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**NATIONAL ENVIRONMENTAL SATELLITE, DATA, AND INFORMATION SERVICE**
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JANUARY 1997 NUMBER 629 - Part I

# Solar-Geophysical Data prompt reports

Data for November, December 1996 and Late Data

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**NATIONAL GEOPHYSICAL DATA CENTER**
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Boulder, Colorado

Subscription information is on the inside back cover.

# SOLAR-GEOPHYSICAL DATA

Number 629

(Issued in Two Parts)

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Solar Ultraviolet Spectral Irradiance Monitor (SUSIM) on board UARS
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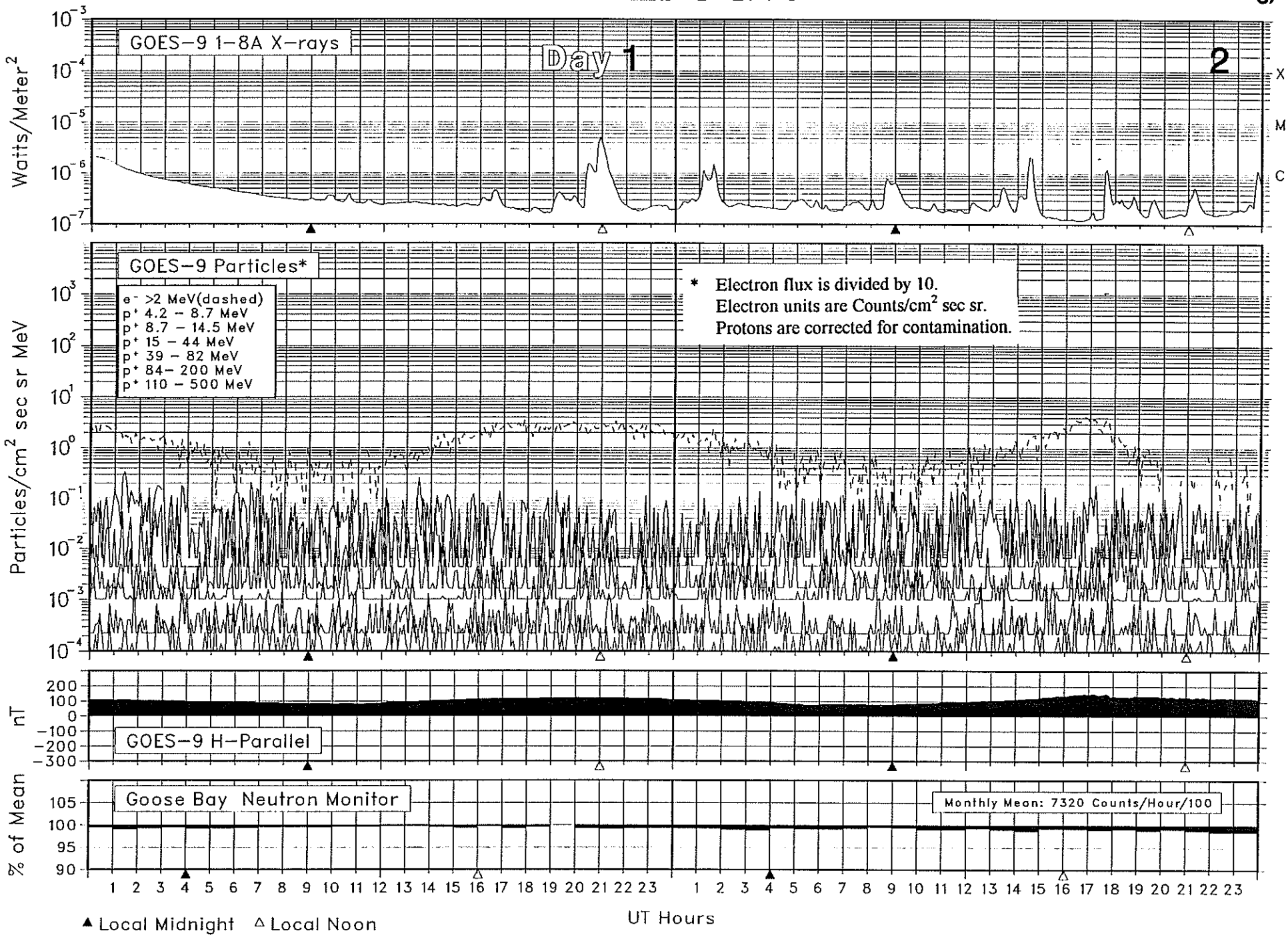
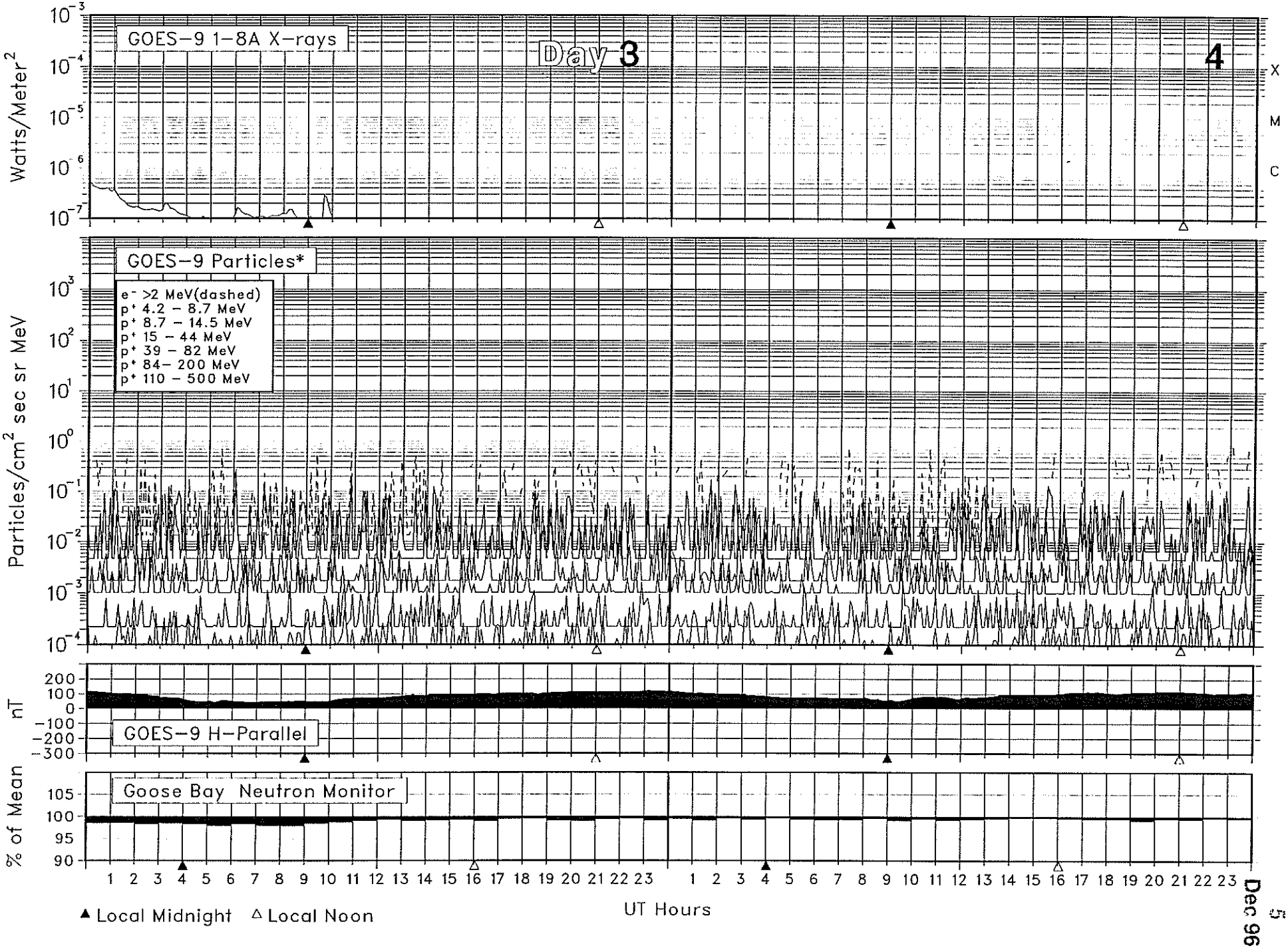
## December 1996



# SOLAR-TERRESTRIAL ENVIRONMENT
## December 1996



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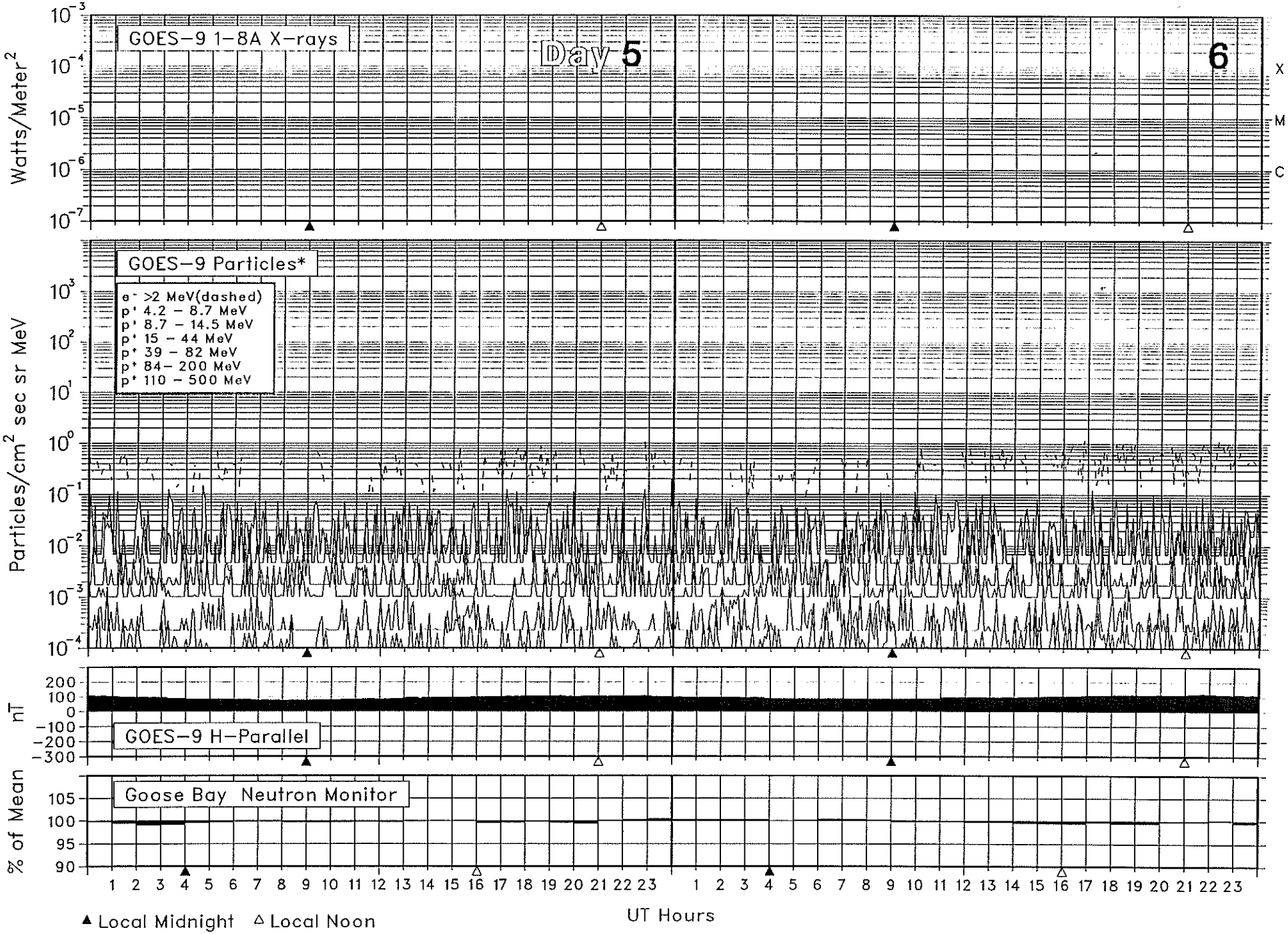
## December 1996





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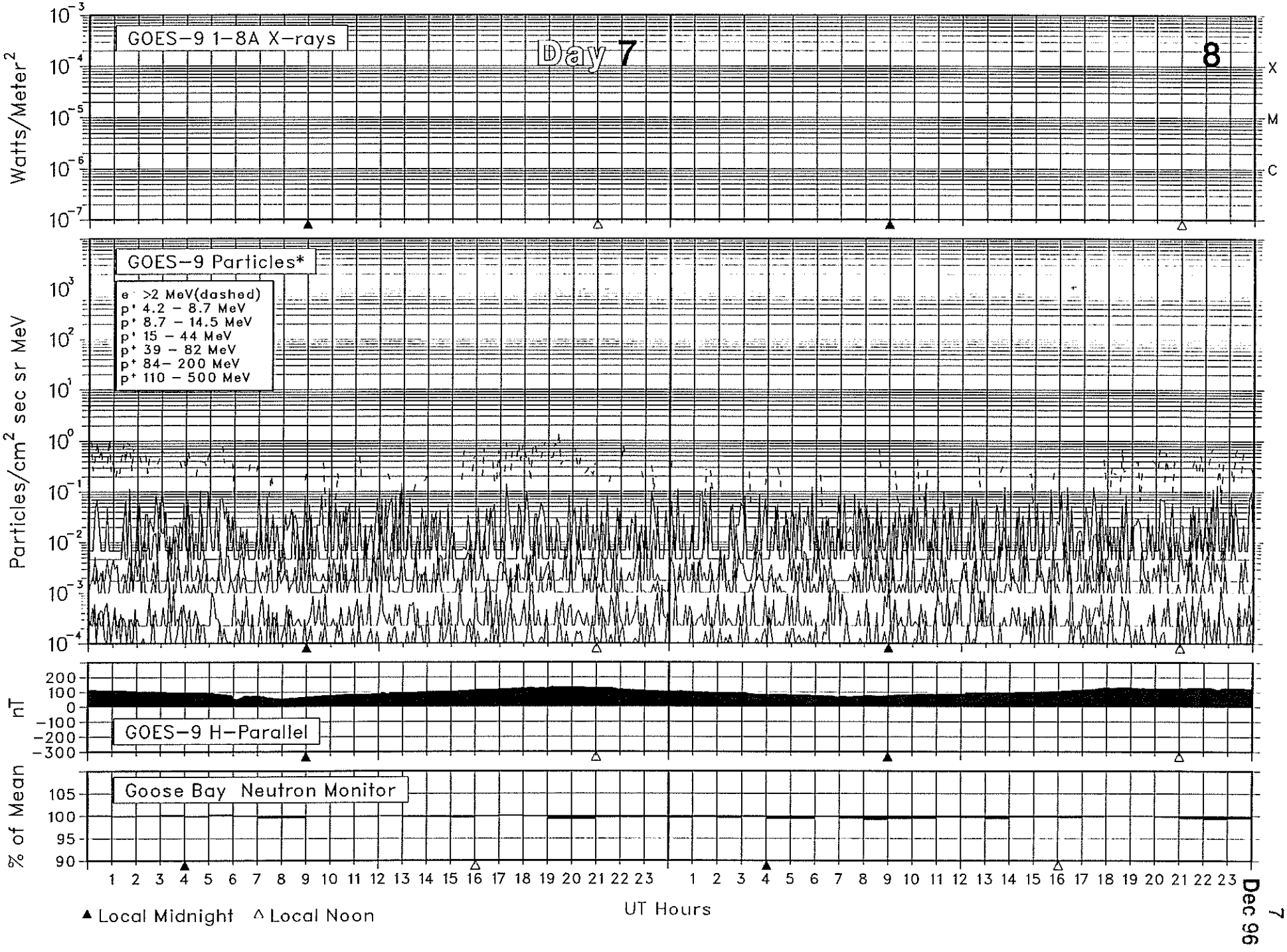
## December 1996



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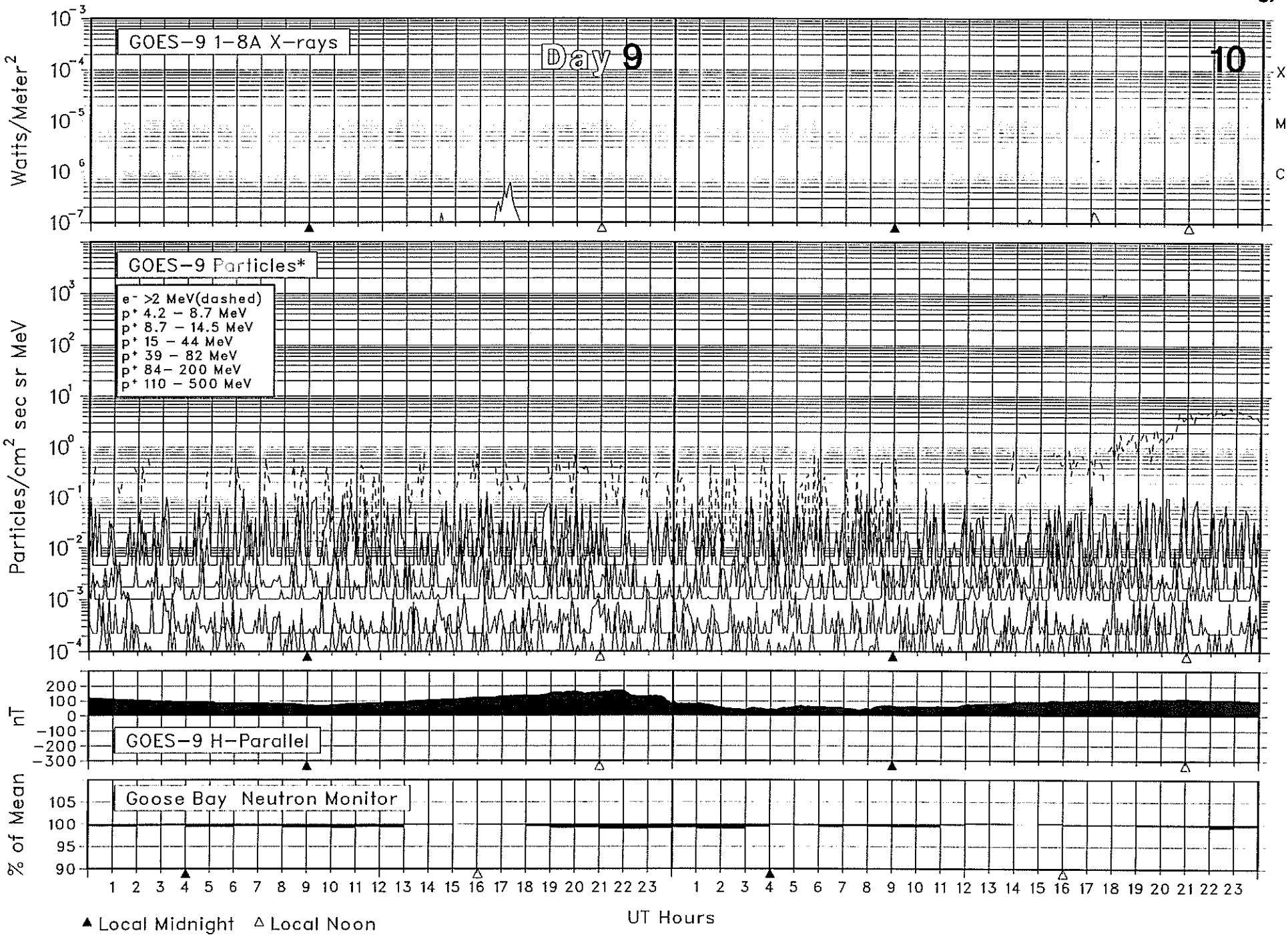

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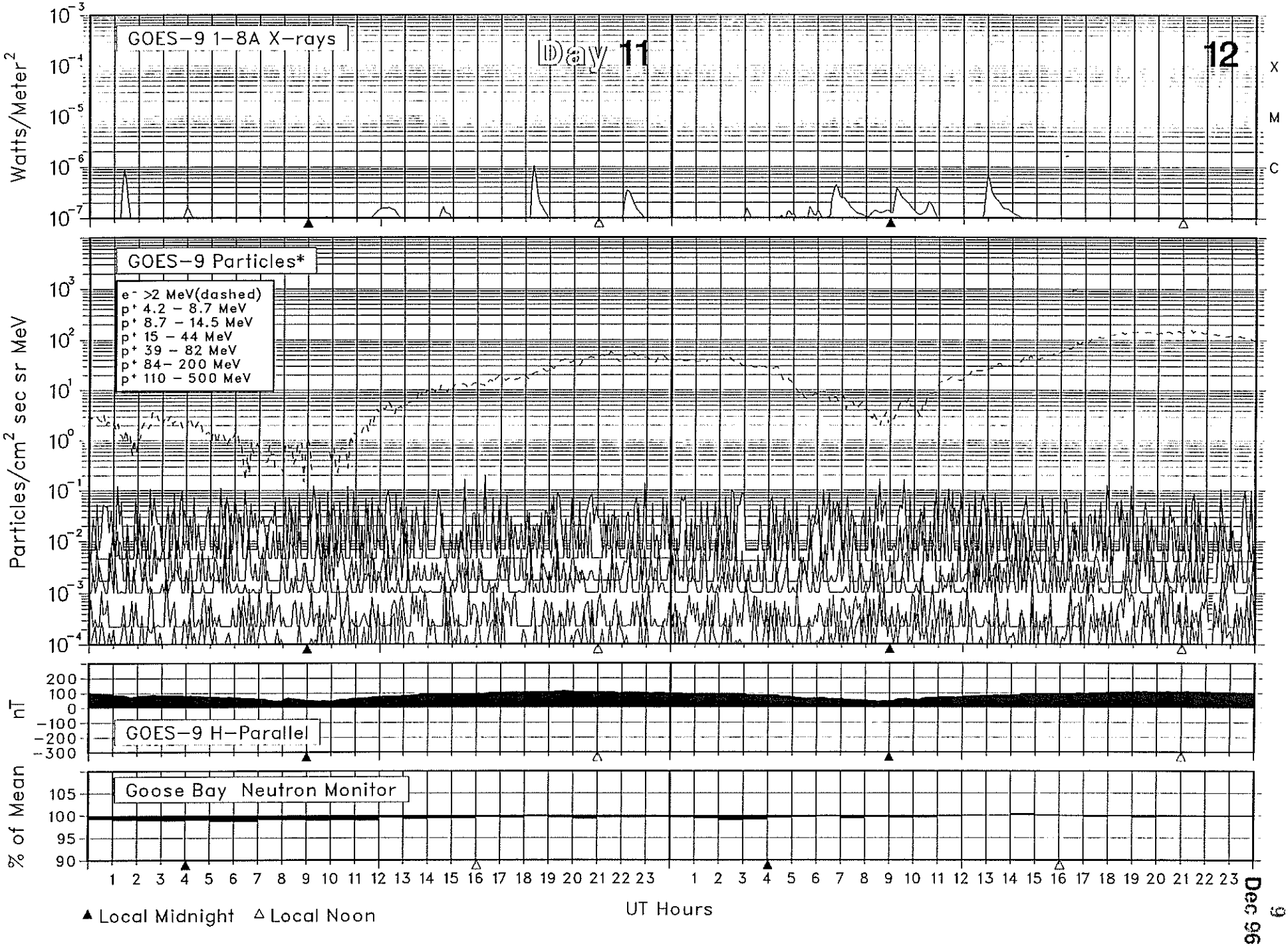
## December 1996



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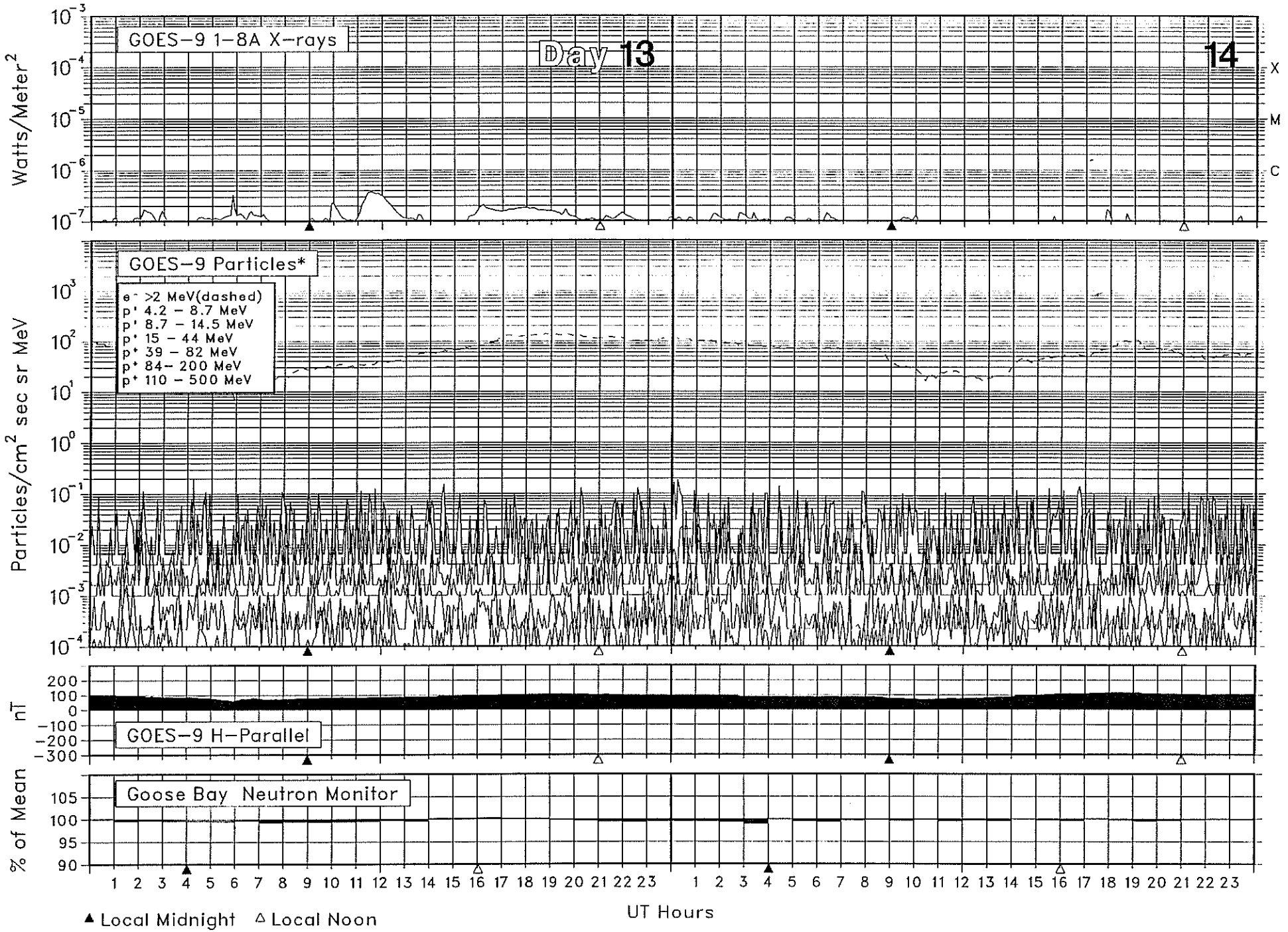
## December 1996




10 Dec 96

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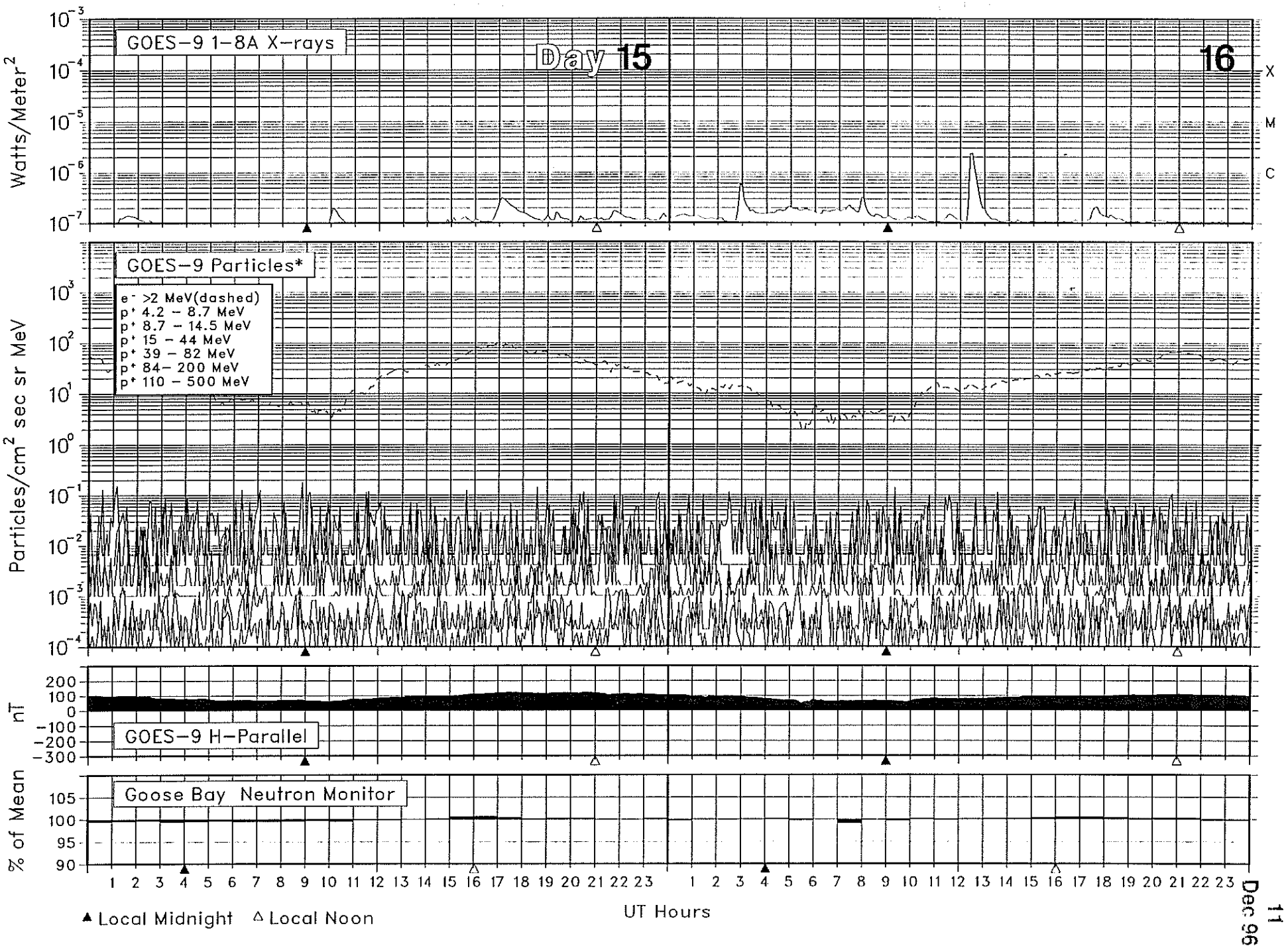
## December 1996



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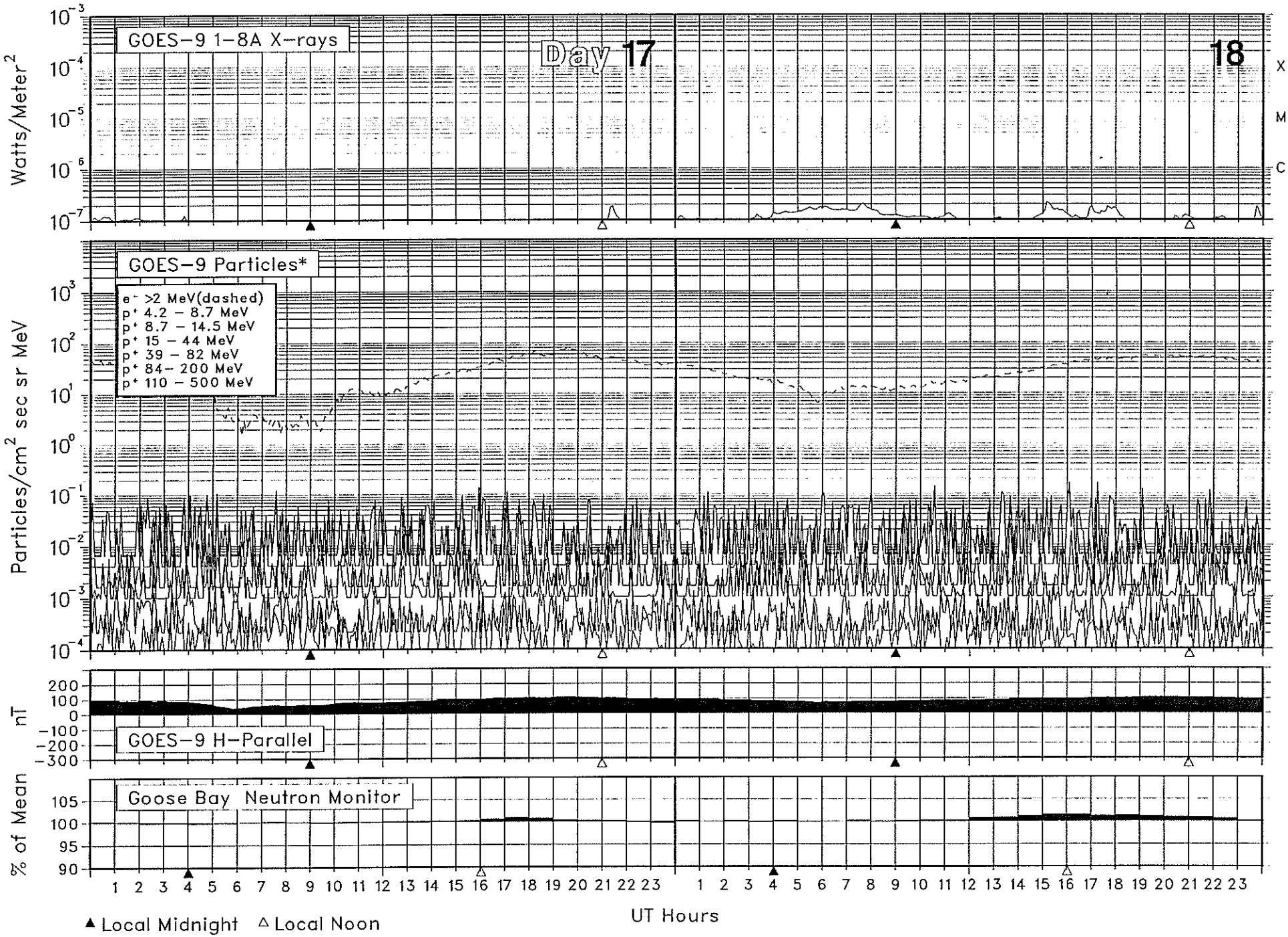

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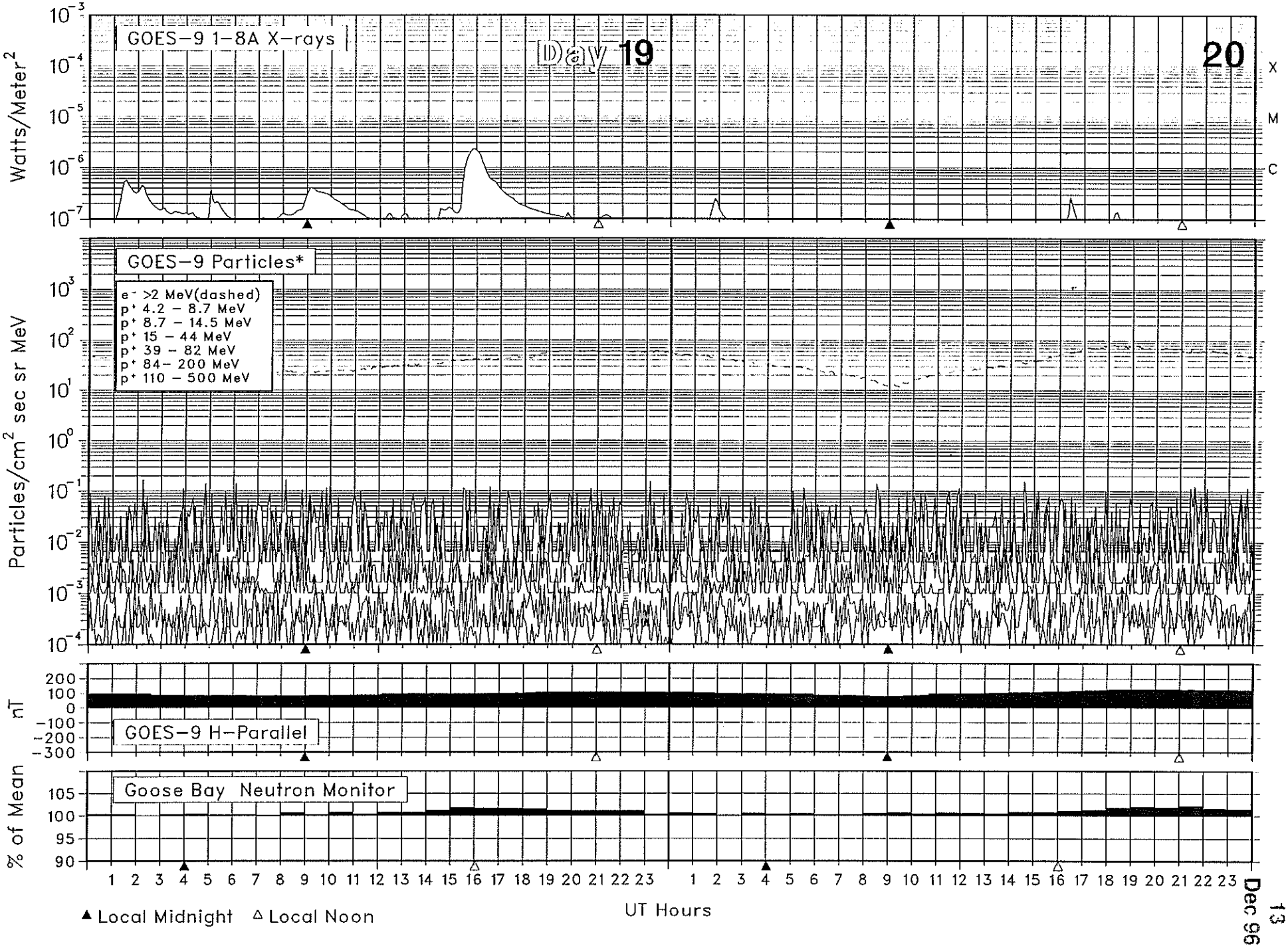

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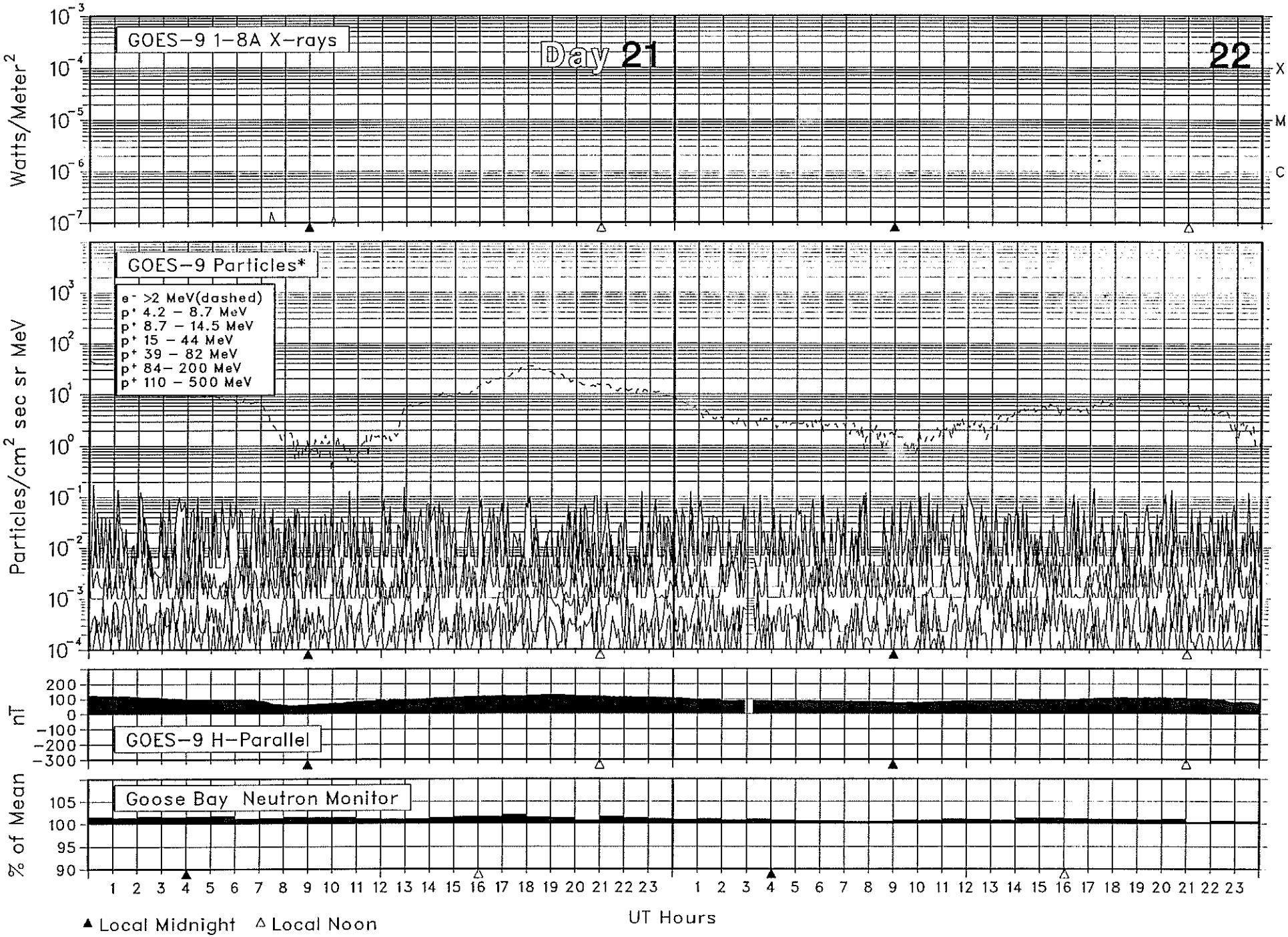
## December 1996





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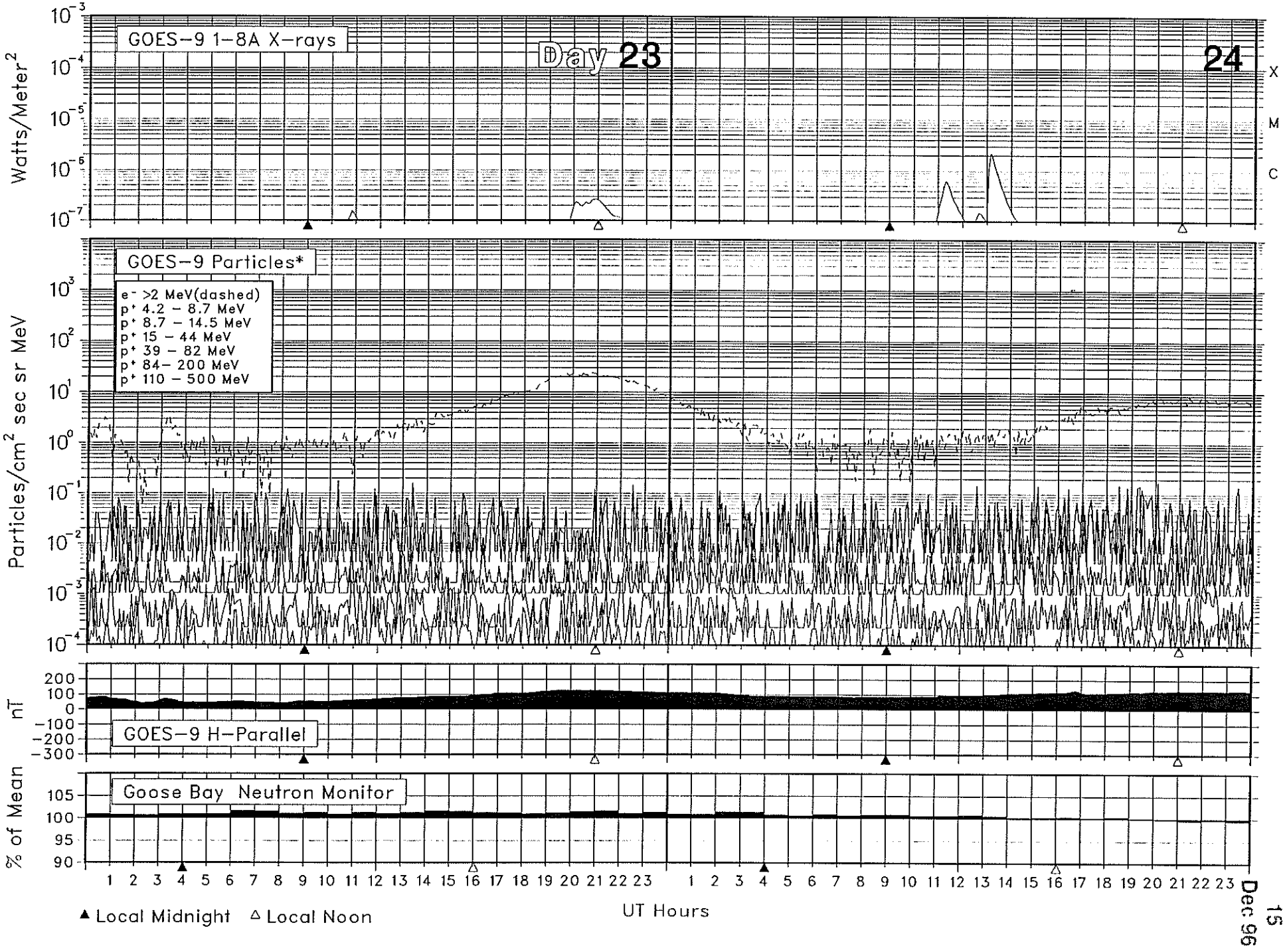
## December 1996



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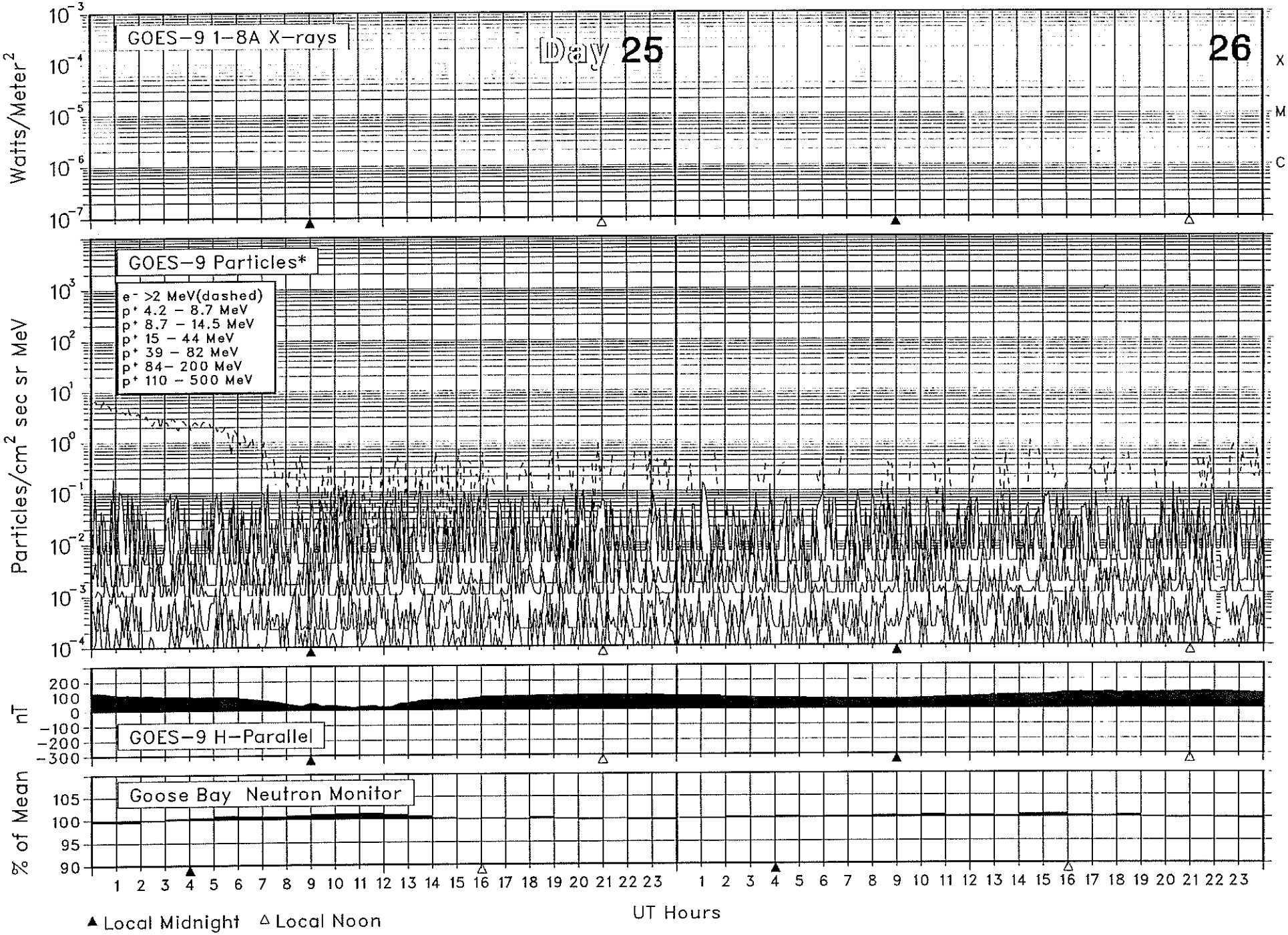
## December 1996





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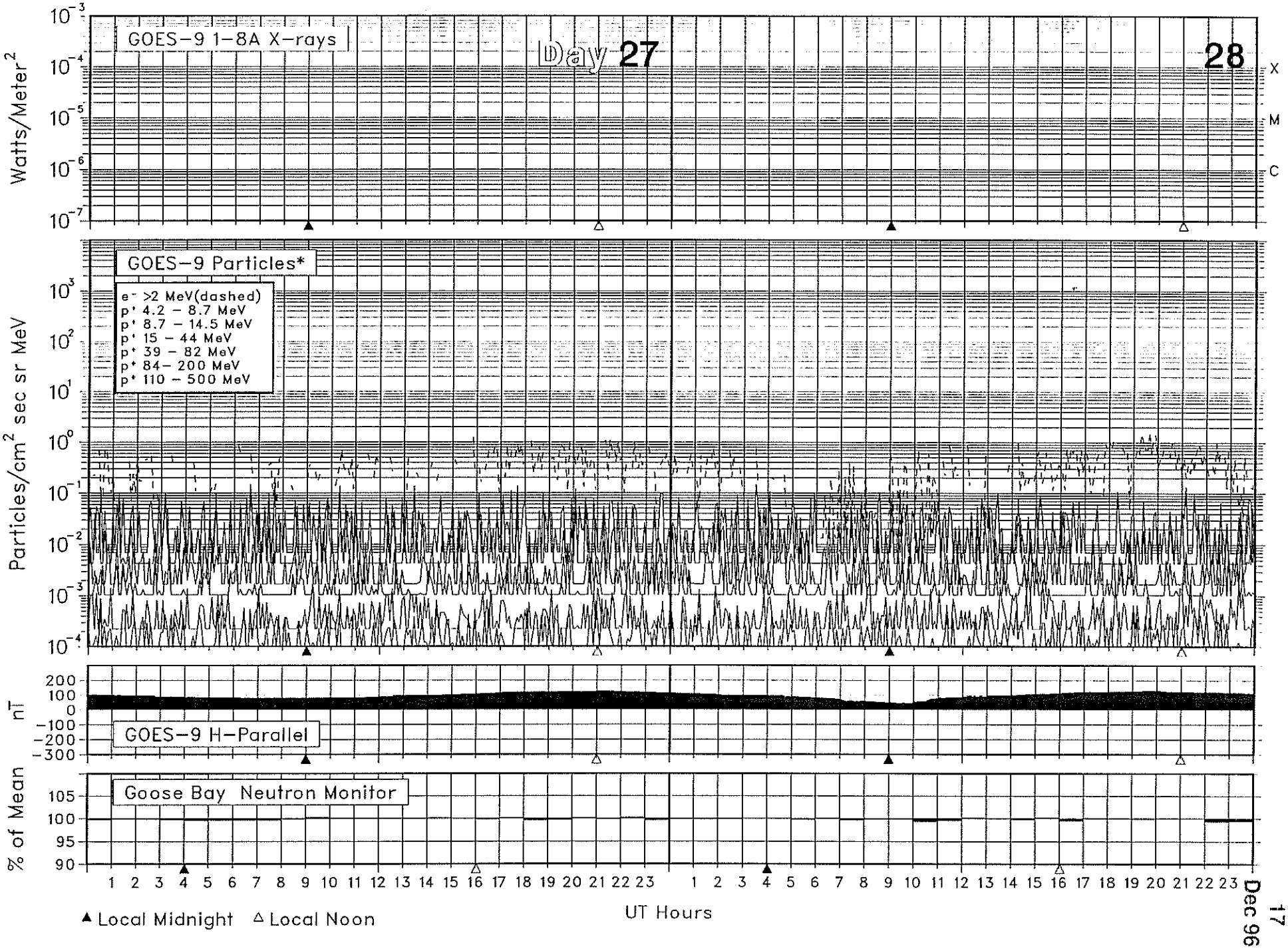
## December 1996



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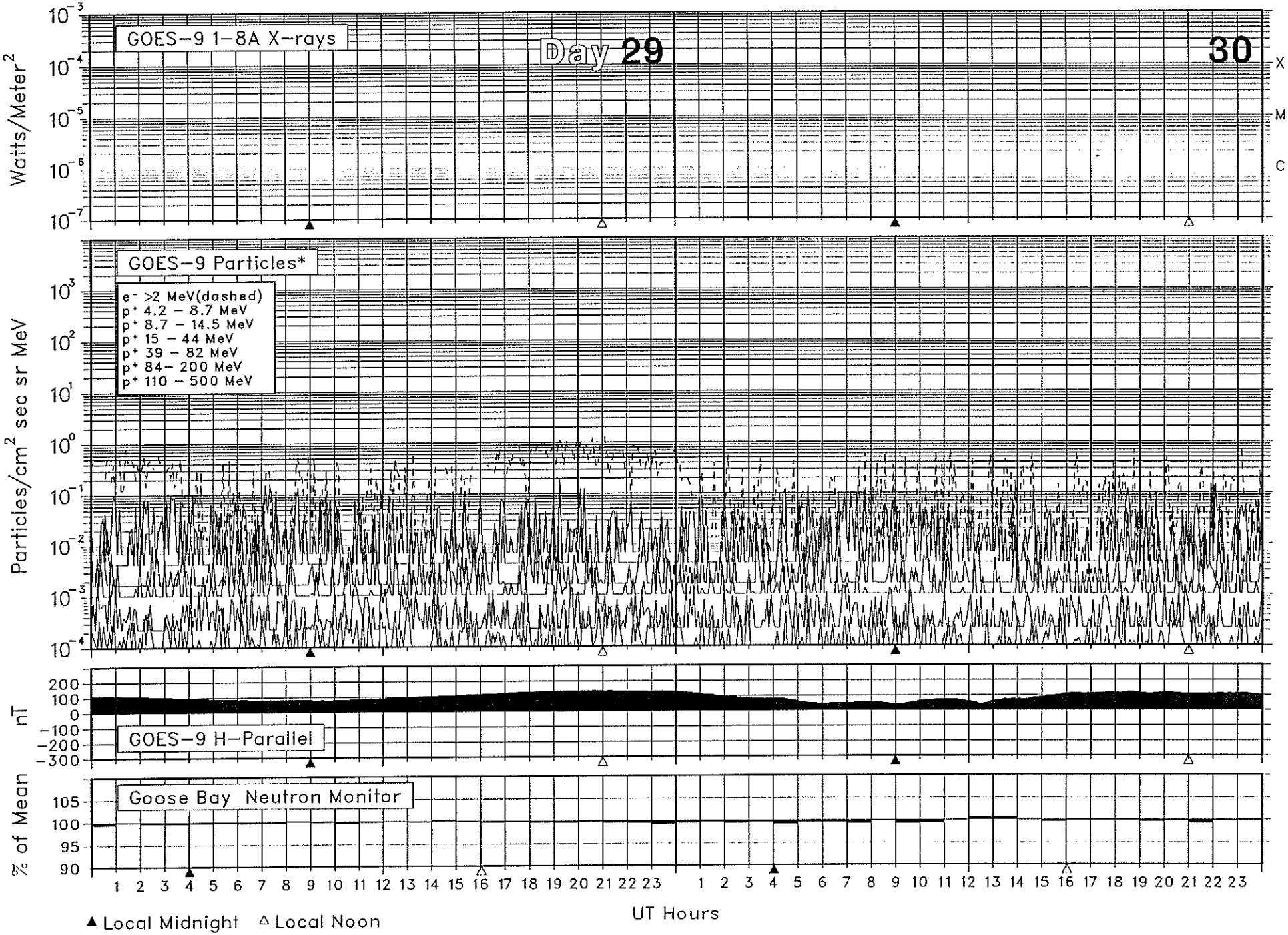


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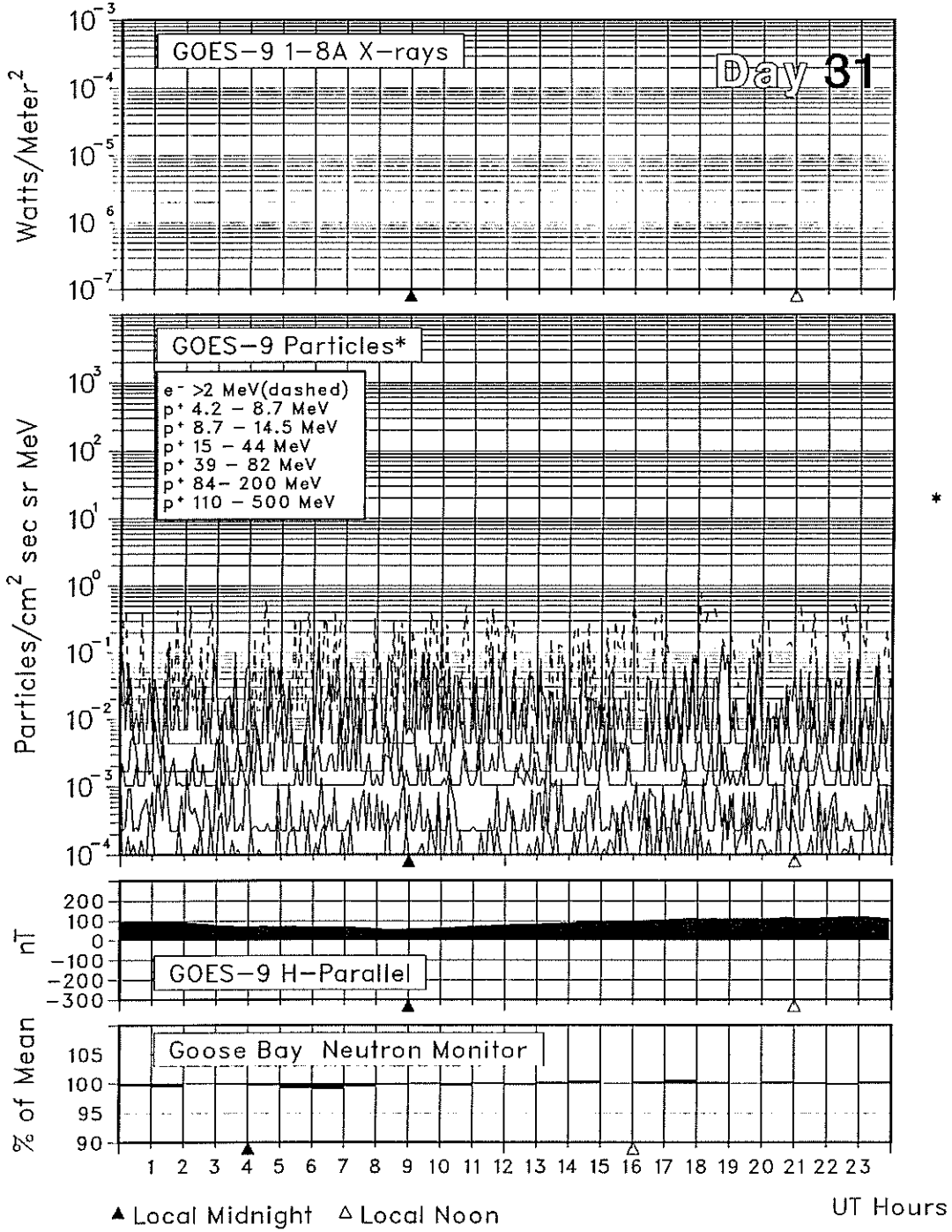
# SOLAR-TERRESTRIAL ENVIRONMENT
## December 1996




* Electron flux is divided by 10.
Electron units are Counts/cm$^2$ sec sr.
Protons are corrected for contamination.

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

## DECEMBER 1996

| Julian Day | Date of Issue | Date of Obs | Wolf No. | 10-cm Solar Flux | A-index | Location | | Flares | | | Date of Forecast | Region Forecast(1) | Geoadvice(1) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Lat | Long | Optical | M | X | | | |
| 336 | 01 | 30 | 30 | 88 | 1 | S04 | W61 | 7 | 0 | 0 | 01 | Q | SOL: Eruptive |
| | | | | | | | | 0 | 0 | 0 | 01 | | MAG: Quiet |
| | | | | | | | | 0 | 0 | 0 | 01 | | PRO: Quiet |
| 337 | 02 | 01 | 47 | 83 | 2 | S03 | W75 | 3 | 0 | 0 | 02 | E | SOL: Eruptive |
| | | | | | | S19 | W68 | 0 | 0 | 0 | 02 | Q | MAG: Quiet |
| | | | | | | S24 | W18 | 0 | 0 | 0 | 02 | Q | PRO: Quiet |
| 338 | 03 | 02 | 13 | 78 | 6 | S05 | W90 | 4 | 0 | 0 | 03 | E | SOL: Eruptive |
| | | | | | | | | 0 | 0 | 0 | 03 | | MAG: Quiet |
| | | | | | | | | 0 | 0 | 0 | 03 | | PRO: Quiet |
| 339 | 04 | 03 | 0 | 73 | 6 | | | 0 | 0 | 0 | 04 | | SOL: Quiet |
| | | | | | | | | 0 | 0 | 0 | 04 | | MAG: Quiet |
| | | | | | | | | 0 | 0 | 0 | 04 | | PRO: Quiet |
| 340 | 05 | 04 | 0 | 71 | 6 | | | 0 | 0 | 0 | 05 | | SOL: Quiet |
| | | | | | | | | 0 | 0 | 0 | 05 | | MAG: Quiet |
| | | | | | | | | 0 | 0 | 0 | 05 | | PRO: Quiet |
| 341 | 06 | 05 | 0 | 70 | 1 | | | 0 | 0 | 0 | 06 | | SOL: Quiet |
| | | | | | | | | 0 | 0 | 0 | 06 | | MAG: Quiet |
| | | | | | | | | 0 | 0 | 0 | 06 | | PRO: Quiet |
| 342 | 07 | 06 | 0 | 70 | 0 | | | 0 | 0 | 0 | 07 | | SOL: Quiet |
| | | | | | | | | 0 | 0 | 0 | 07 | | MAG: Quiet |
| | | | | | | | | 0 | 0 | 0 | 07 | | PRO: Quiet |
| 343 | 08 | 07 | 12 | 69 | 3 | S31 | E23 | 0 | 0 | 0 | 08 | Q | SOL: Quiet |
| | | | | | | | | 0 | 0 | 0 | 08 | | MAG: Quiet |
| | | | | | | | | 0 | 0 | 0 | 08 | | PRO: Quiet |
| 344 | 09 | 08 | 14 | 69 | 2 | S30 | E10 | 0 | 0 | 0 | 09 | Q | SOL: Quiet |
| | | | | | | | | 0 | 0 | 0 | 09 | | MAG: Quiet |
| | | | | | | | | 0 | 0 | 0 | 09 | | PRO: Quiet |
| 345 | 10 | 09 | 20 | 74 | 5 | S29 | W04 | 4 | 0 | 0 | 10 | Q | SOL: Quiet |
| | | | | | | | | 0 | 0 | 0 | 10 | | MAG: Quiet |
| | | | | | | | | 0 | 0 | 0 | 10 | | PRO: Quiet |
| 346 | 11 | 10 | 17 | 72 | 18 | S29 | W18 | 2 | 0 | 0 | 11 | Q | SOL: Quiet |
| | | | | | | | | 0 | 0 | 0 | 11 | | MAG: Quiet |
| | | | | | | | | 0 | 0 | 0 | 11 | | PRO: Quiet |
| 347 | 12 | 11 | 31 | 78 | 11 | S29 | W31 | 2 | 0 | 0 | 12 | Q | SOL: Quiet |
| | | | | | | N07 | E70 | 0 | 0 | 0 | 12 | Q | MAG: Quiet |
| | | | | | | | | 0 | 0 | 0 | 12 | | PRO: Quiet |
| 348 | 13 | 12 | 32 | 81 | 8 | S28 | W45 | 9 | 0 | 0 | 13 | Q | SOL: Quiet |
| | | | | | | N07 | E60 | 0 | 0 | 0 | 13 | Q | MAG: Quiet |
| | | | | | | | | 0 | 0 | 0 | 13 | | PRO: Quiet |
| 349 | 14 | 13 | 31 | 82 | 5 | S28 | W61 | 3 | 0 | 0 | 14 | Q | SOL: Quiet |
| | | | | | | N05 | E46 | 0 | 0 | 0 | 14 | Q | MAG: Quiet |
| | | | | | | | | 0 | 0 | 0 | 14 | | PRO: Quiet |
| 350 | 15 | 14 | 30 | 83 | 4 | S29 | W74 | 2 | 0 | 0 | 15 | Q | SOL: Quiet |
| | | | | | | N06 | E33 | 2 | 0 | 0 | 15 | Q | MAG: Quiet |
| | | | | | | | | 0 | 0 | 0 | 15 | | PRO: Quiet |
| 351 | 16 | 15 | 25 | 85 | 13 | S29 | W88 | 0 | 0 | 0 | 16 | Q | SOL: Quiet |
| | | | | | | N06 | E20 | 0 | 0 | 0 | 16 | Q | MAG: Quiet |
| | | | | | | | | 0 | 0 | 0 | 16 | | PRO: Quiet |
| 352 | 17 | 16 | 27 | 86 | 11 | N06 | E06 | 0 | 0 | 0 | 17 | Q | SOL: Quiet |
| | | | | | | S13 | E26 | 0 | 0 | 0 | 17 | Q | MAG: Quiet |
| | | | | | | | | 0 | 0 | 0 | 17 | | PRO: Quiet |

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

## DECEMBER 1996

| Julian Day | Date of Issue | Date of Obs | Wolf No. | 10-cm Solar Flux | A-index | Location Lat | Location Long | Flares Optical | Flares M | Flares X | Date of Forecast | Region Forecast(1) | Geoadvice(1) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 353 | 18 | 17 | 38 | 86 | 10 | | | 0 | 0 | 0 | 18 | | SOL: Quiet |
| | | | | | | | | 0 | 0 | 0 | 18 | | MAG: Quiet |
| | | | | | | | | 0 | 0 | 0 | 18 | | PRO: Quiet |
| 354 | 19 | 18 | 33 | 88 | 5 | N08 | W20 | 1 | 0 | 0 | 19 | Q | SOL: Quiet |
| | | | | | | S28 | E05 | 0 | 0 | 0 | 19 | Q | MAG: Quiet |
| | | | | | | | | 0 | 0 | 0 | 19 | | PRO: Quiet |
| 355 | 20 | 19 | 23 | 87 | /// | N07 | W34 | 1 | 0 | 0 | 20 | Q | SOL: Quiet |
| | | | | | | | | 0 | 0 | 0 | 20 | | MAG: Quiet |
| | | | | | | | | 0 | 0 | 0 | 20 | | PRO: Quiet |
| 356 | 21 | 20 | 13 | 83 | 2 | N06 | W47 | 1 | 0 | 0 | 21 | Q | SOL: Quiet |
| | | | | | | | | 0 | 0 | 0 | 21 | | MAG: Quiet |
| | | | | | | | | 0 | 0 | 0 | 21 | | PRO: Quiet |
| 357 | 22 | 21 | 28 | 84 | 4 | N05 | W59 | 0 | 0 | 0 | 22 | Q | SOL: Quiet |
| | | | | | | N04 | W45 | 0 | 0 | 0 | 22 | Q | MAG: Quiet |
| | | | | | | | | 0 | 0 | 0 | 22 | | PRO: Quiet |
| 358 | 23 | 22 | 26 | 82 | 4 | N05 | W72 | 0 | 0 | 0 | 23 | Q | SOL: Quiet |
| | | | | | | N04 | W59 | 0 | 0 | 0 | 23 | Q | MAG: Quiet |
| | | | | | | | | 0 | 0 | 0 | 23 | | PRO: Quiet |
| 359 | 24 | 23 | 24 | 80 | 10 | N06 | W85 | 0 | 0 | 0 | 24 | Q | SOL: Quiet |
| | | | | | | N05 | W74 | 0 | 0 | 0 | 24 | Q | MAG: Quiet |
| | | | | | | | | 0 | 0 | 0 | 24 | | PRO: Quiet |
| 360 | 25 | 24 | 0 | 79 | 2 | | | 0 | 0 | 0 | 25 | | SOL: Quiet |
| | | | | | | | | 0 | 0 | 0 | 25 | | MAG: Quiet |
| | | | | | | | | 0 | 0 | 0 | 25 | | PRO: Quiet |
| 361 | 26 | 25 | 0 | 77 | 8 | | | 0 | 0 | 0 | 26 | | SOL: Quiet |
| | | | | | | | | 0 | 0 | 0 | 26 | | MAG: Quiet |
| | | | | | | | | 0 | 0 | 0 | 26 | | PRO: Quiet |
| 362 | 27 | 26 | 0 | 76 | 1 | | | 0 | 0 | 0 | 27 | | SOL: Quiet |
| | | | | | | | | 0 | 0 | 0 | 27 | | MAG: Quiet |
| | | | | | | | | 0 | 0 | 0 | 27 | | PRO: Quiet |
| 363 | 28 | 27 | 0 | 75 | 1 | | | 0 | 0 | 0 | 28 | | SOL: Quiet |
| | | | | | | | | 0 | 0 | 0 | 28 | | MAG: Quiet |
| | | | | | | | | 0 | 0 | 0 | 28 | | PRO: Quiet |
| 364 | 29 | 28 | 0 | 74 | 4 | | | 0 | 0 | 0 | 29 | | SOL: Quiet |
| | | | | | | | | 0 | 0 | 0 | 29 | | MAG: Quiet |
| | | | | | | | | 0 | 0 | 0 | 29 | | PRO: Quiet |
| 365 | 30 | 29 | 0 | 74 | 2 | | | 0 | 0 | 0 | 30 | | SOL: Quiet |
| | | | | | | | | 0 | 0 | 0 | 30 | | MAG: Quiet |
| | | | | | | | | 0 | 0 | 0 | 30 | | PRO: Quiet |
| 366 | 31 | 30 | 0 | 73 | 6 | | | 0 | 0 | 0 | 31 | | SOL: Quiet |
| | | | | | | | | 0 | 0 | 0 | 31 | | MAG: Quiet |
| | | | | | | | | 0 | 0 | 0 | 31 | | PRO: Quiet |

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

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

## DECEMBER 1996

Magnetic (MAG) Geoadvice

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

Proton (PRO) Geoadvice

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

### STRATWARM ALERTS

12/25/96 03:30:00 GEOALERT WWA360 STRATWARM ALERT/TUESDAY/STRATWARM EXISTS.
THE INTENSE WARMING OVER ASIA (CENTERED OVER EASTERN SIBERIA TODAY) CONTINUES. WARM AIR SPREADING NORTH AND NORTHEASTWARDS.

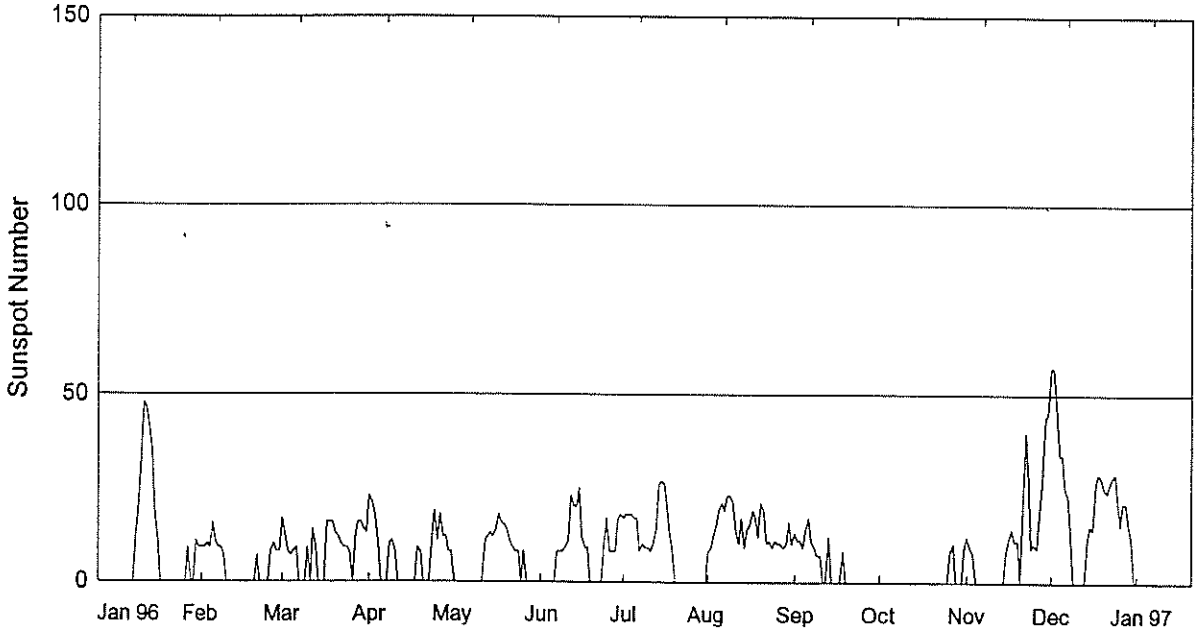
12/26/96 03:30:00 GEOALERT WWA361 STRATWARM ALERT/WEDNESDAY/STRATWARM EXISTS.
THERE IS FURTHER INTENSE WARMING OVER SIBERIA AND THE COLD AIR (BELOW MINUS 80 DGS C) AROUND GREENLAND AND CANADIAN ARCTIC.

12/27/96 03:30:00 GEOALERT WWA362 STRATWARM ALERT/THURSDAY/STRATWARM EXISTS.
INTENSE WARMING OVER SIBERIA CONTINUES.

12/28/96 03:30:00 GEOALERT WWA363 STRATWARM ALERT/FRIDAY/STRATWARM EXISTS.

12/31/96 03:30:00 GEOALERT WWA366 STRATWARM ALERT/MONDAY/STRATWARM EXISTS.
NEW WARMING OVER EASTERN U.S. TODAY.

# International Relative Sunspot Numbers
## Jan 1996 - Dec 1996

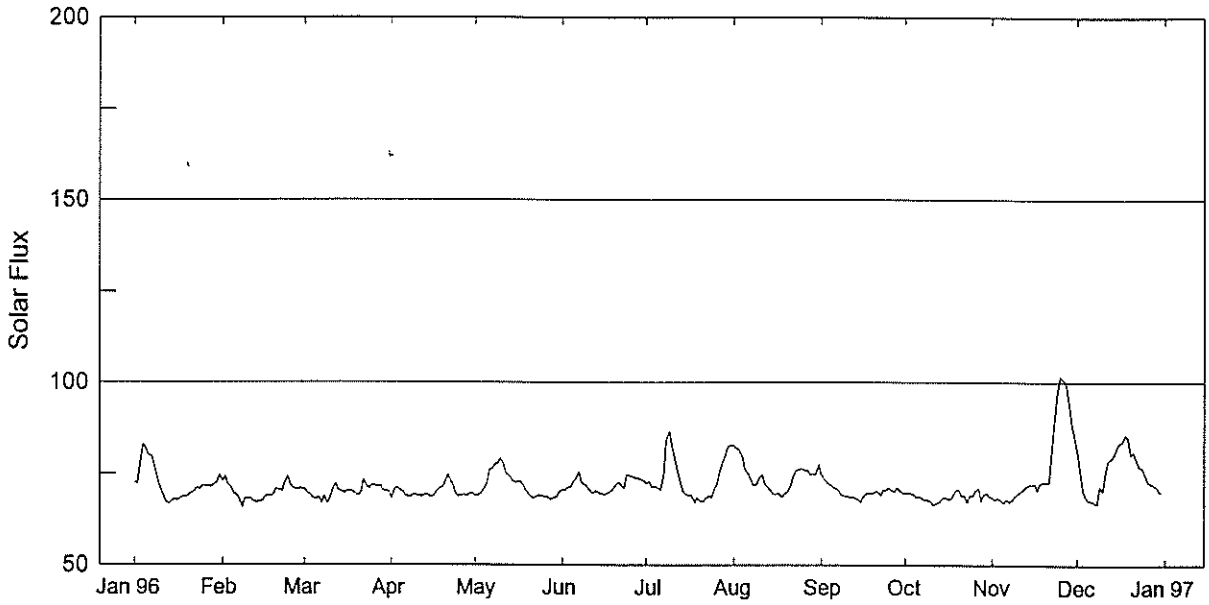



| Day | Jan 96 | Feb | Mar | Apr | May | Jun | Jul* | Aug* | Sep* | Oct* | Nov* | Dec* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0 | 9 | 0 | 0 | 0 | 8 | 8 | 19 | 11 | 0 | 0 | 23 |
| 2 | 12 | 9 | 0 | 10 | 0 | 8 | 10 | 23 | 9 | 0 | 0 | 12 |
| 3 | 19 | 7 | 0 | 11 | 0 | 8 | 9 | 23 | 7 | 0 | 0 | 0 |
| 4 | 30 | 0 | 9 | 8 | 0 | 9 | 9 | 21 | 7 | 0 | 0 | 0 |
| 5 | 48 | 0 | 0 | 0 | 0 | 11 | 8 | 14 | 0 | 0 | 0 | 0 |
| 6 | 47 | 0 | 14 | 0 | 11 | 23 | 10 | 10 | 0 | 0 | 0 | 0 |
| 7 | 41 | 0 | 9 | 0 | 12 | 20 | 14 | 17 | 12 | 0 | 0 | 0 |
| 8 | 35 | 0 | 0 | 0 | 13 | 20 | 26 | 9 | 0 | 0 | 0 | 11 |
| 9 | 19 | 0 | 0 | 0 | 12 | 25 | 27 | 14 | 0 | 0 | 8 | 15 |
| 10 | 11 | 0 | 0 | 0 | 14 | 12 | 26 | 15 | 0 | 0 | 12 | 14 |
| 11 | 0 | 0 | 16 | 0 | 18 | 9 | 20 | 19 | 0 | 0 | 14 | 26 |
| 12 | 0 | 0 | 16 | 9 | 16 | 9 | 13 | 17 | 8 | 0 | 11 | 29 |
| 13 | 0 | 0 | 16 | 8 | 15 | 0 | 9 | 12 | 0 | 0 | 11 | 28 |
| 14 | 0 | 0 | 13 | 0 | 14 | 0 | 0 | 21 | 0 | 0 | 0 | 25 |
| 15 | 0 | 7 | 12 | 0 | 11 | 0 | 0 | 19 | 0 | 0 | 20 | 24 |
| 16 | 0 | 0 | 10 | 0 | 9 | 0 | 0 | 10 | 0 | 0 | 40 | 26 |
| 17 | 0 | 0 | 9 | 10 | 8 | 0 | 0 | 11 | 0 | 0 | 27 | 28 |
| 18 | 0 | 0 | 9 | 19 | 8 | 10 | 0 | 9 | 0 | 0 | 9 | 29 |
| 19 | 0 | 0 | 8 | 11 | 0 | 17 | 0 | 11 | 0 | 0 | 10 | 21 |
| 20 | 0 | 8 | 0 | 18 | 8 | 8 | 0 | 10 | 0 | 8 | 9 | 15 |
| 21 | 9 | 10 | 12 | 12 | 0 | 8 | 0 | 10 | 0 | 10 | 18 | 21 |
| 22 | 0 | 8 | 16 | 12 | 0 | 8 | 0 | 9 | 0 | 0 | 26 | 21 |
| 23 | 0 | 8 | 16 | 8 | 0 | 17 | 0 | 10 | 0 | 0 | 44 | 15 |
| 24 | 11 | 17 | 14 | 8 | 0 | 18 | 0 | 16 | 0 | 0 | 45 | 12 |
| 25 | 9 | 13 | 13 | 0 | 0 | 17 | 0 | 10 | 0 | 9 | 57 | 0 |
| 26 | 9 | 8 | 23 | 0 | 0 | 18 | 8 | 13 | 0 | 12 | 57 | 0 |
| 27 | 9 | 7 | 21 | 0 | 0 | 18 | 9 | 11 | 0 | 9 | 48 | 0 |
| 28 | 10 | 8 | 18 | 0 | 0 | 18 | 12 | 11 | 0 | 8 | 34 | 0 |
| 29 | 9 | 9 | 10 | 0 | 0 | 17 | 15 | 9 | 0 | 0 | 34 | 0 |
| 30 | 16 | | 0 | 0 | 0 | 17 | 19 | 14 | 0 | 0 | 25 | 0 |
| 31 | 11 | | 0 | | 0 | | 21 | 17 | | 0 | | 0 |
| Mean | 11.5 | 4.4 | 9.2 | 4.8 | 5.5 | 11.8 | 8.8 | 14.0 | 1.8 | 1.8 | 18.6 | 12.7 |

* = Provisional.

# Penticton 2800 MHz (10.7cm) Solar Flux
## Jan 1996 - Dec 1996

Adjusted to 1 AU




| Day | Jan 96 | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 72.6 | 72.9 | 70.6 | 68.1 | 68.9 | 70.4 | 72.4 | 82.8 | 74.8 | 69.6 | 68.5 | 80.8 |
| 2 | 72.3 | 74.2 | 69.8 | 70.6 | 69.0 | 70.2 | 72.8 | 81.9 | 73.6 | 69.8 | 67.9 | 75.7 |
| 3 | 78.2 | 71.9 | 69.0 | 71.1 | 69.5 | 71.2 | 71.3 | 81.6 | 72.4 | 69.6 | 68.3 | 70.7 |
| 4 | 83.1 | 71.4 | 68.1 | 70.2 | 70.6 | 71.2 | 71.5 | 79.9 | 72.0 | 69.4 | 67.8 | 68.6 |
| 5 | 82.1 | 69.4 | 68.0 | 70.0 | 72.0 | 72.8 | 71.0 | 76.2 | 71.4 | 68.5 | 67.1 | 67.6 |
| 6 | 79.9 | 69.2 | 68.4 | 68.8 | 76.0 | 73.8 | 70.5 | 75.1 | 70.8 | 68.8 | 68.0 | 67.6 |
| 7 | 79.8 | 68.2 | 66.8 | 68.6 | 76.3 | 75.4 | 74.3 | 73.7 | 70.5 | 68.2 | 67.3 | 67.1 |
| 8 | 76.7 | 65.7 | 68.8 | 68.6 | 77.5 | 72.4 | 84.3 | 71.7 | 69.2 | 67.7 | 67.8 | 66.6 |
| 9 | 73.4 | 68.1 | 66.6 | 69.3 | 77.7 | 72.0 | 86.5 | 72.1 | 68.8 | 67.7 | 68.9 | 71.5 |
| 10 | 71.4 | 68.0 | 68.2 | 69.1 | 79.1 | 71.1 | 82.5 | 73.6 | 68.9 | 67.4 | 69.6 | 70.2 |
| 11 | 69.1 | 68.2 | 70.9 | 68.8 | 78.0 | 70.2 | 79.6 | 74.8 | 68.5 | 66.4 | 70.0 | 75.2 |
| 12 | 67.2 | 67.3 | 72.4 | 68.7 | 75.1 | 69.5 | 76.2 | 72.0 | 68.6 | 66.9 | 70.7 | 78.6 |
| 13 | 66.7 | 67.0 | 70.5 | 69.3 | 74.3 | 70.3 | 72.5 | 71.4 | 68.1 | 67.3 | 71.5 | 79.2 |
| 14 | 67.4 | 67.2 | 70.0 | 69.1 | 73.4 | 69.8 | 70.0 | 70.5 | 67.9 | 68.2 | 72.1 | 80.0 |
| 15 | 67.9 | 67.4 | 69.6 | 68.5 | 72.5 | 69.5 | 69.3 | 69.3 | 67.1 | 68.6 | 71.9 | 82.3 |
| 16 | 67.6 | 68.5 | 70.3 | 68.8 | 72.6 | 69.0 | 69.1 | 69.3 | 68.7 | 68.1 | 72.2 | 83.5 |
| 17 | 68.2 | 69.0 | 70.0 | 69.9 | 72.9 | 69.6 | 69.0 | 69.5 | 69.6 | 68.0 | 70.4 | 83.6 |
| 18 | 68.7 | 68.6 | 70.0 | 70.8 | 72.0 | 69.9 | 67.0 | 68.4 | 69.6 | 69.0 | 72.4 | 85.6 |
| 19 | 68.5 | 69.4 | 69.4 | 71.2 | 70.4 | 70.7 | 68.3 | 69.3 | 69.8 | 70.4 | 72.6 | 84.6 |
| 20 | 69.1 | 70.6 | 68.8 | 72.3 | 69.6 | 71.9 | 67.5 | 70.1 | 69.7 | 70.6 | 72.7 | 80.3 |
| 21 | 69.5 | 70.4 | 69.9 | 74.8 | 68.5 | 72.6 | 67.2 | 71.3 | 70.3 | 69.0 | 72.6 | 80.9 |
| 22 | 70.0 | 70.1 | 73.4 | 73.2 | 68.1 | 72.0 | 68.2 | 74.5 | 69.1 | 69.1 | 80.6 | 78.9 |
| 23 | 71.0 | 72.3 | 71.6 | 71.9 | 68.9 | 70.9 | 68.9 | 75.8 | 70.4 | 67.1 | 88.7 | 76.9 |
| 24 | 70.7 | 74.1 | 70.9 | 69.5 | 69.0 | 74.7 | 68.3 | 76.2 | 70.4 | 69.1 | 97.3 | 76.4 |
| 25 | 71.7 | 71.8 | 72.1 | 68.7 | 68.7 | 74.3 | 70.4 | 76.3 | 71.2 | 69.1 | 101.7 | 74.7 |
| 26 | 71.5 | 70.9 | 71.6 | 69.1 | 68.7 | 74.2 | 72.4 | 75.8 | 70.4 | 70.3 | 100.8 | 73.0 |
| 27 | 71.6 | 70.7 | 71.6 | 69.2 | 68.4 | 73.8 | 75.6 | 75.9 | 70.1 | 71.2 | 100.0 | 72.2 |
| 28 | 71.4 | 70.8 | 71.7 | 68.6 | 67.8 | 73.8 | 77.8 | 74.7 | 71.2 | 67.5 | 95.4 | 71.8 |
| 29 | 71.8 | 70.9 | 70.3 | 69.5 | 68.3 | 73.3 | 80.3 | 75.0 | 70.3 | 69.4 | 88.5 | 71.4 |
| 30 | 72.5 | | 70.1 | 69.6 | 68.4 | 73.1 | 82.3 | 74.7 | 69.7 | 69.7 | 85.1 | 70.1 |
| 31 | 74.5 | | 70.0 | | 69.9 | | 82.7 | 77.6 | | 68.6 | | 69.8 |
| Mean | 72.1 | 69.8 | 70.0 | 69.9 | 71.7 | 71.8 | 73.5 | 74.2 | 70.1 | 68.7 | 76.9 | 75.3 |

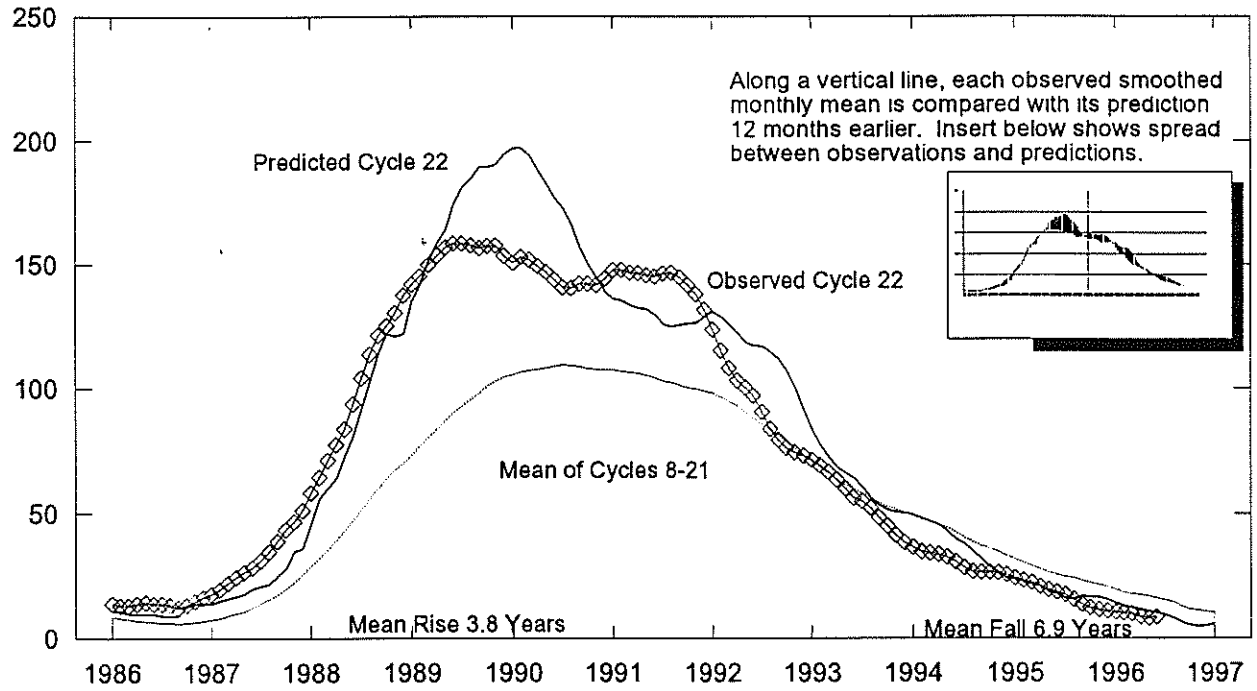
# DAILY SOLAR INDICES

December 1996

| Day | Day of Year | Bartels Cycle Day | Sunspot Numbers Int | Amer | Obs Flux Penticton (2800) | Solar Flux Adjusted to 1 Astronomical Unit — LEAR (15400) | LEAR (8800) | LEAR (4995) | Pentic (2800) | LEAR (2695) | LEAR (1415) | LEAR (610) | LEAR (410) | LEAR (245) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 336 | 15 | 23 | 23 | 83.1 | 472 | 221 | 137 | 80.8 | 85 | 64 | 39 | 28 | 20 |
| 2 | 337 | 16 | 12 | 11 | 78.0 | 472 | 209 | 131 | 75.7 | 81 | 59 | 38 | 27 | 11 |
| 3 | 338 | 17 | 0 | 0 | 72.8 | 523 | 213 | 124 | 70.7 | 76 | 52 | 35 | 25 | 11 |
| 4 | 339 | 18 | 0 | 0 | 70.7 | 529 | 207 | 120 | 68.6 | 70 | 49 | 34 | 24 | 11 |
| 5 | 340 | 19 | 0 | 0 | 69.6 | 527 | 208 | 119 | 67.6 | 70 | 47 | 34 | 23 | 10 |
| 6 | 341 | 20 | 0 | 0 | 69.7 | 535 | 209 | 119 | 67.6 | 69 | 47 | 34 | 23 | 10 |
| 7 | 342 | 21 | 0 | 3 | 69.2 | 532 | 206 | 119 | 67.1 | 70 | 47 | 33 | 23 | 10 |
| 8 | 343 | 22 | 11 | 15 | 68.6 | 527 | 209 | 119 | 66.6 | 70 | 47 | 33 | 23 | 11 |
| 9 | 344 | 23 | 15 | 20 | 73.7 | 540 | 211 | 122 | 71.5 | 72 | 50 | 35 | 23 | 11 |
| 10 | 345 | 24 | 14 | 15 | 72.4 | 548 | 210 | 122 | 70.2 | 73 | 51 | 37 | 21 | 14 |
| 11 | 346 | 25 | 26 | 23 | 77.6 | 530 | 213 | 124 | 75.2 | 74 | 53 | 37 | 25 | 13 |
| 12 | 347 | 26 | 29 | 24 | 81.1 | 538 | 207 | 126 | 78.6 | 78 | 55 | 37 | 25 | 12 |
| 13 | 348 | 27 | 28 | 26 | 81.7 | 534 | 207 | 128 | 79.2 | 82 | 58 | 37 | 27 | 14 |
| 14 | 349 | 1 | 25 | 26 | 82.5 | 540 | 214 | 131 | 80.0 | 83 | 59 | 38 | 27 | 21 |
| 15 | 350 | 2 | 24 | 25 | 85.0 | 528 | 215 | 131 | 82.3 | 82 | 59 | 40 | 28 | 15 |
| 16 | 351 | 3 | 26 | 17 | 86.2 | 533 | 212 | 132 | 83.5 | 86 | 61 | 41 | 30 | 15 |
| 17 | 352 | 4 | 28 | 24 | 86.4 | 527 | 219 | 131 | 83.6 | 84 | 61 | 42 | 25 | 15 |
| 18 | 353 | 5 | 29 | 24 | 88.4 | 517 | 215 | 134 | 85.6 | 72 | 64 | 43 | 29 | 21 |
| 19 | 354 | 6 | 21 | 17 | 87.4 | 533 | 210 | 135 | 84.6 | 74 | 64 | 42 | 29 | 15 |
| 20 | 355 | 7 | 15 | 12 | 83.0 | 527 | 217 | 129 | 80.3 | 80 | 62 | 40 | 27 | 14 |
| 21 | 356 | 8 | 21 | 25 | 83.7 | 545 | 215 | 129 | 80.9 | 79 | 61 | 40 | 27 | 15 |
| 22 | 357 | 9 | 21 | 20 | 81.5 | 528 | 212 | 128 | 78.9 | 78 | 61 | 40 | 28 | 15 |
| 23 | 358 | 10 | 15 | 15 | 79.5 | 521 | 214 | 126 | 76.9 | 76 | 59 | 39 | 27 | 14 |
| 24 | 359 | 11 | 12 | 8 | 79.0 | 514 | 214 | 124 | 76.4 | 75 | 56 | 38 | 26 | 14 |
| 25 | 360 | 12 | 0 | 0 | 77.3 | 527 | 213 | 125 | 74.7 | 74 | 56 | 38 | 26 | 14 |
| 26 | 361 | 13 | 0 | 0 | 75.5 | 515 | 212 | 123 | 73.0 | 71 | 53 | 35 | 25 | 13 |
| 27 | 362 | 14 | 0 | 0 | 74.6 | 519 | 208 | 121 | 72.2 | 69 | 52 | 35 | 24 | 12 |
| 28 | 363 | 15 | 0 | 0 | 74.2 | 538 | 209 | 121 | 71.8 | 70 | 51 | 35 | 25 | 11 |
| 29 | 364 | 16 | 0 | 0 | 73.8 | 534 | 205 | 121 | 71.4 | 69 | 50 | 35 | 25 | 12 |
| 30 | 365 | 17 | 0 | 0 | 72.5 | 533 | 207 | 121 | 70.1 | 69 | 50 | 35 | 24 | 11 |
| 31 | 366 | 18 | 0 | 0 | 72.2 | -- | -- | -- | 69.8 | -- | -- | -- | -- | -- |
| MEAN | | | 12.7 | 12.0 | 77.8 | 526 | 211 | 125 | 75.3 | 75 | 55 | 37 | 25 | 13 |

The International numbers shown above are preliminary values; the American numbers are final.

## Cycle 22 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1989 | 142 | 145 | 150 | 154 | 157 | 158 | 158 | 158 | 157 | 157 | 158 | 154 | 154 |
| 1990 | 151 | 153 | 152 | 149 | 147 | 144 | 141 | 140 | 142 | 142 | 142 | 144 | 146 |
| 1991 | 148 | 148 | 147 | 146 | 146 | 145 | 146 | 147 | 145 | 142 | 138 | 132 | 144 |
| 1992 | 124 | 115 | 108 | 103 | 100 | 97 | 91 | 84 | 80 | 76 | 74 | 73 | 94 |
| 1993 | 71 | 69 | 67 | 64 | 60 | 56 | 55 | 52 | 48 | 45 | 41 | 38 | 56 |
| 1994 | 37 | 35 | 34 | 34 | 33 | 31 | 29 | 27 | 27 | 27 | 26 | 26 | 31 |
| 1995 | 24 | 23 | 22 | 21 | 19 | 18 | 17 | 16 | 13 | 12 | 11 | 11 | 17 |
| 1996 | 11 | 10 | 10 | 9 | 8 | 9 | 8 | 8 | 7 | 7 | 6 | 6 | 8 |
| ( ) | | | | | | | (1) | (3) | (4) | (5) | (5) | (5) | (2) |
| 1997 | 6 | 7 | 7 | 8 | 9 | 10 | 11 | 12 | 12 | 13 | 15 | 16 | 11 |
| ( ) | (6) | (6) | (7) | (8) | (9) | (11) | (13) | (15) | (16) | (18) | (20) | (22) | (13) |

Solar Cycle 22 | Min, Max, and Predictions

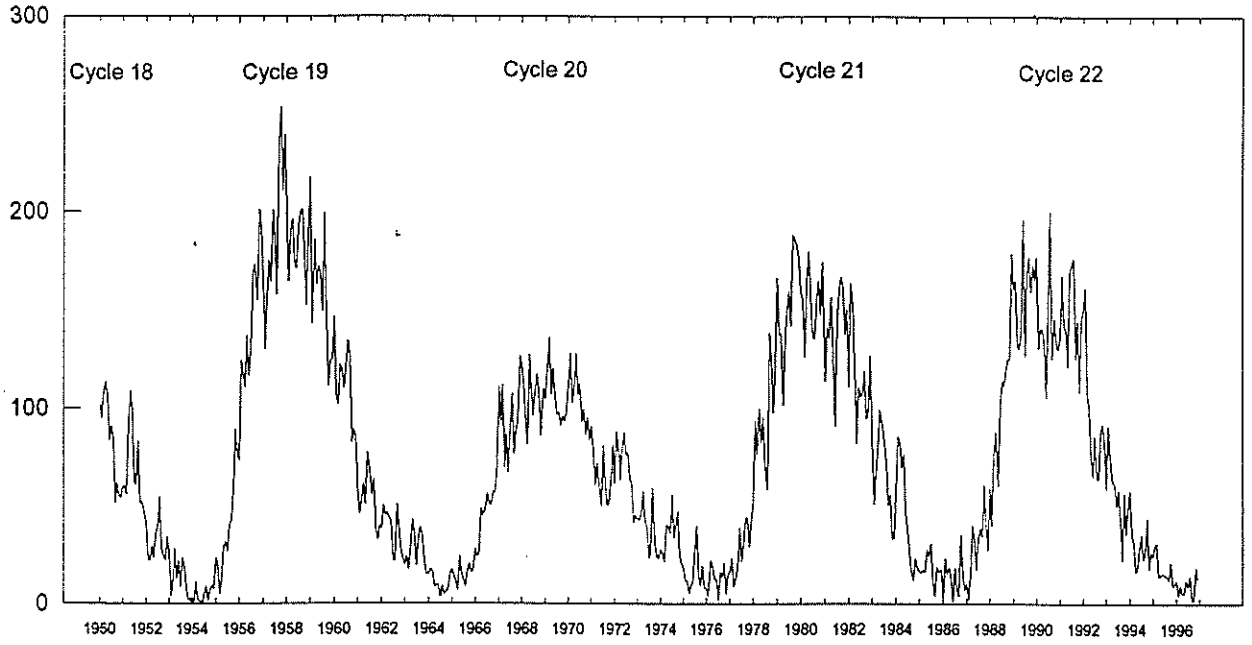
September 1986 marks the minimum of Solar Cycle 21 and the onset of Cycle 22, which in turn, reached a maximum in July 1989.

**Observed and Predicted Numbers.** For the end of Cycle 21, and the rise and decline of Cycle 22, 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 Jun 1996 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 June 1997 prediction. There exists a 90% chance that in June 1997, the actual smoothed number will fall somewhere between 0 and 21.

**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 14 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 minimum value of 12.3 that occurred in Sep 1986.

# Mean Monthly Sunspot Numbers
## Jan 1950 - Dec 1996






| Year | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Mean | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1950 | 101.6 | 94.8 | 109.7 | 113.4 | 106.2 | 83.6 | 91.0 | 85.2 | 51.3 | 61.4 | 54.8 | 54.1 | 83.9 | |
| 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 | 21.2 | 9.0 | 10.0 | 17.5 | |
| 1996 | 11.5 | 4.4 | 9.2 | 4.8 | 5.5 | 11.8 | 8.8 | 14.0 | 1.8 | 1.8 | 18.6 | 12.7 | 8.7 | |

Values are preliminary after Jun 1996. For the yearly means, each 'M' marks a sunspot cycle maximum and each 'm' a minimum.

# Hα S O L A R F L A R E S

## DECEMBER 1996

| Sta | Day | Start (UT) | Max (UT) | End (UT) | Lat | CMD | NOAA/ USAF Region | CMP Mo | CMP Day | Dur (Min) | Imp Opt | Imp Xray | Imp See | Obs Type | Area Measurement Time (UT) | Area Measurement Apparent (10-6 Disk) | Area Measurement Corr (Sq Deg) | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HOLL | 01 | 1639 | 1639 | 1645 | S05 | W77 | 7999 | 11 | 26.0 | 6 | SF | | 3 | E | | 12 | | |
| RAMY | | 2021 | 2023 | 2045 | S05 | W75 | 7999 | 11 | 26.3 | 24 | SF | C 1.6 | 3 | E | | 22 | | |
| HOLL | | 2049 | 2052 | 2126 | S05 | W74 | 7999 | 11 | 26.4 | 37 | SF | C 5.2 | 3 | E | | 68 | | F |
| RAMY | | 2052E | 2052U | 2105D | S04 | W74 | 7999 | 11 | 26.4 | 13D | SN | | 3 | E | | 88 | | |
| GOES | 02 | 0105 | 0113 | 0119 | | | | | | 14 | | C 1.2 | | | | | | |
| GOES | | 0132 | 0137 | 0141 | | | | | | 9 | | C 1.6 | | | | | | |
| GOES | | 0800 | 0805 | 0809 | | | | | | 9 | | B 3.2 | | | | | | |
| LEAR | | 0842 | 0843 | 0850 | S06 | W77 | 7999 | 11 | 26.7 | 8 | SF | B 7.4 | 3 | E | | 16 | | |
| LEAR | | 0858 | 0900 | 0902 | S06 | W77 | 7999 | 11 | 26.7 | 4 | SF | | 3 | E | | 12 | | |
| LEAR | | 0905 | 0905 | 0908 | S06 | W78 | 7999 | 11 | 26.6 | 3 | SF | | 3 | E | | 14 | | |
| GOES | | 1316 | 1328 | 1332 | | | | | | 16 | | B 5.8 | | | | | | |
| GOES | | 1358 | 1403 | 1420 | | | | | | 22 | | B 3.4 | | | | | | |
| HOLL | | 1423 | 1425 | 1504 | S04 | W86 | 7999 | 11 | 26.3 | 41 | SF | | 3 | E | | 86 | | |
| RAMY | | 1423 | 1433 | 1442 | S05 | W90 | 7999 | 11 | 26.0 | 19 | 1F | C 2.7 | 3 | E | | 168 | | |
| SVTO | | 1424E | 1429U | 1438D | S05 | W90 | 7999 | 11 | 26.0 | 14D | SF | | 2 | E | | 78 | | |
| GOES | | 1701 | 1705 | 1708 | | | | | | 7 | | B 2.0 | | | | | | |
| RAMY | | 1735E | 1736U | 1741D | S05 | W90 | 7999 | 11 | 26.1 | 6D | SN | | 3 | E | | 83 | | |
| HOLL | | 1736 | 1740 | 1806 | S05 | W90 | 7999 | 11 | 26.1 | 30 | SF | C 1.6 | 3 | E | | 77 | | |
| GOES | | 1843 | 1846 | 1849 | | | | | | 6 | | B 3.7 | | | | | | |
| GOES | | 1923 | 1934 | 1944 | | | | | | 21 | | B 2.9 | | | | | | |
| GOES | | 2058 | 2117 | 2125 | | | | | | 27 | | B 5.6 | | | | | | |
| LEAR | | 2348 | 2354 | 2359 | S04 | W89 | 7999 | 11 | 26.4 | 11 | 1F | C 1.2 | 3 | E | | 123 | | |
| GOES | 03 | 0306 | 0309 | 0311 | | | | | | 5 | | B 2.1 | | | | | | |
| GOES | | 0603 | 0607 | 0611 | | | | | | 8 | | B 1.7 | | | | | | |
| GOES | | 0811 | 0813 | 0824 | | | | | | 13 | | B 1.5 | | | | | | |
| GOES | | 0936 | 0943 | 0950 | | | | | | 14 | | B 3.3 | | | | | | |
| LEAR | 09 | 0920 | 0921 | 0924 | S31 | E04 | 8003 | 12 | 9.7 | 4 | SF | | 3 | E | | 10 | | |
| LEAR | | 0947 | 0947 | 0955 | S31 | E04 | 8003 | 12 | 9.7 | 8 | SF | | 3 | E | | 15 | | F |
| GOES | | 1146 | 1149 | 1151 | | | | | | 5 | | B 1.0 | | | | | | |
| RAMY | | 1348 | 1351 | 1354 | S30 | E05 | 8003 | 12 | 10.0 | 6 | SF | | 3 | E | | 20 | | |
| GOES | | 1424 | 1428 | 1430 | | | | | | 6 | | B 2.6 | | | | | | |
| GOES | | 1637 | 1640 | 1642 | | | | | | 5 | | B 2.6 | | | | | | |
| GOES | | 1644 | 1648 | 1650 | | | | | | 6 | | B 3.5 | | | | | | |
| GOES | | 1655 | 1700 | 1703 | | | | | | 8 | | B 6.3 | | | | | | |
| RAMY | | 1709 | 1716 | 1727 | S30 | W01 | 8003 | 12 | 9.6 | 18 | SF | B 8.1 | 3 | E | | 31 | | |
| LEAR | 10 | 0933 | 0933 | 0935 | S29 | W12 | 8003 | 12 | 9.4 | 2 | SF | | 3 | E | | 17 | | H |
| RAMY | | 1430 | 1431 | 1437 | S29 | W14 | 8003 | 12 | 9.5 | 7 | SF | B 1.3 | 3 | E | | 17 | | |
| GOES | | 1659 | 1708 | 1721 | | | | | | 22 | | B 1.7 | | | | | | |
| GOES | | 2237 | 2241 | 2243 | | | | | | 6 | | B 1.1 | | | | | | |
| GOES | 11 | 0118 | 0127 | 0132 | | | | | | 14 | | B 8.8 | | | | | | |
| LEAR | | 0358 | 0400 | 0410 | S28 | W20 | 8003 | 12 | 9.6 | 12 | SF | B 1.4 | 3 | E | | 20 | | F |
| LEAR | | 0519 | 0526 | 0537 | S28 | W21 | 8003 | 12 | 9.6 | 18 | SF | | 3 | E | | 12 | | |
| GOES | | 0941 | 0944 | 0947 | | | | | | 6 | | B 1.3 | | | | | | |
| GOES | | 1137 | 1222 | 1245 | | | | | | 68 | | B 1.7 | | | | | | |
| GOES | | 1432 | 1436 | 1439 | | | | | | 7 | | B 1.8 | | | | | | |
| GOES | | 1535 | 1539 | 1541 | | | | | | 6 | | B 1.4 | | | | | | |
| GOES | | 1813 | 1821 | 1827 | | | | | | 14 | | C 1.1 | | | | | | |
| GOES | | 2202 | 2214 | 2225 | | | | | | 23 | | B 3.5 | | | | | | |
| LEAR | 12 | 0021 | 0022 | 0029 | S27 | W37 | 8003 | 12 | 9.1 | 8 | SF | | 3 | E | | 13 | | |
| LEAR | | 0032 | 0035 | 0108 | S27 | W36 | 8003 | 12 | 9.2 | 36 | SF | | 3 | E | | 21 | | F |
| LEAR | | 0149 | 0155 | 0157 | S26 | W37 | 8003 | 12 | 9.2 | 8 | SF | | 3 | E | | 21 | | F |
| GOES | | 0301 | 0307 | 0311 | | | | | | 10 | | B 1.6 | | | | | | |
| LEAR | | 0322 | 0322 | 0326 | S28 | W33 | 8003 | 12 | 9.6 | 4 | SF | | 3 | E | | 19 | | |
| LEAR | | 0327 | 0337 | 0343 | S26 | W38 | 8003 | 12 | 9.2 | 16 | SF | | 3 | E | | 33 | | F |
| LEAR | | 0355 | 0357 | 0400 | S26 | W38 | 8003 | 12 | 9.2 | 5 | SF | | 3 | E | | 16 | | F |
| LEAR | | 0429 | 0433 | 0440 | S28 | W36 | 8003 | 12 | 9.4 | 11 | SF | | 3 | E | | 44 | | F |
| GOES | | 0441 | 0449 | 0454 | | | | | | 13 | | B 1.4 | | | | | | |
| GOES | | 0539 | 0543 | 0546 | | | | | | 7 | | B 2.1 | | | | | | |
| LEAR | | 0645 | 0648 | 0658 | S28 | W34 | 8003 | 12 | 9.6 | 13 | SN | B 6.1 | 3 | E | | 82 | | F |
| GOES | | 0909 | 0918 | 0927 | | | | | | 18 | | B 4.1 | | | | | | |
| RAMY | | 1257 | 1300 | 1309D | S30 | W39 | 8003 | 12 | 9.5 | 12D | SF | | 3 | E | | 50 | | |
| SVTO | | 1257 | 1303 | 1316 | S31 | W40 | 8003 | 12 | 9.4 | 19 | SF | B 7.6 | 3 | E | | 48 | | |

# Hα SOLAR FLARES

## DECEMBER 1996

| Sta | Day | Start (UT) | Max (UT) | End (UT) | Lat | CMD | NOAA/ USAF Region | CMP Mo | CMP Day | Dur (Min) | Imp Opt | Imp Xray | Imp See | Obs Type | Area Measurement Time (UT) | Area Measurement Apparent (10-6 Disk) | Area Measurement Corr (Sq Deg) | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GOES | 13 | 0055 | 0059 | 0102 | | | | | | 7 | | B 1.4 | | | | | | |
| GOES | | 0250 | 0256 | 0301 | | | | | | 11 | | B 1.7 | | | | | | |
| LEAR | | 0551 | 0554 | 0557 | S27 | W51 | 8003 | 12 | 9.3 | 6 | SF | B 4.3 | 3 | E | | 40 | | |
| GOES | | 0953 | 0959 | 1005 | | | | | | 12 | | B 2.8 | | | | | | |
| SVTO | | 1330 | 1331 | 1338 | S28 | W54 | 8003 | 12 | 9.3 | 8 | SF | B 1.4 | 3 | E | | 27 | | |
| RAMY | | 1340E | 1340U | 1404D | S28 | W54 | 8003 | 12 | 9.3 | 24D | SF | | 2 | E | | 18 | | |
| RAMY | | 1932 | 1935 | 1938 | S30 | W54 | 8003 | 12 | 9.6 | 6 | SF | | 3 | E | | 18 | | |
| LEAR | 14 | 0320 | 0321 | 0324 | S27 | W61 | 8003 | 12 | 9.4 | 4 | SF | B 1.6 | 3 | E | | 32 | | |
| LEAR | | 0440 | 0440 | 0444 | N04 | E44 | 8004 | 12 | 17.5 | 4 | SF | | 3 | E | | 14 | | |
| LEAR | | 0447 | 0449 | 0457 | N04 | E44 | 8004 | 12 | 17.5 | 10 | SF | | 3 | E | | 11 | | |
| LEAR | | 0620 | 0620 | 0623 | S27 | W63 | 8003 | 12 | 9.3 | 3 | SF | | 3 | E | | 22 | | |
| GOES | | 1428 | 1431 | 1434 | | | | | | 6 | | B 1.1 | | | | | | |
| GOES | | 1536 | 1540 | 1546 | | | | | | 10 | | B 1.3 | | | | | | |
| GOES | | 1747 | 1753 | 1800 | | | | | | 13 | | B 1.9 | | | | | | |
| GOES | | 1839 | 1843 | 1846 | | | | | | 7 | | B 1.9 | | | | | | |
| GOES | | 2314 | 2319 | 2323 | | | | | | 9 | | B 1.7 | | | | | | |
| GOES | 15 | 0958 | 1007 | 1021 | | | | | | 23 | | B 2.0 | | | | | | |
| GOES | | 1856 | 1900 | 1903 | | | | | | 7 | | B 1.3 | | | | | | |
| GOES | | 1919 | 1923 | 1928 | | | | | | 9 | | B 1.8 | | | | | | |
| GOES | 16 | 0250 | 0258 | 0304 | | | | | | 14 | | B 6.2 | | | | | | |
| LEAR | | 0755 | 0756 | 0812 | S13 | E35 | | 12 | 19.0 | 17 | SF | B 3.7 | 3 | E | | 24 | | F |
| GOES | | 1222 | 1229 | 1236 | | | | | | 14 | | C 2.9 | | | | | | |
| GOES | 17 | 2119 | 2124 | 2130 | | | | | | 11 | | B 2.0 | | | | | | |
| GOES | 18 | 1506 | 1513 | 1524 | | | | | | 18 | | B 2.1 | | | | | | |
| HOLL | | 1525 | 1526 | 1529 | N04 | W18 | 8004 | 12 | 17.3 | 4 | SF | | 3 | E | | 51 | | |
| GOES | | 1655 | 1659 | 1706 | | | | | | 11 | | B 2.0 | | | | | | |
| GOES | | 2342 | 2346 | 2352 | | | | | | 10 | | B 2.0 | | | | | | |
| LEAR | 19 | 0121 | 0121 | 0122D | S12 | W02 | 8005 | 12 | 18.9 | 1D | SF | | 3 | E | | 22 | | |
| PALE | | 0125 | 0125 | 0142 | S14 | E00 | 8005 | 12 | 19.0 | 17 | SF | B 5.8 | 3 | E | | 11 | | |
| GOES | | 0457 | 0501 | 0505 | | | | | | 8 | | B 4.4 | | | | | | |
| GOES | | 0823 | 0913 | 1044 | | | | | | 141 | | B 4.1 | | | | | | |
| GOES | | 1427 | 1453 | 1507 | | | | | | 40 | | B 1.6 | | | | | | |
| HOLL | | 1528E | 1550 | 1719 | S13 | W10 | 8005 | 12 | 18.9 | 111D | 1F | | 3 | E | | 105 | | UF |
| RAMY | | 1538 | 1610 | 1745 | S14 | W09 | 8005 | 12 | 19.0 | 127 | 1F | C 2.3 | 3 | E | | 142 | | UF |
| GOES | | 1944 | 1947 | 1949 | | | | | | 5 | | B 1.3 | | | | | | |
| LEAR | | 2237 | 2239 | 2241 | N07 | W30 | 8004 | 12 | 17.7 | 4 | SF | | 3 | E | | 22 | | |
| GOES | 20 | 0134 | 0152 | 0201 | | | | | | 27 | | B 2.5 | | | | | | |
| RAMY | | 1624 | 1626 | 1634 | N00 | W47 | 8004 | 12 | 17.2 | 10 | SF | B 2.9 | 3 | E | | 21 | | F |
| GOES | | 1811 | 1820 | 1829 | | | | | | 18 | | B 1.4 | | | | | | |
| SVTO | 21 | 0725 | 0729U | 0735 | S03 | E28 | | 12 | 23.4 | 10 | SF | | 3 | E | | 21 | | F |
| LEAR | | 0726 | 0726 | 0734 | S04 | E28 | | 12 | 23.4 | 8 | SF | B 1.8 | 4 | E | | 26 | | F |
| GOES | | 0956 | 1000 | 1006 | | | | | | 10 | | B 1.4 | | | | | | |
| GOES | 23 | 1043 | 1053 | 1103 | | | | | | 20 | | B 1.5 | | | | | | |
| HOLL | | 1621 | 1624 | 1626 | S06 | W05 | 8008 | 12 | 23.3 | 5 | SF | | 3 | E | | 33 | | |
| HOLL | | 2048 | 2048 | 2052 | S15 | W66 | 8005 | 12 | 18.9 | 4 | SF | | 3 | E | | 13 | | S |
| GOES | 24 | 1058 | 1121 | 1135 | | | | | | 37 | | B 6.4 | | | | | | |
| GOES | | 1303 | 1311 | 1323 | | | | | | 20 | | C 2.1 | | | | | | |

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

## DECEMBER 1996

| 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 |
|---|---|---|---|---|---|---|---|---|---|---|
| 11 | 2695 | LEAR | 8 S | 0122.0 | 0123.0 | 2.0 | 2.0 | | | QL=4 ST=2 TYP=3 |
| | 8800 | LEAR | 8 S | 0122.0 | 0123.0 | 2.0 | 1.0 | | | QL=4 ST=2 TYP=3 |

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

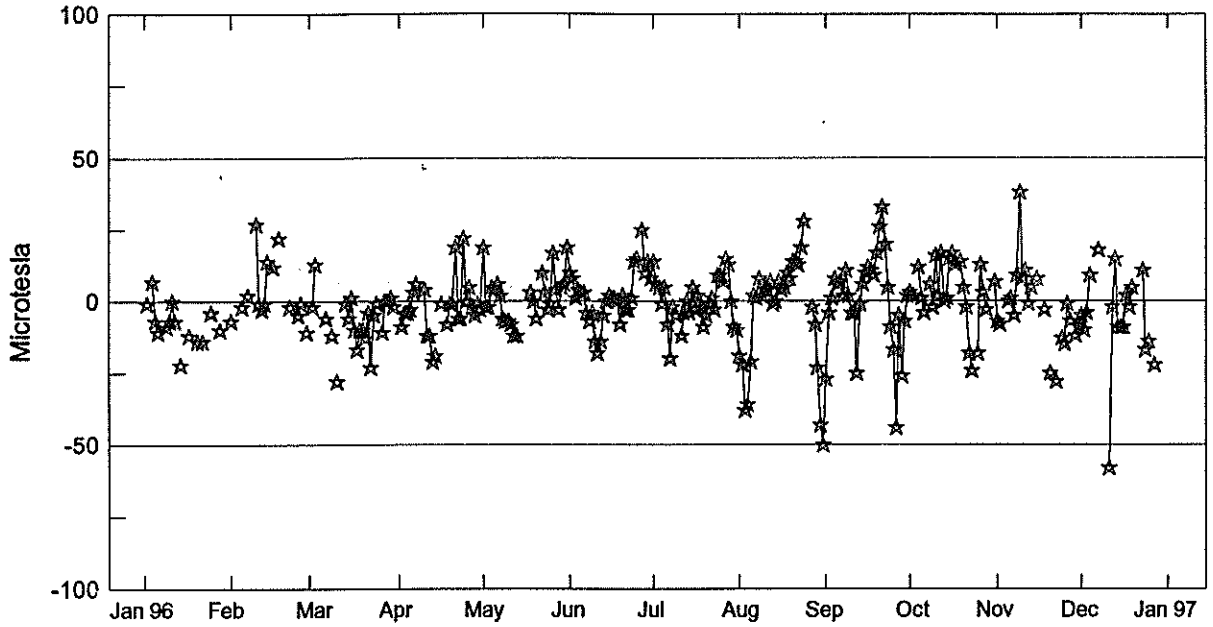
Explanation of Type Code:

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

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

RSTN Site Information: Beginning in April 1986, the RSTN sites LEAR, PALE, SGMR, and SVTO fixed frequency solar radio data are periodically adjusted to several world standard stations. These world standard stations include: Kislovodsk, USSR 15,500 MHz; Penticton, Canada 2800 MHz; Hiraiso, Japan 500 and 200 MHz; and Toyokawa, Japan 9400, 3750, 2000 and 1000 MHz.

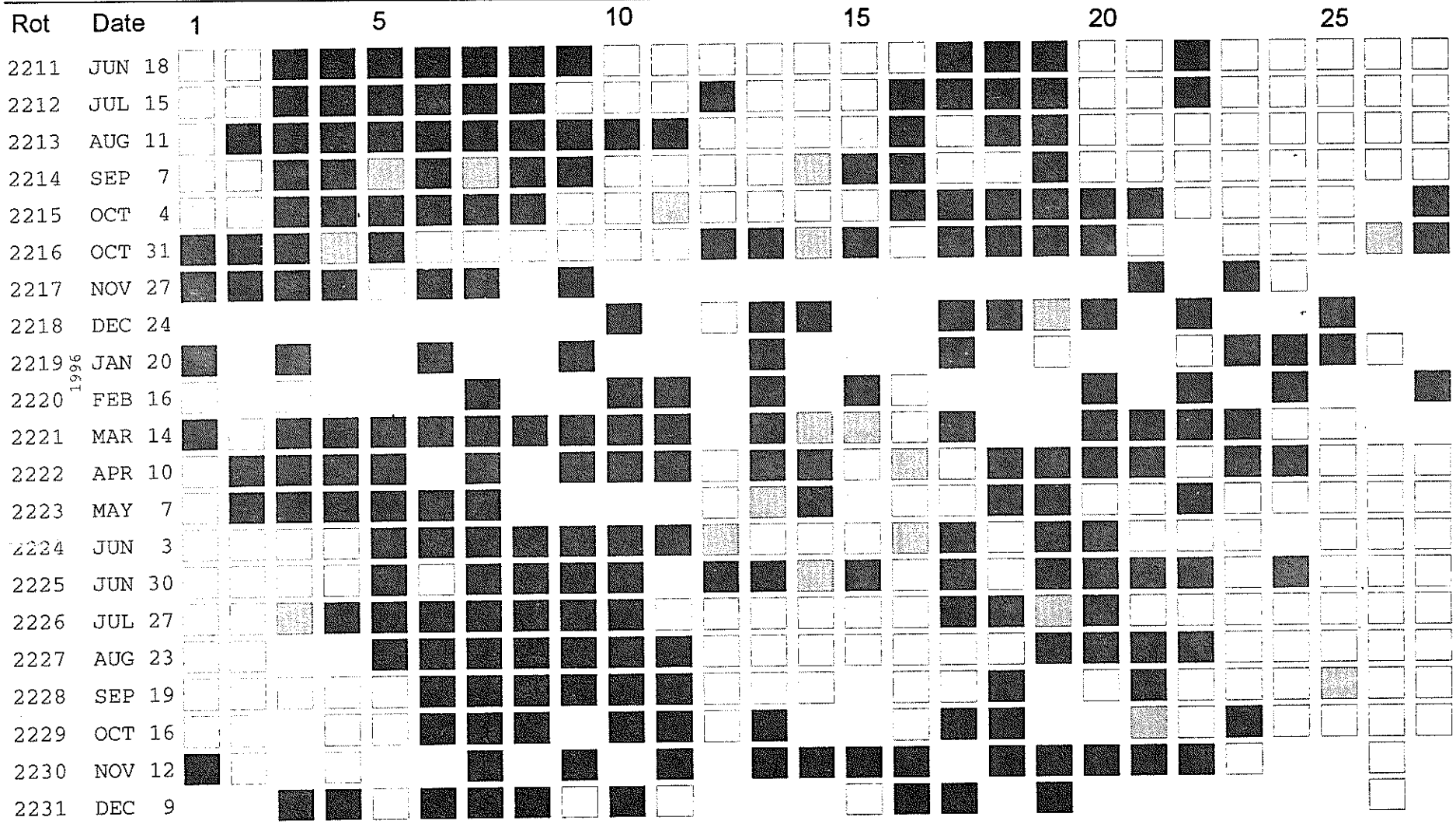
# Stanford Mean Solar Magnetic Field (Microtesla)
## "Sun-As-A-Star"




| Day | Jan 96 | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | --- | -7 | -2 | --- | 19 | 10 | 14 | -19 | -27 | 3 | -7 | -5 |
| 2 | -1 | --- | 13 | -9 | -2 | 8 | 6 | -22 | -4 | 2 | -8 | -10 |
| 3 | --- | --- | --- | -4 | -2 | 1 | 5 | -38 | 1 | --- | --- | -4 |
| 4 | 7 | --- | --- | -4 | 5 | 4 | -1 | -36 | 8 | 12 | --- | 9 |
| 5 | -7 | -2 | --- | -3 | 4 | 3 | 5 | -21 | 6 | 1 | 0 | --- |
| 6 | -11 | --- | -6 | 3 | 6 | 3 | -8 | 2 | 7 | -4 | 1 | --- |
| 7 | --- | 2 | --- | 6 | 2 | -4 | -20 | 1 | 2 | --- | -5 | 18 |
| 8 | --- | --- | -12 | --- | -6 | -7 | -2 | 8 | 11 | 6 | 9 | --- |
| 9 | -9 | --- | --- | --- | -7 | -4 | -5 | 2 | 2 | -2 | 38 | --- |
| 10 | -7 | 27 | -28 | 4 | -7 | -14 | --- | 4 | -4 | 16 | 8 | --- |
| 11 | 0 | -1 | --- | -12 | -8 | -18 | -12 | 4 | -4 | 2 | 11 | -58 |
| 12 | -7 | -3 | --- | -12 | -12 | -14 | -4 | 7 | -25 | 17 | -1 | -2 |
| 13 | --- | -1 | -1 | -21 | -12 | -5 | 0 | -1 | -1 | 0 | 5 | 15 |
| 14 | -22 | 14 | -6 | -19 | --- | 0 | -4 | 0 | 6 | 1 | --- | -9 |
| 15 | --- | --- | 1 | --- | --- | 2 | 5 | 7 | 10 | 15 | 8 | -9 |
| 16 | --- | 12 | -10 | -1 | --- | 1 | -3 | 4 | 12 | 17 | --- | -9 |
| 17 | -12 | --- | -17 | --- | --- | 1 | 2 | 5 | 11 | 13 | --- | 2 |
| 18 | --- | 22 | -10 | -8 | 3 | 0 | -2 | 10 | 9 | --- | -3 | -2 |
| 19 | --- | --- | -10 | -1 | 0 | -8 | -9 | 8 | 17 | 14 |  | 5 |
| 20 | -14 | --- | -13 | -1 | -6 | 2 | -5 | 14 | 26 | 5 | -25 | --- |
| 21 | --- | --- | -4 | 19 | --- | -3 | -1 | 14 | 33 | -2 | --- | --- |
| 22 | -14 | -2 | -23 | -6 | 10 | -3 | 1 | 13 | 20 | -18 | -28 | --- |
| 23 | --- | --- | -5 | -6 | 3 | 1 | -3 | 19 | 5 | -24 | --- | 11 |
| 24 | --- | --- | -1 | 22 | -3 | 14 | 9 | 28 | -9 | --- | -13 | -17 |
| 25 | -4 | -5 | --- | 0 | -1 | 15 | 9 | --- | -17 | -18 | -15 | -14 |
| 26 | --- | -1 | -11 | 5 | 17 | --- | 7 | --- | -44 | 13 | -1 | --- |
| 27 | --- | --- | 0 | -2 | 4 | 25 | 15 | -2 | -5 | 3 | -7 | -22 |
| 28 | -10 | -11 | 0 | -5 | -3 | 10 | 13 | -8 | -26 | -3 | --- | --- |
| 29 | --- | --- | 1 | -1 | 5 | 14 | 0 | -23 | -7 | --- | -12 | --- |
| 30 | --- |  | -2 | -3 | 6 | 8 | -9 | -43 | 2 | --- | -9 | --- |
| 31 | --- |  | --- |  | 19 |  | -10 | -50 |  | 7 |  | --- |

Note: --- Indicates no data available for the day.

# STANFORD MEAN SOLAR MAGNETIC FIELD

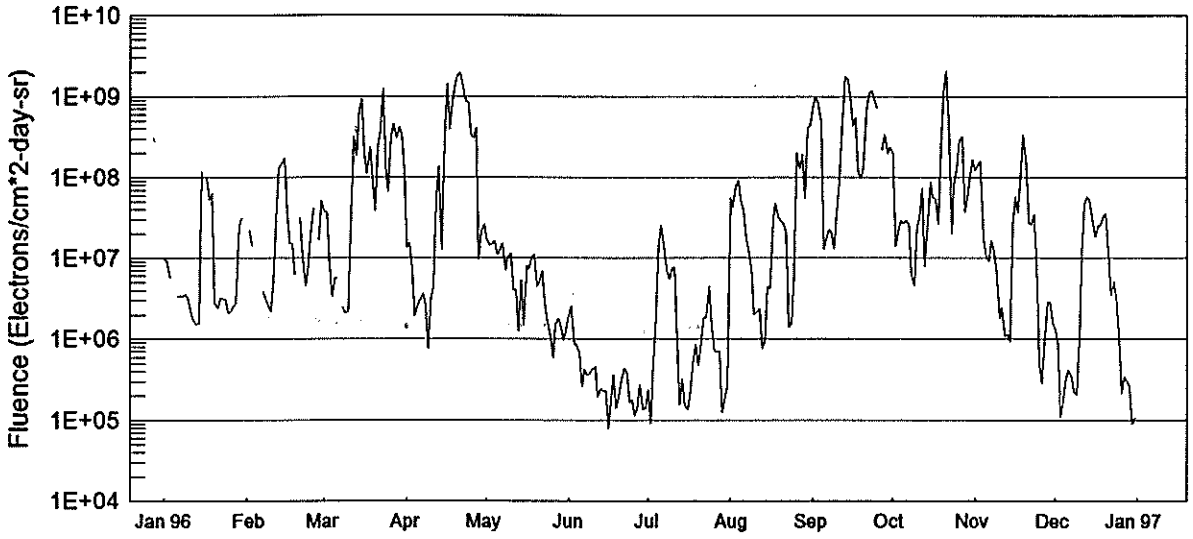



Mean Solar Magnetic Field Polarity: = field > 2 microT; = -2 microT ≤ field ≤ 2 microT

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

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

# GOES Daily Electron Fluence
## Jan 96 - Dec 96




| Day | Jan 96 | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 9.7E+06 | -- | 3.8E+07 | 1.3E+07 | 1.7E+07 | 1.9E+06 | 2.3E+05 | 5.6E+07 | 7.0E+08 | 2.0E+08 | 1.2E+08 | 1.3E+06 |
| 2 | 9.4E+06 | 2.1E+07 | 3.6E+07 | 1.5E+07 | 1.4E+07 | 2.5E+06 | 9.1E+04 | 4.2E+07 | 9.9E+08 | 1.3E+07 | 1.4E+08 | 8.8E+05 |
| 3 | 5.6E+06 | 1.4E+07 | 9.9E+06 | 7.5E+06 | 1.4E+07 | 8.5E+05 | 5.1E+05 | 7.8E+07 | 8.3E+08 | 2.1E+07 | 1.5E+08 | 1.0E+05 |
| 4 | -- | -- | 3.2E+06 | 1.9E+06 | 1.6E+07 | 8.6E+05 | 1.8E+06 | 9.1E+07 | 4.8E+08 | 2.8E+07 | 1.7E+07 | 1.7E+05 |
| 5 | -- | -- | 5.7E+06 | 2.6E+06 | 1.1E+07 | 6.6E+05 | 1.4E+07 | 5.1E+07 | 1.2E+07 | 2.7E+07 | 1.0E+07 | 3.1E+05 |
| 6 | 3.3E+06 | -- | 5.5E+06 | 3.1E+06 | 1.2E+07 | 2.5E+05 | 2.5E+07 | 3.9E+07 | 1.7E+07 | 2.9E+07 | 9.2E+06 | 4.1E+05 |
| 7 | 3.4E+06 | 3.8E+06 | -- | 3.6E+06 | 1.5E+07 | 4.2E+05 | 1.5E+07 | 1.7E+07 | 2.2E+07 | 2.6E+07 | 1.6E+07 | 3.4E+05 |
| 8 | 3.3E+06 | 3.1E+06 | 2.4E+06 | 2.6E+06 | 7.1E+06 | 3.5E+05 | 6.9E+06 | 1.2E+07 | 2.0E+07 | 6.5E+06 | 1.2E+07 | 2.1E+05 |
| 9 | 3.5E+06 | 2.6E+06 | 2.1E+06 | 7.5E+05 | 1.0E+07 | 3.7E+05 | 5.4E+06 | 6.2E+06 | 1.2E+07 | 4.6E+06 | 6.8E+06 | 2.0E+05 |
| 10 | 3.2E+06 | 2.2E+06 | 2.2E+06 | 3.0E+06 | 1.1E+07 | 4.1E+05 | 7.4E+06 | 2.0E+06 | 3.6E+07 | 2.4E+07 | 1.8E+06 | 9.7E+05 |
| 11 | 2.0E+06 | 5.3E+06 | 2.0E+07 | 4.3E+06 | 4.0E+06 | 4.4E+05 | 7.6E+06 | 2.1E+06 | 8.5E+07 | 3.1E+07 | 2.4E+06 | 1.1E+07 |
| 12 | 1.7E+06 | 3.0E+07 | 3.1E+08 | 4.9E+07 | 4.1E+06 | 1.9E+05 | 9.6E+05 | 2.3E+06 | 3.8E+08 | 7.3E+07 | 1.0E+06 | 4.7E+07 |
| 13 | 1.4E+06 | 1.3E+08 | 1.8E+08 | 1.3E+08 | 1.2E+06 | 2.4E+05 | 1.5E+05 | 7.6E+05 | 1.7E+09 | 7.7E+06 | 1.1E+06 | 5.8E+07 |
| 14 | 1.5E+06 | 1.4E+08 | 6.6E+08 | 1.2E+07 | 5.2E+06 | 2.2E+05 | 3.1E+05 | 9.2E+05 | 1.6E+09 | 2.3E+07 | 9.4E+05 | 5.1E+07 |
| 15 | 1.2E+08 | 1.7E+08 | 9.2E+08 | 2.9E+08 | 1.4E+06 | 2.2E+05 | 1.5E+05 | 4.4E+06 | 9.7E+08 | 8.5E+07 | 2.6E+07 | 2.7E+07 |
| 16 | -- | 3.9E+07 | 1.9E+08 | 1.4E+09 | 8.0E+06 | 7.7E+04 | 1.3E+05 | 4.2E+06 | 4.3E+08 | 5.8E+07 | 5.7E+07 | 1.8E+07 |
| 17 | 9.6E+07 | 1.5E+07 | 1.1E+08 | 3.9E+08 | 7.4E+06 | 1.7E+05 | 2.2E+05 | 3.0E+07 | 5.4E+08 | 5.3E+07 | 3.7E+07 | 2.4E+07 |
| 18 | 5.2E+07 | 1.5E+07 | 2.3E+08 | 8.2E+08 | 1.0E+07 | 3.6E+05 | 5.2E+05 | 4.8E+07 | 1.2E+08 | 2.6E+07 | 1.0E+08 | 2.5E+07 |
| 19 | 6.3E+07 | 6.1E+06 | 1.2E+08 | 1.3E+09 | 1.1E+07 | 1.3E+05 | 8.5E+05 | 3.1E+07 | 9.6E+07 | 2.2E+08 | 3.3E+08 | 3.2E+07 |
| 20 | 2.8E+06 | -- | 3.8E+07 | 1.8E+09 | 4.5E+06 | 1.9E+05 | 4.7E+05 | 2.9E+07 | 1.2E+08 | 1.1E+09 | 1.4E+08 | 3.6E+07 |
| 21 | 2.4E+06 | 3.1E+07 | 2.4E+08 | 1.9E+09 | 5.2E+06 | 3.2E+05 | 8.5E+05 | 2.6E+07 | 6.5E+08 | 2.0E+09 | 2.7E+07 | 1.1E+07 |
| 22 | 3.1E+06 | 1.0E+07 | 3.7E+08 | 1.2E+09 | 6.8E+06 | 4.3E+05 | 1.8E+06 | 2.0E+07 | 1.1E+09 | 5.0E+08 | 2.5E+07 | 3.4E+06 |
| 23 | 3.1E+06 | 4.5E+06 | 1.2E+09 | 8.6E+08 | 2.6E+06 | 3.9E+05 | 1.8E+06 | 1.3E+06 | 1.1E+09 | 2.0E+07 | 3.5E+07 | 5.1E+06 |
| 24 | 3.1E+06 | 6.8E+06 | 1.3E+08 | 8.3E+08 | 1.4E+06 | 1.6E+05 | 4.4E+06 | 1.5E+06 | 9.3E+08 | 8.1E+07 | 7.9E+06 | 2.8E+06 |
| 25 | 2.0E+06 | 2.2E+07 | 6.6E+07 | 3.3E+08 | 1.1E+06 | 1.7E+05 | 1.6E+06 | 5.9E+06 | 7.1E+08 | 1.4E+08 | 5.0E+05 | 9.5E+05 |
| 26 | 2.2E+06 | 4.2E+07 | 3.0E+08 | 3.0E+08 | 5.8E+05 | 1.1E+05 | 6.9E+05 | 1.9E+08 | -- | 2.8E+08 | 2.8E+05 | 2.1E+05 |
| 27 | 2.5E+06 | -- | 4.5E+08 | 4.1E+08 | 1.4E+06 | 1.4E+05 | 6.8E+05 | 1.2E+08 | 2.2E+08 | 3.2E+08 | 8.9E+05 | 3.4E+05 |
| 28 | 2.7E+06 | 1.6E+07 | 3.1E+08 | 9.5E+06 | 1.8E+06 | 2.7E+05 | 6.9E+05 | 1.9E+08 | 3.4E+08 | 3.6E+07 | 2.8E+06 | 3.0E+05 |
| 29 | 2.5E+07 | 5.1E+07 | 4.1E+08 | 2.1E+07 | 1.4E+06 | 1.3E+05 | 1.2E+05 | 5.6E+07 | 2.0E+08 | 5.7E+07 | 2.8E+06 | 2.6E+05 |
| 30 | 3.1E+07 | | 3.3E+08 | 2.6E+07 | 9.7E+05 | 1.4E+05 | 1.8E+05 | 4.1E+08 | 2.3E+08 | 1.0E+08 | 1.5E+06 | 9.0E+04 |
| 31 | -- | | 1.2E+08 | | 1.3E+06 | | 2.5E+05 | 4.4E+08 | | 1.6E+08 | | 1.0E+05 |

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. GOES9 data began April, 1996.

# CONTENTS

Prompt Reports Number 629 Part I

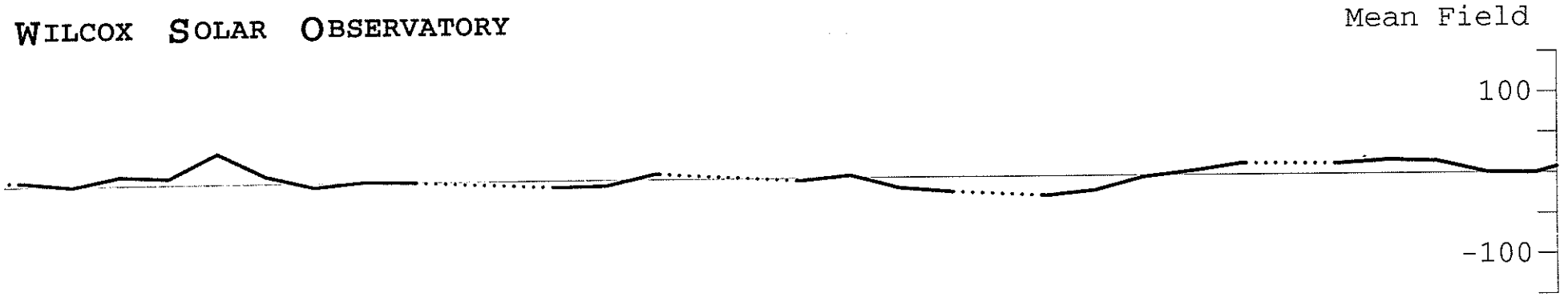
## DATA FOR NOVEMBER 1996

# SOLAR MAGNETIC FIELD SYNOPTIC CHART

CARRINGTON ROTATION NUMBER 1915

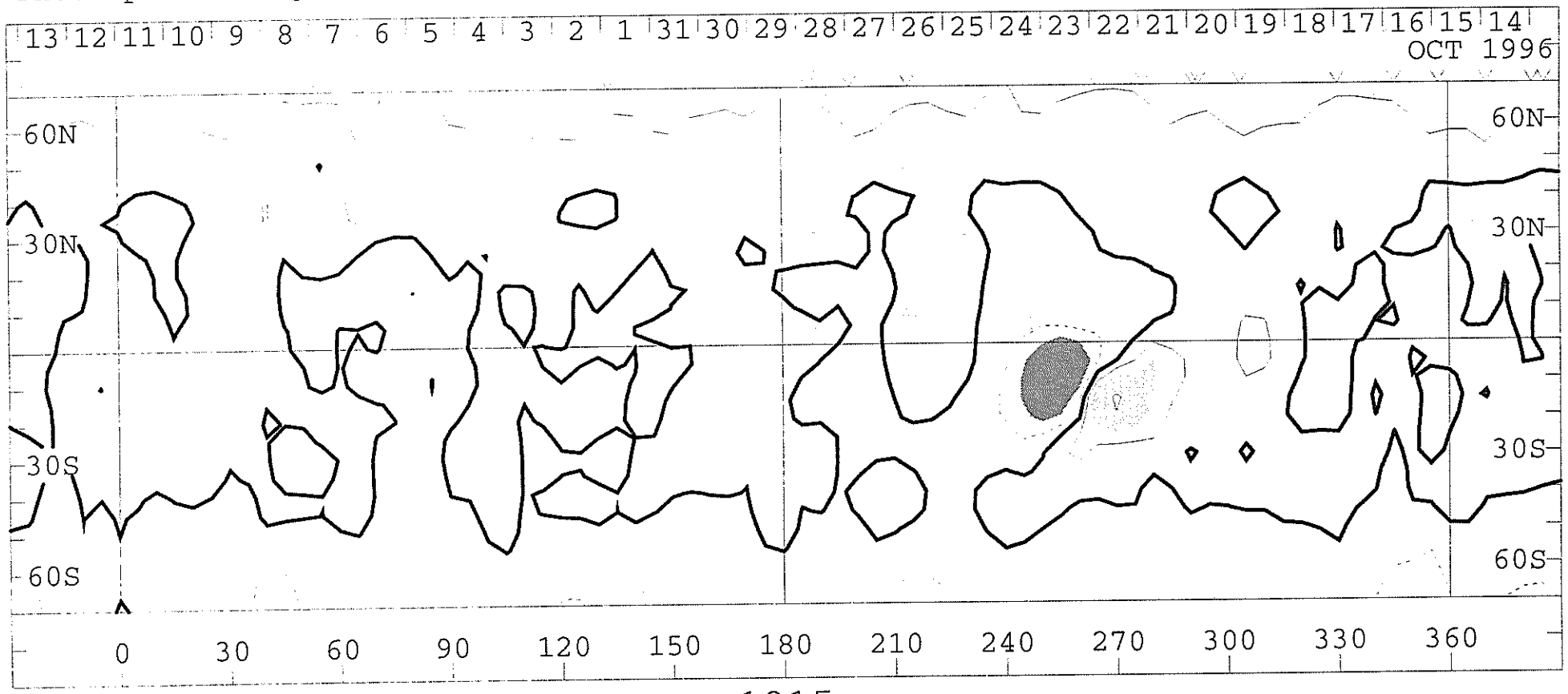
(15 October to 11 November 1996)

WILCOX SOLAR OBSERVATORY




Photospheric Magnetic Field

0, ±100, 500, 1000, 2000 MicroTesla




Heliographic Longitude

1915

# SOLAR MAGNETIC FIELD SYNOPTIC CHART

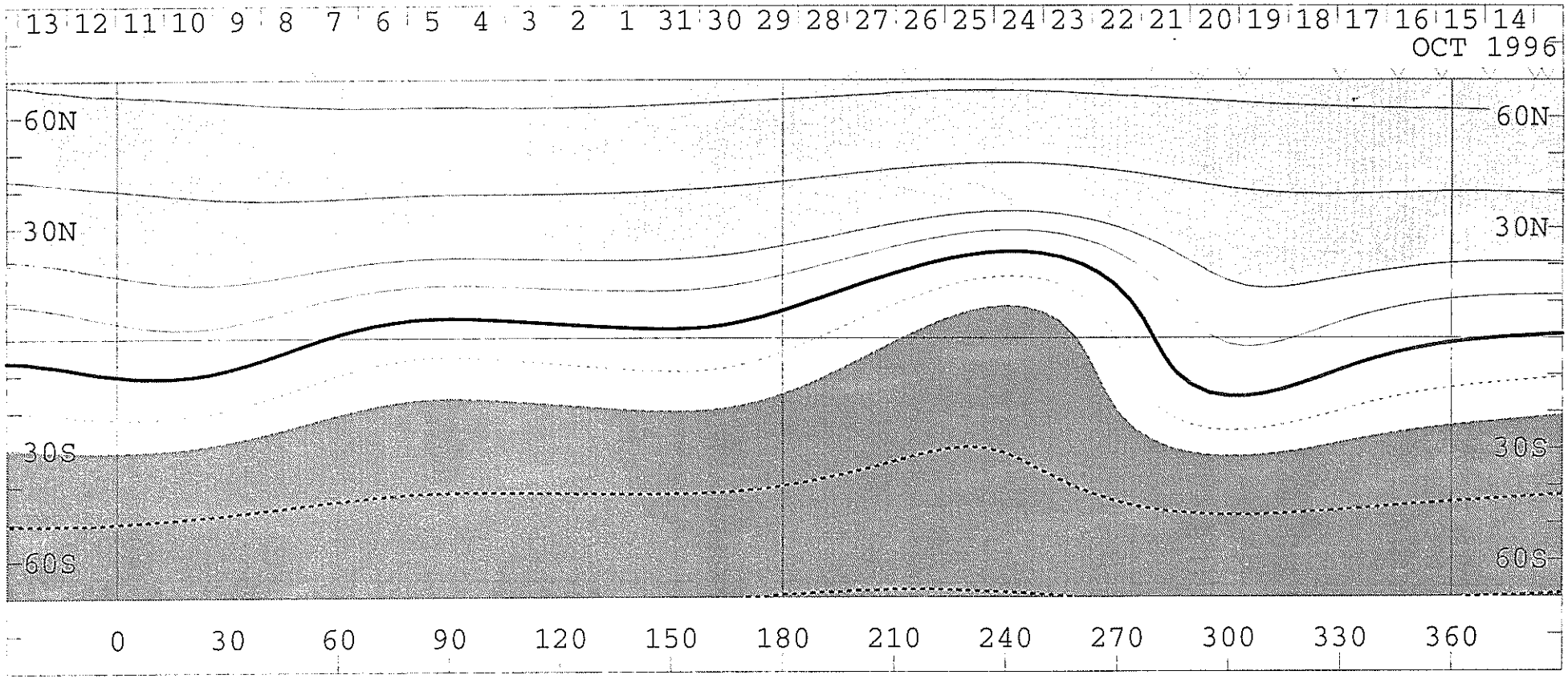
## SOURCE SURFACE FIELD

CARRINGTON ROTATION NUMBER 1915

(15 October to 11 November 1996)

**Wilcox Solar Observatory**

0, ±1, 2, 5, 10, 20 microTesla

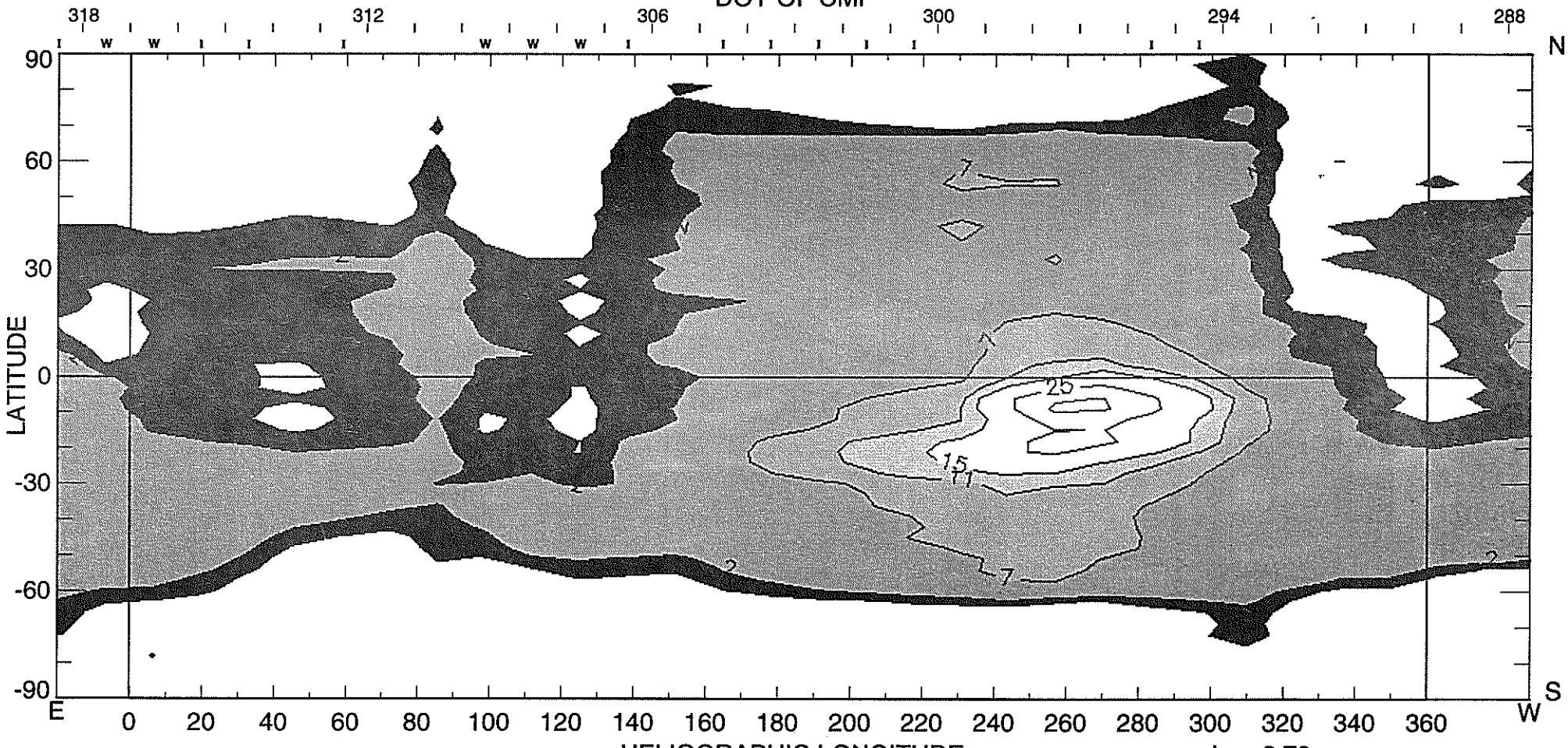



Heliographic Longitude

1915

37
Nov 96

CARRINGTON ROTATION NUMBER 1915 ; NSO/SACRAMENTO PEAK FE XIV @ R = 1.15$R_o$

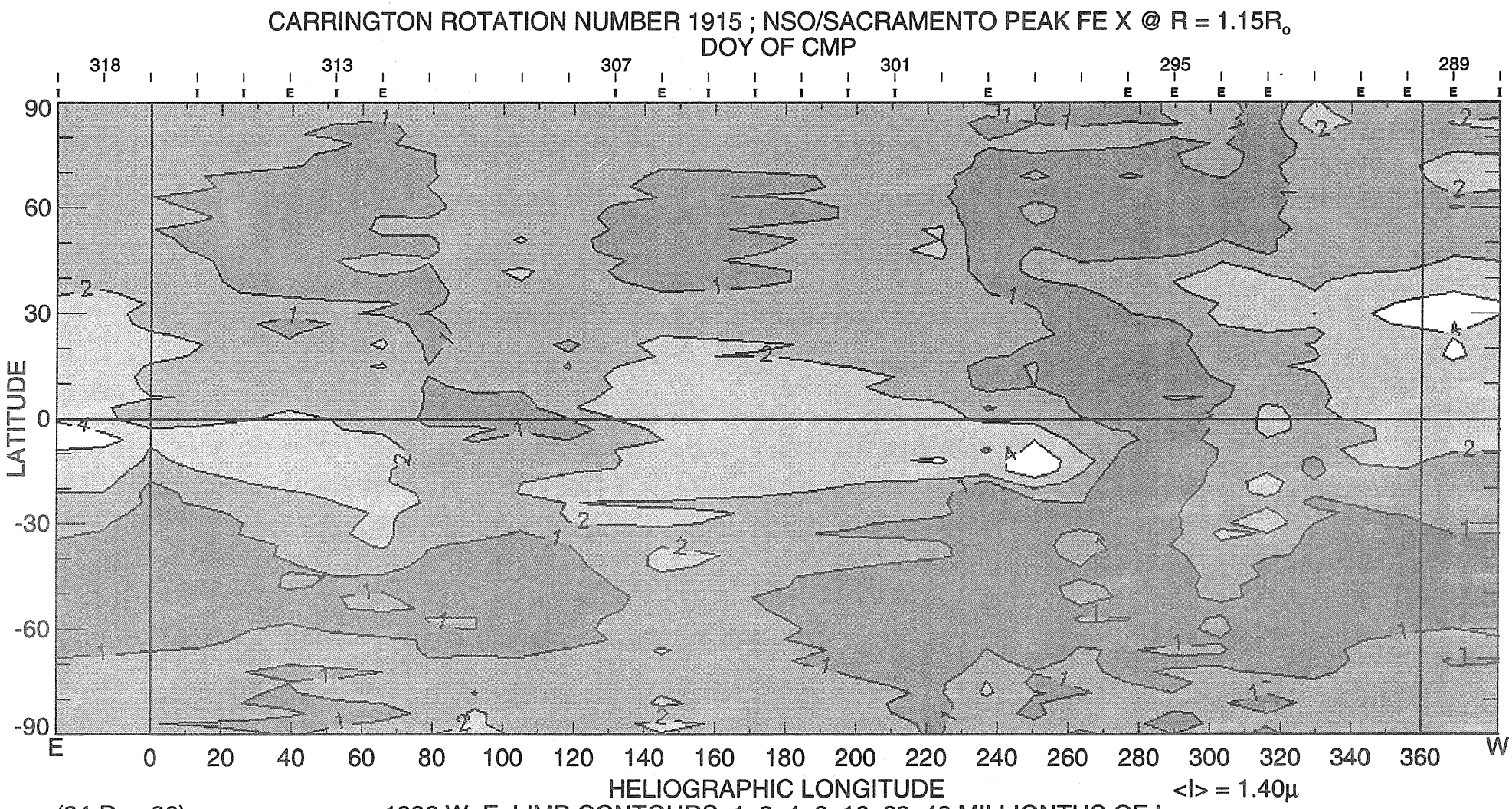



(24-Dec-96)

<I> = 2.70μ

1996 E+W LIMB CONTOURS: 1, 2, 7, 11, 15, 25, 35, 45 MILLIONTHS OF $I_o$

CORONAL HOLES ARE SHOWN AS WHITE BORDERED BY BLACK




NOTE: No Ca XV emission observed at Sacramento Peak for rotation 1915.

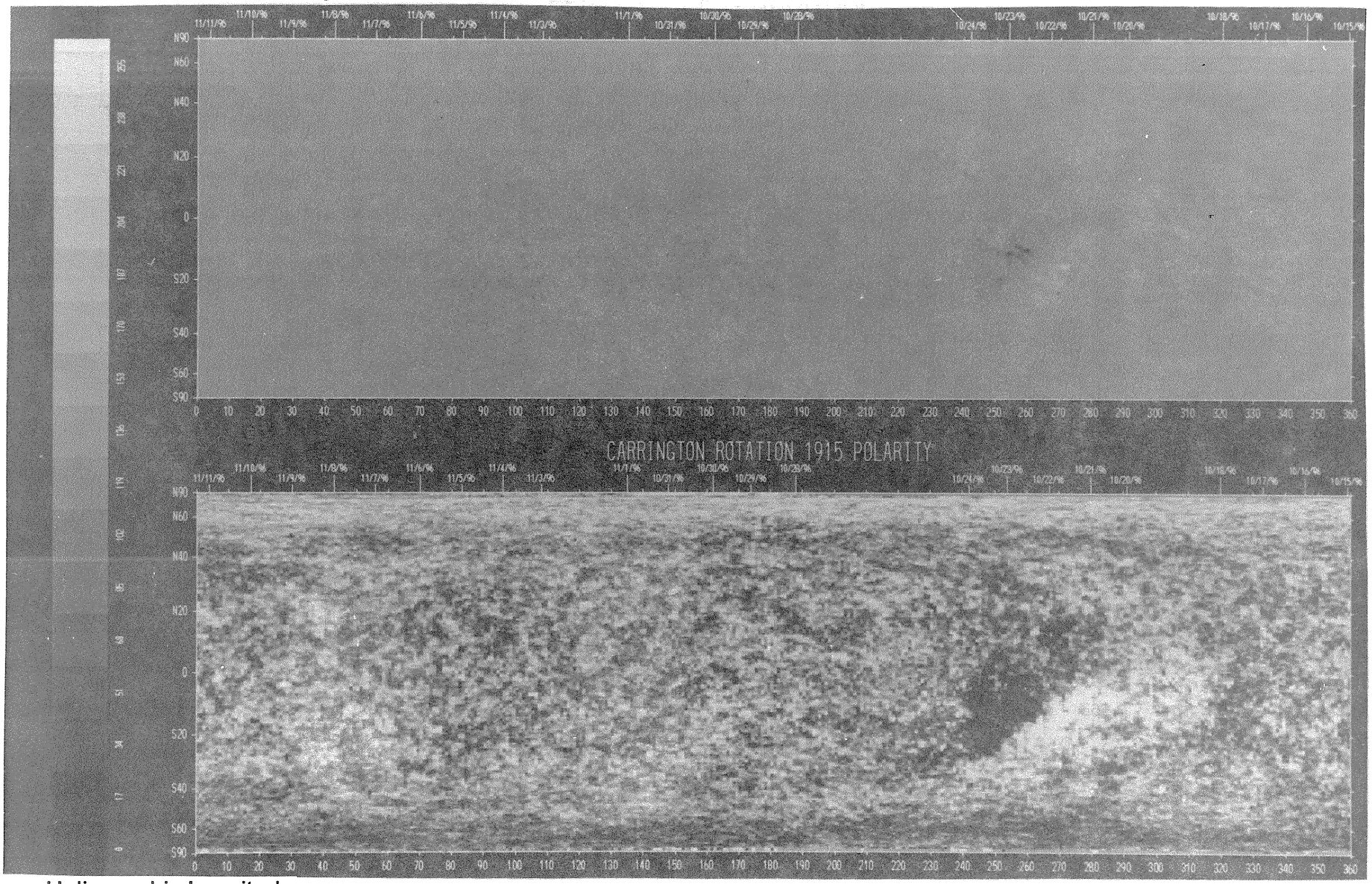
# SOLAR MAGNETIC FIELD SYNOPTIC CHART

CARRINGTON ROTATION NUMBER 1915

(15 October to 11 November 1996)

National Solar Observatory/Kitt Peak

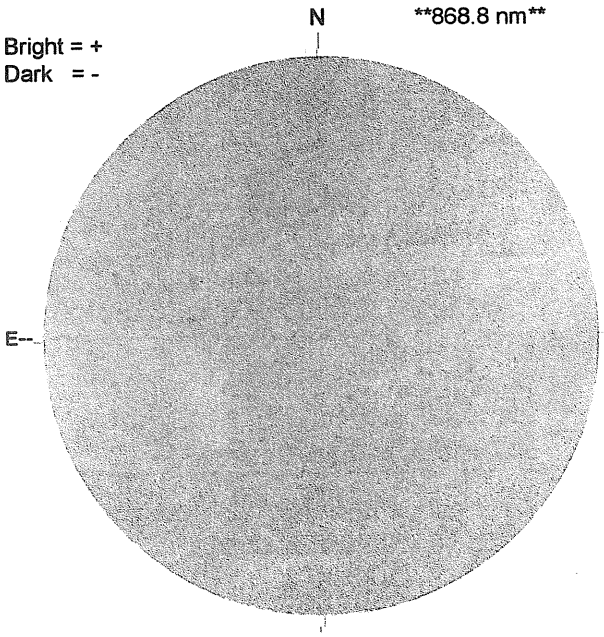
Dates of Observation




Heliographic Longitude

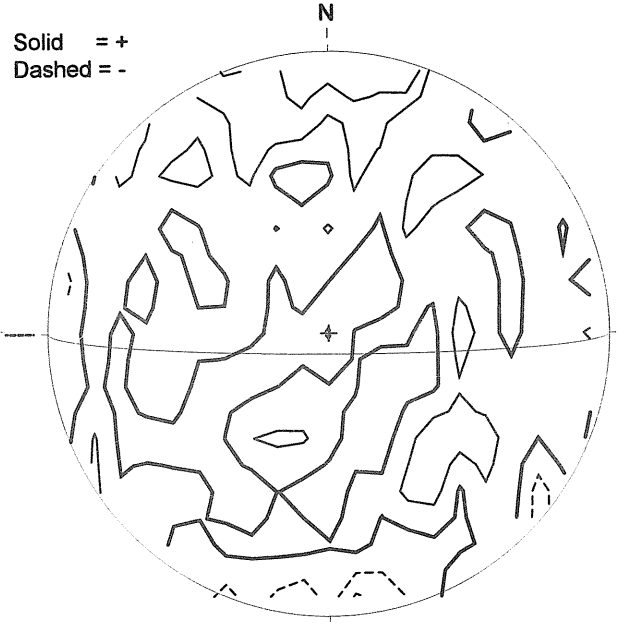
**NOVEMBER 1, 1996 ( P= 24.51 , Bo = 4.37 , Lo = 7.05)**

KITT PEAK MAGNETOGRAM



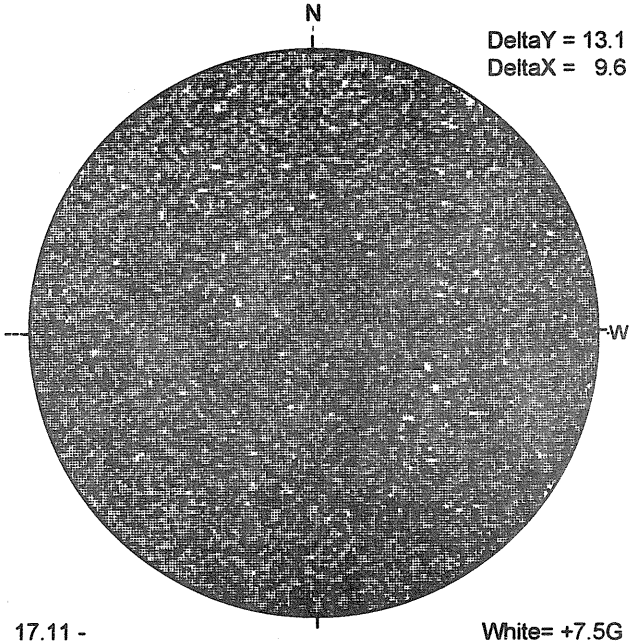

1711 UT

STANFORD MAGNETOGRAM




2045 UT

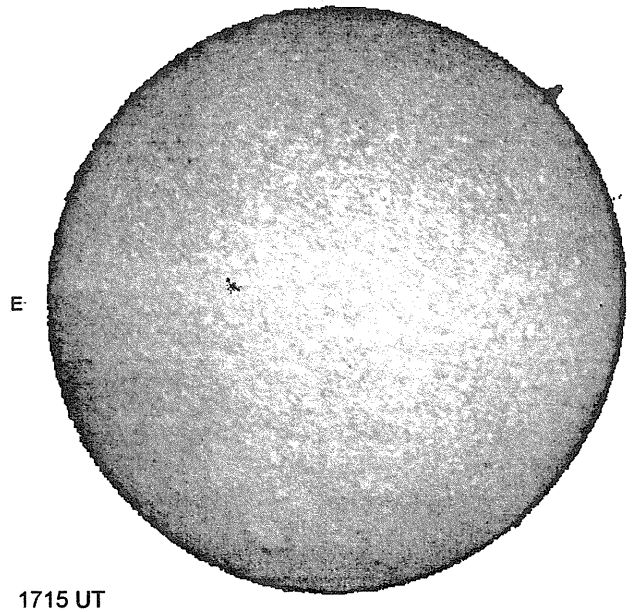
MT. WILSON MAGNETOGRAM




17.11 - 18.07 UT

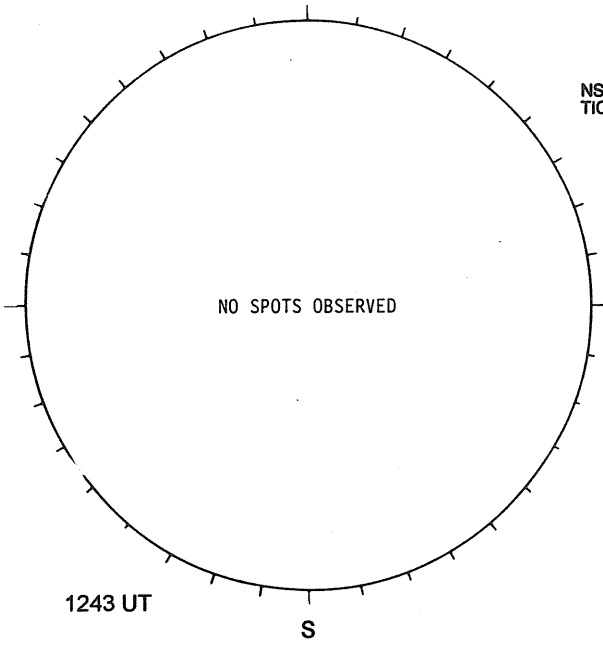
White= +7.5G
Black = -7.5G

SACRAMENTO PEAK H-ALPHA



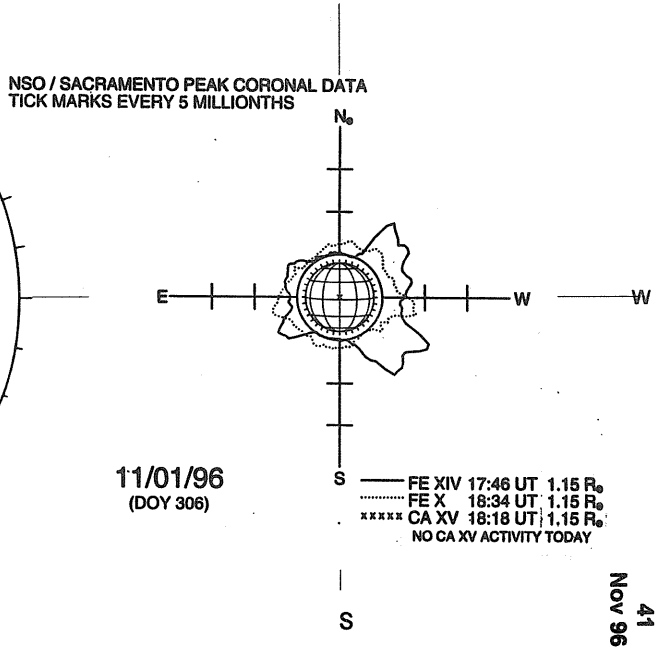

1715 UT

RAMEY SUNSPOT




1243 UT

SACRAMENTO PEAK CORONA (1.15 Radii)----



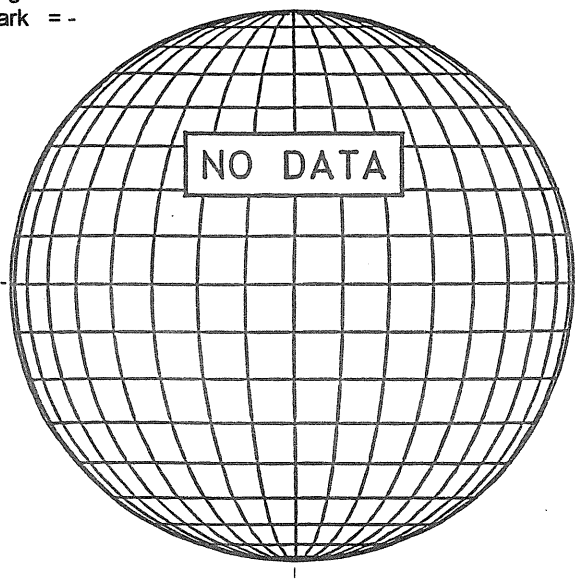

41
Nov 96

# NOVEMBER 2, 1996 ( P= 24.34 , Bo = 4.27, Lo = 353.86)

## KITT PEAK MAGNETOGRAM

N **868.8 nm**

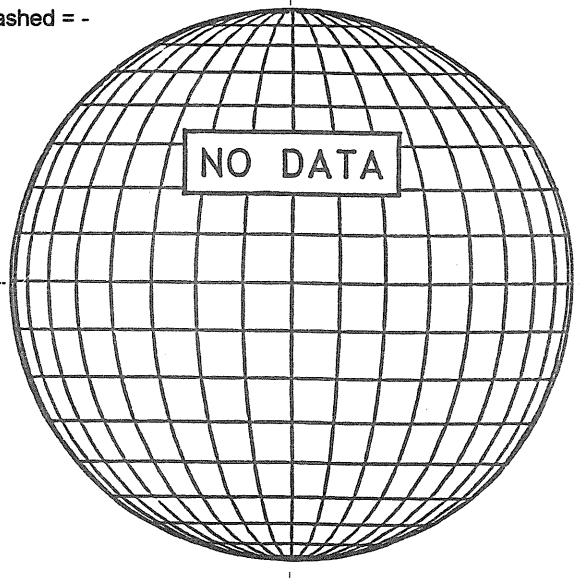
Bright = +
Dark = -




## STANFORD MAGNETOGRAM

N

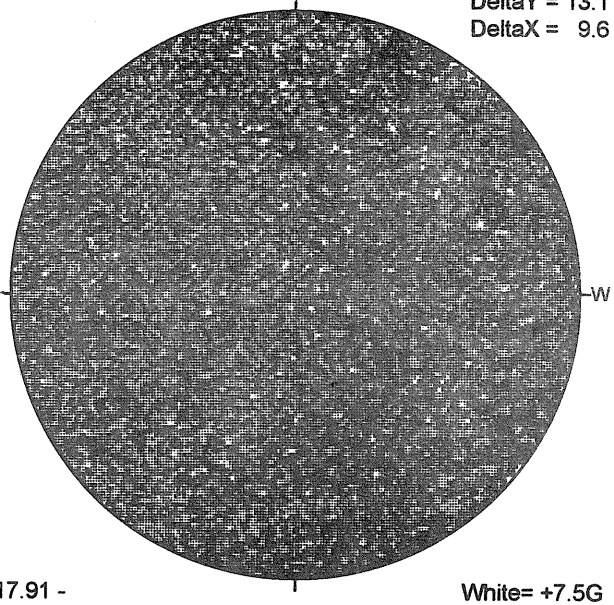
Solid = +
Dashed = -




## MT. WILSON MAGNETOGRAM

N

DeltaY = 13.1
DeltaX = 9.6

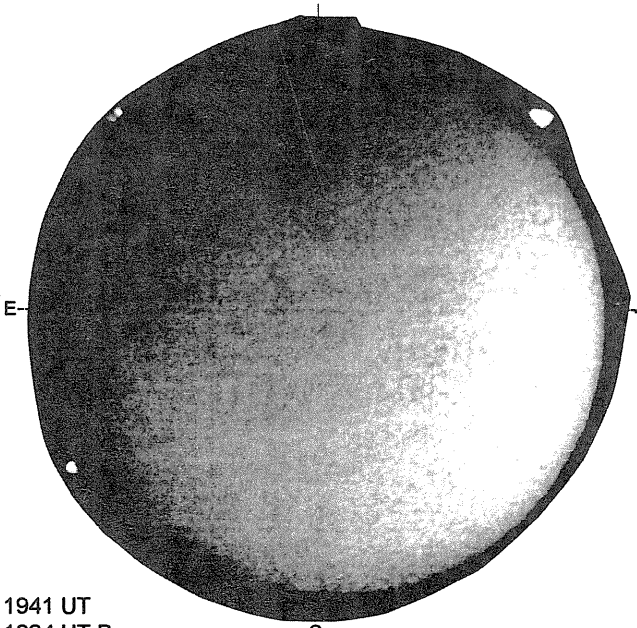



17.91 -
18.87 UT

White= +7.5G
Black = -7.5G

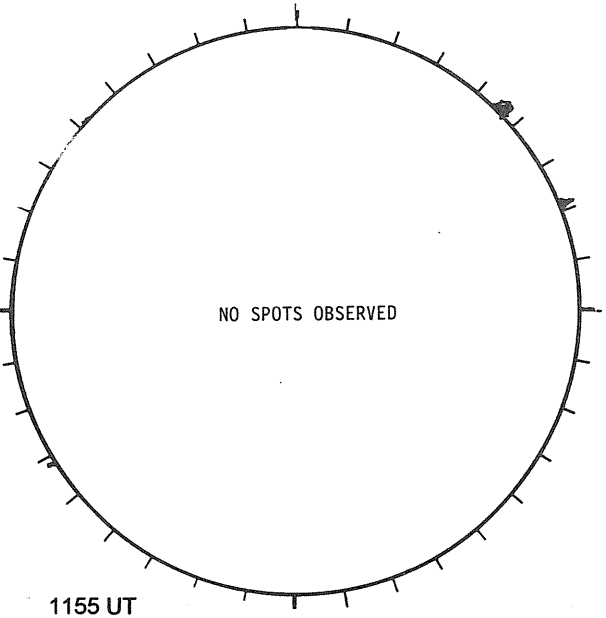
## MAUNA LOA H-ALPHA

-----



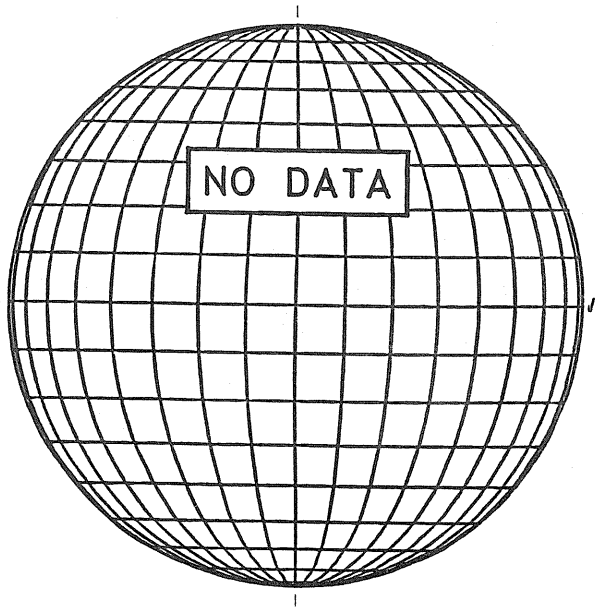

1941 UT
1824 UT Prom

## RAMEY SUNSPOT



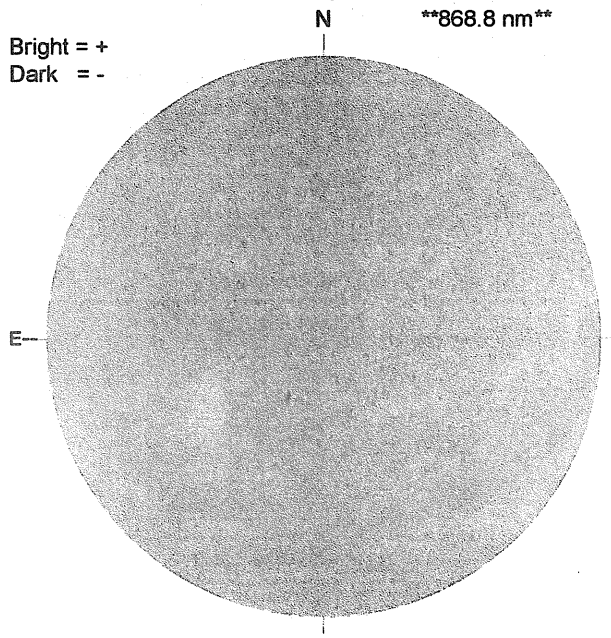

1155 UT
0808 UT VALA Prom S

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

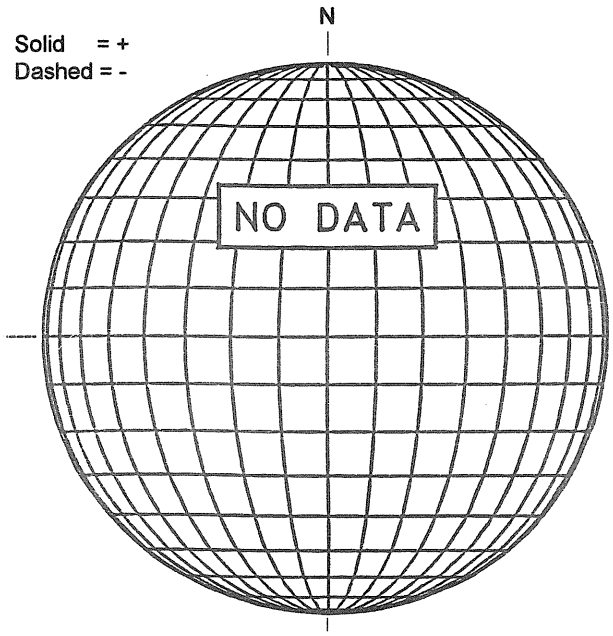


**NOVEMBER 3, 1996 ( P= 24.16 , Bo = 4.17 , Lo = 340.67)**

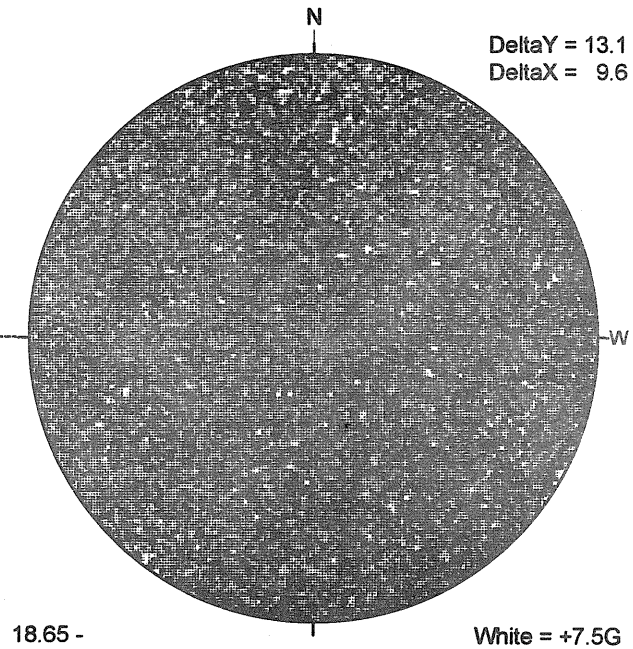
KITT PEAK MAGNETOGRAM



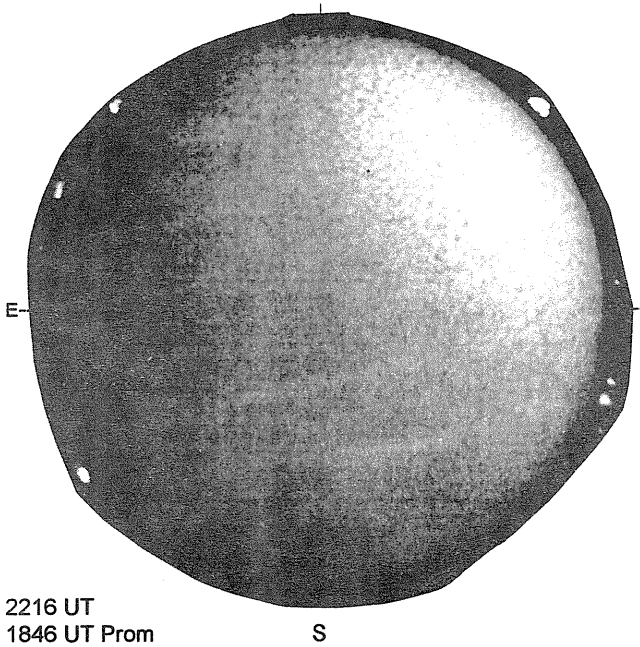

STANFORD MAGNETOGRAM



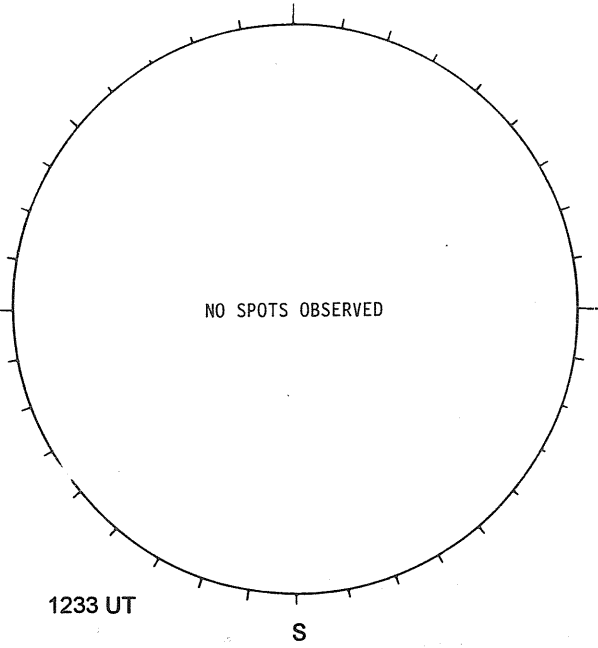

MT. WILSON MAGNETOGRAM



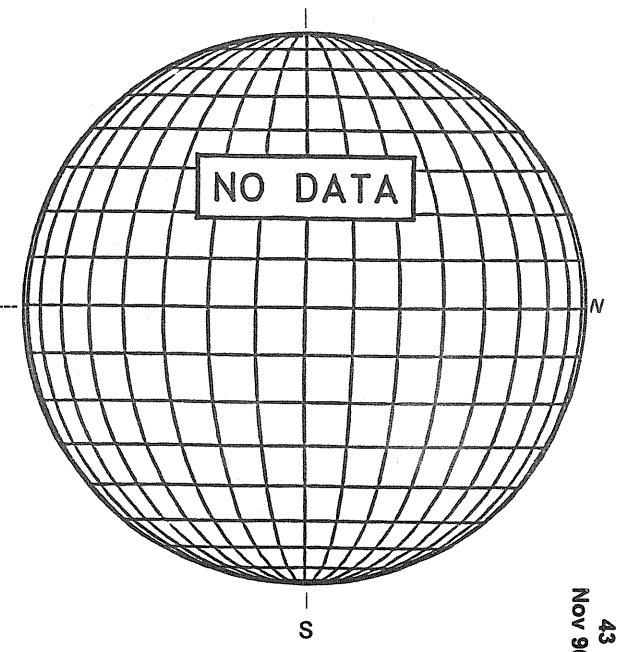

MAUNA LOA H-ALPHA




RAMEY SUNSPOT




SACRAMENTO PEAK CORONA (1.15 Radii)----

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Nov 96

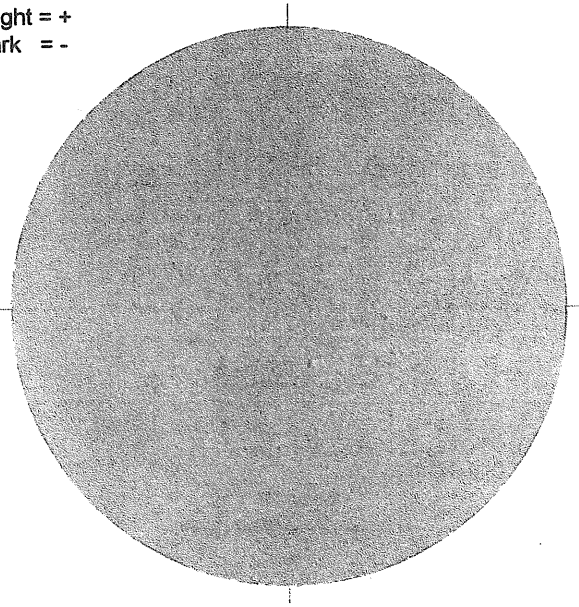
**NOVEMBER 4, 1996 ( P= 23.97 , Bo = 4.06 Lo = 327.49)**

KITT PEAK MAGNETOGRAM

N

**868.8 nm**

Bright = +
Dark = -



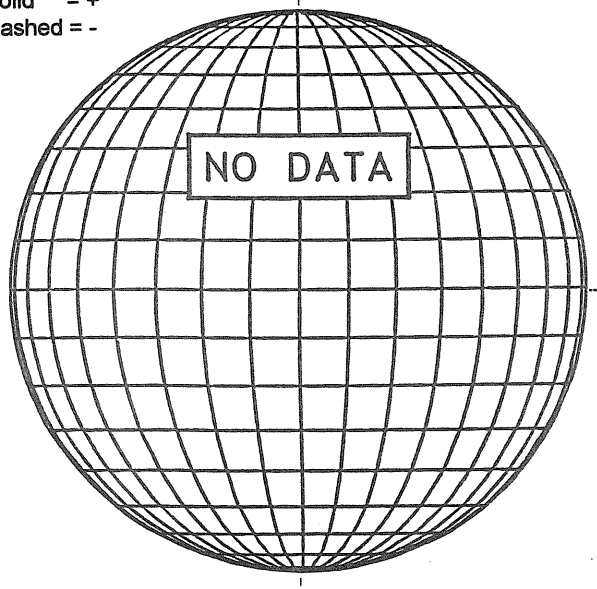
E

1645 UT

STANFORD MAGNETOGRAM

N

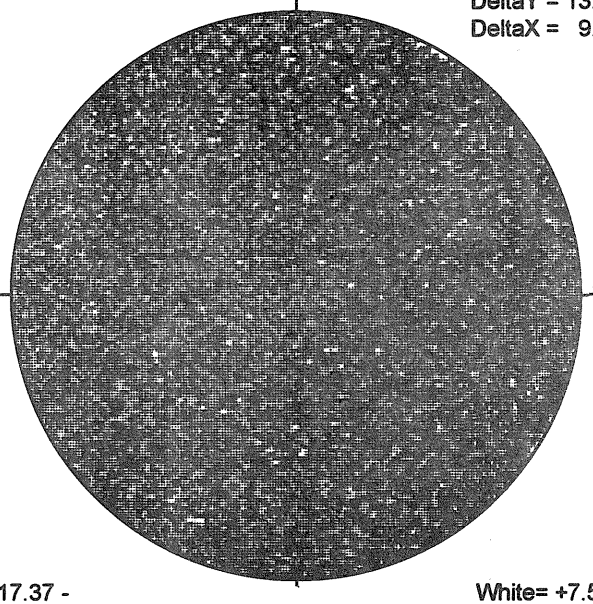
Solid = +
Dashed = -




MT. WILSON MAGNETOGRAM

N

DeltaY = 13.1
DeltaX = 9.6



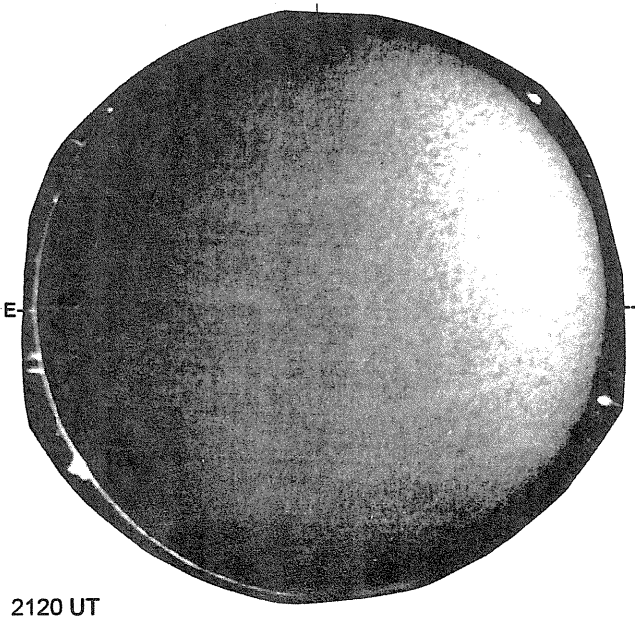
W

17.37 -
18.32 UT

White= +7.5G
Black = -7.5G

---

MAUNA LOA H-ALPHA

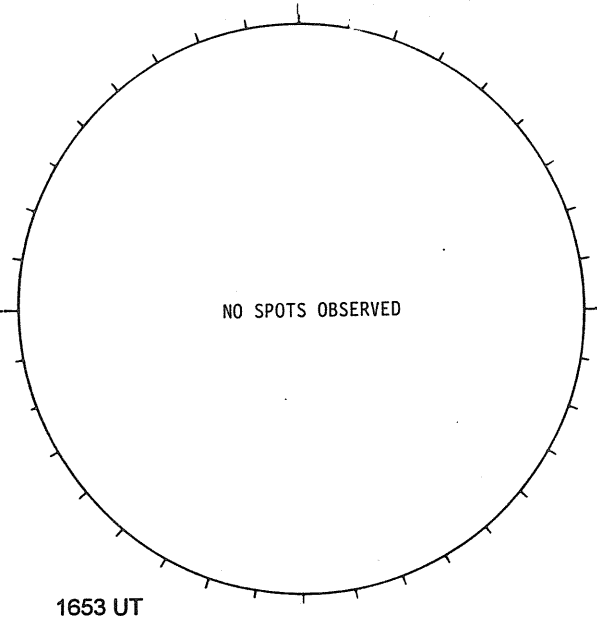


E

2120 UT
1929 UT Prom

S

RAMEY SUNSPOT




1653 UT

S

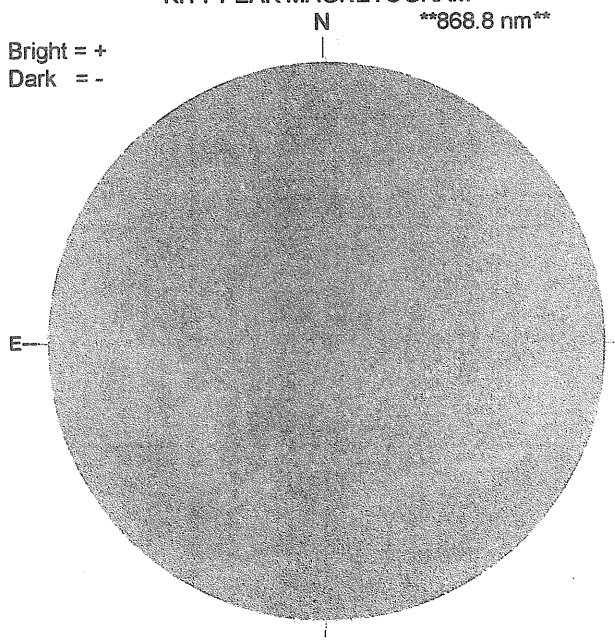
SACRAMENTO PEAK CORONA (1.15 Radii)----


W

S

NOVEMBER 5, 1996 ( P= 23.78 , Bo = 3.96 , Lo = 314.30)

KITT PEAK MAGNETOGRAM

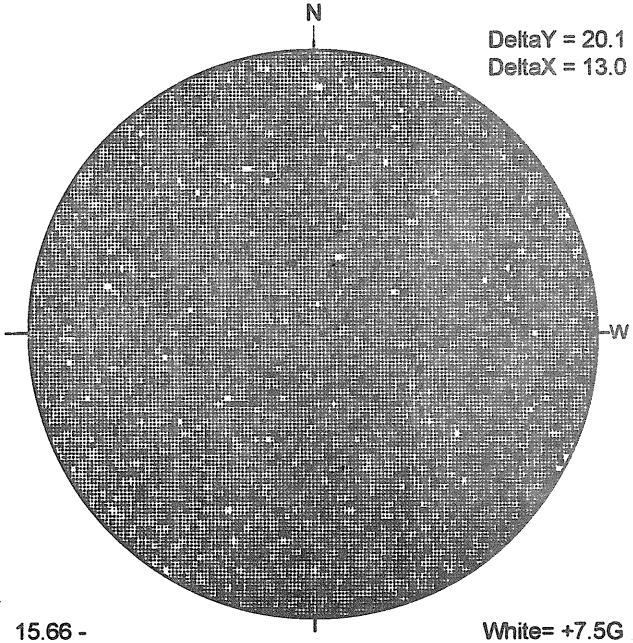



1643 UT

STANFORD MAGNETOGRAM


2314 UT

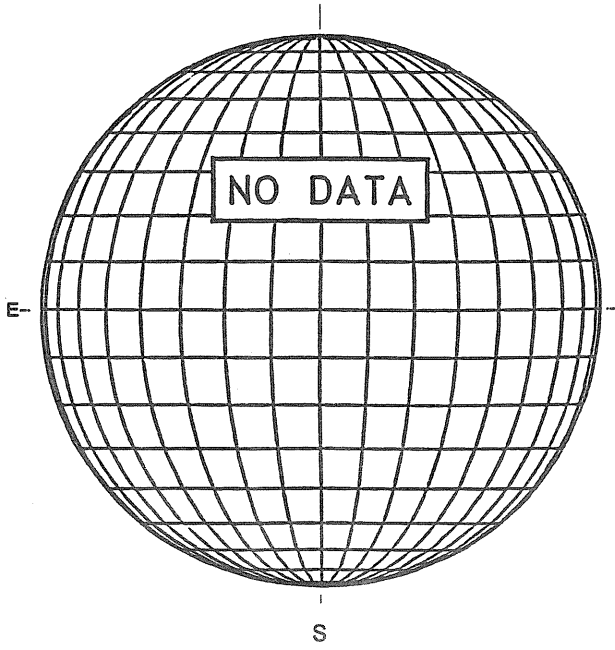
MT. WILSON MAGNETOGRAM



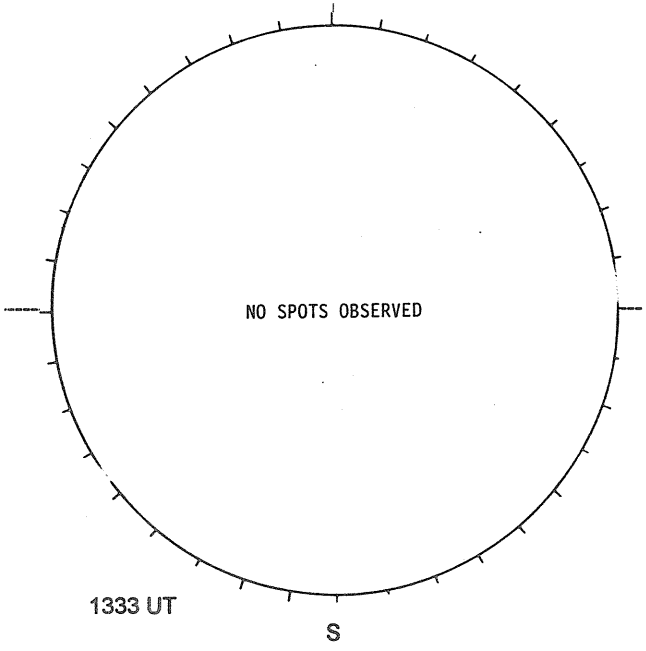

15.66 -
16.08 UT

White= +7.5G
Black = -7.5G

----- MAUNA LOA H-ALPHA

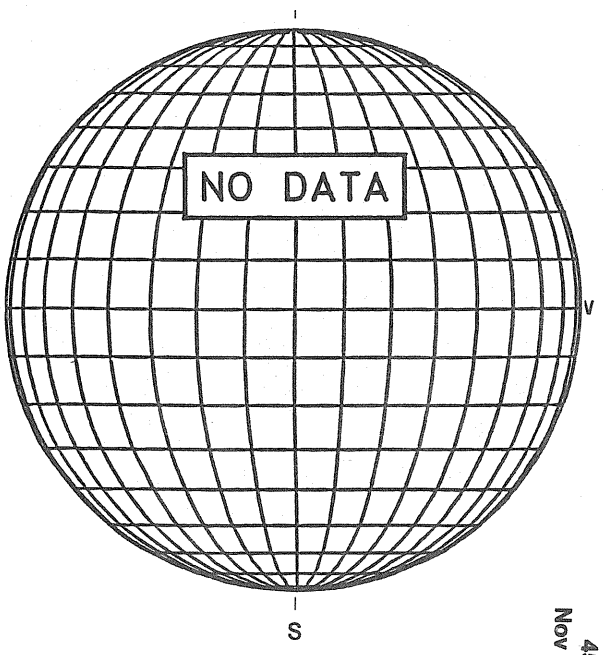



RAMEY SUNSPOT




1333 UT

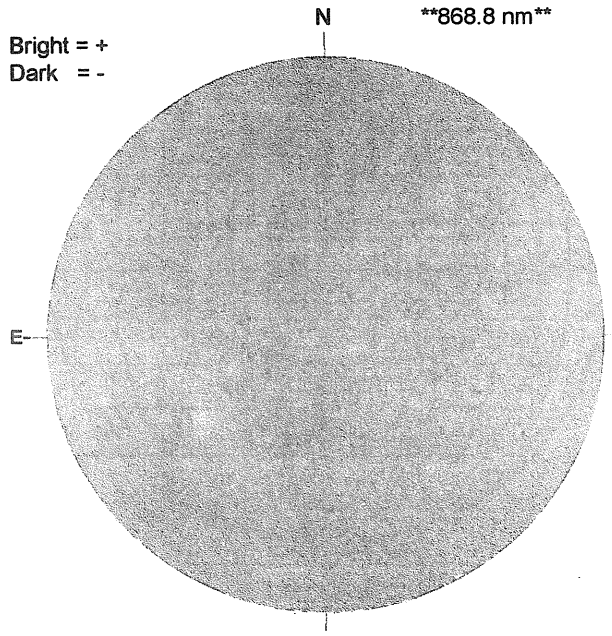
SACRAMENTO PEAK CORONA (1.15 Radii)----




45
Nov 96

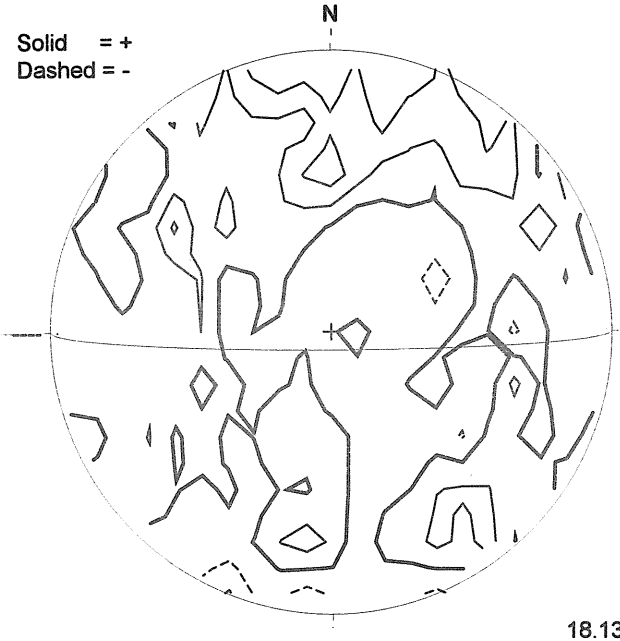
# NOVEMBER 6, 1996 ( P= 23.58 , Bo = 3.85 , Lo = 301.12)

## KITT PEAK MAGNETOGRAM



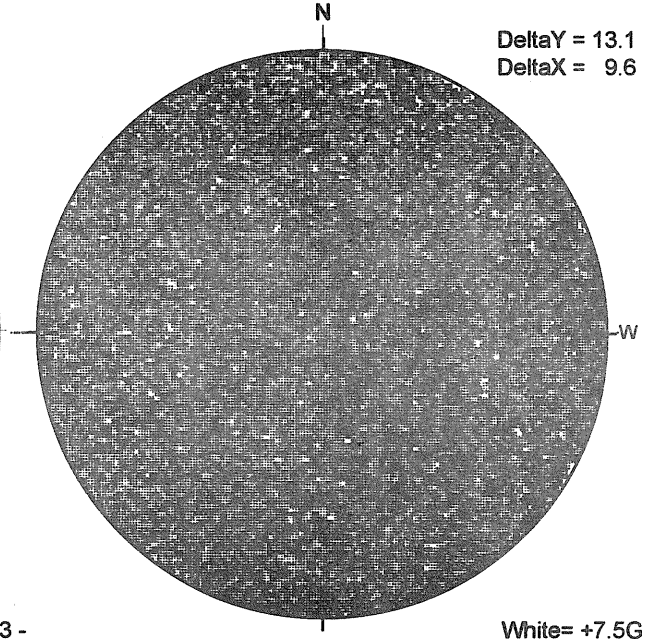

1645 UT

## STANFORD MAGNETOGRAM




2128 UT

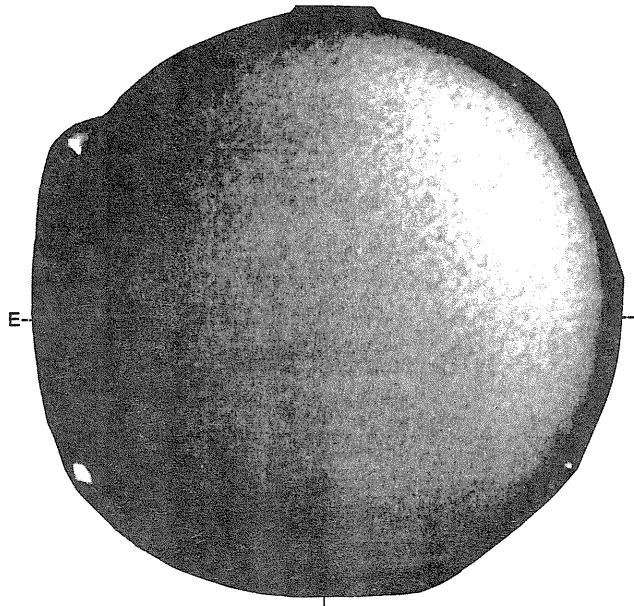
## MT. WILSON MAGNETOGRAM




18.13 -
19.09 UT

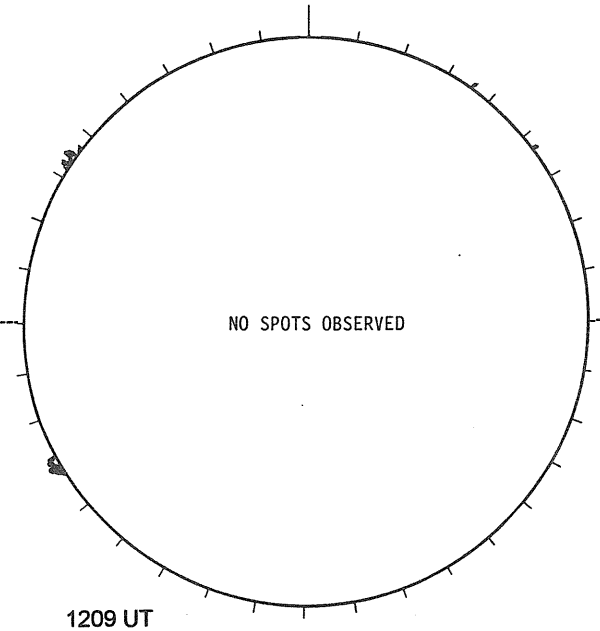
White= +7.5G
Black = -7.5G

## MAUNA LOA H-ALPHA



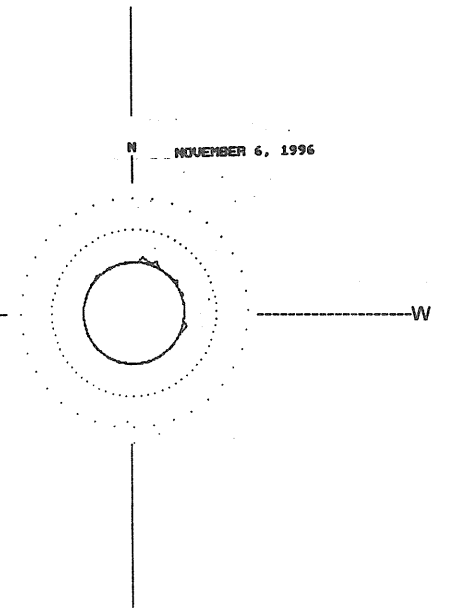

2130 UT
1750 UT Prom

## RAMEY SUNSPOT




1209 UT
0832 UT LOMN Prom S

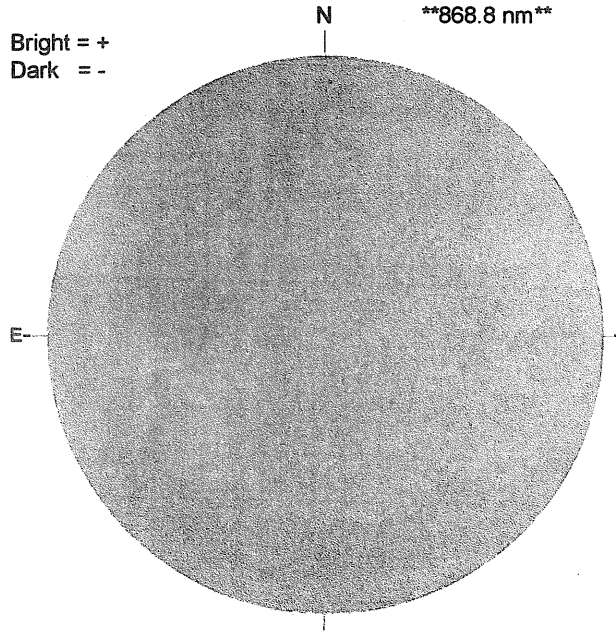
## LOMNICKY PEAK CORONA (1.04 Radii)




1242 UT
... 50 abs. units
. . 100 abs. units

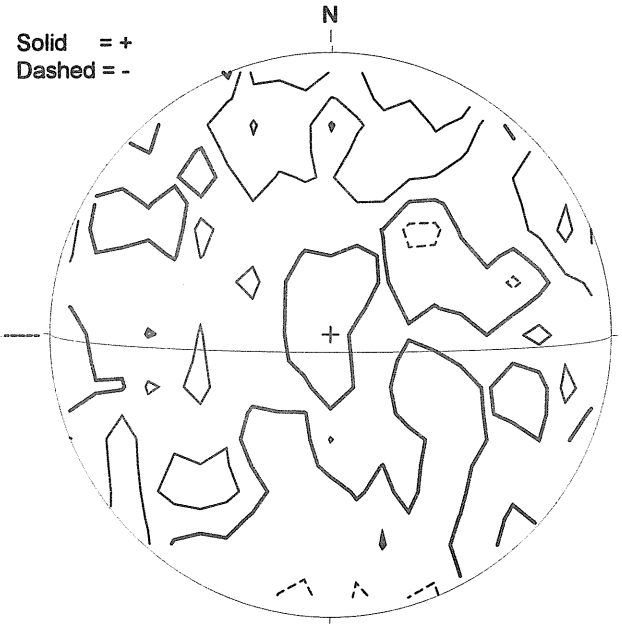
NOVEMBER 7, 1996 ( P= 23.37 , Bo = 3.74 Lo = 287.93)

KITT PEAK MAGNETOGRAM



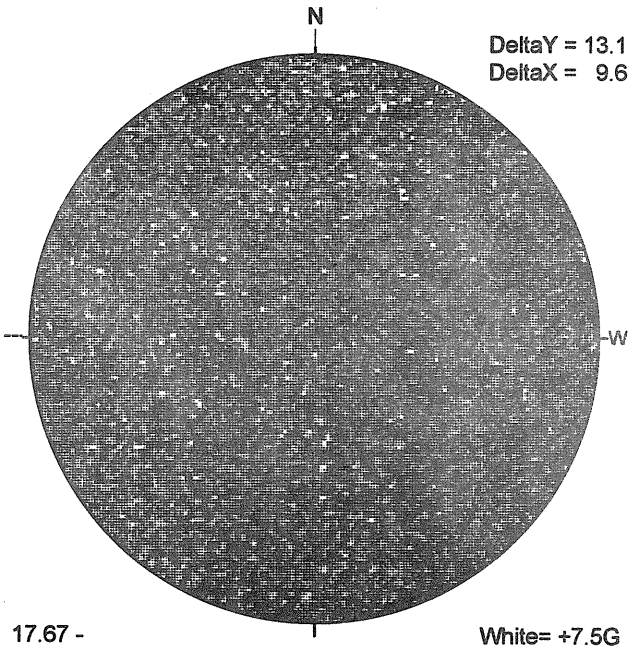

1648 UT

STANFORD MAGNETOGRAM




1953 UT

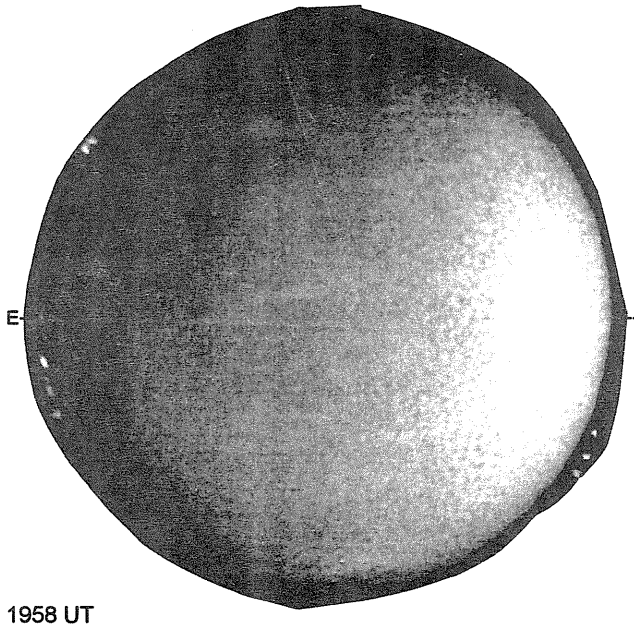
MT. WILSON MAGNETOGRAM




17.67 -
18.63 UT

White= +7.5G
Black = -7.5G

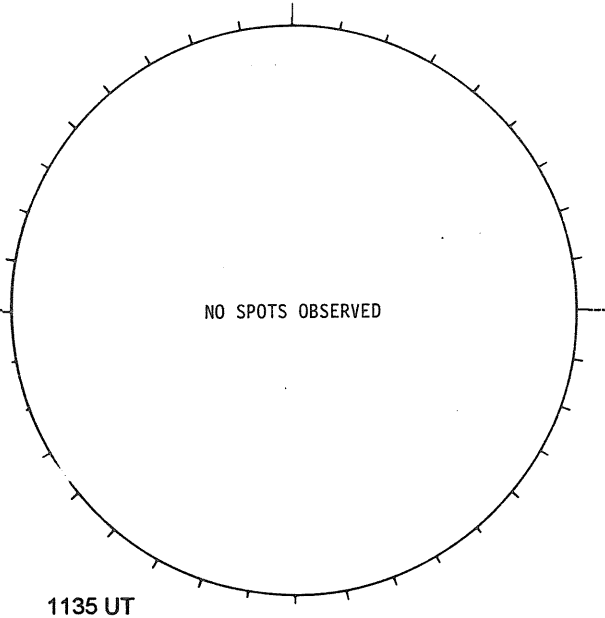
MAUNA LOA H-ALPHA




1958 UT
1822 UT Prom

S

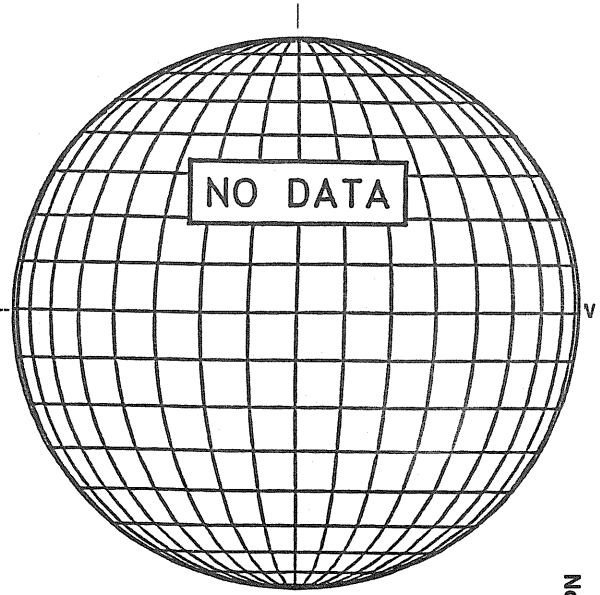
RAMEY SUNSPOT




1135 UT

S

SACRAMENTO PEAK CORONA (1.15 Radii)----

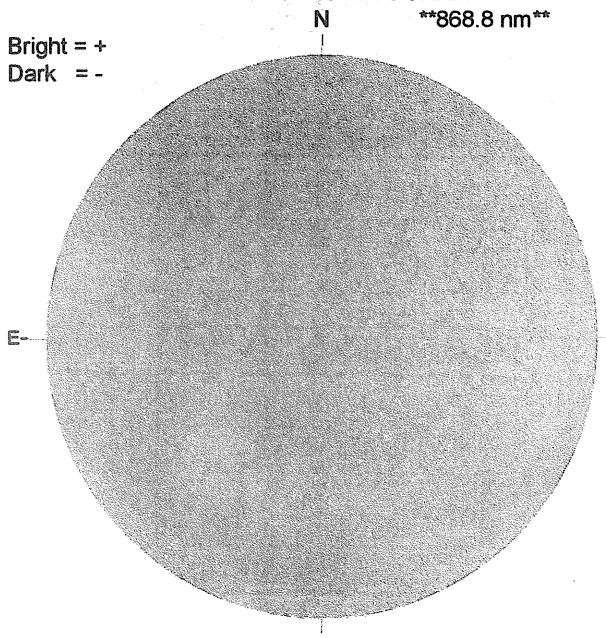



S

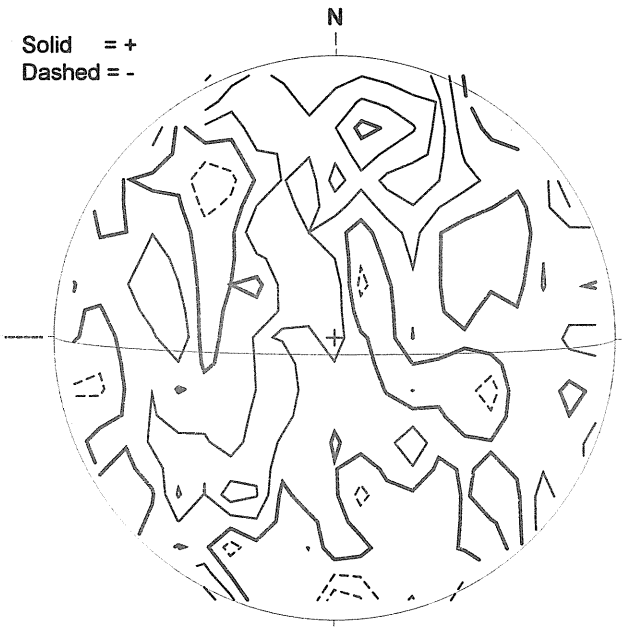
47
Nov 96

**NOVEMBER 8, 1996 ( P= 23.15 , Bo = 3.63 , Lo = 274.75)**

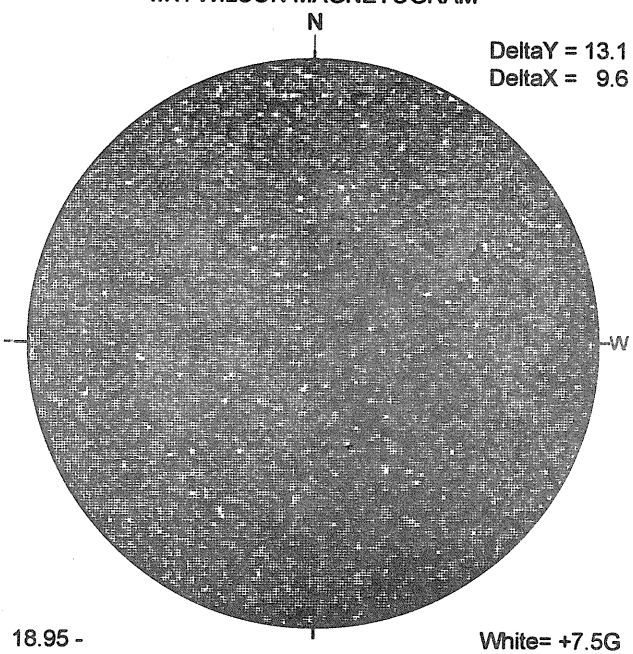
KITT PEAK MAGNETOGRAM



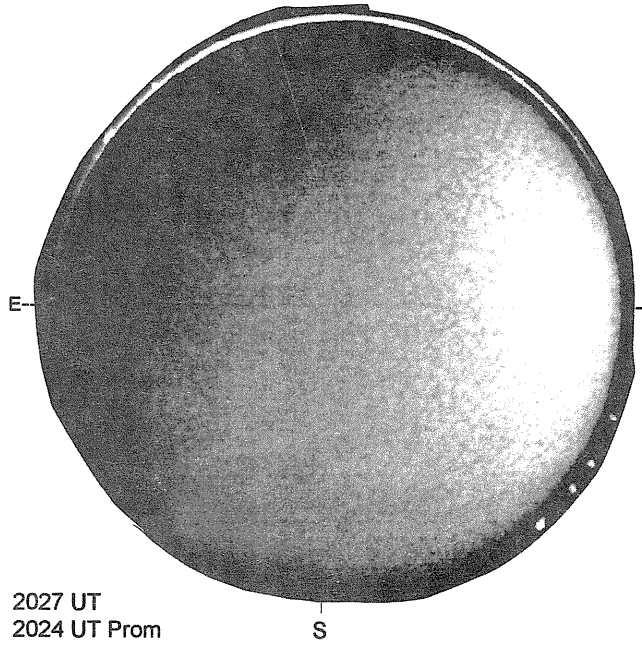

STANFORD MAGNETOGRAM



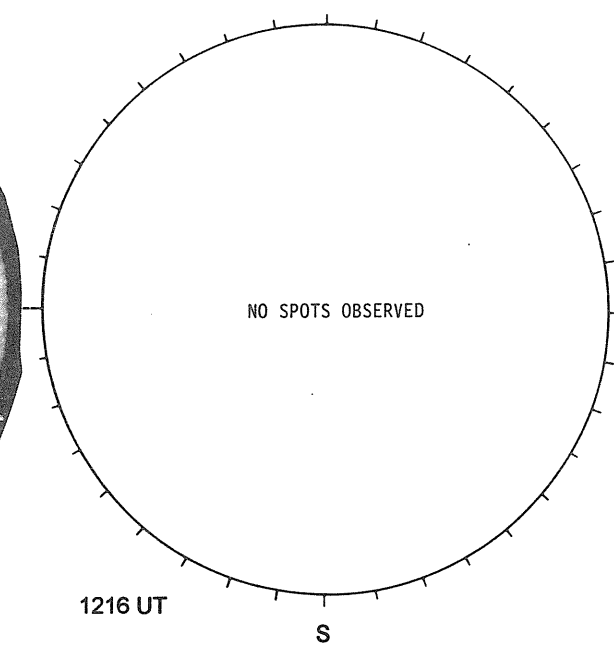

MT. WILSON MAGNETOGRAM



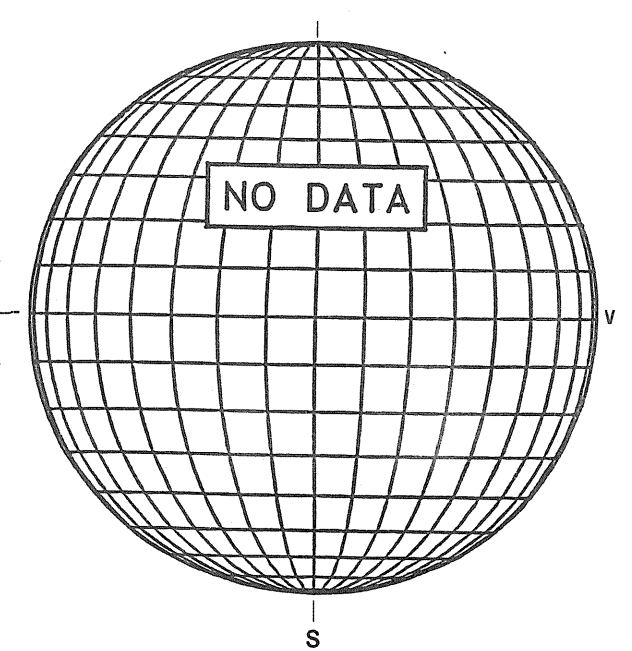

MAUNA LOA H-ALPHA




RAMEY SUNSPOT

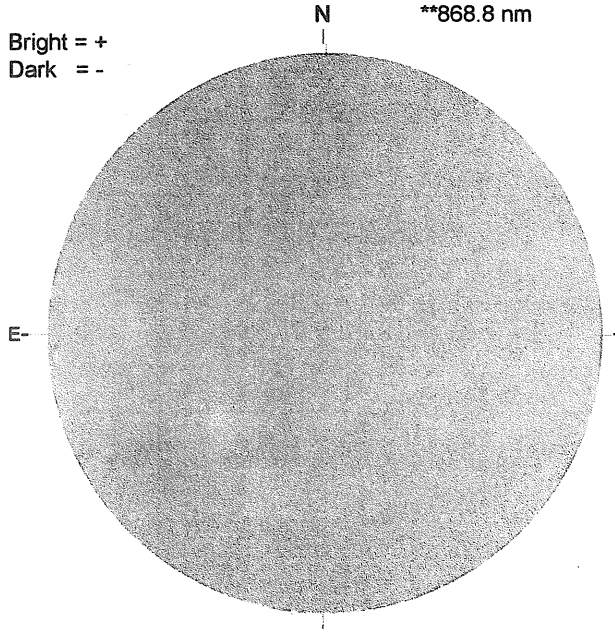



SACRAMENTO PEAK CORONA (1.15 Radii)----



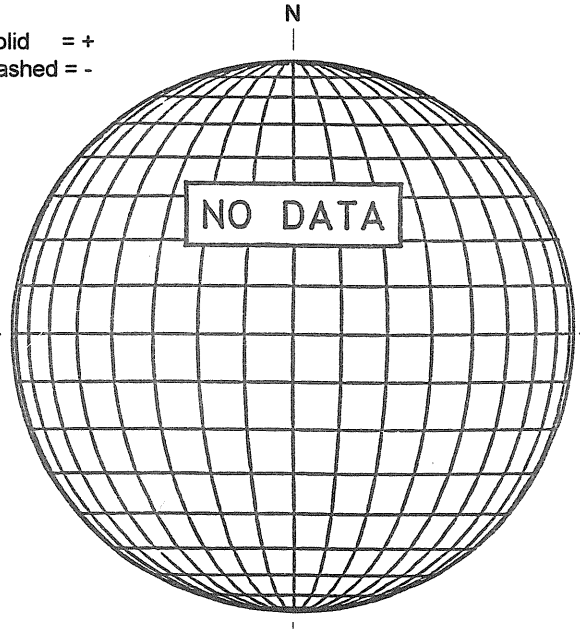
**NOVEMBER 9, 1996 ( P= 22.92 Bo = 3.52, Lo = 261.57)**

KITT PEAK MAGNETOGRAM

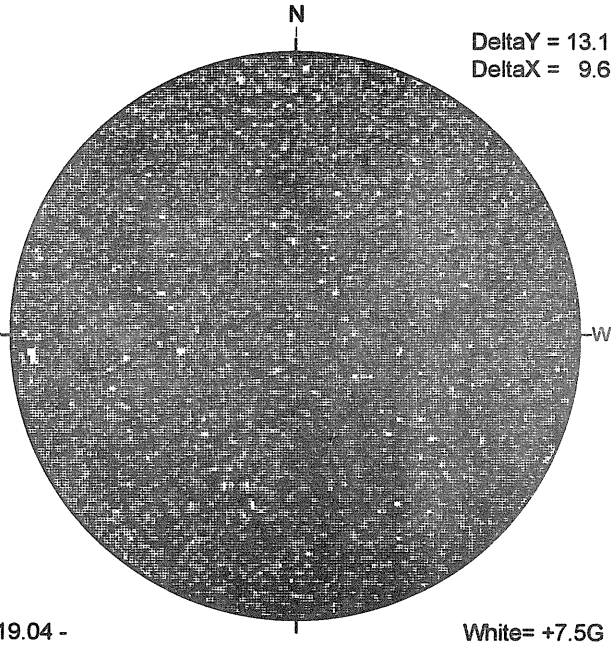



1734 UT

STANFORD MAGNETOGRAM



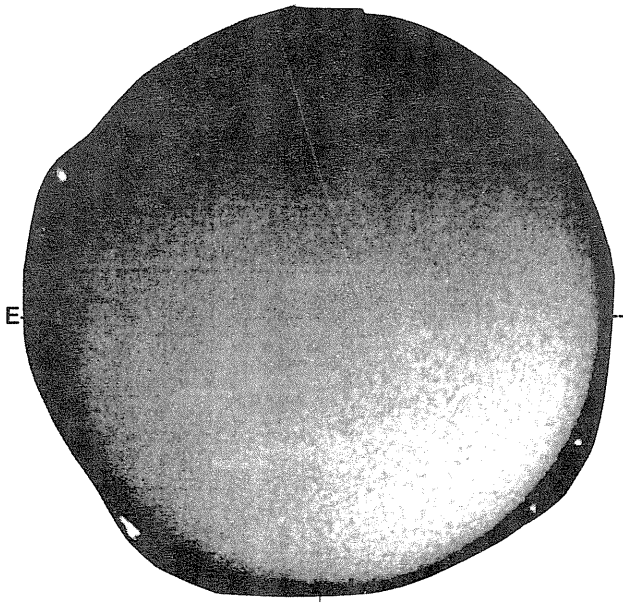

MT. WILSON MAGNETOGRAM




19.04 -
20.00 UT

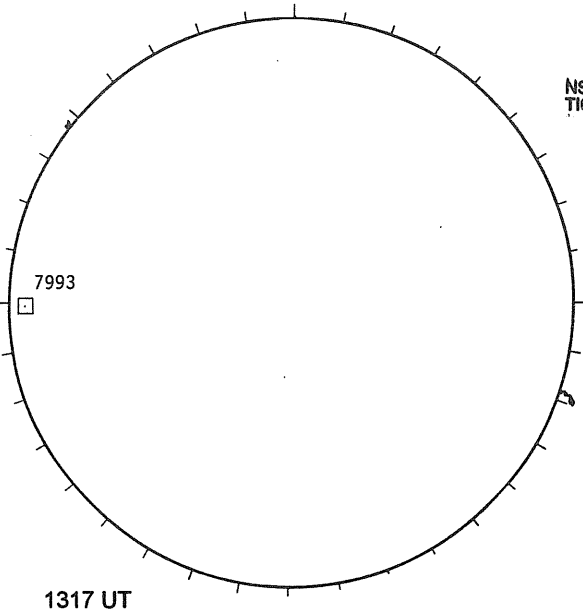
White= +7.5G
Black = -7.5G

MAUNA LOA H-ALPHA



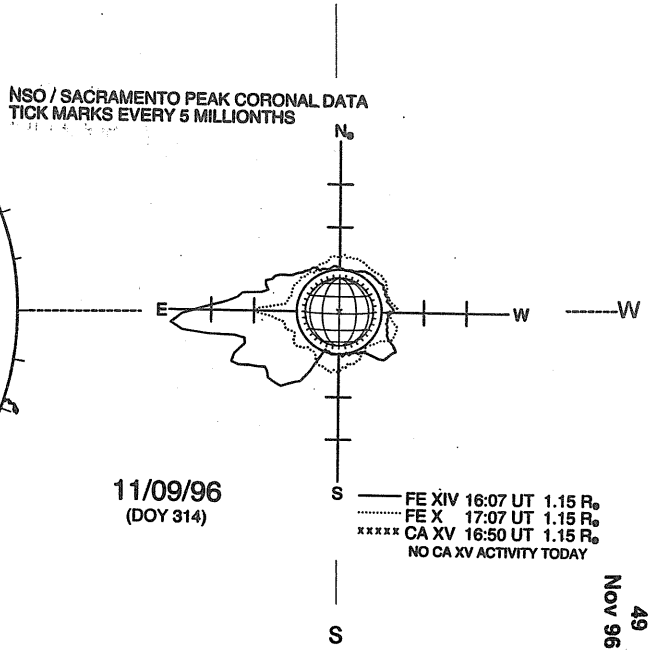

1731 UT
1819 UT Prom S

RAMEY SUNSPOT




1317 UT
1027 UT LOMN Prom S

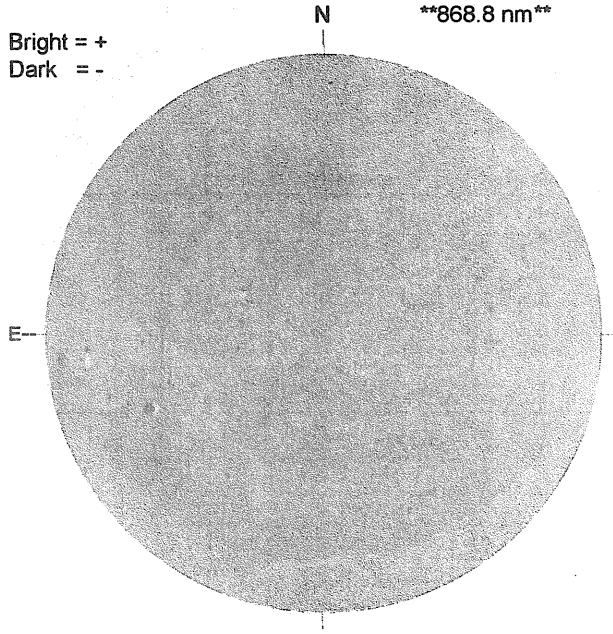
SACRAMENTO PEAK CORONA (1.15 Radii)----



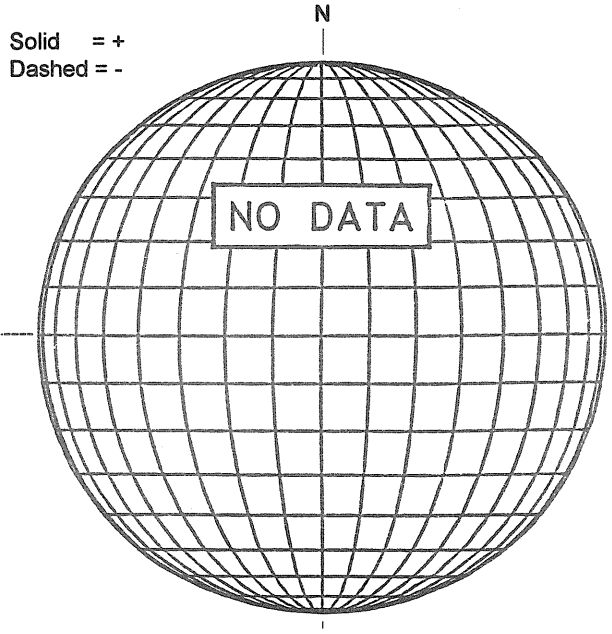

S

# NOVEMBER 10, 1996 ( P= 22.69 , Bo = 3.41, Lo = 248.38)

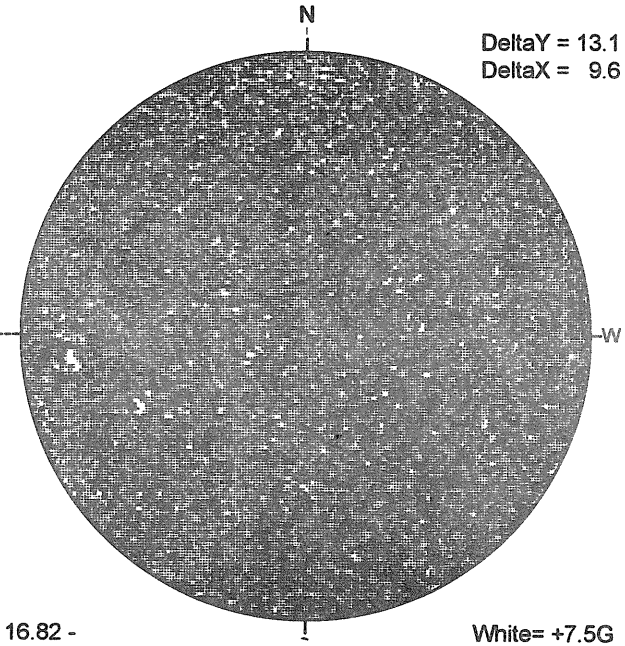
## KITT PEAK MAGNETOGRAM



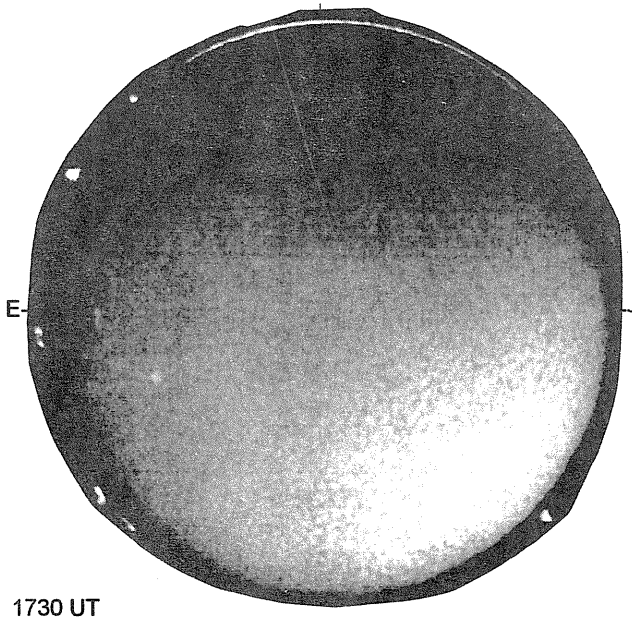

## STANFORD MAGNETOGRAM



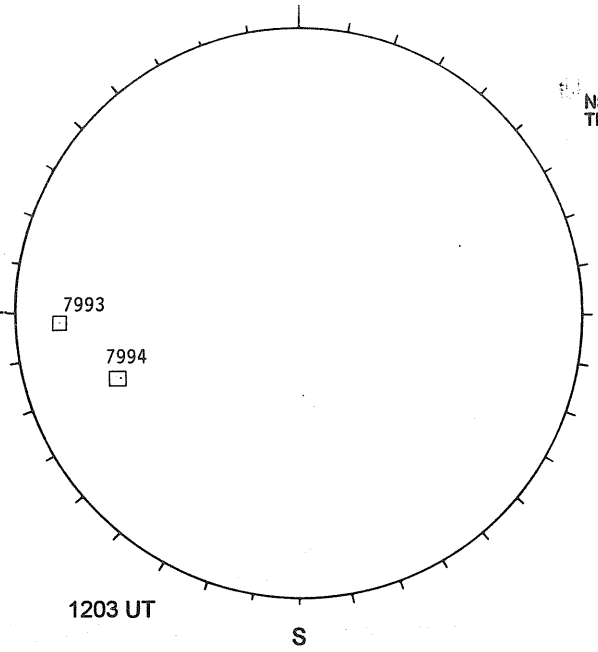

## MT. WILSON MAGNETOGRAM



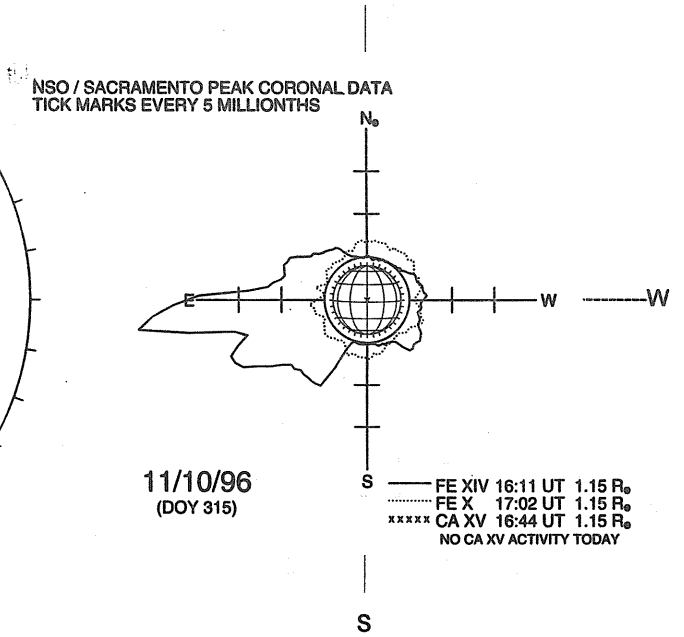

## MAUNA LOA H-ALPHA




## RAMEY SUNSPOT

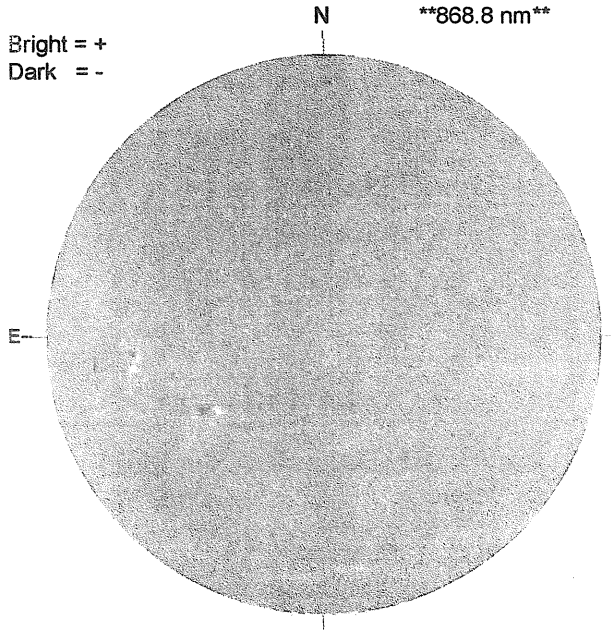



## SACRAMENTO PEAK CORONA (1.15 Radii)----

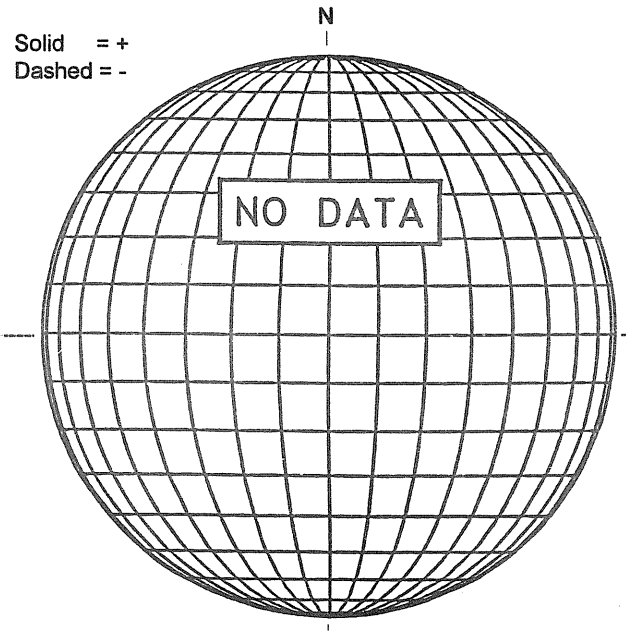


**NOVEMBER 11, 1996 ( P= 22.45, Bo = 3.30, Lo = 235.20)**

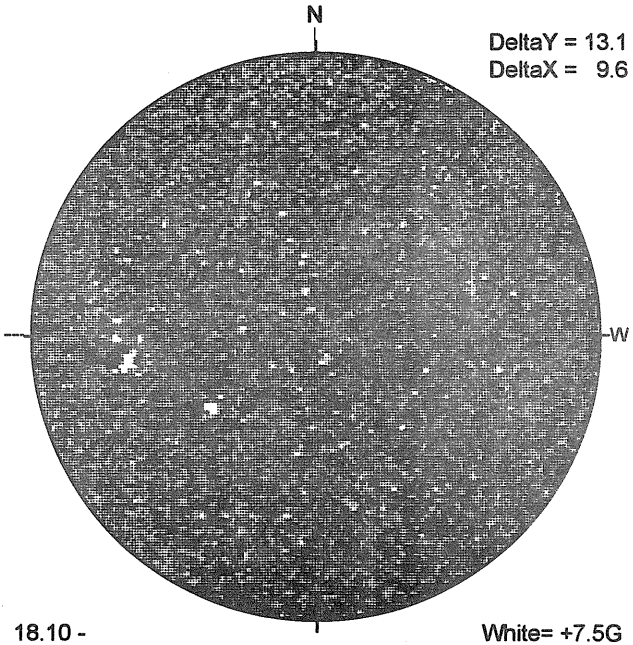
KITT PEAK MAGNETOGRAM



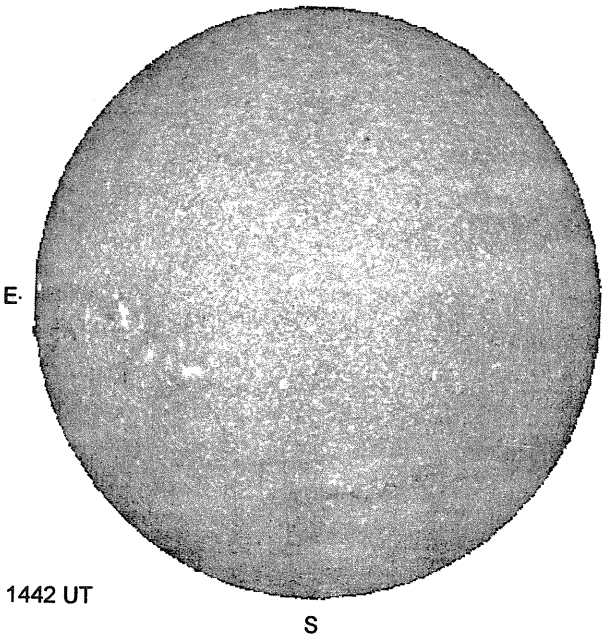

STANFORD MAGNETOGRAM



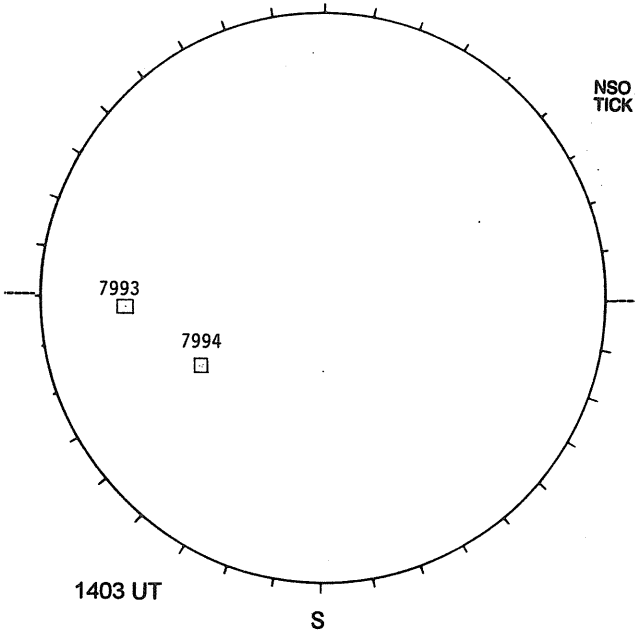

MT. WILSON MAGNETOGRAM



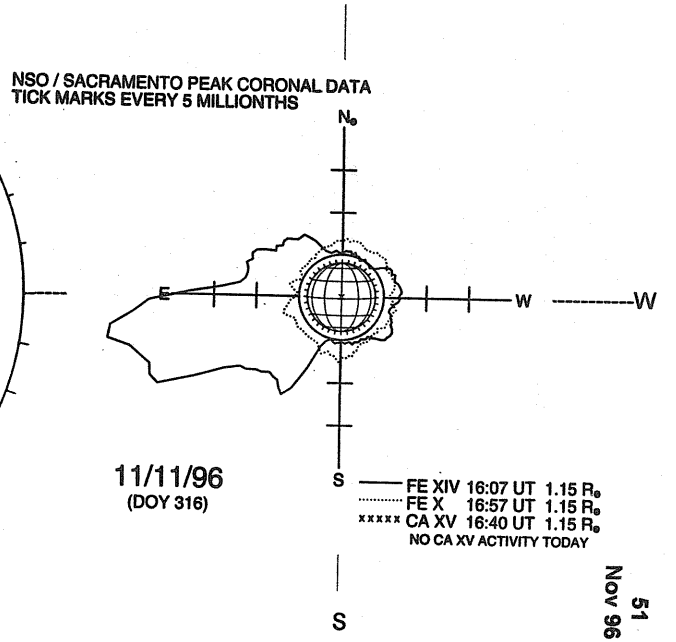

SACRAMENTO PEAK H-ALPHA




RAMEY SUNSPOT

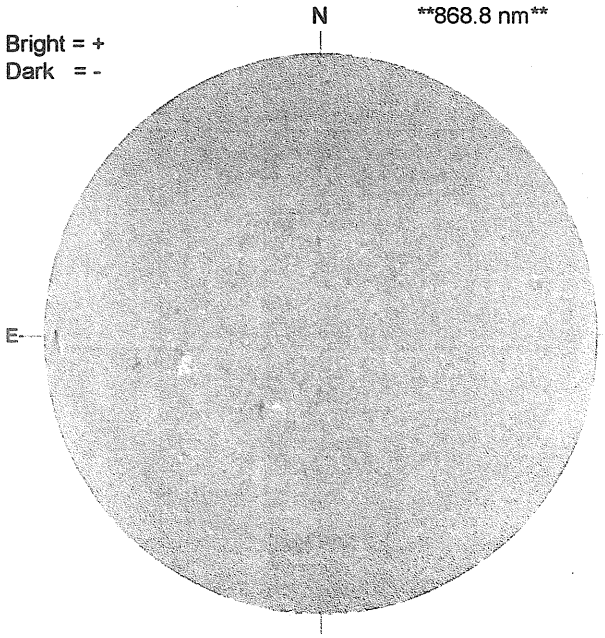



SACRAMENTO PEAK CORONA (1.15 Radii)----

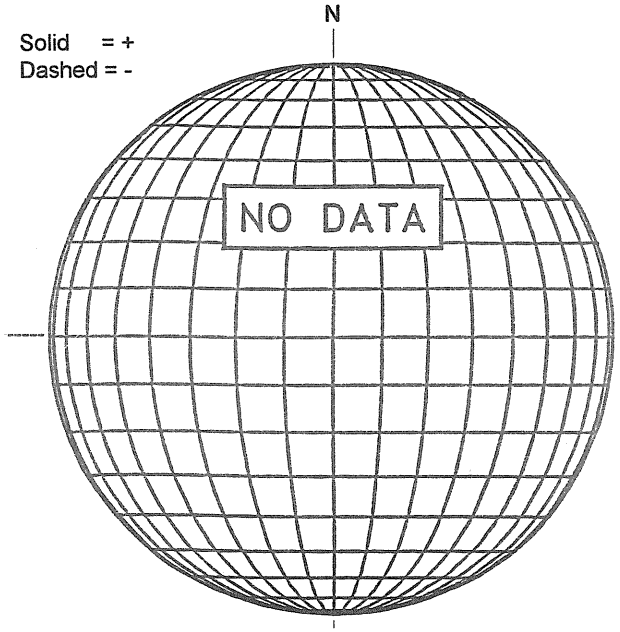


NOVEMBER 12, 1996 ( P= 22.20, Bo = 3.18, Lo = 222.01)

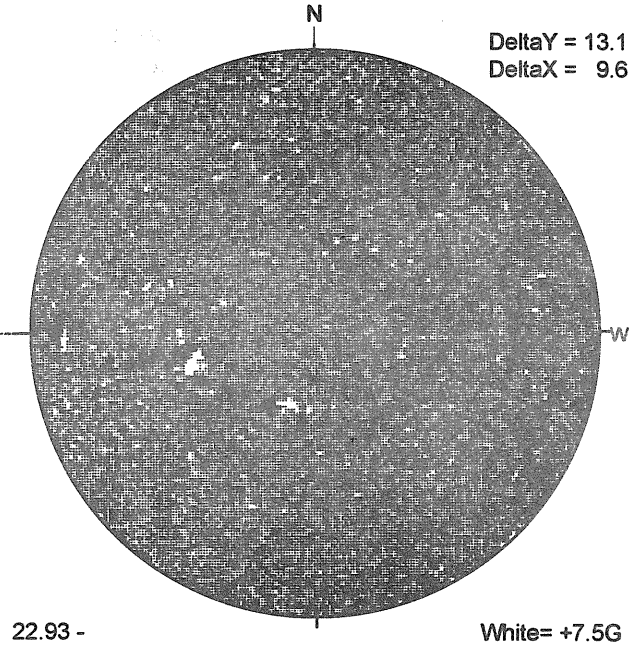
KITT PEAK MAGNETOGRAM



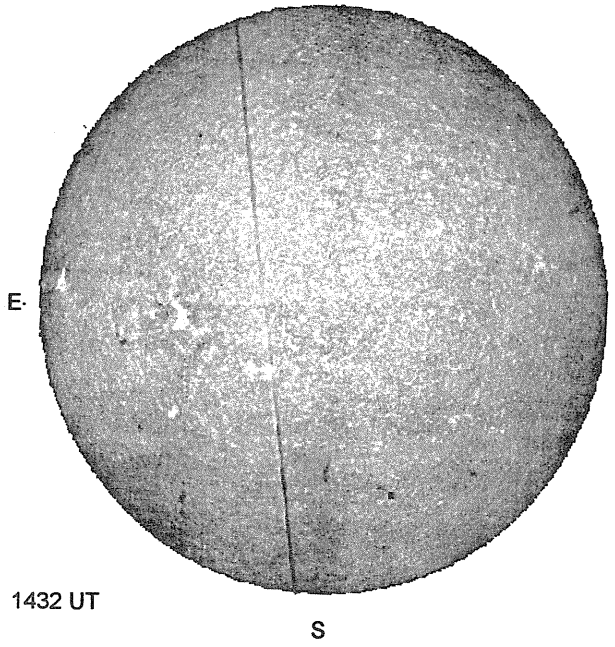

STANFORD MAGNETOGRAM



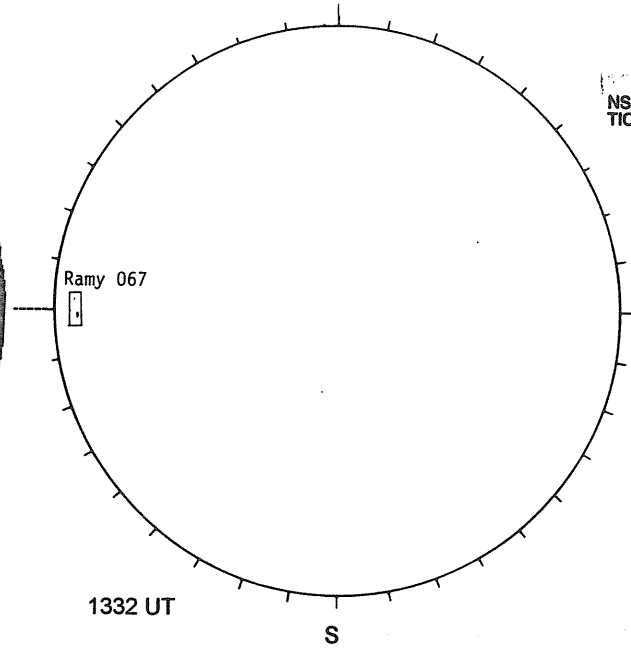

MT. WILSON MAGNETOGRAM



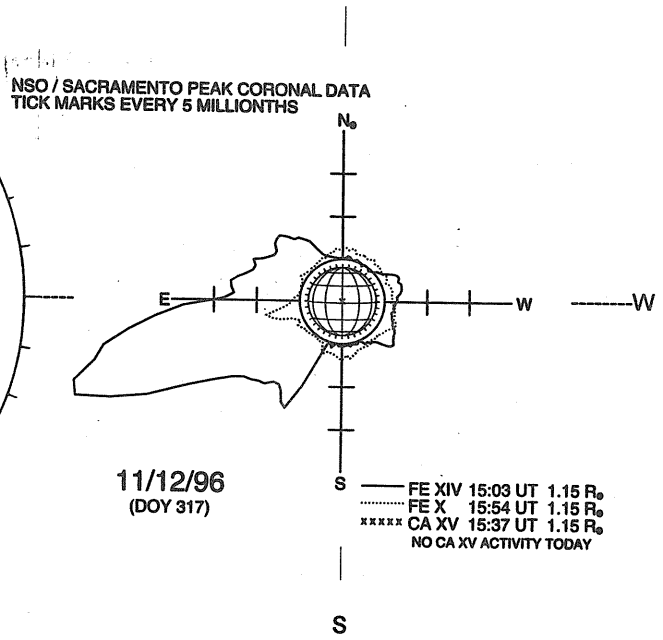

SACRAMENTO PEAK H-ALPHA




RAMEY SUNSPOT

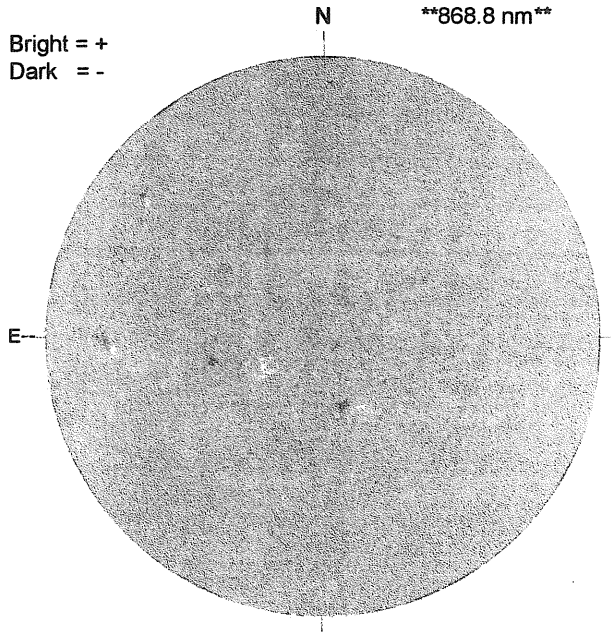



SACRAMENTO PEAK CORONA (1.15 Radii)



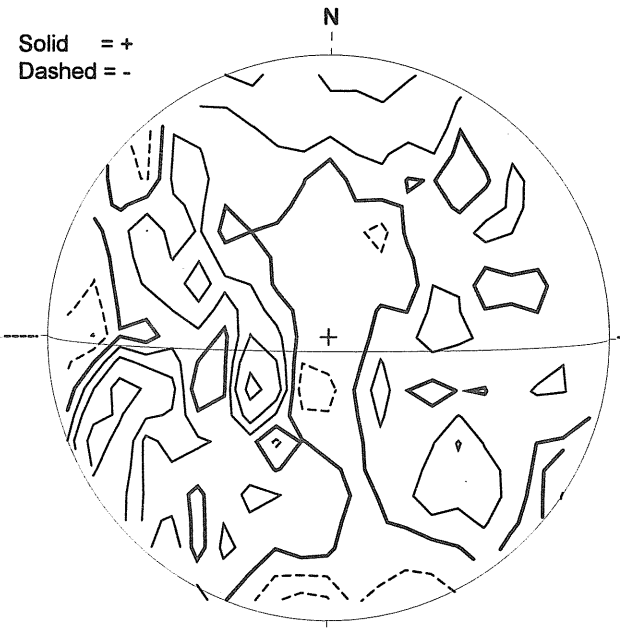
NOVEMBER 13, 1996 ( P= 21.94, Bo = 3.07, Lo = 208.83)

KITT PEAK MAGNETOGRAM



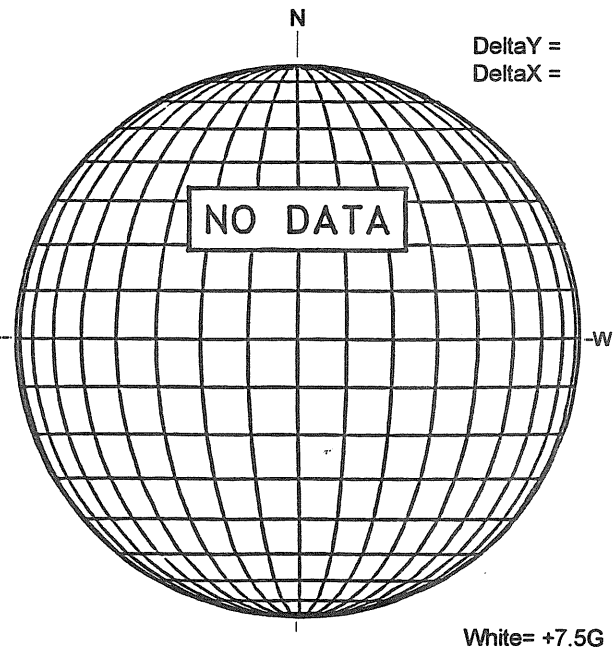

2257 UT

STANFORD MAGNETOGRAM



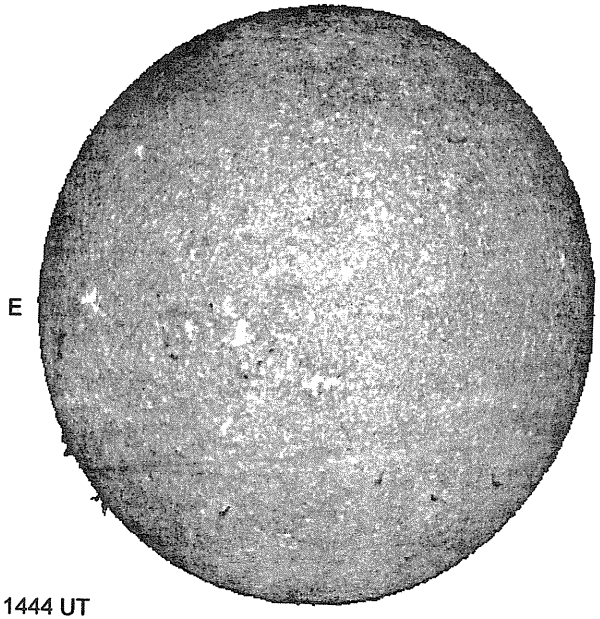

1914 UT

MT. WILSON MAGNETOGRAM




White= +7.5G
Black = -7.5G

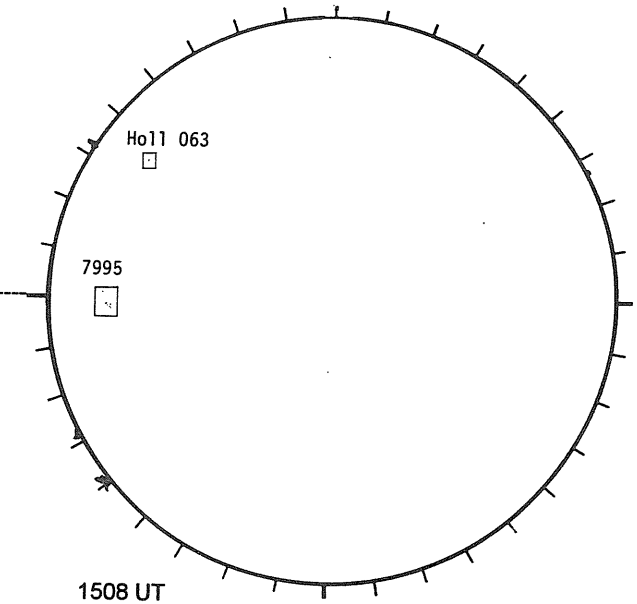
SACRAMENTO PEAK H-ALPHA




1444 UT

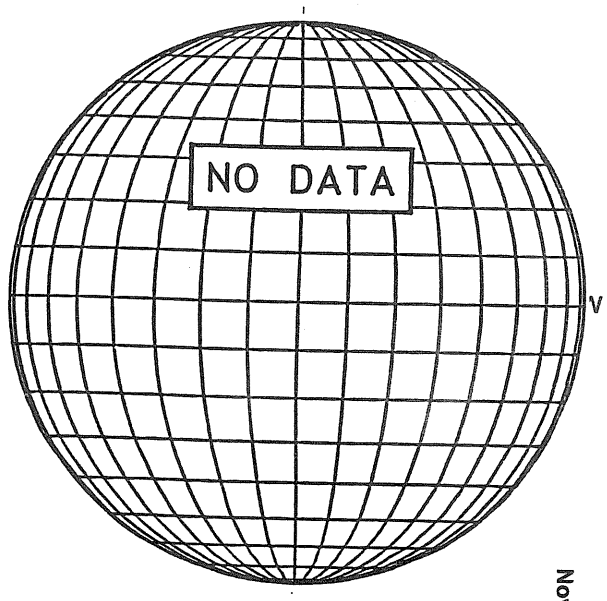
S

HOLLOMAN SUNSPOT




1508 UT
0751 UT VALA Prom S

SACRAMENTO PEAK CORONA (1.15 Radii)

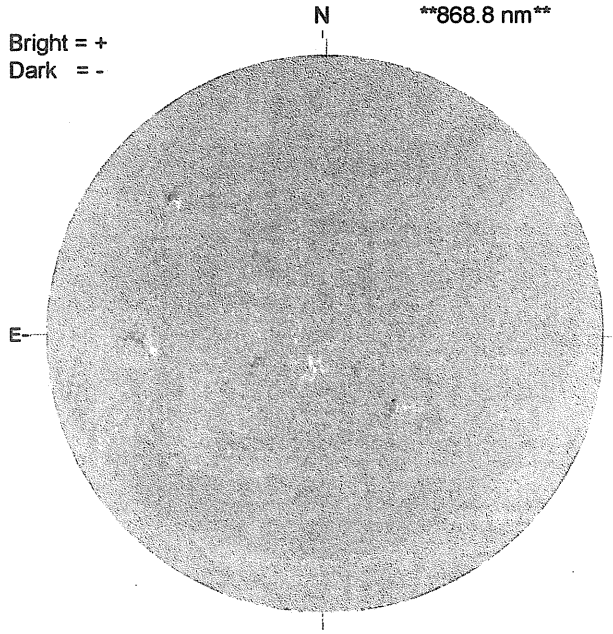



S

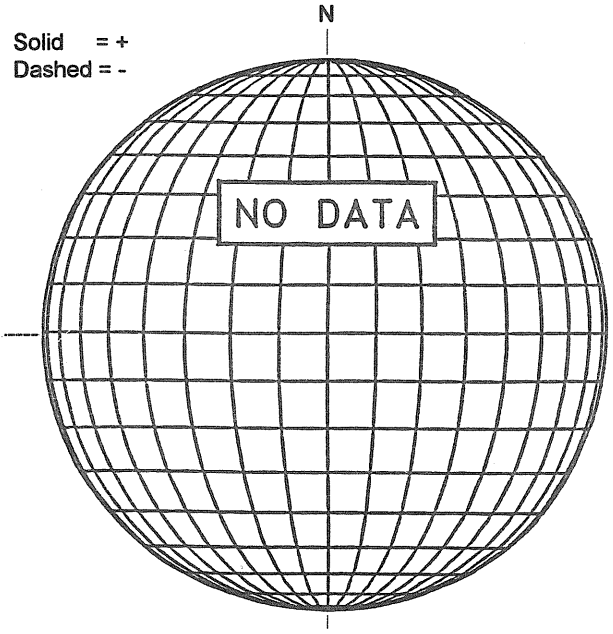
53
Nov 96

**NOVEMBER 14, 1996 ( P= 21.68, Bo = 2.95, Lo= 195.65)**

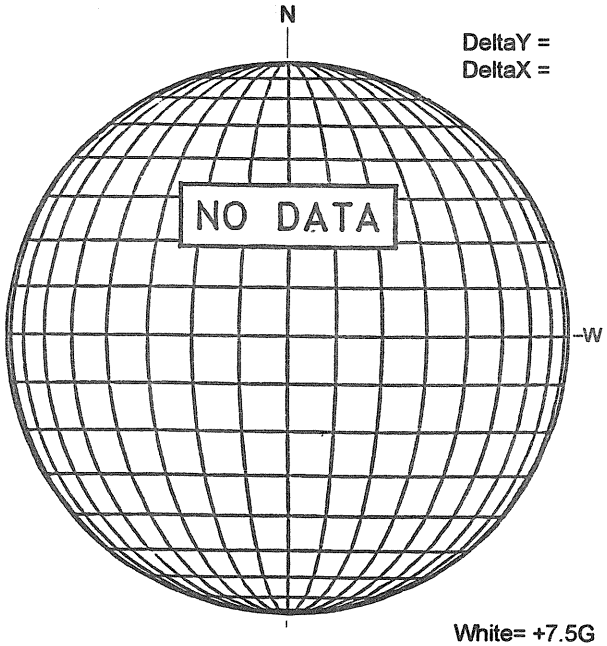
KITT PEAK MAGNETOGRAM



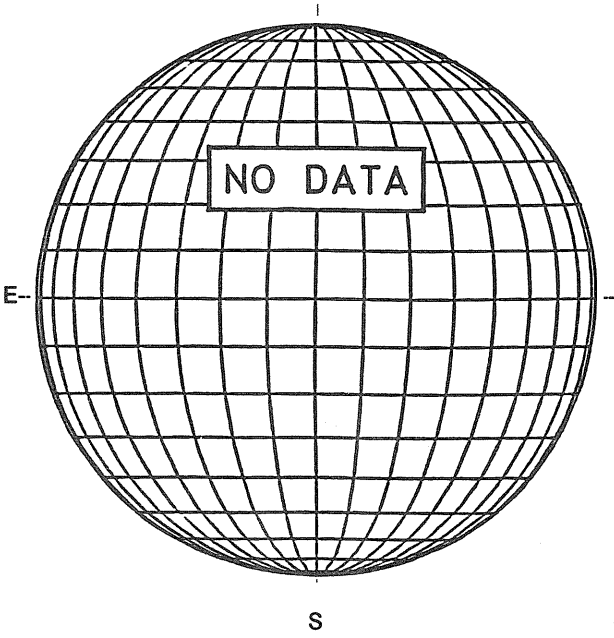

STANFORD MAGNETOGRAM



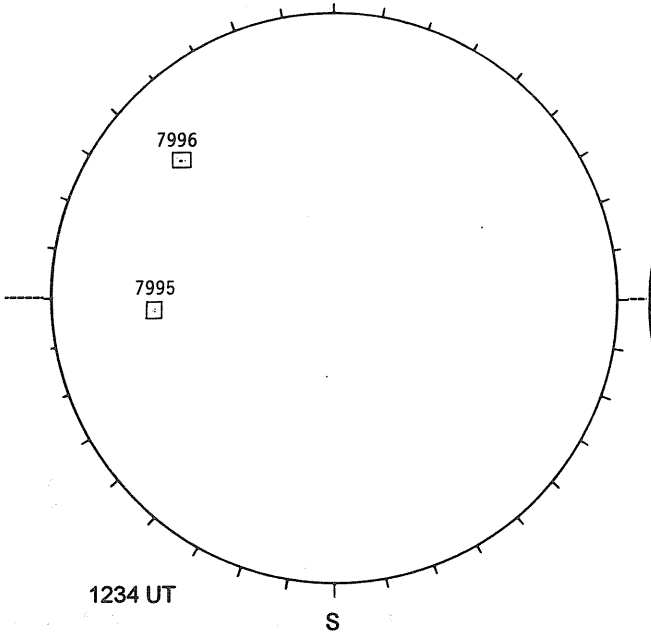

MT. WILSON MAGNETOGRAM



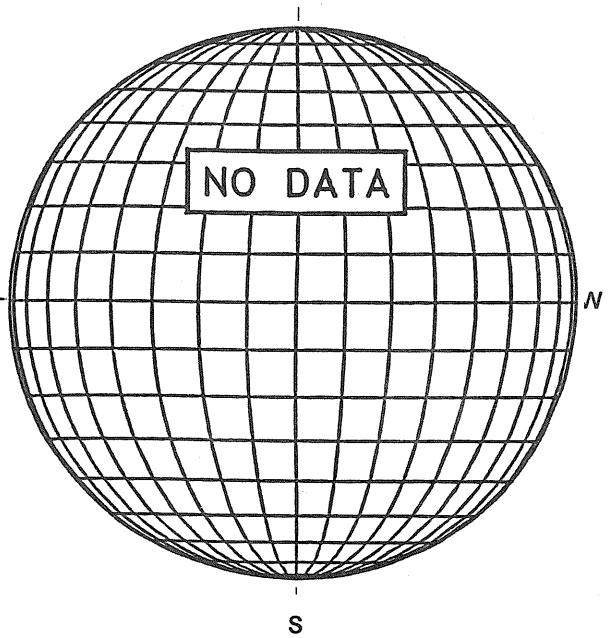

SACRAMENTO PEAK H-ALPHA




RAMEY SUNSPOT




SACRAMENTO PEAK CORONA (1.15 Radii)----



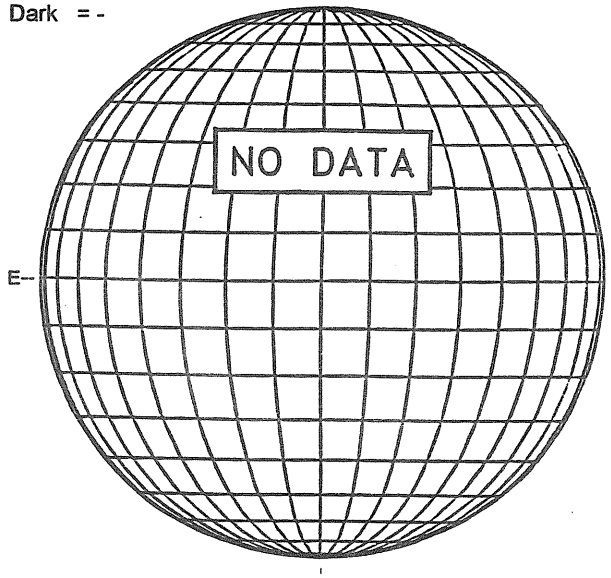
**NOVEMBER 15, 1996 ( P= 21.41, Bo = 2.84, Lo = 182.46)**

KITT PEAK MAGNETOGRAM

N

**868.8 nm**

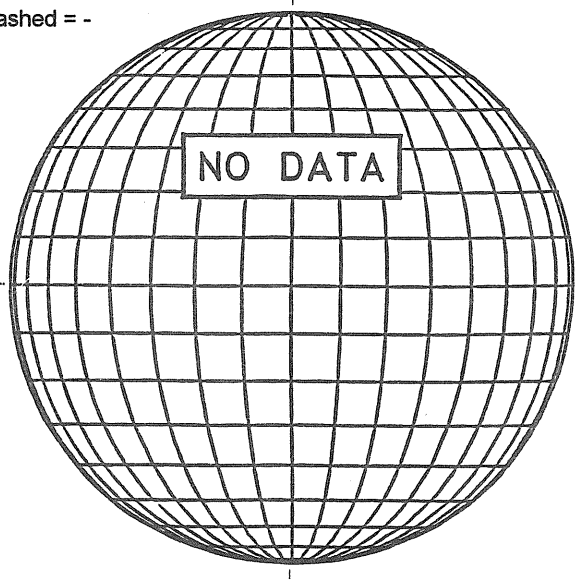
Bright = +
Dark = -




STANFORD MAGNETOGRAM

N

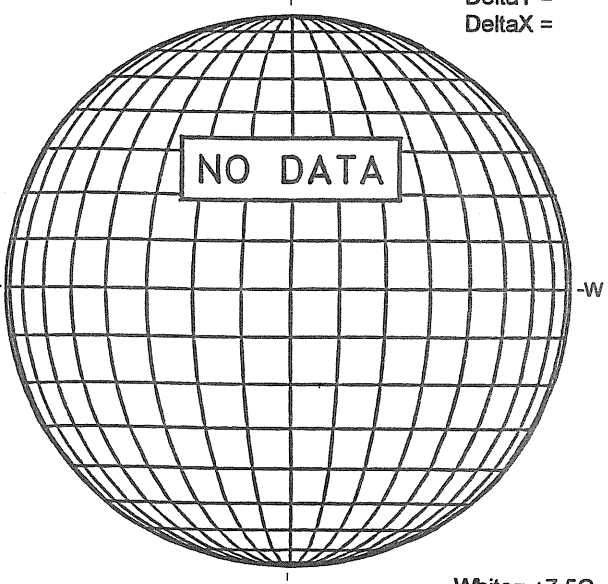
Solid = +
Dashed = -




MT. WILSON MAGNETOGRAM

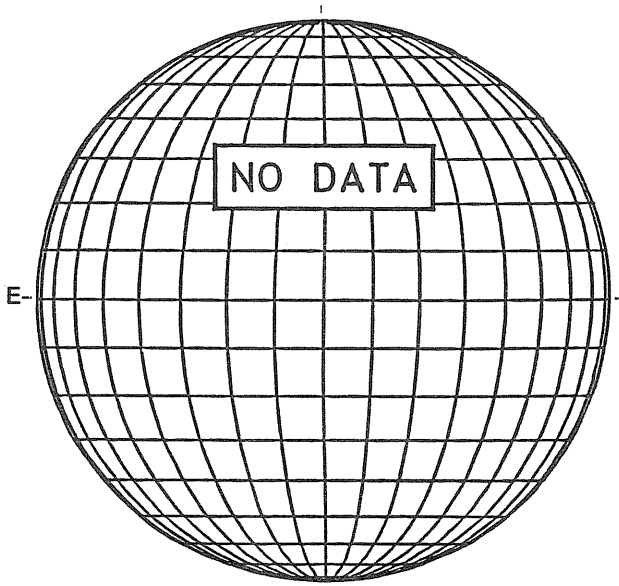
N

DeltaY =
DeltaX =

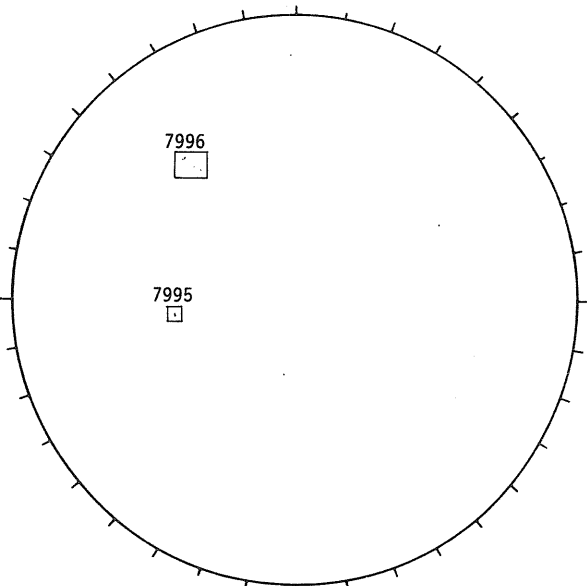



White= +7.5G
Black = -7.5G

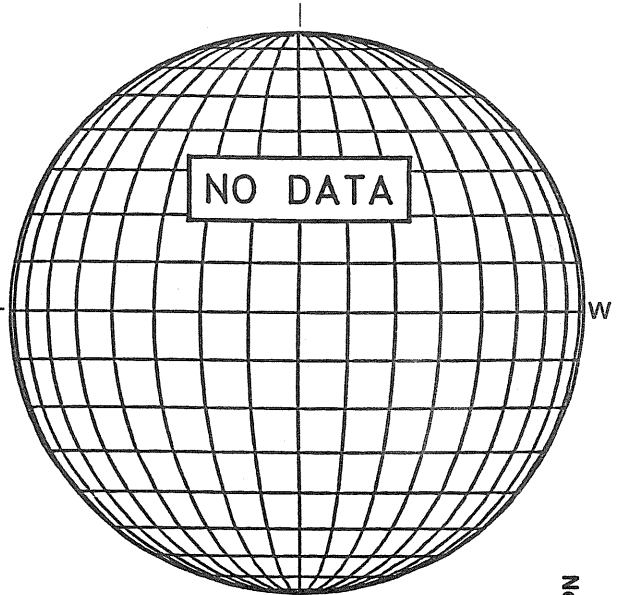
----- MAUNA LOA H-ALPHA




RAMEY SUNSPOT




SACRAMENTO PEAK CORONA (1.15 Radii)----

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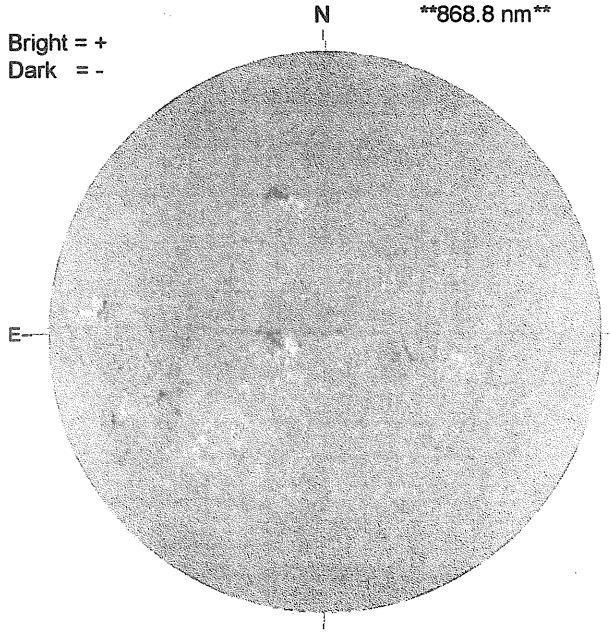
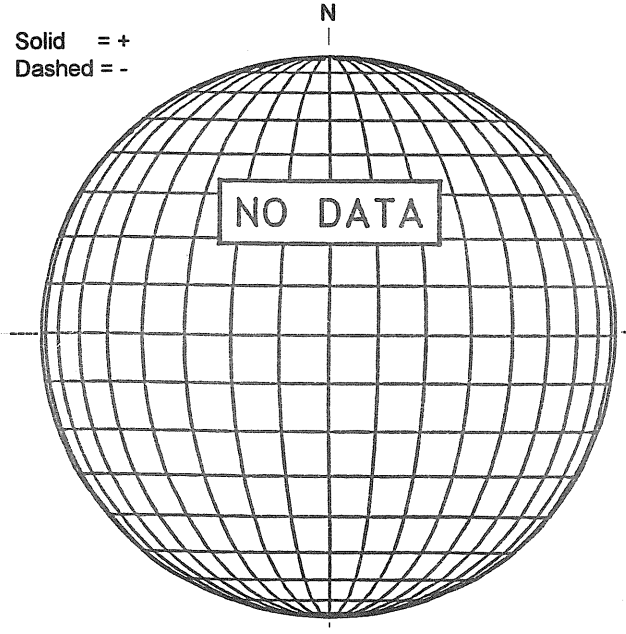
Nov 96

**NOVEMBER 16, 1996 ( P= 21.13, Bo = 2.72, Lo = 169.28)**

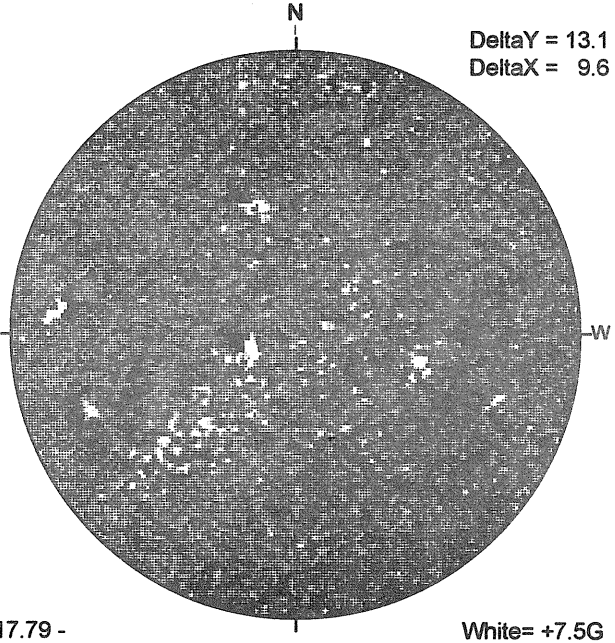
KITT PEAK MAGNETOGRAM



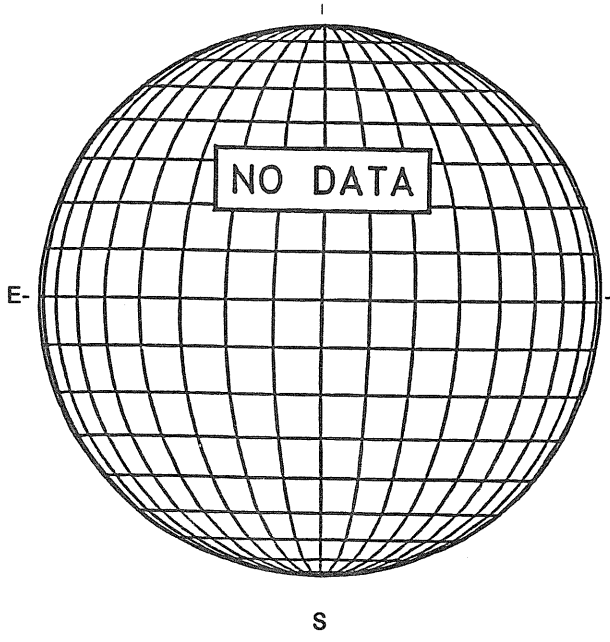

STANFORD MAGNETOGRAM



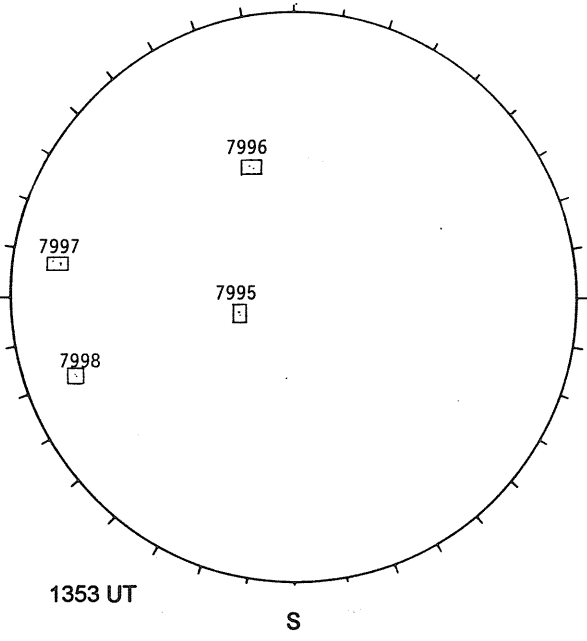

MT. WILSON MAGNETOGRAM



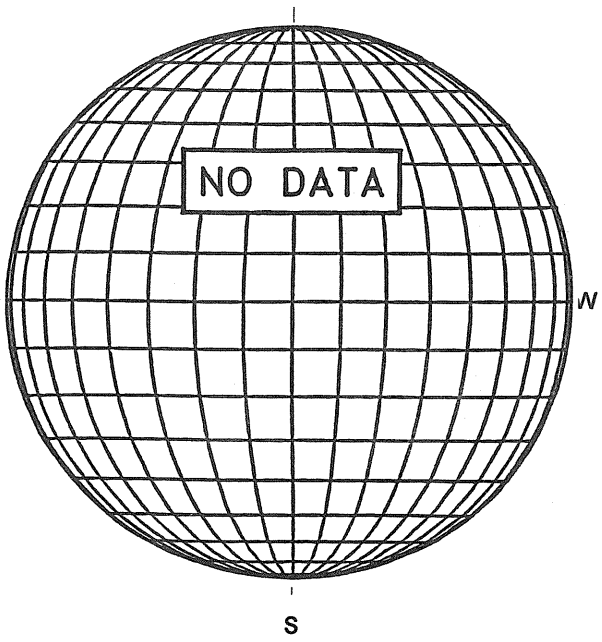

SACRAMENTO PEAK LOA H-ALPHA




RAMEY SUNSPOT

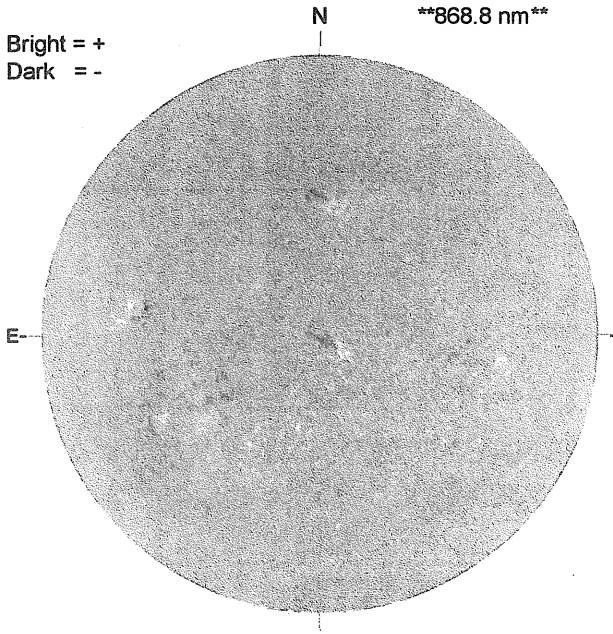



SACRAMENTO PEAK CORONA (1.15 Radii)----



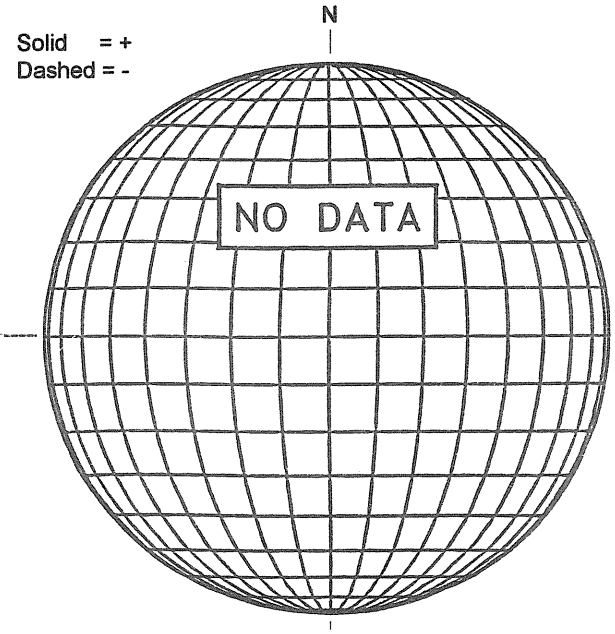
NOVEMBER 17, 1996 ( P= 20.84, Bo = 2.60, Lo = 156.10)

KITT PEAK MAGNETOGRAM

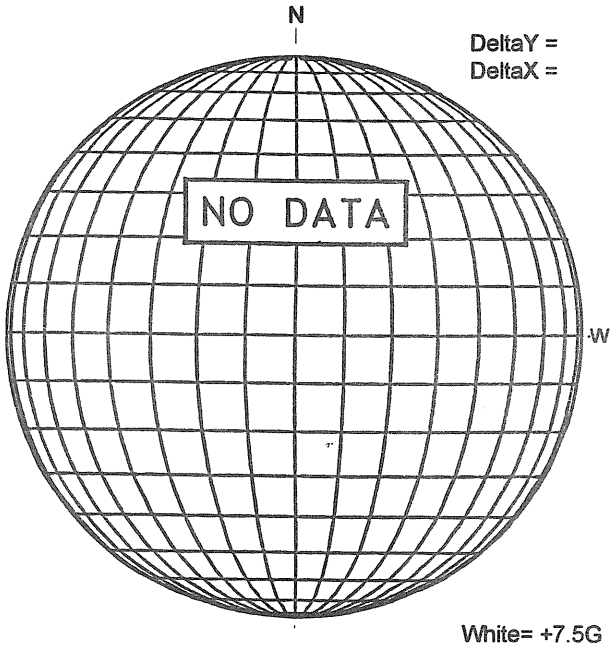



1654 UT

STANFORD MAGNETOGRAM

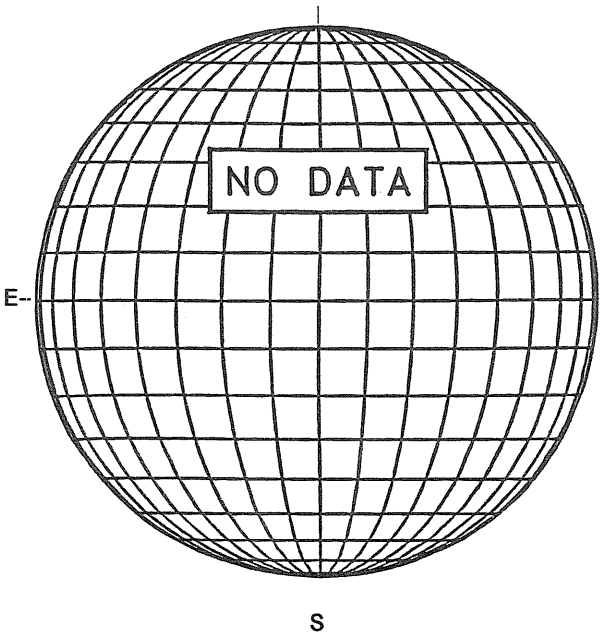



MT. WILSON MAGNETOGRAM

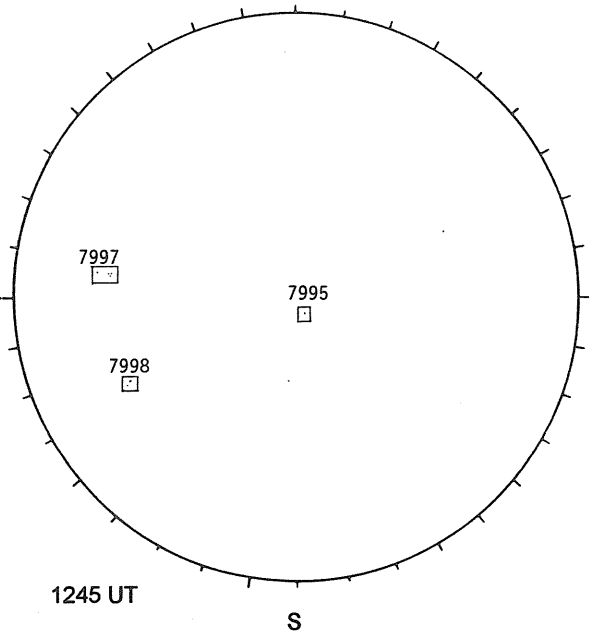



White= +7.5G
Black = -7.5G

----- SACRAMENTO PEAK H-ALPHA

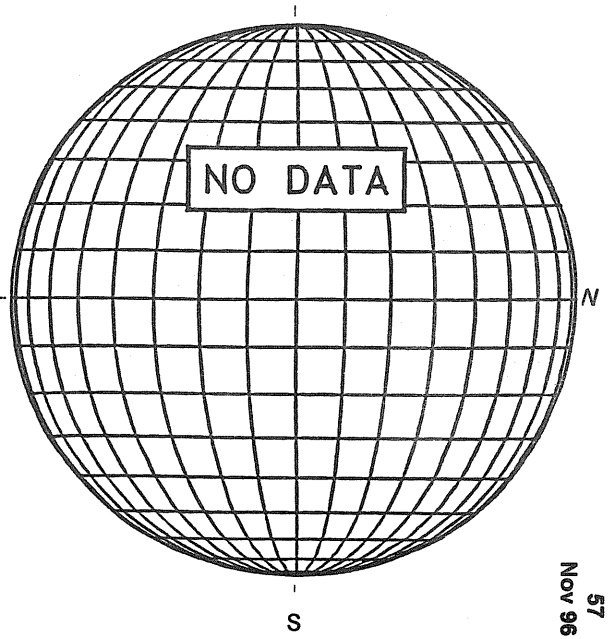



RAMEY SUNSPOT




1245 UT

SACRAMENTO PEAK CORONA (1.15 Radii)----

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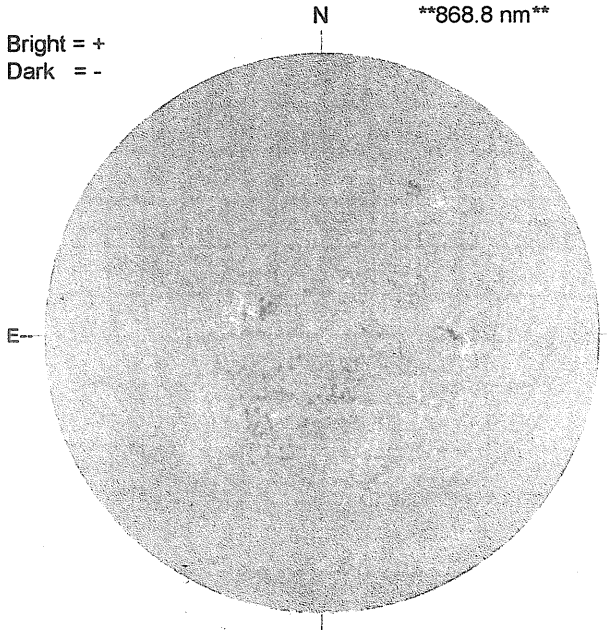
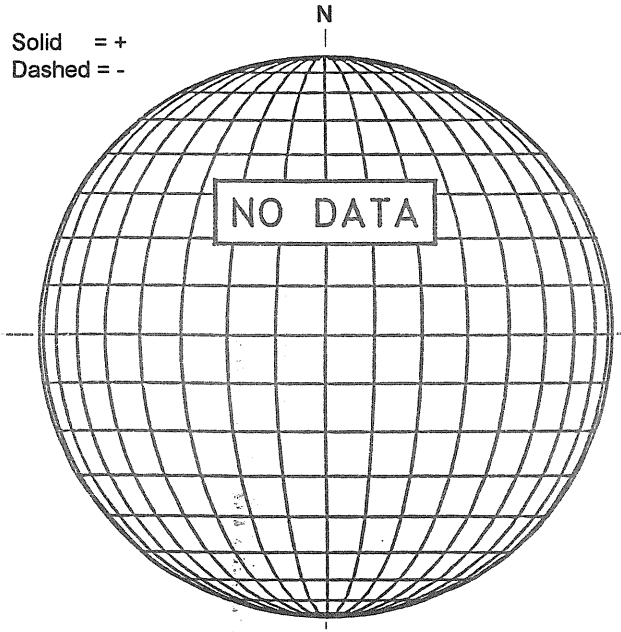
# NOVEMBER 18, 1996 ( P= 20.55, Bo = 2.48, Lo = 142.91)

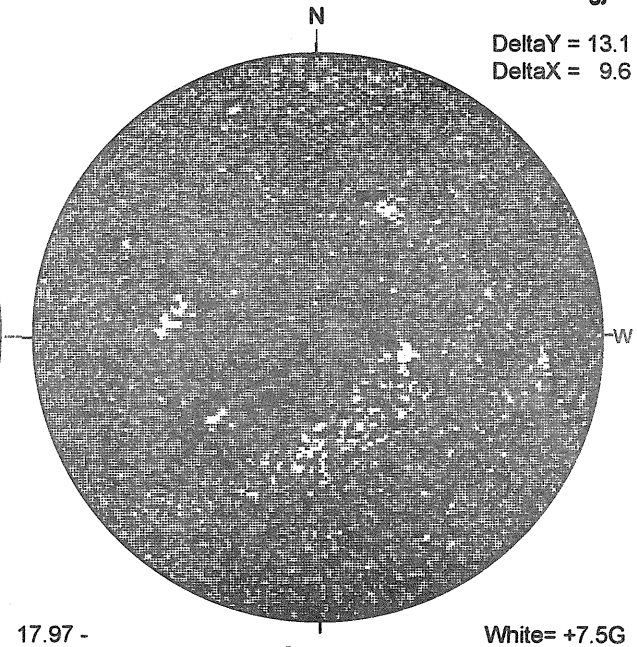
## KITT PEAK MAGNETOGRAM



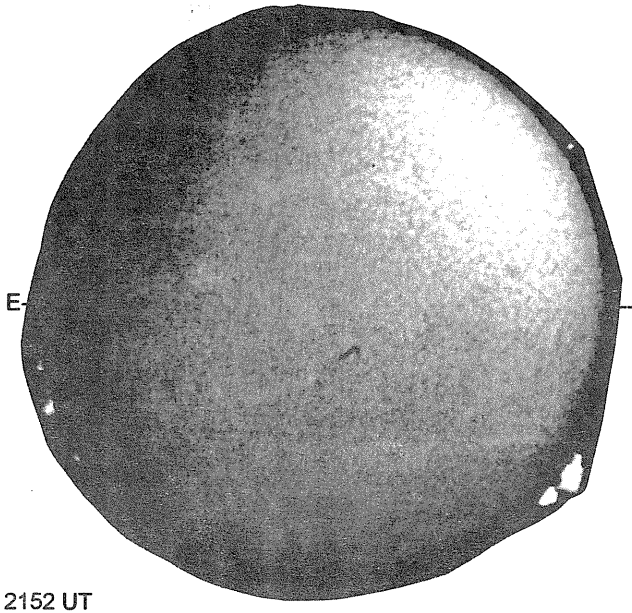

## STANFORD MAGNETOGRAM



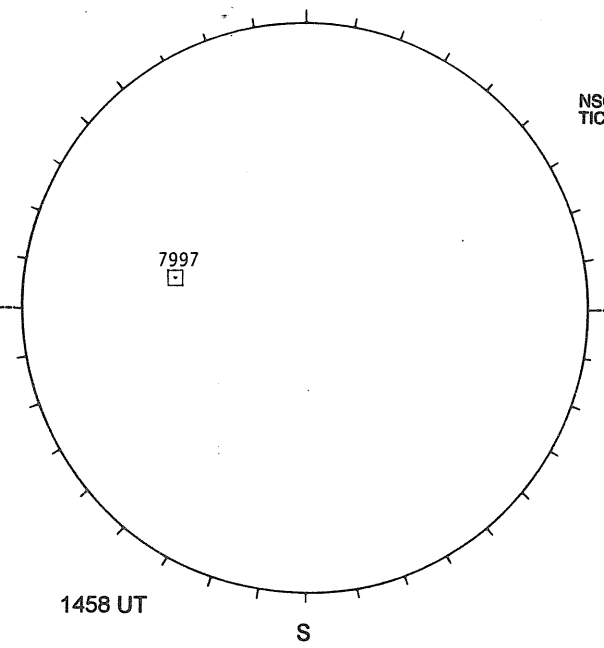

## MT. WILSON MAGNETOGRAM



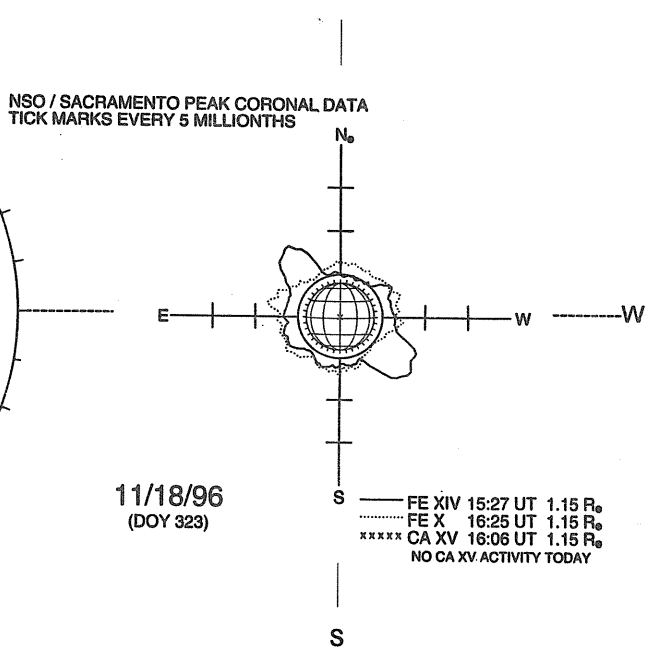

## MAUNA LOA H-ALPHA




## RAMEY SUNSPOT

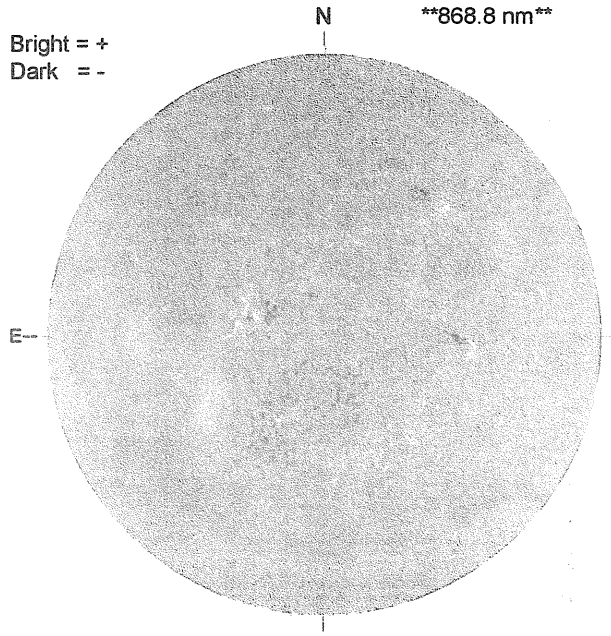



## SACRAMENTO PEAK CORONA (1.15 Radii)

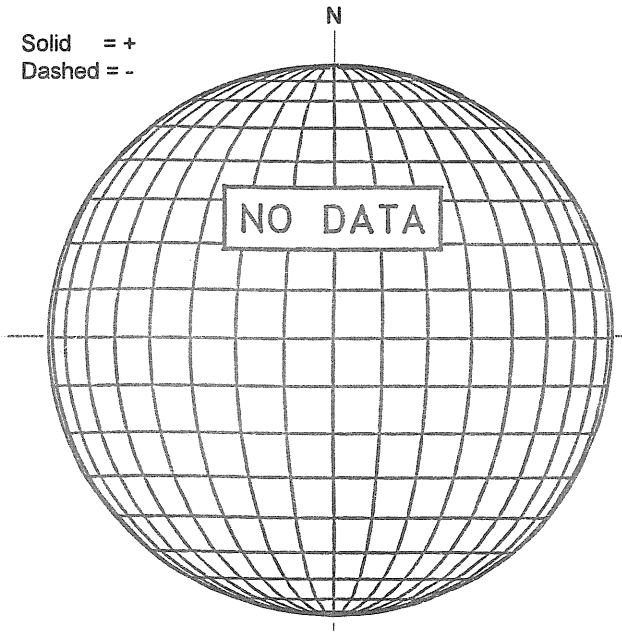


# NOVEMBER 19, 1996 ( P= 20.25, Bo = 2.36, Lo = 129.73)

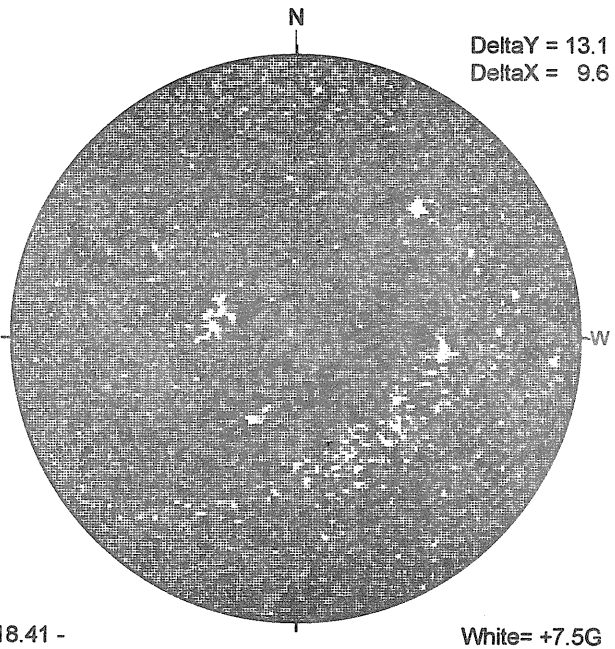
## KITT PEAK MAGNETOGRAM



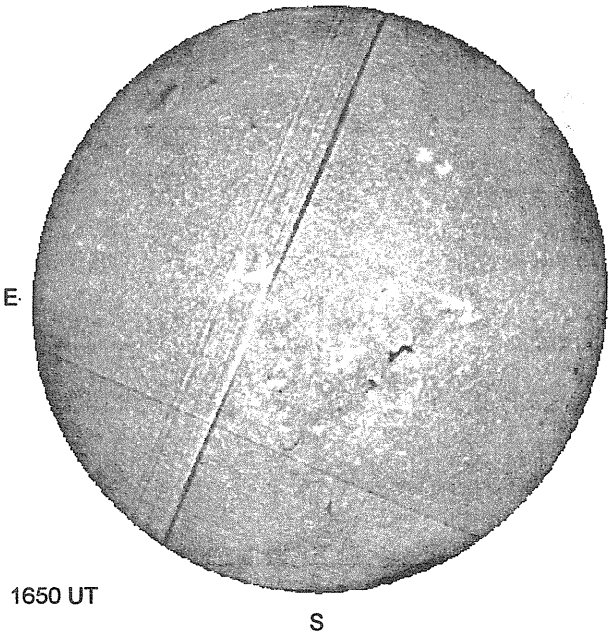

## STANFORD MAGNETOGRAM



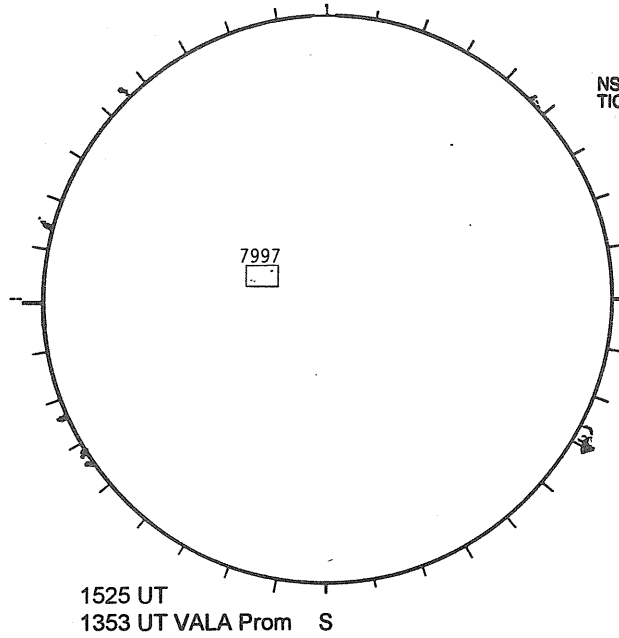

## MT. WILSON MAGNETOGRAM



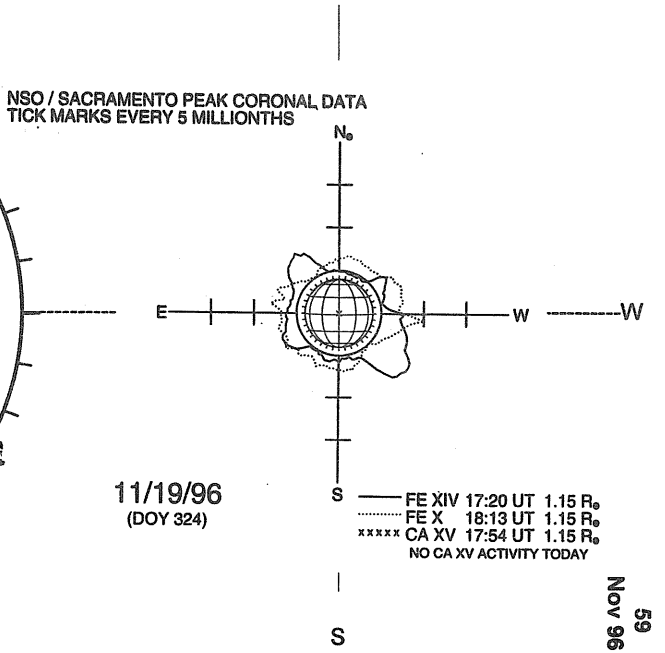

## SACRAMENTO PEAK H-ALPHA




## HOLLOMAN SUNSPOT




## SACRAMENTO PEAK CORONA (1.15 Radii)



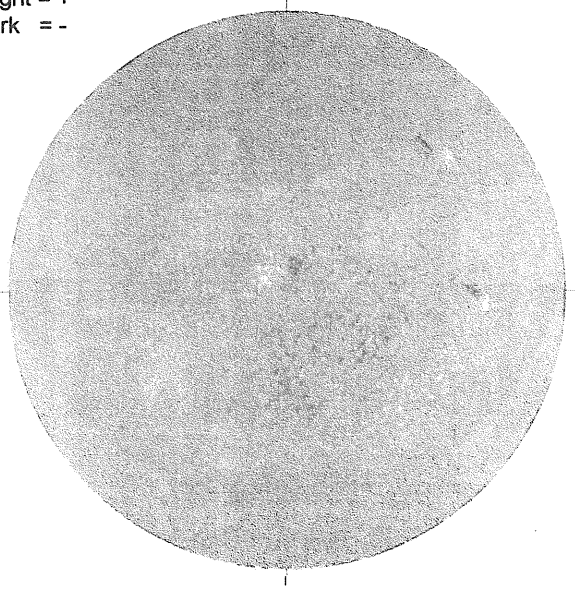
**NOVEMBER 20, 1996 ( P= 19.94, Bo = 2.24, Lo = 116.55)**

KITT PEAK MAGNETOGRAM

N

**868.8 nm**

Bright = +
Dark = -



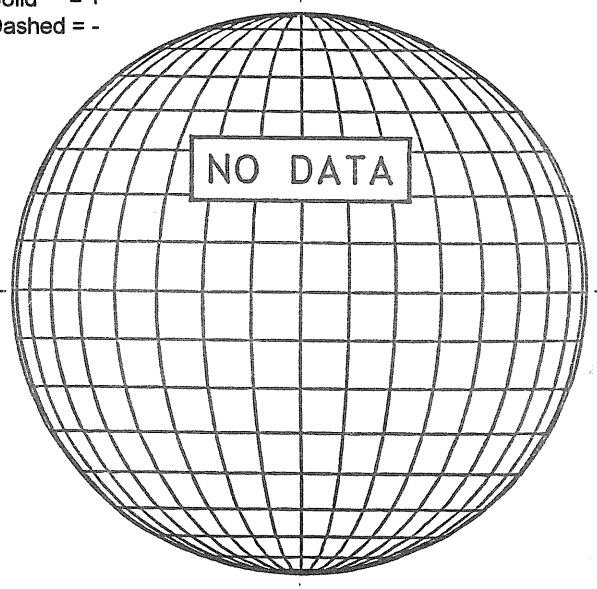
E--

1550 UT

STANFORD MAGNETOGRAM

N

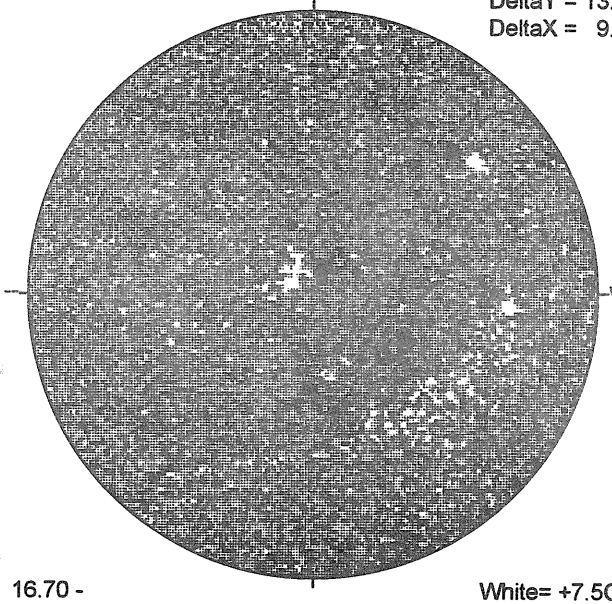
Solid = +
Dashed = -




MT. WILSON MAGNETOGRAM

N

DeltaY = 13.1
DeltaX = 9.6

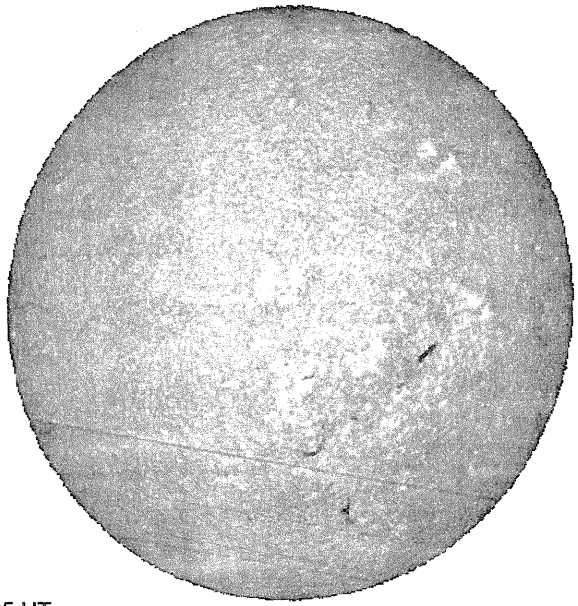


-W

16.70 -
17.67 UT

White= +7.5G
Black = -7.5G

----- SACRAMENTO PEAK H-ALPHA

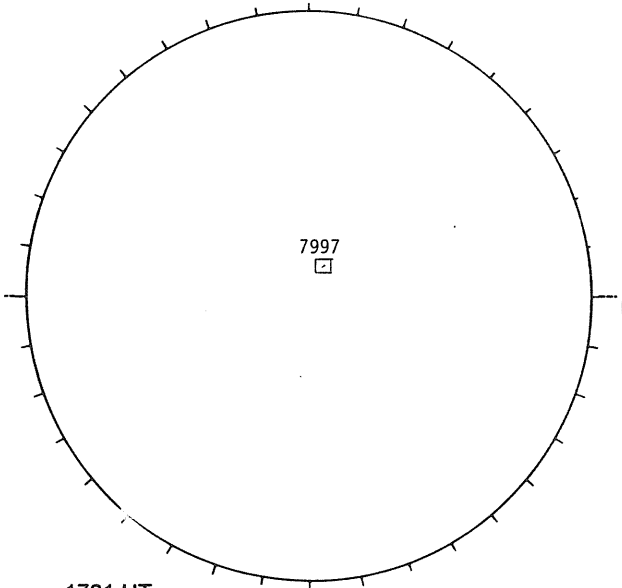


E-

1605 UT

S

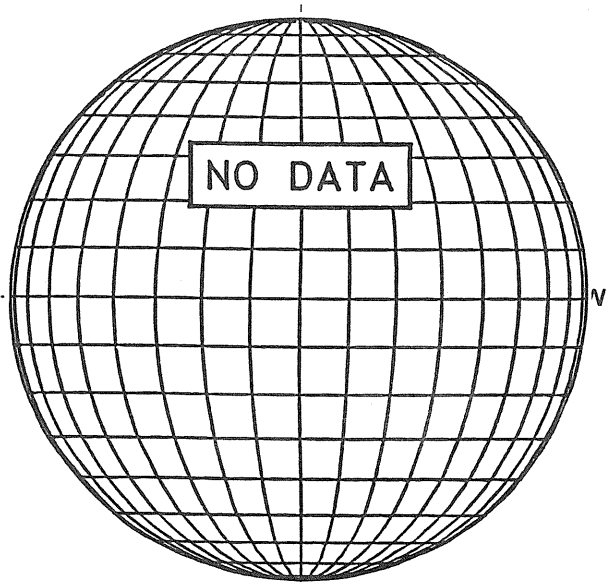
HOLLOMAN SUNSPOT




1701 UT

S

LOMNICKY PEAK CORONA (1.04 Radii)----

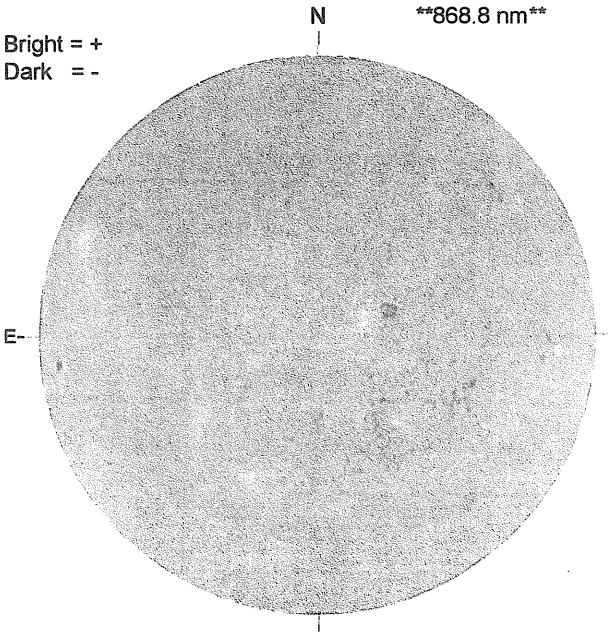



W

S

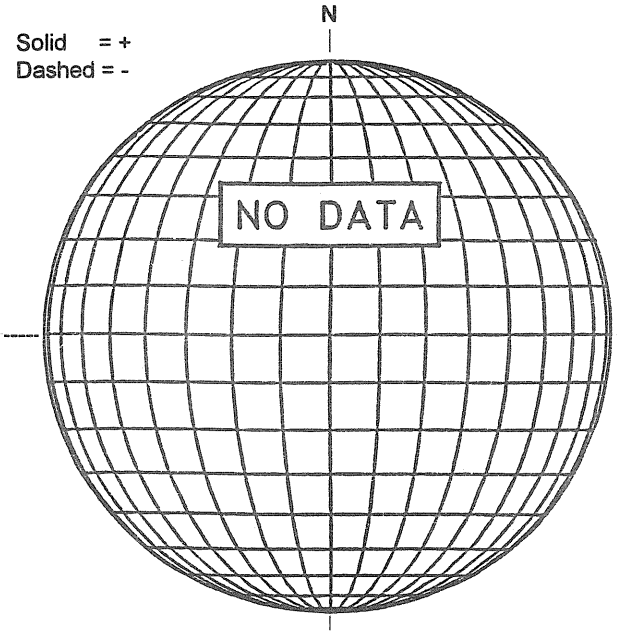
**NOVEMBER 21, 1996 ( P= 19.63, Bo = 2.12, Lo = 103.37)**

KITT PEAK MAGNETOGRAM

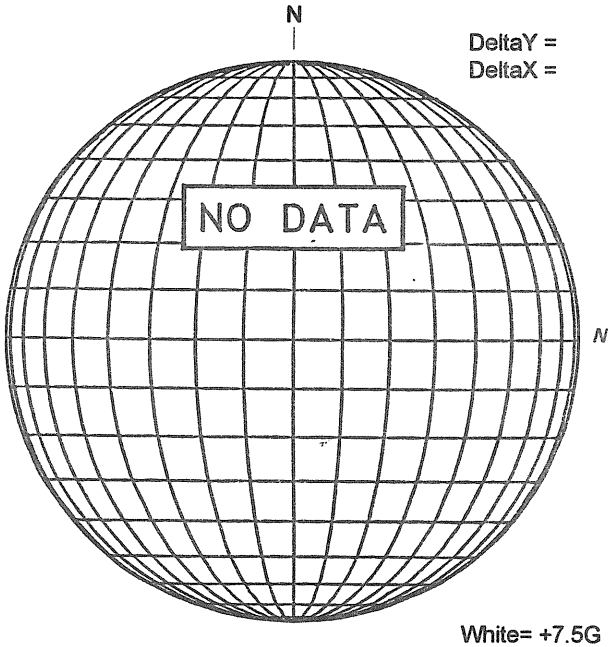



1558 UT

STANFORD MAGNETOGRAM

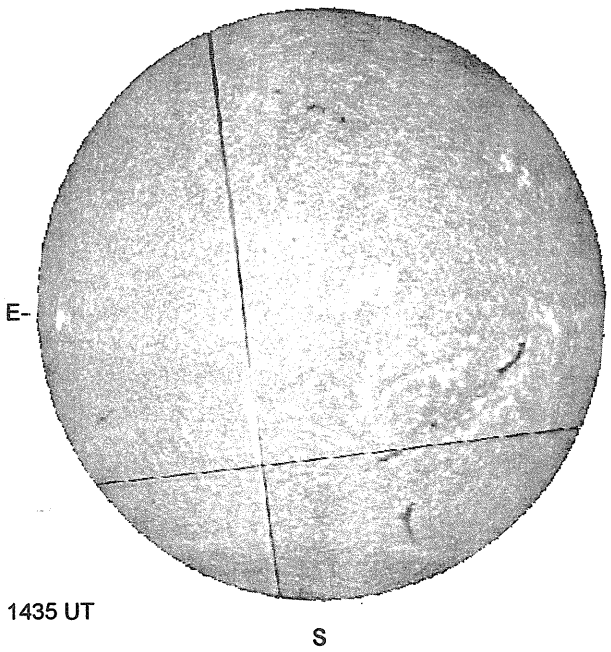



MT. WILSON MAGNETOGRAM



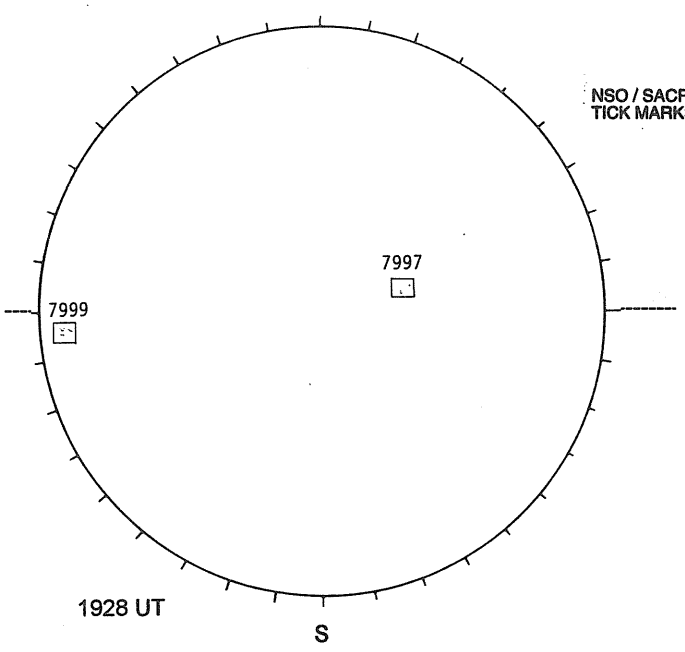

White= +7.5G
Black = -7.5G

SACRAMENTO PEAK H-ALPHA



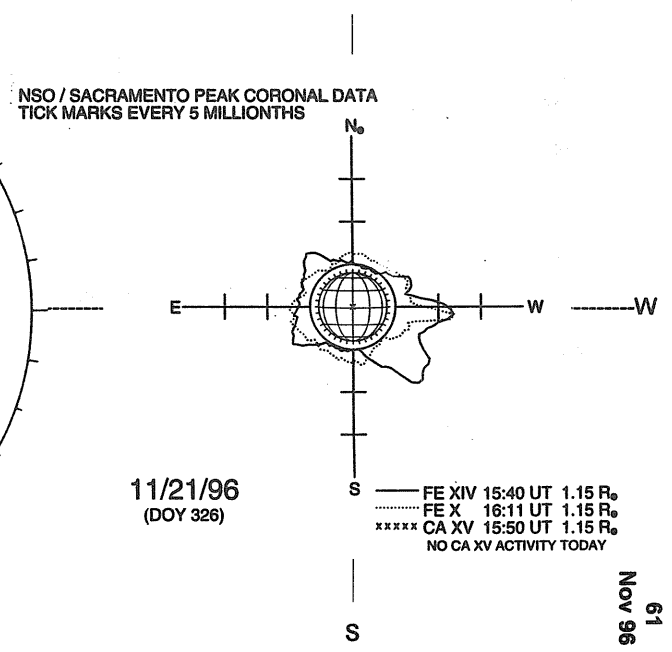

1435 UT

RAMEY SUNSPOT




1928 UT

SACRAMENTO PEAK CORONA (1.15 Radii)----

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Nov 96

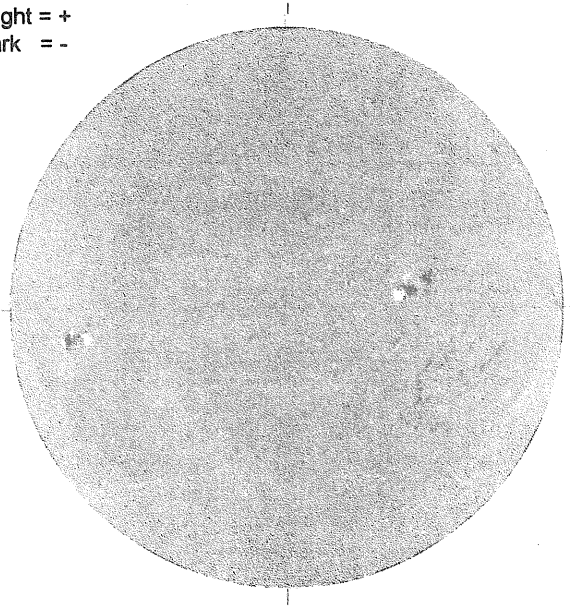
**NOVEMBER 22, 1996 ( P= 19.30, Bo = 2.00, Lo = 90.19)**

KITT PEAK MAGNETOGRAM

N

**868.8 nm**

Bright = +
Dark = -



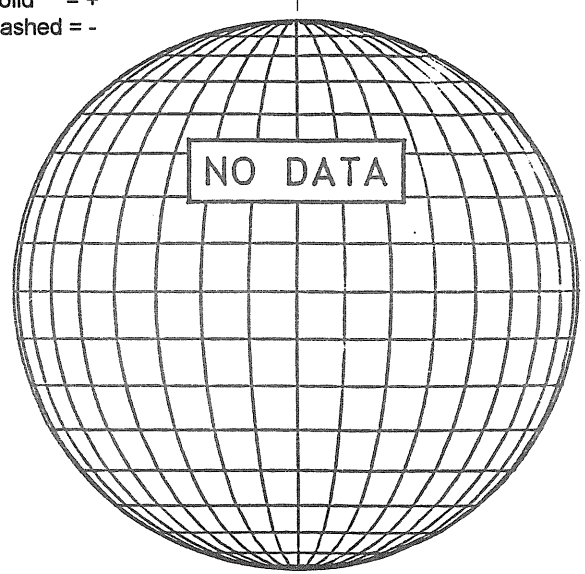
E-

1943 UT

STANFORD MAGNETOGRAM

N

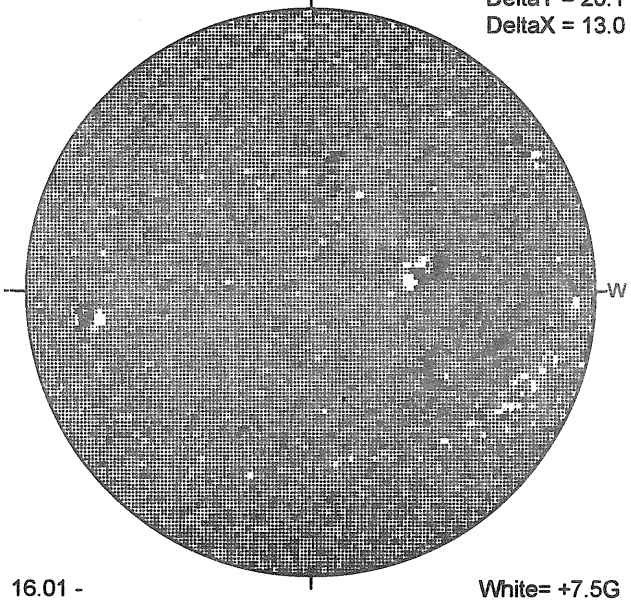
Solid = +
Dashed = -




MT. WILSON MAGNETOGRAM

N

DeltaY = 20.1
DeltaX = 13.0

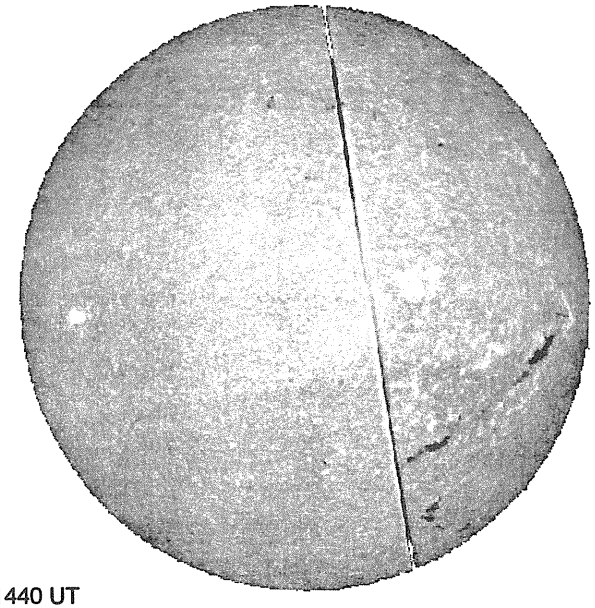


-W

16.01 -
16.44 UT

White= +7.5G
Black = -7.5G

----- SACRAMENTO PEAK H-ALPHA

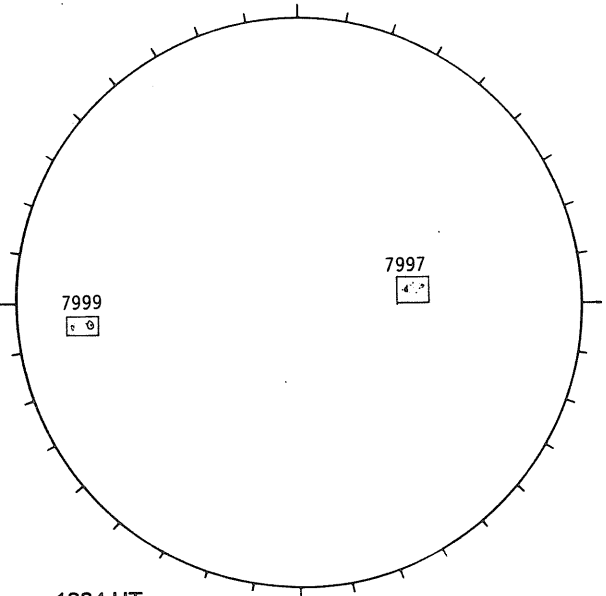


E

1440 UT

S

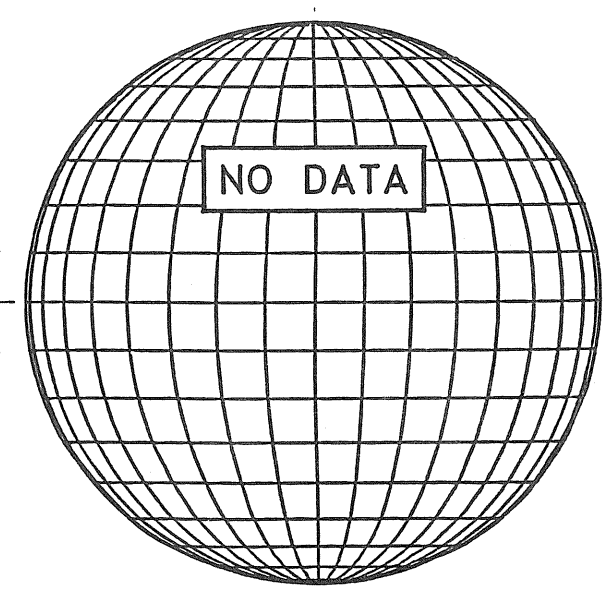
RAMEY SUNSPOT




1804 UT

S

SACRAMENTO PEAK CORONA (1.15 Radii)----

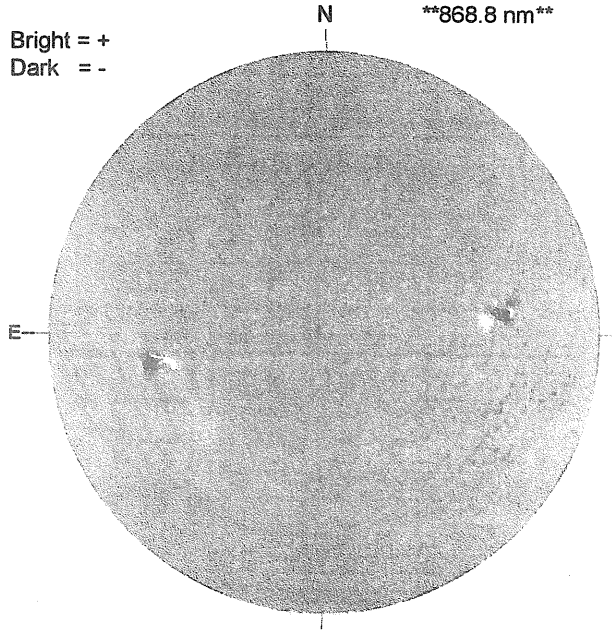



W

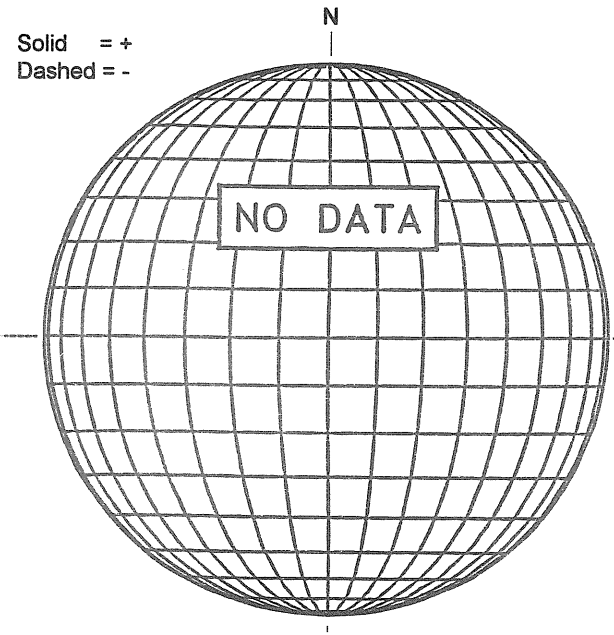
S

**NOVEMBER 23, 1996 ( P= 18.97, Bo = 1.87, Lo = 77.01)**

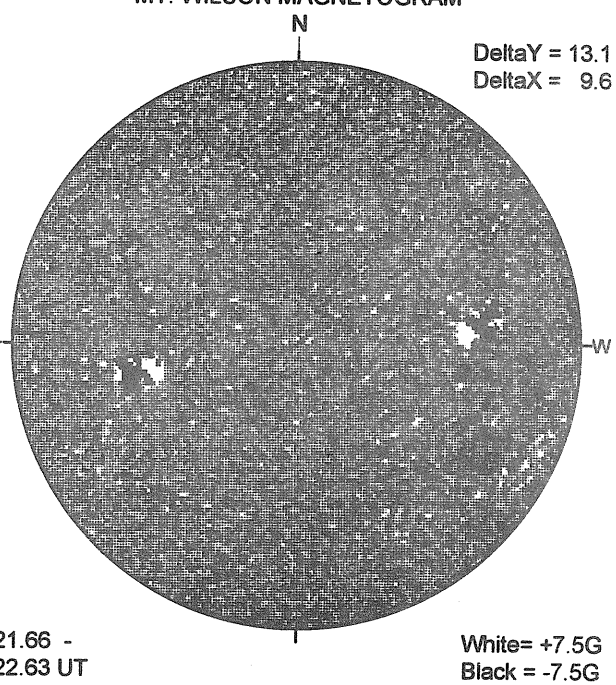
KITT PEAK MAGNETOGRAM



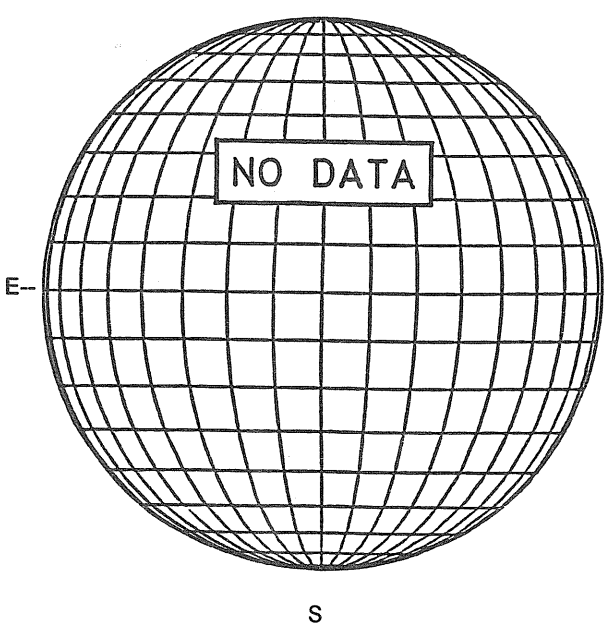

STANFORD MAGNETOGRAM



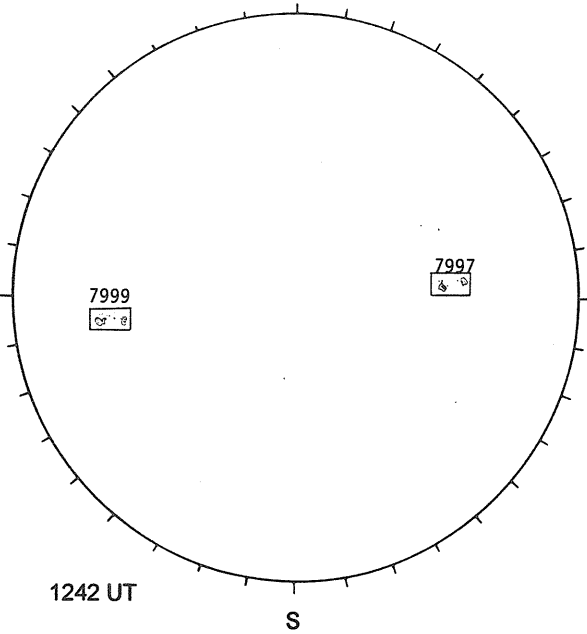

MT. WILSON MAGNETOGRAM



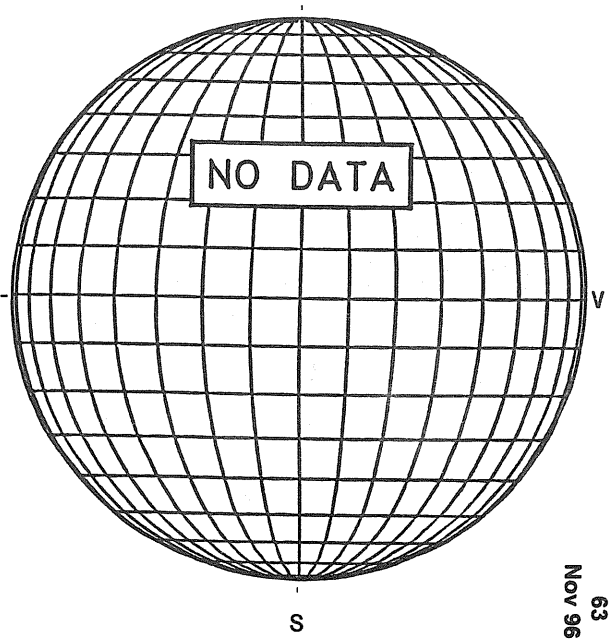

SACRAMENTO PEAK H-ALPHA




RAMEY SUNSPOT



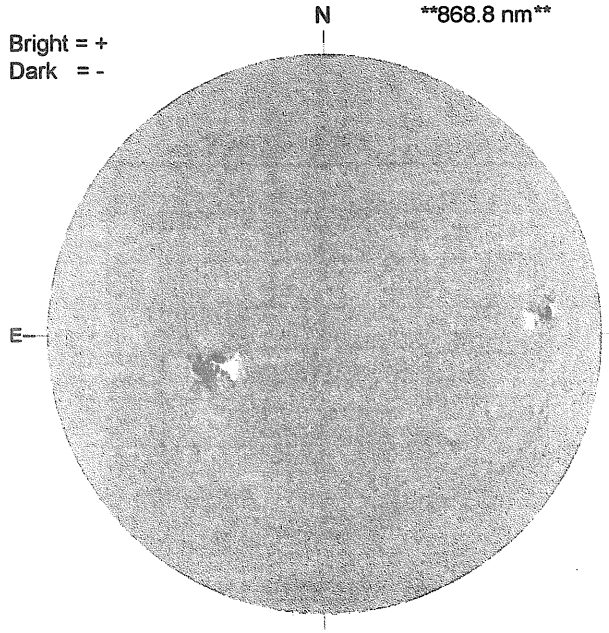

SACRAMENTO PEAK CORONA (1.15 Radii)



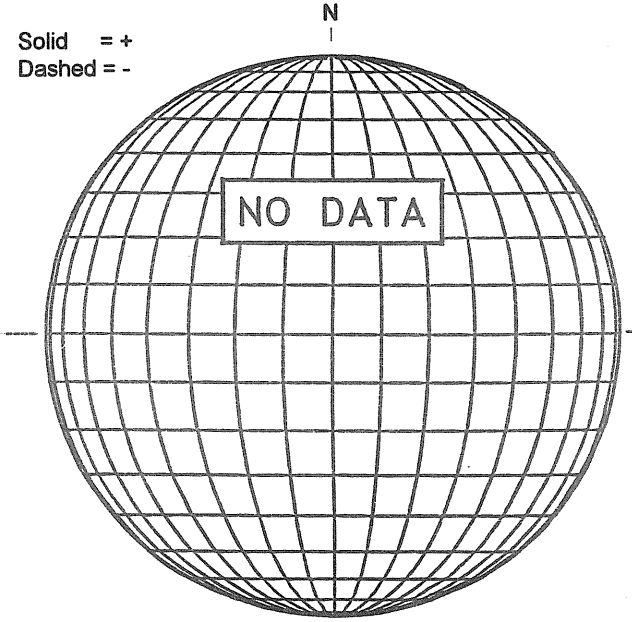

63
Nov 96

**NOVEMBER 24, 1996 ( P= 18.64, Bo = 1.75 Lo = 63.83)**

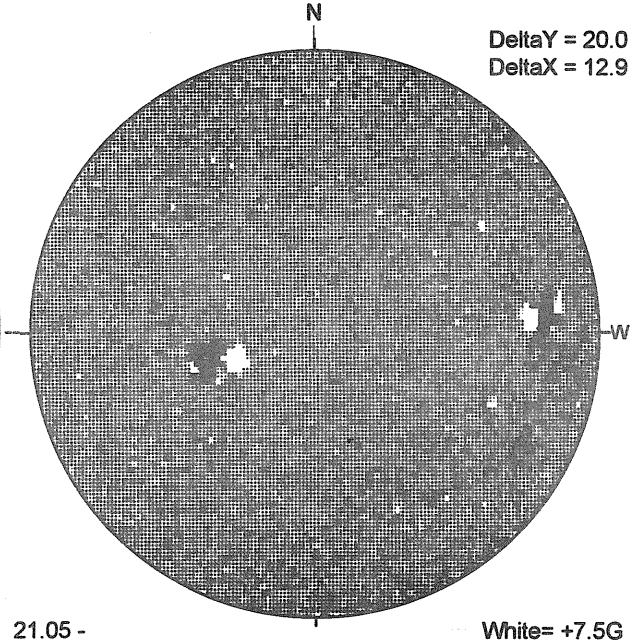
KITT PEAK MAGNETOGRAM



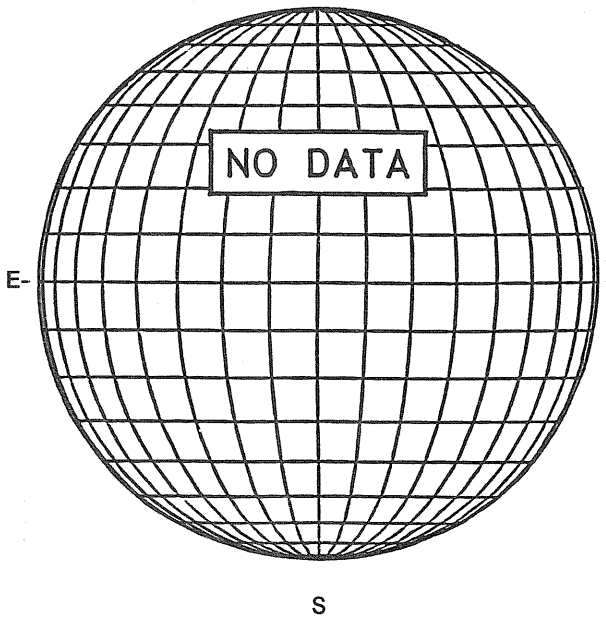

STANFORD MAGNETOGRAM



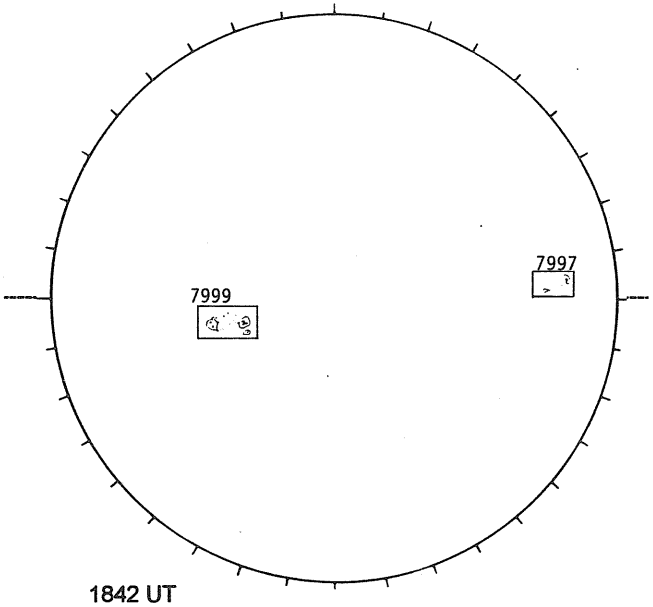

MT. WILSON MAGNETOGRAM



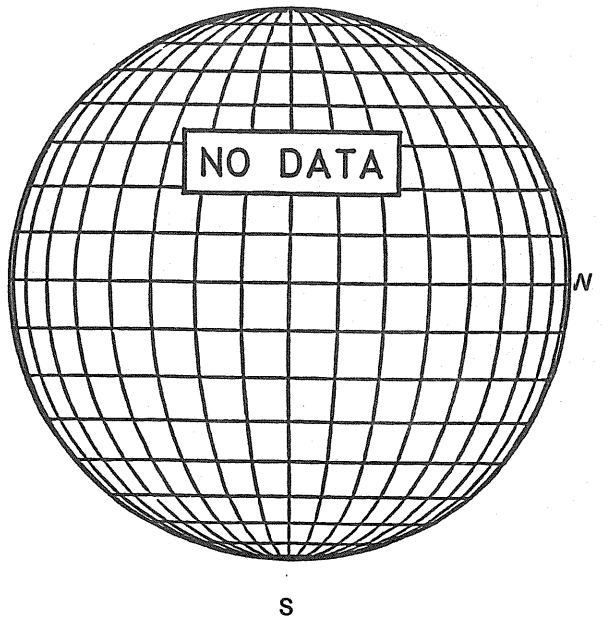

SACRAMENTO PEAK H-ALPHA




RAMEY SUNSPOT

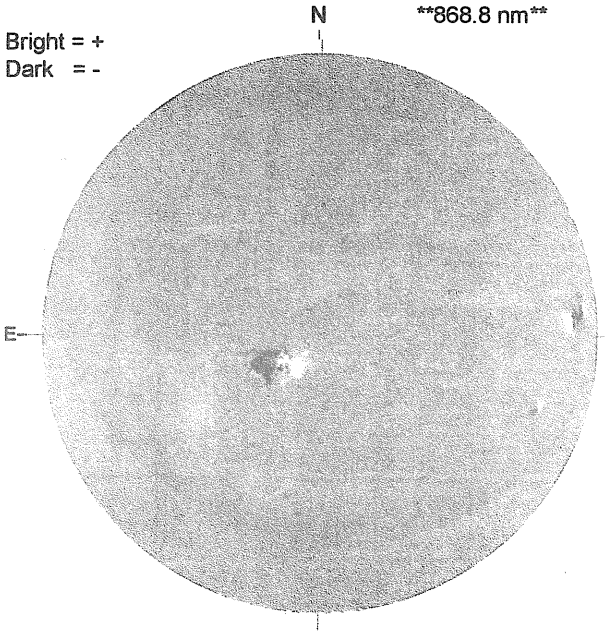



SACRAMENTO PEAK CORONA (1.15 Radii)



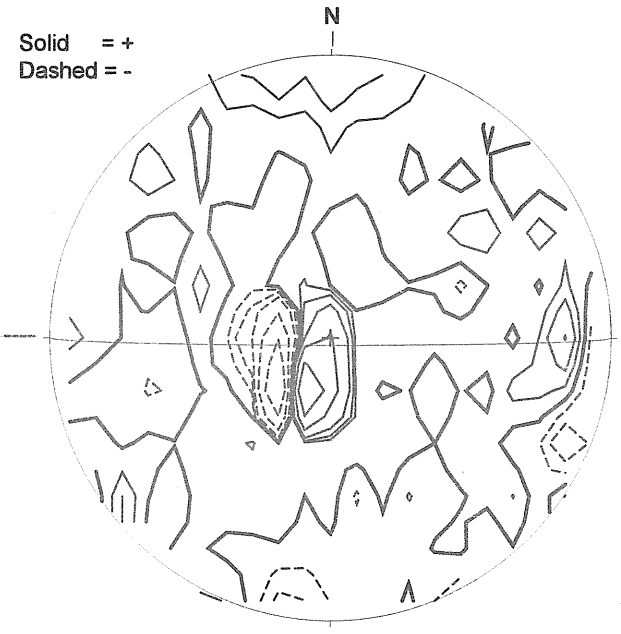
**NOVEMBER 25, 1996 ( P= 18.29, Bo = 1.63, Lo = 50.64)**

KITT PEAK MAGNETOGRAM



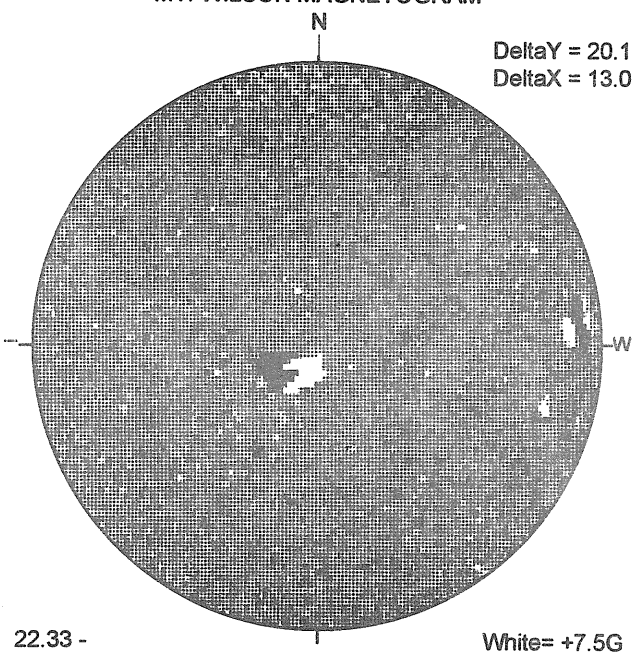

1722 UT

STANFORD MAGNETOGRAM




2008 UT

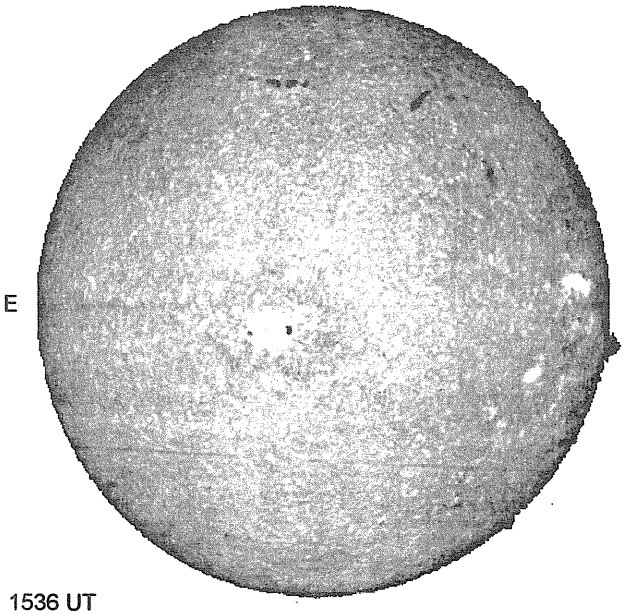
MT. WILSON MAGNETOGRAM




22.33 -
22.76 UT

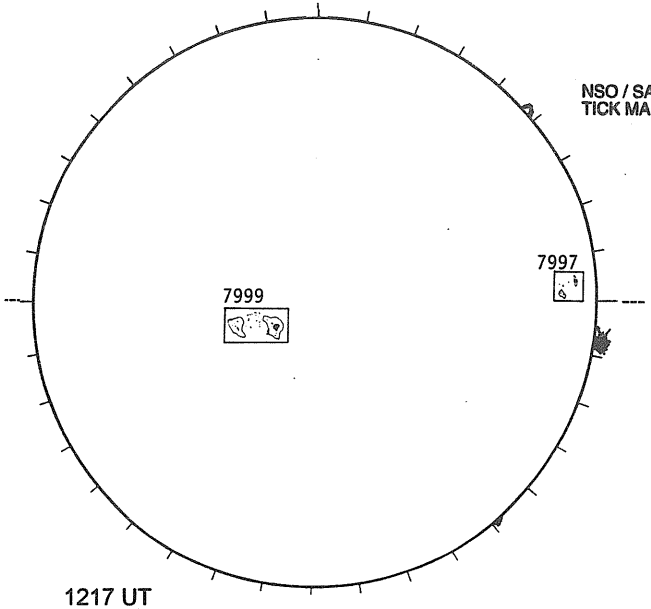
White= +7.5G
Black = -7.5G

SACRAMENTO PEAK H-ALPHA



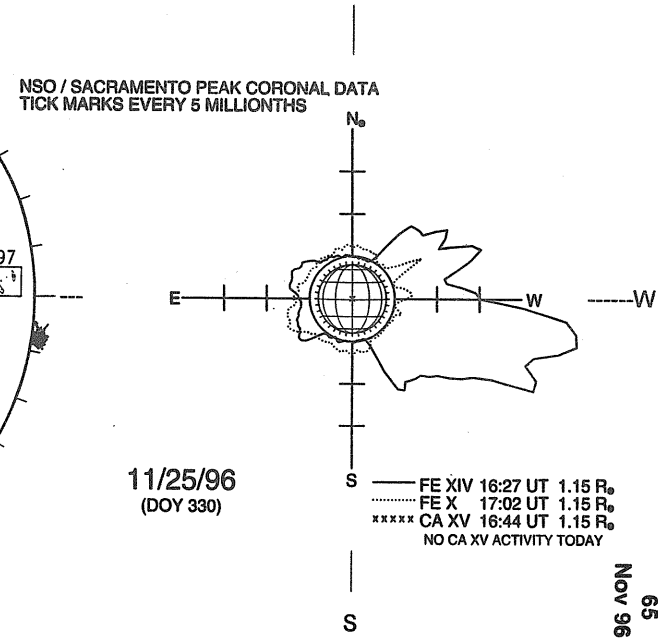

1536 UT

RAMEY SUNSPOT




1217 UT
0658 UT LOMN Prom S

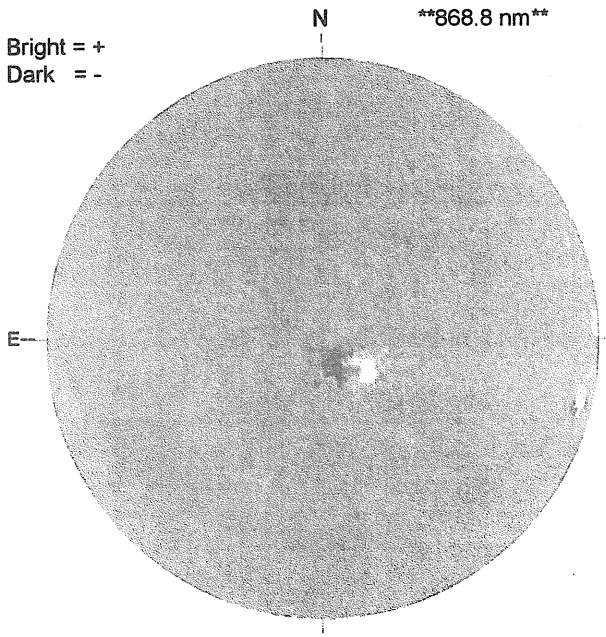
SACRAMENTO PEAK CORONA (1.15 Radii)




Nov 96 65

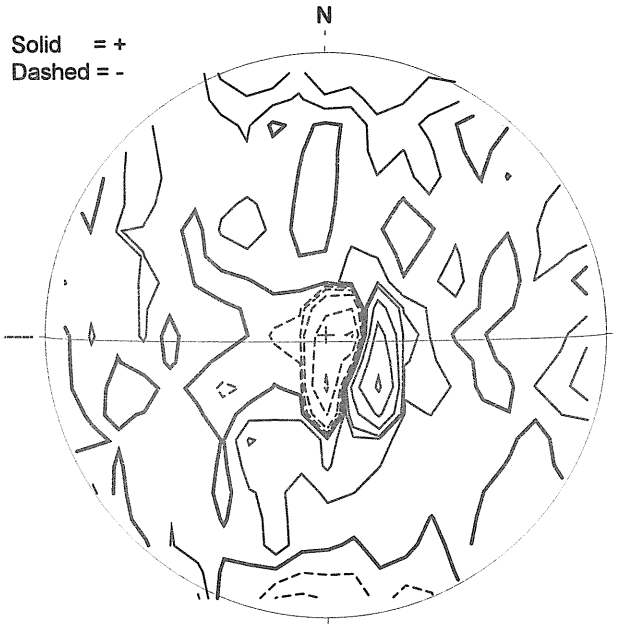
**NOVEMBER 26, 1996 ( P= 17.94, Bo = 1.50, Lo = 37.46)**

KITT PEAK MAGNETOGRAM



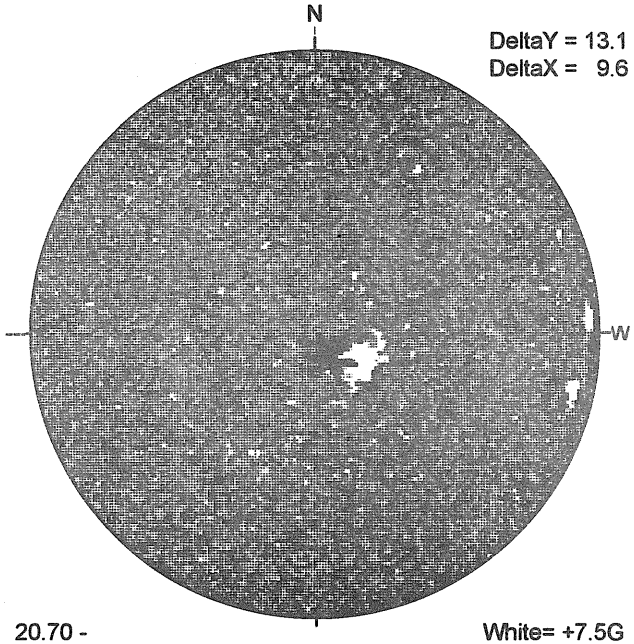

1805 UT

STANFORD MAGNETOGRAM




1915 UT

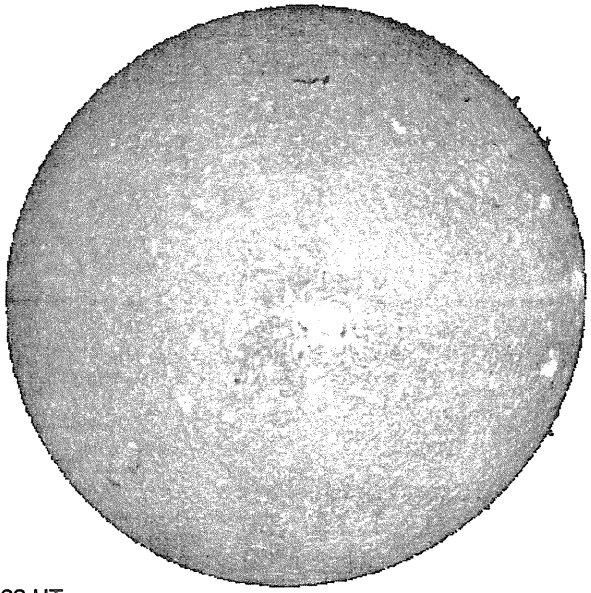
MT. WILSON MAGNETOGRAM




20.70 - 21.67 UT

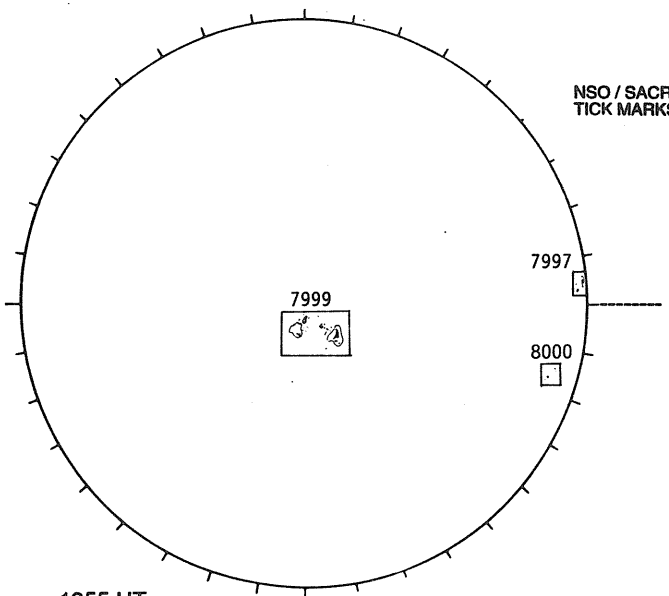
White= +7.5G
Black = -7.5G

SACRAMENTO PEAK H-ALPHA



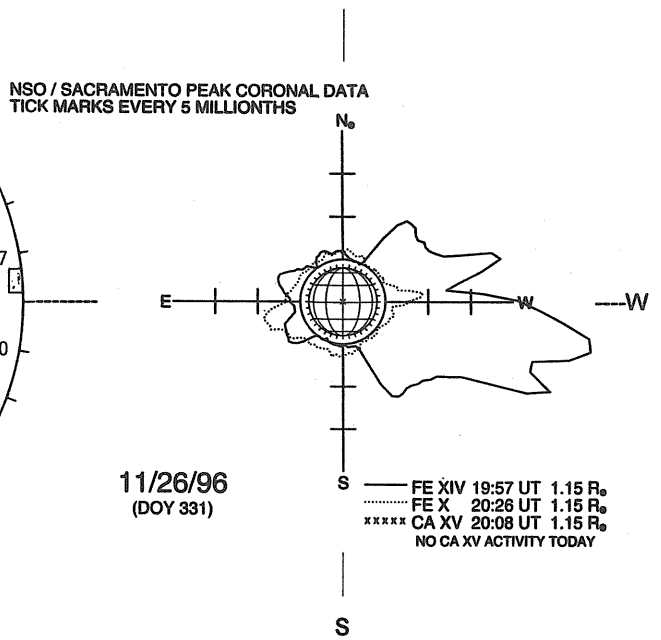

1902 UT

RAMEY SUNSPOT



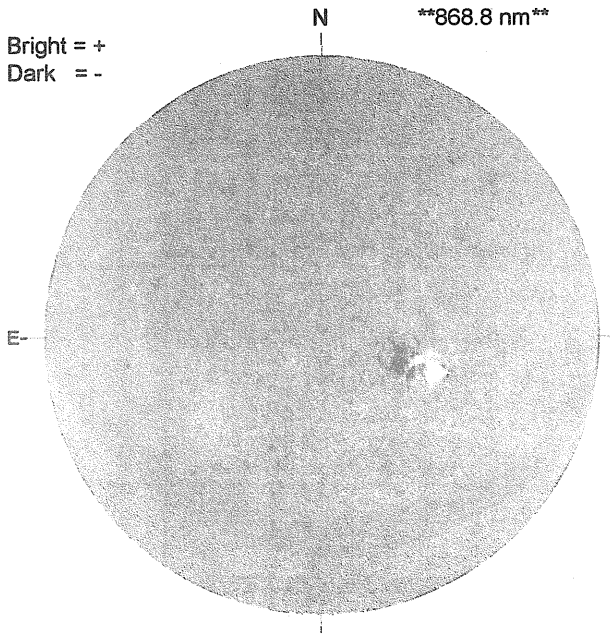

1355 UT

SACRAMENTO PEAK CORONA (1.15 Radii)----



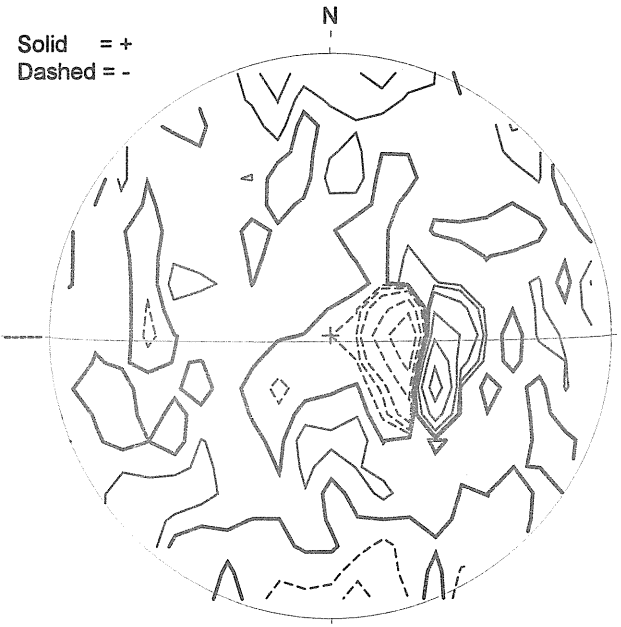
NOVEMBER 27, 1996 ( P= 17.59, Bo = 1.38, Lo = 24.29)

KITT PEAK MAGNETOGRAM



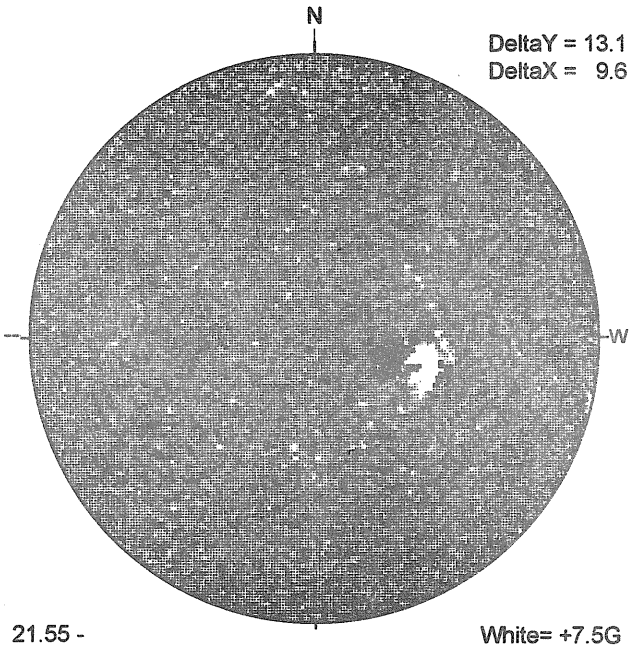

1657 UT

STANFORD MAGNETOGRAM




1746 UT

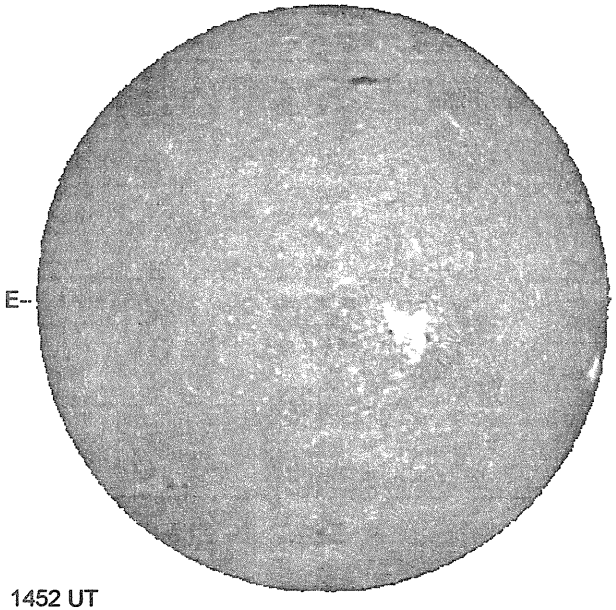
MT. WILSON MAGNETOGRAM




21.55 -
22.58 UT

White= +7.5G
Black = -7.5G

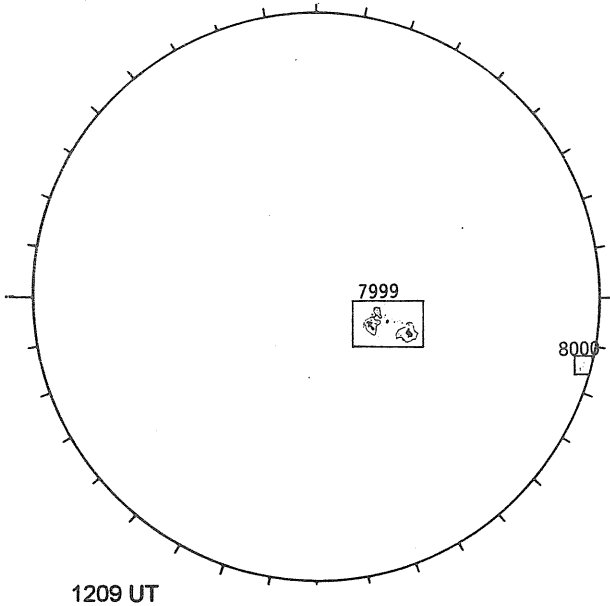
----- SACRAMENTO PEAK H-ALPHA




1452 UT

S

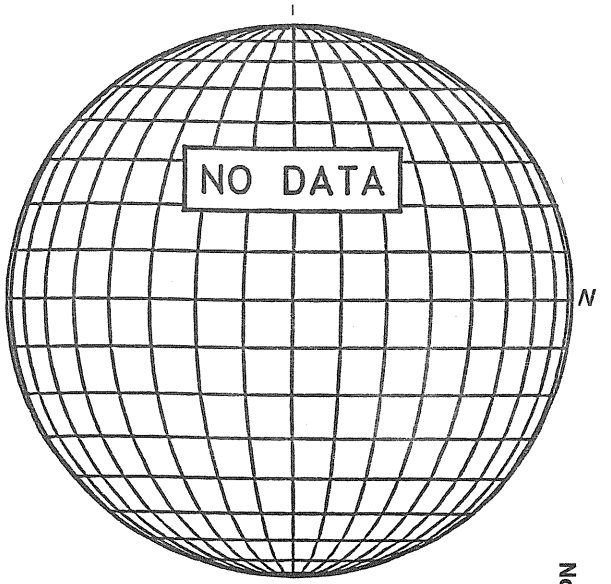
RAMEY SUNSPOT




1209 UT

S

LOMNICKY PEAK CORONA (1.04 Radii)----




S

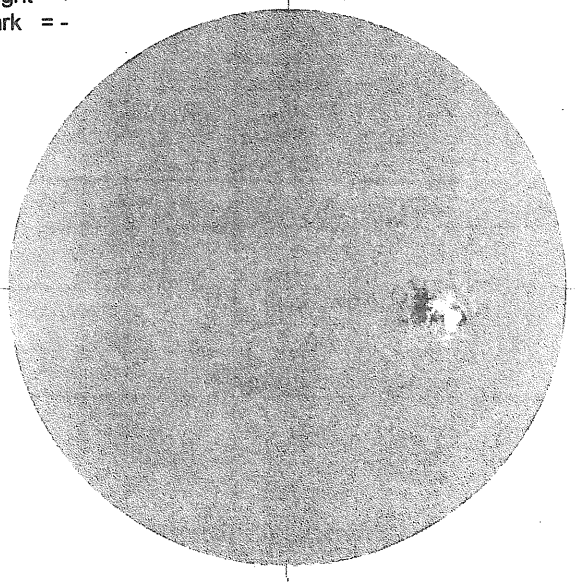
67 Nov 96

**NOVEMBER 28, 1996 ( P= 17.22, Bo = 1.25, Lo = 11.11)**

KITT PEAK MAGNETOGRAM

N **868.8 nm**

Bright = +
Dark = -



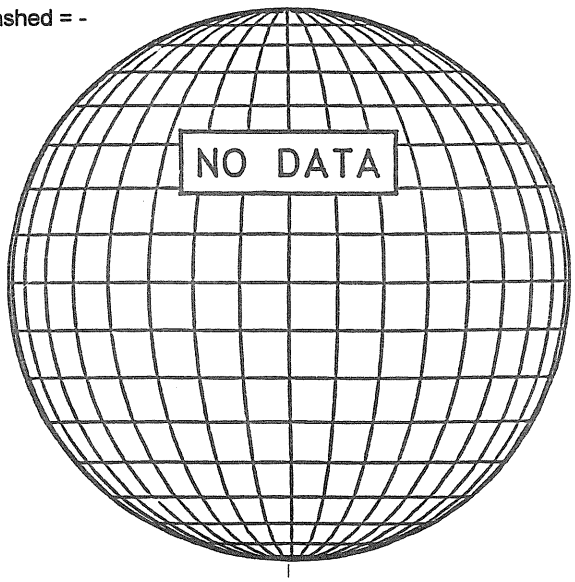
E

1641 UT

STANFORD MAGNETOGRAM

N

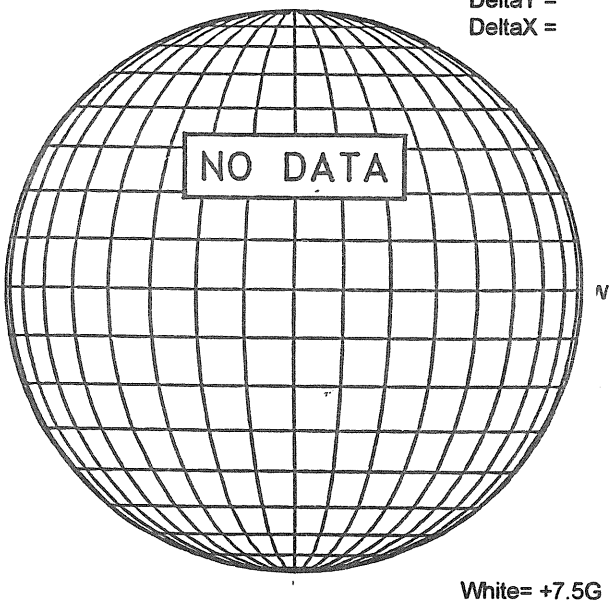
Solid = +
Dashed = -




MT. WILSON MAGNETOGRAM

N

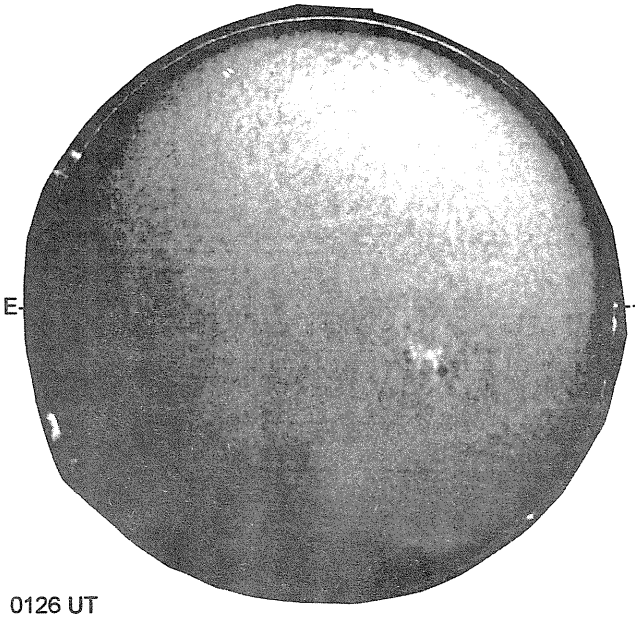
DeltaY =
DeltaX =




W

White= +7.5G
Black = -7.5G

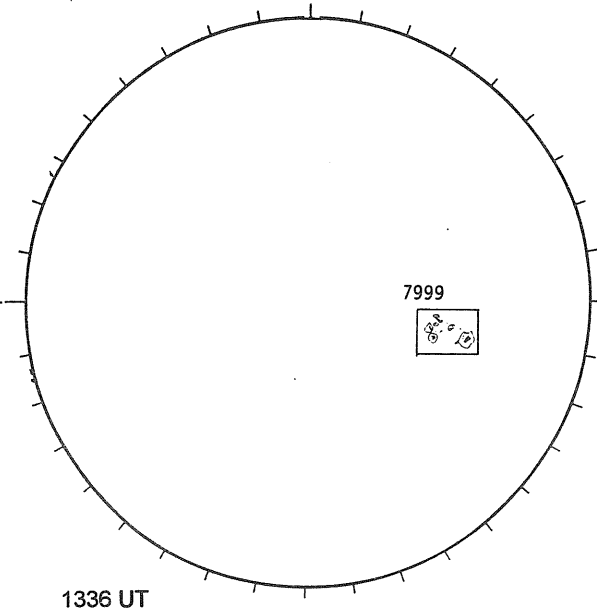
---- MAUNA LOA H-ALPHA



E

0126 UT
0050 UT Prom S

RAMEY SUNSPOT




1336 UT
0729 UT LOMN Prom S

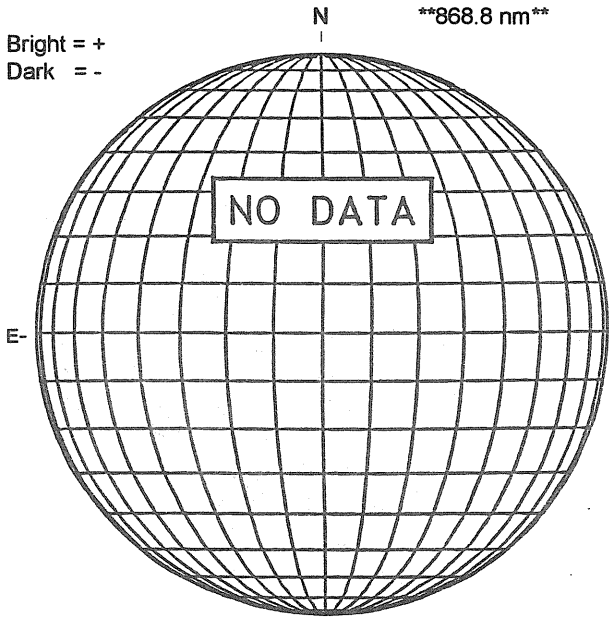
SACRAMENTO PEAK CORONA (1.15 Radii)----


W

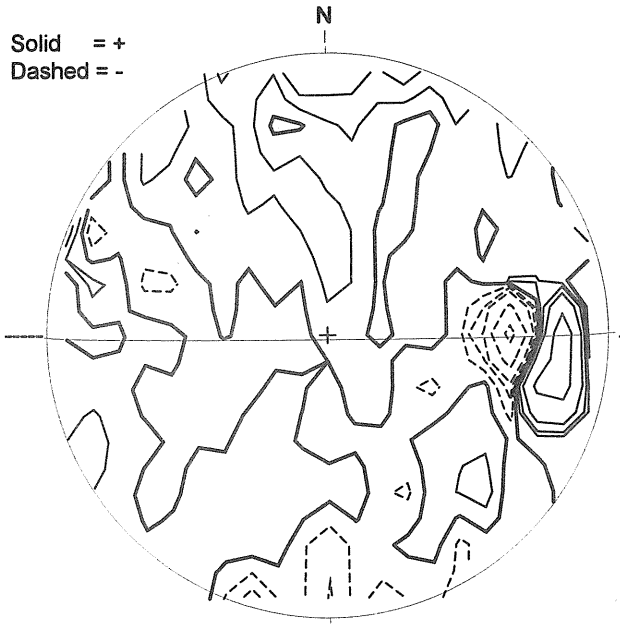
S

**NOVEMBER 29, 1996 ( P= 16.86, Bo = 1.12, Lo = 357.93)**

KITT PEAK MAGNETOGRAM

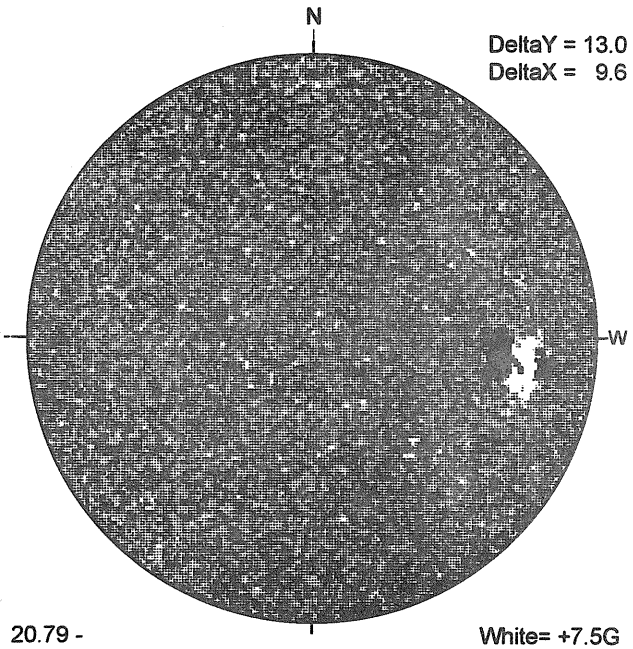



STANFORD MAGNETOGRAM




2140 UT

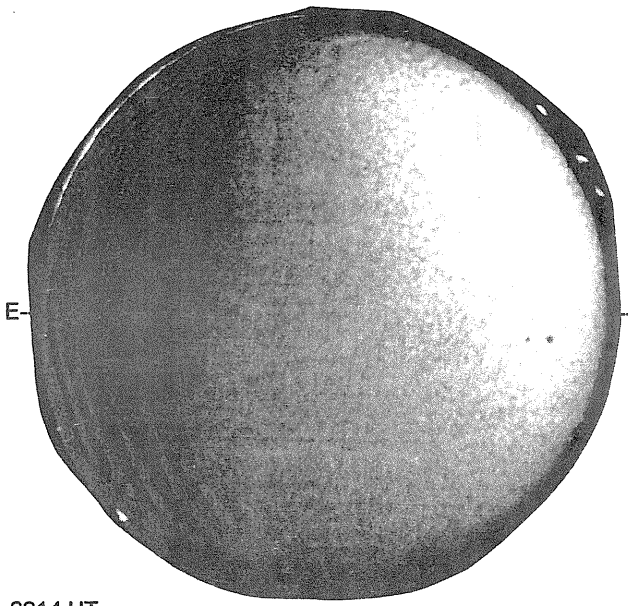
MT. WILSON MAGNETOGRAM




20.79 -
21.76 UT

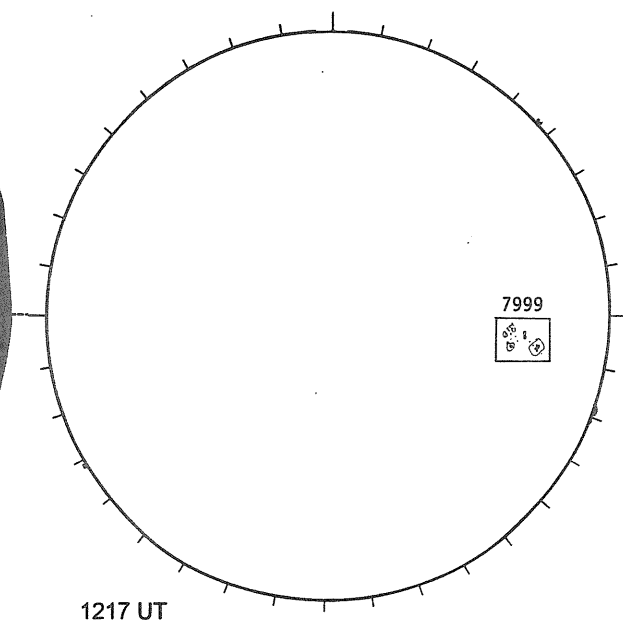
White= +7.5G
Black = -7.5G

MAUNA LOA H-ALPHA



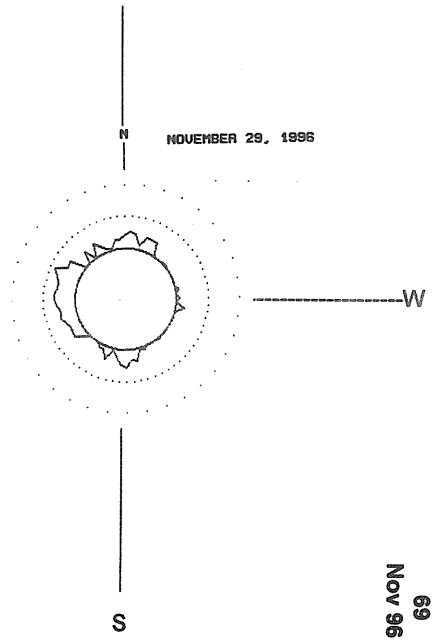

2214 UT
2014 UT Prom S

RAMEY SUNSPOT




1217 UT
1338 UT LOMN Prom S

LOMNICKY PEAK CORONA (1.04 Radii)----




1356 UT
... 50 abs. units
. . 100 abs. units

Nov 96

NOVEMBER 30, 1996 ( P= 16.48, Bo = 1.00, Lo = 344.75)

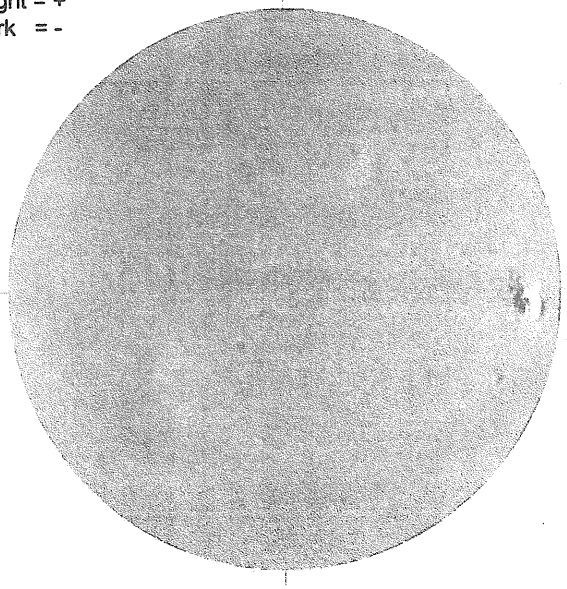
Nov 96
70

KITT PEAK MAGNETOGRAM

N

**868.8 nm**

Bright = +
Dark = -



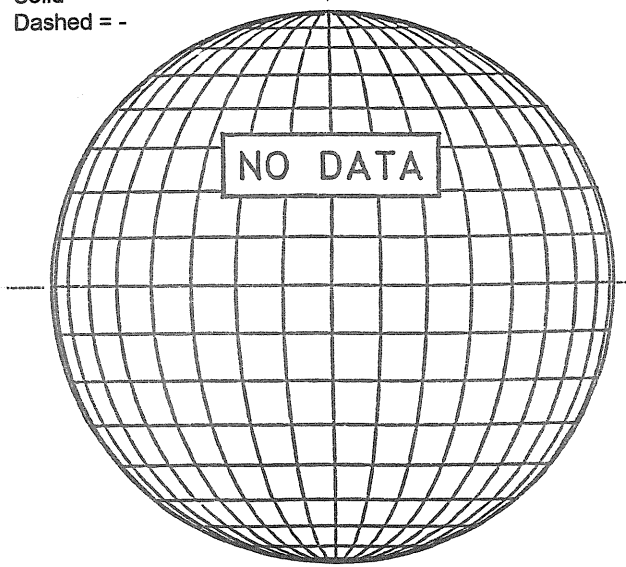
E

1749 UT

STANFORD MAGNETOGRAM

N

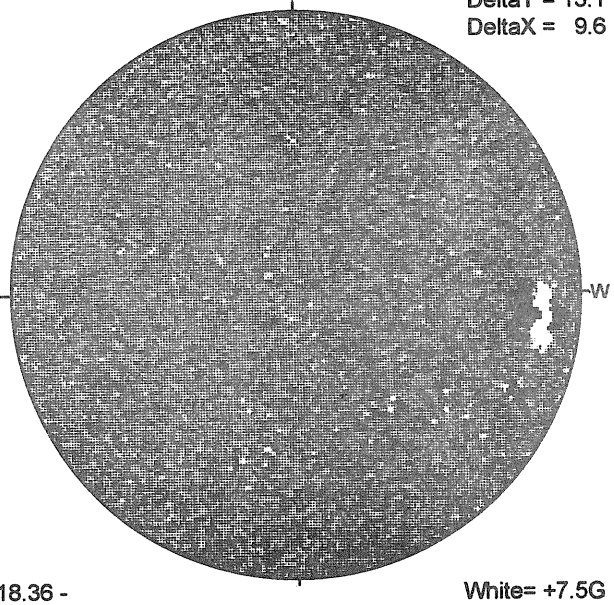
Solid = +
Dashed = -




MT. WILSON MAGNETOGRAM

N

DeltaY = 13.1
DeltaX = 9.6



W

18.36 -
19.34 UT

White= +7.5G
Black = -7.5G

---

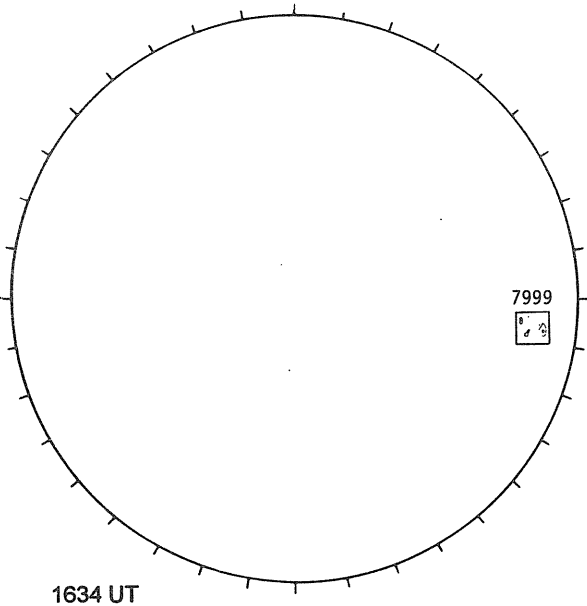
MAUNA LOA H-ALPHA

E

1805 UT
1723 UT Prom

S

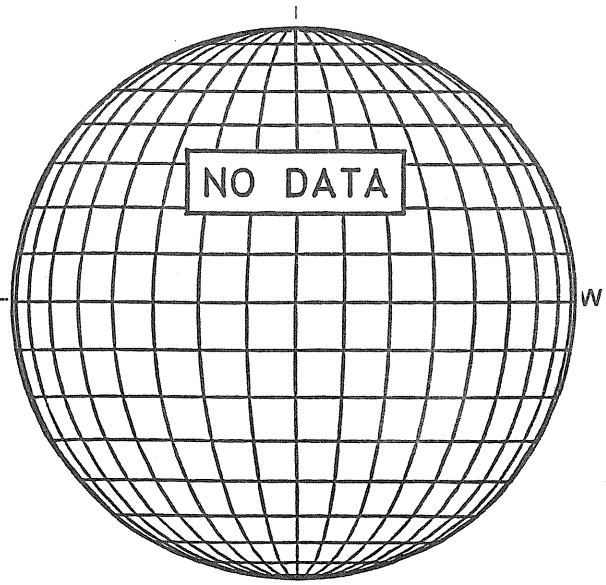
RAMEY SUNSPOT




1634 UT

S

SACRAMENTO PEAK CORONA (1.15 Radii)----



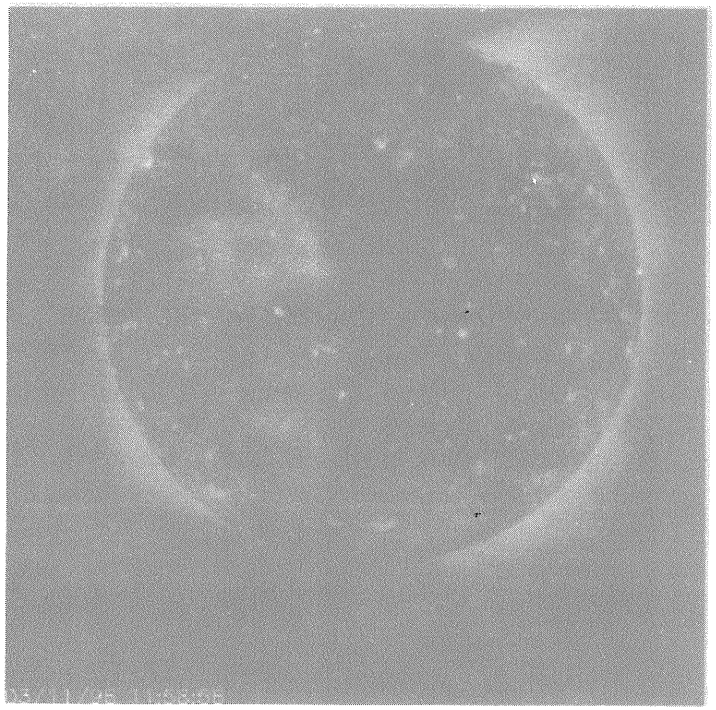

W

S

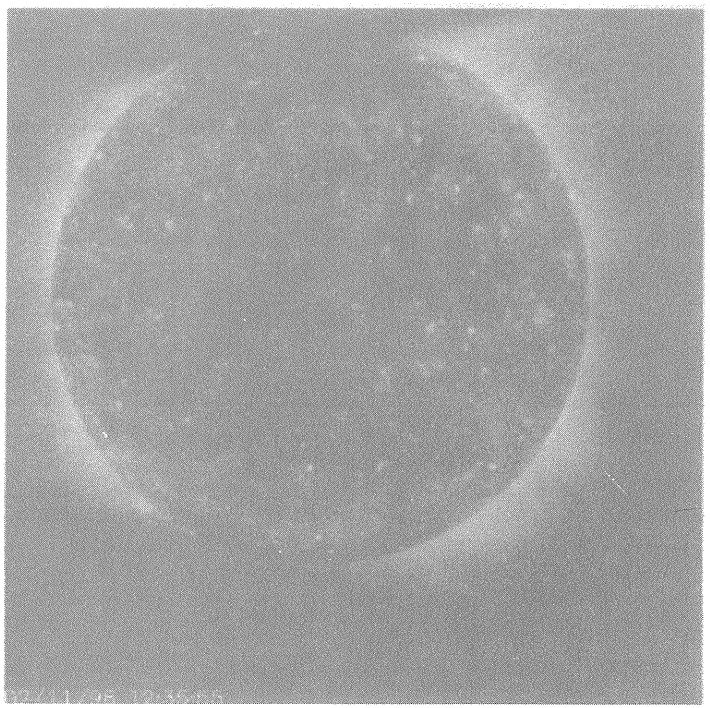
# YOHKOH SOFT X-RAY TELESCOPE IMAGES

November
1996

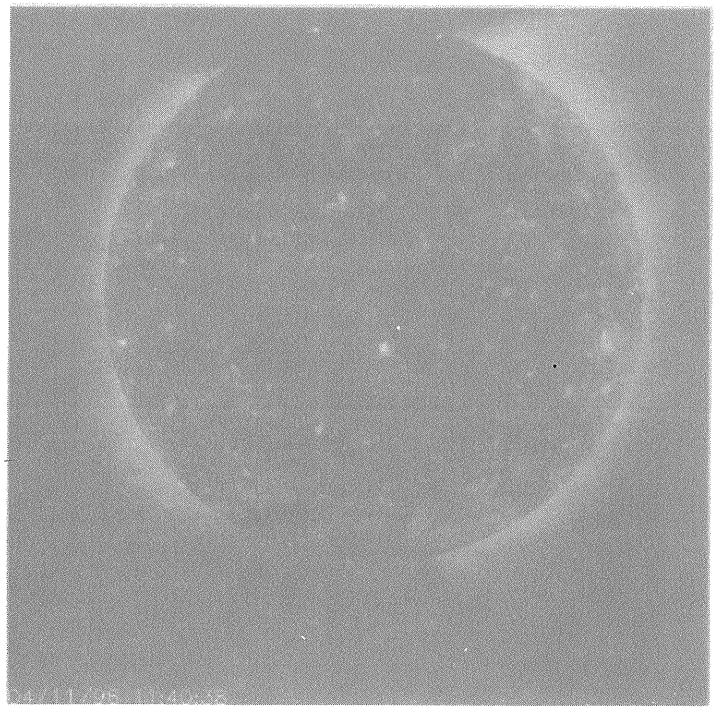
Day 1
12:24:41 UT



Day 3
11:58:56 UT



Day 2
12:35:55 UT

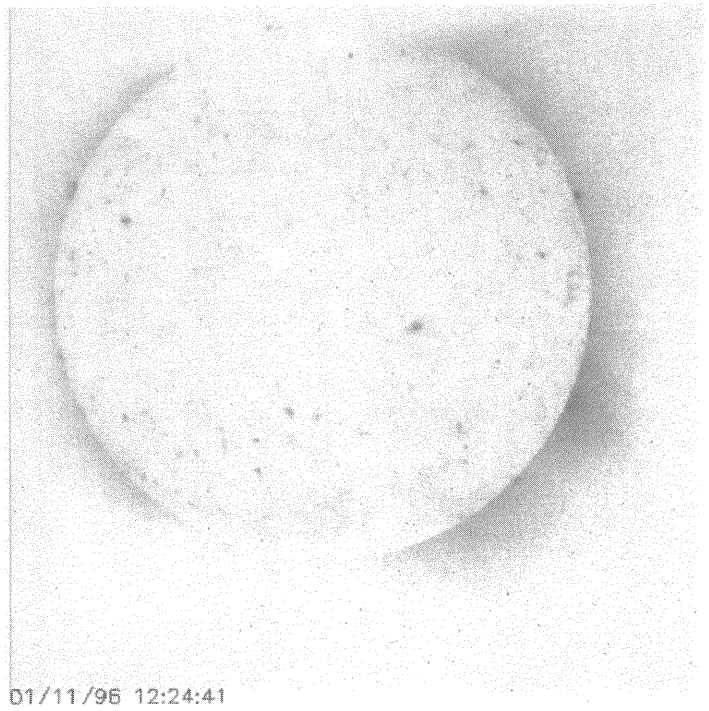


Day 4
11:40:38 UT

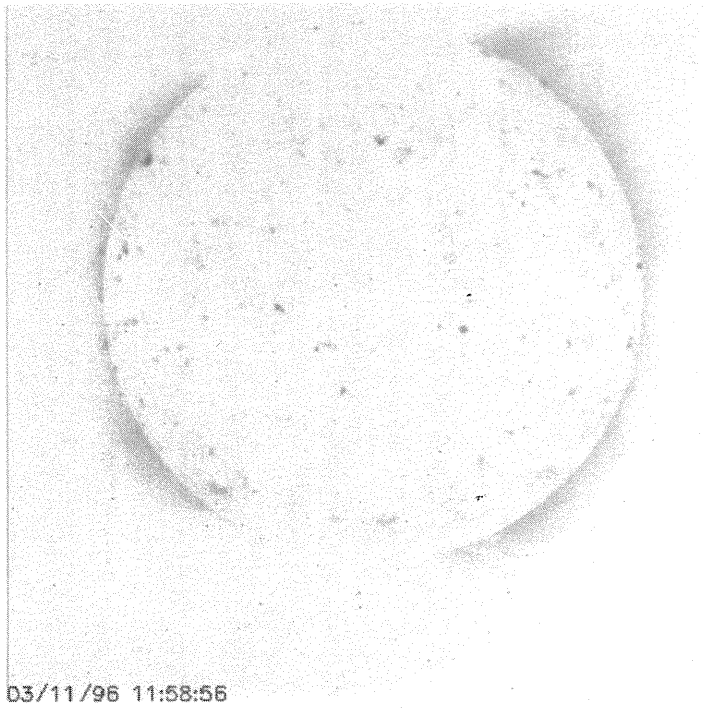
# YOHKOH SOFT X-RAY TELESCOPE IMAGES

November
1996

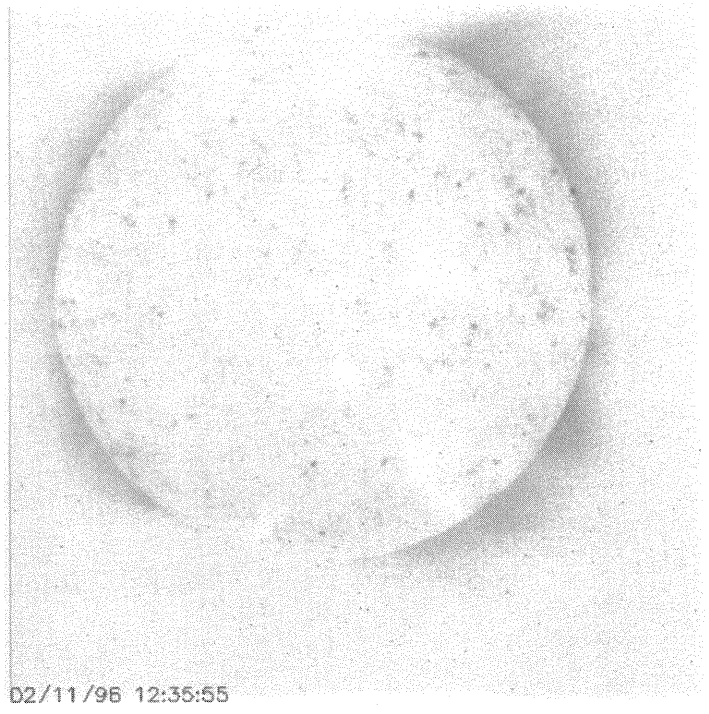
Day 1
12:24:41 UT




Day 3
11:58:56 UT




Day 2
12:35:55 UT

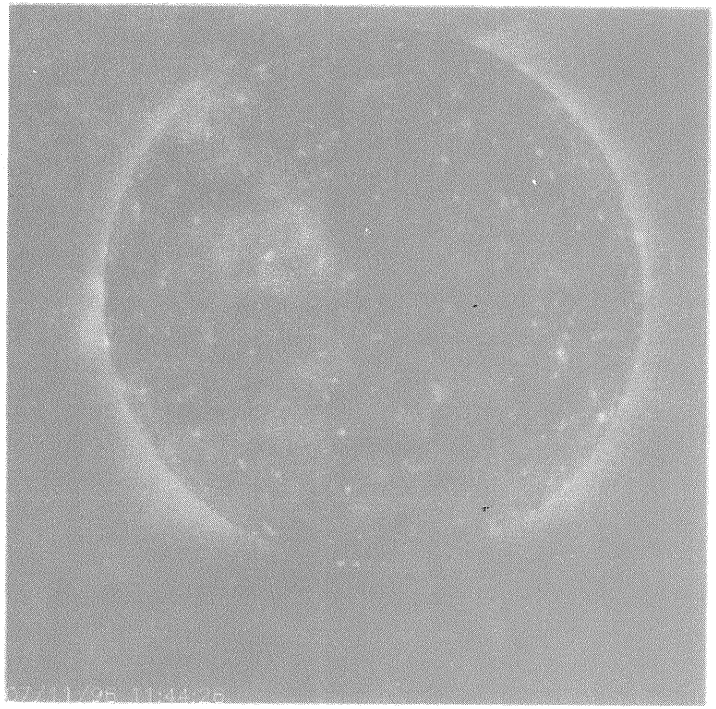



Day 4
11:40:38 UT

# YOHKOH SOFT X-RAY TELESCOPE IMAGES

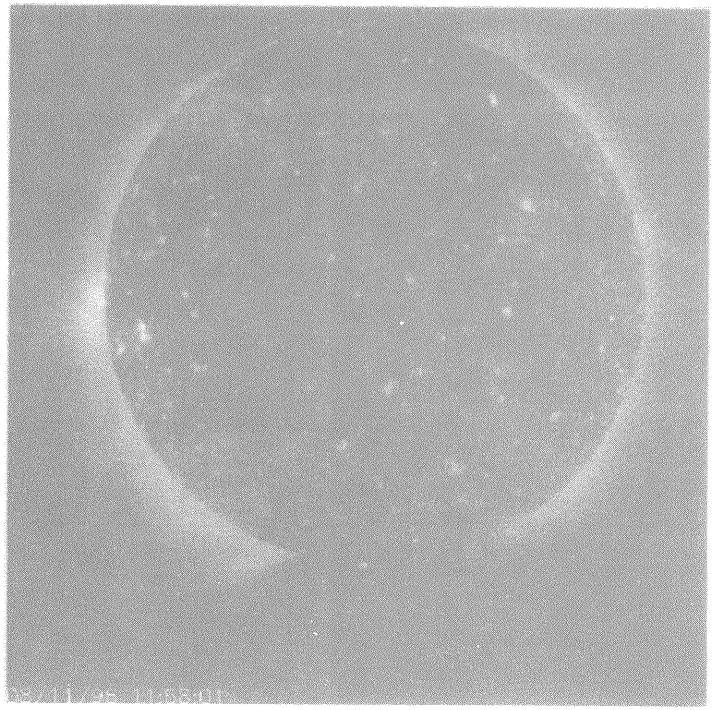
November
1996

Day 5
10:57:38 UT



Day 7
11:44:26 UT

Day 6
12:09:38 UT

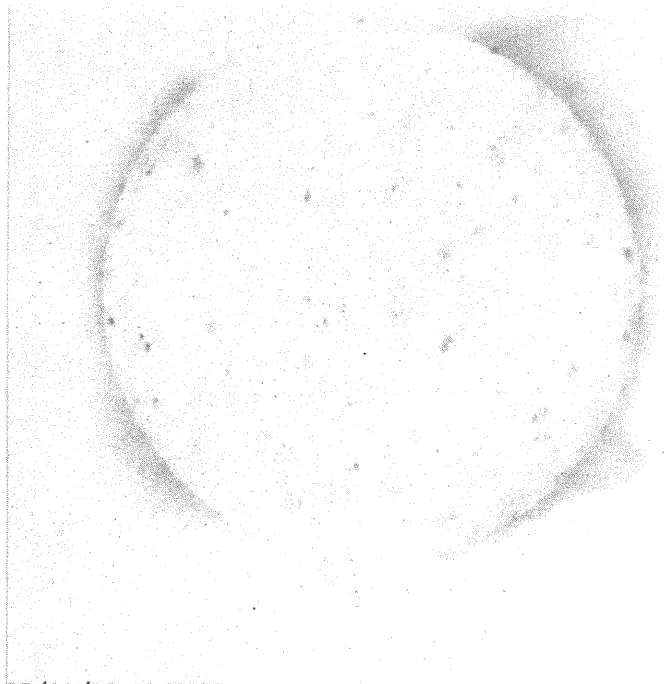


Day 8
11:58:01 UT

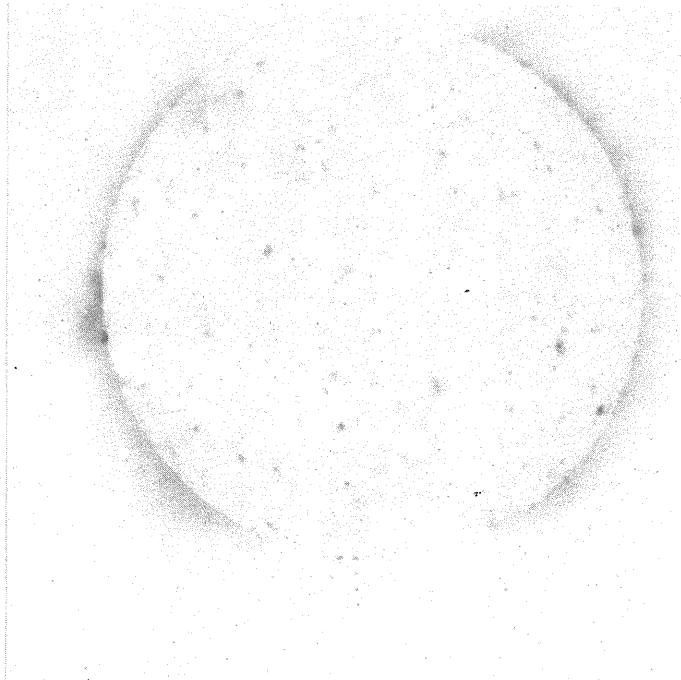
# YOHKOH SOFT X-RAY TELESCOPE IMAGES

## November 1996

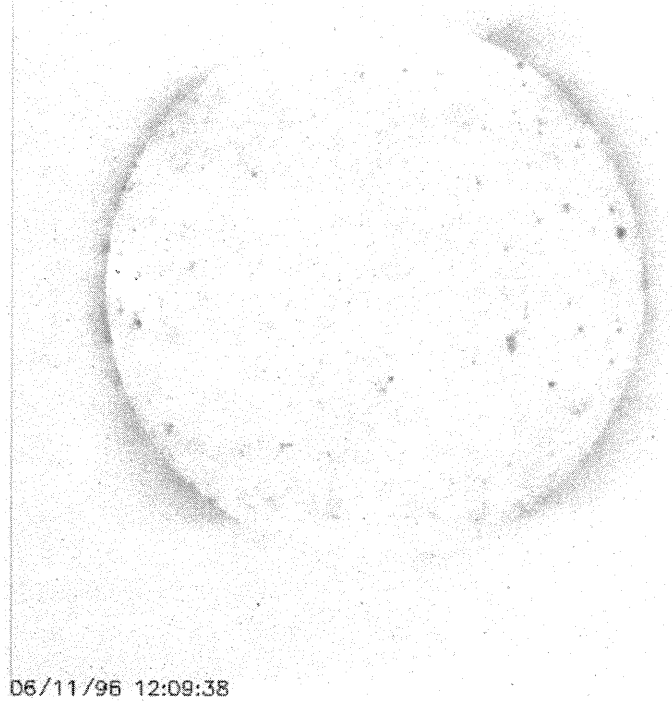
Day 5
10:57:38 UT



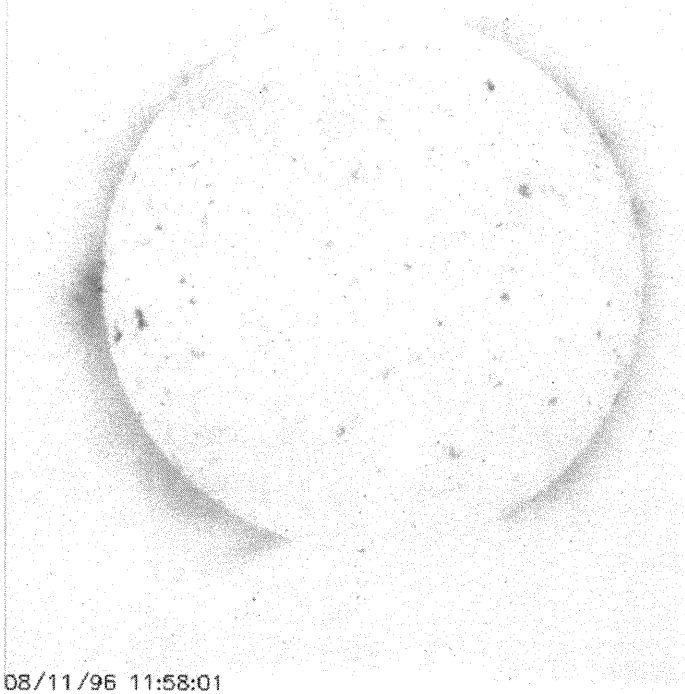

Day 7
11:44:26 UT




Day 6
12:09:38 UT

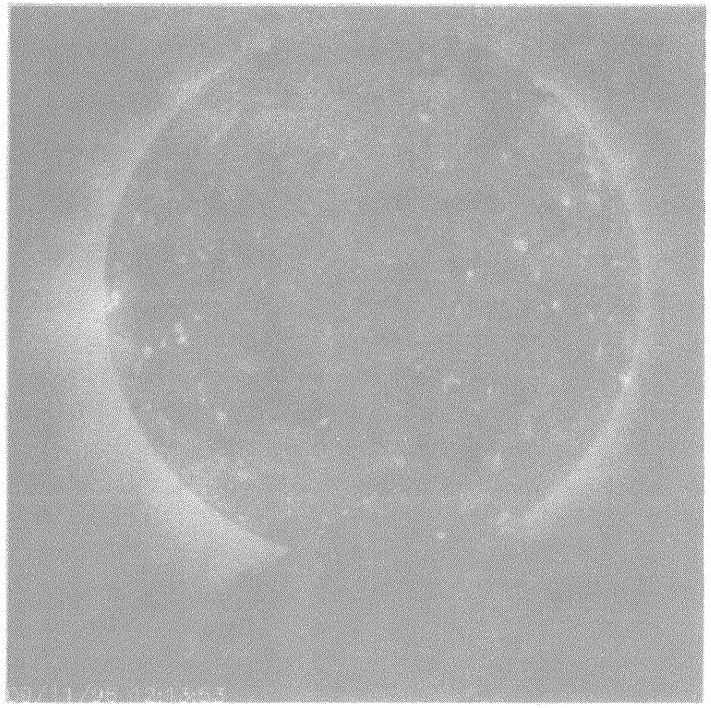



Day 8
11:58:01 UT



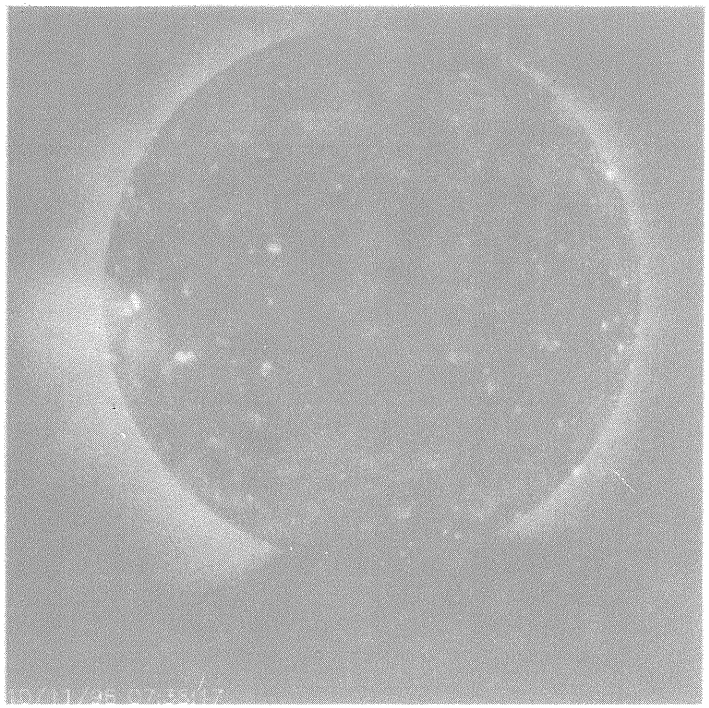
# YOHKOH SOFT X-RAY TELESCOPE IMAGES

November
1996

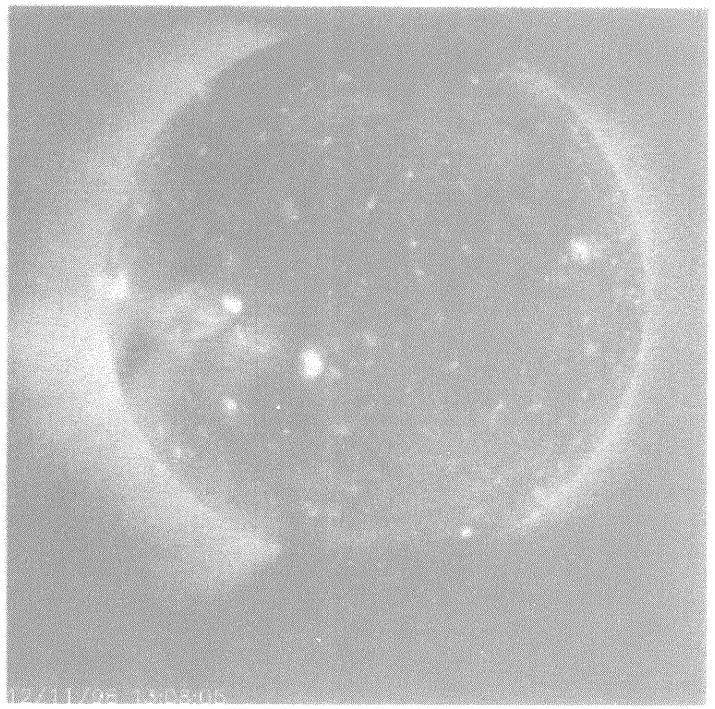


Day 9
12:13:53 UT

Day 11
12:48:35 UT



Day 10
07:38:17 UT



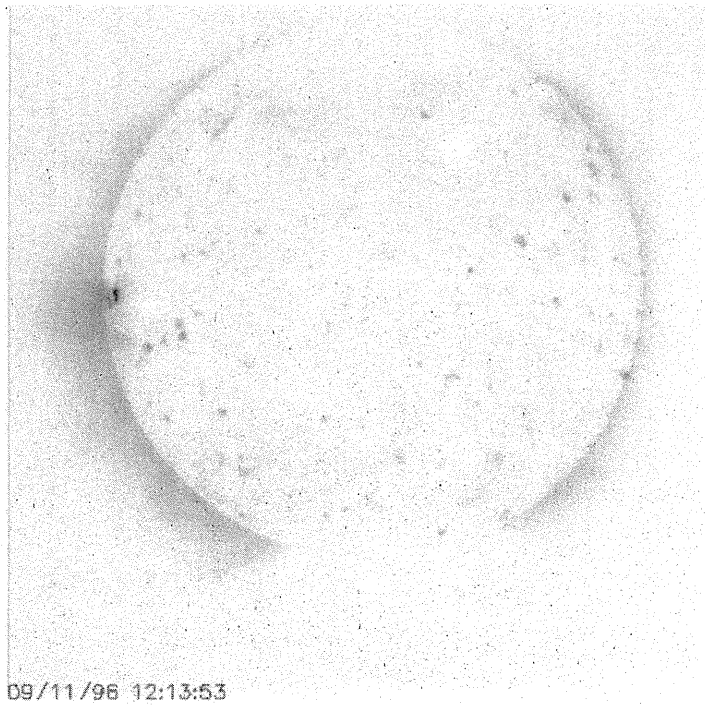
Day 12
13:08:05 UT

75
Nov 96

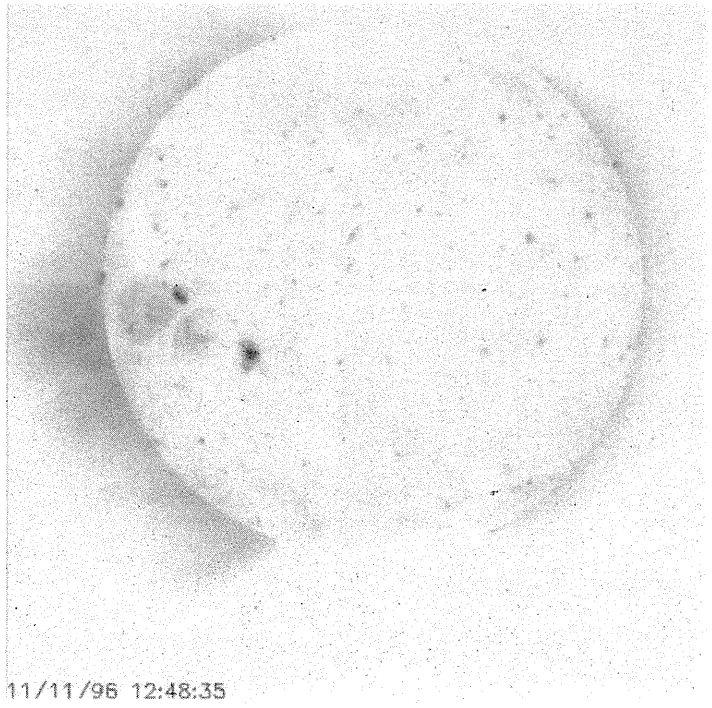
# YOHKOH SOFT X-RAY TELESCOPE IMAGES

November
1996

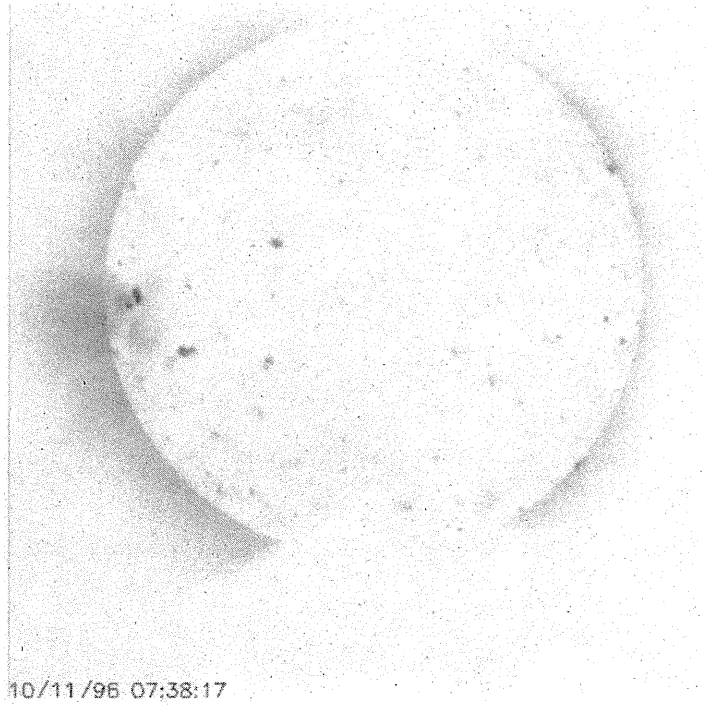
Day 9
12:13:53 UT



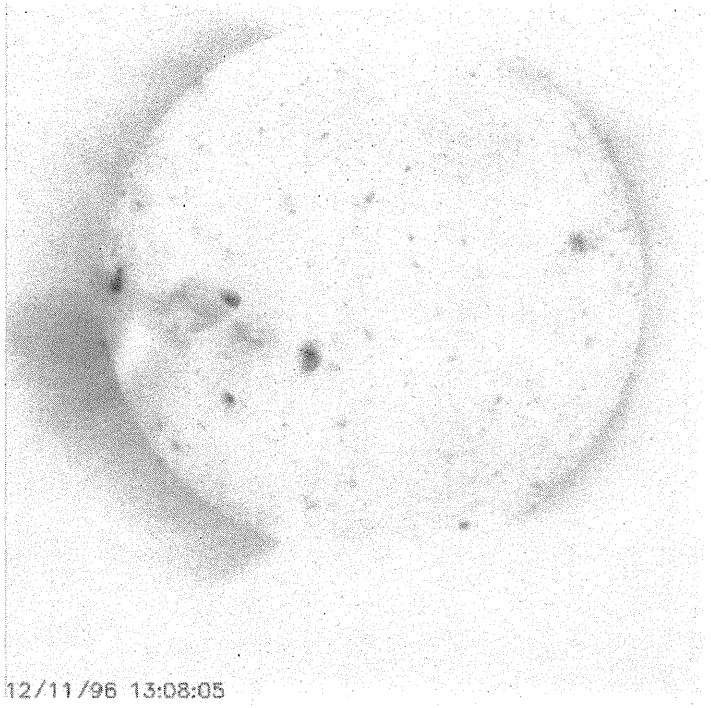

Day 11
12:48:35 UT




Day 10
07:38:17 UT

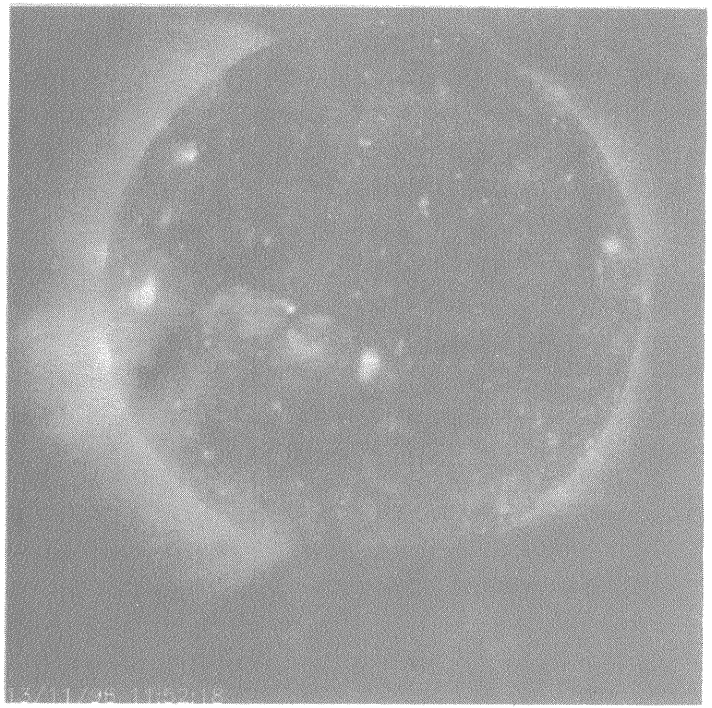



Day 12
13:08:05 UT



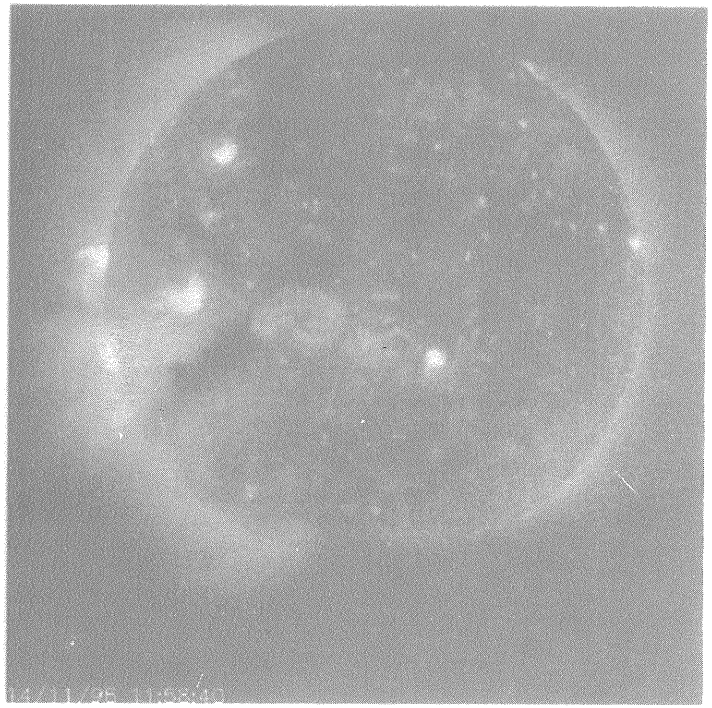
# YOHKOH SOFT X-RAY TELESCOPE IMAGES

November
1996

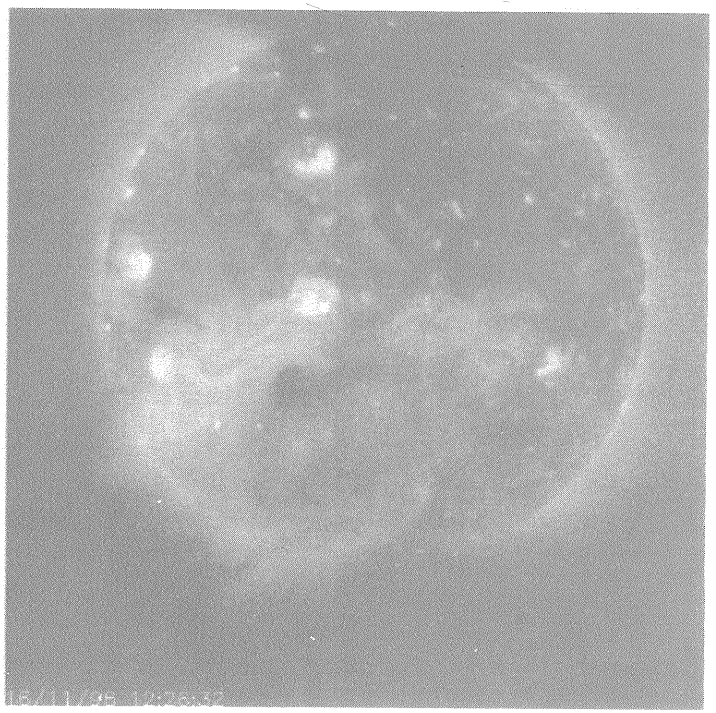


Day 13
11:52:18 UT

Day 15
12:09:40 UT



Day 14
11:58:40 UT

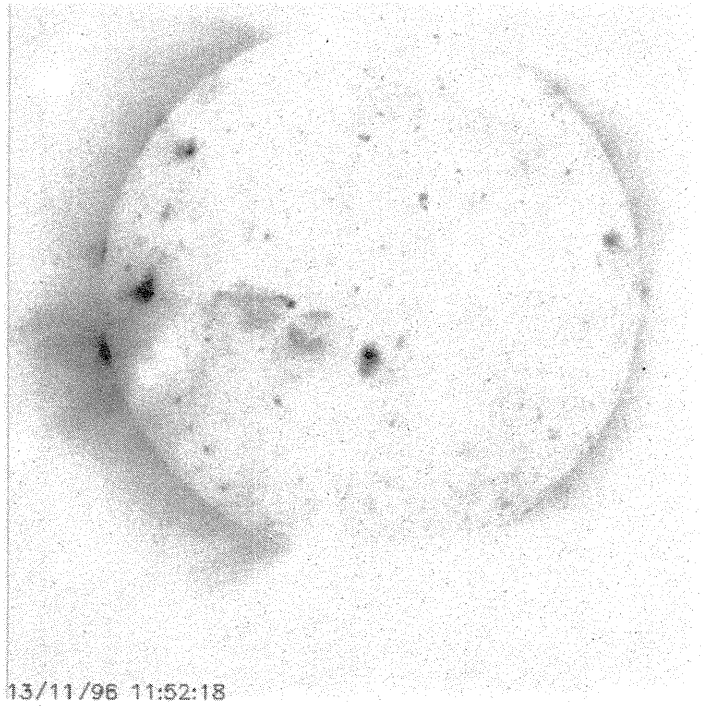


Day 16
12:26:32 UT

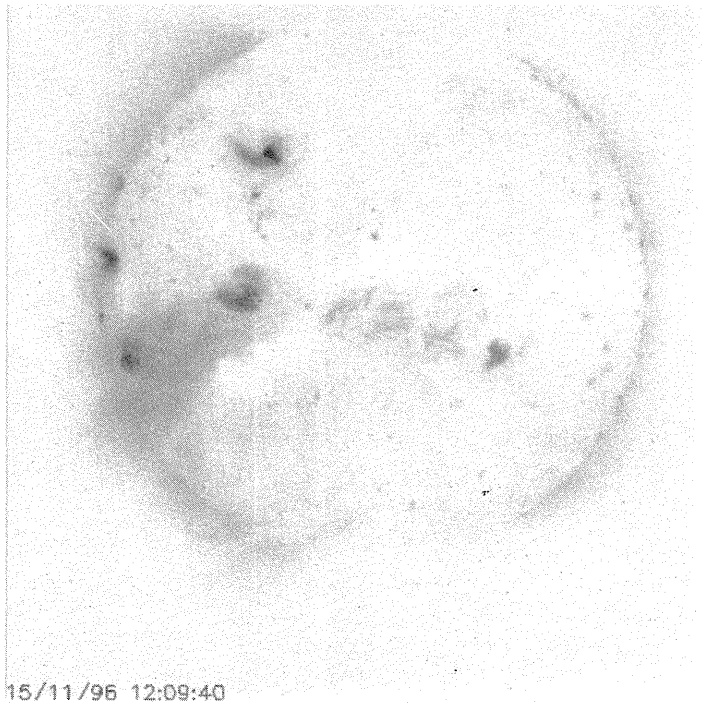
# YOHKOH SOFT X-RAY TELESCOPE IMAGES

November
1996

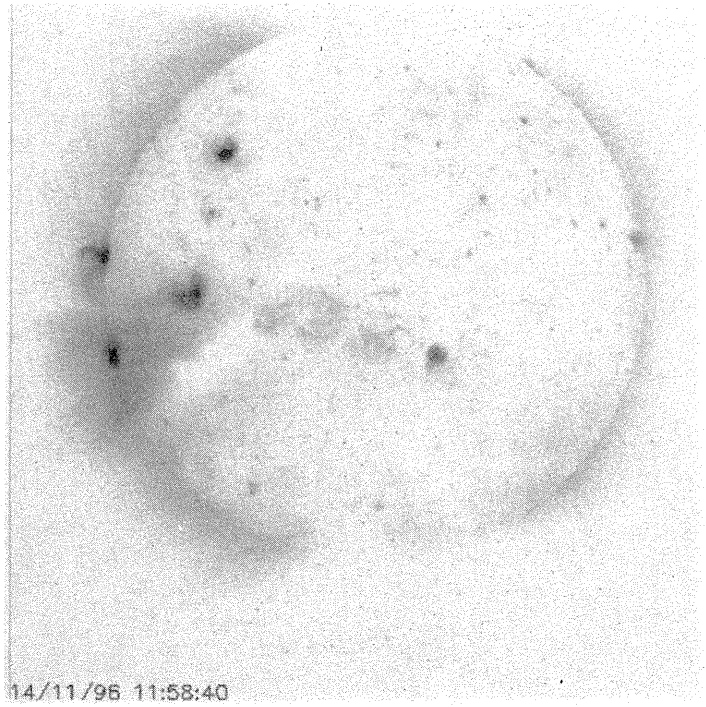
Day 13
11:52:18 UT



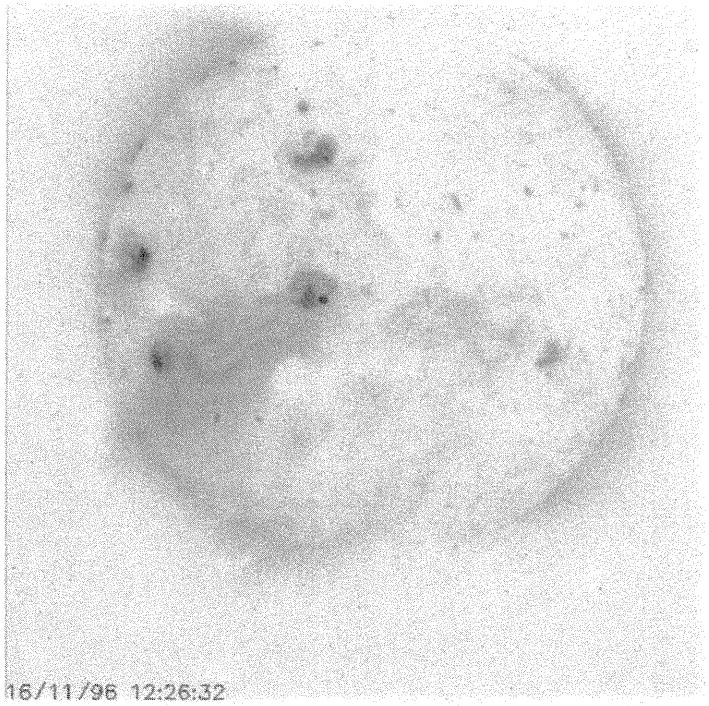

Day 15
12:09:40 UT




Day 14
11:58:40 UT

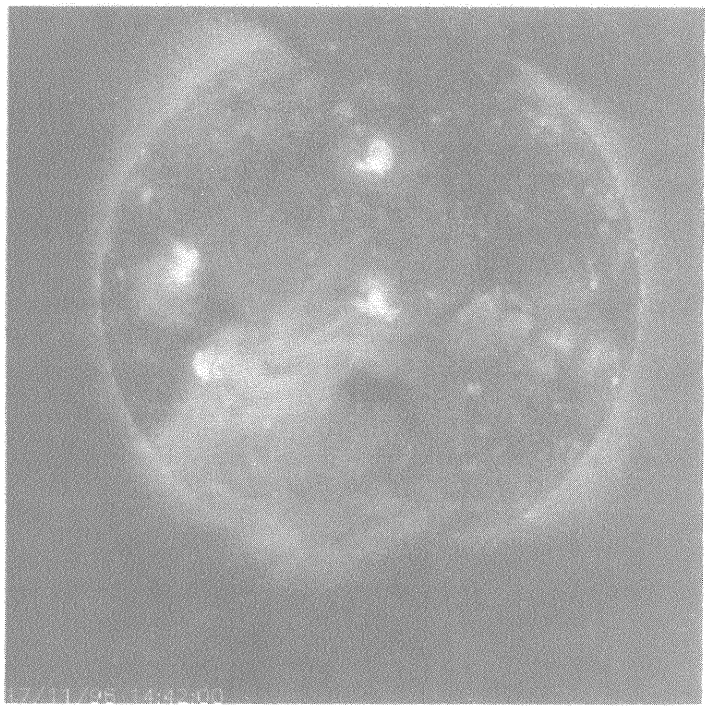



Day 16
12:26:32 UT



# YOHKOH SOFT X-RAY TELESCOPE IMAGES

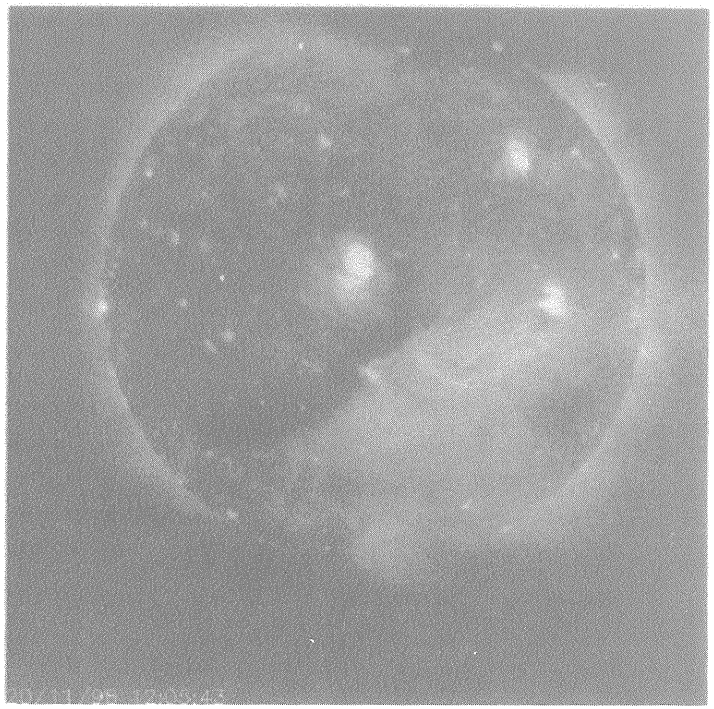
November
1996



Day 17
14:42:00 UT

Day 19
12:00:13 UT

Day 18
13:12:37 UT



Day 20
12:05:43 UT

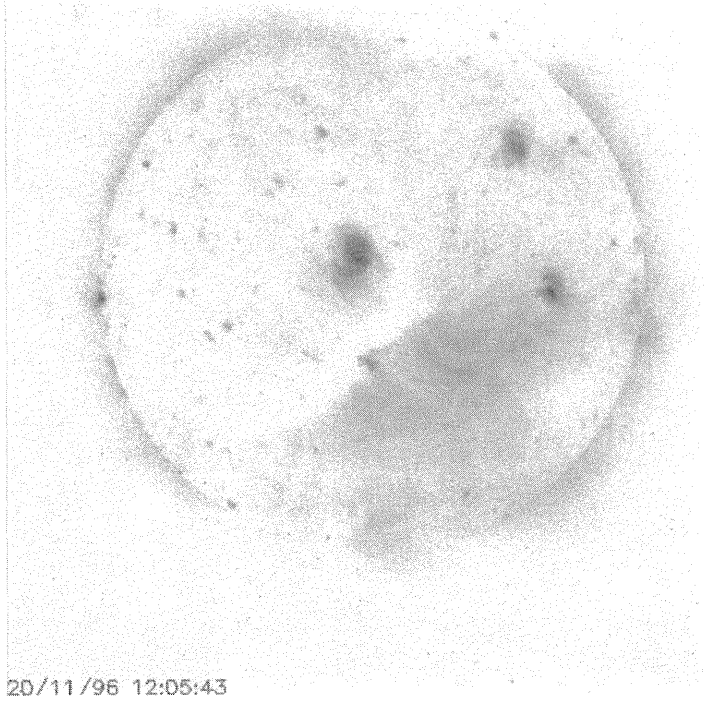
# YOHKOH SOFT X-RAY TELESCOPE IMAGES

November 1996


Day 17
14:42:00 UT


Day 19
12:00:13 UT


Day 18
13:12:37 UT

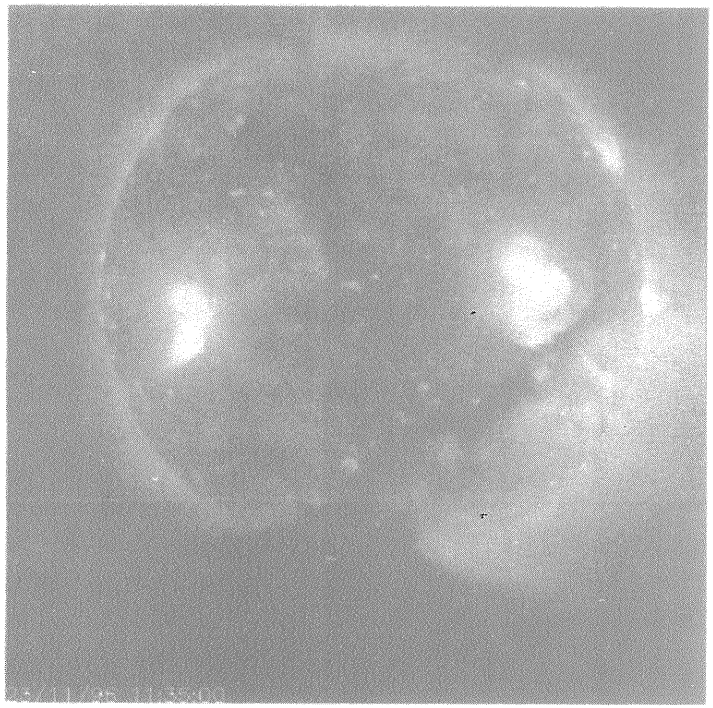



Day 20
12:05:43 UT

# YOHKOH SOFT X-RAY TELESCOPE IMAGES

November 1996

Day 21
12:33:29 UT



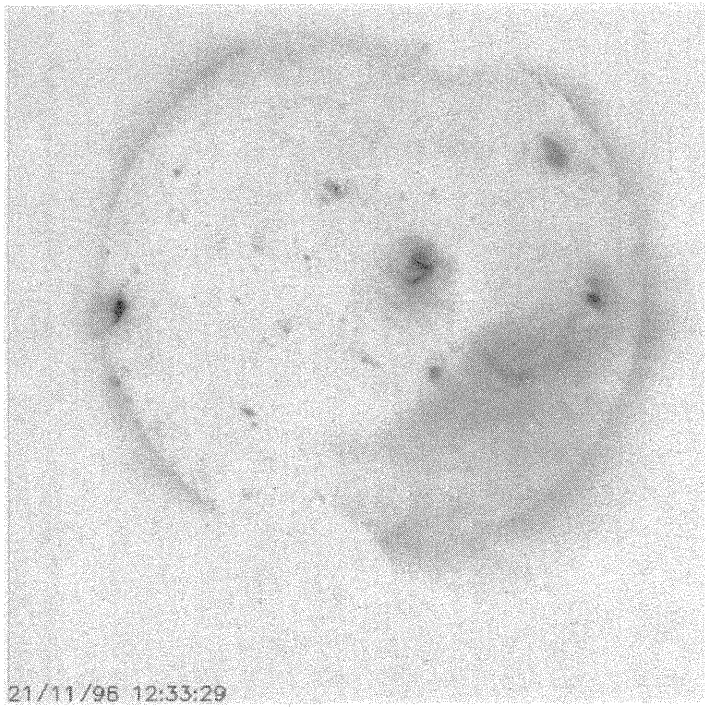
Day 23
11:35:00 UT

Day 22
11:13:15 UT

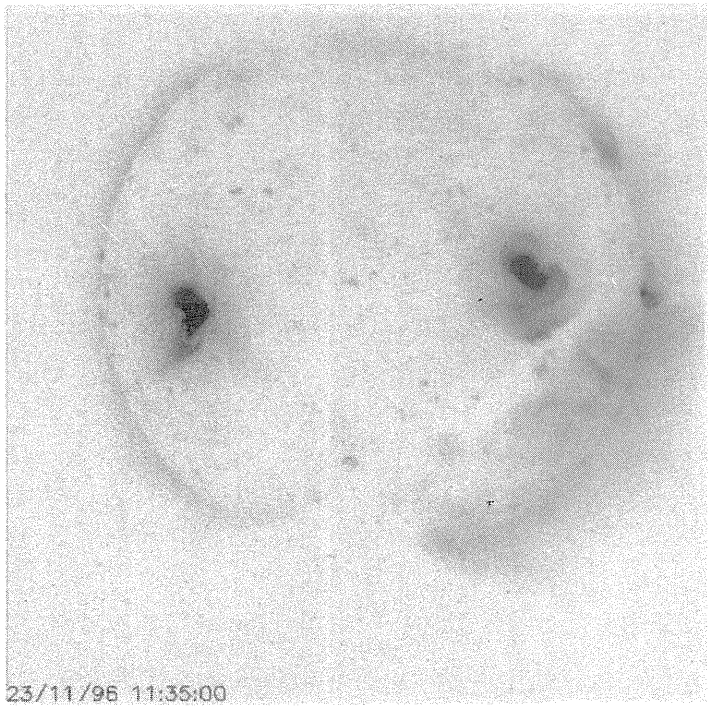
Day 24
19:52:22 UT

# YOHKOH SOFT X-RAY TELESCOPE IMAGES

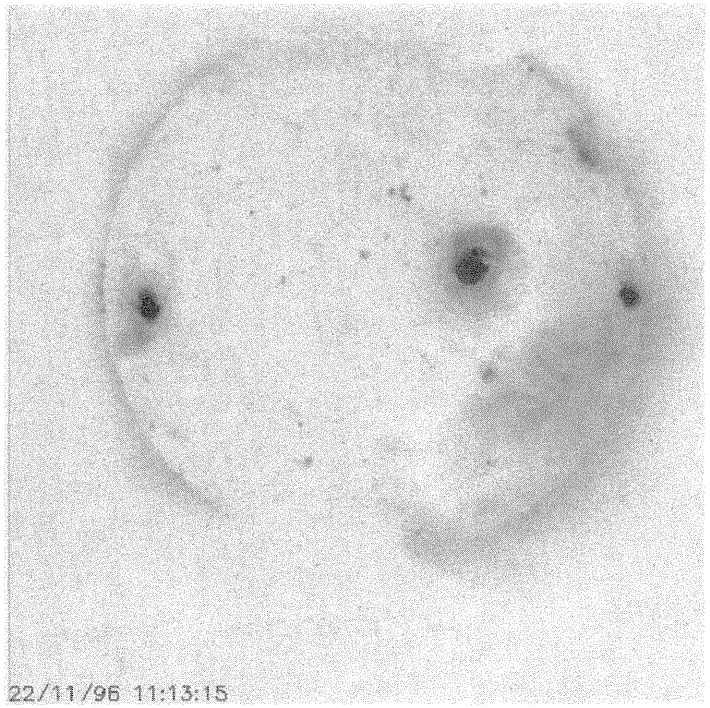
November
1996




Day 21
12:33:29 UT




Day 23
11:35:00 UT

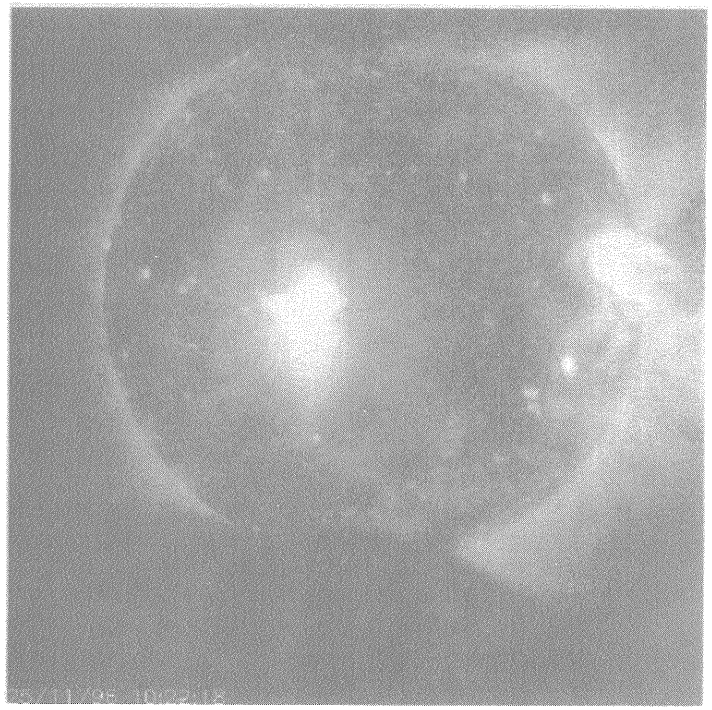



Day 22
11:13:15 UT

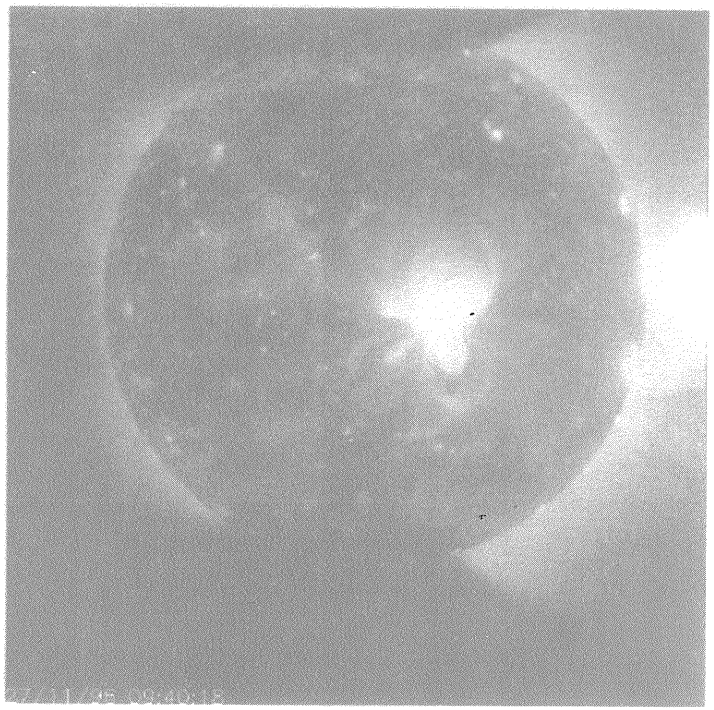

Day 24
19:52:22 UT

# YOHKOH SOFT X-RAY TELESCOPE IMAGES

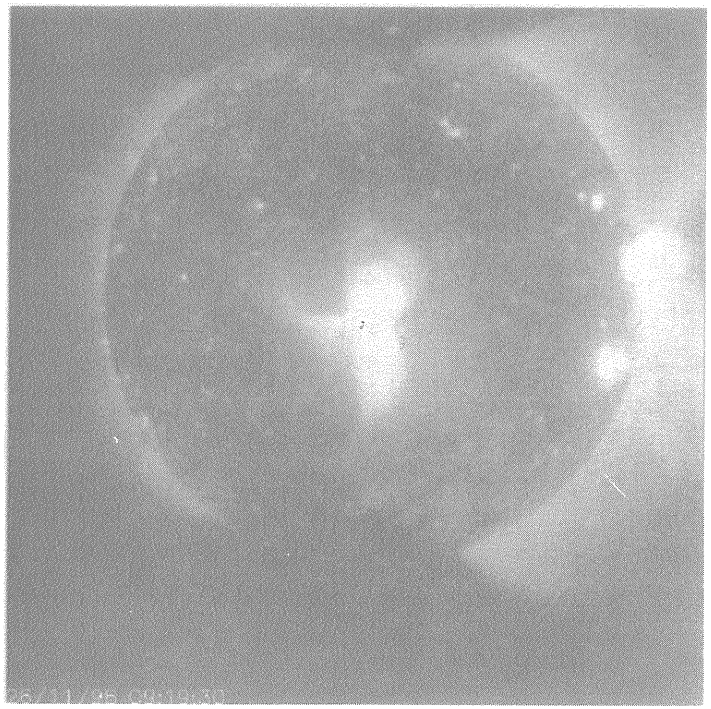
November 1996



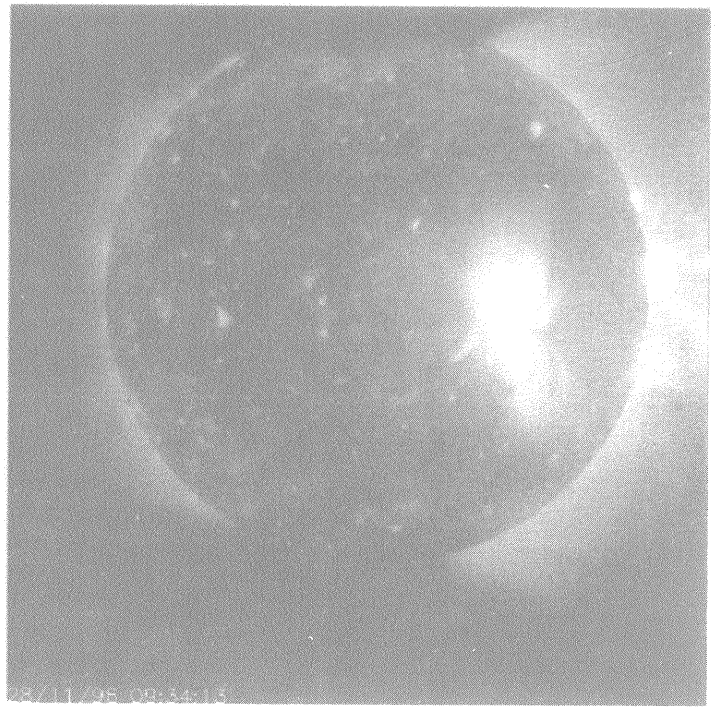
Day 25
10:22:18 UT



Day 27
09:40:18 UT



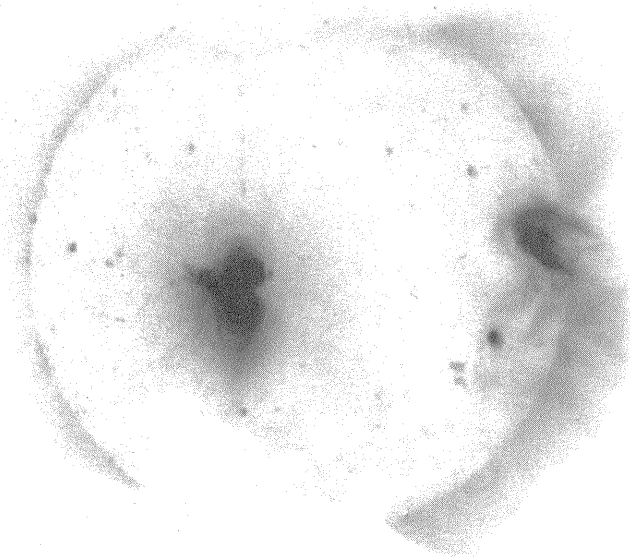
Day 26
09:19:30 UT



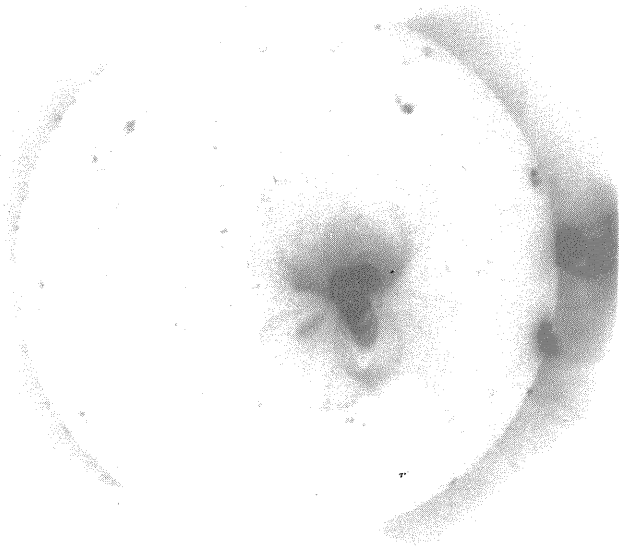
Day 28
09:34:13 UT

# YOHKOH SOFT X-RAY TELESCOPE IMAGES

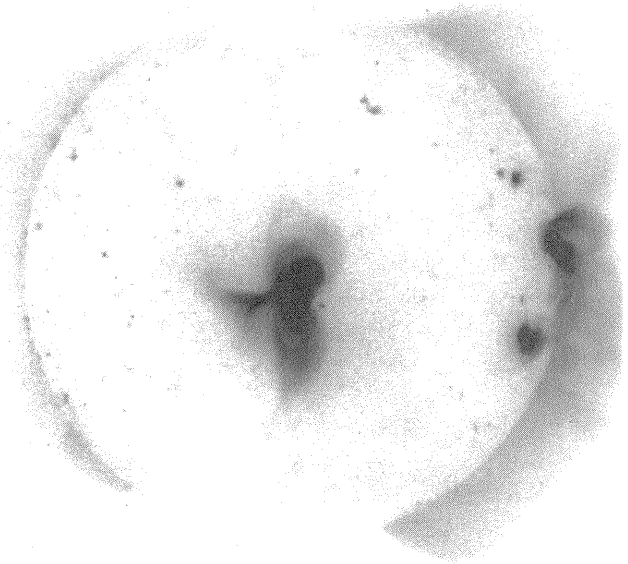
November
1996



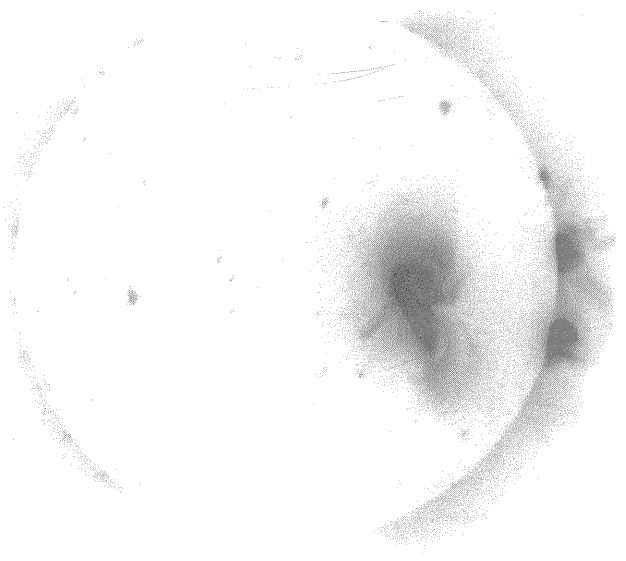

Day 25
10:22:18 UT




Day 27
09:40:18 UT




Day 26
09:19:30 UT

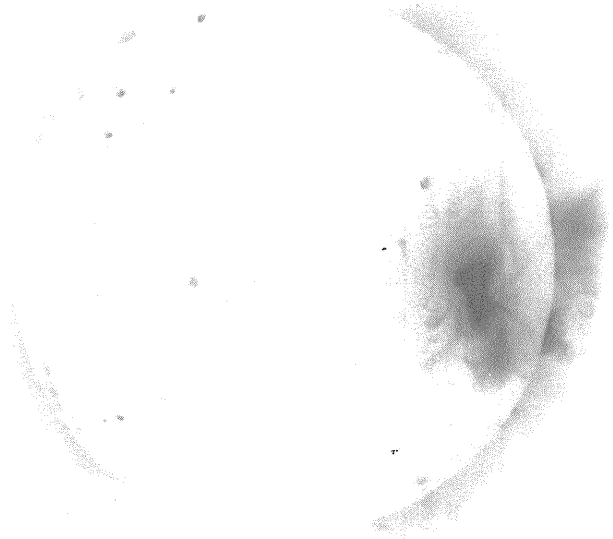



Day 28
09:34:13 UT

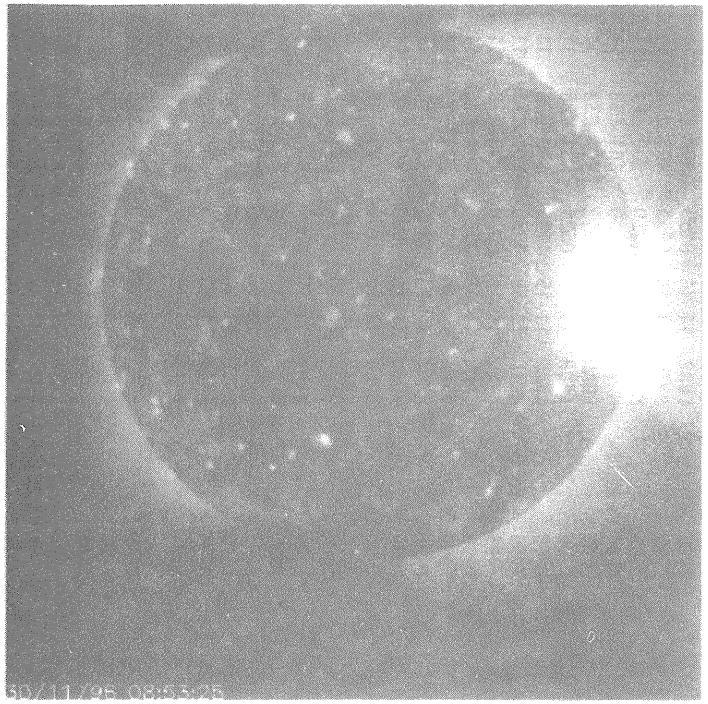
# YOHKOH SOFT X-RAY TELESCOPE IMAGES

November
1996

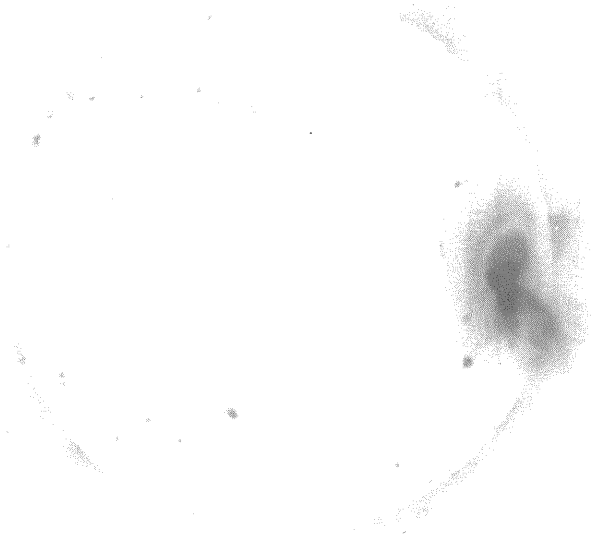
Day 29
14:40:49 UT




Day 29
14:40:49 UT



Day 30
08:53:25 UT




Day 30
08:53:25 UT

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

## NOVEMBER 1996

| 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7994 | | KAND | 11 10 1005 | S11 E41 | 11 13.5 | | | AX | | 1 | 1 | 4 |
| 7994 | | RAMY | 11 10 1203 | S11 E40 | 11 13.5 | | A | AX | 10 | 3 | 2 | 4 |
| 7994 | | HOLL | 11 10 1520 | S12 E38 | 11 13.5 | | A | AX | 10 | 1 | | 3 |
| 7994 | 28383 | MWIL | 11 10 1520 | S12 E38 | 11 13.5 | 4 | (AP) | | | | | |
| 7994 | | PALE | 11 10 1859 | S13 E35 | 11 13.4 | | A | AX | 10 | 3 | 1 | 2 |
| 7994 | | LEAR | 11 11 0137 | S12 E33 | 11 13.5 | | B | BXO | 10 | 2 | 3 | 3 |
| 7994 | | TACH | 11 11 0534 | S11 E30 | 11 13.5 | | | BX | 15 | 5 | 4 | 3 |
| 7994 | | SVTO | 11 11 0820 | S10 E29 | 11 13.5 | | B | BXO | 20 | 5 | 5 | 3 |
| 7994 | | KAND | 11 11 0845 | S12 E28 | 11 13.5 | | | AX | | 2 | 1 | 2 |
| 7994 | | RAMY | 11 11 1403 | S11 E25 | 11 13.5 | | A | AX | 10 | 3 | 1 | 2 |
| 7994 | 28383 | MWIL | 11 11 1500 | S12 E23 | 11 13.3 | 4 | (AP) | | | | | |
| 7994 | | HOLL | 11 11 1527 | S12 E23 | 11 13.4 | | A | AX | 10 | 2 | 1 | 3 |
| 7994 | | PALE | 11 11 1810 | S12 E21 | 11 13.3 | | A | AX | 10 | 2 | 1 | 3 |
| 7994 | | LEAR | 11 12 0025 | S12 E20 | 11 13.5 | | B | BXO | 10 | 6 | 5 | 3 |
| 7994 | | TACH | 11 12 0800 | S11 E13 | 11 13.3 | | | AX | 2 | 1 | 1 | 3 |
| 7994 | | KAND | 11 12 0815 | S11 E14 | 11 13.4 | | | AX | | 1 | | 3 |
| 7993 | | RAMY | 11 09 1317 | N00 E70 | 11 14.8 | | A | AX | | 1 | | 3 |
| 7993 | 28382 | MWIL | 11 09 1500 | S02 E69 | 11 14.8 | 3 | (AP) | | | | | |
| 7993 | | HOLL | 11 09 1618 | S01 E70 | 11 14.9 | | A | AX | | 1 | | 3 |
| 7993 | | LEAR | 11 10 0135 | S02 E64 | 11 14.8 | | A | AX | | 1 | | 3 |
| 7993 | | RAMY | 11 10 1203 | S01 E57 | 11 14.7 | | A | AX | | 1 | | 4 |
| 7993 | | HOLL | 11 10 1520 | S02 E56 | 11 14.8 | | B | BXO | 10 | 2 | 3 | 3 |
| 7993 | 28382 | MWIL | 11 10 1520 | S02 E56 | 11 14.8 | 4 | (AP) | | | | | |
| 7993 | | RAMY | 11 11 1403 | N00 E44 | 11 14.9 | | A | AX | | 1 | | 2 |
| 7993 | 28382 | MWIL | 11 11 1500 | S02 E42 | 11 14.8 | 4 | (AP) | | | | | |
| 7993 | | HOLL | 11 11 1527 | S02 E43 | 11 14.8 | | B | BXO | 10 | 3 | 2 | 3 |
| 7993 | | PALE | 11 11 1810 | S05 E41 | 11 14.8 | | B | BXO | 10 | 2 | 2 | 3 |
| 7995 | | LEAR | 11 12 0025 | N00 E75 | 11 17.6 | | A | AX | | 1 | 1 | 3 |
| 7995 | | TACH | 11 12 0800 | N02 E71 | 11 17.6 | | | AX | 20 | 2 | 3 | 3 |
| 7995 | | KAND | 11 12 0815 | N02 E72 | 11 17.7 | | | CRO | | 3 | 3 | 3 |
| 7995 | | RAMY | 11 12 1332 | N02 E66 | 11 17.5 | | A | HRO | 40 | 3 | 3 | 2 |
| 7995 | | HOLL | 11 12 1516 | N02 E67 | 11 17.6 | | B | CSO | 40 | 3 | 9 | 4 |
| 7995 | 28384 | MWIL | 11 12 1530 | N01 E65 | 11 17.5 | 4 | (B ) | | | | | |
| 7995 | | LEAR | 11 13 0015 | S01 E63 | 11 17.7 | | B | CSO | 10 | 3 | 3 | 3 |
| 7995 | | KAND | 11 13 0855 | N01 E58 | 11 17.7 | | | CAO | | 4 | 4 | 3 |
| 7995 | | SVTO | 11 13 0910 | N02 E57 | 11 17.6 | | B | CRO | 20 | 5 | 7 | 3 |
| 7995 | | HOLL | 11 13 1508 | N02 E52 | 11 17.5 | | B | BXO | 30 | 6 | 8 | 3 |
| 7995 | 28384 | MWIL | 11 13 1845 | N01 E51 | 11 17.6 | 4 | (BP) | | | | | |
| 7995 | | LEAR | 11 14 0155 | S01 E45 | 11 17.4 | | A | AX | 10 | 4 | 1 | 3 |
| 7995 | | SVTO | 11 14 0955 | N01 E42 | 11 17.5 | | A | AX | | 2 | 1 | 3 |
| 7995 | | KAND | 11 14 1130 | S00 E41 | 11 17.5 | | | AX | | 2 | 1 | 2 |
| 7995 | 28384 | MWIL | 11 14 1600 | S01 E38 | 11 17.5 | 4 | (AP) | | | | | |
| 7995 | | LEAR | 11 15 0012 | N00 E32 | 11 17.4 | | A | AX | 10 | 4 | 1 | 3 |
| 7995 | | TACH | 11 15 0625 | S01 E28 | 11 17.3 | | | AR | 25 | 1 | 1 | 3 |
| 7995 | | KAND | 11 15 1135 | S00 E26 | 11 17.4 | | | HS | | 1 | 1 | 3 |
| 7995 | 28384 | MWIL | 11 15 1530 | S01 E23 | 11 17.4 | 3 | (AP) | | | | | |
| 7995 | | LEAR | 11 16 0029 | N00 E18 | 11 17.4 | | A | AX | 10 | 2 | 1 | 3 |
| 7995 | | TACH | 11 16 0546 | S01 E16 | 11 17.4 | | | BX | 30 | 2 | 3 | 3 |
| 7995 | | KAND | 11 16 1050 | S00 E13 | 11 17.4 | | | BXO | | 3 | 1 | 3 |
| 7995 | | RAMY | 11 16 1353 | S01 E11 | 11 17.4 | | A | AX | | 2 | 1 | 2 |
| 7995 | 28384 | MWIL | 11 16 1500 | N00 E10 | 11 17.4 | 4 | (BP) | | | | | |
| 7995 | | HOLL | 11 16 1708 | N00 E09 | 11 17.4 | | B | BXO | 30 | 4 | 3 | 1 |
| 7995 | | LEAR | 11 17 0010 | N01 E05 | 11 17.4 | | B | BXO | 10 | 5 | 3 | 3 |
| 7995 | | TACH | 11 17 0640 | S01 E01 | 11 17.3 | | | AX | 10 | 1 | 1 | 3 |
| 7995 | | RAMY | 11 17 1245 | S01 W02 | 11 17.4 | | A | AX | | 1 | | 2 |
| 7995 | | HOLL | 11 17 1515 | S01 W04 | 11 17.3 | | A | AX | 10 | 1 | 1 | 2 |
| 7995 | 28384 | MWIL | 11 17 1800 | N00 W06 | 11 17.3 | 4 | (B ) | | | | | |
| 7995 | | PALE | 11 17 2300 | S01 W09 | 11 17.3 | | A | AX | | 1 | | 2 |
| 7995 | | LEAR | 11 18 0030 | S01 W09 | 11 17.3 | | B | AX | | 1 | 1 | 3 |
| 7995 | 28384 | MWIL | 11 18 1515 | S02 W18 | 11 17.3 | 3 | (AP) | | | | | |
| 7996 | | SVTO | 11 13 0910 | N32 E55 | 11 17.7 | | B | BXO | | 2 | 3 | 3 |
| 7996 | | HOLL | 11 13 1508 | N31 E50 | 11 17.6 | | A | AX | | 1 | | 3 |
| 7996 | | SVTO | 11 14 0955 | N32 E40 | 11 17.6 | | A | AX | | 1 | | 3 |
| 7996 | | KAND | 11 14 1130 | N31 E39 | 11 17.5 | | | BXO | | 2 | 2 | 2 |
| 7996 | 28385 | MWIL | 11 14 1600 | N31 E39 | 11 17.7 | 4 | (B ) | | | | | |
| 7996 | | LEAR | 11 15 0012 | N32 E33 | 11 17.6 | | B | BXO | 10 | 5 | 6 | 3 |

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

## NOVEMBER 1996

| 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7996 | | TACH | 11 | 15 | 0625 | N32 | E28 | 11 | 17.5 | | | BX | 25 | 2 | 5 | 3 |
| 7996 | | KAND | 11 | 15 | 1135 | N31 | E26 | 11 | 17.5 | | | DAO | | 3 | 7 | 3 |
| 7996 | 28385 | MWIL | 11 | 15 | 1530 | N31 | E24 | 11 | 17.5 | 3 | (B ) | | | | | |
| 7996 | | LEAR | 11 | 16 | 0029 | N31 | E19 | 11 | 17.5 | | B | BXO | 10 | 4 | 7 | 3 |
| 7996 | | TACH | 11 | 16 | 0546 | N30 | E13 | 11 | 17.3 | | | AX | 15 | 2 | 1 | 3 |
| 7996 | | KAND | 11 | 16 | 1050 | N30 | E14 | 11 | 17.5 | | | BXO | | 3 | 6 | 3 |
| 7996 | | RAMY | 11 | 16 | 1353 | N30 | E09 | 11 | 17.3 | | A | AX | | 2 | 1 | 2 |
| 7996 | 28385 | MWIL | 11 | 16 | 1500 | N29 | E10 | 11 | 17.4 | 4 | (B ) | | | | | |
| 7996 | | HOLL | 11 | 16 | 1708 | N30 | E07 | 11 | 17.3 | | A | AX | 10 | 2 | 1 | 1 |
| 7996 | | LEAR | 11 | 17 | 0010 | N30 | E05 | 11 | 17.4 | | B | BXO | | 3 | 4 | 3 |
| 7998 | | TACH | 11 | 16 | 0546 | S14 | E54 | 11 | 20.3 | | | AX | 10 | 1 | 1 | 3 |
| 7998 | | KAND | 11 | 16 | 1050 | S15 | E54 | 11 | 20.5 | | | AX | | 1 | | 3 |
| 7998 | | RAMY | 11 | 16 | 1353 | S14 | E52 | 11 | 20.5 | | A | AX | 10 | 2 | 1 | 2 |
| 7998 | 28386 | MWIL | 11 | 16 | 1500 | S15 | E49 | 11 | 20.3 | 4 | (AP) | | | | | |
| 7998 | | HOLL | 11 | 16 | 1708 | S14 | E49 | 11 | 20.4 | | A | AX | 10 | 1 | | 1 |
| 7998 | | LEAR | 11 | 17 | 0010 | S15 | E45 | 11 | 20.4 | | A | AX | | 2 | 1 | 3 |
| 7998 | | TACH | 11 | 17 | 0640 | S17 | E45 | 11 | 20.7 | | | AX | 22 | 2 | 4 | 3 |
| 7998 | | RAMY | 11 | 17 | 1245 | S15 | E37 | 11 | 20.3 | | A | AX | | 1 | | 2 |
| 7997 | | KAND | 11 | 16 | 1050 | N08 | E60 | 11 | 20.9 | | | BXO | | 2 | 3 | 3 |
| 7997 | | RAMY | 11 | 16 | 1353 | N08 | E57 | 11 | 20.8 | | B | BXO | 10 | 3 | 4 | 2 |
| 7997 | 28387 | MWIL | 11 | 16 | 1500 | N07 | E56 | 11 | 20.8 | 4 | (B ) | | | | | |
| 7997 | | HOLL | 11 | 16 | 1708 | N09 | E53 | 11 | 20.7 | | A | AX | | 1 | | 1 |
| 7997 | | LEAR | 11 | 17 | 0010 | N08 | E48 | 11 | 20.6 | | A | AX | | 3 | 1 | 3 |
| 7997 | | KAND | 11 | 17 | 1000 | N08 | E45 | 11 | 20.8 | | | CAO | | 2 | 4 | 2 |
| 7997 | | RAMY | 11 | 17 | 1245 | N07 | E43 | 11 | 20.7 | | B | BXO | 10 | 4 | 4 | 2 |
| 7997 | | HOLL | 11 | 17 | 1515 | N08 | E41 | 11 | 20.7 | | B | BXO | 30 | 2 | 5 | 2 |
| 7997 | 28387 | MWIL | 11 | 17 | 1800 | N07 | E38 | 11 | 20.6 | 4 | (BP) | | | | | |
| 7997 | | PALE | 11 | 17 | 2300 | N05 | E34 | 11 | 20.5 | | A | AX | 10 | 1 | | 2 |
| 7997 | | LEAR | 11 | 18 | 0030 | N08 | E36 | 11 | 20.7 | | B | BXO | 10 | 3 | 5 | 3 |
| 7997 | | KAND | 11 | 18 | 0930 | N07 | E29 | 11 | 20.6 | | | AX | | 1 | 1 | 2 |
| 7997 | | RAMY | 11 | 18 | 1458 | N08 | E27 | 11 | 20.6 | | A | AX | | 1 | | 2 |
| 7997 | 28387 | MWIL | 11 | 18 | 1515 | N07 | E24 | 11 | 20.4 | 4 | (AP) | | | | | |
| 7997 | | HOLL | 11 | 18 | 1520 | N08 | E25 | 11 | 20.5 | | A | AX | 10 | 2 | 1 | 2 |
| 7997 | | LEAR | 11 | 19 | 0030 | N08 | E19 | 11 | 20.4 | | B | BXO | | 2 | 2 | 3 |
| 7997 | | TACH | 11 | 19 | 0612 | N08 | E15 | 11 | 20.4 | | | AX | 25 | 1 | 1 | 3 |
| 7997 | | SVTO | 11 | 19 | 0910 | N08 | E15 | 11 | 20.5 | | B | BXO | 10 | 3 | 3 | 3 |
| 7997 | | KAND | 11 | 19 | 1110 | N07 | E14 | 11 | 20.5 | | | BXO | | 2 | 3 | 2 |
| 7997 | 28387 | MWIL | 11 | 19 | 1515 | N07 | E12 | 11 | 20.5 | 5 | (BP) | | | | | |
| 7997 | | TACH | 11 | 20 | 0509 | N09 | E04 | 11 | 20.5 | | | AX | 20 | 1 | 1 | 3 |
| 7997 | | KAND | 11 | 20 | 0845 | N08 | E02 | 11 | 20.5 | | | AX | | 2 | 1 | 2 |
| 7997 | | SVTO | 11 | 20 | 0905 | N08 | E01 | 11 | 20.4 | | A | AX | | 1 | | 3 |
| 7997 | 28387 | MWIL | 11 | 20 | 1515 | N07 | W02 | 11 | 20.5 | 4 | (BP) | | | | | |
| 7997 | | HOLL | 11 | 20 | 1701 | N08 | W03 | 11 | 20.5 | | A | AX | 10 | 2 | 1 | 3 |
| 7997 | | TACH | 11 | 21 | 0404 | N08 | W09 | 11 | 20.5 | | | AX | 10 | 1 | 1 | 2 |
| 7997 | | KAND | 11 | 21 | 0805 | N08 | W11 | 11 | 20.5 | | | AX | | 1 | | 3 |
| 7997 | | HOLL | 11 | 21 | 1613 | N08 | W16 | 11 | 20.5 | | A | AX | 10 | 1 | | 3 |
| 7997 | | RAMY | 11 | 21 | 1928 | N07 | W17 | 11 | 20.5 | | B | BXO | 10 | 3 | 3 | 2 |
| 7997 | | PALE | 11 | 21 | 2144 | N08 | W18 | 11 | 20.5 | | A | AX | 10 | 1 | | 1 |
| 7997 | | LEAR | 11 | 22 | 0020 | N06 | W13 | 11 | 21.0 | | B | BXO | | 2 | 3 | 3 |
| 7997 | | TACH | 11 | 22 | 0446 | N05 | W15 | 11 | 21.1 | | | AX | 30 | 1 | 1 | 3 |
| 7997 | | KAND | 11 | 22 | 0725 | N05 | W17 | 11 | 21.0 | | | CRO | | 2 | 3 | 2 |
| 7997 | | SVTO | 11 | 22 | 0935 | N05 | W18 | 11 | 21.0 | | B | CRO | 30 | 4 | 4 | 3 |
| 7997 | 28387 | MWIL | 11 | 22 | 1530 | N05 | W22 | 11 | 21.0 | 4 | (B ) | | | | | |
| 7997 | | HOLL | 11 | 22 | 1557 | N04 | W23 | 11 | 20.9 | | B | CRO | 90 | 18 | 5 | 2 |
| 7997 | | RAMY | 11 | 22 | 1804 | N05 | W24 | 11 | 20.9 | | B | DSI | 60 | 11 | 5 | 1 |
| 7997 | | PALE | 11 | 22 | 2242 | N07 | W27 | 11 | 20.9 | | B | DSO | 80 | 12 | 6 | 2 |
| 7997 | | SVTO | 11 | 23 | 0835 | N04 | W32 | 11 | 21.0 | | B | DAI | 210 | 26 | 7 | 4 |
| 7997 | | KAND | 11 | 23 | 0920 | N04 | W33 | 11 | 20.9 | | | DAO | | 11 | 7 | 3 |
| 7997 | | RAMY | 11 | 23 | 1242 | N05 | W34 | 11 | 21.0 | | B | DSO | 150 | 12 | 7 | 2 |
| 7997 | 28387 | MWIL | 11 | 23 | 1530 | N05 | W35 | 11 | 21.0 | 5 | (B ) | | | | | |
| 7997 | | HOLL | 11 | 23 | 1910 | N04 | W38 | 11 | 20.9 | | B | DHO | 90 | 13 | 6 | 2 |
| 7997 | | PALE | 11 | 23 | 1930 | N07 | W38 | 11 | 21.0 | | B | DAO | 170 | 11 | 8 | 3 |
| 7997 | | LEAR | 11 | 24 | 0005 | N06 | W40 | 11 | 21.0 | | B | DAO | 250 | 10 | 8 | 4 |
| 7997 | | TACH | 11 | 24 | 0735 | N05 | W46 | 11 | 20.9 | | | DSX | 457 | 9 | 6 | 4 |
| 7997 | | KAND | 11 | 24 | 0830 | N05 | W46 | 11 | 20.9 | | | DAO | | 11 | 8 | 5 |
| 7997 | | SVTO | 11 | 24 | 0832 | N04 | W46 | 11 | 20.9 | | B | DAO | 170 | 7 | 8 | 2 |
| 7997 | 28387 | MWIL | 11 | 24 | 1530 | N05 | W50 | 11 | 20.9 | 5 | (B ) | | | | | |

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

## NOVEMBER 1996

| 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7997 | | HOLL | 11 | 24 | 1610 | N03 | W51 | 11 | 20.9 | | B | DHO | 90 | 11 | 6 | 3 |
| 7997 | | PALE | 11 | 24 | 1755 | N08 | W51 | 11 | 20.9 | | B | DAO | 230 | 11 | 9 | 3 |
| 7997 | | RAMY | 11 | 24 | 1842 | N04 | W51 | 11 | 21.0 | | B | DAO | 100 | 8 | 10 | 1 |
| 7997 | | LEAR | 11 | 25 | 0010 | N05 | W55 | 11 | 20.9 | | B | DSO | 190 | 14 | 8 | 3 |
| 7997 | | TACH | 11 | 25 | 0516 | N05 | W59 | 11 | 20.8 | | | DSX | 579 | 15 | 6 | 4 |
| 7997 | | KAND | 11 | 25 | 0900 | N05 | W61 | 11 | 20.8 | | | DAO | | 9 | 8 | 4 |
| 7997 | | RAMY | 11 | 25 | 1217 | N06 | W65 | 11 | 20.6 | | B | DHO | 200 | 8 | 8 | 3 |
| 7997 | 28387 | MWIL | 11 | 25 | 1545 | N05 | W64 | 11 | 20.9 | 5 | (B ) | | | | | |
| 7997 | | HOLL | 11 | 25 | 1612 | N04 | W64 | 11 | 20.9 | | B | DAI | 230 | 11 | 8 | 3 |
| 7997 | | PALE | 11 | 25 | 1900 | N04 | W66 | 11 | 20.8 | | B | DAI | 250 | 7 | 8 | 2 |
| 7997 | | LEAR | 11 | 26 | 0054 | N06 | W69 | 11 | 20.9 | | B | EAO | 230 | 6 | 11 | 3 |
| 7997 | | TACH | 11 | 26 | 0525 | N05 | W72 | 11 | 20.8 | | | DS | 179 | 5 | 7 | 4 |
| 7997 | | KAND | 11 | 26 | 0805 | N05 | W75 | 11 | 20.7 | | | DAO | | 3 | 10 | 4 |
| 7997 | | RAMY | 11 | 26 | 1355 | N04 | W76 | 11 | 20.9 | | B | DSO | 140 | 3 | 8 | 3 |
| 7997 | 28387 | MWIL | 11 | 26 | 1545 | N05 | W78 | 11 | 20.8 | 4 | (B ) | | | | | |
| 7997 | | HOLL | 11 | 26 | 1752 | N03 | W80 | 11 | 20.8 | | B | CAO | 60 | 4 | 8 | 3 |
| 7997 | | PALE | 11 | 26 | 2007 | N07 | W78 | 11 | 21.0 | | B | DSO | 120 | 2 | 8 | 2 |
| 7997 | | TACH | 11 | 27 | 0610 | N04 | W89 | 11 | 20.6 | | | OX | 20 | 1 | 1 | 4 |
| 8000 | | TACH | 11 | 25 | 0516 | S12 | W46 | 11 | 21.7 | | | AX | 5 | 1 | 1 | 4 |
| 8000 | 28389 | MWIL | 11 | 25 | 1545 | S12 | W52 | 11 | 21.7 | 4 | (B ) | | | | | |
| 8000 | | HOLL | 11 | 25 | 1612 | S14 | W54 | 11 | 21.6 | | B | BXO | 30 | 8 | 5 | 3 |
| 8000 | | LEAR | 11 | 26 | 0054 | S12 | W56 | 11 | 21.8 | | B | CSO | 50 | 8 | 4 | 3 |
| 8000 | | TACH | 11 | 26 | 0525 | S13 | W58 | 11 | 21.8 | | | BR | 31 | 3 | 2 | 4 |
| 8000 | | KAND | 11 | 26 | 0805 | S13 | W62 | 11 | 21.6 | | | CAO | | 4 | 5 | 4 |
| 8000 | | RAMY | 11 | 26 | 1355 | S13 | W64 | 11 | 21.7 | | B | BXO | 20 | 4 | 7 | 3 |
| 8000 | 28389 | MWIL | 11 | 26 | 1545 | S12 | W65 | 11 | 21.7 | 4 | (B ) | | | | | |
| 8000 | | HOLL | 11 | 26 | 1752 | S14 | W67 | 11 | 21.7 | | B | BXO | 10 | 2 | 4 | 3 |
| 8000 | | PALE | 11 | 26 | 2007 | S12 | W67 | 11 | 21.8 | | B | BXO | 20 | 2 | 8 | 2 |
| 8000 | | TACH | 11 | 27 | 0610 | S13 | W72 | 11 | 21.8 | | | AX | 8 | 2 | 1 | 4 |
| 8000 | | SVTO | 11 | 27 | 0710 | S13 | W74 | 11 | 21.7 | | B | BXO | 20 | 5 | 5 | 3 |
| 8000 | | RAMY | 11 | 27 | 1209 | S14 | W76 | 11 | 21.8 | | B | CRO | 40 | 5 | 7 | 4 |
| 7999 | | KAND | 11 | 21 | 0805 | S04 | E69 | 11 | 26.5 | | | AX | | 1 | | 3 |
| 7999 | | SVTO | 11 | 21 | 1230 | S02 | E67 | 11 | 26.5 | | B | CRO | 30 | 3 | 3 | 2 |
| 7999 | | HOLL | 11 | 21 | 1613 | S04 | E65 | 11 | 26.5 | | B | BXO | 50 | 4 | 6 | 3 |
| 7999 | | RAMY | 11 | 21 | 1928 | S03 | E63 | 11 | 26.5 | | B | BXO | 30 | 8 | 5 | 2 |
| 7999 | | PALE | 11 | 21 | 2144 | S06 | E62 | 11 | 26.5 | | B | BXO | 50 | 4 | 6 | 1 |
| 7999 | | LEAR | 11 | 22 | 0020 | S05 | E61 | 11 | 26.6 | | B | DAO | 800 | 4 | 3 | 3 |
| 7999 | | TACH | 11 | 22 | 0446 | S04 | E58 | 11 | 26.5 | | | BR | 41 | 4 | 4 | 3 |
| 7999 | | KAND | 11 | 22 | 0725 | S04 | E58 | 11 | 26.6 | | | CSO | | 4 | 7 | 2 |
| 7999 | | SVTO | 11 | 22 | 0935 | S02 | E55 | 11 | 26.5 | | B | DRO | 50 | 4 | 7 | 3 |
| 7999 | 28388 | MWIL | 11 | 22 | 1530 | S04 | E51 | 11 | 26.4 | 5 | (B ) | | | | | |
| 7999 | | HOLL | 11 | 22 | 1557 | S04 | E52 | 11 | 26.5 | | B | CSO | 100 | 8 | 6 | 2 |
| 7999 | | RAMY | 11 | 22 | 1804 | S03 | E49 | 11 | 26.4 | | B | DSO | 80 | 4 | 6 | 1 |
| 7999 | | PALE | 11 | 22 | 2242 | S06 | E46 | 11 | 26.4 | | B | DSO | 100 | 6 | 7 | 2 |
| 7999 | | SVTO | 11 | 23 | 0835 | S03 | E42 | 11 | 26.5 | | B | DAI | 210 | 27 | 8 | 4 |
| 7999 | | KAND | 11 | 23 | 0920 | S04 | E41 | 11 | 26.4 | | | DAO | | 19 | 8 | 3 |
| 7999 | | RAMY | 11 | 23 | 1242 | S03 | E41 | 11 | 26.6 | | B | DAO | 170 | 18 | 9 | 2 |
| 7999 | 28388 | MWIL | 11 | 23 | 1530 | S04 | E36 | 11 | 26.3 | 5 | (B ) | | | | | |
| 7999 | | HOLL | 11 | 23 | 1910 | S03 | E34 | 11 | 26.3 | | B | DHO | 120 | 15 | 7 | 2 |
| 7999 | | PALE | 11 | 23 | 1930 | S06 | E34 | 11 | 26.3 | | B | DAO | 160 | 19 | 9 | 3 |
| 7999 | | LEAR | 11 | 24 | 0005 | S04 | E33 | 11 | 26.5 | | B | DAI | 310 | 24 | 9 | 4 |
| 7999 | | TACH | 11 | 24 | 0735 | S04 | E29 | 11 | 26.5 | | | DSX | 575 | 16 | 11 | 4 |
| 7999 | | KAND | 11 | 24 | 0830 | S04 | E29 | 11 | 26.5 | | | DKC | | 40 | 9 | 5 |
| 7999 | | SVTO | 11 | 24 | 0832 | S03 | E28 | 11 | 26.4 | | B | DAI | 320 | 29 | 9 | 2 |
| 7999 | 28388 | MWIL | 11 | 24 | 1530 | S04 | E24 | 11 | 26.4 | 5 | (B ) | | | | | |
| 7999 | | HOLL | 11 | 24 | 1610 | S03 | E23 | 11 | 26.4 | | B | DHO | 150 | 26 | 9 | 3 |
| 7999 | | PALE | 11 | 24 | 1755 | S05 | E21 | 11 | 26.3 | | B | DAO | 420 | 42 | 10 | 3 |
| 7999 | | RAMY | 11 | 24 | 1842 | S03 | E22 | 11 | 26.4 | | B | DKI | 170 | 23 | 10 | 1 |
| 7999 | | LEAR | 11 | 25 | 0010 | S05 | E20 | 11 | 26.5 | | B | EKI | 680 | 32 | 11 | 3 |
| 7999 | | TACH | 11 | 25 | 0516 | S03 | E16 | 11 | 26.4 | | | DAI | 2018 | 38 | 7 | 4 |
| 7999 | | KAND | 11 | 25 | 0900 | S04 | E14 | 11 | 26.4 | | | EKC | | 30 | 11 | 4 |
| 7999 | | RAMY | 11 | 25 | 1217 | S03 | E12 | 11 | 26.4 | | B | EAI | 820 | 36 | 12 | 3 |
| 7999 | 28388 | MWIL | 11 | 25 | 1545 | S04 | E10 | 11 | 26.4 | 5 | (D ) | | | | | |
| 7999 | | HOLL | 11 | 25 | 1612 | S03 | E09 | 11 | 26.3 | | B | EKC | 1020 | 52 | 12 | 3 |
| 7999 | | PALE | 11 | 25 | 1900 | S03 | E08 | 11 | 26.4 | | B | EKC | 1040 | 47 | 12 | 2 |
| 7999 | | LEAR | 11 | 26 | 0054 | S04 | E05 | 11 | 26.4 | | B | EKI | 820 | 41 | 13 | 3 |
| 7999 | | TACH | 11 | 26 | 0525 | S03 | E04 | 11 | 26.5 | | | DAI | 2346 | 23 | 7 | 4 |

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

## NOVEMBER 1996

| 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7999 | | KAND | 11 | 26 | 0805 | S05 | E00 | 11 | 26.3 | | | EKI | | 22 | 12 | 4 |
| 7999 | | RAMY | 11 | 26 | 1355 | S05 | W03 | 11 | 26.3 | | B | EKI | 610 | 33 | 11 | 3 |
| 7999 | 28388 | MWIL | 11 | 26 | 1545 | S04 | W04 | 11 | 26.3 | 5 | (BG) | | | | | |
| 7999 | | HOLL | 11 | 26 | 1752 | S04 | W05 | 11 | 26.4 | | B | EKC | 910 | 46 | 12 | 3 |
| 7999 | | PALE | 11 | 26 | 2007 | S05 | W07 | 11 | 26.3 | | B | EKO | 810 | 27 | 12 | 2 |
| 7999 | | TACH | 11 | 27 | 0610 | S03 | W12 | 11 | 26.4 | | | DAI | 2104 | 48 | 10 | 4 |
| 7999 | | SVTO | 11 | 27 | 0710 | S05 | W13 | 11 | 26.3 | | B | EKI | 680 | 38 | 11 | 3 |
| 7999 | | RAMY | 11 | 27 | 1209 | S05 | W15 | 11 | 26.4 | | B | EKI | 870 | 39 | 11 | 4 |
| 7999 | | HOLL | 11 | 27 | 1628 | S04 | W18 | 11 | 26.3 | | B | EKC | 940 | 38 | 12 | 2 |
| 7999 | 28388 | MWIL | 11 | 27 | 2030 | S04 | W20 | 11 | 26.3 | 5 | (B ) | | | | | |
| 7999 | | PALE | 11 | 27 | 2042 | S05 | W20 | 11 | 26.4 | | B | EKI | 890 | 36 | 12 | 1 |
| 7999 | | LEAR | 11 | 28 | 0008 | S05 | W21 | 11 | 26.4 | | B | EKO | 660 | 27 | 12 | 3 |
| 7999 | | TACH | 11 | 28 | 0529 | S03 | W25 | 11 | 26.4 | | | DHI | 2005 | 25 | 10 | 4 |
| 7999 | | KAND | 11 | 28 | 0820 | S05 | W27 | 11 | 26.3 | | | EKC | | 22 | 12 | 3 |
| 7999 | | RAMY | 11 | 28 | 1336 | S05 | W30 | 11 | 26.3 | | B | EKI | 690 | 32 | 12 | 3 |
| 7999 | 28388 | MWIL | 11 | 28 | 1545 | S04 | W31 | 11 | 26.3 | 5 | (BG) | | | | | |
| 7999 | | PALE | 11 | 28 | 1828 | S05 | W34 | 11 | 26.2 | | B | EKI | 720 | 30 | 11 | 2 |
| 7999 | | TACH | 11 | 29 | 0515 | S04 | W39 | 11 | 26.3 | | | DHI | 1076 | 16 | 9 | 4 |
| 7999 | | KAND | 11 | 29 | 0820 | S05 | W40 | 11 | 26.3 | | | EKC | | 26 | 12 | 2 |
| 7999 | | RAMY | 11 | 29 | 1217 | S04 | W42 | 11 | 26.4 | | B | EKI | 550 | 30 | 12 | 3 |
| 7999 | | SVTO | 11 | 29 | 1343 | S05 | W42 | 11 | 26.4 | | B | ESI | 700 | 24 | 12 | 1 |
| 7999 | 28388 | MWIL | 11 | 29 | 1530 | S04 | W44 | 11 | 26.3 | 5 | (B ) | | | | | |
| 7999 | | PALE | 11 | 29 | 1805 | S04 | W45 | 11 | 26.4 | | B | EKO | 560 | 27 | 11 | 3 |
| 7999 | | LEAR | 11 | 30 | 0025 | S04 | W47 | 11 | 26.5 | | B | EHI | 480 | 25 | 12 | 4 |
| 7999 | | TACH | 11 | 30 | 0520 | S03 | W51 | 11 | 26.4 | | | DHI | 571 | 28 | 9 | 3 |
| 7999 | | SVTO | 11 | 30 | 0845 | S05 | W54 | 11 | 26.3 | | B | EKI | 610 | 21 | 12 | 3 |
| 7999 | | KAND | 11 | 30 | 0945 | S04 | W54 | 11 | 26.4 | | | EHO | | 15 | 12 | 2 |
| 7999 | 28388 | MWIL | 11 | 30 | 1530 | S03 | W57 | 11 | 26.4 | 5 | (BG) | | | | | |
| 7999 | | HOLL | 11 | 30 | 1628 | S04 | W58 | 11 | 26.3 | | B | EKI | 730 | 15 | 13 | 3 |
| 7999 | | RAMY | 11 | 30 | 1634 | S05 | W56 | 11 | 26.5 | | B | ESO | 290 | 8 | 12 | 1 |
| 7999 | | PALE | 11 | 30 | 2114 | S04 | W61 | 11 | 26.3 | | B | EKO | 420 | 17 | 11 | 2 |
| 7999 | | LEAR | 12 | 01 | 0035 | S04 | W60 | 11 | 26.6 | | B | EHI | 480 | 24 | 11 | 4 |
| 7999 | | TACH | 12 | 01 | 0635 | S02 | W65 | 11 | 26.5 | | | DSI | 516 | 8 | 15 | 3 |
| 7999 | | RAMY | 12 | 01 | 1309 | S05 | W69 | 11 | 26.5 | | B | DAO | 400 | 8 | 9 | 2 |
| 7999 | 28388 | MWIL | 12 | 01 | 1530 | S04 | W69 | 11 | 26.6 | 5 | (BG) | | | | | |
| 7999 | | HOLL | 12 | 01 | 1635 | S04 | W72 | 11 | 26.4 | | B | EKI | 480 | 8 | 13 | 3 |
| 7999 | | PALE | 12 | 01 | 2028 | S04 | W73 | 11 | 26.5 | | B | EKO | 410 | 5 | 11 | 2 |
| 7999 | | LEAR | 12 | 02 | 0415 | S02 | W77 | 11 | 26.5 | | G | DSI | 250 | 4 | 4 | 2 |
| 7999 | | TACH | 12 | 02 | 0803 | S04 | W80 | 11 | 26.4 | | | AR | 115 | 3 | 13 | 3 |
| 7999 | | KAND | 12 | 02 | 0915 | S05 | W83 | 11 | 26.3 | | | AX | | 1 | 2 | 1 |
| 7999 | | RAMY | 12 | 02 | 1226 | S06 | W85 | 11 | 26.2 | | B | DSO | 50 | 2 | 10 | 3 |
| 7999 | | SVTO | 12 | 02 | 1337 | S07 | W84 | 11 | 26.4 | | A | HS | 60 | 1 | 9 | 3 |
| 7999 | 28388 | MWIL | 12 | 02 | 1545 | S05 | W82 | 11 | 26.6 | 4 | AF | | | | | |
| 7999A | | LEAR | 12 | 01 | 0035 | S19 | W54 | 11 | 27.0 | | B | BXO | | 3 | 4 | 4 |
| 7999A | | RAMY | 12 | 01 | 1309 | S20 | W65 | 11 | 26.7 | | A | AX | | 1 | | 2 |
| 7999A | 28390 | MWIL | 12 | 01 | 1530 | S18 | W65 | 11 | 26.8 | 4 | (AP) | | | | | |
| 7999B | 28391 | MWIL | 12 | 01 | 1530 | S24 | W12 | 11 | 30.7 | 3 | (B ) | | | | | |
| 7999B | | HOLL | 12 | 01 | 1635 | S24 | W14 | 11 | 30.6 | | A | AX | | 1 | | 3 |

Stations reporting:

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

# SUDDEN IONOSPHERIC DISTURBANCES

## NOVEMBER 1996

| 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13 | 0742 | 0816U | 0846 | 1 | 1 | | 1 | | | | No flare | | |
| 13 | 0853 | 0904 | 1030 | 1 | 1 | | 1 | | | | No flare | | |
| 13 | 1916 | 1917 | 1928 | 1- | 1 | | | | | 1 | 1916 | B1.8 | |
| 14 | 0934 | 0948U | 1036 | 1 | 1 | | 1 | | | | No flare | | |
| 14 | 1203 | 1219 | 1310 | 1 | 1 | | 1 | | | | No flare | | |
| 14 | 1519 | 1538 | 1600 | 1 | 1 | | 1 | | | | No flare | | |
| 15 | 1510 | 1518 | 1558 | 1 | 1 | | 1 | | | | No flare | | |
| 16 | 1338 | 1345U | 1400 | 1 | 1 | | 1 | | | | No flare | | |
| 17 | 0742 | 0755U | 0837 | 1 | 1 | | 1 | | | | No flare | | |
| 18 | 1108 | 1121U | 1158 | 1 | 1 | | 1 | | | | No flare | | |
| 18 | 1200 | 1235 | 1341 | 1 | 1 | | 1 | | | | No flare | | |
| 19 | 1309 | 1349 | 1436 | 2 | 1 | | 1 | | | | * | | |
| 19 | 1440 | 1502U | 1533 | 2 | 1 | | 1 | | | | No flare | | |
| 20 | 1217 | 1236 | 1314 | 1 | 1 | | 1 | | | | No flare | | |
| 21 | 1104 | 1111 | 1141 | 1 | 1 | | 1 | | | | No flare | | |
| 22 | 0850 | 0903 | 0924 | 1 | 1 | | 1 | | | | * | | |
| 22 | 1228 | 1241 | 1259U | 1 | 1 | | 1 | | | | * | | |
| 22 | 1605 | 1611 | 1629 | 1 | 1 | | 1 | | | | No flare | | |
| 23 | 0632 | 0640 | 0705 | 1- | 1 | | | 1 | | | 0629 | C1.0 | 7999 |
| 23 | 1532 | 1535 | 1547 | 1- | 1 | | | | | 1 | 1526 | B7.7 | |
| 23 | 1914 | 1915 | 1929 | 1- | 1 | | | | | 1 | 1925 | B9.2 | 7999 |
| 24 | 0906 | 0917 | 0938 | 2 | 1 | | 1 | | | | 0920 | B4.8 | |
| 24 | 1039 | 1041 | 1102 | 1 | 1 | | 1 | | | | No flare | | |
| 24 | 1637 | 1650 | 1735 | 1 | 5 | | | 2 | | 5 | 1629 | C3.3 | |
| 24 | 1739 | 1753 | 1825 | 1- | 5 | | | 2 | | 4 | 1734 | C2.8 | 7999 |
| 24 | 2002 | 2004 | 2011 | 1- | 1 | | | | | 1 | 2004 | C1.8 | 7999 |
| 24 | 2157 | 2200 | 2206 | 1- | 1 | | | | | 1 | 2157 | B7.8 | |
| 25 | 0013 | 0024 | 0117 | 2 | 5 | | | 1 | | 1 | 0017E | C8.0 | 7999 |
| 25 | 0240 | 0248 | 0305 | 1- | 1 | | | 1 | | | 0240 | C1.8 | |
| 25 | 0515 | 0523 | 0613 | 1- | 1 | | | 1 | | | 0512 | C2.4 | |
| 25 | 0620 | 0625 | 0640 | 1- | 1 | | | 1 | | | 0618 | B9.1 | |
| 25 | 0710 | 0715 | 0735 | 1- | 5 | | 1 | 1 | | | 0707 | C1.3 | |
| 25 | 0851 | 0852 | 0906 | 1 | 1 | | 1 | | | | No flare | | |
| 25 | 0907 | 0912 | 0936 | 1- | 5 | | 1 | 1 | | | 0904 | C1.3 | |
| 25 | 0951 | 1015 | 1102 | 1 | 1 | | 1 | | | | 1017 | B4.8 | |
| 25 | 1108 | 1114 | 1131 | 1- | 3 | | 1 | | | 1 | 1109 | C1.6 | |
| 25 | 1225 | 1225 | 1235U | 1- | 1 | | | | | 1 | 1225 | C1.8 | 7997 |
| 25 | 1310 | 1319 | 1400 | 1- | 5 | | 1 | 3 | | 1 | 1241 | C4.6 | 7999 |
| 25 | 1600 | 1608 | 1646 | 1 | 1 | | 1 | | | | No flare | | |
| 25 | 1829 | 1837 | 1938 | 1+ | 5 | | | 2 | | 3 | 1825 | C5.8 | 7999 |
| 26 | 0822 | 0911 | 0930 | 1 | 1 | | 1 | | | | * | | |
| 26 | 0946 | 0949 | 1008 | 1 | 1 | | 1 | | | | * | | |
| 26 | 1307 | 1317 | 1340 | 1- | 5 | | 1 | 2 | | | 1307E | C1.6 | 7999 |
| 27 | 0850 | 0902 | 0933 | 1 | 1 | | 1 | | | | No flare | | |
| 27 | 0942 | 1007 | 1152 | 1 | 1 | | 1 | | | | * | | |
| 28 | 0830 | 0834 | 0841 | 1 | 1 | | 1 | | | | 0813 | B5.1 | |
| 28 | 0928 | 0945 | 1000 | 1 | 1 | | 1 | | | | No flare | | |
| 28 | 1016 | 1025 | 1036 | 1 | 1 | | 1 | | | | No flare | | |
| 28 | 1238 | 1245 | 1310 | 1- | 5 | | 1 | 2 | | | 1235 | C1.1 | 7999 |
| 28 | 1316 | 1325 | 1350 | 1- | 1 | | | 1 | | | No flare | | |
| 28 | 1555 | 1650 | 1845 | 1- | 1 | | | 2 | | | 1535 | C1.3 | |

* = no flare patrol.

## NOVEMBER 1996

| 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 29 | 0754 | 0806 | 0838 | 1 | 1 | | 1 | | | | * | | |
| 29 | 1241 | 1315 | 1410 | 1 | 1 | | 1 | | | | No flare | | |
| 29 | 2037 | 2053 | 2145 | 1+ | 5 | | | 2 | | 9 | 2036E | M1.0 | 7999 |
| 30 | 1317 | 1328 | 1350 | 1- | 5 | | 1 | 2 | | 1 | 1310 | B9.2 | |
| 30 | 1450 | 1455 | 1515 | 1 | 1 | | | | | 1 | 1447 | B7.8 | |
| 30 | 1517 | 1536 | 1549 | 1- | 5 | | 1 | 1 | | 1 | 1528 | B8.5 | |
| 30 | 1716 | 1717 | 1725 | 1- | 1 | | | | | 1 | 1716 | C1.0 | 7999 |
| 30 | 2050 | 2110 | 2203 | 1 | 5 | | | 2 | | 4 | 2049 | C8.6 | 7999 |

* = no flare patrol.

## OBSERVATORIES REPORTING FOR NOVEMBER 1996

| | | | |
|---|---|---|---|
| Brazilian Antarctic Station | SPA | Koniz, Switzerland | SES |
| Cambridge, England, UK | SES | LaCrescenta, California, USA | SES |
| Cranford, New Jersey, USA | SES | Nerja, Spain | SES |
| Crystal Lake, Illinois, USA | SES | Rimavska Sobota, Slovakia | SEA |
| Dodgeville, Wisconsin, USA | SES | Rochester, New Hampshire, USA | SES |
| Edenvale, Rep of S. Africa | SES | Sofia, Bulgaria | SES |
| Fort Wayne, Indiana, USA | SES | Spring Green, Wisconsin, USA | SES |
| Gettysburg, Pennsylvania, USA | SES | Tucson, Arizona, USA | SES |
| Hiraiso, Japan | SWF | Upice, Czech Republic | SEA |
| Houston, Texas, USA | SES | Wellington, Ohio, USA | SES |
| Hudson, Ohio, USA | SES | Windsor Locks, Connecticut, USA | SES |
| Indianapolis, Indiana, USA | SES | Ziar nad Hronom, Slovakia | SEA |
| Inubo, Japan | SPA | Zilina, Slovakia | SEA |
| Itapetinga, Brazil | SPA | | |

Observations are not necessarily continuous.

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

## NOVEMBER 1996

| 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 01 | 0000 | 0746 | CULG | | | | | | | | |
| | 0000 | 0747 | HIRA | | | | | | | | |
| | 0700 | 1200 | IZMI | | | | | | | | |
| | 0709 | 1419 | ONDR | | | | | | | | |
| | 0702 | 1418 | POTS | 1352.3 | 1352.4 | III | B | 1 | 110U | 170U | |
| | 2016 | 2400 | CULG | | | | | | | | |
| | 2100 | 2400 | HIRA | | | | | | | | |
| 02 | 0000 | 0746 | CULG | | | | | | | | |
| | 0000 | 0746 | HIRA | | | | | | | | |
| | 0700 | 1200 | IZMI | | | | | | | | |
| | 0702 | 1418 | POTS | | | | | | | | |
| | 0711 | 1416 | ONDR | | | | | | | | |
| | 2015 | 3400 | CULG | | | | | | | | |
| | 2101 | 2400 | HIRA | | | | | | | | |
| 03 | 0000 | 0745 | CULG | | | | | | | | |
| | 0000 | 0745 | HIRA | | | | | | | | |
| | 0700 | 1200 | IZMI | | | | | | | | |
| | 0702 | 1418 | POTS | | | | | | | | |
| | 0713 | 1415 | ONDR | | | | | | | | |
| | 2015 | 2400 | CULG | | | | | | | | |
| | 2102 | 2400 | HIRA | | | | | | | | |
| 04 | 0000 | 0744 | HIRA | | | | | | | | |
| | 0000 | 0745 | CULG | | | | | | | | |
| | 0700 | 1200 | IZMI | | | | | | | | |
| | 0702 | 1418 | POTS | | | | | | | | |
| | 0715 | 1412 | ONDR | | | | | | | | |
| | 2015 | 2400 | CULG | | | | | | | | |
| | 2103 | 2400 | HIRA | | | | | | | | |
| 05 | 0000 | 0743 | HIRA | | | | | | | | |
| | 0000 | 0745 | CULG | | | | | | | | |
| | 0700 | 1200 | IZMI | | | | | | | | |
| | 0717 | 1410 | ONDR | | | | | | | | |
| | 0702 | 1418 | POTS | 1037.7 | 1037.8 | III | B | 1 | 110U | 160 | |
| | | | SGMR | 2008.0 | 2010.0 | III | | 1 | 30 | 48 | |
| | 2015 | 2400 | CULG | | | | | | | | |
| | 2104 | 2400 | HIRA | | | | | | | | |
| 06 | 0000 | 0743 | HIRA | | | | | | | | |
| | 0000 | 0745 | CULG | | | | | | | | |
| | 0700 | 1200 | IZMI | | | | | | | | |
| | 0721 | 1407 | ONDR | | | | | | | | |
| | 0702 | 1418 | POTS | 0758.4 | 0800.4 | III | G | 2 | 40X | 170U | |
| | | | LEAR | 0759.0 | 0759.0 | III | | 1 | 35 | 60 | |
| | 2015 | 2400 | CULG | | | | | | | | |
| | 2105 | 2400 | HIRA | | | | | | | | |
| 07 | 0000 | 0742 | HIRA | | | | | | | | |
| | 0000 | 0745 | CULG | | | | | | | | |
| | 0700 | 1200 | IZMI | | | | | | | | |
| | 0702 | 1418 | POTS | | | | | | | | |
| | 0721 | 1404 | ONDR | | | | | | | | |
| | 2015 | 2400 | CULG | | | | | | | | |
| | 2106 | 2331 | HIRA | | | | | | | | |
| 08 | 0000 | 0745 | CULG | | | | | | | | |
| | 0459 | 0741 | HIRA | | | | | | | | |
| | 0700 | 1200 | IZMI | | | | | | | | |
| | 0702 | 1418 | POTS | | | | | | | | |
| | 0755 | 1405 | ONDR | | | | | | | | |
| | 2015 | 2400 | CULG | | | | | | | | |
| | 2107 | 2400 | HIRA | | | | | | | | |
| 09 | | | LEAR | 0544.0 | 0545.0 | III | | 3 | 30 | 80 | |
| | 0000 | 0745 | CULG | 0544.0 | 0545.0 | III | B | 3 | 20 | 180 | |
| | 0000 | 0740 | HIRA | 0544.4 | 0545.1 | III | B | 3 | 25X | 250 | |

# SOLAR RADIO EMISSION
## Spectral Observations

### NOVEMBER 1996

| 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 09 | 0700 | 1200 | IZMI | | | | | | | | |
| | 0726 | 1402 | ONDR | | | | | | | | |
| | 0702 | 1418 | POTS | 0744.5 | 0746.9 | III | G | 1 | 110U | 170U | |
| | | | POTS | 0905 | 0906 | I | S | 1 | 120 | 130 | |
| | | | POTS | 1113.5 | 1114.3 | III | G | 2 | 110U | 170U | |
| | | | POTS | 1139.3 | 1139.6 | III | G,RS | 2 | 110U | 170U | |
| | | | POTS | 1150.0 | 1150.3 | III | G | 1 | 110U | 170U | |
| | | | POTS | 1202.1 | 1202.2 | III | G | 2 | 110U | 170U | |
| | | | POTS | 1213.8 | 1222.3 | III | GG | 3 | 40X | 350 | |
| | | | POTS | 1402.8 | 1403.3 | I | S | 1 | 140 | 170U | |
| | 2016 | 2400 | CULG | 2031.0 | 2031.0 | III | B | 2 | 18X | 60 | |
| | | | CULG | 2225.0 | 2225.0 | III | B | 1 | 25 | 60 | |
| | | | CULG | 2317.0 | 2320.0 | III | G | 2 | 20 | 180 | |
| | 2108 | 2400 | HIRA | 2317.1 | 2320.1 | III | G | 2 | 25X | 180 | |
| | | | LEAR | 2318.0 | 2321.0 | V | | 2 | 30 | 80 | |
| | | | PALE | 2318.0 | 2320.0 | V | | 1 | 28 | 55 | |
| | | | CULG | 2322.0 | 2325.0 | III | G | 3 | 20 | 600 | |
| | | | HIRA | 2322.1 | 2324.5 | III | G | 3 | 25X | 680 | |
| | | | PALE | 2323.0 | 2325.0 | II | | / | 26 | 55 | ESS 1600 |
| | | | LEAR | 2324.0 | 2329.0 | III | | 3 | 30 | 80 | |
| | | | HIRA | 2324.5 | 2325.5 | II | SH | 1 | 60 | 80 | ESS 1600 |
| | | | HIRA | 2324.5 | 2325.7 | II | FN | 1 | 30 | 50 | ESS 1550 |
| | | | CULG | 2325.0 | 2326.0 | II | FN | 3 | 30 | 40 | FLA SB |
| | | | CULG | 2325.0 | 2326.0 | II | SH | 2 | 60 | 90 | ESS 2200 |
| | | | CULG | 2325.0 | 2330.0 | II | SH | 2 | 60 | 100 | ESS 450 |
| | | | LEAR | 2325.0 | 2328.0 | II | | 3 | 30 | 80 | ESS 1000 |
| | | | LEAR | 2325.0 | 2328.0 | II | | 3 | 32 | 55 | ESS 1000 |
| | | | CULG | 2326.0 | 2328.0 | II | FN | 1 | 30 | 40 | |
| | | | LEAR | 2331.0 | 2334.0 | II | | 1 | 38 | 61 | ESS 1000 |
| | | | LEAR | 2338.0 | 2338.0 | III | | 1 | 38 | 52 | |
| 10 | 0000 | 0739 | HIRA | | | | | | | | |
| | 0000 | 0746 | CULG | 0117.0 | 0313.0 | III | S | 1 | 18X | 60 | |
| | 0700 | 1200 | IZMI | | | | | | | | |
| | 0735 | 1358 | ONDR | | | | | | | | |
| | 0702 | 1418 | POTS | 0830.6 | 0832.7 | III | GG | 2 | 110U | 170U | |
| | | | POTS | 0846.3 | 0847.0 | III | G | 1 | 110U | 170U | |
| | | | POTS | 0849.6 | 0855.0 | III | G | 2 | 110U | 120 | |
| | | | POTS | 1214.9 | 1216.8 | III | G | 2 | 110U | 170U | |
| | 2016 | 2400 | CULG | 2016.0E | 2045.0 | III | N | 1 | 18X | 60 | |
| | 2109 | 2400 | HIRA | | | | | | | | |
| 11 | 0000 | 0746 | CULG | 0103.0 | 0103.0 | III | B | 1 | 30 | 100 | |
| | | | LEAR | 0104.0 | 0108.0 | III | | 2 | 30 | 80 | |
| | | | PALE | 0105.0 | 0111.0 | III | | 1 | 25 | 45 | |
| | | | CULG | 0108.0 | 0109.0 | III | G | 1 | 25 | 160 | |
| | 0000 | 0738 | HIRA | 0108.1 | 0108.2 | III | B | 1 | 30 | 110 | |
| | | | CULG | 0112.0 | 0119.0 | II | UE | 2 | 60 | 110 | |
| | | | LEAR | 0114.0 | 0123.0 | II | | 1 | 60 | 80 | ESS 1200 |
| | | | HIRA | 0114.8 | 0116.2 | II | SH | 1 | 60 | 90 | ESS 0600 |
| | | | LEAR | 0129.0 | 0132.0 | III | | 2 | 30 | 65 | |
| | | | CULG | 0130.0 | 0131.0 | III | G | 1 | 20 | 70 | |
| | | | CULG | 0221.0 | 0222.0 | III | G | 1 | 18X | 50 | |
| | 0700 | 1200 | IZMI | | | | | | | | |
| | 0724 | 1336 | POTS | | | | | | | | |
| | 0730 | 1344 | ONDR | | | | | | | | |
| | 2015 | 2400 | CULG | | | | | | | | |
| | 2110 | 2400 | HIRA | | | | | | | | |
| 12 | 0000 | 0023 | CULG | | | | | | | | |
| | 0000 | 0737 | HIRA | | | | | | | | |
| | 0103 | 0745 | CULG | | | | | | | | |
| | 0700 | 1200 | IZMI | | | | | | | | |
| | 0724 | 1336 | POTS | | | | | | | | |
| | 0739 | 1354 | ONDR | | | | | | | | |
| | | | SGMR | 1819.0 | 1822.0 | III | | 1 | 30 | 70 | |
| | | | PALE | 1820.0 | 1823.0 | III | | 1 | 25 | 70 | |
| | 2016 | 2400 | CULG | | | | | | | | |
| | 2111 | 2400 | HIRA | | | | | | | | |

# SOLAR RADIO EMISSION
## Spectral Observations

## NOVEMBER 1996

| Day | OBSERVATION Start (UT) | OBSERVATION End (UT) | Sta | EVENT Start (UT) | EVENT End (UT) | EVENT Spectral Class | EVENT Event Remarks | EVENT Int (1-3) | FREQUENCY Lower (MHz) | FREQUENCY Upper (MHz) | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 13 | 0000 | 0737 | HIRA | | | | | | | | |
| | 0000 | 0746 | CULG | | | | | | | | |
| | 0700 | 1200 | IZMI | | | | | | | | |
| | 0724 | 1400 | POTS | | | | | | | | |
| | 0734 | 1354 | ONDR | | | | | | | | |
| | | | SGMR | 1449.0 | 1523.0 | III | N | 1 | 30 | 75 | |
| | | | SGMR | 1638.0 | 1639.0 | III | | 1 | 30 | 68 | |
| | 2022 | 2400 | CULG | | | | | | | | |
| | 2112 | 2400 | HIRA | | | | | | | | |
| 14 | 0000 | 0736 | HIRA | | | | | | | | |
| | 0000 | 0752 | CULG | | | | | | | | |
| | 0700 | 1200 | IZMI | | | | | | | | |
| | 0724 | 1400 | POTS | | | | | | | | |
| | 0736 | 1352 | ONDR | | | | | | | | |
| | 2028 | 2400 | CULG | | | | | | | | |
| | 2113 | 2400 | HIRA | | | | | | | | |
| 15 | 0000 | 0735 | HIRA | | | | | | | | |
| | 0000 | 0746 | CULG | | | | | | | | |
| | 0700 | 1200 | IZMI | | | | | | | | |
| | 0738 | 1349 | ONDR | | | | | | | | |
| | 0724 | 1400 | POTS | 1310.7 | 1311.6 | III | G | 1 | 230 | 450 | |
| | 2028 | 2400 | CULG | | | | | | | | |
| | 2114 | 2400 | HIRA | | | | | | | | |
| 16 | 0000 | 0735 | HIRA | | | | | | | | |
| | 0000 | 0746 | CULG | | | | | | | | |
| | 0700 | 1200 | IZMI | | | | | | | | |
| | 0724 | 1400 | POTS | | | | | | | | |
| | 0800 | 1350 | ONDR | | | | | | | | |
| | 2029 | 2400 | CULG | | | | | | | | |
| | 2116 | 2400 | HIRA | | | | | | | | |
| 17 | 0000 | 0734 | HIRA | | | | | | | | |
| | 0000 | 0747 | CULG | | | | | | | | |
| | 0700 | 1200 | IZMI | | | | | | | | |
| | 0724 | 1400 | POTS | | | | | | | | |
| | 0743 | 1347 | ONDR | | | | | | | | |
| | 2029 | 2400 | CULG | | | | | | | | |
| | 2117 | 2400 | HIRA | | | | | | | | |
| 18 | 0000 | 0734 | HIRA | | | | | | | | |
| | 0000 | 0747 | CULG | | | | | | | | |
| | 0700 | 1200 | IZMI | | | | | | | | |
| | 0724 | 1400 | POTS | | | | | | | | |
| | 0745 | 1345 | ONDR | | | | | | | | |
| | 2029 | 2400 | CULG | | | | | | | | |
| | 2117 | 2400 | HIRA | | | | | | | | |
| 19 | 0000 | 0733 | HIRA | | | | | | | | |
| | 0000 | 0747 | CULG | | | | | | | | |
| | 0700 | 1200 | IZMI | | | | | | | | |
| | 0724 | 1400 | POTS | | | | | | | | |
| | 0747 | 1344 | ONDR | | | | | | | | |
| | 2029 | 2400 | CULG | | | | | | | | |
| | 2118 | 2400 | HIRA | | | | | | | | |
| 20 | 0000 | 0732 | HIRA | | | | | | | | |
| | 0000 | 0747 | CULG | | | | | | | | |
| | 0700 | 1200 | IZMI | | | | | | | | |
| | 0724 | 1400 | POTS | | | | | | | | |
| | 0749 | 1343 | ONDR | | | | | | | | |
| | 2029 | 2400 | CULG | | | | | | | | |
| | 2119 | 2400 | HIRA | | | | | | | | |
| 21 | 0000 | 0732 | HIRA | | | | | | | | |
| | 0000 | 0747 | CULG | | | | | | | | |
| | 0700 | 1200 | IZMI | | | | | | | | |

# SOLAR RADIO EMISSION
## Spectral Observations

### NOVEMBER 1996

| 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 21 | 0738 | 1354 | POTS | | | | | | | | |
| | 0751 | 1341 | ONDR | | | | | | | | |
| | 2030 | 2400 | CULG | | | | | | | | |
| | 2120 | 2400 | HIRA | | | | | | | | |
| 22 | 0000 | 0731 | HIRA | | | | | | | | |
| | 0000 | 0748 | CULG | | | | | | | | |
| | 0700 | 1200 | IZMI | | | | | | | | |
| | 0753 | 1338 | ONDR | | | | | | | | |
| | 0839 | 1400 | POTS | 0928 | 1205 | I | S | 1 | 110U | 300 | |
| | | | POTS | 1259.7 | 1302.6 | III | G | 2 | 110U | 170U | |
| | 2030 | 2400 | CULG | | | | | | | | |
| | 2121 | 2400 | HIRA | | | | | | | | |
| 23 | 0000 | 0748 | CULG | 0633.0 | 0635.0 | III | G | 1 | 20 | 150 | |
| | 0000 | 0731 | HIRA | 0633.2 | 0634.8 | III | G | 1 | 40 | 230 | |
| | | | LEAR | 0634.0 | 0636.0 | III | | 2 | 30 | 70 | |
| | | | IZMI | 0653.9 | 1200.0D | I | N | 1 | 95U | 180X | |
| | 0650 | 1200 | IZMI | 0653.9 | 0654.2 | III | G | 1 | 45X | 135 | |
| | 0738 | 1354 | POTS | 0738 E | 1354 U | I | S,C,DC | 2 | 110U | 400 | |
| | | | LEAR | 0752.0 | 0753.0 | III | | 1 | 47 | 67 | |
| | 0755 | 1336 | ONDR | | | | | | | | |
| | | | POTS | 0831.5 | 0832.1 | DCIM | | 2 | 250 | 700 | |
| | | | POTS | 1241.6 | 1241.7 | UNCLF | | 1 | 750 | 800X | |
| | | | POTS | 1244.5 | 1244.6 | III | B | 2 | 110U | 170U | |
| | | | POTS | 1312.8 | 1312.9 | III | B | 1 | 110U | 160 | |
| | | | SGMR | 1507.0 | 1508.0 | III | | 1 | 30 | 70 | |
| | | | PALE | 1934.0 | 1934.0 | III | | 1 | 25 | 54 | |
| | | | SGMR | 1934.0 | 1934.0 | III | | 1 | 30 | 53 | |
| | | | PALE | 2035.0 | 2036.0 | III | | 1 | 25 | 43 | |
| | 2030 | 2400 | CULG | 2036.0 | 2036.0 | III | B | 1 | 20 | 120 | |
| | | | CULG | 2040.0 | 2400.0D | I | S | 1 | 70 | 170 | |
| | | | CULG | 2052.0 | 2053.0 | III | B | 2 | 20 | 270 | |
| | | | PALE | 2052.0 | 2053.0 | III | | 1 | 27 | 48 | |
| | 2122 | 2400 | HIRA | 2210.0 | 2400.0D | I | S | 1 | 120 | 200 | |
| | | | CULG | 2213.0 | 2214.0 | III | B | 2 | 20 | 160 | |
| | | | LEAR | 2213.0 | 2214.0 | III | | 1 | 30 | 60 | |
| | | | PALE | 2213.0 | 2214.0 | V | | 1 | 25 | 55 | |
| | | | HIRA | 2313.7 | 2314.5 | III | B | 1 | 25X | 220 | |
| | | | LEAR | 2332.0 | 2333.0 | III | | 2 | 30 | 80 | |
| | | | PALE | 2332.0 | 2342.0 | V | | 2 | 25 | 55 | |
| | | | HIRA | 2332.7 | 2341.7 | III | G | 1 | 25X | 260 | |
| | | | CULG | 2333.0 | 2342.0 | III | N | 2 | 25 | 160 | |
| | | | LEAR | 2335.0 | 2342.0 | III | | 2 | 30 | 80 | |
| 24 | 0000 | 0600 | HIRA | 0000.0E | 0300.0 | I | S | 1 | 120 | 200 | |
| | 0000 | 0749 | CULG | 0000.0E | 0749.0D | I | S | 1 | 70 | 170 | |
| | | | LEAR | 0007.0 | 0135.0 | III | N | 1 | 30 | 80 | |
| | | | PALE | 0026.0 | 0114.0 | III | N | 1 | 25 | 55 | |
| | | | CULG | 0112.0 | 0113.0 | III | G | 2 | 20 | 170 | |
| | | | LEAR | 0112.0 | 0113.0 | III | | 2 | 30 | 80 | |
| | | | HIRA | 0112.3 | 0112.8 | III | B | 1 | 25X | 260 | |
| | | | PALE | 0201.0 | 0207.0 | III | | 1 | 25 | 55 | |
| | | | LEAR | 0206.0 | 0207.0 | III | | 2 | 30 | 60 | |
| | 0700 | 1200 | IZMI | 0700.0E | 1200.0D | I | S | 1 | 45X | 270X | |
| | | | LEAR | 0721.0 | 0901.0 | III | N | 1 | 30 | 80 | |
| | 0738 | 1354 | POTS | 0738 E | 1354 U | I | S,C,DC | 3 | 40X | 400 | |
| | | | POTS | 0749.5 | 0749.8 | III | G,RS | 3 | 50 | 170 | |
| | | | POTS | 0755.2 | 0759.6 | III | G | 2 | 40X | 90U | |
| | 0757 | 1336 | ONDR | | | | | | | | |
| | | | POTS | 1009.1 | 1009.5 | III | G | 2 | 40X | 90U | |
| | | | IZMI | 1018.0 | 1018.2 | III | B | 2 | 45X | 145 | |
| | | | POTS | 1018.0 | 1018.1 | III | B | 2 | 500 | 700 | |
| | | | POTS | 1018.1 | 1018.2 | III | B | 2 | 40X | 150 | |
| | | | POTS | 1120.9 | 1121.3 | DCIM | | 2 | 400 | 550 | |
| | | | PALE | 1847.0 | 1848.0 | V | | 2 | 25 | 75 | |
| | | | SGMR | 1847.0 | 1848.0 | III | | 2 | 30 | 80 | |
| | 2030 | 2400 | CULG | 2106.0 | 2111.0 | III | G | 3 | 20 | 280 | |
| | | | PALE | 2108.0 | 2109.0 | III | | 2 | 25 | 75 | |

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

### NOVEMBER 1996

| 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 |
|---|---|---|---|---|---|---|---|---|---|---|
| **Day 24** | | | | | | | | | | |
| | | LEAR | 2235.0 | 0200.0 | III | N | 1 | 30 | 80 | |
| **Day 25** | | | | | | | | | | |
| | | LEAR | 0018.0 | 0020.0 | III | | 3 | 30 | 80 | |
| | | PALE | 0018.0 | 0019.0 | III | | 3 | 35 | 52 | |
| 0000 | 0749 | CULG | 0018.0 | 0020.0 | III | G | 2 | 20 | 260 | |
| | | LEAR | 0112.0 | 0113.0 | III | | 2 | 30 | 80 | |
| | | CULG | 0144.0 | 0144.0 | III | B | 1 | 60 | 160 | |
| 0042 | 0730 | HIRA | 0144.0 | 0144.1 | III | B | 1 | 60 | 160 | |
| | | CULG | 0146.0 | 0146.0 | III | B | 1 | 40 | 170 | |
| | | HIRA | 0146.3 | 0146.4 | III | B | 1 | 60 | 230 | |
| | | LEAR | 0221.0 | 0223.0 | III | | 1 | 33 | 46 | |
| | | CULG | 0409.0 | 0411.0 | III | G | 2 | 20 | 170 | |
| | | LEAR | 0409.0 | 0410.0 | III | | 3 | 30 | 80 | |
| | | HIRA | 0409.9 | 0411.4 | III | G | 2 | 25X | 220 | |
| | | CULG | 0420.0 | 0748.0D | I | S | 1 | 80 | 170 | |
| | | HIRA | 0420.0 | 0710.0 | I | S | 1 | 70 | 200 | |
| | | CULG | 0619.0 | 0620.0 | III | G | 1 | 60 | 170 | |
| 0655 | 1200 | IZMI | 0655.0E | 1200.0D | I | S | 2 | 45X | 180X | |
| | | LEAR | 0658.0 | 0728.0 | III | N | 1 | 60 | 80 | |
| | | LEAR | 0713.0 | 0714.0 | III | | 1 | 45 | 80 | |
| | | IZMI | 0724.5 | 0724.7 | III | B | 1 | 60 | 180U | |
| 0738 | 1354 | POTS | 0738 E | 1354 U | I | S,C,DC | 3 | 40X | 450 | |
| | | LEAR | 0743.0 | 0744.0 | III | | 1 | 45 | 80 | |
| | | IZMI | 0744.0 | 0744.2 | III | G | 3 | 45X | 180X | |
| | | POTS | 0744.0 | 0744.1 | III | B | 3 | 55 | 170U | |
| | | IZMI | 0950.4 | 0950.5 | III | G, HARM | 2 | 60 | 145 | |
| | | POTS | 0950.4 | 0950.5 | III | B | 3 | 110U | 170U | |
| | | POTS | 1029.5 | 1029.6 | III | B,RS | 2 | 110U | 150 | |
| 0759 | 1334 | ONDR | 1115.2 | 1120.3 | III | G W | 1 | 2750 | 4440X | |
| | | SVTO | 1153.0 | 1225.0 | III | N | 2 | 60U | 74U | |
| | | ONDR | 1224.3 | 1225.2 | III | G W | 1 | 2000X | 4440X | |
| | | ONDR | 1310.5 | 1312.2 | III | G | 1 | 2420 | 4450X | |
| 2030 | 2400 | CULG | 2030.0E | 2332.0 | I | S | 1 | 90 | 170 | |
| 2124 | 2400 | HIRA | | | | | | | | |
| **Day 26** | | | | | | | | | | |
| | | LEAR | 0050.0 | 0101.0 | III | N | 1 | 30 | 55 | |
| | | LEAR | 0105.0 | 0116.0 | III | N | 1 | 30 | 56 | |
| 0000 | 0748 | CULG | 0129.0 | 0748.0D | I | S | 1 | 100 | 170 | |
| | | LEAR | 0137.0 | 1033.0 | III | N | 1 | 30 | 80 | |
| | | CULG | 0448.0 | 0448.0 | III | B | 1 | 65 | 170 | |
| 0000 | 0730 | HIRA | 0448.4 | 0448.5 | III | B | 1 | 70 | 320 | |
| | | CULG | 0533.0 | 0533.0 | III | B | 1 | 60 | 160 | |
| 0700 | 1200 | IZMI | 0700.0E | 1200.0D | I | S | 1 | 45U | 180U | |
| | | IZMI | 0709.1 | 0709.3 | III | G | 2 | 45X | 110 | |
| 0738 | 1354 | POTS | 0738 E | 1354 U | I | S,C,DC | 3 | 40X | 450 | |
| | | POTS | 0825.2 | 0825.3 | III | B | 1 | 110U | 150 | |
| | | POTS | 0851.2 | 0851.6 | III | G | 1 | 110U | 160 | |
| | | POTS | 0853.5 | 0853.6 | III | G | 1 | 110U | 150 | |
| | | POTS | 0908.8 | 0909.4 | III | G,U? | 2 | 110U | 225 | |
| | | POTS | 1007.6 | 1007.7 | III | B | 2 | 110U | 150 | |
| | | POTS | 1015.8 | 1015.9 | III | B | 1 | 110U | 275 | |
| | | POTS | 1019.0 | 1020.5 | III | G | 2 | 110U | 220 | |
| | | POTS | 1056.7 | 1056.9 | III | G | 3 | 110U | 170U | |
| | | POTS | 1207.3 | 1207.4 | III | B | 2 | 40X | 70 | |
| | | POTS | 1216.6 | 1216.8 | III | G | 2 | 40X | 70 | |
| 0801 | 1333 | ONDR | 1302.3 | 1309.2 | III | G | 1 | 2605 | 4440X | |
| 2031 | 2400 | CULG | 2031.0E | 2054.0D | I | S | 1 | 70U | 170 | |
| | | CULG | 2054.0E | 2142.0D | I | S | 2 | 80 | 170 | |
| | | CULG | 2142.0E | 2400.0D | I | S | 1 | 90 | 170 | |
| | | CULG | 2203.0 | 2204.0 | III | G | 1 | 30 | 150 | |
| 2125 | 2400 | HIRA | 2203.2 | 2203.8 | III | G | 1 | 25X | 130 | |
| | | CULG | 2251.0 | 2251.0 | III | B | 1 | 60 | 160 | |
| | | CULG | 2302.0 | 2302.0 | III | B | 1 | 60 | 160 | |
| | | PALE | 2313.0 | 2313.0 | III | | 1 | 25 | 37 | |
| **Day 27** | | | | | | | | | | |
| | | CULG | 0001.0 | 0004.0 | III | G | 1 | 60 | 170 | |
| 0000 | 0749 | CULG | 0001.0E | 0749.0D | I | S | 1 | 80 | 170 | |
| 0000 | 0730 | HIRA | 0001.7 | 0003.3 | III | G | 1 | 60 | 220 | |
| | | PALE | 0032.0 | 0033.0 | III | | 1 | 28 | 43 | |

# SOLAR RADIO EMISSION
## Spectral Observations

## NOVEMBER 1996

| 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 27 | | | CULG | 0033.0 | 0033.0 | III | B | 1 | 20U | 70 | |
| | | | CULG | 0125.0 | 0126.0 | III | G | 1 | 20U | 70 | |
| | | | CULG | 0239.0 | 0240.0 | III | G | 2 | 20U | 260 | |
| | | | LEAR | 0239.0 | 0240.0 | III | | 3 | 30 | 80 | |
| | | | PALE | 0239.0 | 0239.0 | III | | 1 | 27 | 70 | |
| | | | HIRA | 0239.2 | 0239.9 | III | G | 2 | 25X | 340 | |
| | | | HIRA | 0435.8 | 0436.3 | III | G | 1 | 90 | 220 | |
| | | | CULG | 0436.0 | 0437.0 | III | G | 1 | 60 | 170 | |
| | | | LEAR | 0538.0 | 0539.0 | III | | 2 | 30 | 80 | |
| | | | HIRA | 0538.4 | 0538.8 | III | G | 1 | 30 | 220 | |
| | | | CULG | 0539.0 | 0539.0 | III | B | 2 | 30 | 160 | |
| | | | CULG | 0651.0 | 0651.0 | III | B | 1 | 70 | 170 | |
| | | | IZMI | 0700.0E | 1200.0D | I | S | 2 | 45X | 270X | |
| | | | IZMI | 0706.2 | 0719.2 | III | GG | 3 | 45X | 270X | |
| | | | CULG | 0709.0 | 0714.0 | III | G | 1 | 60 | 300 | |
| | | | CULG | 0734.0 | 0736.0 | III | G | 1 | 60 | 160 | |
| | | | LEAR | 0734.0 | 0735.0 | III | | 2 | 30 | 80 | |
| | | | IZMI | 0734.1 | 0735.4 | III | GG | 2 | 45X | 270X | |
| | | | POTS | 0738 E | 1354 U | III | N | 1 | 110U | 250 | |
| | 0738 | 1354 | POTS | 0738 E | 1354 U | I | S,C,DC | 3 | 40X | 400 | |
| | | | IZMI | 0757.9 | 0758.1 | III | B | 1 | 45 | 65 | |
| | 0803 | 1332 | ONDR | | | | | | | | |
| | | | IZMI | 0815.2 | 0845.0 | III | S | 2 | 45X | 270X | |
| | | | IZMI | 0816.2 | 0817.5 | I | GG, HARM | 2 | 90U | 135 | |
| | | | IZMI | 0817.5 | 0817.6 | III | B | 2 | 45 | 90U | |
| | | | POTS | 0856.1 | 0856.3 | III | G | 1 | 40X | 60 | |
| | | | IZMI | 0905.7 | 0906.2 | III | G | 1 | 45X | 75 | |
| | | | POTS | 0905.7 | 0905.9 | III | G | 1 | 40X | 70 | |
| | | | IZMI | 0920.8 | 0920.9 | III | B | 1 | 45X | 60 | |
| | | | IZMI | 0921.1 | 0921.2 | III | B | 1 | 55 | 243 | |
| | | | POTS | 0921.1 | 0921.2 | III | G | 2 | 110U | 250 | |
| | | | IZMI | 0929.5 | 0929.8 | III | G, HARM | 2 | 60 | 150 | |
| | | | POTS | 0929.5 | 0929.6 | III | B | 3 | 110U | 170U | |
| | | | POTS | 1046.7 | 1046.9 | III | G | 1 | 40X | 55 | |
| | | | POTS | 1104.3 | 1104.4 | UNCLF | | 1 | 40X | 60 | |
| | | | POTS | 1107.1 | 1107.7 | III | G | 1 | 40X | 60 | |
| | | | POTS | 1118.1 | 1118.3 | UNCLF | | 1 | 40X | 50 | |
| | | | POTS | 1142.6 | 1142.8 | III | B | 1 | 40X | 70 | |
| | | | POTS | 1215.4 | 1215.5 | III | B | 2 | 110U | 150 | |
| | | | POTS | 1225.7 | 1225.8 | III | B | 1 | 40X | 70 | |
| | | | POTS | 1226.5 | 1226.7 | III | G | 1 | 40X | 55 | |
| | | | POTS | 1232.2 | 1232.3 | III | B | 1 | 60 | 90U | |
| | | | POTS | 1238.9 | 1239.0 | III | B | 2 | 110U | 150 | |
| | | | POTS | 1304.3 | 1304.4 | III | B | 1 | 40X | 60 | |
| | | | POTS | 1340.0 | 1340.1 | UNCLF | | 1 | 40X | 55 | |
| | | | PALE | 1958.0 | 1959.0 | III | | 1 | 25 | 46 | |
| | | | SGMR | 2006.0 | 2006.0 | III | | 1 | 30 | 52 | |
| | 2031 | 2400 | CULG | 2031.0E | 2400.0D | I | S | 1 | 60 | 150 | |
| | | | PALE | 2046.0 | 2048.0 | III | | 2 | 25 | 60 | |
| | | | CULG | 2047.0 | 2048.0 | III | B | 2 | 18 | 160 | |
| | | | SGMR | 2047.0 | 2047.0 | III | | 1 | 30 | 48 | |
| | | | PALE | 2115.0 | 2115.0 | III | | 1 | 25 | 47 | |
| | | | CULG | 2116.0 | 2116.0 | III | B | 1 | 20 | 130 | |
| | 2126 | 2400 | HIRA | | | | | | | | |
| | | | PALE | 2137.0 | 2137.0 | III | | 1 | 25U | 40U | |
| | | | CULG | 2212.0 | 2212.0 | III | B | 1 | 30 | 90 | |
| | | | CULG | 2227.0 | 2227.0 | III | B | 1 | 30 | 80 | |
| | | | LEAR | 2345.0 | 0948.0 | III | N | 1 | 30 | 80 | |
| 28 | 0000 | 0749 | CULG | 0000.0E | 0212.0D | I | S | 1 | 90 | 170 | |
| | | | PALE | 0029.0 | 0029.0 | III | | 1 | 28U | 38U | |
| | | | CULG | 0030.0 | 0030.0 | III | B | 1 | 30 | 50 | |
| | | | CULG | 0035.0 | 0035.0 | III | B | 1 | 30 | 80 | |
| | | | CULG | 0212.0E | 0600.0 | I | S | 1 | 120 | 170 | |
| | | | CULG | 0215.0 | 0216.0 | III | G | 1 | 20 | 160 | |
| | | | LEAR | 0215.0 | 0218.0 | V | | 2 | 30 | 80 | |
| | | | PALE | 0215.0 | 0217.0 | V | | 1 | 26 | 54 | |
| | 0000 | 0729 | HIRA | 0215.4 | 0216.1 | III | G | 2 | 25X | 200 | |
| | 0655 | 1200 | IZMI | 0655.0E | 1200.0D | I | S | 2 | 45X | 280X | |

# SOLAR RADIO EMISSION
## Spectral Observations

## NOVEMBER 1996

| 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 | | IZMI | 0656.3 | 0656.5 | III | G | 1 | 90U | 150 | |
| | | IZMI | 0711.1 | 0713.3 | III | GG | 1 | 45X | 145 | |
| | | POTS | 0738 E | 1354 U | III | N | 1 | 110U | 250 | |
| 0738 | 1354 | POTS | 0738 E | 1354 U | I | S,C,DC | 3 | 40X | 450 | |
| | | IZMI | 0745.0 | 1025.0 | III | N | 1 | 45X | 90 | |
| 0805 | 1331 | ONDR | | | | | | | | |
| | | IZMI | 0818.0 | 0824.0 | I | DC | 2 | 45X | 70 | |
| | | IZMI | 0820.5 | 0820.6 | III | B | 2 | 55 | 90U | |
| | | POTS | 0820.6 | 0820.7 | III | B | 1 | 40X | 90U | |
| | | SVTO | 0847.0 | 0950.0 | III | N | 2 | 60U | 85U | |
| | | SVTO | 0847.0 | 1001.0 | III | N | 2 | 60U | 85U | |
| | | IZMI | 0913.8 | 0914.0 | III | B | 1 | 45X | 90 | |
| | | POTS | 0913.8 | 0914.0 | III | B | 1 | 40X | 70 | |
| | | POTS | 0924.4 | 0924.5 | III | B | 1 | 40X | 70 | |
| | | IZMI | 0941.5 | 0942.0 | III | G | 2 | 45X | 180 | |
| | | POTS | 0941.6 | 0942.0 | III | G | 2 | 40X | 170U | |
| | | IZMI | 1004.9 | 1005.2 | III | G | 1 | 45X | 148 | |
| | | POTS | 1005.0 | 1005.2 | III | G | 1 | 40X | 150 | |
| | | IZMI | 1045.3 | 1045.7 | III | G | 2 | 45X | 245 | |
| | | POTS | 1045.6 | 1045.7 | III | B | 3 | 40X | 250 | |
| | | IZMI | 1048.0 | 1048.3 | III | G | 2 | 45X | 180 | |
| | | POTS | 1048.0 | 1048.3 | III | G | 3 | 40X | 250 | |
| | | IZMI | 1051.1 | 1051.7 | III | G | 2 | 45X | 170 | |
| | | POTS | 1051.1 | 1051.7 | III | G | 3 | 40X | 325 | |
| | | SVTO | 1202.0 | 1300.0 | III | N | 3 | 53U | 85U | |
| | | POTS | 1348.6 | 1348.9 | III | G | 3 | 60 | 250 | |
| | | SGMR | 1444.0 | 1445.0 | III | | 1 | 30 | 75 | |
| 2031 | 2400 | CULG | 2031.0E | 2400.0D | I | S | 1 | 90 | 160 | |
| 2127 | 2400 | HIRA | | | | | | | | |
| 29 | 0000 | 0728 | HIRA | | | | | | | |
| 0000 | 0749 | CULG | 0000.0E | 0749.0D | I | S | 1 | 100 | 160 | |
| | | LEAR | 0015.0 | 0015.0 | III | | 1 | 30 | 35 | |
| 0655 | 1200 | IZMI | 0655.0E | 1200.0D | I | S | 2 | 90U | 270 | |
| | | IZMI | 0657.6 | 0657.9 | III | B, RS | 2 | 45X | 90 | |
| | | LEAR | 0713.0 | 0713.0 | III | | 1 | 40 | 55 | |
| | | IZMI | 0713.2 | 0713.3 | III | B | 1 | 45X | 90 | |
| | | POTS | 0738 E | 1354 U | III | N | 1 | 110U | 170U | |
| 0738 | 1354 | POTS | 0738 E | 1354 U | I | S,C,DC | 3 | 40X | 400 | |
| 0807 | 1330 | ONDR | | | | | | | | |
| | | POTS | 0854.1 | 0854.2 | III | B | 1 | 40X | 70 | |
| | | POTS | 0857.3 | 0857.4 | III | B | 1 | 40X | 50 | |
| | | POTS | 0949.3 | 0949.4 | III | B | 1 | 40X | 55 | |
| | | POTS | 0956.5 | 0956.6 | III | B | 1 | 40X | 55 | |
| | | POTS | 1022.4 | 1022.6 | DCIM | | 2 | 600 | 800X | |
| | | IZMI | 1058.0 | 1101.0 | UNCLF | | 1 | 90 | 120 | |
| | | POTS | 1059.7 | 1059.8 | III | B | 1 | 40X | 70 | |
| | | POTS | 1222.8 | 1222.9 | III | B | 1 | 40X | 70 | |
| 2028 | 2400 | HIRA | | | | | | | | |
| 2031 | 2400 | CULG | 2120.0 | 2157.0 | I | S | 1 | 70 | 120 | |
| 30 | 0000 | 0200 | HIRA | | | | | | | |
| 0000 | 0750 | CULG | 0200.0 | 0320.0 | I | S | 1 | 100 | 180 | |
| | | CULG | 0643.0 | 0643.0 | III | B | 1 | 30 | 120 | |
| | | LEAR | 0643.0 | 0643.0 | III | | 1 | 48 | 70 | |
| | | CULG | 0717.0 | 0717.0 | III | B | 1 | 30 | 120 | |
| | | LEAR | 0718.0 | 0718.0 | III | | 1 | 44 | 70 | |
| 0710 | 1200 | IZMI | 0718.2 | 0718.8 | III | G | 2 | 45X | 120 | |
| | | IZMI | 0727.4 | 0727.5 | III | B | 2 | 80 | 120 | |
| | | POTS | 0738 E | 1354 U | III | N | 1 | 110U | 170U | |
| 0738 | 1354 | POTS | 0738 E | 1354 U | I | S,C,DC | 2 | 70 | 350 | |
| | | POTS | 0754.2 | 0754.3 | III | B | 2 | 130 | 170U | |
| 0809 | 1327 | ONDR | | | | | | | | |
| | | POTS | 0819.1 | 0819.2 | III | B | 2 | 110U | 150 | |
| | | POTS | 0849.2 | 0849.3 | III | B | 2 | 110U | 150 | |
| | | POTS | 1001.6 | 1001.9 | III | G | 2 | 110U | 150 | |
| | | POTS | 1005.3 | 1005.4 | III | B | 1 | 40X | 90U | |
| | | POTS | 1012.1 | 1014.0 | III | G | 2 | 110U | 170U | |
| | | POTS | 1035.8 | 1035.9 | III | B | 2 | 110U | 150 | |

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

## NOVEMBER 1996

| OBSERVATION Start (UT) | OBSERVATION End (UT) | Sta | EVENT Start (UT) | EVENT End (UT) | EVENT Spectral Class | EVENT Event Remarks | Int (1-3) | FREQUENCY Lower (MHz) | FREQUENCY Upper (MHz) | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|
| 30 | | POTS | 1137.5 | 1137.6 | III | B | 2 | 110U | 170U | |
| | | POTS | 1201.3 | 1309.2 | III | GG | 3 | 40X | 170U | |
| | | POTS | 1244.8 | 1244.9 | III | B | 2 | 110U | 160 | |
| | | POTS | 1340.5 | 1349.1 | III | G | 2 | 40X | 150 | |
| | | SGMR | 1417.0 | 1418.0 | III | | 1 | 60 | 70 | |
| | | SVTO | 1417.0 | 1417.0 | III | | 2 | 63U | 77U | |
| 2032 | 2400 | CULG | 2059.0 | 2103.0 | CONT | | 1 | 400 | 700 | |
| | | CULG | 2108.0 | 2400.0D | IV | FS | 2 | 50U | 160 | |
| | | LEAR | 2228.0 | 0233.0 | IV | | 2 | 30 | 80 | |
| | | PALE | 2245.0 | 0331.0 | IV | | 1 | 25U | 47U | |

Event Remarks:

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

Frequency qualifiers:

- X = Extends beyond instrument range
- U = Uncertain frequency

Remarks:

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

Stations Reporting: CULG = Culgoora, HIRA = Hiraiso, IZMI = Izmiran, LEAR = Learmonth, ONDR = Ondrejov, PALE = Palehua, POTS = Potsdam, SGMR = Sagamore Hill, SVTO = San Vito

## SOLAR RADIO NOISE STORM AT 164 MHZ
## FROM NANÇAY RADIOHELIOGRAPH
## NOVEMBER 1996

| | HELIOGRAPHICS POSITIONS MEAN VALUES[1] | | IMP[2] | OBSERVING TIME[3] | |
|---|---|---|---|---|---|
| DAY | E-W | S-N | | START( UT) | END(UT) |
| 25/11/96 | -1.43 | -0.81 | 1 | E | D |
| 25/11/96 | -0.06 | -0.61 | 2 | E | D |
| 25/11/96 | +0.08 | -0.52 | 1 | E | D |
| 25/11/96 | +1.28 | -0.34 | 1 | 12H00 | D |
| 26/11/96 | +0.29 | -0.63 | 2 | E | D |
| 26/11/96 | +1.30 | +0.05 | 1 | E | D |
| 27/11/96 | -0.01 | -0.70 | 2 | E | D |
| 27/11/96 | +0.22 | -0.57 | 1 | E | D |
| 27/11/96 | +1.37 | -0.60 | 2 | E | D |
| 29/11/96 | +1.09 | -0.63 | 3 | E | D |
| 30/11/96 | +0.85 | -0.75 | 1 | E | D |

## SOLAR RADIO NOISE STORM AT 327 MHZ
## FROM NANÇAY RADIOHELIOGRAPH
## NOVEMBER 1996

| | HELIOGRAPHICS POSITIONS MEAN VALUES[1] | | IMP[2] | OBSERVING TIME[3] | |
|---|---|---|---|---|---|
| DAY | E-W | S-N | | START(UT) | END(UT) |
| 25/11/96 | -0.41 | -0.22 | 1 | E | D |
| 25/11/96 | -0.09 | -0.32 | 2 | E | D |
| 25/11/96 | +1.16 | -0.05 | 1 | 11H50 | D |
| 26/11/96 | +0.12 | -0.29 | 2 | E | D |
| 27/11/96 | +0.34 | -0.32 | 2 | E | D |
| 29/11/96 | +0.96 | -0.38 | 2 | E | D |
| 30/11/96 | +0.98 | -0.30 | 1 | E | D |

23,24,28 NOVEMBER: NO DATA
OTHERS DAYS: NO DETECTABLE NOISE STORM

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

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

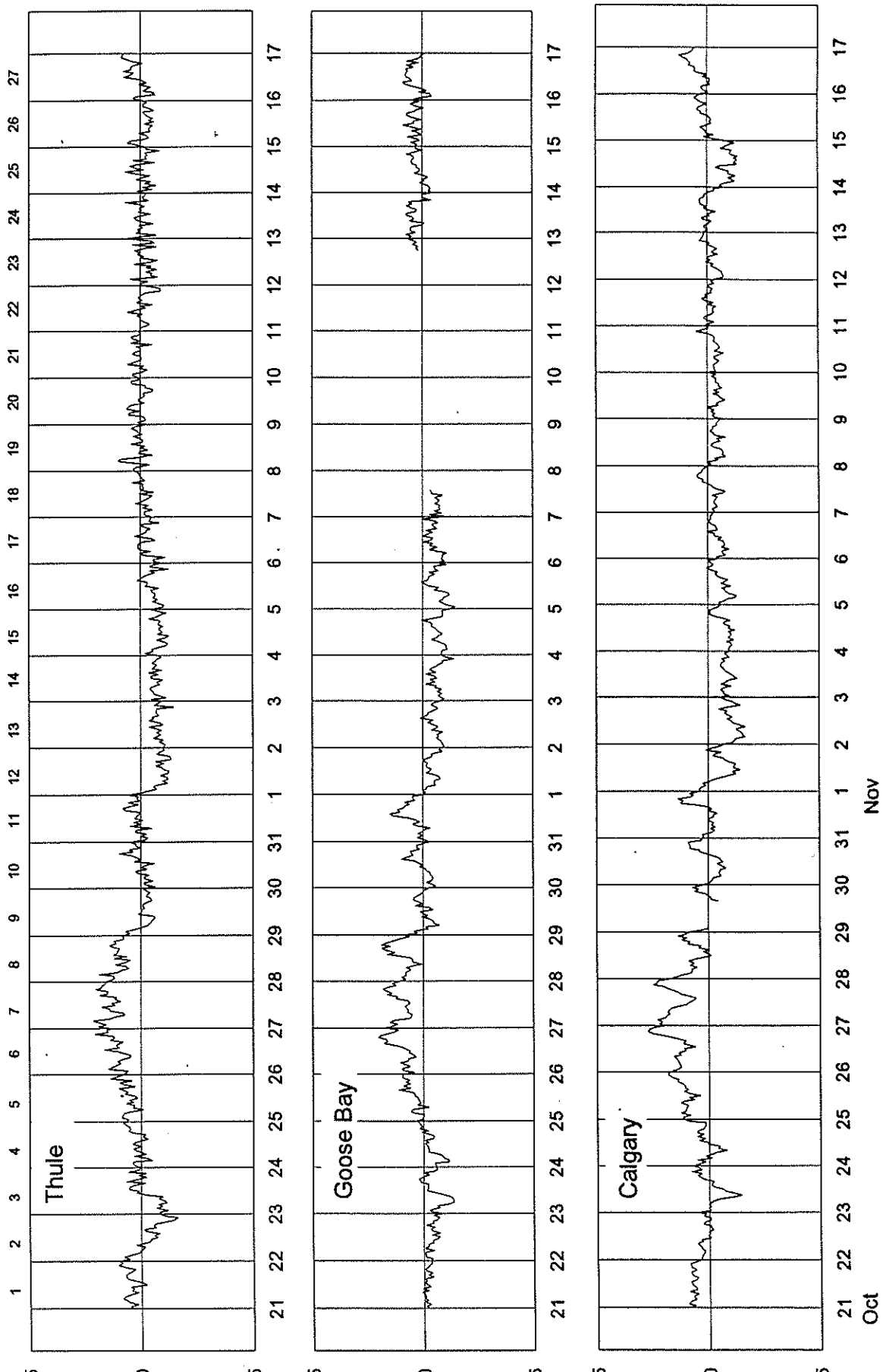
[3] E NOISE STORM IN PROGRESS AT THE BEGINNING OF THE NANÇAY OBSERVATIONS
D NOISE STORM IN PROGRESS AT THE END OF THE NANÇAY OBSERVATIONS

# COSMIC RAY INDICES
## (Neutron Monitor)
## NOVEMBER 1996

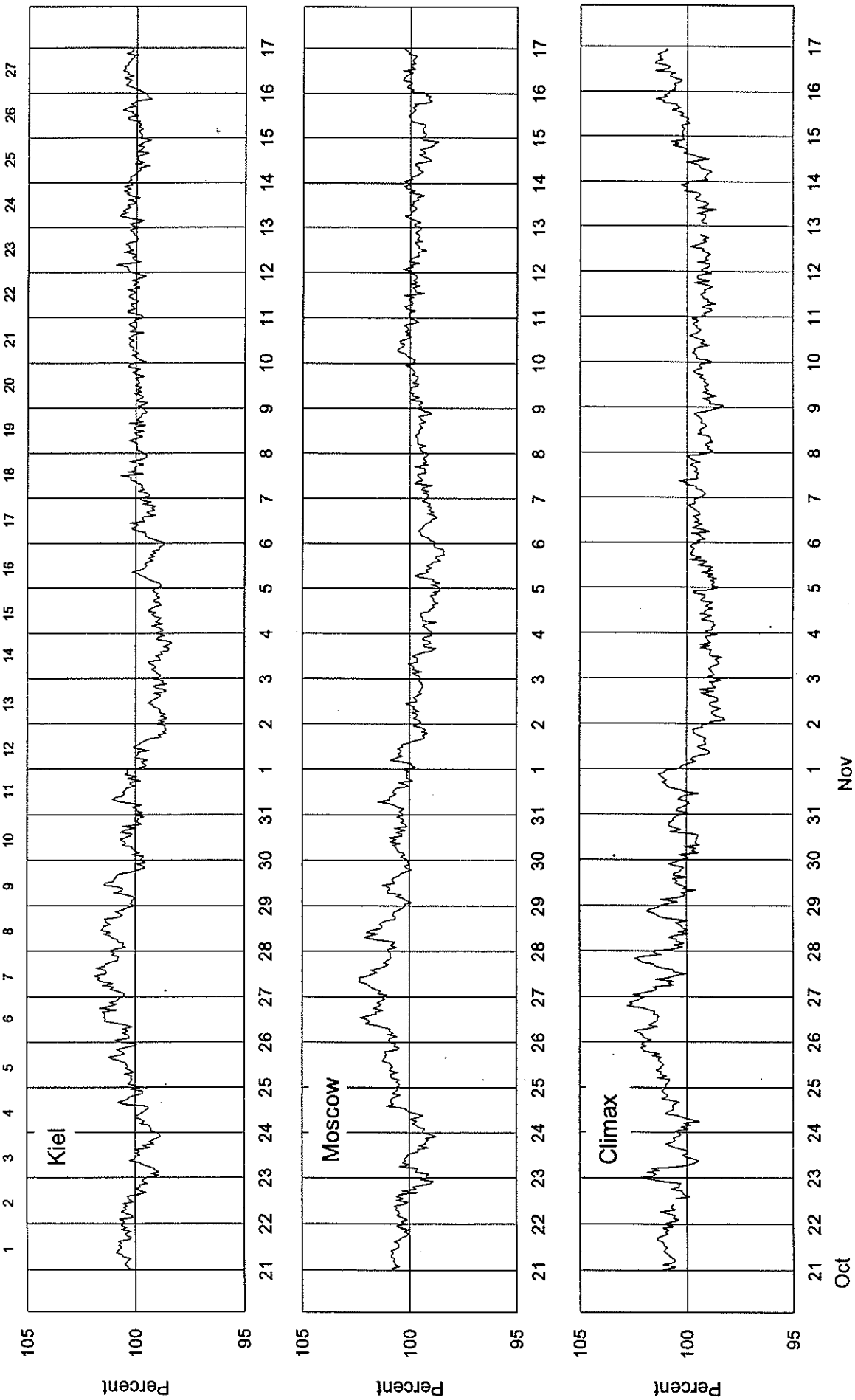
| Day | THULE Average (cts/h)/100 | GOOSE BAY Average (cts/h)/100 | CALGARY Average (cts/h)/300 | KIEL Average (cts/h)/100 | MOSCOW Average (cts/h)/64 | CLIMAX Average (cts/h)/100 | BEIJING Average (cts/h)/256 | HALEAKALA Average (cts/h)/1000 |
|---|---|---|---|---|---|---|---|---|
| 1 | 4459 | 7275.8 | 3935.0 | 6212.6 | 9182.6 | 4155.0 | 2015.5 | 3538.9 |
| 2 | 4462 | 7261.9 | 3909.7 | 6178.9 | 9152.1 | 4122.7 | 2014.6 | 3542.3 |
| 3 | 4467 | 7253.2 | 3923.2 | 6176.8 | 9136.7 | 4128.6 | 2008.5 | 3537.4 |
| 4 | 4460 | 7249.1 | 3924.0 | 6186.7 | 9097.7 | 4139.4 | 2007.4 | 3544.7 |
| 5 | 4474 | 7250.8 | 3931.5 | 6203.3 | 9082.2 | 4144.1 | 2015.1 | 3545.9 |
| 6 | 4484 | 7264.1 | 3937.3 | 6215.0 | 9106.7 | 4156.2 | 2019.8 | 3549.9 |
| 7 | 4491 | 7254.6 (15) | 3949.2 | 6238.4 | 9125.1 | 4159.5 | 2020.5 | 3552.8 |
| 8 | 4503 | --- | 3939.0 | 6238.1 | 9135.1 | 4141.8 | 2023.7 | 3538.1 |
| 9 | 4499 | --- | 3938.2 | 6239.7 | 9163.3 | 4140.0 | 2025.4 | 3536.6 |
| 10 | 4502 | --- | 3942.7 | 6252.0 | 9195.7 | 4155.4 | 2025.4 | 3542.2 |
| 11 | 4491 | --- | 3950.3 | 6249.4 | 9173.1 | 4140.2 | 2016.6 (7) | 3546.3 |
| 12 | 4487 | 7323.5 (6) | 3945.3 | 6260.2 | 9160.0 | 4144.4 | 2023.3 | 3546.4 |
| 13 | 4497 | 7329.0 | 3956.3 | 6264.0 | 9169.8 | 4153.5 | 2025.1 | 3534.4 (24) |
| 14 | 4492 | 7310.0 | 3915.5 | 6239.0 | 9134.7 | 4164.3 | 2031.6 | 3534.8 |
| 15 | 4488 | 7327.0 | 3957.7 | 6244.2 | 9142.6 | 4194.2 | 2033.4 | 3541.5 |
| 16 | 4505 | 7329.1 | 3971.5 | 6263.7 | 9181.9 | 4214.3 | 2034.8 | 3544.2 |
| 17 | 4511 | 7332.5 | 3988.3 | 6304.0 | 9207.7 | 4207.9 | 2036.9 | 3543.0 |
| 18 | 4499 | 7333.8 | 3981.3 | 6315.2 | 9219.2 | 4192.5 | 2035.5 | 3553.3 |
| 19 | 4495 | 7343.9 | 3976.7 | 6331.5 | 9211.0 | 4193.8 | 2034.0 | 3557.7 |
| 20 | 4522 | 7312.0 | 3967.5 | 6362.7 | 9232.8 | 4206.9 | 2032.8 | 3562.0 |
| 21 | 4524 | 7341.0 | 3975.8 | 6364.6 | 9268.5 | 4211.5 | 2033.9 | 3571.5 |
| 22 | 4565 | 7374.7 | 3985.8 | 6351.4 | 9263.7 | 4234.5 | 2034.8 | 3571.7 |
| 23 | 4588 | 7413.0 | 4004.7 | 6382.2 | 9316.5 | 4259.9 | 2036.5 | 3576.5 |
| 24 | 4602 | 7450.0 | 4015.3 | 6381.7 | 9336.3 | 4253.6 | 2033.8 | 3584.0 |
| 25 | 4564 | 7394.1 | 3988.3 | 6366.7 | 9302.4 | 4225.9 | 2022.7 | 3574.2 |
| 26 | 4547 | 7359.0 | 3965.2 | 6280.4 | 9267.0 | 4200.6 | 2023.9 | 3567.0 |
| 27 | 4521 | 7339.0 | 3936.7 | 6307.0 | 9238.0 | 4196.2 | 2030.8 | 3569.0 |
| 28 | 4527 | 7348.1 | 3944.7 | 6317.2 | 9229.2 | 4200.2 | --- | 3568.2 |
| 29 | 4519 | 7322.5 | 3925.0 | 6306.7 | 9206.5 | 4197.1 | 2029.8 | 3548.1 |
| 30 | 4493 | 7294.8 | 3908.0 | 6273.5 | 9119.2 | 4177.1 | 2026.3 | 3545.5 |
| Mean | 4508 | 7322.5 | 3953.0 | 6276.9 | 9191.9 | 4180.4 | 2025.9 | 3522.1 |

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.

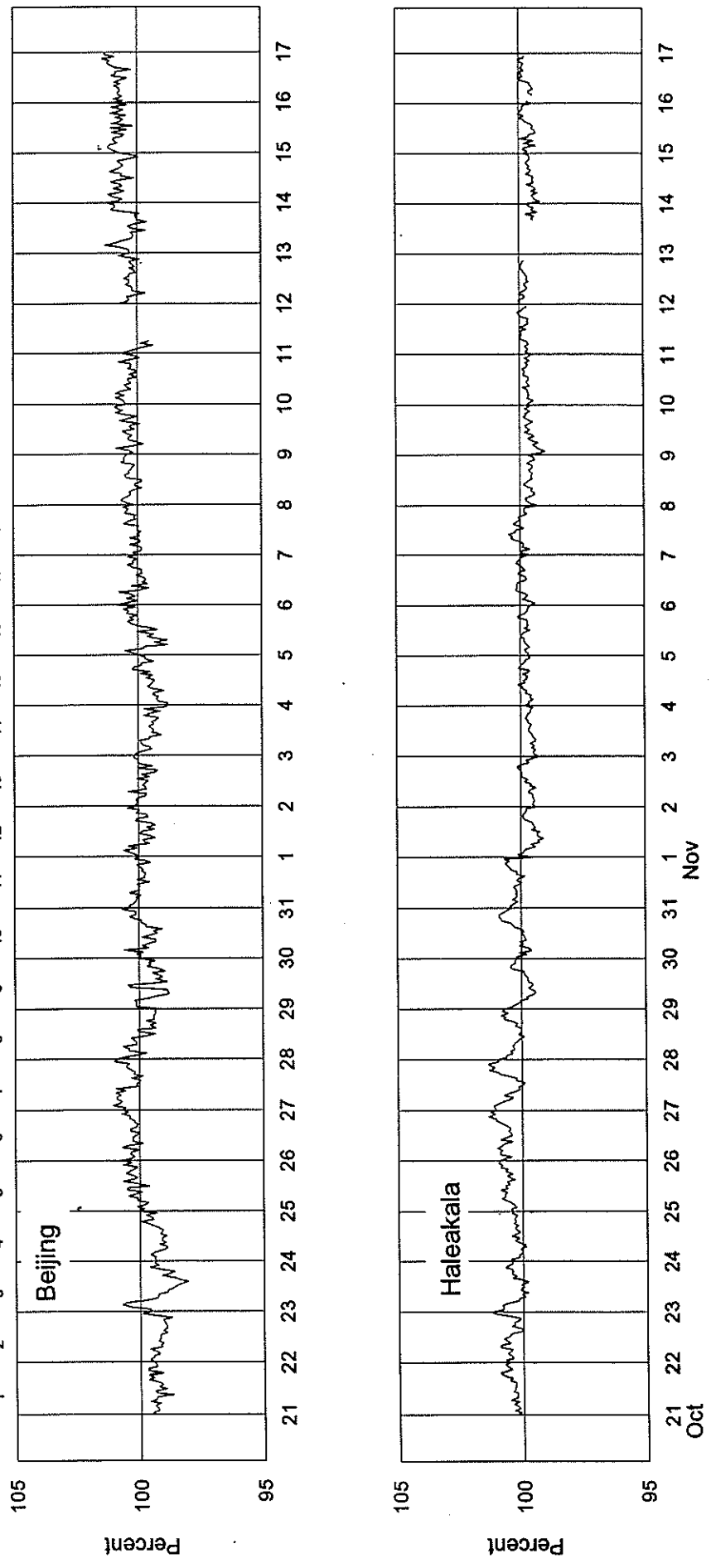
# COSMIC RAY INDICES
## (Neutron Monitor)
Bartels Rotation 2229 - Beginning 21 Oct 96



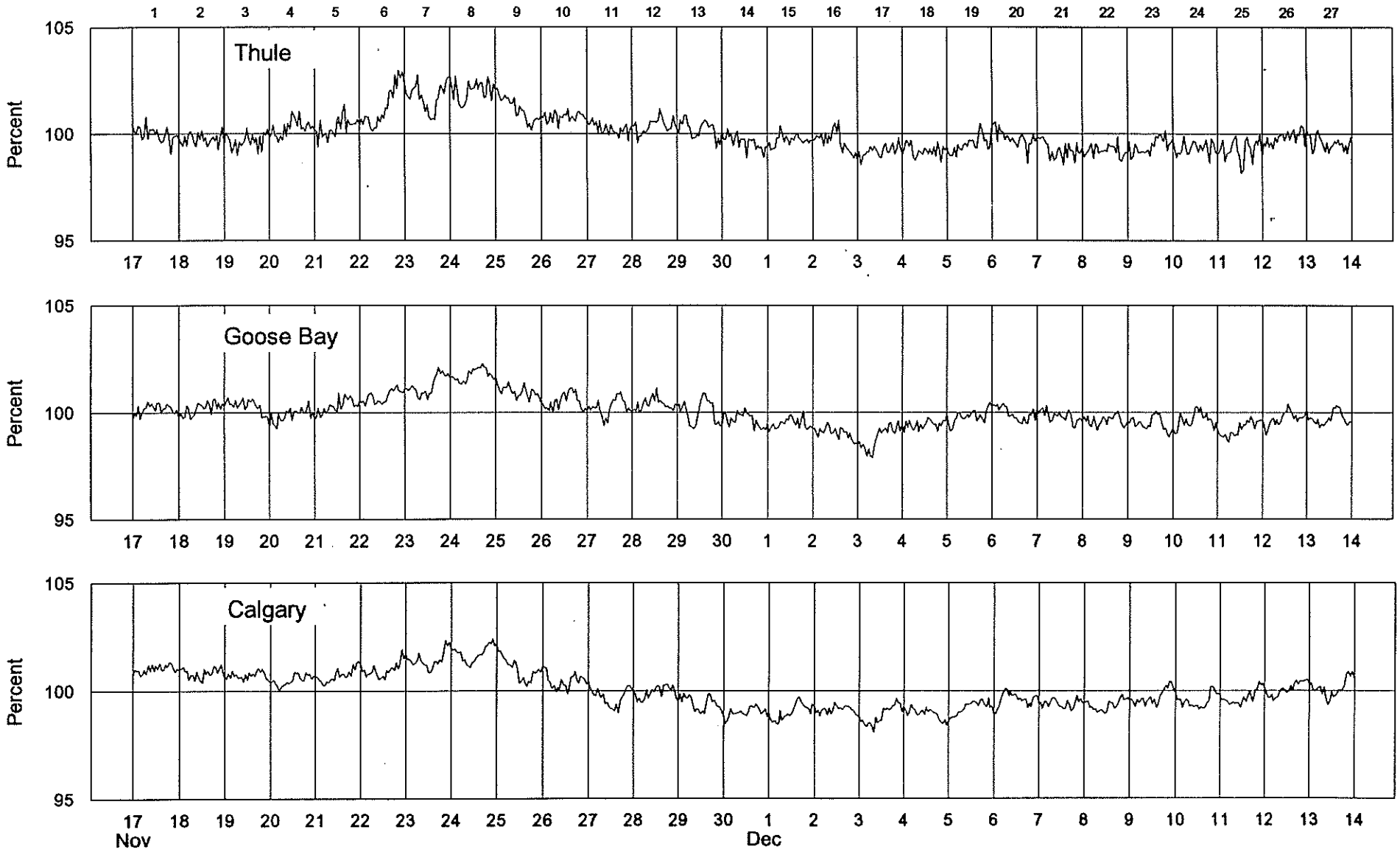
# COSMIC RAY INDICES
## (Neutron Monitor)
Bartels Rotation 2229 - Beginning 21 Oct 96



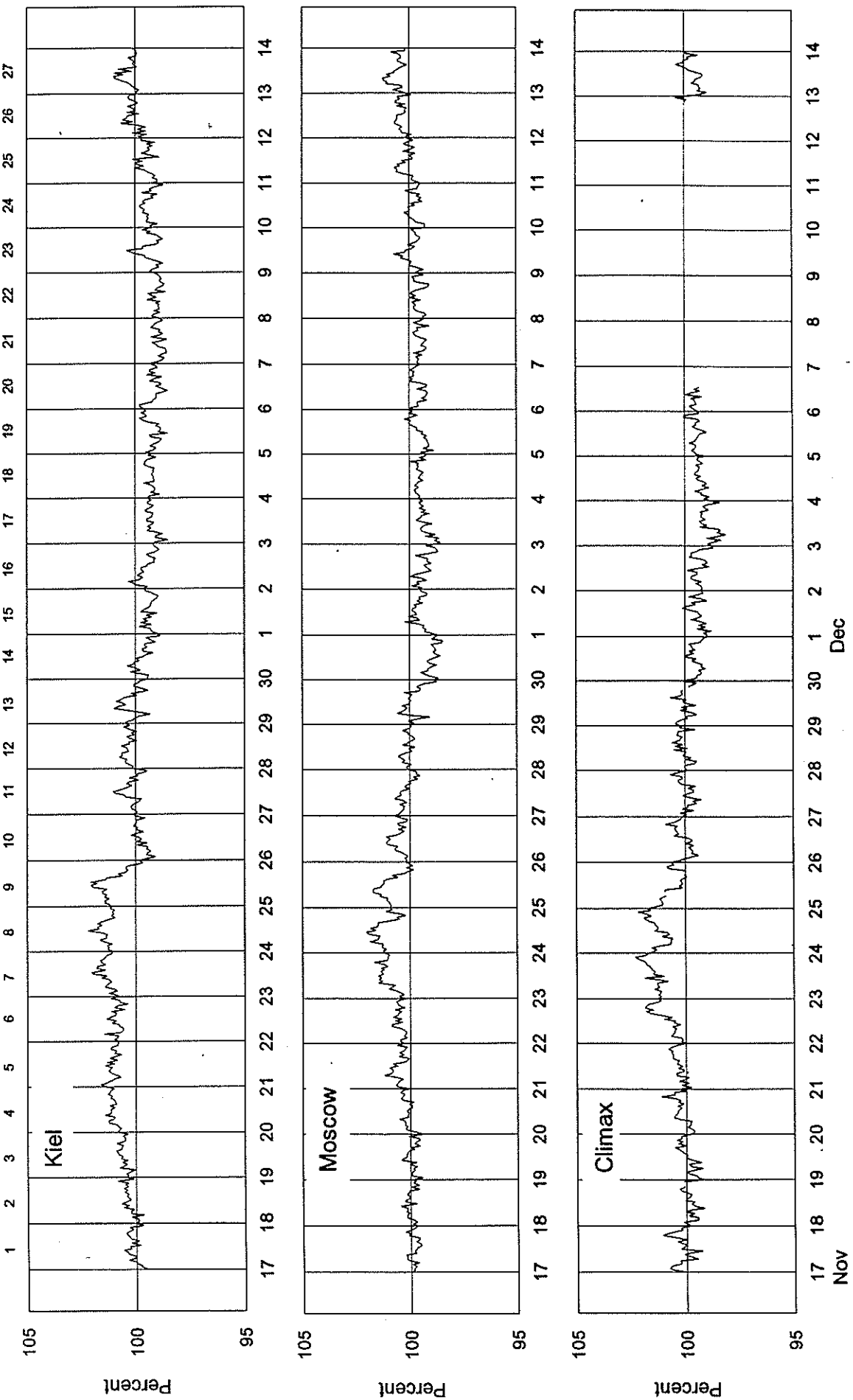
# COSMIC RAY INDICES
## (Neutron Monitor)
Bartels Rotation 2229 - Beginning 21 Oct 96



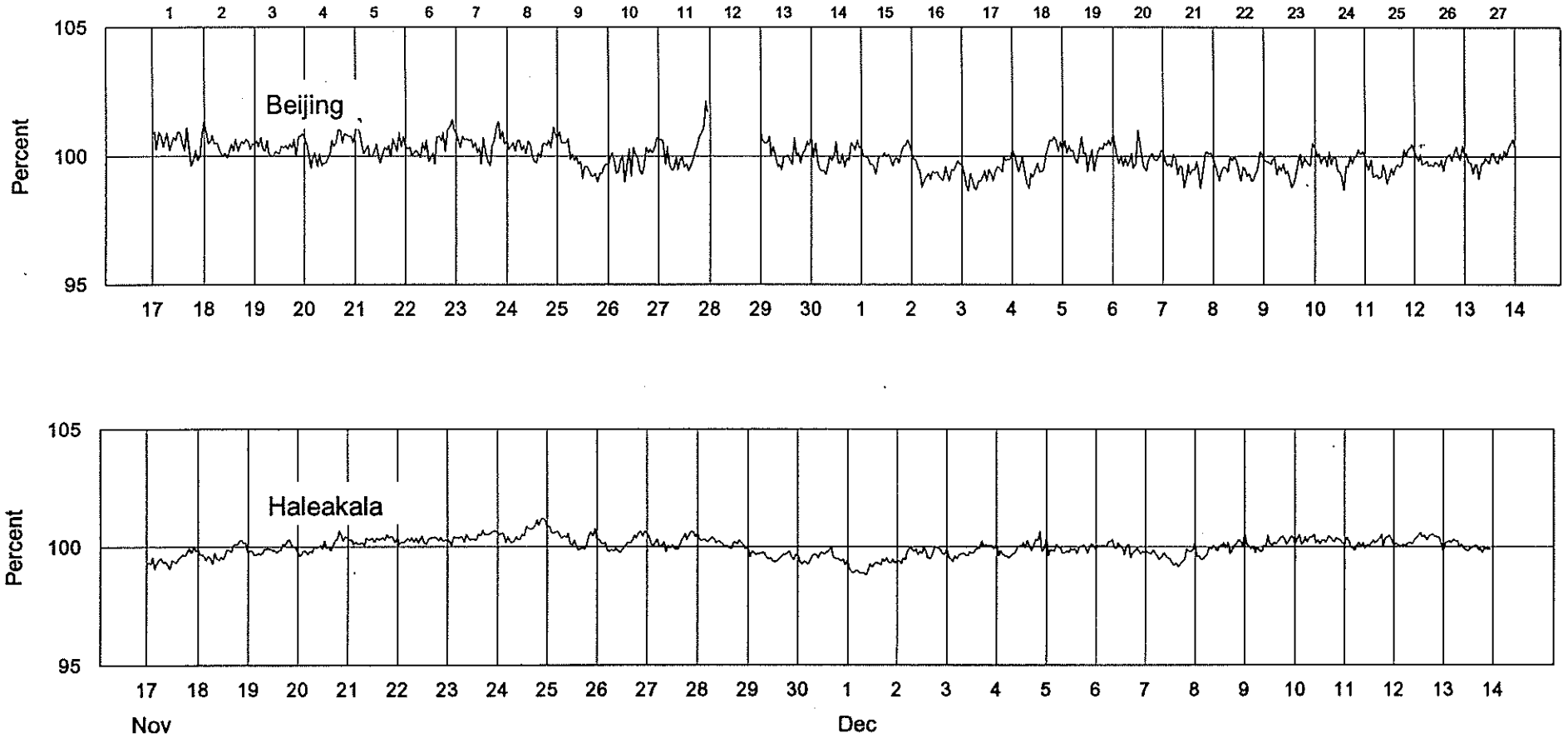
# COSMIC RAY INDICES
## (Neutron Monitor)
Bartels Rotation 2230 - Beginning 17 Nov 96



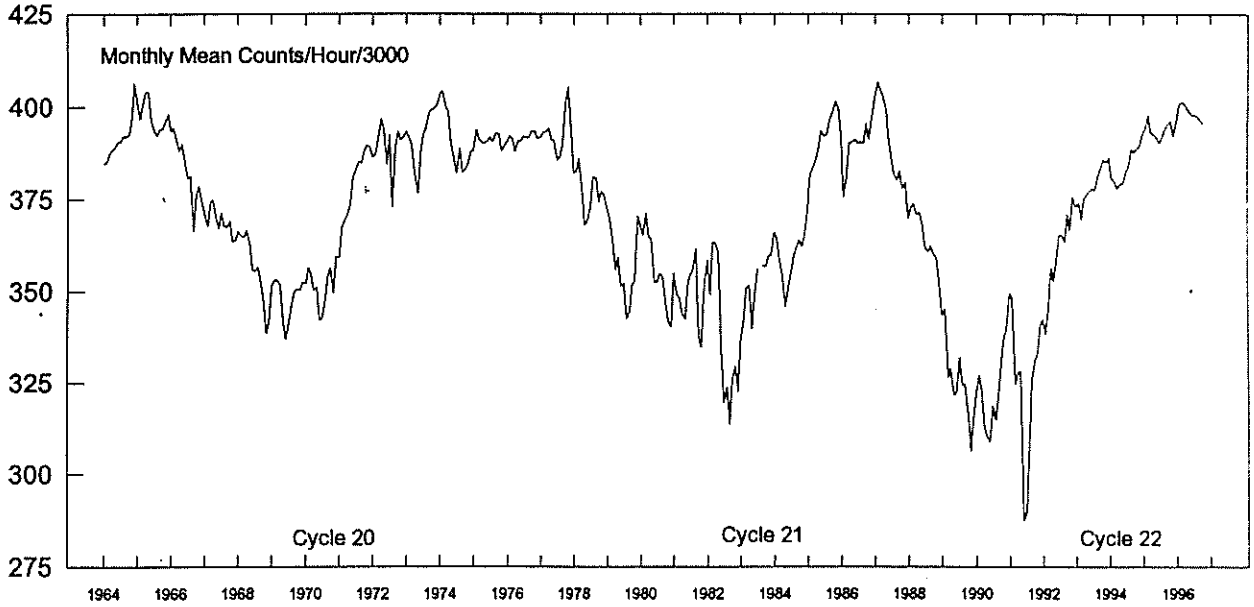
# COSMIC RAY INDICES
## (Neutron Monitor)
Bartels Rotation 2230 - Beginning 17 Nov 96



# COSMIC RAY INDICES
## (Neutron Monitor)
Bartels Rotation 2230 - Beginning 17 Nov 96



# Calgary Neutron Monitor Pressure-Corrected Values
# Jan 1964 - Nov 1996




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

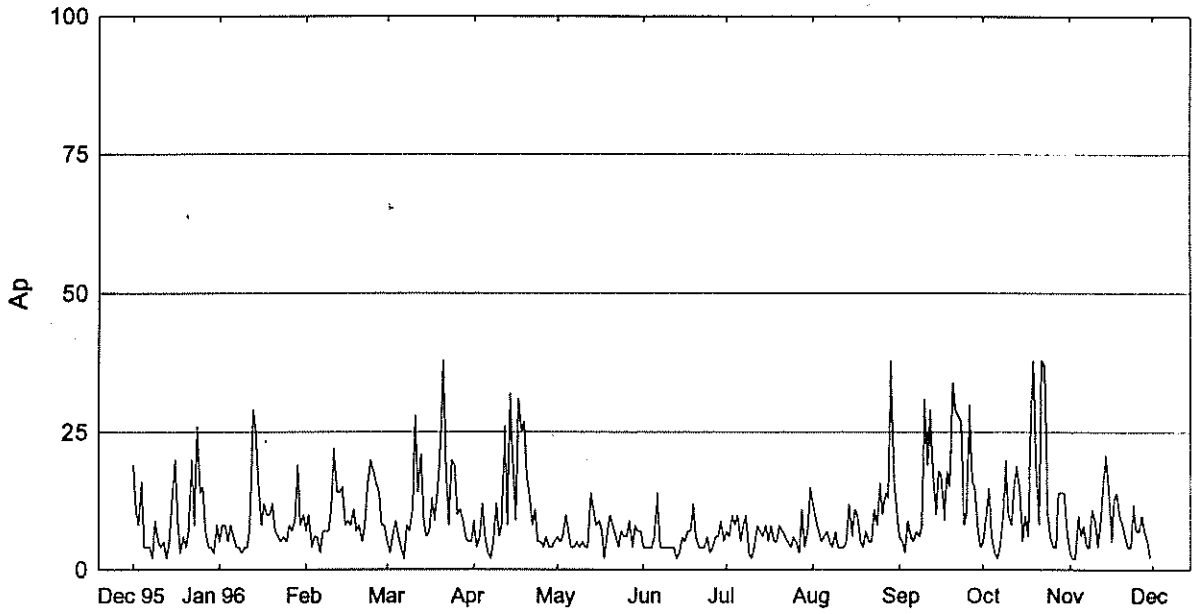
Multiply table entries by 300 to obtain hourly counting rate. Calgary, Canada: N51 W114, Alt=1128m, Cutoff Rigidity=1.09GV.

# Geomagnetic Activity Indices
## November 1996

| 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 | Q4 | 2- | 1- | 0+ | 0 | 1- | 1- | 0+ | 1- | 5 | 3 | 0.0 | 1+ | 1o | 1- | 1- | 1o | 1- | 0+ | 1o | 6 | 9 | 7 | 9 | 7 CC |
| 2 | Q2 | 1 | 1- | 1- | 0+ | 0 | 0+ | 0 | 0+ | 3+ | 2 | 0.0 | 1o | 1- | 1- | 1- | 0o | 0+ | 0+ | 0+ | 3 | 8 | 6 | 8 | 6 CC |
| 3 | Q3 | 0+ | 0 | 0 | 0 | 0 | 0+ | 1+ | 2- | 4- | 2 | 0.0 | 0+ | 0o | 0+ | 0+ | 0o | 0+ | 2- | 2+ | 5 | 9 | 5 | 5 | 9 CK |
| 4 | | 3- | 1+ | 2 | 3 | 3 | 2+ | 2 | 2+ | 19- | 10 | 0.6 | 3- | 2- | 3- | 3+ | 3+ | 2o | 2- | 2o | 21 | 25 | 23 | 24 | 25 |
| 5 | | 2 | 2+ | 2 | 1 | 1 | 2 | 2- | 2- | 14- | 6 | 0.3 | 1o | 2- | 2o | 1+ | 1+ | 2- | 2o | 2- | 12 | 15 | 9 | 11 | 13 C |
| 6 | | 3- | 3 | 2 | 2+ | 0+ | 1+ | 2- | 2+ | 16- | 8 | 0.4 | 2+ | 3- | 2o | 3- | 1- | 2- | 2- | 2o | 15 | 20 | 12 | 19 | 12 C |
| 7 | Q8 | 1 | 2 | 1+ | 1 | 0+ | 1+ | 1- | 1 | 9- | 4 | 0.1 | 1- | 2o | 2- | 1o | 0+ | 2- | 1+ | 1+ | 9 | 10 | 7 | 8 | 9 CC |
| 8 | Q6 | 1- | 2 | 1 | 1+ | 1- | 1 | 1- | 0+ | 8- | 4 | 0.1 | 1- | 1+ | 1+ | 2- | 1o | 1o | 1+ | 0+ | 8 | 8 | 9 | 10 | 7 CC |
| 9 | | 1- | 3- | 2 | 3- | 3 | 2 | 4- | 2+ | 19 | 11 | 0.6 | 1+ | 2+ | 2+ | 3o | 3o | 2+ | 3+ | 3- | 22 | 26 | 18 | 17 | 27 |
| 10 | | 4- | 3- | 2- | 2 | 2 | 2 | 2- | 1- | 16+ | 9 | 0.5 | 3- | 2+ | 2- | 2+ | 2+ | 2+ | 2o | 1- | 16 | 20 | 15 | 20 | 15 |
| 11 | Q7 | 1- | 1- | 1- | 1- | 0+ | 2- | 2 | 1 | 8- | 4 | 0.1 | 0+ | 0+ | 1- | 1+ | 0+ | 2o | 2- | 1o | 7 | 9 | 7 | 6 | 10 CK |
| 12 | | 3+ | 2+ | 3 | 2 | 2- | 1 | 0+ | 2- | 15+ | 8 | 0.5 | 3- | 2- | 3- | 2o | 2+ | 2o | 0+ | 2- | 15 | 21 | 13 | 21 | 13 |
| 13 | D2* | 1+ | 2+ | 1 | 2 | 2 | 3 | 5 | 4+ | 21 | 16 | 0.9 | 1+ | 2o | 1+ | 3- | 3- | 3o | 4+ | 4o | 28 | 33 | 30 | 14 | 49 |
| 14 | D1 | 5+ | 2+ | 2- | 3+ | 3+ | 3+ | 4 | 3 | 26+ | 21 | 1.1 | 4o | 2+ | 2- | 3+ | 3o | 3o | 4- | 3- | 31 | 48 | 30 | 38 | 40 |
| 15 | D3* | 3 | 2+ | 2+ | 4- | 4 | 4- | 2+ | 1 | 22+ | 15 | 0.8 | 2+ | 2o | 2+ | 3+ | 4- | 3+ | 2+ | 1- | 25 | 36 | 27 | 27 | 35 |
| 16 | Q9 | 1 | 1+ | 1+ | 1+ | 1+ | 1 | 1 | 1+ | 10- | 5 | 0.2 | 1+ | 1o | 1+ | 1+ | 2- | 1o | 1+ | 1+ | 9 | 10 | 8 | 8 | 10 C |
| 17 | D5* | 2 | 2 | 3- | 3- | 1+ | 1+ | 4 | 4 | 20 | 13 | 0.7 | 1+ | 2- | 2+ | 3o | 1+ | 2- | 4- | 4- | 23 | 32 | 19 | 17 | 34 |
| 18 | D4* | 4- | 4 | 3- | 3- | 3 | 3- | 2+ | 1+ | 22+ | 14 | 0.8 | 3+ | 3o | 3o | 3o | 3- | 3- | 2o | 1o | 25 | 27 | 22 | 24 | 25 |
| 19 | | 3 | 3 | 2 | 2- | 2 | 2- | 2- | 3 | 18 | 10 | 0.5 | 3- | 3- | 2o | 2- | 2o | 2- | 2o | 3- | 17 | 21 | 13 | 18 | 16 |
| 20 | | 2 | 2- | 2- | 2- | 1- | 2 | 3- | 3+ | 16- | 8 | 0.4 | 2- | 1+ | 2- | 2- | 1+ | 2- | 3- | 3- | 14 | 16 | 12 | 9 | 19 |
| 21 | | 3 | 2+ | 1 | 1- | 0+ | 1 | 1 | 1+ | 11- | 6 | 0.3 | 3- | 2o | 1+ | 0+ | 1- | 1o | 1- | 2- | 10 | 13 | 8 | 12 | 9 CK |
| 22 | Q10 | 2 | 1 | 1+ | 1 | 1+ | 1+ | 0+ | 0+ | 9- | 4 | 0.1 | 1+ | 1o | 1o | 1o | 2- | 1+ | 1- | 1- | 7 | 11 | 9 | 9 | 11 CC |
| 23 | Q5 | 0+ | 1+ | 1+ | 1 | 0+ | 1- | 2- | 1 | 8- | 4 | 0.1 | 0+ | 1o | 1+ | 1o | 1o | 1o | 1+ | 1+ | 7 | 9 | 8 | 7 | 10 CC |
| 24 | | 0+ | 1- | 2- | 3- | 3- | 3- | 2- | 5- | 17 | 12 | 0.7 | 1- | 1- | 2o | 3o | 3- | 3- | 2o | 4o | 22 | 25 | 25 | 12 | 38 |
| 25 | | 3- | 3- | 2+ | 2 | 1 | 1 | 1 | 1 | 14- | 7 | 0.4 | 2+ | 2+ | 2o | 2o | 2- | 1+ | 1+ | 1+ | 13 | 15 | 15 | 20 | 10 |
| 26 | | 2 | 1+ | 1- | 1+ | 3- | 2+ | 1+ | 2 | 14- | 7 | 0.3 | 2o | 1+ | 1o | 2o | 3- | 2+ | 2- | 2+ | 15 | 14 | 18 | 14 | 18 |
| 27 | | 4 | 4- | 2+ | 2 | 1+ | 1- | 1- | 1+ | 16 | 10 | 0.6 | 3+ | 3o | 2- | 2+ | 2- | 1o | 1o | 1+ | 17 | 19 | 22 | 31 | 10 |
| 28 | | 3- | 3 | 1 | 2 | 2- | 2 | 1+ | 1- | 14+ | 7 | 0.4 | 2+ | 2+ | 1+ | 2+ | 2o | 2o | 1+ | 1- | 13 | 18 | 13 | 18 | 13 C |
| 29 | | 1- | 1 | 0+ | 1- | 2- | 2+ | 2 | 2- | 10+ | 5 | 0.2 | 1- | 1- | 1- | 1+ | 2o | 2+ | 2+ | 2+ | 12 | 14 | 14 | 8 | 20 C |
| 30 | Q1 | 1- | 0+ | 1- | 0 | 0 | 0+ | 0 | 1- | 3- | 2 | 0.0 | 1- | 0+ | 1o | 0+ | 0o | 0+ | 0+ | 1- | 4 | 6 | 5 | 7 | 4 CC |
| Mean | | | | | | | | | | | 8 | 0.39 | | | | | | | | | 14.4 | 18.2 | 14.4 | | 16.3 |

| 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 | 1+ | 1+ | 0+ | 0o | 1- | 1o | 0+ | 1- | 5 | 2- | 1o | 1o | 1o | 1o | 1- | 1- | 1o | 7 | 68.5 | 0 | 0 | 12 | |
| 2 | 1- | 0+ | 0+ | 0+ | 0o | 0+ | 0+ | 0o | 2 | 1o | 1o | 1- | 1o | 0o | 0+ | 0+ | 1- | 4 | 67.9 | 0 | 0 | 11 | |
| 3 | 0o | 0o | 0o | 0o | 0o | 1- | 2- | 2+ | 5 | 1- | 0o | 0+ | 1- | 0o | 0+ | 2- | 2+ | 6 | 68.3 | 0 | 0 | 12 | |
| 4 | 3- | 2- | 3o | 3o | 3+ | 2+ | 2o | 2+ | 23 | 3- | 2- | 2o | 3+ | 3+ | 2- | 1+ | 2o | 20 | 67.8 | 0 | 0 | 11 | |
| 5 | 1+ | 2o | 2+ | 2- | 1+ | 2o | 2o | 1+ | 13 | 1- | 1+ | 2- | 1+ | 1+ | 2- | 2+ | 2o | 11 | 67.1 | 0 | 0 | 10 | |
| 6 | 2+ | 3- | 3- | 3- | 1- | 1+ | 1+ | 2+ | 16 | 3- | 3- | 2- | 3- | 1- | 2o | 2- | 2o | 15 | 68.0 | 0 | 0 | 11 | |
| 7 | 1- | 2o | 2o | 1+ | 1- | 2- | 1o | 1o | 9 | 1- | 2- | 1+ | 1- | 0+ | 2- | 1+ | 1+ | 8 | 67.3 | 0 | 0 | 11 | |
| 8 | 1- | 1+ | 1+ | 2- | 1+ | 1o | 1+ | 0+ | 8 | 1o | 2- | 1o | 1+ | 1o | 1o | 2- | 0+ | 8 | 67.8 | 0 | 0 | 11 | |
| 9 | 1- | 2+ | 2- | 3+ | 3o | 2o | 3+ | 3- | 23 | 1+ | 2+ | 2+ | 3- | 3- | 3- | 3o | 3- | 21 | 68.9 | 8 | 6 | 12 | |
| 10 | 3o | 2+ | 2- | 3- | 2+ | 2+ | 2- | 0+ | 17 | 3- | 3- | 2- | 2o | 2o | 2o | 2+ | 1o | 16 | 69.6 | 12 | 13 | 13 | |
| 11 | 0+ | 0+ | 0+ | 1+ | 0+ | 2+ | 2- | 1- | 7 | 0+ | 0+ | 1o | 1o | 0+ | 2- | 2- | 1+ | 7 | 70.0 | 14 | 14 | 14 | |
| 12 | 3- | 2- | 3- | 2o | 2+ | 2o | 0+ | 2- | 15 | 2+ | 2- | 3- | 2o | 2o | 2- | 1- | 1+ | 15 | 70.7 | 11 | 9 | 14 | |
| 13 | 1+ | 2o | 1o | 3- | 2+ | 3o | 4+ | 4- | 27 | 1o | 2o | 1+ | 3- | 3o | 3o | 4+ | 4o | 30 | 71.5 | 11 | 9 | 15 | |
| 14 | 4o | 2- | 1+ | 3+ | 3+ | 3o | 4o | 3- | 32 | 4- | 3- | 2o | 3+ | 3o | 3o | 3+ | 2o | 30 | 72.1 | 0 | 12 | 16 | |
| 15 | 2+ | 2- | 2- | 4- | 4o | 4- | 2+ | 1- | 26 | 3- | 2o | 3- | 3o | 4- | 3o | 2+ | 1o | 23 | 71.9 | 20 | 18 | 16 | |
| 16 | 1+ | 1o | 2- | 2- | 2o | 1o | 1+ | 1+ | 10 | 1o | 1o | 1o | 1o | 2- | 1+ | 1+ | 1+ | 8 | 72.2 | 40 | 31 | 16 | |
| 17 | 2- | 1+ | 2+ | 3o | 1+ | 2- | 4o | 3+ | 23 | 1+ | 2- | 2o | 3- | 2- | 2- | 4- | 4- | 23 | 70.4 | 27 | 22 | 14 | |
| 18 | 3+ | 3+ | 3- | 3o | 3- | 3- | 2+ | 1- | 26 | 3o | 3- | 3+ | 3- | 3- | 3o | 2- | 1o | 23 | 72.4 | 9 | 13 | 16 | |
| 19 | 3- | 3o | 2+ | 2- | 2o | 2- | 1+ | 2+ | 17 | 3- | 2o | 2- | 2- | 2o | 2- | 2+ | 3- | 16 | 72.6 | 10 | 9 | 16 | |
| 20 | 1+ | 1+ | 2- | 2- | 1o | 2- | 3- | 3- | 13 | 2- | 1+ | 1+ | 2- | 1+ | 2- | 3o | 3o | 15 | 72.7 | 9 | 9 | 17 | |
| 21 | 3- | 2- | 1+ | 0+ | 1- | 1o | 0+ | 1+ | 8 | 2+ | 2o | 1+ | 1- | 1o | 1o | 1o | 2+ | 11 | 72.6 | 18 | 15 | 16 | |
| 22 | 1+ | 0+ | 1- | 1o | 2- | 2- | 0+ | 0+ | 6 | 1+ | 1+ | 1+ | 1o | 1+ | 1+ | 1- | 1o | 8 | 80.6 | 26 | 22 | 25 | |
| 23 | 0o | 1- | 1+ | 1o | 1+ | 1o | 1+ | 1- | 6 | 1- | 1+ | 1o | 1o | 1o | 1o | 1+ | 2o | 8 | 88.7 | 44 | 36 | 34 | |
| 24 | 1- | 0+ | 2+ | 3- | 3- | 3- | 2- | 4+ | 21 | 1o | 1o | 2- | 3o | 3- | 3o | 2+ | 4- | 21 | 97.3 | 45 | 40 | 43 | |
| 25 | 2+ | 2o | 2o | 2o | 1+ | 1+ | 1o | 1o | 12 | 3- | 3- | 2o | 2o | 2- | 1+ | 1+ | 2- | 14 | 101.7 | 57 | 50 | 48 | |
| 26 | 1+ | 1+ | 1- | 1+ | 3- | 2+ | 2- | 2- | 13 | 3- | 1+ | 1o | 2+ | 3o | 2+ | 1+ | 2+ | 16 | 100.8 | 57 | 50 | 47 | |
| 27 | 3o | 3o | 2o | 3- | 2- | 1o | 1- | 1o | 16 | 4- | 3+ | 2- | 2o | 2- | 1o | 1o | 2- | 18 | 100.0 | 48 | 36 | 46 | |
| 28 | 2+ | 2+ | 1- | 3- | 2- | 2o | 2- | 0+ | 13 | 2+ | 2o | 2- | 2o | 2o | 2o | 1+ | 1o | 13 | 95.4 | 34 | 26 | 41 | |
| 29 | 1- | 1- | 0+ | 1+ | 2+ | 2+ | 2+ | 2- | 11 | 1- | 1o | 1o | 2- | 2- | 2+ | 2+ | 2+ | 13 | 88.5 | 34 | 23 | 34 | |
| 30 | 1- | 0o | 1o | 0+ | 0o | 0+ | 0o | 0+ | 3 | 1- | 1o | 1o | 1- | 0o | 0+ | 0+ | 1o | 4 | 85.1 | 25 | 20 | 30 | |
| Mean | | | | | | | | | 14.2 | | | | | | | | | 14.4 | 76.9 | 18.6 | 16.1 | 21.1 | |

# Daily Average Indices Ap
## Dec 1995 - Nov 1996

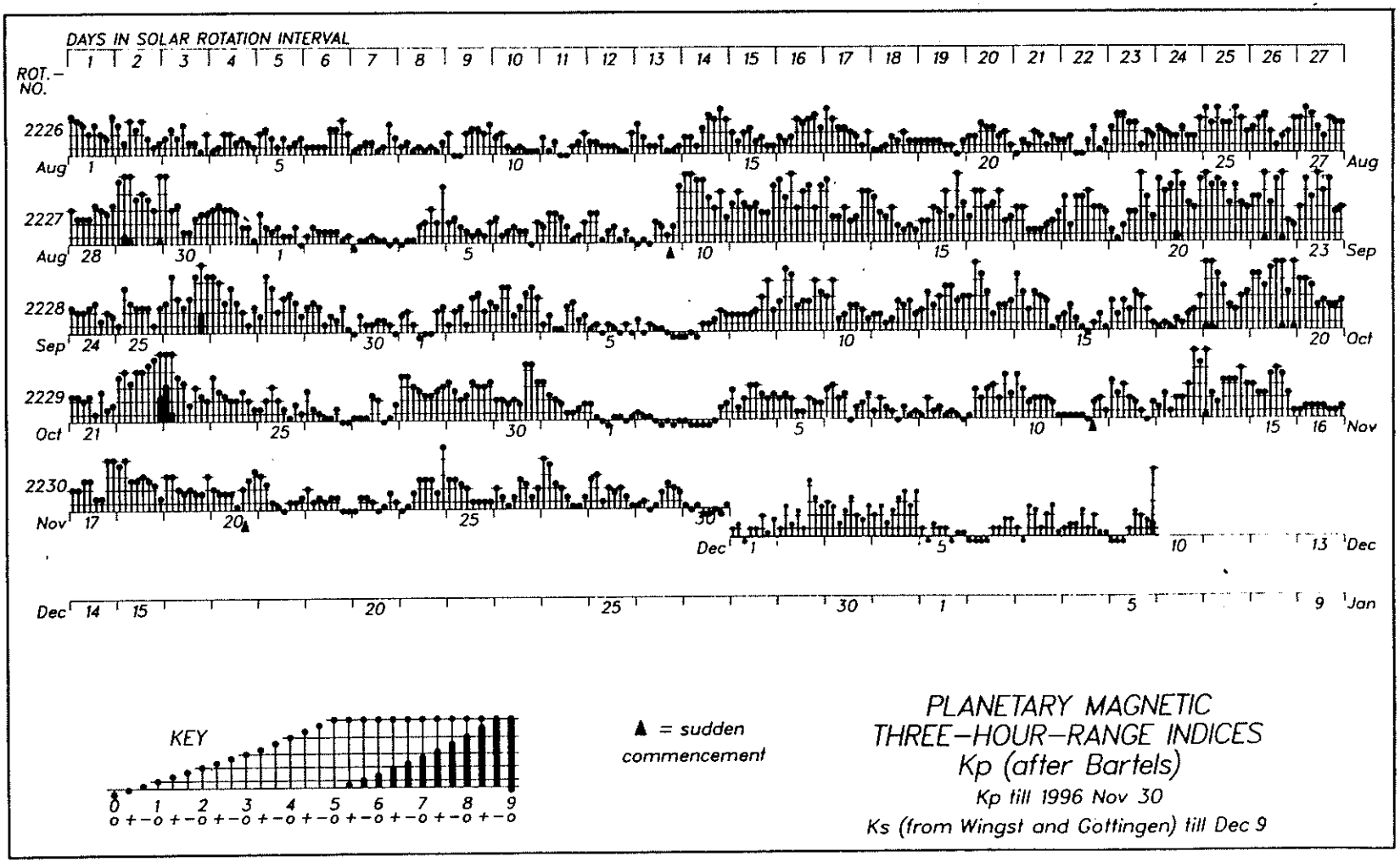



| Day | Dec 95 | Jan 96 | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 19 | 5 | 7 | 5 | 9 | 6 | 4 | 7 | 12 | 6 | 5 | 3 |
| 2 | 11 | 8 | 10 | 3 | 4 | 5 | 4 | 6 | 9 | 5 | 10 | 2 |
| 3 | 8 | 8 | 4 | 6 | 6 | 6 | 4 | 10 | 7 | 3 | 15 | 2 |
| 4 | 16 | 5 | 6 | 9 | 12 | 10 | 4 | 8 | 5 | 9 | 6 | 10 |
| 5 | 4 | 8 | 6 | 6 | 6 | 7 | 6 | 10 | 6 | 6 | 3 | 6 |
| 6 | 4 | 6 | 3 | 4 | 3 | 4 | 14 | 5 | 7 | 5 | 2 | 8 |
| 7 | 4 | 4 | 7 | 2 | 2 | 4 | 4 | 8 | 5 | 7 | 4 | 4 |
| 8 | 2 | 4 | 7 | 8 | 5 | 5 | 4 | 10 | 4 | 6 | 10 | 4 |
| 9 | 9 | 3 | 7 | 7 | 12 | 4 | 4 | 3 | 7 | 8 | 20 | 11 |
| 10 | 5 | 4 | 11 | 11 | 6 | 5 | 4 | 2 | 4 | 31 | 10 | 9 |
| 11 | 4 | 4 | 22 | 28 | 8 | 4 | 4 | 4 | 4 | 19 | 8 | 4 |
| 12 | 5 | 8 | 14 | 14 | 26 | 4 | 4 | 8 | 4 | 29 | 15 | 8 |
| 13 | 2 | 29 | 14 | 21 | 8 | 14 | 2 | 7 | 5 | 18 | 19 | 16 |
| 14 | 5 | 25 | 15 | 9 | 32 | 11 | 3 | 6 | 12 | 10 | 14 | 21 |
| 15 | 12 | 16 | 8 | 6 | 18 | 8 | 6 | 8 | 6 | 18 | 5 | 15 |
| 16 | 20 | 8 | 9 | 7 | 9 | 9 | 5 | 5 | 11 | 17 | 10 | 5 |
| 17 | 9 | 12 | 8 | 13 | 31 | 7 | 7 | 8 | 10 | 9 | 6 | 13 |
| 18 | 3 | 10 | 11 | 9 | 25 | 2 | 7 | 5 | 5 | 18 | 27 | 14 |
| 19 | 6 | 10 | 7 | 15 | 27 | 7 | 12 | 5 | 4 | 15 | 38 | 10 |
| 20 | 4 | 12 | 8 | 23 | 17 | 10 | 6 | 8 | 7 | 34 | 16 | 8 |
| 21 | 7 | 7 | 5 | 38 | 13 | 8 | 4 | 7 | 5 | 29 | 8 | 6 |
| 22 | 20 | 6 | 8 | 17 | 8 | 6 | 4 | 6 | 5 | 28 | 38 | 4 |
| 23 | 8 | 5 | 15 | 8 | 11 | 4 | 4 | 5 | 11 | 27 | 37 | 4 |
| 24 | 26 | 6 | 20 | 20 | 5 | 7 | 6 | 4 | 8 | 8 | 10 | 12 |
| 25 | 14 | 5 | 18 | 19 | 5 | 6 | 3 | 6 | 16 | 10 | 6 | 7 |
| 26 | 15 | 8 | 16 | 10 | 4 | 6 | 4 | 5 | 10 | 30 | 4 | 7 |
| 27 | 7 | 7 | 14 | 11 | 6 | 9 | 6 | 3 | 14 | 16 | 4 | 10 |
| 28 | 4 | 9 | 8 | 9 | 4 | 4 | 6 | 11 | 13 | 15 | 14 | 7 |
| 29 | 4 | 19 | 8 | 6 | 4 | 8 | 9 | 4 | 38 | 7 | 14 | 5 |
| 30 | 3 | 8 | | 5 | 5 | 7 | 5 | 7 | 16 | 4 | 14 | 2 |
| 31 | 8 | 10 | | 5 | | 7 | | 15 | 11 | | 7 | |
| Mean | 9 | 9 | 10 | 11 | 11 | 7 | 5 | 7 | 9 | 15 | 13 | 8 |

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

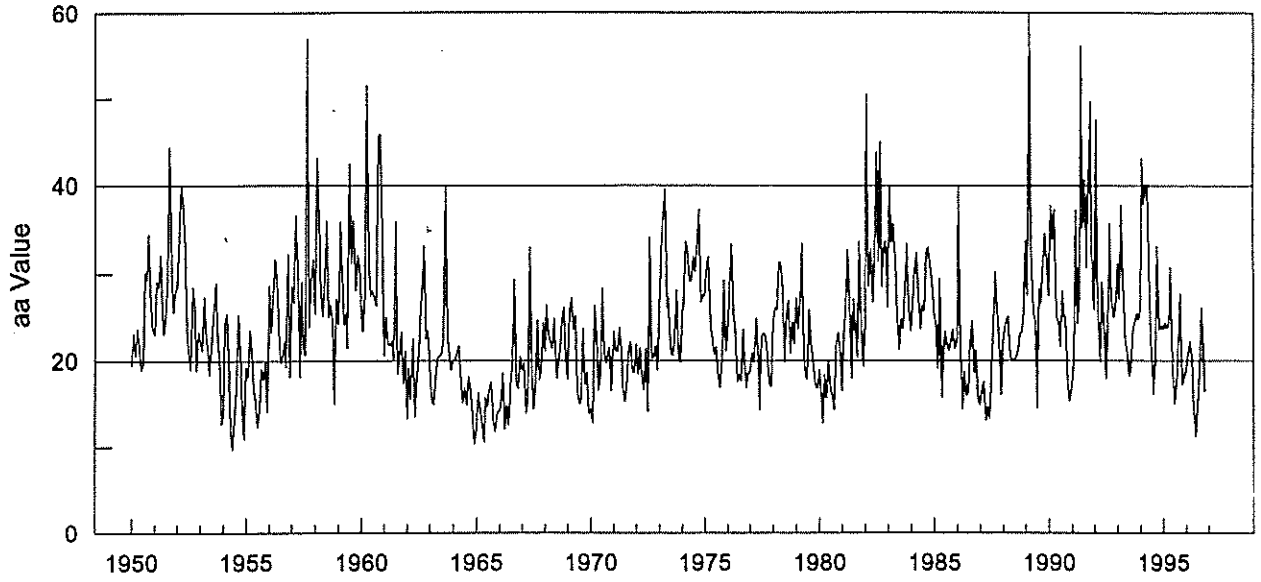
University of Gottingen

Kp through November 30, 1996




**Best Wishes for a Happy New Year** **Institut für Geophysik, Göttingen**

# Monthly Mean aa Index Jan 1950 - Nov 1996

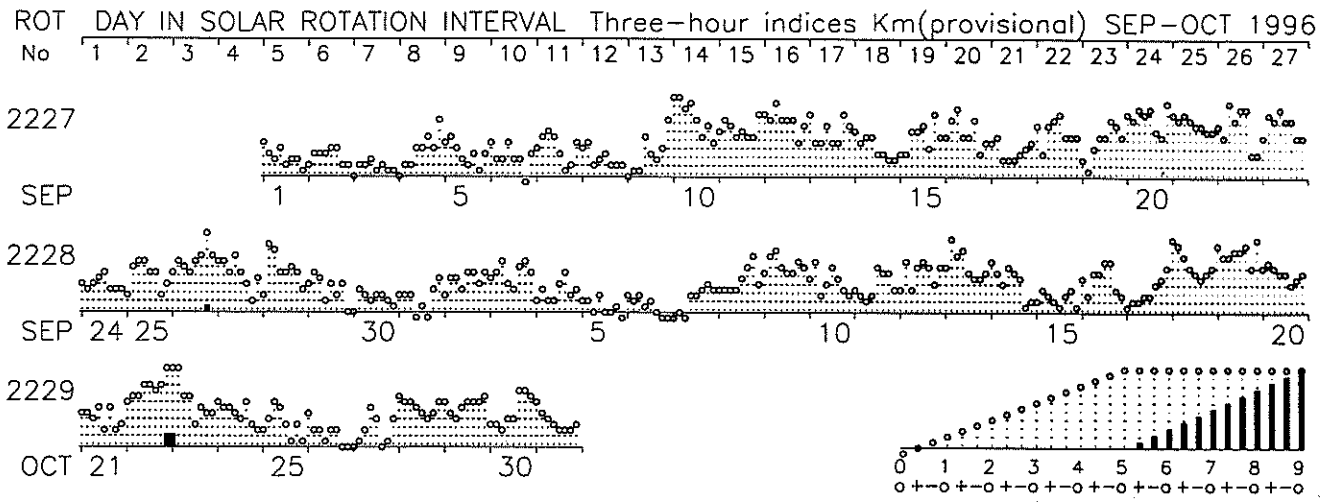



| Year | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1950 | 19.5 | 23.2 | 20.6 | 23.8 | 21.7 | 19.0 | 19.5 | 30.2 | 29.3 | 34.5 | 28.0 | 24.0 | 24.4 |
| 1951 | 23.1 | 29.2 | 28.5 | 32.1 | 25.5 | 23.2 | 25.2 | 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 | | 18.8 |

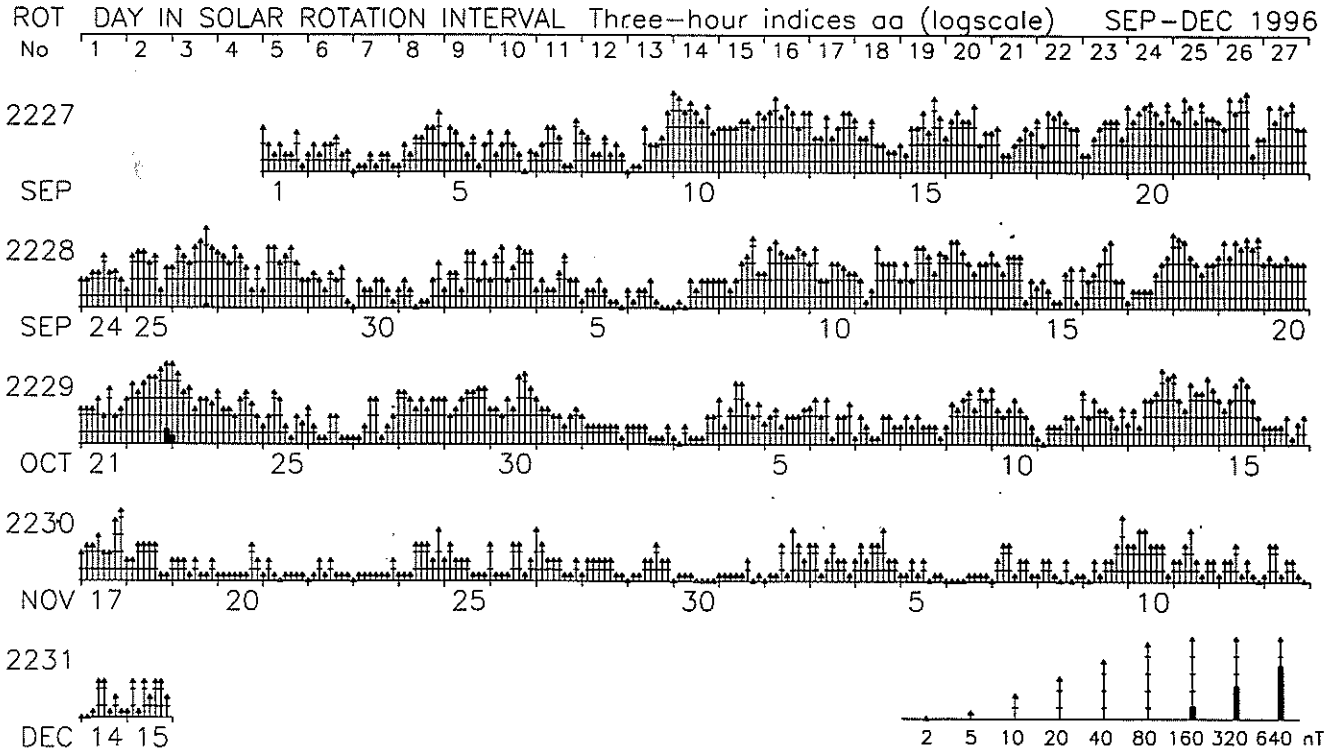
# PLANETARY GEOMAGNETIC ACTIVITY

## 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 Universite Paris Sud; Graph Prepared at ISGI Publication Office.



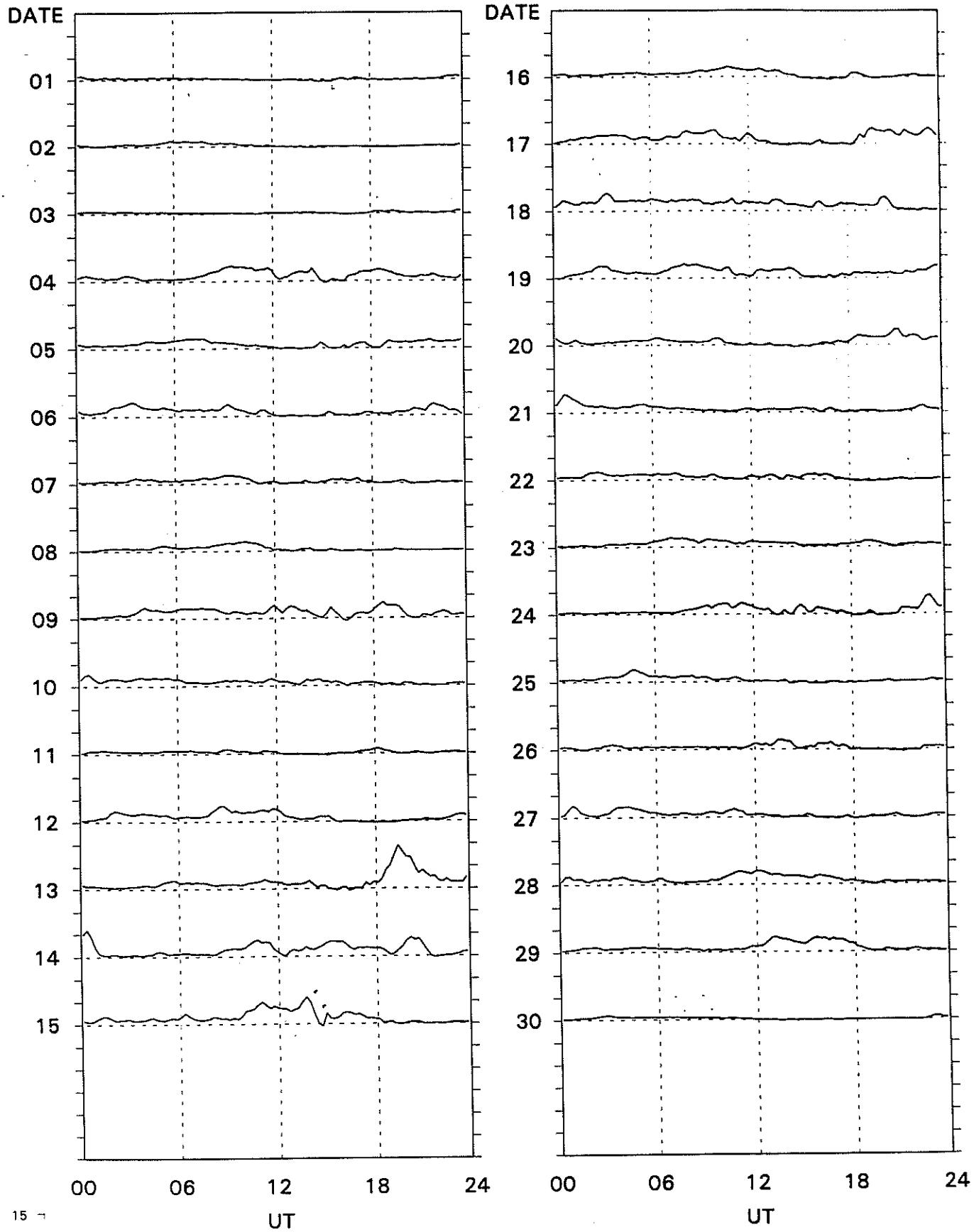

Indices Derivation at Universite Paris Sud; Graph Prepared at ISGI Publication Office.

114
Nov 96

# PC-INDEX

**Thule**

**November, 1996**




15

0

Preliminary Values.

15-min. Values.

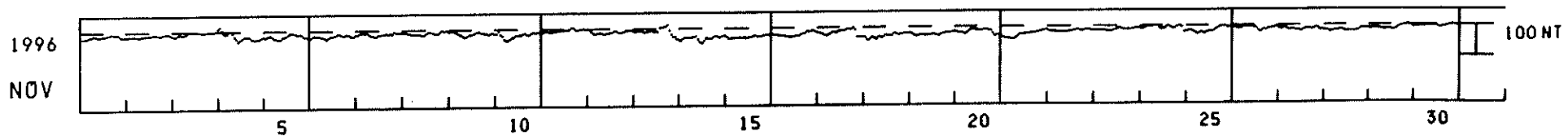
Danish Meteorological Institute

# HOURLY EQUATORIAL DST VALUES(PROVISIONAL)

## NOVEMBER 1996

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 | -23 | -22 | -20 | -20 | -15 | -15 | -12 | -14 | -15 | -16 | -15 | -14 | -13 | -12 | -10 | -10 | -8 | -9 | -10 | -10 | -14 | -17 | -17 | -17 |
| 2 | -16 | -15 | -15 | -15 | -15 | -16 | -17 | -15 | -13 | -13 | -13 | -14 | -13 | -12 | -10 | -12 | -12 | -13 | -12 | -9 | -8 | -9 | -10 | -13 |
| 3 | -16 | -15 | -11 | -10 | -11 | -11 | -10 | -8 | -4 | -1 | -1 | -1 | -3 | -4 | -4 | -5 | -6 | -3 | -3 | -4 | -3 | -1 | 0 | 8 |
| 4 | 13 | 3 | -8 | -9 | -7 | -2 | -1 | -8 | -18 | -25 | -33 | -28 | -25 | -19 | -19 | -21 | -21 | -26 | -28 | -29 | -29 | -27 | -22 | -20 |
| 5 | -22 | -20 | -18 | -16 | -19 | -24 | -27 | -29 | -29 | -22 | -19 | -17 | -13 | -9 | -7 | -10 | -11 | -13 | -12 | -13 | -20 | -21 | -23 | -26 |
| 6 | -27 | -21 | -18 | -19 | -21 | -21 | -23 | -25 | -28 | -25 | -21 | -20 | -18 | -15 | -12 | -13 | -15 | -18 | -14 | -14 | -15 | -21 | -19 | -16 |
| 7 | -15 | -12 | -10 | -9 | -9 | -10 | -13 | -17 | -20 | -20 | -19 | -16 | -15 | -14 | -13 | -12 | -13 | -12 | -13 | -8 | -8 | -9 | -7 | -9 |
| 8 | -9 | -10 | -12 | -14 | -13 | -14 | -13 | -14 | -14 | -18 | -18 | -14 | -10 | -7 | -9 | -10 | -13 | -12 | -11 | -6 | -4 | -5 | -4 | -7 |
| 9 | -8 | -6 | -7 | -10 | -14 | -18 | -21 | -25 | -25 | -20 | -16 | -17 | -13 | -12 | -10 | -8 | -11 | -11 | -13 | -14 | -18 | -13 | -11 | -15 |
| 10 | -16 | -8 | -17 | -23 | -33 | -37 | -37 | -32 | -28 | -27 | -23 | -20 | -19 | -20 | -15 | -14 | -18 | -19 | -16 | -12 | -13 | -13 | -12 | -12 |
| 11 | -13 | -10 | -10 | -11 | -12 | -11 | -10 | -10 | -7 | -6 | -5 | -6 | -6 | -4 | -3 | 3 | 3 | -3 | -5 | -3 | -1 | -1 | -1 | -4 |
| 12 | -4 | -9 | -14 | -17 | -15 | -15 | -14 | -16 | -18 | -16 | -16 | -13 | -13 | -10 | -7 | -11 | -13 | -13 | -11 | -8 | -7 | -7 | -6 | -10 |
| 13 | -12 | -10 | -8 | -9 | -9 | -13 | -12 | -10 | -9 | -8 | -11 | -10 | -12 | 1 | 3 | 4 | 5 | 12 | -7 | -19 | -29 | -27 | -35 | -36 |
| 14 | -41 | -35 | -31 | -31 | -30 | -31 | -30 | -28 | -26 | -36 | -45 | -49 | -41 | -32 | -33 | -34 | -33 | -29 | -26 | -27 | -31 | -29 | -26 | -25 |
| 15 | -29 | -34 | -33 | -32 | -32 | -32 | -30 | -31 | -33 | -29 | -32 | -30 | -31 | -29 | -27 | -24 | -28 | -27 | -28 | -25 | -25 | -22 | -22 | -21 |
| 16 | -23 | -25 | -24 | -24 | -26 | -26 | -26 | -29 | -30 | -31 | -30 | -29 | -27 | -27 | -26 | -22 | -19 | -18 | -12 | -13 | -12 | -9 | -12 | -15 |
| 17 | -17 | -17 | -20 | -25 | -27 | -24 | -19 | -15 | -16 | -18 | -14 | -11 | -12 | -12 | -9 | -5 | -6 | -8 | 0 | -9 | -30 | -32 | -31 | -31 |
| 18 | -33 | -41 | -41 | -34 | -31 | -38 | -39 | -32 | -31 | -34 | -30 | -25 | -29 | -26 | -28 | -23 | -21 | -24 | -24 | -24 | -22 | -21 | -20 | -19 |
| 19 | -21 | -25 | -29 | -31 | -28 | -26 | -27 | -27 | -28 | -29 | -27 | -27 | -24 | -26 | -29 | -28 | -25 | -23 | -21 | -21 | -19 | -18 | -17 | -16 |
| 20 | -18 | -19 | -19 | -20 | -22 | -24 | -20 | -13 | -10 | -10 | -11 | -11 | -12 | -13 | -12 | -10 | -9 | -13 | -14 | -22 | -31 | -27 | -28 | -30 |
| 21 | -34 | -38 | -39 | -39 | -39 | -42 | -41 | -37 | -31 | -27 | -26 | -25 | -24 | -24 | -22 | -22 | -22 | -21 | -18 | -17 | -16 | -14 | -11 | -11 |
| 22 | -15 | -18 | -18 | -18 | -18 | -20 | -18 | -19 | -20 | -18 | -18 | -17 | -15 | -14 | -13 | -11 | -14 | -15 | -13 | -11 | -11 | -12 | -15 | -14 |
| 23 | -16 | -15 | -15 | -14 | -15 | -15 | -16 | -18 | -18 | -16 | -14 | -11 | -7 | -8 | -11 | -12 | -11 | -11 | -12 | -12 | -10 | -7 | -7 | -9 |
| 24 | -10 | -9 | -5 | -4 | -3 | -4 | -2 | 2 | -1 | -7 | -12 | -12 | -9 | -3 | 0 | -6 | -10 | -9 | -4 | -1 | -2 | -6 | -20 | -21 |
| 25 | -17 | -15 | -18 | -21 | -25 | -29 | -25 | -23 | -24 | -26 | -23 | -21 | -20 | -20 | -16 | -12 | -7 | -3 | -3 | -3 | -4 | -7 | -5 | -5 |
| 26 | -6 | -10 | -10 | -12 | -10 | -6 | -6 | -6 | -6 | -5 | -8 | -8 | -9 | -17 | -22 | -15 | -13 | -15 | -12 | -9 | -10 | -9 | -6 | -8 |
| 27 | -12 | -13 | -10 | -8 | -14 | -16 | -15 | -13 | -15 | -17 | -15 | -21 | -17 | -14 | -12 | -11 | -12 | -13 | -11 | -8 | -10 | -15 | -15 | -15 |
| 28 | -17 | -17 | -19 | -22 | -20 | -17 | -17 | -17 | -16 | -16 | -19 | -20 | -20 | -20 | -21 | -21 | -20 | -20 | -16 | -12 | -11 | -12 | -12 | -12 |
| 29 | -13 | -12 | -12 | -11 | -11 | -14 | -14 | -16 | -16 | -13 | -13 | -15 | -17 | -14 | -13 | -8 | -5 | -4 | -2 | -2 | 1 | -2 | -3 | -8 |
| 30 | -8 | -7 | -6 | -6 | -5 | -5 | -4 | -4 | -3 | -3 | -4 | -6 | -8 | -9 | -8 | -6 | -5 | -4 | -2 | 1 | 1 | -2 | -4 | -1 |




Note: The baselines for the observatories were adjusted for secular change for the Provisional Dst values for November 1996. Beginning October 1994, the observatory data include realtime INTERMAGNET data.

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

## NOVEMBER 1996

| Sta | Geomag Lat | Commencement Time Day | (UT) | Type | SC Amplitudes D (Min) | H (Gamma) | Z (Gamma) | Maximum 3-Hour K Index Day(3-Hour Periods) | K | Ranges D (Min) | H (Gamma) | Z (Gamma) | End Day | Hour (UT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| UJJ | 13.6N | 03 | 2300 | .. | .. | .. | .. | | - | 3 | 84 | 25 | 04 | 17 |
| NGP | 11.3N | 03 | 2300 | .. | .. | .. | .. | | - | - | -- | -- | 04 | 17 |
| ABG | 09.4N | 03 | 2300 | .. | .. | .. | .. | 04(4) | 4 | 3 | 90 | 21 | 04 | 17 |
| PND | 02.0N | 03 | 2300 | .. | .. | .. | .. | | - | 3 | 106 | 45 | 04 | 17 |
| TRD | 01.1S | 03 | 2300 | .. | .. | .. | .. | | - | 2 | 119 | 67 | 04 | 17 |
| UJJ | 13.6N | 09 | 1000 | .. | .. | .. | .. | | - | 2 | 39 | 10 | 10 | 20 |
| NGP | 11.3N | 09 | 1000 | .. | .. | .. | .. | | - | 3 | 41 | 11 | 10 | 20 |
| ABG | 09.4N | 09 | 1000 | .. | .. | .. | .. | 09(7) | 4 | 2 | 37 | 17 | 10 | 20 |
| PND | 02.0N | 09 | 1000 | .. | .. | .. | .. | | - | 2 | 43 | 30 | 10 | 20 |
| TRD | 01.1S | 09 | 1000 | .. | .. | .. | .. | | - | 2 | 31 | 46 | 10 | 20 |
| HYB | 07.6N | 11 | 1528 | SC | - 0.2 | 11 | - 1 | | - | -- | -- | -- | -- | -- |
| ETT | 00.7S | 11 | 1527 | SC | - 0.2 | 9 | 9 | | - | -- | -- | -- | -- | -- |
| PAF | 57.2S | 11 | 1528 | SC | 4 | 10 | 5 | 11(7) 12(5) | 3 | 15 | 70 | 28 | 12 | 18 |
| KRC | 16.4N | 13 | 1300 | SC | 7 | 15 | 18 | 13(7,8) 14(1,4) | 5 | 6 | 83 | 37 | 14 | 08 |
| UJJ | 13.6N | 13 | 1100 | .. | .. | .. | .. | | - | 3 | 74 | 15 | 15 | 21 |
| NGP | 11.3N | 13 | 1100 | .. | .. | .. | .. | | - | 3 | 77 | 11 | 15 | 21 |
| ABG | 09.4N | 13 | 1100 | .. | .. | .. | .. | 14(4) | 5 | 3 | 75 | 18 | 15 | 21 |
| HYB | 07.6N | 13 | 1300 | SC | - 0.1 | 11 | - 1 | 13(7) | 5 | 3 | 84 | 9 | 15 | 23 |
| PND | 02.0N | 13 | 1100 | .. | .. | .. | .. | | - | 3 | 88 | 44 | 15 | 21 |
| ETT | 00.7S | 13 | 1259 | SC | - 0.1 | 9 | 9 | | - | 4 | 98 | 45 | 15 | 21 |
| TRD | 01.1S | 13 | 1100 | .. | .. | .. | .. | | - | 2 | 103 | 61 | 15 | 21 |
| HER | 33.6S | 13 | 1300 | SC | 2.8 | 9.6 | 12.0 | 13(8) | 5 | 18 | 65 | 78 | 14 | 01 |
| AMS | 46.8S | 13 | 1300 | SC | 5 | 10 | - 5 | 13(7,8) | 5 | 15 | 121 | 51 | 14 | 21 |
| CZT | 51.5S | 13 | 1300 | SC | 10 | 8 | -- | 13(7) | 5 | 21 | 108 | 60 | 15 | 18 |
| PAF | 57.2S | 13 | 1300 | SC | 10 | 18 | 5 | 13(7) | 6 | 25 | 292 | 246 | 15 | 21 |
| UJJ | 13.6N | 17 | 1700 | .. | .. | .. | .. | | - | 2 | 42 | 12 | 18 | 21 |
| NGP | 11.3N | 17 | 1700 | .. | .. | .. | .. | | - | 3 | 41 | 11 | 18 | 21 |
| ABG | 09.4N | 17 | 1700 | .. | .. | .. | .. | 17(7) | 4 | 2 | 41 | 13 | 18 | 21 |
| PND | 02.0N | 17 | 1700 | .. | .. | .. | .. | | - | 2 | 48 | 30 | 18 | 21 |
| TRD | 01.1S | 17 | 1700 | .. | .. | .. | .. | | - | 2 | 65 | 44 | 18 | 21 |
| UJJ | 13.6N | 24 | 0900 | .. | .. | .. | .. | | - | 2 | 65 | 10 | 26 | 22 |
| NGP | 11.3N | 24 | 0900 | .. | .. | .. | .. | | - | - | -- | -- | 26 | 22 |
| ABG | 09.4N | 24 | 0900 | .. | .. | .. | .. | 26(5) | 5 | 3 | 73 | 19 | 26 | 22 |
| PND | 02.0N | 24 | 0900 | .. | .. | .. | .. | | - | 2 | 87 | 32 | 26 | 22 |
| ETT | 00.7S | 24 | 0200 | .. | .. | .. | .. | | - | 3 | 106 | 41 | 27 | 16 |
| TRD | 01.1S | 24 | 0900 | .. | .. | .. | .. | | - | 2 | 106 | 49 | 26 | 22 |
| DRV | 75.2S | 24 | 07-- | .. | .. | .. | .. | 25(1) | 6 | 662 | 483 | 690 | 28 | 09 |

Stations:

ABG = ALIBAG
AMS = MARTIN DE VIVIES
ANN = ANNAMALAINAGAR
BJI = BEIJING
CAN = CANBERRA
CMO = COLLEGE
CZT = PORT ALFRED
DRV = DUMONT D'URVILLE
ETT = ETAIYAPURAM
FRD = FREDERICKSBURG
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
TRD = TRIVANDRUM
UJJ = UJJAIN

Stations reporting no storms observed: BJI FRD

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

## NOVEMBER 1996

| Storm Sudden Commencements (SSC) | | | Solar Flare Effects (sfe) | | |
|---|---|---|---|---|---|
| Day | Time | Quality: Station Group* | Day | Begin-End | Station(s) |
| 11 | 1527 | A: HRB COI BJI<br>B: SOD* NUR* WNG DOU TEN<br>C: DOB BDV* CLF* NAG EBR SPT QUE HYB ETT<br>sfe: NGK | 11 | 1527 | NGK |
| 13 | 1300 | A: HRB* COI TEN<br>B: SOD* NUR* DOU SPT QUE AMS CZT<br>C: BDV* NAG EBR* LNP HYB ETT (1259-1301) | | | |

REPORTING OBSERVATORIES (up to the 3rd of January 1997):
SOD DOB NUR WNG NGK DOU BDV CLF HRB NAG MMB EBR COI BJI SPT FRD KAK KNY QUE TEN LNP HYB ETT HER CNB AMS CZT PAF DRV

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 (+).

# WORLD DATA CENTER A
## FOR
## SOLAR-TERRESTRIAL PHYSICS

The ICSU Panel on WDCs has recommended that it would be appropriate courtesy to acknowledge in publications that data were obtained from the originating station or investigator through the intermediary of the WDCs. The following statement is suggested:

"Data used in this study were provided by WDC-A for Solar-Terrestrial Physics, NOAA E/GC2, 325 Broadway, Boulder Colorado 80303, USA."