APRIL 2004 NUMBER 716 - Part I

# Solar-Geophysical Data prompt reports

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

**Please visit: http://sgd.ngdc.noaa.gov**

**SGD On-line Edition:**
**http://www.ngdc.noaa.gov/stp -- Click on SGD Online**
**SGD PDF version: http://sgd.ngdc.noaa.gov**
**ftp.ngdc.noaa.gov/STP/SOLAR_DATA/SGD_PDFversion**

**NGDC On-Line Addresses:**

| | |
|---|---|
| World-Wide Web: | http://www.ngdc.noaa.gov |
| Gopher | gopher.ngdc.noaa.gov |
| Anonymous FTP: | ftp.ngdc.noaa.gov |

noaa National Oceanic and Atmospheric Administration / National Environmental Satellite, Data, and Information Service / National Geophysical Data Center / Boulder, Colorado

**U.S. DEPARTMENT OF COMMERCE**
Donald L. Evans, Secretary

**NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION**
Vice Admiral Conrad C. Lautenbacher, Jr., Under Secretary/Administrator

**NATIONAL ENVIRONMENTAL SATELLITE, DATA, AND INFORMATION SERVICE**
Gregory W. Withee, Assistant Administrator

APRIL 2004 NUMBER 716 - Part I

# Solar-Geophysical Data prompt reports

Data for February and March 2004

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

**NATIONAL GEOPHYSICAL DATA CENTER**
Christopher G. Fox, Acting Director
Boulder, Colorado

Subscription information is on the inside back cover.

# SOLAR-GEOPHYSICAL DATA

Number 716

(Issued in Two Parts)

Editor: Helen E. Coffey

Chief: Herbert W. Kroehl
Solar-Terrestrial Physics Division

Staff: Edward H. Erwin

## CONTENTS

**DETAILED INDEX OF OBSERVATIONS PUBLISHED IN SOLAR-GEOPHYSICAL DATA**

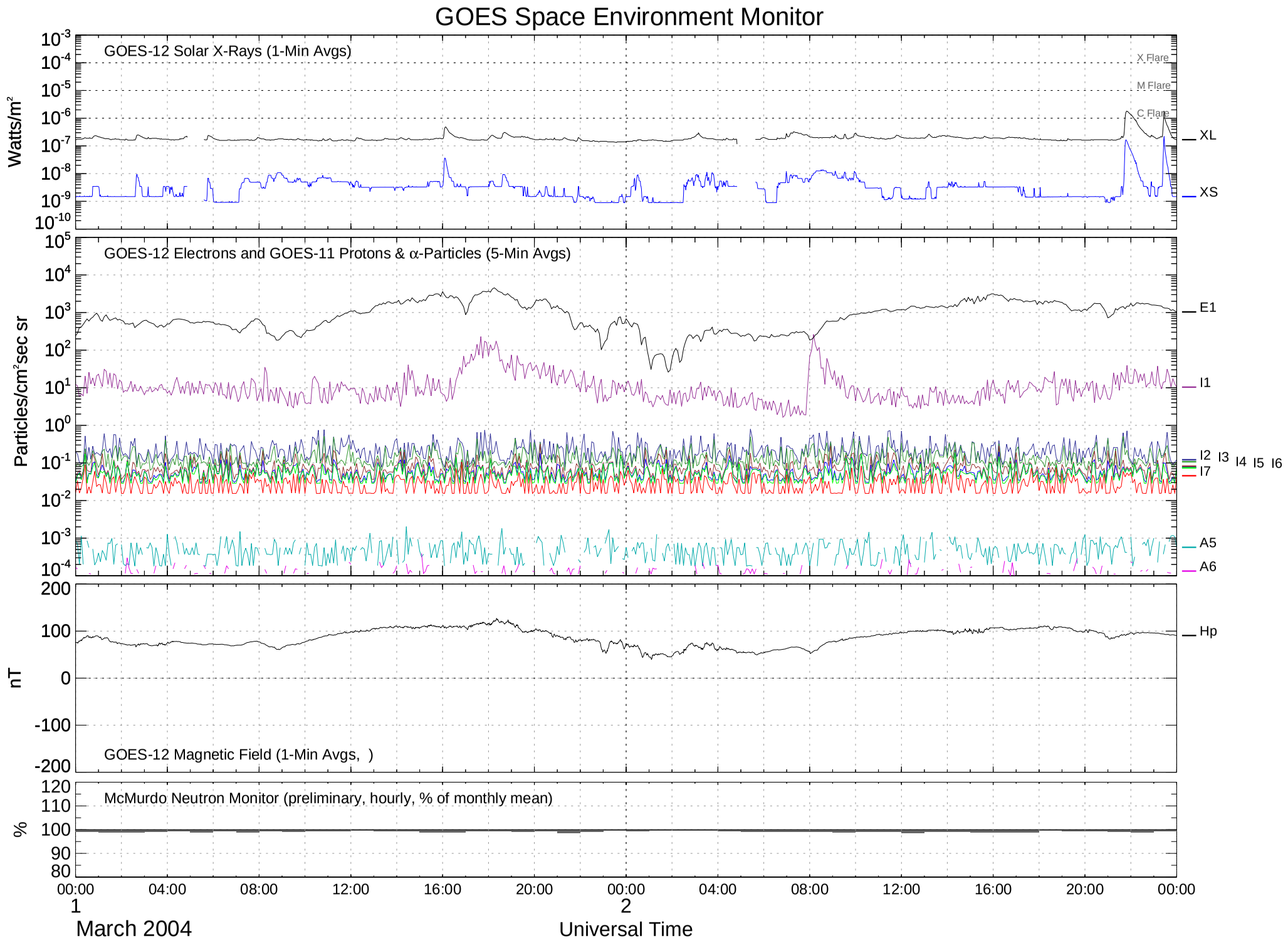
| CODE | KIND OF OBSERVATION | AUG 03 | SEP | OCT | NOV | DEC | JAN 04 | FEB | MAR |
|---|---|---|---|---|---|---|---|---|---|
| A. | SOLAR AND INTERPLANETARY | | | | | | | | |
| A.1 | Sunspot Drawings | 710A 42 | 711A 50 | 712A 44 | 713A 52 | 714A 46 | 715 44A | 716A 46 | |
| A.2aa | International Sunspot Numbers | 709A 26 | 710A 24 | 711A 25 | 712A 24 | 713A 27 | 714A 26 | 715A 25 | 716A 25 |
| A.2c | American Sunspot Numbers | 709A 26 | 710A 24 | 711A 25 | 712A 24 | 713A 27 | 714A 26 | 715A 25 | 716A 25 |
| A.3a | Mt. Wilson Magnetograms | 710A 42 | 711A 50 | 712A 44 | 713A 52 | 714A 46 | 715A 44 | 716A 46 | |
| A.3b | Sunspot Mag Class and Regions | 710A 83 | 711A 88 | 712A 81 | 713A 87 | 714A 83 | 715A 81 | 716A 80 | |
| A.3c | Kitt Peak Magnetograms | 710A 42 | 711A 50 | 712A 44 | 713A 52 | 714A 46 | 715A 44 | 716A 46 | |
| A.3d | Mean Solar Magnetic Field (Stanford) | 709A 34 | 710A 32 | 711A 40 | 712A 34 | 713A 36 | 714A 36 | 715A 34 | 716A 36 |
| A.3e | Stanford Magnetograms | 710A 42 | 711A 50 | 712A 44 | 713A 52 | 714A 46 | 715A 44 | 716A 46 | |
| A.4 | H-alpha Filtergrams | 710A 42 | 711A 50 | 712A 44 | 713A 52 | 714A 46 | 715A 44 | 716A 46 | |
| A.5d | PhotometricCa IIFaculaeSanFernando | Jan 92-Dec 96 - 631B 22; 1997-1998 in 663B 66 | | | | | | | |
| A.6c | Stanford Solar Mag Field Synoptic Map | 710A 36 | 711A 44 | 712A 38 | 713A 40 | 714A 40 | 715A 38 | 716A 40 | |
| A.6d | Kitt Peak Solar Mag Field SynopticMap | 710A 41 | 711A 49 | 712A 43 | 713A | 714A | 715A | 716A | |
| A.6f | Active Prominences and Filaments | 714B 32 | 715B 25 | 716B 53 | | | | | |
| A.6g | Sac Peak Coronal Line Synoptic Maps | 710A 38 | 711A 46 | 712A 40 | 713A 44 | 714A 42 | 715A 40 | 716A 42 | |
| A.6h | Photometric White Light SanFernando | Jul-Dec 96 630B 32; 1997-1998 in 663B 51 | | | | | | | |
| A.7h | Coronal Line Emission (Sac Peak) | 710A 42 | 711A 50 | 712A 44 | 713A 52 | 714A 46 | 715A 44 | 716A 46 | |
| A.7j | Coronal Hole Daily Maps (NSO/KP) | 710A 73 | 711A 80 | ---------- | ---------- | ---------- | ---------- | ---------- | |
| A.7k | Coronal Index (Slovak Academy) | 1939-1996 -644B 28 | | | | | | | |
| A.7m | Coronal Mass Ejections (CSPSW) | | | | | | | | |
| A.8aa | 2800 MHz- Solar Flux (Penticton) | 709A 26 | 710A 24 | 711A 25 | 712A 24 | 713A 27 | 714A 26 | 715A 25 | 716A 25 |
| A.8ac | 2800 MHz- Adj. Solar Flux (Penticton) | 709A 26 | 710A 24 | 711A 25 | 712A 24 | 713A 27 | 714A 26 | 715A 25 | 716A 25 |
| A.8g | Adjusted Daily Solar Fluxes Sagamore | 709A 26 | 710A 24 | 711A 25 | 712A 24 | 713A 27 | 714A 26 | 715A 25 | 716A 25 |
| A.10g | Nancay Radioheliograph-164&327MHz | 710A114 | 711A112 | ---------- | ---------- | ---------- | ---------- | ---------- | |
| A.10h | Nobeyama Radioheliograph -17 GHz | 710A 77 | 711A 83 | 712A 75 | 713A 82 | 714A 77 | 715A 75 | 716A 75 | |
| A.11g | Solar X-ray GOES (graphs/event table) | 714B 23 | 715B 17 | 716B 44 | | | | | |
| A.11k | Solar UV NOAA-9 | May 86-Dec 88 in 566B 84 | | | | | | | |
| A.11l | Solar UV NIMBUS7 | Nov 78-Oct 84 in 542B 82 | | | | | | | |
| A.11m | Solar UV SOLSTICE (UARS) | Oct 91-Sep 94 in 607B 46 | | | | | | | |
| A.11o | Solar UV SUSIM (UARS) | Oct 91-Jan 97 in 629B 30 | | | | | | | |
| A.11p | Solar UV Mg II Daily Index | 714B 33 | 715B 26 | 716B 54 | | | | | |
| A.12g | Solar Particles (GOES) | 709A 4 | 710A 4 | 711A 4 | 712A 4 | 713A 4 | 714A 4 | 715A 4 | 716A 4 |
| A.12i | Interplanetary Particles (ACE) | 714B | 715B | 716B | | | | | |
| A.13g | Solar Plasma (ACE) | 714B | 715B | 716B | | | | | |
| A.16c | ERBS, NOAA-9 & -10 Solar Irradiance | ERBS Oct 84-Jun 00 in 671B 36 | | | | | | | |
| A.16d | UARS Solar Irradiance | Oct 91-May 2001 684B 26 -- Complete Mission | | | | | | | |
| A.16e | VIRGO/SOHO Solar Irradiance | Jan 96-Sep 00 in 678B 46 | | | | | | | |
| A.17c | Inferred Interplanetary Mag Field | 1984-1988 data in 542A168; 1989-Jan 94 in 611A118 | | | | | | | |
| A.17d | ACE Interplanetary Mag Field | 714B | 715B | 716B | | | | | |
| C. | SOLAR FLARE-ASSOCIATED EVENT | | | | | | | | |
| C.1a | H-alpha Flares | 709A 29 | 710A 27 | 711A 28 | 712A 27 | 713A 30 | 714A 29 | 715A 28 | 716A 30 |
| C.1ba | H-alpha Flare Groups | 714B 4 | 715B 4 | 716B 4 | | | | | |
| C.1d | Flare Patrol Observations | 714B 10 | 715B 9 | 716B 14 | | | | | |
| C.1h | H-alpha Flare Index (ImpxDur) | Jan 76-Dec 85 in 639B 26; Jan 86-Oct 96 in 635B 24; Jan 96-Dec 98 in 665B 63 | | | | | | | |
| C.3 | Radio Bursts Fixed Frequency | 714B 12 | 715B 11 | 716B 16 | | | | | |
| C.3 | Radio Bursts Fixed Frequency Select | 709A 33 | 710A 31 | 711A 35 | 712A 32 | 713A 34 | 714A 33 | 715A 32 | 716A 35 |
| C.4 | Radio Bursts Spectral | 710A102 | 711A102 | 712A 98 | 713A101 | 714A 96 | 715A 89 | 716A 91 | |
| C.6 | Sudden Ionospheric Disturbances | 710A100 | 711A100 | 712A 94 | 713A 98 | 714A 94 | 715A 87 | 716A 89 | |
| D. | GEOMAGNETIC EVENTS | | | | | | | | |
| D.1a | Geomagnetic Indices | 710A125 | 711A119 | 712A120 | 713A122 | 714A112 | 715A112 | 716A114 | |
| D.1ba | 27-day Chart of Kp Indices | 710A127 | 711A121 | 712A122 | 713A124 | 714A114 | 715A114 | 716A116 | |
| D.1cb | Monthly Mean aa Indices | 710A128 | 711A122 | 712A123 | 713A125 | 714A115 | 715A115 | 716A117 | |
| D.1d | Principal Magnetic Storms | 710A132 | 711A126 | 712A127 | 713A129 | 714A119 | 715A121 | 716A121 | |
| D.1f | Sudden Commencements/FlareEffects | 710A133 | 711A127 | 712A128 | 713A130 | 714A120 | 715A122 | 716A122 | |
| D.1g | Equatorial Indices Dst | 710A130 | 711A124 | 712A125 | 713A127 | 714A117 | 715A119 | 716A119 | |
| D.1l | Polar Cap (PC) Index | 710A131 | 711A125 | 712A126 | 713A128 | 714A118 | 715A120 | 716A120 | |
| F. | COSMIC RAYS | | | | | | | | |
| F.1b | Cosmic Ray Neutron Cts (Climax) | 710A117 | 711A114 | 712A115 | 713A117 | 714A104 | 715A104 | 716A106 | |
| F.1h | Cosmic Ray Neutron Cts (Thule) | 710A117 | 711A114 | 712A115 | 713A117 | 714A104 | 715A104 | 716A106 | |
| F.1l | Cosmic Ray Neutron Cts (Kiel) | 710A117 | 711A114 | 712A115 | 713A117 | 714A104 | 715A104 | 716A106 | |
| F.1n | Cosmic Ray Neutron Cts (Beijing) | 710A117 | 711A114 | 712A115 | 713A117 | 714A104 | 715A104 | 716A106 | |
| F.1m | Cosmic Ray Neutron Cts (Haleakala) | 710A117 | 711A114 | 712A115 | 713A117 | 714A104 | 715A104 | 716A106 | |
| F.1o | Cosmic Ray Neutron Cts (Moscow) | 710A117 | 711A114 | 712A115 | 713A117 | 714A104 | 715A104 | 716A106 | |
| F.1p | Cosmic Ray Neutron Cts (Calgary) | 710A117 | 711A114 | 712A115 | 713A117 | 714A104 | 715A104 | 716A106 | |
| H. | MISCELLANEOUS | | | | | | | | |
| H.60 | ISES Alert Periods | 709A 20 | 710A 20 | 711A 20 | 712A 19 | 713A 20 | 714A 20 | 715A 19 | 716A 20 |

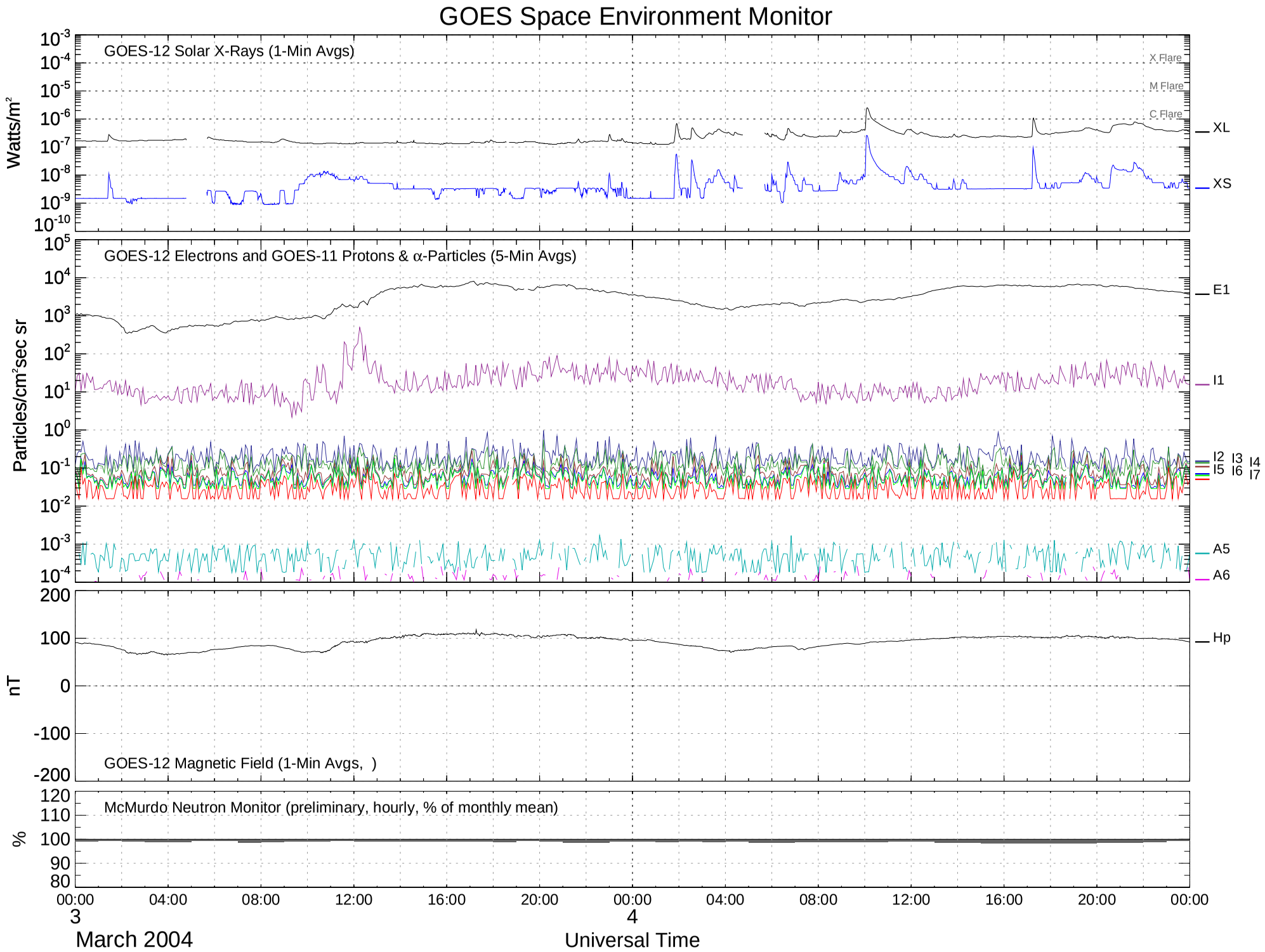
The entry "710A 42" under Aug 03, for example, means that the sunspot drawings for Aug 03 appear in SOLAR-GEOPHYSICAL DATA No. 710, Part I, and that they begin on page 42. "A" denotes Part I and "B", Part II. Blanks indicate data not yet received and dashes mark unavailable data.

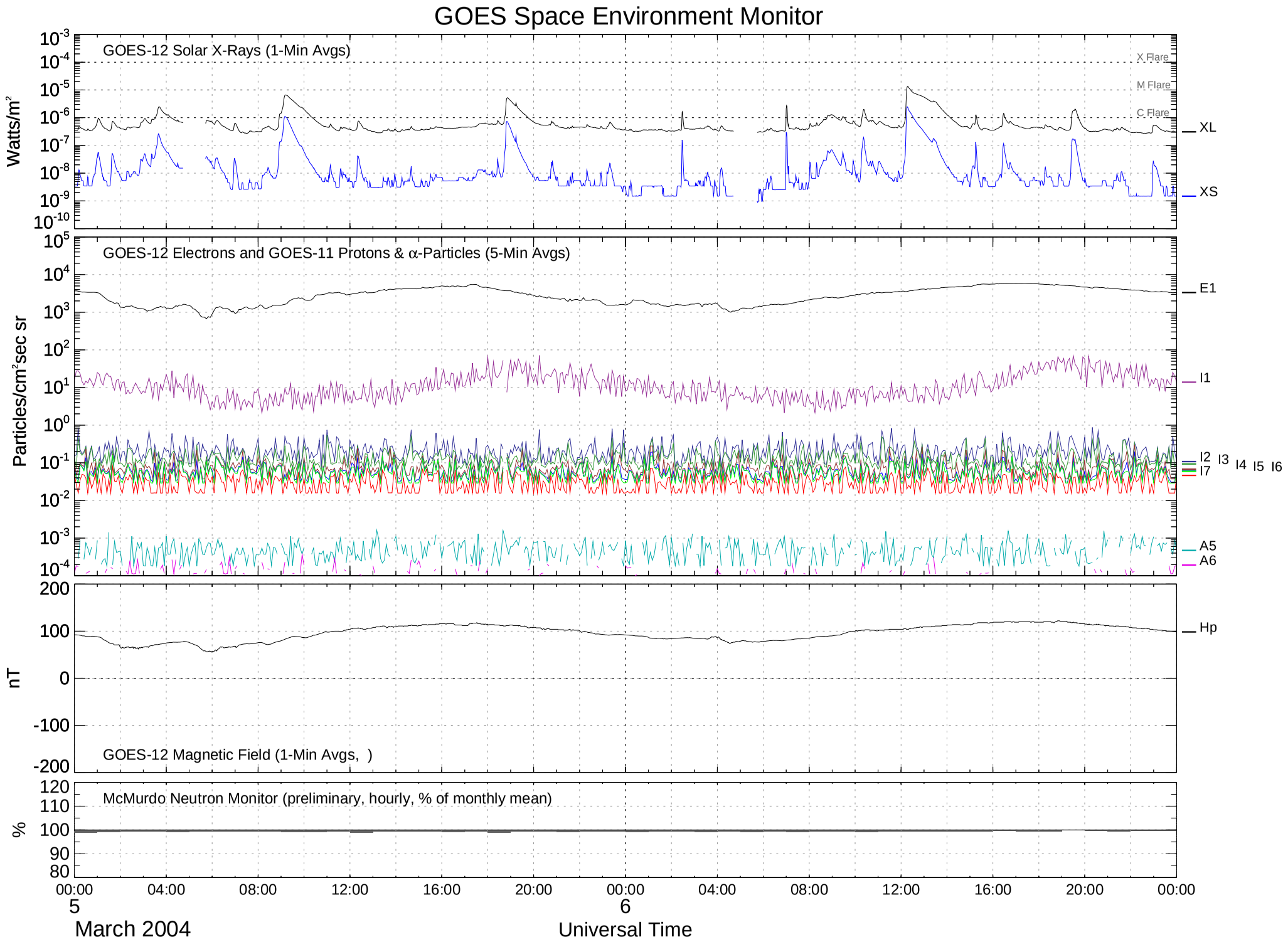
# CONTENTS

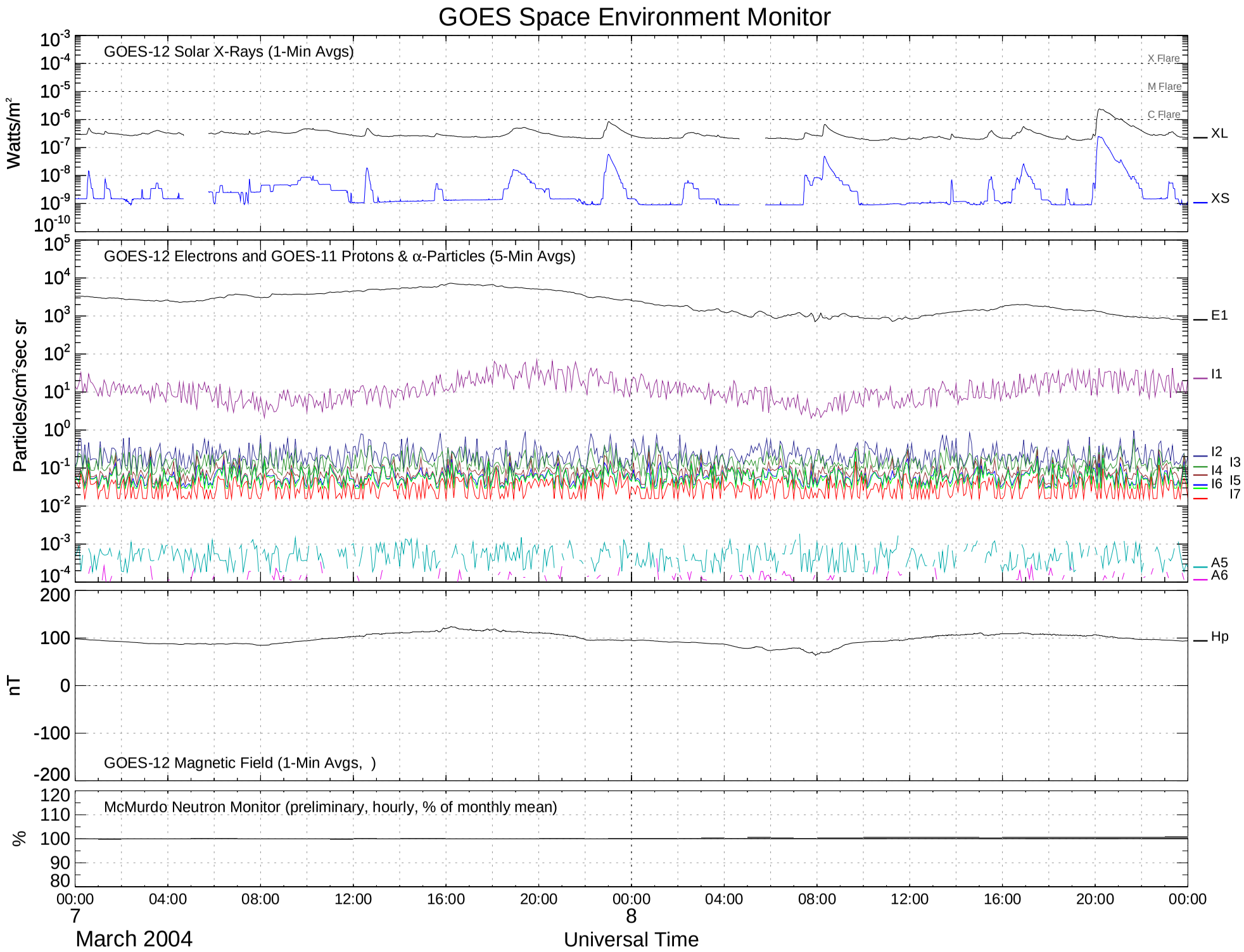
Prompt Reports Number 716 Part I

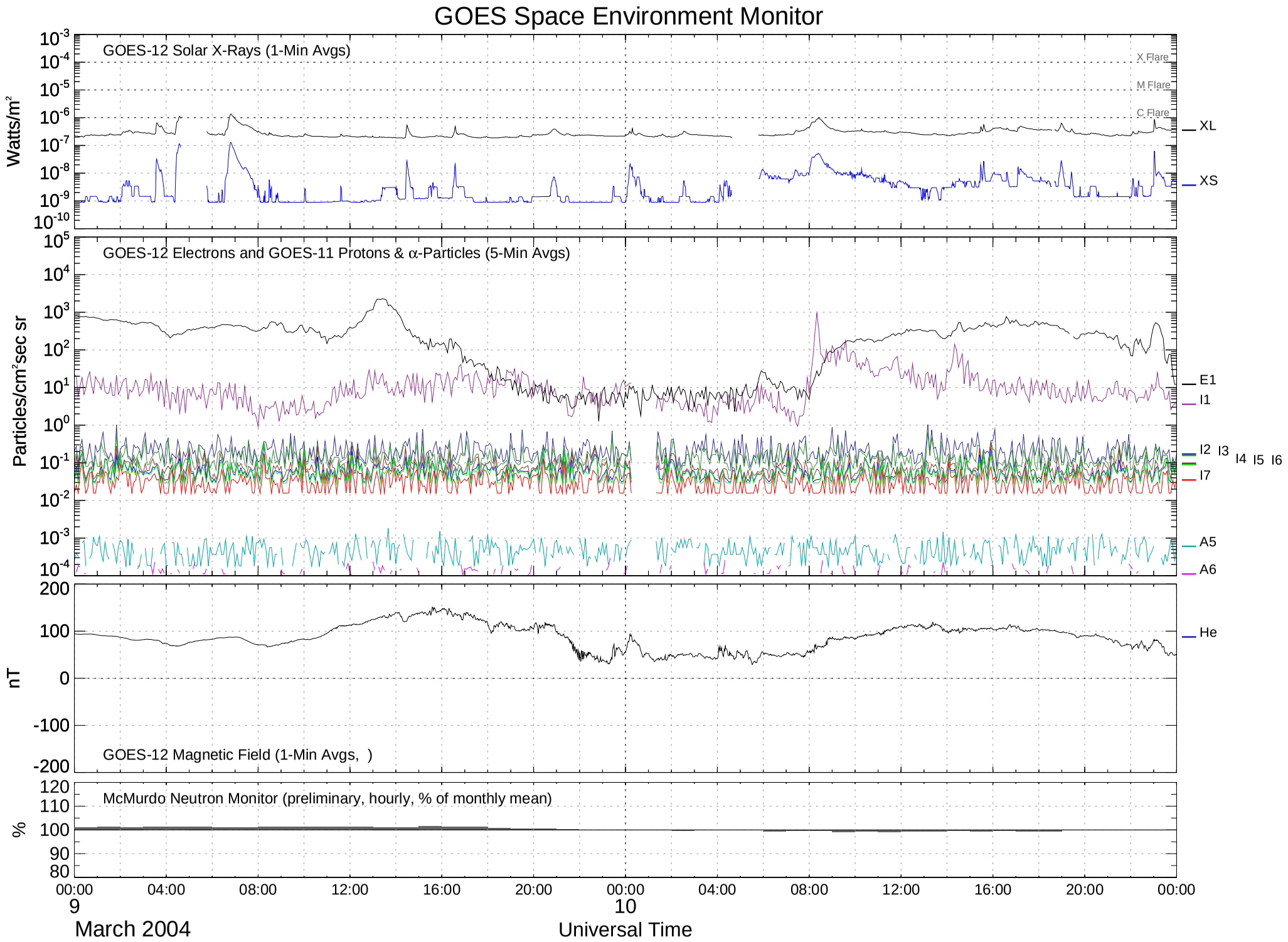
## DATA FOR **MARCH 2004**


GOES Space Environment Monitor
GOES-12 Solar X-Rays (1-Min Avgs)
X Flare
M Flare
C Flare
Watts/m²
XL
XS
GOES-12 Electrons and GOES-11 Protons & α-Particles (5-Min Avgs)
Particles/cm²sec sr
E1
I1
I2 I3 I4 I5 I6
I7
A5
A6
Hp
nT
GOES-12 Magnetic Field (1-Min Avgs, )
McMurdo Neutron Monitor (preliminary, hourly, % of monthly mean)
%
00:00 04:00 08:00 12:00 16:00 20:00 00:00 04:00 08:00 12:00 16:00 20:00 00:00
1
March 2004
2
Universal Time

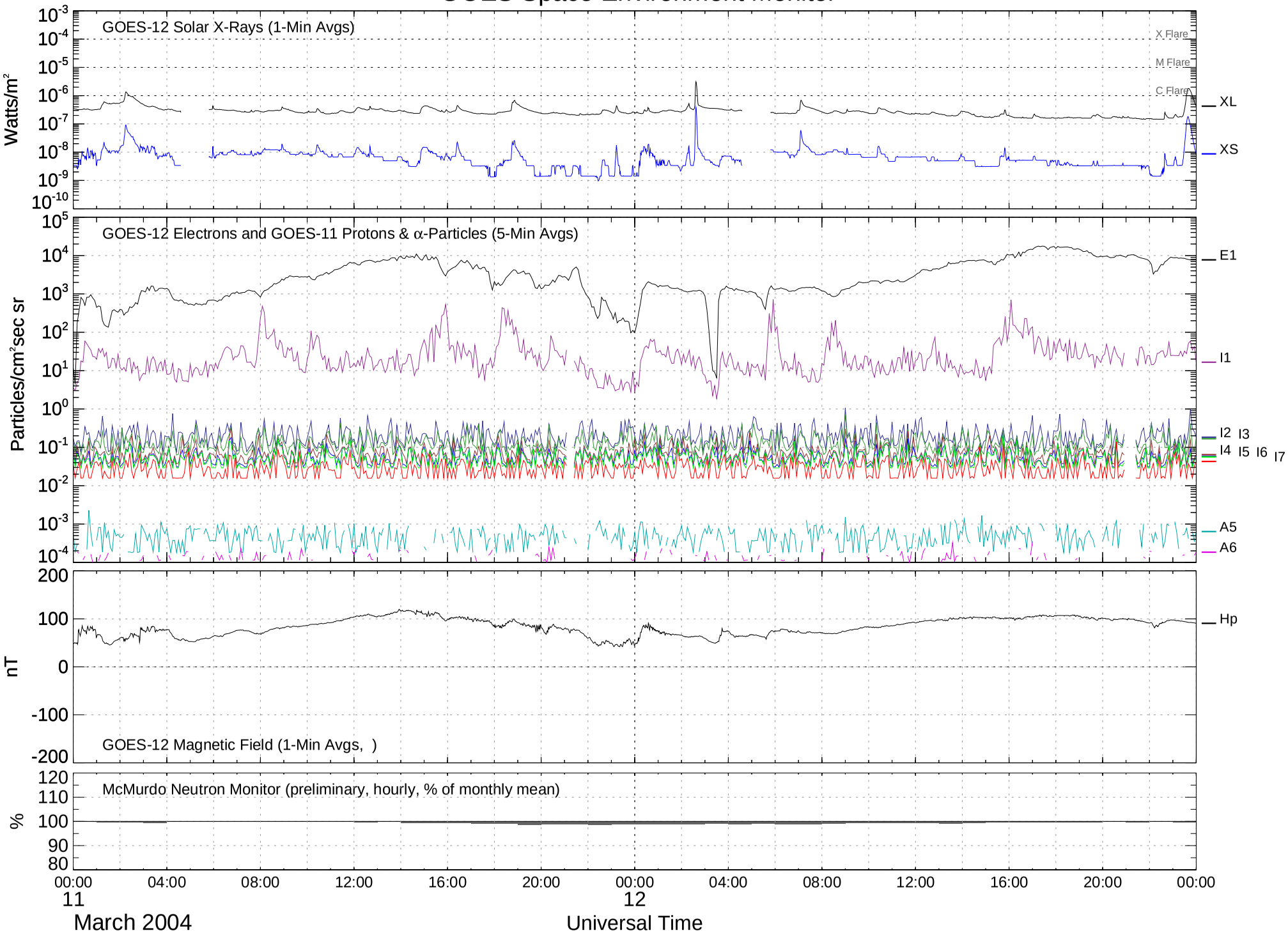

GOES Space Environment Monitor
GOES-12 Solar X-Rays (1-Min Avgs)
X Flare
M Flare
C Flare
Watts/m²
XL
XS
GOES-12 Electrons and GOES-11 Protons & α-Particles (5-Min Avgs)
Particles/cm²sec sr
E1
I1
I2 I3 I4
I5 I6 I7
A5
A6
Hp
nT
GOES-12 Magnetic Field (1-Min Avgs, )
McMurdo Neutron Monitor (preliminary, hourly, % of monthly mean)
%
00:00 04:00 08:00 12:00 16:00 20:00 00:00 04:00 08:00 12:00 16:00 20:00 00:00
3
March 2004
4
Universal Time

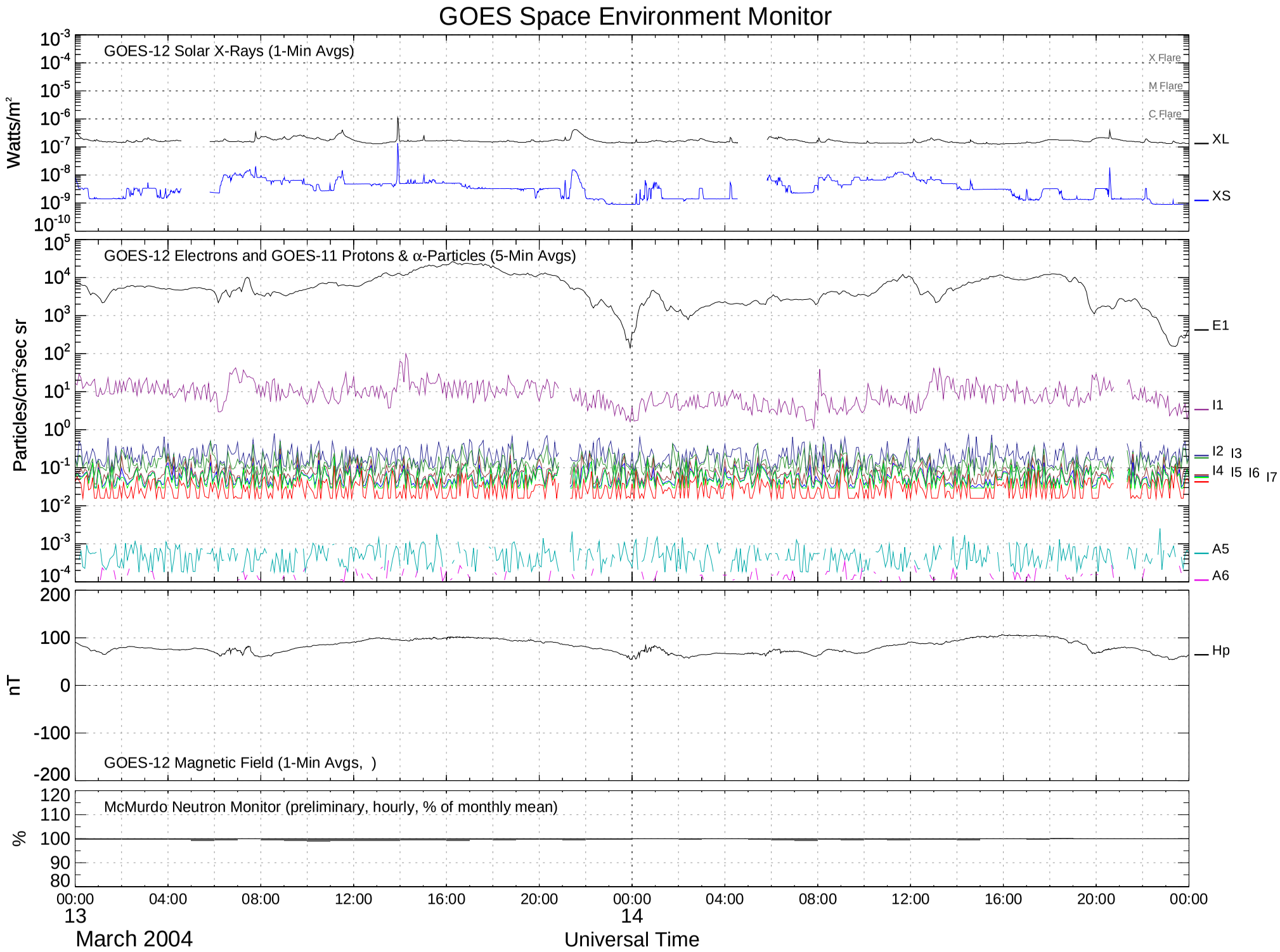

GOES Space Environment Monitor
GOES-12 Solar X-Rays (1-Min Avgs)
X Flare
M Flare
C Flare
Watts/m²
XL
XS
GOES-12 Electrons and GOES-11 Protons & α-Particles (5-Min Avgs)
Particles/cm²sec sr
E1
I1
I2 I3 I4 I5 I6
I7
A5
A6
Hp
nT
GOES-12 Magnetic Field (1-Min Avgs, )
McMurdo Neutron Monitor (preliminary, hourly, % of monthly mean)
%
00:00 04:00 08:00 12:00 16:00 20:00 00:00 04:00 08:00 12:00 16:00 20:00 00:00
5
6
March 2004
Universal Time

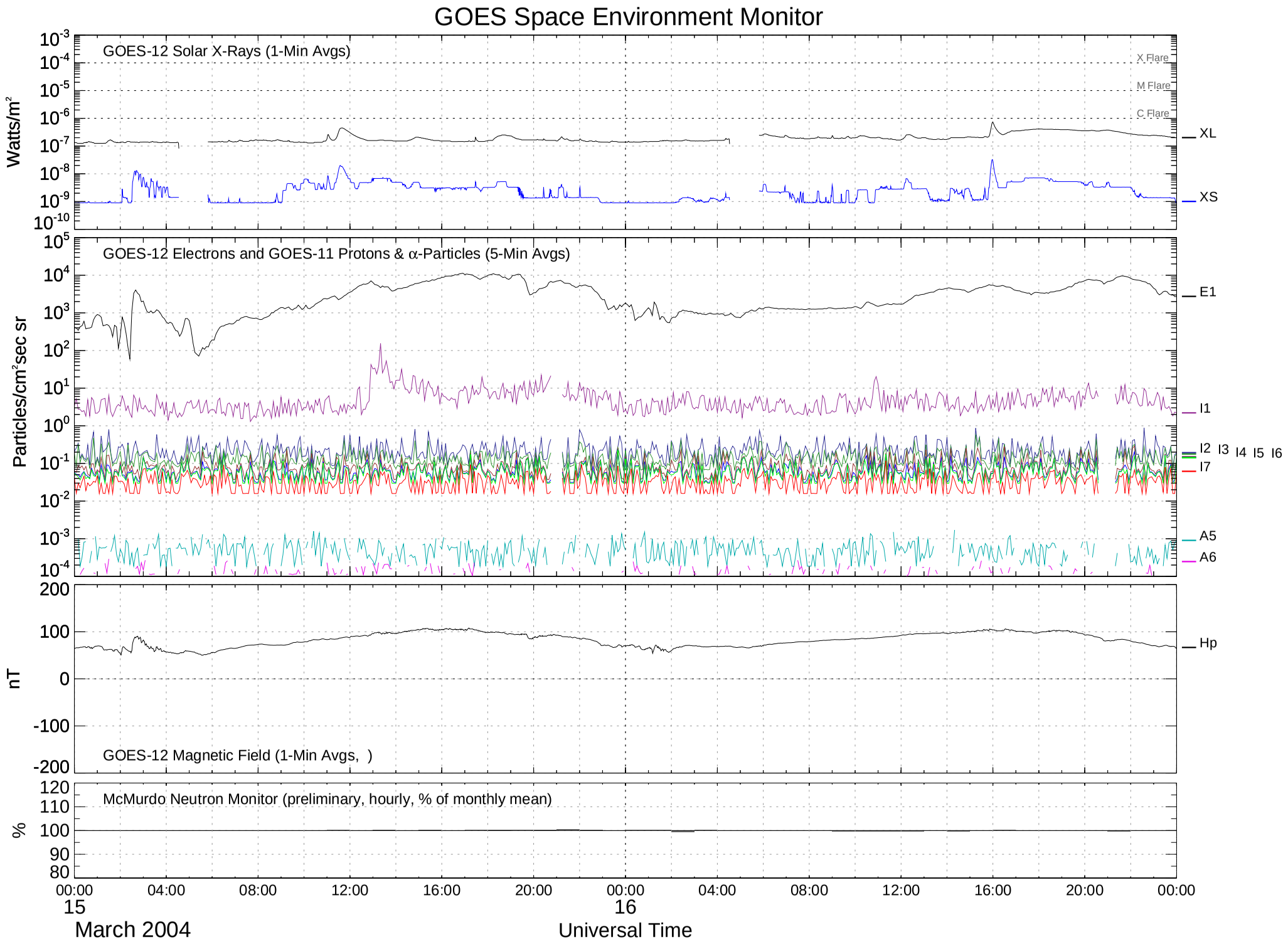

GOES Space Environment Monitor
GOES-12 Solar X-Rays (1-Min Avgs)
X Flare
M Flare
C Flare
Watts/m²
XL
XS
GOES-12 Electrons and GOES-11 Protons & α-Particles (5-Min Avgs)
Particles/cm²sec sr
E1
I1
I2
I3
I4
I5
I6
I7
A5
A6
Hp
nT
GOES-12 Magnetic Field (1-Min Avgs, )
McMurdo Neutron Monitor (preliminary, hourly, % of monthly mean)
%
00:00
04:00
08:00
12:00
16:00
20:00
00:00
04:00
08:00
12:00
16:00
20:00
00:00
7
8
March 2004
Universal Time

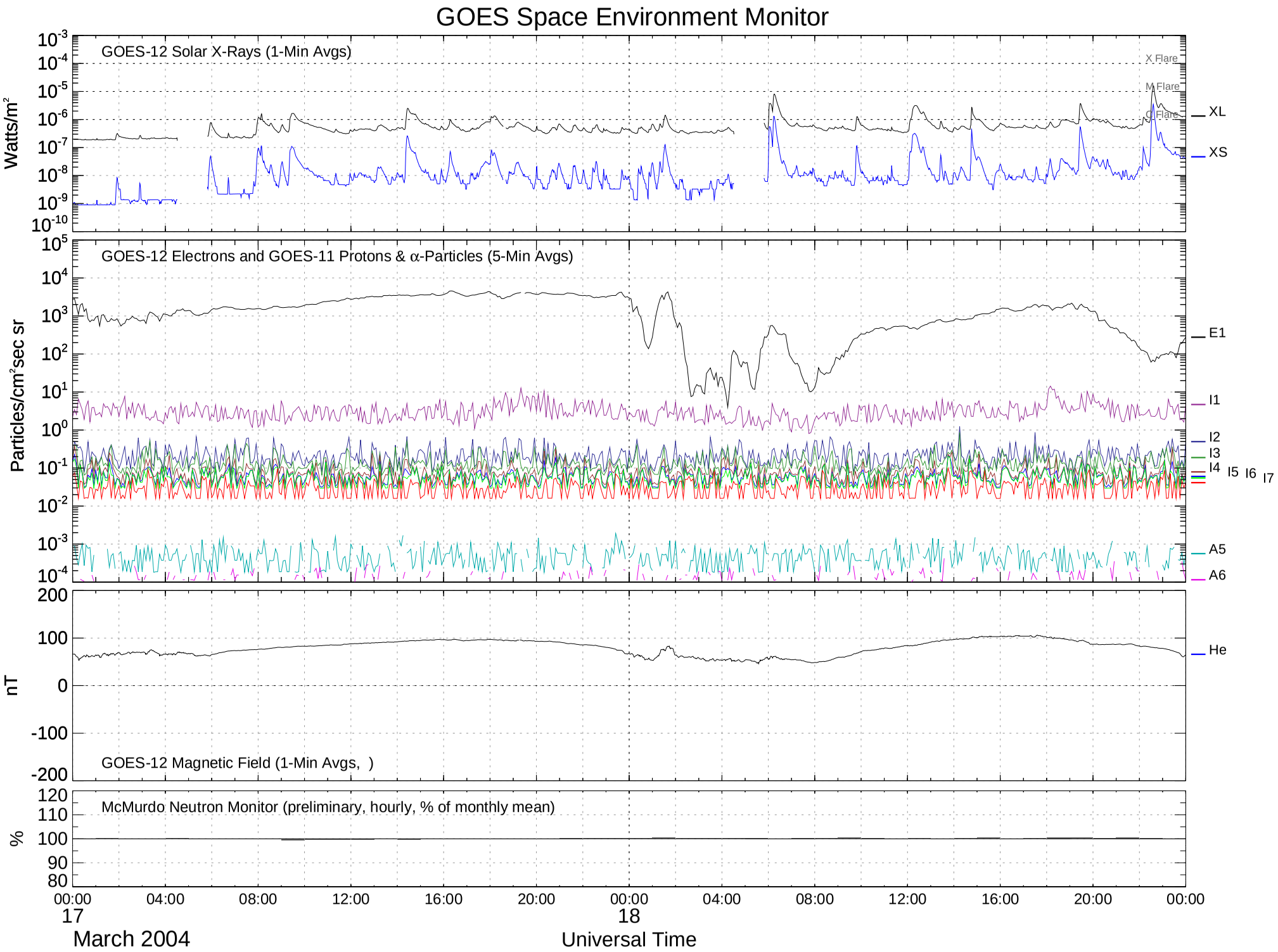

GOES Space Environment Monitor
GOES-12 Solar X-Rays (1-Min Avgs)
X Flare
M Flare
C Flare
Watts/m²
XL
XS
GOES-12 Electrons and GOES-11 Protons & α-Particles (5-Min Avgs)
Particles/cm²sec sr
E1
I1
I2 I3 I4 I5 I6
I7
A5
A6
He
nT
GOES-12 Magnetic Field (1-Min Avgs, )
McMurdo Neutron Monitor (preliminary, hourly, % of monthly mean)
%
00:00 04:00 08:00 12:00 16:00 20:00 00:00 04:00 08:00 12:00 16:00 20:00 00:00
9
10
March 2004
Universal Time

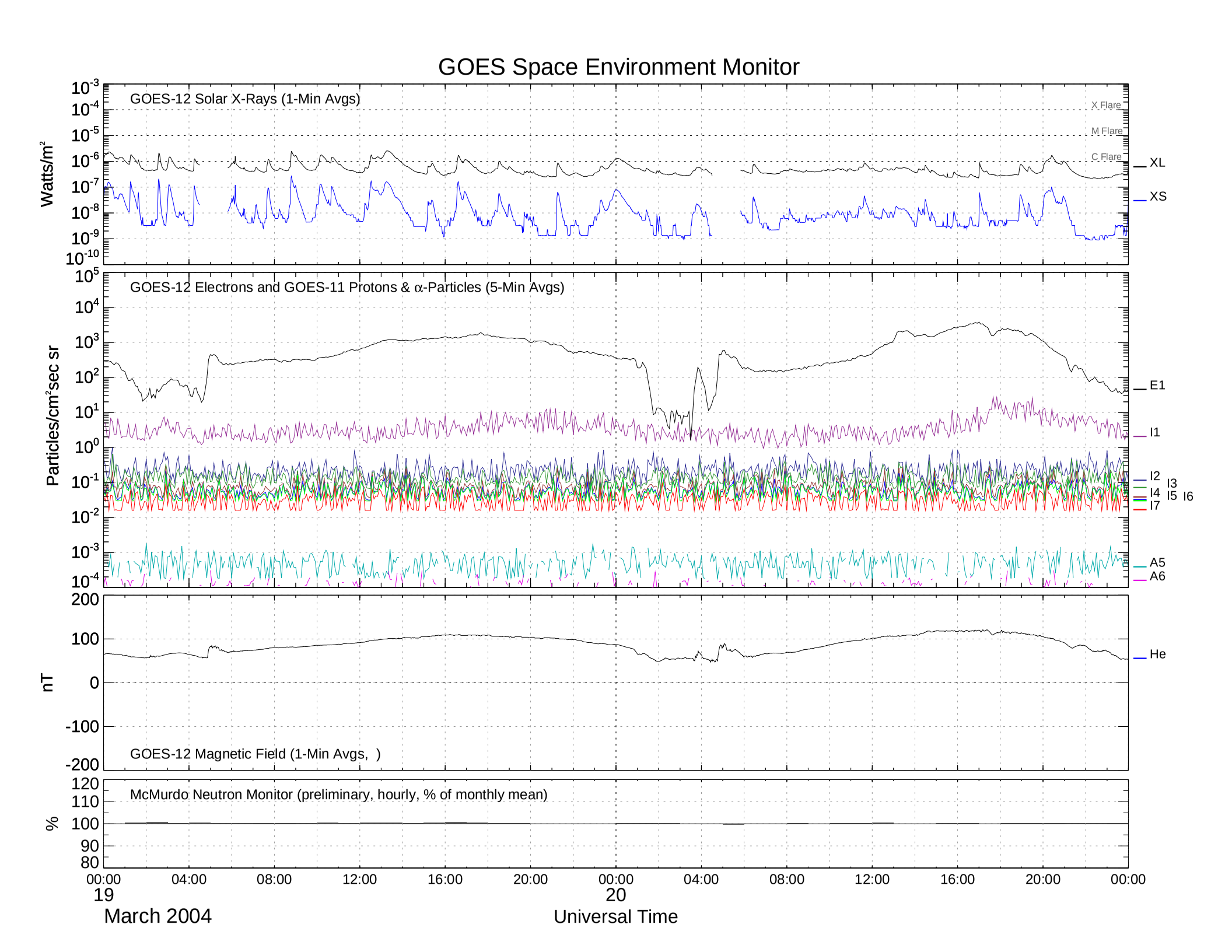
# GOES Space Environment Monitor

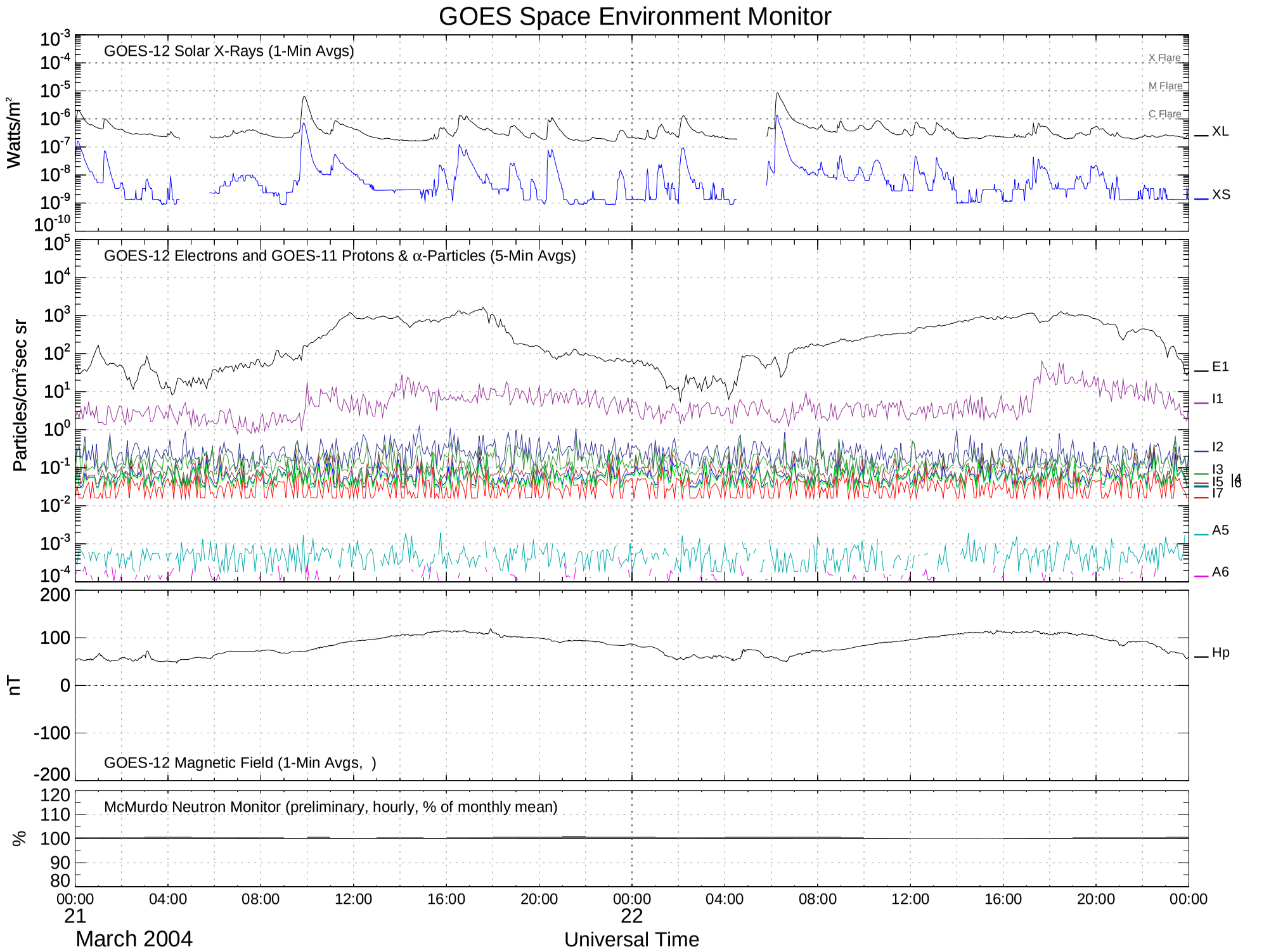


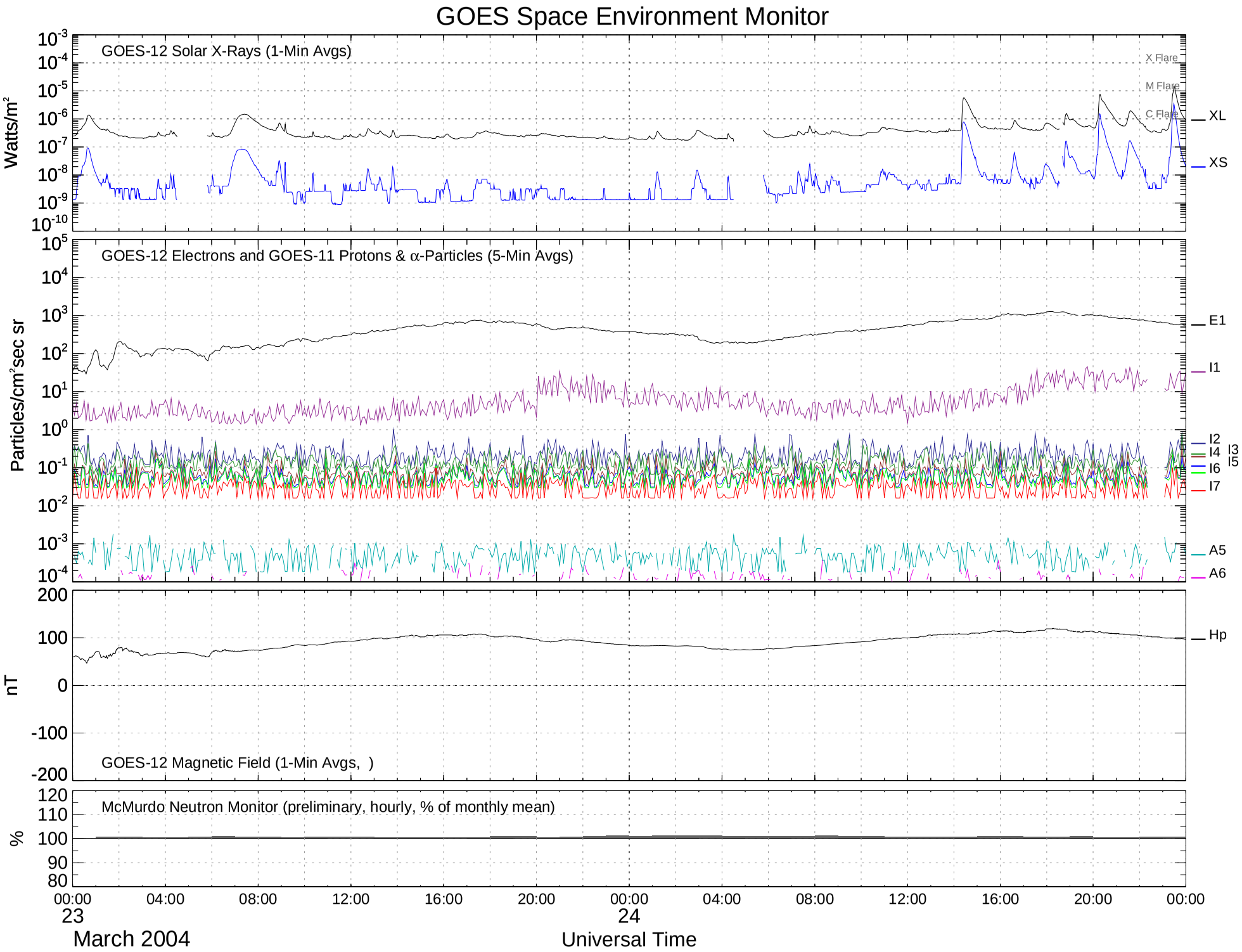

GOES Space Environment Monitor
GOES-12 Solar X-Rays (1-Min Avgs)
X Flare
M Flare
C Flare
Watts/m²
XL
XS
GOES-12 Electrons and GOES-11 Protons & α-Particles (5-Min Avgs)
Particles/cm²sec sr
E1
I1
I2 I3
I4 I5 I6 I7
A5
A6
Hp
nT
GOES-12 Magnetic Field (1-Min Avgs, )
McMurdo Neutron Monitor (preliminary, hourly, % of monthly mean)
%
00:00 04:00 08:00 12:00 16:00 20:00 00:00 04:00 08:00 12:00 16:00 20:00 00:00
13
March 2004
14
Universal Time

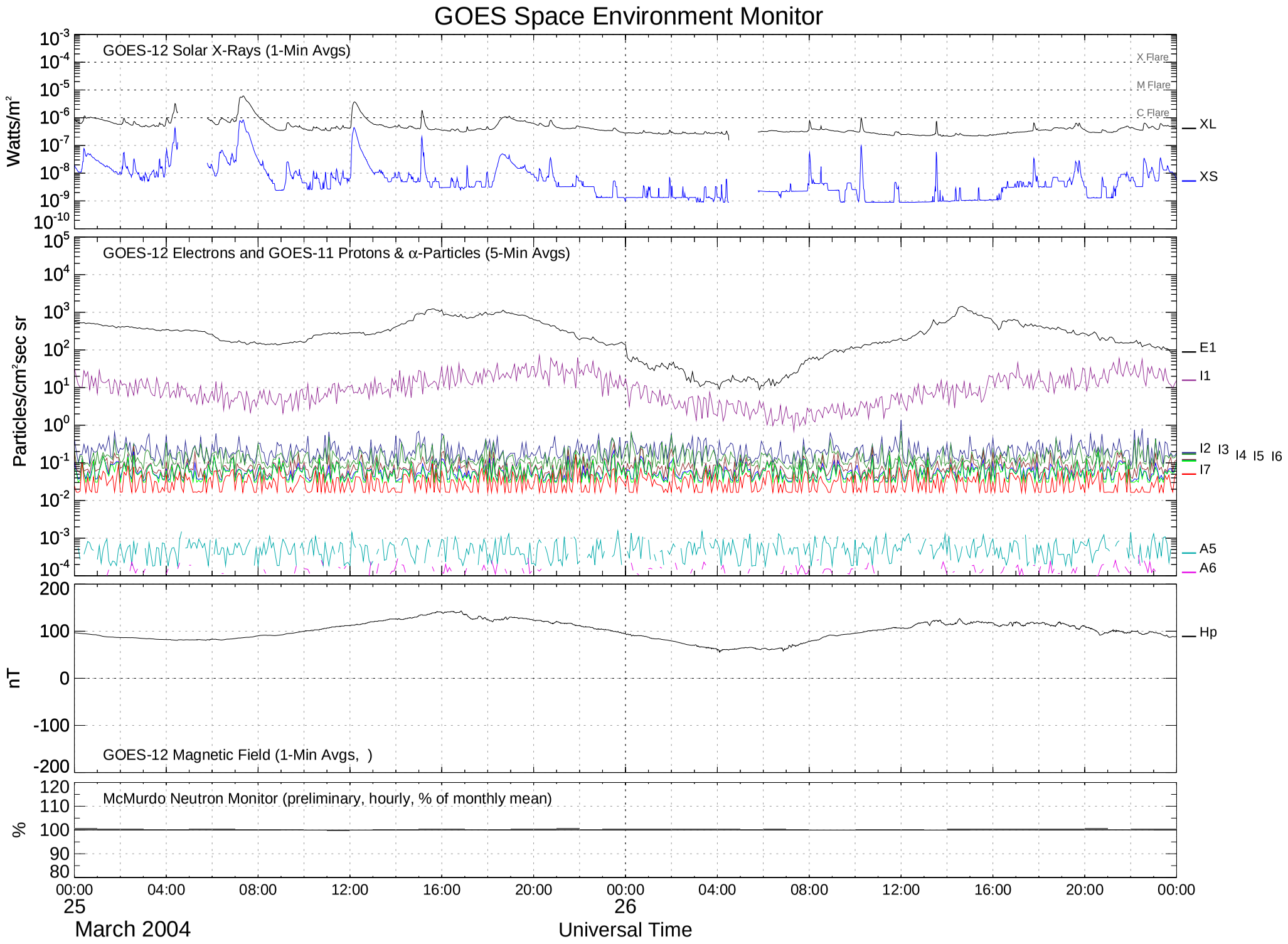

GOES Space Environment Monitor
GOES-12 Solar X-Rays (1-Min Avgs)
X Flare
M Flare
C Flare
Watts/m²
XL
XS
GOES-12 Electrons and GOES-11 Protons & α-Particles (5-Min Avgs)
Particles/cm²sec sr
E1
I1
I2 I3 I4 I5 I6
I7
A5
A6
Hp
nT
GOES-12 Magnetic Field (1-Min Avgs, )
McMurdo Neutron Monitor (preliminary, hourly, % of monthly mean)
%
00:00 04:00 08:00 12:00 16:00 20:00 00:00 04:00 08:00 12:00 16:00 20:00 00:00
15
March 2004
16
Universal Time

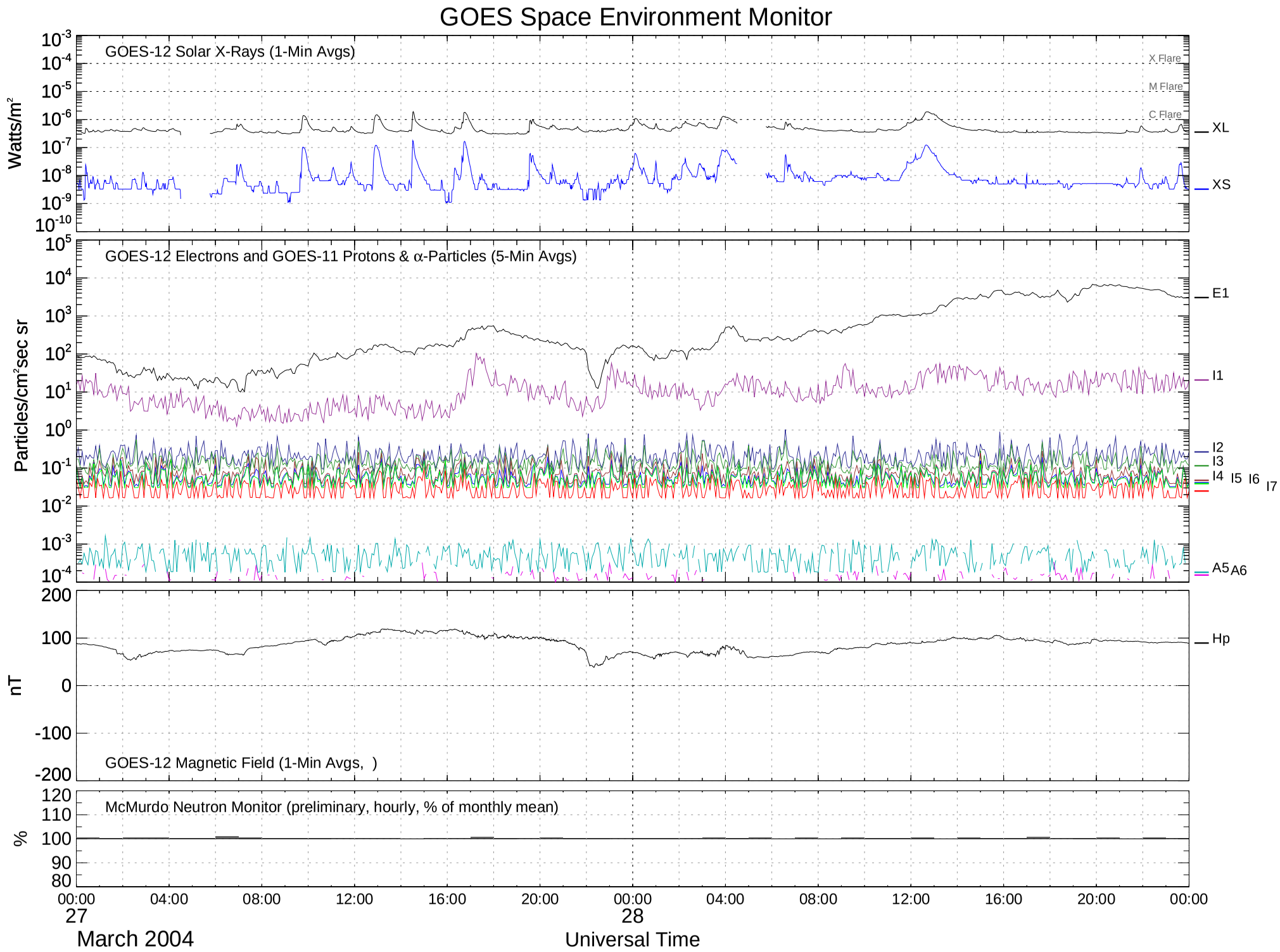

GOES Space Environment Monitor
GOES-12 Solar X-Rays (1-Min Avgs)
X Flare
M Flare
C Flare
Watts/m²
XL
XS
GOES-12 Electrons and GOES-11 Protons & α-Particles (5-Min Avgs)
Particles/cm²sec sr
E1
I1
I2
I3
I4
I5
I6
I7
A5
A6
nT
He
GOES-12 Magnetic Field (1-Min Avgs, )
McMurdo Neutron Monitor (preliminary, hourly, % of monthly mean)
%
00:00
04:00
08:00
12:00
16:00
20:00
00:00
04:00
08:00
12:00
16:00
20:00
00:00
17
March 2004
18
Universal Time

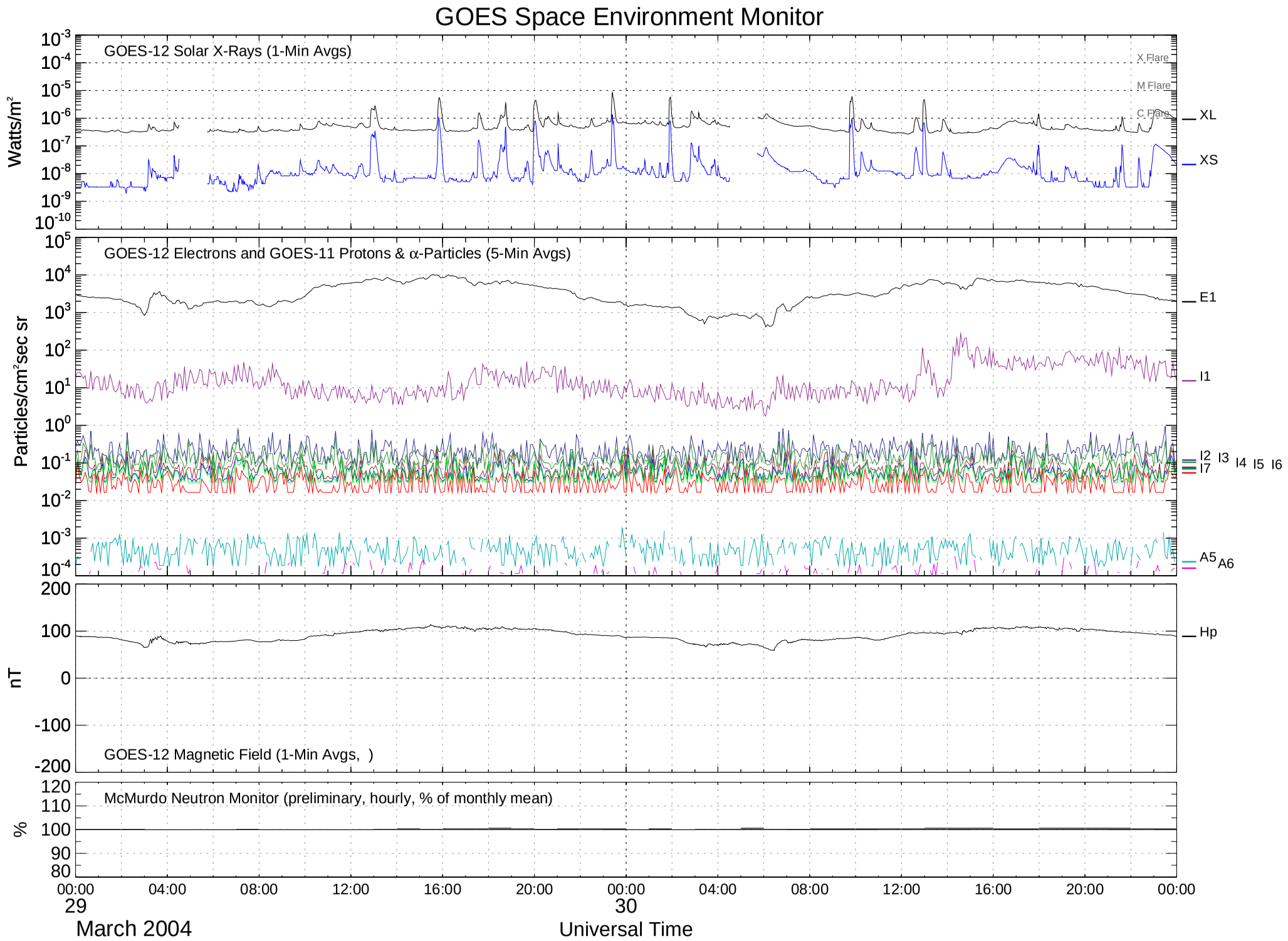

GOES Space Environment Monitor
GOES-12 Solar X-Rays (1-Min Avgs)
X Flare
M Flare
C Flare
Watts/m²
XL
XS
GOES-12 Electrons and GOES-11 Protons & α-Particles (5-Min Avgs)
Particles/cm²sec sr
E1
I1
I2
I3
I4
I5
I6
I7
A5
A6
nT
He
GOES-12 Magnetic Field (1-Min Avgs, )
McMurdo Neutron Monitor (preliminary, hourly, % of monthly mean)
%
00:00
04:00
08:00
12:00
16:00
20:00
00:00
04:00
08:00
12:00
16:00
20:00
00:00
19
20
March 2004
Universal Time

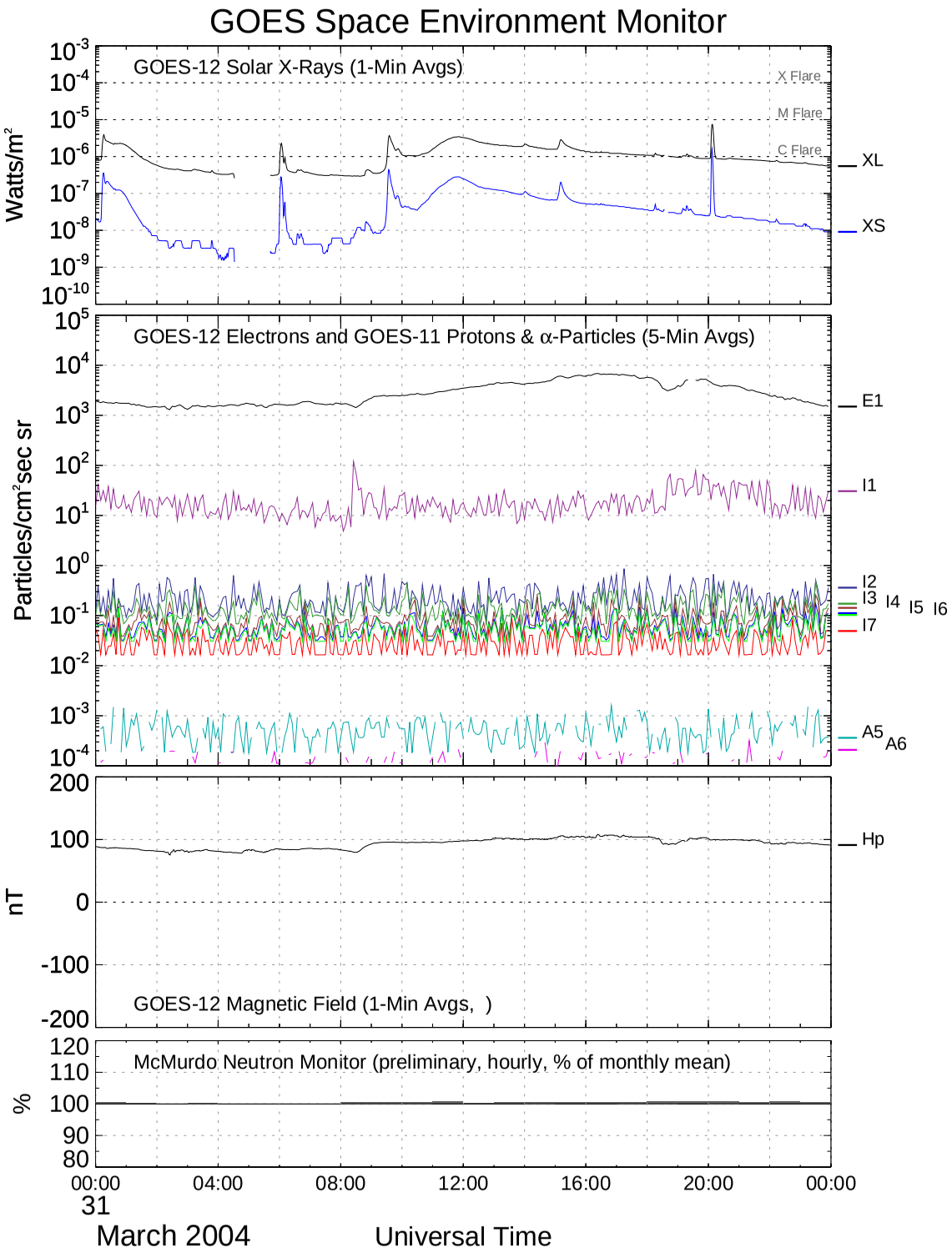

GOES Space Environment Monitor
GOES-12 Solar X-Rays (1-Min Avgs)
X Flare
M Flare
C Flare
Watts/m²
XL
XS
GOES-12 Electrons and GOES-11 Protons & α-Particles (5-Min Avgs)
Particles/cm²sec sr
E1
I1
I2
I3
I4
I5
I6
I7
A5
A6
Hp
nT
GOES-12 Magnetic Field (1-Min Avgs, )
McMurdo Neutron Monitor (preliminary, hourly, % of monthly mean)
%
00:00
04:00
08:00
12:00
16:00
20:00
00:00
04:00
08:00
12:00
16:00
20:00
00:00
21
22
March 2004
Universal Time


GOES Space Environment Monitor
GOES-12 Solar X-Rays (1-Min Avgs)
X Flare
M Flare
C Flare
Watts/m²
XL
XS
GOES-12 Electrons and GOES-11 Protons & α-Particles (5-Min Avgs)
Particles/cm²sec sr
E1
I1
I2
I4
I6
I7
I3
I5
A5
A6
Hp
nT
GOES-12 Magnetic Field (1-Min Avgs, )
McMurdo Neutron Monitor (preliminary, hourly, % of monthly mean)
%
00:00
04:00
08:00
12:00
16:00
20:00
00:00
04:00
08:00
12:00
16:00
20:00
00:00
23
March 2004
24
Universal Time


GOES Space Environment Monitor
GOES-12 Solar X-Rays (1-Min Avgs)
X Flare
M Flare
C Flare
Watts/m²
XL
XS
GOES-12 Electrons and GOES-11 Protons & α-Particles (5-Min Avgs)
Particles/cm²sec sr
E1
I1
I2 I3 I4 I5 I6
I7
A5
A6
Hp
nT
GOES-12 Magnetic Field (1-Min Avgs, )
McMurdo Neutron Monitor (preliminary, hourly, % of monthly mean)
%
00:00 04:00 08:00 12:00 16:00 20:00 00:00 04:00 08:00 12:00 16:00 20:00 00:00
25
March 2004
26
Universal Time


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


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


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

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

## MARCH 2004

| Julian Day | Date of Issue | Date of Obs | Wolf No. | 10-cm Solar Flux | A-index | Rgn No. | Location Lat | Location Lon | Flares Opt | Flares M | Flares X | Date of Fcst | Region Fcst(1) | Geoadvice(1) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 061 | 01 | 29 | 81 | 110 | 21 | 564 | N13 | W67 | 0 | 0 | 0 | 01 | E | SOL: Eruptive |
| | | | | | | 565 | S04 | W51 | 0 | 0 | 0 | 01 | Q | MAG: Active |
| | | | | | | 567 | S13 | E24 | 0 | 0 | 0 | 01 | Q | PRO: Quiet |
| | | | | | | 568 | S17 | W32 | 0 | 0 | 0 | 01 | Q | |
| 062 | 02 | 01 | 66 | 102 | 18 | 564 | N13 | W80 | 0 | 0 | 0 | 02 | Q | SOL: Eruptive |
| | | | | | | 565 | S04 | W64 | 0 | 0 | 0 | 02 | Q | MAG: Active |
| | | | | | | 567 | S13 | E11 | 0 | 0 | 0 | 02 | Q | PRO: Quiet |
| 063 | 03 | 02 | 50 | 99 | 19 | 567 | S03 | W78 | 0 | 0 | 0 | 03 | Q | SOL: Eruptive |
| | | | | | | 567 | S12 | W04 | 2 | 0 | 0 | 03 | Q | MAG: Active |
| | | | | | | | | | 0 | 0 | 0 | 03 | | PRO: Quiet |
| 064 | 04 | 03 | 42 | 90 | 11 | 567 | S02 | W93 | 0 | 0 | 0 | 04 | Q | SOL: Eruptive |
| | | | | | | 567 | S12 | W16 | 0 | 0 | 0 | 04 | E | MAG: Quiet |
| | | | | | | | | | 0 | 0 | 0 | 04 | | PRO: Quiet |
| 065 | 05 | 04 | 53 | 98 | 8 | 569 | S12 | W29 | 0 | 0 | 0 | 05 | E | SOL: Eruptive |
| | | | | | | 569 | S11 | E34 | 0 | 0 | 0 | 05 | Q | MAG: Quiet |
| | | | | | | | | | 0 | 0 | 0 | 05 | | PRO: Quiet |
| 066 | 06 | 05 | 55 | 107 | 6 | 567 | S12 | W42 | 0 | 0 | 0 | 06 | E | SOL: Eruptive |
| | | | | | | 569 | S11 | E16 | 0 | 0 | 0 | 06 | Q | MAG: Quiet |
| | | | | | | 570 | S13 | E84 | 0 | 0 | 0 | 06 | E | PRO: Quiet |
| 067 | 07 | 06 | 61 | 105 | 6 | 567 | S12 | W55 | 1 | 0 | 0 | 07 | E | SOL: Active |
| | | | | | | 569 | S11 | E03 | 0 | 0 | 0 | 07 | Q | MAG: Quiet |
| | | | | | | 570 | S13 | E70 | 0 | 1 | 0 | 07 | E | PRO: Quiet |
| 068 | 08 | 07 | 53 | 106 | 6 | 567 | S14 | W66 | 0 | 0 | 0 | 08 | Q | SOL: Active |
| | | | | | | 569 | S11 | W11 | 0 | 0 | 0 | 08 | Q | MAG: Quiet |
| | | | | | | 570 | S14 | E59 | 0 | 0 | 0 | 08 | E | PRO: Quiet |
| 069 | 09 | 08 | 55 | 108 | 8 | 567 | S14 | W79 | 0 | 0 | 0 | 09 | Q | SOL: Eruptive |
| | | | | | | 569 | S12 | W26 | 0 | 0 | 0 | 09 | Q | MAG: Quiet |
| | | | | | | 570 | S14 | E46 | 0 | 0 | 0 | 09 | E | PRO: Quiet |
| 070 | 10 | 09 | 40 | 109 | 21 | 570 | S12 | W40 | 0 | 0 | 0 | 10 | Q | SOL: Eruptive |
| | | | | | | 570 | S14 | E34 | 2 | 0 | 0 | 10 | E | MAG: Active |
| | | | | | | | | | 0 | 0 | 0 | 10 | | PRO: Quiet |
| 071 | 11 | 10 | 56 | 113 | 30 | 569 | S12 | W54 | 0 | 0 | 0 | 11 | Q | SOL: Eruptive |
| | | | | | | 570 | S14 | E20 | 1 | 0 | 0 | 11 | E | MAG: Active |
| | | | | | | 571 | S14 | W13 | 0 | 0 | 0 | 11 | Q | PRO: Quiet |
| 072 | 12 | 11 | 67 | 113 | 27 | 569 | S11 | W68 | 0 | 0 | 0 | 12 | Q | SOL: Eruptive |
| | | | | | | 570 | S13 | E07 | 1 | 0 | 0 | 12 | E | MAG: Active |
| | | | | | | 571 | S14 | W27 | 0 | 0 | 0 | 12 | Q | PRO: Quiet |
| 073 | 13 | 12 | 71 | 108 | 22 | 569 | S13 | W80 | 0 | 0 | 0 | 13 | Q | SOL: Eruptive |
| | | | | | | 570 | S14 | W05 | 2 | 0 | 0 | 13 | Q | MAG: Active |
| | | | | | | 572 | N19 | W05 | 0 | 0 | 0 | 13 | Q | PRO: Quiet |
| | | | | | | 573 | S14 | E71 | 0 | 0 | 0 | 13 | Q | |
| 074 | 14 | 13 | 61 | 104 | 13 | 570 | S13 | W20 | 0 | 0 | 0 | 14 | Q | SOL: Eruptive |
| | | | | | | 572 | N19 | W19 | 0 | 0 | 0 | 14 | Q | MAG: Quiet |
| | | | | | | 573 | S12 | E57 | 0 | 0 | 0 | 14 | Q | PRO: Quiet |
| 075 | 15 | 14 | 61 | 103 | 17 | 570 | S13 | W32 | 0 | 0 | 0 | 15 | Q | SOL: Quiet |
| | | | | | | 572 | N19 | W32 | 0 | 0 | 0 | 15 | Q | MAG: Quiet |
| | | | | | | 573 | S13 | E44 | 0 | 0 | 0 | 15 | Q | PRO: Quiet |
| 076 | 16 | 15 | 49 | 101 | 20 | 570 | S14 | W46 | 0 | 0 | 0 | 16 | Q | SOL: Quiet |
| | | | | | | 572 | N19 | W45 | 0 | 0 | 0 | 16 | Q | MAG: Quiet |
| | | | | | | 573 | S12 | E33 | 0 | 0 | 0 | 16 | Q | PRO: Quiet |
| 077 | 17 | 16 | 53 | 110 | 12 | 570 | S14 | W66 | 0 | 0 | 0 | 17 | Q | SOL: Eruptive |

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

## MARCH 2004

| Julian Day | Date of Issue | Date of Obs | Wolf No. | 10-cm Solar Flux | A-index | Rgn No. | Location Lat | Location Lon | Flares Opt | Flares M | Flares X | Date of Fcst | Region Fcst(1) | Geoadvice(1) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 572 | N19 | W58 | 0 | 0 | 0 | 17 | Q | MAG: Quiet |
| | | | | | | 573 | S12 | E20 | 0 | 0 | 0 | 17 | Q | PRO: Quiet |
| | | | | | | 574 | S02 | E70 | 0 | 0 | 0 | 17 | Q | |
| 078 | 18 | 17 | 101 | 110 | 8 | 570 | S14 | W80 | 0 | 0 | 0 | 18 | Q | SOL: Eruptive |
| | | | | | | 572 | N19 | W72 | 0 | 0 | 0 | 18 | Q | MAG: Quiet |
| | | | | | | 573 | S12 | E06 | 0 | 0 | 0 | 18 | Q | PRO: Quiet |
| | | | | | | 574 | S02 | E56 | 3 | 0 | 0 | 18 | E | |
| | | | | | | 575 | S18 | W02 | 0 | 0 | 0 | 18 | Q | |
| | | | | | | 576 | S18 | W38 | 0 | 0 | 0 | 18 | Q | |
| | | | | | | 577 | S01 | E77 | 0 | 0 | 0 | 18 | Q | |
| 079 | 19 | 18 | 107 | 115 | 13 | 570 | S14 | W93 | 0 | 0 | 0 | 19 | Q | SOL: Eruptive |
| | | | | | | 573 | S12 | W07 | 0 | 0 | 0 | 19 | Q | MAG: Quiet |
| | | | | | | 574 | S02 | E43 | 2 | 1 | 0 | 19 | E | PRO: Quiet |
| | | | | | | 575 | S18 | W15 | 0 | 0 | 0 | 19 | Q | |
| | | | | | | 576 | S18 | W51 | 0 | 0 | 0 | 19 | Q | |
| | | | | | | 577 | N00 | E09 | 0 | 0 | 0 | 19 | Q | |
| | | | | | | 578 | N15 | E76 | 1 | 0 | 0 | 19 | E | |
| 080 | 20 | 19 | 89 | 112 | 8 | 573 | S12 | W22 | 0 | 0 | 0 | 20 | Q | SOL: Eruptive |
| | | | | | | 574 | S04 | E28 | 3 | 0 | 0 | 20 | E | MAG: Quiet |
| | | | | | | 576 | S18 | W65 | 0 | 0 | 0 | 20 | Q | PRO: Quiet |
| | | | | | | 577 | S01 | E52 | 0 | 0 | 0 | 20 | Q | |
| | | | | | | 578 | N15 | E60 | 2 | 0 | 0 | 20 | Q | |
| 081 | 21 | 20 | 82 | 114 | 13 | 574 | S04 | E14 | 0 | 0 | 0 | 21 | Q | SOL: Eruptive |
| | | | | | | 576 | S07 | W78 | 0 | 0 | 0 | 21 | Q | MAG: Quiet |
| | | | | | | 577 | S01 | E39 | 0 | 0 | 0 | 21 | Q | PRO: Quiet |
| | | | | | | 578 | N15 | E47 | 1 | 0 | 0 | 21 | E | |
| 082 | 22 | 21 | 65 | 111 | 12 | 574 | S04 | E01 | 0 | 0 | 0 | 22 | Q | SOL: Eruptive |
| | | | | | | 577 | N00 | E27 | 0 | 0 | 0 | 22 | Q | MAG: Quiet |
| | | | | | | 578 | N15 | E34 | 3 | 0 | 0 | 22 | Q | PRO: Quiet |
| 083 | 23 | 22 | 87 | 116 | 13 | 574 | S03 | W13 | 2 | 0 | 0 | 23 | Q | SOL: Eruptive |
| | | | | | | 577 | N00 | E13 | 0 | 0 | 0 | 23 | Q | MAG: Quiet |
| | | | | | | 578 | N16 | E20 | 0 | 0 | 0 | 23 | Q | PRO: Quiet |
| | | | | | | 579 | S11 | E48 | 0 | 0 | 0 | 23 | Q | |
| 084 | 24 | 23 | 110 | 118 | 10 | 574 | S04 | W25 | 1 | 0 | 0 | 24 | E | SOL: Eruptive |
| | | | | | | 577 | N00 | W01 | 0 | 0 | 0 | 24 | Q | MAG: Quiet |
| | | | | | | 578 | N15 | E05 | 1 | 0 | 0 | 24 | E | PRO: Quiet |
| | | | | | | 579 | S13 | E35 | 0 | 0 | 0 | 24 | Q | |
| 085 | 25 | 24 | 109 | 120 | 4 | 574 | S04 | W40 | 0 | 0 | 0 | 25 | E | SOL: Eruptive |
| | | | | | | 577 | S01 | W14 | 1 | 0 | 0 | 25 | Q | MAG: Quiet |
| | | | | | | 578 | N15 | W07 | 0 | 0 | 0 | 25 | E | PRO: Quiet |
| | | | | | | 580 | S07 | W07 | 0 | 0 | 0 | 25 | Q | |
| | | | | | | 581 | S03 | E81 | 0 | 0 | 0 | 25 | Q | |
| 086 | 26 | 25 | 128 | 127 | 7 | 574 | S04 | W52 | 0 | 0 | 0 | 26 | E | SOL: Active |
| | | | | | | 577 | N00 | W25 | 0 | 0 | 0 | 26 | E | MAG: Quiet |
| | | | | | | 578 | N15 | W21 | 0 | 0 | 0 | 26 | E | PRO: Quiet |
| | | | | | | 579 | S13 | E07 | 0 | 0 | 0 | 26 | Q | |
| | | | | | | 580 | S06 | W21 | 0 | 0 | 0 | 26 | Q | |
| | | | | | | 581 | S03 | E66 | 0 | 0 | 0 | 26 | Q | |
| | | | | | | 582 | N16 | E72 | 2 | 1 | 0 | 26 | E | |
| 087 | 27 | 26 | 100 | 124 | 13 | 574 | S04 | W65 | 0 | 0 | 0 | 27 | Q | SOL: Eruptive |
| | | | | | | 577 | N00 | W38 | 0 | 0 | 0 | 27 | Q | MAG: Active |
| | | | | | | 578 | N15 | W34 | 0 | 0 | 0 | 27 | E | PRO: Quiet |
| | | | | | | 581 | S03 | E53 | 0 | 0 | 0 | 27 | Q | |
| | | | | | | 582 | N16 | E59 | 0 | 0 | 0 | 27 | E | |
| 088 | 28 | 27 | 129 | 128 | 19 | 574 | S05 | W83 | 0 | 0 | 0 | 28 | Q | SOL: Eruptive |
| | | | | | | 577 | S02 | W54 | 0 | 0 | 0 | 28 | Q | MAG: Active |

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

## MARCH 2004

| Julian Day | Date of Issue | Date of Obs | Wolf No. | 10-cm Solar Flux | A-index | Rgn No. | Location Lat | Location Lon | Flares Opt | Flares M | Flares X | Date of Fcst | Region Fcst(1) | Geoadvice(1) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 578 | N15 | W47 | 0 | 0 | 0 | 28 | Q | PRO: Quiet |
| | | | | | | 581 | S04 | E39 | 0 | 0 | 0 | 28 | Q | |
| | | | | | | 582 | N14 | E45 | 1 | 0 | 0 | 28 | E | |
| | | | | | | 583 | N07 | W66 | 0 | 0 | 0 | 28 | Q | |
| | | | | | | 584 | S13 | E21 | 0 | 0 | 0 | 28 | Q | |
| | | | | | | 585 | S15 | E50 | 0 | 0 | 0 | 28 | Q | |
| | | | | | | 586 | S18 | W80 | 0 | 0 | 0 | 28 | E | |
| 089 | 29 | 28 | 125 | 129 | 19 | 577 | S03 | W68 | 0 | 0 | 0 | 29 | Q | SOL: Eruptive |
| | | | | | | 578 | N14 | W57 | 0 | 0 | 0 | 29 | Q | MAG: Active |
| | | | | | | 581 | S03 | E24 | 0 | 0 | 0 | 29 | Q | PRO: Quiet |
| | | | | | | 582 | N15 | E30 | 0 | 0 | 0 | 29 | E | |
| | | | | | | 583 | N08 | W81 | 0 | 0 | 0 | 29 | Q | |
| | | | | | | 584 | S13 | E08 | 0 | 0 | 0 | 29 | Q | |
| | | | | | | 585 | S14 | E40 | 1 | 0 | 0 | 29 | E | |
| | | | | | | 587 | S13 | E73 | 0 | 0 | 0 | 29 | E | |
| 090 | 30 | 29 | 169 | 129 | 13 | 577 | S03 | W81 | 0 | 0 | 0 | 30 | Q | SOL: Eruptive |
| | | | | | | 578 | N13 | W69 | 0 | 0 | 0 | 30 | Q | MAG: Quiet |
| | | | | | | 581 | S04 | E11 | 0 | 0 | 0 | 30 | Q | PRO: Quiet |
| | | | | | | 582 | N14 | E18 | 6 | 0 | 0 | 30 | E | |
| | | | | | | 584 | S13 | W03 | 0 | 0 | 0 | 30 | Q | |
| | | | | | | 585 | S14 | E25 | 0 | 0 | 0 | 30 | Q | |
| | | | | | | 587 | S12 | E63 | 0 | 0 | 0 | 30 | Q | |
| 091 | 31 | 30 | 121 | 127 | 12 | 581 | S05 | W02 | 1 | 0 | 0 | 31 | Q | SOL: Eruptive |
| | | | | | | 582 | N14 | E04 | 8 | 0 | 0 | 31 | E | MAG: Quiet |
| | | | | | | 585 | S15 | E12 | 0 | 0 | 0 | 31 | Q | PRO: Quiet |
| | | | | | | 587 | S13 | E50 | 0 | 0 | 0 | 31 | Q | |

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

Magnetic (MAG) Geoadvice

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

Proton (PRO) Geoadvice

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

### STRATWARM ALERTS

STRATALERT BERLIN 01 MARCH 2003 1400 UTC STATALERT EXISTS.
DISTURBED TEMPERATURE PATTERN AT AND ABOVE 10 HPA. PSC THRESHOLD TEMPERATURES OVER NORTHERN SCANDINAVIA/NORWEGIAN SEA ONLY AT 50 HPA.

STRATALERT BERLIN 02 MARCH 2003 1400 UTC STRATALERT EXISTS.
STILL DISTURBED TEMPERATURE PATTERN AT AND ABOVE 10HPA. NEW WARM PULS DEVELOPING OVER SIBERIA.

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

## MARCH 2004

STRATALERT BERLIN 03 MARCH 2003 1400 UTC STRATALERT EXISTS.
DISTURBED TEMPERATURE PATTERN IN THE UPPER STRATOSPHERE, NEW WARM PULS DEVELOPING OVER SIBERIA.

STRATALERT BERLIN 04 MARCH 2003 1400 UTC STRATALERT EXISTS.
BUILT UP OF A STRONG ALEUTIAN HIGH, MOVING POLEWARDS WITHIN THE NEXT 5 DAYS. TEMPERATURE PATTERN DISTURBED.

STRATALERT BERLIN 05 MARCH 2003 1400 UTC STRATALERT EXISTS.
DISTURBED TEMPERATURE PATTERN CONTINUES.

STRATALERT BERLIN 06 MARCH 2003 1400 UTC STRATALERT EXISTS.
DISTURBED TEMPERATURE PATTERN CONTINUES.

STRATALERT BERLIN 07 MARCH 2003 1400 UTC STRATALERT EXISTS.
DISTURBED TEMPERATURE PATTERN CONTINUES.

STRATALERT BERLIN 08 MARCH 2003 1400 UTC STRATALERT EXISTS.
DISTURBED TEMPERATURE PATTERN CONTINUES, LEADING TO A REVERSED TEMPERATURE GRADIENT FROM 50 TO 5 HPA AND EASTERLY ZONAL MEAN WINDS AT 60N ON 5 AND 3 HPA.

STRATALERT BERLIN 09 MARCH 2003 1400 UTC STRATALERT EXISTS.
DISTURBED TEMPERATURE PATTERN CONTINUES, LEADING TO A REVERSED TEMPERATURE GRADIENT FROM 100 TO 3 HPA AND EASTERLY ZONAL MEAN ZONAL WINDS AT 60N BETWEEN 5 AND 3 HPA.

STRATALERT BERLIN 10 MARCH 2003 1400 UTC STRATALERT EXISTS.
THE DISTURBED TEMPERATURE PATTERN CONTINUES, LEADING TO A REVERSED TEMPERATURE GRADIENT FROM 100 TO 20 AND FROM 5 TO 3 HPA.

STRATALERT BERLIN 11 MARCH 2003 1400 UTC STRATALERT EXISTS.
THE DISTURBED TEMPERATURE PATTERN CONTINUES, LEADING TO A REVERSED TEMPERATURE GRADIENT FROM 100 TO 5 HPA.

STRATALERT BERLIN 12 MARCH 2003 1400 UTC STRATALERT EXISTS.
THE DISTURBED TEMPERATURE PATTERN CONTINUES, LEADING TO A REVERSED TEMPERATURE GRADIENT FROM 100 TO 5 HPA.

STRATALERT BERLIN 13 MARCH 2003 1400 UTC STRATALERT EXISTS.
THE DISTURBED TEMPERATURE PATTERN CONTINUES, LEADING TO A REVERSED TEMPERATURE GRADIENT FROM 30 TO 5 HPA.

STRATALERT BERLIN 14 MARCH 2003 1400 UTC STRATALERT EXISTS.
THE DISTURBED TEMPERATURE PATTERN CONTINUES, LEADING TO A REVERSED TEMPERATURE GRADIENT FROM 20 TO 1 HPA.

STRATALERT BERLIN 15 MARCH 2003 1400 UTC STRATALERT EXISTS.
THE DISTURBED TEMPERATURE PATTERN CONTINUES, LEADING TO A REVERSED TEMPERATURE GRADIENT BETWEEN 60N AND THE POLE FROM 20 TO 2 HPA.

STRATALERT BERLIN 16 MARCH 2003 1400 UTC STRATALERT EXISTS.
THE DISTURBED TEMPERATURE PATTERN CONTINUES, LEADING TO A REVERSED TEMPERATURE GRADIENT BETWEEN 60N AND THE POLE FROM 20 TO 2 HPA.

STRATALERT BERLIN 17 MARCH 2003 1400 UTC STRATALERT EXISTS.
THE SLIGHTLY DISTURBED TEMPERATURE PATTERN CONTINUES, LEADING TO A REVERSED TEMPERATURE GRADIENT BETWEEN 60N AND THE POLE FROM 20 TO 10 HPA AND AT 1 HPA.

STRATALERT BERLIN 18 MARCH 2003 1400 UTC STRATALERT EXISTS.
THERE IS A STRONG HEATING PULSE DEVELOPING ON THE UPPERMOST LEVELS WITH A REVERSED TEMPERATURE GRADIENT ON 2 AND 1HPA.

STRATALERT BERLIN 19 MARCH 2003 1400 UTC STRATALERT EXISTS.
THERE IS A REVERSED TEMPERATURE GRADIENT ON 5HPA AND ABOVE.

STRATALERT BERLIN 20 MARCH 2003 1400 UTC STRATALERT EXISTS.
THERE IS A REVERSED TEMPERATURE GRADIENT ON 3HPA AND ABOVE.

STRATALERT BERLIN 21 MARCH 2003 1400 UTC STRATALERT NIL.
RETURN TO NORMAL LATE WINTER CONDITIONS.

STRATALERT BERLIN 22 MARCH 2003 1400 UTC STRATALERT NIL.
ALMOST NORMAL LATE WINTER CONDITIONS.

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

## MARCH 2004

STRATALERT BERLIN 23 MARCH 2003 1400 UTC STRATALERT NIL.
ALMOST NORMAL LATE WINTER CONDITIONS.

STRATALERT BERLIN 24 MARCH 2003 1400 UTC STRATALERT NIL.
ALMOST NORMAL LATE WINTER CONDITIONS.

STRATALERT BERLIN 25 MARCH 2003 1400 UTC STRATALERT NIL.
ALMOST NORMAL LATE WINTER CONDITIONS.

STRATALERT BERLIN 26 MARCH 2003 1400 UTC STRATALERT EXISTS.
A WARM REGION EXTENDS FROM SOUTHEASTERN EUROPE TO NORTHWESTERN ASIA IN THE UPPER STRATOSPHERE AND THE COLD CENTER WEAKENS.

STRATALERT BERLIN 27 MARCH 2003 1400 UTC STRATALERT EXISTS.
A WARM REGION EXTENDS FROM WESTERN SIBERIA TO CENTRAL EUROPE IN THE MIDDLE AND UPPER STRATOSPHERE, AND THE COLD CENTER WEAKENS.

STRATALERT BERLIN 28 MARCH 2003 1400 UTC STRATALERT EXISTS.
A WARM REGION EXTENDS FROM WESTERN SIBERIA TO NORTHEASTERN EUROPE IN THE MIDDLE AND UPPER STRATOSPHERE, AND THE COLD CENTER WEAKENS.

STRATALERT BERLIN 29 MARCH 2003 1400 UTC STRATALERT EXISTS.
A LARGE WARM REGION OVER ASIA INTENSIFIES AND MOVES POLEWARDS.

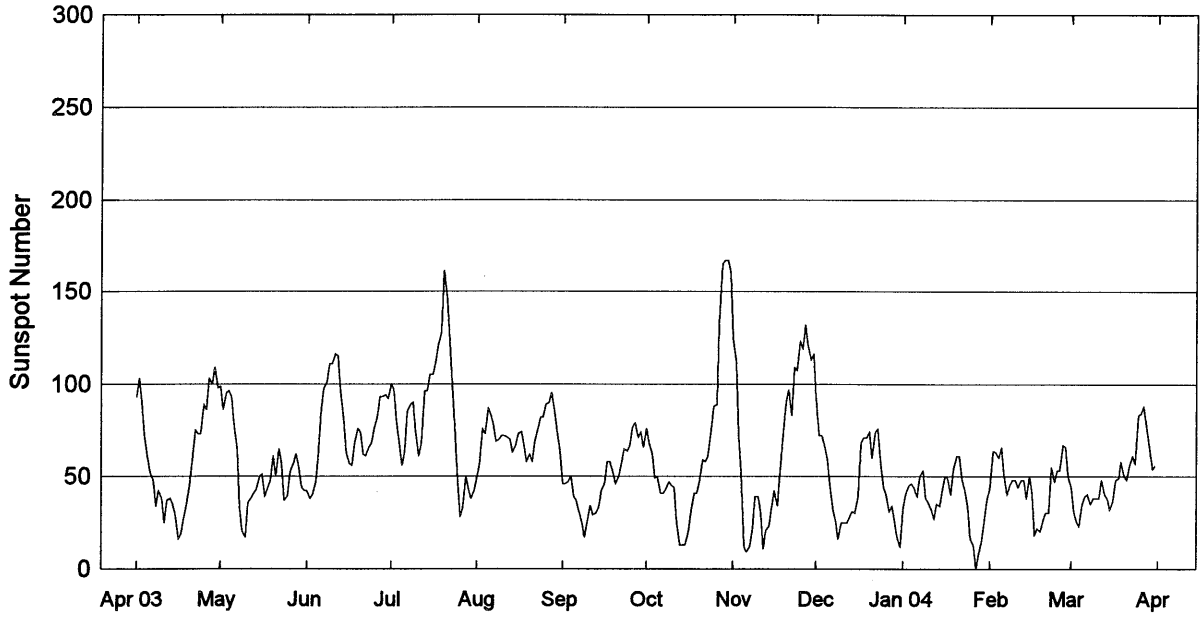
STRATALERT BERLIN 30 MARCH 2003 1400 UTC STRATALERT EXISTS.
A LARGE WARM REGION OVER ASIA INTENSIFIES AND MOVES POLEWARDS WHILE THE COLD REGION WEAKENS, INDICATING THE BEGINNING OF THE FINAL WARMING.

STRATALERT BERLIN 31 MARCH 2003 1400 UTC STRATALERT EXISTS.
A LARGE WARM REGION, CENTERED OVER NORTHERN SIBERIA, EXPANDS FURTHER POLEWARDS WHILE THE COLD REGION WEAKENS, I.E. THE FINAL WARMING PROGRESSES. THE VORTEX, HOWEVER, ONLY SLOWLY WEAKENS, INDICATING A LATE TRANSITION TO THE SUMMER CIRCULATION.

STRATALERT MESSAGES WILL BE DISCONTINUED UNTIL 1 DECEMBER, 2004.

# International Relative Sunspot Numbers
# Apr 2003- Mar 2004



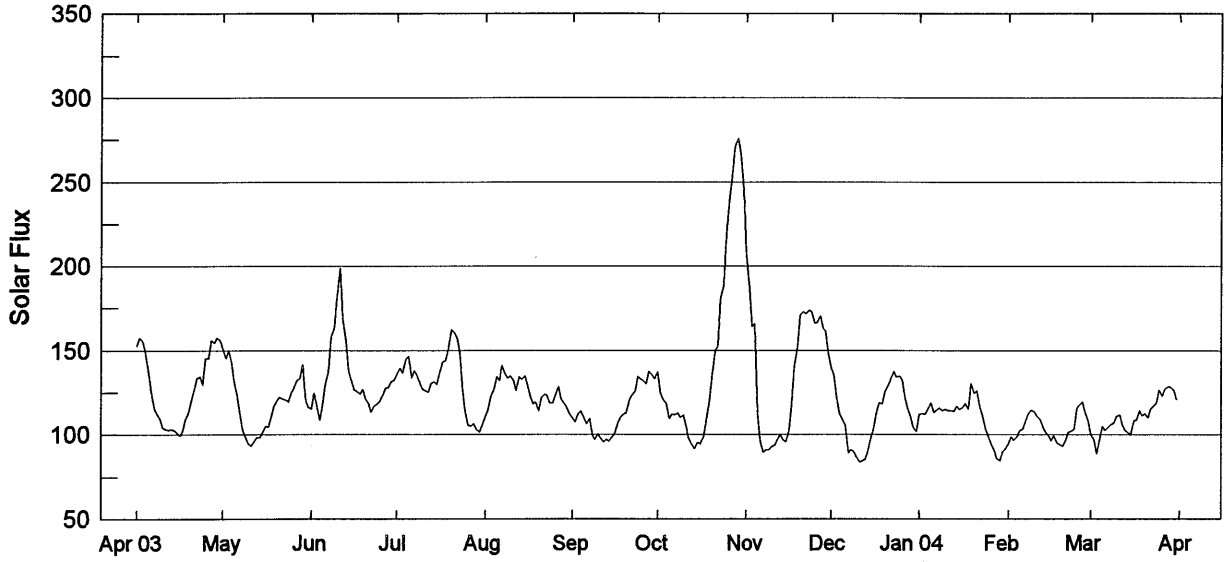



| Day | Apr 03 | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Jan 04* | Feb* | Mar* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 93 | 99 | 42 | 100 | 49 | 46 | 76 | 124 | 92 | 32 | 43 | 44 |
| 2 | 103 | 86 | 38 | 97 | 56 | 46 | 68 | 112 | 72 | 40 | 64 | 31 |
| 3 | 90 | 95 | 40 | 80 | 76 | 47 | 62 | 72 | 72 | 45 | 63 | 26 |
| 4 | 72 | 96 | 47 | 67 | 73 | 50 | 49 | 52 | 66 | 46 | 60 | 23 |
| 5 | 60 | 93 | 59 | 56 | 87 | 39 | 50 | 12 | 59 | 44 | 66 | 35 |
| 6 | 52 | 78 | 86 | 63 | 83 | 37 | 41 | 9 | 45 | 39 | 51 | 39 |
| 7 | 48 | 65 | 98 | 85 | 78 | 30 | 41 | 12 | 32 | 50 | 40 | 40 |
| 8 | 34 | 33 | 101 | 89 | 69 | 25 | 43 | 21 | 26 | 53 | 45 | 35 |
| 9 | 42 | 20 | 111 | 90 | 70 | 17 | 47 | 39 | 16 | 38 | 48 | 38 |
| 10 | 38 | 17 | 111 | 74 | 72 | 25 | 45 | 39 | 25 | 36 | 48 | 38 |
| 11 | 25 | 36 | 116 | 61 | 72 | 34 | 44 | 30 | 25 | 32 | 44 | 38 |
| 12 | 37 | 38 | 115 | 68 | 71 | 29 | 25 | 11 | 25 | 27 | 48 | 48 |
| 13 | 38 | 41 | 96 | 96 | 70 | 30 | 13 | 21 | 28 | 35 | 48 | 40 |
| 14 | 35 | 43 | 81 | 96 | 63 | 33 | 13 | 23 | 31 | 34 | 38 | 38 |
| 15 | 29 | 50 | 63 | 105 | 67 | 42 | 13 | 33 | 30 | 43 | 50 | 32 |
| 16 | 16 | 51 | 57 | 105 | 73 | 46 | 19 | 42 | 39 | 50 | 41 | 37 |
| 17 | 19 | 39 | 56 | 112 | 74 | 58 | 30 | 34 | 68 | 49 | 18 | 48 |
| 18 | 27 | 44 | 68 | 121 | 67 | 58 | 41 | 52 | 71 | 40 | 22 | 49 |
| 19 | 34 | 48 | 76 | 128 | 58 | 52 | 41 | 70 | 71 | 54 | 20 | 58 |
| 20 | 45 | 61 | 74 | 161 | 62 | 46 | 47 | 90 | 74 | 61 | 26 | 50 |
| 21 | 58 | 50 | 62 | 146 | 58 | 50 | 59 | 97 | 60 | 61 | 30 | 48 |
| 22 | 75 | 65 | 61 | 123 | 69 | 57 | 58 | 83 | 74 | 49 | 30 | 57 |
| 23 | 73 | 57 | 66 | 100 | 76 | 65 | 61 | 109 | 76 | 42 | 55 | 61 |
| 24 | 73 | 37 | 68 | 78 | 82 | 64 | 75 | 107 | 59 | 34 | 47 | 57 |
| 25 | 89 | 39 | 76 | 47 | 82 | 67 | 88 | 123 | 44 | 16 | 53 | 83 |
| 26 | 86 | 52 | 82 | 28 | 89 | 77 | 89 | 119 | 40 | 13 | 53 | 84 |
| 27 | 103 | 57 | 93 | 33 | 90 | 79 | 133 | 132 | 31 | 0 | 67 | 88 |
| 28 | 100 | 62 | 93 | 50 | 95 | 71 | 165 | 121 | 34 | 8 | 66 | 76 |
| 29 | 109 | 56 | 94 | 43 | 85 | 74 | 167 | 113 | 26 | 16 | 50 | 66 |
| 30 | 98 | 44 | 92 | 38 | 74 | 66 | 167 | 116 | 17 | 27 |  | 54 |
| 31 |  | 42 |  | 42 | 65 |  | 160 |  | 12 | 38 |  | 56 |
| Mean | 60.0 | 54.6 | 77.4 | 83.3 | 72.7 | 48.7 | 65.5 | 67.3 | 46.5 | 37.2 | 46.0 | 48.9 |

* = Provisional.

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

Adjusted to 1 AU




| Day | Apr 03 | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Jan 04 | Feb | Mar |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 152.8 | 151.0 | 115.5 | 135.6 | 110.6 | 110.1 | 137.1 | 207.2 | 139.3 | 112.2 | 94.5 | 100.0 |
| 2 | 157.3 | 145.3# | 124.8 | 139.3 | 114.7 | 107.6 | 125.0 | 187.4 | 135.4 | 112.6 | 98.5 | 97.1 |
| 3 | 155.7 | 150.1 | 117.8 | 136.7 | 123.6 | 112.4 | 120.3 | 164.2 | 120.3 | 112.3 | 96.6 | 88.9 |
| 4 | 148.8# | 144.4 | 108.7 | 144.8 | 126.0 | 114.1 | 119.0 | 165.6# | 112.5 | 115.5 | 98.6 | 95.9 |
| 5 | 137.5 | 131.1 | 117.0 | 146.7 | 134.4 | 109.8 | 109.6 | 112.1 | 108.5 | 119.0 | 102.5 | 105.0 |
| 6 | 126.1 | 124.1 | 129.4 | 134.0 | 132.4 | 106.6 | 112.0 | 96.1 | 105.7 | 113.4 | 103.7 | 102.9 |
| 7 | 115.9 | 112.2 | 137.2 | 137.8 | 140.9 | 109.4 | 111.8 | 89.4 | 89.3 | 114.9 | 108.1 | 104.6 |
| 8 | 112.6 | 102.8 | 158.0 | 135.7 | 136.6 | 100.3 | 113.1 | 91.0 | 90.9 | 116.1 | 113.1 | 106.3 |
| 9 | 109.7 | 98.9 | 163.1 | 130.2 | 133.6 | 97.3 | 110.5 | 91.2 | 89.4 | 114.4 | 114.7 | 107.2 |
| 10 | 104.1 | 94.5 | 182.0 | 126.9 | 134.7 | 100.6 | 111.4 | 92.8 | 86.5 | 115.3 | 113.5 | 111.1 |
| 11 | 103.0 | 93.4 | 198.9 | 126.1 | 132.7 | 98.0 | 105.4 | 93.7 | 83.4 | 114.6 | 111.2 | 111.7 |
| 12 | 102.6 | 95.8 | 168.6 | 125.5 | 126.6 | 95.6 | 97.4 | 96.7 | 84.5 | 114.4 | 109.3 | 106.2 |
| 13 | 103.0 | 98.1 | 155.8 | 130.7 | 134.3 | 97.3 | 94.0 | 100.0 | 85.0 | 114.1 | 105.1 | 102.6 |
| 14 | 102.6 | 98.3 | 137.7 | 131.4 | 133.1 | 95.8 | 91.9 | 96.8 | 89.5 | 117.1 | 101.1 | 101.3 |
| 15 | 101.1 | 101.4 | 132.8 | 129.9 | 134.7 | 98.4 | 95.3 | 95.6 | 97.7 | 115.2 | 99.6 | 100.3 |
| 16 | 99.2 | 104.9 | 126.5 | 137.5 | 130.1 | 100.4 | 94.6 | 102.0 | 103.0 | 116.4 | 96.3 | 108.5 |
| 17 | 101.8 | 104.7 | 125.8 | 143.2 | 122.3 | 107.0 | 98.1 | 118.2 | 113.8 | 118.6 | 99.5 | 108.8 |
| 18 | 108.7 | 111.5 | 124.3 | 144.3 | 118.7 | 110.2 | 107.8 | 141.0 | 119.1 | 115.6 | 95.4 | 114.4 |
| 19 | 113.1 | 117.4 | 126.8 | 150.8 | 119.5 | 112.1 | 119.4 | 151.5 | 118.6 | 130.3 | 94.2 | 111.3 |
| 20 | 119.7 | 120.0 | 120.8 | 162.4 | 114.5 | 112.9 | 133.9 | 171.0 | 125.9 | 124.8 | 93.2 | 112.7 |
| 21 | 127.0 | 122.2 | 118.8 | 160.7 | 122.0 | 120.9 | 150.2 | 172.8 | 129.1 | 126.0 | 96.0 | 110.4 |
| 22 | 133.8 | 121.3 | 113.9 | 157.4 | 123.7 | 123.5 | 152.0# | 171.9 | 133.2 | 117.9 | 101.7 | 115.6 |
| 23 | 134.3 | 120.9 | 117.2 | 148.7 | 122.9 | 125.7 | 181.3# | 173.8 | 137.4 | 111.6 | 102.1 | 117.6 |
| 24 | 129.8 | 119.8 | 118.3 | 129.2 | 119.0 | 134.3 | 188.5 | 172.8 | 134.4 | 104.1 | 103.4 | 119.0 |
| 25 | 145.3 | 124.3 | 120.2 | 115.1 | 119.0 | 133.4 | 219.0 | 166.3 | 134.6 | 99.1 | 116.1 | 126.4 |
| 26 | 145.5 | 128.4 | 122.9 | 105.9 | 123.4 | 131.8 | 240.6* | 166.5 | 132.7 | 95.0 | 118.4 | 123.2 |
| 27 | 156.1 | 132.3 | 128.1 | 104.9 | 128.3 | 130.3 | 254.0 | 170.1 | 122.4# | 90.8 | 119.8 | 127.2 |
| 28 | 154.3 | 133.7 | 128.1 | 106.6 | 121.1 | 137.6 | 270.9 | 163.2 | 115.1 | 85.9 | 113.6 | 128.6 |
| 29 | 157.4 | 141.6 | 131.6 | 103.0 | 118.7 | 135.6 | 275.4# | 161.4 | 110.7 | 84.8 | 108.0 | 128.3 |
| 30 | 155.8 | 120.4 | 132.5 | 101.7 | 116.2 | 133.3 | 267.6 | 148.6 | 104.2 | 89.9 | | 126.4 |
| 31 | | 116.3 | | 105.2 | 111.8 | | 245.2 | | 102.1 | 91.6 | | 121.0 |
| Mean | 130.8 | 127.2 | 118.7 | 133.4 | 131.9 | 125.2 | 113.4 | 150.1 | 137.7 | 111.4 | 104.4 | 111.0 |

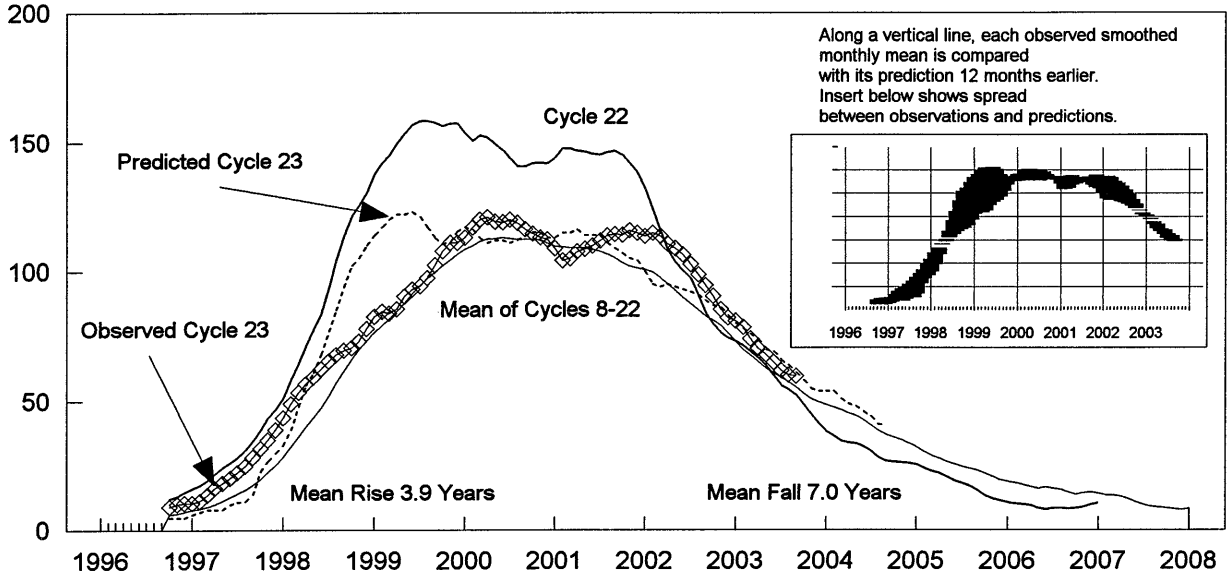
**NOTE:** # - 1700 or 1800UT reading, burst in progress at 2000UT. *-2300UT reading, burst in progress.

# DAILY SOLAR INDICES

**March 2004**

| | Day | Bartels | Sunspot | | Obs Flux | | | -----Solar Flux Adjusted to 1 Astronomical Unit------- | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | of | Cycle | Numbers | | Penticton | SGMR | SGMR | SGMR | Penticton | SGMR | SGMR | SGMR | SGMR | SGMR |
| Day | Year | Day | Int | Amer | (2800) | (15400) | (8800) | (4995) | (2800) | (2695) | (1415) | (610) | (410) | (245) |
| 1 | 61 | 16 | 44 | 43 | 101.8 | 522 | 235 | 155 | 100.0 | 100 | 61 | 37 | 28 | 14 |
| 2 | 62 | 17 | 31 | 32 | 98.8 | 513 | 232 | 151 | 97.1 | 102 | 59 | 37 | 28 | 11 |
| 3 | 63 | 18 | 26 | 26 | 90.4 | 520 | 220 | 138 | 88.9 | 93 | 58 | 38 | 29 | 18 |
| 4 | 64 | 19 | 23 | 27 | 97.5 | 511 | 230 | 150 | 95.9 | 101 | 59 | 38 | 31 | 38 |
| 5 | 65 | 20 | 35 | 42 | 106.7 | 502 | 238 | 162 | 105.0 | 108 | 63 | 39 | 30 | 26 |
| 6 | 66 | 21 | 39 | 42 | 104.5 | 468 | 233 | 161 | 102.9 | 105 | 62 | 40 | 31 | 13 |
| 7 | 67 | 22 | 40 | 38 | 106.1 | 525 | 234 | 152 | 104.6 | 106 | 63 | 39 | 32 | 16 |
| 8 | 68 | 23 | 35 | 36 | 107.8 | 515 | 249 | 163 | 106.3 | 109 | 64 | 44 | 44 | 23 |
| 9 | 69 | 24 | 38 | 38 | 108.7 | 515 | 254 | 163 | 107.2 | 112 | 68 | 44 | 32 | 13 |
| 10 | 70 | 25 | 38 | 36 | 112.6 | 521 | 237 | 161 | 111.1 | 118 | 71 | --- | --- | --- |
| 11 | 71 | 26 | 38 | 38 | 113.2 | 515 | 249 | 167 | 111.7 | 117 | 70 | 39 | 40 | --- |
| 12 | 72 | 27 | 48 | 49 | 107.5 | 501 | 235 | 159 | 106.2 | 110 | 69 | 40 | 31 | --- |
| 13 | 73 | 1 | 40 | 44 | 103.8 | 514 | 238 | 156 | 102.6 | 102 | 68 | 42 | 31 | 17 |
| 14 | 74 | 2 | 38 | 39 | 102.5 | 519 | 235 | 152 | 101.3 | 108 | 67 | 39 | 28 | 14 |
| 15 | 75 | 3 | 32 | 34 | 101.4 | 511 | 236 | 153 | 100.3 | 104 | 66 | 37 | 28 | 11 |
| 16 | 76 | 4 | 37 | 36 | 109.6 | 515 | 250 | 160 | 108.5 | 111 | 70 | 44 | 32 | 18 |
| 17 | 77 | 5 | 48 | 54 | 109.8 | 519 | 255 | 163 | 108.8 | 113 | 69 | 47 | 35 | 26 |
| 18 | 78 | 6 | 49 | 52 | 115.4 | 524 | 252 | 168 | 114.4 | 122 | 72 | 41 | 33 | 21 |
| 19 | 79 | 7 | 58 | 60 | 112.2 | 530 | 250 | 165 | 111.3 | 116 | 69 | 42 | 33 | 23 |
| 20 | 80 | 8 | 50 | 57 | 113.6 | 529 | 245 | 162 | 112.7 | 113 | 71 | 43 | 32 | 24 |
| 21 | 81 | 9 | 48 | 51 | 111.2 | 530 | 231 | 161 | 110.4 | 116 | 72 | 40 | 30 | 18 |
| 22 | 82 | 10 | 57 | 57 | 116.4 | 530 | 258 | 171 | 115.6 | 124 | 73 | 42 | 29 | 13 |
| 23 | 83 | 11 | 61 | 64 | 118.3 | 529 | 250 | 168 | 117.6 | 119 | 72 | 42 | 29 | 12 |
| 24 | 84 | 12 | 57 | 63 | 119.7 | 536 | 234 | 164 | 119.0 | 127 | 77 | 43 | 30 | 18 |
| 25 | 85 | 13 | 83 | 85 | 127.0 | 530 | 254 | 179 | 126.4 | 130 | 79 | 43 | 31 | 13 |
| 26 | 86 | 14 | 84 | 98 | 123.8 | 532 | 245 | 173 | 123.2 | 127 | 76 | 42 | 30 | 10 |
| 27 | 87 | 15 | 88 | 84 | 127.6 | 523 | 251 | 186 | 127.2 | 131 | 77 | 41 | 29 | 11 |
| 28 | 88 | 16 | 76 | 75 | 129.0 | 527 | 257 | 183 | 128.6 | 136 | 76 | 44 | 30 | 11 |
| 29 | 89 | 17 | 66 | 64 | 128.6 | 531 | 252 | 179 | 128.3 | 138 | 75 | 43 | 37 | 21 |
| 30 | 90 | 18 | 54 | 54 | 126.7 | 527 | 258 | 179 | 126.4 | 136 | 80 | 57 | 46 | --- |
| 31 | 91 | 19 | 56 | 56 | 121.2 | 494 | 248 | 172 | 121.0 | 130 | 75 | 43 | 44 | --- |
| MEAN | | | 48.9 | 50.8 | 112.0 | 518 | 243 | 163 | 111.0 | 115 | 69 | 41 | 32 | 17 |

## Cycle 23 Smoothed Sunspot Numbers: Observed and Predicted




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

| Year | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Avg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 | 37 | 35 | 34 | 34 | 33 | 31 | 29 | 27 | 27 | 27 | 26 | 26 | 31 |
| 1995 | 24 | 23 | 22 | 21 | 19 | 18 | 17 | 15 | 13 | 12 | 11 | 11 | 17 |
| 1996 | 10 | 10 | 10 | 9 | 8* | 9 | 8 | 8 | 8 | 9** | 10 | 10 | 8 |
| 1997 | 11 | 11 | 14 | 17 | 18 | 20 | 23 | 25 | 28 | 32 | 35 | 39 | 23 |
| 1998 | 44 | 49 | 53 | 57 | 59 | 63 | 65 | 68 | 69 | 71 | 73 | 78 | 62 |
| 1999 | 83 | 85 | 84 | 85 | 90 | 93 | 94 | 98 | 102 | 108 | 111 | 111 | 95 |
| 2000 | 113 | 117 | 120 | 120.8+ | 119 | 119 | 120 | 119 | 116 | 115 | 113 | 112 | 107 |
| 2001 | 109 | 104 | 105 | 108 | 109 | 110 | 112 | 114 | 114 | 114 | 115 | 115 | 111 |
| 2002 | 114 | 115 | 113 | 111 | 109 | 106 | 103 | 99 | 95 | 91 | 85 | 82 | 102 |
| 2003 | 81 | 79 | 74 | 70 | 68 | 65 | 62 | 60 | 60 | 57 | 55 | 54 | 65 |
| | | | | | | | | | | (4) | (7) | (9) | (2) |
| 2004 | 53 | 52 | 51 | 50 | 49 | 47 | 45 | 42 | 41 | 39 | 38 | 37 | 45 |
| | (10) | (11) | (12) | (13) | (14) | (15) | (16) | (18) | (19) | (20) | (20) | (21) | (16) |

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

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

**+ April 2000 marks Cycle 23 maximum.**

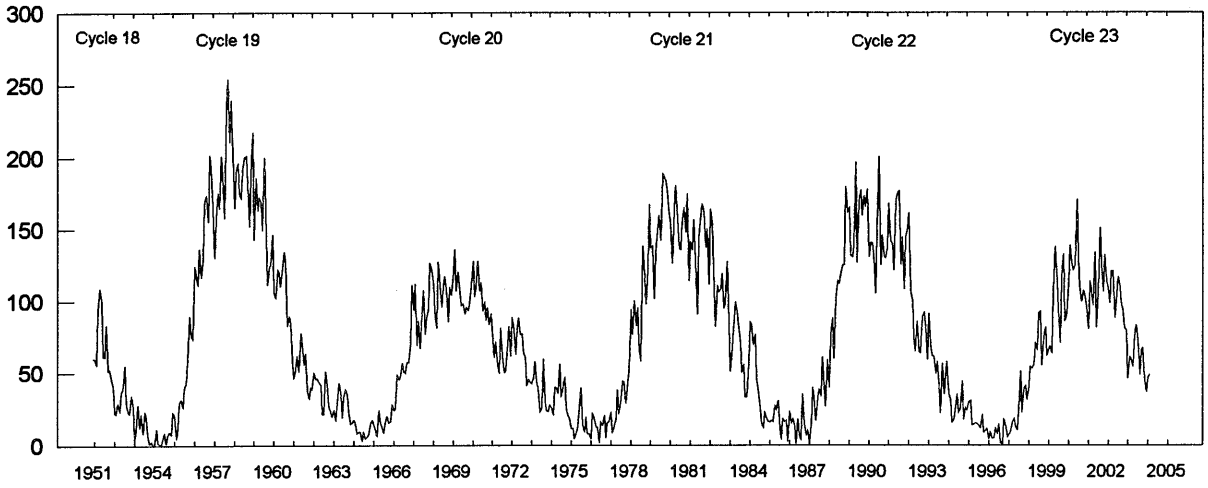
**Observed and Predicted Numbers.** For the end of Cycle 22, and the rise and decline of Cycle 23, the table above lists observed smoothed sunspot numbers up to the one that includes the most recent monthly mean. We based these smoothed values on final monthly means through Dec 2003 and on provisional numbers thereafter. Table entries with numbers in parentheses below them denote predictions by the McNish-Lincoln method. (See page 9 in the Jul 1987 supplement to *Solar-Geophysical Data.*) Adding the number in parentheses to the predicted value generates the upper limit of the 90% confidence interval. Subtracting the number from the predicted value generates the lower limit. Consider, for example, the September 2004 prediction. There exists a 90% chance that in September, the actual smoothed number will fall somewhere between 22 and 60.

**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 - Mar 2004






| Year | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Mean | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1951 | 59.9 | 59.9 | 55.9 | 92.9 | 108.5 | 100.6 | 61.5 | 61.0 | 83.1 | 51.6 | 52.4 | 45.8 | 69.4 | |
| 1952 | 40.7 | 22.7 | 22.0 | 29.1 | 23.4 | 36.4 | 39.3 | 54.9 | 28.2 | 23.8 | 22.1 | 34.3 | 31.5 | |
| 1953 | 26.5 | 3.9 | 10.0 | 27.8 | 12.5 | 21.8 | 8.6 | 23.5 | 19.3 | 8.2 | 1.6 | 2.5 | 13.9 | |
| 1954 | 0.2 | 0.5 | 10.9 | 1.8 | 0.8 | 0.2 | 4.8 | 8.4 | 1.5 | 7.0 | 9.2 | 7.6 | 4.4 | m |
| 1955 | 23.1 | 20.8 | 4.9 | 11.3 | 28.9 | 31.7 | 26.7 | 40.7 | 42.7 | 58.5 | 89.2 | 76.9 | 38.0 | |
| 1956 | 73.6 | 124.0 | 118.4 | 110.7 | 136.6 | 116.6 | 129.1 | 169.6 | 173.2 | 155.3 | 201.3 | 192.1 | 141.7 | |
| 1957 | 165.0 | 130.2 | 157.4 | 175.2 | 164.6 | 200.7 | 187.2 | 158.0 | 235.8 | 253.8 | 210.9 | 239.4 | 190.2 | M |
| 1958 | 202.5 | 164.9 | 190.7 | 196.0 | 175.3 | 171.5 | 191.4 | 200.2 | 201.2 | 181.5 | 152.3 | 187.6 | 184.8 | |
| 1959 | 217.4 | 143.1 | 185.7 | 163.3 | 172.0 | 168.7 | 149.6 | 199.6 | 145.2 | 111.4 | 124.0 | 125.0 | 159.0 | |
| 1960 | 146.3 | 106.0 | 102.2 | 122.0 | 119.6 | 110.2 | 121.7 | 134.1 | 127.2 | 82.8 | 89.6 | 85.6 | 122.3 | |
| 1961 | 57.9 | 46.1 | 53.0 | 61.4 | 51.0 | 77.4 | 70.2 | 55.8 | 63.6 | 37.7 | 32.6 | 39.9 | 53.9 | |
| 1962 | 38.7 | 50.3 | 45.6 | 46.4 | 43.7 | 42.0 | 21.8 | 21.8 | 51.3 | 39.5 | 26.9 | 23.2 | 37.6 | |
| 1963 | 19.8 | 24.4 | 17.1 | 29.3 | 43.0 | 35.9 | 19.6 | 33.2 | 38.8 | 35.3 | 23.4 | 14.9 | 27.9 | |
| 1964 | 15.3 | 17.7 | 16.5 | 8.6 | 9.5 | 9.1 | 3.1 | 9.3 | 4.7 | 6.1 | 7.4 | 15.1 | 10.2 | m |
| 1965 | 17.5 | 14.2 | 11.7 | 6.8 | 24.1 | 15.9 | 11.9 | 8.9 | 16.8 | 20.1 | 15.8 | 17.0 | 15.1 | |
| 1966 | 28.2 | 24.4 | 25.3 | 48.7 | 45.3 | 47.7 | 56.7 | 51.2 | 50.2 | 57.2 | 57.2 | 70.4 | 47.0 | |
| 1967 | 110.9 | 93.6 | 111.8 | 69.5 | 86.5 | 67.3 | 91.5 | 107.2 | 76.8 | 88.2 | 94.3 | 126.4 | 93.8 | |
| 1968 | 121.8 | 111.9 | 92.2 | 81.2 | 127.2 | 110.3 | 96.1 | 109.3 | 117.2 | 107.7 | 86.0 | 109.8 | 105.9 | M |
| 1969 | 104.4 | 120.5 | 135.8 | 106.8 | 120.0 | 106.0 | 96.8 | 98.0 | 91.3 | 95.7 | 93.5 | 97.9 | 105.5 | |
| 1970 | 111.5 | 127.8 | 102.9 | 109.5 | 127.5 | 106.8 | 112.5 | 93.0 | 99.5 | 86.6 | 95.2 | 83.5 | 104.5 | |
| 1971 | 91.3 | 79.0 | 60.7 | 71.8 | 57.5 | 49.8 | 81.0 | 61.4 | 50.2 | 51.7 | 63.2 | 82.2 | 66.6 | |
| 1972 | 61.5 | 88.4 | 80.1 | 63.2 | 80.5 | 88.0 | 76.5 | 76.8 | 64.0 | 61.3 | 41.6 | 45.3 | 68.9 | |
| 1973 | 43.4 | 42.9 | 46.0 | 57.7 | 42.4 | 39.5 | 23.1 | 25.6 | 59.3 | 30.7 | 23.9 | 23.3 | 38.0 | |
| 1974 | 27.6 | 26.0 | 21.3 | 40.3 | 39.5 | 36.0 | 55.8 | 33.6 | 40.2 | 47.1 | 25.0 | 20.5 | 34.5 | |
| 1975 | 18.9 | 11.5 | 11.5 | 5.1 | 9.0 | 11.4 | 28.2 | 39.7 | 13.9 | 9.1 | 19.4 | 7.8 | 15.5 | |
| 1976 | 8.1 | 4.3 | 21.9 | 18.8 | 12.4 | 12.2 | 1.9 | 16.4 | 13.5 | 20.6 | 5.2 | 15.3 | 12.6 | m |
| 1977 | 16.4 | 23.1 | 8.7 | 12.9 | 18.6 | 38.5 | 21.4 | 30.1 | 44.0 | 43.8 | 29.1 | 43.2 | 27.5 | |
| 1978 | 51.9 | 93.6 | 76.5 | 99.7 | 82.7 | 95.1 | 70.4 | 58.1 | 138.2 | 125.1 | 97.9 | 122.7 | 92.5 | |
| 1979 | 166.6 | 137.5 | 138.0 | 101.5 | 134.4 | 149.5 | 159.4 | 142.2 | 188.4 | 186.2 | 183.3 | 176.3 | 155.4 | M |
| 1980 | 159.6 | 155.0 | 126.2 | 164.1 | 179.9 | 157.3 | 136.3 | 135.4 | 155.0 | 164.7 | 147.9 | 174.4 | 154.6 | |
| 1981 | 114.0 | 141.3 | 135.5 | 156.4 | 127.5 | 90.9 | 143.8 | 158.7 | 167.3 | 162.4 | 137.5 | 150.1 | 140.4 | |
| 1982 | 111.2 | 163.6 | 153.8 | 122.0 | 82.2 | 110.4 | 106.1 | 107.6 | 118.8 | 94.7 | 98.1 | 127.0 | 115.9 | |
| 1983 | 84.3 | 51.0 | 66.5 | 80.7 | 99.2 | 91.1 | 82.2 | 71.8 | 50.3 | 55.8 | 33.3 | 33.4 | 66.6 | |
| 1984 | 57.0 | 85.4 | 83.5 | 69.7 | 76.4 | 46.1 | 37.4 | 25.5 | 15.7 | 12.0 | 22.8 | 18.7 | 45.9 | |
| 1985 | 16.5 | 15.9 | 17.2 | 16.2 | 27.5 | 24.2 | 30.7 | 11.1 | 3.9 | 18.6 | 16.2 | 17.3 | 17.9 | |
| 1986 | 2.5 | 23.2 | 15.1 | 18.5 | 13.7 | 1.1 | 18.1 | 7.4 | 3.8 | 35.4 | 15.2 | 6.8 | 13.4 | m |
| 1987 | 10.4 | 2.4 | 14.7 | 39.6 | 33.0 | 17.4 | 33.0 | 38.7 | 33.9 | 60.6 | 39.9 | 27.1 | 29.4 | |
| 1988 | 59.0 | 40.0 | 76.2 | 88.0 | 60.1 | 101.8 | 113.8 | 111.6 | 120.1 | 125.1 | 125.1 | 179.2 | 100.2 | |
| 1989 | 161.3 | 165.1 | 131.4 | 130.6 | 138.5 | 196.2 | 126.9 | 168.9 | 176.7 | 159.4 | 173.0 | 165.5 | 157.6 | M |
| 1990 | 177.3 | 130.5 | 140.3 | 140.3 | 132.2 | 105.4 | 149.4 | 200.3 | 125.2 | 145.5 | 131.4 | 129.7 | 142.6 | |
| 1991 | 136.9 | 167.5 | 141.9 | 140.0 | 121.3 | 169.7 | 173.7 | 176.3 | 125.3 | 144.1 | 108.2 | 144.4 | 145.7 | |
| 1992 | 150.0 | 161.1 | 106.7 | 99.8 | 73.8 | 65.2 | 85.7 | 64.5 | 63.9 | 88.7 | 91.8 | 82.6 | 94.3 | |
| 1993 | 59.3 | 91.0 | 69.8 | 62.2 | 61.3 | 49.8 | 57.9 | 42.2 | 22.4 | 56.4 | 35.6 | 48.9 | 54.6 | |
| 1994 | 57.8 | 35.5 | 31.7 | 16.1 | 17.8 | 28.0 | 35.1 | 22.5 | 25.7 | 44.0 | 18.0 | 26.2 | 29.9 | |
| 1995 | 24.2 | 29.9 | 31.1 | 14.0 | 14.5 | 15.6 | 14.5 | 14.3 | 11.8 | 21.1 | 9.0 | 10.0 | 17.5 | |
| 1996 | 11.5 | 4.4 | 9.2 | 4.8 | 5.5 | 11.8 | 8.2 | 14.4 | 1.6 | 0.9 | 17.9 | 13.3 | 8.6 | m |
| 1997 | 5.7 | 7.6 | 8.7 | 15.5 | 18.5 | 12.7 | 10.4 | 24.4 | 51.3 | 22.8 | 39.0 | 41.2 | 21.5 | |
| 1998 | 31.9 | 40.3 | 54.8 | 53.4 | 56.3 | 70.7 | 66.6 | 92.2 | 92.9 | 55.5 | 74.0 | 81.9 | 64.3 | |
| 1999 | 62.0 | 66.3 | 68.8 | 63.7 | 106.4 | 137.7 | 113.5 | 93.7 | 71.5 | 116.7 | 133.2 | 84.6 | 93.2 | |
| 2000 | 90.1 | 112.9 | 138.5 | 125.5 | 121.6 | 124.9 | 170.1 | 130.5 | 109.7 | 99.4 | 106.8 | 104.4 | 119.6 | M |
| 2001 | 95.6 | 80.6 | 113.5 | 107.7 | 96.6 | 134.0 | 81.8 | 106.4 | 150.7 | 125.5 | 106.5 | 132.2 | 111.0 | |
| 2002 | 114.1 | 107.4 | 98.4 | 120.7 | 120.8 | 88.3 | 99.9 | 116.4 | 109.3 | 97.5 | 95.5 | 80.8 | 104.0 | |
| 2003 | 79.7 | 46.0 | 61.1 | 60.0 | 54.6 | 77.4 | 85.0 | 72.7 | 48.8 | 65.6 | 67.2 | 47.0 | 63.9 | |
| 2004 | 37.2 | 46.0 | 48.9 | | | | | | | | | | 44.0 | |

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

# Hα SOLAR FLARES

## MARCH 2004

| Sta | Day | Start (UT) | Max (UT) | End (UT) | Lat | CMD | NOAA/ USAF Region | CMP Mo | CMP Day | Dur (Min) | Imp Opt | Imp Xray | Obs See | Obs Type | Area Measurement Time (UT) | Area Measurement Apparent (10-6 Disk) | Area Measurement Corr (Sq Deg) | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GOES | 01 | 0544 | 0547 | 0558 | | | 10564 | | | 14 | | B 2.3 | | | | | | 1.9E-04 |
| GOES | 02 | 0656 | 0659 | 0702 | | | 10564 | | | 6 | | B 2.8 | | | | | | 8.6E-05 |
| GOES | | 1601 | 1608 | 1616 | | | 10564 | | | 15 | | B 4.8 | | | | | | 3.5E-04 |
| GOES | | 2140 | 2149 | 2208 | S12 | E00 | 10567 | | | 28 | SF | C 1.7 | | | | | | 2.1E-03 |
| GOES | | 2321 | 2327 | 2330 | S09 | W06 | 10567 | | | 9 | SF | C 1.7 | | | | | | 4.7E-04 |
| GOES | 03 | 0123 | 0127 | 0134 | | | 10567 | | | 11 | | B 2.7 | | | | | | 1.5E-04 |
| GOES | 04 | 0146 | 0154 | 0158 | | | 10567 | | | 12 | | B 6.9 | | | | | | 3.1E-04 |
| GOES | | 0229 | 0235 | 0242 | | | 10567 | | | 13 | | B 4.8 | | | | | | 3.0E-04 |
| GOES | | 0447 | 0455 | 0513 | | | | | | 26 | | B 9.6 | | | | | | 1.1E-03 |
| GOES | | 0633 | 0642 | 0655 | | | 10567 | | | 22 | | B 4.6 | | | | | | 4.5E-04 |
| GOES | | 1000 | 1007 | 1014 | | | 10567 | | | 14 | | C 2.5 | | | | | | 1.5E-03 |
| GOES | | 2256 | 2301 | 2304 | | | 10567 | | | 8 | | B 2.8 | | | | | | 1.1E-04 |
| GOES | 05 | 0059 | 0103 | 0107 | | | 10567 | | | 8 | | B 9.6 | | | | | | 4.1E-04 |
| GOES | | 0135 | 0140 | 0148 | | | 10570 | | | 13 | | B 7.3 | | | | | | 4.8E-04 |
| GOES | | 0320 | 0341 | 0353 | | | 10570 | | | 33 | | C 2.4 | | | | | | 3.0E-03 |
| GOES | | 0540 | 0547 | 0605 | | | | | | 25 | | B 8.0 | | | | | | 1.0E-03 |
| GOES | | 0655 | 0700 | 0705 | | | 10567 | | | 10 | | B 6.3 | | | | | | 3.3E-04 |
| GOES | | 0851 | 0912 | 0937 | | | 10570 | | | 46 | | C 6.6 | | | | | | 1.1E-02 |
| GOES | | 1217 | 1223 | 1230 | | | 10567 | | | 13 | | B 7.5 | | | | | | 4.9E-04 |
| GOES | | 1711 | 1716 | 1721 | | | 10567 | | | 10 | | C 1.0 | | | | | | 4.3E-04 |
| GOES | 06 | 0225 | 0229 | 0231 | | | 10567 | | | 6 | | C 1.6 | | | | | | 3.6E-04 |
| GOES | | 0656 | 0701 | 0703 | S12 | W43 | 10567 | | | 7 | SF | C 2.7 | | | | | | 5.9E-04 |
| LEAR | | 0700 | 0704 | 0710 | S12 | W43 | 10567 | 03 | 3.0 | 10 | SF | | 3 | E | | 15 | | F |
| GOES | | 0759 | 0803 | 0806 | | | 10570 | | | 7 | | B 6.1 | | | | | | 2.3E-04 |
| GOES | | 1014 | 1023 | 1028 | | | 10570 | | | 14 | | C 1.9 | | | | | | 1.1E-03 |
| GOES | | 1208 | 1217 | 1241 | | | 10570 | | | 33 | | M 1.3 | | | | | | 1.6E-02 |
| GOES | | 1512 | 1516 | 1518 | | | 10570 | | | 6 | | C 1.2 | | | | | | 3.5E-04 |
| GOES | | 1622 | 1628 | 1633 | | | 10570 | | | 11 | | C 1.4 | | | | | | 6.6E-04 |
| GOES | | 1841 | 1851 | 1910 | | | 10570 | | | 29 | | C 5.2 | | | | | | 6.1E-03 |
| GOES | | 1922 | 1935 | 1942 | | | 10570 | | | 20 | | C 2.0 | | | | | | 1.8E-03 |
| GOES | 07 | 0442 | 0448 | 0455 | | | | | | 13 | | B 5.5 | | | | | | 3.6E-04 |
| GOES | | 1231 | 1237 | 1244 | | | 10567 | | | 13 | | B 4.7 | | | | | | 3.3E-04 |
| GOES | | 2255 | 2300 | 2316 | | | 10570 | | | 21 | | B 5.3 | | | | | | 5.9E-04 |
| GOES | 08 | 0726 | 0730 | 0745 | | | 10570 | | | 19 | | B 3.3 | | | | | | 3.5E-04 |
| GOES | | 0813 | 0820 | 0832 | | | 10570 | | | 19 | | B 6.6 | | | | | | 6.0E-04 |
| GOES | | 1345 | 1349 | 1354 | | | 10567 | | | 9 | | B 3.0 | | | | | | 1.4E-04 |
| GOES | | 2246 | 2301 | 2323 | | | 10570 | | | 37 | | B 8.4 | | | | | | 1.3E-03 |
| GOES | 09 | 0331 | 0336 | 0350 | | | | | | 19 | | B 6.4 | | | | | | 5.7E-04 |
| GOES | | 0422 | 0435 | 0439 | S13 | E41 | 10570 | | | 17 | SF | C 1.1 | | | | | | 7.8E-04 |
| LEAR | | 0434 | 0436 | 0441 | S13 | E41 | 10570 | 03 | 12.3 | 7 | SF | | 3 | E | | 13 | | F |
| GOES | | 0639 | 0648 | 0702 | S16 | E43 | 10570 | | | 23 | SF | C 1.3 | | | | | | 1.4E-03 |
| LEAR | | 0644 | 0648 | 0658 | S16 | E43 | 10570 | 03 | 12.5 | 14 | SF | | 3 | E | | 27 | | F |
| GOES | | 1424 | 1429 | 1434 | | | 10570 | | | 10 | | B 5.4 | | | | | | 2.3E-04 |
| GOES | | 1959 | 2011 | 2046 | | | 10570 | | | 47 | | C 2.3 | | | | | | 4.9E-03 |
| GOES | 10 | 0015 | 0018 | 0020 | | | 10570 | | | 5 | | B 4.0 | | | | | | 1.0E-04 |
| GOES | | 1526 | 1529 | 1531 | | | | | | 5 | | B 4.7 | | | | | | 1.2E-04 |
| GOES | | 1533 | 1536 | 1539 | | | | | | 6 | | B 5.6 | | | | | | 1.7E-04 |
| GOES | | 1631 | 1635 | 1637 | | | | | | 6 | | B 4.8 | | | | | | 1.4E-04 |
| GOES | | 1856 | 1859 | 1903 | | | 10570 | | | 7 | | B 6.4 | | | | | | 2.4E-04 |
| GOES | | 2259 | 2302 | 2305 | | | | | | 6 | | B 8.4 | | | | | | 2.1E-04 |
| HOLL | | 2301 | 2302 | 2306 | S11 | E15 | 10570 | 03 | 12.1 | 5 | SF | | 3 | E | | 19 | | |
| LEAR | | 2302 | 2302 | 2305 | S13 | E19 | 10570 | 03 | 12.4 | 3 | SF | | 3 | E | | 11 | | |
| GOES | 11 | 0210 | 0215 | 0225 | S17 | E15 | 10570 | | | 15 | SF | C 1.3 | | | | | | 9.9E-04 |
| LEAR | | 0214 | 0217 | 0225 | S17 | E15 | 10570 | 03 | 12.2 | 11 | SF | | 3 | E | | 24 | | F |
| GOES | | 1842 | 1852 | 1901 | | | | | | 19 | | B 6.8 | | | | | | 6.2E-04 |
| GOES | 12 | 0232 | 0237 | 0240 | S16 | W04 | 10570 | | | 8 | SF | C 3.1 | | | | | | 8.2E-04 |
| LEAR | | 0237E | 0238U | 0243 | S16 | W04 | 10570 | 03 | 11.8 | 6D | SF | | 3 | E | | 72 | | |

# Hα SOLAR FLARES

## MARCH 2004

| Sta | Day | Start (UT) | Max (UT) | End (UT) | Lat | CMD | NOAA/ USAF Region | CMP Mo | CMP Day | Dur (Min) | Imp Opt | Imp Xray | Obs See | Obs Type | Area Measurement Time (UT) | Area Measurement Apparent (10-6 Disk) | Area Measurement Corr (Sq Deg) | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GOES | 12 | 0702 | 0707 | 0712 | | | 10570 | | | 10 | | B 6.8 | | | | | | 3.3E-04 |
| GOES | | 1546 | 1549 | 1552 | | | | | | 6 | | B 3.1 | | | | | | 9.9E-05 |
| GOES | | 2237 | 2240 | 2244 | | | 10570 | | | 7 | | B 2.5 | | | | | | 8.9E-05 |
| GOES | | 2309 | 2313 | 2317 | | | 10570 | | | 8 | | B 4.3 | | | | | | 1.7E-04 |
| GOES | | 2326 | 2341 | 2350 | S14 | W08 | 10570 | | | 24 | SF | C 1.8 | | | | | | 1.6E-03 |
| LEAR | | 2333 | 2335 | 2357 | S14 | W08 | 10570 | 03 | 12.4 | 24 | SF | | 3 | E | | 30 | | F |
| GOES | 13 | 0743 | 0747 | 0749 | | | 10570 | | | 6 | | B 3.4 | | | | | | 9.2E-05 |
| GOES | | 1350 | 1354 | 1356 | | | 10570 | | | 6 | | C 1.0 | | | | | | 2.0E-04 |
| GOES | | 1459 | 1502 | 1504 | | | | | | 5 | | B 2.5 | | | | | | 6.3E-05 |
| GOES | 14 | 0411 | 0414 | 0418 | | | 10570 | | | 7 | | B 2.1 | | | | | | 8.0E-05 |
| GOES | | 0436 | 0440 | 0445 | | | 10570 | | | 9 | | B 2.0 | | | | | | 9.9E-05 |
| GOES | | 2121 | 2132 | 2147 | | | 10570 | | | 26 | | B 4.1 | | | | | | 5.7E-04 |
| GOES | 15 | 1059 | 1103 | 1107 | | | | | | 8 | | B 2.6 | | | | | | 1.1E-04 |
| GOES | | 2032 | 2035 | 2037 | | | 10570 | | | 5 | | B 3.8 | | | | | | 8.6E-05 |
| GOES | 16 | 1725 | 1728 | 1731 | | | | | | 6 | | B 2.0 | | | | | | 6.3E-05 |
| GOES | 17 | 0150 | 0156 | 0201 | | | 10572 | | | 11 | | B 3.1 | | | | | | 1.8E-04 |
| GOES | | 0550 | 0558 | 0604 | | | 10574 | | | 14 | | B 7.8 | | | | | | 4.7E-04 |
| GOES | | 0640 | 0643 | 0645 | | | 10576 | | | 5 | | B 3.1 | | | | | | 8.3E-05 |
| LEAR | | 0753 | 0800 | 0814 | S05 | E64 | 10574 | 03 | 22.1 | 21 | SF | | 3 | E | | 47 | | |
| GOES | | 0753 | 0809 | 0813 | S05 | E64 | 10574 | | | 20 | SF | C 1.5 | | | | | | 1.2E-03 |
| LEAR | | 0831 | 0833 | 0844 | S05 | E63 | 10574 | 03 | 22.1 | 13 | SF | | 3 | E | | 53 | | |
| GOES | | 0918 | 0931 | 0944 | | | 10572 | | | 26 | | C 1.6 | | | | | | 1.9E-03 |
| GOES | | 1419 | 1427 | 1448 | | | 10574 | | | 29 | | C 2.5 | | | | | | 2.9E-03 |
| GOES | | 1550 | 1559 | 1606 | | | 10573 | | | 16 | | B 7.2 | | | | | | 5.0E-04 |
| GOES | | 1613 | 1617 | 1621 | | | 10574 | | | 8 | | B 9.8 | | | | | | 4.0E-04 |
| GOES | | 1800 | 1812 | 1818 | | | 10574 | | | 18 | | C 1.3 | | | | | | 1.3E-03 |
| GOES | | 2132 | 2140 | 2145 | S04 | E57 | 10574 | | | 13 | SF | B 6.4 | | | | | | 4.4E-04 |
| HOLL | | 2137 | 2137 | 2142 | S04 | E57 | 10574 | 03 | 22.2 | 5 | SF | | 3 | E | | 13 | | FH |
| GOES | 18 | 0021 | 0031 | 0038 | | | 10574 | | | 17 | | B 5.4 | | | | | | 4.9E-04 |
| GOES | | 0056 | 0100 | 0105 | | | 10574 | | | 9 | | B 6.8 | | | | | | 3.3E-04 |
| GOES | | 0116 | 0120 | 0124 | | | 10574 | | | 8 | | B 6.9 | | | | | | 2.8E-04 |
| GOES | | 0126 | 0133 | 0139 | | | 10578 | | | 13 | | C 1.4 | | | | | | 8.2E-04 |
| GOES | | 0508 | 0517 | 0527 | S03 | E51 | 10574 | | | 19 | 2B | M 1.6 | | | | | | 1.0E-02 |
| SVTO | | 0518E | 0518U | 0537D | S08 | E52 | 10574 | 03 | 22.1 | 19D | SF | | 2 | E | | 140 | | |
| GOES | | 0558 | 0605 | 0611 | | | 10578 | | | 13 | | C 3.7 | | | | | | 2.0E-03 |
| GOES | | 0611 | 0615 | 0621 | S06 | E50 | 10574 | | | 10 | SF | C 8.0 | | | | | | 3.8E-03 |
| LEAR | | 0612 | 0613 | 0644 | S06 | E50 | 10574 | 03 | 22.0 | 32 | SF | | 3 | E | | 94 | | F |
| SVTO | | 0612 | 0614 | 0624 | S08 | E51 | 10574 | 03 | 22.1 | 12 | SF | | 3 | E | | 96 | | F |
| GOES | | 0944 | 0950 | 0956 | | | 10574 | | | 12 | | C 1.2 | | | | | | 6.7E-04 |
| GOES | | 1202 | 1222 | 1234 | | | 10578 | | | 32 | | C 3.1 | | | | | | 4.0E-03 |
| GOES | | 1322 | 1327 | 1330 | | | 10578 | | | 8 | | B 8.6 | | | | | | 3.4E-04 |
| GOES | | 1441 | 1446 | 1450 | | | 10578 | | | 9 | | C 2.7 | | | | | | 8.1E-04 |
| GOES | | 1921 | 1927 | 1934 | N18 | E83 | 10578 | | | 13 | SF | C 3.7 | | | | | | 1.9E-03 |
| HOLL | | 1926 | 1927 | 1930 | N18 | E83 | 10578 | 03 | 25.1 | 4 | SF | | 3 | E | | 23 | | |
| HOLL | | 2205 | 2239 | 2259 | N12 | E79 | 10578 | 03 | 24.9 | 54 | SF | | 3 | E | | 55 | | FH |
| GOES | | 2207 | 2211 | 2218 | N12 | E79 | 10578 | | | 11 | SF | C 1.2 | | | | | | 6.6E-04 |
| GOES | | 2226 | 2236 | 2240 | N16 | E78 | 10578 | | | 14 | 1F | M 1.5 | | | | | | 6.6E-03 |
| HOLL | | 2305 | 2306 | 2310 | N12 | E79 | 10578 | 03 | 24.9 | 5 | SF | | 3 | E | | 22 | | |
| GOES | 19 | 0112 | 0117 | 0127 | | | 10578 | | | 15 | | C 1.8 | | | | | | 1.3E-03 |
| GOES | | 0230 | 0236 | 0240 | | | 10578 | | | 10 | | C 2.0 | | | | | | 8.1E-04 |
| GOES | | 0258 | 0306 | 0314 | | | 10578 | | | 16 | | C 1.4 | | | | | | 1.1E-03 |
| GOES | | 0411 | 0416 | 0424 | S06 | E37 | 10574 | | | 13 | SF | C 1.2 | | | | | | 7.2E-04 |
| LEAR | | 0415 | 0415 | 0422 | S06 | E37 | 10574 | 03 | 21.9 | 7 | SF | | 3 | E | | 35 | | F |
| SVTO | | 0604 | 0605 | 0613 | N11 | E71 | 10578 | 03 | 24.6 | 9 | SF | | 3 | E | | 17 | | |
| LEAR | | 0609 | 0610 | 0614 | S06 | E36 | 10574 | 03 | 21.9 | 5 | SF | | 3 | E | | 32 | | |
| GOES | | 0736 | 0744 | 0749 | | | 10578 | | | 13 | | C 1.1 | | | | | | 6.7E-04 |
| GOES | | 0843 | 0848 | 0903 | S05 | E37 | 10574 | | | 20 | SF | C 2.4 | | | | | | 2.0E-03 |
| LEAR | | 0846 | 0848 | 0902 | S05 | E37 | 10574 | 03 | 22.1 | 16 | SF | | 3 | E | | 47 | | F |
| SVTO | | 0847 | 0848 | 0853 | S05 | E37 | 10574 | 03 | 22.1 | 6 | SF | | 3 | E | | 20 | | |
| GOES | | 1003 | 1012 | 1024 | | | 10578 | | | 21 | | C 1.7 | | | | | | 1.8E-03 |
| GOES | | 1038 | 1042 | 1051 | | | 10578 | | | 13 | | C 1.4 | | | | | | 1.0E-03 |

# Hα SOLAR FLARES

## MARCH 2004

| Sta | Day | Start (UT) | Max (UT) | End (UT) | Lat | CMD | NOAA/ USAF Region | CMP Mo | CMP Day | Dur (Min) | Imp Opt | Imp Xray | Obs See | Obs Type | Area Measurement Time (UT) | Area Measurement Apparent (10-6 Disk) | Area Measurement Corr (Sq Deg) | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GOES | 19 | 1211 | 1317 | 1339 | | | 10578 | | | 88 | | C 2.5 | | | | | | 8.0E-03 |
| GOES | | 1508 | 1524 | 1531 | | | 10577 | | | 23 | | B 8.3 | | | | | | 9.0E-04 |
| GOES | | 1630 | 1637 | 1645 | | | 10578 | | | 15 | | C 1.6 | | | | | | 1.1E-03 |
| GOES | | 1826 | 1832 | 1838 | | | 10578 | | | 12 | | C 1.0 | | | | | | 6.0E-04 |
| GOES | | 2111 | 2117 | 2124 | N13 | E59 | 10578 | | | 13 | SF | B 8.7 | | | | | | 5.0E-04 |
| GOES | 20 | 0622 | 0630 | 0637 | N14 | E56 | 10578 | | | 15 | SF | B 7.5 | | | | | | 5.7E-04 |
| LEAR | | 0626 | 0626 | 0630 | N14 | E56 | 10578 | 03 | 24.5 | 4 | SF | | 3 | E | | 15 | | |
| GOES | | 1426 | 1429 | 1433 | | | 10578 | | | 7 | | B 7.0 | | | | | | 2.6E-04 |
| GOES | | 1546 | 1550 | 1556 | | | 10578 | | | 10 | | B 3.9 | | | | | | 2.1E-04 |
| GOES | | 1658 | 1702 | 1707 | | | 10578 | | | 9 | | B 8.5 | | | | | | 3.0E-04 |
| GOES | | 1851 | 1858 | 1908 | | | 10578 | | | 17 | | B 7.7 | | | | | | 6.4E-04 |
| GOES | | 1917 | 1921 | 1925 | | | 10578 | | | 8 | | B 6.1 | | | | | | 2.7E-04 |
| GOES | | 1959 | 2025 | 2035 | | | 10578 | | | 36 | | C 1.7 | | | | | | 2.5E-03 |
| HOLL | 21 | 0002 | 0009 | 0023 | N15 | E46 | 10578 | 03 | 24.5 | 21 | SF | | 3 | E | | 33 | | F |
| GOES | | 0111 | 0117 | 0128 | N15 | E48 | 10578 | | | 17 | SF | C 1.0 | | | | | | 8.4E-04 |
| LEAR | | 0115 | 0115 | 0121 | N15 | E48 | 10578 | 03 | 24.7 | 6 | SF | | 3 | E | | 11 | | F |
| GOES | | 0939 | 0952 | 1002 | | | 10576 | | | 23 | | C 6.3 | | | | | | 5.1E-03 |
| GOES | | 1059 | 1113 | 1138 | | | 10578 | | | 39 | | B 8.7 | | | | | | 1.5E-03 |
| GOES | | 1538 | 1546 | 1601 | | | 10578 | | | 23 | | B 4.8 | | | | | | 5.9E-04 |
| GOES | | 1628 | 1634 | 1702 | N16 | E39 | 10578 | | | 34 | SF | C 1.3 | | | | | | 2.1E-03 |
| HOLL | | 1632 | 1637 | 1642 | N16 | E39 | 10578 | 03 | 24.6 | 10 | SF | | 3 | E | | 10 | | F |
| GOES | | 1840 | 1855 | 1906 | | | 10578 | | | 26 | | B 5.8 | | | | | | 7.6E-04 |
| GOES | | 2356 | 0009 | 0021 | N15 | E46 | 10578 | | | 25 | SF | C 2.0 | | | | | | 2.0E-03 |
| GOES | 22 | 0036 | 0040 | 0043 | | | 10578 | | | 7 | | B 3.9 | | | | | | 1.3E-04 |
| GOES | | 0103 | 0116 | 0123 | | | 10578 | | | 20 | | B 6.4 | | | | | | 6.0E-04 |
| GOES | | 0200 | 0213 | 0224 | | | | | | 24 | | C 1.3 | | | | | | 1.3E-03 |
| GOES | | 0548 | 0616 | 0628 | | | 10574 | | | 40 | | C 8.6 | | | | | | 7.2E-03 |
| LEAR | | 0552 | 0553 | 0605 | S04 | W01 | 10574 | 03 | 22.2 | 13 | SF | | 3 | E | | 19 | | |
| LEAR | | 0609 | 0617 | 0658 | S04 | W03 | 10574 | 03 | 22.0 | 49 | 1F | | 3 | E | | 104 | | FE |
| SVTO | | 0611 | 0618 | 0640 | S04 | W02 | 10574 | 03 | 22.1 | 29 | SF | | 3 | E | | 35 | | F |
| GOES | | 0849 | 0859 | 0906 | | | 10578 | | | 17 | | B 8.3 | | | | | | 6.4E-04 |
| GOES | | 1206 | 1216 | 1224 | | | 10578 | | | 18 | | B 7.7 | | | | | | 6.4E-04 |
| GOES | | 1303 | 1308 | 1321 | | | 10578 | | | 18 | | B 7.3 | | | | | | 6.4E-04 |
| GOES | | 1714 | 1718 | 1720 | | | 10578 | | | 6 | | B 6.8 | | | | | | 1.7E-04 |
| GOES | | 1725 | 1732 | 1754 | | | 10578 | | | 29 | | B 7.0 | | | | | | 9.5E-04 |
| GOES | | 2018 | 2033 | 2044 | | | 10578 | | | 26 | | C 1.1 | | | | | | 1.2E-03 |
| GOES | 23 | 0034 | 0042 | 0049 | N14 | E19 | 10578 | | | 15 | SF | C 1.3 | | | | | | 1.1E-03 |
| LEAR | | 0036 | 0039 | 0051 | N14 | E19 | 10578 | 03 | 24.5 | 15 | SF | | 3 | E | | 21 | | |
| GOES | | 0657 | 0725 | 0757 | S03 | W15 | 10574 | | | 60 | SF | C 1.4 | | | | | | 4.1E-03 |
| LEAR | | 0705 | 0708 | 0747 | S03 | W15 | 10574 | 03 | 22.2 | 42 | SF | | 3 | E | | 13 | | |
| GOES | | 0851 | 0855 | 0859 | | | 10578 | | | 8 | | B 7.2 | | | | | | 3.1E-04 |
| GOES | | 1019 | 1022 | 1024 | | | 10578 | | | 5 | | B 3.4 | | | | | | 8.8E-05 |
| GOES | | 1944 | 2000 | 2021 | | | 10578 | | | 37 | | B 5.4 | | | | | | 1.0E-03 |
| GOES | 24 | 0413 | 0416 | 0420 | | | 10578 | | | 7 | | B 2.9 | | | | | | 1.1E-04 |
| GOES | | 0536 | 0544 | 0551 | | | | | | 15 | | B 4.4 | | | | | | 3.4E-04 |
| GOES | | 1345 | 1349 | 1352 | | | 10577 | | | 7 | | B 3.9 | | | | | | 1.5E-04 |
| GOES | | 1417 | 1426 | 1438 | N00 | W06 | 10577 | | | 21 | SF | C 5.7 | | | | | | 4.7E-03 |
| HOLL | | 1421 | 1426 | 1442 | N00 | W06 | 10577 | 03 | 24.1 | 21 | SF | | 3 | E | | 39 | | UF |
| SVTO | | 1422 | 1424U | 1443 | N01 | W07 | 10577 | 03 | 24.1 | 21 | SF | | 3 | E | | 69 | | F |
| GOES | | 1845 | 1851 | 1857 | | | 10582 | | | 12 | | C 1.5 | | | | | | 8.9E-04 |
| GOES | | 2007 | 2018 | 2028 | | | 10582 | | | 21 | | C 7.4 | | | | | | 4.8E-03 |
| GOES | | 2127 | 2138 | 2148 | | | 10577 | | | 21 | | C 1.9 | | | | | | 2.0E-03 |
| GOES | | 2314 | 2329 | 2335 | N15 | E77 | 10582 | | | 21 | SF | M 1.5 | | | | | | 7.5E-03 |
| LEAR | | 2325 | 2327 | 2339 | N13 | E82 | | 03 | 31.2 | 14 | SF | | 3 | E | | 63 | | |
| LEAR | | 2325 | 2327 | 2339 | N15 | E77 | | 03 | 30.8 | 14 | SF | | 3 | E | | 63 | | |
| GOES | 25 | 0022 | 0027 | 0055 | | | 10582 | | | 33 | | C 1.1 | | | | | | 2.0E-03 |
| GOES | | 0206 | 0210 | 0213 | | | 10582 | | | 7 | | B 9.5 | | | | | | 3.5E-04 |
| GOES | | 0356 | 0401 | 0406 | | | 10582 | | | 10 | | B 9.9 | | | | | | 4.7E-04 |
| GOES | | 0412 | 0423 | 0427 | | | 10582 | | | 15 | | C 3.2 | | | | | | 1.6E-03 |
| GOES | | 0429 | 0439 | 0443 | N12 | E82 | 10582 | | | 14 | SF | M 2.3 | | | | | | 1.1E-02 |
| LEAR | | 0431 | 0435 | 0446 | N12 | E82 | | 03 | 31.4 | 15 | SF | | 3 | E | | 32 | | |
| LEAR | | 0649 | 0653 | 0658 | N15 | E73 | | 03 | 30.8 | 9 | SF | | 3 | E | | 16 | | |

# Hα S O L A R F L A R E S

## MARCH 2004

| Sta | Day | Start (UT) | Max (UT) | End (UT) | Lat | CMD | NOAA/ USAF Region | CMP Mo | CMP Day | Dur (Min) | Imp Opt | Imp Xray | Obs See | Obs Type | Area Measurement Time (UT) | Area Measurement Apparent (10-6 Disk) | Area Measurement Corr (Sq Deg) | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GOES | 25 | 0702 | 0721 | 0736 | N15 | E73 | 10582 | | | 34 | SF | C 6.1 | | | | | | 8.4E-03 |
| LEAR | | 0703 | 0714 | 0722 | N15 | E73 | | 03 | 30.8 | 19 | SF | | 3 | E | | 73 | | F |
| GOES | | 0912 | 0918 | 0925 | | | 10574 | | | 13 | | B 6.6 | | | | | | 4.6E-04 |
| GOES | | 1201 | 1212 | 1225 | | | 10577 | | | 24 | | C 3.7 | | | | | | 3.7E-03 |
| GOES | | 1503 | 1508 | 1512 | | | 10582 | | | 9 | | C 1.8 | | | | | | 6.2E-04 |
| GOES | | 1703 | 1706 | 1709 | | | 10582 | | | 6 | | B 4.7 | | | | | | 1.4E-04 |
| HOLL | | 2325E | 2325U | 2334D | N15 | E89 | | 04 | 1.7 | 9D | SF | | 2 | E | | 50 | | |
| GOES | 26 | 0758 | 0801 | 0804 | | | 10582 | | | 6 | | B 7.7 | | | | | | 2.2E-04 |
| GOES | | 1011 | 1016 | 1019 | | | | | | 8 | | B 9.6 | | | | | | 3.1E-04 |
| GOES | | 1330 | 1333 | 1335 | | | 10582 | | | 5 | | B 7.3 | | | | | | 1.6E-04 |
| GOES | | 1743 | 1747 | 1751 | | | 10582 | | | 8 | | B 6.4 | | | | | | 2.4E-04 |
| GOES | | 2039 | 2045 | 2049 | | | 10582 | | | 10 | | B 8.1 | | | | | | 4.3E-04 |
| GOES | | 2231 | 2236 | 2244 | | | 10582 | | | 13 | | B 6.4 | | | | | | 4.3E-04 |
| GOES | 27 | 0022 | 0025 | 0030 | | | 10582 | | | 8 | | B 4.8 | | | | | | 2.1E-04 |
| GOES | | 0653 | 0656 | 0659 | N16 | E52 | 10582 | | | 6 | SF | B 6.7 | | | | | | 2.1E-04 |
| LEAR | | 0655 | 0655 | 0659 | N16 | E52 | 10582 | 03 | 31.2 | 4 | SF | | 3 | E | | 12 | | |
| GOES | | 0942 | 0949 | 0959 | | | 10586 | | | 17 | | C 1.3 | | | | | | 1.1E-03 |
| GOES | | 1246 | 1257 | 1309 | | | 10586 | | | 23 | | C 1.4 | | | | | | 1.5E-03 |
| GOES | | 1427 | 1432 | 1436 | | | 10586 | | | 9 | | C 1.9 | | | | | | 7.2E-04 |
| GOES | | 1616 | 1646 | 1655 | | | 10586 | | | 39 | | C 1.7 | | | | | | 2.1E-03 |
| GOES | | 2314 | 2319 | 2326 | | | 10582 | | | 12 | | B 6.1 | | | | | | 4.0E-04 |
| GOES | 28 | 0002 | 0008 | 0015 | | | 10582 | | | 13 | | C 1.0 | | | | | | 7.7E-04 |
| GOES | | 0338 | 0355 | 0422 | S13 | E48 | 10585 | | | 44 | SF | C 1.3 | | | | | | 2.7E-03 |
| LEAR | | 0346 | 0347 | 0402 | S13 | E48 | 10585 | 03 | 31.8 | 16 | SF | | 3 | E | | 22 | | |
| GOES | | 0438 | 0443 | 0447 | | | | | | 9 | | C 1.2 | | | | | | 5.9E-04 |
| GOES | | 0631 | 0636 | 0641 | | | 10582 | | | 10 | | B 8.0 | | | | | | 3.9E-04 |
| GOES | | 1157 | 1244 | 1307 | | | 10582 | | | 70 | | C 1.8 | | | | | | 4.2E-03 |
| GOES | | 1931 | 1942 | 1950 | | | 10586 | | | 19 | | C 1.0 | | | | | | 9.1E-04 |
| GOES | 29 | 0308 | 0312 | 0315 | | | 10582 | | | 7 | | B 6.0 | | | | | | 2.1E-04 |
| LEAR | | 0419 | 0419 | 0426 | N15 | E25 | 10582 | 03 | 31.1 | 7 | SF | | 3 | E | | 21 | | |
| GOES | | 0428 | 0432 | 0435 | N16 | E25 | 10582 | | | 7 | SF | B 6.9 | | | | | | 2.6E-04 |
| LEAR | | 0430 | 0431 | 0440 | N16 | E25 | 10582 | 03 | 31.1 | 10 | SF | | 3 | E | | 25 | | |
| GOES | | 0457 | 0501 | 0504 | | | | | | 7 | | B 6.7 | | | | | | 2.1E-04 |
| GOES | | 0755 | 0758 | 0801 | | | 10587 | | | 6 | | B 5.0 | | | | | | 1.6E-04 |
| GOES | | 0945 | 0948 | 0953 | | | 10587 | | | 8 | | B 6.1 | | | | | | 2.5E-04 |
| GOES | | 1249 | 1303 | 1307 | | | 10582 | | | 18 | | C 2.7 | | | | | | 2.1E-03 |
| GOES | | 1543 | 1551 | 1556 | N16 | E17 | 10582 | | | 13 | SF | C 5.5 | | | | | | 2.3E-03 |
| HOLL | | 1550 | 1556 | 1601 | N16 | E17 | 10582 | 03 | 30.9 | 11 | SF | | 3 | E | | 31 | | FH |
| GOES | | 1729 | 1735 | 1741 | | | 10582 | | | 12 | | C 1.5 | | | | | | 7.8E-04 |
| GOES | | 1827 | 1845 | 1847 | N16 | E16 | 10582 | | | 20 | SF | C 3.4 | | | | | | 1.7E-03 |
| HOLL | | 1843 | 1844 | 1850 | N16 | E16 | 10582 | 03 | 31.0 | 7 | SF | | 3 | E | | 39 | | FH |
| GOES | | 1955 | 2003 | 2008 | N15 | E16 | 10582 | | | 13 | SF | C 4.5 | | | | | | 2.3E-03 |
| HOLL | | 1958 | 1959 | 2002 | N15 | E16 | 10582 | 03 | 31.0 | 4 | SF | | 3 | E | | 53 | | F |
| HOLL | | 2006 | 2006 | 2012 | N15 | E15 | 10582 | 03 | 31.0 | 6 | SF | | 3 | E | | 23 | | |
| GOES | | 2023 | 2036 | 2043 | | | 10582 | | | 20 | | C 1.1 | | | | | | 1.1E-03 |
| GOES | | 2059 | 2102 | 2104 | | | 10582 | | | 5 | | C 1.4 | | | | | | 2.9E-04 |
| GOES | | 2151 | 2157 | 2202 | | | | | | 11 | | B 5.9 | | | | | | 3.5E-04 |
| GOES | | 2225 | 2230 | 2232 | | | 10582 | | | 7 | | B 9.7 | | | | | | 3.4E-04 |
| GOES | | 2319 | 2324 | 2328 | N15 | E13 | 10582 | | | 9 | SF | C 8.2 | | | | | | 2.4E-03 |
| HOLL | | 2322 | 2325 | 2332 | N15 | E13 | 10582 | 03 | 30.9 | 10 | SF | | 3 | E | | 79 | | FH |
| LEAR | | 2326E | 2326U | 2336 | N16 | E16 | 10582 | 03 | 31.2 | 10D | 1F | | 3 | E | | 111 | | FH |
| GOES | 30 | 0151 | 0156 | 0158 | N14 | E12 | 10582 | | | 7 | SF | C 5.7 | | | | | | 1.8E-03 |
| LEAR | | 0153 | 0156 | 0203 | N14 | E12 | 10582 | 03 | 31.0 | 10 | SF | | 3 | E | | 79 | | FH |
| GOES | | 0245 | 0252 | 0258 | N12 | E11 | 10582 | | | 13 | SF | C 1.8 | | | | | | 9.9E-04 |
| LEAR | | 0249 | 0250 | 0304 | N12 | E11 | 10582 | 03 | 30.9 | 15 | SF | | 3 | E | | 59 | | F |
| GOES | | 0307 | 0310 | 0312 | N13 | E11 | 10582 | | | 5 | SF | C 1.5 | | | | | | 3.7E-04 |
| LEAR | | 0310 | 0310 | 0315 | N13 | E11 | 10582 | 03 | 31.0 | 5 | SF | | 3 | E | | 38 | | FH |
| LEAR | | 0345 | 0345 | 0350 | N15 | E12 | 10582 | 03 | 31.1 | 5 | SF | | 3 | E | | 10 | | |
| GOES | | 0504 | 0509 | 0516 | N13 | E13 | 10582 | | | 12 | SF | C 2.2 | | | | | | 1.1E-03 |
| LEAR | | 0507 | 0525 | 0533 | N13 | E13 | 10582 | 03 | 31.2 | 26 | SF | | 3 | E | | 70 | | FH |
| GOES | | 0520 | 0525 | 0528 | | | | | | 8 | | C 3.3 | | | | | | 1.2E-03 |
| GOES | | 0537 | 0541 | 0546 | N12 | E09 | 10582 | | | 9 | SF | C 1.3 | | | | | | 6.1E-04 |
| LEAR | | 0539 | 0542 | 0544 | N12 | E09 | 10582 | 03 | 30.9 | 5 | SF | | 3 | E | | 15 | | FH |

# Hα SOLAR FLARES

## MARCH 2004

| Sta | Day | Start (UT) | Max (UT) | End (UT) | Lat | CMD | NOAA/ USAF Region | CMP Mo | CMP Day | Dur (Min) | Imp Opt | Imp Xray | Obs See | Obs Type | Area Measurement Time (UT) | Area Measurement Apparent (10-6 Disk) | Area Measurement Corr (Sq Deg) | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GOES | 30 | 0941 | 0951 | 0954 | | | | | | 13 | | C 5.9 | | | | | | 2.6E-03 |
| GOES | | 1011 | 1016 | 1022 | | | | | | 11 | | B 9.4 | | | | | | 4.9E-04 |
| GOES | | 1037 | 1041 | 1043 | | | | | | 6 | | B 6.8 | | | | | | 2.0E-04 |
| GOES | | 1230 | 1238 | 1244 | | | | | | 14 | | C 1.0 | | | | | | 6.5E-04 |
| GOES | | 1254 | 1300 | 1303 | | | | | | 9 | | C 4.7 | | | | | | 1.7E-03 |
| GOES | | 1344 | 1349 | 1356 | | | 10582 | | | 12 | | B 9.2 | | | | | | 5.2E-04 |
| GOES | | 1754 | 1759 | 1801 | N16 | E02 | 10582 | | | 7 | SF | C 1.4 | | | | | | 4.5E-04 |
| HOLL | | 1757 | 1759 | 1802 | N16 | E02 | 10582 | 03 | 30.9 | 5 | SF | | 3 | E | | 21 | | FH |
| GOES | | 1906 | 1915 | 1925 | | | 10577 | | | 19 | | B 6.0 | | | | | | 6.3E-04 |
| GOES | | 2129 | 2137 | 2141 | N16 | E00 | 10582 | | | 12 | SF | C 1.1 | | | | | | 4.9E-04 |
| HOLL | | 2136 | 2136 | 2141 | N16 | E00 | 10582 | 03 | 30.9 | 5 | SF | | 3 | E | | 13 | | H |
| GOES | | 2217 | 2222 | 2226 | | | 10582 | | | 9 | | B 6.4 | | | | | | 2.8E-04 |
| GOES | | 2253 | 2308 | 2345 | S05 | E02 | 10581 | | | 52 | SF | C 2.0 | | | | | | 4.8E-03 |
| HOLL | | 2258 | 2309 | 2334 | S05 | E02 | 10581 | 03 | 31.1 | 36 | SF | | 3 | E | | 57 | | |
| LEAR | | 2311E | 2313 | 2349 | S06 | E02 | 10581 | 03 | 31.1 | 38D | SF | | 3 | E | | 76 | | |
| GOES | 31 | 0009 | 0016 | 0030 | N12 | W01 | 10582 | | | 21 | 1F | C 3.8 | | | | | | 3.1E-03 |
| HOLL | | 0013 | 0016 | 0027 | N13 | W02 | 10582 | 03 | 30.8 | 14 | SF | | 3 | E | | 66 | | F |
| LEAR | | 0013 | 0016 | 0030 | N12 | W01 | 10582 | 03 | 30.9 | 17 | 1F | | 3 | E | | 100 | | FH |
| LEAR | | 0038 | 0042 | 0053 | N09 | E01 | 10582 | 03 | 31.1 | 15 | SF | | 3 | E | | 22 | | FH |
| GOES | | 0452 | 0456 | 0500 | | | | | | 8 | | B 4.9 | | | | | | 2.1E-04 |
| GOES | | 0557 | 0604 | 0607 | N16 | W02 | 10582 | | | 10 | SF | C 2.2 | | | | | | 7.9E-04 |
| LEAR | | 0601 | 0604 | 0617 | N16 | W02 | 10582 | 03 | 31.1 | 16 | SF | | 3 | E | | 77 | | FH |
| GOES | | 0927 | 0935 | 0943 | N11 | W07 | 10582 | | | 16 | SF | C 3.7 | | | | | | 2.1E-03 |
| LEAR | | 0937 | 0939 | 0944D | N11 | W07 | 10582 | 03 | 30.9 | 7D | SF | | 2 | E | | 49 | | FH |
| GOES | | 1036 | 1151 | 1245 | | | 10582 | | | 129 | | C 3.4 | | | | | | 1.9E-02 |
| GOES | | 1507 | 1511 | 1517 | N12 | W11 | 10582 | | | 10 | SF | C 2.8 | | | | | | 1.5E-03 |
| HOLL | | 1509 | 1511 | 1521 | N12 | W11 | 10582 | 03 | 30.8 | 12 | SF | | 3 | E | | 52 | | FH |
| GOES | | 2002 | 2008 | 2010 | N16 | W10 | 10582 | | | 8 | SF | C 7.4 | | | | | | 2.0E-03 |
| HOLL | | 2005 | 2006 | 2016 | N16 | W10 | 10582 | 03 | 31.1 | 11 | SF | | 3 | E | | 82 | | |

"Remarks"

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

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

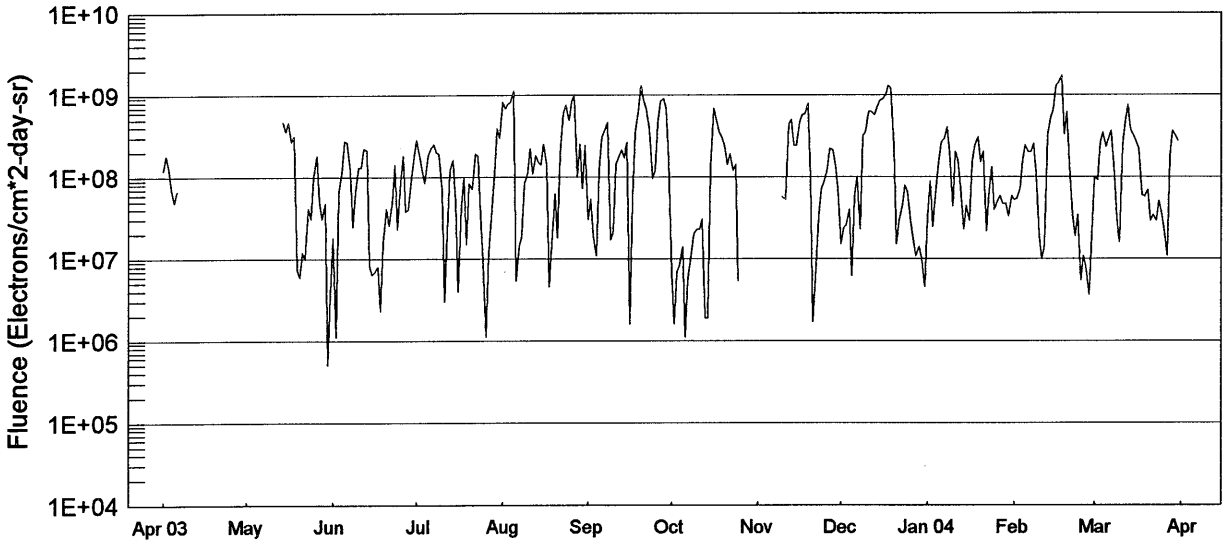
NOTE: Beginning July 1997, the times of all GOES X-ray events are now included in this table.

# SOLAR RADIO EMISSION
## Selected Fixed Frequency Events

### MARCH 2004

| Day | Freq | Sta | Type | Start (UT) | Time of Maximum (UT) | Duration (Min) | Flux Density Peak (10 -22 W/m 2 Hz) | Flux Density Mean (10 -22 W/m 2 Hz) | Int | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|
| 06 | 8800 | SVTO | 8 S | 1213.0 | 1214.0 | 1.0 | 63.0 | | | QL=4 ST=3 TYP=3 |
| | 2695 | SGMR | 8 S | 1214.0 | 1214.0 | U | 45.0 | | | QL=4 ST=2 TYP=3 |
| | 8800 | SVTO | 8 S | 1214.0 | 1214.0 | U | 63.0 | | | QL=4 ST=2 TYP=3 |
| 12 | 2695 | LEAR | 8 S | 0235.0 | 0235.0 | 1.0 | 110.0 | | | QL=4 ST=2 TYP=3 |
| | 2695 | PALE | 8 S | 0235.0 | 0236.0 | 1.0 | 120.0 | | | QL=4 ST=2 TYP=3 |
| 13 | 8800 | SGMR | 8 S | 1353.0 | 1353.0 | U | 44.0 | | | QL=4 ST=2 TYP=3 |
| | 8800 | SVTO | 8 S | 1354.0 | 1354.0 | U | 54.0 | | | QL=4 ST=2 TYP=3 |
| 14 | 2695 | SGMR | 8 S | 2035.0 | 2035.0 | U | 130.0 | | | QL=4 ST=2 TYP=3 |
| 18 | 8800 | LEAR | 8 S | 0515.0 | 0515.0 | U | 54.0 | | | QL=4 ST=2 TYP=3 |
| 24 | 2695 | SGMR | 4 S/F | 1420.0 | 1424.0 | 9.0 | 95.0 | | | QL=4 ST=2 TYP=3 |
| | 2695 | SVTO | 4 S/F | 1420.0 | 1424.0 | 6.0 | 84.0 | | | QL=4 ST=2 TYP=3 |
| | 8800 | SVTO | 4 S/F | 1422.0 | 1423.0 | 4.0 | 63.0 | | | QL=4 ST=2 TYP=3 |
| | 8800 | SGMR | 4 S/F | 1423.0 | 1423.0 | 3.0 | 54.0 | | | QL=4 ST=2 TYP=3 |
| 29 | 2695 | SGMR | 8 S | 1252.0 | 1252.0 | U | 35.0 | | | QL=4 ST=2 TYP=3 |
| | 2695 | SVTO | 8 S | 1252.0 | 1252.0 | U | 29.0 | | | QL=4 ST=2 TYP=3 |
| | 8800 | SGMR | 8 S | 1302.0 | 1302.0 | 2.0 | 59.0 | | | QL=4 ST=2 TYP=3 |
| | 8800 | SVTO | 8 S | 1302.0 | 1302.0 | U | 55.0 | | | QL=4 ST=2 TYP=3 |
| | 2695 | SGMR | 8 S | 1548.0 | 1548.0 | U | 130.0 | | | QL=4 ST=2 TYP=3 |
| | 2695 | SVTO | 8 S | 1548.0 | 1548.0 | U | 120.0 | | | QL=4 ST=2 TYP=3 |
| | 8800 | SGMR | 8 S | 1549.0 | 1549.0 | U | 47.0 | | | QL=4 ST=2 TYP=3 |
| | 8800 | SGMR | 4 S/F | 1553.0 | 1553.0 | 4.0 | 140.0 | | | QL=4 ST=2 TYP=3 |
| | 8800 | SVTO | 8 S | 1553.0 | 1553.0 | 2.0 | 110.0 | | | QL=4 ST=2 TYP=3 |
| | 8800 | SGMR | 4 S/F | 1840.0 | 1843.0 | 4.0 | 140.0 | | | QL=4 ST=2 TYP=3 |
| | 8800 | PALE | 8 S | 1842.0 | 1843.0 | 1.0 | 140.0 | | | QL=4 ST=2 TYP=3 |
| | 8800 | SGMR | 8 S | 1957.0 | 1958.0 | 2.0 | 150.0 | | | QL=4 ST=2 TYP=3 |
| | 8800 | PALE | 8 S | 1958.0 | 1958.0 | U | 140.0 | | | QL=4 ST=2 TYP=3 |
| | 2695 | PALE | 8 S | 1958.0 | 1958.0 | 1.0 | 100.0 | | | QL=4 ST=2 TYP=3 |
| | 2695 | SGMR | 8 S | 1958.0 | 1958.0 | 1.0 | 96.0 | | | QL=4 ST=2 TYP=3 |
| | 8800 | LEAR | 4 S/F | 2326.0 | 2327.0 | 3.0 | 100.0 | | | QL=4 ST=2 TYP=3 |
| | 8800 | PALE | 8 S | 2327.0 | 2328.0 | 2.0 | 85.0 | | | QL=4 ST=2 TYP=3 |
| 30 | 8800 | LEAR | 8 S | 0157.0 | 0157.0 | 1.0 | 63.0 | | | QL=4 ST=2 TYP=3 |
| | 2695 | LEAR | 8 S | 0158.0 | 0158.0 | U | 53.0 | | | QL=4 ST=2 TYP=3 |
| | 2695 | PALE | 8 S | 0158.0 | 0158.0 | U | 53.0 | | | QL=4 ST=3 TYP=3 |
| | 2695 | SVTO | 4 S/F | 0523.0 | 0524.0 | 3.0 | 32.0 | | | QL=4 ST=2 TYP=3 |
| | 8800 | SVTO | 4 S/F | 0523.0 | 0524.0 | 4.0 | 140.0 | | | QL=4 ST=2 TYP=3 |
| | 8800 | LEAR | 8 S | 0524.0 | 0524.0 | 1.0 | 130.0 | | | QL=4 ST=2 TYP=3 |
| | 8800 | SVTO | 48 C | 0944.0 | 0951.0 | 9.0 | 140.0 | | | QL=4 ST=2 TYP=8 |
| | 2695 | SVTO | 4 S/F | 0944.0 | 0945.0 | 9.0 | 65.0 | | | QL=4 ST=2 TYP=3 |
| | 2695 | SGMR | 8 S | 1256.0 | 1256.0 | U | 50.0 | | | QL=4 ST=2 TYP=3 |
| | 2695 | SVTO | 4 S/F | 1256.0 | 1256.0 | 6.0 | 52.0 | | | QL=4 ST=2 TYP=3 |
| | 8800 | SVTO | 4 S/F | 1259.0 | 1301.0 | 4.0 | 130.0 | | | QL=4 ST=2 TYP=3 |
| | 8800 | SGMR | 4 S/F | 1300.0 | 1301.0 | 3.0 | 200.0 | | | QL=4 ST=2 TYP=3 |
| | 2695 | SGMR | 8 S | 1300.0 | 1302.0 | 2.0 | 39.0 | | | QL=4 ST=2 TYP=3 |
| | 8800 | SGMR | 8 S | 1800.0 | 1800.0 | U | 23.0 | | | QL=4 ST=2 TYP=3 |
| 31 | 8800 | LEAR | 8 S | 0014.0 | 0014.0 | U | 58.0 | | | QL=4 ST=2 TYP=3 |
| | 2695 | LEAR | 8 S | 0014.0 | 0014.0 | 1.0 | 66.0 | | | QL=4 ST=2 TYP=3 |
| | 8800 | PALE | 8 S | 0015.0 | 0015.0 | U | 66.0 | | | QL=4 ST=2 TYP=3 |
| | 2695 | PALE | 8 S | 0015.0 | 0015.0 | U | 71.0 | | | QL=4 ST=2 TYP=3 |
| | 8800 | PALE | 49 GB | 2005.0 | 2005.0 | 1.0 | 570.0 | | | QL=4 ST=2 TYP=6 |
| | 2695 | PALE | 8 S | 2005.0 | 2006.0 | 1.0 | 90.0 | | | QL=4 ST=2 TYP=3 |
| | 8800 | SGMR | 49 GB | 2005.0 | 2005.0 | 1.0 | 510.0 | | | QL=4 ST=2 TYP=6 |
| | 2695 | SGMR | 8 S | 2005.0 | 2005.0 | 1.0 | 79.0 | | | QL=4 ST=2 TYP=3 |

# GOES Daily Electron Fluence
## Apr 2003 - Mar 2004




| Day | Apr 03 | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Jan 04 | Feb | Mar |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 4.5E+08 | -- | 1.8E+07 | 2.8E+08 | 8.1E+08 | 3.0E+07 | 6.7E+06 | -999 | 1.5E+07 | 3.3E+07 | 5.3E+07 | 9.9E+07 |
| 2 | 6.3E+08 | sensor | 1.1E+06 | 1.8E+08 | 6.8E+08 | 5.4E+07 | 1.6E+06 | -999 | 2.4E+07 | 8.8E+07 | 5.5E+07 | 9.2E+07 |
| 3 | 3.0E+08 | problems | 6.5E+07 | 1.2E+08 | 7.7E+08 | 1.9E+07 | 6.9E+06 | -999 | 2.6E+07 | 2.5E+07 | 7.1E+07 | 2.6E+08 |
| 4 | 1.4E+08 | -- | 1.2E+08 | 8.5E+07 | 8.2E+08 | 1.1E+07 | 8.2E+06 | -999 | 4.0E+07 | 7.2E+07 | 1.6E+08 | 3.4E+08 |
| 5 | 1.7E+08 | -- | 2.7E+08 | 1.8E+08 | 1.1E+09 | 1.2E+08 | 1.4E+07 | -999 | 6.2E+06 | 1.5E+08 | 2.4E+08 | 2.3E+08 |
| 6 | 1.6E+08 | -- | 2.6E+08 | 2.2E+08 | 5.4E+06 | 3.0E+08 | 1.1E+06 | -999 | 5.9E+07 | 2.6E+08 | 2.0E+08 | 2.9E+08 |
| 7 | 1.7E+08 | sensor | 1.2E+08 | 2.5E+08 | 1.4E+07 | 3.6E+08 | 5.7E+06 | -999 | 1.0E+08 | 2.9E+08 | 2.0E+08 | 3.6E+08 |
| 8 | -- | problems | 2.5E+07 | 2.0E+08 | 1.9E+07 | 4.5E+08 | 1.1E+07 | -999 | 2.3E+07 | 4.0E+08 | 2.5E+08 | 1.1E+08 |
| 9 | -- | -- | 6.4E+07 | 1.9E+08 | 8.3E+07 | 1.7E+07 | 2.0E+07 | -999 | 3.2E+08 | 2.0E+08 | 1.1E+08 | 3.1E+07 |
| 10 | -- | -- | 1.3E+08 | 7.0E+07 | 1.1E+08 | 2.1E+07 | 2.3E+07 | 5.6E+07 | 3.5E+08 | 4.4E+07 | 1.9E+07 | 1.6E+07 |
| 11 | -- | -- | 1.3E+08 | 3.0E+06 | 2.2E+08 | 1.4E+08 | 2.3E+07 | 5.4E+07 | 6.2E+08 | 2.0E+08 | 1.0E+07 | 2.5E+08 |
| 12 | sensor | -- | 2.2E+08 | 2.1E+07 | 1.1E+08 | 1.7E+08 | 3.0E+07 | 4.4E+08 | 6.3E+08 | 1.6E+08 | 1.4E+07 | 4.7E+08 |
| 13 | problems | -- | 2.1E+08 | 1.2E+08 | 1.8E+08 | 2.1E+08 | 1.9E+06 | 5.0E+08 | 5.7E+08 | 7.3E+07 | 3.2E+08 | 7.4E+08 |
| 14 | -- | 4.6E+08 | 8.3E+06 | 1.6E+08 | 1.5E+08 | 1.7E+08 | 1.9E+06 | 2.4E+08 | 7.1E+08 | 2.3E+07 | 5.0E+08 | 3.8E+08 |
| 15 | -- | 3.6E+08 | 6.4E+06 | 5.0E+07 | 1.4E+08 | 2.6E+08 | 1.3E+08 | 2.4E+08 | 8.4E+08 | 4.5E+07 | 6.7E+08 | 3.2E+08 |
| 16 | -- | 4.5E+08 | 6.9E+06 | 4.0E+06 | 2.5E+08 | 1.6E+06 | 6.8E+08 | 4.6E+08 | 9.0E+08 | 2.9E+07 | 1.3E+09 | 2.6E+08 |
| 17 | sensor | 2.7E+08 | 8.0E+06 | 4.5E+07 | 1.4E+08 | 5.5E+07 | 5.0E+08 | 5.7E+08 | 1.0E+09 | 1.5E+08 | 1.4E+09 | 2.2E+08 |
| 18 | problems | 3.1E+08 | 2.3E+06 | 9.9E+07 | 4.5E+06 | 3.5E+08 | 3.6E+08 | 5.8E+08 | 1.3E+09 | 2.4E+08 | 1.7E+09 | 6.0E+07 |
| 19 | -- | 7.4E+06 | 1.6E+07 | 1.5E+07 | 1.5E+07 | 6.5E+08 | 3.1E+08 | 7.7E+08 | 1.2E+09 | 3.0E+08 | 3.3E+08 | 5.7E+07 |
| 20 | -- | 6.0E+06 | 4.1E+07 | 8.4E+07 | 6.2E+07 | 1.3E+09 | 2.3E+08 | 9.6E+07 | 2.3E+08 | 1.5E+08 | 6.1E+08 | 6.9E+07 |
| 21 | -- | 1.2E+07 | 2.6E+07 | 7.1E+07 | 1.8E+07 | 8.7E+08 | 1.4E+08 | 1.7E+06 | 1.5E+07 | 2.0E+08 | 1.4E+08 | 2.9E+07 |
| 22 | sensor | 1.0E+07 | 4.9E+07 | 1.9E+08 | 1.9E+08 | 6.8E+08 | 1.9E+08 | 5.8E+06 | 2.9E+07 | 2.2E+07 | 3.3E+07 | 3.4E+07 |
| 23 | problems | 4.2E+07 | 1.4E+08 | 1.8E+08 | 6.0E+08 | 3.7E+08 | 1.2E+08 | 3.3E+07 | 4.4E+07 | 6.6E+07 | 1.9E+07 | 2.9E+07 |
| 24 | -- | 3.1E+07 | 2.3E+07 | 3.5E+07 | 7.5E+08 | 9.7E+07 | 1.4E+08 | 7.1E+07 | 7.8E+07 | 1.3E+08 | 3.4E+07 | 5.1E+07 |
| 25 | -- | 9.9E+07 | 8.7E+07 | 9.4E+06 | 4.9E+08 | 1.2E+08 | 5.3E+06 | 8.7E+07 | 6.5E+07 | 4.0E+07 | 5.5E+06 | 3.7E+07 |
| 26 | -- | 1.8E+08 | 1.8E+08 | 1.1E+06 | 8.2E+08 | 4.5E+08 | -999 | 1.2E+08 | 2.8E+07 | 5.1E+07 | 1.1E+07 | 2.0E+07 |
| 27 | sensor | 5.1E+07 | 3.8E+07 | 1.2E+07 | 1.0E+09 | 8.3E+08 | -999 | 2.2E+08 | 1.7E+07 | 5.9E+07 | 7.7E+06 | 1.1E+07 |
| 28 | problems | 3.1E+07 | 4.0E+07 | 3.2E+07 | 1.0E+08 | 8.9E+08 | -999 | 2.1E+08 | 1.1E+07 | 4.7E+07 | 3.6E+06 | 1.8E+08 |
| 29 | -- | 4.8E+07 | 9.4E+07 | 1.1E+08 | 2.5E+08 | 7.0E+08 | -999 | 1.4E+08 | 1.4E+07 | 4.7E+07 | 2.0E+07 | 3.6E+08 |
| 30 | -- | 5.0E+05 | 1.7E+08 | 3.9E+08 | 7.2E+07 | 1.6E+08 | -999 | 7.1E+07 | 1.0E+07 | 3.3E+07 | | 3.1E+08 |
| 31 | | 3.6E+06 | | 3.0E+08 | 2.4E+08 | | -999 | | 4.5E+06 | 5.9E+07 | | 2.7E+08 |

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

# CONTENTS

Prompt Reports — Number 716 Part I

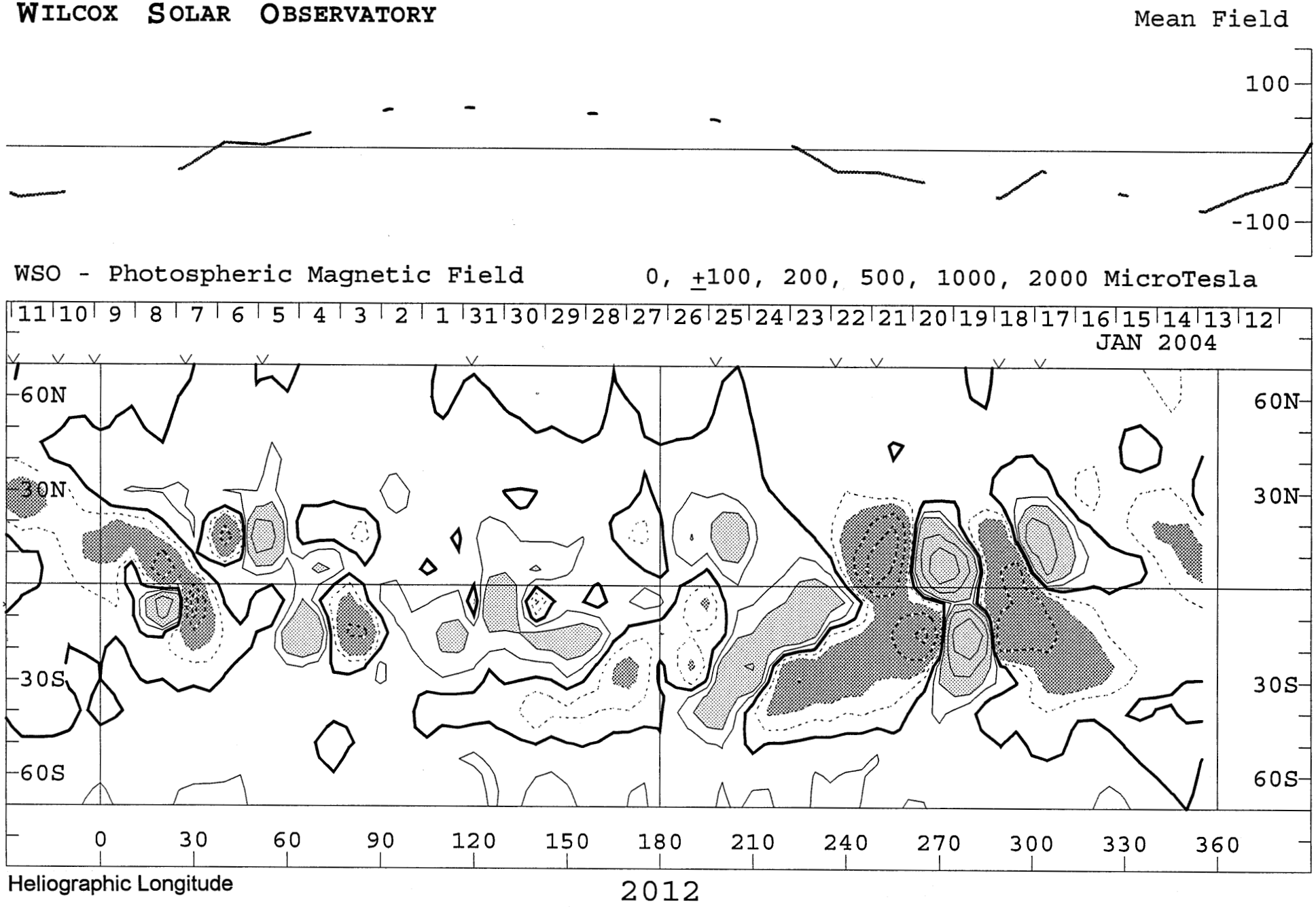
## DATA FOR FEBRUARY 2004

# SOLAR MAGNETIC FIELD SYNOPTIC CHART

CARRINGTON ROTATION NUMBER 2012

(13 January to 9 February 2004)

**WILCOX SOLAR OBSERVATORY**



# SOLAR MAGNETIC FIELD SYNOPTIC CHART

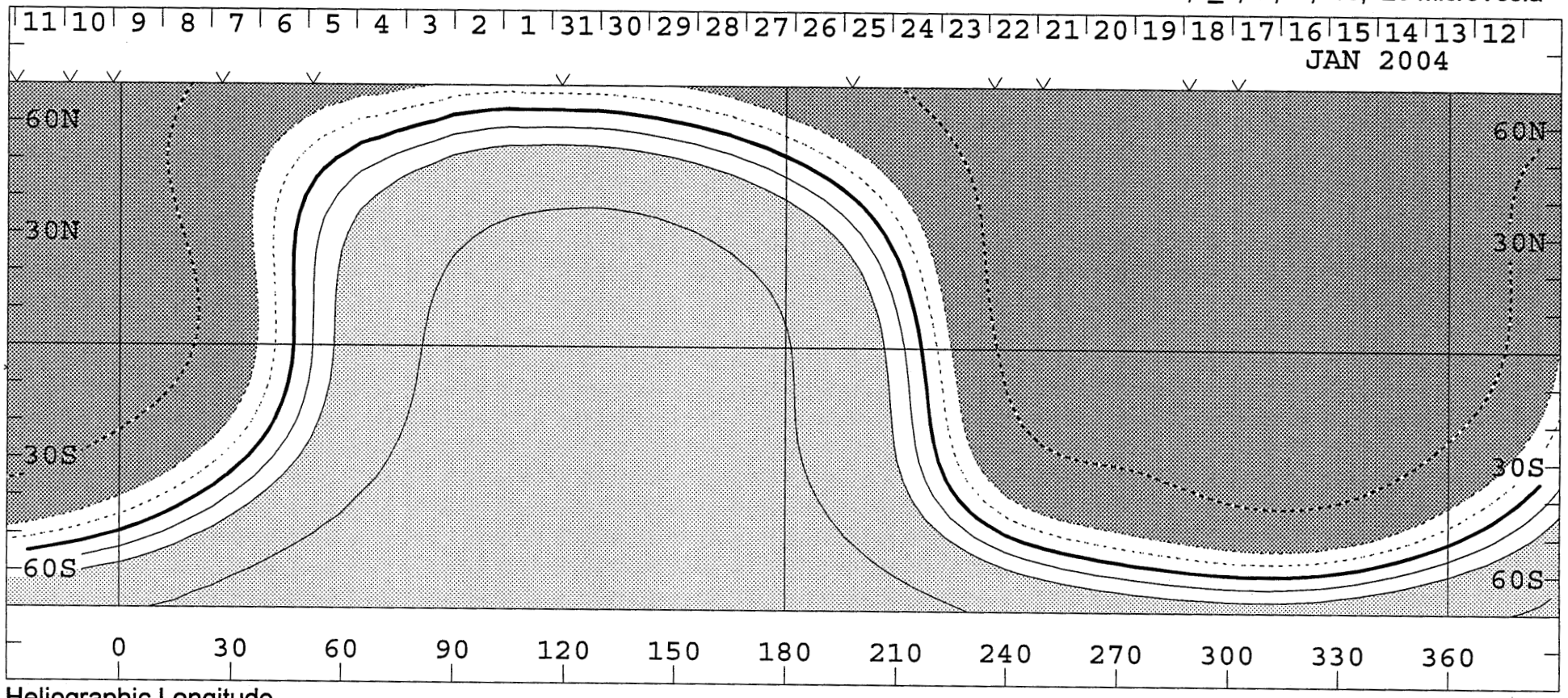
## SOURCE SURFACE FIELD

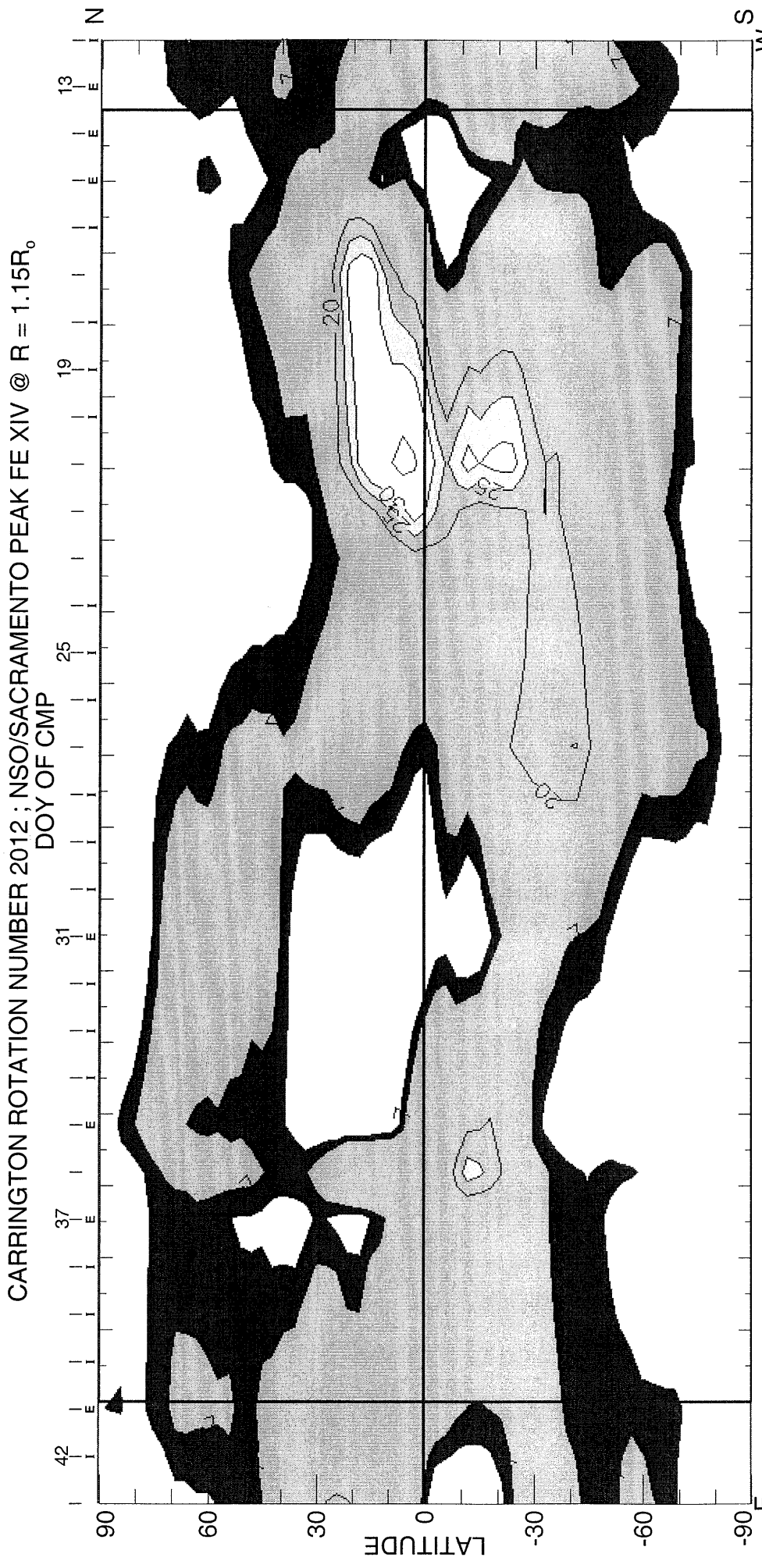
CARRINGTON ROTATION NUMBER 2012

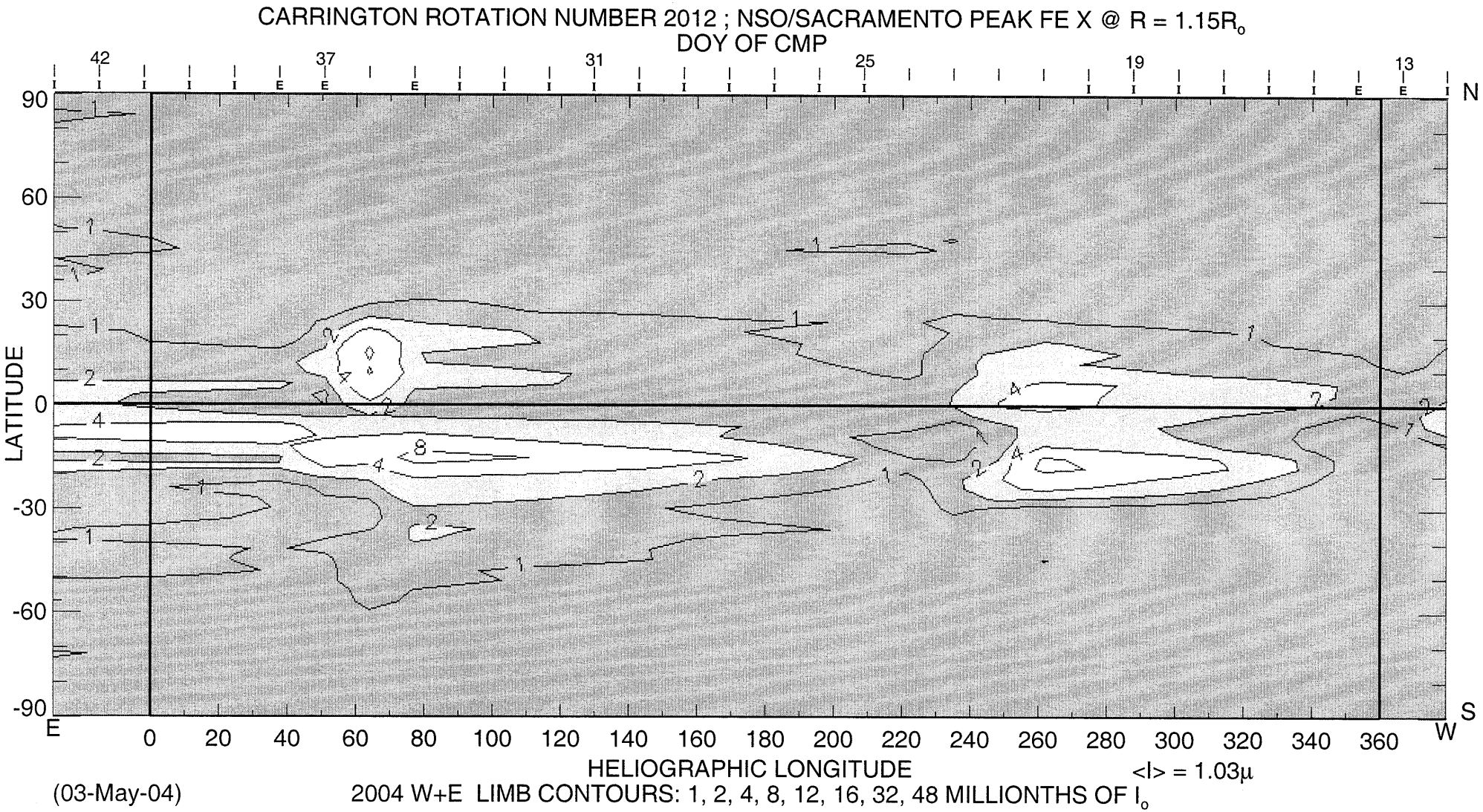
(13 January 9 February 2004)

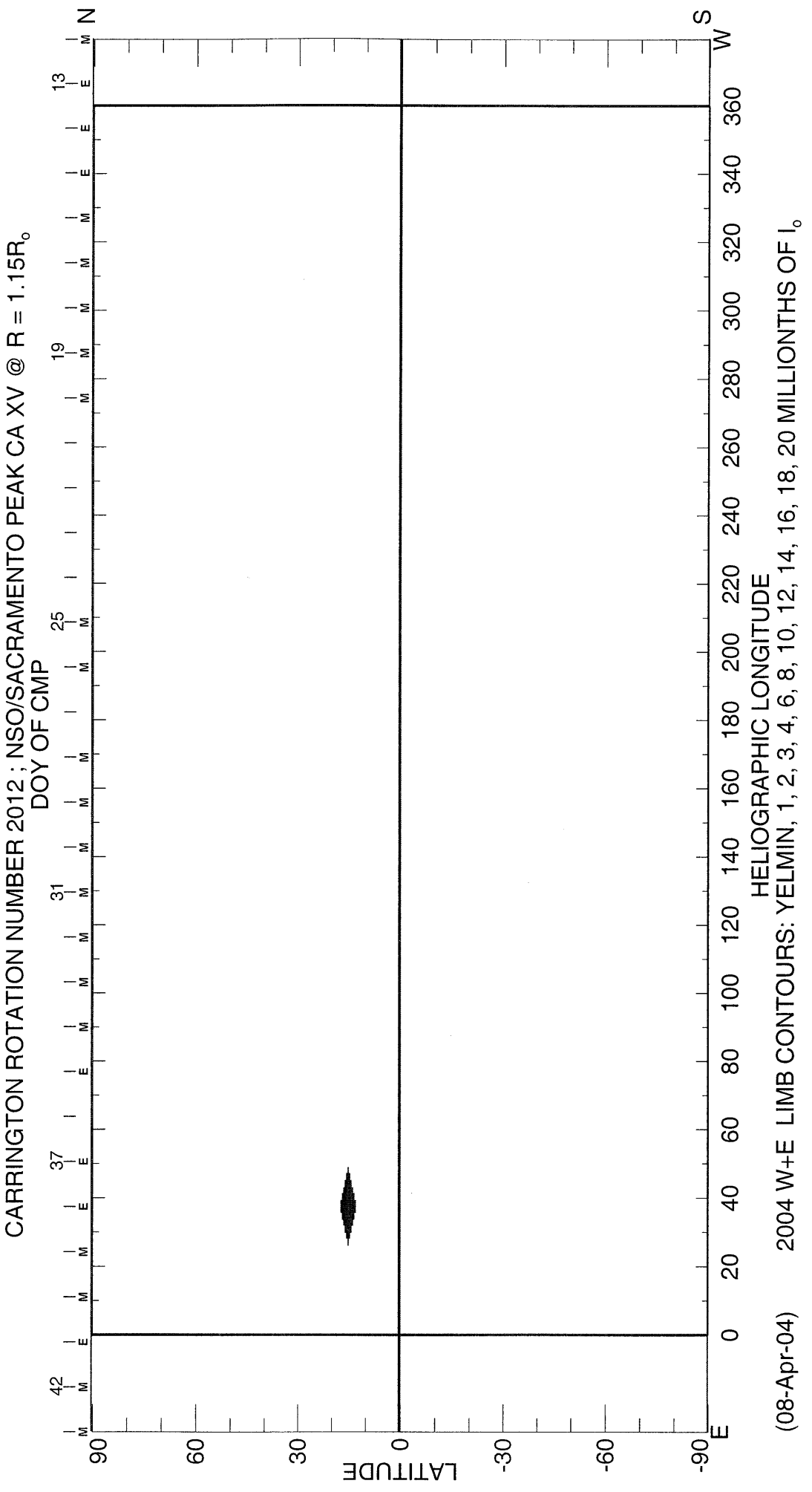
**Wilcox Solar Observatory**

0, ±1, 2, 5, 10, 20 microTesla







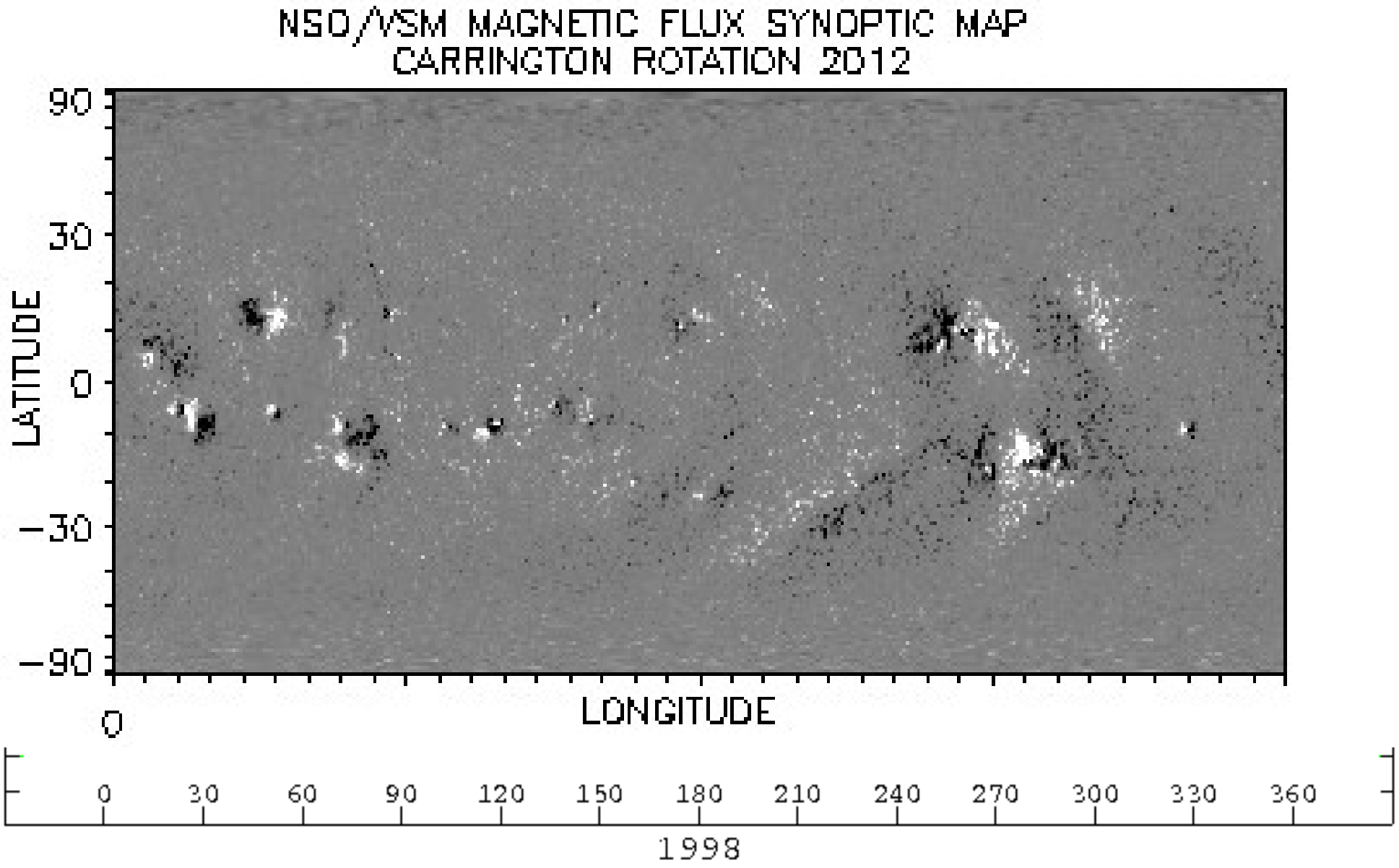


**SOLAR MAGNETIC FIELD SYNOPTIC CHART**

CARRINGTON ROTATION NUMBER 2012

(13 January to 9 February 2004)

National Solar Observatory/Kitt Peak




Heliographic Longitude

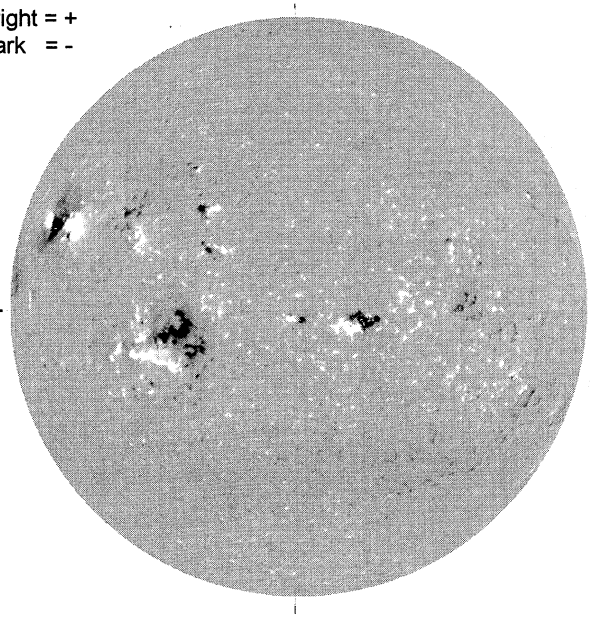
# FEBRUARY 1, 2004 ( P= -11.91, Bo = -5.98, Lo = 116.38)

## KITT PEAK MAGNETOGRAM--SOLIS

N

**854.2 nm**

Bright = +
Dark = -



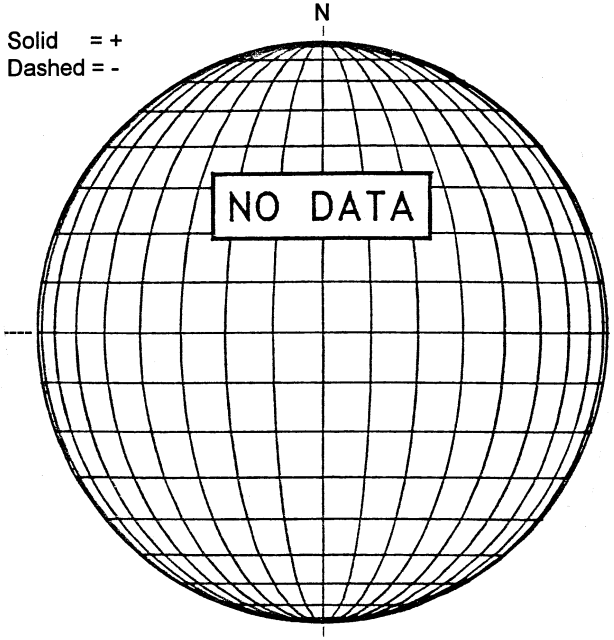
E--

2111 UT

## STANFORD MAGNETOGRAM

N

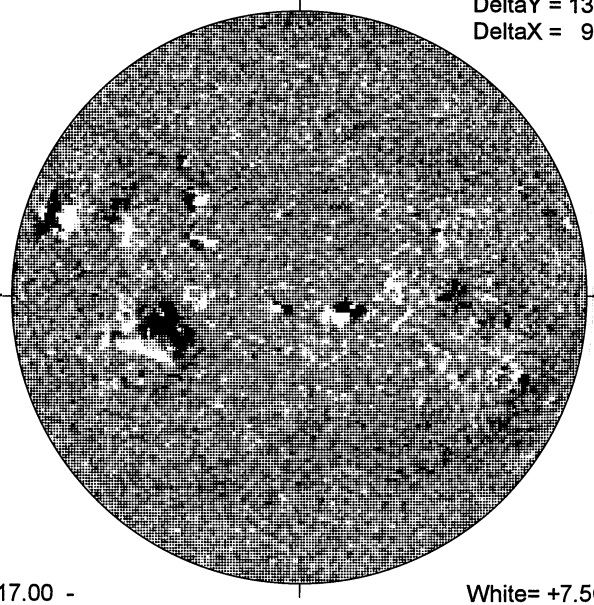
Solid = +
Dashed = -




## MT. WILSON MAGNETOGRAM

N

DeltaY = 13.1
DeltaX = 9.6



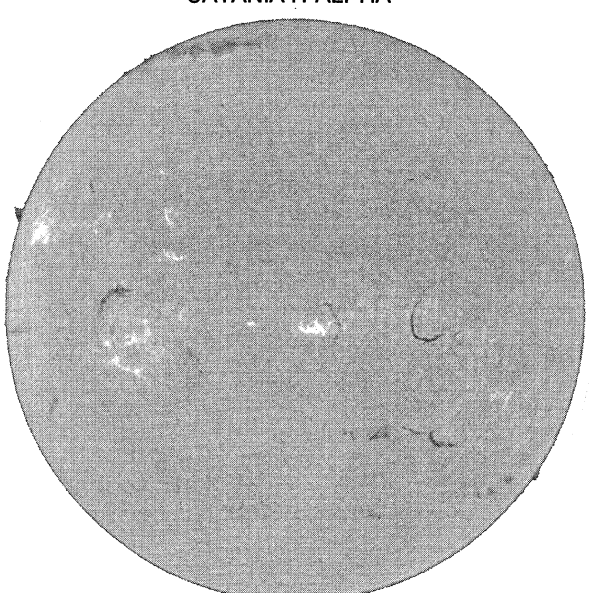
-W

17.00 -
17.98 UT

White= +7.5G
Black = -7.5G

## CATANIA H-ALPHA

-----

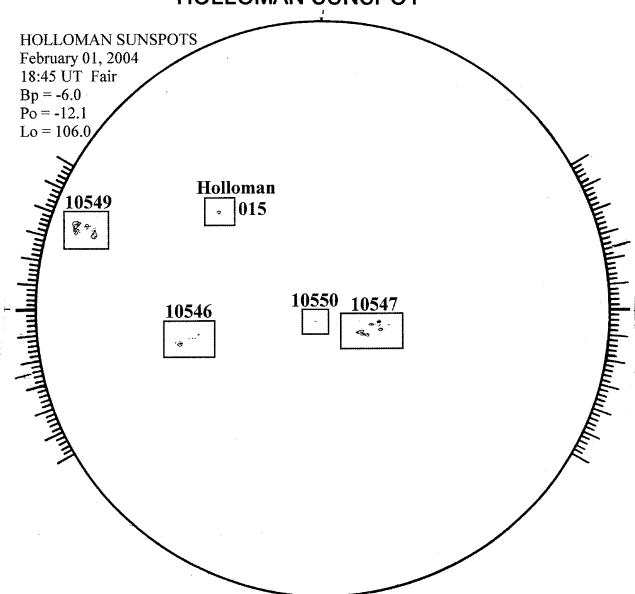


E-

0821 UT

S

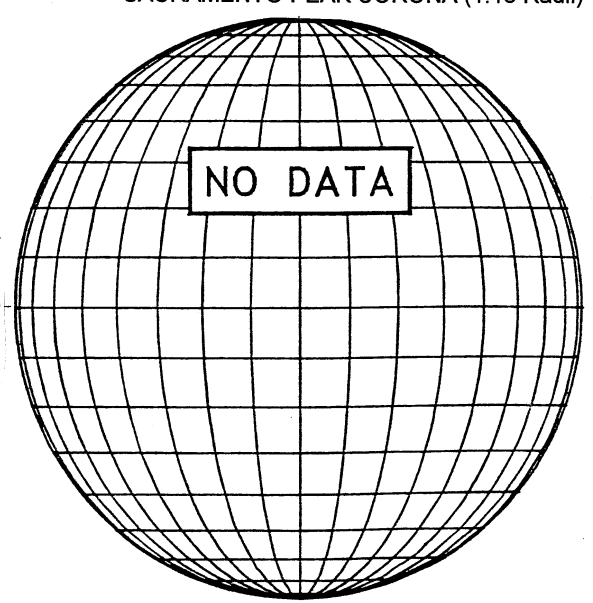
## HOLLOMAN SUNSPOT




1845 UT

S

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



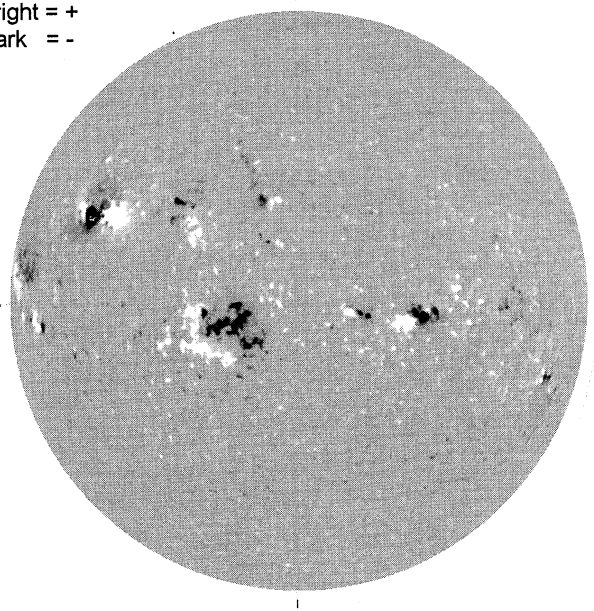

S

**FEBRUARY 2, 2004 ( P= -12.32, Bo = -6.05, Lo = 103.21)**

KITT PEAK MAGNETOGRAM--SOLIS

N **854.2 nm**

Bright = +
Dark = -



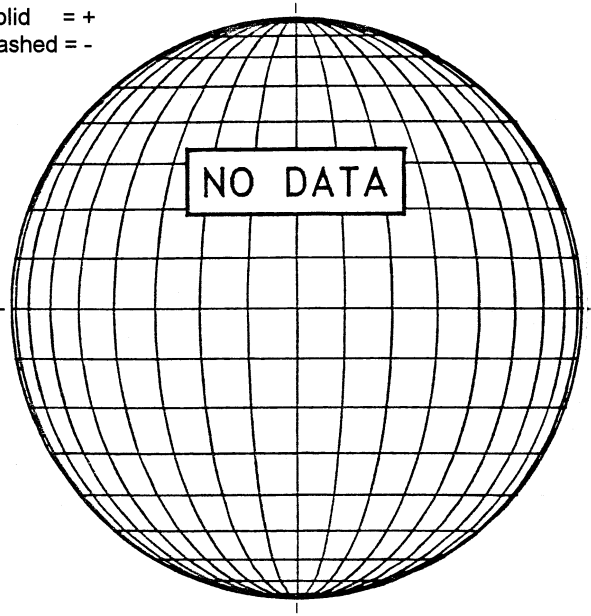
E-

1926 UT

STANFORD MAGNETOGRAM

N

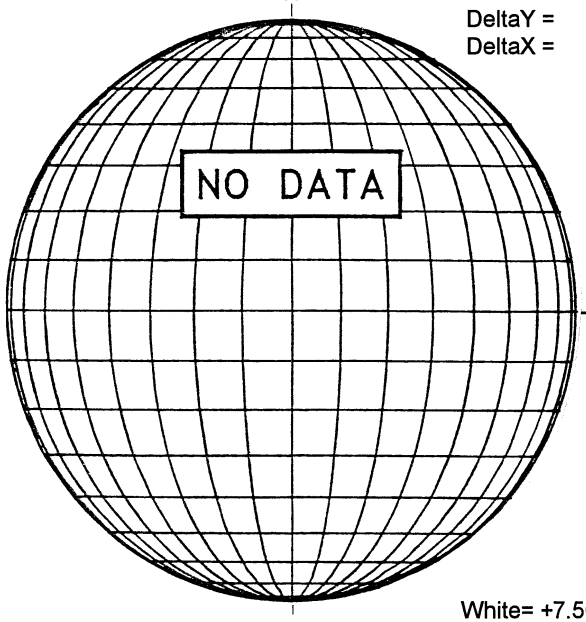
Solid = +
Dashed = -




MT. WILSON MAGNETOGRAM

N

DeltaY =
DeltaX =

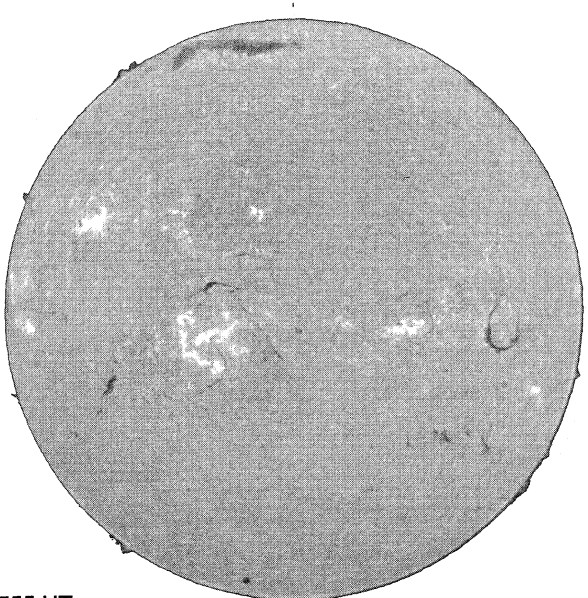



-W

White= +7.5G
Black = -7.5G

---

BIG BEAR H-ALPHA

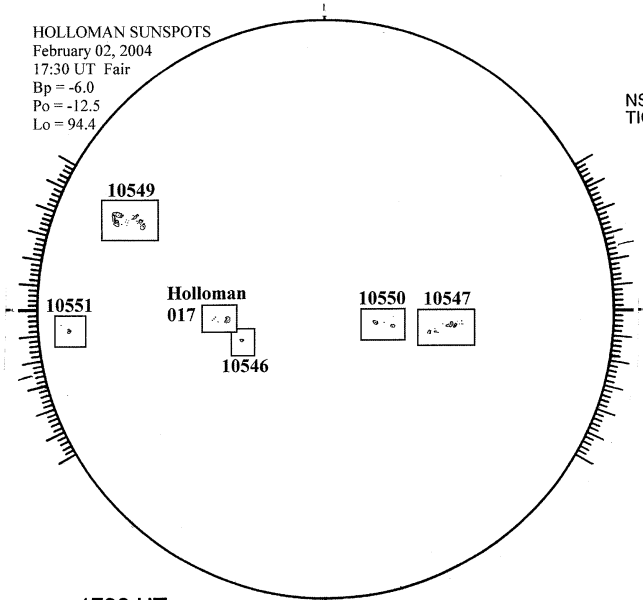


E-

1755 UT

S

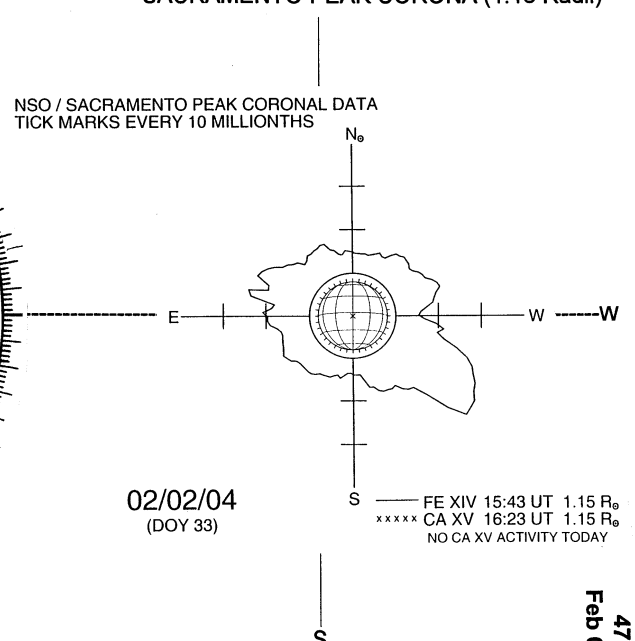
HOLLOMAN SUNSPOTS




1730 UT

S

SACRAMENTO PEAK CORONA (1.15 Radii)----




S

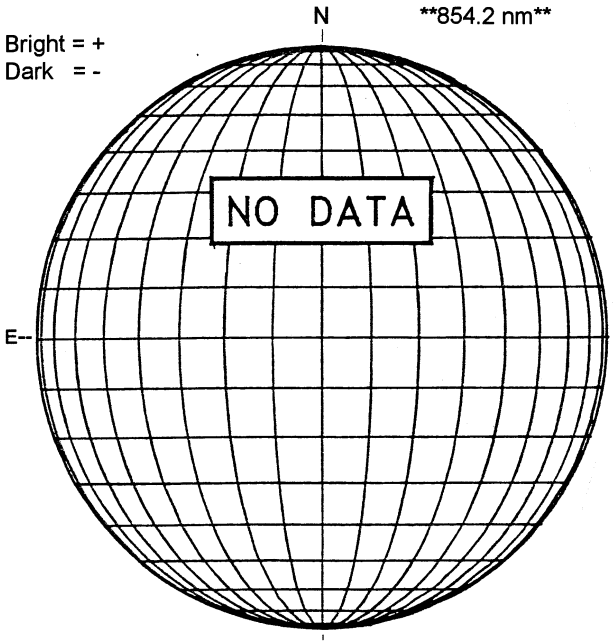
47
Feb 04

# FEBRUARY 3, 2004 ( P= -12.72, Bo = -6.12, Lo = 90.05)

## KITT PEAK MAGNETOGRAM--SOLIS

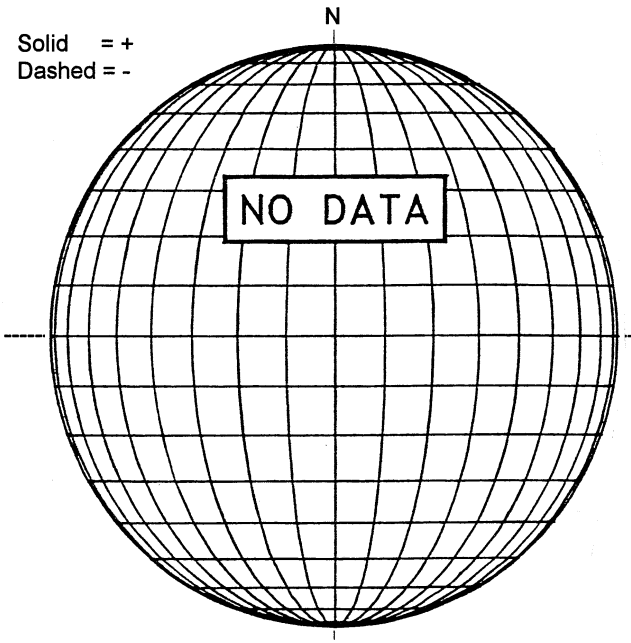
**854.2 nm**

Bright = +
Dark = -



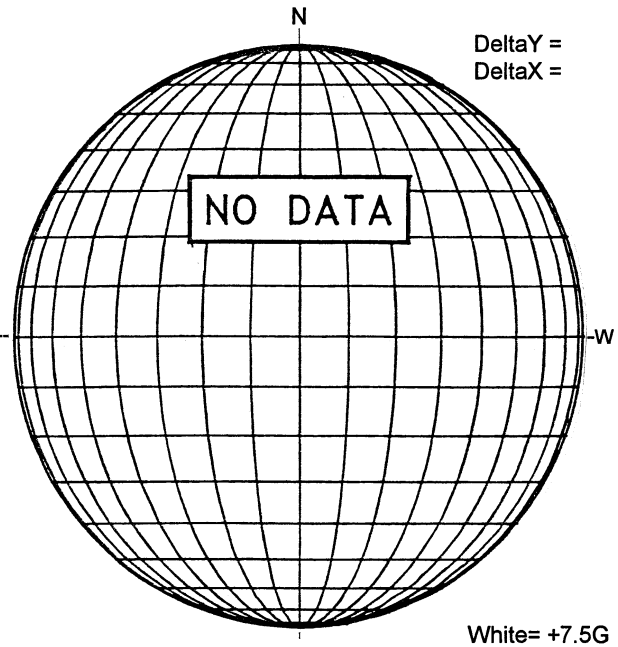

## STANFORD MAGNETOGRAM

Solid = +
Dashed = -



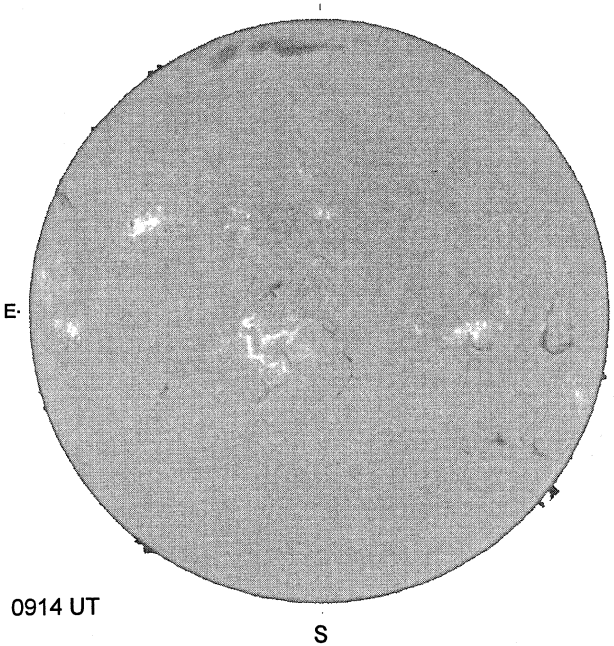

## MT. WILSON MAGNETOGRAM

DeltaY =
DeltaX =

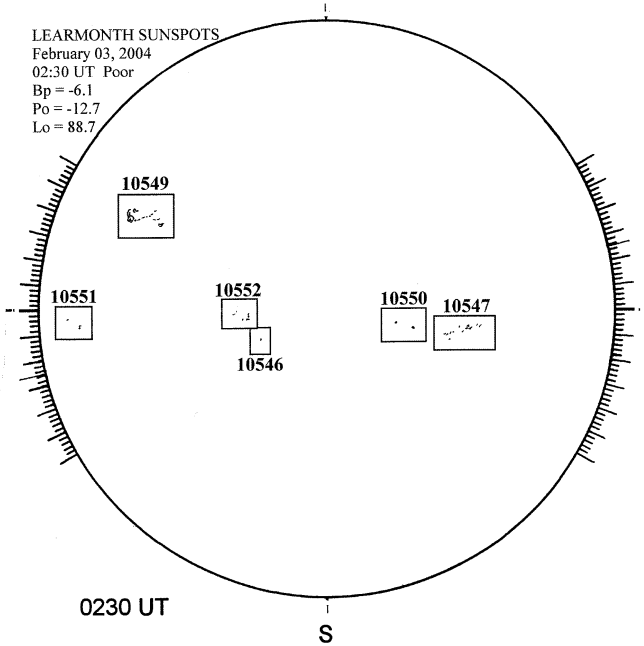



White= +7.5G
Black = -7.5G

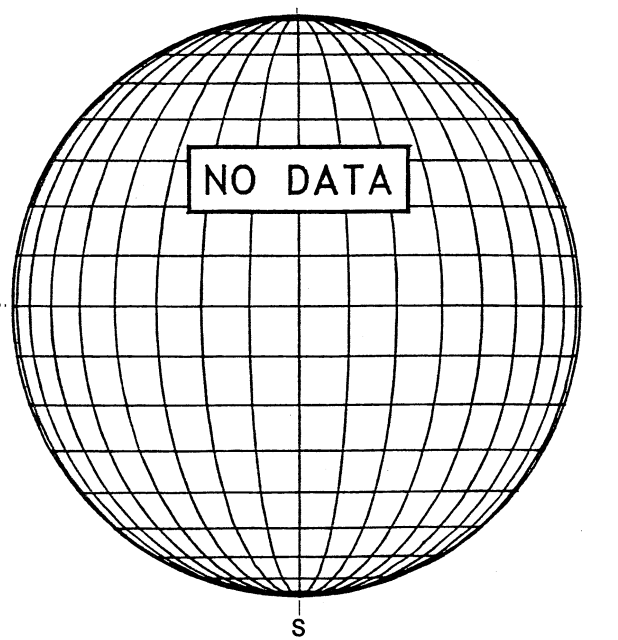
## CATANIA H-ALPHA




## LEARMONTH SUNSPOTS




## LOMNICKY PEAK CORONA (1.04 Radii)

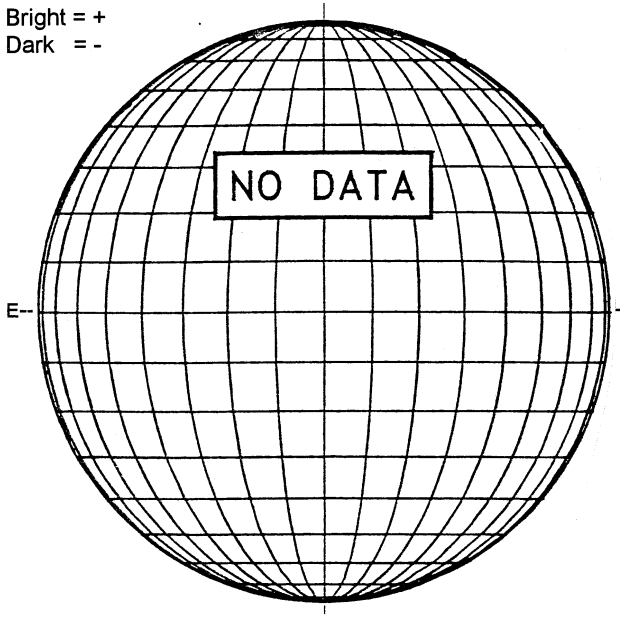


**FEBRUARY 4, 2004 ( P= -13.12, Bo = -6.19, Lo = 76.88)**

KITT PEAK MAGNETOGRAM--SOLIS

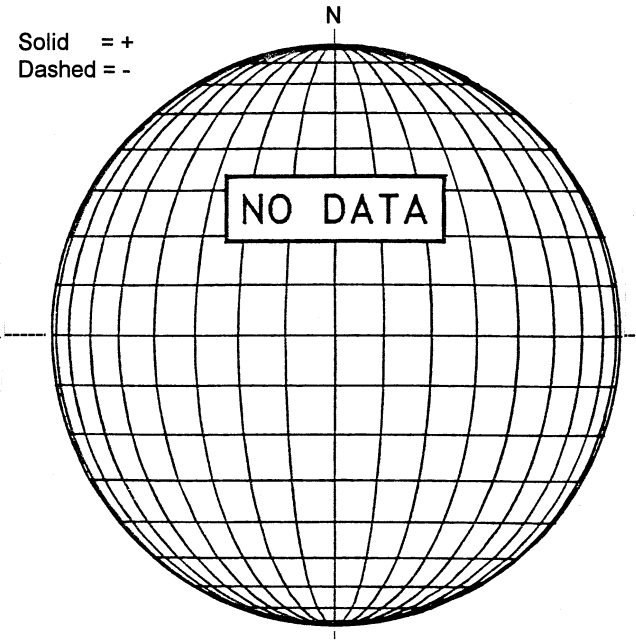
**854.2 nm**

Bright = +
Dark = -



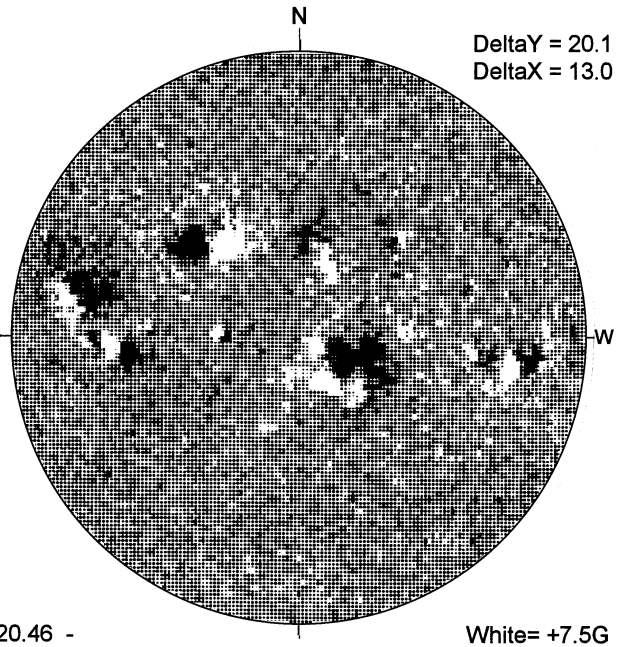

STANFORD MAGNETOGRAM

Solid = +
Dashed = -




MT. WILSON MAGNETOGRAM

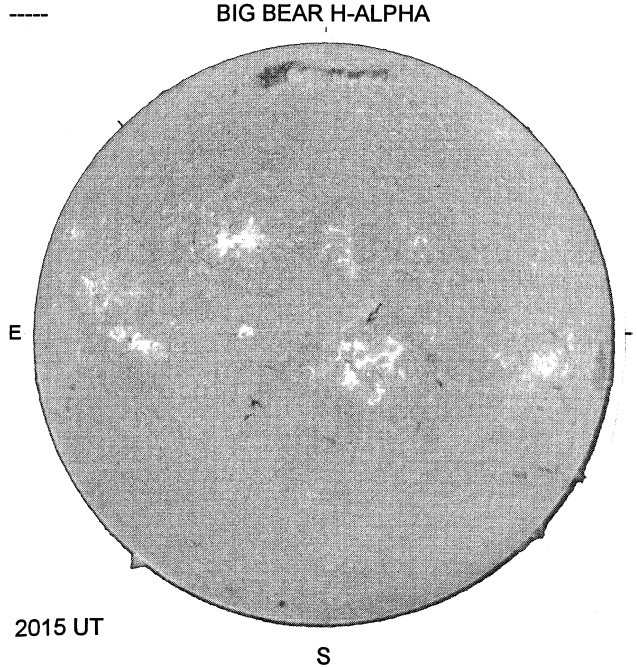
DeltaY = 20.1
DeltaX = 13.0




20.46 -
21.03 UT

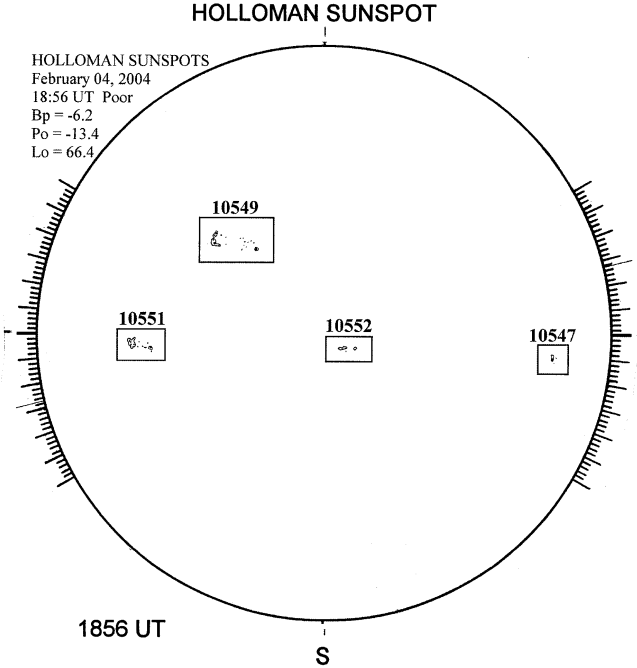
White= +7.5G
Black = -7.5G

BIG BEAR H-ALPHA



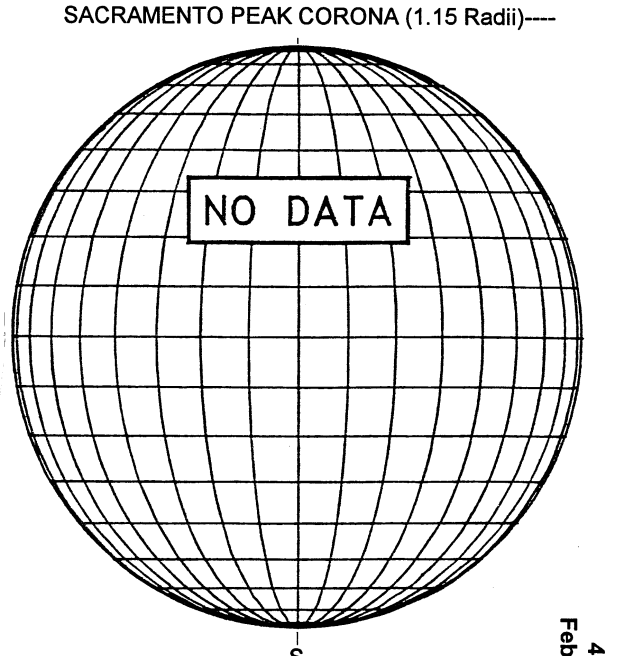

2015 UT

HOLLOMAN SUNSPOT



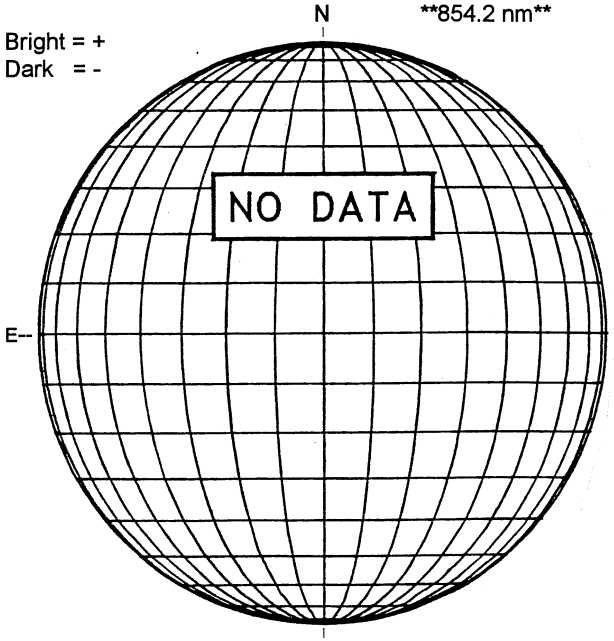

1856 UT

SACRAMENTO PEAK CORONA (1.15 Radii)----

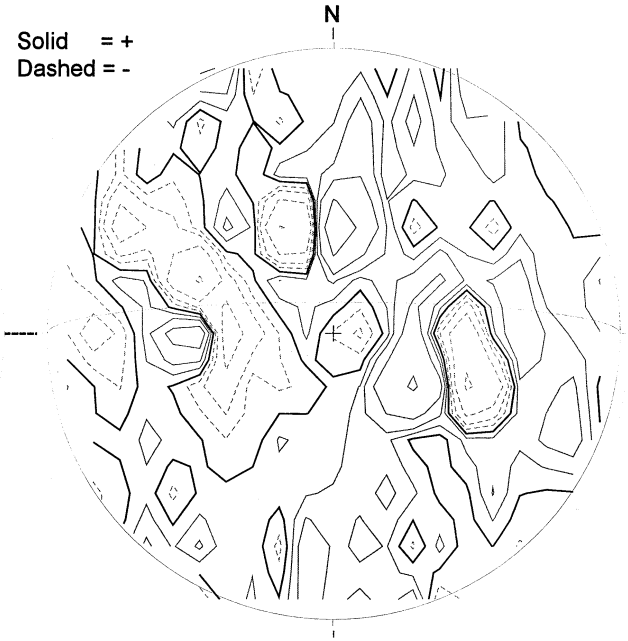


**FEBRUARY 5, 2004 ( P= -13.52, Bo = -6.26, Lo = 63.71)**

KITT PEAK MAGNETOGRAM--SOLIS

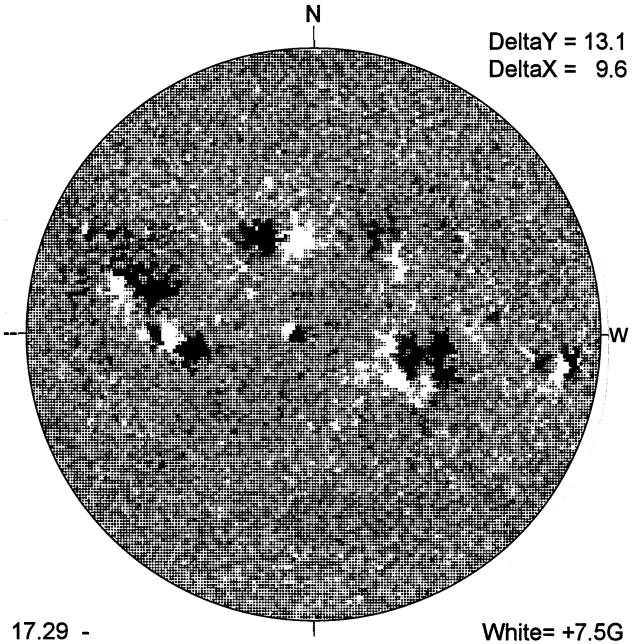



STANFORD MAGNETOGRAM




2143 UT

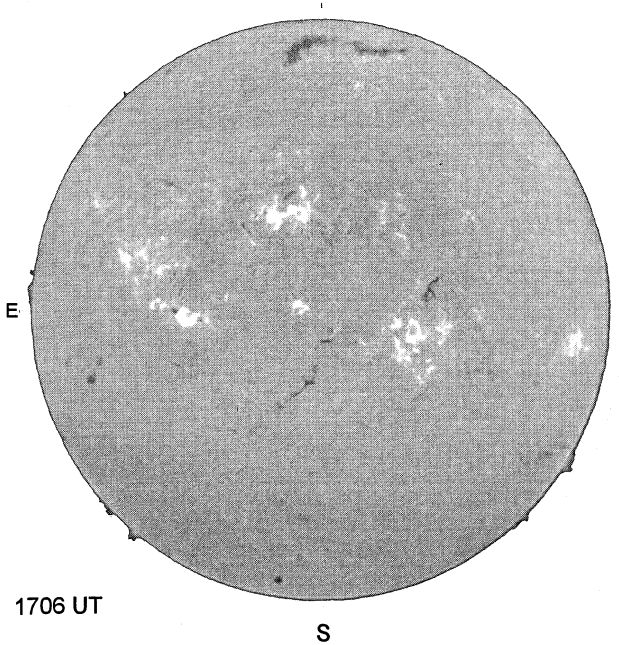
MT. WILSON MAGNETOGRAM




17.29 -
18.26 UT

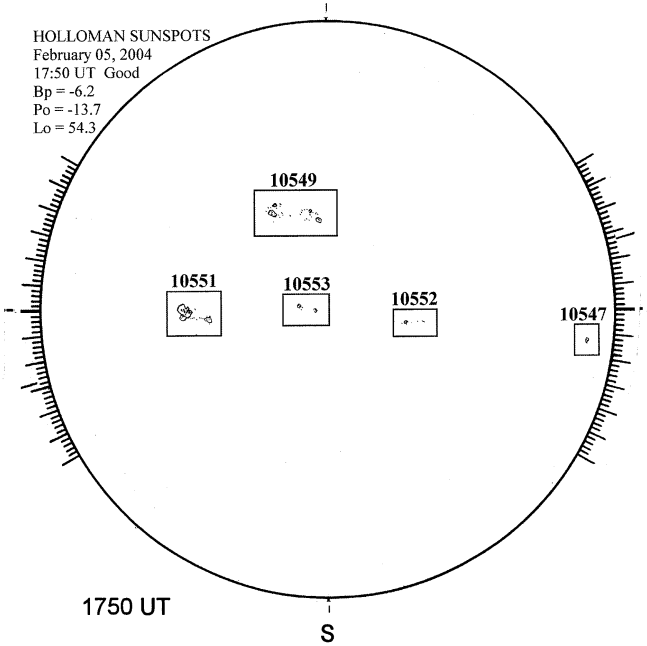
White= +7.5G
Black = -7.5G

BIG BEAR H-ALPHA



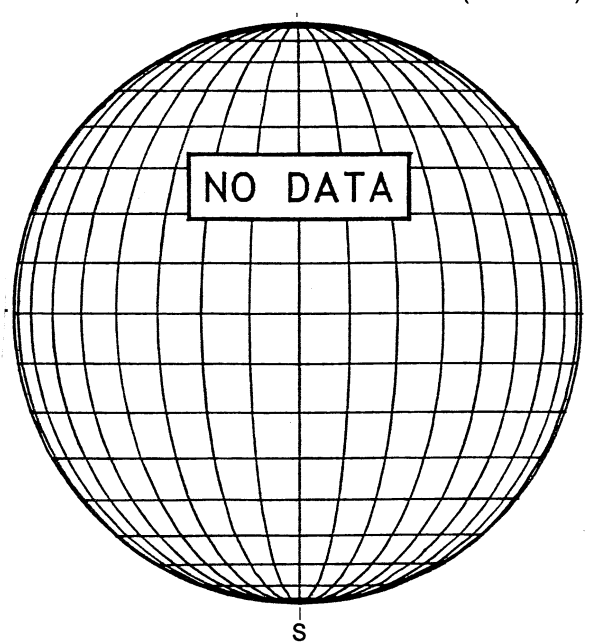

1706 UT

HOLLOMAN SUNSPOT




1750 UT

SACRAMENTO PEAK CORONA (1.15 Radii)----

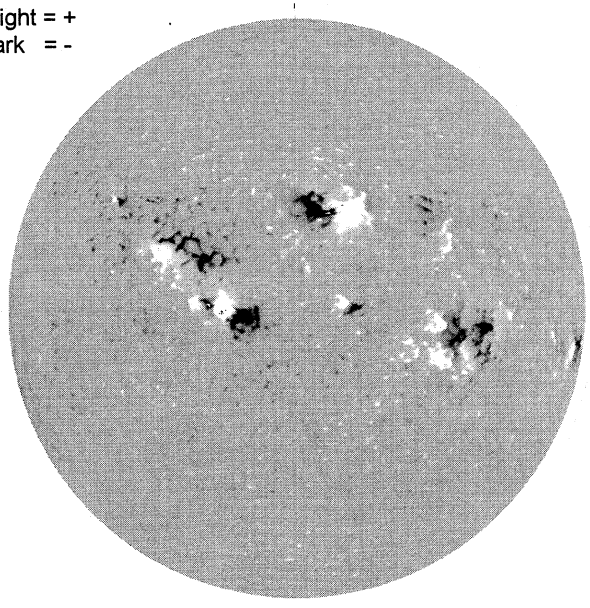


**FEBRUARY 6, 2004 ( P= -13.90, Bo = -6.32, Lo = 50.55)**

KITT PEAK MAGNETOGRAM--SOLIS

N **854.2 nm**

Bright = +
Dark = -



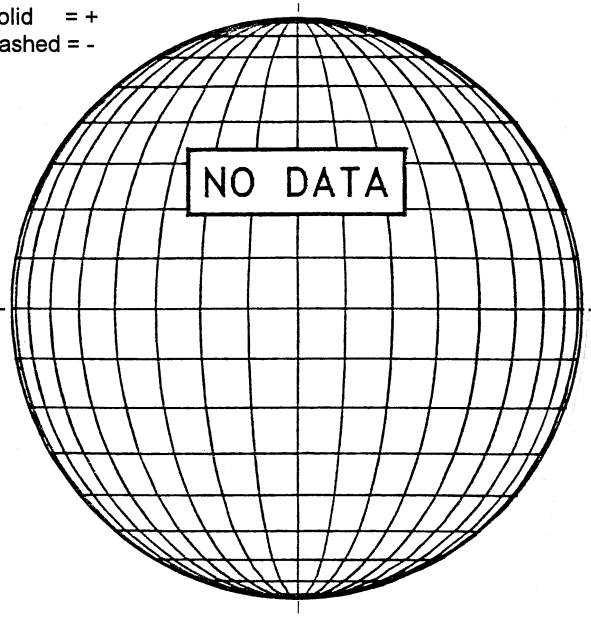
E-

1833 UT

STANFORD MAGNETOGRAM

N

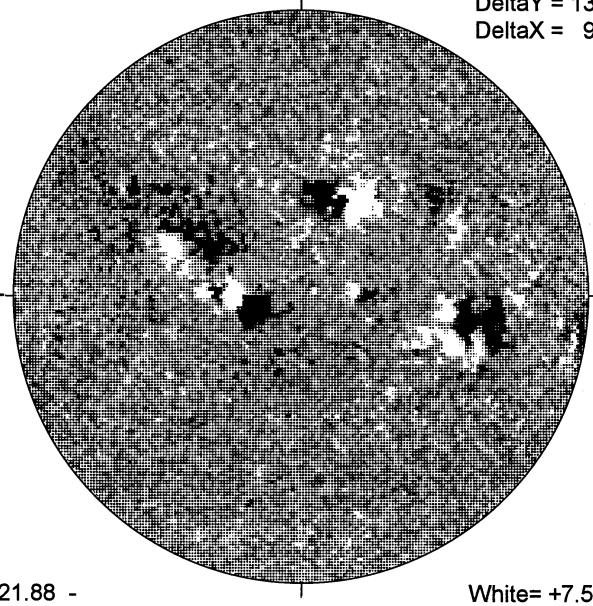
Solid = +
Dashed = -




MT. WILSON MAGNETOGRAM

N

DeltaY = 13.1
DeltaX = 9.6



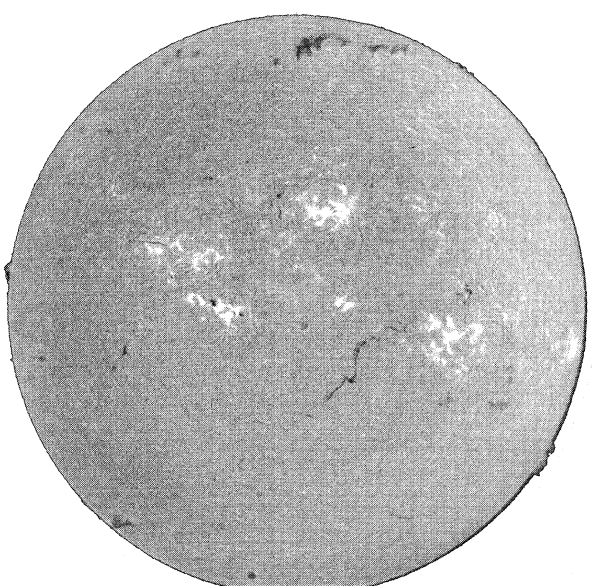
-W

21.88 -
22.85 UT

White= +7.5G
Black = -7.5G

---

BIG BEAR H-ALPHA

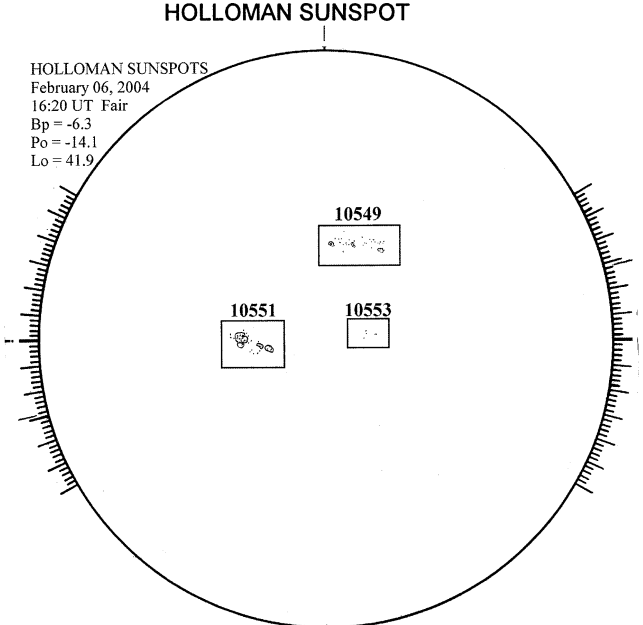


E-

1737 UT

S

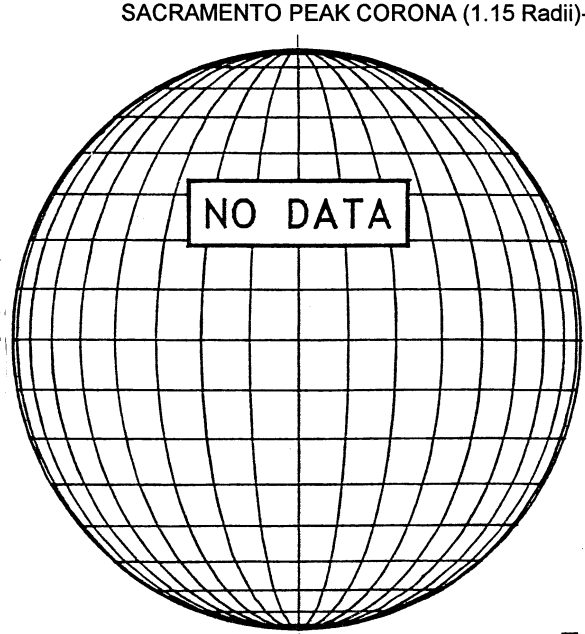
HOLLOMAN SUNSPOT




1620 UT

S

SACRAMENTO PEAK CORONA (1.15 Radii)----




S

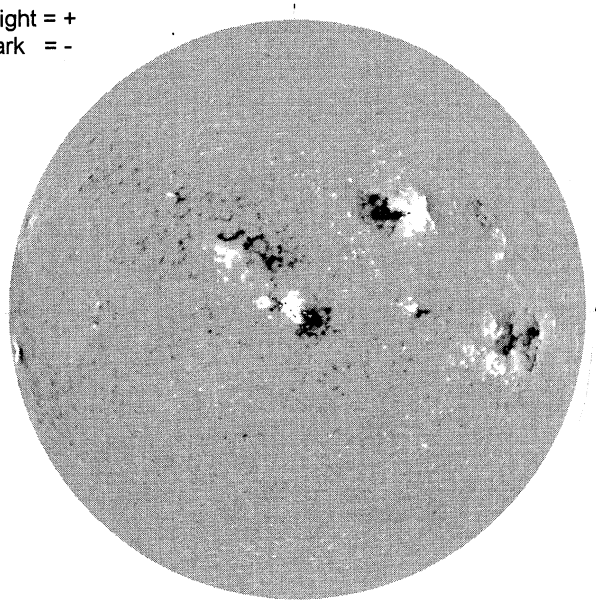
# FEBRUARY 7, 2004 ( P= -14.29, Bo = -6.38, Lo = 37.38)

## KITT PEAK MAGNETOGRAM--SOLIS

N
**854.2 nm**

Bright = +
Dark = -

E-

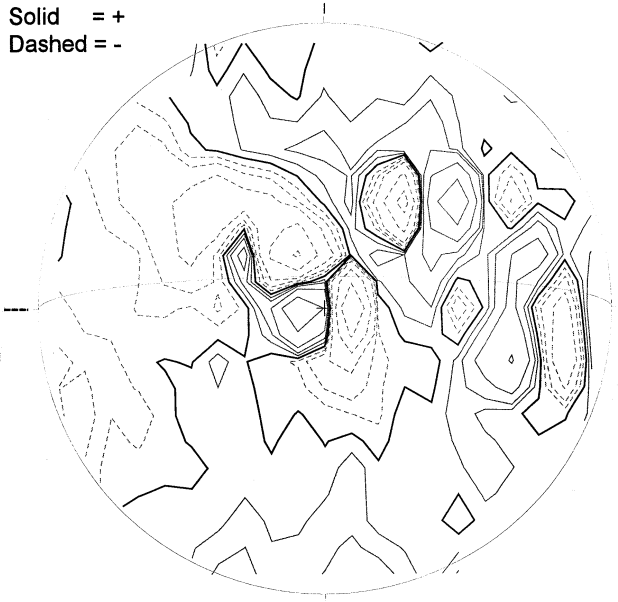


2024 UT

## STANFORD MAGNETOGRAM

N

Solid = +
Dashed = -



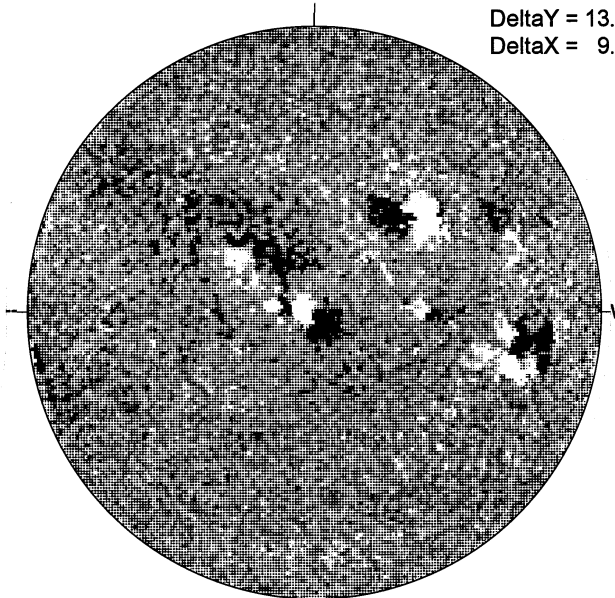
1836 UT

## MT. WILSON MAGNETOGRAM

N

DeltaY = 13.1
DeltaX = 9.6

W

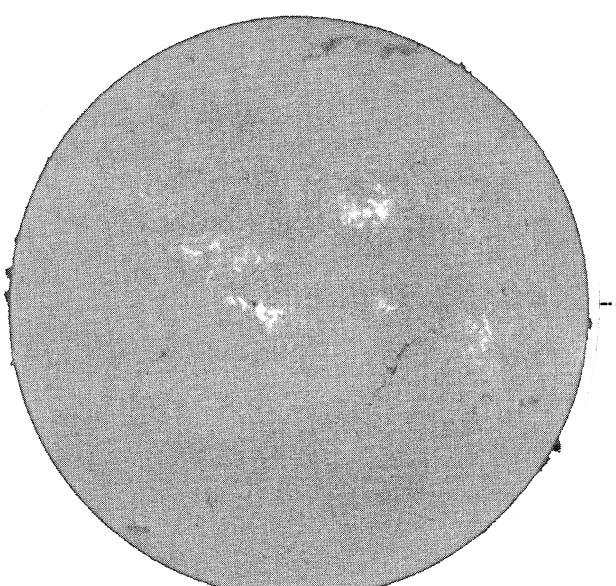


18.54 -
19.51 UT

White= +7.5G
Black = -7.5G

## CATANIA H-ALPHA

E

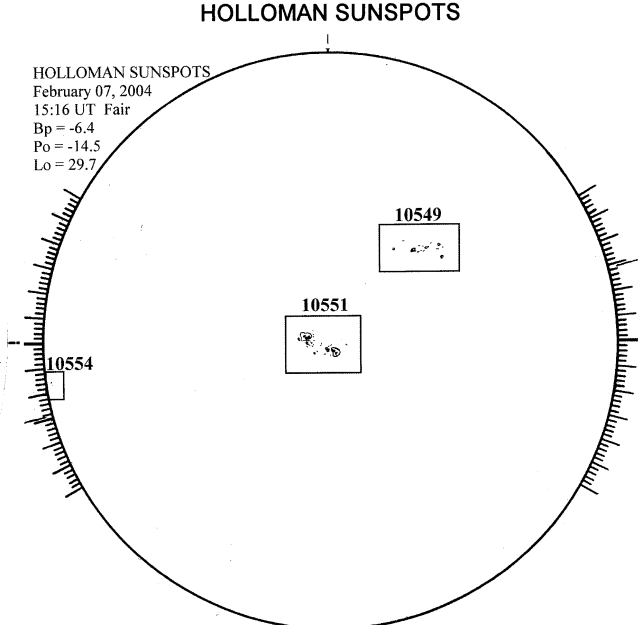


0808 UT

S

## HOLLOMAN SUNSPOTS

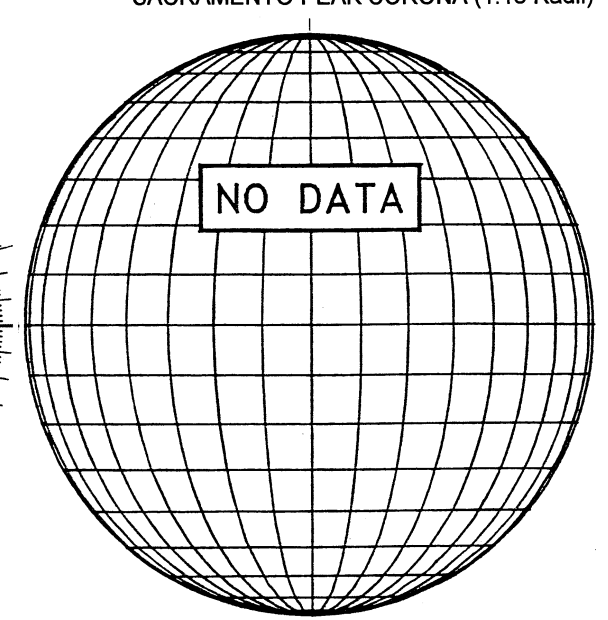
HOLLOMAN SUNSPOTS
February 07, 2004
15:16 UT Fair
Bp = -6.4
Po = -14.5
Lo = 29.7




1516 UT

S

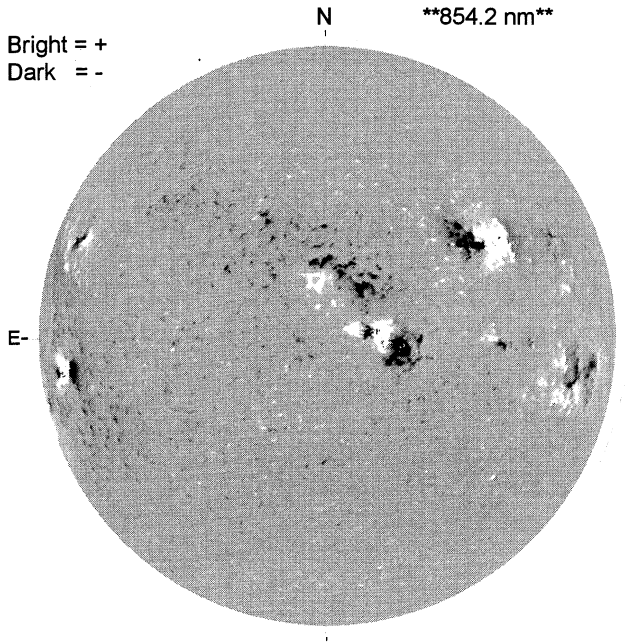
## SACRAMENTO PEAK CORONA (1.15 Radii)----



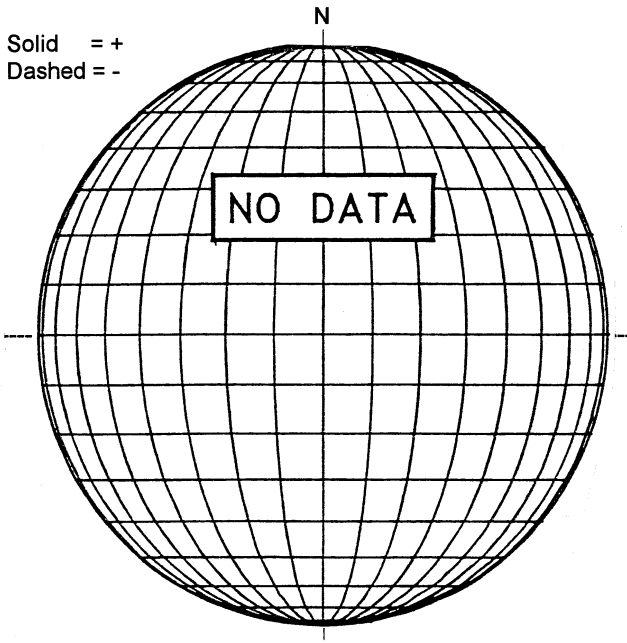

S

**FEBRUARY 8, 2004 ( P= -14.67, Bo = -6.44, Lo = 24.21)**

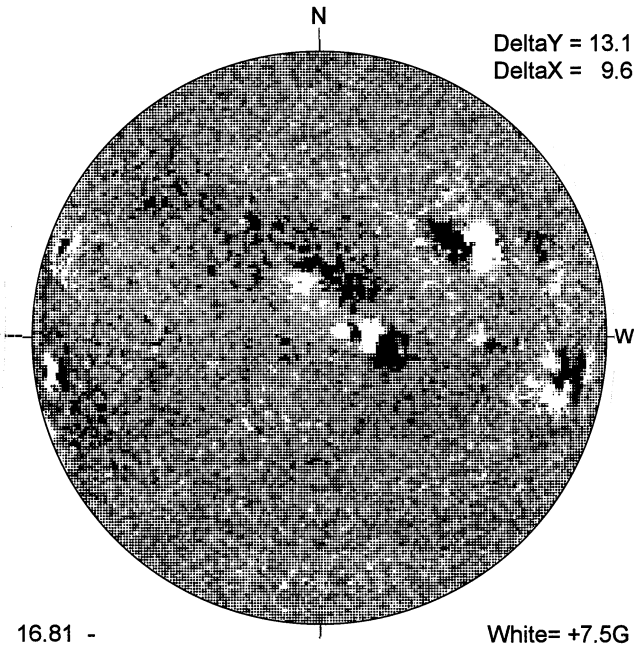
KITT PEAK MAGNETOGRAM--SOLIS



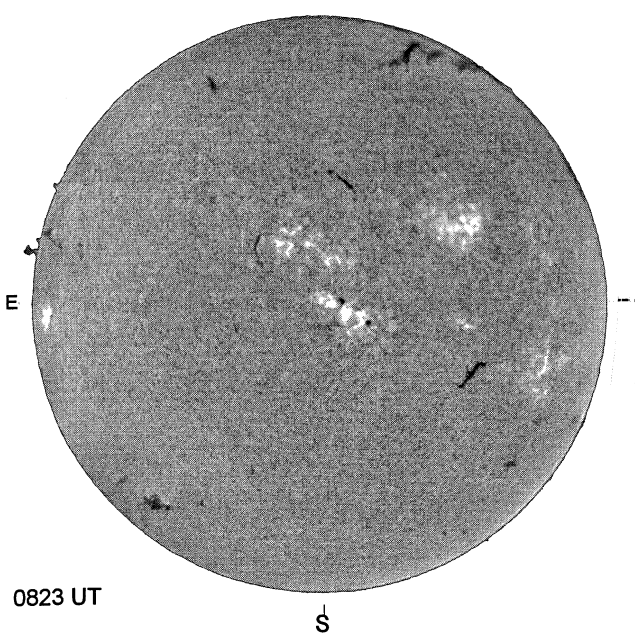

STANFORD MAGNETOGRAM



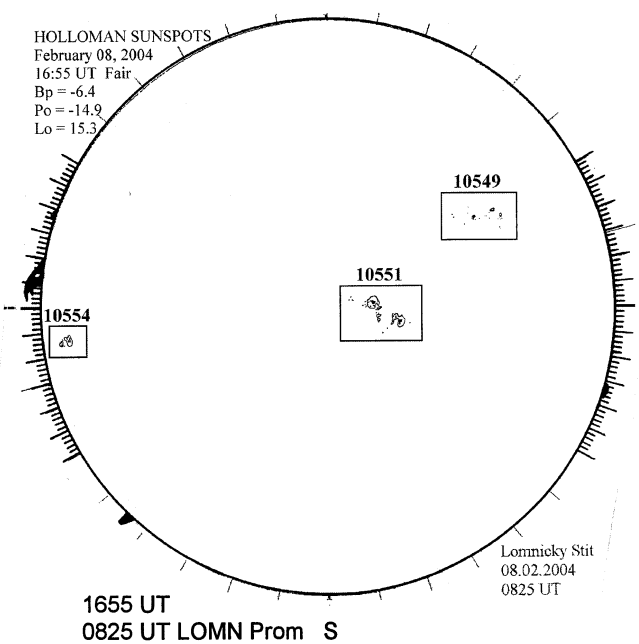

MT. WILSON MAGNETOGRAM



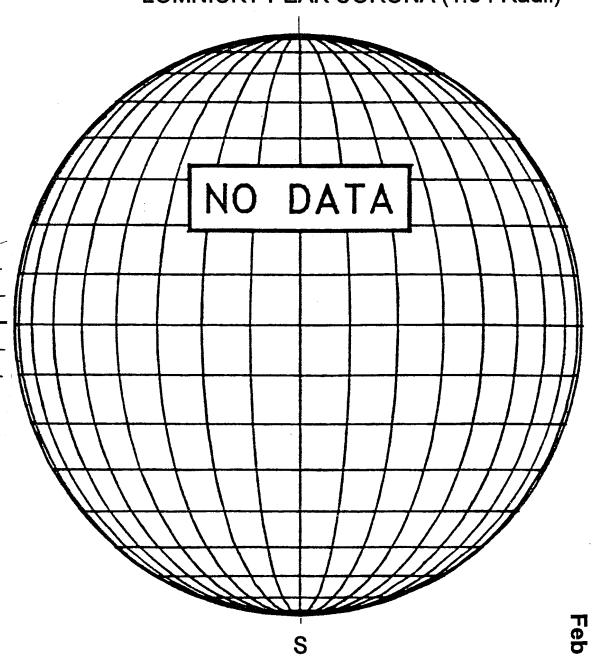

KANZELHOHE H-ALPHA




HOLLOMAN SUNSPOTS




LOMNICKY PEAK CORONA (1.04 Radii)----




53
Feb 04

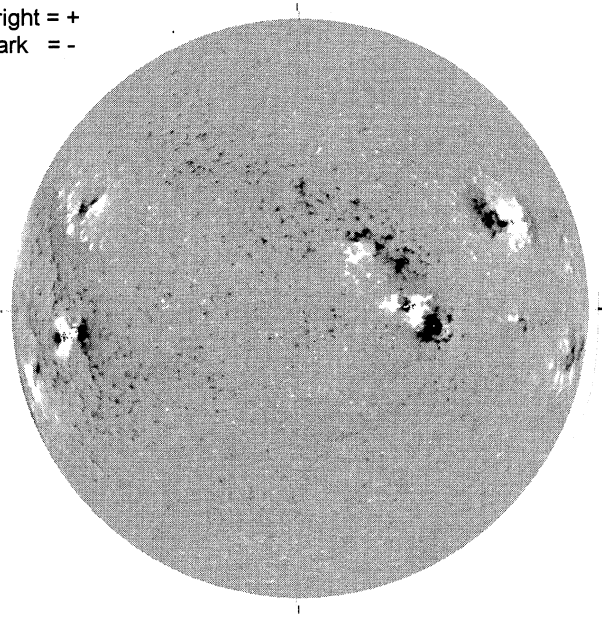
# FEBRUARY 9, 2004 ( P= -15.04, Bo = -6.50, Lo = 11.05)

## KITT PEAK MAGNETOGRAM--SOLIS

N

**854.2 nm

Bright = +
Dark = -



E-

1825 UT

## STANFORD MAGNETOGRAM

N

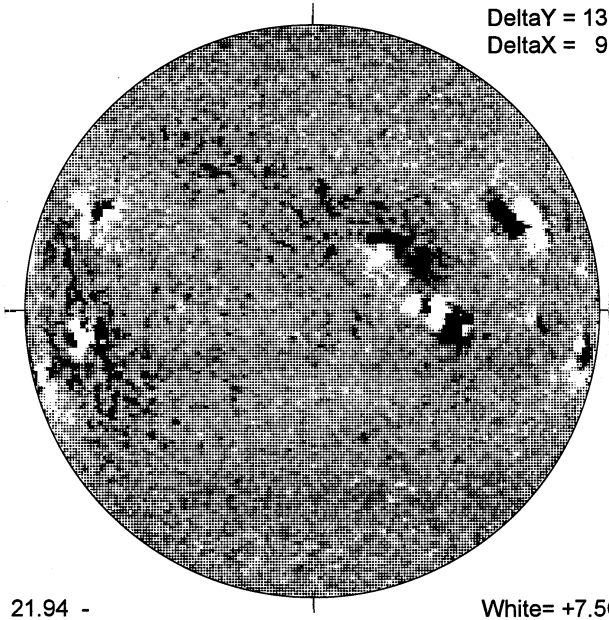
Solid = +
Dashed = -

Feb 10
0005 UT

## MT. WILSON MAGNETOGRAM

N

DeltaY = 13.1
DeltaX = 9.6



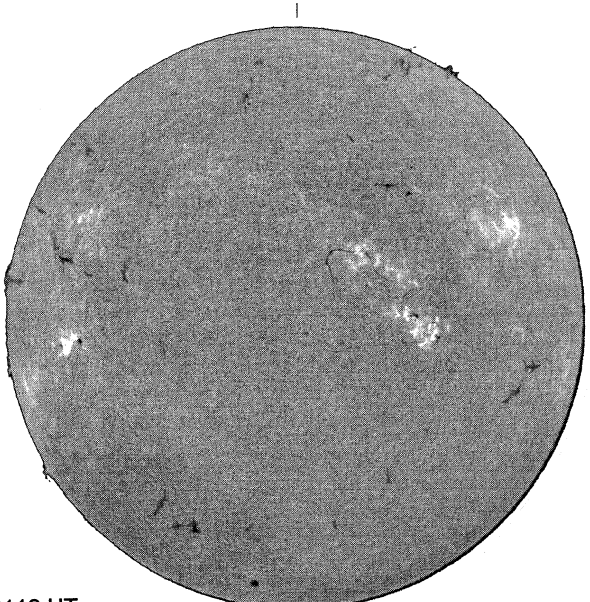
-W

21.94 -
22.91 UT

White= +7.5G
Black = -7.5G

## BIG BEAR H-ALPHA

-----

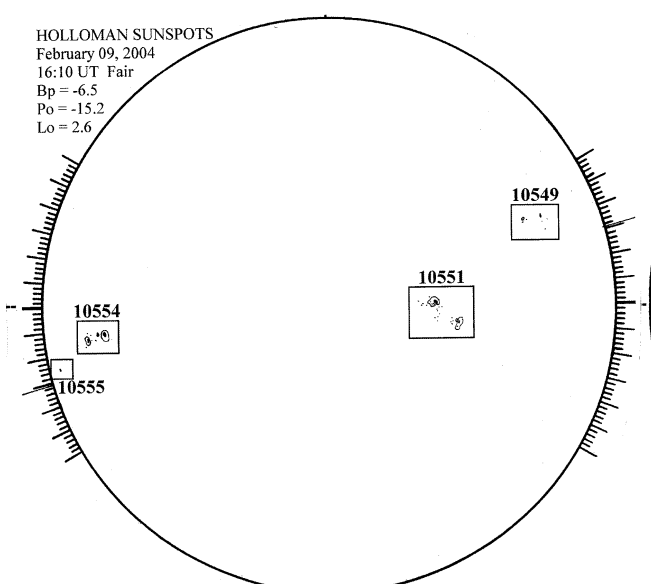


E

S

2119 UT

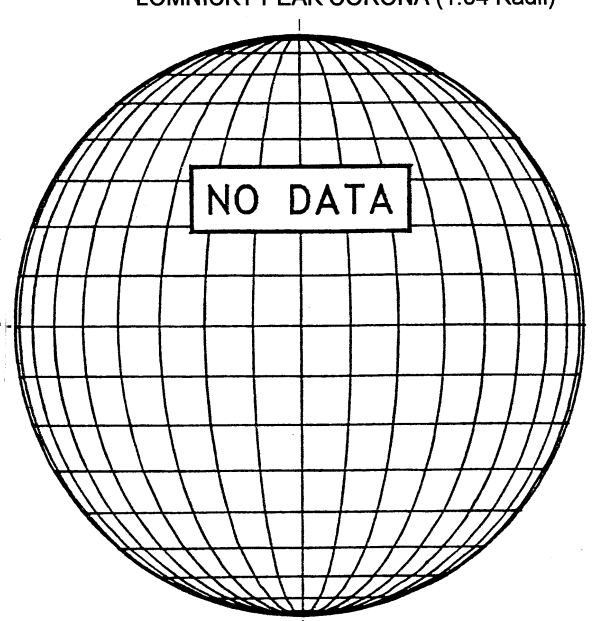
## HOLLOMAN SUNSPOT




S

1610 UT

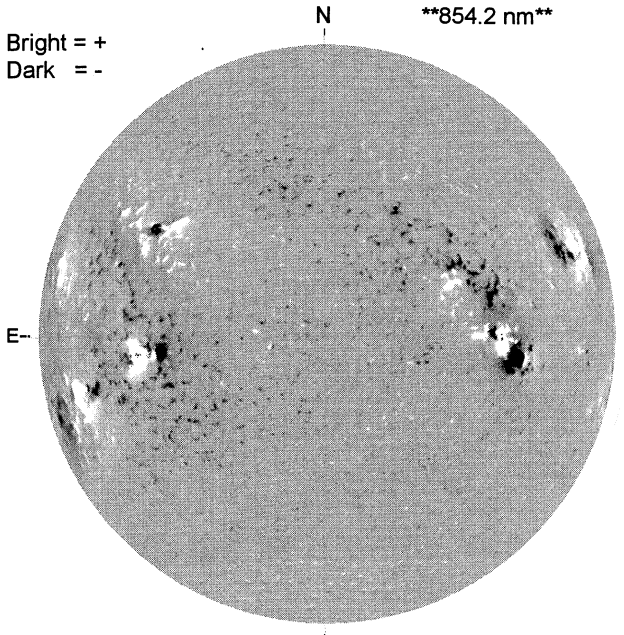
## LOMNICKY PEAK CORONA (1.04 Radii)----



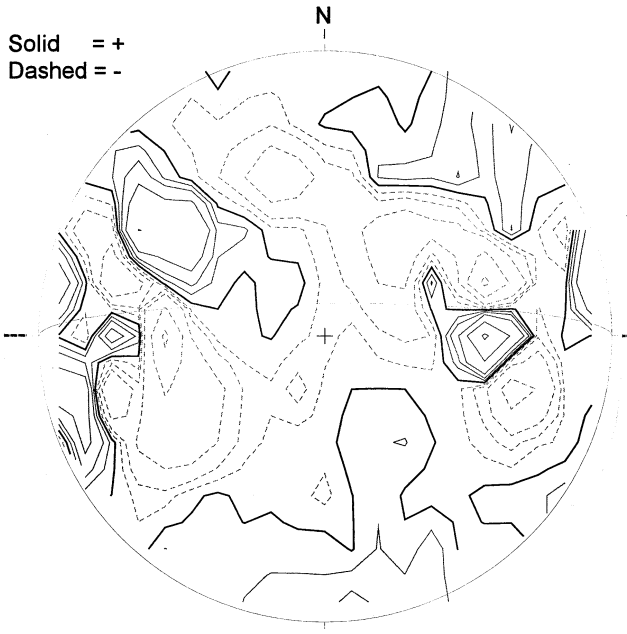

S

**FEBRUARY 10, 2004 ( P= -15.41, Bo = -6.56 Lo = 357.88)**

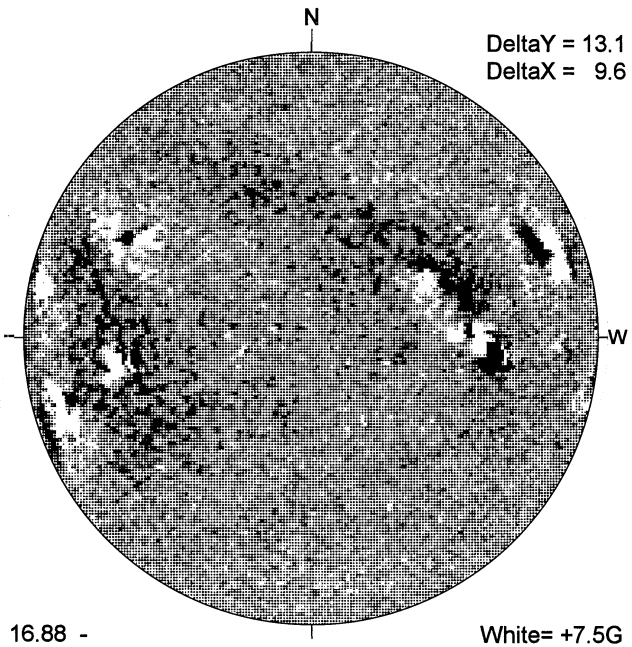
KITT PEAK MAGNETOGRAM--SOLIS



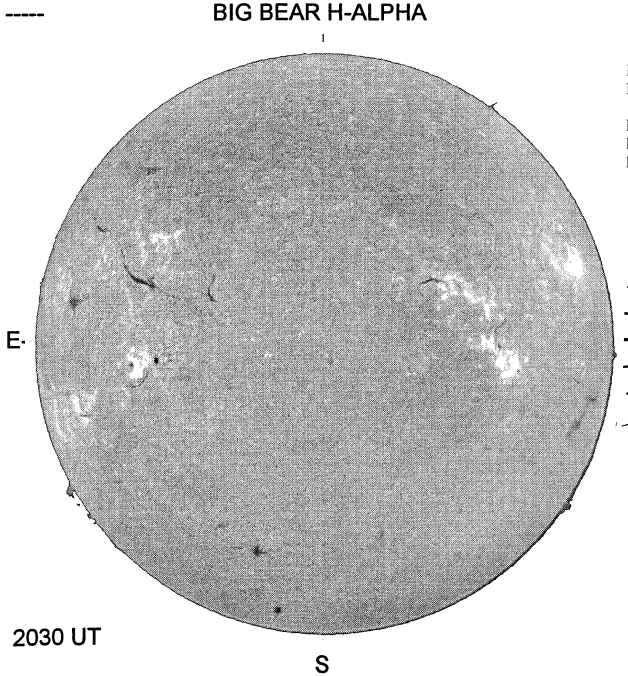

STANFORD MAGNETOGRAM



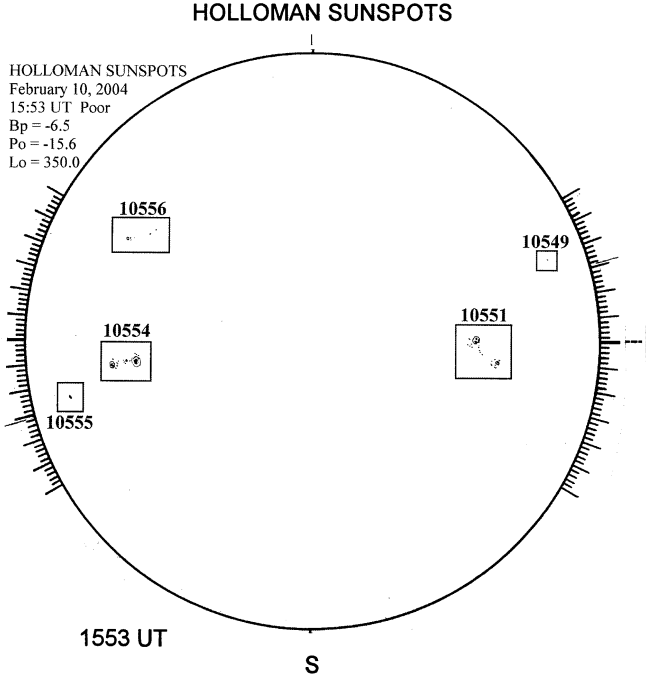

MT. WILSON MAGNETOGRAM



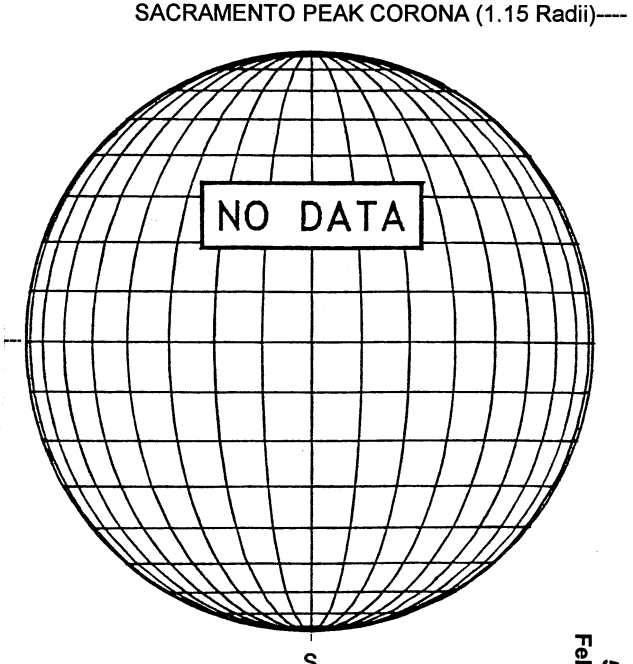

BIG BEAR H-ALPHA




HOLLOMAN SUNSPOTS




SACRAMENTO PEAK CORONA (1.15 Radii)




55
Feb 04

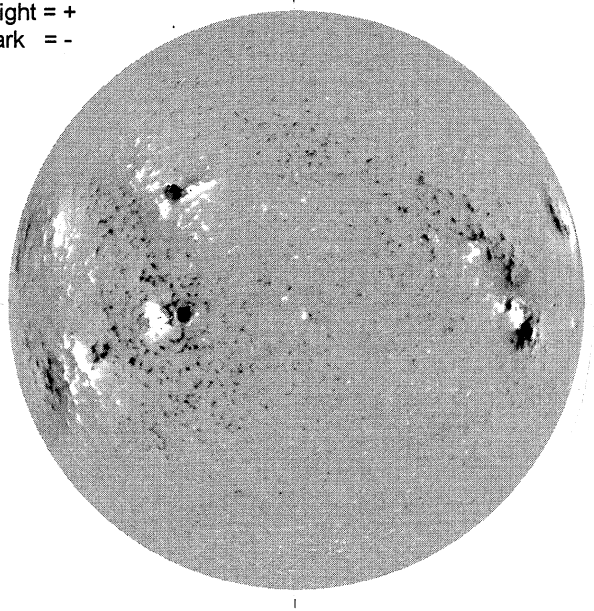
# FEBRUARY 11, 2004 ( P= -15.78, Bo = -6.61, Lo = 344.71)

## KITT PEAK MAGNETOGRAM--SOLIS

N

**854.2 nm**

Bright = +
Dark = -




1841 UT

## STANFORD MAGNETOGRAM

N

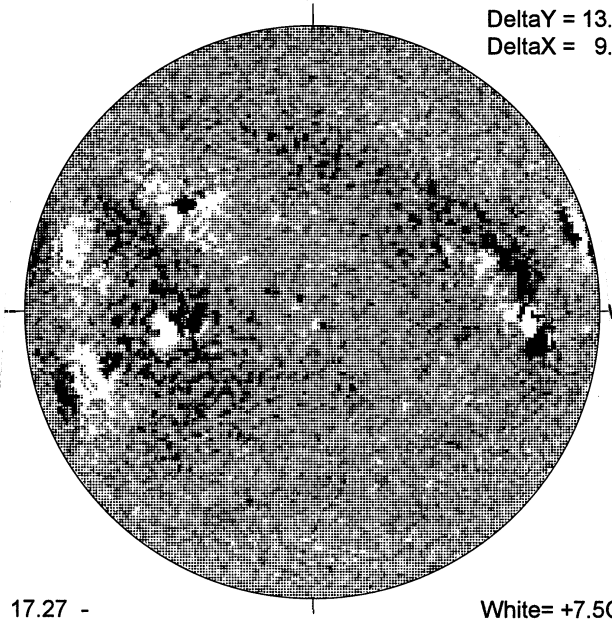
Solid = +
Dashed = -

2310 UT

## MT. WILSON MAGNETOGRAM

N

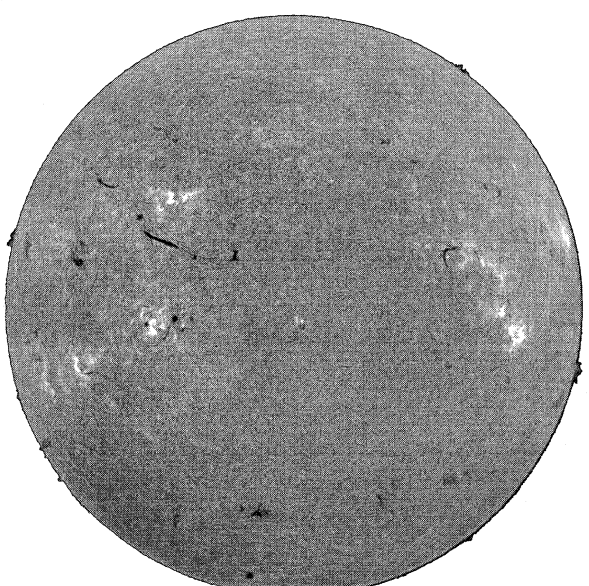
DeltaY = 13.1
DeltaX = 9.6




17.27 -
18.24 UT

White= +7.5G
Black = -7.5G

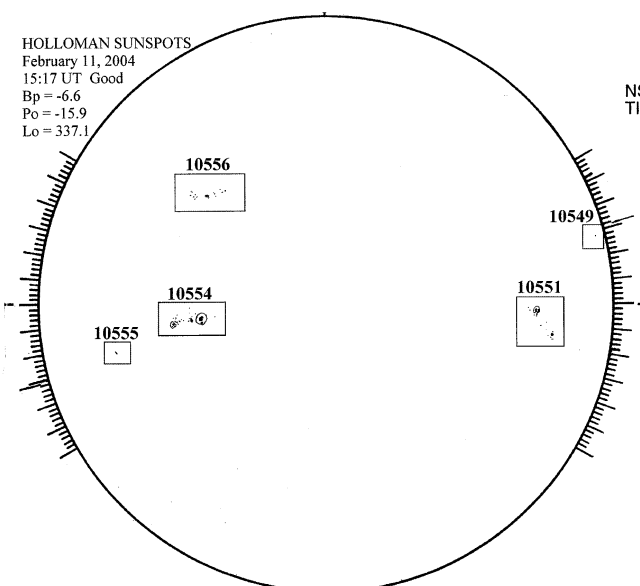
## BIG BEAR-ALPHA




1715 UT

S

## HOLLOMAN SUNSPOTS

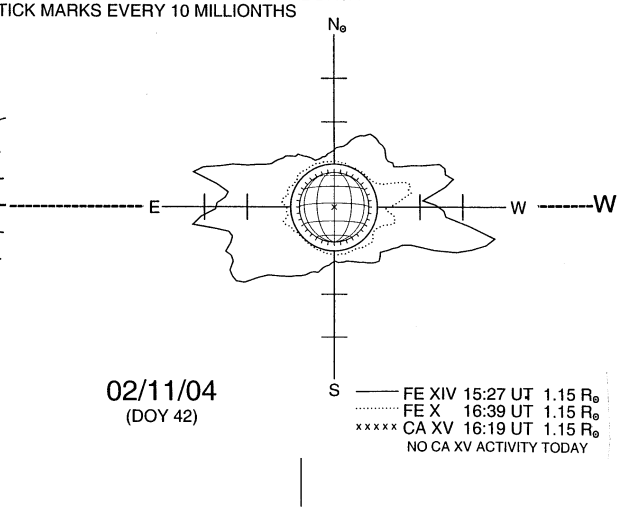



1517 UT

S

## SACRAMENTO PEAK CORONA (1.15 Radii)

NSO / SACRAMENTO PEAK CORONAL DATA
TICK MARKS EVERY 10 MILLIONTHS



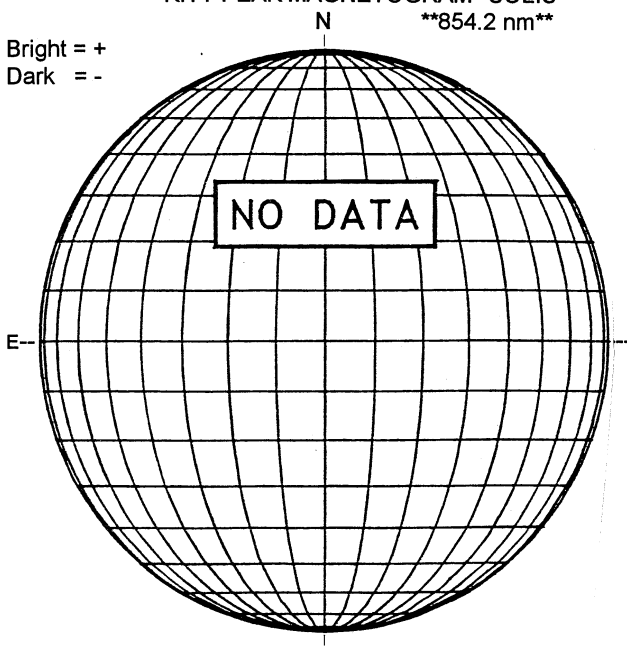

02/11/04
(DOY 42)

FE XIV 15:27 UT 1.15 $R_\odot$
FE X 16:39 UT 1.15 $R_\odot$
CA XV 16:19 UT 1.15 $R_\odot$
NO CA XV ACTIVITY TODAY

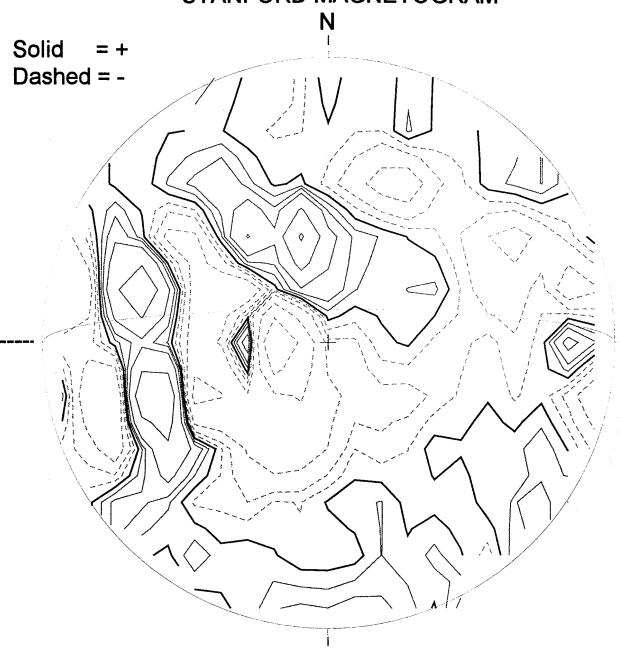
S

**FEBRUARY 12, 2004 ( P= -16.14, Bo = -6.66, Lo = 331.54)**

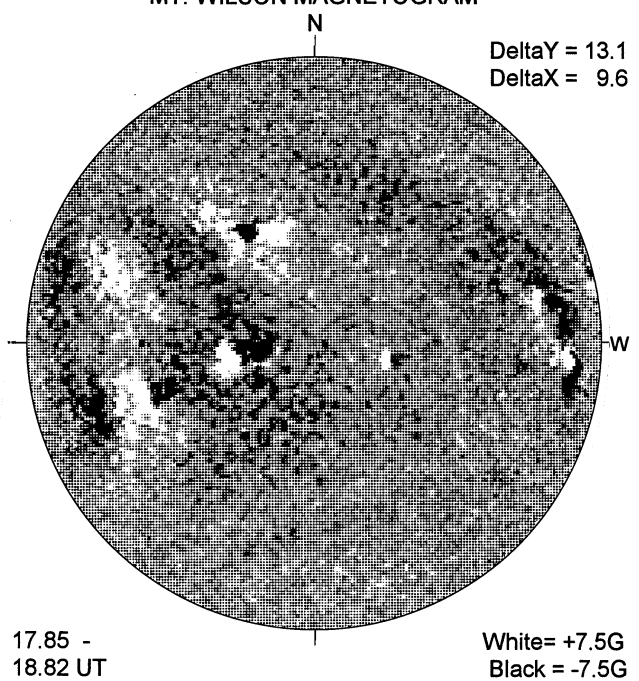
KITT PEAK MAGNETOGRAM--SOLIS



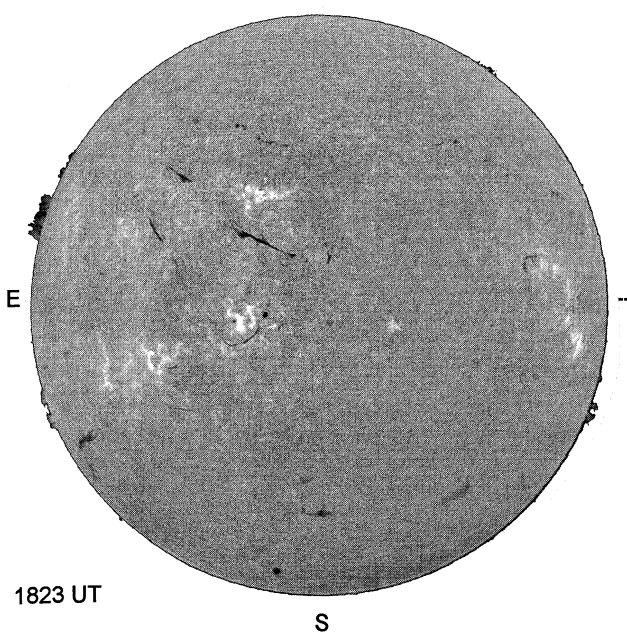

STANFORD MAGNETOGRAM



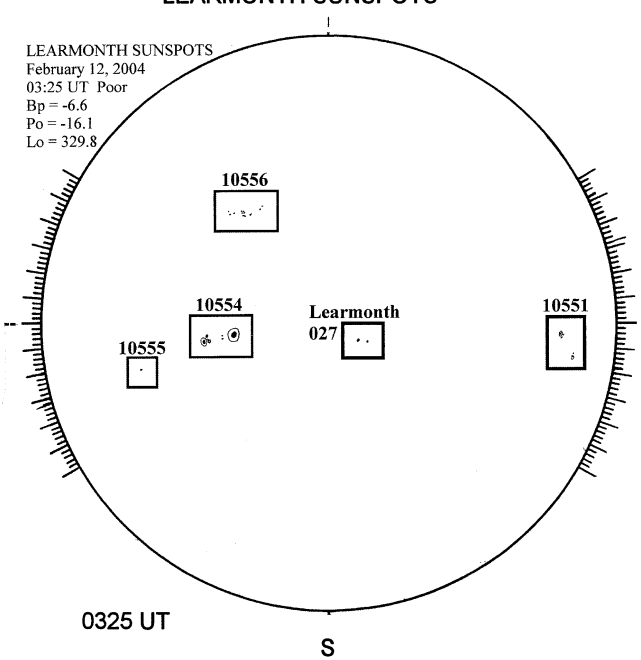

MT. WILSON MAGNETOGRAM



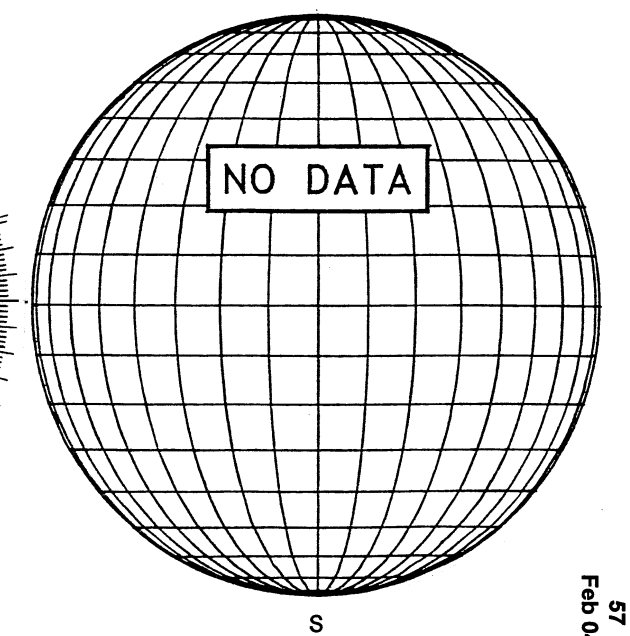

---- BIG BEAR H-ALPHA




LEARMONTH SUNSPOTS




LOMNICKY PEAK CORONA (1.04 Radii)----




57
Feb 04

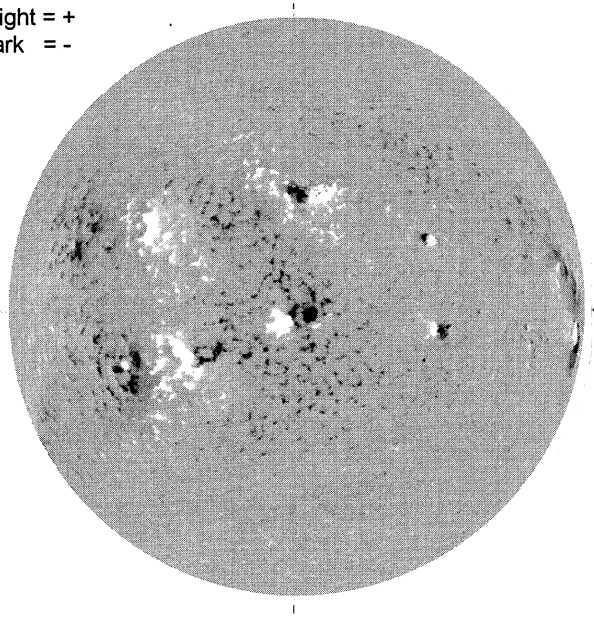
# FEBRUARY 13, 2004 ( P= -16.49, Bo = -6.71, Lo = 318.38)

## KITT PEAK MAGNETOGRAM--SOLIS

N

**854.2 nm**

Bright = +
Dark = -



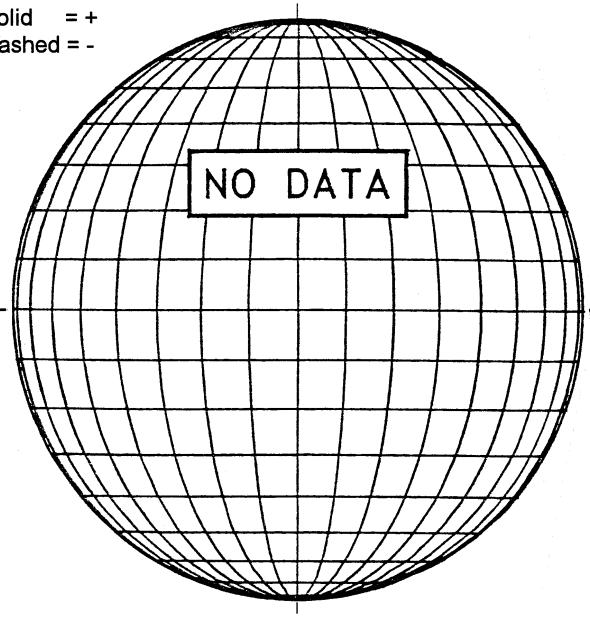
E--

1919 UT

## STANFORD MAGNETOGRAM

N

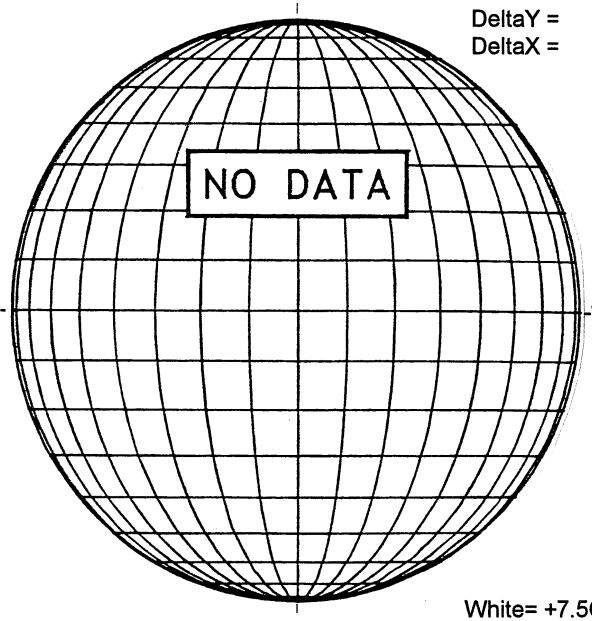
Solid = +
Dashed = -




## MT. WILSON MAGNETOGRAM

N

DeltaY =
DeltaX =

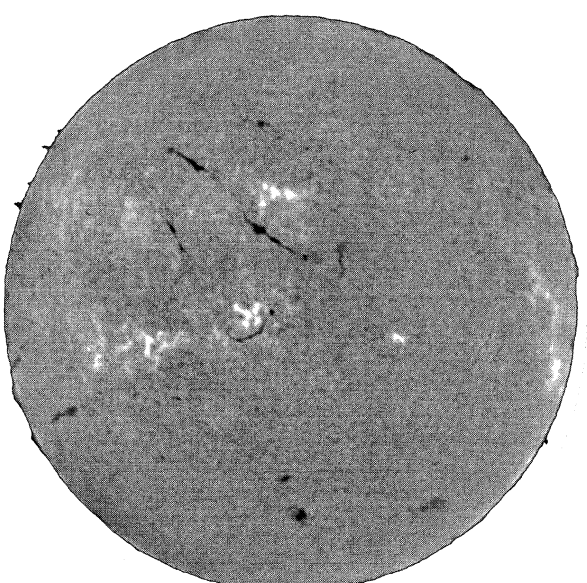



-W

White= +7.5G
Black = -7.5G

---

## KANZELHOHE H-ALPHA

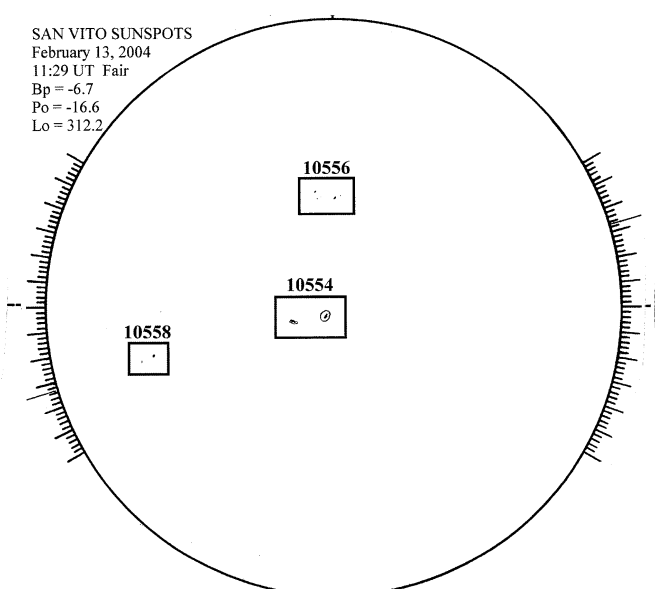


E

0801 UT

S

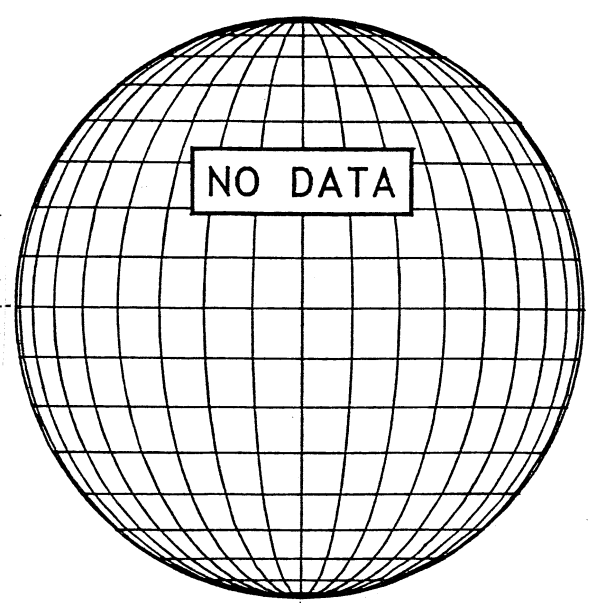
## SAN VITO SUNSPOT




1129 UT

S

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




S

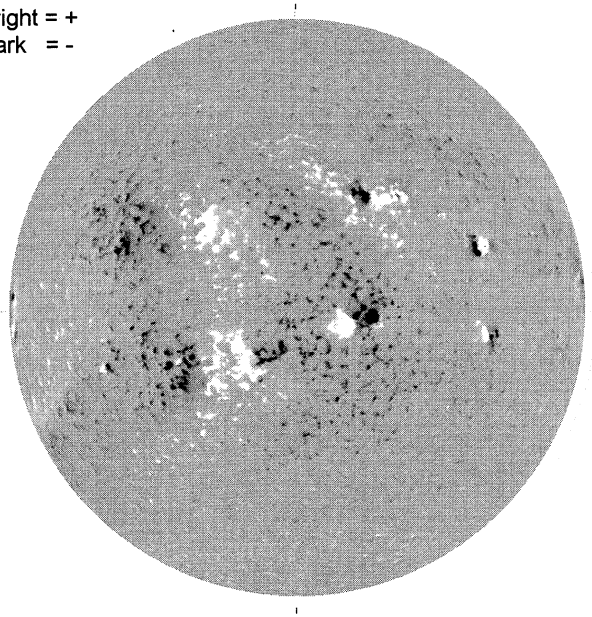
# FEBRUARY 14, 2004 ( P= -16.84, Bo = -6.76, Lo = 305.21)

## KITT PEAK MAGNETOGRAM--SOLIS

N

**854.2 nm**

Bright = +
Dark = -




1828 UT

## STANFORD MAGNETOGRAM

N

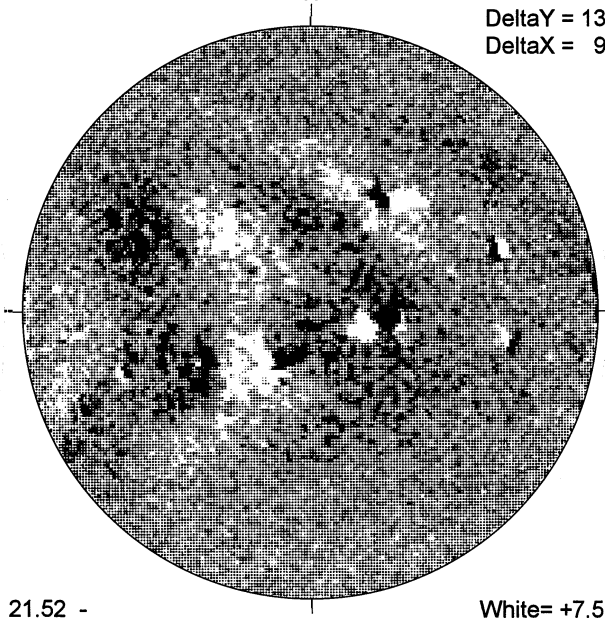
Solid = +
Dashed = -

2144 UT

## MT. WILSON MAGNETOGRAM

N

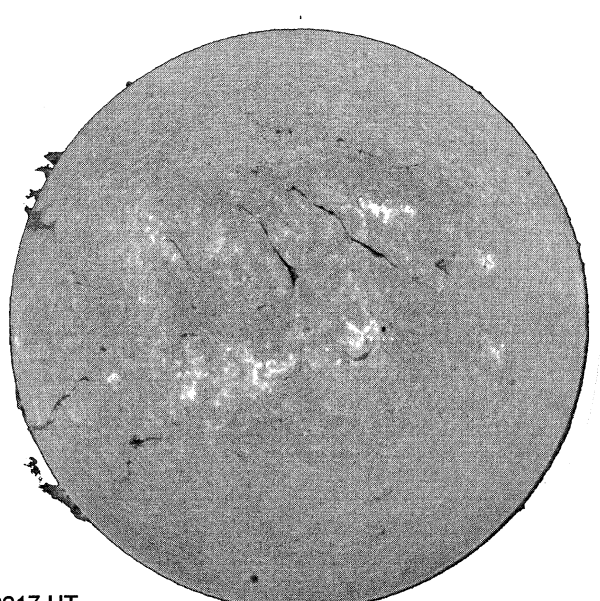
DeltaY = 13.1
DeltaX = 9.6




21.52 -
22.49 UT

White= +7.5G
Black = -7.5G

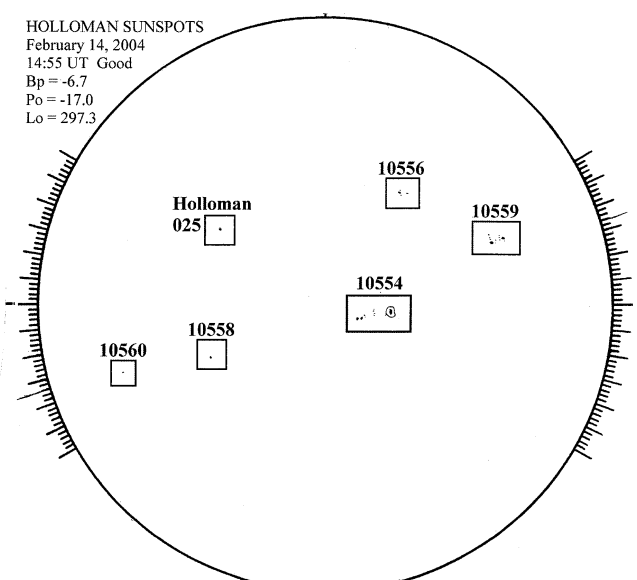
## BIG BEAR H-ALPHA




2217 UT

S

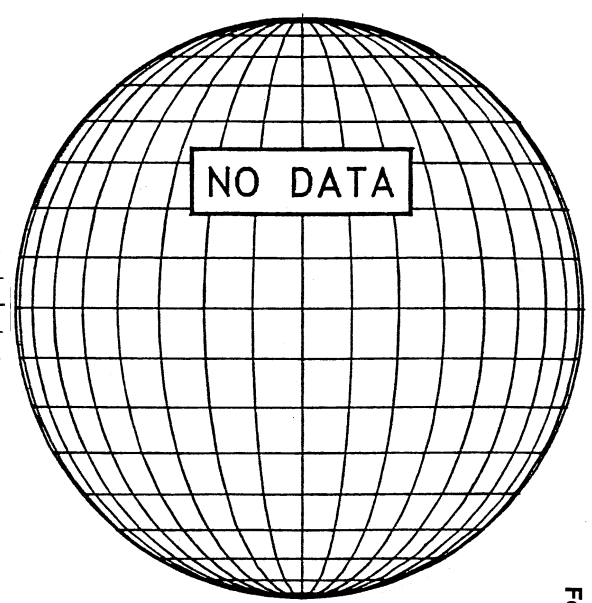
## HOLLOMAN SUNSPOT




1455 UT

S

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

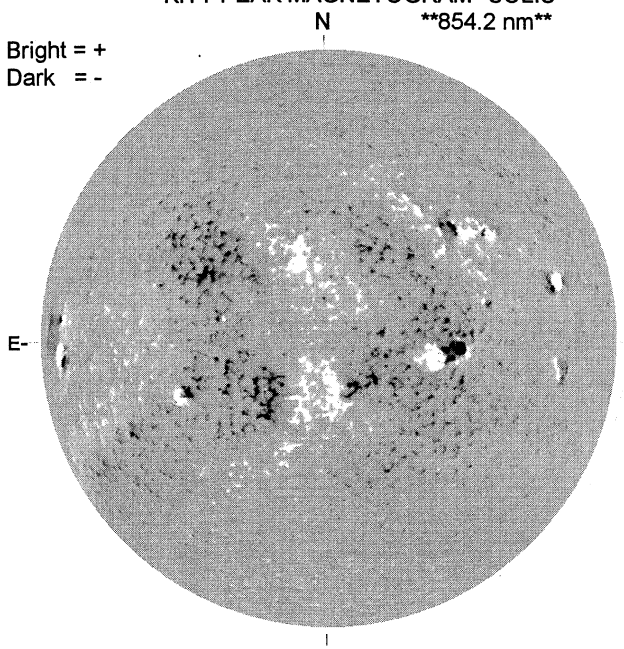



S

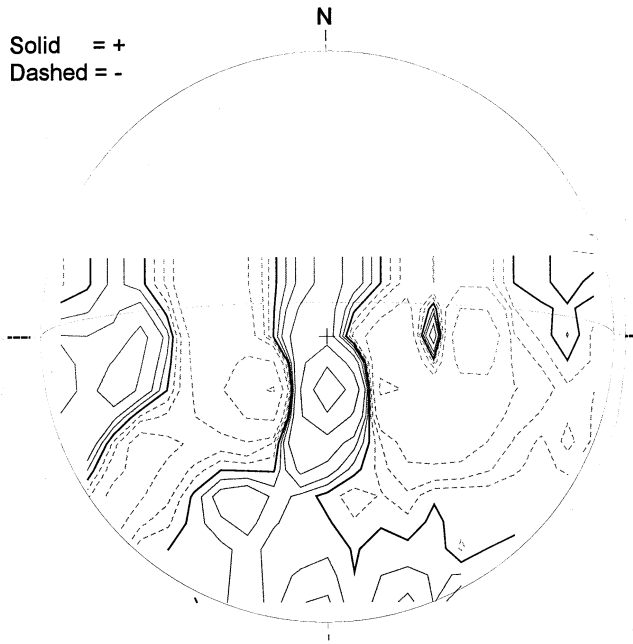
59
Feb 04

# FEBRUARY 15, 2004 ( P= -17.18, Bo = -6.80, Lo = 292.04)

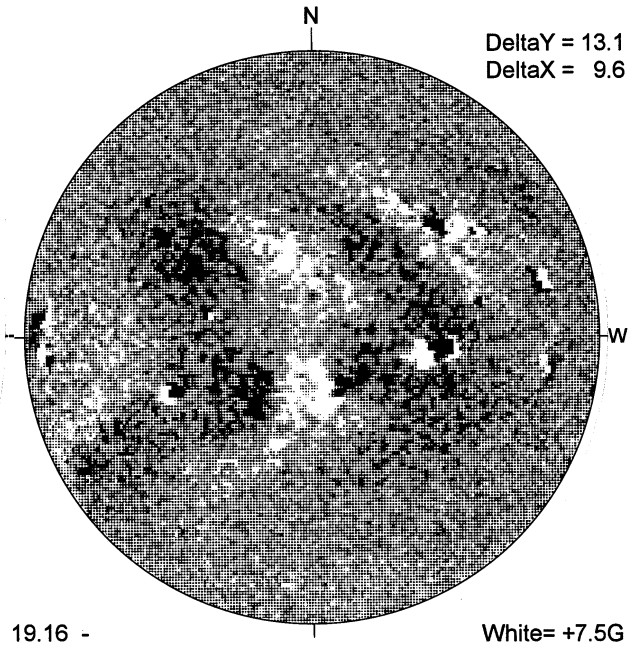
## KITT PEAK MAGNETOGRAM--SOLIS



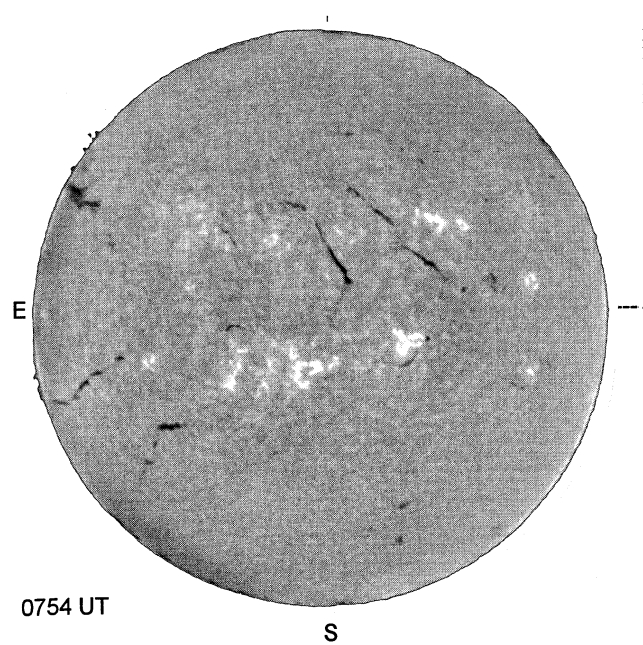

## STANFORD MAGNETOGRAM



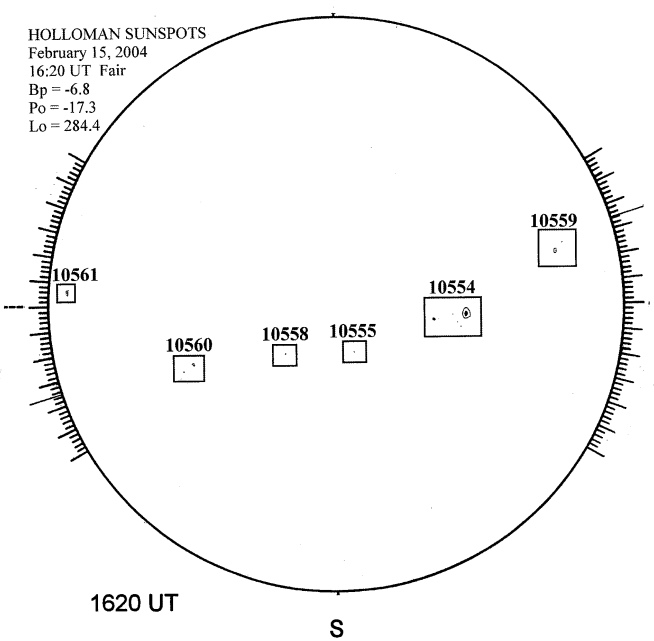

## MT. WILSON MAGNETOGRAM



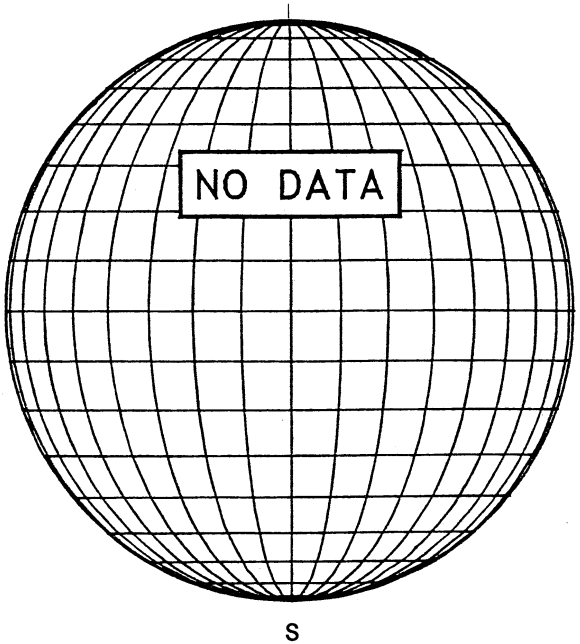

## KANZELHOHE H-ALPHA




## HOLLOMAN SUNSPOT

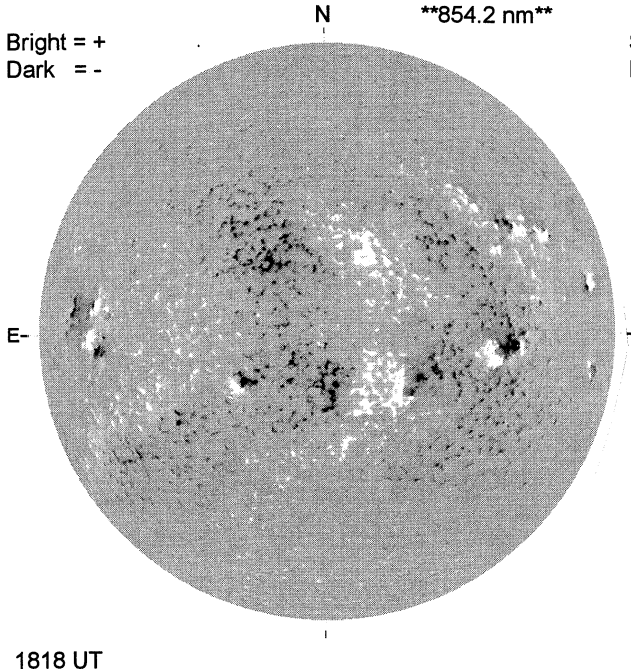



## LOMNICKY PEAK CORONA (1.04 Radii)----

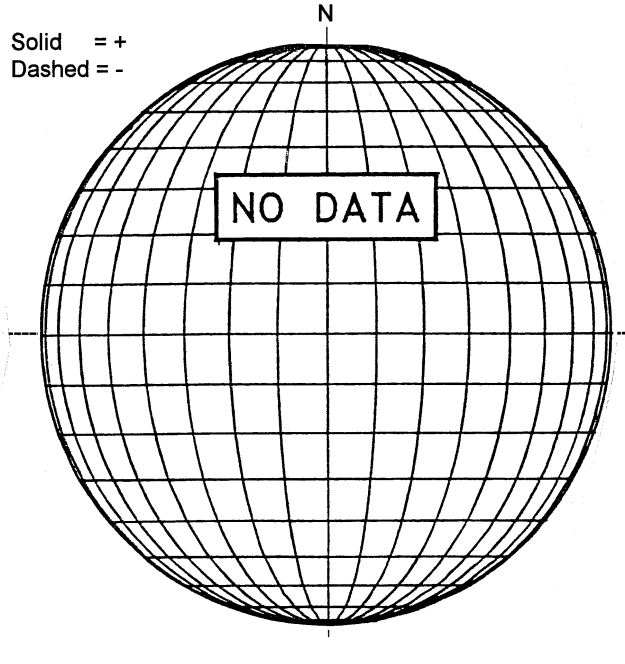


**FEBRUARY 16, 2004 ( P= -17.52, Bo = -6.85, Lo = 278.87)**

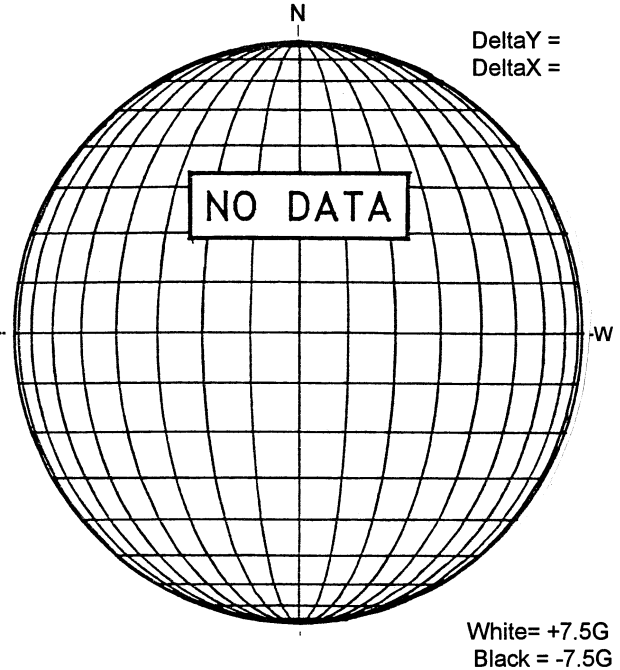
KITT PEAK MAGNETOGRAM--SOLIS



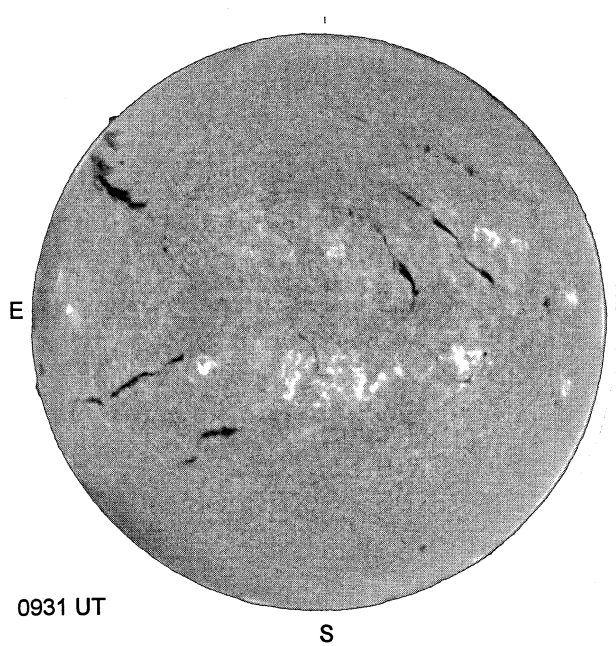

STANFORD MAGNETOGRAM



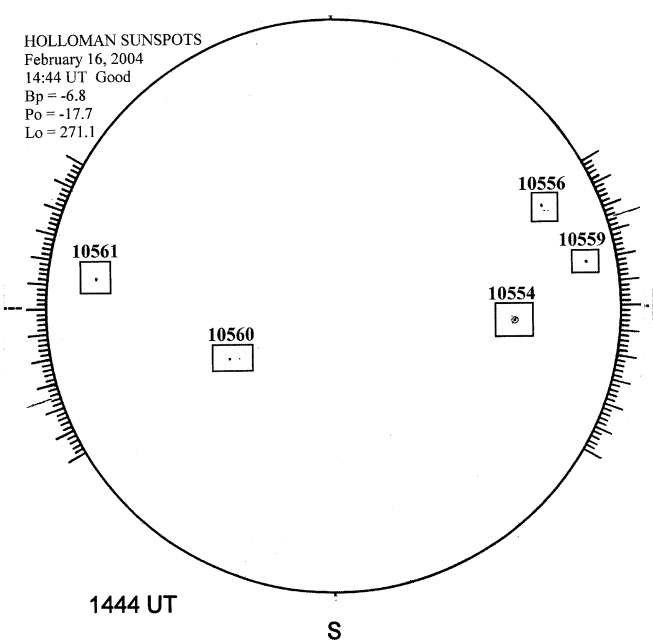

MT. WILSON MAGNETOGRAM



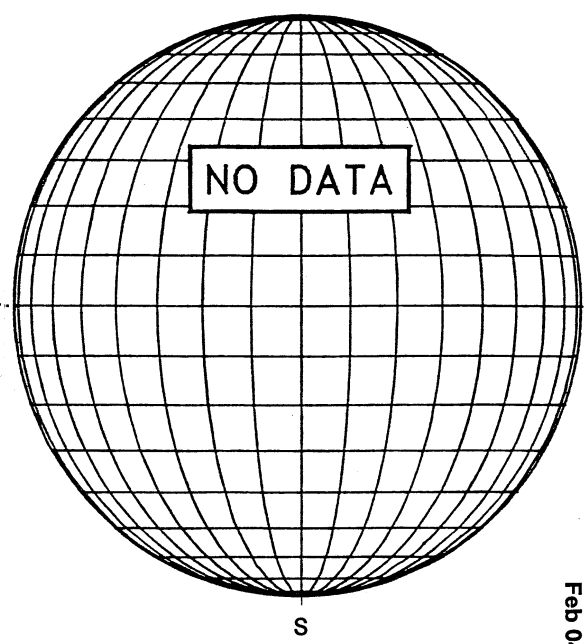

KANZELHOHE H-ALPHA




HOLLOMAN SUNSPOT




SACRAMENTO PEAK CORONA (1.15 Radii)----



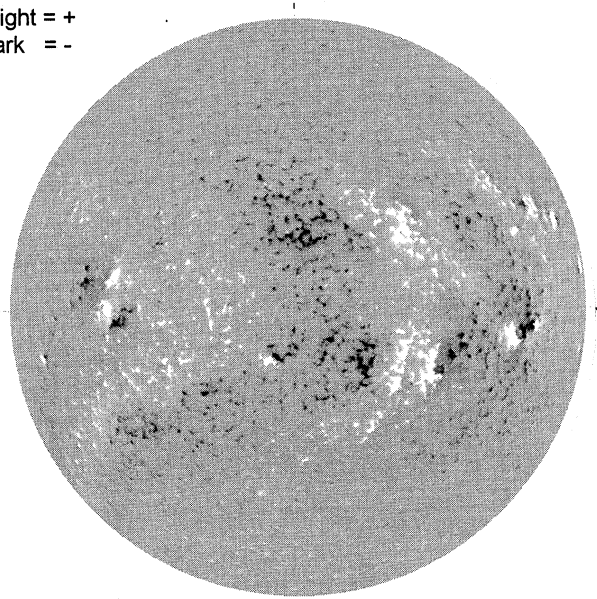

61
Feb 04

# FEBRUARY 17, 2004 ( P= -17.85, Bo = -6.89, Lo = 265.71)

## KITT PEAK MAGNETOGRAM--SOLIS

N **854.2 nm**

Bright = +
Dark = -



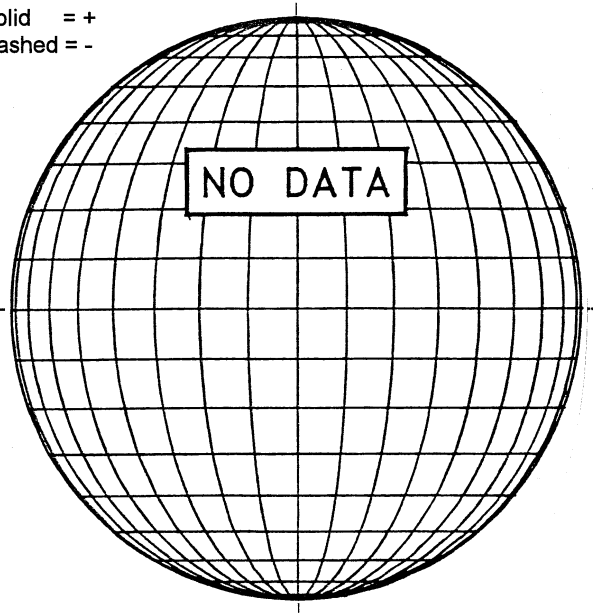
E-

1900 UT

## STANFORD MAGNETOGRAM

N

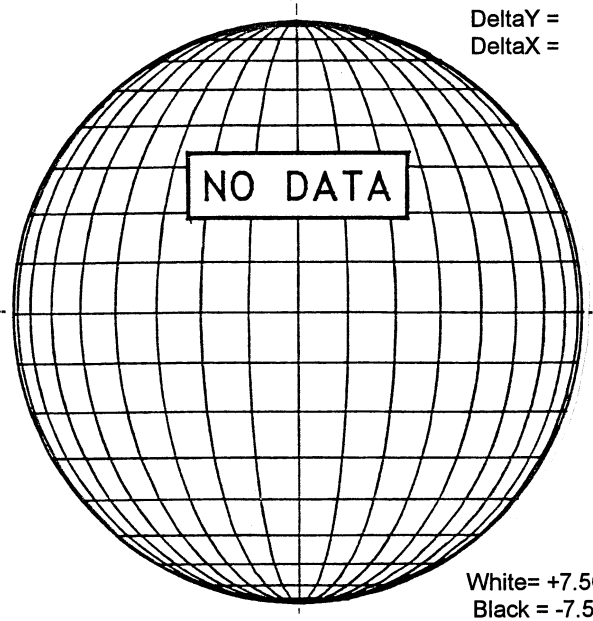
Solid = +
Dashed = -




## MT. WILSON MAGNETOGRAM

N

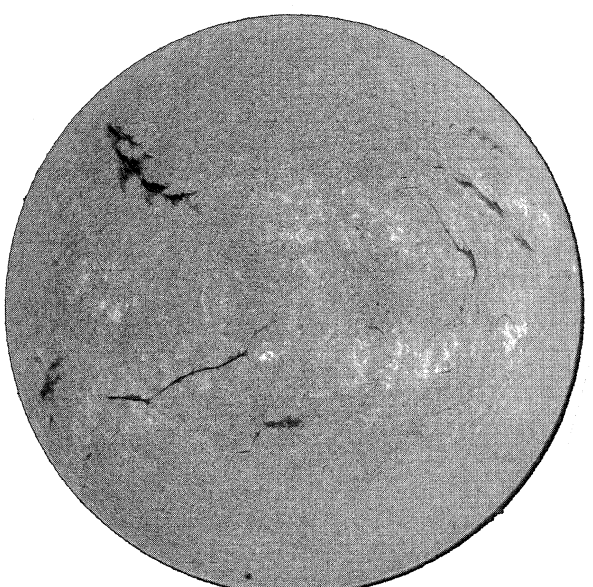
DeltaY =
DeltaX =




-W

White= +7.5G
Black = -7.5G

## BIG BEAR H-ALPHA

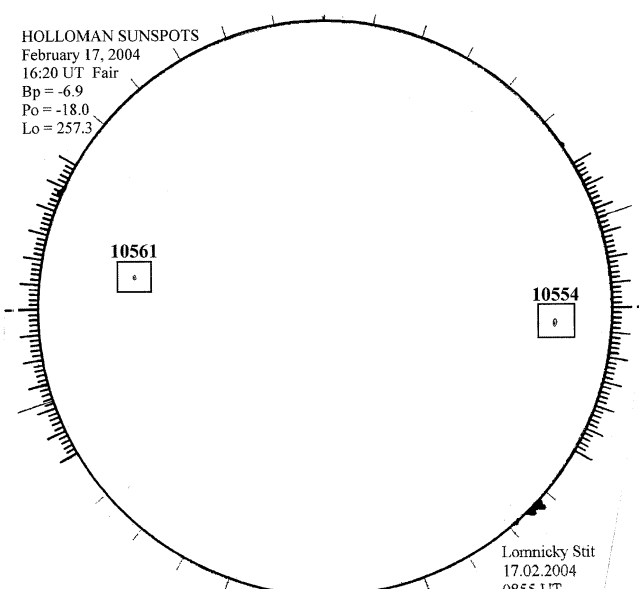


E

1948 UT

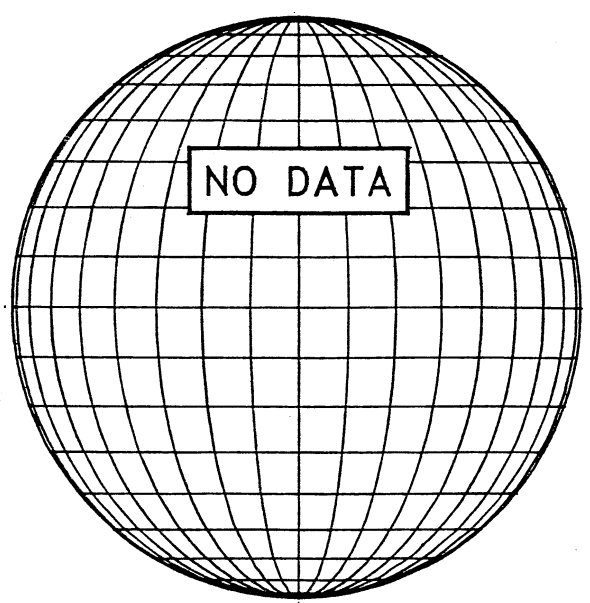
S

## HOLLOMAN SUNSPOT




1620 UT
0855 UT LOMN Prom S

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




S

# FEBRUARY 18, 2004 ( P= -18.17, Bo = -6.93, Lo = 252.54)

## KITT PEAK MAGNETOGRAM--SOLIS

**854.2 nm**

Bright = +
Dark = -

N

NO DATA

E--

## STANFORD MAGNETOGRAM

Solid = +
Dashed = -

N

NO DATA

## MT. WILSON MAGNETOGRAM

DeltaY =
DeltaX =

N

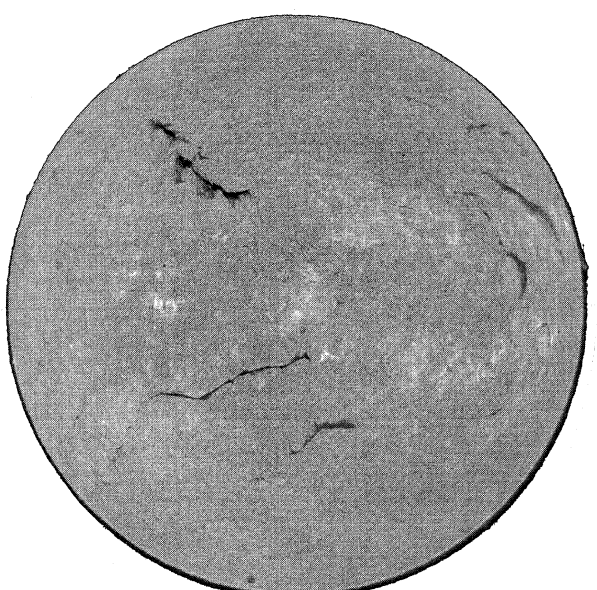
NO DATA

-W

White= +7.5G
Black = -7.5G

---

## BIG BEAR H-ALPHA

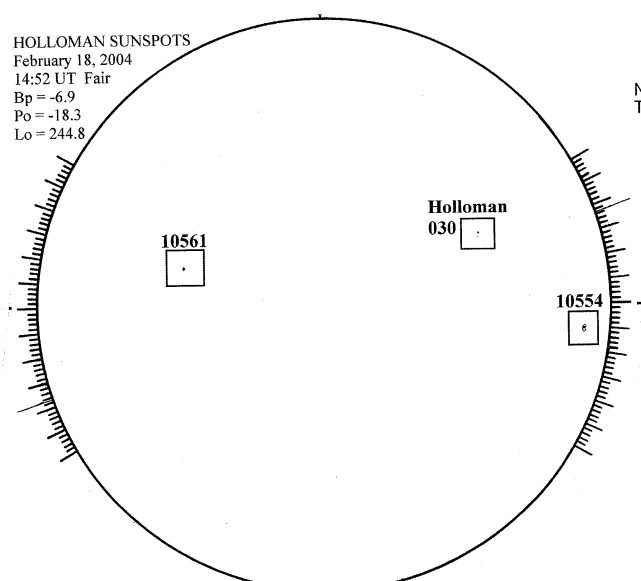


E-

1806 UT

S

## HOLLOMAN SUNSPOT

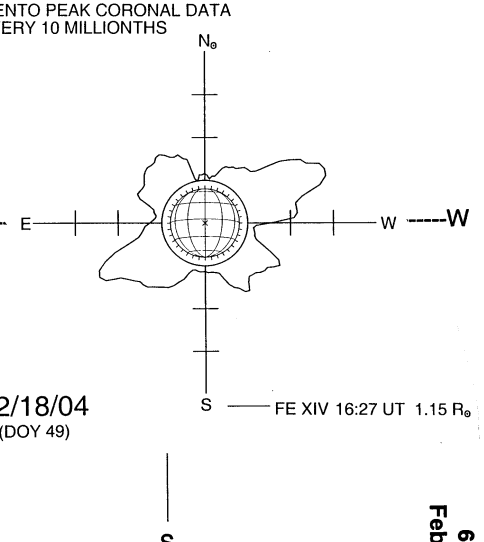



1452 UT

S

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

NSO / SACRAMENTO PEAK CORONAL DATA
TICK MARKS EVERY 10 MILLIONTHS




02/18/04
(DOY 49)

S

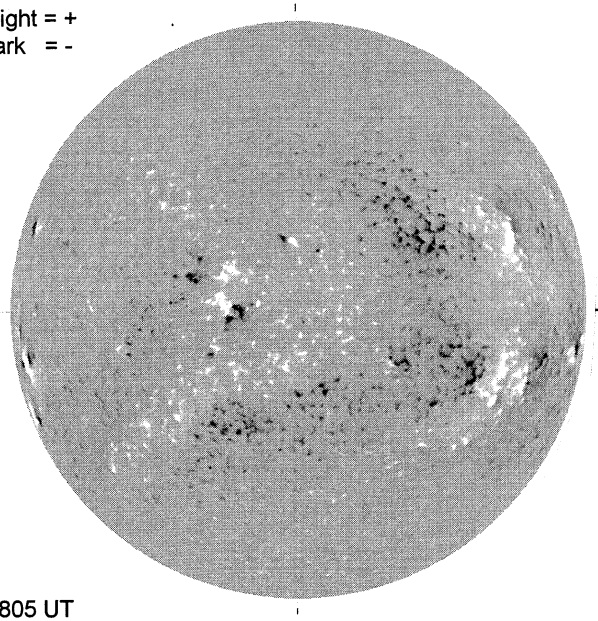
63
Feb 04

# FEBRUARY 19, 2004 ( P= -18.49, Bo = -6.96, Lo = 239.37)

## KITT PEAK MAGNETOGRAM--SOLIS

N **854.2 nm**

Bright = +
Dark = -

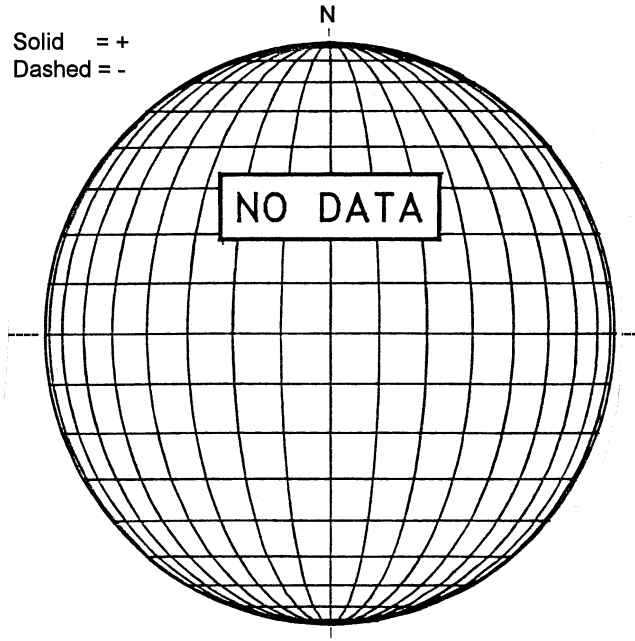


E-

1805 UT

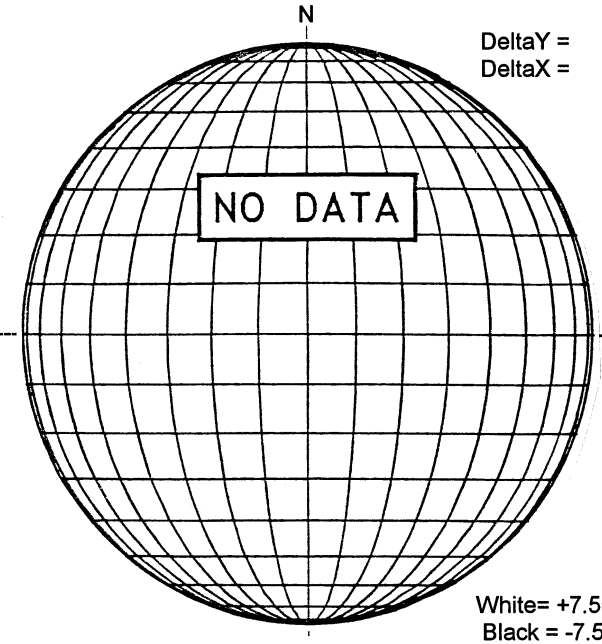
## STANFORD MAGNETOGRAM

Solid = +
Dashed = -



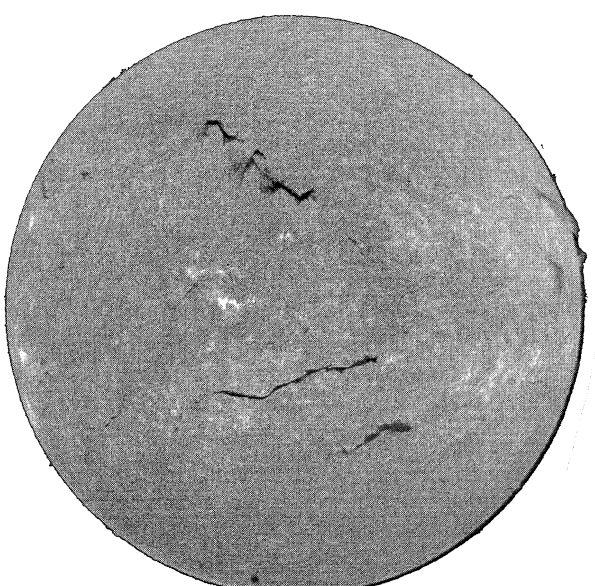

## MT. WILSON MAGNETOGRAM

DeltaY =
DeltaX =




White= +7.5G
Black = -7.5G

## BIG BEAR H-ALPHA

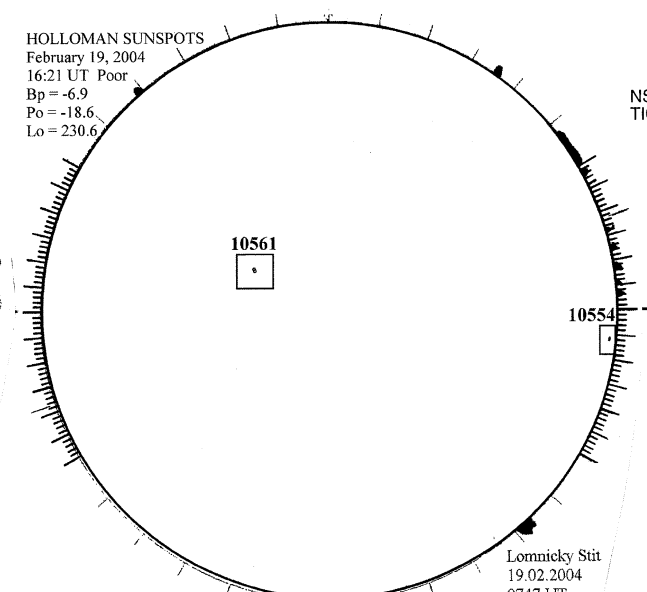


E

1910 UT

S

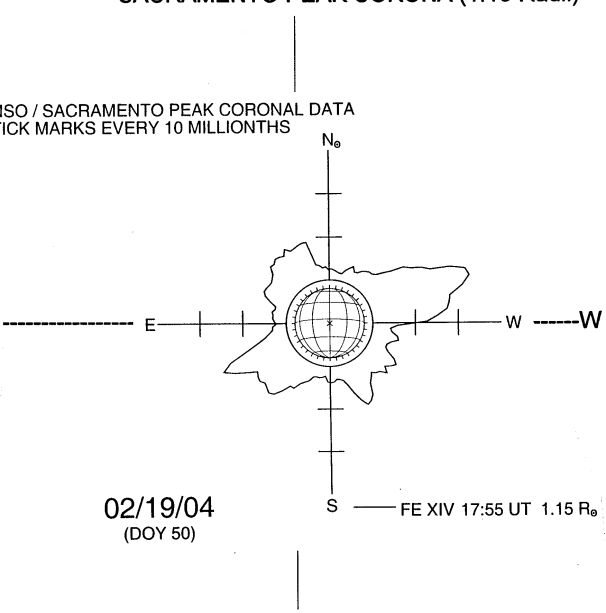
## HOLLOMAN SUNSPOT




1621 UT
0747 UT LOMN Prom S

## SACRAMENTO PEAK CORONA (1.15 Radii)

NSO / SACRAMENTO PEAK CORONAL DATA
TICK MARKS EVERY 10 MILLIONTHS




02/19/04
(DOY 50)

FE XIV 17:55 UT 1.15 R⊙

S

**FEBRUARY 20, 2004 ( P= -18.81, Bo = -7.00, Lo = 226.20)**

KITT PEAK MAGNETOGRAM--SOLIS

N

**854.2 nm**

Bright = +
Dark = -

NO DATA

E

STANFORD MAGNETOGRAM

N

Solid = +
Dashed = -

NO DATA

MT. WILSON MAGNETOGRAM

N

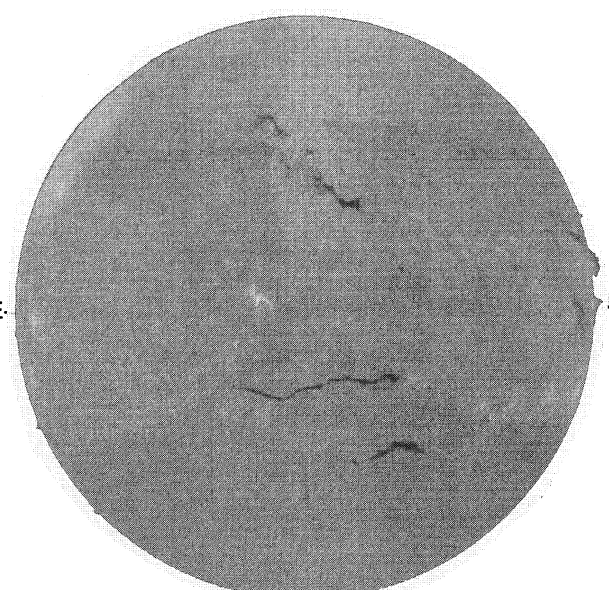
DeltaY =
DeltaX =

NO DATA

W

White= +7.5G
Black = -7.5G

---- YUNNAN H-ALPHA

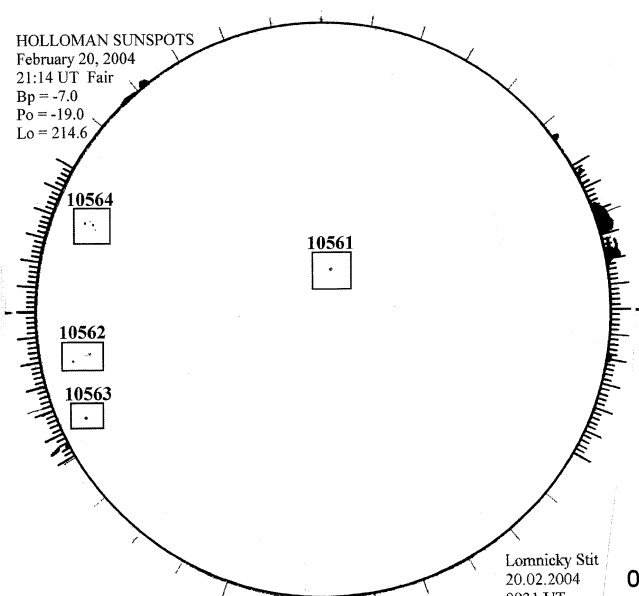


E

0129 UT

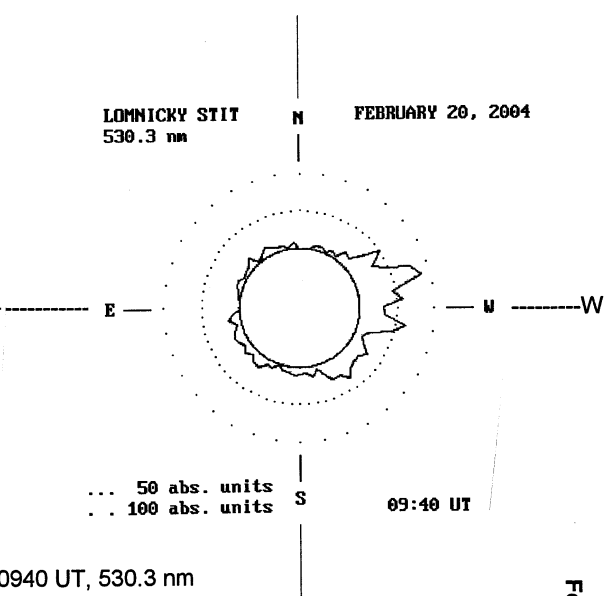
S

HOLLOMAN SUNSPOT




2114 UT
0931 UT LOMN Prom S

LOMNICKY PEAK CORONA (1.04 Radii)----



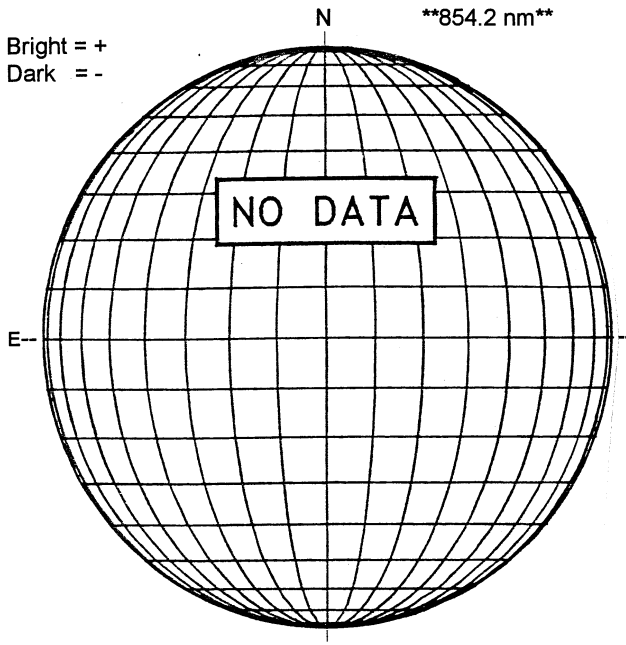

0940 UT, 530.3 nm
.... 50 abs. units
. . 100 abs. units

S

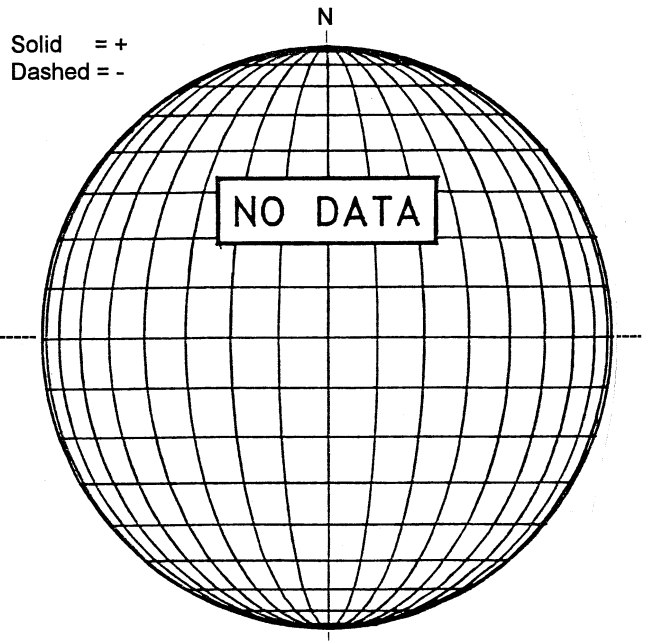
65
Feb 04

# FEBRUARY 21, 2004 ( P= -19.12, Bo = -7.03, Lo = 213.03)

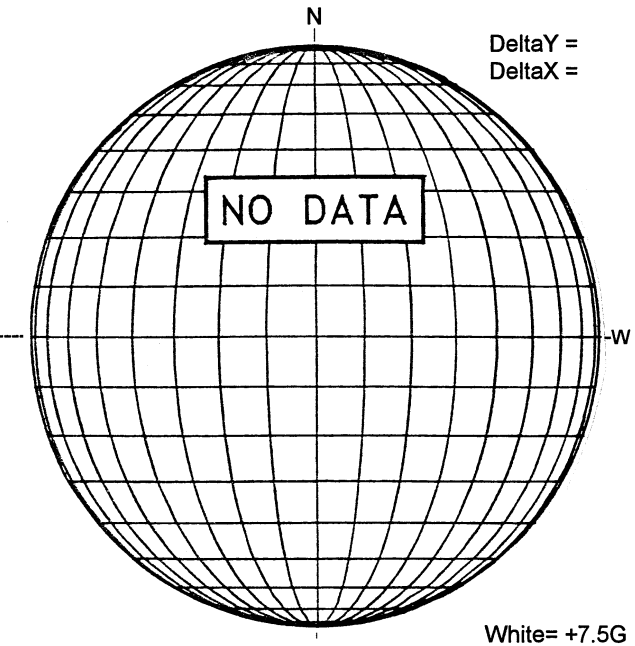
## KITT PEAK MAGNETOGRAM--SOLIS



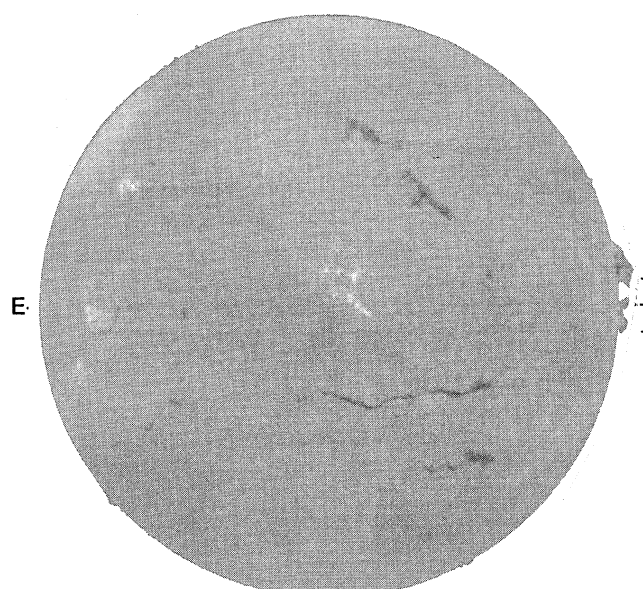

## STANFORD MAGNETOGRAM



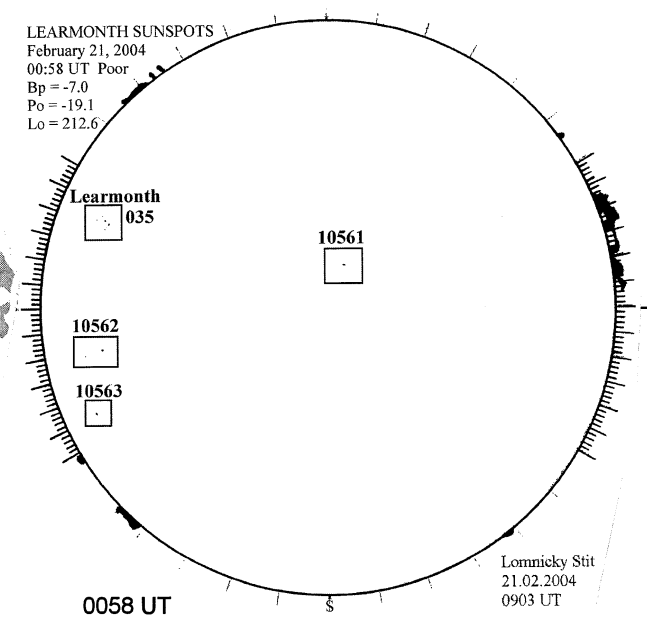

## MT. WILSON MAGNETOGRAM



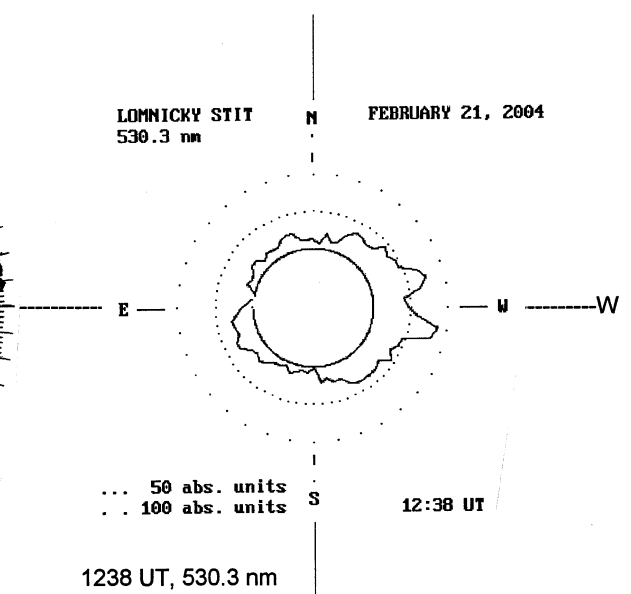

## YUNNAN H-ALPHA




## LEARMONTH SUNSPOT




## LOMNICKY PEAK CORONA (1.04 Radii)

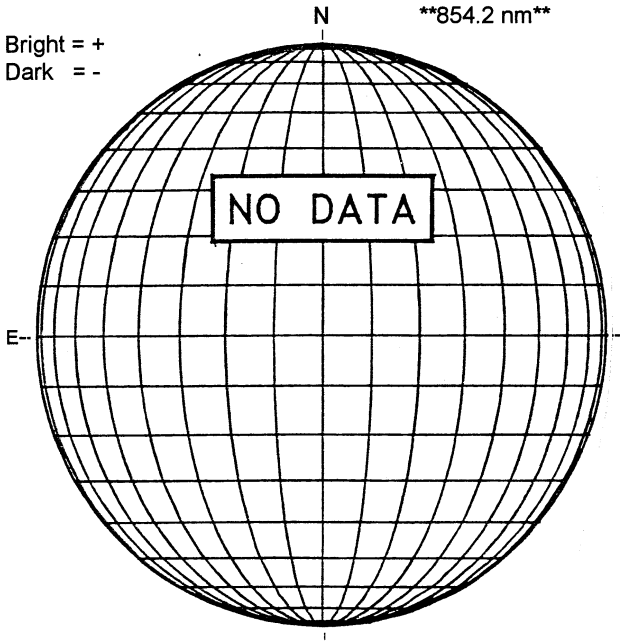


**FEBRUARY 22, 2004 ( P= -19.42, Bo = -7.06, Lo = 199.86)**

KITT PEAK MAGNETOGRAM--SOLIS

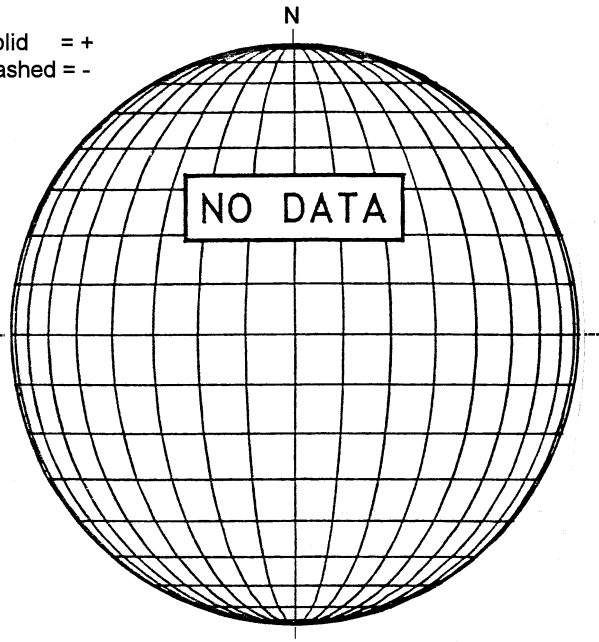
**854.2 nm**

Bright = +
Dark = -



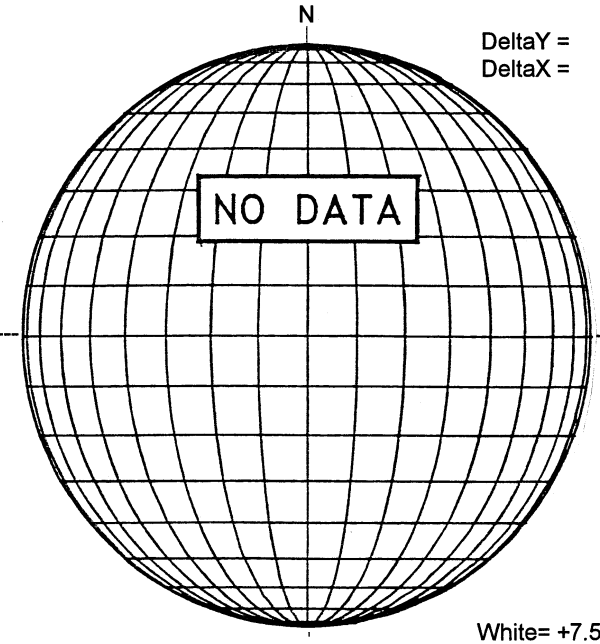

STANFORD MAGNETOGRAM

Solid = +
Dashed = -



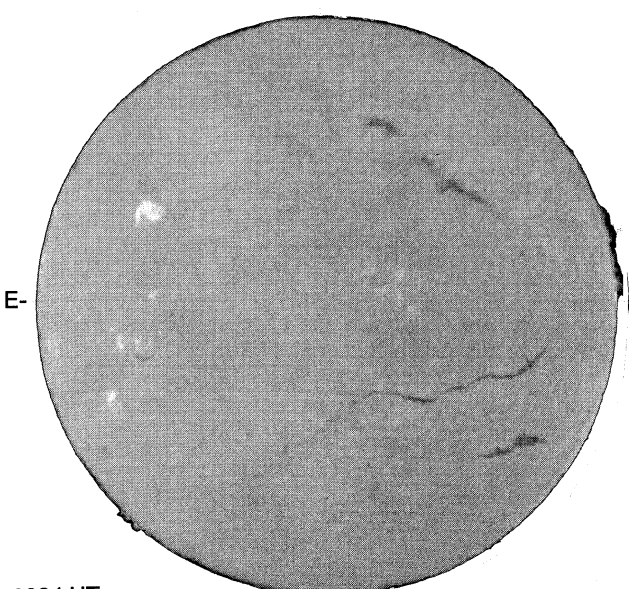

MT. WILSON MAGNETOGRAM

DeltaY =
DeltaX =



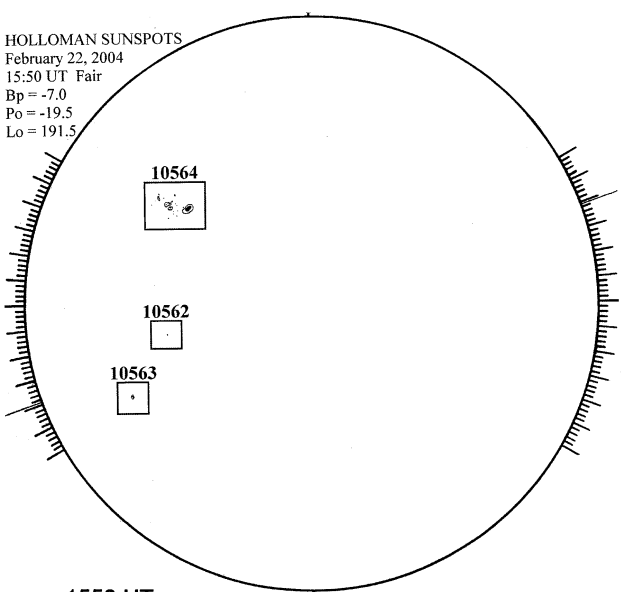

White= +7.5G
Black = -7.5G

HUAIROU H-ALPHA



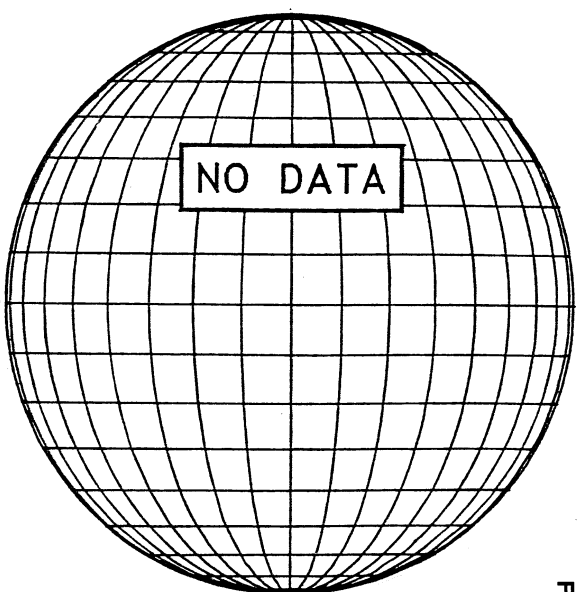

0024 UT

HOLLOMAN SUNSPOT




1550 UT

SACRAMENTO PEAK CORONA (1.15 Radii)----



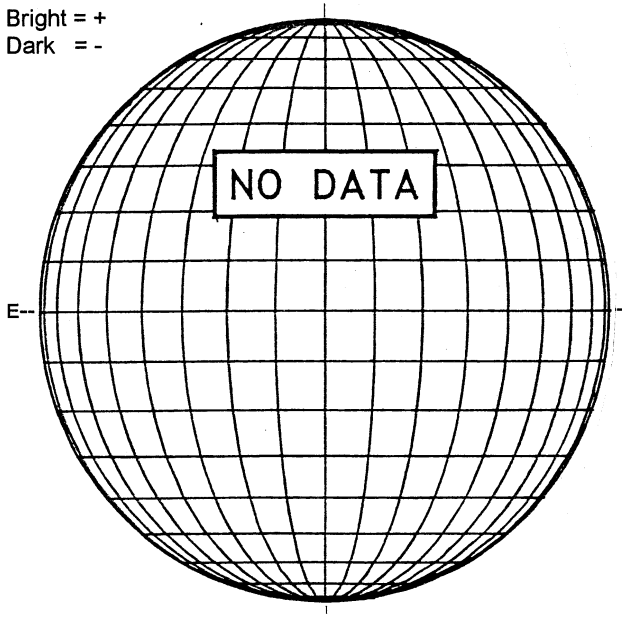

67
Feb 04

# FEBRUARY 23, 2004 ( P= -19.71, Bo = -7.09, Lo = 186.69)

KITT PEAK MAGNETOGRAM--SOLIS

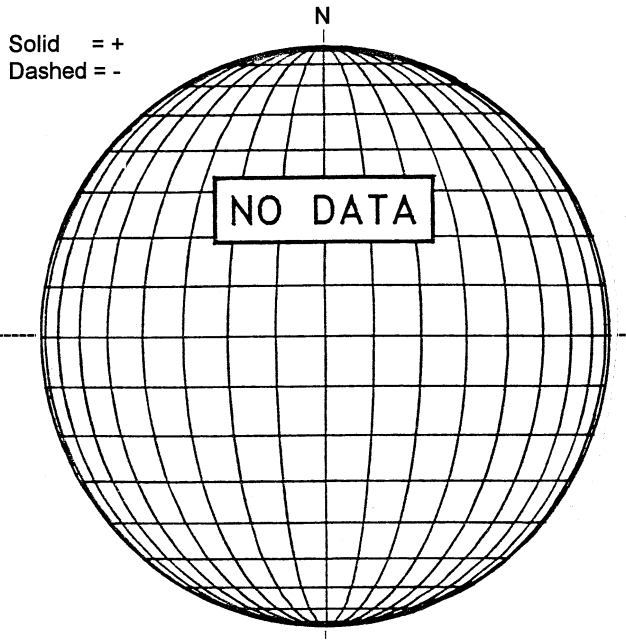
**854.2 nm**

Bright = +
Dark = -



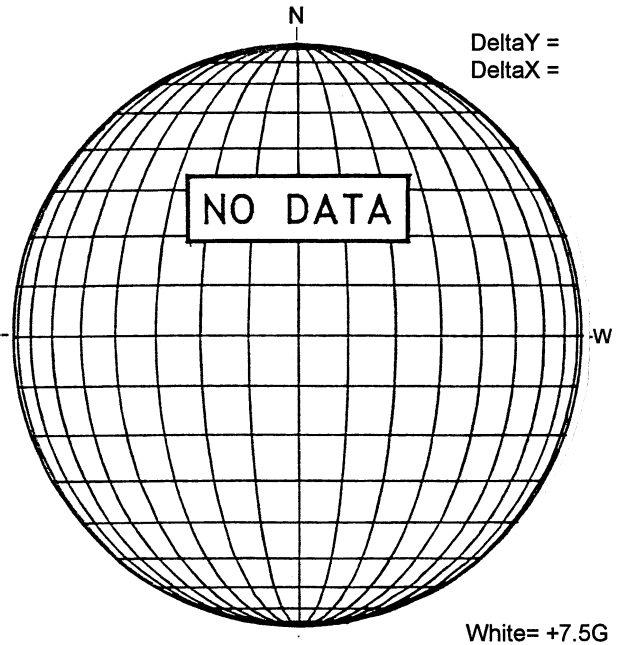

STANFORD MAGNETOGRAM

Solid = +
Dashed = -



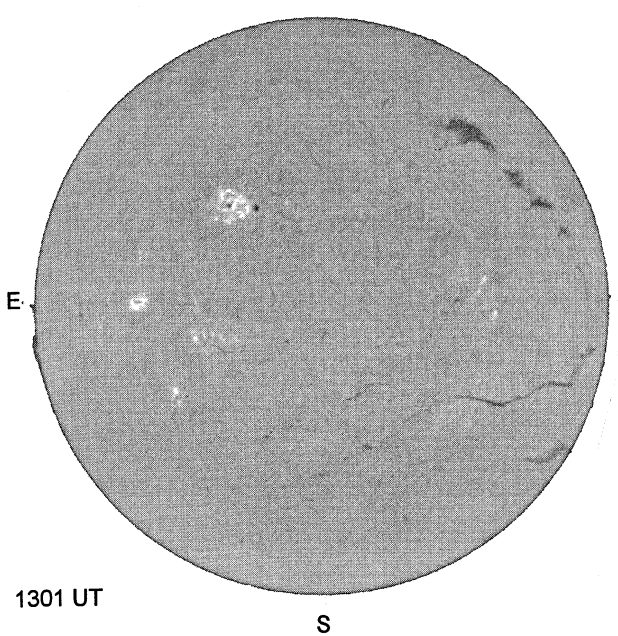

MT. WILSON MAGNETOGRAM

DeltaY =
DeltaX =

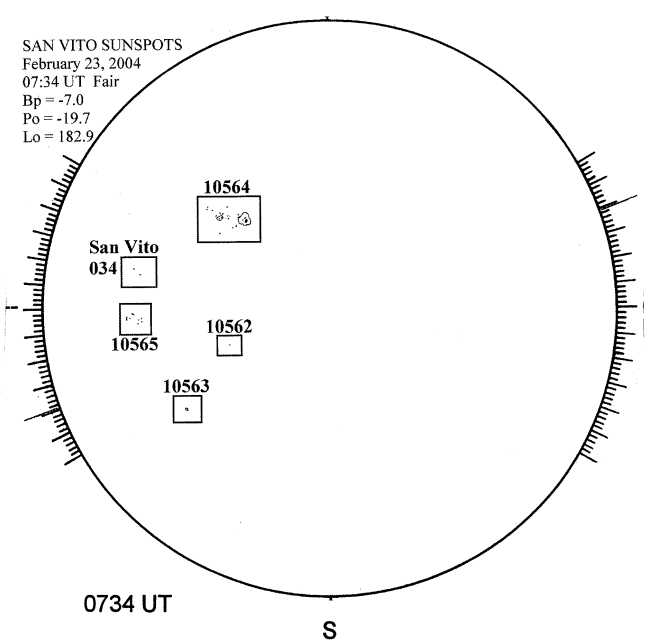



White= +7.5G
Black = -7.5G

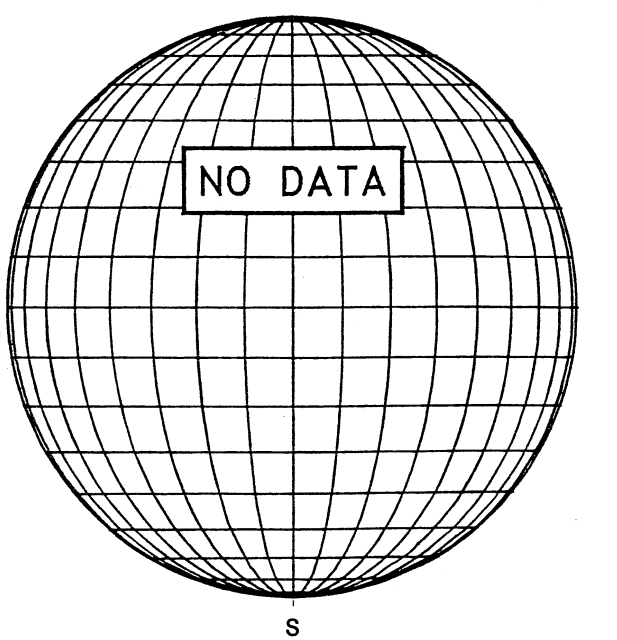
CATANIA H-ALPHA




SAN VITO SUNSPOT




SACRAMENTO PEAK CORONA (1.15 Radii)----



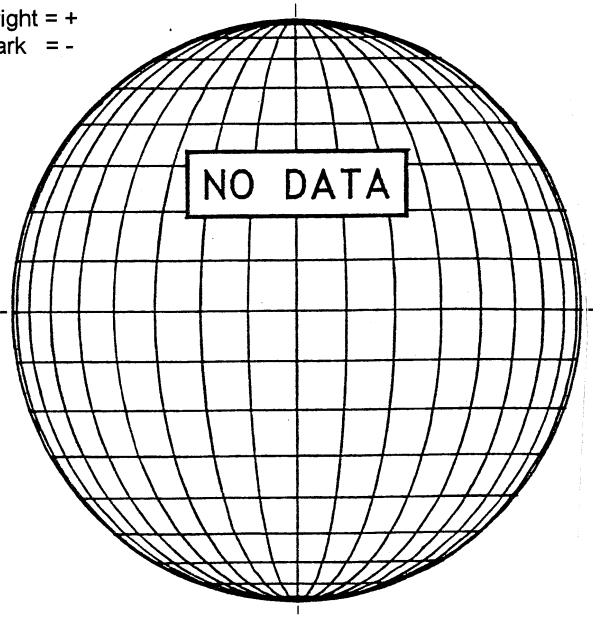
**FEBRUARY 24, 2004 ( P= -20.00, Bo = -7.12, Lo = 173.52)**

KITT PEAK MAGNETOGRAM--SOLIS

N

**854.2 nm**

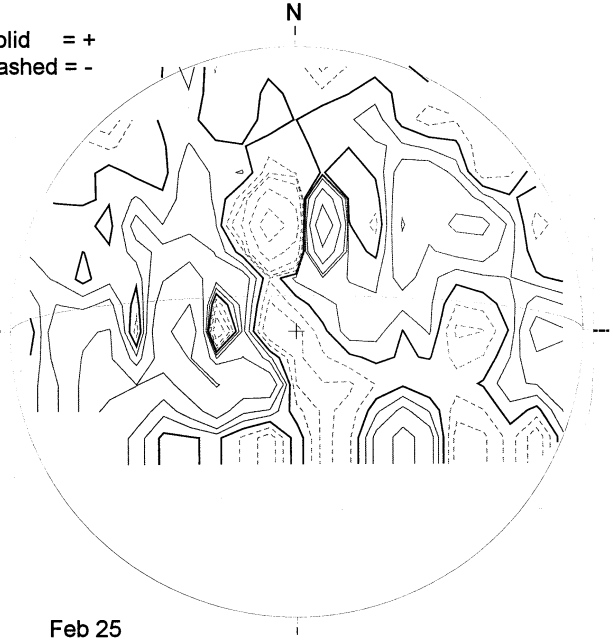
Bright = +
Dark = -




STANFORD MAGNETOGRAM

N

Solid = +
Dashed = -

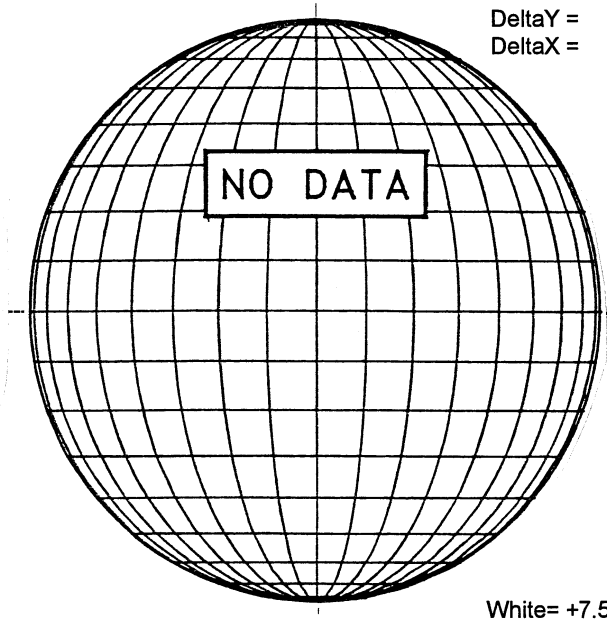


Feb 25
0002 UT

MT. WILSON MAGNETOGRAM

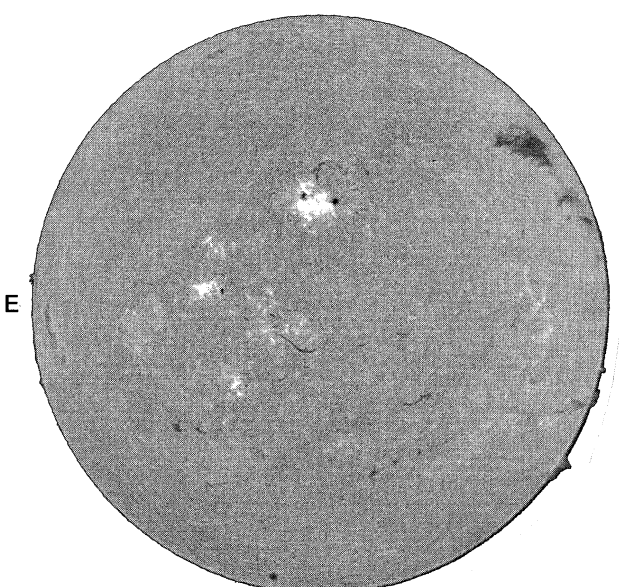
N

DeltaY =
DeltaX =




White= +7.5G
Black = -7.5G

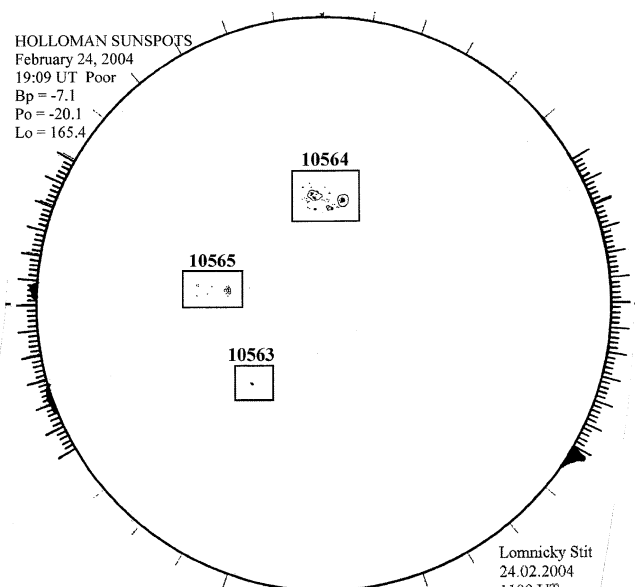
BIG BEAR H-ALPHA




1753 UT

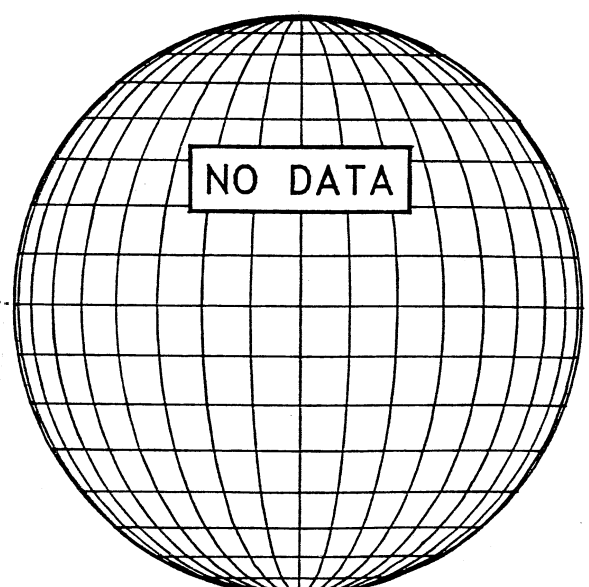
S

HOLLOMAN SUNSPOT




1909 UT
1100 UT LOMN Prom S

LOMNICKY PEAK CORONA (1.04 Radii)----




S

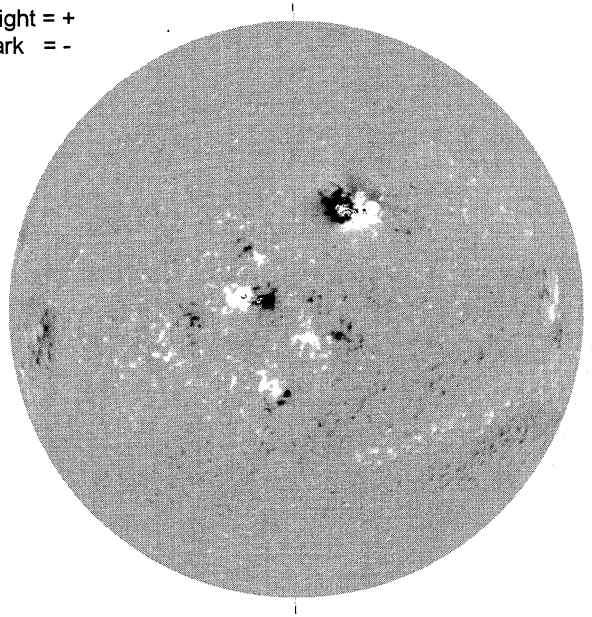
# FEBRUARY 25, 2004 ( P= -20.29, Bo = -7.14, Lo = 160.35)

## KITT PEAK MAGNETOGRAM--SOLIS

N

**854.2 nm**

Bright = +
Dark = -



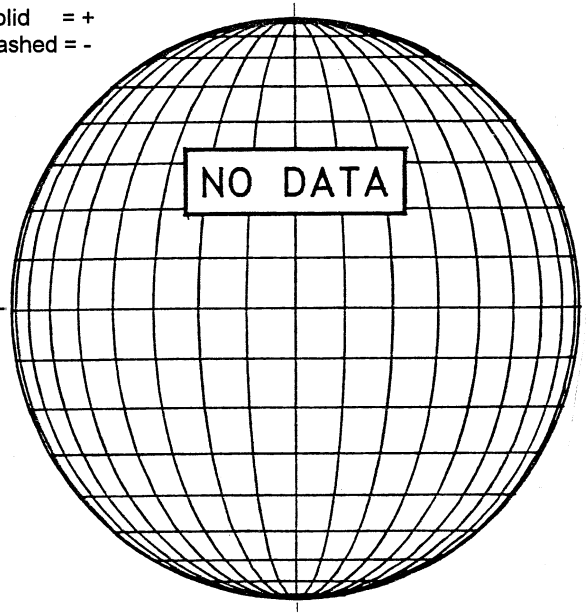
E-

1800 UT

## STANFORD MAGNETOGRAM

N

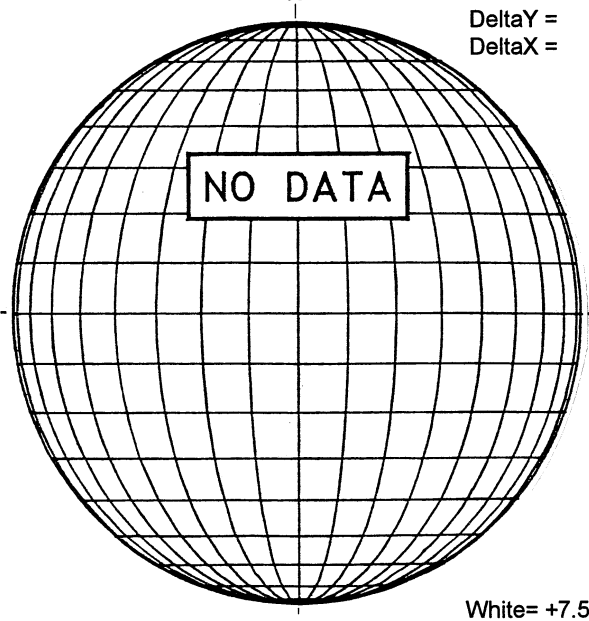
Solid = +
Dashed = -




## MT. WILSON MAGNETOGRAM

N

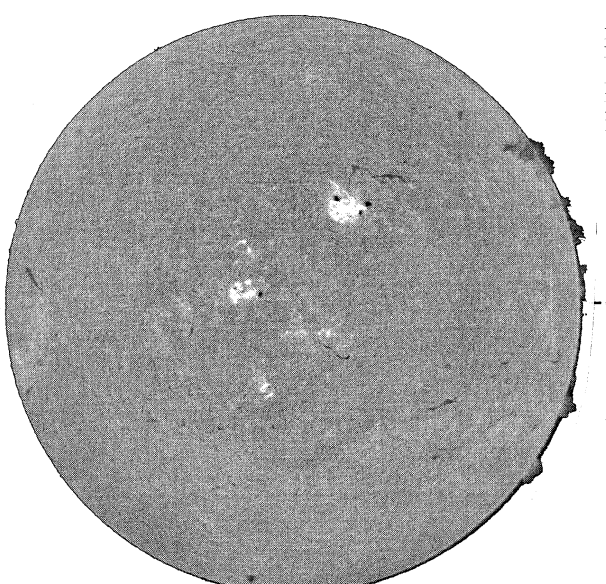
DeltaY =
DeltaX =




W

White= +7.5G
Black = -7.5G

## BIG BEAR H-ALPHA

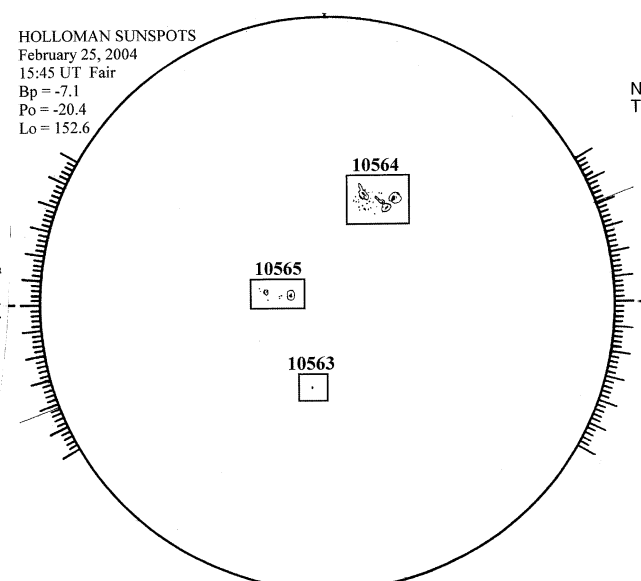


E

1703 UT

S

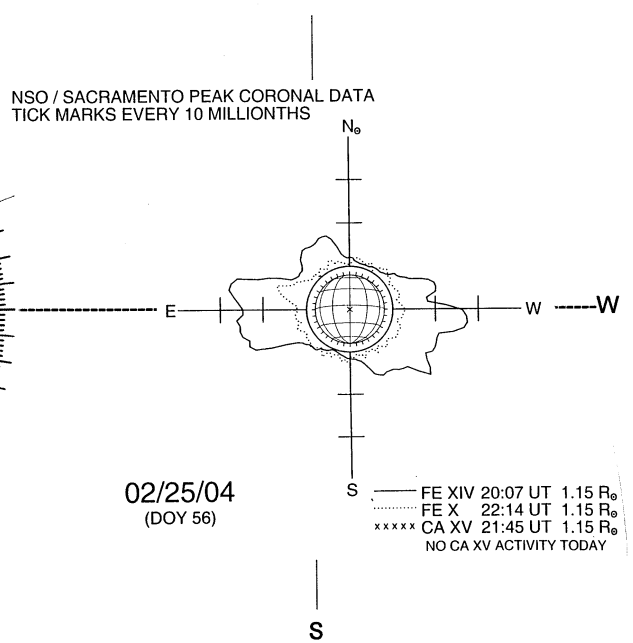
## HOLLOMAN SUNSPOT




1545 UT

S

## SACRAMENTO PEAK CORONA (1.15 Radii)



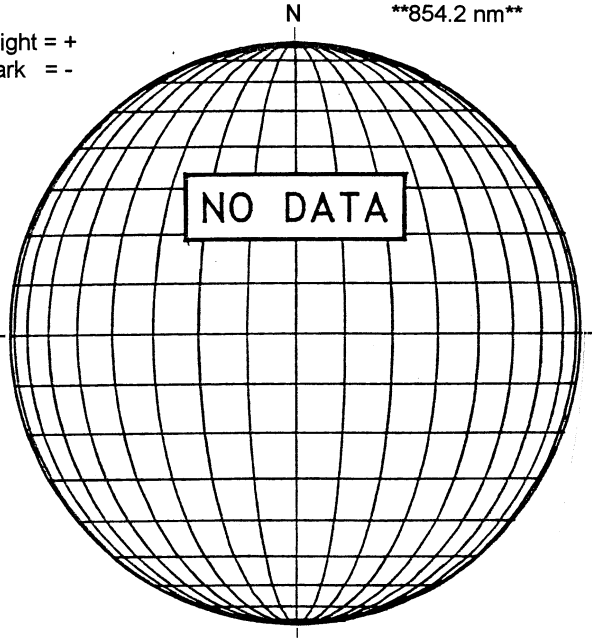

S

**FEBRUARY 26, 2004 ( P= -20.57, Bo = -7.16, Lo = 147.18)**

KITT PEAK MAGNETOGRAM--SOLIS

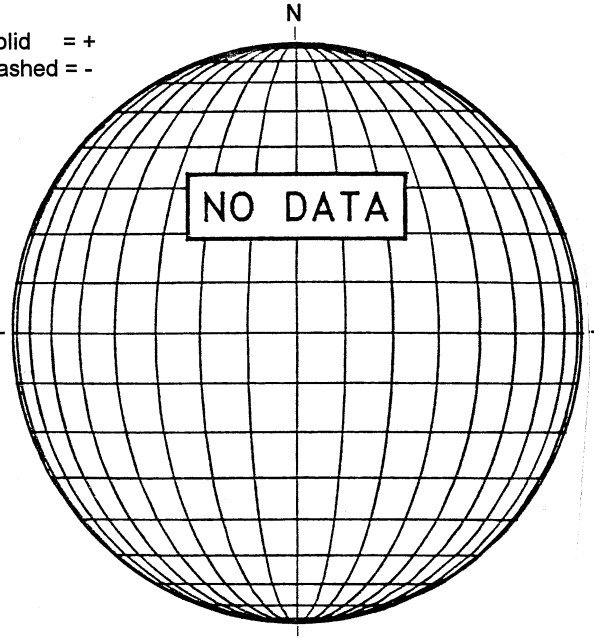
**854.2 nm**

Bright = +
Dark = -



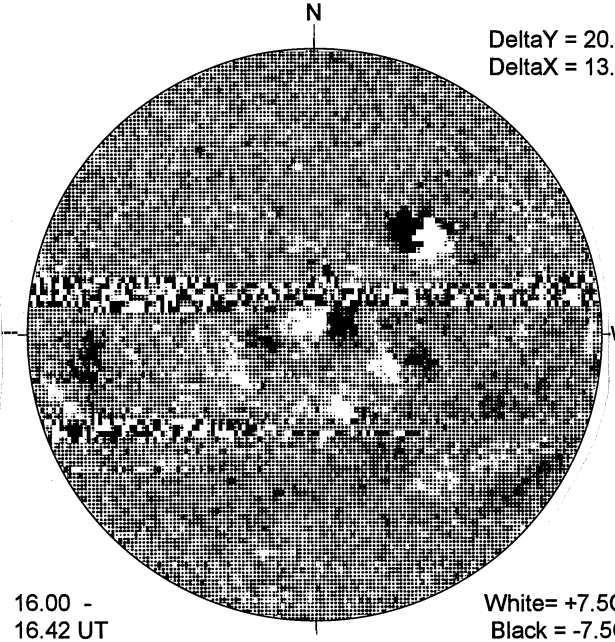

STANFORD MAGNETOGRAM

Solid = +
Dashed = -




MT. WILSON MAGNETOGRAM

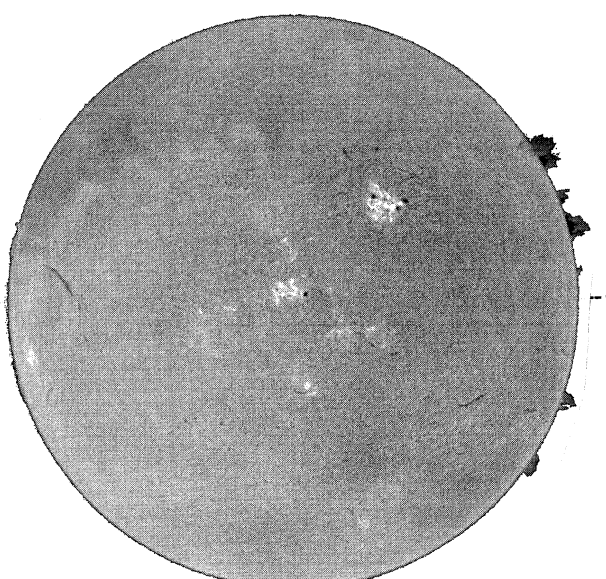
DeltaY = 20.1
DeltaX = 13.0




16.00 -
16.42 UT

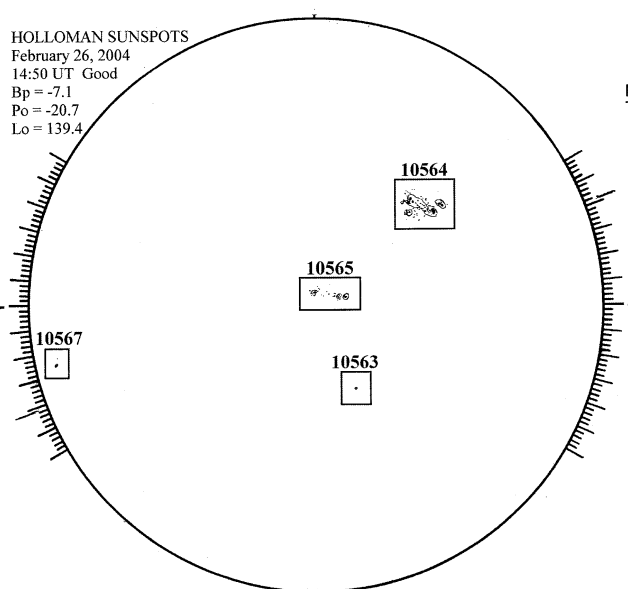
White= +7.5G
Black = -7.5G

CATANIA H-ALPHA



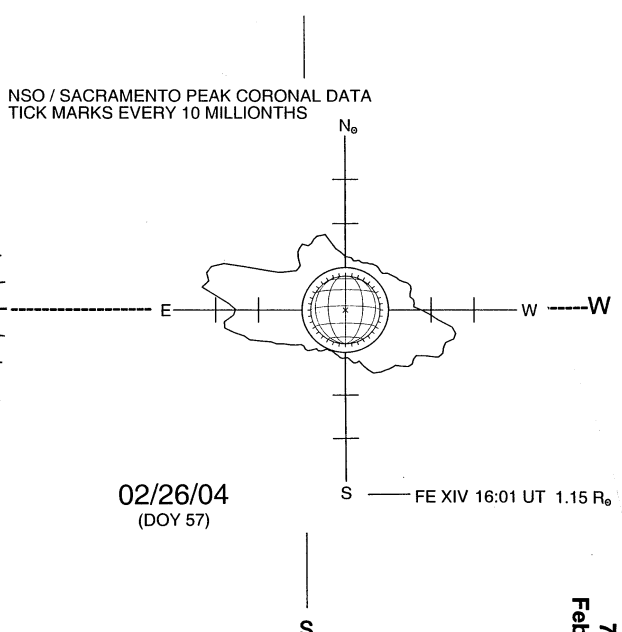

0856 UT

HOLLOMAN SUNSPOT




1450 UT

SACRAMENTO PEAK CORONA (1.15 Radii)----



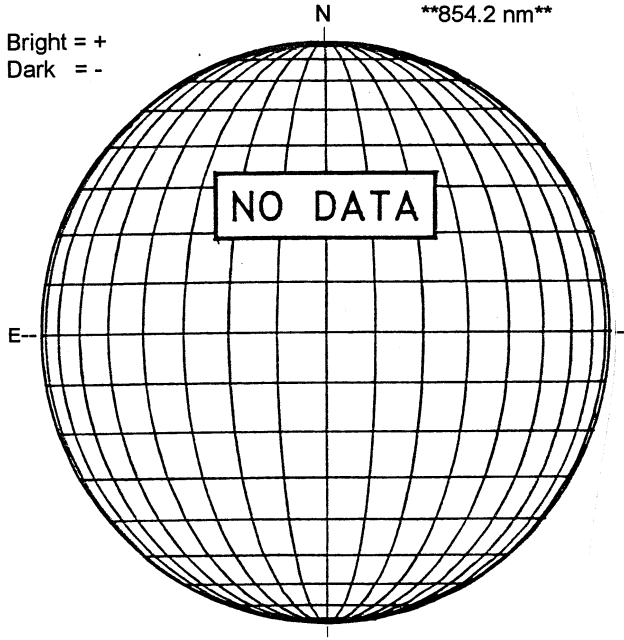

02/26/04
(DOY 57)

S

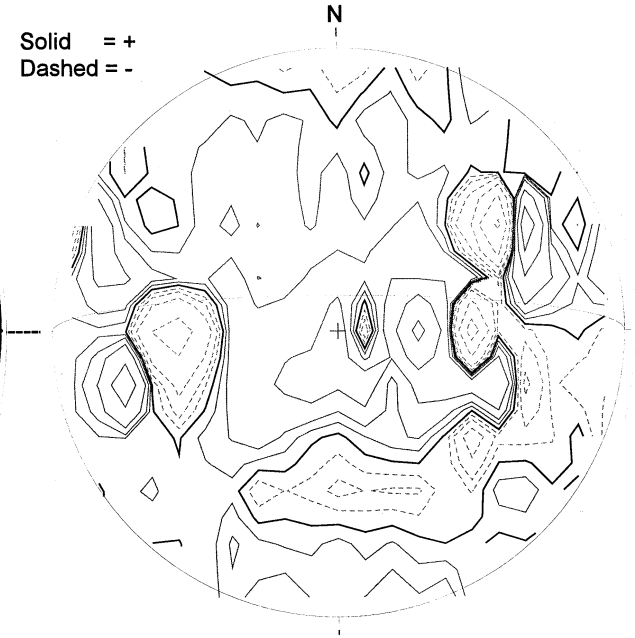
71
Feb 04

# FEBRUARY 27, 2004 ( P= -20.84, Bo = -7.18, Lo = 134.01)

## KITT PEAK MAGNETOGRAM--SOLIS

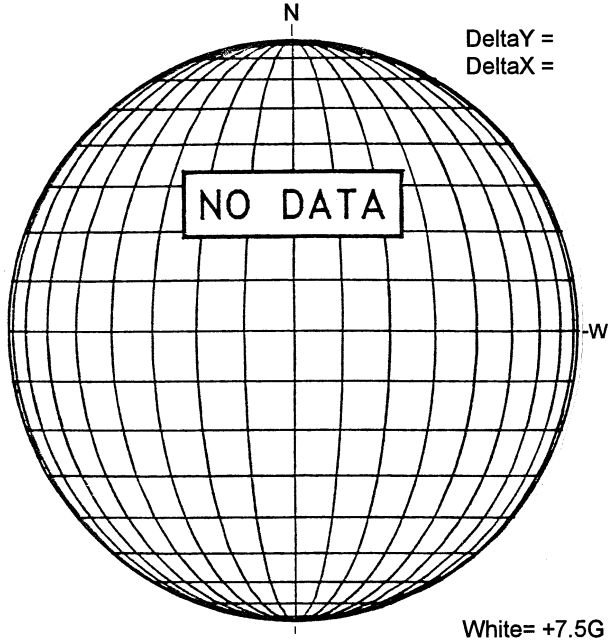



## STANFORD MAGNETOGRAM

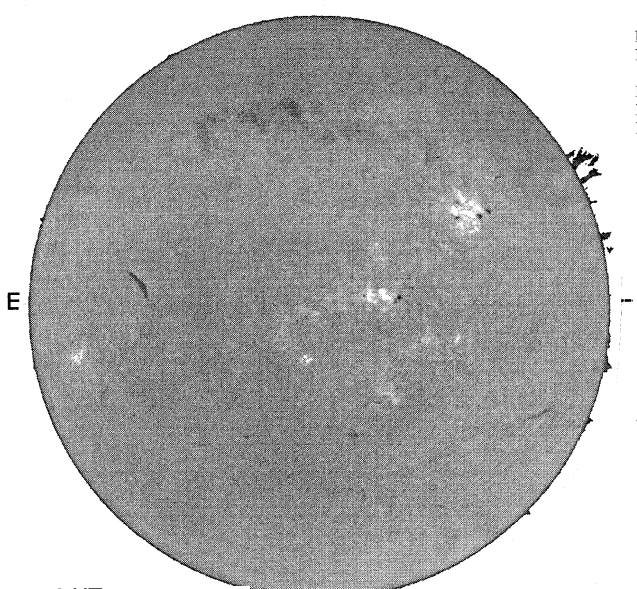



2312 UT

## MT. WILSON MAGNETOGRAM



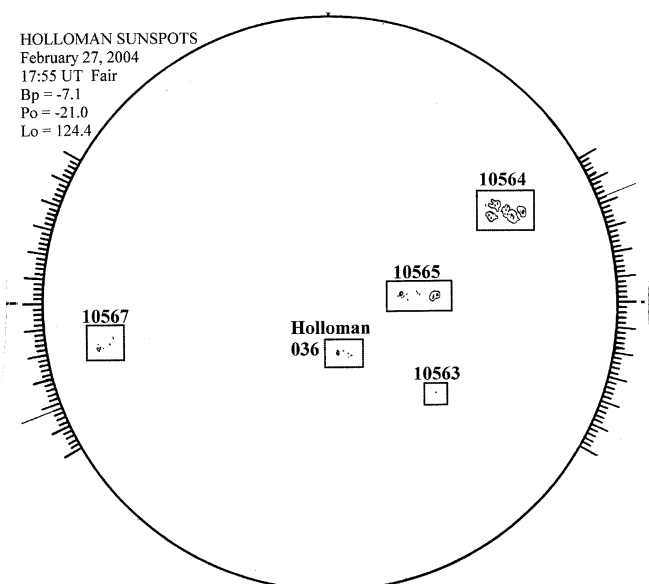

## CATANIA H-ALPHA




0806 UT

S

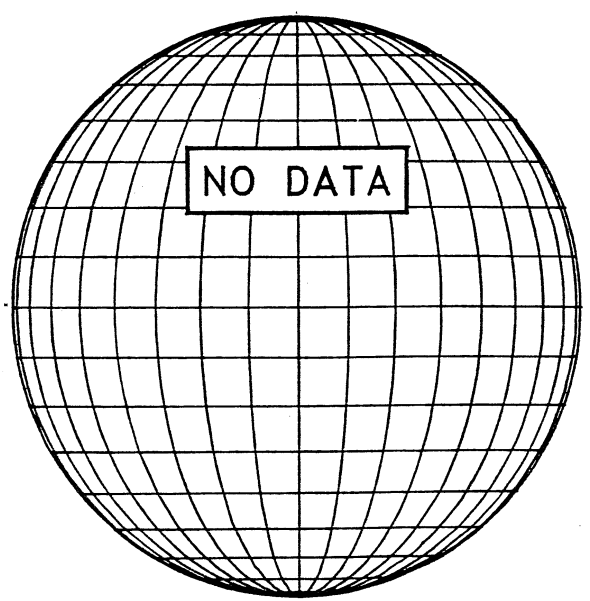
## HOLLOMAN SUNSPOT




1755 UT

S

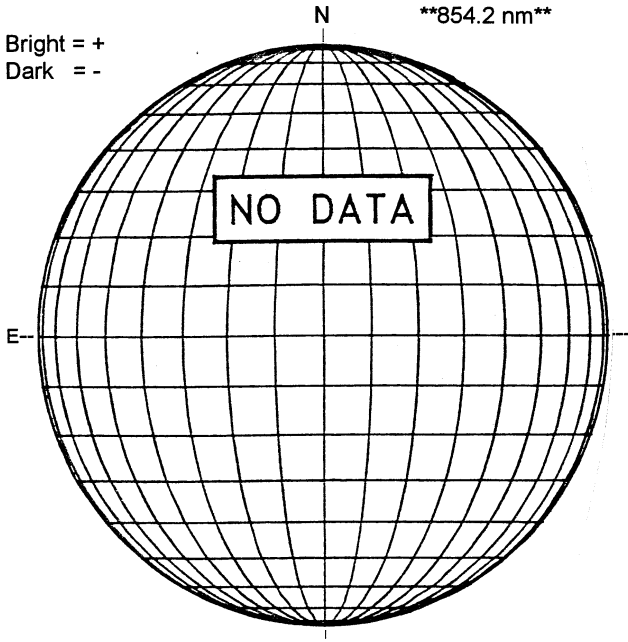
## SACRAMENTO PEAK CORONA (1.15 Radii)----



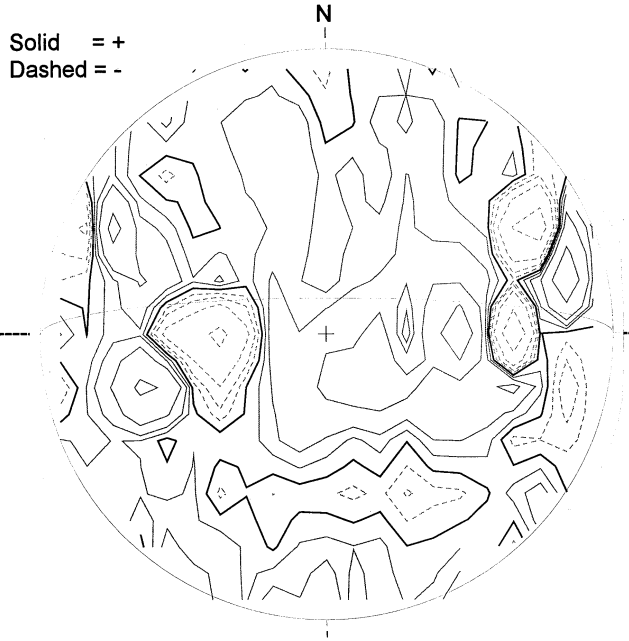

S

**FEBRUARY 28, 2004 ( P= -21.10, Bo = -7.20, Lo = 120.84)**

KITT PEAK MAGNETOGRAM--SOLIS

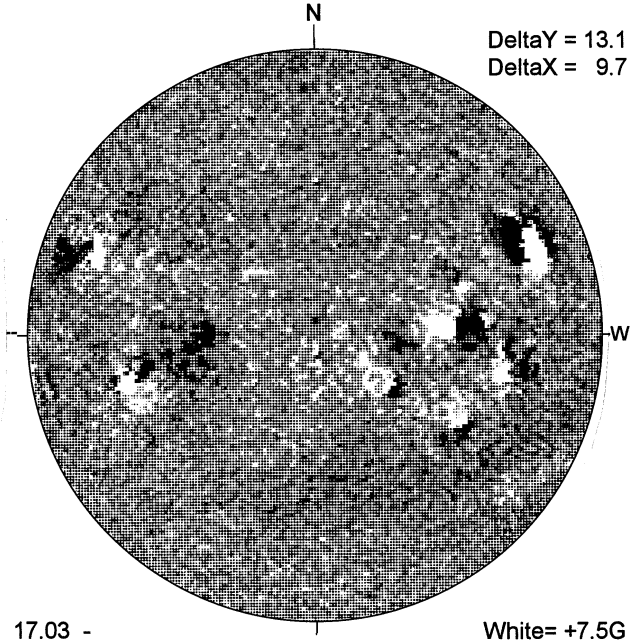



STANFORD MAGNETOGRAM




2124 UT

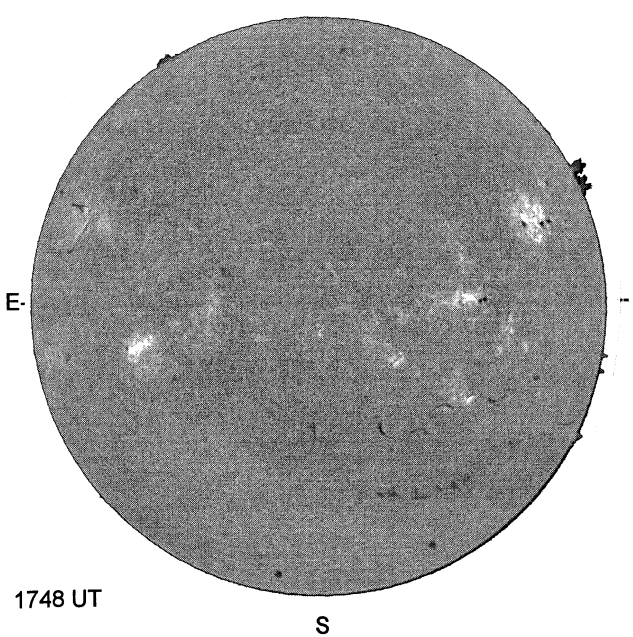
MT. WILSON MAGNETOGRAM




17.03 - 18.00 UT

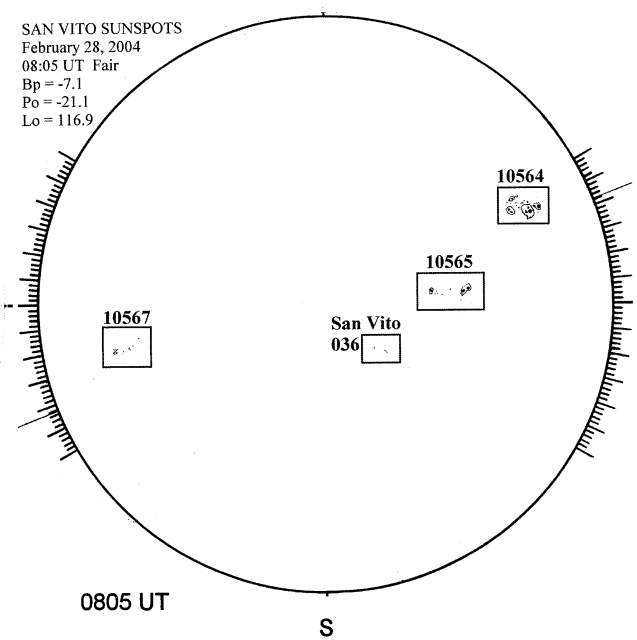
White= +7.5G
Black = -7.5G

BIG BEAR H-ALPHA



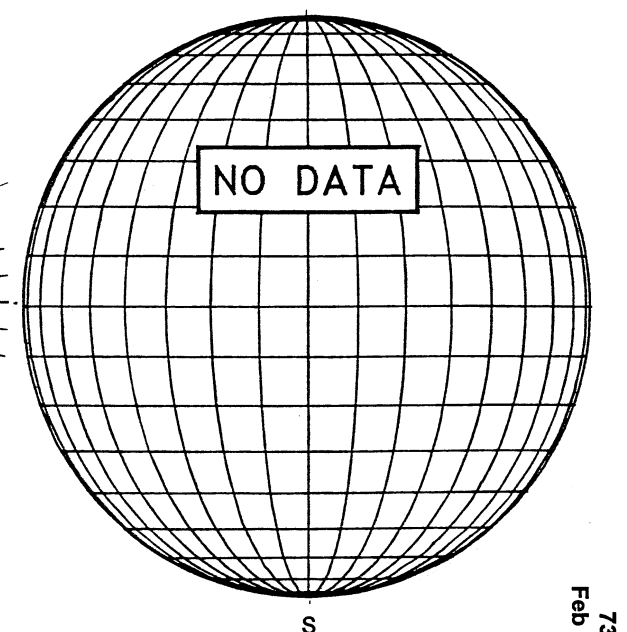

1748 UT

SAN VITO SUNSPOT




0805 UT

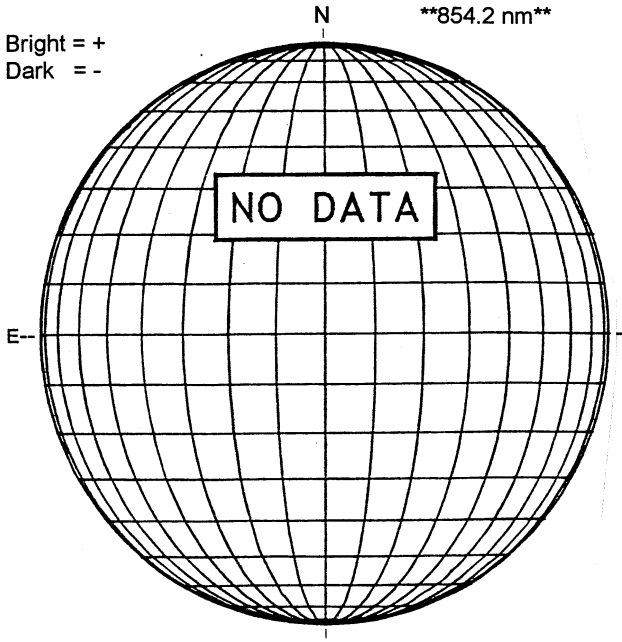
SACRAMENTO PEAK CORONA (1.15 Radii)----



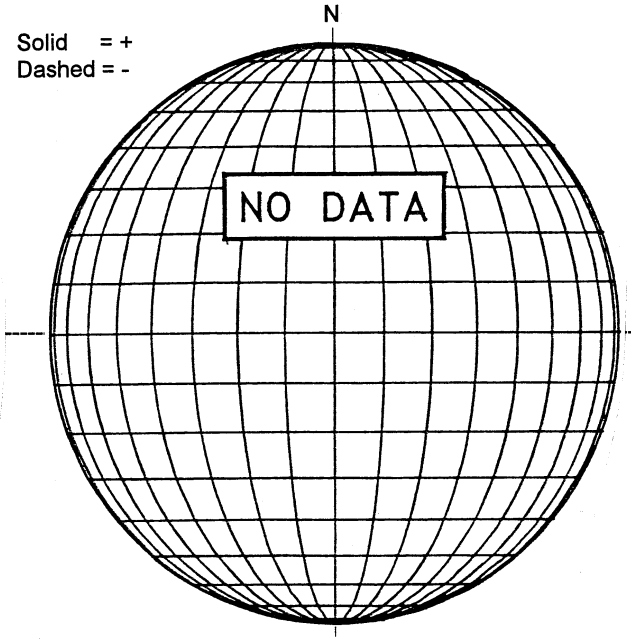

73
Feb 04

# FEBRUARY 29, 2004 ( P= -21.36, Bo = -7.21, Lo = 107.67)

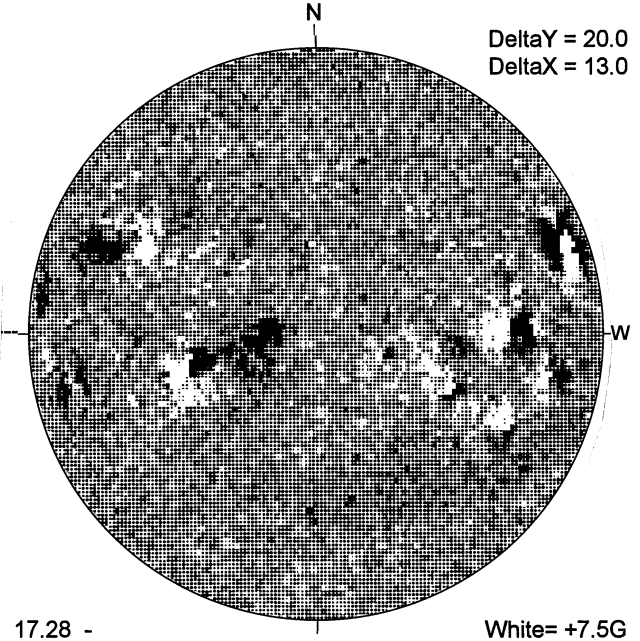
## KITT PEAK MAGNETOGRAM--SOLIS



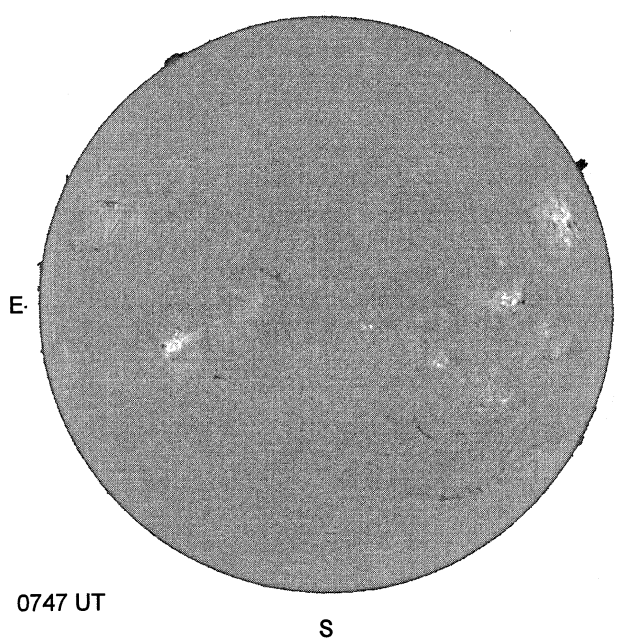

## STANFORD MAGNETOGRAM



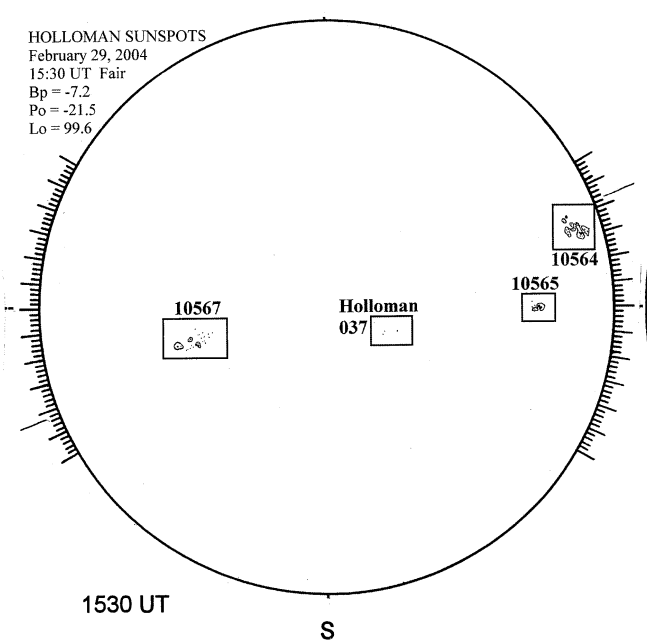

## MT. WILSON MAGNETOGRAM



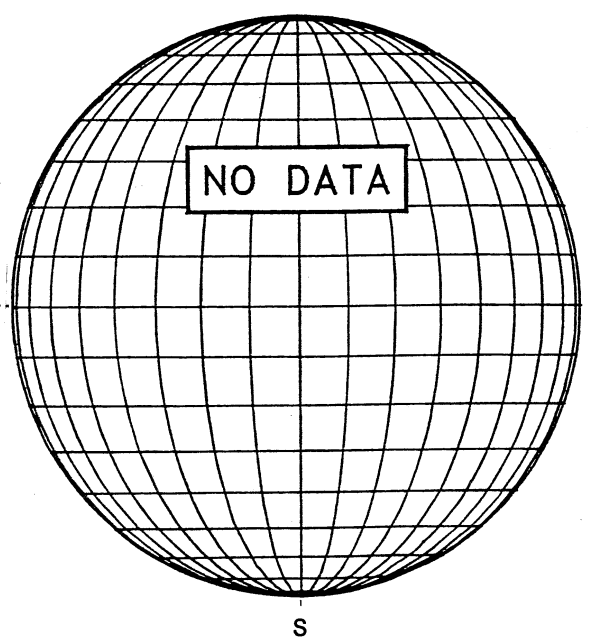

## CATANIA H-ALPHA



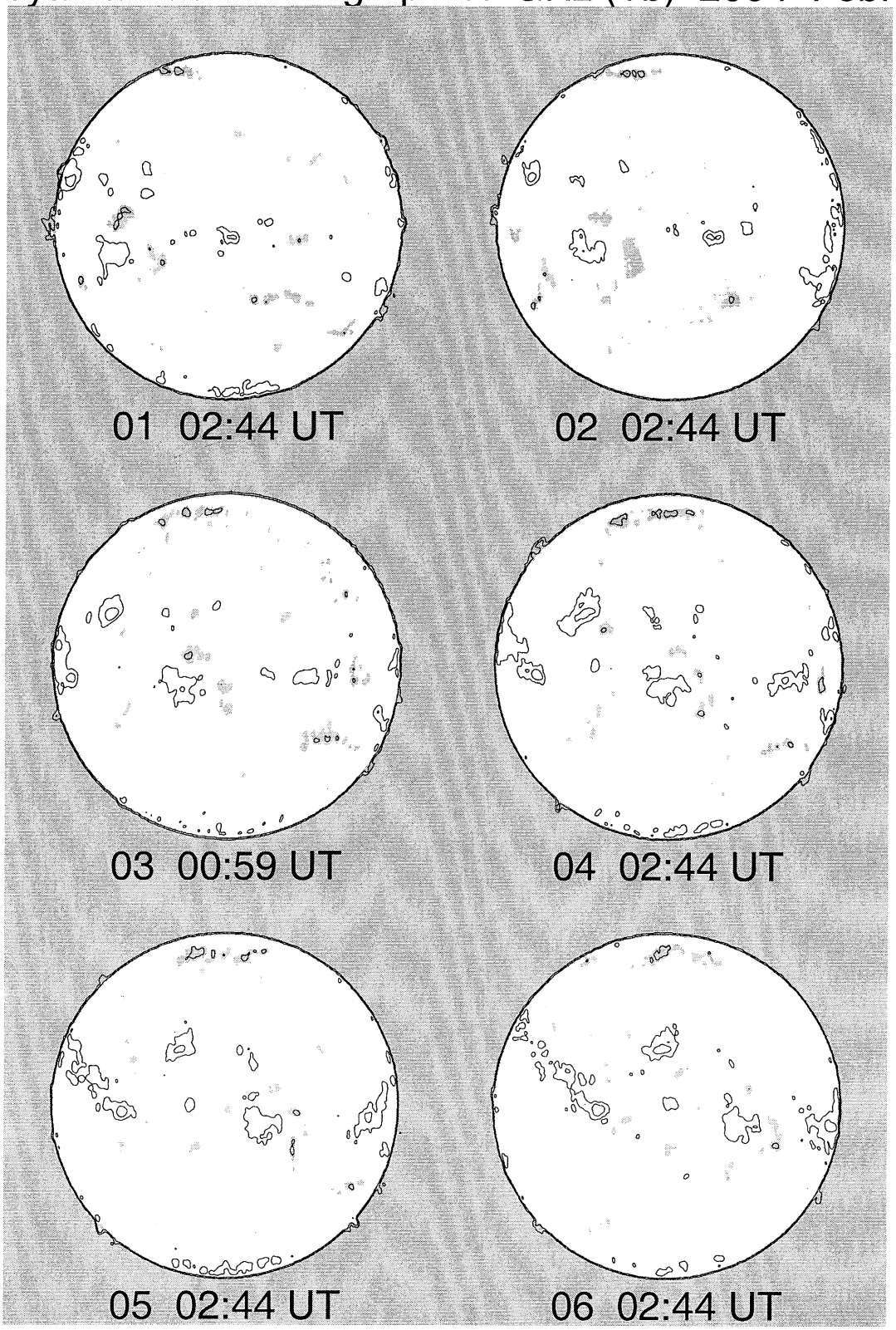

## HOLLOMAN SUNSPOT




## SACRAMENTO PEAK CORONA (1.15 Radii)

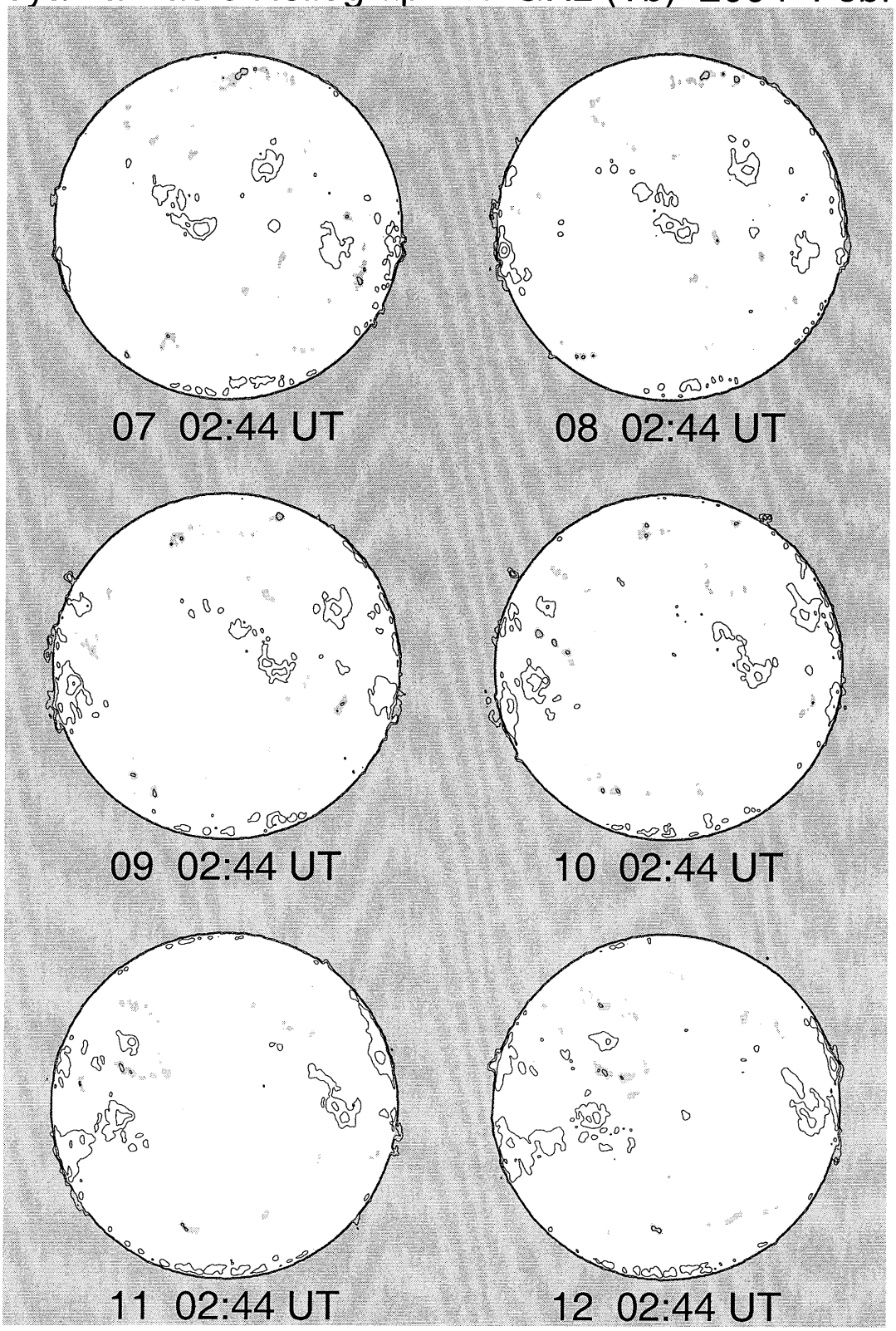


# Nobeyama Radio Heliograph 17 GHz (Tb) 2004 February



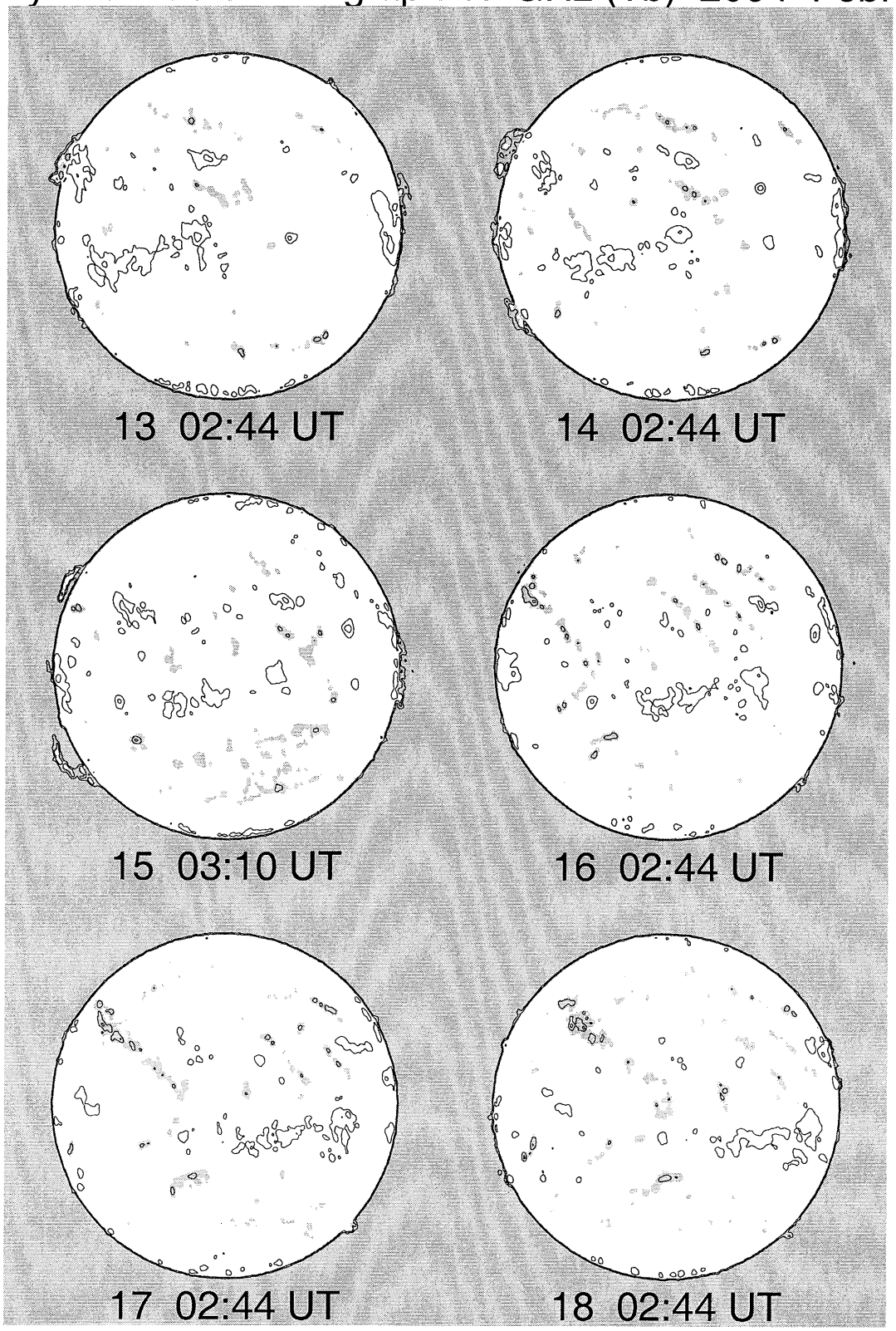

Contour Levels Tb=[5,8,12,20,50,100] x 10^3 K
Grey level Tb <= 9,500 K

# Nobeyama Radio Heliograph 17 GHz (Tb) 2004 February



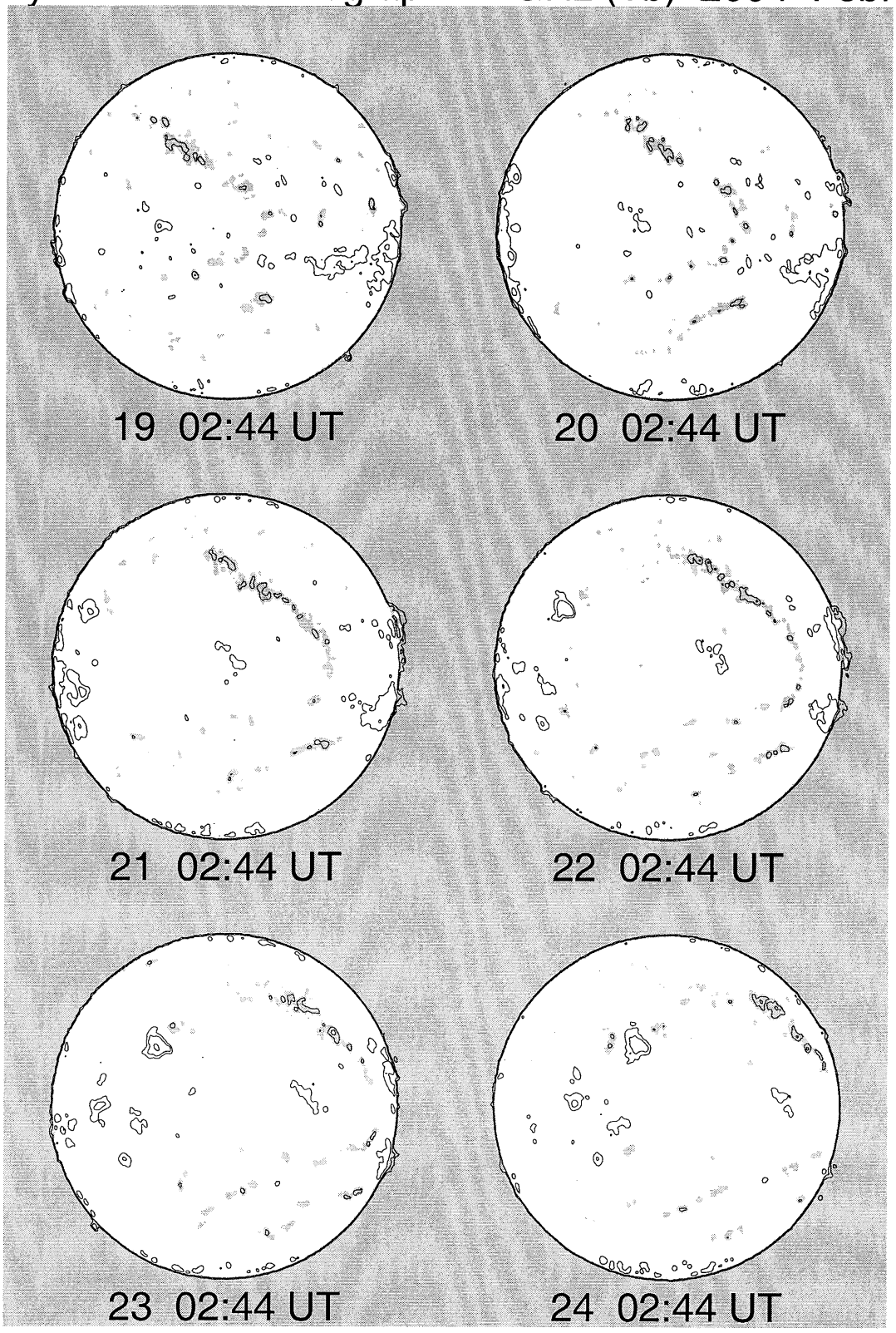

Contour Levels Tb=[5,8,12,20,50,100] x 10^3 K
Grey level Tb <= 9,500 K

# Nobeyama Radio Heliograph 17 GHz (Tb) 2004 February



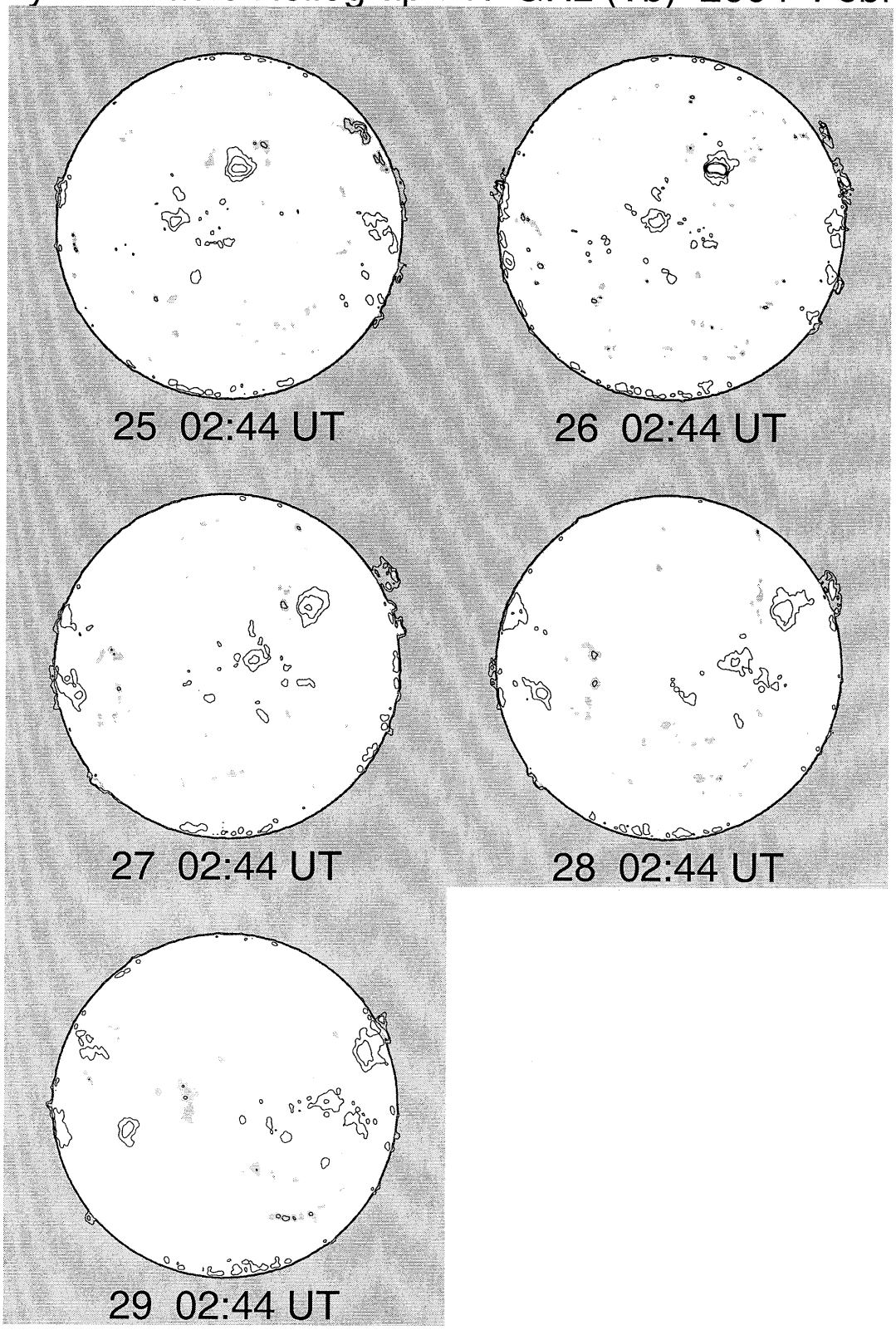

Contour Levels Tb=[5,8,12,20,50,100] x 10^3 K
Grey level Tb <= 9,500 K

# Nobeyama Radio Heliograph 17 GHz (Tb) 2004 February




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

# Nobeyama Radio Heliograph 17 GHz (Tb) 2004 February




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

# SUNSPOT GROUPS
## (Ordered by Central Meridian Passage Date)

## FEBRUARY 2004

| NOAA/ USAF Group | Mt Wilson Group | Sta | Observation Time Mo Day (UT) | Lat CMD | CMP Mo Day | Max H | Mag Class | Spot Class | Corrected Area (10-6 Hemi) | Spot Count | Long. Extent (Deg) | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10547 | | LEAR | 01 30 0035 | S08 E25 | 01 31.9 | | B | BXO | 20 | 3 | 3 | 3 |
| 10547 | | SVTO | 01 30 0715 | S11 E23 | 02 1.0 | | B | CSO | 20 | 2 | 4 | 3 |
| 10547 | | TACH | 01 30 0817 | S09 E22 | 02 1.0 | | | BXI | 10 | 3 | 5 | 3 |
| 10547 | | VORO | 01 30 1015 | S09 E26 | 02 1.4 | | | BXO | 10 | 2 | 2 | 3 |
| 10547 | | HOLL | 01 30 1504 | S09 E19 | 02 1.0 | | B | DSO | 40 | 7 | 7 | 4 |
| 10547 | 31998 | MWIL | 01 30 1600 | S09 E19 | 02 1.1 | 4 | (BG) | | | | | |
| 10547 | | LEAR | 01 31 0111 | S09 E14 | 02 1.1 | | BG | CSO | 30 | 5 | 8 | 2 |
| 10547 | | SVTO | 01 31 0732 | S11 E09 | 02 1.0 | | B | DSO | 20 | 3 | 2 | 3 |
| 10547 | | VORO | 01 31 1016 | S09 E13 | 02 1.4 | | | CRI | 30 | 7 | 6 | 3 |
| 10547 | 31998 | MWIL | 01 31 2000 | S10 E02 | 02 1.0 | 4 | (BF) | | | | | |
| 10547 | | LEAR | 02 01 0120 | S10 E00 | 02 1.0 | | B | DSO | 70 | 8 | 4 | 3 |
| 10547 | | SVTO | 02 01 0723 | S10 W04 | 02 1.0 | | B | DSO | 50 | 4 | 4 | 3 |
| 10547 | | KAND | 02 01 0850 | S10 W04 | 02 1.1 | | | DRO | | 13 | 5 | 1 |
| 10547 | | VORO | 02 01 1007 | S08 E01 | 02 1.5 | | | HAX | 54 | 8 | 0 | 3 |
| 10547 | 31998 | MWIL | 02 01 1600 | S09 W09 | 02 1.0 | 4 | (B1) | | | | | |
| 10547 | | LEAR | 02 02 0055 | S09 W14 | 02 1.0 | | BG | DAI | 50 | 10 | 7 | 2 |
| 10547 | | TACH | 02 02 0609 | S08 W17 | 02 1.0 | | | BRI | 15 | 7 | 4 | 3 |
| 10547 | | SVTO | 02 02 1220 | S09 W21 | 01 31.9 | | B | DAI | 90 | 10 | 8 | 3 |
| 10547 | | HOLL | 02 02 1730 | S09 W25 | 01 31.8 | | BG | DAI | 80 | 14 | 8 | 3 |
| 10547 | | LEAR | 02 03 0230 | S09 W29 | 01 31.9 | | BG | DAI | 150 | 12 | 8 | 2 |
| 10547 | | TACH | 02 03 0506 | S07 W31 | 01 31.9 | | | AR | 7 | 4 | 2 | 3 |
| 10547 | | LEAR | 02 04 0040 | S10 W43 | 01 31.8 | | BG | DAI | 90 | 8 | 3 | 2 |
| 10547 | | VORO | 02 04 0106 | S08 W44 | 01 31.7 | | | BRX | 29 | 11 | 5 | 2 |
| 10547 | | SVTO | 02 04 1009 | S07 W48 | 01 31.8 | | B | DSO | 30 | 3 | 3 | 2 |
| 10547 | | HOLL | 02 04 1856 | S08 W54 | 01 31.7 | | B | CAO | 30 | 2 | 3 | 2 |
| 10547 | 31998 | MWIL | 02 04 1900 | S08 W53 | 01 31.8 | 4 | (AP) | | | | | |
| 10547 | | LEAR | 02 05 0042 | S09 W56 | 01 31.8 | | A | HSX | 30 | 4 | 2 | 3 |
| 10547 | | VORO | 02 05 0107 | S08 W56 | 01 31.8 | | | HAX | 20 | 2 | | 3 |
| 10547 | | SVTO | 02 05 0830 | S07 W62 | 01 31.7 | | A | HSX | 20 | 1 | 1 | 3 |
| 10547 | 31998 | MWIL | 02 05 1545 | S08 W66 | 01 31.7 | 4 | (AP) | | | | | |
| 10547 | | HOLL | 02 05 1750 | S08 W68 | 01 31.6 | | A | HAX | 50 | 1 | 1 | 4 |
| 10547 | | LEAR | 02 06 0038 | S08 W70 | 01 31.8 | | A | HSX | 30 | 1 | 1 | 1 |
| 10550 | 32002 | MWIL | 02 01 1600 | S08 E04 | 02 2.0 | 3 | (AP) | | | | | |
| 10550 | | LEAR | 02 02 0055 | S08 W03 | 02 1.8 | | B | BXO | 10 | 2 | 1 | 2 |
| 10550 | | TACH | 02 02 0609 | S08 W04 | 02 1.9 | | | BRO | 4 | 3 | 4 | 3 |
| 10550 | | SVTO | 02 02 1220 | S08 W07 | 02 2.0 | | B | DSO | 30 | 5 | 4 | 3 |
| 10550 | | HOLL | 02 02 1730 | S08 W12 | 02 1.8 | | B | DSO | 40 | 4 | 5 | 3 |
| 10550 | | LEAR | 02 03 0230 | S09 W15 | 02 2.0 | | B | DSO | 30 | 2 | 4 | 2 |
| 10550 | | TACH | 02 03 0506 | S08 W17 | 02 1.9 | | | BXO | 5 | 2 | 5 | 3 |
| 10550 | | LEAR | 02 04 0040 | S09 W27 | 02 2.0 | | B | CAO | 20 | 2 | 2 | 2 |
| 10550 | | VORO | 02 04 0106 | S09 W27 | 02 2.0 | | | HAX | 3 | 2 | | 2 |
| 10548 | | LEAR | 01 31 0111 | N07 E43 | 02 3.3 | | A | AXX | 10 | 1 | 1 | 2 |
| 10548 | | SVTO | 01 31 0732 | N05 E39 | 02 3.2 | | A | HSX | 10 | 1 | 1 | 3 |
| 10548 | | VORO | 01 31 1016 | N05 E42 | 02 3.6 | | | BXO | 13 | 2 | 2 | 3 |
| 10548 | 32001 | MWIL | 01 31 2000 | N04 E34 | 02 3.4 | 3 | (B ) | | | | | |
| 10548 | | LEAR | 02 01 0120 | N06 E29 | 02 3.2 | | B | BXO | 10 | 3 | 3 | 3 |
| 10548 | | VORO | 02 01 1007 | N05 E30 | 02 3.7 | | | AXX | 2 | 1 | | 3 |
| 10548A | 32000 | MWIL | 01 31 2000 | N14 E34 | 02 3.4 | 3 | (B ) | | | | | |
| 10548A | | LEAR | 02 01 0120 | N15 E30 | 02 3.3 | | B | BXO | 10 | 2 | 3 | 3 |
| 10548A | | VORO | 02 01 1007 | N14 E31 | 02 3.8 | | | BXO | 18 | 3 | 3 | 3 |
| 10546 | | SVTO | 01 29 0920 | S12 E76 | 02 4.1 | | A | HSX | 30 | 1 | 2 | 3 |
| 10546 | | HOLL | 01 29 1545 | S12 E71 | 02 4.0 | | A | HSX | 60 | 1 | 1 | 3 |
| 10546 | 31997 | MWIL | 01 29 1630 | S12 E70 | 02 4.0 | 4 | (AP) | | | | | |
| 10546 | | LEAR | 01 30 0035 | S10 E67 | 02 4.0 | | A | HAO | 80 | 4 | 5 | 3 |
| 10546 | | SVTO | 01 30 0715 | S12 E64 | 02 4.1 | | A | HSX | 40 | 1 | 2 | 3 |
| 10546 | | TACH | 01 30 0817 | S12 E62 | 02 4.0 | | | AR | 26 | 2 | 2 | 3 |
| 10546 | | HOLL | 01 30 1504 | S11 E58 | 02 4.0 | | B | CSO | 40 | 4 | 7 | 4 |
| 10546 | 31997 | MWIL | 01 30 1600 | S12 E58 | 02 4.0 | 5 | (AP) | | | | | |
| 10546 | | LEAR | 01 31 0111 | S10 E52 | 02 3.9 | | B | CSO | 50 | 8 | 4 | 2 |
| 10546 | | SVTO | 01 31 0732 | S13 E50 | 02 4.1 | | A | HSX | 30 | 1 | 1 | 3 |
| 10546 | 31997 | MWIL | 01 31 2000 | S12 E41 | 02 3.9 | 4 | (AP) | | | | | |
| 10546 | | LEAR | 02 01 0120 | S10 E38 | 02 3.9 | | B | CSO | 40 | 3 | 4 | 3 |
| 10546 | | SVTO | 02 01 0723 | S13 E37 | 02 4.1 | | A | HSX | 20 | 1 | 1 | 3 |
| 10546 | | KAND | 02 01 0850 | S11 E35 | 02 4.0 | | | BXO | | 3 | 4 | 1 |
| 10546 | | LEAR | 02 02 0055 | S09 E30 | 02 4.3 | | B | BXO | 20 | 5 | 8 | 2 |

# SUNSPOT GROUPS
## (Ordered by Central Meridian Passage Date)

## FEBRUARY 2004

| NOAA/ USAF Group | Mt Wilson Group | Sta | Observation Time Mo Day (UT) | Lat CMD | CMP Mo Day | Max H | Mag Class | Spot Class | Corrected Area (10-6 Hemi) | Spot Count | Long. Extent (Deg) | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10546 | | TACH | 02 02 0609 | S12 E24 | 02 4.1 | | | AXX | 2 | 1 | 1 | 3 |
| 10546 | | SVTO | 02 02 1220 | S12 E21 | 02 4.1 | | A | HSX | 10 | 2 | 1 | 3 |
| 10546 | | HOLL | 02 02 1730 | S11 E18 | 02 4.1 | | A | HSX | 20 | 1 | 1 | 3 |
| 10546 | | LEAR | 02 03 0230 | S12 E13 | 02 4.1 | | A | HSX | 20 | 1 | 7 | 2 |
| 10546 | | TACH | 02 03 0506 | S12 E13 | 02 4.2 | | | AXX | 5 | 1 | 1 | 3 |
| 10552 | | VORO | 01 29 1023 | S12 E80 | 02 4.4 | | | HAX | 40 | 1 | | 3 |
| 10552 | | VORO | 01 30 1015 | S11 E66 | 02 4.4 | | | HAX | 94 | 4 | | 3 |
| 10552 | | VORO | 01 31 1016 | S11 E51 | 02 4.3 | | | CRI | 62 | 8 | 3 | 3 |
| 10552 | | VORO | 02 01 1007 | S11 E38 | 02 4.3 | | | CAO | 20 | 4 | 4 | 3 |
| 10552 | 31997 | MWIL | 02 01 1600 | S11 E32 | 02 4.1 | 4 | (AP) | | | | | |
| 10552 | | TACH | 02 02 0609 | S07 E30 | 02 4.5 | | | BRI | 5 | 5 | 3 | 3 |
| 10552 | | SVTO | 02 02 1220 | S08 E25 | 02 4.4 | | B | CSO | 20 | 5 | 4 | 3 |
| 10552 | | HOLL | 02 02 1730 | S07 E21 | 02 4.3 | | B | CAO | 40 | 9 | 5 | 3 |
| 10552 | | LEAR | 02 03 0230 | S07 E17 | 02 4.4 | | B | CSO | 50 | 7 | 4 | 2 |
| 10552 | | TACH | 02 03 0506 | S08 E18 | 02 4.6 | | | BRO | 4 | 4 | 3 | 3 |
| 10552 | | LEAR | 02 04 0040 | S08 E05 | 02 4.4 | | B | CSO | 50 | 6 | 4 | 2 |
| 10552 | | VORO | 02 04 0106 | S08 E04 | 02 4.3 | | | AXX | 12 | 6 | 4 | 2 |
| 10552 | | SVTO | 02 04 1009 | S08 E01 | 02 4.5 | | B | CSO | 50 | 3 | 4 | 2 |
| 10552 | | HOLL | 02 04 1856 | S09 W06 | 02 4.3 | | B | DAO | 70 | 5 | 7 | 2 |
| 10552 | 31997 | MWIL | 02 04 1900 | S08 W04 | 02 4.5 | 4 | (B ) | | | | | |
| 10552 | | LEAR | 02 05 0042 | S04 W06 | 02 4.6 | | A | AXX | 10 | 2 | 1 | 3 |
| 10552 | | LEAR | 02 05 0042 | S08 W08 | 02 4.4 | | B | DAO | 40 | 7 | 4 | 3 |
| 10552 | | VORO | 02 05 0107 | S08 W08 | 02 4.4 | | | CSO | 18 | 3 | 3 | 3 |
| 10552 | | SVTO | 02 05 0830 | S08 W12 | 02 4.4 | | B | DSO | 40 | 2 | 4 | 3 |
| 10552 | 31997 | MWIL | 02 05 1545 | S08 W15 | 02 4.5 | 4 | (B ) | | | | | |
| 10552 | | HOLL | 02 05 1750 | S08 W18 | 02 4.4 | | B | CAO | 20 | 7 | 5 | 4 |
| 10552 | | LEAR | 02 06 0038 | S08 W20 | 02 4.5 | | A | AXX | 10 | 1 | 1 | 1 |
| 10553 | | VORO | 02 04 0106 | S06 E23 | 02 5.8 | | | BRX | 5 | 3 | 4 | 2 |
| 10553 | 32003 | MWIL | 02 04 1900 | S06 E14 | 02 5.8 | 4 | (AP) | | | | | |
| 10553 | | LEAR | 02 05 0042 | S05 E13 | 02 6.0 | | B | DAO | 30 | 4 | 3 | 3 |
| 10553 | | VORO | 02 05 0107 | S05 E13 | 02 6.0 | | | DAO | 23 | 6 | 3 | 3 |
| 10553 | | SVTO | 02 05 0830 | S06 E10 | 02 6.1 | | B | DRO | 20 | 4 | 4 | 3 |
| 10553 | 32003 | MWIL | 02 05 1545 | S06 E05 | 02 6.0 | 4 | (AP) | | | | | |
| 10553 | | HOLL | 02 05 1750 | S05 E04 | 02 6.0 | | B | DSO | 40 | 5 | 4 | 4 |
| 10553 | | LEAR | 02 06 0038 | S05 E00 | 02 6.0 | | B | DSO | 20 | 4 | 4 | 1 |
| 10553 | | VORO | 02 06 0130 | S05 E00 | 02 6.1 | | | CAO | 8 | 5 | 3 | 3 |
| 10553 | | SVTO | 02 06 0736 | S05 W03 | 02 6.1 | | A | AXX | 10 | 2 | 3 | 3 |
| 10553 | | HOLL | 02 06 1620 | S04 W09 | 02 6.0 | | B | BXO | 10 | 5 | 3 | 3 |
| 10553 | | LEAR | 02 07 0054 | S04 W13 | 02 6.1 | | A | AXX | 10 | 3 | 1 | 2 |
| 10553 | | VORO | 02 07 0110 | S05 W13 | 02 6.1 | | | BRX | 3 | 2 | 2 | 3 |
| 10549 | 31999 | MWIL | 01 30 1600 | N12 E82 | 02 5.8 | 4 | AP | | | | | |
| 10549 | | SVTO | 01 31 0732 | N13 E79 | 02 6.3 | | B | DSO | 90 | 3 | 8 | 3 |
| 10549 | | VORO | 01 31 1016 | N12 E77 | 02 6.2 | | | HAX | 100 | 1 | | 3 |
| 10549 | 31999 | MWIL | 01 31 2000 | N13 E70 | 02 6.1 | 4 | (B ) | | | | | |
| 10549 | | LEAR | 02 01 0120 | N15 E68 | 02 6.2 | | B | DSO | 230 | 7 | 10 | 3 |
| 10549 | | SVTO | 02 01 0723 | N12 E67 | 02 6.3 | | B | EAO | 130 | 3 | 11 | 3 |
| 10549 | | KAND | 02 01 0850 | N13 E64 | 02 6.2 | | | CAO | | 10 | 11 | 1 |
| 10549 | | VORO | 02 01 1007 | N13 E68 | 02 6.5 | | | DAI | 218 | 5 | 8 | 3 |
| 10549 | 31999 | MWIL | 02 01 1600 | N13 E59 | 02 6.1 | 5 | (B ) | | | | | |
| 10549 | | LEAR | 02 02 0055 | N15 E55 | 02 6.2 | | B | DAO | 180 | 10 | 10 | 2 |
| 10549 | | TACH | 02 02 0609 | N12 E51 | 02 6.1 | | | BRI | 56 | 9 | 9 | 3 |
| 10549 | | SVTO | 02 02 1220 | N14 E47 | 02 6.1 | | B | EAI | 210 | 16 | 11 | 3 |
| 10549 | | HOLL | 02 02 1730 | N14 E43 | 02 6.0 | | BG | EAI | 320 | 31 | 11 | 3 |
| 10549 | | LEAR | 02 03 0230 | N14 E41 | 02 6.2 | | B | EAI | 220 | 18 | 11 | 2 |
| 10549 | | TACH | 02 03 0506 | N13 E38 | 02 6.1 | | | CAI | 74 | 8 | 10 | 3 |
| 10549 | | LEAR | 02 04 0040 | N14 E28 | 02 6.1 | | B | EAI | 180 | 18 | 11 | 2 |
| 10549 | | VORO | 02 04 0106 | N12 E28 | 02 6.1 | | | DAO | 159 | 20 | 10 | 2 |
| 10549 | | SVTO | 02 04 1009 | N13 E24 | 02 6.2 | | B | EAO | 210 | 10 | 12 | 2 |
| 10549 | | HOLL | 02 04 1856 | N13 E19 | 02 6.2 | | B | EAO | 140 | 18 | 11 | 2 |
| 10549 | 31999 | MWIL | 02 04 1900 | N13 E19 | 02 6.2 | 5 | (B ) | | | | | |
| 10549 | | LEAR | 02 05 0042 | N14 E15 | 02 6.2 | | B | EAO | 140 | 24 | 11 | 3 |
| 10549 | | VORO | 02 05 0107 | N12 E16 | 02 6.2 | | | DAO | 127 | 17 | 9 | 3 |
| 10549 | | SVTO | 02 05 0830 | N14 E14 | 02 6.4 | | B | EAO | 140 | 16 | 12 | 3 |
| 10549 | 31999 | MWIL | 02 05 1545 | N13 E08 | 02 6.2 | 5 | (B ) | | | | | |
| 10549 | | HOLL | 02 05 1750 | N15 E07 | 02 6.3 | | BG | EAI | 100 | 36 | 12 | 4 |
| 10549 | | LEAR | 02 06 0038 | N14 E03 | 02 6.2 | | B | EAO | 110 | 20 | 11 | 1 |

# SUNSPOT GROUPS
## (Ordered by Central Meridian Passage Date)

## FEBRUARY 2004

| NOAA/ USAF Group | Mt Wilson Group | Sta | Observation Time Mo | Day | (UT) | Lat | CMD | CMP Mo | Day | Max H | Mag Class | Spot Class | Corrected Area (10-6 Hemi) | Spot Count | Long. Extent (Deg) | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10549 | | VORO | 02 | 06 | 0130 | N13 | E03 | 02 | 6.3 | | | DAI | 115 | 31 | 10 | 3 |
| 10549 | | TACH | 02 | 06 | 0637 | N12 | W02 | 02 | 6.1 | | | BRI | 35 | 8 | 9 | 2 |
| 10549 | | SVTO | 02 | 06 | 0736 | N13 | W01 | 02 | 6.2 | | B | EAO | 70 | 13 | 12 | 3 |
| 10549 | | KAND | 02 | 06 | 0815 | N13 | E00 | 02 | 6.3 | | | CAO | | 14 | 12 | 3 |
| 10549 | 31999 | MWIL | 02 | 06 | 1545 | N13 | W05 | 02 | 6.3 | 5 | (B ) | | | | | |
| 10549 | | HOLL | 02 | 06 | 1620 | N14 | W06 | 02 | 6.2 | | B | EAI | 60 | 28 | 12 | 3 |
| 10549 | | LEAR | 02 | 07 | 0054 | N14 | W11 | 02 | 6.2 | | B | EAO | 150 | 25 | 12 | 2 |
| 10549 | | VORO | 02 | 07 | 0110 | N12 | W10 | 02 | 6.3 | | | DAO | 94 | 28 | 10 | 3 |
| 10549 | | SVTO | 02 | 07 | 0938 | N14 | W15 | 02 | 6.3 | | B | ERO | 60 | 15 | 12 | 3 |
| 10549 | | HOLL | 02 | 07 | 1516 | N13 | W19 | 02 | 6.2 | | B | EAC | 70 | 18 | 12 | 3 |
| 10549 | 31999 | MWIL | 02 | 07 | 1545 | N13 | W18 | 02 | 6.3 | 4 | (B ) | | | | | |
| 10549 | | LEAR | 02 | 08 | 0100 | N13 | W23 | 02 | 6.3 | | B | BXI | 90 | 14 | 12 | 2 |
| 10549 | | VORO | 02 | 08 | 0143 | N12 | W23 | 02 | 6.3 | | | CRO | 61 | 15 | 11 | 3 |
| 10549 | | SVTO | 02 | 08 | 0720 | N12 | W28 | 02 | 6.2 | | B | ESO | 30 | 7 | 12 | 3 |
| 10549 | | VORO | 02 | 08 | 0952 | N13 | W36 | 02 | 5.7 | | | DAI | 175 | 11 | 12 | 2 |
| 10549 | | KAND | 02 | 08 | 1030 | N12 | W29 | 02 | 6.2 | | | CAO | | 8 | 11 | 2 |
| 10549 | 31999 | MWIL | 02 | 08 | 1530 | N13 | W31 | 02 | 6.3 | 4 | (BG) | | | | | |
| 10549 | | HOLL | 02 | 08 | 1655 | N13 | W34 | 02 | 6.1 | | B | EAO | 70 | 23 | 13 | 3 |
| 10549 | | LEAR | 02 | 09 | 0105 | N13 | W39 | 02 | 6.1 | | B | BXO | 80 | 9 | 9 | 2 |
| 10549 | | TACH | 02 | 09 | 0615 | N12 | W43 | 02 | 6.0 | | | BRI | 17 | 8 | 8 | 3 |
| 10549 | | KAND | 02 | 09 | 1225 | N12 | W46 | 02 | 6.0 | | | BXO | | 8 | 9 | 5 |
| 10549 | 31999 | MWIL | 02 | 09 | 1530 | N13 | W47 | 02 | 6.1 | 4 | (B ) | | | | | |
| 10549 | | HOLL | 02 | 09 | 1610 | N13 | W47 | 02 | 6.1 | | B | DSO | 40 | 7 | 8 | 3 |
| 10549 | | VORO | 02 | 10 | 0032 | N13 | W53 | 02 | 6.0 | | | BRI | 16 | 4 | 7 | 3 |
| 10549 | | LEAR | 02 | 10 | 0040 | N13 | W51 | 02 | 6.2 | | B | BXO | 60 | 3 | 5 | 2 |
| 10549 | | TACH | 02 | 10 | 0708 | N13 | W57 | 02 | 6.0 | | | BXO | 3 | 2 | 8 | 4 |
| 10549 | | HOLL | 02 | 10 | 1553 | N13 | W57 | 02 | 6.4 | | A | AXX | | 1 | 1 | 2 |
| 10549 | | LEAR | 02 | 11 | 0015 | N12 | W67 | 02 | 6.0 | | A | AXX | 30 | 1 | 1 | 3 |
| 10549 | | VORO | 02 | 11 | 0101 | N13 | W63 | 02 | 6.3 | | | BXO | 6 | 3 | 11 | 3 |
| 10549 | | HOLL | 02 | 11 | 1517 | N12 | W74 | 02 | 6.1 | | A | AXX | | 1 | 1 | 4 |
| 10551 | | SVTO | 02 | 02 | 1220 | S06 | E69 | 02 | 7.7 | | A | HSX | 20 | 1 | 1 | 3 |
| 10551 | | HOLL | 02 | 02 | 1730 | S07 | E67 | 02 | 7.7 | | A | HAX | 50 | 1 | 2 | 3 |
| 10551 | | LEAR | 02 | 03 | 0230 | S05 | E62 | 02 | 7.7 | | B | CAO | 50 | 3 | 6 | 2 |
| 10551 | | TACH | 02 | 03 | 0506 | S07 | E60 | 02 | 7.7 | | | BRO | 11 | 3 | 5 | 3 |
| 10551 | | LEAR | 02 | 04 | 0040 | S05 | E51 | 02 | 7.8 | | B | DAO | 110 | 9 | 8 | 2 |
| 10551 | | VORO | 02 | 04 | 0106 | S07 | E50 | 02 | 7.8 | | | DAO | 67 | 12 | 5 | 2 |
| 10551 | | SVTO | 02 | 04 | 1009 | S07 | E45 | 02 | 7.8 | | B | DSO | 110 | 7 | 9 | 2 |
| 10551 | | HOLL | 02 | 04 | 1856 | S06 | E42 | 02 | 7.9 | | BG | DKI | 160 | 13 | 7 | 2 |
| 10551 | 32004 | MWIL | 02 | 04 | 1900 | S06 | E40 | 02 | 7.8 | 5 | (B ) | | | | | |
| 10551 | | LEAR | 02 | 05 | 0042 | S05 | E38 | 02 | 7.9 | | B | DAO | 160 | 20 | 7 | 3 |
| 10551 | | VORO | 02 | 05 | 0107 | S06 | E37 | 02 | 7.8 | | | DKO | 151 | 13 | 6 | 3 |
| 10551 | | SVTO | 02 | 05 | 0830 | S07 | E34 | 02 | 7.9 | | B | DAO | 250 | 14 | 9 | 3 |
| 10551 | 32004 | MWIL | 02 | 05 | 1545 | S07 | E29 | 02 | 7.8 | 5 | (BF) | | | | | |
| 10551 | | HOLL | 02 | 05 | 1750 | S05 | E28 | 02 | 7.8 | | BG | DKI | 250 | 26 | 9 | 4 |
| 10551 | | LEAR | 02 | 06 | 0038 | S07 | E24 | 02 | 7.8 | | B | DAO | 250 | 17 | 8 | 1 |
| 10551 | | VORO | 02 | 06 | 0130 | S06 | E23 | 02 | 7.8 | | | DKI | 338 | 14 | 6 | 3 |
| 10551 | | TACH | 02 | 06 | 0637 | S08 | E19 | 02 | 7.7 | | | DAI | 173 | 7 | 7 | 2 |
| 10551 | | SVTO | 02 | 06 | 0736 | S06 | E21 | 02 | 7.9 | | BG | DKO | 240 | 11 | 9 | 3 |
| 10551 | | KAND | 02 | 06 | 0815 | S08 | E20 | 02 | 7.8 | | | EAO | | 14 | 11 | 3 |
| 10551 | 32004 | MWIL | 02 | 06 | 1545 | S06 | E16 | 02 | 7.8 | 5 | (BG) | | | | | |
| 10551 | | HOLL | 02 | 06 | 1620 | S06 | E16 | 02 | 7.9 | | BG | EAI | 290 | 33 | 12 | 3 |
| 10551 | | LEAR | 02 | 07 | 0054 | S06 | E11 | 02 | 7.9 | | B | DSO | 220 | 30 | 8 | 2 |
| 10551 | | VORO | 02 | 07 | 0110 | S07 | E10 | 02 | 7.8 | | | DKO | 351 | 26 | 6 | 3 |
| 10551 | | SVTO | 02 | 07 | 0938 | S06 | E06 | 02 | 7.8 | | BG | DKO | 340 | 20 | 9 | 3 |
| 10551 | | HOLL | 02 | 07 | 1516 | S07 | E03 | 02 | 7.9 | | B | EAI | 270 | 30 | 10 | 3 |
| 10551 | 32004 | MWIL | 02 | 07 | 1545 | S06 | E03 | 02 | 7.9 | 5 | (BG) | | | | | |
| 10551 | | LEAR | 02 | 08 | 0100 | S07 | W03 | 02 | 7.8 | | B | EKI | 460 | 28 | 12 | 2 |
| 10551 | | VORO | 02 | 08 | 0143 | S06 | W03 | 02 | 7.8 | | | DKO | 447 | 25 | 6 | 3 |
| 10551 | | SVTO | 02 | 08 | 0720 | S07 | W07 | 02 | 7.8 | | B | DAO | 290 | 15 | 10 | 3 |
| 10551 | | VORO | 02 | 08 | 0952 | S06 | W13 | 02 | 7.4 | | | DAI | 631 | 18 | 10 | 2 |
| 10551 | | KAND | 02 | 08 | 1030 | S07 | W07 | 02 | 7.9 | | | DAO | | 18 | 10 | 2 |
| 10551 | 32004 | MWIL | 02 | 08 | 1530 | S06 | W10 | 02 | 7.9 | 5 | (BG) | | | | | |
| 10551 | | HOLL | 02 | 08 | 1655 | S06 | W11 | 02 | 7.9 | | BG | EKO | 400 | 28 | 14 | 3 |
| 10551 | | LEAR | 02 | 09 | 0105 | S05 | W11 | 02 | 8.2 | | B | BXO | 10 | 3 | 4 | 2 |
| 10551 | | LEAR | 02 | 09 | 0105 | S06 | W14 | 02 | 8.0 | | B | EKI | 440 | 16 | 13 | 2 |
| 10551 | | TACH | 02 | 09 | 0615 | S08 | W19 | 02 | 7.8 | | | DAI | 284 | 16 | 6 | 3 |
| 10551 | | KAND | 02 | 09 | 1225 | S09 | W21 | 02 | 7.9 | | | EKO | | 28 | 14 | 5 |
| 10551 | 32004 | MWIL | 02 | 09 | 1530 | S07 | W23 | 02 | 7.9 | 5 | (BG) | | | | | |

# SUNSPOT GROUPS
## (Ordered by Central Meridian Passage Date)

## FEBRUARY 2004

| NOAA/ USAF Group | Mt Wilson Group | Sta | Observation Mo | Day | Time (UT) | Lat | CMD | CMP Mo | Day | Max H | Mag Class | Spot Class | Corrected Area (10-6 Hemi) | Spot Count | Long. Extent (Deg) | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10551 | | HOLL | 02 | 09 | 1610 | S07 | W23 | 02 | 7.9 | | BG | EKI | 230 | 23 | 12 | 3 |
| 10551 | | VORO | 02 | 10 | 0032 | S07 | W29 | 02 | 7.8 | | | DAI | 393 | 19 | 6 | 3 |
| 10551 | | LEAR | 02 | 10 | 0040 | S08 | W29 | 02 | 7.8 | | BGD | EAO | 290 | 16 | 11 | 2 |
| 10551 | | TACH | 02 | 10 | 0708 | S07 | W33 | 02 | 7.8 | | | DAI | 103 | 12 | 6 | 4 |
| 10551 | | KAND | 02 | 10 | 0815 | S08 | W32 | 02 | 7.9 | | | DAI | | 13 | 8 | 3 |
| 10551 | | HOLL | 02 | 10 | 1553 | S08 | W37 | 02 | 7.9 | | B | ESO | 120 | 23 | 11 | 2 |
| 10551 | | LEAR | 02 | 11 | 0015 | S08 | W44 | 02 | 7.7 | | B | DAO | 180 | 9 | 8 | 3 |
| 10551 | | VORO | 02 | 11 | 0101 | S07 | W42 | 02 | 7.9 | | | DAI | 176 | 17 | 6 | 3 |
| 10551 | | TACH | 02 | 11 | 0523 | S07 | W46 | 02 | 7.8 | | | CAI | 94 | 5 | 7 | 4 |
| 10551 | | KAND | 02 | 11 | 0935 | S08 | W48 | 02 | 7.8 | | | DAI | | 13 | 8 | 3 |
| 10551 | | HOLL | 02 | 11 | 1517 | S08 | W49 | 02 | 8.0 | | B | EAO | 100 | 17 | 12 | 4 |
| 10551 | 32004 | MWIL | 02 | 11 | 1530 | S08 | W51 | 02 | 7.8 | 5 | (BG) | | | | | |
| 10551 | | VORO | 02 | 12 | 0018 | S08 | W55 | 02 | 7.9 | | | DRI | 130 | 5 | 6 | 3 |
| 10551 | | LEAR | 02 | 12 | 0325 | S08 | W57 | 02 | 7.9 | | B | DSO | 90 | 5 | 7 | 2 |
| 10551 | | TACH | 02 | 12 | 0642 | S09 | W60 | 02 | 7.8 | | | CSO | 56 | 2 | 7 | 3 |
| 10551 | 32004 | MWIL | 02 | 12 | 1600 | S07 | W62 | 02 | 8.0 | 4 | (BF) | | | | | |
| 10551 | | LEAR | 02 | 13 | 0125 | S07 | W67 | 02 | 8.0 | | A | HXX | 50 | 2 | 2 | 2 |
| 10551 | | TACH | 02 | 13 | 0738 | S04 | W69 | 02 | 8.1 | | | HXX | 35 | 1 | 2 | 2 |
| 10551 | 32004 | MWIL | 02 | 13 | 1600 | S05 | W77 | 02 | 7.9 | 4 | (AF) | | | | | |
| 10551B | 32006 | MWIL | 02 | 08 | 1530 | N03 | W04 | 02 | 8.3 | 4 | (AF) | | | | | |
| 10551B | 32007 | MWIL | 02 | 09 | 1530 | N07 | W14 | 02 | 8.6 | 4 | (AF) | | | | | |
| 10551A | | VORO | 02 | 12 | 0018 | S09 | W05 | 02 | 11.6 | | | BRI | 14 | 4 | 2 | 3 |
| 10551A | | LEAR | 02 | 12 | 0325 | S11 | W07 | 02 | 11.6 | | B | BXO | 20 | 2 | 2 | 2 |
| 10551A | | TACH | 02 | 12 | 0642 | S11 | W07 | 02 | 11.7 | | | BXO | 8 | 2 | 3 | 3 |
| 10551A | 32010 | MWIL | 02 | 12 | 1600 | S10 | W15 | 02 | 11.5 | 4 | (B ) | | | | | |
| 10551A | | LEAR | 02 | 13 | 0125 | S11 | W20 | 02 | 11.5 | | B | CAO | 30 | 6 | 3 | 2 |
| 10551A | | TACH | 02 | 13 | 0738 | S09 | W24 | 02 | 11.5 | | | BRO | 30 | 4 | 2 | 2 |
| 10551A | 32010 | MWIL | 02 | 13 | 1600 | S10 | W28 | 02 | 11.6 | 3 | (B ) | | | | | |
| 10559 | 32011 | MWIL | 02 | 13 | 1600 | N07 | W25 | 02 | 11.8 | 3 | (B ) | | | | | |
| 10559 | | LEAR | 02 | 14 | 0122 | N07 | W31 | 02 | 11.7 | | B | CAO | 30 | 5 | 3 | 2 |
| 10559 | | TACH | 02 | 14 | 0731 | N07 | W33 | 02 | 11.8 | | | BRO | 3 | 3 | 4 | 2 |
| 10559 | | SVTO | 02 | 14 | 0806 | N06 | W34 | 02 | 11.8 | | A | AXX | 10 | 3 | 2 | 3 |
| 10559 | | HOLL | 02 | 14 | 1455 | N08 | W37 | 02 | 11.8 | | B | DSO | 30 | 11 | 5 | 4 |
| 10559 | 32011 | MWIL | 02 | 14 | 1900 | N07 | W40 | 02 | 11.8 | 5 | (B ) | | | | | |
| 10559 | | LEAR | 02 | 15 | 0030 | N08 | W45 | 02 | 11.6 | | B | DSO | 80 | 5 | 3 | 3 |
| 10559 | | SVTO | 02 | 15 | 0710 | N07 | W47 | 02 | 11.8 | | B | DSO | 40 | 2 | 4 | 3 |
| 10559 | 32011 | MWIL | 02 | 15 | 1500 | N07 | W52 | 02 | 11.7 | 5 | (B ) | | | | | |
| 10559 | | HOLL | 02 | 15 | 1620 | N08 | W52 | 02 | 11.8 | | B | CSO | 30 | 2 | 4 | 3 |
| 10559 | | VORO | 02 | 15 | 2355 | N06 | W55 | 02 | 11.9 | | | AXX | 27 | 1 | | 3 |
| 10559 | | LEAR | 02 | 16 | 0030 | N07 | W57 | 02 | 11.7 | | B | BXO | 30 | 3 | 3 | 2 |
| 10559 | | SVTO | 02 | 16 | 0700 | N06 | W59 | 02 | 11.9 | | A | HSX | 20 | 1 | 2 | 3 |
| 10559 | | KAND | 02 | 16 | 0855 | N06 | W60 | 02 | 11.9 | | | AX | | 1 | | 3 |
| 10559 | | HOLL | 02 | 16 | 1444 | N07 | W63 | 02 | 11.9 | | A | HSX | 40 | 1 | 1 | 4 |
| 10559 | 32011 | MWIL | 02 | 16 | 1700 | N07 | W65 | 02 | 11.8 | 4 | (AF) | | | | | |
| 10556 | | VORO | 02 | 10 | 0032 | N16 | E46 | 02 | 13.5 | | | BXI | 15 | 7 | 5 | 3 |
| 10556 | | TACH | 02 | 10 | 0708 | N16 | E45 | 02 | 13.7 | | | AXX | 4 | 1 | 1 | 4 |
| 10556 | | KAND | 02 | 10 | 0815 | N17 | E47 | 02 | 13.9 | | | AX | | 1 | | 3 |
| 10556 | | HOLL | 02 | 10 | 1553 | N17 | E38 | 02 | 13.5 | | B | CSO | 20 | 7 | 8 | 2 |
| 10556 | | LEAR | 02 | 11 | 0015 | N14 | E37 | 02 | 13.8 | | B | BXO | 30 | 3 | 2 | 3 |
| 10556 | | VORO | 02 | 11 | 0101 | N16 | E34 | 02 | 13.6 | | | BXI | 22 | 10 | 5 | 3 |
| 10556 | | TACH | 02 | 11 | 0523 | N17 | E33 | 02 | 13.7 | | | CAO | 235 | 4 | 7 | 4 |
| 10556 | | KAND | 02 | 11 | 0935 | N16 | E30 | 02 | 13.7 | | | CRO | | 4 | 5 | 2 |
| 10556 | | HOLL | 02 | 11 | 1517 | N17 | E25 | 02 | 13.5 | | B | CAO | 30 | 16 | 7 | 4 |
| 10556 | 32009 | MWIL | 02 | 11 | 1530 | N17 | E26 | 02 | 13.6 | 4 | (B ) | | | | | |
| 10556 | | VORO | 02 | 12 | 0018 | N17 | E20 | 02 | 13.5 | | | DRI | 63 | 8 | 8 | 3 |
| 10556 | | LEAR | 02 | 12 | 0325 | N16 | E17 | 02 | 13.4 | | B | BXI | 30 | 12 | 8 | 2 |
| 10556 | | TACH | 02 | 12 | 0642 | N16 | E17 | 02 | 13.6 | | | BRI | 8 | 5 | 4 | 3 |
| 10556 | 32009 | MWIL | 02 | 12 | 1600 | N15 | E13 | 02 | 13.6 | 4 | (B ) | | | | | |
| 10556 | | LEAR | 02 | 13 | 0125 | N16 | E07 | 02 | 13.6 | | B | BXO | 30 | 10 | 6 | 2 |
| 10556 | | TACH | 02 | 13 | 0738 | N17 | E03 | 02 | 13.5 | | | BRI | 33 | 6 | 4 | 2 |
| 10556 | | SVTO | 02 | 13 | 1129 | N16 | E02 | 02 | 13.6 | | B | CSO | 20 | 5 | 6 | 3 |
| 10556 | 32009 | MWIL | 02 | 13 | 1600 | N17 | E01 | 02 | 13.7 | 4 | (B ) | | | | | |
| 10556 | | LEAR | 02 | 14 | 0122 | N16 | W06 | 02 | 13.6 | | B | BXO | 20 | 10 | 8 | 2 |
| 10556 | | HOLL | 02 | 14 | 1455 | N17 | W16 | 02 | 13.4 | | B | CSO | 10 | 4 | 3 | 4 |
| 10556 | 32009 | MWIL | 02 | 14 | 1900 | N17 | W20 | 02 | 13.3 | 3 | (AP) | | | | | |

# SUNSPOT GROUPS
## (Ordered by Central Meridian Passage Date)

## FEBRUARY 2004

| NOAA/ USAF Group | Mt Wilson Group | Sta | Observation Mo | Day | Time (UT) | Lat | CMD | CMP Mo | Day | Max H | Mag Class | Spot Class | Corrected Area (10-6 Hemi) | Spot Count | Long. Extent (Deg) | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10556 | | LEAR | 02 | 15 | 0030 | N16 | W25 | 02 | 13.1 | | B | BXO | 20 | 2 | 2 | 3 |
| 10556 | 32009 | MWIL | 02 | 15 | 1500 | N16 | W35 | 02 | 13.0 | 4 | (AP) | | | | | |
| 10556 | | VORO | 02 | 15 | 2355 | N15 | W41 | 02 | 12.9 | | | AXX | 6 | 1 | | 3 |
| 10556 | | LEAR | 02 | 16 | 0030 | N15 | W43 | 02 | 12.8 | | B | BXO | 20 | 2 | 3 | 2 |
| 10556 | | SVTO | 02 | 16 | 0700 | N15 | W45 | 02 | 12.9 | | A | AXX | 20 | 2 | 2 | 3 |
| 10556 | | KAND | 02 | 16 | 0855 | N15 | W47 | 02 | 12.8 | | | AX | | 3 | 2 | 3 |
| 10556 | | HOLL | 02 | 16 | 1444 | N15 | W49 | 02 | 12.9 | | B | CSO | 20 | 3 | 3 | 4 |
| 10556 | 32009 | MWIL | 02 | 16 | 1700 | N16 | W51 | 02 | 12.8 | 3 | (B ) | | | | | |
| 10554 | | HOLL | 02 | 07 | 1516 | S08 | E80 | 02 | 13.6 | | A | AXX | | 1 | 1 | 3 |
| 10554 | 32005 | MWIL | 02 | 07 | 1545 | S09 | E80 | 02 | 13.7 | 4 | (AP) | | | | | |
| 10554 | | LEAR | 02 | 08 | 0100 | S11 | E75 | 02 | 13.7 | | B | CAO | 180 | 3 | 6 | 2 |
| 10554 | | VORO | 02 | 08 | 0143 | S09 | E76 | 02 | 13.8 | | | DSO | 55 | 3 | 5 | 3 |
| 10554 | | SVTO | 02 | 08 | 0720 | S10 | E73 | 02 | 13.8 | | B | DAO | 100 | 4 | 6 | 3 |
| 10554 | | VORO | 02 | 08 | 0952 | S09 | E64 | 02 | 13.2 | | | DAI | 476 | 7 | 5 | 2 |
| 10554 | | KAND | 02 | 08 | 1030 | S10 | E72 | 02 | 13.8 | | | HA | | 4 | 7 | 2 |
| 10554 | 32005 | MWIL | 02 | 08 | 1530 | S09 | E68 | 02 | 13.7 | 5 | (B ) | | | | | |
| 10554 | | HOLL | 02 | 08 | 1655 | S08 | E68 | 02 | 13.8 | | B | DKI | 240 | 9 | 7 | 3 |
| 10554 | | LEAR | 02 | 09 | 0105 | S09 | E64 | 02 | 13.8 | | B | DSO | 120 | 6 | 9 | 2 |
| 10554 | | TACH | 02 | 09 | 0615 | S10 | E62 | 02 | 13.9 | | | DAO | 214 | 4 | 5 | 3 |
| 10554 | | KAND | 02 | 09 | 1225 | S10 | E59 | 02 | 13.9 | | | DSI | | 10 | 9 | 5 |
| 10554 | 32005 | MWIL | 02 | 09 | 1530 | S08 | E56 | 02 | 13.8 | 5 | (B ) | | | | | |
| 10554 | | HOLL | 02 | 09 | 1610 | S09 | E55 | 02 | 13.8 | | B | DHI | 310 | 8 | 9 | 3 |
| 10554 | | VORO | 02 | 10 | 0032 | S09 | E50 | 02 | 13.8 | | | DAI | 430 | 11 | 7 | 3 |
| 10554 | | LEAR | 02 | 10 | 0040 | S10 | E50 | 02 | 13.8 | | BG | DHO | 300 | 10 | 9 | 2 |
| 10554 | | TACH | 02 | 10 | 0708 | S10 | E46 | 02 | 13.7 | | | DAI | 291 | 5 | 7 | 4 |
| 10554 | | KAND | 02 | 10 | 0815 | S09 | E47 | 02 | 13.9 | | | DAO | | 8 | 10 | 3 |
| 10554 | | HOLL | 02 | 10 | 1553 | S09 | E42 | 02 | 13.8 | | BG | DSC | 200 | 17 | 8 | 2 |
| 10554 | | LEAR | 02 | 11 | 0015 | S09 | E36 | 02 | 13.7 | | B | DHO | 260 | 6 | 8 | 3 |
| 10554 | | VORO | 02 | 11 | 0101 | S09 | E37 | 02 | 13.8 | | | DAI | 369 | 12 | 7 | 3 |
| 10554 | | TACH | 02 | 11 | 0523 | S08 | E34 | 02 | 13.8 | | | BRO | 7 | 3 | 3 | 4 |
| 10554 | | KAND | 02 | 11 | 0935 | S09 | E32 | 02 | 13.8 | | | DAO | | 8 | 9 | 2 |
| 10554 | | HOLL | 02 | 11 | 1517 | S09 | E29 | 02 | 13.8 | | BG | EHC | 220 | 22 | 11 | 4 |
| 10554 | 32005 | MWIL | 02 | 11 | 1530 | S09 | E29 | 02 | 13.8 | 5 | (B ) | | | | | |
| 10554 | | VORO | 02 | 12 | 0018 | S09 | E24 | 02 | 13.8 | | | DAI | 372 | 7 | 7 | 3 |
| 10554 | | LEAR | 02 | 12 | 0325 | S10 | E23 | 02 | 13.9 | | B | DHO | 290 | 7 | 9 | 2 |
| 10554 | | TACH | 02 | 12 | 0642 | S09 | E20 | 02 | 13.8 | | | DAO | 140 | 4 | 6 | 3 |
| 10554 | 32005 | MWIL | 02 | 12 | 1600 | S09 | E14 | 02 | 13.7 | 5 | (B ) | | | | | |
| 10554 | | VORO | 02 | 12 | 2355 | S09 | E11 | 02 | 13.8 | | | DSO | 278 | 3 | 7 | 3 |
| 10554 | | LEAR | 02 | 13 | 0125 | S09 | E10 | 02 | 13.8 | | BGD | DSO | 140 | 5 | 7 | 2 |
| 10554 | | TACH | 02 | 13 | 0738 | S08 | E06 | 02 | 13.8 | | | DSO | 160 | 3 | 7 | 2 |
| 10554 | | SVTO | 02 | 13 | 1129 | S08 | E05 | 02 | 13.8 | | B | DSO | 160 | 3 | 9 | 3 |
| 10554 | 32005 | MWIL | 02 | 13 | 1600 | S09 | E02 | 02 | 13.8 | 5 | (B ) | | | | | |
| 10554 | | LEAR | 02 | 14 | 0122 | S09 | E03 | 02 | 14.3 | | BG | DSO | 210 | 11 | 8 | 2 |
| 10554 | | TACH | 02 | 14 | 0731 | S10 | W06 | 02 | 13.9 | | | DSI | 139 | 3 | 6 | 2 |
| 10554 | | SVTO | 02 | 14 | 0806 | S09 | W07 | 02 | 13.8 | | B | DSO | 170 | 3 | 9 | 3 |
| 10554 | | HOLL | 02 | 14 | 1455 | S08 | W10 | 02 | 13.9 | | B | DSI | 150 | 10 | 8 | 4 |
| 10554 | 32005 | MWIL | 02 | 14 | 1900 | S09 | W14 | 02 | 13.7 | 5 | (B ) | | | | | |
| 10554 | | LEAR | 02 | 15 | 0030 | S10 | W16 | 02 | 13.8 | | B | CSO | 130 | 9 | 7 | 3 |
| 10554 | | SVTO | 02 | 15 | 0710 | S08 | W19 | 02 | 13.9 | | B | DSO | 120 | 3 | 9 | 3 |
| 10554 | 32005 | MWIL | 02 | 15 | 1500 | S09 | W25 | 02 | 13.7 | 5 | (BP) | | | | | |
| 10554 | | HOLL | 02 | 15 | 1620 | S09 | W25 | 02 | 13.8 | | B | DHO | 140 | 5 | 8 | 3 |
| 10554 | | VORO | 02 | 16 | 0002 | S09 | W28 | 02 | 13.9 | | | CAO | 131 | 2 | 7 | 4 |
| 10554 | | LEAR | 02 | 16 | 0030 | S09 | W29 | 02 | 13.8 | | B | CSO | 80 | 3 | 8 | 2 |
| 10554 | | SVTO | 02 | 16 | 0700 | S08 | W33 | 02 | 13.8 | | B | CSO | 100 | 2 | 7 | 3 |
| 10554 | | KAND | 02 | 16 | 0855 | S08 | W34 | 02 | 13.8 | | | CSO | | 2 | 7 | 3 |
| 10554 | | HOLL | 02 | 16 | 1444 | S08 | W40 | 02 | 13.6 | | A | HSX | 110 | 4 | 2 | 4 |
| 10554 | 32005 | MWIL | 02 | 16 | 1700 | S07 | W41 | 02 | 13.6 | 5 | (AP) | | | | | |
| 10554 | | VORO | 02 | 17 | 0059 | S08 | W45 | 02 | 13.7 | | | HAX | 113 | 1 | | 2 |
| 10554 | | TACH | 02 | 17 | 0845 | S08 | W51 | 02 | 13.5 | | | HSX | 78 | 1 | 2 | 3 |
| 10554 | | KAND | 02 | 17 | 1105 | S09 | W52 | 02 | 13.5 | | | HS | | 1 | 2 | 3 |
| 10554 | | SVTO | 02 | 17 | 1108 | S07 | W52 | 02 | 13.6 | | A | HSX | 60 | 1 | 4 | 3 |
| 10554 | | HOLL | 02 | 17 | 1620 | S07 | W53 | 02 | 13.7 | | A | HSX | 30 | 1 | 1 | 3 |
| 10554 | 32005 | MWIL | 02 | 17 | 1900 | S07 | W55 | 02 | 13.7 | 5 | (AP) | | | | | |
| 10554 | | VORO | 02 | 18 | 0012 | S07 | W58 | 02 | 13.7 | | | HAX | 86 | 1 | | 3 |
| 10554 | | TACH | 02 | 18 | 0720 | S07 | W64 | 02 | 13.5 | | | AR | 78 | 2 | 2 | 3 |
| 10554 | | SVTO | 02 | 18 | 0845 | S07 | W65 | 02 | 13.5 | | A | HSX | 80 | 1 | 4 | 3 |
| 10554 | | KAND | 02 | 18 | 0955 | S09 | W65 | 02 | 13.5 | | | HS | | 1 | 1 | 3 |
| 10554 | | HOLL | 02 | 18 | 1452 | S08 | W66 | 02 | 13.7 | | A | HSX | 70 | 1 | 1 | 3 |

# SUNSPOT GROUPS
## (Ordered by Central Meridian Passage Date)

## FEBRUARY 2004

| NOAA/ USAF Group | Mt Wilson Group | Sta | Observation Time Mo | Day | (UT) | Lat | CMD | CMP Mo | Day | Max H | Mag Class | Spot Class | Corrected Area (10-6 Hemi) | Spot Count | Long. Extent (Deg) | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10554 | | VORO | 02 | 19 | 0247 | S07 | W73 | 02 | 13.6 | | | HAX | 65 | 1 | | 3 |
| 10554 | | KAND | 02 | 19 | 0910 | S08 | W77 | 02 | 13.6 | | | HA | | 1 | 1 | 4 |
| 10554 | | HOLL | 02 | 19 | 1621 | S06 | W79 | 02 | 13.8 | | A | HSX | 60 | 1 | 1 | 2 |
| 10554 | 32005 | MWIL | 02 | 19 | 1845 | S08 | W83 | 02 | 13.5 | 4 | (AP) | | | | | |
| 10555 | | KAND | 02 | 09 | 1225 | S15 | E79 | 02 | 15.5 | | | AX | | 2 | 1 | 5 |
| 10555 | 32008 | MWIL | 02 | 09 | 1530 | S13 | E75 | 02 | 15.3 | 4 | (AP) | | | | | |
| 10555 | | HOLL | 02 | 09 | 1610 | S14 | E76 | 02 | 15.4 | | A | AXX | 10 | 1 | 1 | 3 |
| 10555 | | VORO | 02 | 10 | 0032 | S14 | E70 | 02 | 15.3 | | | HRX | 25 | 1 | | 3 |
| 10555 | | LEAR | 02 | 10 | 0040 | S14 | E69 | 02 | 15.2 | | A | AXX | 30 | 1 | 1 | 2 |
| 10555 | | TACH | 02 | 10 | 0708 | S14 | E66 | 02 | 15.3 | | | AXX | 12 | 1 | 1 | 4 |
| 10555 | | KAND | 02 | 10 | 0815 | S14 | E68 | 02 | 15.5 | | | AX | | 1 | 1 | 3 |
| 10555 | | HOLL | 02 | 10 | 1553 | S14 | E62 | 02 | 15.3 | | A | HSX | 30 | 1 | 1 | 2 |
| 10555 | | LEAR | 02 | 11 | 0015 | S14 | E57 | 02 | 15.3 | | A | AXX | 20 | 1 | 1 | 3 |
| 10555 | | VORO | 02 | 11 | 0101 | S14 | E56 | 02 | 15.3 | | | HRX | 16 | 1 | | 3 |
| 10555 | | TACH | 02 | 11 | 0523 | S13 | E54 | 02 | 15.3 | | | AXX | 9 | 1 | 1 | 4 |
| 10555 | | KAND | 02 | 11 | 0935 | S14 | E52 | 02 | 15.3 | | | AX | | 1 | | 2 |
| 10555 | | HOLL | 02 | 11 | 1517 | S14 | E49 | 02 | 15.3 | | A | HAX | 20 | 1 | 1 | 4 |
| 10555 | 32008 | MWIL | 02 | 11 | 1530 | S14 | E49 | 02 | 15.3 | 4 | (AP) | | | | | |
| 10555 | | VORO | 02 | 12 | 0018 | S14 | E43 | 02 | 15.3 | | | ARX | 6 | 1 | | 3 |
| 10555 | | LEAR | 02 | 12 | 0325 | S14 | E43 | 02 | 15.4 | | A | AXX | 10 | 1 | 1 | 2 |
| 10555 | | TACH | 02 | 12 | 0642 | S14 | E40 | 02 | 15.3 | | | AXX | 10 | 1 | 1 | 3 |
| 10555 | 32008 | MWIL | 02 | 12 | 1600 | S15 | E35 | 02 | 15.3 | 3 | (AP) | | | | | |
| 10555 | 32015 | MWIL | 02 | 15 | 1500 | S16 | W04 | 02 | 15.3 | 4 | (AP) | | | | | |
| 10555 | | HOLL | 02 | 15 | 1620 | S16 | W04 | 02 | 15.4 | | A | AXX | | 1 | 1 | 3 |
| 10555 | | LEAR | 02 | 16 | 0030 | S15 | W09 | 02 | 15.3 | | A | AXX | 10 | 1 | 1 | 2 |
| 10555 | | SVTO | 02 | 16 | 0700 | S16 | W13 | 02 | 15.3 | | A | AXX | | 1 | | 3 |
| 10555A | | HOLL | 02 | 14 | 1455 | N09 | E22 | 02 | 16.3 | | A | HSX | 20 | 1 | 1 | 4 |
| 10555A | 32013 | MWIL | 02 | 14 | 1900 | N09 | E17 | 02 | 16.1 | 3 | (AP) | | | | | |
| 10555A | 32017 | MWIL | 02 | 17 | 1900 | N10 | W22 | 02 | 16.1 | 4 | (AP) | | | | | |
| 10555A | | TACH | 02 | 18 | 0720 | N09 | W28 | 02 | 16.2 | | | AXX | 12 | 1 | 1 | 3 |
| 10555A | | HOLL | 02 | 18 | 1452 | N08 | W33 | 02 | 16.1 | | A | AXX | 10 | 2 | 1 | 3 |
| 10558 | | LEAR | 02 | 13 | 0125 | S16 | E47 | 02 | 16.6 | | A | HXX | 30 | 3 | 1 | 2 |
| 10558 | | TACH | 02 | 13 | 0738 | S16 | E42 | 02 | 16.5 | | | BRO | 33 | 3 | 4 | 2 |
| 10558 | | SVTO | 02 | 13 | 1129 | S15 | E43 | 02 | 16.7 | | B | CSO | 10 | 2 | 4 | 3 |
| 10558 | 32012 | MWIL | 02 | 13 | 1600 | S16 | E39 | 02 | 16.6 | 4 | (B ) | | | | | |
| 10558 | | LEAR | 02 | 14 | 0122 | S17 | E34 | 02 | 16.6 | | B | BXO | 20 | 2 | 6 | 2 |
| 10558 | | TACH | 02 | 14 | 0731 | S16 | E29 | 02 | 16.5 | | | AXX | 6 | 1 | 1 | 2 |
| 10558 | | SVTO | 02 | 14 | 0806 | S15 | E28 | 02 | 16.4 | | A | HRX | 10 | 1 | 1 | 3 |
| 10558 | | HOLL | 02 | 14 | 1455 | S17 | E25 | 02 | 16.5 | | A | HSX | 10 | 1 | 1 | 4 |
| 10558 | 32012 | MWIL | 02 | 14 | 1900 | S16 | E22 | 02 | 16.5 | 3 | (AP) | | | | | |
| 10558 | | LEAR | 02 | 15 | 0030 | S16 | E19 | 02 | 16.5 | | A | AXX | 10 | 1 | 1 | 3 |
| 10558 | | SVTO | 02 | 15 | 0710 | S16 | E16 | 02 | 16.5 | | A | AXX | | 1 | | 3 |
| 10558 | 32012 | MWIL | 02 | 15 | 1500 | S16 | E10 | 02 | 16.4 | 4 | (AP) | | | | | |
| 10558 | | HOLL | 02 | 15 | 1620 | S16 | E11 | 02 | 16.5 | | A | AXX | | 1 | 1 | 3 |
| 10558 | | VORO | 02 | 15 | 2355 | S15 | E06 | 02 | 16.4 | | | AXX | 6 | 1 | | 3 |
| 10558 | | LEAR | 02 | 16 | 0030 | S15 | E06 | 02 | 16.5 | | A | AXX | 10 | 1 | 1 | 2 |
| 10558 | | SVTO | 02 | 16 | 0700 | S16 | E03 | 02 | 16.5 | | A | AXX | | 1 | | 3 |
| 10560 | | HOLL | 02 | 14 | 1455 | S18 | E49 | 02 | 18.3 | | A | AXX | | 1 | 1 | 4 |
| 10560 | | LEAR | 02 | 15 | 0030 | S17 | E43 | 02 | 18.3 | | A | AXX | 10 | 1 | 1 | 3 |
| 10560 | | SVTO | 02 | 15 | 0710 | S16 | E38 | 02 | 18.2 | | B | CSO | 20 | 2 | 4 | 3 |
| 10560 | 32016 | MWIL | 02 | 15 | 1500 | S17 | E33 | 02 | 18.1 | 4 | (B ) | | | | | |
| 10560 | | HOLL | 02 | 15 | 1620 | S17 | E33 | 02 | 18.2 | | B | CSO | 10 | 3 | 3 | 3 |
| 10560 | | VORO | 02 | 15 | 2355 | S18 | E29 | 02 | 18.2 | | | AXX | 6 | 1 | | 3 |
| 10560 | | LEAR | 02 | 16 | 0030 | S18 | E29 | 02 | 18.2 | | B | BXO | 30 | 4 | 5 | 2 |
| 10560 | | SVTO | 02 | 16 | 0700 | S17 | E27 | 02 | 18.3 | | B | BXO | 10 | 2 | 3 | 3 |
| 10560 | | HOLL | 02 | 16 | 1444 | S17 | E22 | 02 | 18.3 | | B | CSO | 10 | 2 | 3 | 4 |
| 10560 | 32016 | MWIL | 02 | 16 | 1700 | S17 | E20 | 02 | 18.2 | 4 | (AF) | | | | | |
| 10560 | 32016 | MWIL | 02 | 17 | 1900 | S16 | E04 | 02 | 18.1 | 4 | (AP) | | | | | |
| 10561 | 32014 | MWIL | 02 | 14 | 1900 | N02 | E80 | 02 | 20.8 | 4 | AP | | | | | |
| 10561 | | LEAR | 02 | 15 | 0030 | N03 | E75 | 02 | 20.6 | | A | AXX | 30 | 1 | 1 | 3 |
| 10561 | | SVTO | 02 | 15 | 0710 | N02 | E74 | 02 | 20.8 | | A | HRX | 30 | 1 | 2 | 3 |
| 10561 | 32014 | MWIL | 02 | 15 | 1500 | N02 | E69 | 02 | 20.8 | 4 | (AP) | | | | | |
| 10561 | | HOLL | 02 | 15 | 1620 | N01 | E69 | 02 | 20.8 | | A | HSX | 60 | 1 | 1 | 3 |
| 10561 | | VORO | 02 | 16 | 0002 | N02 | E64 | 02 | 20.8 | | | HAX | 44 | 1 | | 4 |

# SUNSPOT GROUPS
## (Ordered by Central Meridian Passage Date)

## FEBRUARY 2004

| NOAA/ USAF Group | Mt Wilson Group | Sta | Observation Time Mo Day (UT) | Lat CMD | CMP Mo Day | Max H | Mag Class | Spot Class | Corrected Area (10-6 Hemi) | Spot Count | Long. Extent (Deg) | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10561 | | LEAR | 02 16 0030 | N03 E63 | 02 20.7 | | A | AXX | 30 | 1 | 1 | 2 |
| 10561 | | SVTO | 02 16 0700 | N01 E61 | 02 20.8 | | A | HSX | 40 | 1 | 2 | 3 |
| 10561 | | KAND | 02 16 0855 | N04 E61 | 02 20.9 | | | HS | | 1 | 1 | 3 |
| 10561 | | HOLL | 02 16 1444 | N02 E57 | 02 20.9 | | A | HSX | 30 | 1 | 1 | 4 |
| 10561 | 32014 | MWIL | 02 16 1700 | N02 E55 | 02 20.8 | 5 | (AP) | | | | | |
| 10561 | | VORO | 02 17 0059 | N02 E50 | 02 20.8 | | | HAX | 32 | 1 | | 2 |
| 10561 | | TACH | 02 17 0845 | N01 E46 | 02 20.8 | | | HSX | 40 | 1 | 1 | 3 |
| 10561 | | KAND | 02 17 1105 | N01 E46 | 02 20.9 | | | HS | | 1 | 1 | 3 |
| 10561 | | SVTO | 02 17 1108 | N02 E45 | 02 20.8 | | A | HSX | 30 | 1 | 3 | 3 |
| 10561 | | HOLL | 02 17 1620 | N02 E42 | 02 20.8 | | A | HSX | 20 | 1 | 1 | 3 |
| 10561 | 32014 | MWIL | 02 17 1900 | N02 E40 | 02 20.8 | 5 | (AP) | | | | | |
| 10561 | | VORO | 02 18 0012 | N01 E37 | 02 20.8 | | | AXX | 19 | 1 | | 3 |
| 10561 | | TACH | 02 18 0720 | N02 E33 | 02 20.8 | | | AXX | 18 | 1 | 1 | 3 |
| 10561 | | SVTO | 02 18 0845 | N02 E33 | 02 20.8 | | BG | HSX | 20 | 1 | 2 | 3 |
| 10561 | | KAND | 02 18 0955 | N01 E33 | 02 20.9 | | | HS | | 1 | 1 | 3 |
| 10561 | | HOLL | 02 18 1452 | N02 E29 | 02 20.8 | | A | AXX | 10 | 1 | 1 | 3 |
| 10561 | | VORO | 02 19 0247 | N02 E22 | 02 20.7 | | | AXX | 14 | 1 | | 3 |
| 10561 | | KAND | 02 19 0910 | N01 E19 | 02 20.8 | | | HA | | 2 | 1 | 4 |
| 10561 | | HOLL | 02 19 1621 | N02 E15 | 02 20.8 | | A | HSX | 30 | 1 | 2 | 2 |
| 10561 | 32014 | MWIL | 02 19 1845 | N02 E14 | 02 20.8 | 4 | (AP) | | | | | |
| 10561 | | LEAR | 02 20 0920 | N02 E05 | 02 20.8 | | A | AXX | 10 | 1 | 1 | 2 |
| 10561 | | HOLL | 02 20 2114 | N02 W02 | 02 20.7 | | A | HSX | 20 | 1 | 1 | 3 |
| 10561 | | LEAR | 02 21 0058 | N02 W03 | 02 20.8 | | A | AXX | 20 | 2 | 1 | 2 |
| 10561 | | VORO | 02 21 1221 | N01 W03 | 02 21.3 | | | AXX | 7 | 1 | | 3 |
| 10561 | | LEAR | 02 22 0020 | N02 W17 | 02 20.7 | | A | AXX | 10 | 1 | 1 | 2 |
| 10564 | | HOLL | 02 20 2114 | N15 E56 | 02 25.1 | | B | DSO | 40 | 4 | 6 | 3 |
| 10564 | | VORO | 02 21 0006 | N14 E53 | 02 25.0 | | | BRO | 37 | 3 | 5 | 3 |
| 10564 | | LEAR | 02 21 0058 | N14 E54 | 02 25.1 | | B | BXO | 20 | 7 | 6 | 2 |
| 10564 | | TACH | 02 21 0613 | N14 E50 | 02 25.0 | | | BRO | 17 | 4 | 7 | 3 |
| 10564 | | LEAR | 02 22 0020 | N14 E39 | 02 25.0 | | B | DAO | 170 | 7 | 8 | 2 |
| 10564 | | HOLL | 02 22 1550 | N13 E28 | 02 24.8 | | BG | EAI | 190 | 21 | 11 | 3 |
| 10564 | | VORO | 02 22 2332 | N14 E26 | 02 24.9 | | | DAI | 393 | 18 | 8 | 2 |
| 10564 | | LEAR | 02 23 0040 | N15 E25 | 02 24.9 | | BG | EAO | 320 | 24 | 10 | 2 |
| 10564 | | TACH | 02 23 0509 | N13 E23 | 02 25.0 | | | DAI | 339 | 14 | 9 | 4 |
| 10564 | | SVTO | 02 23 0734 | N12 E22 | 02 25.0 | | BG | EKO | 290 | 18 | 13 | 3 |
| 10564 | | LEAR | 02 24 0023 | N15 E12 | 02 24.9 | | BG | EKI | 530 | 36 | 11 | 4 |
| 10564 | | SVTO | 02 24 0709 | N14 E08 | 02 24.9 | | BG | ESO | 380 | 15 | 12 | 3 |
| 10564 | | KAND | 02 24 1240 | N14 E04 | 02 24.8 | | | EAI | | 10 | 11 | 2 |
| 10564 | | KAND | 02 24 1240 | N14 E04 | 02 24.8 | | | EAI | | 10 | 11 | 2 |
| 10564 | | HOLL | 02 24 1909 | N16 E00 | 02 24.8 | | BG | DHC | 360 | 39 | 9 | 2 |
| 10564 | | LEAR | 02 25 0035 | N14 W02 | 02 24.9 | | BG | EKC | 660 | 57 | 11 | 4 |
| 10564 | | KAND | 02 25 0845 | N14 W06 | 02 24.9 | | | EKI | | 29 | 11 | 3 |
| 10564 | | KAND | 02 25 0845 | N14 W06 | 02 24.9 | | | EKI | | 29 | 11 | 3 |
| 10564 | | SVTO | 02 25 1330 | N14 W08 | 02 24.9 | | B | ESI | 430 | 24 | 12 | 3 |
| 10564 | | HOLL | 02 25 1545 | N15 W10 | 02 24.9 | | BG | DKC | 500 | 30 | 11 | 3 |
| 10564 | | VORO | 02 25 2338 | N14 W15 | 02 24.8 | | | DKI | 986 | 40 | 7 | 3 |
| 10564 | | LEAR | 02 26 0013 | N14 W15 | 02 24.9 | | BGD | EKC | 610 | 39 | 11 | 2 |
| 10564 | | TACH | 02 26 0630 | N12 W18 | 02 24.9 | | | DAI | 635 | 16 | 7 | 2 |
| 10564 | | KAND | 02 26 0745 | N13 W20 | 02 24.8 | | | DKC | | 33 | 10 | 3 |
| 10564 | | KAND | 02 26 0745 | N13 W20 | 02 24.8 | | | DKC | | 33 | 10 | 3 |
| 10564 | | HOLL | 02 26 1450 | N14 W23 | 02 24.9 | | BGD | EKC | 670 | 57 | 11 | 4 |
| 10564 | | VORO | 02 26 2343 | N15 W28 | 02 24.9 | | | DKI | 1331 | 36 | 7 | 3 |
| 10564 | | LEAR | 02 27 0210 | N14 W30 | 02 24.8 | | BGD | DKC | 680 | 49 | 8 | 3 |
| 10564 | | KAND | 02 27 1200 | N13 W35 | 02 24.8 | | | EKC | | 22 | 10 | 1 |
| 10564 | | KAND | 02 27 1200 | N13 W35 | 02 24.8 | | | EKC | | 22 | 10 | 1 |
| 10564 | | SVTO | 02 27 1225 | N14 W35 | 02 24.9 | | B | EKC | 1140 | 24 | 13 | 3 |
| 10564 | | HOLL | 02 27 1755 | N13 W39 | 02 24.8 | | BG | EKC | 780 | 15 | 12 | 3 |
| 10564 | | LEAR | 02 28 0030 | N16 W41 | 02 24.9 | | BGD | DKO | 900 | 33 | 10 | 2 |
| 10564 | | TACH | 02 28 0633 | N13 W45 | 02 24.9 | | | DAI | 664 | 19 | 8 | 3 |
| 10564 | | SVTO | 02 28 0805 | N15 W46 | 02 24.8 | | BG | EKC | 700 | 24 | 12 | 3 |
| 10564 | | KAND | 02 28 1005 | N12 W46 | 02 24.9 | | | EAO | | 13 | 11 | 1 |
| 10564 | | KAND | 02 28 1005 | N12 W46 | 02 24.9 | | | EAO | | 13 | 11 | 1 |
| 10564 | 32019 | MWIL | 02 28 2000 | N14 W53 | 02 24.8 | 5 | (B ) | | | | | |
| 10564 | | VORO | 02 28 2339 | N13 W55 | 02 24.8 | | | DKI | 1152 | 17 | 9 | 3 |
| 10564 | | LEAR | 02 29 0025 | N13 W55 | 02 24.9 | | BG | EKI | 650 | 20 | 11 | 1 |
| 10564 | | SVTO | 02 29 0636 | N14 W58 | 02 24.9 | | BG | EAI | 590 | 11 | 12 | 3 |
| 10564 | | KAND | 02 29 1120 | N13 W62 | 02 24.8 | | | EAC | | 11 | 13 | 3 |
| 10564 | | KAND | 02 29 1120 | N13 W62 | 02 24.8 | | | EAC | | 11 | 13 | 3 |

# SUNSPOT GROUPS
## (Ordered by Central Meridian Passage Date)

## FEBRUARY 2004

| NOAA/ USAF Group | Mt Wilson Group | Sta | Observation Mo | Day | Time (UT) | Lat | CMD | CMP Mo | Day | Max H | Mag Class | Spot Class | Corrected Area (10-6 Hemi) | Spot Count | Long. Extent (Deg) | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10564 | | HOLL | 02 | 29 | 1530 | N12 | W63 | 02 | 24.9 | | BG | EAC | 720 | 20 | 13 | 3 |
| 10564 | 32019 | MWIL | 02 | 29 | 1600 | N13 | W63 | 02 | 24.9 | 5 | (B ) | | | | | |
| 10564 | | VORO | 03 | 01 | 0006 | N13 | W68 | 02 | 25.0 | | | DKI | 835 | 19 | 10 | 3 |
| 10564 | | KAND | 03 | 01 | 0650 | N12 | W71 | 02 | 25.0 | | | EAO | | 7 | 11 | 3 |
| 10564 | | SVTO | 03 | 01 | 0918 | N15 | W75 | 02 | 24.8 | | B | ESO | 180 | 6 | 11 | 3 |
| 10564 | | TACH | 03 | 01 | 1005 | N13 | W72 | 02 | 25.1 | | | DAI | 381 | 5 | 10 | 3 |
| 10564 | | HOLL | 03 | 01 | 1530 | N12 | W73 | 02 | 25.2 | | B | DHO | 90 | 17 | 9 | 4 |
| 10562 | 32018 | MWIL | 02 | 19 | 1845 | S11 | E73 | 02 | 25.3 | 4 | (AP) | | | | | |
| 10562 | | LEAR | 02 | 20 | 0920 | S10 | E67 | 02 | 25.4 | | A | AXX | 60 | 2 | 3 | 2 |
| 10562 | | HOLL | 02 | 20 | 2114 | S12 | E60 | 02 | 25.4 | | B | DSO | 40 | 5 | 10 | 3 |
| 10562 | | VORO | 02 | 21 | 0006 | S11 | E57 | 02 | 25.3 | | | BRO | 23 | 2 | 7 | 3 |
| 10562 | | LEAR | 02 | 21 | 0058 | S13 | E57 | 02 | 25.3 | | B | BXO | 20 | 2 | 7 | 2 |
| 10562 | | TACH | 02 | 21 | 0613 | S12 | E54 | 02 | 25.3 | | | BRO | 15 | 2 | 8 | 3 |
| 10562 | | LEAR | 02 | 22 | 0020 | S11 | E42 | 02 | 25.2 | | B | BXO | 30 | 2 | 2 | 2 |
| 10562 | | HOLL | 02 | 22 | 1550 | S12 | E31 | 02 | 25.0 | | A | AXX | | 1 | 1 | 3 |
| 10562 | | VORO | 02 | 22 | 2332 | S12 | E26 | 02 | 24.9 | | | AXX | 12 | 2 | | 2 |
| 10562 | | LEAR | 02 | 23 | 0040 | S12 | E26 | 02 | 25.0 | | A | AXX | 10 | 1 | 1 | 2 |
| 10562 | | TACH | 02 | 23 | 0509 | S12 | E22 | 02 | 24.9 | | | AXX | 8 | 1 | 1 | 4 |
| 10562 | | SVTO | 02 | 23 | 0734 | S14 | E21 | 02 | 24.9 | | A | AXX | | 1 | | 3 |
| 10562 | | LEAR | 02 | 25 | 0035 | S12 | E03 | 02 | 25.2 | | B | BXO | 10 | 2 | 3 | 4 |
| 10562 | | LEAR | 02 | 28 | 0030 | S09 | W31 | 02 | 25.7 | | A | AXX | 10 | 1 | 1 | 2 |
| 10563 | | LEAR | 02 | 20 | 0920 | S21 | E74 | 02 | 26.1 | | A | AXX | 30 | 1 | 1 | 2 |
| 10563 | | HOLL | 02 | 20 | 2114 | S24 | E67 | 02 | 26.1 | | A | HSX | 40 | 1 | 1 | 3 |
| 10563 | | VORO | 02 | 21 | 0006 | S23 | E63 | 02 | 25.8 | | | ARX | 31 | 1 | | 3 |
| 10563 | | LEAR | 02 | 21 | 0058 | S24 | E63 | 02 | 25.9 | | A | AXX | 20 | 1 | 1 | 2 |
| 10563 | | TACH | 02 | 21 | 0613 | S24 | E61 | 02 | 26.0 | | | HSX | 41 | 1 | 2 | 3 |
| 10563 | | LEAR | 02 | 22 | 0020 | S23 | E52 | 02 | 26.0 | | A | AXX | 20 | 1 | 1 | 2 |
| 10563 | | HOLL | 02 | 22 | 1550 | S23 | E44 | 02 | 26.0 | | A | HSX | 30 | 1 | 1 | 3 |
| 10563 | | VORO | 02 | 22 | 2332 | S24 | E39 | 02 | 26.0 | | | HRX | 34 | 1 | | 2 |
| 10563 | | LEAR | 02 | 23 | 0040 | S22 | E38 | 02 | 25.9 | | A | AXX | 10 | 1 | 1 | 2 |
| 10563 | | TACH | 02 | 23 | 0509 | S24 | E34 | 02 | 25.8 | | | AXX | 16 | 1 | 1 | 4 |
| 10563 | | SVTO | 02 | 23 | 0734 | S26 | E34 | 02 | 25.9 | | A | HRX | 10 | 1 | 1 | 3 |
| 10563 | | LEAR | 02 | 24 | 0023 | S23 | E25 | 02 | 25.9 | | A | HSX | 40 | 2 | 2 | 4 |
| 10563 | | SVTO | 02 | 24 | 0709 | S25 | E21 | 02 | 25.9 | | A | HRX | 10 | 1 | 1 | 3 |
| 10563 | | KAND | 02 | 24 | 1240 | S24 | E19 | 02 | 26.0 | | | HA | | 1 | 1 | 2 |
| 10563 | | HOLL | 02 | 24 | 1909 | S22 | E16 | 02 | 26.0 | | A | HSX | 20 | 1 | 2 | 2 |
| 10563 | | LEAR | 02 | 25 | 0035 | S23 | E13 | 02 | 26.0 | | A | HSX | 40 | 3 | 2 | 4 |
| 10563 | | KAND | 02 | 25 | 0845 | S25 | E08 | 02 | 26.0 | | | HR | | 1 | 1 | 3 |
| 10563 | | SVTO | 02 | 25 | 1330 | S24 | E05 | 02 | 25.9 | | A | HSX | 10 | 1 | 1 | 3 |
| 10563 | | HOLL | 02 | 25 | 1545 | S24 | E03 | 02 | 25.9 | | A | AXX | | 1 | 1 | 3 |
| 10563 | | VORO | 02 | 25 | 2338 | S24 | W00 | 02 | 26.0 | | | HSX | 13 | 2 | | 3 |
| 10563 | | LEAR | 02 | 26 | 0013 | S23 | W02 | 02 | 25.8 | | A | HSX | 20 | 2 | 2 | 2 |
| 10563 | | TACH | 02 | 26 | 0630 | S25 | W04 | 02 | 26.0 | | | AXX | 16 | 1 | 1 | 2 |
| 10563 | | KAND | 02 | 26 | 0745 | S24 | W05 | 02 | 25.9 | | | HA | | 1 | 1 | 3 |
| 10563 | | HOLL | 02 | 26 | 1450 | S23 | W09 | 02 | 25.9 | | A | HSX | 10 | 1 | 1 | 4 |
| 10563 | | VORO | 02 | 26 | 2343 | S23 | W13 | 02 | 26.0 | | | HSX | 19 | 1 | | 3 |
| 10563 | | LEAR | 02 | 27 | 0210 | S23 | W15 | 02 | 25.9 | | A | HSX | 20 | 2 | 1 | 3 |
| 10563 | | KAND | 02 | 27 | 1200 | S24 | W21 | 02 | 25.9 | | | HR | | 1 | 1 | 1 |
| 10563 | | SVTO | 02 | 27 | 1225 | S23 | W22 | 02 | 25.8 | | A | AXX | 10 | 1 | 1 | 3 |
| 10563 | | HOLL | 02 | 27 | 1755 | S23 | W24 | 02 | 25.9 | | A | AXX | | 1 | 1 | 3 |
| 10563 | | LEAR | 02 | 28 | 0030 | S23 | W27 | 02 | 25.9 | | B | CSO | 20 | 2 | 2 | 2 |
| 10565A | | VORO | 02 | 26 | 2343 | S33 | W10 | 02 | 26.2 | | | AXX | 3 | 1 | | 3 |
| 10565 | | VORO | 02 | 22 | 2332 | S05 | E48 | 02 | 26.6 | | | DAI | 103 | 5 | 1 | 2 |
| 10565 | | LEAR | 02 | 23 | 0040 | S04 | E46 | 02 | 26.5 | | B | DAO | 60 | 5 | 5 | 2 |
| 10565 | | TACH | 02 | 23 | 0509 | S04 | E44 | 02 | 26.5 | | | BRI | 47 | 4 | 3 | 4 |
| 10565 | | SVTO | 02 | 23 | 0734 | S06 | E44 | 02 | 26.6 | | B | DRO | 40 | 7 | 6 | 3 |
| 10565 | | LEAR | 02 | 24 | 0023 | S04 | E34 | 02 | 26.5 | | B | CAO | 130 | 18 | 7 | 4 |
| 10565 | | SVTO | 02 | 24 | 0709 | S04 | E30 | 02 | 26.5 | | B | DAO | 100 | 6 | 8 | 3 |
| 10565 | | KAND | 02 | 24 | 1240 | S05 | E25 | 02 | 26.4 | | | CAO | | 6 | 8 | 2 |
| 10565 | | KAND | 02 | 24 | 1240 | S05 | E25 | 02 | 26.4 | | | CAO | | 6 | 8 | 2 |
| 10565 | | HOLL | 02 | 24 | 1909 | S03 | E23 | 02 | 26.5 | | B | CAO | 60 | 14 | 7 | 2 |
| 10565 | | LEAR | 02 | 25 | 0035 | S04 | E20 | 02 | 26.5 | | B | CAI | 190 | 19 | 8 | 4 |
| 10565 | | KAND | 02 | 25 | 0845 | S05 | E14 | 02 | 26.4 | | | CSO | | 6 | 8 | 3 |
| 10565 | | KAND | 02 | 25 | 0845 | S05 | E14 | 02 | 26.4 | | | CSO | | 6 | 8 | 3 |
| 10565 | | SVTO | 02 | 25 | 1330 | S05 | E12 | 02 | 26.5 | | B | DAO | 210 | 10 | 8 | 3 |

# SUNSPOT GROUPS
## (Ordered by Central Meridian Passage Date)

## FEBRUARY 2004

| NOAA/ USAF Group | Mt Wilson Group | Sta | Observation Time Mo | Day | (UT) | Lat | CMD | CMP Mo | Day | Max H | Mag Class | Spot Class | Corrected Area (10-6 Hemi) | Spot Count | Long. Extent (Deg) | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10565 | | HOLL | 02 | 25 | 1545 | S07 | E10 | 02 | 26.4 | | B | CHO | 130 | 8 | 7 | 3 |
| 10565 | | VORO | 02 | 25 | 2338 | S05 | E06 | 02 | 26.4 | | | DAI | 273 | 10 | 6 | 3 |
| 10565 | | LEAR | 02 | 26 | 0013 | S04 | E05 | 02 | 26.4 | | B | DAO | 160 | 16 | 8 | 2 |
| 10565 | | TACH | 02 | 26 | 0630 | S05 | E01 | 02 | 26.3 | | | DAI | 148 | 9 | 4 | 2 |
| 10565 | | KAND | 02 | 26 | 0745 | S05 | E01 | 02 | 26.4 | | | DSO | | 11 | 8 | 3 |
| 10565 | | KAND | 02 | 26 | 0745 | S05 | E01 | 02 | 26.4 | | | DSO | | 11 | 8 | 3 |
| 10565 | | HOLL | 02 | 26 | 1450 | S04 | W05 | 02 | 26.2 | | B | DAI | 120 | 27 | 7 | 4 |
| 10565 | | VORO | 02 | 26 | 2343 | S05 | W07 | 02 | 26.5 | | | DAI | 292 | 12 | 6 | 3 |
| 10565 | | LEAR | 02 | 27 | 0210 | S04 | W09 | 02 | 26.4 | | B | DAO | 190 | 18 | 8 | 3 |
| 10565 | | KAND | 02 | 27 | 1200 | S05 | W15 | 02 | 26.4 | | | DAO | | 11 | 9 | 1 |
| 10565 | | KAND | 02 | 27 | 1200 | S05 | W15 | 02 | 26.4 | | | DAO | | 11 | 9 | 1 |
| 10565 | | SVTO | 02 | 27 | 1225 | S04 | W15 | 02 | 26.4 | | B | DAO | 240 | 16 | 9 | 3 |
| 10565 | | HOLL | 02 | 27 | 1755 | S05 | W17 | 02 | 26.5 | | B | DKI | 140 | 11 | 8 | 3 |
| 10565 | | LEAR | 02 | 28 | 0030 | S05 | W21 | 02 | 26.4 | | B | DAO | 190 | 15 | 10 | 2 |
| 10565 | | TACH | 02 | 28 | 0633 | S04 | W23 | 02 | 26.5 | | | DAO | 142 | 6 | 9 | 3 |
| 10565 | | SVTO | 02 | 28 | 0805 | S04 | W25 | 02 | 26.5 | | B | DAO | 170 | 9 | 8 | 3 |
| 10565 | | KAND | 02 | 28 | 1005 | S05 | W29 | 02 | 26.2 | | | CAO | | 3 | 9 | 1 |
| 10565 | | KAND | 02 | 28 | 1005 | S05 | W29 | 02 | 26.2 | | | CAO | | 3 | 9 | 1 |
| 10565 | 32020 | MWIL | 02 | 28 | 2000 | S05 | W33 | 02 | 26.4 | 5 | (BP) | | | | | |
| 10565 | | VORO | 02 | 28 | 2339 | S04 | W34 | 02 | 26.4 | | | CAO | 229 | 6 | 8 | 3 |
| 10565 | | LEAR | 02 | 29 | 0025 | S04 | W36 | 02 | 26.3 | | B | DAO | 130 | 12 | 10 | 1 |
| 10565 | | SVTO | 02 | 29 | 0636 | S04 | W43 | 02 | 26.1 | | B | DSO | 80 | 2 | 4 | 3 |
| 10565 | | KAND | 02 | 29 | 1120 | S05 | W41 | 02 | 26.4 | | | HA | | 2 | 3 | 3 |
| 10565 | | KAND | 02 | 29 | 1120 | S05 | W41 | 02 | 26.4 | | | HA | | 2 | 3 | 3 |
| 10565 | | HOLL | 02 | 29 | 1530 | S05 | W48 | 02 | 26.0 | | B | DAO | 120 | 9 | 5 | 3 |
| 10565 | 32020 | MWIL | 02 | 29 | 1600 | S04 | W48 | 02 | 26.1 | 5 | (AP) | | | | | |
| 10565 | | VORO | 03 | 01 | 0006 | S04 | W52 | 02 | 26.2 | | | CAO | 61 | 2 | 2 | 3 |
| 10565 | | KAND | 03 | 01 | 0650 | S05 | W56 | 02 | 26.2 | | | CSO | | 4 | 5 | 3 |
| 10565 | | SVTO | 03 | 01 | 0918 | S02 | W58 | 02 | 26.1 | | B | DSO | 110 | 2 | 4 | 3 |
| 10565 | | TACH | 03 | 01 | 1005 | S04 | W58 | 02 | 26.2 | | | HA | 70 | 2 | 2 | 3 |
| 10565 | | HOLL | 03 | 01 | 1530 | S05 | W58 | 02 | 26.4 | | BG | CSO | 60 | 10 | 6 | 4 |
| 10565 | | VORO | 03 | 01 | 2345 | S04 | W66 | 02 | 26.1 | | | HAX | 139 | 1 | | 3 |
| 10565 | | LEAR | 03 | 02 | 0450 | S04 | W68 | 02 | 26.2 | | B | CSO | 120 | 3 | 4 | 2 |
| 10565 | | TACH | 03 | 02 | 0603 | S04 | W70 | 02 | 26.1 | | | HA | 88 | 2 | 3 | 3 |
| 10565 | | SVTO | 03 | 02 | 0859 | S03 | W74 | 02 | 25.9 | | B | DSO | 80 | 2 | 4 | 3 |
| 10565 | | KAND | 03 | 02 | 1155 | S05 | W72 | 02 | 26.2 | | | HA | | 3 | 3 | 4 |
| 10565 | | VORO | 03 | 02 | 2321 | S04 | W79 | 02 | 26.2 | | | HAX | 138 | 1 | | 3 |
| 10565 | | LEAR | 03 | 03 | 0001 | S04 | W77 | 02 | 26.3 | | A | HHX | 120 | 1 | 4 | 3 |
| 10565 | | SVTO | 03 | 03 | 0712 | S01 | W88 | 02 | 25.8 | | A | HSX | 30 | 1 | 1 | 3 |
| 10566 | | SVTO | 02 | 23 | 0734 | N03 | E43 | 02 | 26.5 | | B | BXO | 10 | 2 | 4 | 3 |
| 10566 | | LEAR | 02 | 24 | 0023 | N05 | E33 | 02 | 26.5 | | B | BXO | 20 | 3 | 3 | 4 |
| 10566 | | SVTO | 02 | 24 | 0709 | N04 | E29 | 02 | 26.5 | | B | CRO | 10 | 2 | 5 | 3 |
| 10566 | | LEAR | 02 | 25 | 0035 | N05 | E17 | 02 | 26.3 | | A | AXX | 10 | 1 | 1 | 4 |
| 10568 | | LEAR | 02 | 27 | 0210 | S17 | E04 | 02 | 27.4 | | A | AXX | 10 | 1 | 1 | 3 |
| 10568 | | KAND | 02 | 27 | 1200 | S17 | E00 | 02 | 27.5 | | | DRO | | 5 | 3 | 1 |
| 10568 | | SVTO | 02 | 27 | 1225 | S17 | E00 | 02 | 27.5 | | B | CSO | 20 | 6 | 4 | 3 |
| 10568 | | HOLL | 02 | 27 | 1755 | S17 | W03 | 02 | 27.5 | | B | CAO | 30 | 7 | 4 | 3 |
| 10568 | | LEAR | 02 | 28 | 0030 | S17 | W08 | 02 | 27.4 | | B | DSO | 30 | 5 | 3 | 2 |
| 10568 | | TACH | 02 | 28 | 0633 | S17 | W10 | 02 | 27.5 | | | BRO | 19 | 5 | 2 | 3 |
| 10568 | | SVTO | 02 | 28 | 0805 | S16 | W12 | 02 | 27.4 | | B | BXO | 10 | 4 | 4 | 3 |
| 10568 | | KAND | 02 | 28 | 1005 | S17 | W11 | 02 | 27.6 | | | AX | | 2 | 1 | 1 |
| 10568 | 32021 | MWIL | 02 | 28 | 2000 | S16 | W18 | 02 | 27.5 | 4 | (B ) | | | | | |
| 10568 | | VORO | 02 | 28 | 2339 | S16 | W17 | 02 | 27.7 | | | BXO | 11 | 2 | 4 | 3 |
| 10568 | | LEAR | 02 | 29 | 0025 | S17 | W21 | 02 | 27.4 | | B | BXO | 10 | 3 | 3 | 1 |
| 10568A | | KAND | 02 | 29 | 1120 | S11 | W10 | 02 | 28.7 | | | BXO | | 2 | 3 | 3 |
| 10568A | | HOLL | 02 | 29 | 1530 | S12 | W12 | 02 | 28.7 | | B | BXO | | 3 | 4 | 3 |
| 10568A | 32023 | MWIL | 02 | 29 | 1600 | S11 | W14 | 02 | 28.6 | 4 | (B ) | | | | | |

Stations reporting:

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

# SUDDEN IONOSPHERIC DISTURBANCES

## FEBRUARY 2004

| Day | Start (UT) | Max (UT) | End (UT) | Imp | Wide Spread Index | Number of Station Reports by Type SWF | SEA | SPA | LF-SPA | SES | Flare (UT) | X-ray Class | NOAA Region |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 01 | 0559 | 0608 | 0643 | 2 | 1 | | | | | 1 | 0556 | C1.9 | 10549 |
| 01 | 0739 | 0744 | 0910 | 1 | 1 | | 1 | | | | 0746 | B2.6 | 10549 |
| 01 | 1301 | 1306 | 1339 | 1 | 1 | | 1 | | | | No flare | | |
| 02 | 0753 | 0759 | 0835 | 2 | 1 | | | | | 1 | 0751 | C2.5 | 10547 |
| 03 | 0850 | 0853 | 0912 | 1 | 1 | | | | | 1 | 0838 | C1.1 | 10551 |
| 03 | 0944 | 0951 | 1016 | 1 | 1 | | 1 | | | | 1009 | B7.3 | 10549 |
| 03 | 1336 | 1339 | 1352 | 1- | 1 | | | | | 2 | 1336 | C3.2 | 10551 |
| 03 | 2126D | 2132D | 2154D | 1+ | 1 | | | | | 1 | 2125 | C1.1 | 10549 |
| 03 | 2243D | 2247D | 2314U | 1+ | 1 | | | | | 1 | 2241 | C1.4 | 10551 |
| 04 | 1115 | 1119 | 1140 | 1- | 3 | | | | | 4 | 1112 | C9.9 | 10547 |
| 05 | 0630 | 0637 | 0659 | 1+ | 1 | | | | | 1 | 0625 | C1.3 | 10549 |
| 05 | 0703 | 0706 | 0729 | 1+ | 1 | | | | | 1 | 0702 | B8.2 | 10549 |
| 05 | 0753 | 0755 | 0825 | 1+ | 1 | | | | | 1 | 0749 | C1.5 | 10547 |
| 07 | 1110 | 1138 | 1215 | 1 | 1 | | 1 | | | | No flare | | |
| 07 | 1317 | 1320 | 1354 | 1 | 1 | | 1 | | | | 1321 | C2.5 | 10554 |
| 07 | 1330 | 1335 | 1340 | 1- | 1 | | | | | 1 | No flare | | |
| 08 | 2032 | 2046 | 2116 | 2- | 1 | | | | | 2 | 2024 | M1.2 | 10554 |
| 09 | 0940 | 0947 | 1007 | 1 | 5 | | | | | 5 | 0938 | C4.3 | 10554 |
| 09 | 1056 | 1102 | 1137 | 1+ | 5 | | 1 | | | 5 | 1051 | C9.6 | 10554 |
| 09 | 1257 | 1301 | 1312 | 1- | 3 | | | | | 2 | 1247 | C2.7 | 10554 |
| 09 | 1400 | 1406 | 1425 | 1 | 5 | | 1 | | | 4 | 1356 | C5.6 | 10554 |
| 10 | 0903 | 0910U | 0925 | 1 | 1 | | 1 | | | | No flare | | |
| 10 | 1002 | 1005 | 1025 | 1 | 1 | | | | | 1 | 0959 | B9.7 | 10554 |
| 11 | 1751 | 1807 | 1922 | 3 | 3 | | | | | 2 | 1749 | B3.2 | 10555 |
| 13 | 1059 | 1109 | 1123 | 1 | 1 | | 1 | | | | * | | |
| 15 | 0859 | 0927 | 0943 | 1 | 1 | | 1 | | | | No flare | | |
| 15 | 1121 | 1142 | 1238 | 1 | 1 | | 1 | | | | No flare | | |
| 15 | 1252 | 1309 | 1328 | 1 | 1 | | 1 | | | | No flare | | |
| 21 | 1258 | 1320U | 1437 | 1 | 1 | | 1 | | | | * | | |
| 22 | 1550 | 1555 | 1602 | 1- | 1 | | | | | 1 | No flare | | |
| 22 | 1956 | 2002 | 2033 | 1+ | 3 | | | | | 3 | 1951 | C1.9 | 10564 |
| 24 | 0856 | 0911 | 0934 | 1 | 1 | | 1 | | | | No flare | | |
| 25 | 0849 | 0936 | 0956 | 1 | 1 | | 1 | | | | No flare | | |
| 25 | 1130 | 1150 | 1217 | 1 | 1 | | 1 | | | | 1107 | C1.3 | 10564 |
| 25 | 1213 | 1227 | 1259 | 2+ | 5 | 1 | 2 | 1 | | 2 | 1211 | C8.0 | 10564 |
| 25 | 1614 | 1624 | 1659 | 2- | 5 | | 1 | | | 5 | 1611 | C2.6 | 10564 |
| 25 | 2309D | 2315D | 2343D | 2 | 1 | | | | | 1 | 2306 | C2.6 | 10564 |
| 26 | 0152 | 0205 | 0250 | 2 | 3 | | | | | 3 | 0150 | X1.1 | 10564 |
| 26 | 0443 | 0449 | 0505 | 1 | 3 | | | | | 2 | 0441 | C1.6 | 10564 |
| 26 | 0529 | 0536 | 0607 | 2- | 3 | | | | | 3 | 0530 | C2.4 | 10564 |
| 26 | 1413 | 1422 | 1453 | 2 | 5 | | 2 | 1 | | 6 | 1409 | C6.5 | 10564 |
| 26 | 1625 | 1625 | 1629 | 1- | 1 | | | | | 1 | 1621 | B7.8 | 10564 |
| 26 | 2012 | 2017 | 2117 | 2+ | 3 | | | | | 3 | 1956 | C7.5 | 10564 |
| 26 | 2216 | 2228 | 2315 | 2 | 5 | | | | | 3 | 2214 | M5.7 | 10564 |
| 27 | 0836 | 0849 | 0922 | 1+ | 3 | | 1 | | | 3 | 0843 | C2.5 | 10564 |
| 27 | 0956 | 1025 | 1053 | 1 | 1 | | 1 | | | | * | | |
| 27 | 1350 | 1415U | 1438 | 1 | 1 | | 1 | | | | 1406 | B8.0 | 10564 |

* = no flare patrol.

# SUDDEN IONOSPHERIC DISTURBANCES

## FEBRUARY 2004

| Day | Start (UT) | Max (UT) | End (UT) | Imp | Wide Spread Index | Number of Station Reports by Type SWF | SEA | SPA | LF-SPA | SES | Flare (UT) | X-ray Class | NOAA Region |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 28 | 0857 | 0907 | 0927 | 2 | 1 | | 1 | | | | No flare | | |
| 28 | 1058 | 1131 | 1212 | 1 | 1 | | 1 | | | | 1129 | C2.2 | 10567 |
| 28 | 1708 | 1712 | 1721 | 1- | 3 | | | | | 5 | 1705 | C1.6 | 10567 |
| 28 | 1723 | 1729 | 1759 | 2- | 3 | | | | | 4 | 1723 | C2.9 | 10564 |

* = no flare patrol.

### OBSERVATORIES REPORTING FOR FEBRUARY 2004

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

Observations are not necessarily continuous.

# SOLAR RADIO EMISSION
## Spectral Observations

## FEBRUARY 2004

| Day | OBSERVATION Start (UT) | OBSERVATION End (UT) | Sta | EVENT Start (UT) | EVENT End (UT) | EVENT Spectral Class | EVENT Event Remarks | Int (1-3) | FREQUENCY Lower (MHz) | FREQUENCY Upper (MHz) | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 01 | 0000 | 0800 | CULG | 0029.0 | 0030.0 | III | G | 2 | 20 | 230 | |
| | | | CULG | 0112.0 | 0115.0 | III | G | 1 | 25 | 170 | |
| | | | CULG | 0311.0 | 0312.0 | III | G | 1 | 60 | 220 | |
| | | | CULG | 0318.0 | 0321.0 | III | G | 2 | 35 | 360 | |
| | | | PALE | 0318.0 | 0319.0 | III | | 1 | 75 | 180 | |
| | | | LEAR | 0319.0 | 0319.0 | III | | 1 | 25 | 180 | |
| | | | CULG | 0418.0 | 0418.0 | III | B | 1 | 20 | 90 | |
| | | | CULG | 0418.0 | 0800.0D | I | S | 1 | 110 | 180 | |
| | | | CULG | 0539.0 | 0540.0 | III | G | 1 | 23 | 180 | |
| | 0650 | 1200 | IZMI | 0650.0E | 1200.0D | I | S | 2 | 110 | 270X | |
| | 0634 | 0803 | HIRA | 0710.0 | 0710.5 | III | B | 1 | 200 | 310 | |
| | | | IZMI | 0710.1 | 0711.3 | III | G | 2 | 210 | 270X | |
| | | | IZMI | 0710.5 | 0710.8 | CONT | | 2 | 45 | 90 | |
| | | | CULG | 0711.0 | 0711.0 | III | B | 2 | 25 | 280 | |
| | | | CULG | 0728.0 | 0736.0 | III | G | 1 | 27 | 100 | |
| | 0710 | 1518 | POTS | 0759 U | 1518 U | I | S,N | 2 | 200U | 380 | |
| | 0800 | 1432 | ONDR | | | | | | | | |
| | | | POTS | 0806.4 | 0806.9 | DCIM | | 2 | 230 | 400U | |
| | 0825 | 1520 | BLEN | | | | | | | | |
| | | | IZMI | 0920.0U | 1128.0U | III | N | 1 | 45U | 95U | |
| | | | IZMI | 1051.1 | 1051.4 | III | G | 2 | 45 | 140 | |
| | | | POTS | 1051.2 | 1051.5 | III | B | 1 | 40X | 120U | |
| | | | POTS | 1104.7 | 1105.6 | III | G | 1 | 40X | 320 | |
| | | | IZMI | 1127.4 | 1127.5 | III | G | 1 | 45 | 85 | |
| | | | POTS | 1127.5 | 1127.6 | III | B | 1 | 40X | 75 | |
| | | | HOLL | 1559.0 | 2130.0 | CONT | | 1 | 103 | 180 | |
| | 2000 | 2400 | CULG | 2351.0 | 2351.0 | III | B | 2 | 18 | 160 | |
| | 2138 | 2400 | HIRA | 2351.0 | 2351.5 | III | B | 1 | 25X | 130 | |
| 02 | | | LEAR | 0333.0 | 0334.0 | III | | 2 | 25 | 180 | |
| | | | PALE | 0333.0 | 0334.0 | III | | 1 | 25 | 180 | |
| | 0000 | 0804 | HIRA | 0333.5 | 0335.0 | III | G | 3 | 30 | 310 | |
| | 0000 | 0800 | CULG | 0334.0 | 0335.0 | III | G | 3 | 25 | 310 | |
| | | | CULG | 0511.0 | 0635.0 | I | S,C | 1 | 50 | 100 | |
| | | | LEAR | 0518.0 | 0521.0 | III | | 1 | 25 | 180 | |
| | | | HIRA | 0518.5 | 0519.0 | III | B | 1 | 30 | 110 | |
| | | | CULG | 0519.0 | 0519.0 | III | B | 3 | 20 | 150 | |
| | | | CULG | 0521.0 | 0521.0 | III | B | 2 | 120 | 180 | |
| | | | HIRA | 0521.5 | 0522.0 | III | B | 1 | 110 | 310 | |
| | | | CULG | 0707.0 | 0709.0 | III | G | 3 | 20 | 180 | |
| | | | HIRA | 0707.0 | 0708.5 | III | G | 1 | 30 | 80 | |
| | | | LEAR | 0707.0 | 0708.0 | III | | 1 | 25 | 107 | |
| | | | SVTO | 0707.0 | 0708.0 | III | | 1 | 25 | 68 | |
| | 0705 | 1521 | POTS | 0707.8 | 0708.1 | III | G | 1 | 40X | 75 | |
| | | | POTS | 0755 | 0807 | I | S,N | 1 | 200U | 250 | |
| | 0758 | 1434 | ONDR | | | | | | | | |
| | 0825 | 1520 | BLEN | | | | | | | | |
| | | | POTS | 0836 U | 0850 | I | S,N | 1 | 200U | 300 | |
| | | | POTS | 0939 | 1459 U | I | S,N | 1 | 200U | 310 | |
| | | | POTS | 0940.9 | 0943.0 | III | G | 2 | 40X | 330 | |
| | | | IZMI | 0941.0 | 0943.0 | III | G | 2 | 35 | 175 | |
| | | | LEAR | 0942.0 | 0942.0 | III | | 1 | 25 | 90 | |
| | | | SVTO | 0942.0 | 0943.0 | III | | 1 | 25 | 73 | |
| | | | SVTO | 1455.0 | 1456.0 | III | | 1 | 25 | 42 | |
| | | | HOLL | 1944.0 | 1945.0 | III | | 1 | 25 | 117 | |
| | | | PALE | 1944.0 | 1945.0 | III | | 1 | 25 | 90 | |
| | 2000 | 2400 | CULG | 2017.0 | 2056.0 | I | S | 1 | 110 | 180 | |
| | | | LEAR | 2257.0 | 2258.0 | III | | 1 | 25 | 109 | |
| | 2137 | 2400 | HIRA | 2258.0 | 2258.5 | III | B | 1 | 25X | 70 | |
| | | | LEAR | 2351.0 | 2351.0 | III | | 1 | 25 | 89 | |
| 03 | 0000 | 0800 | CULG | 0158.0 | 0455.0 | I | S | 1 | 100 | 180 | |
| | | | CULG | 0259.0 | 0300.0 | III | G | 1 | 20 | 140 | |
| | | | CULG | 0444.0 | 0447.0 | III | G | 1 | 27 | 90 | |
| | | | CULG | 0448.0 | 0450.0 | III | G | 1 | 27 | 90 | |
| | | | CULG | 0529.0 | 0534.0 | III | G | 1 | 20 | 100 | |
| | | | CULG | 0602.0 | 0602.0 | III | G | 1 | 20 | 80 | |
| | | | CULG | 0609.0 | 0609.0 | III | B | 3 | 18X | 180 | |
| | | | LEAR | 0609.0 | 0609.0 | III | | 1 | 25 | 131 | |

# SOLAR RADIO EMISSION
## Spectral Observations

## FEBRUARY 2004

| 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 03 | 0000 | 0805 | HIRA | 0609.0 | 0609.5 | III | B | 1 | 25X | 210 | |
| | 0702 | 1206 | IZMI | | | | | | | | |
| | 0756 | 1436 | ONDR | | | | | | | | |
| | 0701 | 1524 | POTS | 0802 U | 0853 | I | S,N | 1 | 200U | 330 | |
| | 0825 | 1520 | BLEN | | | | | | | | |
| | | | POTS | 1008 U | 1505 U | I | S,N | 1 | 200U | 350 | |
| | | | HOLL | 1642.0 | 1642.0 | III | | 1 | 25 | 85 | |
| | 2000 | 2400 | CULG | 2059.0 | 2100.0 | III | G | 2 | 20 | 170 | |
| | | | CULG | 2121.0 | 2132.0 | III | GG | 3 | 18 | 180 | |
| | | | CULG | 2133.0 | 2400.0D | I | S | 1 | 120 | 160 | |
| | 2136 | 2400 | HIRA | | | | | | | | |
| 04 | 0000 | 0806 | HIRA | | | | | | | | |
| | 0000 | 0800 | CULG | 0000.0E | 0230.0 | I | S | 1 | 60 | 160 | |
| | | | SVTO | 0922.0 | 0939.0 | III | N | 1 | 25 | 155 | |
| | | | LEAR | 0935.0 | 0939.0 | III | | 1 | 25 | 164 | |
| | 0655 | 1200 | IZMI | 0935.8 | 0939.5 | III | GG | 2 | 25X | 270X | |
| | 0655 | 1527 | POTS | 0936.9 | 0939.6 | III | G | 2 | 40X | 400U | |
| | | | SVTO | 1114.0 | 1120.0 | III | | 2 | 25 | 180 | |
| | | | ONDR | 1114.3 | 1119.3 | DCIM | GG | 2 | 800X | 2000X | |
| | 0815 | 1525 | BLEN | 1114.3 | 1124.6 | IV | C,P,F | 3 | 100X | 4000X | |
| | | | IZMI | 1114.4 | 1118.0 | III | GG,C,FS | 2 | 25X | 270X | |
| | | | POTS | 1114.4 | 1120.0 | IV | FS | 3 | 40X | 500U | |
| | 0754 | 1438 | ONDR | 1114.4 | 1118.2 | DCIM | GG | 2 | 2000X | 4500X | |
| | | | IZMI | 1115.4 | 1116.9 | II | G,HARM | 3 | 100U | 270X | |
| | | | POTS | 1115.5 | 1117.2 | II | F,SH | 3 | 110U | 400U | |
| | | | IZMI | 1118.9 | 1120.1 | III | GG,C | 2 | 25X | 270X | |
| | | | POTS | 1119.6 | 1125 | II | F,SH | 2 | 200U | 320 | |
| | | | IZMI | 1119.7 | 1126.4 | II | C,FS | 2 | 120 | 270X | |
| | | | IZMI | 1122.0 | 1122.5 | III | G | 2 | 80 | 165 | |
| | | | IZMI | 1152.5 | 1152.6 | III | B | 1 | 55 | 85 | |
| | 2000 | 2400 | CULG | | | | | | | | |
| | 2135 | 2400 | HIRA | | | | | | | | |
| 05 | | | LEAR | 0605.0 | 0613.0 | III | | 1 | 33 | 180 | |
| | 0000 | 0800 | CULG | 0605.0 | 0606.0 | III | G | 3 | 18 | 150 | |
| | 0000 | 0807 | HIRA | 0605.0 | 0606.0 | III | G | 1 | 25X | 120 | |
| | | | CULG | 0609.0 | 0609.0 | III | B | 1 | 18 | 90 | |
| | | | CULG | 0747.0 | 0747.0 | III | B | 1 | 23 | 45 | |
| | | | CULG | 0753.0 | 0800.0U | III | G | 3 | 20 | 90 | |
| | 0652 | 1533 | POTS | 0753.3 | 0754.8 | III | G | 1 | 40X | 80 | |
| | 0720 | 1200 | IZMI | 0753.3 | 0759.1 | III | GG,FS | 1 | 40 | 270X | |
| | | | POTS | 0753.9 | 0755.5 | DCIM | | 2 | 200U | 440U | |
| | | | IZMI | 0901.1 | 0903.1 | III | G | 1 | 25X | 70 | |
| | | | IZMI | 0925.5 | 0926.6 | III | G | 1 | 80 | 90 | |
| | | | POTS | 1103.7 | 1104.6 | III | G | 1 | 40X | 75 | |
| | 0752 | 1441 | ONDR | 1151.0 | 1151.3 | DCIM | GG,SP | 2 | 800X | 1494 | |
| | | | POTS | 1232 | 1253 U | I | S,N | 1 | 220 | 380 | |
| | | | POTS | 1345 | 1402 | I | S,N | 1 | 220 | 350 | |
| | 2000 | 2400 | CULG | | | | | | | | |
| | 2135 | 2400 | HIRA | | | | | | | | |
| 06 | 0000 | 0808 | HIRA | | | | | | | | |
| | 0000 | 0800 | CULG | 0053.0 | 0053.0 | III | G | 1 | 25 | 90 | |
| | | | CULG | 0526.0 | 0526.0 | III | B | 1 | 20 | 80 | |
| | 0700 | 1200 | IZMI | 0710.0U | 1130.0U | I | N | 1 | 180 | 270X | |
| | 0750 | 1443 | ONDR | | | | | | | | |
| | 0646 | 1536 | POTS | 0802 U | 0842 | I | S,N | 1 | 200U | 300 | |
| | 1115 | 1530 | BLEN | | | | | | | | |
| | | | SVTO | 1334.0 | 1354.0 | III | N | 1 | 25 | 172 | |
| | | | SVTO | 1334.0 | 1359.0 | III | | 1 | 25 | 172 | |
| | | | POTS | 1334.7 | 1337.5 | III | GG | 2 | 40X | 360 | |
| | | | HOLL | 1450.0 | 1605.0 | III | N | 1 | 25 | 180 | |
| | | | POTS | 1450.2 | 1459.6 | III | GG,N | 3 | 40X | 440U | |
| | | | POTS | 1531.7 | 1535.0 | III | GG | 1 | 60 | 240 | |
| | 2134 | 2400 | HIRA | | | | | | | | |
| | | | HOLL | 2213.0 | 0019.0 | III | N | 1 | 25 | 180 | |
| | 2000 | 2400 | CULG | 2306.0 | 2309.0 | III | G | 2 | 20 | 180 | |

# SOLAR RADIO EMISSION
## Spectral Observations

## FEBRUARY 2004

| 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 07 | 0000 | 0810 | HIRA | | | | | | | | |
| | 0000 | 0800 | CULG | 0014.0 | 0014.0 | III | B | 1 | 20 | 160 | |
| | | | CULG | 0138.0 | 0138.0 | III | B | 1 | 25 | 180 | |
| | | | CULG | 0528.0 | 0528.0 | III | B | 1 | 27 | 70 | |
| | | | CULG | 0713.0 | 0800.0D | III | N | 2 | 20 | 70 | |
| | 0748 | 1445 | ONDR | | | | | | | | |
| | | | LEAR | 0813.0 | 0813.0 | III | | 1 | 25 | 62 | |
| | | | SVTO | 0813.0 | 0813.0 | III | | 1 | 28U | 42U | |
| | 0655 | 1200 | IZMI | 0813.2 | 0815.9 | III | G | 1 | 25X | 65 | |
| | 0815 | 1530 | BLEN | | | | | | | | |
| | | | IZMI | 0827.2 | 0827.5 | III | G | 1 | 110 | 165 | |
| | 0643 | 1540 | POTS | 0955 | 1001 | I | S,N | 1 | 270 | 350 | |
| | | | POTS | 1026.0 | 1030.2 | DCIM | | 1 | 200U | 400U | |
| | | | POTS | 1057.4 | 1059.2 | I | S,N | 1 | 270 | 400U | |
| | | | POTS | 1140.4 | 1526 U | I | S,N | 1 | 200U | 370 | |
| | | | HOLL | 2033.0 | 2033.0 | III | | 1 | 25 | 47 | |
| | 2000 | 2400 | CULG | 2033.0 | 2033.0 | III | B | 3 | 20 | 160 | |
| | | | CULG | 2226.0 | 2226.0 | III | B | 2 | 20 | 140 | |
| | | | CULG | 2240.0 | 2242.0 | III | G | 3 | 18 | 180 | |
| | | | CULG | 2329.0 | 2335.0 | III | G | 2 | 18X | 200 | |
| | | | HOLL | 2329.0 | 2330.0 | III | | 1 | 25 | 71 | |
| | | | LEAR | 2329.0 | 2333.0 | III | | 1 | 25 | 180 | |
| | 2133 | 2400 | HIRA | 2329.0 | 2330.0 | III | G | 1 | 25X | 190 | |
| | | | CULG | 2356.0 | 2358.0 | III | G | 2 | 20 | 160 | |
| | | | LEAR | 2356.0 | 2356.0 | III | | 1 | 25 | 180 | |
| | | | HIRA | 2356.5 | 2357.0 | III | B | 1 | 25X | 130 | |
| 08 | 0000 | 0800 | CULG | 0004.0 | 0013.0 | III | G | 1 | 60 | 90 | |
| | | | CULG | 0033.0 | 0122.0 | III | N | 1 | 27 | 160 | |
| | | | CULG | 0106.0 | 0115.0 | III | G | 3 | 18X | 300 | |
| | | | LEAR | 0106.0 | 0114.0 | III | | 3 | 25 | 180 | |
| | | | PALE | 0106.0 | 0304.0 | III | N | 1 | 25 | 180 | |
| | 0000 | 0811 | HIRA | 0106.0 | 0115.0 | III | G | 2 | 25X | 320 | |
| | | | CULG | 0137.0 | 0219.0 | III | N | 3 | 18X | 200 | |
| | | | HIRA | 0137.0 | 0139.0 | III | G | 3 | 25X | 200 | |
| | | | LEAR | 0137.0 | 0138.0 | III | | 3 | 25 | 180 | |
| | | | LEAR | 0147.0 | 0148.0 | III | | 2 | 25 | 180 | |
| | | | HIRA | 0147.5 | 0148.5 | III | G | 2 | 25X | 160 | |
| | | | LEAR | 0157.0 | 0158.0 | III | | 2 | 25 | 180 | |
| | | | HIRA | 0158.0 | 0158.5 | III | B | 1 | 25X | 200 | |
| | | | LEAR | 0210.0 | 0219.0 | III | | 2 | 25 | 94 | |
| | | | CULG | 0211.0 | 0211.0 | III | B | 1 | 25 | 90 | |
| | | | HIRA | 0219.0 | 0219.5 | III | B | 1 | 25X | 80 | |
| | | | CULG | 0222.0 | 0226.0 | III | G | 3 | 18X | 400 | |
| | | | HIRA | 0223.0 | 0225.5 | III | G | 3 | 25X | 520 | |
| | | | PALE | 0223.0 | 0224.0 | III | | 2 | 25 | 180 | |
| | | | CULG | 0224.0 | 0225.0 | V | | 3 | 18 | 100 | |
| | | | LEAR | 0225.0 | 0226.0 | III | | 3 | 25 | 180 | |
| | | | CULG | 0427.0 | 0427.0 | III | B | 1 | 27 | 90 | |
| | | | HIRA | 0437.5 | 0438.0 | III | B | 1 | 25X | 40 | |
| | | | CULG | 0438.0 | 0438.0 | III | B | 3 | 18X | 40 | |
| | | | CULG | 0439.0 | 0456.0 | III | N | 1 | 35 | 100 | |
| | | | CULG | 0540.0 | 0540.0 | III | B | 1 | 18 | 160 | |
| | | | CULG | 0602.0 | 0603.0 | III | G | 1 | 30 | 150 | |
| | | | CULG | 0640.0 | 0640.0 | III | G | 3 | 18X | 180 | |
| | 0702 | 1200 | IZMI | 0705.9 | 0706.8 | III | G | 2 | 25X | 215 | |
| | | | CULG | 0706.0 | 0706.0 | III | B | 2 | 18X | 180 | |
| | | | CULG | 0706.0 | 0707.0 | V | | 3 | 18X | 45 | |
| | | | HIRA | 0706.0 | 0706.5 | III | B | 1 | 30 | 130 | |
| | | | SVTO | 0706.0 | 0706.0 | III | | 1 | 25 | 147 | |
| | 0637 | 1542 | POTS | 0706.0 | 0706.3 | III | G | 1 | 40X | 85U | |
| | | | IZMI | 0712.8 | 0722.9 | III | N | 1 | 60 | 175 | |
| | | | IZMI | 0715.0 | 0903.0U | III | N | 1 | 45 | 95 | |
| | | | CULG | 0717.0 | 0751.0 | III | N | 1 | 23 | 150 | |
| | 0746 | 1447 | ONDR | | | | | | | | |
| | 0800 | 1530 | BLEN | | | | | | | | |
| | | | POTS | 0804.3 | 0816.9 | I | S,N,DC | 1 | 280 | 380 | |
| | | | POTS | 0815.8 | 0816.9 | III | G | 2 | 40X | 65 | |
| | | | IZMI | 0816.6 | 0816.9 | III | B | 1 | 30 | 60 | |

# SOLAR RADIO EMISSION
## Spectral Observations

## FEBRUARY 2004

| OBSERVATION Day | Start (UT) | End (UT) | Sta | EVENT Start (UT) | End (UT) | Spectral Class | Event Remarks | Int (1-3) | FREQUENCY Lower (MHz) | Upper (MHz) | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 08 | | | POTS | 0843.5 | 0843.7 | III | B | 1 | 45 | 65 | |
| | | | POTS | 0851 | 0915 | I | S,N | 1 | 270 | 380 | |
| | | | POTS | 0928 | 0947 | I | S,N | 1 | 230 | 370 | |
| | | | IZMI | 0935.1 | 0937.0 | III | G | 1 | 110 | 140 | |
| | | | POTS | 1006 | 1030 | I | S,N | 1 | 260 | 330 | |
| | | | POTS | 1105 | 1130 | I | S,N | 1 | 230 | 350 | |
| | | | POTS | 1108.1 | 1108.6 | III | G,RS | 2 | 40X | 340 | |
| | | | IZMI | 1108.2 | 1108.6 | III | G | 1 | 25X | 85 | |
| | | | POTS | 1143.0 | 1145.9 | III | S | 1 | 280 | 360 | |
| | | | POTS | 1253.1 | 1258.3 | I | S,N | 1 | 220 | 410U | |
| | | | POTS | 1437.4 | 1438.2 | III | G | 2 | 200U | 440U | |
| | | | HOLL | 1704.0 | 1708.0 | III | | 1 | 25 | 88 | |
| | | | HOLL | 1809.0 | 1825.0 | III | | 1 | 25 | 180 | |
| | | | HOLL | 1900.0 | 1955.0 | III | N | 1 | 25 | 180 | |
| | | | PALE | 1914.0 | 1915.0 | III | | 1 | 25 | 180 | |
| | | | PALE | 1948.0 | 1948.0 | III | | 1 | 25 | 141 | |
| | 2000 | 2400 | CULG | 2000.0E | 2112.0 | III | N | 1 | 18 | 140 | |
| | | | CULG | 2049.0 | 2050.0 | III | G | 3 | 18 | 180 | |
| | | | HOLL | 2049.0 | 2050.0 | III | | 1 | 25 | 180 | |
| | | | HOLL | 2049.0 | 2122.0 | III | N | 1 | 25 | 180 | |
| | | | CULG | 2121.0 | 2121.0 | III | B | 3 | 20 | 140 | |
| | | | CULG | 2208.0 | 2304.0 | III | N | 1 | 20 | 180 | |
| | | | HOLL | 2208.0 | 2208.0 | III | | 1 | 25 | 86 | |
| | 2132 | 2400 | HIRA | 2208.0 | 2208.5 | III | B | 1 | 25X | 140 | |
| | | | CULG | 2339.0 | 2339.0 | III | B | 1 | 23 | 160 | |
| 09 | 0000 | 0800 | CULG | 0110.0 | 0110.0 | III | B | 1 | 23 | 60 | |
| | | | LEAR | 0326.0 | 0328.0 | III | | 1 | 25 | 180 | |
| | | | CULG | 0327.0 | 0328.0 | III | G | 3 | 18 | 180 | |
| | 0000 | 0812 | HIRA | 0327.5 | 0329.0 | III | G | 1 | 25X | 130 | |
| | | | CULG | 0342.0 | 0407.0 | III | N | 1 | 20 | 90 | |
| | | | CULG | 0453.0 | 0800.0D | III | N | 1 | 25 | 140 | |
| | 0650 | 1200 | IZMI | 0647.4 | 0653.6 | III | GG | 2 | 40 | 95 | |
| | | | LEAR | 0650.0 | 0804.0 | III | N | 1 | 25 | 90 | |
| | | | IZMI | 0700.0 | 0704.8 | III | GG | 2 | 35 | 85 | |
| | 0634 | 1546 | POTS | 0702.4 | 0704.3 | III | G | 2 | 40X | 70 | |
| | | | IZMI | 0707.4 | 0713.5 | III | GG | 1 | 45 | 65 | |
| | 0744 | 1449 | ONDR | | | | | | | | |
| | 0800 | 1530 | BLEN | | | | | | | | |
| | | | POTS | 0923 | 1238 | I | S,N | 2 | 200U | 380 | |
| | | | IZMI | 1131.4 | 1133.0 | I | GG | 1 | 200 | 270X | |
| | | | POTS | 1323 | 1509 U | I | S,N | 2 | 200U | 390 | |
| | | | POTS | 1357.1 | 1357.3 | III | B | 1 | 40X | 75 | |
| | | | HOLL | 1902.0 | 1902.0 | III | | 1 | 25 | 99 | |
| | 2000 | 2400 | CULG | 2032.0 | 2109.0 | III | N | 1 | 20 | 100 | |
| | | | CULG | 2123.0 | 2125.0 | III | G | 2 | 20 | 90 | |
| | | | CULG | 2151.0 | 2151.0 | III | B | 2 | 18 | 140 | |
| | 2131 | 2400 | HIRA | 2151.0 | 2151.5 | III | B | 1 | 25X | 50 | |
| | | | CULG | 2233.0 | 2235.0 | III | G | 1 | 27 | 160 | |
| | | | CULG | 2241.0 | 2241.0 | III | B | 1 | 27 | 50 | |
| | | | CULG | 2251.0 | 2251.0 | III | B | 2 | 20 | 160 | |
| | | | HIRA | 2251.0 | 2251.5 | III | B | 1 | 30 | 70 | |
| | | | HOLL | 2251.0 | 2251.0 | III | | 1 | 25 | 71 | |
| 10 | 0000 | 0800 | CULG | 0000.0 | 0001.0 | III | G | 1 | 25 | 150 | |
| | 0000 | 0813 | HIRA | 0000.5 | 0001.0 | III | B | 1 | 25X | 130 | |
| | | | CULG | 0005.0 | 0005.0 | III | B | 1 | 25 | 120 | |
| | | | CULG | 0010.0 | 0014.0 | III | G | 3 | 18X | 180 | |
| | | | LEAR | 0010.0 | 0014.0 | III | | 1 | 25 | 180 | |
| | | | HIRA | 0010.5 | 0014.5 | III | G | 1 | 25X | 200 | |
| | | | CULG | 0030.0 | 0032.0 | III | G | 1 | 130 | 200 | |
| | | | HIRA | 0030.5 | 0032.0 | III | G | 1 | 110 | 310 | |
| | | | CULG | 0050.0 | 0050.0 | III | B | 1 | 27 | 75 | |
| | | | HIRA | 0050.0 | 0050.5 | III | B | 1 | 30 | 60 | |
| | | | LEAR | 0050.0 | 0050.0 | III | | 1 | 25 | 94 | |
| | | | CULG | 0109.0 | 0116.0 | III | G | 3 | 18 | 180 | |
| | | | HIRA | 0109.0 | 0116.0 | III | G | 1 | 25X | 140 | |
| | | | LEAR | 0109.0 | 0113.0 | III | | 1 | 25 | 180 | |
| | | | CULG | 0123.0 | 0123.0 | III | B | 1 | 25 | 60 | |

# SOLAR RADIO EMISSION
## Spectral Observations

## FEBRUARY 2004

| OBSERVATION Start (UT) | OBSERVATION End (UT) | Sta | EVENT Start (UT) | EVENT End (UT) | EVENT Spectral Class | EVENT Event Remarks | Int (1-3) | FREQUENCY Lower (MHz) | FREQUENCY Upper (MHz) | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|
| 10 | | CULG | 0152.0 | 0158.0 | III | G | 1 | 20 | 180 | |
| | | HIRA | 0157.0 | 0157.5 | III | G | 1 | 110 | 300 | |
| | | CULG | 0255.0 | 0257.0 | III | G | 1 | 20 | 90 | |
| | | CULG | 0435.0 | 0437.0 | III | G | 2 | 20 | 100 | |
| | | HIRA | 0435.0 | 0437.0 | III | G | 1 | 30 | 100 | |
| | | LEAR | 0435.0 | 0437.0 | III | | 1 | 25 | 97 | |
| | | CULG | 0524.0 | 0525.0 | III | G | 1 | 30U | 160 | |
| | | HIRA | 0544.5 | 0545.0 | III | B | 1 | 70 | 200 | |
| | | CULG | 0545.0 | 0545.0 | III | B | 1 | 30 | 90 | |
| | | LEAR | 0631.0 | 0631.0 | III | | 1 | 25 | 175 | |
| | | CULG | 0632.0 | 0632.0 | III | G | 1 | 30 | 200 | |
| | | CULG | 0718.0 | 0800.0D | III | N | 1 | 25 | 90 | |
| | 0655 1200 | IZMI | 0718.1 | 0723.2 | III | G | 1 | 45 | 95 | |
| | | IZMI | 0733.1 | 0737.7 | III | GG | 1 | 40 | 150 | |
| | | CULG | 0737.0 | 0738.0 | III | G | 1 | 23 | 160 | |
| | 0742 1451 | ONDR | | | | | | | | |
| | | IZMI | 0745.3 | 0750.8 | III | GG,FS | 2 | 25X | 180 | |
| | 0628 1553 | POTS | 0745.3 | 0751.1 | III | GG | 2 | 40X | 250 | |
| | | LEAR | 0746.0 | 0748.0 | III | | 1 | 25 | 149 | |
| | | CULG | 0747.0 | 0750.0 | III | G | 3 | 20 | 180 | |
| | | SVTO | 0747.0 | 0748.0 | III | | 1 | 25 | 150 | |
| | | POTS | 0756 U | 0833 U | I | S,N | 1 | 230 | 340 | |
| | | POTS | 0846.0 | 0846.2 | III | B | 1 | 40X | 65 | |
| | | IZMI | 0914.3 | 0915.1 | III | G | 1 | 45 | 90 | |
| | | POTS | 0922 U | 1136 U | I | S,N | 1 | 220 | 370 | |
| | | SVTO | 0941.0 | 0942.0 | III | | 1 | 25 | 130 | |
| | | IZMI | 0941.8 | 0943.4 | III | G | 1 | 45 | 155 | |
| | | LEAR | 0942.0 | 0943.0 | III | | 1 | 25 | 114 | |
| | | IZMI | 1016.9 | 1020.9 | III | GG | 1 | 40 | 140 | |
| | | IZMI | 1027.7 | 1027.7 | III | G | 1 | 55 | 240 | |
| | | POTS | 1027.7 | 1027.9 | III | B | 1 | 40X | 60 | |
| | | IZMI | 1041.1 | 1041.2 | III | B | 1 | 40 | 150 | |
| | | POTS | 1041.1 | 1046.5 | III | GG,N | 2 | 40X | 400U | |
| | | IZMI | 1045.8 | 1047.1 | III | GG | 2 | 25X | 270X | |
| | | IZMI | 1102.7 | 1102.8 | III | G | 1 | 50 | 160 | |
| | | IZMI | 1120.3 | 1120.9 | III | G | 1 | 40 | 185 | |
| | | POTS | 1120.3 | 1130.5 | III | GG,N | 2 | 40X | 400U | |
| | | IZMI | 1123.3 | 1123.3 | III | G | 1 | 200 | 270X | |
| | | IZMI | 1129.9 | 1131.1 | III | GG,C | 2 | 55 | 270X | |
| | | IZMI | 1144.5 | 1144.6 | III | G | 1 | 55 | 90 | |
| | 0800 1530 | BLEN | 1227.4 | 1229.8 | DCIM | P | 3 | 100X | 2400 | |
| | | POTS | 1227.6 | 1232.8 | III | GG | 3 | 40X | 560 | |
| | | SVTO | 1228.0 | 1232.0 | III | | 2 | 25 | 180 | |
| | | POTS | 1228.2 | 1229.4 | V | G | 3 | 40X | 70 | |
| | | POTS | 1253.8 | 1259.6 | III | G,N | 2 | 40X | 370 | |
| | | POTS | 1308.7 | 1309.5 | I | DC | 2 | 210 | 250 | |
| | | SVTO | 1354.0 | 1428.0 | III | N | 1 | 25 | 140 | |
| | | POTS | 1354.1 | 1406.7 | III | GG,N | 3 | 40X | 470 | |
| | | BLEN | 1356.2 | 1359.6 | DCIM | P | 2 | 130 | 900 | |
| | | POTS | 1411.7 | 1415.3 | III | GG,N | 1 | 40X | 80 | |
| | | POTS | 1416 | 1459 U | I | S,N | 1 | 200U | 380 | |
| | | POTS | 1426.6 | 1437.8 | III | G,N | 1 | 40X | 80 | |
| | | BLEN | 1521.9 | 1522.6 | III | GG | 2 | 100X | 1200 | |
| | | POTS | 1521.9 | 1522.5 | III | GG | 3 | 40X | 400U | |
| | | HOLL | 1522.0 | 1522.0 | III | | 1 | 25 | 158 | |
| | | SVTO | 1522.0 | 1522.0 | III | | 1 | 25 | 167 | |
| | | HOLL | 1551.0 | 1552.0 | III | | 1 | 25 | 180 | |
| | | SVTO | 1551.0 | 1552.0 | III | | 1 | 25 | 157 | |
| | | HOLL | 1720.0 | 1742.0 | III | N | 1 | 25 | 132 | |
| | | HOLL | 2008.0 | 2010.0 | III | | 1 | 25 | 174 | |
| | | PALE | 2008.0 | 2010.0 | III | | 1 | 25 | 87 | |
| | 2000 2400 | CULG | 2008.0 | 2010.0 | III | G | 2 | 25 | 180 | |
| | | CULG | 2032.0 | 2033.0 | III | G | 1 | 25 | 120 | |
| | | HOLL | 2040.0 | 2041.0 | III | | 1 | 25 | 175 | |
| | | CULG | 2041.0 | 2042.0 | III | G | 2 | 20 | 180 | |
| | | PALE | 2041.0 | 2041.0 | III | | 1 | 25 | 76 | |
| | | CULG | 2108.0 | 2109.0 | III | G | 1 | 20 | 180 | |
| | | CULG | 2113.0 | 2116.0 | III | G | 3 | 18 | 250 | |
| | | HOLL | 2113.0 | 2115.0 | III | | 1 | 25 | 180 | |

# SOLAR RADIO EMISSION
## Spectral Observations

## FEBRUARY 2004

| 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 | | | PALE | 2113.0 | 2115.0 | III | | 1 | 25 | 58 | |
| | | | CULG | 2200.0 | 2200.0 | III | G | 1 | 60 | 160 | |
| | | | CULG | 2222.0 | 2222.0 | III | B | 1 | 23 | 50 | |
| | 2130 | 2400 | HIRA | 2222.5 | 2223.0 | III | B | 1 | 25X | 60 | |
| | | | CULG | 2232.0 | 2232.0 | III | G | 2 | 18 | 140 | |
| | | | HIRA | 2232.0 | 2232.5 | III | B | 1 | 25X | 110 | |
| | | | HOLL | 2310.0 | 2313.0 | III | | 1 | 25 | 140 | |
| | | | LEAR | 2310.0 | 2314.0 | III | | 1 | 25 | 180 | |
| | | | CULG | 2311.0 | 2314.0 | III | G | 2 | 20 | 170 | |
| | | | HIRA | 2311.0 | 2314.5 | III | G | 1 | 25X | 130 | |
| | | | CULG | 2336.0 | 2336.0 | III | G | 1 | 25 | 90 | |
| 11 | 0000 | 0800 | CULG | 0001.0 | 0009.0 | III | G | 1 | 25 | 180 | |
| | | | LEAR | 0005.0 | 0005.0 | III | | 1 | 25 | 180 | |
| | 0000 | 0814 | HIRA | 0005.5 | 0006.0 | III | B | 1 | 25X | 130 | |
| | | | CULG | 0017.0 | 0018.0 | III | G | 3 | 18X | 90 | |
| | | | LEAR | 0017.0 | 0021.0 | III | | 1 | 25 | 180 | |
| | | | PALE | 0017.0 | 0017.0 | III | | 1 | 25 | 57 | |
| | | | HIRA | 0017.5 | 0021.0 | III | G | 2 | 25X | 50 | |
| | | | CULG | 0020.0 | 0022.0 | III | G | 2 | 18 | 100 | |
| | | | PALE | 0020.0 | 0020.0 | III | | 1 | 25 | 50 | |
| | | | CULG | 0102.0 | 0105.0 | III | G | 3 | 18X | 80 | |
| | | | PALE | 0102.0 | 0102.0 | III | | 1 | 25 | 53 | |
| | | | HIRA | 0102.5 | 0103.0 | III | B | 2 | 25X | 40 | |
| | | | CULG | 0117.0 | 0132.0 | III | N | 1 | 27 | 180 | |
| | | | CULG | 0138.0 | 0139.0 | III | G | 3 | 18X | 200 | |
| | | | LEAR | 0138.0 | 0138.0 | III | | 1 | 25 | 180 | |
| | | | PALE | 0138.0 | 0138.0 | III | | 1 | 25 | 180 | |
| | | | HIRA | 0138.5 | 0139.0 | III | B | 3 | 25X | 210 | |
| | | | CULG | 0205.0 | 0241.0 | III | N | 1 | 35 | 160 | |
| | | | CULG | 0305.0 | 0305.0 | III | B | 3 | 18 | 200 | |
| | | | LEAR | 0305.0 | 0305.0 | III | | 1 | 25 | 180 | |
| | | | HIRA | 0305.5 | 0306.0 | III | B | 2 | 25X | 250 | |
| | | | CULG | 0343.0 | 0347.0 | III | G | 2 | 20 | 57 | |
| | | | CULG | 0403.0 | 0403.0 | III | B | 1 | 23 | 90 | |
| | | | CULG | 0416.0 | 0419.0 | III | G | 2 | 30 | 350 | |
| | | | HIRA | 0416.0 | 0418.0 | III | G | 2 | 80 | 400 | |
| | | | LEAR | 0416.0 | 0417.0 | III | | 1 | 48 | 180 | |
| | | | CULG | 0503.0 | 0611.0 | I | S | 1 | 110 | 180 | |
| | | | CULG | 0513.0 | 0513.0 | III | B | 1 | 30 | 180 | |
| | | | CULG | 0553.0 | 0553.0 | III | B | 2 | 20 | 180 | |
| | | | LEAR | 0553.0 | 0557.0 | III | | 1 | 25 | 180 | |
| | | | HIRA | 0553.5 | 0558.0 | III | G | 2 | 25X | 700 | |
| | | | CULG | 0557.0 | 0557.0 | III | G | 3 | 20 | 400 | |
| | | | CULG | 0617.0 | 0617.0 | III | B | 1 | 57 | 100 | |
| | | | CULG | 0627.0 | 0627.0 | III | B | 2 | 25 | 100 | |
| | | | CULG | 0641.0 | 0641.0 | III | B | 3 | 18 | 180 | |
| | | | LEAR | 0641.0 | 0641.0 | III | | 1 | 25 | 180 | |
| | | | SVTO | 0641.0 | 0641.0 | III | | 1 | 25 | 84 | |
| | | | HIRA | 0641.5 | 0642.0 | III | B | 1 | 25X | 170 | |
| | 0700 | 1200 | IZMI | 0700.0E | 1200.0D | I | N | 2 | 110 | 270X | |
| | | | CULG | 0709.0 | 0709.0 | III | B | 1 | 30 | 80 | |
| | 0625 | 1554 | POTS | 0732 U | 1550 U | I | S,N,DC | 2 | 200U | 400U | |
| | | | CULG | 0732.0 | 0732.0 | III | B | 1 | 27 | 57 | |
| | | | LEAR | 0736.0 | 0736.0 | III | | 1 | 25 | 180 | |
| | | | SVTO | 0736.0 | 0736.0 | III | | 1 | 25 | 180 | |
| | | | IZMI | 0736.4 | 0736.7 | III | G | 3 | 25X | 270X | |
| | | | POTS | 0736.5 | 0736.7 | III | G | 3 | 40X | 600U | |
| | | | CULG | 0737.0 | 0737.0 | III | B | 3 | 18 | 420 | |
| | | | HIRA | 0737.0 | 0737.5 | III | B | 2 | 25X | 400 | |
| | 0739 | 1454 | ONDR | | | | | | | | |
| | | | CULG | 0740.0 | 0800.0D | I | S | 1 | 80 | 180 | |
| | | | IZMI | 0745.6 | 0747.9 | III | GG | 2 | 115 | 270X | |
| | | | POTS | 0746.4 | 0747.9 | III | GG,N | 2 | 40X | 440U | |
| | | | CULG | 0747.0 | 0748.0 | III | G | 1 | 20 | 440 | |
| | | | IZMI | 0807.6 | 0807.7 | III | G,HARM | 2 | 115 | 270X | |
| | | | IZMI | 0841.6 | 0841.8 | III | G | 1 | 45 | 155 | |
| | | | IZMI | 0854.7 | 0854.7 | III | G | 1 | 45 | 95 | |
| | | | POTS | 0900.2 | 0912.1 | III | G,N | 2 | 40X | 85U | |

# SOLAR RADIO EMISSION
## Spectral Observations

## FEBRUARY 2004

| 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 11 | | | IZMI | 0900.3 | 0902.4 | III | GG | 2 | 30 | 160 | |
| | 0750 | 1540 | BLEN | 0904.0 | 1540.0X | I | DC | 3 | 150 | 300 | |
| | | | IZMI | 0911.3 | 0912.1 | III | GG | 1 | 40 | 160 | |
| | | | IZMI | 1012.0 | 1017.8 | III | GG | 1 | 45 | 95U | |
| | | | POTS | 1012.7 | 1017.8 | III | G,N | 1 | 40X | 80 | |
| | | | POTS | 1026 | 1035 | III | G,N | 1 | 40 | 80 | |
| | | | IZMI | 1052.9 | 1053.1 | III | GG | 2 | 40 | 230 | |
| | | | POTS | 1053.0 | 1053.2 | III | G | 2 | 40X | 400U | |
| | | | IZMI | 1113.5 | 1114.6 | III | GG | 1 | 55 | 175 | |
| | | | POTS | 1206.9 | 1216.3 | III | G,N | 2 | 40X | 80 | |
| | | | POTS | 1254.0 | 1255.2 | III | G | 2 | 40X | 85U | |
| | | | SVTO | 1254.0 | 1255.0 | III | | 1 | 25 | 84 | |
| | | | POTS | 1308 | 1322 | III | G,N | 1 | 40X | 65 | |
| | | | POTS | 1359.3 | 1407.1 | III | G,N | 2 | 40X | 85U | |
| | | | SVTO | 1404.0 | 1404.0 | III | | 1 | 25 | 70 | |
| | | | POTS | 1417.5 | 1419.5 | III | G | 2 | 40X | 85U | |
| | | | POTS | 1436.1 | 1436.3 | III | B | 1 | 40X | 80 | |
| | | | HOLL | 1741.0 | 1743.0 | III | | 1 | 25 | 133 | |
| | | | PALE | 1743.0 | 1743.0 | III | | 1 | 25 | 180 | |
| | | | CULG | 2000.0E | 2400.0D | I | S,C | 1 | 60 | 180 | |
| | 2000 | 2400 | CULG | 2000.0E | 2400.0D | III | S,C | 1 | 20 | 180 | |
| | | | HOLL | 2040.0 | 2326.0 | III | N | 1 | 25 | 180 | |
| | | | CULG | 2043.0 | 2045.0 | III | G | 2 | 23 | 300 | |
| | | | CULG | 2049.0 | 2052.0 | III | G | 2 | 20 | 300 | |
| | | | PALE | 2051.0 | 2051.0 | III | | 1 | 25 | 180 | |
| | | | CULG | 2113.0 | 2113.0 | III | B | 2 | 20 | 180 | |
| | | | CULG | 2152.0 | 2200.0 | III | G | 3 | 18 | 180 | |
| | | | LEAR | 2249.0 | 0348.0 | III | N | 1 | 25 | 180 | |
| | | | LEAR | 2249.0 | 1024.0 | CONT | | 1 | 63 | 180 | |
| | | | CULG | 2316.0 | 2325.0 | III | GG | 3 | 18X | 480 | |
| | 2129 | 2400 | HIRA | 2316.5 | 2317.5 | III | G | 1 | 25X | 800 | |
| | | | HIRA | 2320.5 | 2325.0 | III | G | 1 | 25X | 500 | |
| 12 | | | CULG | 0000.0E | 0800.0D | I | S,C | 1 | 80 | 200 | |
| | 0000 | 0800 | CULG | 0000.0E | 0119.0 | III | S,C | 1 | 20 | 180 | |
| | | | CULG | 0256.0 | 0256.0 | III | B | 1 | 20 | 90 | |
| | 0700 | 1200 | IZMI | 0700.0E | 1200.0D | I | S | 2 | 80 | 270X | |
| | 0625 | 1557 | POTS | 0718 U | 1549 U | I | S,N,DC | 2 | 200U | 400U | |
| | | | CULG | 0723.0 | 0724.0 | III | G | 2 | 20 | 50 | |
| | | | CULG | 0728.0 | 0731.0 | III | G | 3 | 20 | 140 | |
| | | | IZMI | 0730.5 | 0732.2 | III | G | 1 | 45 | 160 | |
| | | | CULG | 0734.0 | 0741.0 | III | G | 2 | 23 | 400 | |
| | 0737 | 1456 | ONDR | | | | | | | | |
| | | | IZMI | 0738.1 | 0740.4 | III | GG | 2 | 25X | 270X | |
| | | | POTS | 0738.1 | 0740.4 | III | GG | 2 | 40X | 400U | |
| | 0000 | 0815 | HIRA | 0738.5 | 0740.5 | III | G | 1 | 30 | 400 | |
| | | | IZMI | 0905.6 | 0909.1 | III | G | 1 | 50 | 150 | |
| | | | POTS | 0935.8 | 0936.1 | UNCLF | | 1 | 40 | 60 | |
| | | | SVTO | 0958.0 | 1000.0 | III | | 2 | 25 | 180 | |
| | | | IZMI | 0958.7 | 0959.4 | III | GG,C | 2 | 25X | 270X | |
| | | | POTS | 0958.7 | 1003.7 | III | GG,N | 3 | 40X | 500U | |
| | 0745 | 1545 | BLEN | 0958.8 | 0959.8 | III | GG,S | 3 | 100X | 3100 | |
| | | | POTS | 0958.9 | 0959.9 | V | G | 3 | 40X | 70 | |
| | | | IZMI | 0959.7 | 0959.9 | III | G,C | 2 | 25X | 150 | |
| | | | LEAR | 1000.0 | 1000.0 | III | | 1 | 25 | 180 | |
| | | | IZMI | 1003.4 | 1003.6 | III | G | 1 | 45 | 170 | |
| | | | POTS | 1035.9 | 1036.2 | III | G | 1 | 40X | 65 | |
| | | | IZMI | 1144.2 | 1144.6 | III | G | 2 | 45 | 95 | |
| | | | POTS | 1144.2 | 1157.5 | III | G,N | 1 | 40X | 85U | |
| | | | POTS | 1320.6 | 1321.5 | III | G | 1 | 40X | 70 | |
| | | | POTS | 1400.4 | 1407.2 | III | G | 1 | 40X | 80 | |
| | | | PALE | 1947.0 | 1947.0 | III | | 1 | 25 | 80 | |
| | 2000 | 2400 | CULG | 2000.0E | 2400.0D | I | S,C | 1 | 80 | 180 | |
| | | | CULG | 2027.0 | 2027.0 | III | B | 1 | 20 | 180 | |
| | 2128 | 2400 | HIRA | | | | | | | | |
| | | | PALE | 2151.0 | 0354.0 | III | N | 1 | 25 | 180 | |
| | | | LEAR | 2246.0 | 0720.0 | CONT | | 1 | 61 | 180 | |
| 13 | 0000 | 0800 | CULG | 0000.0E | 0800.0D | I | S,C | 1 | 80 | 180 | |

# SOLAR RADIO EMISSION
## Spectral Observations

## FEBRUARY 2004

| Day | OBSERVATION Start (UT) | OBSERVATION End (UT) | Sta | EVENT Start (UT) | EVENT End (UT) | EVENT Spectral Class | EVENT Event Remarks | Int (1-3) | FREQUENCY Lower (MHz) | FREQUENCY Upper (MHz) | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 13 | | | CULG | 0115.0 | 0116.0 | III | G | 1 | 20 | 180 | |
| | | | CULG | 0122.0 | 0122.0 | III | B | 1 | 40 | 180 | |
| | | | CULG | 0156.0 | 0230.0 | III | N | 1 | 20 | 180 | |
| | | | CULG | 0327.0 | 0327.0 | III | B | 1 | 20 | 120 | |
| | | | CULG | 0327.0 | 0328.0 | V | | 3 | 23 | 40 | |
| | | | LEAR | 0327.0 | 0335.0 | III | | 1 | 25 | 96 | |
| | | | CULG | 0335.0 | 0335.0 | III | B | 2 | 23 | 100 | |
| | 0000 | 0816 | HIRA | 0335.5 | 0336.0 | III | B | 1 | 30 | 100 | |
| | | | LEAR | 0430.0 | 0431.0 | III | | 1 | 54 | 180 | |
| | | | CULG | 0431.0 | 0431.0 | III | B | 2 | 23 | 360 | |
| | | | HIRA | 0431.0 | 0431.5 | III | B | 2 | 50 | 310 | |
| | | | LEAR | 0554.0 | 0555.0 | III | | 1 | 25 | 180 | |
| | | | CULG | 0555.0 | 0556.0 | III | G | 3 | 18 | 450 | |
| | | | HIRA | 0555.0 | 0556.0 | III | G | 3 | 25X | 500 | |
| | | | SVTO | 0609.0 | 0700.0 | CONT | | 1 | 117 | 153 | |
| | 0655 | 1200 | IZMI | 0655.0E | 1200.0D | I | N,DC | 2 | 90 | 270X | |
| | 0735 | 1458 | ONDR | | | | | | | | |
| | 0622 | 1601 | POTS | 0740 U | 1535 U | I | S,N,DC | 2 | 200U | 400U | |
| | 0745 | 1545 | BLEN | | | | | | | | |
| | | | CULG | 0747.0 | 0747.0 | III | B | 1 | 25 | 140 | |
| | | | LEAR | 0823.0 | 0826.0 | III | | 1 | 25 | 180 | |
| | | | SVTO | 0823.0 | 0826.0 | III | | 1 | 25 | 167 | |
| | | | IZMI | 0823.1 | 0824.0 | III | G | 2 | 25X | 165 | |
| | | | POTS | 0823.2 | 0827.9 | III | GG | 2 | 40X | 380 | |
| | | | IZMI | 0826.1 | 0827.7 | III | G | 2 | 25X | 145 | |
| | | | IZMI | 1016.2 | 1018.6 | III | GG | 1 | 120 | 170 | |
| | | | IZMI | 1024.3 | 1026.0 | I | GG,DC | 2 | 140 | 175 | |
| | | | IZMI | 1105.3 | 1109.1 | I | GG,DC | 2 | 130 | 270 | |
| | | | POTS | 1349.2 | 1351.6 | III | G,N | 1 | 45 | 80 | |
| | | | HOLL | 1710.0 | 1711.0 | III | | 1 | 25 | 126 | |
| | 2000 | 2400 | CULG | 2000.0E | 2400.0 | I | S | 1 | 100 | 180 | |
| | | | CULG | 2025.0 | 2025.0 | III | B | 1 | 25 | 100 | |
| | | | CULG | 2110.0 | 2113.0 | III | G | 3 | 20 | 160 | |
| | | | HOLL | 2110.0 | 2112.0 | III | | 1 | 25 | 116 | |
| | | | CULG | 2140.0 | 2140.0 | III | B | 1 | 20 | 130 | |
| | | | CULG | 2158.0 | 2200.0 | III | G | 2 | 18 | 180 | |
| | | | HOLL | 2158.0 | 2205.0 | III | | 1 | 25 | 85 | |
| | 2127 | 2400 | HIRA | 2159.0 | 2200.0 | III | G | 1 | 25X | 280 | |
| | | | CULG | 2205.0 | 2206.0 | III | G | 2 | 57 | 170 | |
| | | | CULG | 2240.0 | 2245.0 | III | G | 1 | 18X | 180 | |
| | | | HOLL | 2240.0 | 2245.0 | III | | 1 | 25 | 86 | |
| | | | PALE | 2240.0 | 2242.0 | III | | 1 | 25 | 86 | |
| | | | HIRA | 2240.5 | 2245.5 | III | G | 1 | 25X | 180 | |
| | | | CULG | 2317.0 | 2317.0 | III | B | 3 | 18X | 150 | |
| 14 | 0000 | 0800 | CULG | 0118.0 | 0657.0 | I | S | 1 | 75 | 180 | |
| | | | LEAR | 0124.0 | 0128.0 | III | | 1 | 25 | 114 | |
| | | | CULG | 0125.0 | 0125.0 | III | B | 1 | 20 | 140 | |
| | | | CULG | 0129.0 | 0129.0 | III | B | 2 | 18 | 160 | |
| | | | LEAR | 0224.0 | 0225.0 | III | | 1 | 25 | 79 | |
| | | | CULG | 0225.0 | 0225.0 | III | B | 1 | 18 | 75 | |
| | | | LEAR | 0230.0 | 1023.0 | CONT | | 1 | 88 | 180 | |
| | | | CULG | 0257.0 | 0257.0 | III | B | 1 | 30 | 80 | |
| | | | CULG | 0343.0 | 0439.0 | III | N | 1 | 23 | 150 | |
| | | | LEAR | 0343.0 | 0352.0 | III | | 1 | 25 | 109 | |
| | 0000 | 0817 | HIRA | 0343.5 | 0344.0 | III | B | 1 | 30 | 80 | |
| | | | HIRA | 0352.5 | 0353.0 | III | B | 1 | 30 | 120 | |
| | | | LEAR | 0412.0 | 0412.0 | III | | 1 | 25 | 167 | |
| | | | CULG | 0520.0 | 0521.0 | III | G | 1 | 30 | 180 | |
| | | | LEAR | 0549.0 | 0554.0 | III | | 1 | 25 | 180 | |
| | | | CULG | 0550.0 | 0557.0 | III | G | 3 | 18X | 180 | |
| | | | HIRA | 0550.5 | 0555.0 | III | G | 1 | 25X | 200 | |
| | | | IZMI | 0703.0E | 1200.0D | I | S,C | 2 | 25X | 165 | |
| | 0733 | 1500 | ONDR | | | | | | | | |
| | 0619 | 1607 | POTS | 0734 U | 1555 U | I | S,N | 2 | 200U | 350 | |
| | | | POTS | 0744.7 | 0752.3 | III | G | 2 | 40X | 85U | |
| | | | CULG | 0745.0 | 0753.0 | III | GG | 3 | 20 | 320 | |
| | | | LEAR | 0747.0 | 0752.0 | III | | 1 | 25 | 180 | |
| | | | IZMI | 0747.9 | 0752.7 | III | GG | 2 | 25X | 165 | |

# SOLAR RADIO EMISSION
## Spectral Observations

## FEBRUARY 2004

| 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 14 | | | IZMI | 0747.9 | 0753.5 | I | GG,DC | 2 | 160 | 270X | |
| | | | HIRA | 0748.0 | 0753.0 | III | G | 1 | 30 | 200 | |
| | | | SVTO | 0748.0 | 0752.0 | III | | 1 | 25 | 82 | |
| | | | SVTO | 0757.0 | 1558.0 | CONT | | 1 | 25 | 180 | |
| | | | IZMI | 0835.7 | 0836.1 | III | GG,DC,HARM | 2 | 115 | 250 | |
| | | | IZMI | 0846.0U | 1050.0U | III | N | 2 | 45 | 190 | |
| | | | SVTO | 0855.0 | 0858.0 | III | | 2 | 25 | 143 | |
| | | | LEAR | 0856.0 | 0856.0 | III | | 1 | 25 | 180 | |
| | | | IZMI | 0856.2 | 0856.6 | III | G | 2 | 25X | 250 | |
| | | | POTS | 0856.2 | 0858.3 | III | G | 2 | 40X | 250 | |
| | | | IZMI | 0858.0 | 0858.2 | III | G | 1 | 40 | 65 | |
| | | | POTS | 0926.6 | 0927.2 | III | G | 1 | 40X | 75 | |
| | | | IZMI | 1049.0U | 1200.0D | III | S | 2 | 45 | 190 | |
| | 0745 | 1545 | BLEN | 1100.6 | 1545.0X | I | DC | 3 | 140 | 500 | |
| | | | POTS | 1106.0 | 1108.9 | III | GG | 3 | 40X | 440U | |
| | | | IZMI | 1106.1 | 1108.6 | III | GG | 2 | 25X | 220 | |
| | | | IZMI | 1122.5 | 1123.8 | III | G | 2 | 25X | 95 | |
| | | | POTS | 1122.6 | 1124.1 | III | G | 1 | 40X | 85U | |
| | | | IZMI | 1132.5 | 1133.0 | III | G | 2 | 25X | 270X | |
| | | | POTS | 1132.5 | 1137.1 | III | GG,N | 3 | 40X | 480U | |
| | | | SVTO | 1136.0 | 1137.0 | III | | 1 | 25 | 180 | |
| | | | IZMI | 1136.4 | 1137.1 | III | GG | 2 | 25X | 270X | |
| | | | POTS | 1137.8 | 1200.3 | III | GG,N | 2 | 40X | 80 | |
| | | | POTS | 1228.3 | 1232.7 | III | GG | 3 | 40X | 400U | |
| | | | POTS | 1318.9 | 1335.5 | III | G,N | 2 | 40X | 75 | |
| | | | HOLL | 1420.0 | 2112.0 | CONT | | 1 | 25 | 180 | |
| | | | POTS | 1435 U | 1528 | III | GG,N | 2 | 40X | 240 | |
| | | | POTS | 1553.6 | 1554.2 | III | G | 2 | 40X | 250 | |
| | | | HOLL | 1740.0 | 1741.0 | III | | 1 | 25 | 180 | |
| | | | HOLL | 1933.0 | 1933.0 | III | | 1 | 25 | 149 | |
| | | | PALE | 1933.0 | 1933.0 | III | | 1 | 25 | 109 | |
| | 2000 | 2400 | CULG | 2000.0E | 2400.0D | I | S,C | 1 | 100 | 180 | |
| | | | CULG | 2048.0 | 2301.0 | III | N | 1 | 20 | 180 | |
| | | | PALE | 2219.0 | 2221.0 | III | | 1 | 25 | 53 | |
| | | | CULG | 2220.0 | 2221.0 | III | G | 3 | 18 | 100 | |
| | | | HOLL | 2220.0 | 2221.0 | III | | 1 | 25 | 133 | |
| | 2126 | 2400 | HIRA | 2221.0 | 2221.5 | III | B | 1 | 25X | 130 | |
| | | | LEAR | 2223.0 | 1023.0 | CONT | | 1 | 25 | 180 | |
| | | | CULG | 2310.0 | 2310.0 | III | B | 2 | 18 | 100 | |
| 15 | 0000 | 0800 | CULG | 0000.0E | 0113.0 | I | S | 1 | 60 | 180 | |
| | | | CULG | 0013.0 | 0800.0D | III | S | 1 | 20 | 180 | |
| | | | CULG | 0113.0 | 0242.0 | I | S,C | 2 | 40 | 180 | |
| | | | CULG | 0140.0 | 0140.0 | III | B | 2 | 18 | 160 | |
| | 0000 | 0818 | HIRA | 0140.5 | 0141.0 | III | B | 1 | 30 | 70 | |
| | | | HIRA | 0501.5 | 0502.0 | III | B | 1 | 30 | 120 | |
| | | | CULG | 0502.0 | 0502.0 | III | B | 2 | 20 | 180 | |
| | | | CULG | 0540.0 | 0800.0D | I | S,C | 1 | 60 | 180 | |
| | | | IZMI | 0701.0E | 0757.0U | III | N | 1 | 45 | 95 | |
| | | | IZMI | 0701.0E | 1200.0D | I | N,DC | 2 | 60 | 270X | |
| | 0616 | 1611 | POTS | 0707 U | 1554 U | I | S,N | 2 | 200U | 400U | |
| | | | SVTO | 0713.0 | 0807.0 | CONT | | 1 | 70 | 180 | |
| | | | IZMI | 0717.5 | 0718.5 | III | G | 2 | 25X | 95 | |
| | | | CULG | 0718.0 | 0718.0 | III | B | 2 | 23 | 90 | |
| | 0731 | 1502 | ONDR | | | | | | | | |
| | | | IZMI | 0748.2 | 0748.3 | III | G | 1 | 25X | 95 | |
| | | | CULG | 0755.0 | 0757.0 | III | G | 2 | 23 | 180 | |
| | | | IZMI | 0755.1 | 0756.4 | III | G | 1 | 25X | 95 | |
| | 0800 | 1545 | BLEN | | | | | | | | |
| | | | SVTO | 0859.0 | 1409.0 | CONT | | 1 | 25 | 180 | |
| | | | IZMI | 0905.8 | 0905.9 | III | G | 1 | 25X | 160 | |
| | | | POTS | 0905.8 | 0906.0 | III | B | 1 | 40X | 70 | |
| | | | POTS | 1339.6 | 1339.7 | III | B | 2 | 40X | 65 | |
| | | | POTS | 1409.0 | 1409.3 | III | G | 2 | 40X | 80 | |
| | | | SVTO | 1441.0 | 1442.0 | III | | 1 | 25 | 140 | |
| | | | POTS | 1441.9 | 1442.1 | III | B | 2 | 40X | 400U | |
| | | | POTS | 1507.8 | 1508.2 | III | G | 2 | 40X | 80 | |
| | | | POTS | 1553.1 | 1553.4 | III | G | 1 | 40X | 240 | |
| | | | HOLL | 1654.0 | 1656.0 | III | | 1 | 25 | 133 | |

# SOLAR RADIO EMISSION
## Spectral Observations

## FEBRUARY 2004

| 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 15 | | | HOLL | 1920.0 | 2205.0 | CONT | | 1 | 75 | 180 | |
| | 2000 | 2400 | CULG | 2000.0E | 2040.0 | III | N | 1 | 57U | 180 | |
| | | | CULG | 2017.0 | 2400.0D | I | S | 1 | 60 | 180 | |
| | | | HOLL | 2230.0 | 2231.0 | III | | 1 | 25 | 125 | |
| | | | CULG | 2231.0 | 2231.0 | III | B | 2 | 18 | 130 | |
| | 2125 | 2400 | HIRA | 2231.0 | 2231.5 | III | B | 1 | 25X | 140 | |
| | | | LEAR | 2251.0 | 0435.0 | CONT | | 1 | 44 | 180 | |
| | | | CULG | 2334.0 | 2335.0 | III | G | 1 | 57U | 160 | |
| 16 | 0000 | 0800 | CULG | 0000.0E | 0214.0 | I | S | 1 | 100 | 180 | |
| | | | CULG | 0236.0 | 0236.0 | III | B | 1 | 120 | 400 | |
| | 0000 | 0819 | HIRA | 0236.0 | 0237.5 | III | G | 1 | 140 | 400 | |
| | | | CULG | 0356.0 | 0356.0 | III | B | 1 | 18 | 160 | |
| | | | LEAR | 0356.0 | 0356.0 | III | | 1 | 25 | 180 | |
| | | | HIRA | 0356.5 | 0357.0 | III | B | 1 | 25X | 200 | |
| | 0655 | 1200 | IZMI | 0655.0E | 1200.0D | I | N | 1 | 50 | 270X | |
| | | | IZMI | 0724.9 | 0725.3 | III | GG | 1 | 180 | 270X | |
| | 0613 | 1613 | POTS | 0724.9 | 0725.5 | DCIM | | 2 | 200U | 370 | |
| | | | POTS | 0725.5 | 1539 U | I | S,N,DC | 2 | 200U | 350 | |
| | 0729 | 1504 | ONDR | | | | | | | | |
| | 0745 | 1545 | BLEN | | | | | | | | |
| | | | IZMI | 0850.0U | 0950.0U | III | N | 1 | 45 | 95U | |
| | | | POTS | 0917.6 | 0920.7 | III | GG | 1 | 40X | 70 | |
| | | | IZMI | 1015.0 | 1016.0 | III | G | 2 | 45 | 180 | |
| | | | POTS | 1015.5 | 1015.7 | III | B | 1 | 40X | 240 | |
| | | | POTS | 1015.5 | 1015.7 | III | B | 1 | 40X | 240 | |
| | | | POTS | 1108.0 | 1114.3 | DCIM | | 2 | 210 | 470U | |
| | | | SVTO | 1127.0 | 1127.0 | III | | 1 | 25 | 83 | |
| | | | IZMI | 1127.5 | 1127.9 | III | G | 2 | 25X | 270 | |
| | | | POTS | 1127.6 | 1127.9 | III | G | 2 | 40X | 320 | |
| | 2000 | 2400 | CULG | 2328.0 | 2328.0 | III | B | 1 | 25 | 180 | |
| | 2124 | 2400 | HIRA | 2328.5 | 2329.0 | III | B | 1 | 90 | 130 | |
| | | | CULG | 2355.0 | 2355.0 | III | B | 1 | 25 | 140 | |
| 17 | 0000 | 0820 | HIRA | | | | | | | | |
| | 0000 | 0800 | CULG | 0227.0 | 0254.0 | III | N | 1 | 20 | 180 | |
| | | | CULG | 0536.0 | 0537.0 | III | G | 1 | 30 | 100 | |
| | | | LEAR | 0536.0 | 0536.0 | III | | 1 | 25 | 86 | |
| | 0726 | 1506 | ONDR | | | | | | | | |
| | 0745 | 1545 | BLEN | | | | | | | | |
| | 0610 | 1619 | POTS | 1050.1 | 1050.3 | III | B | 2 | 50 | 230 | |
| | 0700 | 1200 | IZMI | 1050.1 | 1050.3 | III | G,C | 2 | 50 | 65 | |
| | | | POTS | 1153 | 1230 | I | S,N | 2 | 200U | 400U | |
| | | | POTS | 1221.5 | 1229.8 | III | G,N | 1 | 40X | 85U | |
| | | | POTS | 1436.0 | 1524 U | I | S,N | 2 | 200U | 350 | |
| | | | HOLL | 1914.0 | 1914.0 | III | | 1 | 25 | 93 | |
| | | | CULG | 2000.0E | 2223.0 | I | S,C | 1 | 50 | 100 | |
| | 2000 | 2400 | CULG | 2000.0E | 2046.0 | III | S | 1 | 20 | 180 | |
| | | | HOLL | 2001.0 | 2006.0 | III | | 1 | 25 | 180 | |
| | | | HOLL | 2004.0 | 2105.0 | CONT | | 1 | 76 | 86 | |
| | 2123 | 2400 | HIRA | | | | | | | | |
| 18 | | | POTS | | | | | | | | |
| | 0000 | 0800 | CULG | | | | | | | | |
| | 0000 | 0821 | HIRA | | | | | | | | |
| | 0700 | 1200 | IZMI | 0720.6 | 0720.7 | III | G,HARM | 1 | 45 | 145 | |
| | 0724 | 1508 | ONDR | | | | | | | | |
| | 0745 | 1545 | BLEN | | | | | | | | |
| | 2000 | 2400 | CULG | | | | | | | | |
| | 2122 | 2400 | HIRA | | | | | | | | |
| 19 | | | POTS | | | | | | | | |
| | 0000 | 0800 | CULG | | | | | | | | |
| | 0000 | 0822 | HIRA | | | | | | | | |
| | 0655 | 1200 | IZMI | | | | | | | | |
| | 0722 | 1510 | ONDR | | | | | | | | |
| | 0745 | 1545 | BLEN | | | | | | | | |
| | 2000 | 2400 | CULG | | | | | | | | |
| | 2121 | 2400 | HIRA | | | | | | | | |

# SOLAR RADIO EMISSION
## Spectral Observations

## FEBRUARY 2004

| 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 20 | | | POTS | | | | | | | | |
| | 0000 | 0800 | CULG | | | | | | | | |
| | 0000 | 0823 | HIRA | | | | | | | | |
| | 0700 | 1200 | IZMI | | | | | | | | |
| | 0720 | 1512 | ONDR | | | | | | | | |
| | 2000 | 2400 | CULG | 2239.0 | 2239.0 | III | B | 1 | 120 | 160 | |
| | | | CULG | 2252.0 | 2252.0 | III | B | 1 | 70 | 180 | |
| | 2119 | 2400 | HIRA | 2352.0 | 2352.5 | III | B | 1 | 100 | 200 | |
| 21 | | | POTS | | | | | | | | |
| | 0000 | 0824 | HIRA | | | | | | | | |
| | 0000 | 0800 | CULG | 0419.0 | 0430.0 | III | G | 2 | 20 | 150 | |
| | 0703 | 1200 | IZMI | | | | | | | | |
| | 0718 | 1514 | ONDR | | | | | | | | |
| | 0745 | 1545 | BLEN | | | | | | | | |
| | | | HOLL | 1725.0 | 1727.0 | III | | 1 | 25 | 180 | |
| | | | HOLL | 1935.0 | 1936.0 | III | | 1 | 25 | 180 | |
| | | | PALE | 1935.0 | 1936.0 | III | | 1 | 25 | 131 | |
| | 2000 | 2400 | CULG | 2143.0 | 2143.0 | III | B | 1 | 20 | 180 | |
| | | | HOLL | 2224.0 | 2224.0 | III | | 1 | 25 | 180 | |
| | | | PALE | 2224.0 | 2224.0 | III | | 1 | 67 | 180 | |
| | | | CULG | 2225.0 | 2225.0 | III | B | 2 | 20 | 180 | |
| | 2118 | 2400 | HIRA | 2225.0 | 2225.5 | III | B | 3 | 40 | 200 | |
| | | | HOLL | 2249.0 | 2249.0 | III | | 1 | 25 | 180 | |
| | | | PALE | 2249.0 | 2249.0 | III | | 1 | 25 | 180 | |
| | | | CULG | 2250.0 | 2250.0 | III | B | 2 | 20 | 180 | |
| | | | HIRA | 2250.0 | 2250.5 | III | B | 1 | 25X | 200 | |
| | | | CULG | 2352.0 | 2357.0 | III | G | 1 | 27 | 180 | |
| | | | HIRA | 2352.5 | 2358.0 | III | G | 1 | 30 | 200 | |
| | | | LEAR | 2354.0 | 2358.0 | III | | 1 | 25 | 100 | |
| 22 | | | POTS | | | | | | | | |
| | 0000 | 0825 | HIRA | | | | | | | | |
| | 0715 | 1516 | ONDR | | | | | | | | |
| | 0000 | 0800 | CULG | 0732.0 | 0800.0D | III | N | 1 | 20 | 160 | |
| | 0745 | 1545 | BLEN | | | | | | | | |
| | 0655 | 1200 | IZMI | 0747.1 | 0748.3 | III | G | 1 | 80U | 270x | |
| | | | IZMI | 0750.0U | 0930.0U | III | N | 1 | 45 | 160 | |
| | | | IZMI | 0805.0U | 0930.0U | I | N | 1 | 45 | 170 | |
| | | | IZMI | 0841.3 | 0841.6 | III | G,FS | 1 | 40 | 160 | |
| | | | IZMI | 0851.4 | 0855.9 | III | GG | 1 | 50 | 170 | |
| | | | IZMI | 0917.0 | 0927.7 | III | GG | 1 | | 180 | |
| | | | HOLL | 1501.0 | 1501.0 | III | | 1 | 25 | 86 | |
| | | | SVTO | 1501.0 | 1501.0 | III | | 1 | 25 | 76 | |
| | | | HOLL | 1646.0 | 1646.0 | III | | 1 | 25 | 39 | |
| | | | HOLL | 1717.0 | 1719.0 | III | | 1 | 25 | 85 | |
| | | | HOLL | 1746.0 | 1749.0 | III | | 1 | 25 | 42 | |
| | | | HOLL | 2116.0 | 2116.0 | III | | 1 | 77 | 180 | |
| | 2000 | 2400 | CULG | 2116.0 | 2116.0 | III | B | 2 | 60 | 180 | |
| | | | HOLL | 2147.0 | 2150.0 | III | | 1 | 25 | 180 | |
| | | | CULG | 2150.0 | 2151.0 | III | G | 3 | 20 | 280 | |
| | | | PALE | 2150.0 | 2150.0 | III | | 1 | 25 | 180 | |
| | 2117 | 2400 | HIRA | 2150.5 | 2151.5 | III | G | 2 | 50 | 310 | |
| | | | CULG | 2253.0 | 2253.0 | III | B | 3 | 18 | 180 | |
| | | | HOLL | 2253.0 | 2253.0 | III | | 1 | 25 | 61 | |
| | | | HIRA | 2253.5 | 2254.0 | III | B | 1 | 25X | 220 | |
| | | | CULG | 2308.0 | 2313.0 | III | G | 1 | 300 | 760 | |
| | | | HIRA | 2308.0 | 2314.0 | III | G | 1 | 300 | 800 | |
| | | | CULG | 2314.0 | 2400.0D | III | N | 1 | 18 | 180 | |
| | | | CULG | 2318.0 | 2322.0 | CONT | | 1 | 400 | 800 | |
| 23 | 0000 | 0800 | CULG | 0000.0E | 0404.0 | III | N | 1 | 20 | 180 | |
| | | | CULG | 0044.0 | 0046.0 | III | G | 1 | 100 | 730 | |
| | | | LEAR | 0251.0 | 0252.0 | III | | 1 | 25 | 180 | |
| | | | PALE | 0251.0 | 0252.0 | III | | 1 | 25 | 53 | |
| | | | CULG | 0252.0 | 0252.0 | III | G | 3 | 18X | 180 | |
| | 0000 | 0826 | HIRA | 0252.0 | 0253.0 | III | G | 1 | 25X | 140 | |
| | | | CULG | 0328.0 | 0329.0 | III | G | 3 | 18X | 300 | |
| | | | LEAR | 0328.0 | 0328.0 | III | | 1 | 25 | 180 | |

# SOLAR RADIO EMISSION
## Spectral Observations

## FEBRUARY 2004

| 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 23 | | | PALE | 0328.0 | 0328.0 | III | | 1 | 25 | 180 | |
| | | | HIRA | 0328.5 | 0329.5 | III | G | 1 | 25X | 400 | |
| | | | LEAR | 0502.0 | 0504.0 | III | | 1 | 25 | 180 | |
| | | | CULG | 0503.0 | 0504.0 | III | G | 3 | 18 | 260 | |
| | | | HIRA | 0503.5 | 0505.0 | III | G | 1 | 25X | 280 | |
| | | | CULG | 0510.0 | 0514.0 | III | G | 3 | 18 | 180 | |
| | | | LEAR | 0510.0 | 0518.0 | III | | 1 | 25 | 180 | |
| | | | CULG | 0516.0 | 0519.0 | III | G | 3 | 18X | 350 | |
| | | | HIRA | 0516.0 | 0520.0 | III | G | 2 | 25X | 260 | |
| | | | CULG | 0623.0 | 0623.0 | III | G | 1 | 20 | 90 | |
| | | | CULG | 0636.0 | 0800.0D | I | S | 1 | 70 | 180 | |
| | | | CULG | 0647.0 | 0647.0 | III | B | 1 | 23 | 90 | |
| | 0700 | 1200 | IZMI | 0700.0E | 1200.0D | I | N | 1 | 50 | 270 | |
| | 0555 | 1643 | POTS | 0703 U | 1539 U | I | S,N | 2 | 200U | 360 | 40-100MHz no data |
| | | | CULG | 0721.0 | 0721.0 | III | B | 3 | 18 | 80 | |
| | | | IZMI | 0721.0 | 0721.2 | III | G | 1 | 45 | 150 | |
| | | | IZMI | 0721.0 | 1200.0D | III | G | 1 | 40 | 270X | |
| | | | CULG | 0728.0 | 0800.0D | III | N | 1 | 20 | 130 | |
| | | | IZMI | 0850.8 | 0856.2 | III | GG | 1 | 40 | 270X | |
| | | | IZMI | 0909.0 | 0909.1 | III | B | 2 | 30 | 150 | |
| | | | SVTO | 0909.0 | 0909.0 | III | | 1 | 25 | 66 | |
| | 0713 | 1519 | ONDR | 0921.4 | 0923.0 | DCIM | GG | 2 | 800X | 1068 | |
| | 0745 | 1550 | BLEN | 0921.7 | 0927.0 | III | GG | 2 | 190 | 1000 | |
| | | | IZMI | 1012.5 | 1012.6 | III | B | 2 | 50 | 85 | |
| | | | SVTO | 1039.0 | 1040.0 | III | | 1 | 25 | 82 | |
| | | | IZMI | 1039.8 | 1040.1 | III | G | 2 | 25X | 190 | |
| | | | POTS | 1052.8 | 1053.1 | DCIM | | 2 | 240 | 390 | 40-100MHz no data |
| | | | IZMI | 1102.8 | 1104.5 | III | GG | 2 | 25X | 145 | |
| | | | ONDR | 1114.4 | 1128.4 | DCIM | GG,SP | 2 | 800X | 2000X | |
| | | | IZMI | 1114.8 | 1114.9 | III | G | 2 | 185 | 270X | |
| | | | BLEN | 1125.4 | 1128.9 | DCIM | P | 3 | 190 | 1500 | |
| | | | IZMI | 1125.5 | 1126.0 | III | G | 2 | 95 | 270X | |
| | | | IZMI | 1127.5 | 1227.7 | III | G | 2 | 185 | 270X | |
| | | | HOLL | 1620.0 | 1620.0 | III | | 1 | 25 | 64 | |
| | | | HOLL | 1632.0 | 1633.0 | III | | 1 | 25 | 97 | |
| | 2116 | 2400 | HIRA | | | | | | | | |
| | 2000 | 2400 | CULG | 2259.0 | 2306.0 | III | G | 1 | 80 | 140 | |
| 24 | 0000 | 0827 | HIRA | | | | | | | | |
| | 0000 | 0800 | CULG | 0201.0 | 0800.0D | III | S | 1 | 23 | 160 | |
| | | | CULG | 0329.0 | 0800.0D | I | S,C | 1 | 100 | 180 | |
| | | | LEAR | 0341.0 | 1017.0 | CONT | | 1 | 73 | 180 | |
| | | | CULG | 0601.0 | 0601.0 | III | B | 2 | 18 | 150 | |
| | | | SVTO | 0634.0 | 1611.0 | CONT | | 1 | 75 | 180 | |
| | 0552 | 1642 | POTS | 0647 U | 1235 U | I | S,N | 2 | 200U | 370 | 40-100MHz no data |
| | 0701 | 1200 | IZMI | 0701.0E | 1010.0 | I | S | 2 | 110 | 270X | |
| | 0711 | 1520 | ONDR | | | | | | | | |
| | | | IZMI | 0713.6 | 0713.9 | III | G | 2 | 50 | 185 | |
| | 0745 | 1550 | BLEN | | | | | | | | |
| | | | IZMI | 0831.3 | 0832.1 | III | G | 1 | 50 | 90 | |
| | | | IZMI | 0852.5 | 0852.6 | III | B | 1 | 30 | 45 | |
| | | | IZMI | 1010. | 1200.0D | I | N | 1 | 180 | 270X | |
| | | | POTS | 1254 | 1308 | I | S,N | 1 | 200U | 310 | 40-100MHz no data |
| | | | POTS | 1355 | 1613 U | I | S,N | 2 | 200U | 390 | 40-100MHz no data |
| | | | HOLL | 1923.0 | 2224.0 | CONT | | 1 | 51 | 180 | |
| | | | CULG | 2000.0E | 2140.0 | III | S | 1 | 20 | 140 | |
| | 2000 | 2400 | CULG | 2000.0E | 2328.0 | I | S,C | 1 | 50 | 180 | |
| | | | HOLL | 2136.0 | 2136.0 | III | | 1 | 25 | 79 | |
| | 2114 | 2400 | HIRA | 2137.0 | 2137.5 | III | B | 1 | 25X | 50 | |
| | | | CULG | 2215.0 | 2215.0 | III | B | 1 | 27 | 90 | |
| | | | CULG | 2222.0 | 2222.0 | III | B | 2 | 18 | 50 | |
| | | | LEAR | 2258.0 | 0123.0 | CONT | | 1 | 121 | 180 | |
| | | | CULG | 2300.0 | 2319.0 | III | N | 1 | 27 | 80 | |
| 25 | 0000 | 0800 | CULG | 0001.0 | 0001.0 | III | B | 1 | 30 | 75 | |
| | | | CULG | 0009.0 | 0009.0 | III | B | 2 | 25 | 150 | |
| | | | LEAR | 0009.0 | 0009.0 | III | | 1 | 25 | 115 | |
| | 0000 | 0828 | HIRA | 0010.0 | 0010.5 | III | B | 1 | 25X | 100 | |
| | | | CULG | 0052.0 | 0127.0 | I | S | 1 | 100 | 180 | |

# SOLAR RADIO EMISSION
## Spectral Observations

## FEBRUARY 2004

| 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 |
|---|---|---|---|---|---|---|---|---|---|---|
| 25 | | CULG | 0206.0 | 0257.0 | III | N | 1 | 60 | 400 | |
| | | HIRA | 0208.5 | 0212.5 | III | G | 2 | 60 | 300 | |
| | | CULG | 0211.0 | 0211.0 | III | B | 3 | 50 | 400 | |
| | | LEAR | 0211.0 | 0211.0 | III | | 1 | 55 | 180 | |
| | | PALE | 0211.0 | 0211.0 | III | | 1 | 56 | 180 | |
| | | CULG | 0224.0 | 0459.0 | I | S | 1 | 120 | 180 | |
| | | CULG | 0256.0 | 0257.0 | III | G | 2 | 50 | 230 | |
| | | LEAR | 0256.0 | 0256.0 | III | | 1 | 47 | 180 | |
| | | PALE | 0256.0 | 0256.0 | III | | 1 | 103 | 180 | |
| | | HIRA | 0257.0 | 0257.5 | III | B | 1 | 50 | 210 | |
| | | CULG | 0339.0 | 0339.0 | III | B | 1 | 27 | 180 | |
| | | CULG | 0421.0 | 0421.0 | III | B | 1 | 27 | 160 | |
| | | CULG | 0442.0 | 0442.0 | III | B | 1 | 330 | 450 | |
| | | HIRA | 0442.0 | 0442.5 | III | B | 2 | 310 | 430 | |
| | | CULG | 0518.0 | 0518.0 | III | B | 1 | 30 | 280 | |
| | | CULG | 0533.0 | 0533.0 | III | G | 1 | 30 | 90 | |
| | | CULG | 0537.0 | 0537.0 | III | B | 1 | 150 | 390 | |
| | | HIRA | 0537.5 | 0538.0 | III | B | 2 | 300 | 400 | |
| | | CULG | 0620.0 | 0719.0 | I | S | 1 | 130 | 180 | |
| | | CULG | 0632.0 | 0652.0 | III | N | 1 | 20 | 140 | |
| 0650 | 1200 | IZMI | 0650.0E | 1200.0D | I | N | 1 | 110 | 270X | |
| | | IZMI | 0651.5 | 0651.7 | III | B | 1 | 45 | 90 | |
| 0709 | 1522 | ONDR | | | | | | | | |
| 0550 | 1642 | POTS | 0714 U | 1615 U | I | S,N | 2 | 200U | 370 | 40-100MHz no data |
| 0745 | 1600 | BLEN | | | | | | | | |
| | | POTS | 1003.4 | 1003.8 | DCIM | | 1 | 210 | 400U | 40-100MHz no data |
| | | IZMI | 1029.8 | 1029.8 | UNCLF | | 1 | 180 | 240 | |
| | | IZMI | 1112.1 | 1112.2 | III | G | 1 | 180 | 260 | |
| | | CULG | 2000.0E | 2339.0 | III | N | 1 | 20 | 100 | |
| 2000 | 2400 | CULG | 2000.0E | 2400.0D | I | S,C | 1 | 80 | 180 | |
| | | CULG | 2119.0 | 2120.0 | III | G | 3 | 18X | 140 | |
| | | HOLL | 2150.0 | 2302.0 | III | N | 2 | 25 | 179 | |
| | | CULG | 2151.0 | 2151.0 | III | B | 3 | 18 | 180 | |
| | | PALE | 2212.0 | 2214.0 | III | | 1 | 25 | 180 | |
| | | CULG | 2213.0 | 2214.0 | III | G | 3 | 18X | 260 | |
| 2113 | 2400 | HIRA | 2213.5 | 2215.0 | III | G | 3 | 25X | 210 | |
| | | CULG | 2259.0 | 2259.0 | III | G | 2 | 20 | 150 | |
| | | LEAR | 2301.0 | 0750.0 | CONT | | 1 | 66 | 180 | |
| 26 | | HIRA | | | | | | | | |
| 0000 | 0800 | CULG | 0000.0E | 0800.0D | I | S,C | 1 | 60 | 180 | |
| | | CULG | 0115.0 | 0115.0 | III | B | 3 | 18X | 180 | |
| | | LEAR | 0115.0 | 0115.0 | III | | 1 | 25 | 109 | |
| 0000 | 0829 | HIRA | 0116.0 | 0116.5 | III | B | 1 | 25X | 100 | |
| | | LEAR | 0401.0 | 0403.0 | III | | 1 | 25 | 108 | |
| | | CULG | 0404.0 | 0404.0 | III | B | 1 | 23 | 130 | |
| | | CULG | 0434.0 | 0800.0D | III | N | 1 | 30 | 180 | |
| | | IZMI | 0700.0E | 1200.0D | I | N | 2 | 130 | 270X | |
| 0706 | 1524 | ONDR | | | | | | | | |
| 0548 | 1652 | POTS | 0709 U | 1545 U | I | S,N | 2 | 200U | 400U | 40-100MHz no data |
| 0745 | 1600 | BLEN | | | | | | | | |
| | | IZMI | 1048.0 | 1048.8 | III | G | 2 | 25X | 160 | |
| | | SVTO | 1400.0 | 1400.0 | III | | 1 | 25 | 156 | |
| | | HOLL | 1618.0 | 1618.0 | III | | 1 | 25 | 137 | |
| | | HOLL | 1926.0 | 1926.0 | III | | 1 | 25 | 180 | |
| | | PALE | 1926.0 | 1926.0 | III | | 1 | 25 | 180 | |
| | | HOLL | 2149.0 | 2150.0 | III | | 1 | 25 | 162 | |
| | | PALE | 2149.0 | 2150.0 | III | | 1 | 25 | 180 | |
| 2000 | 2400 | CULG | 2149.0 | 2150.0 | III | G | 3 | 18X | 180 | |
| 2111 | 2400 | HIRA | 2150.0 | 2151.0 | III | G | 1 | 25X | 200 | |
| 27 | | LEAR | 0306.0 | 0307.0 | III | | 1 | 25 | 98 | |
| 0000 | 0800 | CULG | 0307.0 | 0308.0 | III | G | 1 | 18 | 170 | |
| 0000 | 0830 | HIRA | 0307.5 | 0308.0 | III | B | 1 | 40 | 150 | |
| | | CULG | 0416.0 | 0419.0 | III | G | 1 | 20 | 100 | |
| | | HIRA | 0418.5 | 0419.0 | III | B | 1 | 50 | 90 | |
| | | CULG | 0615.0 | 0616.0 | III | G | 1 | 45 | 180 | |
| | | LEAR | 0653.0 | 0658.0 | III | | 1 | 25 | 180 | |
| 0543 | 1655 | POTS | 0653.8 | 0656.0 | III | GG | 2 | 40X | 340 | |

# SOLAR RADIO EMISSION
## Spectral Observations

## FEBRUARY 2004

| 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 27 | | | CULG | 0654.0 | 0659.0 | III | G | 3 | 18 | 280 | |
| | | | SVTO | 0654.0 | 0656.0 | III | | 1 | 25 | 155 | |
| | | | HIRA | 0654.5 | 0657.0 | III | G | 2 | 25X | 310 | |
| | | | CULG | 0656.0 | 0800.0D | I | S | 1 | 110 | 180 | |
| | 0700 | 1200 | IZMI | 0700.0E | 1200.0D | I | N | 1 | 120 | 270X | |
| | | | POTS | 0703 U | 1544 U | I | S,N | 2 | 200U | 370 | |
| | 0704 | 1526 | ONDR | | | | | | | | |
| | | | CULG | 0733.0 | 0733.0 | III | B | 1 | 25 | 75 | |
| | 0745 | 1600 | BLEN | | | | | | | | |
| | | | IZMI | 0931.5 | 0932.0 | III | G | 2 | 25X | 170 | |
| | | | POTS | 0931.6 | 0931.8 | III | B | 2 | 40X | 85 | |
| | | | IZMI | 0937.1 | 0937.3 | III | G,HARM | 1 | 50 | 270 | |
| | | | IZMI | 1018.0 | 1018.1 | III | B | 1 | 50 | 85 | |
| | | | IZMI | 1111.5 | 1114.1 | III | GG | 1 | 45 | 90 | |
| | | | IZMI | 1155.6 | 1159.0 | III | GG | 1 | 50 | 180 | |
| | | | POTS | 1155.6 | 1159.1 | III | G,N | 2 | 40X | 75 | |
| | | | POTS | 1345.7 | 1346.4 | DCIM | | 2 | 270 | 420U | |
| | | | HOLL | 1708.0 | 1709.0 | III | | 1 | 33 | 180 | |
| | 2000 | 2400 | CULG | 2000.0E | 2400.0D | I | S | 1 | 100 | 180 | |
| | | | CULG | 2109.0 | 2109.0 | III | B | 1 | 20 | 50 | |
| | 2110 | 2400 | HIRA | | | | | | | | |
| | | | CULG | 2125.0 | 2125.0 | III | B | 1 | 20 | 45 | |
| 28 | 0000 | 0800 | CULG | 0000.0E | 0025.0 | I | S | 1 | 110 | 180 | |
| | | | CULG | 0136.0 | 0136.0 | III | B | 1 | 27 | 70 | |
| | | | CULG | 0254.0 | 0254.0 | III | G | 1 | 20 | 150 | |
| | | | LEAR | 0318.0 | 0321.0 | III | | 1 | 25 | 180 | |
| | | | CULG | 0319.0 | 0321.0 | III | G | 2 | 18 | 170 | |
| | 0000 | 0831 | HIRA | 0319.5 | 0322.0 | III | G | 1 | 25X | 110 | |
| | | | CULG | 0323.0 | 0326.0 | III | G | 3 | 18X | 350 | |
| | | | LEAR | 0323.0 | 0325.0 | V | | 2 | 25 | 180 | |
| | | | HIRA | 0324.0 | 0326.5 | III | G | 3 | 25X | 330 | |
| | | | CULG | 0444.0 | 0512.0 | III | N | 1 | 18 | 160 | |
| | | | LEAR | 0456.0 | 0456.0 | III | | 1 | 25 | 107 | |
| | | | HIRA | 0457.5 | 0458.0 | III | B | 1 | 25X | 110 | |
| | 0655 | 1200 | IZMI | 0655.0E | 1200.0D | I | N | 1 | 120 | 270X | |
| | 0702 | 1528 | ONDR | | | | | | | | |
| | 0543 | 1658 | POTS | 0722 U | 1540 U | I | S,N | 2 | 200U | 350 | |
| | | | IZMI | 0759.0 | 0759.1 | III | B | 1 | 45 | 85 | |
| | | | IZMI | 0922.6 | 0923.3 | III | G | 1 | 25X | 90 | |
| | | | LEAR | 0944.0 | 0945.0 | III | | 1 | 25 | 157 | |
| | | | SVTO | 0944.0 | 0945.0 | III | | 1 | 25U | 147U | |
| | | | IZMI | 0944.4 | 0945.4 | III | G | 2 | 40 | 190 | |
| | | | SVTO | 1041.0 | 1050.0 | III | | 1 | 25 | 148 | |
| | | | IZMI | 1049.1 | 1051.0 | III | GG | 2 | 25X | 205 | |
| | | | POTS | 1049.1 | 1051.1 | III | GG | 2 | 40X | 85U | |
| | | | IZMI | 1149.7 | 1149.8 | III | B | 2 | 45 | 90 | |
| | | | SVTO | 1250.0 | 1252.0 | III | | 1 | 25 | 135 | |
| | | | POTS | 1251.7 | 1251.9 | III | B | 2 | 40X | 85U | |
| | | | POTS | 1334.1 | 1337.4 | III | G | 1 | 40X | 75 | |
| | | | SVTO | 1344.0 | 1345.0 | III | | 1 | 25 | 144 | |
| | | | POTS | 1425.8 | 1429.1 | III | GG | 1 | 40X | 75 | |
| | | | POTS | 1451.0 | 1455.5 | III | GG | 3 | 40X | 400U | |
| | 0745 | 1600 | BLEN | 1451.1 | 1455.1 | III | GG | 2 | 130 | 500 | |
| | | | HOLL | 1453.0 | 1455.0 | III | | 1 | 25 | 180 | |
| | | | SVTO | 1453.0 | 1455.0 | III | | 1 | 25 | 146 | |
| | | | HOLL | 1600.0 | 1601.0 | III | | 1 | 25 | 180 | |
| | | | POTS | 1600.3 | 1600.6 | III | G | 2 | 40X | 80 | |
| | | | HOLL | 1618.0 | 1618.0 | III | | 1 | 25 | 180 | |
| | | | POTS | 1618.1 | 1618.8 | III | G | 2 | 40X | 120 | |
| | | | PALE | 1734.0 | 0419.0 | III | N | 1 | 25 | 180 | |
| | | | HOLL | 1741.0 | 1742.0 | III | | 1 | 25 | 180 | |
| | 2000 | 2400 | CULG | 2034.0 | 2034.0 | III | B | 1 | 30 | 130 | |
| | | | HOLL | 2158.0 | 2200.0 | III | | 1 | 25 | 180 | |
| | | | CULG | 2159.0 | 2201.0 | III | G | 1 | 20 | 160 | |
| | | | CULG | 2202.0 | 2225.0 | I | S | 1 | 120 | 180 | |
| | | | CULG | 2308.0 | 2308.0 | III | B | 1 | 40 | 180 | |
| | | | CULG | 2319.0 | 2320.0 | III | G | 2 | 20 | 130 | |
| | | | HOLL | 2319.0 | 2319.0 | III | | 1 | 25 | 180 | |

# SOLAR RADIO EMISSION
## Spectral Observations

## FEBRUARY 2004

| Day | OBSERVATION Start (UT) | OBSERVATION End (UT) | Sta | EVENT Start (UT) | EVENT End (UT) | EVENT Spectral Class | EVENT Event Remarks | Int (1-3) | FREQUENCY Lower (MHz) | FREQUENCY Upper (MHz) | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 28 | | | LEAR | 2319.0 | 2319.0 | III | | 1 | 25 | 114 | |
| | 2109 | 2400 | HIRA | 2319.5 | 2320.5 | III | G | 1 | 25X | 110 | |
| | | | CULG | 2344.0 | 2400.0D | I | S | 1 | 110 | 180 | |
| | | | CULG | 2346.0 | 2346.0 | III | B | 3 | 18 | 30 | |
| 29 | 0000 | 0800 | CULG | 0000.0E | 0159.0 | I | S | 1 | 100 | 180 | |
| | | | CULG | 0001.0 | 0109.0 | III | N | 1 | 20 | 100 | |
| | | | LEAR | 0108.0 | 0108.0 | III | | 1 | 25 | 62 | |
| | 0000 | 0832 | HIRA | 0109.0 | 0109.5 | III | B | 1 | 25X | 70 | |
| | | | LEAR | 0126.0 | 0126.0 | III | | 1 | 25 | 64 | |
| | | | CULG | 0127.0 | 0127.0 | III | B | 3 | 18X | 60 | |
| | | | HIRA | 0127.0 | 0127.5 | III | B | 1 | 25X | 50 | |
| | | | CULG | 0158.0 | 0203.0 | III | G | 1 | 20 | 150 | |
| | | | LEAR | 0158.0 | 0159.0 | III | | 1 | 25 | 79 | |
| | | | HIRA | 0159.5 | 0203.5 | III | G | 1 | 25X | 100 | |
| | | | CULG | 0257.0 | 0257.0 | III | B | 1 | 20 | 57 | |
| | | | LEAR | 0304.0 | 0308.0 | III | | 1 | 25 | 46 | |
| | | | CULG | 0305.0 | 0308.0 | III | G | 3 | 18 | 50 | |
| | | | CULG | 0313.0 | 0400.0 | I | S | 1 | 100 | 180 | |
| | | | CULG | 0346.0 | 0402.0 | III | N | 1 | 23 | 60 | |
| | | | CULG | 0615.0 | 0617.0 | III | G | 3 | 18X | 220 | |
| | | | HIRA | 0616.0 | 0618.0 | III | G | 1 | 30 | 200 | |
| | | | CULG | 0622.0 | 0741.0 | III | N | 1 | 20 | 50 | |
| | 0659 | 1530 | ONDR | | | | | | | | |
| | | | IZMI | 0700.0E | 1200.0D | I | N | 1 | 140 | 270X | |
| | 0540 | 1701 | POTS | 0711 U | 1547 U | I | S,N | 1 | 200U | 360 | |
| | 0745 | 1600 | BLEN | | | | | | | | |
| | 2000 | 2400 | CULG | | | | | | | | |
| | 2108 | 2400 | HIRA | | | | | | | | |
| | | | HOLL | 2338.0 | 0040.0 | CONT | | 1 | 25 | 180 | |
| | | | HOLL | 2357.0 | 0040.0 | III | N | 1 | 25 | 180 | |

Event Remarks:

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

Frequency qualifiers:

X = Extends beyond instrument range  U = Uncertain frequency

Remarks:

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

Stations Reporting:

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

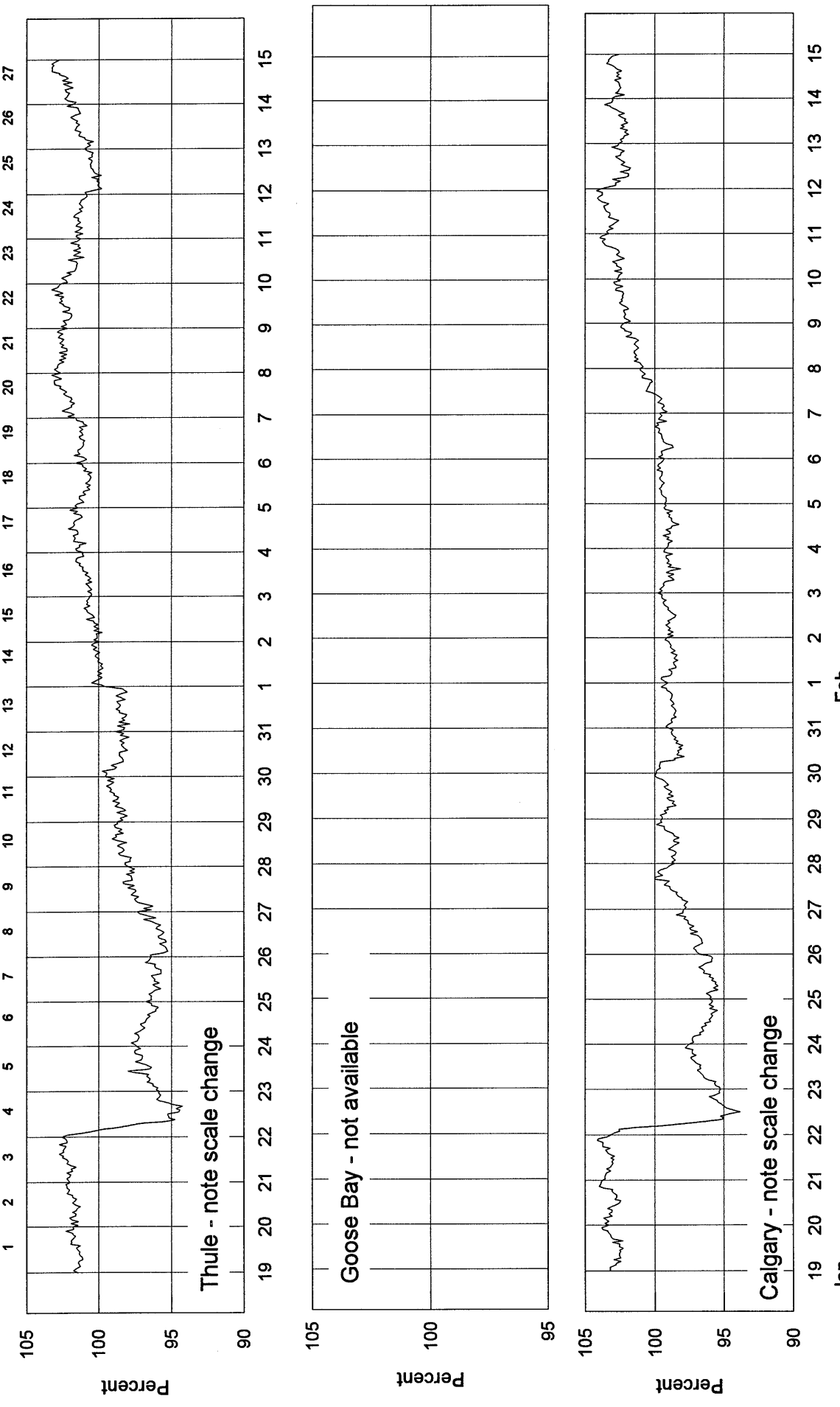
NOTE 1: Beginning June 26, 2001, the Bleien observatory changed to higher frequencies (1-4Ghz).

# COSMIC RAY INDICES
## (Neutron Monitor)
### February 2004

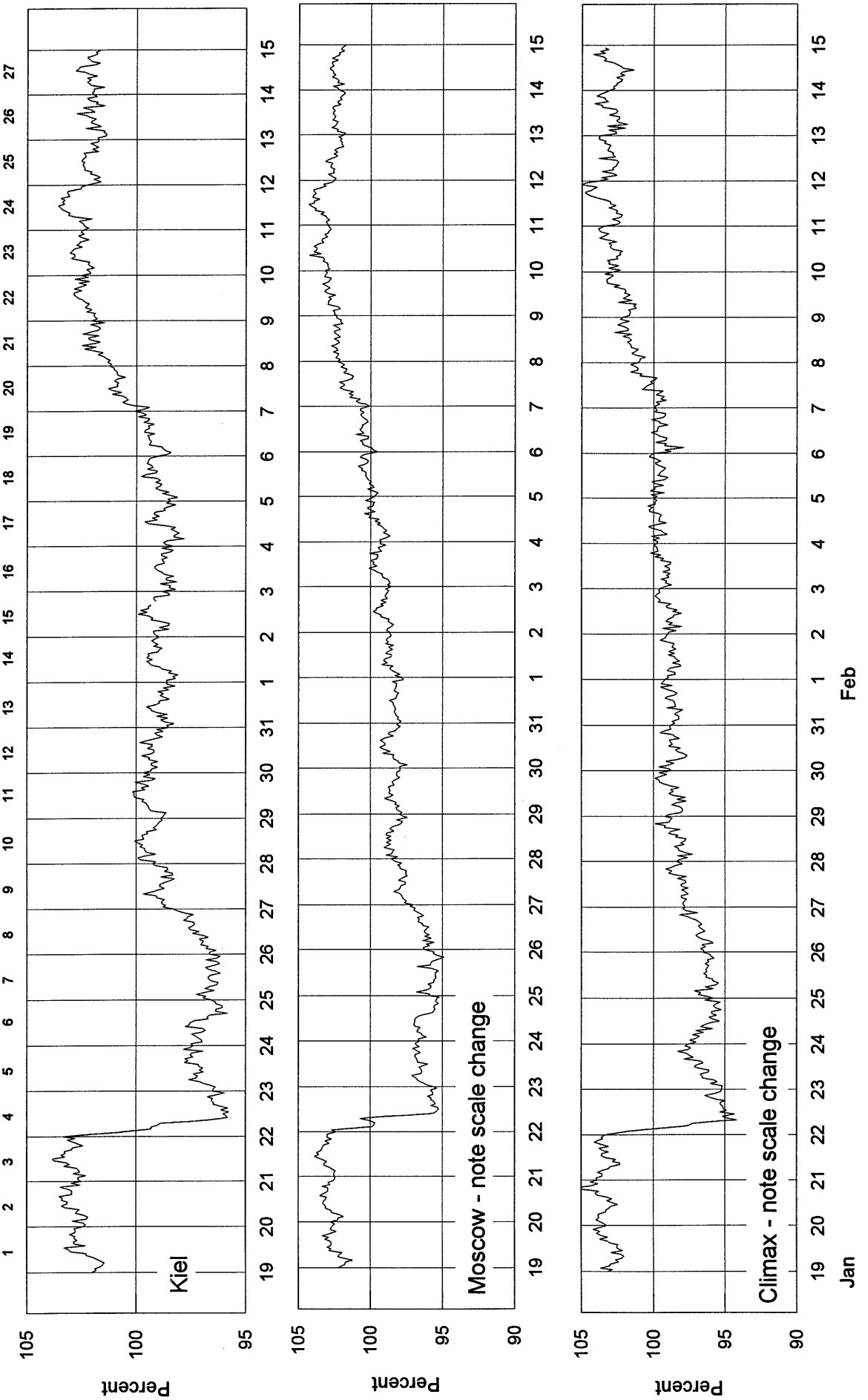
| Day | THULE Average (cts/h)/100 | CALGARY Average (cts/h)/300 | KIEL Average (cts/h)/100 | MOSCOW Average (cts/h)/64 | CLIMAX Average (cts/h)/100 | BEIJING Average (cts/h)/256 | HALEAKALA Average (cts/h)/1000 |
|---|---|---|---|---|---|---|---|
| 1 | 3939.7 | 3473.3 | 5547.4 | 8073.0 | 3692.9 | 1970.1 | 3427.5 |
| 2 | 3957.9 | 3480.3 | 5556.6(23) | 8104.0 | 3704.0 | 1973.5 | 3433.8 |
| 3 | 3956.2 | 3482.7 | 5532.9 | 8133.0 | 3715.2 | 1977.5 | 3442.9 |
| 4 | 3956.4 | 3478.2 | 5531.2 | 8150.0 | 3732.8 | 1977.5 | 3443.2 |
| 5 | 3968.0 | 3497.0 | 5552.6 | 8201.2 | 3730.2 | 1982.2 | 3444.2 |
| 6 | 3980.0 | 3495.8 | 5566.1 | 8220.7 | 3720.3 | 1986.2 | 3447.7 |
| 7 | 4008.2 | 3518.0 | 5642.8 | 8304.0 | 3750.2 | 1990.0 | 3461.8 |
| 8 | 4042.9 | 3567.3 | 5705.9 | 8375.7 | 3802.0 | 1999.3 | 3477.3 |
| 9 | 4046.4 | 3595.8 | 5738.5 | 8417.2 | 3822.2 | 2008.4 | 3497.8 |
| 10 | 4074.2 | 3616.5 | 5746.8 | 8456.2 | 3852.1 | 2014.4 | 3512.0 |
| 11 | 4090.4 | 3636.0 | 5770.0 | 8474.9 | 3867.0 | 2026.3 | 3523.4 |
| 12 | 4064.8 | 3602.8 | 5724.7 | 8388.6 | 3856.8 | 2009.3 | 3489.5 |
| 13 | 4063.1 | 3601.8 | 5713.5 | 8373.9 | 3853.0 | 2002.3 | 3481.6 |
| 14 | 4066.7 | 3612.7 | 5723.7 | 8381.9 | 3844.8 | 1994.8 | 3481.7 |
| 15 | 4058.4 | 3608.3 | 5736.2 | 8384.5 | 3850.6 | 1998.9 | 3482.3 |
| 16 | 4059.1 | 3615.5 | 5728.5 | 8413.8 | 3847.7 | 2000.0 | 3482.3 |
| 17 | 4077.7 | 3622.7 | 5759.0 | 8439.4 | 3845.9 | 2003.7 | 3503.0 |
| 18 | 4093.1 | 3631.5 | 5781.5 | 8458.7 | 3839.2 | 2004.4 | 3511.0 |
| 19 | 4114.6 | 3657.0 | 5805.6 | 8469.3 | 3898.9 | 2010.2 | 3538.0 |
| 20 | 4145.0 | 3689.5 | 5827.6 | 8513.2 | 3925.3 | 2015.3 | 3551.1 |
| 21 | 4163.0 | 3701.7 | 5846.7 | 8489.8 | 3931.6 | 2028.1 | 3555.4 |
| 22 | 4152.5 | 3693.5 | 5845.8 | 8491.3 | 3929.1 | 2026.9 | 3549.9 |
| 23 | 4156.7 | 3680.8 | 5860.2 | 8532.3 | 3912.2 | 2020.2 | 3545.6 |
| 24 | 4146.3 | 3684.0 | 5835.5 | 8525.5 | 3915.5 | 2016.1 | 3543.0 |
| 25 | 4151.7 | 3673.2 | 5846.7 | 8534.4 | 3896.0 | 2019.5 | 3531.6 |
| 26 | 4125.3 | 3670.2 | 5838.5 | 8490.0 | 3881.2 | 2014.9 | 3528.2 |
| 27 | 4104.0 | 3654.7 | 5820.2 | 8473.2 | 3877.7 | 2008.0 | 3502.8 |
| 28 | 4099.0 | 3643.8 | 5807.2 | 8483.7 | 3876.3 | 2015.7 | 3440.7 |
| 29 | 4072.3 | 3627.8 | 5765.6 | 8406.5 | 3865.3 | 2011.8 | 3472.8 |
| Mean | 4066.0 | 3603.9 | 5729.6 | 8384.8 | 3835.7 | 2003.6 | 3493.3 |

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.

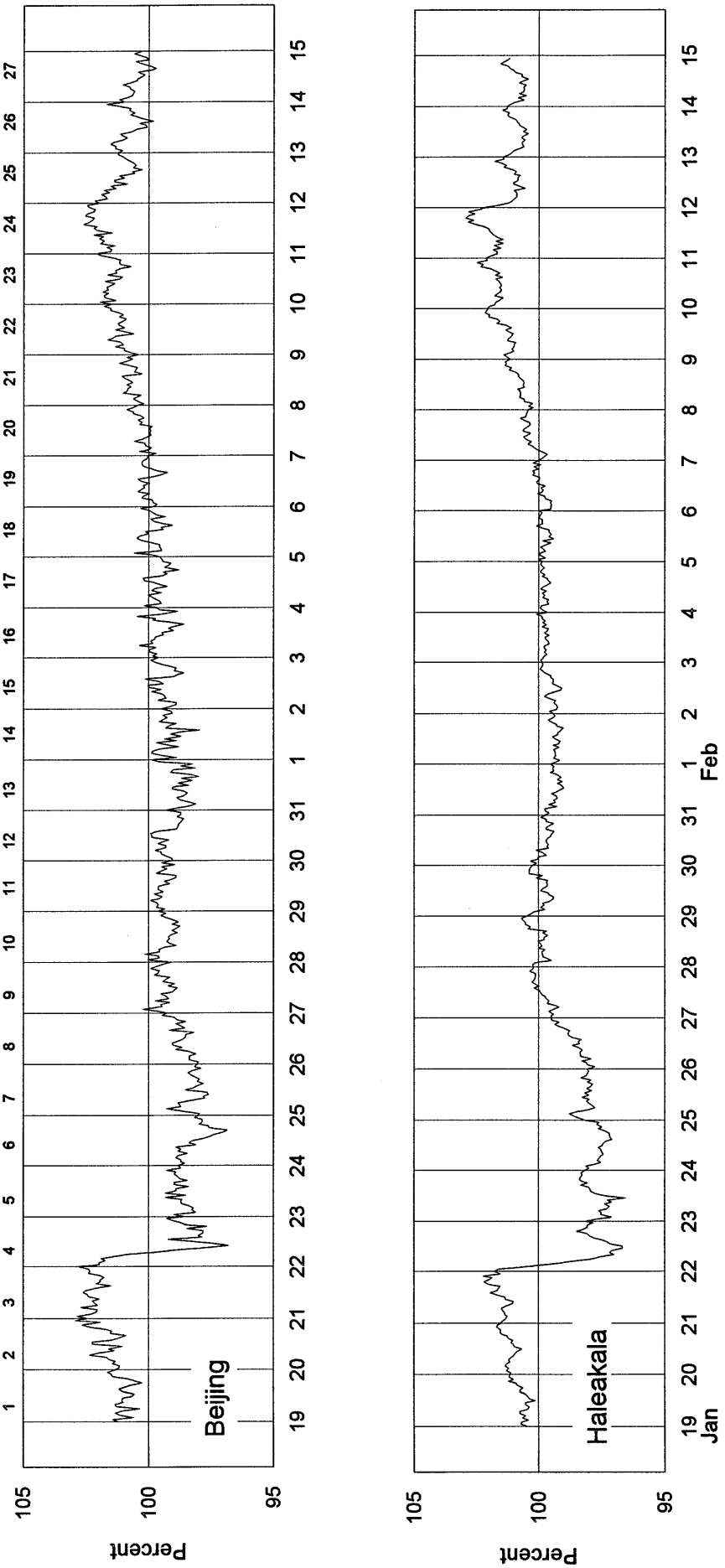
# COSMIC RAY INDICES
## (Neutron Monitor)
Bartels Rotation 2327 - Beginning 19 Jan 2004



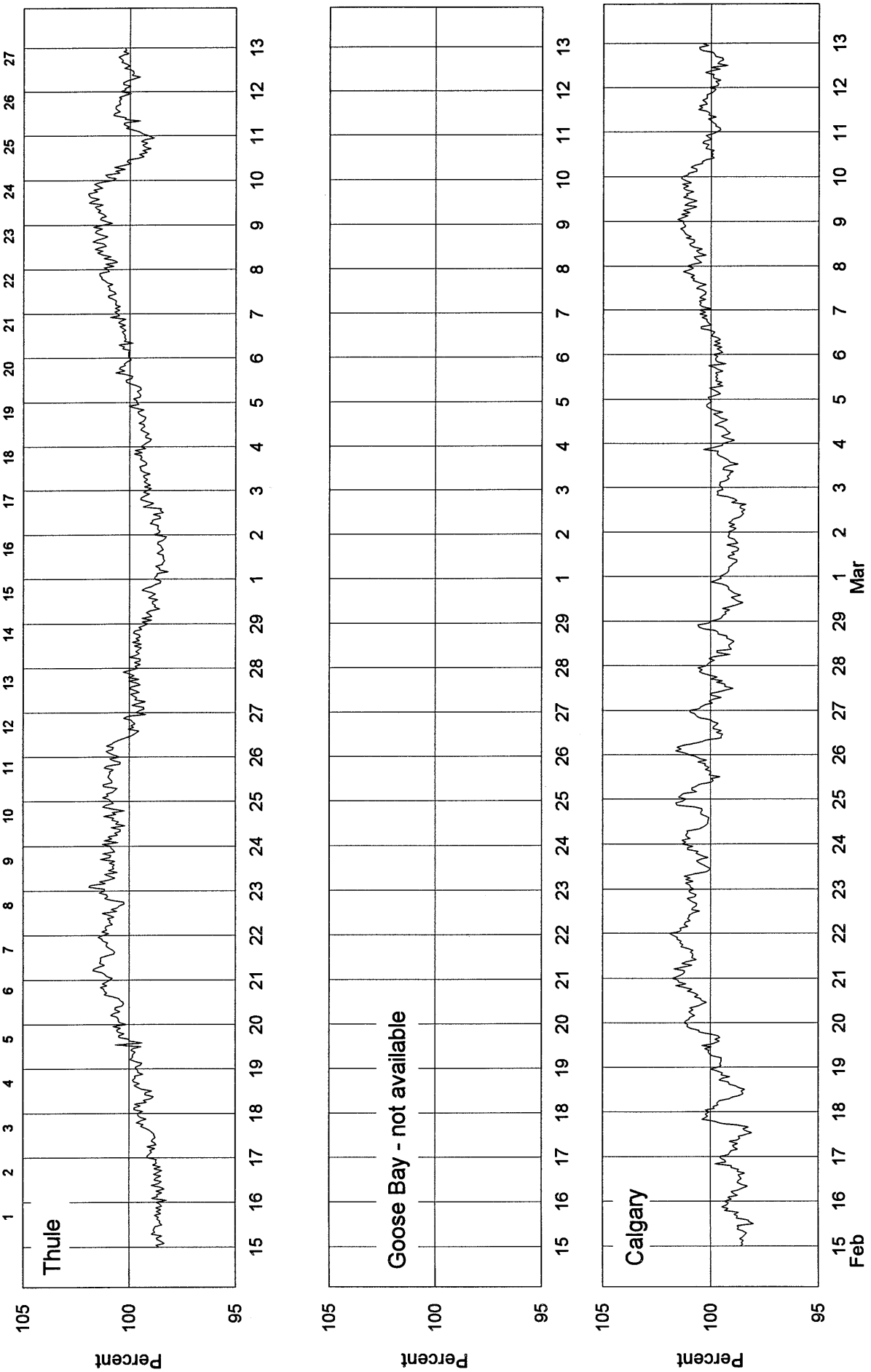
# COSMIC RAY INDICES
## (Neutron Monitor)
Bartels Rotation 2327 - Beginning 19 Jan 2004



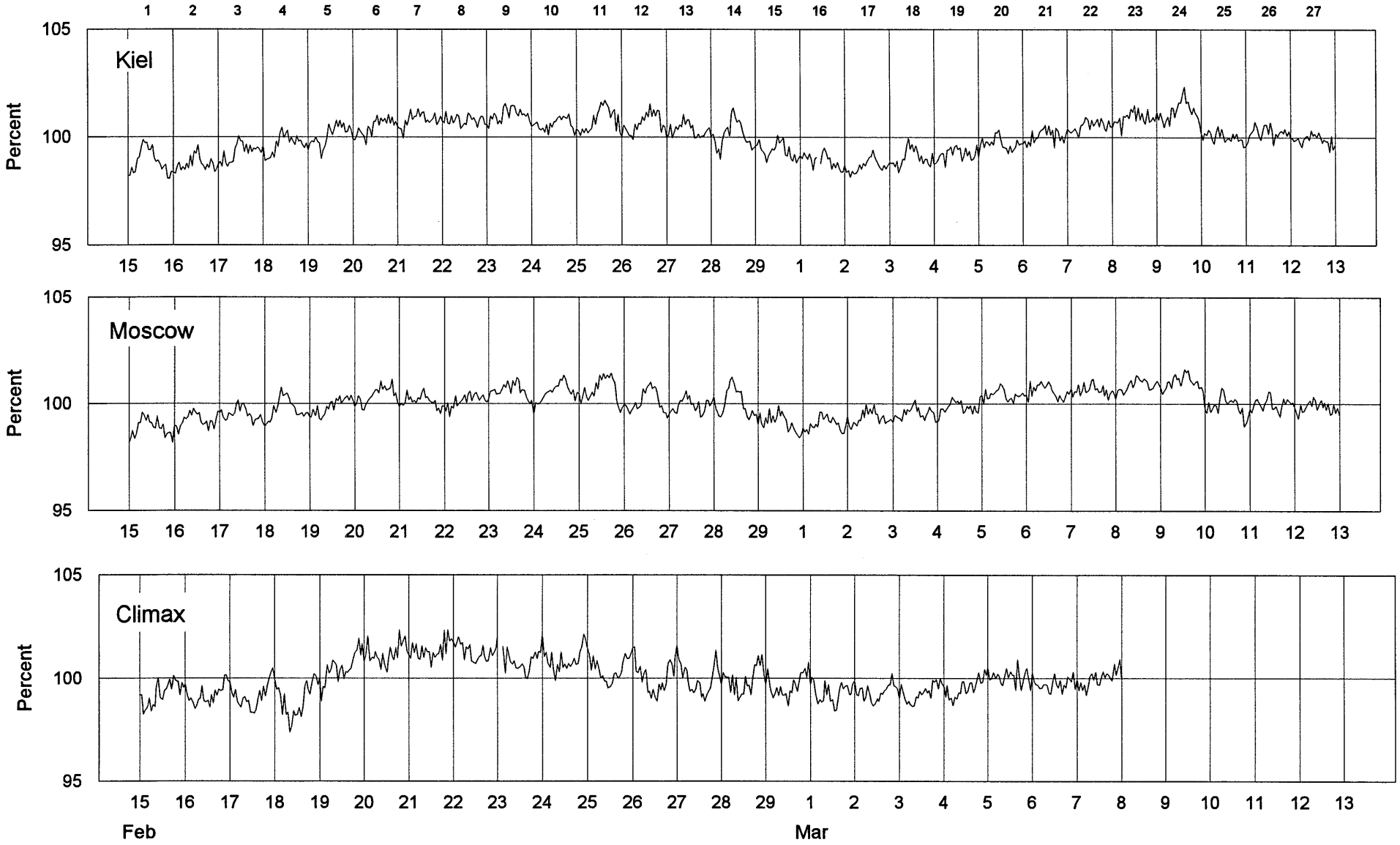
# COSMIC RAY INDICES
## (Neutron Monitor)
Bartels Rotation 2327 - Beginning 19 Jan 2004



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

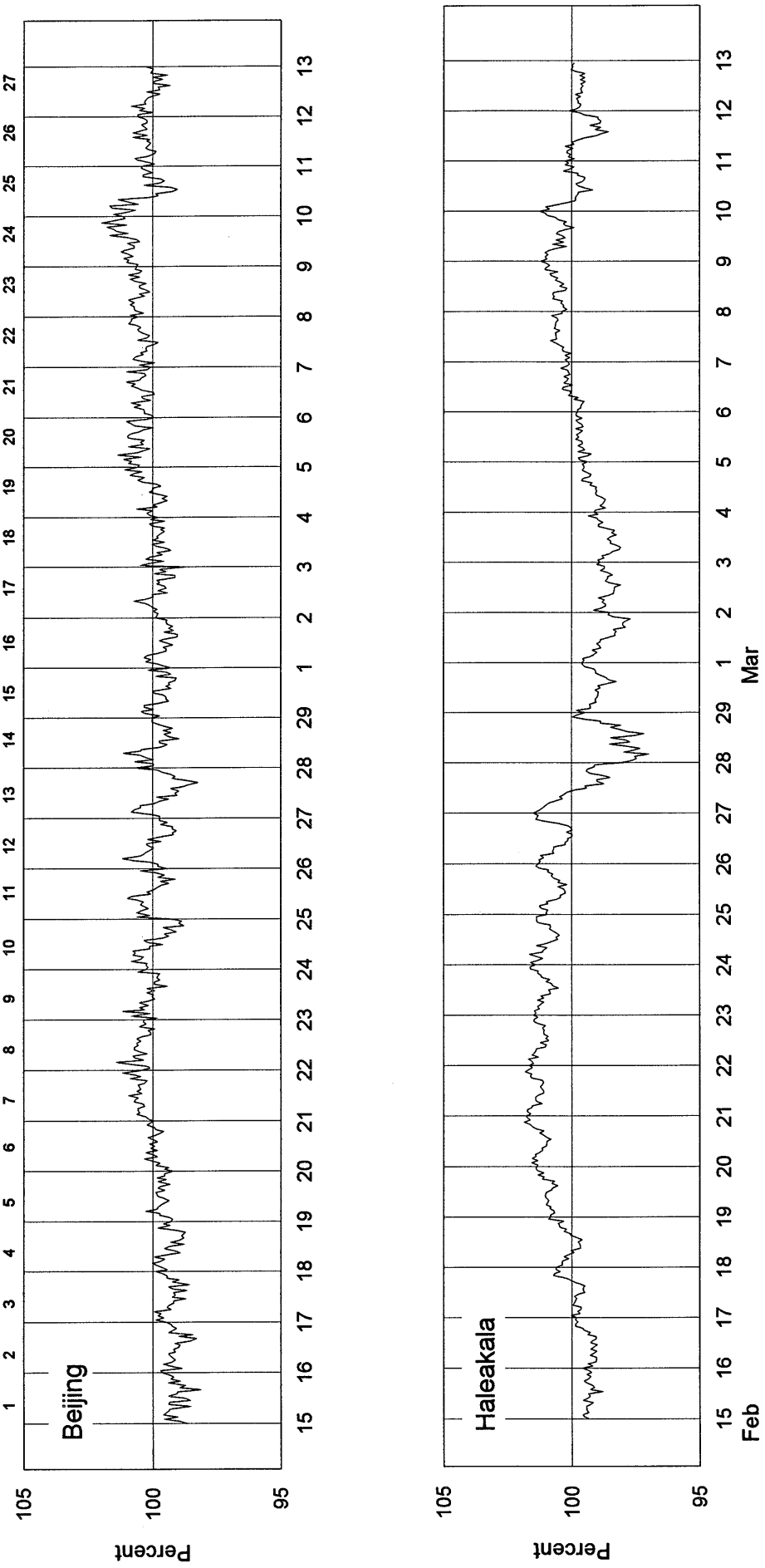


# COSMIC RAY INDICES
## (Neutron Monitor)
Bartels Rotation 2328 - Beginning 15 Feb 2004



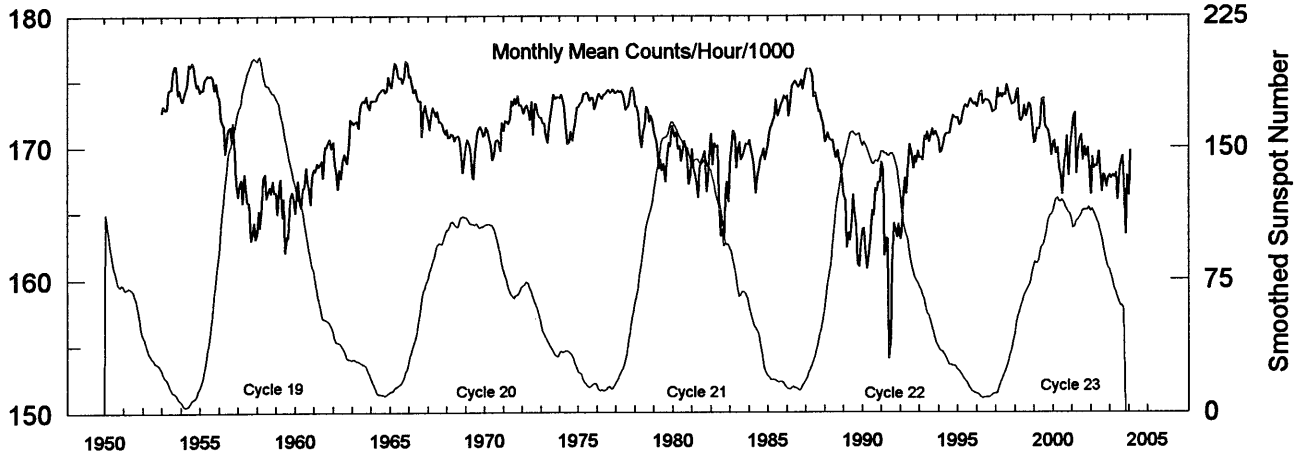

111
Feb 04

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



# Huancayo* Neutron Monitor Pressure-Corrected/Adjusted Values
# Jan 1953 - Feb 2004






| Year | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1953 | 1727 | 1732 | 1730 | 1729 | 1742 | 1744 | 1744 | 1756 | 1762 | 1761 | 1740 | 1744 | 1743 |
| 1954 | 1737 | 1735 | 1738 | 1744 | 1747 | 1763 | 1761 | 1764 | 1762 | 1754 | 1746 | 1748 | 1750 |
| 1955 | 1742 | 1744 | 1744 | 1751 | 1754 | 1755 | 1754 | 1755 | 1753 | 1744 | 1749 | 1741 | 1749 |
| 1956 | 1738 | 1724 | 1719 | 1718 | 1696 | 1707 | 1715 | 1716 | 1706 | 1719 | 1697 | 1675 | 1711 |
| 1957 | 1663 | 1671 | 1675 | 1658 | 1680 | 1670 | 1659 | 1658 | 1630 | 1633 | 1643 | 1630 | 1656 |
| 1958 | 1635 | 1652 | 1639 | 1657 | 1677 | 1680 | 1661 | 1667 | 1670 | 1665 | 1675 | 1666 | 1662 |
| 1959 | 1666 | 1649 | 1671 | 1676 | 1647 | 1661 | 1621 | 1632 | 1632 | 1661 | 1666 | 1663 | 1654 |
| 1960 | 1650 | 1663 | 1675 | 1660 | 1654 | 1669 | 1669 | 1685 | 1674 | 1670 | 1657 | 1677 | 1667 |
| 1961 | 1684 | 1682 | 1688 | 1685 | 1688 | 1690 | 1677 | 1701 | 1700 | 1704 | 1706 | 1699 | 1692 |
| 1962 | 1704 | 1687 | 1683 | 1668 | 1683 | 1677 | 1690 | 1695 | 1690 | 1688 | 1703 | 1721 | 1691 |
| 1963 | 1720 | 1718 | 1720 | 1720 | 1715 | 1729 | 1734 | 1736 | 1734 | 1739 | 1732 | 1729 | 1727 |
| 1964 | 1735 | 1736 | 1736 | 1736 | 1739 | 1741 | 1742 | 1744 | 1744 | 1741 | 1743 | 1753 | 1741 |
| 1965 | 1748 | 1745 | 1756 | 1764 | 1762 | 1754 | 1753 | 1753 | 1748 | 1754 | 1765 | 1764 | 1755 |
| 1966 | 1754 | 1754 | 1747 | 1741 | 1744 | 1737 | 1736 | 1736 | 1708 | 1725 | 1732 | 1727 | 1737 |
| 1967 | 1721 | 1714 | 1726 | 1731 | 1727 | 1724 | 1727 | 1720 | 1720 | 1718 | 1713 | 1710 | 1721 |
| 1968 | 1714 | 1708 | 1708 | 1710 | 1710 | 1705 | 1708 | 1709 | 1706 | 1698 | 1681 | 1689 | 1704 |
| 1969 | 1702 | 1706 | 1702 | 1698 | 1678 | 1676 | 1695 | 1708 | 1714 | 1716 | 1714 | 1709 | 1701 |
| 1970 | 1709 | 1715 | 1712 | 1707 | 1701 | 1691 | 1695 | 1705 | 1706 | 1705 | 1697 | 1719 | 1705 |
| 1971 | 1712 | 1720 | 1720 | 1718 | 1722 | 1735 | 1732 | 1737 | 1732 | 1739 | 1732 | 1732 | 1728 |
| 1972 | 1730 | 1726 | 1731 | 1732 | 1728 | 1721 | 1734 | 1710 | 1733 | 1733 | 1726 | 1723 | 1727 |
| 1973 | 1723 | 1719 | 1718 | 1709 | 1704 | 1716 | 1723 | 1733 | 1740 | 1737 | 1738 | 1738 | 1725 |
| 1974 | 1737 | 1740 | 1736 | 1729 | 1713 | 1703 | 1704 | 1712 | 1705 | 1713 | 1718 | 1731 | 1720 |
| 1975 | 1730 | 1733 | 1734 | 1740 | 1740 | 1742 | 1740 | 1735 | 1737 | 1738 | 1729 | 1733 | 1736 |
| 1976 | 1738 | 1741 | 1739 | 1737 | 1740 | 1740 | 1742 | 1743 | 1742 | 1742 | 1744 | 1741 | 1741 |
| 1977 | 1741 | 1743 | 1742 | 1742 | 1740 | 1735 | 1729 | 1730 | 1732 | 1742 | 1745 | 1741 | 1739 |
| 1978 | 1731 | 1731 | 1726 | 1710 | 1700 | 1710 | 1717 | 1731 | 1729 | 1719 | 1724 | 1720 | 1721 |
| 1979 | 1711 | 1707 | 1702 | 1684 | 1691 | 1682 | 1688 | 1674 | 1689 | 1703 | 1700 | 1717 | 1696 |
| 1980 | 1713 | 1708 | 1712 | 1699 | 1701 | 1690 | 1698 | 1705 | 1699 | 1688 | 1672 | 1680 | 1697 |
| 1981 | 1699 | 1682 | 1680 | 1671 | 1662 | 1685 | 1690 | 1693 | 1697 | 1666 | 1675 | 1700 | 1683 |
| 1982 | 1710 | 1687 | 1703 | 1700 | 1702 | 1662 | 1632 | 1643 | 1625 | 1662 | 1674 | 1658 | 1671 |
| 1983 | 1688 | 1703 | 1713 | 1709 | 1685 | 1697 | 1704 | 1690 | 1694 | 1697 | 1703 | 1702 | 1699 |
| 1984 | 1705 | 1699 | 1693 | 1685 | 1665 | 1677 | 1684 | 1691 | 1695 | 1699 | 1691 | 1698 | 1690 |
| 1985 | 1703 | 1714 | 1716 | 1721 | 1723 | 1736 | 1724 | 1727 | 1732 | 1734 | 1739 | 1737 | 1725 |
| 1986 | 1739 | 1724 | 1734 | 1746 | 1748 | 1750 | 1748 | 1745 | 1747 | 1751 | 1744 | 1752 | 1744 |
| 1987 | 1757 | 1760 | 1760 | 1757 | 1754 | 1738 | 1741 | 1735 | 1728 | 1728 | 1721 | 1718 | 1741 |
| 1988 | 1704 | 1706 | 1711 | 1706 | 1705 | 1705 | 1696 | 1692 | 1698 | 1690 | 1688 | 1674 | 1698 |
| 1989 | 1663 | 1660 | 1624 | 1635 | 1629 | 1638 | 1664 | 1650 | 1640 | 1611 | 1609 | 1627 | 1637 |
| 1990 | 1638 | 1638 | 1623 | 1608 | 1616 | 1630 | 1651 | 1648 | 1668 | 1666 | 1673 | 1673 | 1644 |
| 1991 | 1689 | 1682 | 1617 | 1631 | 1630 | 1540 | 1555 | 1611 | 1642 | 1638 | 1632 | 1641 | 1626 |
| 1992 | 1630 | 1635 | 1659 | 1677 | 1665 | 1689 | 1702 | 1696 | 1684 | 1693 | 1688 | 1697 | 1676 |
| 1993 | 1692 | 1692 | 1690 | 1708 | 1705 | 1711 | 1704 | 1707 | 1714 | 1709 | 1712 | 1709 | 1705 |
| 1994 | 1705 | 1696 | 1697 | 1703 | 1708 | 1711 | 1711 | 1711 | 1718 | 1724 | 1723 | 1722 | 1711 |
| 1995 | 1723 | 1717 | 1718 | 1726 | 1730 | 1732 | 1730 | 1733 | 1736 | 1735 | 1732 | 1734 | 1729 |
| 1996 | 1730 | 1734 | 1740 | 1742 | 1733 | 1735 | 1736 | 1736 | 1735 | 1733 | 1727 | 1727 | 1734 |
| 1997 | 1728 | 1744 | 1738 | 1740 | 1737 | 1741 | 1739 | 1747 | 1741 | 1737 | 1733 | 1733 | 1738 |
| 1998 | 1734 | 1741 | 1744 | 1721 | 1720 | 1723 | 1732 | 1723 | 1728 | 1733 | 1731 | 1719 | 1729 |
| 1999 | 1703 | 1704 | 1714 | 1713 | 1719 | 1736 | 1737 | 1717 | 1714 | 1713 | 1705 | 1694 | 1714 |
| 2000 | 1704 | 1704 | 1695 | 1700 | 1685 | 1678 | 1664 | 1688 | 1695 | 1708 | 1679 | 1699 | 1692 |
| 2001 | 1712 | 1723 | 1726 | 1680 | 1700 | 1705 | 1791 | 1690 | 1701 | 1693 | 1700 | 1687 | 1709 |
| 2002 | 1664 | 1693 | 1684 | 1686 | 1685 | 1696 | 1683 | 1666 | 1680 | 1679 | 1669 | 1672 | 1680 |
| 2003 | 1679 | 1676 | 1679 | 1677 | 1680 | 1659 | 1681 | 1688 | 1693 | 1673 | 1634 | 1678 | 1675 |
| 2004 | 1663 | 1698 | | | | | | | | | | | 1681 |

Multiply table entries by 100 to obtain hourly counting rate for Huancayo, Peru: S12 W75, Alt=3400m, Cutoff Rigidity=12.92GV (1980). NOTE: Secular changes in the Earth's magnetic field resulted in a slow lowering of the geomagnetic cutoff rigidity at Huancayo over the 40 year period. This dataset was adjusted by applying a linear time-correction based on the calculated change in response to the change in the vertical cutoff. * Data from Jan 92 on are from the 18-NM64 at Haleakala, Hawaii: N20 W156, Alt=3030m, Cutoff Rigitity=12.91GV (1980). Multiply table entries by 2057.6 to obtain equivalent Haleakala counting rate.

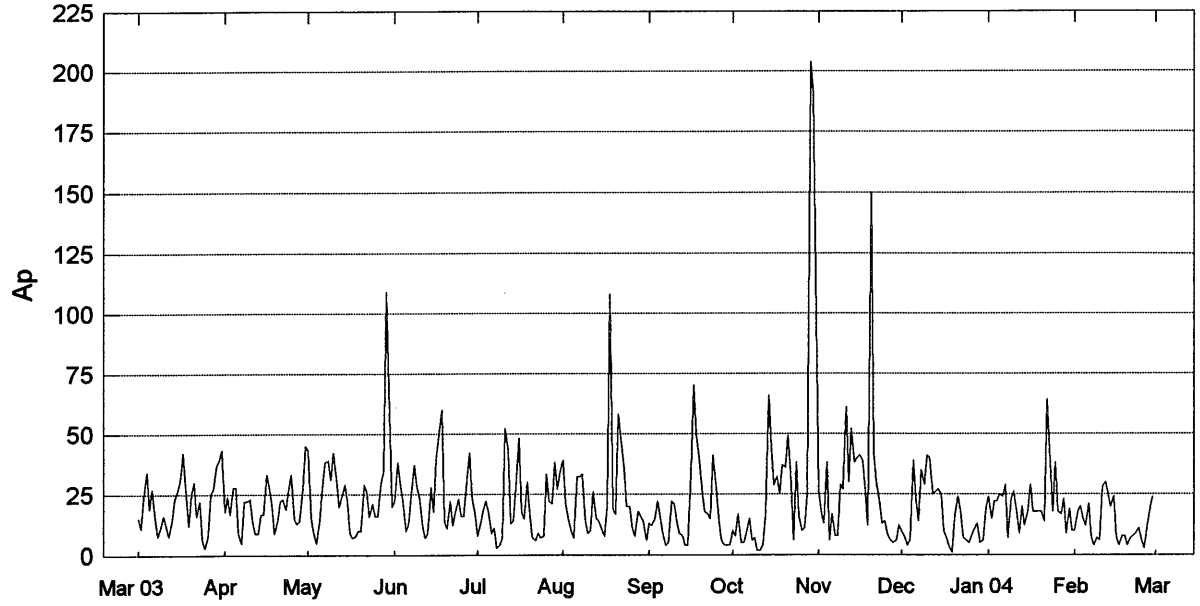
# Geomagnetic Activity Indices

## February 2004

| Day | | Kp Three-Hourly Indices 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | Sum | Ap | Cp | Km Three-Hourly Indices 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | aa Provisional Am | N | S | M | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 2+ | 3+ | 2+ | 1+ | 2+ | 2- | 2+ | 3 | 19- | 10 | 0.6 | 2+ | 2+ | 2o | 1+ | 3o | 2o | 2o | 3- | 18 | 22 | 18 | 18 | 22 | |
| 2 | | 2- | 2- | 4+ | 4- | 3+ | 4 | 2+ | 4- | 25- | 18 | 1.0 | 2- | 1+ | 4- | 4o | 3+ | 4- | 3- | 3- | 32 | 39 | 28 | 25 | 42 | |
| 3 | | 4+ | 4- | 4 | 3 | 3+ | 4- | 3 | 3- | 28- | 20 | 1.0 | 4o | 3o | 3+ | 3+ | 4- | 3+ | 3+ | 2+ | 36 | 36 | 41 | 44 | 33 | |
| 4 | | 4 | 2 | 3+ | 3 | 3- | 3- | 3- | 3+ | 24- | 15 | 0.9 | 3+ | 1+ | 3- | 3- | 3- | 3- | 3- | 3o | 24 | 32 | 23 | 27 | 28 | |
| 5 | | 3+ | 3 | 3 | 3 | 2- | 2 | 2+ | 3- | 21 | 12 | 0.7 | 3- | 3- | 3- | 3o | 2- | 2+ | 2+ | 2+ | 21 | 28 | 21 | 30 | 19 | |
| 6 | | 2- | 4 | 5- | 4+ | 3 | 4- | 4- | 2 | 27 | 21 | 1.1 | 1+ | 3+ | 4o | 4o | 3+ | 3+ | 3+ | 2- | 34 | 41 | 31 | 37 | 35 | |
| 7 | Q10A | 2 | 2 | 3- | 2 | 2+ | 1- | 2- | 1+ | 15- | 7 | 0.4 | 1+ | 1+ | 2+ | 3- | 2+ | 1o | 2- | 1+ | 14 | 13 | 15 | 15 | 13 | |
| 8 | Q3 | 0 | 0+ | 1- | 1- | 1- | 1 | 1+ | 3- | 7+ | 4 | 0.1 | 0+ | 0+ | 1- | 1o | 1o | 1o | 2- | 3- | 8 | 9 | 8 | 5 | 12 | CC |
| 9 | Q9A | 1+ | 0 | 2- | 1 | 3- | 2 | 3- | 2 | 13+ | 7 | 0.3 | 1+ | 0+ | 1+ | 2- | 3- | 2o | 3- | 2o | 14 | 16 | 17 | 9 | 24 | |
| 10 | Q5 | 2 | 1+ | 1+ | 2 | 2- | 2+ | 1- | 2- | 13 | 6 | 0.3 | 2- | 1+ | 1+ | 2+ | 2+ | 3- | 1+ | 2- | 13 | 14 | 13 | 10 | 17 | C |
| 11 | D5 | 2 | 1- | 1 | 3 | 5- | 6+ | 5 | 3- | 25+ | 28 | 1.2 | 2+ | 1+ | 1+ | 3+ | 4o | 6- | 5- | 3- | 46 | 49 | 39 | 15 | 73 | |
| 12 | D1 | 3+ | 4 | 5 | 4+ | 4- | 4+ | 5- | 3+ | 33- | 30 | 1.3 | 3o | 4o | 4o | 4o | 4- | 4o | 4o | 3+ | 50 | 47 | 46 | 46 | 48 | |
| 13 | D3 | 4+ | 4+ | 3+ | 4- | 4- | 4- | 4- | 4 | 31- | 25 | 1.2 | 4- | 3+ | 3o | 3+ | 4- | 4- | 4- | 4- | 41 | 40 | 34 | 33 | 40 | |
| 14 | | 4- | 3 | 3- | 3+ | 4- | 4 | 4- | 4- | 28- | 20 | 1.0 | 3- | 3- | 2o | 3o | 4- | 4o | 3o | 3o | 32 | 38 | 30 | 23 | 45 | |
| 15 | D4 | 4 | 5- | 4 | 5- | 2 | 4- | 3- | 3 | 29- | 24 | 1.1 | 4o | 4- | 3+ | 4o | 2- | 3+ | 3- | 3- | 35 | 42 | 35 | 45 | 32 | |
| 16 | Q7A | 4- | 1+ | 1- | 2 | 1 | 1- | 1+ | 1 | 12- | 7 | 0.3 | 3o | 1+ | 1- | 2- | 2- | 1+ | 2- | 1o | 12 | 16 | 11 | 17 | 10 | |
| 17 | Q2 | 1+ | 2- | 0+ | 1- | 0+ | 1 | 1+ | 2- | 8+ | 4 | 0.1 | 1- | 1+ | 1- | 1- | 1- | 1+ | 1+ | 2- | 7 | 8 | 7 | 5 | 10 | CC |
| 18 | | 2+ | 2- | 1 | 1- | 1+ | 3 | 3- | 2+ | 15 | 8 | 0.4 | 2- | 1+ | 1- | 1- | 1+ | 3o | 3o | 3- | 15 | 16 | 13 | 9 | 20 | |
| 19 | | 3 | 2+ | 2- | 1+ | 0+ | 1 | 2 | 3- | 14+ | 8 | 0.4 | 2+ | 2o | 1o | 1+ | 1- | 1+ | 2o | 3- | 13 | 16 | 13 | 16 | 13 | |
| 20 | Q4 | 1+ | 2- | 0+ | 0+ | 1- | 2- | 2 | 1 | 9 | 4 | 0.2 | 1+ | 1+ | 0+ | 0+ | 1+ | 2o | 2o | 1+ | 9 | 12 | 7 | 7 | 12 | CC |
| 21 | Q8A | 2+ | 1+ | 0+ | 1+ | 3- | 2- | 2 | 2 | 14- | 7 | 0.3 | 2- | 1+ | 0o | 2o | 3o | 2- | 2o | 2+ | 14 | 18 | 13 | 11 | 21 | |
| 22 | | 2 | 1- | 1 | 2 | 3 | 2 | 3- | 3- | 16 | 8 | 0.5 | 2o | 1o | 1+ | 2o | 3+ | 2+ | 3- | 3- | 18 | 17 | 21 | 11 | 27 | |
| 23 | | 2+ | 2+ | 2- | 2+ | 2+ | 2+ | 2+ | 3- | 18+ | 9 | 0.5 | 2o | 2o | 2- | 2o | 2+ | 3- | 2+ | 2+ | 17 | 19 | 13 | 13 | 19 | |
| 24 | | 3+ | 3- | 2+ | 2 | 2 | 2+ | 3- | 3 | 20+ | 11 | 0.6 | 3o | 2- | 3- | 3- | 3- | 3- | 3- | 3o | 23 | 26 | 26 | 19 | 34 | |
| 25 | Q6 | 2+ | 2- | 1 | 2- | 2- | 0+ | 2- | 2+ | 13- | 6 | 0.3 | 2o | 1o | 1+ | 2+ | 2- | 1- | 2- | 2o | 11 | 16 | 10 | 13 | 12 | C |
| 26 | Q1 | 2- | 1+ | 0+ | 0+ | 1 | 0 | 0+ | 1- | 6- | 3 | 0.1 | 2- | 1o | 1- | 1- | 1+ | 1- | 1- | 1+ | 6 | 6 | 6 | 7 | 6 | CK |
| 27 | | 1 | 4- | 2- | 2+ | 2- | 1+ | 4 | 3+ | 19 | 12 | 0.7 | 1+ | 3o | 2- | 3- | 2- | 2- | 4- | 3o | 22 | 30 | 21 | 24 | 28 | |
| 28 | | 2- | 3+ | 4 | 3+ | 3 | 3+ | 4- | 4 | 26+ | 19 | 1.0 | 2- | 3- | 4- | 3+ | 3o | 3+ | 3o | 3+ | 32 | 34 | 33 | 31 | 37 | |
| 29 | D2 | 2 | 3+ | 3- | 5+ | 4+ | 3 | 4- | 4+ | 29- | 24 | 1.2 | 2+ | 3o | 3- | 5- | 4o | 3o | 3o | 4- | 38 | 52 | 38 | 41 | 49 | |
| Mean | | | | | | | | | | | 13 | 0.65 | | | | | | | | | 22.6 | 26.0 | 21.8 | | 23.9 | |

| Day | Kn Three-Hourly Indices 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | An | Ks Three-Hourly Indices 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | As | Sa | Prov Ri | Ra | Rs | IMF |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2o | 2+ | 2o | 2- | 3o | 2o | 2o | 3- | 18 | 3- | 2+ | 2o | 1+ | 3- | 2o | 2o | 3- | 18 | 94.5 | 43 | 50 | 40 | |
| 2 | 2- | 1o | 4o | 4+ | 4- | 4o | 2+ | 3- | 35 | 2o | 1+ | 4- | 4- | 3+ | 3+ | 3- | 3- | 28 | 98.5 | 64 | 68 | 44 | |
| 3 | 3+ | 3- | 4- | 3+ | 4- | 3+ | 3o | 2+ | 34 | 4+ | 3o | 3+ | 4- | 4- | 3+ | 3+ | 3- | 39 | 96.6 | 63 | 69 | 42 | |
| 4 | 4- | 1+ | 3- | 3o | 3o | 3- | 3- | 3o | 27 | 3o | 1+ | 3- | 3- | 3- | 3- | 2+ | 3- | 22 | 98.6 | 60 | 68 | 44 | |
| 5 | 3o | 3- | 3- | 3o | 2- | 2+ | 2+ | 2o | 21 | 3- | 3- | 2+ | 3o | 2- | 2+ | 3- | 3- | 21 | 102.5 | 66 | 69 | 49 | |
| 6 | 1+ | 4- | 4+ | 4+ | 3+ | 3+ | 4- | 1+ | 38 | 2- | 3- | 3+ | 3+ | 3+ | 3o | 3+ | 2o | 29 | 103.7 | 51 | 51 | 50 | |
| 7 | 1+ | 2- | 3- | 3o | 3- | 1o | 2- | 1- | 15 | 1+ | 1+ | 2o | 2+ | 2+ | 1o | 2- | 1+ | 12 | 108.1 | 40 | 47 | 55 | |
| 8 | 0o | 0o | 1- | 1o | 1+ | 1o | 1+ | 2+ | 7 | 1- | 1o | 1o | 1o | 1o | 1o | 2+ | 3- | 9 | 113.1 | 45 | 57 | 60 | |
| 9 | 1- | 0o | 1+ | 2- | 3- | 2o | 3o | 2- | 13 | 2- | 1- | 2- | 2- | 3- | 2o | 2+ | 3- | 15 | 114.7 | 48 | 57 | 62 | |
| 10 | 1+ | 1+ | 1+ | 3- | 2+ | 3- | 1- | 1+ | 13 | 2- | 1+ | 1o | 2o | 2+ | 2+ | 2o | 2o | 13 | 113.5 | 48 | 53 | 61 | |
| 11 | 2o | 1- | 1o | 3o | 4o | 6- | 5o | 2+ | 45 | 3- | 2- | 2- | 3+ | 4o | 6- | 5- | 3o | 47 | 111.2 | 44 | 49 | 58 | |
| 12 | 3o | 3+ | 4o | 4- | 4- | 4+ | 4o | 3o | 46 | 3o | 4+ | 4+ | 4o | 4- | 4o | 4+ | 4- | 54 | 109.3 | 48 | 50 | 56 | |
| 13 | 4- | 4- | 3o | 4- | 4o | 4- | 4- | 4- | 45 | 4- | 3o | 3o | 3o | 4- | 3+ | 4- | 4- | 38 | 105.1 | 48 | 47 | 52 | |
| 14 | 3- | 3- | 2+ | 3o | 4- | 4o | 3+ | 3+ | 34 | 3- | 3o | 2- | 3o | 4- | 4- | 3o | 3o | 31 | 101.1 | 38 | 41 | 47 | |
| 15 | 4o | 4- | 3+ | 4o | 1+ | 3+ | 2+ | 2+ | 35 | 4o | 4- | 3o | 4+ | 2- | 3+ | 3- | 3- | 36 | 99.6 | 50 | 49 | 46 | |
| 16 | 3o | 1- | 1- | 2o | 2- | 1+ | 2- | 1o | 12 | 3o | 1+ | 1o | 2- | 1+ | 1+ | 2- | 1+ | 12 | 96.3 | 41 | 37 | 42 | |
| 17 | 1o | 1o | 1- | 1- | 1- | 1+ | 1+ | 1+ | 7 | 1- | 0+ | 1- | 1o | 0+ | 1+ | 1+ | 2- | 6 | 99.5 | 18 | 24 | 45 | |
| 18 | 2- | 1+ | 1- | 1- | 1+ | 3o | 3o | 2+ | 15 | 2- | 1o | 1- | 1o | 1+ | 3o | 3o | 3- | 16 | 95.4 | 22 | 21 | 41 | |
| 19 | 2+ | 2o | 1o | 1+ | 1- | 1+ | 2o | 2+ | 12 | 2+ | 2o | 1o | 1o | 1o | 2- | 2+ | 3- | 14 | 94.2 | 20 | 22 | 40 | |
| 20 | 1o | 1+ | 0+ | 0o | 1o | 2o | 2o | 1o | 8 | 1+ | 2- | 1- | 1- | 1+ | 2- | 2- | 1+ | 9 | 93.2 | 26 | 25 | 39 | |
| 21 | 2- | 1+ | 0+ | 1+ | 3- | 2- | 2o | 2+ | 13 | 2- | 2- | 0o | 2+ | 3o | 2- | 2- | 2+ | 15 | 96.0 | 30 | 33 | 42 | |
| 22 | 2- | 1- | 1+ | 2+ | 3+ | 2+ | 2+ | 2+ | 17 | 2o | 1+ | 2- | 2- | 3+ | 2+ | 3- | 3- | 19 | 101.7 | 30 | 38 | 48 | |
| 23 | 2- | 2o | 2- | 2o | 2+ | 3- | 3- | 2+ | 18 | 2+ | 2- | 2- | 2o | 2+ | 2+ | 2o | 2+ | 16 | 102.1 | 55 | 57 | 48 | |
| 24 | 3- | 2- | 3- | 3- | 3- | 3- | 3- | 3- | 22 | 4- | 2o | 2+ | 3- | 2+ | 3- | 3- | 3o | 24 | 103.4 | 47 | 53 | 50 | |
| 25 | 2o | 1+ | 1+ | 2+ | 2- | 1- | 2- | 2- | 11 | 2- | 1- | 1o | 2+ | 1+ | 1o | 2o | 2o | 11 | 116.1 | 53 | 58 | 63 | |
| 26 | 1+ | 1- | 0+ | 1- | 1o | 1- | 0+ | 1- | 5 | 2- | 1o | 1o | 1- | 2- | 1o | 1o | 1+ | 8 | 118.4 | 53 | 63 | 66 | |
| 27 | 1- | 3- | 2- | 2+ | 2- | 2- | 4- | 3o | 21 | 2- | 3+ | 2o | 3- | 2o | 1+ | 4- | 3o | 23 | 119.8 | 67 | 72 | 67 | |
| 28 | 2- | 3- | 4o | 3o | 3+ | 4- | 3o | 3+ | 34 | 2- | 3o | 4- | 3+ | 3o | 3- | 3o | 3+ | 31 | 113.6 | 66 | 66 | 61 | |
| 29 | 2- | 3o | 3- | 5o | 4o | 3o | 3+ | 4- | 41 | 3- | 3o | 2+ | 4+ | 4o | 3- | 3o | 3+ | 35 | 108.0 | 50 | 55 | 55 | |
| Mean | | | | | | | | | 22.8 | | | | | | | | | 22.4 | 104.4 | 46.0 | 50.0 | 50.8 | |

# Daily Average Indices Ap
## Mar 2003 - Feb 2004

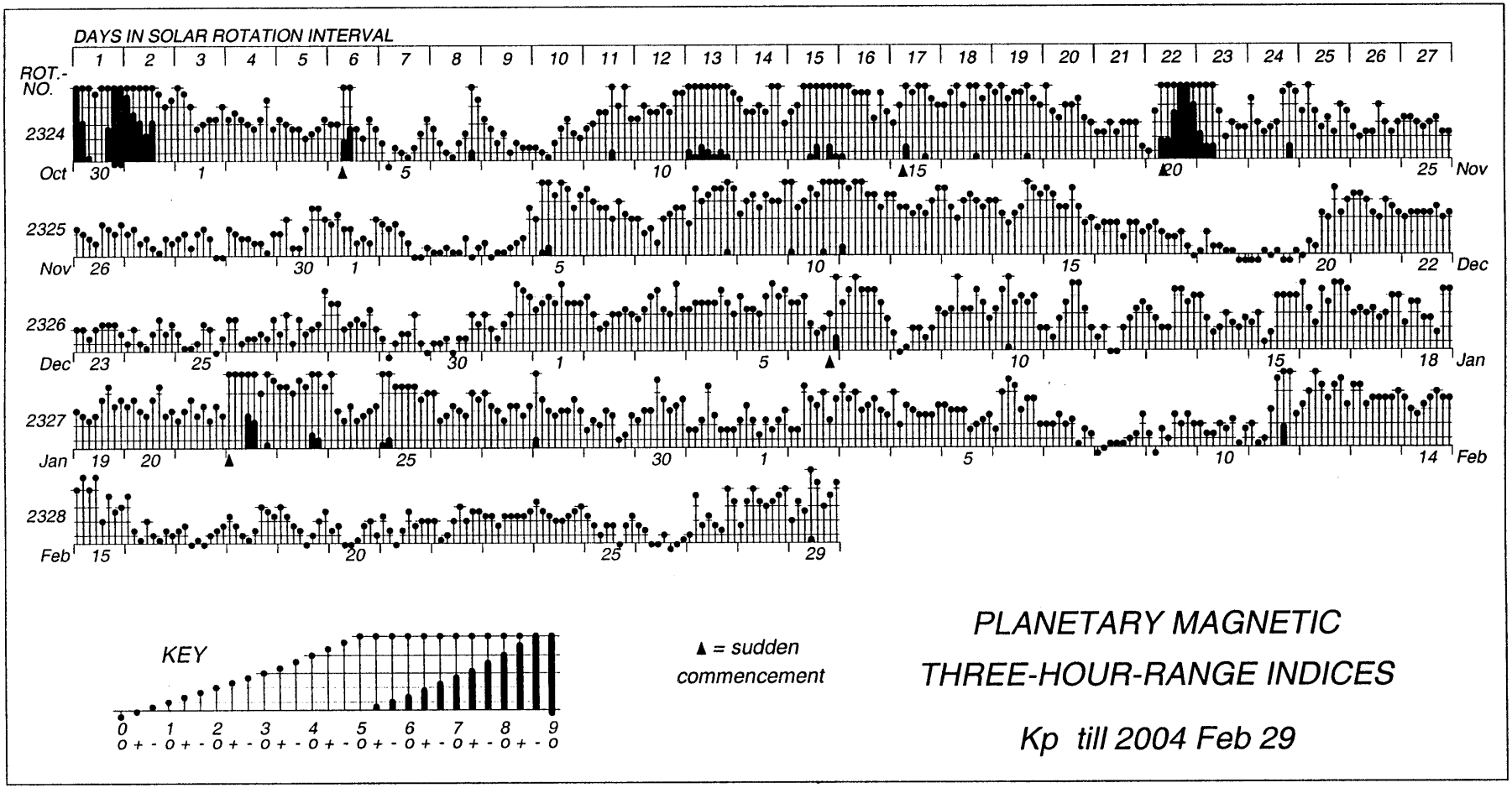



| Day | Mar 03 | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Jan 04 | Feb |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 15 | 18 | 43 | 22 | 8 | 39 | 13 | 10 | 26 | 10 | 24 | 10 |
| 2 | 11 | 24 | 15 | 38 | 12 | 21 | 12 | 8 | 18 | 7 | 15 | 18 |
| 3 | 24 | 17 | 9 | 29 | 19 | 14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

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

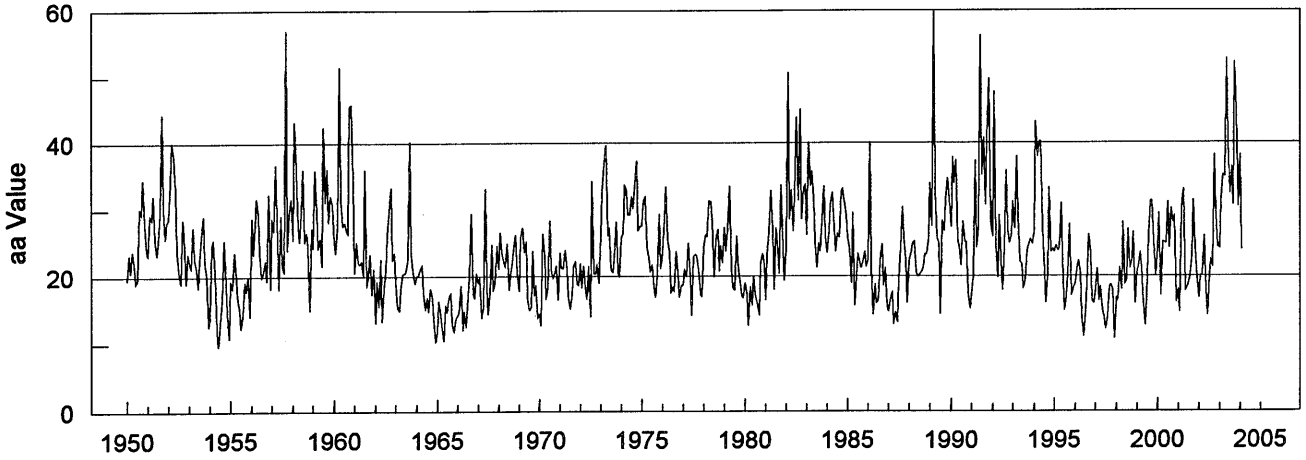
GeoForschungsZentraum Potsdam

Kp through February 29, 2004



# Monthly Mean aa Index Jan 1950 - Feb 2004



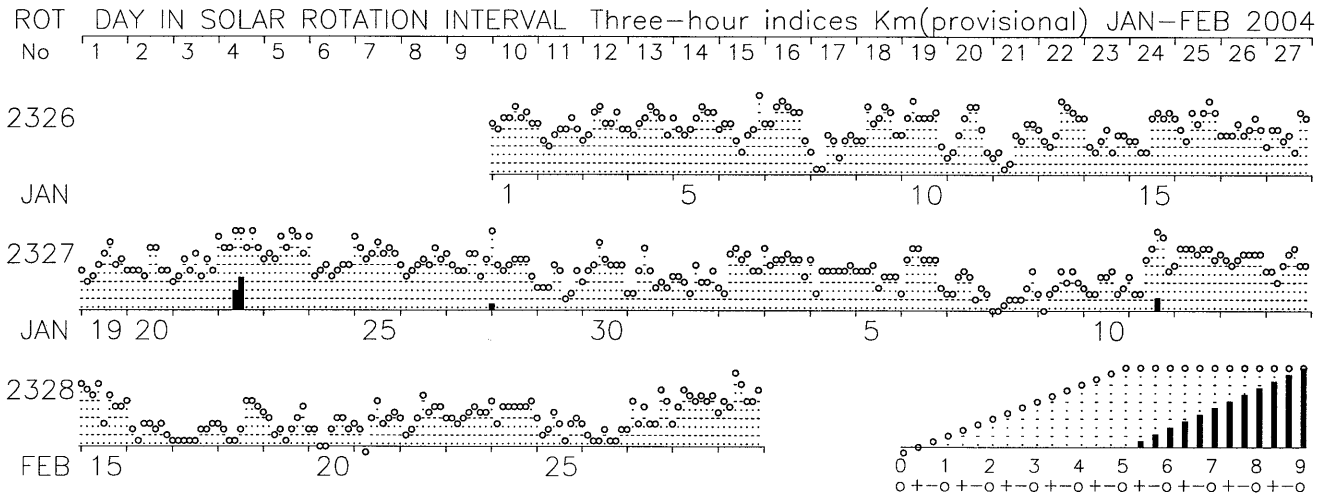



| Year | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1950 | 19.5 | 23.2 | 20.6 | 23.8 | 21.7 | 19.0 | 19.5 | 30.2 | 29.3 | 34.5 | 28.0 | 24.0 | 24.4 |
| 1951 | 23.1 | 29.2 | 28.5 | 32.1 | 25.5 | 23.2 | 25.2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

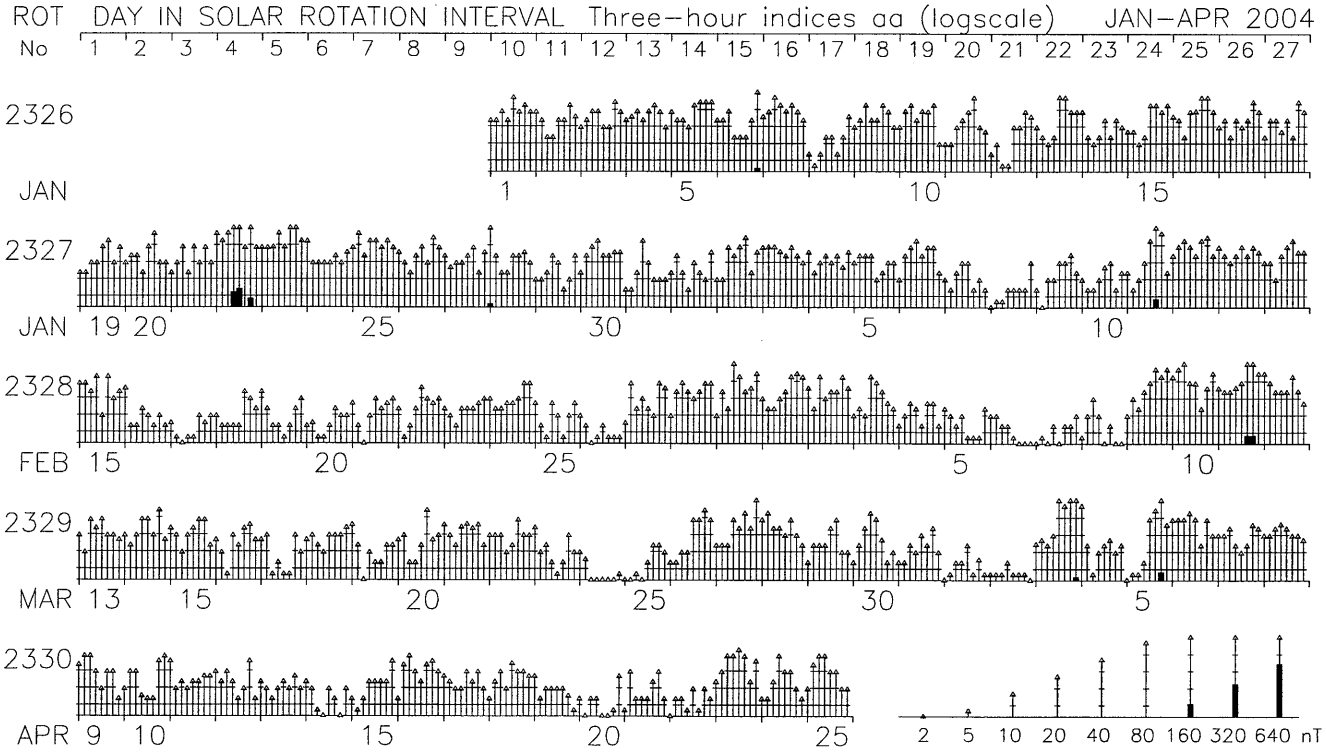
# PLANETARY GEOMAGNETIC ACTIVITY

## 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.

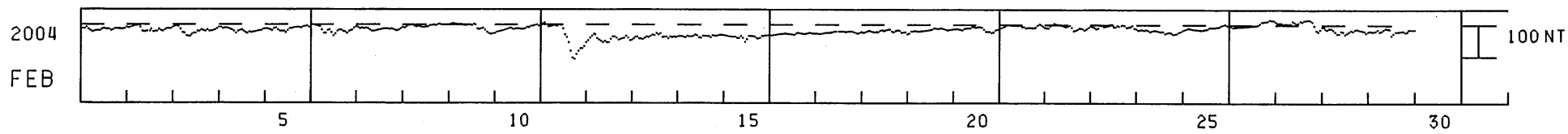
WDC FOR GEOMAGNETISM, KYOTO UNIVERSITY

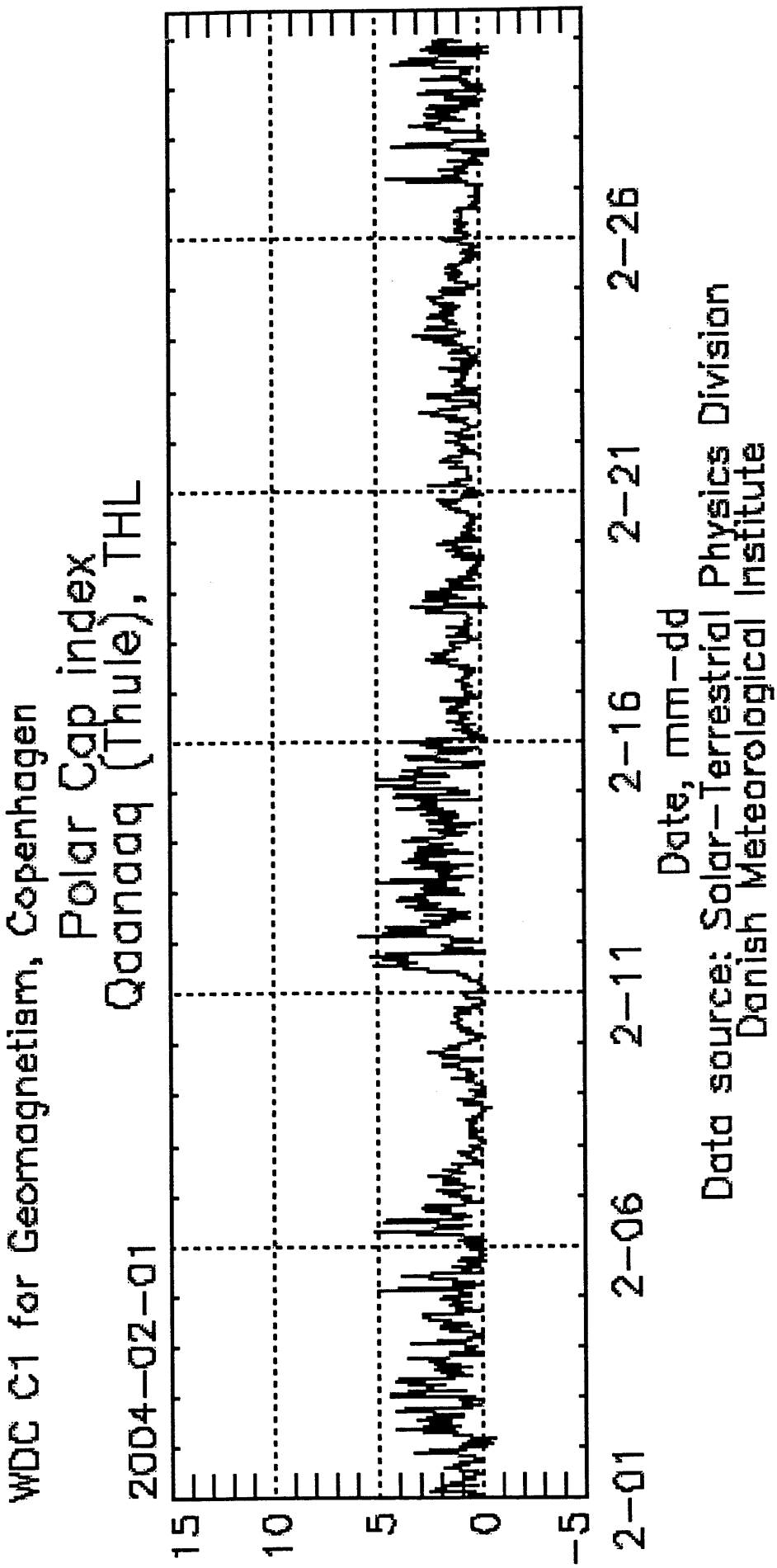
# HOURLY EQUATORIAL DST VALUES(PROVISIONAL)

## FEBRUARY 2004

UNIT=NT

| DAY | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | U.T. 24 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | -12 | -11 | -8 | -13 | -18 | -22 | -19 | -17 | -18 | -17 | -13 | -11 | -13 | -13 | -14 | -17 | -15 | -12 | -12 | -12 | -14 | -14 | -11 | -8 |
| 2 | -10 | -7 | -5 | -4 | -2 | -1 | -7 | -21 | -23 | -21 | -19 | -19 | -14 | -22 | -21 | -19 | -14 | -17 | -20 | -16 | -12 | -12 | -11 | -8 |
| 3 | -5 | -3 | -6 | -14 | -24 | -27 | -35 | -36 | -38 | -30 | -26 | -27 | -21 | -21 | -15 | -17 | -21 | -16 | -21 | -21 | -18 | -15 | -11 | -8 |
| 4 | -8 | -12 | -9 | -10 | -11 | -13 | -15 | -21 | -26 | -21 | -17 | -16 | -19 | -25 | -27 | -23 | -24 | -23 | -23 | -19 | -18 | -17 | -14 | -12 |
| 5 | -12 | -13 | -16 | -18 | -12 | -10 | -16 | -19 | -20 | -20 | -25 | -18 | -11 | -11 | -9 | -8 | -7 | -8 | -9 | -5 | -5 | -3 | -7 | -4 |
| 6 | 0 | 0 | -1 | -3 | -5 | -15 | -26 | -27 | -18 | -15 | -25 | -34 | -28 | -19 | -15 | -15 | -21 | -22 | -27 | -19 | -17 | -15 | -10 | -6 |
| 7 | -7 | -11 | -10 | -12 | -10 | -11 | -15 | -20 | -19 | -17 | -16 | -15 | -13 | -12 | -11 | -12 | -13 | -12 | -13 | -16 | -18 | -15 | -11 | -8 |
| 8 | -9 | -6 | -2 | 0 | 0 | -4 | -5 | -4 | -6 | -8 | -7 | -5 | -5 | -2 | -1 | 0 | -1 | 1 | 3 | 1 | 0 | 0 | 1 | 2 |
| 9 | 4 | 5 | 4 | 4 | 3 | 3 | 1 | -1 | -2 | 0 | 0 | -1 | 4 | 0 | -11 | -14 | -11 | -10 | -15 | -23 | -27 | -29 | -27 | -26 |
| 10 | -22 | -20 | -19 | -17 | -15 | -13 | -12 | -10 | -12 | -13 | -12 | -11 | -11 | -13 | -13 | -11 | -8 | -7 | -4 | -3 | -1 | 0 | -3 | -1 |
| 11 | 3 | 7 | 2 | -5 | -5 | -4 | -2 | -3 | -3 | 0 | -2 | -11 | -30 | -40 | -56 | -84 | -104 | -109 | -95 | -83 | -75 | -76 | -69 | -57 |
| 12 | -50 | -42 | -34 | -29 | -30 | -43 | -48 | -52 | -55 | -51 | -55 | -56 | -46 | -37 | -37 | -42 | -48 | -46 | -44 | -41 | -36 | -41 | -49 | -47 |
| 13 | -43 | -39 | -38 | -43 | -44 | -46 | -41 | -37 | -40 | -35 | -30 | -32 | -26 | -30 | -27 | -39 | -37 | -38 | -43 | -38 | -39 | -38 | -39 | -37 |
| 14 | -35 | -35 | -38 | -39 | -36 | -37 | -38 | -36 | -31 | -33 | -40 | -42 | -36 | -35 | -36 | -36 | -39 | -33 | -34 | -34 | -32 | -31 | -31 | -33 |
| 15 | -33 | -34 | -37 | -38 | -38 | -38 | -41 | -42 | -34 | -41 | -53 | -46 | -36 | -34 | -34 | -38 | -41 | -44 | -41 | -35 | -35 | -32 | -33 | -36 |
| 16 | -32 | -33 | -31 | -30 | -29 | -29 | -28 | -27 | -29 | -29 | -28 | -30 | -31 | -27 | -25 | -26 | -27 | -29 | -29 | -27 | -24 | -26 | -26 | -26 |
| 17 | -27 | -29 | -28 | -26 | -24 | -24 | -25 | -25 | -23 | -21 | -19 | -20 | -21 | -20 | -21 | -22 | -21 | -20 | -20 | -22 | -24 | -26 | -25 | -23 |
| 18 | -24 | -23 | -19 | -18 | -20 | -23 | -22 | -23 | -22 | -18 | -16 | -17 | -16 | -14 | -14 | -19 | -22 | -17 | -15 | -17 | -24 | -23 | -22 | -28 |
| 19 | -27 | -21 | -19 | -18 | -20 | -21 | -20 | -18 | -17 | -18 | -16 | -15 | -13 | -9 | -9 | -11 | -10 | -10 | -11 | -13 | -15 | -14 | -13 | -14 |
| 20 | -11 | -12 | -13 | -13 | -15 | -12 | -9 | -9 | -9 | -6 | -6 | -8 | -6 | -5 | -8 | -14 | -19 | -21 | -21 | -24 | -22 | -16 | -14 | -12 |
| 21 | -9 | -7 | -5 | -1 | 1 | -1 | -2 | -2 | -2 | -1 | -2 | -5 | -6 | -10 | -8 | -7 | -9 | -9 | -7 | -1 | 3 | 1 | -4 | -8 |
| 22 | -9 | -9 | -4 | 2 | 6 | 4 | 2 | 2 | -1 | -3 | -5 | -3 | -2 | -7 | -17 | -15 | -13 | -10 | -9 | -11 | -15 | -12 | -7 | -4 |
| 23 | -5 | -7 | -11 | -9 | -2 | -2 | -5 | -4 | -3 | -1 | 3 | -5 | -5 | -2 | -3 | -2 | 1 | -1 | -7 | -6 | -5 | -2 | -10 | -11 |
| 24 | -15 | -13 | -13 | -15 | -14 | -15 | -20 | -18 | -16 | -16 | -18 | -19 | -19 | -21 | -26 | -25 | -23 | -25 | -28 | -28 | -27 | -23 | -19 | -15 |
| 25 | -13 | -11 | -10 | -11 | -11 | -13 | -14 | -14 | -15 | -15 | -13 | -13 | -11 | -8 | -8 | -8 | -7 | -5 | -5 | -2 | 1 | 3 | -1 | -3 |
| 26 | -4 | -8 | -6 | -5 | -5 | -5 | -5 | -4 | -3 | -3 | -4 | -2 | -2 | -2 | 1 | 6 | 11 | 12 | 12 | 13 | 17 | 15 | 15 | 11 |
| 27 | 7 | 7 | 7 | 4 | 5 | 5 | 4 | 5 | 14 | 9 | 6 | 8 | 13 | 12 | 15 | 15 | 19 | 15 | 12 | -2 | -16 | -20 | -14 | -5 |
| 28 | -6 | -11 | -13 | -10 | -10 | -13 | -20 | -27 | -27 | -17 | -21 | -28 | -25 | -21 | -16 | -17 | -14 | -12 | -14 | -15 | -16 | -18 | -25 | -21 |
| 29 | -18 | -21 | -21 | -17 | -14 | -21 | -18 | -13 | -10 | -9 | -12 | -33 | -26 | -20 | -19 | -19 | -18 | -18 | -23 | -20 | -13 | -13 | -14 | -14 |




WDC C1 for Geomagnetism, Copenhagen
Polar Cap index
Qaanaaq (Thule), THL
2004-02-01
15
10
5
0
-5
2-01
2-06
2-11
2-16
2-21
2-26
Date, mm-dd
Data source: Solar-Terrestrial Physics Division
Danish Meteorological Institute

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

## FEBRUARY 2004

| Sta | Geomag Lat | Commencement Day | Time (UT) | Type | SC Amplitudes D (Min) | H (Gamma) | Z (Gamma) | Maximum 3-Hour K Index Day(3-Hour Periods) | K | Ranges D (Min) | H (Gamma) | Z (Gamma) | End Day | Hour (UT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| JAI | 17.4N | 02 | 0230 | .. | .. | .. | .. | | - | 3 | 69 | 24 | 03 | 21 |
| NGP | 11.3N | 02 | 0230 | .. | .. | .. | .. | | - | 3 | 82 | 14 | 03 | 21 |
| ABG | 09.4N | 02 | 0230 | .. | .. | .. | .. | 03(4) | 5 | 3 | 78 | 20 | 03 | 21 |
| PND | 02.0N | 02 | 0230 | .. | .. | .. | .. | | - | 3 | 90 | 49 | 03 | 21 |
| TIR | 00.6S | 02 | 0230 | .. | .. | .. | .. | | - | 4 | 123 | 49 | 03 | 21 |
| JAI | 17.4N | 04 | 0100 | .. | .. | .. | .. | | - | 4 | 58 | 25 | 06 | 22 |
| NGP | 11.3N | 04 | 0100 | .. | .. | .. | .. | | - | 4 | 71 | 17 | 06 | 22 |
| ABG | 09.4N | 04 | 0100 | .. | .. | .. | .. | 08(7) | 5 | 4 | 64 | 26 | 06 | 22 |
| PND | 02.0N | 04 | 0100 | .. | .. | .. | .. | | - | 4 | 75 | 50 | 06 | 22 |
| TIR | 00.6S | 04 | 0100 | .. | .. | .. | .. | | - | 4 | 125 | 47 | 06 | 22 |
| JAI | 17.4N | 11 | 1100 | .. | .. | .. | .. | | - | 6 | 160 | 27 | 14 | 24 |
| KRC | 16.4N | 11 | 1124 | .. | .. | .. | .. | 11(5) | 6 | 5 | 190 | 26 | 12 | 07 |
| NGP | 11.3N | 11 | 1100 | .. | .. | .. | .. | | - | 5 | 173 | 26 | 14 | 24 |
| ABG | 09.4N | 11 | 1100 | .. | .. | .. | .. | 11(5) | 6 | 5 | 178 | 31 | 14 | 24 |
| PND | 02.0N | 11 | 1100 | .. | .. | .. | .. | | - | 3 | 180 | 61 | 14 | 24 |
| TIR | 00.6S | 11 | 1100 | .. | .. | .. | .. | | - | 3 | 228 | 85 | 14 | 24 |
| JAI | 17.4N | 28 | 0600 | .. | .. | .. | .. | | - | 5 | 108 | 28 | 29 | 24 |
| NGP | 11.3N | 28 | 0600 | .. | .. | .. | .. | | - | 4 | 118 | 22 | 29 | 24 |
| ABG | 09.4N | 28 | 0600 | .. | .. | .. | .. | 29(4) | 6 | 4 | 112 | 30 | 29 | 24 |
| PND | 02.0N | 28 | 0600 | .. | .. | .. | .. | | - | 3 | 121 | 56 | 29 | 24 |
| TIR | 00.6S | 28 | 0600 | .. | .. | .. | .. | | - | 3 | 167 | 78 | 29 | 24 |

Stations:

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

NO STORMS REPORTED: CAN

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

## February 2004

| Storm Sudden Commencements (SSC) | | | Solar Flare Effects (sfe) | | |
|---|---|---|---|---|---|
| Day | Time | Quality: Station Group* | Day | Begin-End | Station(s) |
| | | | 04 | 1043-1104 | NGK |
| | NONE | | 05 | 1012-1022 | GUI |
| | | | 25 | 1247-1303 | GUI |
| | | | 26 | 0154-0250 | MMB+ KAK+ HTY+ KNY+ GNA+ |
| | | | 26 | 2213-2253 | GNA+ |

**REPORTING OBSERVATORIES** (up to the 23rd of April 2004):
SOD NUR LER ESK NGK VAL HAD BDV CLF HRB NAG GCK MMB EBR COI SPT KAK HTY 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 (62° 39' 44" S, 60°23' 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.