MARCH 2005 NUMBER 727 - Part I

Solar-Geophysical Data prompt reports

Data for January and February 2005
Explanation of Data Reports Issued as Number 515 (Supplement) July 1987

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MARCH 2005 NUMBER 727 - Part I

Solar-Geophysical Data prompt reports

Data for January and February 2005

International Standard Serial Number: 0038-0911
Library of Congress Catalog Number: 79-640375 //r81

NATIONAL GEOPHYSICAL DATA CENTER
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Boulder, Colorado

Subscription information is on the inside back cover.

SOLAR-GEOPHYSICAL DATA

Number 727
(Issued in Two Parts)

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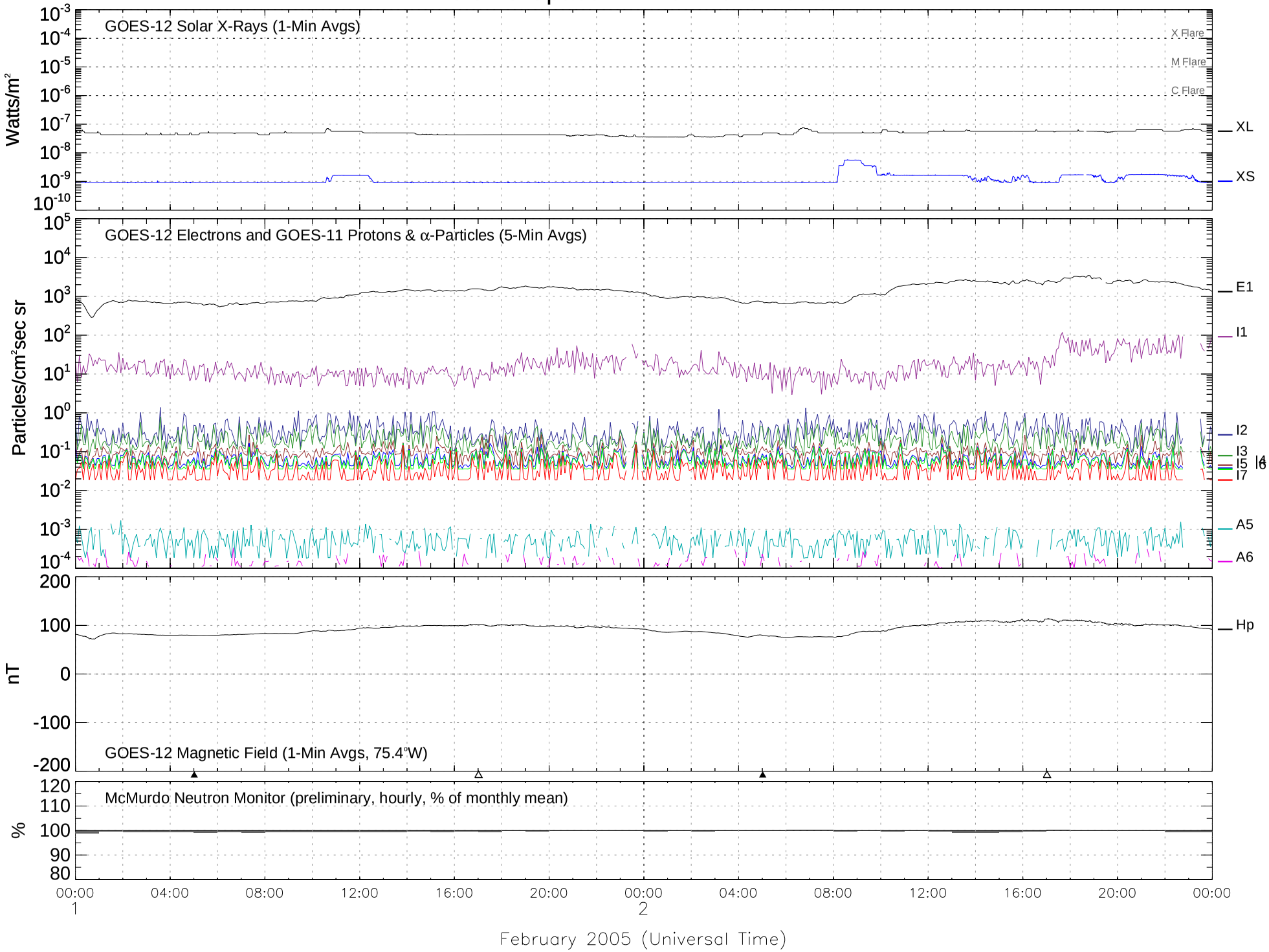
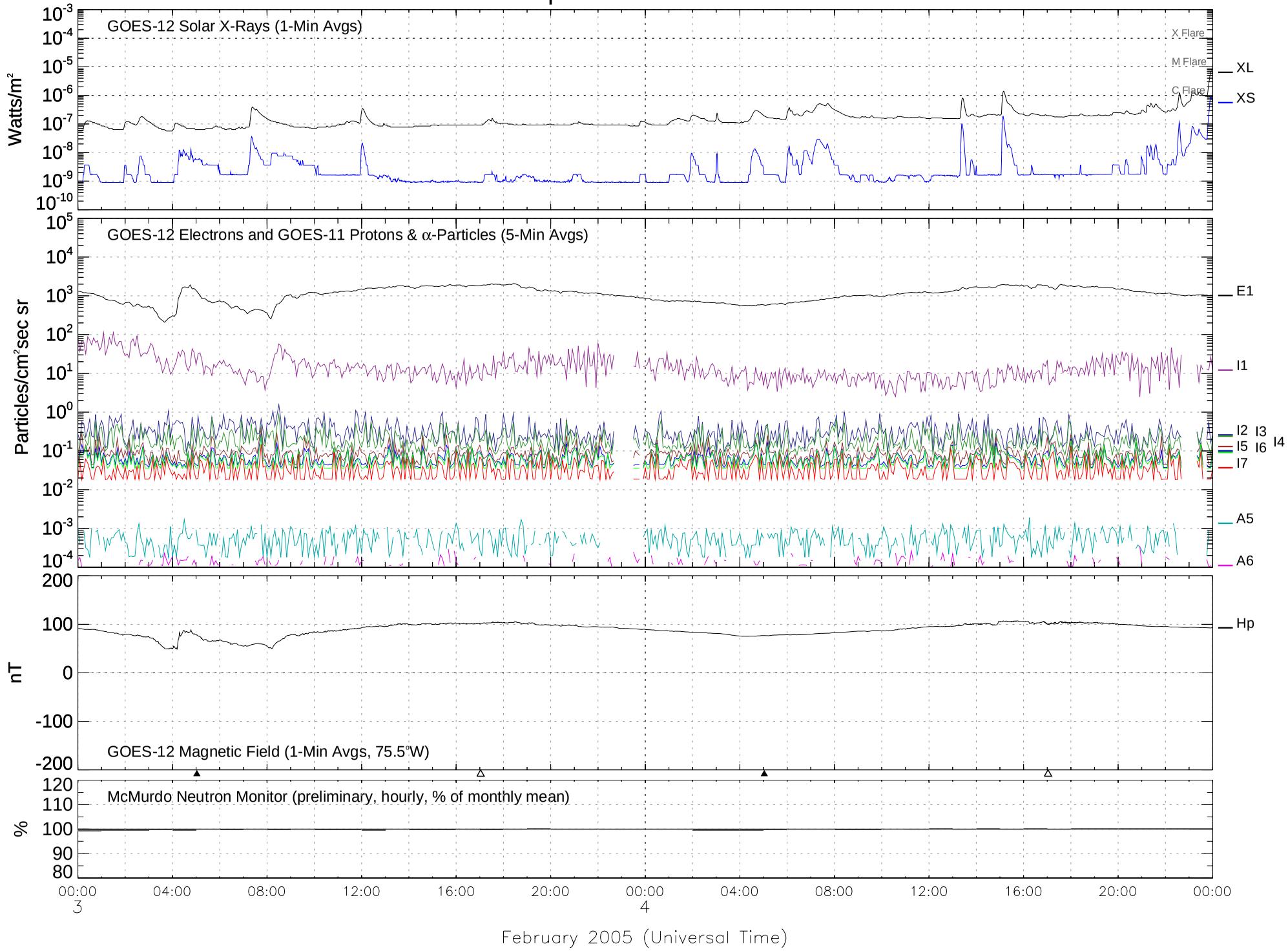
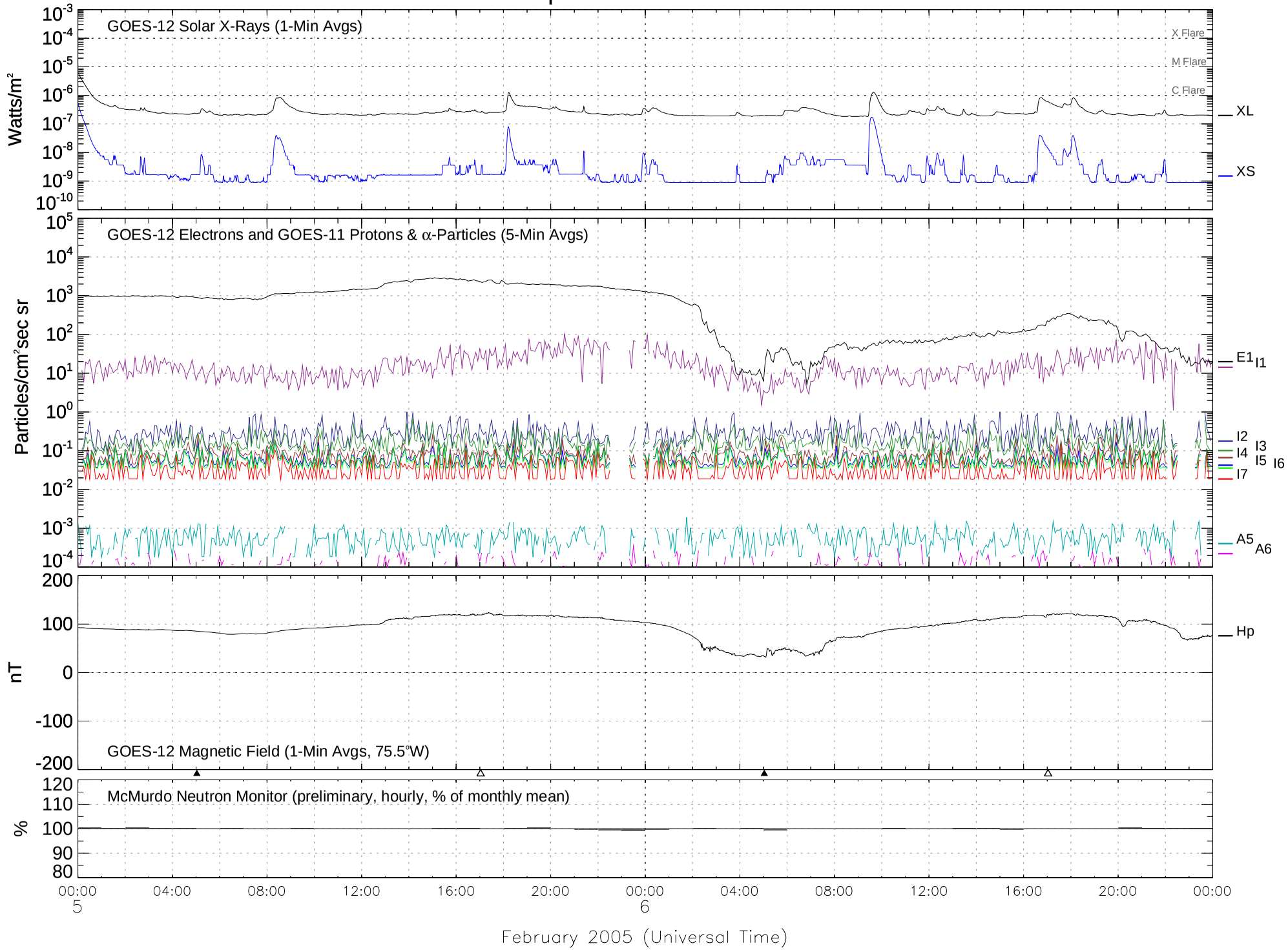


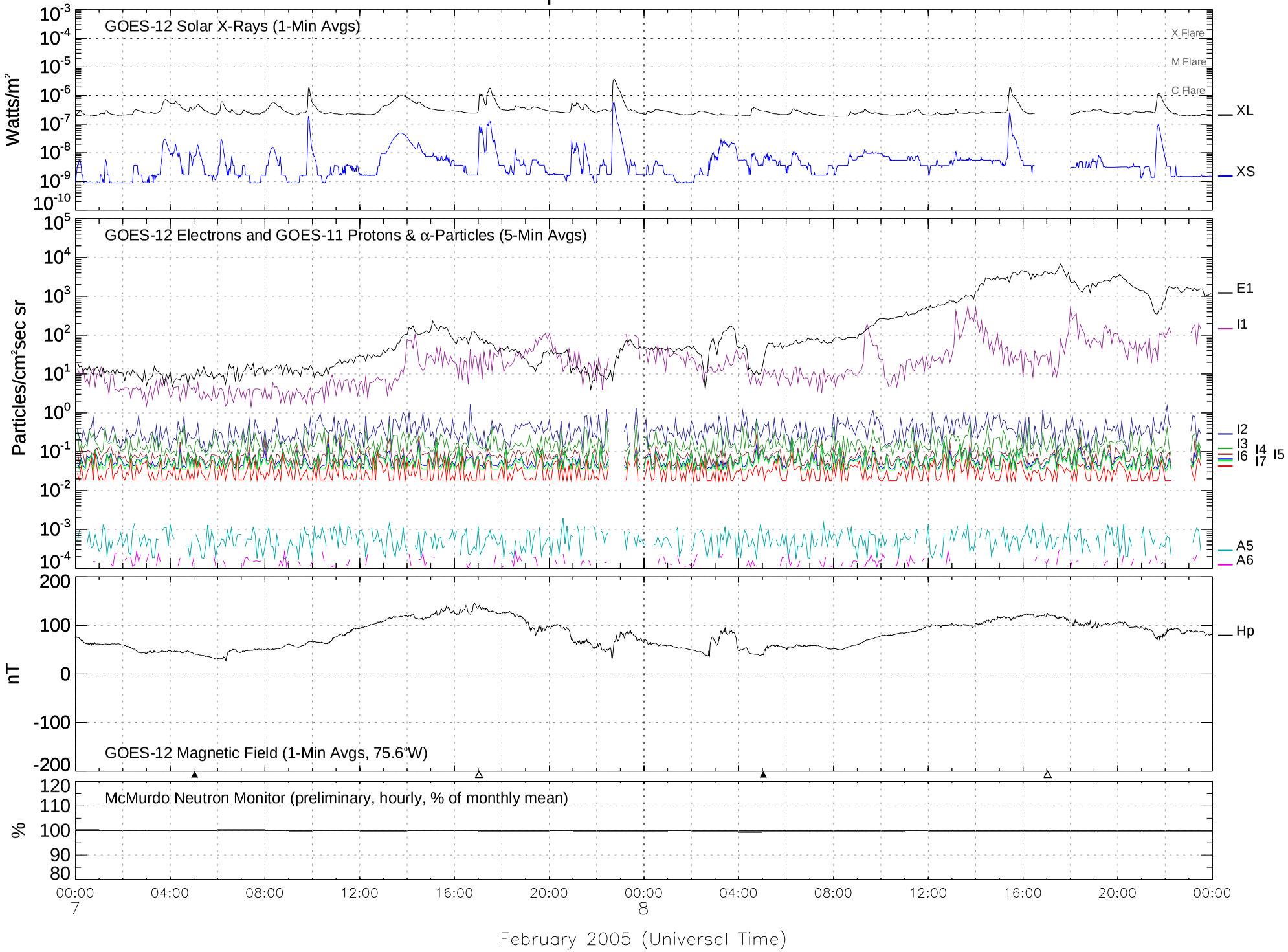
GOES Space Environment Monitor



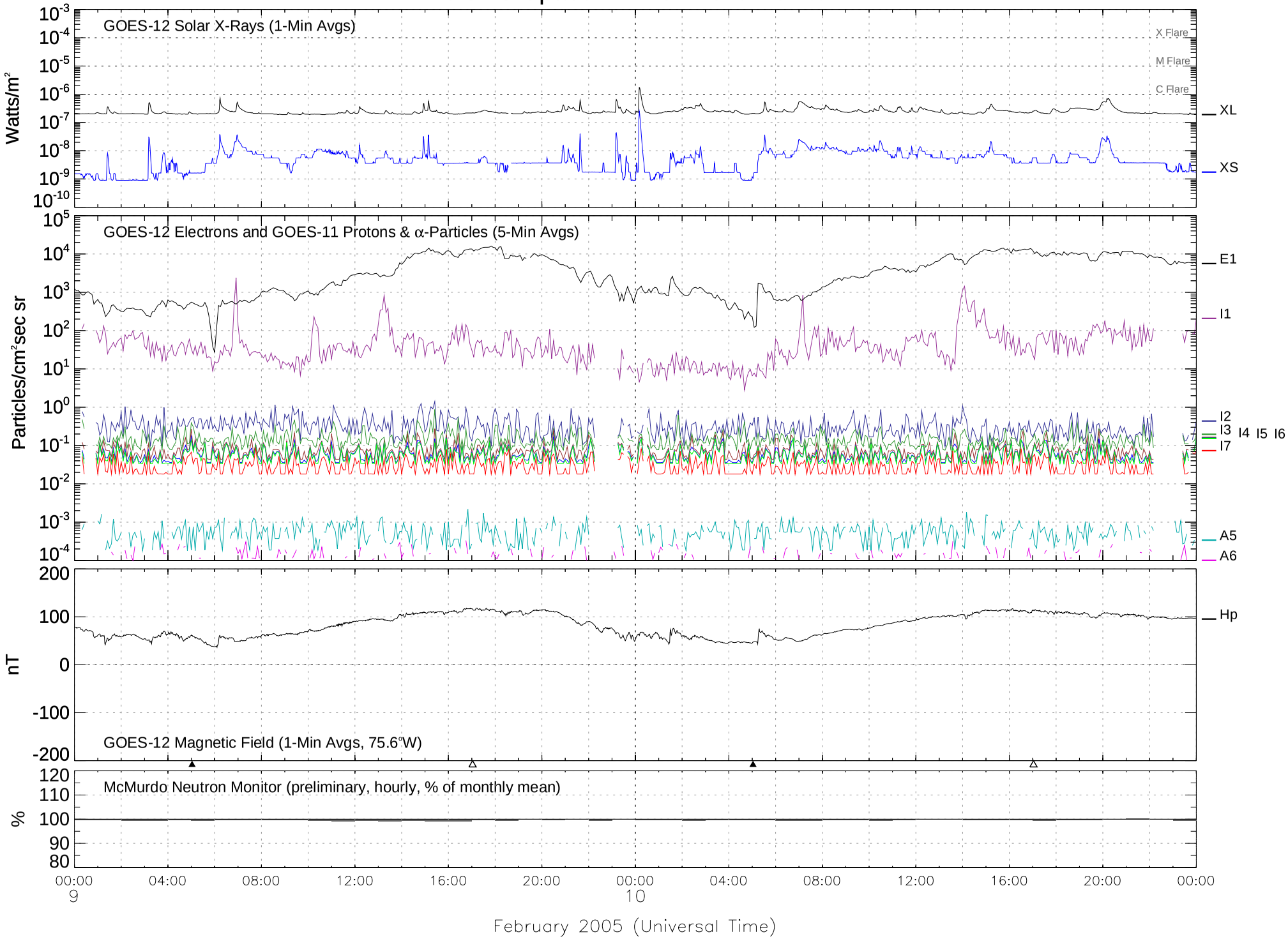
GOES Space Environment Monitor



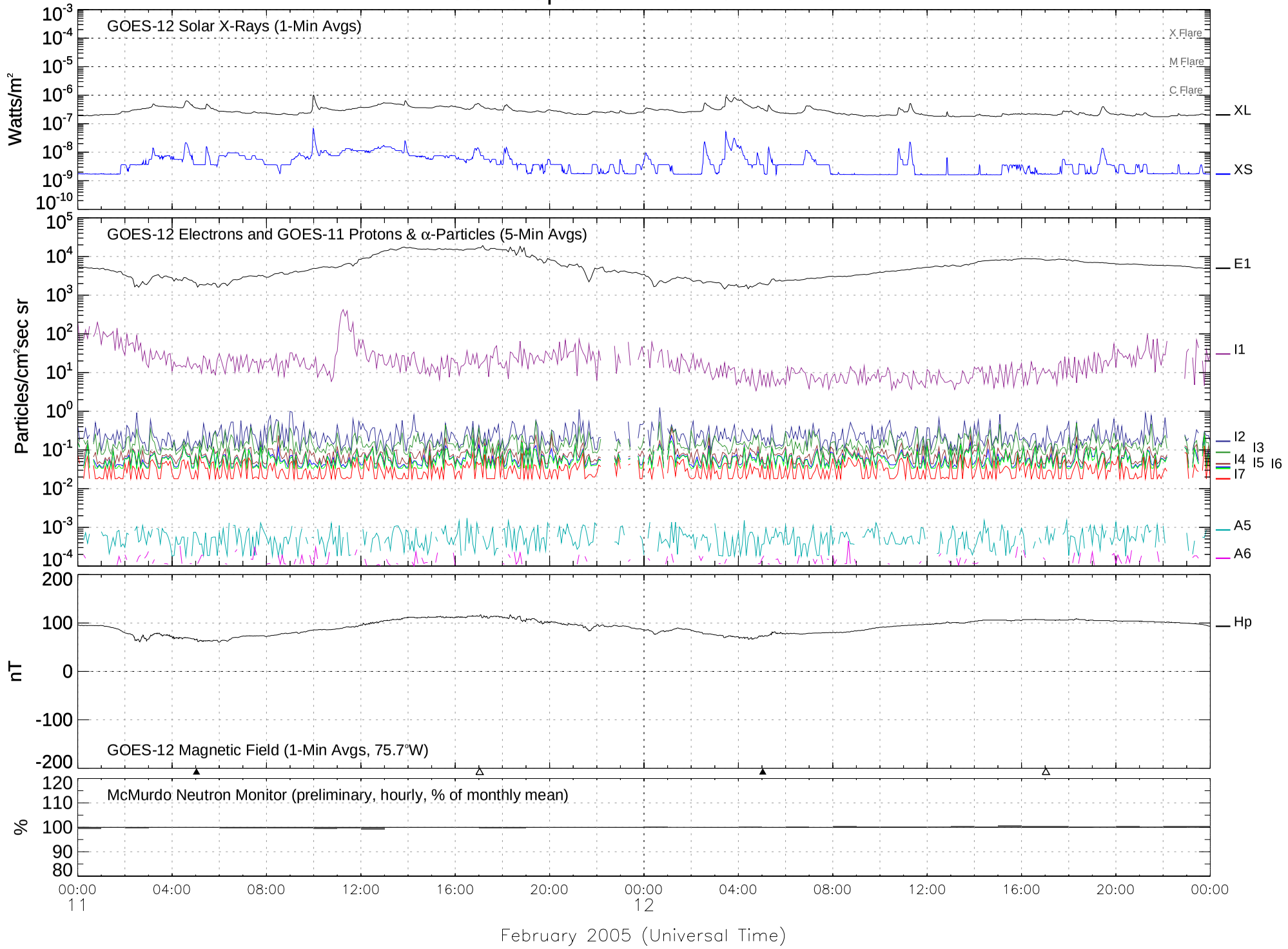
GOES Space Environment Monitor

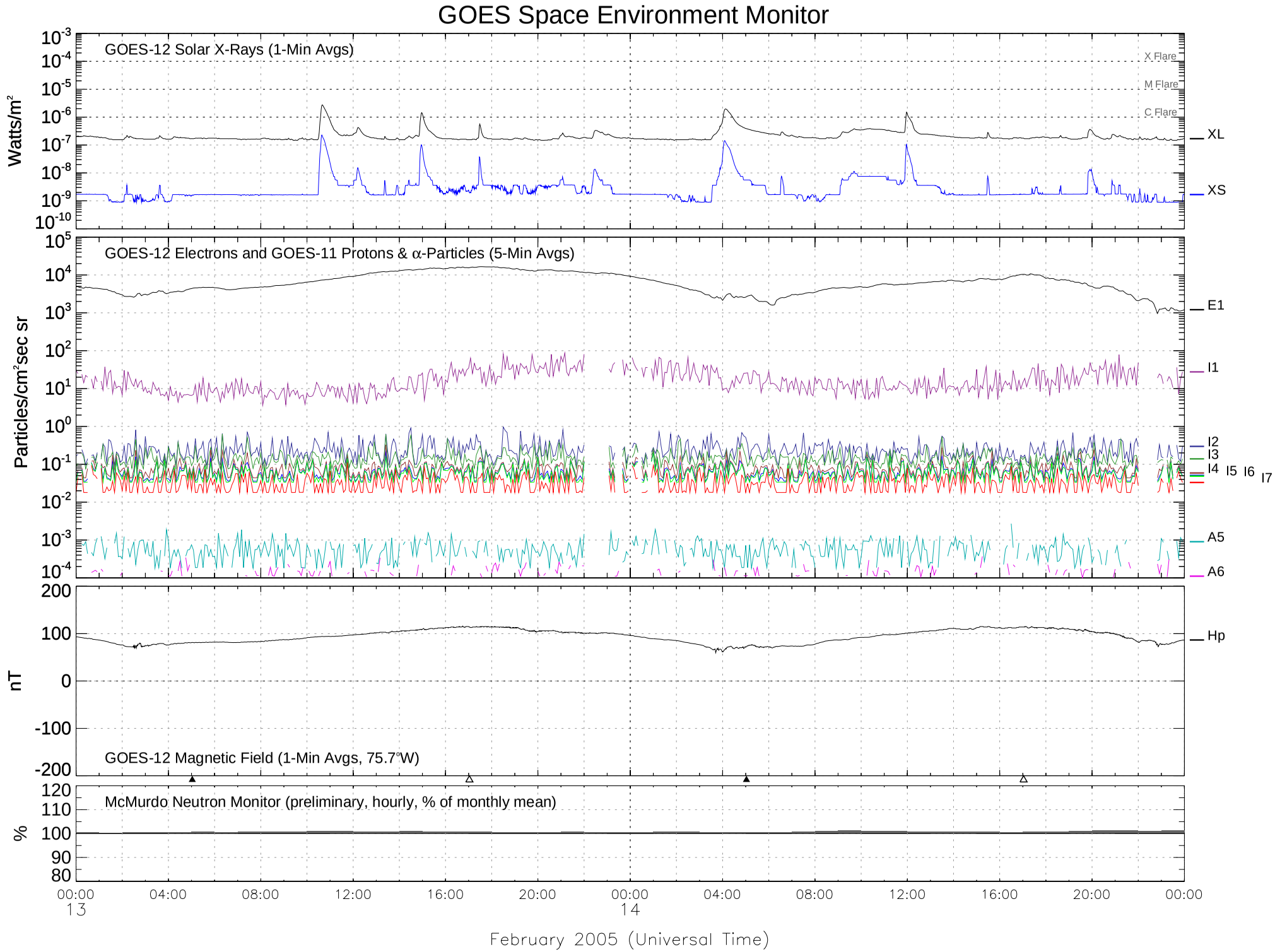


GOES Space Environment Monitor

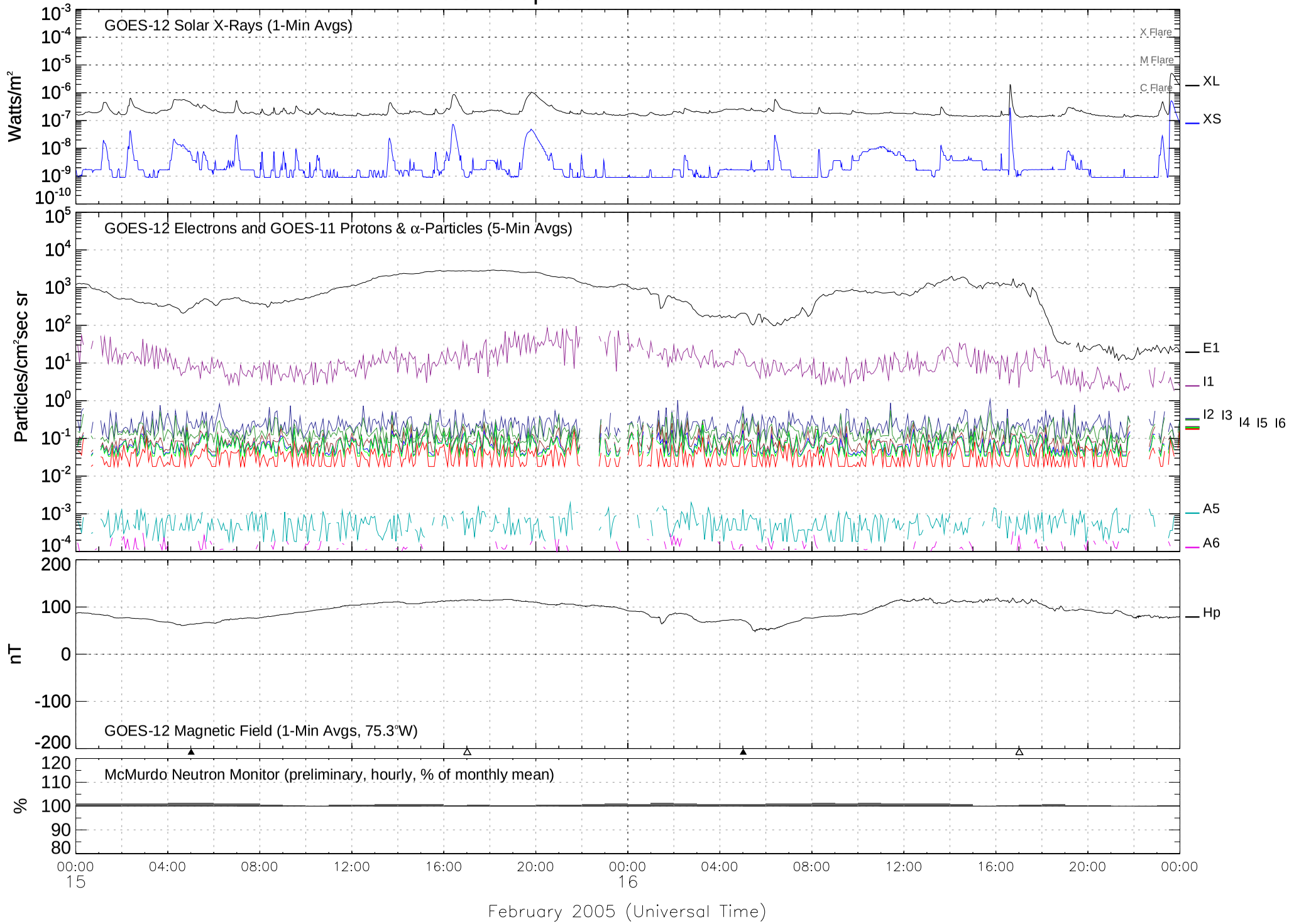


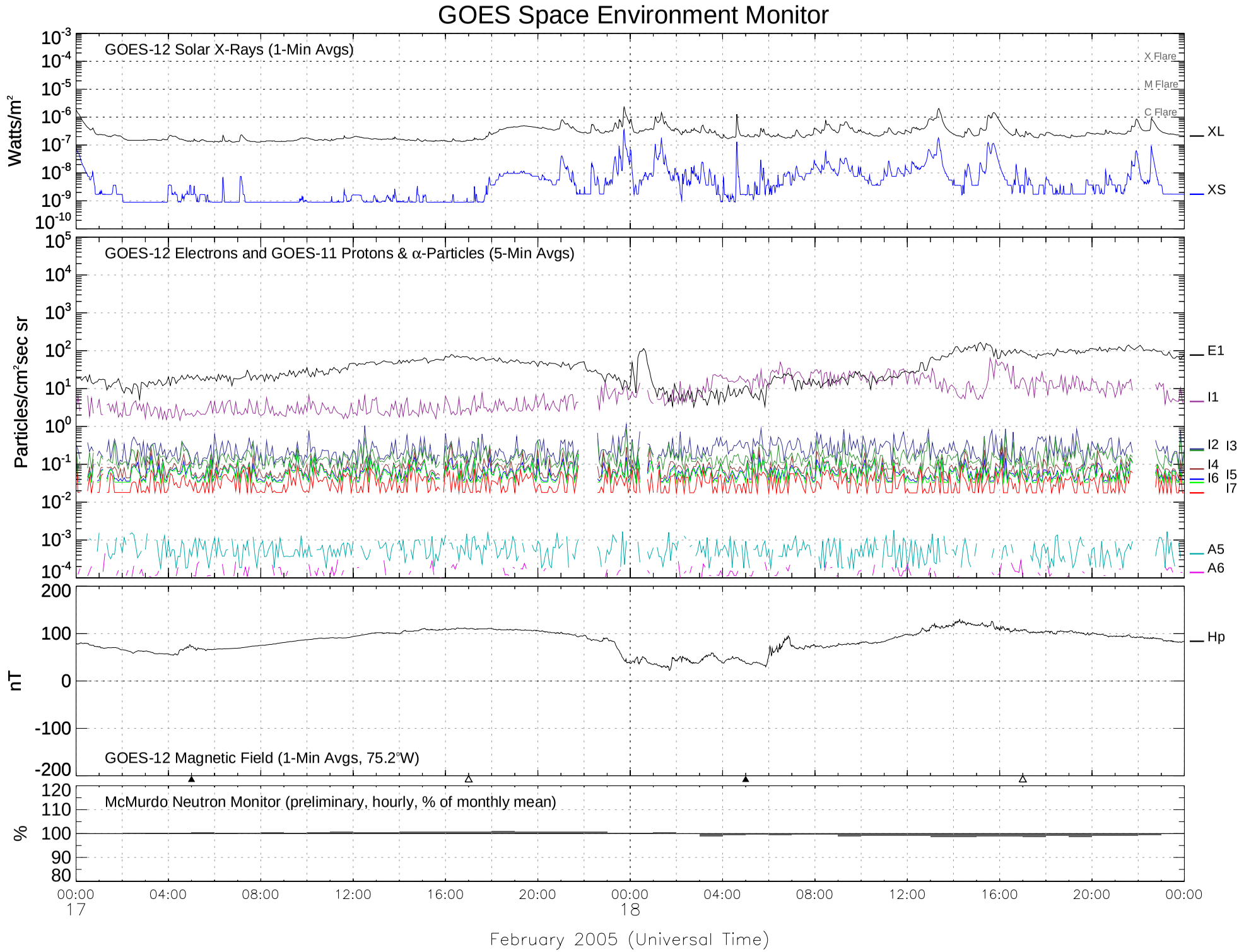
GOES Space Environment Monitor



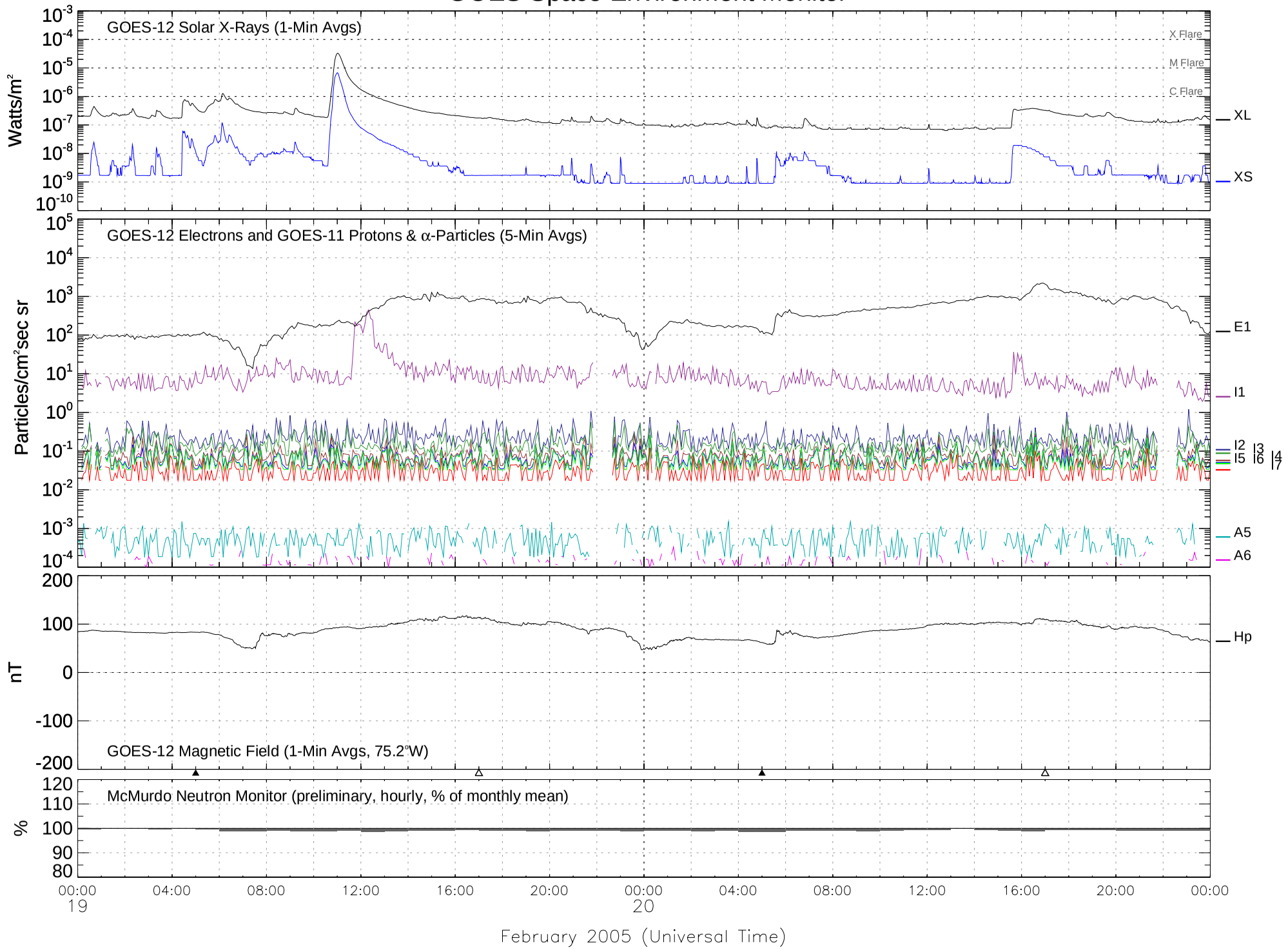

GOES Space Environment Monitor
GOES-12 Solar X-Rays (1-Min Avgs)
Watts/m²
X Flare
M Flare
C Flare
XL
XS
GOES-12 Electrons and GOES-11 Protons & α-Particles (5-Min Avgs)
Particles/cm²sec sr
E1
I1
I2
I3
I4
I5
I6
I7
A5
A6
GOES-12 Magnetic Field (1-Min Avgs, 75.7°W)
nT
Hp
McMurdo Neutron Monitor (preliminary, hourly, % of monthly mean)
%
00:00
13
04:00
08:00
12:00
16:00
20:00
00:00
14
04:00
08:00
12:00
16:00
20:00
00:00
February 2005 (Universal Time)

GOES Space Environment Monitor



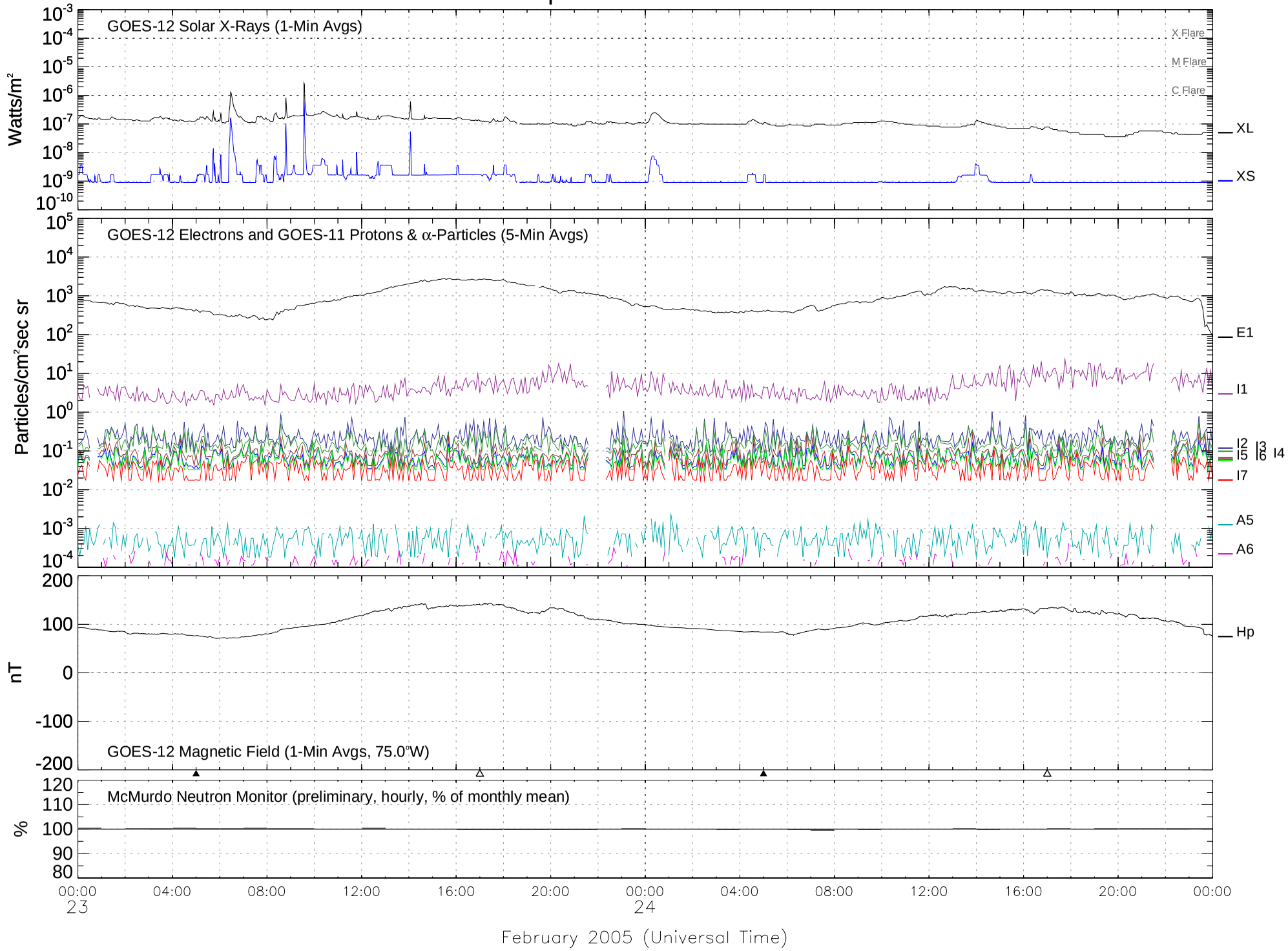

GOES Space Environment Monitor
GOES-12 Solar X-Rays (1-Min Avgs)
Watts/m²
X Flare
M Flare
C Flare
XL
XS
GOES-12 Electrons and GOES-11 Protons & α-Particles (5-Min Avgs)
Particles/cm²sec sr
E1
I1
I2
I3
I4
I5
I6
I7
A5
A6
GOES-12 Magnetic Field (1-Min Avgs, 75.2°W)
nT
Hp
McMurdo Neutron Monitor (preliminary, hourly, % of monthly mean)
%
00:00
17
04:00
08:00
12:00
16:00
20:00
00:00
18
04:00
08:00
12:00
16:00
20:00
00:00
February 2005 (Universal Time)

GOES Space Environment Monitor



GOES Space Environment Monitor

GOES Space Environment Monitor



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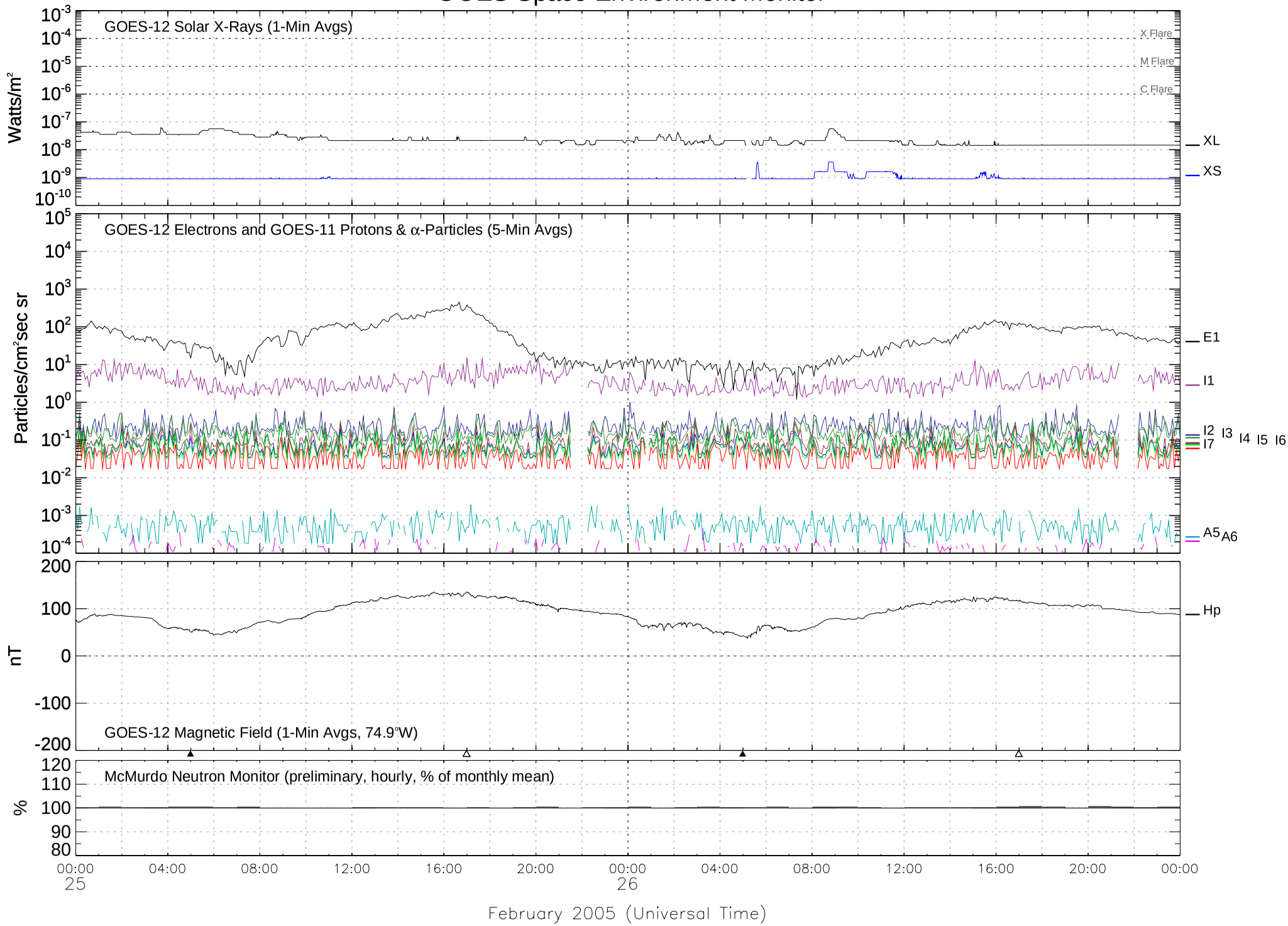
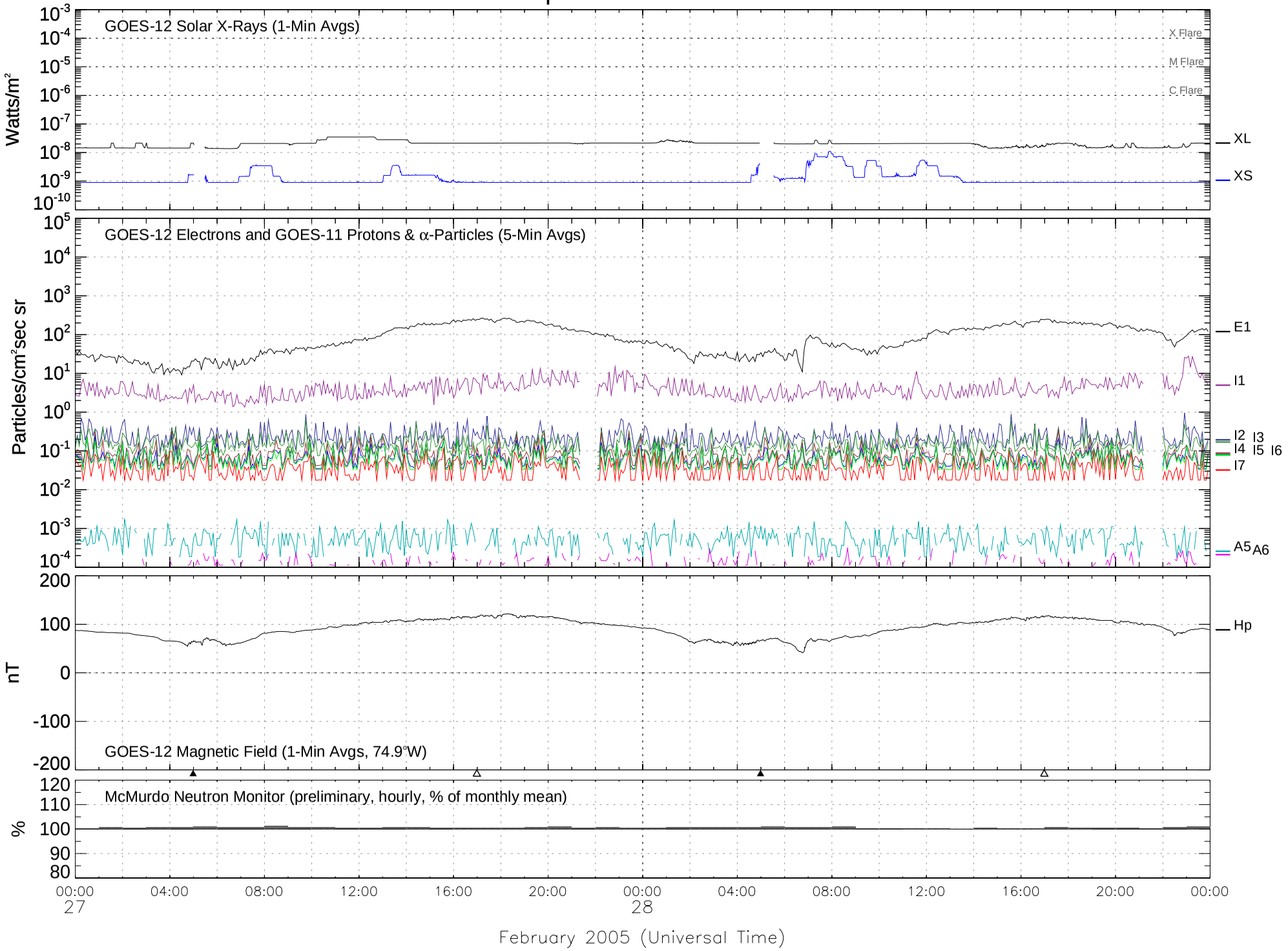


GOES Space Environment Monitor



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

FEBRUARY 2005

Julian Day	Date of Issue	Date of Obs	Wolf No.	10-cm Solar Flux	A-index	Rgn No.	Location Lat	Location Lon	Flares Opt	Flares M	Flares X	Date of Fcst	Region Fcst(1)	Geoadvice(1)
032	01	31	49	86	18	10727	S09	W53	0	0	0	01	Q	SOL: Quiet
						10728	S11	W12	0	0	0	01	Q	MAG: Active
						10729	S10	E18	0	0	0	01	Q	PRO: Quiet
033	02	01	27	84	6	10729	S09	W68	0	0	0	02	Q	SOL: Quiet
						10729	S08	E06	0	0	0	02	Q	MAG: Quiet
									0	0	0	02		PRO: Quiet
034	03	02	28	82	8	10729	S08	W84	0	0	0	03	Q	SOL: Quiet
						10729	S10	W10	0	0	0	03	Q	MAG: Quiet
									0	0	0	03		PRO: Quiet
035	04	03	23	83	9	10729	S10	W97	0	0	0	04	Q	SOL: Quiet
						10729	S11	W25	0	0	0	04	Q	MAG: Quiet
									0	0	0	04		PRO: Quiet
036	05	04	22	82	2	10730	S11	W39	0	0	0	05	Q	SOL: Eruptive
						10730	S20	E73	0	0	0	05	Q	MAG: Quiet
									0	0	0	05		PRO: Quiet
037	06	05	22	95	1	10730	S11	W52	0	0	0	06	Q	SOL: Eruptive
						10730	S20	E60	0	0	0	06	Q	MAG: Quiet
									0	0	0	06		PRO: Quiet
038	07	06	47	97	10	10729	S11	W66	0	0	0	07	Q	SOL: Eruptive
						10730	S20	E46	0	0	0	07	Q	MAG: Active
						10731	S02	E27	0	0	0	07	Q	PRO: Quiet
						10732	N09	E70	0	0	0	07	E	
039	08	07	62	103	29	10729	S11	W79	0	0	0	08	Q	SOL: Eruptive
						10730	S20	E33	0	0	0	08	Q	MAG: Active
						10731	S02	E14	0	0	0	08	Q	PRO: Quiet
						10732	N09	E57	0	0	0	08	Q	
						10733	S09	E78	0	0	0	08	E	
040	09	08	53	108	34	10730	S20	E20	0	0	0	09	Q	SOL: Eruptive
						10732	N12	E37	0	0	0	09	Q	MAG: Active
						10733	S08	E67	0	0	0	09	E	PRO: Quiet
041	10	09	60	109	22	10730	S21	E09	0	0	0	10	Q	SOL: Eruptive
						10732	N14	E28	0	0	0	10	Q	MAG: Active
						10733	S08	E54	0	0	0	10	Q	PRO: Quiet
						10734	S04	E71	0	0	0	10	Q	
042	11	10	63	114	18	10730	S20	W05	0	0	0	11	Q	SOL: Eruptive
						10732	N17	E17	0	0	0	11	Q	MAG: Quiet
						10733	S08	E40	0	0	0	11	Q	PRO: Quiet
						10734	S04	E57	0	0	0	11	Q	
						10735	S08	E74	0	0	0	11	Q	
043	12	11	73	114	11	10730	S20	W19	0	0	0	12	Q	SOL: Eruptive
						10732	N11	W04	0	0	0	12	Q	MAG: Quiet
						10733	S08	E31	0	0	0	12	Q	PRO: Quiet
						10734	S04	E44	0	0	0	12	Q	
						10735	S08	E60	0	0	0	12	Q	
044	13	12	72	116	5	10730	S20	W32	0	0	0	13	Q	SOL: Eruptive
						10732	N11	W17	0	0	0	13	Q	MAG: Quiet
						10733	S08	E14	0	0	0	13	Q	PRO: Quiet
						10734	S05	E31	0	0	0	13	Q	
						10735	S08	E47	0	0	0	13	Q	
045	14	13	73	116	3	10730	S19	W44	0	0	0	14	Q	SOL: Eruptive
						10732	N12	W30	0	0	0	14	Q	MAG: Quiet
						10733	S09	E01	0	0	0	14	E	PRO: Quiet
						10734	S04	E17	1	0	0	14	Q	
						10735	S09	E34	0	0	0	14	Q	

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

FEBRUARY 2005

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)
046	15	14	115	118	5	10730	S19	W57	0	0	0	15	Q	SOL: Eruptive
						10732	N12	W43	0	0	0	15	Q	MAG: Quiet
						10733	S09	W13	0	0	0	15	E	PRO: Quiet
						10734	S05	E04	0	0	0	15	Q	
						10735	S08	E20	0	0	0	15	Q	
047	16	15	69	122	3	10732	N08	W60	0	0	0	16	Q	SOL: Eruptive
						10733	S08	W26	0	0	0	16	Q	MAG: Quiet
						10734	S04	W10	0	0	0	16	Q	PRO: Quiet
						10735	S08	E06	3	0	0	16	Q	
048	17	16	61	113	13	10733	S08	W39	0	0	0	17	Q	SOL: Eruptive
						10734	S04	W23	1	0	0	17	Q	MAG: Quiet
						10735	S07	W06	1	0	0	17	E	PRO: Quiet
049	18	17	51	111	8	10733	S08	W52	0	0	0	18	Q	SOL: Eruptive
						10734	S05	W34	0	0	0	18	Q	MAG: Active
						10735	S10	W18	0	0	0	18	E	PRO: Quiet
050	19	18	46	104	22	10733	S09	W67	0	0	0	19	Q	SOL: Eruptive
						10734	S05	W50	0	0	0	19	Q	MAG: Active
						10735	S09	W32	1	0	0	19	E	PRO: Quiet
051	20	19	51	99	14	10733	S08	W80	0	0	0	20	Q	SOL: Eruptive
						10734	S05	W63	0	0	0	20	Q	MAG: Quiet
						10735	S09	W45	0	0	0	20	E	PRO: Quiet
052	21	20	60	96	11	10733	S08	W93	0	0	0	21	Q	SOL: Quiet
						10734	S05	W76	0	0	0	21	Q	MAG: Quiet
						10735	S09	W58	0	0	0	21	Q	PRO: Quiet
						10736	N13	W50	0	0	0	21	Q	
053	22	21	33	95	8	10736	S09	W71	0	0	0	22	Q	SOL: Quiet
						10736	N13	W63	0	0	0	22	Q	MAG: Quiet
									0	0	0	22		PRO: Quiet
054	23	22	23	92	6	10736	S09	W85	0	0	0	23	Q	SOL: Quiet
						10736	N13	W77	0	0	0	23	Q	MAG: Quiet
									0	0	0	23		PRO: Quiet
055	24	23	54	85	6	10735	S09	W97	0	0	0	24	Q	SOL: Quiet
						10736	N13	W92	0	0	0	24	Q	MAG: Quiet
						10737	S07	W31	0	0	0	24	Q	PRO: Quiet
						10738	S10	E10	0	0	0	24	Q	
056	25	24	17	80	5	10737	S09	W44	0	0	0	25	Q	SOL: Quiet
									0	0	0	25		MAG: Quiet
									0	0	0	25		PRO: Quiet
057	26	25	15	78	13	10737	S11	W59	0	0	0	26	Q	SOL: Quiet
									0	0	0	26		MAG: Active
									0	0	0	26		PRO: Quiet
058	27	26	27	77	11	10739	S11	W72	0	0	0	27	Q	SOL: Quiet
						10739	S04	E52	0	0	0	27	Q	MAG: Active
									0	0	0	27		PRO: Quiet
059	28	27	12	76	10	10739	S04	E38	0	0	0	28	Q	SOL: Quiet
									0	0	0	28		MAG: Active
									0	0	0	28		PRO: Quiet

(1) Region Forecast and Flare (SOL) Advice
Q = Quiet (<50% probability of C-class flares)
E = Eruptive (C-class flares expected, probability >=50%)
A = Active (M-class flares expected, probability >=50%)
M = Major (X-class flares expected, probability >=50%)

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

FEBRUARY 2005

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
STRATWARM ALERTS
Termination of the STRATALERT Reports
Stratospheric Research Group, FU Berlin

In the 1960s the stratospheric midwinter warmings were regarded as an exciting and interesting research problem. The observations taken during a warming were scarce but in great demand, and a much desired aim was to launch meteorological rockets when a warming was developing above a station. For this purpose an advisory system was necessary, such as had been established in the international geophysical community for other phenomena, the so-called GEOALERT. Charged by WMO (World Meteorological Organisation) the Stratospheric Research Group of the Freie UniversitΣt in Berlin got together with their colleagues of the American Weather Bureau and developed a warning system which was named STRATALERT. It was introduced in 1964 when the IQSY (International Year of the Quiet Sun) began (cf. ALERTING CRITERIA for more information).

The Berlin group was at first responsible for the European space, later for the whole Northern Hemisphere, and issued a STRATALERT report every day during winter, and when needed also a GEOALERT. The alerts were disseminated through the German Weather Service's international net and reached all interested parties everywhere. The STRATALERT reports were an essential source of information about what was going on in the stratosphere, information which at that time would not otherwise have been available to many scientists interested in current conditions. Because of this information it was possible to time experiments, for instance with meteorological rockets, to take place under desired conditions, and local observations could be fitted into and interpreted on the background of a wider field. This information system has served as a basis for decisions made in many large-scale field experiments. A review and classification of stratospheric warmings can be found in SPARC Newsletter No. 15, (Labitzke and Naujokat, 2000, updated table 1).

The winter, 2003/2004, was the last STRATALERT winter. After 41 years we are sorry to announce that we cannot continue this timely warning system in its old format and we could not find a successor. For those who are interested in STRATALERT messages, we provide access to all available messages via ftp:
ftp://strat50.met.fu-berlin.de/pub/stratalert

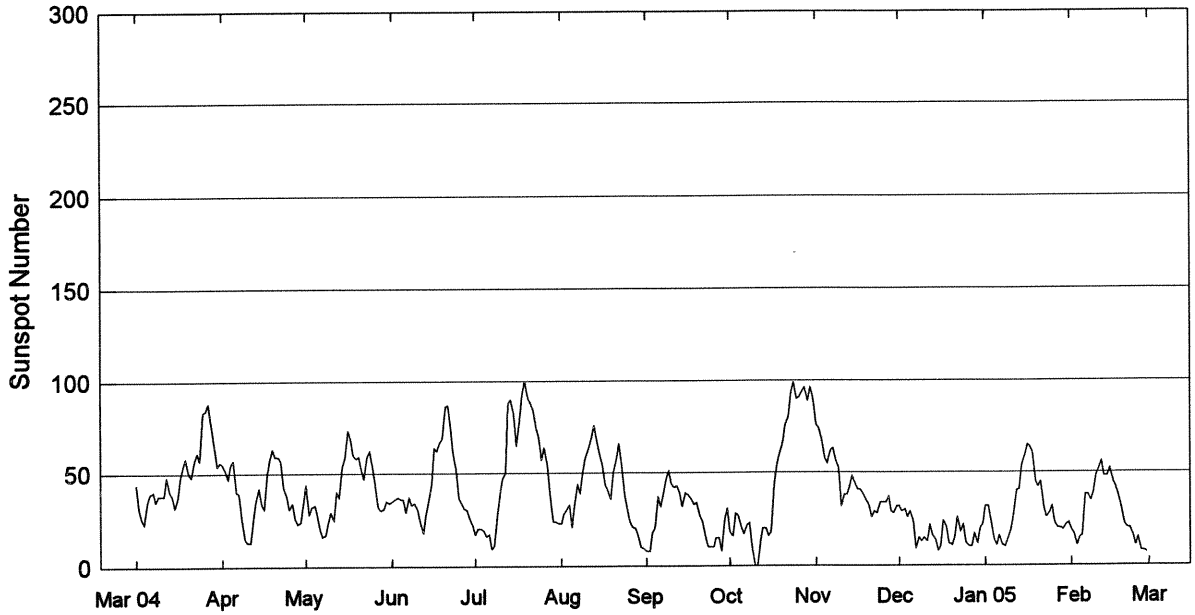
Those interested in the daily development of the stratospheric circulation can find some analyses and different stratospheric parameters based on the ECMWF-data here:
http://strat-www.met.fu-berlin.de/cgi-bin/winterdiagnostics.
The general evaluation is, however, left to the user.

Additional data links are (amongst others) available:

US National Centers for Environmental Prediction (CPC/NCEP):
http://www.cpc.ncep.noaa.gov/products/stratosphere

Japan Meteorological Agency (JMA):
http://okdk.kishou.go.jp/products/clisys/STRAT

International Relative Sunspot Numbers
Mar 2004 - Feb 2005

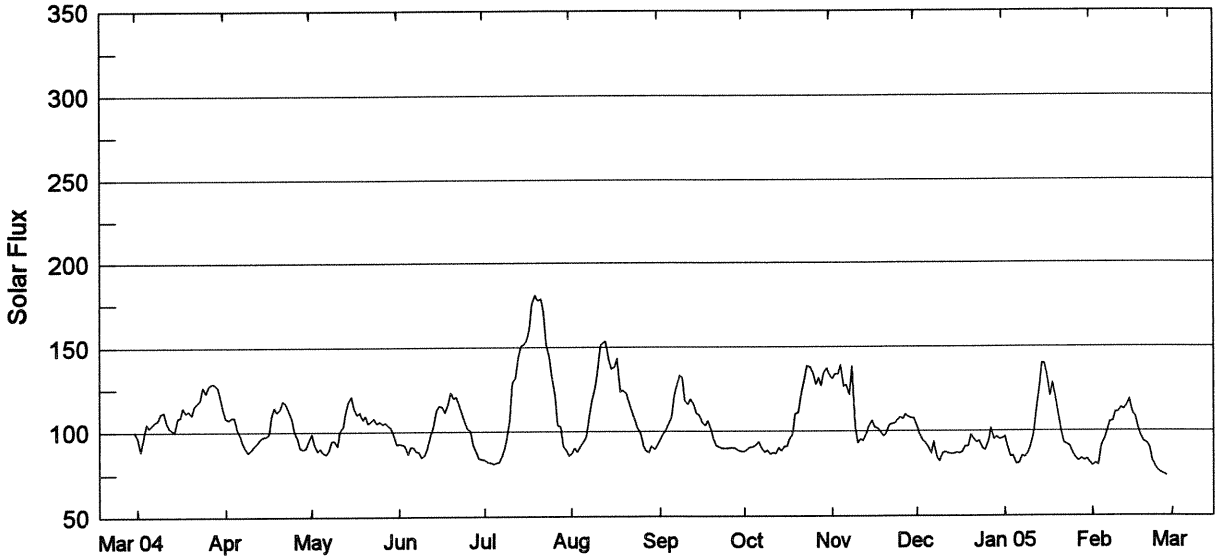


Day	Mar 04	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan 05*	Feb*
1	44	55	44	35	17	23	8	18	76	32	32	19
2	31	51	28	36	20	28	8	16	74	29	32	17
3	26	47	32	37	20	30	18	28	67	30	24	11
4	23	55	33	36	19	33	20	27	58	26	14	15
5	35	57	29	36	16	21	37	21	55	29	11	16
6	39	40	20	29	17	33	32	17	62	22	16	38
7	40	39	16	37	9	44	38	22	63	9	11	38
8	35	27	17	33	11	39	47	23	57	15	10	35
9	38	15	24	34	27	50	51	10	52	13	14	39
10	38	13	29	31	38	58	44	0	32	15	19	48
11	38	13	25	24	47	63	42	0	38	13	27	52
12	48	25	40	18	54	68	43	12	38	22	40	56
13	40	35	37	28	88	76	39	20	42	16	41	48
14	38	42	54	35	90	68	32	20	48	12	54	48
15	32	34	58	44	82	61	39	16	44	8	59	52
16	37	31	73	64	65	54	38	18	41	10	65	45
17	48	50	69	62	79	44	36	44	41	24	64	43
18	54	58	60	67	93	41	33	54	38	21	61	37
19	58	63	58	69	100	36	34	60	35	12	45	31
20	50	59	59	86	91	50	27	66	33	11	42	22
21	48	59	52	87	88	57	24	76	26	15	45	20
22	57	57	47	76	84	66	17	80	29	26	31	20
23	61	43	59	61	74	56	10	93	28	18	26	16
24	57	38	62	52	69	38	10	99	34	22	28	11
25	83	31	55	37	57	31	10	90	34	12	32	15
26	84	34	43	34	64	24	15	91	34	10	23	8
27	88	26	32	31	55	21	15	94	37	10	20	8
28	76	23	30	30	39	20	8	96	29	17	20	7
29	66	24	31	26	24	16	25	89	28	12	19	
30	54	34	35	22	24	10	31	96	32	20	22	
31	56		34		23	9		91		22	23	
Mean	49.1	39.3	41.5	43.2	51.1	40.9	27.7	48.0	43.5	17.9	31.3	29.1

* = Provisional.

Penticton 2800 MHz (10.7cm) Solar Flux
Mar 2004 - Feb 2005

Adjusted to 1 AU



Day	Mar 04	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan 05	Feb
1	100.0	112.6	95.7	92.5	84.0	85.8	91.5	88.1	133.4	107.8	95.6	81.3
2	97.1	108.1	99.1	93.0	83.4	87.0	95.6	88.1	131.0	102.6	96.7	79.4
3	88.9	107.4	92.8	92.6	82.2	90.1	98.3	89.1	133.7	97.9	91.0	80.7
4	95.9	109.0	88.9	92.0	82.1	87.9	100.9	90.7	133.7	94.6	85.1	79.8
5	105.0	108.9	90.1	87.0	80.9	91.5	104.8	90.8	138.8	93.1	85.3	92.0
6	102.9	101.6	88.0	91.0	81.6	93.6	108.2	92.0	126.5	90.4	80.4	94.3
7	104.6	98.4	86.8	91.2	81.9	97.3	120.7	93.7	127.2	87.1	80.7	100.3
8	106.3	93.8	88.9	88.6	84.6	107.7	126.3	90.4	121.7	93.6	85.6	105.4
9	107.2	90.3	95.0	87.9	89.6	117.0	132.8	87.7	138.1	84.7	84.6	105.8
10	111.1	88.1	94.8	85.0	96.4	124.7	131.8	88.7	102.6	82.3	87.1	111.1
11	111.7	90.0	92.0	86.5	107.9	134.3	117.9	86.6	93.0	87.1	91.1	111.2
12	106.2	91.8	100.9	90.7	129.2	151.1	116.0	87.2	95.4	87.7	98.8	113.5
13	102.6	93.6	103.0	98.2	131.6#	152.5	119.1	86.7+	94.4	87.0	111.9	112.7
14	101.3	95.8	112.1	103.1	142.6	153.1	116.0	90.2	98.1	86.5	125.6	115.2
15	100.3	97.4	117.9	112.9	150.5	142.4	110.8	88.6	103.3	86.5	140.2	118.7
16	108.5	97.6	121.0	115.1	151.3	137.0	109.4	91.1	106.0	87.2	139.8	110.2
17	108.8	99.0	113.7	114.9	154.1	138.3	105.5	91.2	102.5	87.1	133.1	108.8
18	114.4	110.0	110.4	111.3	160.2	143.3	103.6	95.5	101.6	87.7	120.3	101.8
19	111.3	114.5	111.4	116.4	175.8	123.5	106.1	98.2	99.8	90.9	128.3	96.3
20	112.7	111.8	107.2	123.0	180.8	124.2	101.3	110.3	96.9	90.9	118.8	93.6
21	110.4	113.9	109.6	119.6	177.7	122.8	95.6	111.0	98.5	97.7	109.9	92.5
22	115.6	118.4	105.0	120.5	178.4	117.8	92.0	121.2	103.7	95.6	99.1	90.4
23	117.6	116.6	106.6	116.2	170.4	111.9	90.8	130.2	104.2	93.2	92.8	82.8
24	119.0	112.9	107.9	111.9	151.8	107.2	89.9	138.7	104.5	94.0	91.7	78.6
25	126.4	108.4	105.1	106.3	143.9*	102.5	89.9	137.9+	106.6	90.0	91.2	76.7
26	123.2	100.9	106.1	102.2	132.0	99.5	89.9	135.0	108.2	88.7	86.6	75.1
27	127.2	96.4	104.6	100.4	121.8	92.3	90.2	127.8	107.4	93.7	84.3	74.4
28	128.6	90.7	105.2	92.4	103.8	88.9	90.2	131.6	109.8	101.7	82.4	73.6
29	128.3	89.8	104.0	87.9	102.8	87.7	90.0	127.0	108.4	95.3	83.9	
30	126.4	90.8	102.4	84.5	91.4	91.6	88.4	134.4	107.5	96.7	82.9	
31	121.0		98.1		89.0	89.7		137.1		95.2	83.6	
Mean	111.0	101.9	102.1	100.5	122.4	112.7	104.1	105.1	111.2	92.1	99.0	94.9

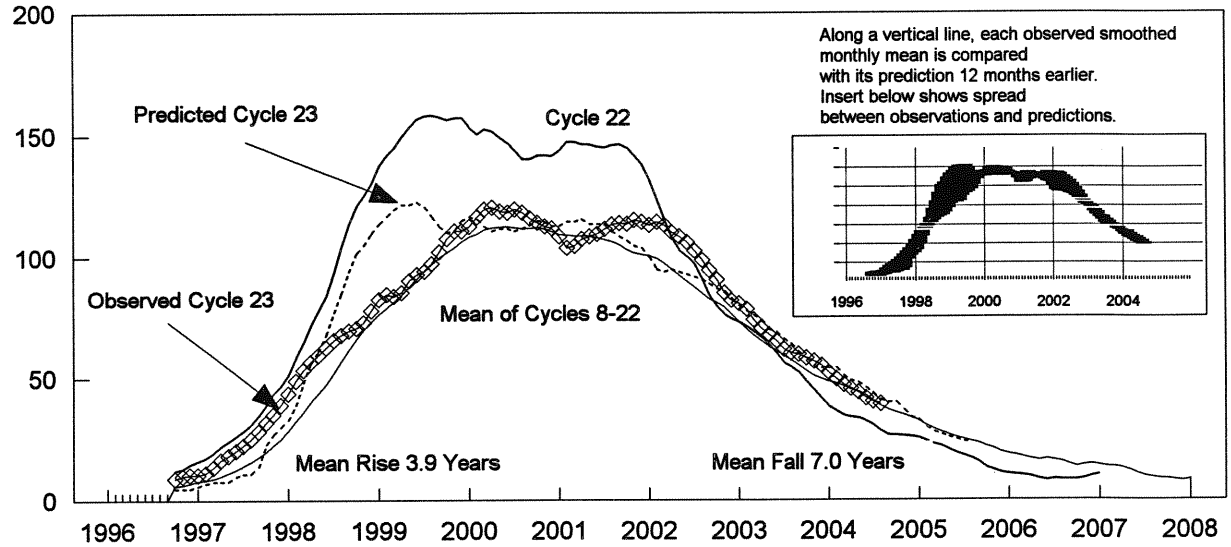
NOTE: # - 1700 or 1800UT reading, burst in progress at 2000UT. *-2300UT reading, burst in progress.
+ - 1700UT Reading, no data available at 2000UT.

DAILY SOLAR INDICES
February 2005

Day	Day of Year	Bartels Cycle Day	Sunspot Numbers Int	Sunspot Numbers Amer	Obs Flux Penticton (2800)	SGMR (15400)	SGMR (8800)	SGMR (4995)	Penticton (2800)	SGMR (2695)	SGMR (1415)	SGMR (610)	SGMR (410)	SGMR (245)
						----Solar Flux Adjusted to 1 Astronomical Unit-------								
1	32	2	19	21	83.7	500	226	134	81.3	85	49	35	26	12
2	33	3	17	18	81.8	501	226	133	79.4	84	47	32	39	12
3	34	4	11	11	83.0	501	224	138	80.7	82	48	33	24	14
4	35	5	15	15	82.1	484	230	142	79.8	87	50	32	48	11
5	36	6	16	21	94.6	515	227	142	92.0	91	52	33	25	12
6	37	7	38	33	97.0	514	225	146	94.3	101	56	34	27	21
7	38	8	38	35	103.1	511	231	147	100.3	102	60	32	28	11
8	39	9	35	34	108.2	516	238	156	105.4	107	62	34	27	18
9	40	10	39	42	108.6	511	234	159	105.8	110	65	36	27	
10	41	11	48	46	114.1	367	211	143	111.1	111	65	30	26	17
11	42	12	52	52	114.1	505	227	150	111.2	120	69	39	36	---
12	43	13	56	56	116.4	520	251	166	113.5	118	71	41	36	—
13	44	14	48	52	115.5	516	249	167	112.7	120	69	42	41	—
14	45	15	48	42	118.1	516	239	172	115.2	118	71	42	36	—
15	46	16	52	50	121.7	516	247	175	118.7	117	70	40	30	30
16	47	17	45	43	112.8	513	240	171	110.2	113	67	40	29	—
17	48	18	43	44	111.3	518	250	171	108.8	111	62	39	38	—
18	49	19	37	37	104.2	514	240	179	101.8	96	58	37	29	31
19	50	20	31	32	98.5	500	249	159	96.3	102	58	37	27	15
20	51	21	22	26	95.7	512	240	152	93.6	99	54	38	29	28
21	52	22	20	22	94.5	475	233	147	92.5	93	52	36	30	16
22	53	23	20	20	92.3	487	223	145	90.4	96	52	35	45	14
23	54	24	16	14	84.6	504	228	139	82.8	87	50	34	31	17
24	55	25	11	10	80.3	—	—	—	78.6	—	—	—	—	—
25	56	26	15	10	78.2	—	—	—	76.7	—	—	—	—	—
26	57	27	8	4	76.6	505	220	129	75.1	77	43	31	26	10
27	58	1	8	1	75.8	510	226	131	74.4	78	44	34	27	9
28	59	2	7	2	75.0	502	225	131	73.6	74	43	33	26	9
MEAN			29.1	28.3	97.2	501	233	150	94.9	99	57	35	31	16

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
1996	10	10	10	9	8*	9	8	8	8	9**	10	10	8
1997	11	11	14	17	18	20	23	25	28	32	35	39	23
1998	44	49	53	57	59	63	65	68	69	71	73	78	62
1999	83	85	84	85	90	93	94	98	102	108	111	111	95
2000	113	117	120	120.8+	119	119	120	119	116	115	113	112	107
2001	109	104	105	108	109	110	112	114	114	114	115	115	111
2002	114	115	113	111	109	106	103	99	95	91	85	82	102
2003	81	79	74	70	68	65	62	60	60	58	57	57	66
2004	53	49	47	46	46	42	40	39	37	36	35	34	42
									(3)	(4)	(6)	(8)	(2)
2005	32	31	30	28	27	26	25	24	23	22	21	21	26
	(10)	(11)	(12)	(13)	(13)	(13)	(13)	(14)	(14)	(14)	(14)	(13)	(13)
2006	20	19	18	17	17	16	15	15	14	13	12	12	16
	(12)	(12)	(13)	(13)	(14)	(14)	(13)	(13)	(12)	(12)	(12)	(12)	(13)
2007	11	11	11	11	11	12	12	13	14	15	15	16	13
	(11)	(11)	(10)	(10)	(10)	(11)	(12)	(13)	(15)	(17)	(19)	(21)	(13)

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

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

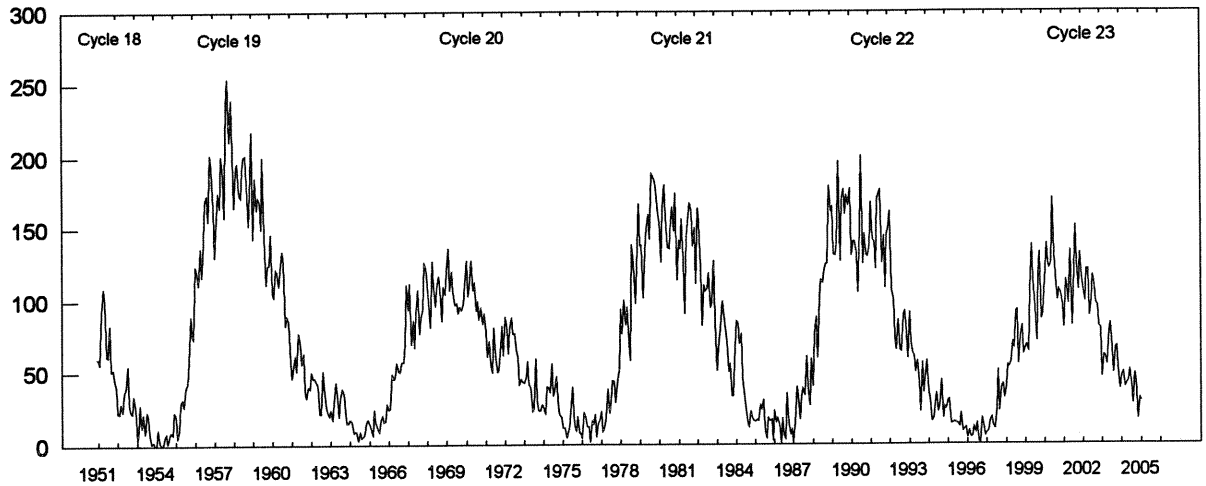
+ April 2000 marks Cycle 23 maximum.

Observed and Predicted Numbers. For the end of Cycle 22, and the rise and decline of Cycle 23, the table above lists observed smoothed sunspot numbers up to the one that includes the most recent monthly mean. We based these smoothed values on final monthly means through Dec 2004 and on provisional numbers thereafter. Table entries with numbers in parentheses below them denote predictions by the McNish-Lincoln method. (See page 9 in the Jul 1987 supplement to *Solar-Geophysical Data.*) Adding the number in parentheses to the predicted value generates the upper limit of the 90% confidence interval. Subtracting the number from the predicted value generates the lower limit. Consider, for example, the August 2005 prediction. There exists a 90% chance that in August, the actual smoothed number will fall somewhere between 10 and 38.

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 - Feb 2005



Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Mean	
1951	59.9	59.9	55.9	92.9	108.5	100.6	61.5	61.0	83.1	51.6	52.4	45.8	69.4	
1952	40.7	22.7	22.0	29.1	23.4	36.4	39.3	54.9	28.2	23.8	22.1	34.3	31.5	
1953	26.5	3.9	10.0	27.8	12.5	21.8	8.6	23.5	19.3	8.2	1.6	2.5	13.9	
1954	0.2	0.5	10.9	1.8	0.8	0.2	4.8	8.4	1.5	7.0	9.2	7.6	4.4	m
1955	23.1	20.8	4.9	11.3	28.9	31.7	26.7	40.7	42.7	58.5	89.2	76.9	38.0	
1956	73.6	124.0	118.4	110.7	136.6	116.6	129.1	169.6	173.2	155.3	201.3	192.1	141.7	
1957	165.0	130.2	157.4	175.2	164.6	200.7	187.2	158.0	235.8	253.8	210.9	239.4	190.2	M
1958	202.5	164.9	190.7	196.0	175.3	171.5	191.4	200.2	201.2	181.5	152.3	187.6	184.8	
1959	217.4	143.1	185.7	163.3	172.0	168.7	149.6	199.6	145.2	111.4	124.0	125.0	159.0	
1960	146.3	106.0	102.2	122.0	119.6	110.2	121.7	134.1	127.2	82.8	89.6	85.6	122.3	
1961	57.9	46.1	53.0	61.4	51.0	77.4	70.2	55.8	63.6	37.7	32.6	39.9	53.9	
1962	38.7	50.3	45.6	46.4	43.7	42.0	21.8	21.8	51.3	39.5	26.9	23.2	37.6	
1963	19.8	24.4	17.1	29.3	43.0	35.9	19.6	33.2	38.8	35.3	23.4	14.9	27.9	
1964	15.3	17.7	16.5	8.6	9.5	9.1	3.1	9.3	4.7	6.1	7.4	15.1	10.2	m
1965	17.5	14.2	11.7	6.8	24.1	15.9	11.9	8.9	16.8	20.1	15.8	17.0	15.1	
1966	28.2	24.4	25.3	48.7	45.3	47.7	56.7	51.2	50.2	57.2	57.2	70.4	47.0	
1967	110.9	93.6	111.8	69.5	86.5	67.3	91.5	107.2	76.8	88.2	94.3	126.4	93.8	
1968	121.8	111.9	92.2	81.2	127.2	110.3	96.1	109.3	117.2	107.7	86.0	109.8	105.9	M
1969	104.4	120.5	135.8	106.8	120.0	106.0	96.8	98.0	91.3	95.7	93.5	97.9	105.5	
1970	111.5	127.8	102.9	109.5	127.5	106.8	112.5	93.0	99.5	86.6	95.2	83.5	104.5	
1971	91.3	79.0	60.7	71.8	57.5	49.8	81.0	61.4	50.2	51.7	63.2	82.2	66.6	
1972	61.5	88.4	80.1	63.2	80.5	88.0	76.5	76.8	64.0	61.3	41.6	45.3	68.9	
1973	43.4	42.9	46.0	57.7	42.4	39.5	23.1	25.6	59.3	30.7	23.9	23.3	38.0	
1974	27.6	26.0	21.3	40.3	39.5	36.0	55.8	33.6	40.2	47.1	25.0	20.5	34.5	
1975	18.9	11.5	11.5	5.1	9.0	11.4	28.2	39.7	13.9	9.1	19.4	7.8	15.5	
1976	8.1	4.3	21.9	18.8	12.4	12.2	1.9	16.4	13.5	20.6	5.2	15.3	12.6	m
1977	16.4	23.1	8.7	12.9	18.6	38.5	21.4	30.1	44.0	43.8	29.1	43.2	27.5	
1978	51.9	93.6	76.5	99.7	82.7	95.1	70.4	58.1	138.2	125.1	97.9	122.7	92.5	
1979	166.6	137.5	138.0	101.5	134.4	149.5	159.4	142.2	188.4	186.2	183.3	176.3	155.4	M
1980	159.6	155.0	126.2	164.1	179.9	157.3	136.3	135.4	155.0	164.7	147.9	174.4	154.6	
1981	114.0	141.3	135.5	156.4	127.5	90.9	143.8	158.7	167.3	162.4	137.5	150.1	140.4	
1982	111.2	163.6	153.8	122.0	82.2	110.4	106.1	107.6	118.8	94.7	98.1	127.0	115.9	
1983	84.3	51.0	66.5	80.7	99.2	91.1	82.2	71.8	50.3	55.8	33.3	33.4	66.6	
1984	57.0	85.4	83.5	69.7	76.4	46.1	37.4	25.5	15.7	12.0	22.8	18.7	45.9	
1985	16.5	15.9	17.2	16.2	27.5	24.2	30.7	11.1	3.9	18.6	16.2	17.3	17.9	
1986	2.5	23.2	15.1	18.5	13.7	1.1	18.1	7.4	3.8	35.4	15.2	6.8	13.4	m
1987	10.4	2.4	14.7	39.6	33.0	17.4	33.0	38.7	33.9	60.6	39.9	27.1	29.4	
1988	59.0	40.0	76.2	88.0	60.1	101.8	113.8	111.6	120.1	125.1	125.1	179.2	100.2	
1989	161.3	165.1	131.4	130.6	138.5	196.2	126.9	168.9	176.7	159.4	173.0	165.5	157.6	M
1990	177.3	130.5	140.3	140.3	132.2	105.4	149.4	200.3	125.2	145.5	131.4	129.7	142.6	
1991	136.9	167.5	141.9	140.0	121.3	169.7	173.7	176.3	125.3	144.1	108.2	144.4	145.7	
1992	150.0	161.1	106.7	99.8	73.8	65.2	85.7	64.5	63.9	88.7	91.8	82.6	94.3	
1993	59.3	91.0	69.8	62.2	61.3	49.8	57.9	42.2	22.4	56.4	35.6	48.9	54.6	
1994	57.8	35.5	31.7	16.1	17.8	28.0	35.1	22.5	25.7	44.0	18.0	26.2	29.9	
1995	24.2	29.9	31.1	14.0	14.5	15.6	14.5	14.3	11.8	21.1	9.0	10.0	17.5	
1996	11.5	4.4	9.2	4.8	5.5	11.8	8.2	14.4	1.6	0.9	17.9	13.3	8.6	m
1997	5.7	7.6	8.7	15.5	18.5	12.7	10.4	24.4	51.3	22.8	39.0	41.2	21.5	
1998	31.9	40.3	54.8	53.4	56.3	70.7	66.6	92.2	92.9	55.5	74.0	81.9	64.3	
1999	62.0	66.3	68.8	63.7	106.4	137.7	113.5	93.7	71.5	116.7	133.2	84.6	93.2	
2000	90.1	112.9	138.5	125.5	121.6	124.9	170.1	130.5	109.7	99.4	106.8	104.4	119.6	M
2001	95.6	80.6	113.5	107.7	96.6	134.0	81.8	106.4	150.7	125.5	106.5	132.2	111.0	
2002	114.1	107.4	98.4	120.7	120.8	88.3	99.9	116.4	109.3	97.5	95.5	80.8	104.0	
2003	79.7	46.0	61.1	60.0	54.6	77.4	83.3	72.7	48.7	65.5	67.3	46.5	63.9	
2004	37.7	45.8	49.1	39.3	41.5	43.2	51.0	40.9	27.7	48.0	43.5	17.9	40.4	
2005	31.3	29.1											30.2	

Values are preliminary after Dec, 2004. For the yearly means, each 'M' marks a sunspot cycle maximum and each 'm' a minimum.

Hα SOLAR FLARES

FEBRUARY 2005

Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	Day	Dur (Min)	Imp Opt	Xray	See	Obs Type	Time (UT)	Area Measurement Apparent (10-6 Disk)	Corr (Sq Deg)	Remarks
HOLL	13	1454	1454	1503	S05	E23	10734	02	15.3	9	SF		3	E		15		F
LEAR	15	0113	0114	0118	S07	E16	10735	02	16.2	5	SF		3	E		20		UF
LEAR		0119	0121	0122	S07	E16	10735	02	16.2	3	SF		3	E		15		UF
LEAR		0215	0221	0227	S09	E17	10735	02	16.4	12	SF		3	E		35		F
LEAR		0656	0659	0708	S10	E20	10735	02	16.8	12	SF		3	E		24		FH
LEAR	16	2315	2315	2323	S11	W02	10735	02	16.8	8	SF		3	E		14		FH
LEAR		2333	2336	0018	S03	W23	10734	02	15.3	45	1N		3	E		165		ZU
LEAR	18	0436	0437	0446	S09	W22	10735	02	16.5	10	SF		3	E		56		FH

"Remarks"

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

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

NOTE: Beginning with the February 2005 data, only H-alpha flares are included in this table. Because the number of H-alpha patrols are dwindling and emphasis is now on the X-ray flare reports, a separate table of solar X-ray flares is now produced.

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

FEBRUARY 2005

Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp Xray	Total Integrated Flux(1)	Total Area(2)	Total(3) Intensity
GOES	03	0014	0025	0049	N04	E90		02	9.7	35	B 1.2	2.4E-04		
GOES		0156	0204	0226	N38	W90		01	26.9	30	B 1.1	1.9E-04		
GOES		0404	0412	0422	S32	W90		01	27.1	18	B 1.0	1.1E-04		
GOES		0714	0723	0743	S55	W26		02	1.0	29	B 3.9	4.9E-04	7.5E+01	4.3E+02
GOES		1155	1202	1210	S21	E80		02	9.6	15	B 3.5	2.3E-04	5.0E+01	8.5E+01
GOES		2344	2349	0005						21	B 1.0	1.3E-04		
GOES	04	0258	0302	0304	S20	E79		02	10.2	6	B 2.3	6.8E-05	2.0E+02	3.6E+02
GOES		0557	0606	0614	S20	E78		02	10.2	17	B 3.7	2.9E-04	4.8E+02	9.7E+02
GOES		1318	1325	1330	N13	E82		02	10.7	12	B 8.0	3.8E-04	1.0E+03	2.2E+03
GOES		1502	1509	1516	N14	E84		02	11.0	14	C 1.3	7.7E-04	1.8E+03	4.7E+03
GOES		2111	2123	2129	N14	E86		02	11.4	18	B 5.2	4.7E-04	1.8E+03	3.9E+03
GOES		2229	2236	2239	N14	E85		02	11.4	10	C 1.2	4.9E-04	2.7E+03	6.6E+03
GOES		2303	2309	2336	N15	E90	10732	02	11.8	33	C 1.3	2.2E-03	3.6E+03	9.7E+03
GOES		2345	2357	0008	N15	E90	10732	02	11.8	23	C 7.1	6.4E-03	6.3E+03	3.1E+04
GOES	05	0815	0832	0845	N17	E87	10732	02	11.9	30	B 8.5	1.3E-03	4.3E+03	1.0E+04
GOES		1805	1813	1821	N18	E82	10732	02	12.0	16	C 1.2	8.1E-04	4.4E+03	1.3E+04
GOES		2351	2357	0004	N17	E80	10732	02	12.1	13	B 3.5	2.5E-04	3.4E+03	7.1E+03
GOES	06	0925	0939	0951	N16	E77	10732	02	12.2	26	C 1.2	1.4E-03	1.3E+03	2.4E+03
GOES		1152	1156	1201						9	B 3.2	1.6E-04		
GOES		1324	1327	1331	N16	E76	10732	02	12.3	7	B 3.2	1.2E-04	5.5E+02	9.2E+02
GOES		1633	1645	1710	N18	E74	10732	02	12.3	37	B 8.2	1.4E-03	2.7E+03	5.3E+03
GOES		1800	1807	1813						13	B 8.0	5.5E-04		
GOES		2155	2158	2200						5	B 3.9	8.7E-05		
GOES	07	0010	0013	0014						4	B 2.8	6.9E-05		
GOES		0115	0118	0120						5	B 2.9	8.6E-05		
GOES		0338	0348	0402	N16	E70	10732	02	12.5	24	B 7.3	8.8E-04		
GOES		0605	0612	0617	S06	E83	10733	02	13.5	12	B 6.1	3.7E-04	1.2E+03	2.9E+03
GOES		0801	0820	0833						32	B 5.9	8.8E-04		
GOES		0945	0951	0956	S06	E82	10733	02	13.5	11	C 1.8	7.3E-04	2.2E+03	7.8E+03
GOES		1306	1344	1406						60	B 9.9	2.7E-03		
GOES		1659	1704	1715	S06	E80	10733	02	13.7	16	C 1.1	8.4E-04	1.9E+03	5.7E+03
GOES		1720	1730	1736	S06	E80	10733	02	13.7	16	C 1.8	1.3E-03	2.6E+03	9.3E+03
GOES		2053	2110	2116	S06	E79	10733	02	13.8	23	B 5.8	6.5E-04	1.4E+03	3.3E+03
GOES		2126	2130	2137	S06	E78	10733	02	13.7	11	B 5.1	3.0E-04	1.3E+03	2.9E+03
GOES		2236	2244	2253	S06	E78	10733	02	13.8	17	C 3.7	2.4E-03	3.2E+03	1.4E+04
GOES	08	0430	0439	0456	N18	E52	10732	02	12.1	26	B 3.8	5.1E-04	3.5E+02	6.9E+02
GOES		1519	1527	1533	S06	E70	10733	02	13.9	14	C 1.9	1.0E-03	2.0E+03	6.9E+03
GOES		2134	2144	2153	N18	E45	10732	02	12.3	19	C 1.2	9.8E-04	2.6E+03	6.9E+03
GOES	09	0121	0125	0130	N19	E45	10732	02	12.5	9	B 3.6	1.6E-04	4.0E+02	8.0E+02
GOES		0307	0312	0316	S10	E65	10733	02	14.0	9	B 5.0	2.0E-04	2.3E+02	4.0E+02
GOES		0610	0614	0616	N19	E36	10732	02	12.0	6	B 7.3	1.7E-04	5.5E+02	1.5E+03
GOES		0653	0658	0702	N18	E36	10732	02	12.0	9	B 5.1	2.1E-04	4.0E+02	8.7E+02
GOES		1209	1212	1219	S07	E80	10733	02	15.5	10	B 3.6	1.8E-04	7.5E+01	1.3E+02
GOES		1453	1457	1459	S07	E80	10733	02	15.6	6	B 4.7	1.3E-04	2.8E+02	5.0E+02
GOES		1506	1509	1511	S07	E80	10733	02	15.6	5	B 5.6	1.3E-04	2.0E+02	3.6E+02
GOES		2050	2055	2058	S09	E82	10734	02	16.0	8	B 4.1	1.7E-04	3.5E+02	6.6E+02
GOES		2135	2138	2140	S06	E80	10734	02	15.9	5	B 6.1	1.3E-04	6.5E+02	1.3E+03
GOES		2308	2311	2315	S09	E81	10734	02	16.0	7	B 6.5	2.1E-04	8.3E+02	2.0E+03
GOES	10	0007	0010	0015	S09	E81	10734	02	16.1	8	C 1.7	5.5E-04	1.5E+03	4.7E+03
GOES		0528	0532	0535	S06	E78	10734	02	16.1	7	B 5.2	1.7E-04	8.5E+02	1.8E+03
GOES		1025	1029	1035						10	B 3.7	2.1E-04		
GOES		1947	2014	2021			10735			34	B 7.0	1.0E-03		
GOES	11	0954	1000	1005	S07	E50	10734	02	15.1	11	C 1.0	4.4E-04	1.2E+03	3.2E+03
GOES		1350	1353	1357	S06	E62	10735	02	16.2	7	B 6.3	2.4E-04	2.8E+02	5.1E+02
GOES	12	0229	0235	0246	S09	E61	10735	02	16.7	17	B 5.3	4.6E-04	3.5E+02	6.3E+02
GOES		0324	0329	0337	S07	E60	10735	02	16.6	13	B 8.9	5.5E-04	8.5E+02	1.9E+03
GOES		0513	0517	0522	N18	W02	10732	02	12.1	9	B 4.4	2.1E-04	3.0E+02	6.2E+02
GOES		1044	1049	1100	N14	W11	10732	02	11.6	16	B 3.6	3.0E-04	3.5E+02	6.9E+02
GOES		1112	1117	1121	N14	W11	10732	02	11.6	9	B 5.1	2.3E-04	6.8E+02	1.7E+03

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

FEBRUARY 2005

Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp Xray	Total Integrated Flux(1)	Total Area(2)	Total(3) Intensity
GOES	12	1248	1251	1253	N68	E90		02	20.7	5	B 2.5	6.8E-05		
GOES	13	1028	1040	1051	S11	E09	10733	02	14.1	23	C 2.7	2.2E-03	3.4E+03	1.4E+04
GOES		1209	1213	1218						9	B 4.1	2.0E-04		
GOES		1450	1458	1504	S06	E21	10734	02	15.2	14	C 1.4	7.7E-04	1.9E+03	4.3E+03
GOES		1724	1729	1733	S05	E19	10734	02	15.1	9	B 5.6	2.0E-04	3.8E+02	8.4E+02
GOES		2223	2230	2250	S54	W90		02	6.2	27	B 3.3	4.8E-04		
GOES	14	0358	0408	0422	S03	E13	10734	02	15.1	24	C 1.9	2.2E-03	2.1E+03	8.3E+03
GOES		1152	1158	1206	S11	W05	10733	02	14.1	14	C 1.5	8.1E-04	1.8E+03	7.0E+03
GOES		1526	1529	1533	N13	W41	10732	02	11.5	7	B 2.8	1.0E-04	2.3E+02	4.1E+02
GOES		1947	1954	2003	S08	E20	10735	02	16.3	16	B 3.6	3.0E-04	5.0E+01	8.5E+01
GOES	15	0108	0117	0123	S06	E16	10735	02	16.2	15	B 4.5	3.6E-04	2.3E+02	4.0E+02
GOES		0212	0222	0229	S06	E15	10735	02	16.2	17	B 6.3	4.3E-04	5.5E+02	1.2E+03
GOES		0411	0418	0500	S02	W00	10734	02	15.2	49	B 5.7	1.6E-03	8.0E+02	1.9E+03
GOES		0653	0700	0703	S09	E19	10735	02	16.7	10	B 5.2	2.3E-04	7.0E+02	1.8E+03
GOES		0931	0935	0940	S53	E90		02	23.1	9	B 3.3	1.5E-04	2.0E+02	1.4E+03
GOES		1333	1341	1347	S10	E15	10735	02	16.7	14	B 4.3	3.0E-04	8.8E+02	1.8E+03
GOES		1535	1539	1543	S10	E14	10735	02	16.7	8	B 2.6	1.1E-04	5.0E+01	8.3E+01
GOES		1617	1626	1635	S11	E13	10735	02	16.6	18	B 8.7	7.4E-04	1.4E+03	3.7E+03
GOES		1928	1948	2005			10734			37	C 1.1	1.7E-03		
GOES		2156	2200	2205	N15	E02		02	16.1	9	B 2.3	1.2E-04		
GOES	16	0224	0229	0243	S01	W27	10733	02	14.1	19	B 2.7	2.8E-04		
GOES		0619	0624	0632	N14	W63	10732	02	11.5	13	B 5.8	3.5E-04	8.0E+02	1.9E+03
GOES		0815	0819	0823	S11	E02	10735	02	16.5	8	B 2.9	1.2E-04		
GOES		1334	1338	1344	S06	E01	10735	02	16.6	10	B 3.0	1.6E-04		
GOES		1611	1614	1616	S10	E01	10735	02	16.7	5	B 2.1	5.5E-05	1.3E+02	2.4E+02
GOES		1633	1637	1640	S10	E01	10735	02	16.8	7	C 1.9	4.7E-04	1.3E+03	5.9E+03
GOES		2303	2315	2319	S10	W03	10735	02	16.7	16	B 4.7	3.0E-04	7.3E+02	1.9E+03
GOES		2329	2338	2353	S03	W24	10734	02	15.2	24	C 4.9	4.7E-03	3.9E+03	2.6E+04
GOES	17	0618	0622	0625	S10	W10	10735	02	16.5	7	B 2.2	7.6E-05	5.0E+01	8.8E+01
GOES		0704	0710	0717						13	B 2.3	1.6E-04		
GOES		2056	2103	2111	N12	W83	10732	02	11.6	15	B 8.0	5.9E-04	6.0E+02	1.3E+03
GOES		2216	2223	2228	S03	W37	10734	02	15.2	12	B 5.4	3.3E-04	6.0E+02	1.7E+03
GOES		2317	2321	2325	N15	W90	10732	02	11.1	8	B 6.2	2.6E-04	1.5E+03	4.1E+03
GOES		2328	2332	2337	N15	W90	10732	02	11.2	9	B 8.2	3.5E-04	1.8E+03	5.6E+03
GOES		2339	2344	2348	N15	W90	10732	02	11.2	9	C 2.3	8.0E-04	2.3E+03	9.4E+03
GOES		2358	0002	0004	N15	W90	10732	02	11.2	6	B 8.4	2.7E-04	2.0E+03	6.8E+03
GOES	18	0100	0105	0110	N15	W90	10732	02	11.2	10	C 1.0	4.4E-04	1.8E+03	5.8E+03
GOES		0117	0121	0124	N14	W90	10732	02	11.2	7	C 1.4	4.8E-04	2.1E+03	7.5E+03
GOES		0302	0309	0312	N14	W90	10732	02	11.3	10	B 5.2	2.6E-04	1.6E+03	4.4E+03
GOES		0400	0403	0405						5	B 2.3	6.2E-05		
GOES		0433	0437	0439	S09	W19	10735	02	16.8	6	C 1.2	2.4E-04	1.3E+03	4.4E+03
GOES		0536	0540	0544	N14	W90	10732	02	11.4	8	B 3.9	1.6E-04	1.2E+03	2.9E+03
GOES		0707	0713	0717						10	B 3.4	1.8E-04		
GOES		0754	0759	0810	N14	W90	10732	02	11.5	16	B 4.0	3.3E-04	9.0E+02	1.8E+03
GOES		0824	0828	0831	N14	W90	10732	02	11.5	7	B 7.5	2.4E-04	1.8E+03	4.9E+03
GOES		0902	0921	0927	N13	W90	10732	02	11.6	25	B 6.8	8.3E-04	2.4E+03	6.9E+03
GOES		1152	1155	1204	N13	W90	10732	02	11.7	12	B 3.4	2.3E-04	1.3E+03	3.0E+03
GOES		1209	1217	1232	N14	W90	10732	02	11.7	23	B 4.3	5.4E-04	1.6E+03	3.8E+03
GOES		1252	1322	1328	N13	W90	10732	02	11.7	36	C 2.0	2.4E-03	3.4E+03	1.4E+04
GOES		1427	1439	1446	N13	W90	10732	02	11.8	19	B 3.9	3.6E-04	1.4E+03	3.1E+03
GOES		1505	1545	1558	N13	W90	10732	02	11.8	53	C 1.4	2.6E-03	3.4E+03	1.1E+04
GOES		1640	1643	1645	N13	W90	10732	02	11.9	5	B 3.7	9.7E-05	1.7E+03	3.6E+03
GOES		1704	1708	1712	N12	W90	10732	02	11.9	8	B 3.0	1.3E-04	8.8E+02	1.8E+03
GOES		2032	2036	2038						6	B 3.5	1.1E-04		
GOES		2140	2156	2202	S11	W31	10735	02	16.6	22	B 8.5	7.7E-04	1.1E+03	3.0E+03
GOES		2230	2235	2243	N12	W90	10732	02	12.1	13	B 9.0	5.3E-04	1.4E+03	2.9E+03
GOES	19	0033	0041	0048	N13	W90	10732	02	12.2	15	B 4.4	3.3E-04	1.8E+02	3.0E+02
GOES		0214	0220	0222						8	B 3.7	1.5E-04		
GOES		0317	0321	0332	N11	W90	10732	02	12.4	15	B 3.2	2.6E-04	2.3E+02	3.9E+02
GOES		0423	0432	0456	N12	W90	10732	02	12.4	33	B 7.7	1.2E-03	1.4E+03	3.1E+03
GOES		0603	0609	0615	N11	W90	10732	02	12.5	12	C 1.2	7.7E-04	1.5E+03	3.2E+03

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

FEBRUARY 2005

Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp Xray	Total Integrated Flux(1)	Total Area(2)	Total(3) Intensity
GOES	19	0909	0915	0921						12	B 3.8	2.5E-04		
GOES		1036	1101	1113	N12	W90	10732	02	12.7	37	M 3.3	3.5E-02	9.2E+03	7.1E+04
GOES		2053	2056	2059	S65	E90		02	27.9	6	B 1.8	5.9E-05		
GOES		2142	2146	2150	N24	E43		02	23.2	8	B 2.0	8.4E-05		
GOES		2257	2300	2304						7	B 1.6	6.0E-05		
GOES	20	0418	0422	0425						7	B 1.4	5.0E-05		
GOES		0445	0448	0451	N33	E90		02	27.3	6	B 1.7	5.2E-05		
GOES		0643	0649	0659	S12	W06		02	19.8	16	B 1.6	1.3E-04	7.5E+01	4.1E+02
GOES		1201	1205	1207			10735			6	B 1.0	3.1E-05		
GOES		1532	1628	1752	S72	E90		02	28.9	140	B 3.8	2.6E-03	5.0E+01	1.8E+02
GOES	21	0852	0856	0900	N20	E90		02	28.2	8	B 1.8	7.2E-05		
GOES		1044	1048	1058	N47	W90		02	13.9	14	B 1.7	1.3E-04		
GOES		1234	1238	1240	S11	W66	10735	02	16.5	6	B 2.2	6.6E-05	2.0E+02	3.5E+02
GOES		1331	1334	1336	N15	W63	10736	02	16.8	5	B 1.4	3.9E-05		
GOES		1416	1422	1425	N15	W63	10736	02	16.8	9	B 6.4	1.7E-04	8.0E+02	2.0E+03
GOES		1957	2000	2006	N15	W67	10736	02	16.7	9	B 2.8	1.4E-04	2.5E+02	4.4E+02
GOES		2014	2019	2028	N15	W67	10736	02	16.8	14	B 6.0	3.7E-04	9.0E+02	2.2E+03
GOES		2212	2216	2220	S27	W90		02	14.9	8	B 1.9	7.9E-05		
GOES		2241	2245	2248	S10	W74	10735	02	16.4	7	B 2.0	7.1E-05	2.0E+02	3.5E+02
GOES	22	1409	1414	1424	S10	W82	10734	02	16.4	15	B 2.6	2.0E-04	3.5E+02	5.9E+02
GOES		1624	1628	1637	N17	W90	10736	02	15.8	13	B 2.1	1.5E-04	1.0E+02	1.8E+02
GOES		1806	1859	1936						90	B 8.9	2.8E-03		
GOES		2115	2119	2122						7	B 4.1	1.6E-04		
GOES	23	0540	0544	0546	N15	W90	10736	02	16.4	6	B 2.6	6.8E-05	4.8E+02	8.9E+02
GOES		0559	0603	0605	S10	W90	10735	02	16.5	6	B 2.2	5.7E-05	1.8E+02	3.0E+02
GOES		0621	0628	0633	S10	W90	10735	02	16.5	12	C 1.3	4.9E-04	1.8E+03	5.4E+03
GOES		0731	0744	0751	S10	W90	10735	02	16.5	20	B 1.8	2.1E-04	8.0E+02	1.5E+03
GOES		0815	0823	0827	N14	W90	10736	02	16.5	12	B 2.4	1.5E-04	3.0E+02	5.4E+02
GOES		0844	0848	0850	N14	W90	10736	02	16.6	6	B 8.1	1.4E-04	5.5E+02	1.1E+03
GOES		0931	0934	0936	N14	W90	10736	02	16.6	5	C 2.6	3.7E-04	1.4E+03	5.4E+03
GOES		1144	1148	1150	N14	W90	10736	02	16.7	6	B 2.6	7.7E-05		
GOES		1359	1404	1406	N14	W90	10736	02	16.8	7	B 6.0	1.2E-04	8.0E+02	1.7E+03
GOES	24	0007	0022	0038			10737			31	B 2.4	3.8E-04		

Note 1: Total integrated flux computed from the event start time to end if available (units=J/m*2).

Note 2: Total area is derived from SXI imagery in units of squared arc seconds of the largest flaring area.

Note 3: Total intensity is derived from SXI imagery in units of data numbers/second of the largest flaring area.

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

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

FEBRUARY 2005

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
13	2695	SVTO	4 S/F	1035.0	1036.0	4.0	40.0			QL=4 ST=2 TYP=3
14	2695	SVTO	8 S	1156.0	1156.0	1.0	33.0			QL=4 ST=2 TYP=3
16	2695	LEAR	8 S	2335.0	2335.0	U	56.0			QL=4 ST=2 TYP=3
	2695	PALE	8 S	2335.0	2336.0	1.0	63.0			QL=4 ST=2 TYP=3
	8800	PALE	8 S	2335.0	2335.0	1.0	54.0			QL=4 ST=2 TYP=3
18	8800	LEAR	8 S	0436.0	0436.0	U	71.0			QL=4 ST=2 TYP=3
23	2695	SVTO	8 S	0934.0	0934.0	1.0	54.0			QL=4 ST=2 TYP=3
	8800	SVTO	8 S	0934.0	0934.0	U	27.0			QL=4 ST=2 TYP=3

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

Explanation of Type Code:

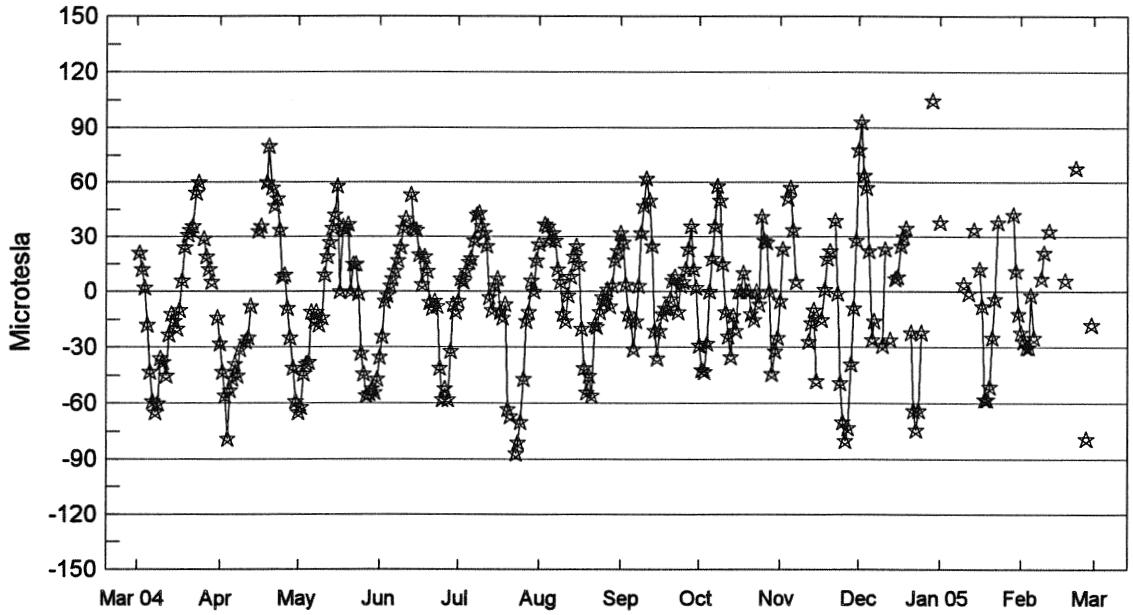
1 Simple 1	7 Minor +	24 Rise	30 Post Burst Increase A	43 Onset of Noise Storm
2 Simple 1F	8 Spike	25 Rise A	31 Post Burst Decrease	44 Noise Storm in Progress
3 Simple 2	20 Simple 3	26 Fall	33 Absorption	45 Complex
4 Simple 2F	21 Simple 3A	27 Rise and Fall	40 Fluctuation	46 Complex F
5 Simple	22 Simple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

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

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

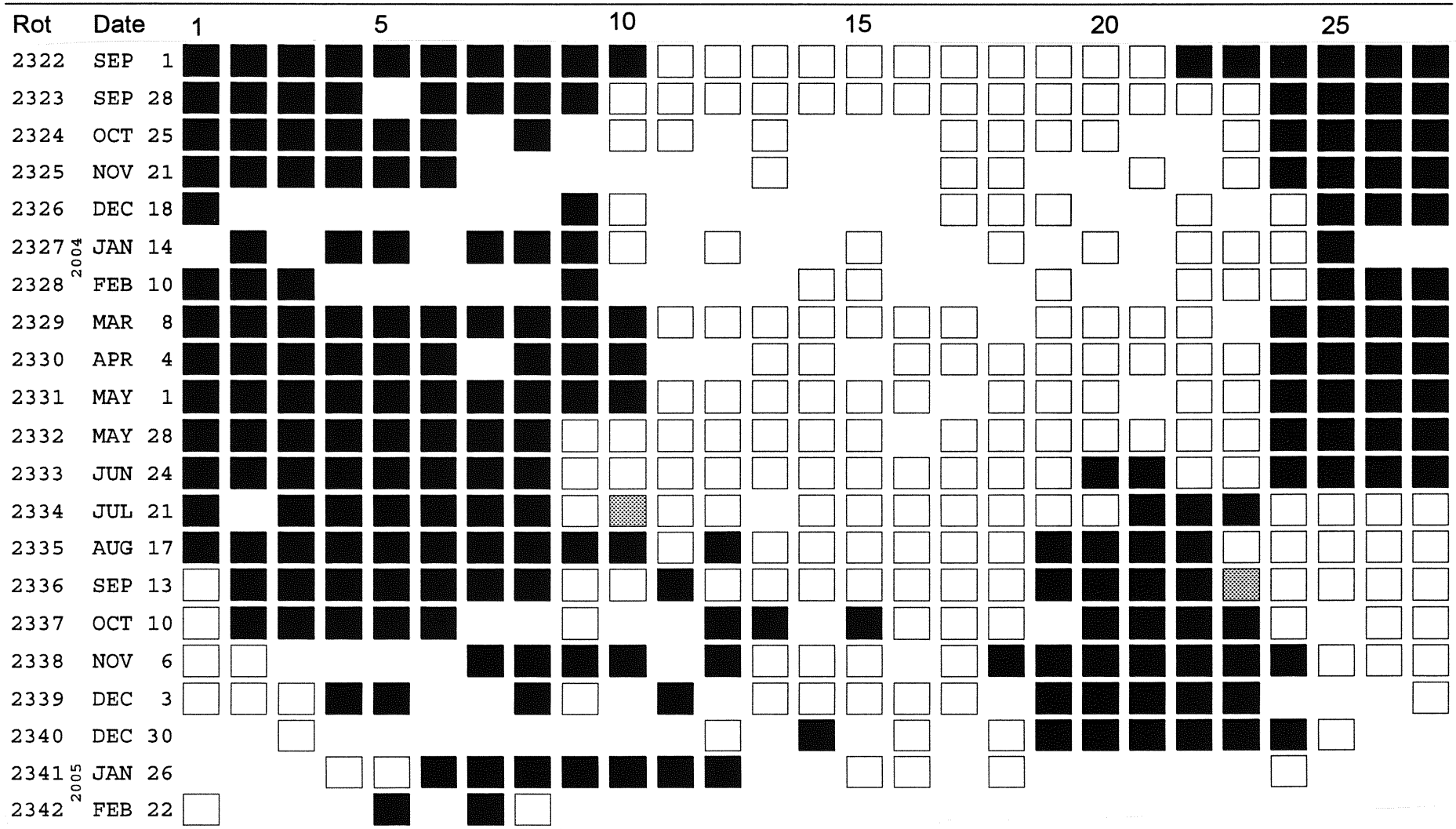
Stanford Mean Solar Magnetic Field (Microtesla)
"Sun-As-A-Star"

31
Feb 05



Day	Mar 04	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan 05	Feb
1	---	-28	-65	-35	-5	26	32	-29	-5	78	38	-22
2	21	-43	-62	-24	7	---	27	-42	23	93	---	-27
3	12	-56	-44	-5	5	37	4	-43	---	64	---	-30
4	2	-79	-39	-2	11	36	-12	-28	51	57	---	-30
5	-18	-53	-38	3	16	28	-16	0	57	22	---	-2
6	-43	-47	-11	7	18	32	-31	18	34	-26	---	-25
7	-59	-39	-16	11	28	28	-16	36	5	-16	---	---
8	-65	-45	-11	17	42	12	3	58	---	---	---	---
9	-60	-31	-18	24	43	5	32	50	---	---	---	7
10	-36	---	-14	35	36	-12	47	15	---	-29	4	21
11	-38	-27	9	40	32	-16	62	-11	---	23	---	---
12	-45	-25	19	---	25	-2	50	-24	-27	---	-1	33
13	-23	-8	27	53	-3	8	25	-35	-17	-26	---	---
14	-12	---	35	35	-10	19	-21	-13	-10	---	34	---
15	-16	---	42	34	3	25	-36	-21	-48	7	---	---
16	-20	33	58	20	7	15	-21	---	---	8	12	---
17	-10	36	---	4	-11	-20	-12	---	-15	25	-8	---
18	6	---	36	19	-14	-41	-9	10	1	30	-58	6
19	24	60	34	11	-7	-54	-9	---	18	35	-58	---
20	31	80	37	-6	-63	-45	-4	---	22	---	-51	---
21	34	57	---	-9	-67	-56	6	-12	---	-22	-25	---
22	36	47	15	-5	---	-18	8	-15	39	-64	-4	68
23	54	51	15	-8	-87	-19	-11	---	-1	-74	38	---
24	60	34	-1	-41	-81	-11	3	-7	-49	-64	---	---
25	---	8	-33	-58	-70	-3	5	41	-70	-22	---	---
26	29	9	-44	-52	-47	-5	12	28	-80	---	---	-79
27	19	-9	-56	-58	-16	1	23	27	-73	---	---	---
28	12	-25	-55	-32	-11	-8	36	---	-39	---	---	-18
29	5	-41	-52	-7	6	3	12	-44	-9	105	42	
30	---	-59	-54	-11	0	17	2	-32	28	---	11	
31	-14		-47		17	22		-25		---	-12	

STANFORD MEAN SOLAR MAGNETIC FIELD

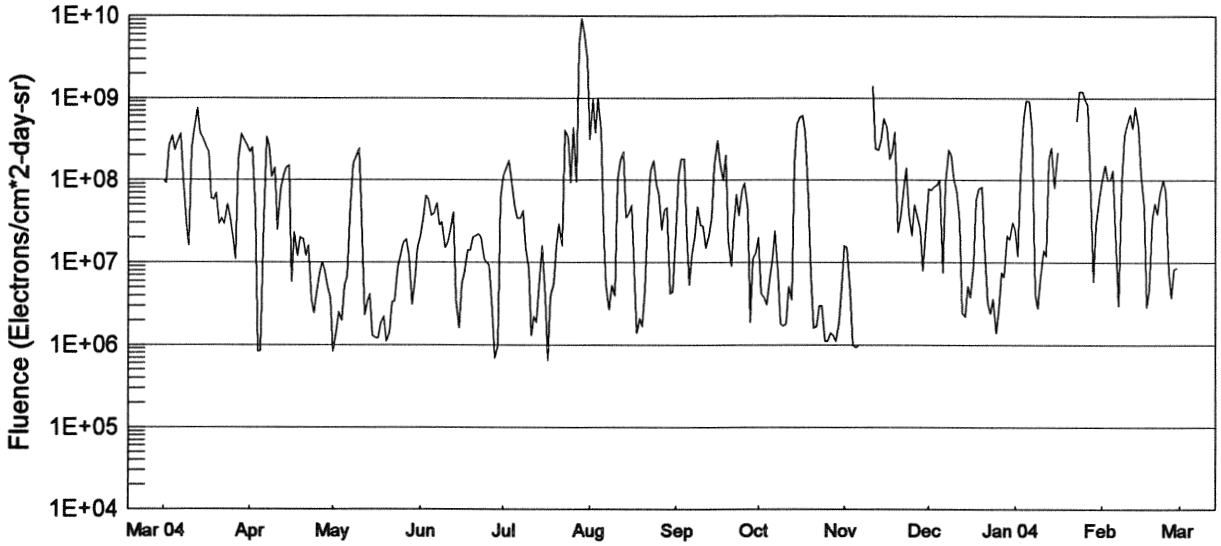


Mean Solar Magnetic Field Polarity: □ = field > 2 microT; ▒ = -2 microT ≤ field ≤ 2 microT

■ = 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
Mar 2004 - Feb 2005



Day	Mar 04	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan 05	Feb
1	9.9E+07	2.2E+08	8.3E+05	2.1E+07	1.1E+08	3.1E+08	2.4E+07	2.0E+07	1.6E+07	7.8E+07	2.5E+07	9.5E+07
2	9.2E+07	2.5E+08	1.4E+06	3.4E+07	1.4E+08	9.6E+08	1.1E+08	4.2E+06	1.5E+07	7.5E+07	1.2E+07	1.5E+08
3	2.6E+08	4.1E+07	2.5E+06	6.4E+07	1.7E+08	3.7E+08	1.8E+08	3.8E+06	4.5E+06	8.4E+07	1.6E+08	1.0E+08
4	3.4E+08	8.3E+05	2.0E+06	5.8E+07	1.0E+08	1.0E+09	1.8E+08	3.1E+06	9.9E+05	8.7E+07	5.3E+08	1.0E+08
5	2.3E+08	8.5E+05	5.4E+06	3.7E+07	4.7E+07	4.1E+08	2.2E+07	6.6E+06	9.3E+05	1.0E+08	9.2E+08	1.3E+08
6	2.9E+08	3.3E+07	6.6E+06	3.9E+07	3.4E+07	2.7E+07	5.4E+06	1.1E+07	9.8E+05	7.5E+06	9.1E+08	1.5E+07
7	3.6E+08	3.3E+08	5.2E+07	5.2E+07	3.4E+07	5.1E+06	1.2E+07	2.4E+07	-999	9.3E+07	4.1E+08	3.0E+06
8	1.1E+08	2.6E+08	1.6E+08	2.8E+07	4.2E+07	2.7E+06	2.1E+07	7.6E+06	-999	2.3E+08	4.3E+06	9.8E+07
9	3.1E+07	1.1E+08	1.9E+08	3.1E+07	1.5E+07	5.3E+06	4.7E+07	1.8E+06	-999	2.0E+08	2.8E+06	3.4E+08
10	1.6E+07	1.4E+08	2.4E+08	1.5E+07	8.4E+06	4.0E+06	2.8E+07	1.7E+06	-999	1.0E+08	6.5E+06	4.7E+08
11	2.5E+08	2.5E+07	3.4E+07	1.7E+07	1.3E+06	1.0E+08	2.7E+07	1.8E+06	1.4E+09	7.6E+07	1.4E+07	6.3E+08
12	4.7E+08	7.8E+07	2.3E+06	2.4E+07	2.2E+06	1.7E+08	1.5E+07	5.1E+06	2.4E+08	3.2E+07	1.2E+07	4.2E+08
13	7.4E+08	1.1E+08	3.3E+06	4.0E+07	1.9E+06	2.2E+08	2.1E+07	3.5E+06	2.3E+08	2.4E+06	1.8E+08	7.8E+08
14	3.8E+08	1.4E+08	4.1E+06	3.5E+06	6.6E+06	3.5E+07	3.5E+07	1.6E+08	3.1E+08	2.2E+06	2.5E+08	4.5E+08
15	3.2E+08	1.5E+08	1.3E+06	1.6E+06	1.6E+07	3.8E+07	1.5E+08	4.7E+08	5.5E+08	5.2E+06	8.1E+07	1.2E+08
16	2.6E+08	5.9E+06	1.2E+06	5.6E+06	3.8E+06	4.9E+07	3.0E+08	5.7E+08	4.3E+08	3.8E+06	2.2E+08	4.7E+07
17	2.2E+08	2.3E+07	1.2E+06	7.6E+06	6.5E+05	8.4E+06	1.6E+08	6.0E+08	1.8E+08	9.5E+06	-999	2.9E+06
18	6.0E+07	1.2E+07	1.8E+06	1.4E+07	4.0E+06	1.4E+06	9.8E+07	3.8E+08	2.2E+08	5.7E+07	-999	4.7E+06
19	5.7E+07	2.0E+07	2.2E+06	1.4E+07	5.5E+06	2.1E+06	2.0E+08	5.9E+07	3.8E+08	7.8E+07	-999	3.4E+07
20	6.9E+07	1.9E+07	1.1E+06	2.0E+07	1.6E+07	1.7E+06	1.8E+07	6.9E+06	2.3E+07	8.2E+07	-999	5.2E+07
21	2.9E+07	1.2E+07	1.4E+06	2.1E+07	2.9E+07	4.6E+06	9.0E+06	1.6E+06	3.4E+07	1.6E+07	-999	3.9E+07
22	3.4E+07	1.6E+07	3.3E+06	2.2E+07	1.6E+07	4.4E+07	3.0E+07	1.7E+06	7.9E+07	3.2E+06	-999	6.9E+07
23	2.9E+07	3.5E+06	3.4E+06	2.0E+07	4.0E+08	1.3E+08	6.6E+07	3.0E+06	1.4E+08	2.4E+06	5.2E+08	9.9E+07
24	5.1E+07	2.4E+06	8.9E+06	1.1E+07	3.3E+08	1.7E+08	3.7E+07	3.0E+06	3.9E+07	3.6E+06	1.2E+09	7.3E+07
25	3.7E+07	4.3E+06	1.2E+07	1.0E+07	9.3E+07	9.2E+07	7.6E+07	1.1E+06	2.1E+07	1.4E+06	1.2E+09	7.5E+06
26	2.0E+07	7.5E+06	1.7E+07	9.2E+06	4.3E+08	6.8E+07	9.1E+07	1.1E+06	5.0E+07	2.7E+06	9.6E+08	3.8E+06
27	1.1E+07	1.0E+07	1.9E+07	2.6E+06	9.4E+07	2.5E+07	4.5E+07	1.4E+06	3.7E+07	7.6E+06	8.2E+08	8.3E+06
28	1.8E+08	7.9E+06	1.2E+07	7.0E+05	4.5E+09	4.3E+07	1.9E+06	1.3E+06	2.6E+07	6.6E+06	5.9E+07	8.7E+06
29	3.6E+08	4.8E+06	3.1E+06	9.5E+05	9.3E+09	4.6E+07	1.1E+07	1.1E+06	7.9E+06	2.1E+07	5.9E+06	
30	3.1E+08	3.8E+06	5.9E+06	6.0E+07	6.4E+09	4.2E+06	1.3E+07	1.9E+06	2.7E+07	1.9E+07	2.8E+07	
31	2.7E+08		1.5E+07		3.0E+09	4.4E+06		5.2E+06		3.0E+07	6.0E+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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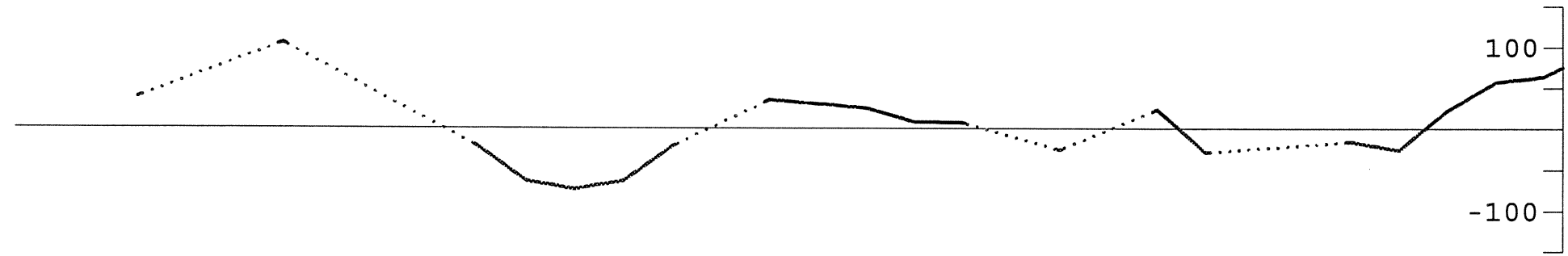
SOLAR MAGNETIC FIELD SYNOPTIC CHART

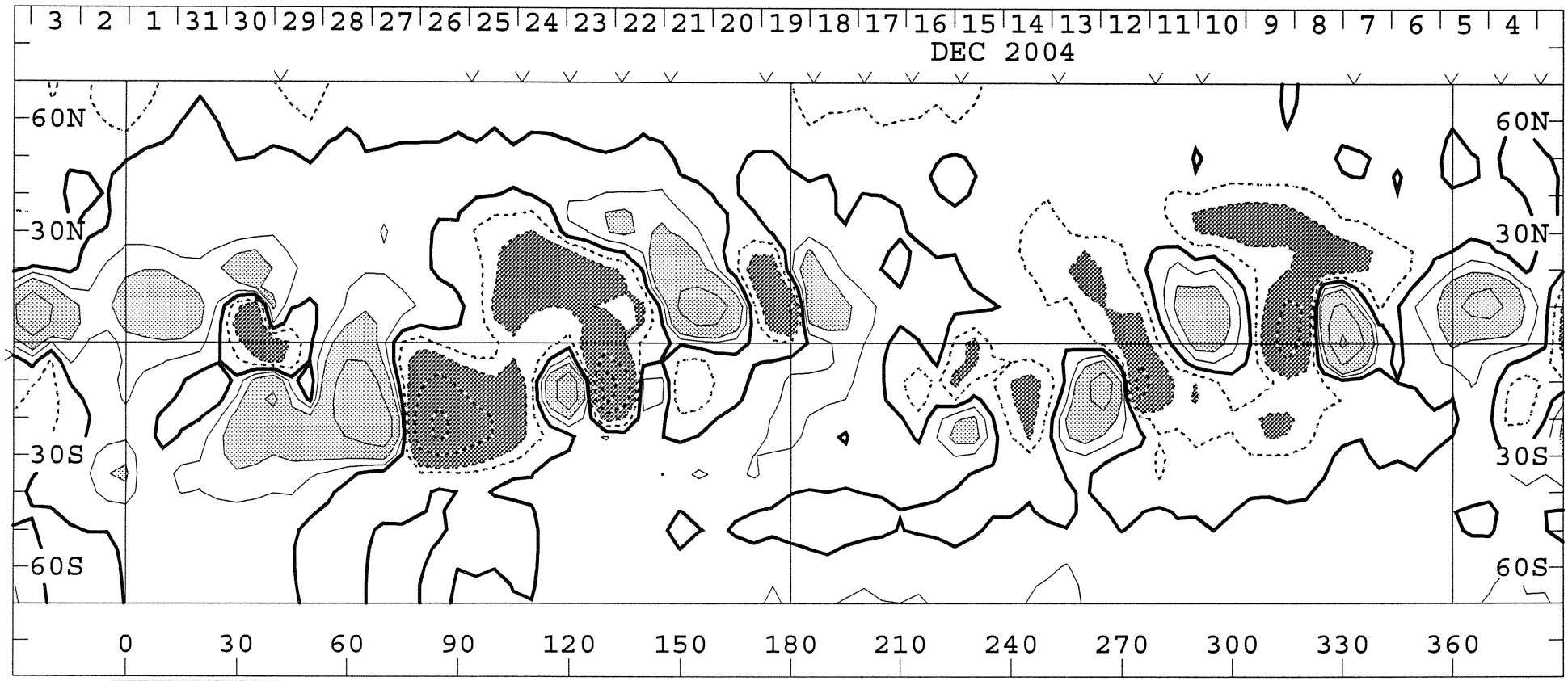
CARRINGTON ROTATION NUMBER 2024

(5 December 2004 to 2 January 2005)

WILCOX SOLAR OBSERVATORY



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



Heliographic Longitude

SOLAR MAGNETIC FIELD SYNOPTIC CHART

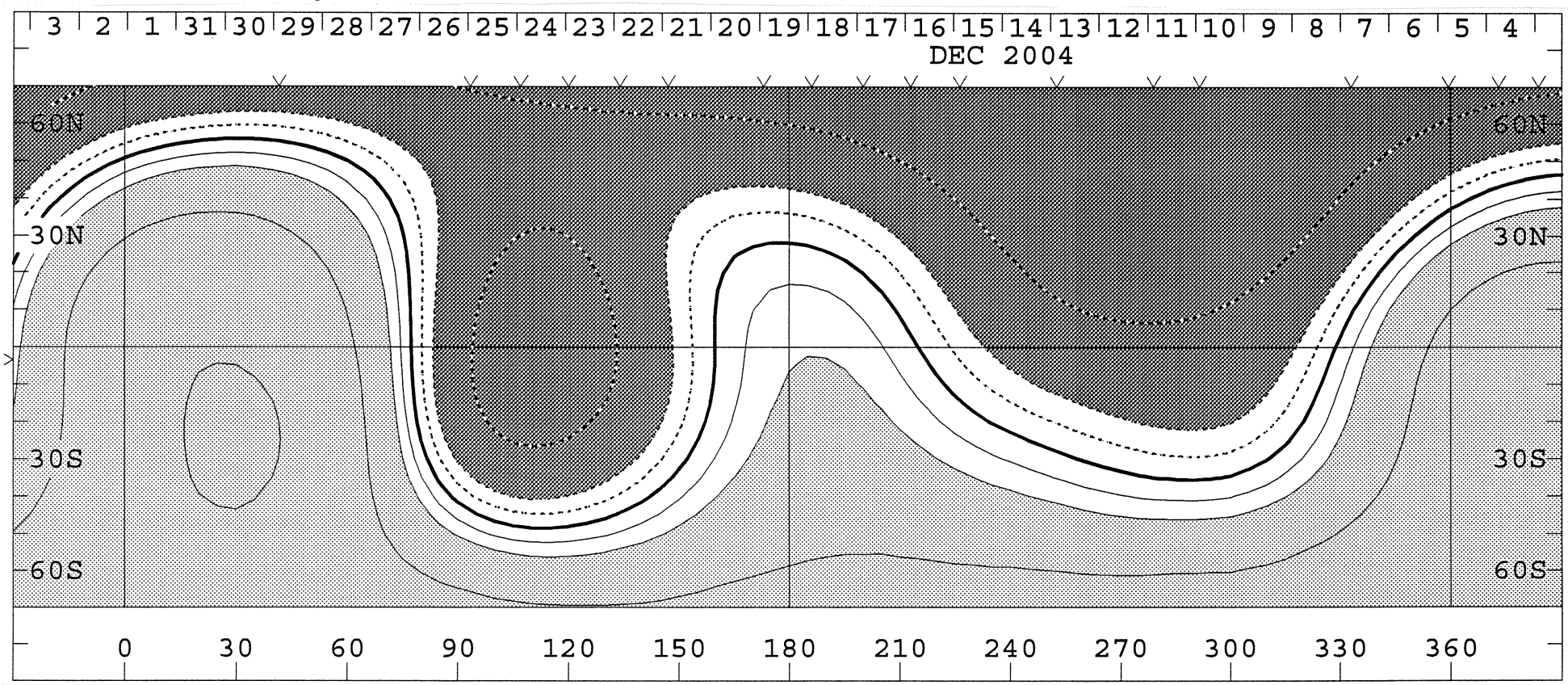
SOURCE SURFACE FIELD

CARRINGTON ROTATION NUMBER 2024

(5 December 2004 to 2 January 2005)

Wilcox Solar Observatory

0, ±1, 2, 5, 10, 20 microTesla

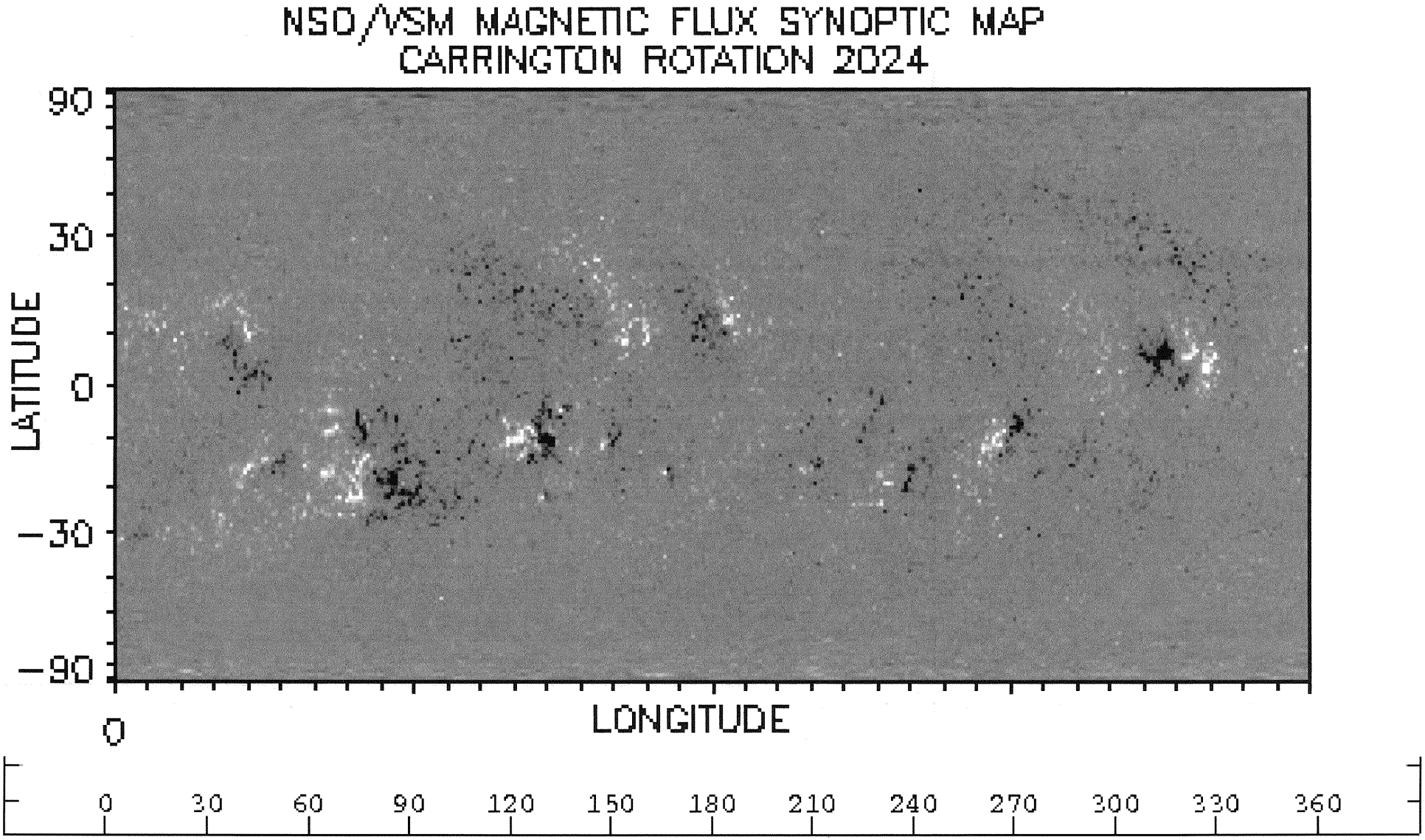


Heliographic Longitude

SOLAR MAGNETIC FIELD SYNOPTIC CHART

CARRINGTON ROTATION NUMBER 2024
(5 December 2004 to 2 January 2005)

National Solar Observatory/Kitt Peak



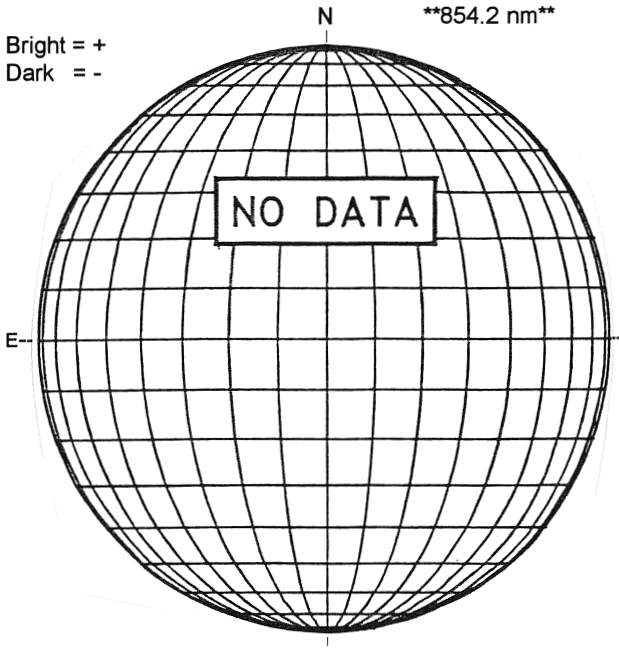
Heliographic Longitude

JANUARY 1, 2005 (P= 2.00, Bo = -3.04, Lo = 13.86)

KITT PEAK MAGNETOGRAM--SOLIS

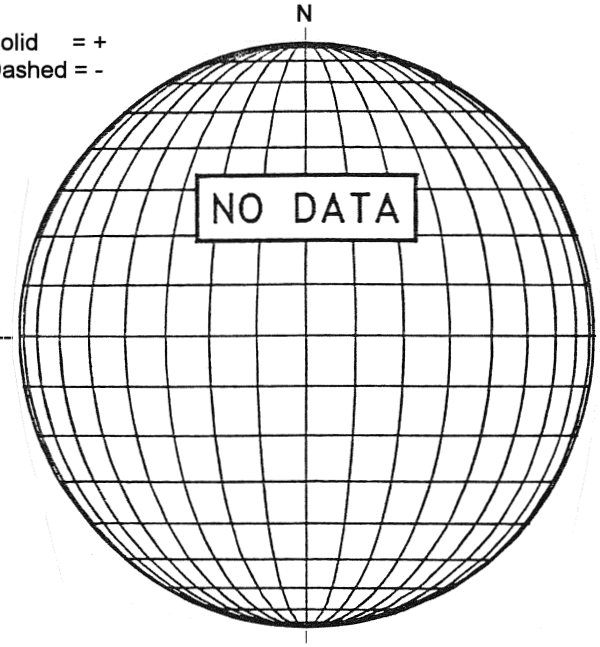
854.2 nm

Bright = +
Dark = -



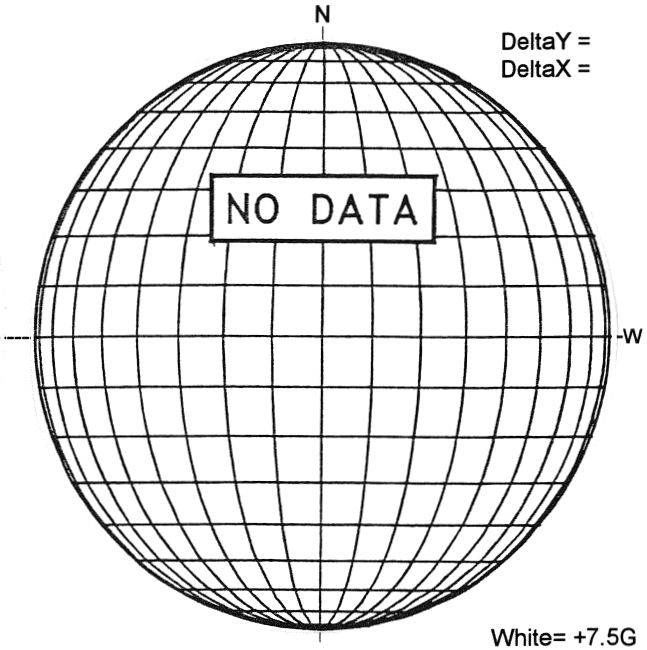
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



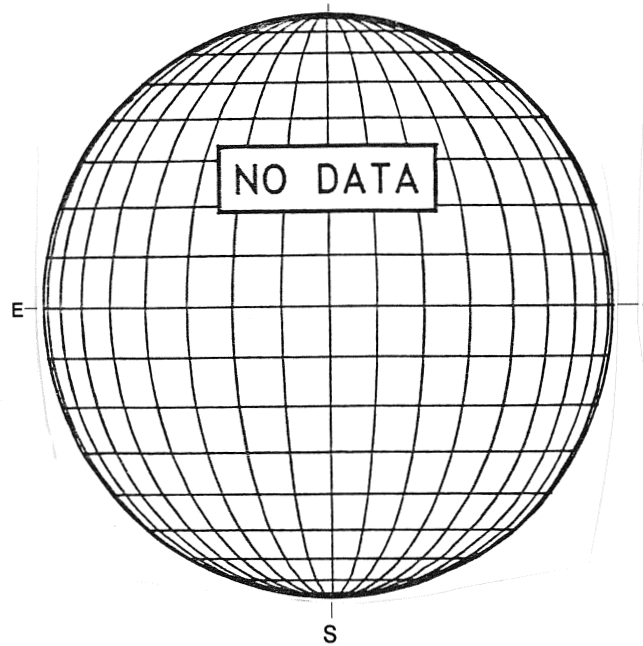
MT. WILSON MAGNETOGRAM

DeltaY =
DeltaX =

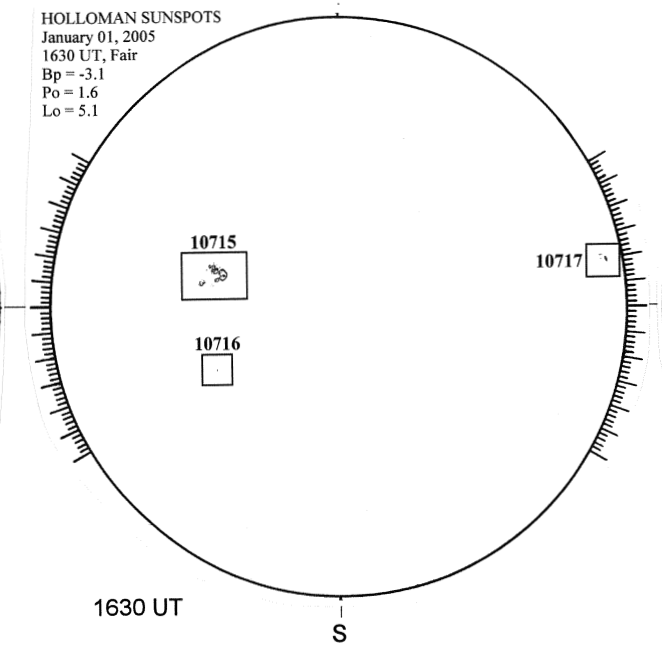


White= +7.5G
Black = -7.5G

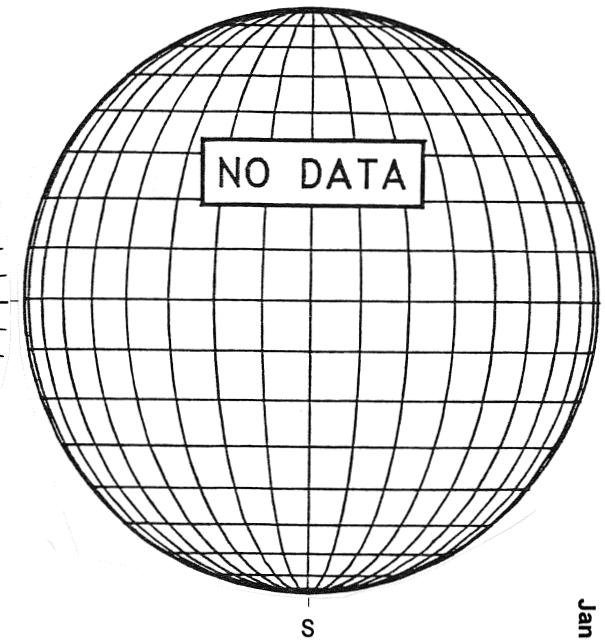
BIG BEAR H-ALPHA



HOLLOMAN SUNSPOTS



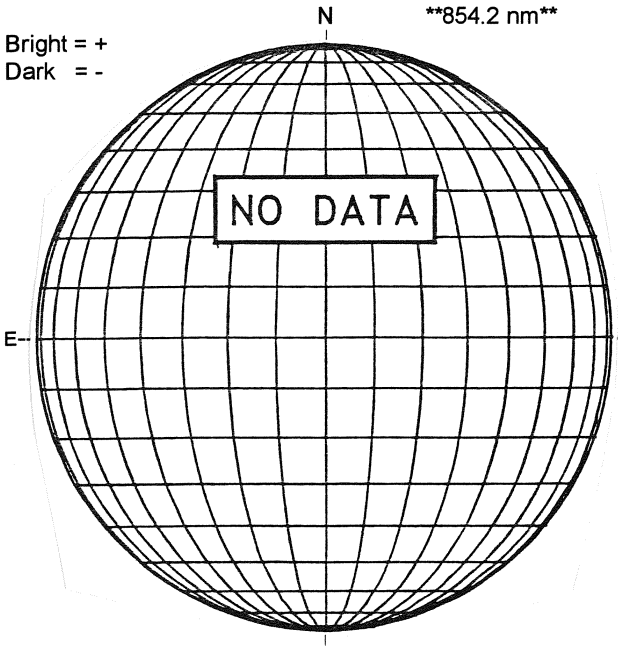
SACRAMENTO PEAK CORONA (1.15 Radii)----



JANUARY 2, 2005 (P= 1.51, Bo = -3.16, Lo = 0.69)

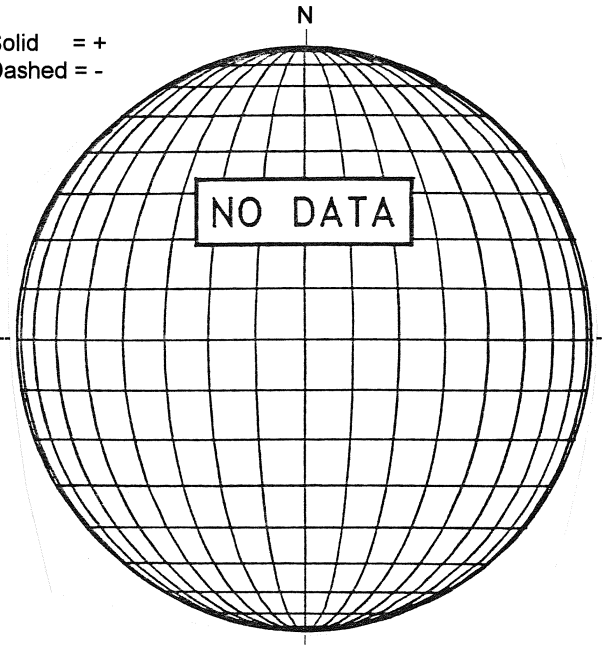
KITT PEAK MAGNETOGRAM--SOLIS

Bright = +
Dark = -



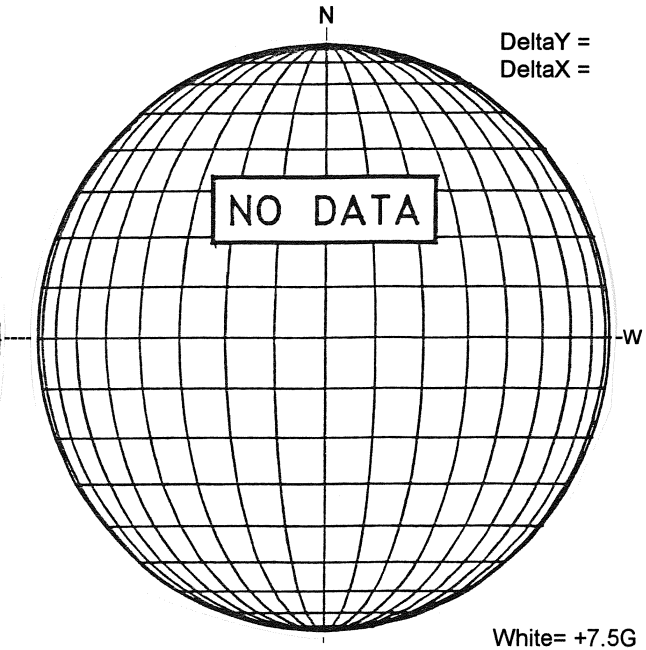
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



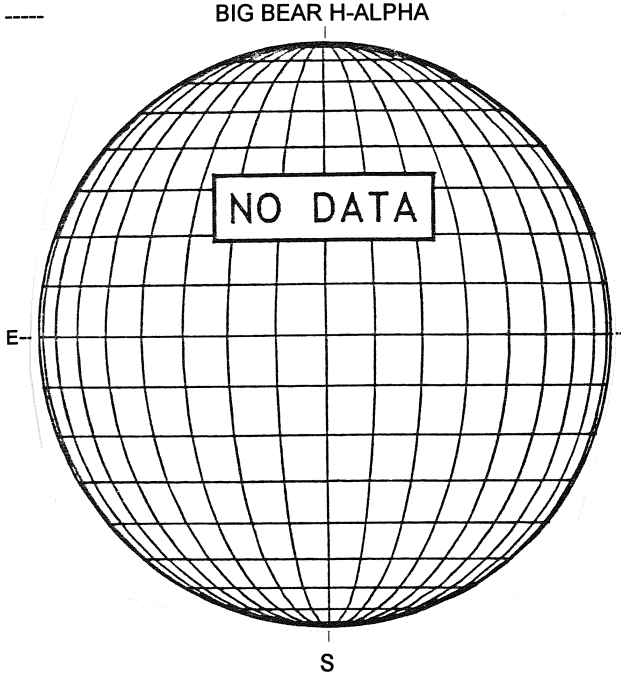
MT. WILSON MAGNETOGRAM

DeltaY =
DeltaX =

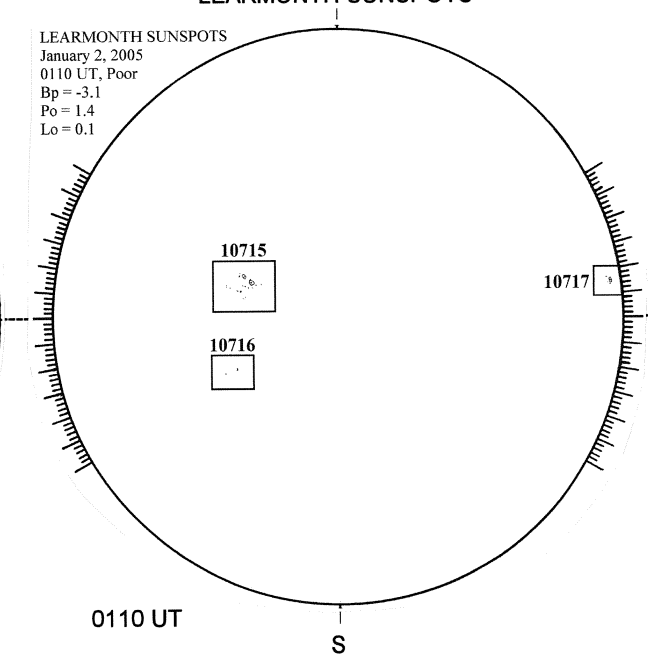


White= +7.5G
Black = -7.5G

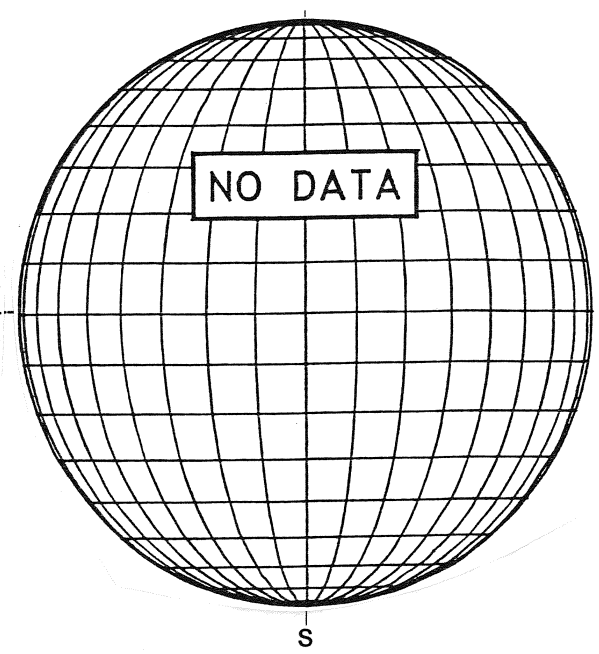
BIG BEAR H-ALPHA



LEARMONTH SUNSPOTS



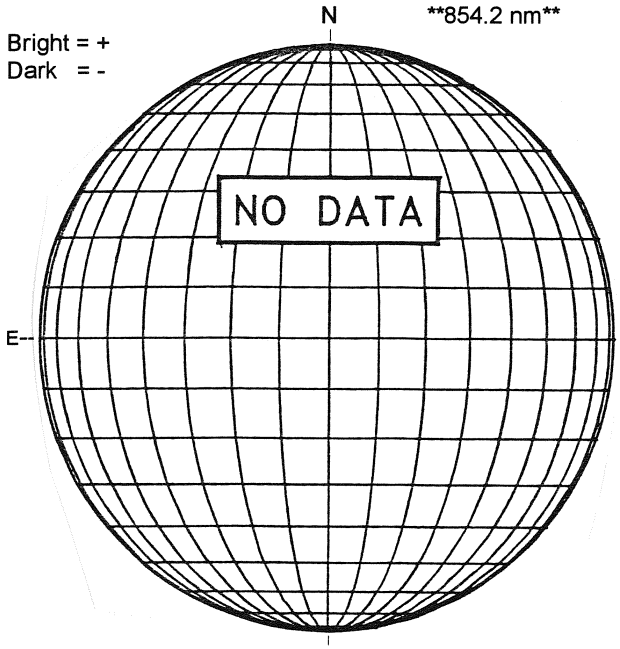
LOMNICKY PEAK CORONA (1.04 Radii)----



JANUARY 3, 2005 (P= 1.03, Bo = -3.27, Lo = 347.52)

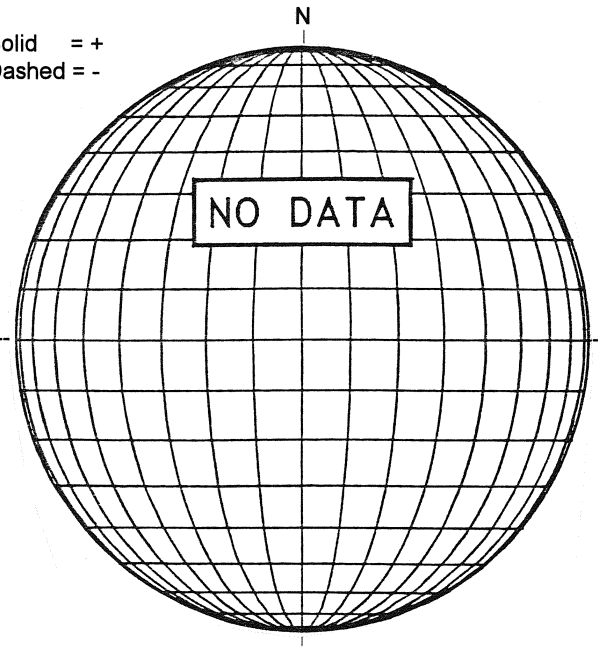
KITT PEAK MAGNETOGRAM--SOLIS

Bright = +
Dark = -



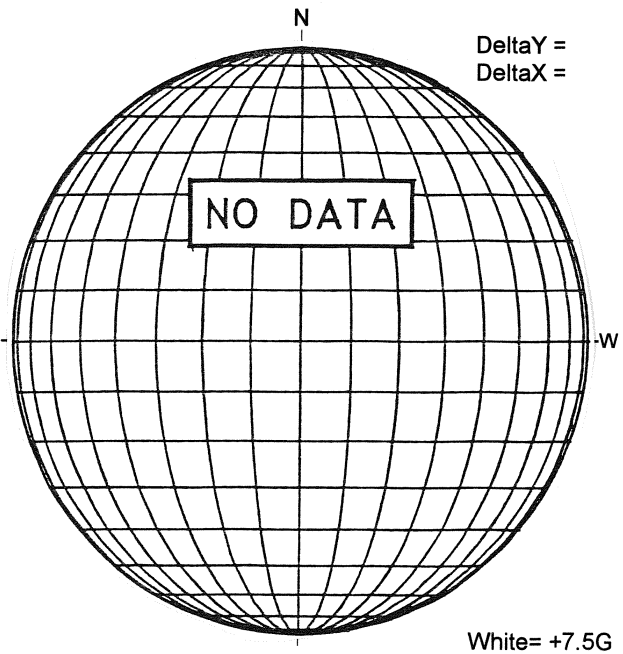
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



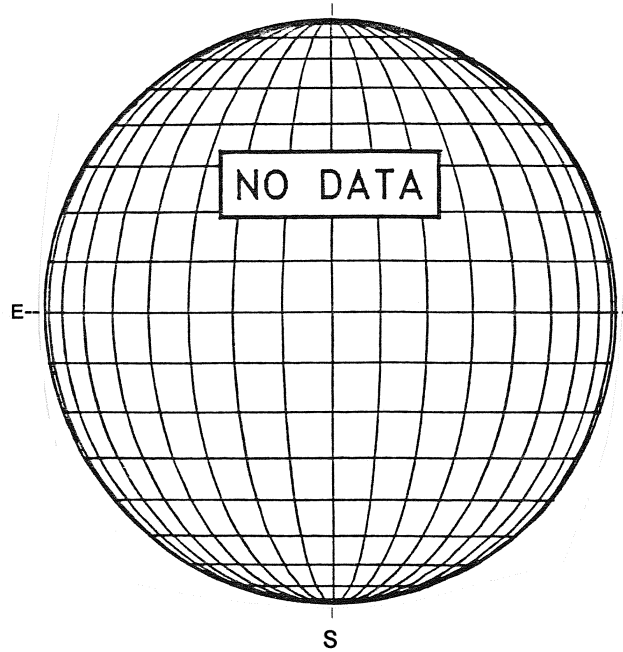
MT. WILSON MAGNETOGRAM

DeltaY =
DeltaX =

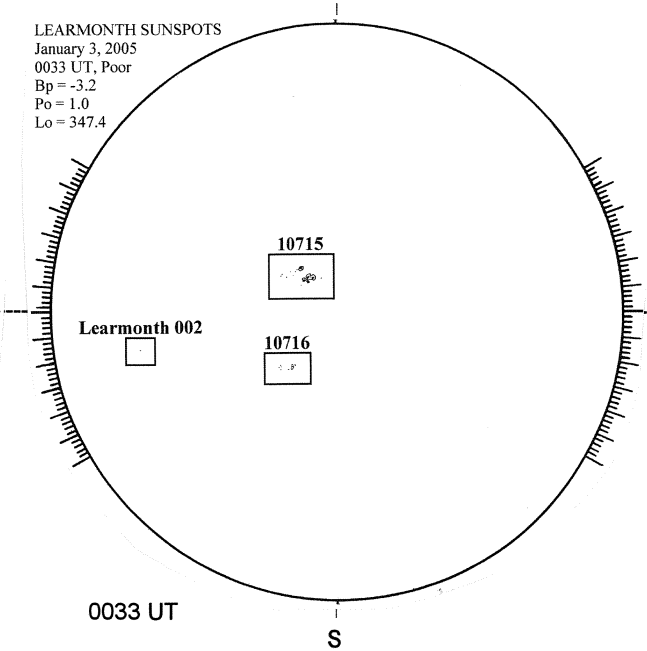


White= +7.5G
Black = -7.5G

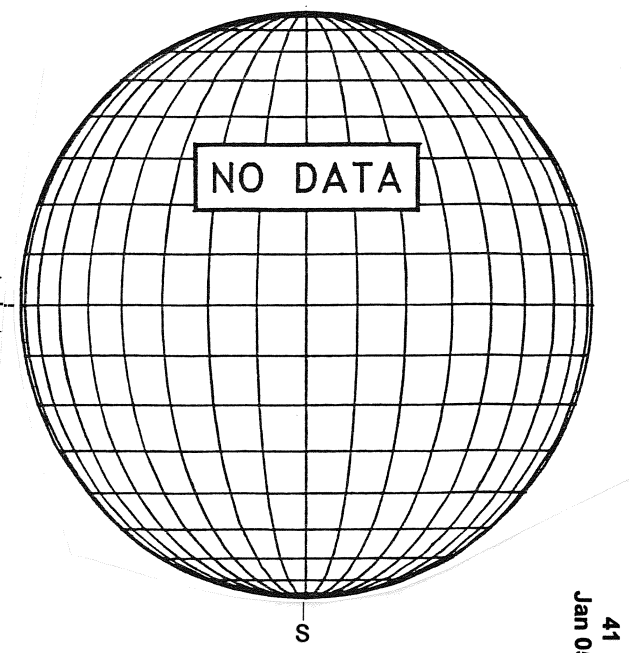
MEUDON H-ALPHA



LEARMONTH SUNSPOTS



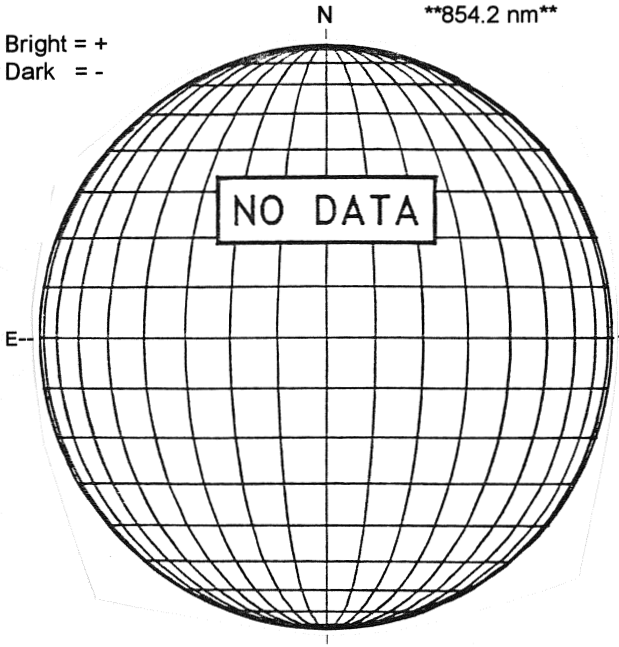
SACRAMENTO PEAK CORONA (1.15 Radii)----



JANUARY 4, 2005 (P= 0.54, Bo = -3.39, Lo = 334.35)

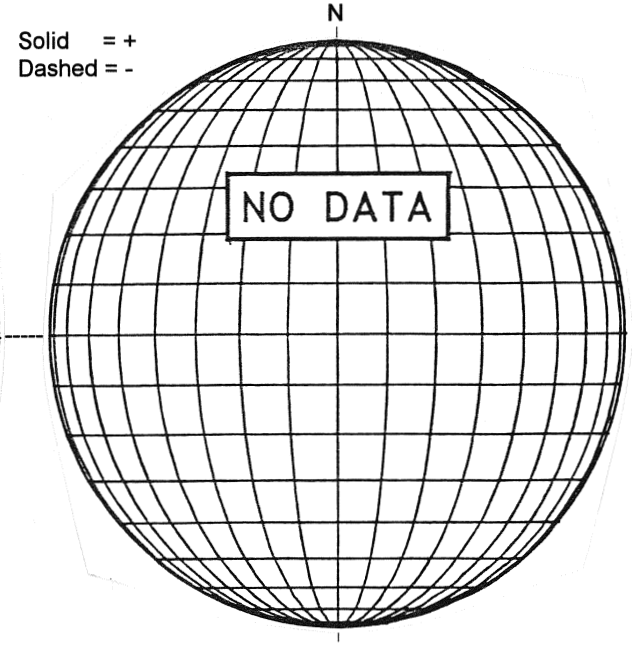
KITT PEAK MAGNETOGRAM--SOLIS

Bright = +
Dark = -



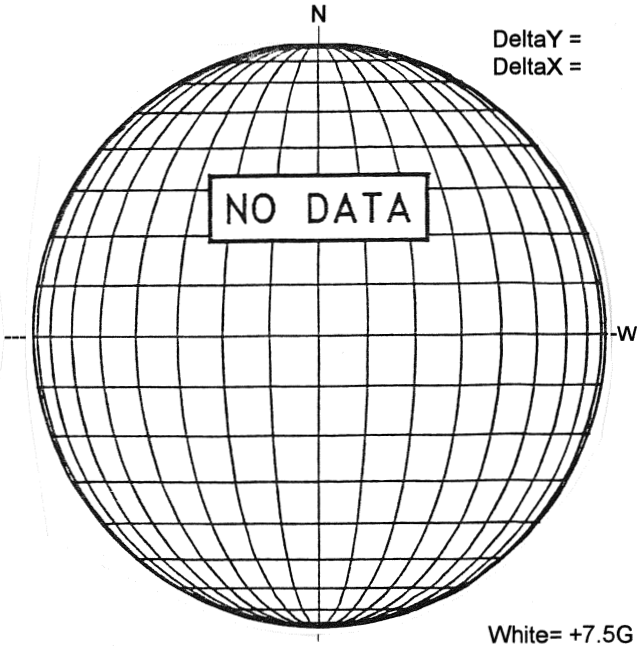
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



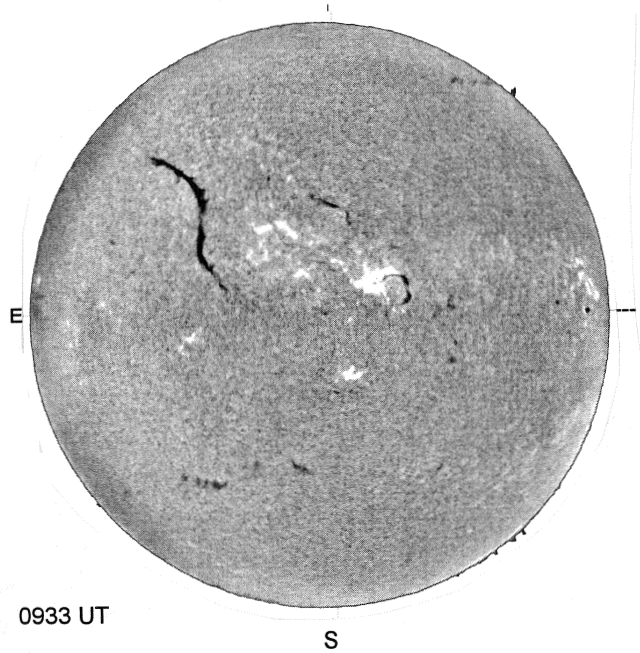
MT. WILSON MAGNETOGRAM

DeltaY =
DeltaX =



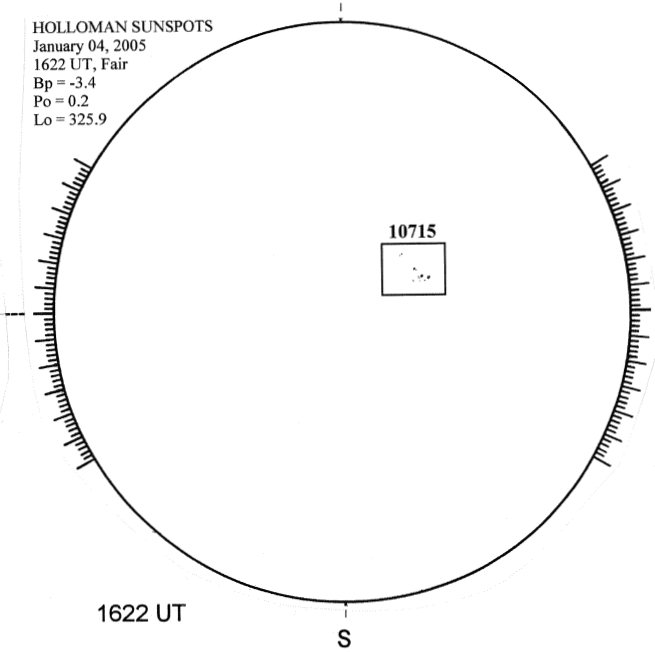
White= +7.5G
Black = -7.5G

KANZELHOHE H-ALPHA



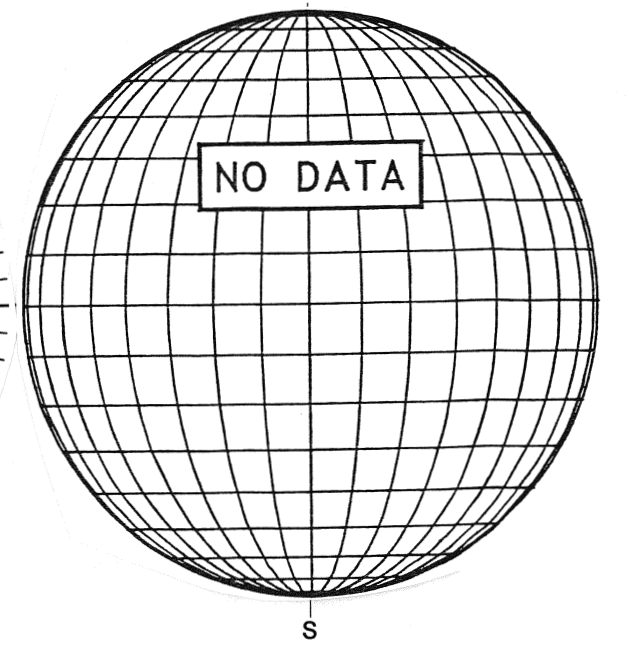
0933 UT

HOLLOMAN SUNSPOTS



1622 UT

LOMNICKY PEAK CORONA (1.04 Radii)----

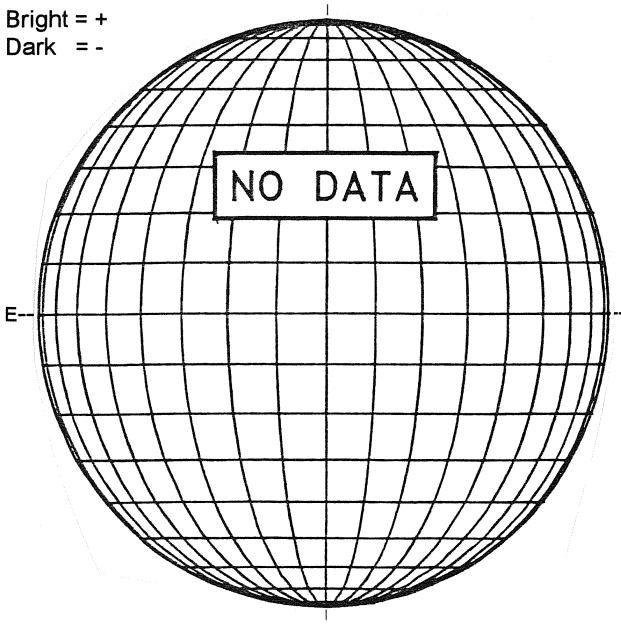


JANUARY 5, 2005 (P= 0.06, Bo = -3.50, Lo = 321.18)

KITT PEAK MAGNETOGRAM--SOLIS

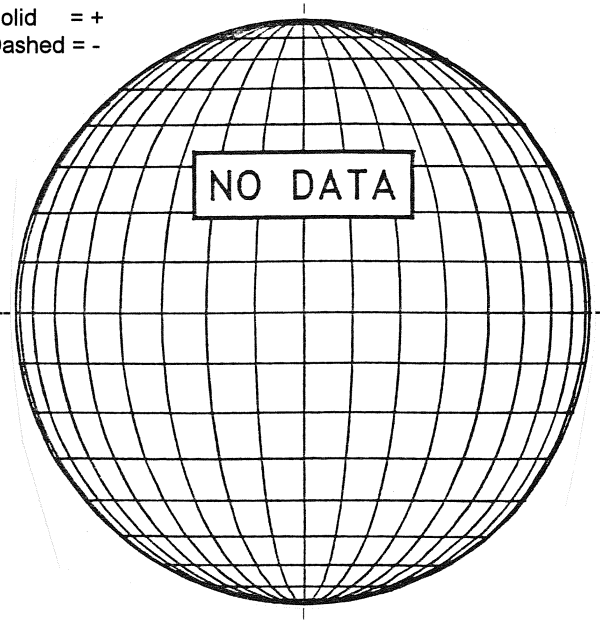
854.2 nm

Bright = +
Dark = -



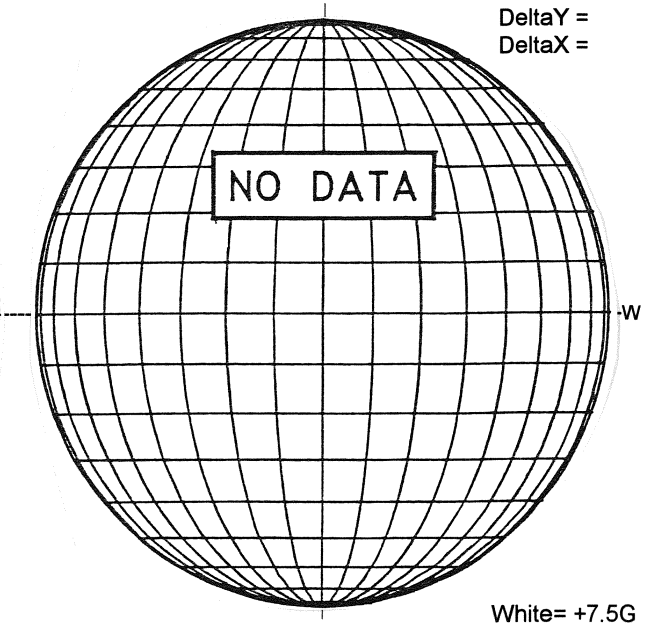
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



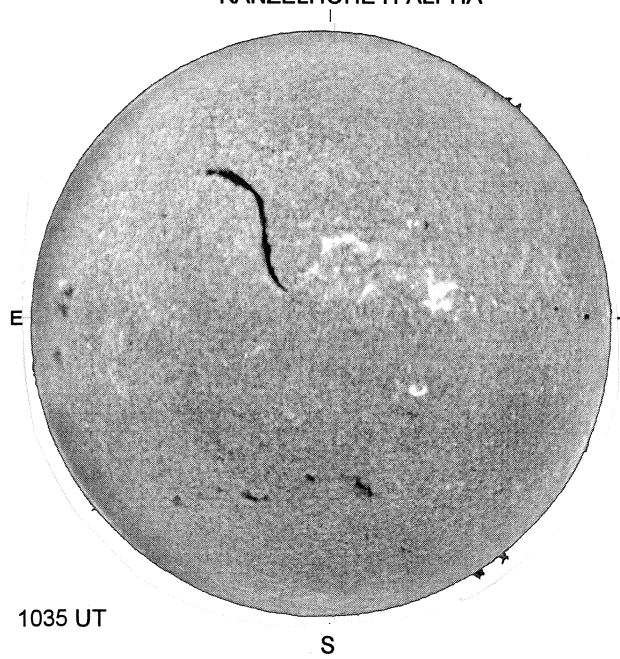
MT. WILSON MAGNETOGRAM

DeltaY =
DeltaX =



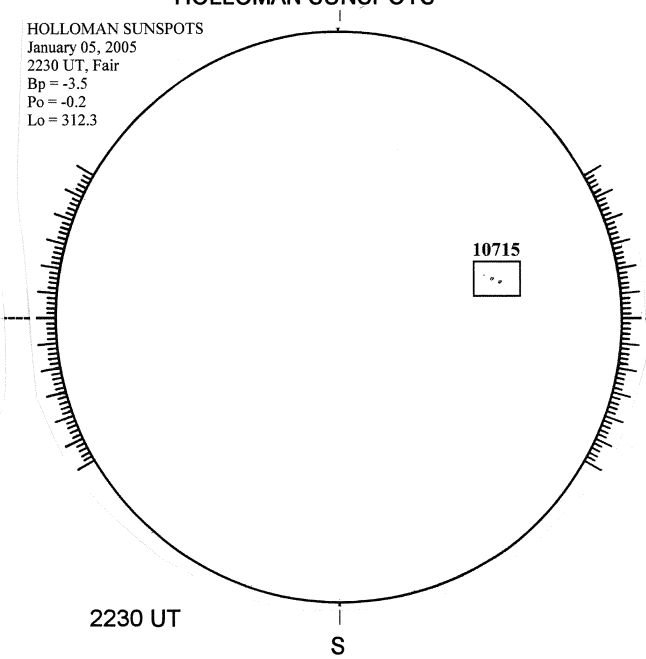
White= +7.5G
Black = -7.5G

KANZELHOHE H-ALPHA



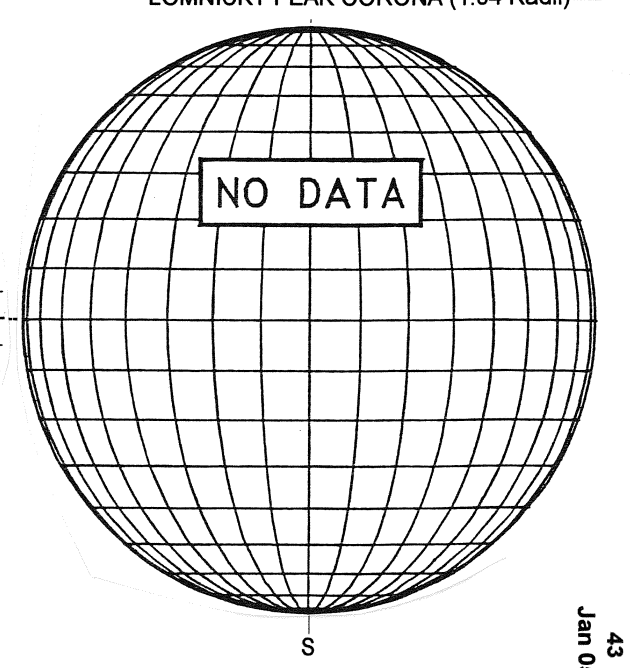
1035 UT

HOLLOMAN SUNSPOTS



2230 UT

LOMNICKY PEAK CORONA (1.04 Radii)----

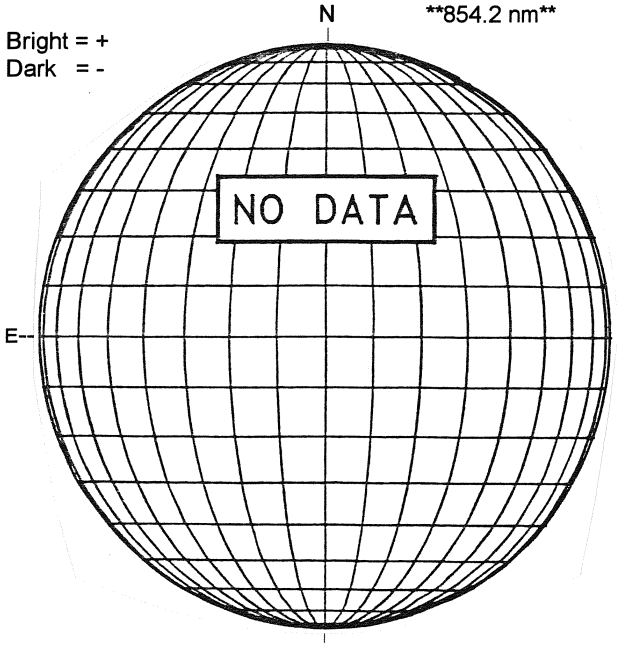


JANUARY 6, 2005 (P= -0.43, Bo = -3.61, Lo = 308.01)

KITT PEAK MAGNETOGRAM--SOLIS

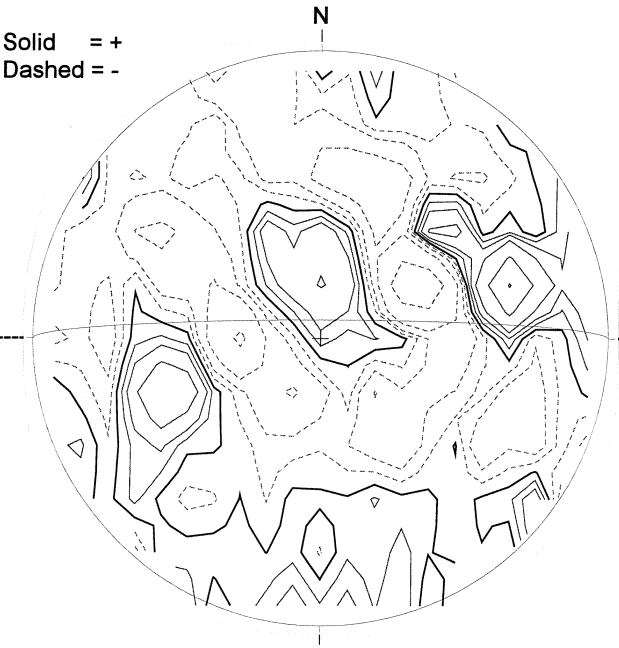
854.2 nm

Bright = +
Dark = -



STANFORD MAGNETOGRAM

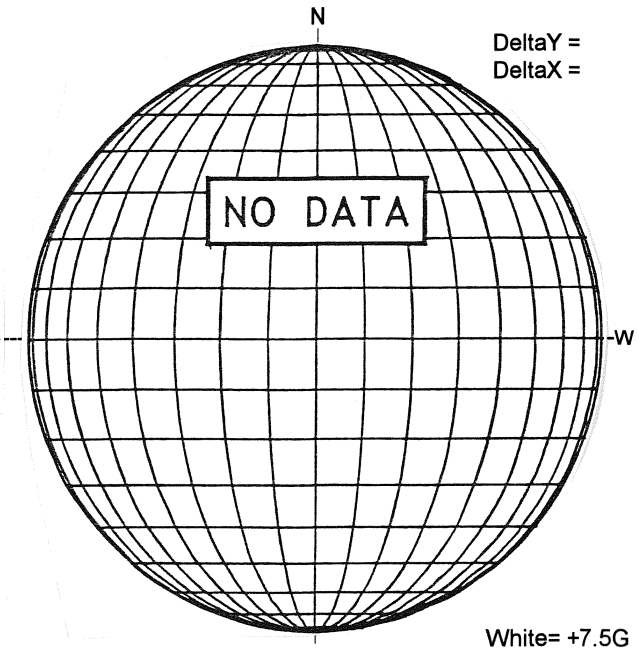
Solid = +
Dashed = -



2132 UT

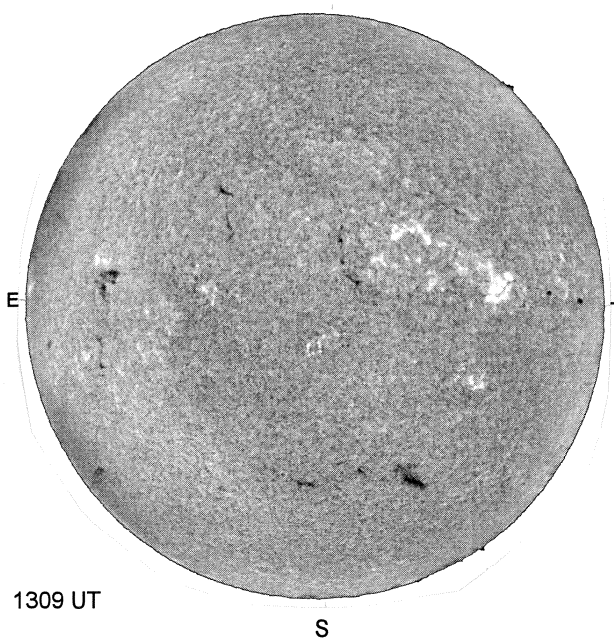
MT. WILSON MAGNETOGRAM

DeltaY =
DeltaX =



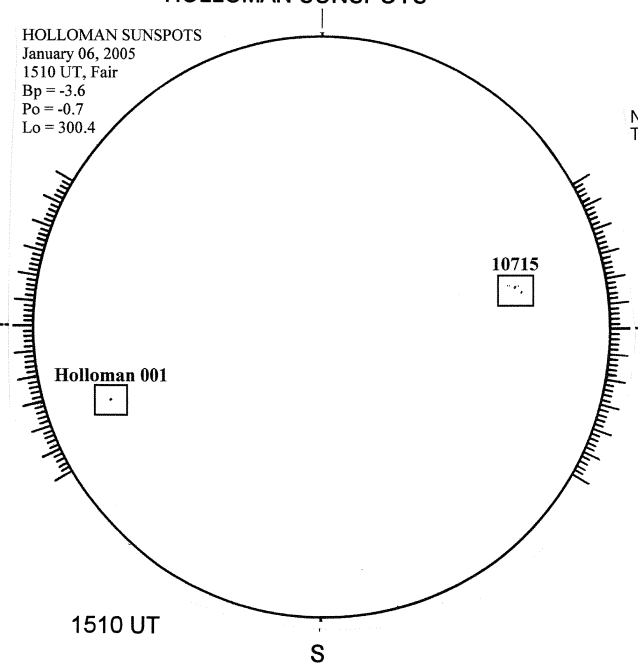
White= +7.5G
Black = -7.5G

KANZELHOEHE H-ALPHA



1309 UT

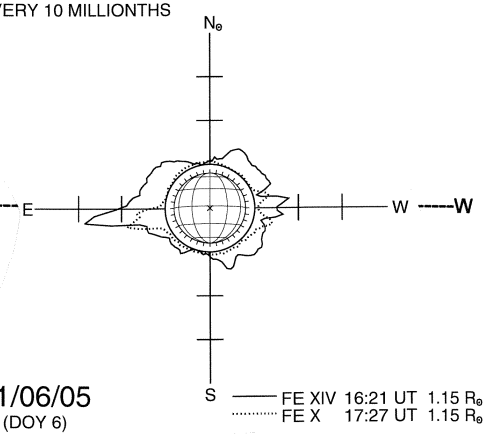
HOLLOMAN SUNSPOTS



1510 UT

SACRAMENTO PEAK CORONA (1.15 Radii)----

NSO / SACRAMENTO PEAK CORONAL DATA
TICK MARKS EVERY 10 MILLIONTHS



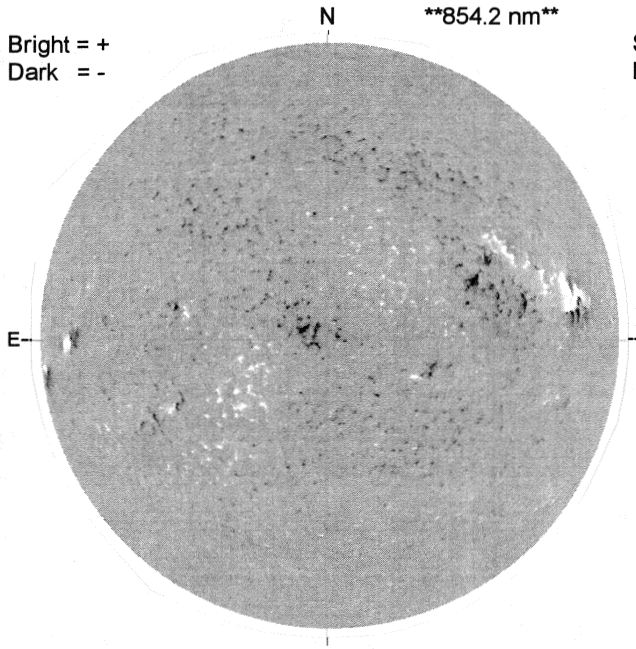
01/06/05
(DOY 6)

FE XIV 16:21 UT 1.15 $R_\odot$
FE X 17:27 UT 1.15 $R_\odot$

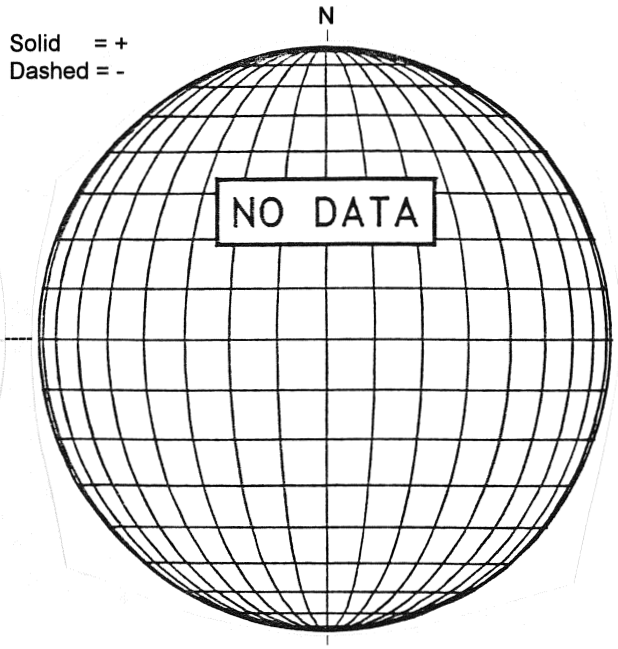
S

JANUARY 7, 2005 (P= -0.91, Bo = -3.72, Lo = 294.84)

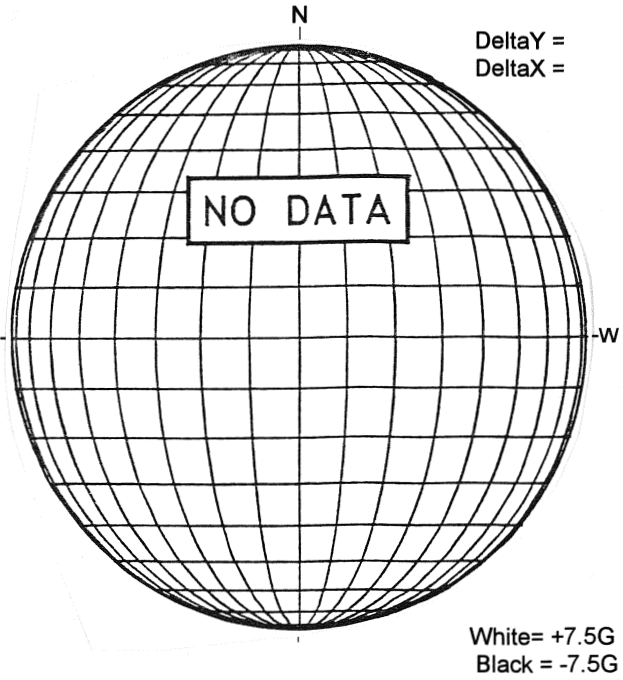
KITT PEAK MAGNETOGRAM--SOLIS



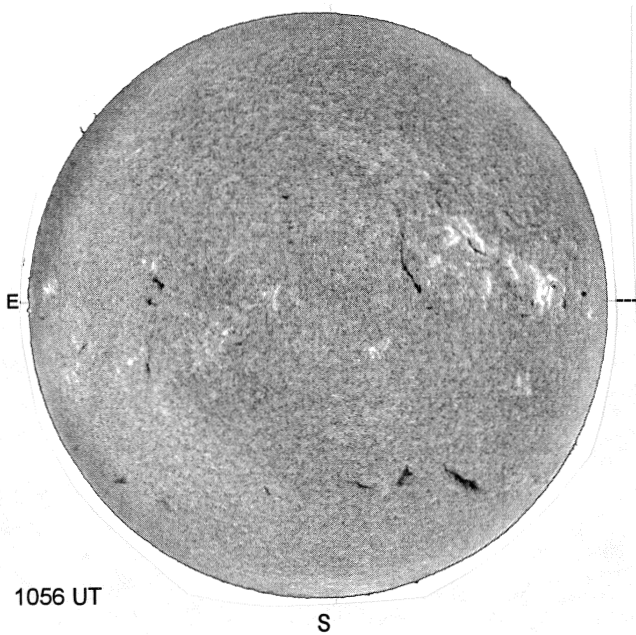
STANFORD MAGNETOGRAM



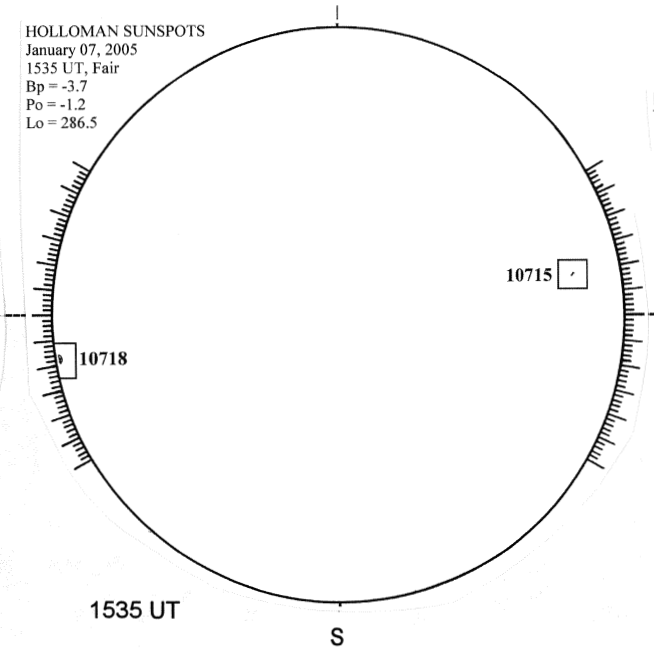
MT. WILSON MAGNETOGRAM



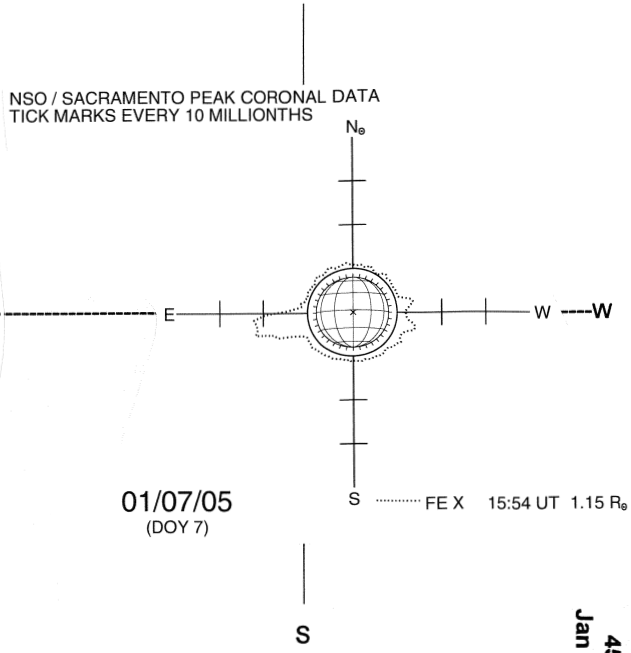
KANZELHOHE H-ALPHA



HOLLOMAN SUNSPOTS



SACRAMENTO PEAK CORONA (1.15 Radii)----

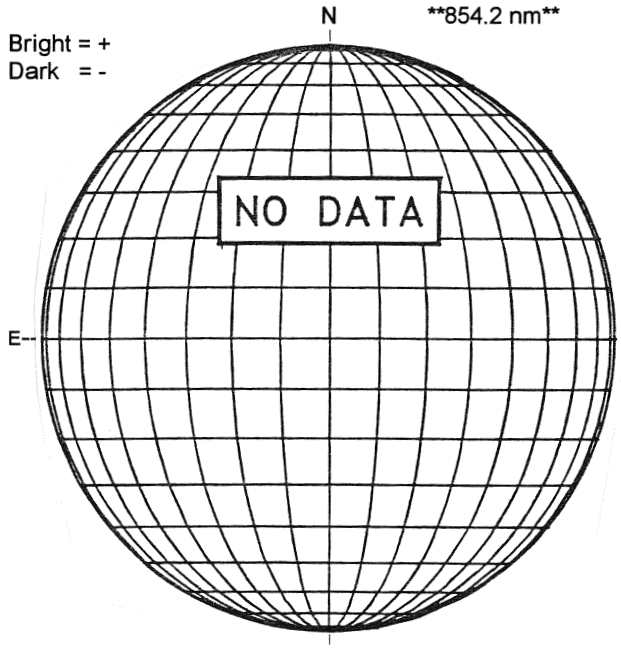


JANUARY 8, 2005 (P= -1.39, Bo = -3.83, Lo = 281.67)

KITT PEAK MAGNETOGRAM--SOLIS

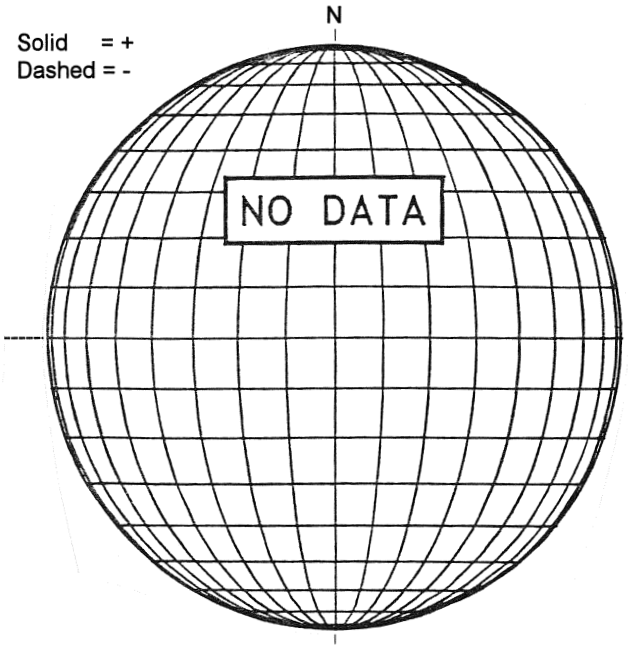
854.2 nm

Bright = +
Dark = -



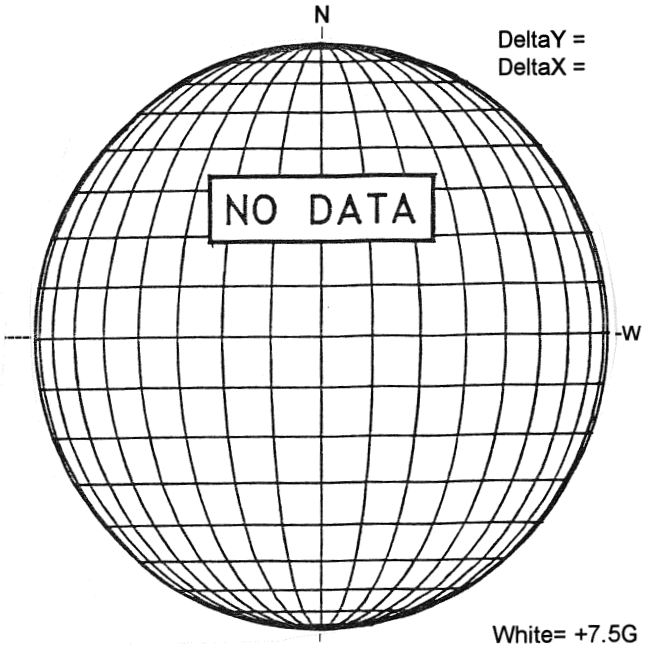
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



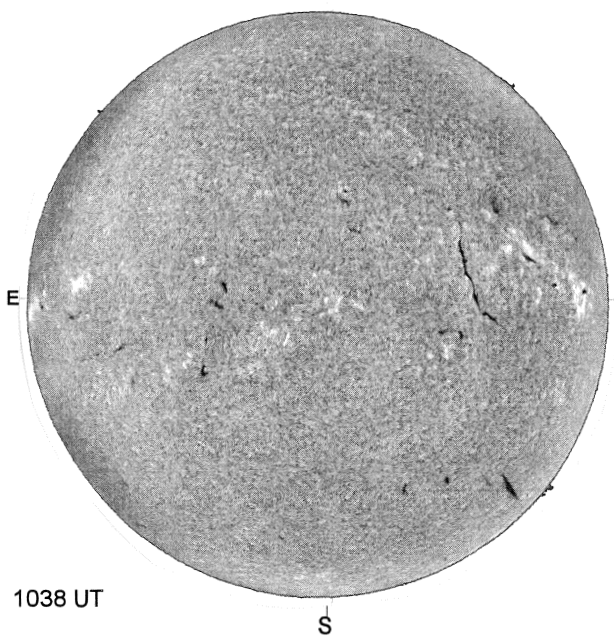
MT. WILSON MAGNETOGRAM

DeltaY =
DeltaX =



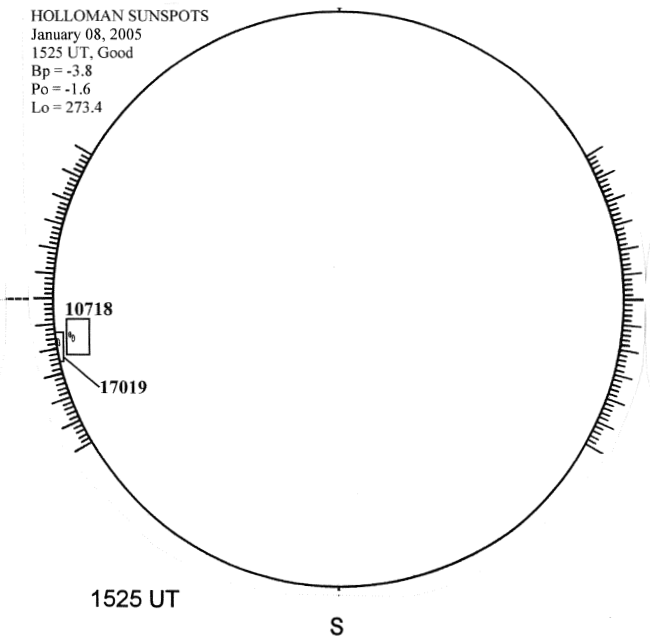
White= +7.5G
Black = -7.5G

KANZELHOHE H-ALPHA



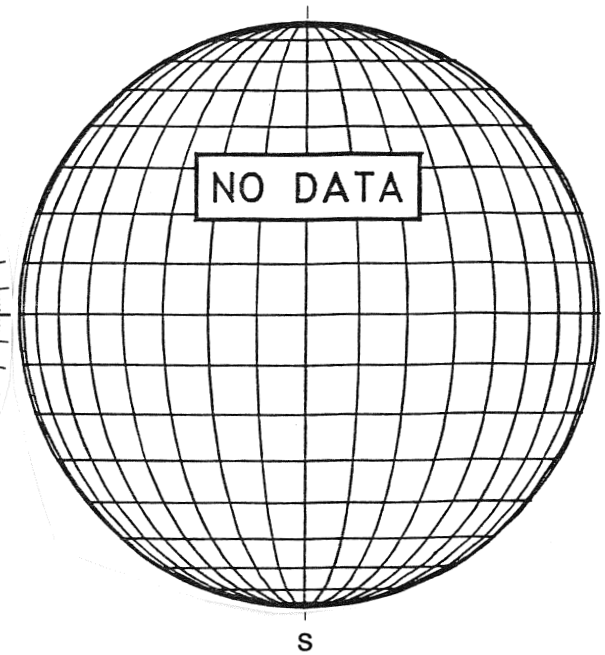
1038 UT

HOLLOMAN SUNSPOTS



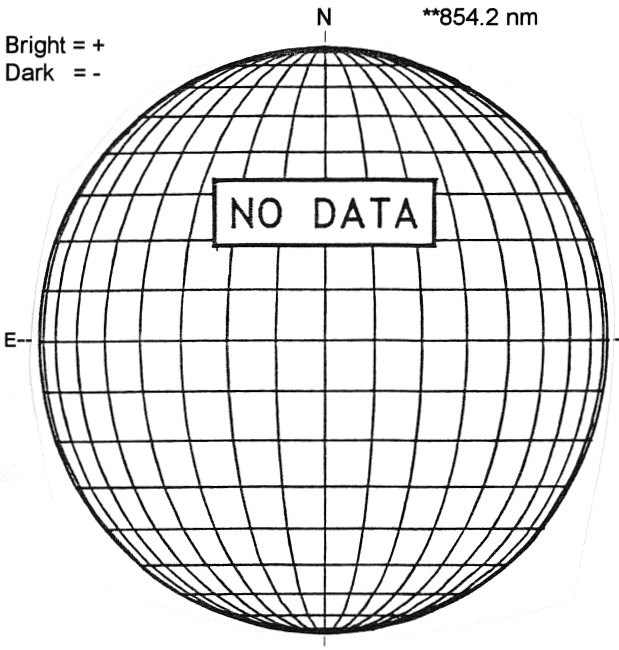
1525 UT

SACRAMENTO PEAK CORONA (1.15 Radii)

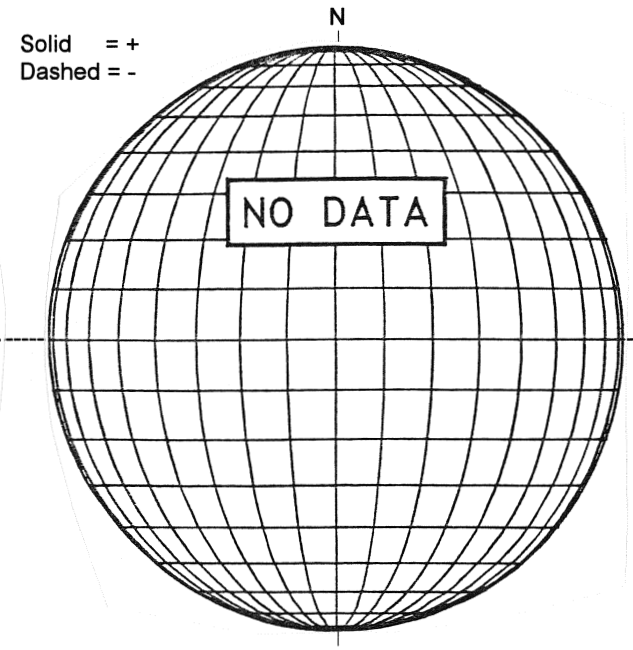


JANUARY 9, 2005 (P= -1.87, Bo = -3.94, Lo = 268.50)

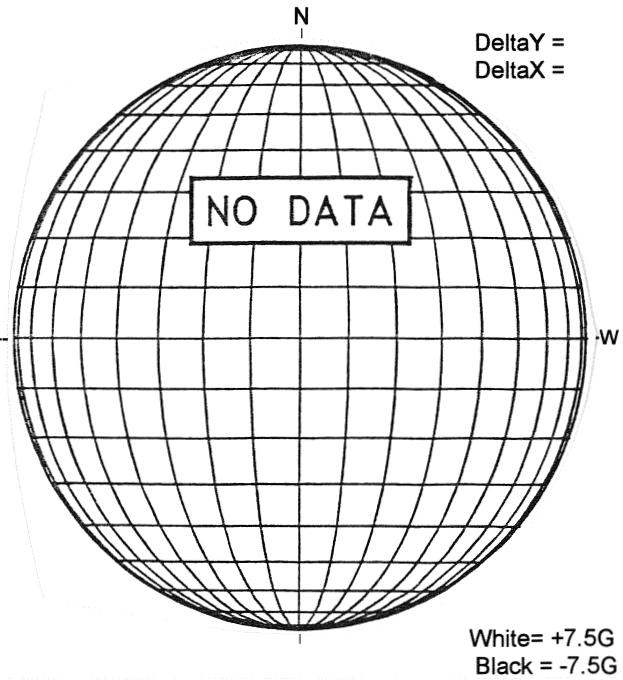
KITT PEAK MAGNETOGRAM--SOLIS



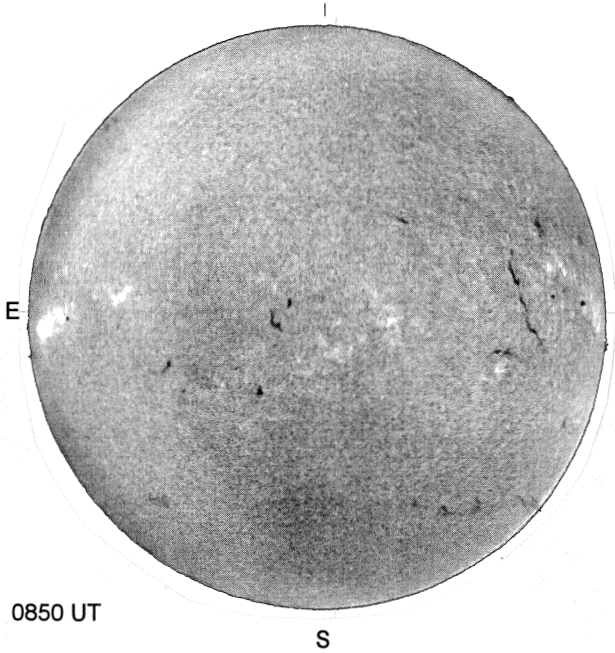
STANFORD MAGNETOGRAM



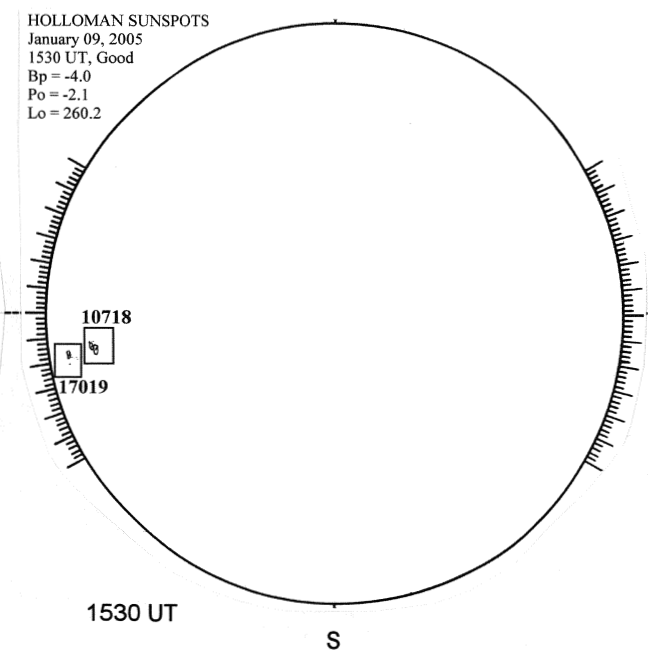
MT. WILSON MAGNETOGRAM



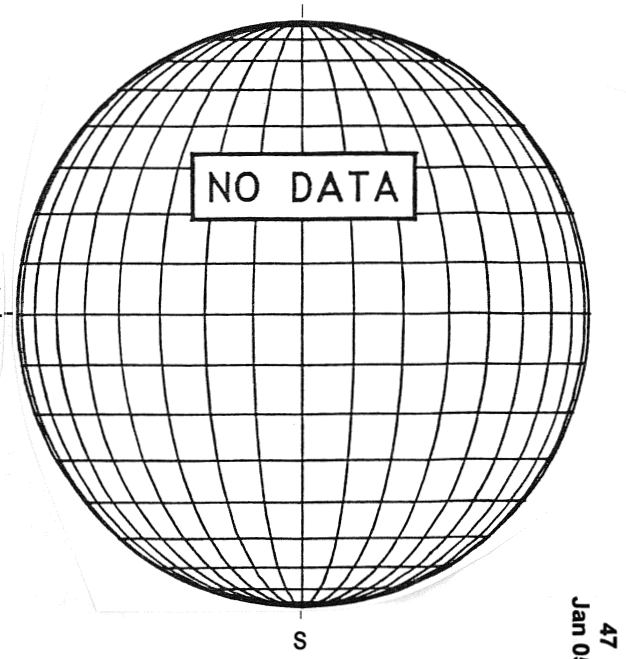
----- KANZELHOHE H-ALPHA



HOLLOMAN SUNSPOTS



SACRAMENTO PEAK CORONA (1.15 Radii)----

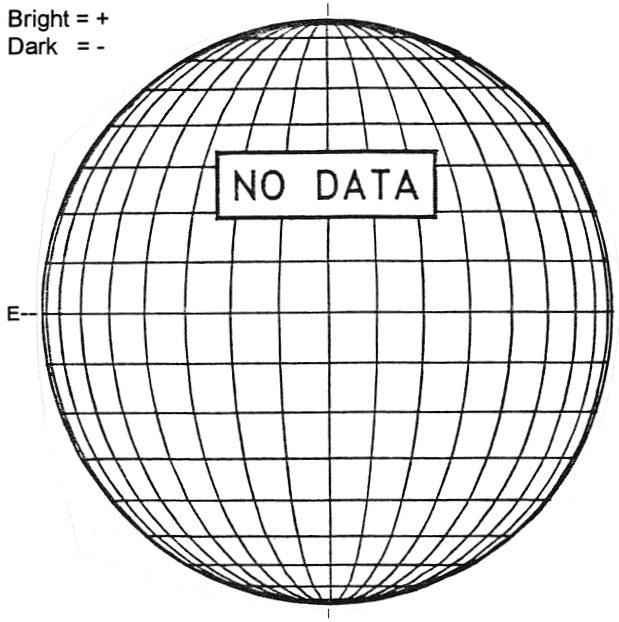


JANUARY 10, 2005 (P= -2.35, Bo = -4.05 Lo = 255.33)

KITT PEAK MAGNETOGRAM--SOLIS

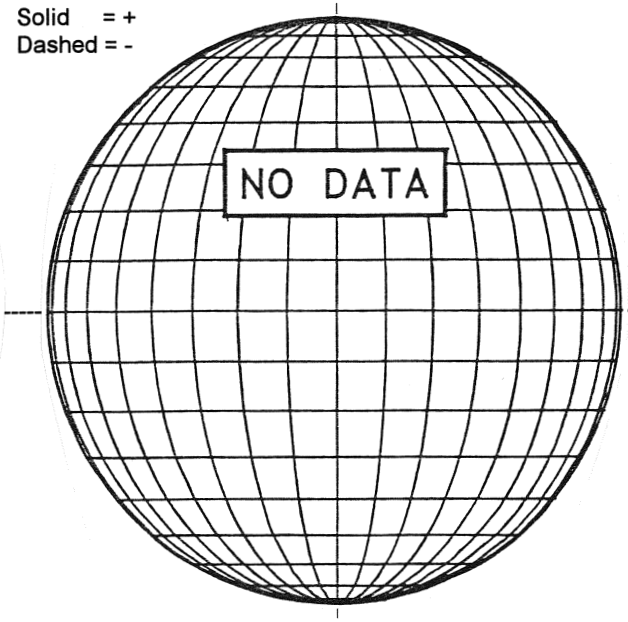
854.2 nm

Bright = +
Dark = -



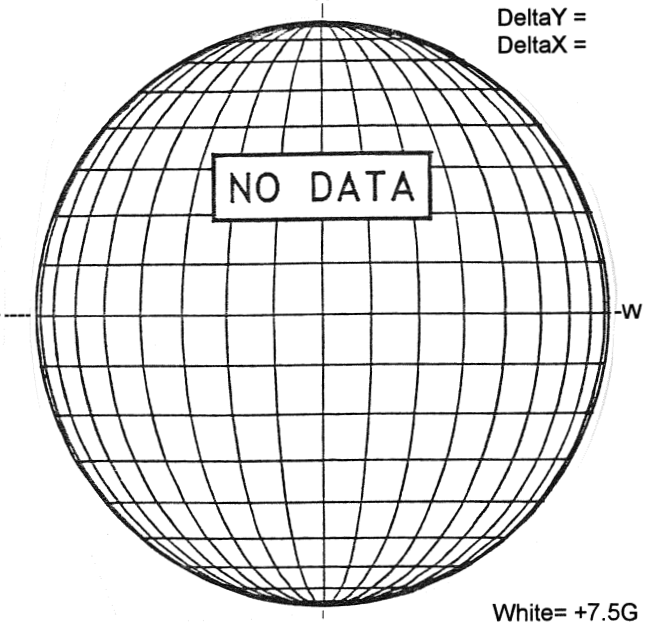
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



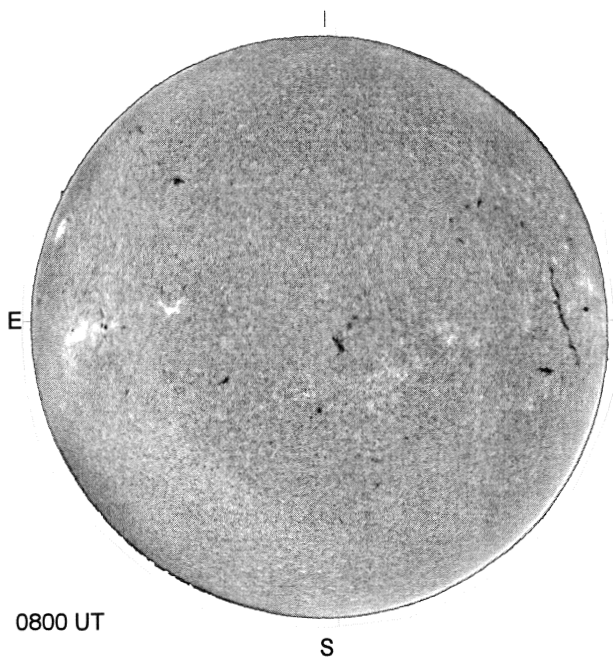
MT. WILSON MAGNETOGRAM

DeltaY =
DeltaX =

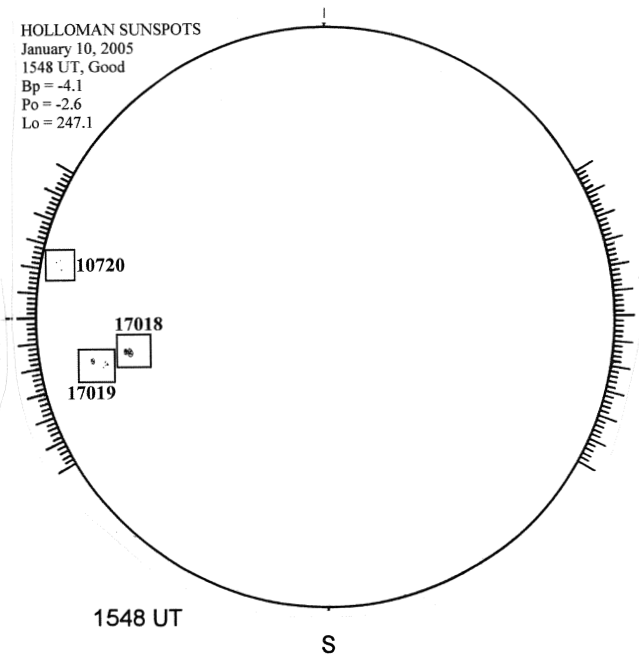


White= +7.5G
Black = -7.5G

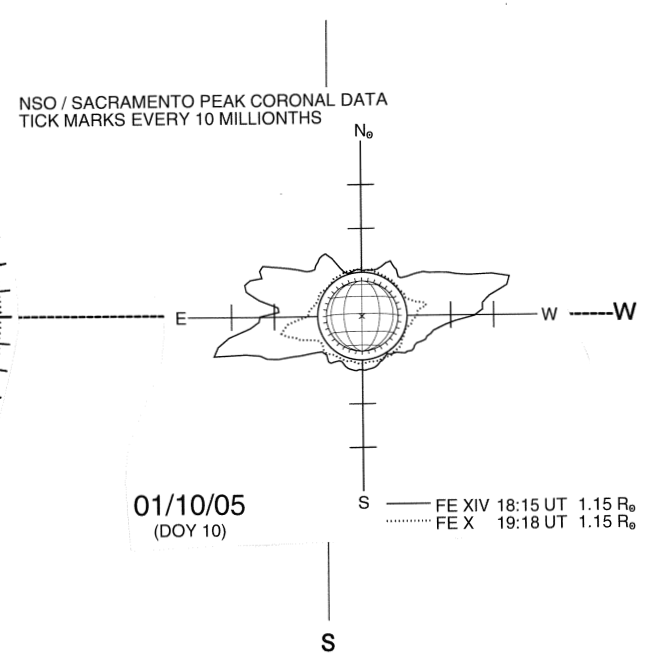
KANZELHOHE H-ALPHA



HOLLOMAN SUNSPOTS



SACRAMENTO PEAK CORONA (1.15 Radii)----

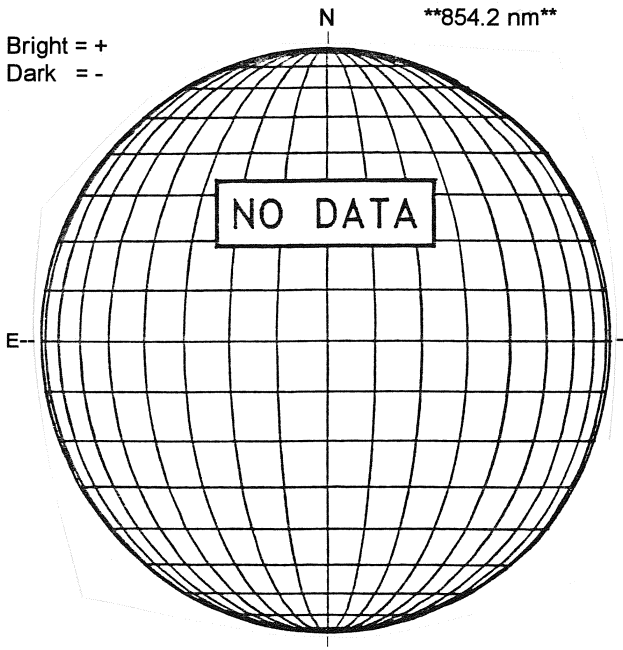


JANUARY 11, 2005 (P= -2.83, Bo = -4.16, Lo = 242.16)

KITT PEAK MAGNETOGRAM--SOLIS

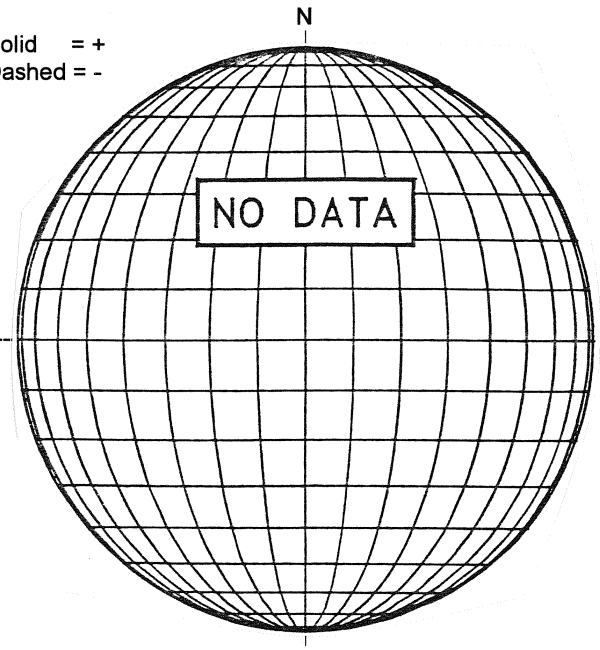
854.2 nm

Bright = +
Dark = -



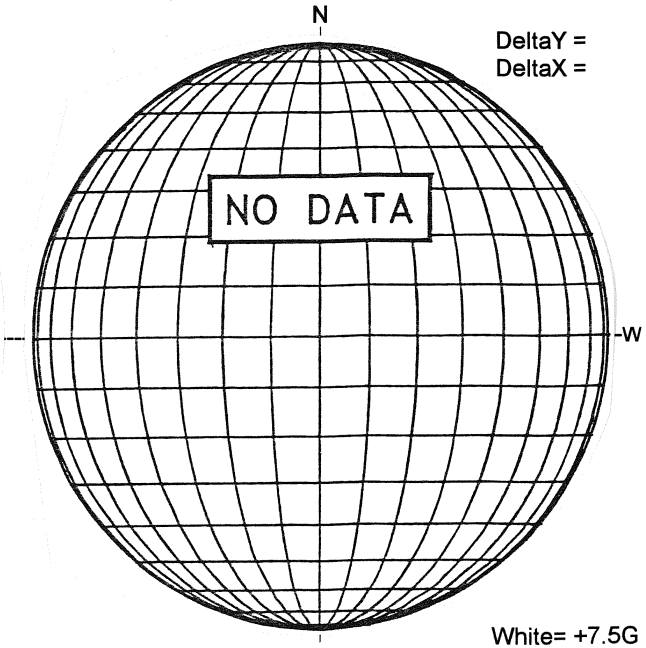
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



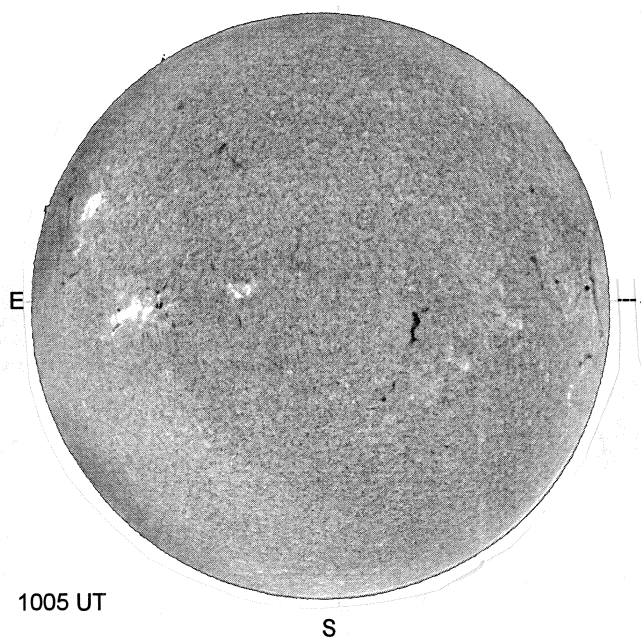
MT. WILSON MAGNETOGRAM

DeltaY =
DeltaX =



White= +7.5G
Black = -7.5G

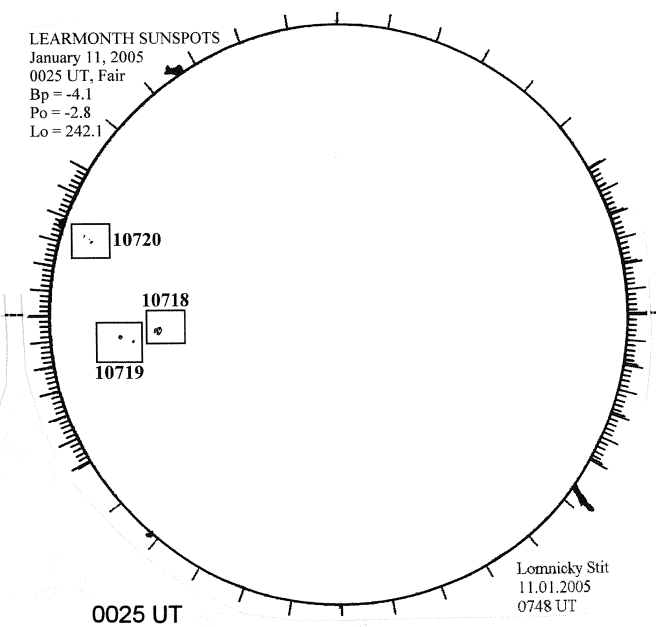
---- KANZELHOHE H-ALPHA



1005 UT

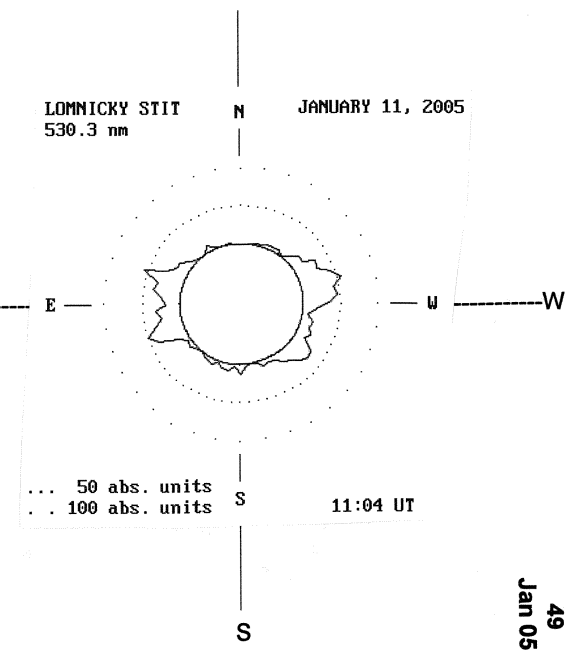
S

LEARMONTH SUNSPOTS



0025 UT
0748 UT LOMN Prom S

LOMNICKY PEAK CORONA (1.04 Radii)----

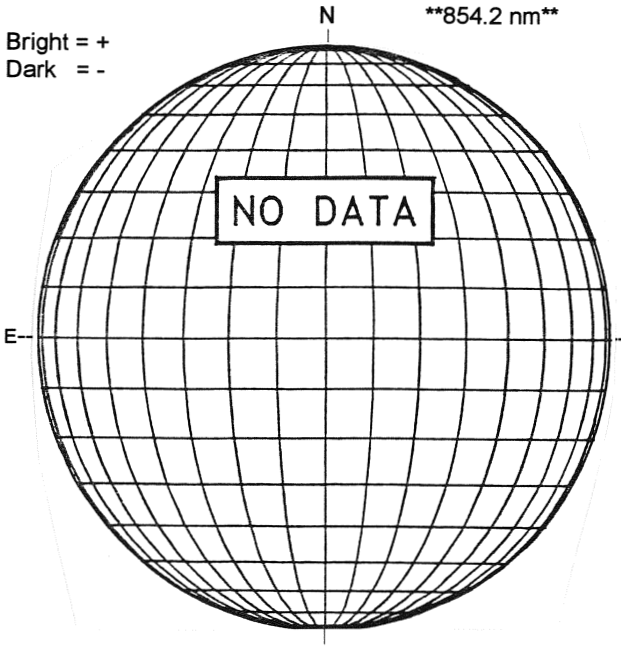


JANUARY 12, 2005 (P= -3.31, Bo = -4.26, Lo = 229.00)

KITT PEAK MAGNETOGRAM--SOLIS

854.2 nm

Bright = +
Dark = -



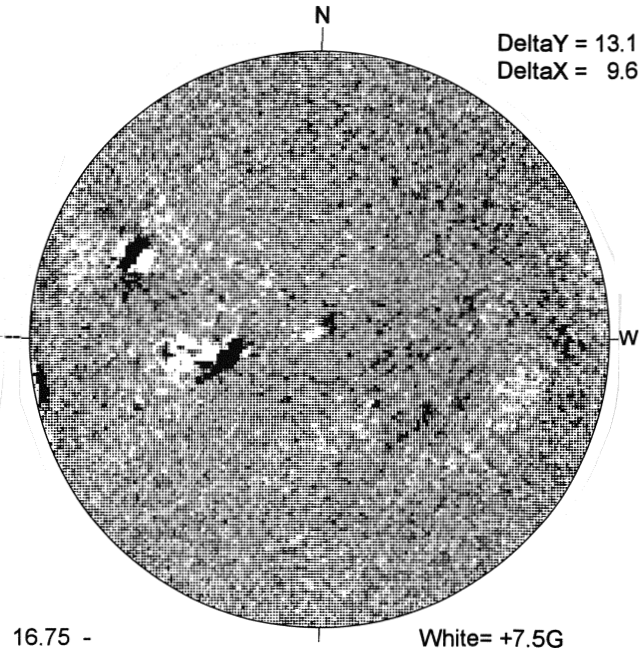
STANFORD MAGNETOGRAM

Solid = +
Dashed = -

2054 UT

MT. WILSON MAGNETOGRAM

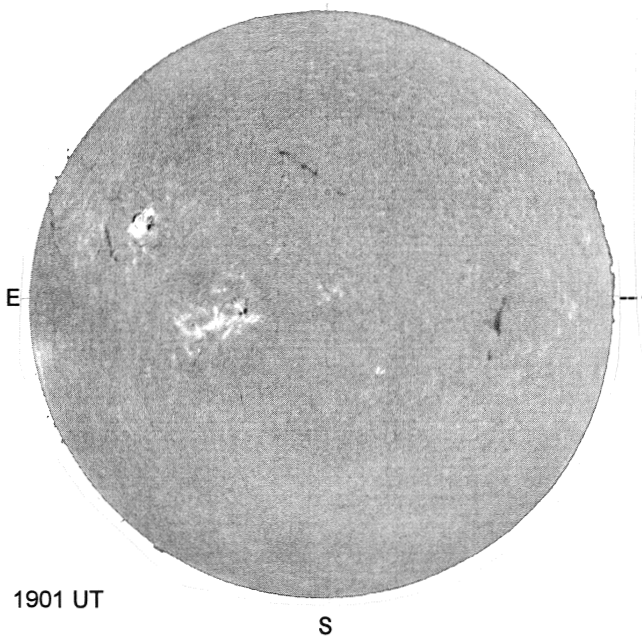
DeltaY = 13.1
DeltaX = 9.6



16.75 -
17.73 UT

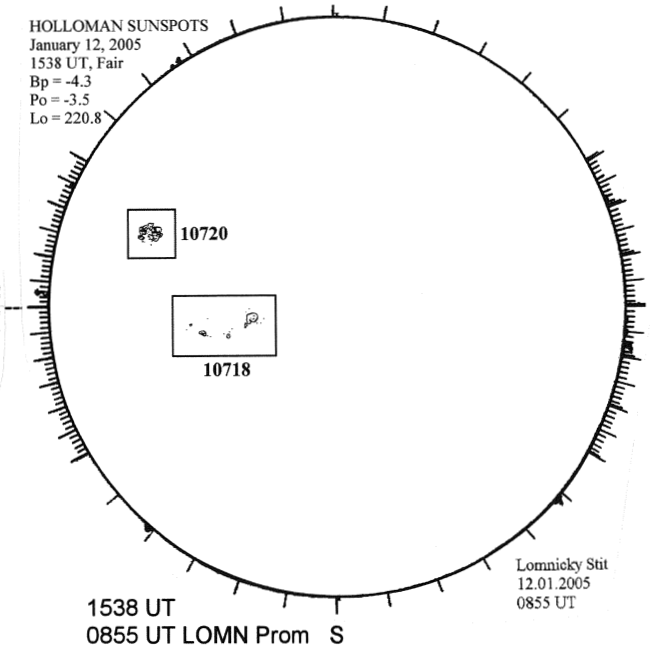
White= +7.5G
Black = -7.5G

BIG BEAR H-ALPHA



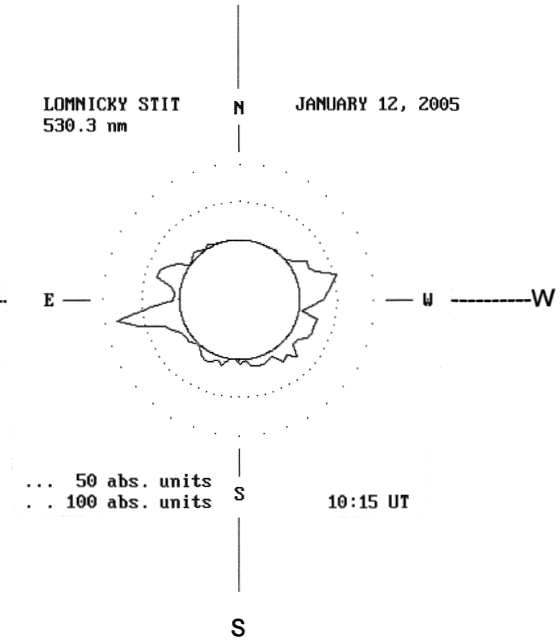
1901 UT

HOLLOMAN SUNSPOTS



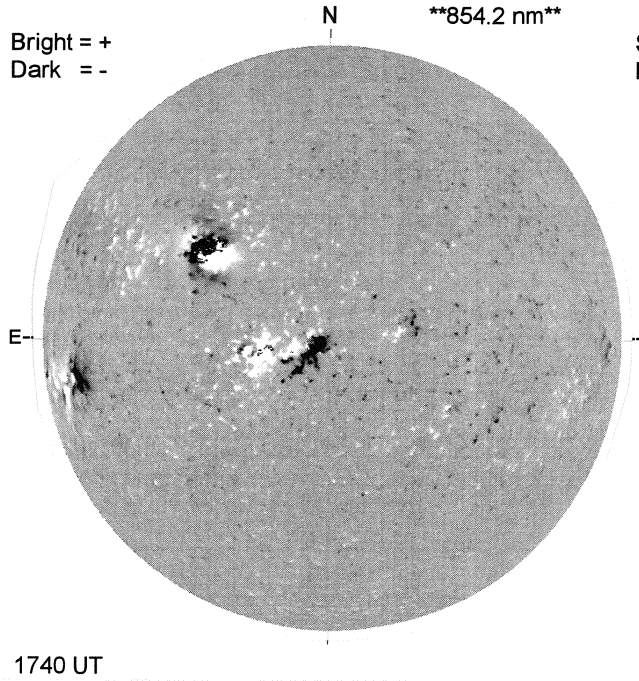
1538 UT
0855 UT LOMN Prom

LOMNICKY PEAK CORONA (1.04 Radii)

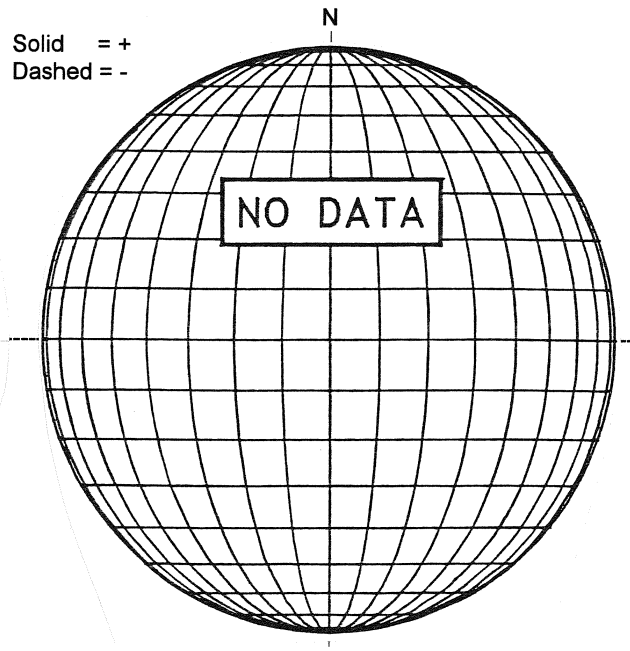


JANUARY 13, 2005 (P= -3.78, Bo = -4.36, Lo = 215.83)

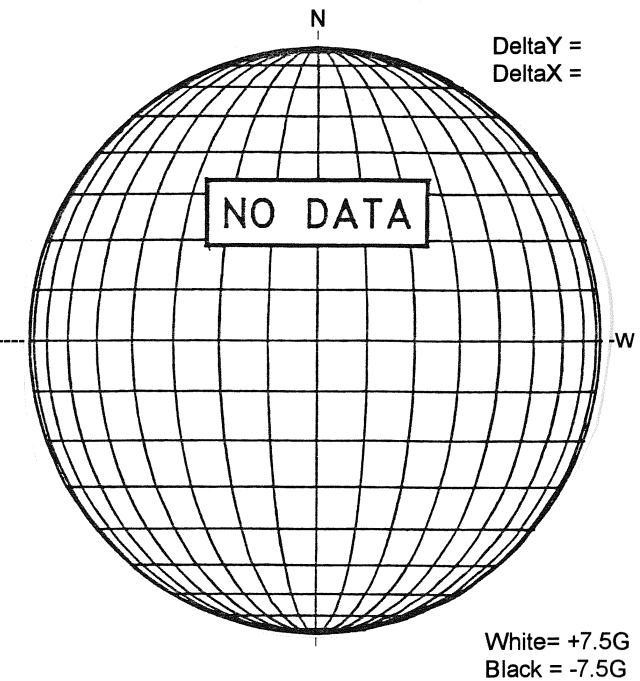
KITT PEAK MAGNETOGRAM--SOLIS



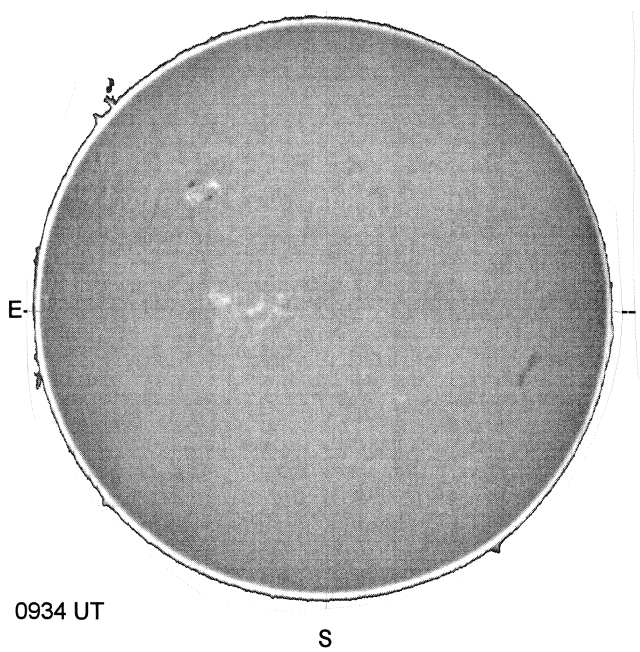
STANFORD MAGNETOGRAM



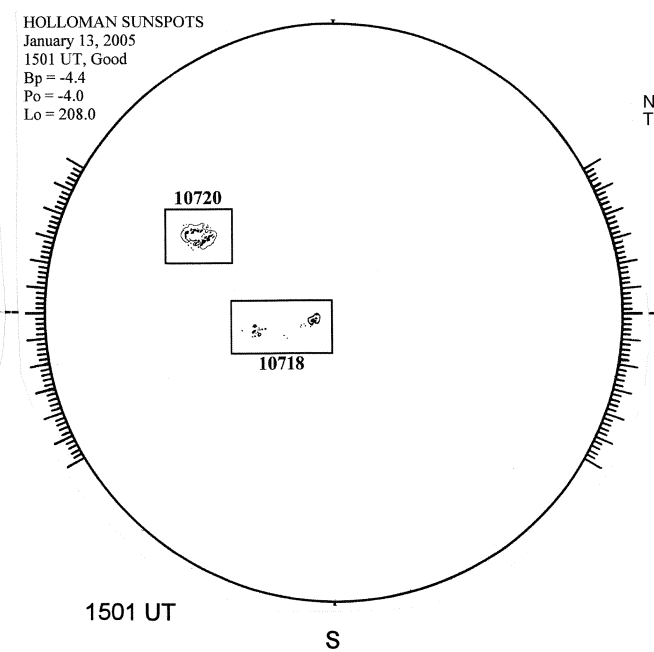
MT. WILSON MAGNETOGRAM



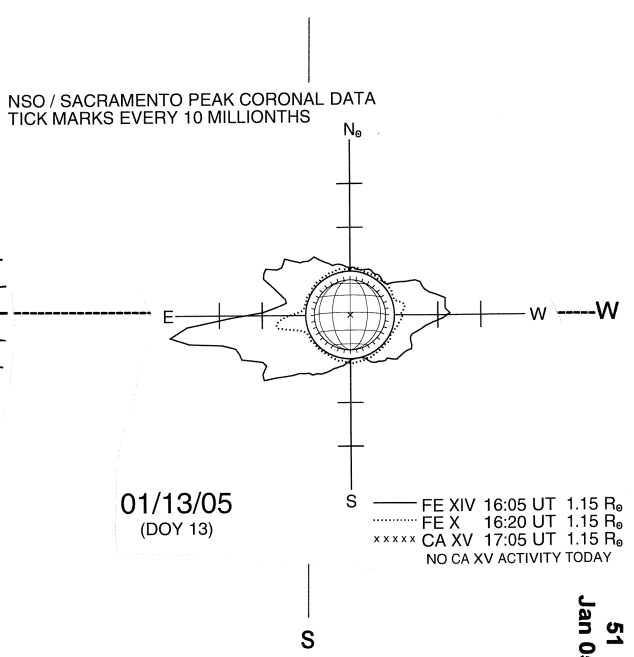
MEUDON H-ALPHA



HOLLOMAN SUNSPOTS

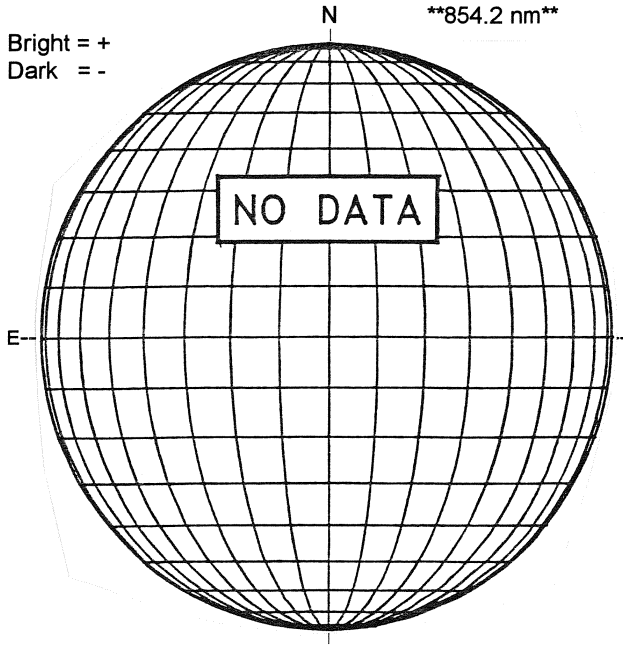


SACRAMENTO PEAK CORONA (1.15 Radii)----

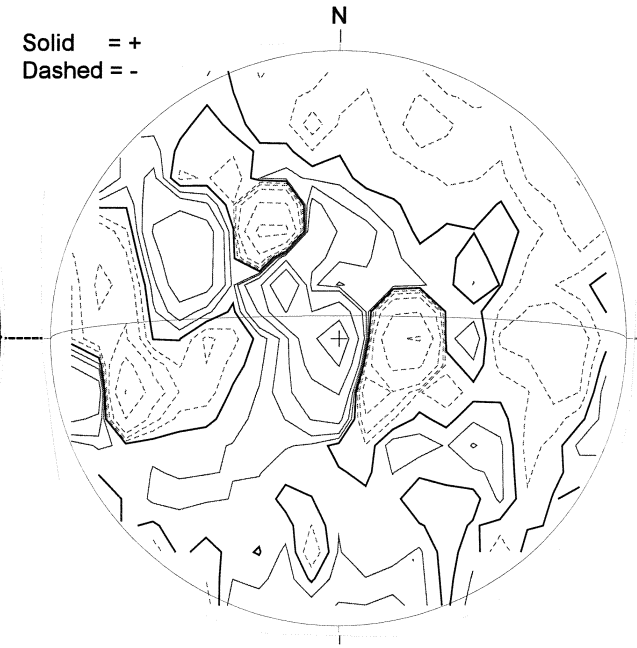


JANUARY 14, 2005 (P= -4.25, Bo = -4.47, Lo = 202.66)

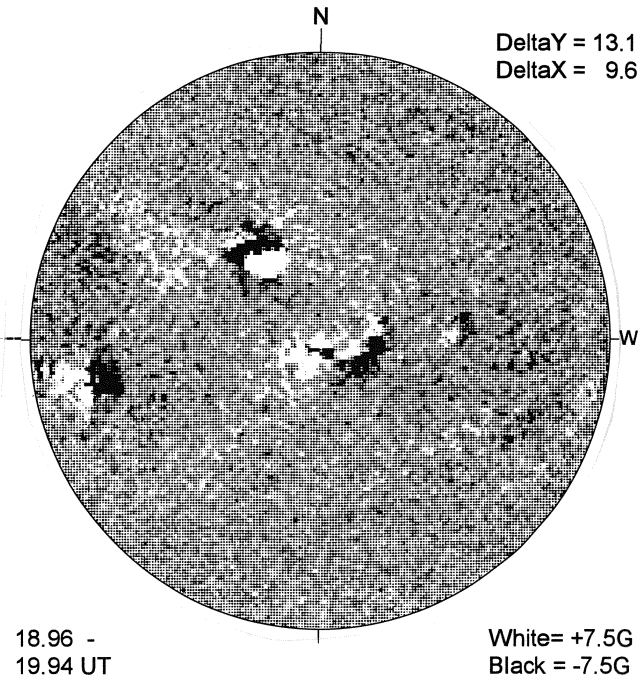
KITT PEAK MAGNETOGRAM--SOLIS



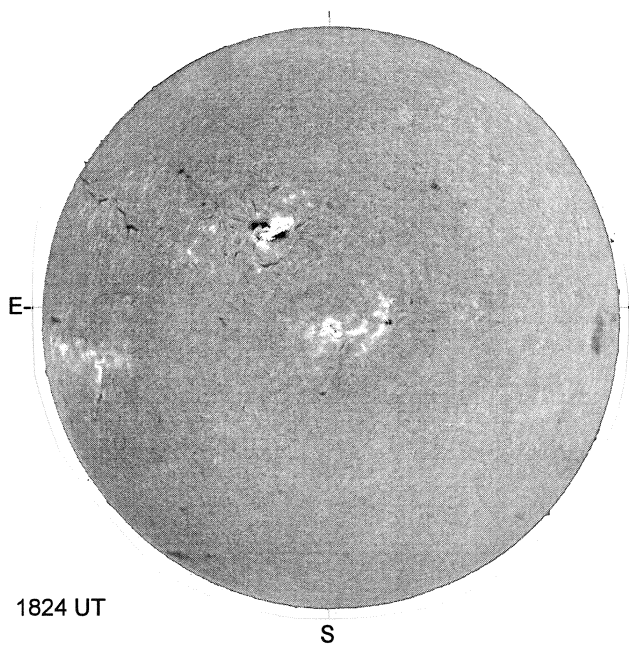
STANFORD MAGNETOGRAM



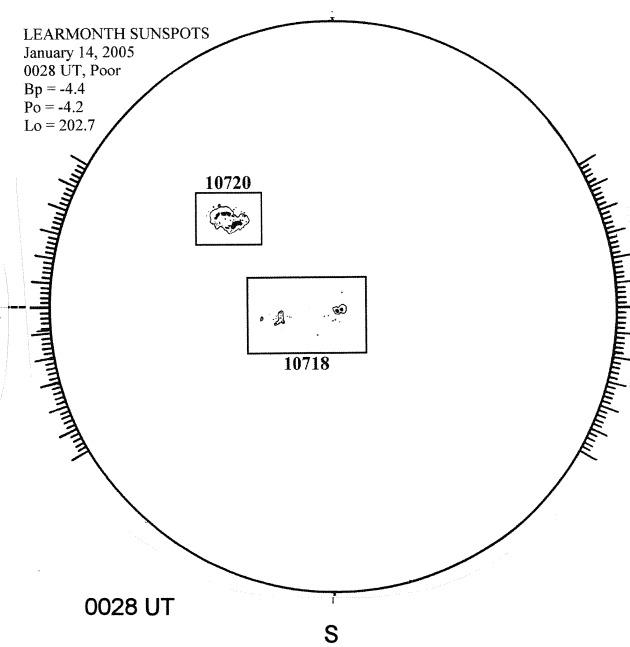
MT. WILSON MAGNETOGRAM



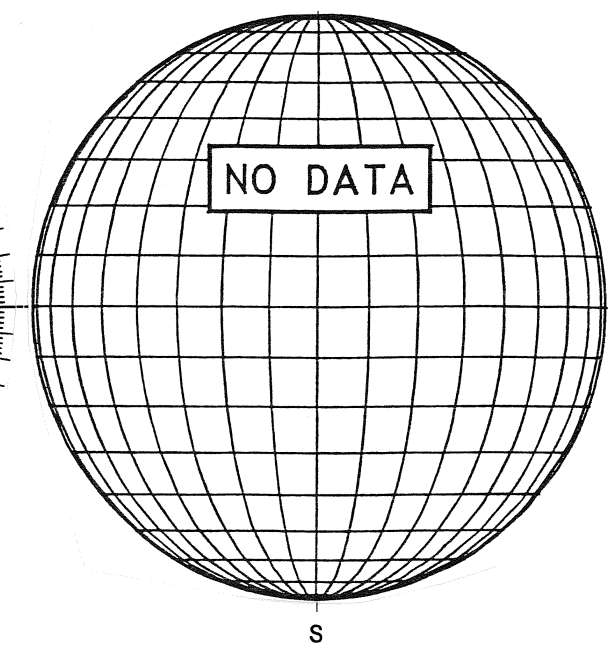
BIG BEAR H-ALPHA



LEARMONTH SUNSPOTS

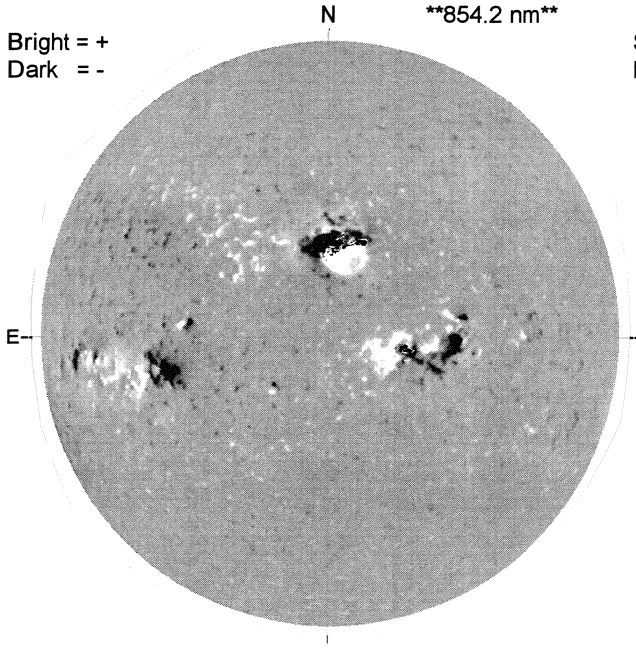


LOMNICKY PEAK CORONA (1.04 Radii)----

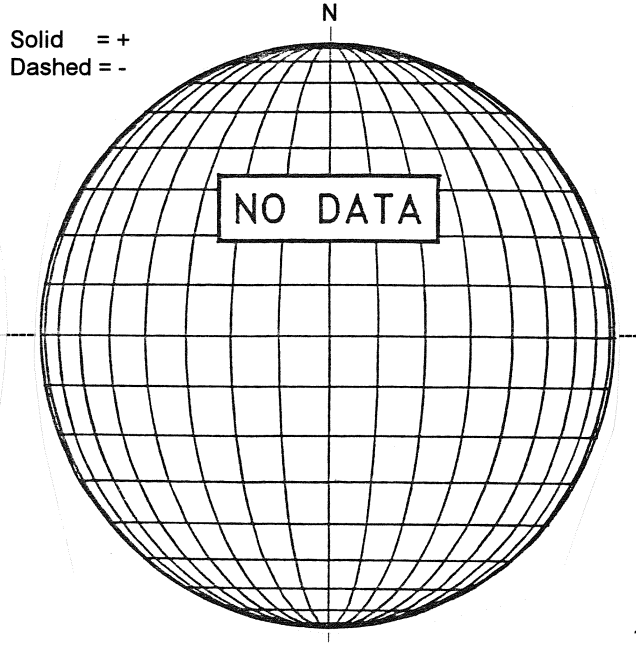


JANUARY 15, 2005 (P= -4.72, Bo = -4.57, Lo = 189.49)

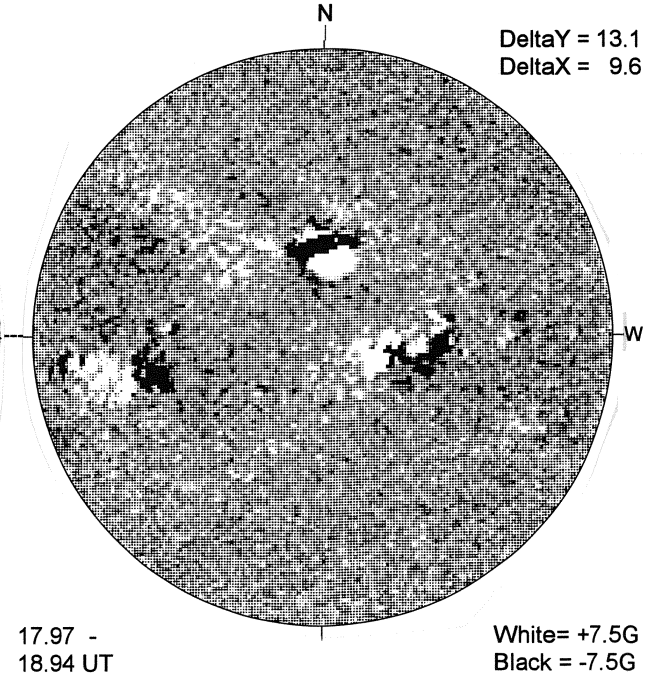
KITT PEAK MAGNETOGRAM--SOLIS



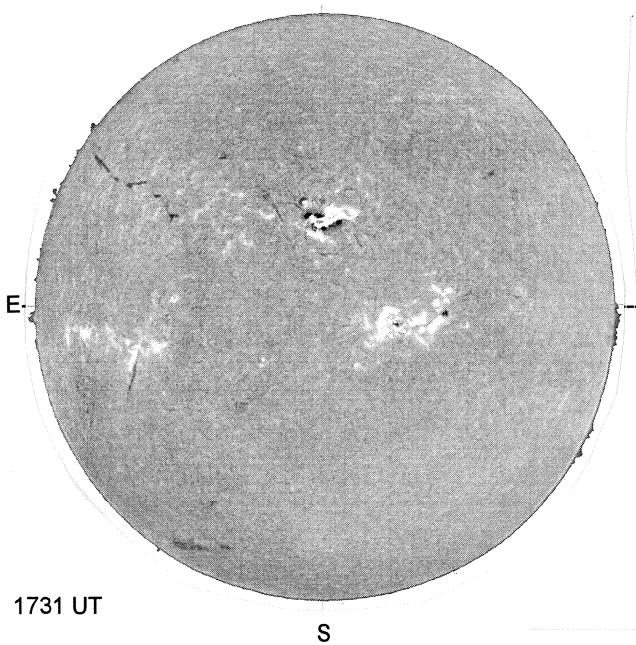
STANFORD MAGNETOGRAM



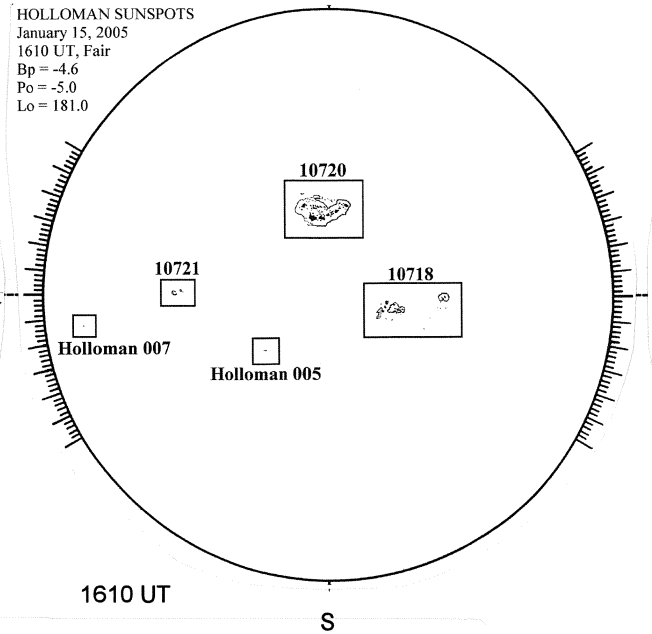
MT. WILSON MAGNETOGRAM



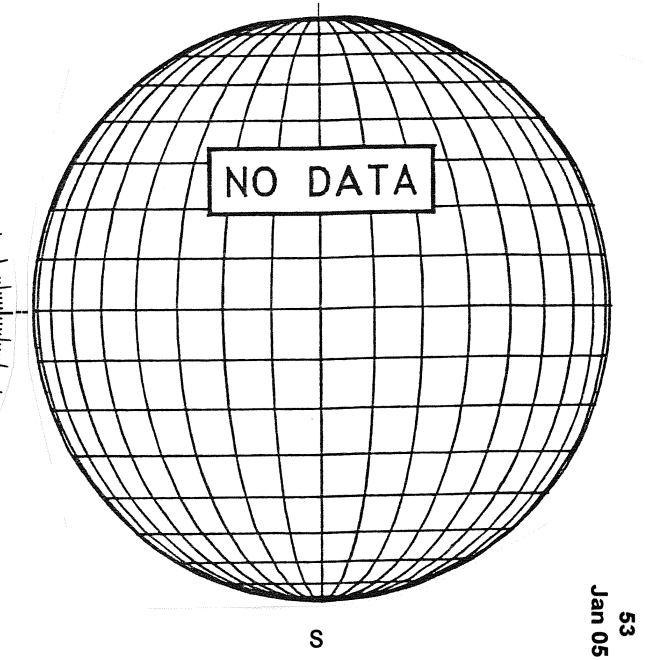
BIG BEAR H-ALPHA



HOLLOMAN SUNSPOTS

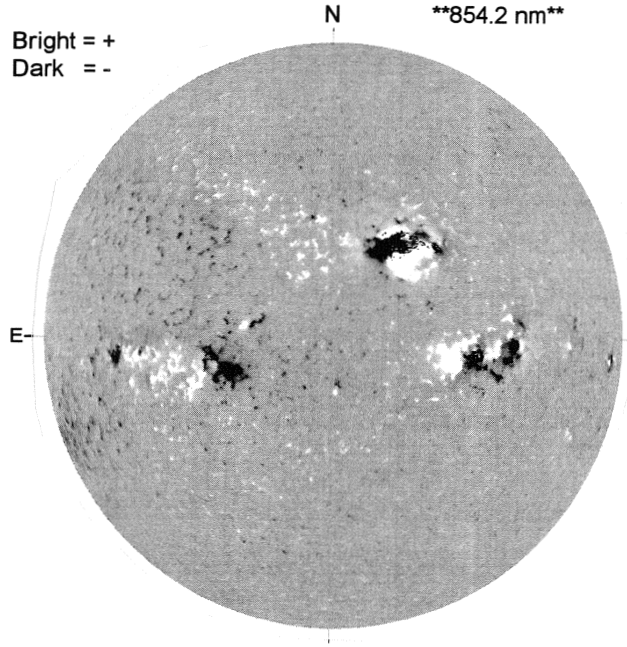


LOMNICKY PEAK CORONA (1.04 Radii)----

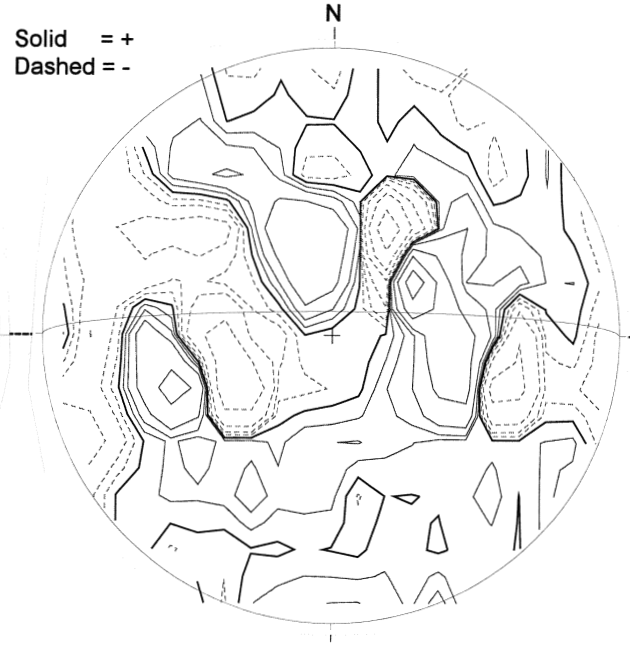


JANUARY 16, 2005 (P= -5.19, Bo = -4.67, Lo = 176.33)

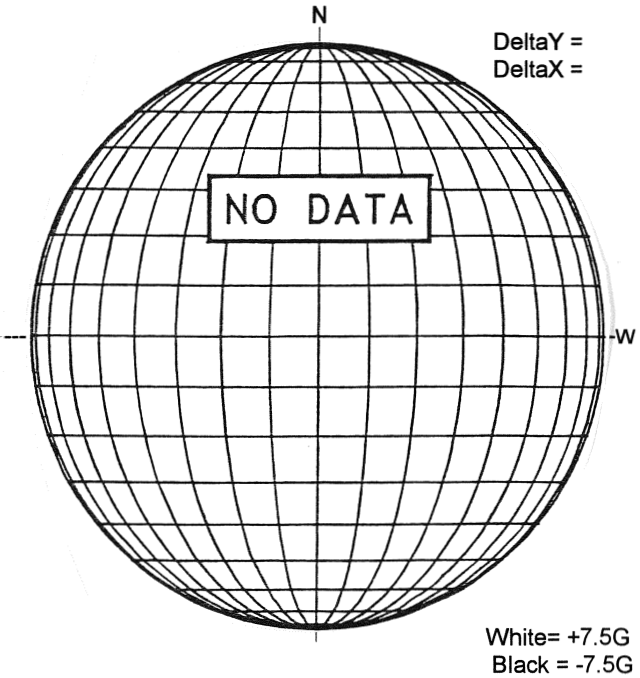
KITT PEAK MAGNETOGRAM--SOLIS



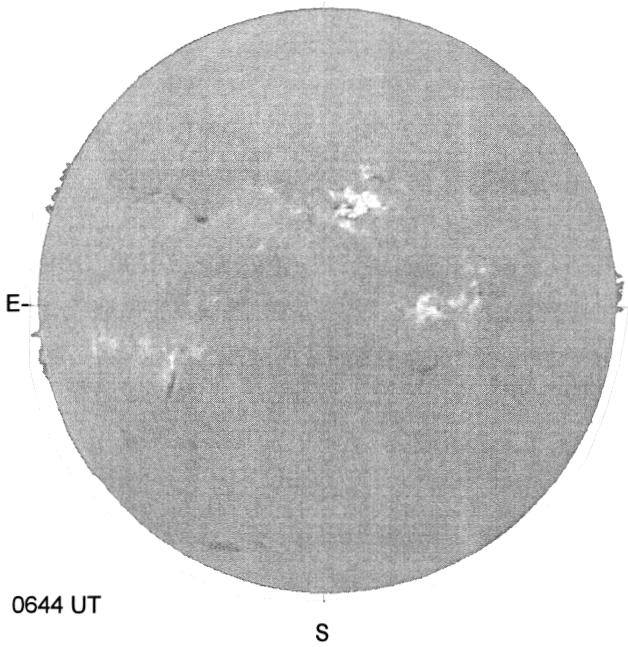
STANFORD MAGNETOGRAM



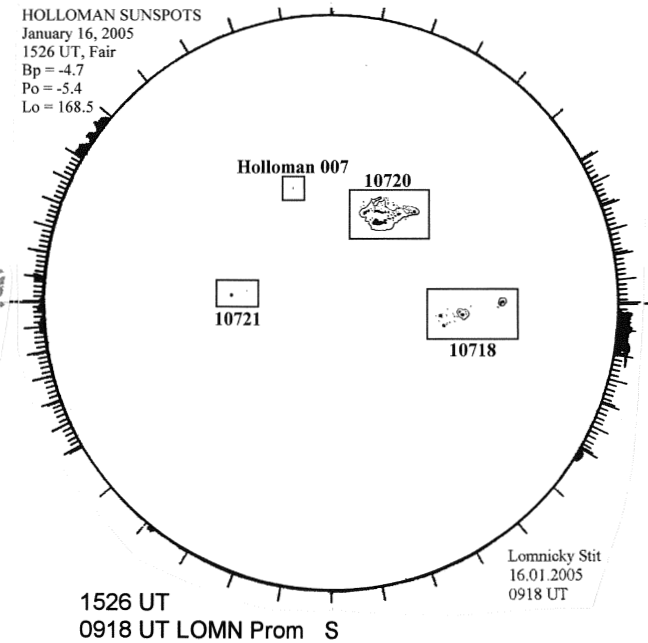
MT. WILSON MAGNETOGRAM



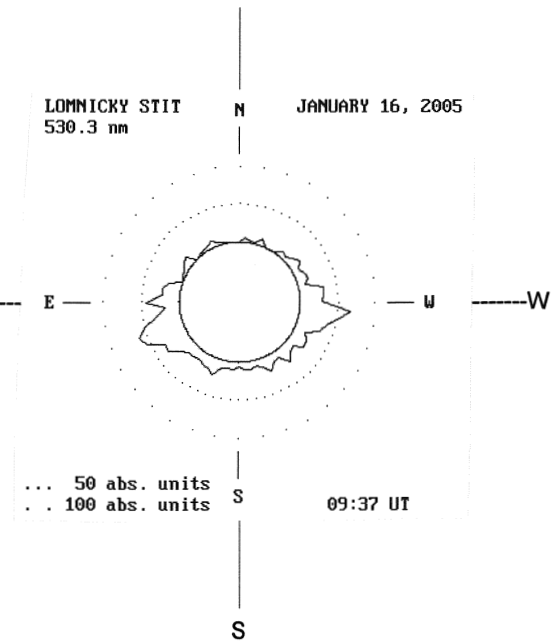
YUNNAN H-ALPHA



HOLLOMAN SUNSPOTS

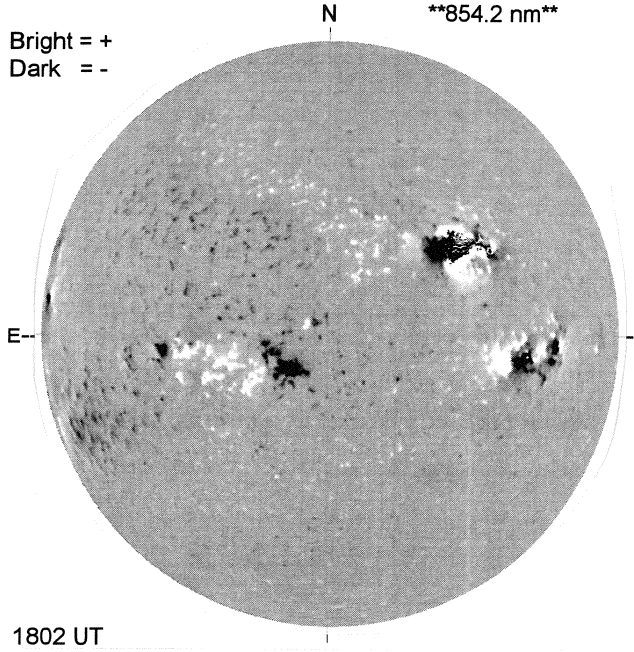


LOMNICKY PEAK CORONA (1.04 Radii)----

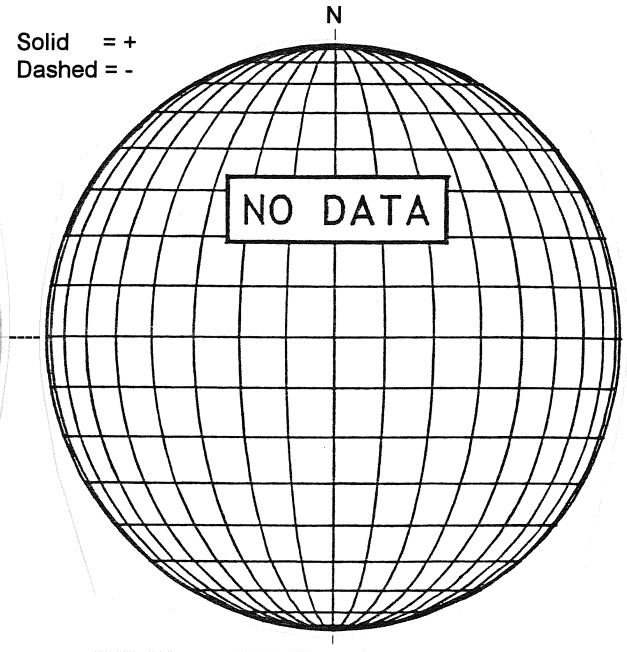


JANUARY 17, 2005 (P= -5.65, Bo = -4.76, Lo = 163.16)

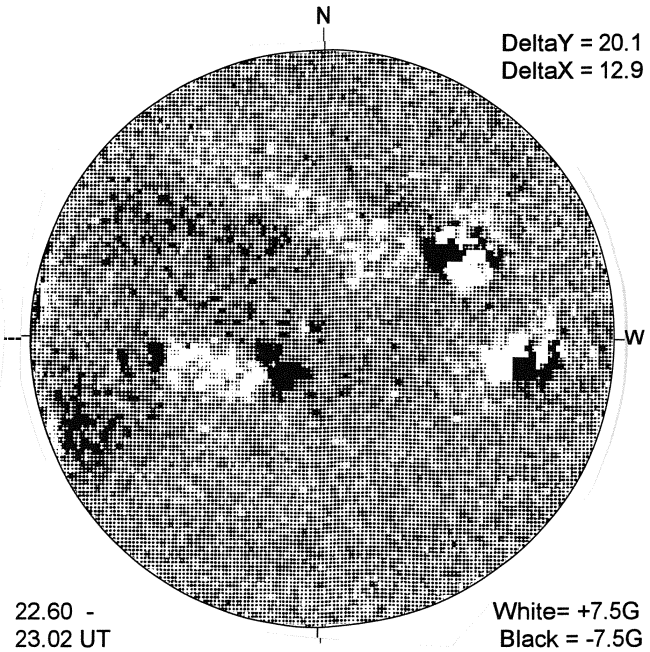
KITT PEAK MAGNETOGRAM--SOLIS



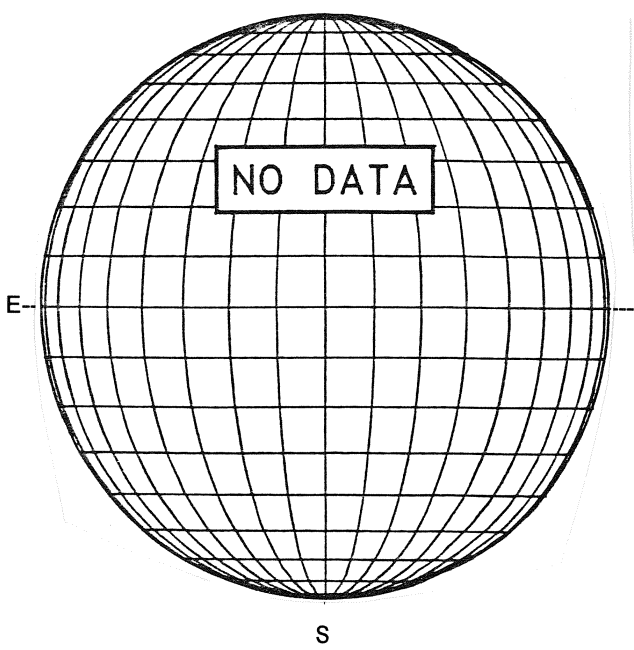
STANFORD MAGNETOGRAM



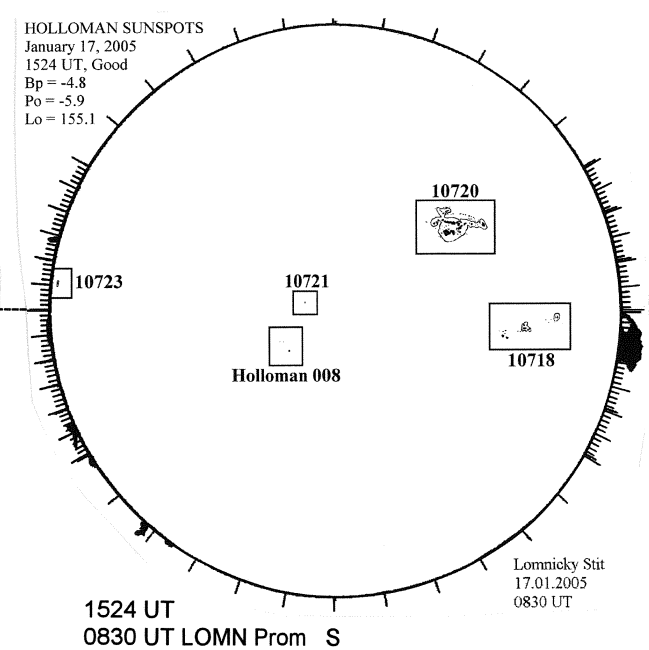
MT. WILSON MAGNETOGRAM



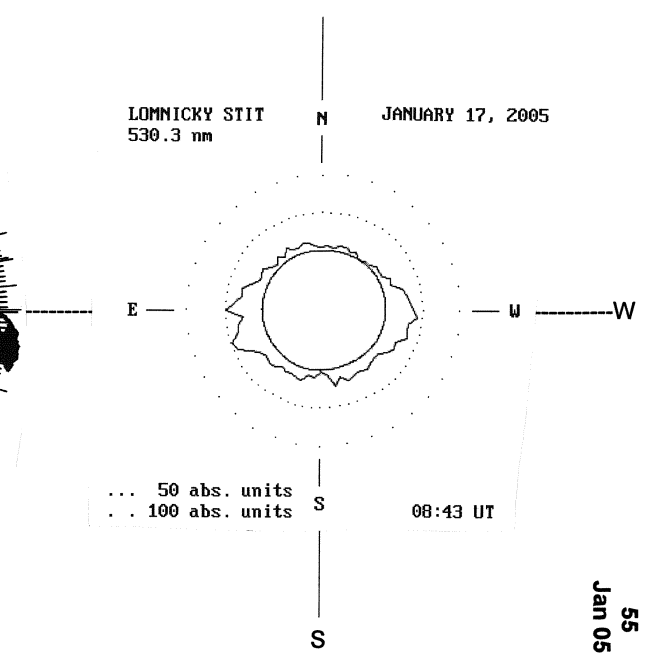
BIG BEAR H-ALPHA



HOLLOMAN SUNSPOTS



LOMNICKY PEAK CORONA (1.04 Radii)----

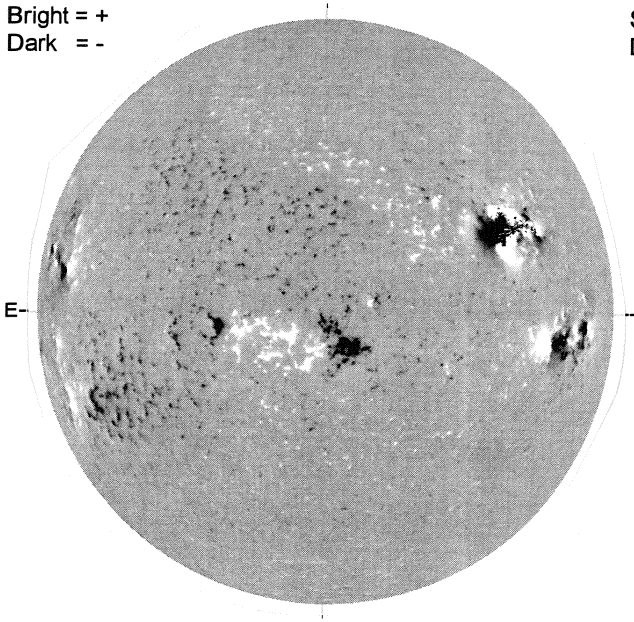


JANUARY 18, 2005 (P= -6.12, Bo = -4.86, Lo = 149.99)

KITT PEAK MAGNETOGRAM--SOLIS

854.2 nm

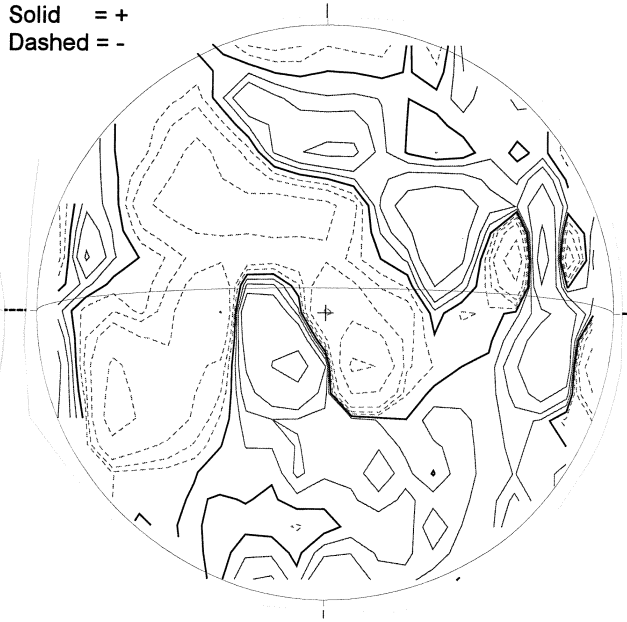
Bright = +
Dark = -



1752 UT

STANFORD MAGNETOGRAM

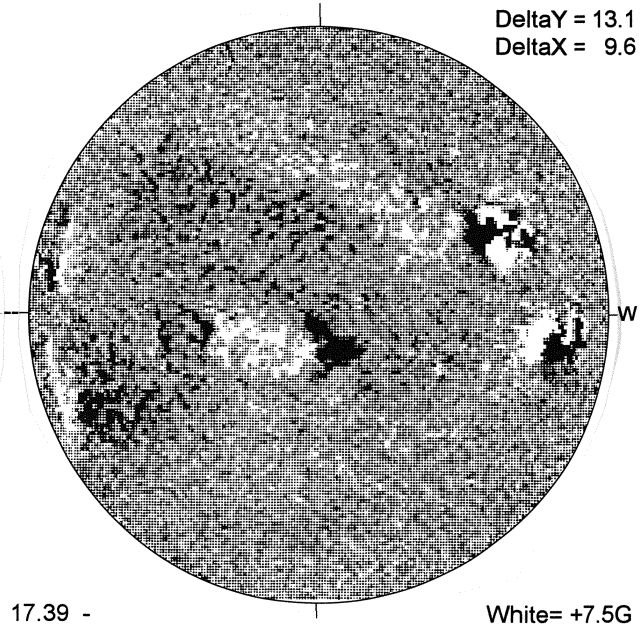
Solid = +
Dashed = -



2131 UT

MT. WILSON MAGNETOGRAM

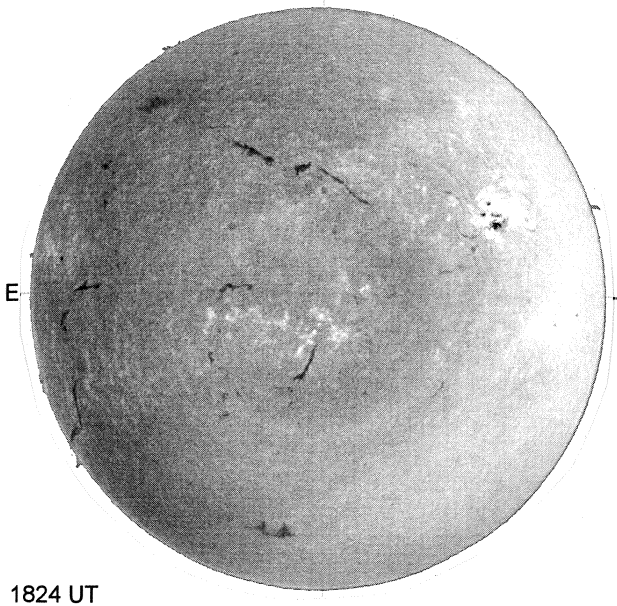
DeltaY = 13.1
DeltaX = 9.6



17.39 -
18.36 UT

White= +7.5G
Black = -7.5G

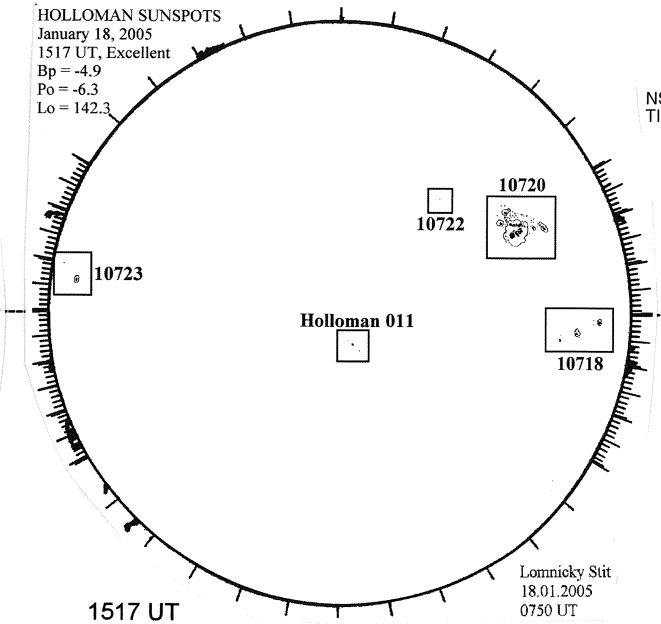
BIG BEAR H-ALPHA



1824 UT

S

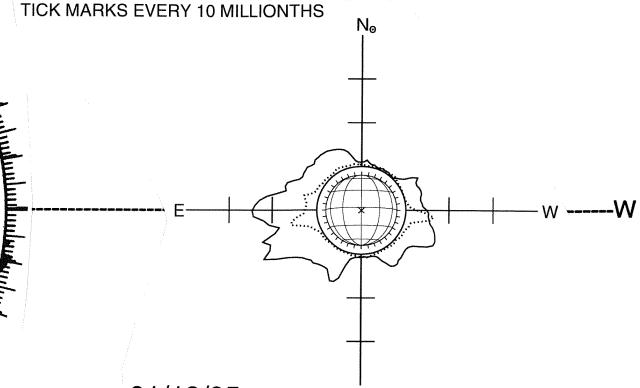
HOLLOMAN SUNSPOTS



1517 UT
0750 UT LOMN Prom S

SACRAMENTO PEAK CORONA (1.15 Radii)----

NSO / SACRAMENTO PEAK CORONAL DATA
TICK MARKS EVERY 10 MILLIONTHS



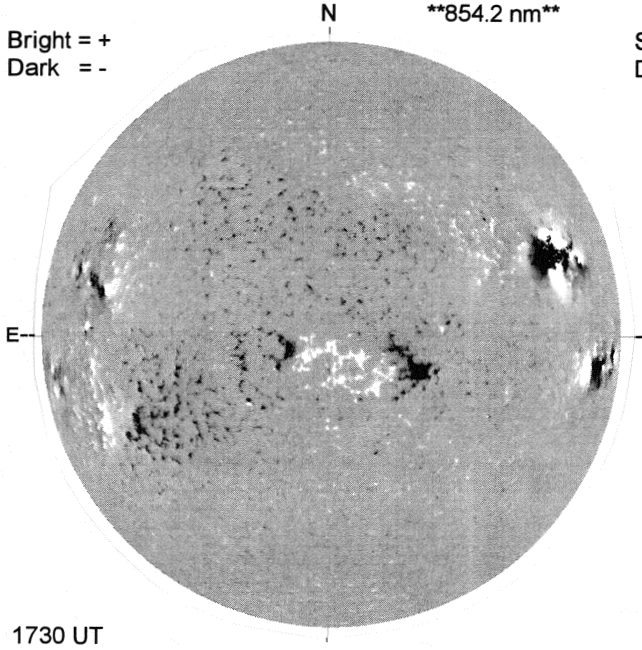
01/18/05
(DOY 18)

FE XIV 15:49 UT 1.15 R☉
FE X 16:50 UT 1.15 R☉
xxxxx CA XV 17:33 UT 1.15 R☉
NO CA XV ACTIVITY TODAY

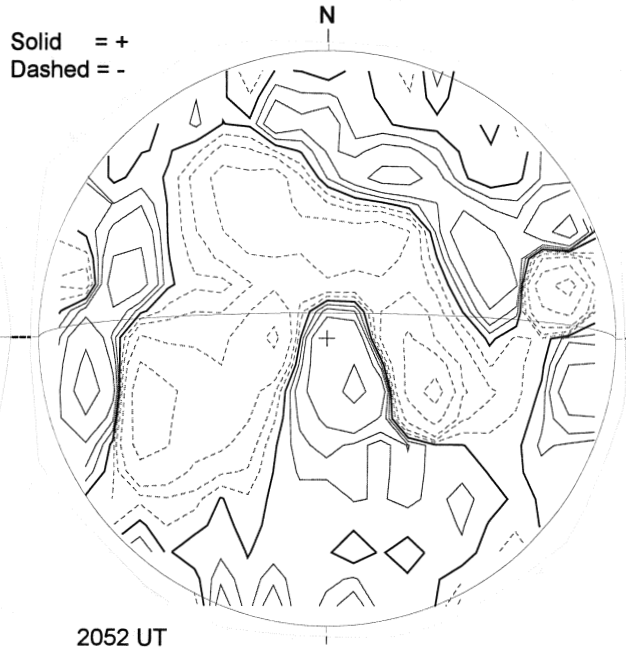
S

JANUARY 19, 2005 (P= -6.58, Bo = -4.96, Lo = 136.83)

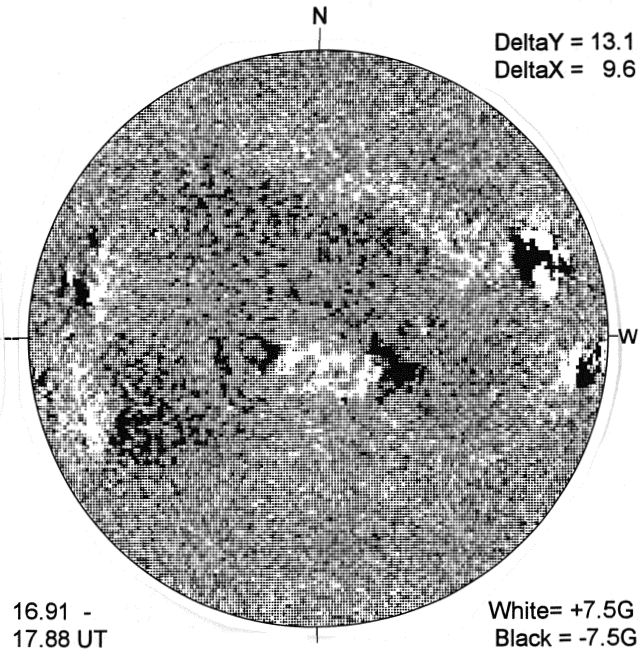
KITT PEAK MAGNETOGRAM--SOLIS



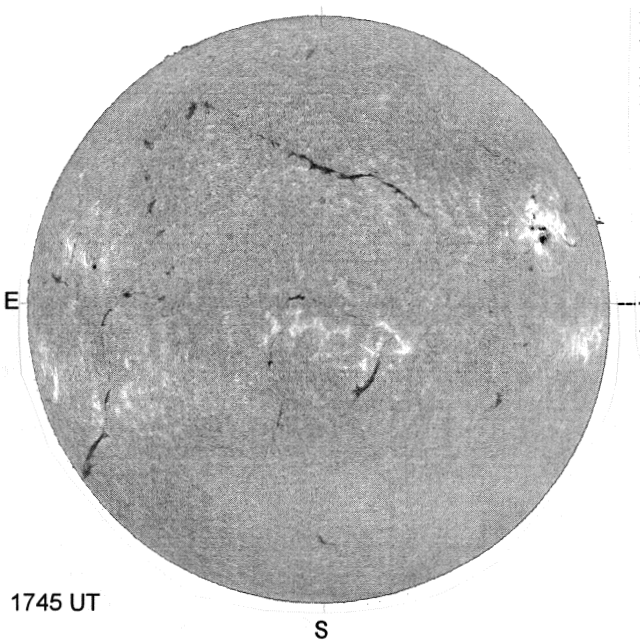
STANFORD MAGNETOGRAM



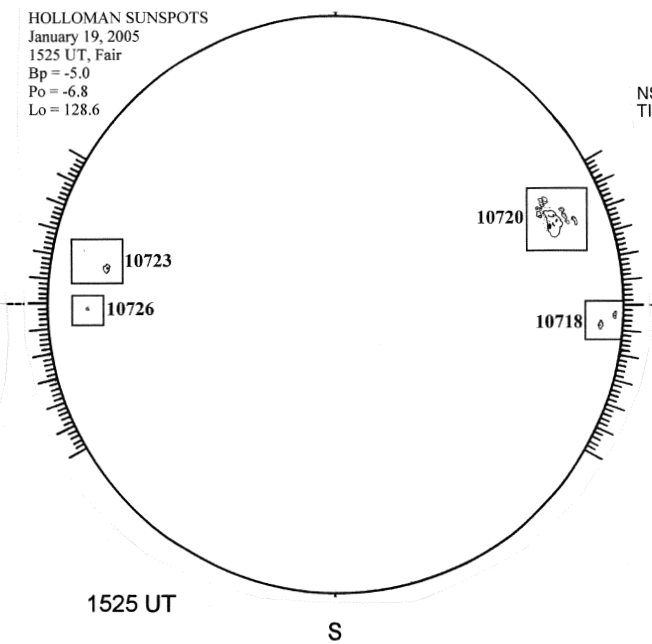
MT. WILSON MAGNETOGRAM



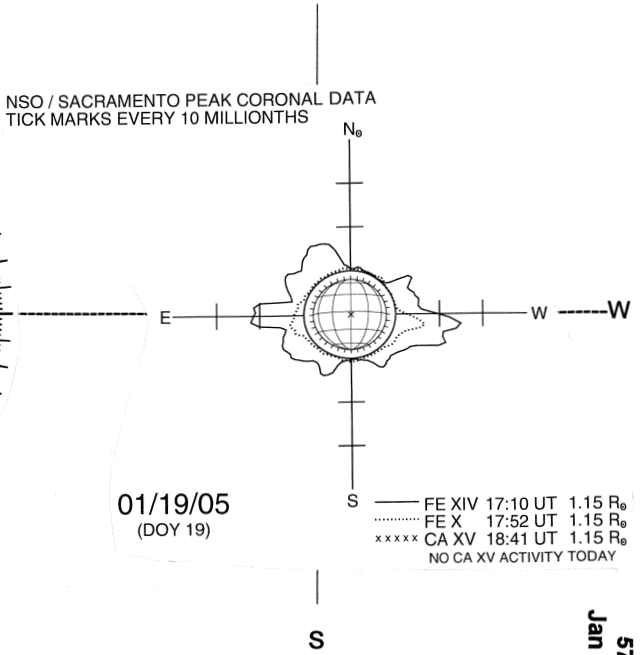
BIG BEAR H-ALPHA



HOLLOMAN SUNSPOTS



SACRAMENTO PEAK CORONA (1.15 Radii)----

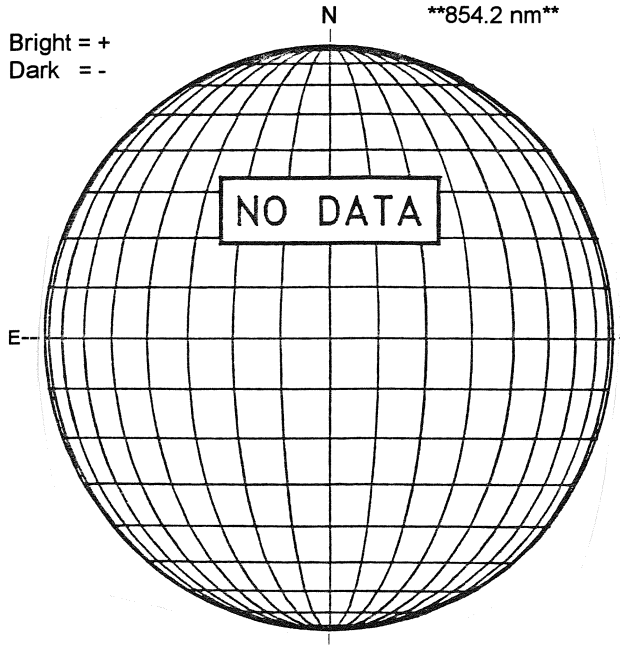


JANUARY 20, 2005 (P= -7.03, Bo = -5.05, Lo = 123.66)

KITT PEAK MAGNETOGRAM--SOLIS

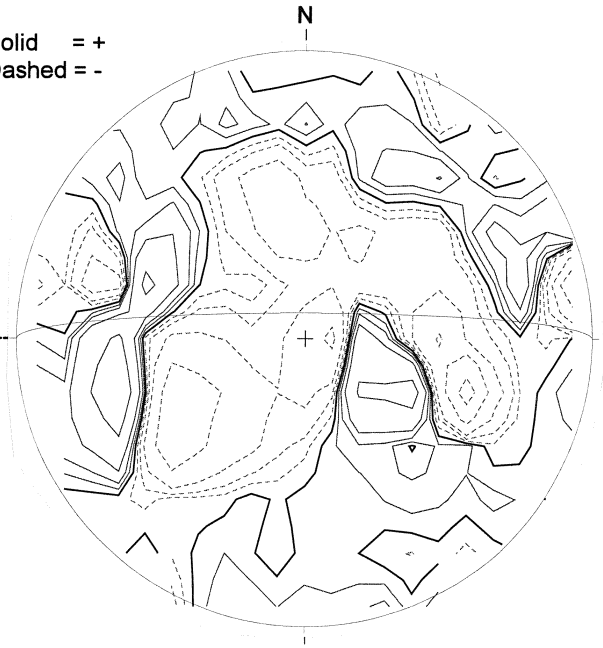
854.2 nm

Bright = +
Dark = -



STANFORD MAGNETOGRAM

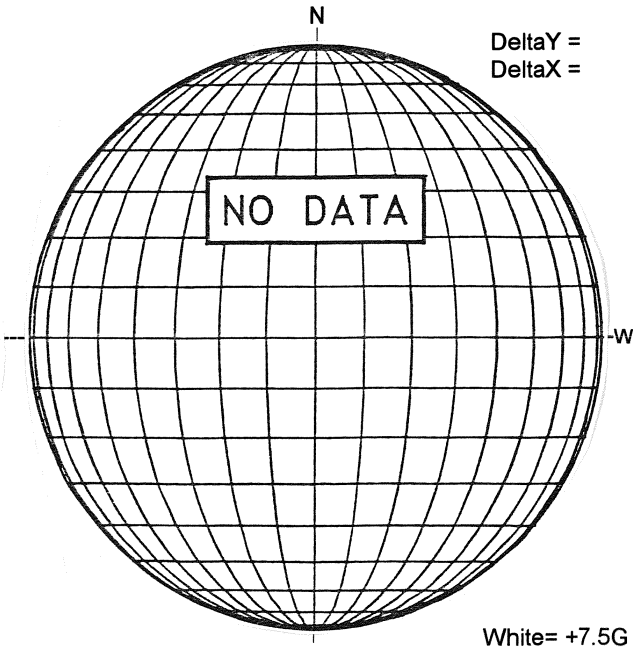
Solid = +
Dashed = -



2116 UT

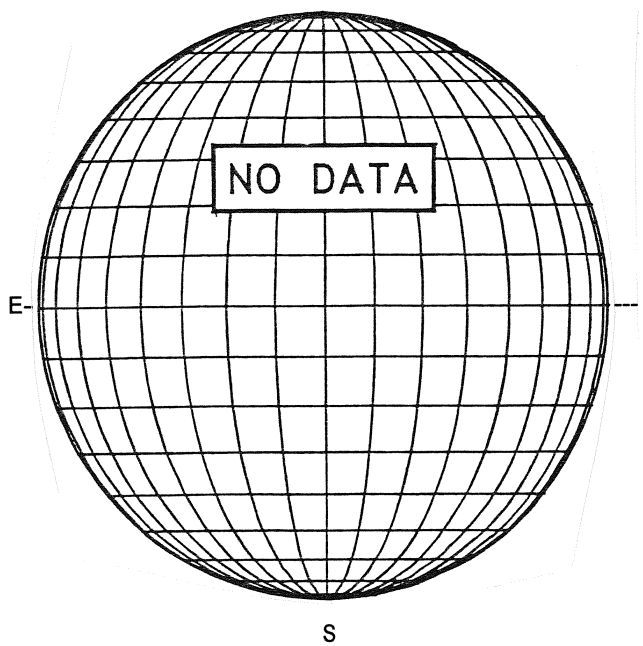
MT. WILSON MAGNETOGRAM

DeltaY =
DeltaX =

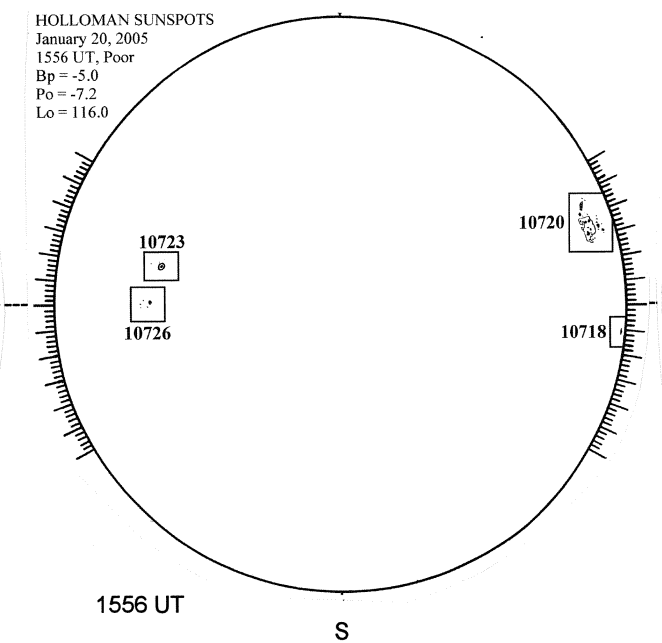


White= +7.5G
Black = -7.5G

BIG BEAR H-ALPHA

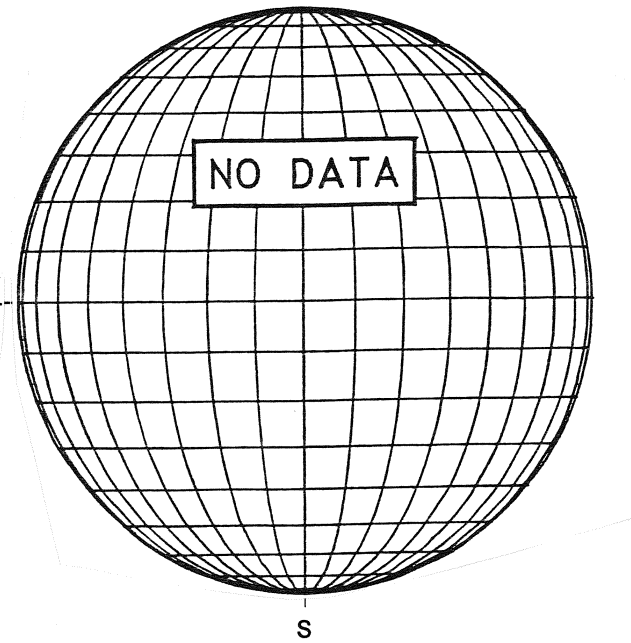


HOLLOMAN SUNSPOTS



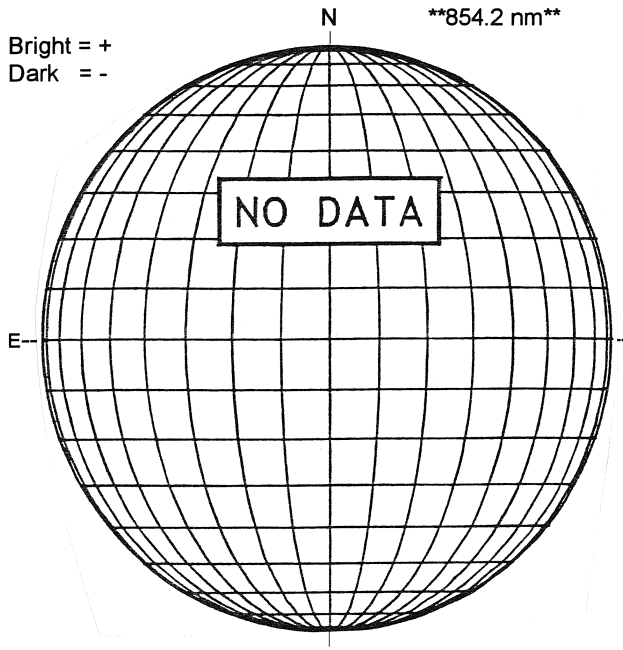
1556 UT

SACRAMENTO PEAK CORONA (1.15 Radii)

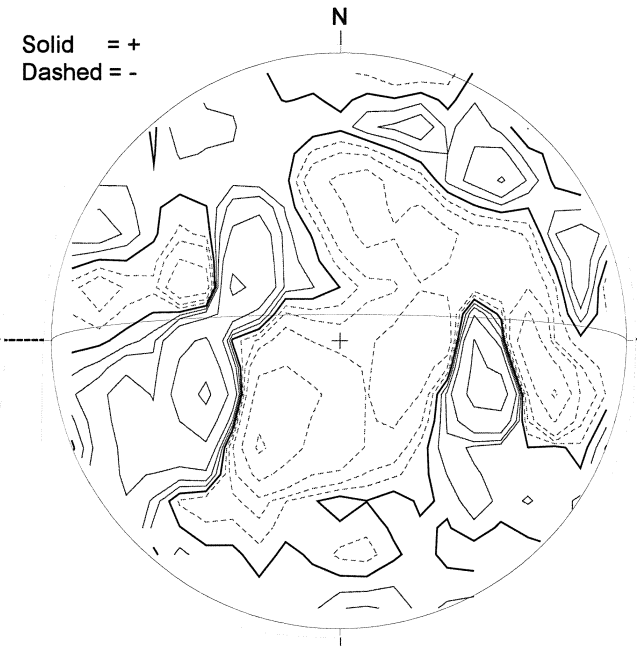


JANUARY 21, 2005 (P= -7.48, Bo = -5.14, Lo = 110.49)

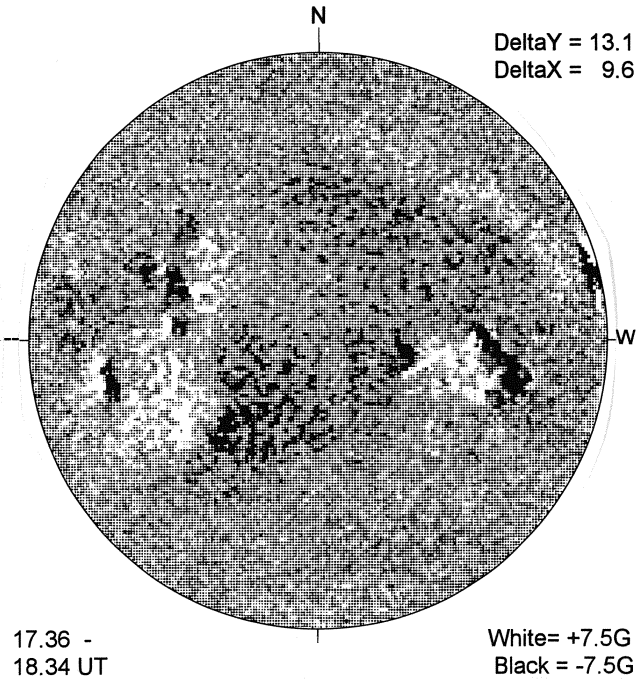
KITT PEAK MAGNETOGRAM--SOLIS



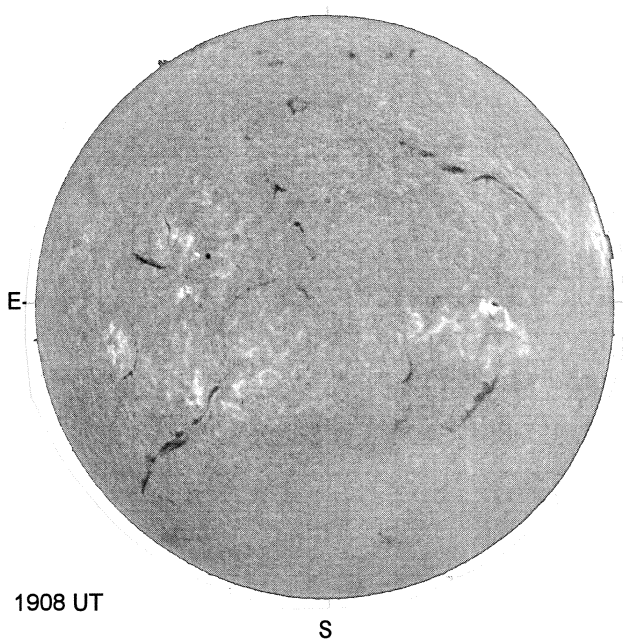
STANFORD MAGNETOGRAM



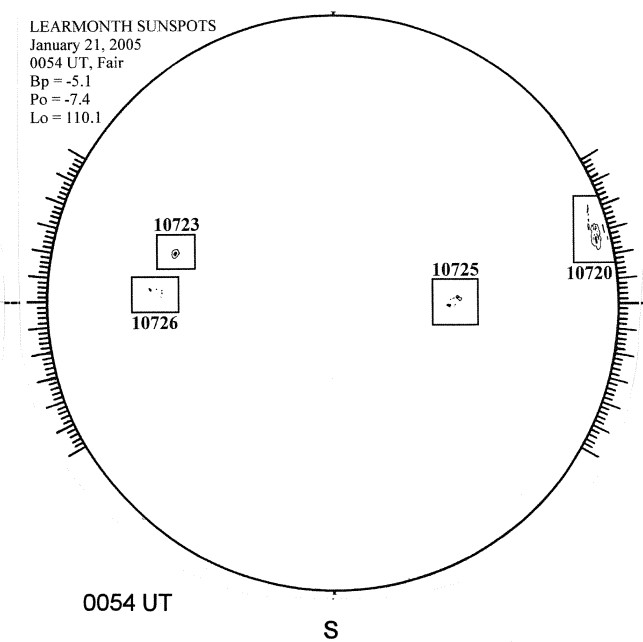
MT. WILSON MAGNETOGRAM



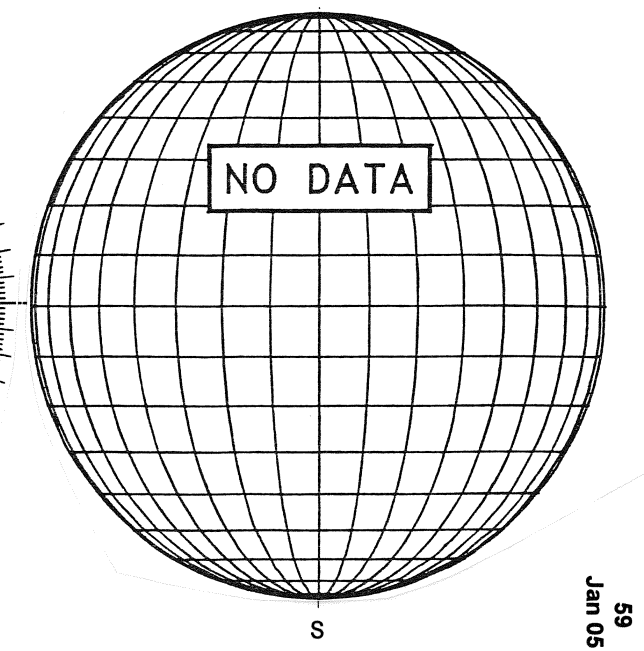
BIG BEAR H-ALPHA



LEARMONTH SUNSPOTS



LOMNICKY PEAK CORONA (1.04 Radii)----

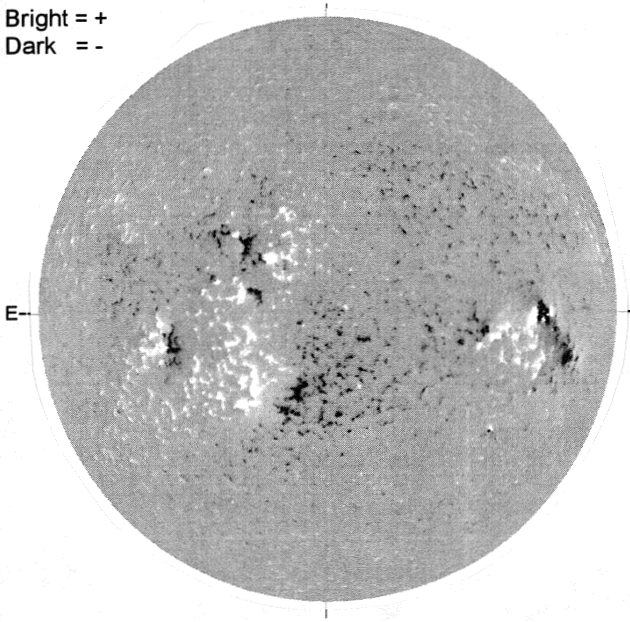


JANUARY 22, 2005 (P= -7.93, Bo = -5.23, Lo = 97.32)

KITT PEAK MAGNETOGRAM--SOLIS

854.2 nm

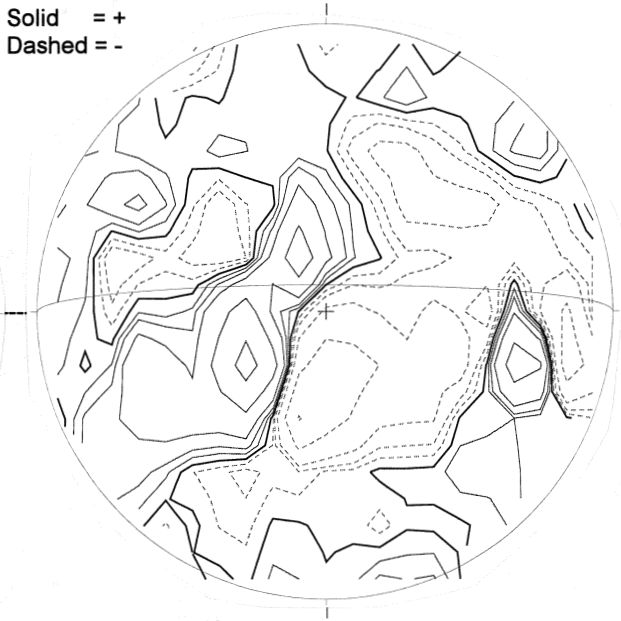
Bright = +
Dark = -



1744 UT

STANFORD MAGNETOGRAM

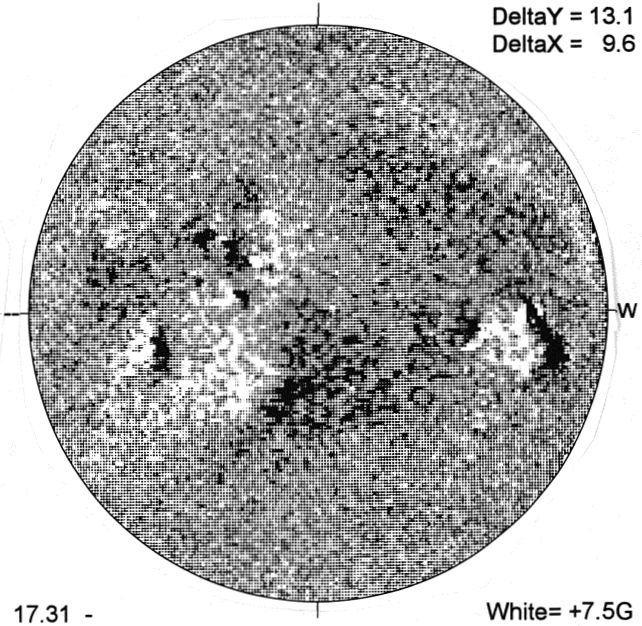
Solid = +
Dashed = -



2137 UT

MT. WILSON MAGNETOGRAM

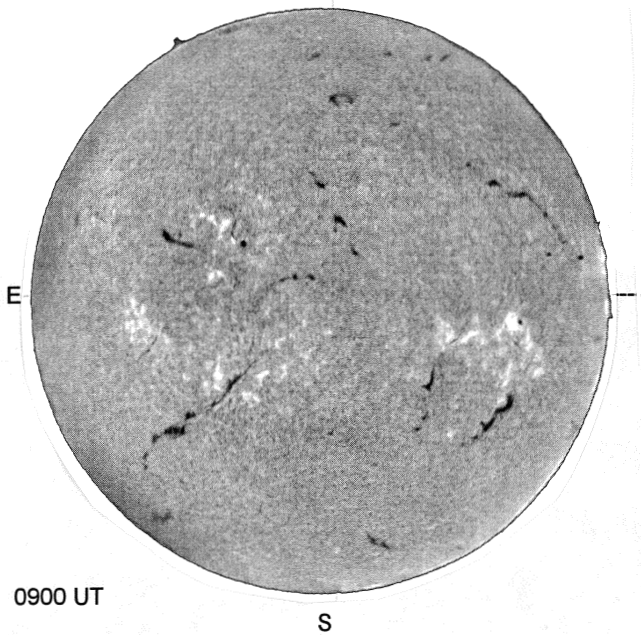
DeltaY = 13.1
DeltaX = 9.6



17.31 -
18.29 UT

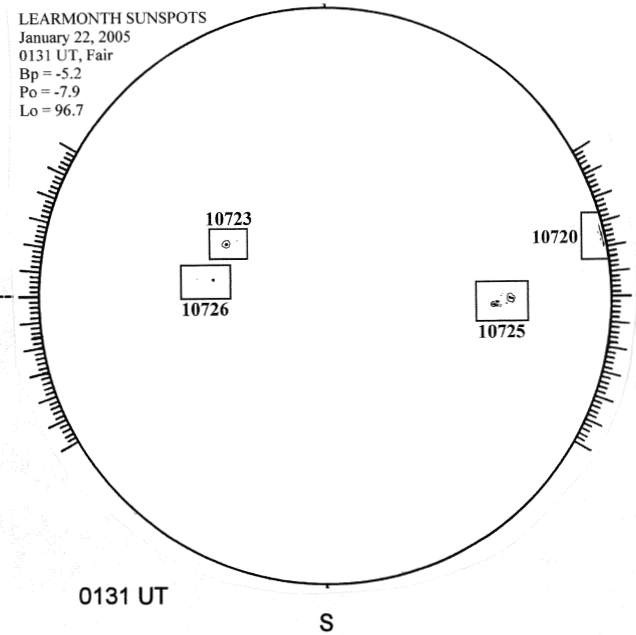
White= +7.5G
Black = -7.5G

KANZELHOHE H-ALPHA



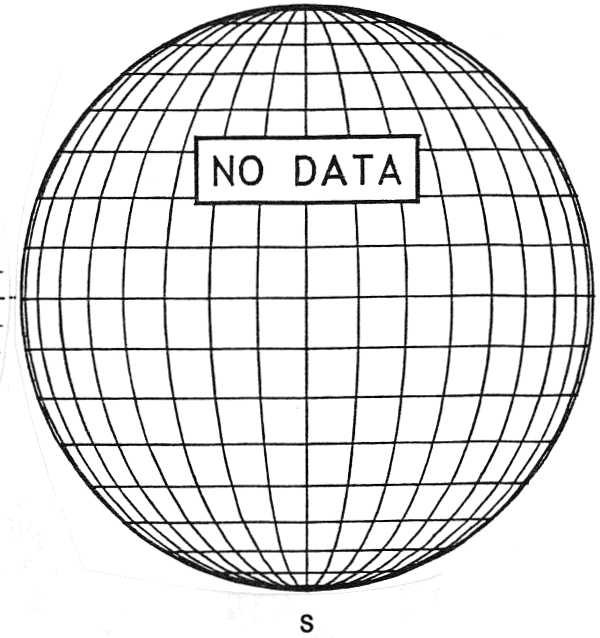
0900 UT

LEARMONTH SUNSPOTS



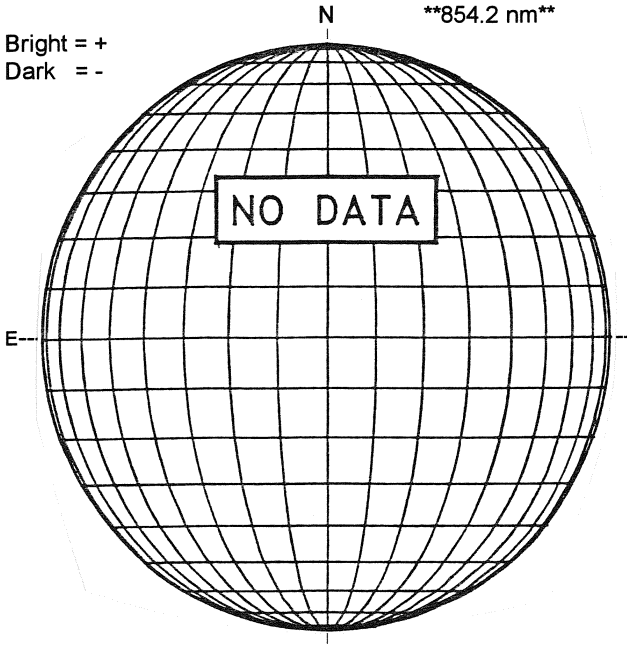
0131 UT

LOMNICKY PEAK CORONA (1.04 Radii)----

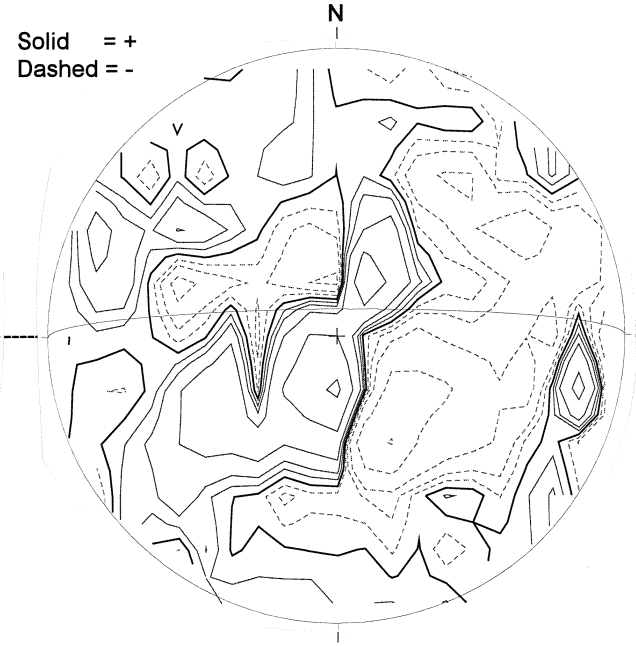


JANUARY 23, 2005 (P= -8.38, Bo = -5.32, Lo = 84.16)

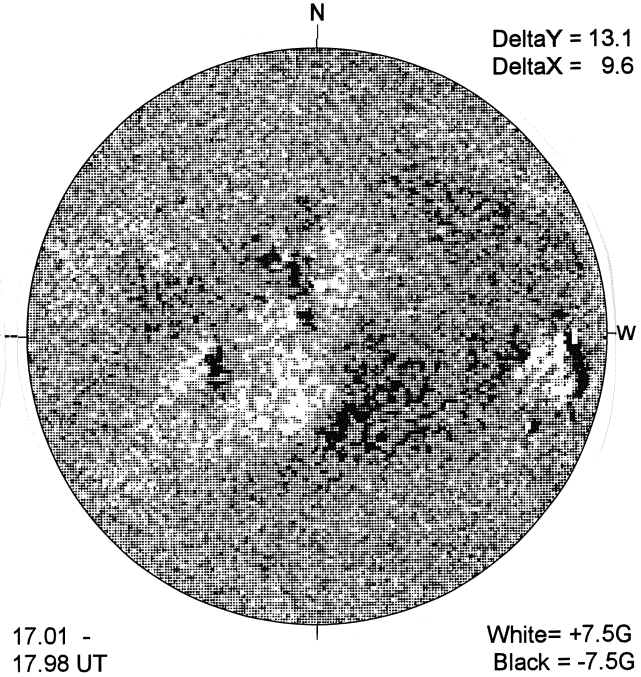
KITT PEAK MAGNETOGRAM--SOLIS



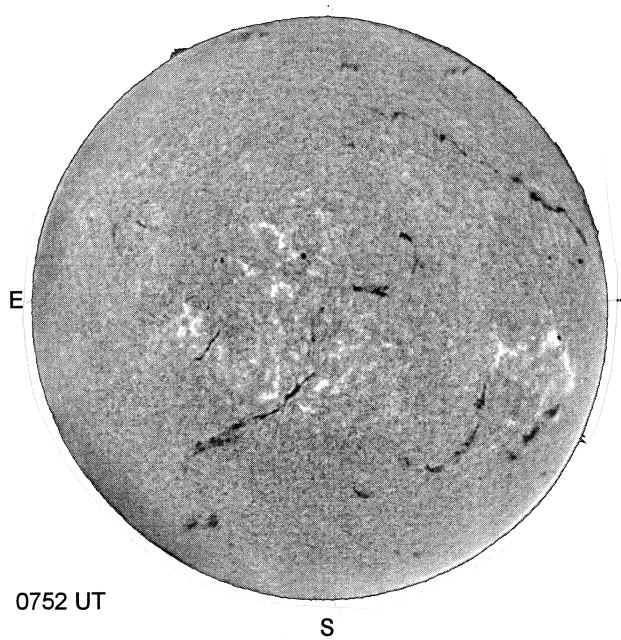
STANFORD MAGNETOGRAM



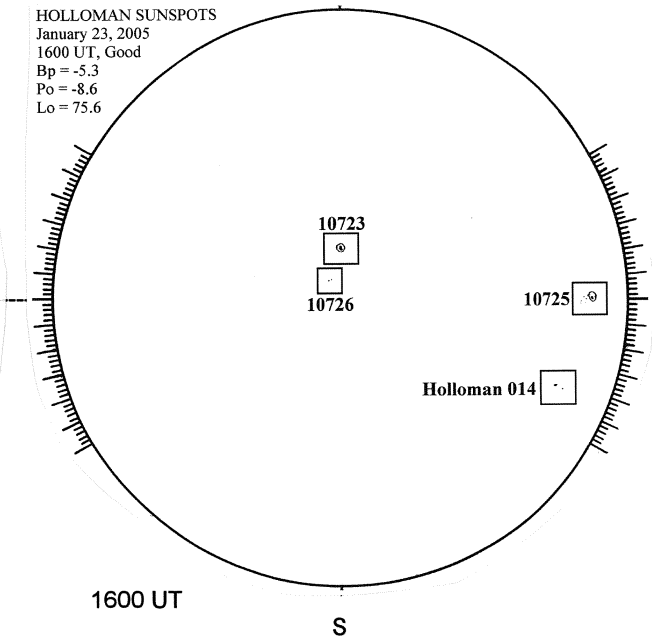
MT. WILSON MAGNETOGRAM



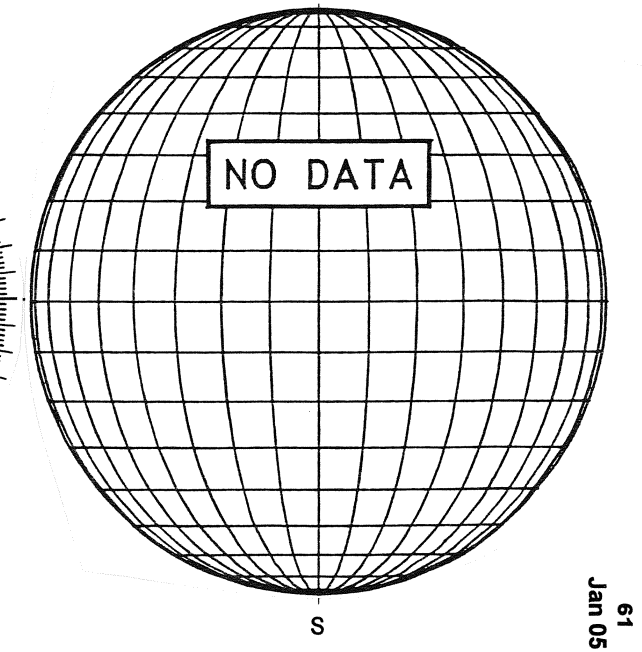
KANZELHOHE H-ALPHA



HOLLOMAN SUNSPOTS



LOMNICKY PEAK CORONA (1.04 Radii)----

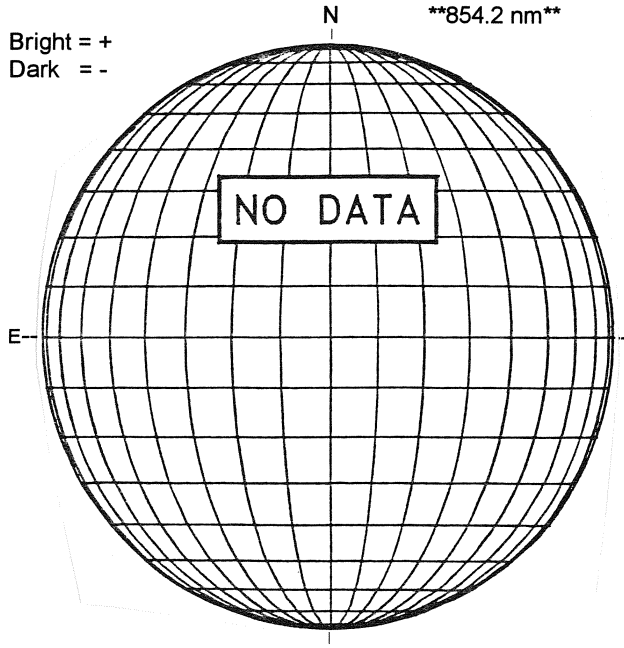


JANUARY 24, 2005 (P= -8.82, Bo = -5.41, Lo = 70.99)

KITT PEAK MAGNETOGRAM--SOLIS

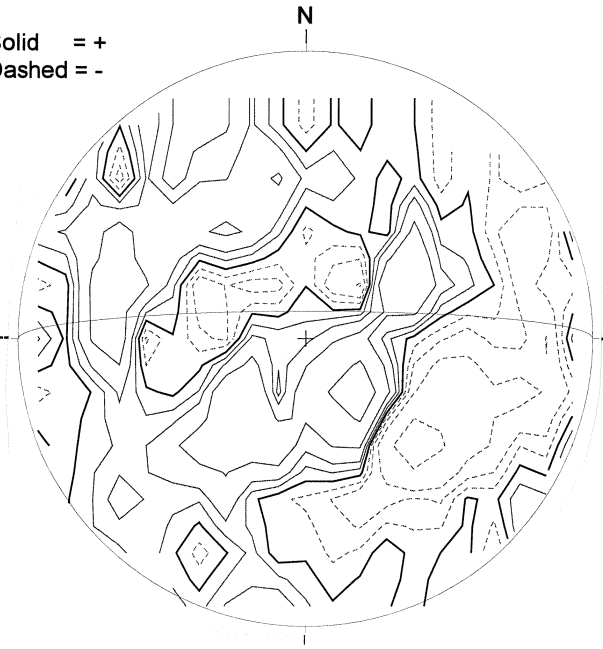
854.2 nm

Bright = +
Dark = -



STANFORD MAGNETOGRAM

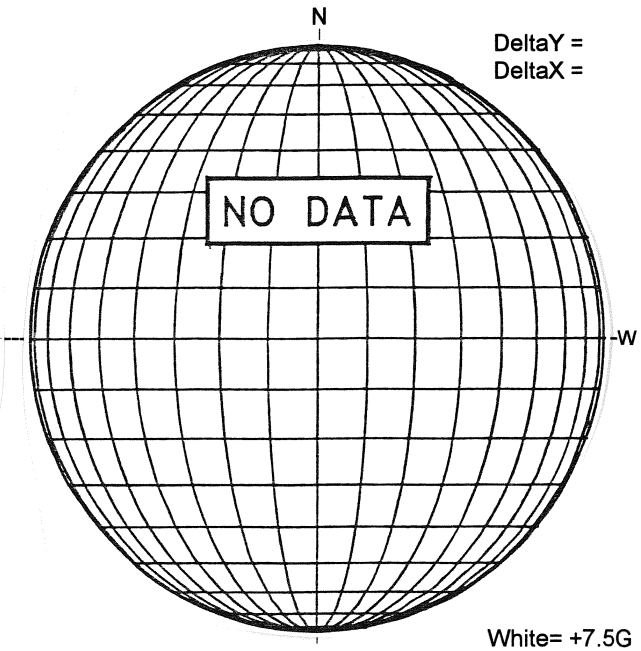
Solid = +
Dashed = -



2238 UT

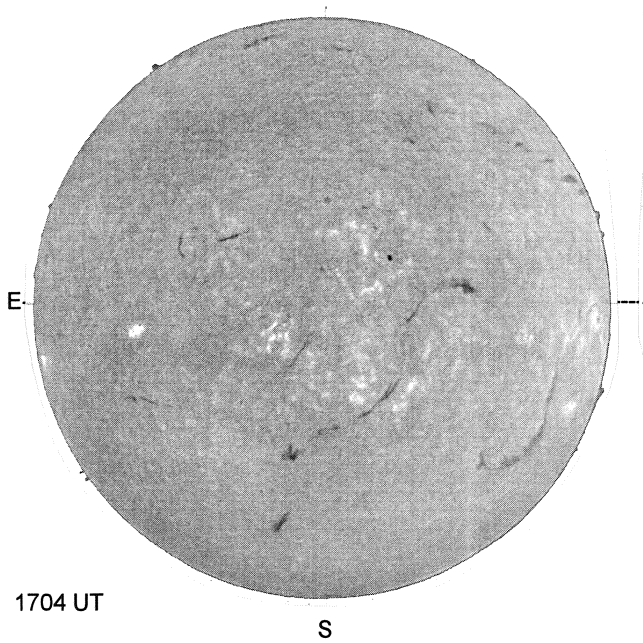
MT. WILSON MAGNETOGRAM

DeltaY =
DeltaX =



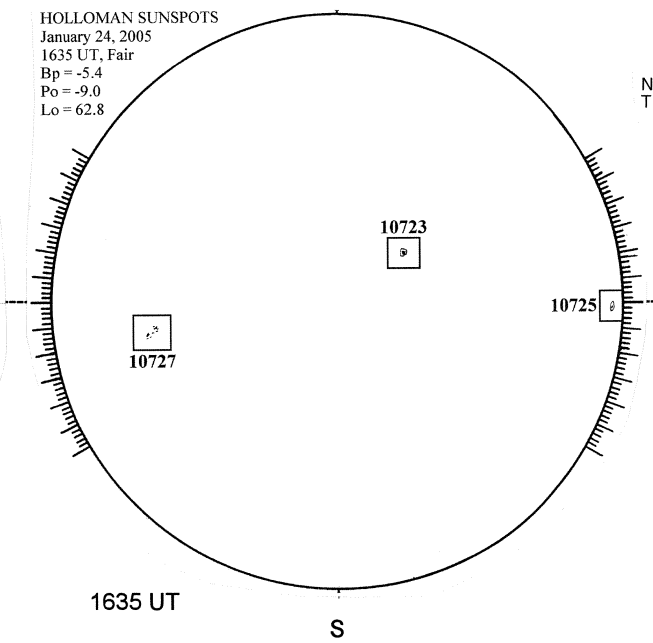
White= +7.5G
Black = -7.5G

----- BIG BEAR H-ALPHA



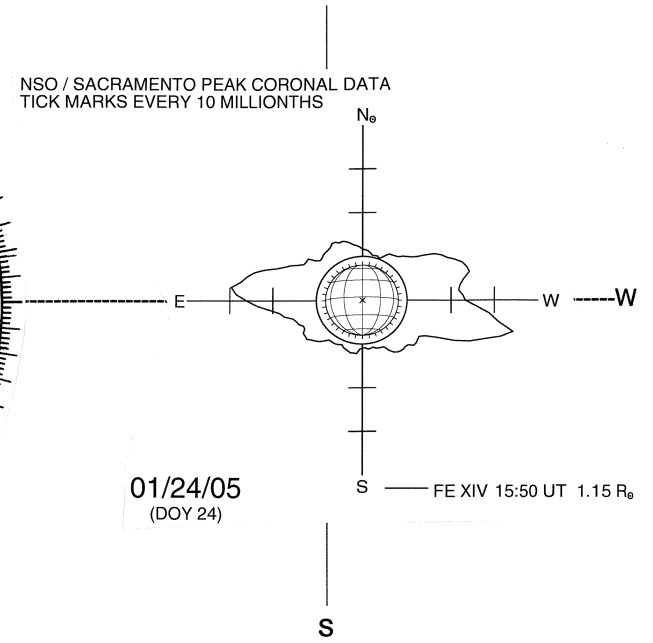
1704 UT

HOLLOMAN SUNSPOTS



1635 UT

SACRAMENTO PEAK CORONA (1.15 Radii)----

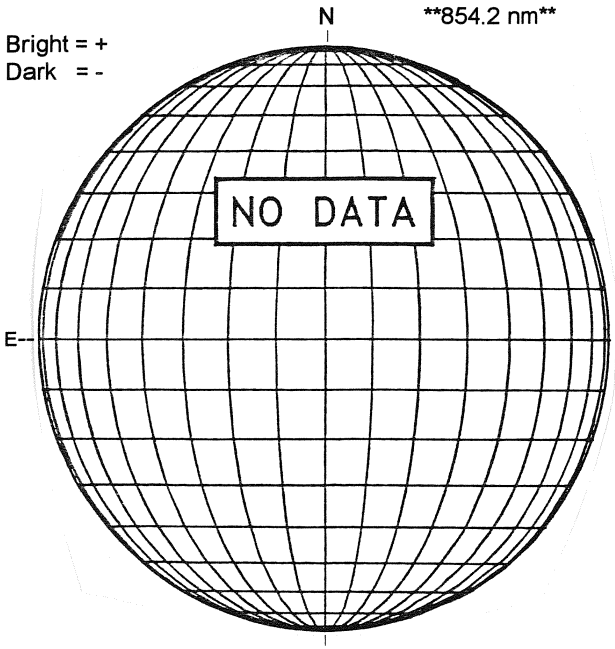


JANUARY 25, 2005 (P= -9.26, Bo = -5.49, Lo = 57.82)

KITT PEAK MAGNETOGRAM--SOLIS

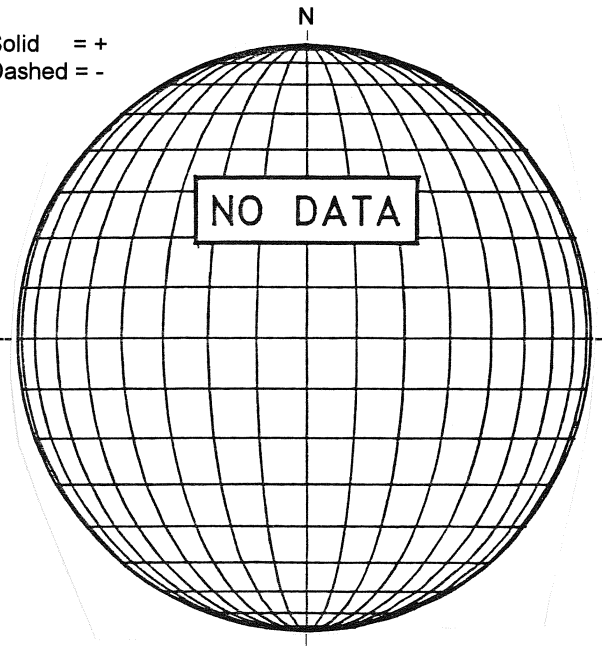
854.2 nm

Bright = +
Dark = -



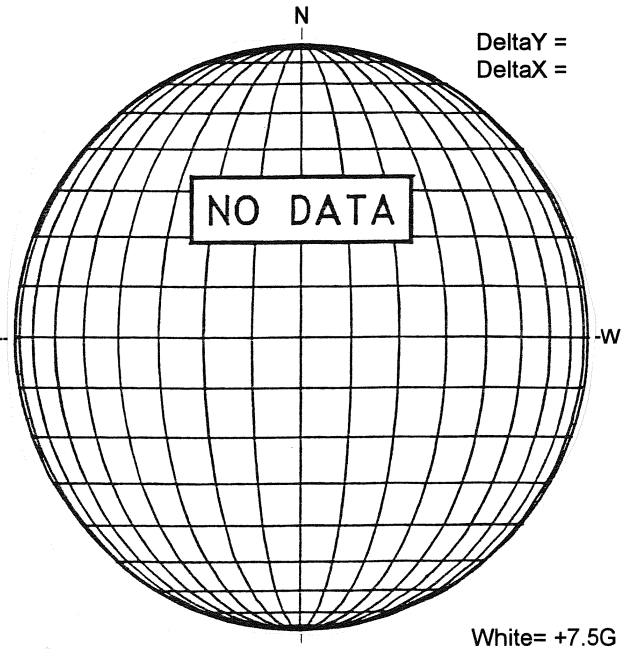
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



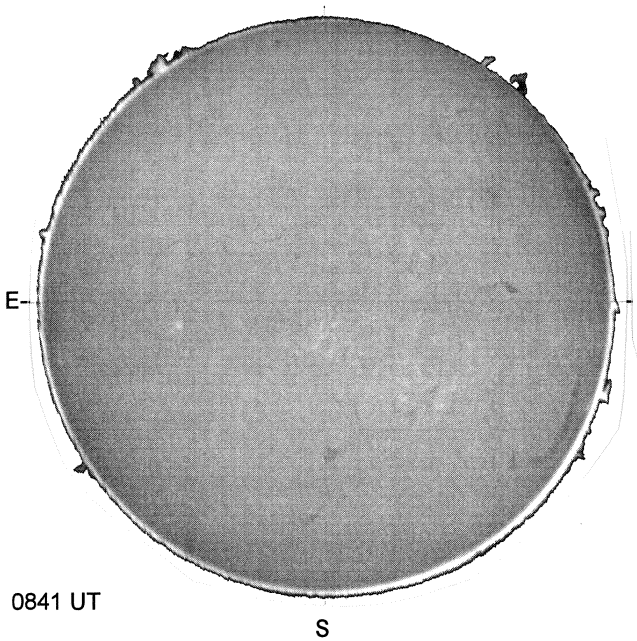
MT. WILSON MAGNETOGRAM

DeltaY =
DeltaX =



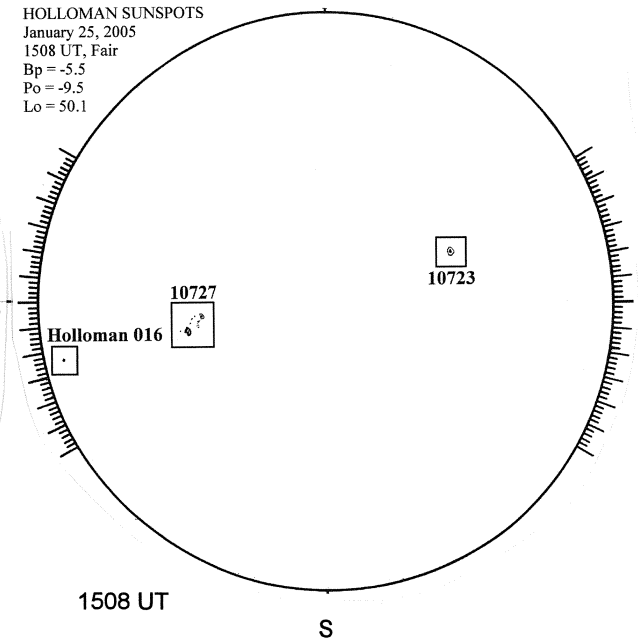
White= +7.5G
Black = -7.5G

MEUDON H-ALPHA



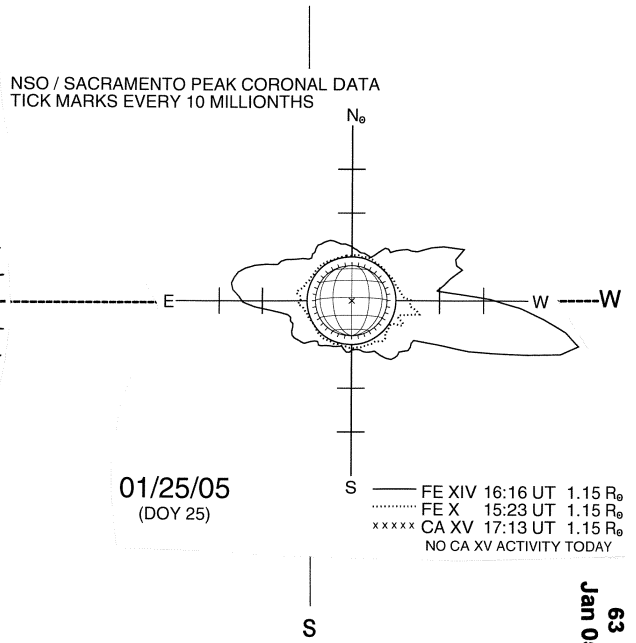
0841 UT

HOLLOMAN SUNSPOTS



1508 UT

SACRAMENTO PEAK CORONA (1.15 Radii)----

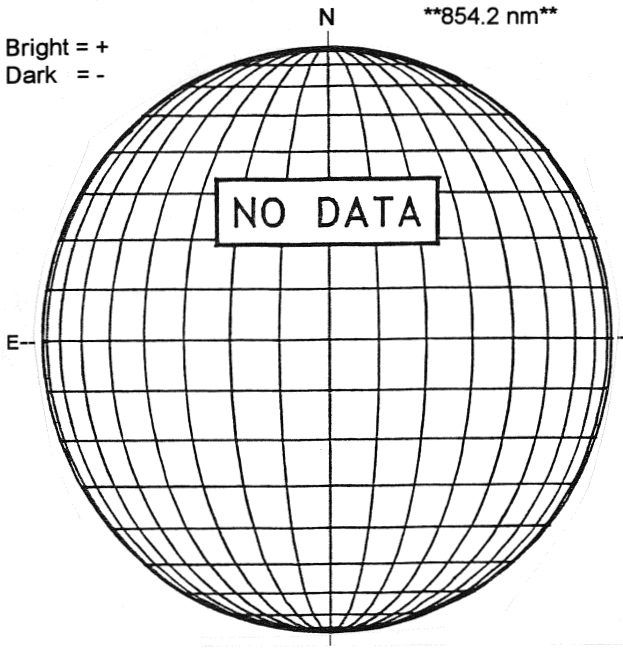


JANUARY 26, 2005 (P= -9.70, Bo = -5.57, Lo = 44.66)

KITT PEAK MAGNETOGRAM--SOLIS

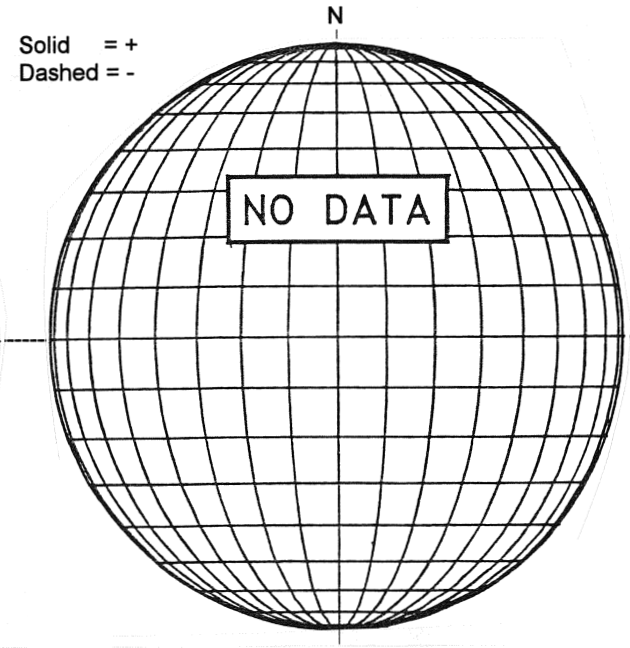
854.2 nm

Bright = +
Dark = -



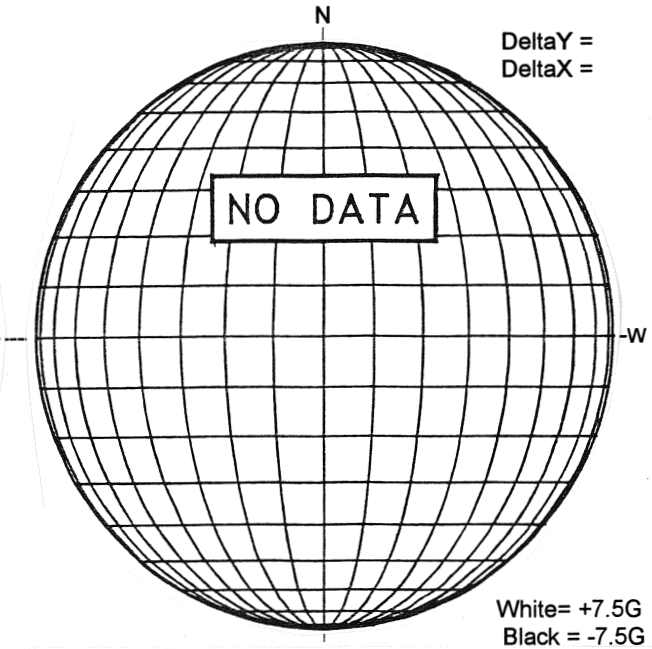
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



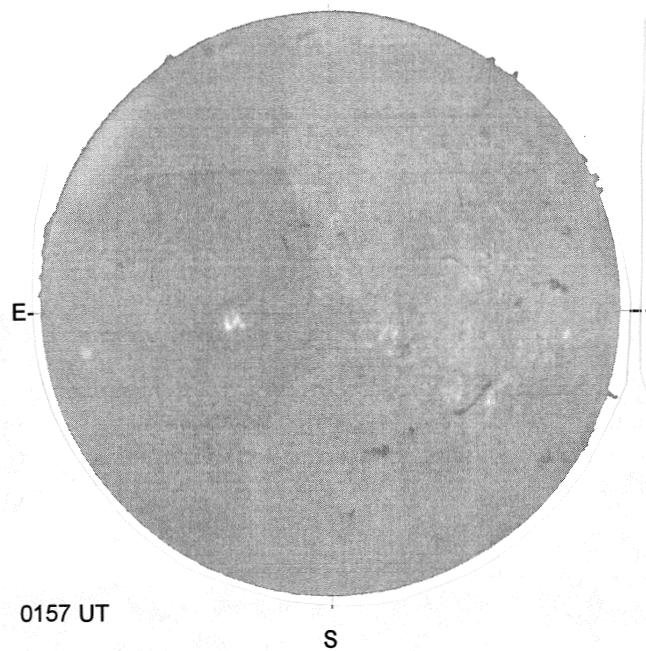
MT. WILSON MAGNETOGRAM

DeltaY =
DeltaX =



White= +7.5G
Black = -7.5G

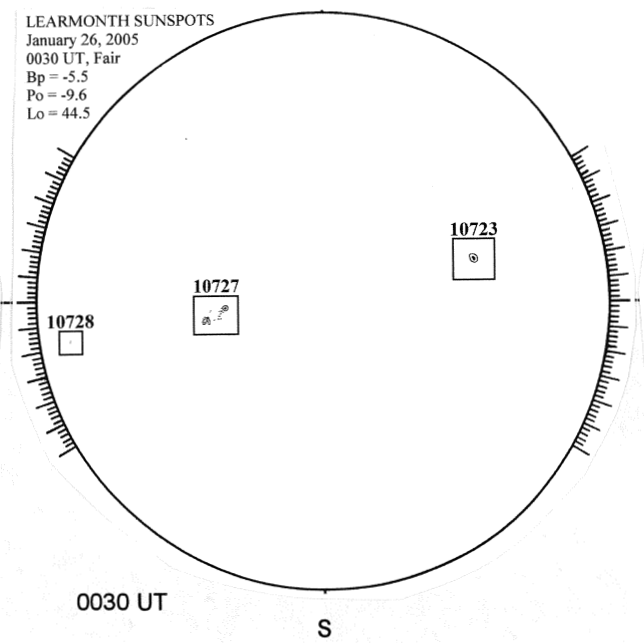
YUNNAN H-ALPHA



0157 UT

S

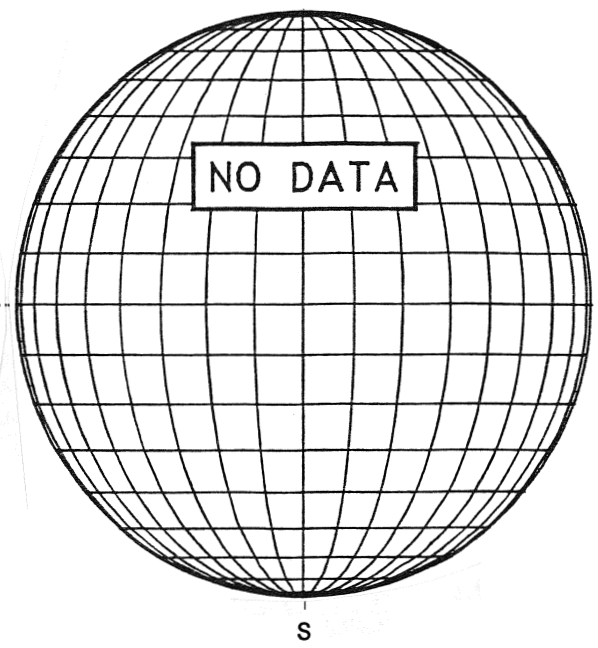
LEARMONTH SUNSPOTS



0030 UT

S

LOMNICKY PEAK CORONA (1.04 Radii)----

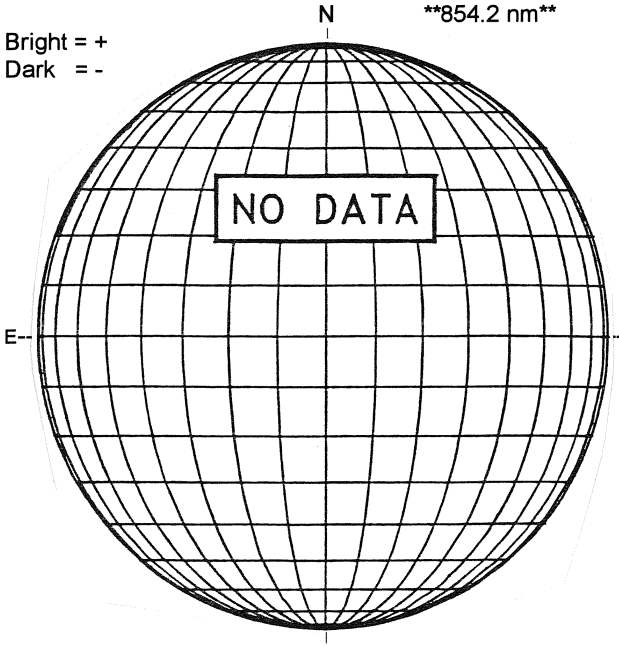


S

JANUARY 27, 2005 (P= -10.13, Bo = -5.66, Lo = 31.49)

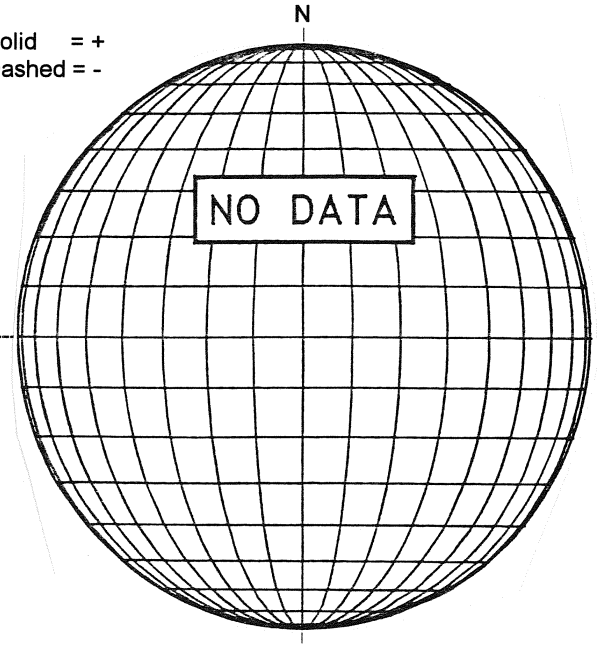
KITT PEAK MAGNETOGRAM--SOLIS

Bright = +
Dark = -



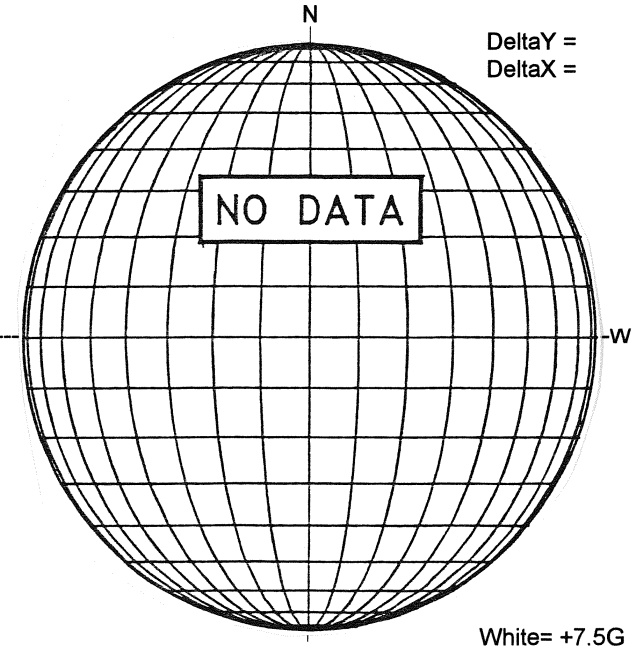
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



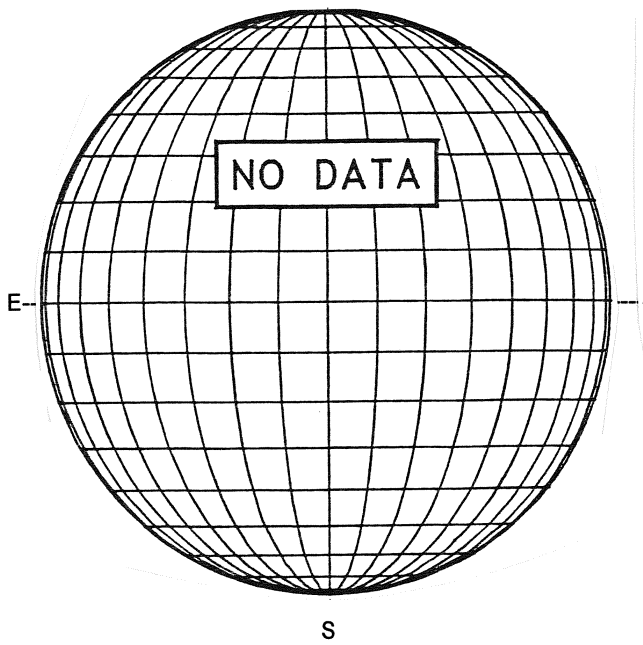
MT. WILSON MAGNETOGRAM

DeltaY =
DeltaX =

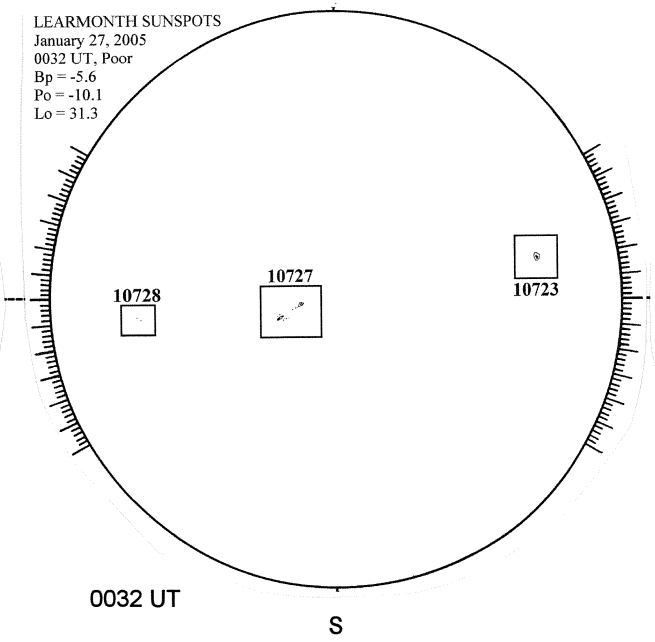


White= +7.5G
Black = -7.5G

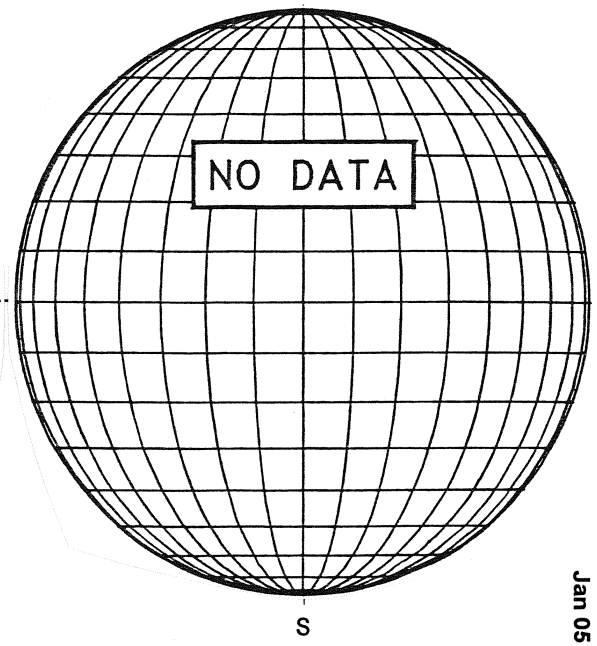
----- BIG BEAR H-ALPHA



LEARMONTH SUNSPOTS

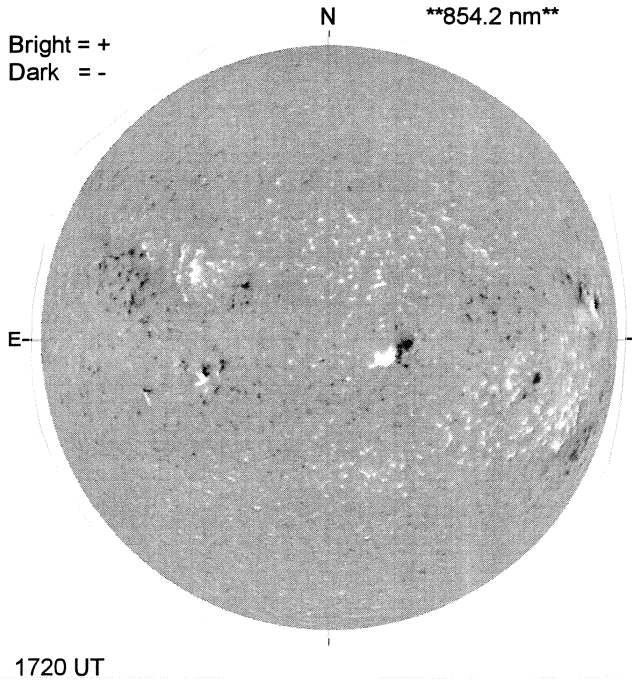


SACRAMENTO PEAK CORONA (1.15 Radii)----

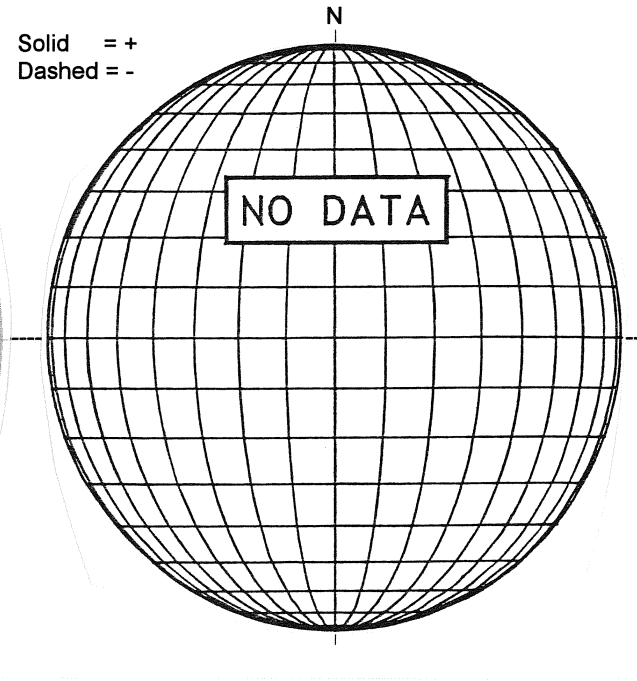


JANUARY 28, 2005 (P= -10.55, Bo = -5.73, Lo = 18.32)

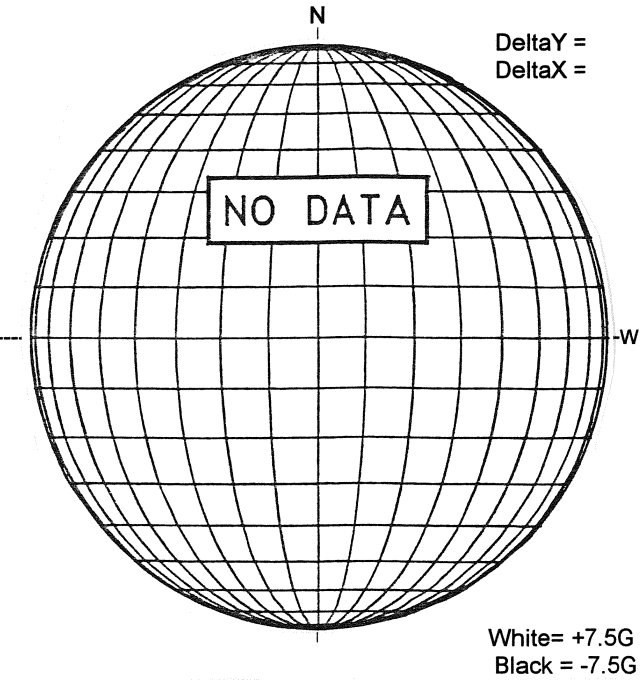
KITT PEAK MAGNETOGRAM--SOLIS



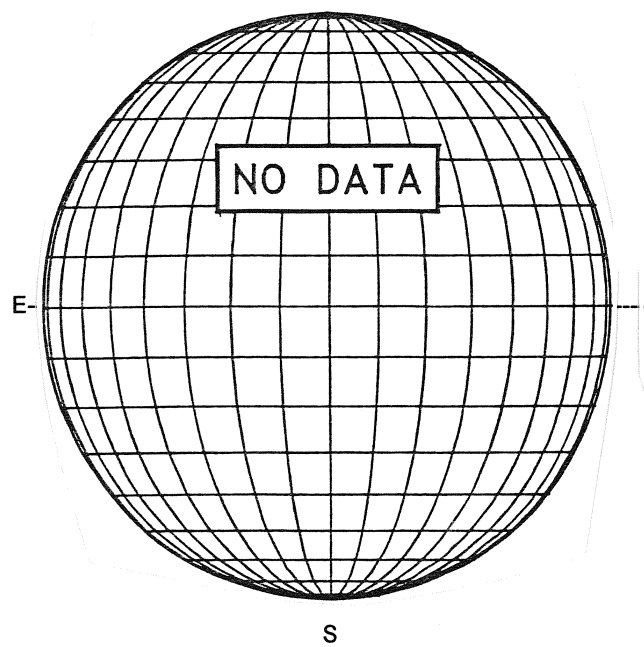
STANFORD MAGNETOGRAM



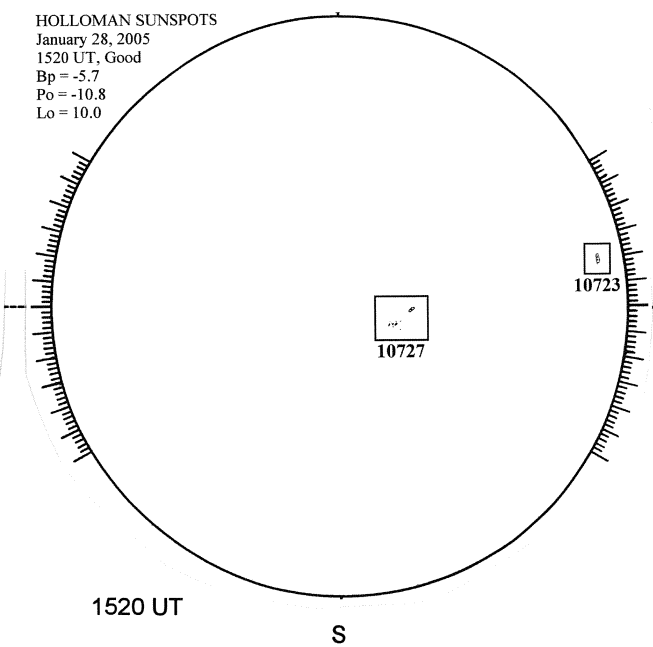
MT. WILSON MAGNETOGRAM



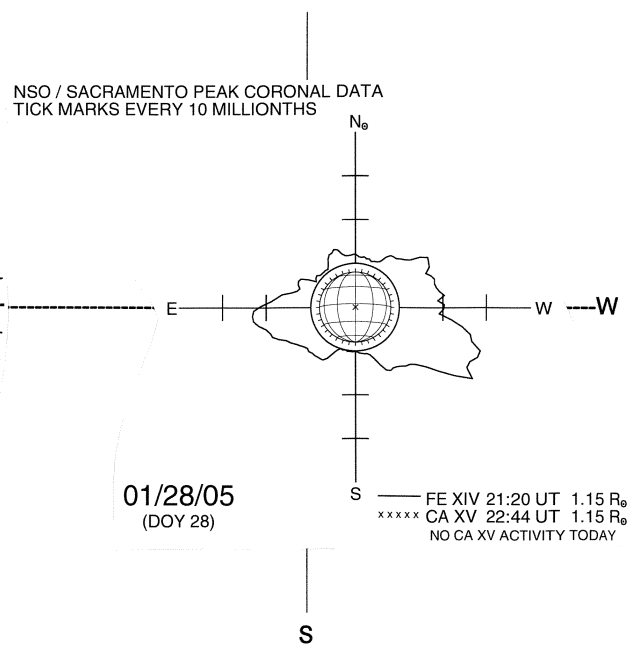
BIG BEAR H-ALPHA



HOLLOMAN SUNSPOTS

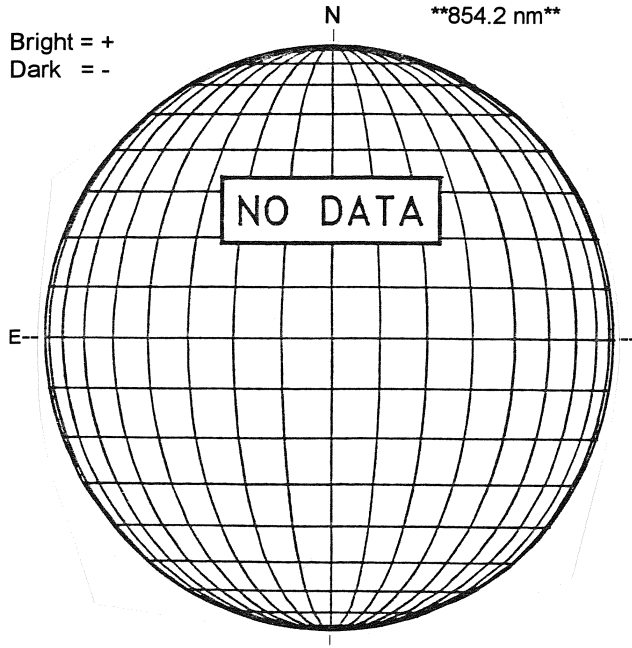


SACRAMENTO PEAK CORONA (1.15 Radii)----

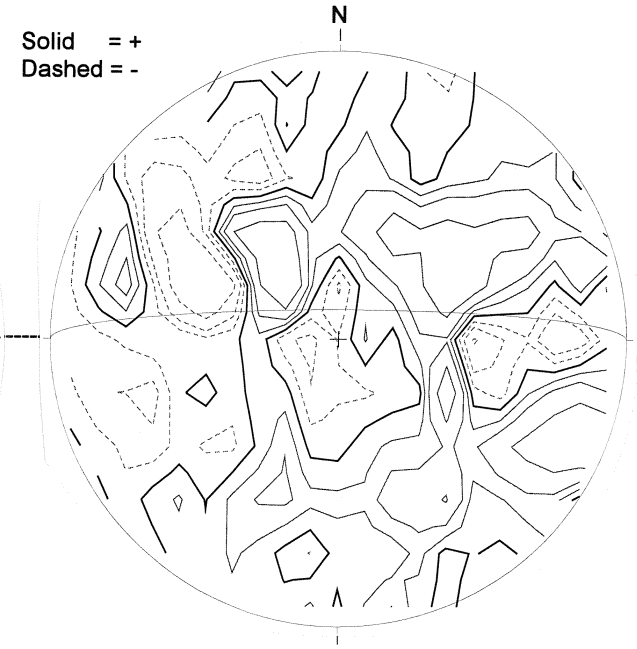


JANUARY 29, 2005 (P= -10.98, Bo = -5.81, Lo = 5.16)

KITT PEAK MAGNETOGRAM--SOLIS

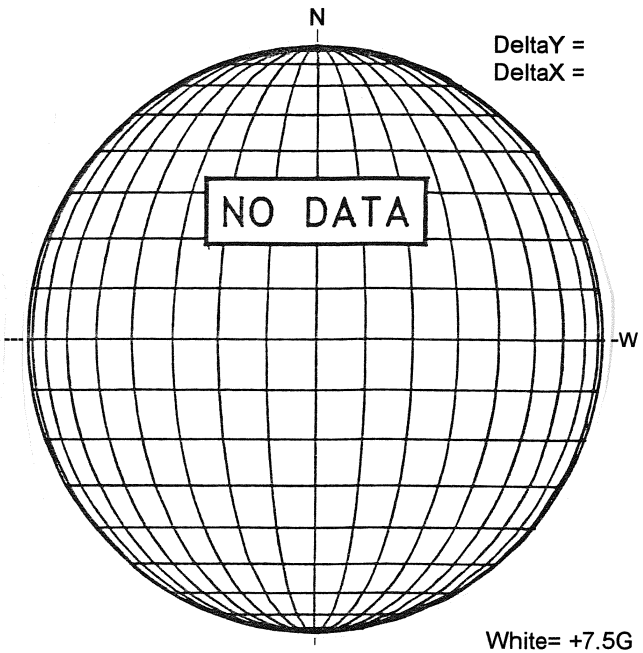


STANFORD MAGNETOGRAM

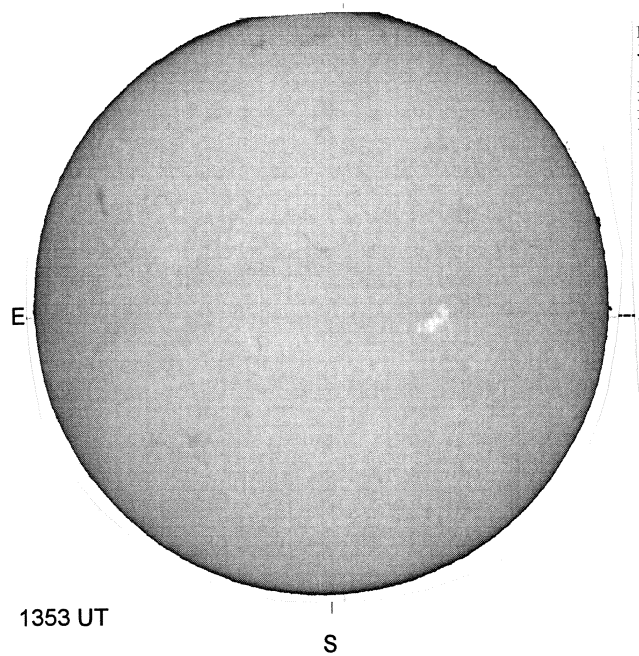


2102 UT

MT. WILSON MAGNETOGRAM

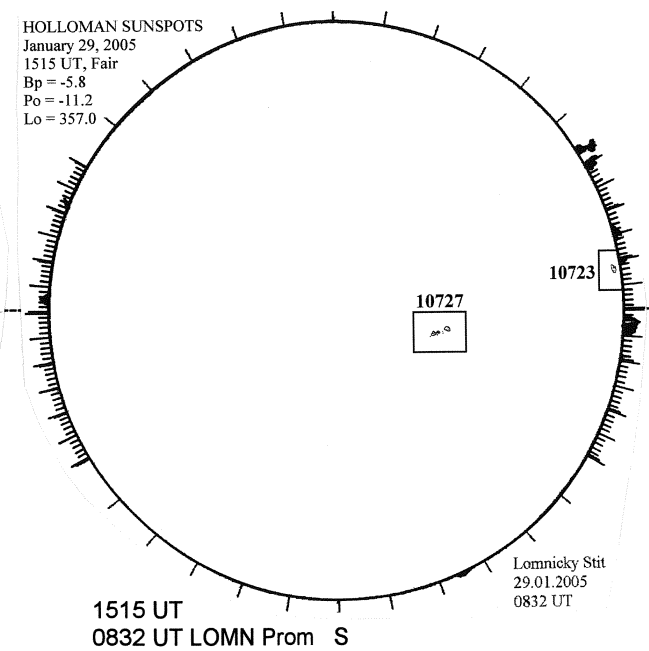


MEUDON H-ALPHA



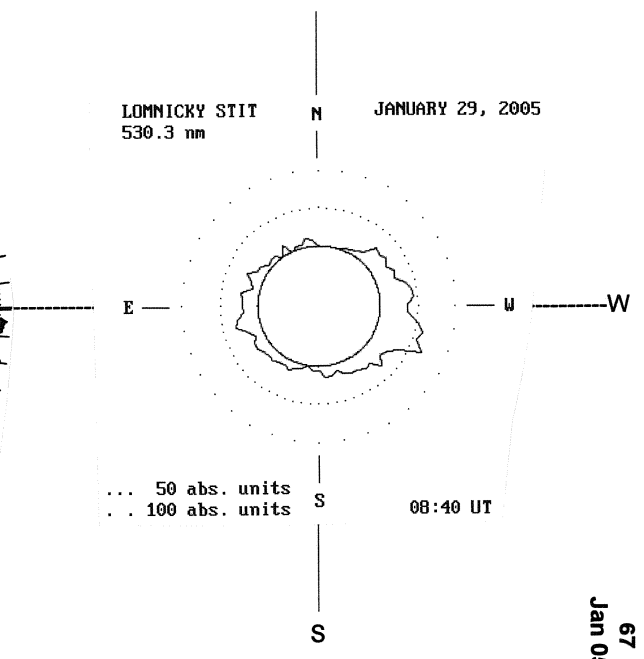
1353 UT

HOLLOMAN SUNSPOTS



1515 UT
0832 UT LOMN Prom

LOMNICKY PEAK CORONA (1.04 Radii)----

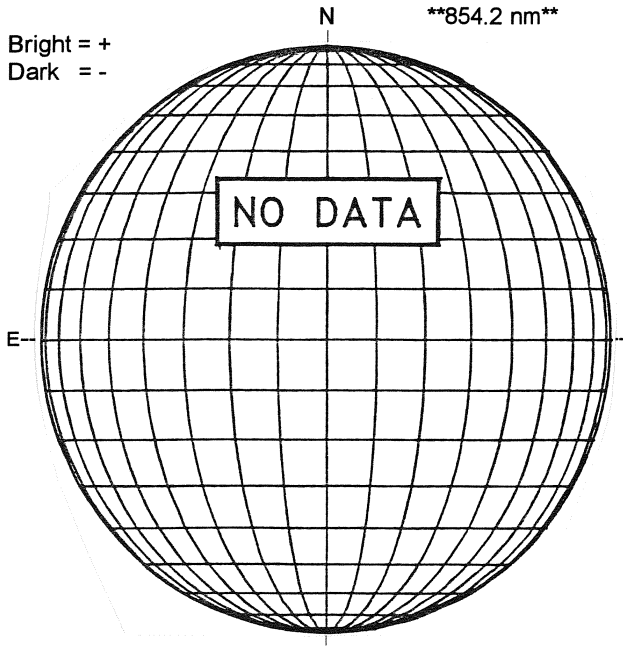


JANUARY 30, 2005 (P= -11.39, Bo = -5.89, Lo = 351.99)

KITT PEAK MAGNETOGRAM—SOLIS

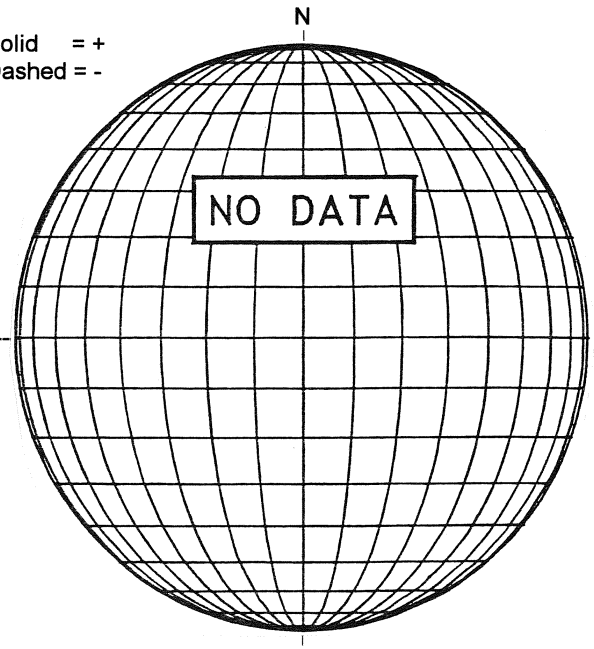
854.2 nm

Bright = +
Dark = -



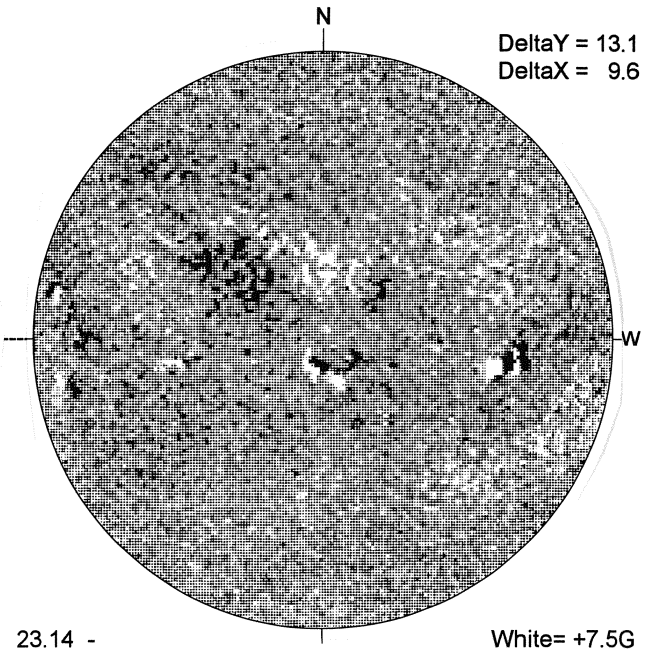
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

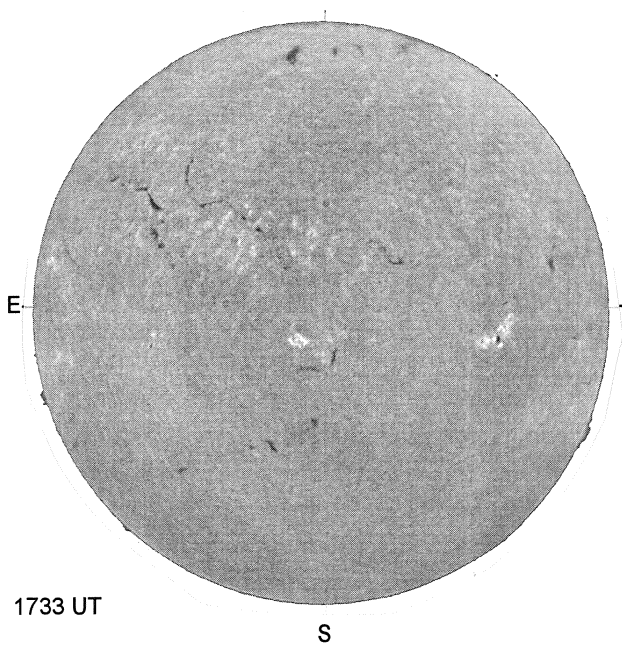
DeltaY = 13.1
DeltaX = 9.6



23.14 -
24.12 UT

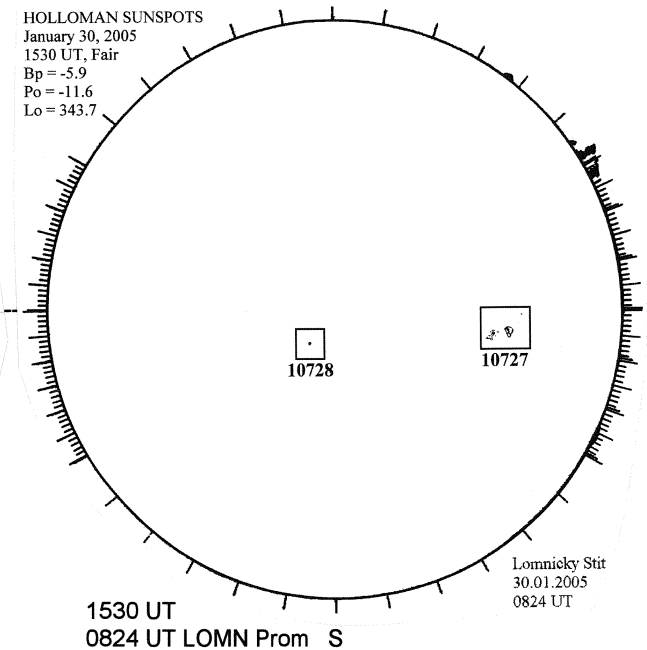
White= +7.5G
Black = -7.5G

BIG BEAR H-ALPHA



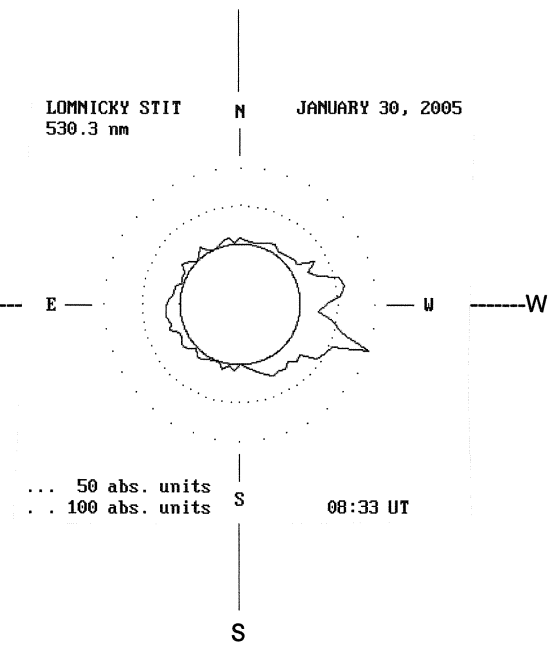
1733 UT

HOLLOMAN SUNSPOTS



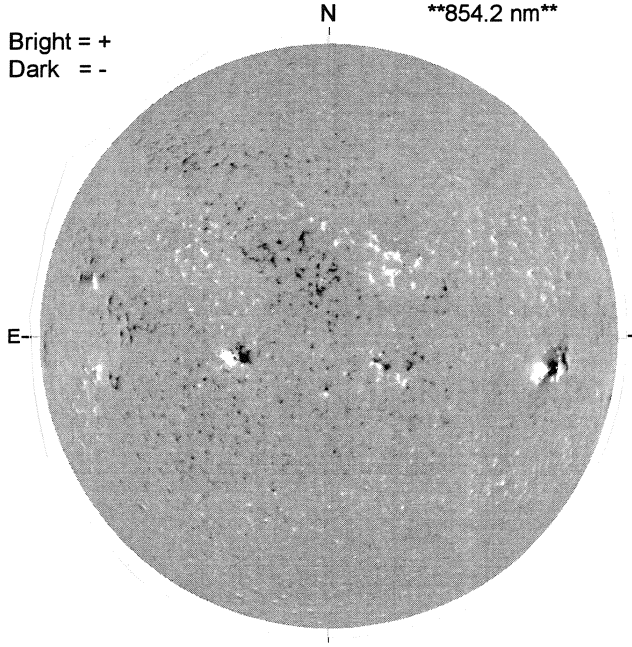
1530 UT
0824 UT LOMN Prom S

LOMNICKY PEAK CORONA (1.04 Radii)

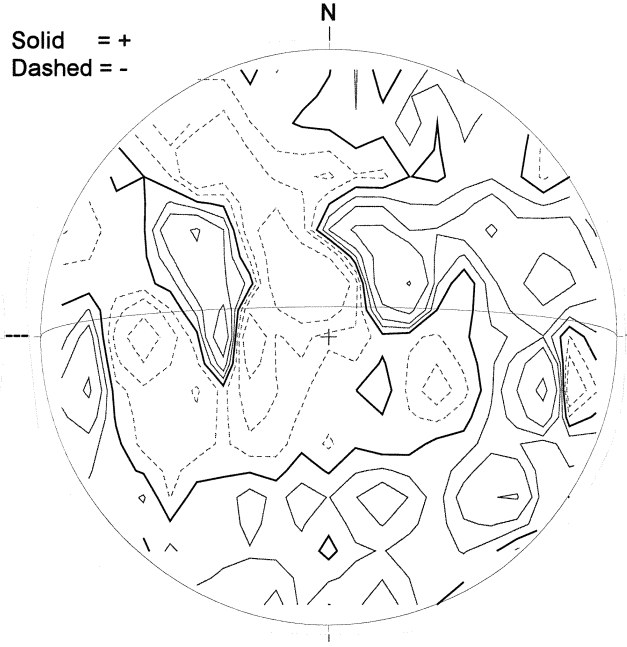


JANUARY 31, 2005 (P= -11.81, Bo = -5.96, Lo = 338.82)

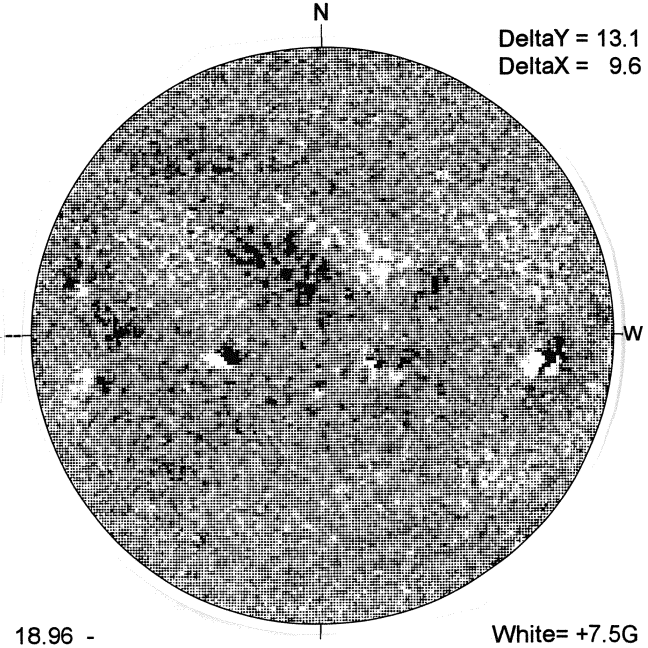
KITT PEAK MAGNETOGRAM--SOLIS



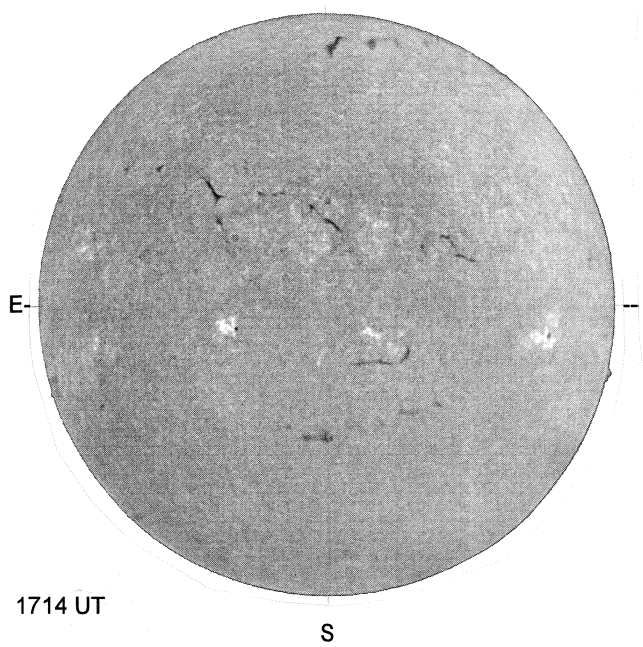
STANFORD MAGNETOGRAM



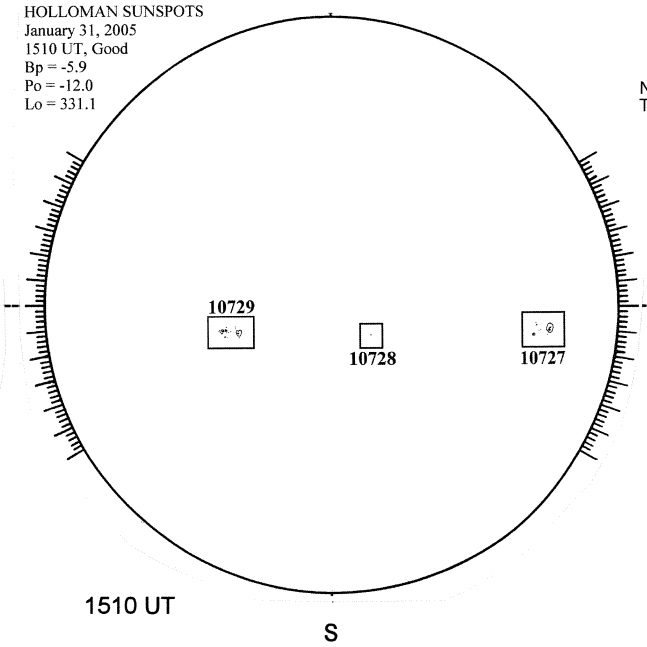
MT. WILSON MAGNETOGRAM



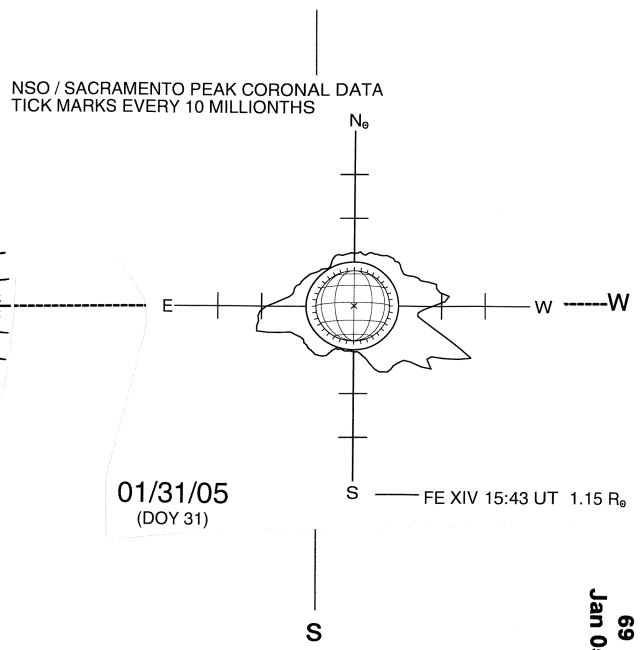
BIG BEAR H-ALPHA



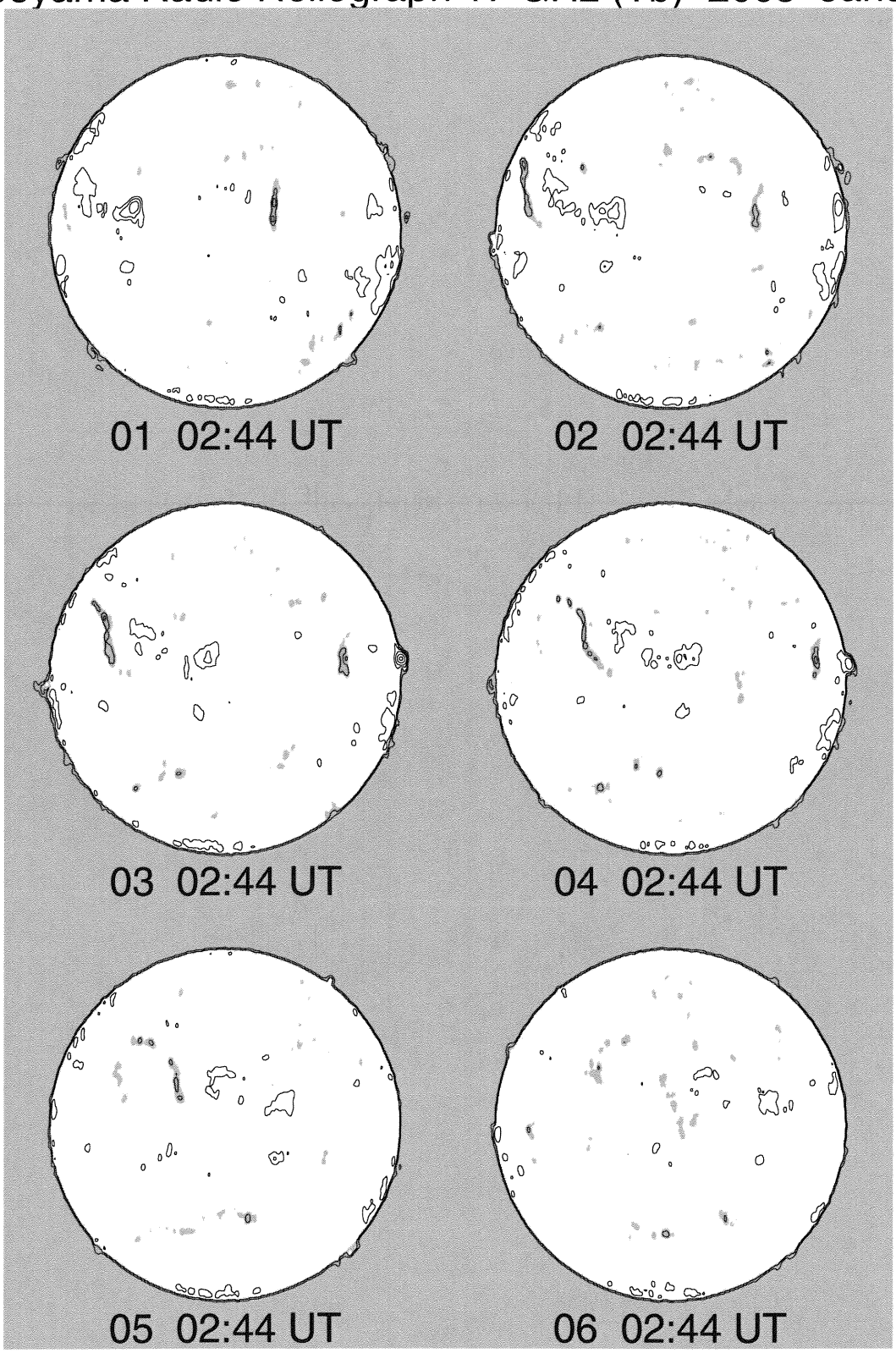
HOLLOMAN SUNSPOTS



SACRAMENTO PEAK CORONA (1.15 Radii)----

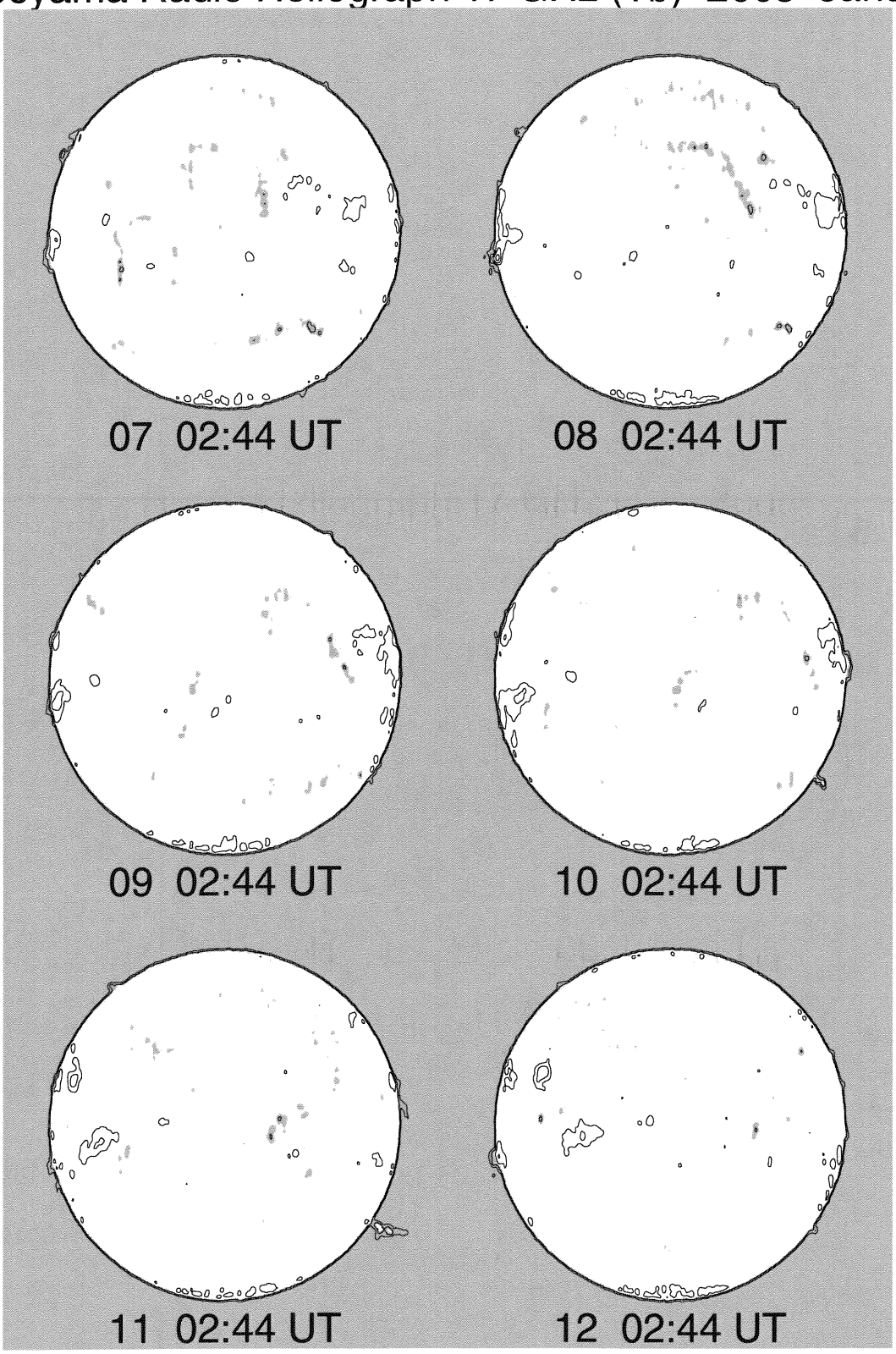


Nobeyama Radio Heliograph 17 GHz (Tb) 2005 January



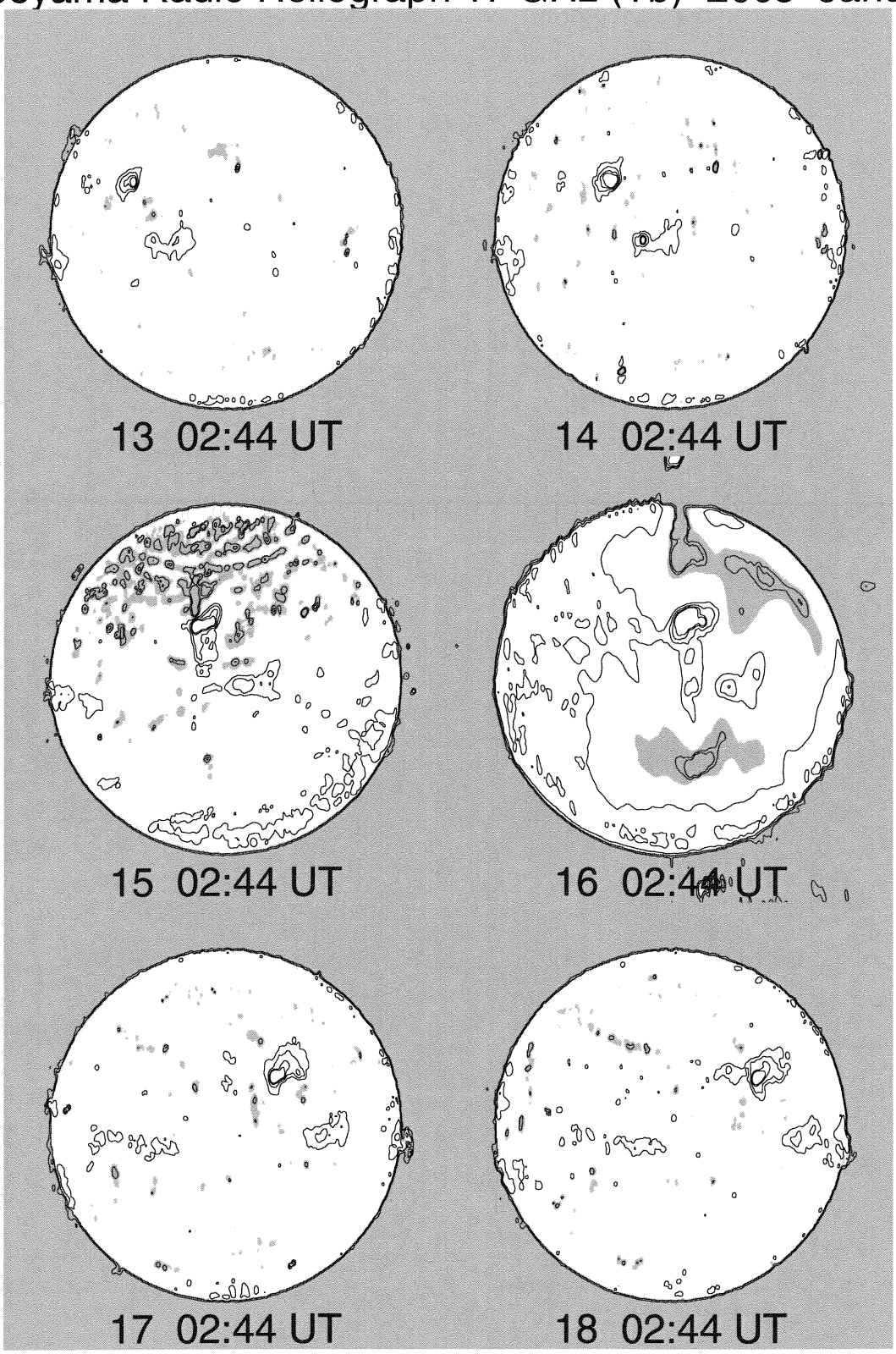
Contour Levels Tb=[5,8,12,20,50,100] x 10^3 K
Grey level Tb <= 9,500 K

Nobeyama Radio Heliograph 17 GHz (Tb) 2005 January



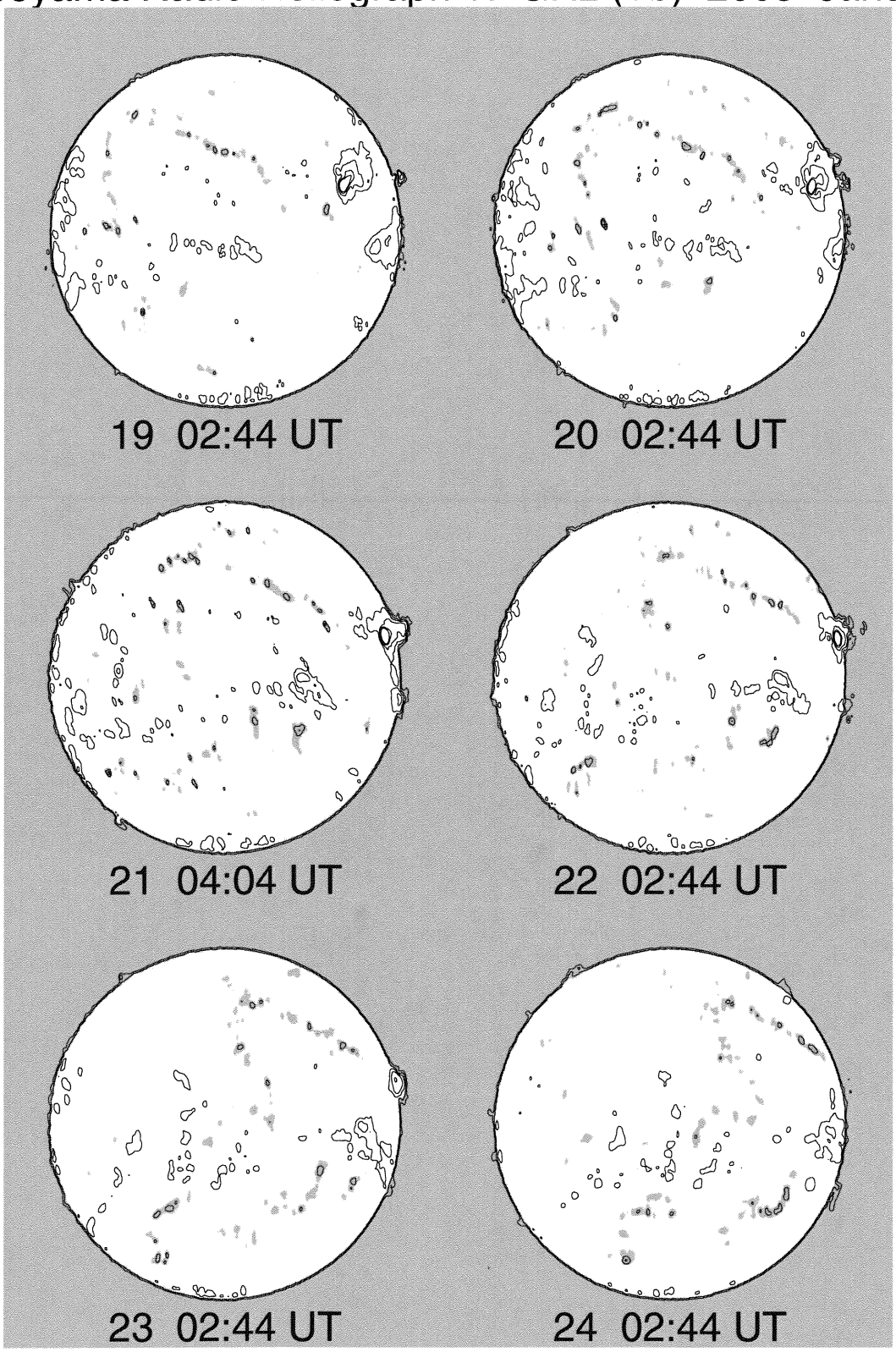
Contour Levels Tb=[5,8,12,20,50,100] x 10^3 K
Grey level Tb <= 9,500 K

Nobeyama Radio Heliograph 17 GHz (Tb) 2005 January



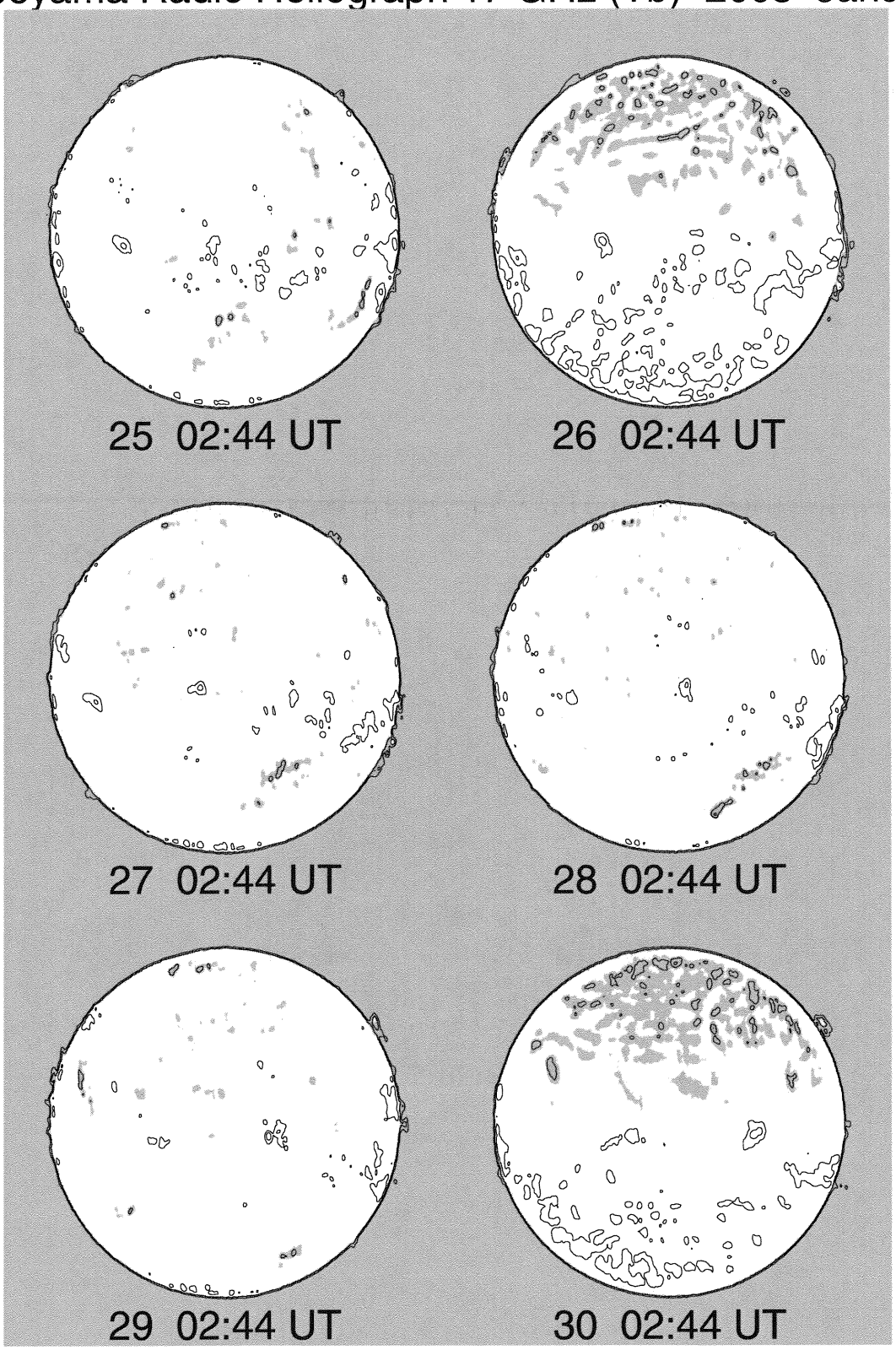
Contour Levels Tb=[5,8,12,20,50,100] x 10^3 K
Grey level Tb <= 9,500 K

Nobeyama Radio Heliograph 17 GHz (Tb) 2005 January



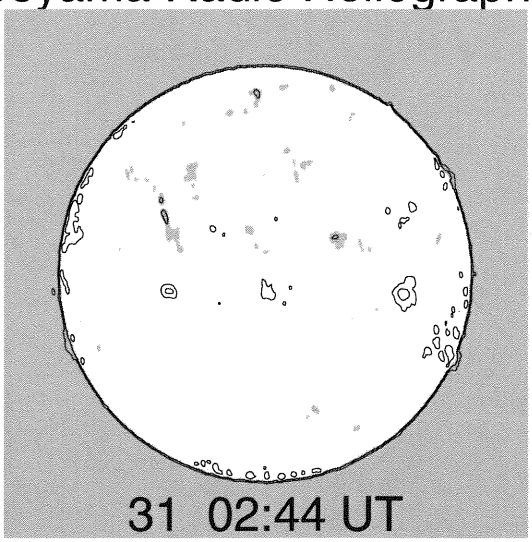
Contour Levels Tb=[5,8,12,20,50,100] x 10^3 K
Grey level Tb <= 9,500 K

Nobeyama Radio Heliograph 17 GHz (Tb) 2005 January



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

Nobeyama Radio Heliograph 17 GHz (Tb) 2005 January



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

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

JANUARY 2005

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
10715		KAND	12	28	1020	N05	E84	01	3.7			DAO		3	5	3
10715		SVTO	12	28	1117	N04	E79	01	3.4		B	DAO	60	2	3	3
10715		HOLL	12	28	1745	N03	E79	01	3.6		B	DAO	120	3	9	2
10715		VORO	12	29	0025	N06	E74	01	3.5			HKX	425	3	1	3
10715		LEAR	12	29	0040	N06	E75	01	3.6		B	EAI	180	3	15	2
10715		SVTO	12	29	0807	N06	E70	01	3.6		B	DKO	310	3	4	3
10715		HOLL	12	29	2100	N03	E63	01	3.6		B	DKC	360	13	7	3
10715		LEAR	12	30	0040	N01	E61	01	3.6		BG	DSI	240	9	6	2
10715		VORO	12	30	0255	N06	E59	01	3.5			HKX	397	5	2	3
10715		KAND	12	30	0740	N05	E53	01	3.3			DKO		12	5	3
10715		SVTO	12	30	0850	N05	E55	01	3.5		BGD	DKO	250	6	5	3
10715		HOLL	12	30	1615	N03	E53	01	3.6		BGD	DKC	380	21	4	3
10715		VORO	12	31	0046	N05	E46	01	3.5			HKX	277	6	0	3
10715		LEAR	12	31	0100	N05	E47	01	3.5		BG	DAI	220	22	5	2
10715		TACH	12	31	0725	N05	E41	01	3.4			DAI	127	6	3	3
10715		SVTO	12	31	0736	N06	E44	01	3.6		B	DAI	200	10	6	3
10715		HOLL	12	31	1600	N03	E38	01	3.5		BG	DAC	230	31	6	4
10715		VORO	01	01	0117	N04	E32	01	3.4			HKX	272	7	1	3
10715		LEAR	01	01	0135	N05	E33	01	3.5		BGD	DSC	80	13	4	3
10715		SVTO	01	01	1145	N05	E27	01	3.5		B	DAI	210	8	5	3
10715		HOLL	01	01	1630	N05	E25	01	3.5		BG	DAC	250	27	7	3
10715		LEAR	01	02	0110	N05	E20	01	3.5		BG	DSC	80	18	8	2
10715		VORO	01	02	0156	N04	E18	01	3.4			HAX	167	8	1	3
10715		SVTO	01	02	1010	N05	E15	01	3.5		BG	DSO	160	16	7	3
10715		LEAR	01	03	0033	N04	E08	01	3.6		BG	DAI	130	16	9	2
10715		VORO	01	03	0037	N05	E08	01	3.6			DAI	128	14	6	3
10715		TACH	01	03	0628	N05	E06	01	3.7			CAI	84	5	6	2
10715		KAND	01	03	0748	N04	E01	01	3.4			CAO		5	3	3
10715		LEAR	01	04	0022	N04	W08	01	3.4		BG	DRI	40	6	3	2
10715		VORO	01	04	0100	N06	W06	01	3.6			DAI	86	9	5	2
10715		SVTO	01	04	0802	N05	W11	01	3.5		B	DSO	40	7	5	3
10715		HOLL	01	04	1622	N06	W14	01	3.6		B	DSI	50	13	8	3
10715		LEAR	01	05	0018	N04	W21	01	3.4		B	BXO	30	5	3	3
10715		VORO	01	05	0122	N05	W21	01	3.5			CSI	36	5	3	3
10715		KAND	01	05	0745	N05	W25	01	3.4			DAO		4	4	2
10715		SVTO	01	05	0800	N04	W24	01	3.5		B	DRO	20	4	4	3
10715		HOLL	01	05	2230	N05	W33	01	3.5		B	DSO	20	3	4	3
10715		LEAR	01	06	0044	N04	W35	01	3.4		B	CAO	20	3	4	3
10715		VORO	01	06	0457	N04	W36	01	3.5			CRI	30	5	4	3
10715		TACH	01	06	0535	N06	W37	01	3.5			BRO	12	3	3	2
10715		KAND	01	06	0925	N04	W38	01	3.5			BXO		3	4	3
10715		SVTO	01	06	1003	N04	W39	01	3.5		B	DRO	30	4	4	3
10715		HOLL	01	06	1510	N05	W42	01	3.5		B	DSO	30	5	5	3
10715		LEAR	01	07	0030	N05	W47	01	3.5		A	AXX	10	1	1	3
10715		VORO	01	07	0043	N05	W48	01	3.4			AXX	20	5		3
10715		HOLL	01	07	1535	N06	W55	01	3.5		A	HAX	20	1	1	3
10715		VORO	01	08	0024	N05	W60	01	3.5			HRX	51	6		3
10715		LEAR	01	08	0045	N08	W57	01	3.7		A	AXX	20	1	1	3
10716		LEAR	12	30	0040	S18	E66	01	4.0		A	AXX	20	1	1	2
10716		KAND	12	30	0740	S14	E59	01	3.8			AX		1	1	3
10716		HOLL	12	30	1615	S15	E55	01	3.8		B	BXO	10	2	4	3
10716		LEAR	12	31	0100	S13	E50	01	3.8		B	BXO	30	2	4	2
10716		HOLL	12	31	1600	S15	E41	01	3.8		B	CAO	10	7	3	4
10716		VORO	01	01	0117	S14	E36	01	3.8			AXX	16	2	3	3
10716		LEAR	01	01	0135	S13	E37	01	3.8		B	DSO	30	4	5	3
10716		HOLL	01	01	1630	S15	E27	01	3.7		A	AXX	10	1	1	3
10716		LEAR	01	02	0110	S13	E23	01	3.8		B	CSO	10	2	3	2
10716		VORO	01	02	0156	S14	E22	01	3.7			AXX	2	2	3	3
10716		LEAR	01	03	0033	S13	E11	01	3.8		B	CAO	30	7	5	2
10716		VORO	01	03	0037	S13	E10	01	3.8			BXO	27	4	3	3
10716		VORO	01	03	0055	S13	E10	01	3.8			BXO	27	4	3	3
10716		TACH	01	03	0628	S13	E08	01	3.9			BXO	8	2	3	2
10716		LEAR	01	04	0022	S13	W04	01	3.7		A	AXX		1		2
10716A		LEAR	01	05	0018	N19	W12	01	4.1		B	BXO	10	3	2	3
10716B		LEAR	01	03	0033	S09	E44	01	6.3		A	AXX	10	1	1	2
10716B		VORO	01	03	0037	S10	E44	01	6.3			AXX	6	2		3

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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
10716C		VORO	01	06	0457	S17	E57	01	10.5			BRO	32	3	2	3
10716C		HOLL	01	06	1510	S17	E51	01	10.5		A	HSX	20	1	1	3
10716C		LEAR	01	07	0030	S16	E45	01	10.4		A	AXX	10	1	1	3
10716C		VORO	01	07	0043	S16	E44	01	10.4			BXO	28	3	1	3
10716D		KAND	01	06	0925	N16	E54	01	10.5			AX		1	1	3
10716E		VORO	01	17	0026	S06	W76	01	11.3			HRX	15	1		3
10718		HOLL	01	07	1535	S09	E82	01	13.8		A	HAX	60	1	2	3
10718		VORO	01	08	0024	S07	E78	01	13.8			HKX	226	4		3
10718		LEAR	01	08	0045	S06	E77	01	13.8		B	CSO	90	2	2	3
10718		SVTO	01	08	0822	S07	E75	01	14.0		B	CAO	60	3	4	3
10718		KAND	01	08	0902	S05	E75	01	14.0			HA		2	4	2
10718		HOLL	01	08	1525	S09	E72	01	14.0		B	DAO	120	2	3	4
10718		VORO	01	09	0107	S07	E70	01	14.3			DAI	253	13	11	4
10718		LEAR	01	09	0208	S06	E65	01	13.9		B	DSO	60	2	3	3
10718		SVTO	01	09	0926	S07	E62	01	14.0		A	HAX	80	2	2	3
10718		HOLL	01	09	1530	S09	E58	01	14.0		B	DAO	130	4	3	4
10718		VORO	01	10	0038	S07	E58	01	14.4			EAO	211	9	12	3
10718		LEAR	01	10	0052	S06	E52	01	13.9		B	DSX	90	2	2	2
10718		SVTO	01	10	0826	S07	E48	01	13.9		A	HAX	80	2	2	3
10718		KAND	01	10	0910	S07	E48	01	14.0			HA		3	4	3
10718		HOLL	01	10	1548	S09	E45	01	14.0		B	DAO	120	4	3	4
10718		LEAR	01	11	0025	S06	E40	01	14.0		B	DAO	80	2	4	3
10718		VORO	01	11	0356	S07	E42	01	14.3			EKO	180	8	11	3
10718		TACH	01	11	0517	S08	E41	01	14.3			EAI	184	5	11	3
10718		KAND	01	11	0910	S07	E35	01	14.0			CAO		6	3	3
10718		LEAR	01	12	0020	S06	E30	01	14.2		B	EAO	100	6	14	2
10718		VORO	01	12	0125	S06	E30	01	14.3			EKO	152	9	11	3
10718		KAND	01	12	1005	S07	E21	01	14.0			HA		2	3	2
10718		SVTO	01	12	1045	S07	E27	01	14.5		B	EAO	180	13	7	3
10718		HOLL	01	12	1538	S07	E24	01	14.4		B	FKI	220	25	17	3
10718		VORO	01	13	0018	S05	E19	01	14.4			EKO	192	9	13	3
10718		LEAR	01	13	0035	S06	E18	01	14.4		B	FAO	110	9	16	2
10718		KAND	01	13	0900	S06	E08	01	14.0			HA		2	3	4
10718		HOLL	01	13	1501	S07	E11	01	14.4		B	FKO	180	24	16	4
10718		LEAR	01	14	0028	S05	E06	01	14.5		BG	FAO	310	28	19	2
10718		VORO	01	14	0036	S05	E07	01	14.5			FKO	271	20	16	3
10718		SVTO	01	14	0815	S04	W02	01	14.2		B	FAO	210	18	18	3
10718		LEAR	01	15	0010	S06	W07	01	14.5		BG	EHO	400	35	19	3
10718		SVTO	01	15	0843	S07	W13	01	14.4		B	FAO	320	13	16	3
10718		HOLL	01	15	1610	S07	W18	01	14.3		BG	FKI	370	30	16	3
10718		LEAR	01	16	0210	S07	W24	01	14.3		BG	ESI	240	11	15	1
10718		SVTO	01	16	0925	S08	W26	01	14.4		B	FAO	340	15	18	3
10718		HOLL	01	16	1526	S07	W29	01	14.5		BG	FAI	310	25	17	3
10718		VORO	01	17	0026	S07	W34	01	14.5			DKI	341	15	15	3
10718		SVTO	01	17	1045	S06	W41	01	14.4		B	HSX	210	6	17	2
10718		HOLL	01	17	1524	S07	W43	01	14.4		BG	FAI	250	17	17	4
10718		VORO	01	18	0041	S07	W47	01	14.5			EKI	268	9	14	3
10718		LEAR	01	18	0145	S08	W54	01	14.0		B	DSO	110	11	12	3
10718		SVTO	01	18	0859	S06	W56	01	14.2		B	DAO	120	3	10	3
10718		HOLL	01	18	1517	S06	W58	01	14.3		BG	FAI	160	13	19	5
10718		LEAR	01	19	0150	S08	W65	01	14.2		B	ESO	80	2	11	2
10718		KAND	01	19	0845	S06	W76	01	13.7			HA		1	4	3
10718		HOLL	01	19	1525	S05	W72	01	14.2		B	DAO	130	3	10	3
10718		LEAR	01	20	0105	S07	W77	01	14.3		B	ESO	180	2	13	2
10718		SVTO	01	20	0914	S08	W80	01	14.4		B	CSO	70	4	2	3
10718		HOLL	01	20	1556	S05	W81	01	14.6		A	HAX	60	1	1	2
10719		HOLL	01	08	1525	S09	E86	01	15.1		A	HAX	60	1	2	4
10719		LEAR	01	09	0208	S07	E76	01	14.8		A	HXX	30	1	2	3
10719		SVTO	01	09	0926	S08	E73	01	14.9		A	AXX		1		3
10719		HOLL	01	09	1530	S09	E68	01	14.7		B	CAO	100	5	4	4
10719		LEAR	01	10	0052	S07	E61	01	14.6		B	CSO	60	2	3	2
10719		SVTO	01	10	0826	S08	E57	01	14.6		B	DSO	50	2	5	3
10719		KAND	01	10	0910	S08	E59	01	14.8			DAO		2	5	3
10719		HOLL	01	10	1548	S12	E53	01	14.6		B	DSO	90	7	7	4
10719		LEAR	01	11	0025	S07	E47	01	14.5		B	DAO	50	2	6	3

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10719		KAND	01	11	0910	S08	E45	01	14.7			CSO		3	2	3
10719		KAND	01	12	1005	S09	E30	01	14.7			DAO		4	6	2
10719		KAND	01	13	0900	S08	E19	01	14.8			DAI		8	3	4
10719		TACH	01	18	0548	S12	W50	01	14.5			ESI	96	4	14	3
10719		KAND	01	19	0845	S09	W67	01	14.3			HA		1	3	3
10720		HOLL	01	10	1548	N09	E69	01	15.8		B	BXO	10	3	6	4
10720		LEAR	01	11	0025	N13	E64	01	15.8		B	CAO	50	3	5	3
10720		VORO	01	11	0356	N13	E61	01	15.8			CAO	33	5	4	3
10720		TACH	01	11	0517	N13	E60	01	15.7			BRO	32	4	5	3
10720		KAND	01	11	0910	N15	E58	01	15.8			DAO		5	5	3
10720		LEAR	01	12	0020	N14	E49	01	15.7		B	DAO	100	9	6	2
10720		VORO	01	12	0125	N14	E48	01	15.7			CAO	84	14	5	3
10720		KAND	01	12	1005	N14	E43	01	15.7			DKO		15	6	2
10720		SVTO	01	12	1045	N13	E44	01	15.8		B	DKO	450	19	13	3
10720		HOLL	01	12	1538	N13	E41	01	15.7		B	DKC	420	34	5	3
10720		VORO	01	13	0018	N14	E37	01	15.8			DKO	859	20	4	3
10720		LEAR	01	13	0035	N14	E35	01	15.7		B	DKO	550	9	8	2
10720		KAND	01	13	0900	N15	E31	01	15.7			HK		13	9	4
10720		HOLL	01	13	1501	N12	E29	01	15.8		BD	DKC	1080	38	9	4
10720		LEAR	01	14	0028	N14	E23	01	15.7		GD	EKC	1400	34	11	2
10720		VORO	01	14	0036	N13	E23	01	15.8			HKX	1374	13		3
10720		SVTO	01	14	0815	N13	E18	01	15.7		B	DKC	1630	15	10	3
10720		LEAR	01	15	0010	N14	E09	01	15.7		GD	DHC	1620	54	10	3
10720		SVTO	01	15	0843	N13	E05	01	15.7		B	DKC	1830	21	13	3
10720		HOLL	01	15	1610	N12	E01	01	15.7		BD	EKC	1420	86	11	3
10720		LEAR	01	16	0210	N14	W06	01	15.6		GD	EKC	1760	31	12	1
10720		SVTO	01	16	0925	N13	W06	01	15.9		B	FKC	1700	24	19	3
10720		HOLL	01	16	1526	N13	W11	01	15.8		BD	EKC	1510	52	13	3
10720		VORO	01	17	0026	N13	W19	01	15.6			EKC	2025	35	10	3
10720		SVTO	01	17	1045	N13	W24	01	15.6		B	EKC	1450	21	15	2
10720		HOLL	01	17	1524	N13	W26	01	15.7		BD	EKC	1470	62	14	4
10720		VORO	01	18	0041	N13	W32	01	15.6			EKC	1825	32	11	3
10720		LEAR	01	18	0145	N12	W34	01	15.5		BG	EKC	1440	41	12	3
10720		TACH	01	18	0548	N14	W36	01	15.5			DAI	1162	19	9	3
10720		SVTO	01	18	0859	N13	W36	01	15.6		B	EKC	1330	20	13	3
10720		HOLL	01	18	1517	N13	W38	01	15.8		BGD	FKC	1420	60	16	5
10720		LEAR	01	19	0150	N12	W46	01	15.6		BG	EKC	820	22	12	2
10720		KAND	01	19	0845	N12	W48	01	15.7			EKC		18	15	3
10720		HOLL	01	19	1525	N15	W51	01	15.8		BG	EKC	1490	37	13	3
10720		LEAR	01	20	0105	N13	W57	01	15.7		GD	EKC	1330	28	13	2
10720		SVTO	01	20	0914	N14	W63	01	15.6		B	FKI	1430	23	19	3
10720		KAND	01	20	1106	N13	W65	01	15.5			EKI		17	13	4
10720		HOLL	01	20	1556	N15	W66	01	15.7		BG	EKC	1410	33	13	2
10720		VORO	01	21	0020	N13	W70	01	15.7			DKI	1241	19	9	3
10720		LEAR	01	21	0054	N13	W70	01	15.7		GD	EKC	1090	17	15	3
10720		TACH	01	21	0544	N14	W71	01	15.9			DAO	1074	5	2	2
10720		KAND	01	21	0835	N12	W74	01	15.8			EKC		14	11	3
10720		SVTO	01	21	1335	N13	W79	01	15.6		B	DKC	720	5	9	2
10720		LEAR	01	22	0131	N11	W81	01	16.0		GD	DKC	900	6	6	3
10720		VORO	01	22	0141	N12	W83	01	15.8			HKX	1025	3		3
10720A		HOLL	01	15	1610	S16	E13	01	16.6		A	AXX	10	2	1	3
10722		LEAR	01	16	0210	N19	E14	01	17.1		A	AXX	10	1	1	1
10722		HOLL	01	16	1526	N19	E08	01	17.2		A	AXX		1	1	3
10722		HOLL	01	18	1517	N19	W21	01	17.0		A	AXX		1	1	5
10721		HOLL	01	15	1610	S04	E32	01	18.1		B	DSO	30	4	3	3
10721		LEAR	01	16	0210	S02	E26	01	18.0		B	CAO	20	2	2	1
10721		HOLL	01	16	1526	S03	E18	01	18.0		B	CSO	20	2	4	3
10721		VORO	01	17	0026	S03	E14	01	18.1			AXX	4	4		3
10721		HOLL	01	17	1524	S03	E06	01	18.1		A	AXX		1	1	4
10721A		VORO	01	17	0026	S12	E17	01	18.3			AXX	3	2		3
10721A		HOLL	01	17	1524	S12	E11	01	18.5		B	CSO	10	4	4	4
10721A		VORO	01	18	0041	S11	E06	01	18.5			AXX	6	5		3
10721A		LEAR	01	18	0145	S12	E06	01	18.5		B	DSO	10	4	2	3
10721A		TACH	01	18	0548	S10	E03	01	18.5			AXX	5	1	1	3

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10721A		HOLL	01	18	1517	S12	W03	01	18.4		B	CSO	10	3	4	5
10725		VORO	01	21	0020	S05	W24	01	19.2			CRO	64	4	2	3
10725		LEAR	01	21	0054	S04	W25	01	19.2		B	DSI	70	6	4	3
10725		TACH	01	21	0544	S04	W27	01	19.2			DAI	69	11	3	2
10725		KAND	01	21	0835	S05	W29	01	19.2			DAI		13	4	3
10725		SVTO	01	21	1335	S05	W31	01	19.2		B	DAO	120	10	6	2
10725		LEAR	01	22	0131	S04	W37	01	19.3		BGD	DSI	190	9	5	3
10725		VORO	01	22	0141	S04	W38	01	19.2			DAI	196	11	4	3
10725		LEAR	01	23	0015	S04	W51	01	19.2		B	CAO	160	10	5	2
10725		VORO	01	23	0108	S04	W51	01	19.2			DAI	247	13	4	3
10725		SVTO	01	23	0755	S03	W55	01	19.2		B	CAO	140	5	7	3
10725		HOLL	01	23	1600	S02	W61	01	19.1		B	CAO	160	7	5	4
10725		LEAR	01	24	0020	S04	W66	01	19.1		A	HSX	90	1	2	3
10725		SVTO	01	24	0927	S03	W69	01	19.2		B	CSO	100	3	5	3
10725		KAND	01	24	1158	S04	W75	01	18.9			HA		1	3	1
10725		HOLL	01	24	1635	S06	W76	01	19.0		A	HAX	120	1	2	3
10725		VORO	01	25	0037	S04	W79	01	19.1			HAX	206	1		3
10725		LEAR	01	25	0119	S03	W80	01	19.1		A	HAX	180	1	2	3
10725		TACH	01	25	0549	S02	W80	01	19.3			HSX	89	1	2	3
10725A		HOLL	01	23	1600	S21	W55	01	19.4		B	CAO	20	2	3	4
10725B		LEAR	01	15	0010	S04	E66	01	19.9		B	BXO	20	2	6	3
10725B		HOLL	01	15	1610	S09	E61	01	20.2		A	AXX	10	1	1	3
10723		SVTO	01	17	1045	N07	E87	01	24.0		A	HSX	30	1	2	2
10723		HOLL	01	17	1524	N05	E79	01	23.5		A	HAX	90	1	2	4
10723		VORO	01	18	0041	N06	E73	01	23.5			HAX	114	1		3
10723		LEAR	01	18	0145	N07	E72	01	23.5		A	HSX	60	1	2	3
10723		TACH	01	18	0548	N05	E70	01	23.5			HSX	62	1	2	3
10723		SVTO	01	18	0859	N06	E70	01	23.6		A	HSX	50	1	1	3
10723		HOLL	01	18	1517	N07	E69	01	23.8		B	CSO	150	2	11	5
10723		LEAR	01	19	0150	N07	E60	01	23.6		A	HSX	40	1	2	2
10723		KAND	01	19	0845	N06	E58	01	23.7			HA		1	3	3
10723		HOLL	01	19	1525	N06	E59	01	24.0		B	CAO	90	2	9	3
10723		LEAR	01	20	0105	N07	E47	01	23.6		A	HSX	90	1	2	2
10723		SVTO	01	20	0914	N07	E43	01	23.6		A	HSX	80	1	2	3
10723		KAND	01	20	1106	N06	E41	01	23.5			HA		1	2	4
10723		HOLL	01	20	1556	N04	E41	01	23.7		B	CSO	80	2	3	2
10723		VORO	01	21	0020	N06	E34	01	23.5			HAX	126	3		3
10723		LEAR	01	21	0054	N06	E34	01	23.6		A	HSX	70	1	2	3
10723		TACH	01	21	0544	N08	E31	01	23.6			HSX	180	1	2	2
10723		KAND	01	21	0835	N07	E31	01	23.7			HS		1	2	3
10723		SVTO	01	21	1335	N06	E28	01	23.7		A	HSX	80	1	2	2
10723		LEAR	01	22	0131	N07	E19	01	23.5		B	CSO	120	3	3	3
10723		VORO	01	22	0141	N05	E20	01	23.6			HSX	121	1		3
10723		LEAR	01	23	0015	N06	E08	01	23.6		A	HSX	70	1	2	2
10723		VORO	01	23	0108	N05	E08	01	23.6			HSX	108	1		3
10723		SVTO	01	23	0755	N06	E04	01	23.6		A	HSX	60	1	3	3
10723		HOLL	01	23	1600	N05	E01	01	23.7		A	HSX	80	1	2	4
10723		LEAR	01	24	0020	N05	W05	01	23.6		A	HSX	40	1	2	3
10723		SVTO	01	24	0927	N06	W09	01	23.7		A	HSX	80	1	3	3
10723		KAND	01	24	1158	N04	W12	01	23.6			HA		1	2	1
10723		HOLL	01	24	1635	N03	W13	01	23.7		A	HAX	60	1	1	3
10723		VORO	01	25	0037	N04	W18	01	23.7			HSX	110	1		3
10723		TACH	01	25	0549	N11	W21	01	23.7			HSX	84	1	2	3
10723		HOLL	01	25	1508	N05	W26	01	23.7		A	HSX	30	1	2	3
10723		LEAR	01	26	0030	N04	W32	01	23.6		A	HSX	100	1	2	3
10723		VORO	01	26	0113	N05	W31	01	23.7			HSX	116	1		3
10723		SVTO	01	26	0938	N04	W38	01	23.6		A	HSX	60	1	2	2
10723		VORO	01	27	0017	N04	W44	01	23.7			HAX	96	1		3
10723		LEAR	01	27	0032	N05	W44	01	23.7		A	HSX	80	1	2	2
10723		VORO	01	27	2347	N05	W56	01	23.8			HAX	86	1		3
10723		LEAR	01	28	0038	N04	W59	01	23.6		A	HSX	80	1	2	2
10723		TACH	01	28	0522	N06	W60	01	23.7			HSX	58	1	1	2
10723		KAND	01	28	0935	N03	W63	01	23.7			HA		1	2	3
10723		HOLL	01	28	1520	N06	W65	01	23.8		A	HAX	60	2	3	4
10723		LEAR	01	29	0045	N04	W71	01	23.7		A	HSX	60	1	2	2

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

JANUARY 2005

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
10723		VORO	01	29	0131	N04	W70	01	23.8			HAX	82	1		3
10723		SVTO	01	29	0750	N07	W79	01	23.4		A	HSX	60	1	2	2
10723		HOLL	01	29	1515	N07	W78	01	23.8		A	HAX	120	3	2	3
10726		HOLL	01	19	1525	S04	E60	01	24.1		A	HSX	20	2	2	3
10726		LEAR	01	20	0105	S03	E54	01	24.1		B	BXO	20	3	2	2
10726		HOLL	01	20	1556	S03	E44	01	23.9		B	CSO	30	5	4	2
10726		VORO	01	21	0020	S02	E38	01	23.8			DRO	25	3	3	3
10726		LEAR	01	21	0054	S02	E38	01	23.9		B	CSO	40	4	4	3
10726		TACH	01	21	0544	S00	E36	01	23.9			BRI	17	4	3	2
10726		KAND	01	21	0835	N01	E35	01	24.0			BXO		4	4	3
10726		SVTO	01	21	1335	S02	E33	01	24.0		B	CSO	50	2	4	2
10726		LEAR	01	22	0131	S01	E26	01	24.0		B	CRO	20	2	3	3
10726		VORO	01	22	0141	S02	E24	01	23.9			CRO	17	4	4	3
10726		LEAR	01	23	0015	S01	E11	01	23.8		A	AXX		1		2
10726		HOLL	01	23	1600	S01	E02	01	23.8		A	AXX	10	2	1	4
10726A		LEAR	01	25	0119	N19	W05	01	24.7		A	AXX	80	1	2	3
10727		HOLL	01	24	1635	S09	E42	01	27.8		B	DAI	30	8	5	3
10727		VORO	01	25	0037	S08	E36	01	27.7			DAO	49	4	3	3
10727		LEAR	01	25	0119	S07	E36	01	27.7		B	DAI	70	8	5	3
10727		TACH	01	25	0549	S08	E33	01	27.7			CAI	41	6	4	3
10727		HOLL	01	25	1508	S09	E28	01	27.7		B	DAI	120	13	6	3
10727		LEAR	01	26	0030	S08	E23	01	27.7		B	DAI	180	24	6	3
10727		VORO	01	26	0113	S07	E22	01	27.7			DAI	131	6	4	3
10727		SVTO	01	26	0938	S08	E18	01	27.7		B	DSO	60	5	7	2
10727		VORO	01	27	0017	S08	E09	01	27.7			DAI	83	7	5	3
10727		LEAR	01	27	0032	S09	E09	01	27.7		B	DAO	110	12	7	2
10727		VORO	01	27	2347	S08	W04	01	27.7			DAI	57	5	5	3
10727		LEAR	01	28	0038	S08	W04	01	27.7		B	DAO	80	9	8	2
10727		TACH	01	28	0522	S06	W08	01	27.6			BRI	11	5	5	2
10727		KAND	01	28	0935	S09	W10	01	27.6			CAO		5	6	3
10727		HOLL	01	28	1520	S04	W12	01	27.7		B	DAI	70	10	8	4
10727		LEAR	01	29	0045	S08	W17	01	27.7		B	DRO	60	8	6	2
10727		VORO	01	29	0131	S08	W18	01	27.7			BRO	11	2	4	3
10727		SVTO	01	29	0750	S11	W18	01	28.0		B	DSO	50	4	4	2
10727		HOLL	01	29	1515	S10	W21	01	28.0		B	DAI	80	10	4	3
10727		VORO	01	30	0052	S10	W27	01	28.0			DAI	109	4	3	2
10727		LEAR	01	30	0056	S11	W27	01	28.0		BGD	DAC	120	16	6	3
10727		HOLL	01	30	1530	S09	W38	01	27.8		BG	DAI	100	15	8	3
10727		VORO	01	31	0004	S11	W39	01	28.1			CAI	169	10	5	3
10727		LEAR	01	31	0130	S11	W40	01	28.0		BG	DAO	70	6	7	3
10727		SVTO	01	31	1150	S09	W48	01	27.9		B	CAO	120	7	6	3
10727		HOLL	01	31	1510	S08	W48	01	28.0		B	DSO	140	8	7	4
10727		LEAR	02	01	0125	S10	W54	01	28.1		B	CAO	90	2	7	2
10727		KAND	02	01	0740	S10	W61	01	27.8			HA		1	2	2
10727		HOLL	02	01	1833	S09	W68	01	27.8		A	HAX	130	2	2	3
10727		LEAR	02	02	0128	S10	W70	01	27.9		A	HAX	100	1	2	2
10727		VORO	02	02	0137	S09	W70	01	27.9			HAX	89	1		1
10727		SVTO	02	02	0840	S08	W76	01	27.8		A	HSX	120	1	4	3
10727		HOLL	02	02	1630	S08	W82	01	27.6		A	HAX	60	1	3	3
10727		VORO	02	02	2354	S10	W83	01	27.8			HAX	108	1		2
10727		LEAR	02	03	0100	S10	W85	01	27.7		A	AXX	30	1	2	3
10728		LEAR	01	25	0119	S10	E76	01	30.8		A	AXX	30	1	1	3
10728		HOLL	01	25	1508	S14	E70	01	30.9		A	HRX	30	1	1	3
10728		LEAR	01	26	0030	S11	E65	01	30.9		B	BXO	20	2	1	3
10728		LEAR	01	27	0032	S10	E45	01	30.4		B	BXO	10	2	2	2
10728		LEAR	01	28	0038	S14	E36	01	30.7		A	AXX	10	1	1	2
10728		VORO	01	30	0052	S12	E14	01	31.1			AXX	1	1		2
10728		LEAR	01	30	0056	S14	E12	01	30.9		A	AXX	10	2	1	3
10728		HOLL	01	30	1530	S12	E05	01	31.0		A	HSX	10	1	2	3
10728		VORO	01	31	0004	S12	E01	01	31.1			AXX	3	1		3
10728		LEAR	01	31	0130	S12	E00	01	31.1		A	AXX	10	1	1	3
10728		HOLL	01	31	1510	S11	W08	01	31.0		A	AXX		1	1	4

SUDDEN IONOSPHERIC DISTURBANCES
JANUARY 2005

Day	Start (UT)	Max (UT)	End (UT)	Imp	Wide Spread Index	Number of Station Reports by Type SWF	SEA	SPA	LF-SPA	SES	Flare (UT)	X-ray Class	NOAA Region
01	0008	0014	0027D	1	1					1	0001	X1.7	10715
01	0027E	0030	0124	2+	1					1	0001	X1.7	10715
01	0919	0948	1040	1	1		1				0927	B7.8	10715
01	1421	1424	1427	1-	1					1	1408	C1.2	10715
01	1816	1836	1950	3-	3					2	1844		10717
02	1553	1618	1814	3+	3					4	1601	B5.2	10717
03	0406	0428	0523	2+	1					1	0402	C3.8	10715
03	0934	0935	0938	1-	1					1	0931	C1.1	10717
03	1104	1110	1113	1-	1					1	1058	C1.1	10717
04	0609	0617	0701	2+	3					2	0559	C3.3	10715
04	1058	1111	1146	2-	3		1			5	1053	C7.3	10715
05	1621	1637	1715	2+	3					4	*		
07	1005	1007	1026	1	1		1				No flare		
08	0910	0952	1000	1	1		1				No flare		
08	1045	1111	1129	1	1		1				1049	B1.3	
08	1231	1235	1317	1	1		1				No flare		
09	0834	0848	0932	2-	5					6	0825	M2.4	10719
09	1439	1444	1504	1+	5					3	1433	C2.6	10719
10	0755	0758	0815	2	1		1				No flare		
11	1125	1130	1200	1	1					1	1134	B1.1	
12	0705	0708	0730	1+	1					1	0701	B7.0	10720
12	1552	1607	1649	2+	3					2	1608	B2.8	10720
13	0756	0809	0830	2	1					1	0808	C1.0	10718
13	0813	0824	0856	2	1		1				0808	C1.0	10718
13	1037	1114	1123	2-	3					2	1119	C1.6	10718
13	1122	1131	1139	1-	1					1	1119	C1.6	10718
13	1406	1410	1428	1-	5		1			3	1403	C2.3	
13	1631	1636	1658	1	5					6	1624	C3.3	10718
13	1708	1713	1744	2-	5					7	1704	C4.2	10718
13	1901	1905	1922	1-	3					2	1850	C2.5	10718
13	2247	2253	2329	2	1					1	2236	C6.8	10718
14	0746	0751	0752	1-	1					1	No flare		
14	0833	0838	0843	1-	1					1	0821	C1.4	10720
14	0851	0901	0943	2	1		1				0854	C1.8	10720
14	1012	1018	1018U	2	5	1	1	1		4	1008	C8.9	10720
14	1134	1145	1155	1	5					2	1134	C2.3	10718
14	1216	1233	1254	1+	5		1			3	1233	C4.6	10718
14	1349	1403	1437	2-	3		1			3	1353	M1.8	10720
14	1559	1607	1608	1-	1					1	1602	M1.0	10718
14	1741	1744	1755D	1-	1					1	1735	C2.8	10720
14	1755E	1800	1823D	1+	1					1	1753	M1.5	10720
14	1830	1836	1853	1-	1					1	1836	C7.7	10720
14	1909	1912	1931	1	1					2	1907	C3.3	10720
14	2109	2113	2137	1+	1					1	2108	M1.9	10720
14	2116	2123	2155	2	5					2	2108	M1.9	10720
14	2200	2204	2217	1-	5					2	2159	C9.6	10720
14	2225E	2227	2239	1-	1					1	2223	C3.0	10720
14	2253	2256	2324	1-	1					1	2250	C6.0	10720
14	2328	2334	2415	2+	1					1	2323	C5.6	10720
15	0033	0037	0109	1+	1					1	0022	X1.2	10720
15	0337	0341	0405	1+	1					1	0316	C4.2	10720
15	0418	0423	0437	1-	3					2	0409	M1.3	10720
15	0430E	0435	0500	1+	1					2	0426	M8.4	10720
15	0544	0612	0836	3+	3					2	0554	M8.6	10720

* = no flare patrol.

SUDDEN IONOSPHERIC DISTURBANCES
JANUARY 2005

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
15	0612	0638	0751	2	5					2	0554	M8.6	10720
15	0916	0939	1031	2+	3		1			2	0914		10720
15	1140	1146	1204	1	5		1			6	1141	M1.2	10720
15	1226	1234	1255	1	5		1			4	1227	C7.4	10720
15	1350	1356	1412	1	5		1			7	1352	C5.5	10720
15	1415	1430	1554	3	1		1			9	1408	M3.2	10718
15	1456	1504	1517	1	1					1	1441		10720
15	1521	1523	1528	1-	1					1	1441		10720
15	1601	1613	1623	1	1					1	1607		10720
15	1656	1701	1720	1	5					8	1650	C8.0	10720
15	1759	1819	1838	2-	3					2	1757	C2.9	10720
15	1849	1855	1922	1+	3					5	1842	C8.8	10720
15	1947	1949	2001	1-	3					2	1944	C3.5	10720
15	2000	2010	2022	1	3					2	2008	C5.4	10720
15	2011E	2023	2056	2	1					1	2008	C5.4	10720
15	2102	2106	2118	1-	1					1	2057		10720
15	2154	2209	2220	1+	5					2	2201	M1.0	10720
15	2225E	2231	2239D	1-	1					1	2225	X2.6	10720
15	2239E	2250	2540	3+	1					1	2225	X2.6	10720
16	0148	0211	0301	2+	1					1	*		
16	0755	0757	0813	1	3					2	0754	C4.4	10720
16	1000	1010	1027	1-	5		1			4	1005	C4.0	10720
16	1145	1151	1203	1-	5					2	1147	C2.8	
16	1234	1242	1307	1	1		1				*		
16	1315	1326	1352	1	1		1				No flare		
16	1402	1410U	1451	1	1		1				*		
16	1446	1451	1456	1-	1					1	1437	C2.9	10720
16	1508	1516	1538	1+	5		1			6	1506	C5.9	10720
16	1535	1538	1549	1-	5					3	1506	C5.9	10720
16	1638	1640	1704	1+	1					1	1651		10720
16	1716	1721	1740	1	3					3	No flare		
16	1758	1806	1817	1-	3					3	1758	C2.0	10720
16	1827	1831	1843	1-	3					7	1825	C3.7	10720
16	2159	2201	2307	2+	1					1	2155	M2.4	10720
17	0243	0246	0303	1	1					1	0244	C3.9	10720
17	0914	1000U	1053	3	5	1	1			4	0906E	X3.8	10720
17	1632	1639	1725	2	3					3	No flare		
17	1949	1954	2016	1+	1					2	1946		10720
17	2017E	2023	2042D	1	1					1	2014		10720
17	2042E	2047	2108	1+	1					1	2052		10720
17	2222	2225	2240	1-	1					1	No flare		
17	2242	2244	2254	1-	1					1	No flare		
18	0039	0043	0111	1+	1					1	0037	C6.0	10720
18	0211	0213	0223	1-	1					1	0206	C3.2	10720
18	0607	0618	0649	2	1					1	0552	C6.1	10720
18	0646	0648	0710	1	1					1	No flare		
18	0727	0805	0930	2	1		1				0747	C2.4	10720
18	1125	1127	1158	3-	5	1	1	1		6	1123	M1.6	10720
18	1253	1304U	1456	1	1		1				No flare		
18	1501	1537	1547	2+	1					1	1538	M4.6	10720
18	1541	1550	1646	2	5		2			9	1538	M4.6	10720
18	1852	1859	1915	1	3					3	1856	C4.2	10720
19	0516	0526	0551	2	3					2	0510	C7.2	10720
19	0726	0732	0837	2+	3		1			1	0726		10720
19	0810	0814U	0859	1	5	1	1			4	0803	X1.3	10720
19	1021	1024	1038	2	5	1	1	1		5	1019	M2.7	10720
19	1232	1256U	1323	1	1		1				*		
19	1323	1336	1409	2-	5		1			4	*		
19	1531	1541	1611	2-	5		1			10	1532	M1.6	10720
19	1540	1600	1615	2	1					1	1532	M1.6	10720
19	2323	2327	2344	1	1					1	2318	C5.3	10723
20	0325	0333	0400	2	1					1	0321	C4.8	10720
20	0605	0622U	0641	1	1		1				*		

* = no flare patrol.

SUDDEN IONOSPHERIC DISTURBANCES
JANUARY 2005

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
20	0634	0646	0817	3	1					1	0636	X7.1	10720
20	0641	0659	0733	2	5		1			4	0636	X7.1	10720
20	0907	0926	0953	1	1		1				0855		10720
20	1609	1614	1655	2-	5					5	1608	C8.0	10720
20	1635	1638	1707	1+	1					1	1612		10720
20	1806	1818	1836	1+	1					1	1813	C3.6	10720
20	2151	2155	2218	1+	1					1	2147	C4.5	10720
21	0022	0026	0038	1-	1					1	0019	C5.8	10720
21	0421	0429	0511	2+	1					1	0417	C6.3	10720
21	0610	0621	0655	1	1		1				0630	C1.6	10720
21	0638	0641	0657	1	1					1	0641	C1.8	10720
21	1014	1016	1140	3-	5		1	1		7	1010	M1.7	10720
21	1350	1401	1426	3-	5		2	1		6	1347	M1.2	10719
21	1406	1409	1422	1-	1					1	1347	M1.2	10719
22	0258	0259	0307	1-	1					1	No flare		
22	0425	0432	0501	2	1					1	0414	C3.1	10719
22	0702	0740	0849	2	1		1				0715	B5.1	10720
22	1042	1049	1126	1	1		1				*		
22	1128	1140	1234	1	1		1				1203	B7.3	10720
22	1234	1241	1243	1-	1					1	1235	C1.3	10720
22	2053	2056	2111D	1-	1					1	2050	C1.6	
22	2111E	2116	2142	1+	1					1	2108	C1.9	10720
23	0138	0151	0225	2+	1					1	0128	M1.0	10720
23	0445	0503	0551	2+	1					1	0443	C4.5	10720
23	1432	1442	1510	1	1		1				No flare		
24	1526	1535U	1550	1	1		1				1538	B4.6	10724
25	1158	1205	1300	1	1		1				1211	B2.4	10725
26	1439	1449	1521	1	1		1				*		
27	0903	0957U	1032	1	1		1				No flare		
27	1140	1212U	1302	1	1		1				No flare		
27	1311	1327U	1426	1	1		1				*		
29	0805	0822	0844	1	1		1				No flare		
29	0851	0904U	1042	1	1		1				No flare		
29	1235	1236	1238	1-	1					1	1223	B4.9	10727
29	1512	1522	1541	1+	5					2	1518	B1.8	10727
31	0832	0853	0915	1	1		1				0907	B3.3	10729
31	1047	1052	1058	1-	1					1	1046	C1.3	10729
31	1410	1418	1457	1	1		1				1413	B2.6	

* = no flare patrol.

OBSERVATORIES REPORTING FOR JANUARY 2005

Alberta, Canada	SES	Milan, Italy	SES
Amherst, New Hampshire, USA	SES	Palo Alto, California, USA	SES
Athens, Greece	SES	Panska Ves, Czech Republic	SES, SEA, SWF
Bedford, Massachusetts, USA	SES	Perth, Australia	SES
Bern, Switzerland	SES	Sussex, United Kingdom	SES
Brookline, Massachusetts, USA	SES	Torrington, Connecticut, USA	SES
Cambridge, England, UK	SES	Tucson, Arizona, USA	SES
Edenvale, Rep of S. Africa	SES	Udine City, Italy	SES
Isola del Gran Sasso, Italy	SES	Upice, Czech Republic	SEA
Marlborough, Massachusetts, USA	SES	Villiersdorp, South Africa	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

JANUARY 2005

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			LEAR	0005.0	0029.0	CONT		1	75	180	
	0000	0800	CULG	0006.0	0051.0	III	N	1	23	180	
			LEAR	0008.0	0009.0	III		1	25	102	
			CULG	0010.0	0014.0	III	G	1	400	1300	
			LEAR	0015.0	0104.0	III	N	1	25	138	
			CULG	0027.0	0052.0	IV	FS	3	23	1800X	
			LEAR	0029.0	0049.0	II		2	25	180	ESS 0760
			LEAR	0029.0	0304.0	IV		2	25	180	
	0000	0734	HIRA	0029.0	0048.0	II		3	25X	280	
			CULG	0030.0	0036.0	III	G	3	18	300	
			CULG	0030.0	0044.0	II	FN	3	20	100	
			CULG	0030.0	0050.0	II	SH	3	20	200	ESS 800
			PALE	0030.0	0033.0	III		2	25	180	
			PALE	0030.0	0034.0	II		1	76U	180U	ESS 1029
			HIRA	0034.0	0051.0	IV		1	40	200	
			HIRA	0049.0	0051.0	III	G	1	110	1100	
			CULG	0050.0	0141.0	III	S,C	1	20	200	
			CULG	0110.0	0115.0	III	G	1	20	900	
			CULG	0142.0	0156.0	III	GG	1	20	850	
			HIRA	0152.5	0156.0	III	G	2	120	810	
			LEAR	0153.0	0154.0	III		1	25	180	
			CULG	0203.0	0402.0	IV		1	57	1200	
			CULG	0602.0	0602.0	III	G	1	35	90	
	0650	1200	IZMI	0743.5	0744.01	III	GG	1	180	270X	
	0839	1333	ONDR								
			LEAR	0843.0	0848.0	III		1	25	180	
			SVTO	0843.0	0844.0	III		1	25	50	
			IZMI	0843.4	0847.9	III	GG	2	50	170	
	0900	1455	BLEN	0937.4	0939.3	III	GG,C	2	220	3500	
			IZMI	1033.3	1046.0	III	N	1	45	95	
	2000	2400	CULG								
	2148	2400	HIRA								
02			LEAR	0020.0	0020.0	III		1	25	122	
	0000	0735	HIRA	0020.0	0020.5	III	B	1	25X	50	
	0000	0800	CULG	0020.0	0020.0	III	B	2	20	130	
			CULG	0257.0	0400.0	III	S,C	1	57	180	
			LEAR	0300.0	0745.0	CONT		1	81	180	
			CULG	0405.0	0510.0	III	N	1	20	600	
			LEAR	0412.0	0745.0	III	N	1	25	155	
			CULG	0532.0	0639.0	III	N	1	30	180	
	0705	1200	IZMI	0826.7	0827.8	III	G	1	190	260	
			IZMI	0837.5	0837.7	III	B	1	50	85	
			IZMI	0838.0U	0856.0	I	N	1	220	270X	
			SVTO	1259.0	1300.0	III		1	25	82	
	0838	1334	ONDR	1259.0	1301.1	DCIM	G	2	800X	2000X	
	0900	1455	BLEN	1259.1	1303.5	III	GG,U,C	3	200	4000X	
			SGMR	1300.0	1300.0	III		1	30	46	
	2148	2400	HIRA								
	2000	2400	CULG	2319.0	2319.0	III	G	2	18	90	
03	0000	0800	CULG	0021.0	0021.0	III	B	1	23	90	
			CULG	0225.0	0225.0	III	B	3	18X	100	
			LEAR	0225.0	0225.0	III		1	25	118	
	0000	0736	HIRA	0225.0	0225.5	III	B	1	25X	110	
			CULG	0408.0	0456.0	IV		1	50	420	
			LEAR	0413.0	0459.0	CONT		1	75	180	
			LEAR	0722.0	0722.0	III		1	25	145	
			SVTO	0722.0	0722.0	III		1	25U	41U	
	0700	1200	IZMI	0722.1	0722.7	III	G	2	50	270X	
			HIRA	0722.5	0723.0	III	B	1	100	300	
			CULG	0723.0	0723.0	III	B	2	20	500	
	0838	1336	ONDR								
	0855	1455	BLEN								
	2000	2400	CULG								
	2148	2400	HIRA								
04	0000	0737	HIRA								
	0000	0800	CULG								

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

JANUARY 2005

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
04	0650	1200	IZMI	0735.1	0735.1	III	G	2	95	175	
			IZMI	0914.5	0917.0	III	G	1	45	90	
	0837	1337	ONDR	1054.4	1129.5	DCIM	GG	2	800X	2000X	
	0855	1455	BLEN	1059.0	1132.5	IV	P,S	3	100X	4000X	
			IZMI	1102.3	1108.7	II	HARM	2	50	250	
			IZMI	1102.8	1103.7	III	GG	2	25X	180U	
			IZMI	1103.0	1142.0	IV		1	45U	270X	
			SVTO	1103.0	1110.0	III		2	25	180	
			IZMI	1103.5	1107.1	CONT	FS	2	25X	95	
			SVTO	1110.0	1135.0	CONT		1	75	180	
			IZMI	1110.2	1110.9	III	G,FS	2	25X	270U	
			IZMI	1110.2	1131.8	CONT	P	2	50	270X	
	2000	2400	CULG								
	2149	2400	HIRA								
05	0000	0738	HIRA								
	0000	0800	CULG	0433.0	0709.0	III	N	1	20	180	
	0650	1200	IZMI	0650.0E	0708.0	I	N	1	80	180	
	0836	1339	ONDR								
	0855	1455	BLEN								
	2000	2400	CULG								
	2149	2400	HIRA								
06	0000	0739	HIRA								
	0000	0800	CULG								
	0705	1200	IZMI								
	0836	1340	ONDR								
	0855	1455	BLEN								
	2000	2400	CULG								
	2149	2400	HIRA								
07	0000	0739	HIRA								
	0000	0800	CULG								
	0702	1200	IZMI								
	0835	1342	ONDR								
	0855	1455	BLEN								
	2149	2400	HIRA								
	2000	2400	CULG	2322.0	2322.0	III	B	1	23	90	
			CULG	2356.0	2356.0	III	B	1	20	40	
08	0000	0740	HIRA								
	0000	0800	CULG	0443.0	0548.0	I	S	1	110	180	
	0700	1200	IZMI								
	0834	1344	ONDR								
	0855	1455	BLEN								
	2000	2400	CULG	2035.0	2103.0	III	N	1	20	90	
	2149	2400	HIRA								
09	0000	0741	HIRA								
	0000	0800	CULG								
	0833	1345	ONDR	0838.2	0848.5	DCIM	GG	2	800X	2000X	
			LEAR	0852.0	0908.0	II		1	25	104	ESS 0642
	0655	1200	IZMI	0853.0	0905.0	II	HARM	2	25X	95U	
			SVTO	0854.0	0911.0	II		1	25	83	ESS 0847
	0855	1455	BLEN	0855.0X	0919.1	II		3	100X	2200	
			IZMI	0855.6	0856.6	III	GG	2	40	270X	
			ONDR	0858.1	0952.3	DCIM	GG	2	800X	2000X	
			IZMI	0858.4	1100.0U	IV		2	45	270X	
			BLEN	0903.6	1000.5	DCIM	P,F	2	300	2600	
			IZMI	0905.2	0905.5	UNCLF	RS	2	50	65	
			ONDR	0955.0	0959.1	DCIM	G	1	800X	889	
	2000	2400	CULG								
	2148	2400	HIRA								
10	0000	0742	HIRA								
	0000	0800	CULG								
	0705	1200	IZMI								
	0832	1347	ONDR								
	0855	1455	BLEN								

SOLAR RADIO EMISSION
Spectral Observations

JANUARY 2005

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	2000	2400	CULG	2310.0	2310.0	III	G	1	30	150	
	2148	2400	HIRA	2310.0	2310.5	III	B	1	25X	70	
11	0000	0743	HIRA								
	0000	0800	CULG								
	0700	1200	IZMI								
	0831	1349	ONDR								
	0850	1500	BLEN								
			SGMR	1621.0	1622.0	III		1	30	135	
	2000	2400	CULG	2152.0	2155.0	III	G	1	20	180	
	2148	2400	HIRA	2228.5	2229.0	III	B	1	30	60	
			CULG	2229.0	2229.0	III	B	1	18X	110	
			LEAR	2337.0	2337.0	III		1	25	165	
			HIRA	2337.5	2339.5	III	G	1	25X	210	
			CULG	2338.0	2340.0	III	G	1	20	200	
12			LEAR	0101.0	0101.0	III		1	25	103	
	0000	0800	CULG	0101.0	0102.0	III	G	1	20	90	
	0000	0744	HIRA	0101.5	0102.0	III	B	1	25X	70	
			CULG	0202.0	0223.0	III	N	1	20	180	
			LEAR	0211.0	0211.0	III		1	25	180	
			HIRA	0211.5	0212.0	III	B	1	60	120	
			LEAR	0215.0	0353.0	III	N	1	25	126	
			CULG	0321.0	0321.0	III	B	1	20	130	
			CULG	0333.0	0333.0	III	G	2	20	130	
			HIRA	0333.0	0333.5	III	B	1	30	100	
			LEAR	0824.0	0825.0	III		2	25	180	
			SVTO	0824.0	0828.0	III		2	25	180	
	0700	1200	IZMI	0824.0	0825.9	III	GG,C	2	25X	270X	
			LEAR	0826.0	0829.0	III		1	25	180	
			IZMI	0826.5	0828.0	III	GG	2	25X	270X	
			IZMI	0827.6	0829.0	II	HARM	2	60	155	
			IZMI	0828.0	0828.0	III	GG,P	2	45	230	
	0830	1324	ONDR								
	0850	1500	BLEN								
			IZMI	1109.3	1109.6	III	G	2	25X	65	
			SGMR	1452.0	1452.0	III		1	30	56	
	2000	2400	CULG								
	2148	2400	HIRA								
13	0000	0800	CULG	0038.0	0143.0	III	N	1	20	180	
			LEAR	0049.0	0049.0	III		1	25	77	
			CULG	0053.0	0057.0	III	G	2	18	200	
			LEAR	0053.0	0057.0	III		2	25	180	
	0000	0745	HIRA	0053.0	0057.0	III	G	1	25X	200	
			PALE	0055.0	0055.0	III		1	25	148	
			LEAR	0139.0	0142.0	III		1	25	180	
			HIRA	0141.5	0142.0	III	B	1	60	130	
			CULG	0335.0	0800.0D	III	N	1	20	180	
			CULG	0347.0	0348.0	III	G	2	18	160	
			HIRA	0347.0	0348.0	III	B	1	25X	120	
			LEAR	0347.0	0347.0	III		1	25	131	
			HIRA	0352.0	0352.5	III	B	1	25X	110	
			LEAR	0352.0	0353.0	III		1	25	89	
			LEAR	0412.0	1032.0	III	N	2	25	180	
			LEAR	0454.0	0456.0	III		2	25	180	
			HIRA	0454.5	0456.0	III	G	2	25X	200	
			CULG	0455.0	0456.0	III	G	3	18X	200	
			HIRA	0459.5	0502.0	III	G	1	25X	130	
			CULG	0501.0	0501.0	III	G	2	18	140	
			CULG	0550.0	0553.0	III	G	2	18	180	
			HIRA	0550.0	0553.0	III	G	1	30	190	
			CULG	0601.0	0601.0	III	B	2	20	180	
			LEAR	0644.0	0645.0	III		2	25	180	
			CULG	0645.0	0645.0	III	B	3	18X	200	
			HIRA	0645.0	0645.5	III	B	1	25X	210	
	0650	1200	IZMI	0650.0E	0830.0U	I	N	2	200	270X	
			IZMI	0652.7	0652.9	III	G	1	80	135	
			SVTO	0705.0	1519.0	III	N	1	25	180	

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

JANUARY 2005

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
13			IZMI	0706.1	0707.9	III	G	1	55	140	
			LEAR	0709.0	0709.0	III		2	25	180	
			IZMI	0709.3	0713.0	III	G,C	2	45	210	
			HIRA	0709.5	0710.0	III	B	1	30	120	
			CULG	0710.0	0710.0	III	B	3	20	180	
			HIRA	0712.5	0713.0	III	B	1	30	210	
			CULG	0713.0	0713.0	III	B	3	20	200	
			IZMI	0717.5	0726.2	III	GG	2	25X	140	
			HIRA	0723.5	0724.0	III	G	1	30	80	
			CULG	0724.0	0726.0	III	G	2	20	130	
			IZMI	0741.6	0742.9	III	G	1	45	175	
			IZMI	0752.5	0759.4	III	GG	2	25X	155	
			CULG	0753.0	0800.0D	III	GG	3	20	150	
			IZMI	0801.3	0806.2	III	G	2	30	160	
			IZMI	0808.6	0819.2	III	GG,FS	2	25X	270X	
			IZMI	0825.1	0903.0	III	N	2	45	90	
			IZMI	0830.0	1200.0D	I	S	2	110U	270X	
	0850	1500	BLEN	0850.0X	1500.0X	I	DC,C	3	100X	450	
			IZMI	0904.1	0915.7	III	GG	2	25X	270X	
			BLEN	0904.9	0912.5	III	G	2	100X	450	
			SVTO	0905.0	0906.0	III		1	28U	170U	
			IZMI	0919.1	0932.0	III	N	2	45	95	
			IZMI	0938.8	0946.1	III	N	2	25X	170	
			IZMI	0949.2	0956.9	III	GG	2	25X	270X	
			IZMI	1010.3	1016.1	III	GG,C	2	30	270X	
			IZMI	1017.6	1020.0	III	GG	2	30	270X	
			IZMI	1020.2	1027.7	III	GG	1	45	95	
			IZMI	1034.1	1034.5	UNCLF		2	50	65	
			IZMI	1048.1	1056.2	III	GG	2	25X	160	
			IZMI	1115.1	1115.4	III	G	2	25X	35	
			SVTO	1120.0	1128.0	III		2	25	180	
			IZMI	1120.4	1122.9	III	GG,C	2	25X	270X	
			BLEN	1120.6	1128.2	III	GG,C	3	100X	4000X	
	0838	1352	ONDR	1121.1	1127.0	DCIM	G	1	800X	2000X	
			IZMI	1123.1	1124.1	III	GG	2	60	270	
			IZMI	1125.0	1128.4	III	GG,C	2	25X	270X	
			IZMI	1135.2	1136.5	III	G	2	30	140	
			IZMI	1155.8	1200.0	III	GG,P	2	240	270X	
			BLEN	1223.7	1414.1	DCIM	P	3	200	1000	
			SGMR	1305.0	1308.0	III		1	30	180	
			SGMR	1403.0	1412.0	III		2	30	180	
			SVTO	1403.0	1412.0	III		2	25	180	
			SGMR	1624.0	1626.0	III		1	30	180	
			SGMR	1631.0	1633.0	III		2	30	180	
			SGMR	1642.0	1642.0	III		1	30	180	
			SGMR	1707.0	1716.0	III		2	30	180	
			SGMR	1822.0	1908.0	CONT		1	140	180	
			PALE	1835.0	1835.0	III		1	25	48	
			SGMR	1858.0	1903.0	III		1	30	180	
			CULG	2000.0E	2259.0	III	N	3	18	180	
	2000	2400	CULG	2000.0E	2400.0D	III	S,C	1	20	180	
	2148	2400	HIRA	2216.0	2217.5	III	G	1	25X	110	
			LEAR	2224.0	0550.0	III	N	1	25	180	
			LEAR	2224.0	0625.0	CONT		1	71	180	
			HIRA	2233.0	2303.0	III	G	3	25X	500	
			CULG	2244.0	2253.0	III	GG	3	18X	770	
			LEAR	2244.0	2253.0	III		2	25	180	
			HIRA	2329.5	2330.0	III	B	1	25X	180	
			CULG	2330.0	2330.0	III	B	3	18	180	
14	0000	0800	CULG	0000.0E	0800.0D	III	S,C	1	20	180	
	0000	0746	HIRA	0115.0	0116.0	III	G	1	25X	70	
			CULG	0116.0	0116.0	III	B	2	20	150	
			CULG	0145.0	0206.0	III	N	3	18X	160	
			CULG	0247.0	0247.0	III	B	3	20	180	
			HIRA	0247.0	0253.5	III	G	1	30	180	
			CULG	0344.0	0344.0	III	G	1	20	700	
			HIRA	0352.0	0358.0	III	G	2	25X	1100	
			LEAR	0352.0	0358.0	III		2	25	180	

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OBSERVATION Day	Start (UT)	End (UT)	Sta	EVENT Start (UT)	End (UT)	Spectral Class	Event Remarks	Int (1-3)	FREQUENCY Lower (MHz)	Upper (MHz)	Remarks
14			CULG	0353.0	0357.0	III	G	3	18	1000	
			CULG	0402.0	0407.0	III	G	3	18X	1000	
			HIRA	0402.0	0408.0	III	G	2	25X	700	
			LEAR	0402.0	0407.0	III		2	25	180	
			CULG	0414.0	0415.0	III	G	3	20	750	
			HIRA	0414.0	0418.5	III	G	2	25X	500	
			LEAR	0414.0	0418.0	III		2	25	180	
			CULG	0418.0	0418.0	III	B	3	18X	750	
			CULG	0424.0	0429.0	III	G	1	23	260	
			HIRA	0424.0	0429.0	III	G	1	110	230	
			HIRA	0433.5	0446.0	III	G	2	50	280	
			CULG	0434.0	0445.0	III	GG	2	23	450	
			CULG	0454.0	0454.0	III	B	3	20	180	
			CULG	0550.0	0550.0	III	B	3	18	200	
			HIRA	0550.0	0550.5	III	B	1	25X	230	
			LEAR	0659.0	1032.0	III	N	2	25	180	
			IZMI	0700.0E	1200.0D	I	N	2	45U	270X	
	0700	1200	IZMI	0700.0E	1200.0D	III	N	1	25X	95U	
			IZMI	0708.7	0710.4	III	G	2	45	220	
			IZMI	0755.3	0758.4	III	GG	1	45	180	
			CULG	0757.0	0757.0	III	B	3	18	170	
			IZMI	0832.5	0833.4	III	G,HARM	2	80	270X	
			SVTO	0838.0	0838.0	III		1	25	47	
			IZMI	0838.5	0839.0	III	G	2	30	65	
			IZMI	0858.8	0859.4	III	G	2	25X	95	
			IZMI	0902.3	0902.5	III	G	2	35	95	
			SVTO	0914.0	0918.0	III		2	25	180	
			IZMI	0914.6	0919.6	III	GG,C	2	25X	270X	
			IZMI	0936.5	0938.0	III	GG	1	45	95	
			IZMI	0952.5	0953.5	III	G,FS	2	45	245	
			IZMI	0956.1	0956.5	III	G	2	55	175	
			SVTO	1004.0	1032.0	III	N	2	25	180	
			IZMI	1005.0	1006.1	III	G	2	25X	125	
			IZMI	1007.9	1014.4	III	GG,FS	2	25X	270X	
	0830	1520	BLEN	1010.0	1026.9	DCIM	P	3	300	4000X	
	0828	1355	ONDR	1010.5	1027.1	DCIM	GG	2	800X	2000X	
			IZMI	1016.4	1022.0	III	GG,FS	2	25X	270X	
			BLEN	1017.4	1022.7	II		3	100X	340	
			IZMI	1017.4	1022.0U	CONT	P	2	110U	270X	
			IZMI	1022.0	1027.5	III	GG,P	2	145	270X	
			IZMI	1027.8	1030.6	III	GG	2	45	270X	
			SVTO	1134.0	1138.0	III		1	25	167	
			IZMI	1134.4	1138.5	III	GG	2	25X	270X	
			ONDR	1134.5	1146.3	DCIM	G	2	800X	2000X	
			BLEN	1134.7	1138.6	DCIM	P	3	130	2300	
			BLEN	1226.0	1248.3	DCIM	P	3	100X	4000X	
			ONDR	1229.2	1247.2	DCIM	G	3	800X	2000X	
			SVTO	1230.0	1241.0	III		2	25	180	
			SGMR	1236.0	1327.0	III	N	1	30	180	
			SVTO	1245.0	1247.0	III		3	25	180	
			SVTO	1247.0	1252.0	II		1	43	164	ESS 0686
			BLEN	1407.6	1408.3	DCIM	P	1	600	1500	
			SGMR	1603.0	1604.0	V		2	30	180	
			SGMR	1701.0	1708.0	III		1	30	180	
			PALE	1748.0	1749.0	III		1	25	55	
	2000	2400	CULG	2022.0	2140.0	III	N	1	20	150	
			CULG	2026.0	2104.0	I	S	1	120	180	
			CULG	2133.0	2400.0D	I	S	1	120	260	
	2147	2400	HIRA								
			CULG	2156.0	2156.0	III	B	3	18	160	
			LEAR	2221.0	0556.0	CONT		1	80	180	
			CULG	2226.0	2348.0	III	N	1	20	180	
			LEAR	2236.0	1032.0	III	N	1	25	180	
15	0000	0800	CULG	0000.0E	0026.0	I	S	1	120	200	
			CULG	0009.0	0555.0U	III	N	1	23	180	
			CULG	0208.0	0258.0	I	S	1	120	180	
			CULG	0241.0	0241.0	III	B	2	20	100	
			CULG	0337.0	0338.0	III	G	2	20	130	

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15			CULG	0405.0	0605.0U	I	S	1	100	180	
			CULG	0412.0	0414.0	III	G	3	18X	140	
			LEAR	0412.0	0413.0	III		2	25	152	
	0000	0747	HIRA	0412.0	0413.5	III	G	1	25X	110	
			CULG	0456.0	0456.0	III	B	2	18	100	
			CULG	0555.0	0612.0	II	FN	3	18X	120	ESS 750
			CULG	0555.0	0800.0D	IV		3	18X	1600	
			HIRA	0556.0		IV		1	25X	2000	
			LEAR	0556.0	1032.0	IV		2	25	180	
			HIRA	0559.0	0600.0	II		2	40	80	
			LEAR	0559.0	0612.0	II		2	25	114	ESS 1292
			HIRA	0603.5	0612.5	II		1	25X	140	
			CULG	0606.0	0625.0	II	FN	3	20	50	
			CULG	0606.0	0630.0	III	GG	3	18	260	
			SVTO	0634.0	1521.0	IV		2	25	180	
	0702	1200	IZMI	0702.0E	0800.0U	CONT	P	3	45U	270X	
			IZMI	0800.0	1200.0D	CONT	P	2	45U	270X	
	0826	1357	ONDR								
	0830	1520	BLEN	0830.0X	1520.0X	I	C,P	3	100X	600	
			SGMR	1235.0	1650.0	IV		2	30	180	
			BLEN	1411.5	1434.7	DCIM	P,C	3	200	4000X	
			BLEN	1416.9	1430.5	II		3	150	750	
			SGMR	1424.0	1428.0	III		3	30	180	
			SVTO	1424.0	1429.0	III		2	25	84	
			PALE	1730.0	0352.0	IV		1	38	180	
	2000	2400	CULG	2000.0E	2233.0U	CONT		3	18	180	
			CULG	2045.0	2045.0	III	G	2	30	200	
			CULG	2201.0	2202.0	III	G	1	160	420	
	2147	2400	HIRA	2224.5	2258.0	II		3	25X	410	
			LEAR	2230.0	1032.0	IV		2	25	180	
			CULG	2231.0	2232.0	III	G	2	18	60	
			CULG	2233.0	2400.0D	IV		3	18X	1600	
			CULG	2234.0	2239.0	II	FN	3	20	45	
			CULG	2234.0	2242.0	II	SH	3	18	90	ESS 1900
			PALE	2234.0	2258.0	II		2	25	180	ESS 1151
			CULG	2235.0	2251.0	III	GG	3	18X	260	
			LEAR	2236.0	2242.0	II		2	25	94	ESS 1251
			HIRA	2240.0	0053.0	IV		2	25X	2000	
			CULG	2253.0	2300.0	UNCLF		3	20	45	
			CULG	2300.0	2400.0D	III	N	3	20	200	
16			CULG	0000.0E	0401.0	III	S,C	3	18X	200	
	0000	0800	CULG	0000.0E	0048.0	IV		1	20	1200	
			LEAR	0251.0	1032.0	III	N	2	25	180	
			CULG	0316.0	0511.0	I	S,C	3	50	160	
			CULG	0401.0	0513.0	III	S,C	2	20	180	
	0000	0748	HIRA	0505.5	0506.0	III	B	2	60	310	
			CULG	0506.0	0506.0	III	B	3	50	400	
			CULG	0511.0	0800.0D	I	S,C	2	60	180	
			CULG	0513.0	0800.0D	III	S,C	1	20	180	
			CULG	0636.0	0636.0	III	B	3	18X	180	
			HIRA	0636.0	0636.5	III	B	2	40	120	
			IZMI	0650.0E	1200.0D	III	N	2	25X	140U	
	0650	1200	IZMI	0650.0E	1200.0D	I	S,DC	2	45U	270X	
			IZMI	0651.4	0651.8	III	G,C	2	25X	160	
			HIRA	0651.5	0652.0	III	B	1	40	120	
			CULG	0652.0	0652.0	III	B	3	18X	180	
			SVTO	0658.0	1016.0	IV		1	75	180	
			IZMI	0703.9	0710.9	III	GG	2	25X	95	
			SVTO	0718.0	0725.0	III		1	25	69	
			IZMI	0729.6	0729.9	III	G	2	45	160	
			SVTO	0750.0	1453.0	III	N	2	25	180	
			CULG	0758.0	0800.0	III	G	2	20	140	
			IZMI	0758.3	0759.3	III	G	2	45	85	
			IZMI	0800.9	0801.8	III	G	2	25X	120	
	0825	1359	ONDR								
			IZMI	0828.2	0828.5	III	G	2	45	150	
	0830	1520	BLEN								
			IZMI	0850.9	0851.1	III	G	2	25X	95	

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16			IZMI	0920.6	0922.1	III	GG,C	2	25X	180	
			IZMI	0922.8	0928.7	III	GG,C	2	25X	165	
			IZMI	1020.8	1021.1	III	G	2	25X	95	
			IZMI	1056.0	1058.5	III	GG	1	25X	85	
			IZMI	1107.8	1108.5	III	G	2	25X	180	
			IZMI	1130.2	1141.5	III	GG	2	25X	95	
			SGMR	1314.0	2110.0	CONT		1	30	180	
			SVTO	1317.0	1523.0	CONT		1	80	180	
			PALE	1730.0	0353.0	CONT		1	110	180	
			PALE	1929.0	1937.0	III	N	1	25	110	
			CULG	2110.0E	2344.0	I	S,C	2	60	180	
	2110	2400	CULG	2110.0E	2400.0D	III	S,C	2	20	180	
	2146	2400	HIRA	2158.5	2201.0	III	G	1	25X	50	
			CULG	2159.0	2200.0	III	G	3	18X	120	
			LEAR	2230.0	1102.0	IV		2	25	180	
			LEAR	2305.0	1102.0	III	N	2	25	180	
			CULG	2314.0	2317.0	UNCLF		3	100	130	
			CULG	2326.0	2326.0	III	B	3	18	130	
			HIRA	2326.0	2328.5	III	G	2	25X	110	
17	0000	0800	CULG	0000.0E	0800.0D	III	S,C	2	20	180	
			CULG	0013.0	0800.0D	I	S	2	60	180	
	0000	0749	HIRA	0032.5	0035.0	III	G	2	25X	120	
			CULG	0033.0	0035.0	III	G	3	18	180	
			CULG	0155.0	0156.0	III	G	3	18X	100	
			HIRA	0155.0	0156.0	III	G	2	25X	110	
			CULG	0249.0	0249.0	III	B	2	27	350	
			HIRA	0249.0	0249.5	III	B	1	90	310	
	0650	1200	IZMI	0650.0E	1200.0D	I	S,C	2	45U	270X	
			SVTO	0657.0	0900.0	CONT		1	25	180	
	0830	1520	BLEN	0837.6	1120.0	IV	P,S,C	3	100X	4000X	
			IZMI	0840.0U	1200.0D	CONT	P	2	25X	270X	
			IZMI	0841.0	0846.7	III	GG,P	2	130	270X	
	0824	1401	ONDR	0841.0	1132.3	DCIM	GG	3	800X	2000X	
			SVTO	0900.0	1524.0	IV		2	25	180	
			SVTO	0907.0	0908.0	III		1	25	152	
			LEAR	0916.0	0924.0	II		2	26	95	ESS 1069
			SVTO	0916.0	0924.0	II		1	25U	86U	ESS 1122
			IZMI	0923.3	0934.2	III	GG,P	2	25X	270X	
			LEAR	0941.0	0946.0	III		3	25	180	
			IZMI	0942.9	0947.2	III	GG,P,FS	2	25X	270X	
			SVTO	0943.0	0946.0	III		2	25	180	
			SVTO	0943.0	0946.0	II		2	25	70	ESS 1502
			LEAR	0944.0	0947.0	II		3	25	65	ESS 1578
			SGMR	1217.0	2112.0	IV		2	30	180	
	2000	2400	CULG	2000.0E	2400.0D	III	S,C	3	18X	200	
			PALE	2032.0	0354.0	IV		2	30	180	
	2146	2400	HIRA								
			LEAR	2217.0	1055.0	IV		1	25	180	
			CULG	2313.0	2314.0	III	G	1	300	1000	
18	0000	0800	CULG	0000.0E	0800.0D	III	S,C	3	18X	180	
			LEAR	0114.0	1055.0	III	N	1	25	180	
			CULG	0208.0	0209.0	III	G	1	60	400	
			PALE	0208.0	0211.0	III		2	25	180	
			LEAR	0209.0	0210.0	III		3	25	180	
	0000	0750	HIRA	0209.0	0211.0	III	G	3	25X	470	
			HIRA	0315.5	0316.5	III	B	1	25X	100	
			HIRA	0558.0	0603.0	III	G	1	25X	70	
			SVTO	0633.0	1525.0	IV		1	25	180	
	0650	1200	IZMI	0650.0E	1200.0D	I	S,C	2	30	270X	
			IZMI	0925.9	0926.7	III	G	2	25X	65	
	0845	1520	BLEN	1124.3	1130.5	III	GG,RS	2	600	4000X	
	0821	1403	ONDR	1125.1	1130.5	DCIM	GG	2	800X	1892	
			SGMR	1216.0	2113.0	CONT		1	30	180	
			PALE	1730.0	0354.0	CONT		1	25	180	
			PALE	1842.0	1842.0	III		1	25	72	
			PALE	1857.0	1900.0	III		3	25	180	
			SGMR	1857.0	1901.0	III		2	30	180	

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18	2000	2400	CULG	2000.0E	2400.0D	III	S,C	2	18	180	
			CULG	2026.0	2400.0D	I	S	2	40	90	
			CULG	2139.0	2139.0	III	B	3	18	170	
	2146	2400	HIRA								
			LEAR	2224.0	0811.0	CONT		1	25	180	
19			CULG	0000.0E	0303.0	I	S,C	2	50	180	
	0000	0800	CULG	0000.0E	0224.0	III	S,C	1	18	180	
			CULG	0303.0	0800.0D	I	S,C	1	60	160	
			CULG	0453.0	0520.0	III	N	1	30	160	
			CULG	0547.0	0632.0	III	N	1	23	160	
			LEAR	0609.0	1055.0	III	N	1	25	180	
			CULG	0616.0	0617.0	III	G	3	18	180	
			LEAR	0616.0	0617.0	III		2	25	180	
	0000	0751	HIRA	0616.0	0616.5	III	B	1	25X	140	
			LEAR	0623.0	0625.0	III		2	25	180	
			HIRA	0623.5	0625.0	III	G	1	25X	120	
			CULG	0624.0	0625.0	III	G	3	20	120	
			CULG	0645.0	0652.0	III	GG	2	20	180	
			HIRA	0646.0	0648.0	III	G	1	25X	130	
			IZMI	0650.0E	1200.0D	I	S,C	2	45U	270X	
			IZMI	0650.0E	1200.0D	III	N	1	25x	95U	
			IZMI	0650.2	0655.0	III	GG	2	45	95U	
			HIRA	0654.5	0655.0	III	B	1	50	330	
			CULG	0655.0	0655.0	III	B	2	45	250	
			SVTO	0704.0	0812.0	CONT		1	75	180	
			IZMI	0727.1	0731.4	III	GG	2	25X	170	
			CULG	0730.0	0731.0	III	G	3	18	160	
			HIRA	0730.0	0731.0	III	G	1	25X	210	
			LEAR	0730.0	0730.0	III		2	25	180	
			SVTO	0730.0	0730.0	III		1	25	123	
			LEAR	0739.0	0743.0	III		2	25	180	
			SVTO	0739.0	0743.0	III		1	25	180	
			IZMI	0739.5	0745.0	III	GG,FS	2	25X	270X	
			CULG	0740.0	0745.0	III	G	3	18	260	
			HIRA	0740.0	0743.5	III	G	1	25X	200	
			IZMI	0806.3	0809.7	III	GG,P	2	45	270X	
			IZMI	0809.0	1200.0D	IV	P	2	45U	270X	
			LEAR	0811.0	1055.0	IV		2	25	180	
			SVTO	0812.0	0818.0	II		2	25	180	ESS 1093
			SVTO	0812.0	1526.0	IV		2	25	180	
			IZMI	0812.1	0817.9	II	G,HARM	2	30	180U	
			LEAR	0814.0	0818.0	II		2	25	180	ESS 1368
			IZMI	0814.2	0815.2	III	G	2	25X	270X	
	0821	1405	ONDR	0825.0	1313.4	DCIM	GG	3	800X	2000X	
	0840	1520	BLEN	0840.0X	1520.0X	IV	P,C,S	3	100X	4000X	
			IZMI	0855.5	0858.0	III	GG	2	25X	160	
			IZMI	0901.8	0904.7	III	GG	2	25X	95	
			IZMI	0913.5	0916.5	III	GG	2	25X	115	
			IZMI	0929.7	0932.2	III	GG,P	2	160U	270X	
			LEAR	1020.0	1025.0	III		2	25	180	
			SVTO	1020.0	1026.0	III		3	25	180	
			IZMI	1020.1	1027.2	III	GG	2	25X	270X	
			SGMR	1232.0	1815.0	IV		1	30	180	
	2000	2400	CULG	2000.0E	2400.0D	I	S,C	1	60	160	
			CULG	2032.0	2032.0	III	B	1	23	180	
			CULG	2129.0	2141.0	III	GG	2	20	150	
			CULG	2131.0	2131.0	III	B	3	18X	150	
			PALE	2131.0	2131.0	III		1	25	68	
			CULG	2159.0	2400.0D	III	N	1	23	180	
			CULG	2321.0	2322.0	III	G	2	20	130	
			LEAR	2321.0	2321.0	III		1	25U	88U	
			PALE	2321.0	0017.0	III	N	1	25	180	
	2146	2400	HIRA	2321.0	2322.0	III	G	1	25X	70	
			CULG	2329.0	2330.0	III	G	3	18	250	
			HIRA	2329.0	2330.0	III	G	1	25X	120	
			CULG	2340.0	2348.0	III	GG	2	18	150	
			HIRA	2340.0	2348.0	III	G	1	25X	100	
			CULG	2356.0	2356.0	III	B	2	20	100	

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

JANUARY 2005

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
20			CULG	0000.0E	0300.0	III	N	1	20	120	
	0000	0800	CULG	0000.0E	0645.0U	I	S,C	1	40	130	
			CULG	0301.0	0301.0	III	B	2	18	180	
			LEAR	0301.0	0302.0	III		1	25U	164U	
	0000	0752	HIRA	0301.5	0302.0	III	B	1	25X	180	
			CULG	0327.0	0334.0	III	GG	2	18X	200	
			HIRA	0327.0	0334.5	III	G	1	25X	230	
			CULG	0336.0	0336.0	III	B	1	25	180	
			CULG	0342.0	0343.0	III	G	1	23	300	
			HIRA	0342.5	0343.5	III	G	2	30	220	
			HIRA	0352.5	0353.0	III	B	1	30	50	
			CULG	0353.0	0353.0	III	B	1	20	50	
			LEAR	0439.0	0943.0	III	N	2	25	180	
			LEAR	0451.0	0644.0	CONT		1	75	112	
			CULG	0458.0	0501.0	III	G	2	18X	350	
			HIRA	0458.0	0500.5	III	G	2	25X	310	
			CULG	0517.0	0540.0	III	N	1	40	180	
			CULG	0636.0	0800.0D	IV	FS	2	20U	900	
			HIRA	0643.0	0728.0	IV		3	30	210	
			LEAR	0643.0	1055.0	IV		2	25	180	
			CULG	0644.0	0653.0U	II	FN	3	18X	70U	
			CULG	0644.0	0700.0U	II	SH	3	18X	160	ESS 1300
			LEAR	0644.0	0700.0	II		2	25	180	ESS 0712
			SVTO	0644.0	0700.0	II		2	25	180	ESS 0666
			CULG	0645.0	0701.0	III	GG	3	18X	180	
	0651	1205	IZMI	0651.0E	0755.0U	IV	FS,P	2	25X	270X	
			SVTO	0655.0	1527.0	IV		1	25	180	
			IZMI	0655.7	0657.8	CONT	DC	2	140	200	
			IZMI	0702.4	0710.0	CONT	DC	2	90	150	
			SVTO	0728.0	0733.0	III		2	25	180	
			IZMI	0728.9	0732.9	III	GG,P	2	25X	160	
			CULG	0729.0	0738.0	III	G	3	18	170	
			HIRA	0729.0	0729.5	III	B	1	40	2000	
			IZMI	0755.0	0950.0U	I	N,C	2	45U	270X	
			IZMI	0755.6	0755.8	UNCLF	RS	2	40	270	
	0819	1407	ONDR	0825.2	0845.1	DCIM	GG,SP	2	800X	2000X	
	0830	1520	BLEN	0830.1	0856.5	DCIM	S,C	2	200	4000X	
			ONDR	0933.3	0943.4	DCIM	G	1	800X	2000X	
			BLEN	0934.4	0940.5	DCIM	C	3	200	4000X	
			IZMI	1017.3	1017.5	III	G	1	110	160	
			BLEN	1058.3	1106.1	DCIM	P,C	3	500	4000X	
			ONDR	1058.3	1108.0	DCIM	G	2	1386	2000X	
			SGMR	1232.0	1659.0	IV		1	30	180	
			SGMR	1636.0	1637.0	III		1	30	133	
	2000	2400	CULG								
	2145	2400	HIRA								
21			LEAR	0021.0	0022.0	V		3	25	180	
			PALE	0021.0	0022.0	III		2	25	180	
	0000	0753	HIRA	0021.0	0022.5	III	B	3	25X	700	
	0000	0800	CULG	0021.0	0022.0	III	G	3	18X	500	
			LEAR	0055.0	0055.0	III		1	25	91	
			PALE	0055.0	0055.0	III		1	25	51	
			HIRA	0055.5	0056.0	III	B	1	25X	80	
			CULG	0056.0	0056.0	III	B	1	18	170	
			CULG	0151.0	0151.0	III	B	1	20	80	
			HIRA	0151.0	0151.5	III	B	1	25X	50	
			LEAR	0151.0	0151.0	III		1	25	58	
			CULG	0420.0	0420.0	III	B	1	23	80	
			LEAR	0420.0	0420.0	III		1	25	50	
			CULG	0434.0	0434.0	III	G	3	18X	250	
			LEAR	0435.0	0436.0	III		1	25U	167U	
			HIRA	0435.5	0437.0	III	G	1	25X	190	
	0830	1520	BLEN	1012.9	1018.5	III	GG,U	3	100X	4000X	
	0818	1409	ONDR	1014.1	1015.5	DCIM	G	1	800X	2000X	
	0650	1200	IZMI	1014.8	1015.2	III	G	1	180	230	
			LEAR	1016.0	1019.0	III		1	87	180	
			IZMI	1016.8	1019.2	II	HARM	2	80	270X	
			IZMI	1022.1	1022.2	III	B	1	115	270X	

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

JANUARY 2005

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
21			SVTO	1228.0	1229.0	III		2	25	160	
			BLEN	1350.9	1353.5	DCIM	P	3	900	4000X	
	2000	2400	CULG								
	2145	2400	HIRA								
22	0000	0754	HIRA								
	0000	0800	CULG	0246.0	0247.0	III	G	1	30	100	
	0704	1200	IZMI								
	0816	1411	ONDR								
	0830	1520	BLEN								
	2144	2400	HIRA								
23	0000	0755	HIRA								
	0658	1200	IZMI	0658.5	0658.6	III	B	1	50	90	
	0815	1414	ONDR								
	0825	1520	BLEN								
	2125	2400	CULG								
	2200	2400	HIRA								
24	0000	0756	HIRA								
	0000	0800	CULG								
	0650	1200	IZMI								
	0811	1416	ONDR								
	0825	1520	BLEN								
	2000	2400	CULG								
	2143	2400	HIRA								
25	0000	0757	HIRA								
	0000	0800	CULG								
	0650	1200	IZMI								
	0811	1418	ONDR								
	0825	1520	BLEN								
	2142	2400	HIRA								
	2000	2400	CULG	2315.0	2315.0	III	B	1	25	90	
26	0000	0758	HIRA	0128.0	0128.5	III	B	1	220	350	
	0000	0800	CULG	0128.0	0128.0	III	B	1	130	370	
			CULG	0335.0	0336.0	III	G	1	23	110	
			LEAR	0335.0	0336.0	III		1	25U	123U	
			HIRA	0335.5	0336.0	III	B	1	30	110	
			CULG	0355.0	0355.0	III	B	1	100	180	
			HIRA	0355.0	0355.5	III	B	1	100	150	
			CULG	0631.0	0631.0	III	B	1	35	170	
			CULG	0645.0	0647.0	III	G	1	40	270	
			HIRA	0645.0	0645.5	III	B	1	110	210	
	0700	1200	IZMI								
	0810	1420	ONDR								
	0825	1520	BLEN								
			SVTO	1331.0	1332.0	III		1	25	83	
	2141	2400	HIRA								
	2000	2400	CULG	2214.0	2214.0	III	B	2	23	35	
27			LEAR	0310.0	0310.0	III		2	25	180	
			PALE	0310.0	0310.0	III		1	25	180	
	0000	0758	HIRA	0310.0	0310.5	III	G	2	25X	800	
	0000	0800	CULG	0310.0	0311.0	III	G	3	18X	500	
			CULG	0601.0	0602.0	III	G	3	18	350	
			HIRA	0601.0	0601.5	III	B	1	30	230	
			LEAR	0601.0	0601.0	III		1	25	180	
	0700	1200	IZMI								
	0807	1422	ONDR								
	0825	1520	BLEN								
	2140	2400	HIRA								
	2000	2400	CULG	2339.0	2339.0	III	B	1	20	130	
28	0000	0800	CULG	0015.0	0015.0	III	B	1	20	180	
			CULG	0103.0	0103.0	III	B	1	20	60	
	0000	0759	HIRA	0211.5	0212.0	III	B	1	25X	50	
			CULG	0212.0	0212.0	III	B	2	18	90	

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

JANUARY 2005

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
28			CULG	0619.0	0742.0	III	S	1	40	100	
	0650	1200	IZMI	0650.4	0652.6	III	G	1	45	90	
			IZMI	0719.4	0722.0	III	G	1	50	70	
			IZMI	0739.7	0741.4	III	G	1	45	65	
	0806	1425	ONDR								
	0825	1520	BLEN								
	2000	2400	CULG								
	2140	2400	HIRA								
29	0000	0800	CULG	0140.0	0325.0	III	N	1	20	90	
			LEAR	0238.0	0323.0	III	N	2	25	180	
	0000	0800	HIRA	0238.0	0248.0	III	G	1	25X	280	
			CULG	0242.0	0248.0	III	G	3	18X	180	
			CULG	0357.0	0411.0	III	GG	2	20	170	
			HIRA	0403.5	0409.5	III	G	2	25X	200	
			CULG	0404.0	0406.0	III	G	3	18X	420	
			CULG	0548.0	0552.0	III	G	2	20	200	
			LEAR	0549.0	0551.0	III		2	25	180	
			HIRA	0549.5	0552.0	III	G	1	25X	230	
			CULG	0603.0	0607.0	III	G	2	20	200	
	0804	1427	ONDR								
	0825	1520	BLEN								
	0650	1200	IZMI	1110.0U	1200.0D	I	N	1	200U	270X	
	2000	2400	CULG	2000.0E	2400.0D	III	S,C	1	18	180	
	2139	2400	HIRA								
			LEAR	2220.0	1053.0	CONT		1	75	150	
			LEAR	2220.0	2221.0	III		1	36	75	
30	0000	0800	CULG	0000.0E	0800.0D	III	S,C	1	18	180	
			LEAR	0119.0	0119.0	III		1	25	87	
	0000	0802	HIRA	0119.5	0120.0	III	B	1	25X	80	
			HIRA	0252.0	0258.5	III	G	1	40	110	
			LEAR	0252.0	0257.0	III		1	25	124	
	0650	1205	IZMI	0650.0E	0925.0U	III	N	1	45	95	
			SVTO	0713.0	0819.0	III	N	1	25U	180U	
			IZMI	0720.4	0723.2	III	G	2	50	65	
	0802	1429	ONDR								
	0825	1525	BLEN								
	2000	2400	CULG								
	2138	2400	HIRA								
31	0000	0803	HIRA								
	0000	0800	CULG	0701.0	0705.0	UNCLF		1	20	40	
	0702	1200	IZMI								
	0800	1431	ONDR								
	0825	1525	BLEN								
	2000	2400	CULG								
	2138	2400	HIRA								

SOLAR RADIO NOISE STORM AT 164 MHZ

FROM NANÇAY RADIOHELIOGRAPH

JANUARY 2005

	HELIOGRAPHICS POSITIONS MEAN VALUES[1]		IMP[2]	OBSERVING TIME[3]	
	E-W	S-N		START(UT)	END(UT)
02/01/05*	-0.06	-0.15	II	12H58	15H25 D
04/01/05*	+0.22	+0.04	II	11H00	15H26 D
09/01/05*	-1.00	-0.12	I	8H28 E	15H28 D
11/01/05*	-0.74	-0.15	II	8H28 E	15H29 D
12/01/05*	-0.81	+0.49	II	8H32 E	15H30 D
13/01/05*	-0.68	+0.46	IV	8H29 E	15H30 D
14/01/05*	-0.54	+0.37	III	8H57 E	15H30 D
14/01/05*	-0.14	-0.18	III	8H57 E	13H00
15/01/05*	-0.02	+0.27	V	8H30 E	13H46 D
16/01/05*	+0.27	-0.12	IV	9H14 E	15H31 D
17/01/05*	+0.47	+0.18	V	8H54 E	15H31 D
18/01/05*	+0.71	+0.35	V	8H44 E	15H32 D
19/01/05*	+0.82	+0.56	V	8H31 E	11H38
19/01/05*	+1.06	+0.13	IV	8H31 E	15H32 D
20/01/05*	+1.01	+0.21	III	8H34 E	15H32 D
21/01/05*	+1.15	+0.52	I	8H31 E	15H32 D

[1] POSITIVE E-W AND S-N COORDINATES CORRESPOND TO THE N-W QUADRANT
[2] IMP1: FLUX< 5 SFU IMP2: 5< FLUX < 20 SFU IMP3: 20< FLUX <100 SFU
IMP4: 100< FLUX <300 SFU IMP5> 300 SFU
[3] E NOISE STORM IN PROGRESS AT THE BEGINNING OF THE NANÇAY OBSERVATIONS
D NOISE STORM IN PROGRESS AT THE END OF THE NANCAY OBSERVATIONS

SOLAR RADIO NOISE STORM AT 327 MHZ

FROM NANÇAY RADIOHELIOGRAPH

JANUARY 2005

	HELIOGRAPHICS POSITIONS MEAN VALUES[1]		IMP[2]	OBSERVING TIME[3]	
DAY	E-W	S-N		START(UT)	END(UT)
02/01/05*	-0.12	-0.23	I	12H54	15H25 D
02/01/05*	+1.10	+0.10	I	8H25 E	15H25 D
03/01/05*	+1.11	+0.16	I	8H26 E	15H26 D
09/01/05*	-0.88	-0.20	I	8H28 E	15H28 D
12/01/05	-0.78	+0.27	I	8H32 E	15H30 D
13/01/05	-0.64	+0.31	III	8H29 E	15H30 D
13/01/05	-0.64	+0.46	III	8H29 E	15H30 D
14/01/05*	-0.40	+0.26	III	8H57 E	15H30 D
14/01/05*	-0.15	+0.10	III	8H57 E	15H30 D
15/01/05*	+0.01	+0.34	IV	8H30 E	13H46 D
15/01/05*	+0.09	+0.10	III	8H30 E	13H46 D
16/01/05*	+0.28	+0.03	III	9H14 E	15H31 D
17/01/05*	+0.48	-0.02	III	8H54 E	15H31 D
18/01/05*	+0.59	+0.31	II	8H44 E	15H32 D
18/01/05*	+0.77	+0.00	II	8H44 E	15H32 D
19/01/05	+0.84	+0.39	III	8H31 E	15H32 D
19/01/05	+1.00	+0.19	II	8H31 E	15H32 D
20/01/05	+0.99	+0.17	III	8H34 E	15H32 D

8, 10, 26, 27, 28, 29, 30, 31 JANUARY 2005: NO DATA

OTHERS DAYS: NO DETECTABLE NOISE STORM

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

** Following a large burst

*** importance not well determined due to the proximity of another very strong source

**** no flux measurements available

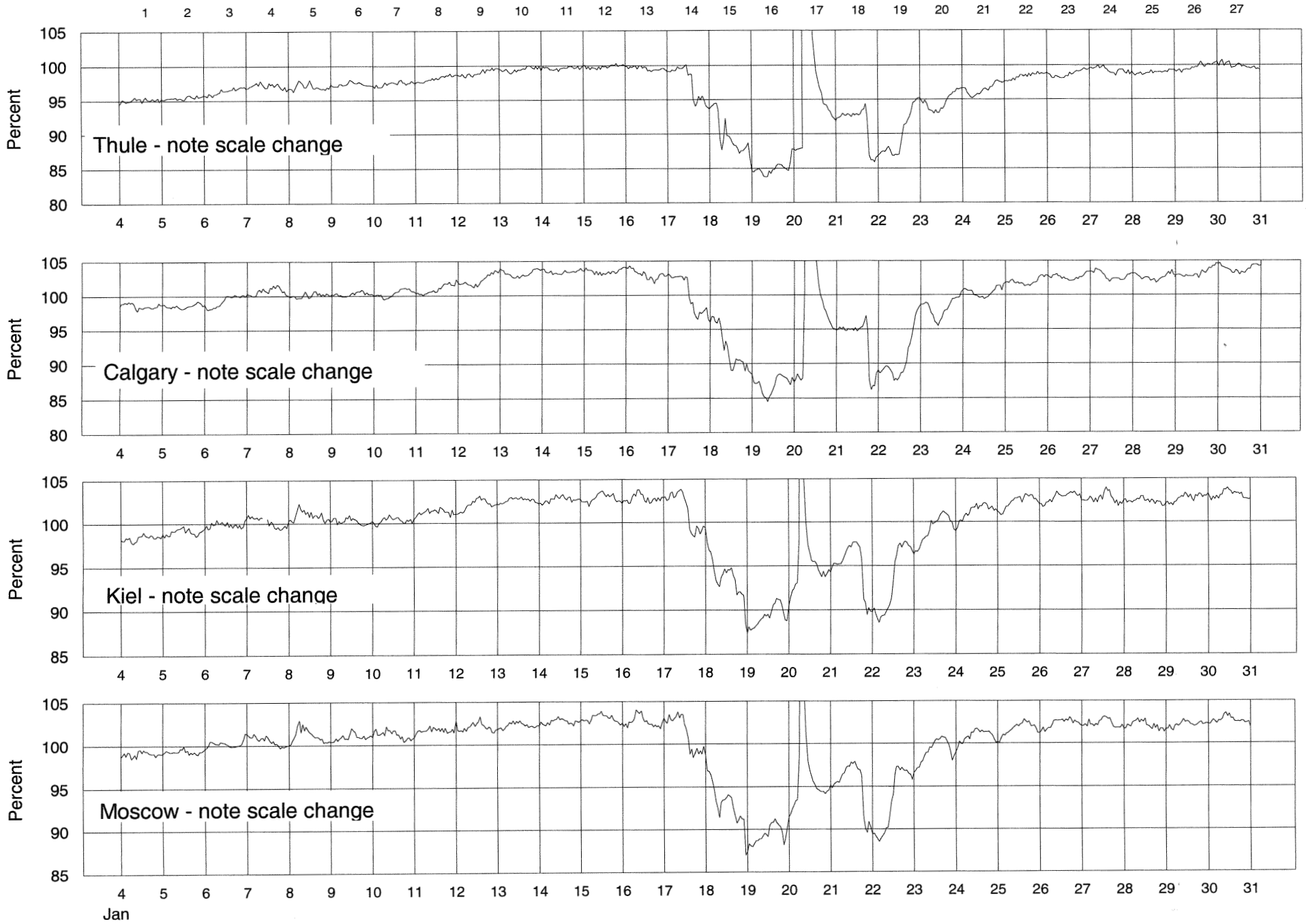
COSMIC RAY INDICES
(Neutron Monitor)
January 2005

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	4183.9	3664.7	5881.7	8628.1	3974.8	2021.4	3477.8
2	4144.9	3638.3	5858.2	8588.7	3967.2	2013.5	3475.0
3	3978.0	3515.0	5673.2	8342.8	3817.7	1977.9	3401.2
4	3979.2	3487.0	5619.8	8314.2	3789.4	1977.8	3409.2
5	3993.0	3486.5	5658.5	8333.5	3803.6	1996.0	3433.1
6	4032.4	3510.3	5702.2	8410.4	3831.4	2015.7	3450.5
7	4065.1	3560.0	5719.0(22)	8441.7	3878.6	2027.5	3479.2
8	4059.7	3538.8	5761.3	8489.7	3861.5	2029.4	3477.2
9	4075.0	3545.3	5723.6	8472.7	3850.4	2025.0	3448.0
10	4076.9	3548.3	5729.0	8496.1	3855.0	2027.4	3454.1
11	4106.1	3569.2	5781.8	8533.6	3900.9	2027.8	3475.5
12	4141.5	3615.0	5829.2	8567.4	3952.2	2032.3	3486.3
13	4162.2	3650.0	5858.9	8580.7	3954.7	2038.2	3487.5
14	4168.5	3657.5	5862.7	8613.1	3942.9	2039.2	3495.5
15	4177.7	3658.5	5871.7	8646.9	3955.0	2038.7	3512.9
16	4167.2	3644.3	5867.2	8612.6	3934.1	2038.5	3514.1
17	4083.5	3542.8	5795.2	8508.4	3859.2	2029.5	3504.0
18	3762.5	3260.3	5365.4	7829.4	3530.9	1937.7	3377.5
19	3551.7	3075.8	5095.8	7498.7	3299.9	1890.0	3270.3
20	4136.2	3773.7	5568.1	8213.4	3398.1	1927.0	3339.6
21	3826.7	3305.5	5424.0	7992.7	3305.5	1952.2	3384.2
22	3752.5	3206.3	5322.4	7820.8	3457.7	1936.4	3366.8
23	3958.4	3468.2	5662.9	8315.5	3753.8	1991.8	3467.2
24	4036.4	3548.7	5774.5	8460.0	3846.8	2018.8	3502.5
25	4114.6	3602.7	5838.2	8533.1	3896.9	2038.9	3521.5
26	4129.4	3627.2	5867.2	8584.0	3914.3	2043.6	3525.7
27	4153.3	3633.8	5860.8	8586.3	3917.9	2037.5	3517.8
28	4138.4	3627.3	5843.7	8567.2	3910.1	2034.4	3516.2
29	4169.2	3647.5	5860.9	8573.1	3938.0	2043.7	3514.9
30	4179.0	3669.7	5883.7	8616.6	3975.7	2047.9	3532.0
31	4150.9	3639.2	5855.4	8591.0	3945.0	2044.0	3512.8
Mean	4053.0	3545.7	5723.1	8411.7	3813.3	2009.7	3462.2

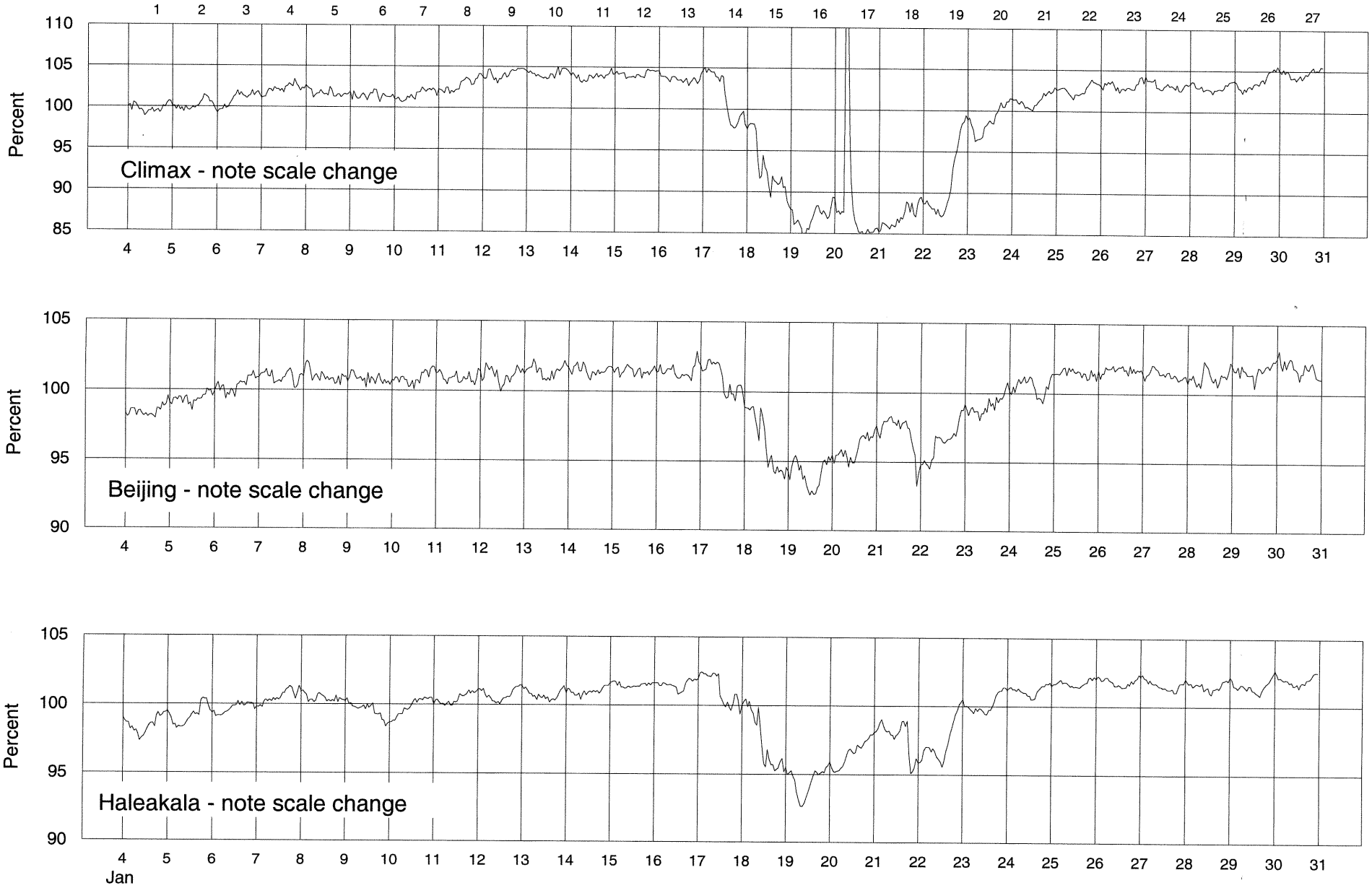
For less than 24-hour coverage, parentheses enclose the number of hours for which data are available. For Climax, parentheses enclose the number of section hours whenever the sum of both sections falls below 40 hours, and for Haleakala, whenever the sum of all three sections falls below 60 hours.

COSMIC RAY INDICES
(Neutron Monitor)

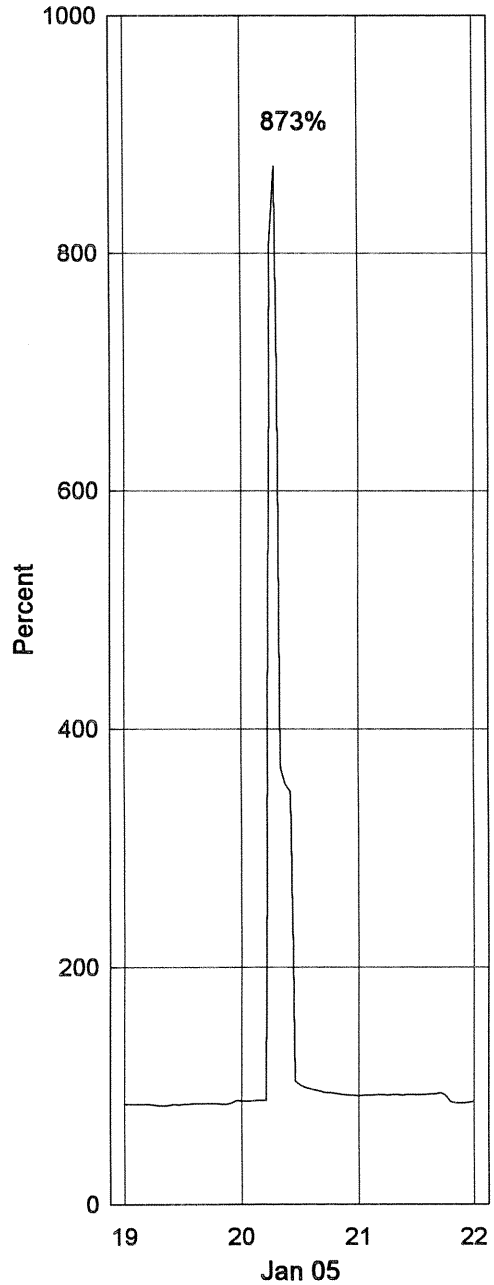
Bartels Rotation 2340 - Beginning 4 Jan 2005



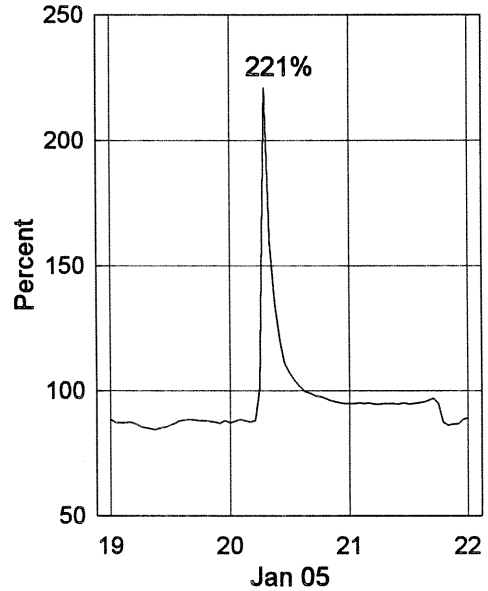
COSMIC RAY INDICES
(Neutron Monitor)
Bartels Rotation 2340 - Beginning 4 Jan 2005



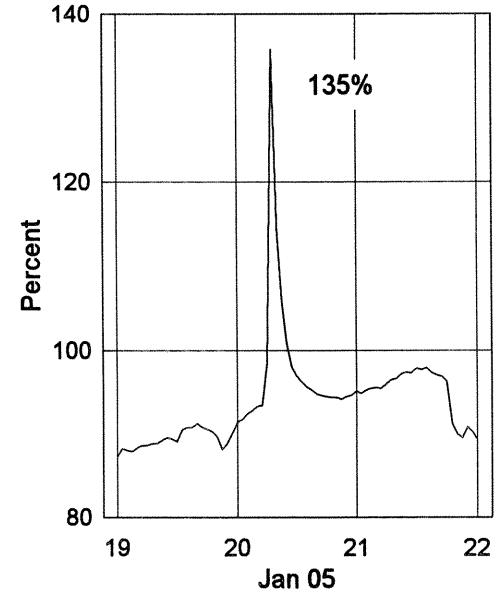
Thule



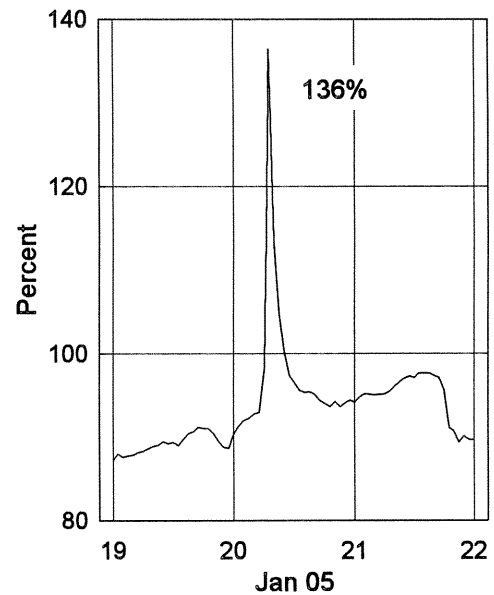
Calgary



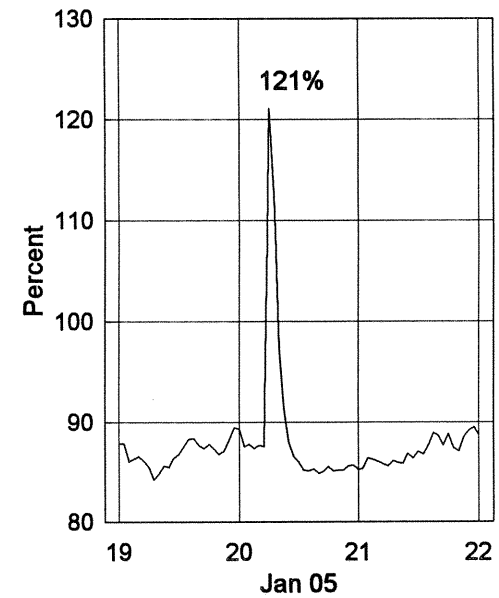
Moscow



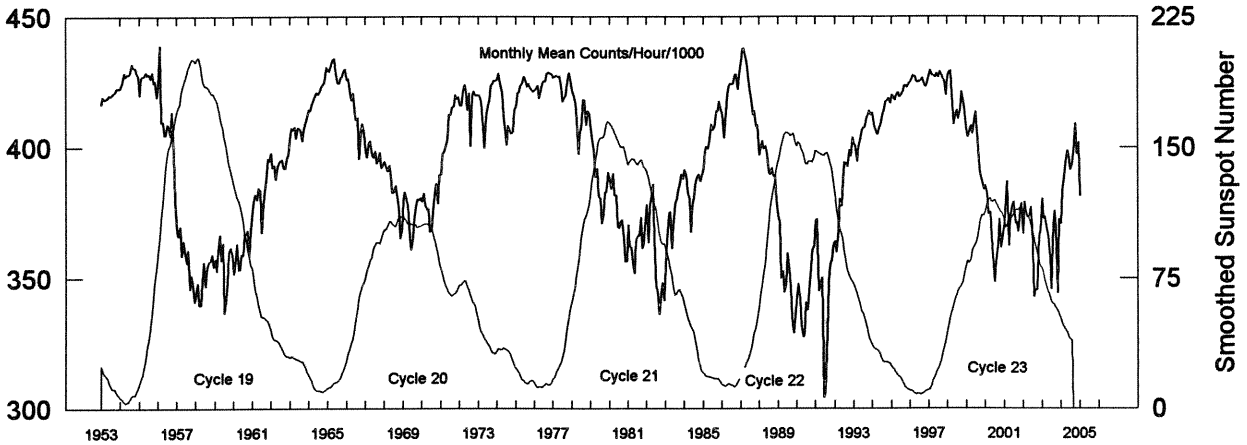
Kiel



Climax



Climax Neutron Monitor Pressure-Corrected Values
Jan 1953 - Jan 2005



Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Mean
1953	4165	4193	4182	4188	4190	4200	4197	4205	4208	4216	4225	4226	4200
1954	4225	4247	4285	4269	4280	4277	4284	4318	4308	4303	4286	4269	4279
1955	4200	4267	4272	4273	4287	4278	4279	4263	4286	4245	4252	4193	4258
1956	4234	4388	4097	4097	4049	4045	4088	4083	4044	4134	3980	3799	4087
1957	3677	3660	3695	3585	3640	3603	3557	3606	3458	3509	3484	3410	3574
1958	3435	3479	3400	3396	3490	3560	3467	3537	3561	3564	3589	3542	3502
1959	3573	3526	3606	3664	3567	3633	3367	3420	3484	3597	3615	3587	3553
1960	3516	3573	3631	3532	3534	3589	3587	3670	3670	3682	3586	3681	3604
1961	3761	3801	3819	3800	3843	3838	3675	3784	3834	3870	3955	3950	3828
1962	3977	3922	3931	3878	3927	3940	3950	3954	3924	3919	3963	3971	3938
1963	4049	4073	4065	4077	4033	4075	4072	4060	4024	4066	4094	4111	4067
1964	4144	4139	4168	4181	4198	4208	4202	4213	4232	4240	4254	4307	4207
1965	4294	4290	4314	4335	4340	4288	4247	4246	4267	4271	4294	4300	4291
1966	4258	4262	4211	4180	4207	4146	4108	4112	3956	4055	4091	4053	4137
1967	3991	3960	4014	4025	3974	3960	3985	3939	3955	3980	3922	3933	3970
1968	3946	3925	3909	3932	3895	3830	3830	3853	3817	3761	3652	3685	3836
1969	3801	3831	3798	3782	3656	3609	3652	3730	3781	3803	3798	3807	3754
1970	3792	3824	3781	3765	3765	3679	3684	3755	3832	3862	3786	3895	3785
1971	3898	3975	3981	4003	4032	4124	4124	4152	4156	4200	4184	4192	4085
1972	4162	4157	4209	4237	4215	4141	4207	4005	4198	4214	4198	4198	4178
1973	4200	4193	4173	4075	3997	4119	4150	4180	4235	4240	4255	4253	4173
1974	4261	4283	4237	4207	4121	4077	4009	4083	4061	4054	4058	4140	4133
1975	4155	4206	4210	4239	4244	4271	4262	4231	4243	4231	4218	4213	4227
1976	4216	4223	4236	4188	4218	4244	4254	4253	4283	4287	4285	4280	4247
1977	4268	4272	4274	4267	4272	4231	4175	4193	4197	4245	4284	4260	4245
1978	4213	4198	4173	4107	3976	4058	4068	4183	4180	4085	4139	4128	4126
1979	4071	4034	3983	3888	3920	3814	3806	3710	3745	3829	3829	3905	3878
1980	3873	3842	3900	3819	3817	3697	3692	3719	3723	3647	3564	3564	3738
1981	3703	3623	3616	3561	3518	3643	3663	3662	3732	3613	3624	3726	3640
1982	3780	3634	3778	3819	3860	3650	3463	3456	3364	3444	3482	3413	3595
1983	3550	3643	3744	3753	3613	3700	3789	3798	3845	3860	3897	3881	3756
1984	3915	3896	3830	3806	3677	3773	3813	3865	3891	3897	3871	3890	3844
1985	3919	3985	4002	3995	4026	4088	4066	4075	4139	4139	4174	4141	4062
1986	4128	4036	4098	4199	4232	4242	4243	4244	4277	4280	4221	4277	4206
1987	4331	4376	4378	4346	4323	4254	4216	4170	4123	4139	4080	4084	4235
1988	3970	3997	4024	3995	4005	3981	3906	3899	3923	3893	3886	3798	3940
1989	3731	3717	3500	3527	3446	3478	3594	3535	3467	3347	3291	3349	3499
1990	3432	3476	3424	3317	3275	3283	3406	3377	3450	3540	3608	3620	3434
1991	3719	3725	3451	3470	3501	3041	3062	3293	3482	3550	3570	3628	3458
1992	3639	3600	3684	3803	3776	3876	3945	3939	3928	3989	3966	4036	3848
1993	4011	4007	3947	4003	4028	4061	4075	4076	4113	4122	4138	4122	4059
1994	4130	4079	4058	4048	4076	4085	4117	4140	4173	4179	4187	4168	4120
1995	4198	4194	4180	4199	4208	4193	4198	4209	4235	4236	4228	4246	4210
1996	4249	4266	4276	4269	4252	4250	4254	4256	4264	4243	4231	4242	4254
1997	4273	4293	4278	4274	4268	4281	4268	4290	4278	4260	4255	4199	4268
1998	4270	4290	4291	4160	4087	4116	4142	4107	4141	4212	4175	4133	4177
1999	4056	4040	4057	4083	4050	4106	4133	4031	3953	3899	3870	3840	4010
2000	3855	3822	3748	3752	3656	3583	3485	3562	3617	3725	3615	3651	3673
2001	3713	3812	3869	3622	3734	3779	3791	3713	3713	3675	3761	3787	3747
2002	3670	3790	3745	3733	3739	3771	3702	3429	3456	3454	3659	3680	3652
2003	3804	3727	3736	3685	3664	3580	3459	3706	3756	3685	3442	3725	3664
2004	3707	3835	3893	3944	3988	3964	3914	3935	3982	4091	3976	4020	3937
2005	3813												3813

Multiply table entries by 100 to obtain hourly counting rate. Climax, Colorado: N39, W106, Alt=3400 m, Cutoff Rigidity=2.99GV (1980).

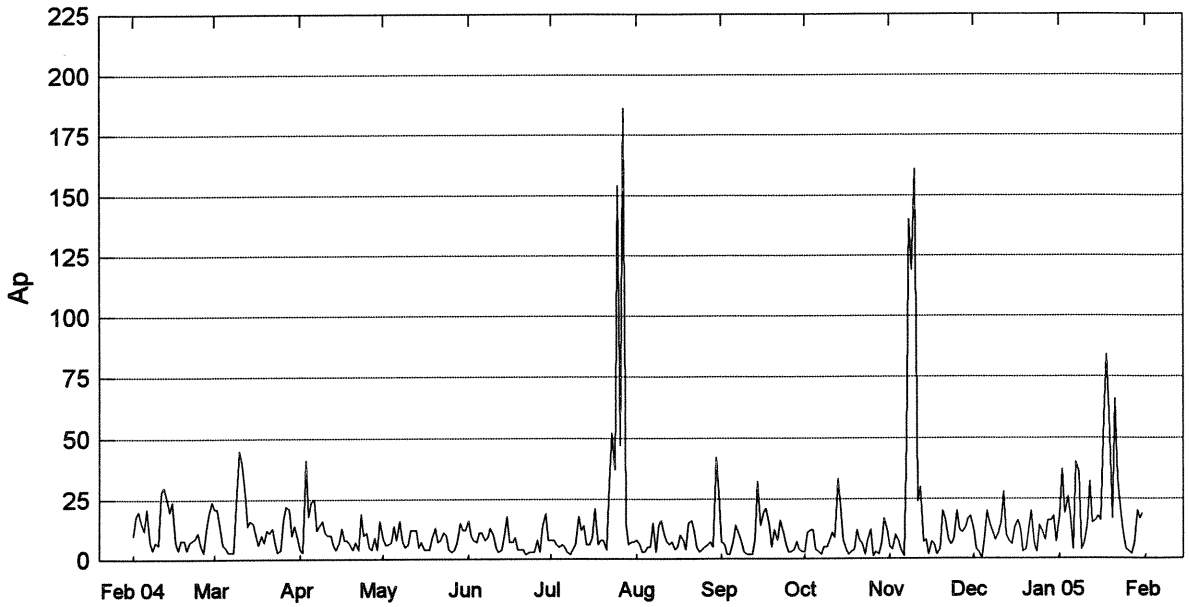
NOTE: Data may differ from previously reported values due to subsequent cleanup of data and slight changes in the averaging algorithm. See http://astro.uchicago.edu/home/web/pyle/neutron.html for latest changes. Sunspot numbers are preliminary after March, 2004.

Geomagnetic Activity Indices
January 2005

Day		Kp Three-Hourly Indices 1	2	3	4	5	6	7	8	Sum	Ap	Cp	Km Three-Hourly Indices 1	2	3	4	5	6	7	8	aa Provisional Am	N	S	M	
1		2-	3+	3	2+	3	3+	4+	4	25	18	1.0	2+	3-	3-	3-	3o	3+	4+	4+	36	39	37	23	53	
2	D5	4+	5-	5-	4	3+	6-	3+	5+	35+	37	1.4	4-	4-	4+	4-	3o	5o	3+	5o	57	68	57	49	76	
3		4-	4-	3-	4-	4	4-	3	2+	27-	19	1.0	4-	3o	3-	4-	4-	4-	3+	2o	38	40	39	35	43	
4		4+	4+	3+	3	5-	4+	3+	3+	31-	26	1.2	4-	4-	3-	3o	4+	4o	3+	3o	40	44	32	33	43	
5		4	3+	4-	3+	3+	3+	2	2+	25+	17	0.9	3+	3-	3o	3+	3+	3o	2+	2+	30	36	24	31	29	
6	Q5	2	0+	0+	0+	1-	1-	3-	1+	8+	4	0.2	1+	1-	0+	1o	1o	1o	3o	1+	9	10	9	7	12	C
7		0+	0	0	2-	5	5+	4	8-	24	40	1.4	0+	0+	0+	3-	5o	5+	4o	7o	68	70	61	8	123	
8		7	6-	4	4-	3+	2	2	2+	30	36	1.4	6-	5+	4-	3+	3+	2+	2+	2+	53	46	73	97	23	
9	Q4K	1	1	0+	3	1-	0+	1	0	7+	4	0.1	1+	1o	1-	3o	1-	0+	1+	1-	9	6	15	15	7	KK
10	Q6	1-	1	1	1	1+	2+	2+	3-	12+	6	0.3	1o	1+	1+	1o	2o	3-	3-	3-	14	15	16	10	21	
11	Q9A	2	3	4-	2+	1+	3+	2	4	22-	14	0.8	2o	3-	3+	2o	2-	3+	2o	4-	26	34	23	22	35	
12		4+	5+	4	4+	5-	4	4	3+	34	32	1.3	4-	5-	3+	4+	5-	4o	4o	3+	58	62	57	63	56	
13	Q10A	3-	4-	3-	2	2+	3+	4-	3	23+	15	0.8	3-	3o	2o	2+	3-	3+	3+	3+	27	34	24	22	36	
14		3-	3-	2+	1+	1+	1+	4+	5	21	16	0.9	2+	2o	2o	1+	1+	1+	4+	5-	26	39	20	18	41	
15		4-	4+	4	3	3	3+	3-	2-	26-	18	1.0	3o	4-	3+	3o	3o	3+	3-	2o	31	35	35	46	25	
16		3+	2+	3-	3-	3+	3+	3	4	25-	16	0.9	2+	2-	2+	3-	3o	3+	3-	3+	26	28	33	28	34	
17	D2	5	4+	4	6	6+	6+	5	5-	42-	58	1.7	4o	3+	4-	5+	6-	6+	4+	5-	86	99	83	65	117	
18	D1	7	6-	8-	6-	5+	5+	5	6-	47+	84	1.8	6o	5o	6+	5-	5+	5o	4+	5o	110	121	115	137	100	
19	D4	6+	6	7-	6	5+	4	2+	4-	40+	60	1.7	5+	5o	5o	5-	5o	4o	2o	3+	73	74	57	100	32	
20		2+	2	2	3	4	5-	3	3	24	17	0.9	2-	2o	2+	3-	4-	4+	3o	3-	29	38	28	19	47	
21	D3	3+	2	2+	2+	3-	7-	8	7+	35-	66	1.7	3-	2o	2o	2+	2+	6o	7+	7-	98	88	75	17	146	
22		6-	6	4-	3-	4-	3+	4	3	32	33	1.3	5o	5o	3+	3-	4-	3o	4o	3-	49	50	43	52	41	
23		4-	4-	3+	3-	3+	4	3-	3+	27-	19	1.0	3o	3o	2+	3-	3+	4-	3-	3-	30	34	31	24	42	
24	Q8A	3	2-	2-	2	3	3	2	2-	18	10	0.5	3-	1+	1+	2+	3-	3o	2o	2-	18	26	17	15	28	
25	Q3	1	0+	1	1	1-	1	2-	1	8-	4	0.1	1o	0+	1+	1+	1+	1o	2o	1o	8	8	9	8	10	CK
26	Q1	1-	0+	0+	1-	1-	0+	1-	1-	4+	3	0.0	0+	0+	0o	1-	1+	1o	2-	1-	5	7	6	6	8	CC
27	Q2	0+	0	0+	0+	0	1-	1	1+	4	2	0.0	0+	0o	0o	1-	0+	1-	1+	2-	5	4	8	5	7	CC
28	Q7K	2+	2-	1-	1-	1-	1-	3-	3-	12	6	0.3	2+	1+	1-	1o	1o	1+	3-	3o	13	15	12	12	15	K
29		3+	2	3	4	3+	3	4	4+	27	20	1.0	3-	2-	3-	4-	3o	3+	4o	5-	37	51	35	33	53	
30		4	4+	3	3+	3	3-	2	2	24+	17	0.9	3-	3+	3o	3+	3o	3-	2+	2o	26	32	25	35	23	
31		3+	3-	3	4-	5-	4	3	1-	25	19	1.0	3-	2+	3o	3+	5-	4-	3o	1o	33	33	29	29	34	
Mean											24	0.92									37.7	41.6	36.5	39.0	

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	2-	3-	3-	2+	3-	3o	4+	3+	30	3-	3-	3-	3o	3o	3+	4o	5o	41	95.6	32	28	41	
2	4o	4-	4+	4-	3o	6-	3o	5o	63	3+	3+	4o	4-	3o	5-	3+	5-	50	96.7	32	26	42	
3	3+	3+	3-	4-	4o	4o	3+	2o	39	4o	3-	3-	4-	4-	4-	3+	2o	36	91.0	24	21	36	
4	4-	4o	3-	3o	5-	4o	3+	3o	44	3+	3o	3-	3-	4o	4o	3+	3-	36	85.1	14	17	30	
5	4-	3o	4-	3+	4-	3+	2o	2+	34	3o	3-	3-	3o	3o	3o	3-	2o	25	85.3	11	13	30	
6	1+	1-	0+	0+	1o	1o	3o	1o	8	1+	1o	0+	1+	1o	1o	3-	1+	10	80.4	16	16	25	
7	0o	0o	0o	2-	5+	6-	4+	7o	72	1-	1-	1-	3o	4+	5o	4o	7o	65	80.7	11	4	25	
8	6-	5-	3+	4-	3o	2o	3-	2o	47	6o	6-	4o	3o	3+	2+	2+	3-	59	85.6	10	12	30	
9	1o	1-	0+	3o	1-	0+	1o	0+	7	2-	1+	1o	3+	1o	0+	1+	1o	12	84.6	14	17	29	
10	1-	1-	1o	1o	2o	3-	3o	3-	14	1+	2-	2-	1o	2o	2+	2+	3-	14	87.1	19	18	32	
11	2-	3-	3o	2o	1+	4-	2o	4-	25	2+	3-	3+	2o	2o	3+	2+	4-	26	91.1	27	31	36	
12	4-	4+	3o	5-	5o	4+	4+	3+	59	4o	5o	4-	4+	5-	3+	4o	3+	57	98.8	40	41	45	
13	2+	3+	2+	2+	3-	3+	3+	3+	29	3-	2+	2o	2o	3-	3o	3+	3+	26	111.9	41	42	59	
14	2+	2+	2+	1+	1+	1o	4+	5-	28	2+	2o	1+	1o	2-	2-	4o	4+	25	125.6	54	56	74	
15	3+	4-	3+	3-	3+	4-	3-	2-	32	3o	3+	3+	3o	3-	3o	3-	2+	29	140.2	59	60	89	
16	3-	2-	2+	2+	3o	3+	3-	3o	24	2+	2-	2+	3o	3o	4-	3-	4-	28	139.8	65	65	89	
17	4o	3+	3+	5+	6-	6+	4o	4+	85	4o	3o	4o	5+	5+	6o	5-	5-	87	133.1	64	59	82	
18	6o	5-	6+	5-	5+	5o	4+	5+	112	6+	5o	6o	5-	5o	5-	5-	5o	109	120.3	61	59	68	
19	6-	5o	5+	5o	5o	4+	2+	4-	81	5+	5-	5-	5-	5-	3+	2-	3o	64	128.3	45	51	77	
20	2-	2-	2o	3-	3+	5-	3o	3-	30	2-	2o	3-	3-	4-	4o	3-	3-	28	118.8	42	49	66	
21	3-	2-	2o	2+	2+	6+	7+	6o	94	3-	2o	2o	2o	2+	6-	8-	7-	102	109.9	45	46	57	
22	5-	5o	4-	3-	4-	3o	4o	3o	50	5o	5o	3o	3-	3+	3-	4-	3-	48	99.1	31	32	45	
23	3o	3+	2+	3-	4-	4-	3-	3o	32	3o	3-	3-	3-	3+	4-	3-	3-	29	92.8	26	22	38	
24	2+	1o	1+	2o	3o	3+	2+	1+	18	3-	2-	1+	3-	2+	3o	2-	2o	17	91.7	28	26	37	
25	1o	0+	1o	2-	2-	1+	2+	1o	9	1o	0+	1+	1+	1+	1o	2-	1o	8	91.2	32	30	36	
26	0+	0o	0o	1-	1+	1o	2-	1-	5	0+	0+	0o	1o	1o	1-	1+	1-	5	86.6	23	23	32	
27	0o	0o	0o	0+	0+	1-	1o	1+	4	1o	0+	0+	1-	0+	1-	2-	2o	6	84.3	20	22	29	
28	2o	1+	0+	0+	1o	1+	3-	3-	11	3-	1+	1o	1+	1o	2-	3-	3o	16	82.4	20	20	27	
29	3o	1+	3-	4-	3+	3+	4+	5-	39	3-	2o	3-	4-	3-	3+	4-	4+	36	83.9	19	20	29	
30	3o	3+	3o	4-	4-	3o	2o	2-	30	2+	3o	3-	3o	2+	2+	2+	2o	22	82.9	22	21	28	
31	3-	2+	3o	4-	5o	4o	3o	1+	39	3-	2o	3-	3o	4o	3o	3-	1o	27	83.6	23	24	28	
Mean									38.5									36.9	99.0	31.3	31.5	44.9	

Daily Average Indices Ap
Feb 2004 - Jan 2005

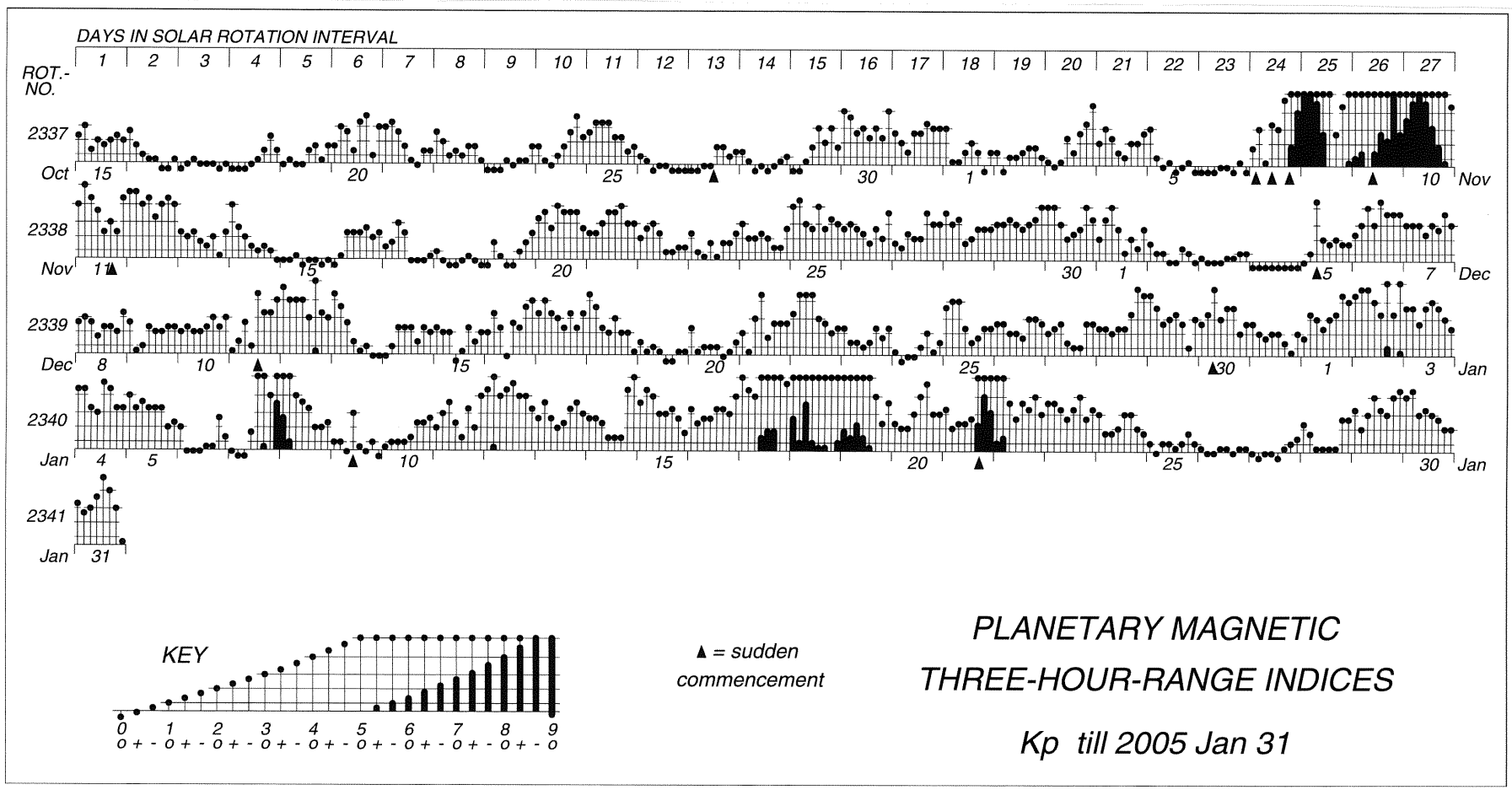


Day	Feb 04	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan 05
1	10	21	4	9	16	8	8	7	3	5	12	18
2	18	21	3	6	10	8	6	6	11	4	4	37
3	20	13	41	6	8	6	3	2	12	10	3	19
4	15	6	18	7	7	5	3	2	12	8	0	26
5	12	5	24	14	11	6	5	7	4	4	9	17
6	21	3	25	8	11	5	5	14	3	1	20	4
7	7	3	12	16	8	3	15	11	2	50	15	40
8	4	3	14	8	9	2	3	7	5	140	11	36
9	7	28	16	5	13	4	14	3	5	119	8	4
10	6	45	11	6	10	6	16	2	8	161	10	6
11	28	40	10	12	5	18	10	2	11	24	15	14
12	30	28	10	12	3	12	7	2	9	30	28	32
13	25	14	6	12	4	14	6	8	33	7	10	15
14	20	16	4	5	10	6	7	32	22	8	7	16
15	24	15	7	7	18	6	4	14	8	2	6	18
16	7	10	13	4	7	9	5	19	4	7	13	16
17	4	6	8	4	7	21	10	21	2	6	16	58
18	8	10	8	4	9	6	8	15	3	2	13	84
19	8	7	6	9	4	8	4	5	4	4	3	60
20	4	12	4	13	4	8	15	12	12	20	4	17
21	7	11	7	7	4	4	16	8	8	17	12	66
22	8	13	4	8	2	31	12	16	6	8	20	33
23	9	7	19	11	3	52	5	12	2	6	6	19
24	11	3	10	10	3	37	3	6	8	8	3	10
25	6	4	11	4	3	154	4	3	12	20	14	4
26	3	17	5	3	8	47	5	3	1	12	11	3
27	12	22	4	4	3	186	6	4	3	11	8	2
28	19	21	9	7	14	15	7	7	2	13	16	6
29	24	10	4	15	19	6	5	4	6	17	16	20
30		14	16	12	8	7	42	3	17	18	18	17
31		9		12		7	28		12		7	19
Mean	13	14	11	8	8	23	9	9	8	25	11	24

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

GeoForschungsZentraum Potsdam

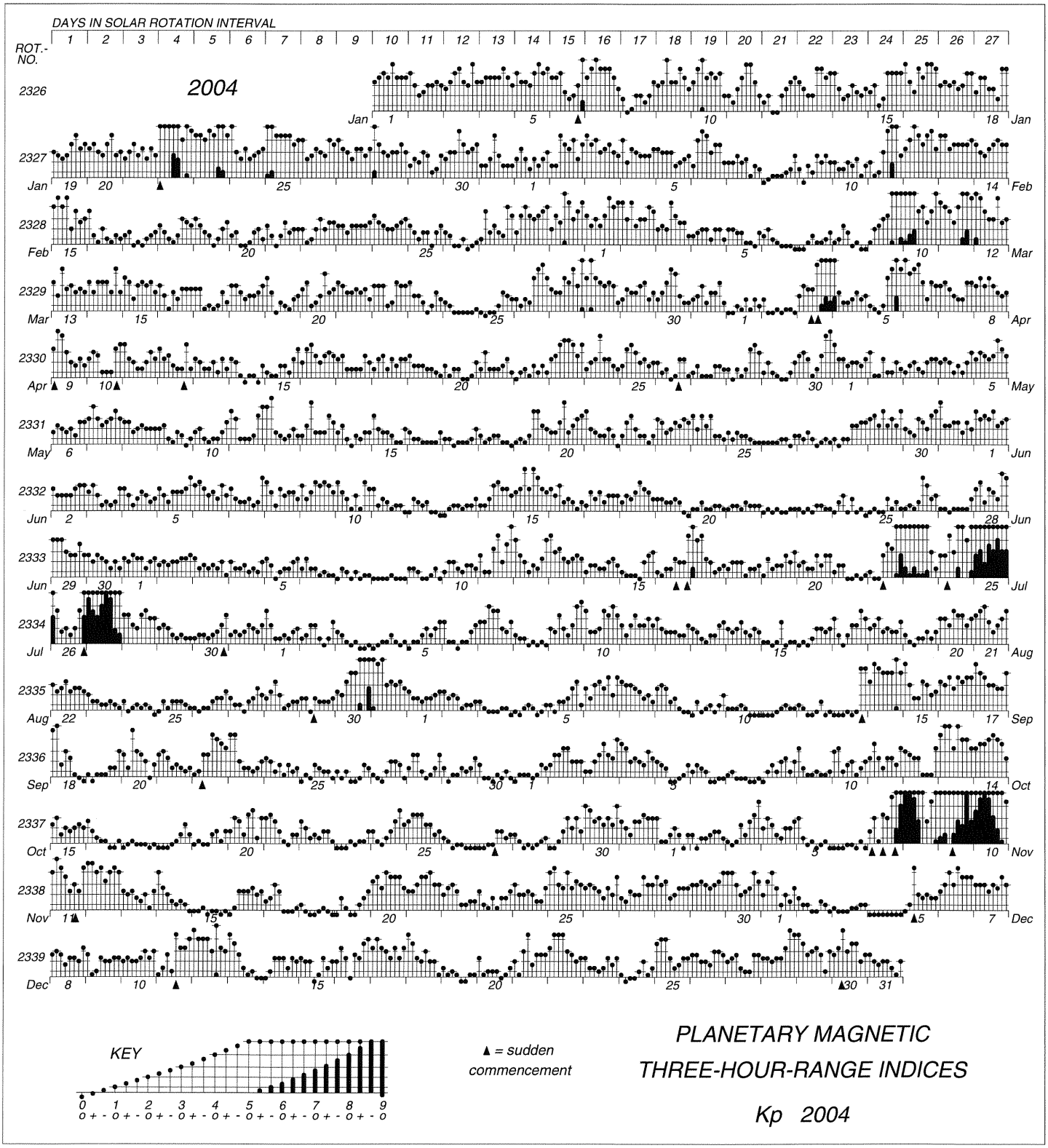
Kp through January 31, 2005



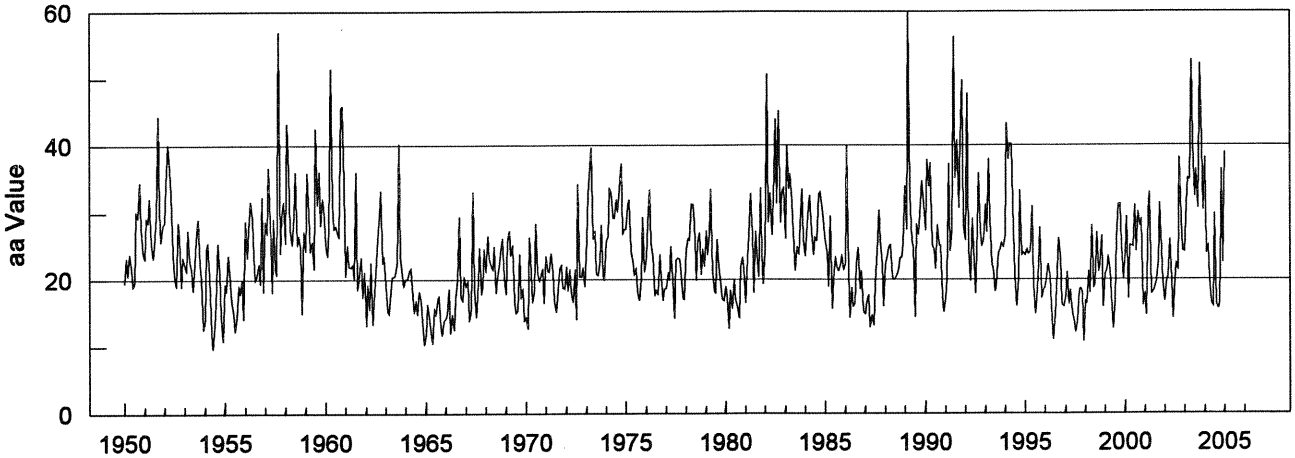
PLANETARY 3-HOUR-RANGE INDICES (Kp) BY 27-DAY SOLAR ROTATION INTERVAL

GeoForschungsZentraum Potsdam

Kp Annual Chart for 2004



Monthly Mean aa Index Jan 1950 - Jan 2005

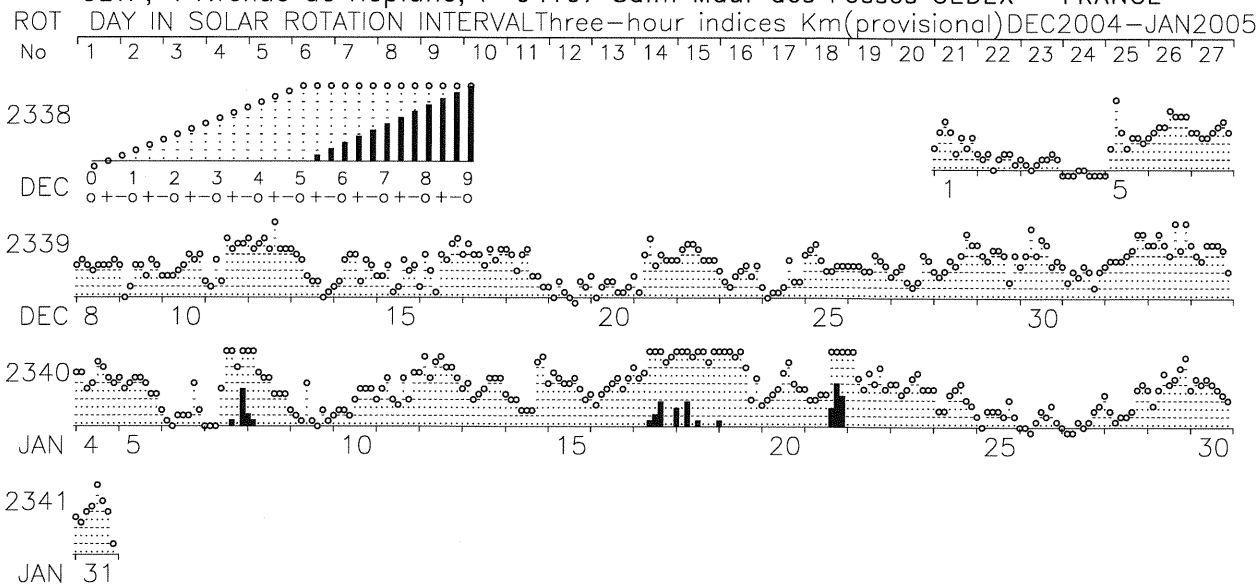


Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Mean
1950	19.5	23.2	20.6	23.8	21.7	19.0	19.5	30.2	29.3	34.5	28.0	24.0	24.4
1951	23.1	29.2	28.5	32.1	25.5	23.2	25.2	29.7	44.4	30.3	25.7	28.2	28.8
1952	28.5	34.3	40.1	38.0	33.1	23.8	20.7	19.0	28.5	26.4	18.9	23.4	27.9
1953	22.3	21.2	27.4	22.7	21.4	18.4	22.5	26.1	29.0	22.4	20.2	12.6	22.2
1954	13.9	24.5	25.5	20.6	12.0	9.7	13.1	16.5	25.4	21.1	14.5	10.9	17.3
1955	19.3	18.2	23.6	21.1	16.7	15.1	12.3	14.3	19.1	17.8	19.9	14.1	17.6
1956	28.7	23.3	27.6	31.7	29.3	23.5	19.8	20.7	22.4	19.3	32.3	18.2	24.7
1957	28.7	26.8	36.7	28.8	18.1	29.1	21.7	20.7	57.0	24.0	29.5	31.7	29.4
1958	25.5	43.2	36.1	27.6	25.2	29.7	36.0	25.1	26.5	24.7	15.0	27.2	28.5
1959	24.3	35.9	29.9	24.2	25.7	21.6	42.5	31.2	36.1	28.2	32.1	30.8	30.2
1960	25.2	23.5	27.6	51.5	31.6	27.6	28.1	27.2	26.4	45.6	45.9	34.5	32.9
1961	20.6	25.1	22.0	21.8	22.3	20.1	36.0	18.5	20.7	23.3	17.3	21.1	22.4
1962	13.2	19.2	15.5	22.6	13.4	18.1	21.0	26.2	29.8	33.3	22.5	23.5	21.5
1963	19.3	15.3	14.9	18.2	20.4	20.5	20.8	22.5	40.2	23.5	20.7	18.9	21.3
1964	20.1	20.1	21.0	21.7	17.5	15.1	16.9	14.8	18.2	16.9	13.8	10.3	17.2
1965	11.8	16.3	14.3	12.6	10.5	15.7	14.7	16.8	17.5	13.1	11.7	13.8	14.1
1966	14.2	14.8	18.6	12.0	14.8	12.5	17.1	20.0	29.4	17.5	16.8	20.5	17.3
1967	18.9	19.8	13.8	15.5	33.1	18.6	14.4	17.5	24.7	17.8	18.9	24.5	19.8
1968	21.1	26.5	23.3	22.2	21.4	24.9	18.0	20.1	22.0	24.8	26.2	20.3	22.6
1969	17.8	25.8	27.3	23.6	25.2	16.7	15.0	15.3	23.8	17.2	18.7	13.8	20.0
1970	14.4	12.7	26.4	23.1	16.6	18.3	28.4	21.0	19.7	20.6	21.6	16.5	19.9
1971	23.5	21.2	21.1	23.9	21.1	17.0	15.2	17.1	21.4	22.2	18.8	18.6	20.1
1972	21.9	18.3	21.5	18.1	16.6	21.5	14.0	34.2	20.4	20.4	21.8	18.9	20.6
1973	26.1	32.7	36.9	39.6	26.1	27.3	20.9	20.6	22.8	28.2	20.7	19.9	26.8
1974	25.8	26.4	33.7	32.9	29.2	29.2	32.0	30.2	33.7	37.3	26.8	27.5	30.4
1975	27.6	31.1	32.0	24.3	22.7	20.7	21.7	18.1	16.9	20.2	29.3	21.1	23.8
1976	23.3	28.5	33.4	25.4	23.7	17.5	18.4	17.7	23.7	20.4	16.9	18.6	22.3
1977	18.7	21.0	19.9	24.9	20.1	14.2	22.9	23.2	23.0	20.9	17.3	17.0	20.3
1978	24.6	26.2	25.9	31.3	31.2	28.3	19.9	25.6	27.0	20.8	24.6	22.0	25.6
1979	27.3	23.7	26.9	33.5	21.0	18.3	17.9	26.0	22.0	19.3	17.1	16.8	22.5
1980	19.0	17.3	12.7	18.4	15.6	20.0	17.0	15.9	14.2	21.9	23.3	21.7	18.1
1981	16.5	23.1	26.6	32.8	26.9	18.0	27.2	24.0	20.4	33.7	24.1	19.3	24.4
1982	24.2	50.6	28.5	32.9	26.7	32.1	43.9	31.4	45.1	28.5	33.0	33.8	34.2
1983	26.2	40.0	33.6	35.7	31.6	24.9	21.3	24.9	23.7	28.3	33.5	26.0	29.1
1984	23.5	26.7	30.7	32.5	27.2	23.7	26.4	25.8	32.6	33.1	31.0	29.0	28.5
1985	25.7	24.1	19.0	29.5	15.6	19.9	23.4	22.0	21.2	22.2	23.7	21.4	22.3
1986	22.4	40.0	21.1	14.3	18.8	15.9	16.3	22.3	24.7	18.6	21.2	15.3	20.9
1987	14.8	16.6	17.6	12.9	14.7	13.2	19.3	24.3	30.3	25.8	22.4	16.0	19.0
1988	22.4	23.4	24.8	25.2	20.5	20.0	20.2	20.6	21.4	23.2	23.3	25.5	22.5
1989	33.9	27.5	60.1	32.8	25.7	24.9	14.4	28.4	26.7	31.4	34.7	31.4	31.0
1990	27.4	37.8	33.9	37.4	25.1	24.6	21.6	28.2	25.1	25.1	17.4	15.2	26.6
1991	17.2	20.1	37.3	24.3	27.3	56.2	35.2	40.8	30.7	44.1	49.7	28.0	34.2
1992	25.9	47.7	24.5	19.8	29.1	24.8	17.9	24.1	35.8	27.0	25.0	26.1	27.3
1993	31.2	27.1	37.9	29.2	22.1	21.8	18.2	19.2	23.8	24.6	25.5	24.8	25.5
1994	26.5	43.2	37.9	40.2	40.2	27.2	20.6	16.0	20.2	33.3	23.6	24.1	29.4
1995	23.6	24.5	23.8	24.2	30.9	19.1	14.9	17.0	22.2	27.9	17.2	18.2	22.0
1996	18.8	20.8	22.3	20.5	14.0	11.1	14.7	18.8	26.2	23.5	16.3	15.9	18.6
1997	17.4	21.0	16.3	18.4	15.1	13.7	12.1	13.7	18.4	18.7	18.0	10.8	16.1
1998	16.8	16.4	21.2	18.0	28.1	18.8	19.3	27.0	21.1	22.4	26.5	15.9	21.0
1999	20.8	21.3	23.5	21.3	15.8	12.7	16.9	26.2	31.2	31.3	25.1	20.1	22.2
2000	24.2	29.4	17.1	25.1	25.0	24.9	31.1	24.3	30.2	28.1	29.1	16.1	25.4
2001	18.0	14.7	30.2	33.0	17.8	18.2	18.7	19.9	22.7	31.4	24.4	19.5	22.4
2002	16.8	20.0	20.2	26.0	19.9	14.2	19.9	22.5	21.4	38.1	29.3	24.4	22.7
2003	24.2	31.3	35.2	34.9	52.7	40.2	32.4	36.4	30.7	52.2	44.7	30.4	37.1
2004	38.1	23.9	25.2	20.1	16.6	15.9	29.9	16.3	15.6	16.3	36.4	22.6	23.1
2005	39.0												39.0

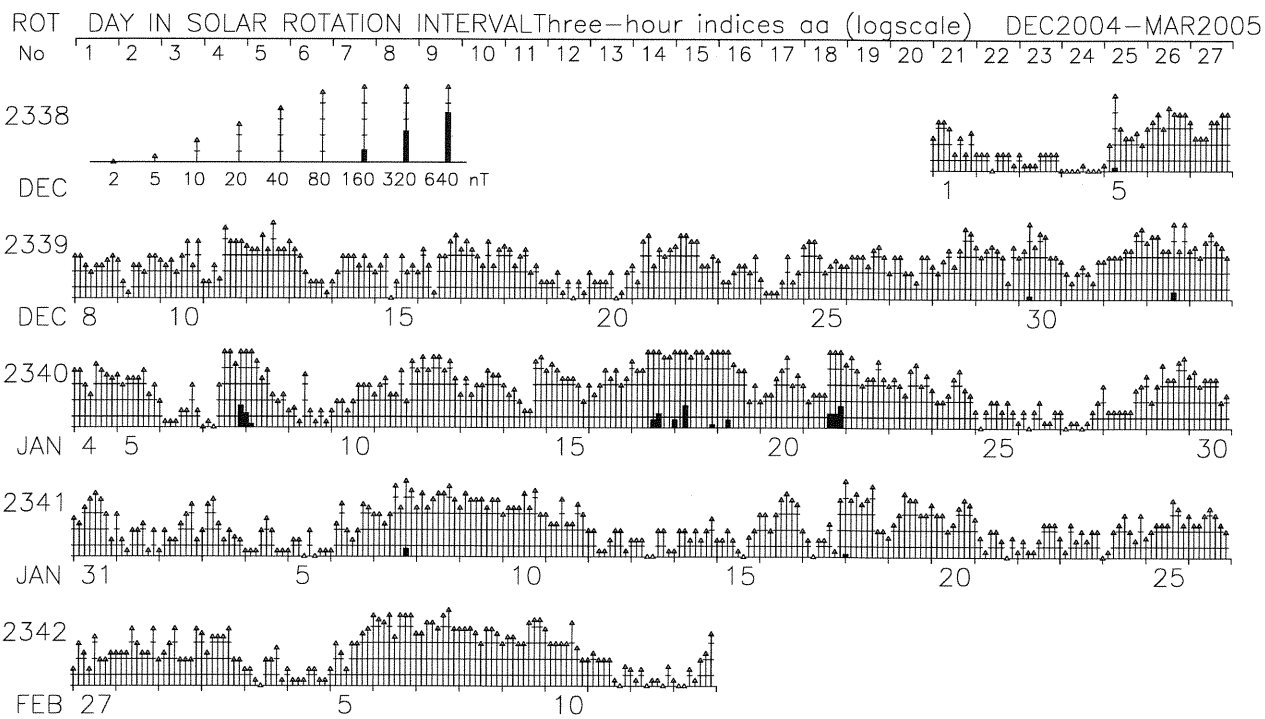
PLANETARY GEOMAGNETIC ACTIVITY

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

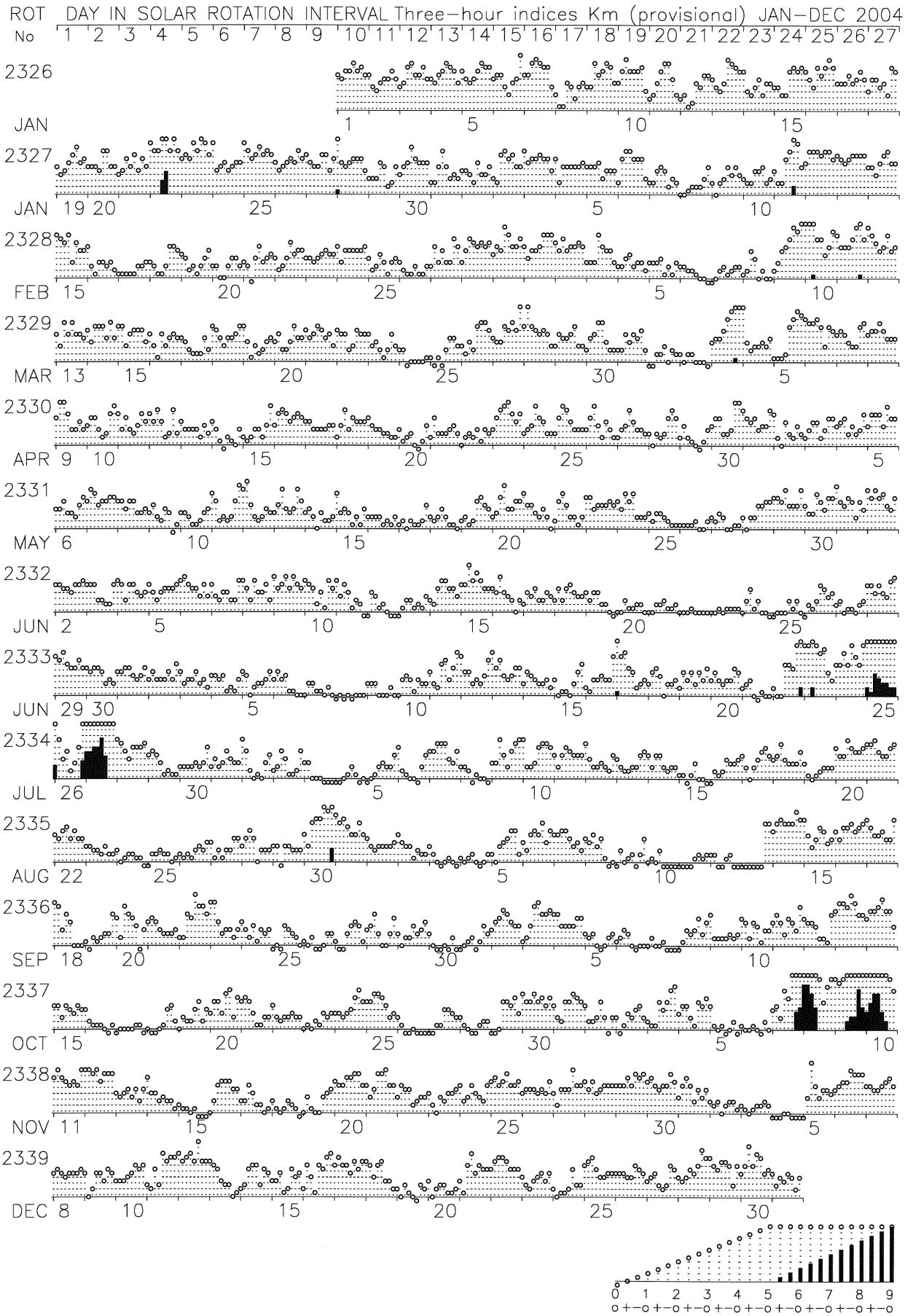


Indices Derivation at C.E.T.P.; Graph Prepared at ISGI Publication Office.



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

PLANETARY GEOMAGNETIC ACTIVITY – MUSICAL DIAGRAM OF Km 2004



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

PLANETARY GEOMAGNETIC ACTIVITY – MUSICAL DIAGRAM OF aa 2004

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

WDC FOR GEOMAGNETISM, KYOTO UNIVERSITY

HOURLY EQUATORIAL DST VALUES(PROVISIONAL)

JANUARY 2005

UNIT=NT U. T.

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	-15	-14	-13	-12	-10	-16	-23	-23	-19	-15	-13	-7	-8	-6	-5	-8	-12	-13	-32	-57	-55	-41	-29	-39
2	-39	-42	-35	-37	-38	-33	-34	-46	-49	-56	-49	-40	-37	-38	-41	-38	-50	-54	-52	-50	-47	-49	-46	-46
3	-43	-40	-37	-38	-41	-44	-41	-43	-41	-40	-50	-48	-45	-51	-55	-46	-44	-40	-38	-38	-34	-31	-30	-27
4	-29	-30	-31	-31	-31	-25	-26	-31	-36	-33	-29	-29	-28	-29	-32	-31	-36	-35	-36	-39	-39	-37	-34	-33
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8	-79	-75	-96	-85	-69	-62	-65	-71	-61	-60	-65	-58	-46	-52	-52	-52	-52	-44	-50	-51	-50	-44	-43	-43
9	-36	-35	-36	-35	-37	-36	-38	-39	-33	-30	-22	-30	-30	-31	-29	-29	-30	-27	-27	-26	-25	-23	-22	-23
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22	-94	-96	-98	-90	-86	-104	-105	-100	-98	-87	-84	-83	-78	-75	-71	-73	-68	-63	-63	-65	-59	-57	-57	-56
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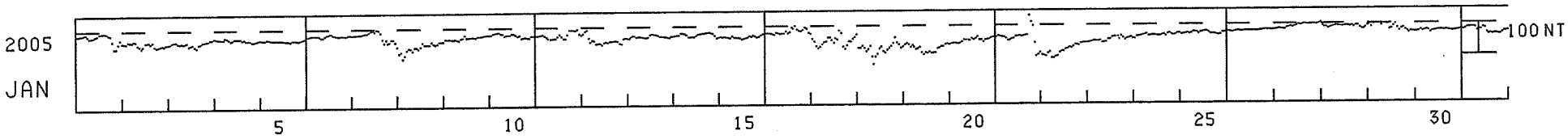

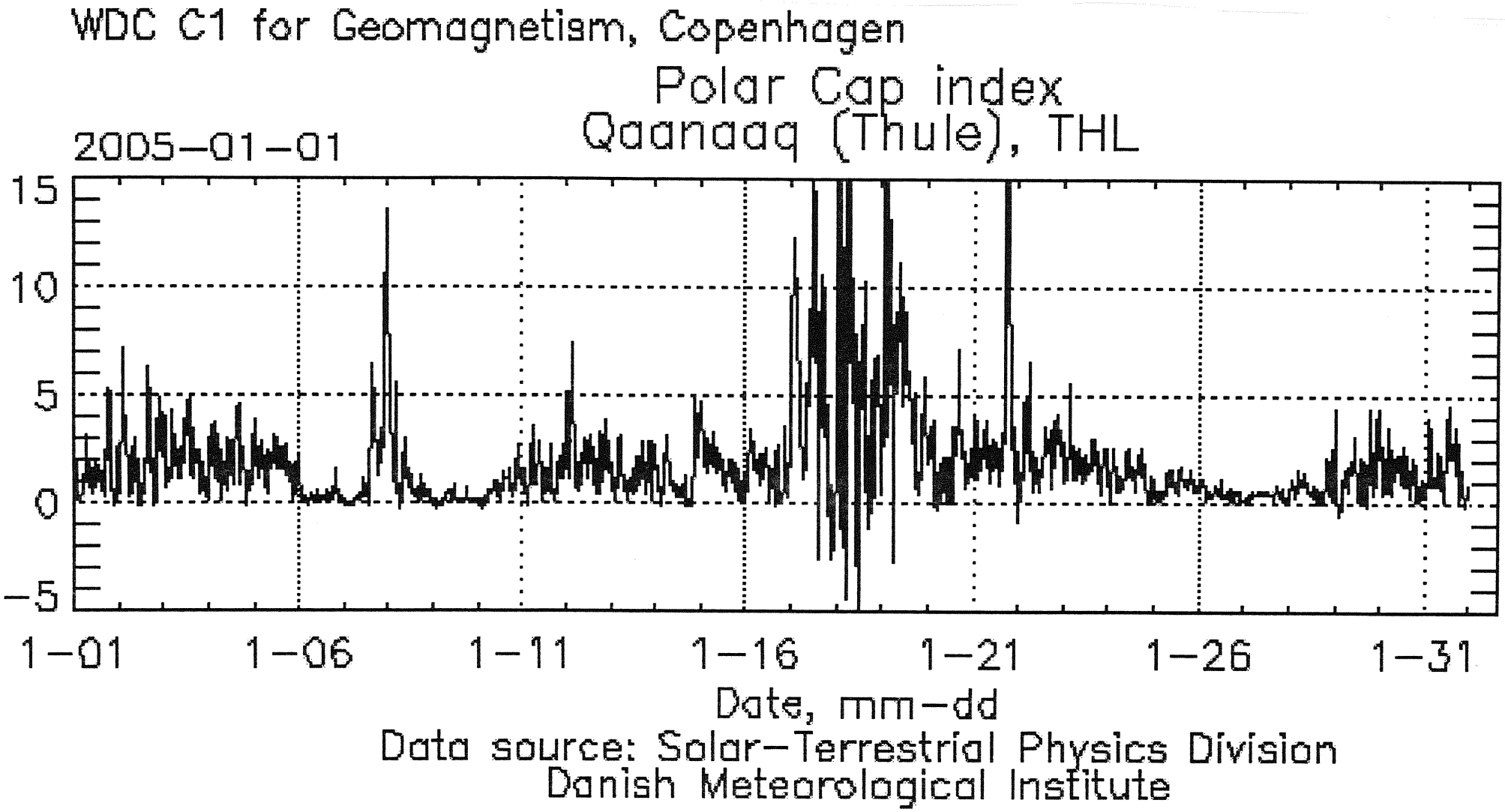
WDC C1 for Geomagnetism, Copenhagen
Polar Cap index
Qaanaaq (Thule), THL
2005-01-01
15
10
5
0
-5
1-01
1-06
1-11
1-16
1-21
1-26
1-31
Date, mm-dd
Data source: Solar-Terrestrial Physics Division
Danish Meteorological Institute

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

JANUARY 2005

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	01	1030	..	..	..	..		-	6	87	20	02	24
NGP	11.3N	01	1030	..	..	..	..		-	5	87	15	02	24
ABG	09.4N	01	1030	..	..	..	..	01(7) 02(6,8)	5	4	79	37	02	24
HYB	07.6N	01	0500	..	..	..	..	02(6,8)	5	7	98	27	05	24
PND	02.0N	01	1030	..	..	..	..		-	3	74	65	02	24
TIR	00.6S	01	1030	..	..	..	..		-	3	115	66	02	24
JAI	17.4N	07	0920	SC*	- 0.2	7	- 2		-	5	145	27	08	18
NGP	11.3N	07	0920	SC*	--	5	--		-	7	141	20	08	18
ABG	09.4N	07	0920	SC*	- 0.1	5	..	07(8) 08(1)	6	6	136	39	08	18
HYB	07.6N	07	0900	..	..	..	..	07(8) 08(1)	6	6	134	28	09	12
PND	02.0N	07	0920	SC*	- 0.1	4	3		-	5	131	97	08	18
TIR	00.6S	07	0920	SC*	- 0.1	6	5		-	6	132	122	08	18
GNA	43.0S	07	0916	..	..	..	..	07(8) 08(1)	6	25	131	142	08	15
CAN	43.6S	07	1200	..	..	..	..	07(8) 08(1,2)	6	22	228	64	08	15
JAI	17.4N	11	1630	..	..	..	..		-	3	84	21	12	24
NGP	11.3N	11	1630	..	..	..	..		-	4	84	17	12	24
ABG	09.4N	11	1630	..	..	..	..	11(8) 12(5,6,7) 14(8) 16(8)	5	4	81	31	12	24
HYB	07.6N	11	0500	..	..	..	..	12(5,6,7)	5	4	86	15	13	01
PND	02.0N	11	1630	..	..	..	..		-	3	86	57	12	24
TIR	00.6S	11	1630	..	..	..	..		-	4	127	58	12	24
GNA	43.0S	11	1500	..	..	..	..	12(5)	6	24	90	163	13	18
CAN	43.6S	11	2100	..	..	..	..	12(4,5)	5	26	103	52	13	18
HYB	07.6N	14	0500	..	..	..	..	14(8)	5	3	64	31	15	21
GNA	43.0S	16	0600	..	..	..	..	18(1,3)	7	36	187	184	19	18
CAN	43.6S	16	0900	..	..	..	..	18(3)	7	28	243	78	19	18
JAI	17.4N	17	0750	SC	- 0.4	20	- 4		-	10	176	52	19	19
NGP	11.3N	17	0750	SC	- 0.2	23	- 15		-	8	181	40	19	19
ABG	09.4N	17	0750	SC	- 0.2	20	- 4	17(6)	7	9	166	66	19	19
HYB	07.6N	17	0749	SC	- 0.3	22	- 3	17(6)	7	8	181	36	20	23
PND	02.0N	17	0750	SC	- 0.2	21	15		-	6	173	156	19	19
TIR	00.6S	17	0750	SC	- 0.3	28	25		-	7	223	176	19	19
JAI	17.4N	21	1703	SC	- 1.3	87	- 21		-	8	291	48	22	23
NGP	11.3N	21	1703	SC	- 0.5	89	- 12		-	4	309	26	22	23
ABG	09.4N	21	1703	SC	- 1.3	75	- 15	21(7)	8	7	294	65	22	23
HYB	07.6N	21	1710	SC	- 0.8	79	- 5	21(7)	8	6	290	26	23	22
PND	02.0N	21	1703	SC	- 0.4	78	79		-	6	286	162	22	23
TIR	00.6S	21	1703	SC	- 1.1	63	94		-	7	286	207	22	23
GNA	43.0S	21	1658	SC	9.3	125.2	85.2	21(7,8)	7	44	286	200	24	03
CAN	43.6S	21	1658	SC	7.6	161.2	37.1	21(7,8)	6	31	273	105	23	21
HYB	07.6N	28	1000	..	..	..	..	29(5)	5	5	127	37	31	23

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)

January 2005

Storm Sudden Commencements (SSC)

Day	Time	Quality: Station Group*
07	0922	B: LER* ESK* HAD* GUI
		C: NUR* BDV MMB SPT KAK KNY
09	1041	C: NGK* CLF* HRB
		Note (SI: LER ESK VAL HAD)
17	0748	B: HYB
		C: MMB KAK KNY
21	1711	A: LER* ESK* NGK* HAD* BDV* CLF* HRB MMB EBR COI SPT* KAK KNY HYB
		B: NAG* GCK GUI*

Solar Flare Effects (sfe)

Day	Begin-End	Station(s)
01	0025-0120	MMB KAK KNY GNA CNB
09	1041-1120	SPT GUI
10	0452-0509	HYB
11	2039-2056	GUI

REPORTING OBSERVATORIES (up to the 2nd of March 2005):
SOD NUR LER ESK NGK VAL HAD BDV CLF HRB NAG GCK MMB EBR COI SPT KAK KNY GUI HYB GNA CNB

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

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

Criterion on Provisional SSC data

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