MAY 2004 NUMBER 717 - Part I

Solar-Geophysical Data prompt reports

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

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MAY 2004 NUMBER 717 - Part I

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Data for March and April 2004

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NATIONAL GEOPHYSICAL DATA CENTER
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SOLAR-GEOPHYSICAL DATA

Number 717

(Issued in Two Parts)

Editor: Helen E. Coffey

Chief: Herbert W. Kroehl
Solar-Terrestrial Physics Division

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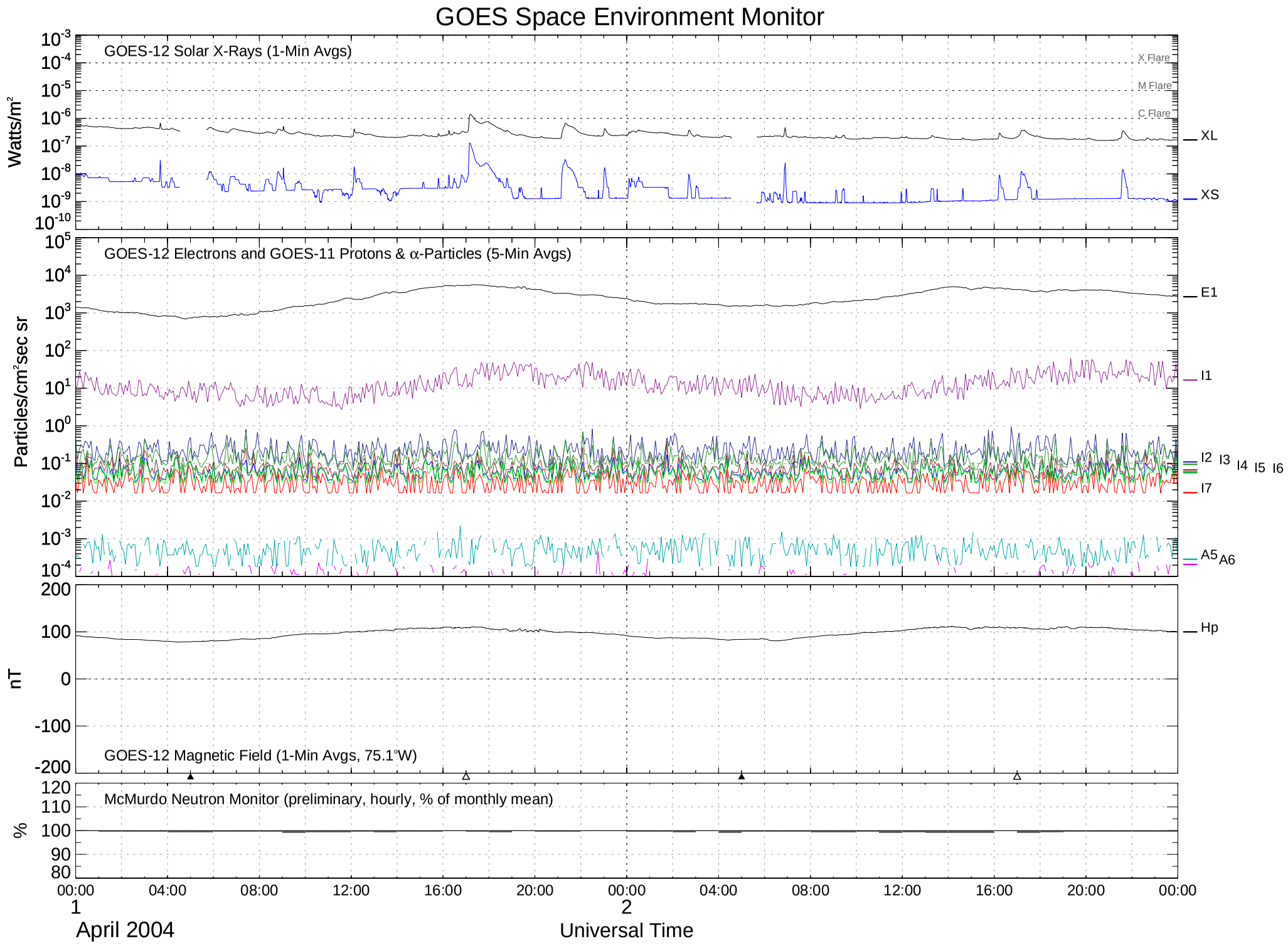
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I2 I3 I4 I5 I6
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A5 A6
Hp
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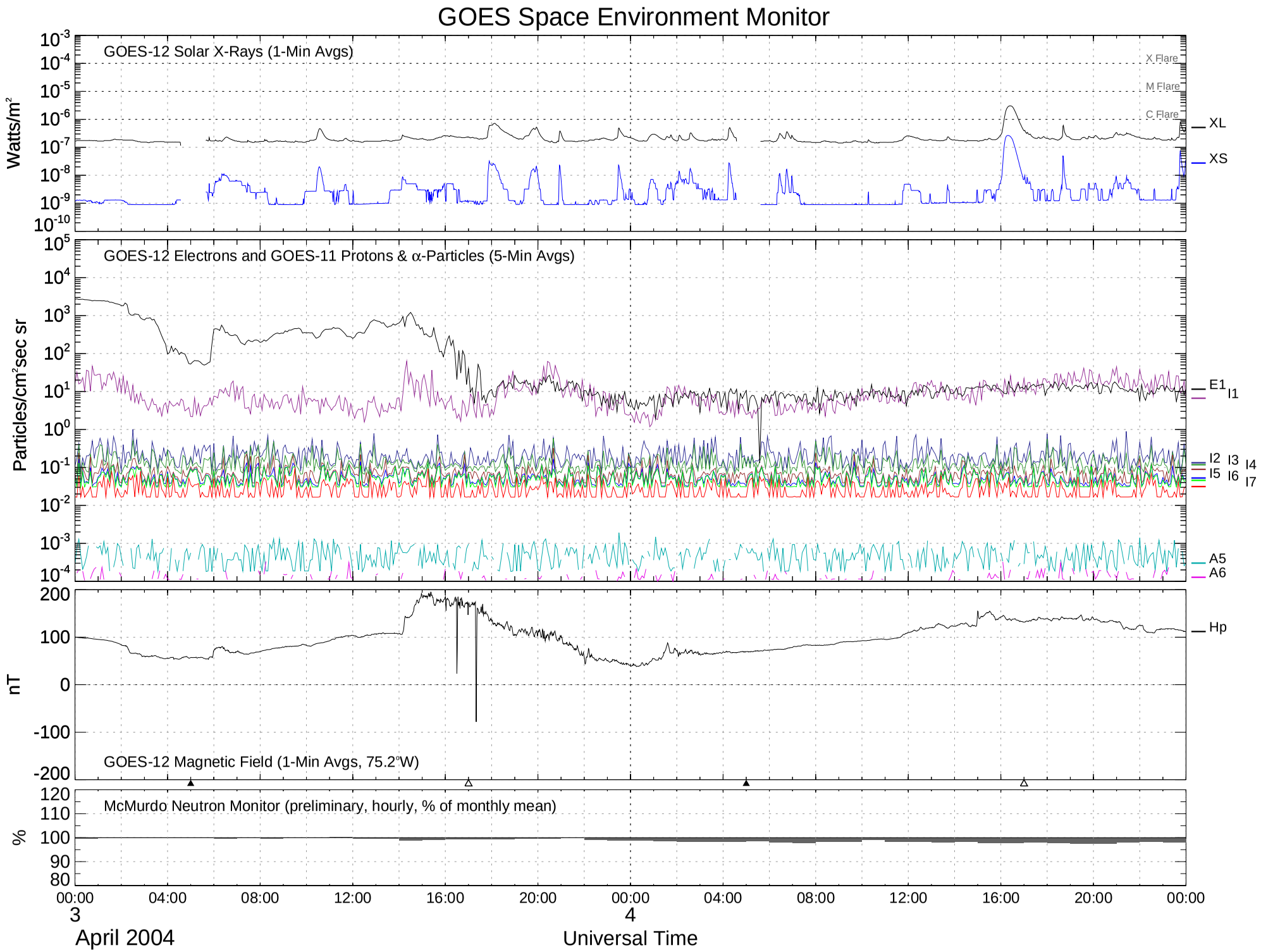
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Particles/cm²sec sr
E1
I1
I2
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I4
I5
I6
I7
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A6
Hp
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GOES-12 Magnetic Field (1-Min Avgs, 75.2°W)
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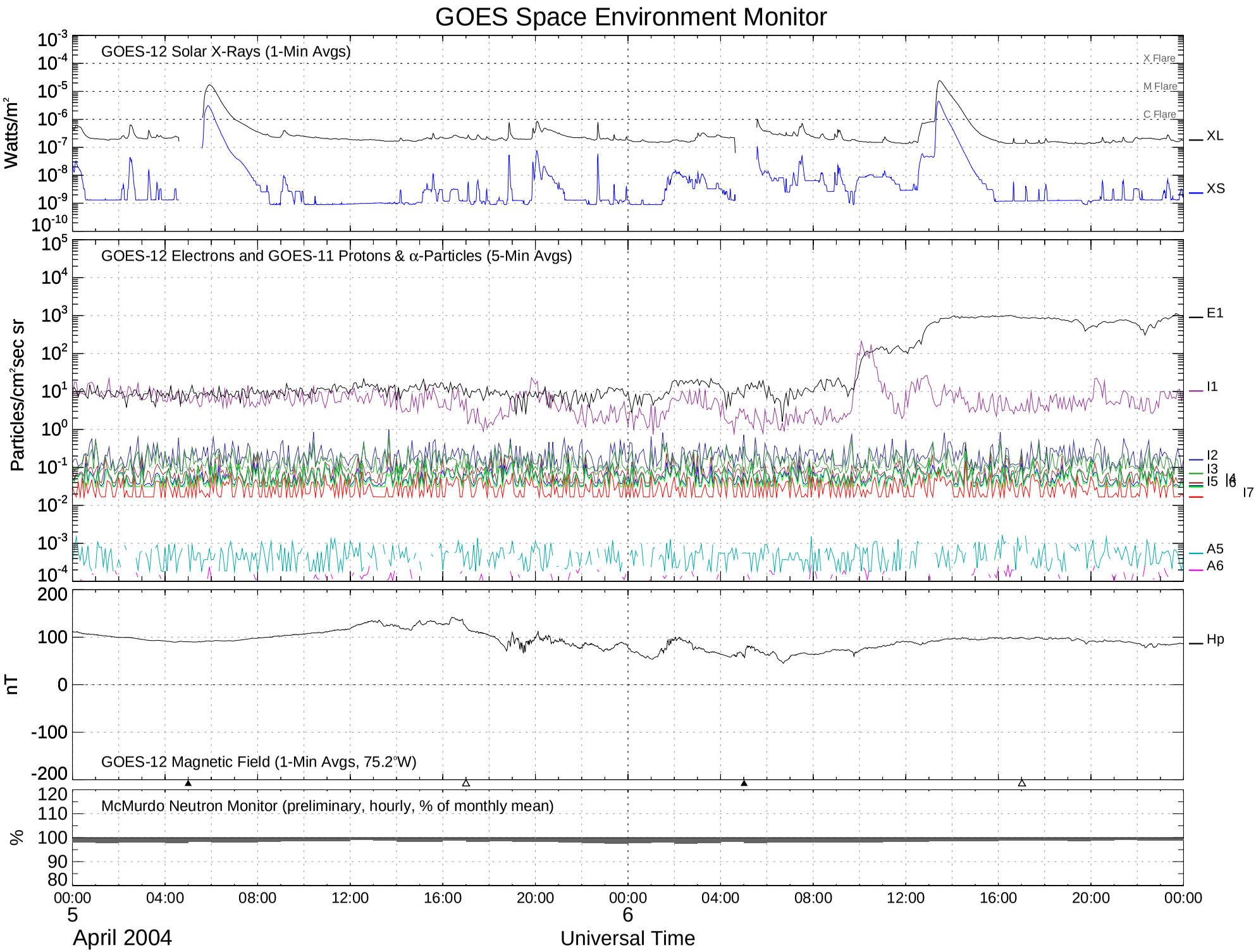
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M Flare
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Particles/cm²sec sr
E1
I1
I2
I3
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I5
I6
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A5
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Hp
nT
GOES-12 Magnetic Field (1-Min Avgs, 75.2°W)
McMurdo Neutron Monitor (preliminary, hourly, % of monthly mean)
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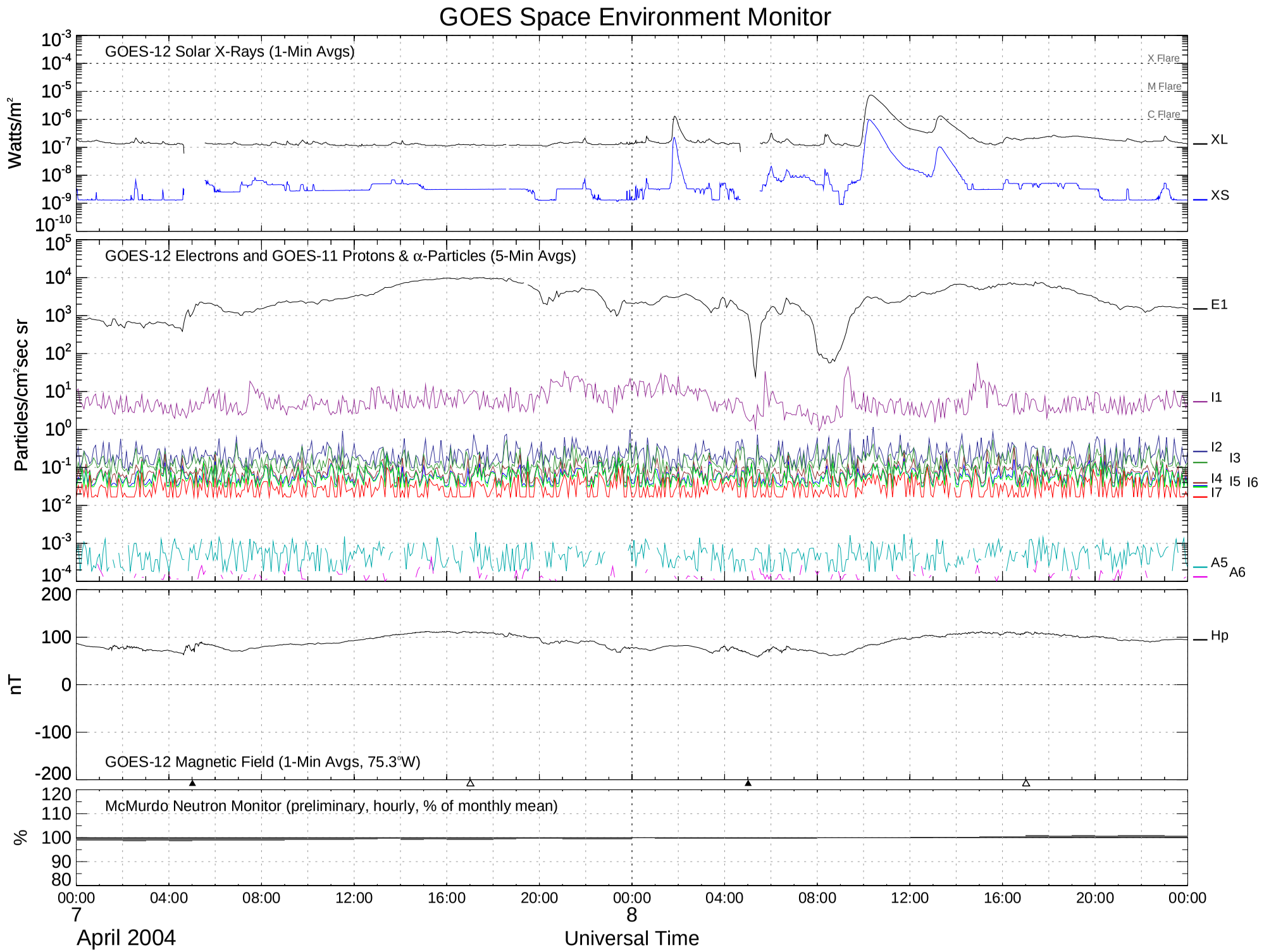
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Particles/cm²sec sr
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I2
I3
I4
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I7
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Hp
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McMurdo Neutron Monitor (preliminary, hourly, % of monthly mean)
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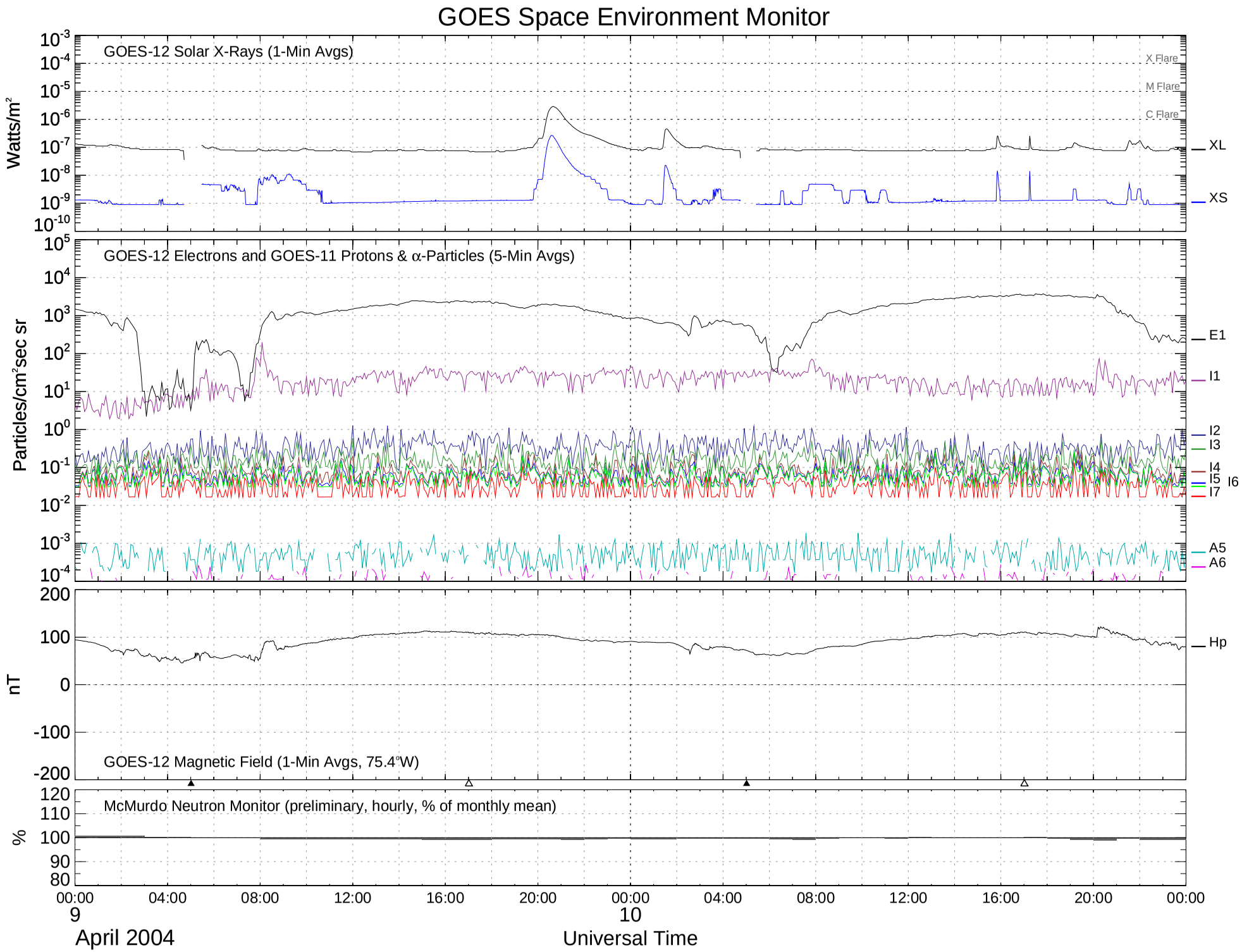
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X Flare
M Flare
C Flare
Watts/m²
XL
XS
GOES-12 Electrons and GOES-11 Protons & α-Particles (5-Min Avgs)
Particles/cm²sec sr
E1
I1
I2
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GOES-12 Magnetic Field (1-Min Avgs, 75.4°W)
McMurdo Neutron Monitor (preliminary, hourly, % of monthly mean)
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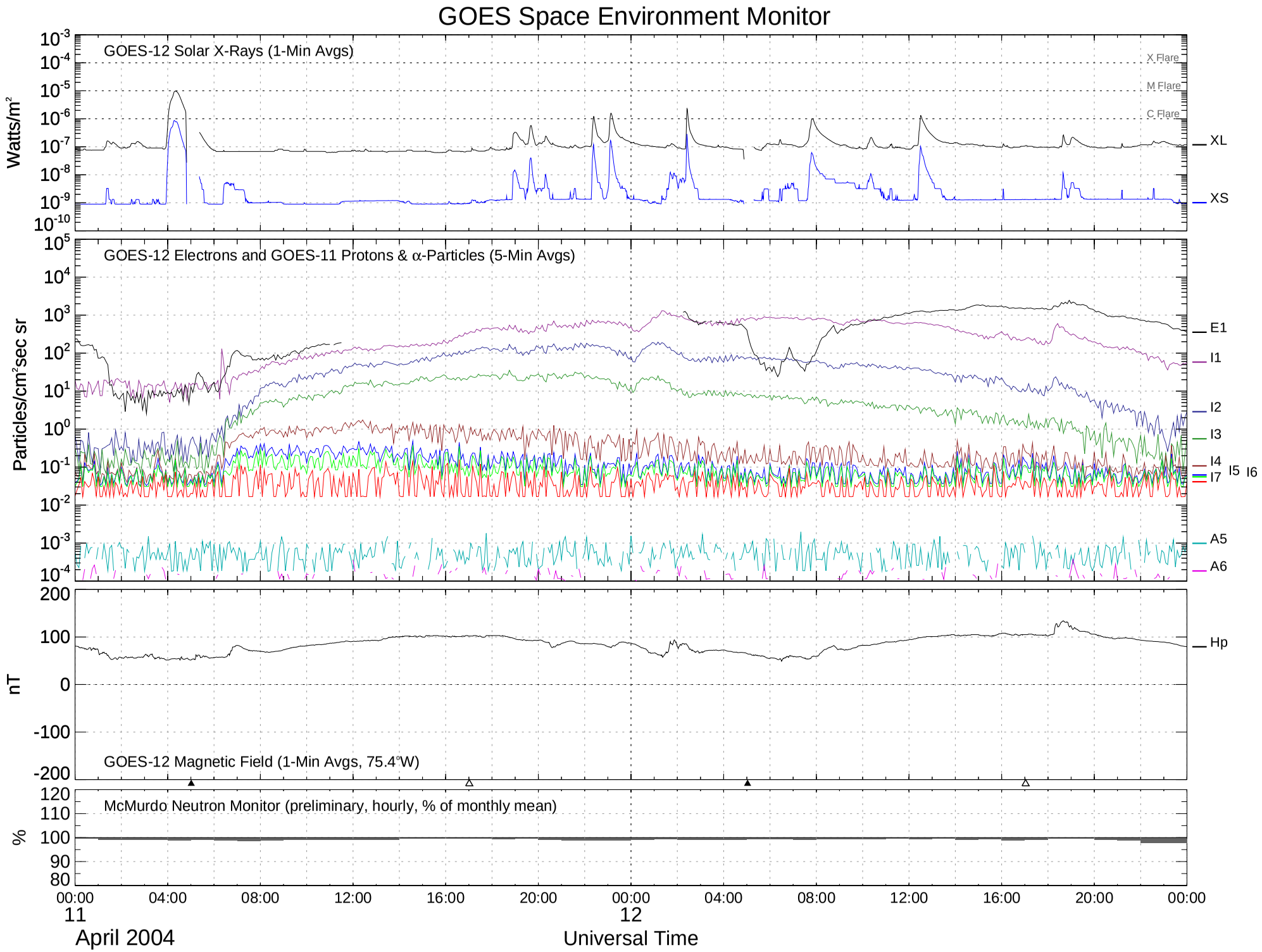
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M Flare
C Flare
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Particles/cm²sec sr
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I3
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I7
I5
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GOES-12 Magnetic Field (1-Min Avgs, 75.4°W)
McMurdo Neutron Monitor (preliminary, hourly, % of monthly mean)
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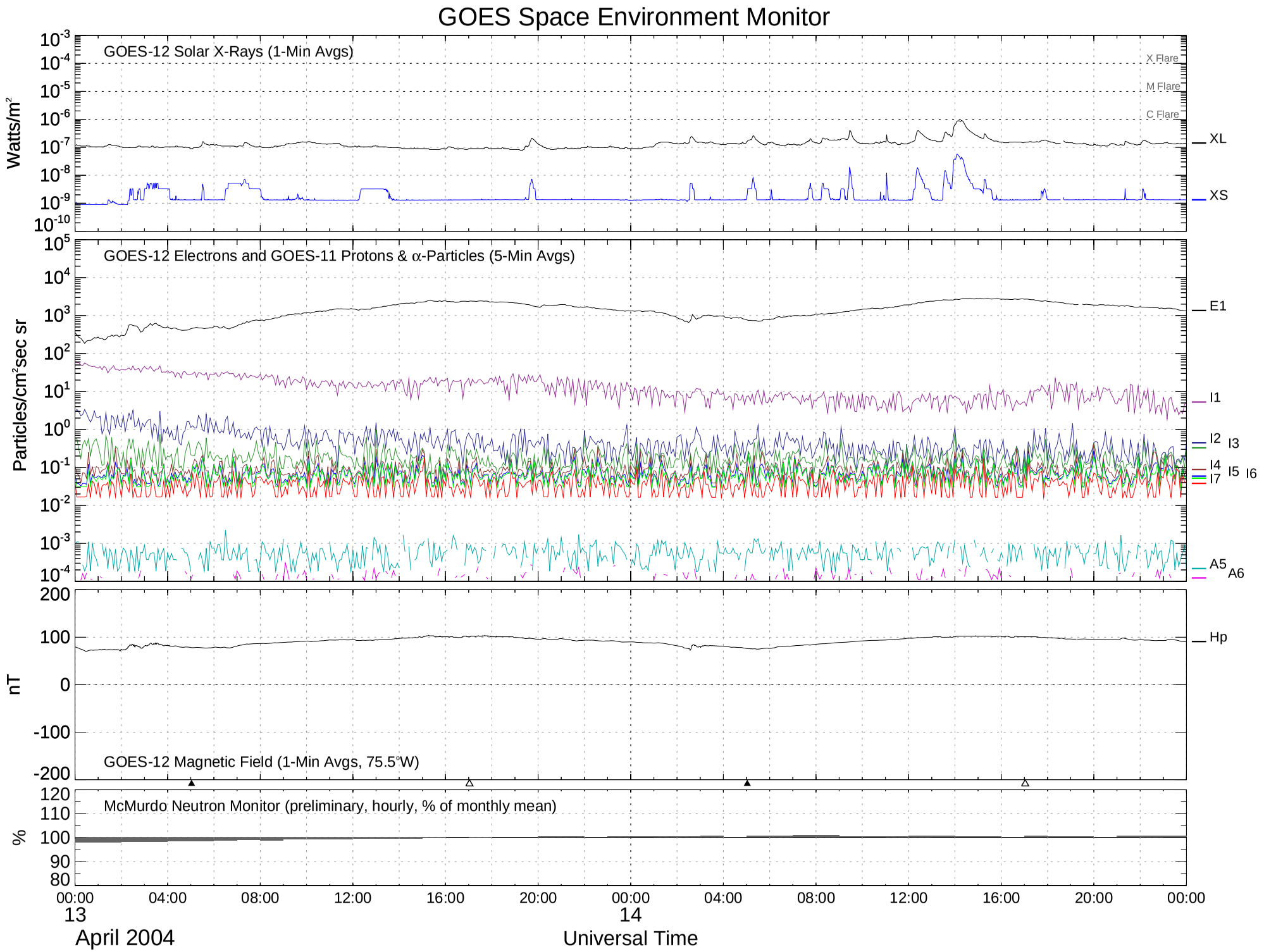
April 2004
Universal Time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I6
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A5
A6
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nT
GOES-12 Magnetic Field (1-Min Avgs, 75.5°W)
McMurdo Neutron Monitor (preliminary, hourly, % of monthly mean)
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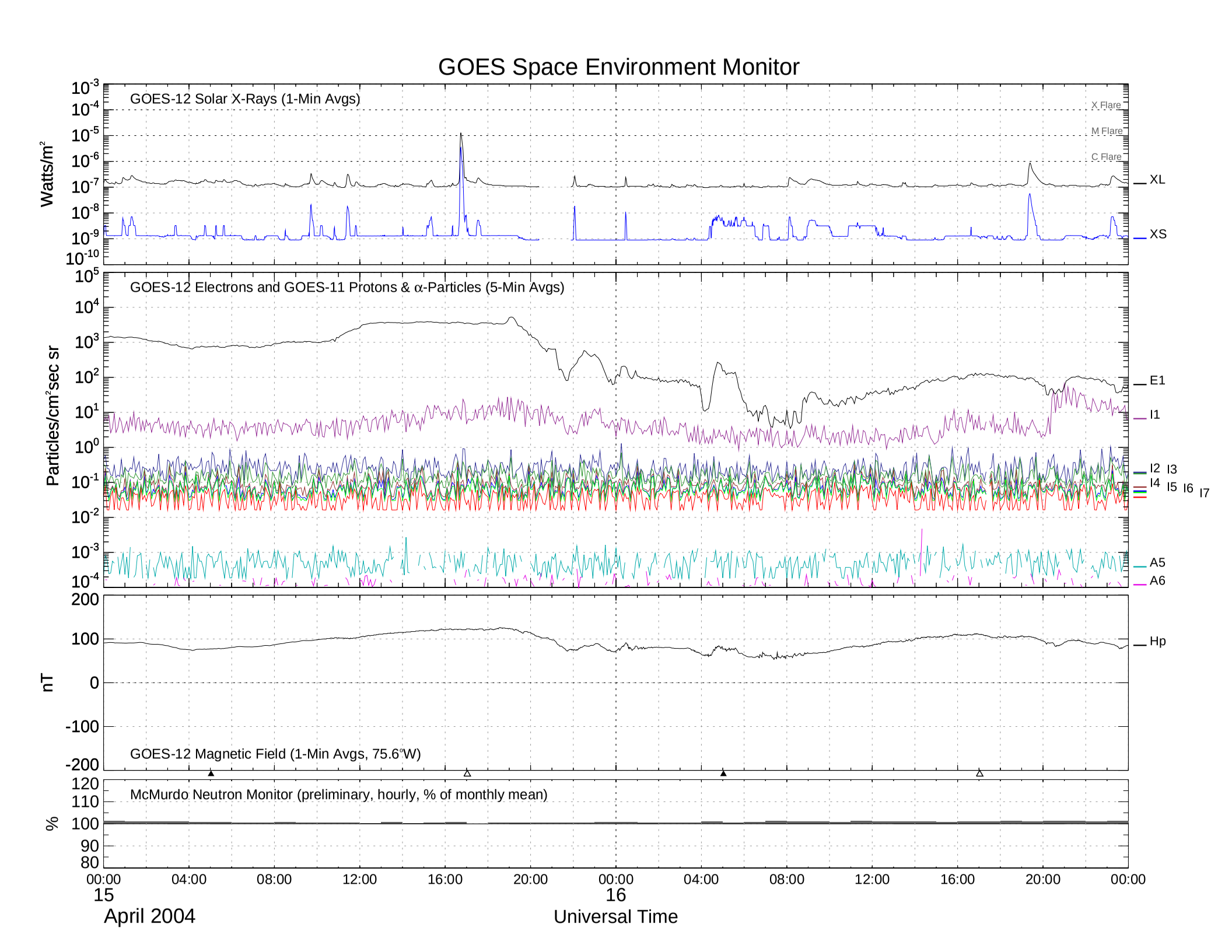
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E1
I1
I2 I3
I4 I5 I6 I7
A5
A6
Hp
nT
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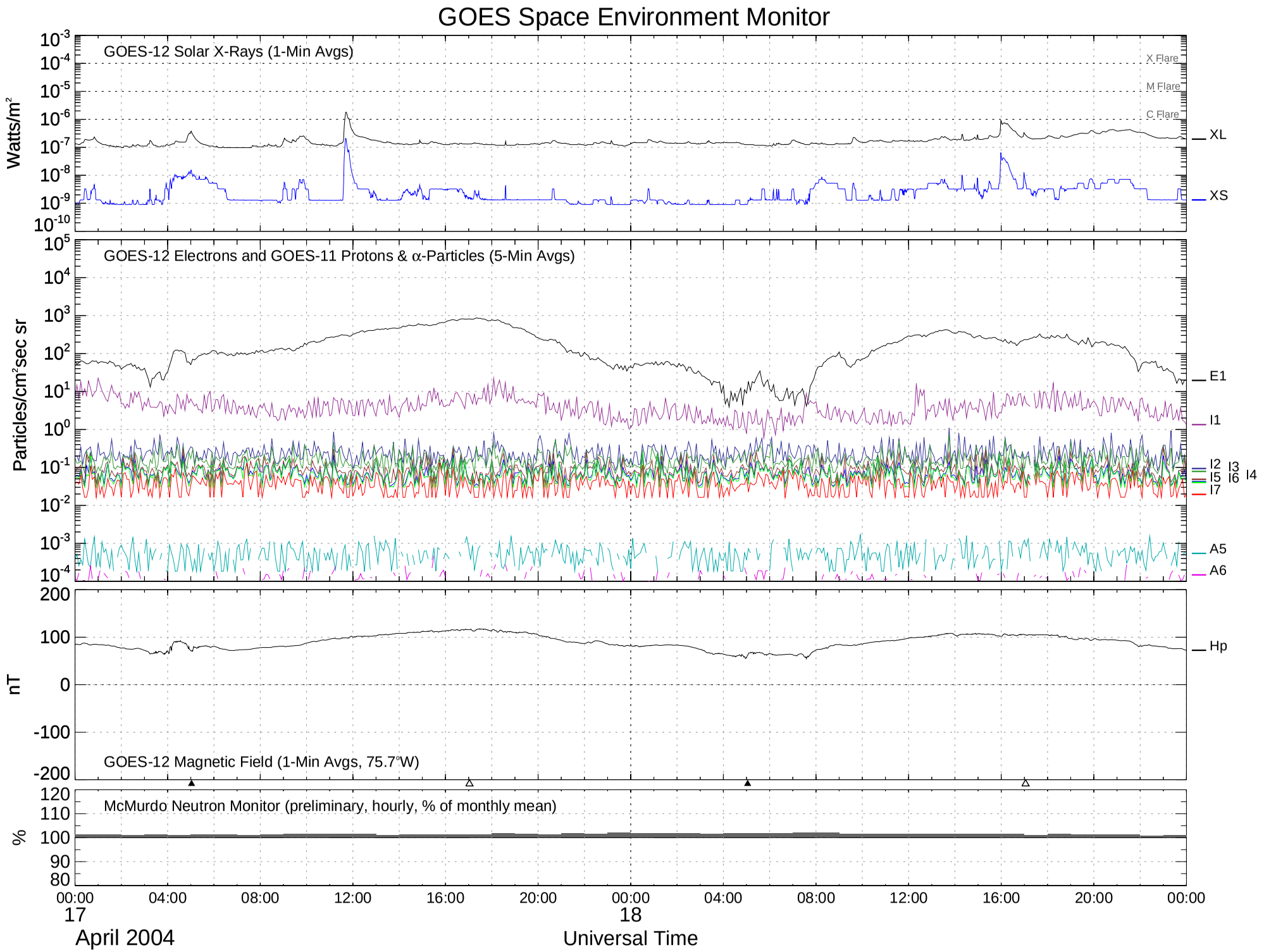
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Particles/cm²sec sr
E1
I1
I2 I3
I5 I6 I4
I7
A5
A6
Hp
nT
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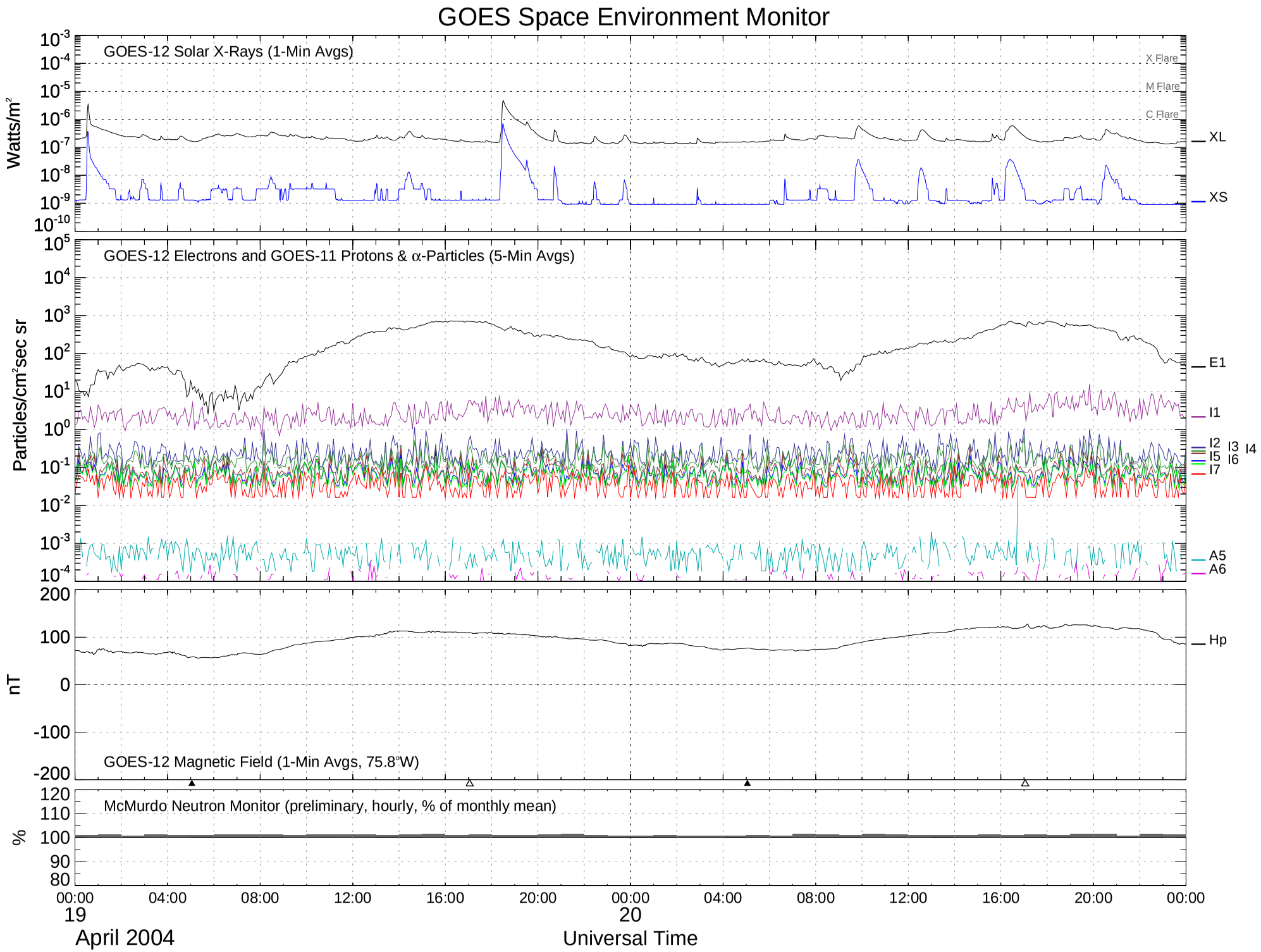
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Particles/cm²sec sr
E1
I1
I2 I3 I4
I5 I6
I7
A5
A6
Hp
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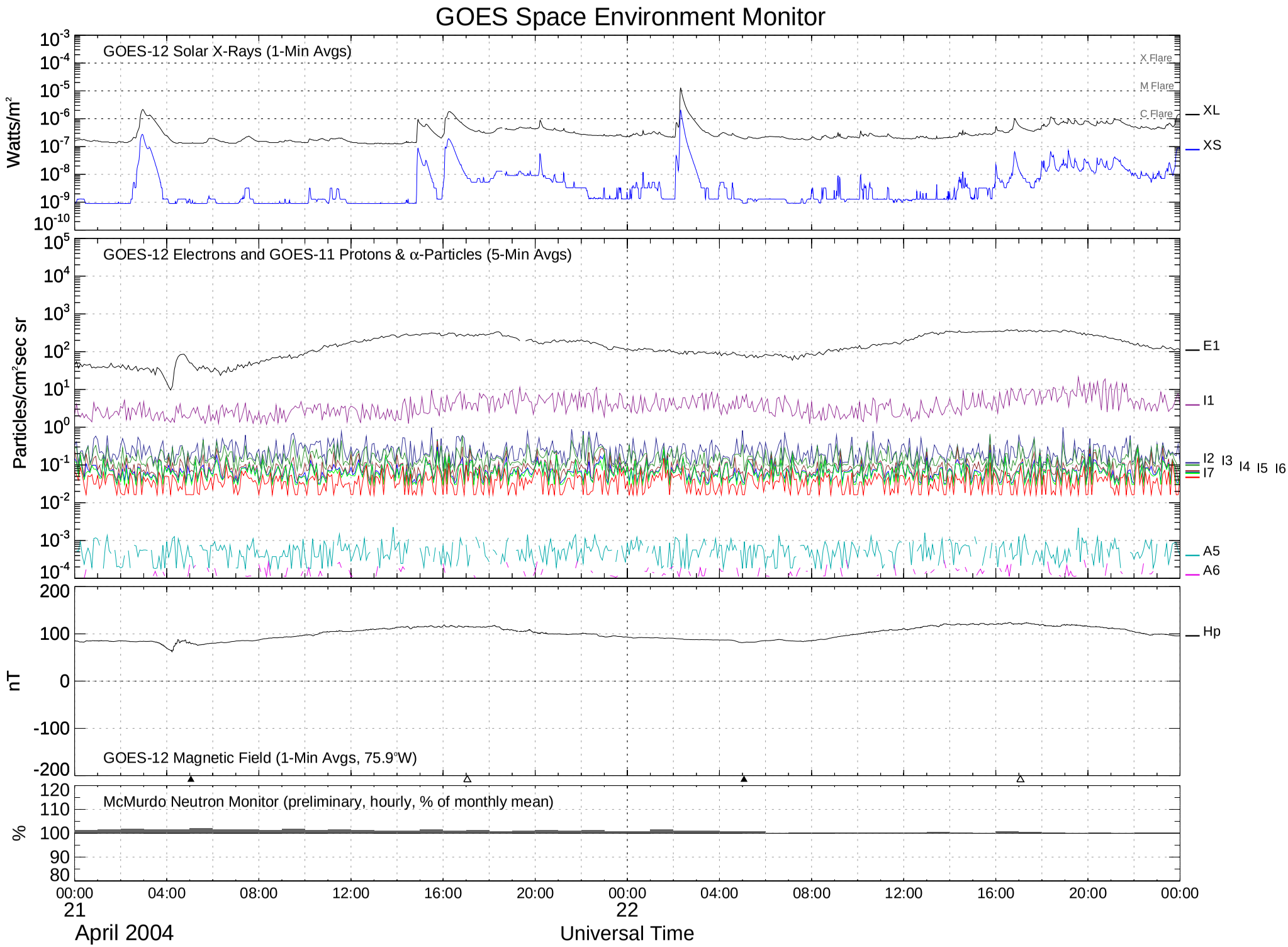
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Watts/m²
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E1
I1
I2
I3
I4
I5
I6
I7
A5
A6
Hp
nT
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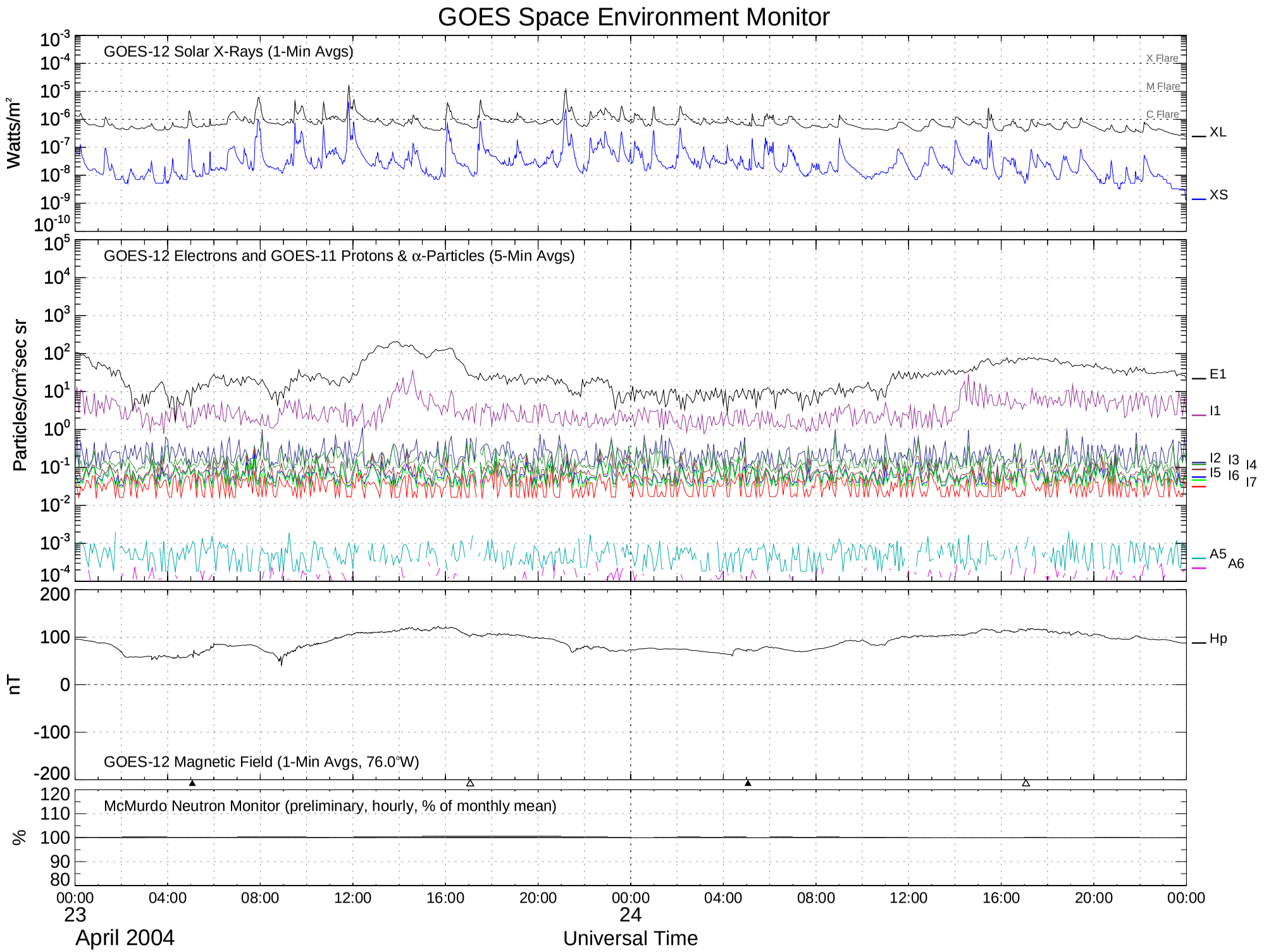
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C Flare
Watts/m²
XL
XS
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Particles/cm²sec sr
E1
I1
I2 I3 I4
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A5
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Hp
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McMurdo Neutron Monitor (preliminary, hourly, % of monthly mean)
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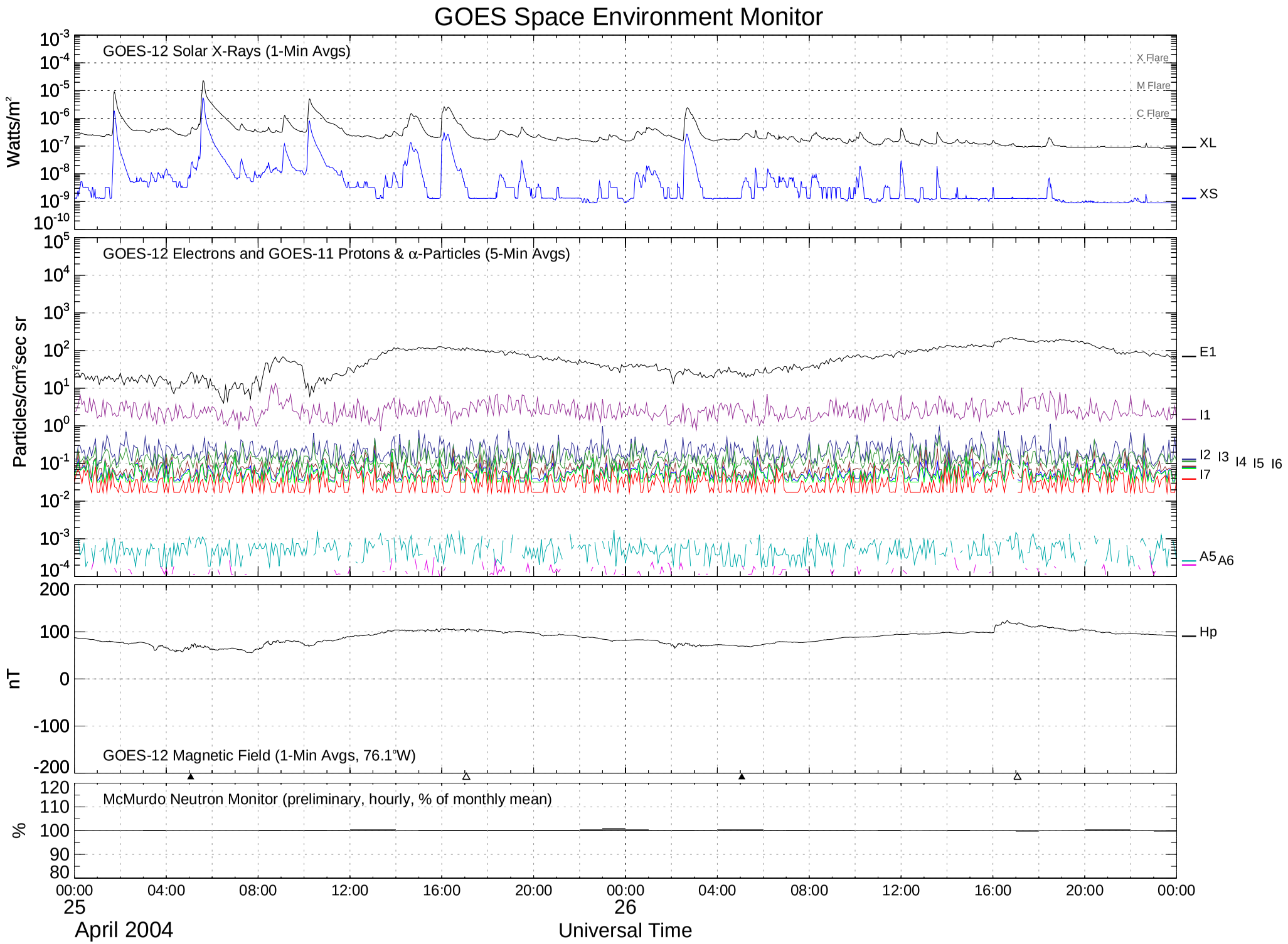
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GOES-12 Magnetic Field (1-Min Avgs, 76.1°W)
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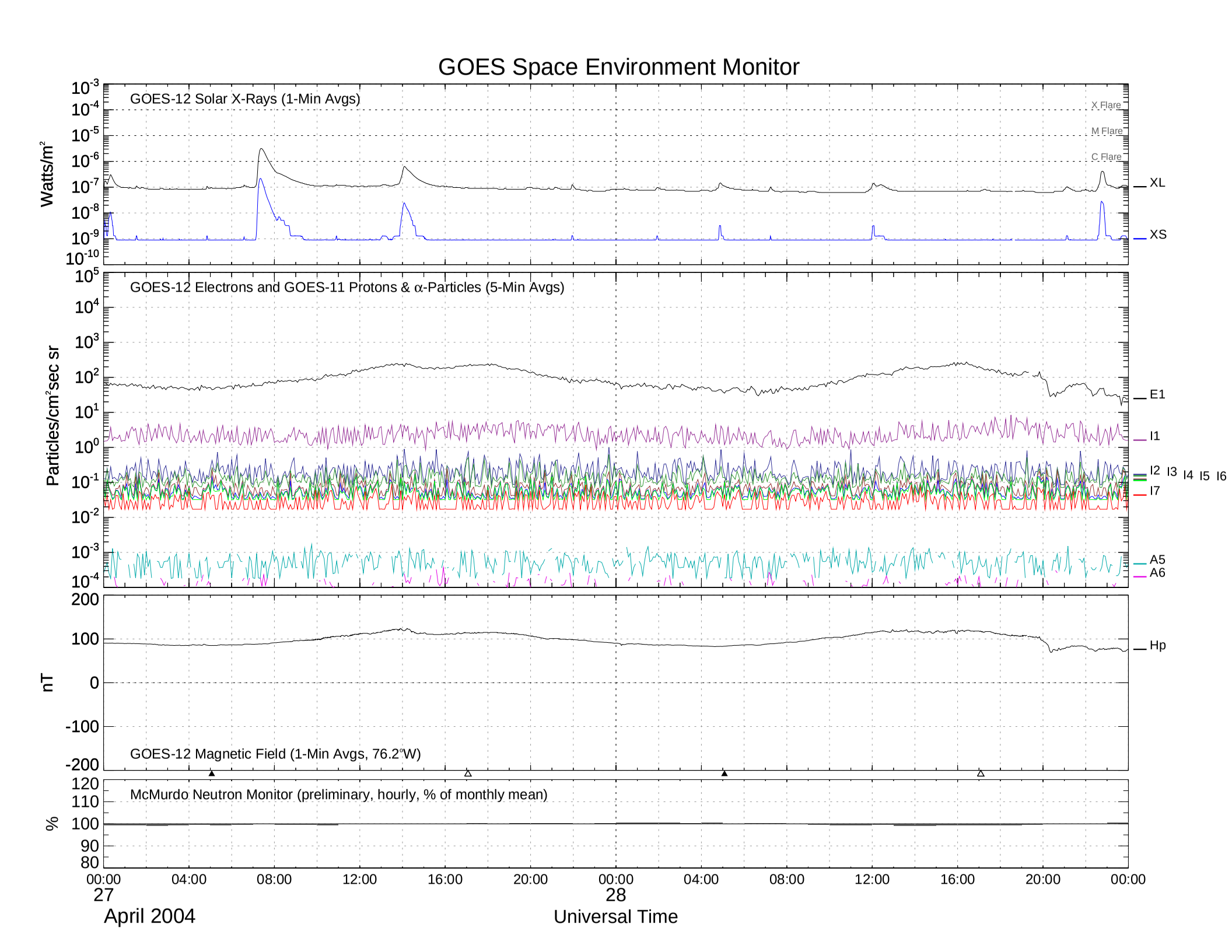
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Particles/cm²sec sr
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I1
I2 I3 I4 I5 I6
I7
A5
A6
Hp
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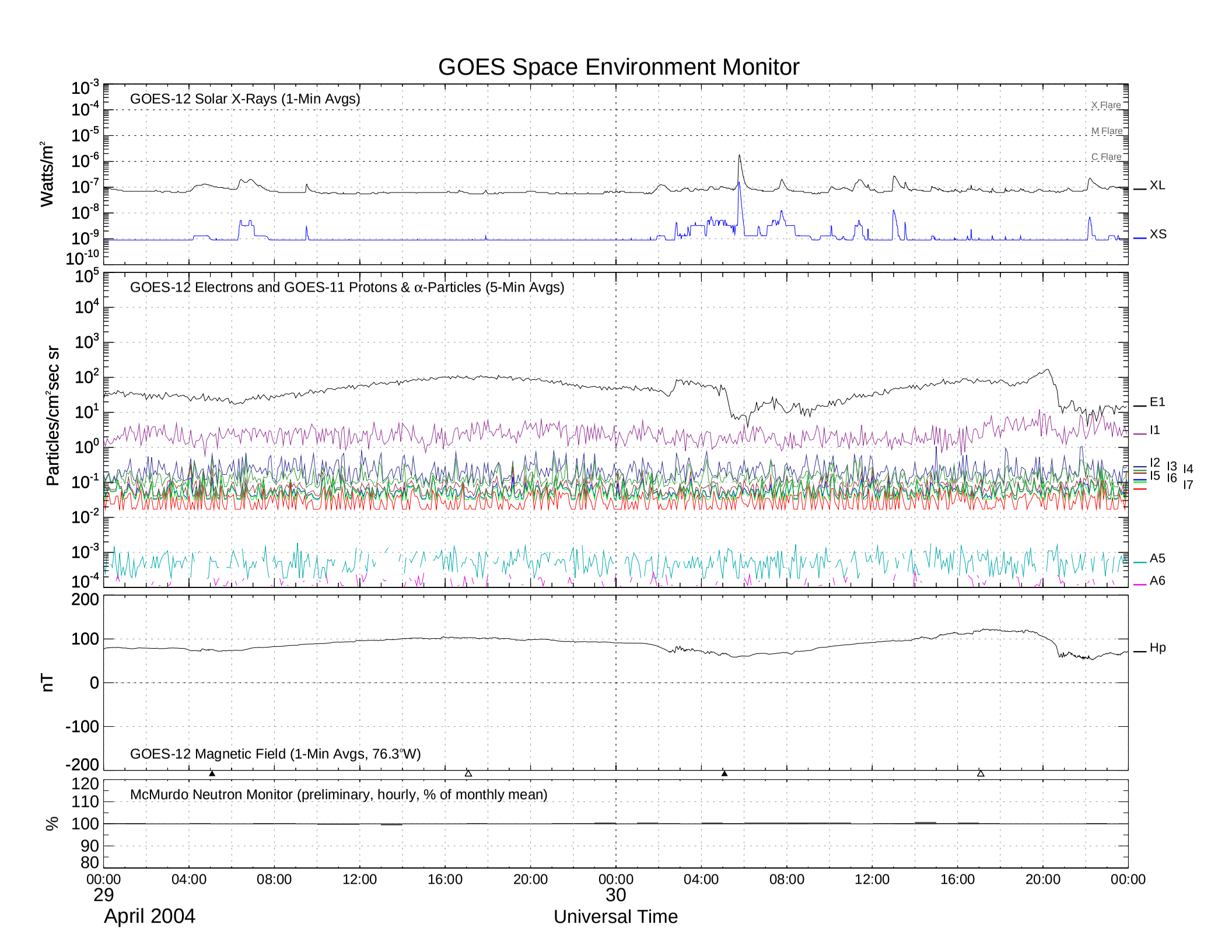
GOES-12 Magnetic Field (1-Min Avgs, 76.2°W)
McMurdo Neutron Monitor (preliminary, hourly, % of monthly mean)
%
00:00 04:00 08:00 12:00 16:00 20:00 00:00 04:00 08:00 12:00 16:00 20:00 00:00
27
April 2004
28
Universal Time


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
Hp
nT
GOES-12 Magnetic Field (1-Min Avgs, 76.3°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
April 2004
30
Universal Time

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

APRIL 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

APRIL 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

APRIL 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

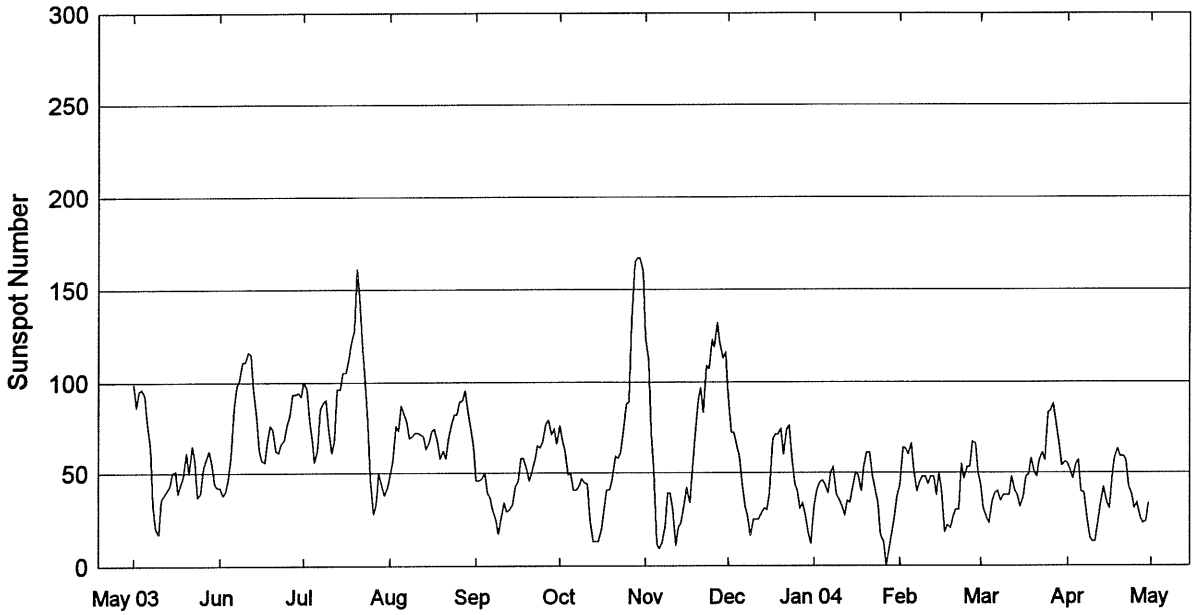
'Quiet'		
'Active'	conditions expected	(A>=20 or K=4)
'Minor'	storm expected	(A>=30 or K=5)
'Major'	storm expected	(A>=50 or K>=6)
'Severe'	storm expected	(A>=100 or K>=7)
'IP'	magstorm in progress	(A>=30 or K>=4)
'Warning'	(activity levels are expected to increase, but no numerical forecast given)	
'/'	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
May 2003- Apr 2004

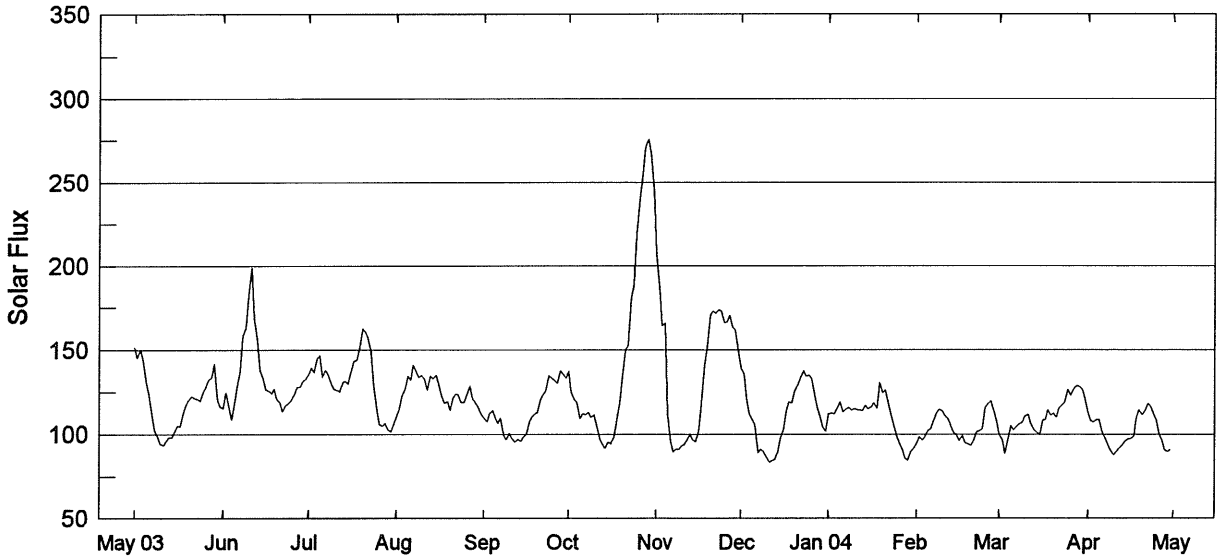


Day	May 03	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan 04*	Feb*	Mar*	Apr*
1	99	42	100	49	46	76	124	92	32	43	44	55
2	86	38	97	56	46	68	112	72	40	64	31	51
3	95	40	80	76	47	62	72	72	45	63	26	47
4	96	47	67	73	50	49	52	66	46	60	23	55
5	93	59	56	87	39	50	12	59	44	66	35	57
6	78	86	63	83	37	41	9	45	39	51	39	40
7	65	98	85	78	30	41	12	32	50	40	40	39
8	33	101	89	69	25	43	21	26	53	45	35	27
9	20	111	90	70	17	47	39	16	38	48	38	15
10	17	111	74	72	25	45	39	25	36	48	38	13
11	36	116	61	72	34	44	30	25	32	44	38	13
12	38	115	68	71	29	25	11	25	27	48	48	25
13	41	96	96	70	30	13	21	28	35	48	40	35
14	43	81	96	63	33	13	23	31	34	38	38	42
15	50	63	105	67	42	13	33	30	43	50	32	34
16	51	57	105	73	46	19	42	39	50	41	37	31
17	39	56	112	74	58	30	34	68	49	18	48	50
18	44	68	121	67	58	41	52	71	40	22	49	58
19	48	76	128	58	52	41	70	71	54	20	58	63
20	61	74	161	62	46	47	90	74	61	26	50	59
21	50	62	146	58	50	59	97	60	61	30	48	59
22	65	61	123	69	57	58	83	74	49	30	57	57
23	57	66	100	76	65	61	109	76	42	55	61	43
24	37	68	78	82	64	75	107	59	34	47	57	38
25	39	76	47	82	67	88	123	44	16	53	83	31
26	52	82	28	89	77	89	119	40	13	53	84	34
27	57	93	33	90	79	133	132	31	0	67	88	26
28	62	93	50	95	71	165	121	34	8	66	76	23
29	56	94	43	85	74	167	113	26	16	50	66	24
30	44	92	38	74	66	167	116	17	27		54	34
31	42		42	65		160		12	38		56	
Mean	54.6	77.4	83.3	72.7	48.7	65.5	67.3	46.5	37.2	46.0	48.9	39.3

* = Provisional.

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

Adjusted to 1 AU



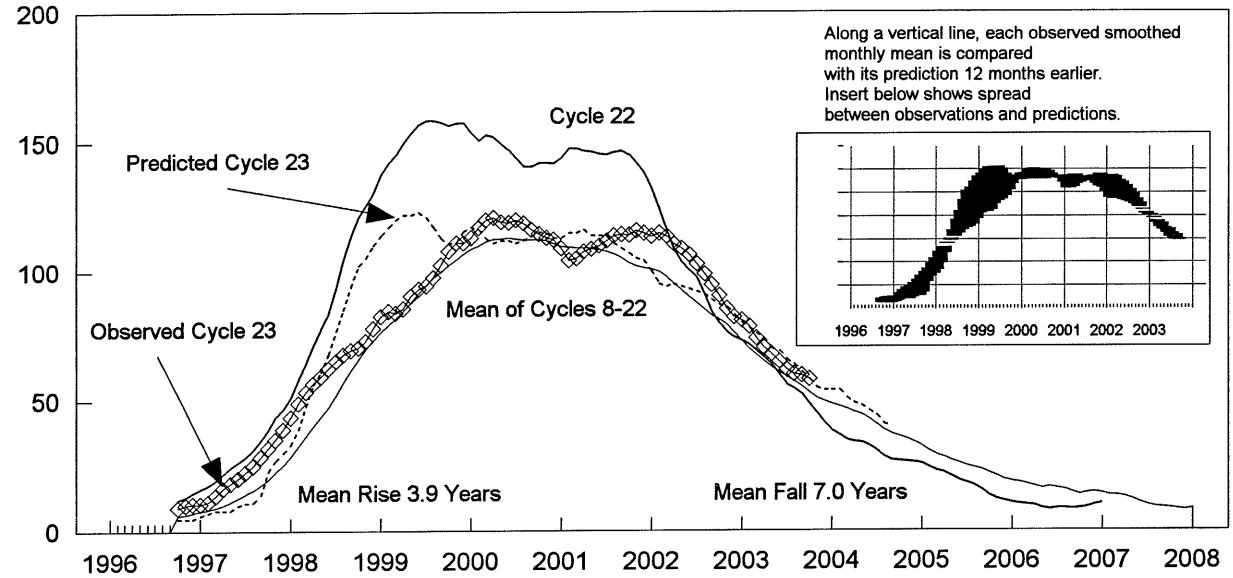
Day	May 03	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan 04	Feb	Mar	Apr
1	151.0	115.5	135.6	110.6	110.1	137.1	207.2	139.3	112.2	94.5	100.0	112.6
2	145.3#	124.8	139.3	114.7	107.6	125.0	187.4	135.4	112.6	98.5	97.1	108.1
3	150.1	117.8	136.7	123.6	112.4	120.3	164.2	120.3	112.3	96.6	88.9	107.4
4	144.4	108.7	144.8	126.0	114.1	119.0	165.6#	112.5	115.5	98.6	95.9	109.0
5	131.1	117.0	146.7	134.4	109.8	109.6	112.1	108.5	119.0	102.5	105.0	108.9
6	124.1	129.4	134.0	132.4	106.6	112.0	96.1	105.7	113.4	103.7	102.9	101.6
7	112.2	137.2	137.8	140.9	109.4	111.8	89.4	89.3	114.9	108.1	104.6	98.4
8	102.8	158.0	135.7	136.6	100.3	113.1	91.0	90.9	116.1	113.1	106.3	93.8
9	98.9	163.1	130.2	133.6	97.3	110.5	91.2	89.4	114.4	114.7	107.2	90.3
10	94.5	182.0	126.9	134.7	100.6	111.4	92.8	86.5	115.3	113.5	111.1	88.1
11	93.4	198.9	126.1	132.7	98.0	105.4	93.7	83.4	114.6	111.2	111.7	90.0
12	95.8	168.6	125.5	126.6	95.6	97.4	96.7	84.5	114.4	109.3	106.2	91.8
13	98.1	155.8	130.7	134.3	97.3	94.0	100.0	85.0	114.1	105.1	102.6	93.6
14	98.3	137.7	131.4	133.1	95.8	91.9	96.8	89.5	117.1	101.1	101.3	95.8
15	101.4	132.8	129.9	134.7	98.4	95.3	95.6	97.7	115.2	99.6	100.3	97.4
16	104.9	126.5	137.5	130.1	100.4	94.6	102.0	103.0	116.4	96.3	108.5	97.6
17	104.7	125.8	143.2	122.3	107.0	98.1	118.2	113.8	118.6	99.5	108.8	99.0
18	111.5	124.3	144.3	118.7	110.2	107.8	141.0	119.1	115.6	95.4	114.4	110.0
19	117.4	126.8	150.8	119.5	112.1	119.4	151.5	118.6	130.3	94.2	111.3	114.5
20	120.0	120.8	162.4	114.5	112.9	133.9	171.0	125.9	124.8	93.2	112.7	111.8
21	122.2	118.8	160.7	122.0	120.9	150.2	172.8	129.1	126.0	96.0	110.4	113.9
22	121.3	113.9	157.4	123.7	123.5	152.0#	171.9	133.2	117.9	101.7	115.6	118.4
23	120.9	117.2	148.7	122.9	125.7	181.3#	173.8	137.4	111.6	102.1	117.6	116.6
24	119.8	118.3	129.2	119.0	134.3	188.5	172.8	134.4	104.1	103.4	119.0	112.9
25	124.3	120.2	115.1	119.0	133.4	219.0	166.3	134.6	99.1	116.1	126.4	108.4
26	128.4	122.9	105.9	123.4	131.8	240.6*	166.5	132.7	95.0	118.4	123.2	100.9
27	132.3	128.1	104.9	128.3	130.3	254.0	170.1	122.4#	90.8	119.8	127.2	96.4
28	133.7	128.1	106.6	121.1	137.6	270.9	163.2	115.1	85.9	113.6	128.6	90.7
29	141.6	131.6	103.0	118.7	135.6	275.4#	161.4	110.7	84.8	108.0	128.3	89.8
30	120.4	132.5	101.7	116.2	133.3	267.6	148.6	104.2	89.9		126.4	90.8
31	116.3		105.2	111.8		245.2		102.1	91.6		121.0	
Mean	127.2	118.7	133.4	131.9	125.2	113.4	150.1	137.7	111.4	104.4	111.0	101.9

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

DAILY SOLAR INDICES
April 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	92	20	55	53	112.8	438	181	129	112.6	108	70	36	28	13
2	93	21	51	49	108.1	511	246	160	108.1	121	72	37	29	16
3	94	22	47	46	107.4	503	242	160	107.4	111	69	38	28	10
4	95	23	55	55	108.9	510	229	151	109.0	112	68	39	29	12
5	96	24	57	53	108.7	526	244	160	108.9	120	67	41	28	13
6	97	25	40	39	101.4	527	237	155	101.6	108	66	38	29	19
7	98	26	39	34	98.1	523	219	146	98.4	105	65	39	28	11
8	99	27	27	23	93.5	518	222	147	93.8	98	62	36	28	10
9	100	1	15	17	90.0	517	217	142	90.3	94	59	39	28	9
10	101	2	13	14	87.7	517	225	144	88.1	91	57	42	29	10
11	102	3	13	15	89.6	519	227	144	90.0	95	57	36	28	10
12	103	4	25	25	91.3	518	222	145	91.8	95	58	41	28	10
13	104	5	35	32	93.1	479	216	139	93.6	98	59	34	27	13
14	105	6	42	39	95.2	501	230	152	95.8	100	61	32	28	10
15	106	7	34	33	96.7	519	236	152	97.4	104	63	41	31	16
16	107	8	31	33	96.9	524	230	154	97.6	98	63	39	31	11
17	108	9	50	48	98.2	526	227	146	99.0	100	64	38	28	13
18	109	10	58	56	109.0	531	226	160	110.0	112	68	41	34	10
19	110	11	63	59	113.4	536	221	165	114.5	115	71	43	31	17
20	111	12	59	59	110.7	535	241	168	111.8	115	73	42	32	20
21	112	13	59	58	112.7	528	250	167	113.9	121	73	50	55	36
22	113	14	57	53	117.1	533	241	178	118.4	118	73	47	39	42
23	114	15	43	36	115.3	508	246	167	116.6	124	72	41	29	14
24	115	16	38	36	111.6	537	233	168	112.9	117	71	41	31	15
25	116	17	31	33	107.1	540	249	175	108.4	121	69	39	30	14
26	117	18	34	32	99.6	485	241	155	100.9	106	65	33	31	11
27	118	19	26	28	95.1	522	230	154	96.4	100	61	39	29	13
28	119	20	23	23	89.5	526	232	151	90.7	97	57	37	26	11
29	120	21	24	22	88.5	518	223	145	89.8	95	57	36	27	10
30	121	22	34	33	89.4	529	219	149	90.8	93	57	34	26	10
MEAN			39.3	37.9	101.2	516	230	154	101.9	106	64	38	30	14

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	56	55	66
											(3)	(6)	(1)
2004	54	53	52	51	50	48	46	43	41	40	39	38	46
	(8)	(10)	(11)	(12)	(13)	(13)	(15)	(16)	(18)	(19)	(19)	(20)	(15)

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.**

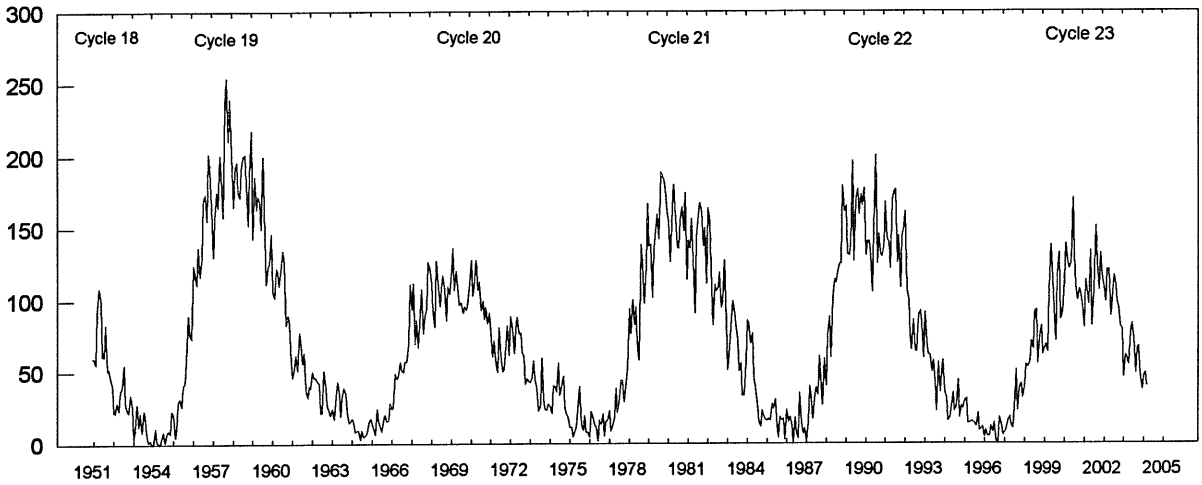
+ April 2000 marks Cycle 23 maximum.

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 October 2004 prediction. There exists a 90% chance that in October, the actual smoothed number will fall somewhere between 21 and 59.

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 - Apr 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									42.9	

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

APRIL 2004

Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp Opt	Imp Xray	See	Obs Type	Area Measurement Time (UT)	Area Measurement Apparent (10-6 Disk)	Area Measurement Corr (Sq Deg)	Remarks
GOES	01	0338	0341	0343			10582			5		B 6.6						1.6E-04
GOES		0527	0535	0540						13		B 5.5						3.6E-04
GOES		1204	1208	1211			10582			7		B 4.1						1.4E-04
GOES		1612	1616	1618						6		B 3.6						1.1E-04
GOES		1704	1711	1724			10582			20		C 1.4						1.2E-03
GOES		2108	2120	2145			10582			37		B 6.6						1.1E-03
GOES		2258	2303	2308			10581			10		B 4.2						2.1E-04
GOES	02	0239	0243	0247			10588			8		B 3.7						1.6E-04
GOES		0649	0654	0656			10587			7		B 4.6						1.4E-04
GOES		1610	1614	1619			10582			9		B 2.9						1.4E-04
GOES		2131	2137	2144			10582			13		B 3.5						2.3E-04
GOES	03	1026	1034	1043			10588			17		B 4.6						3.9E-04
GOES		1747	1808	1823			10587			36		B 7.2						1.2E-03
GOES		2053	2057	2102						9		B 3.8						1.6E-04
GOES		2325	2330	2336						11		B 4.9						2.5E-04
GOES	04	0203	0207	0212						9		B 2.7						1.3E-04
GOES		0231	0236	0242						11		B 3.2						1.9E-04
GOES		0411	0417	0423						12		B 5.0						2.8E-04
GOES		0623	0627	0633						10		B 3.1						1.7E-04
GOES		0641	0646	0650						9		B 3.5						1.7E-04
GOES		1602	1626	1639			10588			37		C 3.0						4.7E-03
GOES		1838	1842	1844						6		B 6.1						1.6E-04
GOES		2341	2345	2350	S18	E33	10588			9	SF	B 7.9						3.0E-04
LEAR		2345	2359	2429	S18	E33	10588	04	7.5	44	SF		3	E		19		
GOES		2356	2401	2404						8		B 5.1						2.2E-04
GOES	05	0225	0230	0237			10588			12		B 6.3						3.7E-04
GOES		0314	0318	0322						8		B 4.0						1.5E-04
LEAR		0535	0545	0642D	S18	E35	10588	04	7.9	67D	1F		3	E		64		FE
GOES		0537	0555	0613	S18	E35	10588			36	1F	M 1.7						2.6E-02
GOES		1531	1535	1538						7		B 3.1						1.1E-04
GOES		1847	1852	1854			10588			7		B 7.3						1.9E-04
GOES		1950	1954	1957						7		B 4.7						1.5E-04
GOES		1958	2004	2010			10588			12		B 8.4						4.7E-04
GOES		2238	2242	2244						6		B 7.9						1.6E-04
GOES		2321	2324	2326						5		B 2.7						6.8E-05
GOES	06	0258	0301	0304						6		B 3.2						1.0E-04
GOES		0532	0535	0540	S19	E24	10588			8	SF	C 1.0						3.5E-04
LEAR		0535	0535	0547	S19	E24	10588	04	8.1	12	SF		3	E		40		F
GOES		0720	0731	0736	S18	E21	10588			16	SF	B 7.1						5.1E-04
LEAR		0723	0724	0729	S18	E21	10588	04	7.9	6	SF		3	E		13		
GOES		0853	0856	0859						6		B 2.9						9.0E-05
GOES		0901	0904	0911						10		B 4.2						2.1E-04
GOES		1230	1328	1346	S18	E15	10588			76	SF	M 2.4						3.2E-02
GOES		1315E	1331U	1416D	S15	E24	10588	04	8.4	61D	1F		3	E		128		UF
HOLL		1318	1324	1405	S18	E15	10588	04	7.7	47	SF		3	E		79		UF
SVTO																		
GOES		1636	1640	1642						6		B 2.0						6.0E-05
GOES		2027	2030	2032						5		B 2.2						6.0E-05
GOES		2121	2124	2127						6		B 2.3						7.5E-05
GOES	08	0034	0038	0043						9		B 2.4						1.1E-04
GOES		0141	0151	0159						18		C 1.2						9.3E-04
GOES		0440	0444	0449						9		B 3.5						1.4E-04
GOES		0556	0601	0604						8		B 3.2						1.3E-04
GOES		0816	0821	0832						16		B 2.9						2.3E-04
GOES		0953	1019	1047	S15	W11	10588			54	SF	C 7.4						1.5E-02
SVTO		1003	1005	1024	S15	W11	10588	04	7.6	21	SF		3	E		18		F
GOES		1305	1320	1335			10588			30		C 1.3						2.0E-03
GOES		2257	2301	2307			10590			10		B 2.5						1.4E-04
GOES	09	2013	2040	2102	S17	W29	10588			49	SF	C 2.8						5.7E-03
HOLL		2019	2028	2101	S17	W29	10588	04	7.6	42	SF		3	E		44		UF
GOES	10	0123	0133	0147	N10	E01	10589			24	SF	B 4.5						4.8E-04

Hα SOLAR FLARES

APRIL 2004

Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp Opt	Imp Xray	See	Obs Type	Area Measurement Time (UT)	Area Measurement Apparent (10-6 Disk)	Area Measurement Corr (Sq Deg)	Remarks
LEAR	10	0128	0128	0146	N10	E01	10589	04	10.1	18	SF		3	E		10		
GOES		1546	1551	1556			10587			10		B 2.5						1.1E-04
GOES		1711	1715	1717			10588			6		B 2.5						5.5E-05
GOES		2128	2134	2139						11		B 1.8						1.0E-04
GOES	11	0119	0124	0133						14		B 1.6						1.2E-04
GOES		0354	0419	0435	S14	W47	10588			41	1F	C 9.6						1.3E-02
LEAR		0400	0421	0451	S14	W47	10588	04	7.6	51	1F		3	E		194		FE
GOES		1851	1859	1912						21		B 3.3						3.3E-04
GOES		1933	1941	1945			10588			12		B 5.8						2.8E-04
GOES		2015	2019	2024			10588			9		B 2.4						1.1E-04
GOES		2216	2224	2227			10588			11		C 1.2						4.3E-04
GOES		2300	2308	2314			10588			14		C 1.5						7.7E-04
GOES	12	0220	0225	0228	S17	W54	10588			8	SF	C 2.3						5.3E-04
LEAR		0224E	0225	0235	S17	W54	10588	04	8.0	11D	SF		3	E		42		F
GOES		0622	0626	0629			10588			7		B 1.8						6.6E-05
GOES		0739	0749	0758			10588			19		C 1.0						7.6E-04
GOES		1011	1022	1028						17		B 2.1						1.7E-04
GOES		1222	1230	1239			10588			17		C 1.3						7.5E-04
GOES		1835	1840	1843			10588			8		B 2.6						9.2E-05
GOES		1857	1904	1913						16		B 2.1						1.9E-04
GOES		2109	2112	2114						5		B 1.2						3.3E-05
GOES	13	0528	0532	0536						8		B 1.5						6.7E-05
GOES		1920	1944	1957						37		B 2.1						3.1E-04
GOES	14	0231	0238	0244			10591			13		B 2.4						1.7E-04
GOES		0512	0517	0523						11		B 2.5						1.5E-04
GOES		0739	0746	0750	S16	W20	10591			11	SF	B 2.0						1.2E-04
LEAR		0744	0744	0747	S16	W20	10591	04	12.8	3	SF		3	E		11		
GOES		0923	0928	0933						10		B 3.9						1.9E-04
GOES		1216	1225	1237			10591			21		B 3.9						4.1E-04
GOES		1330	1337	1343						13		B 3.5						2.4E-04
GOES		1352	1417	1428			10591			36		B 9.1						1.6E-03
GOES		1514	1517	1522						8		B 3.0						1.3E-04
GOES	15	0051	0055	0106			10591			15		B 2.3						1.9E-04
GOES		0938	0943	0947			10591			9		B 3.3						1.3E-04
GOES		1120	1126	1131			10591			11		B 3.1						1.6E-04
GOES		1637	1644	1648	S15	W38	10591			11	SF	M 1.2						3.6E-03
SVTO		1642	1642	1700D	S13	W40	10591	04	12.7	18D	SF		3	E		27		ZF
HOLL		1642	1646	1659	S15	W38	10591	04	12.8	17	SF		3	E		29		ZF
GOES		2159	2204	2206	S15	W42	10591			7	SF	B 2.7						8.4E-05
HOLL		2204	2204	2208	S15	W42	10591	04	12.7	4	SF		3	E		13		H
GOES	16	0023	0027	0030			10591			7		B 2.4						7.1E-05
GOES		0802	0808	0821			10591			19		B 2.3						2.2E-04
GOES		1116	1119	1122						6		B 1.6						5.2E-05
GOES		1323	1326	1335						12		B 1.4						9.4E-05
GOES		1915	1923	1930			10595			15		B 8.6						5.0E-04
GOES		2308	2317	2330			10595			22		B 2.7						3.1E-04
GOES	17	0449	0501	0506			10595			17		B 3.7						3.0E-04
GOES		1134	1142	1151						17		C 1.8						1.1E-03
GOES		1833	1836	1838						5		B 1.5						3.9E-05
GOES	18	0933	0938	0945						12		B 2.1						1.4E-04
GOES		1416	1419	1421						5		B 2.9						7.7E-05
GOES		1456	1459	1501						5		B 2.7						7.0E-05
GOES		1555	1559	1621			10596			26		B 9.1						1.0E-03
GOES		1656	1659	1702						6		B 3.2						1.0E-04
GOES	19	0028	0034	0037	S08	E60	10596			9	SF	C 3.3						9.0E-04
LEAR		0037	0038	0042	S08	E60	10596	04	23.5	5	SF		3	E		18		F
GOES		1820	1830	1840			10596			20		C 4.7						2.9E-03
GOES		2039	2043	2049			10595			10		B 4.1						2.0E-04
GOES		2223	2227	2233	S10	E47	10596			10	SF	B 2.4						1.3E-04

Hα SOLAR FLARES

APRIL 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	19	2225	2225	2230	S10	E47	10596	04	23.5	5	SF		3	E		14		
GOES		2339	2345	2349			10595			10		B 2.6						1.5E-04
GOES	20	0251	0254	0300			10597			9		B 2.1						1.0E-04
GOES		0637	0641	0645			10594			8		B 2.9						1.2E-04
GOES		0940	0951	1007			10596			27		B 5.8						7.3E-04
GOES		1223	1235	1249						26		B 4.2						5.4E-04
HOLL		1608	1619	1648	S07	E37	10596	04	23.4	40	SF		3	E		17		F
GOES		1609	1630	1646	S07	E37	10596			37	SF	B 5.8						1.0E-03
GOES		2028	2033	2042			10596			14		B 4.3						3.3E-04
GOES	21	0240	0258	0321	S08	E30	10596			41	SF	C 2.1						3.1E-03
LEAR		0251	0257	0304	S08	E30	10596	04	23.4	13	SF		3	E		27		F
GOES		1450	1455	1508	S07	E24	10596			18	SF	B 9.4						6.8E-04
HOLL		1452	1455	1508	S07	E24	10596	04	23.4	16	SF		3	E		55		FH
SVTO		1453	1454	1457	S10	E23	10596	04	23.3	4	SF		3	E		17		F
HOLL		1509	1515	1544	S09	E25	10596	04	23.5	35	SF		3	E		17		F
GOES		1601	1615	1636	S08	E24	10596			35	SF	C 1.8						2.7E-03
HOLL		1605	1611	1637	S08	E24	10596	04	23.5	32	SF		3	E		36		FH
GOES		2009	2013	2017	S07	E22	10596			8	SF	B 8.8						3.4E-04
HOLL		2012	2012	2026	S07	E22	10596	04	23.5	14	SF		3	E		31		F
HOLL	22	0006E	0006U	0006	S06	W73	10597	04	16.5	14D	SF		3	E		13		
HOLL		0010	0011	0018	S07	E14	10596	04	23.0	8	SF		3	E		17		H
HOLL		0020	0023	0033	S04	W03	10595	04	21.8	13	SF		3	E		18		F
GOES		0038	0041	0043			10596			5		B 3.6						9.3E-05
GOES		0203	0219	0224	S09	E19	10596			21	1N	M 1.2						4.7E-03
LEAR		0207	0209	0211	S09	E19	10596	04	23.5	4	SF		3	E		20		
LEAR		0215	0218	0246	S09	E19	10596	04	23.5	31	1N		3	E		110		
GOES		1004	1008	1011			10597			7		B 3.5						1.2E-04
HOLL		1429	1430	1433	S09	W75	10597	04	17.0	4	SF		3	E		20		
HOLL		1434	1436	1439	S09	W75	10597	04	17.0	5	SF		3	E		28		H
GOES		1557	1601	1604	S07	E11	10596			7	SF	B 5.1						1.8E-04
HOLL		1600	1601	1606	S07	E11	10596	04	23.5	6	SF		3	E		15		F
HOLL		1637	1638	1644	S05	E07	10596	04	23.2	7	SF		3	E		13		
GOES		1643	1650	1656	S06	E09	10596			13	SF	B 9.9						6.0E-04
HOLL		1645	1648	1659	S06	E09	10596	04	23.4	14	SF		3	E		53		F
HOLL		1746	1750	1753	S07	E10	10596	04	23.5	7	SF		3	E		18		
HOLL		1750	1910	2018	S09	W73	10597	04	17.3	148	1F		3	E		108		FH
HOLL		1754	1756	1758	S09	E10	10596	04	23.5	4	SF		3	E		10		
GOES		1819	1824	1832	S09	E10	10596			13	SF	C 1.1						7.9E-04
HOLL		1821	1822	1837	S09	E10	10596	04	23.5	16	SF		3	E		24		F
GOES		1906	1909	1915			10597			9		B 9.8						4.7E-04
HOLL		1925	1927	1933	S06	E06	10596	04	23.2	8	SF		3	E		32		F
HOLL		2019	2024	2041	S09	W77	10597	04	17.1	22	SF		3	E		86		F
GOES		2021	2024	2027	S09	W77	10597			6	SF	B 8.0						2.5E-04
HOLL		2041	2045	2051	S09	W74	10597	04	17.3	10	SF		3	E		61		
HOLL		2218	2219	2227	S09	E08	10596	04	23.5	9	SF		3	E		29		F
HOLL		2323	2325	2331	S04	E02	10596	04	23.1	8	SF		3	E		17		FH
GOES		2346	2415	2420			10597			34		C 1.6						2.6E-03
GOES	23	0114	0119	0124			10597			10		C 1.1						5.7E-04
GOES		0410	0413	0416			10597			6		B 7.6						2.4E-04
GOES		0450	0456	0501			10597			11		C 1.9						8.6E-04
GOES		0547	0550	0552			10597			5		B 9.1						2.1E-04
GOES		0633	0650	0701			10597			28		C 1.8						2.5E-03
GOES		0716	0719	0725			10597			9		C 1.2						6.1E-04
GOES		0743	0756	0801			10597			18		C 6.1						3.7E-03
GOES		0925	0930	0932			10597			7		C 4.4						9.7E-04
GOES		0944	0947	0952			10597			8		C 3.0						1.3E-03
GOES		1039	1044	1047			10597			8		C 4.0						1.1E-03
GOES		1141	1150	1152			10597			11		M 1.5						4.3E-03
GOES		1159	1203	1205			10597			6		C 5.1						1.5E-03
HOLL		1415	1417	1437	S06	W76	10597	04	17.9	22	SF		3	E		43		
GOES		1434	1437	1440	S06	W76	10597			6	SF	C 1.4						4.5E-04
HOLL		1452	1453	1457	S08	W81	10597	04	17.5	5	SF		3	E		19		
HOLL		1500	1503	1507	S08	W80	10597	04	17.6	7	SF		3	E		16		
GOES		1558	1605	1611	S08	W79	10597			13	SF	C 3.9						1.8E-03

Hα SOLAR FLARES

APRIL 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	23	1602	1603	1608	S08	W79	10597	04	17.7	6	SF		3	E		37		
GOES		1721	1731	1734	S07	W83	10597			13	SF	C 4.8						1.8E-03
HOLL		1726	1730	1736	S07	W83	10597	04	17.5	10	SF		3	E		62		
HOLL		1903	1906	1909	S08	W83	10597	04	17.6	6	SF		3	E		23		
GOES		1903	1906	1910	S08	W83	10597			7	SF	C 1.6						5.8E-04
HOLL		1942	1943	1947	S08	W80	10597	04	17.8	5	SF		3	E		29		
HOLL		1955	1959	2007	S07	W80	10597	04	17.8	12	SF		3	E		45		Y
HOLL		2021	2022	2034	S07	W81	10597	04	17.8	13	SF		3	E		27		Y
HOLL		2059	2124	2133	S08	W83	10597	04	17.6	34	SF		3	E		85		Y
GOES		2102	2112	2114	S08	W83	10597			12	SF	M 1.1						4.1E-03
GOES		2123	2126	2129			10597			6		C 2.8						8.9E-04
HOLL		2137	2139	2140	S08	W78	10597	04	18.0	3	SF		3	E		11		Y
HOLL		2211	2213	2217	S08	W79	10597	04	18.0	6	SF		3	E		21		
GOES		2211	2216	2221	S08	W79	10597			10	SF	C 1.8						8.4E-04
GOES		2250	2254	2300			10597			10		C 2.5						1.3E-03
GOES		2329	2337	2341			10597			12		C 2.9						1.4E-03
GOES	24	0006	0011	0023			10597			17		C 1.6						1.4E-03
GOES		0053	0100	0102			10597			9		C 2.9						9.6E-04
GOES		0202	0208	0213			10597			11		C 2.9						1.3E-03
GOES		0543	0553	0557	S06	W90	10597			14	SF	C 1.5						9.9E-04
LEAR		0547	0549	0550	S06	W90	10597	04	17.5	3	SF		3	E		20		
GOES		0646	0657	0703			10597			17		C 1.2						1.2E-03
GOES		0856	0901	0910	S06	W90	10597			14	SF	C 1.3						8.6E-04
LEAR		0901	0902	0904	S06	W90	10597	04	17.6	3	SF		3	E		24		
GOES		1251	1301	1313			10597			22		C 1.0						1.2E-03
HOLL		1339	1925	2027	N18	E43	10599	04	27.8	408	SF		3	E		89		FT
GOES		1357	1403	1417			10597			20		C 1.2						1.2E-03
GOES		1522	1527	1529			10599			7		C 2.6						5.8E-04
GOES		1531	1534	1536			10599			5		C 1.4						3.6E-04
GOES		1625	1631	1634			10599			9		B 8.8						4.4E-04
GOES		1713	1719	1723			10599			10		B 9.9						4.9E-04
GOES		1731	1735	1743			10599			12		B 7.8						5.0E-04
GOES		1839	1848	1854			10599			15		B 8.3						6.6E-04
GOES		1922	1927	1931			10599			9		C 1.1						5.2E-04
HOLL		2031	2047	2104	N16	E41	10599	04	28.0	33	SF		3	E		47		F
GOES		2121	2125	2129			10597			8		B 6.1						2.6E-04
HOLL		2147	2148	2206	N15	E39	10599	04	27.9	19	SF		3	E		27		
GOES		2206	2211	2223	N14	E41	10599			17	SF	B 7.9						6.4E-04
HOLL		2207	2210	2315	N14	E41	10599	04	28.0	68	SF		3	E		75		
GOES	25	0138	0144	0149	N13	E42	10599			11	SF	C 9.0						3.1E-03
LEAR		0140	0143	0217	N13	E42	10599	04	28.2	37	SF		3	E		59		
LEAR		0350	0352	0400	N13	E40	10599	04	28.2	10	SF		3	E		16		
GOES		0502	0537	0542	N13	E38	10599			40	1N	M 2.2						1.1E-02
LEAR		0528	0537	0558	N13	E38	10599	04	28.1	30	1N		3	E		114		FE
GOES		0712	0717	0722			10599			10		B 6.3						3.3E-04
GOES		0902	0909	0919			10599			17		C 1.2						9.1E-04
GOES		1006	1015	1023			10599			17		C 5.0						2.9E-03
GOES		1416	1440	1501	N15	E31	10599			45	SF	C 1.4						2.4E-03
HOLL		1429	1439	1512	N15	E31	10599	04	27.9	43	SF		3	E		40		F
GOES		1556	1606	1629	N15	E31	10599			33	SF	C 2.6						3.7E-03
HOLL		1558	1609	1655	N15	E31	10599	04	28.0	57	SF		3	E		89		FH
HOLL		1822	1829	1856	N17	E30	10599	04	28.0	34	SF		3	E		28		F
GOES		1925	1929	1934			10599			9		B 4.8						2.3E-04
HOLL		2154	2154	2206	N13	E32	10599	04	28.3	12	SF		3	E		13		
GOES		2315	2319	2323			10599			8		B 2.5						1.1E-04
GOES	26	0052	0101	0111	N13	E29	10599			19	SF	B 4.6						4.8E-04
LEAR		0055	0055	0101	N13	E29	10599	04	28.2	6	SF		3	E		10		
GOES		0229	0242	0256	N13	E28	10599			27	SF	C 2.4						2.4E-03
LEAR		0236	0238	0250	N13	E28	10599	04	28.2	14	SF		3	E		33		
GOES		0536	0540	0543			10599			7		B 3.6						1.2E-04
GOES		0608	0613	0620			10599			12		B 3.1						2.0E-04
GOES		1008	1013	1019			10599			11		B 3.1						1.8E-04
GOES		1156	1200	1206			10599			10		B 4.4						2.0E-04
GOES		1330	1334	1340			10599			10		B 3.1						1.4E-04
GOES		1823	1827	1832						9		B 2.0						9.6E-05

Hα SOLAR FLARES

APRIL 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	27	0001	0004	0010			10599			9	B	1.7						8.9E-05
GOES		0708	0723	0737			10599			29	C	3.1						3.4E-03
GOES		1357	1406	1417						20	B	6.4						6.0E-04
GOES		2153	2157	2202						9	B	1.2						6.0E-05
GOES	28	0447	0454	0500			10595			13	B	1.4						1.0E-04
GOES		1158	1205	1210			10595			12	B	1.4						9.2E-05
GOES		2238	2247	2253			10596			15	B	4.1						3.0E-04
GOES	29	0619	0626	0636			10596			17	B	1.9						1.8E-04
GOES		0926	0931	0935						9	B	1.3						5.6E-05
GOES	30	0540	0547	0551						11	C	1.7						6.5E-04
GOES		0739	0746	0751						12	B	2.0						1.2E-04
GOES		1109	1122	1135						26	B	1.9						2.5E-04
GOES		1255	1301	1312						17	B	2.7						2.1E-04
GOES		1330	1333	1337						7	B	1.5						5.5E-05
GOES		1444	1448	1501						17	B	1.0						9.6E-05
GOES		1635	1638	1640						5	B	1.0						2.7E-05
GOES		2203	2212	2222			10601			19	B	2.2						2.0E-04

"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.

SOLAR RADIO EMISSION
Selected Fixed Frequency Events

APRIL 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
01	2695	PALE	8	S	0341.0	0341.0	U	56.0			QL=4 ST=2 TYP=3
05	8800	SVTO	4	S/F	0540.0	0546.0	12.0	110.0			QL=4 ST=2 TYP=3
	2695	SVTO	4	S/F	0540.0	0546.0	11.0	120.0			QL=4 ST=2 TYP=3
	8800	SVTO	4	S/F	0540.0	0546.0	1100.0	110.0			QL=4 ST=1 TYP=3
	2695	SVTO	4	S/F	0540.0	0546.0	1100.0	120.0			QL=4 ST=1 TYP=3
	8800	LEAR	4	S/F	0541.0	0546.0	5.0	74.0			QL=4 ST=2 TYP=3
	2695	LEAR	4	S/F	0543.0	0546.0	4.0	110.0			QL=4 ST=2 TYP=3
06	2695	SGMR	48	C	1316.0	1323.0	16.0	720.0			QL=4 ST=2 TYP=8
	2695	SVTO	48	C	1316.0	1323.0	15.0	690.0			QL=4 ST=2 TYP=8
	2695	SGMR	48	C	1316.0	1323.0	644.0	720.0			QL=4 ST=1 TYP=8
	2695	SVTO	4	S/F	1316.0	1317.0	644.0	74.0			QL=4 ST=1 TYP=3
	8800	SGMR	48	C	1317.0	1323.0	15.0	620.0			QL=4 ST=2 TYP=8
	8800	SVTO	48	C	1317.0	1323.0	28.0	670.0			QL=4 ST=2 TYP=8
	8800	SGMR	4	S/F	1317.0	1317.0	643.0	42.0			QL=4 ST=1 TYP=3
	8800	SGMR	48	C	1317.0	1323.0	643.0	620.0			QL=4 ST=1 TYP=8
	8800	SVTO	4	S/F	1317.0	1317.0	643.0	37.0			QL=4 ST=1 TYP=3
07	2695	SVTO	48	C	1316.0	1323.0	15.0	680.0			QL=4 ST=2 TYP=8
	8800	SVTO	48	C	1317.0	1323.0	28.0	660.0			QL=4 ST=2 TYP=8
08	2695	SVTO	4	S/F	0959.0	1001.0	11.0	190.0			QL=4 ST=2 TYP=3
11	2695	LEAR	48	C	0407.0	0414.0	21.0	920.0			QL=4 ST=2 TYP=8
	2695	LEAR	4	S/F	0407.0	0411.0	1193.0	280.0			QL=4 ST=1 TYP=3
	2695	LEAR	48	C	0407.0	0414.0	1193.0	920.0			QL=4 ST=1 TYP=8
	2695	PALE	4	S/F	0408.0	0411.0	1192.0	310.0			QL=4 ST=1 TYP=3
	2695	PALE	48	C	0410.0	0415.0	14.0	970.0			QL=4 ST=2 TYP=8
	8800	LEAR	4	S/F	0411.0	0415.0	17.0	460.0			QL=4 ST=2 TYP=3
	8800	LEAR	4	S/F	0411.0	0415.0	1189.0	460.0			QL=4 ST=1 TYP=3
	8800	PALE	48	C	0413.0	0416.0	9.0	400.0			QL=4 ST=2 TYP=8
15	2695	SVTO	8	S	0942.0	0942.0	U	49.0			QL=4 ST=2 TYP=3
	8800	SGMR	4	S/F	1641.0	1642.0	3.0	180.0			QL=4 ST=2 TYP=3
	2695	SGMR	8	S	1641.0	1642.0	2.0	70.0			QL=4 ST=2 TYP=3
	2695	SVTO	8	S	1641.0	1642.0	2.0	53.0			QL=4 ST=2 TYP=3
	8800	SVTO	8	S	1642.0	1642.0	1.0	140.0			QL=4 ST=2 TYP=3
22	2695	SGMR	8	S	1924.0	1926.0	2.0	67.0			QL=4 ST=2 TYP=3
	2695	PALE	8	S	1926.0	1926.0	U	69.0			QL=4 ST=2 TYP=3
23	8800	PALE	8	S	2109.0	2109.0	1.0	220.0			QL=4 ST=2 TYP=3
	2695	PALE	8	S	2109.0	2109.0	1.0	150.0			QL=4 ST=2 TYP=3
	8800	SGMR	8	S	2109.0	2109.0	1.0	250.0			QL=4 ST=2 TYP=3
	2695	SGMR	4	S/F	2109.0	2109.0	4.0	140.0			QL=4 ST=2 TYP=3
24	8800	SGMR	8	S	1525.0	1525.0	U	32.0			QL=4 ST=2 TYP=3
	8800	SVTO	8	S	1525.0	1525.0	U	34.0			QL=4 ST=2 TYP=3

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

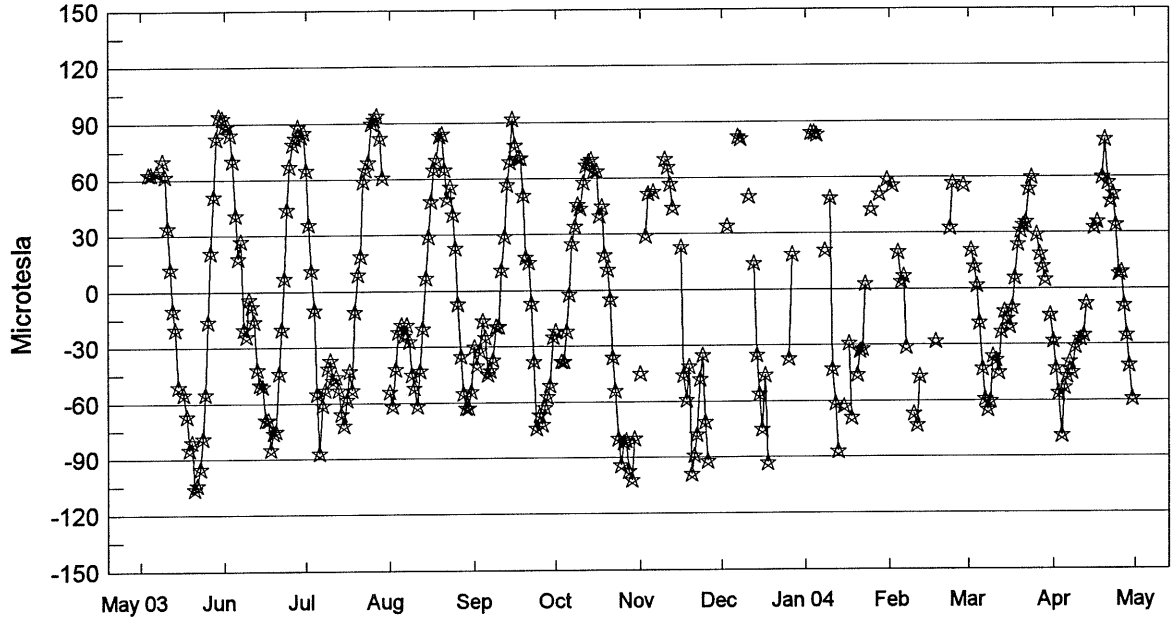
Explanation of Type Code:

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

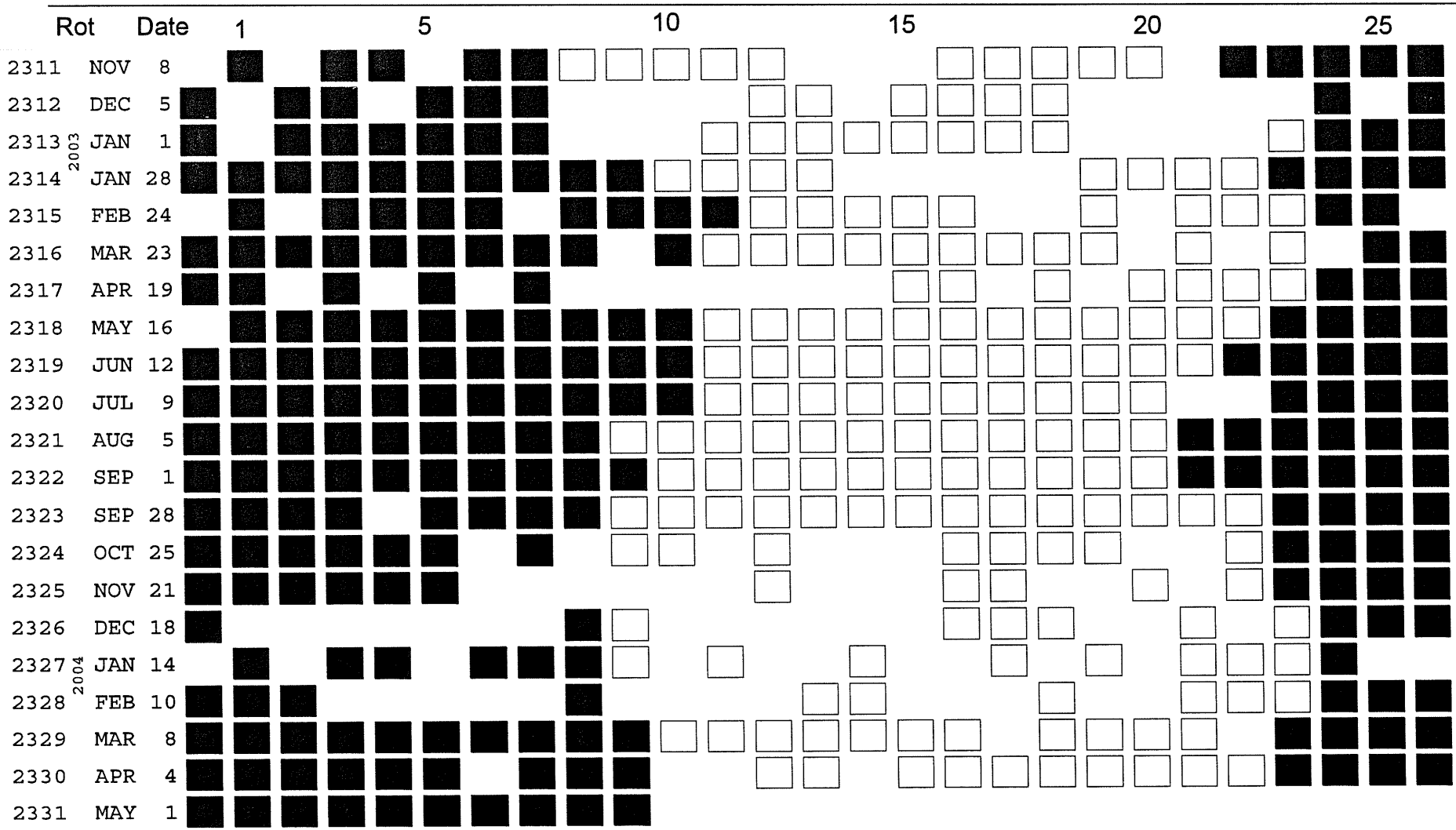
RSTN Site Information: Beginning in April 1986, the RSTN sites LEAR, PALE, SGMR, and SVTO fixed frequency solar radio data are periodically adjusted to several world standard stations. These world standard stations include: Kislovodsk, USSR 15,500 MHz; Penticton, Canada 2800 MHz; and Hiraiso, Japan 500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

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



Day	May 03	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan 04	Feb	Mar	Apr
1	---	89	65	-54	-30	-22	-45	---	---	---	---	-28
2	---	89	36	-62	-40	---	---	---	---	56	21	-43
3	---	84	11	-42	-32	-38	29	34	84	---	12	-56
4	63	70	-10	-22	-16	-38	52	---	84	20	2	-79
5	63	41	-55	-18	-25	-22	---	---	83	4	-18	-53
6	---	18	-87	-24	-45	-2	53	---	---	7	-43	-47
7	64	27	-61	-18	-43	25	---	82	---	-31	-59	-39
8	---	-20	-53	-27	-37	34	---	81	21	---	-65	-45
9	70	-24	-41	-45	-19	46	---	---	---	---	-60	-31
10	62	-4	-37	-52	-19	44	70	---	49	-67	-36	---
11	34	-8	-48	-62	11	58	66	50	-43	-73	-38	-27
12	12	-16	-46	-43	29	67	57	---	-61	-47	-45	-25
13	-10	-42	-53	-20	57	69	44	14	-87	---	-23	-8
14	-20	-50	-66	7	69	70	---	-35	---	---	-12	---
15	-51	-51	-72	29	92	64	---	-56	-63	---	-16	---
16	---	-69	-58	48	78	64	23	-75	---	---	-20	33
17	-55	-69	-43	65	71	40	-46	-46	-29	---	-10	36
18	-67	-85	-53	70	71	45	-59	-93	-69	-28	6	---
19	-85	-76	-11	83	51	19	-41	---	---	---	24	60
20	-81	-75	9	84	18	11	-99	---	-46	---	31	80
21	-106	-44	19	65	15	-5	-89	---	-33	---	34	57
22	-104	-20	59	49	-7	-36	-78	---	-32	---	36	47
23	-95	7	65	56	-38	-54	-48		3	33	54	51
24	-79	44	69	41	-74	-80	-35	---	---	57	60	34
25	-55	67	90	23	-67	-94	-71	---	43	---	---	8
26	-16	79	92	-7	-72	-82	-92	-37	---	---	29	9
27	21	82	94	-35	-63	-81	---	19	---	---	19	-9
28	51	88	82	-55	-57	-97	---	---	51	56	12	-25
29	82	83	61	-63	-51	-102	---	---	---	---	5	-41
30	94	85	---	-63	-25	-80		---	---		---	-59
31	93		---	-54		---		---	59		-14	

STANFORD MEAN SOLAR MAGNETIC FIELD

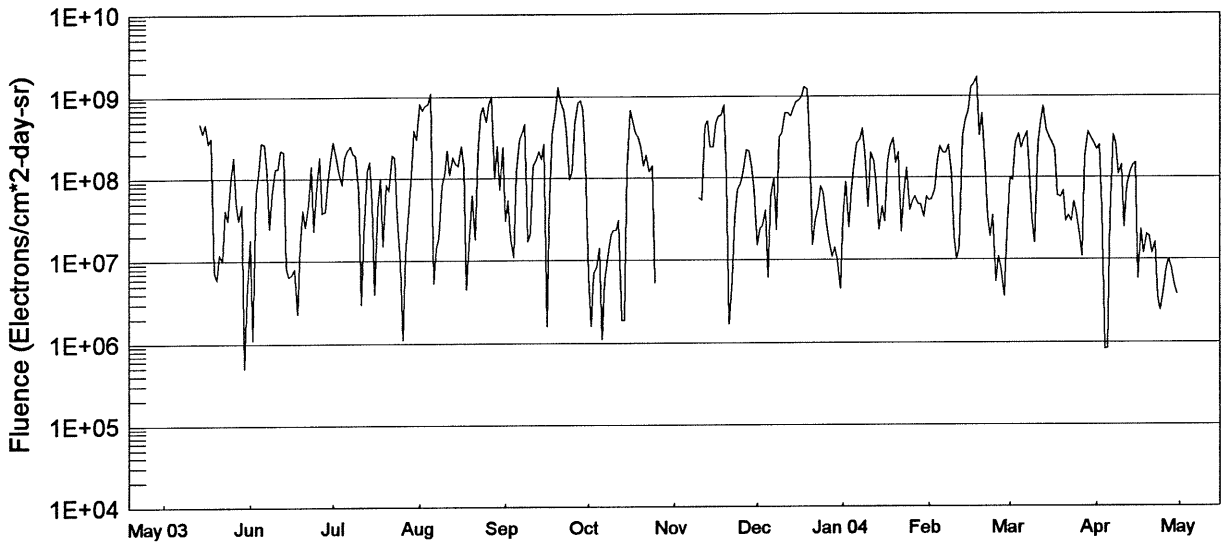


Mean Solar Magnetic Field Polarity: = field > 2 microT; = -2 microT ≤ field ≤ 2 microT

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

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

GOES Daily Electron Fluence
May 2003 - Apr 2004



Day	May 03	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan 04	Feb	Mar	Apr
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
2	sensor	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
3	problems	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
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
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
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
7	sensor	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
8	problems	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
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
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
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
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
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
14	4.6E+08	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
15	3.6E+08	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
16	4.5E+08	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
17	2.7E+08	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
18	3.1E+08	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
19	7.4E+06	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
20	6.0E+06	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
21	1.2E+07	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
22	1.0E+07	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
23	4.2E+07	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
24	3.1E+07	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
25	9.9E+07	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
26	1.8E+08	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
27	5.1E+07	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
28	3.1E+07	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
29	4.8E+07	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
30	5.0E+05	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
31	3.6E+06		3.0E+08	2.4E+08		-999		4.5E+06	5.9E+07		2.7E+08	

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

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

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CONTENTS

Prompt Reports

Number 717 Part I

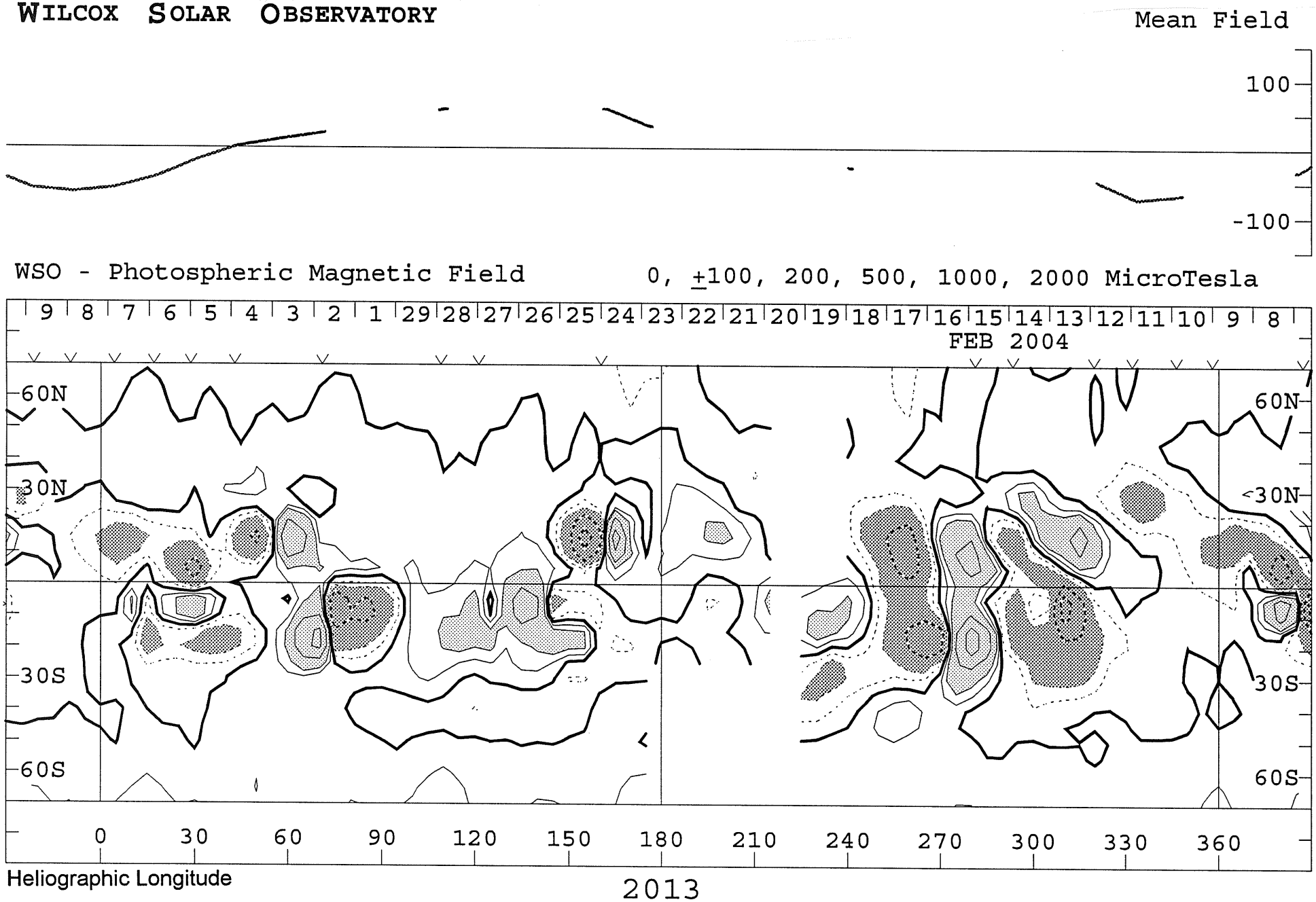
DATA FOR **MARCH 2004**

SOLAR MAGNETIC FIELD SYNOPTIC CHART

CARRINGTON ROTATION NUMBER 2013

(9 February to 8 March 2004)

WILCOX SOLAR OBSERVATORY



SOLAR MAGNETIC FIELD SYNOPTIC CHART

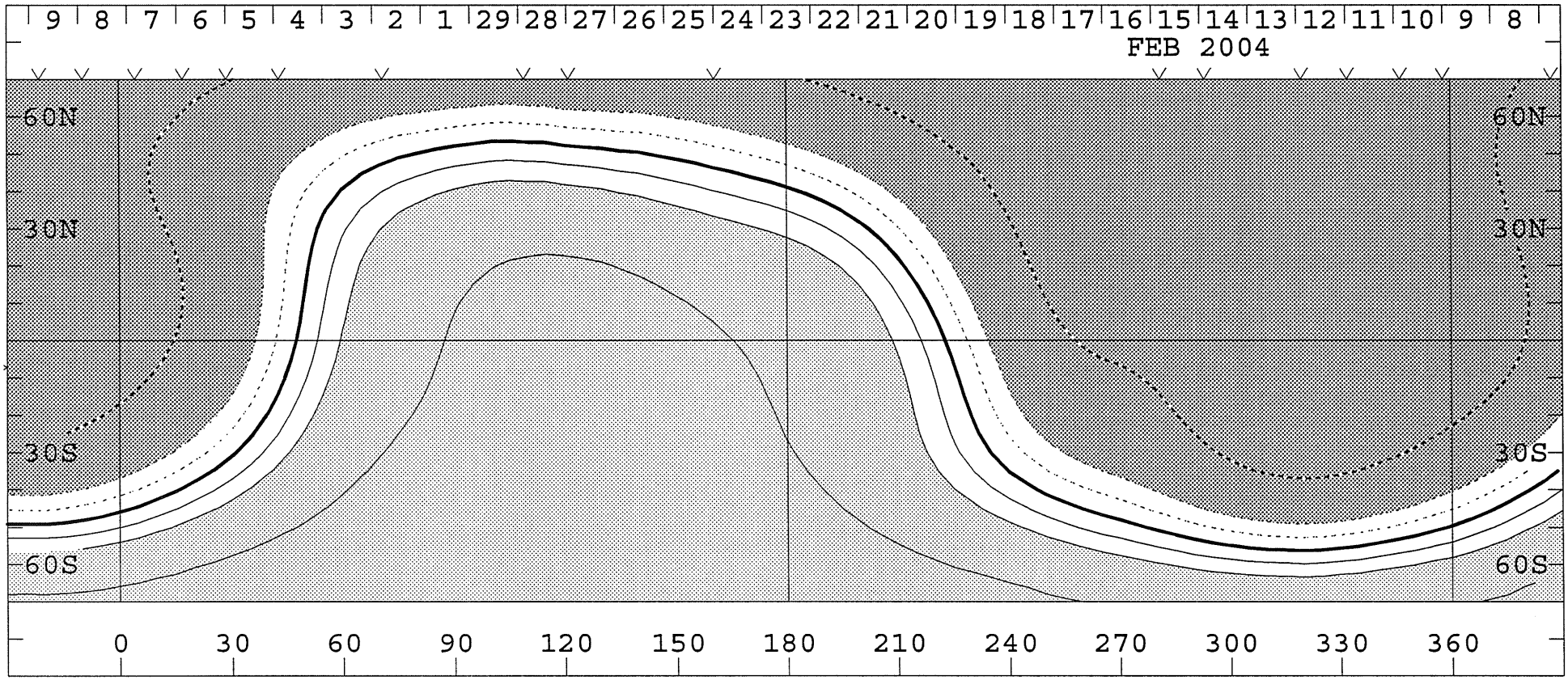
SOURCE SURFACE FIELD

CARRINGTON ROTATION NUMBER 2013

(9 February to 8 March 2004)

Wilcox Solar Observatory

0, ±1, 2, 5, 10, 20 microTesla



39
Mar 04

Please note there are no synoptic charts for the Sacramento Peak CaXV and FeX observations for Carrington Rotation 2013. There was insufficient data due to bad weather.

A filler page is used for page 41. It shows a graph of the annual sunspot numbers and the geomagnetic storm days when Ap was greater than or equal to 40 for the time period 1932-2004. Joe H. Allen compiles these data for his ApStar calculations (listing of geomagnetic storms). For more information, please visit ftp://ftp.ngdc.noaa.gov/STP/GEOMAGNETIC_DATA/APSTAR.

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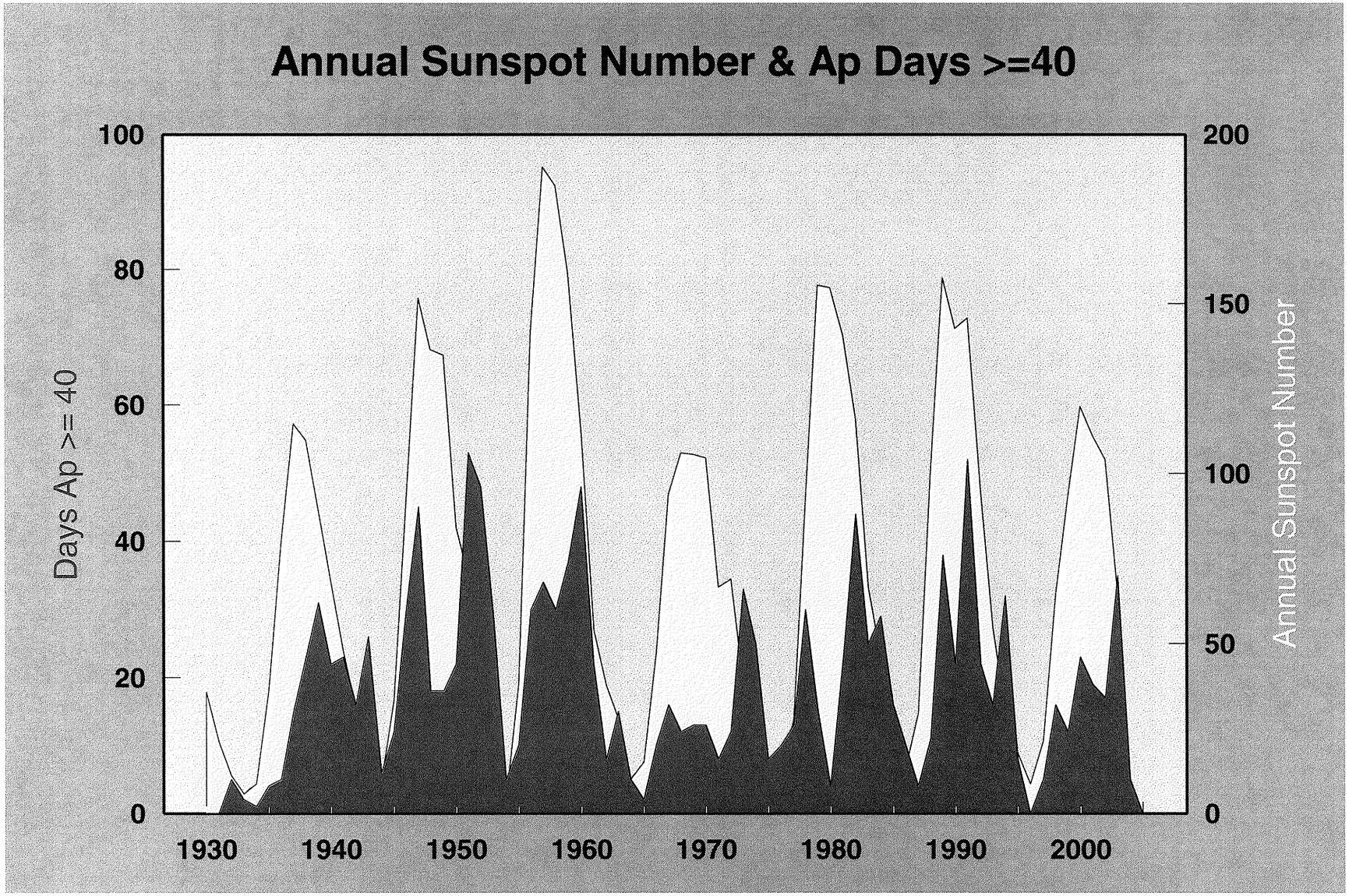
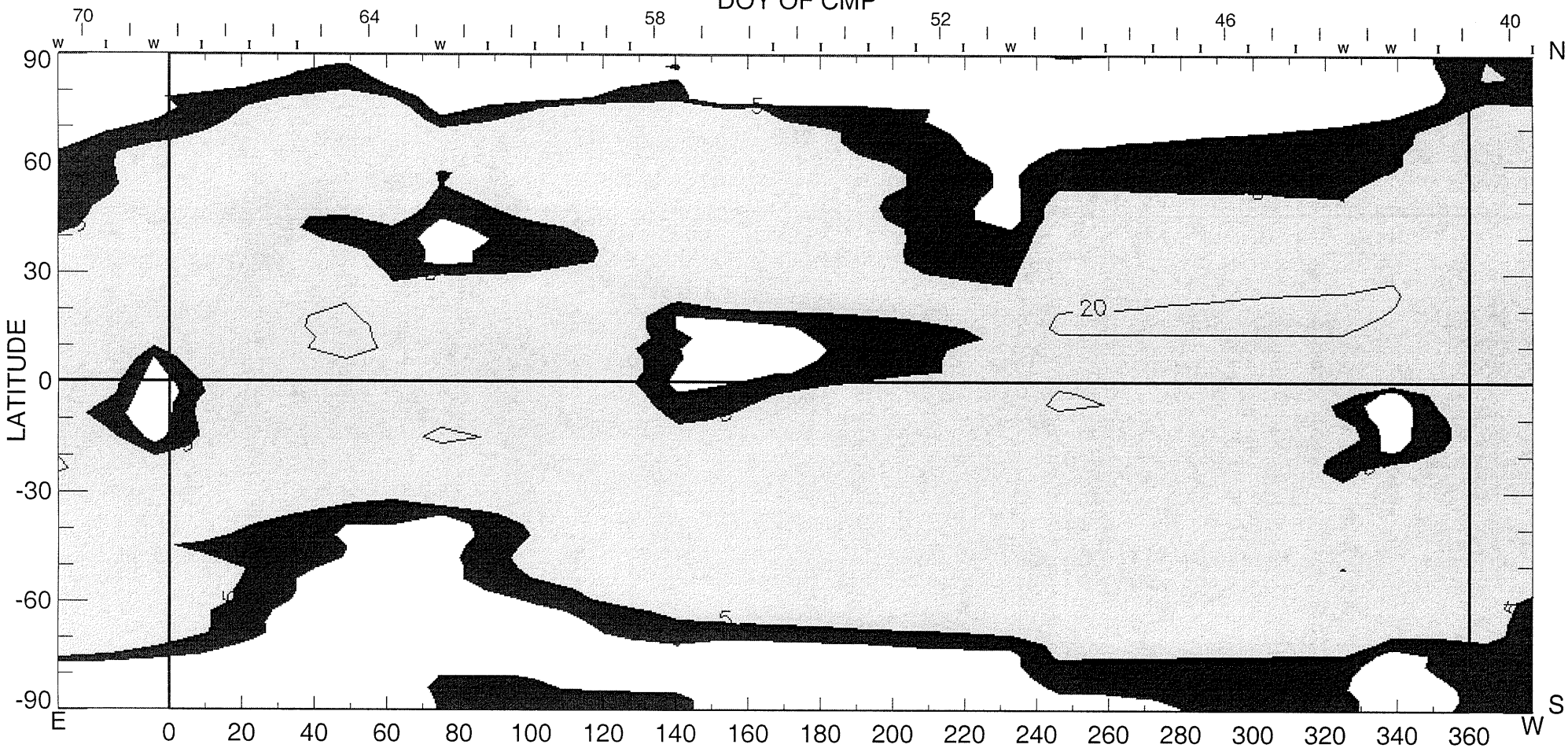

Annual Sunspot Number & Ap Days >=40
Days Ap >= 40
Annual Sunspot Number
100
80
60
40
20
0
200
150
100
50
0
1930
1940
1950
1960
1970
1980
1990
2000

CARRINGTON ROTATION NUMBER 2013 ; NSO/SACRAMENTO PEAK FE XIV @ R = 1.15R_o



<I> = 7.19μ

(24-Jun-04)

2004 E+W LIMB CONTOURS: 3, 5, 20, 25, 30, 40, 50, 60, 80, 100, 120 MILLIONTHS OF I_o

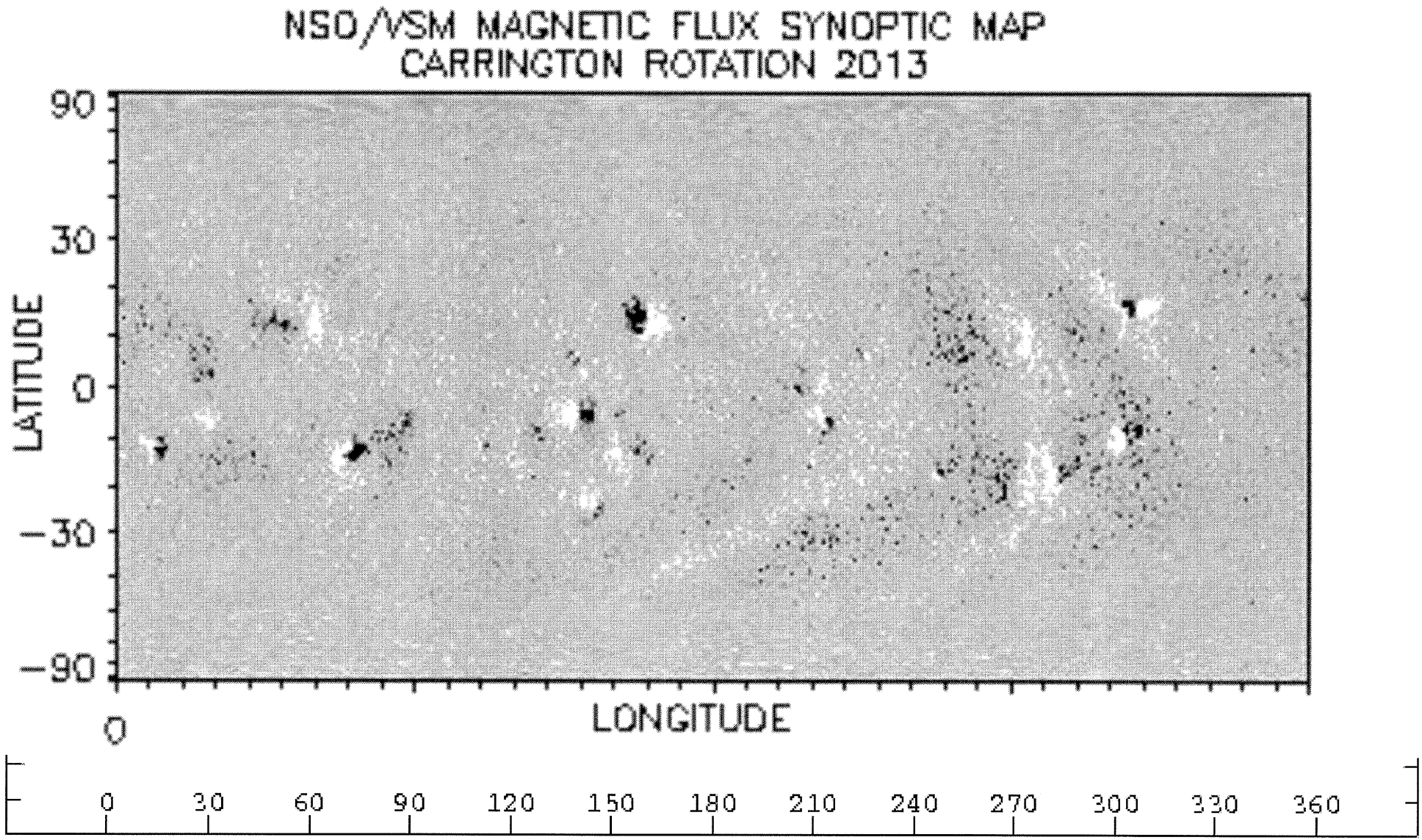
CORONAL HOLES ARE SHOWN AS WHITE BORDERED BY BLACK

SOLAR MAGNETIC FIELD SYNOPTIC CHART

CARRINGTON ROTATION NUMBER 2013

(9 February to 8 March 2004)

National Solar Observatory/Kitt Peak



Heliographic Longitude

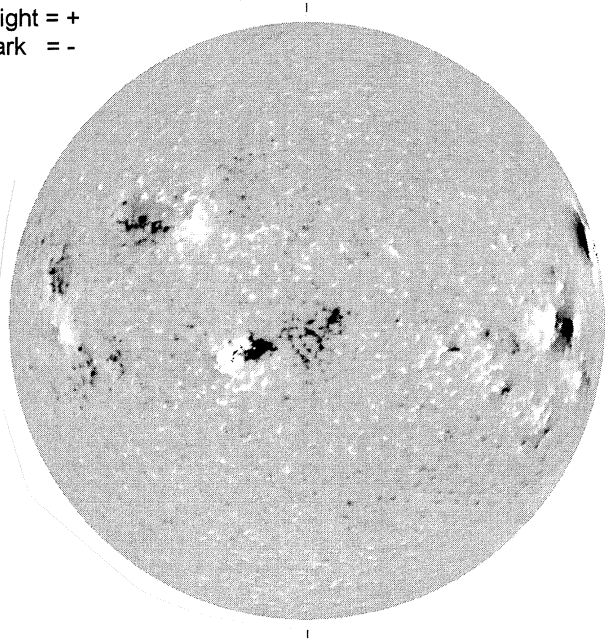
43
Mar 04

MARCH 1, 2004 (P= -21.62, Bo = -7.22, Lo = 94.50)

KITT PEAK MAGNETOGRAM--SOLIS

N
854.2 nm

Bright = +
Dark = -



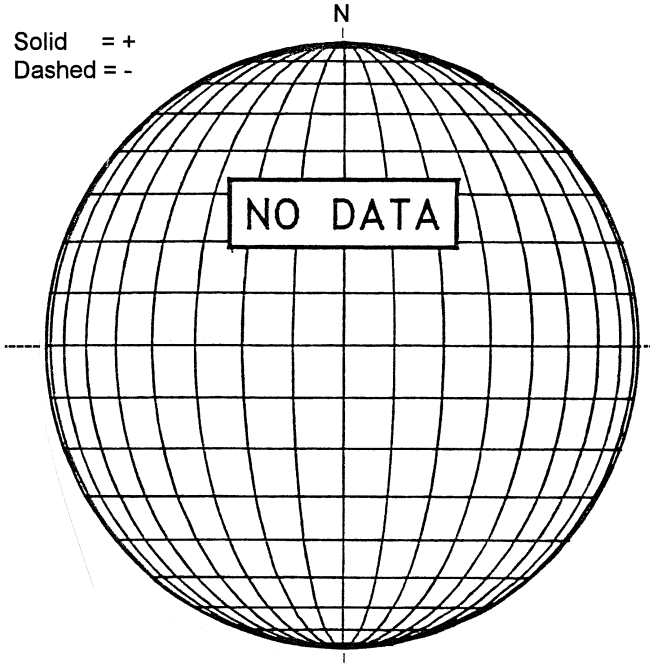
E-

1823 UT

STANFORD MAGNETOGRAM

N

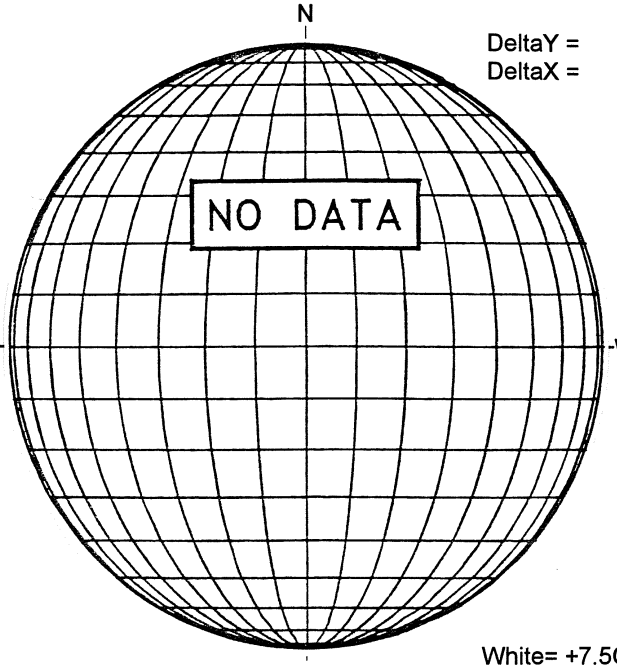
Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

N

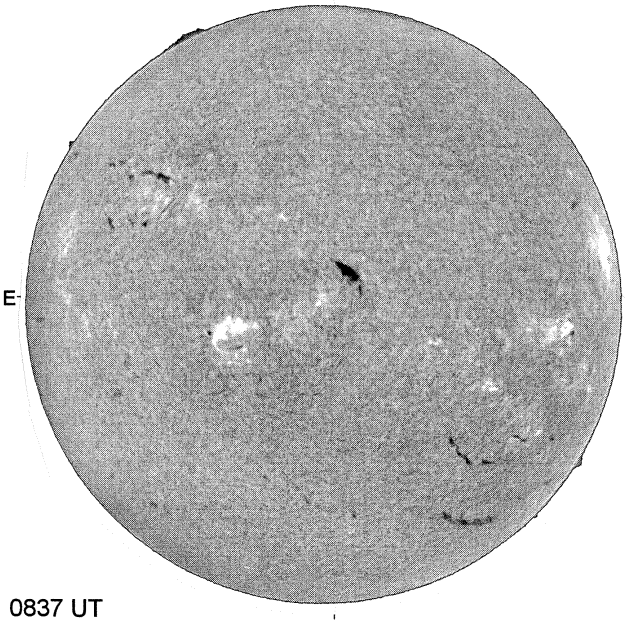
DeltaY =
DeltaX =



-W

White= +7.5G
Black = -7.5G

KANZELHOHE H-ALPHA

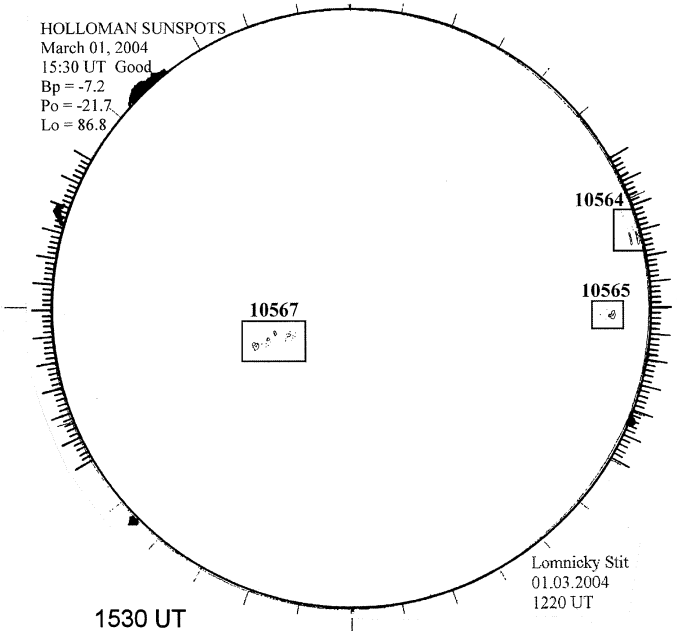


E-

0837 UT

S

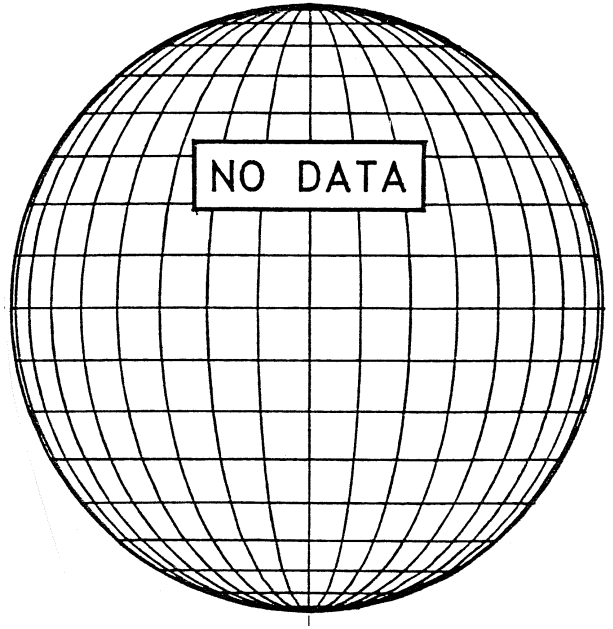
HOLLOMAN SUNSPOT



1530 UT
1220 UT LOMN Prom

S

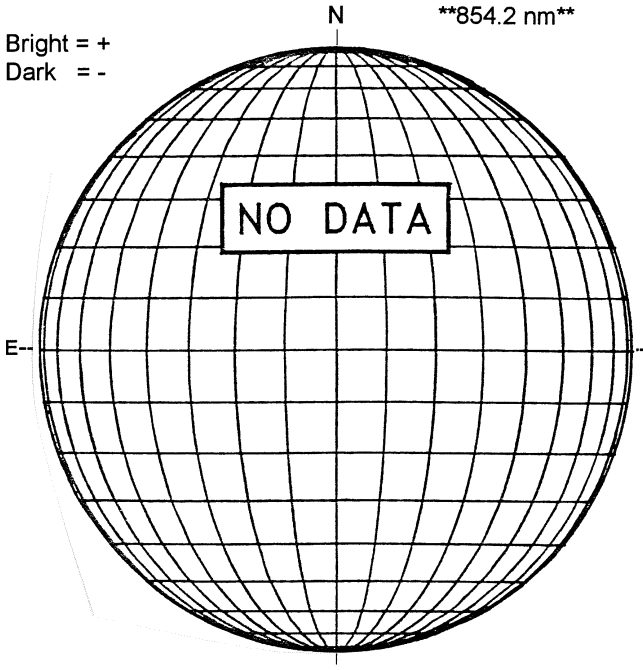
SACRAMENTO PEAK CORONA (1.15 Radii)----



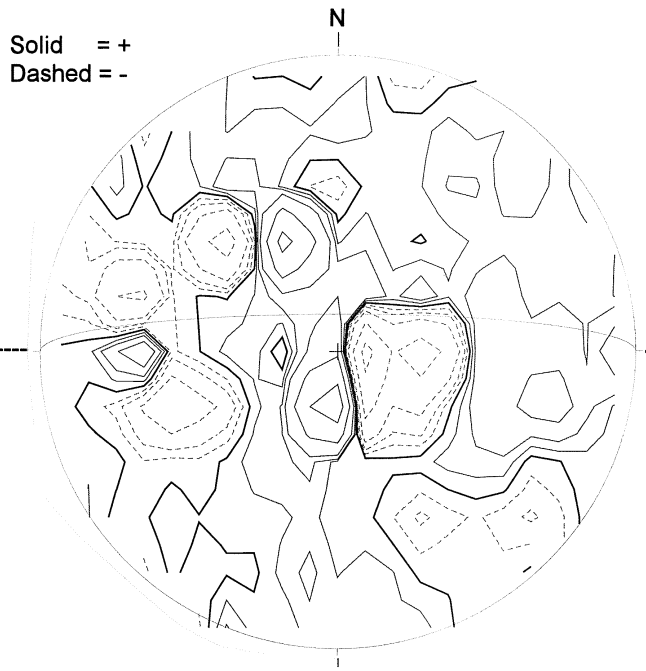
S

MARCH 2, 2004 (P= -21.86, Bo = -7.23, Lo = 81.32)

KITT PEAK MAGNETOGRAM--SOLIS

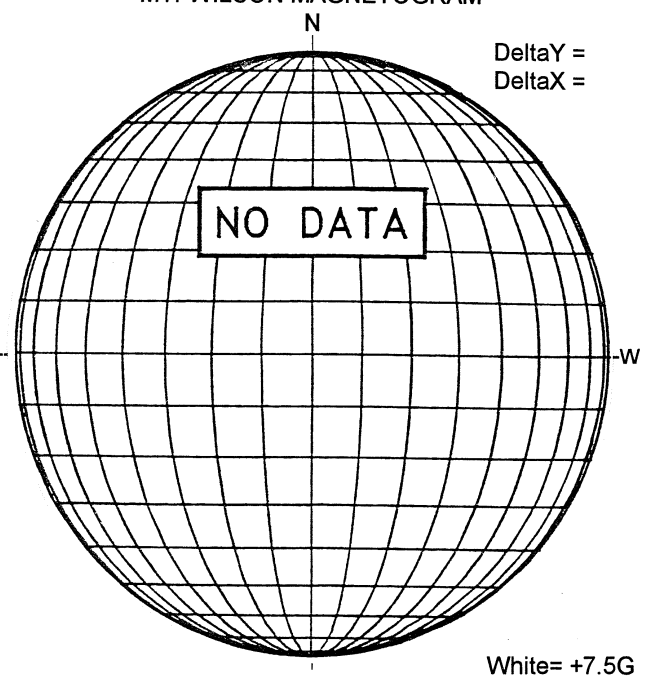


STANFORD MAGNETOGRAM



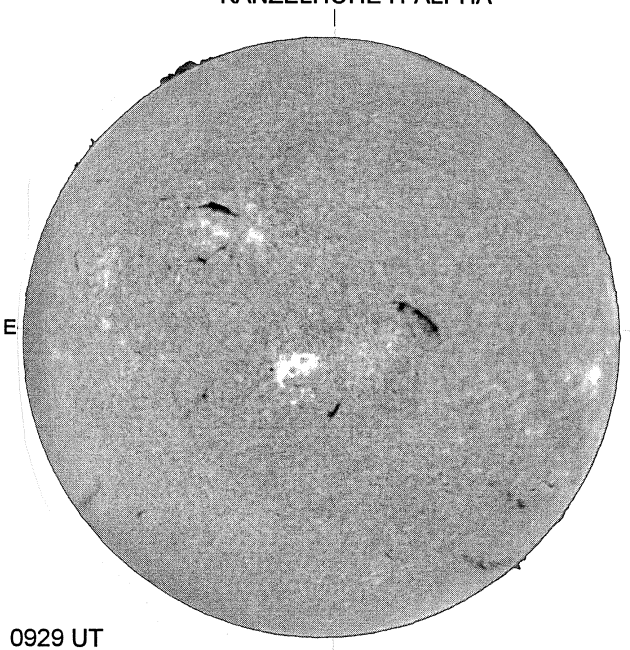
1907 UT

MT. WILSON MAGNETOGRAM



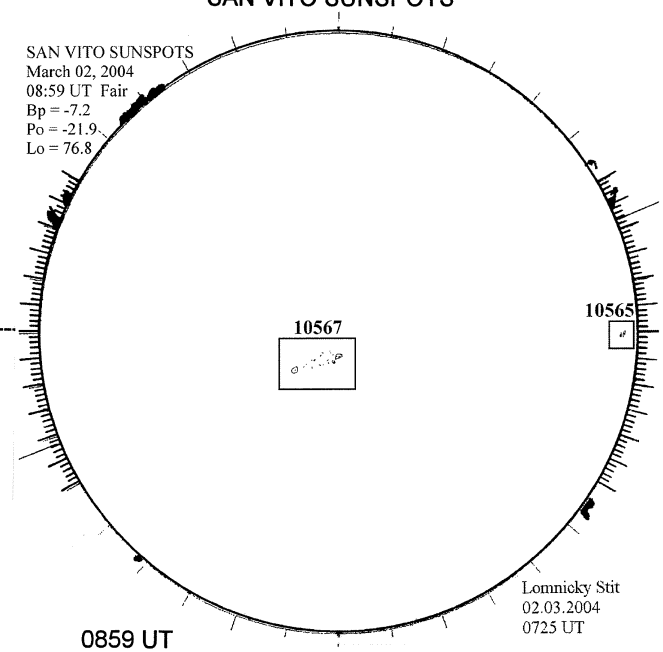
White= +7.5G
Black = -7.5G

KANZELHOHE H-ALPHA



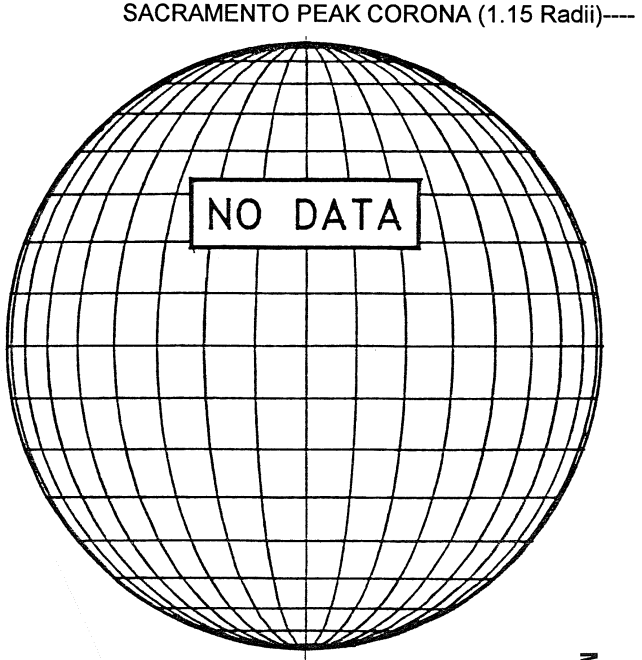
0929 UT

SAN VITO SUNSPOTS



0859 UT
0725 UT LOMN Prom S

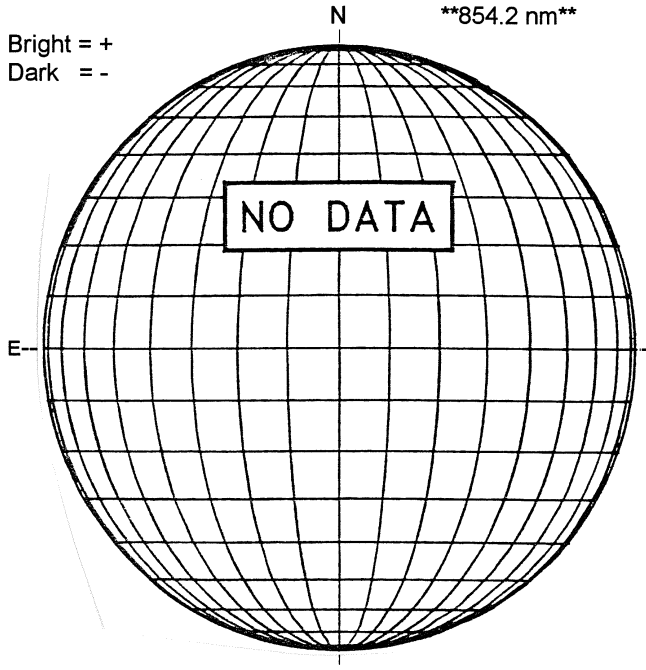
SACRAMENTO PEAK CORONA (1.15 Radii)----



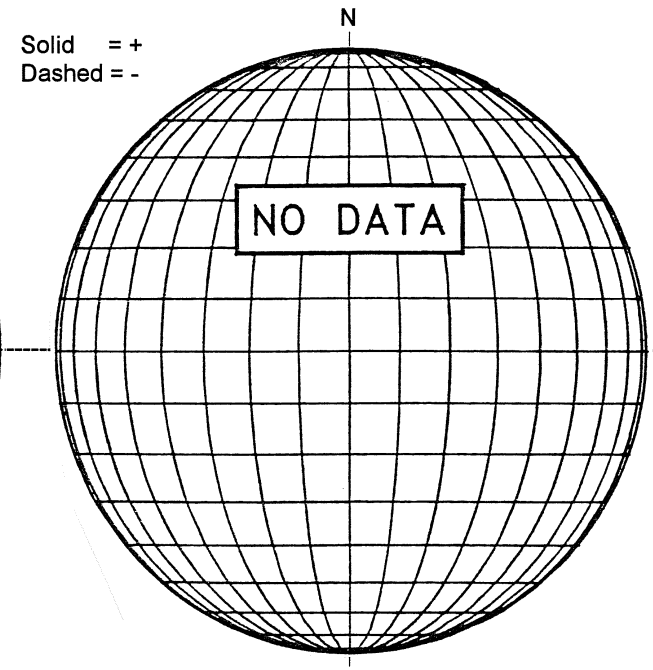
45
Mar 04

MARCH 3, 2004 (P= -22.10, Bo = -7.24, Lo = 68.15)

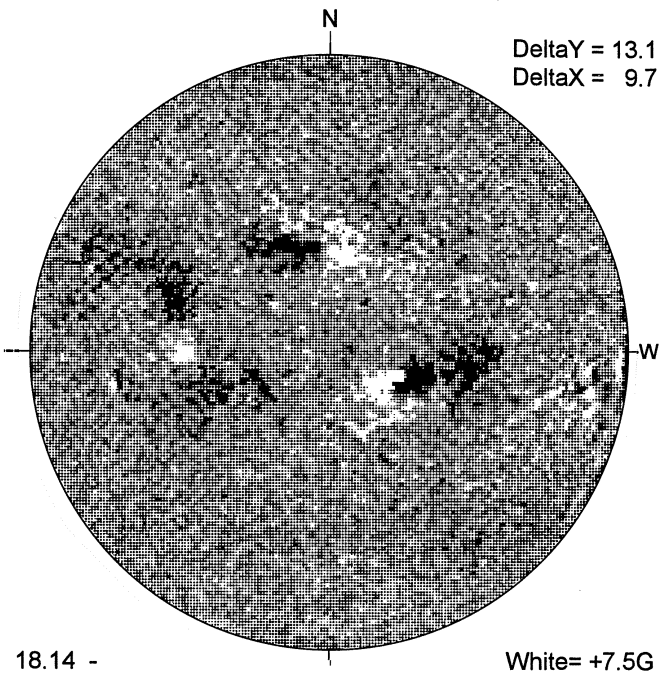
KITT PEAK MAGNETOGRAM--SOLIS



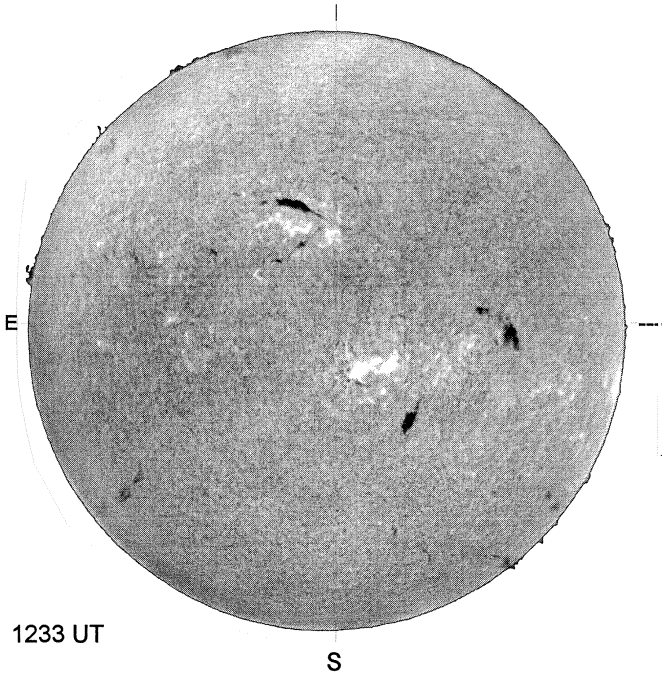
STANFORD MAGNETOGRAM



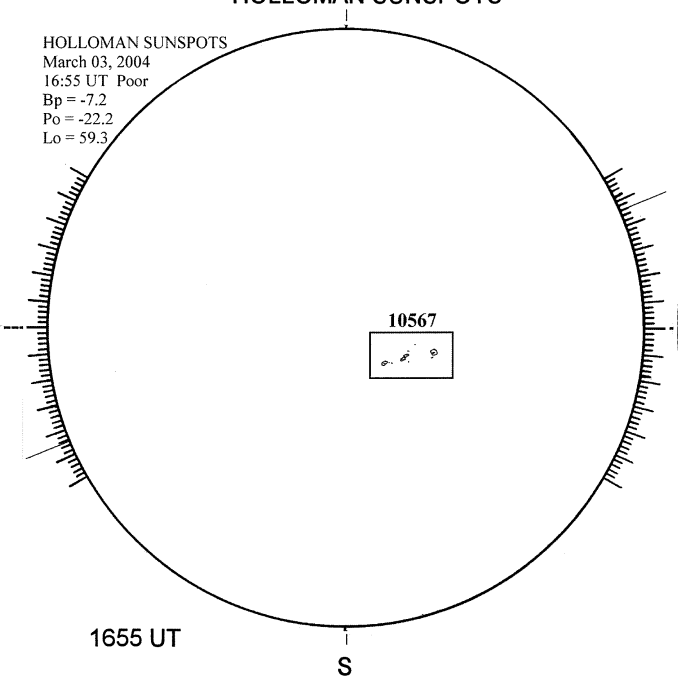
MT. WILSON MAGNETOGRAM



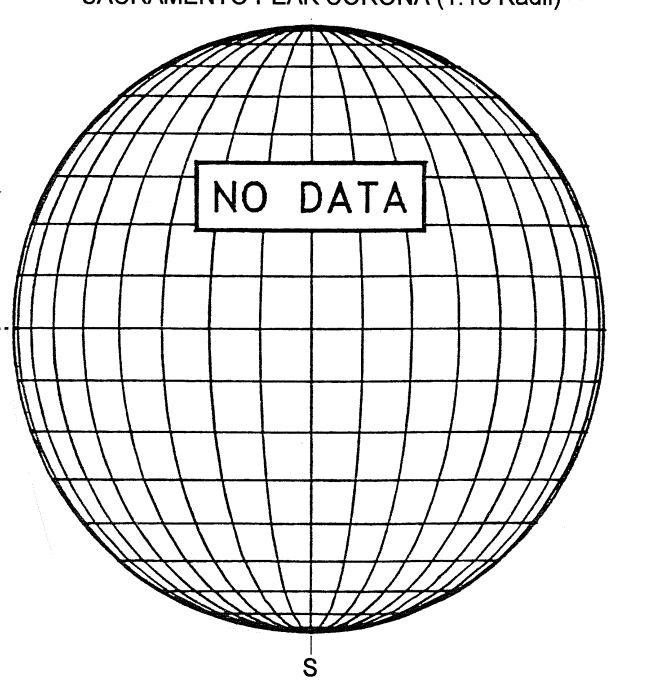
KANZELHOHE H-ALPHA



HOLLOMAN SUNSPOTS

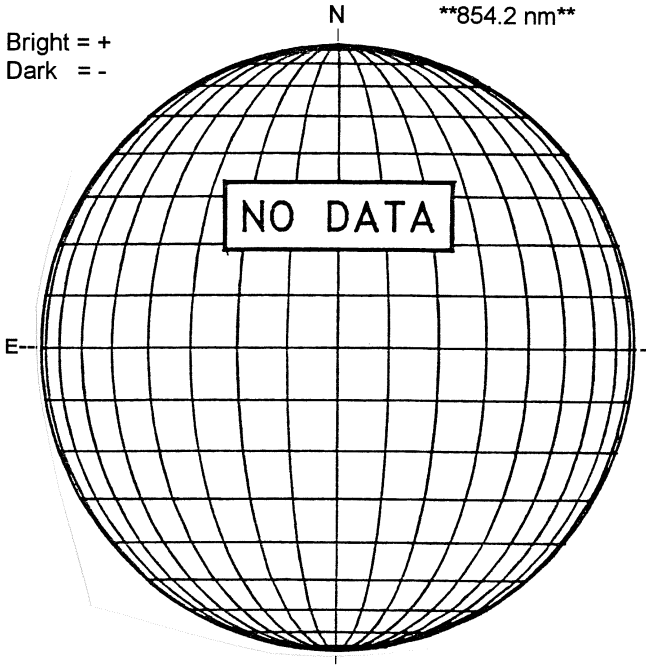


SACRAMENTO PEAK CORONA (1.15 Radii)

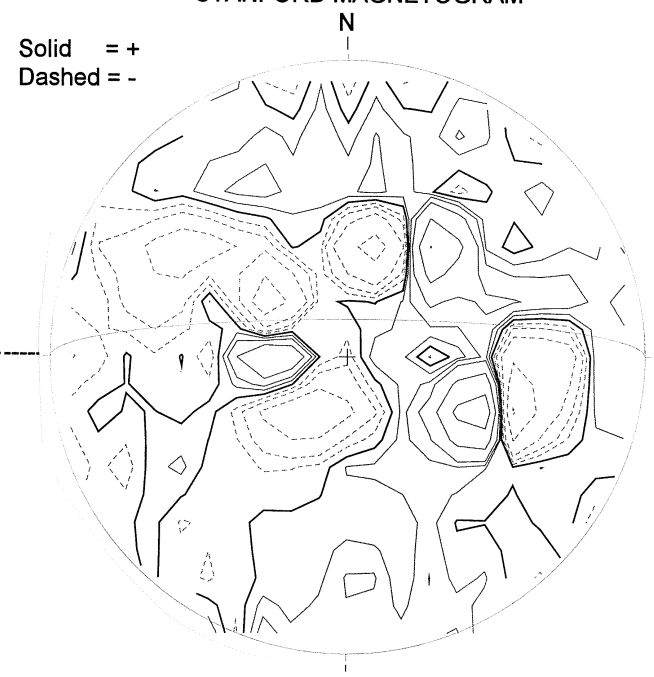


MARCH 4, 2004 (P= -22.34, Bo = -7.25, Lo = 54.97)

KITT PEAK MAGNETOGRAM--SOLIS

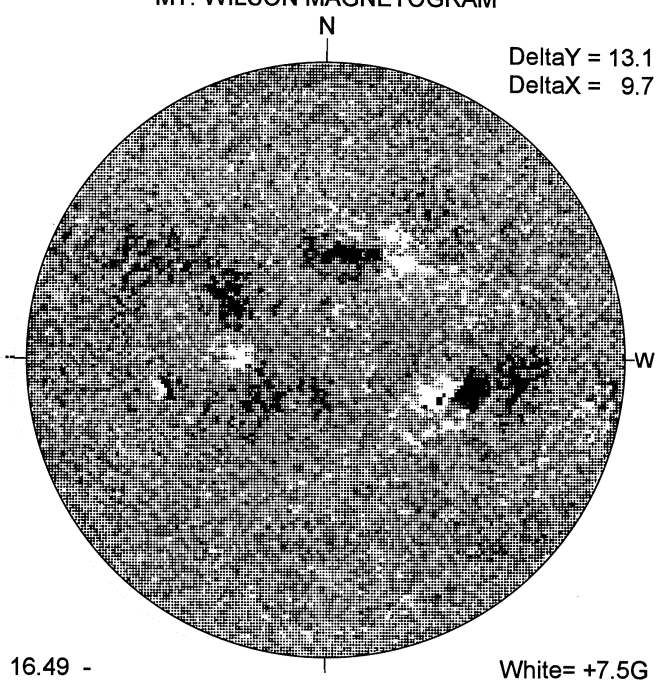


STANFORD MAGNETOGRAM



2141 UT

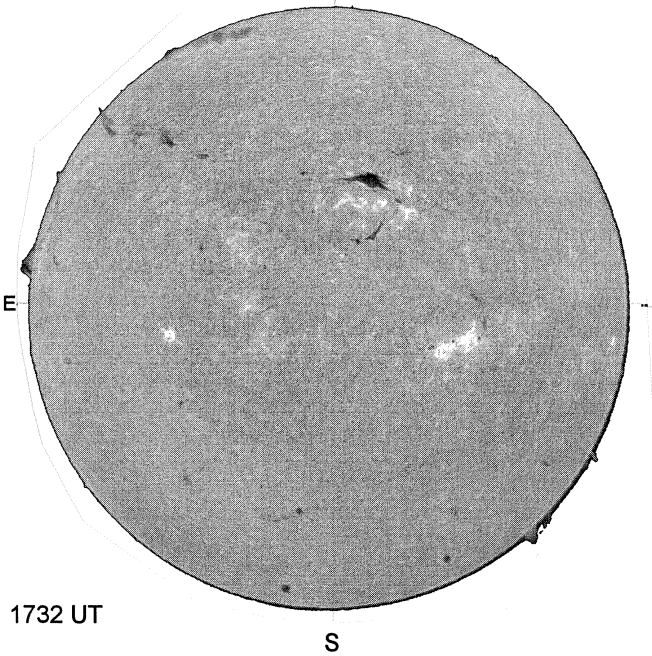
MT. WILSON MAGNETOGRAM



16.49 -
17.44 UT

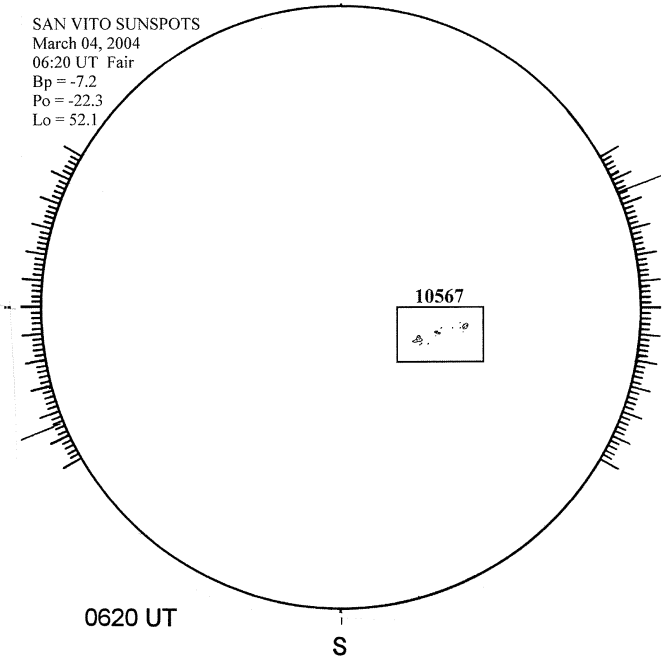
White= +7.5G
Black = -7.5G

----- BIG BEAR H-ALPHA



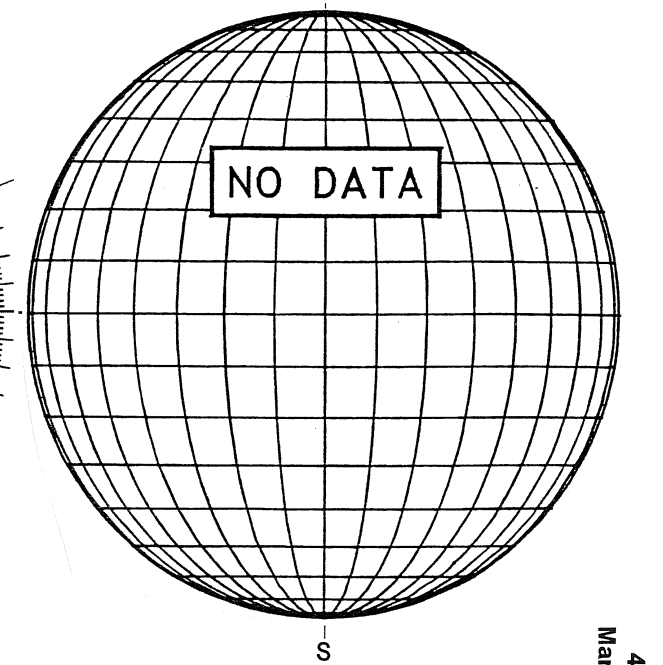
1732 UT

SAN VITO SUNSPOTS



0620 UT

SACRAMENTO PEAK CORONA (1.15 Radii)----



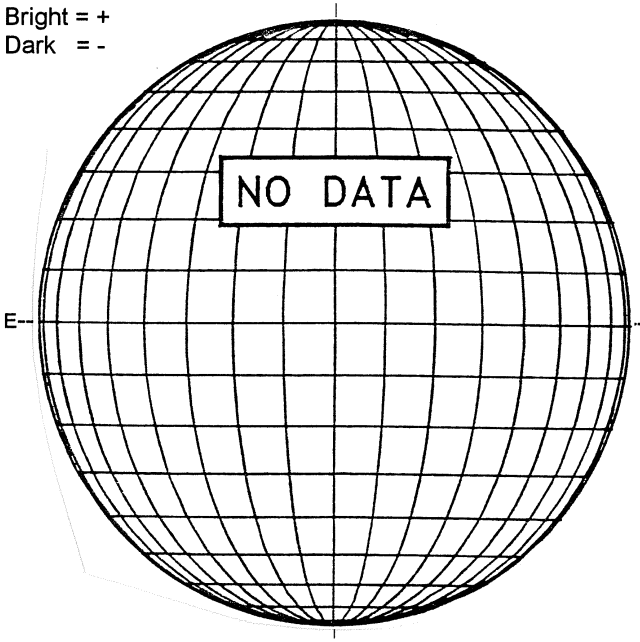
47
Mar 04

MARCH 5, 2004 (P= -22.57, Bo = -7.25, Lo = 41.80)

KITT PEAK MAGNETOGRAM--SOLIS

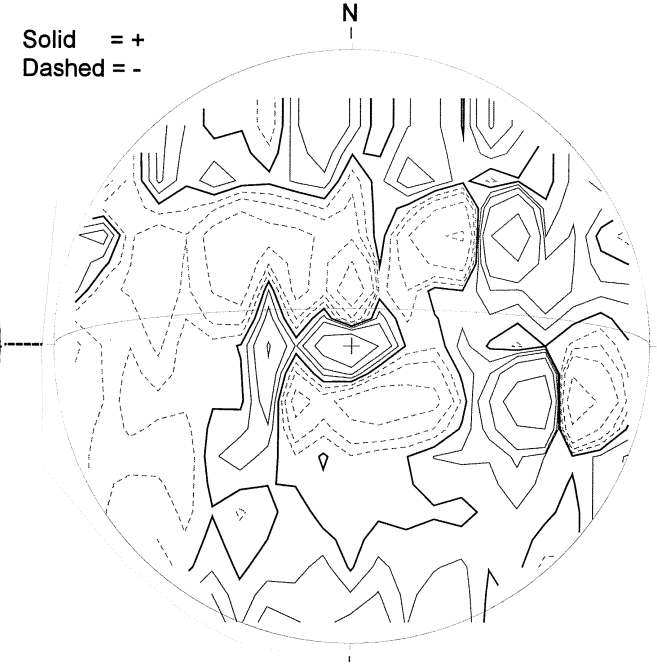
854.2 nm

Bright = +
Dark = -



STANFORD MAGNETOGRAM

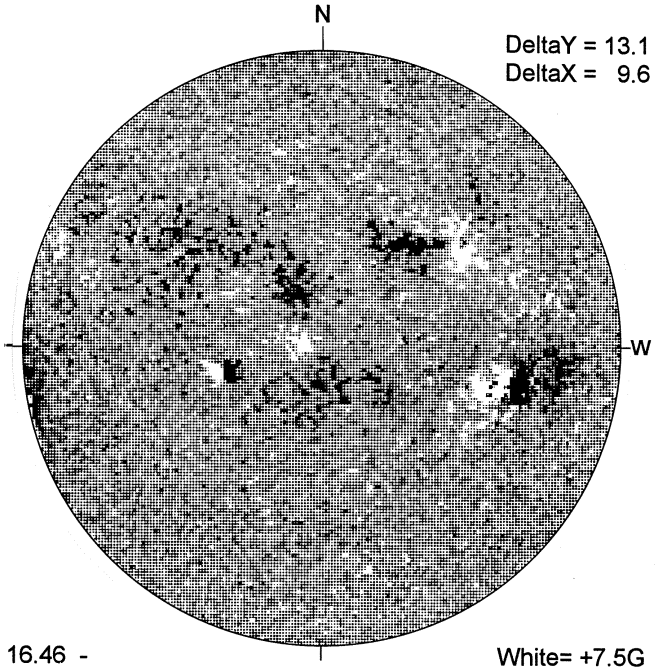
Solid = +
Dashed = -



2346 UT

MT. WILSON MAGNETOGRAM

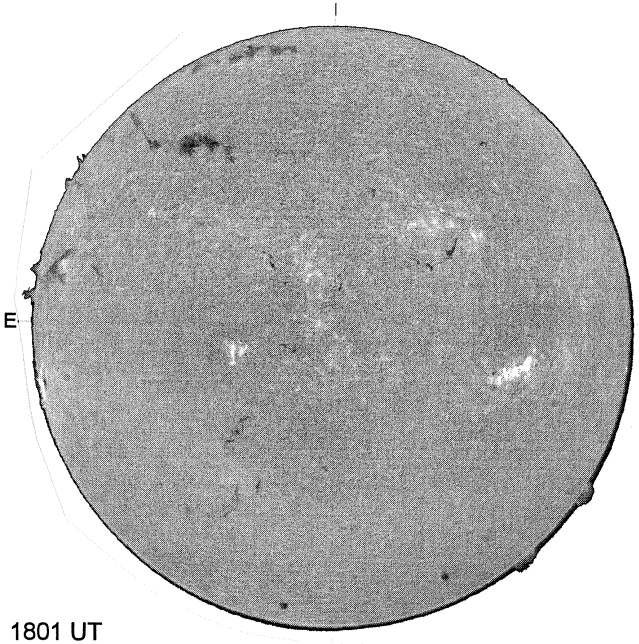
DeltaY = 13.1
DeltaX = 9.6



16.46 -
17.42 UT

White= +7.5G
Black = -7.5G

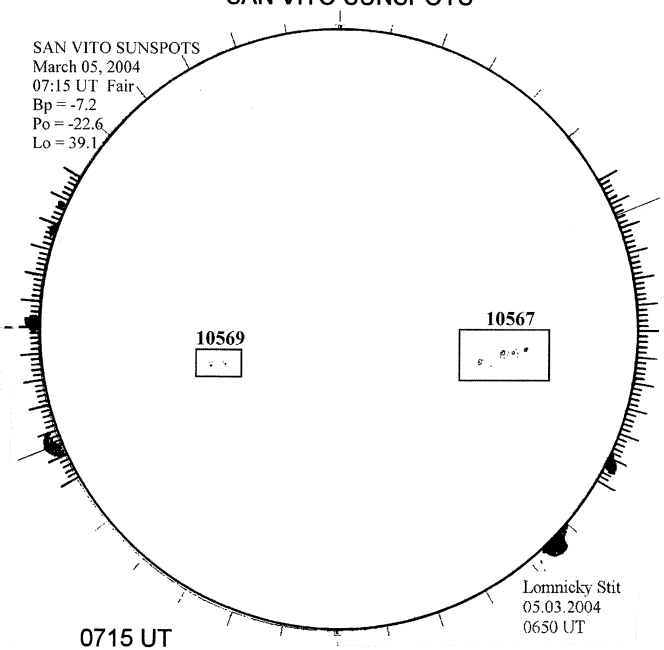
BIG BEAR H-ALPHA



1801 UT

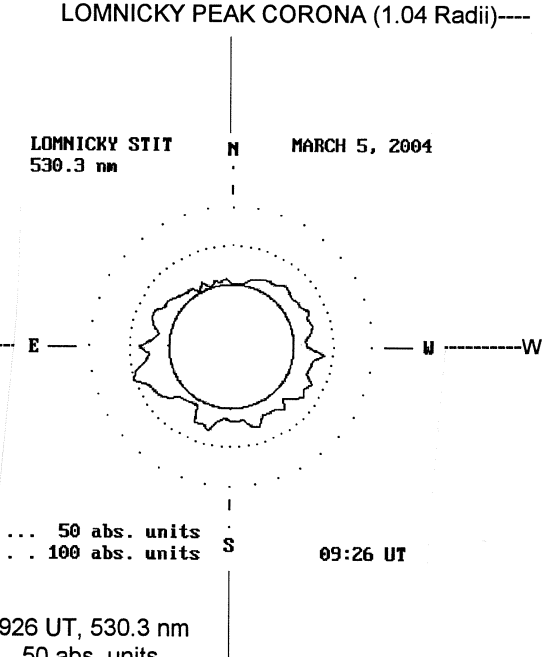
S

SAN VITO SUNSPOTS



0715 UT
0650 UT LOMN Prom S

LOMNICKY PEAK CORONA (1.04 Radii)

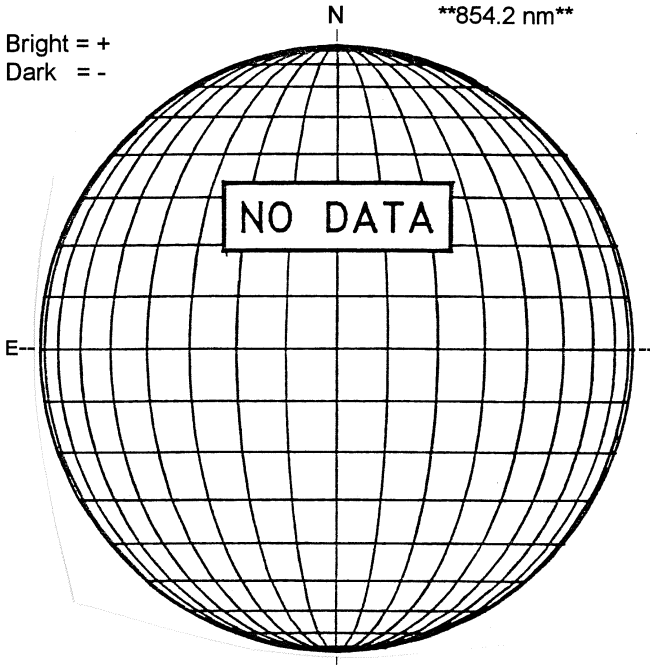


0926 UT, 530.3 nm
.... 50 abs. units
. . 100 abs. units

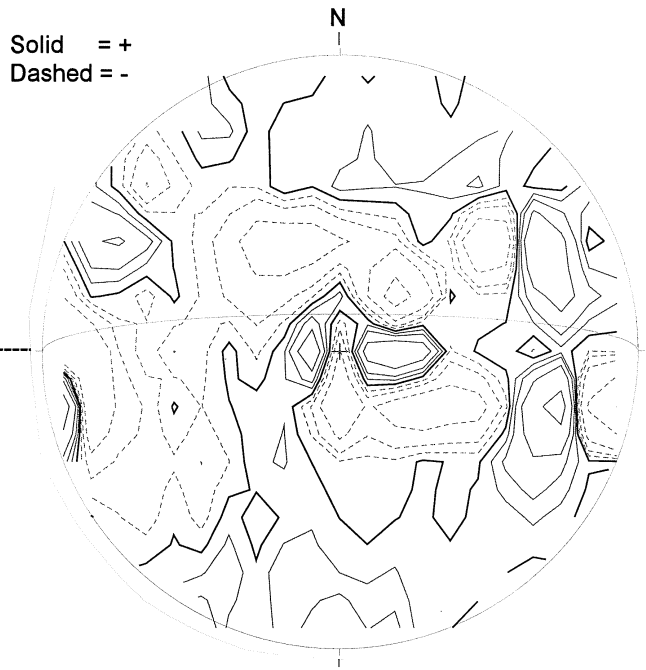
S

MARCH 6, 2004 (P= -22.79, Bo = -7.25, Lo = 28.62)

KITT PEAK MAGNETOGRAM--SOLIS

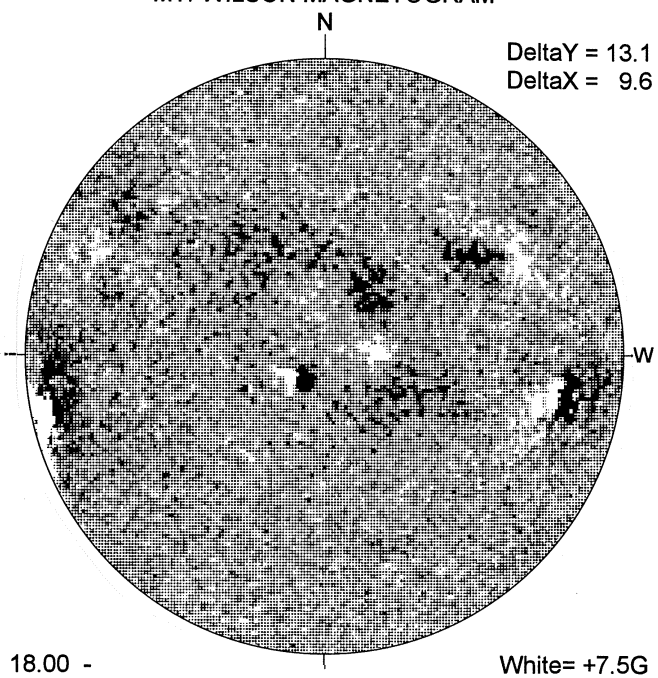


STANFORD MAGNETOGRAM



2101 UT

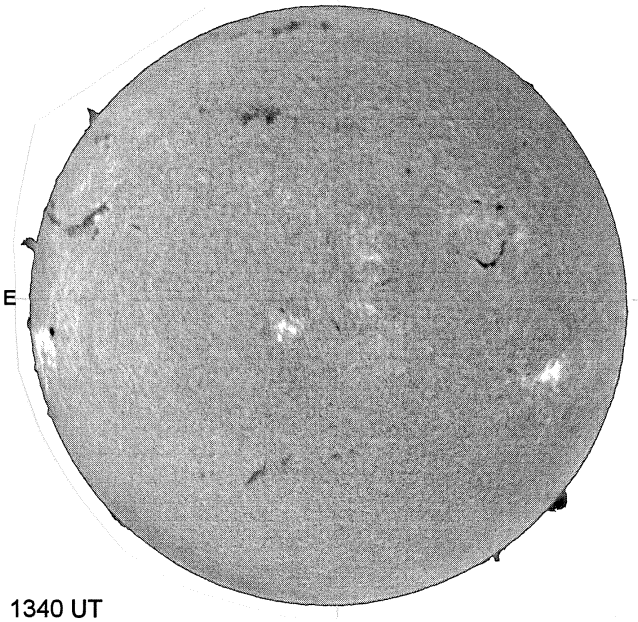
MT. WILSON MAGNETOGRAM



18.00 -
18.96 UT

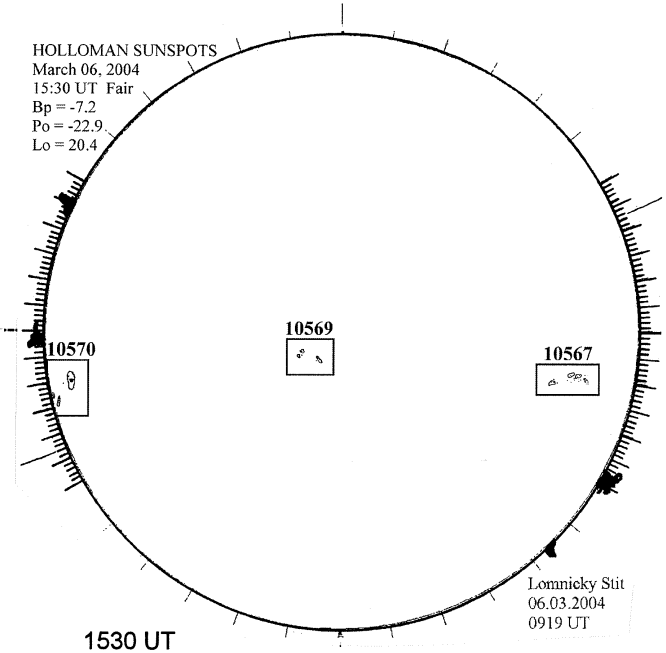
White= +7.5G
Black = -7.5G

KANZELHOHE H-ALPHA



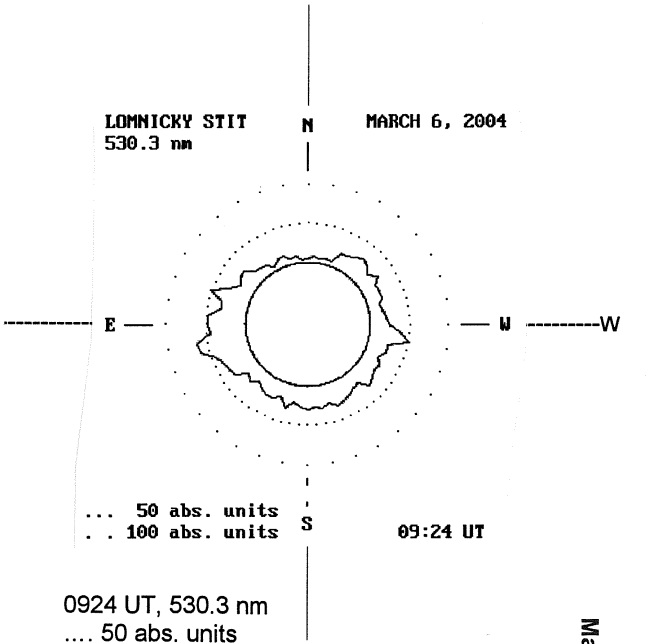
1340 UT

HOLLOMAN SUNSPOT



1530 UT
0919 UT LOMN Prom S

LOMNICKY PEAK CORONA (1.04 Radii)----



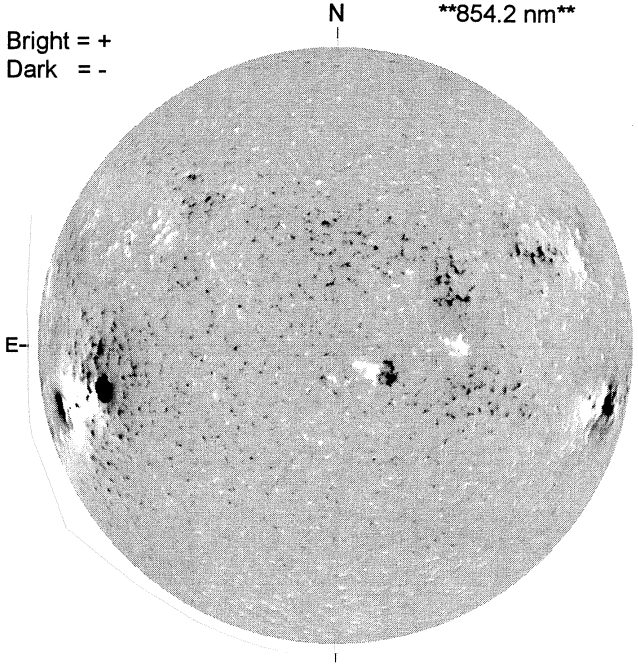
0924 UT, 530.3 nm
.... 50 abs. units
. . 100 abs. units

S

49
Mar 04

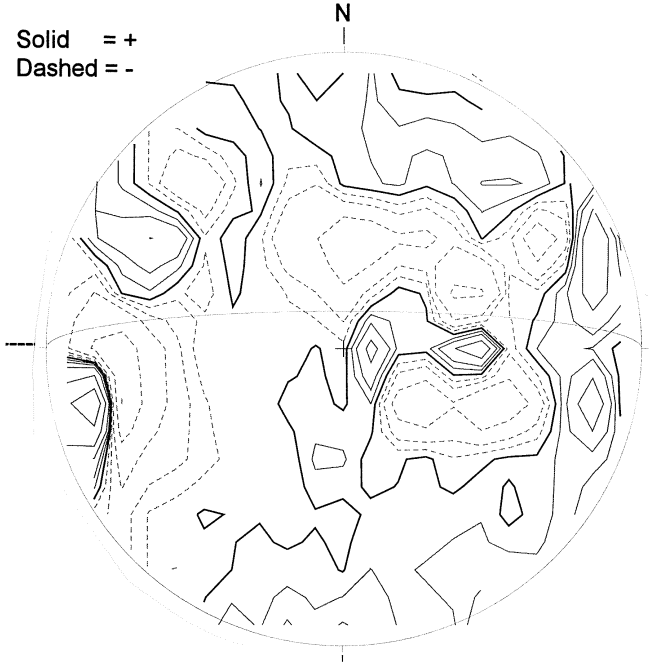
MARCH 7, 2004 (P= -23.00, Bo = -7.25, Lo = 15.45)

KITT PEAK MAGNETOGRAM--SOLIS



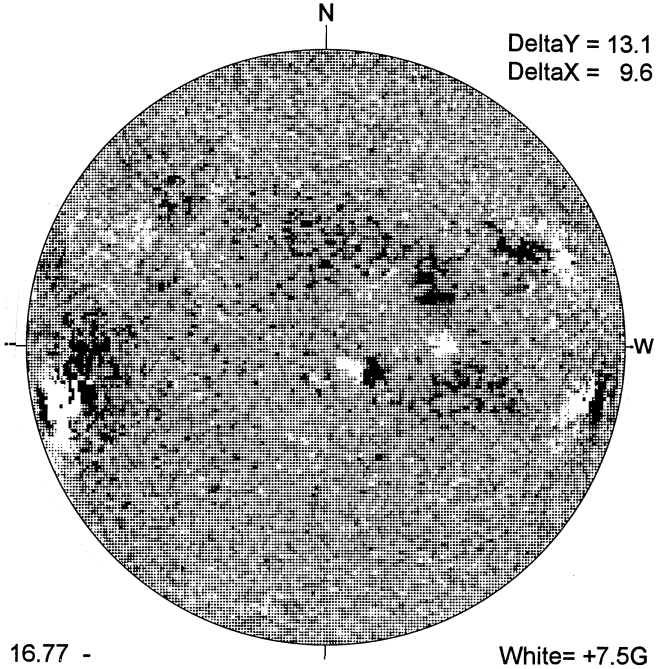
1857 UT

STANFORD MAGNETOGRAM



2007 UT

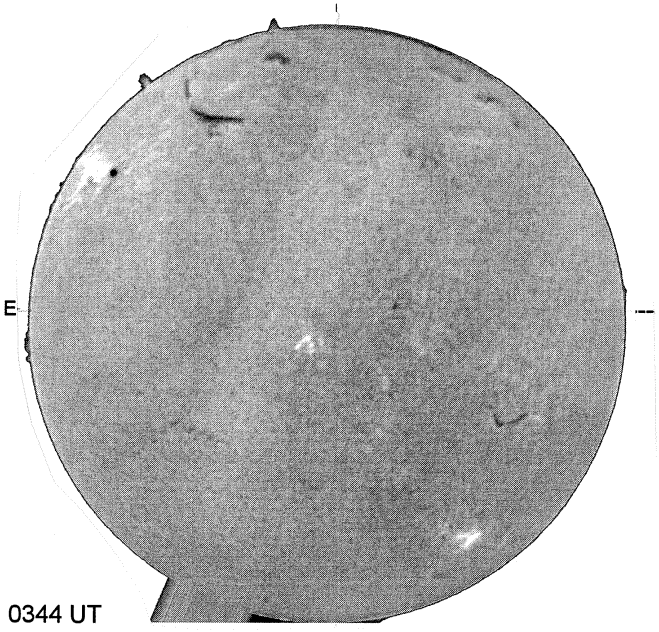
MT. WILSON MAGNETOGRAM



16.77 -
17.73 UT

White= +7.5G
Black = -7.5G

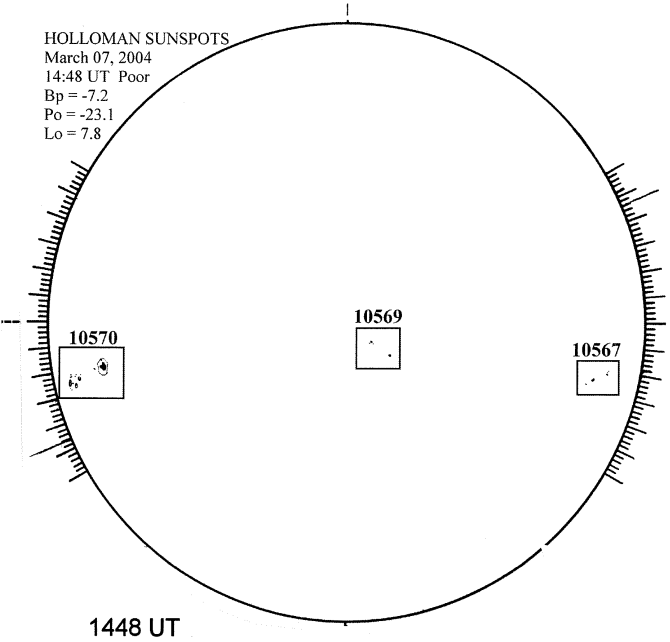
HSOS H-ALPHA



0344 UT

S

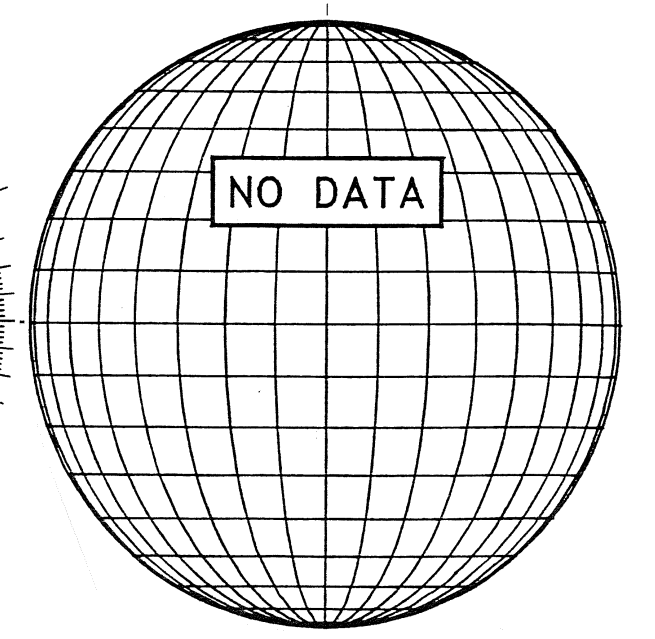
HOLLOMAN SUNSPOTS



1448 UT

S

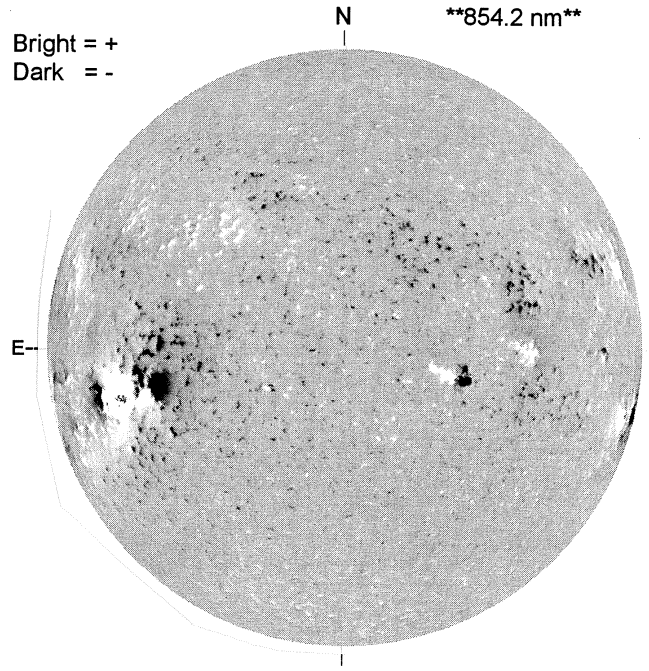
SACRAMENTO PEAK CORONA (1.15 Radii)----



S

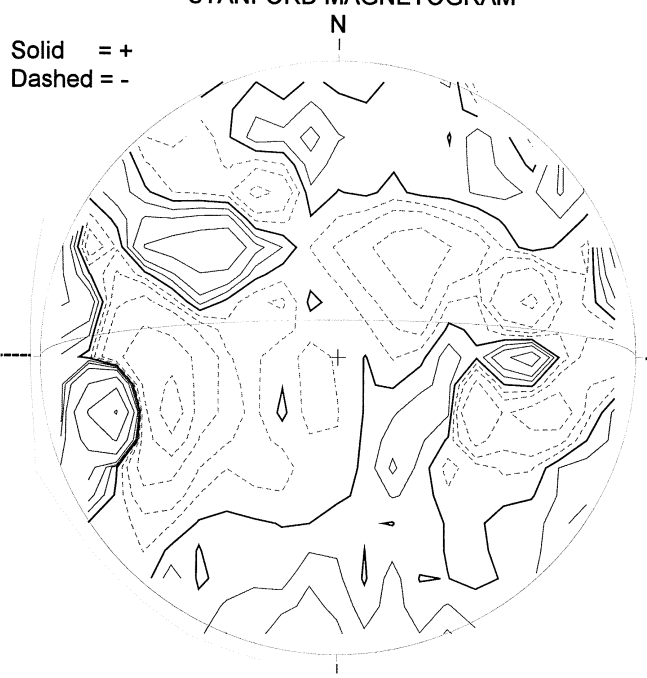
MARCH 8, 2004 (P= -23.21, Bo = -7.25, Lo = 2.27)

KITT PEAK MAGNETOGRAM--SOLIS



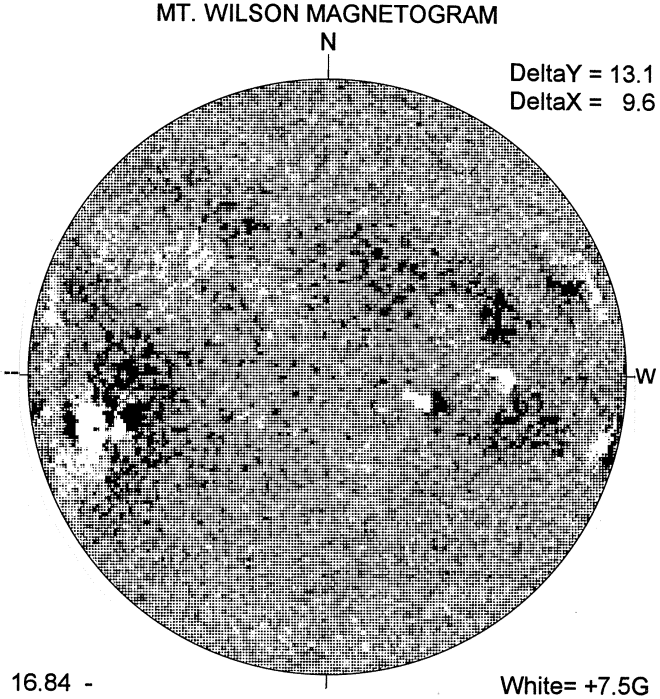
1957 UT

STANFORD MAGNETOGRAM



2207 UT

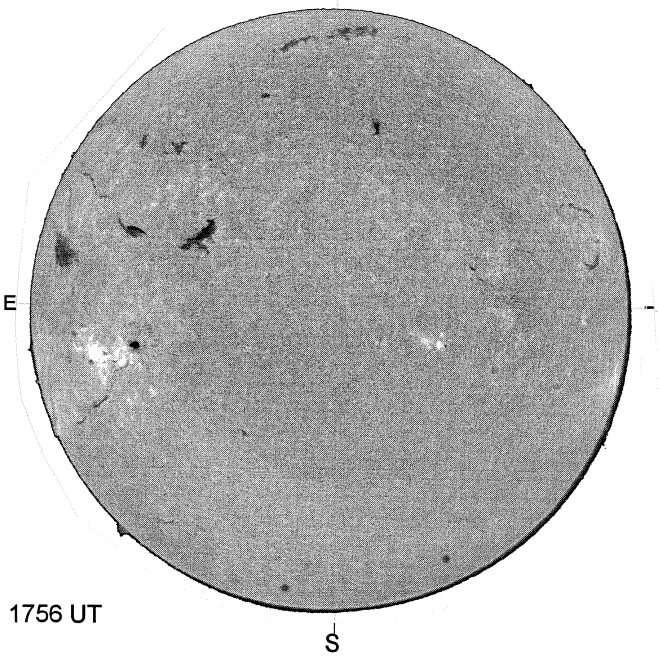
MT. WILSON MAGNETOGRAM



16.84 -
17.80 UT

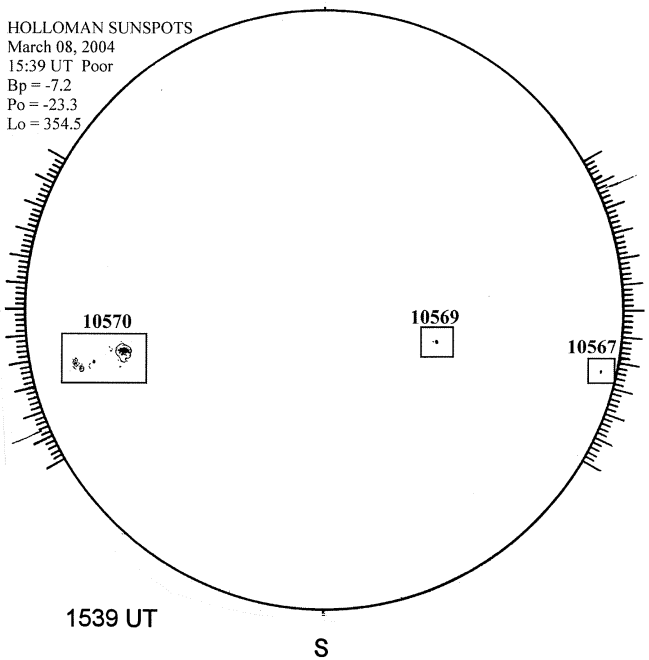
White= +7.5G
Black = -7.5G

BIG BEAR H-ALPHA



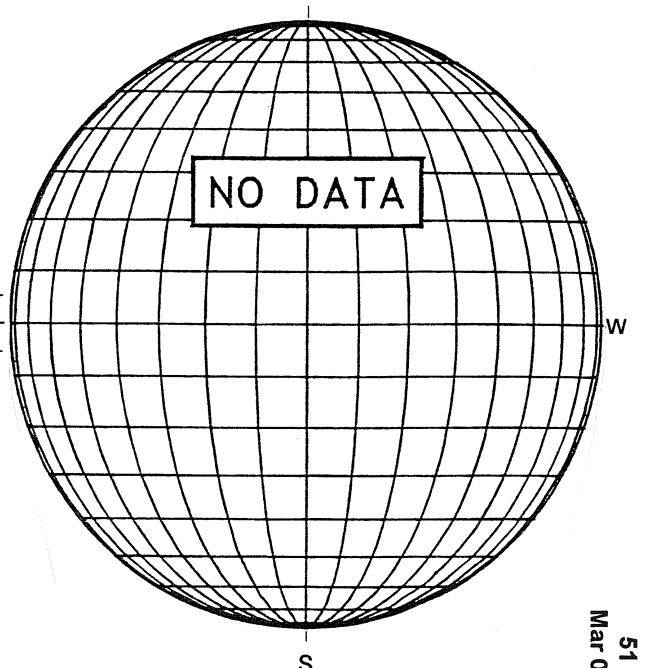
1756 UT

HOLLOMAN SUNSPOTS



1539 UT

SACRAMENTO PEAK CORONA (1.15 Radii)----



51
Mar 04

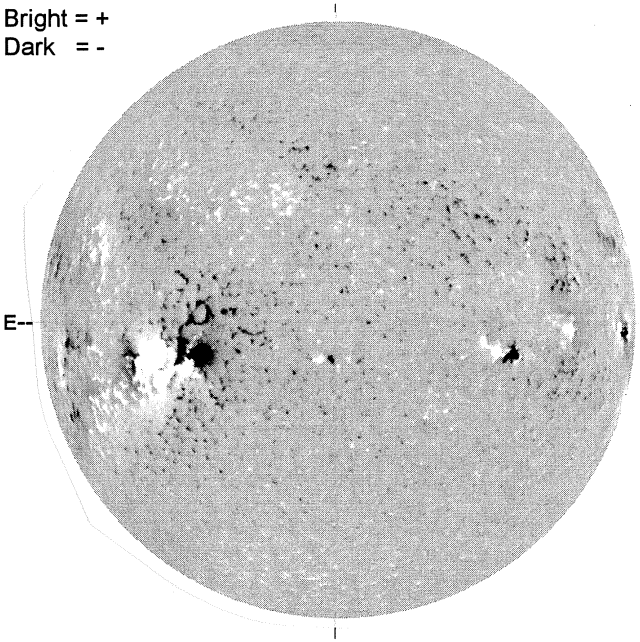
MARCH 9, 2004 (P= -23.41, Bo = -7.24, Lo = 349.10)

KITT PEAK MAGNETOGRAM--SOLIS

N

**854.2 nm

Bright = +
Dark = -



1831 UT

STANFORD MAGNETOGRAM

N

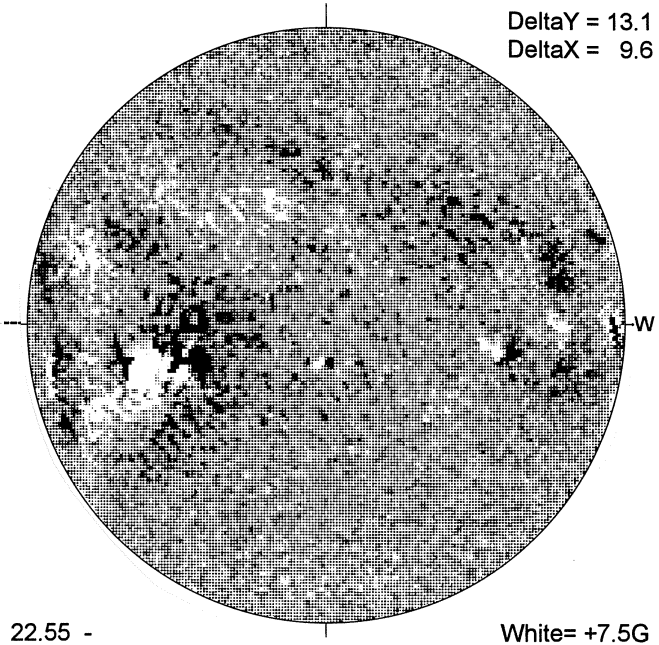
Solid = +
Dashed = -

1910 UT

MT. WILSON MAGNETOGRAM

N

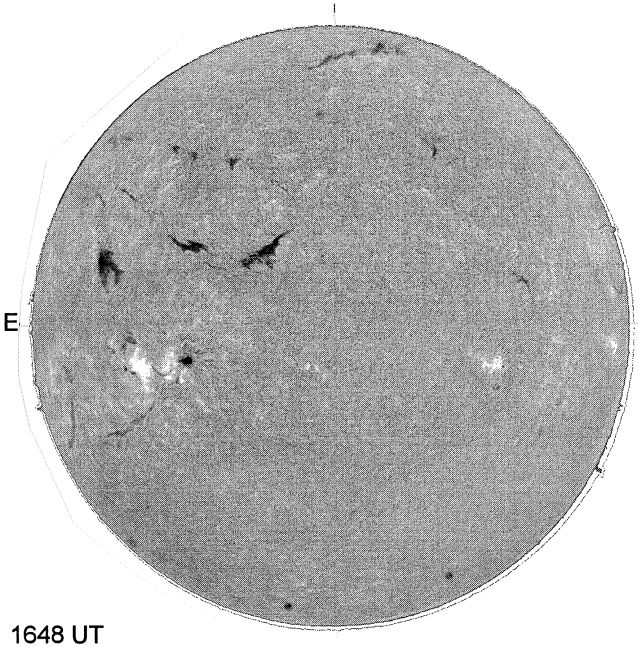
DeltaY = 13.1
DeltaX = 9.6



22.55 -
23.52 UT

White= +7.5G
Black = -7.5G

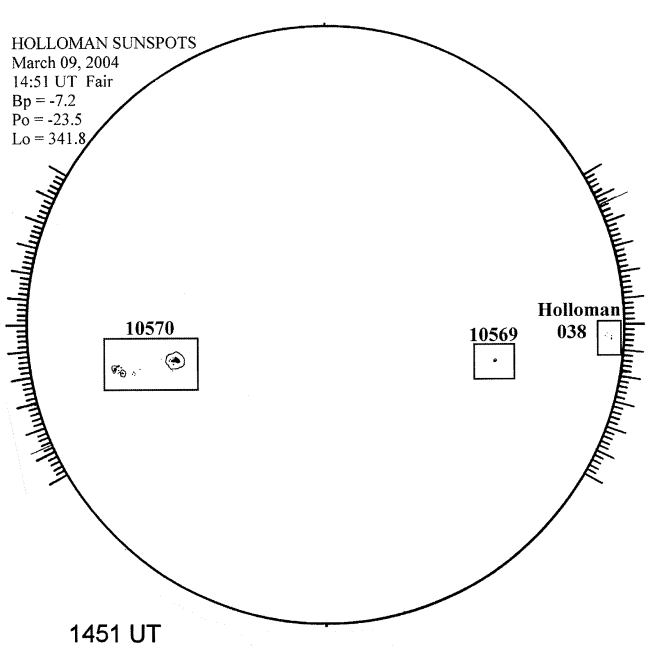
BIG BEAR H-ALPHA



1648 UT

S

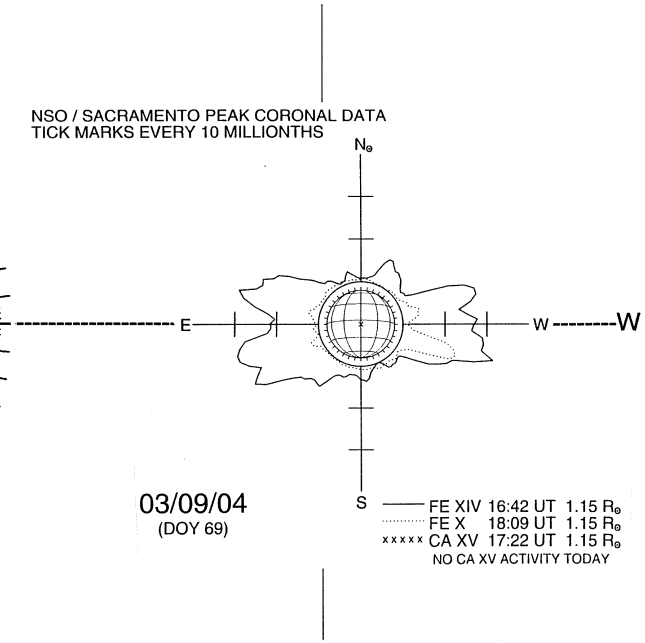
HOLLOMAN SUNSPOT



1451 UT

S

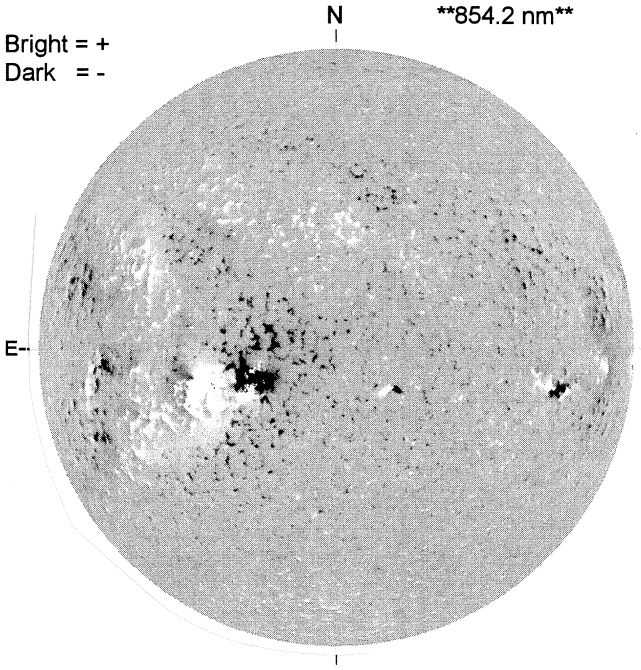
SACRAMENTO PEAK CORONA (1.15 Radii)----



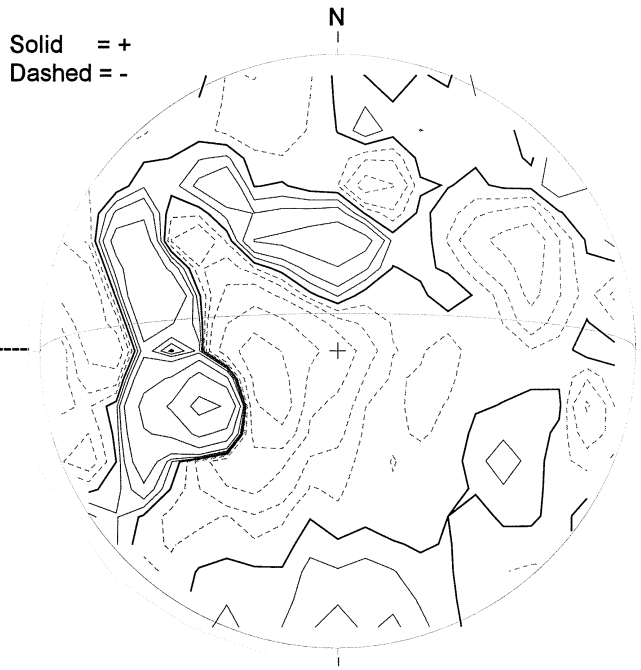
S

MARCH 10, 2004 (P= -23.61, Bo = -7.23 Lo = 335.92)

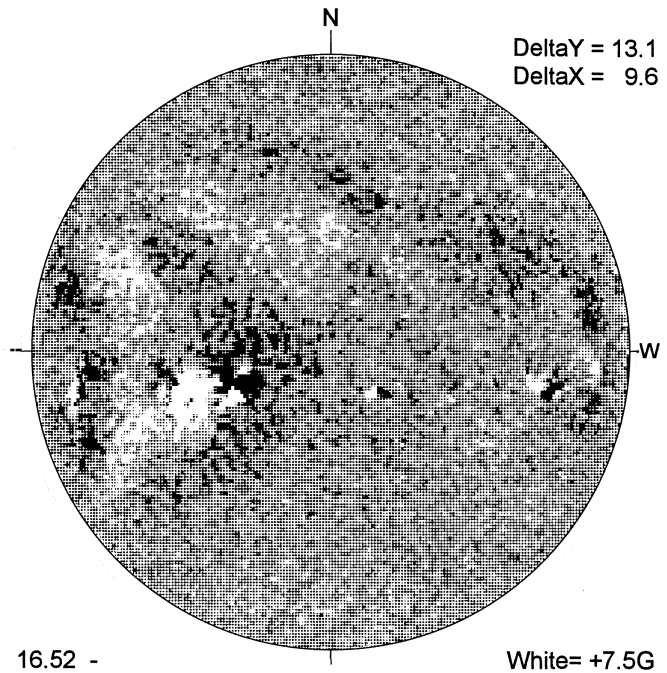
KITT PEAK MAGNETOGRAM--SOLIS



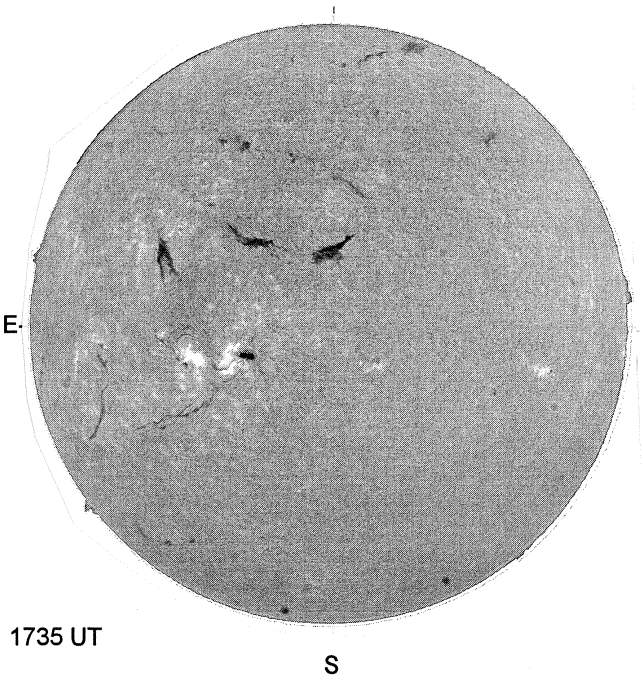
STANFORD MAGNETOGRAM



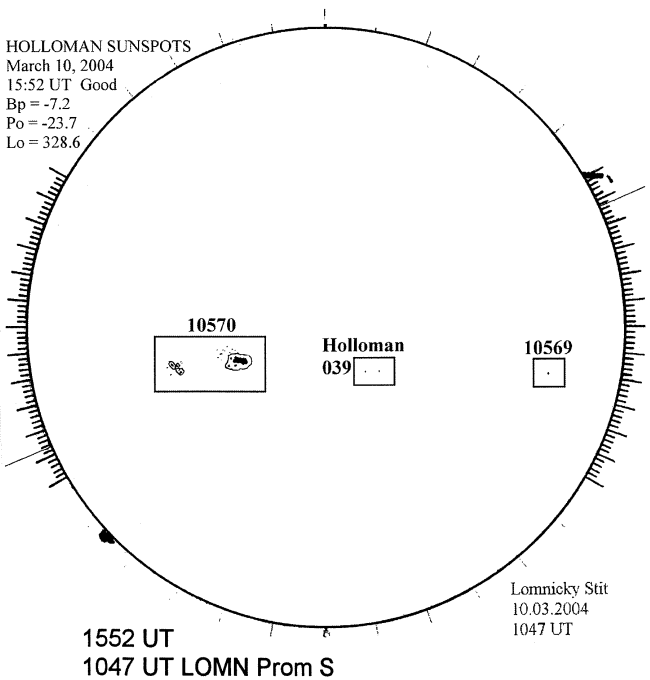
MT. WILSON MAGNETOGRAM



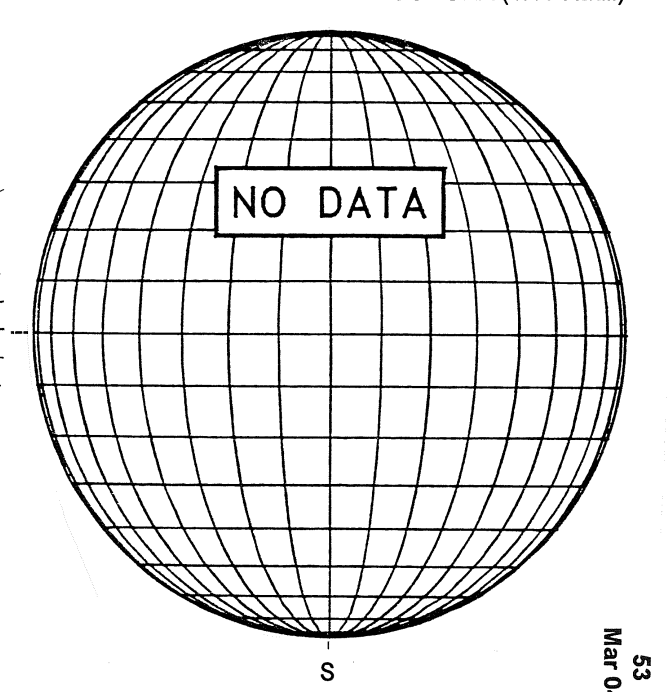
BIG BEAR H-ALPHA



HOLLOMAN SUNSPOTS



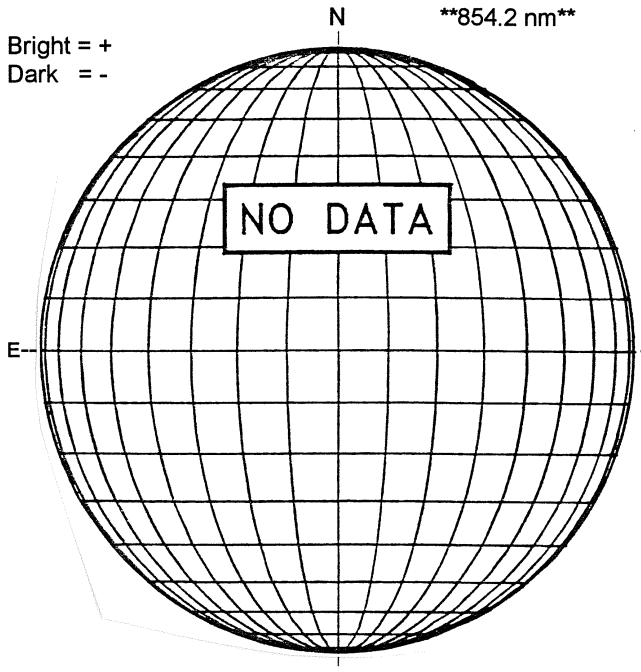
SACRAMENTO PEAK CORONA (1.15 Radii)



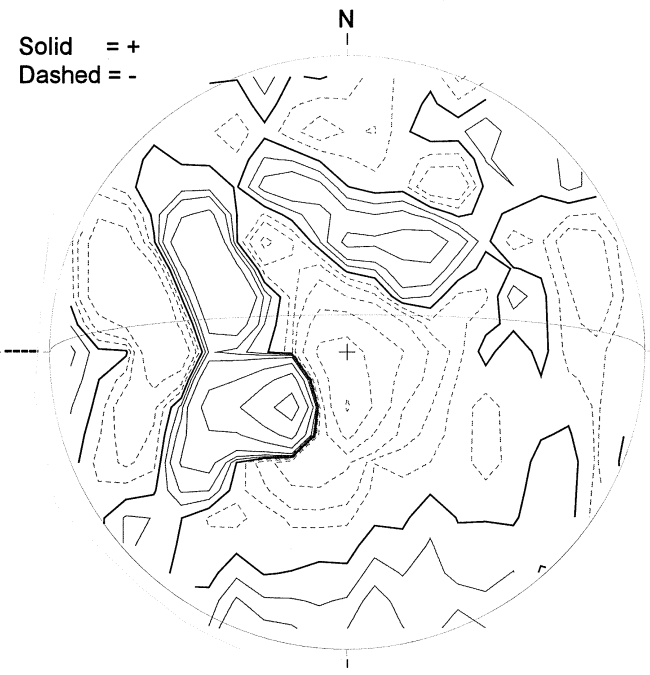
53
Mar 04

MARCH 11, 2004 (P= -23.80, Bo = -7.22, Lo = 322.74)

KITT PEAK MAGNETOGRAM--SOLIS

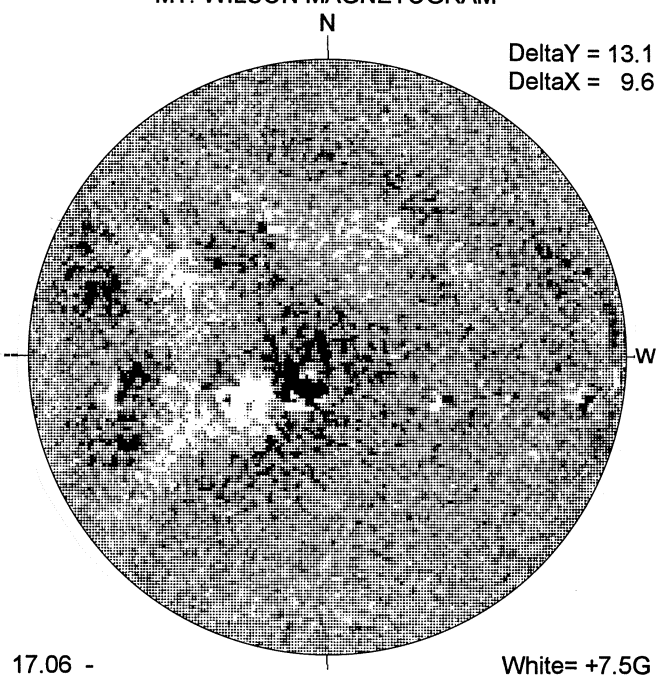


STANFORD MAGNETOGRAM



2327 UT

MT. WILSON MAGNETOGRAM



17.06 -
18.02 UT

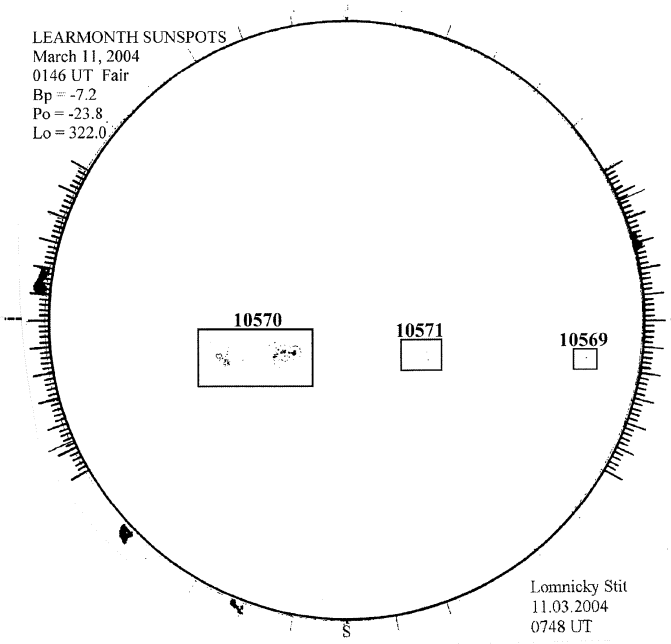
White= +7.5G
Black = -7.5G

BIG BEAR H-ALPHA

1658 UT

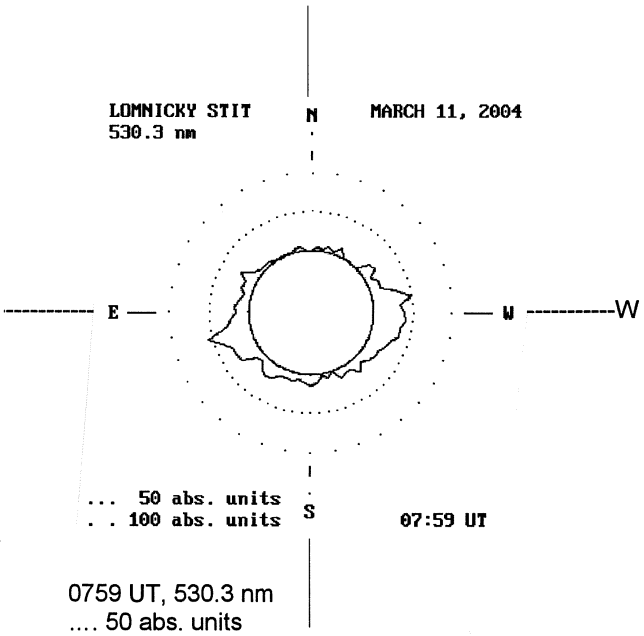
S

HOLLOMAN SUNSPOTS



0748 UT LOMN Prom S

LOMNICKY PEAK CORONA (1.04 Radii)----

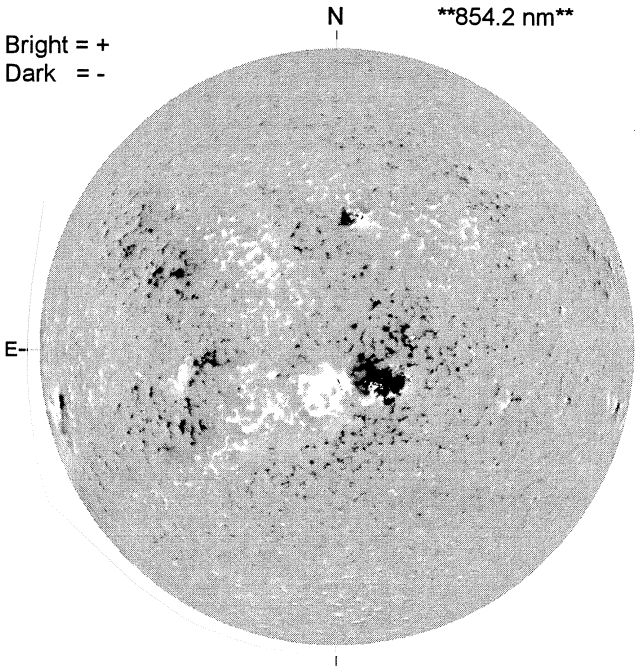


0759 UT, 530.3 nm
.... 50 abs. units
. . 100 abs. units

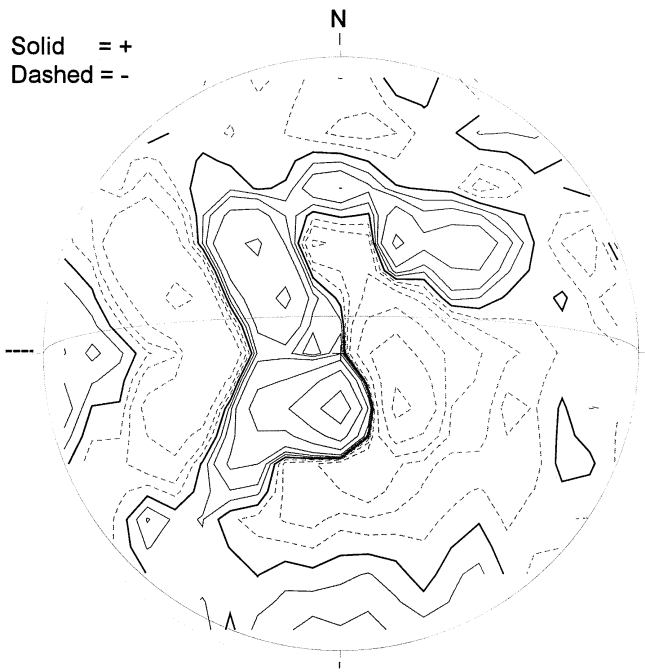
S

MARCH 12, 2004 (P= -23.98, Bo = -7.21, Lo = 309.56)

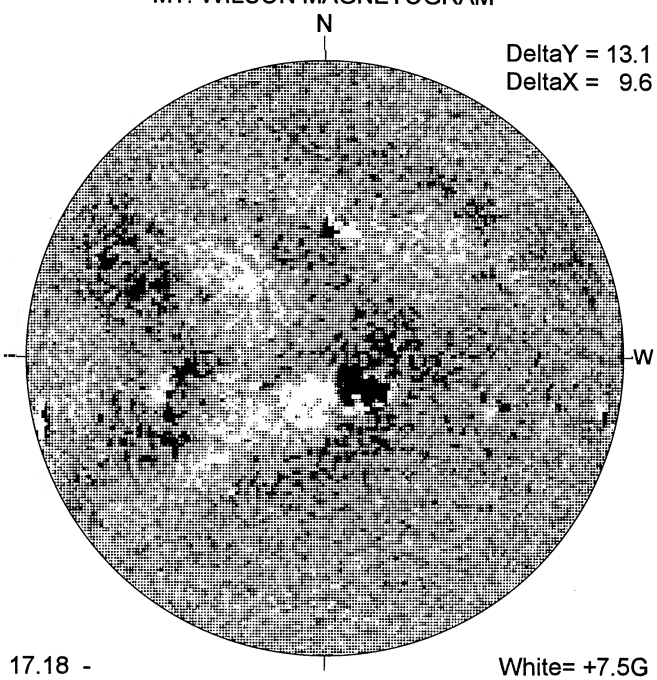
KITT PEAK MAGNETOGRAM--SOLIS



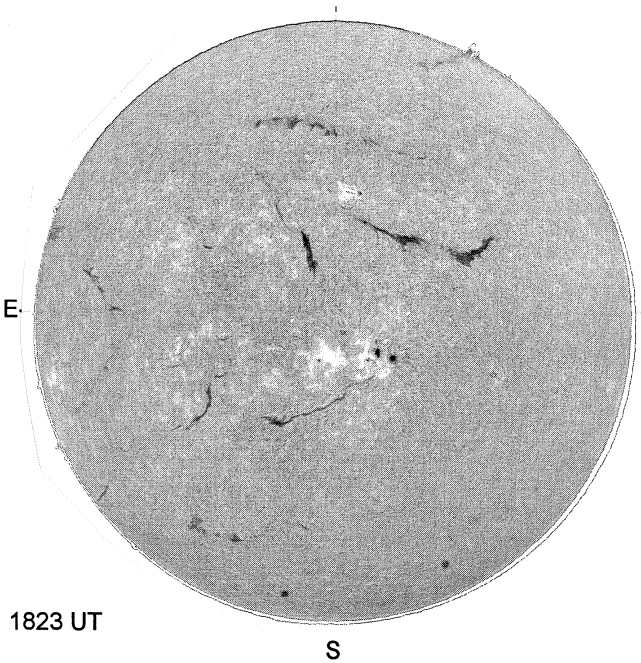
STANFORD MAGNETOGRAM



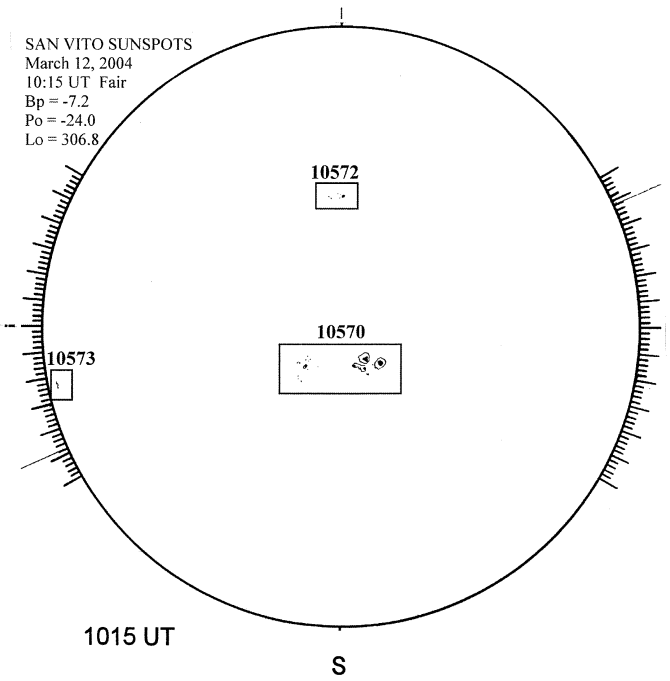
MT. WILSON MAGNETOGRAM



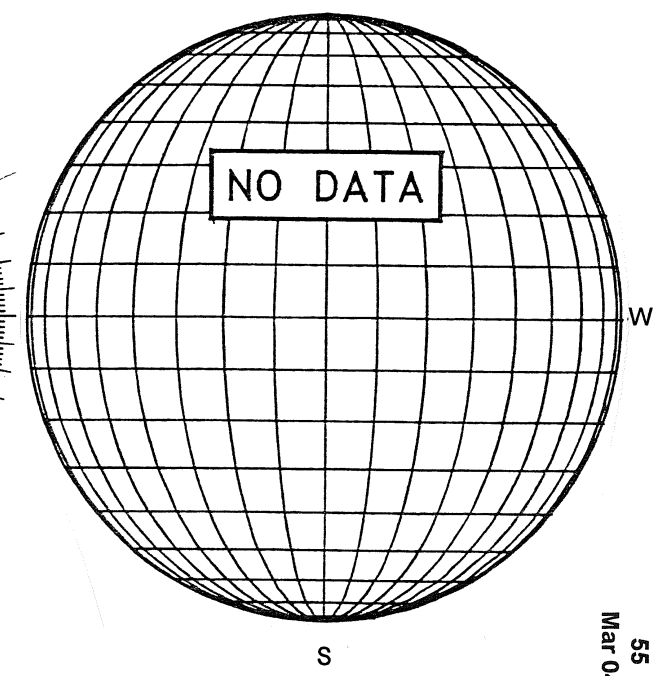
BIG BEAR H-ALPHA



SAN VITO SUNSPOTS



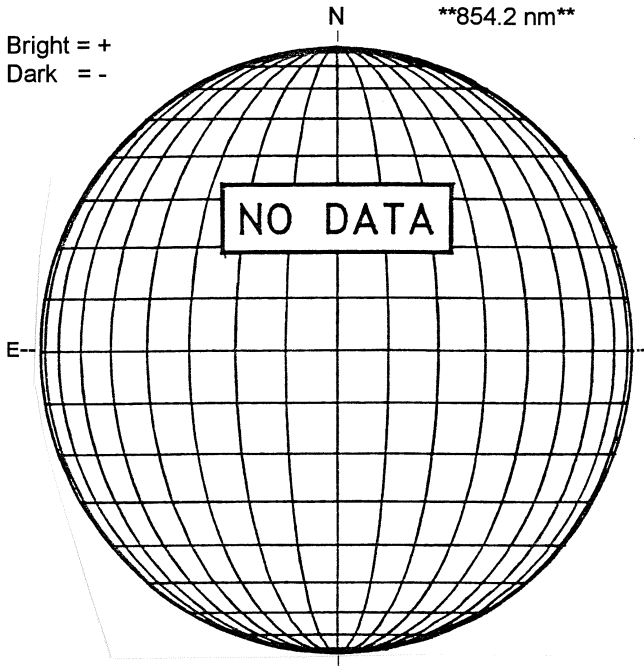
SACRAMENTO PEAK CORONA (1.15 Radii)----



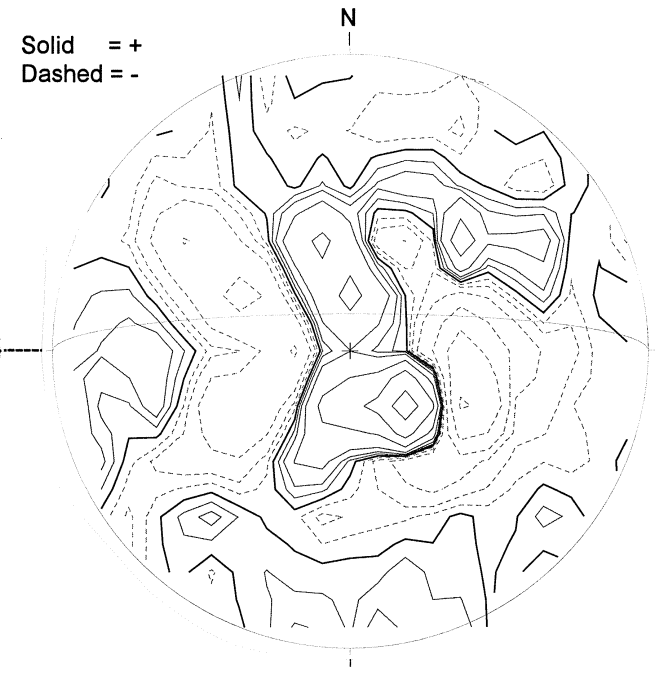
55
Mar 04

MARCH 13, 2004 (P= -24.15, Bo = -7.20, Lo = 296.38)

KITT PEAK MAGNETOGRAM--SOLIS

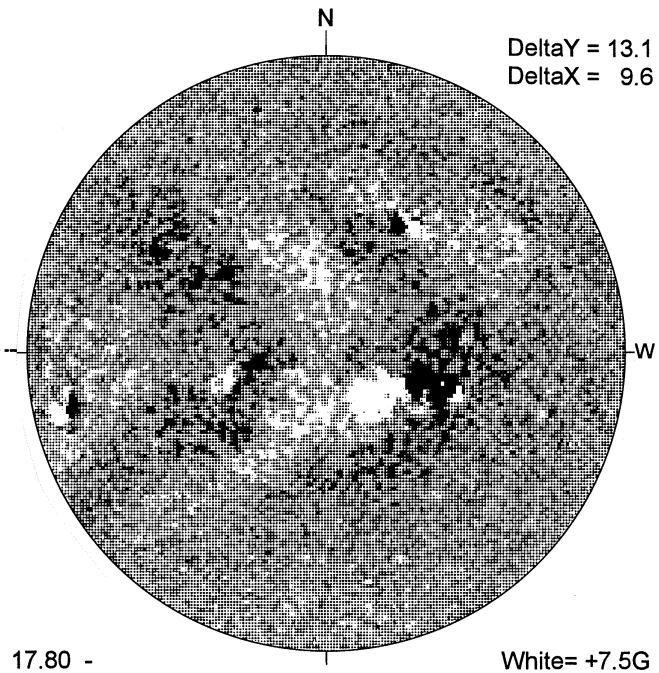


STANFORD MAGNETOGRAM



1937 UT

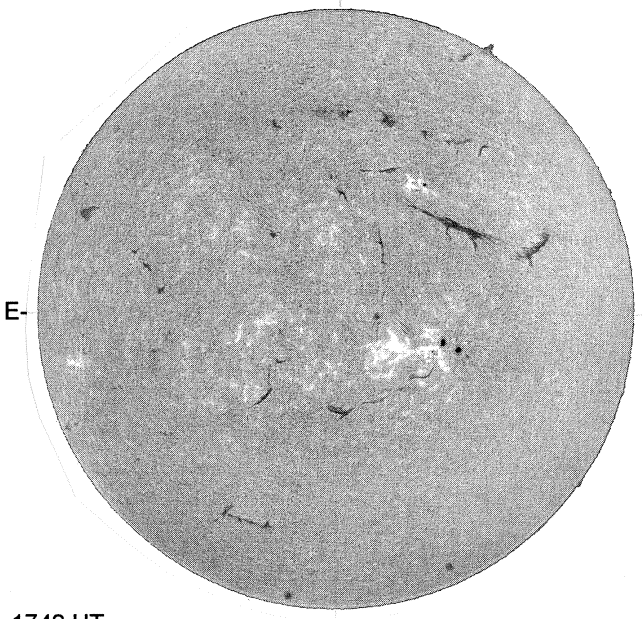
MT. WILSON MAGNETOGRAM



17.80 -
18.76 UT

White= +7.5G
Black = -7.5G

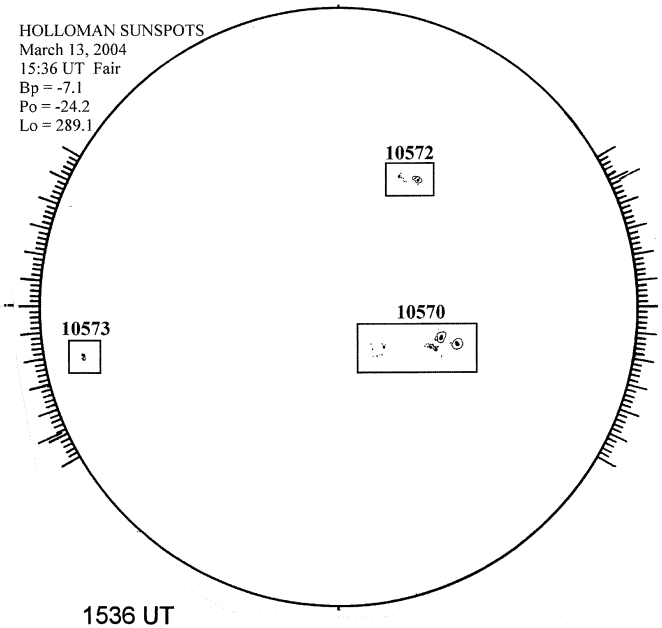
BIG BEAR H-ALPHA



1748 UT

S

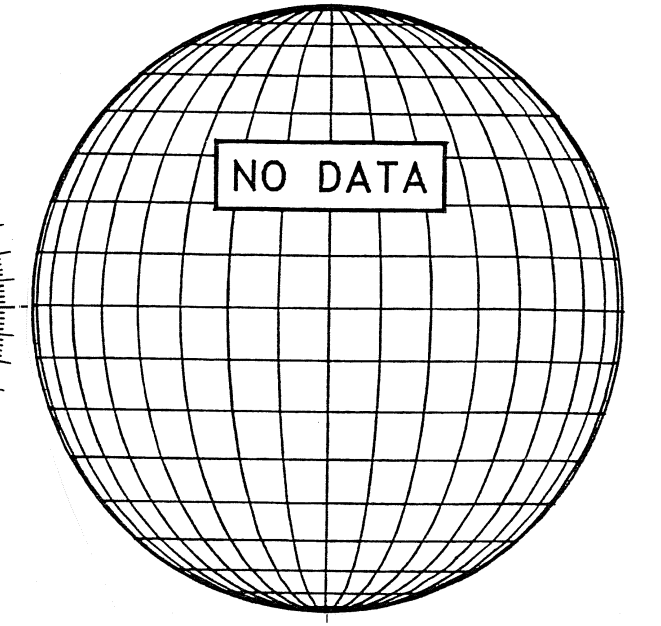
HOLLOMAN SUNSPOTS



1536 UT

S

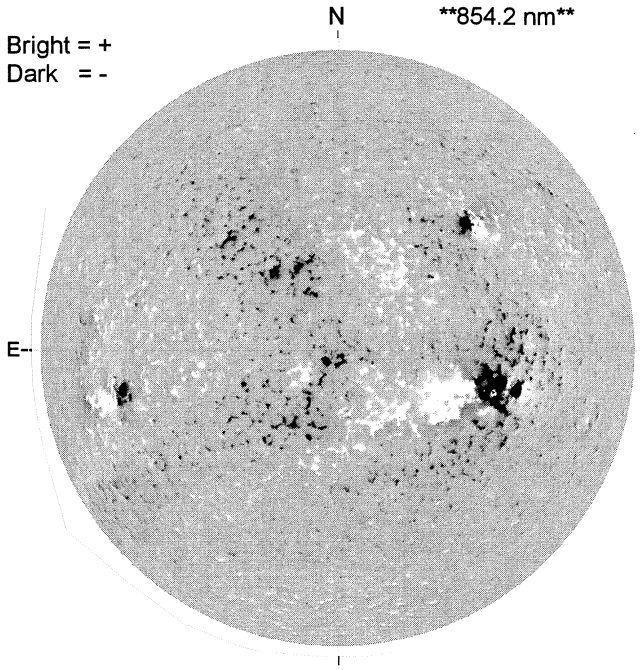
SACRAMENTO PEAK CORONA (1.15 Radii)



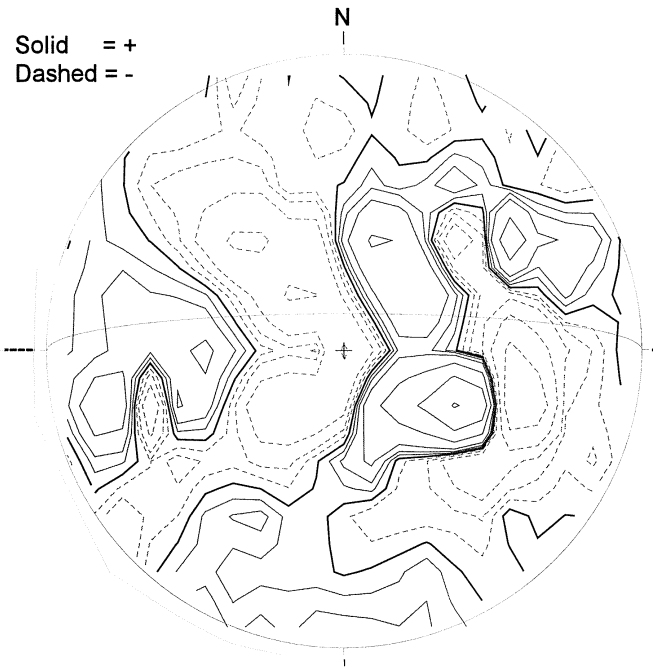
S

MARCH 14, 2004 (P= -24.32, Bo = -7.18, Lo = 283.20)

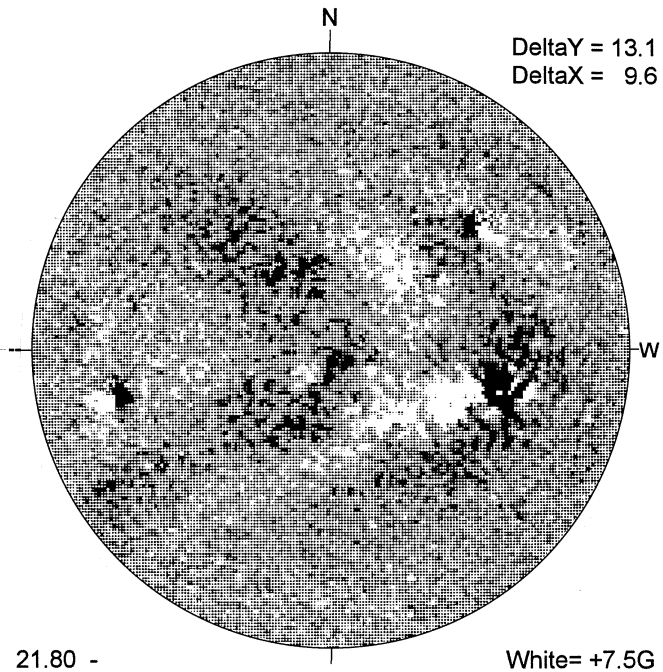
KITT PEAK MAGNETOGRAM--SOLIS



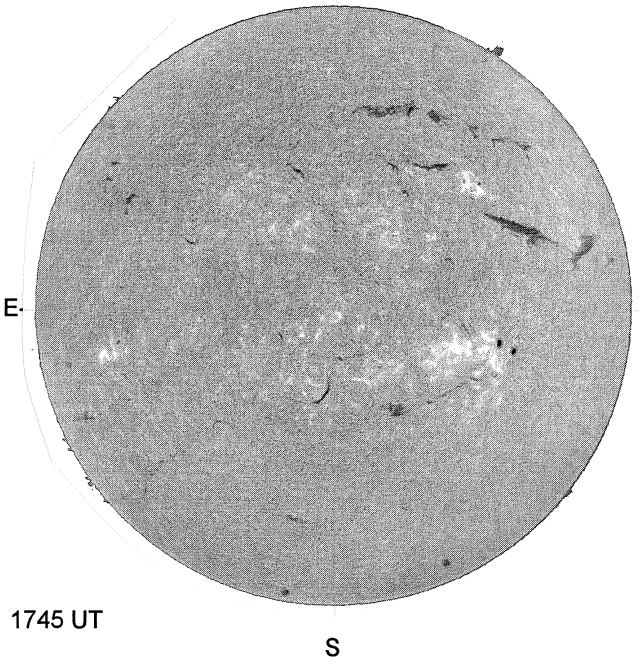
STANFORD MAGNETOGRAM



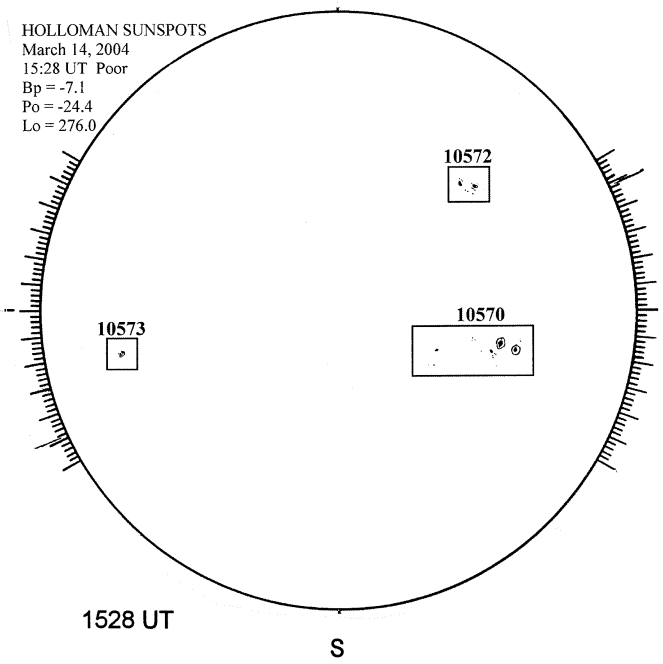
MT. WILSON MAGNETOGRAM



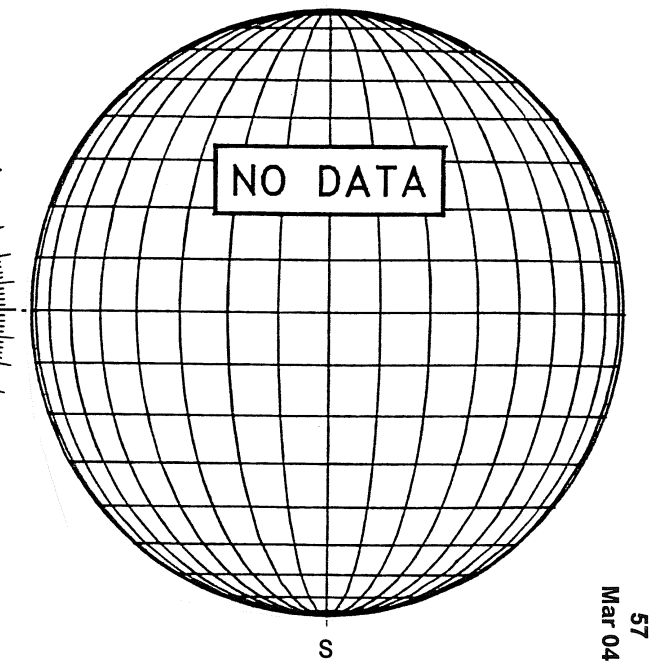
BIG BEAR H-ALPHA



HOLLOMAN SUNSPOT



SACRAMENTO PEAK CORONA (1.15 Radii)----



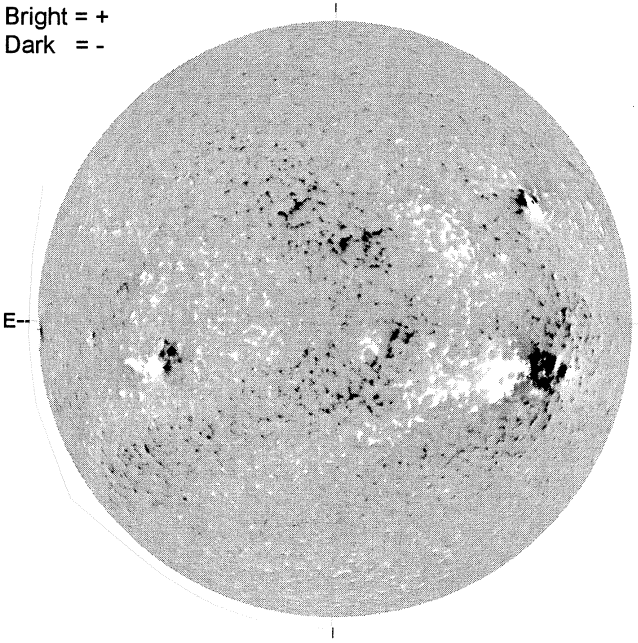
57
Mar 04

MARCH 15, 2004 (P= -24.48, Bo = -7.16, Lo = 270.02)

KITT PEAK MAGNETOGRAM--SOLIS

N
854.2 nm

Bright = +
Dark = -



1804 UT

STANFORD MAGNETOGRAM

N

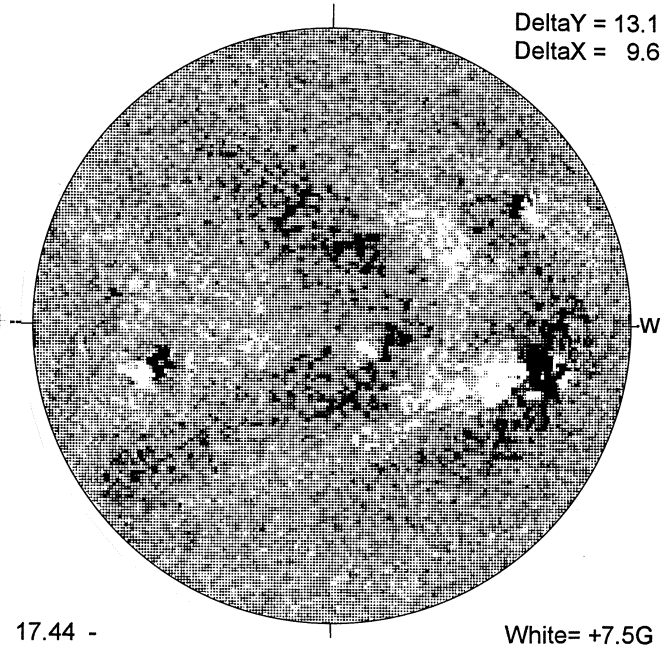
Solid = +
Dashed = -

2211 UT

MT. WILSON MAGNETOGRAM

N

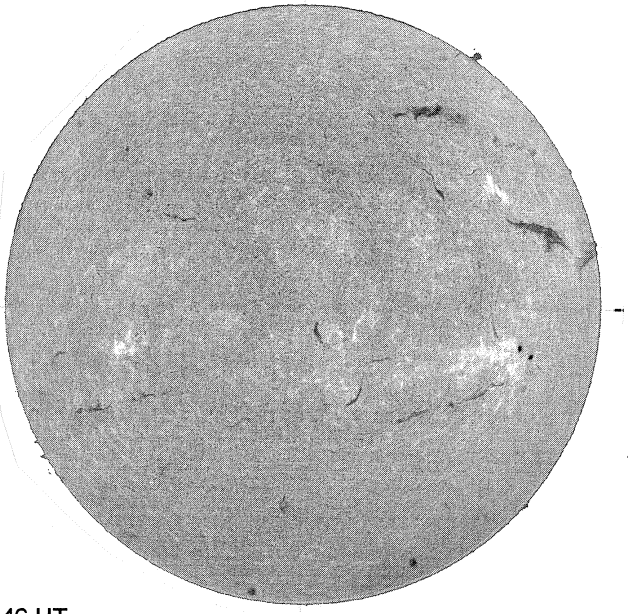
DeltaY = 13.1
DeltaX = 9.6



17.44 -
18.40 UT

White= +7.5G
Black = -7.5G

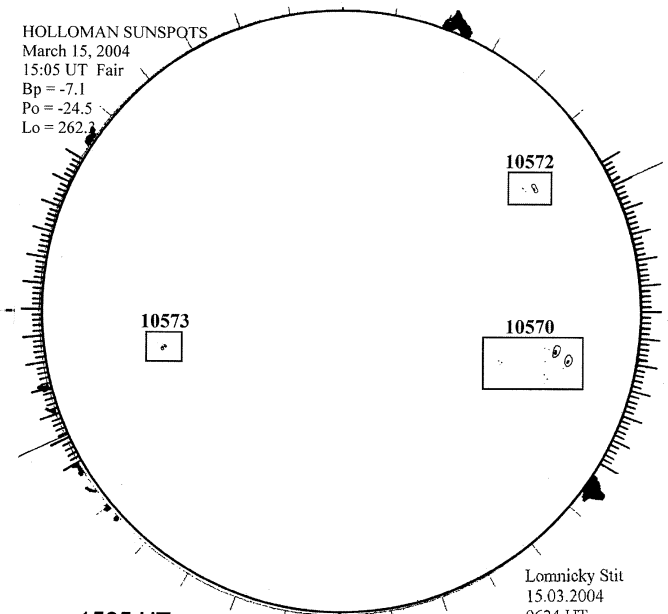
BIG BEAR H-ALPHA



1746 UT

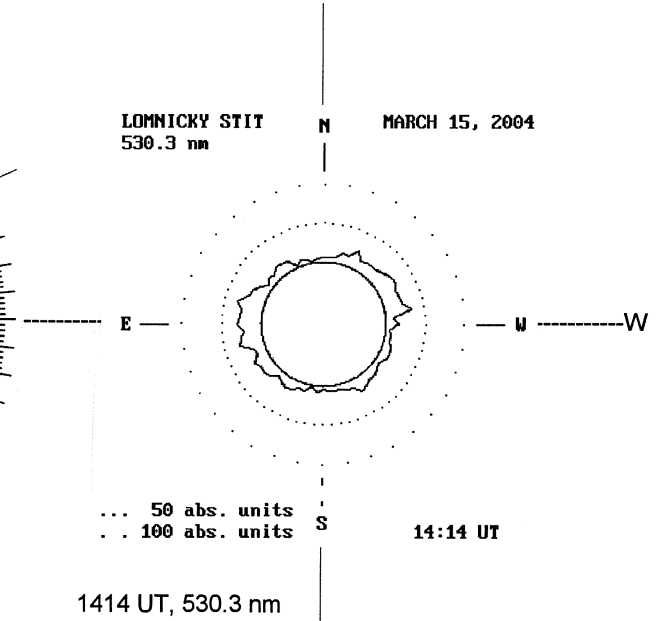
S

HOLLOMAN SUNSPOT



1505 UT
0624 UT LOMN Prom S

LOMNICKY PEAK CORONA (1.04 Radii)----

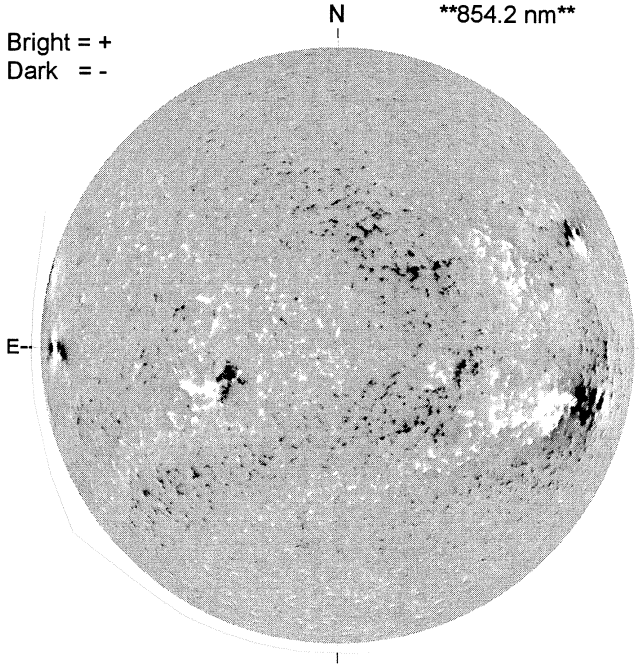


1414 UT, 530.3 nm
.... 50 abs. units
. . 100 abs. units

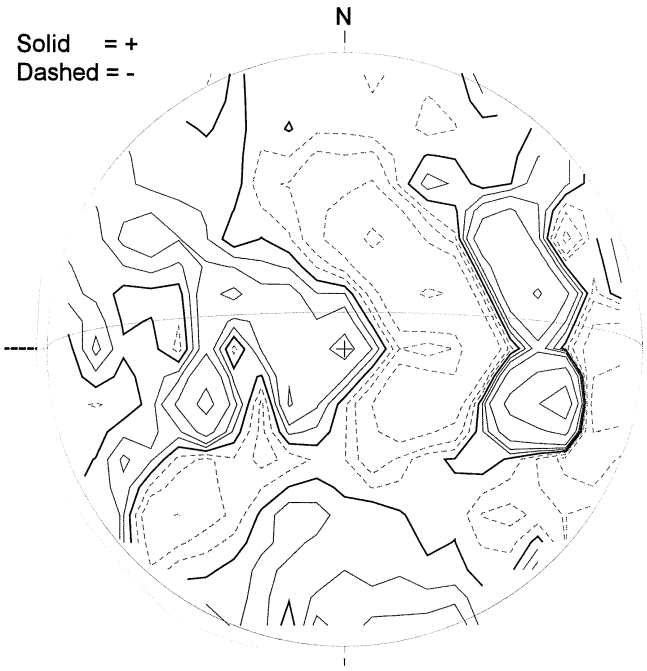
S

MARCH 16, 2004 (P= -24.64, Bo = -7.14, Lo = 256.84)

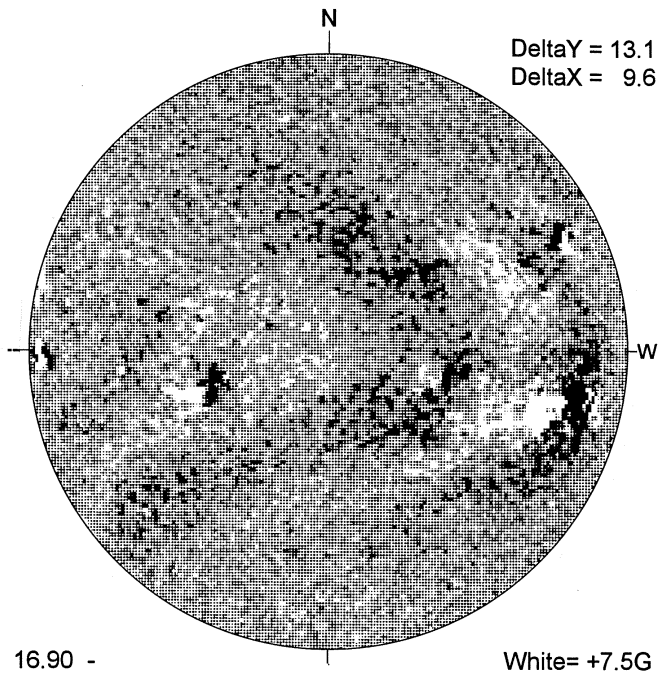
KITT PEAK MAGNETOGRAM--SOLIS



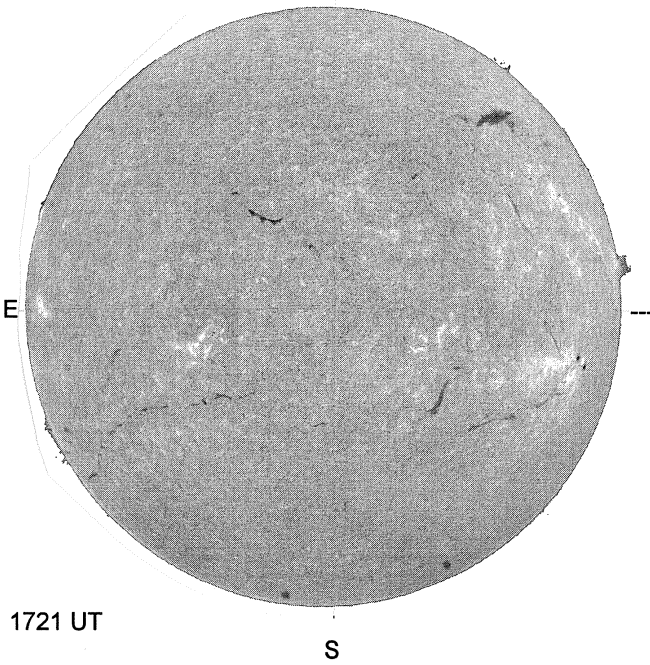
STANFORD MAGNETOGRAM



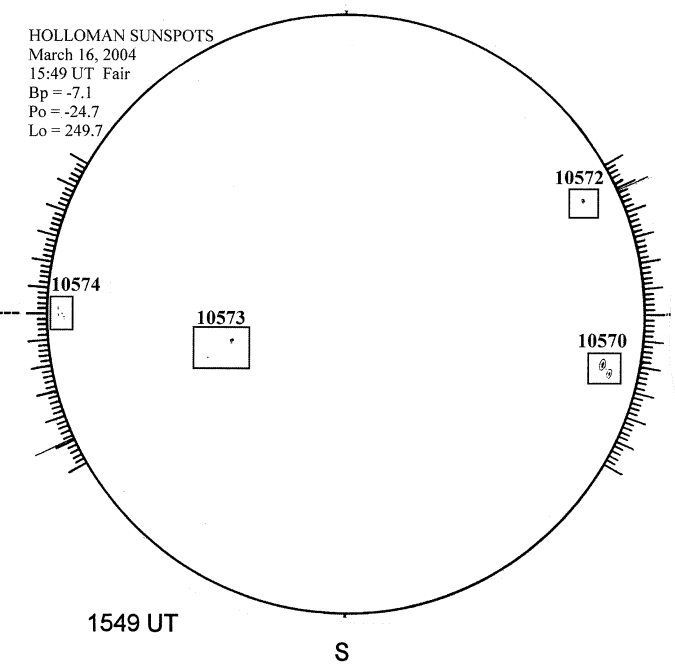
MT. WILSON MAGNETOGRAM



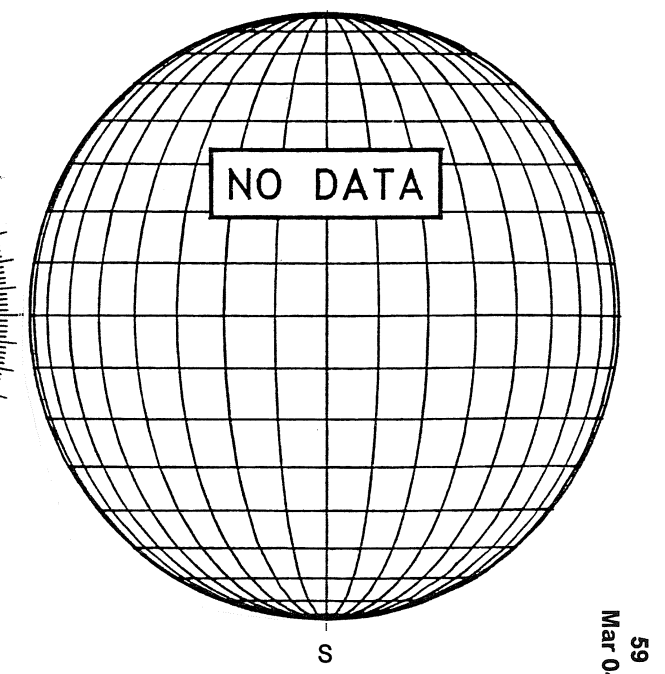
BIG BEAR H-ALPHA



HOLLOMAN SUNSPOT



SACRAMENTO PEAK CORONA (1.15 Radii)

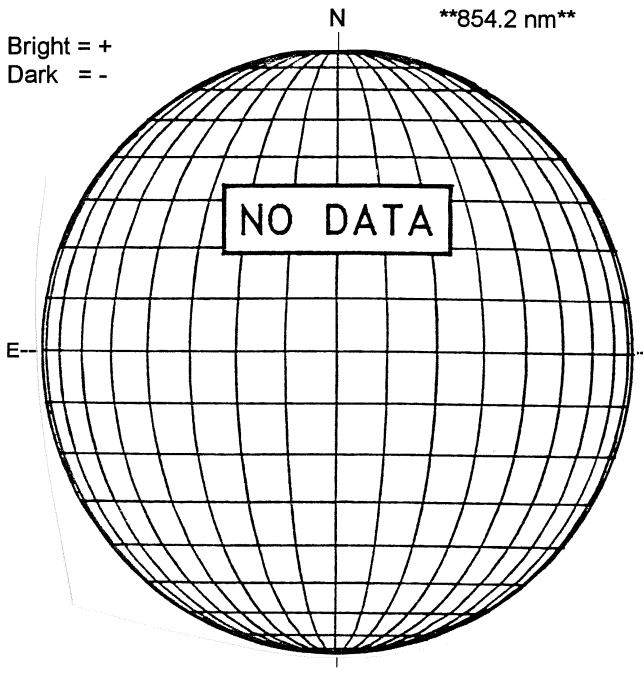


59
Mar 04

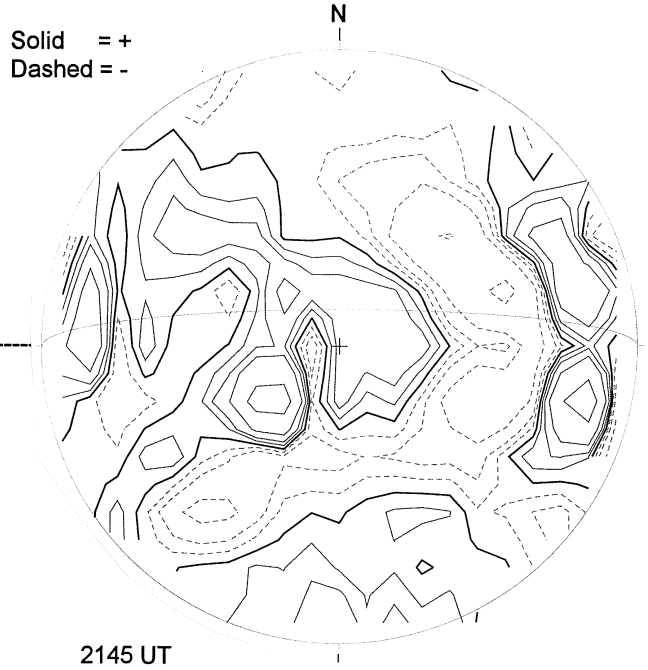
MARCH 17, 2004 (P= -24.79, Bo = -7.12, Lo = 243.66)

60
Mar 04

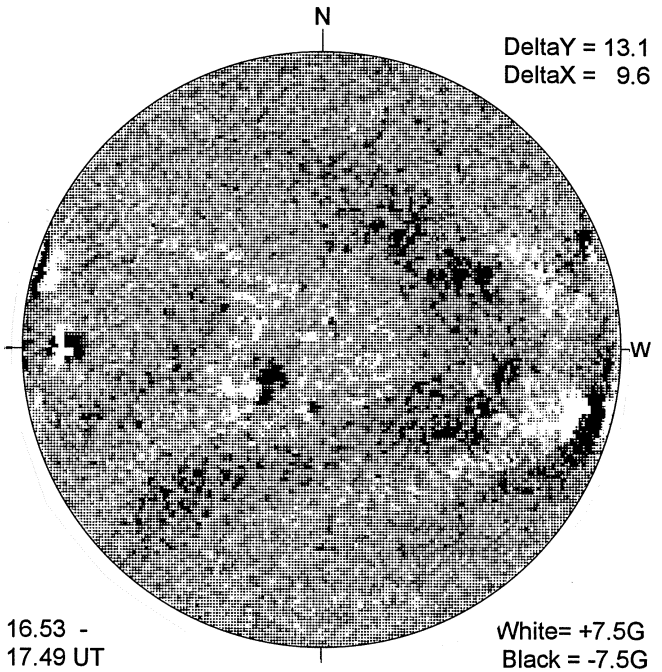
KITT PEAK MAGNETOGRAM--SOLIS



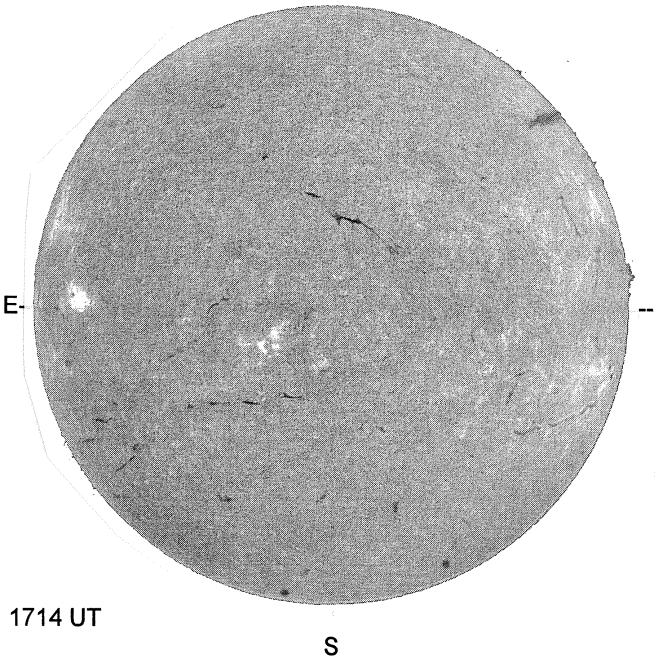
STANFORD MAGNETOGRAM



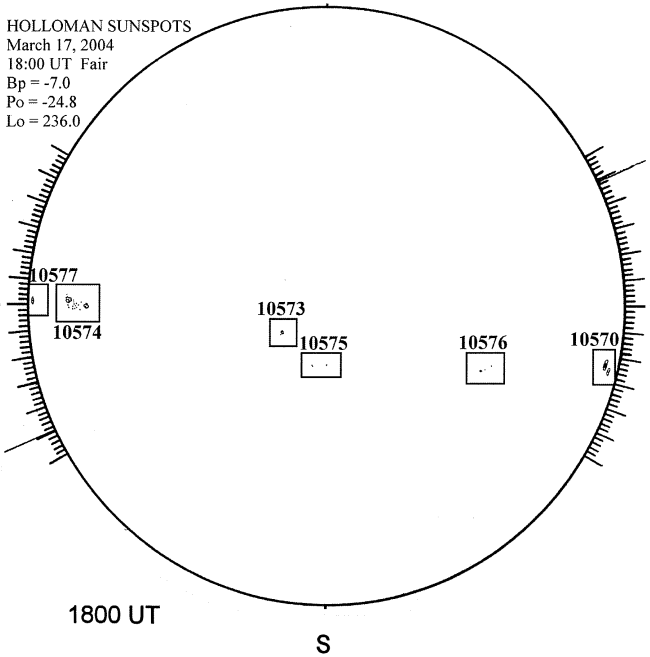
MT. WILSON MAGNETOGRAM



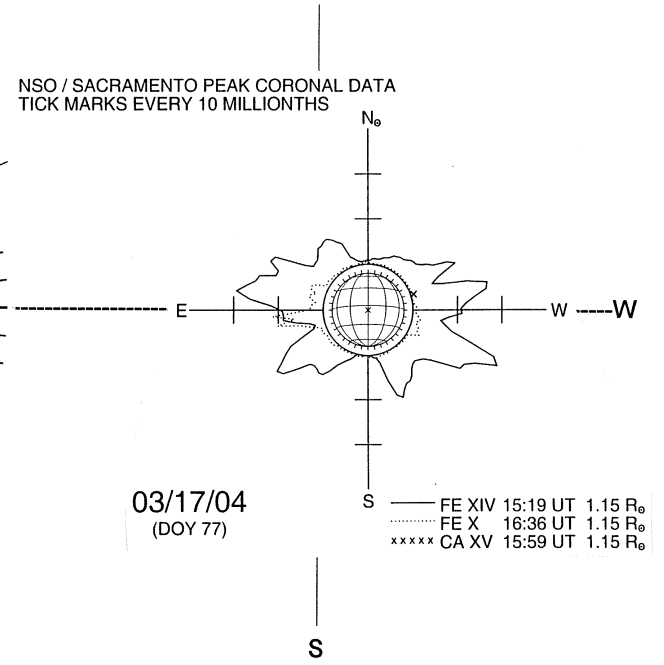
BIG BEAR H-ALPHA



HOLLOMAN SUNSPOT

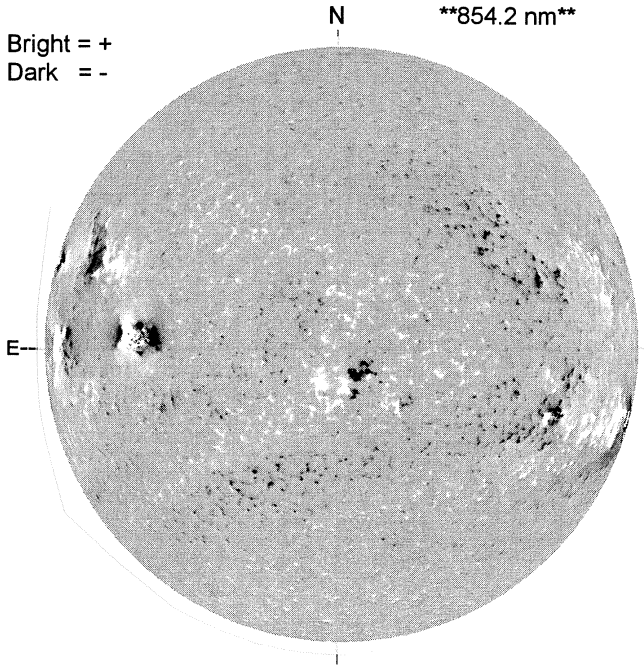


SACRAMENTO PEAK CORONA (1.15 Radii)----



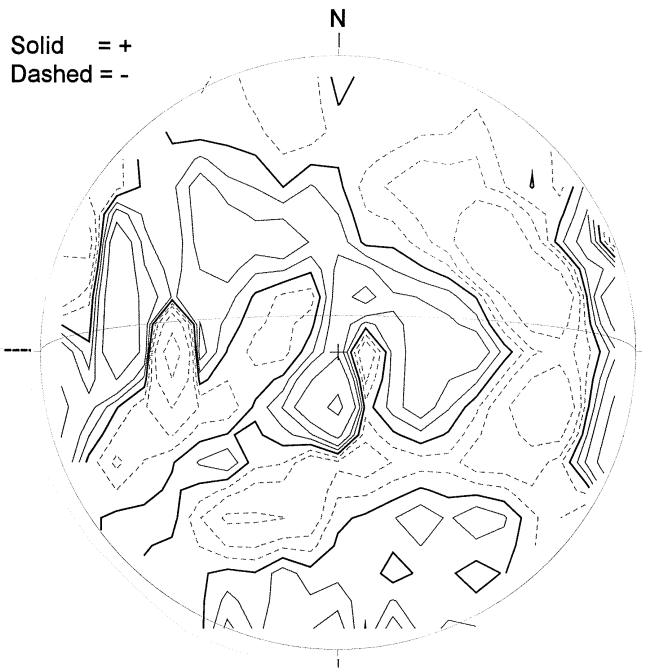
MARCH 18, 2004 (P= -24.93, Bo = -7.09, Lo = 230.48)

KITT PEAK MAGNETOGRAM--SOLIS



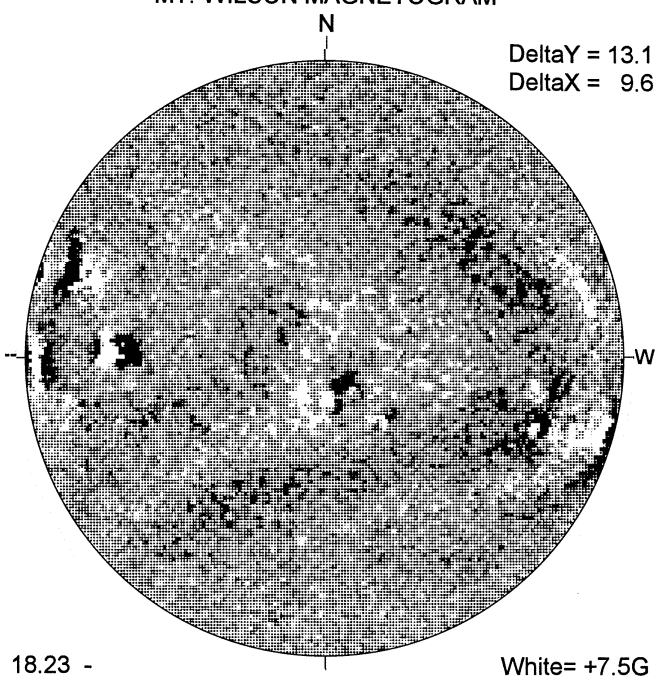
1754 UT

STANFORD MAGNETOGRAM



2152 UT

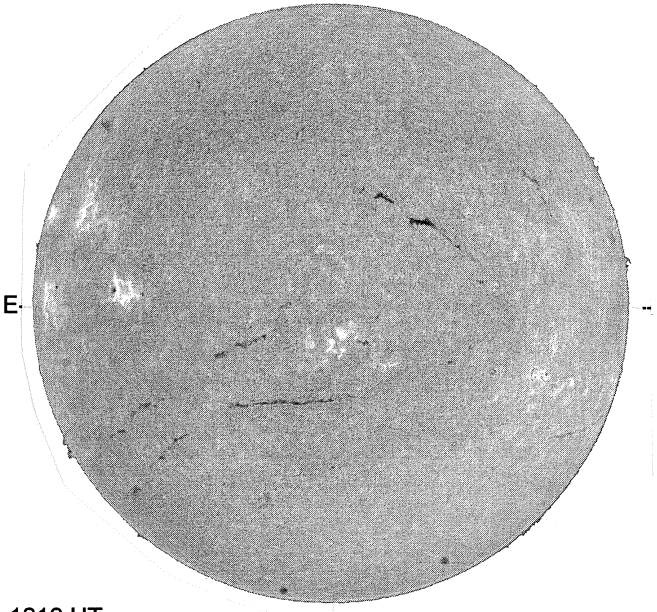
MT. WILSON MAGNETOGRAM



18.23 -
19.18 UT

White= +7.5G
Black = -7.5G

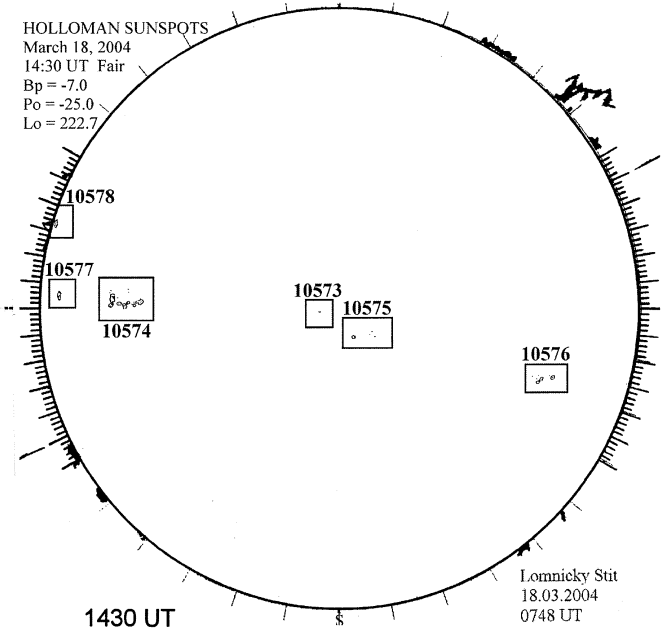
BIG BEAR H-ALPHA



1810 UT

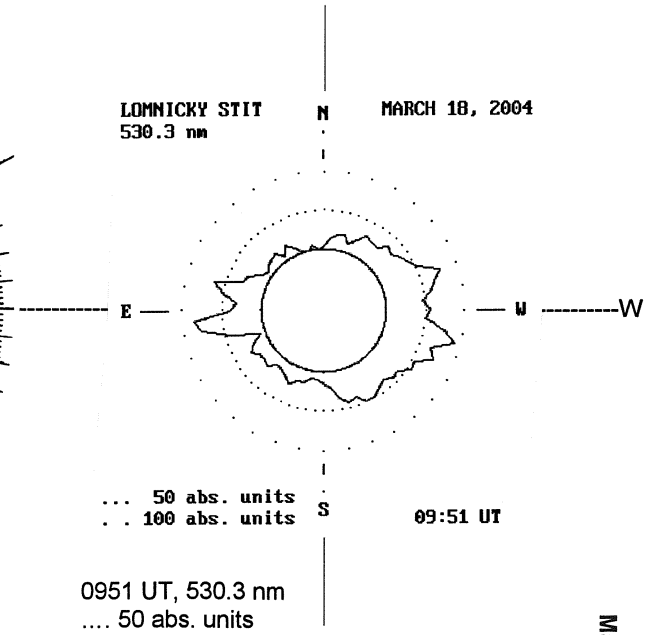
S

HOLLOMAN SUNSPOT



1430 UT
0748 UT LOMN Prom S

LOMNICKY PEAK CORONA (1.04 Radii)----



0951 UT, 530.3 nm
.... 50 abs. units
. . 100 abs. units

S

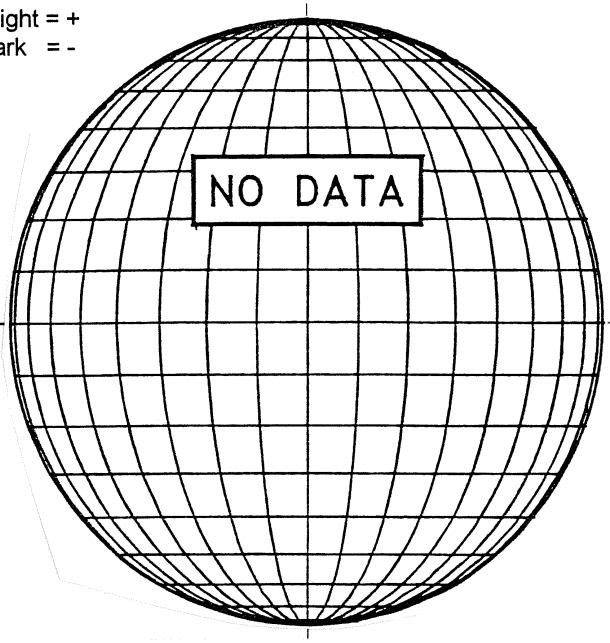
61
Mar 04

MARCH 19, 2004 (P= -25.06, Bo = -7.07, Lo = 217.30)

KITT PEAK MAGNETOGRAM--SOLIS

N
854.2 nm

Bright = +
Dark = -

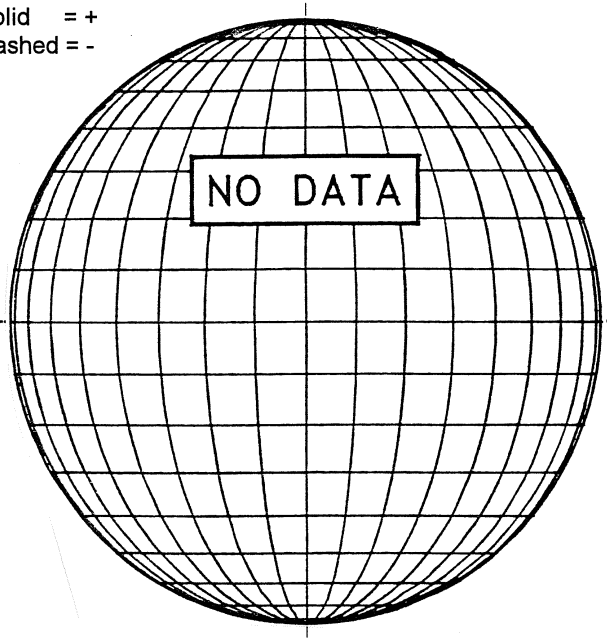


E--

STANFORD MAGNETOGRAM

N

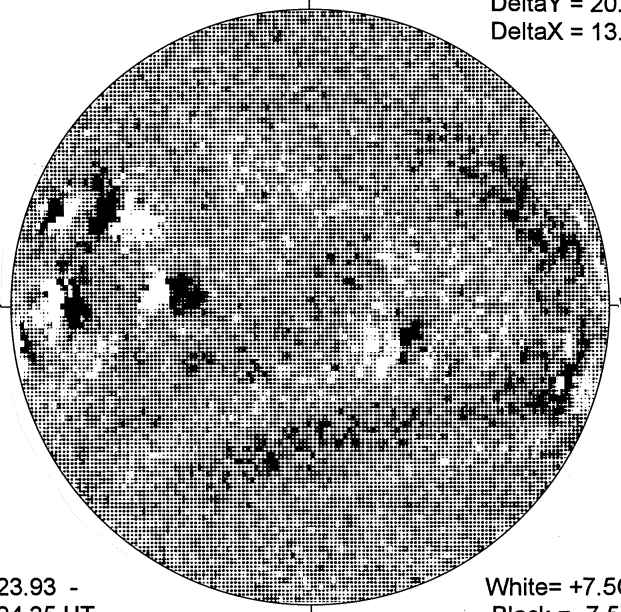
Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

N

DeltaY = 20.1
DeltaX = 13.0

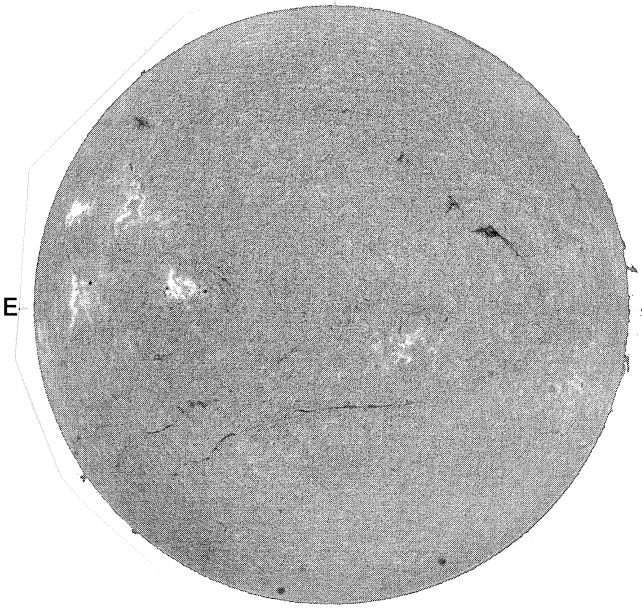


--W

23.93 -
24.35 UT

White= +7.5G
Black = -7.5G

BIG BEAR H-ALPHA

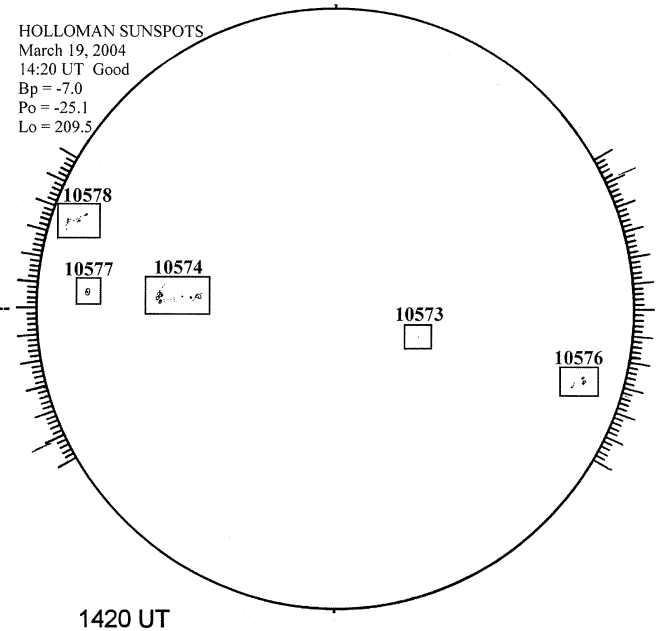


E--

1835 UT

S

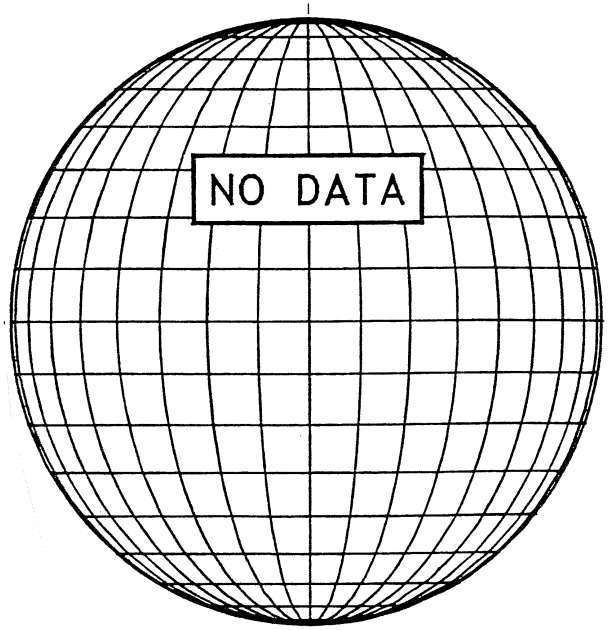
HOLLOMAN SUNSPOT



1420 UT

S

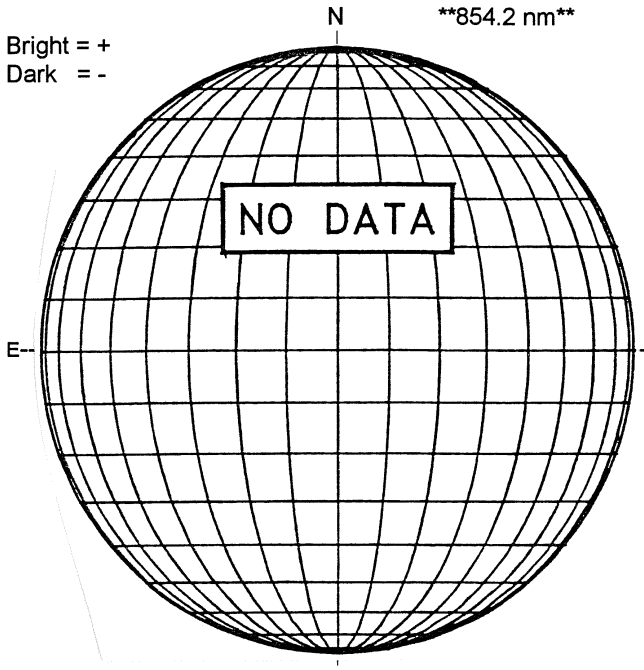
SACRAMENTO PEAK CORONA (1.15 Radii)----



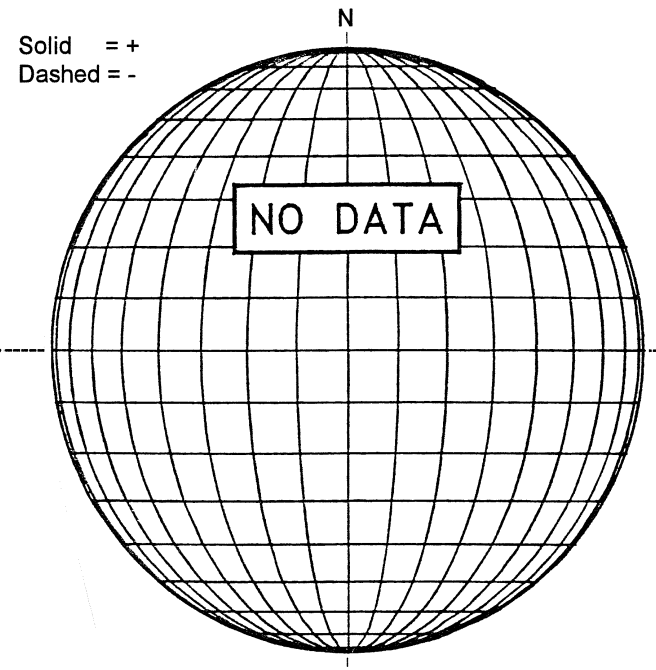
S

MARCH 20, 2004 (P= -25.19, Bo = -7.04, Lo = 204.12)

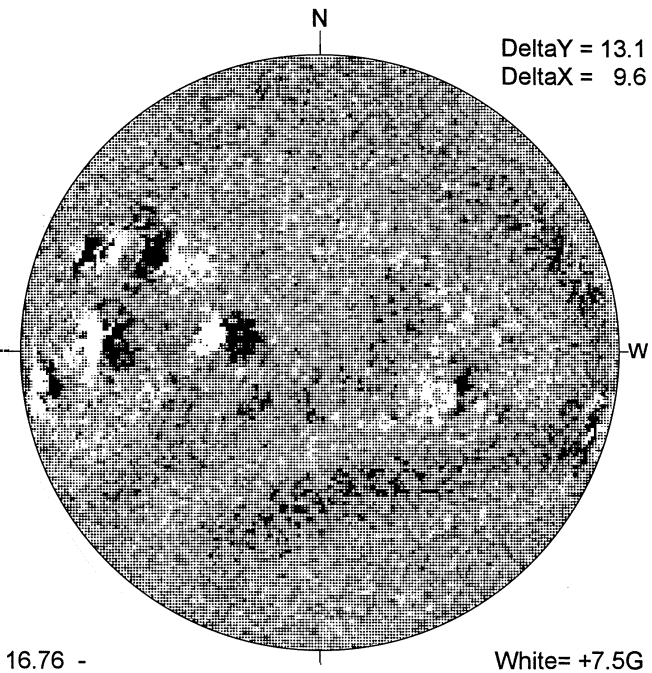
KITT PEAK MAGNETOGRAM--SOLIS



STANFORD MAGNETOGRAM



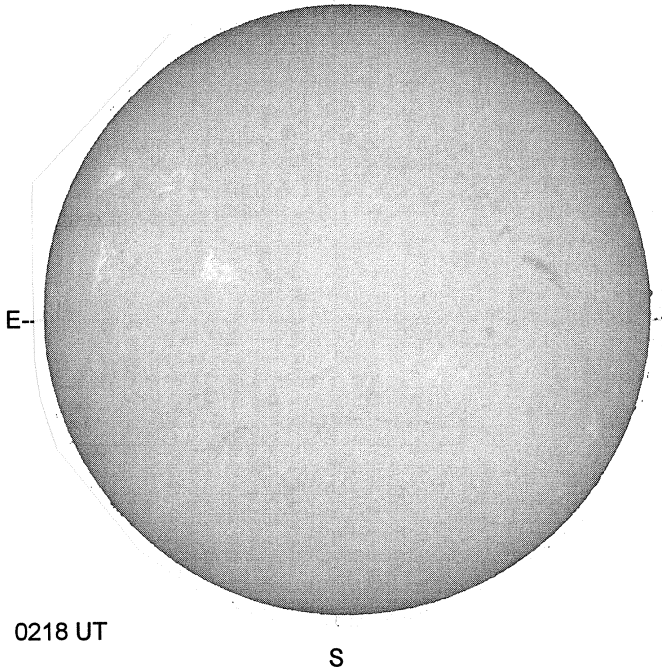
MT. WILSON MAGNETOGRAM



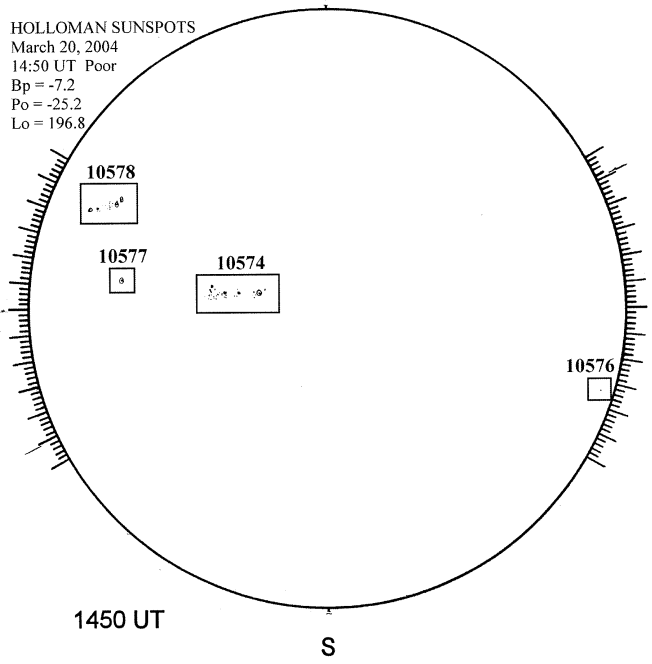
16.76 -
17.71 UT

White= +7.5G
Black = -7.5G

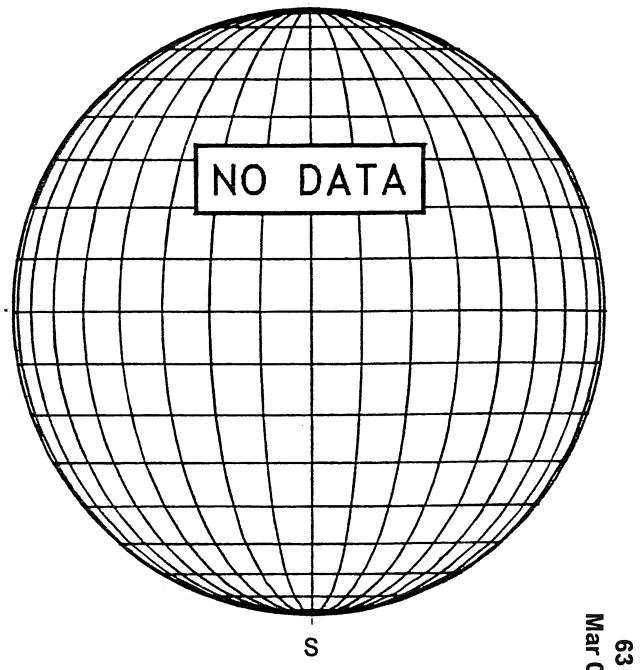
---- YUNNAN H-ALPHA



HOLLOMAN SUNSPOT



SACRAMENTO PEAK CORONA (1.15 Radii)----



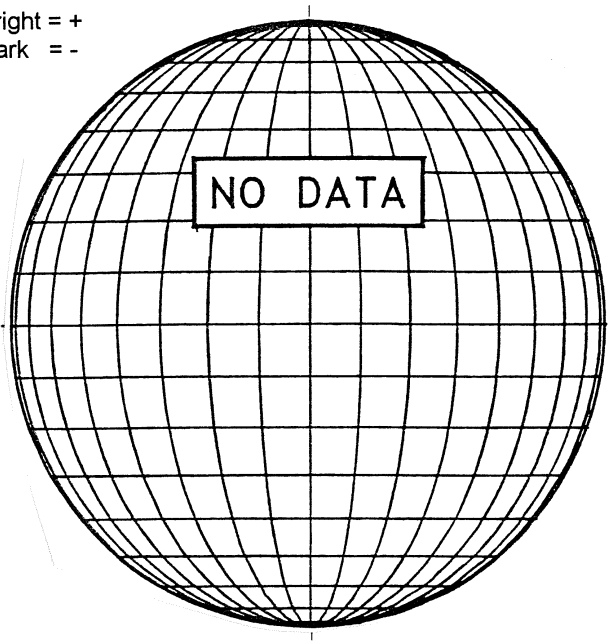
63
Mar 04

MARCH 21, 2004 (P= -25.31, Bo = -7.01, Lo = 190.93)

KITT PEAK MAGNETOGRAM--SOLIS

N
854.2 nm

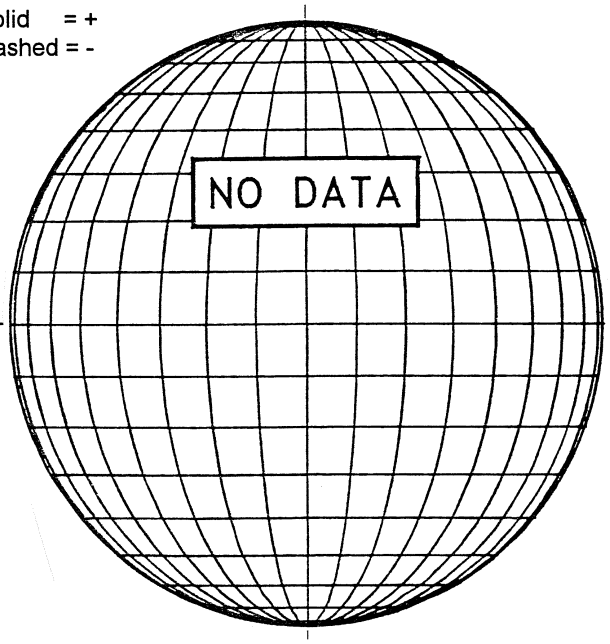
Bright = +
Dark = -



STANFORD MAGNETOGRAM

N

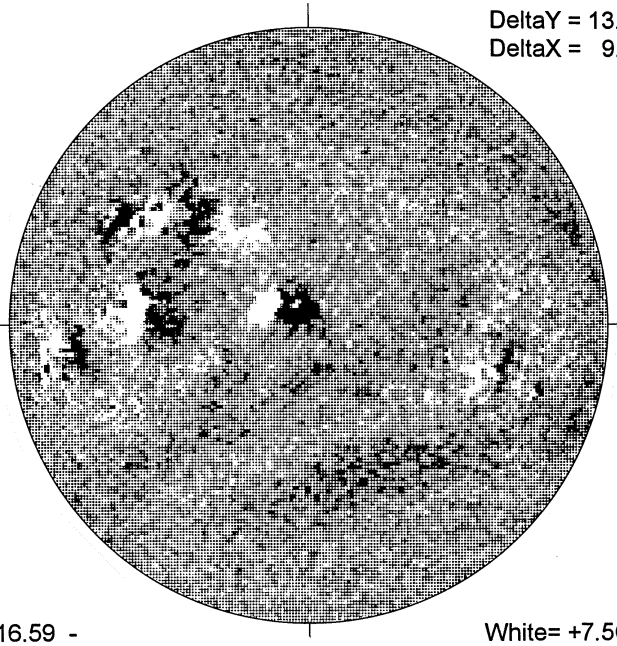
Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

N

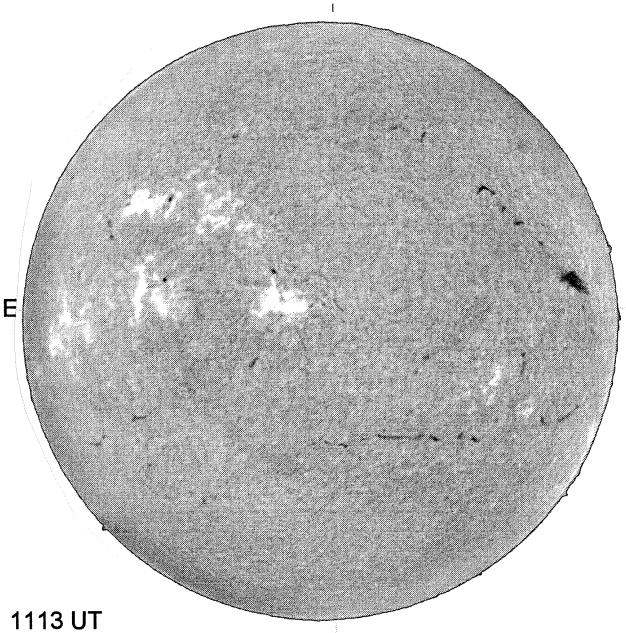
DeltaY = 13.1
DeltaX = 9.6



16.59 -
17.55 UT

White= +7.5G
Black = -7.5G

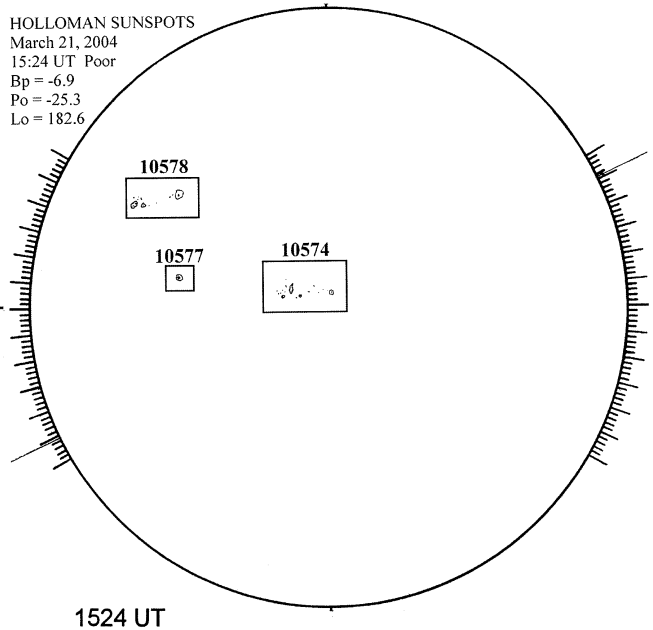
KANZELHOHE H-ALPHA



1113 UT

S

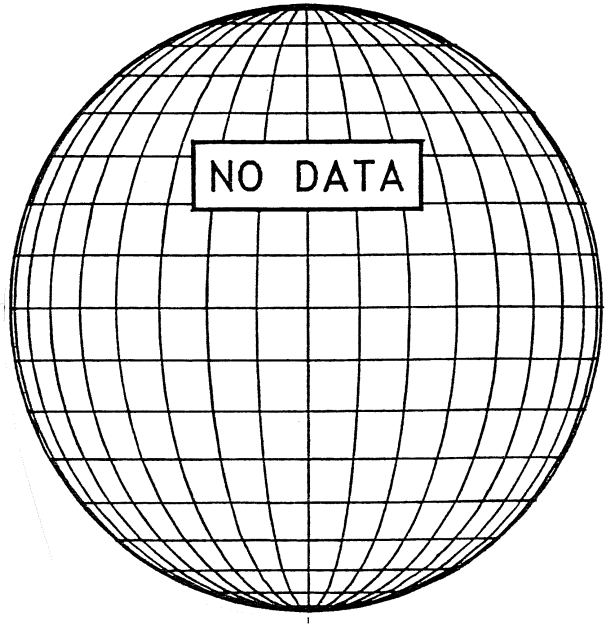
HOLLOMAN SUNSPOTS



1524 UT

S

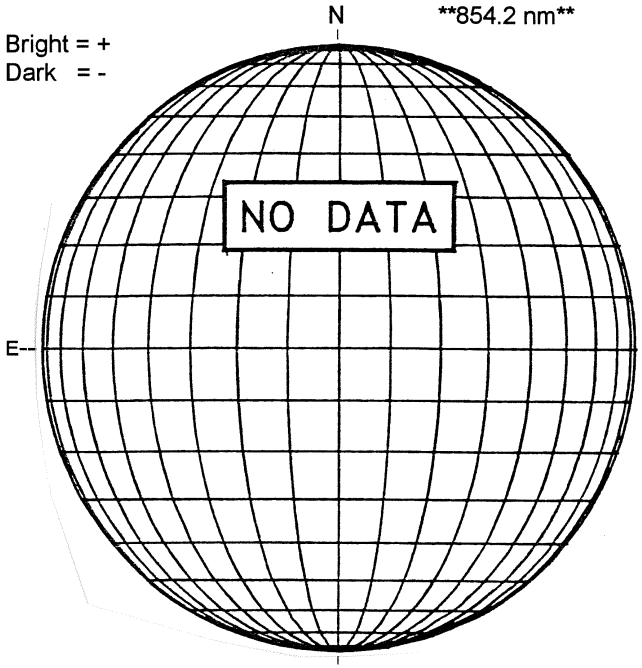
SACRAMENTO PEAK CORONA (1.15 Radii)



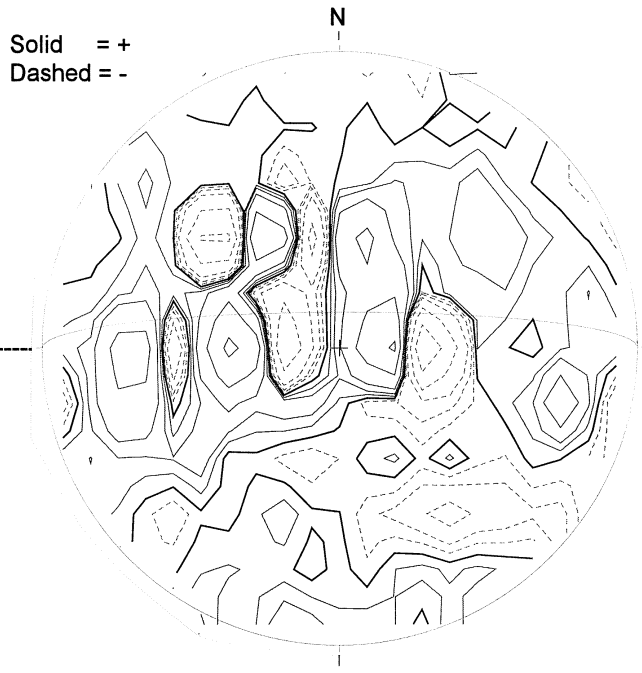
S

MARCH 22, 2004 (P= -25.43, Bo = -6.97, Lo = 177.75)

KITT PEAK MAGNETOGRAM--SOLIS

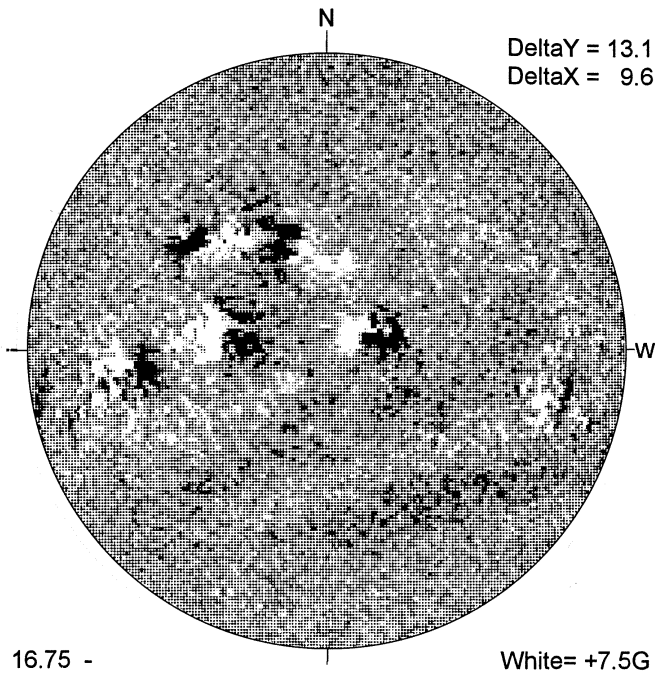


STANFORD MAGNETOGRAM



2323 UT

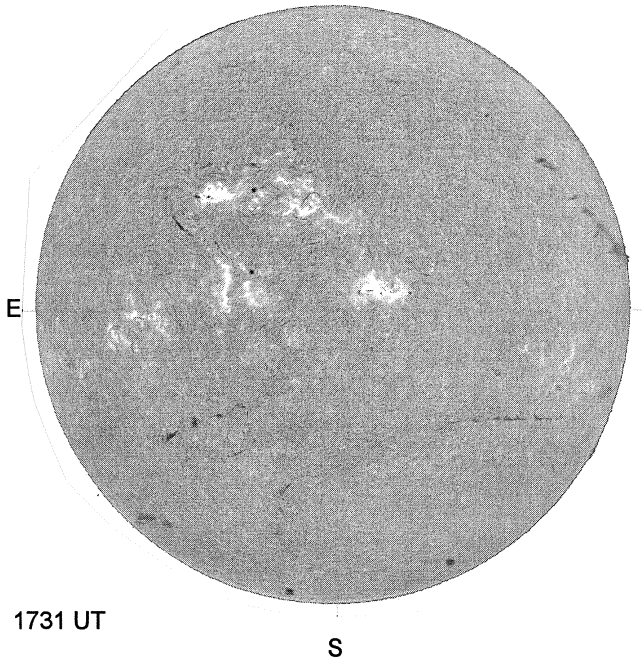
MT. WILSON MAGNETOGRAM



16.75 -
17.71 UT

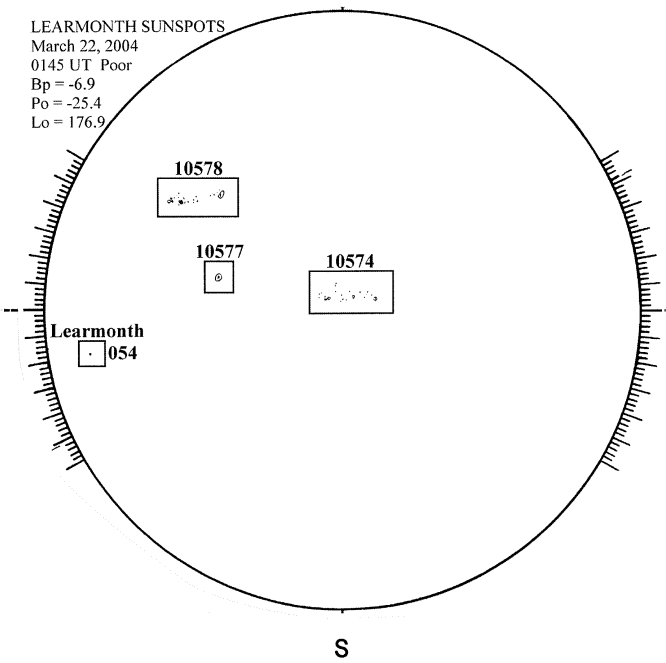
White= +7.5G
Black = -7.5G

BIG BEAR H-ALPHA

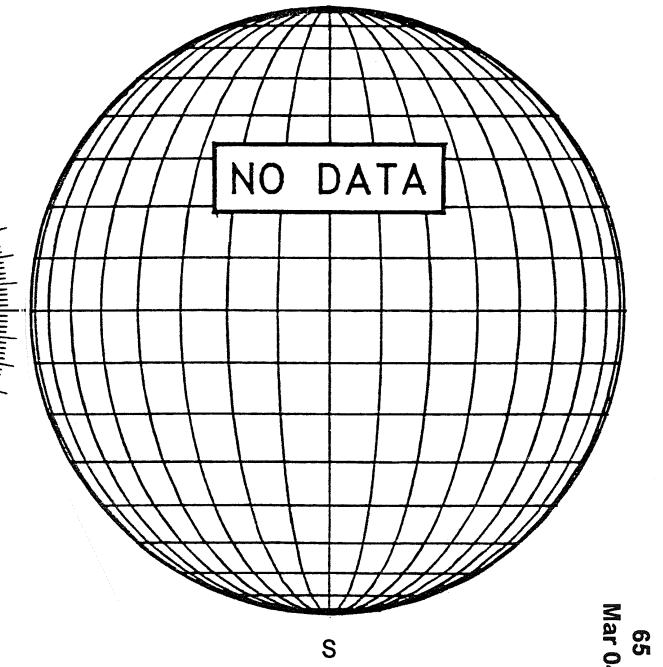


1731 UT

HOLLOMAN SUNSPOT



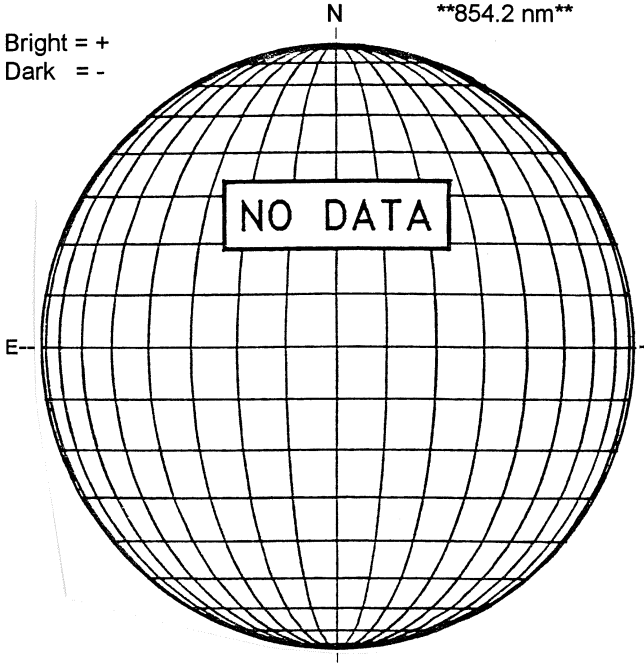
SACRAMENTO PEAK CORONA (1.15 Radii)----



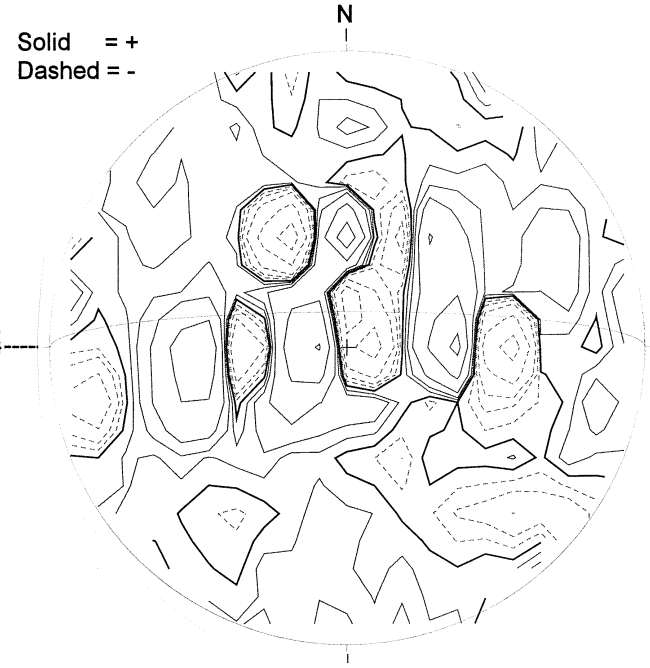
65
Mar 04

MARCH 23, 2004 (P= -25.53, Bo = -6.94, Lo = 164.56)

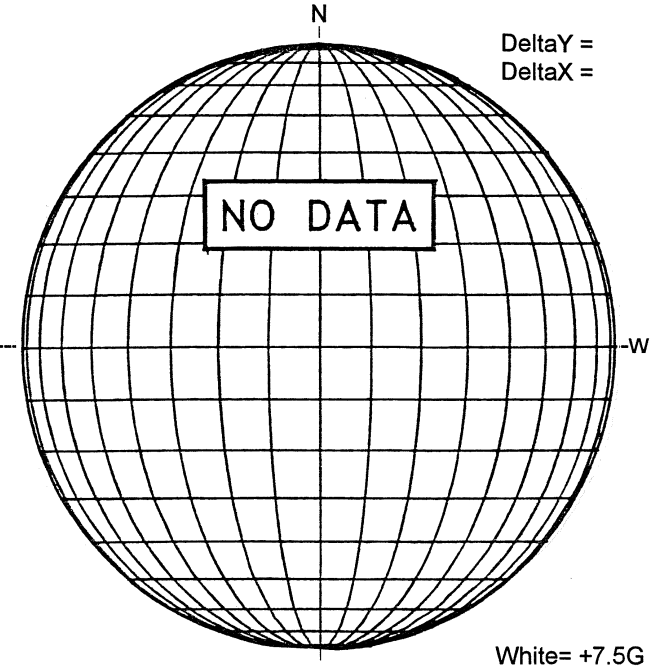
KITT PEAK MAGNETOGRAM--SOLIS



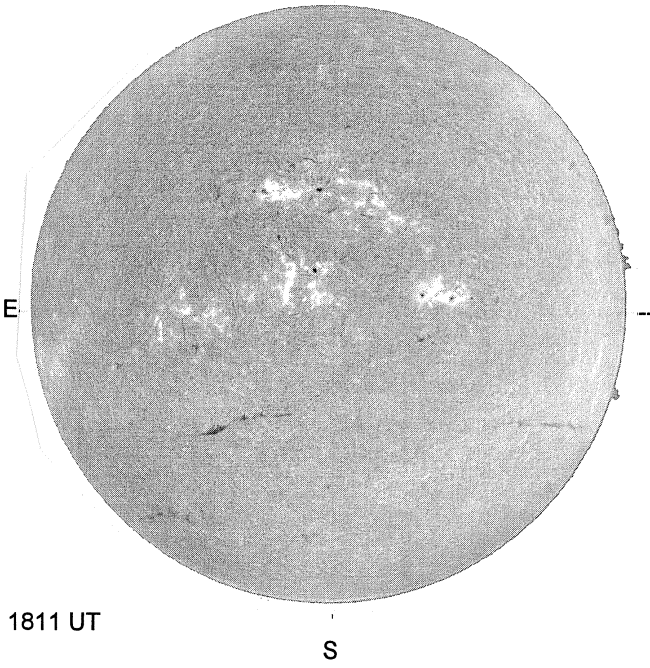
STANFORD MAGNETOGRAM



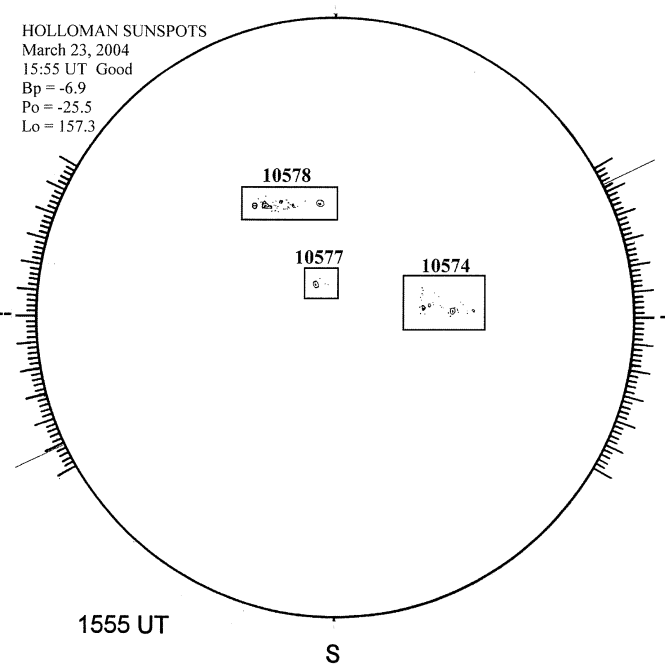
MT. WILSON MAGNETOGRAM



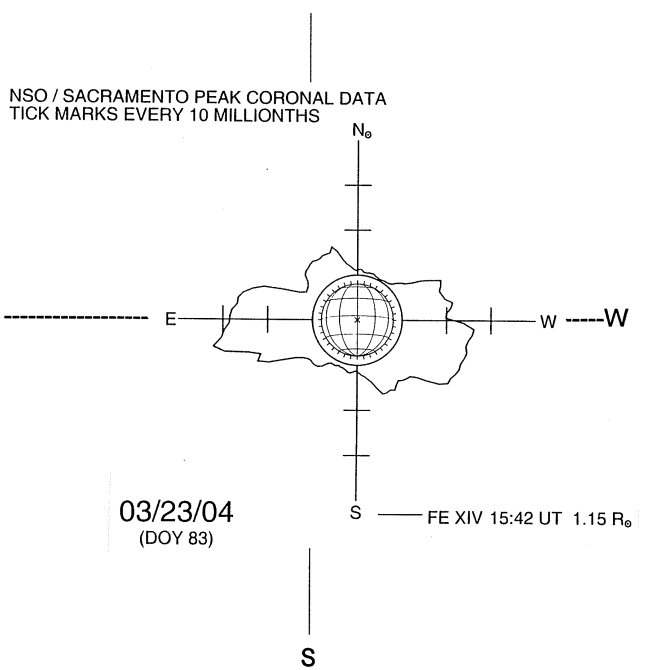
BIG BEAR H-ALPHA



HOLLOMAN SUNSPOTS



SACRAMENTO PEAK CORONA (1.15 Radii)



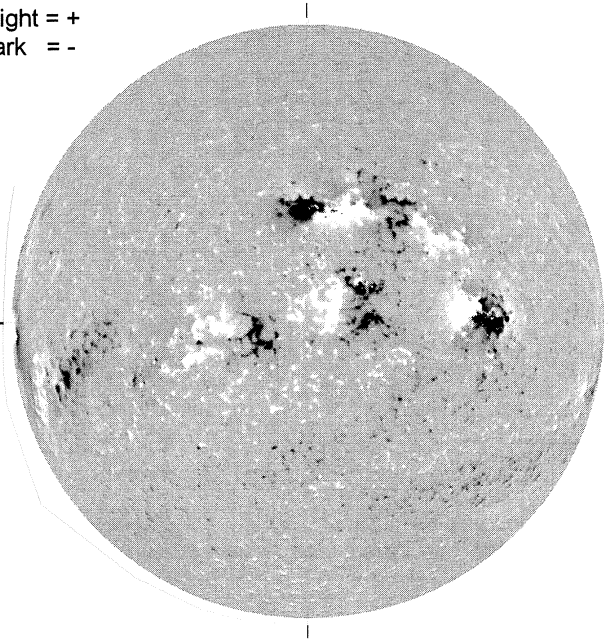
MARCH 24, 2004 (P= -25.63, Bo = -6.90, Lo = 151.38)

KITT PEAK MAGNETOGRAM--SOLIS

N

854.2 nm

Bright = +
Dark = -

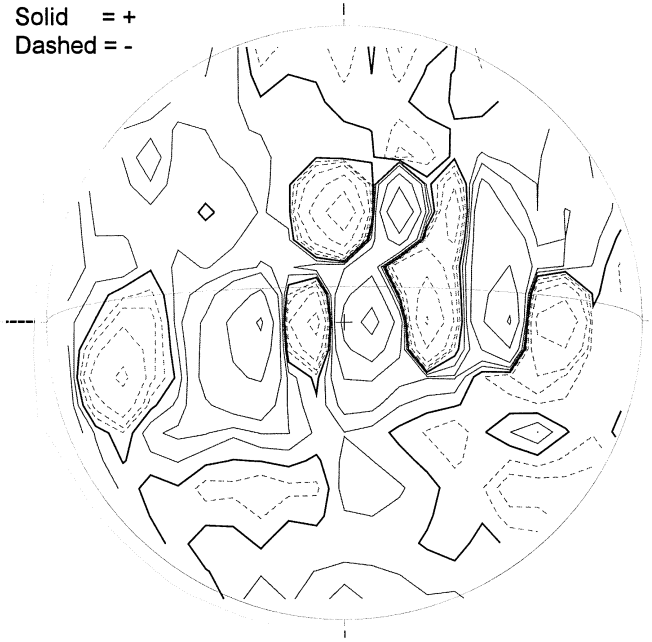


1725 UT

STANFORD MAGNETOGRAM

N

Solid = +
Dashed = -

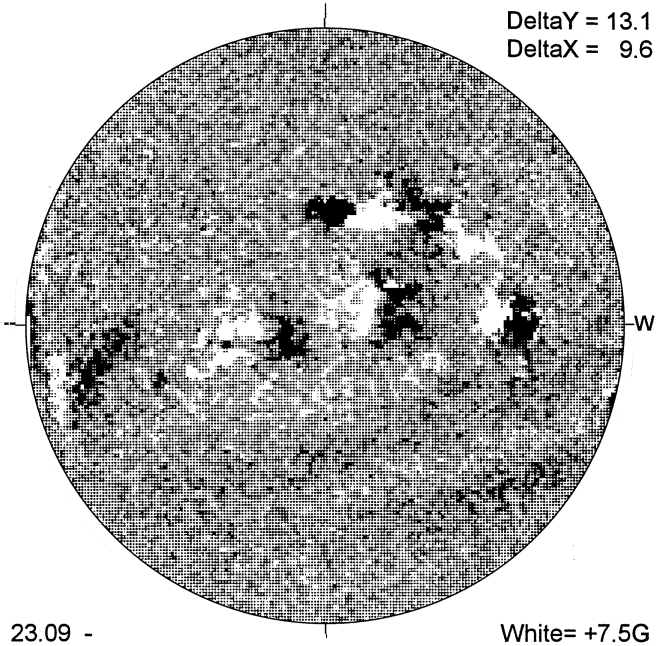


2154 UT

MT. WILSON MAGNETOGRAM

N

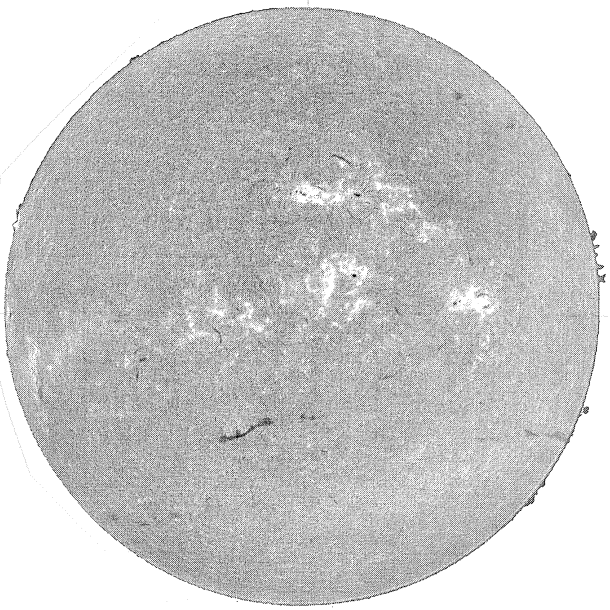
DeltaY = 13.1
DeltaX = 9.6



23.09 -
24.04 UT

White= +7.5G
Black = -7.5G

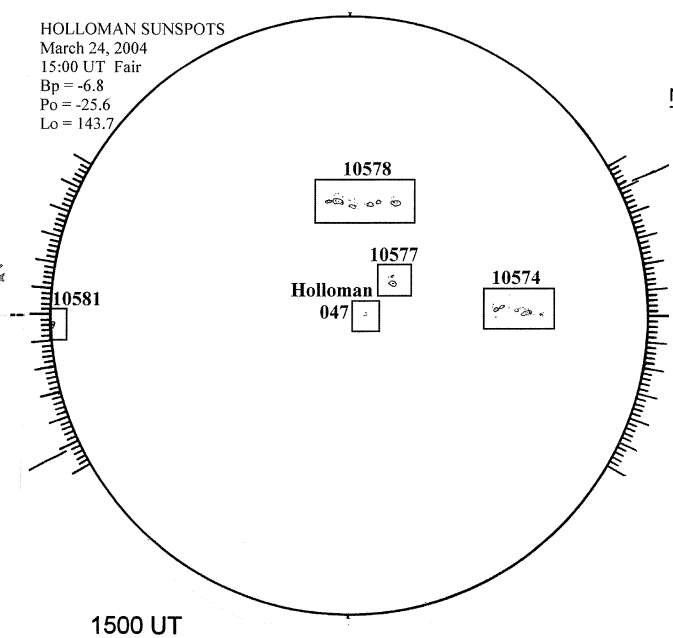
BIG BEAR H-ALPHA



1729 UT

S

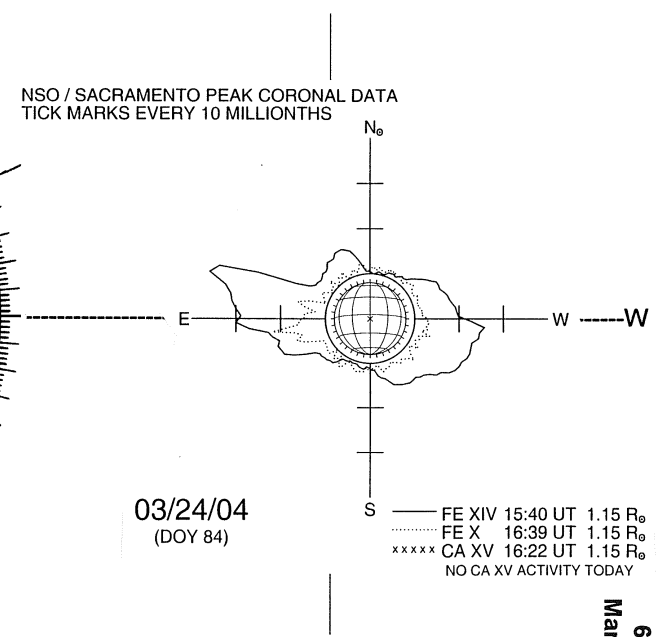
HOLLOMAN SUNSPOT



1500 UT

S

SACRAMENTO PEAK CORONA (1.15 Radii)----



S

67 Mar 04

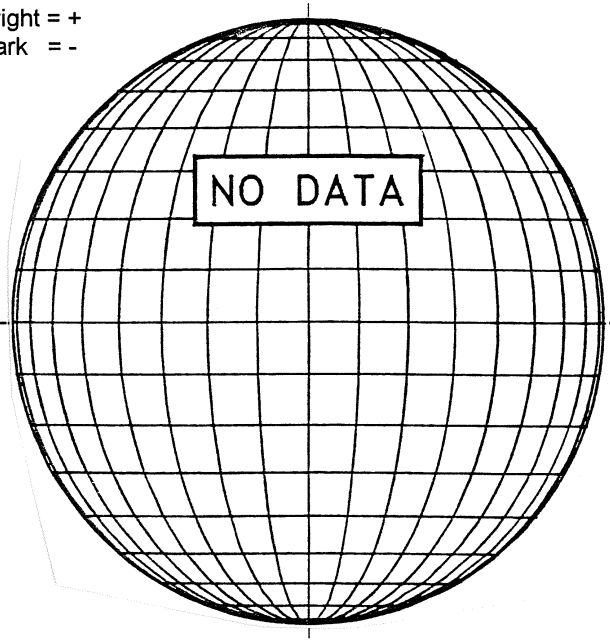
MARCH 25, 2004 (P= -25.73, Bo = -6.86, Lo = 138.19)

KITT PEAK MAGNETOGRAM--SOLIS

N

854.2 nm

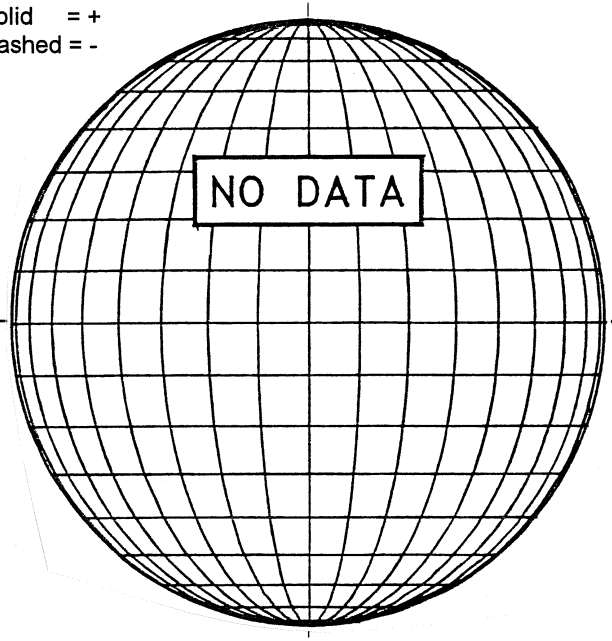
Bright = +
Dark = -



STANFORD MAGNETOGRAM

N

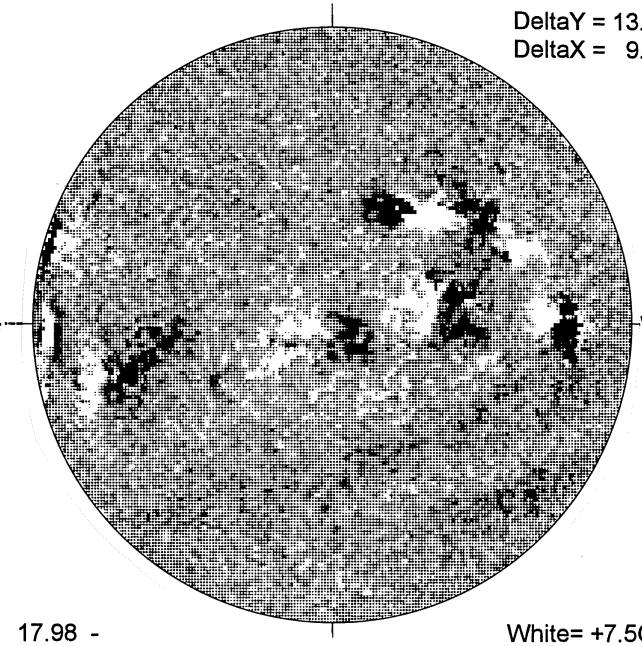
Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

N

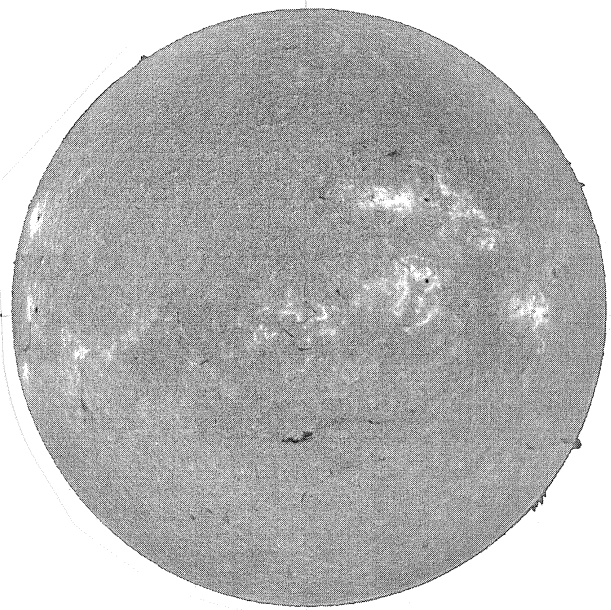
DeltaY = 13.1
DeltaX = 9.6



17.98 -
18.92 UT

White= +7.5G
Black = -7.5G

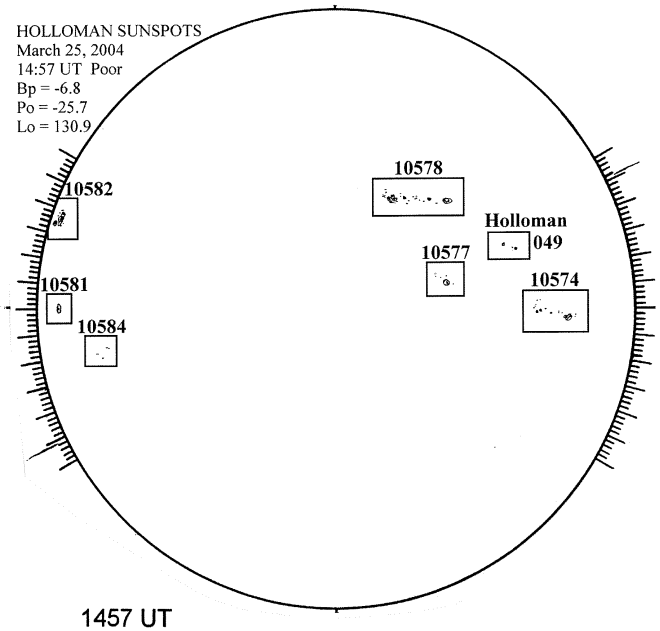
BIG BEAR H-ALPHA



1718 UT

S

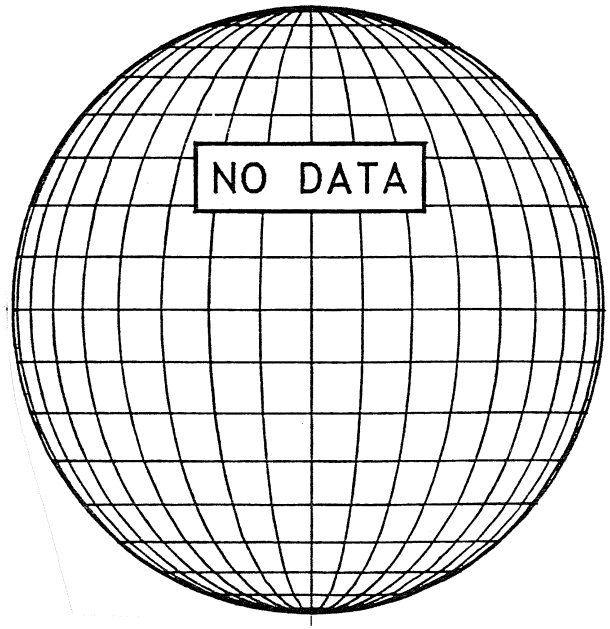
HOLLOMAN SUNSPOT



1457 UT

S

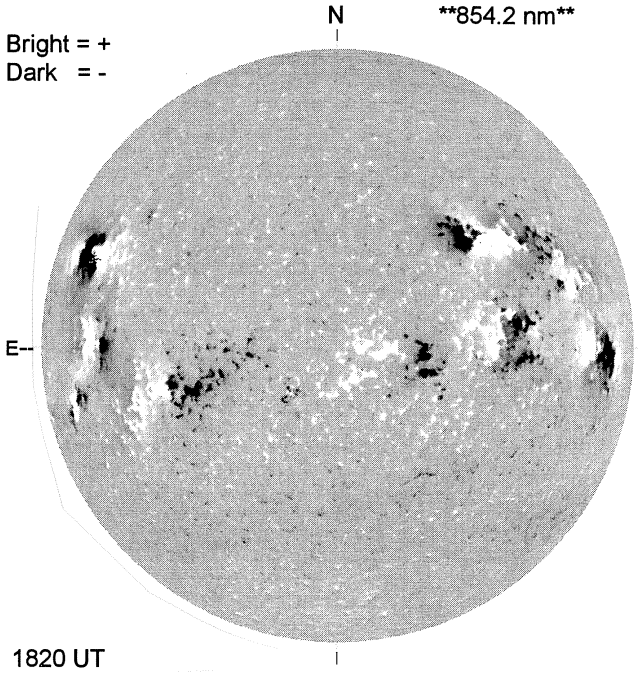
SACRAMENTO PEAK CORONA (1.15 Radii)



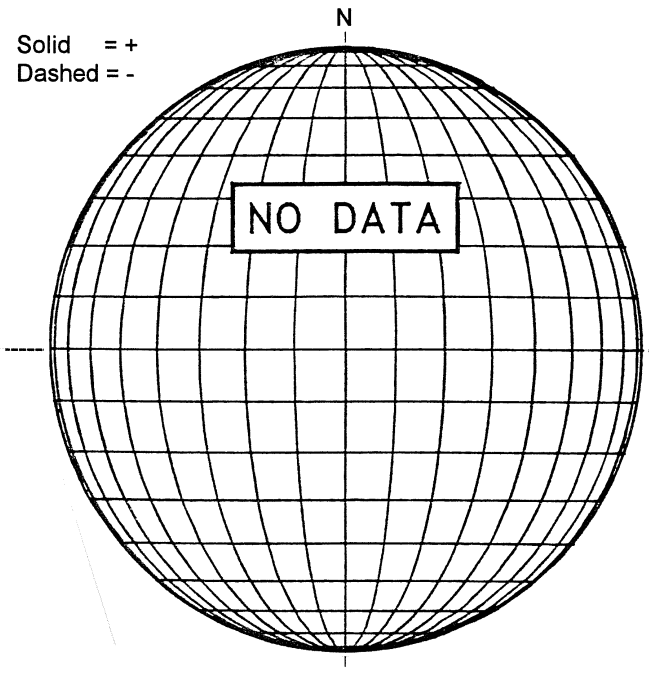
S

MARCH 26, 2004 (P= -25.81, Bo = -6.82, Lo = 125.00)

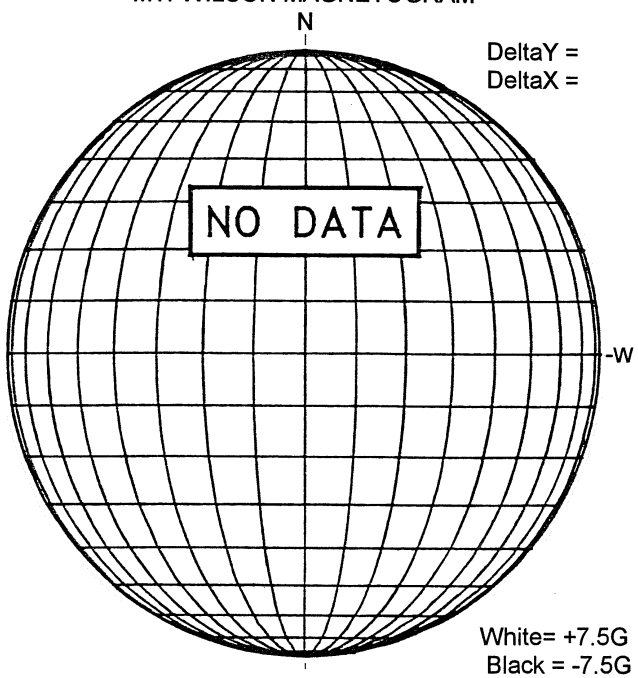
KITT PEAK MAGNETOGRAM--SOLIS



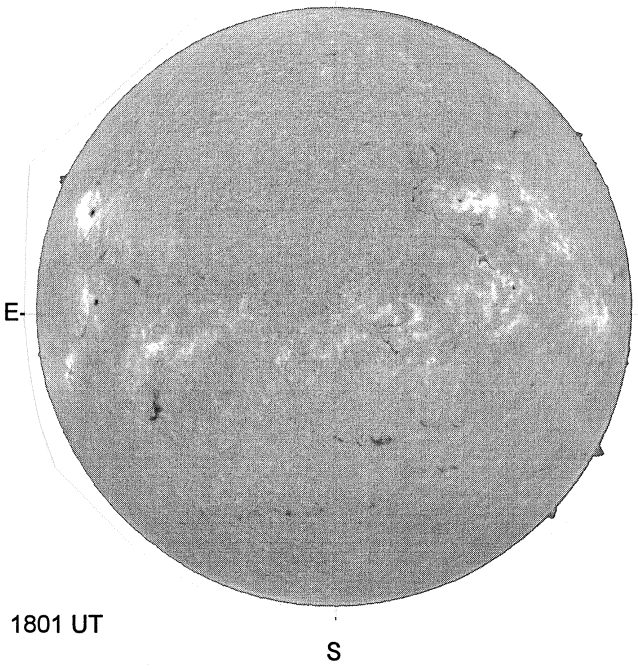
STANFORD MAGNETOGRAM



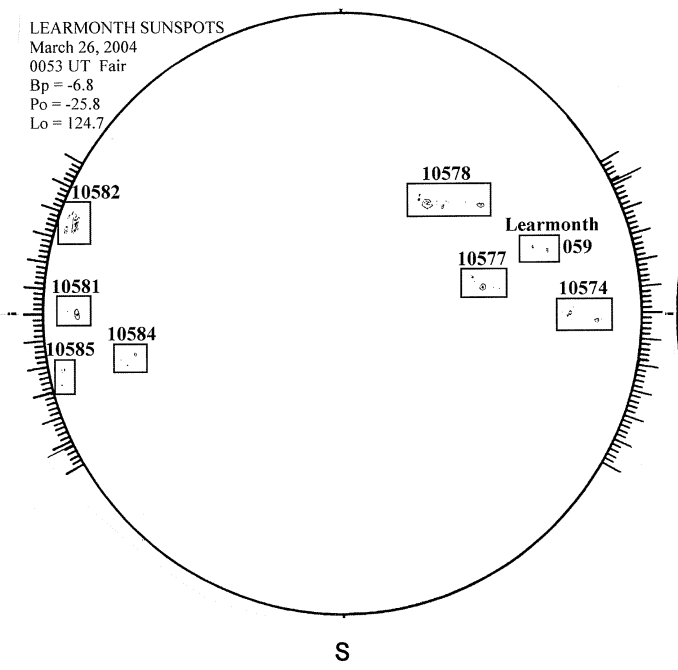
MT. WILSON MAGNETOGRAM



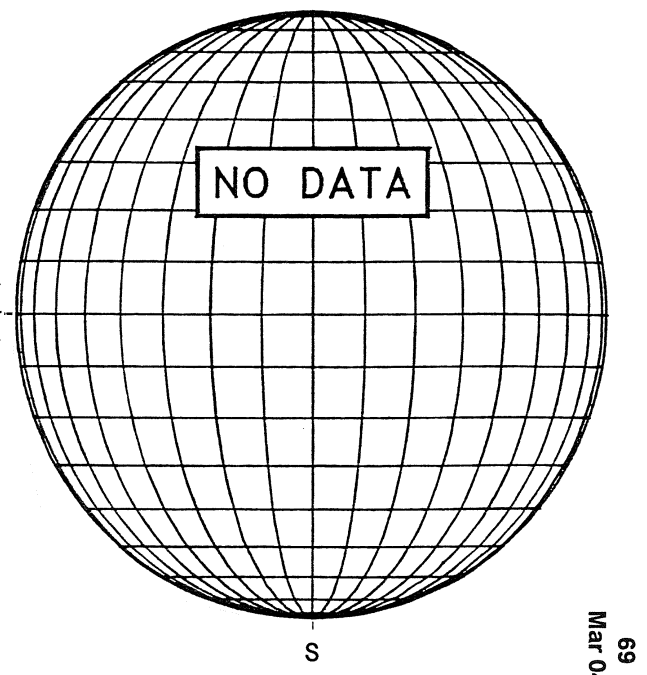
BIG BEAR H-ALPHA



HOLLOMAN SUNSPOTS



SACRAMENTO PEAK CORONA (1.15 Radii)----



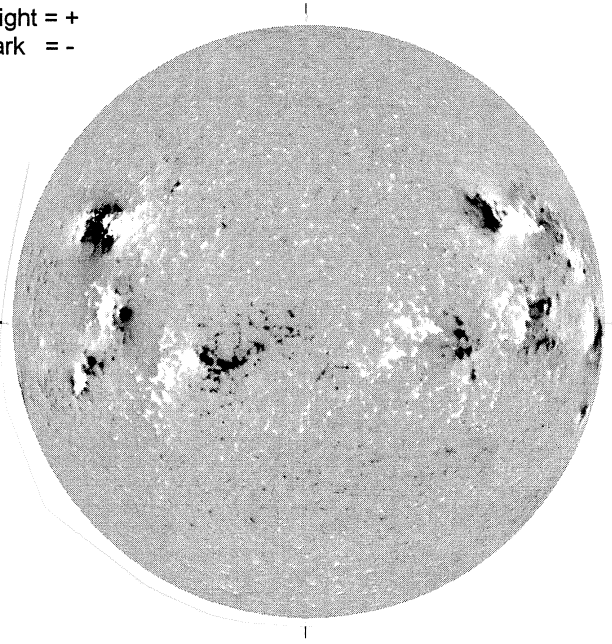
69
Mar 04

MARCH 27, 2004 (P= -25.89, Bo = -6.77, Lo = 111.81)

KITT PEAK MAGNETOGRAM--SOLIS

N
854.2 nm

Bright = +
Dark = -

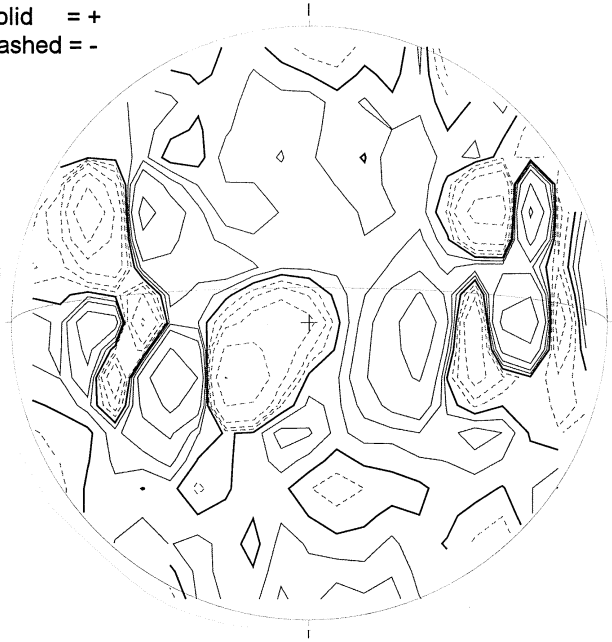


1947 UT

STANFORD MAGNETOGRAM

N

Solid = +
Dashed = -

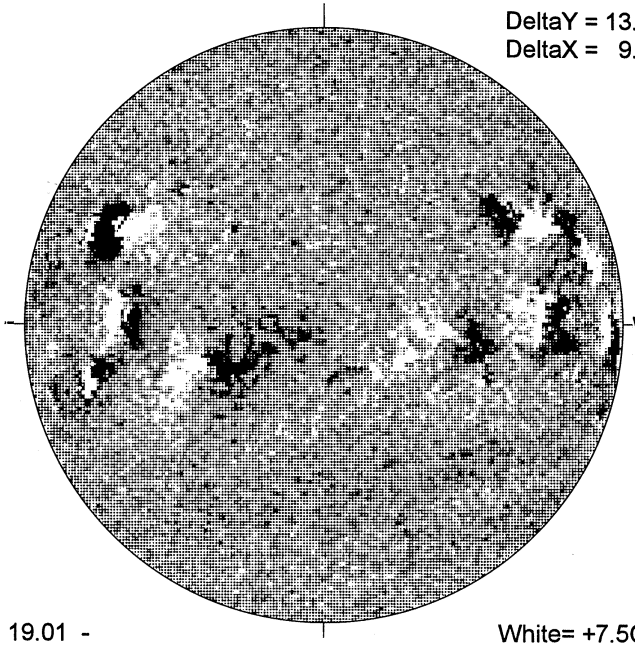


2344 UT

MT. WILSON MAGNETOGRAM

N

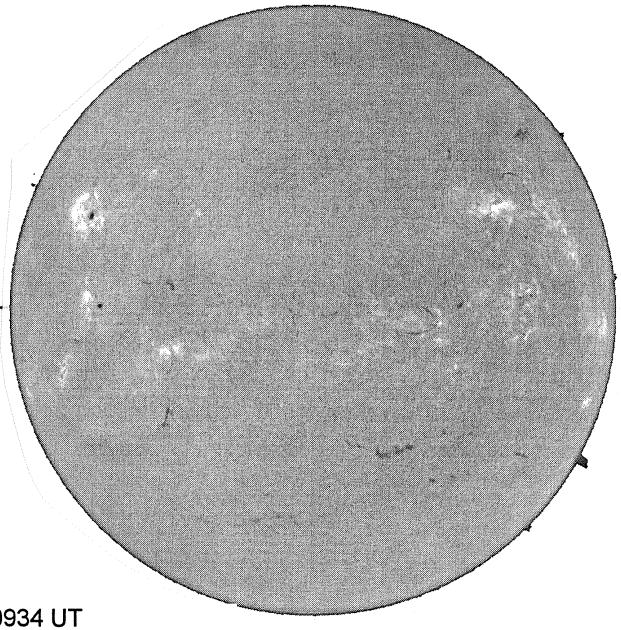
DeltaY = 13.1
DeltaX = 9.6



19.01 -
19.96 UT

White= +7.5G
Black = -7.5G

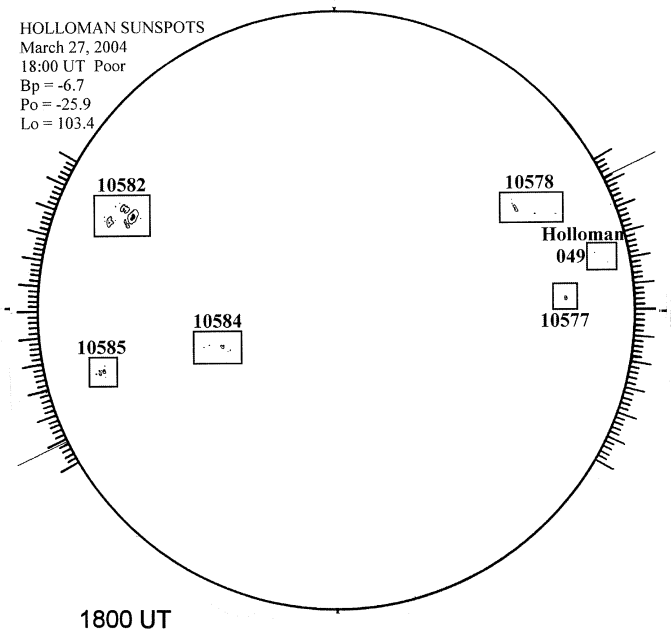
CATANIA H-ALPHA



0934 UT

S

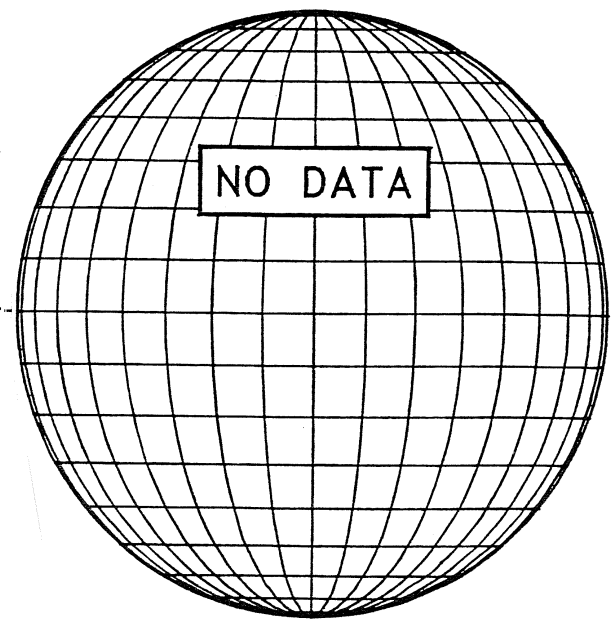
HOLLOMAN SUNSPOT



1800 UT

S

SACRAMENTO PEAK CORONA (1.15 Radii)----



S

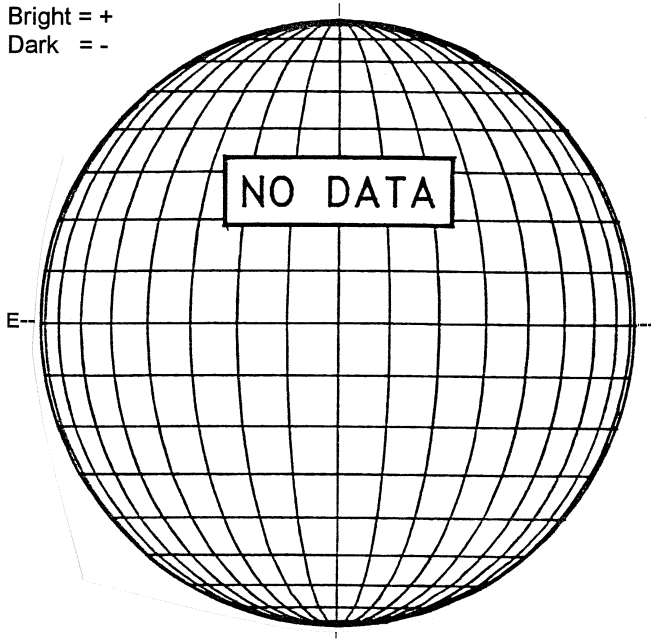
MARCH 28, 2004 (P= -25.96, Bo = -6.73, Lo = 98.62)

KITT PEAK MAGNETOGRAM--SOLIS

N

854.2 nm

Bright = +
Dark = -



STANFORD MAGNETOGRAM

N

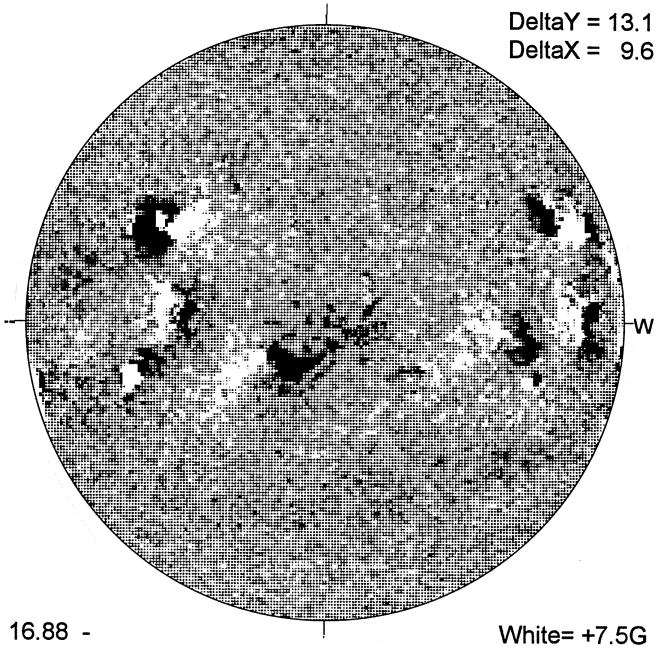
Solid = +
Dashed = -

2208 UT

MT. WILSON MAGNETOGRAM

N

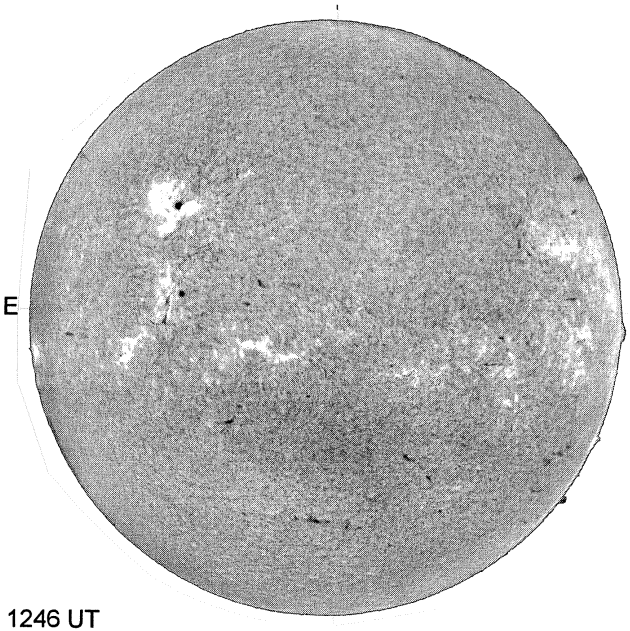
DeltaY = 13.1
DeltaX = 9.6



16.88 -
17.83 UT

White= +7.5G
Black = -7.5G

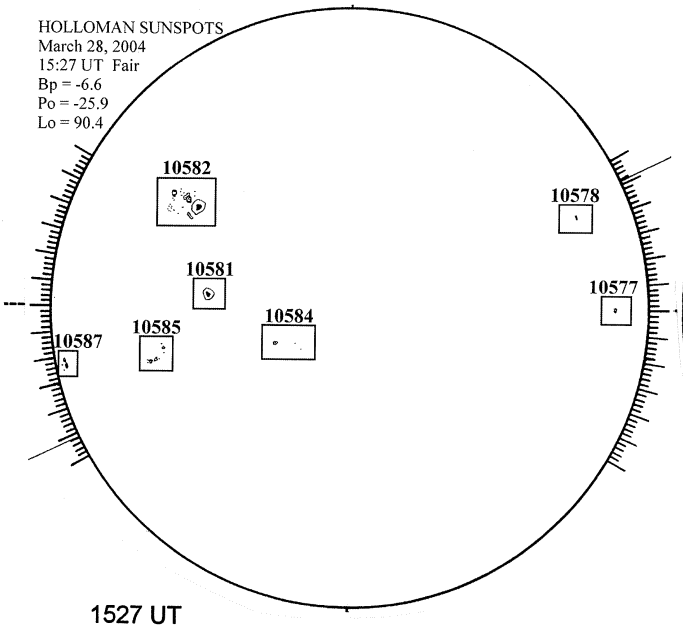
KANZELHOHE H-ALPHA



1246 UT

S

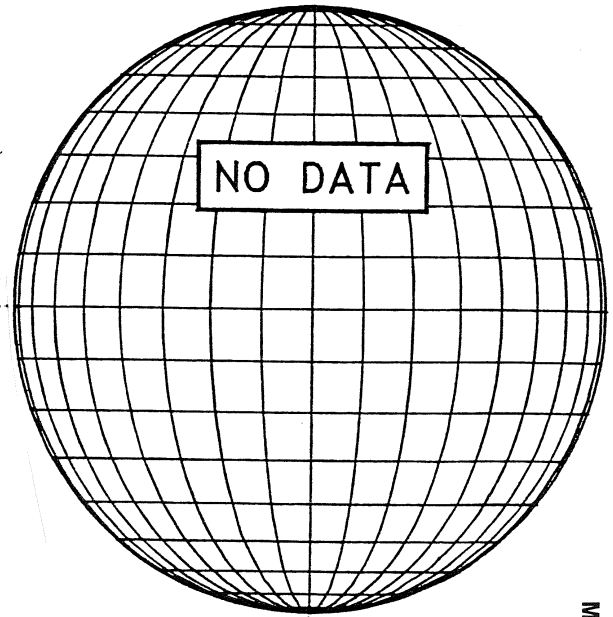
HOLLOMAN SUNSPOT



1527 UT

S

SACRAMENTO PEAK CORONA (1.15 Radii)----

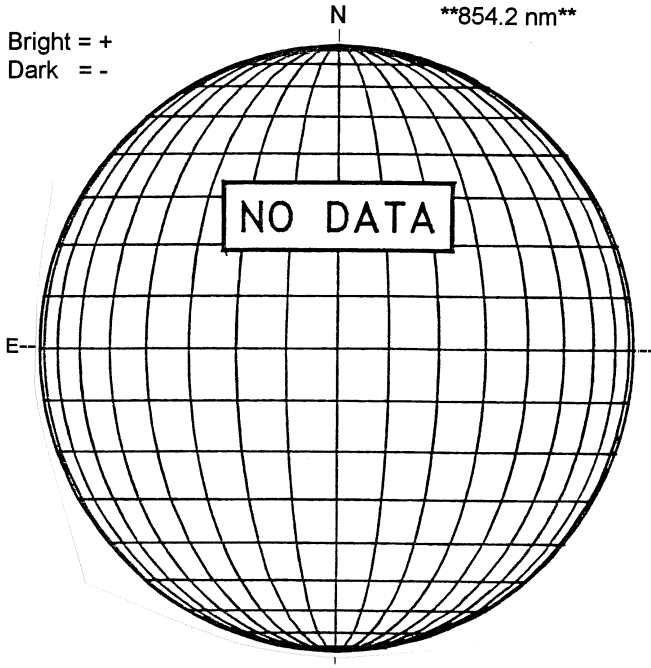


S

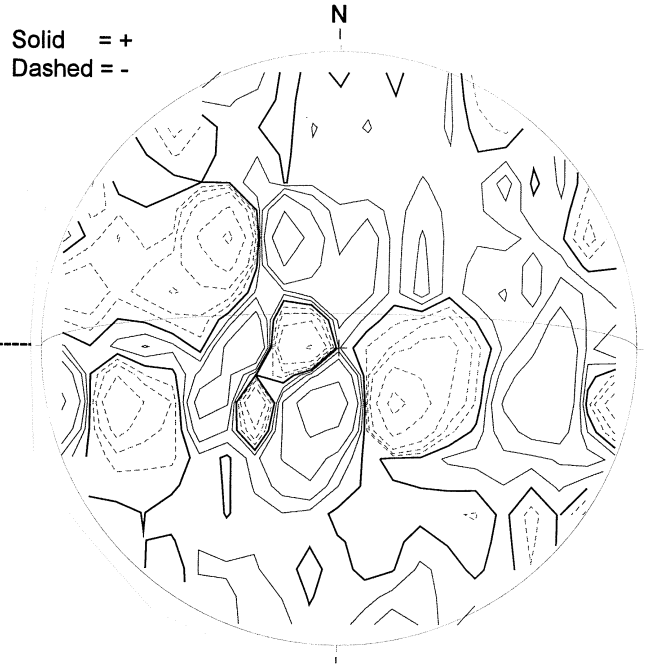
71
Mar 04

MARCH 29, 2004 (P= -26.03, Bo = -6.68, Lo = 85.43)

KITT PEAK MAGNETOGRAM--SOLIS

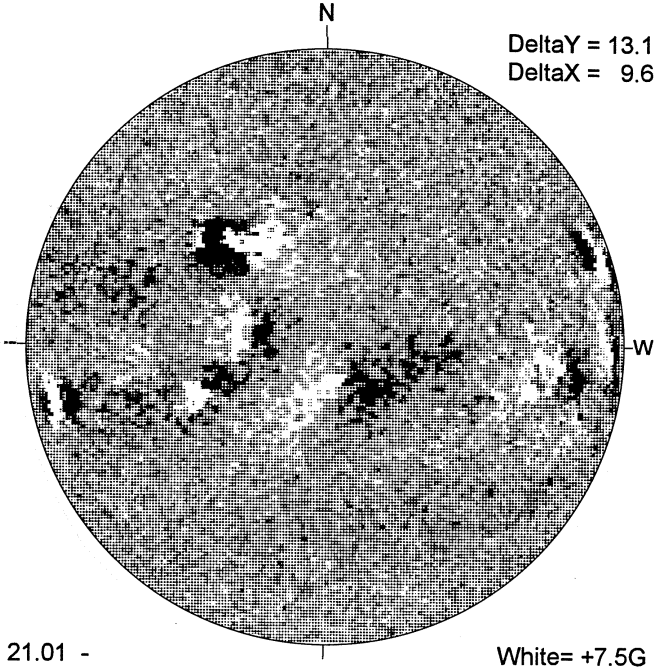


STANFORD MAGNETOGRAM



2104 UT

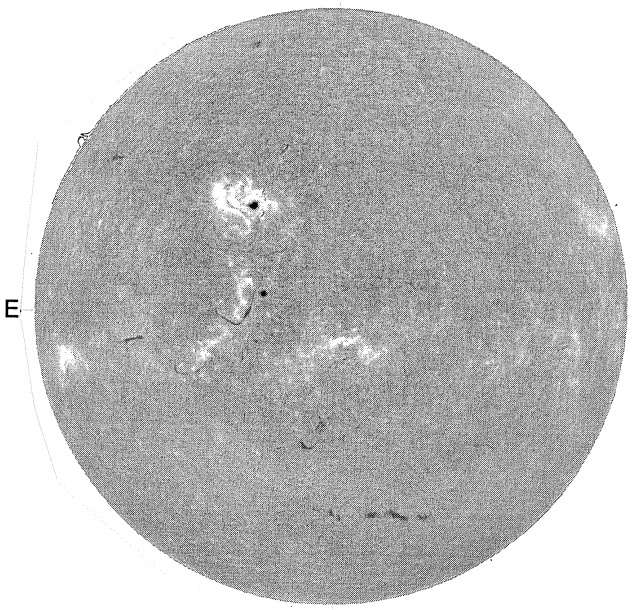
MT. WILSON MAGNETOGRAM



21.01 -
21.96 UT

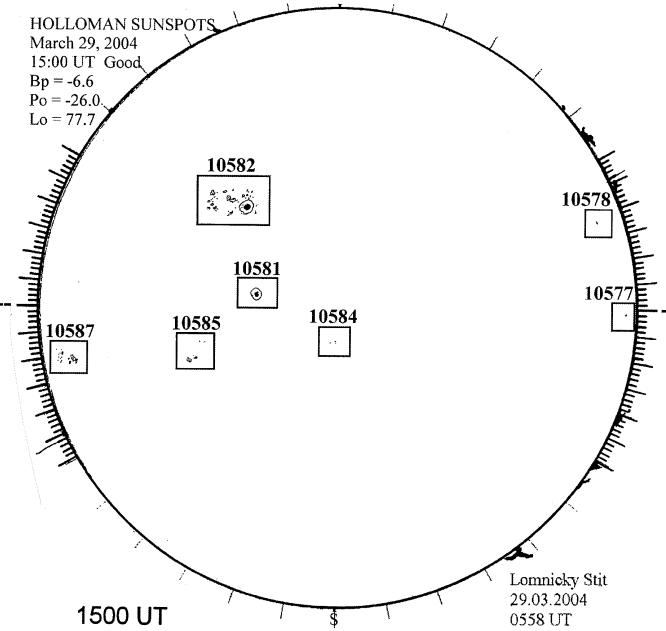
White= +7.5G
Black = -7.5G

BIG BEAR H-ALPHA



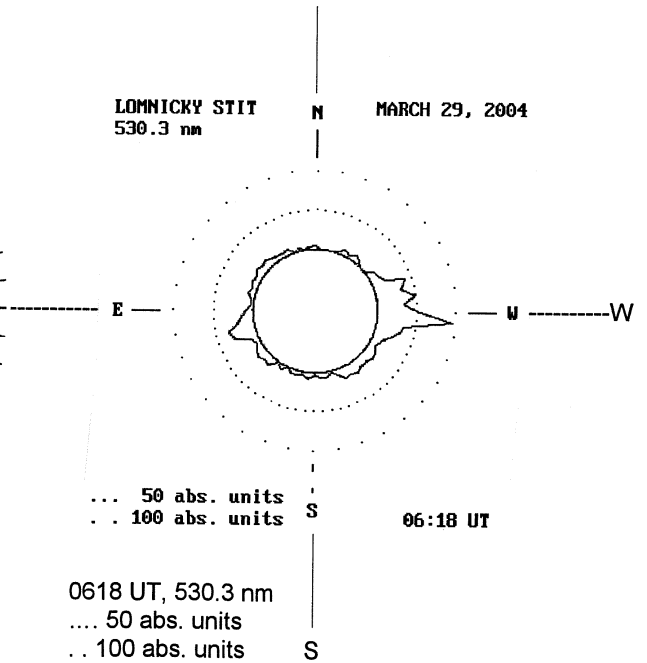
1856 UT

HOLLOMAN SUNSPOTS



1500 UT
0558 UT LOMN Prom

LOMNICKY PEAK CORONA (1.04 Radii)



0618 UT, 530.3 nm
.... 50 abs. units
. . 100 abs. units

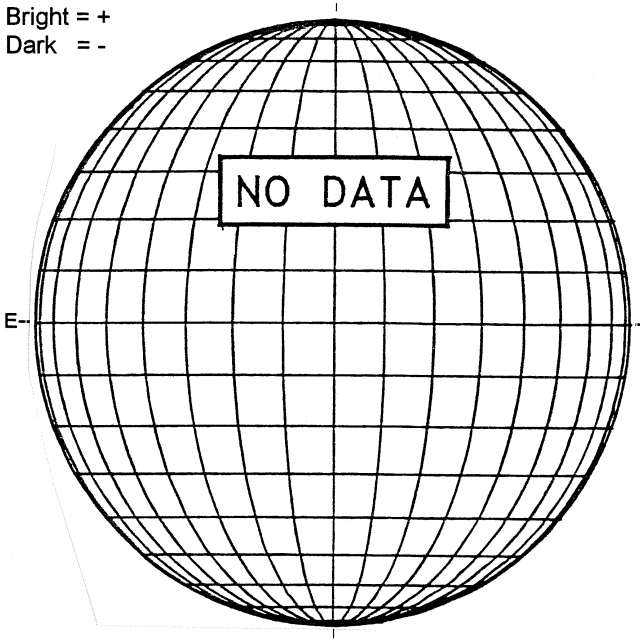
MARCH 30, 2004 (P= -26.09, Bo = -6.63, Lo = 72.24)

KITT PEAK MAGNETOGRAM—SOLIS

N

854.2 nm

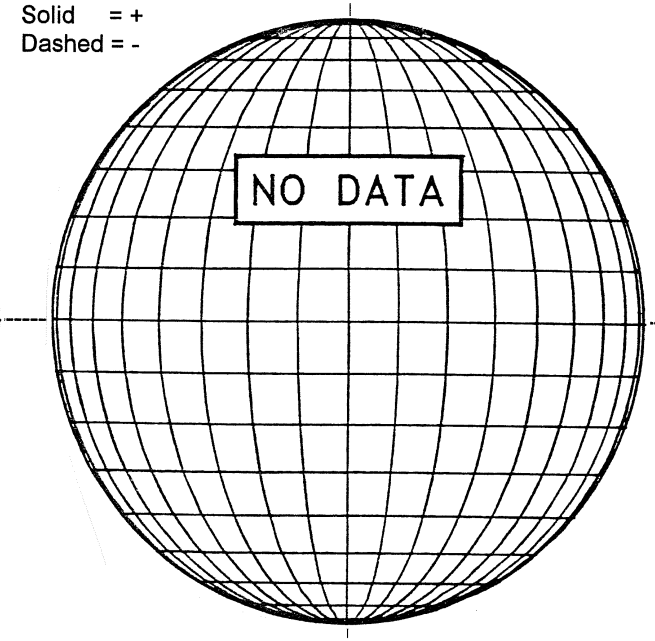
Bright = +
Dark = -



STANFORD MAGNETOGRAM

N

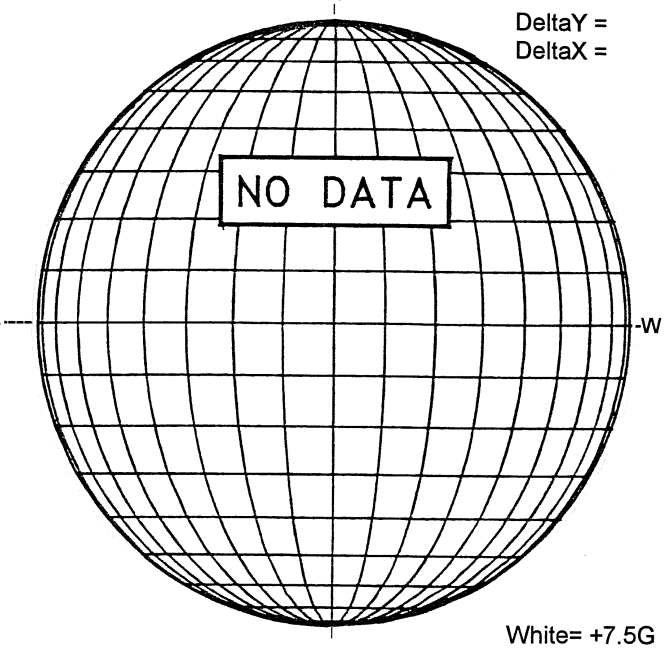
Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

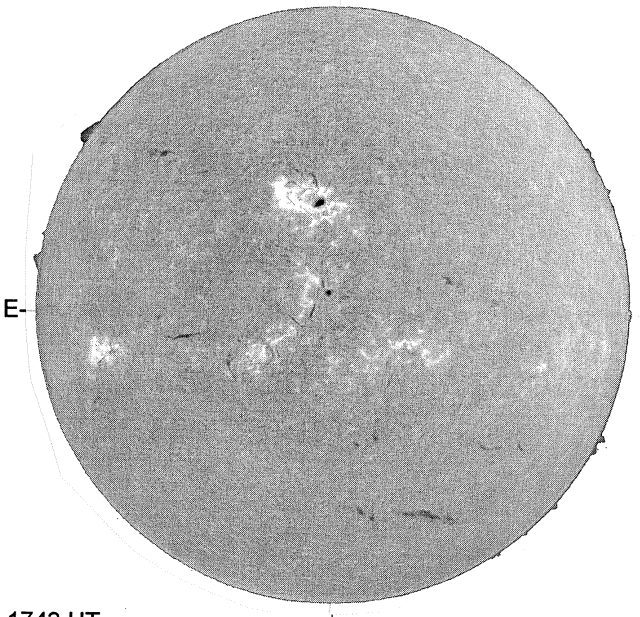
N

DeltaY =
DeltaX =



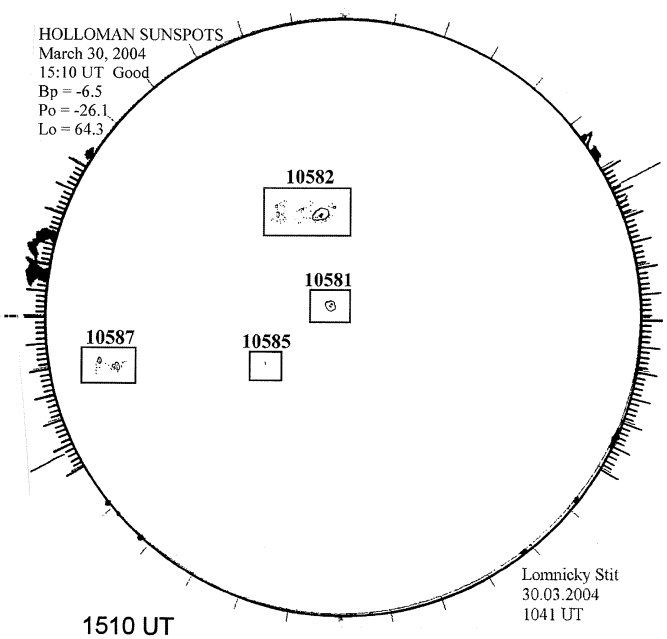
White= +7.5G
Black = -7.5G

BIG BEAR H-ALPHA



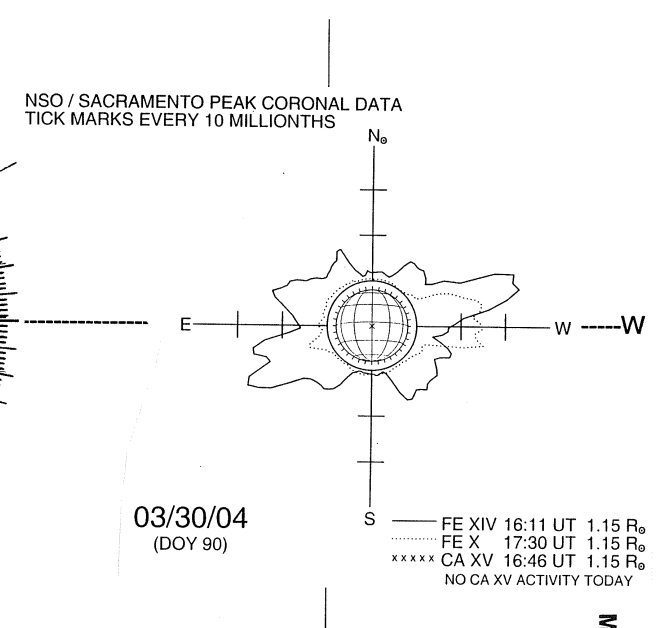
1743 UT

HOLLOMAN SUNSPOT



1510 UT
1041 UT LOMN Prom S

SACRAMENTO PEAK CORONA (1.15 Radii)



73
Mar 04

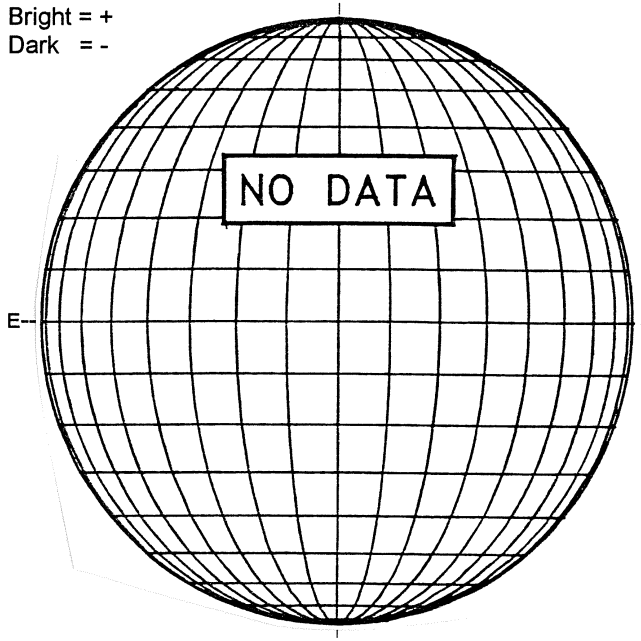
MARCH 31, 2004 (P= -26.14, Bo = -6.58, Lo = 59.05)

KITT PEAK MAGNETOGRAM--SOLIS

N

854.2 nm

Bright = +
Dark = -



STANFORD MAGNETOGRAM

N

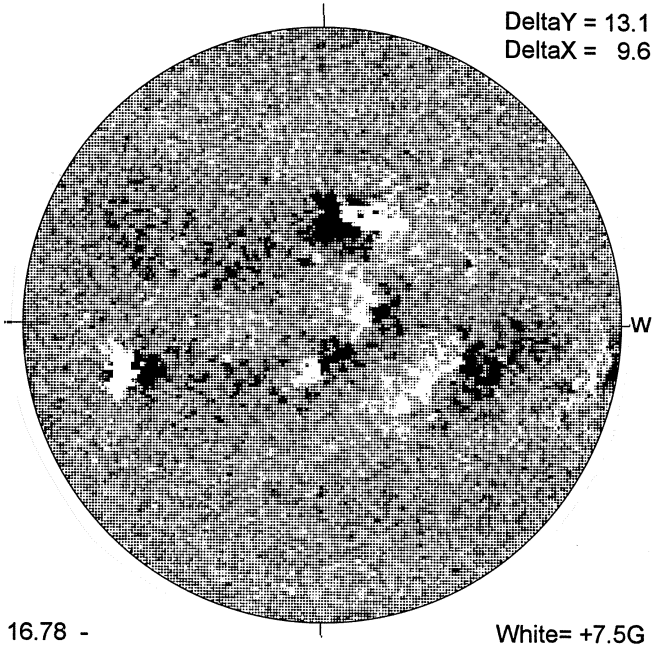
Solid = +
Dashed = -

1911 UT

MT. WILSON MAGNETOGRAM

N

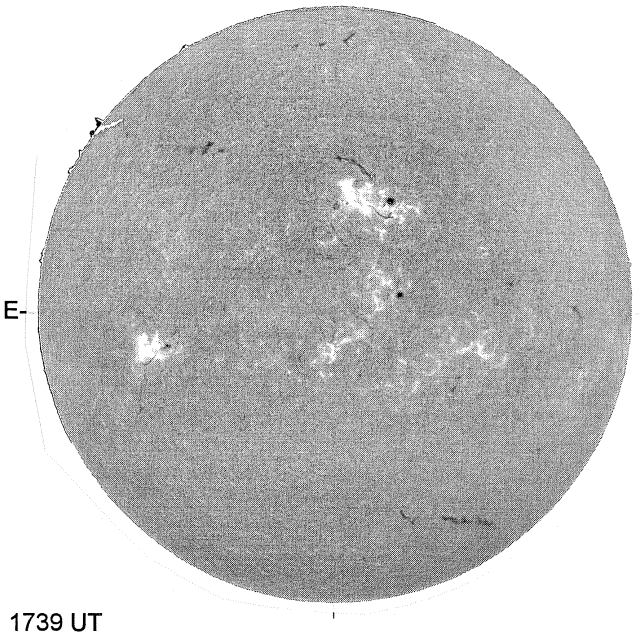
DeltaY = 13.1
DeltaX = 9.6



16.78 -
17.73 UT

White= +7.5G
Black = -7.5G

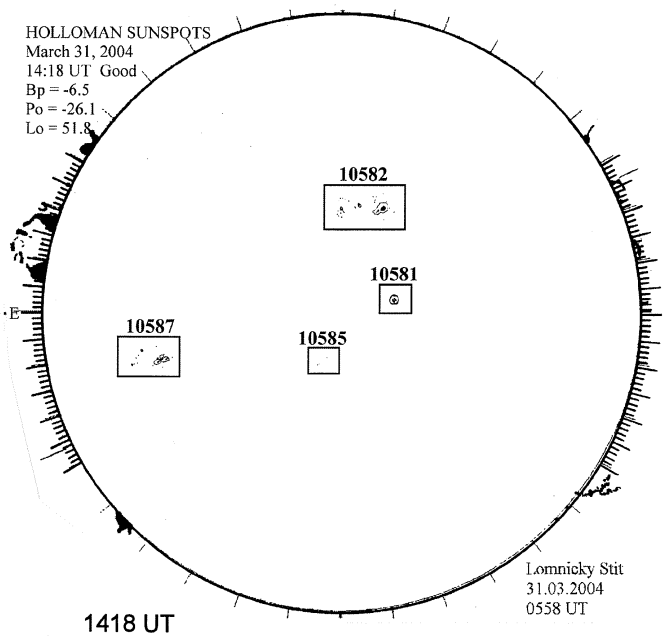
BIG BEAR H-ALPHA



1739 UT

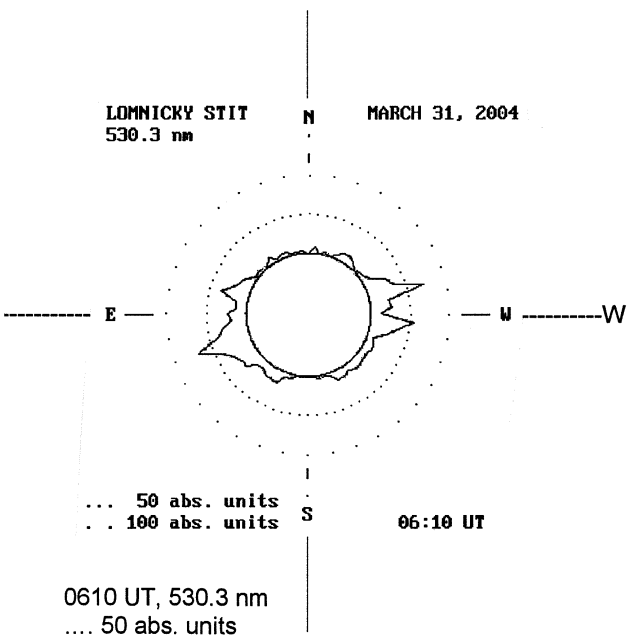
S

HOLLOMAN SUNSPOT



1418 UT
0558 UT LOMN Prom S

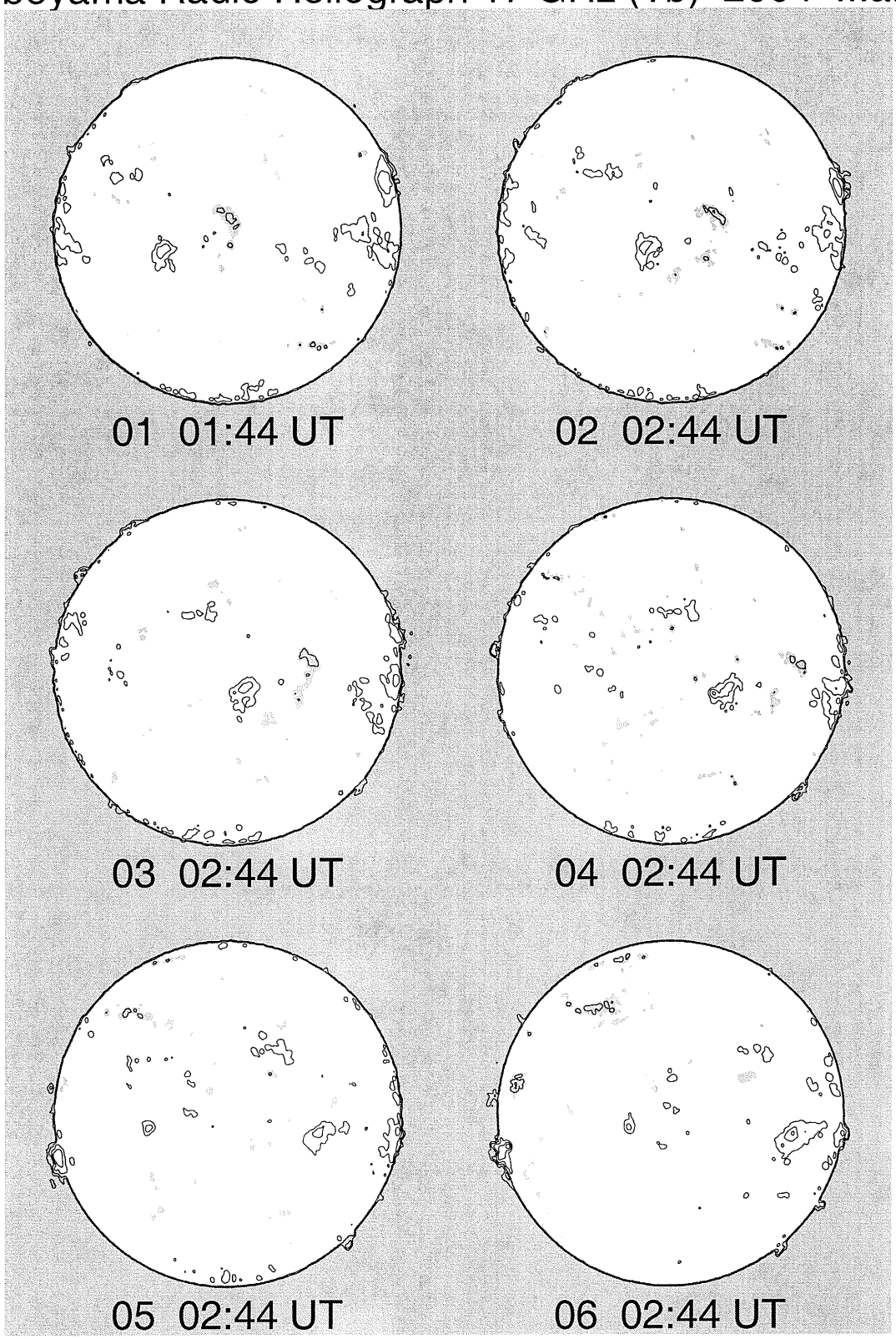
LOMNICKY PEAK CORONA (1.04 Radii)----



0610 UT, 530.3 nm
.... 50 abs. units
. . 100 abs. units

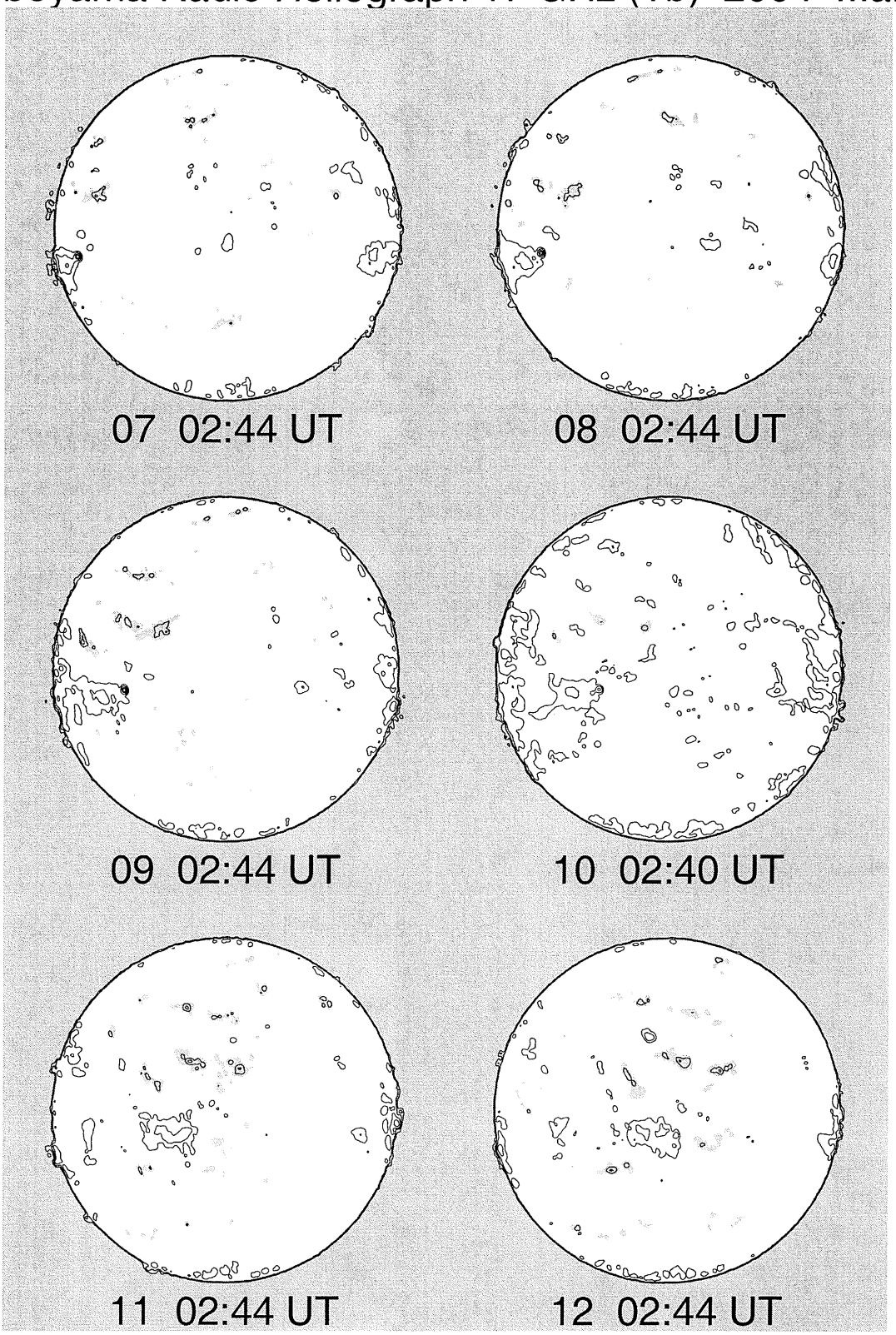
S

Nobeyama Radio Heliograph 17 GHz (Tb) 2004 March



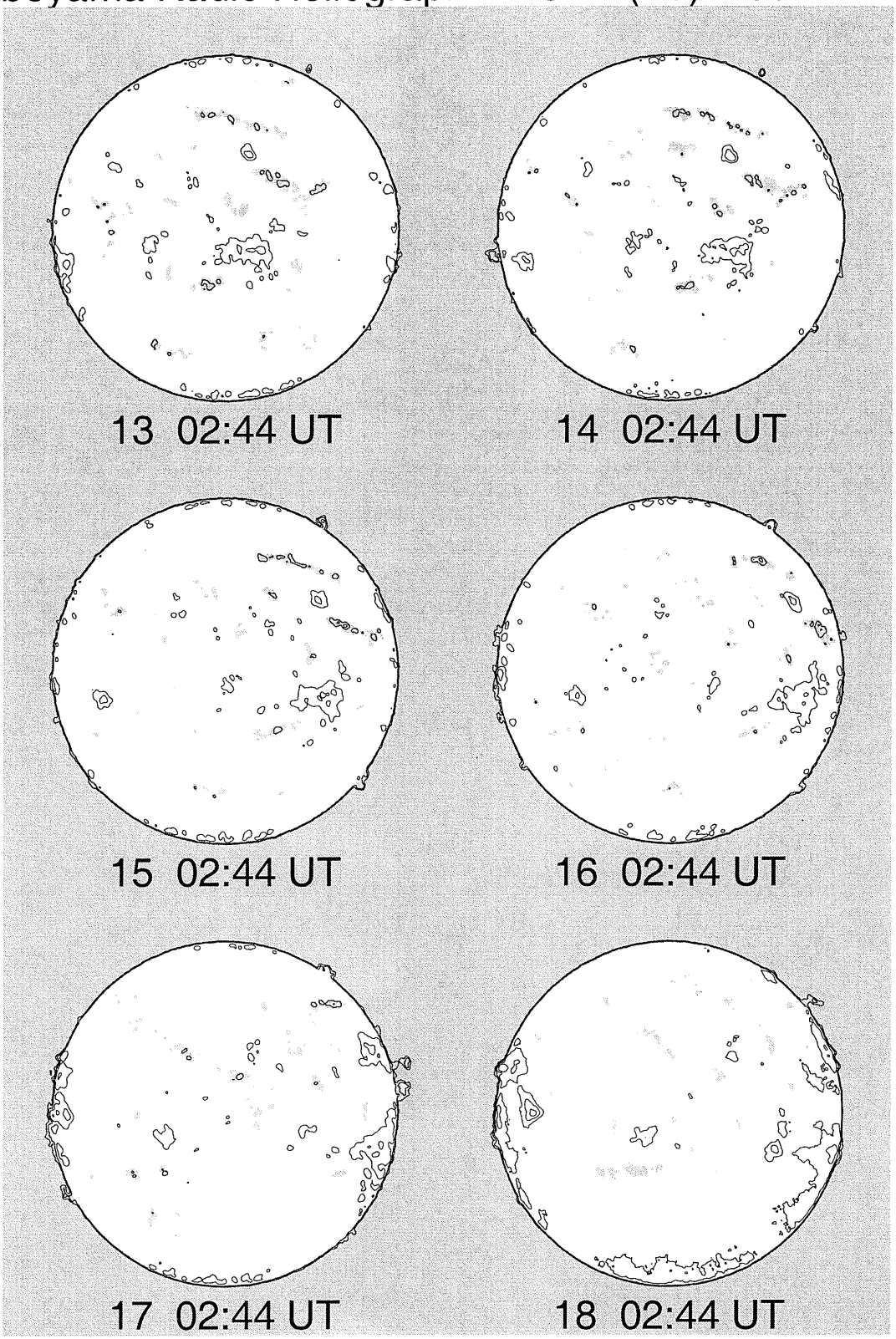
Contour Levels Tb=[5,8,12,20,50,100] x 10^3 K
Grey level Tb <= 9,500 K

Nobeyama Radio Heliograph 17 GHz (Tb) 2004 March



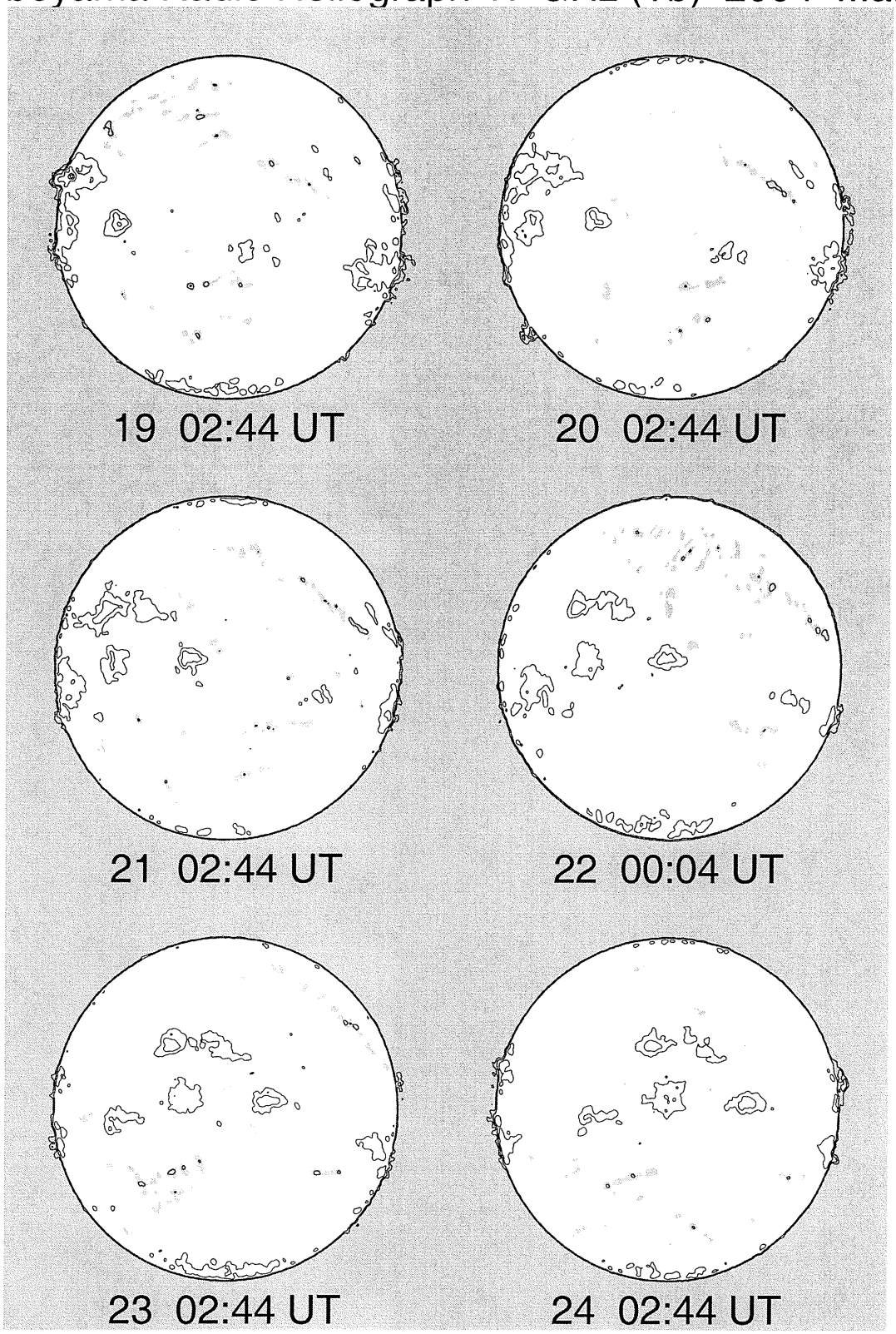
Contour Levels Tb=[5,8,12,20,50,100] x 10^3 K
Grey level Tb <= 9,500 K

Nobeyama Radio Heliograph 17 GHz (Tb) 2004 March



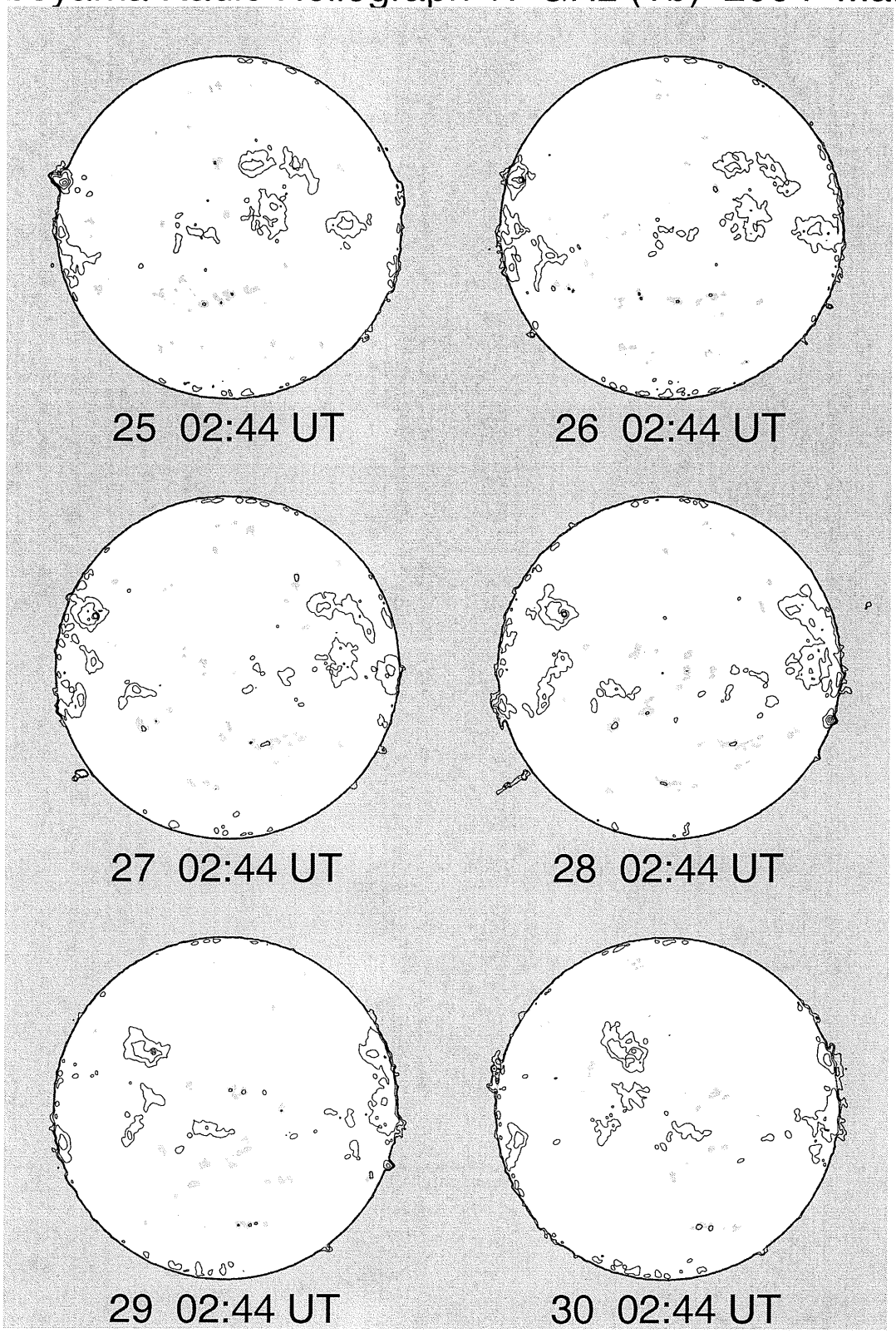
Contour Levels Tb=[5,8,12,20,50,100] x 10^3 K
Grey level Tb <= 9,500 K

Nobeyama Radio Heliograph 17 GHz (Tb) 2004 March



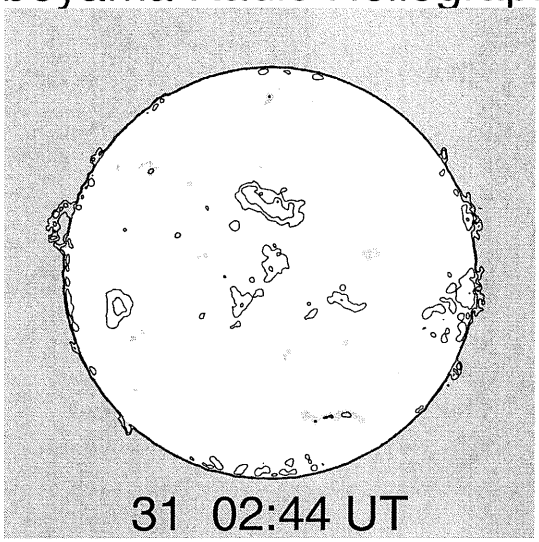
Contour Levels Tb=[5,8,12,20,50,100] x 10^3 K
Grey level Tb <= 9,500 K

Nobeyama Radio Heliograph 17 GHz (Tb) 2004 March



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 March



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

S U N S P O T G R O U P S
(Ordered by Central Meridian Passage Date)
MARCH 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
10567		HOLL	02	26	1450	S13	E69	03	2.8		B	CSO	50	2	2	4
10567		VORO	02	26	2343	S14	E64	03	2.8			HAX	112	1		3
10567		LEAR	02	27	0210	S13	E62	03	2.8		B	BXO	40	5	4	3
10567		KAND	02	27	1200	S13	E58	03	2.9			CSO		4	5	1
10567		SVTO	02	27	1225	S14	E55	03	2.7		B	CSO	30	5	6	3
10567		HOLL	02	27	1755	S13	E54	03	2.8		B	CAO	40	6	7	3
10567		LEAR	02	28	0030	S12	E50	03	2.8		B	DSO	60	10	7	2
10567		TACH	02	28	0633	S13	E44	03	2.6			CAI	104	9	2	3
10567		SVTO	02	28	0805	S14	E44	03	2.7		B	DAO	80	8	9	3
10567	32022	MWIL	02	28	2000	S13	E39	03	2.8	4	(BF)					
10567		VORO	02	28	2339	S13	E36	03	2.7			CSI	143	6	6	3
10567		LEAR	02	29	0025	S12	E36	03	2.7		B	CAO	120	16	9	1
10567		SVTO	02	29	0636	S13	E33	03	2.8		B	DSO	110	8	9	3
10567		KAND	02	29	1120	S13	E31	03	2.8			DAI		15	9	3
10567		HOLL	02	29	1530	S13	E28	03	2.7		B	DAO	130	25	9	3
10567	32022	MWIL	02	29	1600	S14	E30	03	2.9	5	(BF)					
10567		VORO	03	01	0006	S14	E24	03	2.8			CAO	112	11	5	3
10567		KAND	03	01	0650	S14	E21	03	2.9			DAI		15	9	3
10567		SVTO	03	01	0918	S12	E18	03	2.7		B	DSO	70	10	9	3
10567		TACH	03	01	1005	S13	E19	03	2.8			CAI	64	9	8	3
10567		HOLL	03	01	1530	S13	E16	03	2.8		BG	DAI	150	22	9	4
10567		VORO	03	01	2345	S13	E11	03	2.8			CAO	86	14	8	3
10567		LEAR	03	02	0450	S12	E07	03	2.7		BG	DAO	110	42	10	2
10567		TACH	03	02	0603	S12	E07	03	2.8			CAI	55	11	9	3
10567		SVTO	03	02	0859	S12	E03	03	2.6		B	ESI	160	18	11	3
10567		KAND	03	02	1155	S13	E02	03	2.6			EAI		17	12	4
10567		VORO	03	02	2321	S12	W03	03	2.7			DAO	165	31	9	3
10567		LEAR	03	03	0001	S12	W03	03	2.8		BG	ESI	190	36	11	3
10567		SVTO	03	03	0712	S12	W08	03	2.7		B	EAO	140	13	12	3
10567		HOLL	03	03	1655	S11	W12	03	2.8		BG	EAI	130	12	12	2
10567	32022	MWIL	03	03	2330	S13	W16	03	2.8	5	(BG)					
10567		VORO	03	03	2353	S12	W16	03	2.8			DAI	203	12	9	3
10567		LEAR	03	04	0058	S12	W20	03	2.5		BGD	EAO	180	43	11	3
10567		SVTO	03	04	0620	S11	W20	03	2.7		B	EAO	140	15	13	3
10567		TACH	03	04	0656	S12	W21	03	2.7			DAI	121	17	9	3
10567	32022	MWIL	03	04	1530	S12	W25	03	2.8	5	(BG)					
10567		VORO	03	04	2353	S13	W29	03	2.8			EAI	217	15	10	3
10567		LEAR	03	05	0046	S12	W30	03	2.8		BG	EAC	180	29	12	3
10567		SVTO	03	05	0715	S11	W34	03	2.7		B	EAO	160	16	14	3
10567		TACH	03	05	0820	S10	W34	03	2.8			DAI	139	17	10	3
10567		KAND	03	05	0845	S13	W35	03	2.7			ESO		10	12	2
10567	32022	MWIL	03	05	1530	S13	W38	03	2.8	5	(BG)					
10567		VORO	03	06	0033	S12	W43	03	2.8			EAI	276	11	10	3
10567		LEAR	03	06	0125	S13	W44	03	2.7		BG	EAC	160	20	12	2
10567		SVTO	03	06	1217	S13	W48	03	2.9		B	EAO	210	13	12	3
10567	32022	MWIL	03	06	1530	S13	W51	03	2.8	5	(B)					
10567		HOLL	03	06	1530	S14	W52	03	2.7		B	EAI	210	21	13	3
10567		LEAR	03	07	0030	S14	W55	03	2.9		B	EAO	110	10	12	3
10567		VORO	03	07	0055	S13	W56	03	2.8			DRI	126	9	10	3
10567		KAND	03	07	0705	S13	W60	03	2.8			CSO		8	10	3
10567		TACH	03	07	0733	S14	W61	03	2.7			CAO	44	4	12	3
10567		HOLL	03	07	1448	S13	W60	03	3.1		B	DSO	40	5	9	2
10567	32022	MWIL	03	07	1530	S13	W64	03	2.8	4	(BD)					
10567		VORO	03	08	0030	S14	W68	03	2.9			CRO	32	5	6	3
10567		LEAR	03	08	0030	S14	W69	03	2.8		B	BXO	50	4	10	3
10567		SVTO	03	08	0925	S13	W71	03	3.0		A	AXX	20	1	1	3
10567		KAND	03	08	1212	S16	W72	03	3.0			HR		1	1	4
10567	32022	MWIL	03	08	1530	S14	W76	03	2.9	4	(B)					
10567		HOLL	03	08	1539	S14	W73	03	3.1		A	HSX	30	1	1	2
10567		VORO	03	09	0035	S14	W79	03	3.0			BRX	20	2	3	3
10567A		LEAR	03	09	0015	S05	W62	03	4.4		B	BXO	40	3	3	1
10567A		SVTO	03	09	1015	S04	W70	03	4.2		A	AXX	30	4	3	3
10567A		HOLL	03	09	1451	S05	W73	03	4.1		BG	BXO	30	4	6	3
10567A	32027	MWIL	03	09	1515	S04	W73	03	4.2	4	(B)					
10567A		LEAR	03	10	0140	S04	W78	03	4.2		B	BXO	40	2	5	3
10567A		SVTO	03	10	0645	S03	W81	03	4.2		A	HSX	30	1	2	3
10567A		KAND	03	10	0830	S05	W80	03	4.4			HS		1	1	4
10567B	32026	MWIL	03	08	1530	S09	W27	03	6.6	3	(AF)					

SUNSPOT GROUPS
(Ordered by Central Meridian Passage Date)

MARCH 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
10569	32024	MWIL	03 04 1530	S11 E34	03 7.2	4	(B)					
10569		VORO	03 04 2353	S12 E29	03 7.2			DRO	38	8	3	3
10569		LEAR	03 05 0046	S12 E28	03 7.1		B	CSO	40	10	4	3
10569		SVTO	03 05 0715	S13 E24	03 7.1		B	DSO	30	6	4	3
10569		TACH	03 05 0820	S12 E24	03 7.1			BRI	43	8	4	3
10569		KAND	03 05 0845	S12 E25	03 7.2			CSO		4	4	2
10569	32024	MWIL	03 05 1530	S12 E21	03 7.2	4	(B)					
10569		VORO	03 05 2353	S12 E15	03 7.1			DRI	66	9	3	3
10569		LEAR	03 06 0125	S12 E15	03 7.2		B	CSO	70	7	4	2
10569		SVTO	03 06 1217	S12 E08	03 7.1		B	DAO	80	5	6	3
10569		HOLL	03 06 1530	S12 E07	03 7.2		B	DAO	60	10	6	3
10569	32024	MWIL	03 06 1530	S12 E07	03 7.2	4	(B)					
10569		LEAR	03 07 0030	S11 E02	03 7.2		B	DAO	40	8	6	3
10569		VORO	03 07 0055	S12 E01	03 7.1			DRI	39	8	4	3
10569		KAND	03 07 0705	S13 W02	03 7.1			DAO		7	5	3
10569		TACH	03 07 0733	S12 W02	03 7.2			BRO	14	4	4	3
10569		HOLL	03 07 1448	S11 W07	03 7.1		B	DSO	20	4	6	2
10569	32024	MWIL	03 07 1530	S12 W07	03 7.1	5	(B)					
10569		LEAR	03 08 0030	S12 W12	03 7.1		B	BXO	30	4	3	3
10569		VORO	03 08 0030	S13 W14	03 7.0			HAX	15	3		3
10569		SVTO	03 08 0925	S12 W19	03 7.0		A	HSX	20	1	1	3
10569		KAND	03 08 1212	S13 W21	03 6.9			HS		1	1	4
10569	32024	MWIL	03 08 1530	S13 W23	03 6.9	4	(AP)					
10569		HOLL	03 08 1539	S12 W23	03 6.9		A	HSX	20	2	2	2
10569		LEAR	03 09 0015	S12 W26	03 7.0		A	AXX	10	1	1	1
10569		VORO	03 09 0035	S13 W27	03 7.0			HAX	14	1		3
10569		SVTO	03 09 1015	S12 W33	03 6.9		A	HSX	20	1	1	3
10569		HOLL	03 09 1451	S12 W36	03 6.9		A	HSX	10	1	1	3
10569	32024	MWIL	03 09 1515	S13 W36	03 6.9	5	(AP)					
10569		LEAR	03 10 0140	S12 W41	03 7.0		B	BXO	30	3	3	3
10569		SVTO	03 10 0645	S12 W46	03 6.8		A	HSX	30	1	1	3
10569		TACH	03 10 0701	S12 W44	03 7.0			AXX	14	1	1	3
10569		KAND	03 10 0830	S13 W44	03 7.0			HA		1	1	4
10569	32024	MWIL	03 10 1515	S12 W49	03 6.9	4	(AP)					
10569		VORO	03 11 0050	S13 W54	03 7.0			HAX	12	1		3
10569		LEAR	03 11 0146	S11 W56	03 6.9		A	AXX	10	1	1	3
10569	32024	MWIL	03 11 1600	S12 W61	03 7.1	4	(AP)					
10569		LEAR	03 12 0111	S13 W68	03 6.9		A	AXX	10	1	1	2
10569	32024	MWIL	03 12 1600	S11 W76	03 6.9	3	(AP)					
10569A		LEAR	03 07 0030	S12 E12	03 7.9		A	AXX	10	1	1	3
10569A		VORO	03 07 0055	S14 E11	03 7.9			BRI	5	5	3	3
10569A		KAND	03 07 0705	S13 E09	03 8.0			AX		1		3
10569A		TACH	03 07 0733	S13 E10	03 8.1			AXX	1	1	1	3
10571		VORO	03 09 0035	S14 E13	03 10.0			BRX	4	2		3
10571		LEAR	03 10 0140	S14 W01	03 10.0		A	AXX	10	1	1	3
10571	32028	MWIL	03 10 1515	S15 W08	03 10.0	4	(B)					
10571		LEAR	03 11 0146	S14 W15	03 9.9		B	BXO	10	3	3	3
10570	32025	MWIL	03 05 1530	S13 E84	03 12.0	4	(AP)					
10570		VORO	03 05 2353	S13 E77	03 11.8			HHX	587	1		3
10570		LEAR	03 06 0125	S13 E77	03 11.9		A	HKX	210	3	6	2
10570		SVTO	03 06 1217	S14 E75	03 12.2		B	CKO	330	3	15	3
10570		HOLL	03 06 1530	S13 E78	03 12.5		B	FKO	440	11	18	3
10570	32025	MWIL	03 06 1530	S14 E74	03 12.2	6	(BP)					
10570		LEAR	03 07 0030	S15 E70	03 12.3		B	EKO	660	4	12	3
10570		VORO	03 07 0055	S13 E64	03 11.9			HKX	577	1		3
10570		KAND	03 07 0705	S14 E69	03 12.5			FKO		10	22	3
10570		TACH	03 07 0733	S13 E64	03 12.1			HR	450	2	6	3
10570		HOLL	03 07 1448	S13 E65	03 12.5		BG	FKC	430	17	16	2
10570	32025	MWIL	03 07 1530	S13 E61	03 12.2	6	(BP)					
10570		VORO	03 08 0030	S13 E53	03 12.0			HKX	562	6	4	3
10570		LEAR	03 08 0030	S15 E58	03 12.4		B	FHO	900	18	19	3
10570		SVTO	03 08 0925	S15 E52	03 12.3		B	FKO	690	13	21	3
10570		KAND	03 08 1212	S14 E53	03 12.5			FHO		10	19	4
10570	32025	MWIL	03 08 1530	S14 E48	03 12.3	6	(BG)					
10570		HOLL	03 08 1539	S13 E51	03 12.5		BG	FKC	610	29	18	2
10570		LEAR	03 09 0015	S14 E45	03 12.4		BG	FHO	590	13	16	1

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

MARCH 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
10570		SVTO	03	09	1015	S14	E43	03	12.7		B	FHO	680	21	18	3
10570		HOLL	03	09	1451	S13	E38	03	12.5		BG	FKI	610	20	18	3
10570	32025	MWIL	03	09	1515	S13	E37	03	12.4	6	(B)					
10570		LEAR	03	10	0140	S13	E32	03	12.5		BG	FKO	620	31	18	3
10570		SVTO	03	10	0645	S14	E28	03	12.4		B	DSO	730	10	18	3
10570		TACH	03	10	0701	S12	E23	03	12.0			HA	498	3	4	3
10570		KAND	03	10	0830	S14	E29	03	12.5			FKO		22	19	4
10570	32025	MWIL	03	10	1515	S13	E24	03	12.4	6	(D)					
10570		VORO	03	11	0050	S13	E12	03	11.9			HKX	563	11		3
10570		LEAR	03	11	0146	S13	E19	03	12.5		BGD	FKO	580	33	20	3
10570	32025	MWIL	03	11	1600	S14	E11	03	12.5	5	(BG)					
10570		VORO	03	12	0006	S14	E01	03	12.1			DHO	652	8	5	3
10570		LEAR	03	12	0111	S13	E06	03	12.5		BGD	FKO	20	31	18	2
10570		SVTO	03	12	1015	S14	E02	03	12.6		BG	FAO	480	18	18	3
10570		KAND	03	12	1130	S15	E00	03	12.5			FKO		20	18	3
10570	32025	MWIL	03	12	1600	S13	W04	03	12.4	6	(D)					
10570		VORO	03	13	0001	S14	W12	03	12.1			DHO	480	11	5	3
10570		LEAR	03	13	0120	S13	W07	03	12.5		BGD	FHO	450	18	17	2
10570		SVTO	03	13	0830	S13	W14	03	12.3		B	FAO	450	11	18	3
10570		KAND	03	13	1255	S14	W15	03	12.4			FSO		7	16	3
10570	32025	MWIL	03	13	1530	S13	W18	03	12.3	5	(D)					
10570		HOLL	03	13	1536	S14	W15	03	12.5		BGD	FHO	290	27	19	3
10570		VORO	03	14	0020	S14	W25	03	12.1			DHO	415	9	6	3
10570		LEAR	03	14	0115	S13	W21	03	12.5		BGD	FKI	360	19	19	3
10570		SVTO	03	14	0715	S13	W22	03	12.6		B	DHO	460	6	9	3
10570		KAND	03	14	1020	S14	W23	03	12.7			DSO		14	8	3
10570		HOLL	03	14	1528	S12	W26	03	12.7		BG	FHO	300	16	19	2
10570	32025	MWIL	03	14	1600	S13	W32	03	12.2	6	(BG)					
10570		VORO	03	14	2344	S13	W40	03	12.0			HHX	460	6	4	3
10570		LEAR	03	15	0030	S14	W37	03	12.2		BG	ESO	240	11	13	4
10570		KAND	03	15	0755	S14	W47	03	11.8			DSO		3	8	4
10570		SVTO	03	15	1335	S13	W49	03	11.9		B	DSO	240	2	6	2
10570		HOLL	03	15	1505	S15	W42	03	12.4		BG	FKO	210	11	19	3
10570	32025	MWIL	03	15	1530	S13	W46	03	12.2	5	(BG)					
10570		LEAR	03	16	0000	S13	W54	03	11.9		BG	DHO	290	2	6	2
10570		VORO	03	16	0211	S13	W55	03	11.9			HHX	386	2	4	3
10570		KAND	03	16	0955	S14	W59	03	11.9			DSO		4	6	3
10570		SVTO	03	16	1445	S13	W64	03	11.8		B	DSO	240	3	8	2
10570	32025	MWIL	03	16	1530	S14	W62	03	12.0	5	(BG)					
10570		HOLL	03	16	1549	S14	W64	03	11.8		G	DSO	220	3	6	3
10570		VORO	03	17	0118	S13	W68	03	11.9			HHX	370	2	4	2
10570		LEAR	03	17	0152	S13	W69	03	11.9		A	HSX	210	2	6	3
10570		SVTO	03	17	0704	S13	W71	03	11.9		BG	DSO	310	4	9	3
10570		KAND	03	17	0820	S13	W73	03	11.8			DSO		2	6	2
10570	32025	MWIL	03	17	1530	S14	W76	03	11.9	5	(AP)					
10570		HOLL	03	17	1800	S13	W75	03	12.1		B	DKO	180	2	8	3
10570		VORO	03	18	0004	S13	W80	03	12.0			HAX	311	2	3	3
10570		LEAR	03	18	0127	S13	W80	03	12.0		A	HSX	120	2	6	2
10570		SVTO	03	18	0720	S12	W88	03	11.7		B	DSO	120	2	6	3
10572	32029	MWIL	03	11	1600	N19	E14	03	12.7	4	(BP)					
10572		VORO	03	12	0006	N18	E07	03	12.5			HAX	12	1		3
10572		LEAR	03	12	0111	N19	E07	03	12.6		B	CRO	90	5	3	2
10572		SVTO	03	12	1015	N19	E02	03	12.6		B	CSO	20	6	4	3
10572		KAND	03	12	1130	N18	E00	03	12.5			BXO		7	4	3
10572	32029	MWIL	03	12	1600	N19	W01	03	12.6	4	(BP)					
10572		VORO	03	13	0001	N18	W06	03	12.5			CAO	105	6	4	3
10572		LEAR	03	13	0120	N19	W07	03	12.5		B	DSO	70	12	4	2
10572		SVTO	03	13	0830	N19	W12	03	12.4		B	DAO	130	8	5	3
10572		KAND	03	13	1255	N19	W13	03	12.5			CAO		9	5	3
10572	32029	MWIL	03	13	1530	N19	W14	03	12.6	5	(B)					
10572		HOLL	03	13	1536	N19	W15	03	12.5		B	DAO	110	10	6	3
10572		VORO	03	14	0020	N18	W19	03	12.6			DAO	139	13	3	3
10572		LEAR	03	14	0115	N18	W20	03	12.5		B	DAO	100	12	5	3
10572		SVTO	03	14	0715	N20	W24	03	12.5		B	DSO	130	9	5	3
10572		KAND	03	14	1020	N18	W26	03	12.4			CAO		9	5	3
10572		HOLL	03	14	1528	N18	W28	03	12.5		B	DSO	60	13	6	2
10572	32029	MWIL	03	14	1600	N19	W28	03	12.5	5	(B)					
10572		VORO	03	14	2344	N18	W32	03	12.5			DAI	125	5	3	3

SUNSPOT GROUPS
(Ordered by Central Meridian Passage Date)

MARCH 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
10572		LEAR	03	15	0030	N18	W32	03	12.6		B	CSO	120	11	5	4
10572		KAND	03	15	0755	N18	W38	03	12.4			CSO		4	5	4
10572		SVTO	03	15	1335	N19	W42	03	12.4		A	HSX	60	1	2	2
10572		HOLL	03	15	1505	N19	W40	03	12.6		B	CAO	60	3	4	3
10572	32029	MWIL	03	15	1530	N19	W41	03	12.5	5	(B)					
10572		LEAR	03	16	0000	N18	W46	03	12.5		B	CSO	80	3	3	2
10572		VORO	03	16	0211	N18	W47	03	12.5			CAI	75	3	3	3
10572		KAND	03	16	0955	N18	W52	03	12.4			HA		3	2	3
10572		SVTO	03	16	1445	N19	W57	03	12.3		A	HSX	40	1	2	2
10572	32029	MWIL	03	16	1530	N19	W54	03	12.5	5	(B)					
10572		HOLL	03	16	1549	N19	W58	03	12.2		B	HSX	20	1	1	3
10572		VORO	03	17	0118	N19	W61	03	12.4			ARX	26	1		2
10572		LEAR	03	17	0152	N19	W62	03	12.3		A	HRX	20	1	1	3
10572		SVTO	03	17	0704	N19	W65	03	12.3		A	HSX	60	1	2	3
10572		KAND	03	17	0820	N18	W66	03	12.3			AX		1	1	2
10572	32029	MWIL	03	17	1530	N19	W68	03	12.4	4	(B)					
10572B		VORO	03	06	2353	S15	E79	03	13.0			DAI	160	4	3	3
10572B		TACH	03	07	0733	S14	E79	03	13.3			DAO	465	3	7	3
10572B		VORO	03	08	0030	S14	E64	03	12.8			DAI	370	20	7	3
10572B		TACH	03	10	0701	S13	E37	03	13.1			HA	157	3	3	3
10572B		VORO	03	11	0050	S13	E26	03	13.0			CAO	112	6	2	3
10572B		VORO	03	12	0006	S14	E13	03	13.0			DAO	63	3	1	3
10572B		VORO	03	13	0001	S15	E00	03	13.0			HAX	12	2		3
10572B		VORO	03	14	0020	S14	W13	03	13.0			HAX	2	1		3
10572A		LEAR	03	12	0111	S09	E34	03	14.6		A	AXX	10	1	1	2
10576	32032	MWIL	03	17	1530	S18	W33	03	15.1	4	(B)					
10576		HOLL	03	17	1800	S18	W35	03	15.1		B	CSO	20	3	4	3
10576		VORO	03	18	0004	S17	W37	03	15.2			ARX	29	2	3	3
10576		LEAR	03	18	0127	S18	W38	03	15.2		B	DRO	20	5	4	2
10576		SVTO	03	18	0720	S18	W43	03	15.0		B	DAO	50	6	5	3
10576		TACH	03	18	0729	S18	W42	03	15.1			BRO	34	3	3	2
10576		KAND	03	18	0945	S19	W44	03	15.0			CAO		3	4	3
10576		HOLL	03	18	1430	S18	W47	03	15.0		B	DAO	40	7	7	3
10576	32032	MWIL	03	18	1530	S18	W47	03	15.1	5	(BG)					
10576		VORO	03	19	0002	S18	W51	03	15.1			DAI	69	4	4	3
10576		LEAR	03	19	0125	S18	W53	03	15.0		B	DAO	20	7	5	2
10576		TACH	03	19	0655	S16	W54	03	15.2			DAI	158	6	5	2
10576		SVTO	03	19	0715	S18	W58	03	14.9		B	DAO	50	6	5	3
10576		KAND	03	19	0815	S19	W55	03	15.1			CSO		5	6	4
10576		HOLL	03	19	1420	S17	W58	03	15.2		B	DSO	70	5	6	4
10576	32032	MWIL	03	19	1545	S18	W60	03	15.1	4	(B)					
10576		VORO	03	20	0012	S18	W64	03	15.1			CAI	55	3	4	3
10576		LEAR	03	20	0045	S17	W65	03	15.1		B	CSO	40	4	5	2
10576		KAND	03	20	0715	S18	W71	03	14.9			BXO		3	7	3
10576		SVTO	03	20	0810	S17	W70	03	15.0		B	DSO	50	3	5	3
10576		HOLL	03	20	1450	S17	W76	03	14.8		A	AXX		1	1	2
10576	32032	MWIL	03	20	1530	S17	W75	03	14.9	4	(AP)					
10575		LEAR	03	17	0152	S18	E10	03	17.8		A	AXX	10	1	1	3
10575		SVTO	03	17	0704	S18	E07	03	17.8		A	HRX		1		3
10575		KAND	03	17	0820	S19	E05	03	17.7			AX		1		2
10575	32033	MWIL	03	17	1530	S19	E02	03	17.8	4	(B)					
10575		HOLL	03	17	1800	S18	E02	03	17.9		B	CAO	10	3	3	3
10575		LEAR	03	18	0127	S19	W02	03	17.9		A	AXX	10	1	1	2
10575		HOLL	03	18	1430	S22	W05	03	18.2		B	CAO	20	4	4	3
10573	32030	MWIL	03	11	1600	S13	E88	03	18.3	4	AP					
10573		VORO	03	12	0006	S12	E82	03	18.2			HAX	26	1		3
10573		LEAR	03	12	0111	S13	E83	03	18.3		A	HRX	30	1	5	2
10573		SVTO	03	12	1015	S14	E78	03	18.3		A	HSX	110	1	4	3
10573		KAND	03	12	1130	S12	E78	03	18.3			HA		1	2	3
10573	32030	MWIL	03	12	1600	S14	E75	03	18.3	4	(AP)					
10573		VORO	03	13	0001	S12	E69	03	18.2			HAX	54	5		3
10573		LEAR	03	13	0120	S12	E68	03	18.2		B	CAO	90	2	2	2
10573		SVTO	03	13	0830	S12	E65	03	18.2		B	DSO	60	3	2	3
10573		KAND	03	13	1255	S12	E64	03	18.3			AX		2	1	3

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MARCH 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
10573	32030	MWIL	03 13 1530	S13 E61	03 18.2	4	(AP)					
10573		HOLL	03 13 1536	S12 E62	03 18.3		A	HAX	70	2	1	3
10573		VORO	03 14 0020	S12 E57	03 18.3			HAX	51	2		3
10573		LEAR	03 14 0115	S13 E56	03 18.3		A	HAX	50	2	2	3
10573		SVTO	03 14 0715	S13 E53	03 18.3		A	HSX	60	2	2	3
10573		KAND	03 14 1020	S13 E52	03 18.3			HA		2	2	3
10573		HOLL	03 14 1528	S13 E48	03 18.3		A	HAX	50	2	2	2
10573	32030	MWIL	03 14 1600	S13 E49	03 18.4	4	(AP)					
10573		VORO	03 14 2344	S12 E44	03 18.3			HAX	38	2		3
10573		LEAR	03 15 0030	S12 E44	03 18.3		A	HAX	30	2	2	4
10573		KAND	03 15 0755	S13 E40	03 18.3			HA		2	2	4
10573		SVTO	03 15 1335	S12 E38	03 18.4		A	HSX	30	2	1	2
10573		HOLL	03 15 1505	S13 E38	03 18.5		B	DAI	30	2	1	3
10573	32030	MWIL	03 15 1530	S12 E36	03 18.3	4	(AP)					
10573		LEAR	03 16 0000	S12 E32	03 18.4		A	HSX	50	2	2	2
10573		VORO	03 16 0211	S12 E30	03 18.3			ARX	29	2	0	3
10573		KAND	03 16 0955	S12 E28	03 18.5			HA		2	1	3
10573		SVTO	03 16 1445	S12 E24	03 18.4		A	HSX	20	2	2	2
10573	32030	MWIL	03 16 1530	S13 E26	03 18.6	5	(BP)					
10573		HOLL	03 16 1549	S13 E23	03 18.4		B	AAX	10	4	7	3
10573		VORO	03 17 0118	S12 E17	03 18.3			HAX	29	2	0	2
10573		LEAR	03 17 0152	S12 E17	03 18.3		A	HAX	20	2	1	3
10573		SVTO	03 17 0704	S12 E15	03 18.4		A	HSX	20	2	2	3
10573		KAND	03 17 0820	S12 E14	03 18.4			HA		2	1	2
10573	32030	MWIL	03 17 1530	S13 E13	03 18.6	5	(B)					
10573		HOLL	03 17 1800	S12 E09	03 18.4		B	BXO	10	3	1	3
10573		VORO	03 18 0004	S12 E06	03 18.4			ARX	14	1		3
10573		LEAR	03 18 0127	S12 E04	03 18.4		A	HSX	10	2	1	2
10573		SVTO	03 18 0720	S12 E01	03 18.4		A	HSX	10	1	1	3
10573		TACH	03 18 0729	S11 E01	03 18.4			AXX	3	1	1	2
10573		HOLL	03 18 1430	S08 E03	03 18.8		A	AXX		1	1	3
10573	32030	MWIL	03 18 1530	S13 W02	03 18.5	4	(B)					
10573		VORO	03 19 0002	S12 W08	03 18.4			ARX	4	1		3
10573		LEAR	03 19 0125	S12 W09	03 18.4		A	AXX	10	1	1	2
10573		TACH	03 19 0655	S12 W10	03 18.5			AXX	10	1	1	2
10573		SVTO	03 19 0715	S12 W13	03 18.3		A	HSX	10	1	1	3
10573		KAND	03 19 0815	S12 W13	03 18.4			AX		1	1	4
10573		HOLL	03 19 1420	S12 W17	03 18.3		A	AXX		1	1	4
10573	32030	MWIL	03 19 1545	S13 W18	03 18.3	4	(BG)					
10573	32030	MWIL	03 20 1530	S12 W28	03 18.5	3	(AF)					
10573B	32036	MWIL	03 19 1545	S18 W00	03 19.6	4	(B)					
10573A		SVTO	03 27 0750	S18 W72	03 21.8		B	BXO	10	2	5	3
10573A	32046	MWIL	03 27 1600	S18 W76	03 21.9	4	(B)					
10574		KAND	03 16 0955	S03 E78	03 22.2			CAO		6	6	3
10574		SVTO	03 16 1445	S02 E75	03 22.2		B	CSO	60	3	6	2
10574	32031	MWIL	03 16 1530	S02 E74	03 22.2	5	(BF)					
10574		HOLL	03 16 1549	S02 E74	03 22.2		B	BXO	30	5	4	3
10574		VORO	03 17 0118	S04 E66	03 22.0			CAO	65	3	6	2
10574		LEAR	03 17 0152	S04 E65	03 21.9		B	BXO	20	8	7	3
10574		SVTO	03 17 0704	S03 E65	03 22.1		B	DSI	60	13	9	3
10574		KAND	03 17 0820	S02 E65	03 22.2			DAO		6	8	2
10574	32031	MWIL	03 17 1530	S03 E60	03 22.1	5	(BG)					
10574		HOLL	03 17 1800	S04 E56	03 21.9		BG	DAI	150	22	8	3
10574		VORO	03 18 0004	S04 E54	03 22.0			DAI	257	10	7	3
10574		LEAR	03 18 0127	S04 E53	03 22.0		BG	DAO	130	19	9	2
10574		SVTO	03 18 0720	S04 E51	03 22.1		B	DSO	110	22	9	3
10574		TACH	03 18 0729	S02 E48	03 21.9			DAI	134	5	7	2
10574		KAND	03 18 0945	S05 E49	03 22.1			DAI		10	9	3
10574		HOLL	03 18 1430	S04 E48	03 22.2		BG	DAC	180	22	9	3
10574	32031	MWIL	03 18 1530	S04 E45	03 22.0	5	(BG)					
10574		VORO	03 19 0002	S04 E40	03 22.0			DKI	255	17	8	3
10574		LEAR	03 19 0125	S04 E40	03 22.0		BG	DAC	160	21	10	2
10574		TACH	03 19 0655	S02 E32	03 21.7			EAI	157	13	14	2
10574		SVTO	03 19 0715	S05 E36	03 22.0		B	DSO	120	14	10	3
10574		KAND	03 19 0815	S03 E35	03 21.9			DSI		16	8	4
10574		HOLL	03 19 1420	S03 E33	03 22.1		BG	EAC	150	25	12	4

SUNSPOT GROUPS
(Ordered by Central Meridian Passage Date)

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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
10574	32031	MWIL	03 19 1545	S05 E32	03 22.0	5	(B)					
10574		VORO	03 20 0012	S04 E28	03 22.1			DAI	183	16	9	3
10574		LEAR	03 20 0045	S04 E26	03 22.0		BG	ESO	120	19	11	2
10574		KAND	03 20 0715	S03 E23	03 22.0			DSI		16	10	3
10574		SVTO	03 20 0810	S04 E22	03 22.0		B	EAI	120	18	11	3
10574		HOLL	03 20 1450	S03 E19	03 22.0		BG	ESC	110	32	11	2
10574	32031	MWIL	03 20 1530	S05 E18	03 22.0	5	(BG)					
10574		VORO	03 21 0007	S04 E13	03 22.0			DAI	143	14	10	3
10574		LEAR	03 21 0030	S04 E14	03 22.1		B	ESO	110	23	11	3
10574		SVTO	03 21 0930	S04 E07	03 21.9		B	ESI	90	17	11	3
10574		KAND	03 21 1030	S04 E06	03 21.9			ESI		19	11	5
10574		HOLL	03 21 1524	S04 E03	03 21.9		BG	EAI	90	19	11	2
10574	32031	MWIL	03 21 1530	S04 E05	03 22.0	5	(BG)					
10574		VORO	03 22 0042	S04 W01	03 21.9			DAI	101	19	9	3
10574		LEAR	03 22 0145	S03 W01	03 22.0		B	EAO	80	24	12	2
10574		TACH	03 22 0550	S04 W04	03 21.9			DAI	160	14	9	3
10574		KAND	03 22 0930	S04 W05	03 22.0			EAI		28	12	5
10574	32031	MWIL	03 22 1530	S04 W09	03 22.0	5	(BG)					
10574		VORO	03 22 2307	S04 W13	03 22.0			DAI	193	18	10	3
10574		LEAR	03 23 0053	S03 W14	03 22.0		BG	EAC	160	33	12	2
10574		TACH	03 23 0547	S03 W17	03 22.0			DAI	77	14	10	3
10574		KAND	03 23 0825	S05 W17	03 22.1			EAI		31	12	3
10574		HOLL	03 23 1555	S05 W21	03 22.1		BG	ESC	120	33	12	4
10574	32031	MWIL	03 23 1645	S04 W23	03 22.0	5	(BG)					
10574		LEAR	03 24 0113	S04 W28	03 21.9		BG	EAC	120	28	12	3
10574		SVTO	03 24 0725	S03 W31	03 22.0		B	ESO	160	18	13	3
10574		KAND	03 24 0815	S05 W32	03 21.9			EAO		11	12	1
10574		HOLL	03 24 1500	S05 W35	03 22.0		BG	EAC	120	27	13	3
10574	32031	MWIL	03 24 1600	S04 W35	03 22.0	5	(B)					
10574		VORO	03 24 2312	S04 W40	03 22.0			EAI	166	24	11	3
10574		LEAR	03 25 0055	S04 W39	03 22.1		BG	EAO	130	23	12	3
10574		TACH	03 25 0552	S04 W41	03 22.2			CAI	152	6	7	3
10574		SVTO	03 25 0601	S03 W44	03 22.0		B	EAO	130	10	12	3
10574		KAND	03 25 0740	S05 W44	03 22.0			ESO		9	12	3
10574		HOLL	03 25 1457	S06 W48	03 22.0		BG	EAC	160	18	12	2
10574		VORO	03 25 2311	S04 W52	03 22.1			EAI	108	10	10	3
10574		LEAR	03 26 0053	S04 W55	03 21.9		B	EAO	70	13	12	3
10574		TACH	03 26 0610	S04 W53	03 22.3			HXX	33	1	1	4
10574		KAND	03 26 1115	S05 W60	03 22.0			CSO		5	13	4
10574	32031	MWIL	03 26 1600	S05 W66	03 21.7	4	(BP)					
10574		VORO	03 26 2339	S05 W72	03 21.6			HAX	79	1		3
10574		LEAR	03 27 0045	S05 W71	03 21.7		A	AXX	30	1	1	2
10574		TACH	03 27 0615	S06 W67	03 22.2			BXO	19	2	9	4
10574C		KAND	03 18 0945	S10 E58	03 22.8			AX		2	1	3
10574A		VORO	03 24 2312	N08 W26	03 23.0			AXX	3	2		3
10574A		KAND	03 25 0740	N06 W33	03 22.8			BXO		5	4	3
10574A		HOLL	03 25 1457	N06 W37	03 22.8		B	DSO	40	3	5	2
10574A		VORO	03 25 2311	N07 W40	03 23.0			DRO	27	2	4	3
10574A		LEAR	03 26 0053	N08 W43	03 22.8		B	DSO	30	3	5	3
10574A		TACH	03 26 0610	N08 W45	03 22.9			BXO	21	2	4	4
10574A		KAND	03 26 1115	N07 W48	03 22.9			BXO		2	5	4
10574A	32041	MWIL	03 26 1600	N07 W49	03 23.0	4	(B)					
10574A		VORO	03 26 2339	N08 W54	03 22.9			BRO	25	2	5	3
10574A		LEAR	03 27 0045	N08 W55	03 22.9		B	BXO	20	2	5	2
10574A		TACH	03 27 0615	N08 W55	03 23.1			BXO	9	2	5	4
10574A		SVTO	03 27 0750	N07 W58	03 23.0		B	DRO	40	2	6	3
10574A	32041	MWIL	03 27 1600	N07 W63	03 22.9	4	(B)					
10574A		HOLL	03 27 1800	N07 W64	03 22.9		B	BXO	10	2	9	2
10574A		LEAR	03 28 0010	N08 W68	03 22.9		B	BXO	40	3	5	2
10574A		VORO	03 28 0025	N08 W68	03 22.9			CSO	38	2	7	3
10574B		VORO	03 24 2312	S02 W25	03 23.1			AXX	1	1		3
10574B		VORO	03 25 2311	S03 W38	03 23.1			AXX	4	4		3
10577	32034	MWIL	03 17 1530	N00 E84	03 23.9	5	AP					
10577		HOLL	03 17 1800	S01 E80	03 23.7		A	HSX	60	1	2	3
10577		VORO	03 18 0004	S00 E78	03 23.8			HAX	73	1		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
10577		LEAR	03 18 0127	N00 E75	03 23.7		A	HAX	30	1	2	2
10577		SVTO	03 18 0720	S01 E75	03 23.9		A	HSX	30	1	1	3
10577		TACH	03 18 0729	N02 E72	03 23.7			HSX	161	1	2	2
10577		KAND	03 18 0945	S02 E73	03 23.8			HS		1	1	3
10577		HOLL	03 18 1430	N00 E70	03 23.8		A	HAX	50	1	2	3
10577	32034	MWIL	03 18 1530	S01 E69	03 23.8	5	(AP)					
10577		VORO	03 19 0002	S01 E65	03 23.8			HAX	85	1		3
10577		LEAR	03 19 0125	N00 E63	03 23.8		A	HSX	40	1	2	2
10577		TACH	03 19 0655	S06 E59	03 23.7			HSX	116	1	1	2
10577		SVTO	03 19 0715	S01 E61	03 23.8		A	HSX	60	1	1	3
10577		KAND	03 19 0815	N01 E63	03 24.0			HS		1	4	4
10577		HOLL	03 19 1420	S01 E57	03 23.8		A	HSX	90	1	2	4
10577	32034	MWIL	03 19 1545	S01 E56	03 23.8	5	(AP)					
10577		VORO	03 20 0012	S01 E51	03 23.8			HAX	81	1		3
10577		LEAR	03 20 0045	N00 E51	03 23.8		A	HSX	60	1	2	2
10577		KAND	03 20 0715	N00 E49	03 24.0			HS		1	2	3
10577		SVTO	03 20 0810	S02 E48	03 23.9		A	HSX	80	1	2	3
10577		HOLL	03 20 1450	N01 E42	03 23.7		A	HSX	60	1	1	2
10577	32034	MWIL	03 20 1530	S01 E43	03 23.8	5	(AP)					
10577		VORO	03 21 0007	S01 E38	03 23.8			HAX	92	1		3
10577		LEAR	03 21 0030	N01 E39	03 23.9		A	HSX	20	1	1	3
10577		SVTO	03 21 0930	S02 E34	03 23.9		A	HSX	50	1	2	3
10577		KAND	03 21 1030	S02 E33	03 23.9			HS		1	2	5
10577		HOLL	03 21 1524	N01 E30	03 23.9		A	HSX	50	1	2	2
10577	32034	MWIL	03 21 1530	N00 E31	03 24.0	5	(AP)					
10577		VORO	03 22 0042	S01 E25	03 23.9			HSX	73	1		3
10577		LEAR	03 22 0145	N00 E25	03 23.9		A	HSX	40	1	2	2
10577		TACH	03 22 0550	N01 E22	03 23.9			HSX	55	1	1	3
10577		KAND	03 22 0930	S01 E22	03 24.0			HS		1	8	5
10577	32034	MWIL	03 22 1530	S00 E17	03 23.9	5	(AP)					
10577		VORO	03 22 2307	S01 E13	03 23.9			HAX	71	1		3
10577		LEAR	03 23 0053	S01 E12	03 23.9		A	HSX	60	1	2	2
10577		TACH	03 23 0547	S01 E09	03 23.9			HSX	51	1	1	3
10577		KAND	03 23 0825	S01 E08	03 23.9			HS		1	2	3
10577		HOLL	03 23 1555	N00 E02	03 23.8		B	CSO	40	4	3	4
10577	32034	MWIL	03 23 1645	N00 E03	03 23.9	5	(B)					
10577		LEAR	03 24 0113	N00 W04	03 23.7		B	CSO	80	6	4	3
10577		SVTO	03 24 0725	S01 W05	03 23.9		B	CSO	50	4	4	3
10577		KAND	03 24 0815	S01 W05	03 24.0			CAO		3	2	1
10577		HOLL	03 24 1500	S01 W09	03 23.9		B	DAO	40	3	3	3
10577	32034	MWIL	03 24 1600	N00 W09	03 24.0	5	(BG)					
10577		VORO	03 24 2312	S00 W13	03 24.0			HAX	65	13		3
10577		LEAR	03 25 0055	S01 W15	03 23.9		B	CSO	50	6	4	3
10577		TACH	03 25 0552	S03 W14	03 24.2			CAO	68	4	6	3
10577		SVTO	03 25 0601	N01 W16	03 24.0		B	CSO	50	3	4	3
10577		KAND	03 25 0740	S01 W19	03 23.9			CSO		8	6	3
10577		HOLL	03 25 1457	S02 W20	03 24.1		B	CSO	40	8	5	2
10577		VORO	03 25 2311	S01 W27	03 23.9			HAX	86	7		3
10577		LEAR	03 26 0053	S01 W28	03 23.9		B	CSO	60	6	6	3
10577		TACH	03 26 0610	S01 W30	03 24.0			BXO	24	2	4	4
10577		KAND	03 26 1115	S01 W33	03 24.0			CAO		3	3	4
10577	32034	MWIL	03 26 1600	N00 W35	03 24.0	5	(BP)					
10577		VORO	03 26 2339	N01 W38	03 24.1			CSO	60	4	6	3
10577		LEAR	03 27 0045	S01 W41	03 24.0		A	HXX	20	1	1	2
10577		TACH	03 27 0615	S00 W44	03 24.0			HSX	42	1	1	4
10577		SVTO	03 27 0750	S02 W46	03 23.9		A	HSX	30	1	1	3
10577	32034	MWIL	03 27 1600	S02 W50	03 23.9	4	(AP)					
10577		HOLL	03 27 1800	S02 W51	03 23.9		A	HSX	20	1	1	2
10577		LEAR	03 28 0010	S02 W55	03 23.9		B	CAO	30	2	2	2
10577		VORO	03 28 0025	S01 W54	03 24.0			HSX	77	2		3
10577		HOLL	03 28 1527	S03 W64	03 23.9		A	HAX	20	1	2	3
10577	32034	MWIL	03 28 1530	S02 W63	03 23.9	4	(AP)					
10577		VORO	03 29 0005	S02 W67	03 24.0			HAX	70	1		2
10577		LEAR	03 29 0016	S03 W67	03 24.0		A	AXX	30	1	1	4
10577		HOLL	03 29 1500	S03 W78	03 23.8		A	HXX	10	1	1	4
10577	32034	MWIL	03 29 1530	S01 W75	03 24.0	4	(AP)					
10578		HOLL	03 18 1430	N15 E81	03 24.7		A	HAX	60	2	2	3
10578	32035	MWIL	03 18 1530	N15 E78	03 24.5	5	AP					

SUNSPOT GROUPS
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10578		VORO	03	19	0002	N14	E74	03	24.6			HAX	50	3		3
10578		LEAR	03	19	0125	N15	E74	03	24.7		B	CAO	70	5	7	2
10578		TACH	03	19	0655	N14	E67	03	24.3			DAO	124	5	5	2
10578		SVTO	03	19	0715	N15	E69	03	24.5		B	DRO	60	6	9	3
10578		KAND	03	19	0815	N16	E74	03	24.9			ESI		6	11	4
10578		HOLL	03	19	1420	N14	E65	03	24.5		B	DAI	110	18	9	4
10578	32035	MWIL	03	19	1545	N14	E64	03	24.5	5	(B)					
10578		VORO	03	20	0012	N15	E59	03	24.5			DAI	146	11	9	3
10578		LEAR	03	20	0045	N15	E60	03	24.6		B	DSO	150	13	9	2
10578		KAND	03	20	0715	N15	E56	03	24.5			DSI		10	10	3
10578		SVTO	03	20	0810	N14	E55	03	24.5		B	ESO	170	13	11	3
10578		HOLL	03	20	1450	N16	E51	03	24.5		BG	DAC	140	24	9	2
10578	32035	MWIL	03	20	1530	N14	E50	03	24.4	5	(B)					
10578		VORO	03	21	0007	N15	E46	03	24.5			DAI	256	12	10	3
10578		LEAR	03	21	0030	N15	E45	03	24.4		B	EAO	170	15	11	3
10578		SVTO	03	21	0930	N15	E42	03	24.6		B	ESO	170	14	12	3
10578		KAND	03	21	1030	N14	E40	03	24.5			EAO		14	14	5
10578		HOLL	03	21	1524	N15	E37	03	24.4		B	EAI	220	13	13	2
10578	32035	MWIL	03	21	1530	N15	E37	03	24.4	5	(BG)					
10578		VORO	03	22	0042	N15	E32	03	24.4			EAI	225	14	12	3
10578		LEAR	03	22	0145	N16	E32	03	24.5		B	EAO	120	21	12	2
10578		TACH	03	22	0550	N17	E25	03	24.1			CAI	185	16	12	3
10578		KAND	03	22	0930	N15	E28	03	24.5			EAO		24	13	5
10578	32035	MWIL	03	22	1530	N15	E23	03	24.4	5	(BG)					
10578		VORO	03	22	2307	N15	E19	03	24.4			EAI	220	17	12	3
10578		LEAR	03	23	0053	N16	E18	03	24.4		BG	EAO	170	28	14	2
10578		TACH	03	23	0547	N16	E16	03	24.4			DSI	124	11	15	3
10578		KAND	03	23	0825	N14	E13	03	24.3			EAO		28	15	3
10578		HOLL	03	23	1555	N15	E09	03	24.3		B	FSC	200	32	16	4
10578	32035	MWIL	03	23	1645	N15	E09	03	24.4	5	(BG)					
10578		LEAR	03	24	0113	N16	E05	03	24.4		BG	EAC	150	25	15	3
10578		SVTO	03	24	0725	N15	E02	03	24.5		B	ESO	210	19	15	3
10578		KAND	03	24	0815	N14	E00	03	24.3			EAI		11	15	1
10578		HOLL	03	24	1500	N15	W02	03	24.5		B	FAC	220	36	16	3
10578	32035	MWIL	03	24	1600	N15	W03	03	24.4	5	(B)					
10578		VORO	03	24	2312	N15	W07	03	24.4			EAI	234	33	13	3
10578		LEAR	03	25	0055	N15	W08	03	24.4		BG	EAC	150	28	15	3
10578		SVTO	03	25	0601	N16	W12	03	24.3		B	EAO	190	14	15	3
10578		KAND	03	25	0740	N14	W12	03	24.4			EAO		12	15	3
10578		HOLL	03	25	1457	N15	W17	03	24.3		B	EAC	190	32	14	2
10578		VORO	03	25	2311	N15	W20	03	24.4			EAI	224	22	13	3
10578		LEAR	03	26	0053	N15	W23	03	24.3		BG	EAO	150	18	14	3
10578		TACH	03	26	0610	N15	W26	03	24.3			CAI	92	17	11	4
10578		KAND	03	26	1115	N14	W27	03	24.4			EAO		15	13	4
10578	32035	MWIL	03	26	1600	N15	W29	03	24.5	4	(B)					
10578		VORO	03	26	2339	N15	W32	03	24.6			EAI	186	17	13	3
10578		LEAR	03	27	0045	N15	W35	03	24.4		BG	EAO	70	18	12	2
10578		TACH	03	27	0615	N15	W36	03	24.5			CAI	62	8	11	4
10578		SVTO	03	27	0750	N15	W39	03	24.4		B	ESO	50	6	14	3
10578	32035	MWIL	03	27	1600	N15	W43	03	24.4	4	(BF)					
10578		HOLL	03	27	1800	N14	W44	03	24.4		B	CAO	50	5	12	2
10578		LEAR	03	28	0010	N15	W45	03	24.6		B	DSO	30	5	10	2
10578		VORO	03	28	0025	N15	W48	03	24.4			CAI	50	8	12	3
10578		HOLL	03	28	1527	N14	W52	03	24.7		A	HSX	20	2	1	3
10578	32035	MWIL	03	28	1530	N15	W55	03	24.5	4	(B)					
10578		VORO	03	29	0005	N15	W60	03	24.5			CAO	39	2	10	2
10578		LEAR	03	29	0016	N13	W56	03	24.8		B	BXO	30	3	3	4
10578		KAND	03	29	1030	N14	W63	03	24.7			AX		2	1	3
10578		HOLL	03	29	1500	N14	W64	03	24.8		A	HXX	10	1	1	4
10577B		TACH	03	25	0552	S15	W11	03	24.4			DAI	202	16	11	3
10580		HOLL	03	24	1500	S07	W03	03	24.4		A	AXX	10	3	1	3
10580	32038	MWIL	03	24	1600	S06	W04	03	24.4	4	(AF)					
10580		VORO	03	24	2312	S06	W08	03	24.4			ARX	4	2		3
10580		LEAR	03	25	0055	S06	W09	03	24.4		A	AXX	10	3	1	3
10580		SVTO	03	25	0601	S06	W12	03	24.3		A	HSX	10	1	1	3
10580		KAND	03	25	0740	S07	W13	03	24.3			HR		1		3
10580		VORO	03	25	2311	S06	W21	03	24.4			AXX	2	2		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
10578A	32039	MWIL	03	24	1600	S08	E11	03	25.5	4	(AP)					
10578A		KAND	03	25	0740	S08	E09	03	26.0			AX		1		3
10579A		TACH	03	22	0550	N11	E56	03	26.4			AXX	18	1	1	3
10579	32037	MWIL	03	21	1530	S13	E65	03	26.5	4	(AF)					
10579		VORO	03	22	0042	S13	E59	03	26.5			ARX	8	1		3
10579		LEAR	03	22	0145	S11	E60	03	26.6		A	AXX	20	1	1	2
10579		KAND	03	22	0930	S13	E56	03	26.6			HR		1	1	5
10579	32037	MWIL	03	22	1530	S13	E51	03	26.5	4	(AF)					
10579		VORO	03	22	2307	S13	E46	03	26.4			ARX	5	1		3
10579		LEAR	03	23	0053	S13	E47	03	26.6		B	BXO	10	2	2	2
10579		KAND	03	23	0825	S13	E42	03	26.5			AX		2	2	3
10579	32037	MWIL	03	23	1645	S13	E38	03	26.6	4	(AF)					
10579		LEAR	03	25	0055	S13	E19	03	26.5		A	AXX	10	1	1	3
10579		KAND	03	25	0740	S14	E17	03	26.6			AX		1		3
10579B		VORO	03	28	0025	S16	W10	03	27.2			AXX	5	2		3
10579B	32047	MWIL	03	28	1530	S17	W19	03	27.2	3	(AP)					
10579B		VORO	03	30	2308	S15	W51	03	27.1			AXX	7	1		3
10584A		VORO	03	26	2339	N11	E29	03	29.2			AXX	9	1		3
10584		HOLL	03	25	1457	S12	E52	03	29.5		B	BXO	10	4	4	2
10584		VORO	03	25	2311	S14	E48	03	29.6			BRI	30	3	4	3
10584		LEAR	03	26	0053	S13	E47	03	29.6		B	CSO	20	4	5	3
10584		TACH	03	26	0610	S13	E41	03	29.3			AXX	13	1	1	4
10584		KAND	03	26	1115	S14	E40	03	29.5			CAO		4	4	4
10584	32042	MWIL	03	26	1600	S14	E38	03	29.5	4	B					
10584		VORO	03	26	2339	S14	E33	03	29.5			BRO	20	4	4	3
10584		LEAR	03	27	0045	S12	E33	03	29.5		B	BXO	30	7	4	2
10584		TACH	03	27	0615	S13	E30	03	29.5			BRI	22	6	4	4
10584		SVTO	03	27	0750	S13	E29	03	29.5		B	DSO	30	5	5	3
10584	32042	MWIL	03	27	1600	S13	E25	03	29.5	4	(B)					
10584		HOLL	03	27	1800	S13	E24	03	29.6		B	CAO	20	5	7	2
10584		LEAR	03	28	0010	S12	E20	03	29.5		B	DSO	40	5	6	2
10584		VORO	03	28	0025	S13	E21	03	29.6			CRI	54	6	6	3
10584		HOLL	03	28	1527	S14	E12	03	29.5		B	CAO	20	3	6	3
10584	32042	MWIL	03	28	1530	S14	E12	03	29.5	3	(B)					
10584		VORO	03	29	0005	S13	E09	03	29.7			AXX	6	2		2
10584		LEAR	03	29	0016	S13	E10	03	29.8		A	AXX	10	1	1	4
10584		KAND	03	29	1030	S18	W04	03	29.1			AX		1		3
10584		HOLL	03	29	1500	S13	W01	03	29.5		B	BXO	10	3	2	4
10584	32049	MWIL	03	29	1530	S16	W06	03	29.2	4	(AP)					
10581		HOLL	03	24	1500	S03	E85	03	31.0		A	HAX	60	1	3	3
10581	32040	MWIL	03	24	1600	S04	E80	03	30.6	4	(AP)					
10581		VORO	03	24	2312	S04	E77	03	30.7			HAX	144	1		3
10581		LEAR	03	25	0055	S04	E77	03	30.8		A	HSX	60	1	2	3
10581		TACH	03	25	0552	S04	E70	03	30.5			HSX	148	1	2	3
10581		SVTO	03	25	0601	S04	E76	03	30.9		A	HSX	90	1	3	3
10581		KAND	03	25	0740	S04	E76	03	31.0			HS		1	2	3
10581		HOLL	03	25	1457	S02	E69	03	30.8		A	HAX	160	1	2	2
10581		VORO	03	25	2311	S04	E64	03	30.7			HKX	166	1		3
10581		LEAR	03	26	0053	S03	E63	03	30.7		B	CSO	140	4	5	3
10581		TACH	03	26	0610	S04	E57	03	30.5			AXX	91	1	1	4
10581		KAND	03	26	1115	S04	E59	03	30.9			HS		1	2	4
10581	32040	MWIL	03	26	1600	S04	E55	03	30.8	5	AP					
10581		VORO	03	26	2339	S04	E50	03	30.7			HSX	152	1		3
10581		LEAR	03	27	0045	S03	E50	03	30.8		A	HHX	130	1	3	2
10581		TACH	03	27	0615	S03	E47	03	30.8			HSX	147	1	2	4
10581		SVTO	03	27	0750	S04	E47	03	30.8		A	HSX	110	1	3	3
10581	32040	MWIL	03	27	1600	S04	E41	03	30.7	5	(AP)					
10581		LEAR	03	28	0010	S03	E38	03	30.8		A	HHX	120	1	3	2
10581		VORO	03	28	0025	S04	E37	03	30.8			HHX	182	1		3
10581		HOLL	03	28	1527	S03	E28	03	30.7		A	HKX	160	1	2	3
10581		VORO	03	29	0005	S04	E23	03	30.7			HHX	197	1		2
10581		LEAR	03	29	0016	S03	E23	03	30.7		A	HSX	170	1	2	4
10581		KAND	03	29	1030	S06	E18	03	30.8			HS		1	2	3

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10581		HOLL	03	29	1500	S04	E16	03	30.8		A	HKX	150	1	3	4
10581	32040	MWIL	03	29	1530	S04	E15	03	30.8	5	(AP)					
10581		LEAR	03	30	0158	S04	E09	03	30.7		A	HSX	130	2	2	3
10581		TACH	03	30	0607	S04	E07	03	30.8			HSX	101	1	2	3
10581		KAND	03	30	1210	S05	E03	03	30.7			HS		1	2	2
10581		HOLL	03	30	1510	S05	E03	03	30.8		A	HSX	100	2	3	4
10581	32040	MWIL	03	30	1530	S04	E02	03	30.8	5	(AP)					
10581		VORO	03	30	2308	S04	W02	03	30.8			HSX	120	1		3
10581		LEAR	03	31	0105	S04	W04	03	30.7		A	HSX	100	2	2	2
10581		TACH	03	31	0539	S03	W06	03	30.8			HSX	101	1	2	3
10581		KAND	03	31	0615	S04	W06	03	30.8			HS		1	2	3
10581		HOLL	03	31	1418	S03	W10	03	30.8		A	HSX	100	2	2	4
10581	32040	MWIL	03	31	1530	S04	W11	03	30.8	5	(AP)					
10581		VORO	03	31	2304	S04	W16	03	30.8			HSX	120	1		3
10581		LEAR	04	01	0040	S04	W17	03	30.8		A	HSX	100	2	2	3
10581		KAND	04	01	1140	S05	W24	03	30.8			HS		1	2	2
10581		HOLL	04	01	1428	S03	W23	03	31.0		A	HSX	90	1	2	4
10581	32040	MWIL	04	01	1530	S04	W24	03	30.9	5	(AP)					
10581		LEAR	04	02	0008	S03	W29	03	30.9		A	HSX	100	2	2	4
10581		HOLL	04	02	1731	S03	W39	03	30.9		A	HSX	90	1	2	3
10581	32040	MWIL	04	02	1800	S04	W39	03	30.9	5	(AP)					
10581		VORO	04	02	2306	S04	W42	03	30.9			HSX	126	1		3
10581		LEAR	04	03	0005	S03	W43	03	30.9		A	HSX	100	1	2	4
10581		TACH	04	03	0542	S03	W46	03	30.9			HSX	86	1	1	2
10581		SVTO	04	03	0840	S03	W48	03	30.9		A	HSX	80	1	2	3
10581		KAND	04	03	0845	S05	W47	03	30.9			HA		1	2	2
10581	32040	MWIL	04	03	1545	S04	W52	03	30.9	5	(AP)					
10581		HOLL	04	03	1840	S05	W54	03	30.8		A	HSX	30	1	1	3
10581		VORO	04	03	2245	S04	W55	03	30.9			HAX	84	1		3
10581		LEAR	04	04	0035	S04	W56	03	30.9		A	HSX	100	1	2	3
10581		SVTO	04	04	0845	S04	W61	03	30.9		A	HSX	80	1	1	3
10581		KAND	04	04	0935	S05	W62	03	30.9			HS		1	2	3
10581	32040	MWIL	04	04	1430	S04	W64	03	30.9	5	(AP)					
10581		LEAR	04	05	0001	S05	W69	03	30.9		A	HSX	50	1	2	3
10581		VORO	04	05	0016	S04	W69	03	30.9			HAX	67	1		3
10581		SVTO	04	05	0714	S03	W75	03	30.8		A	HSX	30	1	2	3
10581		KAND	04	05	0810	S05	W76	03	30.7			AX		1		3
10581	32040	MWIL	04	05	1430	S04	W78	03	30.9	5	(AP)					
10582		LEAR	03	25	0055	N16	E81	03	31.2		A	HSX	60	1	2	3
10582		TACH	03	25	0552	N15	E78	03	31.1			HSX	234	1	4	3
10582		SVTO	03	25	0601	N15	E85	03	31.7		A	HSX	120	1	4	3
10582		KAND	03	25	0740	N15	E82	03	31.5			HS		1	3	3
10582		HOLL	03	25	1457	N16	E75	03	31.3		B	DKI	390	8	9	2
10582		VORO	03	25	2311	N14	E71	03	31.3			DKI	532	10	5	3
10582		LEAR	03	26	0053	N16	E70	03	31.3		B	DAI	250	9	9	3
10582		TACH	03	26	0610	N15	E63	03	31.0			CAO	211	4	6	4
10582		KAND	03	26	1115	N15	E63	03	31.2			DKO		9	8	4
10582	32043	MWIL	03	26	1600	N13	E62	03	31.3	5	BD					
10582		VORO	03	26	2339	N13	E57	03	31.3			HKX	543	13	6	3
10582		LEAR	03	27	0045	N14	E56	03	31.3		BG	DKO	280	14	8	2
10582		TACH	03	27	0615	N15	E53	03	31.3			DAI	273	11	6	4
10582		SVTO	03	27	0750	N14	E54	03	31.4		B	EKO	340	8	11	3
10582	32043	MWIL	03	27	1600	N14	E48	03	31.3	5	(B)					
10582		HOLL	03	27	1800	N14	E47	03	31.3		B	EKI	340	17	11	2
10582		LEAR	03	28	0010	N15	E42	03	31.2		BG	DHO	320	18	8	2
10582		VORO	03	28	0025	N14	E45	03	31.4			DKI	700	17	6	3
10582		HOLL	03	28	1527	N15	E35	03	31.3		B	DKC	440	26	10	3
10582	32043	MWIL	03	28	1530	N13	E36	03	31.4	6	(BG)					
10582		VORO	03	29	0005	N15	E30	03	31.3			DHI	579	12	7	2
10582		LEAR	03	29	0016	N15	E30	03	31.3		BG	DHI	420	61	10	4
10582		KAND	03	29	1030	N13	E24	03	31.2			CAI		49	9	3
10582		HOLL	03	29	1500	N13	E22	03	31.3		B	EKI	420	46	12	4
10582	32043	MWIL	03	29	1530	N13	E21	03	31.2	6	(BG)					
10582		LEAR	03	30	0158	N15	E15	03	31.2		BGD	EKO	350	46	12	3
10582		TACH	03	30	0607	N13	E15	03	31.4			CAI	190	13	10	3
10582		KAND	03	30	1210	N12	E08	03	31.1			CAO		15	12	2
10582		HOLL	03	30	1510	N13	E09	03	31.3		B	EKI	260	68	12	4
10582	32043	MWIL	03	30	1530	N13	E07	03	31.2	6	(BG)					

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10582		VORO	03	30	2308	N14	E05	03	31.3			CHI	338	18	9	3
10582		LEAR	03	31	0105	N14	E01	03	31.1		BGD	EKO	260	26	12	2
10582		TACH	03	31	0539	N16	E01	03	31.3			CAI	232	12	9	3
10582		KAND	03	31	0615	N13	E00	03	31.3			CAO		12	12	3
10582		HOLL	03	31	1418	N14	W04	03	31.3		B	EKI	240	29	12	4
10582	32043	MWIL	03	31	1530	N14	W06	03	31.2	5	(BG)					
10582		VORO	03	31	2304	N14	W10	03	31.2			CHI	324	12	8	3
10582		LEAR	04	01	0040	N14	W10	03	31.3		BG	DKI	250	23	10	3
10582		KAND	04	01	1140	N13	W20	03	31.0			ESO		8	11	2
10582		HOLL	04	01	1428	N15	W18	03	31.2		B	ESO	190	25	13	4
10582	32043	MWIL	04	01	1530	N14	W19	03	31.2	6	(BG)					
10582		LEAR	04	02	0008	N15	W23	03	31.3		BG	CSO	190	20	12	4
10582		HOLL	04	02	1731	N14	W33	03	31.2		B	ESO	110	9	11	3
10582	32043	MWIL	04	02	1800	N14	W35	03	31.1	5	(BP)					
10582		VORO	04	02	2306	N13	W35	03	31.3			CHI	212	5	9	3
10582		LEAR	04	03	0005	N14	W38	03	31.1		B	CSO	140	7	11	4
10582		TACH	04	03	0542	N15	W38	03	31.4			CSO	153	2	10	2
10582		SVTO	04	03	0840	N15	W47	03	30.9		A	HSX	150	1	3	3
10582		KAND	04	03	0845	N13	W43	03	31.1			CSO		2	9	2
10582	32043	MWIL	04	03	1545	N14	W47	03	31.1	5	(BP)					
10582		HOLL	04	03	1840	N13	W52	03	30.9		A	HHX	110	1	2	3
10582		VORO	04	03	2245	N14	W53	03	31.0			HKX	216	1		3
10582		LEAR	04	04	0035	N13	W54	03	31.0		A	HSX	140	1	2	3
10582		SVTO	04	04	0845	N15	W59	03	31.0		A	HSX	120	1	3	3
10582		KAND	04	04	0935	N13	W60	03	31.0			HS		1	2	3
10582	32043	MWIL	04	04	1430	N14	W61	03	31.0	5	(AP)					
10582		LEAR	04	05	0001	N13	W68	03	31.0		A	HSX	160	1	3	3
10582		VORO	04	05	0016	N14	W67	03	31.0			HKX	217	1		3
10582		SVTO	04	05	0714	N14	W72	03	31.0		A	HSX	80	1	3	3
10582		KAND	04	05	0810	N12	W74	03	30.9			HS		1	2	3
10582	32043	MWIL	04	05	1430	N14	W75	03	31.0	5	(AP)					
10582		LEAR	04	06	0311	N14	W85	03	30.8		A	HSX	60	1	3	2
10585		VORO	03	25	2311	S15	E76	03	31.7			CRO	38	2	4	3
10585		LEAR	03	26	0053	S14	E75	03	31.7		B	BXO	20	4	5	3
10585		TACH	03	26	0610	S14	E65	03	31.2			BXO	25	2	2	4
10585		KAND	03	26	1115	S13	E68	03	31.6			AX		1	1	4
10585		KAND	03	26	1115	S16	E73	04	1.0			HR		1	1	4
10585	32044	MWIL	03	26	1600	S14	E65	03	31.6	4	AP					
10585	32045	MWIL	03	26	1600	S16	E69	03	31.9	5	AP					
10585		VORO	03	26	2339	S15	E61	03	31.6			CAI	54	4	7	3
10585		LEAR	03	27	0045	S13	E61	03	31.6		B	CSO	40	4	5	2
10585		TACH	03	27	0615	S14	E57	03	31.6			CAO	69	4	7	4
10585		SVTO	03	27	0750	S15	E57	03	31.6		B	DSO	50	4	9	3
10585	32045	MWIL	03	27	1600	S16	E53	03	31.7	5	(BG)					
10585		HOLL	03	27	1800	S16	E55	03	31.9		B	DAI	60	6	5	2
10585		LEAR	03	28	0010	S15	E50	03	31.8		B	DSO	50	5	3	2
10585		VORO	03	28	0025	S16	E52	04	1.0			HAX	73	7		3
10585		HOLL	03	28	1527	S14	E45	04	1.0		B	DAI	50	9	6	3
10585	32045	MWIL	03	28	1530	S16	E41	03	31.7	4	(BF)					
10585		VORO	03	29	0005	S16	E38	03	31.9			HAX	47	4		2
10585		LEAR	03	29	0016	S14	E37	03	31.8		B	BXO	60	27	5	4
10585		KAND	03	29	1030	S15	E30	03	31.7			BXO		7	6	3
10585		HOLL	03	29	1500	S15	E30	03	31.9		B	DAO	40	11	5	4
10585	32045	MWIL	03	29	1530	S15	E28	03	31.8	5	(B)					
10585		HOLL	03	30	1510	S15	E16	03	31.8		A	AXX	10	2	1	4
10585	32045	MWIL	03	30	1530	S15	E13	03	31.6	4	(B)					
10585		VORO	03	30	2308	S16	E12	03	31.9			BXO	5	2	2	3
10585		TACH	03	31	0539	S14	E07	03	31.8			BRI	6	7	5	3
10585		KAND	03	31	0615	S16	E07	03	31.8			BXO		6	5	3
10585		HOLL	03	31	1418	S16	E04	03	31.9		B	BXO	10	3	3	4
10585	32045	MWIL	03	31	1530	S15	E01	03	31.7	4	(B)					
10585		VORO	03	31	2304	S15	W03	03	31.7			AXX	3	1		3
10585		HOLL	04	01	1428	S17	W08	04	1.0		A	AXX		1	1	4
10585		LEAR	04	02	0008	S14	W16	03	31.8		A	AXX	10	1	1	4
10585		HOLL	04	02	1731	S13	W27	03	31.7		A	AXX		1	1	3
10585		VORO	04	02	2306	S16	W25	04	1.1			AXX	7	5		3
10585B		TACH	03	31	0539	N07	E08	03	31.8			BXO	2	2	3	3

SUDDEN IONOSPHERIC DISTURBANCES

MARCH 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	0840	0917	1020	2	1		1				No flare		
02	1202	1310	1326	1	1		1				*		
02	1411	1427	1447	1	1		1				*		
03	0952	1028	1115	2	1		1				*		
04	1000	1005	1029	1+	5		1			5	1000	C2.5	10567
04	1714	1718	1726	1-	3					3	*		
05	0854	0906	0952	2+	5	1	2	1		5	0851	C6.6	10570
05	1306	1316	1412	1	1		1				No flare		
05	1846	1854	1948	2	3					7	*		
06	0657	0700	0719	1	3					3	0656	C2.7	10567
06	0811	0825	0850	1	1		1				No flare		
06	0937	0950	1038	1	1		1				No flare		
06	1017	1025	1038	1-	3					3	1014	C1.9	10570
06	1212	1224	1352	3	5	1	2	1		5	1208	M1.3	10570
06	1510	1518	1525	1-	3					2	1512	C1.2	10570
06	1624	1632	1655	1+	3					3	1622	C1.4	10570
06	1926	1933	2001	2-	3					3	1922	C2.0	10570
07	1205	1242	1324	1	1		1				1231	B4.7	10567
07	1335	1400	1424	1	1		1				*		
08	0800	0814	0840	1	1		1				0813	B6.6	10570
09	0427	0438	0502	2	1					1	0422	C1.1	10570
09	0642	0653	0719	2-	3					2	0639	C1.3	10570
09	1413	1438U	1508	1	1		1				1424	B5.4	10570
12	0234	0238	0300	1+	3					2	0232	C3.1	10570
13	1346	1357	1426	1	1		1				1350	C1.0	10570
16	1212	1240U	1308	1	1		1				No flare		
17	0921	0931	0951	1+	5					3	0918	C1.6	10572
17	1230	1239	1250	1	1		1				No flare		
17	1421	1430	1505	2-	5		1			7	1419	C2.5	10574
17	1613	1618	1645	1+	1					1	1613	B9.8	10574
17	1800	1809	1831	2-	3					2	1800	C1.3	10574
18	0513	0518	0557	2-	3					4	0508	M1.6	10574
18	0606	0610	0637	1+	3					3	0611	C8.0	10574
18	0947	0950	1006	1-	3					2	0944	C1.2	10574
18	1206	1222	1305	2-	3		1			2	1202	C3.1	10578
18	1358	1407U	1434	1	1		1				No flare		
18	1443	1449	1520	1+	5		1			6	1441	C2.7	10578
18	1925	1929	2004	2-	3					4	1921	C3.7	10578
18	2231	2237	2330	2+	1					1	2226	M1.5	10578
19	0234	0237	0246	1-	1					1	0230	C2.0	10578
19	0304	0307	0319	1-	1					1	0258	C1.4	10578
19	0415	0419	0431	1-	1					1	0411	C1.2	10574
19	0739	0743	0821	2	1					1	0736	C1.1	10578
19	0847	0851	0910	2	5	1	1	1		3	0843	C2.4	10574
19	1222	1240	1304	1	1		1				1211	C2.5	10578
19	1632	1637	1700	1	3					5	1630	C1.6	10578
21	0949	0955	1005	2	5	1	1	1		4	0939	C6.3	10576
21	1631	1634	1717	2	1					1	1628	C1.3	10578
22	0609	0615	0707	2-	3					2	0609		10574
22	1144	1148	1206	1	1		1				No flare		
23	0650	0714	0738	2+	1					1	0657	C1.4	10574
23	0856	0907	0939	1	1		1				0851	B7.2	10578

* = no flare patrol.

SUDDEN IONOSPHERIC DISTURBANCES

MARCH 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
24	1422	1426	1501	3-	5	1	2	1		6	1417	C5.7	10577
24	1558	1605U	1620	1	1		1				No flare		
24	1847	1850	1917	1+	3					3	1845	C1.5	10582
24	2013	2017	2107	2	3					4	2007	C7.4	10582
24	2132	2135	2159	1+	3					2	2127	C1.9	10577
24	2322	2330	0005	2-	5					3	2314	M1.5	10582
25	0424	0431	0510	2-	1					1	0412	C3.2	10582
25	0432	0439	0522	2-	3					3	0429	M2.3	10582
25	0703	0713	0818	2+	3					3	0702	C6.1	10582
25	0712	0726	0813	2	1		1				0702	C6.1	10582
25	1128	1203	1203	1	1		1				1201	C3.7	10577
25	1208	1217	1305	2+	5	1	1	1		4	1201	C3.7	10577
25	1504	1510	1528	1-	5		1			5	1503	C1.8	10582
26	1016	1017	1044	1+	1					1	1011	B9.6	
27	0943	0948	1016	2	1					1	0942	C1.3	10586
27	1249	1259	1322	1	3	1	2				1246	C1.4	10586
27	1428	1434	1453	1	3					3	1427	C1.9	10586
27	1639	1647	1713	2-	3					3	1616	C1.7	10586
28	0341	0408	0436	2+	1					1	0338	C1.3	10585
28	0445	0448	0454	1-	1					1	0438	C1.2	
28	0634	0636	0708	2	1					1	0631	B8.0	10582
28	1233	1244	1304	1	1		1				1157	C1.8	10582
29	0639	0651	0740	2	1		1				*		
29	0845	0904	0934	1	1		1				No flare		
29	0948	0953	1047	1	1		1				0945	B6.1	10587
29	1140	1153	1221	1	1		1				*		
29	1230	1239	1249	1	1		1				*		
29	1252	1307	1336	2-	3		1			4	1249	C2.7	10582
29	1549	1551	1601	3-	5	1	2	1		3	1543	C5.5	10582
29	1736	1745	1801	1+	1					2	1729	C1.5	10582
29	1844	1846	1902	1	1					1	1827	C3.4	10582
29	1958	2004	2051	2+	1					1	1955	C4.5	10582
29	2321	2328	2357	2	1					1	2319	C8.2	10582
30	0946	0951	1002	2+	5	1	1	1		3	0941	C5.9	
30	1045	1051	1108	1	1		1				*		
30	1231	1243	1300	1	5		1			1	1230	C1.0	
30	1257	1302	1311	2	5	1	1	1		5	1254	C4.7	
30	1347	1351	1400	1-	1					1	1344	B9.2	10582
30	1753	1800	1820	1+	3					2	1754	C1.4	10582
31	0559	0605	0631	1+	3					3	0557	C2.2	10582
31	0932	0938	0956	3-	5	1	1	1		4	0927	C3.7	10582
31	1030E	1143	1358	3+	1					1	1036	C3.4	10582
31	1212	1300	1325	1	1		1				*		
31	1329	1358	1620	1	1		1				No flare		
31	1508	1517	1532	1	3					2	1507	C2.8	10582
31	2003	2007	2041	2-	3					6	2002	C7.4	10582

* = no flare patrol.

OBSERVATORIES REPORTING FOR MARCH 2004

Alberta, Canada	SES	Milan, Italy	SES
Athens, Greece	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
Edenvale, Rep of S. Africa	SES	Sussex, United Kingdom	SES
Houston, Texas, USA	SES	Torrington, Connecticut, USA	SES
Isola del Gran Sasso, Italy	SES	Upice, Czech Republic	SEA
Marlborough, Massachusetts, USA	SES	Villiersdorp, South Africa	SES

Observations are not necessarily continuous.

SOLAR RADIO EMISSION
Spectral Observations

MARCH 2004

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	0000	0136	HIRA								
			LEAR	0024.0	0041.0	III	N	1	25	180	
	0000	0800	CULG	0033.0	0038.0	III	G	1	27	180	
	0200	0833	HIRA								
			CULG	0418.0	0418.0	III	B	1	23	80	
			CULG	0418.0	0800.0D	I	S	1	110	180	
			CULG	0539.0	0539.0	III	G	1	30	280	
	0657	1532	ONDR								
			CULG	0711.0	0711.0	III	B	1	27	160	
	0537	1701	POTS	0720	0743 U	I	S,N,DC	1	220	310	
			CULG	0728.0	0735.0	III	G	1	20	100	
			POTS	0821 U	1022 U	I	S,N	1	220	320	
	0703	1200	IZMI	0942.0U	1135.0	I	N	1	175	270X	
			POTS	1042 U	1215 U	I	S,N	1	210	350	
			POTS	1249 U	1537 U	I	S,N	1	210	390	
	2010	2400	CULG	2316.0	2317.0	III	G	2	18	120	
	2107	2400	HIRA	2316.5	2317.0	III	B	1	25X	110	
02	0000	0800	CULG								
	0000	0833	HIRA								
	0655	1534	ONDR								
	0701	1200	IZMI								
			SVTO	1340.0	1340.0	III		1	25	38	
	0534	1704	POTS	1507 U	1527 U	I	S,N	1	220	330	
	2010	2400	CULG	2026.0	2400.0D	III	N	1	20	180	
	2105	2400	HIRA								
03	0000	0834	HIRA								
	0000	0800	CULG	0000.0E	0300.0	III	N	1	20	180	
			CULG	0300.0	0800.0D	III	S	1	20	180	
			CULG	0442.0	0800.0D	I	S	1	100	180	
	0653	1536	ONDR								
			IZMI	0655.0E	1200.0D	III	N	1	25X	95U	
	0655	1200	IZMI	0655.0E	1200.0D	I	N	1	110	270X	
	0534	1707	POTS	0716	1606 U	I	S,N	2	200U	330	
			IZMI	0741.0	0741.12	III	B	2	40	115	
			LEAR	0741.0	0741.0	III		1	25	90	
			SVTO	0741.0	0741.0	III		1	35	73	
			IZMI	0813.7	0815.7	III	GG	1	35	95	
			SVTO	0855.0	0856.0	III		1	25	59	
			IZMI	0914.2	0916.7	III	G	1	35	95	
			IZMI	0923.6	0923.7	III	B	2	40	95	
			IZMI	1042.6	1045.9	III	G,FS	2	35	90	
			SVTO	1158.0	1158.0	III		1	25	61	
			IZMI	1158.4	1158.6	III	B	2	30	140	
			SVTO	1534.0	1535.0	III		1	28	71	
			HOLL	1535.0	1535.0	III		1	34	42	
			HOLL	1535.0	1553.0	III	N	1	25U	80U	
			POTS	1549.3	1549.6	III	B	2	40X	80	
	2010	2400	CULG	2010.0E	2400.0D	III	S	1	20	150	
			CULG	2033.0	2400.0D	I	S	1	100	180	
			LEAR	2259.0	0610.0	CONT		1	70	180	
			LEAR	2259.0	0610.0	III	N	1	25	106	
			HOLL	2314.0	2314.0	III		1	25	111	
04	0000	0835	HIRA								
			CULG	0000.0E	0800.0D	I	S	1	70	180	
	0000	0800	CULG	0000.0E	0800.0D	III	S	1	18	160	
			PALE	0252.0	0252.0	III		1	25	48	
			SVTO	0611.0	1622.0	III	N	1	25	158	
	0531	1502	POTS	0628.2	1500 U	III	GG,N	2	40X	85U	
			POTS	0643	1502 U	I	S,N	1	200U	360	
	0650	1538	ONDR								
			IZMI	0650.0E	1200.0D	I	N	2	50	270X	
	0650	1200	IZMI	0650.0E	1200.0D	III	N	2	25X	95U	
			IZMI	1156.2	1158.7	III	GG	2	25X	220	
			HOLL	1435.0	0046.0	III	N	1	25	61	
			PALE	1914.0	0421.0	III	N	1	25	122	
			CULG	2010.0E	2400.0D	I	S	1	100	180	

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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
04	2010	2400	CULG	2010.0E	2400.0D	III	S	1	20	100	
	2102	2400	HIRA								
	2104	2400	HIRA								
			LEAR	2318.0	1009.0	III	N	1	25	180	
05			CULG	0000.0E	0800.0D	I	S	1	100	180	
	0000	0800	CULG	0000.0E	0800.0D	III	S	1	20	100	
			CULG	0426.0	0428.0	III	G	3	18X	180	
	0000	0836	HIRA	0426.0	0432.0	III	G	1	25X	210	
			CULG	0430.0	0432.0	III	G	3	18	180	
			HIRA	0518.0	0518.5	III	B	1	50	320	
			SVTO	0555.0	1537.0	III	N	1	25	81	
	0528	1403	POTS	0631	1403 U	III	GG,N	2	40X	80	
	0648	1540	ONDR								
			POTS	0650 U	1403 U	I	S,N	2	200U	380	
			IZMI	0700.0E	1200.0D	III	N	2	25X	95U	
	0700	1200	IZMI	0700.0E	1200.0D	I	N	2	110U	270X	
			HOLL	1415.0	0047.0	III	N	2	25	180	
			PALE	1745.0	0421.0	III	N	1	25	180	
			PALE	1913.0	1914.0	III		1	25	180	
	2010	2400	CULG	2010.0E	2400.0D	III	N	1	20	150	
			CULG	2028.0	2028.0	III	B	3	20	90	
			CULG	2100.0	2100.0	III	G	3	18X	200	
	2100	2400	HIRA	2100.0	2101.0	III	G	2	25X	50	
			PALE	2101.0	2101.0	III		2	25	180	
			CULG	2103.0	2103.0	III	B	1	23	150	
			CULG	2139.0	2141.0	III	G	3	18X	120	
			HIRA	2139.0	2141.0	III	G	1	25X	100	
			LEAR	2259.0	0645.0	III	N	1	25	90	
06	0000	0837	HIRA	0009.5	0010.5	III	G	1	90	210	
			HIRA	0510.0	0512.0	III	G	2	25X	200	
			LEAR	0510.0	0511.0	III		2	25	180	
	0525	1245	POTS	0629 U	0646 U	III	GG,N	1	40X	80	
			POTS	0659.8	0700.2	DCIM		1	220	400U	
	0700	1200	IZMI	0700.0E	0911.0U	III	N	1	45U	95U	
			POTS	0701.8	0702.4	I	DC	1	200U	230	
			IZMI	0704.6	0704.8	III	B	1	25X	85	
			POTS	0704.6	0706.2	III	G	3	40X	400U	
			IZMI	0705.9	0706.1	III	G	2	160	270X	
			POTS	0707.2	0747 U	I	S,N	1	200U	310	
			IZMI	0710.3	0813.8	III	GG	2	25X	175	
			IZMI	0717.1	0717.6	I	GG	1	220	260	
			SVTO	0748.0	0748.0	III		1	25	63	
			POTS	0753.0	0753.6	DCIM		1	270	400U	
			HIRA	0810.0	0814.0	III	G	1	30	140	
			SVTO	0810.0	0813.0	III		1	25	75	
			POTS	0810.4	0813.7	III	G	2	40X	240	
			POTS	0820	0844	I	S,N	2	200U	330	
			IZMI	0836.8	0839.7	III	GG	2	50	270X	
			POTS	0852.0	0852.7	DCIM		2	200U	400U	
			POTS	0901	0918	I	S,N	1	200U	270	
			IZMI	0931.5	0937.3	I	N	1	180	250	
			IZMI	0936.0	0938.2	III	GG	1	200	260	
			POTS	0938	0946	I	S,N	1	200U	280	
			IZMI	1016.2	1016.3	III	B	1	120	170	
			IZMI	1027.4	1027.5	III	B	1	175	250	
			POTS	1039	1244 U	I	S,N	1	200U	310	
			IZMI	1121.4	1121.5	III	G,HARM	2	135	270	
			IZMI	1156.3	1156.5	III	G	1	160	215	
	0645	1541	ONDR	1212.5	1215.0	DCIM	G	2	2000X	4500X	
			ONDR	1213.0	1215.2	DCIM	GG	2	800X	1119	
			HOLL	1556.0	1559.0	III		1	25	109	
			SVTO	1559.0	1559.0	III		1	25	75	
			HOLL	1713.0	1806.0	III	N	1	25	66	
			HOLL	1827.0	1828.0	III		1	25	47	
	2059	2400	HIRA								
	2010	2400	CULG	2341.0	2341.0	III	B	1	27	65	

SOLAR RADIO EMISSION
Spectral Observations

MARCH 2004

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
07	0000	0800	CULG	0000.0E	0800.0D	III	N	1	20	180	
			CULG	0010.0	0011.0	III	G	3	20	200	
			CULG	0013.0	0015.0	III	G	1	60	180	
			LEAR	0028.0	0029.0	III		1	25	81	
	0000	0800	CULG	0029.0	0029.0	III	B	3	18	100	
	0000	0838	HIRA	0029.0	0029.5	III	B	1	25X	60	
			CULG	0036.0	0430.0	III	N	1	20	180	
			CULG	0118.0	0118.0	III	B	3	18X	90	
			HIRA	0118.0	0118.5	III	B	1	25X	40	
			LEAR	0118.0	0118.0	III		1	25	62	
			LEAR	0141.0	0240.0	III	N	1	25	99	
			HIRA	0313.0	0313.5	III	B	1	30	70	
			LEAR	0313.0	0313.0	III		1	25	79	
			CULG	0410.0	0410.0	III	B	3	18X	180	
			CULG	0510.0	0512.0	III	G	3	18X	200	
			LEAR	0517.0	0519.0	III		1	25	95	
			HIRA	0517.5	0519.0	III	G	1	25X	80	
			CULG	0518.0	0520.0	III	G	3	18	100	
	0643	1543	ONDR								
			CULG	0652.0	0800.0D	III	N	1	23	80	
	0655	1200	IZMI								
	0522	1716	POTS	1039.7	1042.5	DCIM		1	210	400	
			POTS	1125.1	1125.8	DCIM		1	320	370	
			POTS	1158.9	1159.1	III	B	1	40X	70	
			POTS	1305	1314	I	S,N,W	1	270	310	
			POTS	1325.8	1326.9	I	S	1	300	330	
			SVTO	1326.0	1327.0	III		1	25	44	
			SVTO	1414.0	1414.0	III		1	25	44	
			POTS	1414.3	1414.9	III	G	1	40X	60	
			HOLL	1927.0	1927.0	III		1	25	55	
			HOLL	1947.0	1948.0	III		1	25	180	
			PALE	1947.0	1947.0	III		1	25	172	
	2010	2400	CULG	2023.0	2311.0	III	N	1	25	100	
			HOLL	2116.0	2230.0	III	N	1	25	61	
			CULG	2117.0	2117.0	III	B	1	23	180	
	2058	2400	HIRA	2117.0	2120.5	III	G	1	25X	130	
			CULG	2120.0	2120.0	III	B	1	20	180	
08	0000	0800	CULG	0032.0	0117.0	III	N	1	20	90	
			CULG	0158.0	0158.0	III	B	1	27	70	
			CULG	0232.0	0236.0	III	G	2	20	80	
	0000	0839	HIRA	0234.0	0235.5	III	G	1	25X	50	
			CULG	0241.0	0354.0	III	N	1	20	180	
			HIRA	0351.0	0351.5	III	B	1	25X	50	
			LEAR	0351.0	0351.0	III		1	25	86	
			CULG	0448.0	0502.0	III	G	1	25	75	
			SVTO	0535.0	0600.0	III	N	1	25	180	
			CULG	0634.0	0707.0	III	N	1	25	80	
	0641	1545	ONDR								
	0522	1719	POTS	0732 U	0817 U	I	S,N	1	200U	330	
			SVTO	0737.0	0739.0	III		1	25	44	
	0737	1200	IZMI	0737.7	0739.7	III	GG	2	25X	65	
			CULG	0738.0	0740.0	III	G	3	18	90	
			HIRA	0739.0	0739.5	III	B	1	25X	40	
			LEAR	0739.0	0739.0	III		1	25	61	
			POTS	0918	0934	I	S,N	1	240	330	
			POTS	0958 U	1608 U	I	S,N	1	200U	380	
			POTS	1232.4	1235.9	III	G	2	40X	85U	
			HOLL	1507.0	1602.0	III	N	1	25	86	
			SVTO	1507.0	1518.0	III	N	1	25	70	
			POTS	1514.4	1514.6	III	B	2	40X	75	
			HOLL	1910.0	2000.0	III	N	1	25	66	
			PALE	1910.0	1910.0	III		1	25	66	
	2010	2400	CULG	2029.0	2030.0	III	G	1	23	100	
			CULG	2152.0	2155.0	III	G	2	20	45	
			LEAR	2302.0	1006.0	CONT		1	140	180	
			HOLL	2337.0	2337.0	III		1	25	180	
			LEAR	2337.0	2337.0	III		1	25	87	
	2057	2400	HIRA	2337.5	2338.0	III	B	1	25X	50	

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OBSERVATION Start (UT)	OBSERVATION End (UT)	Sta	EVENT Start (UT)	EVENT End (UT)	Spectral Class	Event Remarks	Int (1-3)	FREQUENCY Lower (MHz)	FREQUENCY Upper (MHz)	Remarks
08		CULG	2338.0	2338.0	III	B	2	20	80	
09	0000	0800	CULG	0006.0	0800.0D	I	S,C	1	120	180
			CULG	0121.0	0147.0	III	N	1	20	100
			CULG	0122.0	0124.0	III	G	3	18	100
			LEAR	0122.0	0123.0	III		1	25	98
			PALE	0122.0	0123.0	III		1	25	85
	0000	0840	HIRA	0122.5	0124.0	III	B	1	25X	90
			CULG	0155.0	0156.0	III	G	2	18	90
			LEAR	0155.0	0155.0	III		1	25	81
			HIRA	0155.5	0156.0	III	B	1	25X	50
			CULG	0230.0	0233.0	III	G	2	18	60
			LEAR	0232.0	0232.0	III		1	25	50
			LEAR	0328.0	0328.0	III		1	25	47
			CULG	0329.0	0334.0	III	G	2	18	90
			HIRA	0332.0	0333.5	III	G	1	25X	60
			LEAR	0333.0	0333.0	III		1	25	66
			LEAR	0401.0	0402.0	III		1	25	86
			HIRA	0401.5	0403.0	III	G	1	25X	80
			CULG	0402.0	0403.0	III	G	2	18	130
			LEAR	0402.0	0403.0	III		1	25	64
			LEAR	0454.0	1006.0	III	N	1	25	77
			CULG	0455.0	0455.0	III	B	1	20	80
			CULG	0541.0	0800.0D	III	N	1	20	90
	0519	1722	POTS	0647 U	1623 U	I	S,N	2	200U	400U
	0700	1200	IZMI	0700.0E	1200.0D	I	S	2	110	270X
	0639	1547	ONDR	0700.3	0712.0	DCIM	GG	1	800X	2000X
			ONDR	0714.0	0804.2	DCIM	GG	2	800X	2000X
			IZMI	0728.5	0729.5	III	G	1	60	270X
			SVTO	0825.0	1227.0	III	N	1	25	180
			IZMI	0825.8	0826.0	III	B	1	30	45
			IZMI	0847.7	0848.5	III	G	2	25X	190
			POTS	0847.7	0848.0	III	G	2	40X	85U
			IZMI	0901.2	0901.3	III	B	1	30	45
			IZMI	0910.4	0918.0	III	N	1	30	120
			IZMI	0959.5	1000.4	III	G	1	25X	150
			IZMI	1012.1	1012.3	III	G,C	2	25X	240
			POTS	1012.1	1012.4	III	B	3	40X	85U
			IZMI	1041.7	1041.9	III	G,C	2	45	90
			POTS	1041.7	1042.0	III	G,RS	1	45	80
			IZMI	1047.7	1048.0	III	G	1	35	65
			IZMI	1057.7	1059.3	III	G	1	45	85
			IZMI	1132.3	1132.4	III	G	1	45	85
			IZMI	1135.1	1135.8	III	G	2	25X	270
			POTS	1210.1	1210.4	III	G	2	40X	85U
			POTS	1254.9	1255.1	III	B	2	50	80
			POTS	1259.3	1259.4	III	B	1	40X	80
			SVTO	1318.0	1327.0	III		1	25	39
			SVTO	1341.0	1341.0	III		1	25	41
			HOLL	1405.0	1406.0	III		1	30	86
			SVTO	1405.0	1406.0	III		1	25	84
			POTS	1405.2	1406.0	III	G	2	40X	85U
			SVTO	1442.0	1443.0	III		1	25	39
			HOLL	1549.0	1616.0	III	N	1	25	54
			CULG	2010.0E	2400.0D	III	N	1	20	100
	2010	2400	CULG	2010.0E	2400.0D	I	S,C	1	110	180
			CULG	2148.0	2149.0	III	G	3	18X	130
			HOLL	2148.0	2150.0	V		1	25	88
			PALE	2148.0	2150.0	III		2	25	92
	2055	2400	HIRA	2148.5	2151.0	III	B	3	25X	100
			CULG	2149.0	2152.0	V		3	18X	75
			HOLL	2337.0	2338.0	III		1	25	84
			LEAR	2337.0	0222.0	III	N	1	25	82
			PALE	2338.0	2338.0	III		1	25	70
10			CULG	0000.0E	0234.0	III	N	1	18	180
	0000	0800	CULG	0000.0E	0800.0D	I	S,C	1	100	180
			CULG	0043.0	0043.0	III	B	2	18	60
	0000	0841	HIRA	0043.0	0043.5	III	B	1	25X	50

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10		LEAR	0107.0	1005.0	CONT		1	95	180	
		LEAR	0259.0	0306.0	III		1	25	128	
		PALE	0259.0	0306.0	III		1	25	70	
		CULG	0300.0	0300.0	III	B	2	18	120	
		HIRA	0305.5	0306.0	III	B	2	25X	70	
		CULG	0306.0	0306.0	III	B	3	18X	140	
		CULG	0337.0	0337.0	III	B	2	18	90	
		HIRA	0337.0	0337.5	III	B	1	25X	60	
		LEAR	0337.0	0337.0	III		1	25	62	
		CULG	0340.0	0340.0	III	B	1	20	57	
		LEAR	0406.0	1005.0	III	N	1	25	76	
		CULG	0408.0	0418.0	III	G	1	20	80	
		CULG	0409.0	0409.0	III	B	3	18	150	
		HIRA	0409.0	0409.5	III	B	1	25X	50	
		CULG	0431.0	0800.0D	III	N	1	23	140	
		CULG	0436.0	0437.0	III	G	2	20	150	
		HIRA	0436.0	0436.5	III	B	1	25X	60	
		HIRA	0532.5	0533.0	III	B	1	25X	100	
		CULG	0533.0	0533.0	III	B	1	18	100	
		HIRA	0557.5	0558.0	III	B	1	30	70	
		CULG	0558.0	0558.0	III	B	2	18	100	
		SVTO	0607.0	0608.0	III		1	25	69	
		HIRA	0607.5	0608.0	III	B	1	30	80	
	0516 1722	POTS	0627 U	1630 U	I	S,N	2	200U	450U	
	0637 1549	ONDR								
		SVTO	0644.0	1007.0	III	N	2	25	67	
		POTS	0644.3	0658.7	III	GG,N	2	40X	80	
		HIRA	0644.5	0645.0	III	B	1	25X	50	
		CULG	0645.0	0645.0	III	B	3	18X	50	
		CULG	0655.0	0659.0	III	G	3	18X	130	
		HIRA	0655.0	0659.0	III	G	1	25X	80	
		IZMI	0700.0E	0733.0D	III	N	1	45U	95U	
	0700 0733	IZMI	0700.0E	0733.0D	I	S	2	110	270X	
		CULG	0726.0	0726.0	III	B	3	20	80	
		IZMI	0726.3	0728.5	III	G	2	25X	70	
		POTS	0726.4	0732.7	III	G,N	2	40X	80	
		HIRA	0726.5	0727.0	III	B	1	25X	60	
		IZMI	0741.0E	1200.0D	III	N	1	25X	95U	
	0741 1200	IZMI	0741.0E	1200.0D	I	S,C,DC	2	110U	270X	
		IZMI	0808.2	0808.3	III	G	1	25X	85	
		IZMI	0818.1	0819.8	III	GG	2	45	85	
		IZMI	0831.2	0839.1	III	GG	2	25X	85	
		POTS	0831.2	0843.0	III	GG,N	1	45	80	
		IZMI	0851.3	0853.8	III	GG	2	25X	85	
		SVTO	0853.0	1628.0	CONT		1	107	180	
		POTS	0857.1	0902.5	III	GG,N	2	40X	60	
		IZMI	0857.5	0901.0	III	GG	2	25X	65	
		IZMI	0938.3	0938.5	III	B	2	40	95U	
		POTS	1004.8	1007.6	III	G	1	40X	70	
		IZMI	1006.0	1007.7	III	G	2	25X	65U	
		SVTO	1142.0	1142.0	III		1	25	66	
		IZMI	1142.6	1142.9	III	B	2	25X	65	
		POTS	1142.6	1142.8	III	G	2	40X	80	
		SVTO	1225.0	1225.0	III		1	25	44	
		SVTO	1301.0	1526.0	III	N	2	25	67	
		POTS	1309.4	1309.7	III	G	1	40X	50	
		POTS	1321.5	1330.2	III	G	1	40X	60	
		POTS	1346.1	1349.5	III	G	2	40X	80	
		HOLL	1440.0	1539.0	III	N	2	25	180	
		POTS	1440.4	1440.7	III	B,U	1	40X	60	
		POTS	1458.6	1505.1	III	G,N	1	40X	70	
		SVTO	1527.0	1528.0	III		2	25	180	
		POTS	1527.4	1538.7	IV		3	40X	630	
		SVTO	1533.0	1538.0	III		1	25	180	
		HOLL	1710.0	1714.0	III		1	25	47	
		PALE	1711.0	1711.0	III		1	25	65	
		HOLL	1715.0	0048.0	CONT		1	110	180	
		HOLL	1802.0	1803.0	III		1	25	58	
		PALE	1802.0	1802.0	III		1	25	61	

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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
Day 10		HOLL	1849.0	1905.0	III	N	1	25	64	
		HOLL	1950.0	1950.0	III		1	25	87	
		CULG	2010.0E	2400.0D	III	N	1	23	100	
2010	2400	CULG	2010.0E	2400.0D	CONT		2	60	230	
		HOLL	2045.0	2222.0	III	N	1	25	86	
		CULG	2051.0	2051.0	III	B	3	18	130	
		CULG	2124.0	2126.0	III	G	3	18X	150	
2054	2400	HIRA	2124.0	2126.0	III	G	3	25X	160	
		CULG	2144.0	2144.0	III	B	3	18X	70	
		HIRA	2144.0	2144.5	III	B	1	25X	70	
		CULG	2203.0	2205.0	III	G	3	18X	400	
		HIRA	2203.0	2205.0	III	G	2	25X	320	
		HIRA	2210.5	2214.5	III	G	2	25X	80	
		CULG	2213.0	2215.0	III	G	3	18X	160	
		CULG	2220.0	2220.0	III	B	3	18X	180	
		HOLL	2258.0	2302.0	III		1	25	103	
		HIRA	2258.5	2303.0	III	G	2	25X	500	
		CULG	2259.0	2303.0	III	G	3	18X	800	
		LEAR	2304.0	1003.0	CONT		1	78	180	
11		CULG	0000.0E	0800.0D	III	N	1	23	130	
0000	0800	CULG	0000.0E	0800.0D	CONT		2	60	230	
		LEAR	0018.0	1003.0	III	N	1	25	151	
		CULG	0131.0	0133.0	III	G	3	18X	100	
0000	0842	HIRA	0131.5	0133.0	III	G	1	25X	80	
		CULG	0233.0	0233.0	III	B	2	18	130	
		HIRA	0233.0	0233.5	III	B	1	30	100	
		CULG	0514.0	0514.0	III	B	3	18X	70	
		HIRA	0514.0	0514.5	III	B	2	25X	70	
		CULG	0523.0	0523.0	III	B	3	18X	90	
		HIRA	0523.0	0523.5	III	B	1	25X	70	
		SVTO	0528.0	1541.0	CONT		1	30	170	
		HIRA	0535.5	0536.0	III	B	1	25X	80	
		CULG	0536.0	0536.0	III	B	3	18X	90	
0513	1725	POTS	0618 U	0838 U	III	GG,N	1	40X	80	
		SVTO	0620.0	1630.0	III	N	1	25	120	
		POTS	0626 U	1626 U	I	S,N	2	200U	400U	
0634	1550	ONDR								
		IZMI	0650.0E	1200.0D	III	N	1	25X	95U	
0650	1200	IZMI	0650.0E	1200.0D	I	S,C	2	50U	270X	
		IZMI	0652.8	0653.3	III	G,HARM,FS	2	25X	90	
		IZMI	0722.8	0724.5	III	G	2	40	85	
		IZMI	0737.2	0737.4	III	B	2	25X	65	
		IZMI	0750.6	0755.9	III	G,FS	2	45	90	
		IZMI	0820.7	0820.8	UNCLF		1	30	45	
		IZMI	0914.7	0919.3	III	GG	2	25X	65	
		IZMI	0926.8	0927.7	III	G	1	25X	85	
		IZMI	0935.2	0936.4	III	G	1	40	85	
		IZMI	1004.0	1007.2	III	G	1	25X	65	
		IZMI	1032.3	1033.3	III	G	1	35	65	
		POTS	1032.4	1043.2	III	G,N	1	40X	80	
		IZMI	1038.9	1039.9	III	G	1	40	65	
		IZMI	1147.4	1150.0	III	G	2	50U	70U	
		POTS	1236.5	1237.1	DCIM		2	200	400U	
		SVTO	1240.0	1242.0	III		2	25	163	
		POTS	1240.1	1242.0	III	GG	3	40X	450	
		HOLL	1659.0	1700.0	III		1	25	180	
		POTS	1659.4	1659.9	III	G	2	40X	85U	
		HOLL	1841.0	2223.0	CONT		1	107	180	
		PALE	1911.0	1948.0	III	N	1	25	62	
		CULG	2010.0E	2400.0D	III	N	1	20	180	
2010	2400	CULG	2010.0E	2400.0D	CONT		2	27	180	
2052	2400	HIRA								
		LEAR	2306.0	1003.0	CONT		1	36	180	
12		CULG	0000.0E	0800.0D	III	N	1	20	180	
0000	0800	CULG	0000.0E	0800.0D	CONT		2	27	180	
		PALE	0217.0	0219.0	III		1	25	180	
		CULG	0219.0	0219.0	III	B	3	30	400	

S O L A R R A D I O E M I S S I O N
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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
12			LEAR	0219.0	0219.0	III		2	25	180	
	0000	0843	HIRA	0219.0	0220.0	III	B	3	30	500	
			LEAR	0509.0	0509.0	III		1	25	75	
			HIRA	0510.0	0511.0	III	G	1	80	200	
			SVTO	0526.0	1631.0	CONT		1	25	180	
	0510	1728	POTS	0617.8	0618.1	III	G	2	40X	85U	
			POTS	0627 U	1620 U	I	S,N	2	200U	400	
	0632	1552	ONDR								
			POTS	0648 U	1308 U	I	S,N	2	55	85U	
			IZMI	0650.0E	1200.0D	III	N	1	25X	95U	
	0650	1200	IZMI	0650.0E	1200.0D	I	S,C	2	45U	270X	
			IZMI	0813.0	0813.3	I	GG,DC,HARM	2	180	220	
			IZMI	1014.7	1015.3	III	G	1	25X	65	
			IZMI	1016.7	1017.7	I	GG	2	160	215	
			IZMI	1017.5	1018.2	III	G	1	25X	95	
			IZMI	1058.7	1059.4	I	GG	2	165	270X	
			SVTO	1238.0	1242.0	III		1	25	68	
			POTS	1238.6	1241.9	III	G	2	40X	85U	
			SVTO	1357.0	1357.0	III		1	25	45	
			POTS	1556.7	1557.1	III	G	1	40X	75	
			HOLL	1929.0	1937.0	III		1	25	92	
	2010	2400	CULG	2010.0E	2054.0	III	N	1	20	57	
			HOLL	2138.0	2155.0	III	N	1	25	89	
			CULG	2139.0	2149.0	III	G	1	20	180	
			CULG	2153.0	2153.0	III	B	3	18X	160	
			PALE	2153.0	2153.0	III		1	25	56	
	2051	2400	HIRA	2153.0	2153.5	III	B	1	25X	120	
			HOLL	2235.0	2236.0	III		1	25	86	
			CULG	2236.0	2236.0	III	G	2	18X	180	
			HIRA	2236.0	2236.5	III	B	1	25X	200	
			LEAR	2300.0	0904.0	CONT		1	90	180	
			CULG	2357.0	2357.0	III	B	1	20	150	
			HIRA	2357.0	2357.5	III	B	1	30	50	
			LEAR	2357.0	2357.0	III		1	25	150	
13	0000	0800	CULG	0049.0	0049.0	III	B	1	20	180	
			LEAR	0106.0	0836.0	III	N	1	25	92	
			CULG	0122.0	0123.0	III	G	1	20	90	
			PALE	0122.0	0122.0	III		1	25	62	
	0000	0844	HIRA	0122.5	0123.0	III	B	1	25X	50	
			CULG	0231.0	0231.0	III	B	1	20	90	
			CULG	0259.0	0259.0	III	B	1	23	110	
			CULG	0352.0	0355.0	III	G	2	18	230	
			CULG	0405.0	0425.0	III	N	1	20	180	
			CULG	0425.0	0800.0D	I	S	1	100	180	
			CULG	0524.0	0524.0	III	G	1	45	120	
			SVTO	0537.0	0628.0	CONT		1	90U	180U	
			SVTO	0623.0	0651.0	III	N	2	25	156	
	0630	1554	ONDR								
	0510	1731	POTS	0631.3	0634.2	III	G	1	40X	70	
			POTS	0638 U	0734 U	I	S,N	1	200U	320	
			CULG	0651.0	0652.0	III	G	3	20	180	
			HIRA	0651.0	0652.0	III	G	2	30	200	
			LEAR	0651.0	0651.0	III		2	25	180	
			POTS	0651.0	0651.8	III	G	2	40X	400U	
	0701	1200	IZMI	0701.0E	1200.0D	I	N	1	70	190	
			IZMI	0743.6	0744.2	III	G	1	35	65	
			CULG	0744.0	0748.0	III	G	1	23	130	
			IZMI	0747.7	0748.1	III	G	1	30	85	
			SVTO	0834.0	0835.0	III		1	25	40	
			IZMI	0845.6	0845.9	III	G	1	40	65	
			SVTO	0917.0	0918.0	III		1	25	38	
			IZMI	0932.1	0932.2	III	G	1	45	65	
			LEAR	0934.0	0934.0	III		1	25	146	
			SVTO	0934.0	0935.0	III		1	25	145	
			IZMI	0934.5	0935.0	III	G,C	2	25X	160	
			POTS	0934.6	0935.0	III	G	2	40X	85U	
			POTS	0948	1221	I	S,N,DC	1	200U	370	
			IZMI	1112.9	1113.1	III	B	1	40	65	

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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
13		IZMI	1119.1	1121.8	III	GG	1	25X	65	
		SVTO	1121.0	1121.0	III		1	25	45	
		POTS	1121.7	1134.0	III	GG	2	40X	370	
		IZMI	1128.0	1134.0	III	GG	2	25X	270X	
		SVTO	1128.0	1134.0	III		1	25	180	
		POTS	1130.3	1131.4	DCIM		3	210	400U	
		SVTO	1147.0	1153.0	III		1	25	43	
		IZMI	1147.3	1148.2	III	GG	1	25X	160	
		POTS	1147.7	1202.8	III	G,N	2	40X	85U	
		IZMI	1152.8	1153.3	III	G	2	25X	175	
		SVTO	1202.0	1210.0	III		1	25	46	
		SVTO	1227.0	1229.0	III		1	25	42	
		POTS	1228.6	1228.8	III	G	1	40X	80	
		SVTO	1257.0	1257.0	III		1	25	44	
		POTS	1257.2	1257.7	III	G	1	40X	55	
		SVTO	1337.0	1632.0	CONT		1	111	180	
		POTS	1338	1407 U	I	S,N	2	200U	350	
		SVTO	1348.0	1351.0	III		1	25	40	
		POTS	1353.0	1354.3	DCIM		3	200U	440U	
		POTS	1359.9	1400.5	III	G	2	40X	80	
		HOLL	1400.0	1400.0	III		1	25	63	
		SVTO	1400.0	1400.0	III		1	25	48	
		HOLL	1418.0	1421.0	III		1	25	132	
		SVTO	1418.0	1421.0	III		1	25	86	
		POTS	1418.5	1422.1	III	GG	3	40X	240	
		POTS	1420.8	1422.4	DCIM		3	200U	280	
		POTS	1445	1601 U	I	S,N	2	200U	370	
		SVTO	1453.0	1453.0	III		1	25	40	
		POTS	1500.6	1501.3	III	G	1	40X	70	
		HOLL	1545.0	1632.0	III	N	1	25	85	
		SVTO	1554.0	1603.0	III		1	25	72	
		POTS	1554.8	1603.3	III	GG	2	40X	400U	
		HOLL	1729.0	1730.0	III		1	25	61	
		PALE	1729.0	1730.0	III		1	25	62	
		HOLL	1759.0	1759.0	III		1	25	46	
		HOLL	1839.0	2350.0	III	N	1	25	61	
		PALE	1951.0	0344.0	III	N	1	25	80	
	2010 2400	CULG	2010.0E	2400.0D	I	S,C	1	80	160	
		CULG	2030.0	2317.0	III	N	1	20	160	
		CULG	2036.0	2036.0	III	B	2	20	60	
	2050 2400	HIRA								
		CULG	2105.0	2107.0	III	G	2	18	150	
		CULG	2150.0	2154.0	III	G	3	18	40	
14	0000 0800	CULG	0000.0E	0800.0D	I	S,C	1	60	160	
		CULG	0007.0	0012.0	III	G	3	18X	160	
		HOLL	0007.0	0011.0	III		1	25	134	
		LEAR	0007.0	0011.0	III		2	25	87	
	0000 0845	HIRA	0007.0	0011.5	III	G	2	25X	70	
		LEAR	0123.0	0126.0	III		1	25	86	
		CULG	0124.0	0127.0	III	G	2	20	130	
		HIRA	0124.0	0127.0	III	G	1	25X	50	
		CULG	0455.0	0455.0	III	B	3	20	70	
		HIRA	0455.0	0455.5	III	B	1	25X	50	
		LEAR	0455.0	0455.0	III		1	25	50	
		SVTO	0616.0	0617.0	III		1	25	147	
		LEAR	0617.0	0617.0	III		1	25	146	
		HIRA	0617.5	0618.0	III	B	1	30	130	
	0507 1734	POTS	0617.6	0622.8	III	GG,N	1	40X	80	
		CULG	0618.0	0618.0	III	B	1	23	160	
	0628 1556	ONDR								
		CULG	0658.0	0704.0	III	G	2	20	50	
		SVTO	0658.0	0658.0	III		1	25	45	
	0700 1200	IZMI	0700.0E	1200.0D	I	N	1	60	170	
		SVTO	0839.0	1145.0	III	N	1	25	74	
		IZMI	1007.3	1009.3	III	G	1	25X	90	
		POTS	1007.3	1007.6	III	G	1	40X	60	
		SVTO	1334.0	1335.0	III		1	25	42	
		SVTO	1339.0	1340.0	III		1	25	41	

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OBSERVATION Day	Start (UT)	End (UT)	Sta	EVENT Start (UT)	End (UT)	Spectral Class	Event Remarks	Int (1-3)	FREQUENCY Lower (MHz)	Upper (MHz)	Remarks
14			HOLL	1745.0	1746.0	III		1	25	49	
			HOLL	2035.0	2035.0	III		1	25	87	
	2010	2400	CULG	2035.0	2036.0	III	G	3	18	100	
	2048	2400	HIRA								
15	0000	0800	CULG								
	0000	0846	HIRA								
	0625	1557	ONDR								
	0650	0744	IZMI								
	0504	1734	POTS	0809.9	0810.7	III	G	1	40	60	
	0753	1200	IZMI	0810.1	0810.7	III	G	1	40	150	
			IZMI	0817.5	0819.2	III	G	1	55	90	
			LEAR	0917.0	0918.0	III		1	25	156	
			SVTO	0917.0	0918.0	III		1	25	149	
			IZMI	0917.3	0918.6	III	GG	2	25X	215	
			POTS	0917.3	0918.6	III	GG	2	40X	85U	
			IZMI	0934.3	0934.4	III	B	1	50	85	
			IZMI	0942.2	0942.4	III	B	1	40	85	
			POTS	0942.3	0942.5	III	B	1	40	60	
			IZMI	0950.2	0951.2	III	G,FS	2	45	170	
			POTS	0950.9	0957.3	III	G,U,N	2	40X	85U	
			SVTO	0956.0	0957.0	III		1	25	139	
			IZMI	0956.3	0957.2	III	G,C	2	25X	150	
			HOLL	1819.0	1833.0	III	N	1	25	40	
	2010	2400	CULG								
	2046	2400	HIRA								
16	0000	0800	CULG	0006.0	0009.0	III	G	1	23	90	
	0000	0847	HIRA	0007.0	0007.5	III	B	1	25X	70	
			CULG	0021.0	0023.0	III	G	1	20	50	
			CULG	0315.0	0317.0	III	G	1	23	90	
			CULG	0343.0	0343.0	III	B	1	20	80	
			CULG	0412.0	0413.0	III	G	2	20	80	
			LEAR	0412.0	0412.0	III		1	25	87	
			HIRA	0412.5	0413.0	III	B	1	25X	50	
			CULG	0420.0	0423.0	III	G	1	23	80	
			CULG	0458.0	0501.0	III	G	1	23	110	
			HIRA	0458.5	0459.0	III	B	1	40	80	
	0623	1559	ONDR								
			CULG	0640.0	0640.0	III	B	1	25	80	
			CULG	0702.0	0746.0	III	N	1	25	150	
			LEAR	0714.0	0923.0	III	N	1	25	104	
			SVTO	0714.0	0743.0	III	N	1	25	142	
	0650	1200	IZMI	0714.5	0719.5	III	GG	1	30	130	
			IZMI	0726.2	0730.4	III	GG	2	30	130	
	0501	1737	POTS	0727.4	0743.5	III	G,N	1	40X	85U	
			POTS	0735.2	0737.5	I	S,N,DC	1	200U	370	
			IZMI	0736.4	0737.7	III	GG,FS	2	25X	215	
			HIRA	0742.5	0743.5	III	B	1	50	130	
			IZMI	0742.6	0745.6	III	GG	2	25X	185	
			CULG	0743.0	0744.0	III	G	3	23	180	
			IZMI	0816.4	0818.8	III	G	1	40	85	
			SVTO	0821.0	0857.0	III	N	1	25	141	
			IZMI	0821.2	0824.7	III	GG	1	25X	230	
			IZMI	0842.9	0849.0	III	G	1	25X	95	
			IZMI	0852.2	0853.0	III	G,C	2	25X	160	
			IZMI	0854.1	0855.5	III	GG	2	40	150	
			IZMI	0856.0	0857.2	III	GG	2	25X	145	
			IZMI	0922.8	0923.1	III	G,FS	2	75	165	
			IZMI	0940.6	0942.5	III	GG,FS	1	55	160	
			SVTO	0941.0	0942.0	III		1	30	142	
			SVTO	1006.0	1013.0	III		1	25	136	
			POTS	1006.4	1009.1	I	S,N	1	230	400	
			POTS	1006.6	1006.9	III	B,RS	1	40X	85U	
			IZMI	1013.4	1013.7	III	G	2	35	160	
			IZMI	1121.8	1123.2	III	gg,fs	2	125	270	
			POTS	1122.5	1134.2	I	S,N,DC	2	200U	380	
			POTS	1123.6	1123.7	III	B	1	40X	60	
			SVTO	1132.0	1133.0	III		1	77	180	

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OBSERVATION Day	Start (UT)	End (UT)	Sta	EVENT Start (UT)	End (UT)	Spectral Class	Event Remarks	Int (1-3)	FREQUENCY Lower (MHz)	Upper (MHz)	Remarks
16			IZMI	1132.4	1134.2	III	GG	2	40	270	
			POTS	1132.6	1134.3	III	G	2	40	310	
			POTS	1301.5	1303.5	III	G	2	40X	85U	
			POTS	1508.7	1512.0	I	S,N	1	230	340	
			HOLL	1715.0	1716.0	III		1	25	98	
			HOLL	2018.0	2018.0	III		1	25	144	
			PALE	2018.0	2018.0	III		1	25	180	
	2010	2400	CULG	2019.0	2019.0	III	G	1	20	200	
			CULG	2127.0	2127.0	III	B	1	20	70	
			CULG	2151.0	2151.0	III	B	1	23	45	
			HOLL	2216.0	2217.0	III		1	25	141	
	2045	2400	HIRA	2216.5	2217.0	III	B	1	25X	140	
			CULG	2217.0	2217.0	III	B	2	18	180	
			CULG	2253.0	2253.0	III	B	1	27	180	
			HIRA	2253.0	2253.5	III	B	1	90	200	
17	0000	0800	CULG	0117.0	0121.0	III	G	1	27	180	
	0000	0847	HIRA	0121.0	0121.5	III	B	1	80	150	
			CULG	0152.0	0152.0	III	B	1	27	90	
			CULG	0219.0	0219.0	III	G	3	18X	300	
			HIRA	0219.0	0219.5	III	B	1	25X	100	
			LEAR	0219.0	0219.0	III		2	25	180	
			PALE	0219.0	0219.0	III		1	25	155	
			CULG	0252.0	0257.0	III	G	3	18X	300	
			LEAR	0252.0	0256.0	III		2	25	180	
			HIRA	0253.0	0257.0	III	G	1	25X	300	
			PALE	0253.0	0257.0	III		1	25	176	
			CULG	0319.0	0507.0	III	N	1	20	180	
			LEAR	0319.0	0319.0	III		1	25	50	
			LEAR	0402.0	0402.0	III		1	25	47	
			CULG	0602.0	0602.0	III	B	1	20	200	
			HIRA	0602.0	0602.5	III	B	2	80	200	
	0700	1200	IZMI	0707.6	0707.7	III	B	1	45	90	
			CULG	0708.0	0708.0	III	B	1	30	130	
			CULG	0718.0	0719.0	III	G	1	20	180	
			HIRA	0718.0	0719.0	III	G	1	70	130	
			LEAR	0718.0	0719.0	III		1	65	180	
			IZMI	0718.2	0719.2	III	G	2	75	170	
			LEAR	0737.0	0738.0	III		1	25	180	
			SVTO	0737.0	0737.0	III		1	25	180	
			HIRA	0737.5	0738.0	III	B	2	25X	200	
	0458	1740	POTS	0737.6	0737.9	III	G	3	40X	400U	
			IZMI	0737.7	0737.9	III	G,HARM,C	2	25X	270	
			POTS	0737.7	0738.5	V	G,FS	3	40X	80	
			CULG	0738.0	0738.0	III	B	3	20	200	
			IZMI	0745.0U	1200.0D	I	N	1	110	250	
			LEAR	0806.0	0807.0	III		1	25	180	
			IZMI	0806.8	0807.8	III	G,C	2	25X	95	
			POTS	0806.8	0807.3	III	B	2	40X	400U	
			HIRA	0807.0	0807.5	III	B	1	30	110	
			SVTO	0807.0	0811.0	III		1	25	69	
			IZMI	0810.9	0811.1	III	B	1	25X	40	
			IZMI	0822.7	0823.7	III	G	1	45	85	
			POTS	0845.2	0948 U	I	S,N	2	200U	400U	
			LEAR	0918.0	0922.0	III		1	25	180	
			IZMI	0918.7	0923.3	III	GG	2	25X	190	
			POTS	0918.7	0922.6	III	GG	2	40X	270	
			SVTO	0919.0	0922.0	III		1	25	46	
			ONDR	0919.3	0926.1	DCIM	GG,W	1	800X	2000X	
	0621	1601	ONDR	0921.5	0924.1	DCIM	G	1	2000X	4500X	
			IZMI	0925.3	0926.6	III	G	1	50	160	
			LEAR	0929.0	0943.0	II		1	25	100	ESS 1207
			IZMI	0929.6	0943.5	II	G,HARM	2	25X	95	
			SVTO	0930.0	0943.0	II		1	25	82	ESS 0973
			POTS	0930.1	0943.3	II	UE,FS	2	40X	85U	
			IZMI	0930.4	0933.4	III	GG	2	28X	130	
			IZMI	0948.2	0953.1	III	GG	1	40	95	
			POTS	0948.2	0950.2	UNCLF		1	40X	60	
			IZMI	1134.2	1134.7	III	G	2	50	215	

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17		POTS	1134.2	1134.5	III	G	1	40	85U	
		POTS	1305	1343	I	S,N	1	200U	330	
		POTS	1419.8	1420.0	III	B	2	40X	85U	
2010	2400	CULG	2119.0	2142.0	III	N	1	20	57	
		CULG	2338.0	2338.0	III	B	2	20	180	
		HOLL	2338.0	2338.0	III		1	25	150	
		LEAR	2338.0	2338.0	III		1	25	180	
		PALE	2338.0	2338.0	III		1	25	150	
2044	2400	HIRA	2338.0	2338.5	III	B	1	25X	130	
18 0000	0848	HIRA								
0000	0800	CULG	0015.0	0800.0D	I	S	1	100	180	
		CULG	0515.0	0800.0D	III	S,C	1	35	130	
0458	1743	POTS	0602 U	1117 U	I	S,N	1	200U	380	
0618	1602	ONDR								
		IZMI	0700.0E	1050.0U	III	N	1	45	95	
0700	1200	IZMI	0700.0E	1200.0D	I	S	1	70	270X	
		POTS	0924.5	0925.7	III	G	1	40X	70	
		IZMI	0935.7	0942.1	III	GG	1	45	95	
		POTS	0946.5	0949.9	III	G	1	40X	75	
		POTS	1012.1	1012.2	III	B	1	40X	60	
		POTS	1022.7	1022.8	III	B	1	40X	80	
		POTS	1156	1229	I	S,N	1	200U	290	
		POTS	1308	1633	I	S,N	1	200U	300	
		POTS	1322.4	1322.5	III	B	1	40X	65	
		SVTO	1348.0	1349.0	III		1	25	40	
		POTS	1359.3	1359.5	III	B	1	40X	70	
		POTS	1413.6	1413.8	III	B	1	40X	55	
2010	2400	CULG								
2043	2400	HIRA								
19 0000	0849	HIRA								
0000	0800	CULG	0516.0	0707.0	III	N	1	50	180	
0455	1746	POTS	0554	1528 U	I	S,N	1	200U	320	
		LEAR	0602.0	0605.0	III		1	25	180	
		SVTO	0602.0	0605.0	III		1	48U	73U	
		POTS	0605.3	0605.5	III	B,RS	1	45	70	
0616	1604	ONDR								
		CULG	0643.0	0722.0	I	S	1	130	180	
0650	1200	IZMI	0650.0E	1200.0D	I	N	1	130	270	
		IZMI	0917.0	0923.5	III	N	1	45	95	
		IZMI	1043.0U	1200.0D	III	N	1	45U	95U	
		POTS	1102.4	1110.4U	III	GG,N	1	40X	65	
		POTS	1131.1	1140.4U	III	GG,N	1	40X	70	
		POTS	1225.7	1226.5	III	G	1	40X	65	
		POTS	1236.3	1236.5	III	B	2	40X	85U	
		POTS	1550	1705 U	I	S,N	1	200U	270	
2010	2400	CULG	2031.0	2400.0D	III	N	1	20	90	
2041	2400	HIRA								
		CULG	2130.0	2400.0D	I	S	1	130	180	
		CULG	2359.0	2359.0	III	B	1	60	180	
20		CULG	0000.0E	0351.0	I	S	1	120	180	
0000	0800	CULG	0000.0E	0800.0D	III	S	1	20	130	
		LEAR	0439.0	0447.0	III		1	25	180	
0000	0850	HIRA	0439.5	0440.0	III	B	1	80	200	
		CULG	0440.0	0440.0	III	G	1	23	200	
0614	1606	ONDR								
0452	1746	POTS	0628 U	0856 U	I	S,N	1	200U	300	
0700	1200	IZMI	0700.0E	1200.0D	III	N	1	25X	95U	
		POTS	0738	0813 U	III	GG,N	1	40X	75	
		IZMI	0742.5	0744.4	III	G	2	25X	95	
		HIRA	0744.0	0744.5	III	B	1	30	100	
		SVTO	0744.0	0744.0	III		1	25	74	
		IZMI	0745.0U	1200.0D	I	N	1	180	270	
		POTS	0859.4	0900.0	III	G	1	40X	70	
		SVTO	0924.0	0941.0	III	N	1	25	45	
		POTS	0924.7	0924.9	III	B	1	40X	60	
		POTS	1044 U	1150 U	I	S,N	1	200U	260	

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20			POTS	1049.4	1121.1	III	GG,N	1	40X	70	
			POTS	1137.6	1141.6	I	S,N	1	200U	240	
			POTS	1210.0	1210.1	III	B	2	40X	80	
			POTS	1256.6	1256.8	III	B	1	40X	85U	
			POTS	1449.8	1453.1	III	G	2	40X	400U	
			HOLL	1450.0	1451.0	III		1	25	130	
			SVTO	1450.0	1451.0	III		2	25	139	
			POTS	1450.1	1451.5	V	G	2	40X	65	
			HOLL	1906.0	0056.0	CONT		1	111	180	
	2010	2400	CULG	2010.0E	2400.0D	I	S,C	1	80	180	
	2039	2400	HIRA								
			CULG	2041.0	2319.0	III	N	1	20	90	
21	0000	0851	HIRA								
	0000	0800	CULG	0000.0E	0800.0D	I	S,C	1	100	180	
			SVTO	0512.0	0744.0	CONT		1	25U	180U	
	0612	1607	ONDR								
	0449	1749	POTS	0618.0	0622.8	DCIM		1	220	400U	
	0700	1200	IZMI	0845.0U	1200.0D	I	N	1	110U	270	
			SVTO	0942.0	1640.0	CONT		1	25U	180U	
			IZMI	0942.2	0954.2	III	G,C,FS	2	25X	270X	
			LEAR	0945.0	0946.0	III		1	25	147	
			POTS	0945.5	0951.8	III	GG	2	40X	400U	
			POTS	1007.0	1009.0	III	G	1	40X	55	
			IZMI	1007.1	1007.2	III	B	1	120	170	
			POTS	1109.0	1128	I	S,N	1	200U	380	
			POTS	1109.7	1110.1	III	G	1	40X	65	
			POTS	1206	1413	I	S,N	1	200U	360	
			POTS	1513 U	1623 U	I	S,N	1	200U	330	
			HOLL	2046.0	2047.0	III		1	25	49	
			PALE	2046.0	2046.0	III		1	25	85	
	2038	2400	HIRA	2046.5	2047.0	III	B	2	25X	120	
	2010	2400	CULG	2047.0	2047.0	III	B	1	23	80	
			LEAR	2304.0	0333.0	CONT		1	86	180	
			LEAR	2326.0	0954.0	CONT		1	75	180	
22	0000	0800	CULG								
	0000	0852	HIRA								
	0609	1609	ONDR								
	0650	0721	IZMI								
	0727	1200	IZMI								
	0449	1752	POTS	0753.7	0754.1	I	DC	1	230	280	
			POTS	1521	1541	I	S,N	1	210	330	
			POTS	1614	1620	I	S,N	1	220	280	
	2020	2400	CULG								
	2037	2400	HIRA								
23	0000	0853	HIRA								
	0000	0750	CULG	0229.0	0229.0	III	B	1	20	80	
			CULG	0500.0	0750.0D	I	S	1	130	180	
	0607	1611	ONDR								
	0706	1200	IZMI								
	0446	1752	POTS	0753 U	0810 U	I	S,N	1	200U	340	
			POTS	1049	1054	I	S,N	1	200U	350	
			POTS	1117.7	1118.5	DCIM		1	200U	400U	
			POTS	1124.3	1124.4	DCIM		1	230	310	
			POTS	1339.9	1347.5	DCIM		2	200U	400U	
			POTS	1522.6	1522.8	DCIM		1	210	310	
			POTS	1524.6	1525.2	I	S,N	1	210	250	
			POTS	1611.9	1613.3	III	G	2	50	330	
	2020	2400	CULG								
	2035	2400	HIRA								
24	0000	0750	CULG								
	0000	0854	HIRA								
	0446	1755	POTS	0708 U	0852 U	I	S,N	1	200U	310	
	0658	1200	IZMI	0752.7	0752.7	III	B	2	155	215	
			POTS	1103.0	1103.5	DCIM		1	200U	320	
			IZMI	1103.1	1103.1	III	G	1	180	270X	

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24			POTS	1342.9	1347.9	DCIM		2	200U	400U	
	0605	1612	ONDR	1420.0	1433.0	DCIM	GG	2	2000X	4500X	
			POTS	1420.2	1430.4	I	S,N,DC	2	200U	400U	
			ONDR	1420.3	1426.3	DCIM	GG	1	800X	2000X	
			HOLL	1421.0	1426.0	III		1	25	180	
			POTS	1421.0	1421.4	III	G	2	40X	380	
			SVTO	1421.0	1429.0	III		1	25	165	
			POTS	1424.3	1427.2	II	F,SH	2	70	350	
			POTS	1426.1	1426.8	III	G	1	40X	75	
			POTS	1453.4	1457.2	I	S,N	1	240	400U	
			HOLL	1454.0	1454.0	III		1	25	180	
			POTS	1454.0	1454.8	III	G	2	40X	85U	
			SVTO	1454.0	1454.0	III		1	25	146	
	2034	2400	HIRA								
	2020	2400	CULG	2126.0	2126.0	III	G	1	20	90	
			CULG	2301.0	2302.0	III	G	1	50	300	
25			LEAR	0157.0	0157.0	III		1	25	68	
	0000	0750	CULG	0157.0	0158.0	III	G	1	40U	140	
	0000	0854	HIRA	0157.0	0157.5	III	B	1	25X	50	
			HIRA	0234.5	0235.0	III	B	1	25X	110	
			CULG	0235.0	0235.0	III	B	1	27	150	
			CULG	0406.0	0406.0	III	B	1	20	140	
			CULG	0419.0	0421.0	III	G	1	20	180	
			LEAR	0419.0	0421.0	III		1	25	180	
			HIRA	0419.5	0420.5	III	G	1	25X	120	
			CULG	0455.0	0456.0	III	G	1	23	200	
			HIRA	0455.0	0455.5	III	B	1	25X	120	
			CULG	0605.0	0607.0	III	G	1	20	90	
	0443	1755	POTS	0616.4	0620.2	DCIM		1	200U	380	
			POTS	0706.2	0706.4	DCIM		1	220	320	
			POTS	0850.0	0850.4	III	G	2	50	350	
	0755	1200	IZMI	0850.1	0850.2	III	G,U,HARM	2	75	270X	
			SVTO	1023.0	1024.0	III		1	25	40	
			SVTO	1040.0	1040.0	III		1	25	45	
			IZMI	1040.4	1040.6	III	B	2	25X	145	
	0602	1614	ONDR	1202.2	1210.5	DCIM	G	1	2000X	4500X	
			POTS	1207.5	1217.8	IV	C	2	200U	450	
			HOLL	2155.0	2156.0	III		1	25	110	
	2020	2400	CULG	2155.0	2156.0	III	G	2	25	90	
	2032	2400	HIRA	2155.0	2156.5	III	G	1	25X	70	
26	0000	0750	CULG	0255.0	0257.0	III	G	2	20	200	
			LEAR	0256.0	0257.0	III		1	25	180	
	0000	0855	HIRA	0256.0	0257.0	III	G	1	25X	200	
			CULG	0456.0	0459.0	III	G	2	20	200	
			LEAR	0456.0	0459.0	III		1	25	180	
			HIRA	0456.5	0459.0	III	G	1	25X	200	
	0600	1615	ONDR								
	0443	1758	POTS	0811 U	1108 U	I	S,N	1	200U	350	
			POTS	0830.2	0833.0	III	GG	2	40X	370	
	0700	1200	IZMI	0830.2	0833.7	III	GG	2	25X	255	
			HIRA	0831.0	0833.0	III	G	1	30	210	
			SVTO	0831.0	0833.0	III		1	25	180	
			LEAR	0832.0	0832.0	III		1	25	180	
			IZMI	1011.0	1014.2	III	GG	2	25X	270X	
			SVTO	1011.0	1015.0	III		2	25	180	
			POTS	1011.2	1015.7	III	GG	3	40X	370	
			IZMI	1014.9	1015.7	III	G	1	25X	95	
			POTS	1602	1617	I	S,N	1	230	300	
	2020	2400	CULG								
	2030	2400	HIRA								
27	0000	0750	CULG								
	0000	0856	HIRA								
	0440	1758	POTS								
	0558	1617	ONDR								
	0700	1200	IZMI	1155.4	1155.9	III	G	1	45	90	
	2029	2400	HIRA								

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27	2020	2400	CULG	2115.0	2115.0	III	B	1	150	200	
			CULG	2319.0	2400.0	I	S	1	100	180	
28	0000	0857	HIRA								
	0000	0740	CULG	0000.0E	0131.0	I	S	1	100	180	
			CULG	0347.0	0404.0	CONT		1	100	800	
			CULG	0415.0	0415.0	III	B	1	65	140	
			CULG	0440.0	0544.0	III	S,C	1	25	140	
	0556	1619	ONDR								
	0437	1801	POTS	0644.2	0648.7	DCIM		2	220	400U	
			POTS	0842.8	0842.9	DCIM		1	300	400U	
			POTS	0922.3	0922.9	DCIM		1	250	400U	
			POTS	1021	1104	I	S,N	1	200U	300	
	0600	1200	IZMI	1035.8	1038.9	III	G	1	150	250	
			IZMI	1041.9	1050.3	III	N	1	110	175	
			IZMI	1052.0	1145.0U	I	N	1	110	170	
			IZMI	1052.7	1052.9	III	G	1	110	155	
			POTS	1159	1443 U	I	S,N	1	200U	300	
			POTS	1226.0	1227.6	III	GG	2	40X	80	
			SVTO	1226.0	1226.0	III		1	25	164	
			POTS	1258.5	1259.5	DCIM		2	220	400U	
			POTS	1405.6	1406.0	DCIM		2	230	400U	
			POTS	1630.4	1632.3	DCIM		1	250	400U	
			HOLL	1725.0	1726.0	III		1	25	47	
			PALE	1922.0	1922.0	III		1	25	62	
			HOLL	2133.0	2133.0	III		1	25	175	
			PALE	2133.0	2133.0	III		1	25	64	
	2028	2400	HIRA	2133.0	2134.0	III	B	2	25X	200	
	2030	2400	CULG	2133.0	2134.0	III	G	3	20	200	
			CULG	2309.0	2310.0	III	G	1	20	80	
			CULG	2322.0	2322.0	III	B	1	27	90	
			HIRA	2322.0	2322.5	III	B	1	25X	80	
29	0000	0740	CULG	0014.0	0015.0	III	G	1	27	90	
			CULG	0017.0	0017.0	III	B	3	23	160	
			HOLL	0017.0	0017.0	III		1	25	90	
			LEAR	0017.0	0017.0	III		1	25	180	
			PALE	0017.0	0017.0	III		1	25	125	
	0000	0858	HIRA	0017.0	0017.5	III	B	2	25X	200	
			CULG	0131.0	0131.0	III	G	1	23	80	
			LEAR	0258.0	0321.0	III	N	1	25	124	
			CULG	0304.0	0304.0	III	B	1	40	160	
			CULG	0321.0	0321.0	III	B	2	25	160	
			HIRA	0321.0	0321.5	III	B	1	30	110	
			CULG	0423.0	0423.0	III	B	1	100	200	
			HIRA	0423.0	0423.5	III	B	1	120	270	
			HIRA	0429.5	0430.0	III	B	1	200	300	
			CULG	0430.0	0430.0	III	B	1	20	280	
			CULG	0455.0	0508.0	III	GG	2	23	200	
			LEAR	0500.0	0505.0	III		1	25	180	
			HIRA	0501.0	0505.5	III	G	1	30	300	
			SVTO	0504.0	0505.0	III		1	25	71	
	0437	1801	POTS	0602.8	0611.4	DCIM		2	200U	370	
	0600	1200	IZMI	0602.8	0603.0	III	G	2	130	270X	
			IZMI	0609.0	0611.3	III	GG	2	180	270X	
			IZMI	0630.5	0630.9	II	G	1	195	270X	
			POTS	0630.6	0630.9	DCIM		1	200U	310	
			SVTO	0736.0	0736.0	III		1	25	73	
			IZMI	0754.4	0757.6	III	GG,HARM	2	45U	270X	
			POTS	0754.5	0757.8	III	GG	2	40X	380	
			POTS	0832	0913	I	S,N	2	220	400	
			IZMI	0841.5	0844.0	III	G	1	110	165	
			IZMI	0851.0U	1200.0D	I	N	2	110U	270X	
			POTS	0945.7	0946.1	DCIM		1	200U	340	
			IZMI	0946.0	0953.6	III	GG,FS	2	40	270X	
			SVTO	0947.0	0947.0	III		1	25	153	
			POTS	0947.4	0948.1	III	G,U	2	40X	400U	
			IZMI	1021.8	1022.1	III	G	1	115	175	
			POTS	1027	1629 U	I	S,N,DC	2	200U	400	

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29		IZMI	1031.4	1032.7	III	G	1	160	270X	
		POTS	1031.4	1032.8	DCIM		1	200	380	
		IZMI	1034.0	1035.3	I	GG,DC	2	230	260	
		IZMI	1128.0	1132.5	III	GG,DC	2	80U	270X	
		SVTO	1146.0	1147.0	III		1	25	163	
		POTS	1146.4	1147.3	III	G	2	40X	260	
		IZMI	1146.6	1148.4	III	GG,C	2	45	270X	
		POTS	1219.0	1219.8	III	G	2	45	330	
		SVTO	1219.0	1219.0	III		1	112	153	
		POTS	1237.6	1253.7	III	GG	3	40X	380	
		SVTO	1244.0	1248.0	III		1	25	180	
		POTS	1244.3	1244.9	V	G	3	40X	70	
		SVTO	1250.0	1253.0	III		1	25	180	
		ONDR	1252.1	1303.2	DCIM	GG	2	800X	2000X	
	0554 1620	ONDR	1252.1	1304.1	DCIM	G	1	2000X	4500X	
		POTS	1302.0	1302.5	III	G	2	40X	300	
		SVTO	1302.0	1302.0	III		1	25	180	
		POTS	1320.1	1323.1	III	GG	3	40X	320	
		HOLL	1322.0	1322.0	III		1	47	168	
		SVTO	1322.0	1323.0	III		1	25	163	
		HOLL	1350.0	1620.0	III	N	2	25	180	
		SVTO	1350.0	1355.0	III		1	25	83	
		POTS	1350.7	1400.3	III	GG,N	3	40X	320	
		SVTO	1400.0	1400.0	III		1	25	83	
		POTS	1451.6	1457.1	III	G,U	2	40X	400U	
		SVTO	1452.0	1457.0	III		1	25	83	
		SVTO	1528.0	1531.0	III		1	25	166	
		POTS	1528.8	1531.6	III	G,RS	2	40X	85U	
		SVTO	1541.0	1542.0	III		1	25	180	
		POTS	1541.7	1558.1	III	GG,U,RS	3	40X	500U	
		SVTO	1547.0	1558.0	III		1	25	180	
		ONDR	1547.1	1554.0	DCIM	GG	2	800X	2000X	
		ONDR	1547.4	1556.1	DCIM	GG	2	2000X	4500X	
		POTS	1548.5	1550.2	V	G	3	40X	75	
		POTS	1620.6	1621.0	III	G	1	40X	85U	
		HOLL	1713.0	1714.0	III		1	25	131	
		POTS	1713.8	1714.1	III	G	1	40X	85U	
		HOLL	1731.0	1733.0	III		1	25	170	
		PALE	1731.0	1733.0	III		1	25	180	
		POTS	1731.8	1732.1	III	G	1	40X	80	
		HOLL	1756.0	1900.0	III	N	1	25	133	
		HOLL	1932.0	2020.0	III	N	2	25	180	
		HOLL	1957.0	2000.0	V		2	25	180	
		PALE	1957.0	2000.0	III		2	25	180	
	2027 2400	HIRA	2051.5	2103.5	III	G	3	25X	360	
	2030 2400	CULG	2052.0	2400.0D	III	N	1	23	180	
		HOLL	2054.0	2344.0	III	N	1	25	180	
		CULG	2059.0	2100.0	III	G	3	18	200	
		CULG	2102.0	2104.0	III	G	3	18	300	
		HIRA	2108.5	2124.0	III	G	1	25X	140	
		CULG	2131.0	2133.0	III	G	3	18X	280	
		HIRA	2131.0	2134.0	III	G	2	25X	300	
		CULG	2146.0	2146.0	III	G	2	20	450	
		HIRA	2146.0	2146.5	III	B	1	25X	200	
		HIRA	2224.0	2231.0	III	G	1	25X	650	
		CULG	2226.0	2231.0	III	G	3	18	180	
		CULG	2309.0	2311.0	III	G	3	18X	750	
		HIRA	2309.0	2312.0	III	G	3	25X	700	
		HOLL	2309.0	2311.0	V		2	25	180	
		LEAR	2309.0	0217.0	III	N	1	25	180	
		LEAR	2309.0	2311.0	V		2	25	180	
		PALE	2309.0	2310.0	V		2	25	180	
		CULG	2321.0	2331.0	III	GG	3	18X	800	
		HIRA	2321.0	2331.0	III	G	3	25X	1200	
		LEAR	2321.0	2329.0	III		2	25	180	
		CULG	2342.0	2343.0	III	G	3	20	200	
		HIRA	2342.5	2343.0	III	B	2	25X	110	
30	0000 0730	CULG	0000.0E	0730.0D	III	N	2	18	300	

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

MARCH 2004

OBSERVATION Day	Start (UT)	End (UT)	Sta	EVENT Start (UT)	End (UT)	Spectral Class	Event Remarks	Int (1-3)	FREQUENCY Lower (MHz)	Upper (MHz)	Remarks
30			CULG	0048.0	0050.0	III	G	3	18	180	
	0000	0859	HIRA	0048.0	0049.5	III	G	2	25X	200	
			HIRA	0127.5	0128.0	III	B	1	25X	80	
			HIRA	0144.0	0201.0	III	G	3	25X	700	
			CULG	0147.0	0201.0	III	GG	3	18X	800	
			PALE	0152.0	0154.0	V		2	25	180	
			CULG	0307.0	0316.0	III	GG	3	18X	180	
			HIRA	0307.0	0316.5	III	G	2	25X	310	
			LEAR	0307.0	0946.0	III	N	2	25	180	
			CULG	0345.0	0347.0	III	G	3	18X	230	
			HIRA	0345.0	0354.5	III	G	2	25X	400	
			CULG	0350.0	0353.0	III	G	3	18X	280	
			HIRA	0419.5	0421.0	III	G	1	30	320	
			HIRA	0503.0	0503.5	III	B	1	25X	120	
			SVTO	0503.0	1000.0	III	N	2	25	180	
	0434	1804	POTS	0503.1	0533.3	III	GG,N	3	40X	360	
			CULG	0512.0	0527.0	III	GG	3	18	700	
			HIRA	0512.0	0527.0	III	G	3	25X	600	
			HIRA	0543.0	0548.5	III	G	1	30	600	
			POTS	0543.3	0549.8	DCIM		2	320	400U	
			SVTO	0544.0	0545.0	III		1	28	160	
			POTS	0544.3	0609.8	III	GG,N	2	40X	370	
			IZMI	0554.7	0555.0	III	B	2	45	90	
	0555	1200	IZMI	0555.0E	1200.0D	I	N	2	80	260	
			IZMI	0559.9	0609.7	III	GG	2	25X	270X	
			IZMI	0615.9	0616.1	III	G	2	25X	170	
			POTS	0615.9	0616.1	III	B	2	40X	85U	
			POTS	0623.9	0624.4	I	DC	1	330	360	
			IZMI	0646.5	0647.2	III	G	1	25X	175	
			POTS	0646.7	0702.7	III	GG,N	2	40X	370	
			IZMI	0653.1	0704.5	III	GG	2	25X	270X	
			HIRA	0656.5	0658.5	III	G	1	25X	210	
			POTS	0732.5	0748.9	DCIM		2	250	470	
			POTS	0733.7	0755	I	S,N,DC	2	200U	330	
			IZMI	0742.6	0743.5	III	G	1	25X	95	
			POTS	0742.9	0800.7	III	GG,N	2	40X	75	
			IZMI	0752.3	0752.6	III	G	2	25X	65	
			IZMI	0759.3	0800.7	III	G	1	25X	140	
			POTS	0805	0856	I	S,N	1	200U	330	
			IZMI	0812.9	0813.1	III	B	2	25X	270	
			POTS	0812.9	0816.6	III	GG	2	40X	230	
			IZMI	0815.8	0816.5	III	GG,FS	2	25X	130	
			POTS	0831.4	0845.3	III	GG,N	2	40X	85U	
			HIRA	0831.5	0833.0	III	G	1	30	150	
			IZMI	0831.5	0833.0	III	G	2	25X	160	
			IZMI	0841.5	0845.3	III	G	1	25X	175	
			IZMI	0854.1	0855.0	III	G	2	25X	175	
			POTS	0854.1	0855.0	III	GG	2	40X	85U	
			POTS	0914.2	0932.8	III	GG,N	2	40X	360	
			IZMI	0921.0	0921.6	III	G	2	25X	270X	
			POTS	0926.3	0930.8	I	S,N,DC	1	260	380	
			IZMI	0926.9	0928.3	III	G	2	25X	95	
			IZMI	0932.5	0933.0	III	G	1	25X	160	
			POTS	0939.6	0943.4U	I	S,N	1	200U	400U	
			IZMI	0943.4	0947.6	III	GG,C	2	25X	270X	
			POTS	0943.4	0955.7	IV	FS	3	40X	650U	
			SVTO	0944.0	0953.0	III		3	25	180	
			ONDR	0944.4	0954.1	DCIM	GG,SP	3	800X	2000X	
	0552	1622	ONDR	0944.4	0955.2	DCIM	GG	2	2000X	4500X	
			IZMI	0948.2	0955.6	III	GG,C	2	25X	270X	
			IZMI	0957.6	0958.1	III	G	1	30	270X	
			POTS	0957.6	1003.8	III	GG,N	2	40X	400U	
			IZMI	1000.2	1000.6	III	G	2	40	270X	
			IZMI	1001.7	1003.9	III	G	1	55	160	
			POTS	1039	1042	I	S,N	1	220	360	
			POTS	1104	1113	I	S,N	1	200	330	
			SVTO	1105.0	1650.0	III	N	1	25	150	
			POTS	1105.3	1115.7	III	G,N	2	40X	85U	
			IZMI	1105.5	1107.6	III	G	2	25X	170	

SOLAR RADIO EMISSION
Spectral Observations

MARCH 2004

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
30		IZMI	1112.7	1113.1	III	G	1	200	270X	
		IZMI	1115.3	1115.8	III	B	2	25X	160	
		POTS	1130.2	1132.1	III	G	1	40X	85U	
		IZMI	1130.3	1132.1	III	G	1	25X	95	
		IZMI	1143.8	1153.4	III	GG	2	25X	190	
		POTS	1145.7	1205.3	III	GG,N	2	40X	85U	
		POTS	1148.2	1206	I	S,N	1	200U	390	
		IZMI	1159.6	1159.7	III	G	2	200	270X	
		POTS	1224.3	1230.0	III	GG,N	2	40X	360	
		POTS	1237 U	1255 U	I	S,N	1	200U	300	
		SVTO	1255.0	1303.0	III		3	25	180	
		POTS	1255.3	1303.2	IV	FS	3	40X	570	
		ONDR	1256.2	1303.0	DCIM	GG	2	2000X	4500X	
		ONDR	1256.2	1304.5	DCIM	GG,SP	2	800X	2000X	
		POTS	1304 U	1321 U	I	S,N	1	200U	390	
		POTS	1309.5	1309.6	III	B	1	40X	65	
		HOLL	1405.0	1409.0	III		2	25	180	
		POTS	1405.6	1409.3	III	GG	3	40X	85U	
		SVTO	1407.0	1410.0	III		2	25	180	
		POTS	1407.5	1409.8	V	G	3	40X	65	
		HOLL	1435.0	1437.0	III		1	25	142	
		POTS	1435.3	1437.1	III	G	2	40X	310	
		POTS	1453.8	1511.1	III	GG,N	2	40X	300	
		SVTO	1455.0	1456.0	III		2	25	172	
		POTS	1455.6	1456.4	V	G	2	40X	60	
		HOLL	1506.0	1511.0	III		1	25	123	
		POTS	1510	1658 U	I	S,N	1	200U	380	
		HOLL	1531.0	1536.0	III		1	25	132	
		POTS	1531.9	1536.2	III	G,N	2	40X	350	
		POTS	1547.3	1547.5	III	B	1	40X	70	
		HOLL	1558.0	1900.0	CONT		1	101	180	
		HOLL	1610.0	2000.0	III	N	1	25	138	
		POTS	1618.9	1624.2	III	G,N	2	40X	85U	
		POTS	1634.3	1634.6	III	G	2	40X	85U	
		PALE	1657.0	1701.0	III		1	25	92	
		POTS	1657.5	1701.3	III	G	2	40X	85U	
		PALE	1729.0	0030.0	III	N	1	25	180	
		POTS	1729.0	1729.1	III	B	1	40X	85U	
		CULG	2030.0E	2141.0	III	N	3	20	200	
	2030 2400	CULG	2030.0E	2400.0D	I	S	1	130	180	
		HOLL	2034.0	2305.0	III	N	1	25	180	
	2025 2400	HIRA	2034.0	2038.0	III	G	2	25X	210	
		HIRA	2050.0	2100.0	III	G	2	25X	170	
		HIRA	2114.0	2117.5	III	G	2	25X	210	
		HIRA	2130.0	2140.5	III	G	2	25X	300	
		CULG	2202.0	2202.0	III	B	1	25	180	
		HIRA	2202.0	2202.5	III	B	1	25X	50	
		HIRA	2247.0	2305.0	III	G	2	25X	400	
		CULG	2248.0	2308.0	III	N	3	20	300	
		LEAR	2310.0	0944.0	CONT		1	49	180	
		CULG	2312.0	2400.0D	III	S,C	1	30	180	
31		CULG	0000.0E	0242.0	III	S,C	1	30	180	
	0000 0730	CULG	0000.0E	0336.0	I	S	1	130	180	
		CULG	0309.0	0310.0	III	G	1	25	160	
	0000 0900	HIRA	0309.0	0309.5	III	B	1	25X	100	
		HIRA	0318.5	0319.0	III	B	1	25X	130	
		CULG	0319.0	0319.0	III	B	1	27	150	
		CULG	0353.0	0405.0	III	GG	1	100	420	
		CULG	0451.0	0456.0	III	G	2	27	180	
		LEAR	0451.0	0454.0	III		1	25	180	
		HIRA	0451.5	0455.0	III	G	1	25X	130	
		CULG	0457.0	0730.0D	I	S	1	100	200	
	0434 0710	POTS	0524	1130 U	I	S,N	2	200U	350	
		LEAR	0532.0	0533.0	III		1	25	145	
		SVTO	0532.0	0533.0	III		1	25	75	
		POTS	0532.9	0533.5	III	G	2	40X	85U	
		CULG	0533.0	0534.0	III	G	1	27	140	
		HIRA	0533.0	0533.5	III	G	1	25X	170	

SOLAR RADIO EMISSION
Spectral Observations

MARCH 2004

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
31	0550	1623	ONDR								
	0554	1200	IZMI	0554.0E	1200.0D	I	S	2	50	270X	
			LEAR	0556.0	0658.0	III	N	1	25	180	
			SVTO	0556.0	0602.0	III		1	25	157	
			HIRA	0556.5	0557.0	III	B	2	50	150	
			IZMI	0556.6	0557.1	III	G,C	2	25X	250	
			POTS	0556.7	0602.0	III	G,N	2	40X	85U	
			CULG	0557.0	0658.0	III	N	1	20	180	
			CULG	0600.0	0603.0	III	G	1	20	1000	
			HIRA	0600.5	0602.0	III	G	2	60	1300	
			IZMI	0600.7	0602.1	III	GG,C	2	45	270X	
			SVTO	0621.0	0721.0	III	N	1	25	150	
			HIRA	0621.5	0625.5	III	G	1	30	170	
			IZMI	0621.5	0628.0	III	GG,C	2	25X	250	
			POTS	0621.6	0642.0	III	GG,N	2	40X	85U	
			CULG	0622.0	0622.0	III	B	3	23	180	
			IZMI	0630.5	0636.8U	III	GG,C	2	25X	160	
			HIRA	0632.5	0634.0	III	G	1	30	120	
			CULG	0633.0	0633.0	III	B	3	23	150	
	0711	0932	POTS								200-400MHz no data
			SVTO	0834.0	0834.0	III		1	25	45	
	0933	1808	POTS	0842.0	0846.7	III	G,N	1	40X	85U	
			LEAR	0843.0	0944.0	III	N	1	25	131	
			SVTO	0843.0	0917.0	III	N	1	25	49	
			POTS	0857	0920 U	I	S,N,C	2	40X	85U	
			POTS	0927.1	0927.3	III	B	1	40X	80	
			SVTO	1002.0	1003.0	III		1	25	40	
			SVTO	1032.0	1651.0	CONT		1	25U	180U	
			SVTO	1038.0	1424.0	III	N	2	25	180	
			IZMI	1038.7	1039.5	III	G	1	25X	85	
			POTS	1038.7	1048.3	III	G,N	2	40X	85U	
			IZMI	1048.2	1048.4	III	G	1	25X	95	
			IZMI	1106.4	1107.2	III	G	2	25X	85	
			POTS	1106.4	1107.1	III	G	1	40X	85U	
			IZMI	1121.3	1121.6	III	G	2	60	270X	
			POTS	1121.4	1126.0	III	G,N	2	40X	320	
			IZMI	1125.8	1126.1	III	B	2	25X	90	
			POTS	1130 U	1720 U	I	S,N,C	2	40X	400U	
			POTS	1148	1431 U	III	GG,N	2	40X	400U	
			IZMI	1149.3	1155.4	III	GG	2	25X	270X	
			IZMI	1158.5	1200.2	III	G	2	25X	240	
			HOLL	1326.0	0104.0	CONT		1	68	180	
			HOLL	1339.0	1340.0	III		1	25	78	
			SVTO	1513.0	1515.0	III		1	25	180	
			HOLL	1542.0	1543.0	III		1	25	167	
			SVTO	1542.0	1543.0	III		1	25	162	
			HOLL	1750.0	0104.0	III	N	1	25	180	
			PALE	1815.0	1816.0	III		1	25	180	
			PALE	2004.0	2006.0	III		2	25	180	
			CULG	2030.0E	2400.0D	III	N	1	23	90	
	2030	2400	CULG	2030.0E	2400.0D	I	S,C	1	50	130	
			CULG	2243.0	2243.0	III	B	3	18	100	
			PALE	2243.0	2243.0	III		1	25	144	
	2024	2400	HIRA	2243.0	2243.5	III	B	2	25X	150	
			LEAR	2313.0	0944.0	CONT		1	72	180	
			HIRA	2327.0	2330.5	III	G	1	25X	140	
			LEAR	2327.0	0205.0	III	N	1	25	129	
			CULG	2329.0	2329.0	III	B	3	20	90	

SOLAR RADIO NOISE STORM AT 164 MHZ

FROM NANÇAY RADIOHELIOGRAPH

MARCH 2004

	HELIOGRAPHICS POSITIONS MEAN VALUES[1]		IMP[2]	OBSERVING TIME[3]	
DAY	E-W	S-N		START(UT)	END(UT)
01/03/04	+1.33	+0.29	I	8H55 E	15H33 D
04/03/04	+0.32	-0.19	II	11H33 E	15H33 D
05/03/04	-0.50	-0.10	III	9H54 E	15H33 D
05/03/04	+0.61	-0.10	III	9H54 E	15H33 D
08/03/04	-0.63	-0.10	II	8H32 E	15H32 D
09/03/04	-0.42	-0.14	III	10H34 E	15H32 D
10/03/04	-0.20	-0.03	V	8H55 E	15H31 D
11/03/04	-0.02	-0.05	V	9H58 E	15H31 D
12/03/04	+0.25	-0.07	IV	8H38 E	15H31 D
15/03/04	+1.01	-0.16	I	8H30 E	15H30 D
17/03/04	-1.19	+0.12	II	10H26 E	14H02 D
19/03/04	-0.78	-0.09	I	8H31 E	15H24 D
20/03/04	-0.53	-0.10	I	9H57 E	15H29 D
21/03/04	-0.32	+0.10	I	8H28 E	15H28 D
23/03/04	-0.18	+0.65	I	9H24 E	15H28 D
23/03/04	+0.19	+0.11	I	9H24 E	15H28 D
26/03/04	-1.07	+0.31	I	9H17 E	11H40
27/03/04	-0.99	-0.38	I	8H26 E	13H40
28/03/04	-0.67	+0.09	II	8H26 E	15H26 D
29/03/04	-0.55	+0.06	III	8H26 E	15H26 D
29/03/04	-0.49	+0.41	II	8H26 E	15H26 D
30/03/04	-1.02	-0.34	II	8H26 E	15H26 D
30/03/04	-0.51	+0.33	II	8H26 E	15H26 D
30/03/04	-0.21	+0.11	II	8H26 E	15H26 D
30/03/04	-0.03	+0.69	II	8H26 E	15H26 D
31/03/04	-0.01	+0.24	II	8H25 E	15H25 D
31/03/04	+0.47	+0.50	II	8H25 E	12H09
31/03/04	+0.45	+0.16	V	12H57	15H25 D

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

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

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

SOLAR RADIO NOISE STORM AT 327 MHZ
FROM NANÇAY RADIOHELIOGRAPH

MARCH 2004

DAY	HELIOGRAPHICS POSITIONS MEAN VALUES[1]		IMP[2]	OBSERVING TIME[3]	
01/03/04	+1.18	+0.24	I	8H55 E	15H33 D
04/03/04	+0.29	-0.18	II	11H33 E	15H33 D
05/03/04	-1.20	-0.20	I	9H54 E	15H33 D
05/04/03	-0.39	-0.10	I	9H54 E	15H33 D
05/04/03	+0.57	-0.10	II	9H54 E	15H33 D
07/03/04	-0.78	-0.10	I	8H32 E	15H32 D
08/03/04	-0.65	-0.10	II	8H32 E	15H32 D
09/03/04	-0.48	-0.16	III	10H34 E	15H32 D
10/03/04	-0.25	-0.09	III	8H55 E	15H31 D
11/03/04	-0.04	-0.10	IV	9H58 E	15H31 D
12/03/04	+0.23	-0.03	III	8H38 E	15H31 D
17/03/04	-1.04	-0.04	I	10H26 E	14H02 D
19/03/04	-0.71	-0.01	I	8H31 E	15H24 D
20/03/04	-0.45	-0.05	I	9H57 E	15H29 D
20/03/04	-0.38	+0.39	I	13H14	15H29 D
21/03/04	-0.60	+0.44	I	8H28 E	15H28 D
21/03/04	-0.28	+0.06	I	8H28 E	15H28 D
23/03/04	-0.43	+0.45	I	9H24 E	15H28 D
23/03/04	+0.24	+0.13	I	9H24 E	15H28 D
26/03/04	-1.08	-0.31	I	9H17 E	15H25 D
26/04/03	+0.29	+0.49	I	9H17 E	15H25 D
27/03/04	-0.93	+0.34	I	8H26 E	15H26 D
27/03/04	-0.89	-0.32	I	8H26 E	13H53
27/03/04	+0.58	+0.44	I	8H26 E	15H26 D
28/03/04	-0.88	+0.26	I	8H26 E	11H21
28/03/04	-0.46	+0.03	I	8H26 E	11H21
28/03/04	-0.54	+0.28	I	11H20	15H26 D
29/03/04	-1.08	-0.31	I	8H26 E	11H55
29/03/04	-0.21	+0.06	II	11H41	15H26 D
29/03/04	-0.35	+0.35	I	8H26 E	15H26 D
30/03/04	-0.97	-0.26	I	8H26 E	15H26 D
30/03/04	-0.49	+0.40	I	8H26 E	15H26 D
30/03/04	-0.37	+0.25	I	8H26 E	15H26 D
30/03/04	-0.08	+0.31	I	8H26 E	15H26 D
31/03/04	-0.87	-0.21	I	8H25 E	14H40
31/03/04	-0.10	+0.38	II	8H25 E	15H25 D
31/03/04	+0.27	+0.33	II	8H25 E	15H25 D
31/03/04	+0.30	+0.54	II	8H25 E	15H25 D

02, 03, 06, 13, 14, 16, 22, 24, 25: 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 mode detailed analysis, leading to increase uncertainties in the deviation , the positions which are indicated are estimated within 0.2 R

** Following a large burst

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

**** no flux measurements available

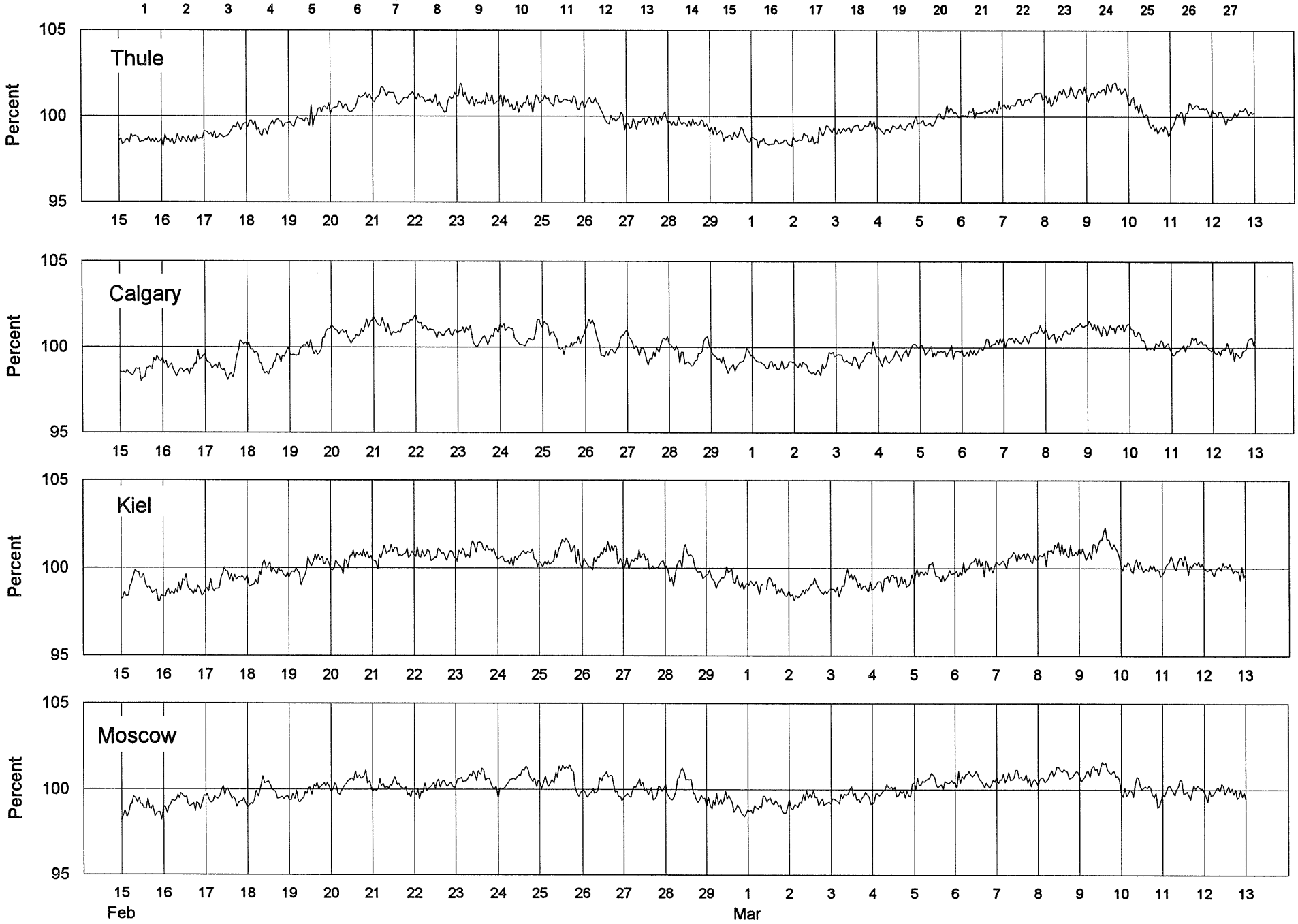
COSMIC RAY INDICES
(Neutron Monitor)
March 2004

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	4054.0	3620.8	5739.2(23)	8399.8	3851.0	2008.8	3457.9
2	4069.4	3617.7	5724.5	8424.6	3853.0	2013.9	3457.9
3	4087.5	3634.3	5746.5	8442.7	3851.4	2012.9	3458.4
4	4089.7	3640.8	5755.9	8465.7	3860.9	2019.6	3476.2
5	4112.4	3647.0	5783.1	8516.5	3881.8	2030.4	3493.6
6	4126.0	3655.2	5803.8	8531.0	3868.8	2026.0	3506.2
7	4152.0	3677.8	5831.9	8535.0	3879.3	2025.6	3522.4
8	4167.2	3689.3	5852.6	8553.6	3877.0	2029.5	3525.6
9	4176.2	3698.0	5871.1	8566.5	---	2039.1	3526.6
10	4111.5	3669.7	5802.9	8471.5	---	2024.6	3505.7
11	4123.8	3658.3	5813.5	8479.6	---	2023.3	3489.0
12	4121.2	3651.5	5795.8	8468.3	---	2018.8	3496.4
13	4124.0	3664.8	5795.5	8461.0	---	2017.0	3498.7
14	4137.9	3677.0	5800.0	8474.0	---	2023.0	3509.3
15	4135.9	3685.5	5791.5	8506.5	---	2023.5	3518.7
16	4142.6	3675.0	5773.7	8487.5	---	2022.1	3517.0
17	4142.0	3677.3	5786.5	8527.8	3874.1(14)	2035.0	3517.8
18	4151.7	3685.5	5815.8	8548.7	3892.4	2036.4	3518.2
19	4160.8	3693.5	5813.8	8569.2	3900.5	2032.5	3511.8
20	4145.0	3696.8	5824.4	8569.9(18)	3871.7	2030.7	3518.2
21	4155.1	3695.3	5833.4	8605.6	3887.7	2035.1	3531.9
22	4149.0	3698.0	5837.0	8594.9	3900.4	2035.2	3534.5
23	4146.3	3698.0	5863.1	8565.7	3918.6	2035.9	3534.5
24	4160.6	3706.3	5866.2	8555.0	3925.5	2037.4	3529.1
25	4157.4	3713.3	5850.1	8558.6	3912.7	2031.4	3522.2
26	4158.0	3696.7	5853.5	8580.5	3924.5	2018.7	3508.7
27	4156.2	3695.7	5834.6	8572.2	3932.1	2011.7	3507.5
28	4148.0	3693.2	5824.0	8554.7	3925.2	2007.4	3516.1
29	4143.0	3688.3	5801.9	8545.2	3899.7	2003.7	3512.8
30	4152.7	3687.2	5809.8	8547.7	3912.1	2013.4	3508.5
31	4152.9	3682.0	5815.3	8583.2	3913.1	2013.3	3499.5
Mean	4135.0	3676.5	5810.0	8524.6	3893.2	2023.7	3507.5

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 2328 - Beginning 15 Feb 2004



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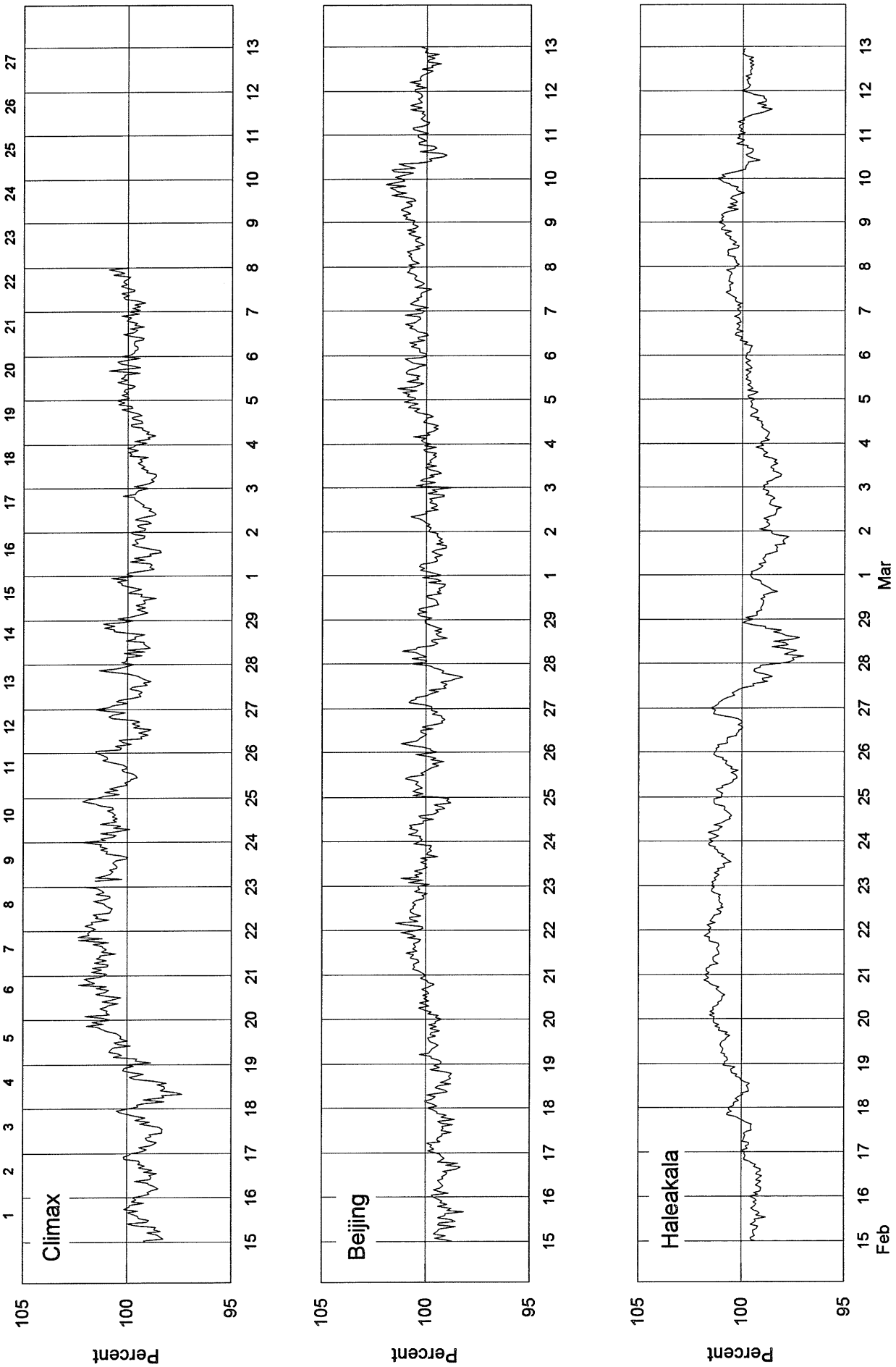
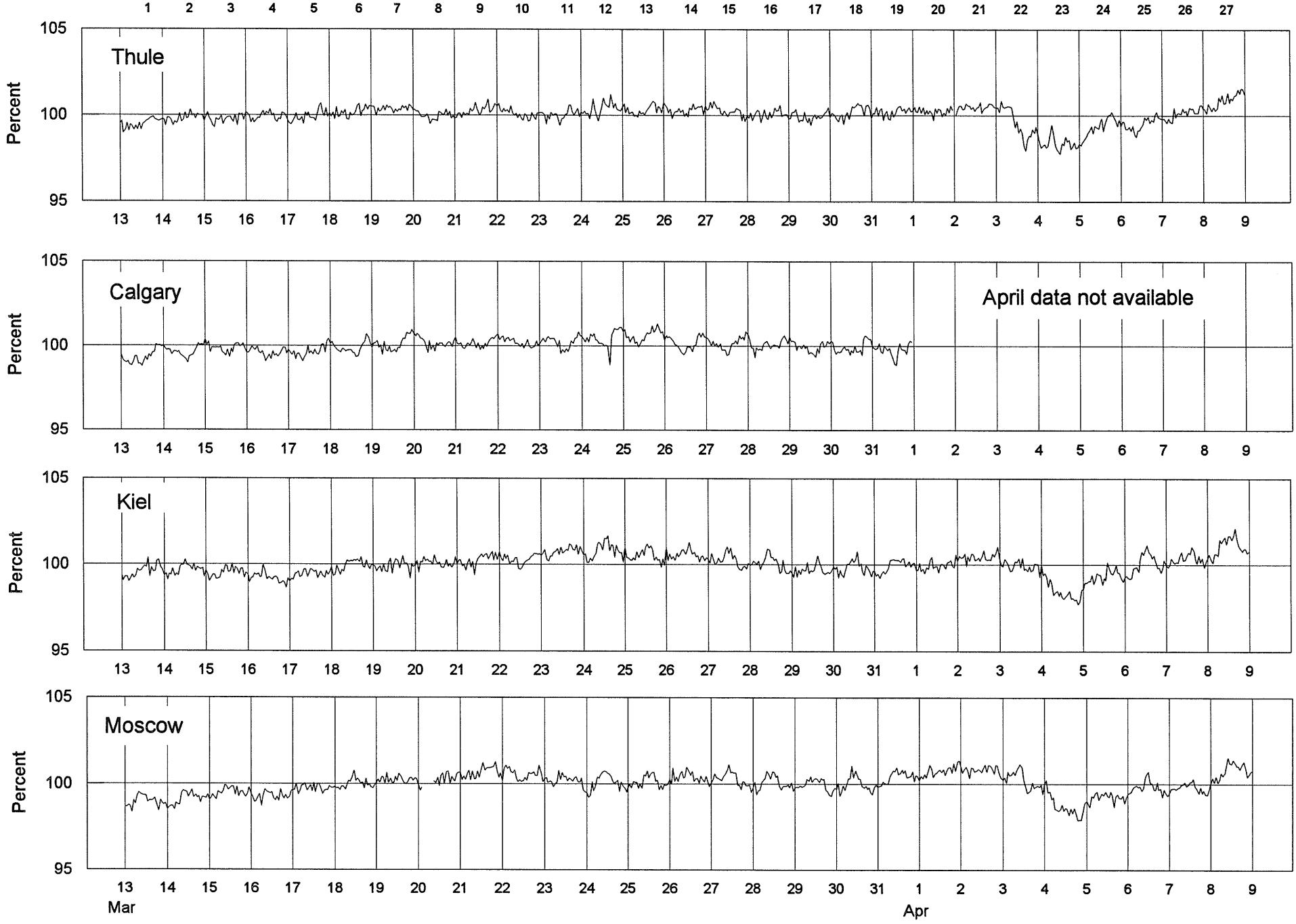
Mar 04

COSMIC RAY INDICES
(Neutron Monitor)
Bartels Rotation 2328 - Beginning 15 Feb 2004



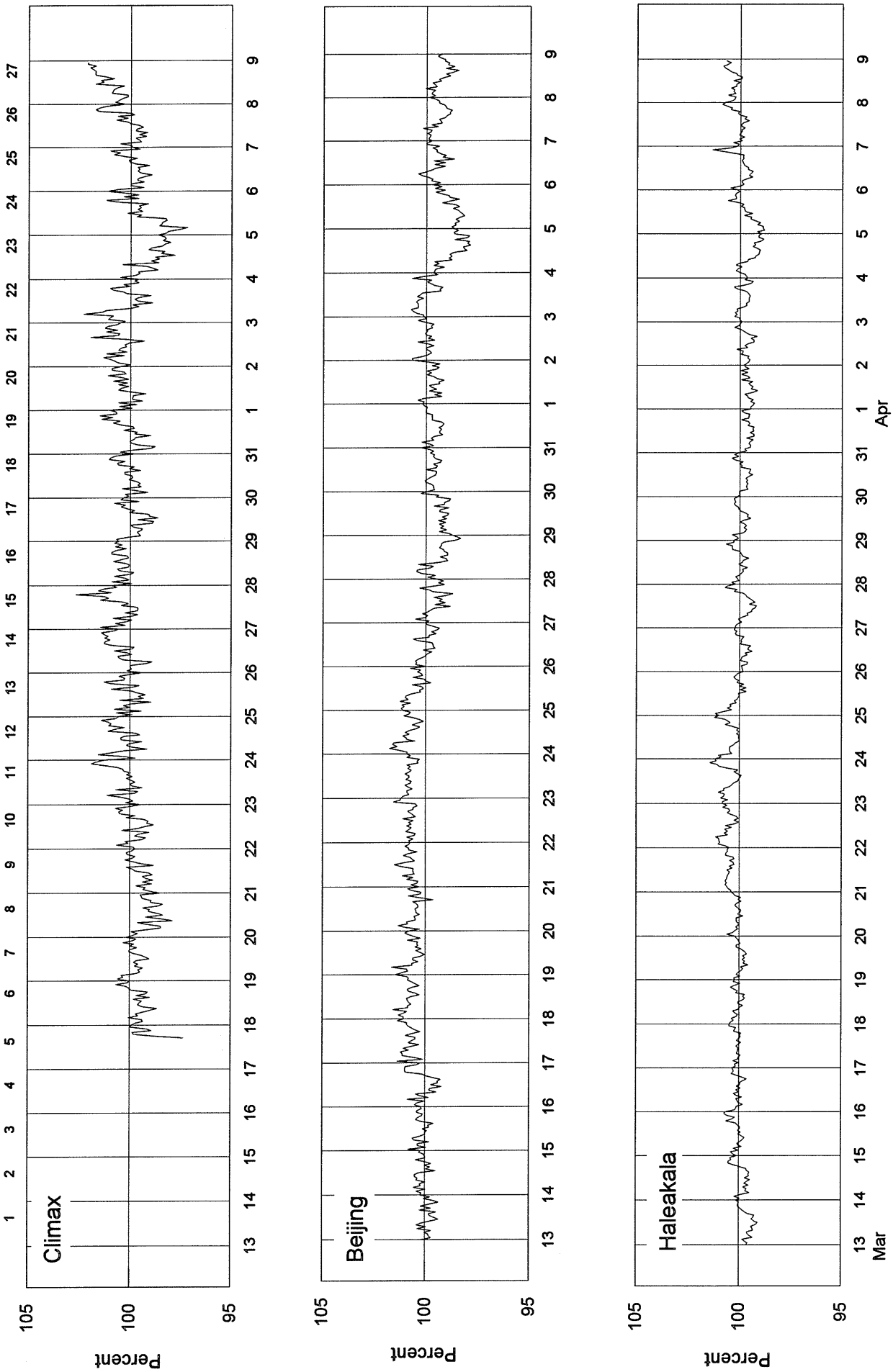
COSMIC RAY INDICES
(Neutron Monitor)

Bartels Rotation 2329 - Beginning 13 Mar 2004

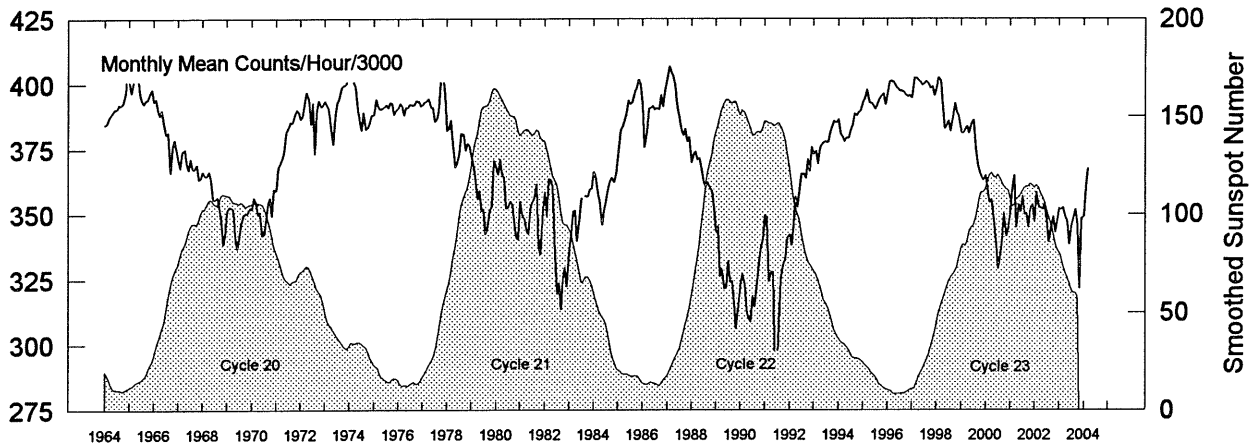


117
Mar 04

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



Calgary Neutron Monitor Pressure-Corrected Values
Jan 1964 - Mar 2004



Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Mean
1964	3847	3852	3872	3883	3892	3905	3905	3921	3920	3926	3966	4064	3913
1965	4006	3968	4007	4040	4040	3967	3935	3923	3938	3942	3960	3980	3976
1966	3935	3943	3906	3881	3899	3844	3807	3814	3663	3758	3785	3750	3832
1967	3710	3678	3741	3750	3697	3671	3713	3679	3675	3691	3638	3639	3690
1968	3663	3653	3647	3665	3632	3561	3556	3567	3529	3482	3386	3420	3563
1969	3515	3531	3529	3520	3417	3370	3408	3464	3500	3507	3506	3524	3483
1970	3523	3565	3548	3505	3512	3424	3426	3477	3543	3564	3497	3596	3515
1971	3593	3678	3693	3712	3737	3813	3832	3853	3851	3883	3899	3893	3786
1972	3865	3875	3924	3969	3942	3847	3926	3731	3895	3935	3912	3920	3895
1973	3935	3919	3903	3819	3768	3875	3926	3944	3986	3995	3997	4008	3923
1974	4036	4043	4005	3988	3906	3861	3822	3890	3827	3831	3850	3881	3912
1975	3883	3943	3914	3905	3904	3910	3918	3907	3929	3927	3884	3897	3910
1976	3908	3923	3915	3881	387	3909	3921	3918	3920	3936	3935	3916	3916
1977	3919	3933	3933	3943	3911	3911	3857	3865	3895	4010	4055	3961	3933
1978	3823	3826	3860	3773	3681	3697	3730	3811	3808	3744	3772	3764	3774
1979	3726	3696	3647	3559	3592	3516	3521	3427	3447	3519	3528	3705	3573
1980	3681	3652	3711	3649	3643	3527	3525	3550	3540	3471	3414	3403	3564
1981	3550	3491	3483	3440	3426	3522	3546	3560	3615	3374	3348	3520	3490
1982	3586	3492	3634	3632	3608	3344	3196	3239	3137	3257	3296	3225	3387
1983	3364	3421	3510	3515	3399	3487	3563	No Data	3571	3569	3597	3599	3509
1984	3661	3646	3586	3551	3460	3515	3551	3593	3623	3641	3623	3652	3592
1985	3723	3821	3834	3858	3888	3936	3921	3929	3971	3987	4017	3997	3907
1986	3923	3755	3814	3905	3906	3915	3902	3907	3902	3958	3912	3974	3898
1987	4025	4068	4047	4028	3993	3914	3866	3822	3802	3827	3779	3796	3914
1988	3698	3729	3739	3709	3714	3682	3621	3608	3624	3603	3590	3520	3653
1989	3436	3454	3263	3290	3216	3222	3321	3224	3246	3164	3063	3152	3254
1990	3227	3272	3232	3129	3099	3089	3188	3147	3237	3317	3375	3401	3226
1991	3496	3489	3244	3279	3280	2873	2896	3078	3253	3311	3330	3412	3245
1992	3425	3382	3463	3566	3528	3593	3655	3655	3636	3711	3665	3758	3586
1993	3730	3741	3693	3753	3765	3775	3780	3775	3815	3836	3859	3852	3781
1994	3864	3807	3798	3779	3793	3793	3822	3841	3885	3878	3891	3896	3837
1995	3929	3945	3919	3929	3927	3917	3902	3919	3940	3956	3963	3920	3931
1996	3960	4008	4012	4010	3993	3983	3976	3976	3970	3960	3953	3955	3980
1997	3947	4023	4024	4014	4007	3998	4001	4010	3999	3985	3990	3955	3996
1998	3982	4025	4013	3910	3827	3839	3857	3817	3876	3925	3890	3875	3903
1999	3816	3811	3823	3836	3810	3843	3861	3760	3699	3664	3644	3631	3767
2000	3646	3586	3544	3554	3465	3386	3293	3337	3395	3503	3417	3447	3464
2001	3510	3599	3646	3449	3537	3511	3570	3501	3504	3449	3521	3537	3528
2002	3469	3585	3527	3526	3517	3541	3479	3393	3455	3493	3431	3474	3491
2003	3523	3517	3524	3488	3473	3384	3450	3480	3517	3460	3216	3485	3460
2004	3492	3604	3676										3591

Multiply table entries by 300 to obtain hourly counting rate. Calgary, Canada: N51 W114, Alt=1128m, Cutoff Rigidity=1.09GV.

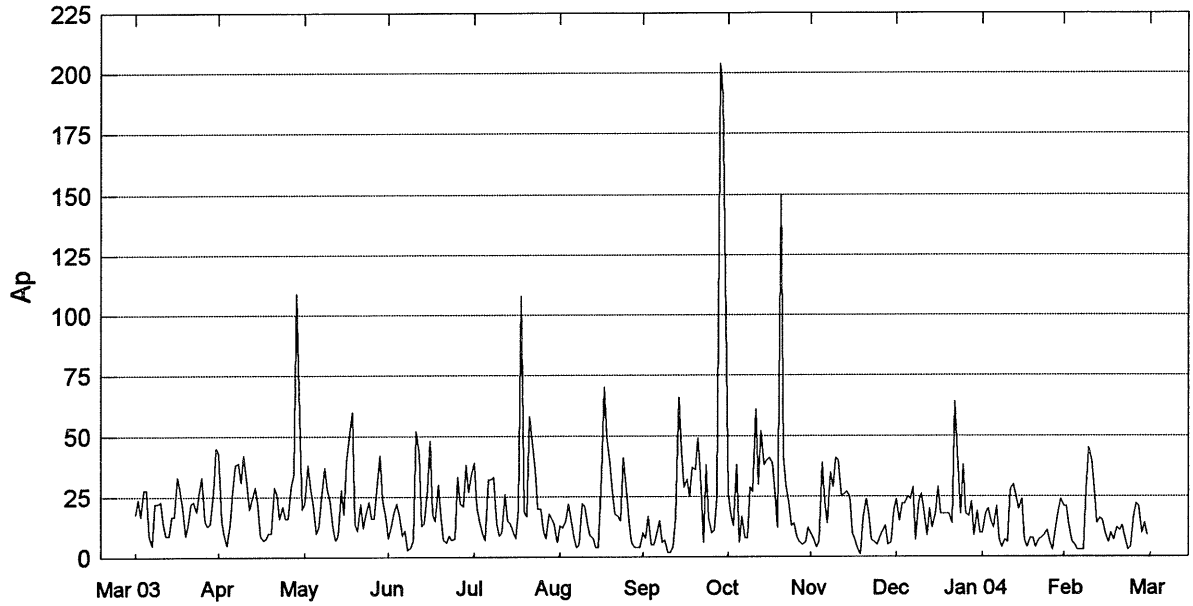
Geomagnetic Activity Indices

March 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	Am	aa Provisional N	S	M	
1		3+	2+	3	2+	3+	5-	4	4+	27+	21	1.1	3o	2o	3-	3-	3o	4o	4o	4o	35	46	28	20	54	
2	D5	4+	3	4+	2+	3	3	4	4-	28-	21	1.1	3+	3-	4-	3-	3o	3o	3+	3o	31	46	28	34	40	
3		2	2+	2	4+	3+	3-	3-	1+	21-	13	0.7	2-	2-	2-	4o	3o	3-	3-	2-	22	27	26	25	29	
4	Q7	1+	2-	2	2	1	2	2	1	13	6	0.3	1+	1+	2o	2+	1+	2-	2-	1o	11	15	13	14	14	
5	Q6	2	2	2-	2-	1-	1-	0+	2-	11-	5	0.2	2-	2-	2-	2o	1-	1+	1-	2-	10	10	10	12	8	CC
6	Q3	1+	2	1	1-	0+	0+	0+	0	6	3	0.1	1+	1+	1o	1o	1-	0+	0+	0o	5	8	5	10	3	CC
7	Q2	0	0	1-	1+	1-	1-	1	2-	6	3	0.1	0o	0+	1o	1+	1-	1o	1+	1+	6	6	6	4	8	CC
8	Q4	1-	1	2+	2-	0+	1-	0	0	7-	3	0.1	1-	1o	3-	2o	0+	1o	0+	0+	8	6	11	13	4	CK
9	D4	1-	2	2+	3	3+	5+	5	6-	27+	28	1.2	1o	2-	3-	3o	4-	5-	4+	5o	43	45	42	21	66	
10	D1	5+	6	6+	4-	4	3-	4-	5	37-	45	1.5	5o	5o	5+	4-	4-	2+	3o	4+	63	71	42	72	41	
11	D2	4+	4	4-	3-	4	6-	6+	5-	35+	40	1.4	4o	3o	3o	3o	4-	5-	5+	4-	53	76	55	35	96	
12	D3	6-	5-	4-	3	3	5-	3-	3	30+	28	1.2	5-	4o	3+	3-	3o	4o	3-	3o	42	47	33	44	36	
13		3+	2	4+	3-	3	2+	3-	2+	23-	14	0.8	3-	2-	4-	3-	4-	3-	3-	2+	28	30	27	28	29	
14		3+	2+	3+	3+	3+	2+	4+	2+	25-	16	0.9	3o	2o	3+	3+	3+	2+	4-	2+	30	34	32	28	39	
15		4-	3+	2-	3	3+	3	3+	2+	24-	15	0.9	3+	3+	2-	3-	3o	3o	3o	2o	26	34	23	23	35	
16		3	2	1-	2+	2-	3-	3-	3-	18-	10	0.5	3-	2-	1-	3-	2-	2+	3-	2+	17	26	15	15	26	
17	Q8K	3-	3-	1-	1	1-	1	2+	1+	12+	6	0.3	2+	2o	1+	1o	1o	1o	2+	1+	11	17	9	14	12	K
18		3	3	2+	2-	2	2	2+	3	19+	10	0.6	3+	3o	2+	2-	2+	2+	3-	3+	24	24	20	18	26	
19	Q9A	4-	2+	0+	1+	1	1-	2-	2	13	7	0.4	3+	2o	1-	2-	1o	1+	2o	2+	14	16	12	17	12	
20		3-	3+	1	1+	2	4	2+	3-	19+	12	0.7	2o	3-	1+	1+	2o	3+	2+	2+	18	32	14	15	32	
21		3+	3	2+	2+	3-	2+	3-	2-	20+	11	0.6	3o	2+	3-	3+	3o	2+	3-	2-	24	27	31	28	31	
22		3	3	3	1	1+	3+	3	3	21-	13	0.7	3o	3-	3-	1+	2-	3o	3-	3-	20	28	20	21	27	
23	Q10A	3+	2	2	1+	0+	1	2+	2-	14	7	0.4	3-	2-	2o	1+	1-	1+	3-	2-	13	20	9	17	12	
24	Q1	1+	1	0+	0+	0+	0+	0+	1-	5-	3	0.0	1+	1+	0o	0+	0+	0+	0+	1-	4	5	5	6	3	CC
25	Q5	0+	0	0+	0+	1	2+	2	2-	8	4	0.1	1-	0o	1-	0o	1+	2+	2+	2-	8	8	8	3	13	CC
26		2-	1	2-	1+	4-	4+	5-	4-	22	17	0.9	2-	1o	2o	1+	3+	4-	4-	3o	25	39	21	10	51	
27		3-	2+	2+	4-	3+	4+	3	5+	27	22	1.1	2+	2o	2o	3+	3o	4-	3o	5o	36	41	39	23	56	
28		4-	5+	4-	3+	3	3+	3	1+	27-	21	1.1	3+	5o	3+	3o	3-	3o	3-	2-	35	38	32	42	27	
29		2-	3-	2+	2+	3	3+	2-	2+	19+	10	0.6	2-	3-	2+	2+	3-	3+	2-	2-	20	22	17	14	25	
30		2-	2+	3+	4+	4	2	1+	1+	20+	14	0.8	1+	2+	3-	4-	4-	2o	1+	1+	22	22	28	29	22	
31		2-	2	3	1+	2+	2+	3+	1+	17+	9	0.5	1+	1+	3-	2o	3-	2+	3o	1+	16	14	18	11	21	
Mean											14	0.67									23.2	28.5	22.0		25.2	

Day	Kn Three-Hourly Indices 1	2	3	4	5	6	7	8	An	Ks Three-Hourly Indices 1	2	3	4	5	6	7	8	As	Sa	Prov Ri	Ra	Rs	IMF
1	3-	2-	3o	3-	3o	4o	4o	4-	34	3+	2o	3-	3-	3o	4o	4o	4o	36	100.0	44	43	46	
2	3o	3-	4-	3-	3o	3o	3+	3o	32	3+	2+	3+	3-	3-	3-	3o	3+	29	97.1	31	32	43	
3	2-	2-	2-	4o	3+	3-	3-	2-	24	2-	2o	2-	4-	3o	3-	3-	2-	20	88.9	26	26	34	
4	1o	1o	2-	2+	1+	2o	2o	1o	11	1+	1+	2+	2o	1o	2-	2-	1o	11	95.9	23	27	42	
5	2-	2-	2o	2o	1-	1-	0+	2-	9	2-	2-	2-	2-	1-	2-	1+	2-	11	105.0	35	42	51	
6	1+	1+	1o	1o	0+	0o	0o	0+	5	1+	1+	1o	1o	1o	0+	0+	0o	5	102.9	39	42	49	
7	0o	0+	1+	1+	1o	1+	1+	2-	6	0+	1-	1-	1+	0+	1-	2-	1+	6	104.6	40	38	51	
8	0+	1-	3-	2+	0+	1o	0+	0+	8	1o	1+	2+	2o	0+	1o	0+	0o	8	106.3	35	36	53	
9	0+	1+	3-	3o	4-	5-	4+	5-	41	1+	2o	3-	3-	3+	5-	4o	6-	46	107.2	38	38	54	
10	5-	5o	6-	4o	4o	3-	3+	4o	65	5+	5o	5o	3+	3+	2o	3o	4+	61	111.1	38	36	58	
11	4o	3o	3o	3+	4-	5o	5+	4-	57	4o	3o	3o	3-	4-	4+	5+	4-	50	111.7	38	38	59	
12	5-	4+	4-	3o	3o	4-	3-	3o	42	5o	4-	3o	2+	3-	4o	3-	3+	41	106.2	48	49	53	
13	3-	1+	4o	3o	4-	3o	3-	2o	29	3-	2o	4-	2+	3+	3-	3o	2+	26	102.6	40	44	49	
14	3-	2+	3+	3+	4-	2+	4o	2o	31	3o	2-	3o	3+	3+	2+	3+	2+	28	101.3	38	39	47	
15	3o	3o	2-	3-	3-	3o	3o	2+	26	3+	4-	2-	2+	3o	3o	3o	2o	27	100.3	32	34	46	
16	3-	2-	1-	3-	1+	2+	3-	2+	17	3-	2-	1o	2+	2-	2+	3-	2+	17	108.5	37	36	55	
17	2+	2-	1o	1o	1-	1+	2+	1+	11	2+	2o	2-	1+	1+	1o	2+	2-	12	108.8	48	54	56	
18	3-	3-	2+	2-	3-	3-	3-	3o	22	4-	3+	2o	1+	2+	2+	2+	4-	26	114.4	49	52	62	
19	3o	2-	1-	1+	1+	1+	2o	2+	14	3+	2+	1o	2-	1o	1+	2-	2o	14	111.3	58	60	58	
20	2o	3-	1o	1+	2+	4-	2+	3-	20	2o	2+	1+	2-	2-	3o	2+	2o	17	112.7	50	57	60	
21	3o	2+	2+	3+	3o	2+	3-	2-	24	3+	3-	3-	3+	3o	3-	3-	1+	25	110.4	48	51	57	
22	2+	2+	3-	2-	2-	3o	3-	3-	20	3+	3-	2+	1+	2-	3-	2+	3-	20	115.6	57	57	63	
23	3-	1+	2o	2-	1-	1+	3-	2-	14	3-	2-	2o	1+	0+	1+	3-	1+	13	117.6	61	64	65	
24	1+	1o	0o	0+	0+	0+	0+	1o	4	1+	2-	0o	0+	0o	0+	0+	0+	4	119.0	57	63	67	
25	1-	0o	1-	0+	1+	2+	2+	2-	9	1-	0+	1-	0o	1-	2o	2o	2-	7	126.4	83	85	75	
26	2-	1o	2-	1+	4-	4o	4-	3+	27	2-	1+	2o	1+	3o	3+	4-	3-	22	123.2	84	98	71	
27	2+	2-	2o	3+	3o	4o	3o	5-	35	2+	2o	2o	3o	3o	4-	3o	5+	36	127.2	88	84	75	
28	3o	5o	3+	3o	3-	4-	3-	2-	37	3+	5-	3+	3o	2+	3-	2+	1+	33	128.6	76	75	77	
29	2-	3-	3-	3-	3o	4-	2-	2o	22	2-	3o	2o	2-	3-	3+	1+	1+	18	128.3	66	64	77	
30	1+	2o	3-	4-	4o	2o	2-	1+	22	2-	2+	3-	4-	3+	2o	1+	1o	21	126.4	54	54	75	
31	1+	1+	3-	2o	3-	3-	3o	2-	18	1o	2-	2+	2o	2+	2-	3o	1o	15	121.0	56	56	69	
Mean									23.7									22.7	111.0	48.9	50.8	57.9	

Daily Average Indices Ap
Apr 2003 - Mar 2004

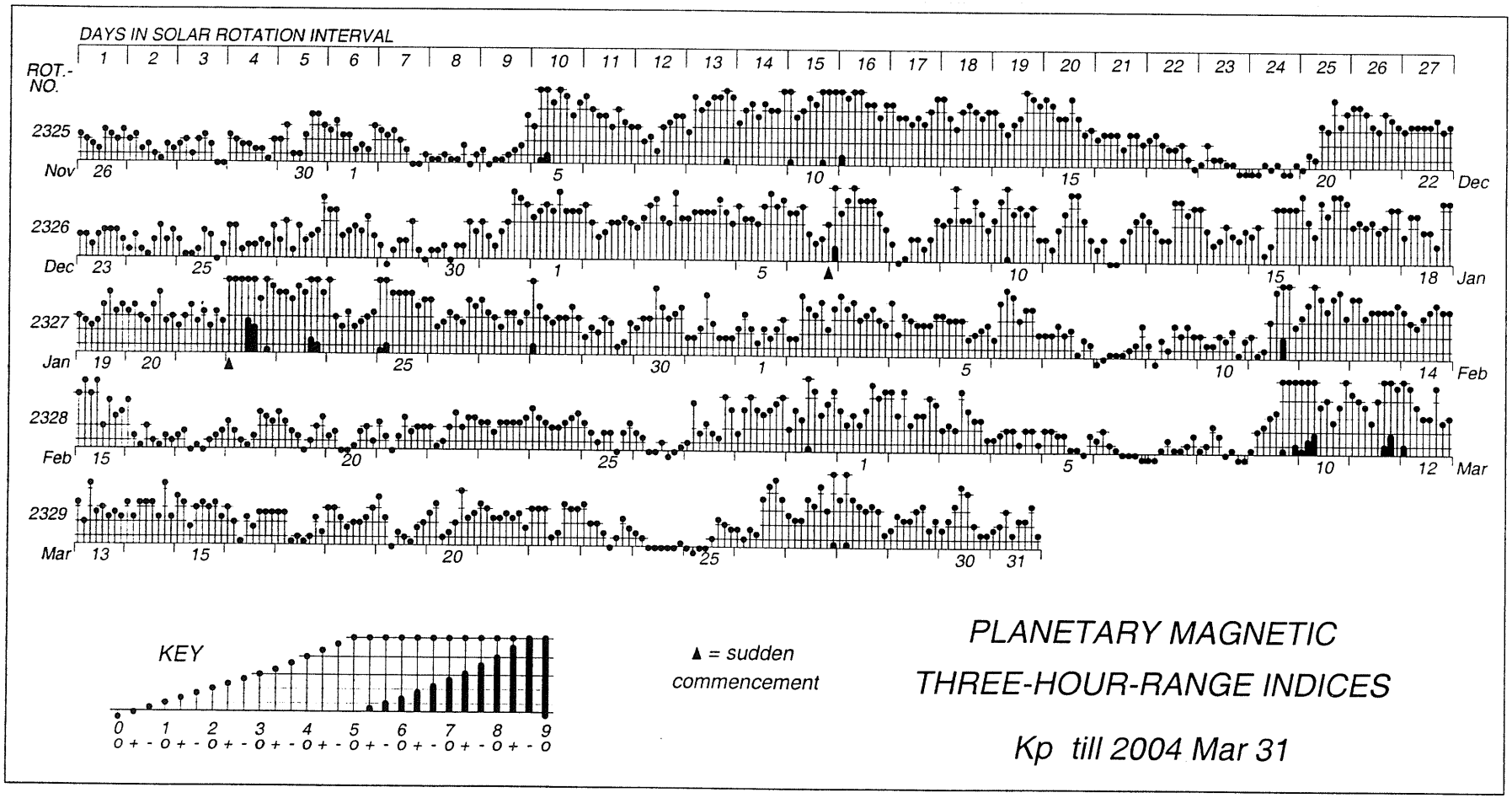


Day	Apr 03	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan 04	Feb	Mar
1	18	43	22	8	39	13	10	26	10	24	10	21
2	24	15	38	12	21	12	8	18	7	15	18	21
3	17	9	29	19	14	15	17	13	4	22	20	13
4	28	5	22	22	10	22	5	38	6	22	15	6
5	28	14	10	18	7	16	5	6	39	25	12	5
6	9	28	13	9	32	8	9	17	23	24	21	3
7	5	38	25	11	32	4	15	8	14	29	7	3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

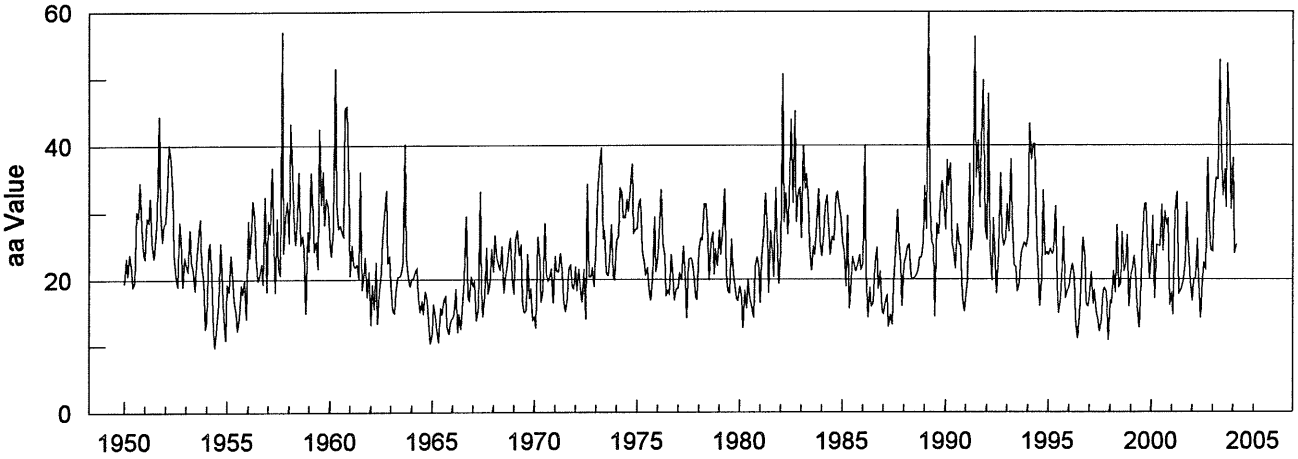
PLANETARY 3-HOUR-RANGE INDICES (Kp) BY 27-DAY SOLAR ROTATION INTERVAL

GeoForschungsZentraum Potsdam

Kp through March 31, 2004



Monthly Mean aa Index Jan 1950 - Mar 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										29.1

PLANETARY GEOMAGNETIC ACTIVITY

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

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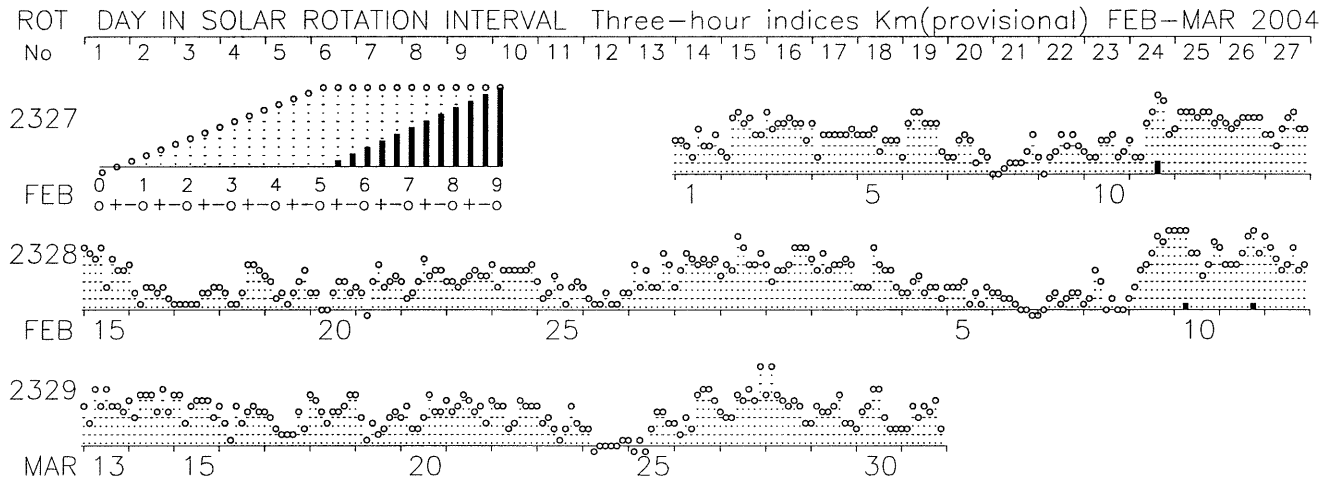
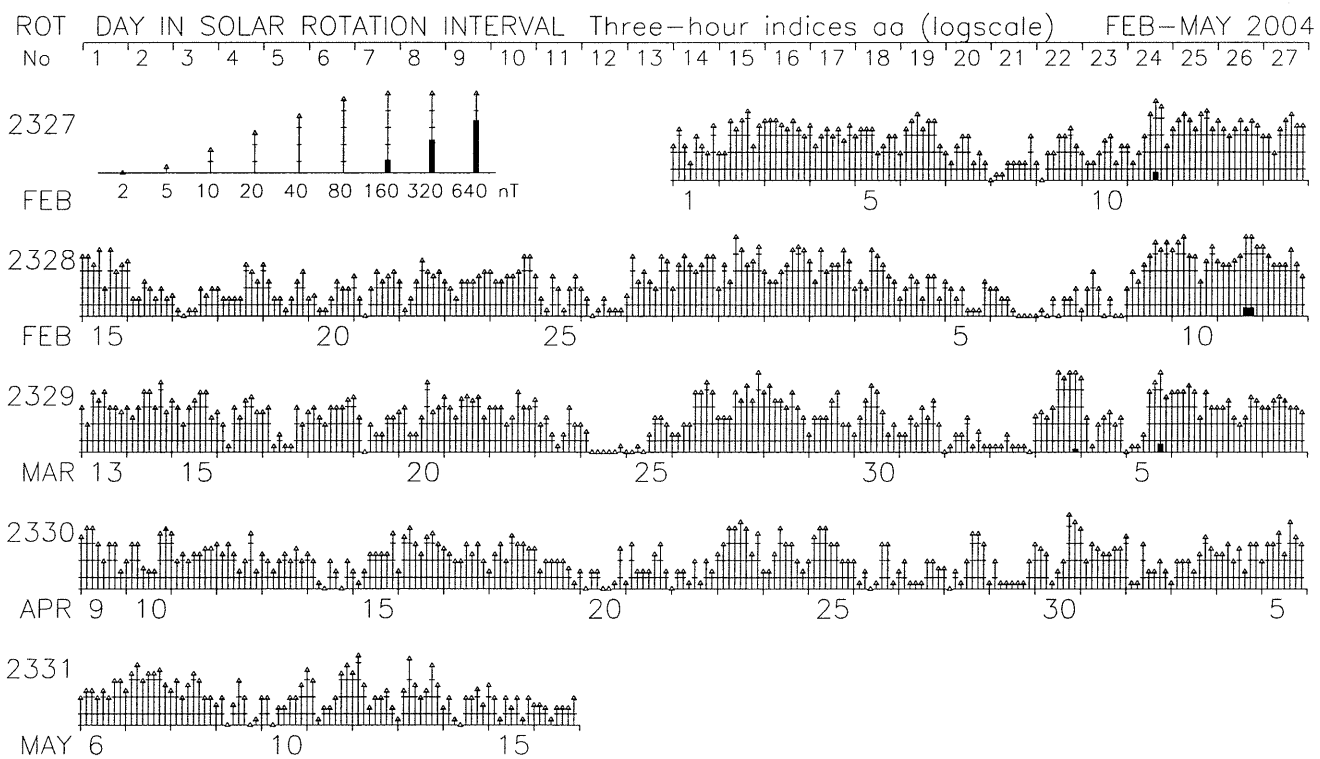


Indices Derivation at C.E.T.P.; Graph Prepared at ISGI Publication Office.



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

WDC FOR GEOMAGNETISM, KYOTO UNIVERSITY

HOURLY EQUATORIAL DST VALUES(PROVISIONAL)

MARCH 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	-9	-7	-10	-12	-14	-19	-21	-18	-20	-23	-20	-15	-13	-13	-18	-26	-32	-18	-12	-12	-18	-26	-22	-20
2	-24	-25	-22	-21	-28	-28	-25	-21	-25	-16	-13	-14	-15	-18	-29	-31	-26	-17	-14	-13	-16	-15	-9	-3
3	-2	-3	-8	-14	-17	-17	-16	-14	-10	-15	-23	-22	-16	-20	-19	-17	-14	-13	-11	-5	-5	-5	-2	0
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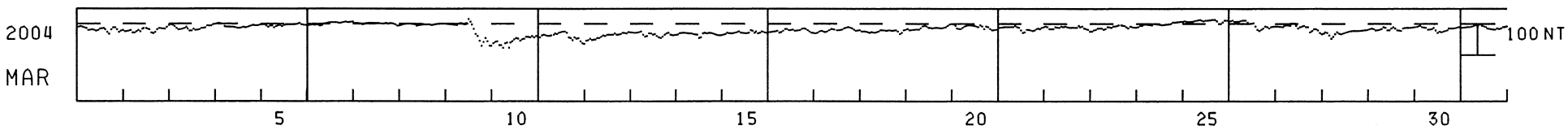
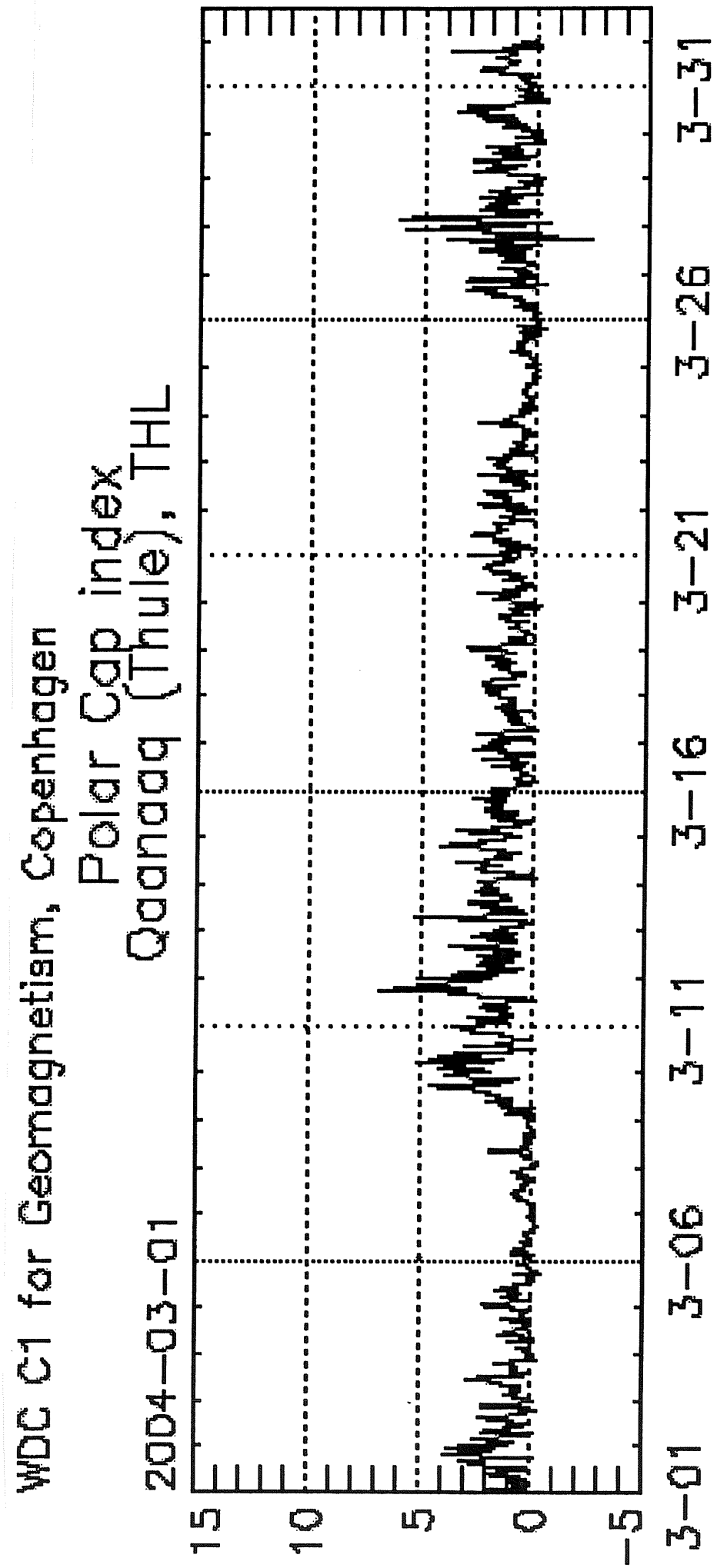
31	-12	-11	-10	-10	-9	-7	-5	-3	-5	-2	-5	-8	-10	-13	-16	-16	-18	-17	-14	-15	-13	-9	-9	-8




WDC C1 for Geomagnetism, Copenhagen
Polar Cap index
Qaanaaq (Thule), THL
2004-03-01
15
10
5
0
-5
3-01
3-06
3-11
3-16
3-21
3-26
3-31
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

MARCH 2004

Sta	Geomag Lat	Commencement Day	Time (UT)	Type	SC Amplitudes D (Min)	H (Gamma)	Z (Gamma)	Maximum 3-Hour K Index Day(3-Hour Periods)	K	Ranges D (Min)	H (Gamma)	Z (Gamma)	End Day	Hour (UT)
JAI	17.4N	09	1000	..	..	..	..		-	7	119	49	12	01
KRC	16.4N	09	1400	..	..	..	..	09(5)	6	9	100	50	12	03
NGP	11.3N	09	1000	..	..	..	..		-	5	128	22	12	01
ABG	09.4N	09	1000	..	..	..	..	10(3)	6	5	130	34	12	01
HYB	07.6N	09	0200	..	..	..	..	10(3)	6	6	166	31	13	22
PND	02.0N	09	1000	..	..	..	..		-	5	129	79	12	01
TIR	00.6S	09	1000	..	..	..	..		-	4	193	100	12	01
GNA	43.0S	09	0900	..	..	..	..	09(6,7,8)10(3)11(6,7)	5	18	137	122	12	21
CAN	43.6S	11	0300	..	..	..	..	11(6,7)	5	15	116	40	12	18
HYB	07.6N	14	0700	..	..	..	..	14(4,5,7) 15(6,7,8)	4	4	90	17	16	23
HYB	07.6N	19	1900	..	..	..	..	20(6) 21(5)	4	6	102	21	21	22
HYB	07.6N	22	0400	..	..	..	..	22(6) 23(7)	4	5	75	20	24	04
HYB	07.6N	25	0600	..	..	..	..	26(5)	5	5	128	25	28	23
JAI	17.4N	26	0600	..	..	..	..		-	7	117	36	28	22
NGP	11.3N	26	0600	..	..	..	..		-	6	118	22	28	22
ABG	09.4N	26	0600	..	..	..	..	26(5) 27(8)	5	5	120	38	28	22
PND	02.0N	26	0600	..	..	..	..		-	4	137	57	28	22
TIR	00.6S	26	0600	..	..	..	..		-	4	185	64	28	22
HYB	07.6N	29	0300	..	..	..	..	30(5)	4	6	107	34	30	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

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

March 2004

Storm Sudden Commencements (SSC)			Solar Flare Effects (sfe)		
Day	Time	Quality: Station Group*	Day	Begin-End	Station(s)
			06	1212-1236	BDV+
None			06	1220-1235	NGK+
			08	1449-1512	GUI
			18	0514-0545	HTY+
			25	0434-0451	HTY+
			27	1259-1320	GUI
			30	1251-1324	GUI

REPORTING OBSERVATORIES (up to the 4th of May 2004):
SOD NUR LER ESK NGK VAL HAD BDV CLF HRB NAG GCK EBR COI SPT HTY GUI 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.