FEBRUARY 2004 NUMBER 714 - Part I

Solar-Geophysical Data prompt reports

Data for December 2003 and January 2004
Explanation of Data Reports Issued as Number 515 (Supplement) July 1987

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FEBRUARY 2004 NUMBER 714 - Part I

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Data for December 2003 and January 2004

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NATIONAL GEOPHYSICAL DATA CENTER
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SOLAR-GEOPHYSICAL DATA

Number 714

(Issued in Two Parts)

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Solar-Terrestrial Physics Division

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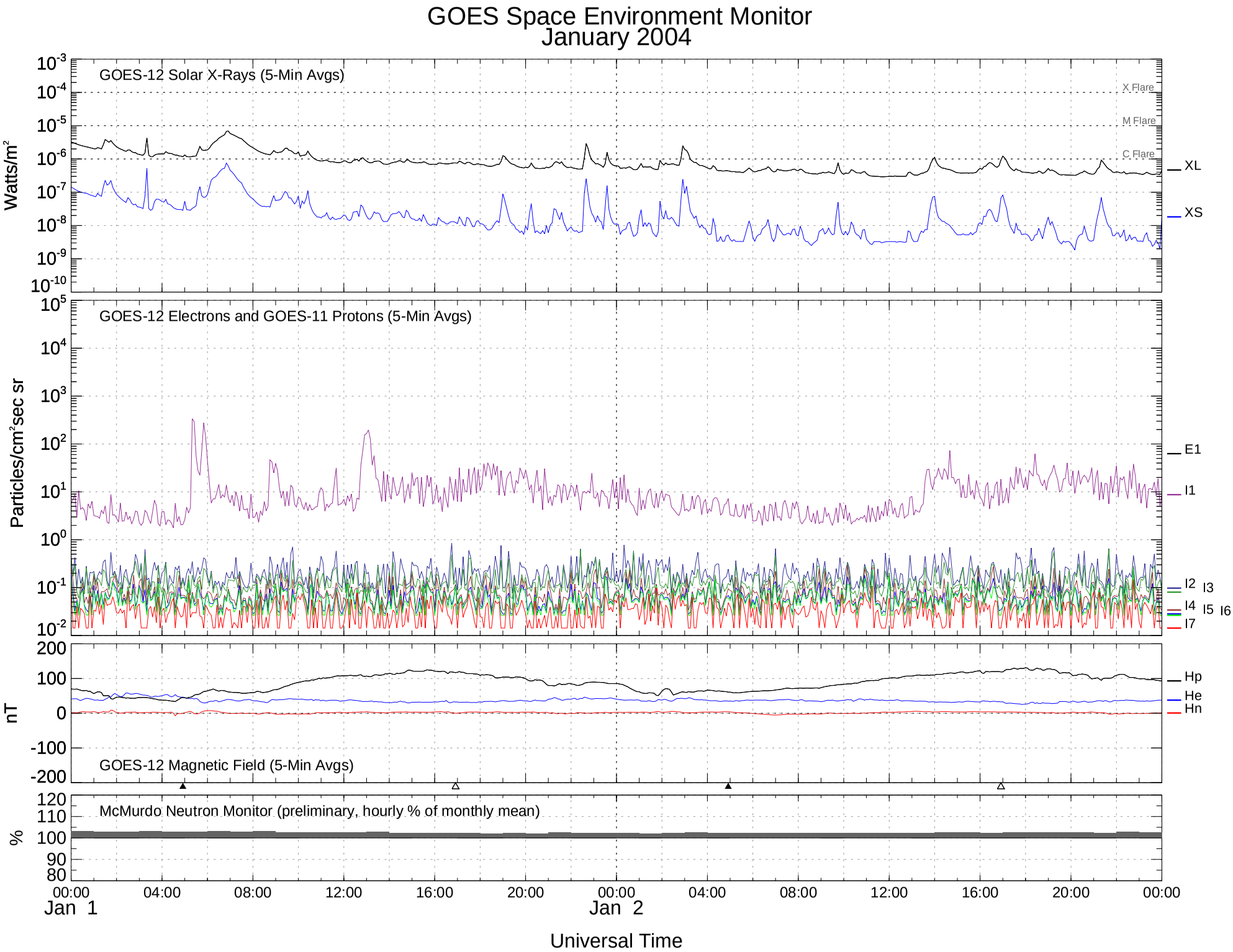
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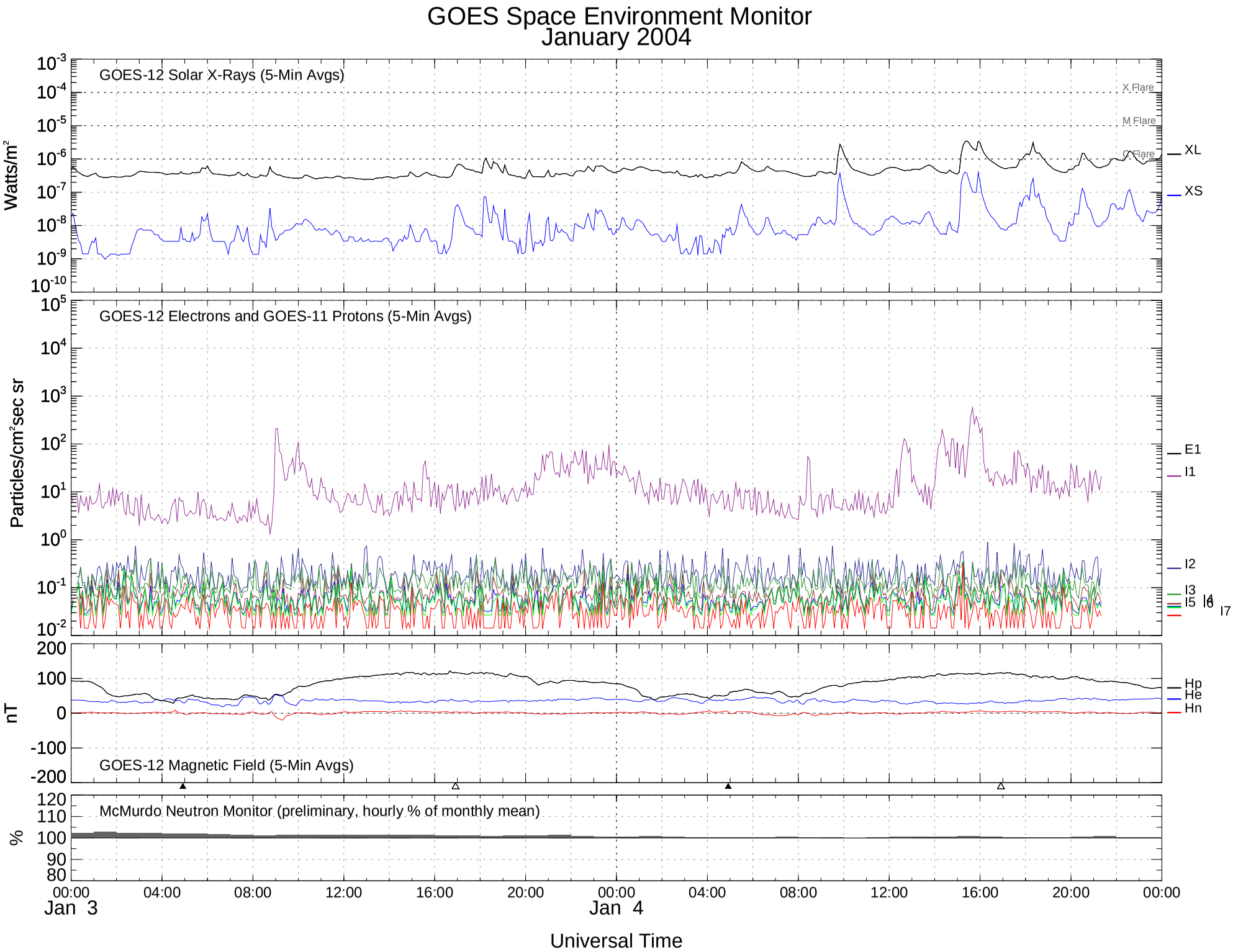
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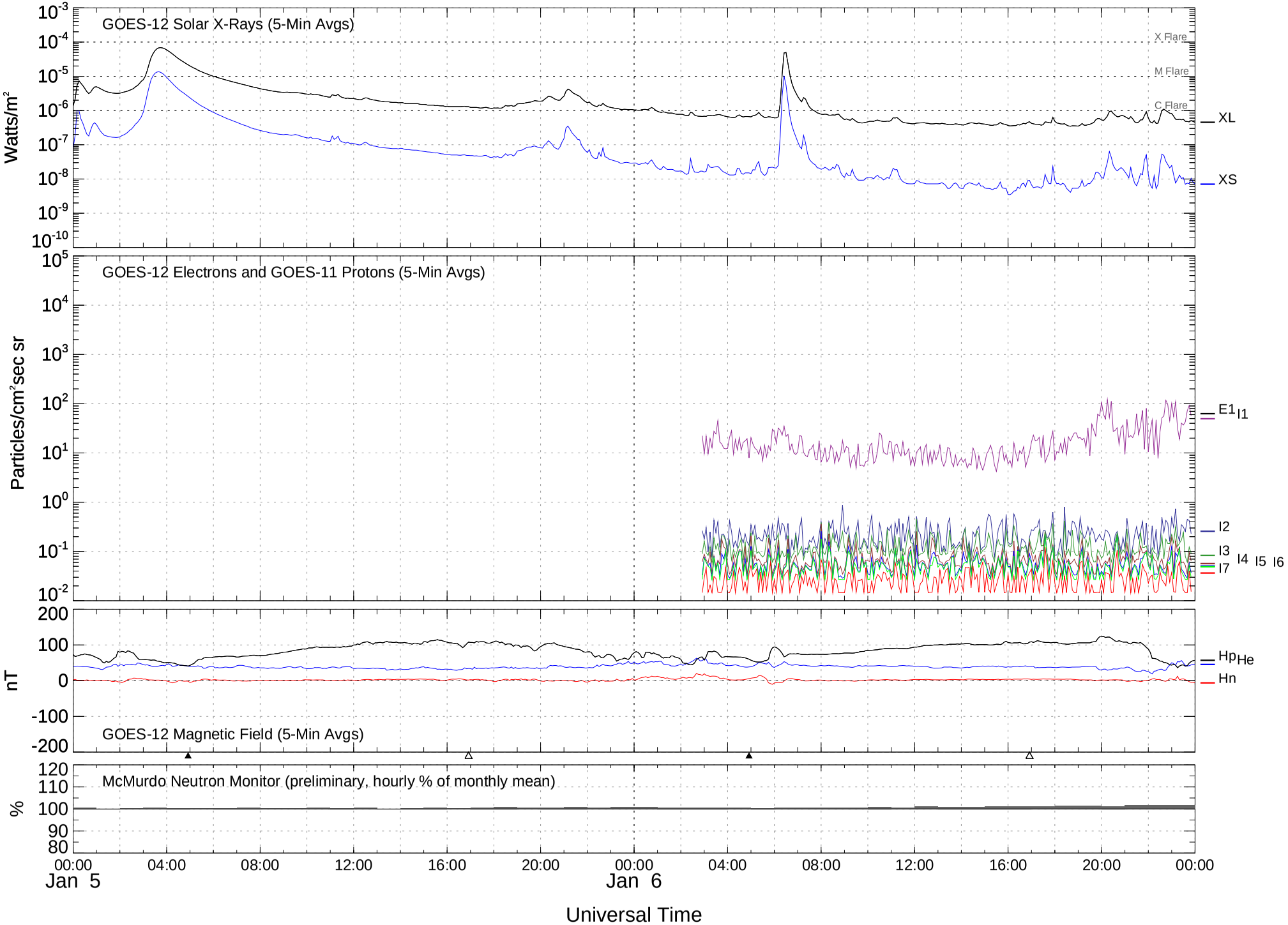

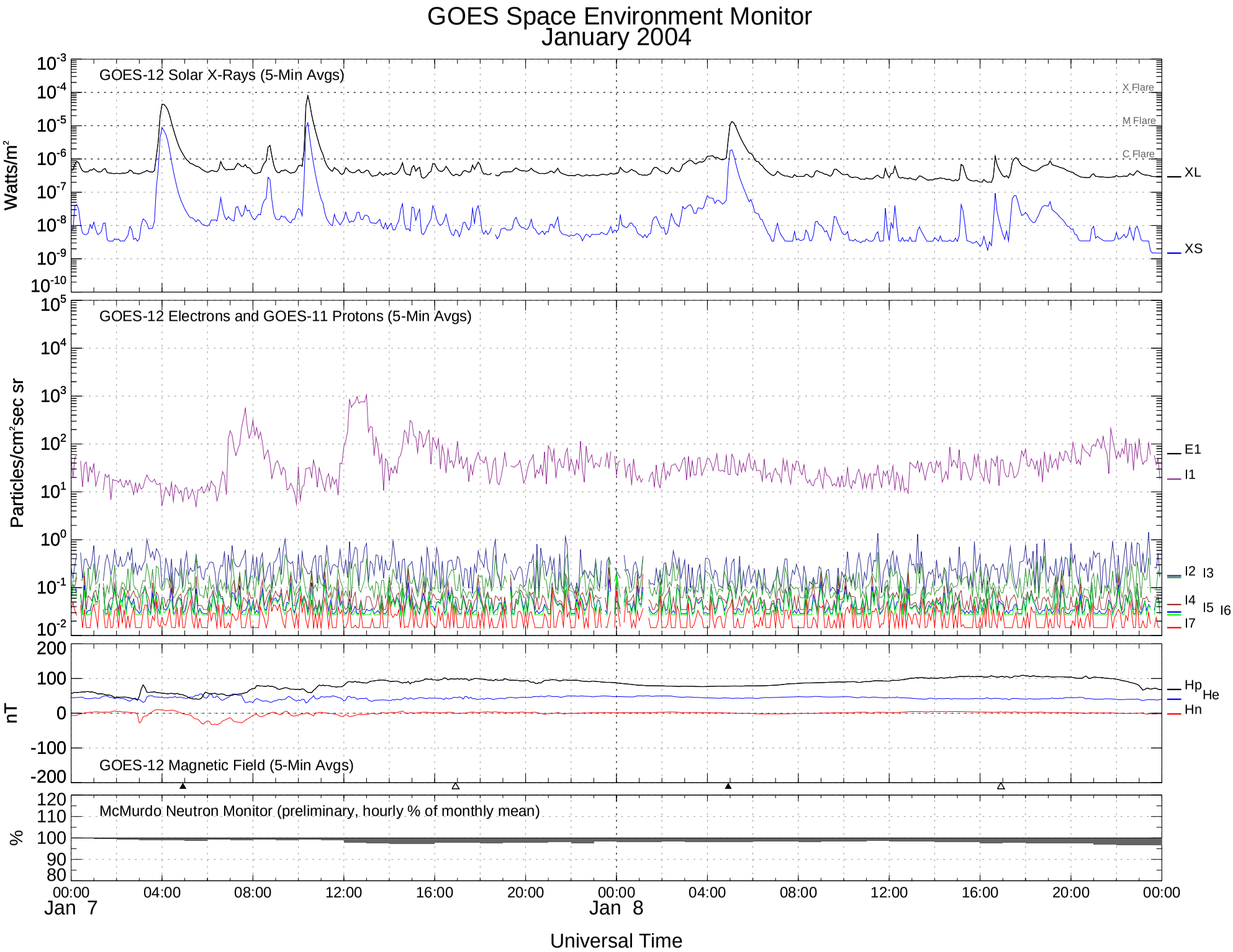
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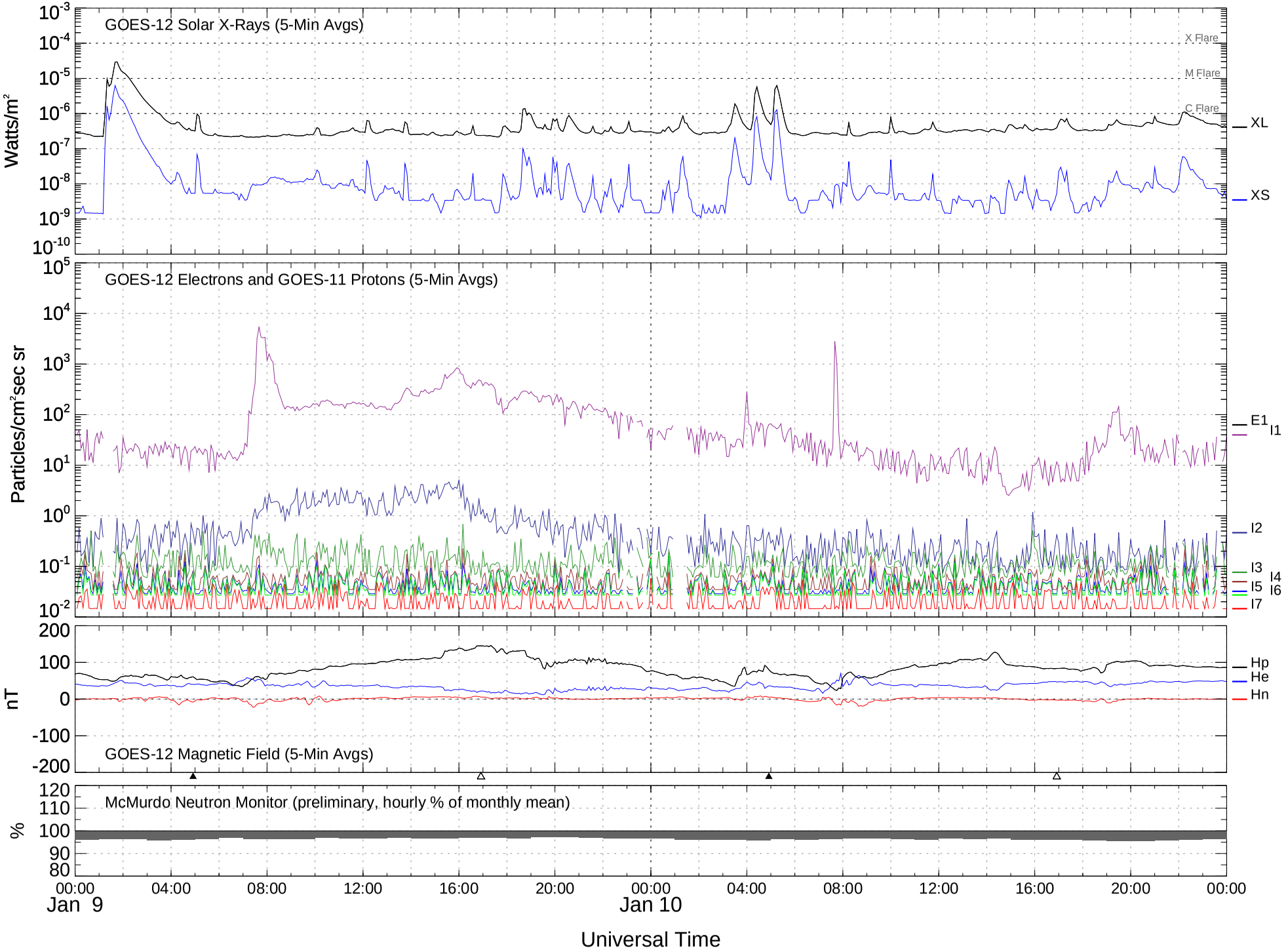

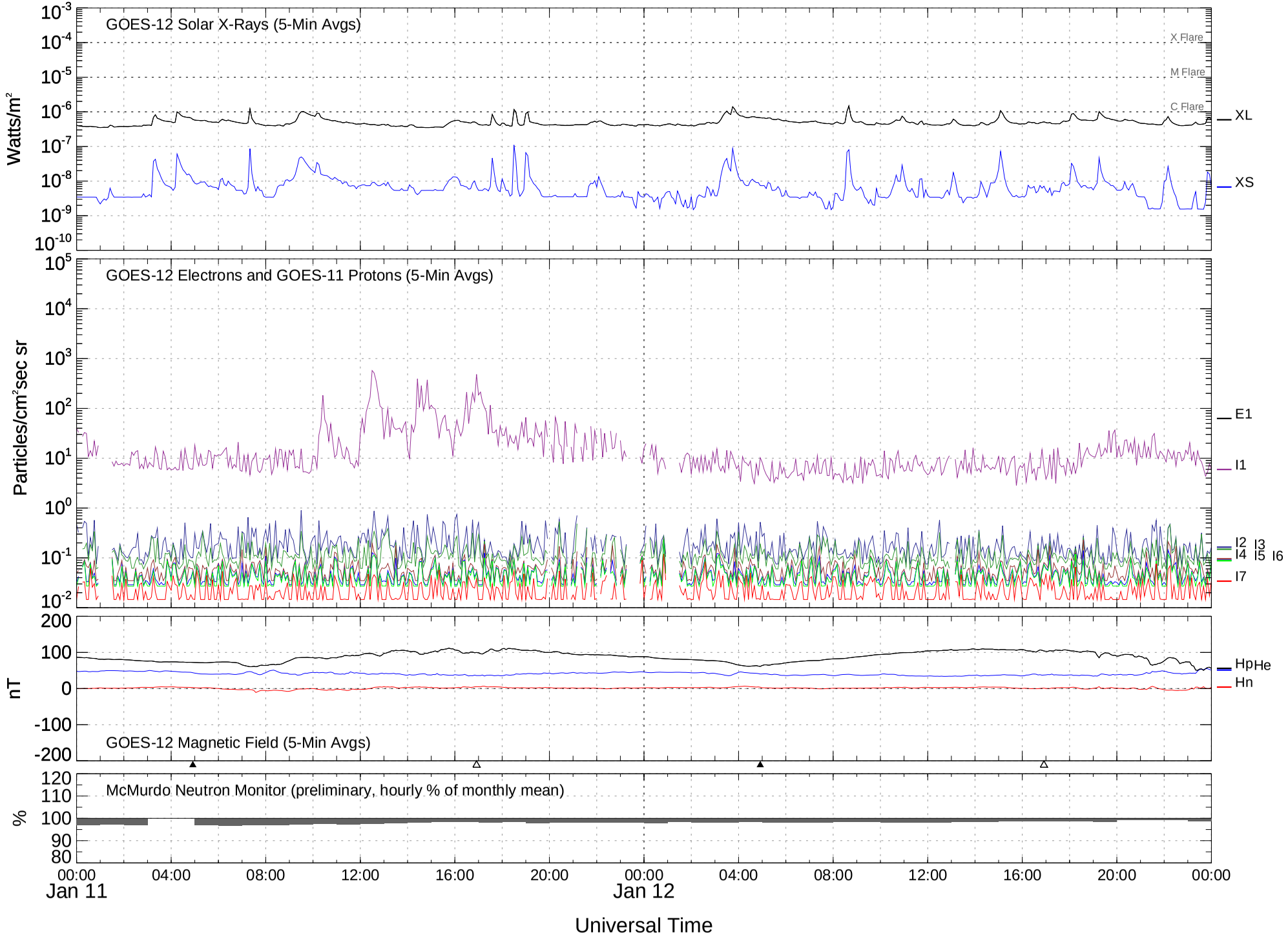
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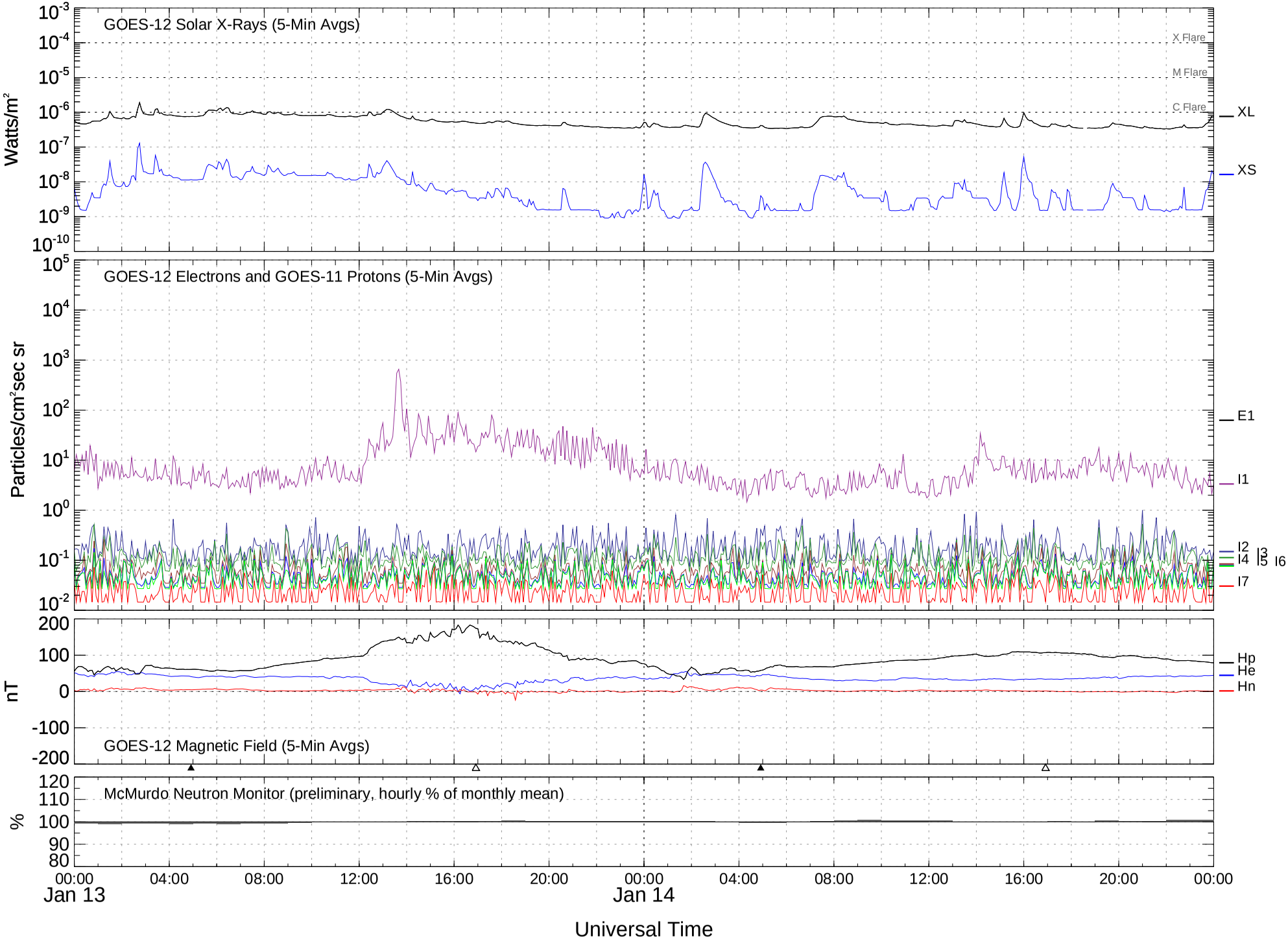
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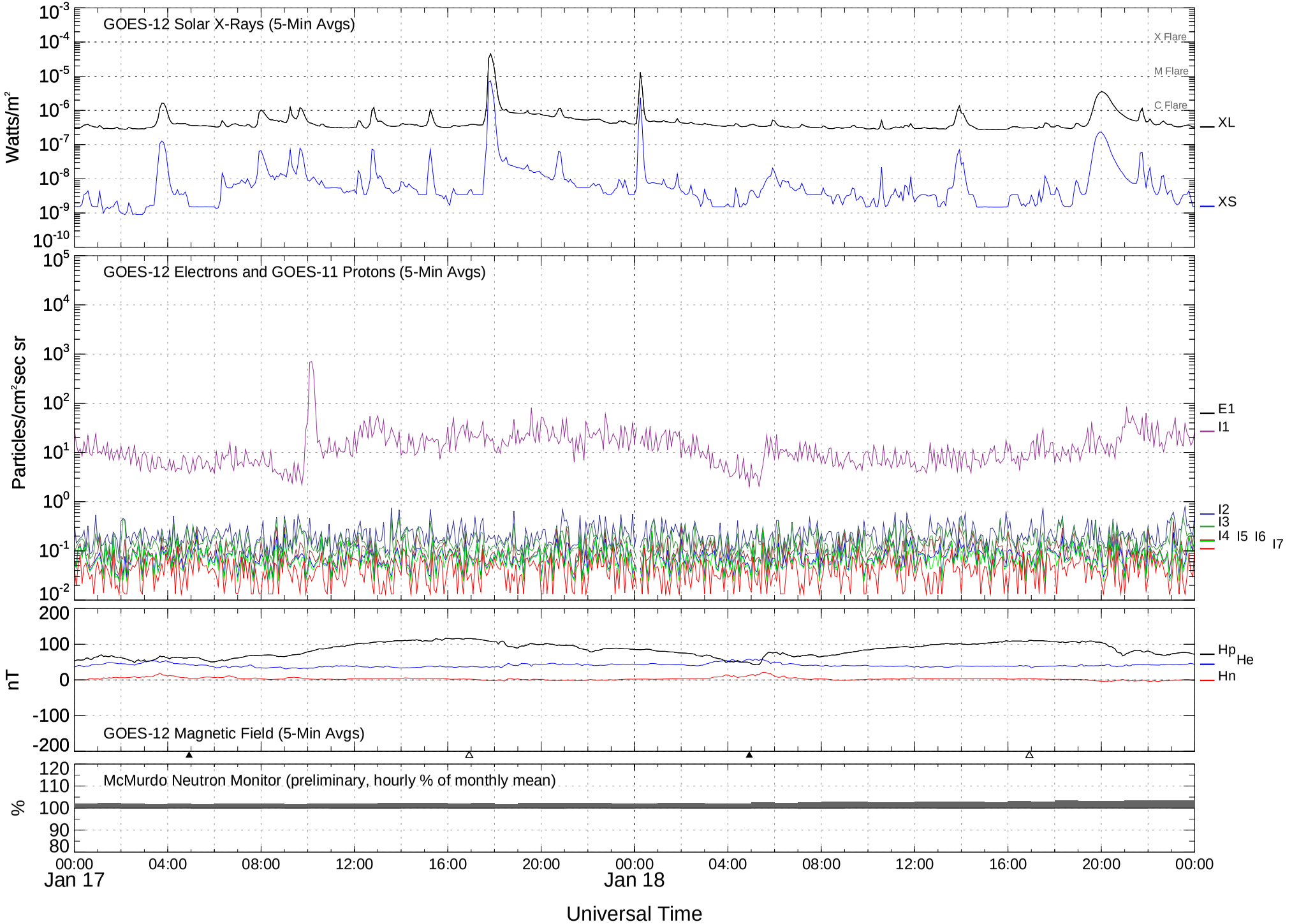
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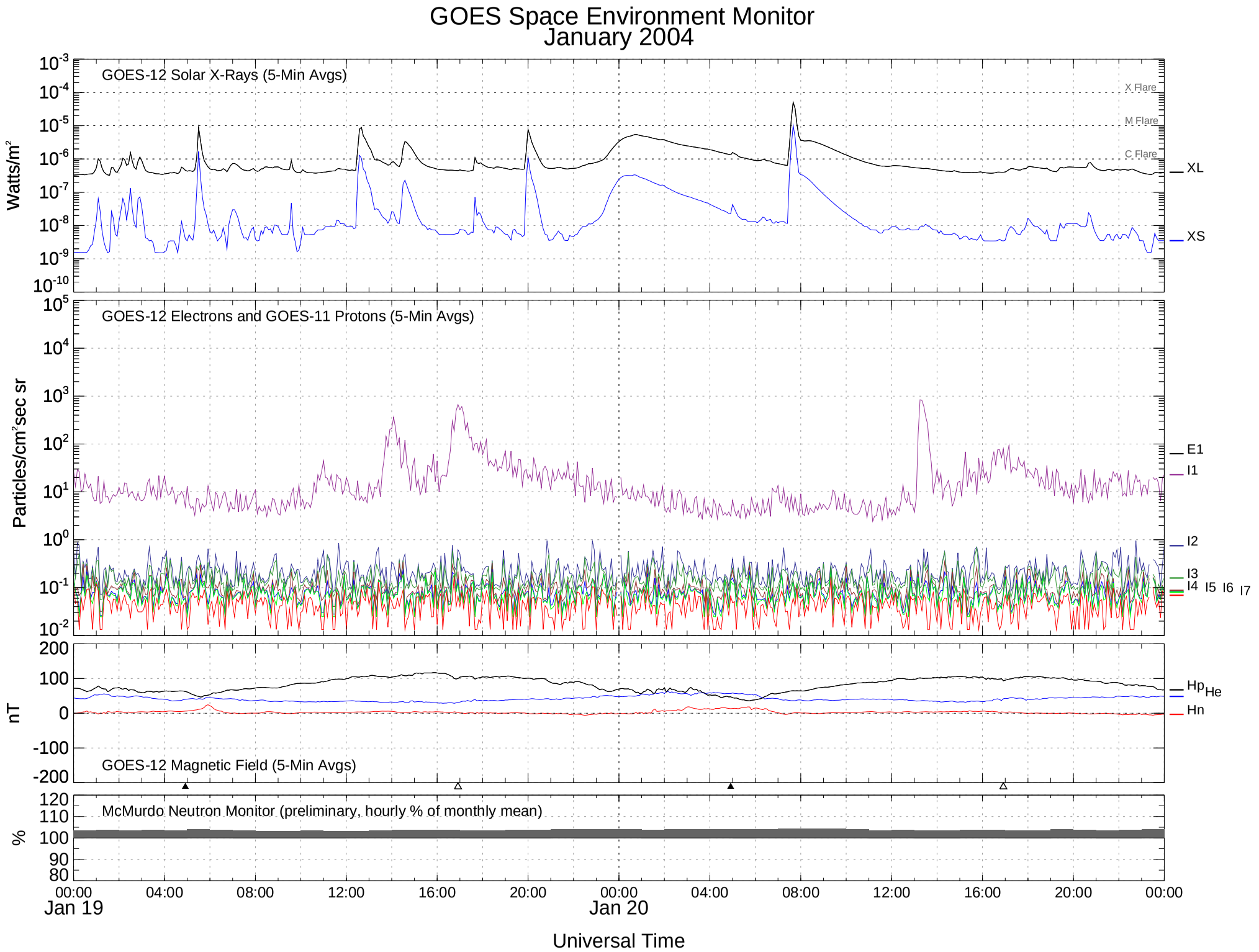
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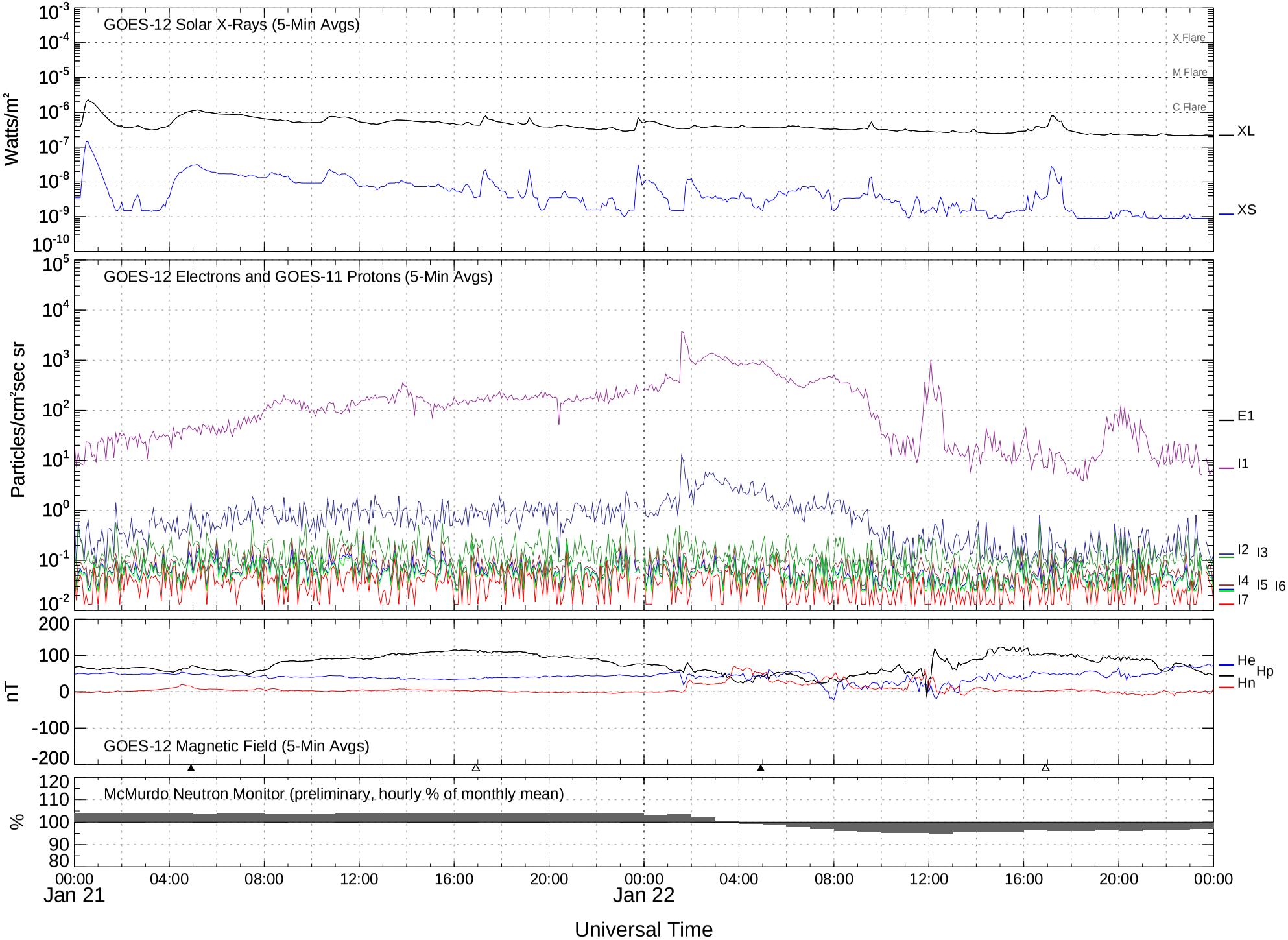

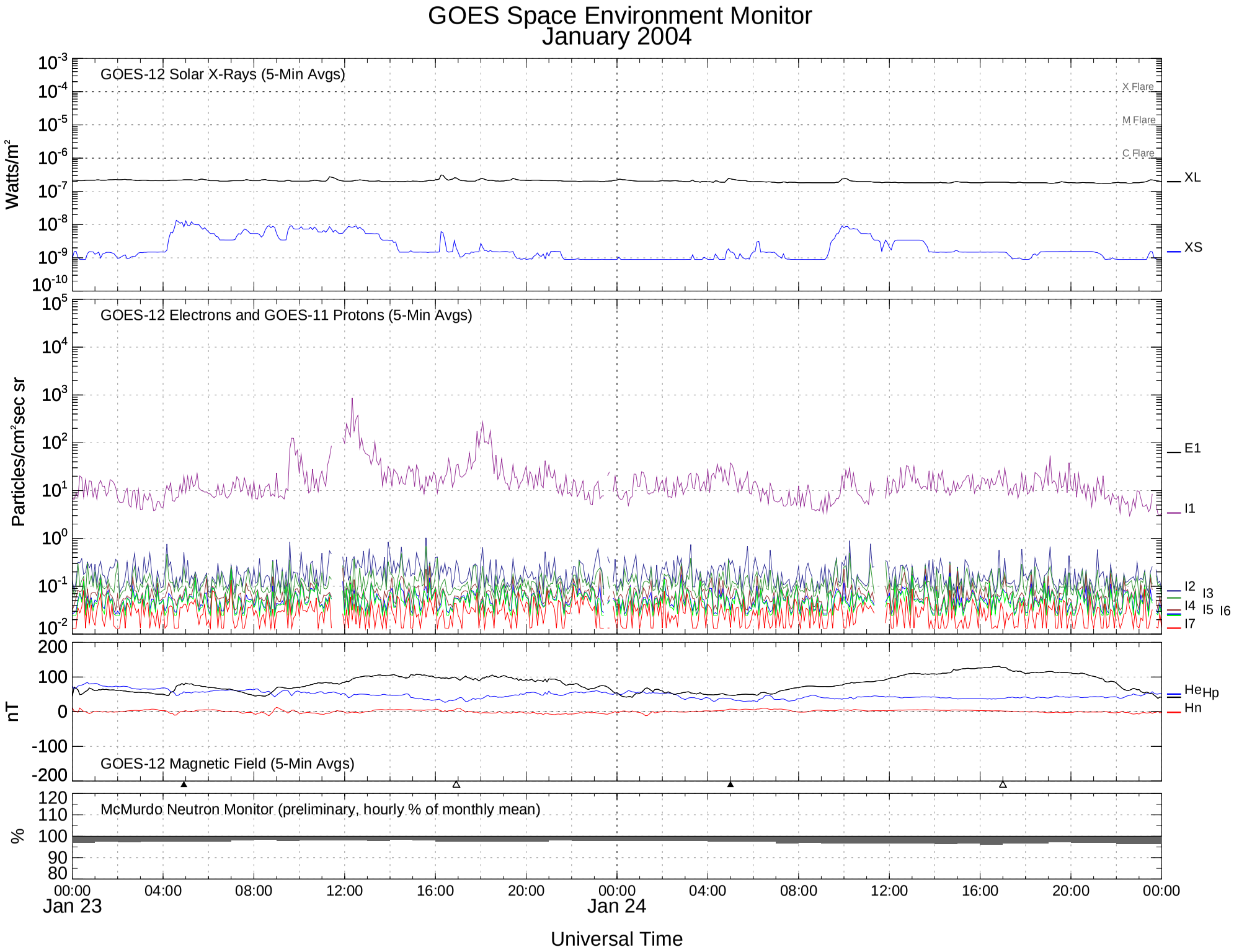
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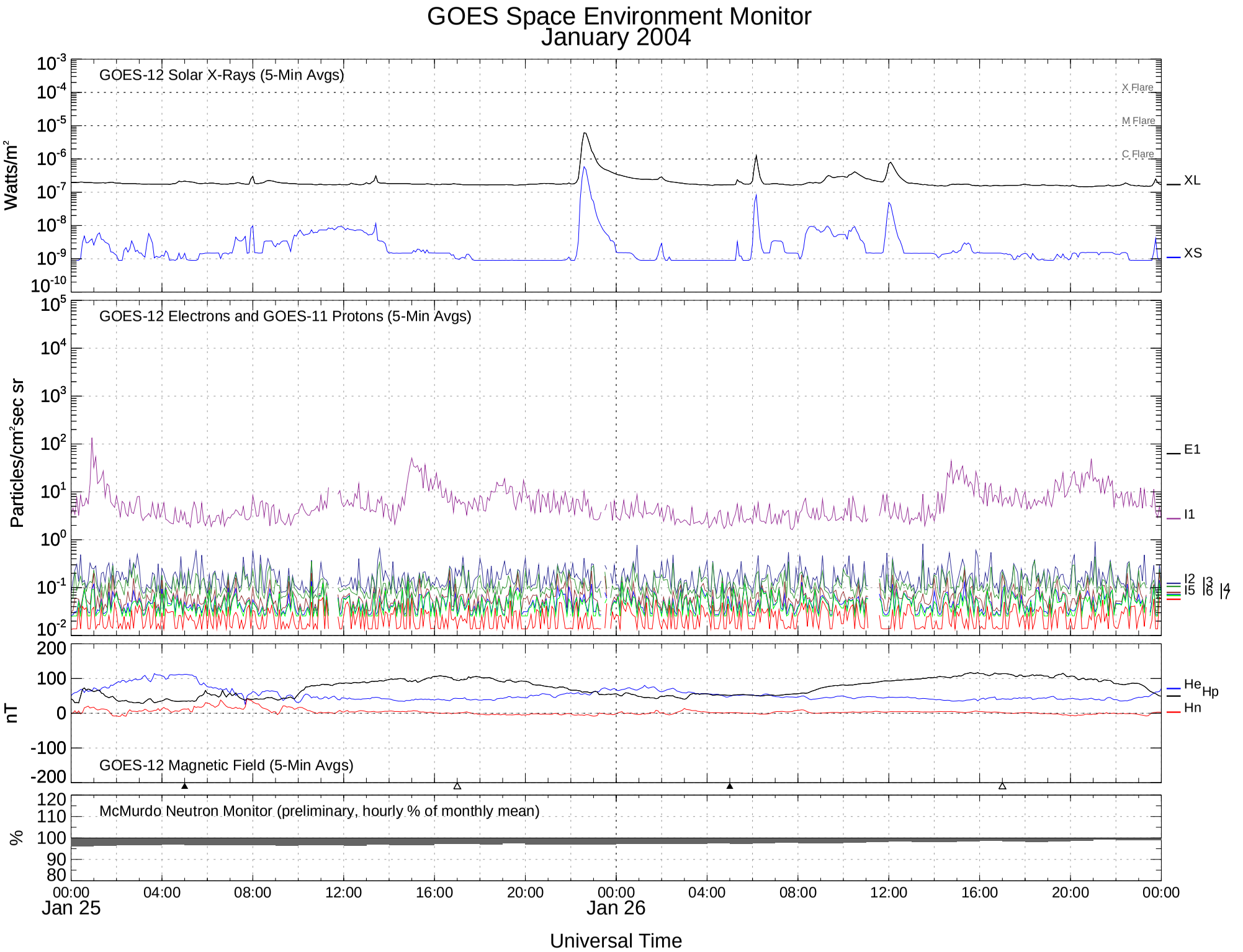
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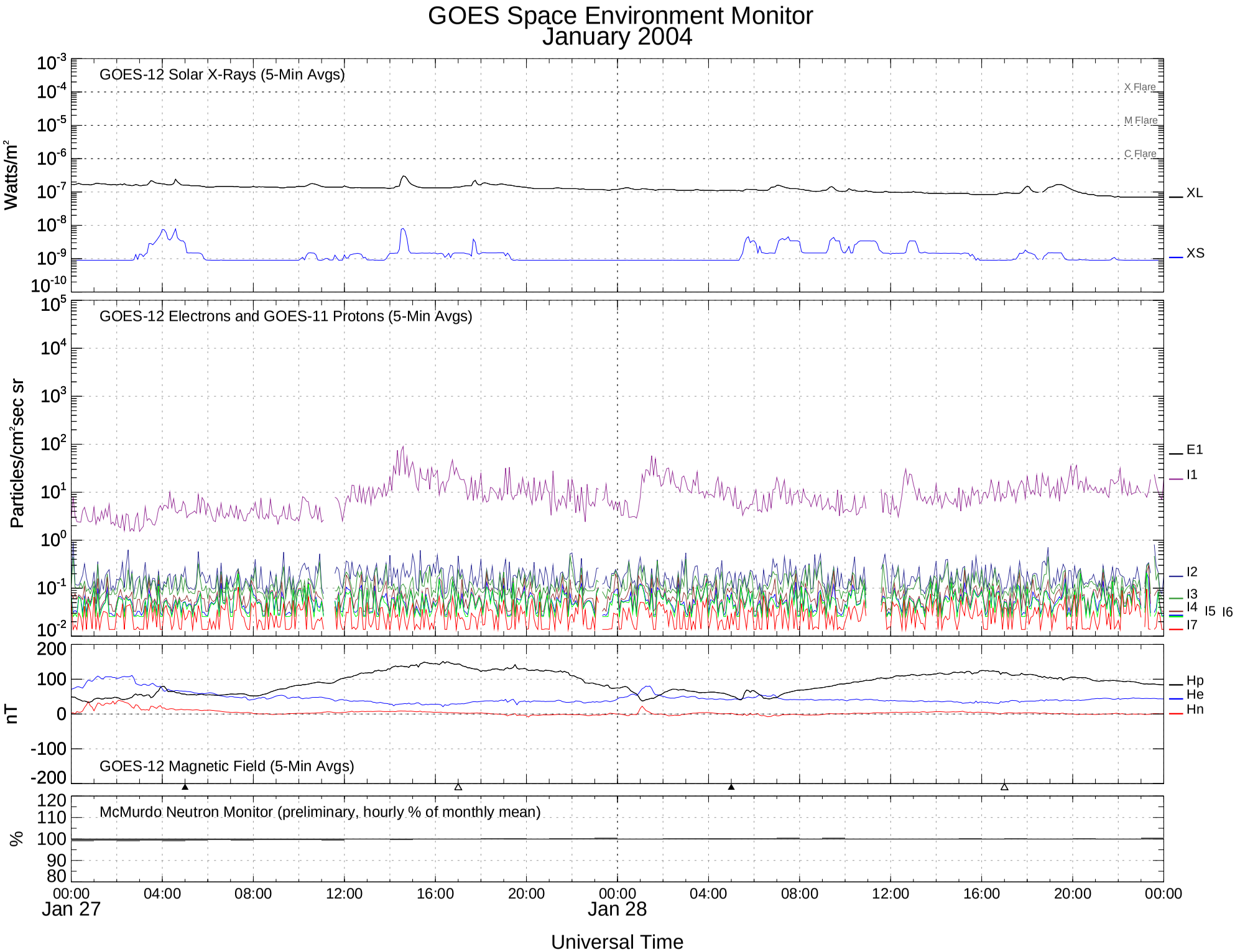
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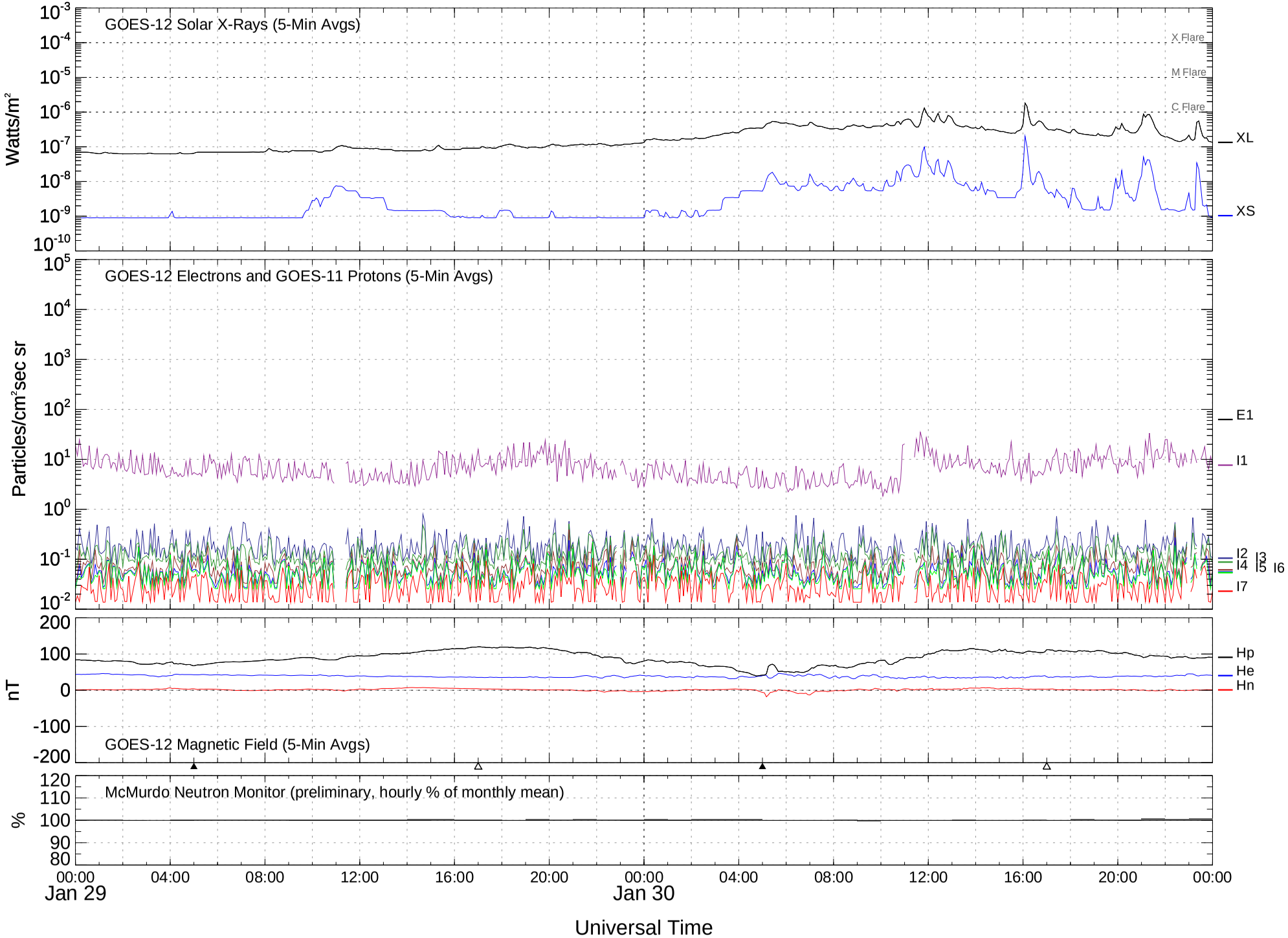
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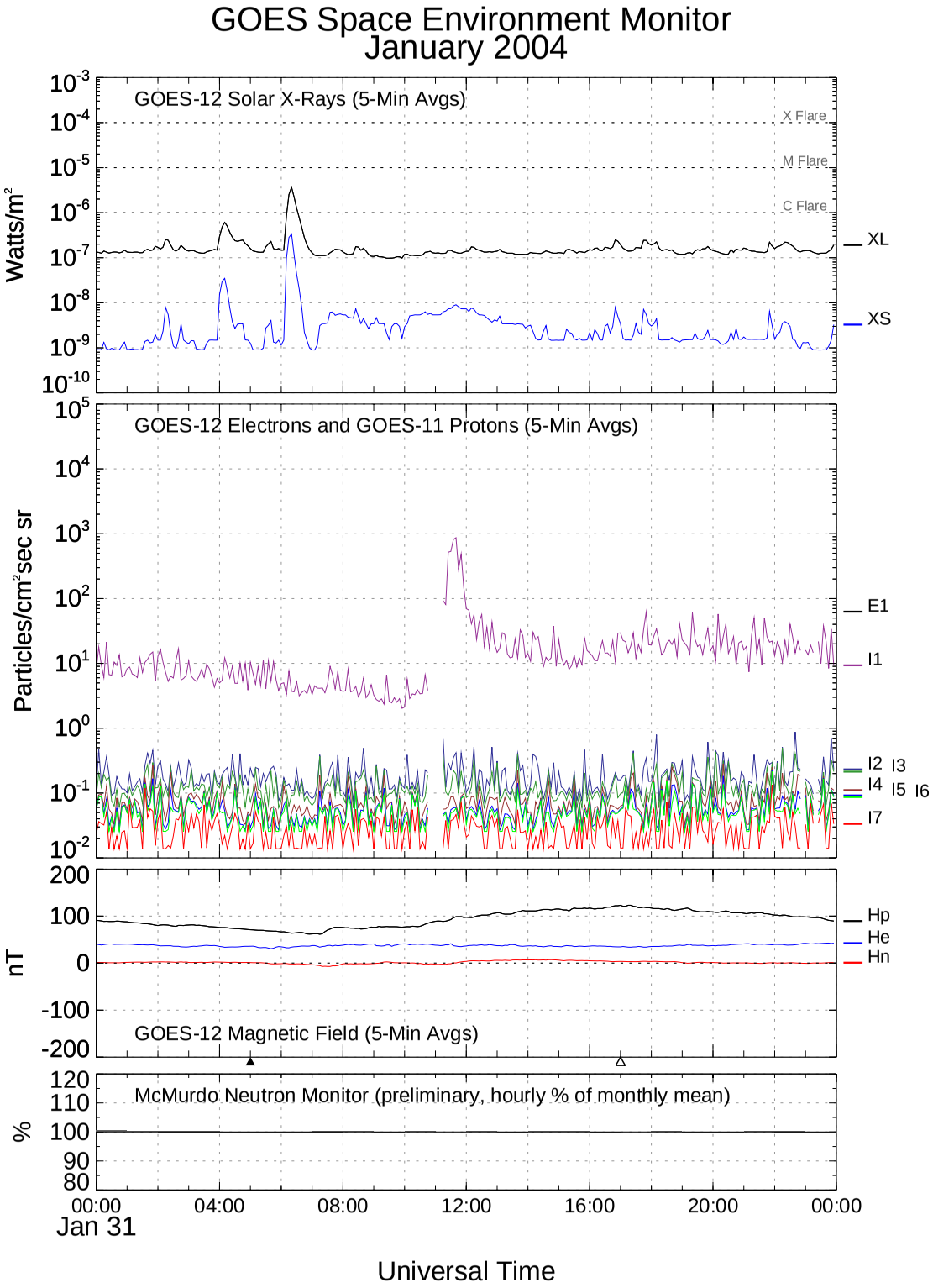
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I1
I2 I3
I4 I5 I6
I7
Hp
He
Hn
nT
GOES-12 Magnetic Field (5-Min Avgs)
McMurdo Neutron Monitor (preliminary, hourly % of monthly mean)
%
00:00
04:00
08:00
12:00
16:00
20:00
00:00
Jan 31
Universal Time

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

JANUARY 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)
001	01	31	25	106	17	534	N09	W93	0	1	0	01	Q	SOL: Quiet
						534	S05	E40	0	0	0	01	Q	MAG: Active
									0	0	0	01		PRO: Quiet
002	02	01	47	116	29	534	S06	E28	1	0	0	02	Q	SOL: Eruptive
						535	S19	W38	0	0	0	02	Q	MAG: Active
						536	S11	E73	1	0	0	02	E	PRO: Quiet
003	03	02	51	117	11	534	S06	E15	1	0	0	03	E	SOL: Eruptive
						535	S19	W51	0	0	0	03	Q	MAG: Active
						536	S11	E63	0	0	0	03	E	PRO: Quiet
004	04	03	65	116	25	534	S05	E02	0	0	0	04	Q	SOL: Eruptive
						535	S18	W64	0	0	0	04	Q	MAG: Active
						536	S12	E51	2	0	0	04	E	PRO: Quiet
005	05	04	80	119	21	534	S05	W13	0	0	0	05	Q	SOL: Eruptive
						535	S21	W76	0	0	0	05	Q	MAG: Active
						536	S10	E38	1	0	0	05	E	PRO: Quiet
006	06	05	80	123	19	534	S06	W23	0	0	0	06	Q	SOL: Eruptive
						535	S22	W86	0	0	0	06	Q	MAG: Active
						536	S11	E25	0	0	0	06	E	PRO: Quiet
007	07	06	78	117	19	534	S07	W40	0	0	0	07	Q	SOL: Eruptive
						536	S10	E12	1	0	0	07	E	MAG: Active
						537	N04	E76	0	1	0	07	E	PRO: Quiet
008	08	07	93	119	38	536	S12	W04	0	0	0	08	E	SOL: Active
						537	N05	E64	3	2	0	08	E	MAG: Active
						538	N07	E04	0	0	0	08	Q	PRO: Quiet
						539	N09	E29	0	0	0	08	Q	
009	09	08	118	120	6	536	S11	W16	0	0	0	09	E	SOL: Active
						537	N04	E50	4	1	0	09	E	MAG: Active
						538	N05	W04	0	0	0	09	Q	PRO: Quiet
						539	N09	E15	0	0	0	09	Q	
010	10	09	88	118	21	537	S12	W28	1	0	0	10	E	SOL: Active
						537	N05	E37	4	2	0	10	E	MAG: Quiet
									0	0	0	10		PRO: Quiet
011	11	10	66	119	24	537	S12	W41	4	0	0	11	E	SOL: Active
						537	N05	E24	1	0	0	11	E	MAG: Active
									0	0	0	11		PRO: Quiet
012	12	11	53	119	17	537	S12	W54	3	0	0	12	E	SOL: Active
						537	N05	E11	0	0	0	12	E	MAG: Active
									0	0	0	12		PRO: Quiet
013	13	12	77	118	7	536	S12	W68	3	0	0	13	E	SOL: Eruptive
						537	N05	W03	0	0	0	13	E	MAG: Quiet
						540	S11	E76	0	0	0	13	Q	PRO: Quiet
014	14	13	53	118	22	536	S12	W81	1	0	0	14	E	SOL: Active
						537	N05	W16	1	0	0	14	E	MAG: Active
						540	S11	E68	0	0	0	14	E	PRO: Quiet
015	15	14	58	121	10	540	N04	W29	0	0	0	15	Q	SOL: Eruptive
						540	S13	E59	0	0	0	15	E	MAG: Quiet
									0	0	0	15		PRO: Quiet
016	16	15	57	119	14	537	N04	W43	0	0	0	16	Q	SOL: Eruptive
						540	S13	E43	1	0	0	16	Q	MAG: Quiet
						541	S09	W03	0	0	0	16	Q	PRO: Quiet
017	17	16	68	120	20	537	N04	W57	1	0	0	17	Q	SOL: Eruptive

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The International Space Environment Service

JANUARY 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)
						540	S13	E28	0	0	0	17	Q	MAG: Active
						541	S09	W18	0	0	0	17	Q	PRO: Quiet
						542	N11	E54	0	0	0	17	Q	
018	18	17	56	123	15	537	N04	W70	1	0	0	18	Q	SOL: Eruptive
						540	S14	E15	3	1	0	18	E	MAG: Active
						541	S09	W31	0	0	0	18	Q	PRO: Quiet
						542	N11	E43	0	0	0	18	Q	
019	19	18	72	120	15	537	N04	W83	1	0	0	19	Q	SOL: Eruptive
						540	S14	E02	2	1	0	19	E	MAG: Active
						541	S10	W44	0	0	0	19	Q	PRO: Quiet
020	20	19	87	135	16	540	S14	W10	3	2	0	20	E	SOL: Eruptive
						541	S09	W58	0	0	0	20	Q	MAG: Active
						542	N08	E15	0	0	0	20	Q	PRO: Quiet
						543	S18	E05	0	0	0	20	Q	
021	21	20	94	129	17	540	S14	W22	1	1	0	21	E	SOL: Eruptive
						542	N10	W03	0	0	0	21	Q	MAG: Active
						543	S17	W08	0	0	0	21	Q	PRO: Quiet
						544	N08	E09	0	0	0	21	Q	
022	22	21	104	130	11	540	S14	W35	0	0	0	22	Q	SOL: Eruptive
						542	N10	W16	0	0	0	22	E	MAG: Minor
						543	S16	W21	1	0	0	22	Q	PRO: Quiet
						544	N08	W04	0	0	0	22	Q	
023	23	22	76	122	46	540	S14	W48	0	0	0	23	Q	SOL: Eruptive
						542	N10	W29	0	0	0	23	Q	MAG: Minor
						543	S16	W34	0	0	0	23	Q	PRO: Quiet
						544	N08	W17	0	0	0	23	E	
024	24	23	62	115	30	540	S14	W61	0	0	0	24	Q	SOL: Eruptive
						542	N10	W42	0	0	0	24	Q	MAG: Active
						543	S16	W47	0	0	0	24	Q	PRO: Quiet
						544	N08	W30	0	0	0	24	Q	
025	25	24	47	108	18	540	S14	W81	0	0	0	25	Q	SOL: Eruptive
						542	N10	W61	0	0	0	25	Q	MAG: Active
						543	S16	W60	0	0	0	25	Q	PRO: Quiet
						544	N08	W44	0	0	0	25	Q	
026	26	25	48	102	23	540	S15	W91	0	0	0	26	Q	SOL: Quiet
						542	N09	W71	1	0	0	26	Q	MAG: Quiet
						543	S16	W72	1	0	0	26	Q	PRO: Quiet
						544	N08	W57	0	0	0	26	Q	
027	27	26	38	98	17	542	N06	W82	0	0	0	27	Q	SOL: Quiet
						543	S17	W89	0	0	0	27	Q	MAG: Quiet
						544	N03	W76	0	0	0	27	Q	PRO: Quiet
028	28	27	0	94	14				0	0	0	28		SOL: Quiet
									0	0	0	28		MAG: Quiet
									0	0	0	28		PRO: Quiet
029	29	28	0	89	23				0	0	0	29		SOL: Quiet
									0	0	0	29		MAG: Quiet
									0	0	0	29		PRO: Quiet
030	30	29	25	87	8	546	S20	W19	0	0	0	30	Q	SOL: Quiet
						546	S12	E68	0	0	0	30	Q	MAG: Quiet
									0	0	0	30		PRO: Quiet
031	31	30	42	93	18	545	S20	W32	0	0	0	31	Q	SOL: Eruptive
						546	S11	E55	0	0	0	31	Q	MAG: Active
						547	S09	E14	0	0	0	31	Q	PRO: Quiet

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The International Space Environment Service

JANUARY 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)

(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 > 10 MeV)
'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

STRATALERT BERLIN 01 JANUARY 2004 1400 UTC STRATALERT EXISTS.
A NEW WARMING PULSE LEADS TO A STRONG INTENSIFICATION OF THE WARM REGION OVER WESTERN ASIA/EASTERN EUROPE. DEVELOPMENT INTO A MAJOR WARMING POSSIBLE.

STRATALERT BERLIN 02 JANUARY 2004 1400 UTC STRATALERT EXISTS.
A STRONG WARMING OVER ASIA/EASTERN EUROPE FURTHER INTENSIFIES AND IS FORECAST TO DEVELOP INTO A MAJOR WARMING.

STRATALERT BERLIN 03 JANUARY 2004 1400 UTC STRATALERT EXISTS.
THE STRONG ASIAN/EUROPEAN WARMING IS INTENSIFYING AND IS FORECAST TO DEVELOP INTO A MAJOR WARMING IN THE NEXT THREE DAYS.

STRATALERT BERLIN 04 JANUARY 2004 1400 UTC STRATALERT EXISTS.
THE WARMING OVER SIBERIA IS FORECAST TO DEVELOP INTO A MAJOR WARMING WITHIN THE NEXT THREE DAYS.

STRATALERT BERLIN 05 JANUARY 2004 1400 UT: STRATALERT EXISTS.
MAJOR WARMING IN PROGRESS.

STRATALERT BERLIN 06 JANUARY 2004 1400 UTC STRATALERT EXISTS.
MAJOR WARMING CONTINUES.

STRATALERT BERLIN 07 JANUARY 2004 1400 UTC STRATALERT EXISTS.
MAJOR WARMING CONTINUES.

STRATALERT BERLIN 08 JANUARY 2004 1400 UTC STRATALERT EXISTS.
MAJOR WARMING CONTINUES.

STRATALERT BERLIN 09 JANUARY 2004 1400 UTC STRATALERT EXISTS.
MAJOR WARMING CONTINUES.

STRATALERT BERLIN 10 JANUARY 2004 1400 UTC STRATALERT EXISTS.
MAJOR WARMING CONTINUES, WEAKENING.

STRATALERT BERLIN 11 JANUARY 2004 1400 UTC STRATALERT EXISTS.
MAJOR WARMING CONTINUING, BUT WEAKENING.

STRATALERT BERLIN 12 JANUARY 2004 1400 UTC STRATALERT EXISTS.

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

JANUARY 2004

MAJOR WARMING LASTS SINCE A WEEK NOW.

STRATALERT BERLIN 13 JANUARY 2004 1400 UTC STRATALERT EXISTS.
MAJOR WARMING LASTS OVER A WEEK NOW.

STRATALERT BERLIN 14 JANUARY 2004 1400 UTC STRATALERT EXISTS.
MAJOR WARMING LASTS OVER A WEEK NOW.

STRATALERT BERLIN 15 JANUARY 2004 1400 UTC STRATALERT EXISTS.
MAJOR WARMING LASTS OVER A WEAK, BUT WEAKENING.

STRATALERT BERLIN 16 JANUARY 2004 1400 UTC STRATALERT EXISTS.
SLOW RETURN TO NORMAL WINTER CONDITIONS, BUT STILL DISTURBED TEMPERATURE DISTRIBUTION IN THE LOWER STRATOSPHERE AFTER THE MAJOR WARMING.

STRATALERT BERLIN 17 JANUARY 2004 1400 UTC STRATALERT EXISTS.
SLOW RETURN TO NORMAL WINTER CONDITIONS, BUT STILL DISTURBED TEMPERATURE DISTRIBUTION IN THE LOWER STRATOSPHERE AFTER THE MAJOR WARMING.

STRATALERT BERLIN 18 JANUARY 2004 1400 UTC STRATALERT EXISTS.
AFTER THE MAJOR WARMING SLOW RETURN TO NORMAL WINTER CONDITIONS, BUT STILL DISTURBED TEMPERATURE DISTRIBUTION IN THE LOWER STRATOSPHERE.

STRATALERT BERLIN 19 JANUARY 2004 1400 UTC STRATALERT EXISTS.
WARM AIR COVERS GREENLAND/NORTHEASTERN ASIA IN THE LOWER STRATOSPHERE, LEADING TO A REVERSED TEMPERATURE GRADIENT BETWEEN 60N AND THE POLE FROM 100 TO 20 HPA.

STRATALERT BERLIN 20 JANUARY 2004 1400 UTC STRATALERT EXISTS.
WARM AIR COVERS GREENLAND/EASTERN SIBERIA IN THE LOWER STRATOSPHERE, LEADING TO A REVERSED TEMPERATURE GRADIENT BETWEEN 60N AND THE POLE FROM 100 TO 20 HPA.

STRATALERT BERLIN 21 JANUARY 2004 1400 UTC STRATALERT EXISTS.
DISTURBED CONDITIONS PREVAIL IN THE LOWER STRATOSPHERE WITH A REVERSED TEMPERATURE GRADIENT BETWEEN 60N AND THE POLE. IN THE UPPER STRATOSPHERE CONDITIONS RETURNED TO NORMAL.

STRATALERT BERLIN 22 JANUARY 2004 1400 UTC STRATALERT EXISTS.
WARM AIR COVERS EASTERN SIBERIA/BAFFIN BAY IN THE LOWER STRATOSPHERE, LEADING TO A REVERSED TEMPERATURE GRADIENT BETWEEN 60N AND THE POLE FROM 100 TO 20 HPA.

STRATALERT BERLIN 23 JANUARY 2004 1400 UTC STRATALERT EXISTS.
DISTURBED TEMPERATURE PATTERN IN THE LOWER, COOLING IN THE UPPER-STRATOSPHERE.

STRATALERT BERLIN 24 JANUARY 2004 1400 UTC STRATALERT EXISTS.
DISTURBED TEMPERATURE AND CIRCULATION PATTERN IN THE LOWER STRATOSPHERE. COOLING IN THE UPPER STRATOSPHERE.

STRATALERT BERLIN 25 JANUARY 2004 1400 UTC STRATALERT EXISTS.
DISTURBED TEMPERATURE AND CIRCULATION PATTERN IN THE LOWER STRATOSPHERE.

STRATALERT BERLIN 26 JANUARY 2004 1400 UTC STRATALERT EXISTS.
THE LOWER STRATOSPHERE SHOWS A HIGHLY DISTURBED TEMPERATURE AND CIRCULATION PATTERN AS A CONSEQUENCE OF THE MAJOR WARMING, WHILE A NEW WARMING PULSE DEVELOPS OVER CENTRAL SIBERIA AT THE UPPER LEVELS.

STRATALERT BERLIN 27 JANUARY 2004 1400 UTC STRATALERT EXISTS.
THE LOWER STRATOSPHERE SHOWS A HIGHLY DISTURBED TEMPERATURE AND CIRCULATION PATTERN AS A CONSEQUENCE OF THE MAJOR WARMING.

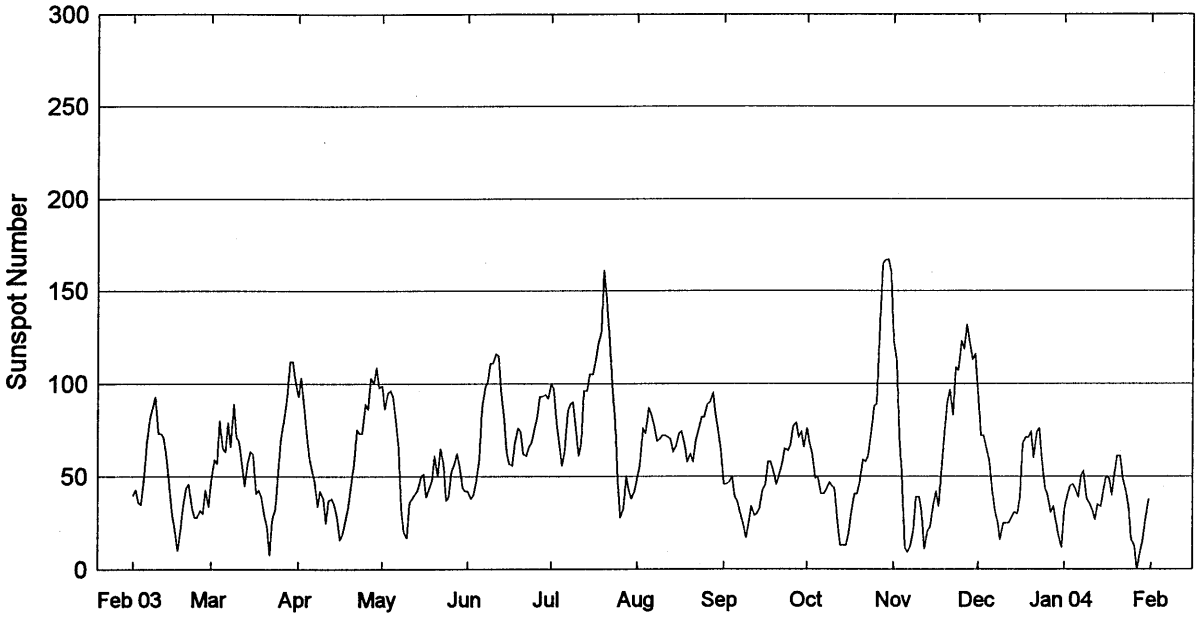
STRATALERT BERLIN 28 JANUARY 2004 1400 UTC STRATALERT EXISTS.
THE LOWER AND MID-STRATOSPHERE SHOW A HIGHLY DISTURBED TEMPERATURE AND CIRCULATION PATTERN AS A CONSEQUENCE OF THE MAJOR WARMING.

STRATALERT BERLIN 29 JANUARY 2004 1400 UTC STRATALERT EXISTS.
DISTURBED TEMPERATURE AND CIRCULATION PATTERN IN THE LOWER STRATOSPHERE.

STRATALERT BERLIN 30 JANUARY 2004 1400 UTC STRATALERT EXISTS.
DISTURBED TEMPERATURE AND CIRCULATOIN PATTERN IN THE LOWER STRATOSPHERE.

STRATALERT BERLIN 31 JANUARY 2004 1400 UTC STRATALERT EXISTS.
CONTINUOUSLY DISTURBED TEMPERATURE AND CIRCULATION PATTERN IN THE LOWER STRATOSPHERE, UNUSUALLY COLD POLAR REGION IN THE UPPER STRATOSPHERE.

International Relative Sunspot Numbers
Feb 2003- Jan 2004

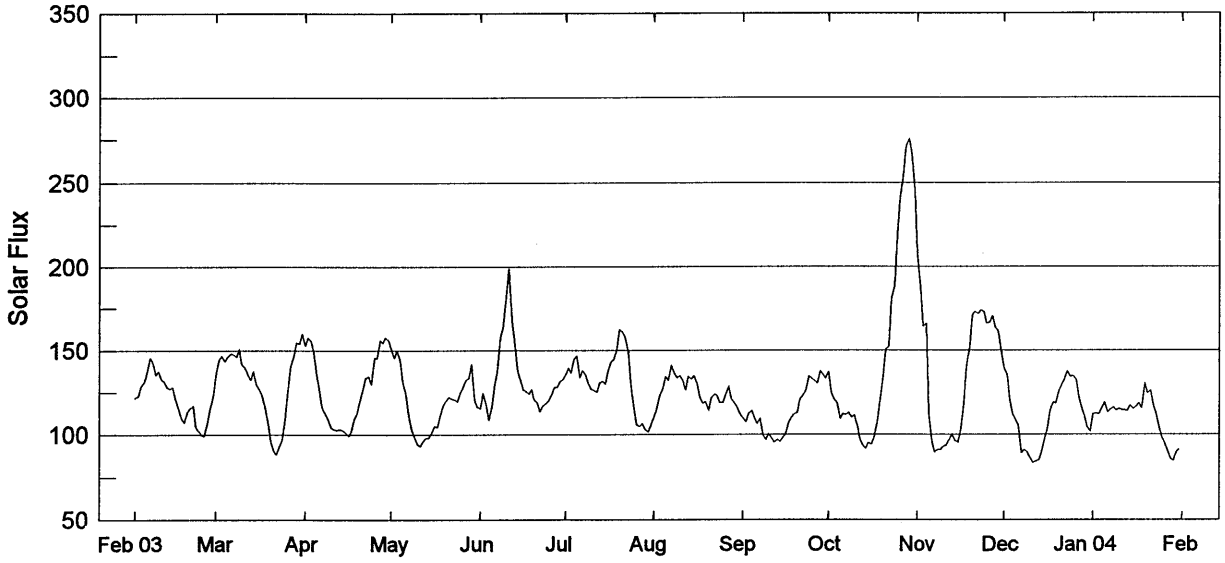


Day	Feb 03	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan 04*
1	40	48	93	99	42	100	49	46	76	124	92	32
2	43	59	103	86	38	97	56	46	68	112	72	40
3	36	57	90	95	40	80	76	47	62	72	72	45
4	35	80	72	96	47	67	73	50	49	52	66	46
5	50	65	60	93	59	56	87	39	50	12	59	44
6	68	63	52	78	86	63	83	37	41	9	45	39
7	82	79	48	65	98	85	78	30	41	12	32	50
8	87	66	34	33	101	89	69	25	43	21	26	53
9	93	89	42	20	111	90	70	17	47	39	16	38
10	73	71	38	17	111	74	72	25	45	39	25	36
11	73	69	25	36	116	61	72	34	44	30	25	32
12	71	56	37	38	115	68	71	29	25	11	25	27
13	59	45	38	41	96	96	70	30	13	21	28	35
14	45	58	35	43	81	96	63	33	13	23	31	34
15	31	63	29	50	63	105	67	42	13	33	30	43
16	20	62	16	51	57	105	73	46	19	42	39	50
17	10	41	19	39	56	112	74	58	30	34	68	49
18	20	43	27	44	68	121	67	58	41	52	71	40
19	33	39	34	48	76	128	58	52	41	70	71	54
20	44	29	45	61	74	161	62	46	47	90	74	61
21	46	23	58	50	62	146	58	50	59	97	60	61
22	34	8	75	65	61	123	69	57	58	83	74	49
23	28	27	73	57	66	100	76	65	61	109	76	42
24	28	33	73	37	68	78	82	64	75	107	59	34
25	32	52	89	39	76	47	82	67	88	123	44	16
26	30	70	86	52	82	28	89	77	89	119	40	13
27	43	81	103	57	93	33	90	79	133	132	31	0
28	34	91	100	62	93	50	95	71	165	121	34	8
29		112	109	56	94	43	85	74	167	113	26	16
30		112	98	44	92	38	74	66	167	116	17	27
31		102		42		42	65		160		12	38
Mean	46.0	61.1	60.0	54.6	77.4	83.3	72.7	48.7	65.5	67.3	46.5	37.2

* = Provisional.

Penticton 2800 MHz (10.7cm) Solar Flux
Feb 2003 - Jan 2004

Adjusted to 1 AU



Day	Feb 03	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan 04
1	122.1	135.6	152.8	151.0	115.5	135.6	110.6	110.1	137.1	207.2	139.3	112.2
2	123.0	144.7	157.3	145.3#	124.8	139.3	114.7	107.6	125.0	187.4	135.4	112.6
3	128.7	146.5	155.7	150.1	117.8	136.7	123.6	112.4	120.3	164.2	120.3	112.3
4	131.0	143.6	148.8#	144.4	108.7	144.8	126.0	114.1	119.0	165.6#	112.5	115.5
5	136.2	146.2	137.5	131.1	117.0	146.7	134.4	109.8	109.6	112.1	108.5	119.0
6	145.4	147.9	126.1	124.1	129.4	134.0	132.4	106.6	112.0	96.1	105.7	113.4
7	143.3	147.6	115.9	112.2	137.2	137.8	140.9	109.4	111.8	89.4	89.3	114.9
8	135.4	146.2	112.6	102.8	158.0	135.7	136.6	100.3	113.1	91.0	90.9	116.1
9	137.6	150.6	109.7	98.9	163.1	130.2	133.6	97.3	110.5	91.2	89.4	114.4
10	132.6	141.7	104.1	94.5	182.0	126.9	134.7	100.6	111.4	92.8	86.5	115.3
11	131.4	139.7	103.0	93.4	198.9	126.1	132.7	98.0	105.4	93.7	83.4	114.6
12	128.2	136.2	102.6	95.8	168.6	125.5	126.6	95.6	97.4	96.7	84.5	114.4
13	127.3	132.5	103.0	98.1	155.8	130.7	134.3	97.3	94.0	100.0	85.0	114.1
14	128.1	137.3	102.6	98.3	137.7	131.4	133.1	95.8	91.9	96.8	89.5	117.1
15	120.6	129.3	101.1	101.4	132.8	129.9	134.7	98.4	95.3	95.6	97.7	115.2
16	115.7	127.2	99.2	104.9	126.5	137.5	130.1	100.4	94.6	102.0	103.0	116.4
17	109.4	123.1#	101.8	104.7	125.8	143.2	122.3	107.0	98.1	118.2	113.8	118.6
18	107.4	117.3	108.7	111.5	124.3	144.3	118.7	110.2	107.8	141.0	119.1	115.6
19	113.6	107.2	113.1	117.4	126.8	150.8	119.5	112.1	119.4	151.5	118.6	130.3
20	115.7	96.6	119.7	120.0	120.8	162.4	114.5	112.9	133.9	171.0	125.9	124.8
21	117.0	90.3	127.0	122.2	118.8	160.7	122.0	120.9	150.2	172.8	129.1	126.0
22	104.3	88.3	133.8	121.3	113.9	157.4	123.7	123.5	152.0#	171.9	133.2	117.9
23	101.8	92.4	134.3	120.9	117.2	148.7	122.9	125.7	181.3#	173.8	137.4	111.6
24	99.9	97.3	129.8	119.8	118.3	129.2	119.0	134.3	188.5	172.8	134.4	104.1
25	99.5	108.2	145.3	124.3	120.2	115.1	119.0	133.4	219.0	166.3	134.6	99.1
26	107.2	126.6	145.5	128.4	122.9	105.9	123.4	131.8	240.6*	166.5	132.7	95.0
27	115.4	140.5	156.1	132.3	128.1	104.9	128.3	130.3	254.0	170.1	122.4#	90.8
28	122.6	146.4	154.3	133.7	128.1	106.6	121.1	137.6	270.9	163.2	115.1	85.9
29		154.6	157.4	141.6	131.6	103.0	118.7	135.6	275.4#	161.4	110.7	84.8
30		154.2	155.8	120.4	132.5	101.7	116.2	133.3	267.6	148.6	104.2	89.9
31		159.8		116.3		105.2	111.8		245.2		102.1	91.6
Mean	121.4	130.8	127.2	118.7	133.4	131.9	125.2	113.4	150.1	137.7	111.4	110.4

NOTE: # - 1700 or 1800UT reading, burst in progress at 2000UT. *-2300UT reading, burst in progress.

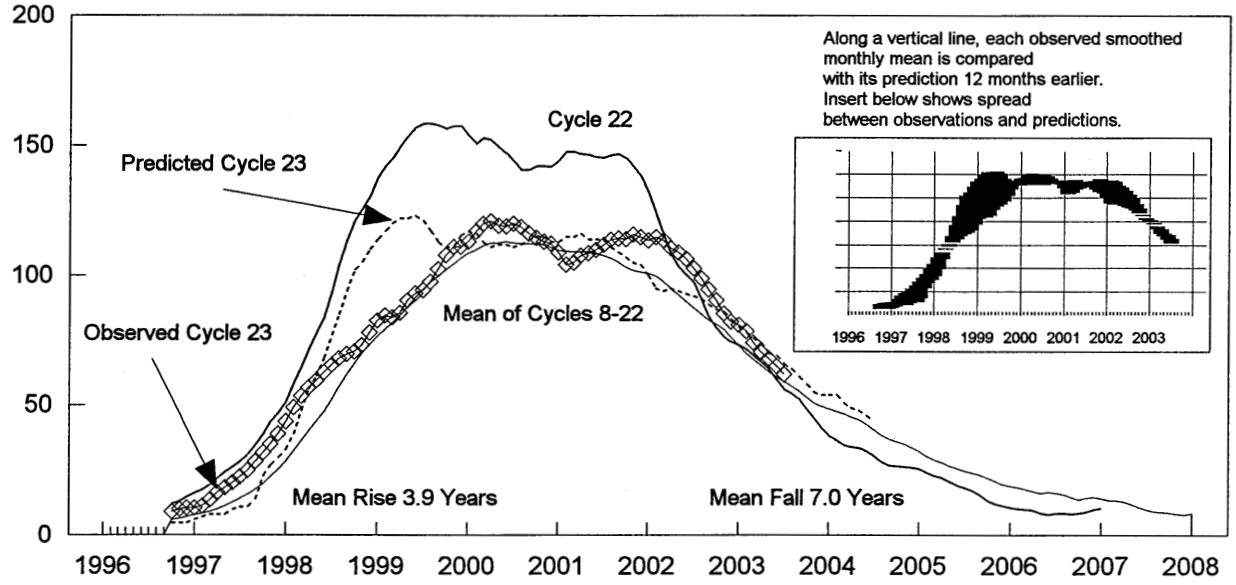
DAILY SOLAR INDICES

January 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	1	10	32	36	116.0	513	281	153	112.2	119	68	46	44	---
2	2	11	40	46	116.5	397	256	146	112.6	115	66	42	44	---
3	3	12	45	51	116.1	434	263	170	112.3	116	65	35	36	---
4	4	13	46	48	119.4	477	269	177	115.5	120	67	36	32	19
5	5	14	44	46	123.0	434	264	173	119.0	112	66	39	35	---
6	6	15	39	43	117.3	519	311	190	113.4	112	63	36	28	22
7	7	16	50	55	118.8	515	296	194	114.9	116	62	35	31	---
8	8	17	53	46	120.1	514	292	186	116.1	120	62	35	29	18
9	9	18	38	48	118.4	517	309	186	114.4	119	62	36	26	17
10	10	19	36	41	119.2	518	298	174	115.3	116	61	38	32	17
11	11	20	32	34	118.5	517	288	179	114.6	118	62	37	30	---
12	12	21	27	32	118.3	512	268	180	114.4	122	65	38	28	15
13	13	22	35	39	117.9	519	274	172	114.1	130	68	36	28	13
14	14	23	34	36	121.1	522	321	171	117.1	124	72	42	32	11
15	15	24	43	45	119.1	519	316	166	115.2	122	74	42	32	11
16	16	25	50	52	120.3	509	310	163	116.4	127	76	45	31	19
17	17	26	49	47	122.6	584	282		118.6		---	52	---	---
18	18	27	40	48	119.5	472	261	155	115.6	119	78	46	34	30
19	19	1	54	62	134.6	518	286	175	130.3	139	85	49	34	13
20	20	2	61	60	128.9	521	293	173	124.8	129	83	47	33	13
21	21	3	61	62	130.1	527	287	173	126.0	132	84	48	32	16
22	22	4	49	54	121.8	513	273	158	117.9	122	83	49	91	
23	23	5	42	46	115.2	519	286	160	111.6	116	76	46	34	18
24	24	6	34	40	107.5	514	300	156	104.1	113	71	45	31	14
25	25	7	16	17	102.3	519	300	153	99.1	110	63	43	31	11
26	26	8	13	6	98.0	515	270	146	95.0	94	61	39	28	10
27	27	9	0	0	93.7	480	277	145	90.8	94	58	38	28	11
28	28	10	8	4	88.5	493	251	135	85.9	87	53	35	27	11
29	29	11	16	16	87.4	513	260	138	84.8	90	52	37	28	13
30	30	12	27	25	92.7	520	265	143	89.9	95	56	35	28	16
31	31	13	38	41	94.4	513	269	144	91.6	94	56	36	28	14
MEAN			37.2	39.4	114.1	505	283	164	110.4	115	67	41	34	15

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

Cycle 23 Smoothed Sunspot Numbers: Observed and Predicted



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

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Avg
1994	37	35	34	34	33	31	29	27	27	27	26	26	31
1995	24	23	22	21	19	18	17	15	13	12	11	11	17
1996	10	10	10	9	8*	9	8	8	8	9**	10	10	8
1997	11	11	14	17	18	20	23	25	28	32	35	39	23
1998	44	49	53	57	59	63	65	68	69	71	73	78	62
1999	83	85	84	85	90	93	94	98	102	108	111	111	95
2000	113	117	120	120.8+	119	119	120	119	116	115	113	112	107
2001	109	104	105	108	109	110	112	114	114	114	115	115	111
2002	114	115	113	111	109	106	103	99	95	91	85	82	102
2003	81	79	74	70	68	65	62	60	58	56	54	53	65
								(3)	(7)	(10)	(12)	(14)	(4)
2004	52	51	49	48	47	46	44	41	39	38	37	36	44
	(15)	(16)	(16)	(17)	(18)	(18)	(19)	(20)	(21)	(21)	(22)	(22)	(19)

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.**

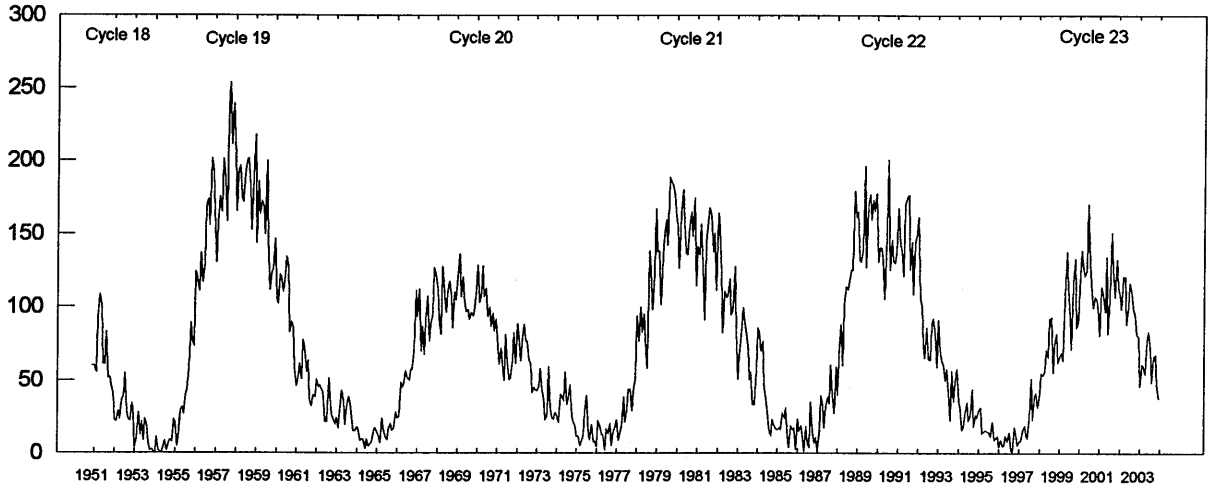
+ April 2000 marks Cycle 23 maximum.

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 July 2004 prediction. There exists a 90% chance that in July 2004, the actual smoothed number will fall somewhere between 25 and 63.

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 - Jan 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												37.2	

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

JANUARY 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	01	0122	0133	0141						19		C 4.0						3.5E-03
GOES		0141	0146	0149						8		C 3.7						1.6E-03
GOES		0316	0321	0323			10528			7		C 6.4						1.5E-03
LEAR		0411	0412	0418	S07	E40	10534	01	4.2	7	SF		3	E		16		
GOES		0535	0540	0547			10534			12		C 2.5						1.5E-03
GOES		0604	0654	0700						56		C 8.0						1.4E-02
GOES		1023	1026	1030						7		C 1.8						6.9E-04
GOES		2234	2242	2249	S07	E73	10536			15	SF	C 3.0						1.8E-03
HOLL		2240	2241	2245	S07	E73	10536	01	7.4	5	SF		3	E		31		F
GOES		2330	2337	2340			10536			10		C 2.0						7.3E-04
GOES	02	0153	0157	0201			10536			8		C 1.0						4.0E-04
GOES		0250	0258	0303	S04	E28	10534			13	SF	C 2.8						1.5E-03
LEAR		0254	0257	0311	S04	E28	10534	01	4.2	17	SF		3	E		37		F
GOES		0941	0946	0949			10536			8		B 8.7						3.2E-04
GOES		1346	1359	1406			10536			20		C 1.2						1.1E-03
GOES		1656	1700	1709			10536			13		C 1.2						8.7E-04
GOES		2107	2121	2133			10536			26		B 9.4						1.1E-03
GOES	03	0001	0005	0014			10536			13		B 5.9						4.4E-04
GOES		0545	0548	0551			10536			6		B 6.4						2.0E-04
GOES		0557	0600	0603	S14	E64	10536			6	SF	B 6.9						2.2E-04
LEAR		0559	0608	0611	S14	E64	10536	01	8.1	12	SF		3	E		15		
GOES		0841	0845	0849	S15	E64	10536			8	SF	B 6.7						2.5E-04
LEAR		0844	0845	0852	S15	E64	10536	01	8.2	8	SF		3	E		33		
GOES		1808	1815	1823			10536			15		C 1.1						7.8E-04
GOES		1832	1837	1849			10536			17		B 8.7						7.5E-04
GOES		1903	1906	1910			10536			7		B 7.8						2.5E-04
GOES		2008	2012	2015			10536			7		B 4.9						1.8E-04
GOES		2056	2100	2103			10536			7		B 5.2						1.9E-04
GOES		2304	2309	2312			10536			8		B 7.7						3.0E-04
GOES	04	0340	0343	0348			10536			8		B 4.0						1.7E-04
GOES		0526	0532	0540						14		B 8.3						6.2E-04
GOES		0636	0639	0643						7		B 6.8						2.5E-04
GOES		0942	0952	1001			10536			19		C 2.8						2.1E-03
GOES		1437	1440	1443			10536			6		B 5.3						1.7E-04
GOES		1507	1526	1548	S06	E45	10536			41	SF	C 3.5						6.1E-03
HOLL		1511	1522	1544	S06	E45	10536	01	8.0	33	SF		3	E		32		F
GOES		1552	1558	1604			10536			12		C 3.7						2.2E-03
GOES		1741	1820	1825			10536			44		C 3.8						3.9E-03
GOES		2025	2035	2042			10536			17		C 1.5						1.3E-03
GOES	05	0006	0016	0031	S11	E39	10536			25	SF	C 7.5						8.3E-03
GOES		0250	0345	0520						150		M 6.9						3.2E-01
GOES		1825	2021	2052						147		C 2.6						1.6E-02
GOES		2053	2112	2127						34		C 4.2						6.7E-03
GOES	06	0225	0228	0231			10537			6		C 1.0						3.4E-04
GOES		0613	0629	0636			10537			23		M 5.8						3.7E-02
GOES		0713	0718	0723						10		C 2.5						1.4E-03
GOES		1754	1757	1800			10537			6		B 6.7						2.2E-04
GOES		2151	2155	2159			10536			8		C 1.0						4.2E-04
GOES		2230	2241	2258	S11	E03	10536			28	SF	C 1.1						1.6E-03
HOLL		2235	2237	2241	S11	E03	10536	01	7.2	6	SF		3	E		12		FH
GOES	07	0009	0014	0024			10537			15		B 9.1						6.9E-04
GOES		0343	0404	0421	N02	E82	10537			38	2N	M 4.5						5.7E-02
GOES		0631	0636	0640			10537			9		B 9.2						3.9E-04
GOES		0715	0721	0731			10536			16		B 7.5						6.5E-04
GOES		0824	0845	0850			10536			26		C 2.9						2.2E-03
GOES		1014	1027	1033	N02	E69	10537			19	SF	M 8.3						4.8E-02
SVTO		1024E	1024U	1111D	N02	E69	10537	01	12.6	47D	SF		1	E		87		F
GOES		1256	1259	1302			10536			6		B 5.4						1.7E-04
GOES		1332	1335	1339			10536			7		B 4.4						1.7E-04
GOES		1431	1435	1438			10536			7		C 1.0						3.1E-04
GOES		1500	1505	1507			10536			7		B 8.4						2.7E-04
HOLL		1520	1521	1525	N04	E68	10537	01	12.7	5	SF		3	E		24		

Hα SOLAR FLARES

JANUARY 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	07	1551	1600	1607			10536			16		B 7.7						6.2E-04
GOES		1739	1742	1745			10537			6		B 7.5						2.3E-04
GOES		1749	1758	1802			10537			13		B 9.6						5.6E-04
GOES	08	0009	0012	0016			10536			7		B 6.4						2.3E-04
GOES		0223	0226	0228	N03	E65	10537			5	SF	B 6.6						1.6E-04
LEAR		0410	0412	0420	N02	E64	10537	01	12.9	10	SF		3	E		18		F
LEAR		0427	0431	0434	N02	E64	10537	01	13.0	7	SF		3	E		11		F
GOES		0453	0507	0521	N01	E64	10537			28	1N	M 1.3						1.6E-02
LEAR		0455	0503	0554	N01	E64	10537	01	13.0	59	1N		3	E		124		FE
GOES		0843	0850	0858			10536			15		B 4.6						3.7E-04
GOES		0934	0937	0944			10536			10		B 5.8						3.0E-04
GOES		1148	1152	1154			10537			6		B 8.5						1.7E-04
GOES		1204	1209	1214						10		B 4.2						2.2E-04
GOES		1214	1217	1220			10536			6		B 7.9						2.2E-04
GOES		1315	1324	1332			10537			17		B 3.2						3.0E-04
GOES		1507	1512	1521			10536			14		B 7.7						4.8E-04
GOES		1636	1641	1646			10537			10		C 1.3						5.1E-04
GOES		1719	1735	1750			10537			31		C 1.1						1.5E-03
GOES		1902	1905	1909			10536			7		B 9.7						3.5E-04
GOES	09	0113	0122	0127	N02	E50	10537			14	2N	M 1.1						4.3E-03
GOES		0133	0144	0154			10537			21		M 3.2						2.9E-02
LEAR		0334	0335	0339	N01	E49	10537	01	12.8	5	SF		3	E		21		FH
GOES		0503	0508	0513	N05	E46	10537			10	1F	C 1.3						5.3E-04
LEAR		0506	0508	0518	N05	E46	10537	01	12.6	12	1F		3	E		54		F
GOES		1006	1010	1012			10536			6		B 6.3						1.6E-04
GOES		1208	1214	1218			10536			10		B 8.9						3.7E-04
GOES		1344	1349	1352			10536			8		B 8.9						2.8E-04
GOES		1632	1636	1638			10536			6		B 5.9						1.5E-04
GOES		1747	1754	1807						20		B 4.5						4.7E-04
GOES		1836	1844	1849	N08	E42	10537			13	SF	C 1.8						8.8E-04
HOLL		1841	1843	1849	N08	E42	10537	01	12.9	8	SF		3	E		42		F
HOLL		1855	1855	1906	S07	W29	10536	01	7.6	11	SF		3	E		12		F
GOES		1933	1936	1941			10536			8		B 5.1						2.2E-04
GOES		1955	1958	2001			10536			6		C 1.0						2.8E-04
GOES		2025	2035	2046			10534			21		B 9.6						8.8E-04
GOES		2133	2136	2138			10536			5		B 5.9						1.3E-04
GOES		2216	2220	2224			10536			8		B 4.8						1.9E-04
GOES		2307	2308	2310			10536			3		C 1.0						1.4E-04
GOES	10	0116	0121	0123	S12	W31	10536			7	SF	C 1.2						3.5E-04
LEAR		0118	0119	0124	S12	W31	10536	01	7.7	6	SF		3	E		12		
GOES		0324	0330	0340	S12	W29	10536			16	SF	C 1.9						1.4E-03
LEAR		0328	0330	0346	S12	W29	10536	01	7.9	18	SF		3	E		41		F
GOES		0412	0425	0431	S11	W30	10536			19	1F	C 7.3						3.5E-03
LEAR		0420	0421	0452	S11	W30	10536	01	7.9	32	1F		3	E		100		F
GOES		0505	0513	0522	S13	W32	10536			17	SF	C 7.7						4.3E-03
LEAR		0508	0512	0540	S13	W32	10536	01	7.8	32	SF		3	E		56		F
GOES		0813	0817	0819			10536			6		B 8.7						1.8E-04
GOES		0957	1001	1005	N06	E30	10537			8	SF	B 9.3						3.0E-04
LEAR		1000	1000	1009	N06	E30	10537	01	12.7	9	SF		3	E		11		F
GOES		1142	1146	1150			10537			8		B 6.1						2.5E-04
GOES		1534	1538	1541			10537			7		B 5.7						2.0E-04
GOES		1718	1721	1724			10537			6		B 8.0						2.5E-04
GOES		1922	1925	1930			10537			8		B 7.2						3.1E-04
GOES		2058	2102	2104	S11	W35	10536			6	SF	C 1.1						2.8E-04
GOES		2205	2215	2233	S08	W45				28	SF	C 1.1						1.6E-03
GOES	11	0314	0318	0325	S11	W43	10536			11	SF	C 1.0						5.0E-04
LEAR		0318	0318	0325	S11	W43	10536	01	7.9	7	SF		3	E		19		
GOES		0413	0416	0427	S11	W40	10536			14	SF	C 1.0						7.5E-04
LEAR		0416	0417	0421	S11	W40	10536	01	8.2	5	SF		3	E		22		F
GOES		0717	0721	0724	S11	W47	10536			7	SF	C 1.6						4.3E-04
SVTO		0721	0721	0724	S11	W47	10536	01	7.8	3	SF		3	E		41		
GOES		1010	1013	1017			10537			7		C 1.1						4.0E-04
GOES		1732	1736	1741			10537			9		B 9.1						3.9E-04
GOES		1828	1834	1837			10537			9		C 1.8						6.0E-04

Hα SOLAR FLARES

JANUARY 2004

Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP	Mo	Day	Dur (Min)	Imp Opt	Xray	See	Obs Type	Area Measurement Time (UT)	Area Measurement Apparent (10-6 Disk)	Area Measurement Corr (Sq Deg)	Remarks
GOES	11	1900	1904	1907			10536				7		C 1.7						4.7E-04
GOES		2206	2209	2211			10536				5		B 6.7						1.8E-04
GOES	12	0343	0348	0352	S11	W56	10536				9	SF	C 1.6						7.0E-04
LEAR		0348	0348	0352	S11	W56	10536	01		7.9	4	SF		3	E		13		F
GOES		0834	0840	0844	S11	W59	10536				10	SF	C 1.8						7.5E-04
LEAR		0838	0840	0848	S11	W59	10536	01		7.9	10	SF		3	E		26		F
GOES		1055	1058	1101			10537				6		B 9.4						2.8E-04
GOES		1141	1145	1147			10536				6		B 6.7						2.1E-04
GOES		1502	1506	1512			10536				10		C 1.1						5.8E-04
GOES		1803	1809	1818			10540				15		B 9.5						7.5E-04
GOES		1912	1917	1923			10540				11		C 1.1						6.0E-04
GOES		2158	2211	2218			10540				20		B 7.7						7.2E-04
GOES		2350	2354	2359	S10	W68	10536				9	SF	B 7.7						3.7E-04
LEAR		2352	2353	2406	S10	W68	10536	01		7.9	14	SF		3	E		14		F
GOES	13	0129	0133	0136			10536				7		C 1.1						4.3E-04
GOES		0239	0246	0251	S06	W75	10536				12	SF	C 2.0						1.1E-03
LEAR		0244	0245	0253	S06	W75	10536	01		7.5	9	SF		3	E		17		F
GOES		0325	0329	0332			10536				7		C 1.7						5.7E-04
GOES		0606	0609	0613	N03	W06	10537				7	SF	C 1.5						5.7E-04
LEAR		0608	0608	0625	N03	W06	10537	01		12.8	17	SF		3	E		20		F
GOES	14	0001	0004	0007			10536				6		B 6.3						2.3E-04
GOES		1304	1309	1325							21		B 6.4						7.1E-04
GOES		1506	1510	1516							10		B 7.1						3.6E-04
GOES		1555	1602	1608			10536				13		C 1.0						6.3E-04
GOES	15	0119	0123	0126			10540				7		B 6.2						2.3E-04
GOES		0620	0632	0637	S16	E52	10540				17	1F	C 3.2						2.3E-03
LEAR		0624	0629	0643	S16	E52	10540	01		19.2	19	1F		3	E		111		F
GOES		2257	2304	2313			10540				16		C 1.2						8.9E-04
GOES	16	0113	0119	0124	N05	W47	10537				11	SF	B 9.3						4.5E-04
LEAR		0119	0120	0128	N05	W47	10537	01		12.5	9	SF		3	E		70		
GOES		0138	0141	0144							6		B 4.6						1.5E-04
GOES		0433	0437	0440			10540				7		B 4.5						1.6E-04
GOES	17	0105	0108	0110							5		B 4.1						1.1E-04
GOES		0335	0348	0400	S15	E28	10540				25	SF	C 1.6						1.9E-03
LEAR		0342	0355	0405	S15	E28	10540	01		19.3	23	SF		3	E		17		F
GOES		0618	0623	0627							9		B 5.3						2.5E-04
GOES		0751	0801	0816	S15	E26	10540				25	SF	C 1.0						1.2E-03
LEAR		0756	0756	0813	S15	E26	10540	01		19.3	17	SF		3	E		26		F
GOES		0911	0916	0920	S12	E20	10540				9	SF	C 1.4						5.4E-04
SVTO		0914	0915	0922	S12	E20	10540	01		18.9	8	SF		3	E		22		FH
LEAR		0914	0915	0924	S12	E20	10540	01		18.9	10	SF		3	E		36		FH
GOES		0935	0944	0950	N08	W65	10537				15	SF	C 1.2						9.3E-04
LEAR		0938	0941	0950	N05	W64	10537	01		12.6	12	SF		3	E		89		F
SVTO		0939	0940	0946	N08	W65	10537	01		12.5	7	SF		3	E		97		F
GOES		1208	1213	1219			10540				11		B 5.6						3.1E-04
GOES		1243	1249	1254			10540				11		C 1.5						6.9E-04
GOES		1510	1517	1522			10540				12		C 1.1						5.9E-04
GOES		1735	1750	1759			10540				24		M 5.0						3.3E-02
GOES	18	0007	0017	0021	S15	E19	10540				14	1N	M 1.4						5.3E-03
LEAR		0014	0017	0030	S15	E19	10540	01		19.4	16	1N		3	E		109		FE
GOES		0148	0151	0154							6		B 6.3						2.0E-04
GOES		0553	0600	0603	S16	E16	10540				10	SF	B 5.7						3.0E-04
LEAR		0558	0600	0603	S16	E16	10540	01		19.5	5	SF		3	E		13		F
GOES		1033	1037	1039			10540				6		B 7.0						1.7E-04
GOES		1150	1153	1155			10540				5		B 5.0						1.3E-04
GOES		1344	1357	1401	N05	W83	10537				17	SF	C 1.4						9.9E-04
SVTO		1348	1353	1356	N05	W83	10537	01		12.4	8	SF		3	E		44		
GOES		1941	2003	2022							41		C 3.7						7.4E-03
GOES		2140	2144	2149			10540				9		C 1.4						5.9E-04
GOES	19	0102	0108	0112			10537				10		C 1.1						5.5E-04

Hα SOLAR FLARES

JANUARY 2004

Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp Opt	Imp Xray	Imp See	Obs Type	Area Measurement Time (UT)	Area Measurement Apparent (10-6 Disk)	Area Measurement Corr (Sq Deg)	Remarks
GOES	19	0138	0143	0149			10540			11		B 6.7						3.5E-04
GOES		0206	0213	0219			10540			13		C 1.1						7.3E-04
GOES		0226	0231	0235			10540			9		C 1.7						6.7E-04
GOES		0248	0255	0303			10540			15		C 1.2						8.5E-04
GOES		0442	0447	0455						13		B 5.8						4.1E-04
GOES		0525	0532	0535	S17	E05	10540			10	SF	M 1.0						3.2E-03
LEAR		0529	0533	0543	S17	E05	10540	01	19.6	14	SF		3	E		60		F
LEAR		0658	0658	0703	S15	W01	10540	01	19.2	5	SF		3	E		14		F
GOES		0932	0936	0938			10537			6		C 1.0						2.9E-04
GOES		1230	1240	1246			10540			16		M 1.0						6.3E-03
GOES		1425	1439	1456			10543			31		C 3.4						4.5E-03
GOES		1738	1743	1746			10537			8		C 1.5						4.7E-04
GOES		1954	2002	2008	S15	W03	10540			14	SF	C 8.2						4.1E-03
HOLL		1958	2000	2024	S15	W03	10540	01	19.6	26	SF		3	E		96		U
GOES		2202	2445	2629						267		C 5.5						4.6E-02T
LEAR		2346	2440	2537	S13	W09	10540	01	19.3	111	SF		3	E		71		FT
GOES	20	0729	0743	0747	S16	W12	10540			18	2N	M 6.1						2.8E-02
SVTO		0734	0744	0810	S16	W12	10540	01	19.4	36	2N		3	E		328		F
GOES	21	0020	0036	0102			10543			42		C 2.3						4.2E-03
LEAR		0025	0029	0059	S16	W12	10543	01	20.1	34	SF		3	E		51		F
GOES		0402	0511	0530						88		C 1.2						4.8E-03
GOES		1031	1052	1112						41		B 7.6						1.7E-03
GOES		1706	1720	1729						23		B 8.6						8.7E-04
GOES		1908	1913	1916						8		B 7.4						3.1E-04
GOES		2340	2347	2357			10540			17		B 7.2						5.8E-04
GOES	22	0930	0935	0940			10544			10		B 5.7						2.9E-04
GOES		1705	1713	1726						21		B 8.1						8.9E-04
GOES	23	1115	1122	1127			10542			12		B 2.7						1.8E-04
GOES		1611	1619	1624			10540			13		B 3.3						2.3E-04
GOES		1800	1804	1808			10544			8		B 2.5						1.2E-04
GOES	24	0449	0455	0459			10540			10		B 2.5						1.4E-04
GOES		1006	1009	1012			10540			6		B 2.5						8.9E-05
GOES	25	0756	0800	0802			10540			6		B 4.3						1.2E-04
GOES		1322	1325	1327			10540			5		B 3.9						9.2E-05
GOES		2223	2241	2250			10543			27		C 6.3						6.3E-03
HOLL		2227	2227	2249	N11	W70	10542	01	20.7	22	SF		3	E		23		F
HOLL		2232	2232	2248	S18	W72	10543	01	20.4	16	SF		3	E		64		F
GOES	26	0602	0610	0614			10542			12		C 1.6						5.9E-04
GOES		1155	1205	1215			10540			20		B 8.3						7.8E-04
GOES		2341	2346	2351						10		B 2.6						1.4E-04
GOES	27	1428	1439	1449			10542			21		B 3.0						3.4E-04
GOES		1740	1744	1749			10542			9		B 2.5						1.2E-04
GOES	30	1040	1043	1048						8		B 5.9						2.6E-04
GOES		1143	1152	1157						14		C 1.4						8.8E-04
GOES		1221	1225	1228						7		C 1.1						3.8E-04
GOES		1245	1253	1303						18		B 8.3						7.8E-04
GOES		1601	1608	1614						13		C 2.1						1.1E-03
GOES		2007	2011	2016						9		B 4.9						2.3E-04
GOES		2102	2107	2111						9		C 1.0						4.1E-04
GOES		2256	2302	2304						8		B 2.3						9.6E-05
GOES		2318	2324	2328						10		B 8.0						3.1E-04
GOES	31	0212	0219	0224			10549			12		B 2.7						1.7E-04
GOES		0358	0412	0421			10549			23		B 6.3						6.2E-04
GOES		0537	0540	0542			10549			5		B 3.0						7.4E-05
GOES		0607	0622	0628			10549			21		C 4.1						2.7E-03
GOES		0824	0828	0834			10549			10		B 1.8						1.0E-04
GOES		1742	1750	1757			10549			15		B 2.5						2.0E-04
GOES		2147	2151	2155			10549			8		B 2.4						9.5E-05

SOLAR RADIO EMISSION
Selected Fixed Frequency Events

JANUARY 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	8800	SGMR	8	S	1336.0	1336.0	U	24.0			QL=4 ST=2 TYP=3
	8800	PALE	4	S/F	2237.0	2238.0	3.0	67.0			QL=4 ST=2 TYP=3
	2695	PALE	8	S	2238.0	2239.0	2.0	60.0			QL=4 ST=2 TYP=3
03	2695	PALE	8	S	1834.0	1834.0	U	83.0			QL=4 ST=2 TYP=3
	8800	PALE	8	S	1834.0	1834.0	U	45.0			QL=4 ST=2 TYP=3
	8800	SGMR	8	S	1834.0	1834.0	U	54.0			QL=4 ST=2 TYP=3
	2695	SGMR	8	S	1834.0	1834.0	U	81.0			QL=4 ST=2 TYP=3
04	8800	SGMR	4	S/F	1508.0	1510.0	13.0	74.0			QL=4 ST=2 TYP=3
	2695	SGMR	4	S/F	1510.0	1510.0	10.0	52.0			QL=4 ST=2 TYP=3
	8800	SGMR	8	S	1818.0	1819.0	1.0	41.0			QL=4 ST=2 TYP=3
05	8800	PALE	48	C	0307.0	0321.0	31.0	470.0			QL=4 ST=2 TYP=8
	8800	LEAR	48	C	0307.0	0320.0	73.0	420.0			QL=4 ST=2 TYP=8
	2695	PALE	48	C	0307.0	0321.0	1253.0	510.0			QL=4 ST=1 TYP=8
	2695	LEAR	48	C	0309.0	0320.0	52.0	400.0			QL=4 ST=2 TYP=8
06	2695	LEAR	48	C	0619.0	0622.0	14.0	340.0			QL=4 ST=2 TYP=8
	8800	LEAR	49	GB	0619.0	0622.0	17.0	2600.0			QL=4 ST=2 TYP=6
07	8800	LEAR	48	C	0356.0	0359.0	18.0	1100.0			QL=4 ST=2 TYP=8
	8800	SVTO	4	S/F	0840.0	0841.0	7.0	160.0			QL=4 ST=2 TYP=3
	8800	LEAR	8	S	0841.0	0841.0	1.0	120.0			QL=4 ST=2 TYP=3
	2695	LEAR	48	C	1018.0	1022.0	13.0	410.0			QL=4 ST=2 TYP=8
	2695	SVTO	49	GB	1018.0	1022.0	15.0	510.0			QL=4 ST=2 TYP=6
	8800	SVTO	49	GB	1018.0	1022.0	21.0	1200.0			QL=4 ST=2 TYP=6
	8800	LEAR	48	C	1020.0	1022.0	7.0	760.0			QL=4 ST=2 TYP=8
08	8800	LEAR	4	S/F	0456.0	0459.0	4.0	110.0			QL=4 ST=2 TYP=3
	2695	LEAR	4	S/F	0456.0	0456.0	3.0	73.0			QL=4 ST=2 TYP=3
	2695	SGMR	8	S	1639.0	1640.0	1.0	68.0			QL=4 ST=2 TYP=3
	8800	SGMR	8	S	1639.0	1640.0	1.0	36.0			QL=4 ST=2 TYP=3
09	8800	LEAR	8	S	0119.0	0120.0	2.0	210.0			QL=4 ST=2 TYP=3
	8800	PALE	4	S/F	0119.0	0121.0	3.0	260.0			QL=4 ST=2 TYP=3
	8800	PALE	48	C	0133.0	0141.0	31.0	140.0			QL=4 ST=2 TYP=8
	2695	PALE	48	C	0139.0	0200.0	26.0	230.0			QL=4 ST=2 TYP=8
	2695	LEAR	4	S/F	0140.0	0141.0	4.0	140.0			QL=4 ST=2 TYP=3
	8800	LEAR	4	S/F	0140.0	0141.0	3.0	98.0			QL=4 ST=2 TYP=3
	2695	LEAR	48	C	0147.0	0149.0	6.0	130.0			QL=4 ST=2 TYP=8
	2695	LEAR	4	S/F	0158.0	0200.0	5.0	180.0			QL=4 ST=2 TYP=3
	8800	LEAR	8	S	0159.0	0159.0	1.0	75.0			QL=4 ST=2 TYP=3
	8800	PALE	8	S	0213.0	0213.0	2.0	77.0			QL=4 ST=2 TYP=3
	2695	SGMR	8	S	1841.0	1841.0	1.0	21.0			QL=4 ST=2 TYP=3
10	8800	LEAR	8	S	0420.0	0421.0	1.0	62.0			QL=4 ST=2 TYP=3
17	2695	SVTO	8	S	0913.0	0913.0	U	28.0			QL=4 ST=2 TYP=3
	2695	PALE	49	GB	1744.0	1747.0	4.0	580.0			QL=4 ST=2 TYP=6
	8800	PALE	4	S/F	1745.0	1747.0	3.0	370.0			QL=4 ST=2 TYP=3
	8800	SGMR	4	S/F	1750.0E	1752.0U	12.0D	42.0			QL=2 ST=3 TYP=3
18	8800	LEAR	8	S	0013.0	0014.0	1.0	150.0			QL=4 ST=2 TYP=3
	2695	LEAR	8	S	0013.0	0014.0	1.0	140.0			QL=4 ST=2 TYP=3
	2695	PALE	8	S	0014.0	0014.0	1.0	190.0			QL=4 ST=3 TYP=3
	8800	PALE	8	S	0014.0	0014.0	1.0	220.0			QL=4 ST=3 TYP=3
19	2695	SGMR	8	S	1233.0	1234.0	1.0	38.0			QL=4 ST=2 TYP=3
	2695	SVTO	4	S/F	1233.0	1240.0	8.0	59.0			QL=4 ST=2 TYP=3
	8800	SVTO	48	C	1233.0	1234.0	8.0	76.0			QL=4 ST=2 TYP=8
	2695	SGMR	4	S/F	1238.0	1240.0	3.0	58.0			QL=4 ST=2 TYP=3
	8800	SGMR	4	S/F	1238.0	1240.0	5.0	100.0			QL=4 ST=2 TYP=3
	2695	SGMR	4	S/F	1958.0	1959.0	3.0	67.0			QL=4 ST=2 TYP=3
	8800	SGMR	4	S/F	1958.0	1959.0	5.0	69.0			QL=4 ST=2 TYP=3
	2695	PALE	8	S	1959.0	2000.0	1.0	77.0			QL=4 ST=2 TYP=3
20	2695	SVTO	4	S/F	0733.0	0734.0	3.0	150.0			QL=4 ST=2 TYP=3
	2695	LEAR	8	S	0734.0	0734.0	1.0	110.0			QL=4 ST=2 TYP=3

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

JANUARY 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
20	8800	LEAR	8 S	0734.0	0735.0	1.0	57.0			QL=4 ST=2 TYP=3
	8800	SVTO	8 S	0735.0	0735.0	U	51.0			QL=4 ST=2 TYP=3

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

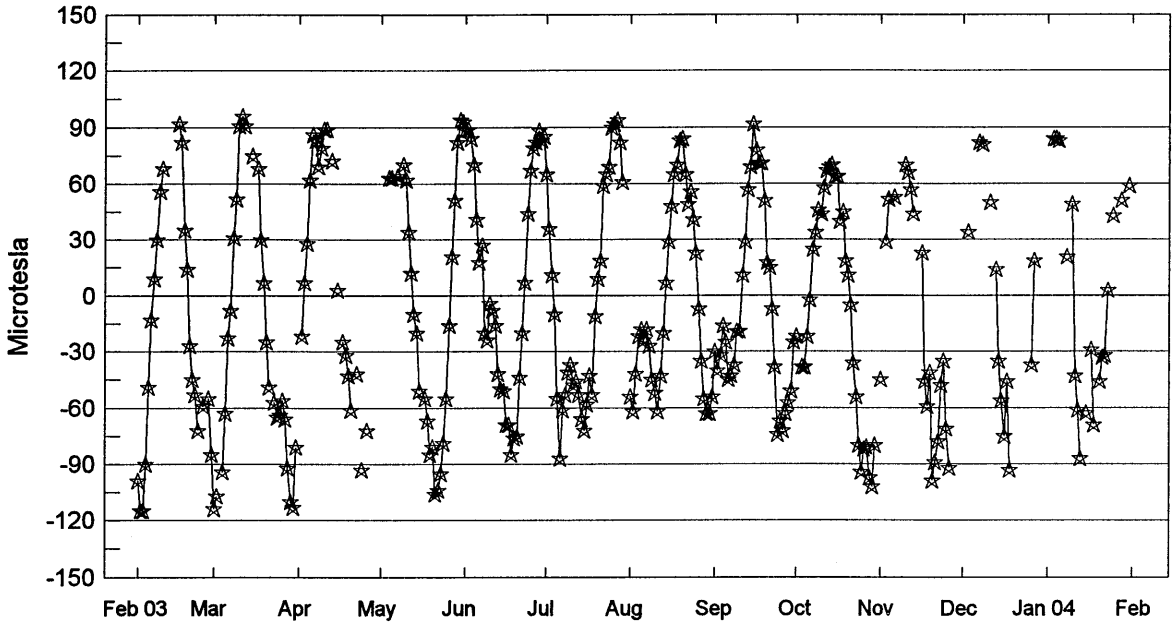
Explanation of Type Code:

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

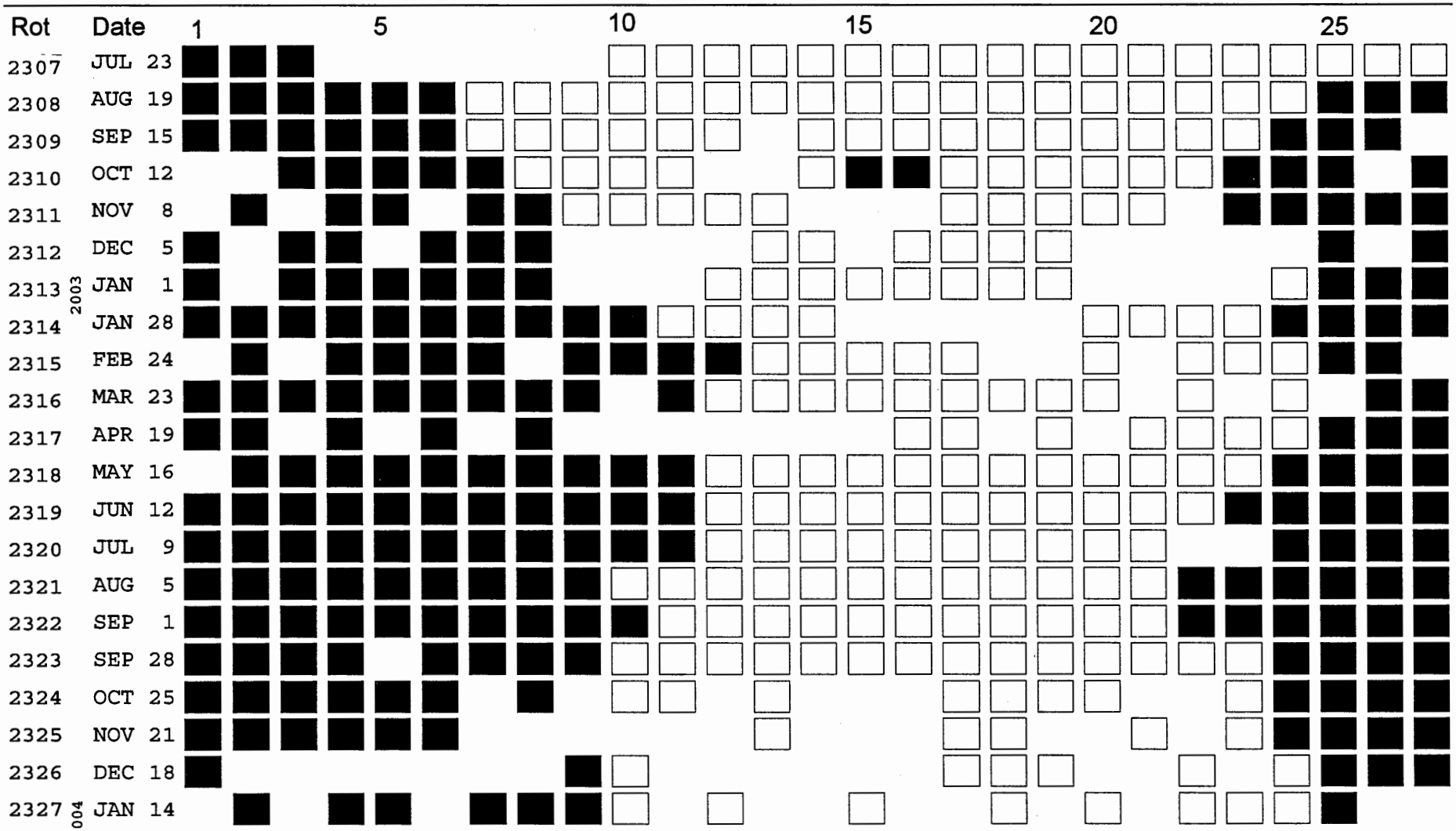
RSTN Site Information: Beginning in April 1986, the RSTN sites LEAR, PALE, SGMR, and SVTO fixed frequency solar radio data are periodically adjusted to several world standard stations. These world standard stations include: Kislovodsk, USSR 15,500 MHz; Penticton, Canada 2800 MHz; and Hiraiso, Japan 500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

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



Day	Feb 03	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan 04
1	-99	-114	---	---	89	65	-54	-30	-22	-45	---	---
2	-115	-107	-22	---	89	36	-62	-40	---	---	---	.
3	-115	---	7	---	84	11	-42	-32	-38	29	34	84
4	-90	-94	28	63	70	-10	-22	-16	-38	52	---	84
5	-49	-63	62	63	41	-55	-18	-25	-22	---	---	83
6	-13	-23	86	---	18	-87	-24	-45	-2	53	---	---
7	9	-8	83	64	27	-61	-18	-43	25	---	82	---
8	30	31	69	---	-20	-53	-27	-37	34	---	81	21
9	56	52	79	70	-24	-41	-45	-19	46	---	---	---
10	68	91	89	62	-4	-37	-52	-19	44	70	---	49
11	---	96	89	34	-8	-48	-62	11	58	66	50	-43
12	---	91	---	12	-16	-46	-43	29	67	57	---	-61
13	---	---	72	-10	-42	-53	-20	57	69	44	14	-87
14	---	---	---	-20	-50	-66	7	69	70	---	-35	---
15	---	75	3	-51	-51	-72	29	92	64	---	-56	-63
16	92	---	---	---	-69	-58	48	78	64	23	-75	---
17	82	68	-25	-55	-69	-43	65	71	40	-46	-46	-29
18	35	30	-32	-67	-85	-53	70	71	45	-59	-93	-69
19	14	7	-43	-85	-76	-11	83	51	19	-41	---	---
20	-27	-25	-61	-81	-75	9	84	18	11	-99	---	-46
21	-45	-49	---	-106	-44	19	65	15	-5	-89	---	-33
22	-53	---	-42	-104	-20	59	49	-7	-36	-78	---	-32
23	-72	-57	---	-95	7	65	56	-38	-54	-48		3
24	---	-65	-93	-79	44	69	41	-74	-80	-35	---	---
25	-59	-64	---	-55	67	90	23	-67	-94	-71	---	43
26	---	-56	-72	-16	79	92	-7	-72	-82	-92	-37	---
27	-55	-66	---	21	82	94	-35	-63	-81	---	19	---
28	-85	-92	---	51	88	82	-55	-57	-97	---	---	51
29		-110	---	82	83	61	-63	-51	-102	---	---	---
30		-113	---	94	85	---	-63	-25	-80		---	---
31		-81		93		---	-54		---		---	59

STANFORD MEAN SOLAR MAGNETIC FIELD

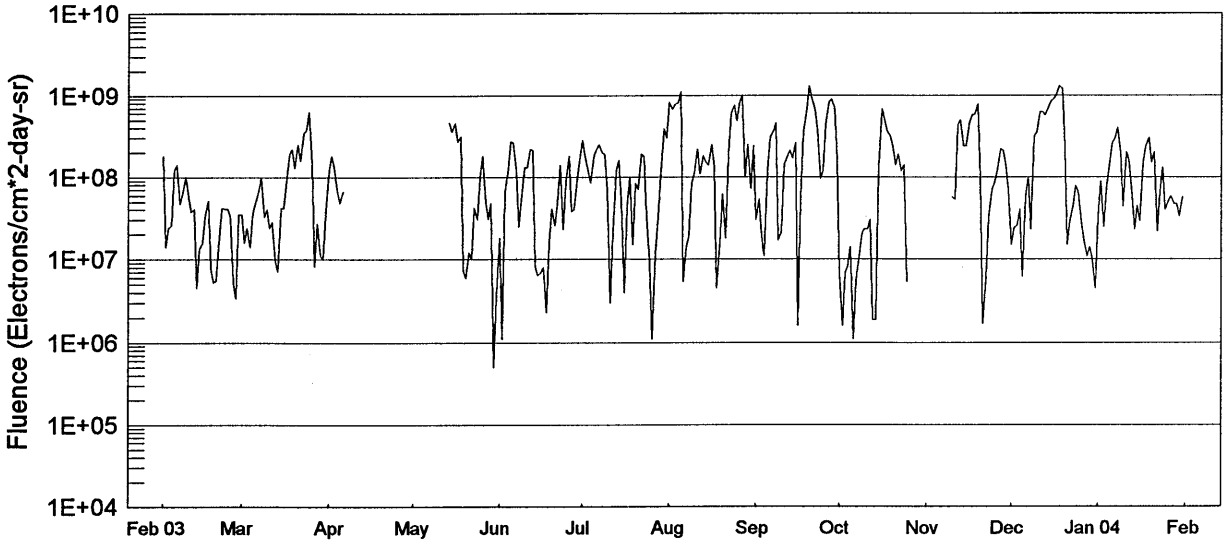


Mean Solar Magnetic Field Polarity: □ = field > 2 microT; ▒ = -2 microT ≤ field ≤ 2 microT

■ = 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
Feb 2003 - Jan 2004



Day	Feb 03	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan 04
1	1.8E+08	3.5E+07	4.5E+08	--	1.8E+07	2.8E+08	8.1E+08	3.0E+07	6.7E+06	-999	1.5E+07	3.3E+07
2	1.4E+07	1.6E+07	6.3E+08	sensor	1.1E+06	1.8E+08	6.8E+08	5.4E+07	1.6E+06	-999	2.4E+07	8.8E+07
3	2.4E+07	2.4E+07	3.0E+08	problems	6.5E+07	1.2E+08	7.7E+08	1.9E+07	6.9E+06	-999	2.6E+07	2.5E+07
4	2.6E+07	1.4E+07	1.4E+08	--	1.2E+08	8.5E+07	8.2E+08	1.1E+07	8.2E+06	-999	4.0E+07	7.2E+07
5	1.2E+08	3.6E+07	1.7E+08	--	2.7E+08	1.8E+08	1.1E+09	1.2E+08	1.4E+07	-999	6.2E+06	1.5E+08
6	1.4E+08	5.2E+07	1.6E+08	--	2.6E+08	2.2E+08	5.4E+06	3.0E+08	1.1E+06	-999	5.9E+07	2.6E+08
7	4.7E+07	6.8E+07	1.7E+08	sensor	1.2E+08	2.5E+08	1.4E+07	3.6E+08	5.7E+06	-999	1.0E+08	2.9E+08
8	6.3E+07	9.9E+07	--	problems	2.5E+07	2.0E+08	1.9E+07	4.5E+08	1.1E+07	-999	2.3E+07	4.0E+08
9	1.0E+08	3.3E+07	--	--	6.4E+07	1.9E+08	8.3E+07	1.7E+07	2.0E+07	-999	3.2E+08	2.0E+08
10	6.1E+07	4.0E+07	--	--	1.3E+08	7.0E+07	1.1E+08	2.1E+07	2.3E+07	5.6E+07	3.5E+08	4.4E+07
11	3.8E+07	2.4E+07	--	--	1.3E+08	3.0E+06	2.2E+08	1.4E+08	2.3E+07	5.4E+07	6.2E+08	2.0E+08
12	4.0E+07	2.8E+07	sensor	--	2.2E+08	2.1E+07	1.1E+08	1.7E+08	3.0E+07	4.4E+08	6.3E+08	1.6E+08
13	4.5E+06	9.7E+06	problems	--	2.1E+08	1.2E+08	1.8E+08	2.1E+08	1.9E+06	5.0E+08	5.7E+08	7.3E+07
14	1.3E+07	7.2E+06	--	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
15	1.6E+07	4.2E+07	--	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
16	3.4E+07	4.2E+07	--	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
17	5.2E+07	8.4E+07	sensor	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
18	7.7E+06	1.9E+08	problems	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
19	5.3E+06	2.2E+08	--	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
20	5.5E+06	1.3E+08	--	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
21	1.8E+07	2.5E+08	--	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
22	4.2E+07	1.6E+08	sensor	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
23	4.1E+07	3.5E+08	problems	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
24	4.1E+07	3.7E+08	--	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
25	3.3E+07	6.3E+08	--	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
26	5.2E+06	1.4E+08	--	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
27	3.4E+06	8.3E+06	sensor	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
28	3.5E+07	2.7E+07	problems	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
29		1.1E+07	--	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
30		1.0E+07	--	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
31		3.7E+07		3.6E+06		3.0E+08	2.4E+08		-999		4.5E+06	5.9E+07

NOTE: The electron detector responds significantly to protons above 32 MeV; therefore, electron data are contaminated when a proton event is in progress. These days are indicated with '-999' in the table and are not plotted. '--' indicates data not available.
NOTE: GOES9 data began April, 1996 and ended on 26 July, 1998. GOES12 is primary satellite as of 15 May 2003.

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CONTENTS

Prompt Reports — Number 714 Part I

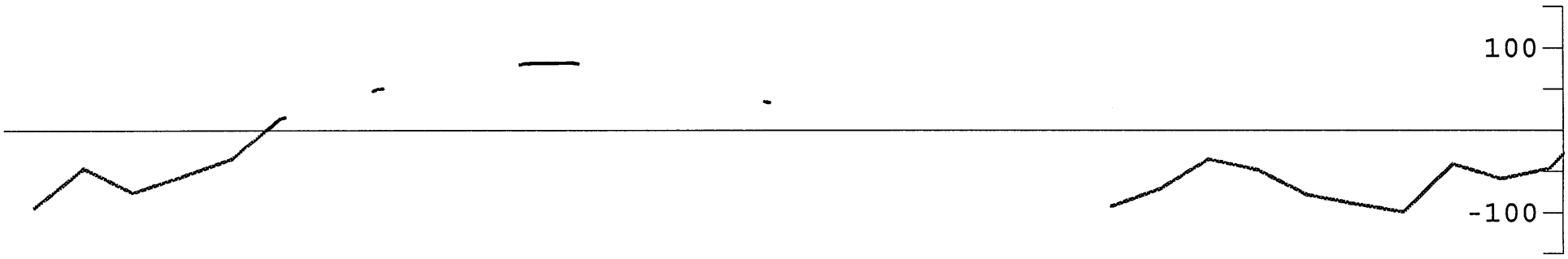
DATA FOR DECEMBER 2003

SOLAR MAGNETIC FIELD SYNOPTIC CHART

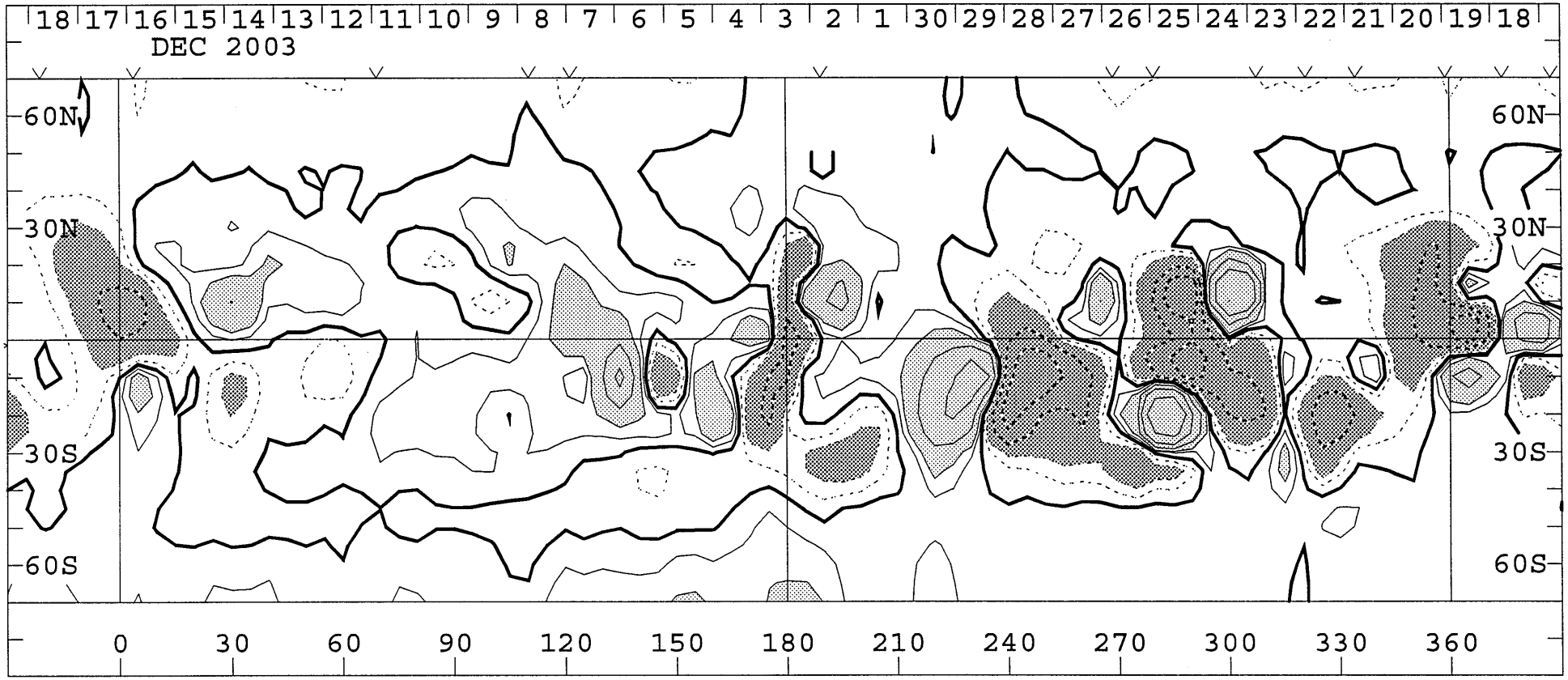
CARRINGTON ROTATION NUMBER 2010

(19 November to 17 December 2003)

WILCOX SOLAR OBSERVATORY



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



Heliographic Longitude

2010

SOLAR MAGNETIC FIELD SYNOPTIC CHART

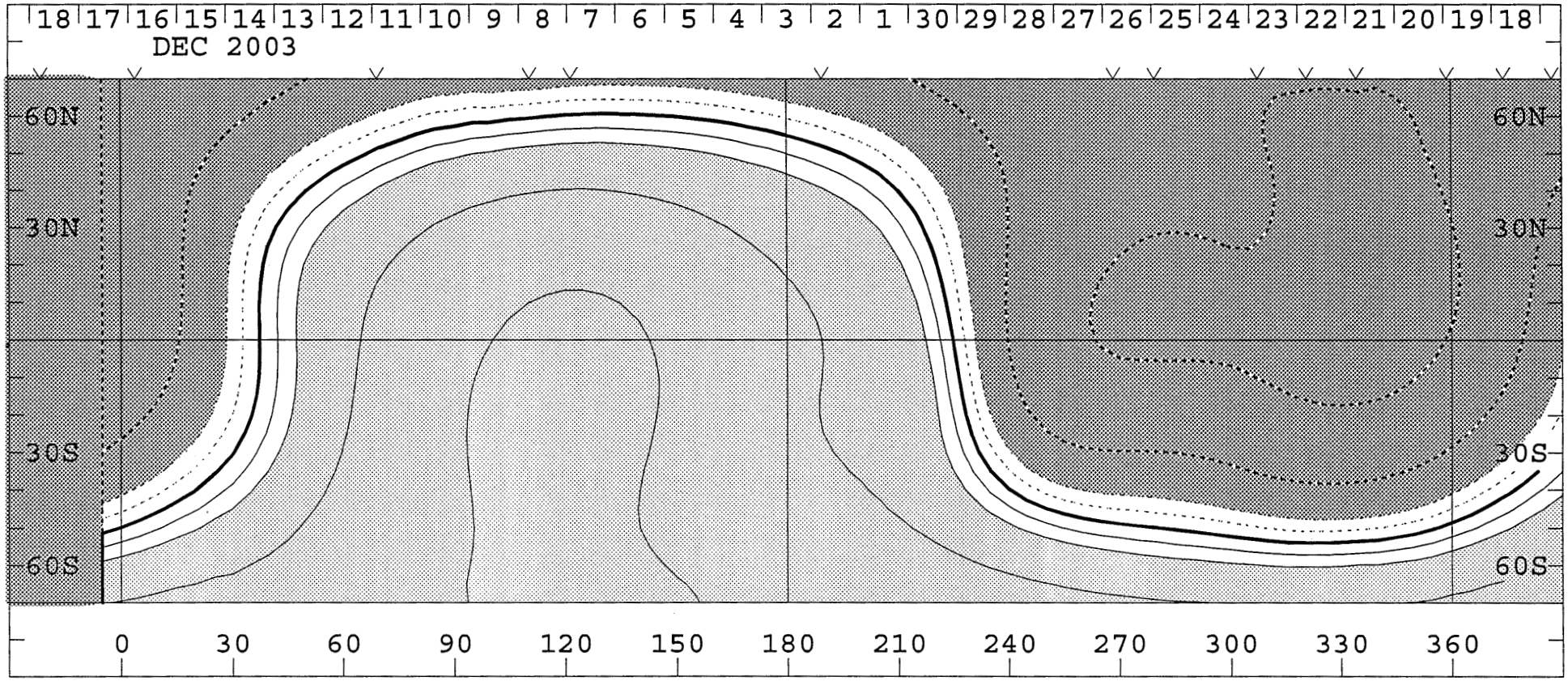
SOURCE SURFACE FIELD

CARRINGTON ROTATION NUMBER 2010

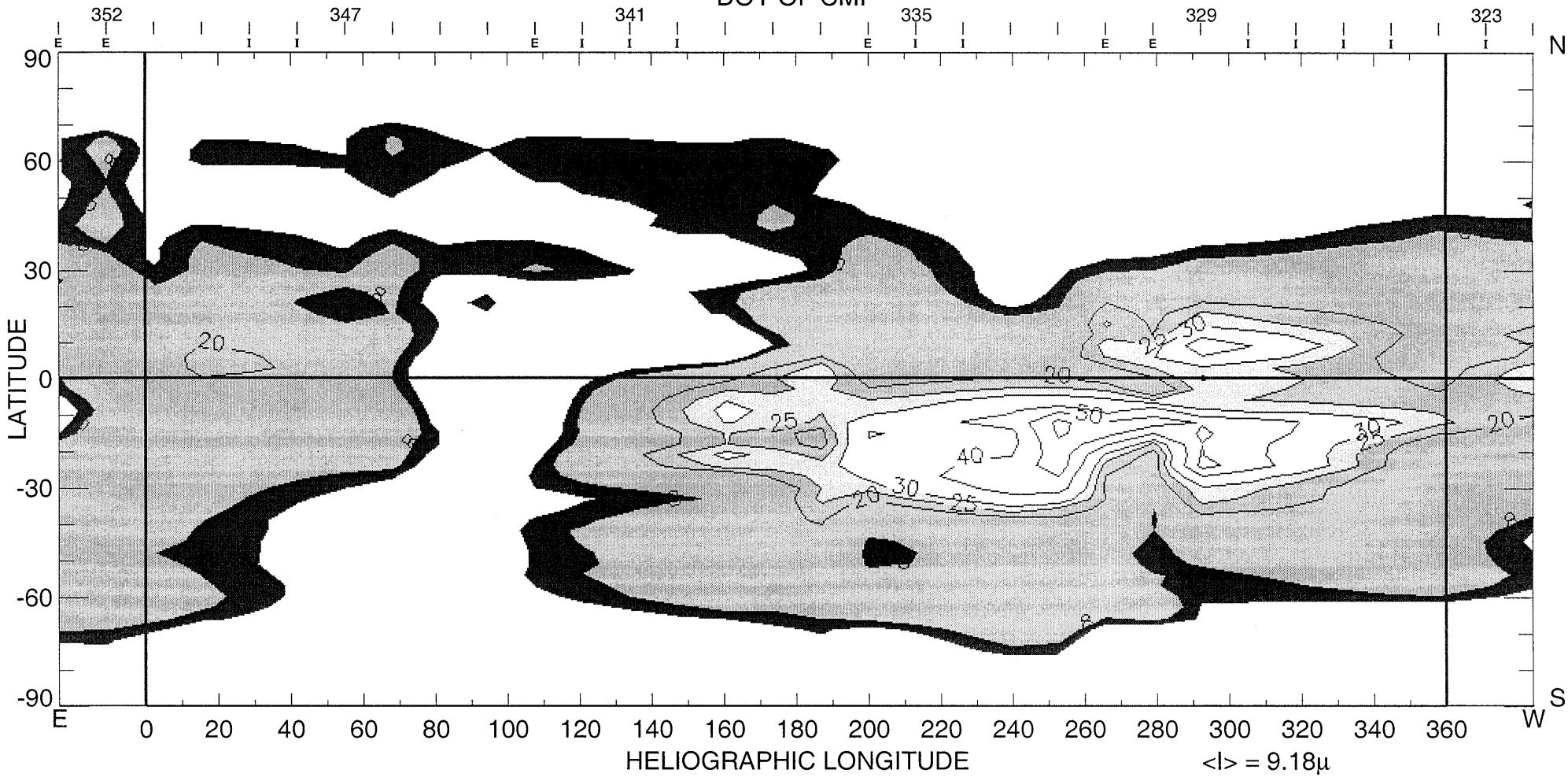
(19 November to 17 December 2003)

Wilcox Solar Observatory

0, ±1, 2, 5, 10, 20 microTesla

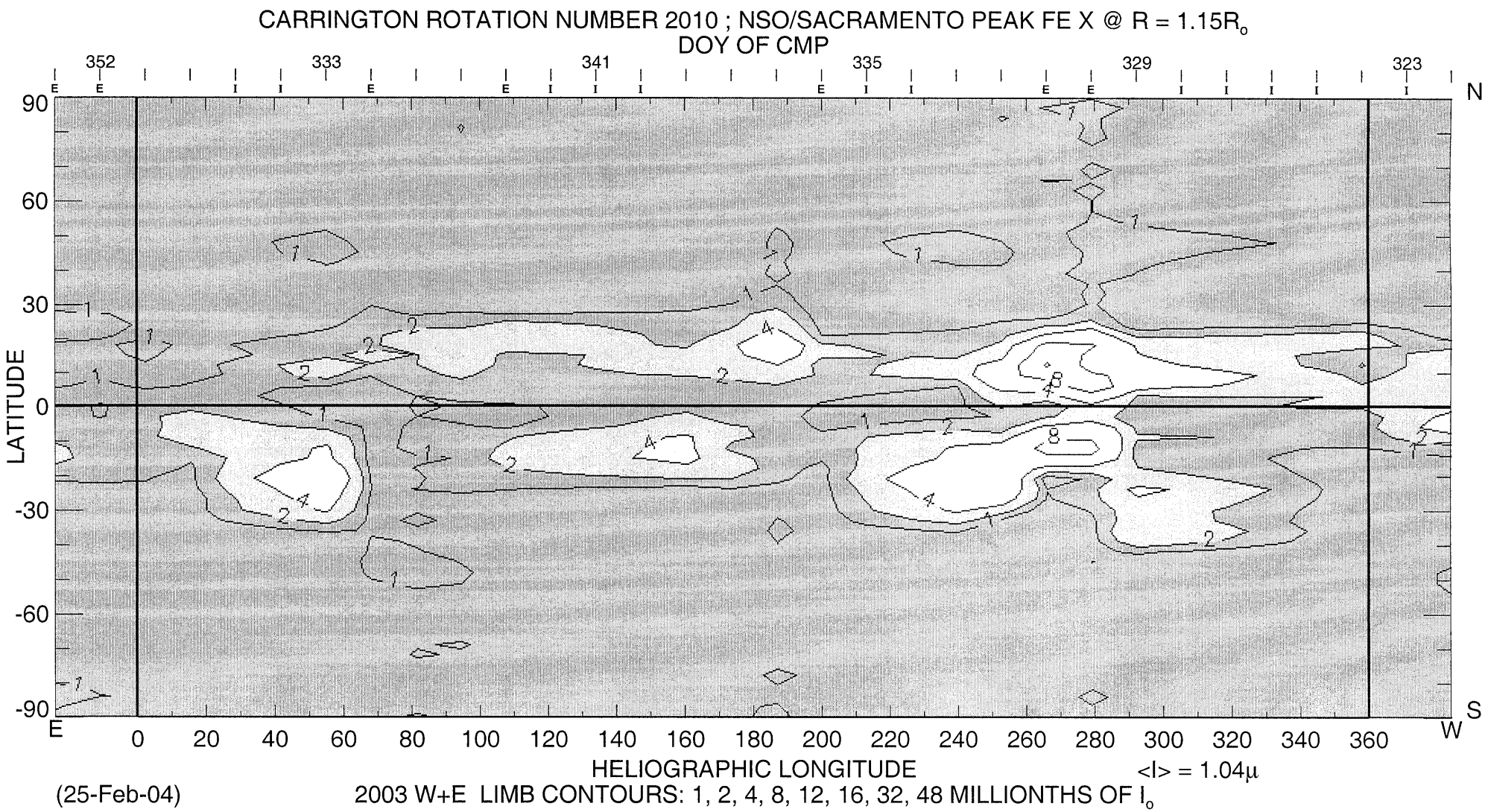


CARRINGTON ROTATION NUMBER 2010 ; NSO/SACRAMENTO PEAK FE XIV @ R = 1.15R_o

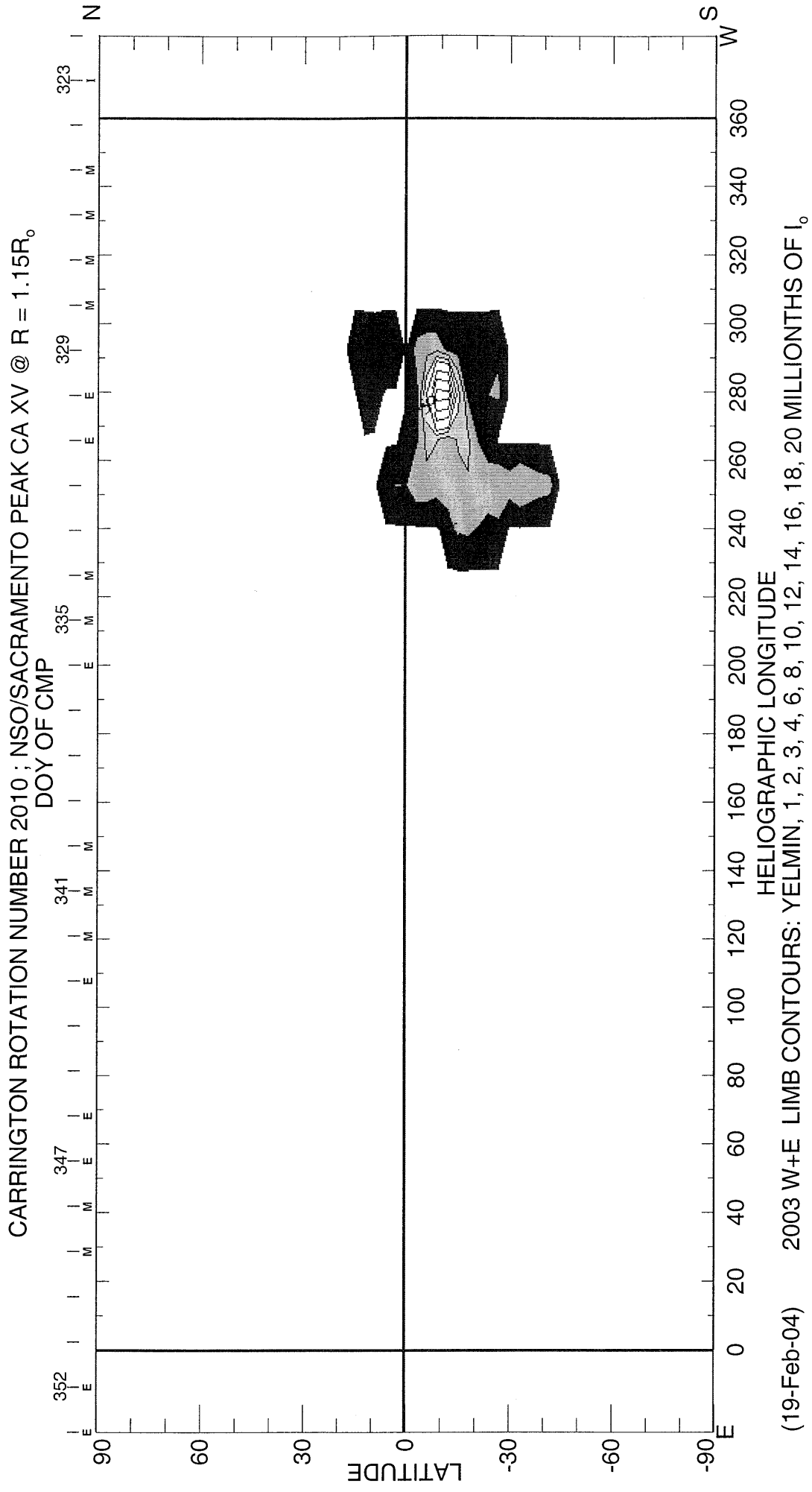


(19-Feb-04) 2003 W+E LIMB CONTOURS: 6, 8, 20, 25, 30, 40, 50, 60, 80, 100, 120 MILLIONTHS OF I_o

CORONAL HOLES ARE SHOWN AS WHITE BORDERED BY BLACK



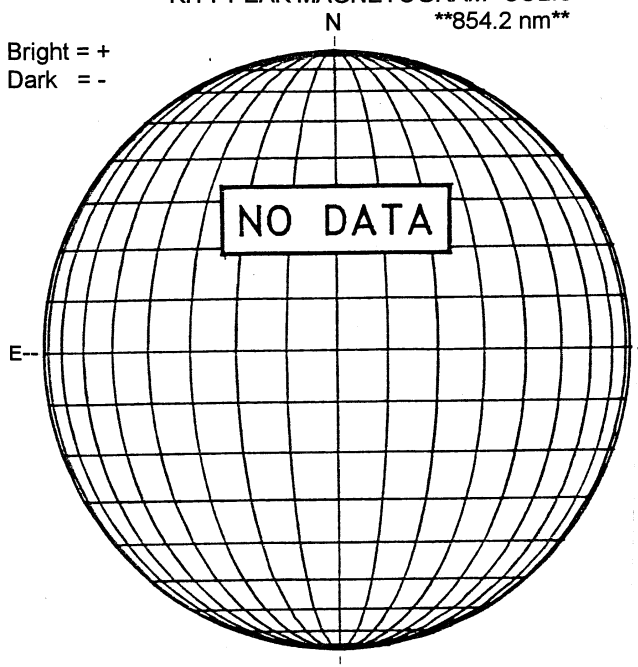
tex Wed Feb 25 15:59:57 2004



DECEMBER 1, 2003 (P= 16.27, Bo = 0.94, Lo = 213.00)

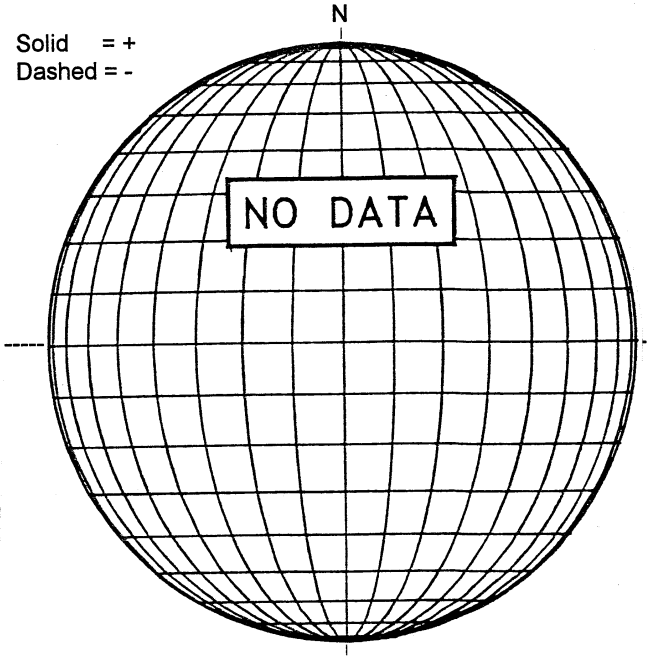
KITT PEAK MAGNETOGRAM--SOLIS

Bright = +
Dark = -



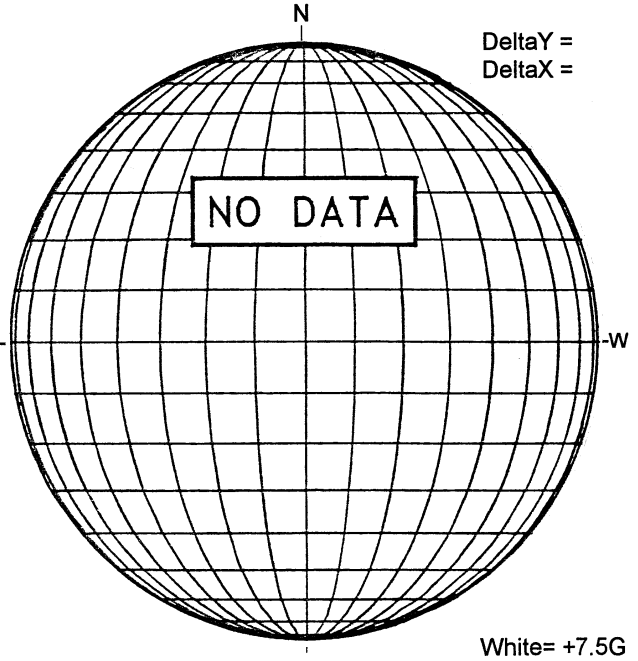
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



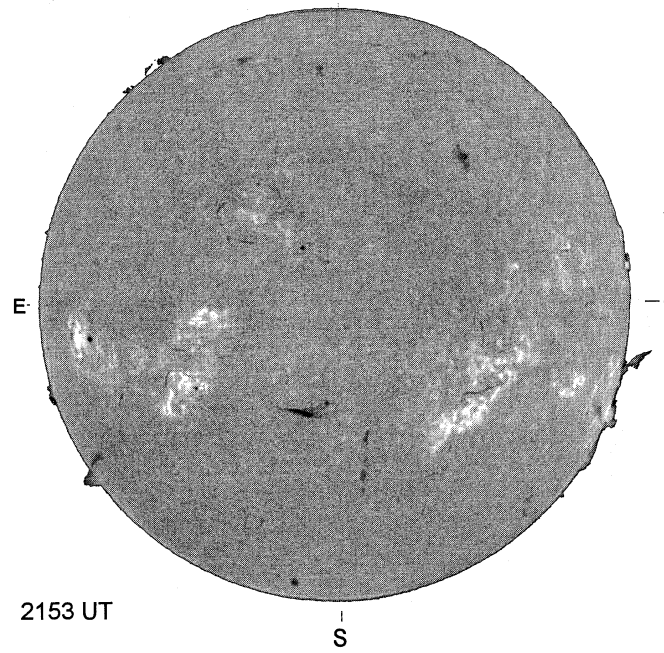
MT. WILSON MAGNETOGRAM

DeltaY =
DeltaX =



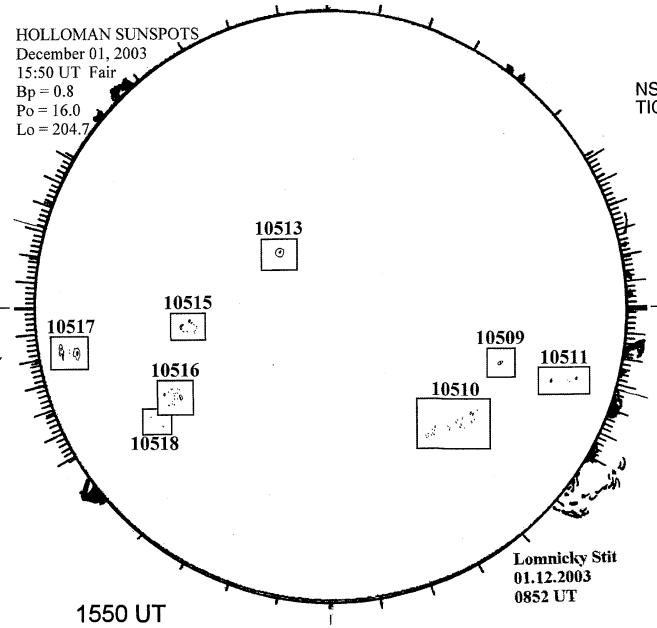
White= +7.5G
Black = -7.5G

BIG BEAR H-ALPHA



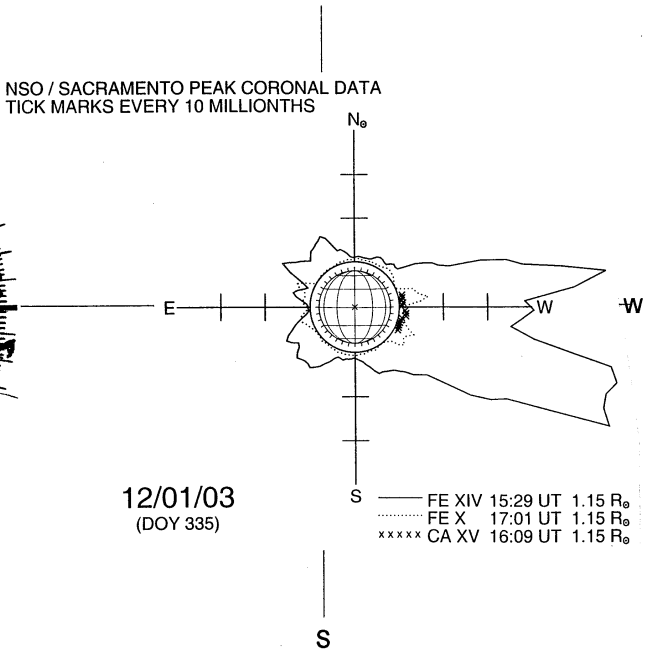
2153 UT

HOLLOMAN SUNSPOT



1550 UT
0852 UT LOMN Prom

SACRAMENTO PEAK CORONA (1.15 Radii)----



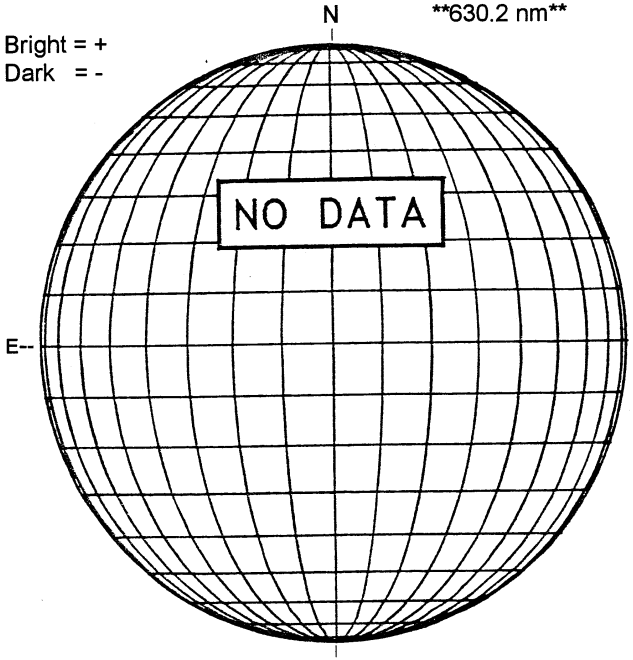
S

DECEMBER 2, 2003 (P= 15.89, Bo = 0.81, Lo = 199.82)

KITT PEAK MAGNETOGRAM--SOLIS

630.2 nm

Bright = +
Dark = -



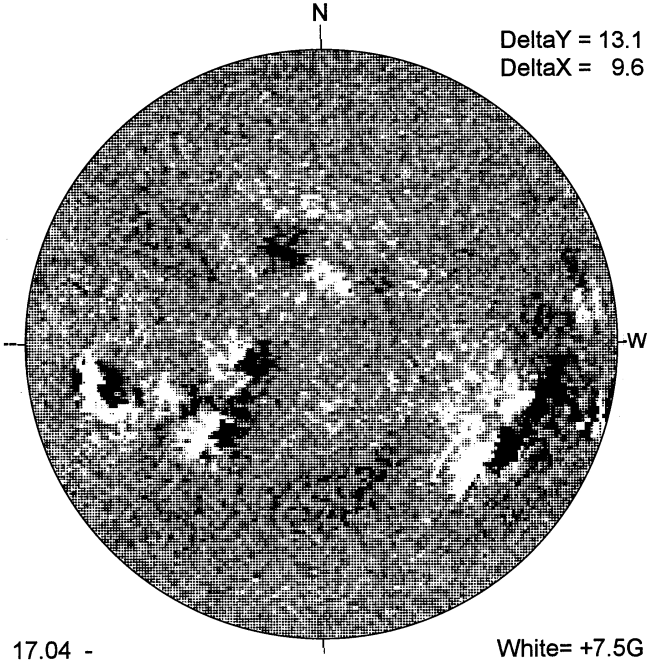
STANFORD MAGNETOGRAM

Solid = +
Dashed = -

1905 UT

MT. WILSON MAGNETOGRAM

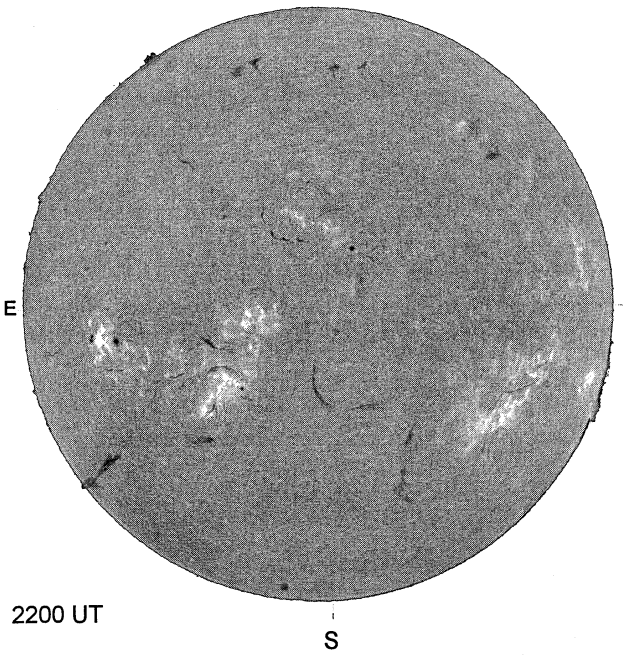
DeltaY = 13.1
DeltaX = 9.6



17.04 -
18.01 UT

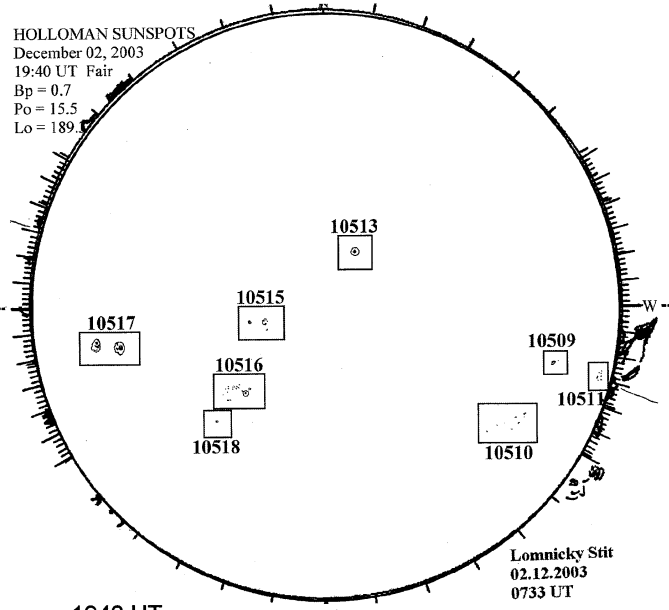
White= +7.5G
Black = -7.5G

BIG BEAR H-ALPHA



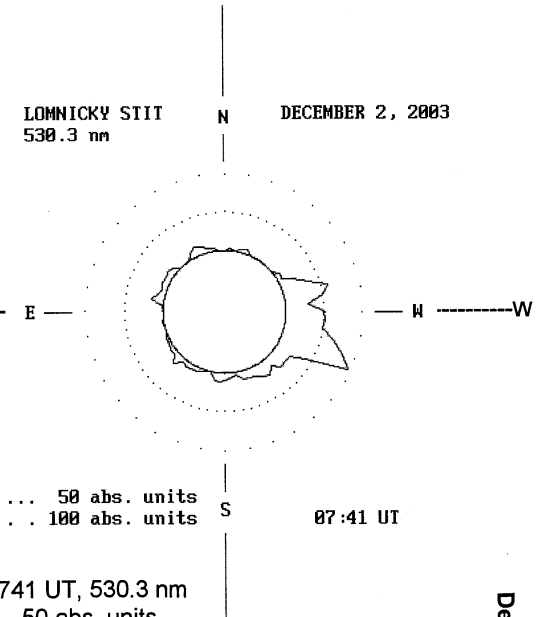
2200 UT

HOLLOMAN SUNSPOTS



1940 UT
0733 UT LOMN Prom

LOMNICKY PEAK CORONA (1.04 Radii)



0741 UT, 530.3 nm
.... 50 abs. units
. . 100 abs. units

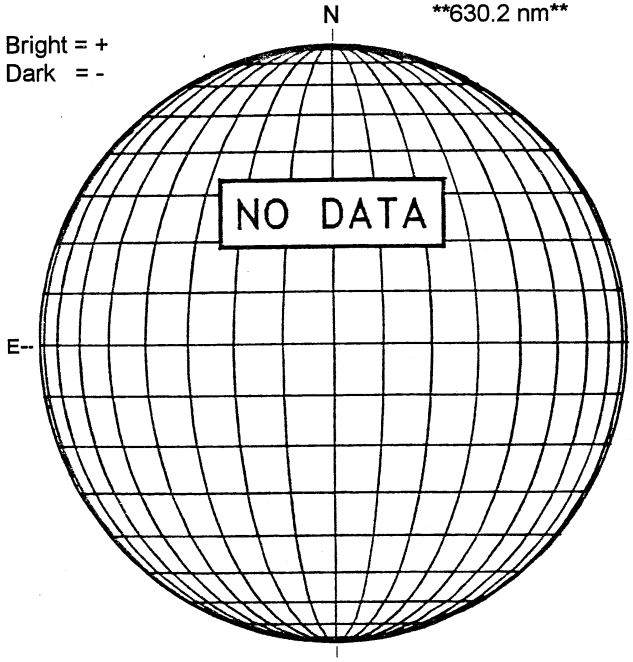
S

DECEMBER 3, 2003 (P= 15.50, Bo = 0.68, Lo = 186.64)

KITT PEAK MAGNETOGRAM--SOLIS

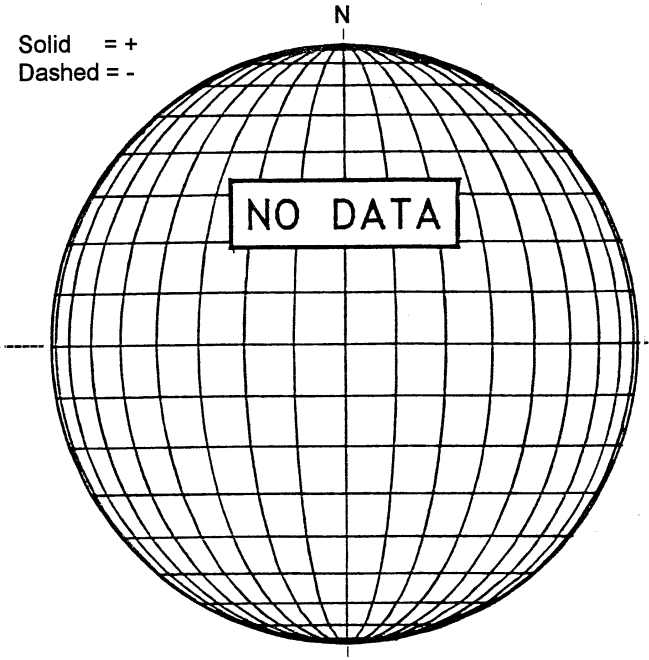
630.2 nm

Bright = +
Dark = -



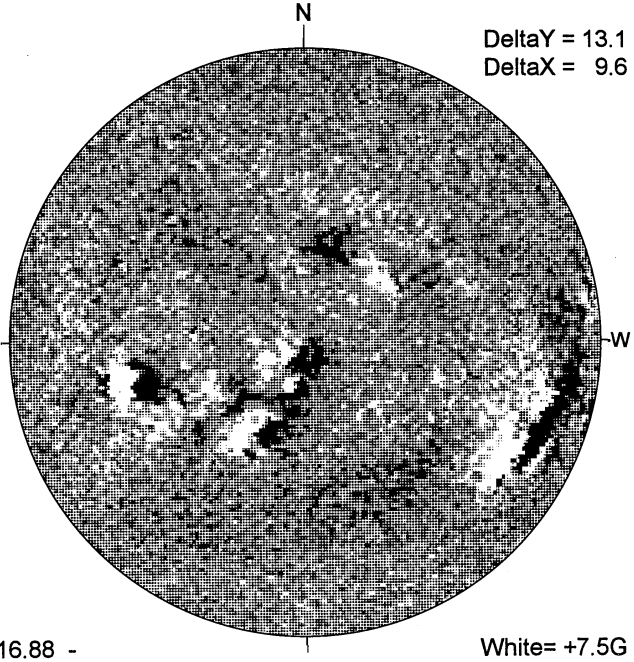
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

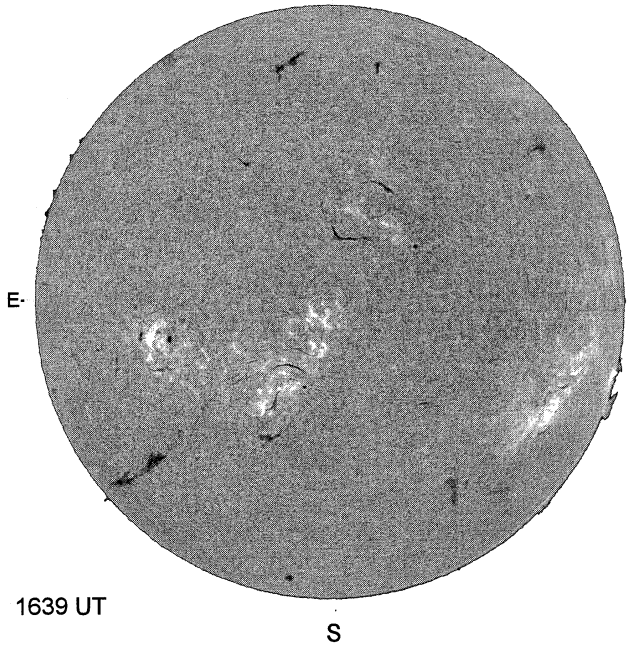
DeltaY = 13.1
DeltaX = 9.6



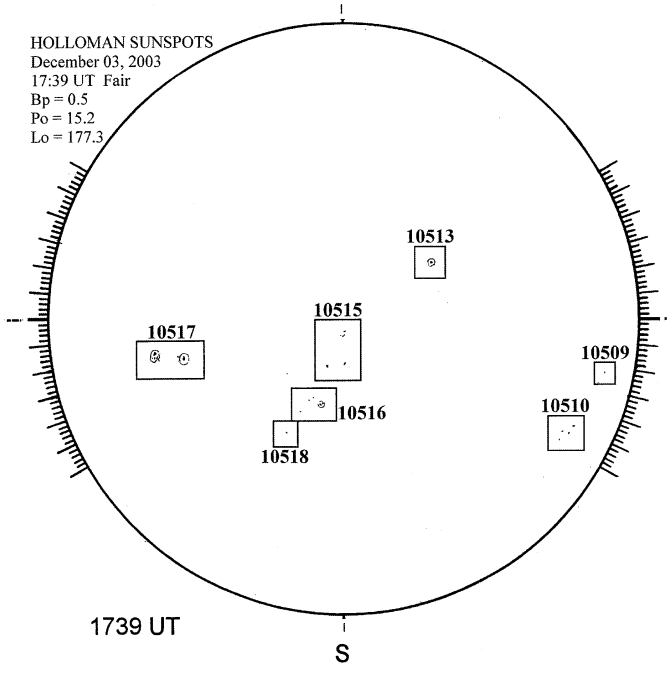
16.88 -
17.85 UT

White= +7.5G
Black = -7.5G

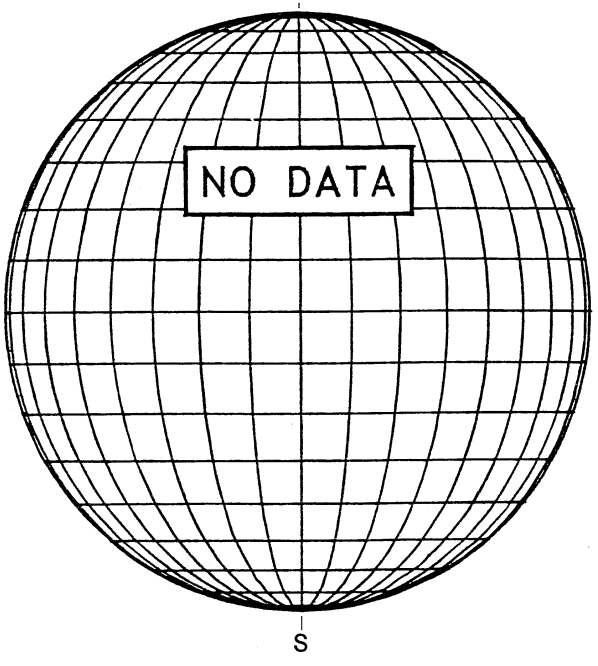
BIG BEAR H-ALPHA



HOLLOMAN SUNSPOTS

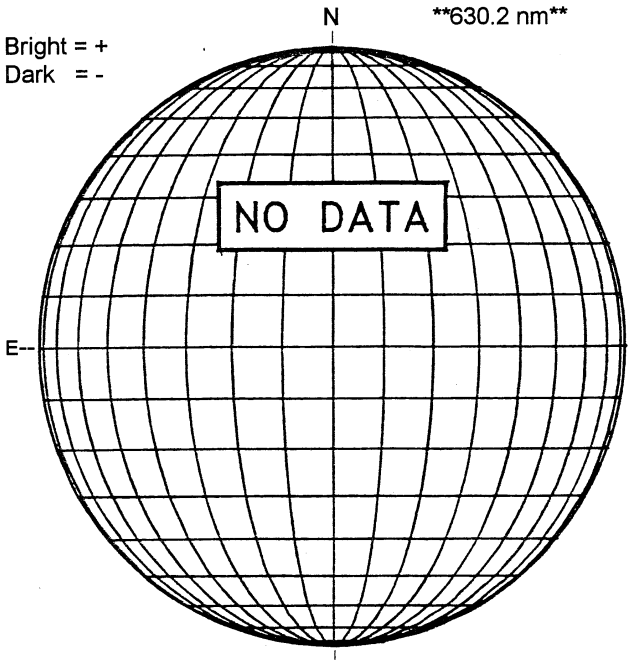


LOMNICKY PEAK CORONA (1.04 Radii)----

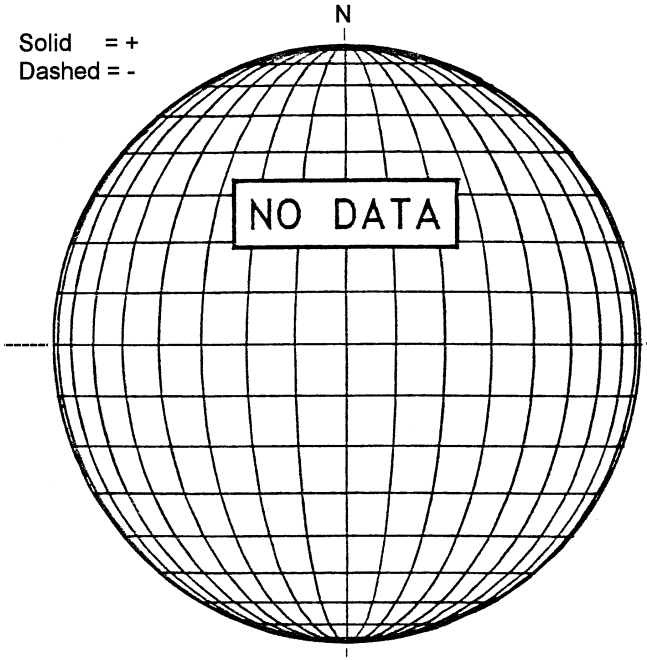


DECEMBER 4, 2003 (P= 15.10, Bo = 0.56, Lo = 173.46)

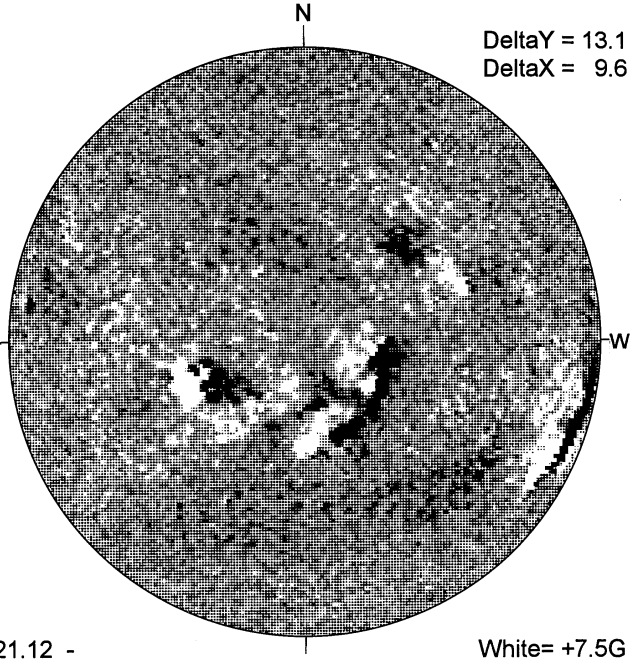
KITT PEAK MAGNETOGRAM--SOLIS



STANFORD MAGNETOGRAM



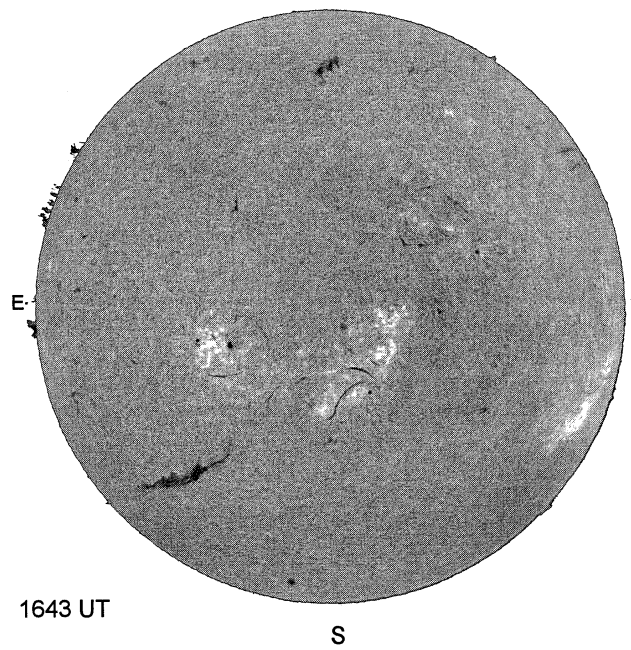
MT. WILSON MAGNETOGRAM



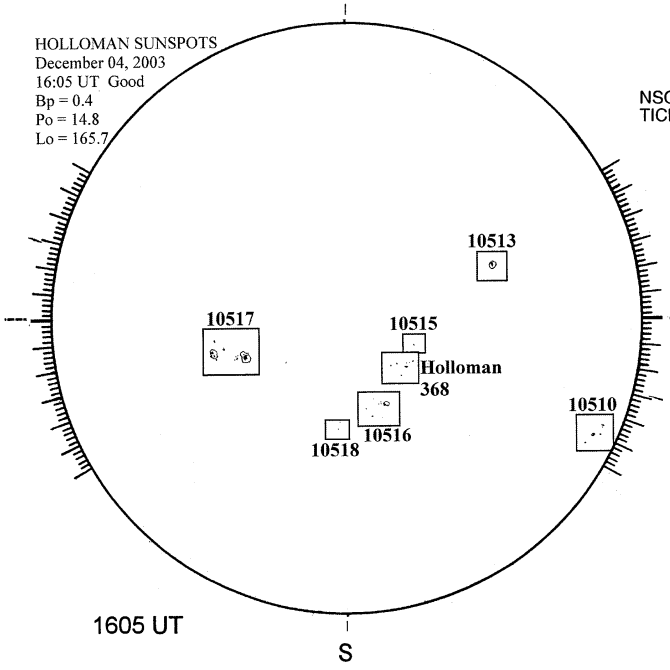
21.12 -
22.10 UT

White= +7.5G
Black = -7.5G

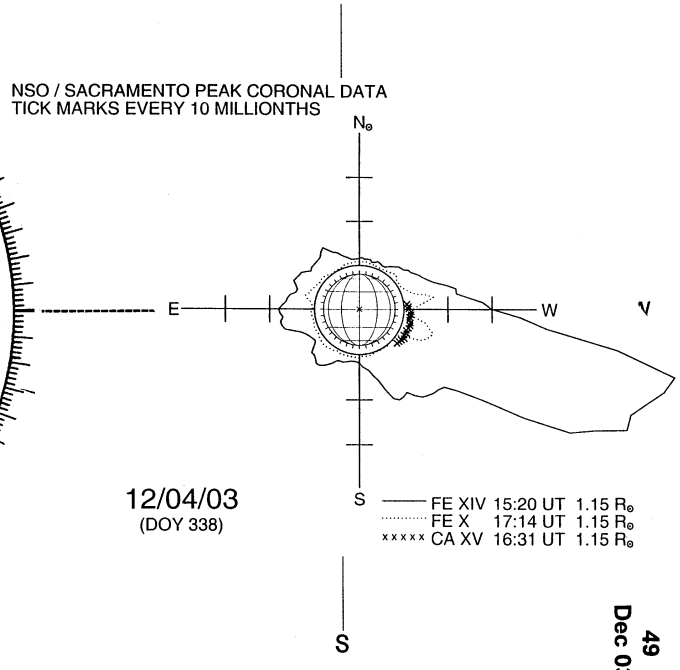
BIG BEAR H-ALPHA



HOLLOMAN SUNSPOT



SACRAMENTO PEAK CORONA (1.15 Radii)----

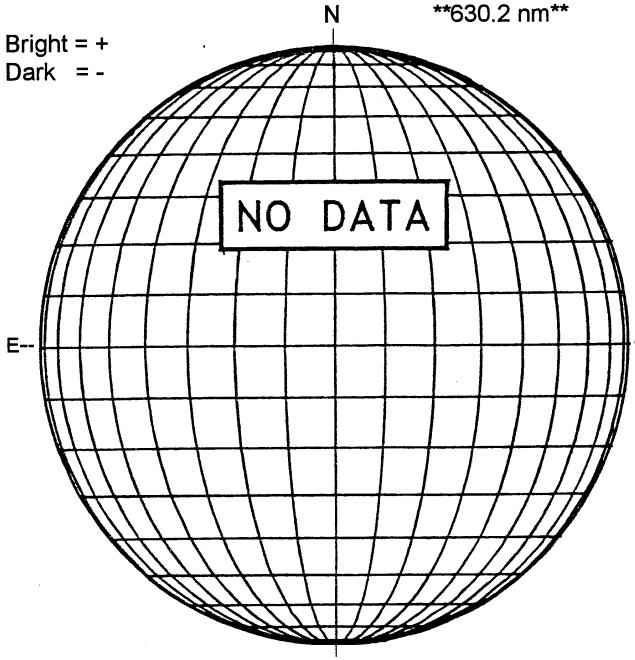


DECEMBER 5, 2003 (P= 14.70, Bo = 0.43, Lo = 160.29)

KITT PEAK MAGNETOGRAM--SOLIS

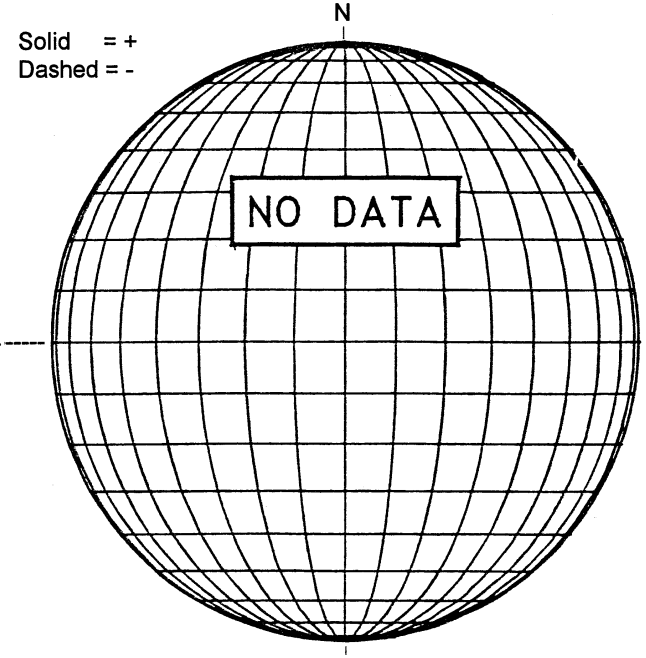
630.2 nm

Bright = +
Dark = -



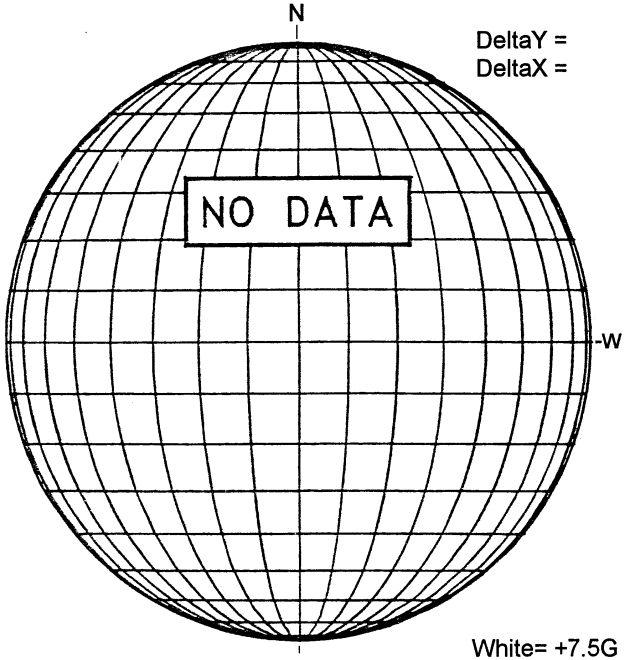
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



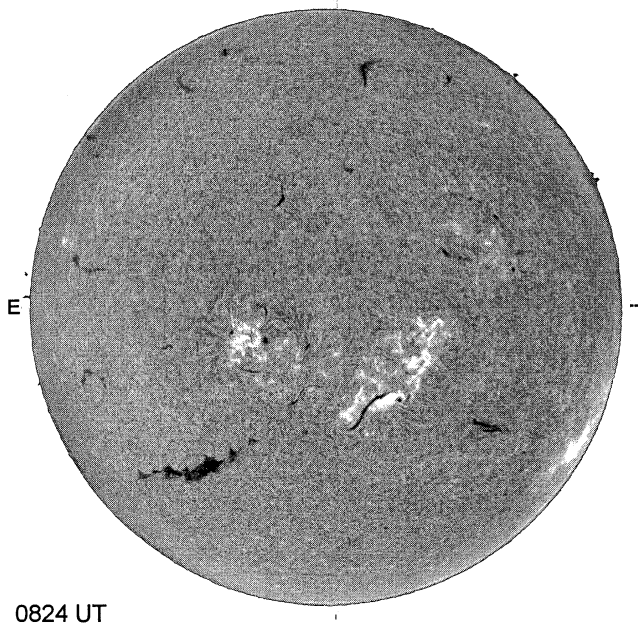
MT. WILSON MAGNETOGRAM

DeltaY =
DeltaX =



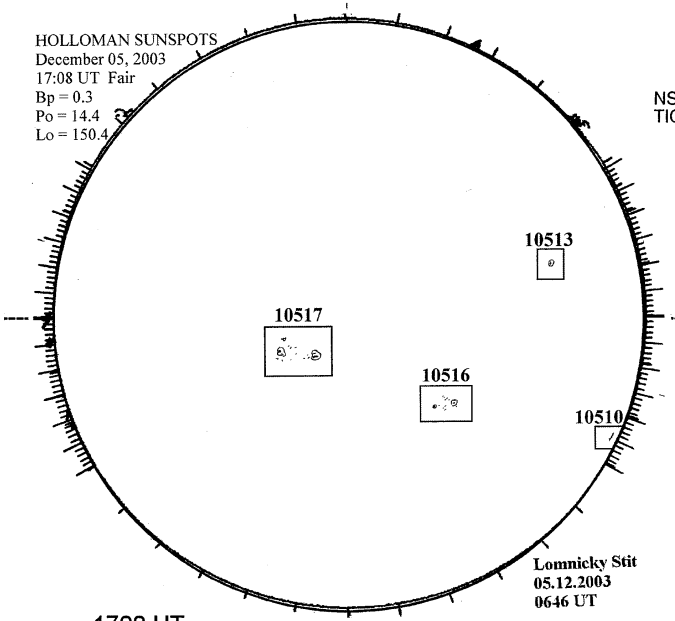
White= +7.5G
Black = -7.5G

KANZELHOHE H-ALPHA



0824 UT

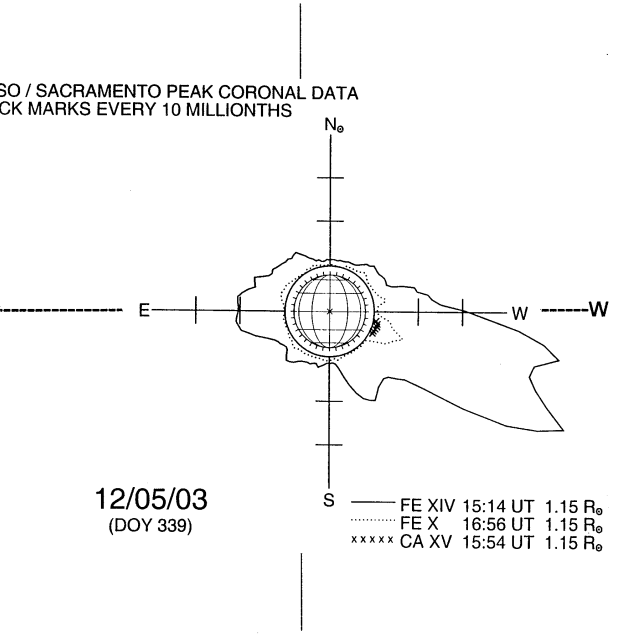
HOLLOMAN SUNSPOT



1708 UT
0646 UT LOMN Prom S

SACRAMENTO PEAK CORONA (1.15 Radii)----

NSO / SACRAMENTO PEAK CORONAL DATA
TICK MARKS EVERY 10 MILLIONTHS



12/05/03
(DOY 339)

FE XIV 15:14 UT 1.15 R⊙
FE X 16:56 UT 1.15 R⊙
xxxxx CA XV 15:54 UT 1.15 R⊙

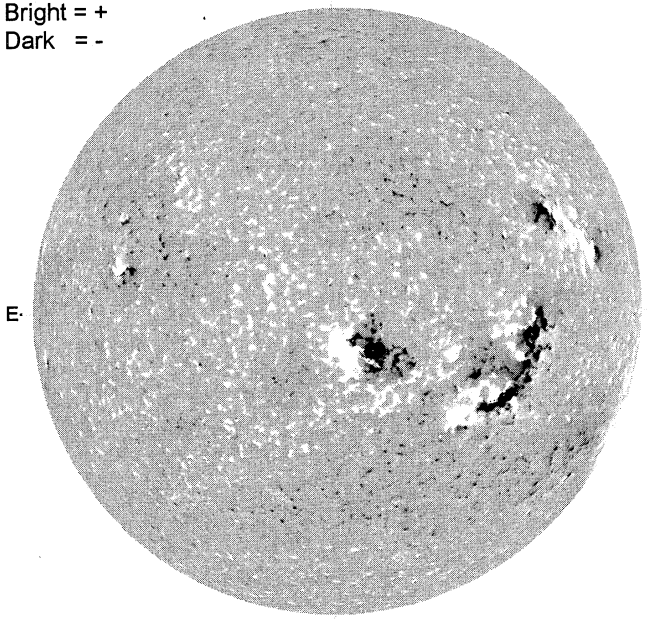
S

DECEMBER 6, 2003 (P= 14.29, Bo = 0.30, Lo = 147.11)

KITT PEAK MAGNETOGRAM--SOLIS

N **854.2 nm**

Bright = +
Dark = -



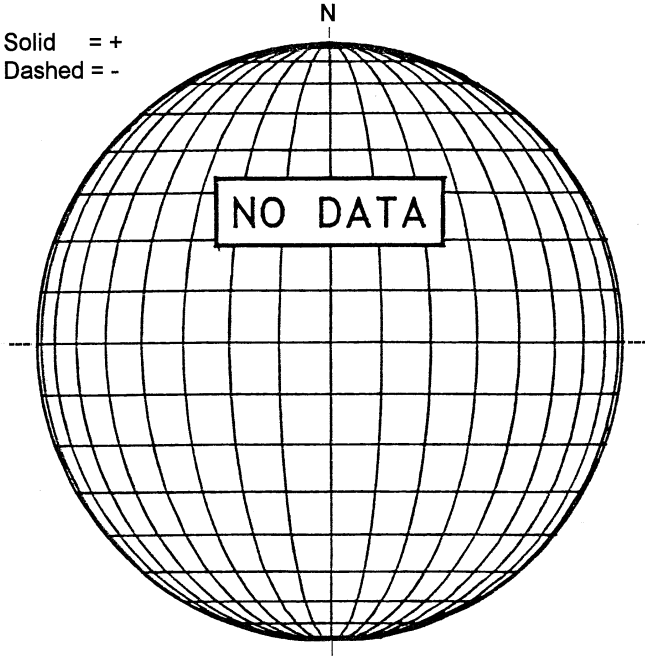
E

1904 UT

STANFORD MAGNETOGRAM

N

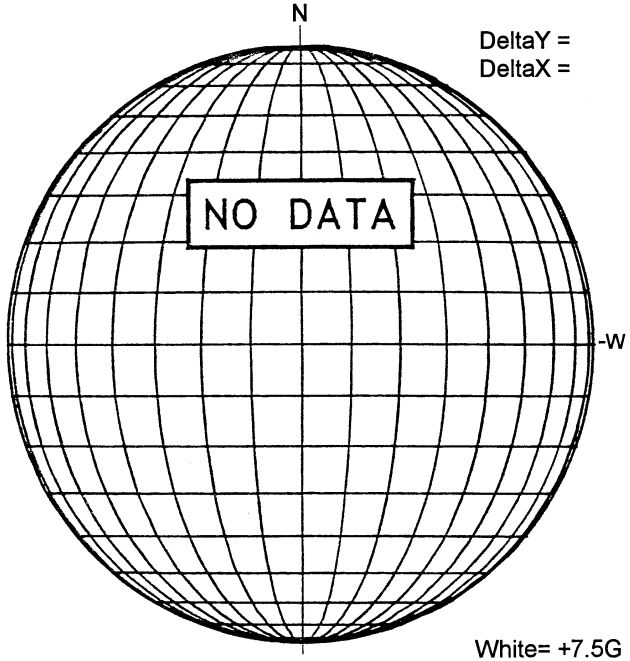
Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

N

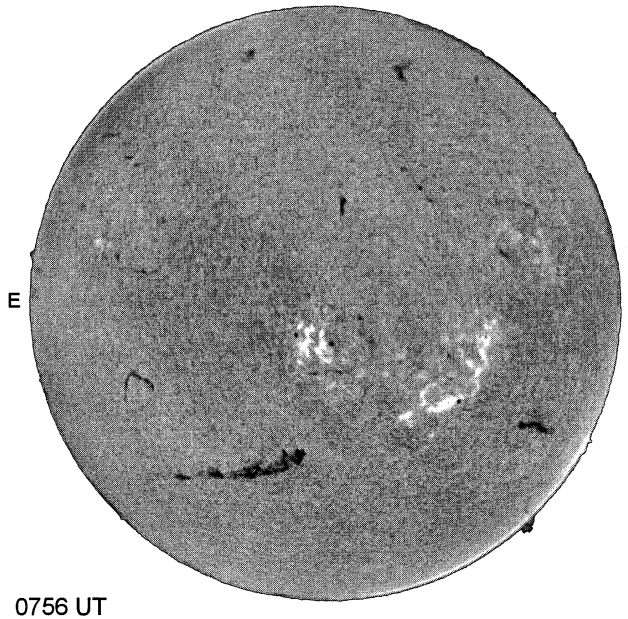
DeltaY =
DeltaX =



-W

White= +7.5G
Black = -7.5G

KANZELHOHE H-ALPHA

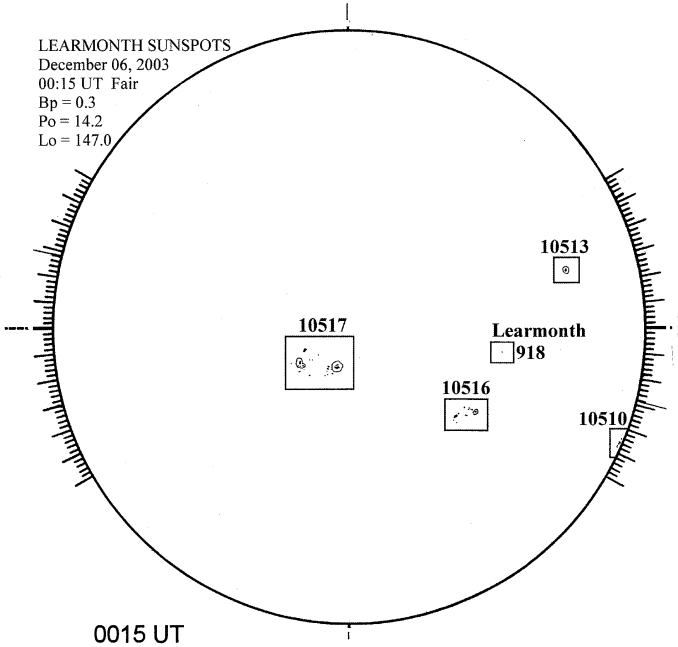


E

0756 UT

S

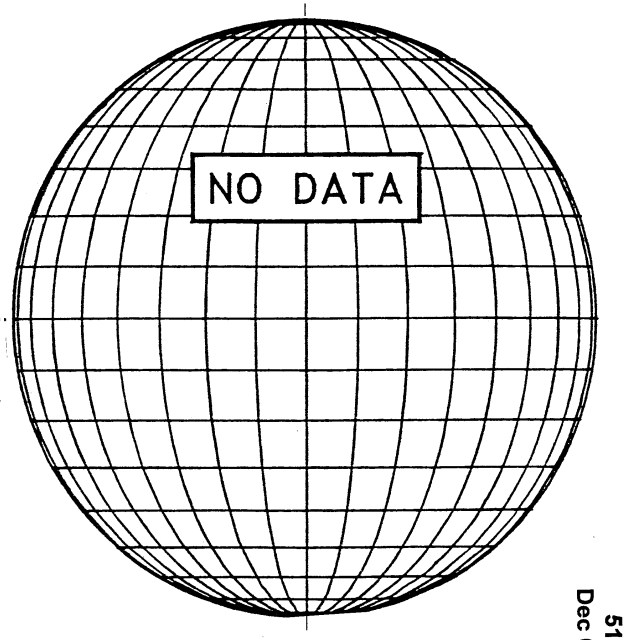
LEARMONTH SUNSPOT



0015 UT

S

SACRAMENTO PEAK CORONA (1.15 Radii)----



S

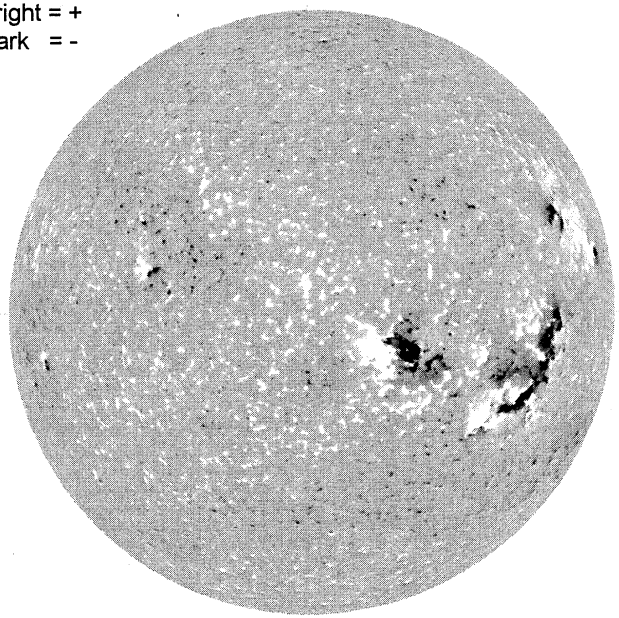
DECEMBER 7, 2003 (P= 13.88, Bo = 0.17, Lo = 133.93)

KITT PEAK MAGNETOGRAM--SOLIS

N **854.2 nm**

Bright = +
Dark = -

E-

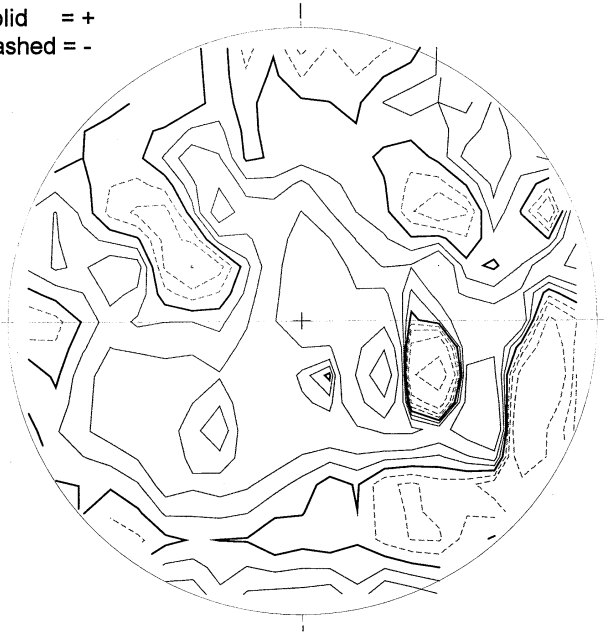


1637 UT

STANFORD MAGNETOGRAM

N

Solid = +
Dashed = -

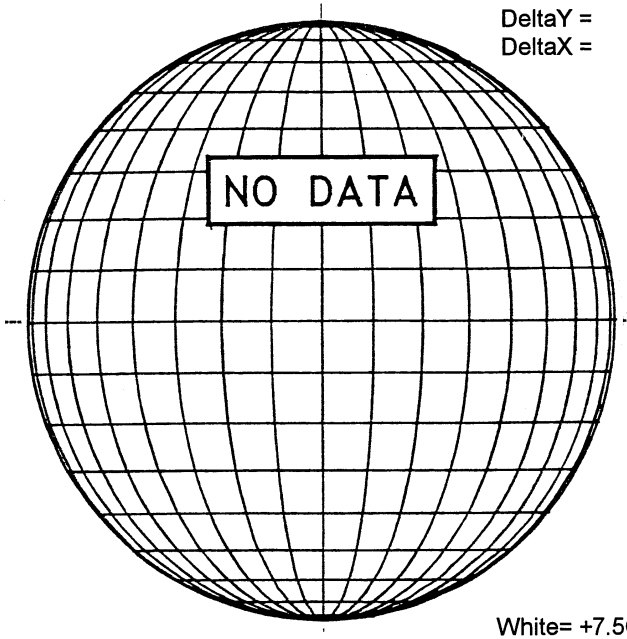


2222 UT

MT. WILSON MAGNETOGRAM

N

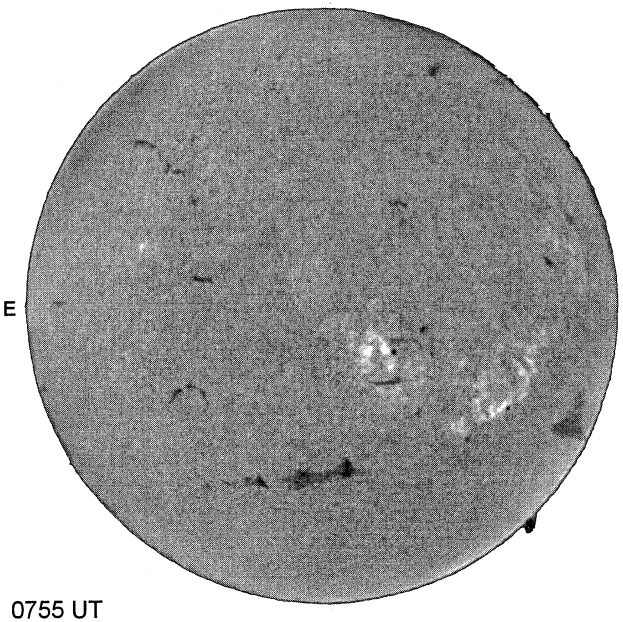
DeltaY =
DeltaX =



·W

White= +7.5G
Black = -7.5G

KANZELHOHE H-ALPHA

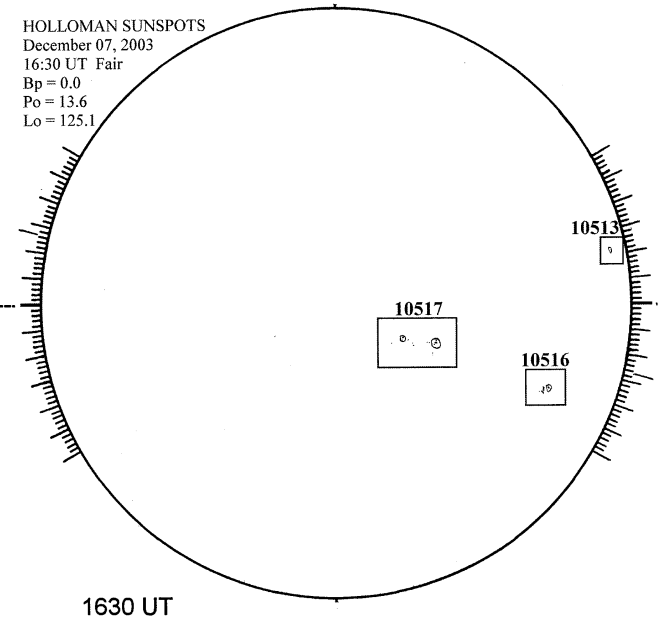


E

0755 UT

S

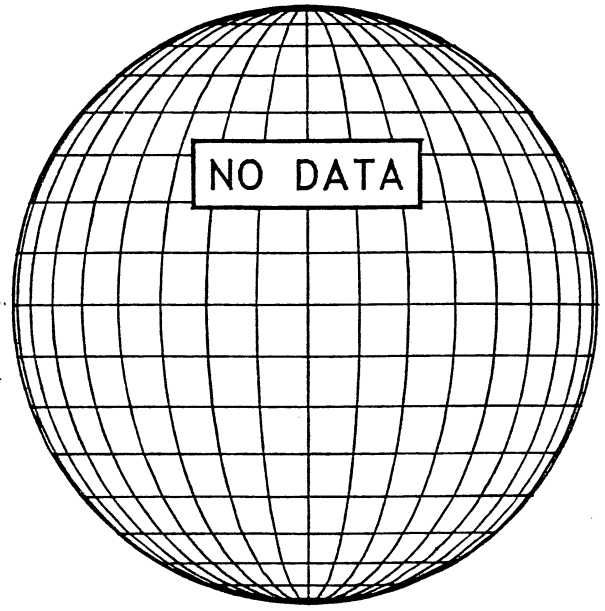
HOLLOMAN SUNSPOTS



1630 UT

S

SACRAMENTO PEAK CORONA (1.15 Radii)----



S

DECEMBER 8, 2003 (P= 13.46, Bo = 0.04, Lo = 120.75)

KITT PEAK MAGNETOGRAM--SOLIS

630.2 nm

Bright = +
Dark = -

N

E--

NO DATA

STANFORD MAGNETOGRAM

Solid = +
Dashed = -

N

1848 UT

MT. WILSON MAGNETOGRAM

N

DeltaY = 13.1
DeltaX = 9.6

W

17.32 -
18.29 UT

White= +7.5G
Black = -7.5G

BIG BEAR H-ALPHA

E

S

1757 UT

HOLLOMAN SUNSPOTS

HOLLOMAN SUNSPOTS
December 08, 2003
21:17 UT Poor
Bp = -0.0
Po = 13.2
Lo = 113.1

10517

10516

Lomnicky Stit
08.12.2003
1356 UT

2117 UT
1356 UT LOMN Prom S

LOMNICKY PEAK CORONA (1.04 Radii)----

LOMNICKY STIT
530.3 nm

N

DECEMBER 8, 2003

E

W

W

... 50 abs. units
. . 100 abs. units

S

13:41 UT

1341 UT, 530.3 nm
.... 50 abs. units
. . 100 abs. units

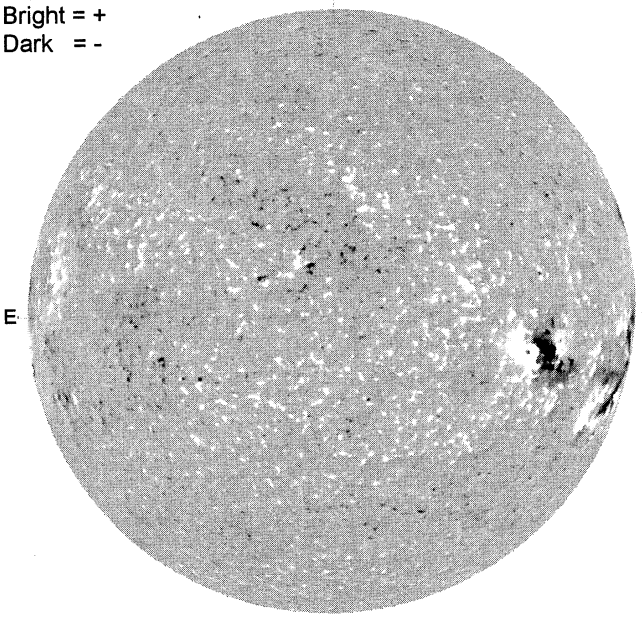
S

DECEMBER 9, 2003 (P= 13.04, Bo = -0.08, Lo = 107.57)

KITT PEAK MAGNETOGRAM--SOLIS

N **854.2 nm

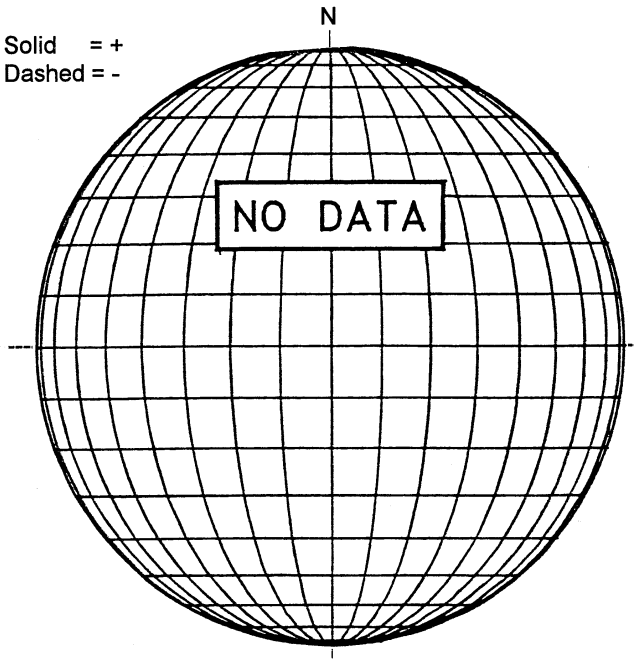
Bright = +
Dark = -



1810 UT

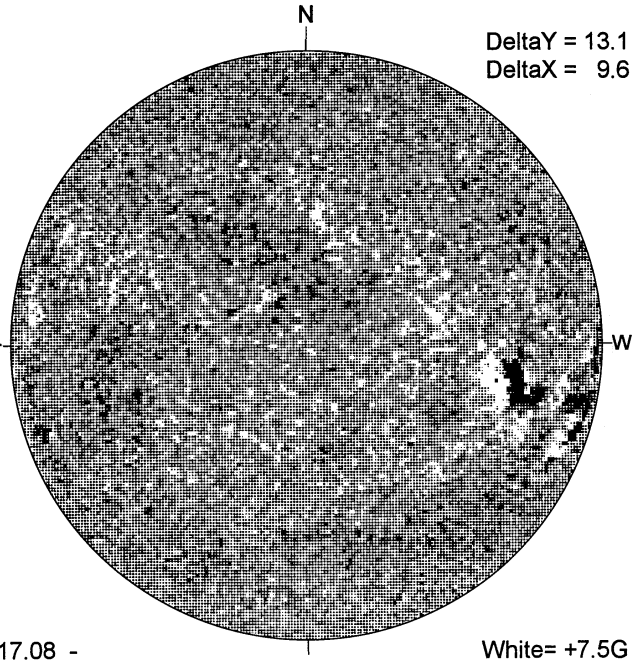
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

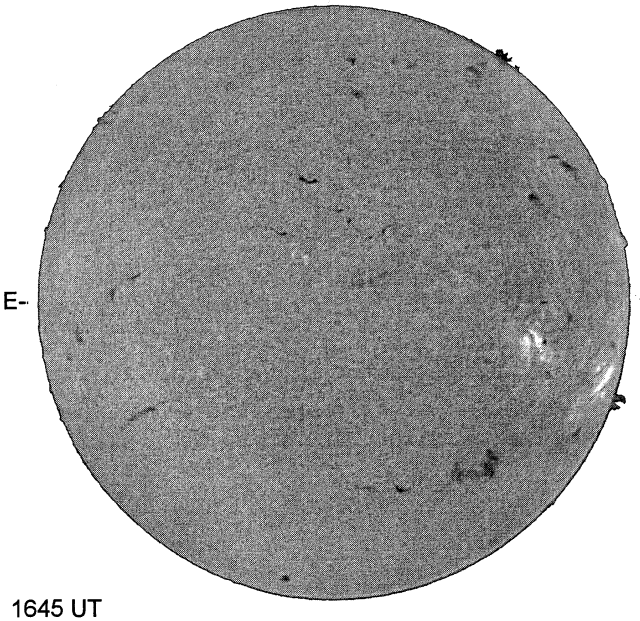
DeltaY = 13.1
DeltaX = 9.6



17.08 -
18.05 UT

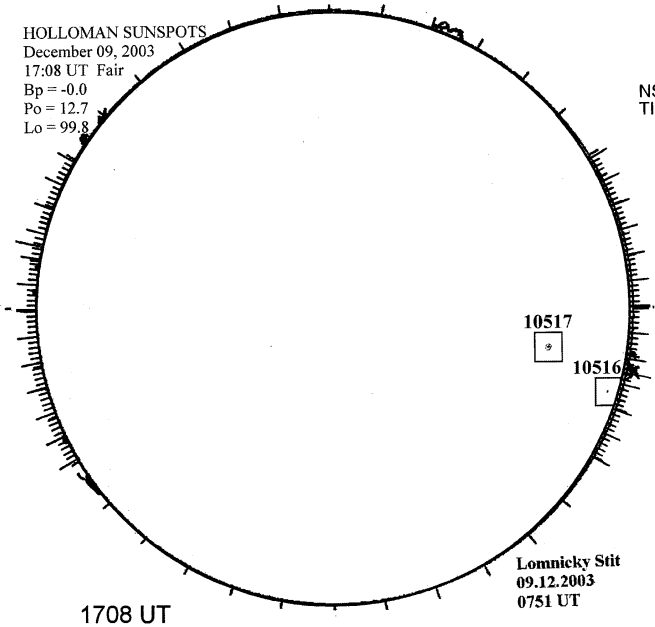
White= +7.5G
Black = -7.5G

BIG BEAR H-ALPHA



1645 UT

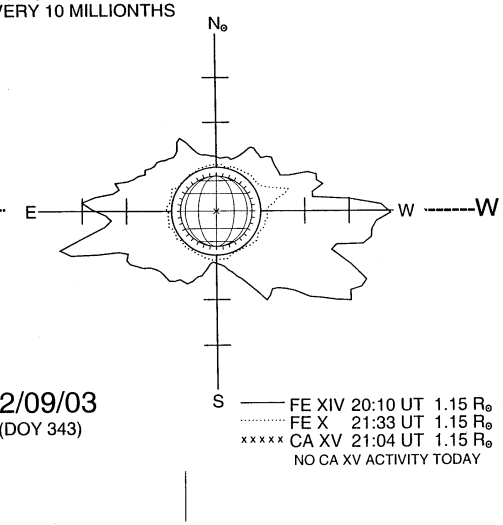
HOLLOMAN SUNSPOT



1708 UT
0751 UT LOMN Prom S

SACRAMENTO PEAK CORONA (1.15 Radii)----

NSO / SACRAMENTO PEAK CORONAL DATA
TICK MARKS EVERY 10 MILLIONTHS



12/09/03
(DOY 343)

FE XIV 20:10 UT 1.15 R⊖
FE X 21:33 UT 1.15 R⊖
CA XV 21:04 UT 1.15 R⊖
NO CA XV ACTIVITY TODAY

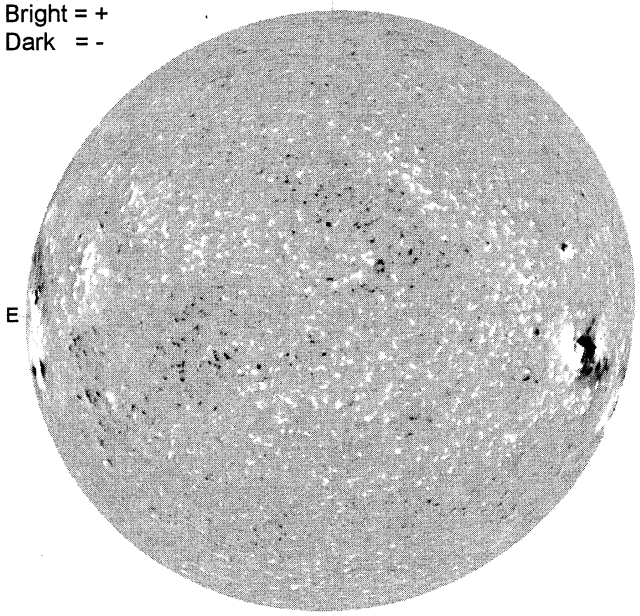
S

DECEMBER 10, 2003 (P= 12.61, Bo = -0.21 Lo = 94.40)

KITT PEAK MAGNETOGRAM--SOLIS

N **854.2 nm**

Bright = +
Dark = -

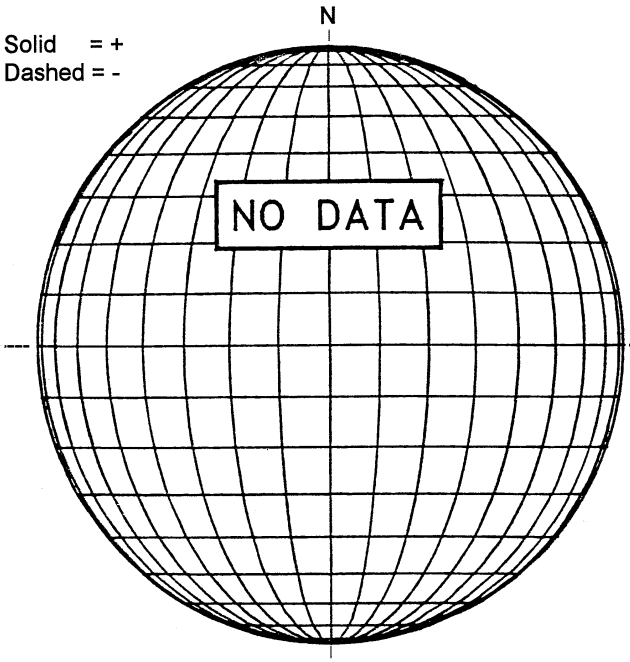


1838 UT

STANFORD MAGNETOGRAM

N

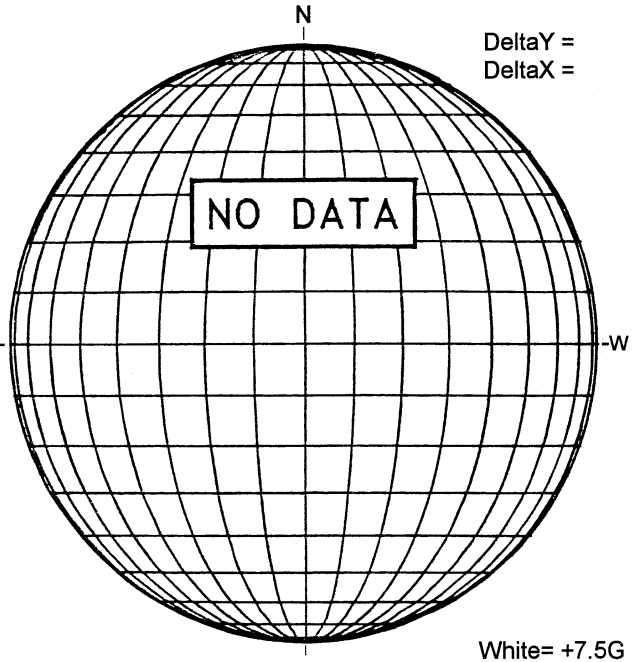
Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

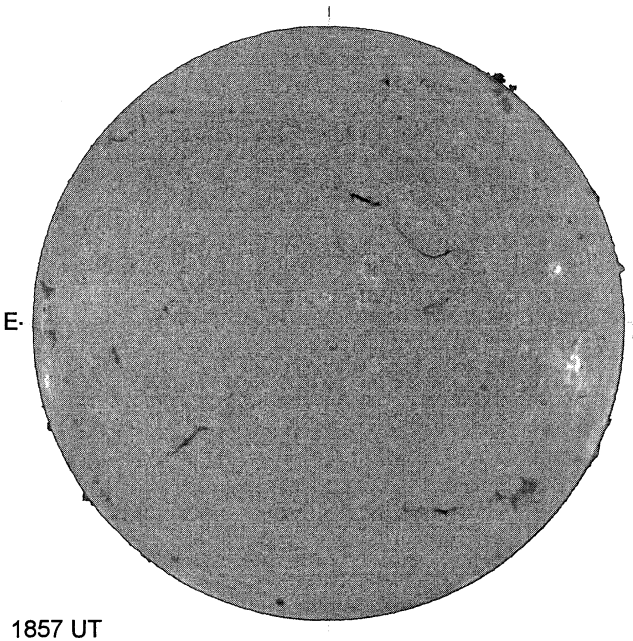
N

DeltaY =
DeltaX =



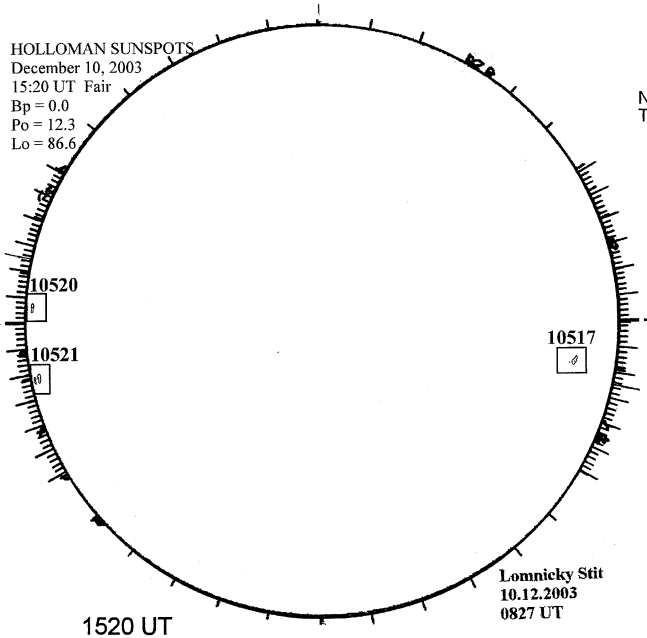
White= +7.5G
Black = -7.5G

BIG BEAR-ALPHA



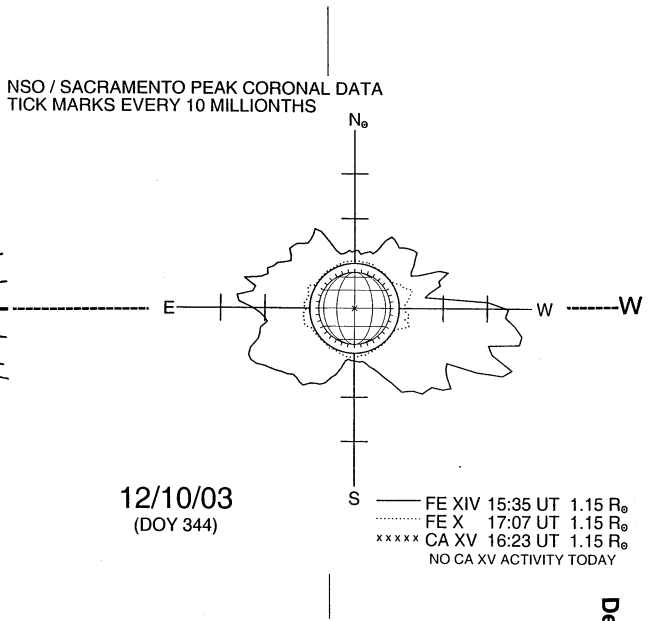
1857 UT

HOLLOMAN SUNSPOTS



1520 UT
0827 UT LOMN Prom S

SACRAMENTO PEAK CORONA (1.15 Radii)----

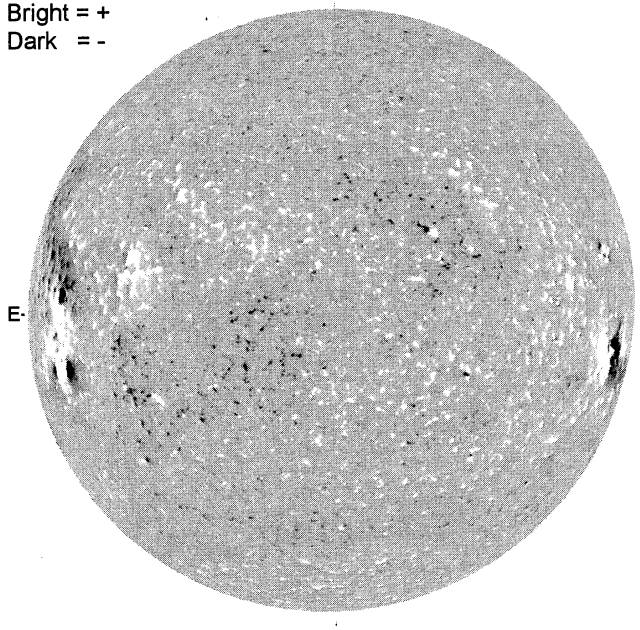


DECEMBER 11, 2003 (P= 12.18, Bo = -0.34, Lo = 81.22)

KITT PEAK MAGNETOGRAM--SOLIS

N **854.2 nm**

Bright = +
Dark = -



1714 UT

STANFORD MAGNETOGRAM

N

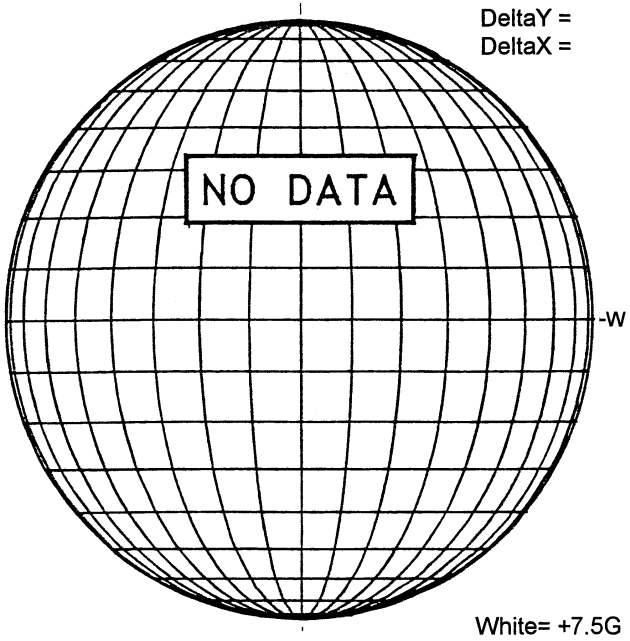
Solid = +
Dashed = -

2148 UT

MT. WILSON MAGNETOGRAM

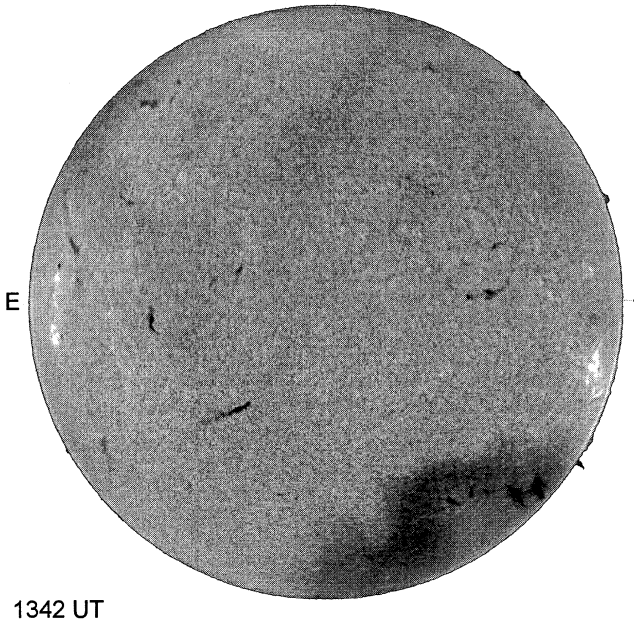
N

DeltaY =
DeltaX =



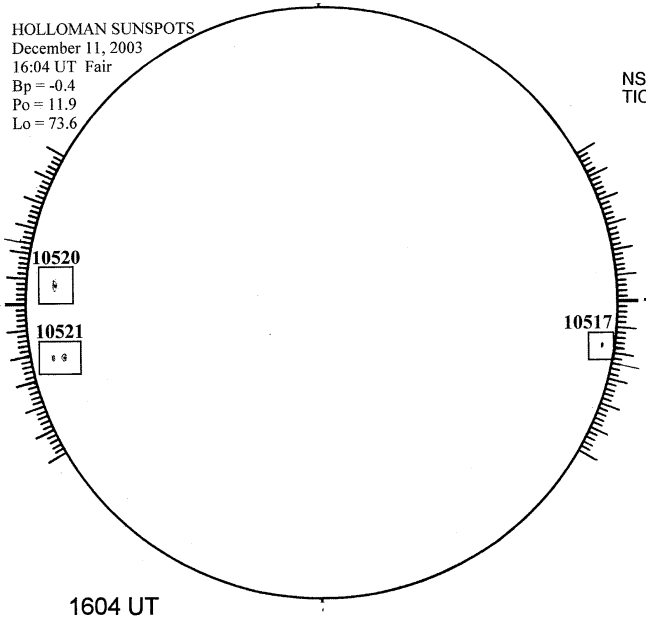
White= +7.5G
Black = -7.5G

KANZELHOHE-ALPHA



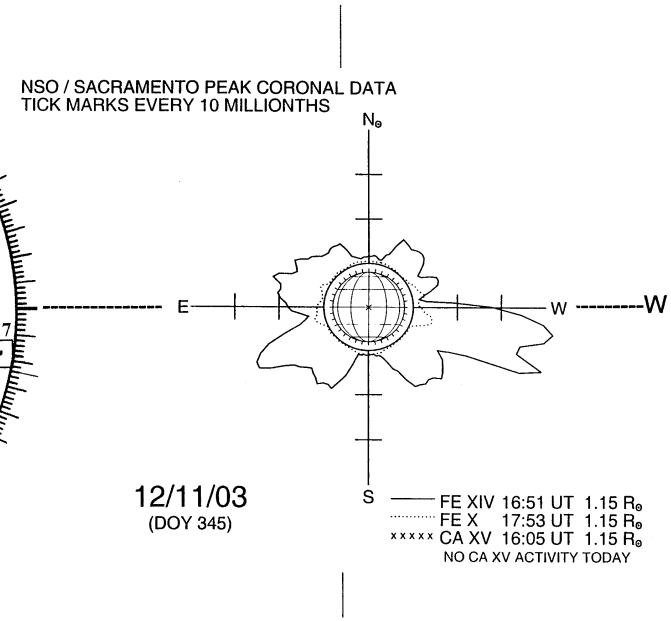
1342 UT

HOLLOMAN SUNSPOTS



1604 UT

SACRAMENTO PEAK CORONA (1.15 Radii)

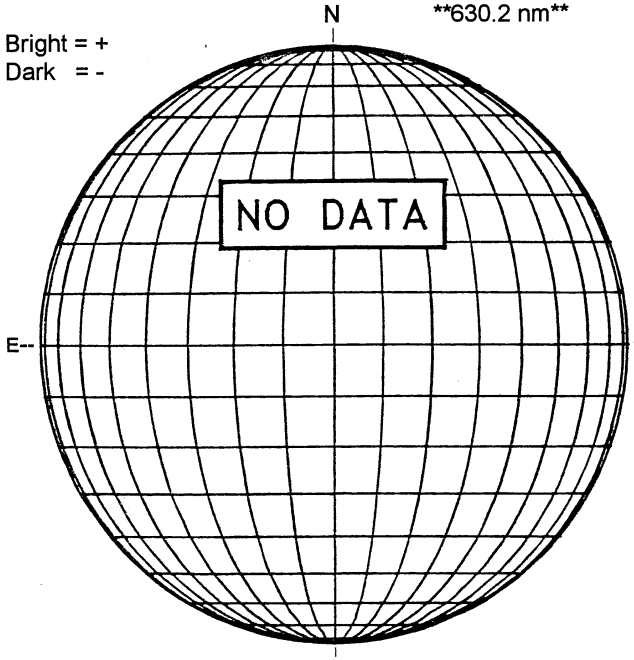


DECEMBER 12, 2003 (P= 11.74, Bo = -0.47, Lo = 68.04)

KITT PEAK MAGNETOGRAM--SOLIS

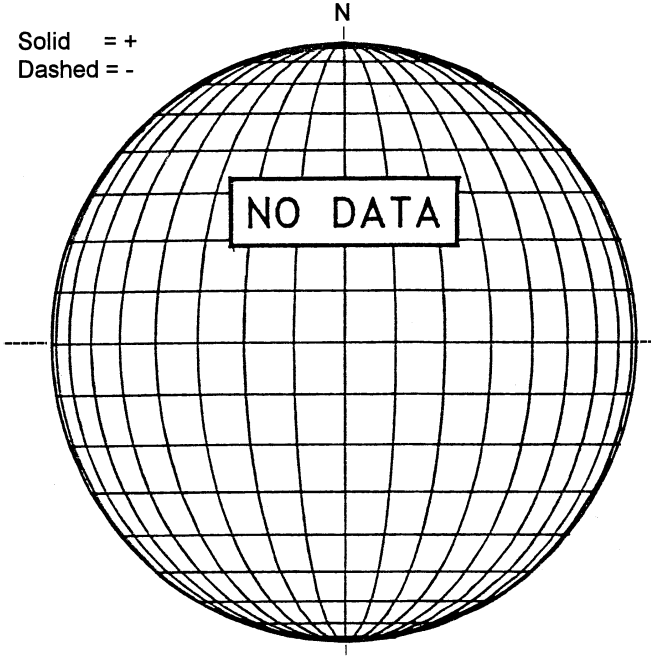
630.2 nm

Bright = +
Dark = -



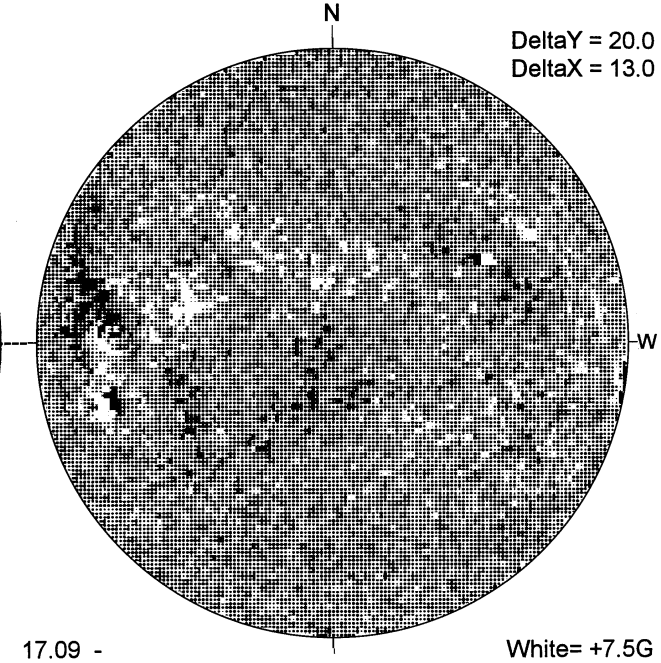
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

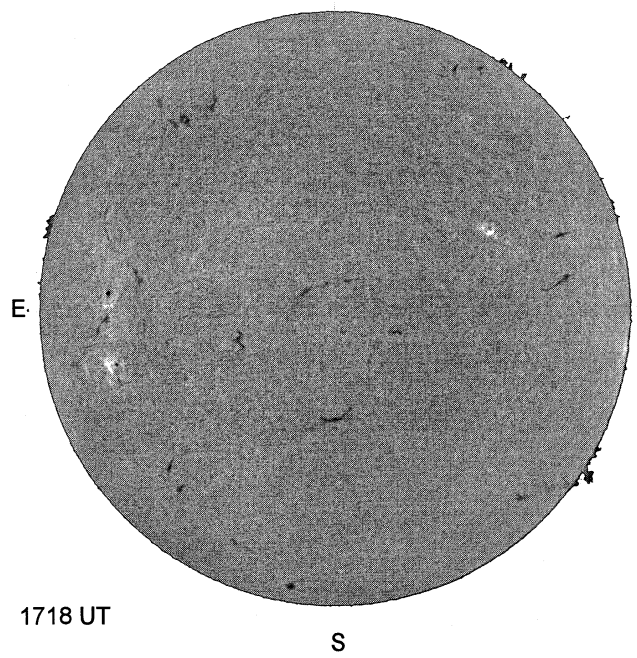
DeltaY = 20.0
DeltaX = 13.0



17.09 -
17.52 UT

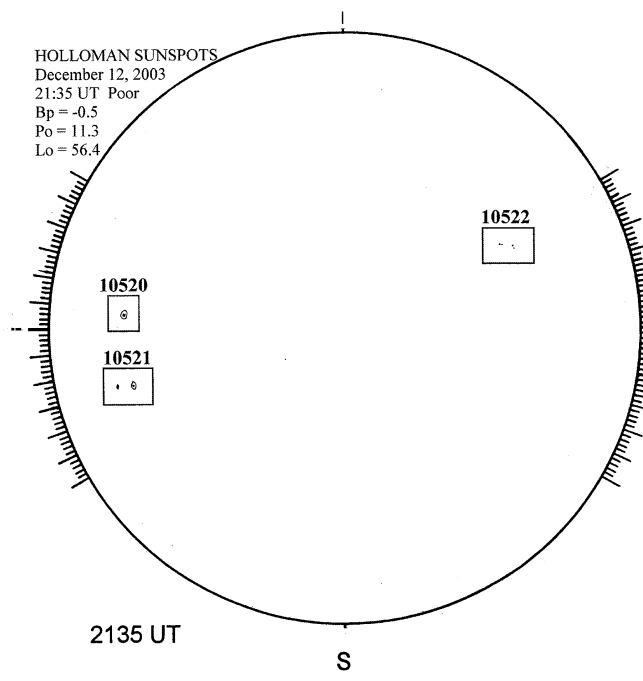
White= +7.5G
Black = -7.5G

---- BIG BEAR H-ALPHA



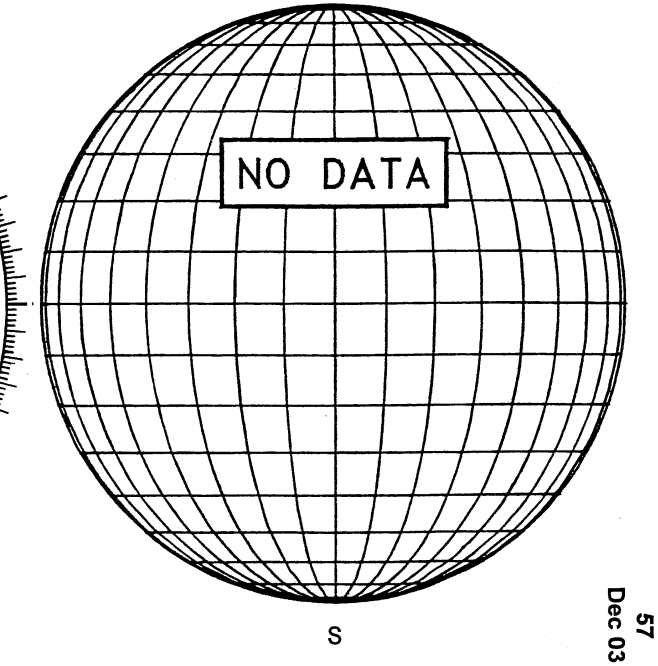
1718 UT

HOLLOMAN SUNSPOTS



2135 UT

LOMNICKY PEAK CORONA (1.04 Radii)----



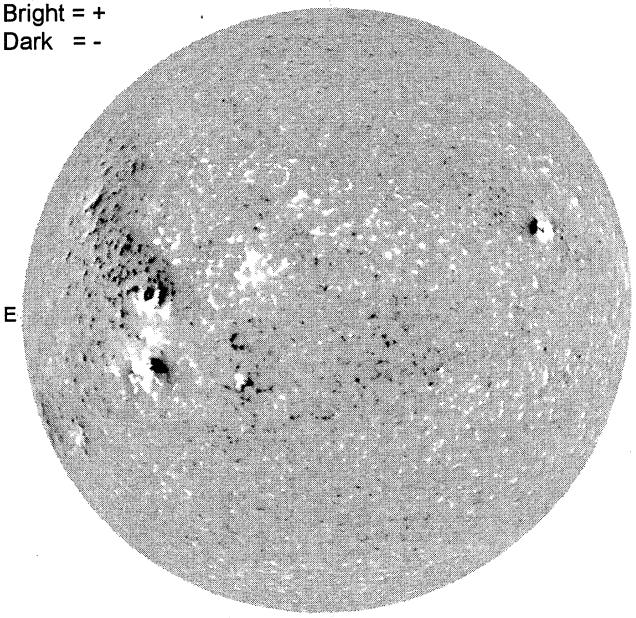
57
Dec 03

DECEMBER 13, 2003 (P= 11.30, Bo = -0.60, Lo = 54.87)

KITT PEAK MAGNETOGRAM--SOLIS

N **854.2 nm**

Bright = +
Dark = -

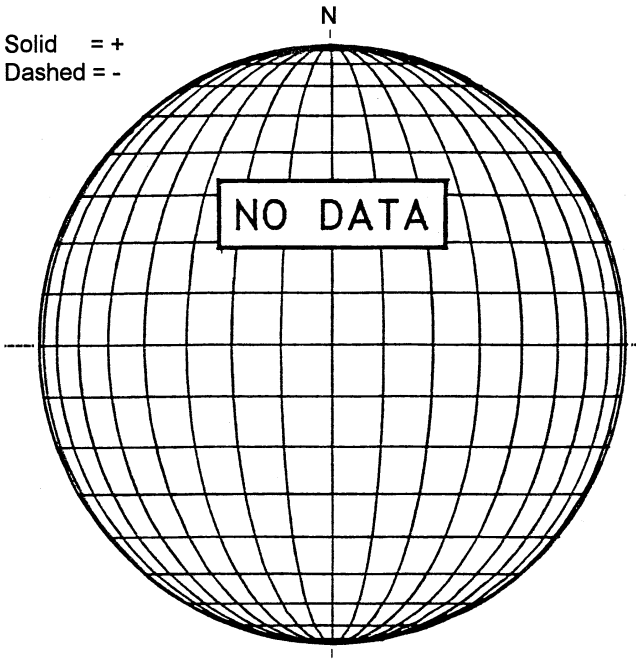


1838 UT

STANFORD MAGNETOGRAM

N

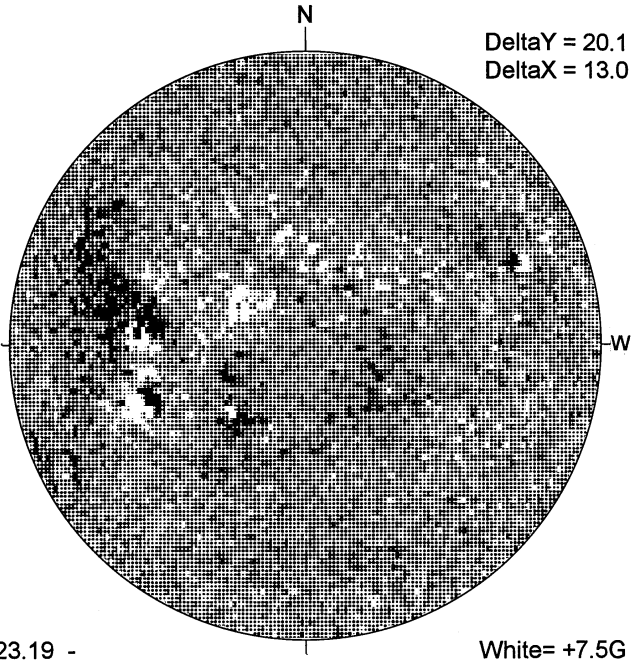
Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

N

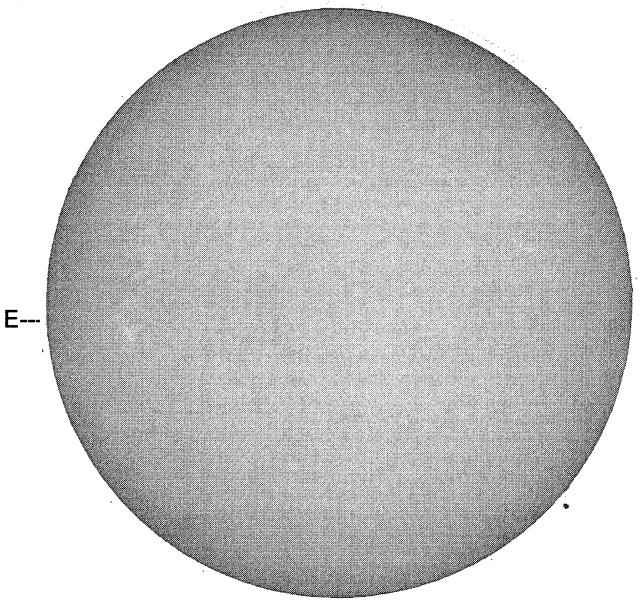
DeltaY = 20.1
DeltaX = 13.0



23.19 -
23.62 UT

White= +7.5G
Black = -7.5G

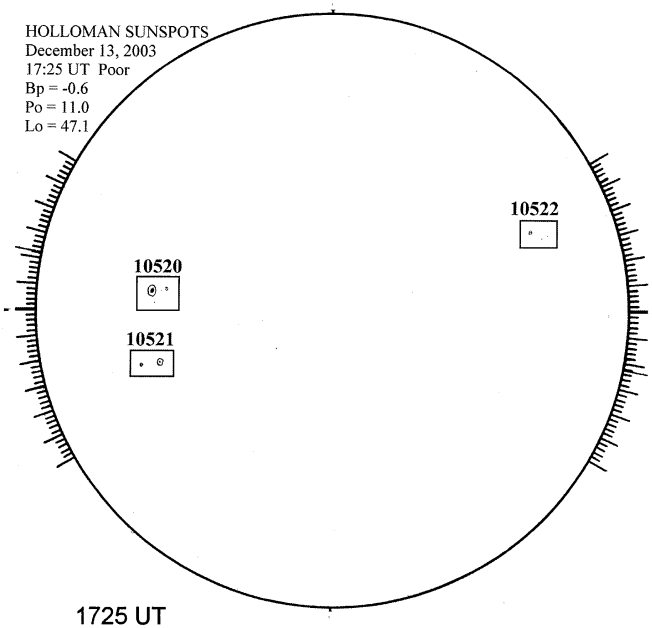
----- YNAO H-ALPHA



0455 UT

S

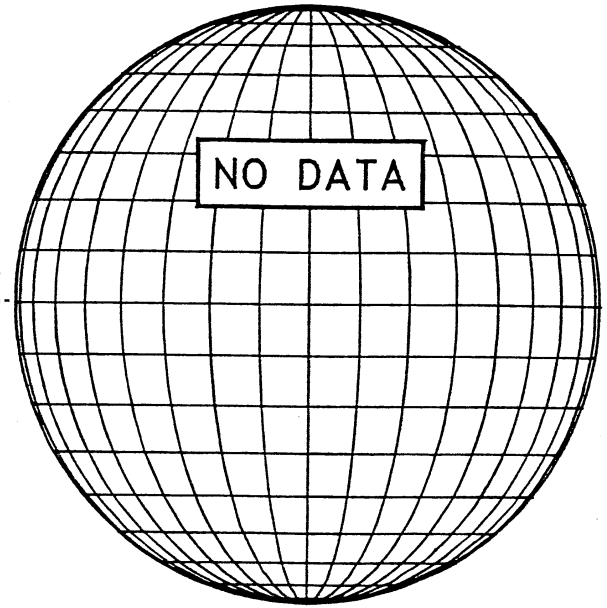
HOLLOMAN SUNSPOT



1725 UT

S

LOMNICKY PEAK CORONA (1.04 Radii)----



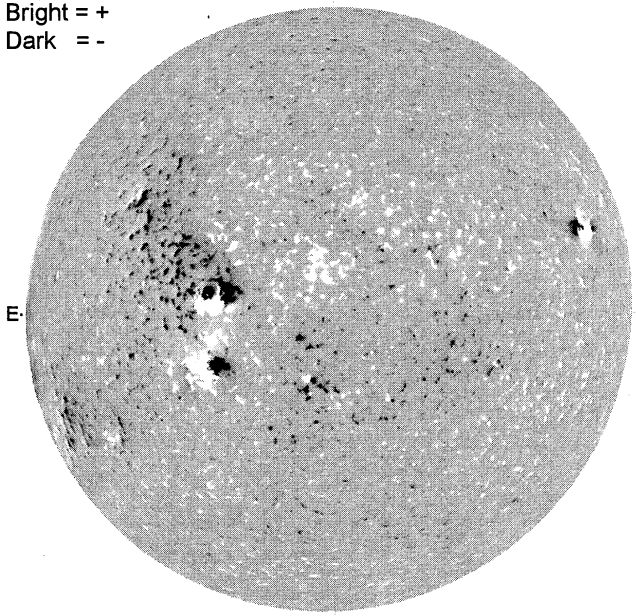
S

DECEMBER 14, 2003 (P= 10.86, Bo = -0.72, Lo = 41.69)

KITT PEAK MAGNETOGRAM--SOLIS

N **854.2 nm**

Bright = +
Dark = -



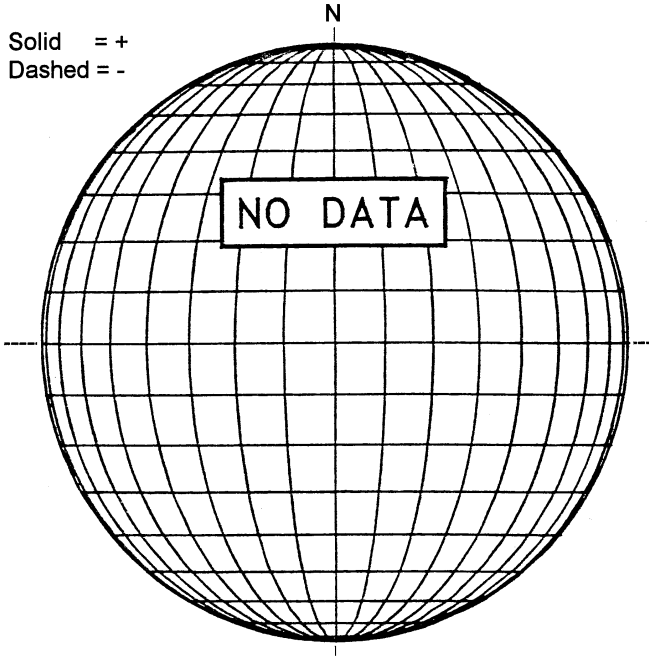
E-

1722 UT

STANFORD MAGNETOGRAM

N

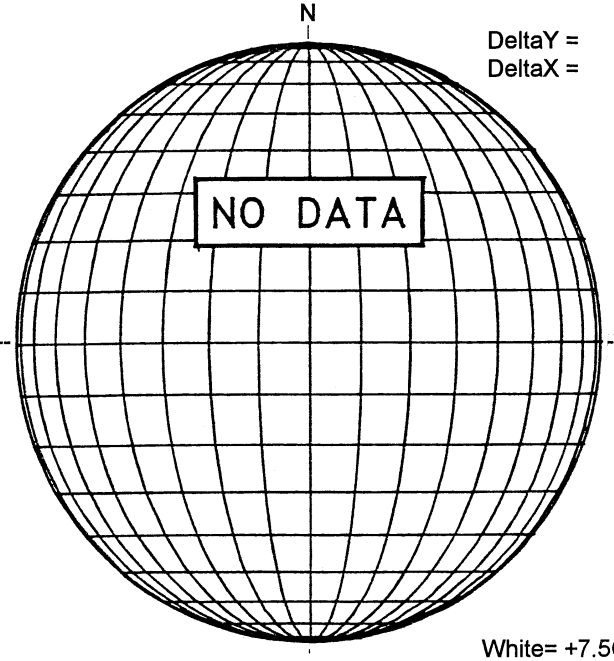
Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

N

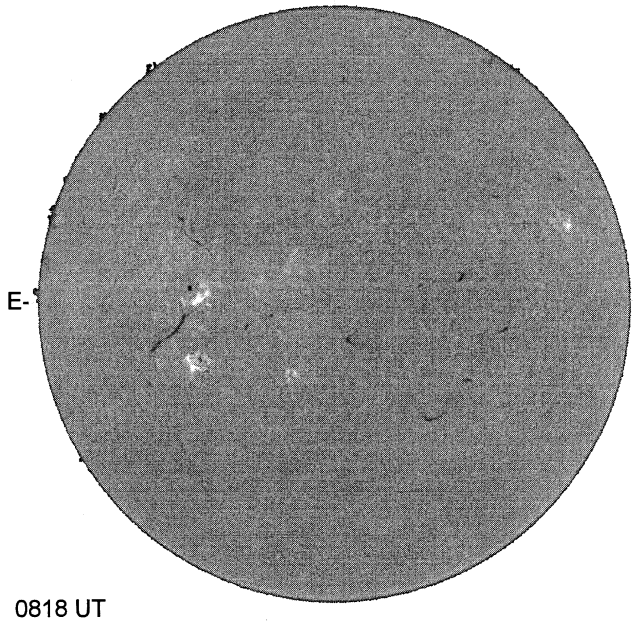
DeltaY =
DeltaX =



-W

White= +7.5G
Black = -7.5G

----- CATANIA H-ALPHA

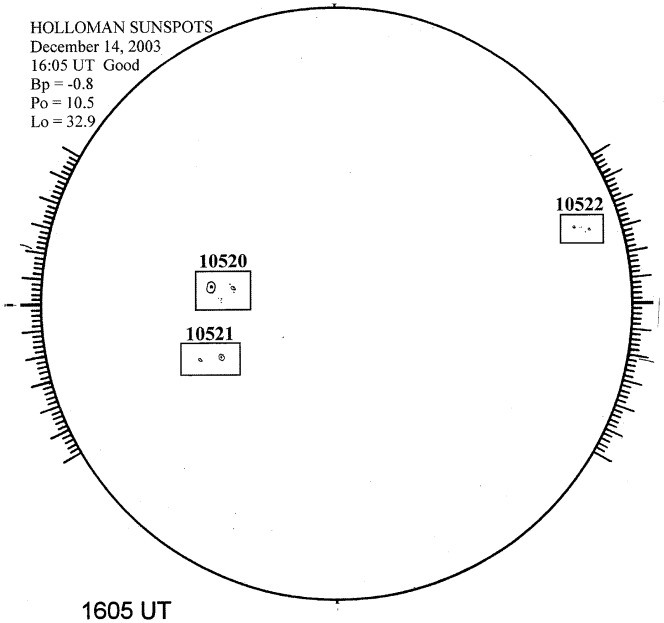


E-

0818 UT

S

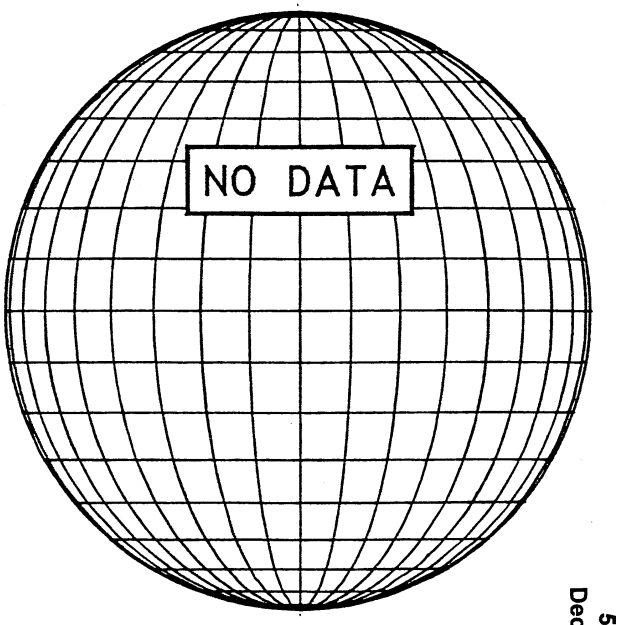
HOLLOMAN SUNSPOT



1605 UT

S

SACRAMENTO PEAK CORONA (1.15 Radii)----



S

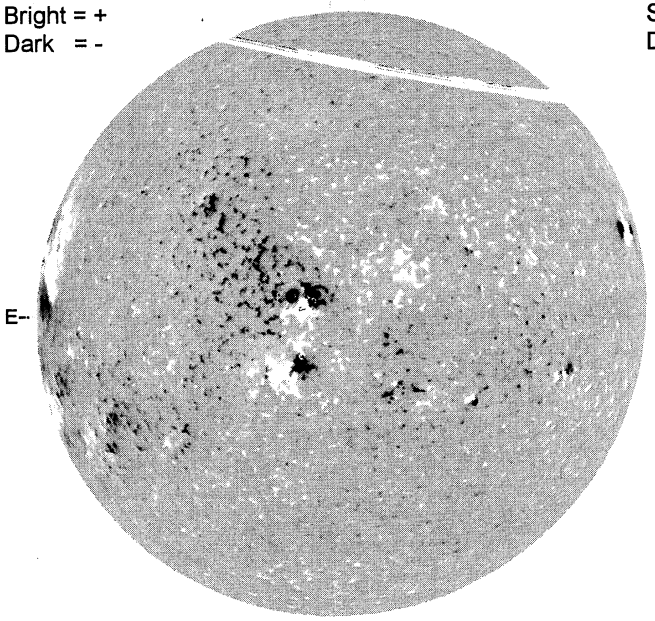
59
Dec 03

DECEMBER 15, 2003 (P= 10.41, Bo = -0.85, Lo = 28.52)

KITT PEAK MAGNETOGRAM--SOLIS

N **854.2 nm**

Bright = +
Dark = -



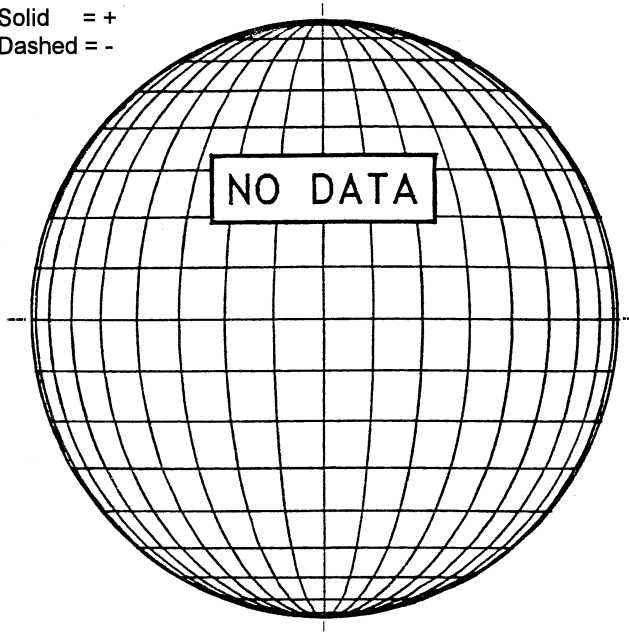
E--

1923 UT

STANFORD MAGNETOGRAM

N

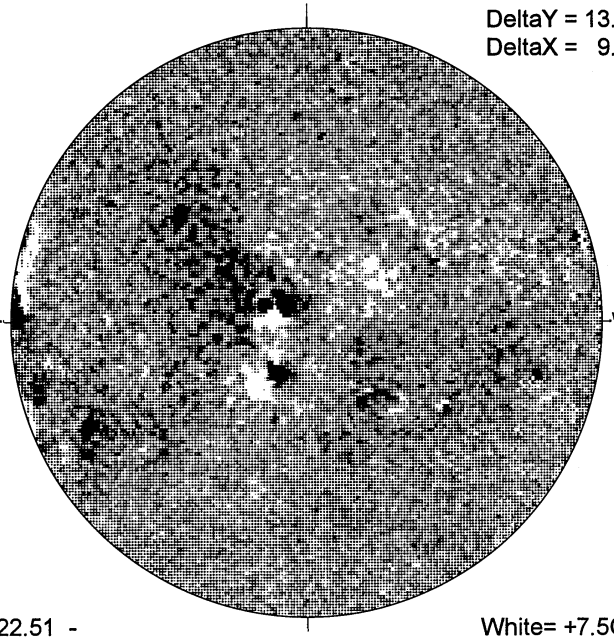
Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

N

DeltaY = 13.1
DeltaX = 9.7

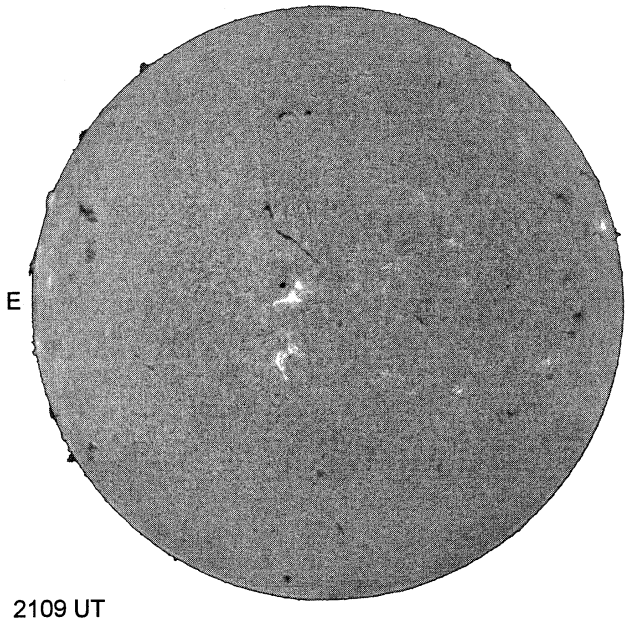


--W

22.51 -
23.49 UT

White= +7.5G
Black = -7.5G

BIG BEAR H-ALPHA

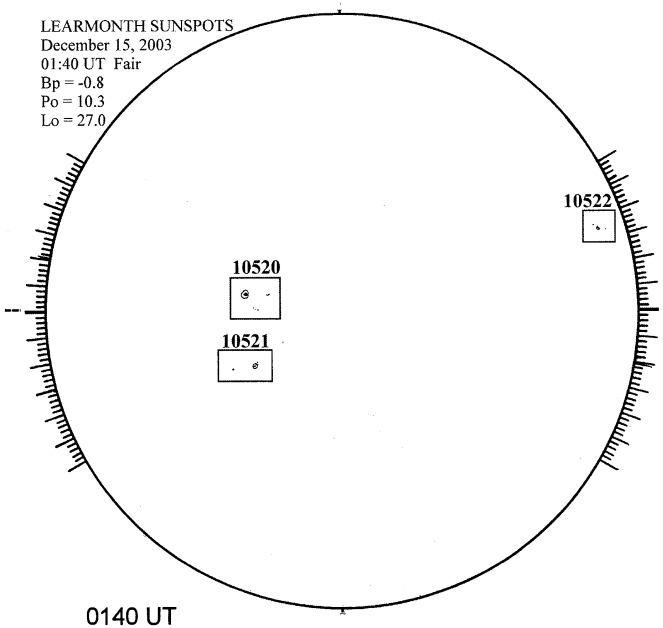


E

2109 UT

S

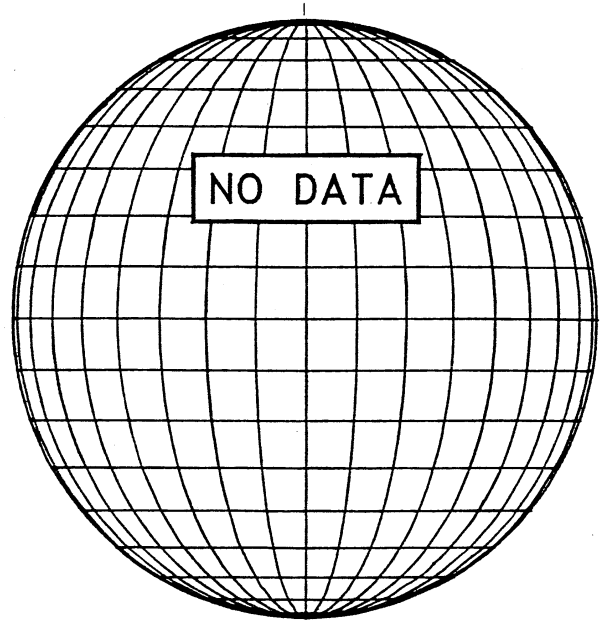
LEARMONTH SUNSPOT



0140 UT

S

LOMNICKY PEAK CORONA (1.04 Radii)----



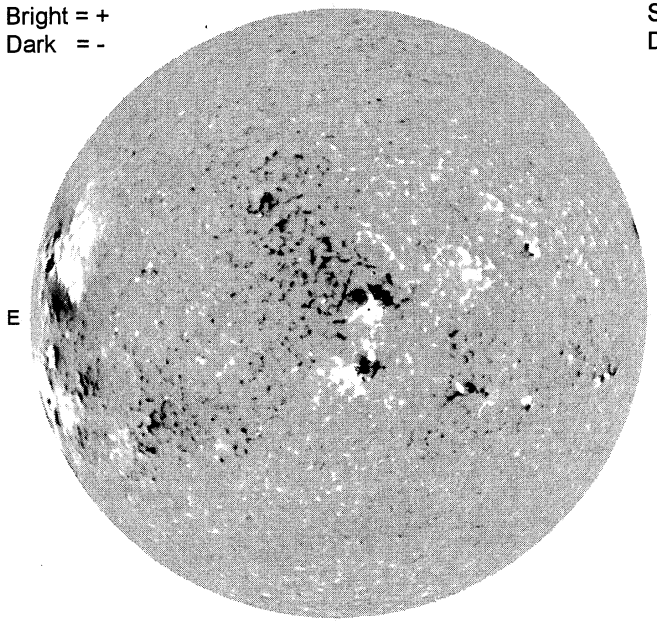
S

DECEMBER 16, 2003 (P= 9.95, Bo = -0.98, Lo = 15.34)

KITT PEAK MAGNETOGRAM--SOLIS

N **854.2 nm**

Bright = +
Dark = -



1958 UT

STANFORD MAGNETOGRAM

N

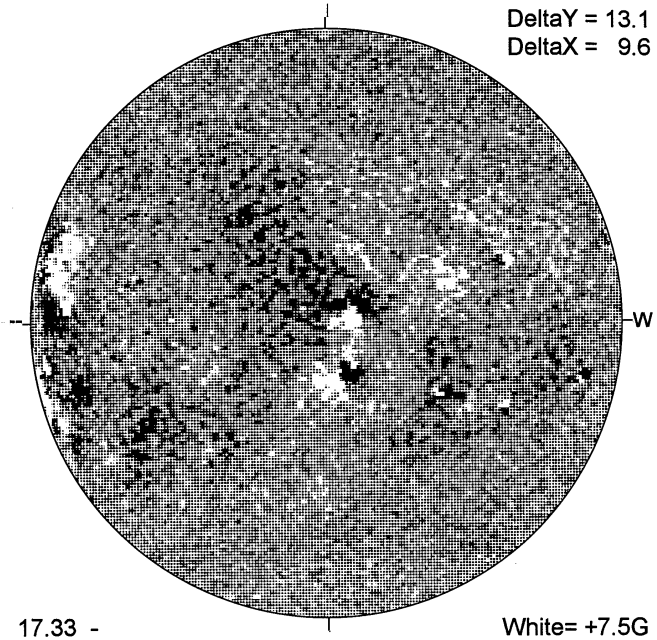
Solid = +
Dashed = -

2058 UT

MT. WILSON MAGNETOGRAM

N

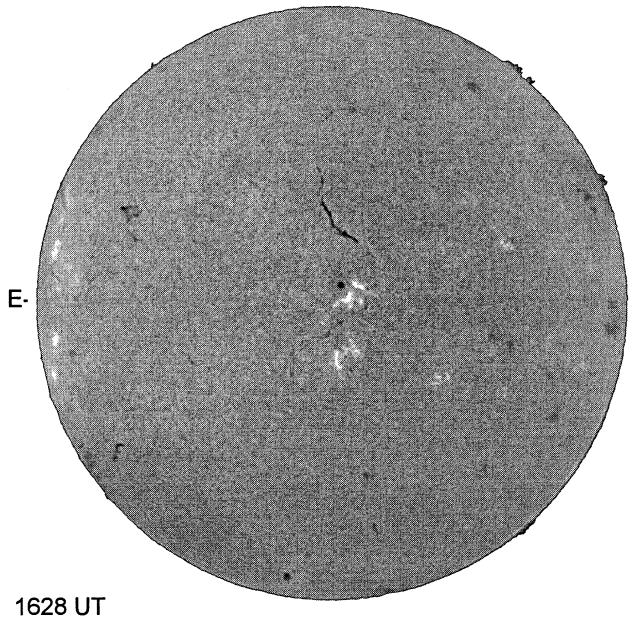
DeltaY = 13.1
DeltaX = 9.6



17.33 -
18.31 UT

White= +7.5G
Black = -7.5G

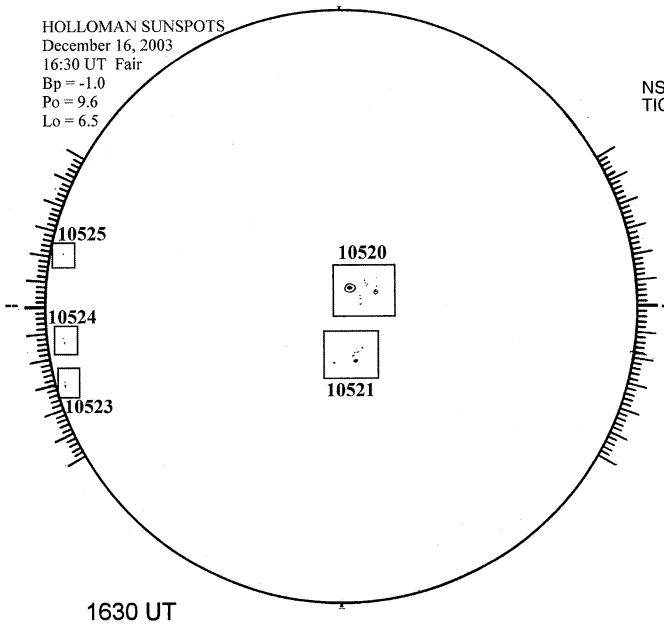
BIG BEAR H-ALPHA



1628 UT

S

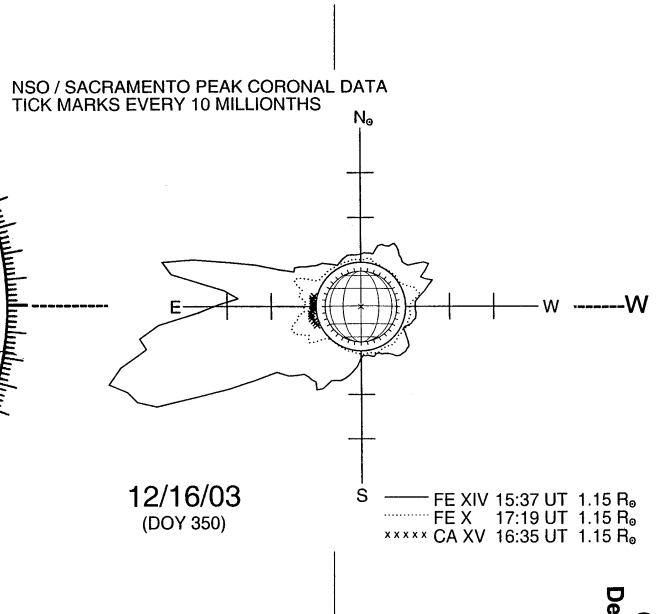
HOLLOMAN SUNSPOT



1630 UT

S

SACRAMENTO PEAK CORONA (1.15 Radii)----



S

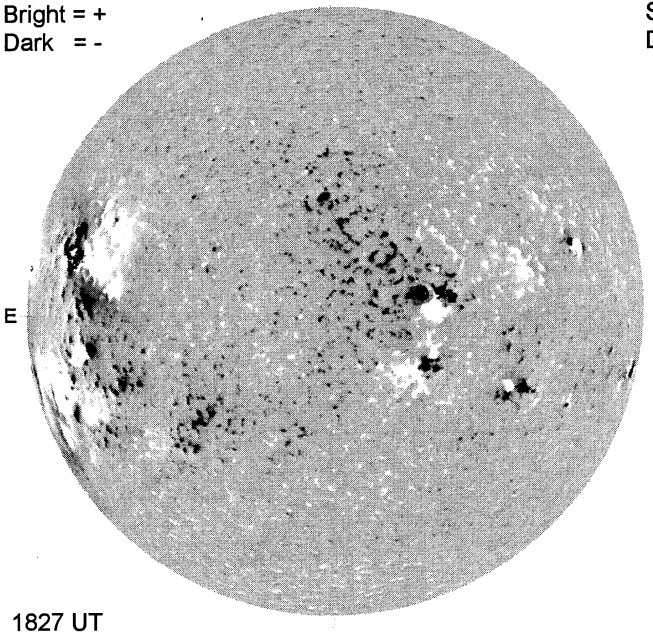
61
Dec 03

DECEMBER 17, 2003 (P= 9.50, Bo = -1.11, Lo = 2.17)

KITT PEAK MAGNETOGRAM--SOLIS

N **854.2 nm**

Bright = +
Dark = -



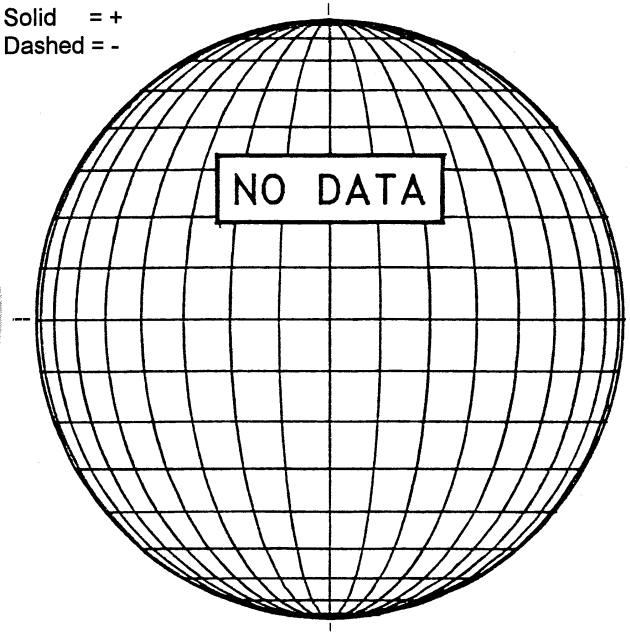
E

1827 UT

STANFORD MAGNETOGRAM

N

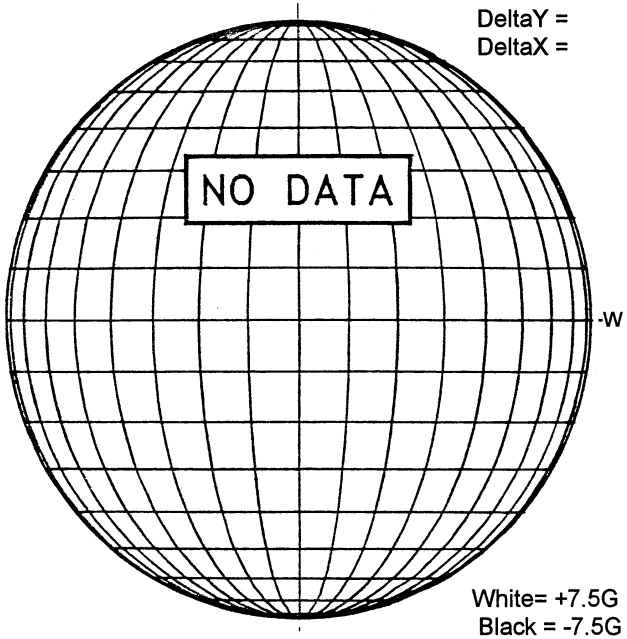
Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

N

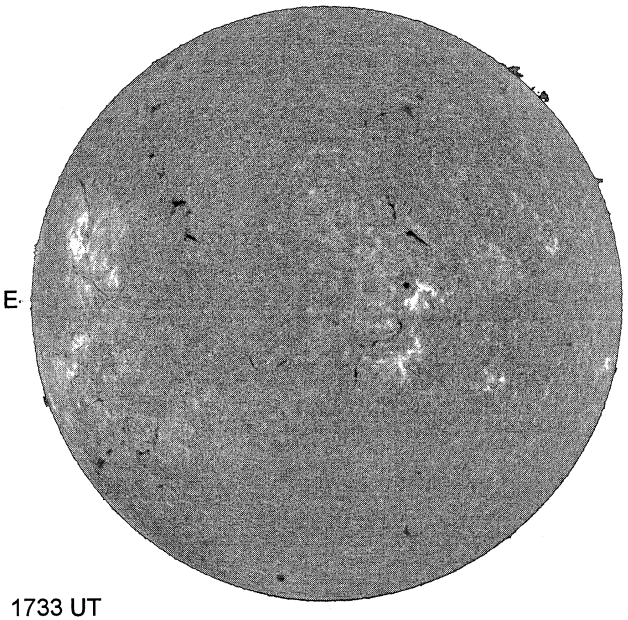
DeltaY =
DeltaX =



W

White= +7.5G
Black = -7.5G

BIG BEAR H-ALPHA

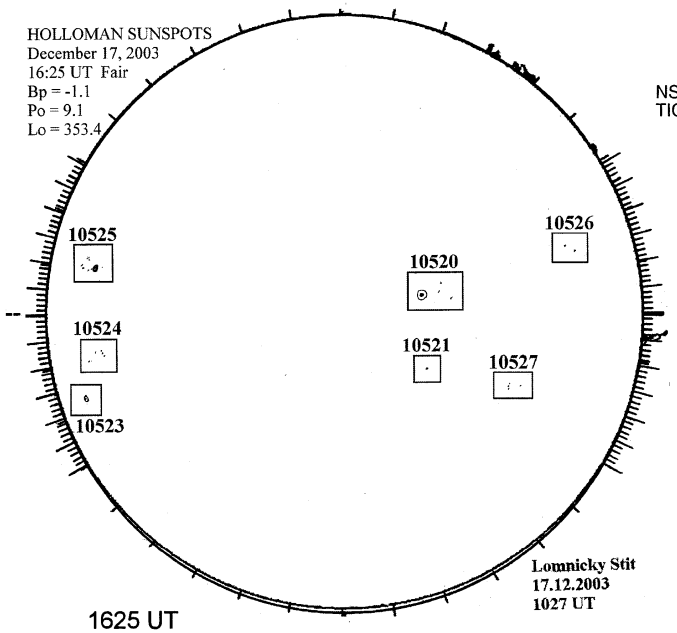


E

1733 UT

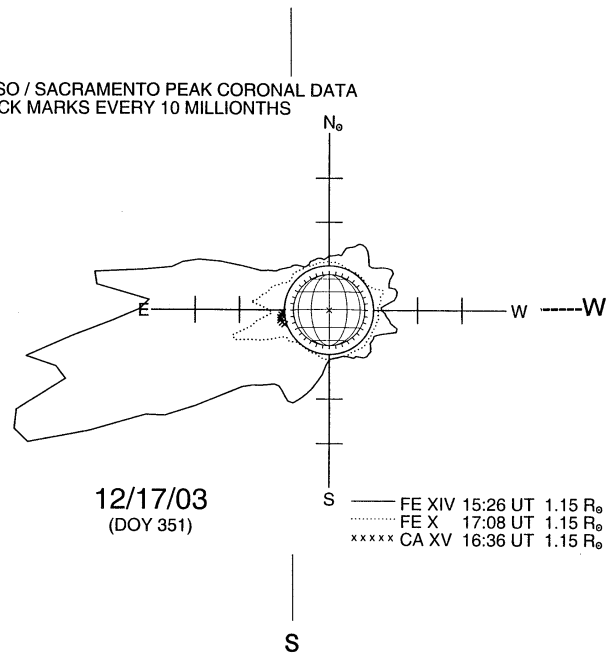
S

HOLLOMAN SUNSPOT



1625 UT
1027 UT LOMN Prom S

SACRAMENTO PEAK CORONA (1.15 Radii)----



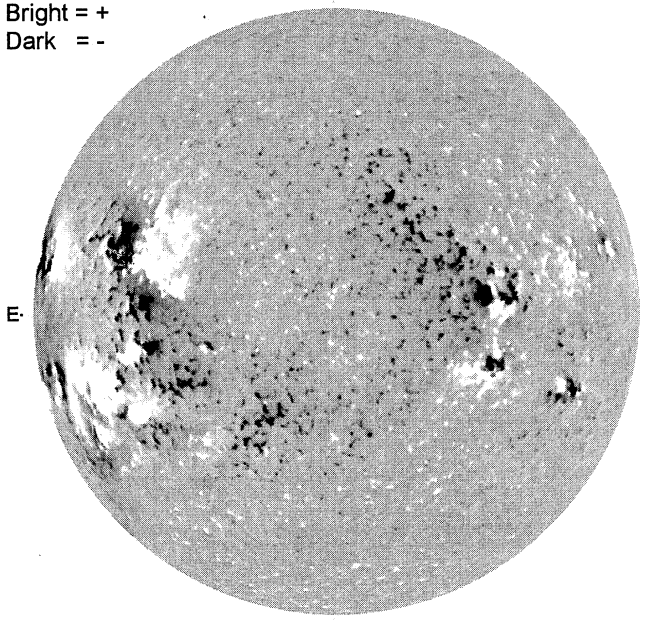
S

DECEMBER 18, 2003 (P= 9.04, Bo = -1.23, Lo = 348.99)

KITT PEAK MAGNETOGRAM--SOLIS

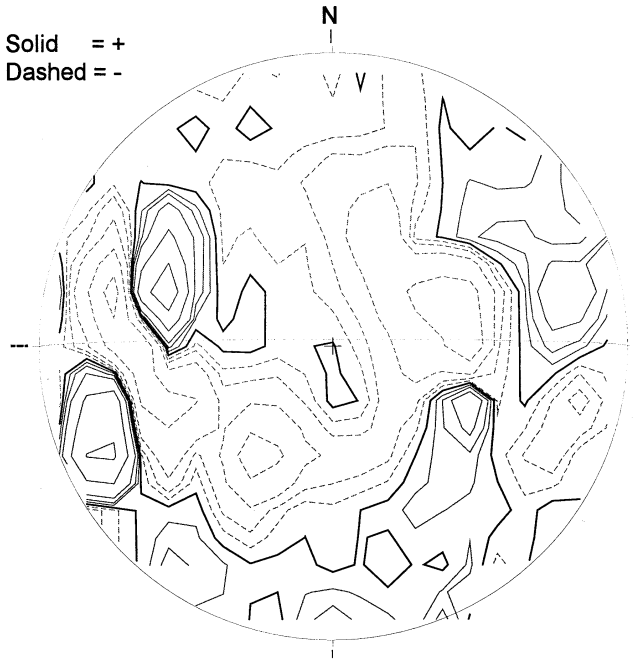
N **854.2 nm**

Bright = +
Dark = -



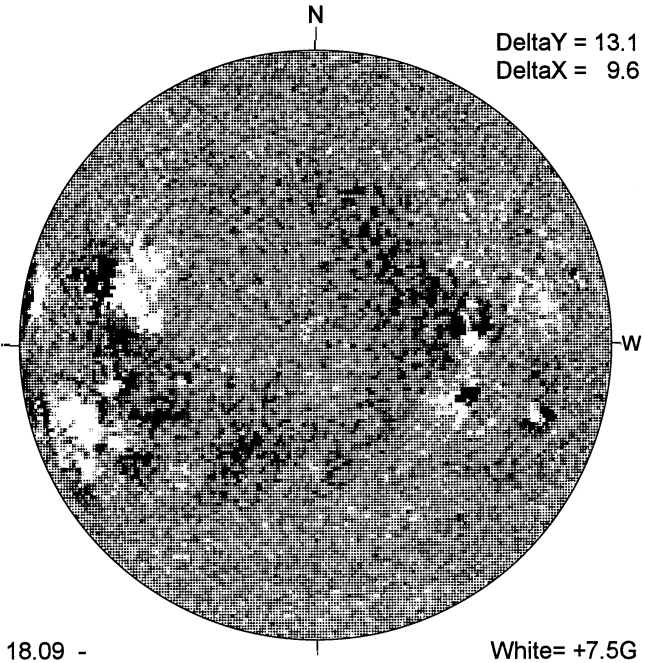
1922 UT

STANFORD MAGNETOGRAM



1850 UT

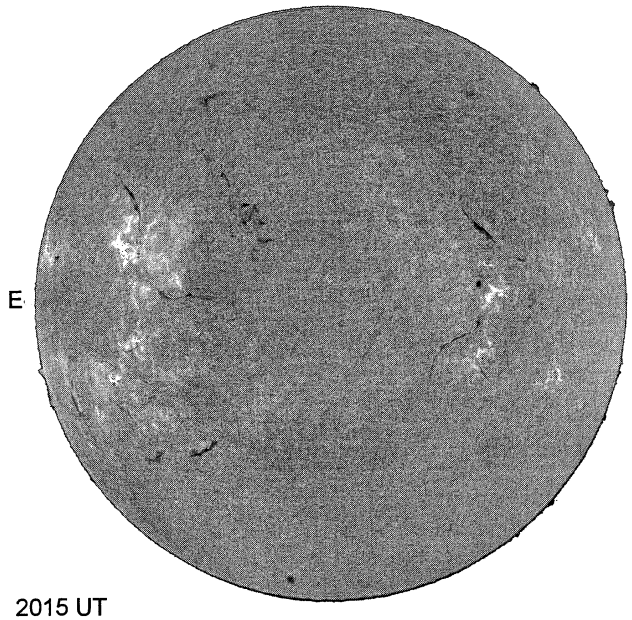
MT. WILSON MAGNETOGRAM



18.09 -
19.07 UT

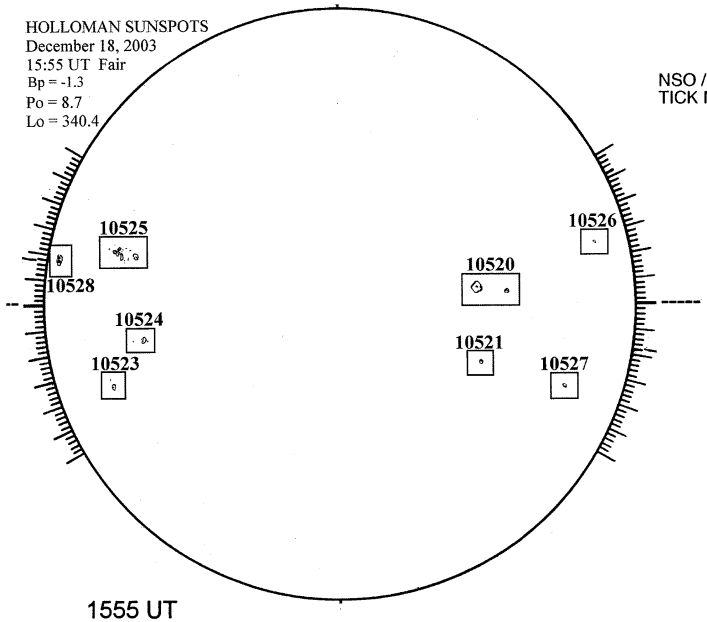
White= +7.5G
Black = -7.5G

----- BIG BEAR H-ALPHA



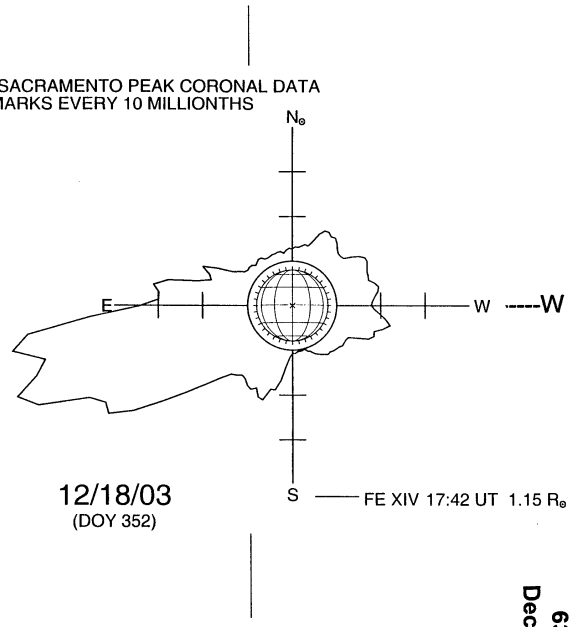
2015 UT

HOLLOMAN SUNSPOT



1555 UT

SACRAMENTO PEAK CORONA (1.15 Radii)----



12/18/03
(DOY 352)

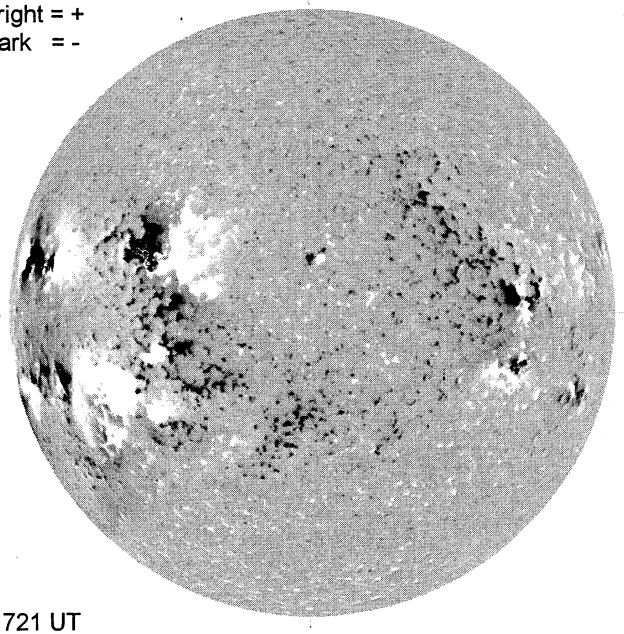
63
Dec 03

DECEMBER 19, 2003 (P= 8.57, Bo = -1.36, Lo = 335.82)

KITT PEAK MAGNETOGRAM--SOLIS

N **854.2 nm**

Bright = +
Dark = -



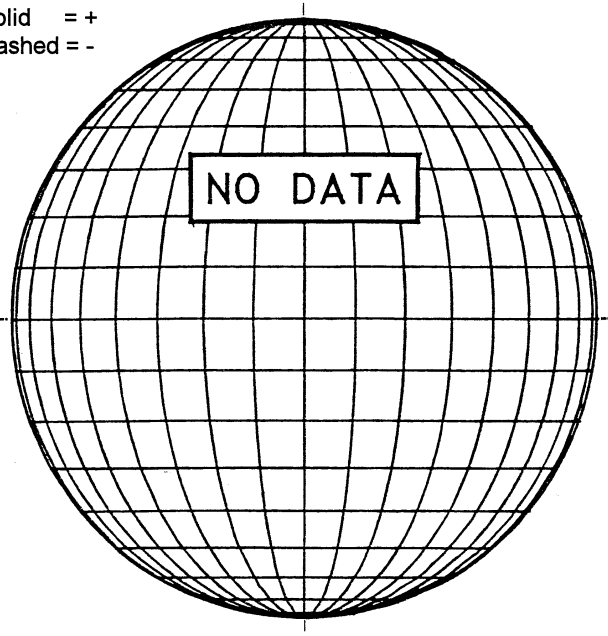
E-

1721 UT

STANFORD MAGNETOGRAM

N

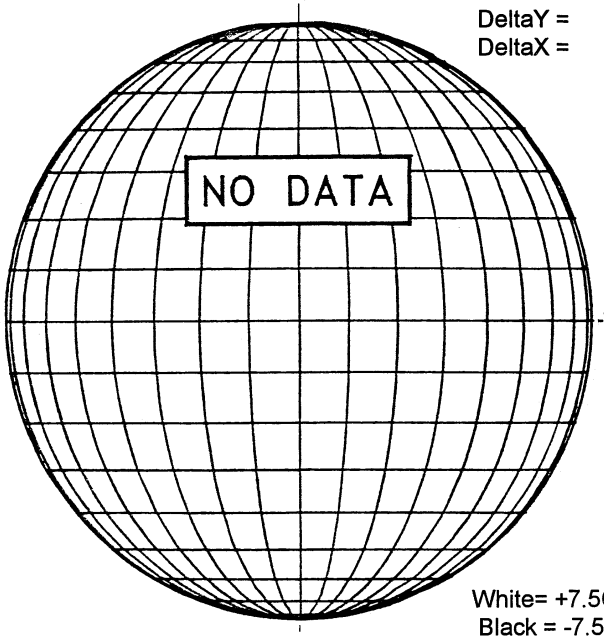
Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

N

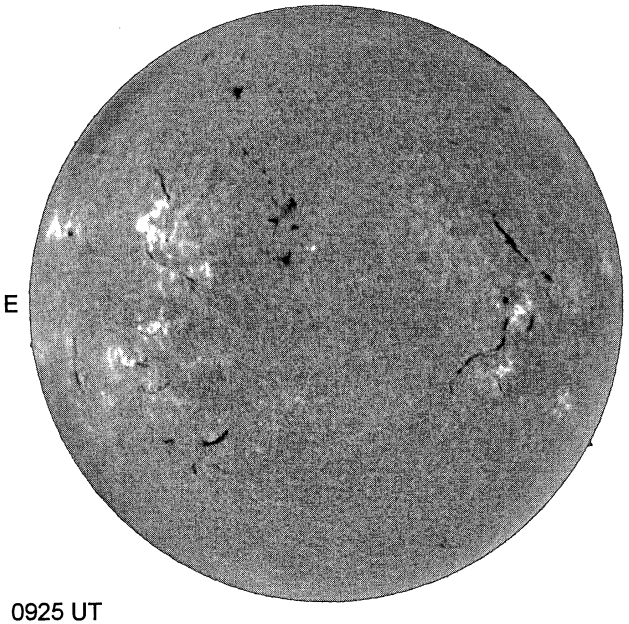
DeltaY =
DeltaX =



-W

White= +7.5G
Black = -7.5G

KANZELHOHE H-ALPHA

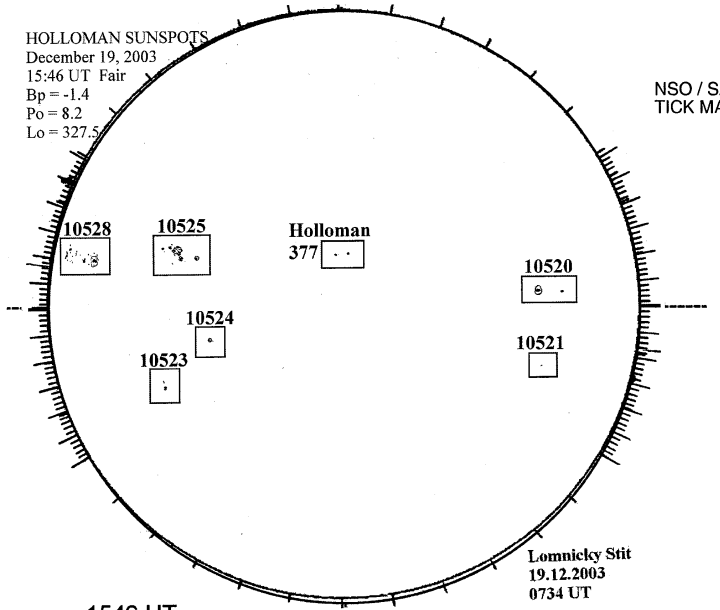


E

0925 UT

S

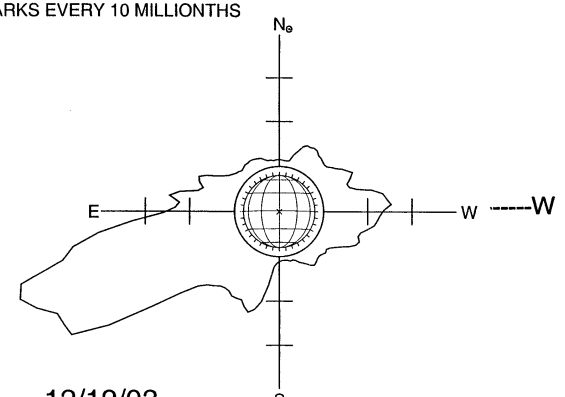
HOLLOMAN SUNSPOT



1546 UT
0734 UT LOMN Prom S

SACRAMENTO PEAK CORONA (1.15 Radii)----

NSO / SACRAMENTO PEAK CORONAL DATA
TICK MARKS EVERY 10 MILLIONTHS



12/19/03
(DOY 353)

FE XIV 15:31 UT 1.15 $R_\odot$
xxxxx CA XV 16:05 UT 1.15 $R_\odot$
NO CA XV ACTIVITY TODAY

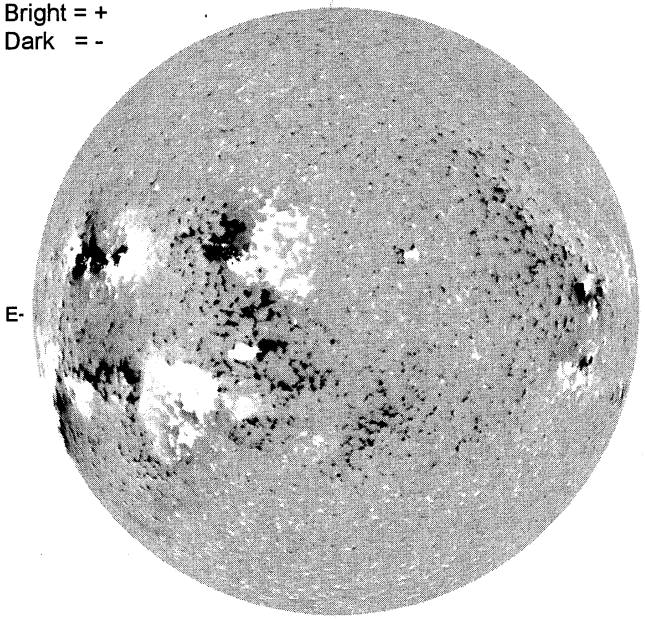
S

DECEMBER 20, 2003 (P= 8.11, Bo = -1.49, Lo = 322.64)

KITT PEAK MAGNETOGRAM--SOLIS

N **854.2 nm**

Bright = +
Dark = -



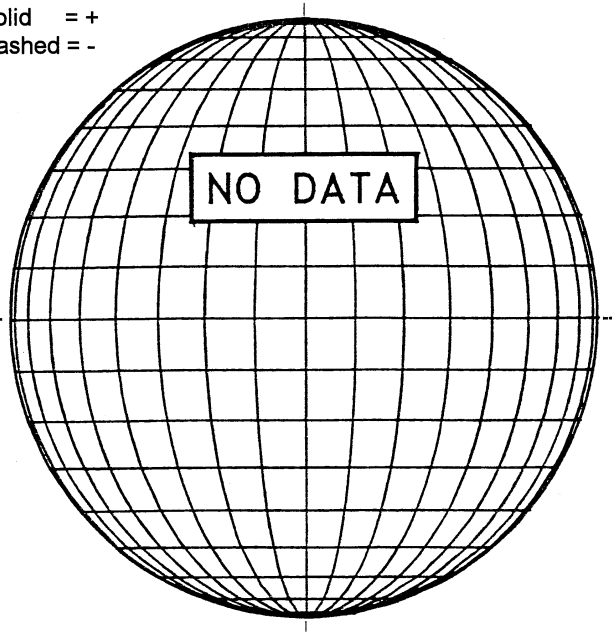
E-

1653 UT

STANFORD MAGNETOGRAM

N

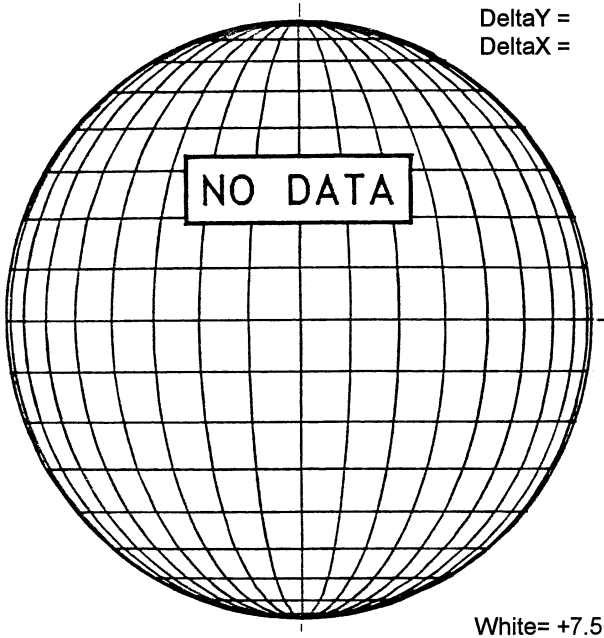
Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

N

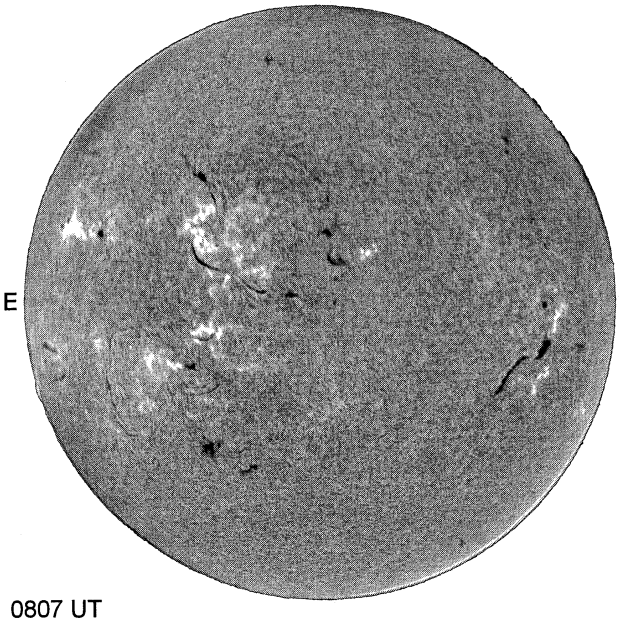
DeltaY =
DeltaX =



-W

White= +7.5G
Black = -7.5G

---- KANZELHOHE H-ALPHA

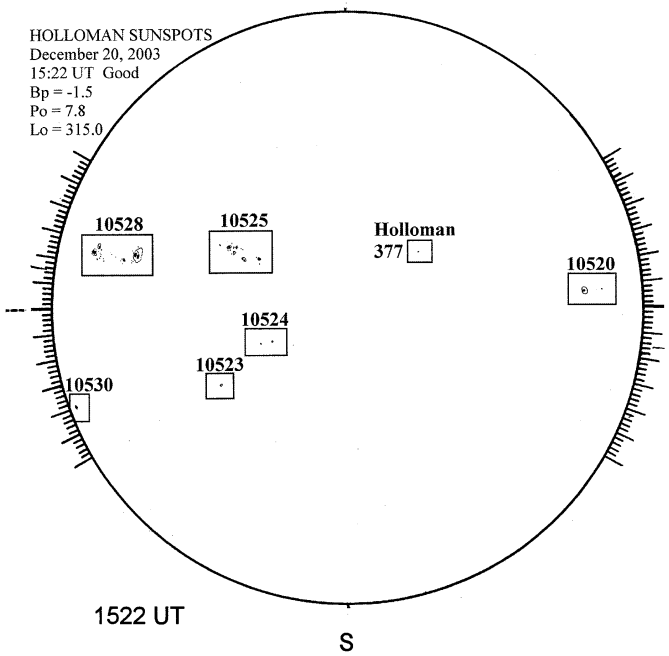


E

0807 UT

S

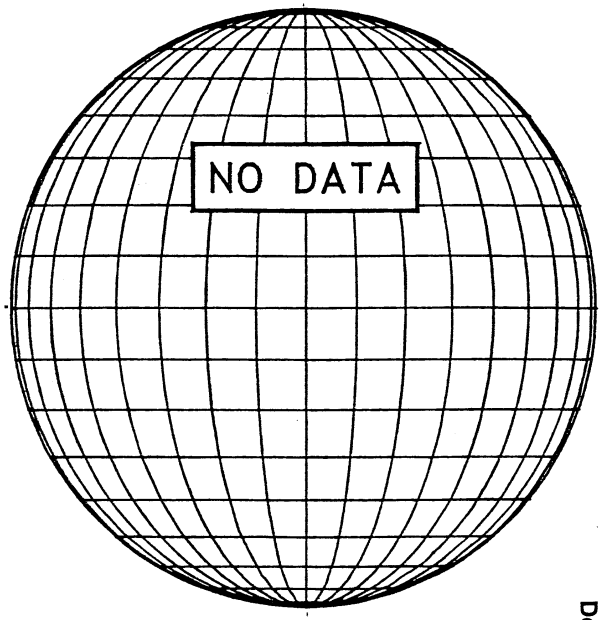
HOLLOMAN SUNSPOT



1522 UT

S

SACRAMENTO PEAK CORONA (1.15 Radii)----



S

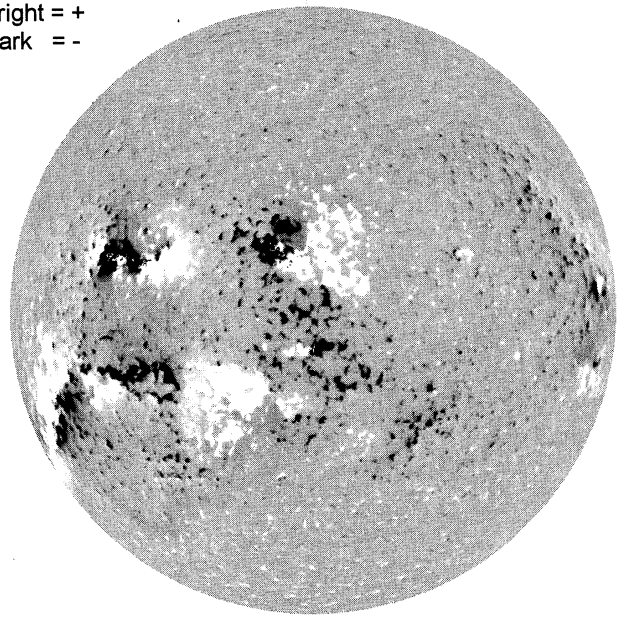
65
Dec 03

DECEMBER 21, 2003 (P= 7.64, Bo = -1.61, Lo = 309.47)

KITT PEAK MAGNETOGRAM--SOLIS

N **854.2 nm**

Bright = +
Dark = -

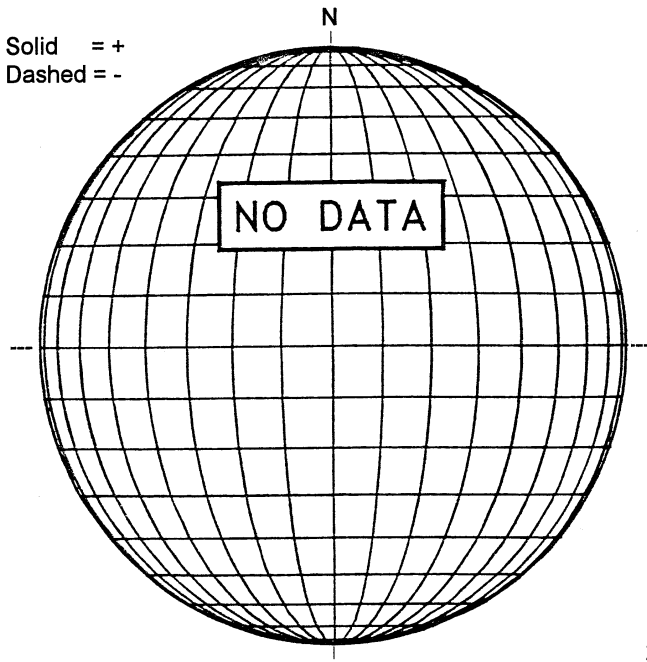


E-

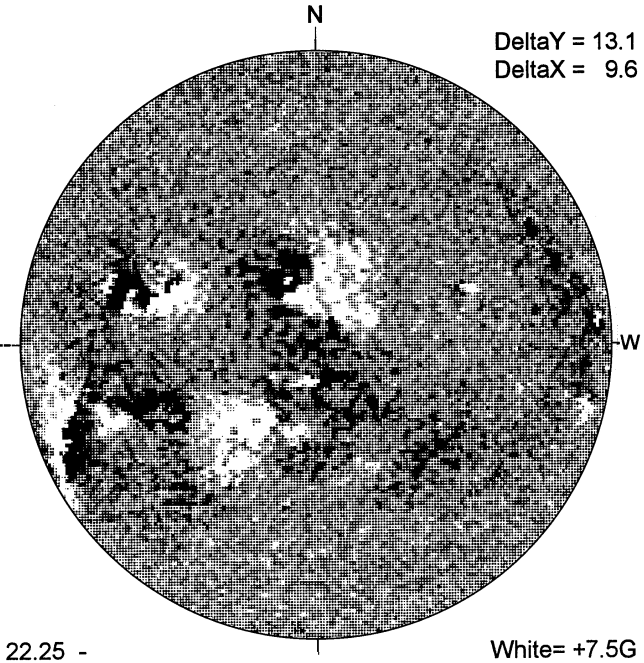
2034 UT

STANFORD MAGNETOGRAM

Solid = +
Dashed = -



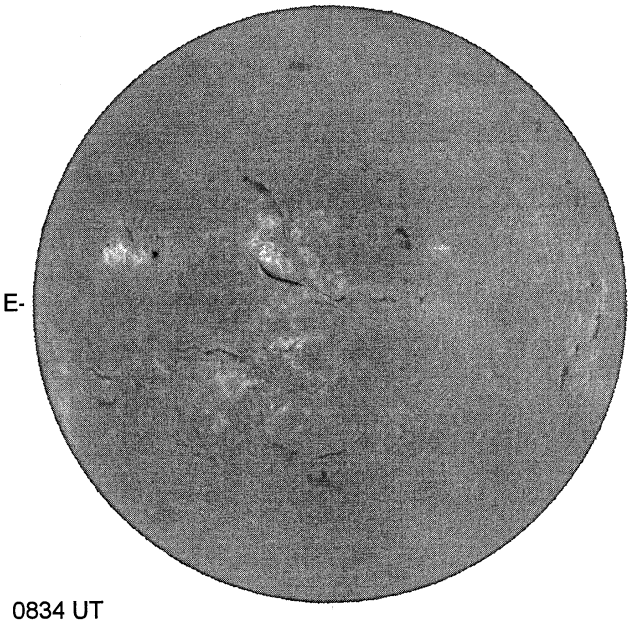
MT. WILSON MAGNETOGRAM



22.25 -
23.22 UT

White= +7.5G
Black = -7.5G

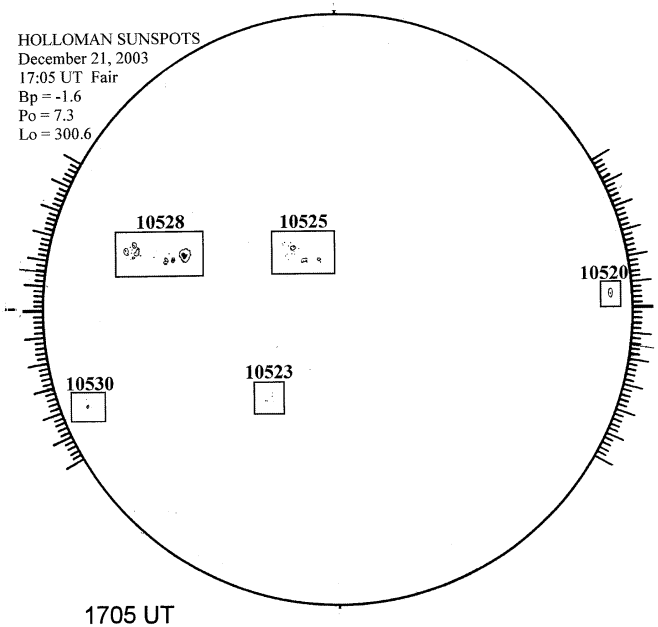
CATANIA H-ALPHA



0834 UT

S

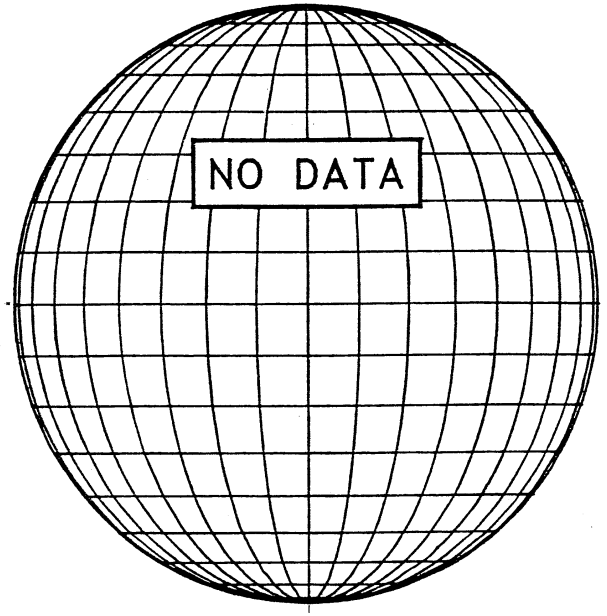
HOLLOMAN SUNSPOT



1705 UT

S

LOMNICKY PEAK CORONA (1.04 Radii)----



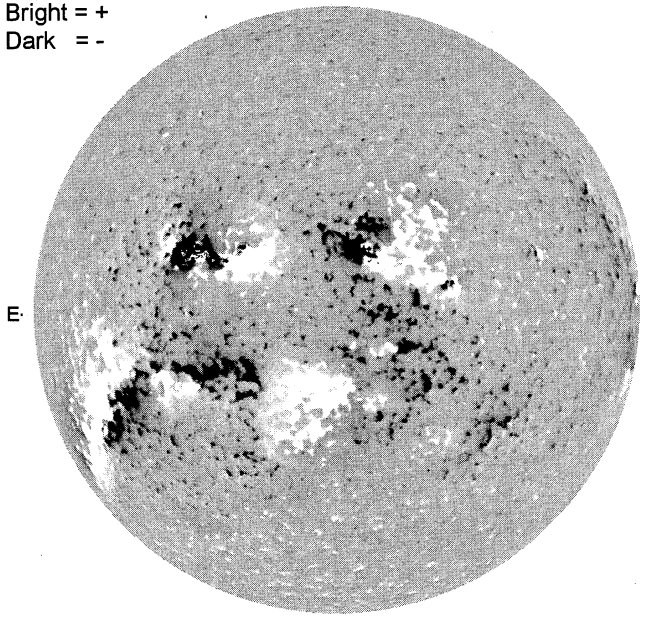
S

DECEMBER 22, 2003 (P= 7.17, Bo = -1.74, Lo = 296.30)

KITT PEAK MAGNETOGRAM--SOLIS

N **854.2 nm**

Bright = +
Dark = -



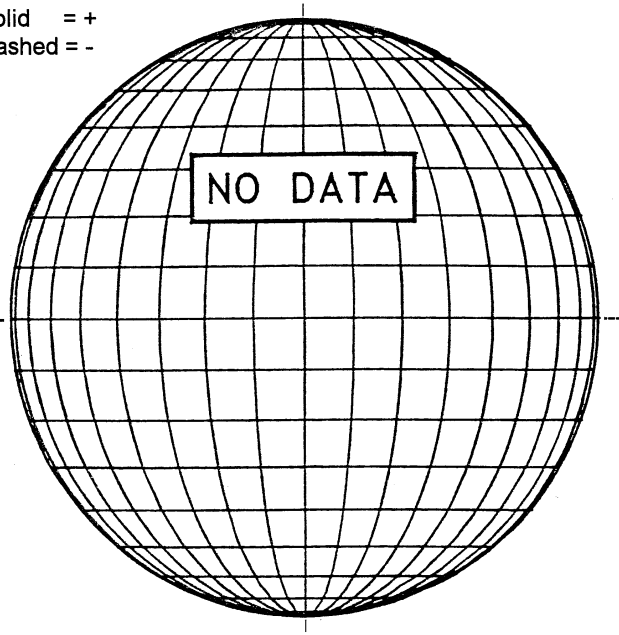
E

1858 UT

STANFORD MAGNETOGRAM

N

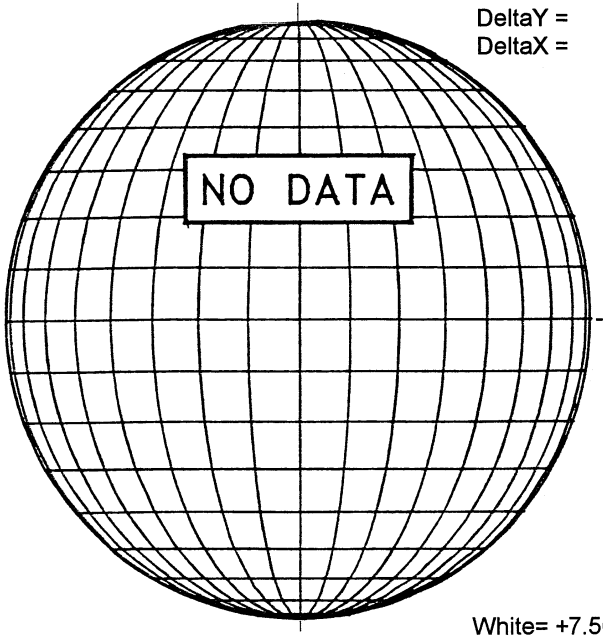
Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

N

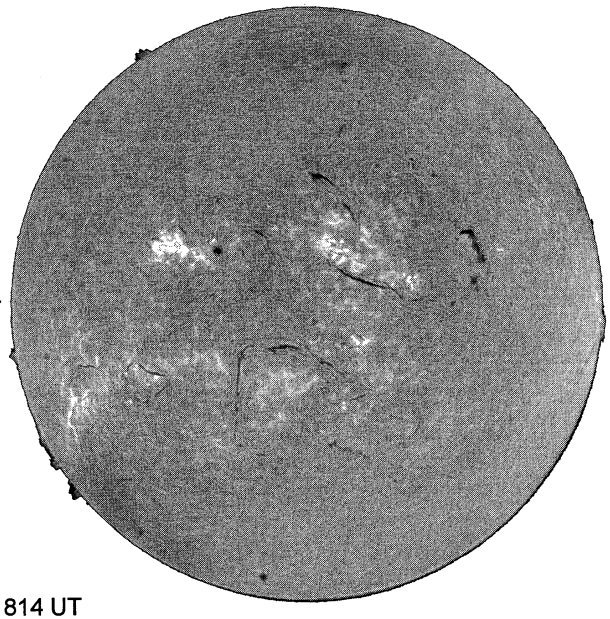
DeltaY =
DeltaX =



W

White= +7.5G
Black = -7.5G

BIG BEAR H-ALPHA

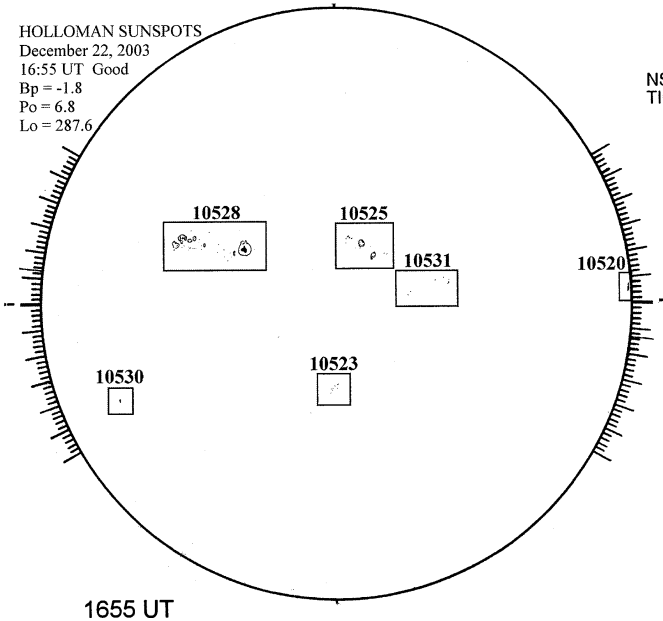


E

1814 UT

S

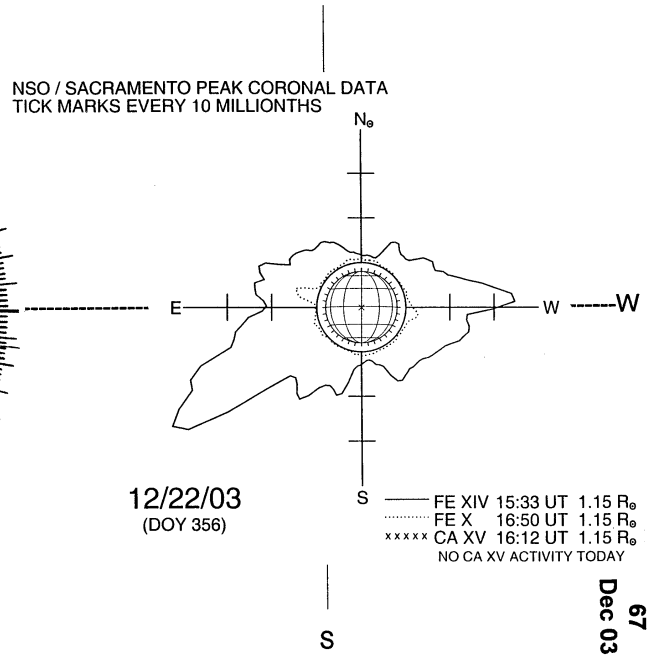
HOLLOMAN SUNSPOT



1655 UT

S

SACRAMENTO PEAK CORONA (1.15 Radii)



S

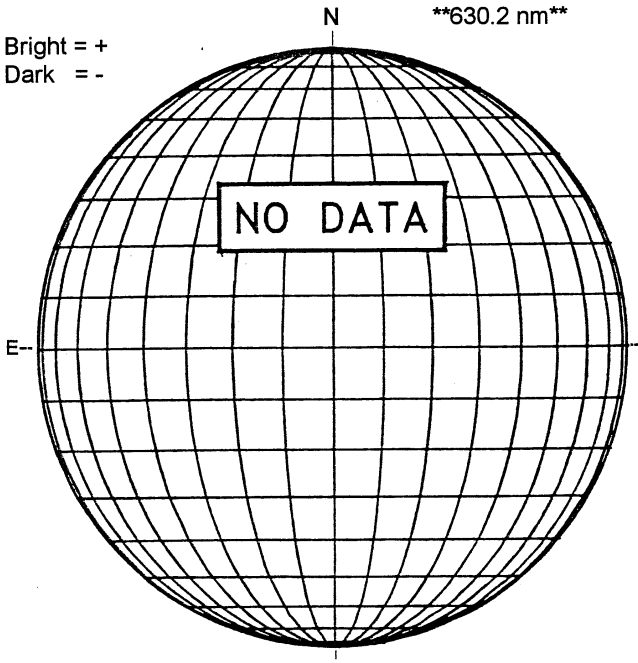
67
Dec 03

DECEMBER 23, 2003 (P= 6.70, Bo = -1.86, Lo = 283.13)

KITT PEAK MAGNETOGRAM--SOLIS

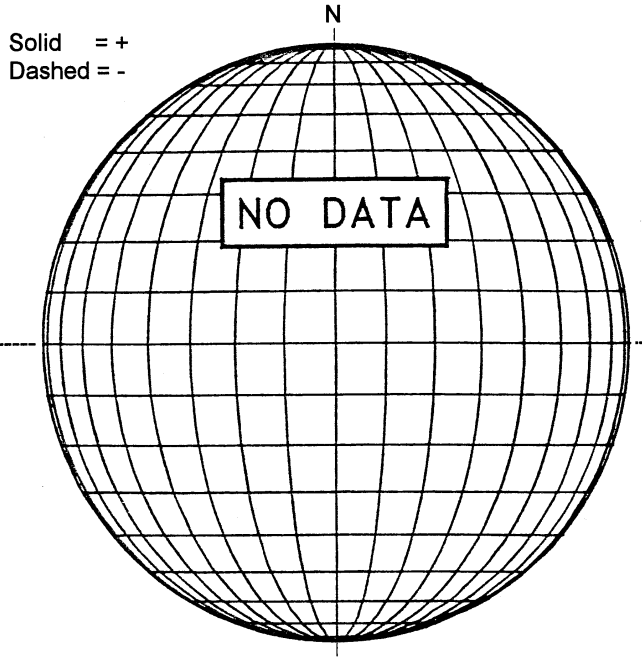
630.2 nm

Bright = +
Dark = -



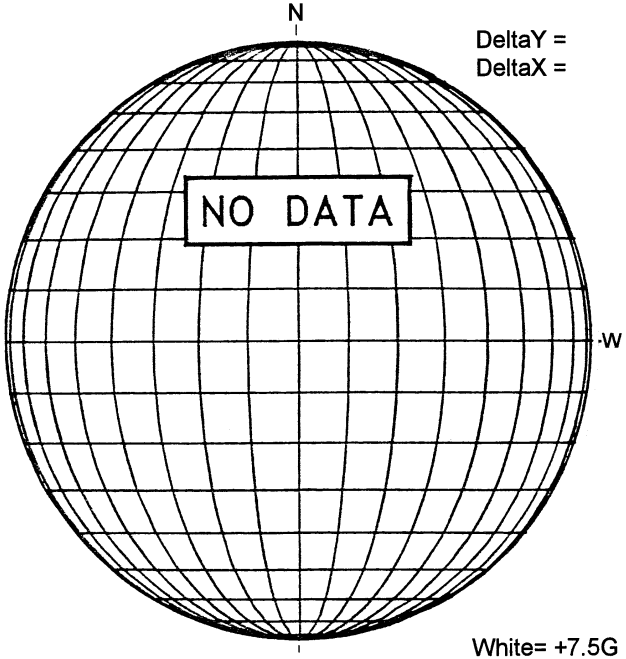
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



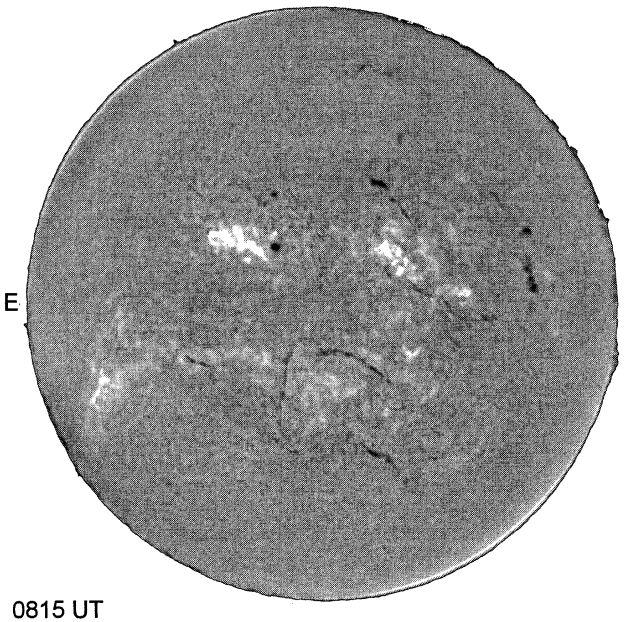
MT. WILSON MAGNETOGRAM

DeltaY =
DeltaX =



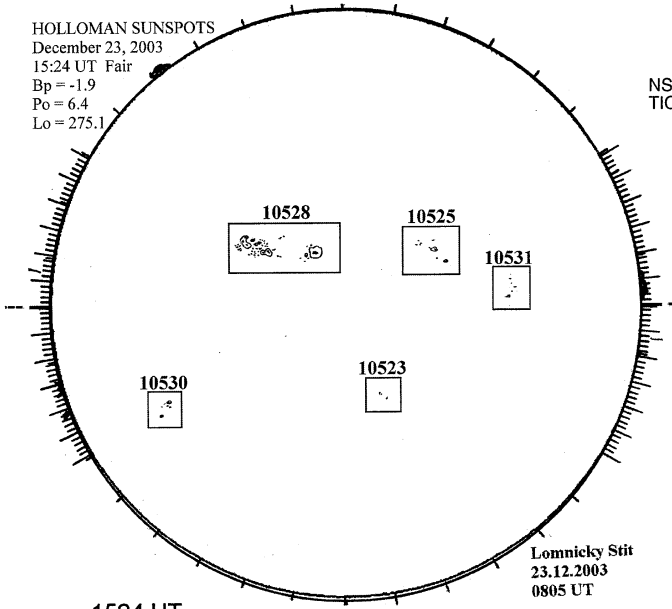
White= +7.5G
Black = -7.5G

KANZELHOHE H-ALPHA



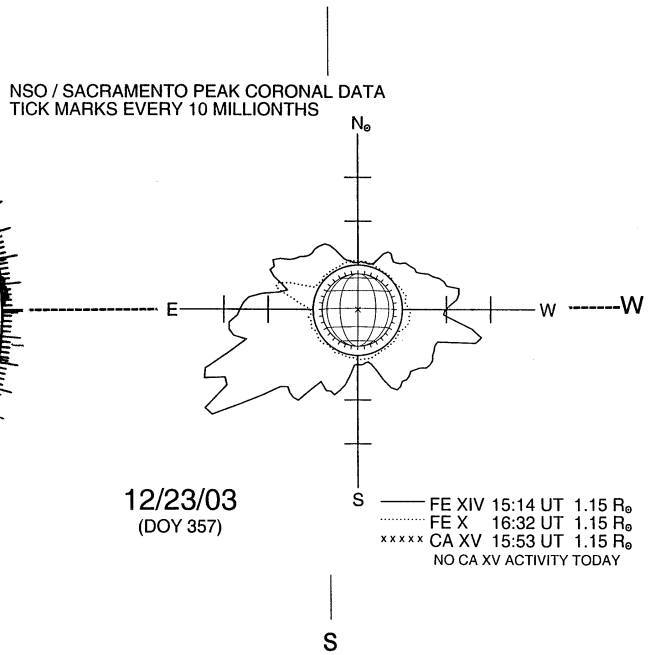
0815 UT

HOLLOMAN SUNSPOT



1524 UT
0805 UT LOMN Prom S

SACRAMENTO PEAK CORONA (1.15 Radii)----

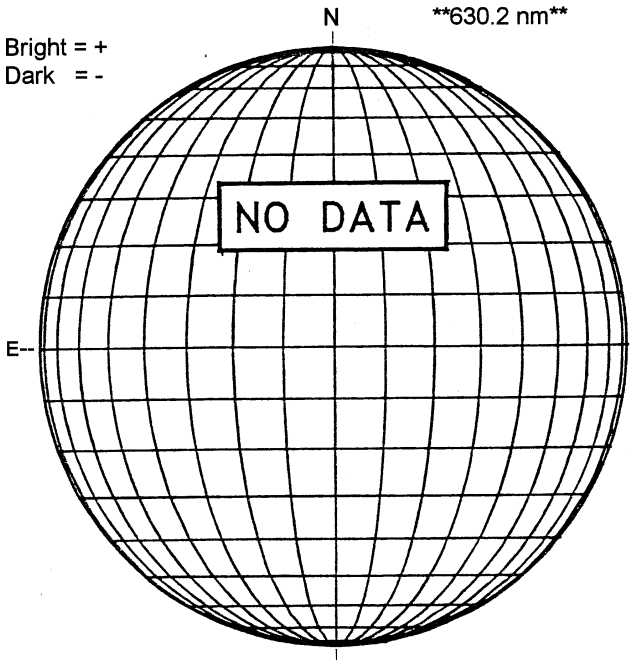


DECEMBER 24, 2003 (P= 6.22, Bo = -1.99, Lo = 269.95)

KITT PEAK MAGNETOGRAM--SOLIS

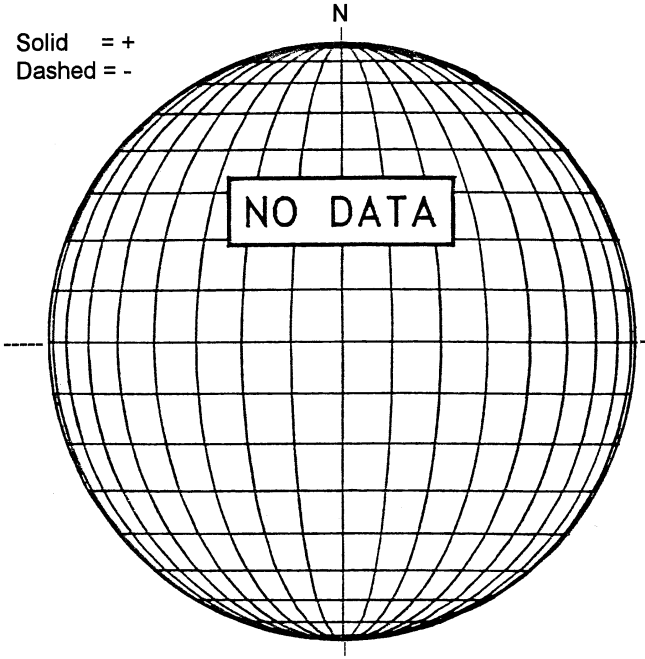
630.2 nm

Bright = +
Dark = -



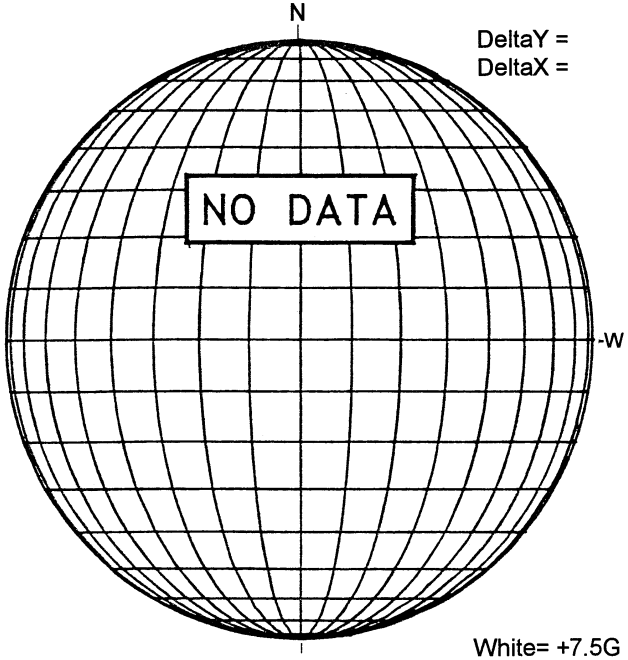
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



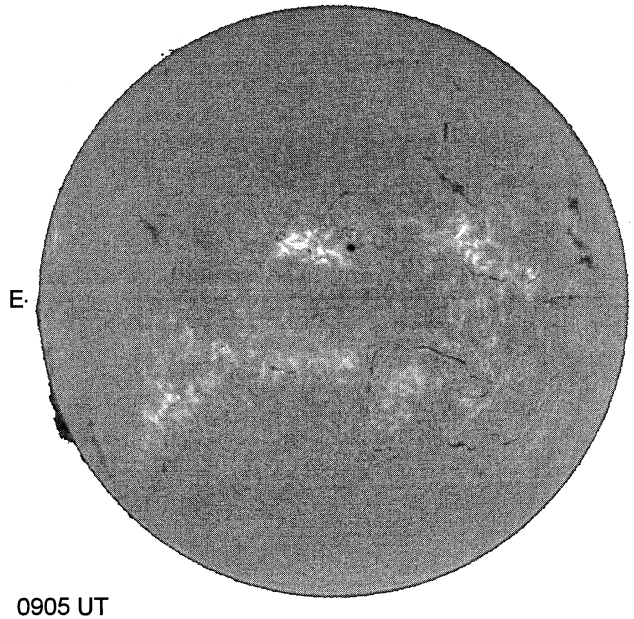
MT. WILSON MAGNETOGRAM

DeltaY =
DeltaX =



White= +7.5G
Black = -7.5G

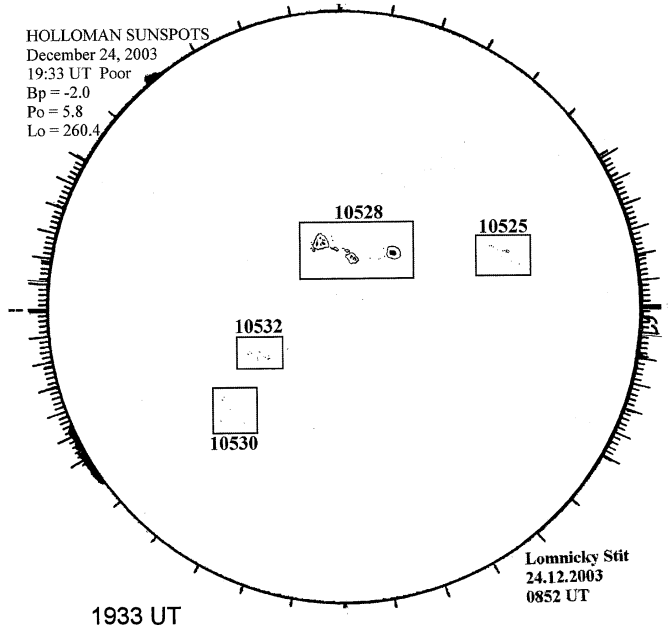
CATANIA H-ALPHA



0905 UT

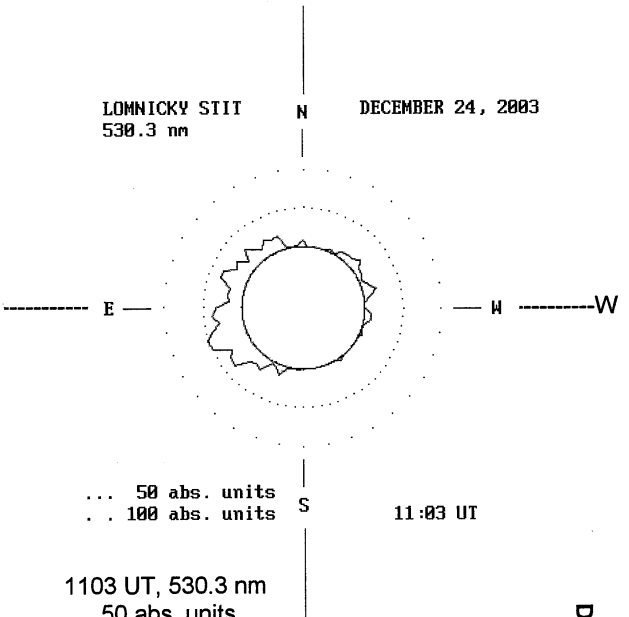
S

HOLLOMAN SUNSPOT



1933 UT
0852 UT LOMN Prom S

LOMNICKY PEAK CORONA (1.04 Radii)----



1103 UT, 530.3 nm
.... 50 abs. units
. . 100 abs. units

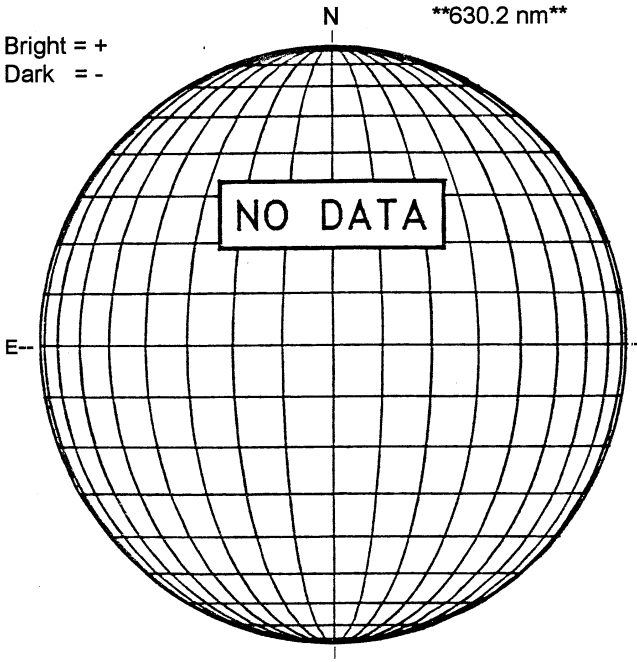
S

DECEMBER 25, 2003 (P= 5.74, Bo = -2.11, Lo = 256.78)

KITT PEAK MAGNETOGRAM--SOLIS

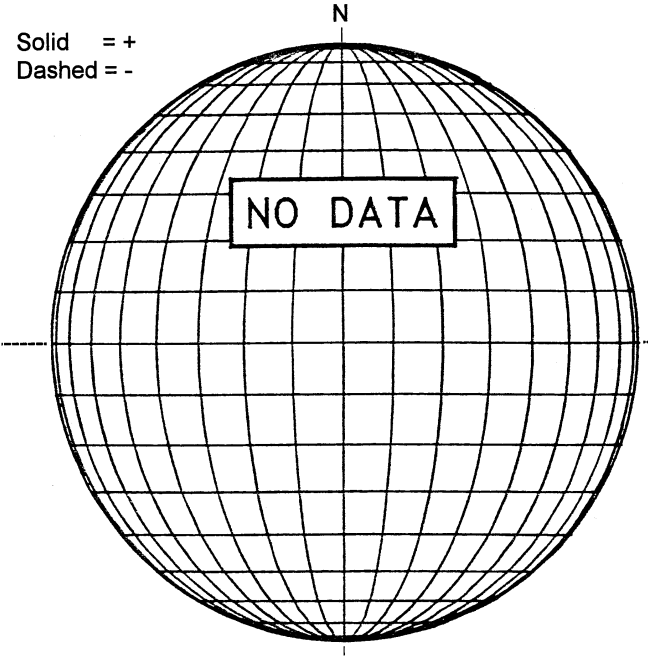
630.2 nm

Bright = +
Dark = -



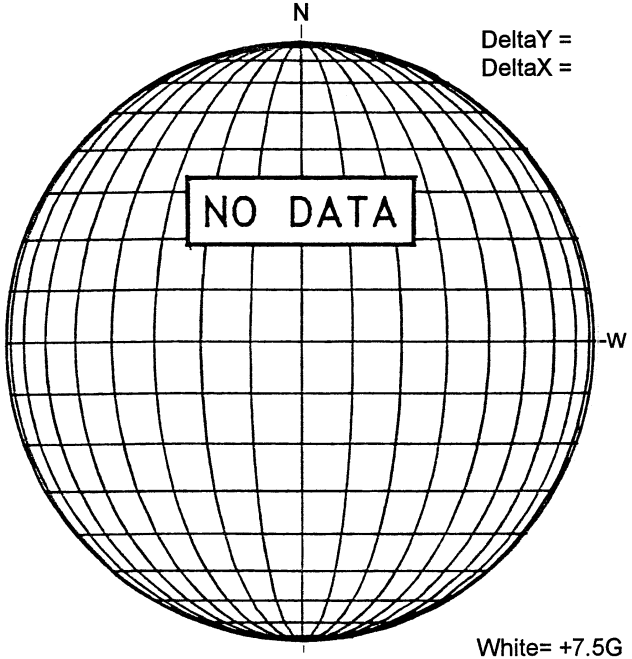
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



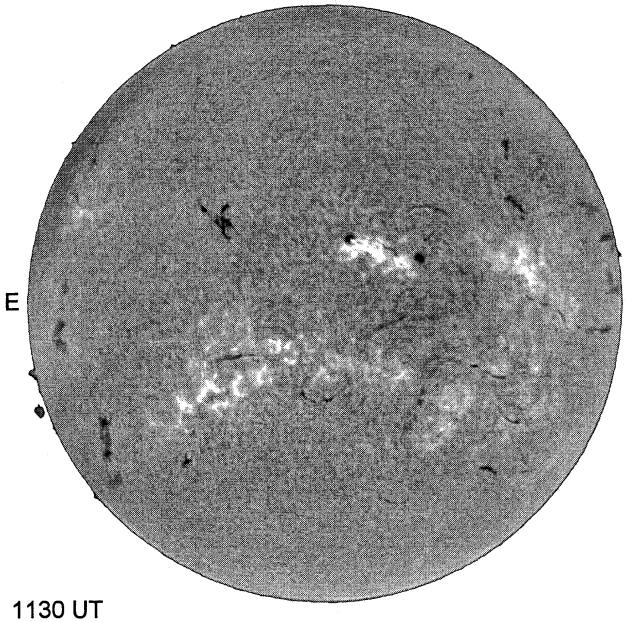
MT. WILSON MAGNETOGRAM

DeltaY =
DeltaX =



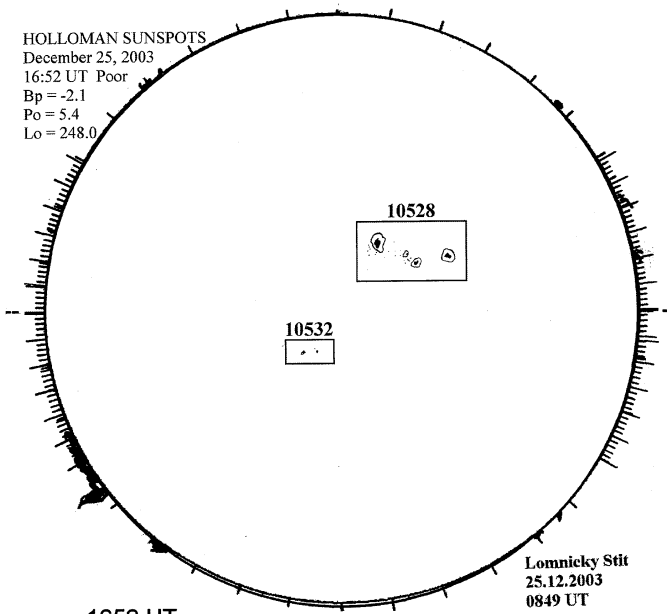
White= +7.5G
Black = -7.5G

KANZELHOHE H-ALPHA



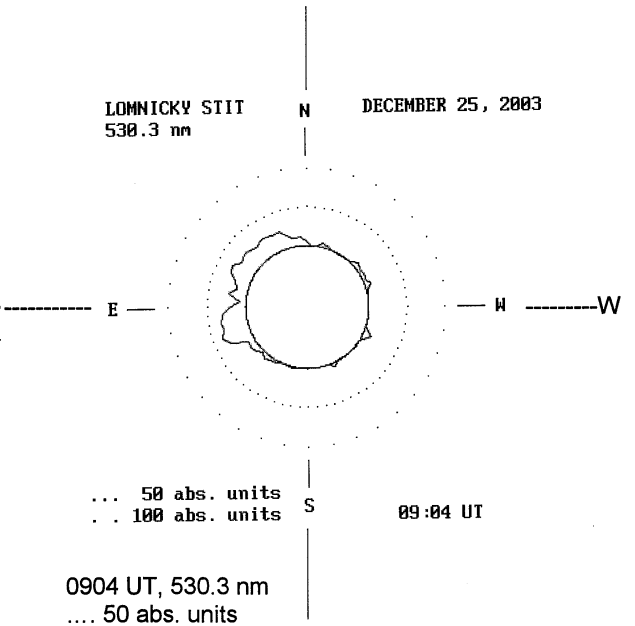
1130 UT

HOLLOMAN SUNSPOT



1652 UT
0849 UT LOMN Prom S

LOMNICKY PEAK CORONA (1.04 Radii)



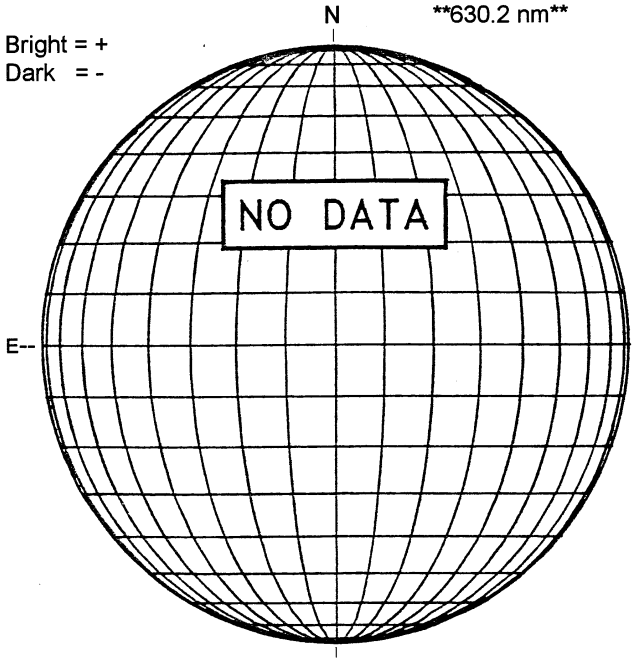
0904 UT, 530.3 nm
.... 50 abs. units
. . 100 abs. units
S

DECEMBER 26, 2003 (P= 5.26, Bo = -2.23, Lo = 243.61)

KITT PEAK MAGNETOGRAM--SOLIS

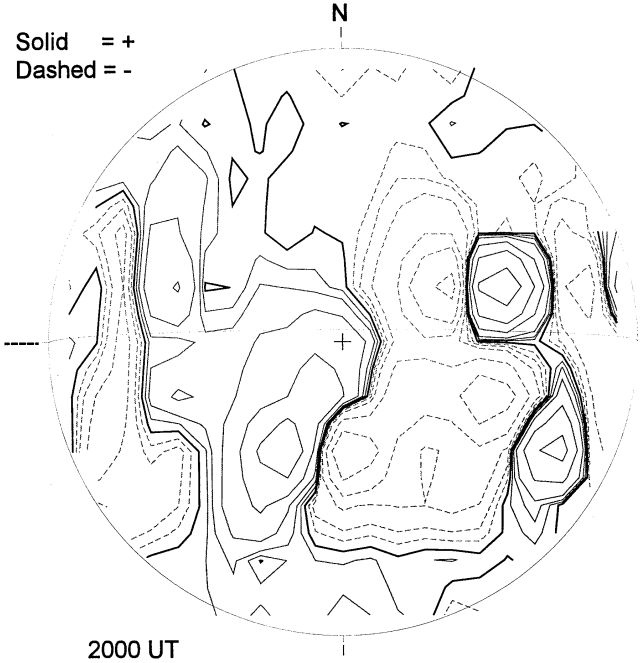
630.2 nm

Bright = +
Dark = -



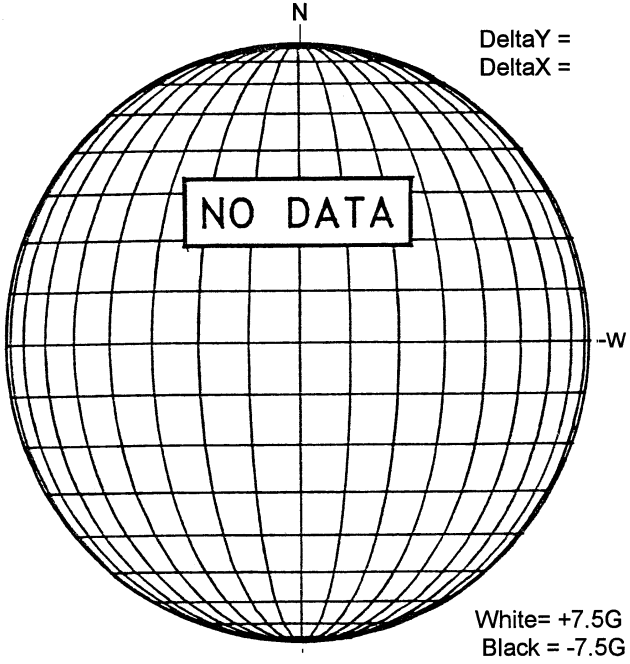
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



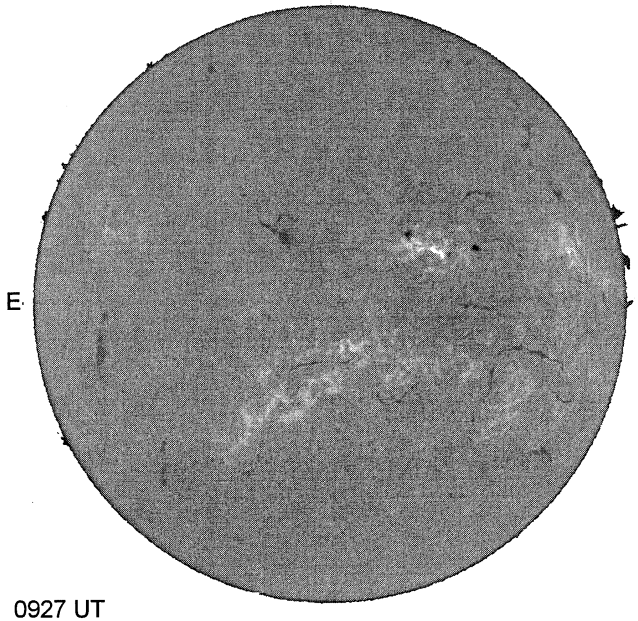
MT. WILSON MAGNETOGRAM

DeltaY =
DeltaX =

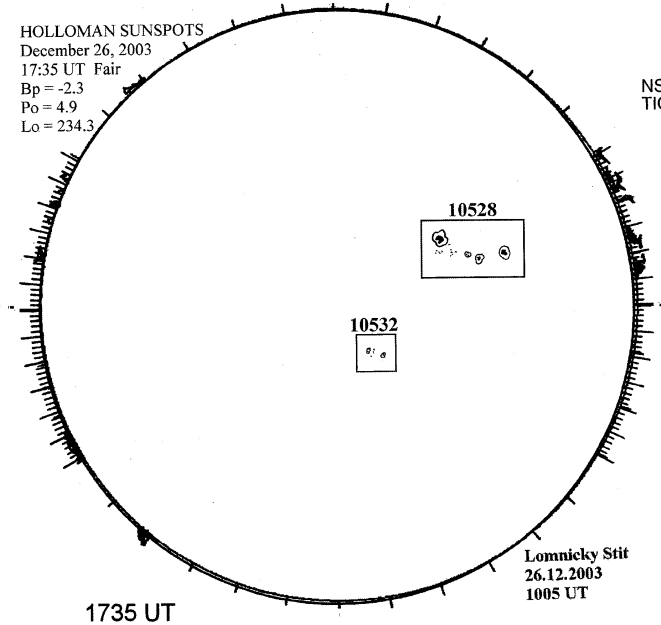


White= +7.5G
Black = -7.5G

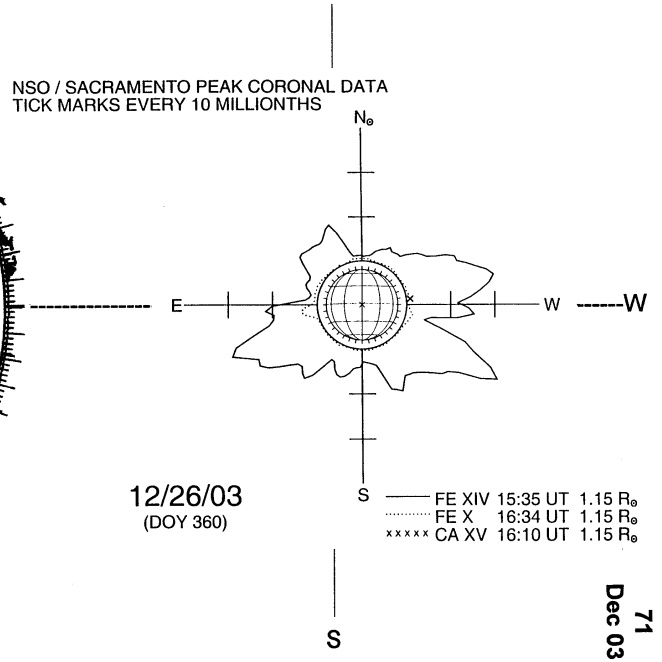
CATANIA H-ALPHA



HOLLOMAN SUNSPOT



SACRAMENTO PEAK CORONA (1.15 Radii)----



71
Dec 03

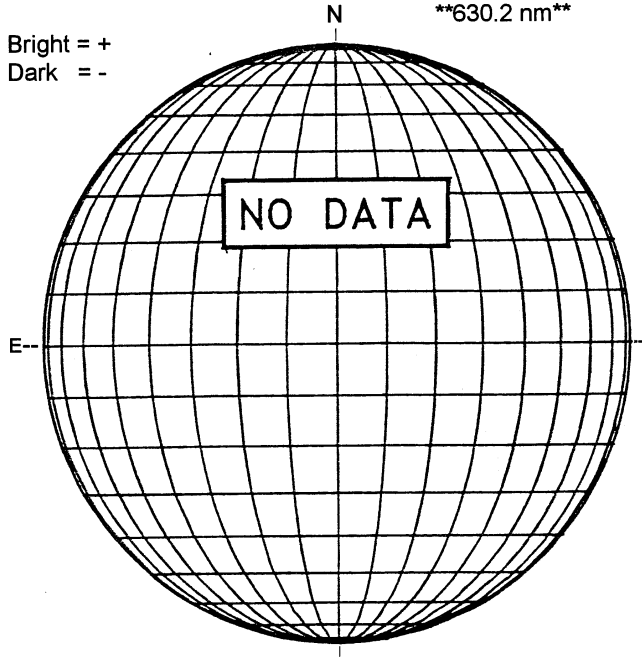
DECEMBER 27, 2003 (P= 4.78, Bo = -2.35, Lo = 230.44)

72
Dec 03

KITT PEAK MAGNETOGRAM--SOLIS

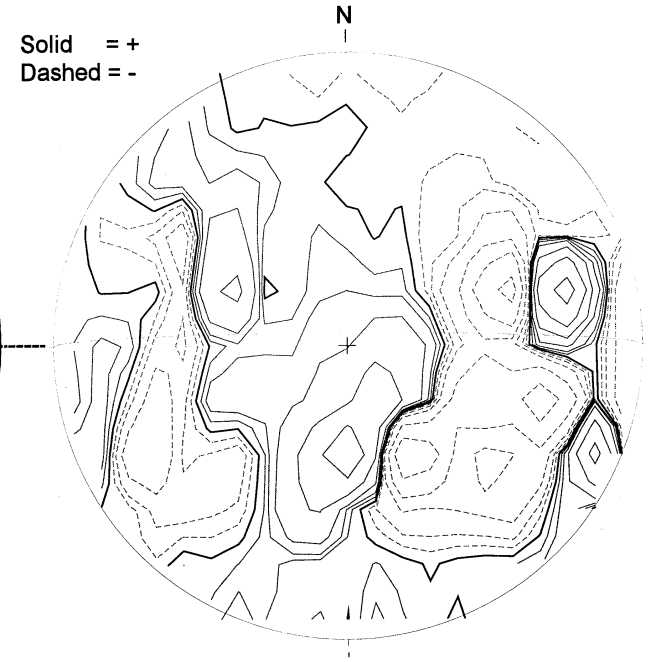
630.2 nm

Bright = +
Dark = -



STANFORD MAGNETOGRAM

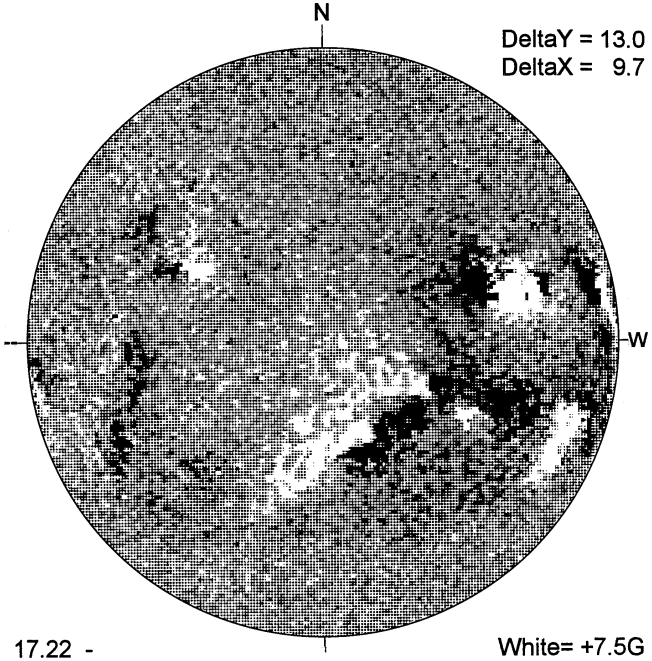
Solid = +
Dashed = -



1815 UT

MT. WILSON MAGNETOGRAM

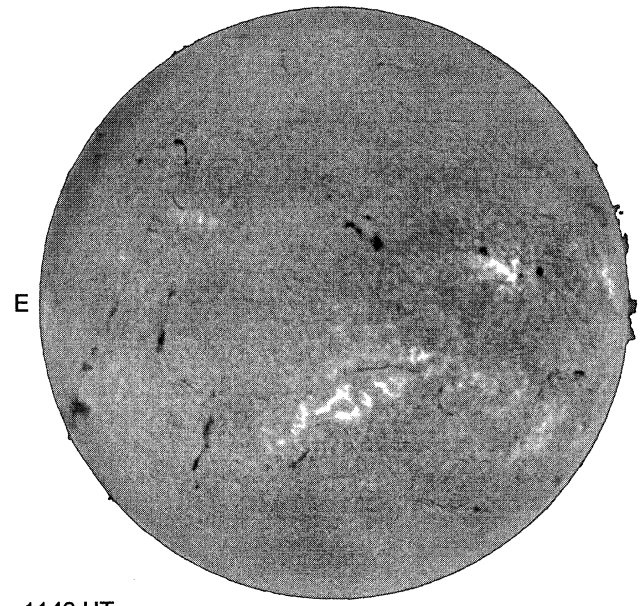
DeltaY = 13.0
DeltaX = 9.7



17.22 -
18.20 UT

White= +7.5G
Black = -7.5G

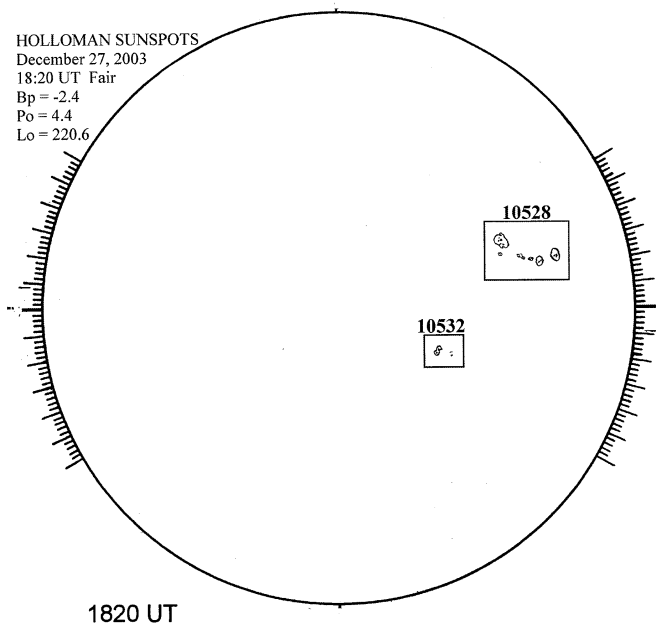
KANZELHOHE H-ALPHA



1140 UT

S

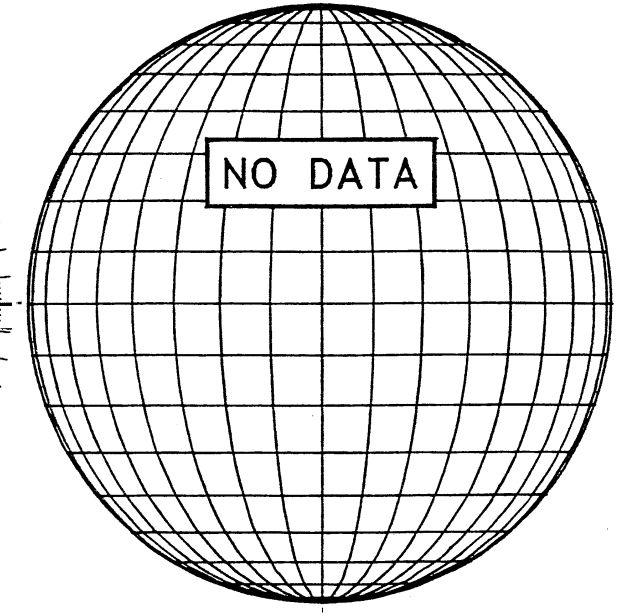
HOLLOMAN SUNSPOT



1820 UT

S

LOMNICKY PEAK CORONA (1.04 Radii)----



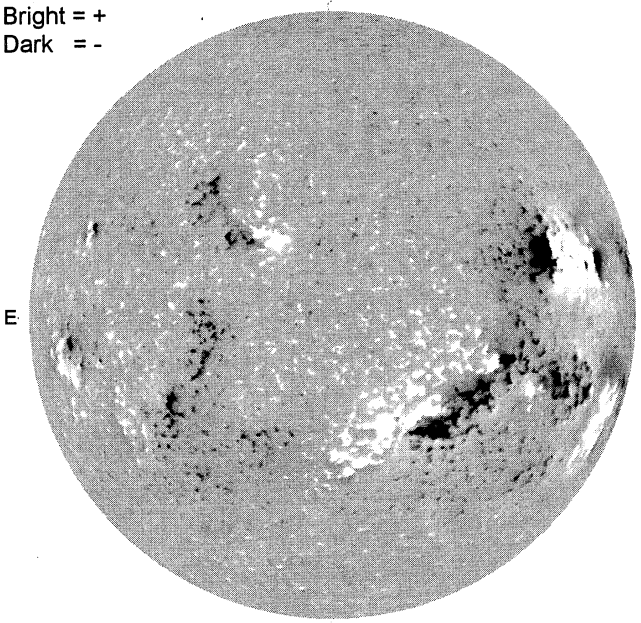
S

DECEMBER 28, 2003 (P= 4.30, Bo = -2.48, Lo = 217.27)

KITT PEAK MAGNETOGRAM--SOLIS

N **854.2 nm**

Bright = +
Dark = -

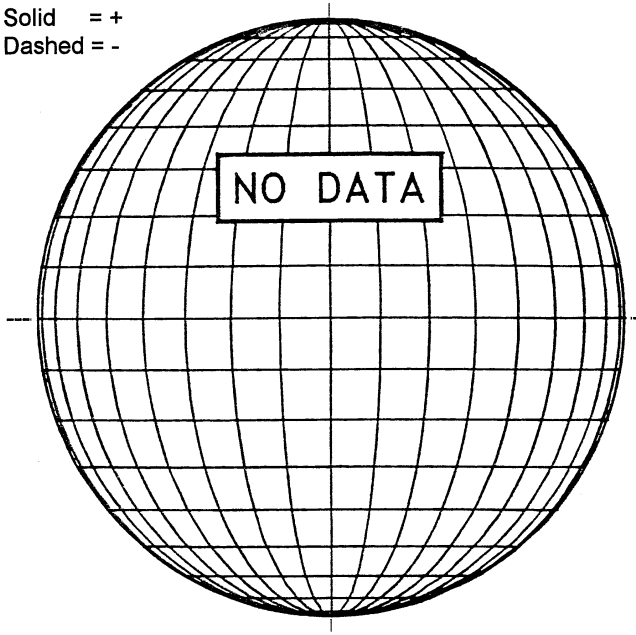


1658 UT

STANFORD MAGNETOGRAM

N

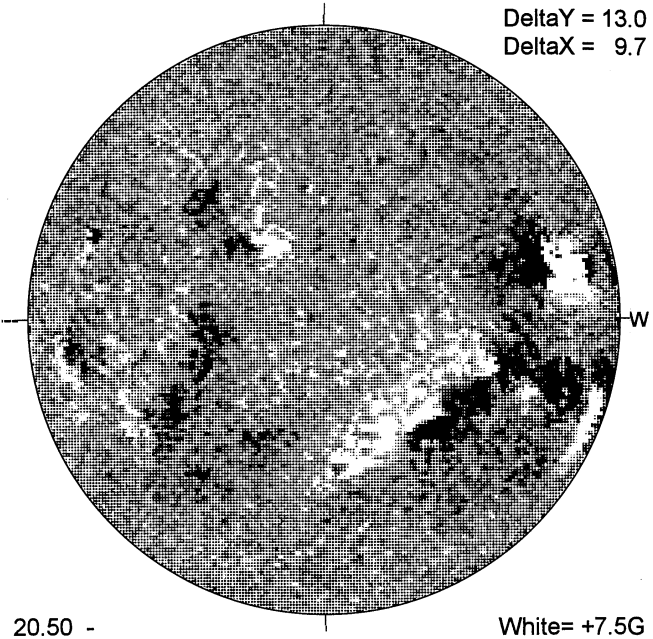
Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

N

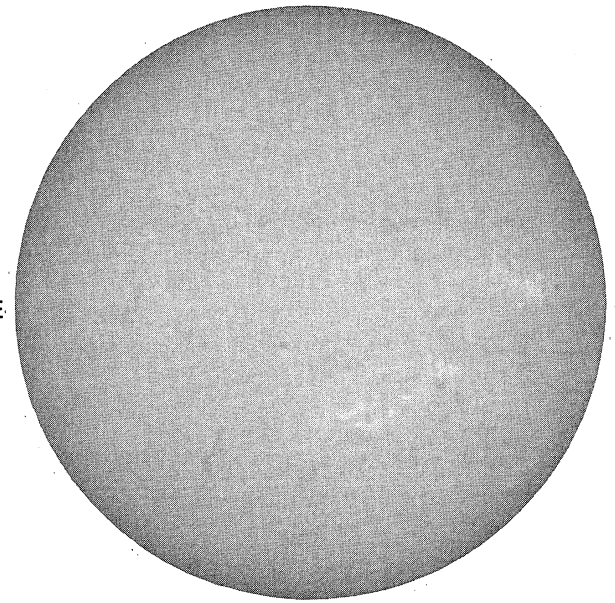
DeltaY = 13.0
DeltaX = 9.7



20.50 -
21.48 UT

White= +7.5G
Black = -7.5G

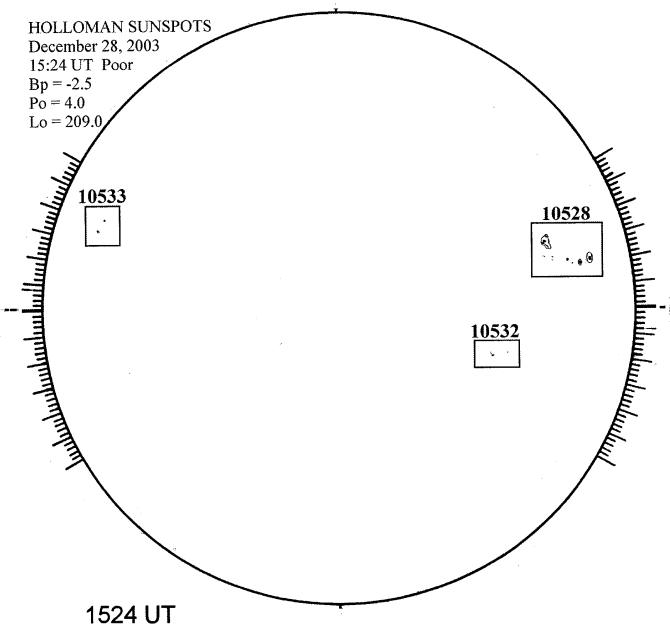
YNAO H-ALPHA



0804 UT

S

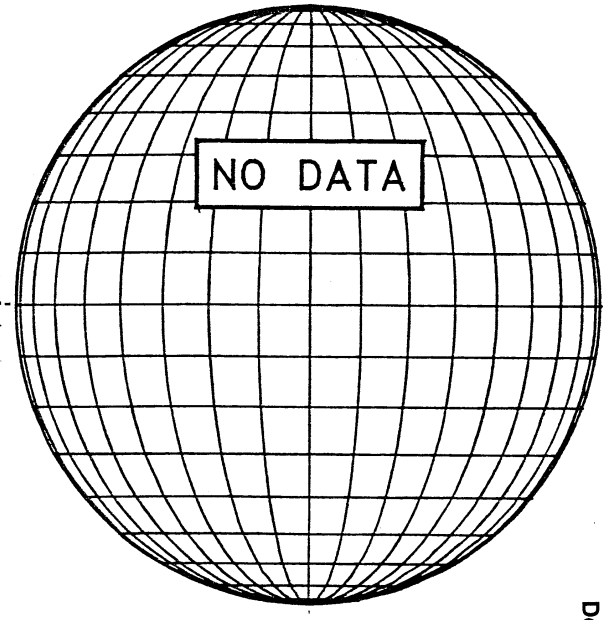
HOLLOMAN SUNSPOT



1524 UT

S

LOMNICKY PEAK CORONA (1.04 Radii)----



S

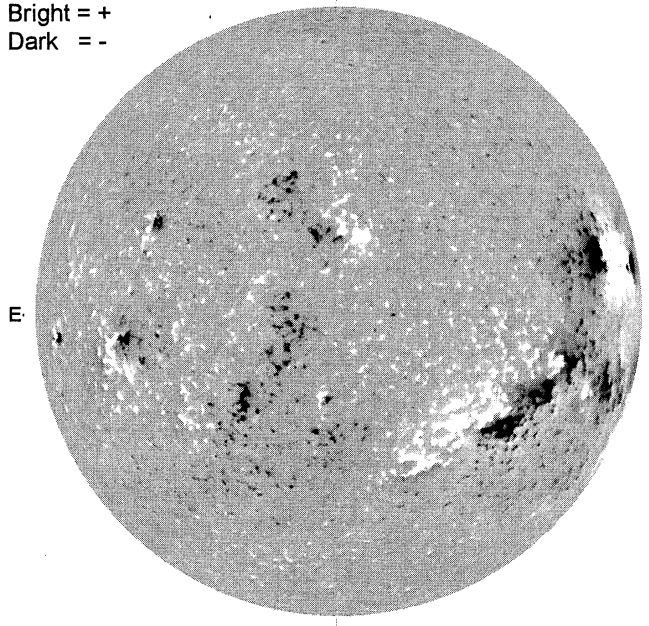
73
Dec 03

DECEMBER 29, 2003 (P= 3.82, Bo = -2.60, Lo = 204.09)

KITT PEAK MAGNETOGRAM--SOLIS

N **854.2 nm**

Bright = +
Dark = -



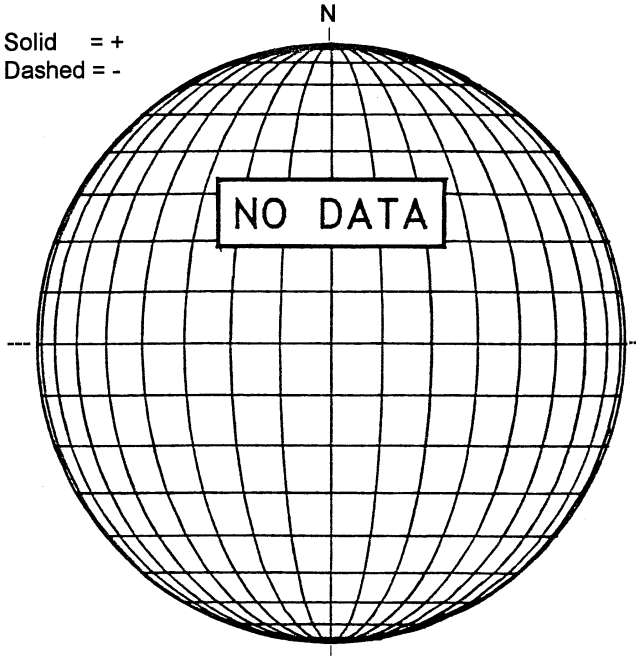
E

1939 UT

STANFORD MAGNETOGRAM

N

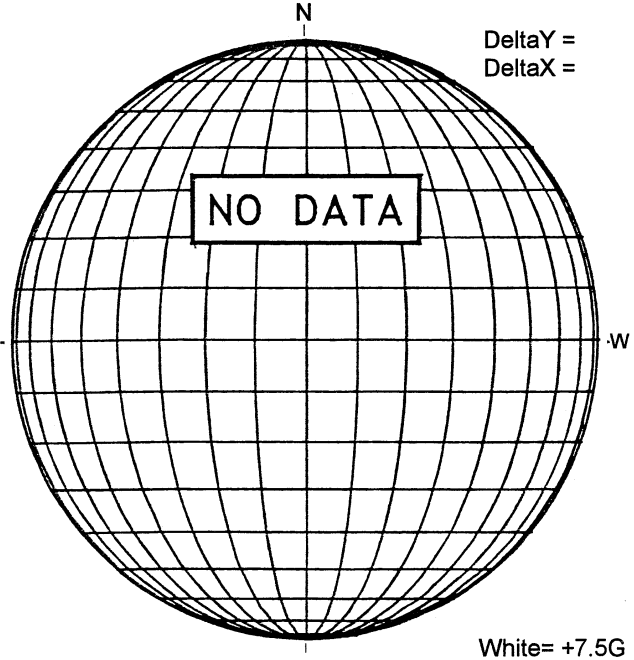
Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

N

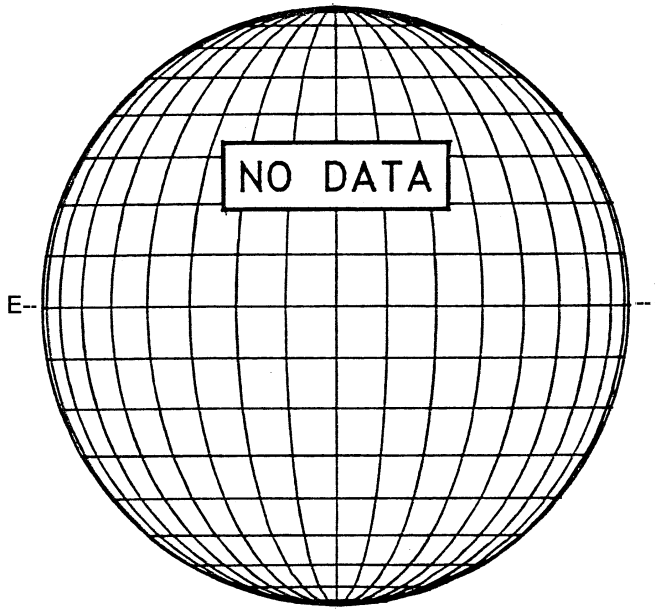
DeltaY =
DeltaX =



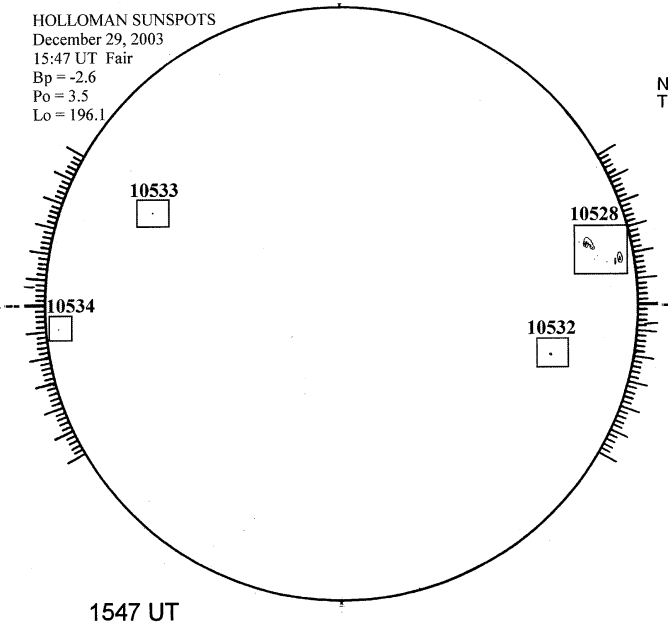
W

White= +7.5G
Black = -7.5G

BIG BEAR H-ALPHA

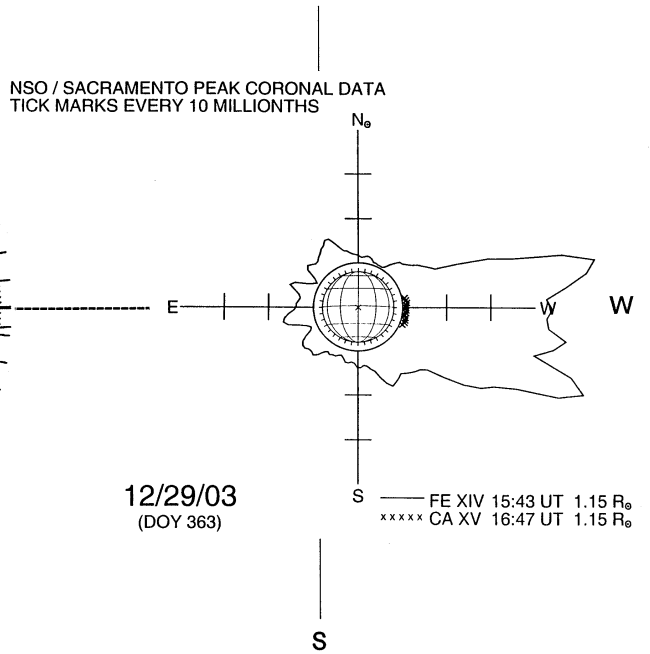


HOLLOMAN SUNSPOT



1547 UT

SACRAMENTO PEAK CORONA (1.15 Radii)----



12/29/03
(DOY 363)

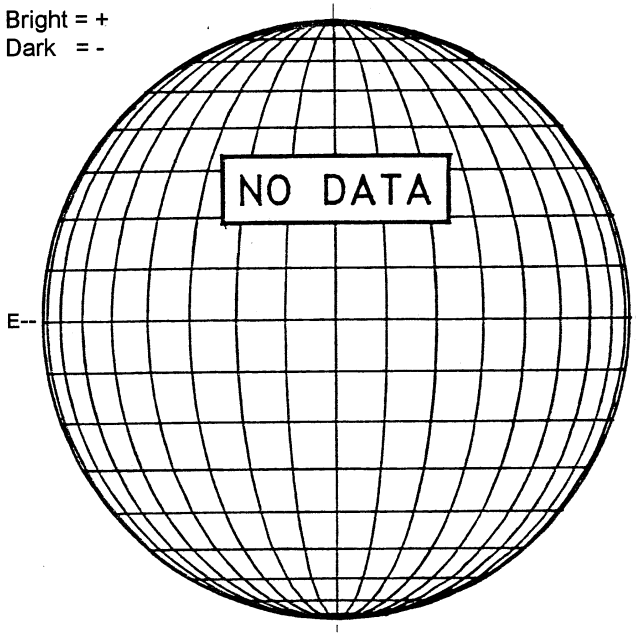
FE XIV 15:43 UT 1.15 R⊙
xxxxx CA XV 16:47 UT 1.15 R⊙

DECEMBER 30, 2003 (P= 3.33, Bo = -2.72, Lo = 190.92)

KITT PEAK MAGNETOGRAM—SOLIS

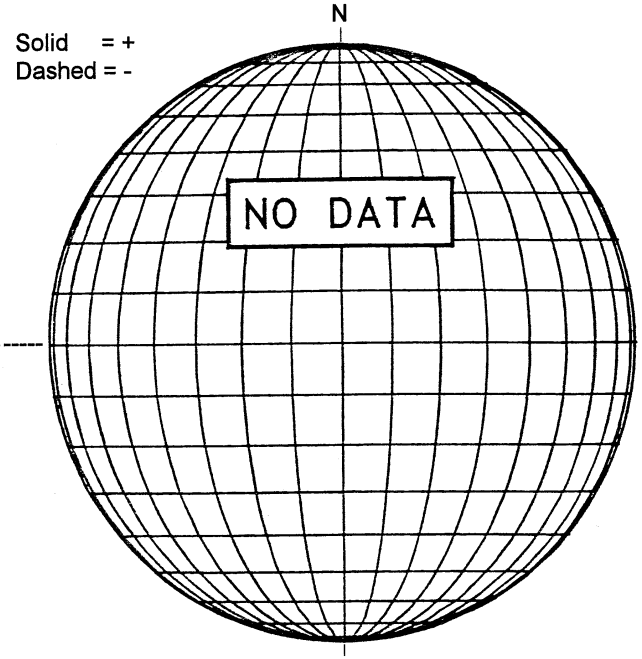
630.2 nm

Bright = +
Dark = -



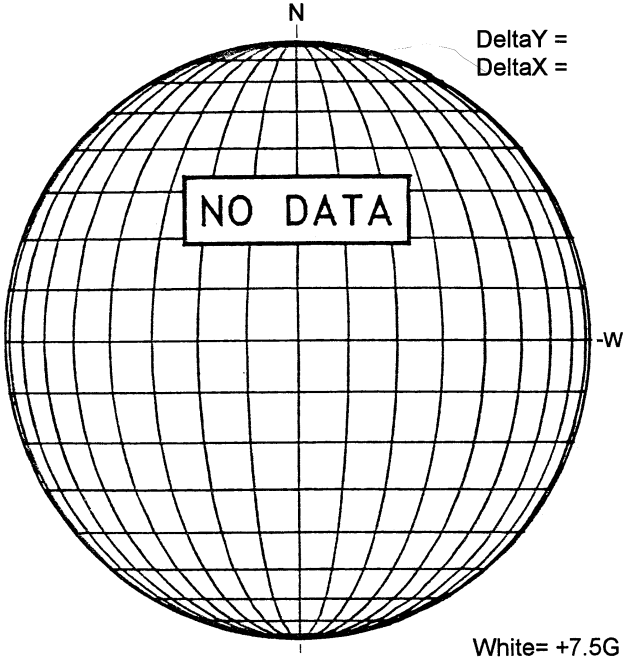
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



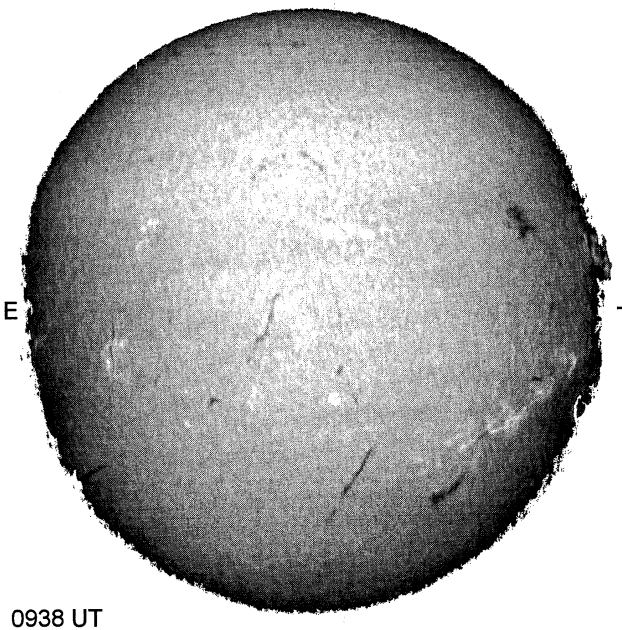
MT. WILSON MAGNETOGRAM

DeltaY =
DeltaX =



White= +7.5G
Black = -7.5G

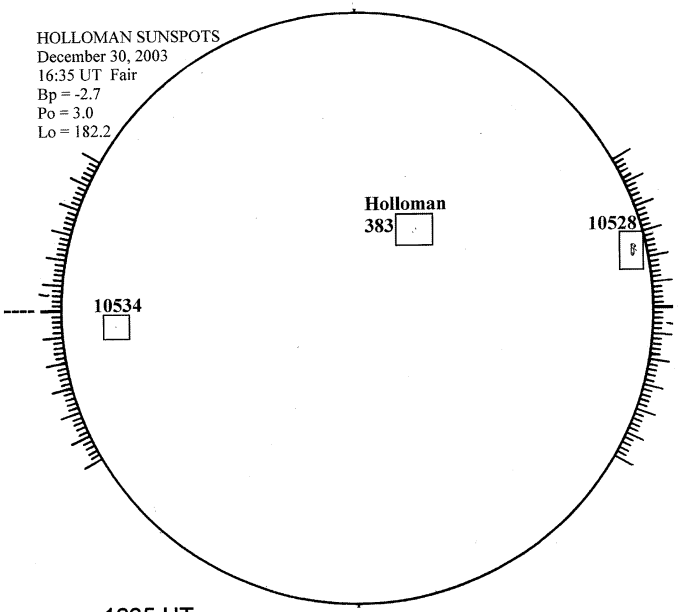
MEUDON H-ALPHA



0938 UT

S

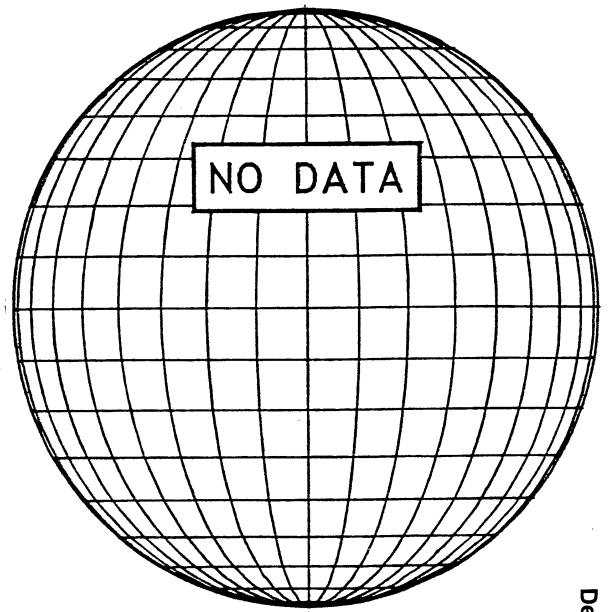
HOLLOMAN SUNSPOT



1635 UT

S

LOMNICKY PEAK CORONA (1.04 Radii)



S

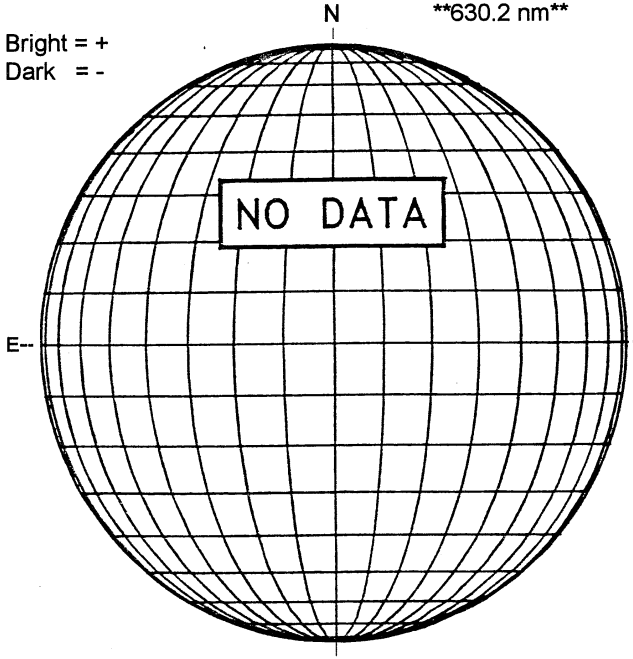
75
Dec 03

DECEMBER 31, 2003 (P= 2.85, Bo = -2.83, Lo = 177.75)

KITT PEAK MAGNETOGRAM--SOLIS

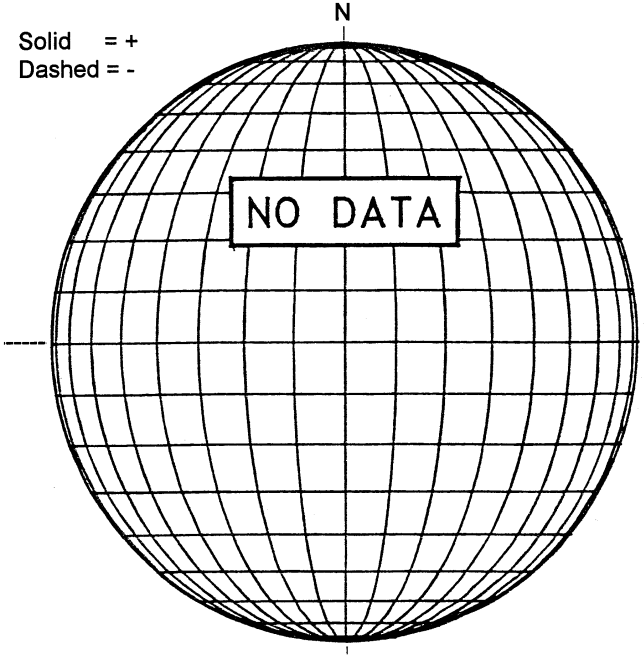
630.2 nm

Bright = +
Dark = -



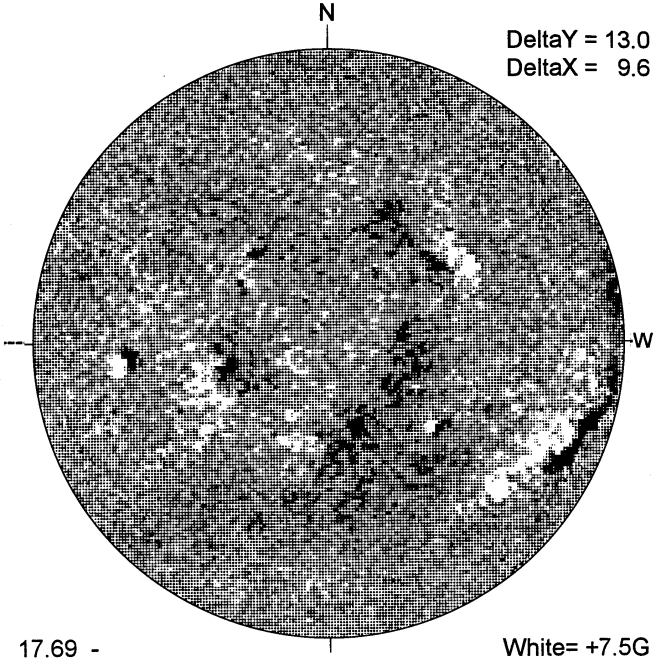
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

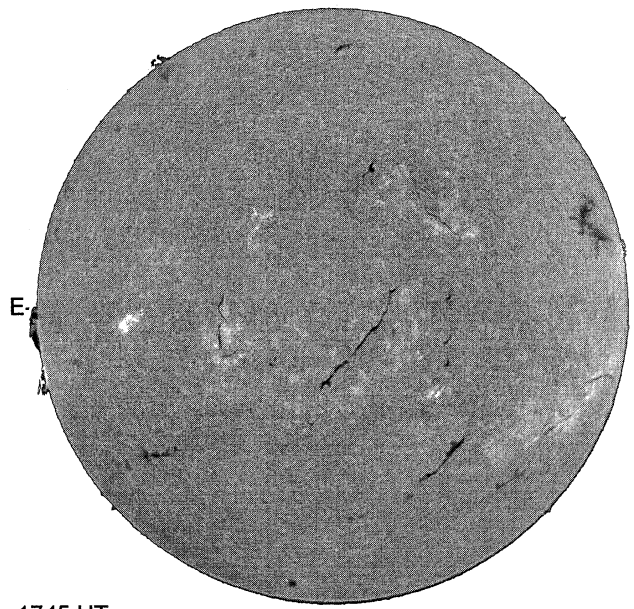
DeltaY = 13.0
DeltaX = 9.6



17.69 -
18.66 UT

White= +7.5G
Black = -7.5G

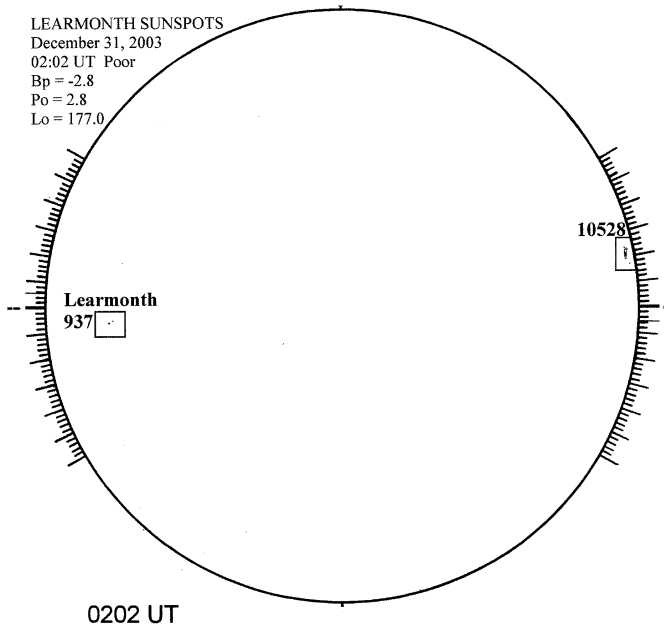
BIG BEAR H-ALPHA



1745 UT

S

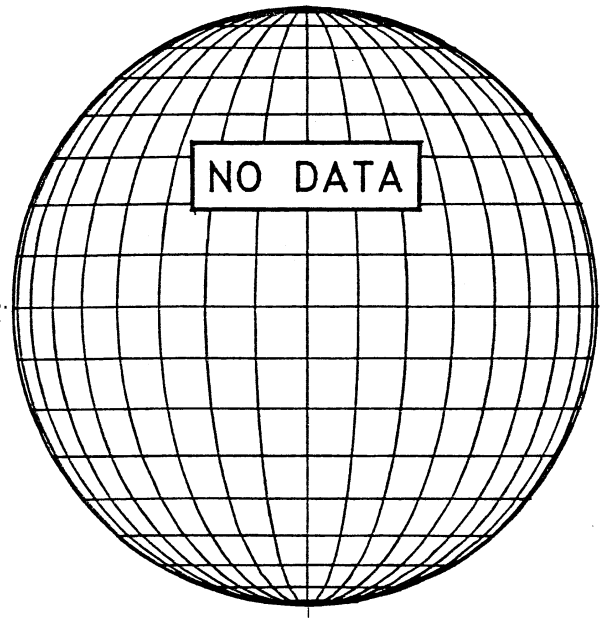
LEARMONTH SUNSPOT



0202 UT

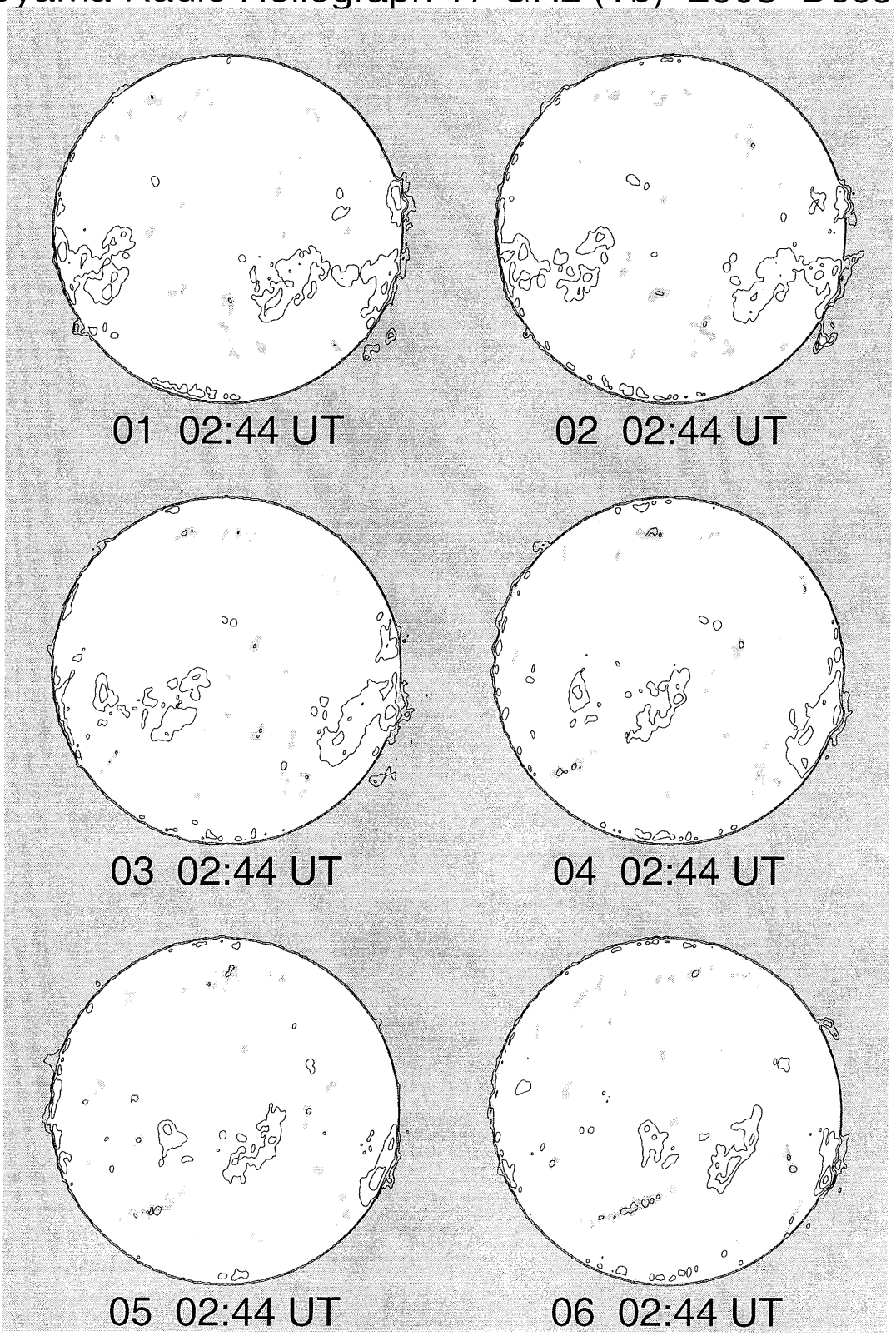
S

SACRAMENTO PEAK CORONA (1.15 Radii)



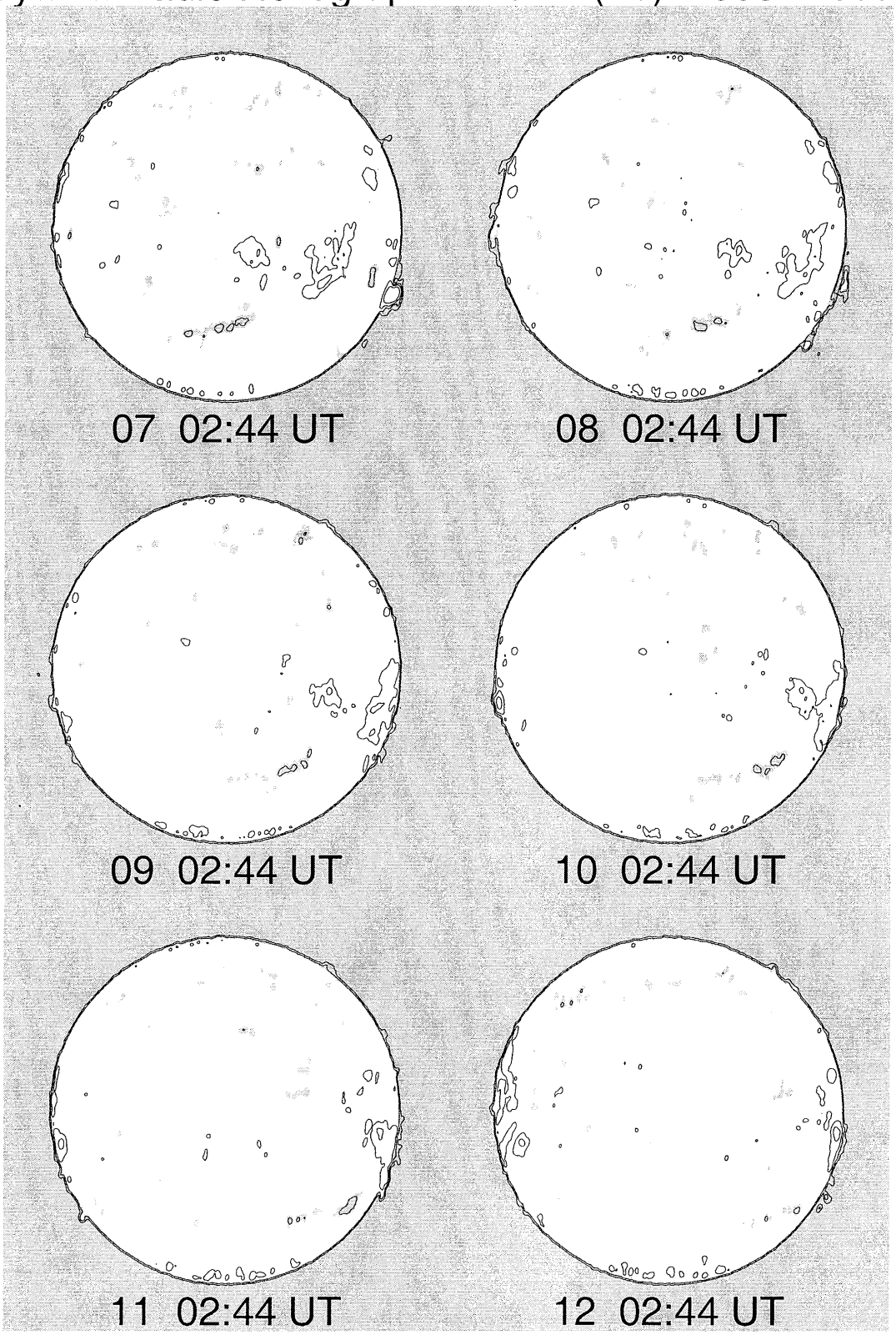
S

Nobeyama Radio Heliograph 17 GHz (Tb) 2003 December



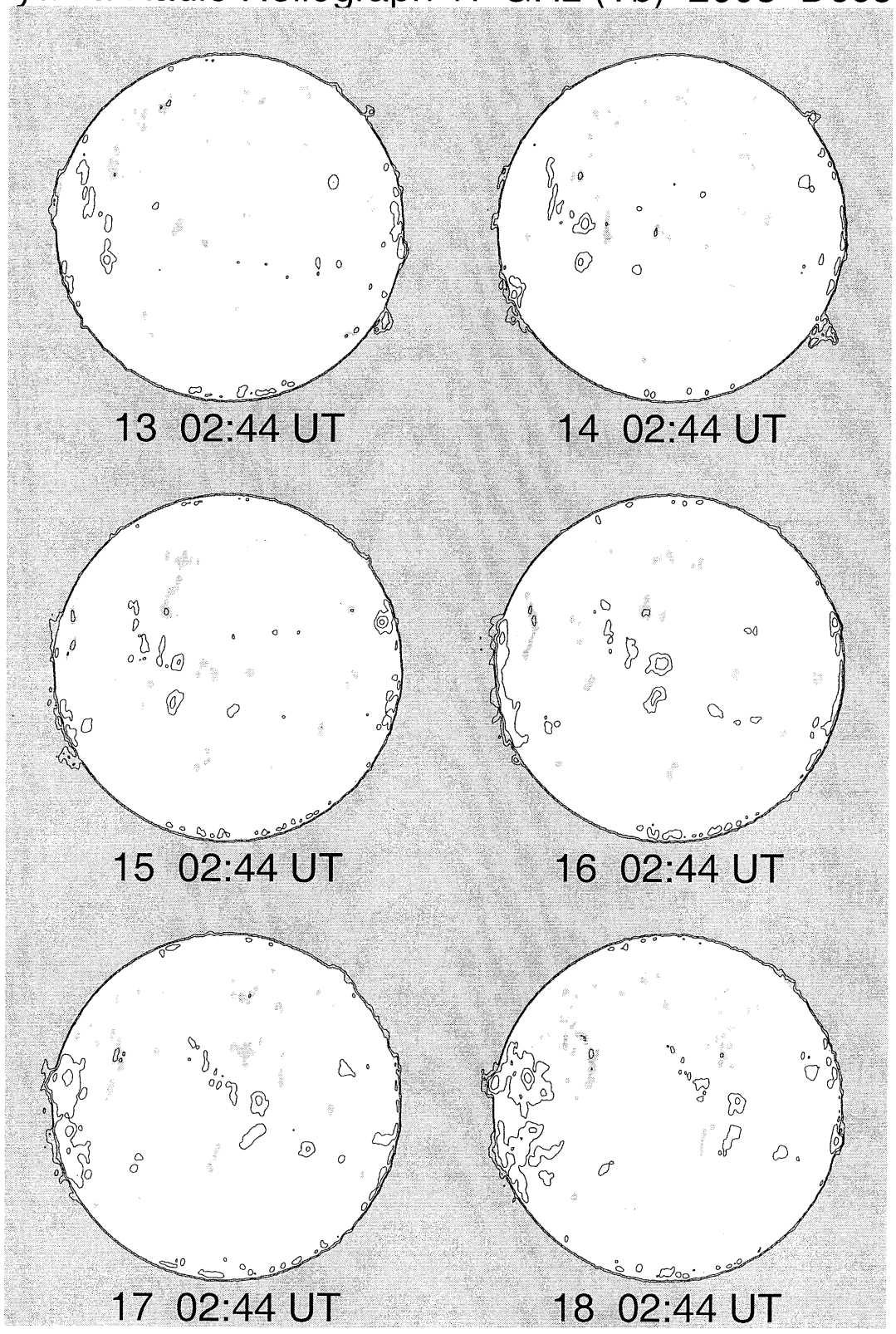
Contour Levels Tb=[5,8,12,20,50,100] x 10^3 K
Grey level Tb <= 9,500 K

Nobeyama Radio Heliograph 17 GHz (Tb) 2003 December



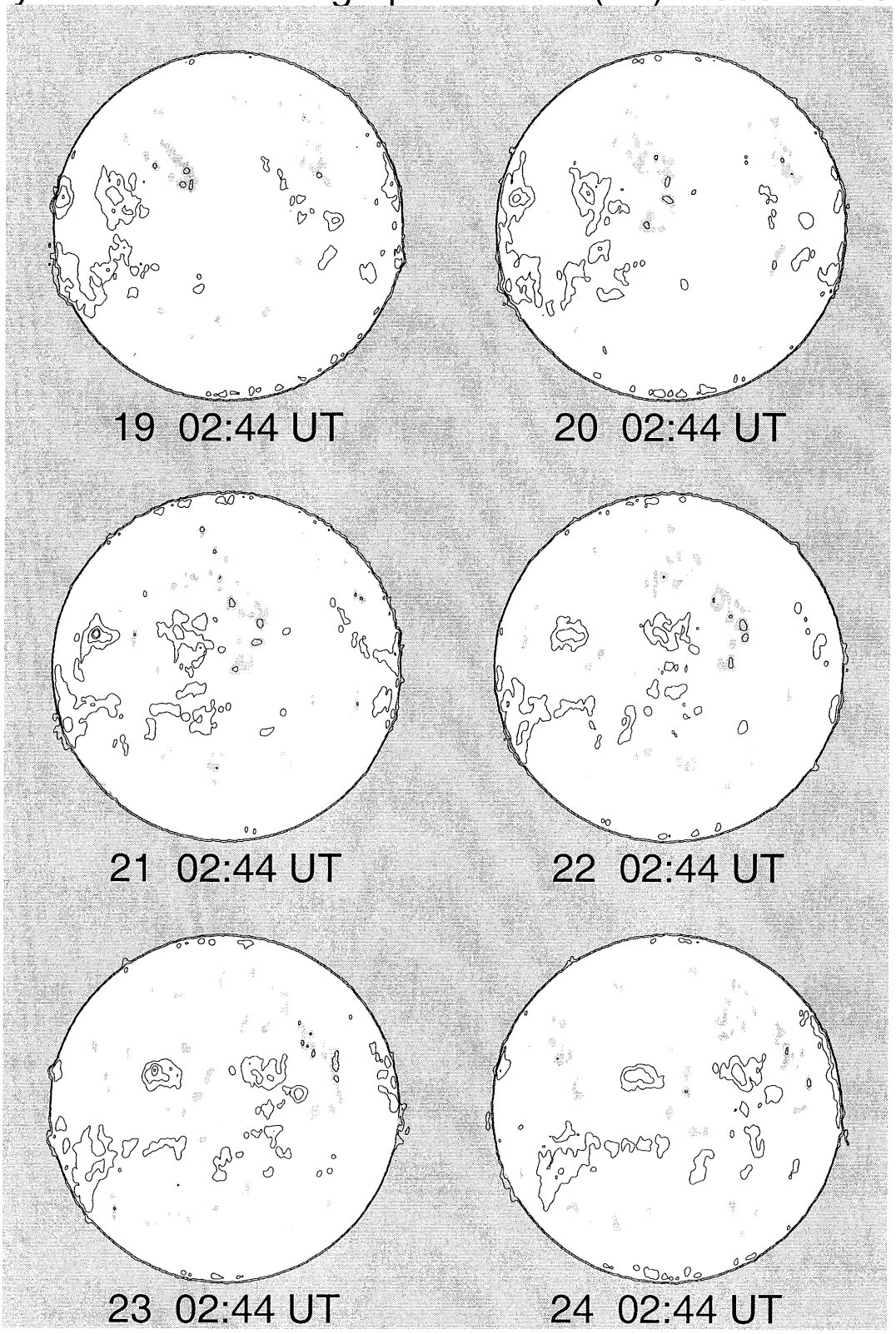
Contour Levels Tb=[5,8,12,20,50,100] x 10^3 K
Grey level Tb <= 9,500 K

Nobeyama Radio Heliograph 17 GHz (Tb) 2003 December



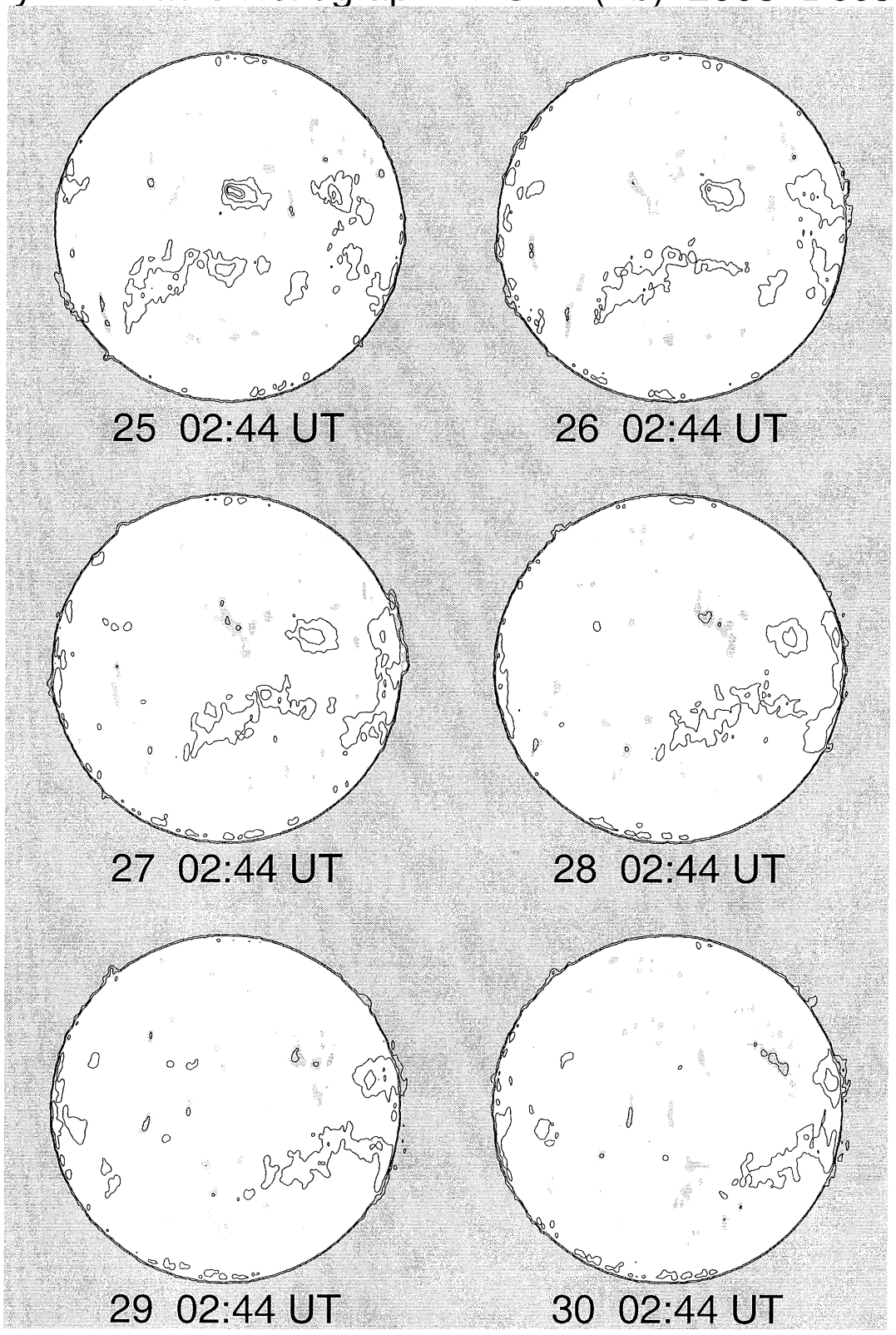
Contour Levels Tb=[5,8,12,20,50,100] x 10^3 K
Grey level Tb <= 9,500 K

Nobeyama Radio Heliograph 17 GHz (Tb) 2003 December



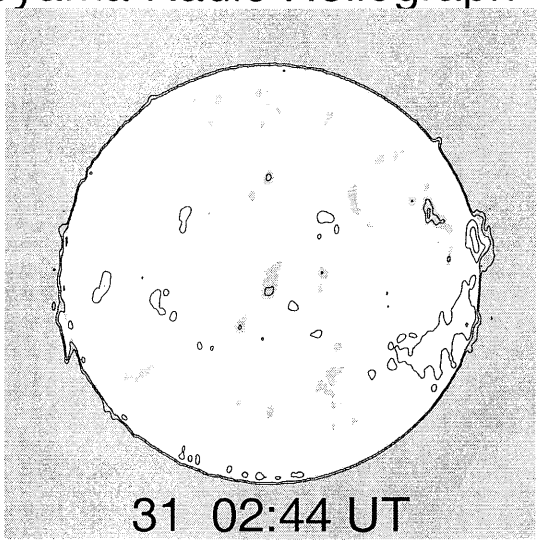
Contour Levels Tb=[5,8,12,20,50,100] x 10^3 K
Grey level Tb <= 9,500 K

Nobeyama Radio Heliograph 17 GHz (Tb) 2003 December



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) 2003 December



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

SUNSPOT GROUPS
(Ordered by Central Meridian Passage Date)

DECEMBER 2003

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
10513		TACH	11	26	0609	N12	E78	12	2.1			HSX	123	1	2	4
10513		HOLL	11	26	1600	N09	E75	12	2.3		A	HSX	40	1	3	3
10513	31956	MWIL	11	26	1600	N13	E74	12	2.2	4	(AP)					
10513		VORO	11	27	0008	N12	E70	12	2.3			HAX	105	1		3
10513		LEAR	11	27	0150	N12	E70	12	2.3		A	HSX	50	1	2	3
10513		TACH	11	27	0528	N12	E68	12	2.3			HSX	109	1	2	3
10513		SVTO	11	27	0836	N14	E66	12	2.3		A	HSX	40	1	2	3
10513	31956	MWIL	11	27	1600	N12	E63	12	2.4	5	(AP)					
10513		HOLL	11	27	1730	N12	E62	12	2.4		A	HSX	60	1	1	2
10513		LEAR	11	28	0022	N12	E57	12	2.3		A	HAX	70	1	2	3
10513		TACH	11	28	0628	N14	E54	12	2.3			HS	129	1	2	2
10513		SVTO	11	28	1125	N14	E51	12	2.3		A	HSX	30	1	2	3
10513		KAND	11	28	1210	N12	E51	12	2.3			HS		1	2	3
10513		HOLL	11	28	1720	N12	E49	12	2.4		A	HSX	60	1	2	2
10513	31956	MWIL	11	28	2130	N12	E45	12	2.3	5	AP					
10513		LEAR	11	29	0014	N12	E44	12	2.3		A	HSX	80	1	2	4
10513		SVTO	11	29	1000	N13	E38	12	2.3		A	HSX	100	1	2	3
10513		KAND	11	29	1130	N12	E38	12	2.3			HS		1	2	3
10513		HOLL	11	29	1456	N12	E37	12	2.4		A	HSX	70	1	2	4
10513	31956	MWIL	11	29	1600	N12	E36	12	2.4	5	(AP)					
10513		VORO	11	30	0004	N12	E31	12	2.3			HAX	86	1		2
10513		LEAR	11	30	0013	N13	E32	12	2.4		B	CSO	90	2	5	4
10513		SVTO	11	30	1209	N13	E24	12	2.3		A	HSX	70	1	2	2
10513		KAND	11	30	1210	N11	E25	12	2.4			HS		1	2	1
10513	31956	MWIL	11	30	1600	N12	E23	12	2.4	5	(AP)					
10513		HOLL	11	30	1610	N12	E22	12	2.3		A	HSX	40	2	2	3
10513		VORO	12	01	0006	N12	E18	12	2.4			HSX	82	1		2
10513		LEAR	12	01	0103	N13	E18	12	2.4		A	HSX	60	2	2	2
10513		SVTO	12	01	0805	N12	E14	12	2.4		A	HSX	60	1	2	3
10513	31956	MWIL	12	01	1530	N12	E10	12	2.4	5	AP					
10513		HOLL	12	01	1550	N12	E10	12	2.4		A	HSX	80	1	2	3
10513		LEAR	12	02	0022	N13	E04	12	2.3		A	HSX	80	1	2	3
10513		VORO	12	02	0033	N11	E05	12	2.4			HSX	68	1		3
10513		TACH	12	02	0640	N12	E01	12	2.3			HSX	77	1	1	2
10513		SVTO	12	02	0755	N12	E01	12	2.4		A	HSX	40	1	2	3
10513	31956	MWIL	12	02	1600	N12	W03	12	2.4	5	(AP)					
10513		HOLL	12	02	1940	N12	W07	12	2.3		A	HSX	60	1	2	3
10513		LEAR	12	03	0030	N12	W09	12	2.3		A	HSX	80	1	2	2
10513		VORO	12	03	0033	N12	W09	12	2.3			HHX	66	1		3
10513		SVTO	12	03	1003	N12	W14	12	2.4		A	HSX	40	1	2	3
10513	31956	MWIL	12	03	1545	N11	W16	12	2.4	5	(AP)					
10513		HOLL	12	03	1739	N12	W17	12	2.4		A	HSX	60	1	3	3
10513		LEAR	12	04	0046	N12	W22	12	2.4		A	HSX	40	1	41	2
10513		VORO	12	04	0048	N11	W22	12	2.4			HHX	79	1		3
10513		TACH	12	04	0547	N11	W26	12	2.3			HSX	85	1	2	3
10513		SVTO	12	04	1125	N12	W28	12	2.4		A	HSX	50	1	2	2
10513		KAND	12	04	1155	N11	W29	12	2.3			HA		1	2	2
10513	31956	MWIL	12	04	1530	N10	W30	12	2.4	5	(AP)					
10513		HOLL	12	04	1605	N12	W30	12	2.4		A	HSX	40	1	3	4
10513		VORO	12	05	0030	N11	W35	12	2.4			HAX	47	1		3
10513		LEAR	12	05	0113	N12	W37	12	2.3		A	HSX	90	2	2	1
10513		KAND	12	05	1010	N11	W41	12	2.3			HS		1	1	2
10513		HOLL	12	05	1708	N12	W44	12	2.4		A	HSX	60	1	2	3
10513	31956	MWIL	12	05	1830	N11	W45	12	2.4	4	(AP)					
10513		LEAR	12	06	0015	N11	W49	12	2.3		A	HSX	80	1	2	3
10513		VORO	12	06	0137	N11	W49	12	2.4			HAX	58	1		1
10513		TACH	12	06	0532	N12	W51	12	2.4			HSX	49	1	1	3
10513		SVTO	12	06	0800	N11	W54	12	2.3		A	HSX	30	1	2	3
10513		VORO	12	07	0000	N11	W60	12	2.5			HAX	65	2		3
10513		LEAR	12	07	0010	N11	W62	12	2.3		A	HAX	70	1	2	2
10513		HOLL	12	07	1630	N11	W71	12	2.3		A	HAX	60	1	1	3
10513		LEAR	12	08	0045	N11	W73	12	2.5		A	HSX	90	1	2	3
10513		VORO	12	08	0045	N12	W74	12	2.4			HAX	30	1		2
10513A	31957	MWIL	11	27	1600	N17	E78	12	3.6	3	AF					
10513A		VORO	12	08	0045	N14	W67	12	3.0			AXX	10	1		2
10515		LEAR	11	28	0022	S02	E79	12	3.9		A	AXX	10	1	1	3
10515		SVTO	11	28	1125	S02	E75	12	4.1		A	HRX	30	1	1	3

SUNSPOT GROUPS
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DECEMBER 2003

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
10515		KAND	11	28	1210	S02	E77	12	4.2			CRO		5	5	3
10515		HOLL	11	28	1720	S02	E72	12	4.1		A	HAX	120	5	2	2
10515	31958	MWIL	11	28	2130	S03	E68	12	4.0	4	B					
10515		LEAR	11	29	0014	S02	E67	12	4.0		B	DSO	70	7	4	4
10515		SVTO	11	29	1000	S03	E62	12	4.0		B	DSO	60	5	6	3
10515		KAND	11	29	1130	S03	E61	12	4.0			BXI		7	5	3
10515		HOLL	11	29	1456	S03	E57	12	3.9		B	DSO	90	9	6	4
10515	31958	MWIL	11	29	1600	S03	E58	12	4.0	4	(B)					
10515		VORO	11	30	0004	S02	E51	12	3.8			BRO	26	2	6	2
10515		LEAR	11	30	0013	S03	E52	12	3.9		B	BXO	40	8	6	4
10515	31958	MWIL	11	30	1600	S02	E43	12	3.9	4	(B)					
10515		HOLL	11	30	1610	S04	E41	12	3.7		B	BXO	10	7	6	3
10515		VORO	12	01	0006	S02	E37	12	3.8			BRI	56	3	3	2
10515		LEAR	12	01	0103	S02	E38	12	3.9		B	BXO	10	5	2	2
10515		SVTO	12	01	0805	S01	E36	12	4.0		A	AXX	10	2	1	3
10515	31958	MWIL	12	01	1530	S02	E29	12	3.8	4	B					
10515		HOLL	12	01	1550	S03	E28	12	3.7		B	DSO	50	12	4	3
10515		LEAR	12	02	0022	S02	E23	12	3.7		B	DAO	70	16	3	3
10515		VORO	12	02	0033	S02	E23	12	3.7			CRI	35	6	3	3
10515		TACH	12	02	0640	S02	E19	12	3.7			BRI	33	6	4	2
10515		SVTO	12	02	0755	S02	E21	12	3.9		B	CRO	30	6	5	3
10515	31958	MWIL	12	02	1600	S02	E16	12	3.9	4	(B)					
10515		HOLL	12	02	1940	S03	E12	12	3.7		B	DSO	30	6	4	3
10515		LEAR	12	03	0030	S02	E10	12	3.8		B	DSO	70	7	3	2
10515		VORO	12	03	0033	S01	E11	12	3.8			CRO	31	6	3	3
10515		SVTO	12	03	1003	S02	E06	12	3.9		B	CSO	10	4	3	3
10515	31958	MWIL	12	03	1545	S03	E03	12	3.9	4	(B)					
10515		HOLL	12	03	1739	S05	E02	12	3.9		B	BXO	40	7	4	3
10515		LEAR	12	04	0046	S02	W04	12	3.7		B	BXO	20	10	4	2
10515		TACH	12	04	0547	S06	W07	12	3.7			BRI	13	7	3	3
10515		HOLL	12	04	1605	S03	W12	12	3.8		A	AXX		1	1	4
10515		LEAR	12	06	0015	S05	W32	12	3.6		A	AXX	10	1	1	3
10515A		SVTO	12	03	1003	S09	E05	12	3.8		B	DSO	20	2	3	3
10515A	31963	MWIL	12	03	1545	S09	E03	12	3.9	5	(B)					
10515A		LEAR	12	04	0046	S09	W03	12	3.8		B	DAO	40	9	4	2
10515A		VORO	12	04	0048	S08	W03	12	3.8			CRO	30	7	4	3
10515A		KAND	12	04	1155	S09	W10	12	3.7			BXO		5	4	2
10515A	31963	MWIL	12	04	1530	S09	W11	12	3.8	4	(B)					
10515A		HOLL	12	04	1605	S08	W11	12	3.8		B	CAO	80	7	5	4
10515A		VORO	12	05	0030	S08	W16	12	3.8			CRI	19	9	3	3
10515A		LEAR	12	05	0113	S08	W17	12	3.8		B	BXO	10	8	4	1
10516		LEAR	11	28	0022	S17	E81	12	4.2		A	HSX	30	1	2	3
10516		TACH	11	28	0628	S14	E75	12	3.9			HSX	122	1	2	2
10516		SVTO	11	28	1125	S16	E78	12	4.4		A	HSX	30	1	2	3
10516		KAND	11	28	1210	S17	E77	12	4.3			HS		1	3	3
10516		HOLL	11	28	1720	S17	E73	12	4.3		A	HAX	120	2	2	2
10516	31959	MWIL	11	28	2130	S17	E68	12	4.1	4	AP					
10516		LEAR	11	29	0014	S17	E68	12	4.2		B	CAO	100	4	3	4
10516		SVTO	11	29	1000	S16	E65	12	4.3		B	DSO	70	3	4	3
10516		KAND	11	29	1130	S17	E65	12	4.4			HA		3	4	3
10516		HOLL	11	29	1456	S17	E60	12	4.2		B	CSO	50	5	3	4
10516	31959	MWIL	11	29	1600	S17	E60	12	4.2	4	(B)					
10516		VORO	11	30	0004	S16	E55	12	4.2			HAX	123	2		2
10516		LEAR	11	30	0013	S16	E56	12	4.2		B	CAO	100	7	4	4
10516		SVTO	11	30	1209	S15	E49	12	4.2		B	DSO	80	3	4	2
10516		KAND	11	30	1210	S18	E50	12	4.3			DSI		4	4	1
10516	31959	MWIL	11	30	1600	S18	E49	12	4.4	5	(BP)					
10516		HOLL	11	30	1610	S18	E49	12	4.4		B	DAO	80	11	7	3
10516		VORO	12	01	0006	S18	E44	12	4.3			DAI	171	5	6	2
10516		LEAR	12	01	0103	S16	E43	12	4.3		B	DSO	70	17	8	2
10516		SVTO	12	01	0805	S16	E38	12	4.2		B	DAO	50	6	6	3
10516	31959	MWIL	12	01	1530	S17	E37	12	4.4	5	BP					
10516		HOLL	12	01	1550	S17	E35	12	4.3		B	ESO	50	15	8	3
10516		LEAR	12	02	0022	S17	E32	12	4.4		B	DAO	60	20	10	3
10516		VORO	12	02	0033	S16	E29	12	4.2			HAX	97	10	4	3
10516		TACH	12	02	0640	S17	E25	12	4.2			CAI	50	7	4	2
10516		SVTO	12	02	0755	S15	E25	12	4.2		B	DSO	40	6	5	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
10516	31959	MWIL	12	02	1600	S17	E23	12	4.4	5	(BP)					
10516		HOLL	12	02	1940	S16	E18	12	4.2		B	CSO	40	18	6	3
10516		LEAR	12	03	0030	S14	E17	12	4.3		B	DAO	60	20	8	2
10516		VORO	12	03	0033	S16	E16	12	4.2			DAI	69	6	4	3
10516		SVTO	12	03	1003	S16	E09	12	4.1		B	DSO	70	6	4	3
10516	31959	MWIL	12	03	1545	S17	E08	12	4.3	4	(BP)					
10516		HOLL	12	03	1739	S16	E07	12	4.3		B	CSO	50	5	6	3
10516		LEAR	12	04	0046	S16	E01	12	4.1		B	CSO	30	4	3	2
10516		VORO	12	04	0048	S16	E01	12	4.1			DAO	67	3	2	3
10516		TACH	12	04	0547	S16	W04	12	3.9			HSX	31	1	1	3
10516		SVTO	12	04	1125	S16	W07	12	3.9		A	HSX	40	2	3	2
10516		KAND	12	04	1155	S17	W06	12	4.0			HA		1	2	2
10516	31959	MWIL	12	04	1530	S18	W06	12	4.2	5	(BP)					
10516		HOLL	12	04	1605	S17	W07	12	4.1		B	CSO	50	6	6	4
10516		VORO	12	05	0030	S16	W12	12	4.1			HAX	63	7	2	3
10516		LEAR	12	05	0113	S16	W13	12	4.1		B	CSO	60	6	3	1
10516		KAND	12	05	1010	S17	W17	12	4.1			DSO		7	5	2
10516		HOLL	12	05	1708	S17	W21	12	4.1		B	DAO	100	11	5	3
10516	31959	MWIL	12	05	1830	S16	W20	12	4.2	5	(B)					
10516		LEAR	12	06	0015	S17	W24	12	4.2		B	DAO	90	13	6	3
10516		VORO	12	06	0137	S16	W25	12	4.2			DAI	70	3	4	1
10516		TACH	12	06	0532	S16	W26	12	4.2			CAO	61	6	5	3
10516		SVTO	12	06	0800	S17	W29	12	4.1		B	DSO	100	8	6	3
10516		VORO	12	07	0000	S17	W37	12	4.2			DAI	81	5	5	3
10516		LEAR	12	07	0010	S16	W37	12	4.2		B	CSO	90	8	7	2
10516		HOLL	12	07	1630	S17	W49	12	4.0		B	DAO	90	5	4	3
10516		VORO	12	08	0045	S15	W51	12	4.2			HAX	67	2	2	2
10516		LEAR	12	08	0045	S16	W51	12	4.2		B	CSO	60	2	2	3
10516	31959	MWIL	12	08	1545	S16	W61	12	4.0	4	(AP)					
10516		HOLL	12	08	2117	S16	W65	12	3.9		A	HSX	40	1	1	2
10516		VORO	12	09	0030	S16	W66	12	4.0			HAX	66	1		3
10516		LEAR	12	09	0035	S16	W66	12	4.0		A	HSX	50	1	2	3
10516		TACH	12	09	0510	S16	W68	12	4.0			HXX	41	1	2	3
10516		SVTO	12	09	0855	S16	W75	12	3.7		A	HSX	100	1	3	3
10516		KAND	12	09	0905	S17	W71	12	4.0			HS		1	2	3
10516	31959	MWIL	12	09	1530	S16	W75	12	3.9	5	(AP)					
10516		HOLL	12	09	1708	S17	W75	12	4.0		A	AXX	10	1	1	3
10516		VORO	12	10	0021	S16	W79	12	4.0			HAX	36	1		3
10516		LEAR	12	10	0105	S16	W80	12	4.0		A	HSX	60	1	2	2
10518	31962	MWIL	12	01	1530	S21	E40	12	4.7	4	B					
10518		HOLL	12	01	1550	S23	E39	12	4.7		B	BXO	20	2	5	3
10518		VORO	12	02	0033	S22	E34	12	4.6			ARX	7	1		3
10518		TACH	12	02	0640	S22	E31	12	4.7			AXX	9	1	1	2
10518	31962	MWIL	12	02	1600	S21	E27	12	4.7	4	(B)					
10518		HOLL	12	02	1940	S22	E23	12	4.6		A	HSX	10	1	1	3
10518		LEAR	12	03	0030	S21	E22	12	4.7		A	AXX	10	2	1	2
10518		VORO	12	03	0033	S21	E21	12	4.6			ARX	6	2		3
10518	31962	MWIL	12	03	1545	S22	E13	12	4.6	4	(B)					
10518		HOLL	12	03	1739	S22	E12	12	4.6		A	AXX		1	1	3
10518		LEAR	12	04	0046	S21	E09	12	4.7		B	BXO	10	3	3	2
10518		VORO	12	04	0048	S22	E09	12	4.7			BXX	2	3	3	3
10518		HOLL	12	04	1605	S21	E01	12	4.7		A	AXX		1	1	4
10517		LEAR	11	30	0013	S07	E81	12	6.1		A	HAX	100	2	2	4
10517		SVTO	11	30	1209	S06	E76	12	6.2		B	CAO	90	2	4	2
10517		KAND	11	30	1210	S08	E80	12	6.5			HS		1	4	1
10517	31960	MWIL	11	30	1600	S07	E77	12	6.4	5	(B)					
10517		HOLL	11	30	1610	S07	E77	12	6.4		B	DAO	280	2	9	3
10517		VORO	12	01	0006	S06	E71	12	6.3			DKI	587	4	7	2
10517		LEAR	12	01	0103	S06	E70	12	6.3		B	DAO	300	4	10	2
10517		SVTO	12	01	0805	S05	E68	12	6.4		B	DSO	240	3	10	3
10517	31960	MWIL	12	01	1530	S07	E65	12	6.5	5	B					
10517		HOLL	12	01	1550	S08	E64	12	6.4		B	DKO	260	8	10	3
10517		LEAR	12	02	0022	S05	E60	12	6.5		B	DAO	400	6	9	3
10517		VORO	12	02	0033	S07	E58	12	6.4			HHX	514	5	7	3
10517		TACH	12	02	0640	S07	E55	12	6.4			DAO	324	4	7	2
10517		SVTO	12	02	0755	S06	E55	12	6.4		B	DSO	290	3	10	3
10517	31960	MWIL	12	02	1600	S07	E50	12	6.4	5	(B)					

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10517		HOLL	12	02	1940	S07	E48	12	6.4		B	DKO	350	10	9	3
10517		LEAR	12	03	0030	S05	E46	12	6.5		B	DSO	230	10	8	2
10517		VORO	12	03	0033	S06	E45	12	6.4			DAI	398	7	7	3
10517		SVTO	12	03	1003	S06	E40	12	6.4		B	DSO	200	3	8	3
10517	31960	MWIL	12	03	1545	S07	E37	12	6.4	5	(B)					
10517		HOLL	12	03	1739	S07	E36	12	6.4		B	DKO	360	10	9	3
10517		LEAR	12	04	0046	S07	E32	12	6.4		B	DAO	250	15	10	2
10517		VORO	12	04	0048	S07	E32	12	6.4			DHO	404	9	7	3
10517		TACH	12	04	0547	S07	E28	12	6.3			DAI	387	9	7	3
10517		SVTO	12	04	1125	S06	E27	12	6.5		B	DAO	230	7	9	2
10517		KAND	12	04	1155	S07	E25	12	6.4			DSO		10	9	2
10517	31960	MWIL	12	04	1530	S07	E25	12	6.5	5	(B)					
10517		HOLL	12	04	1605	S05	E23	12	6.4		B	DAO	340	13	10	4
10517		VORO	12	05	0030	S07	E19	12	6.4			DHI	327	10	7	3
10517		LEAR	12	05	0113	S06	E20	12	6.5		B	DAO	220	21	8	1
10517		KAND	12	05	1010	S07	E14	12	6.5			DAO		13	9	2
10517		HOLL	12	05	1708	S06	E10	12	6.5		B	DAO	270	17	10	3
10517	31960	MWIL	12	05	1830	S06	E10	12	6.5	5	(B)					
10517		LEAR	12	06	0015	S07	E07	12	6.5		BG	DSO	230	23	9	3
10517		VORO	12	06	0137	S06	E05	12	6.4			DKI	282	7	7	1
10517		TACH	12	06	0532	S05	E03	12	6.4			DAI	192	13	6	3
10517		SVTO	12	06	0800	S07	E02	12	6.5		B	DSO	210	14	10	3
10517		VORO	12	07	0000	S07	W08	12	6.4			DKI	195	10	7	3
10517		LEAR	12	07	0010	S07	W07	12	6.5		BG	DAO	190	12	9	2
10517		HOLL	12	07	1630	S08	W17	12	6.4		B	DAO	140	18	11	3
10517		VORO	12	08	0045	S06	W21	12	6.4			DAI	114	2	7	2
10517		LEAR	12	08	0045	S07	W20	12	6.5		B	DAO	120	16	8	3
10517	31960	MWIL	12	08	1545	S07	W31	12	6.3	5	(B)					
10517		HOLL	12	08	2117	S08	W35	12	6.3		A	HSX	70	2	2	2
10517		VORO	12	09	0030	S07	W37	12	6.2			HAX	111	1		3
10517		LEAR	12	09	0035	S07	W38	12	6.2		A	HAX	70	3	2	3
10517		TACH	12	09	0510	S07	W40	12	6.2			HSX	79	1	1	3
10517		SVTO	12	09	0855	S08	W43	12	6.1		A	HSX	60	1	1	3
10517		KAND	12	09	0905	S07	W43	12	6.1			HA		1	2	3
10517	31960	MWIL	12	09	1530	S07	W46	12	6.2	5	(BP)					
10517		HOLL	12	09	1708	S08	W48	12	6.1		A	HSX	50	1	1	3
10517		VORO	12	10	0021	S07	W50	12	6.3			HAX	107	1		3
10517		LEAR	12	10	0105	S07	W53	12	6.1		A	HSX	60	2	2	2
10517		KAND	12	10	0710	S08	W55	12	6.2			HA		1	2	3
10517		HOLL	12	10	1520	S08	W60	12	6.1		A	HAX	70	1	2	3
10517		LEAR	12	11	0150	S06	W66	12	6.1		A	HAX	60	1	2	2
10517		VORO	12	11	0158	S07	W64	12	6.3			HRX	32	1		2
10517		SVTO	12	11	0737	S08	W69	12	6.1		A	HSX	50	1	2	2
10517		HOLL	12	11	1604	S09	W74	12	6.1		A	HAX	60	1	2	3
10517	31960	MWIL	12	11	2115	S07	W75	12	6.3	4	(AP)					
10517		LEAR	12	12	0005	S07	W79	12	6.1		A	HSX	30	1	2	3
10517		VORO	12	12	0044	S08	W77	12	6.2			HRX	40	1		3
10522	31966	MWIL	12	12	1530	N15	W31	12	10.3	4	(B)					
10522		HOLL	12	12	2135	N16	W35	12	10.2		B	BXO	20	4	3	2
10522		LEAR	12	13	0011	N16	W36	12	10.3		B	CRO	20	5	4	4
10522		VORO	12	13	0024	N15	W36	12	10.3			BRO	21	6	3	3
10522		SVTO	12	13	0845	N16	W41	12	10.2		B	CAO	30	5	5	3
10522		HOLL	12	13	1025	N15	W45	12	10.0		B	CSO	20	3	6	2
10522	31966	MWIL	12	13	1615	N15	W45	12	10.3	4	(B)					
10522		LEAR	12	14	0031	N16	W50	12	10.2		B	CRO	30	4	4	3
10522		VORO	12	14	0136	N15	W50	12	10.3			BRO	21	2	5	3
10522		TACH	12	14	0517	N15	W53	12	10.2			BXO	34	2	7	3
10522		SVTO	12	14	0825	N16	W55	12	10.2		B	CAO	30	4	6	3
10522	31966	MWIL	12	14	1530	N15	W58	12	10.2	4	(B)					
10522		HOLL	12	14	1605	N15	W59	12	10.2		B	DSO	20	5	4	4
10522		VORO	12	15	0013	N15	W62	12	10.3			BRI	40	6	5	3
10522		LEAR	12	15	0240	N15	W64	12	10.3		B	CSO	20	3	8	3
10522		SVTO	12	15	0858	N15	W70	12	10.1		B	CRO	50	5	8	2
10522		KAND	12	15	1000	N15	W70	12	10.1			CSO		3	4	3
10522	31966	MWIL	12	15	1700	N16	W75	12	10.0	4	(B)					
10522B	31969	MWIL	12	16	1530	S06	W60	12	12.1	4	(B)					
10522A	31968	MWIL	12	15	1700	S13	W47	12	12.2	4	(AF)					

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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
10526		LEAR	12 17 0040	N12 W42	12 13.9		A	HSX	30	1	1	3
10526		TACH	12 17 0534	N12 W44	12 13.9			HSX	43	1	1	3
10526		SVTO	12 17 0738	N12 W46	12 13.8		B	CSO	30	2	3	3
10526	31973	MWIL	12 17 1530	N12 W50	12 13.9	4	(B)					
10526		HOLL	12 17 1625	N11 W50	12 13.9		B	AXX	30	2	3	3
10526		LEAR	12 18 0055	N13 W55	12 13.9		A	HAX	20	1	1	1
10526		TACH	12 18 0537	N11 W59	12 13.8			BXO	6	2	7	4
10526	31973	MWIL	12 18 1500	N13 W61	12 14.0	3	(B)					
10526		HOLL	12 18 1555	N12 W62	12 14.0		A	HSX	20	1	1	3
10527	31967	MWIL	12 13 1615	S15 E16	12 14.9	4	(AP)					
10527		LEAR	12 14 0031	S15 E11	12 14.8		A	AXX	10	1	1	3
10527	31967	MWIL	12 14 1530	S15 E05	12 15.0	3	(AP)					
10527		LEAR	12 17 0040	S14 W28	12 14.9		B	CSO	10	4	5	3
10527		TACH	12 17 0534	S13 W31	12 14.9			CSO	35	2	4	3
10527		SVTO	12 17 0738	S15 W33	12 14.8		B	CSO	40	3	4	3
10527	31974	MWIL	12 17 1530	S15 W36	12 14.9	4	(B)					
10527		HOLL	12 17 1625	S15 W36	12 14.9		B	AXX	40	4	3	3
10527		LEAR	12 18 0055	S14 W42	12 14.9		B	BXO	20	3	4	1
10527		TACH	12 18 0537	S16 W45	12 14.8			BXO	6	2	6	4
10527		SVTO	12 18 1042	S16 W51	12 14.6		A	AXX		1		3
10527	31974	MWIL	12 18 1500	S16 W54	12 14.5	4	(B)					
10527		HOLL	12 18 1555	S16 W52	12 14.7		A	HSX	30	3	1	3
10527		LEAR	12 19 0010	S15 W58	12 14.6		A	AXX	10	1	1	3
10527		VORO	12 19 0046	S16 W58	12 14.6			HRX	13	1		3
10521		KAND	12 10 0710	S11 E84	12 16.6			HS		1	2	2
10521		HOLL	12 10 1520	S11 E86	12 17.1		B	DAO	60	1	4	3
10521		LEAR	12 11 0150	S12 E74	12 16.6		B	DAO	90	3	7	2
10521		VORO	12 11 0158	S11 E73	12 16.6			DAO	121	3	5	2
10521		SVTO	12 11 0737	S12 E75	12 17.0		B	DSO	80	2	9	2
10521		HOLL	12 11 1604	S10 E65	12 16.5		B	DSO	140	3	7	3
10521	31965	MWIL	12 11 2115	S12 E62	12 16.5	4	(B)					
10521		LEAR	12 12 0005	S12 E61	12 16.6		B	CSO	90	4	6	3
10521		VORO	12 12 0044	S11 E60	12 16.5			DAO	175	2	5	3
10521		KAND	12 12 0820	S11 E58	12 16.7			CSO		2	6	3
10521	31965	MWIL	12 12 1530	S12 E52	12 16.6	5	(B)					
10521		HOLL	12 12 2135	S11 E50	12 16.7		B	DSO	90	2	4	2
10521		LEAR	12 13 0011	S12 E48	12 16.6		B	DSO	90	4	6	4
10521		VORO	12 13 0024	S11 E47	12 16.5			DAO	104	2	5	3
10521		SVTO	12 13 0845	S12 E43	12 16.6		B	DSO	80	4	7	3
10521		HOLL	12 13 1025	S12 E38	12 16.3		B	DSO	80	2	6	2
10521	31965	MWIL	12 13 1615	S12 E38	12 16.5	5	(B)					
10521		LEAR	12 14 0031	S12 E34	12 16.6		B	DAO	80	5	6	3
10521		VORO	12 14 0136	S11 E33	12 16.5			DAO	107	2	5	3
10521		TACH	12 14 0517	S11 E31	12 16.5			DSO	76	2	5	3
10521		SVTO	12 14 0825	S12 E29	12 16.5		B	DSO	30	2	6	3
10521	31965	MWIL	12 14 1530	S12 E26	12 16.6	4	(B)					
10521		HOLL	12 14 1605	S12 E25	12 16.5		B	DSO	50	5	6	4
10521		VORO	12 15 0013	S11 E21	12 16.6			DAO	70	2	5	3
10521		LEAR	12 15 0240	S12 E20	12 16.6		B	DSO	40	3	6	3
10521		SVTO	12 15 0858	S11 E16	12 16.6		B	CSO	40	4	7	2
10521		KAND	12 15 1000	S11 E16	12 16.6			DSO		4	6	3
10521	31965	MWIL	12 15 1700	S11 E12	12 16.6	5	(BG)					
10521		VORO	12 16 0043	S11 E09	12 16.7			DAO	74	4		3
10521		LEAR	12 16 0150	S11 E08	12 16.7		BG	DSO	40	6	6	3
10521		TACH	12 16 0635	S10 W01	12 16.2			BRI	48	5	3	3
10521		SVTO	12 16 0858	S11 E02	12 16.5		B	DSO	50	5	7	2
10521	31965	MWIL	12 16 1530	S11 W01	12 16.6	5	(BG)					
10521		HOLL	12 16 1630	S11 W01	12 16.6		B	CSO	70	6	6	3
10521		LEAR	12 17 0040	S10 W07	12 16.5		BG	DSO	20	5	6	3
10521		TACH	12 17 0534	S10 W09	12 16.5			BRO	36	3	6	3
10521		SVTO	12 17 0738	S11 W11	12 16.5		B	CSO	30	4	8	3
10521	31965	MWIL	12 17 1530	S12 W13	12 16.7	4	(B)					
10521		HOLL	12 17 1625	S11 W17	12 16.4		A	AXX	10	1	1	3
10521		LEAR	12 18 0055	S10 W22	12 16.4		B	CRO	30	3	2	1
10521		TACH	12 18 0537	S12 W21	12 16.6			BXO	15	2	6	4
10521		SVTO	12 18 1042	S12 W28	12 16.3		A	HSX	20	2	1	3
10521	31965	MWIL	12 18 1500	S12 W30	12 16.4	4	(AP)					

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10521		HOLL	12 18	1555	S12 W29	12 16.5		A	HSX	20	3	1	3
10521		LEAR	12 19	0010	S12 W36	12 16.3		B	BXO	10	2	4	3
10521		VORO	12 19	0046	S12 W31	12 16.7			CRO	10	2	6	3
10521		TACH	12 19	0529	S14 W39	12 16.3			AXX	10	1	1	3
10521		SVTO	12 19	0746	S12 W39	12 16.4		A	HRX	10	1	1	3
10521		HOLL	12 19	1546	S12 W42	12 16.5		A	AXX		1	1	3
10520		HOLL	12 10	1520	N03 E79	12 16.5		A	HAX	120	2	2	3
10520		LEAR	12 11	0150	N02 E73	12 16.5		A	HAX	70	2	3	2
10520		VORO	12 11	0158	N03 E72	12 16.5			HAX	143	1		2
10520		SVTO	12 11	0737	N02 E73	12 16.8		A	HSX	80	1	3	2
10520		HOLL	12 11	1604	N03 E65	12 16.5		A	HAX	140	1	2	3
10520	31964	MWIL	12 11	2115	N02 E62	12 16.5	5	(AF)					
10520		LEAR	12 12	0005	N02 E60	12 16.5		A	HSX	80	1	2	3
10520		VORO	12 12	0044	N03 E59	12 16.4			HAX	180	1		3
10520		KAND	12 12	0820	N03 E58	12 16.7			HS		1	2	3
10520	31964	MWIL	12 12	1530	N02 E52	12 16.5	5	(AF)					
10520		HOLL	12 12	2135	N02 E48	12 16.5		A	HSX	120	1	2	2
10520		LEAR	12 13	0011	N02 E47	12 16.5		A	HSX	90	1	2	4
10520		VORO	12 13	0024	N02 E46	12 16.4			HAX	169	1		3
10520		SVTO	12 13	0845	N02 E42	12 16.5		A	HSX	130	1	3	3
10520		HOLL	12 13	1025	N03 E36	12 16.1		B	DSO	130	4	5	2
10520	31964	MWIL	12 13	1615	N02 E37	12 16.4	5	(AP)					
10520		LEAR	12 14	0031	N01 E32	12 16.4		BG	DAO	160	14	5	3
10520		VORO	12 14	0136	N02 E31	12 16.4			CAO	186	10	4	3
10520		TACH	12 14	0517	N01 E26	12 16.2			CAO	127	5	2	3
10520		SVTO	12 14	0825	N03 E26	12 16.3		B	DSO	130	6	7	3
10520	31964	MWIL	12 14	1530	N02 E23	12 16.4	5	(BG)					
10520		HOLL	12 14	1605	N02 E23	12 16.4		B	DSO	130	9	7	4
10520		VORO	12 15	0013	N03 E20	12 16.5			HHX	164	7		3
10520		LEAR	12 15	0240	N02 E17	12 16.4		B	DSO	60	7	6	3
10520		SVTO	12 15	0858	N03 E14	12 16.4		B	DSO	120	3	7	2
10520		KAND	12 15	1000	N03 E14	12 16.5			CSO		4	5	3
10520	31964	MWIL	12 15	1700	N02 E09	12 16.4	5	(BG)					
10520		VORO	12 16	0043	N03 E04	12 16.3			DHO	195	7	5	3
10520		LEAR	12 16	0150	N02 E04	12 16.4		BG	DSO	130	10	6	3
10520		TACH	12 16	0635	N02 E02	12 16.4			CAO	119	5	5	3
10520		SVTO	12 16	0858	N01 W01	12 16.3		B	DSO	210	5	8	2
10520	31964	MWIL	12 16	1530	N02 W03	12 16.4	5	(BG)					
10520		HOLL	12 16	1630	N01 W02	12 16.5		B	DSO	190	10	7	3
10520		LEAR	12 17	0040	N02 W10	12 16.3		BG	DSO	90	7	6	3
10520		TACH	12 17	0534	N02 W12	12 16.3			DAO	154	3	6	3
10520		SVTO	12 17	0738	N03 W13	12 16.3		B	DSO	110	2	7	3
10520	31964	MWIL	12 17	1530	N02 W16	12 16.4	6	(BG)					
10520		HOLL	12 17	1625	N03 W17	12 16.4		B	CSO	130	4	7	3
10520		LEAR	12 18	0055	N03 W23	12 16.3		B	DSO	90	2	7	1
10520		TACH	12 18	0537	N02 W26	12 16.3			CSO	119	2	7	4
10520		SVTO	12 18	1042	N04 W29	12 16.3		B	DAO	110	3	7	3
10520	31964	MWIL	12 18	1500	N03 W30	12 16.4	5	(AF)					
10520		HOLL	12 18	1555	N02 W31	12 16.3		B	DAO	140	3	7	3
10520		LEAR	12 19	0010	N03 W35	12 16.4		B	CSO	100	3	7	3
10520		VORO	12 19	0046	N03 W36	12 16.3			DSO	175	2	7	3
10520		TACH	12 19	0529	N01 W39	12 16.3			CSO	88	2	7	3
10520		SVTO	12 19	0746	N03 W40	12 16.3		B	CSO	120	2	8	3
10520		HOLL	12 19	1546	N03 W44	12 16.4		B	DSO	90	3	7	3
10520		LEAR	12 20	0012	N03 W49	12 16.3		B	CSO	120	3	7	2
10520		VORO	12 20	0104	N03 W49	12 16.4			DAO	141	3	7	3
10520		KAND	12 20	0805	N03 W50	12 16.6			HS		1	2	2
10520		SVTO	12 20	0830	N02 W54	12 16.3		B	CSO	190	2	8	2
10520		HOLL	12 20	1522	N03 W57	12 16.4		B	CSO	90	2	7	4
10520		LEAR	12 21	0002	N03 W58	12 16.7		A	HSX	70	1	2	2
10520		VORO	12 21	0047	N03 W58	12 16.7			HAX	126	1		3
10520		SVTO	12 21	0755	N02 W63	12 16.6		A	HSX	80	2	2	3
10520		KAND	12 21	1045	N02 W66	12 16.5			HS		1	2	5
10520		HOLL	12 21	1705	N02 W68	12 16.6		A	HKX	110	1	1	3
10520	31964	MWIL	12 21	1900	N04 W68	12 16.7	5	(AF)					
10520		LEAR	12 22	0004	N03 W72	12 16.6		A	HSX	120	1	2	3
10520		VORO	12 22	0019	N03 W71	12 16.7			HAX	117	1		3
10520		KAND	12 22	0805	N02 W78	12 16.5			HS		1	2	3

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10520	31964	MWIL	12 22	1720	N04 W83	12 16.5	4	(AF)					
10520		LEAR	12 23	0019	N04 W86	12 16.6		A	HRX	20	1	1	2
10529		HOLL	12 19	1546	N09 E01	12 19.7		B	DSO	20	2	3	3
10529		LEAR	12 20	0012	N10 W04	12 19.7		B	BXO	10	2	3	2
10529		VORO	12 20	0104	N09 W05	12 19.7			BRX	5	2	3	3
10529		HOLL	12 20	1522	N09 W14	12 19.6		A	AXX		1	1	4
10529		LEAR	12 23	0019	N09 W47	12 19.5		A	AXX	10	1	1	2
10531	31976	MWIL	12 21	1900	N04 W05	12 21.4	3	(AP)					
10531		LEAR	12 22	0004	N02 W07	12 21.5		B	BXO	20	4	5	3
10531		KAND	12 22	0805	N02 W16	12 21.1			HA		1	1	3
10531	31979	MWIL	12 22	1720	N02 W20	12 21.2	4	(BP)					
10531		LEAR	12 23	0019	N03 W25	12 21.1		B	BXO	40	13	3	2
10531		VORO	12 23	0020	N03 W24	12 21.2			BRI	61	15	3	3
10531		KAND	12 23	0855	N02 W31	12 21.0			BXO		4	3	1
10531		HOLL	12 23	1524	N02 W33	12 21.2		B	CSO	20	5	4	3
10531		LEAR	12 24	0013	N03 W38	12 21.2		B	BXO	10	4	3	1
10531		VORO	12 24	0028	N04 W39	12 21.1			AXX	14	7		3
10524	31970	MWIL	12 16	1530	S07 E69	12 21.8	4	(AP)					
10524		HOLL	12 16	1630	S08 E71	12 22.0		A	AXX	30	2	1	3
10524		LEAR	12 17	0040	S08 E66	12 22.0		A	HSX	20	1	1	3
10524		TACH	12 17	0534	S07 E62	12 21.9			HSX	64	1	1	3
10524		SVTO	12 17	0738	S07 E60	12 21.8		B	CSO	40	2	2	3
10524	31970	MWIL	12 17	1530	S08 E57	12 21.9	5	(B)					
10524		HOLL	12 17	1625	S08 E57	12 21.9		A	BXO	60	5	4	3
10524		LEAR	12 18	0055	S08 E51	12 21.9		A	HSX	50	3	5	1
10524		TACH	12 18	0537	S08 E46	12 21.7			BXO	20	3	4	4
10524		SVTO	12 18	1042	S08 E45	12 21.8		B	CRO	40	8	5	3
10524	31970	MWIL	12 18	1500	S08 E43	12 21.8	4	(BP)					
10524		HOLL	12 18	1555	S07 E43	12 21.9		B	CAO	20	5	4	3
10524		LEAR	12 19	0010	S08 E38	12 21.8		B	CAO	20	5	4	3
10524		VORO	12 19	0046	S08 E35	12 21.6			CRO	26	4	1	3
10524		TACH	12 19	0529	S07 E34	12 21.8			HSX	36	1	1	3
10524		SVTO	12 19	0746	S07 E32	12 21.7		B	CSO	20	2	2	3
10524		HOLL	12 19	1546	S07 E28	12 21.7		A	HSX	10	2	1	3
10524		LEAR	12 20	0012	S07 E23	12 21.7		A	HRX	10	2	2	2
10524		VORO	12 20	0104	S08 E22	12 21.7			BRX	12	3	1	3
10524		KAND	12 20	0805	S07 E19	12 21.8			BXO		2	2	2
10524		SVTO	12 20	0830	S08 E17	12 21.6		B	CRO	20	2	2	2
10524		HOLL	12 20	1522	S08 E17	12 21.9		B	CSO	10	2	3	4
10524		LEAR	12 21	0002	S08 E10	12 21.7		B	BXO		2	1	2
10524		VORO	12 21	0047	S08 E09	12 21.7			HAX	4	1		3
10524A	31977	MWIL	12 21	1900	N09 W01	12 21.7	3	(AP)					
10525	31971	MWIL	12 16	1530	N10 E75	12 22.3	4	(B)					
10525		HOLL	12 16	1630	N10 E72	12 22.1		A	AXX	30	1	1	3
10525		LEAR	12 17	0040	N08 E68	12 22.1		B	CSO	30	3	1	3
10525		TACH	12 17	0534	N11 E66	12 22.2			AXX	26	1	1	3
10525		SVTO	12 17	0738	N10 E66	12 22.3		B	CRO	40	4	6	3
10525	31971	MWIL	12 17	1530	N09 E61	12 22.2	5	(D)					
10525		HOLL	12 17	1625	N09 E60	12 22.2		B	CSO	140	7	5	3
10525		LEAR	12 18	0055	N09 E55	12 22.2		B	CSO	90	7	6	1
10525		TACH	12 18	0537	N09 E52	12 22.1			CAO	68	4	5	4
10525		SVTO	12 18	1042	N10 E50	12 22.2		B	DAO	80	12	7	3
10525	31971	MWIL	12 18	1500	N09 E48	12 22.2	5	(BG)					
10525		HOLL	12 18	1555	N09 E49	12 22.3		B	DAI	90	18	8	3
10525		LEAR	12 19	0010	N09 E43	12 22.2		BG	DAI	200	17	10	3
10525		VORO	12 19	0046	N09 E42	12 22.2			DAI	209	16	7	3
10525		TACH	12 19	0529	N10 E38	12 22.1			DAI	37	6	6	3
10525		SVTO	12 19	0746	N10 E39	12 22.2		B	DAI	160	8	10	3
10525		HOLL	12 19	1546	N10 E35	12 22.3		B	DKI	170	18	9	3
10525		LEAR	12 20	0012	N09 E30	12 22.2		B	DAI	200	17	10	2
10525		VORO	12 20	0104	N09 E29	12 22.2			DAI	194	18	9	3
10525		KAND	12 20	0805	N10 E27	12 22.4			DAO		11	10	2
10525		SVTO	12 20	0830	N09 E26	12 22.3		B	DSI	90	11	9	2
10525		HOLL	12 20	1522	N09 E21	12 22.2		B	DAI	100	20	9	4

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10525		LEAR	12 21	0002	N08 E17	12 22.3		BG	DAI	120	29	10	2
10525		VORO	12 21	0047	N09 E16	12 22.2			DAO	159	12	8	3
10525		SVTO	12 21	0755	N09 E13	12 22.3		BG	DSI	130	14	9	3
10525		KAND	12 21	1045	N09 E12	12 22.3			DAO		19	8	5
10525		HOLL	12 21	1705	N08 E06	12 22.2		B	DAO	110	18	9	3
10525	31971	MWIL	12 21	1900	N09 E07	12 22.3	4	(BD)					
10525		LEAR	12 22	0004	N08 E04	12 22.3		BG	DAI	90	37	8	3
10525		VORO	12 22	0019	N09 E03	12 22.2			DRI	99	22	7	3
10525		KAND	12 22	0805	N08 E00	12 22.3			DAO		11	9	3
10525	31971	MWIL	12 22	1720	N09 W06	12 22.3	4	(D)					
10525		LEAR	12 23	0019	N09 W09	12 22.3		BG	DAO	100	12	8	2
10525		VORO	12 23	0020	N09 W08	12 22.4			DAI	134	11	6	3
10525		KAND	12 23	0855	N09 W14	12 22.3			CSO		6	6	1
10525		HOLL	12 23	1524	N08 W18	12 22.3		B	DAO	70	10	7	3
10525		LEAR	12 24	0013	N09 W22	12 22.3		BG	DAO	80	14	8	1
10525		VORO	12 24	0028	N09 W22	12 22.4			BRI	54	14	6	3
10525		TACH	12 24	0657	N10 W23	12 22.6			CSO	73	2	4	3
10525	31971	MWIL	12 24	1600	N10 W29	12 22.5	4	(B)					
10525		HOLL	12 24	1933	N09 W34	12 22.3		B	CAO	40	9	9	2
10525		VORO	12 25	0044	N09 W36	12 22.3			BRI	19	5	6	2
10525		LEAR	12 25	0055	N09 W36	12 22.3		B	DRO	40	8	9	2
10525		SVTO	12 25	1025	N10 W43	12 22.2		A	AXX	10	2	3	3
10525		LEAR	12 26	0212	N09 W50	12 22.3		B	CRO	10	2	2	4
10523	31972	MWIL	12 16	1530	S16 E79	12 22.6	3	(AP)					
10523		HOLL	12 16	1630	S15 E76	12 22.4		A	HSX	60	2	1	3
10523		LEAR	12 17	0040	S17 E73	12 22.6		A	AXX		2		3
10523		TACH	12 17	0534	S16 E72	12 22.7			HSX	168	1	2	3
10523		SVTO	12 17	0738	S16 E69	12 22.5		A	HSX	80	1	2	3
10523	31972	MWIL	12 17	1530	S16 E66	12 22.6	4	(AP)					
10523		HOLL	12 17	1625	S15 E63	12 22.4		A	HSX	90	1	2	3
10523		LEAR	12 18	0055	S17 E60	12 22.6		A	HAX	40	1	2	1
10523		TACH	12 18	0537	S17 E58	12 22.6			AXX	24	1	1	4
10523		SVTO	12 18	1042	S17 E56	12 22.7		A	HSX	40	1	1	3
10523	31972	MWIL	12 18	1500	S16 E52	12 22.6	4	(AF)					
10523		HOLL	12 18	1555	S16 E54	12 22.7		A	HAX	40	2	3	3
10523		LEAR	12 19	0010	S17 E47	12 22.6		B	CSO	50	5	3	3
10523		VORO	12 19	0046	S16 E47	12 22.6			DAI	40	3	1	3
10523		TACH	12 19	0529	S16 E46	12 22.7			HSX	44	1	1	3
10523		SVTO	12 19	0746	S16 E44	12 22.7		B	CSO	30	2	2	3
10523		HOLL	12 19	1546	S17 E39	12 22.6		A	HSX	20	2	2	3
10523		LEAR	12 20	0012	S17 E36	12 22.7		B	CAO	20	2	3	2
10523		VORO	12 20	0104	S17 E34	12 22.6			HAX	15	2		3
10523		KAND	12 20	0805	S16 E31	12 22.7			BXO		3	2	2
10523		SVTO	12 20	0830	S17 E31	12 22.7		A	HSX	10	1	1	2
10523		HOLL	12 20	1522	S17 E27	12 22.7		A	HSX	20	1	1	4
10523		LEAR	12 21	0002	S17 E22	12 22.7		A	AXX		2		2
10523		VORO	12 21	0047	S17 E21	12 22.6			HAX	5	1		3
10523		KAND	12 21	1045	S20 E18	12 22.8			BXO		4	2	5
10523		HOLL	12 21	1705	S20 E14	12 22.8		B	BXO	10	5	3	3
10523	31972	MWIL	12 21	1900	S19 E13	12 22.8	3	(AF)					
10523		LEAR	12 22	0004	S18 E12	12 22.9		B	BXO	20	12	4	3
10523		KAND	12 22	0805	S19 E07	12 22.9			BXO		4	3	3
10523	31972	MWIL	12 22	1720	S19 E00	12 22.7	4	(AF)					
10523		LEAR	12 23	0019	S18 W01	12 22.9		B	BXO	20	7	8	2
10523		VORO	12 23	0020	S16 E03	12 23.2			AXX	12	5		3
10523		VORO	12 23	0020	S18 W04	12 22.7			AXX	14	6		3
10523		HOLL	12 23	1524	S19 W08	12 23.0		B	BXO	10	3	3	3
10523		LEAR	12 24	0013	S19 W13	12 23.0		A	AXX	10	1	1	1
10523		VORO	12 24	0028	S16 W10	12 23.3			AXX	5	7		3
10523		VORO	12 24	0028	S19 W16	12 22.8			BRI	16	5	4	3
10523C		TACH	12 26	0710	N09 W38	12 23.4			BRO	6	3	4	4
10528		LEAR	12 18	0055	N08 E80	12 24.0		A	HAX	80	1	3	1
10528		TACH	12 18	0537	N08 E78	12 24.1			HSX	86	1	2	4
10528		SVTO	12 18	1042	N09 E78	12 24.3		B	DSO	210	2	4	3
10528	31975	MWIL	12 18	1500	N08 E75	12 24.2	4	(BP)					
10528		HOLL	12 18	1555	N08 E75	12 24.3		A	HAX	150	7	3	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
10528		LEAR	12 19	0010	N08 E75	12 24.6		B	DAO	300	11	14	3
10528		VORO	12 19	0046	N09 E74	12 24.6			DHI	380	5	13	3
10528		TACH	12 19	0529	N09 E70	12 24.5			DAO	211	5	6	3
10528		SVTO	12 19	0746	N10 E70	12 24.6		B	FSO	290	7	16	3
10528		HOLL	12 19	1546	N09 E66	12 24.6		B	FKC	270	26	19	3
10528		LEAR	12 20	0012	N09 E62	12 24.7		B	ESI	470	13	15	2
10528		VORO	12 20	0104	N09 E61	12 24.6			ESI	515	16	15	3
10528		KAND	12 20	0805	N10 E58	12 24.7			FAO		12	20	2
10528		SVTO	12 20	0830	N09 E56	12 24.5		B	FSO	290	8	17	2
10528		HOLL	12 20	1522	N09 E53	12 24.6		B	FKI	330	29	20	4
10528		LEAR	12 21	0002	N08 E49	12 24.7		BG	FHO	400	35	17	2
10528		VORO	12 21	0047	N09 E48	12 24.6			FSI	526	7	15	3
10528		SVTO	12 21	0755	N09 E45	12 24.7		BG	FHO	380	9	18	3
10528		KAND	12 21	1045	N09 E43	12 24.7			FAO		18	24	5
10528		HOLL	12 21	1705	N09 E38	12 24.6		B	FKO	440	19	18	3
10528	31975	MWIL	12 21	1900	N08 E39	12 24.7	5	(D)					
10528		LEAR	12 22	0004	N09 E35	12 24.6		BG	FKI	360	48	18	3
10528		VORO	12 22	0019	N08 E27	12 24.0			HHX	289	8		3
10528		VORO	12 22	0019	N10 E40	12 25.0			DAI	176	14	3	3
10528		KAND	12 22	0805	N09 E30	12 24.6			FSO		20	17	3
10528	31975	MWIL	12 22	1720	N08 E24	12 24.5	5	(BG)					
10528		LEAR	12 23	0019	N09 E21	12 24.6		BG	FAI	530	39	17	2
10528		VORO	12 23	0020	N08 E14	12 24.1			HKX	294	11		3
10528		VORO	12 23	0020	N10 E26	12 25.0			DAI	411	29	8	3
10528		KAND	12 23	0855	N09 E17	12 24.6			FKO		33	19	1
10528		HOLL	12 23	1524	N09 E14	12 24.7		BG	FKC	510	45	18	3
10528		LEAR	12 24	0013	N09 E08	12 24.6		BG	FAI	540	38	17	1
10528		VORO	12 24	0028	N08 E01	12 24.1			HHX	250	8		3
10528		VORO	12 24	0028	N09 E13	12 25.0			DKI	416	28	7	3
10528		TACH	12 24	0657	N09 E10	12 25.0			DAI	215	8	5	3
10528		TACH	12 24	0657	N09 W01	12 24.2			HA	205	2	2	3
10528	31975	MWIL	12 24	1600	N09 W00	12 24.7	6	(B)					
10528		HOLL	12 24	1933	N10 W03	12 24.6		BG	FKC	700	25	17	2
10528		VORO	12 25	0044	N09 W02	12 24.9			DKI	600	19	6	2
10528		VORO	12 25	0044	N09 W12	12 24.1			HHX	263	2		2
10528		LEAR	12 25	0055	N09 W05	12 24.7		BG	FKI	760	27	18	2
10528		SVTO	12 25	1025	N10 W10	12 24.7		B	FKI	770	17	18	3
10528		HOLL	12 25	1652	N10 W14	12 24.6		BG	FKO	670	25	16	2
10528		VORO	12 26	0003	N08 W25	12 24.1			HHX	244	2		3
10528		VORO	12 26	0003	N09 W15	12 24.9			DKI	699	24	8	3
10528		LEAR	12 26	0212	N09 W18	12 24.7		BG	FKI	720	65	18	4
10528		TACH	12 26	0710	N08 W14	12 25.2			CSO	214	2	4	4
10528		SVTO	12 26	0805	N11 W22	12 24.7		B	FKI	680	17	19	3
10528		HOLL	12 26	1735	N08 W27	12 24.7		B	FKO	670	15	16	3
10528	31975	MWIL	12 26	2200	N09 W30	12 24.7	5	(B)					
10528		VORO	12 27	0007	N08 W38	12 24.1			HHX	244	2		3
10528		VORO	12 27	0007	N09 W28	12 24.9			DKI	660	22	8	3
10528		LEAR	12 27	0245	N09 W32	12 24.7		B	FKI	590	39	17	2
10528		TACH	12 27	0523	N06 W41	12 24.1			CSO	208	2	2	2
10528		TACH	12 27	0523	N09 W32	12 24.8			EAI	387	7	10	2
10528		SVTO	12 27	0815	N11 W36	12 24.6		B	FHI	700	11	20	3
10528	31975	MWIL	12 27	1600	N09 W39	12 24.7	5	(B)					
10528		HOLL	12 27	1820	N08 W40	12 24.8		B	FKI	600	14	17	3
10528		VORO	12 28	0016	N09 W42	12 24.8			DKI	461	14	9	3
10528		VORO	12 28	0016	N09 W51	12 24.2			HKX	240	1		3
10528		LEAR	12 28	0227	N10 W44	12 24.8		BG	EAO	250	11	15	2
10528		SVTO	12 28	0830	N10 W48	12 24.7		B	FKO	540	10	18	3
10528		HOLL	12 28	1524	N09 W51	12 24.8		BG	FKC	340	16	16	2
10528	31975	MWIL	12 28	1545	N09 W51	12 24.8	5	(B)					
10528		LEAR	12 29	0002	N09 W57	12 24.7		B	FKO	480	16	17	2
10528		VORO	12 29	0031	N09 W64	12 24.2			HKX	234	1		3
10528		VORO	12 29	0031	N10 W55	12 24.9			DKI	392	11	11	3
10528		KAND	12 29	0647	N09 W60	12 24.8			FKO		10	19	2
10528		HOLL	12 29	1547	N08 W64	12 24.8		B	FKC	390	10	17	3
10528		VORO	12 30	0047	N09 W68	12 24.9			DKO	308	5	13	3
10528		VORO	12 30	0047	N09 W76	12 24.3			HKX	254	1		3
10528		LEAR	12 30	0130	N09 W69	12 24.9		BG	FSO	80	4	18	3
10528		KAND	12 30	0910	N09 W73	12 24.9			FAO		4	19	2
10528		HOLL	12 30	1635	N11 W72	12 25.3		B	CAO	120	5	3	3

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10528	31975	MWIL	12 30	2000	N11 W75	12 25.2	4	(AF)					
10528		VORO	12 31	0050	N10 W84	12 24.7			HAX	147	1		3
10528		LEAR	12 31	0202	N09 W79	12 25.1		B	CAO	120	3	6	2
10528		KAND	12 31	0845	N09 W79	12 25.4			HA		1	2	2
10528	31975	MWIL	12 31	1600	N10 W85	12 25.3	4	AF					
10528B		TACH	12 26	0710	N08 W05	12 25.9			DAI	348	11	7	4
10532		VORO	12 24	0028	S11 E29	12 26.2			AXX	2	1		3
10532	31980	MWIL	12 24	1600	S11 E20	12 26.2	4	(B)					
10532		HOLL	12 24	1933	S11 E16	12 26.0		B	BXO	20	12	5	2
10532		VORO	12 25	0044	S12 E12	12 25.9			AXX	17	4		2
10532		LEAR	12 25	0055	S12 E11	12 25.9		B	CRO	20	4	4	2
10532		SVTO	12 25	1025	S10 E09	12 26.1		B	CSO	30	3	5	3
10532		HOLL	12 25	1652	S10 E06	12 26.1		B	FAO	30	4	4	2
10532		VORO	12 26	0003	S11 E02	12 26.1			BRI	45	4	3	3
10532		LEAR	12 26	0212	S11 E01	12 26.2		B	EAO	50	15	4	4
10532		SVTO	12 26	0805	S11 W03	12 26.1		B	DSO	40	3	4	3
10532		HOLL	12 26	1735	S11 W07	12 26.2		B	DAO	40	6	4	3
10532	31980	MWIL	12 26	2200	S11 W10	12 26.2	5	(B)					
10532		VORO	12 27	0007	S11 W11	12 26.2			DRO	88	9	3	3
10532		LEAR	12 27	0245	S11 W13	12 26.1		B	DAO	70	17	4	2
10532		TACH	12 27	0523	S10 W14	12 26.2			BRO	52	4	5	2
10532		SVTO	12 27	0815	S11 W17	12 26.1		B	DSO	30	3	4	3
10532	31980	MWIL	12 27	1600	S11 W20	12 26.2	5	(B)					
10532		HOLL	12 27	1820	S11 W21	12 26.2		B	CAO	40	6	4	3
10532		VORO	12 28	0016	S11 W25	12 26.1			BRI	33	5	3	3
10532		LEAR	12 28	0227	S11 W27	12 26.1		B	CSO	20	4	4	2
10532		SVTO	12 28	0830	S11 W31	12 26.0		B	CSO	20	2	4	3
10532		HOLL	12 28	1524	S11 W34	12 26.1		B	CSO	20	4	5	2
10532	31980	MWIL	12 28	1545	S11 W34	12 26.1	4	(BF)					
10532		LEAR	12 29	0002	S11 W38	12 26.1		B	CSO	30	7	4	2
10532		VORO	12 29	0031	S11 W39	12 26.1			BRI	14	4	4	3
10532		KAND	12 29	0647	S12 W40	12 26.3			AX		2	1	2
10532		HOLL	12 29	1547	S12 W47	12 26.1		A	HSX	20	1	1	3
10532B		TACH	12 26	0710	S11 E10	12 27.0			BXO	13	2	4	4
10530		HOLL	12 20	1522	S19 E78	12 26.6		A	HSX	40	1	1	4
10530		LEAR	12 21	0002	S21 E75	12 26.7		A	HAX	40	1	2	2
10530		VORO	12 21	0047	S20 E73	12 26.6			AXX	4	1		3
10530		SVTO	12 21	0755	S19 E73	12 26.9		A	HAX	30	1	2	3
10530		KAND	12 21	1045	S21 E73	12 27.0			HS		1	2	5
10530		HOLL	12 21	1705	S20 E65	12 26.7		A	HSX	20	1	1	3
10530	31978	MWIL	12 21	1900	S21 E65	12 26.8	4	(AP)					
10530		LEAR	12 22	0004	S21 E63	12 26.8		B	CAO	30	2	4	3
10530		VORO	12 22	0019	S20 E60	12 26.6			HRX	21	1		3
10530		KAND	12 22	0805	S21 E58	12 26.8			HA		1	1	3
10530	31978	MWIL	12 22	1720	S22 E52	12 26.7	4	(AP)					
10530		LEAR	12 23	0019	S23 E49	12 26.8		B	BXO	20	3	4	2
10530		VORO	12 23	0020	S22 E49	12 26.8			BRO	33	2	3	3
10530		KAND	12 23	0855	S22 E47	12 27.0			BXO		2	5	1
10530		HOLL	12 23	1524	S22 E41	12 26.8		B	DSO	50	6	4	3
10530		LEAR	12 24	0013	S22 E37	12 26.8		B	BXO	10	3	4	1
10530		VORO	12 24	0028	S22 E35	12 26.7			BRI	10	3	4	3
10530	31978	MWIL	12 24	1600	S21 E28	12 26.8	3	(AP)					
10530		HOLL	12 24	1933	S22 E25	12 26.7		B	BXO	10	6	5	2
10530		LEAR	12 29	0002	S21 W23	12 27.2		B	BXO	10	2	3	2
10530		VORO	12 29	0031	S19 W23	12 27.3			AXX	4	1		3
10530B		VORO	12 28	0016	S24 W04	12 27.7			BRO	19	3	1	3
10530A		VORO	12 26	0003	N10 E31	12 28.3			AXX	5	3		3
10530C		VORO	12 28	0016	S30 E08	12 28.6			AXX	4	1		3
10532A	31981	MWIL	12 28	1545	N11 E12	12 29.5	4	(AP)					
10532A		HOLL	12 30	1635	N13 W12	12 29.8		A	AXX	10	2	2	3
10535		VORO	12 30	0047	S19 W01	12 29.9			AXX	2	1		3

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10535		LEAR	12	30	0130	S19	W01	12	30.0		A	AXX	10	1	1	3
10535		KAND	12	30	0910	S20	W03	12	30.1			AX		1		2
10535		SVTO	01	01	0926	S19	W31	12	30.1		B	CRO	20	3	3	3
10535		KAND	01	01	1000	S20	W30	12	30.2			BXO		3	3	4
10535		HOLL	01	01	1603	S20	W34	12	30.2		B	CSO	30	4	3	2
10535	31984	MWIL	01	01	2100	S20	W35	12	30.3	3	(BF)					
10535		VORO	01	02	0031	S20	W37	12	30.3			HRX	25	7		2
10535		LEAR	01	02	0131	S19	W38	12	30.3		B	CSO	80	5	3	3
10535		SVTO	01	02	0734	S19	W43	12	30.1		B	DSO	80	4	4	3
10535		KAND	01	02	1205	S20	W45	12	30.2			DSO		10	5	3
10535		HOLL	01	02	1531	S18	W47	12	30.2		B	DAI	60	7	5	2
10535		LEAR	01	03	0005	S19	W51	12	30.2		B	DSO	160	6	3	3
10535		VORO	01	03	0055	S19	W51	12	30.2			DAI	183	8	4	2
10535		TACH	01	03	0615	S18	W55	12	30.2			DAI	170	6	4	2
10535		HOLL	01	03	1620	S16	W60	12	30.2		B	DAI	100	9	6	3
10535		LEAR	01	04	0010	S19	W64	12	30.2		B	DAO	100	12	6	3
10535		VORO	01	04	0123	S19	W65	12	30.2			DAO	177	6	4	2
10535		TACH	01	04	0723	S20	W68	12	30.2			HR	174	3	5	3
10535		SVTO	01	04	1220	S24	W71	12	30.1		B	DAO	180	3	8	3
10535	31984	MWIL	01	04	1600	S18	W72	12	30.3	4	(BF)					
10535		HOLL	01	04	1630	S20	W70	12	30.4		B	DAO	60	6	5	3
10535		VORO	01	05	0035	S19	W76	12	30.3			CAI	114	5	3	2
10535		SVTO	01	05	0735	S24	W80	12	30.2		A	HSX	30	1	2	3
10535		HOLL	01	05	1150	S20	W80	12	30.5		A	HSX	20	2	4	4
10535A		VORO	01	04	0123	S06	W58	12	30.8			AXX	3	1		3

Stations reporting:

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

SUDDEN IONOSPHERIC DISTURBANCES

DECEMBER 2003

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
02	0757	0807	0836	2-	3		1			1	0757	C3.9	10508
02	0941	0947	1025	1+	5		1			3	0940	C7.2	10508
02	1108	1113	1212	1	1		1				No flare		
02	1227	1230	1250	1	1		1				No flare		
02	1252	1308	1341	1+	5		1			2	1247	M1.4	10508
02	2104	2108	2140	1+	3					3	2101	C5.0	
05	0939	0949	1005	2	5	1		1			No flare		
05	1016	1019	1045	1+	1					1	1011	C1.8	10513
05	1333	1349	1409	1	1		1				1343	C1.1	
06	0745	0747	0757	1	3					2	0742	C1.1	
06	0808	0814	0922	2-	1					1	0808	C2.5	
06	0952	1000	1020	2+	5		2	1		3	0951	C4.1	
06	1103	1120	1140	3-	5		2	1		2	1058	M1.3	
06	1322	1334	1352	1	1		1				No flare		
06	1538	1545	1627	2	3					3	1539	M2.0	
06	1923U	1940D	1956D	2	1					1	1923	C4.1	
07	0248	0256	0347	2+	1					1	0246	C3.1	
07	0618	0622	0633	1-	1					1	0609	C1.1	
07	0936	0954	1119	1	1		1				No flare		
07	1256	1314	1416	1	1		1				*		
08	1314	1326	1343	1	1		1				*		
10	1158	1210	1234	1	1		1				*		
10	1257	1312	1357	1	1		1				1341	B.14	
10	1437	1440	1515	2	1					1	1453	B1.7	
12	1023	1043	1128	1	1		1				No flare		
12	1216	1225U	1330	1	1		1				No flare		
13	0730	0737	0756	1	1		1				No flare		
13	0804	0819	0844	1	1		1				No flare		
17	0302	0312	0349	2+	1					1	0255	C8.6	10525
17	0619	0622	0642	1	3					2	0615	C1.8	
17	1330	1351	1447	1	1		1				No flare		
18	0730	0735	0800	1+	1					1	No flare		
18	0923	0931	0956	1+	5		1			7	0919	C8.6	10525
18	1207	1211	1224	2+	5		2	1		2	1200	C5.5	
18	1414	1425	1444	1	1		1				1420	C1.4	
19	0807	0816	0852	2-	3		1			3	0805	C9.3	10528
19	1226	1231	1238	2-	5		2	1		2	1220	C5.9	10525
19	1641	1647	1703	1	3					4	1637	C5.4	10525
20	1421	1433	1453	1	1		1				1419	C1.8	10525
21	0243	0251	0359	2+	1					1	0238	C4.5	10528
21	0414	0418	0441	1+	1					1	0410	C2.0	
21	0855	1040	1059	1	1		1				No flare		
21	1250	1301	1320	1+	5					2	1253	C2.0	10528
22	1340	1351	1409	1	1		1				1346	C2.3	10528
22	1555	1605	1615	1	1					1	No flare		
22	1943D	1953D	2029D	2+	1					1	1937	C3.7	10528
23	0732	0736	0756	1	1					1	0728	C1.6	10525
23	1019	1025	1045	2+	5		2	1		5	1014	C6.9	10525
23	1244	1307U	1338	1	1		1				*		
25	0808	0822	0856	2	3					2	0738	C5.3	10528
25	1159	1210	1247	1	1		1				No flare		
25	1301	1341U	1459	1	1		1				No flare		

* = no flare patrol.

SUDDEN IONOSPHERIC DISTURBANCES

DECEMBER 2003

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
26	1026	1033	1058	2	5		2	1		5	1023	C7.1	10528
26	1350	1415	1431	1	1		1				*		
26	1616	1620	1639	1	3					2	1614	C1.8	10528
26	1916	1929	2002	2	3					4	1913	M1.5	10528
30	1224	1237	1302	1	1		1				No flare		
31	1728	1733	1749	1-	3					2	1725	C2.3	
31	1758	1806	1822D	1	1					1	1759	C2.2	
31	1821	1824	1903	2-	3					4	1821	M1.0	10528

* = no flare patrol.

OBSERVATORIES REPORTING FOR DECEMBER 2003

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

Observations are not necessarily continuous.

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

DECEMBER 2003

Day	OBSERVATION Start (UT)	OBSERVATION End (UT)	Sta	EVENT Start (UT)	EVENT End (UT)	Spectral Class	Event Remarks	Int (1-3)	FREQUENCY Lower (MHz)	FREQUENCY Upper (MHz)	Remarks
01	0000	0800	CULG	0018.0	0018.0	III	B	1	18	35	
			CULG	0157.0	0158.0	III	G	2	60	220	
	0000	0724	HIRA	0157.0	0158.0	III	G	2	100	230	
			CULG	0237.0	0406.0	III	N	1	20	180	
			LEAR	0254.0	0254.0	III		1	25	94	
			CULG	0506.0	0509.0	III	G	1	60	180	
			CULG	0610.0	0612.0	III	G	1	18	200	
			HIRA	0610.5	0611.0	III	B	1	120	200	
			CULG	0711.0	0711.0	III	B	2	20	35	
	0655	1200	IZMI	0752.4	0752.5	III	B	1	50	65	
			CULG	0753.0	0753.0	III	B	2	20	70	
	0812	1329	ONDR								
			IZMI	0813.4	0814.5	III	G	1	45	140	
			IZMI	0815.5	0816.2	III	G	2	40	160	
	0835	1440	BLEN								
			IZMI	0934.1	0934.3	III	G	1	45	130	
			IZMI	1024.8	1025.0	III	B	1	30X	85	
			SVTO	1234.0	1235.0	III		1	25	149	
	2000	2400	CULG	2046.0	2046.0	III	B	1	20	90	
			CULG	2111.0	2117.0	III	G	1	20	180	
	2129	2400	HIRA	2150.5	2153.5	III	G	1	80	200	
			CULG	2151.0	2154.0	III	G	2	35	190	
			CULG	2203.0	2206.0	III	G	3	20	300U	
			HIRA	2204.0	2205.5	III	G	2	50	200	
			HOLL	2204.0	2205.0	III		1	62	180	
			CULG	2221.0	2221.0	III	B	1	23	90	
			CULG	2300.0	2302.0	III	G	1	23	180	
			HIRA	2300.0	2302.0	III	G	1	40	300	
			CULG	2311.0	2337.0	III	N	1	23	90	
02	0000	0800	CULG	0000.0	0002.0	III	G	1	35	200	
			CULG	0101.0	0143.0	III	N	1	30	150	
			LEAR	0451.0	0637.0	III	N	1	25	118	
	0000	0724	HIRA	0451.5	0452.0	III	B	1	50	130	
			CULG	0452.0	0452.0	III	B	2	18	180	
			CULG	0453.0	0502.0	III	G	1	30	180	
			CULG	0536.0	0536.0	III	B	2	40	180	
			HIRA	0536.0	0536.5	III	B	1	40	70	
			HIRA	0549.5	0550.0	III	B	1	100	280	
			CULG	0550.0	0550.0	III	B	1	30	270	
			IZMI	0702.0E	1110.0U	III	N	1	45U	95U	
	0702	1200	IZMI	0702.0E	1112.0U	I	N	1	120	270X	
			CULG	0752.0	0755.0	III	G	1	30	90	
			LEAR	0752.0	0755.0	III		1	25	95	
			SVTO	0752.0	0754.0	III		1	25	82	
			IZMI	0752.3	0755.1	III	GG	2	40	160	
			IZMI	0800.5	0801.8	III	G,C	1	45	90	
			IZMI	0821.3	0824.0	III	G	2	40	85	
	0814	1328	ONDR	0936.4	0944.2	DCIM	G	1	2098	4500X	
			IZMI	0943.2	0944.2	I	GG,DC	2	170	270X	
	0835	1440	BLEN	0943.3	0944.3	III	GG	1	180	300	
			IZMI	1043.5	1044.8	III	G	2	45	95	
	2000	2400	CULG	2000.0E	2400.0D	III	N	1	18	180	
			CULG	2034.0	2400.0D	I	S	1	100	180	
	2129	2400	HIRA								
			LEAR	2200.0	2357.0	CONT		1	86	180	
03			CULG	0000.0E	0307.0	I	S	1	100	180	
	0000	0800	CULG	0000.0E	0218.0	III	N	1	20	100	
			LEAR	0212.0	1014.0	III	N	1	25	180	
			CULG	0235.0	0238.0	III	G	2	20	180	
	0000	0724	HIRA	0235.0	0238.0	III	G	1	25X	160	
			HIRA	0406.5	0417.5	III	G	1	25X	230	
			CULG	0407.0	0417.0	III	GG	2	20	200	
			CULG	0420.0	0730.0	I	S	1	100	160	
			CULG	0450.0	0608.0	III	N	1	30	130	
			IZMI	0655.0E	1100.0U	III	N	1	45U	95U	
	0655	1200	IZMI	0655.0E	1024.0	I	N	1	110	270X	
			IZMI	0658.4	0706.0	III	GG	1	50	270	

SOLAR RADIO EMISSION
Spectral Observations

DECEMBER 2003

OBSERVATION Start (UT)	End (UT)	Sta	EVENT Start (UT)	End (UT)	Spectral Class	Event Remarks	Int (1-3)	FREQUENCY Lower (MHz)	Upper (MHz)	Remarks
03		CULG	0701.0	0702.0	III	G	1	20	80	
		IZMI	0712.6	0713.8	III	G,C	2	45	90	
		CULG	0713.0	0714.0	III	G	2	20	250	
		SVTO	0713.0	0713.0	III		1	111	180	
		IZMI	0728.0	0731.3	III	GG	1	45	90	
		CULG	0736.0	0736.0	III	B	1	27	180	
0816	1327	ONDR								
		SVTO	0821.0	1459.0	III	N	1	25	180	
		IZMI	0821.2	0829.2	III	GG	1	30	90	
0835	1435	BLEN								
		IZMI	0852.9	0858.8	III	GG	1	30	90	
		IZMI	0949.1	0952.5	III	GG,C	1	40	95	
		IZMI	1008.0	1009.9	III	G	2	25X	65	
		IZMI	1024.0	1200.0D	I	S,DC	2	110	270X	
		HOLL	1946.0	2330.0	III	N	1	25	160	
		CULG	2000.0E	2400.0D	I	S	1	100	180	
		CULG	2000.0E	2400.0D	III	S	1	20	180	
2000	2400	CULG	2000.0E	2004.0	III	G	2	27	280	
		CULG	2113.0	2114.0	III	G	3	20	200	
2130	2400	HIRA								
		LEAR	2206.0	1015.0	CONT		1	84	180	
		LEAR	2206.0	1015.0	III	N	1	25	180	
04		CULG	0000.0E	0800.0D	I	S	1	60	180	
0000	0800	CULG	0000.0E	0130.0	III	S	1	23	100	
		CULG	0303.0	0303.0	III	B	3	18	150	
		CULG	0334.0	0800.0D	III	N	1	25	180	
		CULG	0340.0	0341.0	III	G	2	20	200	
0000	0723	HIRA	0340.0	0341.0	III	G	1	30	200	
		HIRA	0425.5	0426.5	III	G	2	25X	100	
		CULG	0426.0	0426.0	III	G	3	18	140	
		SVTO	0650.0	1458.0	III	N	1	25	148	
		CULG	0651.0	0652.0	III	G	2	18	180	
		HIRA	0651.0	0652.0	III	G	1	25X	120	
		IZMI	0658.0E	1200.0D	III	N	1	25X	95U	
0658	1200	IZMI	0658.0E	1200.0D	I	S	2	80	270X	
		IZMI	0759.7	0759.9	III	G	2	50	165	
		IZMI	0812.9	0820.1	III	GG	2	25X	85	
0817	1326	ONDR								
0835	1435	BLEN								
		IZMI	0850.5	0854.3	III	G	2	40	85	
		IZMI	0957.2	0959.5	III	GG	2	45	85	
		PALE	1946.0	0331.0	III	N	1	25	180	
		CULG	2000.0E	2400.0D	III	S	1	20	180	
2000	2400	CULG	2000.0E	2400.0D	I	S,C	1	60	160	
		LEAR	2217.0	1015.0	CONT		1	63	180	
		LEAR	2303.0	1015.0	III	N	1	25	66	
2131	2400	HIRA	2312.5	2313.0	III	B	2	25	40	
		CULG	2313.0	2313.0	III	B	3	20	40	
05		CULG	0000.0E	0800.0D	III	S	1	20	180	
0000	0800	CULG	0000.0E	0800.0D	I	S,C	1	60	160	
		CULG	0254.0	0256.0	III	G	3	27	200	
0000	0723	HIRA	0254.0	0256.0	III	G	1	50	280	
		SVTO	0619.0	0921.0	III	N	1	25	151	
		SVTO	0640.0	1123.0	CONT		1	35	180	
		IZMI	0700.0E	1200.0D	III	N	1	25X	95U	
0700	1200	IZMI	0700.0E	1200.0D	I	N	2	85	220	
		IZMI	0718.6	0721.8	III	GG	1	40	65	
0819	1326	ONDR								
0835	1435	BLEN								
		IZMI	0856.0	0859.2	III	G	2	25X	65	
		IZMI	0919.1	0920.9	III	GG	1	40	65	
		IZMI	1017.6	1018.7	III	GG	2	25X	270X	
		IZMI	1152.0	1152.5	III	G	2	25X	270X	
		SVTO	1152.0	1152.0	III		1	32	180	
		SVTO	1229.0	1233.0	III		1	31	166	
		SVTO	1308.0	1458.0	III	N	1	25U	123U	
		CULG	2000.0E	2400.0D	I	S,C	1	60	180	

SOLAR RADIO EMISSION
Spectral Observations

DECEMBER 2003

Day	OBSERVATION Start (UT)	OBSERVATION End (UT)	Sta	EVENT Start (UT)	EVENT End (UT)	EVENT Spectral Class	EVENT Event Remarks	Int (1-3)	FREQUENCY Lower (MHz)	FREQUENCY Upper (MHz)	Remarks
05	2000	2400	CULG	2000.0E	2224.0	III	S	1	20	180	
	2132	2400	HIRA								
06	0000	0800	CULG	0000.0E	0600.0	I	S,C	2	60	180	
			CULG	0009.0	0016.0	III	G	1	80	1000	
	0000	0723	HIRA	0011.5	0012.0	III	B	1	80	200	
			HIRA	0015.5	0016.0	III	B	1	210	700	
			CULG	0030.0	0411.0	III	S	1	20	180	
			LEAR	0122.0	1016.0	CONT		1	25	180	
			CULG	0216.0	0335.0	CONT		1	350	800	
	0655	1200	IZMI	0655.0E	0732.0U	I	N	1	120	190	
			CULG	0727.0	0728.0	III	G	1	27	80	
	0821	1325	ONDR								
			IZMI	0831.4	0831.5	III	B	1	45	65	
	0840	1435	BLEN								
			SGMR	1416.0	1416.0	III		1	30	55	
			SVTO	1416.0	1417.0	III		1	25	46	
	2000	2400	CULG								
	2134	2315	HIRA								
07			LEAR	0024.0	0025.0	III		2	25	151	
	0000	0800	CULG	0025.0	0025.0	III	G	3	18X	180	
			CULG	0328.0	0328.0	III	G	1	100	200	
			LEAR	0340.0	0340.0	III		1	25	53	
			CULG	0440.0	0441.0	III	G	1	18	180	
	0822	1324	ONDR								
	0840	1435	BLEN								
			IZMI	1022.8	1022.9	III	B	2	45	90	
			IZMI	1059.3	1100.3	III	G,C	2	45	95	
	2000	2400	CULG								
08	0000	0800	CULG	0103.0	0104.0	III	G	1	50	200	
	0047	0723	HIRA	0103.0	0103.5	III	B	1	50	140	
			CULG	0235.0	0235.0	III	B	2	23	80	
			CULG	0503.0	0503.0	III	G	1	20	85	
	0700	0910	IZMI								
	0824	1323	ONDR								
	0840	1435	BLEN								
	1150	1200	IZMI								
	2000	2400	CULG								
	2135	2400	HIRA								
09	0000	0800	CULG	0110.0	0111.0	III	G	1	27	180	
	0000	0723	HIRA	0118.5	0119.0	III	B	1	110	180	
			CULG	0119.0	0119.0	III	B	1	100	200	
			HIRA	0311.5	0312.0	III	B	1	40	200	
			CULG	0312.0	0312.0	III	B	1	40	160	
			CULG	0401.0	0402.0	III	G	1	20	120	
			CULG	0431.0	0433.0	III	G	1	40	180	
			HIRA	0431.0	0433.5	III	G	1	50	500	
	0650	1200	IZMI	0711.5	0711.9	III	G,U	2	115	270X	
			CULG	0712.0	0712.0	III	G	1	120	200	
	0825	1323	ONDR								
	0840	1435	BLEN								
			IZMI	0958.5	0958.7	III	G,HARM	1	55	215	
			IZMI	1022.9	1025.5	III	GG	2	55	270X	
			IZMI	1110.8	1112.1	III	GG	2	40	175	
			SVTO	1111.0	1113.0	III		1	36	180	
			IZMI	1112.3	1113.1	III	GG,C	2	55	270X	
			IZMI	1115.7	1115.7	III	B	1	50U	65	
			SGMR	1512.0	1513.0	III		1	30	70	
	2000	2400	CULG	2019.0	2020.0	III	G	1	100	180	
	2136	2400	HIRA								
10	0000	0723	HIRA	0049.0	0049.5	III	B	1	110	140	
	0000	0800	CULG	0049.0	0049.0	III	B	1	100	200	
			LEAR	0140.0	0141.0	III		1	36	180	
			HIRA	0140.5	0142.0	III	G	1	40	230	
			CULG	0141.0	0142.0	III	G	2	18	180	

SOLAR RADIO EMISSION
Spectral Observations

DECEMBER 2003

Day	OBSERVATION Start (UT)	OBSERVATION End (UT)	Sta	EVENT Start (UT)	EVENT End (UT)	Spectral Class	Event Remarks	Int (1-3)	FREQUENCY Lower (MHz)	FREQUENCY Upper (MHz)	Remarks
10	0701	1200	IZMI	0743.1	0743.2	III	G	1	150	190	
	0827	1322	ONDR								
	0840	1435	BLEN								
			IZMI	0844.8	0844.9	III	G	1	125	160	
			IZMI	0943.4	0944.0	III	G	1	130	170	
			SVTO	1119.0	1119.0	III		1	78	180	
			IZMI	1119.5	1119.9	III	G,C	2	80	240	
			SGMR	1343.0	1344.0	III		1	30	80	
			SVTO	1343.0	1344.0	III		2	25	174	
			HOLL	1455.0	1504.0	III		1	25	141	
			SGMR	1455.0	1504.0	III		1	30	50	
			HOLL	1523.0	1524.0	III		1	25	47	
	2000	2400	CULG								
	2137	2400	HIRA								
11	0000	0723	HIRA								
	0000	0800	CULG								
	0701	1200	IZMI								
	0828	1322	ONDR								
	0840	1435	BLEN								
	2000	2400	CULG								
	2138	2400	HIRA								
12	0000	0723	HIRA								
	0000	0800	CULG								
	0705	1200	IZMI								
	0829	1322	ONDR								
	0850	1435	BLEN								
	2000	2400	CULG								
13	0548	0724	HIRA								
	0000	0800	CULG	0617.0	0705.0	I	S	1	130	180	
	0700	1200	IZMI								
	0830	1321	ONDR								
	0850	1435	BLEN	1344.5	1351.3	DCIM	C	1	1000	4000X	
	2000	2400	CULG	2253.0	2256.0	III	G	2	18	250	
			HOLL	2255.0	2256.0	III		1	25	180	
			LEAR	2255.0	2256.0	III		1	25	180	
			PALE	2255.0	2256.0	III		1	25	180	
	2139	2400	HIRA	2255.0	2256.0	III	B	2	40	230	
14	0000	0724	HIRA								
	0000	0800	CULG	0023.0	0041.0	III	GG	1	40U	180	
			SVTO	0756.0	0756.0	III		1	26	44	
	0700	1200	IZMI	0756.3	0756.9	III	G	1	140	175	
			IZMI	0757.0U	0935.0U	I	N	2	175	270X	
	0832	1321	ONDR								
	0850	1435	BLEN								
			IZMI	0910.6	0911.6	III	GG	1	120	270	
	2000	2400	CULG								
	2140	2400	HIRA								
15			LEAR	0410.0	0410.0	III		1	101	160	
	0000	0725	HIRA	0410.0	0410.5	III	B	2	100	310	
	0000	0800	CULG	0410.0	0410.0	III	B	2	70U	180	
	0832	1321	ONDR								
	0850	1435	BLEN								
	0655	1200	IZMI	0918.0	1200.0D	I	N	2	60	270X	
			IZMI	1058.0U	1200.0D	III	N	1	45U	95U	
			IZMI	1159.7	1159.8	III	G	2	55	140	
	2000	2400	CULG								
	2140	2400	HIRA								
16	0000	0725	HIRA								
	0000	0800	CULG	0216.0	0216.0	III	G	3	20	90	
	0655	1200	IZMI								
	0822	1321	ONDR								
	0850	1435	BLEN								
	2000	2400	CULG	2034.0	2034.0	III	B	1	23	140	

SOLAR RADIO EMISSION
Spectral Observations

DECEMBER 2003

OBSERVATION Start (UT)	End (UT)	Sta	EVENT Start (UT)	End (UT)	Spectral Class	Event Remarks	Int (1-3)	FREQUENCY Lower (MHz)	Upper (MHz)	Remarks
16		CULG	2123.0	2124.0	III	G	1	23	180	
2141	2400	HIRA								
		CULG	2153.0	2153.0	III	B	1	18	140	
17		LEAR	0305.0	0307.0	III		1	25	180	
0000	0800	CULG	0305.0	0307.0	III	G	2	18X	180	
0000	0725	HIRA	0305.5	0307.0	III	G	1	25X	210	
0700	1200	IZMI								
0835	1321	ONDR								
0850	1435	BLEN								
2000	2400	CULG								
2142	2400	HIRA								
18	0000	0725	HIRA							
0000	0800	CULG								
0650	1200	IZMI	0809.3	0809.4	III	B	2	220	270X	
0850	1435	BLEN								
		ONDR	0922.2	0925.0	DCIM	G	2	800X	2000X	
0836	1321	ONDR	0922.3	0925.4	DCIM	G,W	1	2000X	4500X	
2000	2400	CULG								
2142	2400	HIRA								
19	0000	0726	HIRA							
0000	0800	CULG	0505.0	0506.0	III	G	1	20	80	
		CULG	0645.0	0645.0	III	B	1	20	90	
0656	1200	IZMI	0656.0E	1030.0U	I	N	1	110	270X	
0836	1321	ONDR								
2000	2400	CULG								
2143	2400	HIRA								
20		LEAR	0538.0	0538.0	III		1	25	99	
0000	0726	HIRA	0538.0	0538.5	III	B	1	30	100	
0000	0800	CULG	0538.0	0538.0	III	B	1	30	120	
		HIRA	0543.5	0544.0	III	B	1	70	400	
0837	1322	ONDR								
0850	1435	BLEN								
0700	1200	IZMI	0915.0U	1200.0D	I	N	1	110	270X	
		SGMR	1716.0	1716.0	III		2	30	80	
2000	2400	CULG								
2143	2400	HIRA								
21	0000	0727	HIRA							
0000	0800	CULG								
0655	1200	IZMI	0715.0	0810.0U	I	N	1	180	270X	
0838	1322	ONDR								
0900	1435	BLEN	1449.9	1455.3	III	GG,RS,U	2	190	670	
2000	2400	CULG								
2144	2400	HIRA								
22	0000	0727	HIRA							
0000	0800	CULG								
0700	1200	IZMI	0700.0E	1200.0D	I	N	1	120	270X	
0838	1323	ONDR								
2000	2400	CULG	2015.0	2400.0D	I	S	1	100	180	
2145	2400	HIRA								
		LEAR	2215.0	0700.0	CONT		1	111	180	
23	0000	0727	HIRA							
0000	0800	CULG	0000.0E	0554.0	I	S	1	100	180	
0700	1200	IZMI	0700.0E	1200.0D	I	S	2	120	270X	
		IZMI	1002.8	1002.8	III	B	1	40	65	
0900	1435	BLEN	1017.9	1020.5	DCIM	C	2	1000	4000X	
0839	1323	ONDR	1018.1	1019.0	DCIM	G	1	2137	4500X	
		ONDR	1018.3	1019.4	DCIM	G,W	1	1386	2000X	
		IZMI	1025.4	1026.8	III	GG	2	60	270X	
		PALE	1921.0	1921.0	III		1	25	48	
2000	2400	CULG	2000.0E	2400.0D	I	S,C	1	60	180	
		PALE	2036.0	2040.0	III		1	25	60	
		CULG	2037.0	2037.0	III	B	3	18	150	

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DECEMBER 2003

Day	OBSERVATION Start (UT)	End (UT)	Sta	EVENT Start (UT)	End (UT)	Spectral Class	Event Remarks	Int (1-3)	FREQUENCY Lower (MHz)	Upper (MHz)	Remarks
23			HOLL	2037.0	2037.0	III		1	25	153	
	2145	2400	HIRA								
24	0000	0728	HIRA								
	0000	0800	CULG	0000.0E	0800.0D	I	S	1	60	180	
			CULG	0615.0	0623.0	III	GG	1	20	100	
			IZMI	0700.0E	1200.0D	I	S	2	60	270X	
	0839	1324	ONDR								
	0900	1435	BLEN								
	2000	2400	CULG	2000.0E	2400.0	I	S,C	1	60	160	
			CULG	2055.0	2055.0	III	B	1	27	90	
			CULG	2159.0	2159.0	III	B	1	20	100	
			LEAR	2230.0	1027.0	CONT		1	25	100	
			CULG	2247.0	2247.0	III	B	1	27	100	
			CULG	2340.0	2340.0	III	B	3	18	150	
			LEAR	2340.0	2340.0	III		1	25	127	
	2145	2400	HIRA	2340.5	2341.0	III	B	1	25X	150	
25	0000	0800	CULG	0012.0	0019.0	III	GG	1	25	90	
			CULG	0024.0	0029.0	III	G	2	25	180	
			CULG	0135.0	0203.0	III	GG	3	18X	180	
			CULG	0217.0	0221.0	III	G	3	18X	180	
			LEAR	0217.0	0220.0	III		2	25	180	
	0000	0729	HIRA	0218.0	0219.5	III	G	1	25X	140	
			CULG	0248.0	0248.0	III	B	1	23	90	
			CULG	0305.0	0305.0	III	B	1	20	160	
			LEAR	0326.0	0327.0	III		3	25	180	
			HIRA	0326.5	0327.5	III	G	1	25X	200	
			CULG	0327.0	0327.0	III	G	3	20	180	
			CULG	0353.0	0442.0	I	S,C	1	60	90	
			IZMI	0700.0E	1200.0D	I	N	1	110	270X	
			IZMI	0714.3	0714.3	III	G	1	120	210	
	0900	1435	BLEN	0832.9	0905.5	DCIM	C,P	2	130	4000X	
			LEAR	0842.0	0842.0	III		1	25	180	
			SVTO	0842.0	0842.0	III		1	25	180	
			IZMI	0842.1	0842.4	III	G,C	2	25X	260	
			IZMI	1126.0	1200.0D	III	N	1	45U	95U	
			ONDR	1144.4	1145.5	DCIM	G,W	1	800X	2000X	
	0839	1325	ONDR	1144.4	1149.0	DCIM	G	1	2000X	4295	
	2000	2400	CULG	2000.0E	2020.0	III	N	1	18	180	
	2146	2400	HIRA								
26	0000	0730	HIRA								
	0000	0800	CULG	0041.0	0049.0	III	G	1	27	90	
			CULG	0126.0	0126.0	III	B	1	18	65	
	0700	1200	IZMI	0700.0E	1200.0D	I	N	1	130	260	
	0900	1440	BLEN								
			IZMI	1018.9	1019.1	III	B	1	50	90	
	0840	1325	ONDR	1025.1	1109.2	DCIM	G	1	2342	4500X	
	2000	2400	CULG								
	2146	2400	HIRA								
27	0000	0800	CULG	0050.0	0058.0	III	G	1	18	90	
			LEAR	0055.0	0056.0	III		1	25	97	
	0000	0730	HIRA	0056.0	0056.5	III	B	1	25X	80	
			LEAR	0109.0	0110.0	III		1	25	135	
			HIRA	0109.5	0110.5	III	B	2	30	70	
			CULG	0110.0	0113.0	III	G	3	18	140	
			HIRA	0112.0	0112.5	III	B	1	30	70	
			LEAR	0112.0	0112.0	III		1	25	67	
			LEAR	0119.0	0119.0	III		1	25	58	
			CULG	0145.0	0204.0	III	G	1	23	100	
			LEAR	0153.0	0153.0	III		1	25	94	
			LEAR	0302.0	0303.0	III		1	25	62	
			LEAR	0338.0	0949.0	III	N	1	25	103	
			CULG	0339.0	0342.0	III	G	3	20	130	
			CULG	0355.0	0355.0	III	B	1	30	130	
			CULG	0412.0	0455.0	III	N	1	27	90	
			CULG	0620.0	0620.0	III	G	1	30	90	

SOLAR RADIO EMISSION
Spectral Observations

DECEMBER 2003

Day	OBSERVATION Start (UT)	End (UT)	Sta	EVENT Start (UT)	End (UT)	Spectral Class	Event Remarks	Int (1-3)	FREQUENCY Lower (MHz)	Upper (MHz)	Remarks
27			CULG	0647.0	0647.0	III	B	3	18	150	
	0700	0932	IZMI	0705.5	0706.3	III	G	2	50	160	
			CULG	0706.0	0707.0	III	G	2	20	150	
			IZMI	0707.1	0707.7	III	G	2	50	155	
			IZMI	0716.9	0717.4	III	G	2	25X	160	
			CULG	0717.0	0717.0	III	B	3	18	100	
			IZMI	0723.5	0723.5	III	B	1	45	70	
			IZMI	0732.8	0732.8	III	B	2	240	270X	
			IZMI	0807.6	0812.1	III	G	2	45	70	
			IZMI	0824.1	0824.1	III	B	2	50	65	
			IZMI	0830.7	0834.0	III	G	1	45	85	
	0840	1326	ONDR								
			IZMI	0854.1	0857.3	III	G	1	45	70	
	0900	1440	BLEN								
			IZMI	0908.7	0908.8	III	B	1	50	65	
			IZMI	0924.0	0926.2	III	GG	1	45	85	
			SVTO	0929.0	0931.0	III		1	25	82	
			IZMI	0929.3	0931.3	III	GG	2	30	95	
	2000	2400	CULG								
	2147	2400	HIRA								
28	0000	0731	HIRA								
	0000	0800	CULG								
	0840	1327	ONDR								
	0703	1200	IZMI	0856.6	0856.7	III	B	1	50	85	
	0900	1440	BLEN								
			IZMI	1117.7	1123.5	III	G	1	50	175	
	2000	2400	CULG								
	2147	2400	HIRA								
29	0000	0732	HIRA								
	0000	0800	CULG								
	0702	1200	IZMI								
	0839	1328	ONDR								
	0900	1440	BLEN								
	2000	2400	CULG	2024.0	2031.0	III	G	2	23	140	
	2148	2400	HIRA								
			CULG	2355.0	2355.0	III	B	1	80	180	
30	0000	0732	HIRA								
	0000	0800	CULG	0544.0	0800.0D	I	S	1	100	180	
	0658	1200	IZMI	0658.0E	1200.0D	I	S	2	110	270X	
			LEAR	0723.0	0725.0	III		1	25	180	
			SVTO	0723.0	0725.0	III		1	28U	125U	
			IZMI	0723.8	0725.0	III	GG	2	30	180	
			CULG	0724.0	0725.0	III	G	3	18	180	
			LEAR	0741.0	0741.0	III		1	25	180	
			SVTO	0741.0	0741.0	III		1	28U	147U	
			IZMI	0741.3	0741.7	I	G,C,HARM	2	30	180	
			CULG	0742.0	0742.0	III	B	3	18	180	
			IZMI	0809.5	0809.6	III	G	1	50	85	
			IZMI	0820.5	0820.6	III	B	1	45	85	
	0840	1329	ONDR								
	0900	1440	BLEN								
			IZMI	0901.8	0905.5	III	GG	2	25X	170	
			LEAR	0902.0	0905.0	III		1	25	180	
			SVTO	0902.0	0905.0	III		1	25U	142U	
			IZMI	0937.5	0938.9	III	G	2	45	175	
			SVTO	0938.0	0939.0	III		1	28U	142U	
			IZMI	0947.0	0947.1	III	B	1	45	65	
			SVTO	1034.0	1034.0	III		1	26U	83U	
			IZMI	1034.1	1034.8	III	G	2	30	175	
			IZMI	1059.1	1059.6	III	G	1	180	270X	
			SVTO	1149.0	1152.0	III		1	25	151	
			IZMI	1149.8	1151.4	III	GG	2	30	180	
			SVTO	1159.0	1200.0	III		1	25	120	
			IZMI	1159.7	1159.9	III	G	2	50	175	
			SVTO	1304.0	1505.0	CONT		1	25	180	
			SVTO	1335.0	1335.0	III		1	26	48	

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

DECEMBER 2003

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			HOLL	1601.0	2346.0	CONT		1	105U	180U	
			HOLL	1728.0	1729.0	III		1	25	141	
	2000	2400	CULG	2000.0E	2057.0	III	S,C	1	18	180	
			CULG	2118.0	2119.0	III	G	1	50U	100	
	2148	2400	HIRA								
			LEAR	2308.0	1030.0	III	N	1	25	180	
			CULG	2329.0	2329.0	III	B	2	23	90	
31	0000	0733	HIRA								
	0000	0800	CULG	0029.0	0030.0	III	G	1	20	70	
	0700	1200	IZMI	0700.0E	1200.0D	I	N	2	50	270X	
	0839	1331	ONDR								
	0900	1440	BLEN								
			IZMI	1000.2	1000.5	III	G	2	80	270X	
			HOLL	1822.0	1823.0	III		2	25	179	
			PALE	1822.0	1823.0	III		1	25	180	
			SGMR	1822.0	1823.0	III		3	30	80	
			HOLL	1928.0	1929.0	III		1	25	141	
	2000	2400	CULG	2039.0	2039.0	III	B	1	20	120	
			CULG	2114.0	2400.0D	I	S	1	100	180	
			CULG	2140.0	2400.0D	III	S,C	2	18	260	
			PALE	2251.0	2251.0	III		1	25	44	
	2148	2400	HIRA	2251.0	2251.5	III	B	1	30	60	
			PALE	2338.0	2338.0	III		1	25	48	
			HIRA	2338.5	2339.0	III	B	1	25X	50	

Event Remarks:

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

Frequency qualifiers:

X = Extends beyond instrument range U = Uncertain frequency

Remarks:

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

Stations Reporting:

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

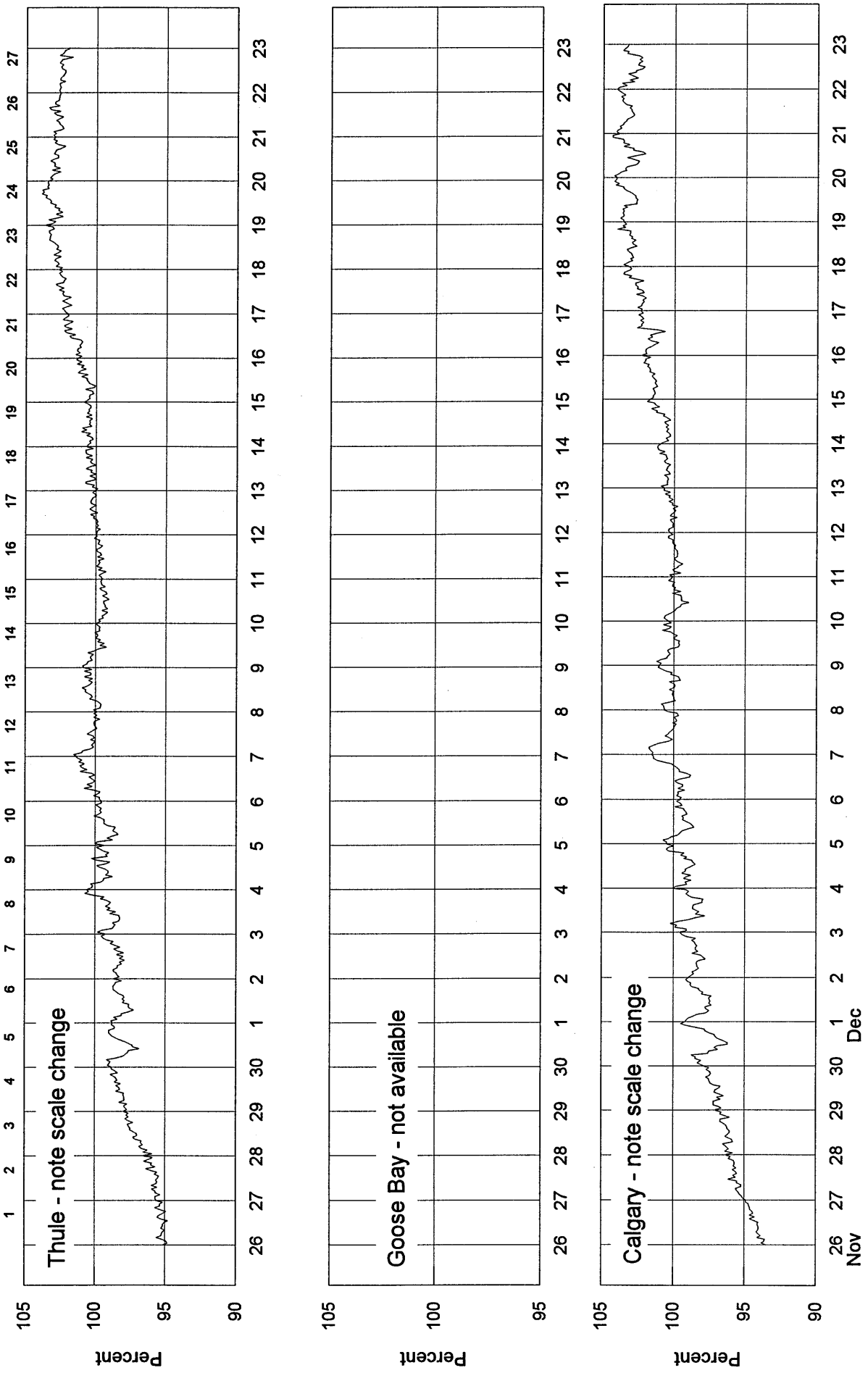
NOTE 1: Beginning June 26, 2001, the Bleien observatory changed to higher frequencies (1-4Ghz).

COSMIC RAY INDICES
(Neutron Monitor)
December 2003

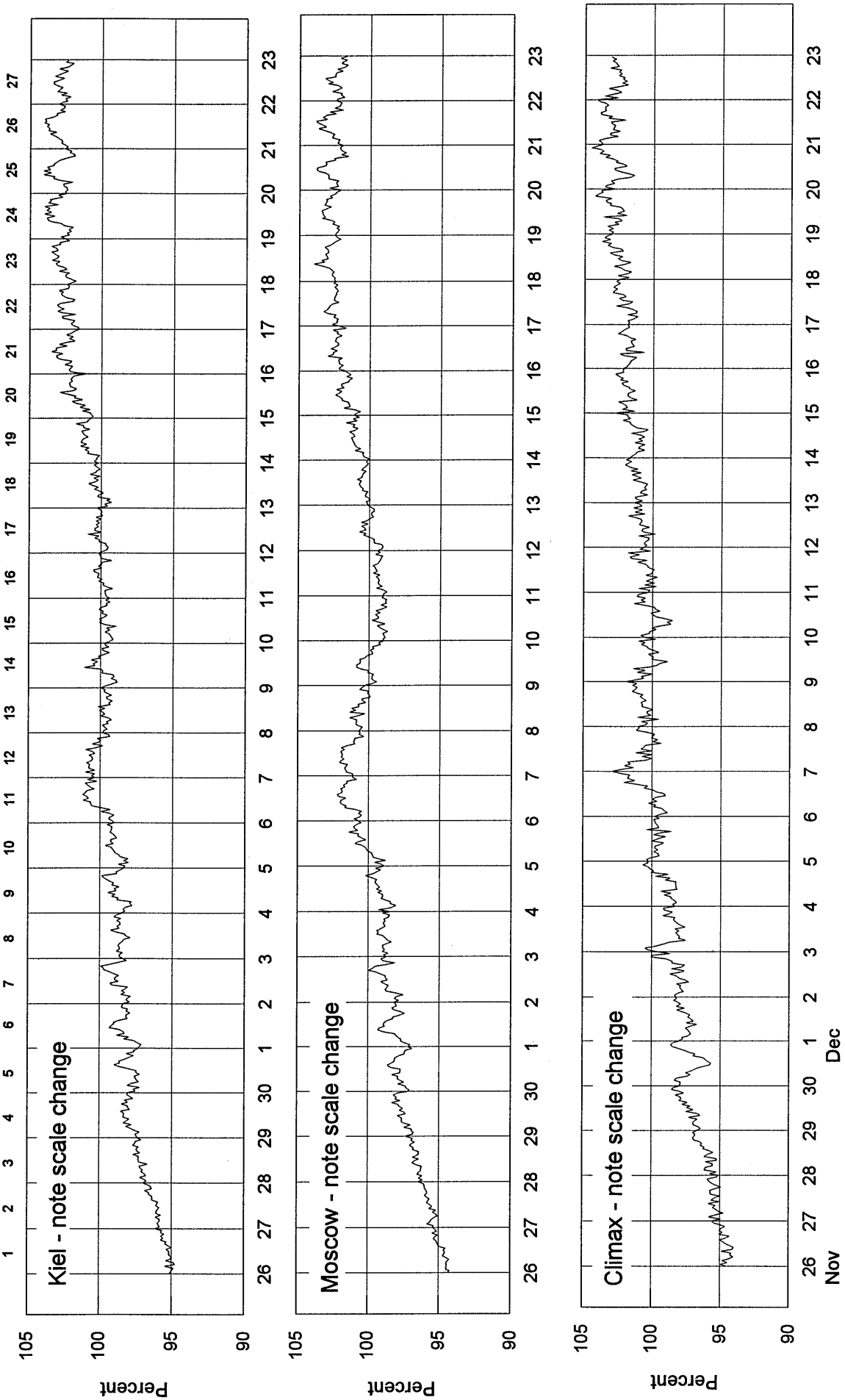
Day	THULE Average (cts/h)/100	CALGARY Average (cts/h)/300	KIEL Average (cts/h)/100	MOSCOW Average (cts/h)/64	CLIMAX Average (cts/h)/100	BEIJING Average (cts/h)/256	HALEAKALA Average (cts/h)/1000
1	3845.1	3364.2	5424	7950	3576.1	1942.6	3409.6
2	3858.6	3374.8	5451	7995	3601.2	1946.6	3413.4
3	3881.5	3387.0	5445	8008	3615.5	1949.3	3412.2
4	3898.7	3403.7	5456	8029	3629.0	1947.0	3420.2
5	3889.7	3410.2	5462	8115	3653.2	1966.7	3430.2
6	3931.5	3420.5	5537	8213	3674.8	1982.5	3447.1
7	3928.3	3443.5	5545	8214	3691.8	1981.1	3440.3
8	3927.6	3434.3	5501	8148	3690.7	1961.0	3430.8
9	3918.0	3436.7	5510	8100	3678.5	1952.6	3414.4
10	3895.0	3424.3	5501	8027	3667.2	1948.7	3408.2
11	3905.5	3424.2	5516	8043	3683.9	1950.8	3419.0
12	3919.7	3433.2	5527	8091	3693.8	1946.2	3426.0
13	3930.7	3448.2	5531	8129	3707.0	1944.5	3431.1
14	3937.0	3453.8	5576	8174	3710.7	1948.6	3438.9
15	3944.9	3481.2	5614	8233	3739.2	1955.9	3446.7
16	3980.6	3491.5	5656	8284	3730.7	1965.5	3459.9
17	4007.7	3516.2	5655	8306	3741.6	1967.4	3463.2
18	4032.2	3535.0	5676	8331	3760.9	1981.7	3481.6
19	4042.7	3544.0	5695	8327	3776.5	1984.3	3496.5
20	4032.0	3540.0	5682	8314	3773.3	1975.5	3486.0
21	4026.5	3546.5	5698	8323	3785.8	1975.1	3467.6
22	4013.2	3529.0	5674	8285	3764.1	1965.6	3462.9
23	3995.6	3517.0	5645	8248	3747.1	1960.8	3464.7
24	4002.3	3519.2	5634	8283	3762.4	1971.0	3479.7
25	4027.6	3544.0	5650	8290	3783.7	1984.7	3496.3
26	4041.1	3570.8	5681	8371	3810.4	1993.5	3511.7
27	4058.7	3581.7	5707	8374	3817.9	1987.4	3505.5
28	4038.1	3566.8	5689	8327	3801.2	1985.8	3483.4
29	4028.6	3557.5	5671	8290	3777.4	1986.0	3458.7
30	4048.6	3549.3	5702	8303	3811.5	2004.9	3470.9
31	4063.3	3592.5	5736	8359	3826.0	2013.5	3478.8
Mean	3969.0	3485.2	5595.1	8209.2	3725.5	1968.6	3453.6

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

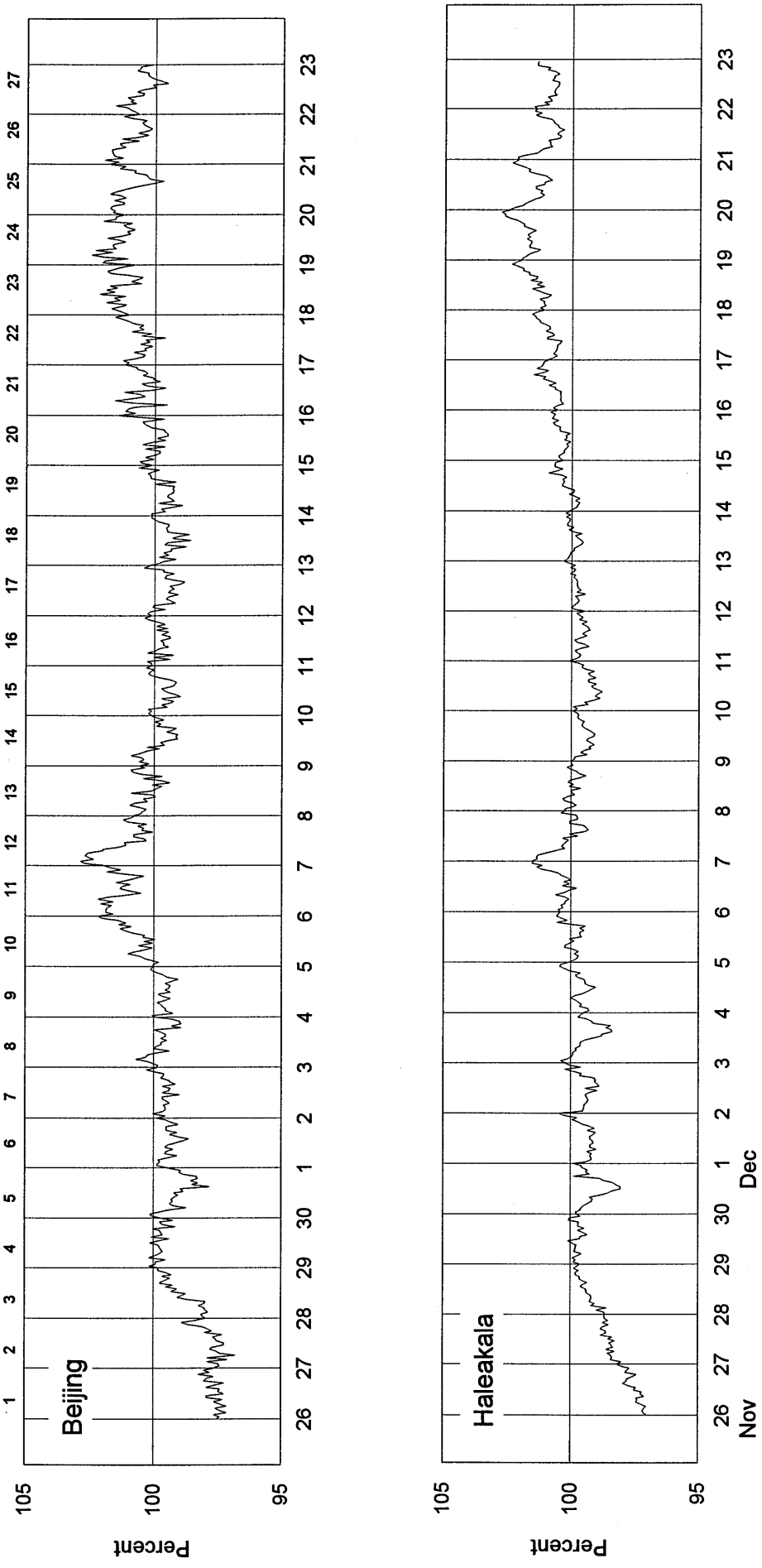
COSMIC RAY INDICES
(Neutron Monitor)
Bartels Rotation 2325 - Beginning 26 Nov 2003



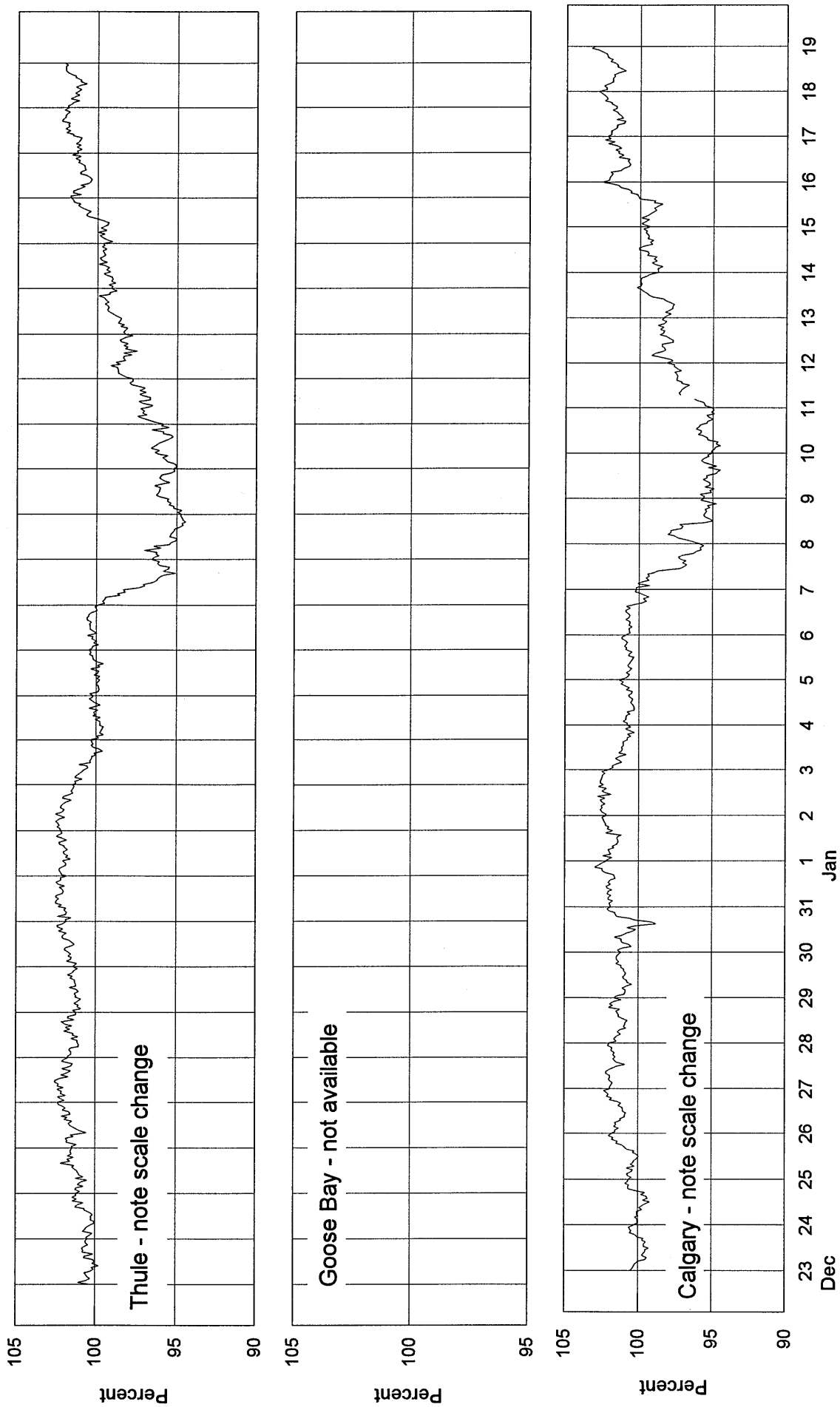
COSMIC RAY INDICES
(Neutron Monitor)
Bartels Rotation 2325 - Beginning 26 Nov 2003



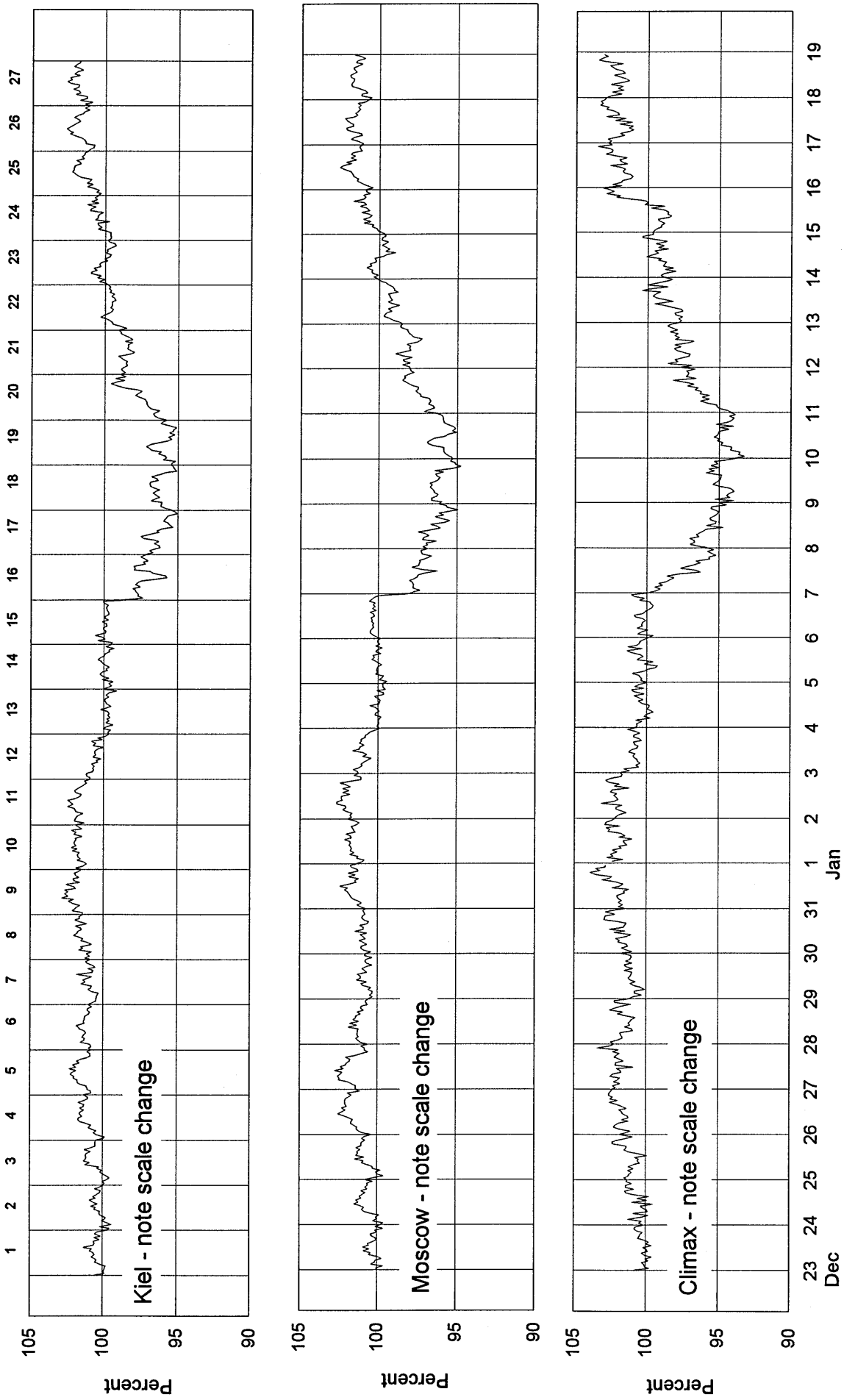
COSMIC RAY INDICES
(Neutron Monitor)
Bartels Rotation 2325 - Beginning 26 Nov 2003



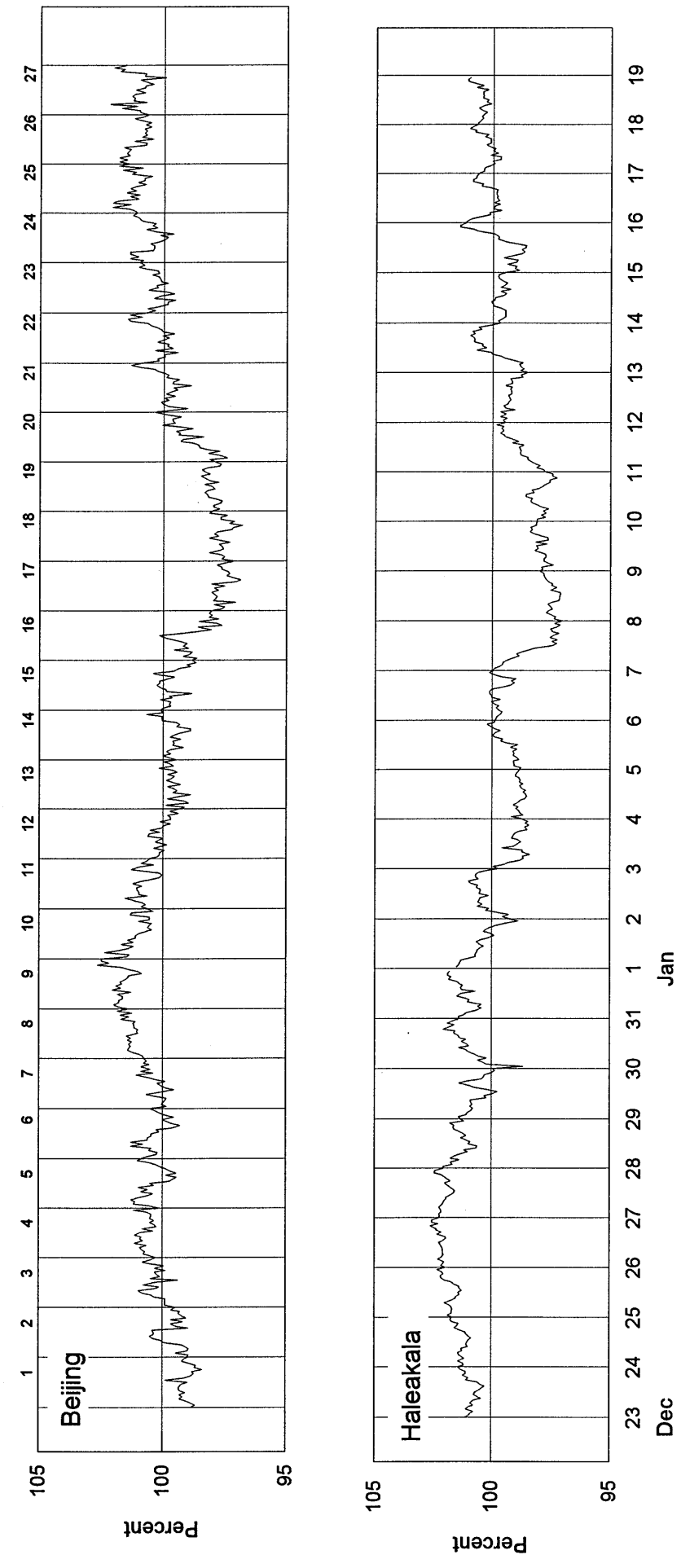
COSMIC RAY INDICES
(Neutron Monitor)
Bartels Rotation 2326 - Beginning 23 Dec 2003



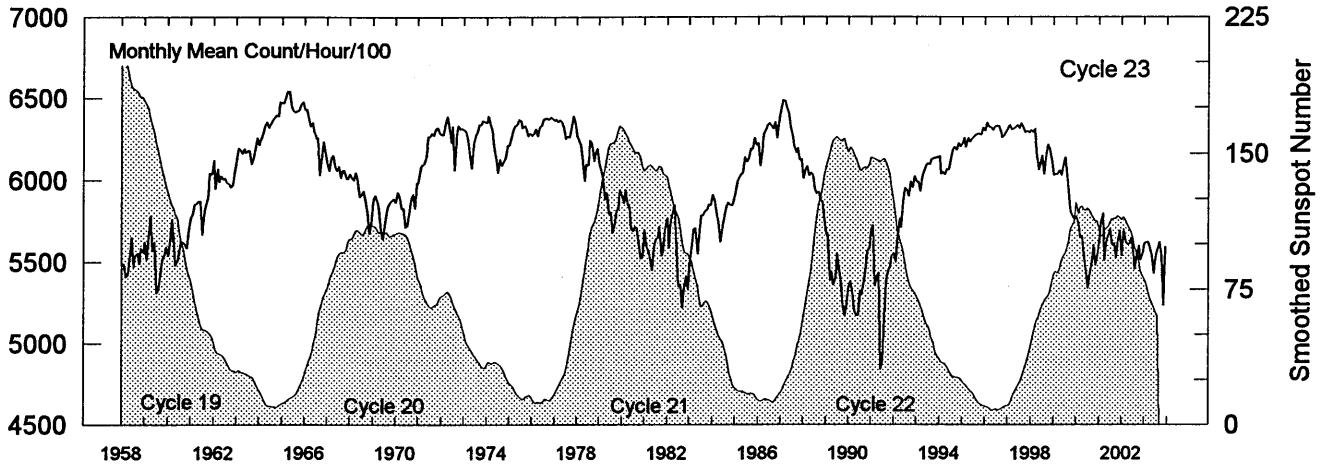
COSMIC RAY INDICES
(Neutron Monitor)
Bartels Rotation 2326 - Beginning 23 Dec 2003



COSMIC RAY INDICES
(Neutron Monitor)
Bartels Rotation 2326 - Beginning 23 Dec 2003



Kiel Neutron Monitor Pressure-Corrected Values
Jan 1958 - Dec 2003



Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Mean
1958	5481	5488	5409	5417	5523	5651	5466	5538	5553	5485	5584	5561	5513
1959	5623	5515	5659	5783	5569	5625	5307	5328	5420	5518	5536	5593	5540
1960	5539	5628	5764	5596	5480	5509	5557	5628	5620	5607	5586	5692	5601
1961	5766	5793	5853	5856	5872	5874	5672	5804	5859	5898	6046	6041	5861
1962	6122	5949	6072	5989	6030	6010	6013	5991	5982	5963	5971	6052	6012
1963	6125	6197	6191	6163	6194	6168	6185	6182	6103	6133	6197	6260	6175
1964	6215	6253	6287	6331	6355	6321	6347	6366	6383	6399	6393	6475	6344
1965	6474	6469	6506	6542	6545	6451	6424	6420	6423	6424	6467	6475	6468
1966	6433	6432	6375	6330	6353	6300	6258	6258	6033	6168	6236	6172	6279
1967	6101	6061	6139	6155	6088	6061	6086	6016	6064	6063	6014	6009	6071
1968	6041	6011	6001	6048	5997	5901	5910	5937	5878	5805	5673	5739	5912
1969	5876	5909	5872	5845	5686	5640	5700	5812	5843	5864	5879	5887	5818
1970	5863	5928	5906	5830	5831	5716	5719	5803	5885	5915	5832	5985	5851
1971	5985	6081	6094	6103	6151	6268	6265	6286	6275	6314	6322	6288	6203
1972	6281	6278	6351	6387	6344	6232	6328	6065	6306	6334	6313	6318	6295
1973	6309	6298	6250	6155	6074	6220	6271	6296	6341	6340	6365	6360	6273
1974	6353	6391	6331	6308	6201	6139	6047	6132	6090	6113	6139	6215	6205
1975	6217	6267	6308	6334	6341	6370	6363	6320	6334	6313	6272	6286	6310
1976	6275	6281	6314	6269	6325	6331	6370	6380	6379	6375	6383	6380	6339
1977	6366	6371	6355	6366	6357	6322	6254	6272	6263	6317	6391	6355	6332
1978	6271	6242	6215	6113	5998	6101	6095	6241	6232	6117	6167	6193	6165
1979	6104	6063	6006	5883	5923	5794	5806	5682	5723	5820	5827	5942	5881
1980	5905	5862	5942	5850	5854	5702	5690	5717	5704	5611	5522	5528	5741
1981	5697	5600	5569	5517	5447	5600	5642	5650	5717	5539	5564	5702	5604
1982	5772	5586	5755	5799	5848	5582	5347	5362	5217	5349	5414	5329	5530
1983	5481	5606	5702	5711	5549	5659	5787	5785	5814	5820	5852	5849	5718
1984	5911	5880	5799	5740	5622	5706	5753	5837	5867	5856	5844	5864	5807
1985	5911	5986	6016	6038	6049	6142	6114	6135	6193	6192	6260	6220	6105
1986	6229	6093	6176	6280	6308	6336	6350	6331	6315	6356	6259	6359	6283
1987	6429	6489	6484	6443	6410	6319	6273	6217	6171	6198	6131	6131	6308
1988	6013	6064	6085	6030	6047	6033	5945	5922	5931	5880	5872	5761	5965
1989	5673	5678	5385	5441	5360	5407	5552	5460	5378	5228	5167	5241	5414
1990	5348	5381	5313	5197	5177	5173	5324	5297	5382	5471	5563	5584	5351
1991	5696	5726	5355	5405	5431	4841	4882	5162	5390	5443	5466	5540	5361
1992	5553	5500	5624	5766	5713	5869	5956	5942	5905	5994	5960	6024	5817
1993	5996	5992	5937	6026	6061	6094	6108	6099	6129	6137	6142	6141	6072
1994	6150	6042	6052	6067	6070	6068	6129	6189	6203	6183	6226	6209	6132
1995	6225	6260	6205	6260	6234	6250	6267	6279	6281	6285	6279	6319	6262
1996	6301	6354	6330	6324	6306	6325	6332	6331	6303	6262	6277	6294	6312
1997	6313	6337	6313	6314	6324	6336	6317	6347	6319	6295	6301	6289	6317
1998	6305	6293	6312	6177	6069	6101	6154	6042	6149	6220	6190	6124	6178
1999	6034	6040	6041	6062	6032	6100	6140	6023	5898	5805	5780	5765	5977
2000	5778	5729	5650	5661	5537	5441	5339	5425	5487	5602	5481	5542	5556
2001	5629	5736	5800	5509	5631	5678	5707	5602	5614	5527	5637	5694	5647
2002	5540	5701	5628	5613	5610	5651	5562	5455	5556	5599	5512	5558	5582
2003	5613	5624	5624	5588	5543	5428	5532	5582	5624	5544	5235	5595	5544

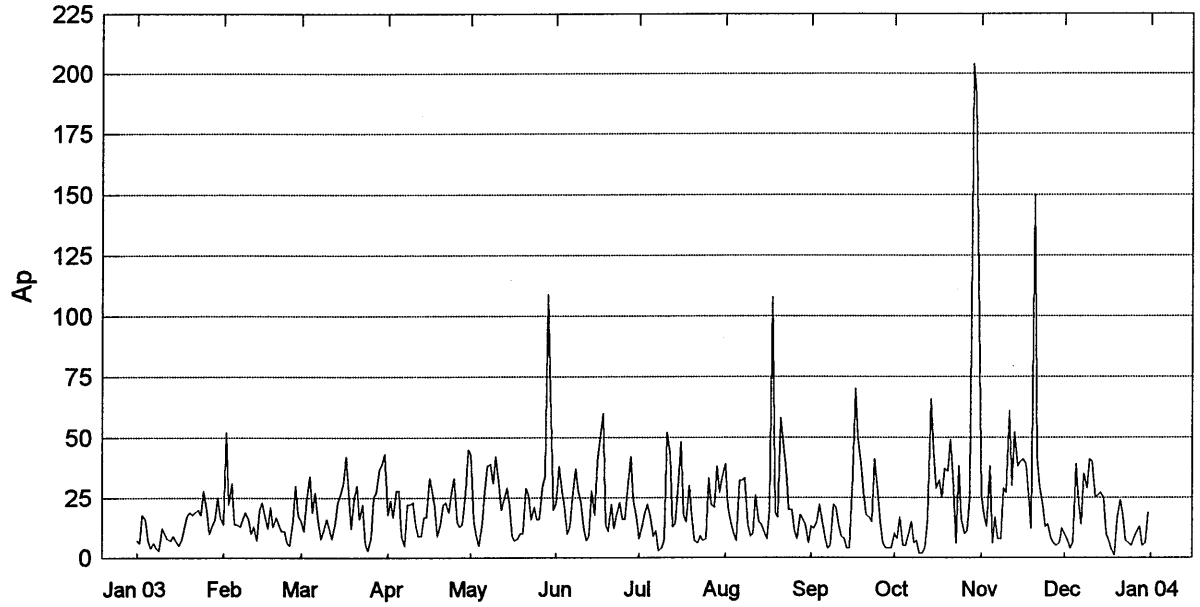
Multiply table entries by 100 to obtain hourly counting rate. Kiel, Germany: N54, E10, Alt= 54 m, Cutoff Rigidity= 2.32GV.

Geomagnetic Activity Indices
December 2003

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-	3+	2+	2+	1+	2-	1+	3	18	10	0.6	2o	3-	2-	2-	1+	2o	1+	3-	15	21	13	18	16	
2	Q9A	3-	2+	3-	2	1+	0+	0+	1	13-	7	0.3	2-	2o	2+	2-	2-	1-	0+	2-	11	12	16	20	8	K
3	Q2	1-	1-	1	1-	1-	2-	0+	1	7-	4	0.1	1o	1-	1+	1+	1o	2+	1-	1o	8	9	8	8	9	CC
4	Q7K	1+	0+	1-	1-	1	1+	2-	4-	11-	6	0.3	1+	0+	1o	1+	1o	1+	2+	3+	12	14	11	6	19	K
5	D3	3	5+	6-	4+	5	5-	4-	4+	36	39	1.4	3-	5-	5-	5-	5-	4+	4o	4-	62	53	78	65	67	
6		5-	4	4-	4-	3	4	3+	3	29+	23	1.1	4-	3o	3o	4-	3o	4-	3o	3-	34	44	34	44	33	
7		3	2	2+	1+	3	3+	4-	4-	22+	14	0.8	2+	1+	2o	2o	3+	3+	4-	3o	27	30	28	13	46	
8	D4	3-	5-	4	4+	5-	5-	5+	5-	35	35	1.4	2+	4-	4-	4+	5o	5-	5-	4+	59	68	62	49	80	
9	D5	3+	4	4+	4-	4+	4	4	5	33-	29	1.3	3-	3o	4o	4o	4+	4-	4-	5-	48	54	55	48	61	
10	D1	5+	4-	4	5-	4+	5+	5	5	37+	41	1.5	4+	3o	4-	4+	4o	5+	5-	4+	65	73	62	49	86	
11	D2	6-	5-	5	5	4+	4+	4-	4+	37	40	1.4	5-	4o	4+	4+	4o	4+	3+	4-	59	69	58	70	57	
12		4+	4-	4-	3+	4-	3+	4	5-	31-	25	1.2	3o	3o	3o	3o	3+	3o	3+	4o	37	52	34	35	51	
13		5-	4-	3	4	4+	4	4-	4	31+	26	1.2	4-	3o	3o	3+	4o	4-	3+	3+	42	52	39	33	58	
14		4	3+	3-	3+	4-	5	5-	4+	31	27	1.2	3+	3o	3-	3o	4-	4+	4+	4-	42	54	43	33	63	
15		5-	4+	4-	4-	5-	4-	3-	3	30+	25	1.2	4o	4-	3o	4-	4o	3+	3-	3-	38	42	34	35	40	
16		2+	3-	3-	3-	2-	3-	3-	2	19+	10	0.6	2o	2o	2+	3-	2-	3-	3-	2-	18	19	18	18	19	
17	Q10A	2+	3-	2	2-	2-	2	1	0+	14-	7	0.3	2-	2o	2-	2-	2-	2+	1+	1o	12	12	16	14	13	
18	Q3	1-	2	1	1	1-	1-	0	0	6	3	0.1	1-	1+	1o	1o	1-	1+	0+	0+	6	6	7	8	5	CC
19	Q1	0	0	1-	0+	1-	0	0	1-	2+	1	0.0	0+	1-	1o	0+	1o	0o	0+	1-	4	4	5	4	4	CK
20		0+	1+	1	3+	3	5-	3+	4	21	16	0.9	1-	1+	2-	4-	3o	4+	3+	4o	32	37	41	19	60	
21		4+	4+	4	3+	3	4	4-	3+	30	24	1.2	4-	3o	4-	3o	3o	4-	4-	3+	38	48	43	46	45	
22		3	3+	3+	3+	3+	4-	3	3+	26+	18	1.0	3-	3-	3o	3+	3o	4-	3o	3-	30	33	37	37	33	
23		2	2	1+	2	2+	2+	2+	2-	16	7	0.4	2+	1+	1+	2o	2o	2+	2+	1+	15	17	13	14	16	
24	Q8	1	2	1	1-	2-	3-	2-	2+	13	6	0.3	1o	2-	1+	1-	2-	3-	2+	2+	13	17	18	10	24	
25	Q4	2-	1-	1-	1	2+	2	0+	1+	10	5	0.2	2-	1-	1o	1+	3-	2o	1-	1+	11	9	14	10	13	C
26		3-	3-	1	1+	1+	2-	1+	3-	15-	8	0.4	2o	2o	2-	2+	1+	2o	2o	3-	15	15	14	16	13	
27		2-	3	1	3-	2-	2	2+	4+	19-	11	0.7	2-	3-	1o	3-	2-	2+	3-	4o	23	21	21	20	22	
28		4-	4-	2	2+	3-	2+	3+	2	22	13	0.8	3o	3o	2o	3-	3-	3-	3+	2o	24	26	24	28	22	
29	Q5K	1+	0	1	2-	2-	3	1	0+	10	5	0.2	1+	1-	1+	2o	2-	3-	1+	1-	11	11	12	9	14	KK
30	Q6K	1	1	1+	0+	1+	1+	3	2+	12-	6	0.3	1-	1o	1+	1-	1+	2o	3o	3-	13	16	14	9	22	
31		3	2	1+	2+	3	5-	4+	4	25-	19	1.0	2+	2-	2o	3+	3o	4+	4o	3+	34	42	35	20	58	
Mean											16	0.75									27.7	31.6	29.3		30.4	

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	2o	3-	2-	2-	1+	2-	1o	2+	13	2+	3-	2o	2o	2-	2o	1+	3-	16	139.3	98	85	88	
2	2-	2-	2o	1+	1+	1-	0+	1o	9	2-	2+	2+	2o	2-	1o	0+	2o	13	135.4	72	71	84	
3	1-	1-	1o	1-	1o	2o	1-	1o	7	1+	1o	2-	1+	1o	2+	1-	1+	10	120.3	78	72	68	
4	1-	0+	1-	1+	1o	1+	2-	3o	10	2-	0+	1+	1o	1o	1+	3-	3+	14	112.5	66	63	60	
5	2+	5-	5-	5-	5o	5-	4o	4-	66	3o	5-	4o	4+	5-	4o	4o	4o	57	108.5	59	55	55	
6	4-	3o	3+	3+	3o	4o	3+	3-	37	3+	3-	3o	4-	3-	3+	3o	3-	32	105.7	45	41	52	
7	2o	2-	2+	2o	3+	3+	4o	3+	28	2+	1+	2-	2-	3+	3+	4-	3o	24	89.3	32	36	34	
8	2+	4-	4-	4o	5-	5+	5o	4+	65	2+	4-	3o	4+	5o	4-	4+	4+	53	90.9	26	24	36	
9	3-	3o	4o	4+	5-	4o	4-	5-	53	3-	3o	4-	3+	4o	3+	3+	5-	43	89.4	16	22	35	
10	4+	3o	4o	5-	5-	6-	4+	5-	71	4+	3o	3+	4o	4-	5o	5-	4+	59	86.5	25	26	31	
11	5-	4+	5-	5-	4+	4+	3+	4-	65	5-	4-	4o	4o	4o	4o	4-	4-	53	83.4	25	29	28	
12	3+	3o	3+	3o	4-	3+	4-	4o	39	3o	3o	3o	3-	3+	3o	3o	4o	34	84.5	23	25	29	
13	4+	3+	3o	4-	4+	4+	4-	4-	48	3+	3o	3-	3+	4o	3+	3+	3+	36	85.0	28	34	30	
14	3+	3o	2+	3o	3+	5-	5-	4-	44	3+	3-	3-	3o	4o	4-	4+	4-	41	89.5	31	34	35	
15	4o	4o	3o	4o	4+	3+	2+	2+	42	4-	3o	3o	3+	4-	3o	3-	3-	35	97.7	30	32	44	
16	2-	2+	3-	3+	2o	3-	2+	2-	20	3-	2o	2o	2+	1+	2+	3-	2-	16	103.0	39	40	49	
17	2-	2+	2o	1+	2o	3-	1o	0+	12	2o	2o	1+	2-	2-	2+	2-	1+	13	113.8	68	67	61	
18	0+	1+	1o	1o	1-	1o	0o	0o	4	1+	2-	1o	1o	1-	1+	0+	1-	7	119.1	71	69	67	
19	0o	0+	1-	0+	1-	0+	0o	0+	3	1-	1o	1o	1-	1o	0o	1-	1-	5	118.6	71	72	66	
20	0+	1o	1o	3+	3o	4+	3+	3+	27	1+	2o	2o	4-	3o	5-	3+	5-	38	125.9	74	71	74	
21	4-	3+	3+	3o	3o	4-	4-	3o	36	3+	3o	4-	3-	3o	4-	4o	4-	39	129.1	60	70	77	
22	3-	3-	3-	3+	3o	4-	3o	3-	29	3-	3-	3o	3+	3-	3+	3+	3o	31	133.2	74	83	82	
23	2o	1+	1o	2o	2+	2+	3-	1o	14	3-	1+	2-	2o	2o	3-	2+	2-	16	137.4	76	70	86	
24	1-	1+	1o	0+	2-	3o	2o	2+	13	1+	2-	2o	1o	2o	2+	2+	2o	13	134.4	59	62	83	
25	1o	1-	1-	1+	3-	2o	1-	1o	10	2o	1-	1+	1+	3o	2o	1o	2-	13	134.6	44	50	83	
26	2o	2-	1+	2-	2-	2-	1+	2+	12	2+	2+	2-	3-	1+	2+	2+	3-	17	132.7	40	42	81	
27	2-	2+	1-	2+	2-	2o	2o	4o	19	2o	3o	1+	3o	2o	3-	3+	4o	26	122.4*	31	36	70	
28	3o	3o	2-	2+	2+	2+	3+	2-	22	3o	3o	2o	3o	3-	3-	4-	3-	27	115.1	34	35	62	
29	1o	0+	1o	2o	2-	3o	1+	0+	10	2o	1+	2-	2o	2-	3-	1+	1-	12	110.7	28	28	58	
30	1-	0+	1+	1-	1+	2-	3o	2o	11	1o	1+	1+	1o	2-	2+	3o	3+	16	104.2	17	17	51	
31	3-	1+	2-	3+	3o	5-	4o	3o	34	2o	2-	2+	3+	3o	4o	4o	4-	34	102.1	16	14	48	
Mean									28.2									27.2	111.4	47.0	47.6	58.3	

Daily Average Indices Ap
Jan 2003 - Dec 2003

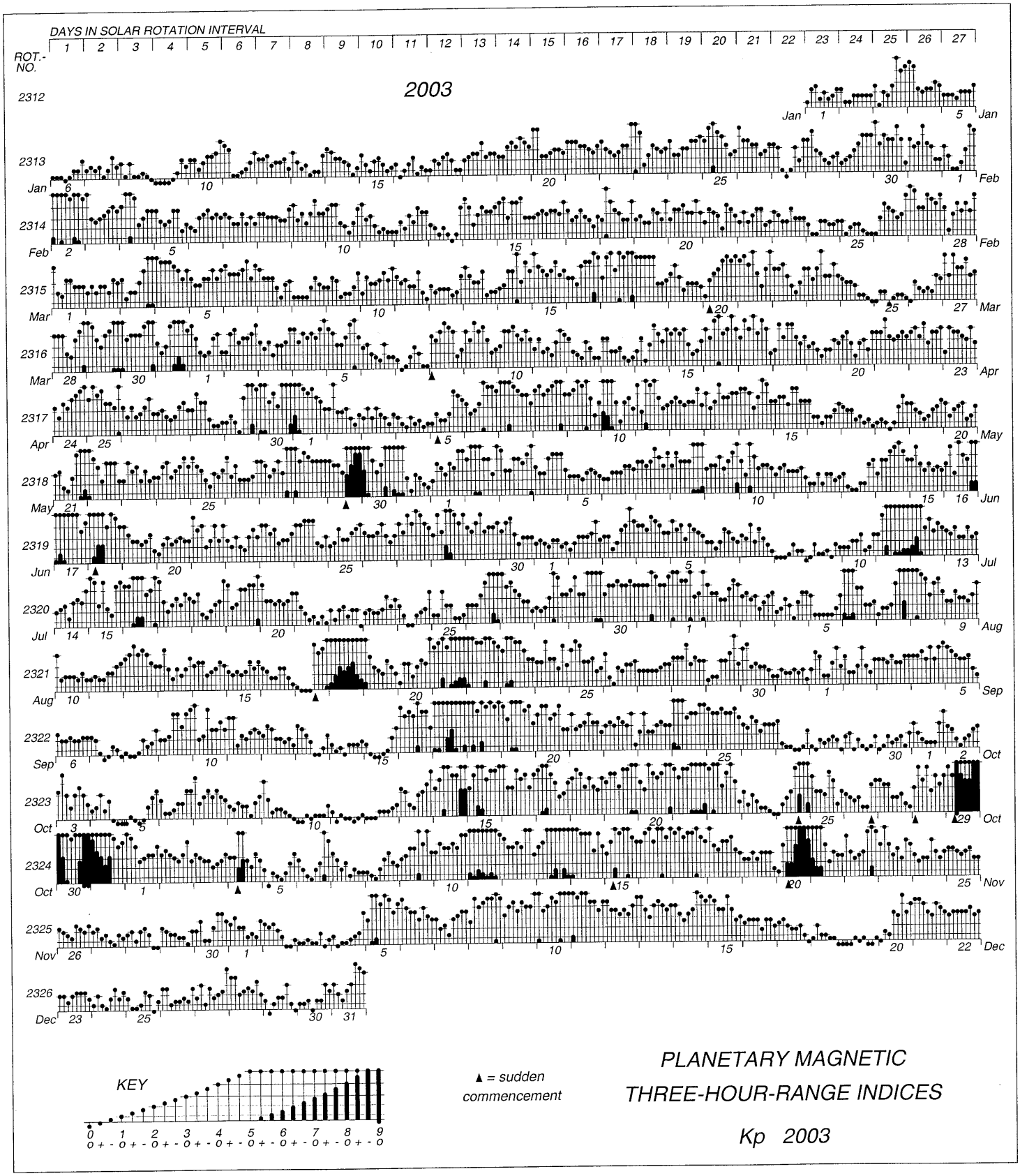


Day	Jan 03	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	7	14	15	18	43	22	8	39	13	10	26	10
2	6	52	11	24	15	38	12	21	12	8	18	7
3	18	22	24	17	9	29	19	14	15	17	13	4
4	16	31	34	28	5	22	22	10	22	5	38	6
5	7	14	19	28	14	10	18	7	16	5	6	39
6	4	14	27	9	28	13	9	32	8	9	17	23
7	6	13	15	5	38	25	11	32	4	15	8	14
8	4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

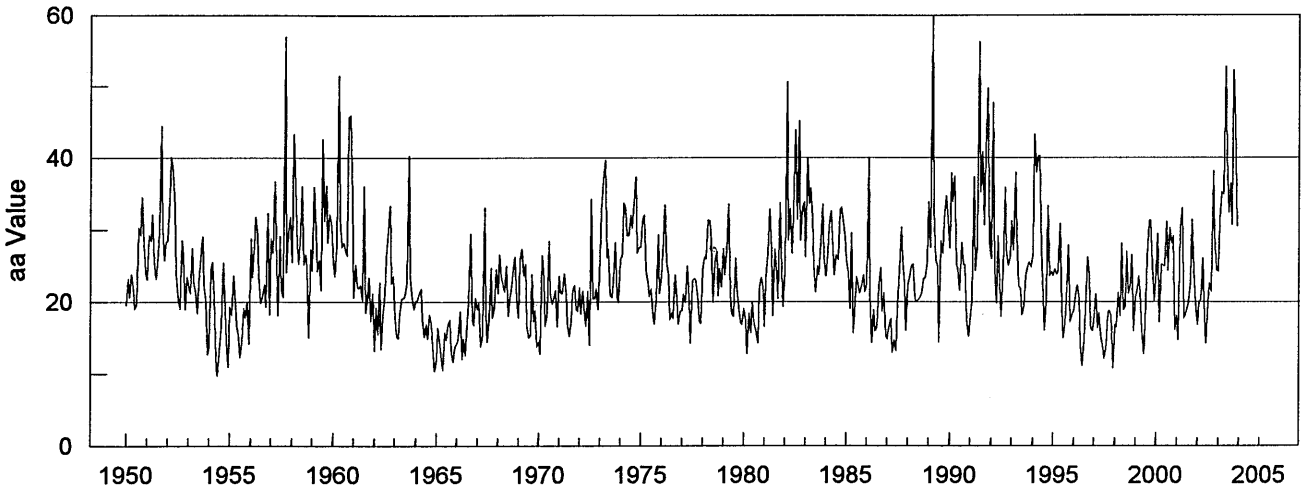
PLANETARY 3-HOUR RANGE INDICES (Kp) BY 27-DAY SOLAR ROTATION INTERVAL

GeoForschungsZentraum Potsdam

Kp for 2003



Monthly Mean aa Index Jan 1950 - Dec 2003

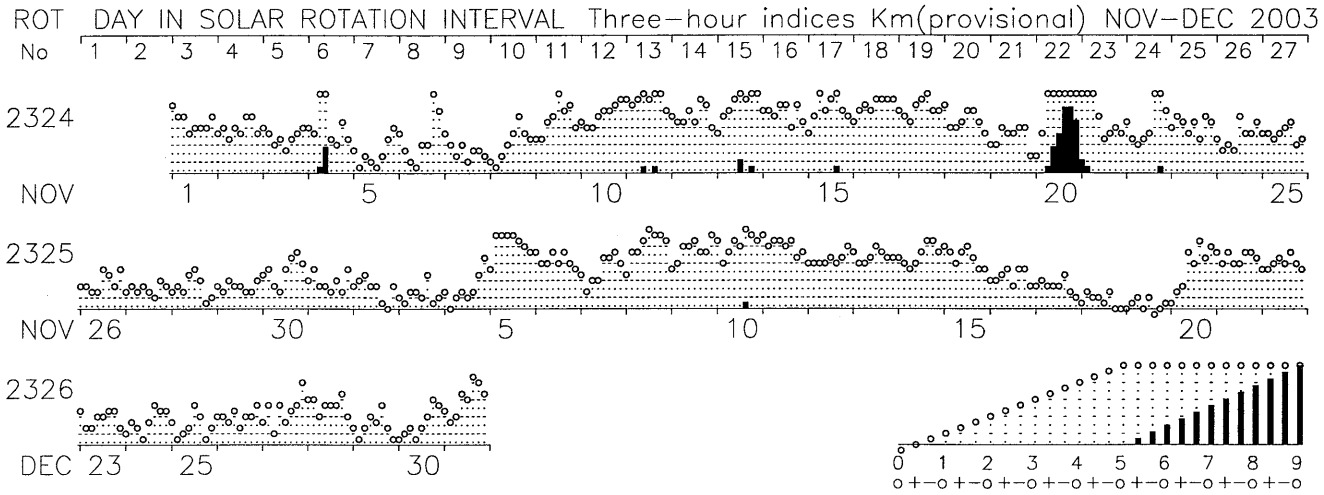


Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Mean
1950	19.5	23.2	20.6	23.8	21.7	19.0	19.5	30.2	29.3	34.5	28.0	24.0	24.4
1951	23.1	29.2	28.5	32.1	25.5	23.2	25.2	29.7	44.4	30.3	25.7	28.2	28.8
1952	28.5	34.3	40.1	38.0	33.1	23.8	20.7	19.0	28.5	26.4	18.9	23.4	27.9
1953	22.3	21.2	27.4	22.7	21.4	18.4	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

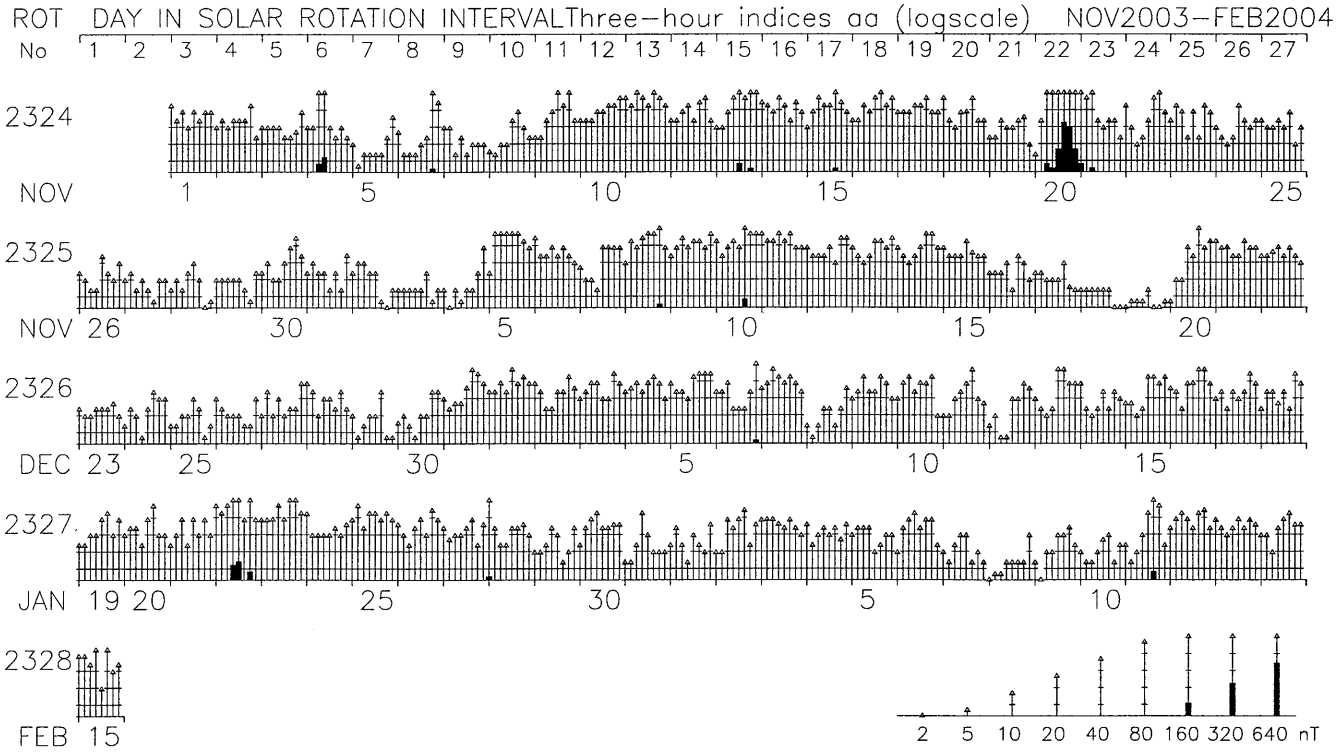
PLANETARY GEOMAGNETIC ACTIVITY

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

ISGI PUBLICATION OFFICE - EMail : ISGI.PUBOFF@cetp.ipsl.fr
CETP, 4 Avenue de Neptune, F-94107 Saint Maur des Fosses CEDEX - FRANCE



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



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

WDC FOR GEOMAGNETISM, KYOTO UNIVERSITY

HOURLY EQUATORIAL DST VALUES(PROVISIONAL)

DECEMBER 2003

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	-33	-35	-33	-34	-33	-27	-25	-23	-26	-26	-21	-19	-20	-24	-23	-23	-21	-20	-22	-23	-22	-20	-15	-18
2	-21	-17	-17	-20	-20	-20	-14	-7	-4	-8	-8	-11	-12	-10	-11	-8	-7	-8	-11	-12	-12	-12	-11	-8
3	-7	-9	-9	-7	-8	-10	-10	-8	-6	-5	-3	-3	-4	-6	-6	-5	-5	-8	-12	-12	-12	-11	-10	-9
4	-9	-10	-9	-4	-4	-4	-4	-8	-9	-8	-5	-2	1	-1	-2	1	3	4	0	-1	1	2	3	0
5	1	0	5	6	-17	-36	-41	-44	-47	-48	-54	-66	-55	-43	-51	-59	-62	-59	-53	-56	-53	-45	-42	-37
6	-43	-43	-50	-60	-63	-56	-49	-51	-49	-49	-46	-34	-33	-43	-46	-45	-45	-40	-35	-35	-33	-30	-29	-30
7	-36	-39	-40	-40	-40	-35	-32	-33	-31	-25	-21	-22	-27	-29	-16	-25	-26	-23	-39	-55	-41	-34	-34	-32
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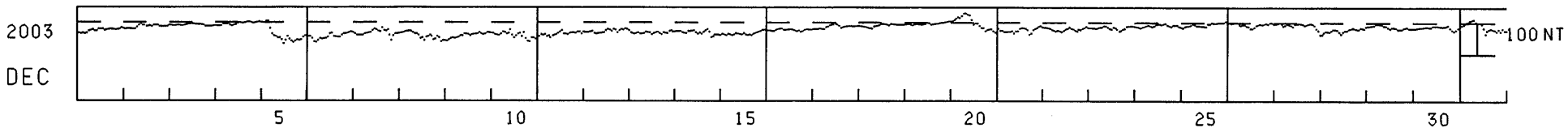

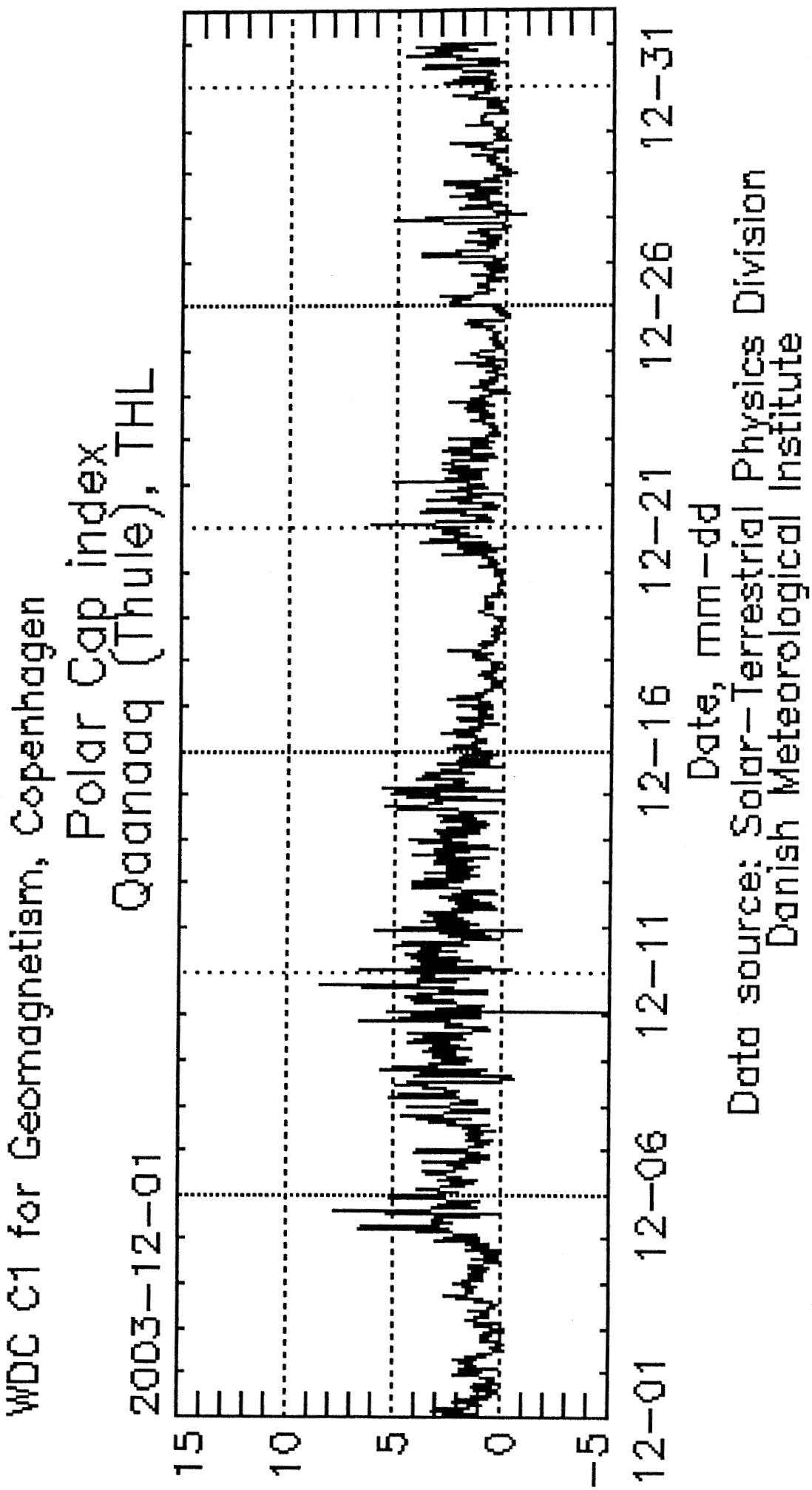
WDC C1 for Geomagnetism, Copenhagen
Polar Cap index
Qaanaaq (Thule), THL
2003-12-01
15
10
5
0
-5
12-01
12-06
12-11
12-16
12-21
12-26
12-31
Date, mm-dd
Data source: Solar-Terrestrial Physics Division
Danish Meteorological Institute

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

DECEMBER 2003

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	05	0300	..	..	..	..		-	6	124	16	06	22
NGP	11.3N	05	0300	..	..	..	..		-	--	--	--	06	22
ABG	09.4N	05	0300	..	..	..	..	05(2,4,5)	5	4	130	26	06	22
PND	02.0N	05	0300	..	..	..	..		-	3	139	53	06	22
TIR	00.6S	05	0300	..	..	..	..		-	4	200	82	06	22
GNA	43.0S	05	0200	..	..	..	..	05(4,5)	5	17	84	125	06	03
CAN	43.6S	05	0200	..	..	..	..	05(2,3,4,5,6)	5	22	147	55	06	21
JAI	17.4N	07	1400	..*	..	..	..		-	3	65	6	08	01
NGP	11.3N	07	1400	..*	..	..	..		-	3	69	5	08	01
ABG	09.4N	07	1400	..*	..	..	..	07(7)	5	3	69	12	08	01
PND	02.0N	07	1400	..*	..	..	..		-	2	66	28	08	01
TIR	00.6S	07	1400	..*	..	..	..		-	2	66	41	08	01
GNA	43.0S	07	1200	..	..	..	..	08(5) 10(6)	6	56	210	168	15	03
JAI	17.4N	08	0400	..	..	..	..		-	7	120	31	13	22
KRC	16.4N	08	0352	..	..	..	..	08(7)	6	7	110	40	08	22
NGP	11.3N	08	0400	..	..	..	..		-	6	123	29	13	22
ABG	09.4N	08	0400	..	..	..	..	08(4) 10(4)	6	6	113	41	13	22
PND	02.0N	08	0400	..	..	..	..		-	4	122	69	13	22
TIR	00.6S	08	0400	..	..	..	..		-	5	138	68	13	22
CAN	43.6S	08	0600	..	..	..	..	08(4,5) 09(3)	5	15	111	39	09	18
KRC	16.4N	10	0900	..	..	..	..	10(6)	6	8	80	43	11	18
JAI	17.4N	20	0600	..	..	..	..		-	3	105	18	22	24
NGP	11.3N	20	0600	..	..	..	..		-	3	122	20	22	24
ABG	09.4N	20	0600	..	..	..	..	21(6)	5	3	125	25	22	24
PND	02.0N	20	0600	..	..	..	..		-	3	--	65	22	24
TIR	00.6S	20	0600	..	..	..	..		-	3	164	56	22	24
GNA	43.0S	20	0900	..	..	..	..	20(8) 21(1) 22(6)	5	15	80	85	22	21

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)

December 2003

Storm Sudden Commencements (SSC)			Solar Flare Effects (sfe)		
Day	Time	Quality: Station Group*	Day	Begin-End	Station(s)
None			01	1117-1128	NAG
			02	0854-0912	NGK+
			05	0404-0418	GUI
			07	1418-1449	GUI
			19	0835-0842	NGK+

REPORTING OBSERVATORIES (up to the 3rd of February 2004):
SOD NUR NGK VAL DOU BDV CLF HRB NAG GCK MMB EBR SPT KAK HTY KNY 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.