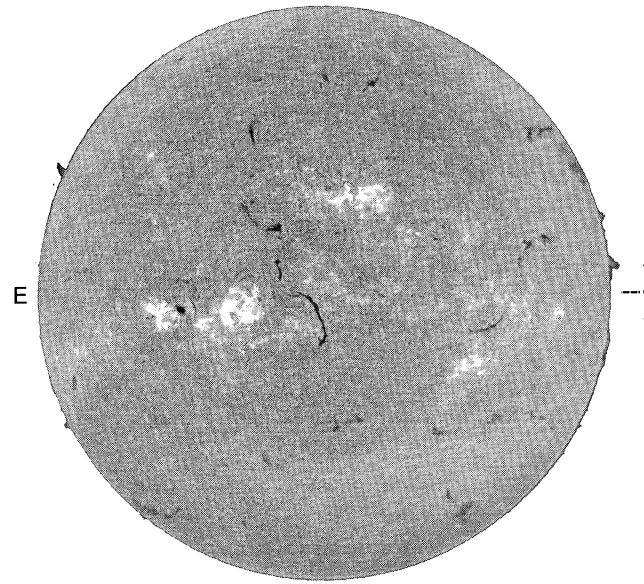
DeltaY = 13.1
DeltaX = 9.6



16.42 -
17.35 UT

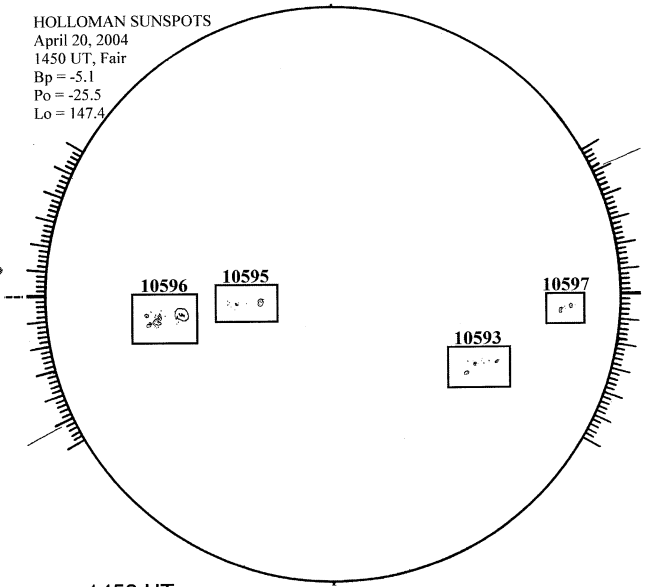
White= +7.5G
Black = -7.5G

---- BIG BEAR H-ALPHA



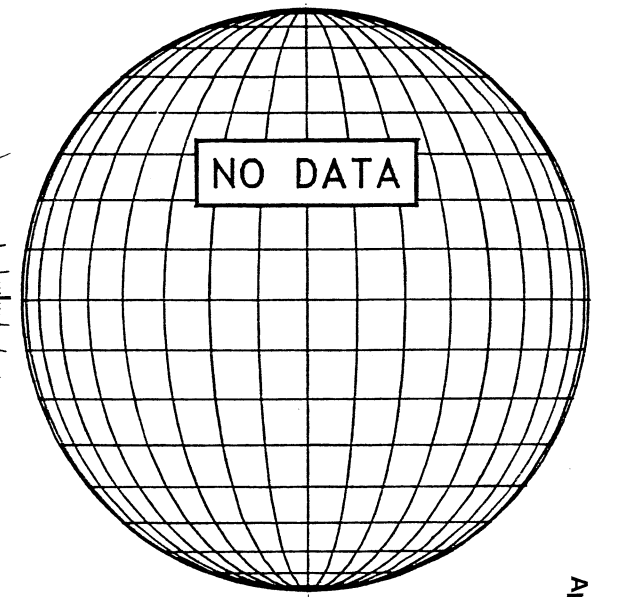
1733 UT

HOLLOMAN SUNSPOTS



1450 UT

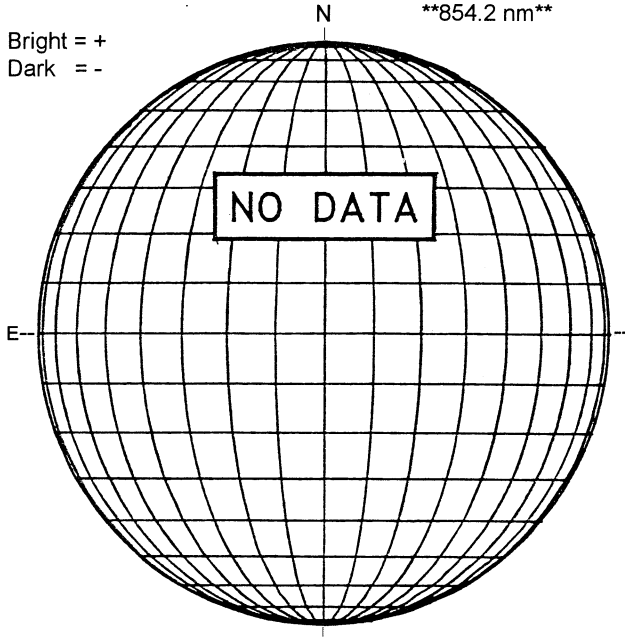
SACRAMENTO PEAK CORONA (1.15 Radii)----



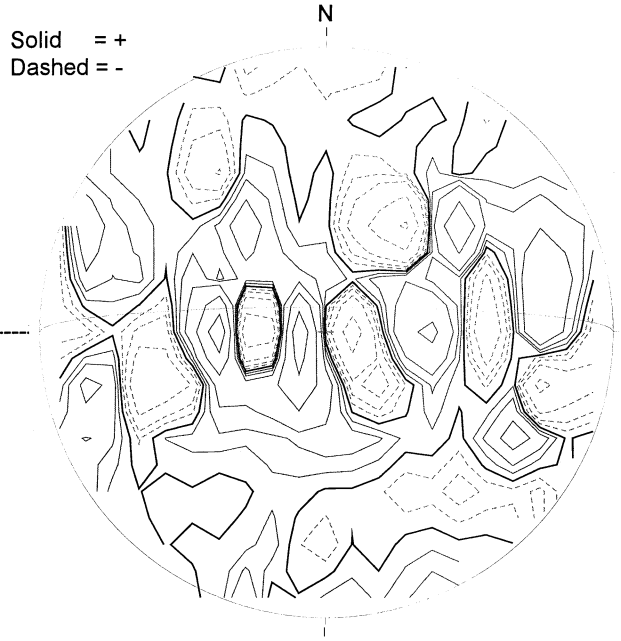
63
Apr 04

APRIL 21, 2004 (P= -25.52, Bo = -5.08, Lo = 141.84)

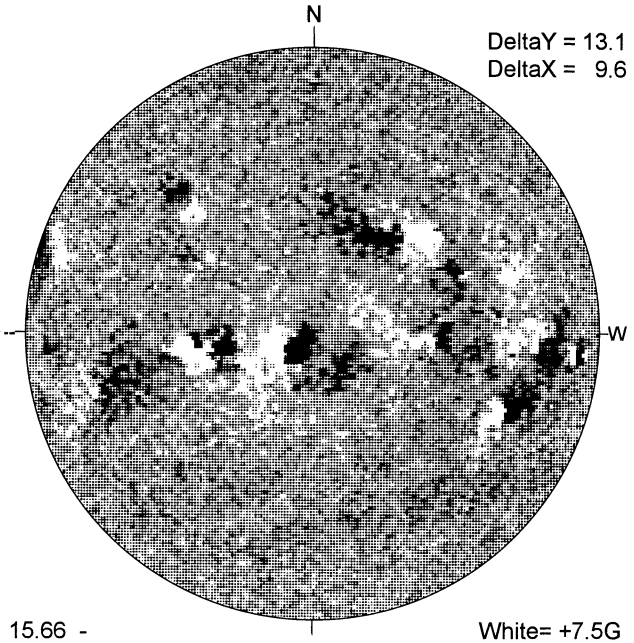
KITT PEAK MAGNETOGRAM--SOLIS



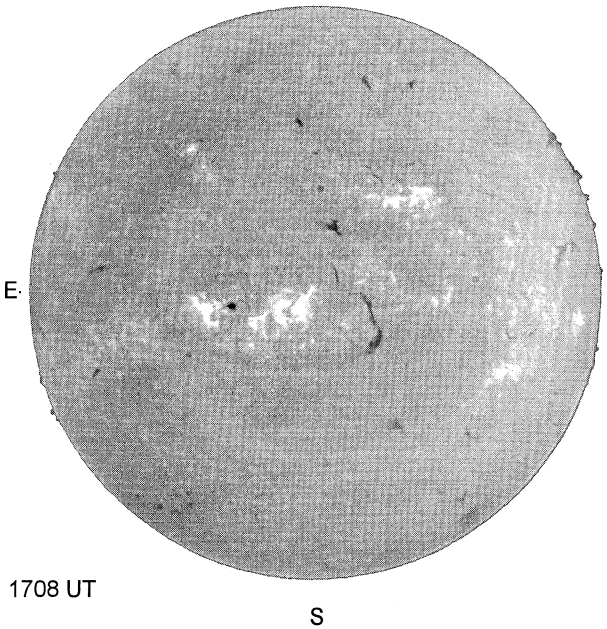
STANFORD MAGNETOGRAM



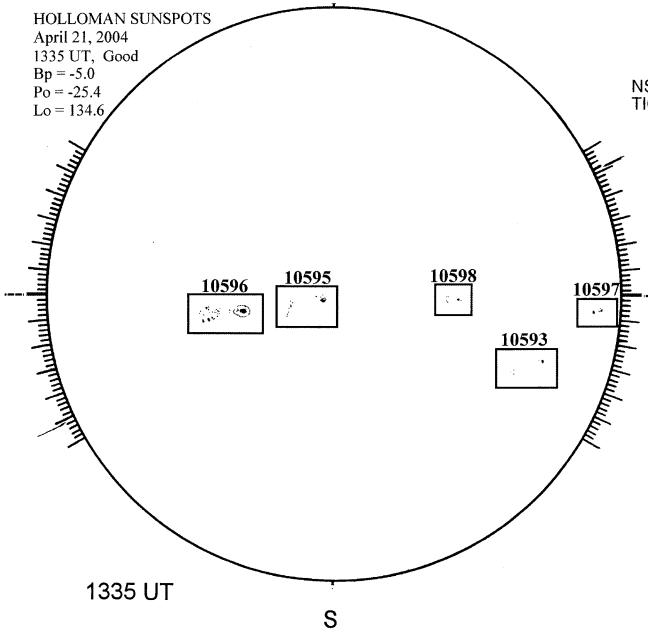
MT. WILSON MAGNETOGRAM



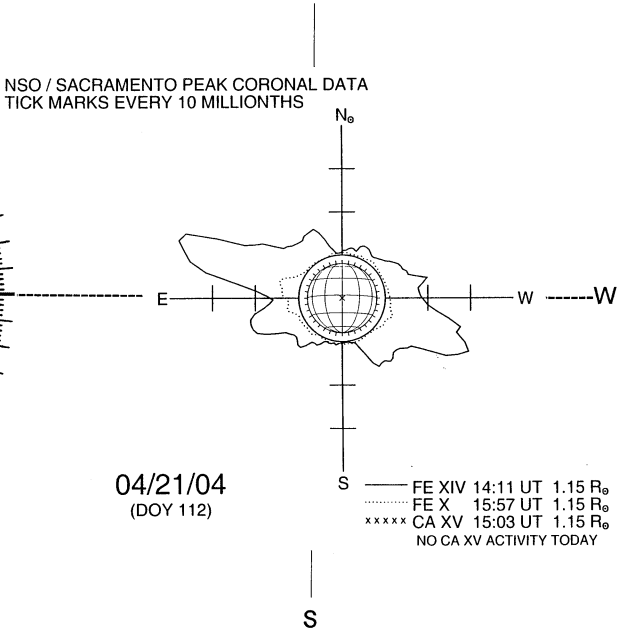
BIG BEAR H-ALPHA



HOLLOMAN SUNSPOTS

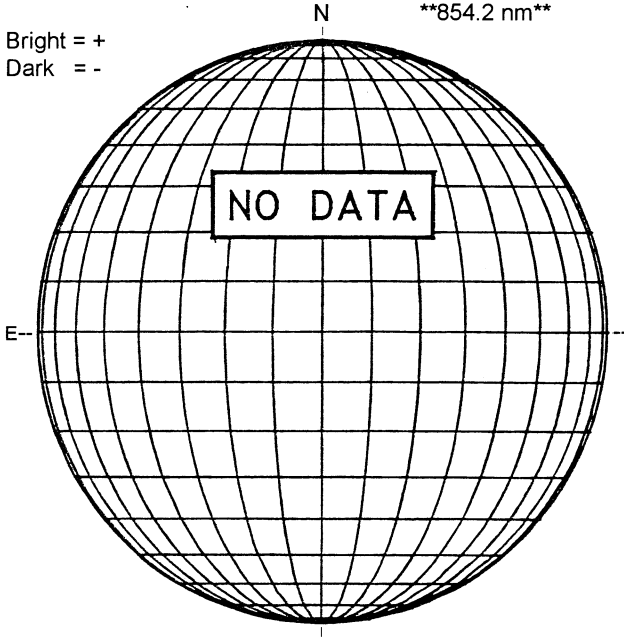


SACRAMENTO PEAK CORONA (1.15 Radii)



APRIL 22, 2004 (P= -25.41, Bo = -4.99, Lo = 128.64)

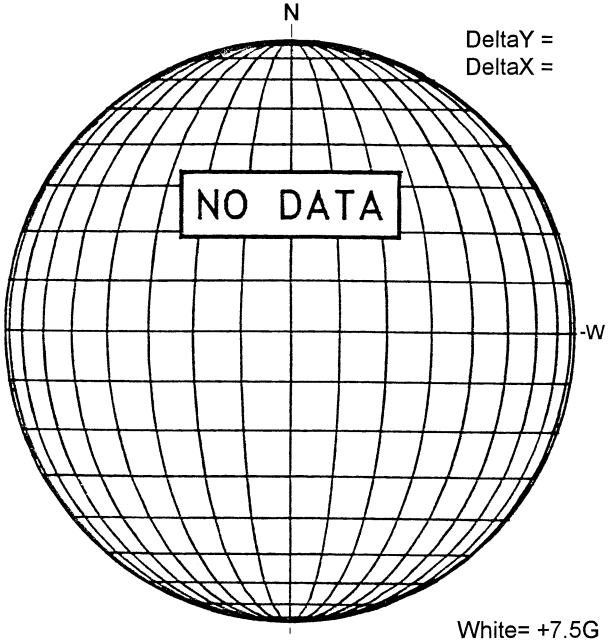
KITT PEAK MAGNETOGRAM--SOLIS



STANFORD MAGNETOGRAM

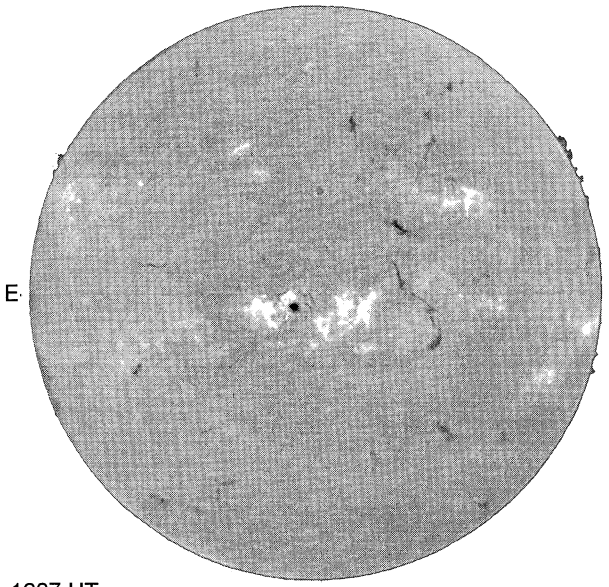
2218 UT

MT. WILSON MAGNETOGRAM



White= +7.5G
Black = -7.5G

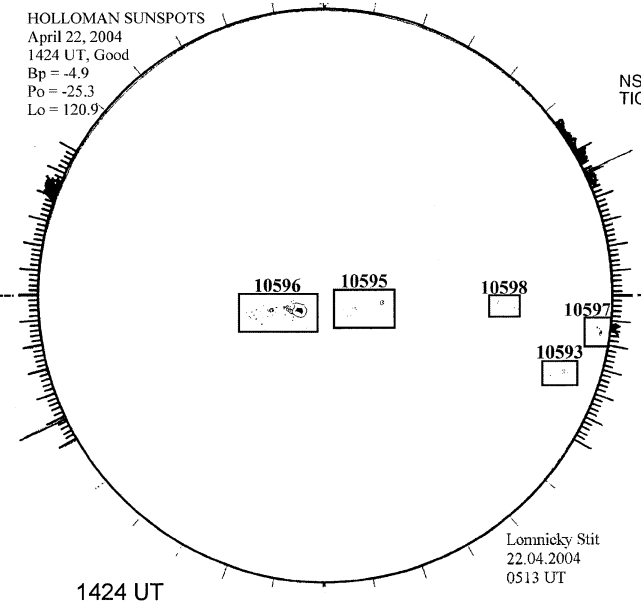
BIG BEAR H-ALPHA



1607 UT

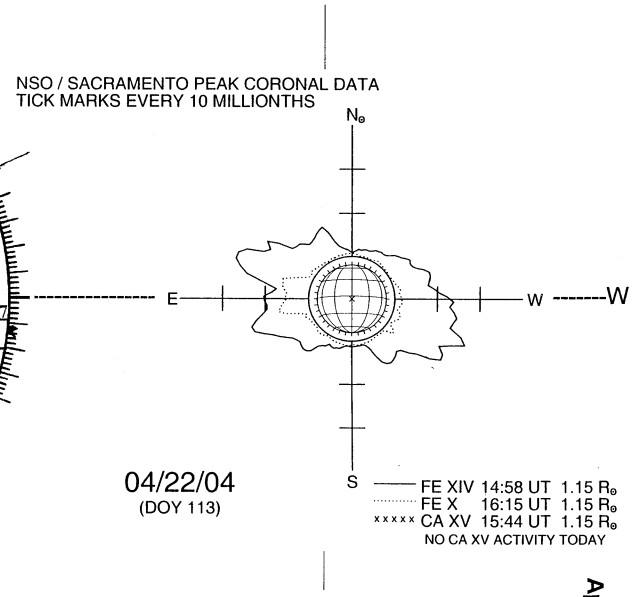
S

HOLLOMAN SUNSPOT



1424 UT
0513 UT LOMN Prom S

SACRAMENTO PEAK CORONA (1.15 Radii)----

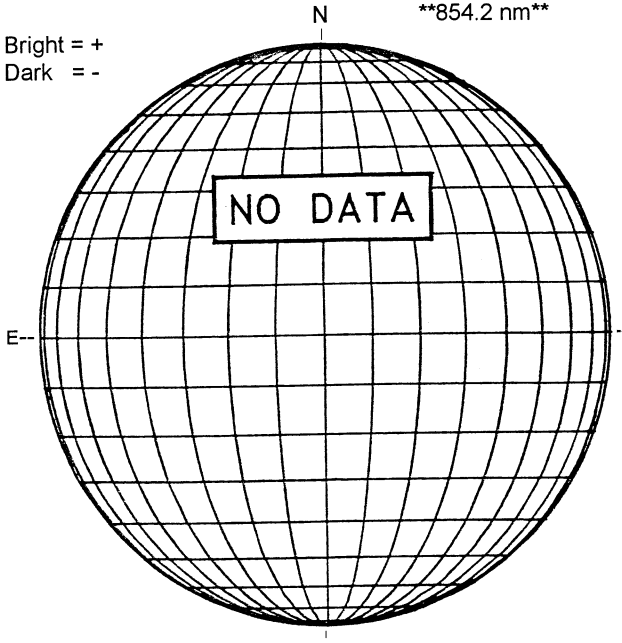


S

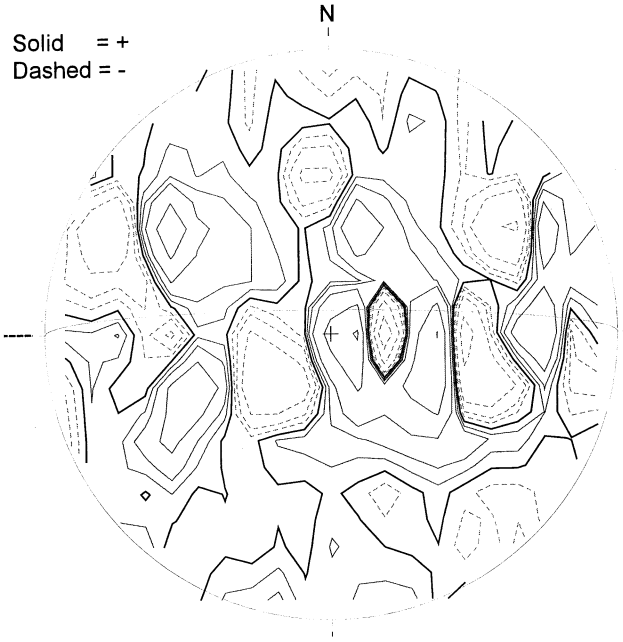
65
Apr 04

APRIL 23, 2004 (P= -25.29, Bo = -4.90, Lo = 115.43)

KITT PEAK MAGNETOGRAM--SOLIS
854.2 nm

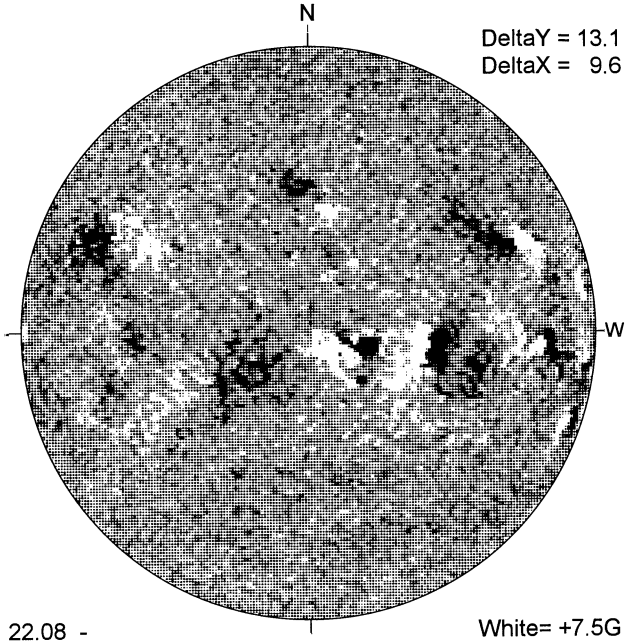


STANFORD MAGNETOGRAM



2235 UT

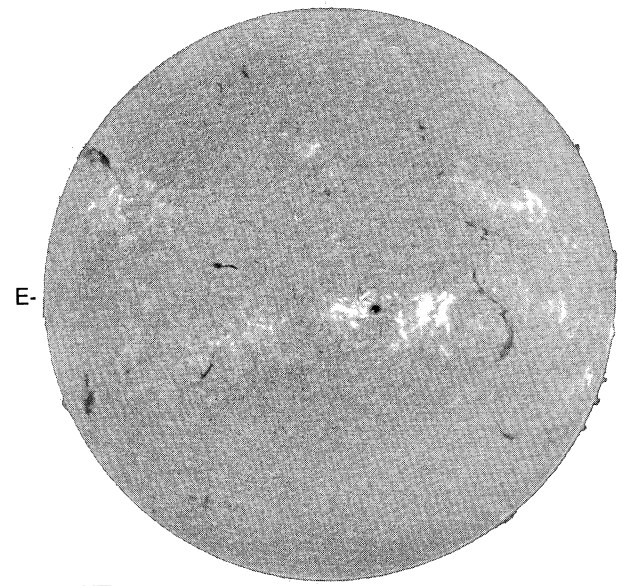
MT. WILSON MAGNETOGRAM



22.08 -
23.01 UT

White= +7.5G
Black = -7.5G

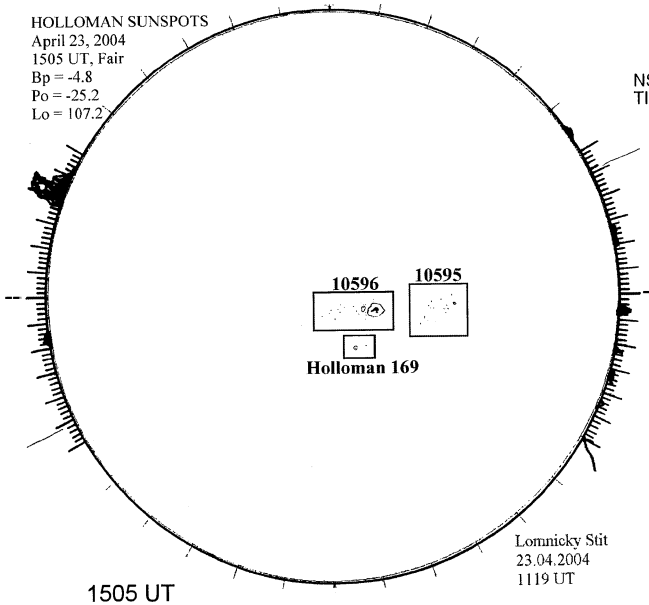
BIG BEAR H-ALPHA



1641 UT

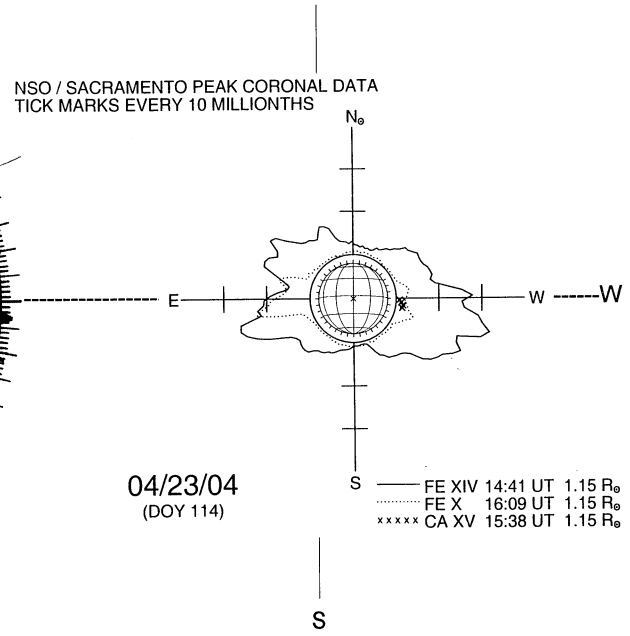
S

HOLLOMAN SUNSPOTS



1505 UT
1119 UT LOMN Prom S

SACRAMENTO PEAK CORONA (1.15 Radii)----



04/23/04
(DOY 114)

S

APRIL 24, 2004 (P= -25.17, Bo = -4.81, Lo = 102.22)

KITT PEAK MAGNETOGRAM--SOLIS

854.2 nm

Bright = +
Dark = -

N

E--

NO DATA

STANFORD MAGNETOGRAM

Solid = +
Dashed = -

N

2142 UT

MT. WILSON MAGNETOGRAM

N

DeltaY = 13.1
DeltaX = 9.6

W

17.97 -
18.91 UT

White= +7.5G
Black = -7.5G

YUNNAN H-ALPHA

E-

0205 UT

S

HOLLOMAN SUNSPOT

HOLLOMAN SUNSPOTS
April 24, 2004
1500 UT, Fair
Bp = -4.7
Po = -25.0
Lo = 94.6

10599

10596

1500 UT

S

SACRAMENTO PEAK CORONA (1.15 Radii)----

NO DATA

S

67
Apr 04

APRIL 25, 2004 (P= -25.04, Bo = -4.72, Lo = 89.00)

KITT PEAK MAGNETOGRAM--SOLIS

854.2 nm

Bright = +
Dark = -

N

E--

NO DATA

STANFORD MAGNETOGRAM

Solid = +
Dashed = -

N

2226 UT

MT. WILSON MAGNETOGRAM

N

DeltaY = 13.1
DeltaX = 9.6

W

15.87 -
16.80 UT

White= +7.5G
Black = -7.5G

KANZELHOHE H-ALPHA

E

0820 UT

S

HOLLOMAN SUNSPOTS

HOLLOMAN SUNSPOTS
April 25, 2004
1450 UT, Fair
Bp = -4.6
Po = -24.9
Lo = 81.4

10599 Holloman 071

10596

1450 UT

S

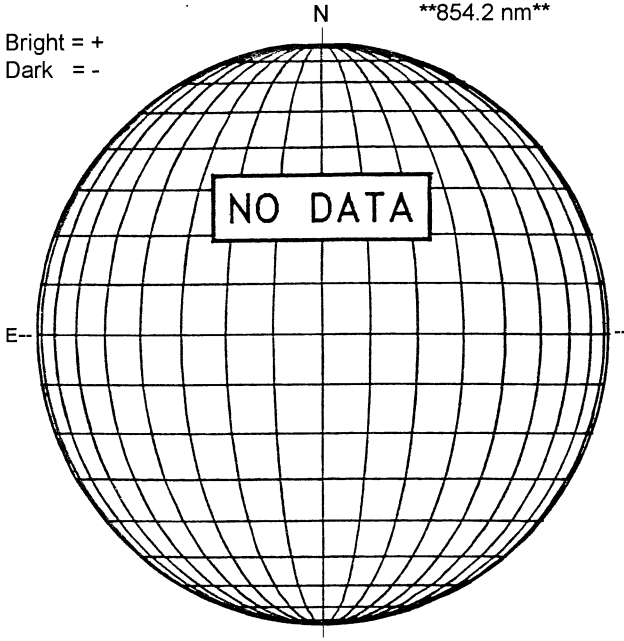
SACRAMENTO PEAK CORONA (1.15 Radii)----

NO DATA

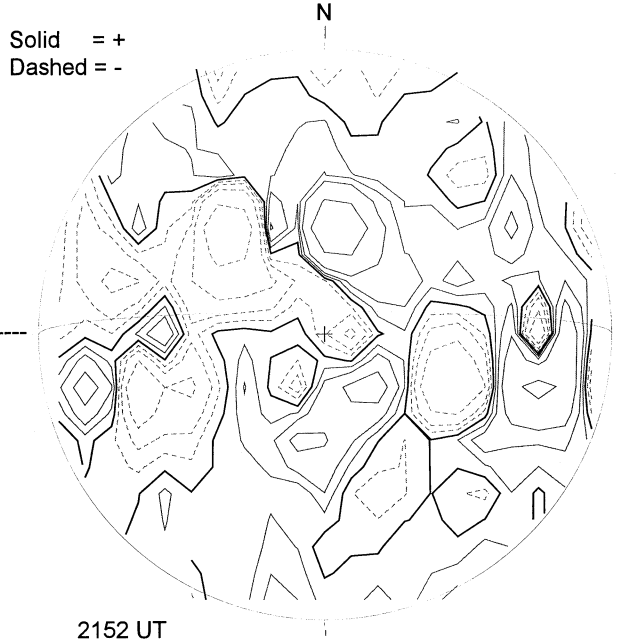
S

APRIL 26, 2004 (P= -24.90, Bo = -4.63, Lo = 75.79)

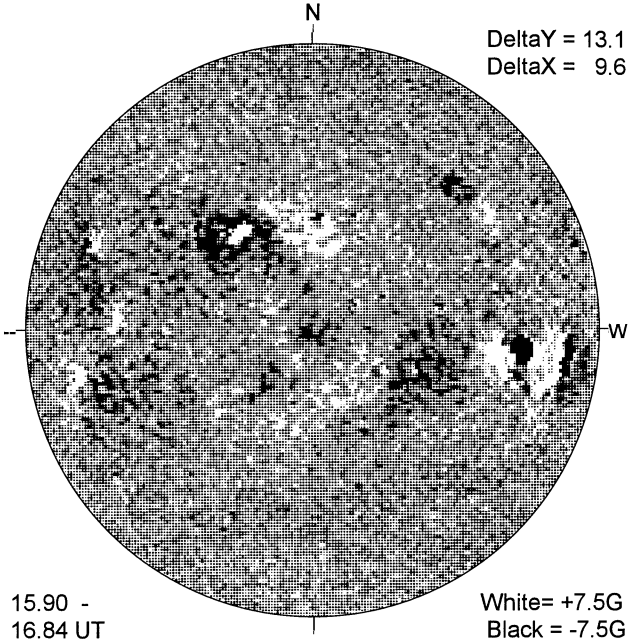
KITT PEAK MAGNETOGRAM--SOLIS



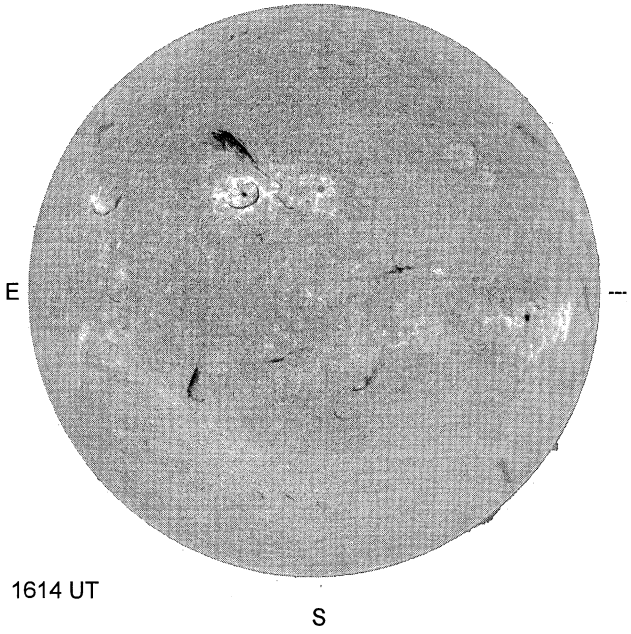
STANFORD MAGNETOGRAM



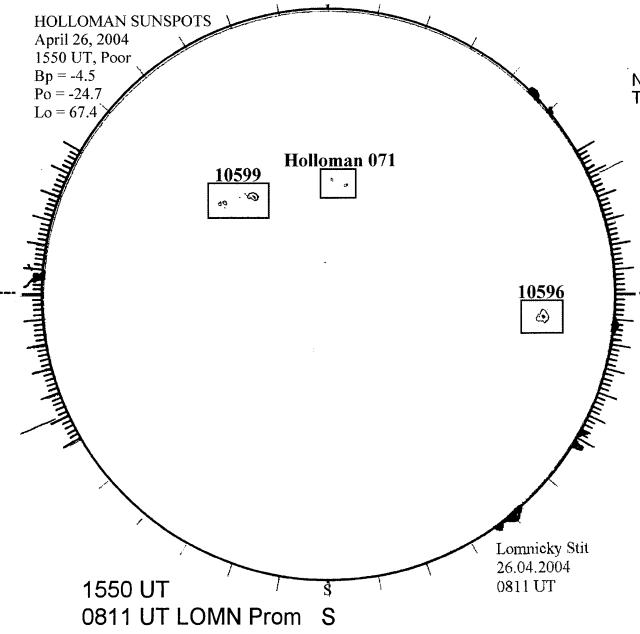
MT. WILSON MAGNETOGRAM



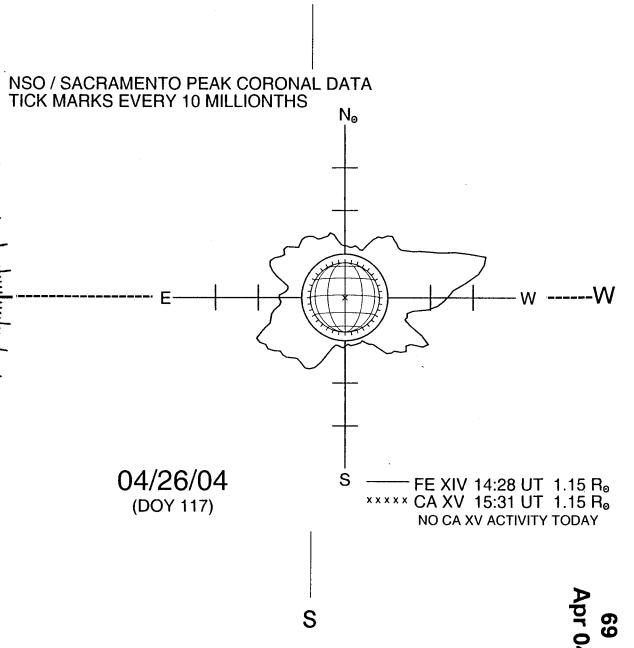
BIG BEAR H-ALPHA



HOLLOMAN SUNSPOTS



SACRAMENTO PEAK CORONA (1.15 Radii)----



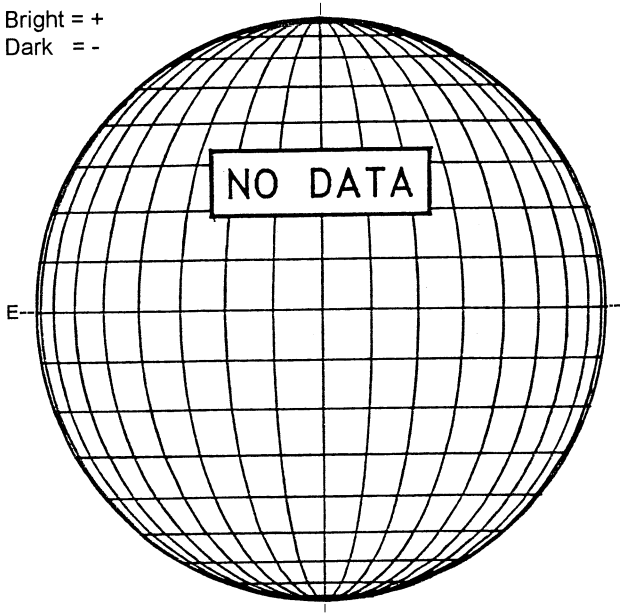
69
Apr 04

APRIL 27, 2004 (P= -24.75, Bo = -4.53, Lo = 62.58)

KITT PEAK MAGNETOGRAM--SOLIS

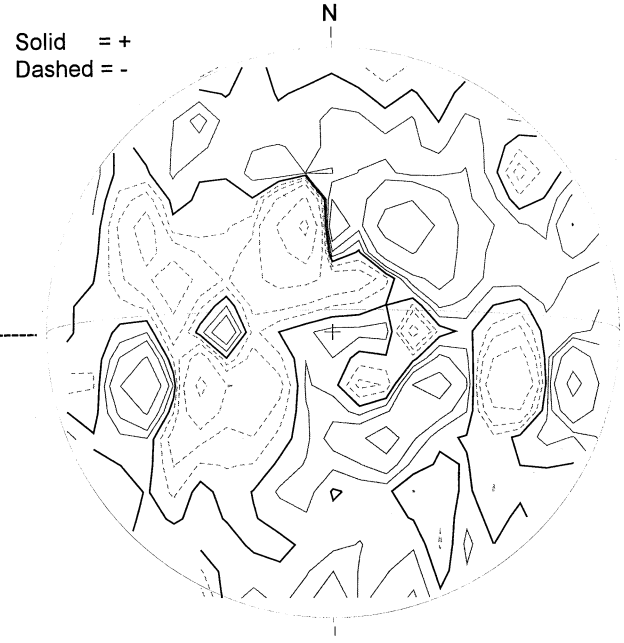
854.2 nm

Bright = +
Dark = -



STANFORD MAGNETOGRAM

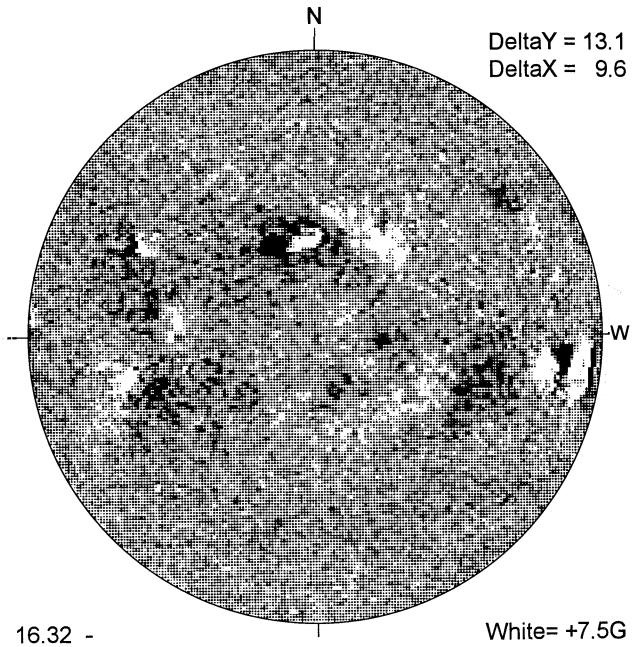
Solid = +
Dashed = -



2154 UT

MT. WILSON MAGNETOGRAM

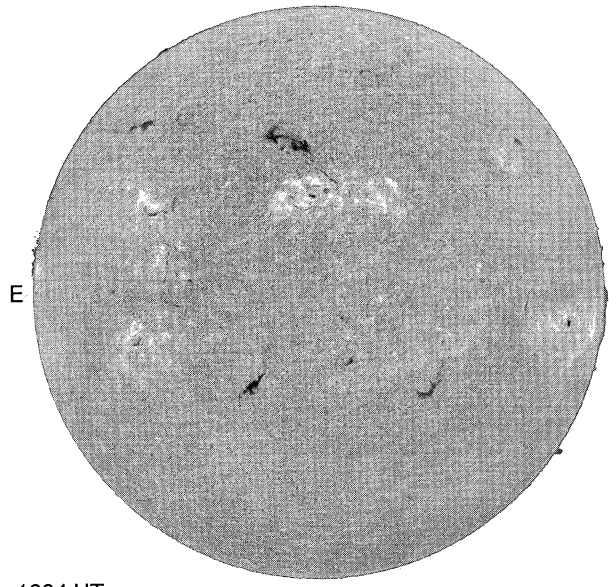
DeltaY = 13.1
DeltaX = 9.6



16.32 -
17.25 UT

White= +7.5G
Black = -7.5G

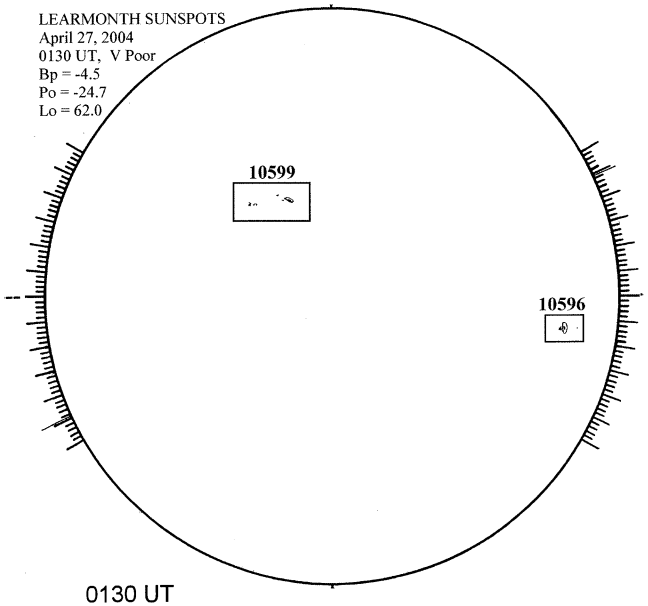
BIG BEAR H-ALPHA



1604 UT

S

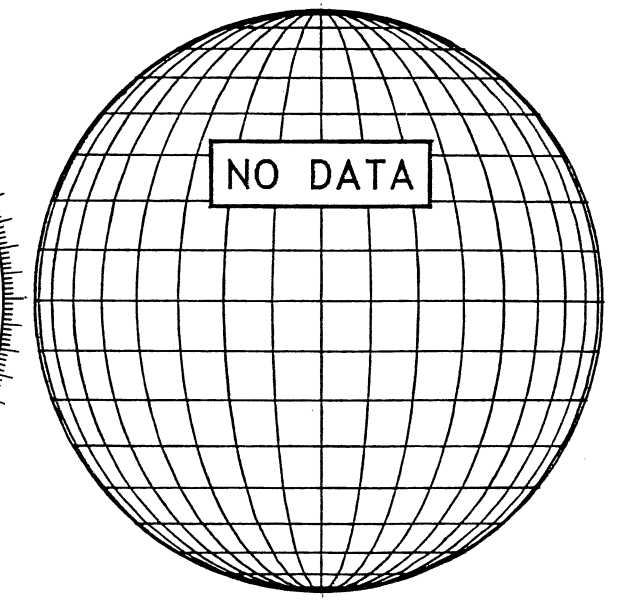
LEARMONTH SUNSPOTS



0130 UT

S

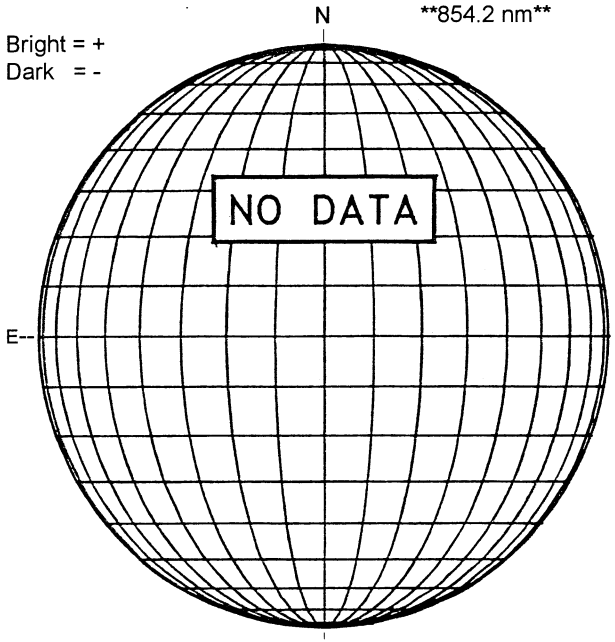
SACRAMENTO PEAK CORONA (1.15 Radii)----



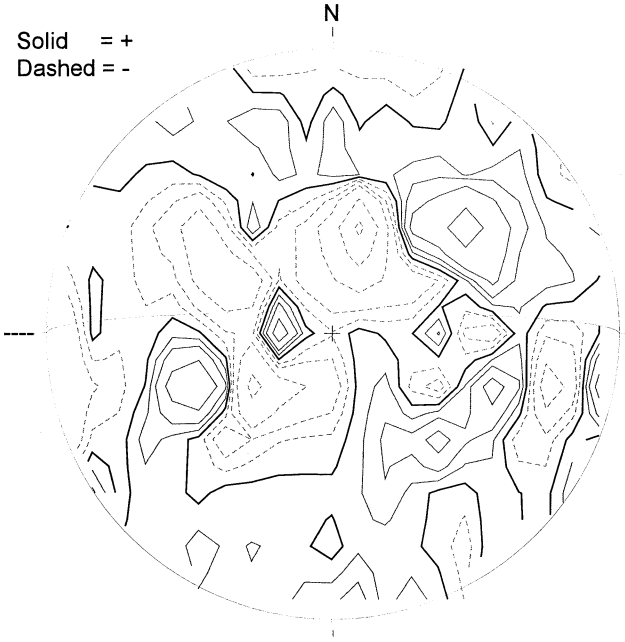
S

APRIL 28, 2004 (P= -24.60, Bo = -4.43, Lo = 49.37)

KITT PEAK MAGNETOGRAM--SOLIS

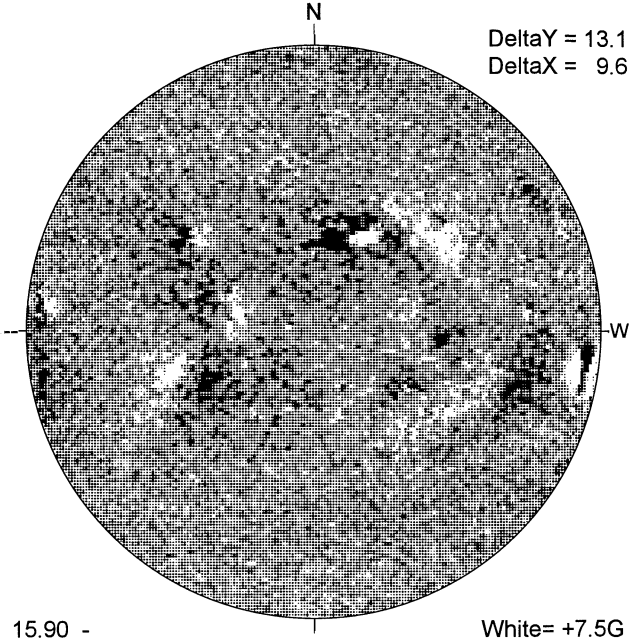


STANFORD MAGNETOGRAM



2147 UT

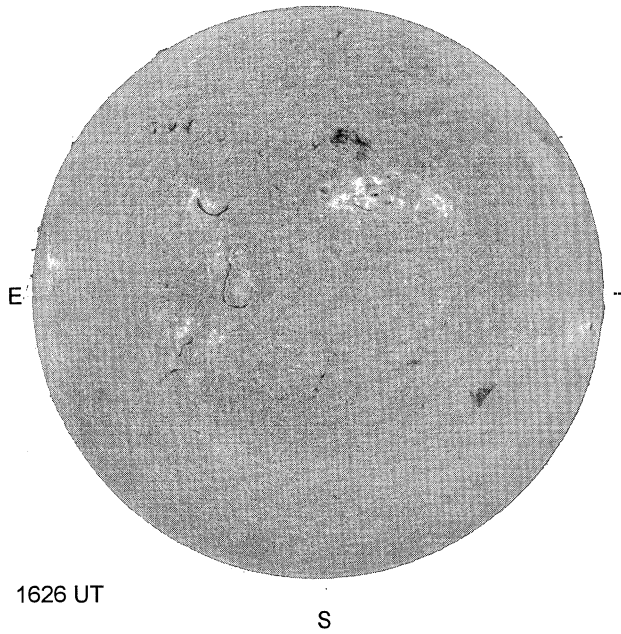
MT. WILSON MAGNETOGRAM



15.90 -
16.84 UT

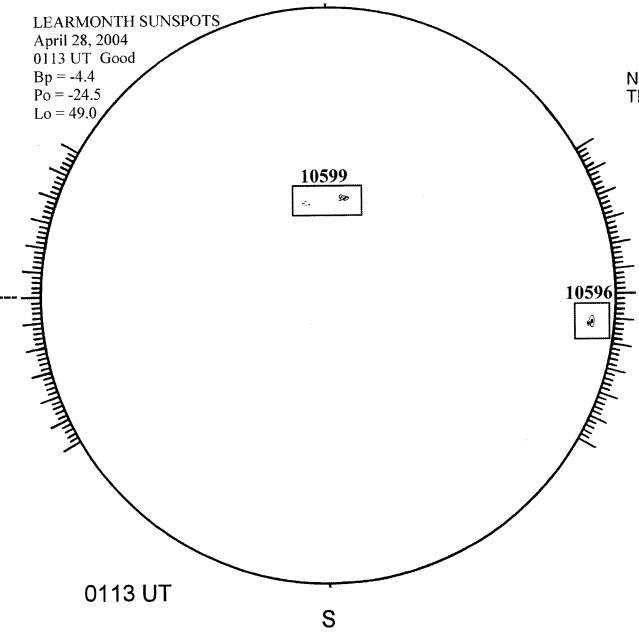
White= +7.5G
Black = -7.5G

BIG BEAR H-ALPHA



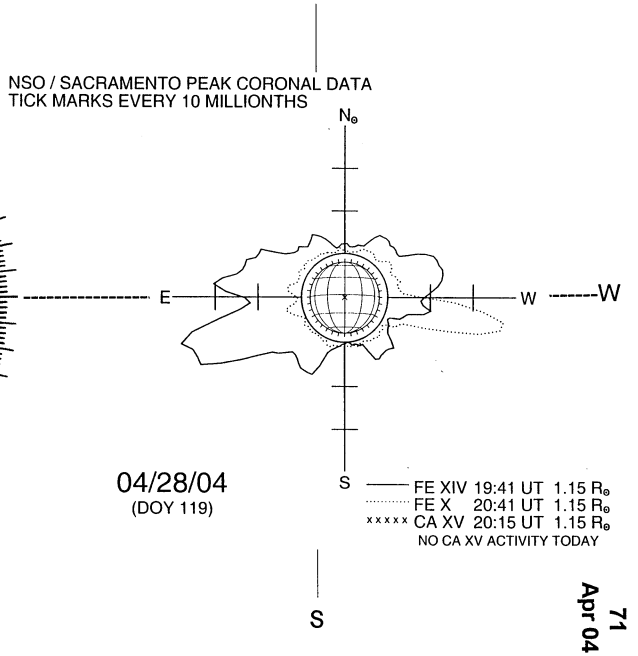
1626 UT

LEARMONTH SUNSPOTS



0113 UT

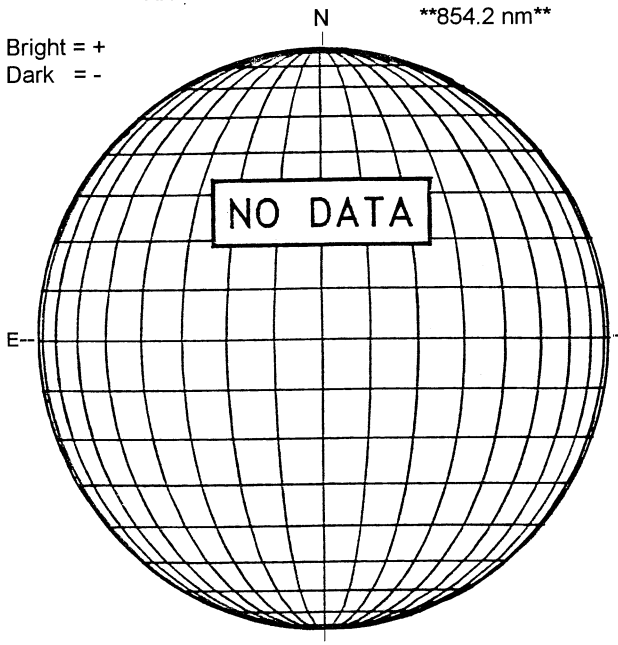
SACRAMENTO PEAK CORONA (1.15 Radii)----



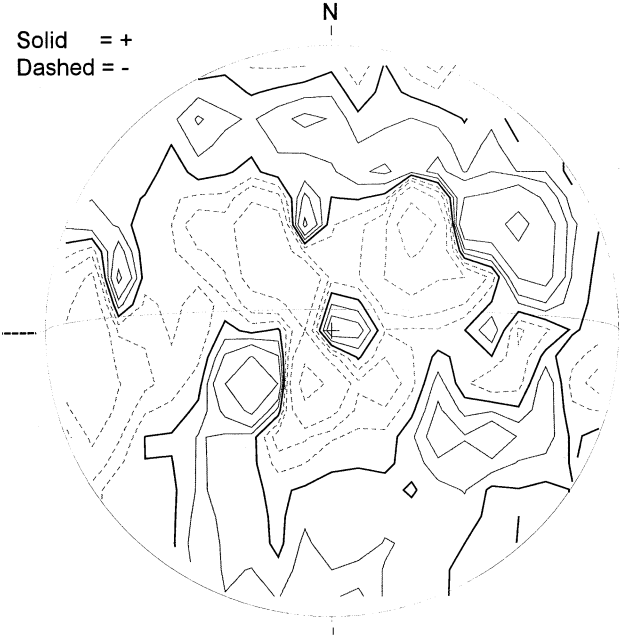
71
Apr 04

APRIL 29, 2004 (P= -24.43, Bo = -4.34, Lo = 36.15)

KITT PEAK MAGNETOGRAM--SOLIS

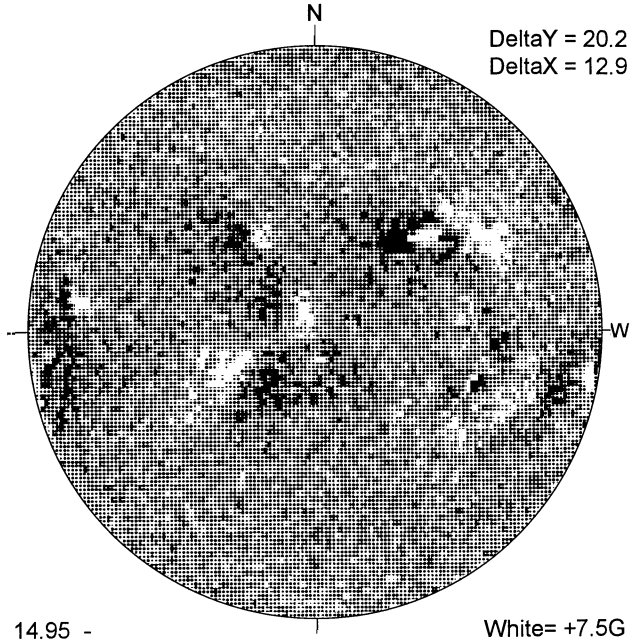


STANFORD MAGNETOGRAM



2154 UT

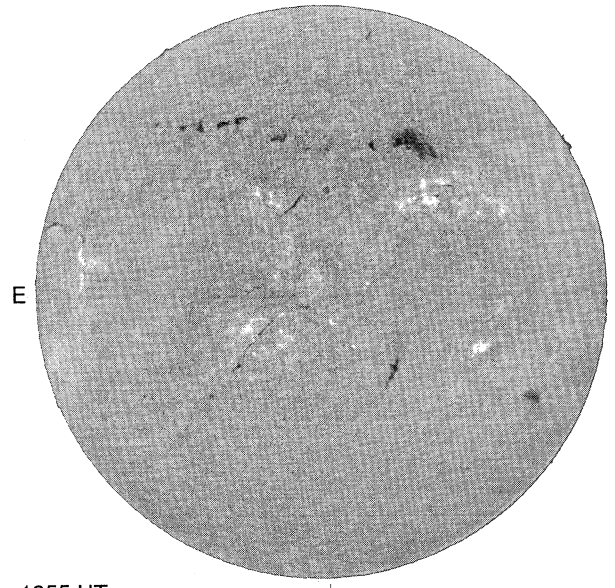
MT. WILSON MAGNETOGRAM



14.95 -
15.36 UT

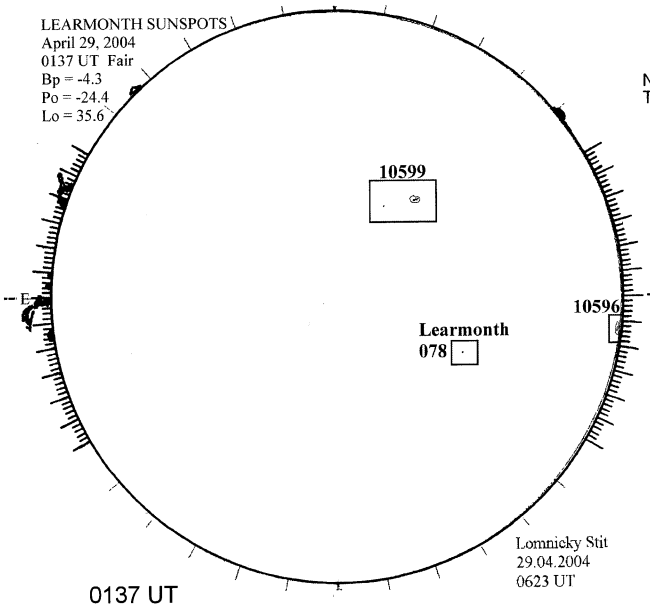
White= +7.5G
Black = -7.5G

BIG BEAR H-ALPHA



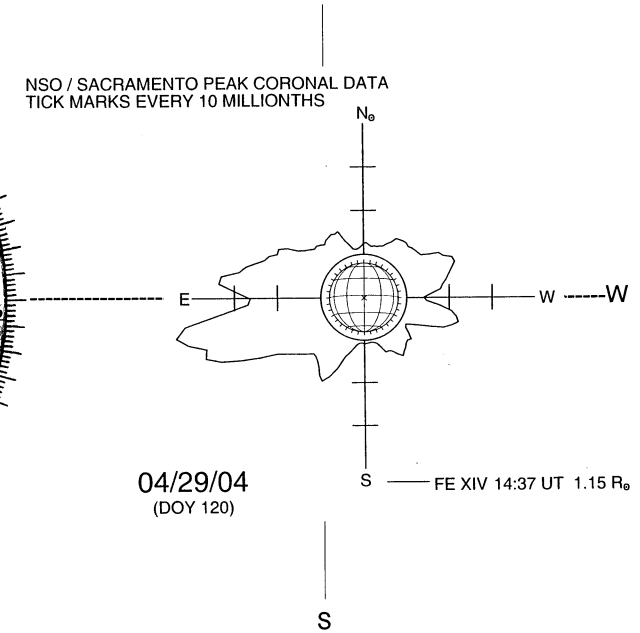
1655 UT

LEARMONTH SUNSPOTS



0137 UT
0623 UT LOMN Prom S

SACRAMENTO PEAK CORONA (1.15 Radii)----

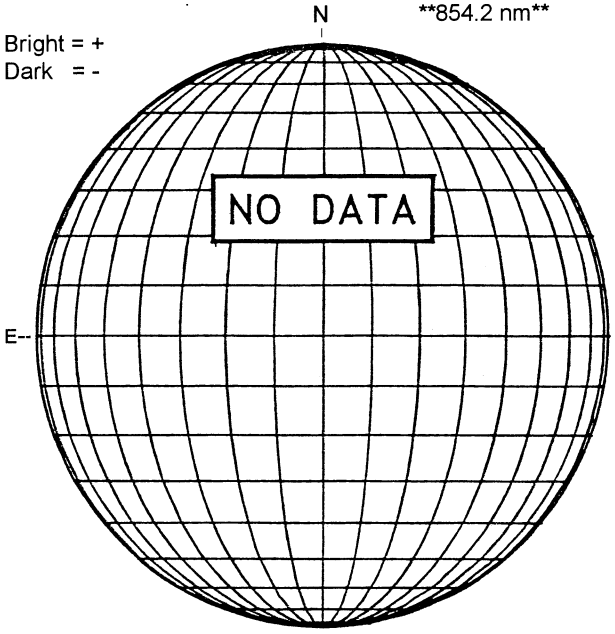


APRIL 30, 2004 (P= -24.27, Bo = -4.24, Lo = 22.93)

KITT PEAK MAGNETOGRAM—SOLIS

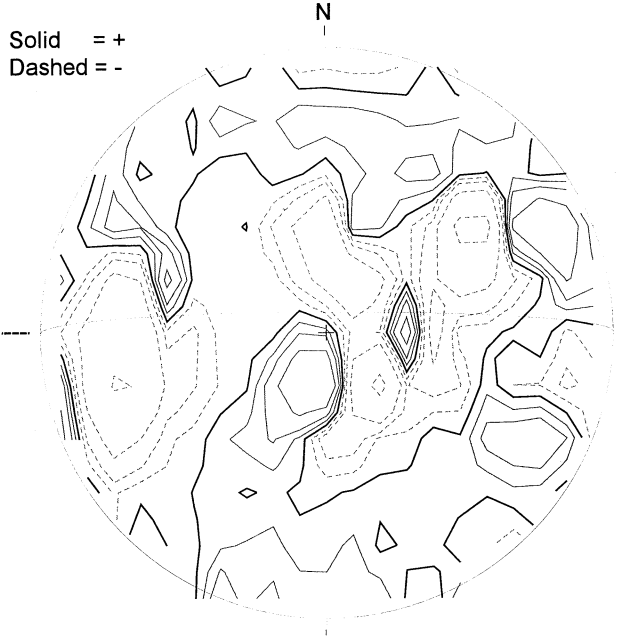
854.2 nm

Bright = +
Dark = -



STANFORD MAGNETOGRAM

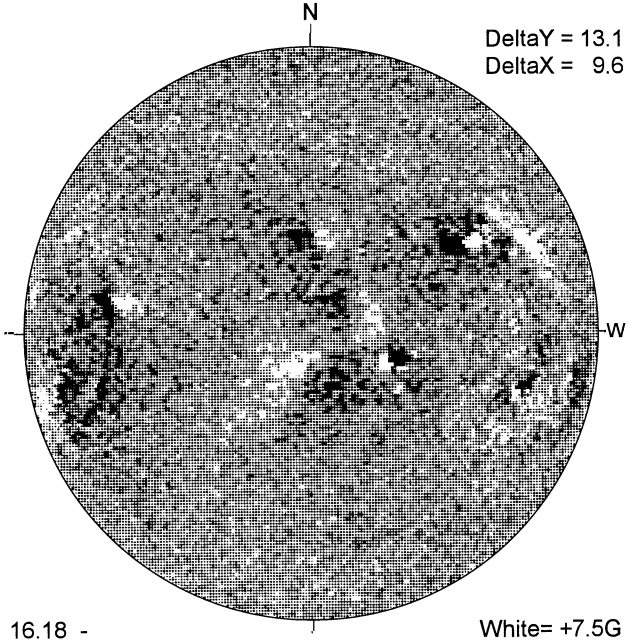
Solid = +
Dashed = -



2153 UT

MT. WILSON MAGNETOGRAM

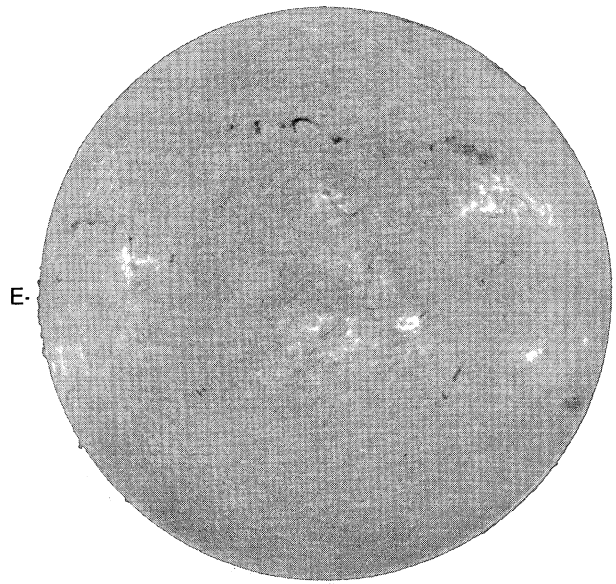
DeltaY = 13.1
DeltaX = 9.6



16.18 -
17.12 UT

White= +7.5G
Black = -7.5G

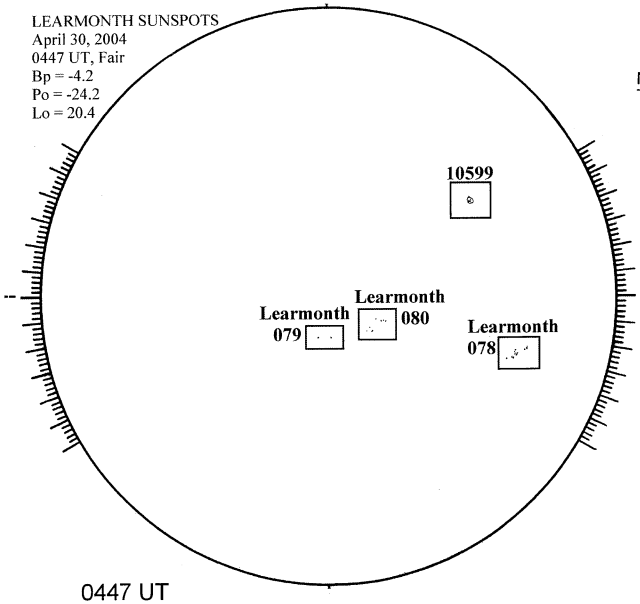
BIG BEAR H-ALPHA



1640 UT

S

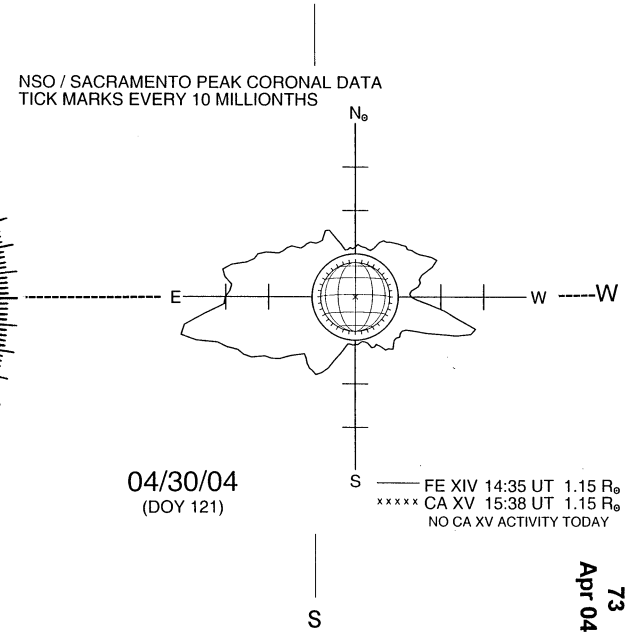
LEARMONTH SUNSPOTS



0447 UT

S

SACRAMENTO PEAK CORONA (1.15 Radii)



04/30/04
(DOY 121)

S

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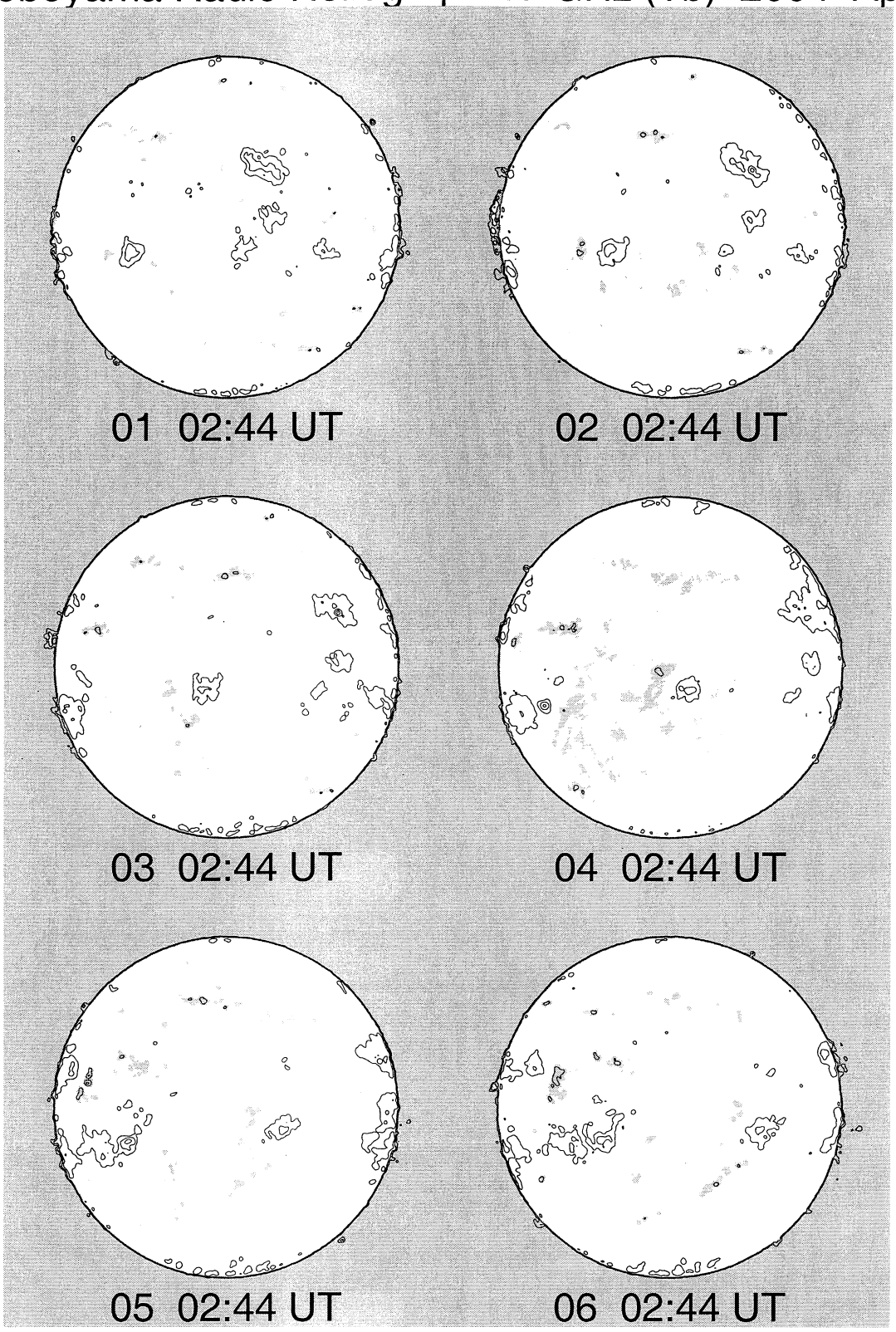
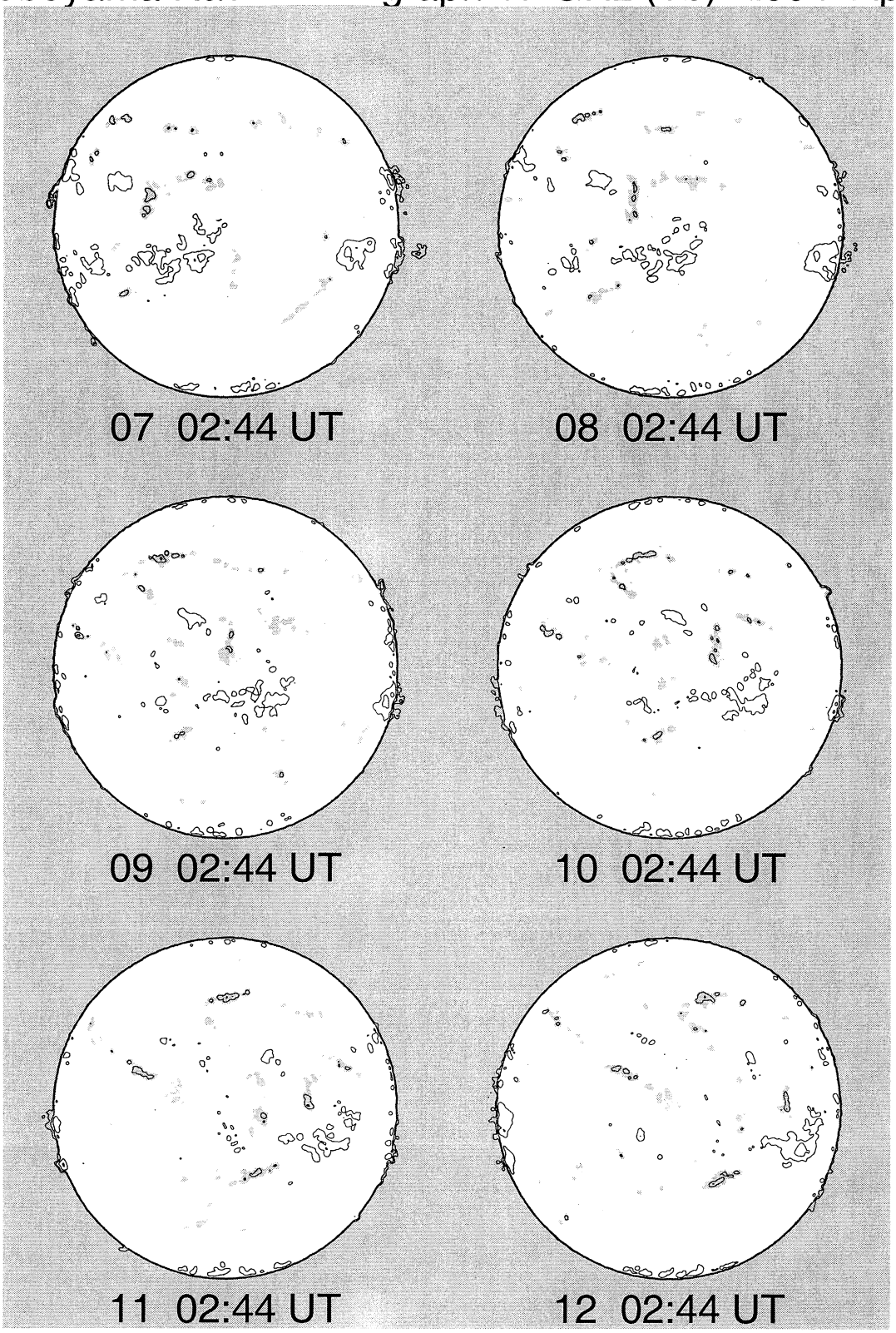
Apr 04

Nobeyama Radio Heliograph 17 GHz (Tb) 2004 April



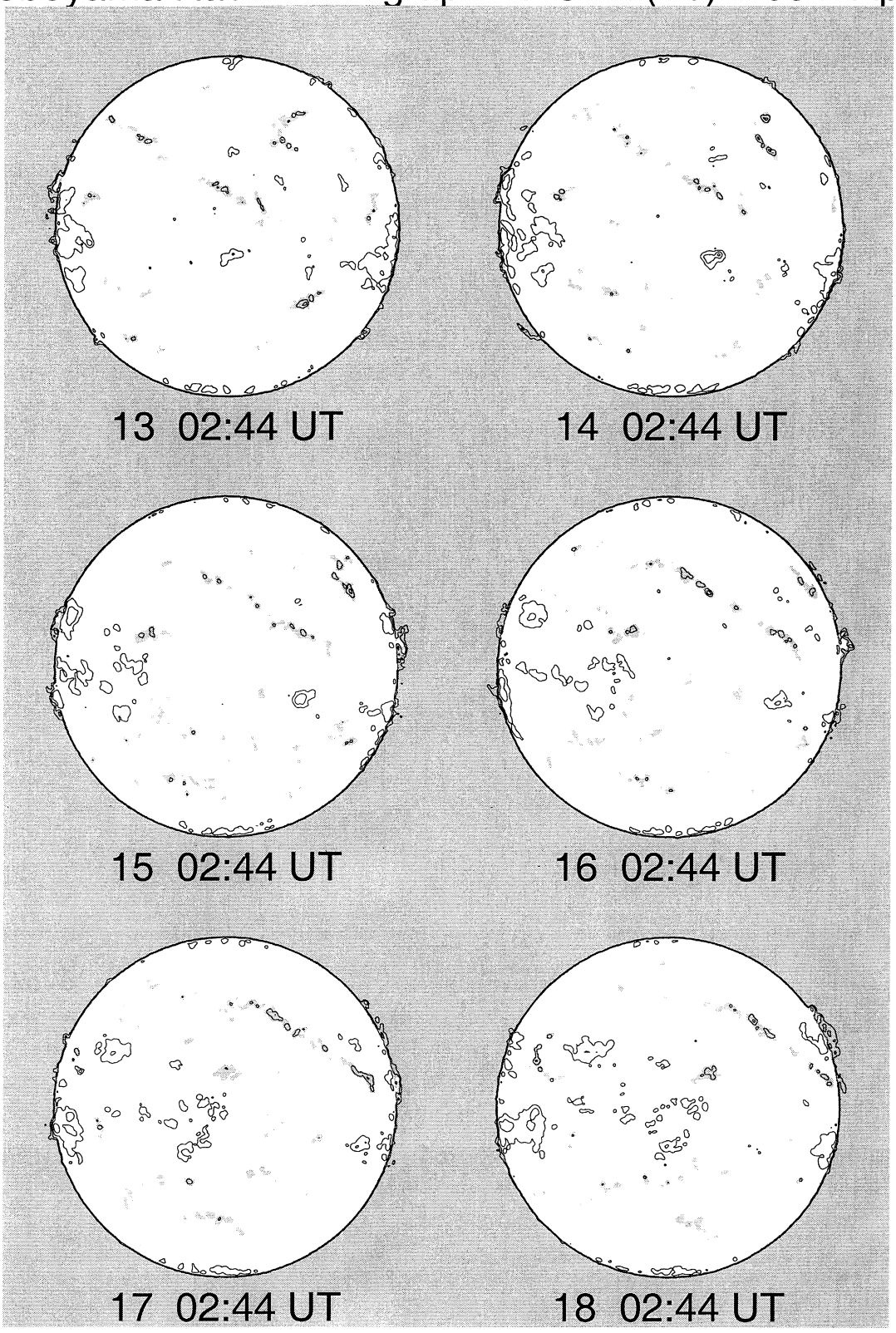
Contour Levels Tb=[5,8,12,20,50,100] x 10^3 K
Grey level Tb <= 9,500 K

Nobeyama Radio Heliograph 17 GHz (Tb) 2004 April



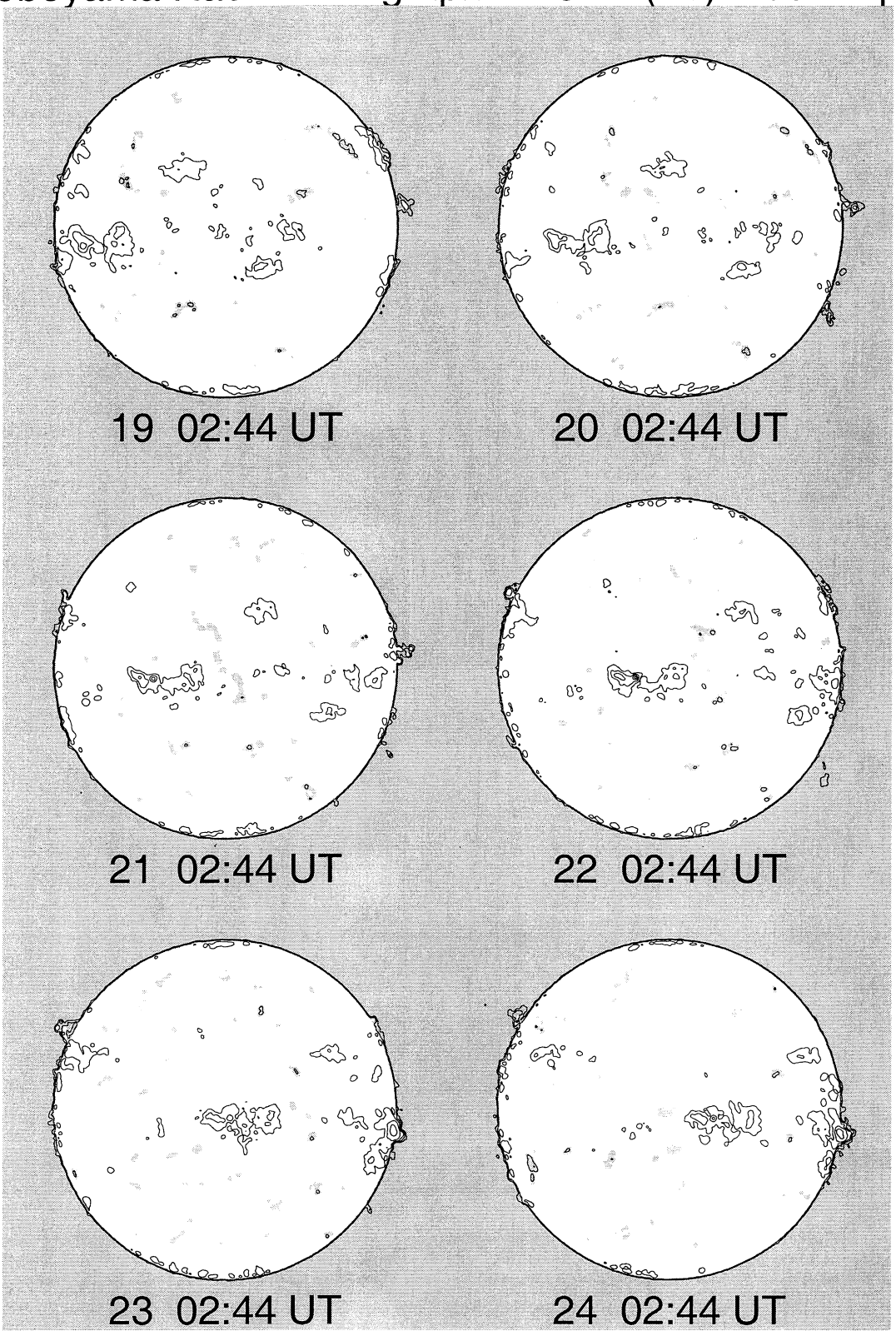
Contour Levels Tb=[5,8,12,20,50,100] x 10^3 K
Grey level Tb <= 9,500 K

Nobeyama Radio Heliograph 17 GHz (Tb) 2004 April



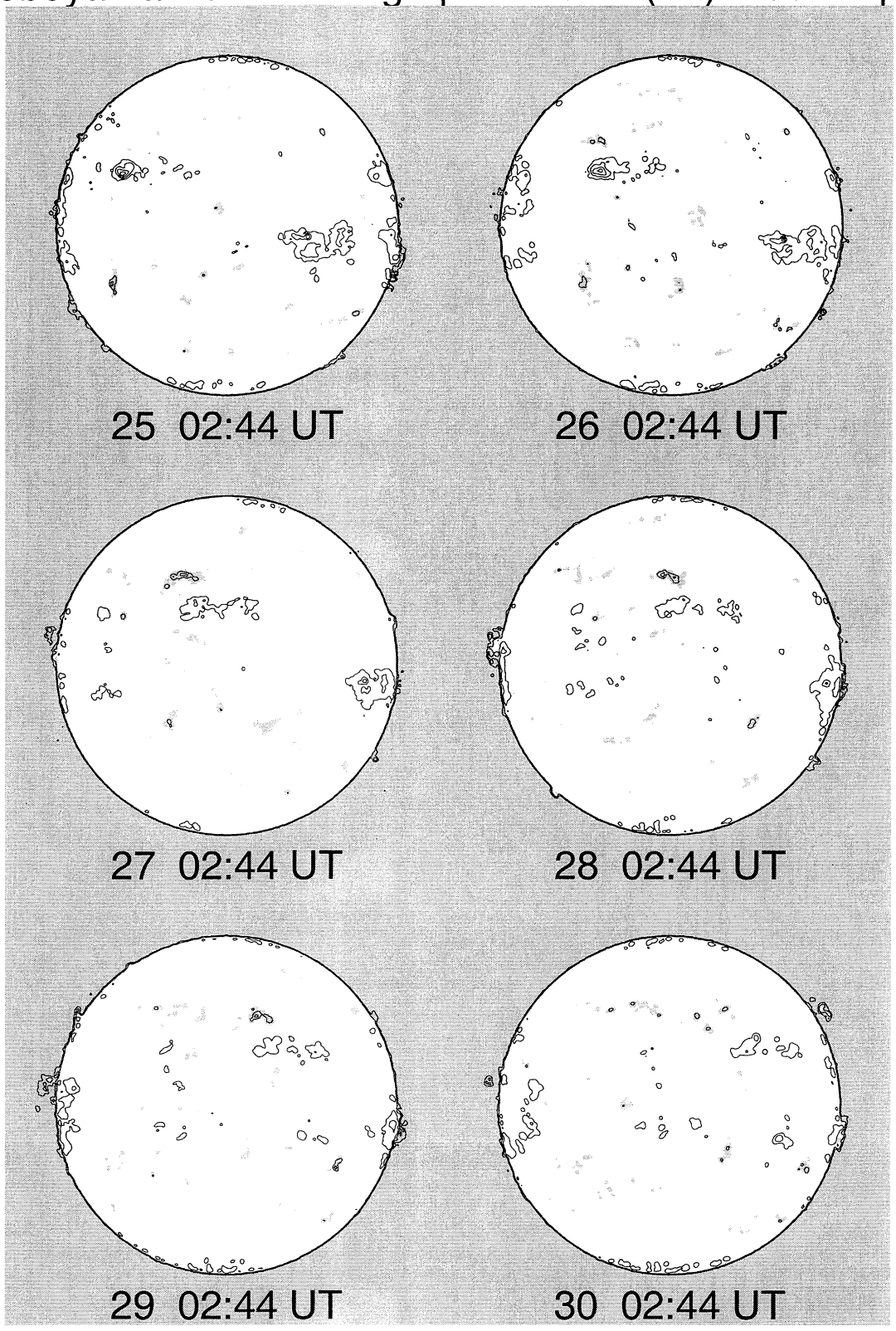
Contour Levels Tb=[5,8,12,20,50,100] x 10^3 K
Grey level Tb <= 9,500 K

Nobeyama Radio Heliograph 17 GHz (Tb) 2004 April



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) 2004 April



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

SUNSPOT GROUPS
(Ordered by Central Meridian Passage Date)
APRIL 2004

NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Mo	Day	Time (UT)	Lat	CMD	CMP Mo	Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
10585A		VORO	04	06	2238	S09	W58	04	2.6			AXX	4	1		3
10585A		LEAR	04	07	0030	S08	W58	04	2.7		B	BXO	20	2	3	2
10585A		KAND	04	07	0740	S10	W64	04	2.5			BXO		3	3	4
10585A		HOLL	04	07	1416	S09	W67	04	2.6		B	BXO	20	2	4	3
10585A	32054	MWIL	04	07	1430	S09	W65	04	2.7	4	(B)					
10587		HOLL	03	28	1527	S13	E77	04	3.4		B	DAI	110	4	8	3
10587	32048	MWIL	03	28	1530	S14	E78	04	3.5	3	(AP)					
10587		VORO	03	29	0005	S13	E73	04	3.5			HAX	89	2		2
10587		LEAR	03	29	0016	S12	E75	04	3.7		B	CAO	90	11	7	4
10587		KAND	03	29	1030	S16	E69	04	3.7			AX		7	4	3
10587		KAND	03	29	1030	S16	E69	04	3.7			AX		7	4	3
10587		HOLL	03	29	1500	S12	E68	04	3.7		B	DAI	70	24	14	4
10587	32048	MWIL	03	29	1530	S14	E67	04	3.7	5	(B)					
10587		LEAR	03	30	0158	S13	E60	04	3.6		B	DSO	120	11	9	3
10587		TACH	03	30	0607	S15	E58	04	3.6			BRI	61	8	7	3
10587		KAND	03	30	1210	S15	E55	04	3.7			DAO		10	10	2
10587		KAND	03	30	1210	S15	E55	04	3.7			DAO		10	10	2
10587		HOLL	03	30	1510	S13	E55	04	3.8		B	EAO	120	23	11	4
10587	32048	MWIL	03	30	1530	S13	E54	04	3.7	5	(BG)					
10587		VORO	03	30	2308	S13	E48	04	3.6			DAI	204	12	6	3
10587		LEAR	03	31	0105	S13	E49	04	3.7		BG	DSO	150	30	9	2
10587		TACH	03	31	0539	S13	E46	04	3.7			CAI	70	8	7	3
10587		KAND	03	31	0615	S16	E45	04	3.7			CAO		16	10	3
10587		KAND	03	31	0615	S16	E45	04	3.7			CAO		16	10	3
10587		HOLL	03	31	1418	S13	E41	04	3.7		B	EAO	220	18	11	4
10587	32048	MWIL	03	31	1530	S14	E40	04	3.7	4	(B)					
10587		VORO	03	31	2304	S14	E36	04	3.7			CAI	254	13	9	3
10587		LEAR	04	01	0040	S13	E35	04	3.7		B	DAO	180	18	10	3
10587		KAND	04	01	1140	S12	E27	04	3.5			CAO		8	9	2
10587		HOLL	04	01	1428	S12	E27	04	3.6		B	CAO	170	27	9	4
10587	32048	MWIL	04	01	1530	S14	E26	04	3.6	5	(BP)					
10587		LEAR	04	02	0008	S13	E24	04	3.8		B	CAO	150	24	11	4
10587		HOLL	04	02	1731	S12	E12	04	3.6		B	EAO	170	38	12	3
10587	32048	MWIL	04	02	1800	S13	E12	04	3.6	5	(BP)					
10587		VORO	04	02	2306	S14	E10	04	3.7			DKI	209	26	8	3
10587		LEAR	04	03	0005	S13	E10	04	3.7		B	EAO	150	21	11	4
10587		SVTO	04	03	0840	S13	E01	04	3.4		B	DAO	130	7	3	3
10587		KAND	04	03	0845	S14	E00	04	3.4			HA		7	3	2
10587	32049	MWIL	04	03	1545	S13	W01	04	3.6	5	(BG)					
10587		HOLL	04	03	1840	S14	W02	04	3.6		B	DAO	100	9	6	3
10587		VORO	04	03	2245	S13	W03	04	3.7			CKI	215	21	7	3
10587		LEAR	04	04	0035	S13	W04	04	3.7		B	DAI	190	26	8	3
10587		SVTO	04	04	0845	S14	W11	04	3.5		B	DAO	100	6	5	3
10587		KAND	04	04	0935	S15	W11	04	3.6			DAO		11	7	3
10587	32049	MWIL	04	04	1430	S13	W13	04	3.6	4	(BG)					
10587		LEAR	04	05	0001	S14	W17	04	3.7		B	CAI	170	26	10	3
10587		VORO	04	05	0016	S13	W20	04	3.5			HKX	168	18		3
10587		SVTO	04	05	0714	S13	W23	04	3.6		B	CAO	110	7	8	3
10587		KAND	04	05	0810	S14	W26	04	3.4			CAO		7	6	3
10587	32049	MWIL	04	05	1430	S13	W28	04	3.5	5	(BP)					
10587		VORO	04	06	0114	S13	W34	04	3.5			HAX	89	5		3
10587		LEAR	04	06	0311	S14	W33	04	3.6		B	CAO	100	11	9	2
10587		SVTO	04	06	0603	S13	W37	04	3.5		B	CAO	80	3	3	3
10587		KAND	04	06	0630	S15	W36	04	3.5			CAO		7	9	3
10587	32049	MWIL	04	06	1430	S13	W40	04	3.6	5	(BG)					
10587		HOLL	04	06	1550	S13	W42	04	3.5		B	DSI	30	9	4	3
10587		VORO	04	06	2238	S13	W46	04	3.5			HRX	46	4		3
10587		LEAR	04	07	0030	S13	W45	04	3.6		B	CAO	40	8	8	2
10587		SVTO	04	07	0615	S12	W51	04	3.4		B	CAO	30	3	3	3
10587		KAND	04	07	0740	S14	W53	04	3.3			AX		4	2	4
10587		HOLL	04	07	1416	S14	W55	04	3.4		B	BXO	20	4	7	3
10587	32049	MWIL	04	07	1430	S13	W55	04	3.4	4	(BP)					
10587		VORO	04	07	2235	S13	W59	04	3.5			BXO	9	2	0	3
10587		LEAR	04	08	0023	S13	W60	04	3.5		A	AXX	20	2	1	2
10587	32049	MWIL	04	08	1500	S13	W68	04	3.5	4	(AP)					
10587A		TACH	04	03	0542	S04	E06	04	3.7			HA	176	3	2	2
10587C	32055	MWIL	04	09	1500	N06	W26	04	7.7	3	(AF)					

S U N S P O T G R O U P S
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NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Mo	Day	Time (UT)	Lat	CMD	CMP Mo	Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
10588		HOLL	04	01	1428	S12	E79	04	7.5		A	HSX	60	1	1	4
10588	32050	MWIL	04	01	1530	S13	E84	04	8.0	4	(AP)					
10588		LEAR	04	02	0008	S13	E76	04	7.7		A	HSX	60	1	2	4
10588		HOLL	04	02	1731	S12	E68	04	7.8		A	HAX	70	1	2	3
10588	32050	MWIL	04	02	1800	S13	E68	04	7.9	5	(AP)					
10588		VORO	04	02	2306	S15	E65	04	7.9			DAI	93	6	0	3
10588		LEAR	04	03	0005	S15	E65	04	7.9		B	CSO	70	5	3	4
10588		TACH	04	03	0542	S15	E61	04	7.8			CSO	33	2	1	2
10588		SVTO	04	03	0840	S16	E61	04	8.0		B	DAO	100	5	6	3
10588		KAND	04	03	0845	S14	E61	04	8.0			HS		1	2	2
10588		KAND	04	03	0845	S18	E61	04	8.0			BXO		2	1	2
10588	32050	MWIL	04	03	1545	S13	E56	04	7.9	5	(AP)					
10588	32051	MWIL	04	03	1545	S16	E56	04	7.9	4	(B)					
10588		HOLL	04	03	1840	S14	E55	04	7.9		B	DAI	40	7	7	3
10588		VORO	04	03	2245	S15	E53	04	8.0			DAI	130	6	0	3
10588		LEAR	04	04	0035	S15	E54	04	8.1		B	CSO	160	16	8	3
10588		SVTO	04	04	0845	S17	E45	04	7.8		B	DAO	70	6	7	3
10588		KAND	04	04	0935	S14	E48	04	8.0			HS		1	2	3
10588		KAND	04	04	0935	S17	E48	04	8.0			CAI		6	5	3
10588	32050	MWIL	04	04	1430	S13	E44	04	7.9	5	(AP)					
10588	32051	MWIL	04	04	1430	S16	E43	04	7.9	4	(B)					
10588		LEAR	04	05	0001	S14	E38	04	7.9		BG	DAO	200	15	5	3
10588		VORO	04	05	0016	S15	E39	04	8.0			DAI	219	11	2	3
10588		SVTO	04	05	0714	S16	E34	04	7.9		B	DSI	140	9	8	3
10588		KAND	04	05	0810	S14	E35	04	8.0			HA		1	2	3
10588		KAND	04	05	0810	S17	E34	04	7.9			DAO		8	6	3
10588	32050	MWIL	04	05	1430	S13	E31	04	7.9	5	(AP)					
10588	32051	MWIL	04	05	1430	S16	E30	04	7.9	5	(D)					
10588		VORO	04	06	0114	S16	E24	04	7.9			DAO	198	12	4	3
10588		VORO	04	06	0114	S19	E19	04	7.5			AXX	3	1		3
10588		LEAR	04	06	0311	S16	E27	04	8.2		BG	DAI	130	13	10	2
10588		SVTO	04	06	0603	S15	E22	04	7.9		B	DSI	160	7	7	3
10588		KAND	04	06	0630	S15	E23	04	8.0			HS		2	2	3
10588		KAND	04	06	0630	S18	E22	04	7.9			DAO		9	5	3
10588	32050	MWIL	04	06	1430	S13	E18	04	8.0	5	(AP)					
10588	32051	MWIL	04	06	1430	S16	E17	04	7.9	5	(B)					
10588	32053	MWIL	04	06	1430	S19	E24	04	8.4	4	(B)					
10588		HOLL	04	06	1550	S15	E18	04	8.0		B	DAI	100	23	10	3
10588		VORO	04	06	2238	S16	E13	04	7.9			DHO	164	12	3	3
10588		LEAR	04	07	0030	S16	E15	04	8.1		BG	DAI	130	12	10	2
10588		SVTO	04	07	0615	S17	E08	04	7.9		BG	DSO	140	7	8	3
10588		KAND	04	07	0740	S15	E08	04	7.9			HS		1	2	4
10588		KAND	04	07	0740	S17	E06	04	7.8			CAI		11	5	4
10588		HOLL	04	07	1416	S17	E07	04	8.1		B	CAO	180	10	8	3
10588	32050	MWIL	04	07	1430	S13	E05	04	8.0	5	(AP)					
10588	32051	MWIL	04	07	1430	S17	E04	04	7.9	5	(BG)					
10588	32053	MWIL	04	07	1430	S19	E10	04	8.4	4	(AP)					
10588		VORO	04	07	2235	S16	W00	04	7.9			DHO	177	12	4	3
10588		LEAR	04	08	0023	S16	E01	04	8.1		BG	DAO	140	15	10	2
10588		SVTO	04	08	0704	S16	W06	04	7.8		B	DSO	130	6	8	2
10588		KAND	04	08	0830	S14	W06	04	7.9			HS		1	2	3
10588		KAND	04	08	0830	S18	W07	04	7.8			DAO		7	6	3
10588	32050	MWIL	04	08	1500	S13	W09	04	7.9	5	(AP)					
10588	32051	MWIL	04	08	1500	S17	W11	04	7.8	5	(B)					
10588		VORO	04	08	2219	S16	W13	04	7.9			DHO	147	10	5	3
10588		LEAR	04	09	0053	S15	W14	04	8.0		B	CSO	150	10	6	2
10588		KAND	04	09	0650	S15	W18	04	7.9			HS		1	2	3
10588		KAND	04	09	0650	S18	W19	04	7.8			DRO		5	6	3
10588	32050	MWIL	04	09	1500	S13	W22	04	8.0	5	(AP)					
10588	32051	MWIL	04	09	1500	S16	W23	04	7.9	4	(B)					
10588		LEAR	04	10	0041	S15	W26	04	8.1		B	CSO	150	10	8	2
10588		VORO	04	10	0428	S16	W29	04	8.0			DSI	155	7	3	3
10588		TACH	04	10	0525	S16	W30	04	7.9			DAO	125	3	2	3
10588		KAND	04	10	0650	S16	W31	04	7.9			HS		1	2	3
10588		KAND	04	10	0650	S18	W32	04	7.8			CSO		4	5	3
10588	32050	MWIL	04	10	1500	S14	W35	04	8.0	5	(AP)					
10588	32051	MWIL	04	10	1500	S16	W36	04	7.9	4	(B)					
10588		HOLL	04	10	2000	S16	W40	04	7.8		B	DSI	60	8	6	2
10588		VORO	04	10	2343	S14	W39	04	8.0			HAX	149	4		3

S U N S P O T G R O U P S
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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
10588		LEAR	04 11 0004	S15 W42	04 7.8		B	CSO	90	6	5	3
10588		TACH	04 11 0435	S16 W42	04 8.0			CSO	68	2	2	3
10588	32050	MWIL	04 11 1430	S15 W48	04 8.0	5	(AP)					
10588	32051	MWIL	04 11 1430	S16 W49	04 7.9	3	(BG)					
10588		VORO	04 12 0359	S16 W54	04 8.1			DAI	121	3	1	3
10588		TACH	04 12 0440	S16 W55	04 8.0			DAI	178	5	3	3
10588		KAND	04 12 0730	S15 W58	04 7.9			HS		1	1	3
10588		KAND	04 12 0730	S17 W60	04 7.7			AX		1		3
10588		SVTO	04 12 1014	S13 W60	04 7.9		B	CSO	40	3	4	2
10588		HOLL	04 12 1423	S17 W60	04 8.0		B	CAO	140	6	5	3
10588	32050	MWIL	04 12 1430	S14 W61	04 8.0	5	(AP)					
10588	32051	MWIL	04 12 1430	S18 W62	04 7.9	4	(BG)					
10588		LEAR	04 13 0150	S16 W68	04 7.9		B	CAO	60	3	2	2
10588		SVTO	04 13 0523	S12 W70	04 7.9		A	HSX	50	1	2	3
10588		TACH	04 13 0648	S14 W67	04 8.2			HSX	89	1	2	3
10588	32050	MWIL	04 13 1430	S14 W74	04 8.0	5	(AP)					
10588		HOLL	04 13 1445	S13 W76	04 7.9		A	HAX	60	1	3	3
10588		VORO	04 13 2250	S14 W78	04 8.0			HAX	85	1		3
10588		LEAR	04 14 0003	S16 W77	04 8.2		A	HSX	60	1	3	3
10588		TACH	04 14 0509	S14 W79	04 8.2			HXX	59	1	2	3
10588		SVTO	04 14 0625	S14 W80	04 8.2		A	HSX	20	1	1	3
10588A		VORO	04 12 0359	S17 W32	04 9.7			AXX	2	1		3
10589	32052	MWIL	04 04 1430	N11 E75	04 10.2	4	(AP)					
10589		LEAR	04 05 0001	N12 E66	04 10.0		B	BXO	70	5	5	3
10589		VORO	04 05 0016	N10 E66	04 10.0			BXI	33	6	2	3
10589		SVTO	04 05 0714	N09 E63	04 10.0		B	BXO	20	2	3	3
10589		KAND	04 05 0810	N10 E63	04 10.1			BXO		2	3	3
10589	32052	MWIL	04 05 1430	N11 E59	04 10.0	4	(B)					
10589		VORO	04 06 0114	N11 E51	04 9.9			BXO	3	3	3	3
10589		LEAR	04 06 0311	N10 E52	04 10.0		B	BXO	20	3	4	2
10589		SVTO	04 06 0603	N10 E52	04 10.1		A	AXX	20	2	2	3
10589		KAND	04 06 0630	N09 E52	04 10.2			AX		2	1	3
10589	32052	MWIL	04 06 1430	N11 E46	04 10.1	4	(BF)					
10589		HOLL	04 06 1550	N11 E47	04 10.2		A	AXX	10	3	1	3
10589		LEAR	04 07 0030	N11 E41	04 10.1		A	AXX	10	1	1	2
10589	32056	MWIL	04 10 1500	N10 W12	04 9.7	3	(AP)					
10591		VORO	04 12 0359	S15 E10	04 12.9			BRI	19	6	2	3
10591		TACH	04 12 0440	S15 E09	04 12.9			BRI	7	4	3	3
10591		KAND	04 12 0630	S15 E07	04 12.8			CRO		2	4	3
10591		HOLL	04 12 1423	S15 E06	04 13.0		B	CAI	40	12	8	3
10591	32057	MWIL	04 12 1430	S15 E04	04 12.9	4	(B)					
10591	32058	MWIL	04 12 1430	S16 E07	04 13.1	4	(B)					
10591		LEAR	04 13 0150	S16 W01	04 13.0		B	CAO	50	7	7	2
10591		SVTO	04 13 0523	S16 W05	04 12.8		BG	CSO	20	4	6	3
10591		TACH	04 13 0648	S14 W05	04 12.9			BRO	22	3	4	3
10591	32057	MWIL	04 13 1430	S16 W06	04 13.1	5	(BG)					
10591		HOLL	04 13 1445	S16 W07	04 13.1		B	DAO	70	16	9	3
10591		VORO	04 13 2250	S16 W13	04 13.0			DAI	72	9	7	3
10591		LEAR	04 14 0003	S17 W12	04 13.1		B	CAI	70	18	9	3
10591		TACH	04 14 0509	S16 W16	04 13.0			DAI	108	8	8	3
10591		SVTO	04 14 0625	S17 W16	04 13.0		BG	DAO	80	11	9	3
10591		KAND	04 14 0815	S18 W18	04 13.0			DAO		9	9	2
10591	32057	MWIL	04 14 1430	S16 W20	04 13.1	5	(D)					
10591		HOLL	04 14 1600	S17 W21	04 13.1		B	EAI	80	9	11	3
10591		VORO	04 14 2229	S16 W24	04 13.1			DAI	102	6	6	3
10591		LEAR	04 15 0119	S17 W25	04 13.1		BG	DSO	80	12	8	2
10591		TACH	04 15 0525	S16 W27	04 13.2			CAI	97	6	6	3
10591		SVTO	04 15 0536	S16 W28	04 13.1		B	DSO	90	7	9	3
10591		HOLL	04 15 1401	S16 W34	04 13.0		B	DSO	100	14	9	4
10591	32057	MWIL	04 15 1430	S16 W34	04 13.0	5	(D)					
10591		VORO	04 15 2232	S16 W37	04 13.1			DAI	127	3	8	3
10591		LEAR	04 16 0116	S17 W40	04 13.0		BG	CSO	80	6	8	2
10591		KAND	04 16 0655	S17 W44	04 12.9			CSO		3	8	3
10591		HOLL	04 16 1424	S16 W47	04 13.0		B	DAO	60	6	9	3
10591	32057	MWIL	04 16 1430	S16 W48	04 13.0	5	(D)					
10591		VORO	04 17 0022	S15 W54	04 12.9			CAI	78	2	4	3

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APRIL 2004

NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Mo	Day	Time (UT)	Lat	CMD	CMP Mo	Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
10591		LEAR	04	17	0054	S16	W54	04	12.9		B	CAO	60	7	7	3
10591		TACH	04	17	0718	S14	W60	04	12.8			HA	99	2	3	3
10591		LEAR	04	18	0005	S17	W66	04	13.0		B	BXO	50	4	7	3
10597		KAND	04	20	0855	S07	W51	04	16.5			BXO		2	4	2
10597	32069	MWIL	04	20	1430	S06	W54	04	16.6	4	(B)					
10597		HOLL	04	20	1450	S06	W55	04	16.5		B	DAO	70	6	4	3
10597		VORO	04	20	2249	S06	W59	04	16.5			CRO	34	2	5	3
10597		LEAR	04	21	0050	S08	W62	04	16.4		B	DSO	60	2	4	2
10597		SVTO	04	21	1025	S06	W65	04	16.6		B	CRO	40	4	6	3
10597		HOLL	04	21	1335	S06	W67	04	16.5		B	DSO	60	5	5	4
10597	32069	MWIL	04	21	1430	S07	W68	04	16.5	4	(B)					
10597		VORO	04	21	2241	S07	W73	04	16.5			DAO	113	2	5	3
10597		LEAR	04	22	0028	S08	W74	04	16.5		B	BXO	90	4	7	2
10597		SVTO	04	22	0543	S07	W78	04	16.4		B	BXO	30	2	6	3
10597		KAND	04	22	0655	S07	W80	04	16.3			BXO		3	8	4
10597		HOLL	04	22	1424	S07	W76	04	16.9		B	CSO	50	3	7	4
10597	32069	MWIL	04	22	1430	S08	W81	04	16.5	4	AP					
10597		LEAR	04	23	0055	S10	W81	04	16.9		B	CSO	80	5	6	1
10597		VORO	04	23	0118	S08	W80	04	17.0			BRX	17	3	3	2
10597		SVTO	04	23	0615	S08	W85	04	16.9		B	DSO	90	3	8	3
10597A	32060	MWIL	04	13	1430	S08	E47	04	17.1	4	(AP)					
10597A		HOLL	04	13	1445	S08	E46	04	17.1		A	AXX	10	1	1	3
10597A	32060	MWIL	04	14	1430	S09	E35	04	17.2	3	(B)					
10597A	32065	MWIL	04	16	1430	S06	E12	04	17.5	4	(AP)					
10593	32061	MWIL	04	14	1430	S19	E47	04	18.2	4	(AF)					
10593		HOLL	04	14	1600	S20	E47	04	18.3		A	HSX	20	1	1	3
10593		VORO	04	14	2229	S19	E42	04	18.1			AXX	3	1		3
10593		LEAR	04	15	0119	S20	E42	04	18.3		A	AXX	10	1	1	2
10593		HOLL	04	15	1401	S20	E35	04	18.3		A	AXX		1	1	4
10593		LEAR	04	18	0005	S18	E02	04	18.1		B	BXO	20	7	7	3
10593		VORO	04	18	0155	S18	E01	04	18.1			BRO	15	2	2	3
10593		KAND	04	18	1205	S19	W05	04	18.1			BXO		8	3	2
10593		HOLL	04	18	1550	S18	W08	04	18.0		B	DAI	60	8	4	2
10593		LEAR	04	19	0350	S18	W13	04	18.2		B	CSO	50	7	4	1
10593		SVTO	04	19	1335	S18	W21	04	18.0		B	DSO	50	5	6	2
10593		HOLL	04	19	1357	S18	W19	04	18.1		B	DAI	50	13	7	4
10593	32067	MWIL	04	19	1730	S18	W21	04	18.1	4	(B)					
10593		VORO	04	19	2307	S18	W24	04	18.1			CRI	32	6	6	3
10593		LEAR	04	20	0201	S19	W25	04	18.2		B	DSO	60	11	7	2
10593		SVTO	04	20	0502	S18	W28	04	18.1		B	DSO	30	5	8	3
10593		TACH	04	20	0523	S18	W31	04	17.9			AXX	12	1	1	3
10593		TACH	04	20	0523	S20	W24	04	18.4			HR	62	2	2	3
10593		KAND	04	20	0855	S19	W29	04	18.1			DRO		6	8	2
10593	32067	MWIL	04	20	1430	S19	W34	04	18.0	4	(B)					
10593		HOLL	04	20	1450	S19	W32	04	18.2		B	DSO	80	11	8	3
10593		VORO	04	20	2249	S18	W37	04	18.1			CRO	20	5	7	3
10593		LEAR	04	21	0050	S19	W38	04	18.1		B	BXO	20	5	8	2
10593		HOLL	04	21	1335	S18	W46	04	18.1		B	CSO	30	5	9	4
10593	32067	MWIL	04	21	1430	S18	W50	04	17.8	4	(AP)					
10593		VORO	04	21	2241	S18	W52	04	18.0			BXO	15	6	3	3
10593		LEAR	04	22	0028	S20	W51	04	18.1		B	BXO	30	4	8	2
10593		KAND	04	22	0655	S18	W57	04	17.9			BXO		4	7	4
10593		HOLL	04	22	1424	S18	W60	04	18.0		B	CSO	20	3	7	4
10593	32067	MWIL	04	22	1430	S18	W60	04	18.0	3	(AP)					
10592		HOLL	04	12	1423	S11	E78	04	18.5		A	AXX	30	1	1	3
10592	32059	MWIL	04	12	1430	S10	E77	04	18.4	4	(AP)					
10592		LEAR	04	13	0150	S09	E70	04	18.3		A	HSX	20	1	2	2
10592		SVTO	04	13	0523	S13	E68	04	18.3		A	HRX	20	1	1	3
10592		TACH	04	13	0648	S11	E68	04	18.4			HXX	26	1	1	3
10592	32059	MWIL	04	13	1430	S11	E65	04	18.5	4	(B)					
10592		HOLL	04	13	1445	S12	E66	04	18.6		A	HAX	20	2	3	3
10592		VORO	04	13	2250	S11	E59	04	18.4			AXX	7	2	2	3
10592		LEAR	04	14	0003	S10	E60	04	18.5		B	BXO	20	3	4	3
10592		TACH	04	14	0509	S11	E55	04	18.3			AXX	22	1	1	3
10592		SVTO	04	14	0625	S11	E58	04	18.6		B	CRO	40	4	4	3

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NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Mo	Day	Time (UT)	Lat	CMD	CMP Mo	Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
10592		KAND	04	14	0815	S13	E55	04	18.5			BXO		2	3	2
10592	32059	MWIL	04	14	1430	S11	E52	04	18.5	4	(B)					
10592		HOLL	04	14	1600	S12	E50	04	18.4		A	HAX	40	3	3	3
10592		VORO	04	14	2229	S11	E45	04	18.3			AXX	8	2		3
10592		LEAR	04	15	0119	S12	E44	04	18.4		A	HSX	20	1	1	2
10592		TACH	04	15	0525	S11	E43	04	18.5			AXX	21	1	1	3
10592		SVTO	04	15	0536	S11	E42	04	18.4		A	HSX	30	1	1	3
10592		HOLL	04	15	1401	S12	E38	04	18.4		B	CAO	40	4	3	4
10592	32059	MWIL	04	15	1430	S11	E38	04	18.5	5	(B)					
10592		VORO	04	15	2232	S11	E32	04	18.3			AXX	8	1		3
10592		LEAR	04	16	0116	S11	E30	04	18.3		A	AXX	10	1	1	2
10592		KAND	04	16	0655	S12	E28	04	18.4			AX		1	1	3
10592		HOLL	04	16	1424	S11	E24	04	18.4		A	HSX	20	1	1	3
10592	32059	MWIL	04	16	1430	S11	E24	04	18.4	4	(AF)					
10592		VORO	04	17	0022	S11	E18	04	18.4			AXX	7	1		3
10592		LEAR	04	17	0054	S10	E18	04	18.4		A	HSX	10	1	1	3
10592		TACH	04	17	0718	S10	E15	04	18.4			AXX	16	1	1	3
10592		LEAR	04	18	0005	S10	E05	04	18.4		A	AXX	10	1	1	3
10592		VORO	04	18	0155	S10	E04	04	18.4			AXX	3	1		3
10592		KAND	04	18	1205	S11	W02	04	18.3			AX		1		2
10592		HOLL	04	18	1550	S10	W04	04	18.3		A	AXX		1	1	2
10592		LEAR	04	19	0350	S10	W10	04	18.4		A	AXX	10	1	2	1
10592		HOLL	04	19	1357	S10	W16	04	18.4		A	AXX		1	1	4
10592	32070	MWIL	04	21	1430	S06	W36	04	18.9	4	(B)					
10598		HOLL	04	15	1401	S08	E49	04	19.2		A	AXX		1	1	4
10598	32063	MWIL	04	15	1430	S07	E50	04	19.3	4	(BF)					
10598		VORO	04	19	2307	S10	W07	04	19.4			AXX	6	1		3
10598		VORO	04	20	2249	S06	W15	04	19.8			BXO	7	2	2	3
10598		SVTO	04	21	1025	S06	W24	04	19.6		A	HRX	20	3	3	3
10598		HOLL	04	21	1335	S05	W25	04	19.7		B	CSO	20	6	5	4
10598		VORO	04	21	2241	S06	W30	04	19.7			BXO	8	2	3	3
10598		LEAR	04	22	0028	S07	W32	04	19.6		B	BXO	40	4	4	2
10598		SVTO	04	22	0543	S07	W37	04	19.5		B	AXO	10	2	1	3
10598		KAND	04	22	0655	S06	W35	04	19.7			BXO		2	5	4
10598		HOLL	04	22	1424	S06	W39	04	19.7		B	BXO	10	4	5	4
10594		VORO	04	13	2250	N14	E80	04	20.0			AXX	24	1		3
10594		LEAR	04	14	0003	N17	E82	04	20.2		A	HSX	30	1	5	3
10594		TACH	04	14	0509	N16	E82	04	20.4			HSX	122	1	3	3
10594		SVTO	04	14	0625	N15	E79	04	20.2		A	HSX	30	1	1	3
10594	32062	MWIL	04	14	1430	N15	E72	04	20.0	4	(AP)					
10594		HOLL	04	14	1600	N13	E72	04	20.1		A	HAX	60	1	2	3
10594		VORO	04	14	2229	N14	E67	04	20.0			HAX	96	1		3
10594		LEAR	04	15	0119	N14	E66	04	20.0		A	HSX	50	1	2	2
10594		TACH	04	15	0525	N14	E69	04	20.4			DSO	181	2	9	3
10594		SVTO	04	15	0536	N14	E64	04	20.1		A	HSX	40	1	2	3
10594		HOLL	04	15	1401	N14	E58	04	20.0		A	HAX	90	4	2	4
10594	32064	MWIL	04	15	1430	N14	E58	04	20.0	5	(AP)					
10594		VORO	04	15	2232	N15	E53	04	19.9			HAX	71	1		3
10594		LEAR	04	16	0116	N15	E52	04	20.0		A	HSX	60	1	2	2
10594		KAND	04	16	0655	N14	E49	04	20.0			HS		1	2	3
10594		HOLL	04	16	1424	N15	E45	04	20.0		A	HAX	70	3	2	3
10594	32064	MWIL	04	16	1430	N14	E45	04	20.0	5	(AP)					
10594		VORO	04	17	0022	N14	E39	04	20.0			HAX	45	2		3
10594		LEAR	04	17	0054	N16	E38	04	19.9		A	HAX	50	4	2	3
10594		TACH	04	17	0718	N15	E36	04	20.0			HR	50	2	2	3
10594		LEAR	04	18	0005	N15	E27	04	20.0		B	BXO	30	6	6	3
10594		VORO	04	18	0155	N15	E24	04	19.9			ARX	18	1		3
10594		KAND	04	18	1205	N14	E18	04	19.9			HS		1	2	2
10594		HOLL	04	18	1550	N16	E17	04	19.9		A	HAX	10	1	1	2
10594		LEAR	04	19	0350	N16	E10	04	19.9		B	BXO	20	2	2	1
10594		SVTO	04	19	1335	N15	E05	04	19.9		A	HSX	10	1	1	2
10594		HOLL	04	19	1357	N15	E06	04	20.0		A	HAX	10	1	1	4
10594	32064	MWIL	04	19	1730	N15	E03	04	19.9	4	(AP)					
10594		VORO	04	19	2307	N15	W00	04	20.0			AXX	8	1		3
10594		LEAR	04	20	0201	N15	W02	04	19.9		A	HSX	10	1	1	2
10594		SVTO	04	20	0502	N15	W02	04	20.0		A	HSX	20	1	1	3
10594	32064	MWIL	04	20	1430	N15	W08	04	20.0	4	(AP)					

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10595		HOLL	04	16	1424	S09	E73	04	22.1		B	CSO	40	4	6	3
10595	32066	MWIL	04	16	1430	S09	E72	04	22.0	4	(B)					
10595		VORO	04	17	0022	S06	E64	04	21.8			AXX	5	1		3
10595		VORO	04	17	0022	S09	E65	04	21.9			AXX	12	2		3
10595		LEAR	04	17	0054	S04	E63	04	21.7		A	AXX	10	1	1	3
10595		LEAR	04	17	0054	S09	E67	04	22.1		B	BXO	10	3	6	3
10595		TACH	04	17	0718	S04	E60	04	21.8			HSX	50	1	1	3
10595		LEAR	04	18	0005	S04	E53	04	22.0		B	BXI	60	13	7	3
10595		LEAR	04	18	0005	S08	E53	04	22.0		B	BXO	30	4	5	3
10595		VORO	04	18	0155	S06	E51	04	21.9			DAI	61	5	5	3
10595		KAND	04	18	1205	S06	E45	04	21.9			BXO		6	6	2
10595		HOLL	04	18	1550	S07	E44	04	21.9		B	EAI	30	9	8	2
10595		LEAR	04	19	0350	S06	E37	04	21.9		B	DSO	120	12	8	1
10595		SVTO	04	19	1335	S06	E31	04	21.9		B	DSO	60	8	8	2
10595		HOLL	04	19	1357	S07	E32	04	22.0		B	DAI	80	37	8	4
10595	32066	MWIL	04	19	1730	S05	E30	04	22.0	5	(BG)					
10595		VORO	04	19	2307	S06	E25	04	21.8			CAI	83	0	5	3
10595		LEAR	04	20	0201	S06	E25	04	21.9		B	DAO	90	11	7	2
10595		SVTO	04	20	0502	S07	E24	04	22.0		B	DSO	70	6	7	3
10595		TACH	04	20	0523	S05	E22	04	21.9			DSI	121	7	6	3
10595		KAND	04	20	0855	S06	E20	04	21.9			DAO		11	8	2
10595	32066	MWIL	04	20	1430	S06	E17	04	21.9	5	(B)					
10595		HOLL	04	20	1450	S07	E18	04	22.0		B	DAO	50	13	8	3
10595		VORO	04	20	2249	S06	E13	04	21.9			CAO	79	7	5	3
10595		LEAR	04	21	0050	S07	E11	04	21.8		B	CAO	50	7	7	2
10595		SVTO	04	21	1025	S04	E06	04	21.9		A	HSX	40	3	3	3
10595		HOLL	04	21	1335	S06	E06	04	22.0		B	DAO	60	13	8	4
10595	32066	MWIL	04	21	1430	S06	E04	04	21.9	4	(BP)					
10595		VORO	04	21	2241	S06	W01	04	21.9			CAO	19	3	4	3
10595		LEAR	04	22	0028	S07	W01	04	21.9		B	BXO	40	10	8	2
10595		SVTO	04	22	0543	S07	W07	04	21.7		B	CSO	20	2	2	3
10595		KAND	04	22	0655	S09	W02	04	22.1			BXO		10	9	4
10595		HOLL	04	22	1424	S07	W08	04	22.0		B	CAO	40	7	8	4
10595	32066	MWIL	04	22	1430	S07	W08	04	22.0	3	(B)					
10595		LEAR	04	23	0055	S08	W15	04	21.9		B	CSO	40	7	6	1
10595		VORO	04	23	0118	S05	W16	04	21.8			HAX	5	2	2	2
10595		SVTO	04	23	0615	S07	W17	04	22.0		B	CKO	40	4	7	3
10595		TACH	04	23	0638	S08	W15	04	22.1			CAO	59	4	10	3
10595		KAND	04	23	0925	S08	W19	04	22.0			CRO		9	8	3
10595		HOLL	04	23	1505	S07	W22	04	22.0		B	CSO	30	15	7	3
10595		LEAR	04	24	0221	S08	W27	04	22.1		B	BXO	40	11	4	3
10595		VORO	04	24	0303	S05	W27	04	22.1			BSX	4	2	3	2
10595		TACH	04	24	0549	S05	W29	04	22.1			BXO	2	2	3	3
10595		KAND	04	24	1000	S07	W32	04	22.0			BXO		2	4	2
10595A		HOLL	04	23	1505	S15	W07	04	23.1		A	HSX	20	2	3	3
10595A		LEAR	04	24	0221	S15	W11	04	23.3		B	BXO	10	4	6	3
10595A		TACH	04	24	0549	S14	W15	04	23.1			AXX	2	1	1	3
10595A		LEAR	04	25	0020	S15	W23	04	23.3		A	AXX		1		3
10596		LEAR	04	18	0005	S08	E73	04	23.5		B	DSO	140	5	9	3
10596		VORO	04	18	0155	S08	E70	04	23.3			DAI	147	4	6	3
10596		KAND	04	18	1205	S09	E65	04	23.4			DSO		3	8	2
10596		HOLL	04	18	1550	S09	E64	04	23.5		B	EKI	180	13	9	2
10596		LEAR	04	19	0350	S08	E56	04	23.3		B	DAO	200	10	8	1
10596		SVTO	04	19	1335	S11	E48	04	23.2		B	DAO	250	10	9	2
10596		HOLL	04	19	1357	S09	E50	04	23.3		B	EKI	330	29	11	4
10596	32068	MWIL	04	19	1730	S07	E48	04	23.3	5	(BG)					
10596		VORO	04	19	2307	S08	E44	04	23.3			DKI	509	15	7	3
10596		LEAR	04	20	0201	S08	E43	04	23.3		BG	DAO	290	25	10	2
10596		SVTO	04	20	0502	S09	E42	04	23.4		BG	DKO	340	9	10	3
10596		TACH	04	20	0523	S07	E40	04	23.2			DSI	470	6	7	3
10596		KAND	04	20	0855	S08	E39	04	23.3			EAO		12	11	2
10596	32068	MWIL	04	20	1430	S07	E37	04	23.4	5	(B)					
10596		HOLL	04	20	1450	S09	E36	04	23.3		B	EKI	360	27	11	3
10596		VORO	04	20	2249	S08	E32	04	23.3			DHI	485	14	8	3
10596		LEAR	04	21	0050	S08	E30	04	23.3		BGD	DAI	320	20	10	2
10596		SVTO	04	21	1025	S06	E26	04	23.4		B	EHI	360	18	12	3
10596		HOLL	04	21	1335	S07	E24	04	23.4		B	EAI	330	27	12	4

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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
10596	32068	MWIL	04	21	1430	S07	E22	04	23.2	5	(BG)					
10596		VORO	04	21	2241	S08	E18	04	23.3			DKI	417	9	9	3
10596		LEAR	04	22	0028	S08	E17	04	23.3		BG	CKO	380	27	12	2
10596		SVTO	04	22	0543	S08	E14	04	23.3		B	EKO	400	13	13	3
10596		KAND	04	22	0655	S09	E14	04	23.3			CSO		20	12	4
10596		HOLL	04	22	1424	S08	E09	04	23.3		BG	EKI	400	30	13	4
10596	32068	MWIL	04	22	1430	S08	E06	04	23.0	5	(BG)					
10596		LEAR	04	23	0055	S08	E06	04	23.5		BG	EKO	320	18	12	1
10596		VORO	04	23	0118	S07	E01	04	23.1			HKX	233	5	4	2
10596		SVTO	04	23	0615	S08	W01	04	23.2		B	DRO	310	16	10	3
10596		TACH	04	23	0638	S08	E00	04	23.3			DAI	370	7	7	3
10596		KAND	04	23	0925	S09	W01	04	23.3			CKO		12	12	3
10596		HOLL	04	23	1505	S08	W05	04	23.2		B	EKO	340	24	12	3
10596		LEAR	04	24	0221	S09	W10	04	23.3		BG	CSO	250	18	10	3
10596		VORO	04	24	0303	S08	W11	04	23.3			HKX	172	2	7	2
10596		TACH	04	24	0549	S08	W12	04	23.3			CAO	273	3	8	3
10596		KAND	04	24	1000	S09	W17	04	23.1			CKO		5	11	2
10596		HOLL	04	24	1500	S09	W18	04	23.3		B	EKO	220	12	11	3
10596		LEAR	04	25	0020	S08	W23	04	23.3		B	CSO	220	6	11	3
10596		VORO	04	25	0350	S08	W29	04	23.0			HKX	253	2		3
10596		KAND	04	25	1150	S09	W30	04	23.2			CAO		9	10	3
10596	32068	MWIL	04	25	1430	S08	W34	04	23.0	6	(BP)					
10596		HOLL	04	25	1450	S08	W32	04	23.2		B	EKO	240	9	11	3
10596		VORO	04	25	2209	S08	W37	04	23.1			HKX	267	4	4	3
10596		LEAR	04	26	0044	S08	W38	04	23.2		B	CKO	230	4	6	3
10596		KAND	04	26	0655	S09	W39	04	23.4			HA		2	3	3
10596		SVTO	04	26	0706	S08	W44	04	23.0		B	CKO	180	2	4	2
10596	32068	MWIL	04	26	1430	S08	W48	04	23.0	5	(AP)					
10596		HOLL	04	26	1550	S08	W50	04	22.9		A	HKX	300	2	4	2
10596		VORO	04	26	2240	S08	W53	04	23.0			HKX	230	2		3
10596		LEAR	04	27	0130	S09	W56	04	22.8		B	CAO	140	4	6	1
10596		TACH	04	27	0516	S08	W55	04	23.1			HA	273	2	3	3
10596		SVTO	04	27	0535	S08	W57	04	22.9		A	HAX	190	1	4	2
10596	32068	MWIL	04	27	1430	S08	W62	04	22.9	5	(BP)					
10596		LEAR	04	28	0113	S08	W67	04	23.0		B	DSO	210	2	4	4
10596		TACH	04	28	0700	S09	W72	04	22.9			HR	105	2	2	4
10596		SVTO	04	28	0710	S07	W70	04	23.0		B	CAX	180	2	6	3
10596	32068	MWIL	04	28	1430	S08	W75	04	23.0	5	(AP)					
10596		VORO	04	28	2344	S08	W78	04	23.1			HKX	201	1		3
10596		LEAR	04	29	0137	S08	W80	04	23.1		A	HSX	180	1	4	3
10596		SVTO	04	29	0745	S06	W85	04	23.0		A	HSX	30	1	3	2
10596A		KAND	04	25	1150	N14	E15	04	26.6			BXO		3	5	3
10596A	32071	MWIL	04	25	1430	N15	E13	04	26.6	3	(AP)					
10596A		HOLL	04	25	1450	N15	E14	04	26.7		A	AXX		1	1	3
10596A		KAND	04	26	0655	N17	E03	04	26.5			BXO		2	5	3
10596A		SVTO	04	26	0706	N18	E03	04	26.5		B	CSO	20	2	2	2
10596A	32071	MWIL	04	26	1430	N18	W01	04	26.5	4	(B)					
10596A		HOLL	04	26	1550	N17	W02	04	26.5		B	DSO	30	2	3	2
10602		LEAR	04	29	0137	S14	W28	04	26.9		A	AXX	10	1	1	3
10602		KAND	04	29	0845	S15	W31	04	27.0			AX		1		3
10602	32073	MWIL	04	29	1730	S14	W36	04	27.0	4	(BG)					
10602		VORO	04	30	0457	S14	W44	04	26.9			CRO	40	6	3	3
10602		LEAR	04	30	0547	S13	W43	04	27.0		B	BXI	50	9	5	3
10602		KAND	04	30	0550	S16	W43	04	27.0			CSO		7	5	4
10602		SVTO	04	30	0810	S14	W45	04	26.9		B	DSO	60	5	5	3
10602	32073	MWIL	04	30	1430	S14	W48	04	27.0	4	(B)					
10602		VORO	04	30	2235	S14	W53	04	26.9			CRO	30	6	5	3
10602		LEAR	05	01	0215	S13	W55	04	27.0		B	DSO	60	6	7	1
10602		SVTO	05	01	0712	S13	W58	04	27.0		B	BXO	20	6	7	2
10602		KAND	05	01	1010	S14	W60	04	27.0			BXO		3	7	2
10602	32073	MWIL	05	01	1430	S14	W62	04	27.0	4	(B)					
10599		LEAR	04	24	0221	N18	E53	04	28.1		B	BXO	20	2	4	3
10599		TACH	04	24	0549	N15	E51	04	28.1			CAO	65	3	3	3
10599		KAND	04	24	1000	N14	E49	04	28.1			CSO		6	6	2
10599		HOLL	04	24	1500	N14	E45	04	28.0		B	DAI	120	8	6	3
10599		LEAR	04	25	0020	N16	E42	04	28.2		BD	DAI	140	16	7	3

SUNSPOT GROUPS
(Ordered by Central Meridian Passage Date)

APRIL 2004

NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Mo Day	Time (UT)	Lat	CMD	CMP Mo Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
10599		VORO	04 25	0350	N15	E39	04 28.1			DAI	205	11	6	3
10599		KAND	04 25	1150	N14	E35	04 28.1			DAO		11	8	3
10599	32072	MWIL	04 25	1430	N15	E34	04 28.2	5	(B)					
10599		HOLL	04 25	1450	N15	E32	04 28.0		B	DAC	200	17	9	3
10599		VORO	04 25	2209	N14	E28	04 28.0			DAI	235	12	7	3
10599		LEAR	04 26	0044	N16	E27	04 28.1		BG	DAO	260	15	9	3
10599		KAND	04 26	0655	N14	E23	04 28.0			DAO		8	8	3
10599		SVTO	04 26	0706	N15	E23	04 28.0		B	DAO	170	10	9	2
10599	32072	MWIL	04 26	1430	N15	E19	04 28.0	5	(BG)					
10599		HOLL	04 26	1550	N15	E18	04 28.0		B	DAI	140	10	8	2
10599		VORO	04 26	2240	N15	E15	04 28.1			DAI	166	9	8	3
10599		LEAR	04 27	0130	N14	E13	04 28.0		BG	DAO	110	7	9	1
10599		TACH	04 27	0516	N14	E12	04 28.1			DAO	196	4	8	3
10599		SVTO	04 27	0535	N14	E12	04 28.1		B	DSO	160	7	10	2
10599	32072	MWIL	04 27	1430	N14	E06	04 28.0	5	(B)					
10599		LEAR	04 28	0113	N15	E01	04 28.1		B	CAO	70	13	9	4
10599		TACH	04 28	0700	N14	W03	04 28.1			CAO	60	5	7	4
10599		SVTO	04 28	0710	N15	W03	04 28.1		B	DSO	110	7	12	3
10599	32072	MWIL	04 28	1430	N16	W08	04 28.0	5	(B)					
10599		VORO	04 28	2344	N15	W10	04 28.2			DAI	90	4	8	3
10599		LEAR	04 29	0137	N16	W13	04 28.1		B	CAO	80	4	8	3
10599		SVTO	04 29	0745	N17	W19	04 27.9		A	HAX	70	1	3	2
10599		KAND	04 29	0845	N14	W21	04 27.8			HA		3	2	3
10599	32072	MWIL	04 29	1730	N17	W22	04 28.0	5	(AP)					
10599		VORO	04 30	0457	N16	W30	04 27.9			HAX	24	1		3
10599		LEAR	04 30	0547	N17	W31	04 27.9		A	HAX	70	4	2	3
10599		KAND	04 30	0550	N16	W32	04 27.8			HS		1	1	4
10599		SVTO	04 30	0810	N17	W33	04 27.8		B	CAO	20	2	2	3
10599	32072	MWIL	04 30	1430	N16	W36	04 27.9	5	(AP)					
10599		VORO	04 30	2235	N16	W40	04 27.9			HAX	11	1		3
10599		LEAR	05 01	0215	N17	W43	04 27.9		B	CAO	40	2	2	1
10599		SVTO	05 01	0712	N17	W45	04 28.0		B	CSO	30	4	4	2
10599		KAND	05 01	1010	N16	W46	04 28.0			AX		1	1	2
10599	32072	MWIL	05 01	1430	N16	W49	04 28.0	4	(AP)					
10603		SVTO	05 01	0712	S15	W28	04 29.3		B	CSO	20	6	3	2
10603		KAND	05 01	1010	S16	W30	04 29.2			BXO		5	4	2
10603	32075	MWIL	05 01	1430	S15	W33	04 29.2	4	(B)					
10603		LEAR	05 02	0304	S17	W38	04 29.3		B	BXO	50	13	7	1
10603		SVTO	05 02	0717	S16	W41	04 29.3		B	DSO	70	6	6	3
10603		KAND	05 02	0935	S16	W43	04 29.2			BXO		4	6	2
10603	32075	MWIL	05 02	1430	S15	W47	04 29.1	4	(B)					
10603		LEAR	05 03	0045	S16	W51	04 29.3		B	BXO	50	6	7	3
10603		SVTO	05 03	0655	S15	W55	04 29.2		B	BXO	30	4	7	3
10603		KAND	05 03	1110	S17	W57	04 29.2			BXO		6	8	3
10603	32075	MWIL	05 03	1430	S16	W59	04 29.2	4	(B)					
10603		LEAR	05 04	0142	S16	W66	04 29.2		B	BXO	10	2	6	3
10601	32074	MWIL	04 29	1730	S09	W03	04 29.5	4	(AP)					
10601		VORO	04 30	0457	S08	W10	04 29.4			BRX	5	2	1	3
10601		LEAR	04 30	0547	S09	W09	04 29.6		B	BXO	20	7	5	3
10601		KAND	04 30	0550	S10	W12	04 29.3			AX		3	1	4
10601		SVTO	04 30	0810	S09	W13	04 29.4		B	BXO	10	6	4	3
10601	32074	MWIL	04 30	1430	S09	W15	04 29.5	4	(B)					
10601		VORO	04 30	2235	S09	W20	04 29.4			DAO	44	9	5	3
10601		LEAR	05 01	0215	S10	W23	04 29.5		B	CAO	80	10	6	1
10601		SVTO	05 01	0712	S09	W26	04 29.4		B	DSO	100	10	7	2
10601		KAND	05 01	1010	S11	W27	04 29.5			DSI		18	7	2
10601	32074	MWIL	05 01	1430	S10	W30	04 29.4	5	(B)					
10601		LEAR	05 02	0304	S12	W36	04 29.5		BG	DKI	310	20	10	1
10601		SVTO	05 02	0717	S10	W38	04 29.5		B	DAO	250	10	8	3
10601		KAND	05 02	0935	S11	W40	04 29.5			DAO		8	9	2
10601	32074	MWIL	05 02	1430	S10	W44	04 29.4	5	(B)					
10601		LEAR	05 03	0045	S10	W50	04 29.4		B	DSO	170	16	9	3
10601		SVTO	05 03	0655	S09	W52	04 29.5		B	ESO	220	11	11	3
10601		KAND	05 03	1110	S12	W55	04 29.4			DSO		10	10	3
10601	32074	MWIL	05 03	1430	S10	W57	04 29.4	5	(BG)					
10601		VORO	05 03	2229	S10	W61	04 29.4			DAI	245	8	8	3
10601		LEAR	05 04	0142	S10	W65	04 29.3		B	EAO	220	11	11	3

SUNSPOT GROUPS
(Ordered by Central Meridian Passage Date)

APRIL 2004

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
10601		KAND	05	04	0610	S10	W66	04	29.4			EAO		11	11	3
10601		SVTO	05	04	1105	S08	W70	04	29.3		B	ESO	120	8	11	2
10601	32074	MWIL	05	04	1430	S10	W75	04	29.1	5	(B)					
10601		VORO	05	04	2308	S10	W74	04	29.5			DAI	110	7	10	3
10601		LEAR	05	05	0137	S09	W77	04	29.4		B	CSO	150	2	10	3
10601		KAND	05	05	0755	S10	W77	04	29.6			HA		1	2	3
10601	32074	MWIL	05	05	1430	S10	W80	04	29.7	4	(AF)					
10599B		LEAR	04	30	0547	S12	E01	04	30.3		B	BXO	10	2	2	3
10599C	32077	MWIL	05	02	1430	N01	W25	04	30.7	3	(B)					

Stations reporting:

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

SUDDEN IONOSPHERIC DISTURBANCES

APRIL 2004

Day	Start (UT)	Max (UT)	End (UT)	Imp	Wide Spread Index	Number of Station Reports by Type SWF	SEA	SPA	LF-SPA	SES	Flare (UT)	X-ray Class	NOAA Region
01	0736	0746	0804	1	1		1				No flare		
01	0822	0848	0914	1	1		1				No flare		
01	1101	1118	1153	1	1		1				*		
01	1446	1452	1510	1	1		1				No flare		
01	1707	1713	1751	2	3					2	1704	C1.4	10582
02	0925	0943	1036	1	1		1				No flare		
04	1604	1627	1703	2-	5		1			4	1602	C3.0	10588
05	0543	0551	0627	1	5		1			1	0537	M1.7	10588
06	0534	0536	0559	1+	1					1	0532	C1.0	10588
06	1316	1325	1401	3	5	1	2	1		7	1230	M2.4	10588
07	1020	1143U	1159	1	1		1				*		
08	0144	0149	0203	1	1					1	0141	C1.2	
08	0943	1000	1000	1	1		1				0953	C7.4	10588
08	1005	1013	1035	2	5	1	1	1		3	0953	C7.4	10588
08	1303	1323	1413	2-	5		1			2	1305	C1.3	10588
08	1548	1610	1658	1	1		1				No flare		
10	1121	1123	1144	1	1		1				*		
11	0414	0419	0429	1-	1					1	0354	C9.6	10588
11	1412	1420	1456	1	1		1				*		
11	2305D	2309D	2325U	1	1					1	2300	C1.5	10588
12	0747	0754	0821	1	3		1			1	0739	C1.0	10588
12	1004	1020	1121	2	1		1				1011	B2.1	
12	1212	1240	1355	1	1		1				1222	C1.3	10588
12	1409	1427	1458	1	1		1				No flare		
14	0932	0940	1009	1	1		1				No flare		
14	1231	1240U	1305	1	1		1				1216	B3.9	10591
14	1359	1409	1519	1	1		1				1352	B9.1	10591
15	0819	0832	0846	1	1		1				No flare		
15	0909	0927	0948	1	1		1				0938	B3.3	10591
15	1640	1644	1728	2	5		1			8	1637	M1.2	10591
16	0810	0905U	0919U	1	1		1				0802	B2.3	10591
16	0929	0934	1022	1	1		1				*		
16	1440	1442	1502	1	1					1	No flare		
17	1138	1145	1205	1+	5	1				2	1134	C1.8	
17	1338	1346	1437	1+	1					1	*		
18	1407	1411	1433	1+	1					1	1416	B2.9	
18	1433	1520U	1558	1	1		1				1456	B2.7	
19	0030D	0034D	0041U	1-	1					1	0028	C3.3	10596
19	1319	1339	1433	1	1		1				No flare		
19	1435	1502	1611	1	1		1				No flare		
19	1826	1834	1933	2+	1					2	1820	C4.7	10596
20	1112	1121	1138	1	1		1				No flare		
20	1407	1424	1456	1	1		1				No flare		
21	0254	0304	0349	2+	1					1	0240	C2.1	10596
21	0736	0740	0817	1	1		1				No flare		
21	1300	1314	1342	1	1		1				No flare		
21	1348	1404	1438	1	1		1				No flare		
21	1448	1458	1529	1+	5		1			4	1450	B9.4	10596
21	1603	1617	1657	2-	5		1			5	1601	C1.8	10596

* = no flare patrol.

SUDDEN IONOSPHERIC DISTURBANCES

APRIL 2004

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
22	0215	0221	0252	1+	5					3	0203	M1.2	10596
22	0729	0737	0810	1	1		1				No flare		
22	1407	1415	1447	2	1					1	1429		10597
22	1447	1451	1509	1	1					1	No flare		
23	0453	0456	0516	1	5					2	0450	C1.9	10597
23	0625	0655	0732	2+	1					1	0633	C1.8	10597
23	0745	0753	0807	2+	5	1	1	1		4	0743	C6.1	10597
23	0840	0859	0918	1	1		1				No flare		
23	0930	0933	1005	2	5	1	1	1		5	0925	C4.4	10597
23	1043	1049	1114	2	5	1	1	1		4	1039	C4.0	10597
23	1146	1153	1237	3	5	1	1	1		9	1141	M1.5	10597
23	1329	1348U	1456	1	1		1				No flare		
23	1434	1438	1445	1-	1					1	1434	C1.4	10597
23	1459	1525	1625	1	1		1				1500		10597
23	1559	1606	1644	2-	5					6	1558	C3.9	10597
23	1603	1612	1642	2-	5					4	1558	C3.9	10597
23	1723	1730	1812	2	3					7	1721	C4.8	10597
23	1902	1906	1932	1+	3					3	1903	C1.6	10597
23	2103	2109	2159	2	3					5	2102	M1.1	10597
23	2251	2256	2319	1+	1					2	2250	C2.5	10597
23	2334D	2338D	2350D	1-	1					1	2329	C2.9	10597
24	0205	0209	0225	1	1					1	0202	C2.9	10597
24	0546	0551	0606	1	1					1	0543	C1.5	10597
24	0858	0904	0943	2-	3					3	0856	C1.3	10597
24	1127	1146U	1508	1	1		1				*		
24	1253	1302	1323	1+	5					3	1251	C1.0	10597
24	1400	1406	1436	2	5	1		1		5	1357	C1.2	10597
24	1523	1528	1555	2-	5					4	1522	C2.6	10599
24	1605	1630	1651	2+	1					1	1625	B8.8	10599
24	1924D	1927D	1931U	1-	1					1	1922	C1.1	10599
25	0141	0146	0208	1+	5					5	0138	C9.0	10599
25	0531	0533	0547	2+	5	1	1	1		4	0502	M2.2	10599
25	0829	0844	0900	1	1		1				No flare		
25	1010	1020	1101	3-	5	1	1	1		3	1006	C5.0	10599
25	1413	1444	1531	2+	1					1	1416	C1.4	10599
25	1558	1615	1651	2	5		1			4	1556	C2.6	10599
26	0243	0251	0321	2	1					1	0229	C2.4	10599
27	0715	0722	0828	2-	3		1			1	0708	C3.1	10599
27	0911	1004U	1119	1	1		1				No flare		
27	1231	1306	1504	1	1		1				1357	B6.4	
28	0817	0828U	0914	1	1		1				No flare		
28	1426	1447	1624	1	1		1				No flare		
30	0543	0547	0600	1	3					2	0540	C1.7	
30	0946	1032U	1129	1	1		1				1109	B1.9	

* = no flare patrol.

OBSERVATORIES REPORTING FOR APRIL 2004

Alberta, Canada	SES	Nerja, Spain	SES
Bedford, Massachusetts, USA	SES	Palo Alto, California, USA	SES
Bern, Switzerland	SES	Panska Ves, Czech Republic	SES, SEA, SWF
Brookline, Massachusetts, USA	SES	Perth, Australia	SES
Calcutta, India	SES	Sofia, Bulgaria	SES
Cambridge, England, UK	SES	Sussex, United Kingdom	SES
Edenvale, Rep of S. Africa	SES	Torrington, Connecticut, USA	SES
Houston, Texas, USA	SES	Upice, Czech Republic	SEA
Isola del Gran Sasso, Italy	SES	Villiersdorp, South Africa	SES
Marlborough, Massachusetts, USA	SES		

Observations are not necessarily continuous.

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Day	OBSERVATION Start (UT)	OBSERVATION End (UT)	Sta	EVENT Start (UT)	EVENT End (UT)	EVENT Spectral Class	EVENT Event Remarks	Int (1-3)	FREQUENCY Lower (MHz)	FREQUENCY Upper (MHz)	Remarks
01			CULG	0000.0E	0045.0	III	N	1	20	90	
	0000	0730	CULG	0000.0E	0044.0	I	S,C	1	50	130	
			CULG	0007.0	0008.0	III	G	2	20	130	
			PALE	0007.0	0007.0	III		1	25	123	
	0000	0901	HIRA	0007.5	0008.0	III	B	1	25X	110	
			CULG	0117.0	0119.0	III	G	2	20	150	
			HIRA	0117.0	0119.0	III	G	1	25X	120	
			LEAR	0304.0	0310.0	III		1	25	135	
			PALE	0304.0	0310.0	III		1	25	120	
			CULG	0305.0	0310.0	III	G	2	20	120	
			HIRA	0305.0	0310.5	III	G	1	25X	120	
			CULG	0444.0	0444.0	III	G	2	18	150	
			HIRA	0444.0	0444.5	III	B	1	25X	190	
			LEAR	0444.0	0444.0	III		2	25	180	
			HIRA	0520.0	0520.5	III	B	2	110	300	
			CULG	0540.0	0540.0	III	B	1	25	80	
			LEAR	0540.0	0540.0	III		1	25	101	
			SVTO	0540.0	0540.0	III		1	25	74	
	0547	1625	ONDR								
	0555	1705	BLEN								
	0600	1200	IZMI	0600.0E	1200.0D	I	N	1	60	260	
			CULG	0657.0	0658.0	III	G	1	20	80	
			SVTO	0658.0	0658.0	III		1	25	81	
			SVTO	1147.0	1149.0	III		1	25U	45U	
	2022	2400	HIRA								
	2030	2400	CULG								
02	0000	0730	CULG	0016.0	0029.0	III	G	1	20	180	
			LEAR	0025.0	0032.0	III		1	25	180	
			CULG	0030.0	0033.0	III	G	3	18	280	
			PALE	0030.0	0032.0	III		1	25	180	
	0000	0902	HIRA	0030.5	0032.0	III	G	2	25X	300	
			CULG	0141.0	0200.0	III	GG	2	20	200	
			HIRA	0141.0	0154.0	III	G	1	25X	290	
			LEAR	0141.0	0153.0	III	N	1	25	180	
			PALE	0141.0	0147.0	III		1	25	180	
			CULG	0240.0	0241.0	III	G	1	23	160	
	0545	1626	ONDR								
	0555	1705	BLEN	0651.5	0656.2	III	GG	2	140	900	
			CULG	0652.0	0655.0	III	G	3	20	500	
			HIRA	0652.0	0655.0	III	G	3	25X	520	
			LEAR	0652.0	0655.0	III		2	25	180	
			SVTO	0652.0	0655.0	III		2	25	180	
	0600	1200	IZMI	0652.0	0652.7	III	G	2	25X	270X	
			IZMI	0652.5	0653.0	V		2	25X	85	
			IZMI	0653.5	0655.0	III	GG	2	25X	270X	
	2020	2400	HIRA								
			PALE	2021.0	2033.0	III		1	25	58	
	2030	2400	CULG								
03	0000	0902	HIRA								
	0000	0730	CULG	0214.0	0214.0	III	B	1	18	60	
	0543	1628	ONDR								
	0555	1200	IZMI	0903.9	0904.2	III	G	1	25X	65	
			SVTO	0904.0	0909.0	III		1	25	44	
			SVTO	0914.0	0914.0	III		1	25	38	
			IZMI	1020.9	1024.0	III	GG	2	25X	215	
			SVTO	1021.0	1024.0	III		1	25	44	
			IZMI	1026.5	1031.2	III	GG	2	45	270X	
			SVTO	1027.0	1033.0	III		1	113	180	
	0555	1705	BLEN	1027.0	1028.3	III	GG	2	130	400	
			IZMI	1151.4	1151.8	III	G	1	195	270X	
			HOLL	1611.0	1613.0	III		1	25	126	
			SVTO	1611.0	1611.0	III		1	25	140	
			HOLL	1937.0	1939.0	III		1	25	180	
			PALE	1938.0	1939.0	III		1	25	164	
			HOLL	2034.0	2034.0	III		1	25	70	
			PALE	2034.0	2035.0	III		1	25	56	
	2019	2400	HIRA	2034.5	2035.0	III	B	1	25X	70	

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Day	OBSERVATION Start (UT)	OBSERVATION End (UT)	Sta	EVENT Start (UT)	EVENT End (UT)	EVENT Spectral Class	EVENT Event Remarks	Int (1-3)	FREQUENCY Lower (MHz)	FREQUENCY Upper (MHz)	Remarks
03	2030	2400	CULG	2035.0	2035.0	III	B	1	23	80	
			PALE	2241.0	2242.0	III		1	25	55	
			HIRA	2241.5	2242.0	III	G	2	200	310	
			HOLL	2242.0	2242.0	III		1	25	54	
04	0000	0903	HIRA								
	0000	0730	CULG	0030.0	0030.0	III	B	1	20	90	
	0541	1629	ONDR								
			CULG	0550.0	0550.0	III	B	1	23	80	
	0600	1200	IZMI	0600.0E	1200.0D	I	N	1	180U	270X	
			SVTO	0750.0	0750.0	III		1	25	66	
			IZMI	0750.3	0750.6	III	G	1	25X	95	
			IZMI	1142.8	1143.2	III	G	1	130	165	
			SVTO	1340.0	1341.0	III		1	25	62	
	0555	1705	BLEN	1340.2	1341.1	III	GG	1	160	350	
			SVTO	1355.0	1356.0	III		1	25	123	
			SVTO	1434.0	1435.0	III		1	25	79	
			SVTO	1525.0	1528.0	III		1	25	151	
			HOLL	1527.0	1529.0	III		1	25	180	
			SVTO	1626.0	1627.0	III		1	25	135	
	2030	2400	CULG	2030.0E	2050.0U	III	N	1	18	90	
			CULG	2107.0	2108.0	III	G	1	20	90	
			CULG	2112.0	2112.0	III	B	1	20	180	
			PALE	2152.0	2155.0	III		1	25	65	
			CULG	2154.0	2232.0	III	N	1	18	180	
			HOLL	2154.0	2155.0	III		1	25	72	
	2017	2400	HIRA	2155.0	2155.5	III	B	1	25X	80	
			HIRA	2215.0	2215.5	III	B	1	25X	120	
			HOLL	2215.0	2215.0	III		1	25	89	
			PALE	2215.0	2215.0	III		1	25	60	
			HOLL	2329.0	2329.0	III		1	25	87	
			PALE	2329.0	2330.0	III		1	25	85	
			HIRA	2329.5	2330.0	III	B	1	25X	70	
			CULG	2330.0	2330.0	III	B	2	23	120	
05	0000	0730	CULG	0138.0	0139.0	III	G	1	25	180	
			CULG	0208.0	0208.0	III	B	1	23	130	
	0000	0903	HIRA	0254.5	0255.0	III	B	1	30	300	
			CULG	0255.0	0255.0	III	G	1	27	180	
			LEAR	0315.0	0317.0	III		1	25	180	
			PALE	0315.0	0317.0	III		1	25	71	
			CULG	0316.0	0318.0	III	G	2	23	180	
			HIRA	0316.0	0317.5	III	G	1	25X	80	
			CULG	0345.0	0349.0	III	G	1	23	180	
			HIRA	0345.0	0346.0	III	G	1	90	130	
			LEAR	0345.0	0346.0	III		1	25	180	
			CULG	0429.0	0429.0	III	B	1	45	180	
			CULG	0508.0	0517.0	III	G	1	30	100	
			LEAR	0542.0	0551.0	III		2	25	180	
			SVTO	0542.0	0606.0	III	N	2	25	180	
			HIRA	0542.5	0556.0	III	G	3	25X	500	
			CULG	0543.0	0547.0	III	GG	3	18X	360	
			CULG	0547.0	0559.0	III	GG	1	23	180	
	0550	1710	BLEN	0550.0X	0551.5	DCIM	P	1	270	500	
			CULG	0554.0	0605.0	II	FN	2	27	95	ESS 750
			SVTO	0554.0	0603.0	II		1	27	80	ESS 0836
			LEAR	0556.0	0606.0	II		1	25	29	ESS 1085
			CULG	0559.0	0613.0	III	G	1	23	90	
			IZMI	0604.1	0608.5	I	N	1	160	270	
	0632	1200	IZMI	0902.5	0903.6	III	GG	2	25X	270X	
			LEAR	0903.0	0903.0	III		1	25	180	
			SVTO	0903.0	0903.0	III		1	25	138	
	0539	1631	ONDR	0940.2	0940.3	DCIM	G	2	800X	2000X	
			BLEN	0940.4	0940.6	III	G,U	2	400	2000	
			BLEN	1530.5	1531.2	III	GG	2	600	1200	
			HOLL	1849.0	1850.0	III		1	25	46	
			PALE	1849.0	1850.0	III		1	25	60	
	2030	2400	CULG	2108.0	2110.0	III	G	1	23	60	
			CULG	2116.0	2116.0	III	B	1	25	50	

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Day	OBSERVATION Start (UT)	OBSERVATION End (UT)	Sta	EVENT Start (UT)	EVENT End (UT)	EVENT Spectral Class	EVENT Event Remarks	Int (1-3)	FREQUENCY Lower (MHz)	FREQUENCY Upper (MHz)	Remarks
05			CULG	2204.0	2204.0	III	B	1	100	190	
			CULG	2237.0	2244.0	III	G	3	18X	300	
			HOLL	2237.0	2244.0	III		2	25	180	
	2016	2400	HIRA	2237.0	2244.0	III	G	3	25X	280	
			CULG	2254.0	2259.0	III	G	1	50U	200	
			CULG	2317.0	2323.0	III	G	2	18	200	
			HOLL	2317.0	2320.0	III		1	25	86	
			LEAR	2317.0	2320.0	III		1	25	180	
			HIRA	2317.5	2320.0	III	G	1	25X	230	
			LEAR	2334.0	2341.0	III		1	25	180	
			CULG	2336.0	2339.0	III	G	1	30	180	
			HIRA	2340.5	2341.0	III	B	1	25X	80	
			CULG	2341.0	2341.0	III	G	3	18	180	
06	0000	0730	CULG	0406.0	0406.0	III	B	1	20	160	
	0000	0904	HIRA	0406.0	0406.5	III	B	1	30	180	
			CULG	0409.0	0621.0	I	S	1	110	180	
			CULG	0449.0	0449.0	III	G	1	20	180	
			CULG	0557.0	0611.0	III	GG	1	20	200	
	0555	1200	IZMI	0557.2	0603.3	III	GG	1	45	240	
			HIRA	0559.0	0611.0	III	G	1	60	200	
			IZMI	0605.1	0610.6	III	GG	1	45	225	
			SVTO	0610.0	0610.0	III		1	25U	75U	
			HIRA	0640.5	0641.0	III	B	1	80	120	
			IZMI	0640.7	0640.8	III	G	1	80	165	
			CULG	0641.0	0641.0	III	B	1	40	180	
			CULG	0711.0	0730.0D	III	N	1	23	140	
			IZMI	0826.7	0827.1	III	G	1	110	180	
			SVTO	1032.0	1033.0	III		1	25U	135U	
			IZMI	1032.5	1033.1	III	G	2	25X	170	
			IZMI	1138.1	1138.9	III	G	1	55	170	
			SVTO	1145.0	1149.0	III		1	25U	127U	
			IZMI	1148.5	1149.2	III	G	2	25X	160	
			SVTO	1231.0	1344.0	III	N	2	25	180	
	0537	1632	ONDR	1231.5	1300.3	DCIM	GG	1	800X	2000X	
	0550	1710	BLEN	1232.3	1357.7	IV	P,	3	370	2200	
			ONDR	1301.3	1355.3	DCIM	GG,FS	3	800X	2000X	
			HOLL	1316.0	1407.0	III	N	1	25	180	
			ONDR	1316.0	1338.1	DCIM	GG,FS	3	2000X	4500X	
			BLEN	1503.3	1506.7	III	GG, C	1	150	1000	
			HOLL	1506.0	1506.0	III		1	25	60	
			SVTO	1506.0	1506.0	III		1	25	170	
			ONDR	1604.3	1606.1	DCIM	G	2	800X	1039	
			BLEN	1604.5	1606.2	III	GG, C	1	220	1200	
			BLEN	1637.5	1638.4	III	GG, C	1	200	1200	
			HOLL	2215.0	2215.0	III		1	25	180	
	2015	2400	HIRA	2215.0	2215.5	III	B	2	25X	210	
	2030	2400	CULG	2215.0	2216.0	III	G	3	23	200	
			PALE	2237.0	0428.0	III	N	1	25	180	
			CULG	2252.0	2257.0	III	G	2	20	140	
			HIRA	2252.0	2257.0	III	G	1	25X	70	
			HOLL	2252.0	2301.0	III		1	25	87	
			PALE	2252.0	2259.0	III		1	25	180	
			HOLL	2340.0	2340.0	III		1	25	84	
07	0000	0730	CULG	0021.0	0021.0	III	B	1	40	170	
			CULG	0027.0	0027.0	III	B	2	20	140	
			LEAR	0027.0	0027.0	III		1	25	180	
	0000	0905	HIRA	0027.0	0027.5	III	B	1	25X	110	
			HIRA	0045.5	0048.0	III	G	1	25X	80	
			CULG	0046.0	0050.0	III	G	2	18	90	
			CULG	0333.0	0333.0	III	B	1	20	80	
			CULG	0412.0	0414.0	III	G	1	30	170	
	0535	1634	ONDR								
	0550	1710	BLEN								
			CULG	0621.0	0624.0	III	G	1	40	170	
	0600	1200	IZMI	0857.5	0858.0	III	G	2	25	85	
			IZMI	0859.2	0859.5	III	G	2	25X	65	
			SVTO	0952.0	0953.0	III		1	25	45	

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

Spectral Observations

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Day	OBSERVATION Start (UT)	OBSERVATION End (UT)	Sta	EVENT Start (UT)	EVENT End (UT)	EVENT Spectral Class	EVENT Event Remarks	FREQUENCY Int (1-3)	FREQUENCY Lower (MHz)	FREQUENCY Upper (MHz)	Remarks
07			IZMI	0952.8	0953.2	III	G	1	45	85	
			IZMI	1159.4	1159.5	III	B	1	110	170	
			HOLL	1533.0	1533.0	III		1	25	61	
			SVTO	1533.0	1533.0	III		1	25	78	
	2030	2400	CULG	2103.0	2103.0	III	B	1	25	80	
			HOLL	2200.0	2249.0	III	N	1	25	180	
			CULG	2314.0	2316.0	III	G	1	40	200	
			LEAR	2314.0	2316.0	III		1	58	153	
	2013	2400	HIRA	2314.5	2316.5	III	G	1	60	240	
08	0000	0730	CULG	0055.0	0055.0	III	B	1	60	180	
	0000	0906	HIRA	0055.0	0055.5	III	B	1	60	130	
			CULG	0121.0	0122.0	III	G	1	50	180	
			HIRA	0121.5	0122.0	III	B	1	50	130	
			CULG	0144.0	0146.0	III	G	1	30	180	
			CULG	0147.0	0203.0	II	SH	3	35	160	ESS 800
			CULG	0148.0	0156.0	II	FN	1	25	75	
			HIRA	0148.0	0155.0	II		2	50	130	
			LEAR	0148.0	0156.0	II		1	52	160	ESS 0576
			PALE	0148.0	0158.0	II		2	25	180	ESS 0709
			CULG	0156.0	0158.0	III	G	1	23	90	
			CULG	0346.0	0504.0	III	N	1	20	160	
			LEAR	0415.0	0451.0	III	N	1	75	111	
			CULG	0638.0	0730.0D	III	N	1	30	160	
	0600	1203	IZMI	0707.0	0711.9	III	GG	1	50	85	
			IZMI	0927.9	1042.0U	III	N,HARM	1	25X	95U	
	0550	1710	BLEN	0950.8	1047.5	IV	P	3	140	4000X	
			IZMI	0951.0	1016.0U	III	S,FS	2	25X	270X	
			SVTO	0951.0	1153.0	III	N	1	25	180	
			IZMI	0956.0U	1042.0U	I	N,C	2	50	270X	
			ONDR	0957.5	1046.1	DCIM	GG,FS	3	800X	2000X	
	0533	1635	ONDR	0957.5	1015.5	DCIM	GG	2	2000X	4500X	
			IZMI	1006.5	1007.2	II	G	1	40	60	
			IZMI	1109.8	1122.0	III	N	1	50	85	
			SVTO	1223.0	1223.0	III		1	25	38	
			SVTO	1233.0	1233.0	III		1	25	37	
			ONDR	1253.3	1316.3	DCIM	GG	3	800X	1484	
			BLEN	1253.5	1320.7	IV	P,F	3	100X	3400	
			SVTO	1301.0	1310.0	III		1	25	180	
			HOLL	1303.0	1308.0	III		1	25	172	
			SVTO	1409.0	1410.0	III		1	25	45	
	2011	2400	HIRA								
	2030	2400	CULG								
09	0000	0907	HIRA								
	0000	0730	CULG	0030.0	0031.0	III	G	1	30	160	
			CULG	0348.0	0348.0	III	B	1	30	90	
			CULG	0520.0	0543.0	III	N	1	20	160	
	0531	1637	ONDR								
	0550	1710	BLEN								
	0555	0619	IZMI								
			CULG	0649.0	0649.0	III	B	1	40	150	
	0635	1200	IZMI	0649.1	0649.2	III	B	1	45	160	
			IZMI	0704.0	0705.0	I	GG,DC	2	120	145	
			IZMI	0758.9	0759.0	III	B	1	45	70U	
			IZMI	0937.7	0938.0	III	G	1	30	150	
			SVTO	0954.0	0958.0	III		2	25	151	
			IZMI	0954.5	0955.0	III	B	2	25X	165	
			IZMI	0957.4	0958.8	III	G	2	25X	270X	
			HOLL	2007.0	2145.0	III	N	1	25	180	
			PALE	2007.0	2201.0	III	N	1	25	180	
			CULG	2030.0	2031.0	III	G	3	20	160	
	2030	2400	CULG	2030.0E	2059.0	III	S,C	2	25	180	
			CULG	2155.0	2156.0	III	G	2	27	40	
			HOLL	2155.0	2155.0	III		1	25	54	
	2010	2400	HIRA	2155.5	2156.0	III	B	1	25X	50	
			HOLL	2243.0	2243.0	III		1	25	63	
10	0000	0908	HIRA								

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Day	OBSERVATION Start (UT)	OBSERVATION End (UT)	Sta	EVENT Start (UT)	EVENT End (UT)	EVENT Spectral Class	EVENT Event Remarks	Int (1-3)	FREQUENCY Lower (MHz)	FREQUENCY Upper (MHz)	Remarks
10	0000	0730	CULG	0029.0	0039.0	III	G	1	23	180	
			CULG	0126.0	0130.0	III	G	1	20	280	
			CULG	0135.0	0138.0	II	FN	1	27	45	
			CULG	0135.0	0148.0	II	SH	1	35	90	ESS 1000
			CULG	0137.0	0137.0	III	B	2	25	90	
	0529	1638	ONDR								
	0550	1710	BLEN								
	0600	1200	IZMI								
			HOLL	1659.0	1715.0	III		1	25	180	
			HOLL	1851.0	1851.0	III		1	25	44	
			HOLL	1907.0	1912.0	III		1	25	88	
	2030	2400	CULG	2035.0	2035.0	III	B	1	20	180	
			CULG	2314.0	2316.0	III	G	1	20	200	
			CULG	2338.0	2344.0	III	G	2	18	180	
			PALE	2338.0	2338.0	III		1	25	145	
	2009	2400	HIRA	2338.0	2338.5	III	B	2	25X	150	
11	0000	0730	CULG	0011.0	0012.0	III	G	1	27	230	
			CULG	0016.0	0017.0	III	G	1	20	160	
			CULG	0146.0	0147.0	III	G	1	30	150	
			LEAR	0336.0	0805.0	III	N	1	25	180	
			CULG	0358.0	0425.0	III	GG	3	18X	700	
	0000	0909	HIRA	0358.0	0420.0	III	G	2	25X	500	
			CULG	0430.0	0447.0	UNCLF		1	35	80	
	0527	1640	ONDR								
	0545	1715	BLEN	0624.6	0625.2	III	GG	2	200	470	
	0550	1200	IZMI	0624.7	0625.1	III	G	2	200	270X	
			SVTO	0937.0	0940.0	III		1	25U	44U	
			IZMI	0938.6	0940.1	III	G	1	25	90	
			SVTO	1508.0	1509.0	III		1	25U	40U	
			HOLL	1707.0	1708.0	III		1	25	85	
			HOLL	1822.0	1825.0	III		1	25	85	
			PALE	1824.0	1824.0	III		1	25	60	
			HOLL	1937.0	2020.0	III	N	1	25	180	
			PALE	1946.0	1947.0	III		1	25	130	
	2030	2400	CULG	2037.0	2037.0	III	B	1	23	160	
			CULG	2057.0	2058.0	III	G	3	23	180	
			HOLL	2057.0	2057.0	III		1	25	87	
			PALE	2057.0	2057.0	III		1	25	88	
	2008	2400	HIRA	2057.5	2058.0	III	B	1	25X	500	
			HOLL	2115.0	2201.0	III	N	1	25	180	
			CULG	2116.0	2117.0	III	G	1	23	180	
			CULG	2120.0	2123.0	III	G	3	23	300	
			CULG	2131.0	2131.0	III	B	1	25	130	
			CULG	2216.0	2223.0	III	G	1	23	670	
			HOLL	2234.0	2234.0	III		1	25	75	
			HIRA	2234.5	2235.5	III	G	1	25X	320	
			CULG	2235.0	2235.0	III	B	1	23	160	
			CULG	2335.0	2337.0	III	G	2	18	200	
			HIRA	2335.0	2337.5	III	G	1	25X	300	
			LEAR	2335.0	2336.0	III		1	25	180	
			HOLL	2338.0	2338.0	III		1	25	135	
			CULG	2341.0	2341.0	III	B	1	100	180	
			CULG	2354.0	2354.0	III	B	1	60	180	
12			HOLL	0000.0	0007.0	III		1	25	180	
	0000	0730	CULG	0000.0	0002.0	III	G	1	20	170	
			CULG	0005.0	0009.0	III	G	1	20	230	
			LEAR	0006.0	0006.0	III		1	25	180	
	0000	0910	HIRA	0006.5	0007.0	III	B	1	80	250	
			CULG	0056.0	0056.0	III	B	1	20	80	
			CULG	0139.0	0140.0	III	G	1	20	80	
			CULG	0147.0	0147.0	III	B	1	60	200	
			CULG	0158.0	0202.0	III	G	3	18X	200	
			HIRA	0158.0	0202.0	III	G	3	25X	250	
			LEAR	0158.0	0201.0	III		1	25	180	
			LEAR	0223.0	0239.0	III	N	1	25	180	
			HIRA	0223.5	0224.0	III	B	1	60	340	
			CULG	0224.0	0225.0	III	G	1	20	330	

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12			CULG	0239.0	0240.0	III	G	3	18X	300	
			HIRA	0239.0	0239.5	III	B	1	25X	480	
			CULG	0318.0	0410.0	III	N	1	20	230	
			CULG	0344.0	0346.0	III	G	2	18X	300	
			HIRA	0344.0	0346.5	III	G	1	25X	120	
			HIRA	0409.5	0410.0	III	B	1	30	200	
			CULG	0410.0	0410.0	III	B	3	20	180	
	0525	1641	ONDR								
			CULG	0546.0	0546.0	III	B	1	35	140	
			CULG	0623.0	0628.0	III	GG	3	20	200	
			HIRA	0623.0	0628.0	III	G	1	30	200	
			SVTO	0623.0	0627.0	III		1	25	180	
	0555	0648	IZMI	0623.3	0626.1	III	GG	2	25X	250	
			IZMI	0627.3	0627.7	III	G	2	25X	240	
	0540	1715	BLEN	0906.6	0914.0	III	GG	2	200	500	
	0648	1200	IZMI	0913.1	0913.7	III	G	1	180	270X	
			SVTO	0951.0	0951.0	III		1	25	180	
			BLEN	0951.1	0951.6	III	GG	2	100X	700	
			IZMI	0951.1	0951.5	III	G,C	2	25X	270X	
			BLEN	1050.8	1051.2	III	GG	2	150	500	
			IZMI	1050.8	1051.2	III	G,FS	1	30	270X	
			SVTO	1051.0	1149.0	III	N	1	25	180	
			IZMI	1103.2	1103.3	III	G,HARM	2	50	270X	
			IZMI	1117.5	1117.9	III	G,HARM	2	30	270X	
			IZMI	1141.4	1141.5	III	B	1	110	170	
			SVTO	1223.0	1231.0	III		2	25	165	
			BLEN	1223.6	1229.7	III	GG,RS	2	150	550	
			SVTO	1227.0	1227.0	III		2	25	165	
			HOLL	1400.0	1403.0	III		2	25	178	
			SVTO	1401.0	1403.0	V		2	25	180	
			BLEN	1401.1	1403.0	III	GG	2	120	400	
			SVTO	1510.0	1511.0	III		1	25	125	
			HOLL	1511.0	1511.0	III		1	25	86	
			PALE	2116.0	0433.0	III	N	1	25	180	
			HOLL	2128.0	2129.0	III		1	25	180	
			PALE	2128.0	2129.0	III		1	25	180	
	2007	2400	HIRA	2128.5	2129.5	III	G	1	25X	180	
	2030	2400	CULG	2129.0	2129.0	III	G	3	25	180	
			CULG	2227.0	2232.0	III	GG	1	20	260	
			HIRA	2227.0	2230.0	III	G	1	25X	280	
			HOLL	2227.0	2230.0	III		1	25	86	
			PALE	2227.0	2227.0	III		1	25	77	
			HIRA	2254.5	2255.0	III	B	1	25X	40	
			CULG	2255.0	2255.0	III	B	1	40	100	
13	0000	0910	HIRA	0456.5	0457.0	III	B	1	25X	200	
	0000	0730	CULG	0457.0	0457.0	III	B	2	20	180	
			HIRA	0459.5	0501.0	III	G	1	50	200	
			CULG	0500.0	0501.0	III	G	1	25	180	
	0523	1643	ONDR								
	0540	1715	BLEN								
	0600	1200	IZMI								
	2005	2400	HIRA								
	2030	2400	CULG								
14	0000	0730	CULG								
	0000	0911	HIRA								
	0521	1644	ONDR								
	0540	1715	BLEN								
	0550	1200	IZMI								
			SVTO	1414.0	1415.0	III		1	25	68	
			SVTO	1432.0	1438.0	III		1	25	73	
	2004	2400	HIRA								
	2030	2400	CULG								
15			LEAR	0126.0	0126.0	III		1	49	180	
	0000	0730	CULG	0126.0	0126.0	III	B	1	25	250	
	0000	0912	HIRA	0126.0	0126.5	III	B	1	60	220	
			CULG	0504.0	0506.0	III	G	1	35	230	

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15	0519	1646	ONDR								
			CULG	0550.0	0552.0	III	G	3	23	300	
			HIRA	0550.0	0550.5	III	B	3	30	270	
			LEAR	0550.0	0552.0	III		1	25	180	
			SVTO	0550.0	0551.0	III		1	25	174	
	0550	1200	IZMI	0550.3	0552.0	III	G,C,FS	2	30	130	
			IZMI	0600.0U	1200.0D	I	N	1	200U	270X	
			SVTO	0613.0	0616.0	III		2	25	180	
			CULG	0614.0	0617.0	III	G	3	27	230	
			HIRA	0614.0	0616.5	III	G	3	30	270	
			IZMI	0614.2	0617.1	III	GG	2	25X	270X	
			LEAR	0615.0	0616.0	III		1	25	180	
			HIRA	0626.5	0627.0	III	B	1	310	440	
			IZMI	0626.7	0627.4	III	G	1	175	240	
			CULG	0627.0	0627.0	III	B	1	330	600	
			IZMI	0732.2	0732.7	III	G	1	150	240	
			HIRA	0829.5	0830.0	III	B	2	90	500	
			IZMI	0829.7	0830.2	III	G,U	2	55	270X	
	0540	1720	BLEN	0933.5	0947.7	III	GG,C	2	140	3000	
			IZMI	0939.5	0943.3	III	GG	2	115	270X	
			IZMI	0946.2	0947.2	III	GG	2	130	270X	
			BLEN	1120.2	1126.9	III	GG,RS	2	140	2000	
			SVTO	1123.0	1124.0	III		1	120	170	
			IZMI	1123.3	1124.4	III	GG	2	115	270X	
			IZMI	1126.4	1126.8	III	G	2	130	270X	
			SVTO	1255.0	1255.0	III		1	25	47	
			BLEN	1257.3	1257.8	III	GG,RS	2	240	600	
			BLEN	1345.2	1345.5	III	G	1	260	360	
			BLEN	1606.1	1610.7	III	GG	1	200	600	
			BLEN	1618.0	1620.6	III	GG,C	3	200	3000	
			BLEN	1640.5	1644.1	DCIM	P	3	100X	4000X	
			HOLL	1642.0	1643.0	III		1	25	180	
			PALE	1642.0	1643.0	III		1	25	180	
			SVTO	1642.0	1649.0	III		1	25	180	
			BLEN	1642.3	1649.5	II	H	3	100X	500	
	2002	2400	HIRA	2055.0	2055.5	III	B	1	110	290	
	2030	2400	CULG	2055.0	2055.0	III	B	1	60	180	
			CULG	2059.0	2059.0	III	B	1	30	180	
			HIRA	2059.0	2059.5	III	B	1	25X	70	
16	0000	0048	CULG								
	0113	0730	CULG	0328.0	0334.0	III	G	1	20	230	
	0000	0913	HIRA	0331.5	0334.0	III	G	1	90	220	
	0517	1647	ONDR								
	0535	1720	BLEN	0556.3	0556.5	III		1	300	700	
	0555	1200	IZMI	0558.3	0600.3	III	GG	2	120	270X	
			CULG	0559.0	0601.0	III	G	1	120	450	
			SVTO	1023.0	1025.0	III		1	78U	180U	
			IZMI	1023.8	1025.2	III	GG	2	70U	270X	
			IZMI	1026.3	1028.4	III	GG	1	75U	270X	
			IZMI	1045.0U	1200.0D	I	N	1	200	270	
	2001	2400	HIRA								
	2030	2400	CULG								
17	0000	0730	CULG	0025.0	0025.0	III	B	1	57	250	
			CULG	0130.0	0133.0	III	G	1	70	280	
	0000	0914	HIRA	0130.5	0131.5	III	G	2	90	300	
			CULG	0439.0	0441.0	III	G	1	27	340	
	0515	1648	ONDR								
	0555	1200	IZMI	0705.8	0705.8	III	B	2	130	270X	
			CULG	0706.0	0706.0	III	B	1	130	200	
			SVTO	0817.0	0817.0	III		1	119U	170U	
			IZMI	0817.4	0817.7	III	G	2	75	270X	
			HIRA	0817.5	0818.0	III	B	1	100	220	
			IZMI	0837.7	0838.1	III	G	1	140	270X	
			IZMI	0853.8	0854.6	III	G	2	25X	165	
			HIRA	0854.0	0854.5	III	B	1	25X	200	
			LEAR	0854.0	0854.0	III		1	25	100	
			SVTO	0854.0	0854.0	III		1	25	81	

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17		HIRA	0904.5	0905.0	III	B	1	90	320	
0535	1720	BLEN	0905.4	0906.3	III	GG	2	140	400	
		IZMI	0905.5	0906.3	III	GG,HARM	2	30	270X	
		LEAR	0906.0	0906.0	III		1	53	167	
		SVTO	0906.0	0906.0	III		1	27U	157U	
		BLEN	0918.4	0919.8	III	GG	2	130	300	
		IZMI	0918.5	0919.6	III	GG	2	55	270X	
		SVTO	0919.0	0919.0	III		1	119U	163U	
		SVTO	1001.0	1001.0	III		1	112U	152U	
		IZMI	1001.7	1001.8	III	G	2	110U	260	
		IZMI	1011.4	1012.9	III	G	1	110	180	
		SVTO	1027.0	1027.0	III		1	114U	144U	
		IZMI	1027.1	1027.8	III	GG	1	110U	270X	
		IZMI	1146.8	1148.1	III	G	2	110U	210	
		SVTO	1148.0	1241.0	III	N	1	25	180	
		HOLL	1500.0	1538.0	III	N	1	25	162	
		SVTO	1500.0	1500.0	III		1	25U	57U	
		SVTO	1510.0	1511.0	III		1	25	66	
		BLEN	1524.7	1526.3	III	GG	2	130	300	
		SVTO	1525.0	1537.0	III	N	1	25	180	
		HOLL	1830.0	1830.0	III		1	25	180	
		PALE	1830.0	1831.0	III		1	25	180	
		HOLL	1919.0	1920.0	III		1	25	180	
		PALE	1919.0	1920.0	III		1	25	180	
2030	2400	CULG	2054.0	2055.0	III	G	1	50	180	
		CULG	2110.0	2113.0	III	G	1	65	170	
		CULG	2135.0	2208.0	III	N	1	20	200	
1959	2400	HIRA	2140.5	2141.0	III	B	2	90	140	
		CULG	2311.0	2313.0	III	G	1	100	340	
18		HOLL	0101.0	0102.0	III		1	25	180	
0000	0730	CULG	0145.0	0146.0	III	G	1	27	180	
		CULG	0403.0	0403.0	III	B	1	100	260	
		CULG	0408.0	0410.0	III	G	3	18	180	
0000	0915	HIRA	0408.0	0409.5	III	G	2	25X	300	
		CULG	0421.0	0421.0	III	B	1	27	80	
		CULG	0439.0	0511.0	III	N	1	30	200	
0513	1650	ONDR								
		CULG	0602.0	0602.0	III	B	1	100	180	
		CULG	0606.0	0607.0	III	G	1	80	180	
		CULG	0609.0	0610.0	III	G	3	20	200	
		HIRA	0609.0	0610.0	III	B	2	30	200	
		LEAR	0609.0	0610.0	III		1	25	180	
		SVTO	0609.0	0609.0	III		1	25	180	
0607	1200	IZMI	0609.2	0609.8	III	G,C	2	25X	250	
		IZMI	0609.5	0610.0	V		2	45	90	
		IZMI	0625.5	0625.6	III	G	1	55	170	
		CULG	0626.0	0626.0	III	B	1	45	160	
		CULG	0711.0	0712.0	III	G	1	120	260	
		CULG	0714.0	0718.0	III	G	3	23	200	
		HIRA	0714.0	0718.0	III	G	1	25X	310	
		LEAR	0714.0	0717.0	III		1	25	180	
		SVTO	0714.0	0717.0	III		1	25	83	
		IZMI	0714.2	0715.2	III	G	2	25X	160	
0535	1720	BLEN	0717.0	0717.6	III	G	2	150	300	
		IZMI	0717.1	0717.7	III	G	2	25X	270X	
		SVTO	0906.0	0911.0	III		1	25	152	
		IZMI	0906.3	0906.5	III	G	1	25X	95U	
		IZMI	0911.3	0911.6	III	G	2	45	270X	
		IZMI	0958.6	1011.0	III	GG	1	80	180	
		SVTO	1043.0	1043.0	III		1	25	83	
		IZMI	1043.5	1043.7	III	G,C	2	30	175	
		IZMI	1050.8	1050.9	III	B	1	120	170	
		IZMI	1100.2	1100.4	III	G	1	110U	170	
		SVTO	1119.0	1119.0	III		1	75U	180U	
		IZMI	1119.4	1119.7	III	G,C	2	55	240	
		SVTO	1200.0	1200.0	III		1	43	180	
		SVTO	1247.0	1248.0	III		1	25	72	
		SVTO	1323.0	1323.0	III		1	25U	83U	

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18			HOLL	1341.0	1347.0	III		1	25	180	
			SVTO	1341.0	1342.0	III		1	25	180	
			SVTO	1416.0	1418.0	III		1	25	180	
			HOLL	1417.0	1418.0	III		1	33	180	
			BLEN	1449.0	1459.7	III	GG,RS	3	150	3000	
			BLEN	1557.7	1559.9	III	GG	2	140	400	
			SVTO	1559.0	1600.0	III		1	25	83	
			HOLL	1755.0	1755.0	III		1	25	180	
			HOLL	1820.0	1822.0	III		1	25	180	
			HOLL	1902.0	1912.0	III	N	1	25	84	
	2030	2400	CULG	2057.0	2057.0	III	B	1	25	100	
			CULG	2131.0	2313.0	III	N	1	20	80	
			HOLL	2219.0	2220.0	III		1	25	65	
	1958	2400	HIRA	2219.5	2220.0	III	B	1	25X	50	
			HOLL	2231.0	2232.0	III		1	25	63	
19	0000	0730	CULG	0008.0	0019.0	III	G	1	27	57	
			CULG	0510.0	0512.0	III	G	1	23	80	
	0512	1651	ONDR								
	0530	1720	BLEN								
			CULG	0536.0	0703.0	III	N	1	23	80	
			CULG	0545.0	0545.0	III	B	1	75	180	
	0000	0916	HIRA	0545.0	0545.5	III	B	1	90	200	
			SVTO	0637.0	0638.0	III		1	25	58	
	0600	1200	IZMI	0637.9	0638.1	III	B	1	40	90	
			IZMI	0746.3	0748.8	III	G	1	55U	90	
			SVTO	1212.0	1213.0	III		1	25	42	
			SVTO	1229.0	1359.0	III	N	1	25U	43U	
	1957	2400	HIRA								
	2030	2400	CULG	2108.0	2156.0	III	N	1	23	90	
20	0000	0720	CULG	0411.0	0605.0	III	S	1	20	180	
			LEAR	0501.0	0541.0	III	N	1	30	105	
	0510	1653	ONDR								
	0530	1720	BLEN								
			SVTO	0540.0	0541.0	III		1	25U	44U	
	0600	0740	IZMI								
			CULG	0711.0	0711.0	III	B	1	20	90	
			SVTO	0825.0	0825.0	III		1	38	176	
	0000	0916	HIRA	0825.0	0825.5	III	B	1	50	200	
	0746	1200	IZMI	0825.1	0825.4	III	G,FS	2	45U	175	
			SVTO	0841.0	0841.0	III		1	28	136	
			SVTO	0904.0	1022.0	III	N	1	25	126	
			IZMI	1110.5	1114.1	I	GG	1	220	270X	
			SVTO	1118.0	1145.0	III	N	1	25	56	
	2040	2400	CULG	2040.0E	2145.0	I	S,C	1	70	180	
			CULG	2155.0	2155.0	III	B	1	25	80	
21	0000	0720	CULG								
	0000	0917	HIRA								
	0508	1654	ONDR								
	0606	1200	IZMI	0746.5	0747.4	III	G	1	55	170	
			IZMI	1052.8	1053.4	III	G	1	45	165	
			HOLL	1419.0	1430.0	III	N	1	25	180	
			SVTO	1419.0	1429.0	III	N	1	25	180	
			HOLL	1555.0	1924.0	III	N	1	25	140	
	0530	1720	BLEN	1606.5	1700.5	I	DC,C	3	100X	500	
			SVTO	1608.0	1609.0	III		1	25	147	
	2040	2400	CULG	2040.0E	2236.0	I	S	1	100	160	
			CULG	2110.0	2112.0	III	G	1	50	90	
	1955	2400	HIRA	2114.0	2114.5	III	B	1	310	490	
22	0000	0720	CULG	0012.0	0012.0	III	B	1	300	700	
	0000	0918	HIRA	0012.5	0013.0	III	B	2	280	860	
			CULG	0015.0	0103.0	I	S	1	100	180	
			CULG	0100.0	0100.0	III	G	1	50	180	
			CULG	0440.0	0523.0	I	S	1	130	180	
	0506	1655	ONDR								
			CULG	0509.0	0511.0	III	G	2	25	100	

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

Spectral Observations

APRIL 2004

Day	OBSERVATION Start (UT)	OBSERVATION End (UT)	Sta	EVENT Start (UT)	EVENT End (UT)	EVENT Spectral Class	EVENT Event Remarks	FREQUENCY Int (1-3)	FREQUENCY Lower (MHz)	FREQUENCY Upper (MHz)	Remarks
22			SVTO	0608.0	0610.0	III		1	25	126	
	0608	1200	IZMI	0608.0E	1200.0D	I	N	2	50U	270X	
			IZMI	0608.8	0610.0	III	G	1	45	95	
			CULG	0609.0	0611.0	III	G	2	20	180	
			HIRA	0609.0	0611.0	III	G	1	25X	230	
			CULG	0632.0	0632.0	III	B	2	30	170	
			HIRA	0632.0	0632.5	III	B	1	40	110	
			IZMI	0632.0	0632.2	III	B	2	30	130	
	0525	1725	BLEN	0741.0	1725.0X	I	DC,C	3	100X	500	
			IZMI	0817.1	0817.7	III	G	1	240	270X	
			IZMI	0847.3	0847.5	III	B	1	45	90	
			SVTO	1124.0	1125.0	III		1	25	145	
			IZMI	1124.5	1125.9	I	GG,DC	2	200	270X	
			IZMI	1124.8	1125.4	III	G,C	2	25X	175	
			HOLL	1423.0	1423.0	III		1	29	74	
			SVTO	1423.0	1423.0	III		1	25	82	
			HOLL	1639.0	1639.0	III		1	25	46	
	2040	2400	CULG	2040.0E	2400.0D	I	S	1	100	180	
			CULG	2046.0	2048.0	III	G	1	40	200	
	1953	2400	HIRA	2047.5	2048.5	III	G	1	90	340	
			CULG	2057.0	2105.0	III	GG	1	60	160	
			CULG	2229.0	2230.0	III	G	1	23	160	
			HOLL	2229.0	2230.0	III		1	25	86	
			LEAR	2345.0	0115.0	CONT		1	131	180	
23	0000	0720	CULG	0000.0E	0120.0	I	S	1	100	180	
			CULG	0032.0	0033.0	III	G	1	25	80	
			CULG	0110.0	0110.0	III	B	1	23	65	
			LEAR	0115.0	0115.0	III		1	25	100	
			PALE	0115.0	0115.0	III		1	25	75	
	0000	0919	HIRA	0115.5	0116.0	III	B	1	50	80	
			CULG	0116.0	0116.0	III	B	2	23	150	
			CULG	0157.0	0157.0	III	B	3	18	180	
			HIRA	0157.0	0157.5	III	B	1	25X	100	
			LEAR	0157.0	0157.0	III		1	25	115	
			PALE	0157.0	0157.0	III		1	25	70	
			CULG	0222.0	0232.0	III	G	2	18	180	
			HIRA	0222.0	0231.0	III	G	1	25X	390	
			LEAR	0222.0	0230.0	III		1	25	180	
			PALE	0222.0	0231.0	III		1	25	180	
			CULG	0229.0	0229.0	III	B	3	18X	160	
			CULG	0233.0	0238.0	III	G	1	27	90	
			CULG	0527.0	0528.0	III	G	2	20	180	
			LEAR	0527.0	0527.0	III		1	25	97	
			SVTO	0527.0	0528.0	III		1	25	78	
			CULG	0551.0	0628.0	III	G	2	23	180	
			LEAR	0551.0	0627.0	III	N	1	25	108	
			SVTO	0551.0	0552.0	III		1	25	79	
	0550	1200	IZMI	0551.3	0552.3	III	G	1	25X	95U	
	0525	1725	BLEN	0551.9	0556.4	III	G	1	200	600	
			HIRA	0552.0	0552.5	III	B	1	30	240	
			SVTO	0606.0	0606.0	III		1	25	75	
			IZMI	0606.3	0606.6	III	G	2	25X	160	
			HIRA	0606.5	0607.0	III	B	1	40	120	
			SVTO	0627.0	0627.0	III		1	25	80	
			IZMI	0627.5	0627.8	III	G	2	30	175	
			CULG	0646.0	0646.0	III	B	1	27	85	
			CULG	0700.0	0701.0	III	G	1	30	100	
			IZMI	0700.4	0700.6	III	G	1	45	85	
			IZMI	0731.9	0732.0	III	B	1	45	65	
			HIRA	0741.0	0741.5	III	B	1	30	110	
			LEAR	0741.0	0741.0	III		1	25	104	
			SVTO	0741.0	0741.0	III		1	25	77	
			IZMI	0741.3	0741.5	III	G,C	2	25X	155	
	0504	1657	ONDR	0751.3	0801.0	DCIM	G	1	800X	2000X	
			BLEN	0751.5	0801.0	DCIM	P	2	400	1500	
			LEAR	0756.0	0757.0	III		1	25	110	
			IZMI	0756.9	0757.6	III	G	2	25X	160	
			HIRA	0757.0	0759.5	III	G	1	40	110	

SOLAR RADIO EMISSION
Spectral Observations

APRIL 2004

Day	OBSERVATION Start (UT)	OBSERVATION End (UT)	Sta	EVENT Start (UT)	EVENT End (UT)	EVENT Spectral Class	EVENT Event Remarks	EVENT Int (1-3)	FREQUENCY Lower (MHz)	FREQUENCY Upper (MHz)	Remarks
23			SVTO	0757.0	0759.0	III		1	25	83	
			IZMI	0759.4	0759.7	III	G	1	30	120	
			SVTO	0807.0	0807.0	III		1	25	58	
			IZMI	0807.8	0807.8	III	G	1	30	65	
			IZMI	0836.0	0845.0	I	N	1	110	160	
			LEAR	0847.0	0924.0	III	N	1	25	180	
			SVTO	0847.0	0847.0	III		1	25	83	
			HIRA	0847.5	0848.0	III	B	1	40	100	
			IZMI	0847.6	0847.7	III	G	2	25X	95	
			IZMI	0901.9	0902.2	III	G	2	25X	95	
			HIRA	0902.0	0902.5	III	B	1	25X	110	
			SVTO	0902.0	0902.0	III		1	25	70	
			IZMI	0910.9	0912.6	III	G,C	2	25X	140	
			SVTO	0911.0	0912.0	III		1	25	81	
			ONDR	0933.4	0933.5	DCIM	G	2	955	1245	
			IZMI	0953.0	0953.1	III	G	1	25X	85	
			SVTO	0953.0	0953.0	III		1	25	53	
			IZMI	1018.1	1018.2	III	B	1	30	65U	
			BLEN	1039.5	1151.1	III	GG	2	100X	4000X	
			IZMI	1040.9	1043.9	III	G	1	50U	145	
			ONDR	1043.2	1043.5	DCIM	G	1	800X	2000X	
			ONDR	1146.2	1150.2	DCIM	GG	2	800X	2000X	
			SVTO	1212.0	1213.0	III		1	25U	47U	
			BLEN	1604.5	1606.5	DCIM	C	2	600	4000X	
	1952	2400	HIRA								
	2040	2400	CULG	2040.0E	2400.0D	I	S,C	1	60	180	
			CULG	2107.0	2342.0	III	S,C	1	25	100	
			LEAR	2311.0	0610.0	CONT		1	74	180	
24	0000	0920	HIRA								
	0000	0720	CULG	0000.0E	0254.0	I	S,C	1	60	180	
			CULG	0015.0	0023.0	III	G	1	30	100	
			CULG	0545.0	0624.0	III	N	1	57	180	
	0555	1200	IZMI	0555.0E	1200.0D	I	N	1	110U	270X	
			LEAR	0623.0	0623.0	III		1	47	114	
			IZMI	0623.7	0623.9	III	G,HARM	1	55	160	
			IZMI	0829.5	0830.8	III	GG	1	125	260	
			IZMI	0925.5	0925.6	III	B	1	50U	65	
			IZMI	0955.0	1000.0	I	GG	2	200	270X	
	0503	1658	ONDR	1626.0	1627.3	DCIM	GG	2	1114	2000X	
	0525	1725	BLEN	1708.2	1717.3	IV	P	3	1000	2600	
	2040	2400	CULG	2040.0E	2358.0	I	S	1	130	180	
			CULG	2101.0	2101.0	III	B	1	23	40	
			CULG	2112.0	2116.0	III	G	2	23	150	
			HOLL	2112.0	2113.0	III		1	25	98	
			PALE	2112.0	2113.0	III		1	25	90	
	1951	2400	HIRA	2112.0	2114.0	III	G	1	30	100	
25	0501	1700	ONDR								
	0000	0720	CULG	0538.0	0538.0	III	B	1	27	150	
	0555	1200	IZMI	0555.0E	0925.0U	I	N	1	110U	270X	
			CULG	0615.0	0720.0D	I	S,C	1	60	180	
			IZMI	0749.4	0749.8	III	G	2	60	270X	
			IZMI	0826.3	0826.4	III	G	2	120	270X	
			IZMI	0845.4	0847.6	III	GG	1	125	270X	
	0700	1725	BLEN	0907.6	0925.6	III	GG	2	100X	700	
			SVTO	0909.0	0909.0	III		1	112	180	
			IZMI	0909.4	0910.1	III	G,C	3	75	270X	
	0000	0921	HIRA	0909.5	0910.0	III	G	3	90	600	
			IZMI	0932.3	0932.4	III	G	1	130	270X	
			IZMI	1015.1	1015.3	III	G	1	150U	270X	
			HOLL	1320.0	1320.0	III		1	25	85	
			SVTO	1344.0	1344.0	III		1	28U	58U	
			HOLL	1435.0	1436.0	III		1	25	180	
			BLEN	1451.2	1452.9	III	GG,RS	1	1000	1800	
	1950	2400	HIRA								
	2040	2400	CULG	2124.0	2124.0	III	B	1	27	200	
26	0000	0720	CULG								

SOLAR RADIO EMISSION
Spectral Observations

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Day	OBSERVATION Start (UT)	OBSERVATION End (UT)	Sta	EVENT Start (UT)	EVENT End (UT)	EVENT Spectral Class	EVENT Event Remarks	EVENT Int (1-3)	FREQUENCY Lower (MHz)	FREQUENCY Upper (MHz)	Remarks
26	0000	0922	HIRA								
	0459	1701	ONDR								
	0520	1730	BLEN								
	0605	1200	IZMI								
	1948	2400	HIRA								
	2040	2400	CULG								
27	0000	0735	CULG	0314.0	0314.0	III	B	1	27	80	
	0457	1702	ONDR								
			LEAR	0634.0	0635.0	III		1	25	180	
			SVTO	0634.0	0635.0	III		1	25	78	
			CULG	0635.0	0635.0	III	B	2	20	160	
	0520	1730	BLEN	0709.7	0734.8	DCIM	P,S,F	3	100X	1800	
			CULG	0712.0	0715.0	III	G	1	100	200	
			SVTO	0712.0	0718.0	III		3	25	180	
	0000	0923	HIRA	0712.0	0713.0	III	B	1	110	800	
	0700	1200	IZMI	0712.1	0712.9	CONT	FS	1	110	270X	
			IZMI	0714.6	0715.0	III	G	1	125	260	
			IZMI	0715.6	0735.1	II	HARM	2	25X	215	
			CULG	0716.0	0729.0	II	FN	3	23	90	
			CULG	0716.0	0735.0	II	SH	3	27	190	ESS 600
			HIRA	0716.0	0726.0	II		3	25X	100	
			HIRA	0716.0	0733.0	II		3	50	250	
			LEAR	0716.0	0735.0	II		2	25	180	ESS 0732
			LEAR	0717.0	0718.0	III		2	25	180	
			IZMI	0717.1	0726.7	III	GG,C	2	25X	270X	
			CULG	0718.0	0724.0	III	G	3	23	160	
			HIRA	0718.0	0719.0	III	B	3	25X	200	
			SVTO	0719.0	0741.0	II		2	25	147	ESS 0788
			IZMI	0733.0U	1200.0D	I	S	2	45U	270X	
			SVTO	0745.0	0822.0	III	N	1	28	66	
			IZMI	0839.0U	0950.0U	III	N	1	25X	95U	
			SVTO	1022.0	1718.0	CONT		1	25	180	
			HOLL	1626.0	1627.0	III		1	25	90	
	1947	2400	HIRA								
	2040	2400	CULG								
28	0000	0924	HIRA								
	0000	0720	CULG	0109.0	0109.0	III	B	1	30	75	
	0456	1704	ONDR								
	0515	1735	BLEN								
	0555	1200	IZMI								
			PALE	2116.0	2116.0	III		1	25	155	
	1946	2400	HIRA	2116.0	2116.5	III	B	1	50	130	
	2040	2400	CULG	2116.0	2116.0	III	B	1	25	120	
			CULG	2309.0	2309.0	III	B	1	25	80	
29	0000	0720	CULG	0328.0	0329.0	III	G	1	100	200	
	0000	0925	HIRA	0328.0	0329.5	III	G	1	90	260	
	0454	1705	ONDR								
	0600	0718	IZMI								
	0728	0739	IZMI								
	0747	1200	IZMI								
	0515	1735	BLEN	1637.3	1640.7	III	G	2	250	600	
	1945	2400	HIRA								
	2040	2400	CULG								
30	0000	0720	CULG	0145.0	0147.0	III	G	1	130	240	
	0000	0925	HIRA	0146.0	0146.5	III	B	1	130	240	
			CULG	0155.0	0155.0	III	B	1	30	50	
	0453	1706	ONDR								
	0515	1735	BLEN	0544.7	0548.8	DCIM	C	2	250	4000X	
	0555	1200	IZMI	1106.8	1107.1	III	G	1	210	250	
			SVTO	1637.0	1637.0	III		1	25	76	
			BLEN	1637.3	1640.7	III	G	2	250	600	
			HOLL	1731.0	1734.0	III		1	25	72	
			HOLL	1813.0	1814.0	III		1	25	137	
			PALE	1813.0	1814.0	III		1	25	180	
	1943	2400	HIRA								

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

APRIL 2004

OBSERVATION Day	Start (UT)	End (UT)	Sta	EVENT Start (UT)	End (UT)	Spectral Class	Event Remarks	FREQUENCY Int (1-3)	Lower (MHz)	Upper (MHz)	Remarks
30	2040	2400	CULG	2047.0	2047.0	III	B	1	60	160	
			CULG	2148.0	2148.0	III	B	1	20	57	

Event Remarks:

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

Frequency qualifiers:

X = Extends beyond instrument range U = Uncertain frequency

Remarks:

SWF = Associated short wave fade observed
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).

SOLAR RADIO NOISE STORM AT 164 MHZ

FROM NANÇAY RADIOHELIOGRAPH

APRIL 2004

	HELIOGRAPHICS POSITIONS MEAN VALUES[1]		IMP[2]	OBSERVING TIME[3]	
DAY	E-W	S-N		START(UT)	END(UT)
02/04/04	-0.52	-0.20	II	8H25 E	15H25 D
03/04/04	-0.25	-0.23	I	8H24 E	15H24 D
04/04/04	+0.30	-0.21	I	8H24 E	15H24 D
05/04/04	+0.64	-0.21	I	8H24 E	15H24 D
07/04/04	-0.06	-0.13	I	8H50 E	15H23 D
08/04/04	+0.24	-0.11	II	8H40 E	13H21 D
09/04/04	+0.53	-0.10	I	10H15 E	13H58 D
15/04/04	+0.64	-0.51	I	12H15	13H11 D
16/04/04	+0.79	-0.54	I	9H35 D	14H59
17/04/04	+0.89	-0.60	I	8H21 E	15H21 D
19/04/04	-0.88	+0.06	I	9H10 E	15H20 D
20/04/04	-0.69	+0.21	I	8H46 E	15H44 D
21/04/04	-0.53	+0.07	I	11H09 E	15H20 D
22/04/04	-0.37	-0.05	III	9H09 E	15H20 D
23/04/04	+0.05	+0.08	I	8H19 E	15H19 D
23/04/04	+1.39	-0.41	I	8H19 E	15H19 D
24/04/04	-0.94	+0.46	I	8H19 E	15H19 D
24/04/04	+0.12	+0.07	I	8H19 E	15H19 D
24/04/04	+0.47	-0.04	I	8H19 E	15H19 D
24/04/04	+1.31	-0.41	I	8H19 E	10H20
25/04/04	+0.46	-0.05	I	8H19 E	15H19 D
25/04/04	+1.26	-0.64	I	8H19 E	11H10
26/04/04	+0.62	-0.22	I	8H19 E	11H40
27/04/04	-0.18	+0.35	IV	8H19 E	15H19 D

[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

SOLAR RADIO NOISE STORM AT 327 MHZ

FROM NANÇAY RADIOHELIOGRAPH

APRIL 2004

	HELIOGRAPHICS POSITIONS MEAN VALUES[1]		IMP[2]	OBSERVING TIME[3]	
DAY					
02/04/04	-0.40	-0.17	I	8H25 E	15H25 D
03/04/04	-0.18	-0.22	I	8H24 E	15H24 D
03/04/04	+0.10	-0.14	I	8H24 E	15H24 D
04/04/03	+0.33	-0.14	II	8H24 E	15H24 D
05/04/03	+0.61	-0.18	I	8H24 E	15H24 D
06/04/04	+0.80	-0.20	I	9H10 E	12H10
08/04/04	+0.15	-0.10	I	8H40 E	13H21 D
15/04/04	+0.61	-0.48	I	10H13 E	13H11 D
16/04/04	+0.77	-0.51	I	9H35 E	15H30 D
17/04/04	+0.92	-0.53	I	8H21 E	15H21 D
17/04/04	+1.13	-0.31	I	8H21 E	15H21 D
19/04/04	-0.88	-0.01	I	9H10 E	15H20 D
20/04/04	-0.68	-0.08	I	8H46 E	15H44 D
22/04/04	-0.16	+0.00	III	9H09 E	15H20 D
23/04/04	+0.12	+0.04	I	8H19 E	15H19 D
24/04/04	-0.94	+0.37	I	8H19 E	15H19 D
24/04/04	+0.41	-0.04	I	8H19 E	15H19 D
24/04/04	+0.23	-0.01	I	8H19 E	15H19 D
24/04/04	+1.23	-0.29	I	8H19 E	15H19 D
25/04/04	+0.62	+0.00	I	8H19 E	15H19 D
26/04/03	-0.54	+0.42	I	8H19 E	15H19 D
26/04/04	+0.85	+0.00	II	10H56	15H19 D
27/04/04	-0.19	+0.35	II	8H19 E	15H19 D
27/04/04	+1.02	-0.09	II	8H19 E	12H05

01 April : NO DATA

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 more detailed analysis leading to increased 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

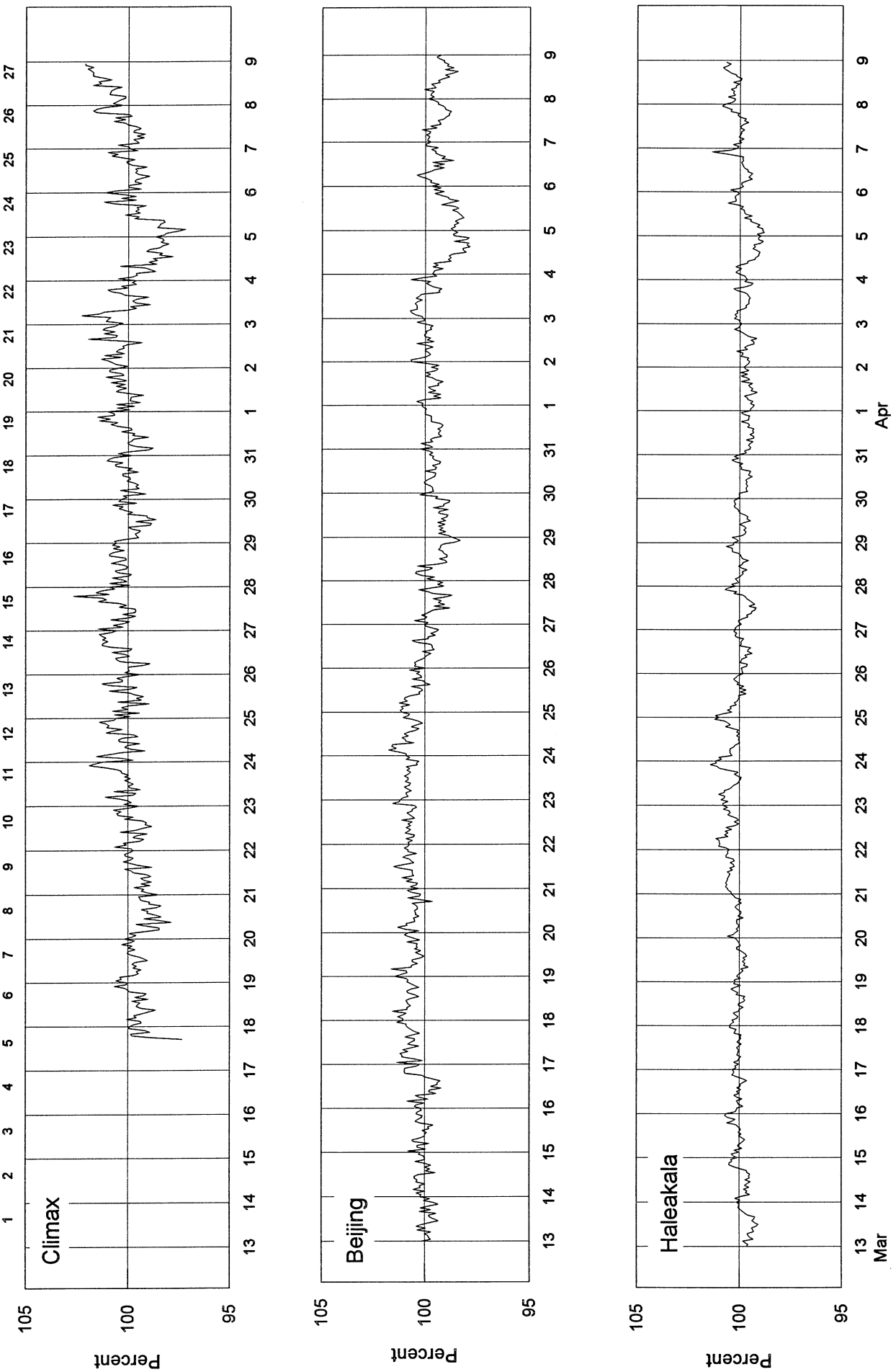
**** no flux measurements available

COSMIC RAY INDICES
(Neutron Monitor)
April 2004

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	4155.2		5816.0	8612.2	3918.2	2013.6	3498.7
2	4164.7(23)		5845.4	8619.8	3933.0	2019.8	3504.7
3	4129.3	no data	5816.1	8567.2	3920.3	2022.2	3508.7
4	4077.6	available	5732.3	8438.8	3865.9	1994.1	3496.5
5	4117.5		5779.1	8482.7	3876.1	1994.8	3501.3
6	4124.8		5821.2	8532.6	3904.1	2011.8	3512.6
7	4149.2		5838.2	8530.2	3913.4	2008.5	3516.5
8	4180.4		5882.2	8614.7	3953.4	2005.7	3527.6
9	4188.6		5870.5	8632.0	3941.1	1996.3	3521.5
10	4188.8		5849.9	8589.2	3946.2	1984.7	3514.8
11	4129.5		5799.0	8498.2	3909.9	1976.0	3499.9
12	4160.2		5828.6	8548.0	3929.6	1973.1	3495.6
13	4146.6		5808.2	8540.7	3912.2	1976.8	3499.4
14	4190.3		5878.6	8635.7	3956.4	1987.7	3522.4
15	4196.4		5877.1	8612.2	3962.3	1991.4	3527.2
16	4212.7		5907.1	8647.6	3989.4	1994.5	3529.8
17	4225.6		5936.5	8652.3	3998.7	1993.9	3538.8
18	4236.8		5948.6	8671.5	4013.7	1990.0	3539.7
19	4227.0		5952.4	8674.8	4001.6	1984.1	3543.7
20	4217.8		5932.0	8655.1	4003.8	1983.7	3548.0
21	4211.3		5890.7	8611.4	3985.1	1977.7	3541.1
22	4188.4		5861.3	8579.0	3970.5	1971.2	3528.8
23	4182.5		5861.3	8582.5	3967.0	1981.5	3536.2
24	4176.5		5855.0	8563.7	3949.8	1975.7	3523.8
25	4177.0		5845.1	8550.2	3939.3	1982.1	3532.2
26	4173.1		5831.4	8540.2	3920.2	1990.5	3522.5
27	4178.5		5831.6	8530.3	3915.6	1984.1	3521.9
28	4164.0		5823.7	8521.0	3927.2	1975.7	3515.4
29	4167.4		5842.1	8555.3	3940.1	1977.0	3518.8
30	4173.5(23)		5873.6	8598.5	3972.5	1987.3	3527.6
Mean	4173.0		5854.5	8579.6	3944.6	1990.2	3520.6

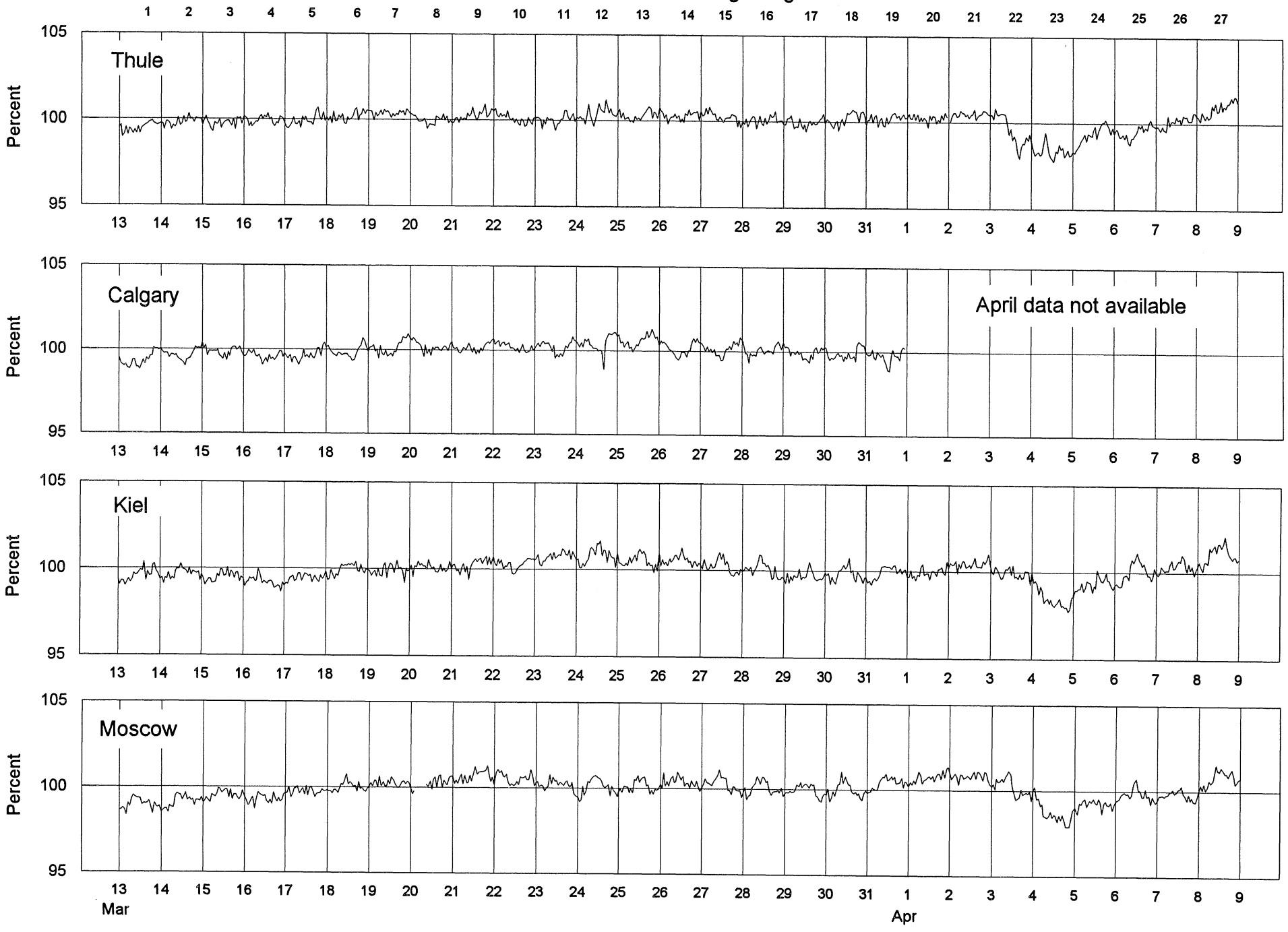
For less than 24-hour coverage, parentheses enclose the number of hours for which data are available. For Climax, parentheses enclose the number of section hours whenever the sum of both sections falls below 40 hours, and for Haleakala, whenever the sum of all three sections falls below 60 hours.

COSMIC RAY INDICES
(Neutron Monitor)
Bartels Rotation 2329 - Beginning 13 Mar 2004



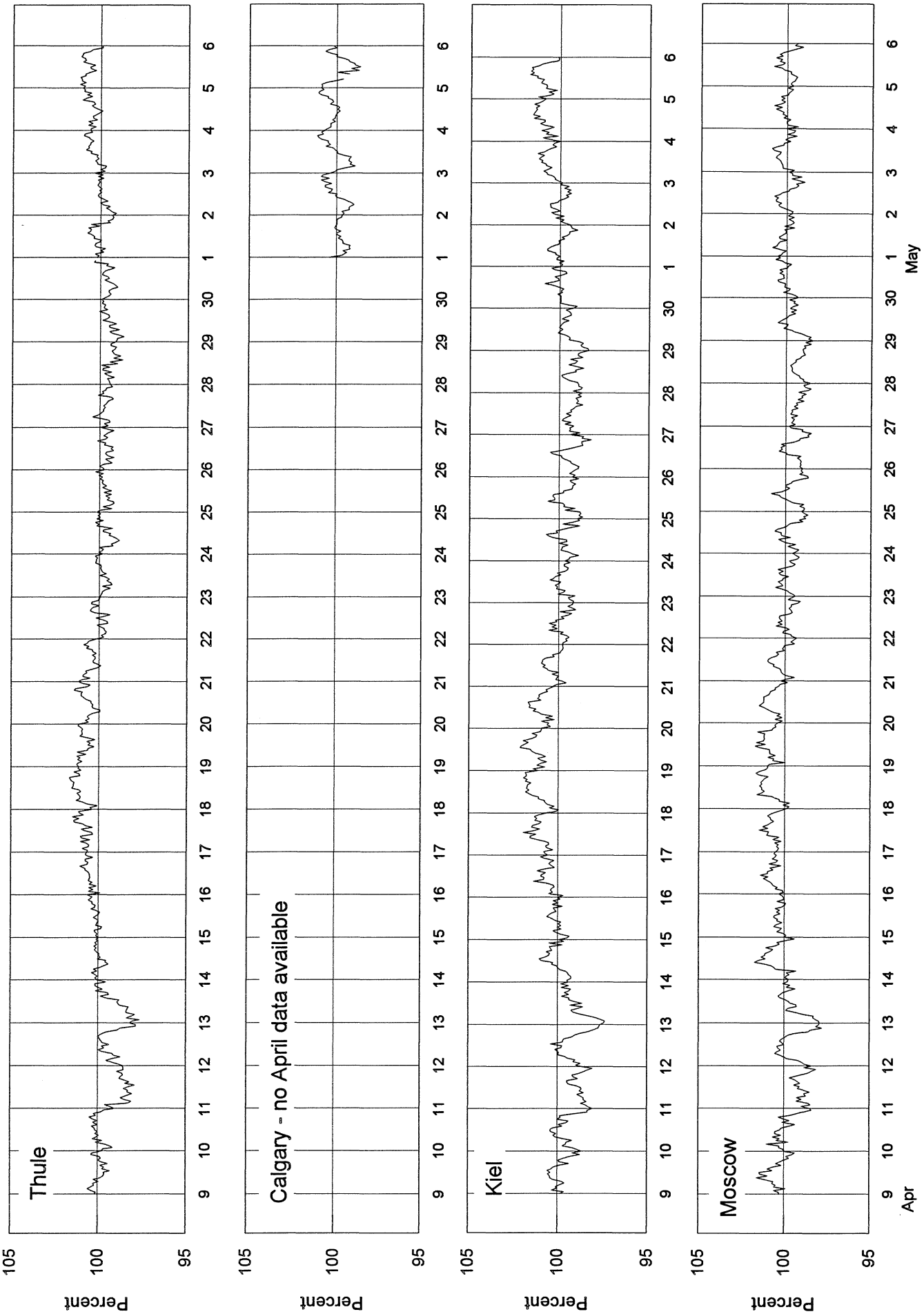
COSMIC RAY INDICES
(Neutron Monitor)

Bartels Rotation 2329 - Beginning 13 Mar 2004

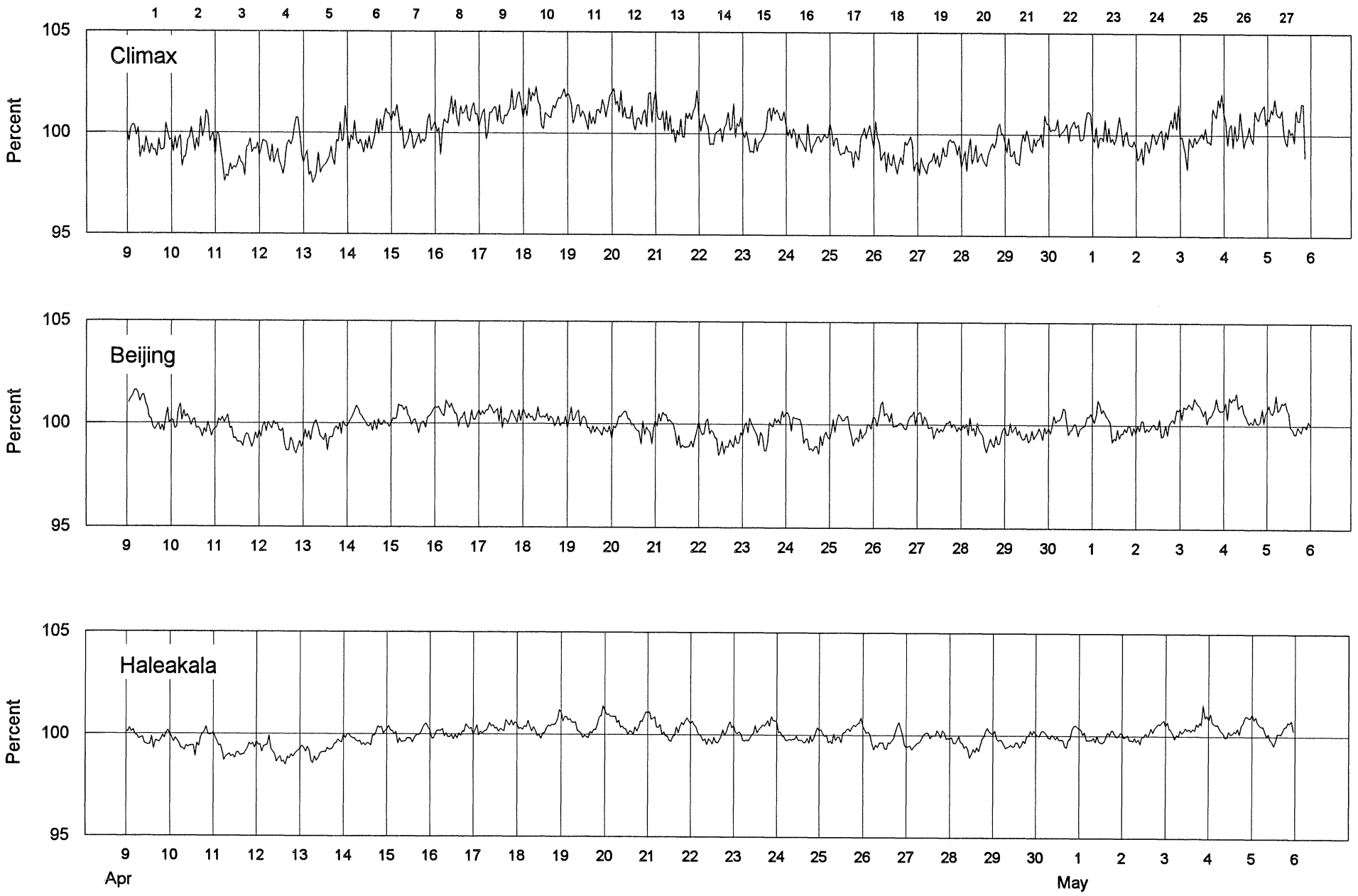


COSMIC RAY INDICES
(Neutron Monitor)

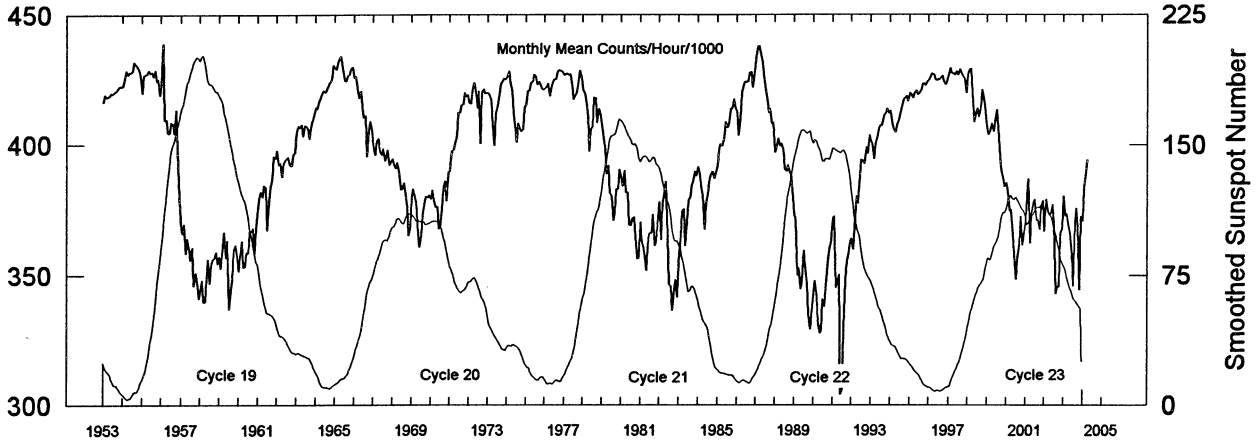
Bartels Rotation 2330 - Beginning 9 April 2004



COSMIC RAY INDICES
(Neutron Monitor)
Bartels Rotation 2330 - Beginning 9 April 2004



Climax Neutron Monitor Pressure-Corrected Values
Jan 1953 - Apr 2004



Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Mean
1953	4165	4193	4182	4188	4190	4200	4197	4205	4208	4216	4225	4226	4200
1954	4225	4247	4285	4269	4280	4277	4284	4318	4308	4303	4286	4269	4279
1955	4200	4267	4272	4273	4287	4278	4279	4263	4286	4245	4252	4193	4258
1956	4234	4388	4097	4097	4049	4045	4088	4083	4044	4134	3980	3799	4087
1957	3677	3660	3695	3585	3640	3603	3557	3606	3458	3509	3484	3410	3574
1958	3435	3479	3400	3396	3490	3560	3467	3537	3561	3564	3589	3542	3502
1959	3573	3526	3606	3664	3567	3633	3367	3420	3484	3597	3615	3587	3553
1960	3516	3573	3631	3532	3534	3589	3587	3670	3670	3682	3586	3681	3604
1961	3761	3801	3819	3800	3843	3838	3675	3784	3834	3870	3955	3950	3828
1962	3977	3922	3931	3878	3927	3940	3950	3954	3924	3919	3963	3971	3938
1963	4049	4073	4065	4077	4033	4075	4072	4060	4024	4066	4094	4111	4067
1964	4144	4139	4168	4181	4198	4208	4202	4213	4232	4240	4254	4307	4207
1965	4294	4290	4314	4335	4340	4288	4247	4246	4267	4271	4294	4300	4291
1966	4258	4262	4211	4180	4207	4146	4108	4112	3956	4055	4091	4053	4137
1967	3991	3960	4014	4025	3974	3960	3985	3939	3955	3980	3922	3933	3970
1968	3946	3925	3909	3932	3895	3830	3830	3853	3817	3761	3652	3685	3836
1969	3801	3831	3798	3782	3656	3609	3652	3730	3781	3803	3798	3807	3754
1970	3792	3824	3781	3765	3765	3679	3684	3755	3832	3862	3786	3895	3785
1971	3898	3975	3981	4003	4032	4124	4124	4152	4156	4200	4184	4192	4085
1972	4162	4157	4209	4237	4215	4141	4207	4005	4198	4214	4198	4198	4178
1973	4200	4193	4173	4075	3997	4119	4150	4180	4235	4240	4255	4253	4173
1974	4261	4283	4237	4207	4121	4077	4009	4083	4061	4054	4058	4140	4133
1975	4155	4206	4210	4239	4244	4271	4262	4231	4243	4231	4218	4213	4227
1976	4216	4223	4236	4188	4218	4244	4254	4253	4283	4287	4285	4280	4247
1977	4268	4272	4274	4267	4272	4231	4175	4193	4197	4245	4284	4260	4245
1978	4213	4198	4173	4107	3976	4058	4068	4183	4180	4085	4139	4128	4126
1979	4071	4034	3983	3888	3920	3814	3806	3710	3745	3829	3829	3905	3878
1980	3873	3842	3900	3819	3817	3697	3692	3719	3723	3647	3564	3564	3738
1981	3703	3623	3616	3561	3518	3643	3663	3662	3732	3613	3624	3726	3640
1982	3780	3634	3778	3819	3860	3650	3463	3456	3364	3444	3482	3413	3595
1983	3550	3643	3744	3753	3613	3700	3789	3798	3845	3860	3897	3881	3756
1984	3915	3896	3830	3806	3677	3773	3813	3865	3891	3897	3871	3890	3844
1985	3919	3985	4002	3995	4026	4088	4066	4075	4139	4139	4174	4141	4062
1986	4128	4036	4098	4199	4232	4242	4243	4244	4277	4280	4221	4277	4206
1987	4331	4376	4378	4346	4323	4254	4216	4170	4123	4139	4080	4084	4235
1988	3970	3997	4024	3995	4005	3981	3906	3899	3923	3893	3886	3798	3940
1989	3731	3717	3500	3527	3446	3478	3594	3535	3467	3347	3291	3349	3499
1990	3432	3476	3424	3317	3275	3283	3406	3377	3450	3540	3608	3620	3434
1991	3719	3725	3451	3470	3501	3041	3062	3293	3482	3550	3570	3628	3458
1992	3639	3600	3684	3803	3776	3876	3945	3939	3928	3989	3966	4036	3848
1993	4011	4007	3947	4003	4028	4061	4075	4076	4113	4122	4138	4122	4059
1994	4130	4079	4058	4048	4076	4085	4117	4140	4173	4179	4187	4168	4120
1995	4198	4194	4180	4199	4208	4193	4198	4209	4235	4236	4228	4246	4210
1996	4249	4266	4276	4269	4252	4250	4254	4256	4264	4243	4231	4242	4254
1997	4273	4293	4278	4274	4268	4281	4268	4290	4278	4260	4255	4199	4268
1998	4270	4290	4291	4160	4087	4116	4142	4107	4141	4212	4175	4133	4177
1999	4056	4040	4057	4083	4050	4106	4133	4031	3953	3899	3870	3840	4010
2000	3855	3822	3748	3752	3656	3583	3485	3562	3617	3725	3615	3651	3673
2001	3713	3812	3869	3622	3734	3779	3791	3713	3713	3675	3761	3787	3747
2002	3670	3790	3745	3733	3739	3771	3702	3429	3456	3454	3659	3680	3652
2003	3804	3727	3736	3685	3664	3580	3459	3706	3756	3685	3442	3725	3664
2004	3707	3835	3893	3944									3845

Multiply table entries by 100 to obtain hourly counting rate. Climax, Colorado: N39, W106, Alt=3400 m, Cutoff Rigidity=2.99GV (1980).
NOTE: Data may differ from previously reported values due to subsequent cleanup of data and slight changes in the averaging algorithm. See http://astro.uchicago.edu/home/web/pyle/neutron.html for latest changes. Sunspot numbers are preliminary after September, 2003.

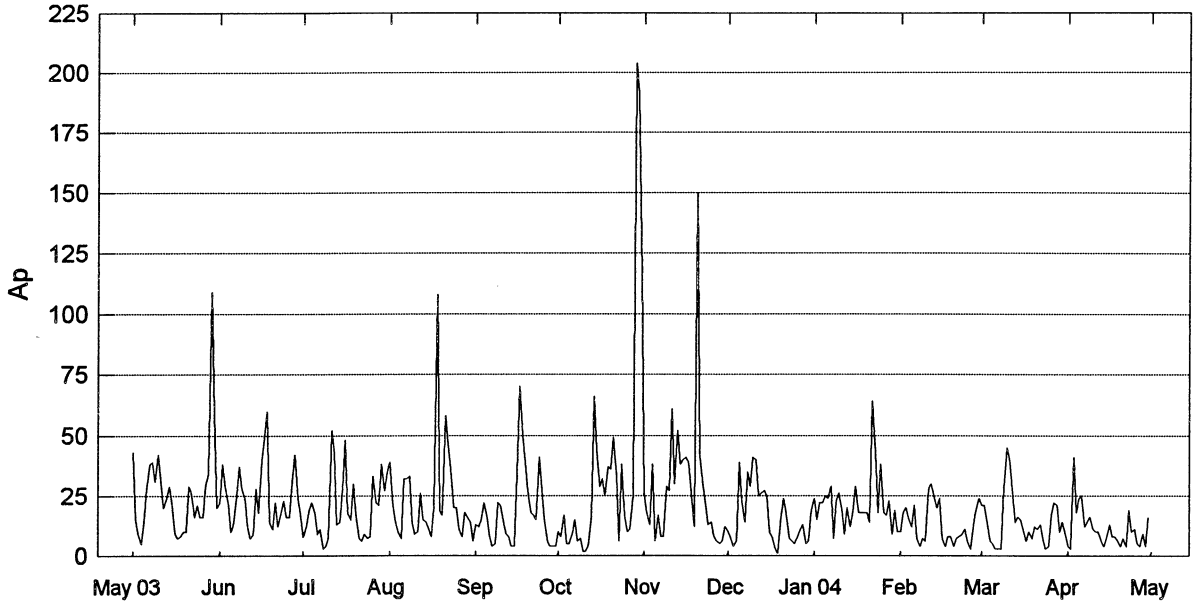
Geomagnetic Activity Indices

April 2004

Day		Kp Three-Hourly Indices 1	2	3	4	5	6	7	8	Sum	Ap	Cp	Km Three-Hourly Indices 1	2	3	4	5	6	7	8	aa Provisional Am	N	S	M	
1	Q2	0+	0+	1	1-	2-	1-	2-	1	7+	4	0.1	0o	0o	1o	1o	2-	0+	1+	1o	6	8	7	6	9 CK
2	Q1	2-	0+	0+	1-	0+	1-	1-	0+	5	3	0.1	1o	0+	1o	1o	0+	0+	0+	0o	4	6	5	6	4 CC
3	D1	2	3	3-	3-	5-	6-	6+	6	33	41	1.5	2o	2+	2+	3o	4o	5-	5+	5o	53	71	48	19	100
4		6+	2+	1+	1+	2-	2+	2-	2	19	18	1.0	5o	2o	1+	2-	2-	2o	2-	2+	23	26	18	28	16
5	D3	1	1-	0+	1	4-	4+	6+	4+	22-	24	1.2	1-	1-	1-	1o	3+	4o	5-	4+	33	38	39	5	72
6	D2	5	4	4+	5-	3+	2-	3+	3	29+	25	1.2	4o	4-	4-	4o	3+	2-	3+	3o	40	40	42	49	33
7		3	3+	3-	2	2-	2-	3+	3+	21	12	0.7	3-	3o	3-	2o	2-	2-	3+	4-	25	28	20	24	24
8		3	4-	3	4-	3	2+	2	2+	23	14	0.8	3-	3o	3o	4-	3o	2+	2+	2+	27	28	27	30	25
9	D4*	3+	5-	4+	3	2	2-	2+	2-	23	16	0.9	3-	4o	4o	3o	2-	2-	2+	2-	26	22	32	37	17
10		2+	3	3-	1	1	1	3+	4-	18	11	0.6	2o	3-	3-	2-	1o	1+	3o	4-	21	25	17	17	25
11		4-	2+	2	1+	1+	2	3	2+	18	10	0.6	3o	2-	3-	2-	1+	2o	3o	2+	18	24	13	19	18
12		3+	2+	3-	2-	1+	1+	4-	1+	18-	10	0.6	3o	2+	3+	2+	1o	1+	3+	1+	19	20	16	20	16
13	Q10	2+	2	1+	1+	2	1	2+	1+	14-	6	0.3	2+	2-	2-	2-	2-	1o	2o	1+	12	15	12	12	15 CK
14	Q7	2+	2	1-	0	1-	1-	0	2-	8	4	0.1	2+	2-	1-	0o	1o	1-	0+	2-	8	9	8	9	9 CC
15		1	1-	1-	2-	2-	1	2+	3+	12+	7	0.3	1o	1-	1o	2-	2-	1o	2o	4-	13	17	13	9	21
16		2	3+	4-	3-	2	3-	3	3-	22	13	0.8	2o	3o	3+	3o	2+	3-	3o	3-	27	28	27	28	27
17		2+	3-	1+	1+	1+	1+	3-	2	15	8	0.4	2+	2+	2-	2-	2-	2-	2o	2o	14	18	16	15	19
18		1+	2+	3-	1+	2+	2-	2+	2+	16+	8	0.4	1o	2o	3+	2-	3-	2+	2+	2+	18	17	24	15	26
19	Q9	3-	2-	2-	2-	1+	1+	1	1-	12	6	0.3	3-	2o	2-	2-	1+	1+	1o	1o	11	15	8	13	10 C
20	Q4	2-	1-	1+	1+	0+	0+	1-	2	8+	4	0.1	2-	1-	1o	1+	0+	0o	1-	2o	7	9	5	7	7 CC
21		1+	3	1+	1+	1+	2-	2+	1	13+	7	0.3	1o	3-	1+	1+	1+	2-	2o	1+	12	15	10	11	14 KC
22	Q3	0+	1	1+	1-	2-	1	2-	1	9-	4	0.1	0+	1o	1+	1o	2-	1-	2-	1+	8	9	6	6	9 C
23	D5*	2+	3-	4-	4	4	4-	3-	4-	27-	19	1.0	2-	3-	3+	4-	4o	3o	2+	3o	32	36	37	33	39
24		1+	2	2+	4+	2+	2+	2-	1+	18-	10	0.6	1+	2-	2o	4-	3-	2+	1+	1+	18	15	22	20	17
25		2-	3+	4-	3	2	2+	2-	2	20-	11	0.6	1+	3-	4-	3+	2+	2-	2-	2-	21	23	29	34	18
26	Q8	2	1	1+	0+	1-	2+	2+	1-	11-	5	0.2	2-	3-	4-	2o	1o	2+	2-	1o	17	14	7	7	15 KK
27	Q6	1	2-	1-	1-	1-	2-	2-	1+	9+	4	0.2	1o	2-	2o	3+	2+	2-	2-	1+	15	9	8	8	10 CC
28		1+	0+	1+	1-	1+	3+	4-	3	15	9	0.5	1+	0+	1+	1o	1+	3-	3+	3-	15	25	9	6	28 K
29	Q5	1	2	1	1-	0+	0+	1	2	8+	4	0.1	1o	2o	1o	1-	0+	0o	1-	2-	7	9	5	7	7 C
30		3-	3	2+	1-	1+	3-	4+	5-	22-	16	0.9	2o	3-	3-	1+	1+	2-	4o	4o	24	33	23	16	40
Mean											11	0.55									19.1	21.8	18.4	20.1	

Day	Kn Three-Hourly Indices 1	2	3	4	5	6	7	8	An	Ks Three-Hourly Indices 1	2	3	4	5	6	7	8	As	Sa	Prov Ri	Ra	Rs	IMF
1	0o	0o	1o	1-	2o	1o	2-	1+	7	0+	0+	1-	2-	2-	0o	1o	1-	5	112.6	55	53	60	
2	2-	0+	1o	1o	1-	1-	1-	0+	5	0+	1-	1-	1-	0o	0o	0+	0o	3	108.1	51	49	55	
3	2-	2+	2+	3-	4o	5+	5o	5o	52	2o	2+	3-	3o	4o	4+	6-	5o	54	107.4	47	46	54	
4	5o	2-	1+	2-	1+	2+	2-	3-	24	5o	2o	1o	1+	2-	2-	1+	2o	23	109.0	55	55	56	
5	1-	1-	1-	1+	3+	4o	5o	4+	34	1o	1o	1o	1o	3+	4-	5-	4+	32	108.9	57	53	56	
6	4o	3+	4-	4o	3+	2-	3o	3-	38	4+	4-	4o	4o	3+	2-	3+	4-	43	101.6	40	39	48	
7	2+	3o	3-	2o	2-	2o	3+	3o	22	3o	3-	3-	2o	1+	2-	4-	4o	26	98.4	39	34	44	
8	3-	3o	3-	4o	3o	2+	2+	2+	28	3-	3o	3+	4-	3-	2+	2o	2+	27	93.8	27	23	39	
9	3o	4o	4o	3o	2-	2o	3-	2-	28	3-	4-	4-	3-	2-	2-	2o	2-	24	90.3	15	17	36	
10	2o	3-	3-	1+	1+	1+	3o	4-	20	2+	3-	3-	2-	1o	1+	3o	4-	20	88.1	13	14	33	
11	3o	2o	2+	2-	1+	2+	3o	2o	18	3o	2-	3o	2-	1+	1+	3-	2+	18	90.0	13	15	35	
12	3-	2o	3o	2+	1+	1+	3+	2-	20	3o	2+	3+	2+	1o	1+	3o	1-	19	91.8	25	25	37	
13	2o	1+	2-	2-	2o	1o	2o	2-	12	3-	2-	2-	1+	2-	1-	2-	1o	11	93.6	35	32	39	
14	2-	1+	1-	0o	1+	1o	0+	2o	7	3-	2o	1-	0o	1o	1-	0o	1+	8	95.8	42	39	41	
15	1o	0+	1o	2o	2o	1o	2o	3+	13	1o	1o	1o	2-	2-	1o	2o	4-	13	97.4	34	33	43	
16	2o	3o	3+	3+	2+	3o	3o	3-	26	2+	3+	3+	3o	2o	3-	3o	3o	27	97.6	31	33	43	
17	2+	2+	2-	2-	2o	2-	2+	2+	16	2+	3-	2-	1+	2-	2-	2-	1+	13	99.0	50	48	45	
18	1o	2o	3o	2-	3-	2+	2+	2+	19	1o	2o	3+	2-	3-	2+	2o	2+	18	110.0	58	56	57	
19	2o	2-	2-	2-	2o	1+	1o	1o	11	3o	2+	2-	1+	1o	1o	1-	1o	12	114.5	63	59	62	
20	1o	0+	1-	1+	0+	0+	1o	2+	6	2+	1o	1o	1+	0o	0o	0+	2-	7	111.8	59	59	59	
21	1o	3-	1+	2-	1+	2o	2+	2-	13	1o	3o	1+	1+	1o	1+	2o	1+	12	113.9	59	58	61	
22	1-	1o	2-	1o	2o	1o	2o	2-	10	0+	1o	1+	1o	1+	0+	1o	1-	6	118.4	57	53	66	
23	2-	3-	3+	4o	4+	3o	3-	3+	35	2-	3-	3+	3+	4-	3o	2o	3o	29	116.6	43	36	64	
24	1+	2o	2o	4-	3o	2+	2o	2-	20	1o	1+	2o	4-	3-	2o	1o	1+	16	112.9	38	36	60	
25	1+	3-	3+	3+	2+	2o	2-	2o	21	2-	3-	4-	3+	2+	2-	1+	1+	21	108.4	31	33	55	
26	2-	1+	2-	1-	1o	3-	2o	1o	11	2-	3o	5-	3-	1o	2-	1+	1o	22	100.9	34	32	47	
27	1o	2-	1o	1-	1+	2-	2o	1+	10	1o	2-	2+	4+	3o	1+	2-	1+	21	96.4	26	28	42	
28	1+	0+	2-	1+	2o	3+	3+	3-	18	1o	0+	1+	0+	1-	2o	3o	3-	11	90.7	23	23	36	
29	1o	2o	1o	1o	1-	0o	1o	2o	8	1o	2-	1o	1-	0o	0o	0+	2-	5	89.8	24	22	35	
30	2o	3-	3-	1+	1+	2+	4o	4o	25	2o	2+	3-	1+	1o	1o	4-	4o	22	90.8	34	33	36	
Mean									19.2									18.9	101.9	39.3	37.9	48.1	

Daily Average Indices Ap
May 2003 - Apr 2004

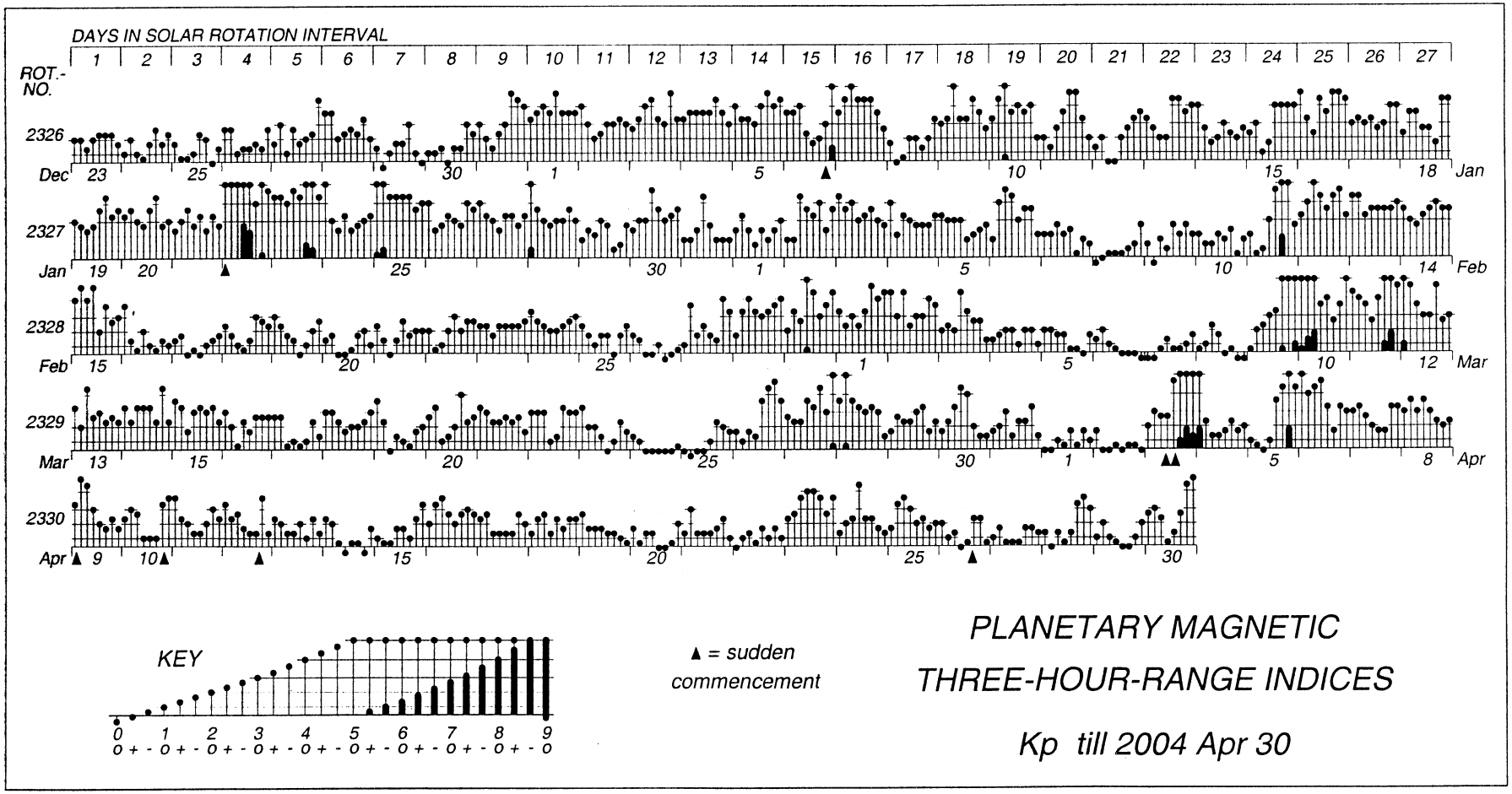


Day	May 03	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan 04	Feb	Mar	Apr
1	43	22	8	39	13	10	26	10	24	10	21	4
2	15	38	12	21	12	8	18	7	15	18	21	3
3	9	29	19	14	15	17	13	4	22	20	13	41
4	5	22	22	10	22	5	38	6	22	15	6	18
5	14	10	18	7	16	5	6	39	25	12	5	24
6	28	13	9	32	8	9	17	23	24	21	3	25
7	38	25	11	32	4	15	8	14	29	7	3	12
8	39	37	3	33	5	6	8	35	7	4	3	14
9	31	28	4	14	22	7	29	29	23	7	28	16
10	42	24	7	9	21	2	27	41	26	6	45	11
11	31	12	52	10	14	2	61	40	19	28	40	10
12	20	7	43	26	9	4	30	25	9	30	28	10
13	24	9	13	15	8	16	52	26	20	25	14	6
14	29	28	14	14	4	66	38	27	12	20	16	4
15	22	18	28	11	4	44	40	25	18	24	15	7
16	9	40	48	8	34	29	41	10	29	7	10	13
17	7	49	18	20	70	32	39	7	18	4	6	8
18	8	60	15	108	50	25	26	3	18	8	10	8
19	10	14	30	19	39	37	12	1	18	8	7	6
20	10	11	17	17	27	36	150	16	18	4	12	4
21	29	22	7	58	18	49	42	24	14	7	11	7
22	26	12	6	46	17	34	30	18	64	8	13	4
23	16	18	9	36	15	6	22	7	43	9	7	19
24	21	23	7	20	41	38	13	6	18	11	3	10
25	16	16	8	20	28	16	14	5	38	6	4	11
26	16	16	33	11	15	10	8	8	18	3	17	5
27	30	31	22	8	6	11	6	11	17	12	22	4
28	34	42	21	18	4	25	5	13	23	19	21	9
29	109	24	38	16	4	204	6	5	9	24	10	4
30	59	17	27	14	4	191	12	6	19		14	16
31	20		35	6		116		19	10		9	
Mean	26	24	19	23	18	35	28	16	22	13	14	11

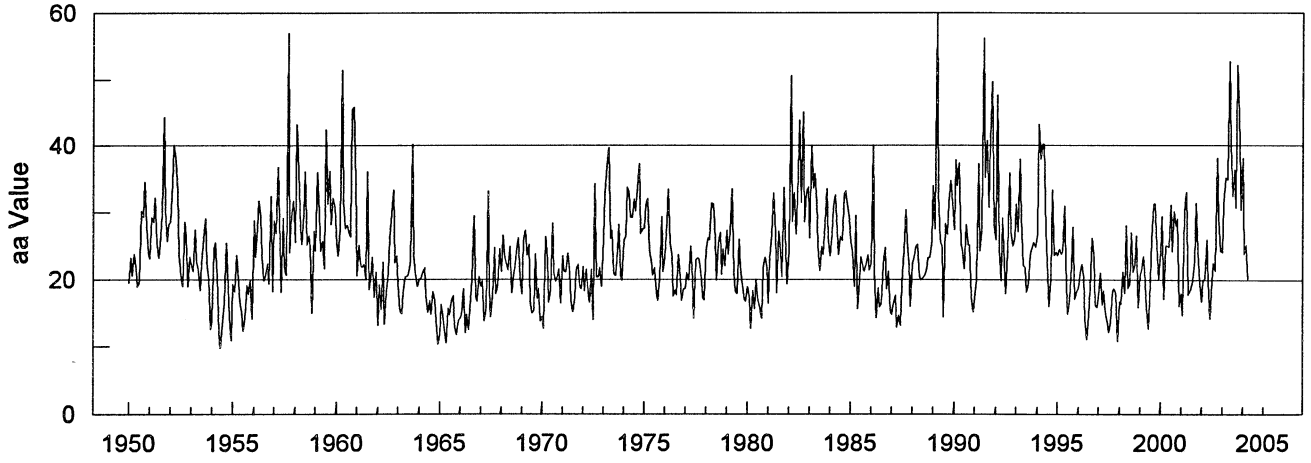
PLANETARY 3-HOUR-RANGE INDICES (Kp) BY 27-DAY SOLAR ROTATION INTERVAL

GeoForschungsZentraum Potsdam

Kp through April 30, 2004



Monthly Mean aa Index Jan 1950 - Apr 2004



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									26.8

PLANETARY GEOMAGNETIC ACTIVITY

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

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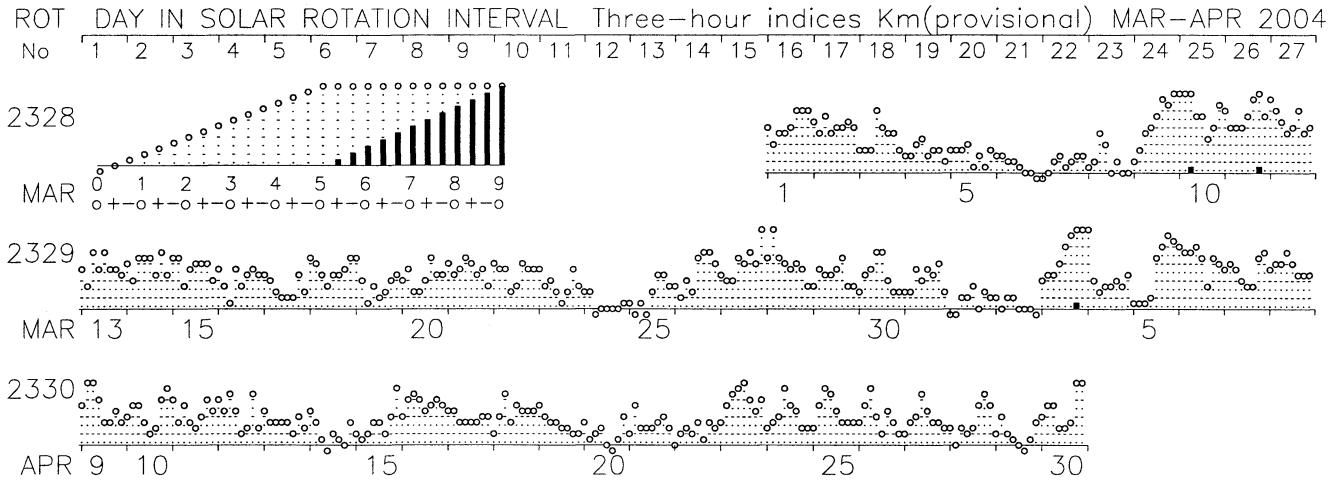
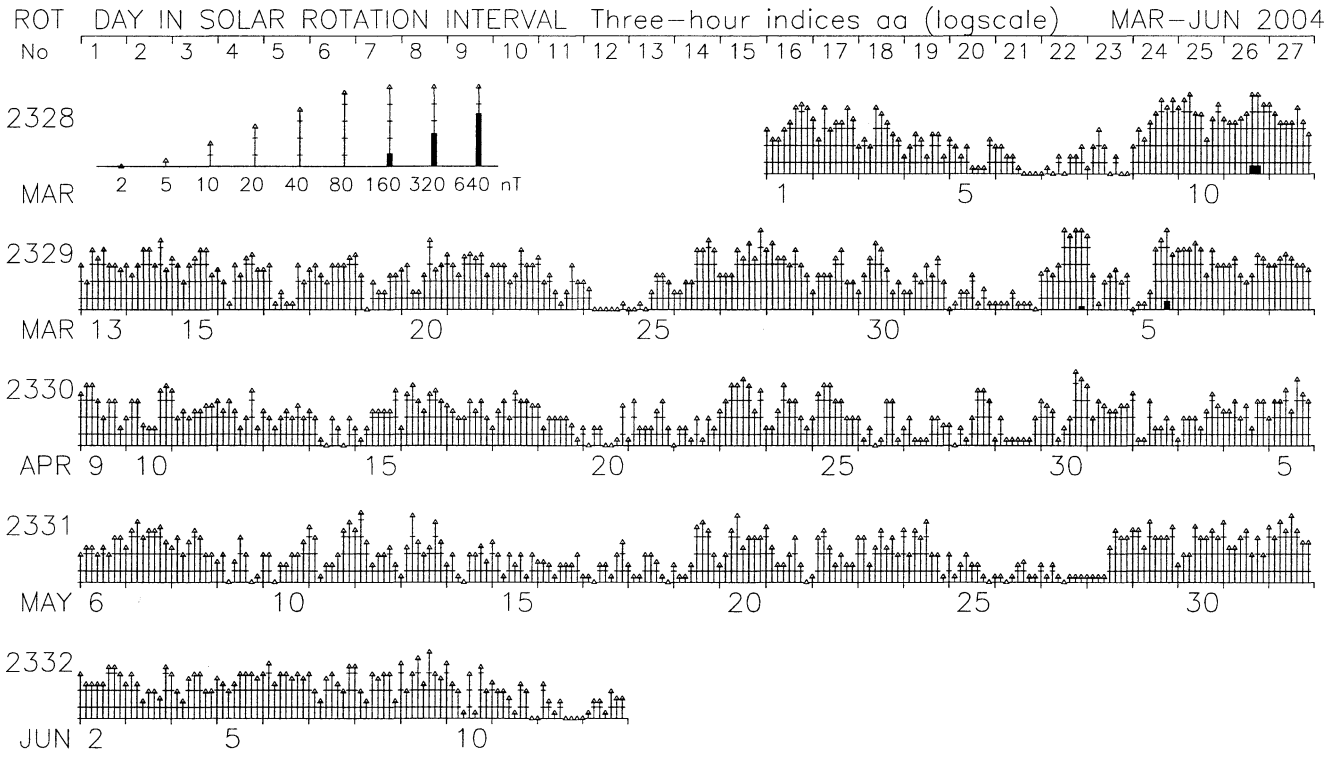


Indices Derivation at C.E.T.P.; Graph Prepared at ISGI Publication Office.



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

WDC FOR GEOMAGNETISM, KYOTO UNIVERSITY

HOURLY EQUATORIAL DST VALUES(PROVISIONAL)

APRIL 2004

UNIT=NT

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	U.T. 24
1	-11	-12	-12	-12	-12	-10	-9	-8	-7	-6	-7	-10	-10	-12	-10	-6	-3	-4	+6	-9	-8	-4	-3	-5
2	-5	-7	-5	-2	2	5	3	4	6	5	3	-1	1	3	2	-1	-2	-3	-1	2	2	2	2	2
3	2	1	-4	-10	-16	-20	-18	-18	-14	-10	-11	-10	-7	-13	1	-6	-29	-51	-76	-88	-74	-83	-84	-97
4	-112	-103	-81	-76	-75	-69	-68	-64	-58	-49	-46	-41	-29	-24	-23	-14	-16	-17	-15	-11	-11	-16	-18	-12
5	-14	-15	-14	-13	-11	-8	-5	-6	-2	-3	-8	-7	-4	-10	-24	-24	-17	-39	-64	-81	-74	-60	-55	-53
6	-57	-61	-47	-42	-45	-59	-65	-60	-53	-55	-59	-61	-55	-53	-47	-45	-45	-48	-47	-42	-38	-38	-35	-36
7	-36	-36	-35	-30	-31	-25	-22	-22	-22	-24	-29	-31	-29	-25	-23	-22	-23	-25	-25	-25	-21	-24	-27	-27
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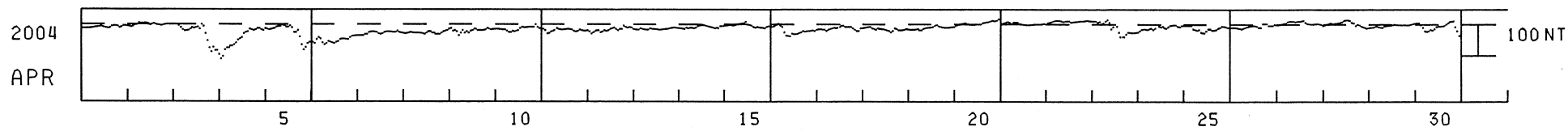
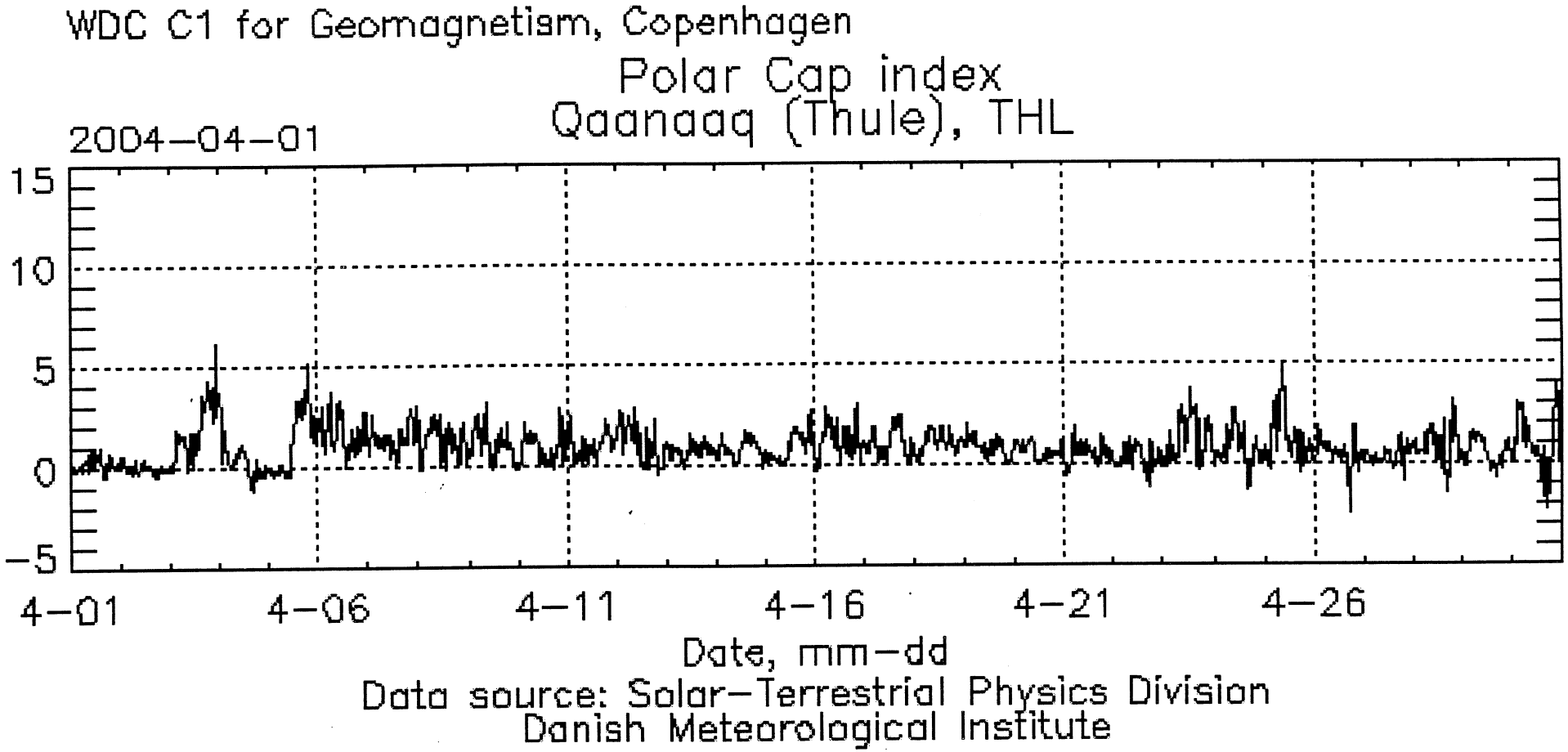
18	-9	-10	-7	-7	-11	-14	-15	-12	-13	-13	-14	-16	-17	-20	-25	-20	-11	-14	-18	-18	-18	-15	-14	-16
19	-16	-15	-15	-16	-14	-17	-17	-13	-12	-9	-10	-9	-7	-3	-2	-6	-8	-9	-9	-10	-9	-9	-8	-7
20	-4	-1	2	4	4	5	3	1	-2	-2	0	2	2	2	5	7	8	9	11	14	12	13	17	14
21	4	5	7	9	7	4	8	7	8	4	2	0	-1	-2	-2	-2	0	1	0	0	2	1	3	2
22	5	7	9	11	14	13	13	11	10	11	11	12	8	9	10	10	11	12	11	12	13	14	12	11
23	12	11	8	9	3	5	12	16	8	-14	-8	2	-5	-24	-39	-39	-39	-31	-25	-24	-26	-26	-25	-24
24	-20	-16	-13	-13	-16	-14	-12	-16	-11	2	-6	-7	-5	-10	-11	-7	-3	-1	-2	-2	-5	-8	-4	-4
25	-3	-4	-3	-3	-13	-15	-17	-16	-24	-27	-27	-19	-13	-14	-17	-17	-15	-11	-10	-6	-6	-8	-10	-10
26	-10	-9	-10	-11	-11	-13	-11	-9	-8	-6	-5	-4	-4	-6	-10	-9	3	4	4	-3	-4	-3	0	-1
27	-1	1	3	4	5	10	12	11	12	10	11	12	12	13	8	4	4	0	0	3	3	3	1	-3
28	-1	0	4	5	3	4	6	6	8	10	13	15	16	13	8	5	-3	0	-1	-5	-8	-10	-12	-10
29	-10	-9	-8	-6	-8	-10	-9	-6	-4	-4	-3	-1	2	1	-1	-2	-1	-1	-1	-2	-1	0	4	5
30	6	5	-2	-9	-19	-23	-20	-16	-17	-13	-8	-6	-5	-6	-3	2	5	9	11	12	-7	-21	-36	-29




WDC C1 for Geomagnetism, Copenhagen
Polar Cap index
Qaanaaq (Thule), THL
2004-04-01
15
10
5
0
-5
4-01
4-06
4-11
4-16
4-21
4-26
Date, mm-dd
Data source: Solar-Terrestrial Physics Division
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

APRIL 2004

Sta	Geomag Lat	Commencement Time Day	(UT)	Type	SC Amplitudes D (Min)	H (Gamma)	Z (Gamma)	Maximum 3-Hour K Index Day(3-Hour Periods)	K	Ranges D (Min)	H (Gamma)	Z (Gamma)	End Day	Hour (UT)
JAI	17.4N	03	0947	SC	- 0.3	7	- 3		-	7	144	22	04	09
KRC	16.4N	03	1412	..	..	..	..	03(6)	6	7	143	--	04	12
NGP	11.3N	03	0947	SC	--	8	- 2		-	4	156	16	04	09
ABG	09.4N	03	0947	SC	- 0.2	7	- 2	03(6)	6	5	159	23	04	09
HYB	07.6N	03	0946	SC	- 0.2	5	0	03(7)	6	7	191	12	06	24
PND	02.0N	03	0947	SC	- 0.1	9	10		-	3	154	47	04	09
TIR	00.6S	03	0947	SC	- 0.2	13	15		-	3	168	69	04	09
JAI	17.4N	05	1200	..	..	..	..		-	5	97	40	06	23
NGP	11.3N	05	1200	..	..	..	..		-	5	106	31	06	23
ABG	09.4N	05	1200	..	..	..	..	05(5,6) 06(4)	5	5	108	45	06	23
PND	02.0N	05	1200	..	..	..	..		-	4	128	55	06	23
TIR	00.6S	05	1200	..	..	..	..		-	4	198	59	06	23
CAN	43.6S	05	1200	..	..	..	..	05(6,7)	5	16	135	63	06	18
HYB	07.6N	09	0532	SC	- 0.2	16	- 2		-	--	--	--	--	--
HYB	07.6N	10	2009	SC	- 0.5	26	- 2		-	--	--	--	--	--
JAI	17.4N	23	0200	..	..	..	..		-	6	122	35	23	24
NGP	11.3N	23	0200	..	..	..	..		-	5	136	19	23	24
ABG	09.4N	23	0200	..	..	..	..	23(5)	6	4	133	24	23	24
HYB	07.6N	23	0100	..	..	..	..	23(5)	5	5	180	43	24	01
PND	02.0N	23	0200	..	..	..	..		-	3	143	66	23	24
TIR	00.6S	23	0200	..	..	..	..		-	4	199	72	23	24
HYB	07.6N	26	1604	SC	- 0.3	17	- 1	28(6,7)	3	5	84	30	28	24
HYB	07.6N	30	0600	..	..	..	..	30(8)	4	6	77	30	01	24

Stations:

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

Stations reporting no storms observed: GNA

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

April 2004

Storm Sudden Commencements (SSC)			Solar Flare Effects (sfe)		
Day	Time	Quality: Station Group*	Day	Begin-End	Station(s)
03	0946	B: ESK* VAL HAD*	01	1243-1307	NAG
		C: LER* NGK* BDV* GCK SPT* HYB	04	1457-1508	NGK+ GUI
			11	2024-2107	GUI
03	1410	A: COI GUI*	12	0508-0528	HYB
		B: LER* ESK* HAD* CLF* NAG* SPT	12	1817-1910	GUI
		C: NGK* BDV* EBR*			
09	0233	A: NAG* COI GUI			
		B: LER ESK HAD EBR			
		C: NGK* BDV* SPT			
10	2010	A: CLF* GUI*			
		B: BDV* EBR HYB GNA			
		C: LER* ESK* NGK* HAD* NAG*			
		SI: VAL			
24	0857	B: SOD*			
		SI: LER* ESK* HAD*			
26	1604	A: LER* ESK* HAD* CLF GUI			
		B: SPT* HYB			
		C: SOD* NGK* BDV* HRB			
		SI: VAL			

REPORTING OBSERVATORIES (up to the 7th of June 2004):
SOD NUR LER ESK NGK VAL HAD BDV CLF HRB NAG GCK EBR COI SPT HTY 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.