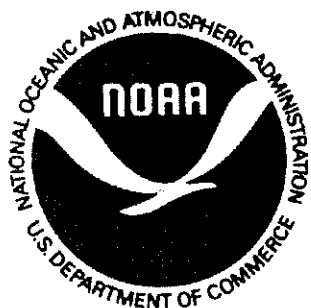




## **U.S. DEPARTMENT OF COMMERCE**

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### **NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION**

#### **NATIONAL ENVIRONMENTAL SATELLITE, DATA, AND INFORMATION SERVICE**

Gregory W. Withee, Acting Assistant Administrator

MARCH 1993 NUMBER 583 - Part I

# **Solar-Geophysical Data prompt reports**

Data for February, January 1993, and Late Data

International Standard Serial Number: 0038-0911

Library of Congress Catalog Number: 79-640375 //r81

## **NATIONAL GEOPHYSICAL DATA CENTER**

Michael A. Chinnery, Director

Boulder, Colorado

Subscription information is on the inside back cover.

# SOLAR-GEOPHYSICAL DATA

Number 583

(Issued in Two Parts)

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## CONTENTS

| <b>PART I (PROMPT REPORTS)</b>                             | <b>Page</b>     |
|------------------------------------------------------------|-----------------|
| DETAILED INDEX FOR 1992-1993 .....                         | 2               |
| DATA FOR FEBRUARY 1993 .....                               | 3-42            |
| DATA FOR JANUARY 1993 .....                                | 43-134          |
| <b>NEW DATA: YOHKOH SOFT X-RAY IMAGES</b>                  |                 |
| LATE DATA .....                                            | 135-152         |
| Cosmic Rays Climax Nov-Dec 92                              |                 |
| Geomagnetic Indices Dec 92                                 |                 |
| Sudden Commencements Jul-Oct 92                            |                 |
| Provisional Dst Aug-Sep 92                                 |                 |
| Pioneer Venus Solar Wind Jan-Oct 92                        |                 |
| <b>ERRATA: Stanford Solar Magnetograms Oct 21-24, 1992</b> |                 |
| Daily Maps and Synoptic Charts                             |                 |
| <br><b>PART II (COMPREHENSIVE REPORTS)</b>                 | <br><b>Page</b> |
| DETAILED INDEX FOR 1992-1993 .....                         | 2               |
| DATA FOR SEPTEMBER 1992 .....                              | 3-68            |



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

| CODE                               | KIND OF OBSERVATION                       | JUL 92                                          | AUG     | SEP     | OCT     | NOV     | DEC     | JAN 93  | FEB     |
|------------------------------------|-------------------------------------------|-------------------------------------------------|---------|---------|---------|---------|---------|---------|---------|
| A. SOLAR AND INTERPLANETARY EVENTS |                                           |                                                 |         |         |         |         |         |         |         |
| A.1                                | Sunspot Drawings                          | 577A 49                                         | 578A 49 | 579A 53 | 580A 47 | 581A 49 | 582A 45 | 583A 58 |         |
| A.2aa                              | International Provisional Sunspot Numbers | 576A 27                                         | 577A 25 | 578A 25 | 579A 29 | 580A 27 | 581A 29 | 582A 27 | 583A 29 |
| A.2c                               | American Sunspot Numbers                  | 576A 27                                         | 577A 25 | 578A 25 | 579A 29 | 580A 27 | 581A 29 | 582A 27 | 583A 29 |
| A.3a                               | Mt. Wilson Magnetograms                   | 577A 52                                         | 578A 49 | 579A 53 | 580A 47 | 581A 49 | 582A 45 | 583A 58 |         |
| A.3b                               | Sunspot Mag Class and Regions             | 577A 83                                         | 578A 80 | 579A 83 | 580A 78 | 581A 79 | 582A 76 | 583A106 |         |
| A.3c                               | Kitt Peak Magnetograms                    | 577A 52                                         | 578A 49 | 579A 53 | 580A 47 | 581A 49 | 582A 45 | 583A 58 |         |
| A.3d                               | Mean Solar Magnetic Field (Stanford)      | 576A 43                                         | 577A 43 | 578A 39 | 579A 43 | 580A 37 | 581A 39 | 582A 35 | 583A 41 |
| A.3e                               | Stanford Magnetograms                     | 577A 52                                         | 578A 49 | 579A 53 | 580A 47 | 581A 49 | 582A 45 | 583A 58 |         |
| A.4                                | H-alpha Filtergrams                       | 577A 52                                         | 578A 49 | 579A 53 | 580A 47 | 581A 49 | 582A 45 | 583A 58 |         |
| A.6c                               | Stanford Solar Mag Field Synoptic Maps    | 577A 46                                         | 578A 42 | 579A 46 | 583A150 | 581A 42 | 582A 38 | 583A 44 |         |
| A.6d                               | Kitt Peak Solar Mag Field Synoptic Maps   | 578A132                                         | 578A 48 | 579A 52 | 580A 46 | 581A 48 | 582A 44 | 583A 56 |         |
| A.6e                               | Mass Ejections (Proxy data) from the Sun  | 581B 55                                         | 582B 63 | 583B 56 |         |         |         |         |         |
| A.6f                               | Active Prominences and Filaments          | 581B 56                                         | 582B 64 | 583B 57 |         |         |         |         |         |
| A.6g                               | Sac Peak Coronal Line Synoptic Maps       | 577A 48                                         | 578A 44 | 579A 48 | 580A 42 | 581A 44 | 582A 40 | 583A 48 |         |
| A.7h                               | Coronal Line Emission (Sac Peak)          | 577A 52                                         | 578A 49 | 579A 53 | 580A 47 | 581A 49 | 582A 45 | 583A 58 |         |
| A.8aa                              | 2800 MHz- Solar Flux (Penticton)          | 576A 27                                         | 577A 25 | 578A 25 | 579A 29 | 580A 27 | 581A 29 | 582A 27 | 583A 29 |
| A.8ac                              | 2800 MHz- Adj. Solar Flux (Penticton)     | 576A 27                                         | 577A 25 | 578A 25 | 579A 29 | 580A 27 | 581A 29 | 582A 27 | 583A 29 |
| A.8g                               | Adjusted Daily Solar Fluxes (Palehua)     | 576A 27                                         | 577A 25 | 578A 25 | 579A 29 | 580A 27 | 581A 29 | 582A 27 | 583A 29 |
| A.10e                              | East-West Scans - 10 cm - Penticton       | 576A 40                                         |         | 578A 35 | 579A 39 |         | 581A 37 |         |         |
| A.11g                              | Solar X-ray GOES (graphs/event table)     | 581B 45                                         | 582B 53 | 583A 47 |         |         |         |         |         |
| A.11k                              | Solar UV NOAA-9                           | May 86-Dec 88 in 566B 84                        |         |         |         |         |         |         |         |
| A.11l                              | Solar UV NIMBUS7                          | Nov 78-Oct 84 in 542B 82                        |         |         |         |         |         |         |         |
| A.11n                              | Solar YOHKOH Soft X-ray Images            |                                                 |         |         |         |         |         | 583A 89 |         |
| A.12e                              | Solar Particles (IMP H & J)               | Dec 88-Oct 89 in 570B 92                        |         |         |         |         |         |         |         |
| A.12g                              | Solar Particles (GOES-7)                  | 576A 4                                          | 577A 4  | 578A 4  | 579A 4  | 580A 4  | 581A 4  | 582A 4  | 583A 4  |
| A.13e                              | Solar Plasma (IMP H & J)                  | 581B 71                                         | 582B 80 |         |         |         |         |         |         |
| A.13f                              | Solar Wind (Pioneer 12)                   | Oct 90-Dec 91 in 572A151; Jan-Oct 92 in 583A144 |         |         |         |         |         |         |         |
| A.16a                              | SMM Solar Irradiance                      | Feb 80-Jun 89 in 571B 74                        |         |         |         |         |         |         |         |
| A.16b                              | NIMBUS Solar Irradiance                   | Nov 78-Jun 92 in 577B 56                        |         |         |         |         |         |         |         |
| A.16c                              | ERBS, NOAA-9 & -10 Solar Irradiance       | 1989 in 551B 78; ERBS Oct 84-Oct 92 in 581B 74  |         |         |         |         |         |         |         |
| A.17                               | Interplanetary Mag Field (Pioneer 12)     | Jan-Jun 88 in 533A130; Jul 88 in 536A152        |         |         |         |         |         |         |         |
| A.17c                              | Inferred Interplanetary Mag Field         | 1984-1988 data in 542A168; 1989 in 548A154      |         |         |         |         |         |         |         |
| C. SOLAR FLARE-ASSOCIATED EVENTS   |                                           |                                                 |         |         |         |         |         |         |         |
| C.1a                               | H-alpha Flares                            | 576A 29                                         | 577A 28 | 578A 27 | 579A 30 | 580A 28 | 581A 30 | 582A 29 | 583A 30 |
| C.1ba                              | H-alpha Flare Groups                      | 581B 4                                          | 582B 4  | 583B 4  |         |         |         |         |         |
| C.1d                               | Flare Patrol Observations                 | 576A 39                                         | 577A 39 | 578A 34 | 579A 38 | 580A 34 | 581A 36 | 582A 32 | 583A 38 |
| C.1d                               | Flare Patrol Observations                 | 581B 26                                         | 582B 29 | 583B 20 |         |         |         |         |         |
| C.3                                | Radio Bursts Fixed Frequency              | 581B 28                                         | 582B 31 | 583B 22 |         |         |         |         |         |
| C.3                                | Radio Bursts Fixed Frequency Selected     | 576A 41                                         | 577A 40 | 578A 36 | 579A 40 | 580A 35 | 581A 38 | 582A 33 | 583A 39 |
| C.4e                               | Radio Bursts Spectral (Weissenau)         | 577A106                                         | 578A100 |         |         |         |         |         |         |
| C.4f                               | Radio Bursts Spectral (Sagamore Hill)     | 577A106                                         | 578A100 | 579A102 | 580A102 | 581A101 | 582A 96 | 583A120 |         |
| C.4k                               | Radio Bursts Spectral (Learmonth)         | 577A106                                         | 578A100 | 579A102 | 580A102 | 581A101 | 582A 96 | 583A120 |         |
| C.4l                               | Radio Bursts Spectral (Palehua)           | 577A106                                         | 578A100 | 579A102 | 580A102 | 581A101 | 582A 96 | 583A120 |         |
| C.4m                               | Radio Bursts Spectral (Ondrejov)          | 577A106                                         | 578A100 | 579A102 | 580A102 | 581A101 | 582A 96 | 583A120 |         |
| C.4n                               | Radio Bursts Spectral (Potsdam)           |                                                 | 578A100 |         |         |         |         | 583A120 |         |
| C.4o                               | Radio Bursts Spectral (San Vito)          | 577A106                                         | 578A100 | 579A102 | 580A102 | 581A101 | 582A 96 | 583A120 |         |
| C.4p                               | Radio Bursts Spectral (IZMIRAN)           |                                                 |         |         |         | 581A101 | 582A 96 | 583A120 |         |
| C.6                                | Sudden Ionospheric Disturbances           | 577A101                                         | 578A 96 | 579A 98 | 580A 97 | 581A 97 | 582A 93 | 583A118 |         |
| D. GEOMAGNETIC EVENTS              |                                           |                                                 |         |         |         |         |         |         |         |
| D.1a                               | Geomagnetic Indices                       | 577A123                                         | 578A123 | 579A114 | 580A118 | 581A113 | 583A139 | 583A130 |         |
| D.1ba                              | 27-day Chart of Kp Indices                | 577A125                                         | 578A125 | 579A116 | 580A120 | 581A115 | 582A106 | 583A132 |         |
| D.1cb                              | Monthly Mean aa Indices                   | 577A126                                         | 578A126 | 579A117 | 580A121 | 581A116 | 582A107 | 583A133 |         |
| D.1d                               | Principal Magnetic Storms                 | 577A127                                         | 578A127 | 579A118 | 580A122 | 581A117 | 582A108 | 583A134 |         |
| D.1f                               | Sudden Commencements/Flare Effects        | Jun 92 in 577A130; Jul-Oct 92 in 583A140        |         |         |         |         |         |         |         |
| D.1g                               | Equatorial Indices Dst                    | Jul 92 in 580A130; Aug-Sep 92 in 583A142        |         |         |         |         |         |         |         |
| F. COSMIC RAYS                     |                                           |                                                 |         |         |         |         |         |         |         |
| F.1a                               | Cosmic Ray Neutron Cts (Deep River)       | 577A122                                         | 578A122 | 579A109 | 580A113 | 581A112 | 582A 99 | 583A125 |         |
| F.1b                               | Cosmic Ray Neutron Cts (Climax)           | 580A125                                         | 580A126 | 580A127 | 580A113 | 583A137 | 583A138 |         |         |
| F.1h                               | Cosmic Ray Neutron Cts (Thule)            | 577A122                                         | 579A122 | 579A109 | 580A113 | 581A112 | 582A 99 | 583A125 |         |
| F.1i                               | Cosmic Ray Neutron Cts (Kiel)             | 577A122                                         | 578A122 | 579A109 | 580A113 | 581A112 | 582A 99 | 583A125 |         |
| F.1j                               | Cosmic Ray Neutron Cts (Tokyo)            | 577A122                                         | 578A122 | 579A109 | 580A113 | 581A112 | 582A 99 | 583A125 |         |
| F.1l                               | Cosmic Ray Neutron Cts (Huancayo)         | 580A125                                         | 580A126 |         |         |         |         |         |         |
| H. MISCELLANEOUS                   |                                           |                                                 |         |         |         |         |         |         |         |
| H.60                               | IUWDS Alert Periods                       | 576A 20                                         | 577A 20 | 578A 19 | 579A 20 | 580A 19 | 581A 20 | 582A 20 | 583A 18 |

The entry "577A 49" under Jul 1992, for example, means that the sunspot drawings for Jul 1992 appear in SOLAR-GEOPHYSICAL DATA No. 577, Part I, and that they begin on page 49. "A" denotes Part I and "B", Part II. Blanks indicate data not yet received and dashes mark unavailable data.

# CONTENTS

Prompt Reports

Number 583 Part I

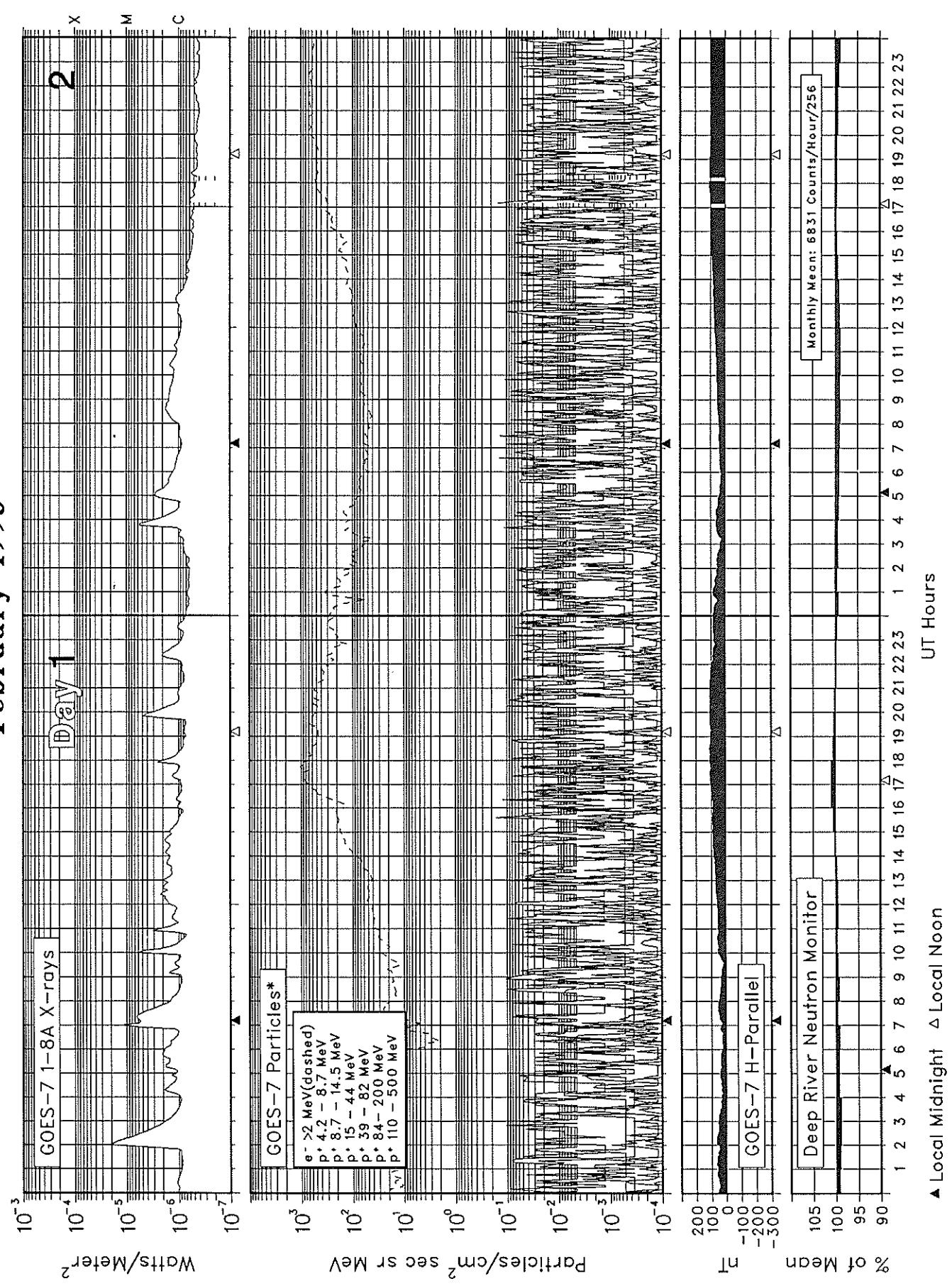
## DATA FOR FEBRUARY 1993

|                                                                                                                                          | Page  |
|------------------------------------------------------------------------------------------------------------------------------------------|-------|
| SOLAR-TERRESTRIAL ENVIRONMENT .....                                                                                                      | 4-17  |
| Plots of GOES satellite X-rays, Particles and Magnetometer data with ground-based<br>Boulder Magnetometer and Deep River Neutron Monitor |       |
| IUWDS ALERT PERIODS (Advance and Worldwide) .....                                                                                        | 18-25 |
| SOLAR ACTIVITY INDICES                                                                                                                   |       |
| Graph and Table of Monthly Mean Sunspot Number 1950-present .....                                                                        | 26    |
| Smoothed Observed and Predicted Sunspot Numbers .....                                                                                    | 27    |
| Daily Sunspot Numbers and 2800 MHz Solar Flux (12 Months) .....                                                                          | 28    |
| Daily Solar Indices (Sunspot Numbers and Solar Flux) .....                                                                               | 29    |
| SOLAR FLARES                                                                                                                             |       |
| H-alpha Solar Flares .....                                                                                                               | 30-37 |
| Intervals of No Flare Patrol .....                                                                                                       | 38    |
| SOLAR RADIO EMISSION                                                                                                                     |       |
| East-West Solar Scans at 10 cm-Penticton (None available)                                                                                |       |
| Selected Fixed Frequency Events .....                                                                                                    | 39-40 |
| Selected Bursts (None available at time of publication.)                                                                                 |       |
| STANFORD MEAN SOLAR MAGNETIC FIELD Table .....                                                                                           | 41    |
| Graph .....                                                                                                                              | 42    |

# SOLAR-TERRESTRIAL ENVIRONMENT

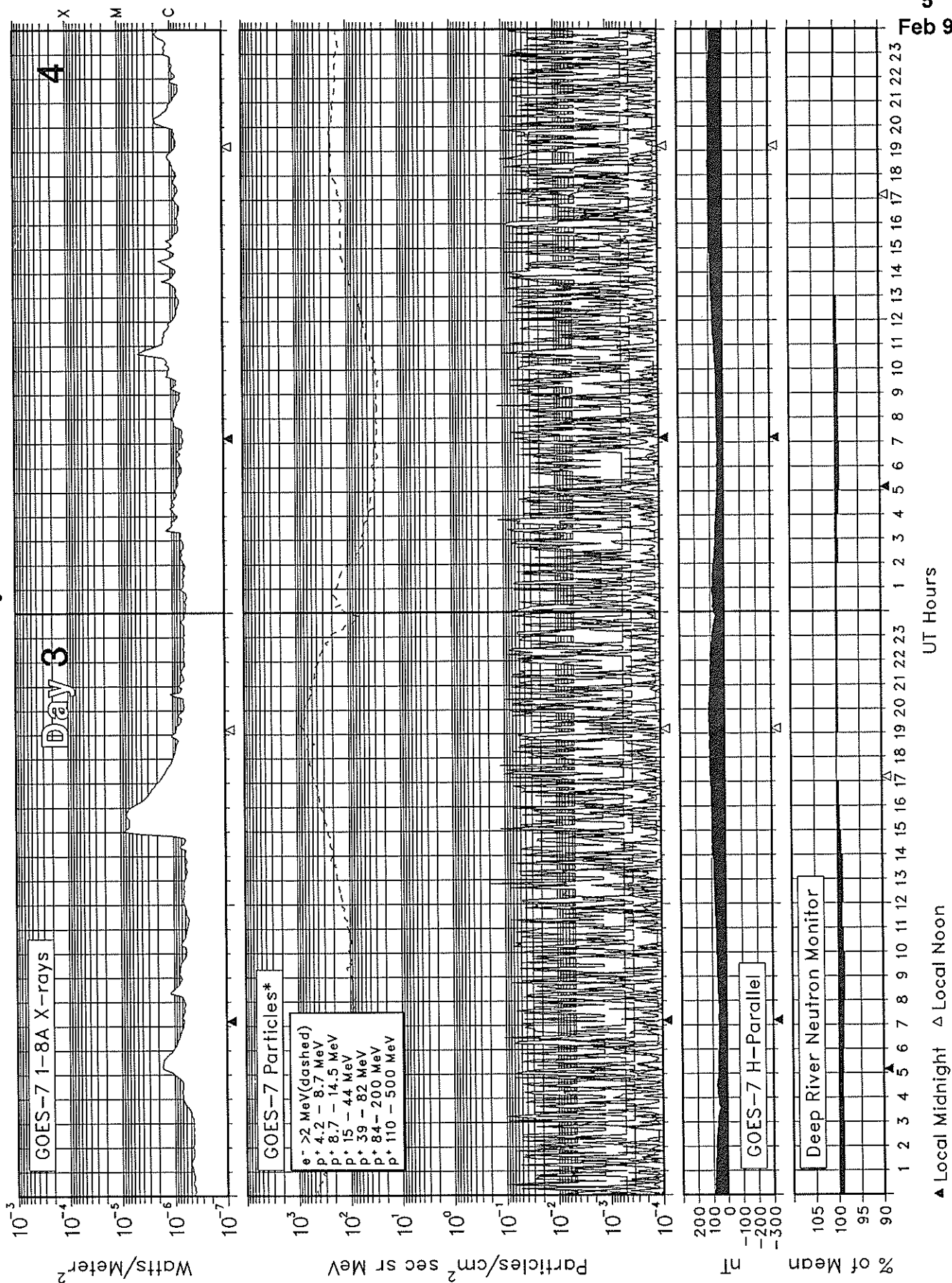
## February 1993

4  
Feb 93



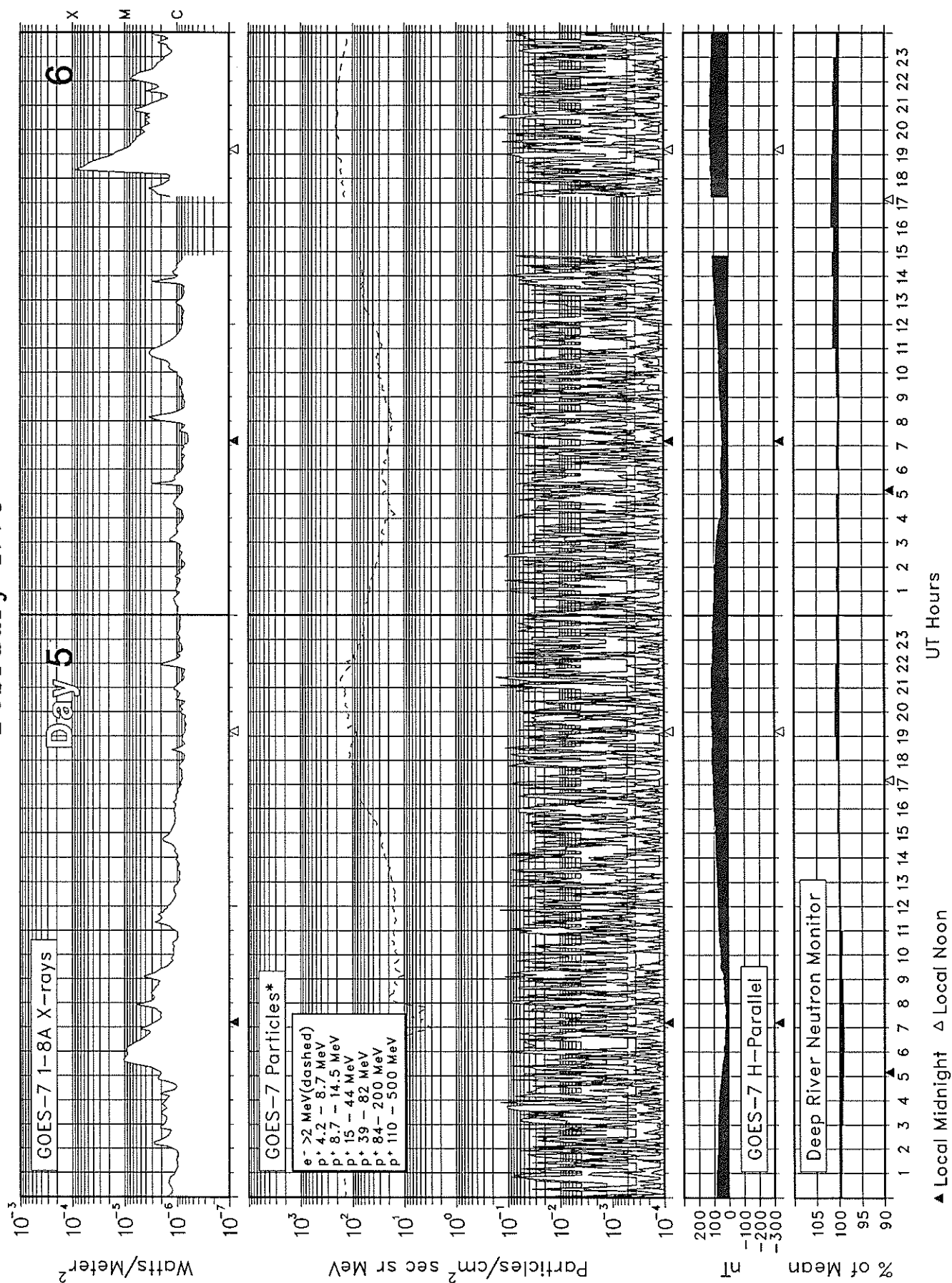
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February 1993



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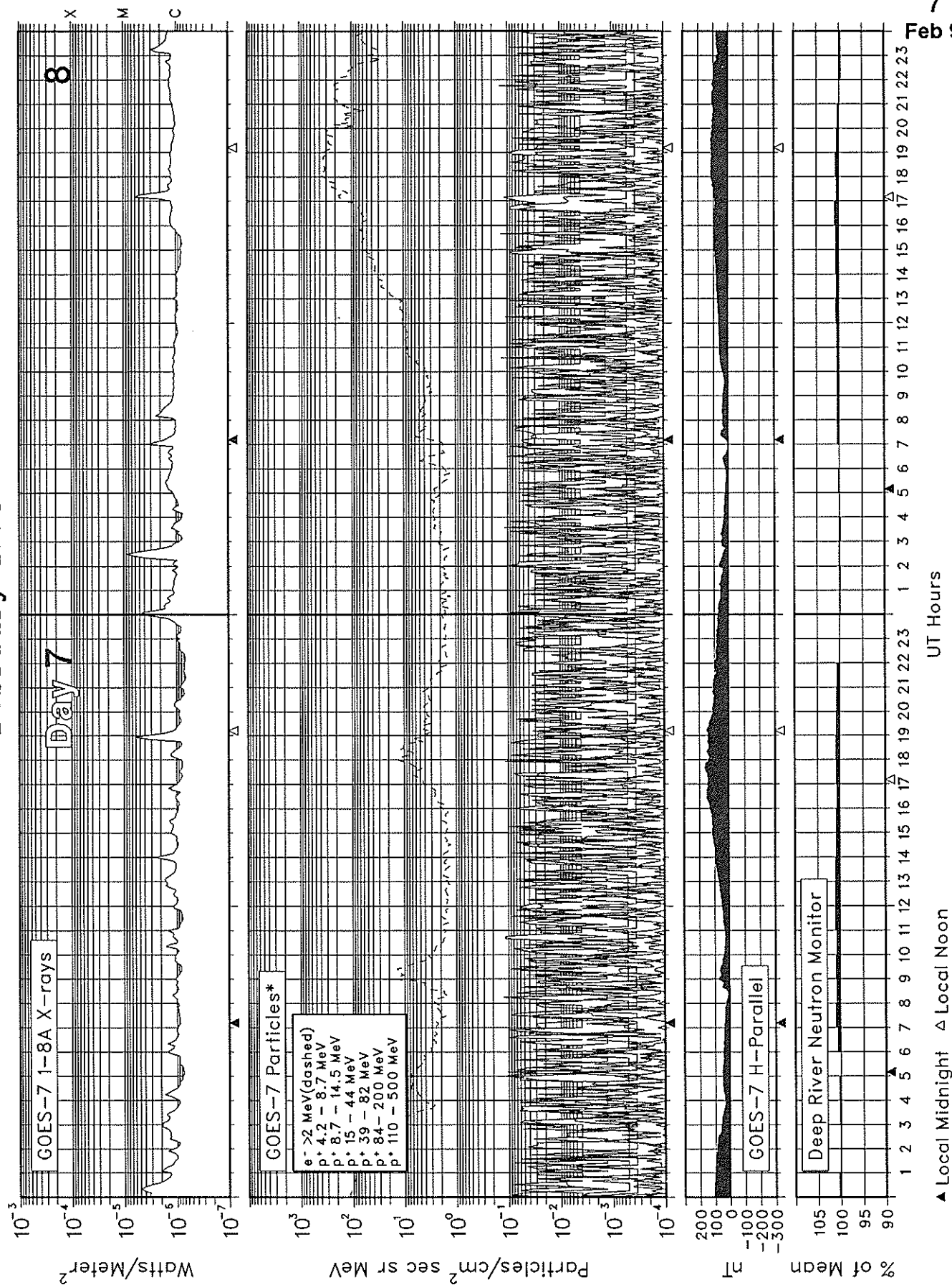
February 1993



# SOLAR-TERRESTRIAL ENVIRONMENT

February 1993

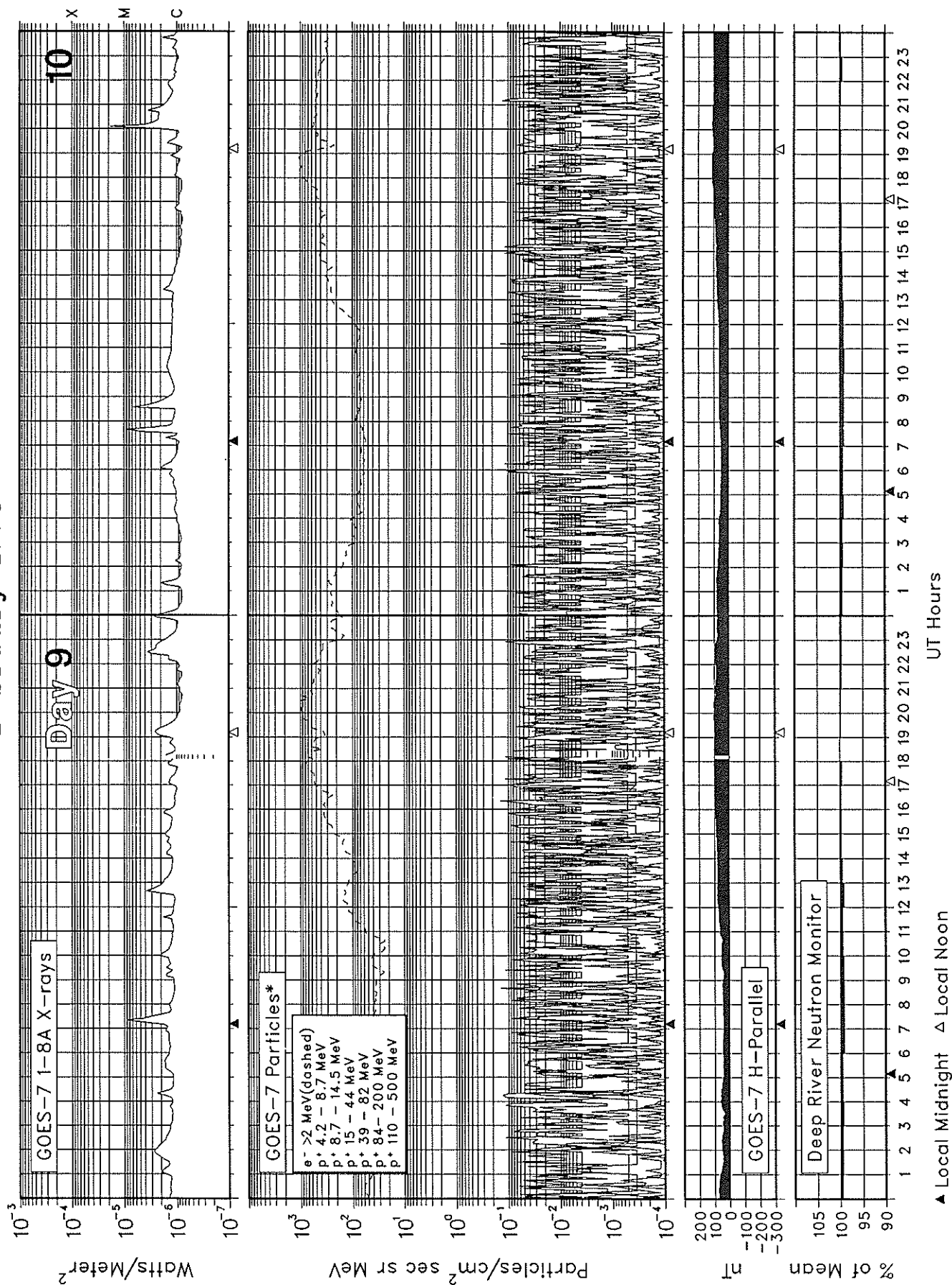
7  
Feb 93



8

Day 7

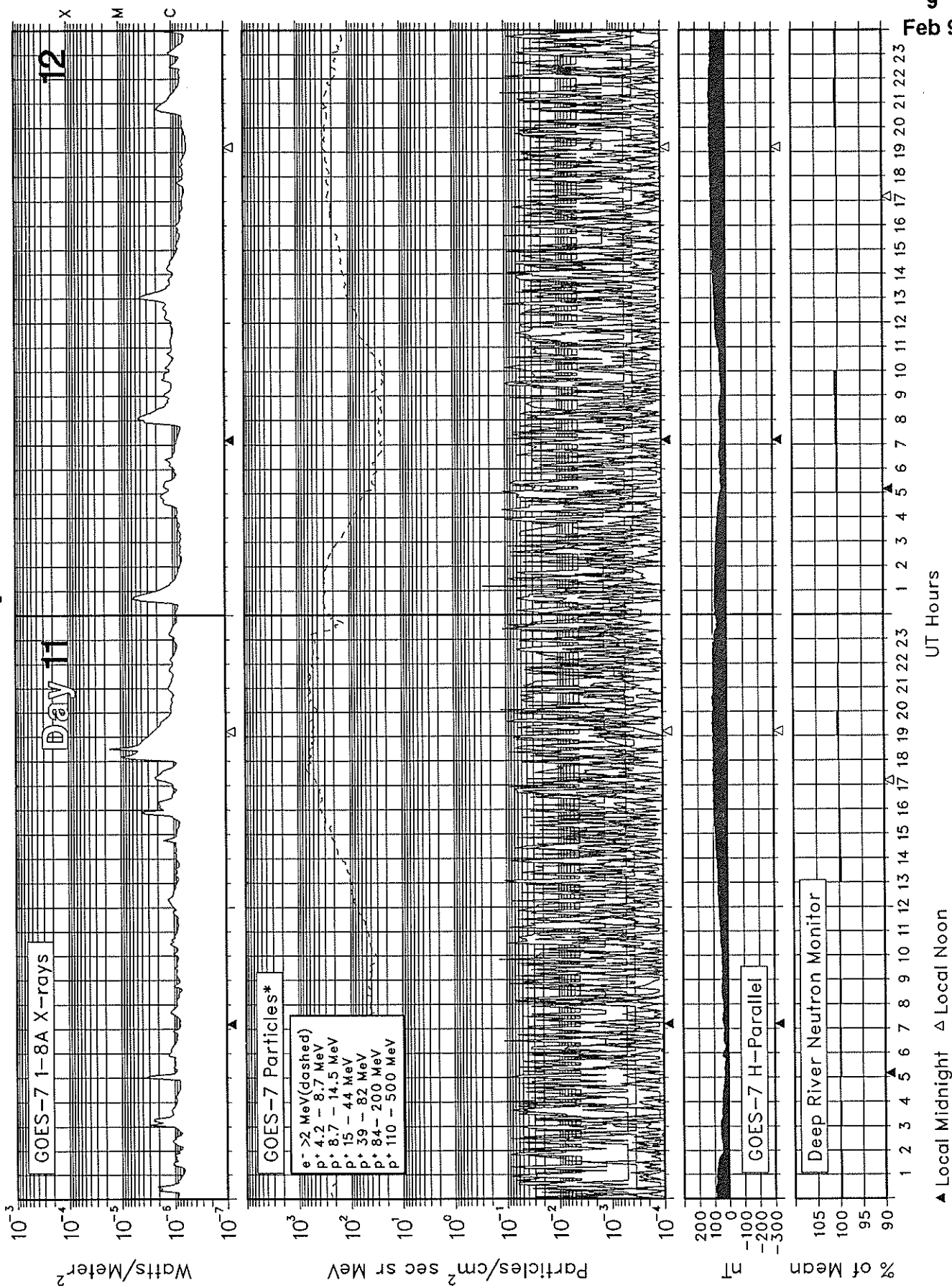
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# SOLAR-TERRESTRIAL ENVIRONMENT

February 1993

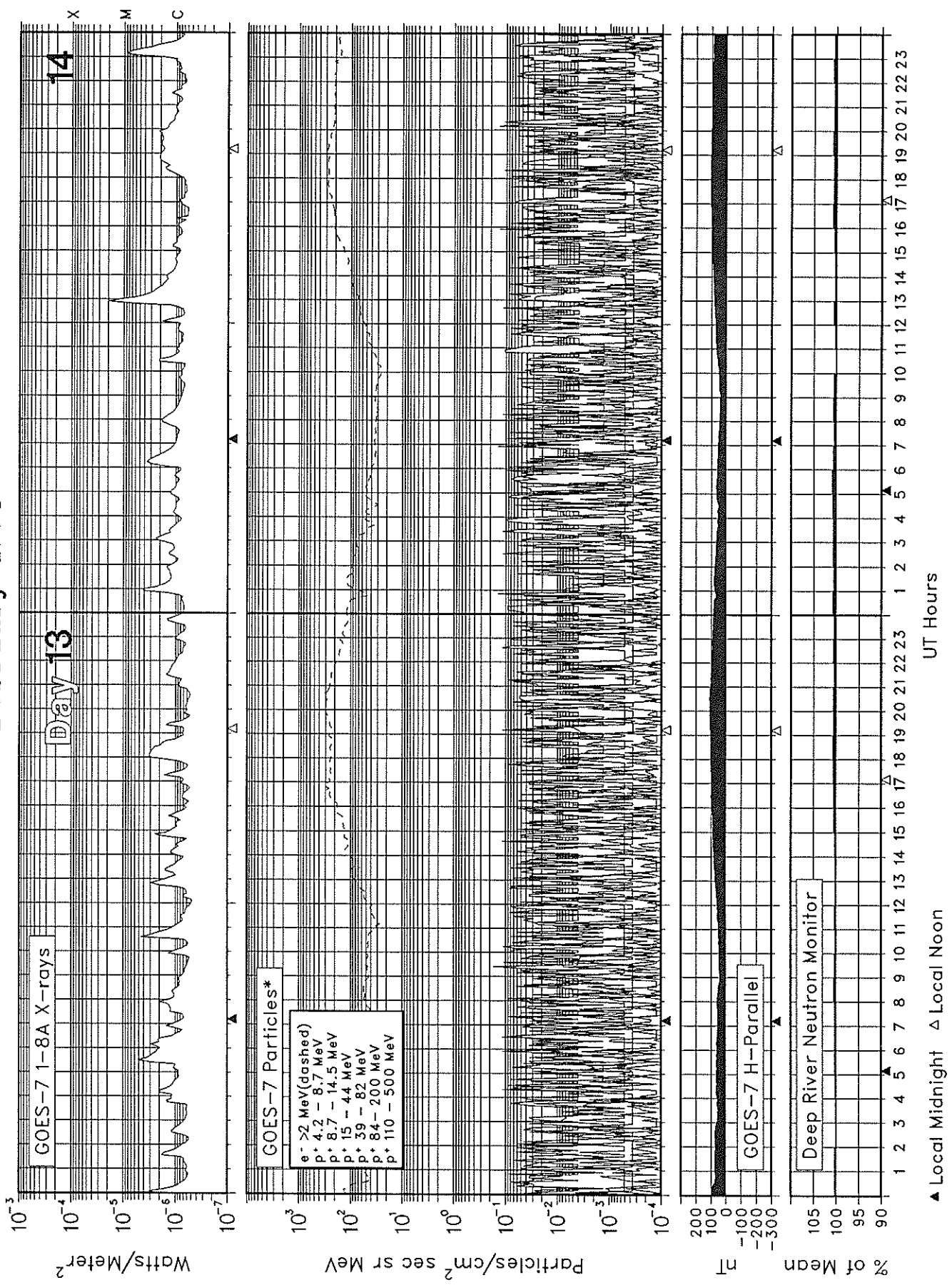




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## February 1993

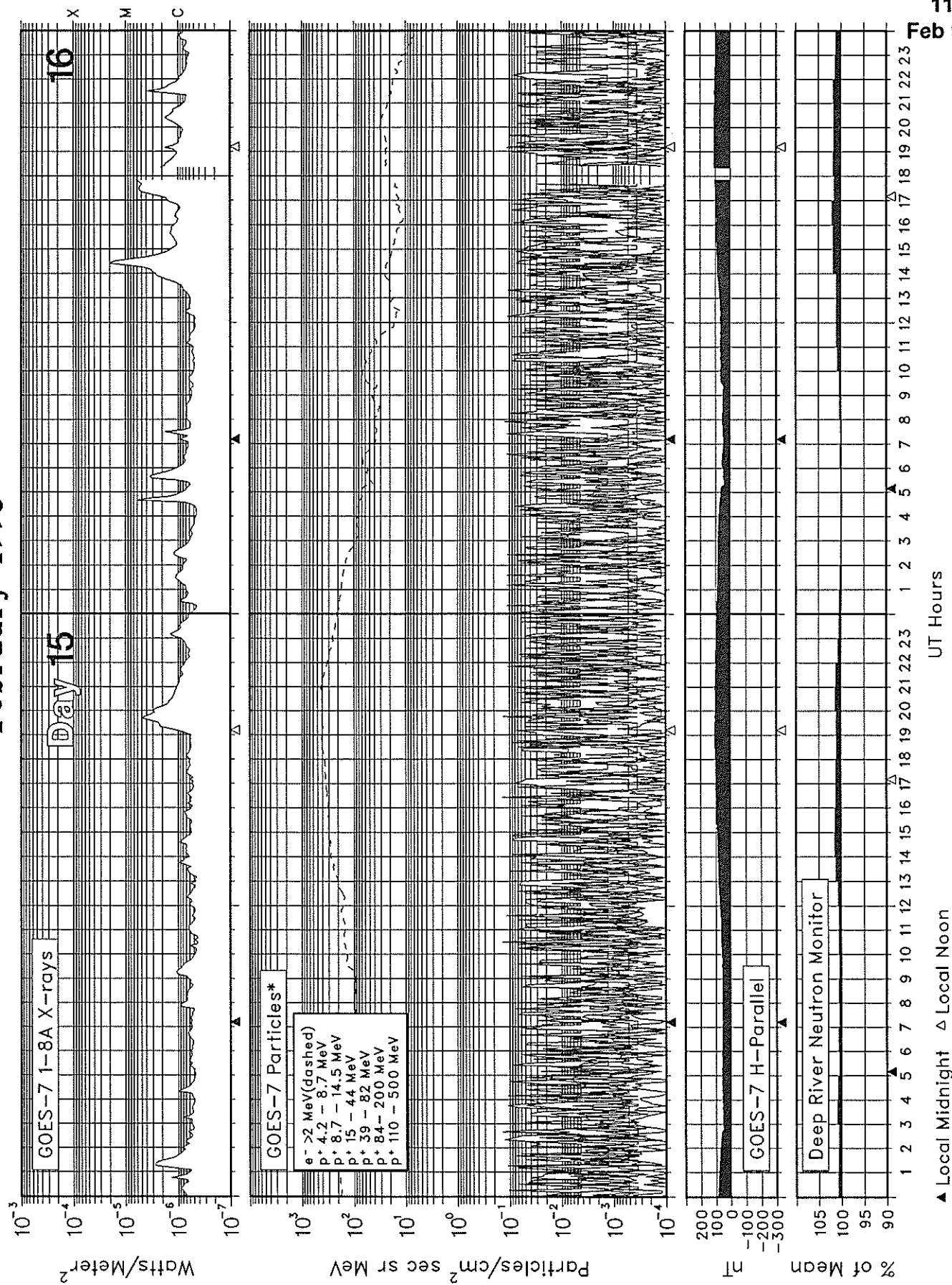
10  
Feb 93



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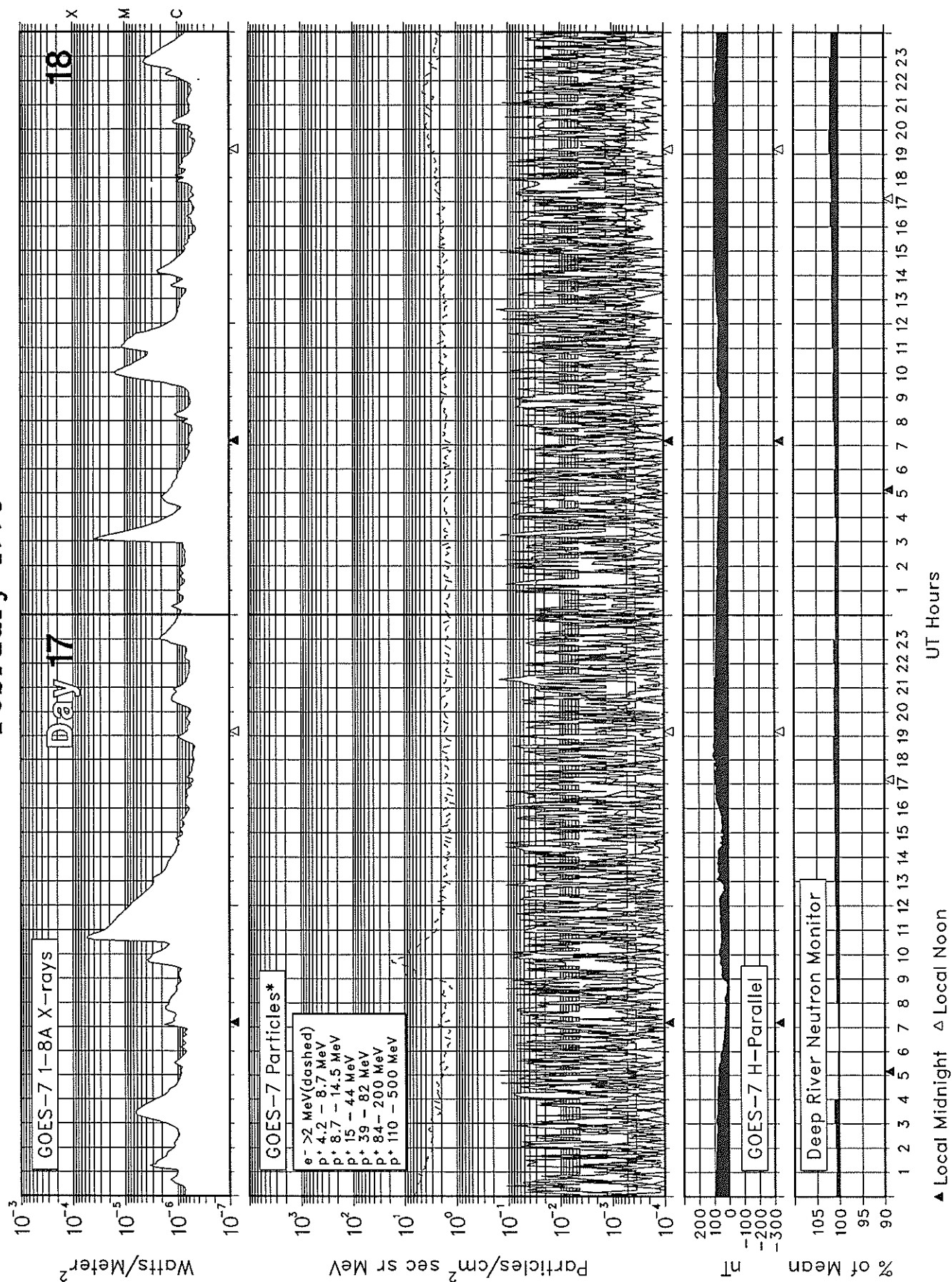
February 1993

11  
Feb 93



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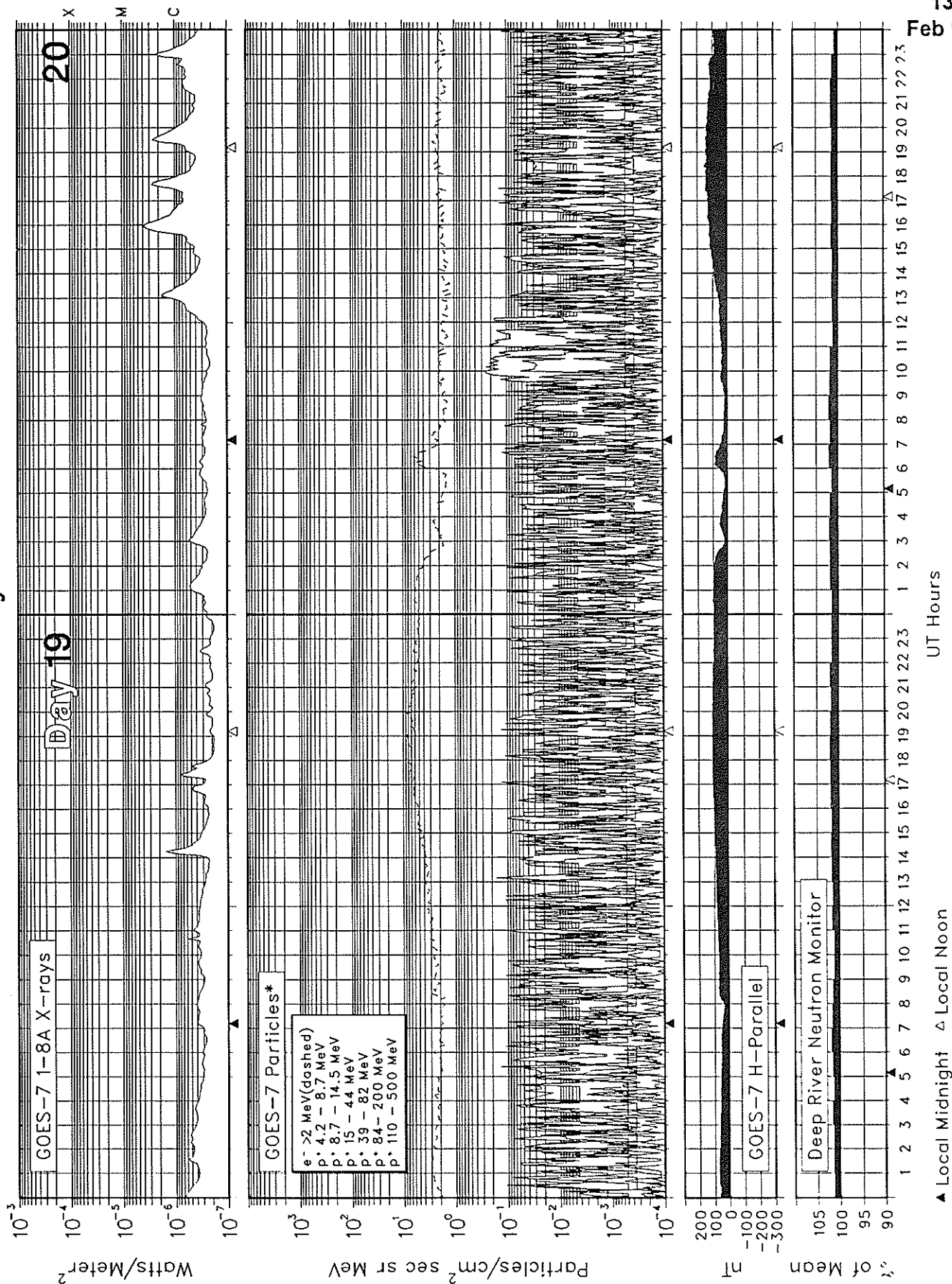
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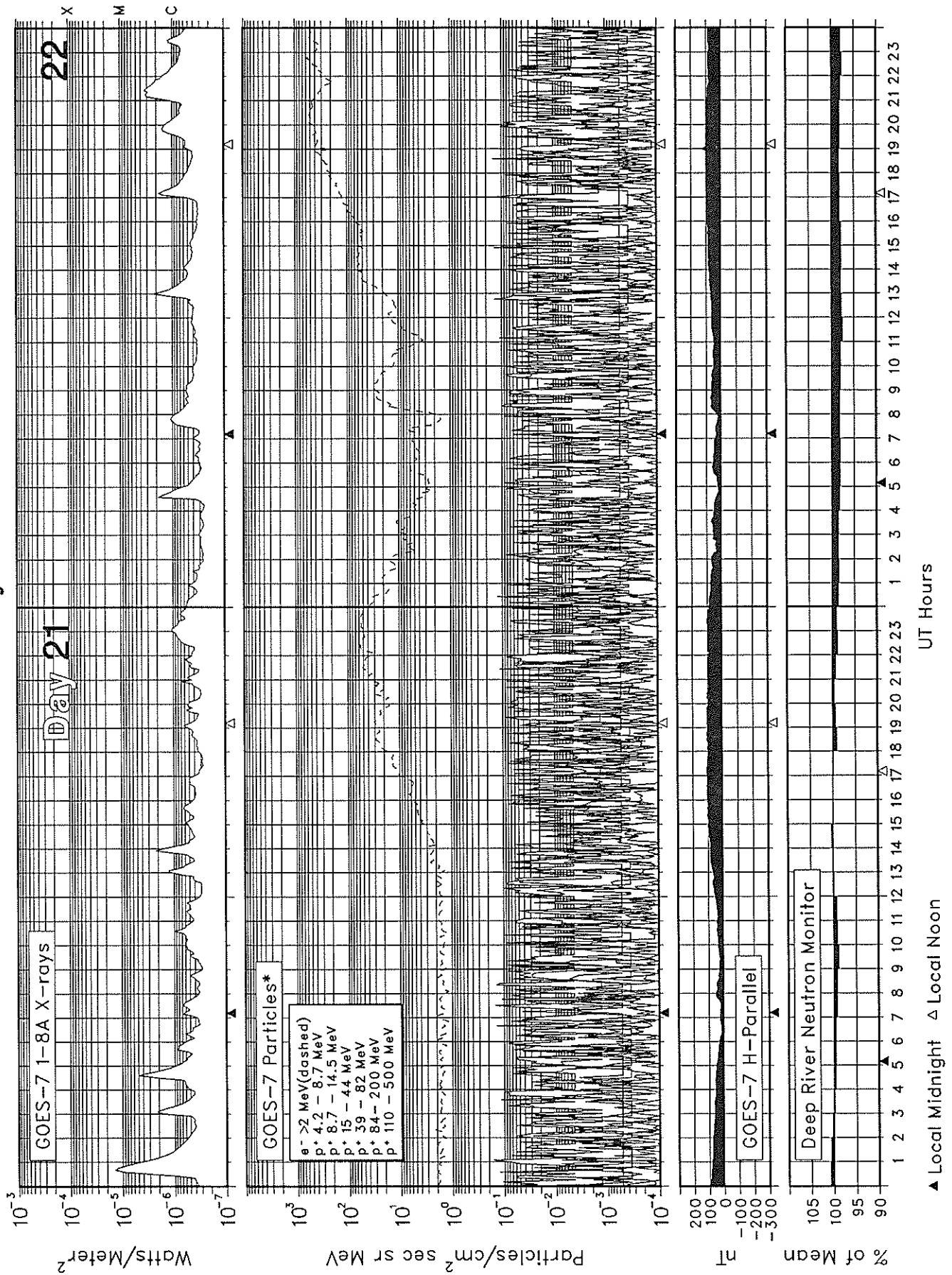
February 1993

13  
Feb 93



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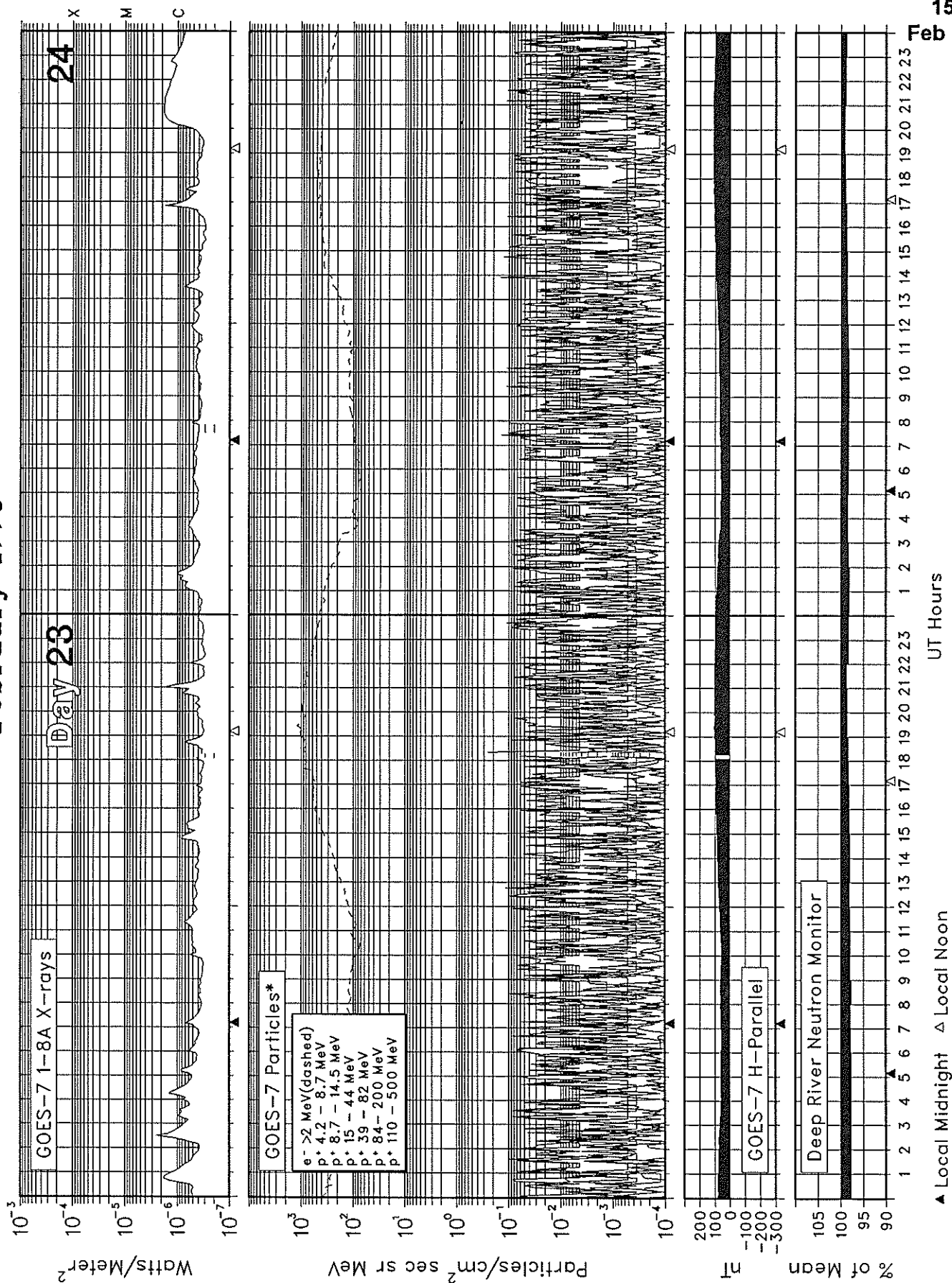
## February 1993



# SOLAR-TERRESTRIAL ENVIRONMENT

February 1993

15  
Feb 93

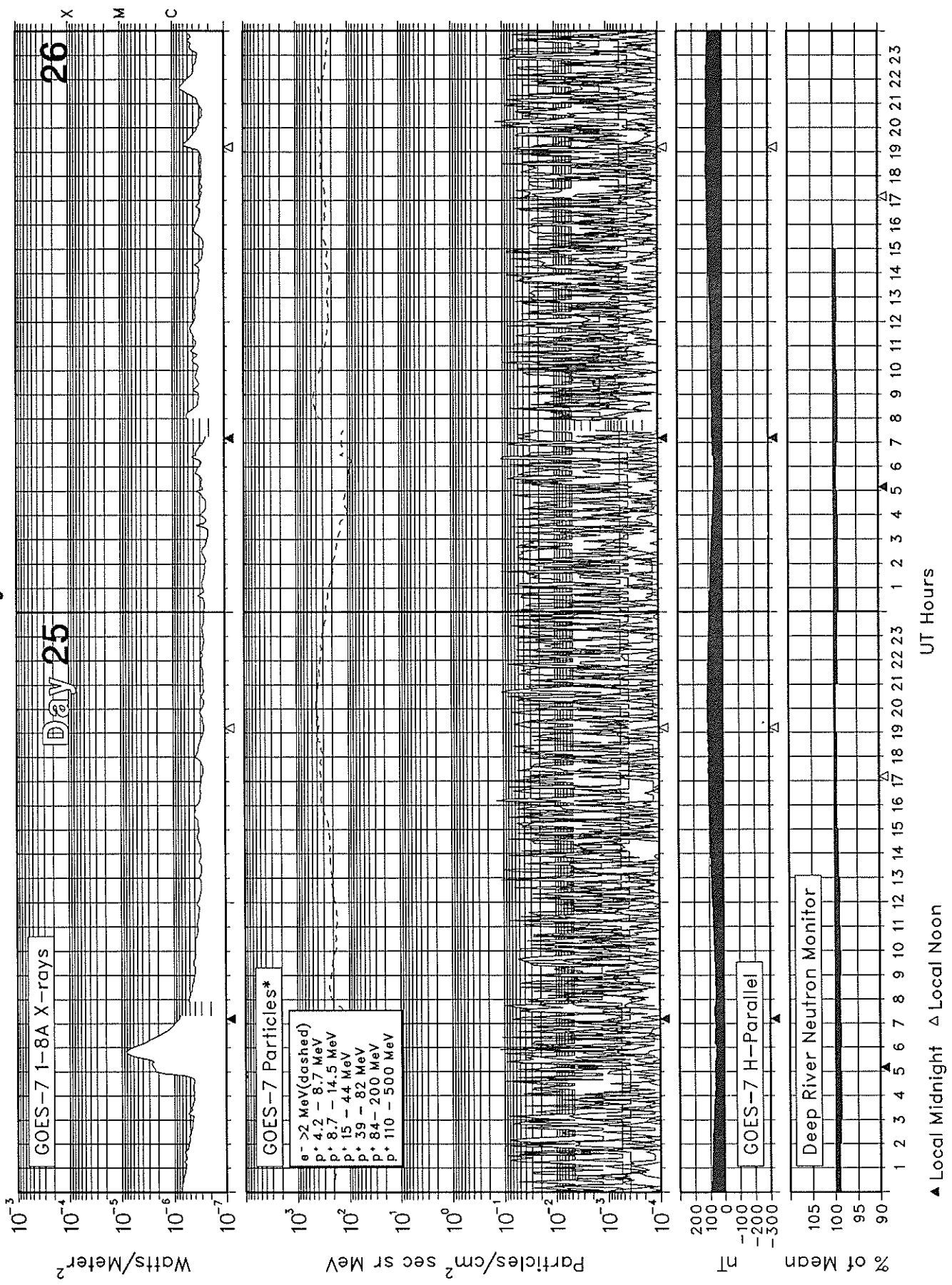




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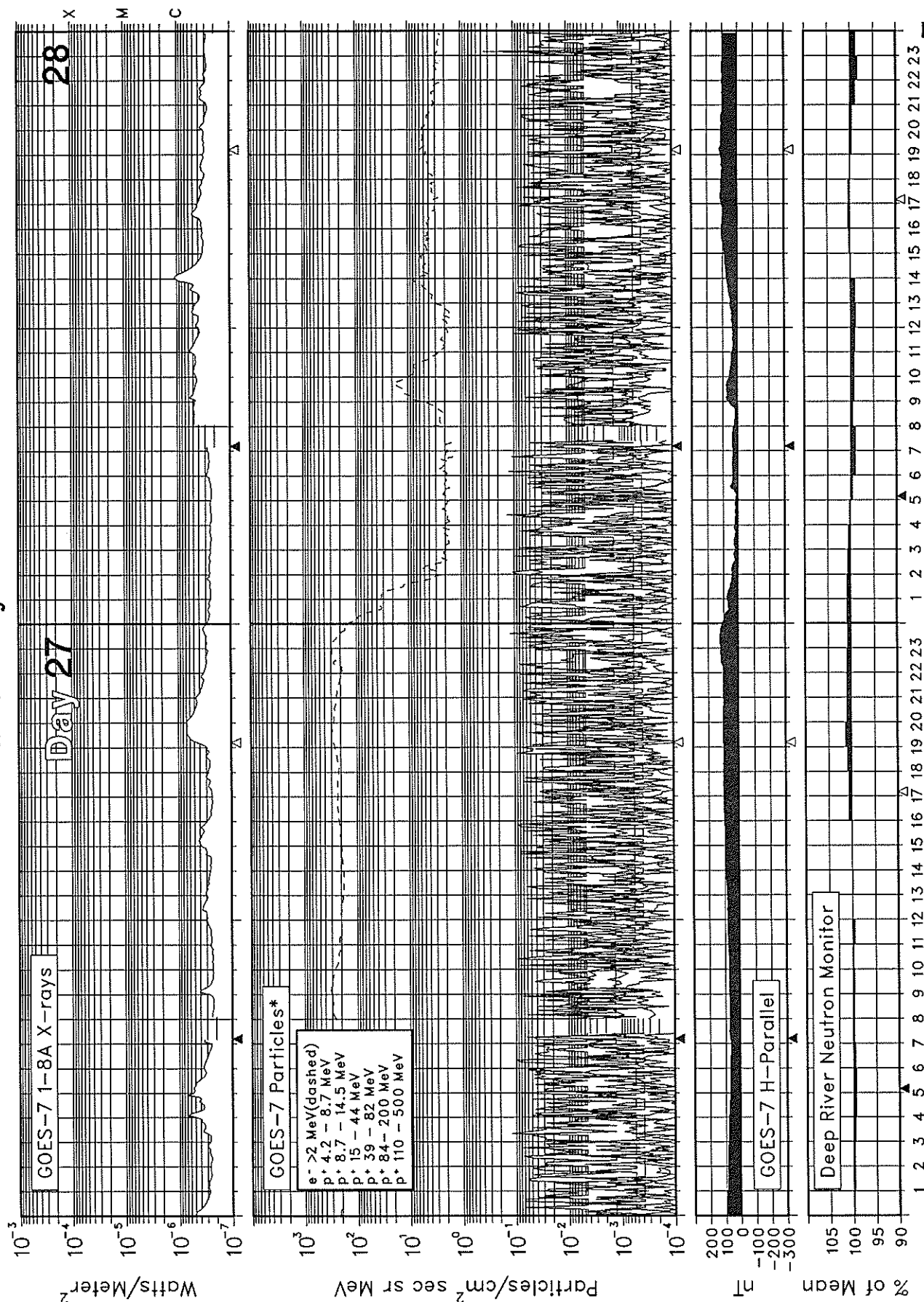
16  
Feb 93



# SOLAR-TERRESTRIAL ENVIRONMENT

February 1993

17  
Feb 93





# ALERT PERIODS

## INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

## Summary of the Geoalert Messages

FEBRUARY 1993

| Julian<br>Day | Date<br>of<br>Issue | Date<br>of<br>Observation | Wolf<br>No. | 10-cm<br>Solar<br>Flux | A-<br>index | Location |       | Flares |   |   | Date<br>of<br>Forecast | Location |       | Region<br>Forecast <sup>1</sup>               | Geoalerts |
|---------------|---------------------|---------------------------|-------------|------------------------|-------------|----------|-------|--------|---|---|------------------------|----------|-------|-----------------------------------------------|-----------|
|               |                     |                           |             |                        |             | °Lat     | °Long | Total  | M | X |                        | °Lat     | °Long |                                               |           |
| 032           | 01                  | 31                        | 070         | 119                    | 40          | S13      | W91   | 0      |   | 0 | 0                      | 01       | Q     | SOL: Eruptive<br>MAG: Active<br>PROTON: Quiet |           |
|               |                     |                           |             |                        |             | S12      | W77   | 0      |   | 0 | 0                      | 01       | Q     |                                               |           |
|               |                     |                           |             |                        |             | S15      | E26   | 0      |   | 0 | 0                      | 01       | Q     |                                               |           |
|               |                     |                           |             |                        |             | N17      | E43   | 0      |   | 0 | 0                      | 01       | Q     |                                               |           |
|               |                     |                           |             |                        |             | S04      | W10   | 0      |   | 0 | 0                      | 01       | Q     |                                               |           |
| 033           | 02                  | 01                        | 057         | 125                    | 21          | S12      | W90   | 0      |   | 0 | 0                      | 02       | Q     | SOL: Eruptive<br>MAG: Active<br>PROTON: Quiet |           |
|               |                     |                           |             |                        |             | S16      | E13   | 1      |   | 0 | 0                      | 02       | Q     |                                               |           |
|               |                     |                           |             |                        |             | S11      | E79   | 5      | 1 | 0 | 0                      | 02       | E     |                                               |           |
|               |                     |                           |             |                        |             | N14      | E78   | 0      |   | 0 | 0                      | 02       | Q     |                                               |           |
| 034           | 03                  | 02                        | 071         | 128                    | 14          | S17      | E01   | 3      |   | 0 | 0                      | 03       | E     | SOL: Eruptive<br>MAG: Quiet<br>PROTON: Quiet  |           |
|               |                     |                           |             |                        |             | N17      | E17   | 0      |   | 0 | 0                      | 03       | Q     |                                               |           |
|               |                     |                           |             |                        |             | S11      | E65   | 1      |   | 0 | 0                      | 03       | E     |                                               |           |
|               |                     |                           |             |                        |             | N14      | E66   | 1      |   | 0 | 0                      | 03       | E     |                                               |           |
| 035           | 04                  | 03                        | 096         | 137                    | 6           | S16      | W14   | 0      |   | 0 | 0                      | 04       | Q     | SOL: Eruptive<br>MAG: Quiet<br>PROTON: Quiet  |           |
|               |                     |                           |             |                        |             | S09      | E53   | 0      |   | 0 | 0                      | 04       | E     |                                               |           |
|               |                     |                           |             |                        |             | N16      | E57   | 1      |   | 0 | 0                      | 04       | E     |                                               |           |
|               |                     |                           |             |                        |             | N05      | E14   | 2      |   | 0 | 0                      | 04       | Q     |                                               |           |
|               |                     |                           |             |                        |             | N10      | E63   | 0      |   | 0 | 0                      | 04       | Q     |                                               |           |
| 036           | 05                  | 04                        | 160         | 147                    | 6           | S15      | W42   | 0      |   | 0 | 0                      | 05       | Q     | SOL: Active<br>MAG: Quiet<br>PROTON: Quiet    |           |
|               |                     |                           |             |                        |             | S10      | E27   | 0      |   | 0 | 0                      | 05       | Q     |                                               |           |
|               |                     |                           |             |                        |             | N16      | E35   | 2      |   | 0 | 0                      | 05       | Q     |                                               |           |
|               |                     |                           |             |                        |             | N05      | W15   | 0      |   | 0 | 0                      | 05       | Q     |                                               |           |
|               |                     |                           |             |                        |             | N11      | E39   | 0      |   | 0 | 0                      | 05       | Q     |                                               |           |
|               |                     |                           |             |                        |             | S08      | E65   | 4      |   | 0 | 0                      | 05       | Q     |                                               |           |
|               |                     |                           |             |                        |             | S13      | W65   | 1      |   | 0 | 0                      | 05       | Q     |                                               |           |
| 037           | 06                  | 05                        | 168         | 160                    | 6           | S15      | W42   | 1      |   | 0 | 0                      | 06       | Q     | SOL: Active<br>MAG: Quiet<br>PROTON: Quiet    |           |
|               |                     |                           |             |                        |             | S09      | E26   | 1      |   | 0 | 0                      | 06       | Q     |                                               |           |
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|               |                     |                           |             |                        |             | S13      | W66   | 1      |   | 0 | 0                      | 06       | Q     |                                               |           |
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|               |                     |                           |             |                        |             | N16      | W41   | 0      |   | 0 | 0                      | 07       | Q     |                                               |           |
|               |                     |                           |             |                        |             | S10      | E14   | 0      |   | 0 | 0                      | 07       | Q     |                                               |           |
|               |                     |                           |             |                        |             | N16      | E21   | 5      | 1 | 0 | 0                      | 07       | A     |                                               |           |
|               |                     |                           |             |                        |             | N05      | W29   | 1      |   | 0 | 0                      | 07       | E     |                                               |           |
|               |                     |                           |             |                        |             | N11      | E26   | 3      |   | 0 | 0                      | 07       | E     |                                               |           |
|               |                     |                           |             |                        |             | S07      | E51   | 12     | 1 | 0 | 0                      | 07       | E     |                                               |           |
|               |                     |                           |             |                        |             | S12      | W77   | 1      |   | 0 | 0                      | 07       | Q     |                                               |           |
| 039           | 08                  | 07                        | 182         | 176                    | 18          | N15      | W55   | 2      |   | 0 | 0                      | 08       | Q     | SOL: Active<br>MAG: Active<br>PROTON: Quiet   |           |
|               |                     |                           |             |                        |             | S09      | E01   | 1      |   | 0 | 0                      | 08       | Q     |                                               |           |
|               |                     |                           |             |                        |             | N16      | E07   | 7      |   | 0 | 0                      | 08       | E     |                                               |           |
|               |                     |                           |             |                        |             | N04      | W42   | 1      |   | 0 | 0                      | 08       | E     |                                               |           |
|               |                     |                           |             |                        |             | N11      | E13   | 1      |   | 0 | 0                      | 08       | Q     |                                               |           |
|               |                     |                           |             |                        |             | S07      | E38   | 5      |   | 0 | 0                      | 08       | E     |                                               |           |
|               |                     |                           |             |                        |             | N04      | E16   | 0      |   | 0 | 0                      | 08       | Q     |                                               |           |

# ALERT PERIODS

## INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

19  
Feb 93

### Summary of the Geoalert Messages

FEBRUARY 1993

| Julian<br>Day | Date<br>of<br>Issue | Date<br>of<br>Observation | Wolf<br>No. | 10-cm<br>Solar<br>Flux | A-<br>index | Location |       | Flares |   |   | Date<br>of<br>Forecast | Location |       | Region<br>Forecast <sup>1</sup> | Geoalerts                                    |
|---------------|---------------------|---------------------------|-------------|------------------------|-------------|----------|-------|--------|---|---|------------------------|----------|-------|---------------------------------|----------------------------------------------|
|               |                     |                           |             |                        |             | °Lat     | °Long | Total  | M | X |                        | °Lat     | °Long |                                 |                                              |
| 040           | 09                  | 08                        | 181         | 188                    | 29          | N15      | W70   | 0      |   | 0 | 0                      | 09       |       | Q                               | SOL: Active<br>MAG: Active<br>PROTON: Quiet  |
|               |                     |                           |             |                        |             | S10      | W12   | 0      |   | 0 |                        | 09       |       | Q                               |                                              |
|               |                     |                           |             |                        |             | N16      | W06   | 2      |   | 0 |                        | 09       |       | E                               |                                              |
|               |                     |                           |             |                        |             | N04      | W55   | 0      |   | 0 |                        | 09       |       | E                               |                                              |
|               |                     |                           |             |                        |             | N10      | W01   | 0      |   | 0 |                        | 09       |       | Q                               |                                              |
|               |                     |                           |             |                        |             | S07      | E26   | 6      |   | 0 |                        | 09       |       | A                               |                                              |
|               |                     |                           |             |                        |             | N04      | E04   | 0      |   | 0 |                        | 09       |       | Q                               |                                              |
| 041           | 10                  | 09                        | 188         | 185                    | 17          | N14      | W80   | 0      |   | 0 | 0                      | 10       |       | Q                               | SOL: Active<br>MAG: Quiet<br>PROTON: Quiet   |
|               |                     |                           |             |                        |             | S10      | W25   | 0      |   | 0 |                        | 10       |       | Q                               |                                              |
|               |                     |                           |             |                        |             | N16      | W18   | 3      |   | 0 |                        | 10       |       | E                               |                                              |
|               |                     |                           |             |                        |             | N04      | W68   | 0      |   | 0 |                        | 10       |       | Q                               |                                              |
|               |                     |                           |             |                        |             | N12      | W16   | 3      |   | 0 |                        | 10       |       | Q                               |                                              |
|               |                     |                           |             |                        |             | S07      | E13   | 12     |   | 1 |                        | 10       |       | E                               |                                              |
|               |                     |                           |             |                        |             | N04      | W10   | 1      |   | 0 |                        | 10       |       | Q                               |                                              |
| 042           | 11                  | 10                        | 152         | 180                    | 11          | N19      | W79   | 0      |   | 0 | 0                      | 10       |       | Q                               |                                              |
|               |                     |                           |             |                        |             | N15      | W93   | 0      |   | 0 |                        | 11       |       | Q                               | SOL: Active<br>MAG: Quiet<br>PROTON: Quiet   |
|               |                     |                           |             |                        |             | S09      | W40   | 1      |   | 0 |                        | 11       |       | Q                               |                                              |
|               |                     |                           |             |                        |             | N17      | W34   | 1      |   | 0 |                        | 11       |       | E                               |                                              |
|               |                     |                           |             |                        |             | N03      | W85   | 0      |   | 0 |                        | 11       |       | Q                               |                                              |
|               |                     |                           |             |                        |             | N11      | W27   | 1      |   | 0 |                        | 11       |       | Q                               |                                              |
|               |                     |                           |             |                        |             | S07      | W01   | 12     |   | 3 |                        | 11       |       | E                               |                                              |
| 043           | 12                  | 11                        | 131         | 173                    | 14          | N03      | W22   | 0      |   | 0 | 0                      | 11       |       | Q                               | SOL: Active<br>MAG: Quiet<br>PROTON: Quiet   |
|               |                     |                           |             |                        |             | N20      | W92   | 0      |   | 0 |                        | 11       |       | Q                               |                                              |
|               |                     |                           |             |                        |             | N09      | E62   | 0      |   | 0 |                        | 11       |       | Q                               |                                              |
|               |                     |                           |             |                        |             | N16      | W49   | 4      |   | 0 |                        | 12       |       | Q                               |                                              |
|               |                     |                           |             |                        |             | N11      | W38   | 1      |   | 0 |                        | 12       |       | Q                               |                                              |
|               |                     |                           |             |                        |             | S07      | W16   | 18     |   | 1 |                        | 12       |       | A                               |                                              |
|               |                     |                           |             |                        |             | N03      | W34   | 0      |   | 0 |                        | 12       |       | Q                               |                                              |
| 044           | 13                  | 12                        | 131         | 149                    | 11          | N09      | E49   | 0      |   | 0 | 0                      | 12       |       | Q                               | SOL: Active<br>MAG: Quiet<br>PROTON: Quiet   |
|               |                     |                           |             |                        |             | N13      | E76   | 0      |   | 0 |                        | 12       |       | Q                               |                                              |
|               |                     |                           |             |                        |             | N16      | W63   | 5      |   | 0 |                        | 13       |       | Q                               |                                              |
|               |                     |                           |             |                        |             | N12      | W53   | 0      |   | 0 |                        | 13       |       | Q                               |                                              |
|               |                     |                           |             |                        |             | S06      | W28   | 8      |   | 0 |                        | 13       |       | A                               |                                              |
|               |                     |                           |             |                        |             | N08      | E37   | 1      |   | 0 |                        | 13       |       | Q                               |                                              |
|               |                     |                           |             |                        |             | N14      | E63   | 0      |   | 0 |                        | 13       |       | Q                               |                                              |
| 045           | 14                  | 13                        | 121         | 135                    | 9           | N16      | W78   | 2      |   | 0 | 0                      | 14       |       | Q                               | SOL: Eruptive<br>MAG: Quiet<br>PROTON: Quiet |
|               |                     |                           |             |                        |             | N10      | W66   | 0      |   | 0 |                        | 14       |       | Q                               |                                              |
|               |                     |                           |             |                        |             | S06      | W42   | 12     |   | 0 |                        | 14       |       | E                               |                                              |
|               |                     |                           |             |                        |             | N09      | E22   | 1      |   | 0 |                        | 14       |       | Q                               |                                              |
|               |                     |                           |             |                        |             | N14      | E48   | 0      |   | 0 |                        | 14       |       | Q                               |                                              |
| 046           | 15                  | 14                        | 120         | 141                    | 5           | N17      | W91   | 0      |   | 0 | 0                      | 15       |       | Q                               | SOL: Active<br>MAG: Quiet<br>PROTON: Quiet   |
|               |                     |                           |             |                        |             | S06      | W58   | 7      |   | 0 |                        | 15       |       | E                               |                                              |
|               |                     |                           |             |                        |             | N09      | E08   | 2      |   | 0 |                        | 15       |       | E                               |                                              |
|               |                     |                           |             |                        |             | N14      | E36   | 0      |   | 0 |                        | 15       |       | Q                               |                                              |
|               |                     |                           |             |                        |             | N05      | E61   | 0      |   | 0 |                        | 15       |       | Q                               |                                              |
|               |                     |                           |             |                        |             | S22      | E71   | 1      |   | 1 |                        | 15       |       | E                               |                                              |
| 047           | 16                  | 15                        | 100         | 135                    | 1           | S06      | W71   | 4      |   | 0 | 0                      | 16       |       | E                               | SOL: Eruptive<br>MAG: Quiet<br>PROTON: Quiet |
|               |                     |                           |             |                        |             | N09      | W06   | 3      |   | 0 |                        | 16       |       | Q                               |                                              |
|               |                     |                           |             |                        |             | N15      | E24   | 0      |   | 0 |                        | 16       |       | Q                               |                                              |
|               |                     |                           |             |                        |             | N05      | E46   | 0      |   | 0 |                        | 16       |       | Q                               |                                              |
|               |                     |                           |             |                        |             | S22      | E56   | 1      |   | 0 |                        | 16       |       | Q                               |                                              |

| Summary of the Geoalert Messages |               |                     |          |                  |         | FEBRUARY 1993 |       |        |   |   |                  |          |       |                                               |           |
|----------------------------------|---------------|---------------------|----------|------------------|---------|---------------|-------|--------|---|---|------------------|----------|-------|-----------------------------------------------|-----------|
| Julian Day                       | Date of Issue | Date of Observation | Wolf No. | 10-cm Solar Flux | A-index | Location      |       | Flares |   |   | Date of Forecast | Location |       | Region Forecast <sup>1</sup>                  | Geoalerts |
|                                  |               |                     |          |                  |         | °Lat          | °Long | Total  | M | X |                  | °Lat     | °Long |                                               |           |
| 048                              | 17            | 16                  | 123      | 134              | 8       | S06           | W83   | 3      |   | 1 | 0                | 17       | E     | SOL: Eruptive<br>MAG: Quiet<br>PROTON: Quiet  |           |
|                                  |               |                     |          |                  |         | N10           | W21   | 0      |   | 0 | 0                | 17       | Q     |                                               |           |
|                                  |               |                     |          |                  |         | N15           | E12   | 2      |   | 0 | 0                | 17       | E     |                                               |           |
|                                  |               |                     |          |                  |         | N06           | E35   | 0      |   | 0 | 0                | 17       | Q     |                                               |           |
|                                  |               |                     |          |                  |         | S22           | E44   | 6      |   | 0 | 0                | 17       | E     |                                               |           |
|                                  |               |                     |          |                  |         | S06           | E54   | 1      |   | 0 | 0                | 17       | Q     |                                               |           |
|                                  |               |                     |          |                  |         | S14           | E69   | 1      |   | 0 | 0                | 17       | Q     |                                               |           |
| 049                              | 18            | 17                  | 086      | 124              | 28      | S07           | W96   | 1      |   | 1 | 0                | 18       | E     | SOL: Eruptive<br>MAG: Quiet<br>PROTON: Quiet  |           |
|                                  |               |                     |          |                  |         | N09           | W34   | 0      |   | 0 | 0                | 18       | Q     |                                               |           |
|                                  |               |                     |          |                  |         | N15           | W01   | 6      |   | 0 | 0                | 18       | E     |                                               |           |
|                                  |               |                     |          |                  |         | S20           | E31   | 9      |   | 0 | 0                | 18       | E     |                                               |           |
|                                  |               |                     |          |                  |         | S13           | E59   | 0      |   | 0 | 0                | 18       | Q     |                                               |           |
| 050                              | 19            | 18                  | 134      | 126              | 12      | N10           | W49   | 2      |   | 0 | 0                | 19       | Q     | SOL: Eruptive<br>MAG: Quiet<br>PROTON: Quiet  |           |
|                                  |               |                     |          |                  |         | N16           | W14   | 4      |   | 1 | 0                | 19       | E     |                                               |           |
|                                  |               |                     |          |                  |         | S20           | E17   | 4      |   | 2 | 0                | 19       | E     |                                               |           |
|                                  |               |                     |          |                  |         | S06           | E32   | 0      |   | 0 | 0                | 19       | Q     |                                               |           |
|                                  |               |                     |          |                  |         | S14           | E45   | 0      |   | 0 | 0                | 19       | Q     |                                               |           |
|                                  |               |                     |          |                  |         | N08           | E25   | 0      |   | 0 | 0                | 19       | Q     |                                               |           |
|                                  |               |                     |          |                  |         | S12           | E55   | 0      |   | 0 | 0                | 19       | Q     |                                               |           |
|                                  |               |                     |          |                  |         | S17           | E74   | 0      |   | 0 | 0                | 19       | Q     |                                               |           |
| 051                              | 20            | 19                  | 118      | 116              | 7       | N10           | W62   | 2      |   | 0 | 0                | 20       | Q     | SOL: Eruptive<br>MAG: Active<br>PROTON: Quiet |           |
|                                  |               |                     |          |                  |         | N15           | W26   | 1      |   | 0 | 0                | 20       | E     |                                               |           |
|                                  |               |                     |          |                  |         | S19           | E05   | 1      |   | 0 | 0                | 20       | E     |                                               |           |
|                                  |               |                     |          |                  |         | S14           | E31   | 0      |   | 0 | 0                | 20       | Q     |                                               |           |
|                                  |               |                     |          |                  |         | N08           | E11   | 0      |   | 0 | 0                | 20       | Q     |                                               |           |
|                                  |               |                     |          |                  |         | S12           | E42   | 5      |   | 0 | 0                | 20       | Q     |                                               |           |
|                                  |               |                     |          |                  |         | S17           | E64   | 2      |   | 0 | 0                | 20       | Q     |                                               |           |
| 052                              | 21            | 20                  | 118      | 123              | 22      | N11           | W80   | 0      |   | 0 | 0                | 21       | Q     | SOL: Eruptive<br>MAG: Active<br>PROTON: Quiet |           |
|                                  |               |                     |          |                  |         | N16           | W40   | 2      |   | 0 | 0                | 21       | Q     |                                               |           |
|                                  |               |                     |          |                  |         | S18           | W09   | 0      |   | 0 | 0                | 21       | E     |                                               |           |
|                                  |               |                     |          |                  |         | S14           | E19   | 0      |   | 0 | 0                | 21       | Q     |                                               |           |
|                                  |               |                     |          |                  |         | N09           | W00   | 0      |   | 0 | 0                | 21       | Q     |                                               |           |
|                                  |               |                     |          |                  |         | S12           | E28   | 1      |   | 0 | 0                | 21       | Q     |                                               |           |
|                                  |               |                     |          |                  |         | S17           | E51   | 0      |   | 0 | 0                | 21       | Q     |                                               |           |
|                                  |               |                     |          |                  |         | N12           | E75   | 0      |   | 0 | 0                | 21       | E     |                                               |           |
| 053                              | 22            | 21                  | 135      | 123              | 17      | N12           | W93   | 0      |   | 0 | 0                | 22       | Q     | SOL: Eruptive<br>MAG: Active<br>PROTON: Quiet |           |
|                                  |               |                     |          |                  |         | N15           | W53   | 3      |   | 0 | 0                | 22       | Q     |                                               |           |
|                                  |               |                     |          |                  |         | S18           | W23   | 0      |   | 0 | 0                | 22       | Q     |                                               |           |
|                                  |               |                     |          |                  |         | S13           | E05   | 0      |   | 0 | 0                | 22       | Q     |                                               |           |
|                                  |               |                     |          |                  |         | N08           | W13   | 2      |   | 0 | 0                | 22       | Q     |                                               |           |
|                                  |               |                     |          |                  |         | S12           | E14   | 1      |   | 0 | 0                | 22       | Q     |                                               |           |
|                                  |               |                     |          |                  |         | S16           | E38   | 1      |   | 0 | 0                | 22       | Q     |                                               |           |
|                                  |               |                     |          |                  |         | N12           | E60   | 15     |   | 1 | 0                | 22       | E     |                                               |           |
|                                  |               |                     |          |                  |         | S13           | E77   | 0      |   | 0 | 0                | 22       | Q     |                                               |           |
| 054                              | 23            | 22                  | 142      | 133              | 18      | N16           | W67   | 0      |   | 0 | 0                | 23       | Q     | SOL: Eruptive<br>MAG: Quiet<br>PROTON: Quiet  |           |
|                                  |               |                     |          |                  |         | S20           | W36   | 0      |   | 0 | 0                | 23       | Q     |                                               |           |
|                                  |               |                     |          |                  |         | S13           | W08   | 0      |   | 0 | 0                | 23       | Q     |                                               |           |
|                                  |               |                     |          |                  |         | N08           | W27   | 2      |   | 0 | 0                | 23       | Q     |                                               |           |
|                                  |               |                     |          |                  |         | S11           | W01   | 0      |   | 0 | 0                | 23       | Q     |                                               |           |
|                                  |               |                     |          |                  |         | S17           | E25   | 0      |   | 0 | 0                | 23       | Q     |                                               |           |
|                                  |               |                     |          |                  |         | N12           | E47   | 0      |   | 0 | 0                | 23       | E     |                                               |           |
|                                  |               |                     |          |                  |         | S14           | E66   | 0      |   | 0 | 0                | 23       | Q     |                                               |           |

# ALERT PERIODS

## INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

## Summary of the Geoalert Messages

FEBRUARY 1993

| Julian<br>Day | Date<br>of<br>Issue | Date<br>of<br>Observation | Wolf<br>No. | 10-cm<br>Solar<br>Flux | A-<br>index | Location |       | Flares |   |   | Date<br>of<br>Forecast | Location |       | Region<br>Forecast <sup>1</sup> | Geoalerts                                     |
|---------------|---------------------|---------------------------|-------------|------------------------|-------------|----------|-------|--------|---|---|------------------------|----------|-------|---------------------------------|-----------------------------------------------|
|               |                     |                           |             |                        |             | °Lat     | °Long | Total  | M | X |                        | °Lat     | °Long |                                 |                                               |
| 055           | 24                  | 23                        | 132         | 132                    | 6           | N16      | W79   | 0      |   |   | 0                      | 24       |       | Q                               | SOL: Eruptive<br>MAG: Quiet<br>PROTON: Quiet  |
|               |                     |                           |             |                        |             | S12      | W20   | 0      |   |   | 0                      | 24       |       | Q                               |                                               |
|               |                     |                           |             |                        |             | N08      | W40   | 3      |   |   | 0                      | 24       |       | E                               |                                               |
|               |                     |                           |             |                        |             | S11      | W13   | 0      |   |   | 0                      | 24       |       | Q                               |                                               |
|               |                     |                           |             |                        |             | S17      | E13   | 1      |   |   | 0                      | 24       |       | Q                               |                                               |
|               |                     |                           |             |                        |             | N12      | E34   | 1      |   |   | 0                      | 24       |       | E                               |                                               |
|               |                     |                           |             |                        |             | S13      | E54   | 0      |   |   | 0                      | 24       |       | Q                               |                                               |
| 056           | 25                  | 24                        | 131         | 135                    | 4           | N16      | W93   | 0      |   |   | 0                      | 25       |       | Q                               | SOL: Eruptive<br>MAG: Quiet<br>PROTON: Quiet  |
|               |                     |                           |             |                        |             | S12      | W34   | 0      |   |   | 0                      | 25       |       | Q                               |                                               |
|               |                     |                           |             |                        |             | N09      | W54   | 1      |   |   | 0                      | 25       |       | Q                               |                                               |
|               |                     |                           |             |                        |             | S11      | W25   | 0      |   |   | 0                      | 25       |       | Q                               |                                               |
|               |                     |                           |             |                        |             | S16      | W00   | 1      |   |   | 0                      | 25       |       | E                               |                                               |
|               |                     |                           |             |                        |             | N12      | E21   | 1      |   |   | 0                      | 25       |       | Q                               |                                               |
|               |                     |                           |             |                        |             | S13      | E42   | 0      |   |   | 0                      | 25       |       | Q                               |                                               |
| 057           | 26                  | 25                        | 124         | 128                    | 6           | S13      | W47   | 0      |   |   | 0                      | 26       |       | Q                               | SOL: Eruptive<br>MAG: Quiet<br>PROTON: Quiet  |
|               |                     |                           |             |                        |             | N09      | W68   | 1      |   |   | 0                      | 26       |       | Q                               |                                               |
|               |                     |                           |             |                        |             | S11      | W44   | 0      |   |   | 0                      | 26       |       | Q                               |                                               |
|               |                     |                           |             |                        |             | S17      | W13   | 0      |   |   | 0                      | 26       |       | Q                               |                                               |
|               |                     |                           |             |                        |             | N12      | E08   | 0      |   |   | 0                      | 26       |       | Q                               |                                               |
|               |                     |                           |             |                        |             | S12      | E28   | 4      |   |   | 0                      | 26       |       | Q                               |                                               |
|               |                     |                           |             |                        |             | N09      | E67   | 0      |   |   | 0                      | 26       |       | Q                               |                                               |
| 058           | 27                  | 26                        | 118         | 126                    | 3           | S13      | W61   | 0      |   |   | 0                      | 27       |       | Q                               | SOL: Eruptive<br>MAG: Active<br>PROTON: Quiet |
|               |                     |                           |             |                        |             | N07      | W84   | 0      |   |   | 0                      | 27       |       | Q                               |                                               |
|               |                     |                           |             |                        |             | S12      | W57   | 0      |   |   | 0                      | 27       |       | Q                               |                                               |
|               |                     |                           |             |                        |             | S17      | W27   | 0      |   |   | 0                      | 27       |       | Q                               |                                               |
|               |                     |                           |             |                        |             | N13      | W05   | 1      |   |   | 0                      | 27       |       | Q                               |                                               |
|               |                     |                           |             |                        |             | S12      | E15   | 0      |   |   | 0                      | 27       |       | Q                               |                                               |
|               |                     |                           |             |                        |             | N09      | E53   | 0      |   |   | 0                      | 27       |       | Q                               |                                               |
| 059           | 28                  | 27                        | 122         | 124                    | 2           | S13      | W73   | 0      |   |   | 0                      | 28       |       | Q                               | SOL: Eruptive<br>MAG: Active<br>PROTON: Quiet |
|               |                     |                           |             |                        |             | S12      | W71   | 0      |   |   | 0                      | 28       |       | Q                               |                                               |
|               |                     |                           |             |                        |             | S17      | W39   | 1      |   |   | 0                      | 28       |       | Q                               |                                               |
|               |                     |                           |             |                        |             | N13      | W18   | 0      |   |   | 0                      | 28       |       | Q                               |                                               |
|               |                     |                           |             |                        |             | S12      | E02   | 0      |   |   | 0                      | 28       |       | Q                               |                                               |
|               |                     |                           |             |                        |             | N10      | E39   | 0      |   |   | 0                      | 28       |       | E                               |                                               |
|               |                     |                           |             |                        |             | N18      | W51   | 0      |   |   | 0                      | 28       |       | Q                               |                                               |

<sup>1</sup> Region Forecast and Flare Geoadvice

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%)  
Warning condition (activity levels expected to increase, but no  
numeric forecast given)  
Nil (end of Alert period)  
No forecast

Magnetic Geoadvice

Quiet  
Active conditions expected (A>=20 or K=4)  
Minor storm expected (A>=30 or K=5)  
Major magstorm expected (A>=50 or K>=6)  
Severe magstorm expected (A>=100 or K>=7)  
Magstorm in progress (A>=30 or K>=4)  
Warning condition (activity levels expected  
to increase, but no numeric forecast given)  
Nil (end of Alert period)  
No forecast

Proton Geoadvice

Quiet  
Proton event expected (10 pfu at >10 MeV)  
Major proton event expected (100 pfu at >100 MeV)  
Proton event in progress (>10 MeV)  
Warning condition (activity levels expected to increase, but no  
numeric forecast given)  
Nil (end of Alert period)  
No forecast

STRATWARM ALERTS

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02/02/93 03:30:00

GEOALERT WWA033. STRATWARM ALERT/MON/STRATWARM EXISTS.  
INTENSE WARMING OVER NORTHEASTERN ASIA AND ALASKA WITH TEMPERATURE INCREASE OF  
MORE THAN 30 DGS C DURING THE LAST WEEK AT 10 HPA OVER NORTHEASTERN SIBERIA, BUT STRONG  
POLAR VORTEX CONTINUES WITH COLDEST AIR OVER NORTHEASTERN EUROPE.

02/03/93 03:30:00

GEOALERT WWA034. STRATWARM ALERT/TUE/STRATWARM EXISTS.  
INTENSE WARMING OVER NORTHEASTERN SIBERIA AND ALASKA CONTINUES, WARM AIR SPREADING  
EASTWARDS.

02/04/93 03:30:00

GEOALERT WWA035. STRATWARM ALERT/WED/STRATWARM EXISTS.  
MINOR WARMING OVER NORTHEASTERN SIBERIA AND ALASKA CONTINUES, WARM AIR SPREADING  
NORTHEASTWARDS.

02/05/93 03:30:00

GEOALERT WWA037. STRATWARM ALERT/FRI/STRATWARM EXISTS.  
INTENSE WARMING OVER NORTHEASTERN SIBERIA, ALASKA AND CANADA CONTINUES.

02/06/93 03:30:00

GEOALERT WWA037. STRATWARM ALERT/FRI/STRATWARM EXISTS.  
INTENSE WARMING OVER NORTHEASTERN SIBERIA, ALASKA AND CANADA CONTINUES.

02/07/93 03:30:00

GEOALERT WWA038. STRATWARM ALERT/SAT/STRATWARM EXISTS.  
MINOR WARMING OVER NORTHEASTERN SIBERIA, ALASKA AND CANADA CONTINUES.

02/08/93 03:30:00

GEOALERT WWA039. STRATWARM ALERT/SUN/STRATWARM EXISTS.  
MINOR WARMING OVER NORTHEASTERN SIBERIA, ALASKA AND CANADA CONTINUES, BUT TEMPERATURE GRADIENT NO LONGER REVERSED BETWEEN 60 N AND THE POLE AT 10 HPA.

02/10/93 03:30:00

GEOALERT WWA041. STRATWARM ALERT/TUE/STRATWARM EXISTS.  
INTENSE WARMING OVER SIBERIA CONTINUES, SPREADING NORTHEASTWARDS.

02/11/93 03:30:00

GEOALERT WWA042. STRATWARM ALERT/WED/STRATWARM EXISTS.  
INTENSE WARMING OVER SIBERIA AND ALASKA WITH CENTRE OVER THE EAST SIBERIAN SEA CONTINUES.

02/12/93 03:30:00

GEOALERT WWA043. STRATWARM ALERT/THURSDAY/STRATWARM EXISTS.  
INTENSE WARMING OVER SIBERIA, ALASKA AND SIBERIAN ARCTIC CONTINUES, SLOWLY WEAKENING

02/13/93 03:30:00

GEOALERT WWA044. STRATWARM ALERT/FRI/STRATWARM EXISTS.  
MINOR WARMING OVER NORTHEASTERN ASIA CONTINUES. TEMPERATURE GRADIENT BETWEEN 60N AND THE POLE REVERSED IN THE UPPER STRATOSPHERE.

02/14/93 03:30:00

GEOALERT WWA045. STRATWARM ALERT/SAT/STRATWARM EXISTS.  
MINOR WARMING OVER NORTHEASTERN ASIA CONTINUES. TEMPERATURE GRADIENT REVERSED BETWEEN 60N AND THE POLE AT 10 HPA AND ABOVE.

02/15/93 03:30:00

GEOALERT WWA046. STRATWARM ALERT/SUN/STRATWARM EXISTS.  
MINOR WARMING OVER NORTHEASTERN ASIA CONTINUES, EXTENDING TOWARDS CANADA. TEMPERATURE GRADIENT REVERSED BETWEEN 60N AND THE POLE FROM 30 HPA UPWARDS.

02/16/93 03:30:00

GEOALERT WWA047. STRATWARM ALERT/MON/STRATWARM EXISTS.  
MINOR WARMING FROM CENTRAL SIBERIA ACROSS NORTHEASTERN SIBERIA, ALASKA, NORTHWESTERN CANADA AND THE SIBERIAN AND CANADIAN ARCTIC CONTINUES. TEMPERATURE GRADIENT REVERSED BETWEEN 60N AND THE POLE IN THE LOWER AND MIDDLE STRATOSPHERE FROM 50 HPA UPWARDS.

02/17/93 03:30:00

GEOALERT WWA048. STRATWARM ALERT/TUE/STRATWARM EXISTS.  
MINOR WARMING OVER SIBERIA, ALASKA, NORTHWESTERN CANADA AND THE SIBERIAN AND  
CANADIAN ARCTIC CONTINUES. WARM CENTRE OVER CENTRAL SIBERIA INTENSIFYING  
TODAY. TEMPERATURE GRADIENT REVERSED BETWEEN 60N AND THE POLE IN THE LOWER  
AND MIDDLE STRATOSPHERE.

02/18/93 03:30:00

GEOALERT WWA049. STRATWARM ALERT/WED/STRATWARM EXISTS.  
INTENSE WARMING OVER SIBERIA, ALASKA AND THE SIBERIAN AND CANADIAN ARCTIC CONTINUES.  
TEMPERATURE GRADIENT REVERSED BETWEEN 60N AND THE POLE IN THE LOWER AND MIDDLE  
STRATOSPHERE, MEAN ZONAL WIND AT 60N WEAKENING.

02/19/93 03:30:00

GEOALERT WWA050. STRATWARM ALERT/THU/STRATWARM EXISTS.  
MINOR WARMING OVER SIBERIA, ALASKA, NORTHWESTERN CANADA AND THE SIBERIAN AND CANA-  
DIAN ARCTIC CONTINUES, BUT POLAR REGION SLOWLY COOLING AGAIN. THEREFORE NO LONGER  
REVERSED TEMPERATURE GRADIENT IN THE WHOLE STRATOSPHERE TODAY. MEAN ZONAL WIND AT  
60 N CONTINUOUSLY WEAKENING AT 10 HPA.

02/20/93 03:30:00

GEOALERT WWA051. STRATWARM ALERT/FRI/STRATWARM EXISTS.  
MINOR WARMING OVER MEDITERRANEAN SEA, SOUTHERN URAL, SIBERIA AND ARCTIC, ALASKA,  
NORTHWESTERN CANADA AND CANADIAN ARCTIC CONTINUE 10 HPA.

02/21/93 03:30:00

GEOALERT WWA052. STRATWARM ALERT/SAT/STRATWARM EXISTS.  
MINOR WARMING OVER SOUTHERN EUROPE, SIBERIA AND SIBERIAN ARCTIC, NORTHERN CANADA  
AND CANADIAN ARCTIC CONTINUES. THE TEMPERATURE GRADIENT BETWEEN 60N AND THE  
POLE IS REVERSED IN THE MIDDLE STRATOSPHERE.

02/22/93 03:30:00

GEOALERT WWA053. STRATWARM ALERT/SUN/STRATWARM EXISTS.  
MINOR WARMING OVER SOUTHERN EUROPE, SIBERIA, AND SIBERIAN ARCTIC, ALASKA, AND CANA-  
DIAN ARCTIC CONTINUES. TEMPERATURE GRADIENT REVERSED BETWEEN 60N AND THE POLE  
FROM 10 HPA UPWARDS.

02/23/93 03:30:00

GEOALERT WWA054. STRATWARM ALERT/MON/STRATWARM EXISTS.  
MINOR WARMING OVER SOUTHERN, CENTRAL AND EASTERN EUROPE, SIBERIA, ALASKA AND THE  
EAST SIBERIAN AND BEAUFORT SEA CONTINUES BUT POLAR REGION COOLING AGAIN TODAY. THERE-  
FORE TEMPERATURE GRADIENT ONLY STILL REVERSED BETWEEN 60N AND THE POLE IN THE UPPER  
STRATOSPHERE. MEAN ZONAL WIND AT 60N FROM EAST AT 1 HPA.

02/24/93 03:30:00

GEOALERT WWA055. STRATWARM ALERT/TUESDAY/STRATWARM EXISTS.  
LARGE AND STRONG WARMING OVER EUROPE (WITHOUT NORTHWESTERN EUROPE) AND SIBERIA  
CONTINUES, INTENSIFYING TODAY. WARM AIR SPREADING NORTH-EASTWARDS. TEMPERATURE GRA-  
DIENT REVERSED BETWEEN 60N AND THE POLE ONLY IN THE UPPER STRATOSPHERE.



02/25/93 03:30:00

GEOALERT WWA056. STRATWARM ALERT/WED/STRATWARM EXISTS.  
INTENSE WARMING OVER SIBERIA CONTINUES, SPREADING NORTHEASTWARDS COVERING THE ENTIRE POLAR REGION IN THE UPPER STRATOSPHERE, AND LEADING THERE TO A REVERSED TEMPERATURE GRADIENT BETWEEN 60N AND THE POLE.

02/26/93 03:30:00

GEOALERT WWA057. STRATWARM ALERT/THU/STRATWARM EXISTS.  
INTENSE WARMING CENTERED OVER THE SIBERIAN ARCTIC CONTINUES, WARM AIR COVERING THE ENTIRE POLAR REGION AT 10 HPA TODAY. THEREFORE TEMPERATURE GRADIENT REVERSED BETWEEN 60 N AND THE POLE FROM 10 HPA UPWARDS INTO THE UPPER STRATOSPHERE, MEAN ZONAL WIND AT 60 N FROM EAST AT 1 HPA.

02/27/93 03:30:00

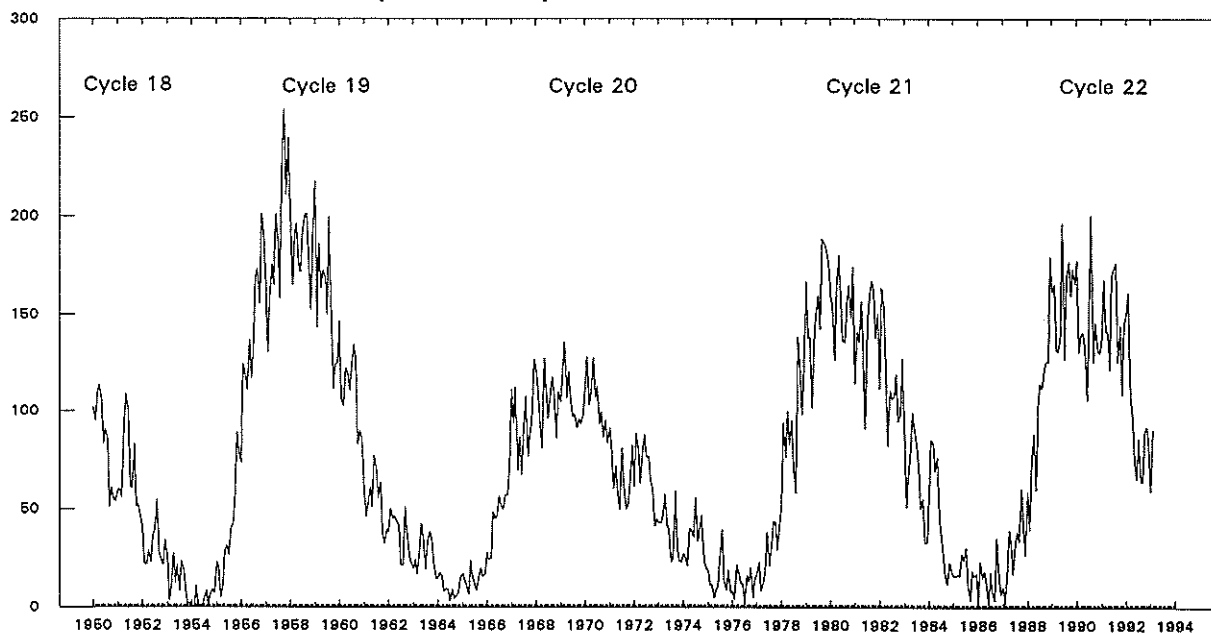
GEOALERT WWA058. STRATWARM ALERT/FRI/STRATWARM EXISTS.  
INTENSE WARMING CENTRED OVER THE SIBERIAN ARCTIC CONTINUES. TEMPERATURE GRADIENT REVERSED BETWEEN 60N AND THE POLE FROM 10 HPA UPWARDS INTO THE UPPER STRATOSPHERE. MEAN ZONAL WIND AT 60N CONTINUES FROM EAST AT 1 HPA.

02/28/93 03:30:00

GEOALERT WWA059. STRATWARM ALERT/SAT/STRATWARM EXISTS.  
INTENSE WARMING OVER THE SIBERIAN AND CANADIAN ARCTIC, NORTH-EASTERN SIBERIA AND ALASKA CONTINUES, SLOWLY WEAKENING. TEMPERATURE GRADIENT REVERSED BETWEEN 60N AND THE POLE FROM 10 HPA UPWARDS INTO THE UPPER STRATOSPHERE. MEAN ZONAL WIND AT 60N AGAIN FROM WEST AT 1 HPA.

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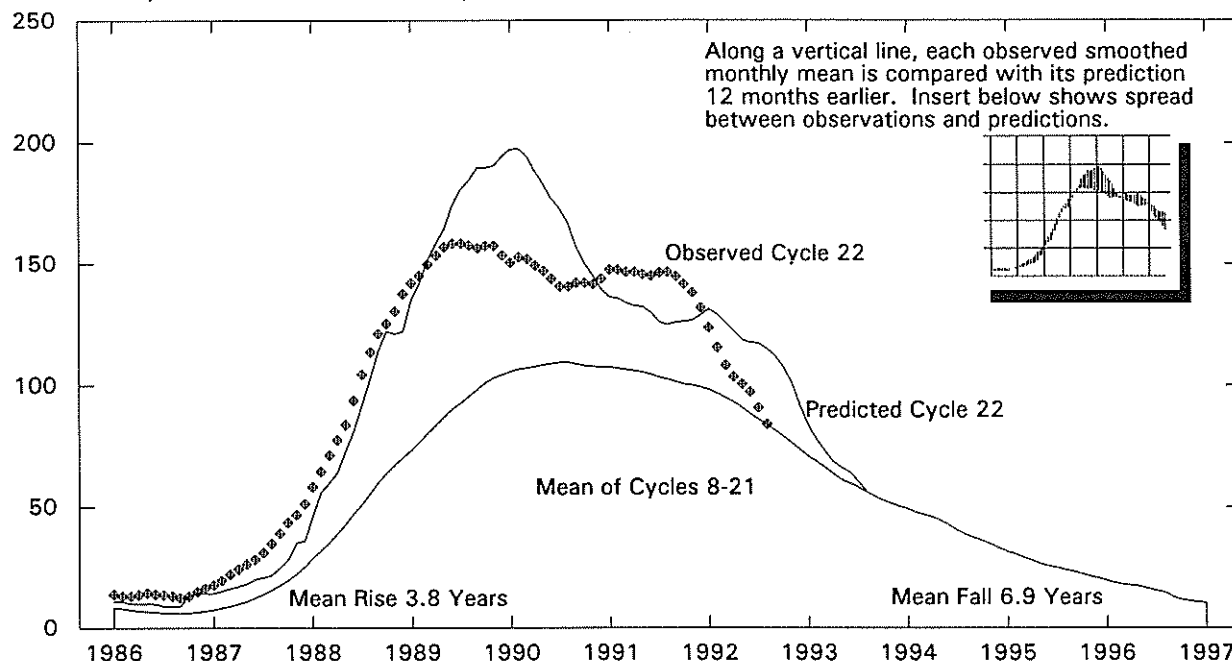
## Monthly Mean Sunspot Numbers Jan 1950 - Feb 1993



| 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  | 112.3   |
| 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 | 59.1  | 90.5  |       |       |       |       |       |       |       |       |       |       | 74.8    |

Values are preliminary since Jan 1993. For the yearly means, each 'M' marks a sunspot cycle maximum and each 'm' a minimum.

Cycle 22 Smoothed Sunspot Numbers: Observed and Predicted (1 Year Ahead)



Smoothed Sunspot Numbers (Observed and Predicted) for Parts of Solar Cycles 21 and 22

| Year | Jan  | Feb  | Mar  | Apr  | May  | Jun  | Jul  | Aug  | Sep  | Oct  | Nov  | Dec  | Avg  |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 1986 | 14   | 13   | 13   | 14   | 14   | 14   | 14   | 13   | 12   | 13   | 15   | 16   | 14   |
| 1987 | 18   | 20   | 22   | 24   | 26   | 28   | 31   | 35   | 39   | 44   | 47   | 51   | 32   |
| 1988 | 58   | 65   | 71   | 78   | 84   | 94   | 104  | 114  | 121  | 125  | 130  | 138  | 98   |
| 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   | 82   | 79   | 76   | 73   | 94   |
| ( )  |      |      |      |      |      |      |      |      | (4)  | (6)  | (7)  | (7)  | (6)  |
| 1993 | 71   | 69   | 66   | 64   | 62   | 60   | 58   | 56   | 54   | 53   | 52   | 51   | 60   |
| ( )  | (7)  | (8)  | (10) | (11) | (11) | (11) | (12) | (13) | (14) | (15) | (16) | (18) | (13) |
| 1994 | 49   | 48   | 47   | 46   | 44   | 43   | 40   | 39   | 37   | 36   | 35   | 33   | 41   |
| ( )  | (19) | (19) | (19) | (20) | (20) | (21) | (22) | (23) | (24) | (25) | (25) | (25) | (22) |

Solar Cycle 21
  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 Dec 1992 and on provisional numbers thereafter. Table entries with numbers in parentheses below them denote predictions by the McNish-Lincoln method. (See page 9 in the Jul 1987 supplement to *Solar-Geophysical Data*.) Adding the number in parentheses to the predicted value generates the upper limit of the 90% confidence interval. Subtracting the number from the predicted value generates the lower limit. Consider, for example, the July 1993 prediction. There exists a 90% chance that in July 1993 the actual smoothed number will fall somewhere between 49 and 71.

**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.

28  
Feb 93

INTERNATIONAL RELATIVE SUNSPOT NUMBERS

| Day  | Mar 92 | Apr  | May  | Jun  | Jul  | Aug  | Sep  | Oct  | Nov  | Dec  | Jan <sup>†</sup> 93 | Feb <sup>†</sup> |
|------|--------|------|------|------|------|------|------|------|------|------|---------------------|------------------|
| 01   | 166    | 103  | 88   | 31   | 78   | 65   | 47   | 85   | 104  | 65   | 46                  | 22               |
| 02   | 124    | 95   | 86   | 38   | 66   | 90   | 49   | 98   | 88   | 56   | 37                  | 34               |
| 03   | 106    | 88   | 90   | 72   | 63   | 103  | 44   | 95   | 68   | 59   | 36                  | 69               |
| 04   | 92     | 64   | 98   | 74   | 71   | 103  | 46   | 105  | 86   | 59   | 52                  | 85               |
| 05   | 65     | 50   | 96   | 81   | 78   | 94   | 47   | 122  | 95   | 51   | 66                  | 119              |
| 06   | 69     | 60   | 93   | 70   | 77   | 89   | 52   | 113  | 95   | 48   | 84                  | 129              |
| 07   | 103    | 64   | 72   | 64   | 79   | 86   | 44   | 103  | 96   | 34   | 81                  | 128              |
| 08   | 106    | 57   | 82   | 60   | 83   | 93   | 38   | 88   | 74   | 63   | 89                  | 134              |
| 09   | 118    | 58   | 79   | 70   | 102  | 93   | 57   | 91   | 76   | 91   | 94                  | 126              |
| 10   | 125    | 54   | 73   | 74   | 129  | 74   | 54   | 73   | 74   | 99   | 100                 | 114              |
| 11   | 122    | 62   | 68   | 82   | 133  | 60   | 59   | 57   | 84   | 116  | 91                  | 95               |
| 12   | 125    | 66   | 80   | 102  | 132  | 53   | 63   | 41   | 83   | 109  | 94                  | 97               |
| 13   | 138    | 68   | 87   | 86   | 126  | 61   | 77   | 36   | 62   | 113  | 107                 | 92               |
| 14   | 130    | 75   | 78   | 77   | 151  | 82   | 77   | 43   | 69   | 115  | 69                  | 78               |
| 15   | 110    | 82   | 65   | 60   | 161  | 76   | 75   | 40   | 70   | 112  | 58                  | 73               |
| 16   | 107    | 97   | 45   | 64   | 159  | 96   | 76   | 54   | 84   | 109  | 59                  | 84               |
| 17   | 85     | 117  | 41   | 64   | 140  | 90   | 62   | 55   | 100  | 105  | 62                  | 68               |
| 18   | 75     | 129  | 59   | 59   | 102  | 71   | 54   | 73   | 102  | 98   | 66                  | 78               |
| 19   | 78     | 139  | 54   | 63   | 88   | 69   | 63   | 92   | 108  | 97   | 68                  | 88               |
| 20   | 88     | 163  | 59   | 56   | 66   | 59   | 62   | 75   | 98   | 97   | 52                  | 97               |
| 21   | 91     | 176  | 110  | 55   | 65   | 48   | 65   | 98   | 85   | 84   | 47                  | 92               |
| 22   | 90     | 171  | 106  | 69   | 67   | 44   | 66   | 104  | 95   | 91   | 34                  | 100              |
| 23   | 92     | 166  | 113  | 73   | 54   | 36   | 89   | 95   | 115  | 79   | 30                  | 101              |
| 24   | 109    | 146  | 99   | 70   | 43   | 38   | 90   | 114  | 122  | 78   | 45                  | 90               |
| 25   | 119    | 159  | 66   | 64   | 37   | 20   | 75   | 113  | 125  | 81   | 51                  | 88               |
| 26   | 116    | 123  | 57   | 59   | 54   | 30   | 84   | 125  | 116  | 90   | 37                  | 86               |
| 27   | 111    | 96   | 80   | 38   | 61   | 34   | 86   | 138  | 116  | 73   | 38                  | 86               |
| 28   | 110    | 97   | 59   | 43   | 53   | 33   | 62   | 131  | 99   | 86   | 37                  | 82               |
| 29   | 121    | 89   | 41   | 70   | 39   | 40   | 72   | 111  | 92   | 78   | 35                  |                  |
| 30   | 107    | 80   | 30   | 67   | 47   | 35   | 81   | 100  | 74   | 69   | 36                  |                  |
| 31   | 111    |      | 33   |      | 53   | 36   |      | 82   |      | 56   | 32                  |                  |
| Mean | 106.7  | 99.8 | 73.8 | 65.2 | 85.7 | 64.5 | 63.9 | 88.7 | 91.8 | 82.6 | 59.1                | 90.5             |

<sup>†</sup>=preliminary. The yearly mean sunspot number equals 94.3 for 1992.

Dominion Radio Observatory PENTICTON 2800 MHz (10.7 cm) SOLAR FLUX Adjusted to 1 AU

| Day  | Mar 92 | Apr   | May   | Jun   | Jul   | Aug   | Sep   | Oct    | Nov    | Dec   | Jan 93 | Feb   |
|------|--------|-------|-------|-------|-------|-------|-------|--------|--------|-------|--------|-------|
| 01   | 196.8  | 185.9 | 133.0 | 101.4 | 134.1 | 113.6 | 101.6 | 118.2  | 144.8  | 127.1 | 118.3  | 121.5 |
| 02   | 178.3  | 161.2 | 138.0 | 105.0 | 141.2 | 128.2 | 106.3 | 119.5  | 138.8  | 126.0 | 117.4  | 124.7 |
| 03   | 160.3  | 159.8 | 127.8 | 110.1 | 141.1 | 135.1 | 108.9 | 120.2  | 132.9  | 121.3 | 120.6  | 133.0 |
| 04   | 157.1  | 154.0 | 137.0 | 111.5 | 141.3 | 134.7 | 106.4 | 126.1  | 140.4  | 115.9 | 117.1  | 143.2 |
| 05   | 152.4  | 154.7 | 135.4 | 118.4 | 150.6 | 134.3 | 121.2 | 130.1  | 133.6  | 112.4 | 120.8  | 155.6 |
| 06   | 153.1  | 143.0 | 133.0 | 123.2 | 155.4 | 141.9 | 141.3 | 137.3  | 130.5  | 115.9 | 125.8  | 178.8 |
| 07   | 157.2  | 141.8 | 131.5 | 119.2 | 159.9 | 145.4 | 133.6 | 135.8  | 132.4  | 116.1 | 126.3  | 171.2 |
| 08   | 179.4  | 151.6 | 145.3 | 118.7 | 156.6 | 147.5 | 130.8 | 125.4  | 129.7  | 124.8 | 128.6  | 183.4 |
| 09   | 169.4  | 140.2 | 129.2 | 122.3 | 165.0 | 141.1 | 118.5 | 121.0  | 129.9  | 129.6 | 124.5  | 180.3 |
| 10   | 167.0  | 141.2 | 126.9 | 129.3 | 175.7 | 136.3 | 118.4 | 112.1  | 133.7  | 137.5 | 127.7  | 175.0 |
| 11   | 163.1  | 144.0 | 128.8 | 133.1 | 173.9 | 133.9 | 120.1 | 110.0  | 132.0  | 159.0 | 127.4  | 168.8 |
| 12   | 161.7  | 144.7 | 127.8 | 130.6 | 177.8 | 131.7 | 118.7 | 106.5  | 124.7  | 163.1 | 135.6  | 144.9 |
| 13   | 163.3  | 147.1 | 128.2 | 127.5 | 181.4 | 132.3 | 128.8 | 108.2  | 122.2  | 167.6 | 136.6  | 131.7 |
| 14   | 162.9  | 155.2 | 129.3 | 127.2 | 181.3 | 132.0 | 123.1 | 104.9  | 123.4  | 161.8 | 128.8  | 137.9 |
| 15   | 167.2  | 150.3 | 124.8 | 124.7 | 173.3 | 133.8 | 121.5 | 97.8   | 124.1  | 150.4 | 121.9  | 131.6 |
| 16   | 159.7  | 158.9 | 118.5 | 122.9 | 162.8 | 140.0 | 127.9 | 99.9   | 133.7  | 145.8 | 129.1  | 130.5 |
| 17   | 157.6  | 185.6 | 115.5 | 134.4 | 140.4 | 137.1 | 120.6 | 105.8  | 148.9  | 145.5 | 121.9  | 121.4 |
| 18   | 159.0  | 204.8 | 120.2 | 119.8 | 130.2 | 132.7 | 118.5 | 111.4  | 158.2L | 144.9 | 117.7  | 123.2 |
| 19   | 166.1  | 207.7 | 134.5 | 119.1 | 122.3 | 138.0 | 113.4 | 123.4  | 157.1  | 142.2 | 112.7  | 113.4 |
| 20   | 167.2  | 206.5 | 140.3 | 116.8 | 127.5 | 159.1 | 107.1 | 131.9  | 155.0  | 143.2 | 106.5  | 120.6 |
| 21   | 166.4  | 197.1 | 145.5 | 121.3 | 111.8 | 127.8 | 110.4 | 139.2  | 161.3K | 140.8 | 103.3  | 120.3 |
| 22   | 159.7  | 184.8 | 148.4 | 120.0 | 107.7 | 124.4 | 112.3 | 149.2  | 162.0  | 137.6 | 101.0  | 130.3 |
| 23   | 165.3  | 174.7 | 145.6 | 125.5 | 101.9 | 113.2 | 112.6 | 140.3  | 171.7  | 139.3 | 102.7  | 129.6 |
| 24   | 174.7  | 162.9 | 136.9 | 121.8 | 103.2 | 104.0 | 112.6 | 145.1  | 169.4  | 132.0 | 101.6  | 132.7 |
| 25   | 185.1  | 155.7 | 126.1 | 127.4 | 101.5 | 100.1 | 116.5 | 159.4  | 162.4  | 132.0 | 102.6  | 125.5 |
| 26   | 177.9  | 145.0 | 122.1 | 115.3 | 104.3 | 94.4  | 117.3 | 167.9  | 158.2  | 127.2 | 103.3  | 123.8 |
| 27   | 180.0  | 139.1 | 117.7 | 113.1 | 103.4 | 95.8  | 121.6 | 168.9  | 152.6  | 121.2 | 107.6  | 121.6 |
| 28   | 185.4  | 130.4 | 113.9 | 112.0 | 98.5  | 97.6  | 116.6 | 172.3  | 144.7  | 123.4 | 108.6  | 121.4 |
| 29   | 192.4  | 132.5 | 108.1 | 114.4 | 101.1 | 97.1  | 117.7 | 161.6  | 136.0  | 121.3 | 110.7  |       |
| 30   | 182.1  | 129.9 | 101.7 | 127.0 | 99.9  | 96.6  | 116.2 | 225.8* | 135.9  | 121.9 | 109.6  |       |
| 31   | 191.2  |       | 101.8 |       | 106.3 | 99.0  |       | 147.3  |        | 125.8 | 115.6  |       |
| Mean | 169.6  | 159.7 | 128.2 | 120.4 | 136.5 | 125.1 | 118.0 | 130.0* | 142.0  | 134.6 | 117.2  | 139.1 |

\* = corrected for burst in progress; K = wet snow on antenna (2300 UT measurement); L = value enhanced by burst

## DAILY SOLAR INDICES

29  
Feb 93

February 1993

| Day  | Day of Year | Bartels Cycle Day | Sunspot Numbers |      | Obs Flux Pentiction (2800) | Solar Flux Adjusted to 1 Astronomical Unit |             |             |               |             |             |            |            |            |
|------|-------------|-------------------|-----------------|------|----------------------------|--------------------------------------------|-------------|-------------|---------------|-------------|-------------|------------|------------|------------|
|      |             |                   | Int             | Amer |                            | SGMR (15400)                               | SGMR (8800) | SGMR (4995) | Pentic (2800) | SGMR (2695) | SGMR (1415) | SGMR (610) | SGMR (410) | SGMR (245) |
| 01   | 32          | 20                | 22              | 25   | 125.1                      | 546                                        | 233         | 161         | 121.5         | 112         | 78          | 61         | 33         | 15         |
| 02   | 33          | 21                | 34              | 43   | 128.3                      | 547                                        | 249         | 179         | 124.7         | 107         | 81          | 63         | 34         | 14         |
| 03   | 34          | 22                | 69              | 67   | 136.9                      | 555                                        | 253         | 191         | 133.0         | 124         | 87          | 64         | 33         | 17         |
| 04   | 35          | 23                | 85              | 89   | 147.4                      | 556                                        | 256         | 204         | 143.2         | 130         | 87          | 65         | 36         | 15         |
| 05   | 36          | 24                | 119             | 117  | 160.1                      | 545                                        | 263         | 214         | 155.6         | 141         | 93          | --         | --         | --         |
| 06   | 37          | 25                | 129             | 127  | 183.8                      | 569                                        | 285         | 235         | 178.8         | 158         | 97          | 74         | 42         | 22         |
| 07   | 38          | 26                | 128             | 125  | 175.9                      | 562                                        | 282         | 239         | 171.2         | 163         | 99          | 71         | 39         | 27         |
| 08   | 39          | 27                | 134             | 127  | 188.4                      | 560                                        | 291         | 252         | 183.4         | 168         | 106         | 79         | 45         | --         |
| 09   | 40          | 1                 | 126             | 124  | 185.1                      | 568                                        | 292         | 247         | 180.3         | 170         | 111         | 89         | --         | --         |
| 10   | 41          | 2                 | 114             | 110  | 179.6                      | 548                                        | 276         | 232         | 175.0         | ---         | 100         | 74         | --         | --         |
| 11   | 42          | 3                 | 95              | 95   | 173.2                      | 552                                        | 273         | 224         | 168.8         | ---         | 100         | 69         | --         | --         |
| 12   | 43          | 4                 | 97              | 94   | 148.6                      | 537                                        | 264         | 211         | 144.9         | 135         | 91          | 70         | 44         | 19         |
| 13   | 44          | 5                 | 92              | 89   | 135.0                      | ---                                        | ---         | ---         | 131.7         | 124         | 84          | --         | 32         | 17         |
| 14   | 45          | 6                 | 78              | 83   | 141.4                      | 542                                        | 257         | 192         | 137.9         | 124         | 87          | 64         | 37         | 17         |
| 15   | 46          | 7                 | 73              | 75   | 134.8                      | 565                                        | 251         | 182         | 131.6         | 117         | 82          | 63         | 38         | --         |
| 16   | 47          | 8                 | 84              | 84   | 133.7                      | ---                                        | 243         | 192         | 130.5         | 129         | 88          | 68         | 37         | 16         |
| 17   | 48          | 9                 | 68              | 65   | 124.3                      | 544                                        | 239         | 168         | 121.4         | 127         | 82          | 62         | 33         | 13         |
| 18   | 49          | 10                | 78              | 86   | 126.0                      | 547                                        | 241         | 170         | 123.2         | 120         | 81          | 64         | 36         | 15         |
| 19   | 50          | 11                | 88              | 87   | 116.0                      | 544                                        | 238         | 160         | 113.4         | 113         | 77          | 60         | 33         | 14         |
| 20   | 51          | 12                | 97              | 86   | 123.3                      | 547                                        | 241         | 169         | 120.6         | 121         | 81          | 63         | 35         | 17         |
| 21   | 52          | 13                | 92              | 95   | 122.9                      | 537                                        | 237         | 167         | 120.3         | 109         | 79          | 60         | 37         | 17         |
| 22   | 53          | 14                | 100             | 100  | 133.1                      | ---                                        | 244         | 175         | 130.3         | 111         | 82          | 59         | 38         | --         |
| 23   | 54          | 15                | 101             | 96   | 132.3                      | 522                                        | 246         | 178         | 129.6         | 120         | 85          | 60         | 34         | 18         |
| 24   | 55          | 16                | 90              | 90   | 135.4                      | 552                                        | 244         | 170         | 132.7         | 134         | 89          | 62         | 36         | --         |
| 25   | 56          | 17                | 88              | 85   | 128.0                      | 555                                        | 244         | 171         | 125.5         | 114         | 83          | 62         | 37         | --         |
| 26   | 57          | 18                | 86              | 82   | 126.2                      | 542                                        | 241         | 169         | 123.8         | 114         | 82          | 61         | 33         | 18         |
| 27   | 58          | 19                | 86              | 85   | 124.0                      | 540                                        | 240         | 166         | 121.6         | 115         | 82          | 60         | 34         | 15         |
| 28   | 59          | 20                | 82              | 91   | 123.6                      | 542                                        | 239         | 168         | 121.4         | 118         | 82          | 63         | 36         | 17         |
| Mean |             |                   | 90.5            | 90.1 | 142.6                      | 549                                        | 254         | 192         | 139.1         | 128         | 88          | 66         | 36         | 17         |

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

The observed and the adjusted Pentiction fluxes tabulated here are the "Series C" daily values reported by the Dominion Radio Astrophysical Observatory, Pentiction, British Columbia, Canada. Numbers in parentheses in the column headings denote frequencies in MHz.

Equipment problems produced any gaps in the Air Weather Service's Sagamore Hill (SGMR) observations.

30  
Feb 93

# H $\alpha$ SOLAR FLARES

FEBRUARY 1993

| Sta  | Day | Start<br>(UT) | Max<br>(UT) | End<br>(UT) | Lat | CMD | NOAA/<br>USAF<br>Region | CMP<br>Mo | Day  | Dur<br>(Min) | Imp<br>Opt | Xray  | See | Obs<br>Type | Time<br>(UT) | Area Measurement        |                  | Remarks |
|------|-----|---------------|-------------|-------------|-----|-----|-------------------------|-----------|------|--------------|------------|-------|-----|-------------|--------------|-------------------------|------------------|---------|
|      |     |               |             |             |     |     |                         |           |      |              |            |       |     |             |              | Apparent<br>(10-6 Disk) | Corr<br>(Sq Deg) |         |
| GOES | 01  | 0155          | 0204        | 0235        |     |     |                         |           |      | 40           | M          | 2.2   |     |             |              |                         |                  |         |
| GOES |     | 0516          | 0520        | 0525        |     |     |                         |           |      | 9            | C          | 2.1   |     |             |              |                         |                  |         |
| LEAR |     | 0655          | 0659        | 0702        | S09 | E90 |                         | 02        | 8.0  | 7            | SF         | M 1.4 | 3   | E           |              | 81                      |                  |         |
| GOES |     | 0908          | 0914        | 0919        |     |     |                         |           |      | 11           | C          | 1.6   |     |             |              |                         |                  |         |
| SVTO |     | 1001          | 1001        | 1015        | S09 | E91 |                         | 02        | 8.2  | 14           | SF         | C 6.9 | 3   | E           |              | 41                      |                  |         |
| SVTO |     | 1057          | 1100        | 1103        | S08 | E91 |                         | 02        | 8.3  | 6            | SF         | C 3.3 | 3   | E           |              | 17                      |                  |         |
| SVTO |     | 1316          | 1316        | 1320        | S09 | E90 |                         | 02        | 8.3  | 4            | SF         |       | 3   | E           |              | 10                      |                  |         |
| SVTO |     | 1431          | 1436        | 1444        | S09 | E90 |                         | 02        | 8.3  | 13           | SF         |       | 3   | E           |              | 15                      |                  |         |
| HOLL |     | 1559          | 1608        | 1630D       | S17 | E20 | 7412                    | 02        | 3.2  | 31D          | SF         |       | 3   | E           |              | 86                      |                  | F       |
| RAMY |     | 1600          | 1605        | 1618        | S16 | E19 | 7412                    | 02        | 3.1  | 18           | SF         |       | 3   | E           |              | 29                      |                  | F       |
| GOES |     | 1753          | 1759        | 1804        |     |     |                         |           |      | 11           | C          | 2.7   |     |             |              |                         |                  |         |
| GOES |     | 1944          | 1953        | 2004        |     |     |                         |           |      | 20           | C          | 4.9   |     |             |              |                         |                  |         |
| GOES |     | 2210          | 2222        | 2245        |     |     |                         |           |      | 35           | C          | 2.1   |     |             |              |                         |                  |         |
| PALE | 02  | 0341          | 0346        | 0404D       | S17 | E14 | 7412                    | 02        | 3.2  | 23D          | 1N         |       | 3   | E           |              | 198                     |                  | FE      |
| LEAR |     | 0343          | 0346        | 0425        | S16 | E13 | 7412                    | 02        | 3.1  | 42           | 1N         | C 6.3 | 3   | E           |              | 118                     |                  |         |
| GOES |     | 0451          | 0505        | 0521        |     |     |                         |           |      | 30           | C          | 2.8   |     |             |              |                         |                  |         |
| GOES |     | 0749          | 0838        | 0934        |     |     |                         |           |      | 105          | C          | 1.7   |     |             |              |                         |                  |         |
| GOES |     | 1019          | 1027        | 1040        |     |     |                         |           |      | 21           | C          | 1.4   |     |             |              |                         |                  |         |
| GOES |     | 1112          | 1115        | 1120        |     |     |                         |           |      | 8            | C          | 1.2   |     |             |              |                         |                  |         |
| GOES |     | 1231          | 1245        | 1250        |     |     |                         |           |      | 19           | C          | 1.0   |     |             |              |                         |                  |         |
| GOES |     | 1258          | 1306        | 1325        |     |     |                         |           |      | 27           | C          | 1.1   |     |             |              |                         |                  |         |
| SVTO |     | 1429          | 1429        | 1445        | S16 | E07 | 7412                    | 02        | 3.1  | 16           | SF         |       | 3   | E           |              | 10                      |                  | F       |
| HOLL |     | 2127          | 2129        | 2138        | S16 | E02 | 7412                    | 02        | 3.0  | 11           | SF         |       | 3   | E           |              | 15                      |                  | F       |
| HOLL |     | 2215          | 2216        | 2224        | S12 | E73 | 7416                    | 02        | 8.4  | 9            | SF         |       | 3   | E           |              | 27                      |                  | F       |
| HOLL |     | 2322          | 2325        | 2328        | N10 | E74 | 7417                    | 02        | 8.5  | 6            | SF         |       | 3   | E           |              | 24                      |                  | F       |
| GOES | 03  | 0315          | 0518        | 0551        |     |     |                         |           |      | 156          | C          | 1.7   |     |             |              |                         |                  |         |
| GOES |     | 0818          | 0824        | 0836        |     |     |                         |           |      | 18           | C          | 1.2   |     |             |              |                         |                  |         |
| GOES |     | 0848          | 0857        | 0904        |     |     |                         |           |      | 16           | C          | 1.1   |     |             |              |                         |                  |         |
| GOES |     | 1421          | 1424        | 1429        |     |     |                         |           |      | 8            | B          | 8.6   |     |             |              |                         |                  |         |
| RAMY |     | 1454          | 1458        | 1511        | N12 | E66 | 7417                    | 02        | 8.6  | 17           | SF         |       | 3   | E           |              | 94                      |                  | FE      |
| HOLL |     | 1456E         | 1457U       | 1739        | N10 | E64 | 7417                    | 02        | 8.4  | 163D         | 1F         | C 8.8 | 2   | E           |              | 169                     |                  | F       |
| HOLL |     | 1813          | 1920        | 2000D       | N04 | E17 | 7418                    | 02        | 5.0  | 107D         | SF         |       | 3   | E           |              | 41                      |                  | F       |
| RAMY |     | 1916          | 1917        | 1926        | N04 | E15 | 7418                    | 02        | 4.9  | 10           | SF         |       | 3   | E           |              | 10                      |                  | F       |
| RAMY |     | 2038          | 2040        | 2046        | S08 | E89 |                         | 02        | 10.5 | 8            | SF         | C 1.3 | 3   | E           |              | 54                      |                  |         |
| PALE | 04  | 0325          | 0333        | 0338        | S12 | E52 | 7416                    | 02        | 8.0  | 13           | SF         | C 1.4 | 3   | E           |              | 31                      |                  |         |
| GOES |     | 0912          | 0918        | 0924        |     |     |                         |           |      | 12           | C          | 1.0   |     |             |              |                         |                  |         |
| SVTO |     | 1038          | 1040        | 1054        | S07 | E91 |                         | 02        | 11.2 | 16           | SF         | C 4.4 | 3   | E           |              | 87                      |                  |         |
| SVTO |     | 1114          | 1114        | 1120        | S07 | E89 |                         | 02        | 11.1 | 6            | SF         |       | 3   | E           |              | 18                      |                  | F       |
| SVTO |     | 1122          | 1122        | 1129        | S07 | E89 |                         | 02        | 11.1 | 7            | SF         |       | 3   | E           |              | 14                      |                  | F       |
| SVTO |     | 1125          | 1137        | 1157        | S09 | E52 | 7416                    | 02        | 8.4  | 32           | SF         |       | 3   | E           |              | 22                      |                  |         |
| SVTO |     | 1200          | 1203        | 1206        | S07 | E89 |                         | 02        | 11.2 | 6            | SF         |       | 3   | E           |              | 24                      |                  | F       |
| SVTO |     | 1240          | 1246        | 1251        | S07 | E89 |                         | 02        | 11.2 | 11           | SF         |       | 3   | E           |              | 29                      |                  | F       |
| SVTO |     | 1259          | 1302        | 1313        | S07 | E88 |                         | 02        | 11.1 | 14           | SF         |       | 3   | E           |              | 21                      |                  | F       |
| SVTO |     | 1321          | 1335        | 1343        | S07 | E88 |                         | 02        | 11.1 | 22           | SF         |       | 3   | E           |              | 19                      |                  | F       |
| SVTO |     | 1331          | 1340        | 1354        | S09 | E51 | 7416                    | 02        | 8.4  | 23           | SF         | C 1.5 | 3   | E           |              | 31                      |                  |         |
| RAMY |     | 1406          | 1430        | 1531        | N05 | E03 | 7418                    | 02        | 4.8  | 85           | SF         | C 1.8 | 3   | E           |              | 95                      |                  | F       |
| GOES |     | 1456          | 1500        | 1504        |     |     |                         |           |      | 8            | C          | 1.4   |     |             |              |                         |                  |         |
| GOES |     | 1518          | 1521        | 1523        |     |     |                         |           |      | 5            | C          | 1.4   |     |             |              |                         |                  |         |
| RAMY |     | 1531          | 1536        | 1541        | N05 | E02 | 7418                    | 02        | 4.8  | 10           | SF         |       | 3   | E           |              | 20                      |                  | F       |
| RAMY |     | 1621          | 1623        | 1640        | S08 | E81 | 7420                    | 02        | 10.7 | 19           | SF         |       | 3   | E           |              | 13                      |                  |         |
| PALE |     | 2002          | 2003        | 2012        | N13 | E52 | 7417                    | 02        | 8.7  | 10           | SF         |       | 3   | E           |              | 15                      |                  |         |
| PALE |     | 2007          | 2020        | 2042        | N04 | E01 | 7418                    | 02        | 4.9  | 35           | SF         | C 2.1 | 3   | E           |              | 17                      |                  |         |
| GOES |     | 2335          | 2350        | 2400        |     |     |                         |           |      | 25           | C          | 1.9   |     |             |              |                         |                  |         |
| GOES | 05  | 0208          | 0215        | 0223        |     |     |                         |           |      | 15           | C          | 3.0   |     |             |              |                         |                  |         |
| PALE |     | 0251E         | 0251U       | 0309D       | S09 | E86 | 7420                    | 02        | 11.6 | 18D          | SF         | C 2.2 | 3   | E           |              | 42                      |                  |         |
| GOES |     | 0414          | 0420        | 0424        |     |     |                         |           |      | 10           | C          | 2.3   |     |             |              |                         |                  |         |
| GOES |     | 0448          | 0540        | 0631        |     |     |                         |           |      | 103          | M          | 1.0   |     |             |              |                         |                  |         |
| SVTO |     | 0755E         | 0759U       | 0802        | S07 | E78 | 7420                    | 02        | 11.2 | 7D           | SF         | C 7.7 | 2   | E           |              | 21                      |                  | F       |
| GOES |     | 0900          | 0908        | 0915        |     |     |                         |           |      | 15           | C          | 4.8   |     |             |              |                         |                  |         |
| GOES |     | 1012          | 1015        | 1018        |     |     |                         |           |      | 6            | C          | 1.5   |     |             |              |                         |                  |         |
| GOES |     | 1116          | 1123        | 1130        |     |     |                         |           |      | 14           | C          | 2.6   |     |             |              |                         |                  |         |
| SVTO |     | 1140          | 1144        | 1148        | S09 | E77 | 7420                    | 02        | 11.3 | 8            | SF         |       | 3   | E           |              | 24                      |                  | F       |
| RAMY |     | 1146          | 1150        | 1155        | N15 | E43 | 7417                    | 02        | 8.7  | 9            | SF         |       | 3   | E           |              | 10                      |                  | F       |
| RAMY |     | 1149          | 1150        | 1157        | S09 | W63 | 7421                    | 01        | 31.8 | 8            | SF         |       | 3   | E           |              | 23                      |                  |         |

H $\alpha$  SOLAR FLARES

FEBRUARY 1993

| Sta   | Day | Start<br>(UT) | Max<br>(UT) | End<br>(UT) | Lat | CMD | NOAA/<br>USAF<br>Region | CMP<br>Mo | Dur<br>Day | (Min) | Imp<br>Opt | Xray  | Obs<br>See | Type | Area Measurement |                         |                  | Remarks |
|-------|-----|---------------|-------------|-------------|-----|-----|-------------------------|-----------|------------|-------|------------|-------|------------|------|------------------|-------------------------|------------------|---------|
|       |     |               |             |             |     |     |                         |           |            |       |            |       |            |      | Time<br>(UT)     | Apparent<br>(10-6 Disk) | Corr<br>(Sq Deg) |         |
| RAMY  | 05  | 1241          | 1245        | 1251        | N15 | E42 | 7417                    | 02        | 8.7        | 10    | SF         |       | 3          | E    |                  | 16                      |                  |         |
| RAMY  |     | 1337          | 1338        | 1342        | S09 | E73 | 7420                    | 02        | 11.0       | 5     | SF         |       | 3          | E    |                  | 11                      |                  |         |
| [RAMY |     | 1412          | 1417        | 1425        | N11 | E39 | 7419                    | 02        | 8.5        | 13    | SF         |       | 3          | E    |                  | 33                      |                  | F       |
| [SVTO |     | 1419          | 1420        | 1425        | N11 | E39 | 7419                    | 02        | 8.5        | 6     | SF         |       | 3          | E    |                  | 17                      |                  | F       |
| GOES  |     | 1432          | 1443        | 1456        |     |     |                         |           |            | 24    |            | C 1.8 |            |      |                  |                         |                  |         |
| HOLL  |     | 1554          | 1554        | 1606        | N09 | E45 | 7419                    | 02        | 9.0        | 12    | SF         |       | 3          | E    |                  | 10                      |                  | F       |
| RAMY  |     | 1830          | 1832        | 1835        | N05 | W09 | 7418                    | 02        | 5.1        | 5     | SF         | C 1.3 | 3          | E    |                  | 19                      |                  |         |
| GOES  |     | 2030          | 2034        | 2036        |     |     |                         |           |            | 6     |            | C 1.7 |            |      |                  |                         |                  |         |
| HOLL  |     | 2056          | 2056        | 2105        | N04 | W13 | 7418                    | 02        | 4.9        | 9     | SF         |       | 3          | E    |                  | 24                      |                  | F       |
| HOLL  |     | 2127          | 2130        | 2133        | S05 | E69 | 7420                    | 02        | 11.0       | 6     | SF         |       | 3          | E    |                  | 20                      |                  | F       |
| HOLL  |     | 2155E         | 2155U       | 2208        | N14 | E35 | 7417                    | 02        | 8.5        | 130   | SF         | C 2.2 | 2          | E    |                  | 16                      |                  |         |
| HOLL  |     | 2158E         | 2158U       | 2211        | S12 | E29 | 7416                    | 02        | 8.1        | 130   | SF         |       | 2          | E    |                  | 45                      |                  |         |
|       |     |               |             |             |     |     |                         |           |            |       |            |       |            |      |                  |                         |                  |         |
| PALE  | 06  | 0221          | 0221        | 0225        | S11 | W66 | 7421                    | 02        | 1.1        | 4     | SF         |       | 3          | E    |                  | 11                      |                  |         |
| PALE  |     | 0240          | 0308        | 0320        | S08 | E64 | 7420                    | 02        | 10.9       | 40    | SF         |       | 3          | E    |                  | 37                      |                  |         |
| GOES  |     | 0524          | 0527        | 0529        |     |     |                         |           |            | 5     |            | C 5.6 |            |      |                  |                         |                  |         |
| GOES  |     | 0759          | 0812        | 0818        |     |     |                         |           |            | 19    |            | C 3.7 |            |      |                  |                         |                  |         |
| SVTO  |     | 0953          | 1042        | 1118        | N14 | E27 | 7417                    | 02        | 8.4        | 85    | SF         | C 3.4 | 3          | E    |                  | 45                      |                  | F       |
| SVTO  |     | 1019          | 1032        | 1035        | S06 | E63 | 7420                    | 02        | 11.1       | 16    | SF         |       | 3          | E    |                  | 28                      |                  | F       |
| RAMY  |     | 1252          | 1254        | 1259        | N13 | E28 | 7417                    | 02        | 8.6        | 7     | SF         | C 1.2 | 4          | E    |                  | 19                      |                  | F       |
| RAMY  |     | 1341          | 1357        | 1435        | S08 | E59 | 7420                    | 02        | 11.0       | 54    | SN         | C 4.5 | 4          | E    |                  | 83                      |                  | E       |
| RAMY  |     | 1407          | 1408        | 1413        | N12 | E24 | 7417                    | 02        | 8.4        | 6     | SF         |       | 4          | E    |                  | 13                      |                  | F       |
| [SVTO |     | 1407          | 1413        | 1420        | S20 | W44 | 7412                    | 02        | 3.2        | 13    | SF         |       | 3          | E    |                  | 16                      |                  | F       |
| [RAMY |     | 1410          | 1414        | 1418        | S18 | W44 | 7412                    | 02        | 3.2        | 8     | SF         |       | 4          | E    |                  | 22                      |                  | F       |
| RAMY  |     | 1436          | 1436        | 1444        | S09 | E60 | 7420                    | 02        | 11.1       | 8     | SF         |       | 4          | E    |                  | 19                      |                  | F       |
| RAMY  |     | 1605          | 1608        | 1614        | S08 | E58 | 7420                    | 02        | 11.0       | 9     | SF         |       | 4          | E    |                  | 13                      |                  |         |
| [RAMY |     | 1635          | 1655U       | 1718        | S09 | E56 | 7420                    | 02        | 10.9       | 43    | 1N         |       | 3          | E    |                  | 107                     |                  | F       |
| [HOLL |     | 1640E         | 1648        | 1716        | S13 | E54 | 7420                    | 02        | 10.8       | 360   | SN         | M 1.0 | 3          | E    |                  | 92                      |                  | FE      |
| [RAMY |     | 1649          | 1649        | 1656        | N17 | E24 | 7417                    | 02        | 8.5        | 7     | SF         |       | 3          | E    |                  | 15                      |                  |         |
| [RAMY |     | 1655E         | 1655U       | 1656        | N17 | E24 | 7417                    | 02        | 8.5        | 10    | SF         |       | 3          | E    |                  | 15                      |                  |         |
| [HOLL |     | 1719          | 1740        | 1752        | S09 | E57 | 7420                    | 02        | 11.0       | 33    | SF         | C 3.5 | 3          | E    |                  | 21                      |                  | F       |
| [RAMY |     | 1746          | 1746        | 1800        | S09 | E58 | 7420                    | 02        | 11.1       | 14    | SF         |       | 3          | E    |                  | 29                      |                  | F       |
| RAMY  |     | 1812          | 1820        | 2032        | N12 | E26 | 7417                    | 02        | 8.7        | 140   | 2B         | M 9.6 | 3          | E    |                  | 574                     |                  | UF      |
| HOLL  |     | 1813          | 1819        | 2009D       | N09 | E25 | 7419                    | 02        | 8.6        | 1160  | 2B         |       | 3          | E    |                  | 364                     |                  | UF      |
| [HOLL |     | 1813          | 1820        | 2017D       | N13 | E25 | 7417                    | 02        | 8.6        | 1240  | 3B         |       | 3          | E    |                  | 691                     |                  | UF      |
| [PALE |     | 1817E         | 1822        | 2001D       | N15 | E25 | 7417                    | 02        | 8.6        | 1040  | 2B         |       | 3          | E    |                  | 552                     |                  | U       |
| PALE  |     | 1822          | 1822        | 1829        | S05 | E49 | 7420                    | 02        | 10.4       | 7     | SF         |       | 3          | E    |                  | 18                      |                  |         |
| PALE  |     | 1843          | 1844        | 1902        | S09 | E56 | 7420                    | 02        | 11.0       | 19    | SF         |       | 3          | E    |                  | 15                      |                  |         |
| HOLL  |     | 1843          | 1908        | 1917        | S09 | E55 | 7420                    | 02        | 10.9       | 34    | SF         |       | 3          | E    |                  | 14                      |                  |         |
| PALE  |     | 1902          | 1902        | 1912        | N09 | E27 | 7419                    | 02        | 8.8        | 10    | SF         |       | 3          | E    |                  | 24                      |                  |         |
| RAMY  |     | 1910          | 1912        | 1943        | S08 | E55 | 7420                    | 02        | 10.9       | 33    | SF         |       | 3          | E    |                  | 45                      |                  |         |
| [RAMY |     | 2000          | 2002        | 2021        | S08 | E54 | 7420                    | 02        | 10.9       | 21    | SF         |       | 3          | E    |                  | 15                      |                  | E       |
| [PALE |     | 2001          | 2003        | 2018        | S09 | E55 | 7420                    | 02        | 11.0       | 17    | SF         |       | 3          | E    |                  | 20                      |                  |         |
| PALE  |     | 2009          | 2011        | 2018        | N13 | E25 | 7419                    | 02        | 8.7        | 9     | SF         |       | 3          | E    |                  | 13                      |                  |         |
| GOES  |     | 2022          | 2025        | 2029        |     |     |                         |           |            | 7     |            | C 4.5 |            |      |                  |                         |                  |         |
| [PALE |     | 2030          | 2047        | 2110        | S08 | E54 | 7420                    | 02        | 10.9       | 40    | SF         | C 7.5 | 3          | E    |                  | 81                      |                  |         |
| [HOLL |     | 2039          | 2051        | 2059        | S09 | E53 | 7420                    | 02        | 10.8       | 20    | SN         |       | 3          | E    |                  | 23                      |                  | FE      |
| HOLL  |     | 2132          | 2137        | 2304        | S09 | E53 | 7420                    | 02        | 10.9       | 92    | SN         | C 5.3 | 3          | E    |                  | 81                      |                  | FE      |
| PALE  |     | 2146          | 2241        | 2316        | S08 | E53 | 7420                    | 02        | 10.9       | 90    | SF         |       | 3          | E    |                  | 82                      |                  |         |
| GOES  |     | 2154          | 2157        | 2200        |     |     |                         |           |            | 6     |            | C 3.4 |            |      |                  |                         |                  |         |
| PALE  |     | 2205          | 2205        | 2215        | N05 | W24 | 7418                    | 02        | 5.1        | 10    | SF         | C 7.9 | 3          | E    |                  | 19                      |                  |         |
| GOES  |     | 2333          | 2338        | 2345        |     |     |                         |           |            | 12    |            | C 2.4 |            |      |                  |                         |                  |         |
| [PALE |     | 2351          | 2401        | 2434        | S18 | W48 | 7412                    | 02        | 3.3        | 43    | SF         |       | 3          | E    |                  | 90                      |                  |         |
| [LEAR |     | 2355E         | 2359        | 2430        | S18 | W48 | 7412                    | 02        | 3.3        | 350   | SF         |       | 3          | E    |                  | 95                      |                  | F       |
|       |     |               |             |             |     |     |                         |           |            |       |            |       |            |      |                  |                         |                  |         |
| HOLL  | 07  | 0006E         | 0006U       | 0033D       | S16 | W50 | 7412                    | 02        | 3.2        | 270   | SF         |       | 3          | E    |                  | 80                      |                  | UF      |
| GOES  |     | 0104          | 0108        | 0113        |     |     |                         |           |            | 9     |            | C 2.2 |            |      |                  |                         |                  |         |
| GOES  |     | 0154          | 0157        | 0200        |     |     |                         |           |            | 6     |            | C 1.6 |            |      |                  |                         |                  |         |
| GOES  |     | 0225          | 0229        | 0233        |     |     |                         |           |            | 8     |            | C 1.5 |            |      |                  |                         |                  |         |
| GOES  |     | 0234          | 0308        | 0310        |     |     |                         |           |            | 36    |            | C 2.1 |            |      |                  |                         |                  |         |
| GOES  |     | 0412          | 0417        | 0423        |     |     |                         |           |            | 11    |            | C 1.7 |            |      |                  |                         |                  |         |
| GOES  |     | 0554          | 0601        | 0607        |     |     |                         |           |            | 13    |            | C 1.5 |            |      |                  |                         |                  |         |
| GOES  |     | 0619          | 0623        | 0627        |     |     |                         |           |            | 8     |            | C 1.6 |            |      |                  |                         |                  |         |
| SVTO  |     | 0814          | 0822        | 0829        | S06 | E48 | 7420                    | 02        | 10.9       | 15    | SF         |       | 3          | E    |                  | 24                      |                  |         |
| [LEAR |     | 0901E         | 0902U       | 0920        | N14 | W42 | 7414                    | 02        | 4.2        | 190   | SF         |       | 3          | E    |                  | 14                      |                  |         |
| [LEAR |     | 0902E         | 0902U       | 0920        | N14 | W42 | 7414                    | 02        | 4.8        | 180   | SF         |       | 3          | E    |                  | 14                      |                  | T       |
| [SVTO |     | 1017          | 1024        | 1029        | S03 | E44 | 7420                    | 02        | 10.7       | 12    | SF         | C 2.0 | 3          | E    |                  | 11                      |                  |         |
| [LEAR |     | 1021E         | 1022U       | 1029        | S04 | E45 | 7420                    | 02        | 10.8       | 80    | SF         |       | 3          | E    |                  | 15                      |                  |         |

32  
Feb 93

# H $\alpha$ SOLAR FLARES

FEBRUARY 1993

| Sta  | Day | Start<br>(UT) | Max<br>(UT) | End<br>(UT) | Lat | CMD | NOAA/<br>USAF |  | CMP<br>Mo | Day  | Dur<br>(Min) | Imp<br>Opt | Xray  | See | Obs<br>Type | Area Measurement |                         |                  | Remarks |
|------|-----|---------------|-------------|-------------|-----|-----|---------------|--|-----------|------|--------------|------------|-------|-----|-------------|------------------|-------------------------|------------------|---------|
|      |     |               |             |             |     |     | Region        |  |           |      |              |            |       |     |             | Time<br>(UT)     | Apparent<br>(10-6 Disk) | Corr<br>(Sq Deg) |         |
| GOES | 07  | 1038          | 1100        | 1101        |     |     |               |  |           |      | 23           |            | C 3.7 |     |             |                  |                         |                  |         |
| SVTO |     | 1248          | 1249        | 1254        | S06 | E44 | 7420          |  | 02        | 10.8 | 6            | SF         | C 1.7 | 3   | E           |                  | 18                      |                  | F       |
| RAMY |     | 1356          | 1401        | 1406        | S05 | E42 | 7420          |  | 02        | 10.7 | 10           | SF         | C 2.7 | 4   | E           |                  | 46                      |                  | FE      |
| RAMY |     | 1403          | 1405        | 1408        | N15 | E12 | 7417          |  | 02        | 8.5  | 5            | SF         |       | 4   | E           |                  | 61                      |                  | F       |
| RAMY |     | 1451          | 1457        | 1512        | N15 | E12 | 7417          |  | 02        | 8.5  | 21           | SF         |       | 4   | E           |                  | 19                      |                  | F       |
| RAMY |     | 1526E         | 1531U       | 1536D       | N15 | E13 | 7417          |  | 02        | 8.6  | 10D          | SF         |       | 4   | E           |                  | 25                      |                  | F       |
| HOLL |     | 1526          | 1532        | 1540        | N14 | E13 | 7417          |  | 02        | 8.6  | 14           | SF         |       | 3   | E           |                  | 36                      |                  | F       |
| HOLL |     | 1646          | 1649        | 1658        | S12 | E08 | 7416          |  | 02        | 8.3  | 12           | SF         |       | 3   | E           |                  | 63                      |                  | H       |
| HOLL |     | 1646          | 1653        | 1718        | N15 | E12 | 7417          |  | 02        | 8.6  | 32           | SF         |       | 3   | E           |                  | 35                      |                  | F       |
| RAMY |     | 1647          | 1648        | 1656        | S11 | E08 | 7416          |  | 02        | 8.3  | 9            | SF         | C 1.5 | 3   | E           |                  | 32                      |                  | F       |
| RAMY |     | 1655E         | 1655U       | 1708        | N12 | E04 | 7419          |  | 02        | 8.0  | 13D          | SF         |       | 3   | E           |                  | 31                      |                  |         |
| HOLL |     | 1729          | 1856        | 2021        | S06 | E38 | 7420          |  | 02        | 10.6 | 172          | SF         | C 1.3 | 3   | E           |                  | 98                      |                  | FH      |
| RAMY |     | 1807          | 1807        | 1819        | N17 | E13 | 7417          |  | 02        | 8.7  | 12           | SF         |       | 3   | E           |                  | 29                      |                  | F       |
| RAMY |     | 1851          | 1900        | 1914        | S04 | E39 | 7420          |  | 02        | 10.7 | 23           | SN         |       | 3   | E           |                  | 45                      |                  | H       |
| HOLL |     | 1939          | 2009        | 2038        | N18 | E07 | 7417          |  | 02        | 8.3  | 59           | SF         |       | 3   | E           |                  | 22                      |                  |         |
| RAMY |     | 2009          | 2017        | 2040        | N03 | W42 | 7418          |  | 02        | 4.7  | 31           | SF         |       | 3   | E           |                  | 22                      |                  | F       |
| HOLL |     | 2256          | 2308        | 2328        | N13 | E10 | 7417          |  | 02        | 8.7  | 32           | SF         |       | 3   | E           |                  | 35                      |                  | F       |
| GOES |     | 2337          | 2404        | 2411        |     |     |               |  |           |      | 34           |            | C 5.5 |     |             |                  |                         |                  |         |
| PALE | 08  | 0222E         | 0223U       | 0231D       | S08 | E38 | 7420          |  | 02        | 10.9 | 9D           | SN         |       | 2   | E           |                  | 75                      |                  |         |
| LEAR |     | 0230E         | 0242        | 0253        | S07 | E34 | 7420          |  | 02        | 10.6 | 23D          | SF         | C 9.2 | 3   | E           |                  | 58                      |                  | F       |
| GOES |     | 0335          | 0337        | 0340        |     |     |               |  |           |      | 5            |            | C 1.3 |     |             |                  |                         |                  |         |
| GOES |     | 0416          | 0420        | 0429        |     |     |               |  |           |      | 13           |            | C 1.2 |     |             |                  |                         |                  |         |
| LEAR |     | 0640E         | 0645U       | 0655        | N15 | E02 | 7417          |  | 02        | 8.4  | 15D          | SF         |       | 3   | E           |                  | 28                      |                  | F       |
| SVTO |     | 0648E         | 0649        | 0700        | N13 | W03 | 7417          |  | 02        | 8.0  | 12D          | SF         |       | 3   | E           |                  | 29                      |                  | H       |
| SVTO |     | 0703          | 0704        | 0720        | S07 | E36 | 7420          |  | 02        | 11.0 | 17           | SF         | C 3.9 | 3   | E           |                  | 20                      |                  |         |
| LEAR |     | 0815E         | 0816U       | 0845        | N15 | E02 | 7417          |  | 02        | 8.5  | 30D          | SF         | C 2.5 | 3   | E           |                  | 34                      |                  |         |
| SVTO |     | 1301          | 1302        | 1305        | S07 | E34 | 7420          |  | 02        | 11.1 | 4            | SF         | C 1.2 | 3   | E           |                  | 16                      |                  |         |
| SVTO |     | 1455          | 1459        | 1514        | N13 | W67 |               |  | 02        | 3.6  | 19           | SF         |       | 3   | E           |                  | 13                      |                  |         |
| RAMY |     | 1653          | 1657        | 1700        | S07 | E30 | 7420          |  | 02        | 10.9 | 7            | SF         |       | 3   | E           |                  | 17                      |                  |         |
| RAMY |     | 1702          | 1715        | 1741        | S03 | E26 | 7420          |  | 02        | 10.6 | 39           | 1B         | C 7.1 | 3   | E           |                  | 136                     |                  | FE      |
| HOLL |     | 1708E         | 1714U       | 1735        | S07 | E26 | 7420          |  | 02        | 10.7 | 27D          | 1B         |       | 1   | E           |                  | 102                     |                  | FH      |
| GOES |     | 2241          | 2246        | 2250        |     |     |               |  |           |      | 9            |            | C 1.5 |     |             |                  |                         |                  |         |
| GOES |     | 2309          | 2316        | 2323        |     |     |               |  |           |      | 14           |            | C 3.3 |     |             |                  |                         |                  |         |
| GOES | 09  | 0059          | 0109        | 0117        |     |     |               |  |           |      | 18           |            | C 1.9 |     |             |                  |                         |                  |         |
| GOES |     | 0131          | 0158        | 0216        |     |     |               |  |           |      | 45           |            | C 2.7 |     |             |                  |                         |                  |         |
| LEAR |     | 0423E         | 0430U       | 0443        | S08 | E20 | 7420          |  | 02        | 10.7 | 20D          | SN         | C 2.6 | 3   | E           |                  | 31                      |                  | F       |
| LEAR |     | 0528E         | 0529U       | 0607        | S08 | E19 | 7420          |  | 02        | 10.6 | 39D          | SF         |       | 3   | E           |                  | 43                      |                  | F       |
| LEAR |     | 0656E         | 0718U       | 0748        | S08 | E20 | 7420          |  | 02        | 10.8 | 52D          | SN         |       | 4   | E           |                  | 88                      |                  | F       |
| SVTO |     | 0718E         | 0722U       | 0800        | S03 | E18 | 7420          |  | 02        | 10.6 | 42D          | SN         | M 1.0 | 4   | E           |                  | 80                      |                  | F       |
| LEAR |     | 0908          | 0913        | 0933        | S08 | E20 | 7420          |  | 02        | 10.9 | 25           | SN         | C 1.8 | 3   | E           |                  | 74                      |                  | F       |
| SVTO |     | 0910          | 0914        | 0937        | S02 | E17 | 7420          |  | 02        | 10.6 | 27           | SF         |       | 3   | E           |                  | 24                      |                  | F       |
| SVTO |     | 0925          | 0935        | 0941        | N11 | W14 | 7417          |  | 02        | 8.3  | 16           | SF         |       | 3   | E           |                  | 22                      |                  | F       |
| SVTO |     | 0955          | 1001        | 1026        | S03 | E16 | 7420          |  | 02        | 10.6 | 31           | SF         | C 2.2 | 3   | E           |                  | 31                      |                  | F       |
| LEAR |     | 0959          | 1002        | 1014        | S08 | E20 | 7420          |  | 02        | 10.9 | 15           | SF         |       | 3   | E           |                  | 32                      |                  |         |
| SVTO |     | 1117          | 1119        | 1123        | N03 | W03 | 7422          |  | 02        | 9.2  | 6            | SF         |       | 3   | E           |                  | 15                      |                  |         |
| SVTO |     | 1136          | 1138        | 1146        | N11 | W09 | 7419          |  | 02        | 8.8  | 10           | SF         | C 2.6 | 3   | E           |                  | 39                      |                  | F       |
| RAMY |     | 1235          | 1241        | 1313        | S04 | E18 | 7420          |  | 02        | 10.9 | 38           | SF         | C 3.9 | 3   | E           |                  | 98                      |                  | F       |
| SVTO |     | 1240E         | 1241U       | 1257        | S04 | E17 | 7420          |  | 02        | 10.8 | 17D          | SN         |       | 3   | E           |                  | 48                      |                  | F       |
| RAMY |     | 1319          | 1319        | 1323        | S03 | E15 | 7420          |  | 02        | 10.7 | 4            | SF         |       | 3   | E           |                  | 13                      |                  |         |
| RAMY |     | 1408          | 1409        | 1414        | S04 | E19 | 7420          |  | 02        | 11.0 | 6            | SF         | C 1.6 | 3   | E           |                  | 50                      |                  | F       |
| RAMY |     | 1547          | 1556        | 1605        | S06 | E16 | 7420          |  | 02        | 10.8 | 18           | SF         | C 1.8 | 3   | E           |                  | 15                      |                  | F       |
| RAMY |     | 1702          | 1702        | 1710        | N09 | W21 | 7419          |  | 02        | 8.1  | 8            | SF         |       | 4   | E           |                  | 10                      |                  | F       |
| RAMY |     | 1750          | 1752        | 1808        | S06 | E15 | 7420          |  | 02        | 10.9 | 18           | SF         | C 1.5 | 4   | E           |                  | 27                      |                  | F       |
| RAMY |     | 1809          | 1817        | 1823        | S06 | E14 | 7420          |  | 02        | 10.8 | 14           | SF         | C 1.6 | 4   | E           |                  | 37                      |                  | F       |
| RAMY |     | 1902          | 1915        | 1935        | N14 | W17 | 7417          |  | 02        | 8.5  | 33           | SF         | C 2.5 | 3   | E           |                  | 35                      |                  | F       |
| HOLL |     | 2142          | 2146        | 2207        | N13 | W19 | 7417          |  | 02        | 8.5  | 25           | SF         |       | 3   | E           |                  | 81                      |                  | F       |
| PALE |     | 2146          | 2146        | 2150        | N13 | W20 | 7419          |  | 02        | 8.4  | 4            | SF         |       | 3   | E           |                  | 12                      |                  |         |
| PALE |     | 2211          | 2231        | 2246        | S03 | E15 | 7420          |  | 02        | 11.0 | 35           | SF         | C 3.8 | 3   | E           |                  | 67                      |                  |         |
| HOLL |     | 2227          | 2233        | 2307        | S08 | E14 | 7420          |  | 02        | 11.0 | 40           | SN         |       | 3   | E           |                  | 94                      |                  | FE      |
| LEAR |     | 2355          | 2356        | 2403        | N15 | W19 | 7417          |  | 02        | 8.5  | 8            | SF         | C 3.0 | 3   | E           |                  | 47                      |                  | F       |
| LEAR | 10  | 0112          | 0121        | 0132        | S04 | E07 | 7420          |  | 02        | 10.6 | 20           | SF         | C 2.3 | 3   | E           |                  | 48                      |                  | F       |
| PALE |     | 0115          | 0118        | 0132        | S02 | E07 | 7420          |  | 02        | 10.6 | 17           | SF         |       | 3   | E           |                  | 45                      |                  |         |
| LEAR |     | 0214          | 0215        | 0217        | N17 | W18 | 7416          |  | 02        | 8.7  | 3            | SF         |       | 3   | E           |                  | 14                      |                  | F       |
| PALE |     | 0216          | 0218        | 0222        | N12 | W14 | 7417          |  | 02        | 9.0  | 6            | SF         | C 1.1 | 3   | E           |                  | 13                      |                  |         |
| LEAR |     | 0353          | 0354        | 0359        | S05 | E09 | 7420          |  | 02        | 10.8 | 6            | SF         |       | 3   | E           |                  | 18                      |                  |         |



H $\alpha$  SOLAR FLARES

FEBRUARY 1993

| Sta  | Day | Start<br>(UT) | Max<br>(UT) | End<br>(UT) | Lat | CMD | NOAA/<br>USAF<br>Region | CMP<br>Mo | Day  | Dur<br>(Min) | Imp<br>Opt | Xray  | See | Obs<br>Type | Time<br>(UT) | Area Measurement        |                  | Remarks |
|------|-----|---------------|-------------|-------------|-----|-----|-------------------------|-----------|------|--------------|------------|-------|-----|-------------|--------------|-------------------------|------------------|---------|
|      |     |               |             |             |     |     |                         |           |      |              |            |       |     |             |              | Apparent<br>(10-6 Disk) | Corr<br>(Sq Deg) |         |
| GOES | 10  | 0605          | 0609        | 0613        |     |     |                         |           |      | 8            |            | C 2.4 |     |             |              |                         |                  |         |
| LEAR |     | 0714          | 0720        | 0728        | S05 | E06 | 7420                    | 02        | 10.7 | 14           | SF         | C 2.0 | 3   | E           |              | 50                      |                  | F       |
| SVTO |     | 0734          | 0742        | 0801D       | S02 | E02 | 7420                    | 02        | 10.5 | 27D          | 2N         | M 1.0 | 3   | E           |              | 260                     |                  | FE      |
| SVTO |     | 0836          | 0838        | 0904        | S04 | E05 | 7420                    | 02        | 10.7 | 28           | 1N         | M 1.5 | 3   | E           |              | 100                     |                  | FE      |
| LEAR |     | 0837          | 0838        | 0903        | S04 | E06 | 7420                    | 02        | 10.8 | 26           | SN         |       | 3   | E           |              | 78                      |                  | FH      |
| SVTO |     | 0914          | 0914        | 0922        | S12 | W30 | 7416                    | 02        | 8.1  | 8            | SF         |       | 3   | E           |              | 11                      |                  |         |
| SVTO |     | 1324          | 1325        | 1339        | S03 | W01 | 7420                    | 02        | 10.5 | 15           | SF         | C 1.8 | 4   | E           |              | 61                      |                  | F       |
| HOLL |     | 1555E         | 2145U       | 2151        | S04 | W03 | 7420                    | 02        | 10.4 | 356D         | SF         |       | 3   | E           |              | 30                      |                  | T       |
| RAMY |     | 1641          | 1644        | 1649        | S06 | E03 | 7420                    | 02        | 10.9 | 8            | SF         | C 1.2 | 4   | E           |              | 12                      |                  | F       |
| RAMY |     | 1803          | 1804        | 1815        | S04 | W02 | 7420                    | 02        | 10.6 | 12           | SF         | C 1.1 | 4   | E           |              | 25                      |                  | F       |
| PALE |     | 1804          | 1807        | 1809        | S03 | W01 | 7420                    | 02        | 10.7 | 5            | SF         |       | 3   | E           |              | 18                      |                  |         |
| RAMY |     | 1853          | 1854        | 1859        | S05 | E02 | 7420                    | 02        | 10.9 | 6            | SF         | C 1.4 | 4   | E           |              | 19                      |                  | F       |
| PALE |     | 1853          | 1854        | 1901        | S05 | E00 | 7420                    | 02        | 10.8 | 8            | SF         |       | 3   | E           |              | 21                      |                  | F       |
| RAMY |     | 1922          | 1924        | 1939        | S04 | W03 | 7420                    | 02        | 10.6 | 17           | SF         | C 1.5 | 4   | E           |              | 42                      |                  | F       |
| PALE |     | 1923          | 1924        | 1934        | S03 | W02 | 7420                    | 02        | 10.6 | 11           | SF         |       | 3   | E           |              | 18                      |                  | F       |
| HOLL |     | 2002E         | 2008U       | 2017        | S06 | E01 | 7420                    | 02        | 10.9 | 15D          | 1B         |       | 2   | E           |              | 117                     |                  | FE      |
| PALE |     | 2003          | 2007        | 2017        | S04 | W03 | 7420                    | 02        | 10.6 | 14           | 2B         | M 2.4 | 3   | E           |              | 321                     |                  | FE      |
| HOLL |     | 2045          | 2046        | 2053        | S05 | E01 | 7420                    | 02        | 10.9 | 8            | SF         | C 4.0 | 3   | E           |              | 29                      |                  | F       |
| PALE |     | 2046          | 2047        | 2054        | S05 | W02 | 7420                    | 02        | 10.7 | 8            | SF         |       | 3   | E           |              | 28                      |                  | F       |
| HOLL |     | 2151          | 2153        | 2208        | N11 | W28 | 7419                    | 02        | 8.8  | 17           | SF         | C 1.4 | 3   | E           |              | 25                      |                  |         |
| GOES |     | 2343          | 2347        | 2350        |     |     |                         |           |      | 7            |            | C 2.2 |     |             |              |                         |                  |         |
| LEAR | 11  | 0022          | 0024        | 0041        | S06 | W01 | 7420                    | 02        | 10.9 | 19           | 1F         | C 2.7 | 3   | E           |              | 121                     |                  | FE      |
| GOES |     | 0029          | 0032        | 0035        |     |     |                         |           |      | 6            |            | C 2.4 |     |             |              |                         |                  |         |
| PALE |     | 0118          | 0127U       | 0136D       | S04 | W05 | 7420                    | 02        | 10.7 | 18D          | SF         |       | 2   | E           |              | 51                      |                  |         |
| LEAR |     | 0124          | 0128        | 0130        | S06 | W02 | 7420                    | 02        | 10.9 | 6            | SF         | C 1.1 | 3   | E           |              | 55                      |                  |         |
| PALE |     | 0149          | 0151        | 0155        | S04 | W01 | 7420                    | 02        | 11.0 | 6            | SF         | C 1.3 | 3   | E           |              | 78                      |                  | F       |
| PALE |     | 0233          | 0235        | 0240        | S04 | W05 | 7420                    | 02        | 10.7 | 7            | SF         | C 1.2 | 3   | E           |              | 17                      |                  |         |
| PALE |     | 0302          | 0319        | 0328        | S04 | W06 | 7420                    | 02        | 10.7 | 26           | 1N         | C 3.5 | 3   | E           |              | 143                     |                  | FE      |
| GOES |     | 0315          | 0319        | 0324        |     |     |                         |           |      | 9            |            | C 3.1 |     |             |              |                         |                  |         |
| PALE |     | 0340          | 0343        | 0357        | S07 | W03 | 7420                    | 02        | 10.9 | 17           | SF         |       | 3   | E           |              | 43                      |                  | F       |
| LEAR |     | 0501          | 0502        | 0507        | S06 | W04 | 7420                    | 02        | 10.9 | 6            | 1N         | C 4.3 | 3   | E           |              | 126                     |                  | FE      |
| LEAR |     | 0545          | 0548        | 0552        | S06 | W04 | 7420                    | 02        | 10.9 | 7            | SF         |       | 3   | E           |              | 45                      |                  | F       |
| LEAR |     | 0556          | 0556        | 0600        | N14 | W35 | 7417                    | 02        | 8.6  | 4            | SF         |       | 3   | E           |              | 94                      |                  | F       |
| LEAR |     | 0648          | 0657        | 0701        | S06 | W05 | 7420                    | 02        | 10.9 | 13           | SF         | C 1.1 | 3   | E           |              | 47                      |                  |         |
| LEAR |     | 0727          | 0742        | 0758        | S06 | W05 | 7420                    | 02        | 10.9 | 31           | SF         | C 1.2 | 3   | E           |              | 55                      |                  | F       |
| GOES |     | 0843          | 0847        | 0849        |     |     |                         |           |      | 6            |            | C 1.1 |     |             |              |                         |                  |         |
| SVTO |     | 0930E         | 0931U       | 0933        | S03 | W11 | 7420                    | 02        | 10.6 | 3D           | SF         |       | 3   | E           |              | 20                      |                  |         |
| GOES |     | 1006          | 1009        | 1011        |     |     |                         |           |      | 5            |            | C 1.2 |     |             |              |                         |                  |         |
| RAMY |     | 1412          | 1416        | 1423D       | S05 | W10 | 7420                    | 02        | 10.8 | 11D          | SF         |       | 3   | E           |              | 18                      |                  | F       |
| RAMY |     | 1442          | 1448        | 1454        | S04 | W16 | 7420                    | 02        | 10.4 | 12           | SF         | C 1.8 | 3   | E           |              | 34                      |                  | F       |
| RAMY |     | 1539          | 1548        | 1551        | N19 | W39 | 7417                    | 02        | 8.7  | 12           | SF         |       | 3   | E           |              | 15                      |                  | F       |
| RAMY |     | 1539          | 1554        | 1652        | S05 | W12 | 7420                    | 02        | 10.7 | 73           | 1N         | C 7.9 | 3   | E           |              | 109                     |                  | FE      |
| HOLL |     | 1540          | 1832        | 1850        | S03 | W18 | 7420                    | 02        | 10.3 | 190          | 1B         |       | 3   | E           |              | 232                     |                  | FE      |
| RAMY |     | 1610          | 1615        | 1617        | N13 | W40 | 7417                    | 02        | 8.6  | 7            | SF         |       | 3   | E           |              | 39                      |                  | F       |
| HOLL |     | 1639          | 1710        | 1748        | N15 | W47 | 7417                    | 02        | 8.1  | 69           | SF         |       | 3   | E           |              | 50                      |                  | F       |
| RAMY |     | 1653          | 1715        | 1800        | S06 | W11 | 7420                    | 02        | 10.9 | 67           | SF         | C 2.3 | 3   | E           |              | 32                      |                  | F       |
| RAMY |     | 1707          | 1710        | 1714        | N15 | W42 | 7417                    | 02        | 8.5  | 7            | SF         |       | 3   | E           |              | 15                      |                  | F       |
| RAMY |     | 1801          | 1832        | 1907        | S04 | W15 | 7420                    | 02        | 10.6 | 66           | 1B         | M 2.7 | 4   | E           |              | 232                     |                  | FE      |
| PALE |     | 1805          | 1832        | 1845        | S04 | W14 | 7420                    | 02        | 10.7 | 40           | 1B         |       | 3   | E           |              | 197                     |                  | FE      |
| RAMY |     | 1908          | 1913        | 1918        | S04 | W16 | 7420                    | 02        | 10.6 | 10           | SF         |       | 3   | E           |              | 16                      |                  | F       |
| HOLL |     | 2126          | 2143        | 2227        | S06 | W14 | 7420                    | 02        | 10.8 | 61           | SF         |       | 3   | E           |              | 19                      |                  | FH      |
| LEAR |     | 2308          | 2313        | 2325        | N12 | W39 | 7419                    | 02        | 9.0  | 17           | SF         | C 1.2 | 3   | E           |              | 66                      |                  |         |
| HOLL |     | 2311          | 2316        | 2323        | N12 | W41 | 7419                    | 02        | 8.9  | 12           | SF         |       | 3   | E           |              | 38                      |                  |         |
| PALE |     | 2312          | 2315U       | 2319        | N11 | W41 | 7419                    | 02        | 8.9  | 7            | SF         |       | 3   | E           |              | 18                      |                  |         |
| LEAR | 12  | 0033          | 0035        | 0038        | S06 | W15 | 7420                    | 02        | 10.9 | 5            | SF         |       | 3   | E           |              | 59                      |                  |         |
| LEAR |     | 0039          | 0042        | 0121        | S06 | W16 | 7420                    | 02        | 10.8 | 42           | 1N         | C 5.9 | 3   | E           |              | 116                     |                  | F       |
| PALE |     | 0231          | 0232        | 0235        | S05 | W20 | 7420                    | 02        | 10.6 | 4            | SF         |       | 3   | E           |              | 31                      |                  |         |
| LEAR |     | 0623          | 0624        | 0631        | N13 | W54 | 7417                    | 02        | 8.2  | 8            | SF         | C 1.6 | 3   | E           |              | 45                      |                  | F       |
| SVTO |     | 0752E         | 0755U       | 0825        | N16 | W51 | 7417                    | 02        | 8.4  | 33D          | SN         |       | 2   | E           |              | 75                      |                  | FH      |
| LEAR |     | 0752          | 0757        | 0825        | N15 | W51 | 7417                    | 02        | 8.5  | 33           | 1F         | C 4.7 | 3   | E           |              | 154                     |                  | F       |
| LEAR |     | 0756          | 0805        | 0825        | S05 | W23 | 7420                    | 02        | 10.6 | 29           | SF         |       | 3   | E           |              | 48                      |                  | F       |
| SVTO |     | 0757E         | 0806U       | 0826        | S05 | W21 | 7420                    | 02        | 10.8 | 29D          | SF         |       | 2   | E           |              | 42                      |                  |         |
| SVTO |     | 0855          | 0954        | 1025D       | S05 | W24 | 7420                    | 02        | 10.6 | 90D          | SF         | C 1.6 | 3   | E           |              | 20                      |                  |         |
| GOES |     | 1009          | 1013        | 1017        |     |     |                         |           |      | 8            |            | C 1.4 |     |             |              |                         |                  |         |
| GOES |     | 1041          | 1046        | 1048        |     |     |                         |           |      | 7            |            | C 1.3 |     |             |              |                         |                  |         |
| RAMY |     | 1150          | 1154        | 1200        | N12 | W51 | 7417                    | 02        | 8.6  | 10           | SF         |       | 3   | E           |              | 16                      |                  |         |

34  
Feb 93

# H $\alpha$ SOLAR FLARES

FEBRUARY 1993

| Sta  | Day | Start<br>(UT) | Max<br>(UT) | End<br>(UT) | Lat | CMD | NOAA/<br>USAF<br>Region | CMP<br>Mo | Dur<br>Day | (Min) | Imp<br>Opt | Xray  | See | Obs<br>Type | Time<br>(UT) | Area Measurement        |                  | Remarks |
|------|-----|---------------|-------------|-------------|-----|-----|-------------------------|-----------|------------|-------|------------|-------|-----|-------------|--------------|-------------------------|------------------|---------|
|      |     |               |             |             |     |     |                         |           |            |       |            |       |     |             |              | Apparent<br>(10-6 Disk) | Corr<br>(Sq Deg) |         |
| SVTO | 12  | 1210          | 1211        | 1230        | N18 | W53 | 7417                    | 02        | 8.5        | 20    | SF         |       | 3   | E           |              | 17                      |                  |         |
| RAMY |     | 1211          | 1211        | 1228        | N15 | W53 | 7417                    | 02        | 8.5        | 17    | SF         |       | 3   | E           |              | 15                      |                  | F       |
| SVTO |     | 1234          | 1238        | 1254D       | S06 | W23 | 7420                    | 02        | 10.8       | 20D   | SF         |       | 3   | E           |              | 17                      |                  | F       |
| SVTO |     | 1255E         | 1259U       | 1331D       | S05 | W21 | 7420                    | 02        | 11.0       | 36D   | SF         |       | 2   | E           |              | 41                      |                  |         |
| RAMY |     | 1258          | 1259        | 1328        | S06 | W21 | 7420                    | 02        | 11.0       | 30    | SF         | C 4.4 | 3   | E           |              | 36                      |                  | F       |
| RAMY |     | 1332          | 1332        | 1339        | S06 | W23 | 7420                    | 02        | 10.8       | 7     | SF         |       | 3   | E           |              | 48                      |                  | F       |
| SVTO |     | 1410E         | 1411U       | 1421D       | S03 | W27 | 7420                    | 02        | 10.6       | 11D   | SF         | C 1.3 | 2   | E           |              | 14                      |                  | H       |
| HOLL |     | 1747          | 1748        | 1753        | S03 | W24 | 7420                    | 02        | 10.9       | 6     | SF         |       | 3   | E           |              | 19                      |                  | F       |
| HOLL |     | 2039          | 2039        | 2149D       | N17 | W57 | 7417                    | 02        | 8.5        | 70D   | SF         | C 1.9 | 2   | E           |              | 75                      |                  | F       |
| GOES |     | 2229          | 2233        | 2236        |     |     |                         |           |            | 7     |            | C 1.2 |     |             |              |                         |                  |         |
| HOLL |     | 2259          | 2259        | 2330        | N07 | E38 | 7424                    | 02        | 15.8       | 31    | SF         | C 1.1 | 3   | E           |              | 11                      |                  | F       |
| GOES |     | 2359          | 2406        | 2411        |     |     |                         |           |            | 12    |            | C 3.6 |     |             |              |                         |                  |         |
| HOLL | 13  | 0001          | 0007        | 0022        | S02 | W29 | 7420                    | 02        | 10.8       | 21    | SF         |       | 2   | E           |              | 71                      |                  | F       |
| PALE |     | 0055          | 0055        | 0058        | N19 | W59 | 7417                    | 02        | 8.5        | 3     | SF         |       | 3   | E           |              | 22                      |                  |         |
| GOES |     | 0132          | 0139        | 0148        |     |     |                         |           |            | 16    |            | C 1.9 |     |             |              |                         |                  |         |
| LEAR |     | 0134          | 0137        | 0146        | S06 | W28 | 7420                    | 02        | 11.0       | 12    | SF         |       | 3   | E           |              | 34                      |                  | F       |
| GOES |     | 0228          | 0235        | 0246        |     |     |                         |           |            | 18    |            | C 1.2 |     |             |              |                         |                  |         |
| GOES |     | 0344          | 0350        | 0356        |     |     |                         |           |            | 12    |            | C 1.8 |     |             |              |                         |                  |         |
| GOES |     | 0408          | 0414        | 0422        |     |     |                         |           |            | 14    |            | C 2.1 |     |             |              |                         |                  |         |
| GOES |     | 0525          | 0531        | 0537        |     |     |                         |           |            | 12    |            | C 6.4 |     |             |              |                         |                  |         |
| LEAR |     | 0605          | 0609        | 0620        | S05 | W32 | 7420                    | 02        | 10.8       | 15    | SF         | C 3.0 | 3   | E           |              | 48                      |                  | F       |
| GOES |     | 0650          | 0657        | 0703        |     |     |                         |           |            | 13    |            | C 1.6 |     |             |              |                         |                  |         |
| SVTO |     | 0733          | 0735        | 0806        | N10 | W67 | 7417                    | 02        | 8.3        | 33    | SF         | C 2.2 | 3   | E           |              | 44                      |                  | F       |
| GOES |     | 0952          | 0959        | 1006        |     |     |                         |           |            | 14    |            | C 1.3 |     |             |              |                         |                  |         |
| SVTO |     | 1036          | 1040        | 1047        | S07 | W38 | 7420                    | 02        | 10.6       | 11    | SF         | C 5.9 | 3   | E           |              | 36                      |                  |         |
| RAMY |     | 1227          | 1228        | 1234        | S05 | W37 | 7420                    | 02        | 10.7       | 7     | SF         |       | 3   | E           |              | 25                      |                  | F       |
| RAMY |     | 1238          | 1325        | 1348        | S04 | W37 | 7420                    | 02        | 10.8       | 70    | SN         | C 3.1 | 4   | E           |              | 61                      |                  | F       |
| RAMY |     | 1400          | 1404        | 1415        | S06 | W36 | 7420                    | 02        | 10.9       | 15    | SF         | C 1.2 | 4   | E           |              | 20                      |                  | UF      |
| RAMY |     | 1416          | 1416        | 1421        | S06 | W36 | 7420                    | 02        | 10.9       | 5     | SF         |       | 4   | E           |              | 43                      |                  | F       |
| SVTO |     | 1447E         | 1452U       | 1506        | S05 | W39 | 7420                    | 02        | 10.7       | 19D   | SF         |       | 2   | E           |              | 13                      |                  |         |
| RAMY |     | 1448          | 1506        | 1517        | S04 | W38 | 7420                    | 02        | 10.8       | 29    | SF         | C 3.5 | 3   | E           |              | 41                      |                  | F       |
| HOLL |     | 1535E         | 1535U       | 1734D       | S05 | W38 | 7420                    | 02        | 10.8       | 119D  | SF         | C 1.3 | 3   | E           |              | 29                      |                  | FH      |
| RAMY |     | 1600          | 1605        | 1611        | S04 | W39 | 7420                    | 02        | 10.7       | 11    | SF         |       | 3   | E           |              | 32                      |                  | F       |
| RAMY |     | 1621          | 1622        | 1627        | S05 | W41 | 7420                    | 02        | 10.6       | 6     | SF         |       | 3   | E           |              | 15                      |                  | F       |
| RAMY |     | 1713          | 1717        | 1727        | S04 | W40 | 7420                    | 02        | 10.7       | 14    | SF         | C 1.9 | 3   | E           |              | 36                      |                  | F       |
| GOES |     | 1753          | 1805        | 1833        |     |     |                         |           |            | 40    |            | C 3.2 |     |             |              |                         |                  |         |
| GOES |     | 1919          | 1925        | 1928        |     |     |                         |           |            | 9     |            | C 2.0 |     |             |              |                         |                  |         |
| GOES |     | 2054          | 2058        | 2117        |     |     |                         |           |            | 23    |            | B 8.9 |     |             |              |                         |                  |         |
| GOES |     | 2119          | 2126        | 2152        |     |     |                         |           |            | 33    |            | C 1.5 |     |             |              |                         |                  |         |
| PALE |     | 2254          | 2254        | 2258        | N08 | E26 | 7424                    | 02        | 15.9       | 4     | SF         | C 1.0 | 3   | E           |              | 27                      |                  |         |
| GOES |     | 2336          | 2348        | 2353        |     |     |                         |           |            | 17    |            | C 1.5 |     |             |              |                         |                  |         |
| PALE | 14  | 0007          | 0008        | 0013        | S04 | W45 | 7420                    | 02        | 10.6       | 6     | SF         |       | 3   | E           |              | 37                      |                  |         |
| LEAR |     | 0008          | 0010        | 0020        | S04 | W45 | 7420                    | 02        | 10.6       | 12    | SF         |       | 3   | E           |              | 42                      |                  |         |
| LEAR |     | 0053          | 0057        | 0108        | S03 | W47 | 7420                    | 02        | 10.5       | 15    | SF         | C 5.1 | 3   | E           |              | 62                      |                  | F       |
| PALE |     | 0054          | 0057        | 0105        | S03 | W47 | 7420                    | 02        | 10.5       | 11    | SF         |       | 3   | E           |              | 46                      |                  |         |
| PALE |     | 0303          | 0306        | 0313        | S04 | W47 | 7420                    | 02        | 10.6       | 10    | SF         | C 2.5 | 2   | E           |              | 40                      |                  | F       |
| LEAR |     | 0617          | 0617        | 0627        | S05 | W51 | 7420                    | 02        | 10.4       | 10    | SF         | C 3.6 | 3   | E           |              | 18                      |                  |         |
| GOES |     | 0744          | 0759        | 0812        |     |     |                         |           |            | 28    |            | C 1.9 |     |             |              |                         |                  |         |
| LEAR |     | 0908          | 0911        | 0918        | N10 | E20 | 7424                    | 02        | 15.9       | 10    | SF         |       | 3   | E           |              | 15                      |                  |         |
| SVTO |     | 0909          | 0911        | 0917        | N11 | E20 | 7424                    | 02        | 15.9       | 8     | SF         |       | 3   | E           |              | 17                      |                  |         |
| LEAR |     | 1022E         | 1028U       | 1032        | S06 | W48 | 7420                    | 02        | 10.8       | 10D   | SF         |       | 3   | E           |              | 20                      |                  |         |
| SVTO |     | 1027          | 1028        | 1034        | S08 | W52 | 7420                    | 02        | 10.5       | 7     | SF         | C 3.6 | 3   | E           |              | 39                      |                  |         |
| SVTO |     | 1141          | 1144        | 1156        | N10 | E18 | 7424                    | 02        | 15.8       | 15    | SF         |       | 3   | E           |              | 22                      |                  |         |
| SVTO |     | 1208          | 1210        | 1214        | S06 | W48 | 7420                    | 02        | 10.9       | 6     | SF         | C 3.6 | 3   | E           |              | 20                      |                  |         |
| RAMY |     | 1248          | 1253        | 1319        | S22 | E78 |                         | 02        | 20.5       | 31    | 2B         | M 2.0 | 4   | E           |              | 253                     |                  | EH      |
| SVTO |     | 1252          | 1256        | 1318        | S21 | E78 |                         | 02        | 20.5       | 26    | 2F         |       | 3   | E           |              | 253                     |                  | H       |
| GOES |     | 1822          | 1826        | 1828        |     |     |                         |           |            | 6     |            | C 2.6 |     |             |              |                         |                  |         |
| LEAR |     | 2305          | 2310U       | 2325        | S05 | W51 | 7420                    | 02        | 11.1       | 20    | SF         | C 9.2 | 3   | E           |              | 62                      |                  |         |
| GOES |     | 2359          | 2402        | 2404        |     |     |                         |           |            | 5     |            | B 9.8 |     |             |              |                         |                  |         |
| GOES | 15  | 0044          | 0050        | 0052        |     |     |                         |           |            | 8     |            | C 2.3 |     |             |              |                         |                  |         |
| GOES |     | 0110          | 0121        | 0134        |     |     |                         |           |            | 24    |            | C 2.8 |     |             |              |                         |                  |         |
| GOES |     | 0202          | 0205        | 0207        |     |     |                         |           |            | 5     |            | C 1.1 |     |             |              |                         |                  |         |
| GOES |     | 0238          | 0241        | 0243        |     |     |                         |           |            | 5     |            | B 8.0 |     |             |              |                         |                  |         |
| GOES |     | 0313          | 0318        | 0321        |     |     |                         |           |            | 8     |            | B 8.6 |     |             |              |                         |                  |         |
| GOES |     | 0420          | 0424        | 0426        |     |     |                         |           |            | 6     |            | C 1.4 |     |             |              |                         |                  |         |

H $\alpha$  SOLAR FLARES

FEBRUARY 1993

| Sta  | Day | Start<br>(UT) | Max<br>(UT) | End<br>(UT) | Lat | CMD | NOAA/<br>USAF<br>Region | CMP<br>Mo | Day  | Dur<br>(Min) | Imp<br>Opt | Xray  | See | Obs<br>Type | Area Measurement |                         |                  | Remarks |
|------|-----|---------------|-------------|-------------|-----|-----|-------------------------|-----------|------|--------------|------------|-------|-----|-------------|------------------|-------------------------|------------------|---------|
|      |     |               |             |             |     |     |                         |           |      |              |            |       |     |             | Time<br>(UT)     | Apparent<br>(10-6 Disk) | Corr<br>(Sq Deg) |         |
| LEAR | 15  | 0751          | 0752        | 0759        | S03 | W74 | 7420                    | 02        | 9.8  | 8            | SF         | C 1.1 | 3   | E           |                  | 55                      |                  |         |
| GOES |     | 1019          | 1023        | 1025        |     |     |                         |           |      | 6            |            | B 7.5 |     |             |                  |                         |                  |         |
| RAMY |     | 1330          | 1330        | 1335        | N10 | W01 | 7424                    | 02        | 15.5 | 5            | SF         |       | 3   | E           |                  | 15                      |                  | F       |
| RAMY |     | 1342          | 1345        | 1355        | N10 | E00 | 7424                    | 02        | 15.6 | 13           | SF         | C 1.0 | 3   | E           |                  | 20                      |                  | F       |
| GOES |     | 1354          | 1357        | 1359        |     |     |                         |           |      | 5            |            | B 9.9 |     |             |                  |                         |                  |         |
| RAMY |     | 1658          | 1659        | 1705        | S05 | W69 | 7420                    | 02        | 10.5 | 7            | SF         |       | 3   | E           |                  | 49                      |                  | F       |
| RAMY |     | 1722          | 1724        | 1728        | S05 | W76 | 7420                    | 02        | 10.0 | 6            | SF         |       | 3   | E           |                  | 35                      |                  |         |
| RAMY |     | 1909          | 1911        | 1913        | N10 | W04 | 7424                    | 02        | 15.5 | 4            | SF         |       | 3   | E           |                  | 19                      |                  |         |
| RAMY |     | 1917          | 1945        | 2007        | S08 | W69 | 7420                    | 02        | 10.6 | 50           | SF         | C 5.1 | 3   | E           |                  | 37                      |                  | FE      |
| HOLL |     | 1933E         | 1936U       | 2040D       | S05 | W69 | 7420                    | 02        | 10.6 | 67D          | SF         |       | 2   | E           |                  | 85                      |                  | FH      |
| HOLL |     | 2242          | 2302        | 2329        | S23 | E57 | 7427                    | 02        | 20.3 | 47           | SF         | C 1.4 | 3   | E           |                  | 32                      |                  |         |
| LEAR | 16  | 0015          | 0017        | 0020        | S20 | E57 | 7427                    | 02        | 20.4 | 5            | SF         |       | 3   | E           |                  | 16                      |                  |         |
| LEAR |     | 0041          | 0047        | 0054        | S20 | E56 | 7427                    | 02        | 20.3 | 13           | SF         | B 9.5 | 3   | E           |                  | 39                      |                  |         |
| LEAR |     | 0225          | 0233        | 0240        | S20 | E56 | 7427                    | 02        | 20.4 | 15           | SF         | C 1.1 | 3   | E           |                  | 35                      |                  |         |
| LEAR |     | 0437          | 0440        | 0453        | S22 | E57 | 7427                    | 02        | 20.6 | 16           | 1B         | C 7.0 | 3   | E           |                  | 193                     |                  | EH      |
| LEAR |     | 0532          | 0543        | 0556        | S05 | E70 |                         | 02        | 21.5 | 24           | 1F         | C 3.7 | 3   | E           |                  | 109                     |                  |         |
| GOES |     | 0709          | 0713        | 0718        |     |     |                         |           |      | 9            |            | B 9.4 |     |             |                  |                         |                  |         |
| GOES |     | 0725          | 0731        | 0735        |     |     |                         |           |      | 10           |            | C 2.2 |     |             |                  |                         |                  |         |
| RAMY |     | 1350          | 1413        | 1442        | N14 | E19 | 7425                    | 02        | 18.0 | 52           | SF         |       | 3   | E           |                  | 31                      |                  | F       |
| RAMY |     | 1354          | 1357        | 1402        | S05 | W78 | 7420                    | 02        | 10.7 | 8            | SF         |       | 3   | E           |                  | 30                      |                  | F       |
| RAMY |     | 1355          | 1355        | 1406        | S21 | E50 | 7427                    | 02        | 20.4 | 11           | SF         |       | 3   | E           |                  | 13                      |                  | F       |
| RAMY |     | 1416          | 1422        | 1444        | S06 | W76 | 7420                    | 02        | 10.9 | 28           | SF         | M 2.1 | 3   | E           |                  | 33                      |                  | F       |
| RAMY |     | 1444          | 1444        | 1446        | N14 | E16 | 7425                    | 02        | 17.8 | 2            | SF         |       | 3   | E           |                  | 12                      |                  |         |
| GOES |     | 1652          | 1727        | 1756D       |     |     |                         |           |      | 64D          |            | C 5.5 |     |             |                  |                         |                  |         |
| GOES |     | 1911          | 1914        | 1916        |     |     |                         |           |      | 5            |            | C 2.1 |     |             |                  |                         |                  |         |
| HOLL |     | 1949          | 2003        | 2006        | S23 | E46 | 7427                    | 02        | 20.4 | 17           | SF         |       | 2   | E           |                  | 17                      |                  | F       |
| HOLL |     | 2001          | 2036        | 2042        | S03 | W83 | 7420                    | 02        | 10.6 | 41           | 1F         | C 1.8 | 2   | E           |                  | 152                     |                  | FH      |
| HOLL |     | 2129          | 2133        | 2135        | S17 | E72 | 7429                    | 02        | 22.4 | 6            | SF         | C 4.5 | 3   | E           |                  | 32                      |                  | H       |
| LEAR | 17  | 0112          | 0118        | 0131        | S20 | E44 | 7427                    | 02        | 20.4 | 19           | SF         | C 4.2 | 3   | E           |                  | 88                      |                  | F       |
| GOES |     | 0236          | 0326        | 0351        |     |     |                         |           |      | 75           |            | C 6.5 |     |             |                  |                         |                  |         |
| LEAR |     | 0301          | 0311        | 0401        | S21 | E42 | 7427                    | 02        | 20.3 | 60           | 1F         |       | 3   | E           |                  | 170                     |                  | F       |
| LEAR |     | 0703          | 0705        | 0716        | N14 | E09 | 7425                    | 02        | 18.0 | 13           | SF         | C 1.9 | 3   | E           |                  | 79                      |                  |         |
| SVTO |     | 0957          | 0957        | 1027        | S19 | E41 | 7427                    | 02        | 20.5 | 30           | SF         | C 3.9 | 3   | E           |                  | 13                      |                  | F       |
| SVTO |     | 1036          | 1038        | 1051        | S07 | W87 | 7420                    | 02        | 10.9 | 15           | SF         | M 5.8 | 3   | E           |                  | 32                      |                  | FE      |
| SVTO |     | 1038          | 1042        | 1054        | N18 | E04 | 7425                    | 02        | 17.7 | 16           | SF         |       | 3   | E           |                  | 21                      |                  |         |
| SVTO |     | 1057          | 1059        | 1104        | S06 | W88 | 7420                    | 02        | 10.9 | 7            | SF         |       | 3   | E           |                  | 15                      |                  |         |
| RAMY |     | 1200          | 1210        | 1215        | S18 | E36 | 7427                    | 02        | 20.2 | 15           | SF         |       | 3   | E           |                  | 16                      |                  | F       |
| SVTO |     | 1302          | 1307        | 1338        | N17 | E05 | 7425                    | 02        | 17.9 | 36           | SF         |       | 3   | E           |                  | 28                      |                  | F       |
| HOLL |     | 1449E         | 1449U       | 1500D       | S19 | E39 | 7427                    | 02        | 20.6 | 11D          | SF         |       | 2   | E           |                  | 37                      |                  | F       |
| RAMY |     | 1613          | 1616        | 1627        | S20 | E36 | 7427                    | 02        | 20.4 | 14           | SF         |       | 4   | E           |                  | 17                      |                  | F       |
| HOLL |     | 1621          | 1646        | 1650        | S23 | E36 | 7427                    | 02        | 20.4 | 29           | SF         |       | 3   | E           |                  | 28                      |                  | F       |
| RAMY |     | 1643          | 1645        | 1649        | S21 | E35 | 7427                    | 02        | 20.4 | 6            | SF         |       | 4   | E           |                  | 17                      |                  | F       |
| HOLL |     | 1710          | 1717        | 1732        | N16 | E02 | 7425                    | 02        | 17.9 | 22           | SF         | B 7.7 | 3   | E           |                  | 46                      |                  | F       |
| HOLL |     | 1852          | 1907        | 1947        | S22 | E34 | 7427                    | 02        | 20.4 | 55           | SF         |       | 3   | E           |                  | 33                      |                  | F       |
| HOLL |     | 1929          | 1938        | 1952        | N16 | E01 | 7425                    | 02        | 17.9 | 23           | SF         |       | 3   | E           |                  | 28                      |                  |         |
| GOES |     | 2009          | 2029        | 2105        |     |     |                         |           |      | 56           |            | C 1.3 |     |             |                  |                         |                  |         |
| HOLL |     | 2035          | 2046        | 2058        | N16 | E00 | 7425                    | 02        | 17.8 | 23           | SF         |       | 3   | E           |                  | 26                      |                  | F       |
| HOLL |     | 2054          | 2059        | 2119        | S23 | E33 | 7427                    | 02        | 20.4 | 25           | SF         |       | 3   | E           |                  | 29                      |                  |         |
| GOES |     | 2246          | 2304        | 2324        |     |     |                         |           |      | 38           |            | C 2.2 |     |             |                  |                         |                  |         |
| GOES | 18  | 0017          | 0022        | 0027        |     |     |                         |           |      | 10           |            | C 1.3 |     |             |                  |                         |                  |         |
| LEAR |     | 0259          | 0306        | 0406        | N14 | W02 | 7425                    | 02        | 18.0 | 67           | 2B         | M 4.0 | 3   | E           |                  | 307                     |                  | YF      |
| GOES |     | 0428          | 0452        | 0507        |     |     |                         |           |      | 39           |            | C 2.0 |     |             |                  |                         |                  |         |
| LEAR |     | 0756          | 0759        | 0808        | N18 | W09 | 7425                    | 02        | 17.6 | 12           | SF         | B 8.8 | 3   | E           |                  | 23                      |                  |         |
| GOES |     | 0810          | 0816        | 0827        |     |     |                         |           |      | 17           |            | C 1.1 |     |             |                  |                         |                  |         |
| LEAR |     | 0928          | 0952        | 1033        | S20 | E28 | 7427                    | 02        | 20.5 | 65           | 1N         | M 1.6 | 3   | E           |                  | 239                     |                  | FE      |
| SVTO |     | 1058E         | 1101U       | 1212D       | S21 | E23 | 7427                    | 02        | 20.2 | 74D          | 1N         |       | 2   | E           |                  | 162                     |                  | F       |
| RAMY |     | 1126E         | 1131U       | 1248        | S21 | E21 | 7427                    | 02        | 20.1 | 82D          | 1B         | M 1.1 | 3   | E           |                  | 123                     |                  | FE      |
| RAMY |     | 1135          | 1135        | 1150        | N17 | W10 | 7425                    | 02        | 17.7 | 15           | 1N         |       | 3   | E           |                  | 221                     |                  | FE      |
| SVTO |     | 1135E         | 1136U       | 1212D       | N17 | W12 | 7425                    | 02        | 17.6 | 37D          | 1F         |       | 2   | E           |                  | 124                     |                  | F       |
| RAMY |     | 1241          | 1254        | 1300        | N10 | W41 | 7424                    | 02        | 15.4 | 19           | SF         |       | 4   | E           |                  | 16                      |                  |         |
| RAMY |     | 1340          | 1344        | 1348        | N10 | W42 | 7424                    | 02        | 15.4 | 8            | SF         | C 1.5 | 4   | E           |                  | 13                      |                  |         |
| SVTO |     | 1344          | 1352        | 1404        | N08 | W42 | 7424                    | 02        | 15.4 | 20           | SF         |       | 3   | E           |                  | 15                      |                  | F       |
| GOES |     | 1402          | 1410        | 1421        |     |     |                         |           |      | 19           |            | C 2.5 |     |             |                  |                         |                  |         |
| RAMY |     | 1622          | 1628        | 1635        | S19 | E22 | 7427                    | 02        | 20.4 | 13           | SF         |       | 4   | E           |                  | 24                      |                  |         |
| RAMY |     | 1748          | 1751        | 1802        | N18 | W14 | 7425                    | 02        | 17.7 | 14           | 1F         | C 1.1 | 4   | E           |                  | 132                     |                  |         |

36  
Feb 93

# H $\alpha$ SOLAR FLARES

FEBRUARY 1993

| Sta  | Day | Start<br>(UT) | Max<br>(UT) | End<br>(UT) | Lat | CMD | NOAA/<br>USAF<br>Region | CMP<br>Mo | Day  | Dur<br>(Min) | Imp<br>Opt | Xray  | Obs<br>See | Type | Area Measurement |                         |                  | Remarks |
|------|-----|---------------|-------------|-------------|-----|-----|-------------------------|-----------|------|--------------|------------|-------|------------|------|------------------|-------------------------|------------------|---------|
|      |     |               |             |             |     |     |                         |           |      |              |            |       |            |      | Time<br>(UT)     | Apparent<br>(10-6 Disk) | Corr<br>(Sq Deg) |         |
| HOLL | 18  | 1754E         | 1755U       | 1800D       | N14 | W12 | 7425                    | 02        | 17.8 | 6D           | SF         |       | 1          | E    |                  | 54                      |                  | F       |
| RAMY |     | 1806          | 1806        | 1834        | S19 | E21 | 7427                    | 02        | 20.3 | 28           | SF         | C 1.2 | 4          | E    |                  | 20                      |                  | F       |
| GOES |     | 1824          | 1827        | 1836        |     |     |                         |           |      | 12           |            | B 9.6 |            |      |                  |                         |                  |         |
| GOES |     | 2014          | 2019        | 2029        |     |     |                         |           |      | 15           |            | C 1.4 |            |      |                  |                         |                  |         |
| GOES |     | 2213          | 2218        | 2226        |     |     |                         |           |      | 13           |            | C 1.6 |            |      |                  |                         |                  |         |
| GOES |     | 2233          | 2249        | 2308        |     |     |                         |           |      | 35           |            | C 4.4 |            |      |                  |                         |                  |         |
| SVTO | 19  | 1041          | 1041        | 1049        | N08 | W55 | 7424                    | 02        | 15.3 | 8            | SF         | B 7.5 | 3          | E    |                  | 32                      |                  |         |
| SVTO |     | 1103          | 1104        | 1108        | S10 | E53 | 7431                    | 02        | 23.4 | 5            | SF         | B 5.8 | 3          | E    |                  | 17                      |                  |         |
| RAMY |     | 1209          | 1217        | 1223        | S12 | E50 | 7431                    | 02        | 23.3 | 14           | SF         |       | 3          | E    |                  | 10                      |                  |         |
| RAMY |     | 1243          | 1247        | 1251        | S12 | E50 | 7431                    | 02        | 23.3 | 8            | SF         |       | 4          | E    |                  | 20                      |                  |         |
| GOES |     | 1405          | 1417        | 1422        |     |     |                         |           |      | 17           |            | C 1.7 |            |      |                  |                         |                  |         |
| RAMY |     | 1411E         | 1411U       | 1445        | S20 | E11 | 7427                    | 02        | 20.5 | 34D          | SN         |       | 4          | E    |                  | 73                      |                  | F       |
| SVTO |     | 1424E         | 1424U       | 1437        | S19 | E10 | 7427                    | 02        | 20.4 | 13D          | SF         |       | 2          | E    |                  | 34                      |                  | F       |
| HOLL |     | 1634          | 1646        | 1702        | S13 | E49 | 7431                    | 02        | 23.4 | 28           | SF         |       | 2          | E    |                  | 38                      |                  |         |
| RAMY |     | 1643          | 1645        | 1708        | S12 | E48 | 7431                    | 02        | 23.3 | 25           | SF         |       | 3          | E    |                  | 32                      |                  | F       |
| HOLL |     | 1647          | 1654        | 1713        | N14 | W23 | 7425                    | 02        | 18.0 | 26           | SF         |       | 3          | E    |                  | 29                      |                  | F       |
| RAMY |     | 1653          | 1656        | 1701        | N14 | W22 | 7425                    | 02        | 18.0 | 8            | SF         |       | 3          | E    |                  | 12                      |                  | F       |
| HOLL |     | 1716          | 1726        | 1802        | S13 | E47 | 7431                    | 02        | 23.3 | 46           | SF         |       | 3          | E    |                  | 96                      |                  | F       |
| RAMY |     | 1719          | 1726        | 1755        | S12 | E47 | 7431                    | 02        | 23.3 | 36           | SF         | B 8.9 | 3          | E    |                  | 66                      |                  | F       |
| HOLL |     | 1748          | 1749        | 1753        | S16 | E69 | 7432                    | 02        | 25.0 | 5            | SF         |       | 3          | E    |                  | 29                      |                  |         |
| HOLL |     | 1748          | 1751        | 1810        | N11 | W59 | 7424                    | 02        | 15.3 | 22           | SF         |       | 3          | E    |                  | 18                      |                  |         |
| RAMY |     | 2017          | 2017        | 2023        | S17 | E67 | 7432                    | 02        | 24.9 | 6            | SF         |       | 3          | E    |                  | 19                      |                  |         |
| GOES | 20  | 0749          | 0752        | 0754        |     |     |                         |           |      | 5            |            | B 3.6 |            |      |                  |                         |                  |         |
| GOES |     | 1302          | 1309        | 1317        |     |     |                         |           |      | 15           |            | C 1.8 |            |      |                  |                         |                  |         |
| GOES |     | 1538          | 1600        | 1614        |     |     |                         |           |      | 36           |            | C 3.8 |            |      |                  |                         |                  |         |
| HOLL |     | 1640          | 1650        | 1745        | N15 | W35 | 7425                    | 02        | 18.0 | 65           | SF         | C 2.8 | 2          | E    |                  | 53                      |                  |         |
| HOLL |     | 1921E         | 1931        | 2041        | N15 | W37 | 7425                    | 02        | 18.0 | 80D          | SF         | C 2.7 | 2          | E    |                  | 69                      |                  | U       |
| HOLL |     | 1931E         | 1931U       | 1942        | S13 | E29 | 7431                    | 02        | 23.0 | 11D          | SF         |       | 2          | E    |                  | 20                      |                  | F       |
| GOES |     | 2254          | 2302        | 2310        |     |     |                         |           |      | 16           |            | C 2.3 |            |      |                  |                         |                  |         |
| LEAR | 21  | 0027          | 0033        | 0058        | N13 | E75 | 7433                    | 02        | 26.7 | 31           | SF         | M 1.4 | 3          | E    |                  | 39                      |                  |         |
| LEAR |     | 0259          | 0306        | 0312        | N13 | E72 | 7433                    | 02        | 26.5 | 13           | SF         | C 2.2 | 3          | E    |                  | 25                      |                  | F       |
| LEAR |     | 0431          | 0435        | 0503        | N12 | E71 | 7433                    | 02        | 26.5 | 32           | SF         | C 5.0 | 3          | E    |                  | 75                      |                  | F       |
| GOES |     | 0537          | 0544        | 0559        |     |     |                         |           |      | 22           |            | B 8.9 |            |      |                  |                         |                  |         |
| LEAR |     | 0620          | 0624        | 0643        | N12 | E70 | 7433                    | 02        | 26.5 | 23           | SF         |       | 3          | E    |                  | 31                      |                  |         |
| SVTO |     | 0624E         | 0625U       | 0635D       | N13 | E72 | 7433                    | 02        | 26.7 | 11D          | SF         |       | 2          | E    |                  | 24                      |                  |         |
| GOES |     | 0707          | 0712        | 0722        |     |     |                         |           |      | 15           |            | B 7.0 |            |      |                  |                         |                  |         |
| SVTO |     | 0805E         | 0806U       | 0819D       | N14 | E74 | 7433                    | 02        | 26.9 | 14D          | SF         |       | 2          | E    |                  | 45                      |                  |         |
| LEAR |     | 0809          | 0813        | 0826        | N12 | E67 | 7433                    | 02        | 26.4 | 17           | SF         |       | 3          | E    |                  | 43                      |                  |         |
| SVTO |     | 0859          | 0902        | 0911        | N14 | W44 | 7425                    | 02        | 18.0 | 12           | SF         |       | 3          | E    |                  | 22                      |                  | H       |
| SVTO |     | 0859          | 0911        | 0926        | N13 | E71 | 7433                    | 02        | 26.7 | 27           | SF         |       | 3          | E    |                  | 19                      |                  |         |
| LEAR |     | 0908          | 0909        | 0912        | N12 | E66 | 7433                    | 02        | 26.3 | 4            | SF         |       | 3          | E    |                  | 20                      |                  |         |
| SVTO |     | 1034          | 1036        | 1107        | N12 | E68 | 7433                    | 02        | 26.6 | 33           | SF         | C 1.1 | 3          | E    |                  | 76                      |                  |         |
| SVTO |     | 1136          | 1148        | 1153        | S15 | E46 | 7432                    | 02        | 25.0 | 17           | SF         |       | 3          | E    |                  | 18                      |                  |         |
| SVTO |     | 1139          | 1139        | 1143        | N14 | E69 | 7433                    | 02        | 26.7 | 4            | SF         |       | 3          | E    |                  | 13                      |                  |         |
| SVTO |     | 1140          | 1149        | 1155        | N09 | W09 | 7430                    | 02        | 20.8 | 15           | SF         |       | 3          | E    |                  | 16                      |                  |         |
| SVTO |     | 1215          | 1218        | 1220        | N14 | E69 | 7433                    | 02        | 26.7 | 5            | SF         |       | 3          | E    |                  | 15                      |                  |         |
| RAMY |     | 1235          | 1235        | 1240        | N12 | E67 | 7433                    | 02        | 26.6 | 5            | SF         |       | 3          | E    |                  | 12                      |                  | F       |
| RAMY |     | 1241          | 1243        | 1251        | N13 | E68 | 7433                    | 02        | 26.6 | 10           | SF         |       | 3          | E    |                  | 23                      |                  | F       |
| RAMY |     | 1251          | 1252        | 1258        | N12 | E66 | 7433                    | 02        | 26.5 | 7            | SF         |       | 3          | E    |                  | 57                      |                  | FH      |
| RAMY |     | 1258          | 1310        | 1319        | N12 | E66 | 7433                    | 02        | 26.5 | 21           | SF         | C 1.6 | 3          | E    |                  | 68                      |                  | F       |
| GOES |     | 1348          | 1359        | 1405        |     |     |                         |           |      | 17           |            | C 2.3 |            |      |                  |                         |                  |         |
| HOLL |     | 1416E         | 1510U       | 1600D       | N10 | E65 | 7433                    | 02        | 26.5 | 104D         | SN         |       | 2          | E    |                  | 92                      |                  | EH      |
| HOLL |     | 1525          | 1527        | 1613        | S13 | E20 | 7431                    | 02        | 23.1 | 48           | SF         | B 6.5 | 3          | E    |                  | 29                      |                  | F       |
| RAMY |     | 1658          | 1658        | 1704        | N11 | E63 | 7433                    | 02        | 26.4 | 6            | SF         | B 5.2 | 3          | E    |                  | 15                      |                  | F       |
| GOES |     | 1904          | 1908        | 1911        |     |     |                         |           |      | 7            |            | B 7.0 |            |      |                  |                         |                  |         |
| HOLL |     | 1944          | 1947        | 1953        | N17 | W57 | 7425                    | 02        | 17.5 | 9            | SF         | B 6.0 | 3          | E    |                  | 23                      |                  | F       |
| GOES |     | 2006          | 2009        | 2011        |     |     |                         |           |      | 5            |            | B 5.9 |            |      |                  |                         |                  |         |
| HOLL |     | 2053          | 2056        | 2108        | N09 | W15 | 7430                    | 02        | 20.7 | 15           | SF         | B 8.8 | 3          | E    |                  | 50                      |                  | F       |
| HOLL |     | 2155          | 2155        | 2200        | N16 | W50 | 7425                    | 02        | 18.1 | 5            | SF         | B 6.3 | 3          | E    |                  | 13                      |                  | H       |
| GOES |     | 2223          | 2304        | 2329        |     |     |                         |           |      | 66           |            | C 1.0 |            |      |                  |                         |                  |         |
| GOES | 22  | 0432          | 0438        | 0447        |     |     |                         |           |      | 15           |            | C 2.2 |            |      |                  |                         |                  |         |
| GOES |     | 0729          | 0751        | 0812        |     |     |                         |           |      | 43           |            | C 1.1 |            |      |                  |                         |                  |         |
| GOES |     | 1255          | 1302        | 1309        |     |     |                         |           |      | 14           |            | C 2.3 |            |      |                  |                         |                  |         |
| HOLL |     | 1658          | 1716        | 1739        | N09 | W24 | 7430                    | 02        | 20.9 | 41           | SF         | C 1.8 | 3          | E    |                  | 53                      |                  | F       |

H $\alpha$  SOLAR FLARES

FEBRUARY 1993

| Sta  | Day | Start<br>(UT) | Max<br>(UT) | End<br>(UT) | Lat | CMD | NOAA/<br>USAF<br>Region | CMP<br>Mo | Day  | Dur<br>(Min) | Imp<br>Opt | Xray  | Obs<br>See | Type | Time<br>(UT) | Area Measurement        |                  | Remarks |
|------|-----|---------------|-------------|-------------|-----|-----|-------------------------|-----------|------|--------------|------------|-------|------------|------|--------------|-------------------------|------------------|---------|
|      |     |               |             |             |     |     |                         |           |      |              |            |       |            |      |              | Apparent<br>(10-6 Disk) | Corr<br>(Sq Deg) |         |
| GOES | 22  | 1929          | 1949        | 2012        |     |     |                         |           |      | 43           |            | C 1.5 |            |      |              |                         |                  |         |
| HOLL |     | 2100E         | 2110U       | 2217D       | N09 | W25 | 7430                    | 02        | 21.0 | 77D          | SF         | C 3.4 | 3          | E    |              | 58                      |                  | F       |
| GOES |     | 2323          | 2329        | 2332        |     |     |                         |           |      | 9            |            | C 1.2 |            |      |              |                         |                  |         |
| GOES | 23  | 0035          | 0050        | 0104        |     |     |                         |           |      | 29           |            | C 1.8 |            |      |              |                         |                  |         |
| LEAR |     | 0228          | 0233        | 0241        | N09 | W30 | 7430                    | 02        | 20.8 | 13           | SF         | C 2.7 | 3          | E    |              | 23                      |                  | F       |
| GOES |     | 0316          | 0320        | 0329        |     |     |                         |           |      | 13           |            | C 1.0 |            |      |              |                         |                  |         |
| LEAR |     | 0408          | 0418        | 0431        | N09 | W28 | 7430                    | 02        | 21.1 | 23           | SF         | C 1.4 | 3          | E    |              | 27                      |                  |         |
| LEAR |     | 0517          | 0517        | 0523        | N12 | E46 | 7433                    | 02        | 26.7 | 6            | SF         | B 8.8 | 3          | E    |              | 26                      |                  |         |
| GOES |     | 0956          | 1001        | 1005        |     |     |                         |           |      | 9            |            | B 6.4 |            |      |              |                         |                  |         |
| RAMY |     | 1117          | 1119        | 1128        | S16 | E20 | 7432                    | 02        | 25.0 | 11           | SF         |       | 2          | E    |              | 36                      |                  | FH      |
| RAMY |     | 1444          | 1448        | 1456        | N08 | W37 | 7430                    | 02        | 20.8 | 12           | SF         | B 9.1 | 3          | E    |              | 28                      |                  |         |
| GOES |     | 1511          | 1514        | 1518        |     |     |                         |           |      | 7            |            | B 8.0 |            |      |              |                         |                  |         |
| GOES |     | 1841          | 1846        | 1851        |     |     |                         |           |      | 10           |            | B 7.9 |            |      |              |                         |                  |         |
| GOES |     | 2041          | 2047        | 2054        |     |     |                         |           |      | 13           |            | B 8.5 |            |      |              |                         |                  |         |
| GOES |     | 2058          | 2104        | 2108        |     |     |                         |           |      | 10           |            | C 2.0 |            |      |              |                         |                  |         |
| GOES |     | 2157          | 2201        | 2206        |     |     |                         |           |      | 9            |            | B 6.1 |            |      |              |                         |                  |         |
| GOES | 24  | 0125          | 0130        | 0135        |     |     |                         |           |      | 10           |            | B 9.8 |            |      |              |                         |                  |         |
| GOES |     | 0137          | 0141        | 0148        |     |     |                         |           |      | 11           |            | C 1.0 |            |      |              |                         |                  |         |
| RAMY |     | 1328          | 1330        | 1343        | S18 | E06 | 7432                    | 02        | 25.0 | 15           | SF         | B 8.0 | 4          | E    |              | 21                      |                  | F       |
| GOES |     | 1646          | 1652        | 1657        |     |     |                         |           |      | 11           |            | C 2.0 |            |      |              |                         |                  |         |
| RAMY |     | 1731          | 1732        | 1743        | N09 | W50 | 7430                    | 02        | 21.0 | 12           | SF         | B 9.1 | 3          | E    |              | 27                      |                  | F       |
| RAMY |     | 2005          | 2022        | 2140D       | N14 | E22 | 7433                    | 02        | 26.5 | 95D          | SF         | C 1.8 | 3          | E    |              | 69                      |                  | F       |
| GOES |     | 2244          | 2246        | 2256        |     |     |                         |           |      | 12           |            | C 1.3 |            |      |              |                         |                  |         |
| LEAR | 25  | 0316          | 0316        | 0321        | S13 | E42 | 7434                    | 02        | 28.3 | 5            | SF         |       | 3          | E    |              | 24                      |                  |         |
| LEAR |     | 0452          | 0457        | 0601        | S15 | E40 | 7434                    | 02        | 28.2 | 69           | SF         | C 8.4 | 3          | E    |              | 39                      |                  | FE      |
| LEAR |     | 0632          | 0632        | 0643        | S15 | E40 | 7434                    | 02        | 28.3 | 11           | SF         |       | 3          | E    |              | 50                      |                  | F       |
| HOLL |     | 1547          | 1558        | 1618        | S14 | E35 | 7434                    | 02        | 28.3 | 31           | SF         |       | 3          | E    |              | 54                      |                  | F       |
| HOLL |     | 2202          | 2202        | 2209        | N09 | W68 | 7430                    | 02        | 20.8 | 7            | SF         |       | 3          | E    |              | 26                      |                  |         |
| PALE | 26  | 0334          | 0334        | 0343        | N10 | E02 | 7433                    | 02        | 26.3 | 9            | SF         | B 4.3 | 3          | E    |              | 12                      |                  |         |
| GOES |     | 0458          | 0501        | 0504        |     |     |                         |           |      | 6            |            | B 3.9 |            |      |              |                         |                  |         |
| GOES |     | 0623          | 0626        | 0629        |     |     |                         |           |      | 6            |            | B 4.9 |            |      |              |                         |                  |         |
| GOES |     | 0745          | 0753        | 0815        |     |     |                         |           |      | 30           |            | B 7.9 |            |      |              |                         |                  |         |
| GOES |     | 1903          | 1919        | 1935        |     |     |                         |           |      | 32           |            | B 6.1 |            |      |              |                         |                  |         |
| GOES |     | 2050          | 2142        | 2203        |     |     |                         |           |      | 73           |            | B 7.2 |            |      |              |                         |                  |         |
| GOES | 27  | 0453          | 0457        | 0503        |     |     |                         |           |      | 10           |            | B 7.2 |            |      |              |                         |                  |         |
| GOES |     | 0705          | 0709        | 0806        |     |     |                         |           |      | 61           |            | B 3.7 |            |      |              |                         |                  |         |
| GOES |     | 0903          | 0908        | 0917        |     |     |                         |           |      | 14           |            | B 4.3 |            |      |              |                         |                  |         |
| RAMY |     | 1543          | 1547        | 1600        | S16 | W39 | 7432                    | 02        | 24.7 | 17           | SF         |       | 3          | E    |              | 16                      |                  | F       |
| GOES |     | 1906          | 1941        | 2128        |     |     |                         |           |      | 142          |            | B 6.9 |            |      |              |                         |                  |         |
| GOES | 28  | 0910          | 0913        | 0917        |     |     |                         |           |      | 7            |            | B 6.4 |            |      |              |                         |                  |         |
| RAMY |     | 1218          | 1219        | 1221        | N10 | E33 | 7435                    | 03        | 3.0  | 3            | SF         |       | 3          | E    |              | 12                      |                  | F       |
| RAMY |     | 1352          | 1405        | 1421        | N08 | E32 | 7435                    | 03        | 3.0  | 29           | SF         | C 1.1 | 3          | E    |              | 18                      |                  | F       |

## "Remarks"

A = Eruptive prominence whose base is less than 90 degrees from central meridian.  
 B = Probably the end of a more important flare.  
 C = Invisible 10 minutes before.  
 D = Brilliant point.  
 E = Two or more brilliant points.  
 F = Several eruptive centers.  
 G = No visible spots in the neighborhood.  
 H = Flare accompanied by high-speed dark filament.  
 I = Active region very extended.  
 J = Distinct variations of plage intensity before or after the flare.  
 K = Several intensity maxima.  
 L = Existing filaments show signs of sudden activity.  
 M = White-light flare.  
 N = Continuous spectrum shows effects of polarization.

O = Observations have been made in the H and K lines of Ca II.  
 P = Flare shows Helium D3 in emission.  
 Q = Flare shows Balmer continuum in emission.  
 R = Marked asymmetry in H-alpha line suggests ejection of high-velocity material.  
 S = Brightness follows disappearance of filament in same position.  
 T = Region active all day.  
 U = Two bright branches, parallel or converging.  
 V = Occurrence of an explosive phase; important, expansion within roughly 1 minute that often includes a significant intensity increase.  
 W = Great increase in area after time of maximum intensity.  
 X = Unusually wide H-alpha line.  
 Y = System of loop-type prominences.  
 Z = Major sunspot umbra covered by flare.

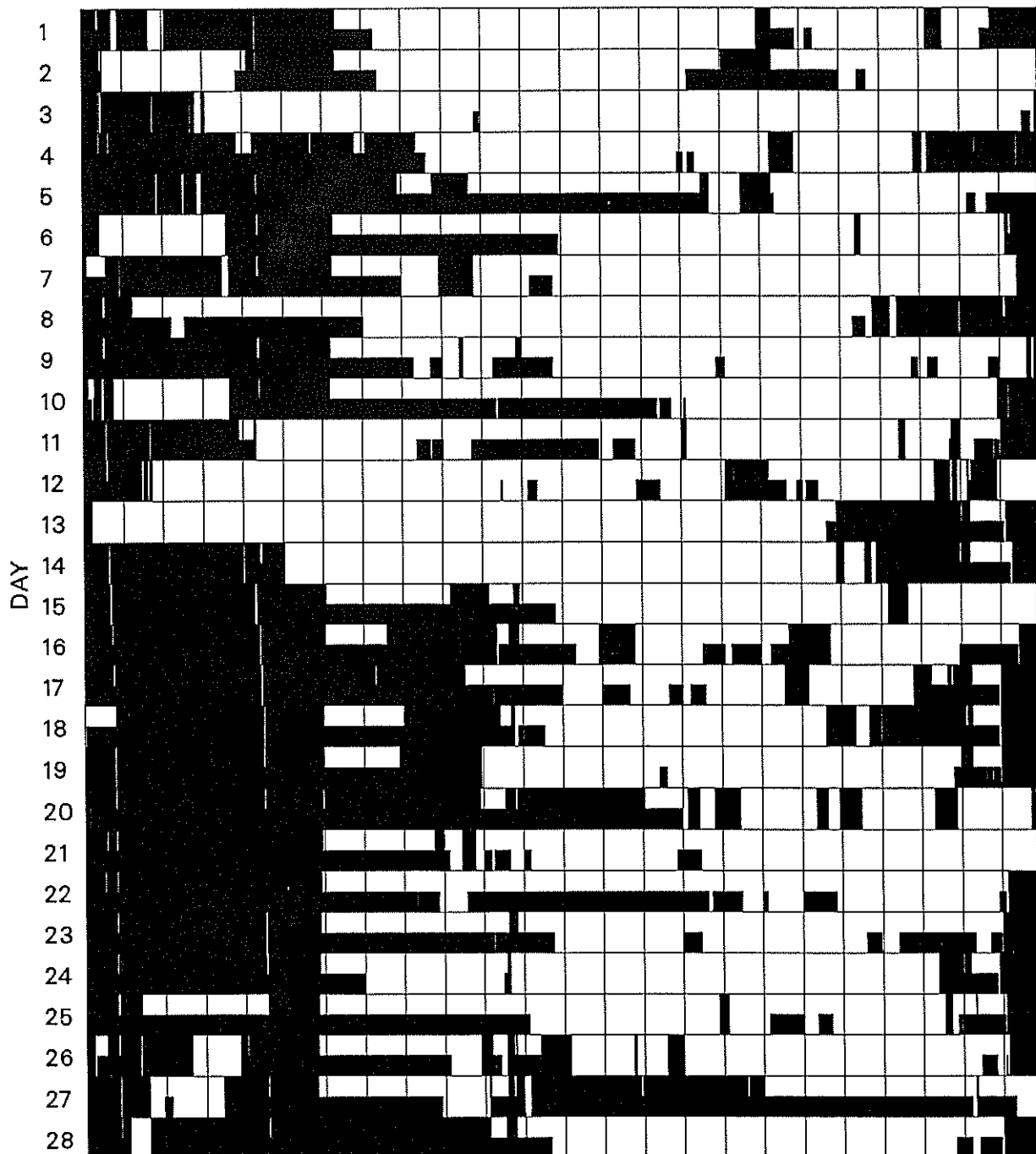
Observation Type: C=Cinematographic, E=Electronic, P=Photographic, V=Visual

# INTERVALS OF NO FLARE PATROL OBSERVATION FOR PRECEDING SOLAR FLARE TABLE

FEBRUARY 1993

HOUR-UT

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24



Times of no flare patrol, shown here as shaded areas, combine reports from the observatories listed below. Portions of a panel completely shaded mark dates and times of no patrol of any kind, that is, of neither visual nor cinematographic; portions of a panel with only the bottom half shaded mark times of strictly visual patrol.

Holloman

Learmonth

Palehua

Ramey

San Vito

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

## Selected Fixed Frequency Events

39  
Feb 93

FEBRUARY 1993

| Day | Freq Sta  | Type  | Start<br>(UT) | Time of<br>Maximum<br>(UT) | Duration<br>(Min) | Flux Density    |                   | Int | Remarks         |
|-----|-----------|-------|---------------|----------------------------|-------------------|-----------------|-------------------|-----|-----------------|
|     |           |       |               |                            |                   | Peak<br>(10 -22 | Mean<br>W/m 2 Hz) |     |                 |
| 01  | 2695 LEAR | 4 S/F | 0157.0        | 0159.0                     | 6.0               | 26.0            |                   |     | QL=4 ST=2 TYP=3 |
|     | 8800 LEAR | 4 S/F | 0157.0        | 0200.0                     | 6.0               | 76.0            |                   |     | QL=4 ST=2 TYP=3 |
|     | 2695 PALE | 8 S   | 0159.0        | 0200.0                     | 1.0               | 25.0            |                   |     | QL=4 ST=2 TYP=3 |
|     | 8800 PALE | 8 S   | 0159.0        | 0200.0                     | 2.0               | 54.0            |                   |     | QL=4 ST=2 TYP=3 |
| 02  | 2695 PALE | 4 S/F | 0344.0        | 0346.0                     | 4.0               | 21.0            |                   |     | QL=4 ST=2 TYP=3 |
|     | 8800 LEAR | 8 S   | 0345.0        | 0345.0                     | U                 | 22.0            |                   |     | QL=4 ST=2 TYP=3 |
|     | 2695 LEAR | 8 S   | 0345.0        | 0346.0                     | 1.0               | 27.0            |                   |     | QL=4 ST=2 TYP=3 |
|     | 8800 PALE | 8 S   | 0345.0        | 0345.0                     | U                 | 10.0            |                   |     | QL=4 ST=2 TYP=3 |
| 03  | 2695 SVTO | 4 S/F | 1455.0        | 1457.0                     | 6.0               | 80.0            |                   |     | QL=2 ST=2 TYP=3 |
|     | 8800 SGMR | 4 S/F | 1455.0        | 1456.0                     | 11.0              | 60.0            |                   |     | QL=4 ST=2 TYP=3 |
|     | 2695 SGMR | 4 S/F | 1456.0        | 1457.0                     | 10.0              | 88.0            |                   |     | QL=4 ST=2 TYP=3 |
| 05  | 8800 SVTO | 8 S   | 0753.0        | 0753.0                     | 1.0               | 52.0            |                   |     | QL=4 ST=2 TYP=3 |
| 06  | 8800 LEAR | 4 S/F | 0524.0        | 0526.0                     | 3.0               | 130.0           |                   |     | QL=4 ST=2 TYP=3 |
|     | 2695 LEAR | 4 S/F | 0524.0        | 0526.0                     | 3.0               | 130.0           |                   |     | QL=4 ST=2 TYP=3 |
|     | 8800 PALE | 49 GB | 1816.0        | 1819.0                     | 8.0               | 700.0           |                   |     | QL=4 ST=2 TYP=6 |
|     | 2695 PALE | 49 GB | 1816.0        | 1819.0                     | 8.0               | 610.0           |                   |     | QL=4 ST=2 TYP=6 |
|     | 8800 SGMR | 49 GB | 1816.0        | 1819.0                     | 25.0              | 790.0           |                   |     | QL=2 ST=2 TYP=6 |
|     | 2695 SGMR | 49 GB | 1816.0        | 1819.0                     | 25.0              | 660.0           |                   |     | QL=2 ST=2 TYP=6 |
| 07  | 8800 SVTO | 8 S   | 1059.0        | 1059.0                     | U                 | 93.0            |                   |     | QL=4 ST=3 TYP=3 |
|     | 8800 SVTO | 4 S/F | 1359.0        | 1359.0                     | 3.0               | 30.0            |                   |     | QL=4 ST=2 TYP=3 |
|     | 2695 PALE | 8 S   | 1848.0        | 1849.0                     | 2.0               | 29.0            |                   |     | QL=4 ST=2 TYP=3 |
|     | 8800 PALE | 4 S/F | 1848.0        | 1853.0                     | 6.0               | 49.0            |                   |     | QL=4 ST=2 TYP=5 |
|     | 2695 SGMR | 4 S/F | 1850.0        | 1850.0                     | 4.0               | 27.0            |                   |     | QL=4 ST=2 TYP=3 |
|     | 8800 SGMR | 8 S   | 1853.0        | 1853.0                     | 1.0               | 42.0            |                   |     | QL=4 ST=2 TYP=3 |
|     | 8800 PALE | 4 S/F | 2357.0        | 2358.0                     | 3.0               | 52.0            |                   |     | QL=4 ST=2 TYP=3 |
|     |           |       |               |                            |                   |                 |                   |     |                 |
| 08  | 8800 PALE | 4 S/F | 0222.0        | 0225.0                     | 4.0               | 68.0            |                   |     | QL=4 ST=3 TYP=3 |
|     | 8800 SVTO | 8 S   | 0809.0        | 0809.0                     | 1.0               | 56.0            |                   |     | QL=4 ST=2 TYP=3 |
|     | 8800 SGMR | 4 S/F | 1707.0        | 1708.0                     | 7.0               | 180.0           |                   |     | QL=4 ST=2 TYP=3 |
|     | 2695 SGMR | 4 S/F | 1708.0        | 1709.0                     | 6.0               | 58.0            |                   |     | QL=4 ST=2 TYP=3 |
| 09  | 8800 LEAR | 8 S   | 0415.0        | 0416.0                     | 1.0               | 79.0            |                   |     | QL=4 ST=2 TYP=3 |
|     | 2695 SVTO | 8 S   | 1238.0        | 1238.0                     | U                 | 23.0            |                   |     | QL=2 ST=2 TYP=3 |
| 10  | 2695 SVTO | 8 S   | 0736.0        | 0737.0                     | 2.0               | 200.0           |                   |     | QL=2 ST=2 TYP=3 |
|     | 2695 LEAR | 8 S   | 0737.0        | 0737.0                     | 1.0               | 130.0           |                   |     | QL=4 ST=2 TYP=3 |
|     | 8800 SVTO | 4 S/F | 0737.0        | 0737.0                     | 8.0               | 32.0            |                   |     | QL=4 ST=2 TYP=3 |
|     | 8800 LEAR | 8 S   | 0837.0        | 0837.0                     | U                 | 52.0            |                   |     | QL=4 ST=2 TYP=3 |
|     | 2695 LEAR | 8 S   | 0837.0        | 0837.0                     | 1.0               | 49.0            |                   |     | QL=4 ST=2 TYP=3 |
|     | 2695 SVTO | 8 S   | 0837.0        | 0837.0                     | 1.0               | 74.0            |                   |     | QL=2 ST=2 TYP=3 |
|     | 2695 PALE | 4 S/F | 2002.0        | 2004.0                     | 5.0               | 68.0            |                   |     | QL=4 ST=2 TYP=3 |
|     | 8800 PALE | 4 S/F | 2003.0        | 2005.0                     | 4.0               | 150.0           |                   |     | QL=4 ST=2 TYP=3 |
|     | 8800 SGMR | 4 S/F | 2003.0        | 2005.0                     | 5.0               | 170.0           |                   |     | QL=4 ST=2 TYP=3 |
|     | 2695 SGMR | 4 S/F | 2004.0        | 2005.0                     | 3.0               | 59.0            |                   |     | QL=4 ST=2 TYP=3 |
| 11  | 2695 SGMR | 8 S   | 1806.0        | 1807.0                     | 2.0               | 48.0            |                   |     | QL=4 ST=2 TYP=3 |
|     | 8800 PALE | 4 S/F | 1830.0        | 1831.0                     | 3.0               | 320.0           |                   |     | QL=4 ST=2 TYP=3 |
|     | 2695 PALE | 4 S/F | 1830.0        | 1831.0                     | 3.0               | 250.0           |                   |     | QL=4 ST=2 TYP=3 |
|     | 2695 SGMR | 4 S/F | 1831.0        | 1831.0                     | 3.0               | 230.0           |                   |     | QL=4 ST=3 TYP=3 |
|     | 8800 SGMR | 8 S   | 1831.0        | 1831.0                     | 1.0               | 280.0           |                   |     | QL=4 ST=3 TYP=3 |
| 12  | 8800 LEAR | 8 S   | 0034.0        | 0034.0                     | 2.0               | 64.0            |                   |     | QL=4 ST=2 TYP=3 |
|     | 8800 PALE | 8 S   | 0034.0        | 0034.0                     | 2.0               | 63.0            |                   |     | QL=4 ST=2 TYP=3 |
| 14  | 2695 SGMR | 4 S/F | 1252.0        | 1253.0                     | 6.0               | 91.0            |                   |     | QL=4 ST=2 TYP=3 |
|     | 8800 SGMR | 4 S/F | 1252.0        | 1253.0                     | 4.0               | 210.0           |                   |     | QL=4 ST=2 TYP=3 |
|     | 8800 SVTO | 4 S/F | 1252.0        | 1253.0                     | 4.0               | 160.0           |                   |     | QL=4 ST=2 TYP=3 |
|     | 2695 SVTO | 4 S/F | 1252.0        | 1253.0                     | 4.0               | 110.0           |                   |     | QL=2 ST=2 TYP=3 |
|     | 8800 PALE | 8 S   | 1822.0        | 1822.0                     | 1.0               | 78.0            |                   |     | QL=4 ST=3 TYP=3 |
|     | 2695 PALE | 4 S/F | 1822.0        | 1822.0                     | 5.0               | 49.0            |                   |     | QL=4 ST=3 TYP=3 |
|     | 2695 SGMR | 8 S   | 1822.0        | 1822.0                     | 1.0               | 46.0            |                   |     | QL=4 ST=2 TYP=3 |
|     | 8800 SGMR | 8 S   | 1822.0        | 1822.0                     | 1.0               | 120.0           |                   |     | QL=4 ST=2 TYP=3 |
|     | 2695 PALE | 4 S/F | 2303.0        | 2304.0                     | 3.0               | 18.0            |                   |     | QL=4 ST=2 TYP=3 |
|     | 8800 PALE | 4 S/F | 2303.0        | 2304.0                     | 3.0               | 27.0            |                   |     | QL=4 ST=2 TYP=3 |

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

FEBRUARY 1993

| Day | Freq Sta  | Type   | Start (UT) | Time of Maximum (UT) | Duration (Min) | Flux Density<br>Peak (10 -22 W/m 2 Hz)<br>Mean | Int | Remarks         |
|-----|-----------|--------|------------|----------------------|----------------|------------------------------------------------|-----|-----------------|
| 15  | 8800 LEAR | 8 S    | 0750.0     | 0751.0               | 1.0            | 110.0                                          |     | QL=4 ST=2 TYP=3 |
|     | 2695 LEAR | 8 S    | 0750.0     | 0751.0               | 1.0            | 26.0                                           |     | QL=4 ST=2 TYP=3 |
|     | 8800 SVTO | 8 S    | 0751.0     | 0751.0               | U              | 96.0                                           |     | QL=4 ST=2 TYP=3 |
|     | 2695 SGMR | 8 S    | 1257.0     | 1257.0               | U              | 39.0                                           |     | QL=4 ST=2 TYP=3 |
| 16  | 8800 SGMR | 20 GRF | 1419.0     | 1430.0               | 22.0           | 37.0                                           |     | QL=4 ST=2 TYP=2 |
| 17  | 8800 PALE | 4 S/F  | 0110.0     | 0112.0               | 4.0            | 53.0                                           |     | QL=4 ST=2 TYP=3 |
|     | 8800 LEAR | 4 S/F  | 0111.0     | 0112.0               | 8.0            | 51.0                                           |     | QL=4 ST=3 TYP=3 |
|     | 2695 LEAR | 4 S/F  | 0111.0     | 0114.0               | 8.0            | 18.0                                           |     | QL=4 ST=3 TYP=3 |
|     | 2695 PALE | 4 S/F  | 0111.0     | 0113.0               | 3.0            | 18.0                                           |     | QL=4 ST=2 TYP=3 |
|     | 2695 LEAR | 4 S/F  | 1035.0     | 1036.0               | 4.0            | 71.0                                           |     | QL=2 ST=2 TYP=3 |
|     | 8800 LEAR | 4 S/F  | 1035.0     | 1038.0               | 4.0            | 97.0                                           |     | QL=2 ST=2 TYP=3 |
|     | 8800 SVTO | 4 S/F  | 1035.0     | 1036.0               | 6.0            | 130.0                                          |     | QL=4 ST=2 TYP=3 |
|     | 2695 SVTO | 4 S/F  | 1035.0     | 1036.0               | 6.0            | 110.0                                          |     | QL=2 ST=2 TYP=3 |
| 18  | 2695 PALE | 4 S/F  | 0258.0     | 0303.0               | 8.0            | 250.0                                          |     | QL=4 ST=2 TYP=3 |
|     | 8800 PALE | 4 S/F  | 0259.0     | 0303.0               | 7.0            | 170.0                                          |     | QL=4 ST=2 TYP=3 |
|     | 2695 LEAR | 4 S/F  | 0259.0     | 0303.0               | 11.0           | 280.0                                          |     | QL=4 ST=2 TYP=3 |
|     | 8800 LEAR | 4 S/F  | 0300.0     | 0303.0               | 23.0           | 170.0                                          |     | QL=4 ST=2 TYP=3 |
|     | 2695 LEAR | 4 S/F  | 0941.0     | 0952.0               | 29.0           | 250.0                                          |     | QL=4 ST=2 TYP=5 |
|     | 2695 SVTO | 4 S/F  | 0942.0     | 0952.0               | 31.0           | 280.0                                          |     | QL=2 ST=2 TYP=5 |
|     | 8800 SVTO | 4 S/F  | 0951.0     | 0952.0               | 4.0            | 50.0                                           |     | QL=2 ST=2 TYP=3 |
|     | 8800 LEAR | 4 S/F  | 0951.0     | 0952.0               | 16.0           | 90.0                                           |     | QL=4 ST=2 TYP=3 |
|     | 2695 SVTO | 20 GRF | 1053.0     | 1100.0               | 17.0           | 330.0                                          |     | QL=2 ST=2 TYP=2 |
|     | 8800 SVTO | 20 GRF | 1055.0     | 1101.0               | 13.0           | 160.0                                          |     | QL=2 ST=3 TYP=2 |
|     | 2695 SVTO | 8 S    | 1132.0     | 1134.0               | 2.0            | 31.0                                           |     | QL=2 ST=2 TYP=3 |
| 21  | 8800 PALE | 4 S/F  | 0037.0     | 0040.0               | 4.0            | 18.0                                           |     | QL=4 ST=2 TYP=3 |
|     | 2695 PALE | 4 S/F  | 0038.0     | 0040.0               | 3.0            | 23.0                                           |     | QL=4 ST=2 TYP=3 |
|     | 2695 LEAR | 8 S    | 0039.0     | 0040.0               | 1.0            | 19.0                                           |     | QL=4 ST=2 TYP=3 |
| 24  | 2695 SGMR | 8 S    | 1647.0     | 1647.0               | U              | 66.0                                           |     | 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 Precursor           | 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; Hiraio, Japan 500 and 200 MHz; and Toyokawa, Japan 9400, 3750, 2000 and 1000 MHz.

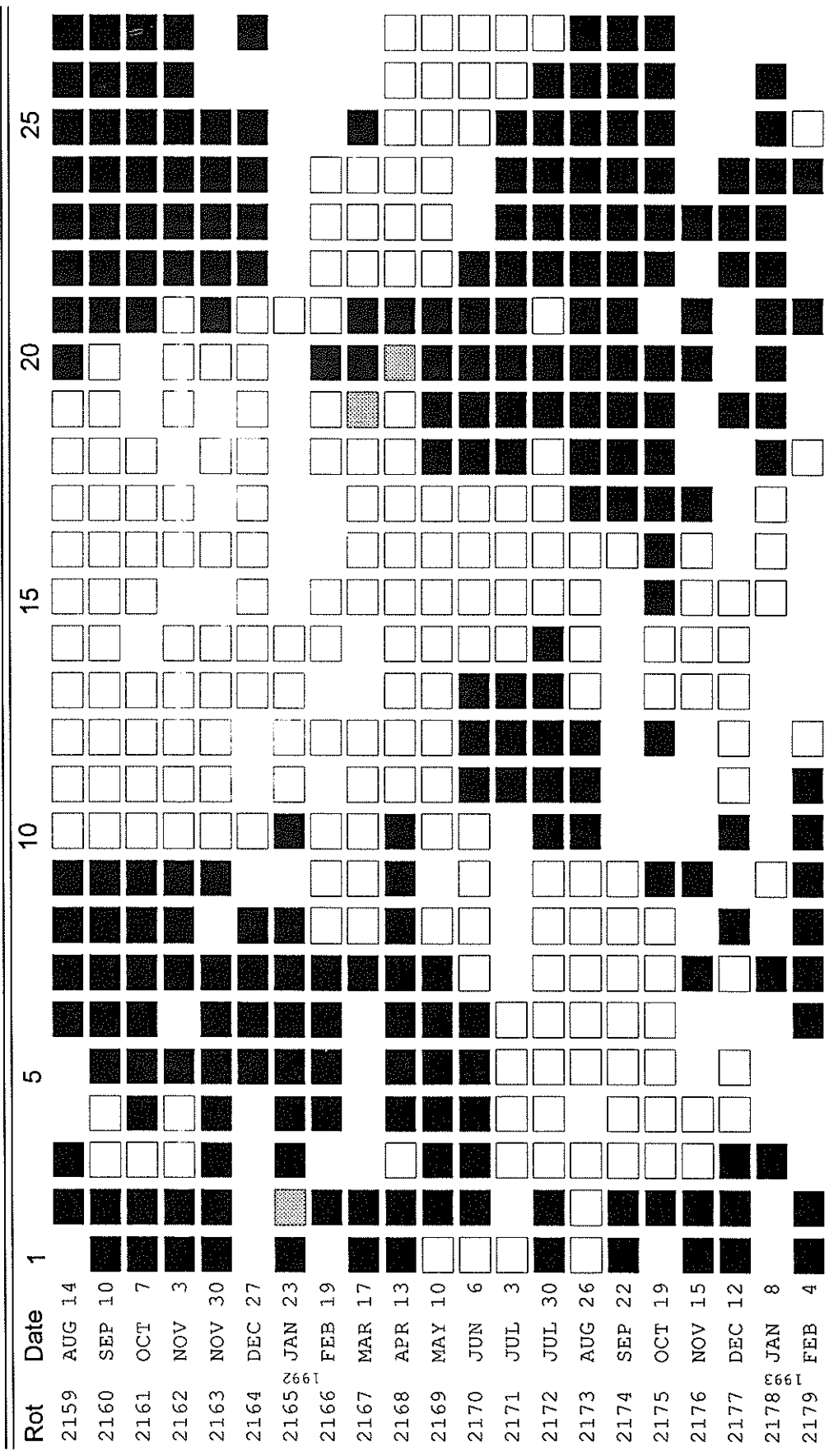


## STANFORD MEAN SOLAR MAGNETIC FIELD (MICROTESLA)

| Day | 1992 |      |     |     |     |     |     |     |     |     | 1993 |     |
|-----|------|------|-----|-----|-----|-----|-----|-----|-----|-----|------|-----|
|     | Mar  | Apr  | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Jan  | Feb |
| 1   | 73   | 53   | 7   | 14  | 8   | 39  | 88  | .   | 19  | -16 | .    | -8  |
| 2   | .    | 25   | 0   | 17  | 17  | 60  | 67  | .   | -5  | .   | -33  | -25 |
| 3   | 61   | 10   | -1  | 23  | 13  | 58  | 43  | .   | -24 | .   | -28  | .   |
| 4   | 78   | 0    | 21  | 47  | .   | 58  | -22 | .   | -41 | -39 | -22  | -61 |
| 5   | .    | -14  | 25  | 52  | 33  | 46  | -27 | .   | -57 | -38 | .    | -52 |
| 6   | .    | -13  | 32  | 17  | 39  | 38  | -18 | .   | -47 | .   | .    | .   |
| 7   | 27   | 11   | 43  | -5  | 21  | 37  | 13  | 4   | -48 | -20 | .    | .   |
| 8   | 19   | 21   | 43  | -12 | 18  | -4  | 24  | -17 | .   | .   | .    | .   |
| 9   | -3   | 1    | 33  | -18 | .   | -45 | 19  | -40 | -29 | .   | .    | -27 |
| 10  | 15   | -7   | 15  | -18 | .   | -44 | 29  | -68 | -7  | .   | -38  | -30 |
| 11  | 17   | .    | -13 | -2  | .   | -10 | -18 | -57 | -1  | .   | .    | -28 |
| 12  | 8    | .    | -19 | 20  | .   | -2  | -25 | -31 | -5  | -50 | .    | -51 |
| 13  | 28   | -34  | -30 | 20  | -52 | 10  | -53 | -38 | -16 | -41 | .    | -46 |
| 14  | .    | -61  | -44 | 18  | -46 | 9   | -46 | -29 | -24 | -15 | -3   | -36 |
| 15  | .    | 4    | -50 | 6   | -16 | 34  | -33 | -33 | -23 | 8   | .    | 21  |
| 16  | .    | -81  | -14 | -18 | 2   | 14  | -30 | -14 | -19 | 11  | 1    | .   |
| 17  | -31  | -138 | 25  | -13 | 8   | -19 | -26 | -5  | 20  | .   | .    | .   |
| 18  | -54  | -121 | .   | -19 | 24  | -4  | -26 | -13 | 57  | 6   | .    | .   |
| 19  | .    | -59  | 21  | 12  | 25  | 11  | -9  | .   | .   | -9  | .    | .   |
| 20  | .    | -42  | 28  | 35  | -31 | -14 | -13 | -5  | .   | .   | .    | .   |
| 21  | .    | -19  | 39  | 23  | -56 | -12 | -22 | .   | -2  | -3  | .    | 48  |
| 22  | .    | -9   | 35  | 10  | -55 | -17 | -23 | 24  | .   | 11  | 67   | .   |
| 23  | -50  | 3    | 62  | -21 | -59 | -3  | -1  | 50  | -9  | 42  | 69   | .   |
| 24  | 13   | 20   | 88  | -50 | -55 | -6  | 17  | 66  | .   | 57  | 61   | -43 |
| 25  | 40   | 46   | 85  | -45 | -42 | 1   | 54  | 47  | .   | 49  | -14  | .   |
| 26  | 40   | 70   | 50  | -36 | -26 | 4   | 79  | 20  | .   | 40  | -53  | .   |
| 27  | 39   | 72   | -64 | -11 | -5  | 25  | 85  | -7  | 60  | .   | -62  | -1  |
| 28  | 55   | 49   | -51 | .   | 1   | 55  | 60  | .   | 62  | .   | -44  | 13  |
| 29  | .    | 42   | -27 | .   | 4   | .   | 39  | .   | 55  | .   | -19  | .   |
| 30  | .    | 27   | -13 | 17  | -1  | 101 | 7   | -14 | 11  | -59 | -28  | .   |
| 31  | 82   | .    | 8   | .   | -5  | 97  | .   | 22  | .   | .   | -2   | .   |

Dot symbol 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.

# CONTENTS

Prompt Reports

Number 583 Part I

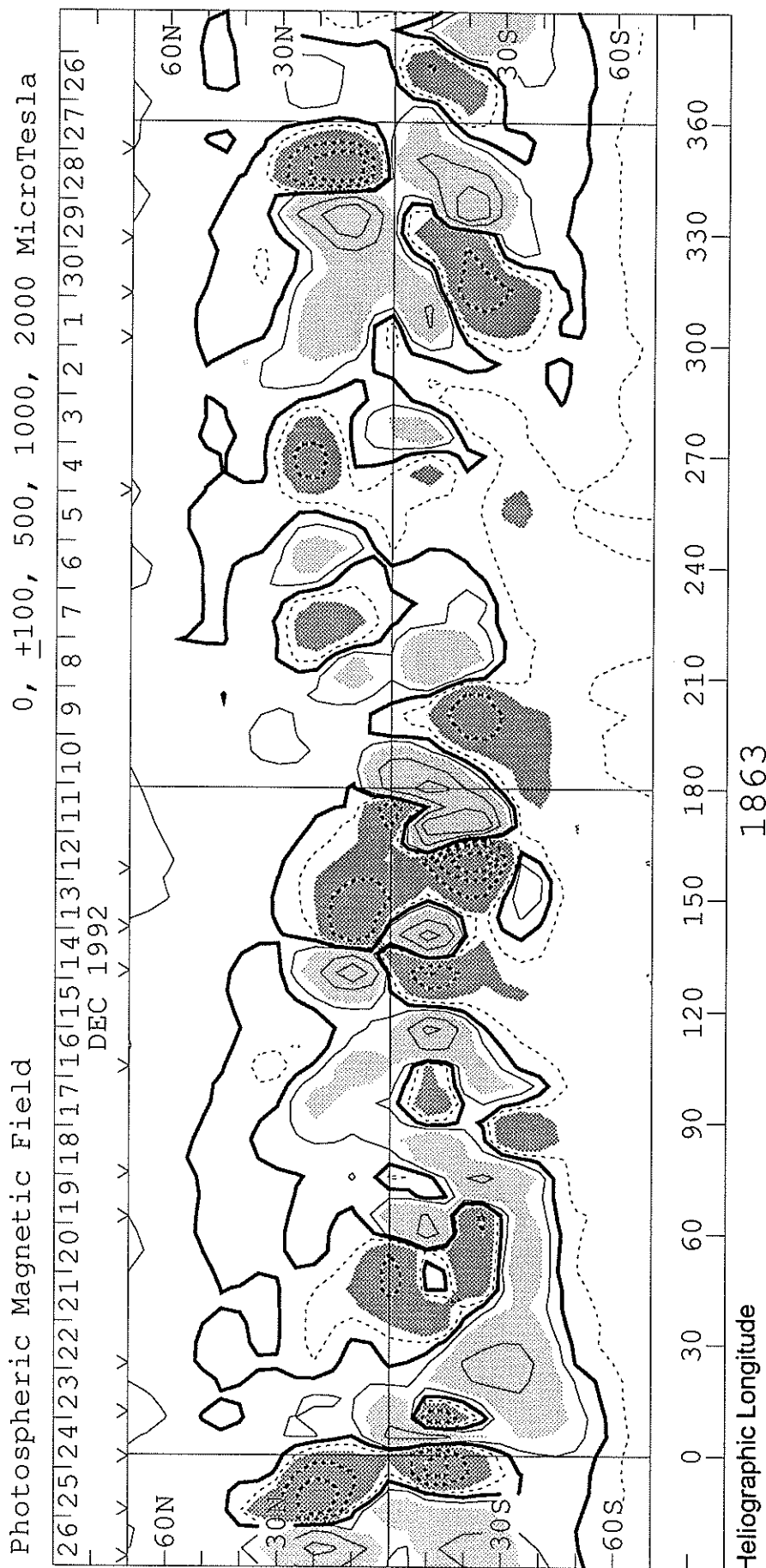
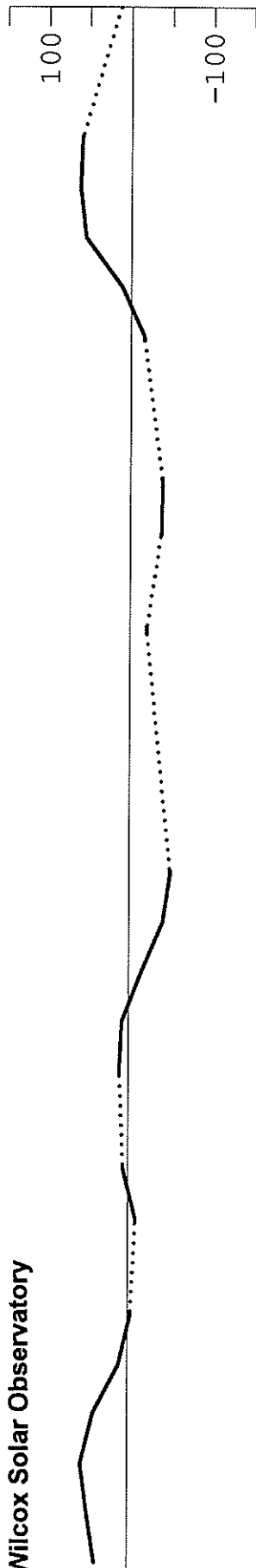
## DATA FOR JANUARY 1993

|                                                                                      | Page    |
|--------------------------------------------------------------------------------------|---------|
| SOLAR ACTIVE REGIONS                                                                 |         |
| Solar Synoptic Charts .....                                                          | 44- 57  |
| Daily Activity Solar Maps .....                                                      | 58- 88  |
| YOHKOH Daily Soft X-ray Images.....                                                  | 89-105  |
| Sunspot Groups .....                                                                 | 106-117 |
| SUDDEN IONOSPHERIC DISTURBANCES .....                                                | 118-119 |
| SOLAR RADIO SPECTRAL OBSERVATIONS .....                                              | 120-124 |
| COSMIC RAY MEASUREMENTS BY NEUTRON MONITOR                                           |         |
| Daily Counting Rates .....                                                           | 125     |
| Chart of Variations .....                                                            | 126-129 |
| GEOMAGNETIC INDICES                                                                  |         |
| Geomagnetic Activity Indices .....                                                   | 130     |
| Daily Average Ap .....                                                               | 131     |
| Chart of Kp by 27-day Rotation .....                                                 | 132     |
| Table of aa index (1949 to present) .....                                            | 133     |
| Provisional Values of Hourly Equatorial Dst<br>(Unavailable at time of publication.) |         |
| Principal Magnetic Storms .....                                                      | 134     |
| Sudden Commencements/Solar Flare Effects (Unavailable at time of publication.)       |         |

**SOLAR MAGNETIC FIELD SYNOPSIS CHART**  
CARRINGTON ROTATION NUMBER 1863  
(27 November to 24 December 1992)

**Wilcox Solar Observatory**

Mean Field



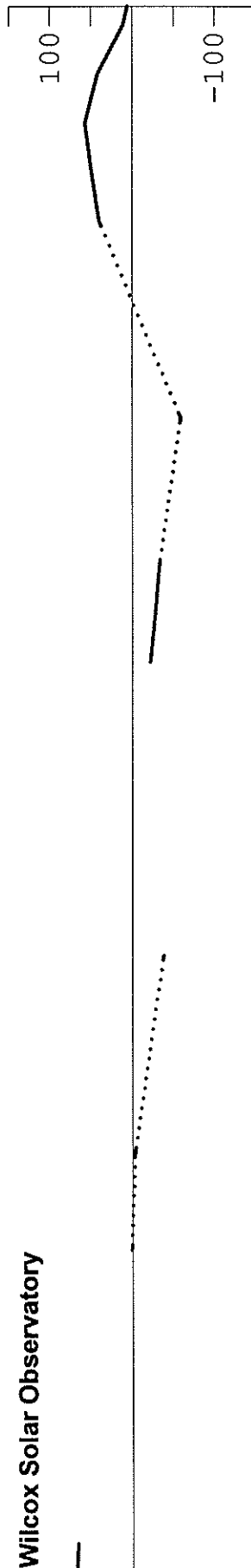
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CARRINGTON ROTATION NUMBER 1864

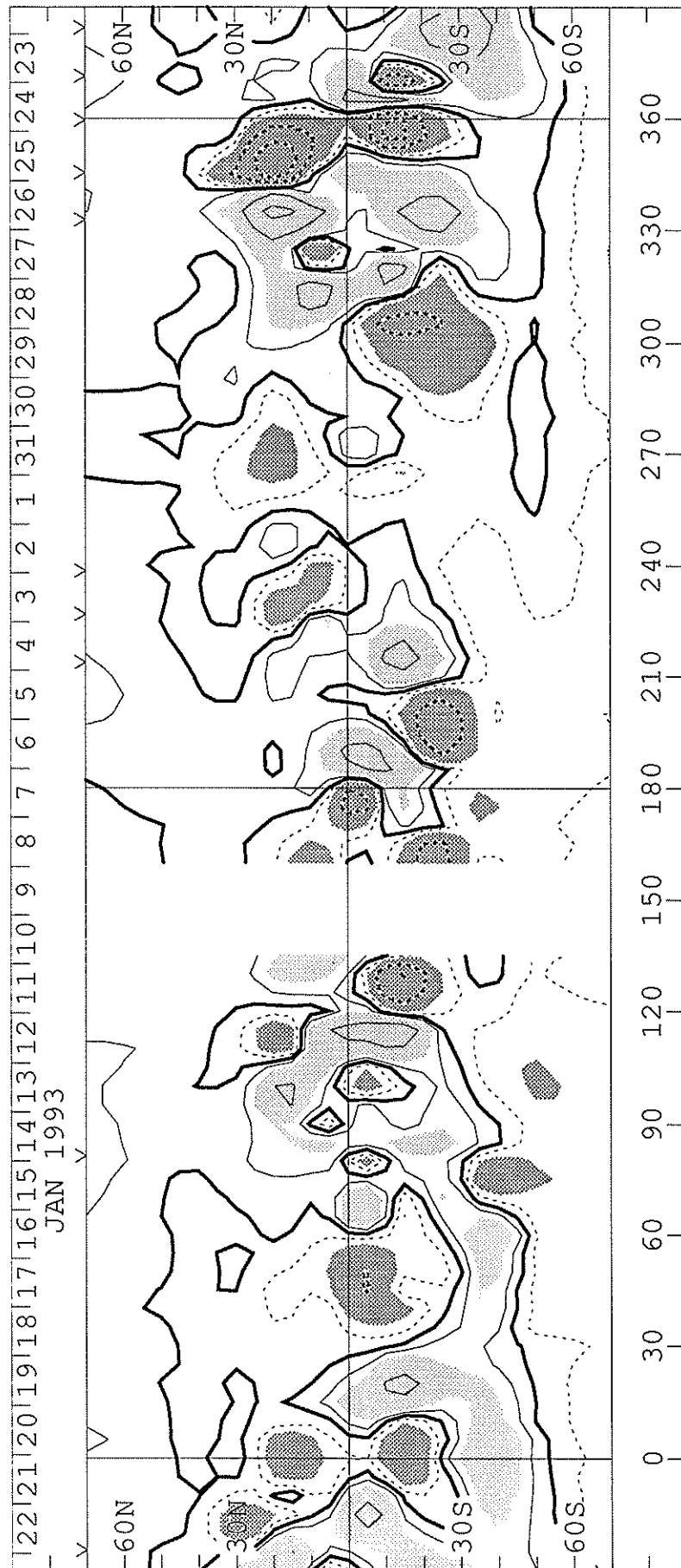
(24 December 1992 to 21 January 1993)

Wilcox Solar Observatory

Mean Field



Photospheric Magnetic Field 0, +100, 500, 1000, 2000 MicroTesla

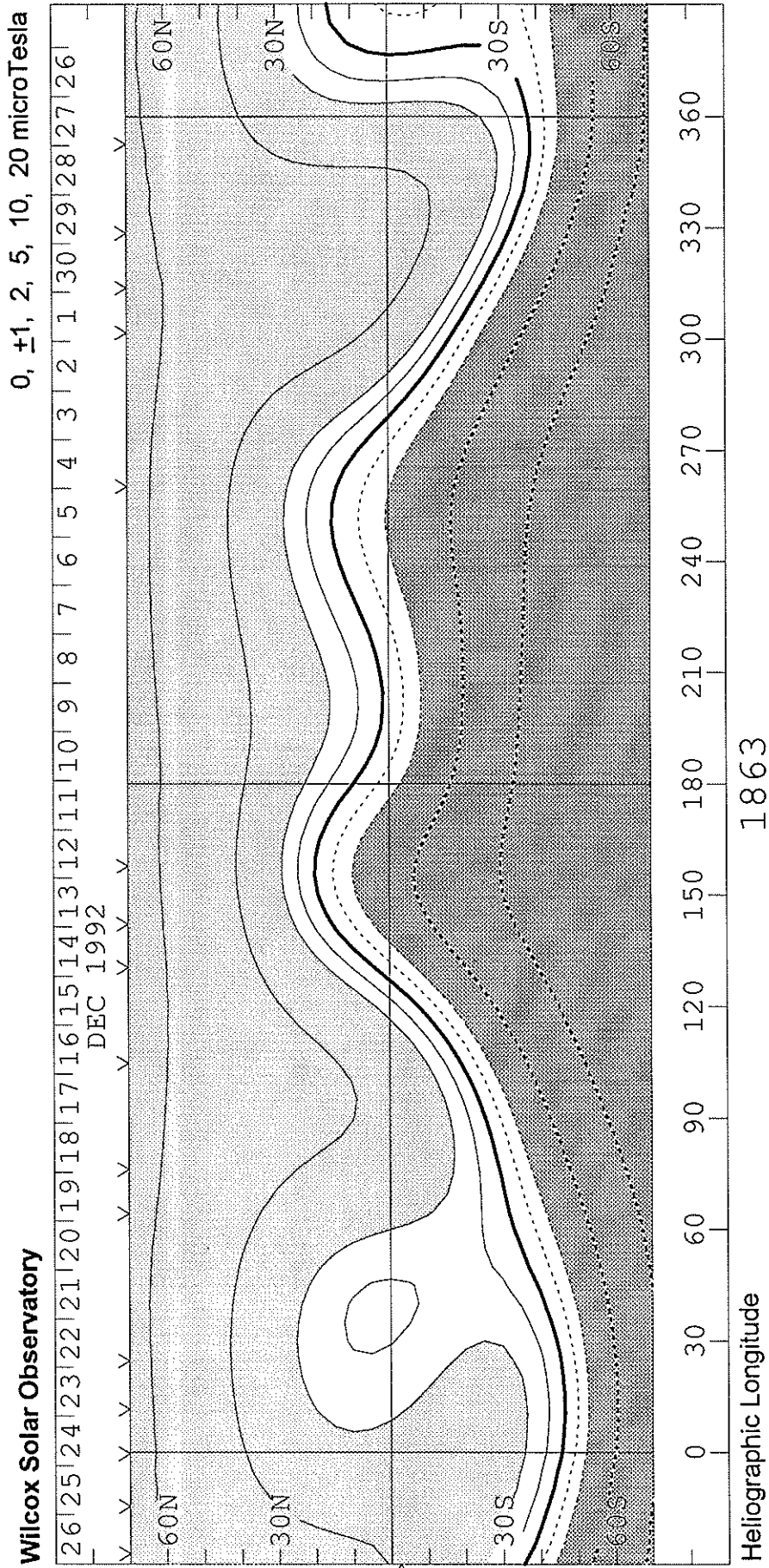


Heliographic Longitude

1864

# SOLAR MAGNETIC FIELD SYNOPSIS CHART

SOURCE SURFACE FIELD  
CARRINGTON ROTATION NUMBER 1863  
(27 November to 24 December 1992)

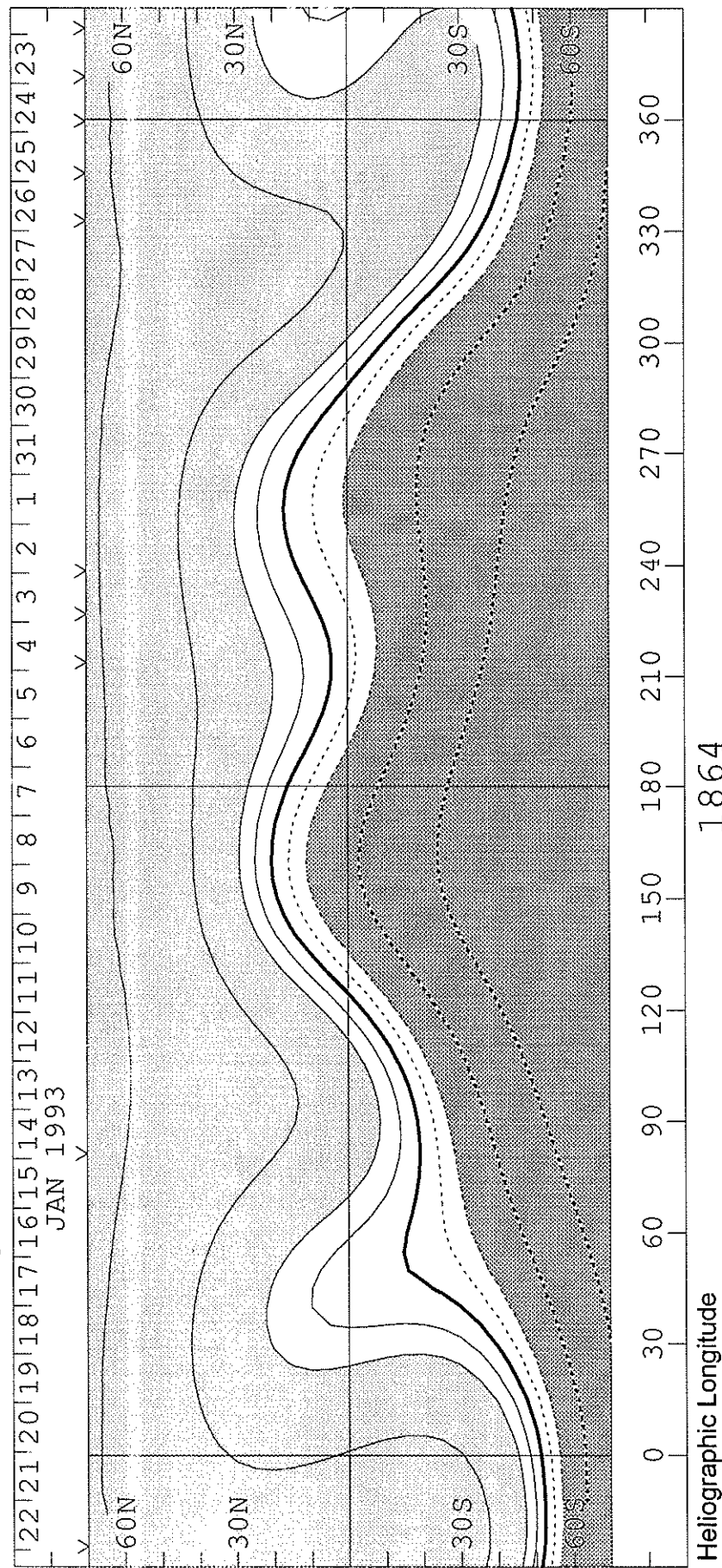


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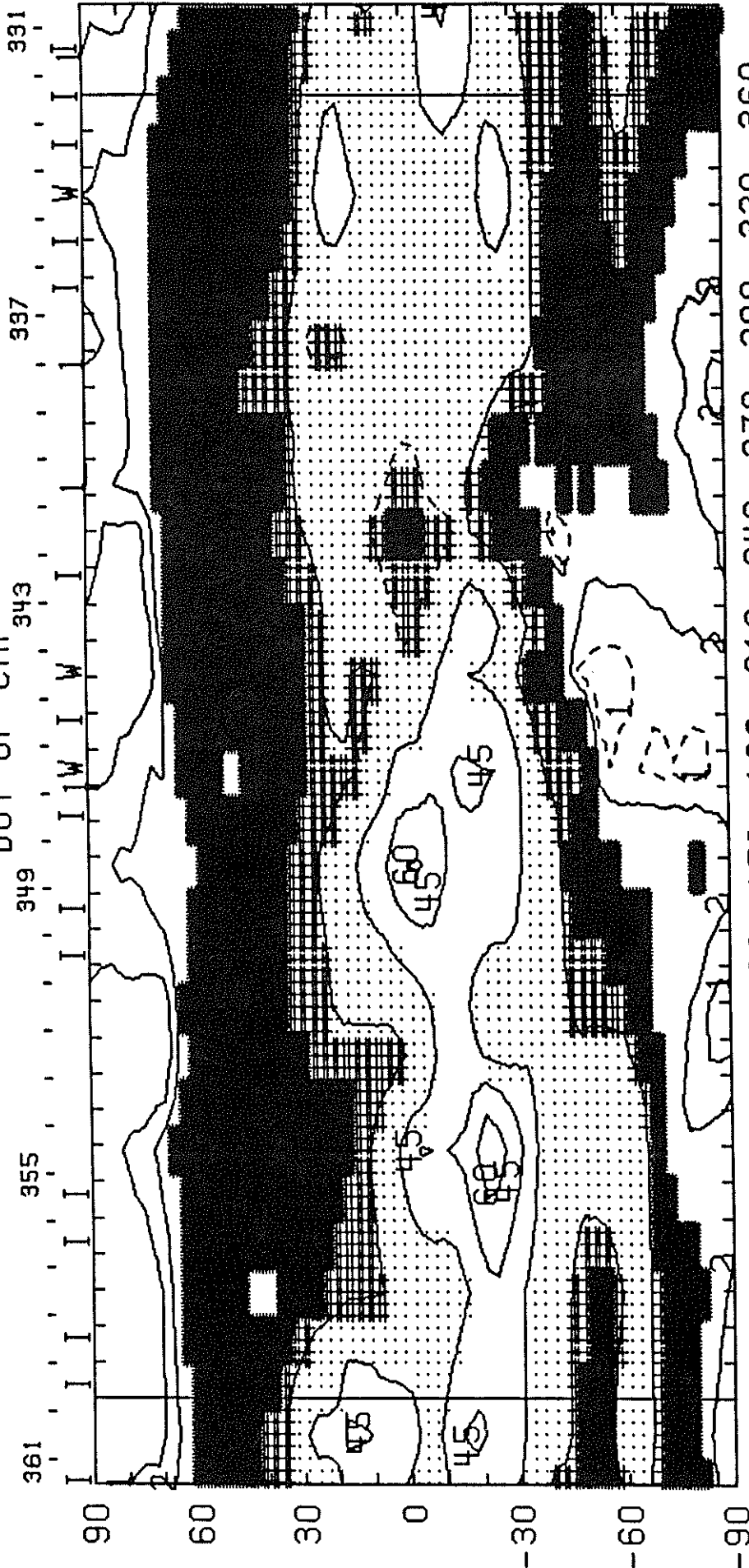
SOURCE SURFACE FIELD  
CARRINGTON ROTATION NUMBER 1864  
(24 December 1992 to 21 January 1993)

Wilcox Solar Observatory

0, +1, 2, 5, 10, 20 microTesla



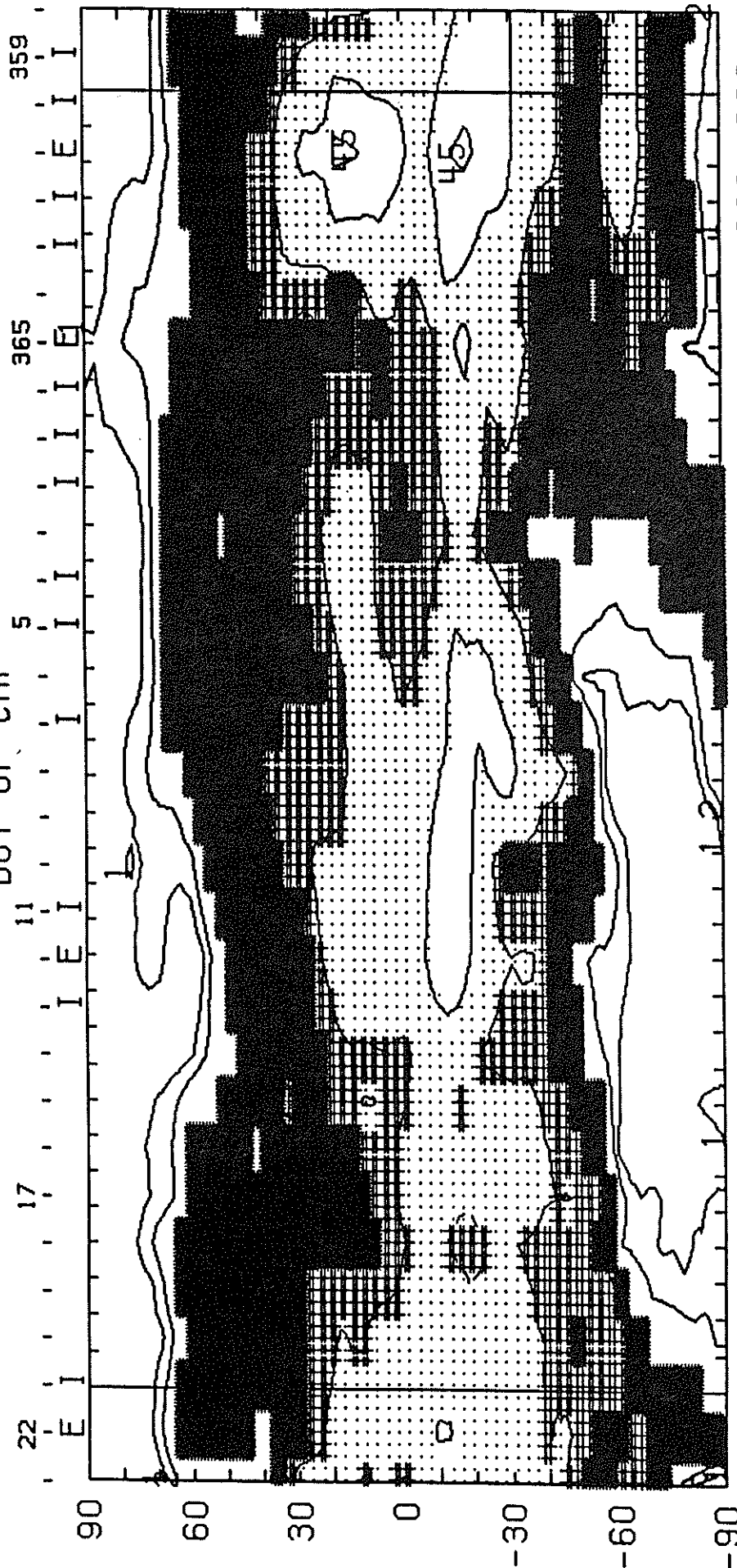
CARRINGTON ROTATION NUMBER 1863; SAC. PEAK FE XIV AT  $R = 1.15$   
DOY OF CMP



E 1993 E+W LIMB CONTOURS: 1,2,6,10,15,30,45,60,75 MILLIONTHS OF I  
(24-Feb-93) CORONAL HOLES ARE SHOWN AS WHITE SURROUNDED BY BLACK  
HELIOGRAPHIC LONGITUDE Iove = 13.05μ W



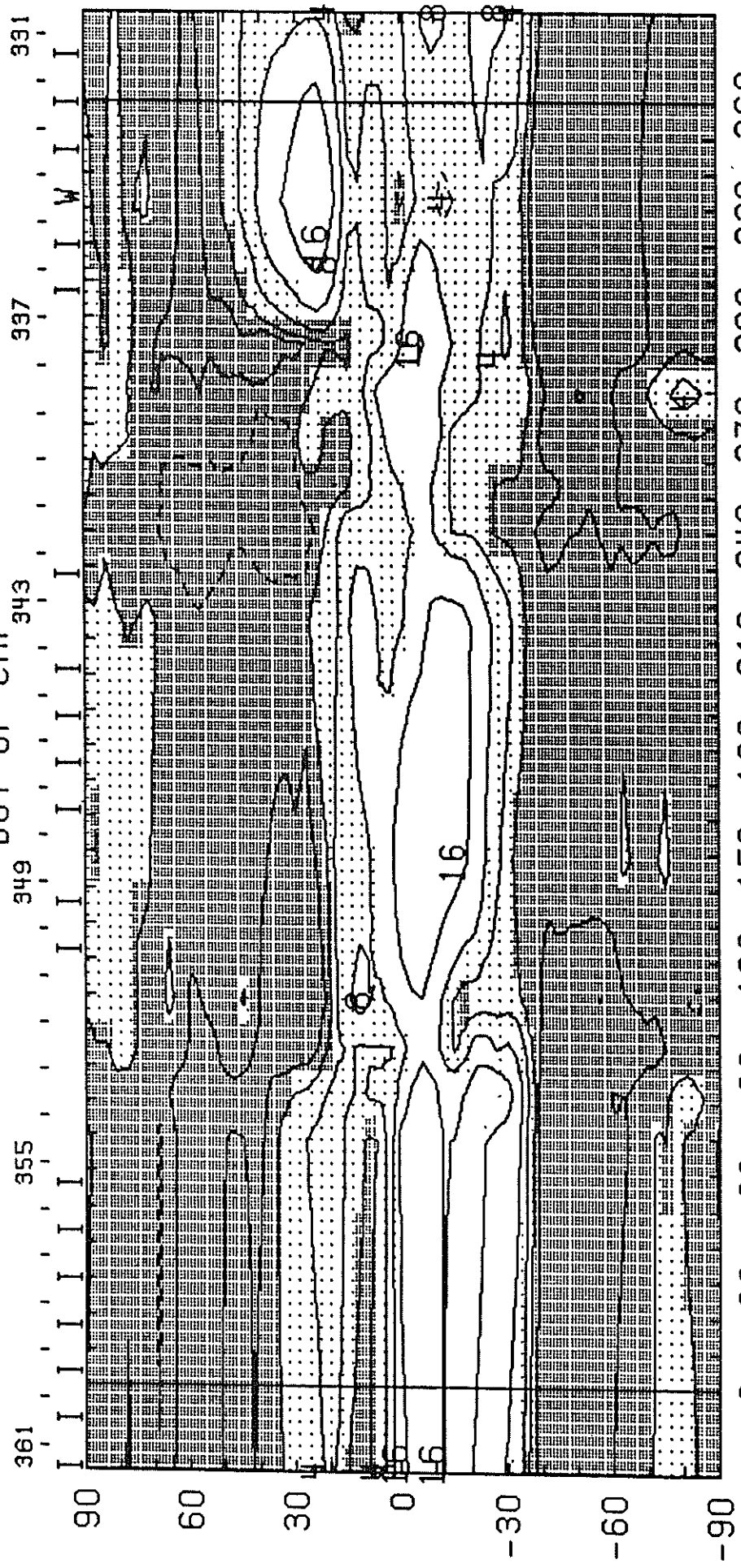
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 DOY OF CMP



E  
 HELIOGRAPHIC LONGITUDE Iove = 10.32 $\mu$  W  
 1993 W+E LIMB CONTOURS: 1,2,6,10,15,30,45,60,75 MILLIONTHS OF I  
 (24-Feb-93) CORONAL HOLES ARE SHOWN AS WHITE SURROUNDED BY BLACK

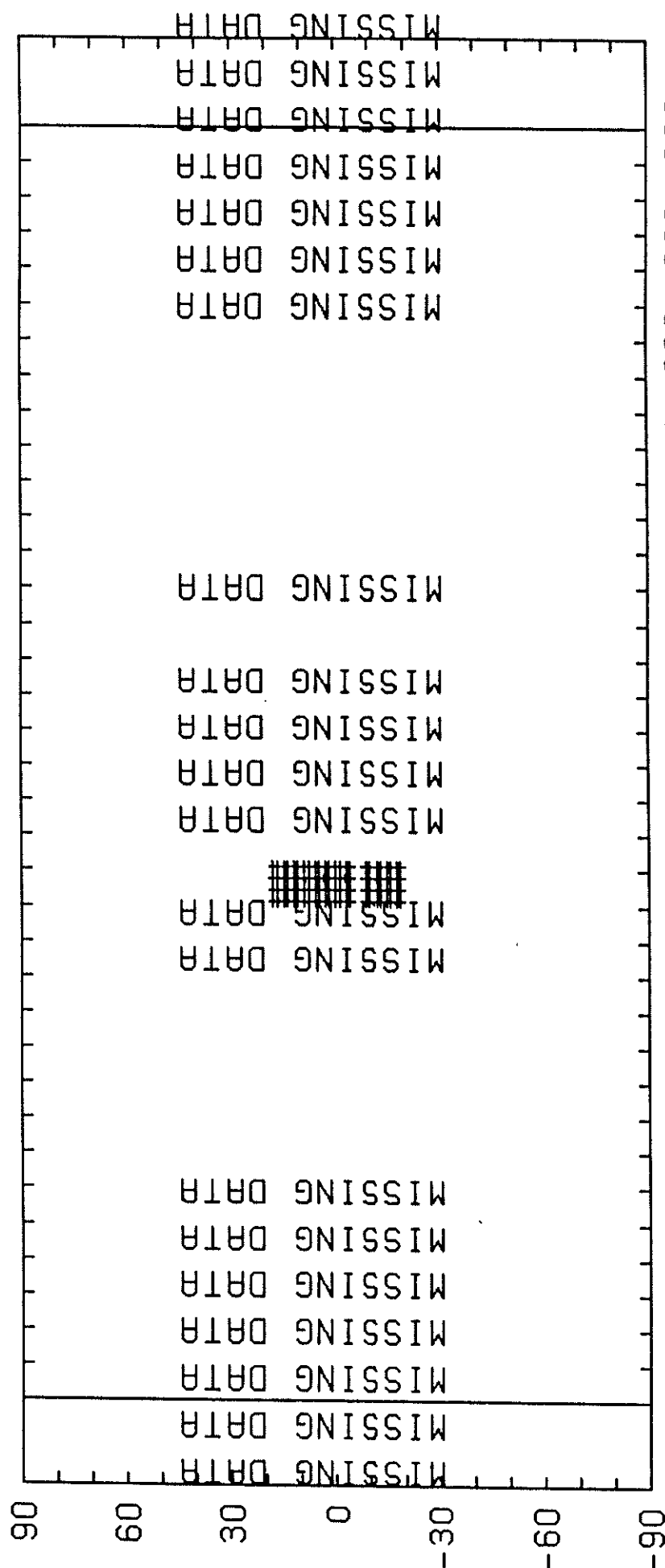
CARRINGTON ROTATION NUMBER 1863 ; SAC. PEAK FE X AT R = 1.15

DOY OF CMP



E  
HELIOGRAPHIC LONGITUDE Iove =  $3.94\mu$  W  
1993 E+W LIMB CONTOURS: 1,2,4,8,16,32,48,64,80 MILLIONTHS OF Io  
(24-Feb-93)



DOY OF CMP<sub>343</sub>

W  
E

HELIOGRAPHIC LONGITUDE

1992 EAST LIMB CONTOURS: YELLOW-MINIMUM, 1, 2, 4, 8 MILLIONTHS OF 10

(23-Feb-93)

DOY OF CMF3



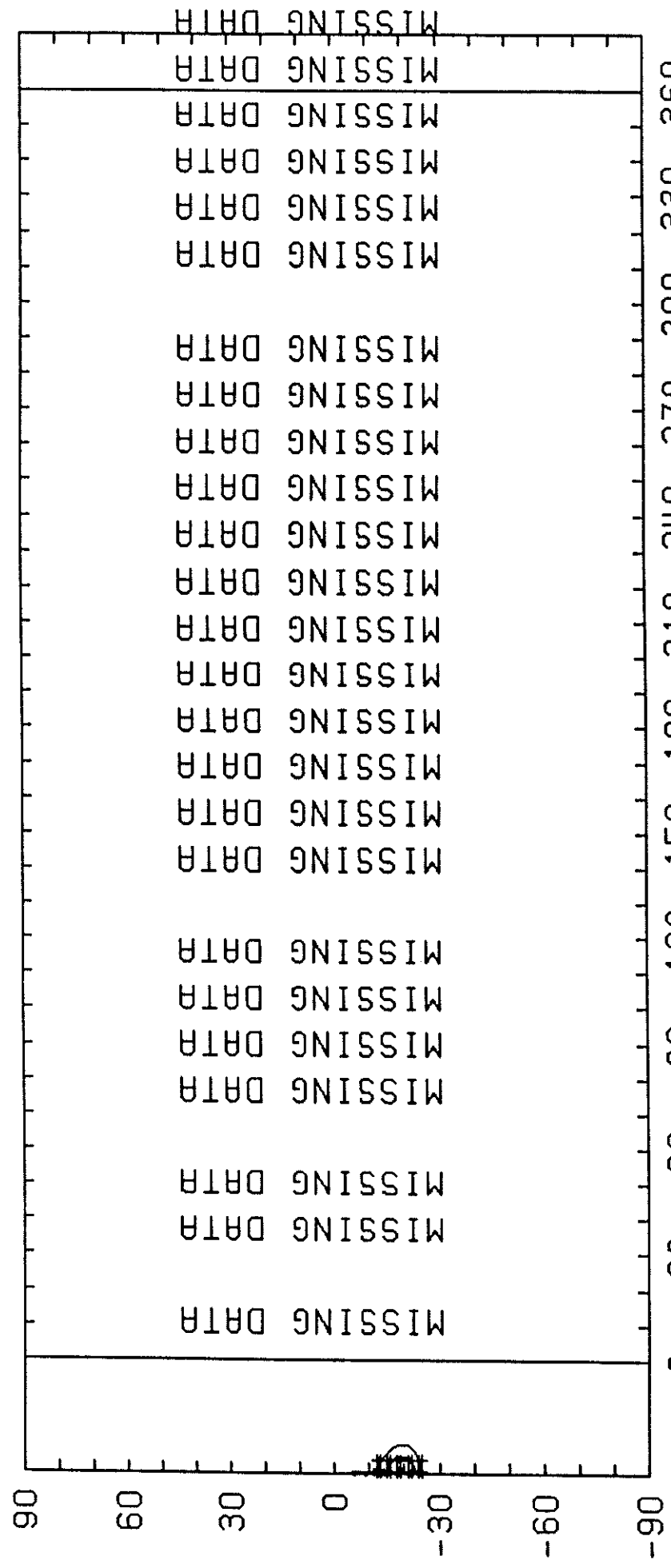
HELIOGRAPHIC LONGITUDE

1992 WEST LIMB CONTOURS: YELLOW-MINIMUM, 1, 2, 4, 8 MILLIONTHS OF Io  
(23-Feb-93)

CARRINGTON ROTATION NUMBER 1864 : SAC. PEAK CA XV at R = 1.13

DOY OF CMP<sub>5</sub>

23 . . . . . 17 . . . . . 11 . . . . . 365 . . . . . 359

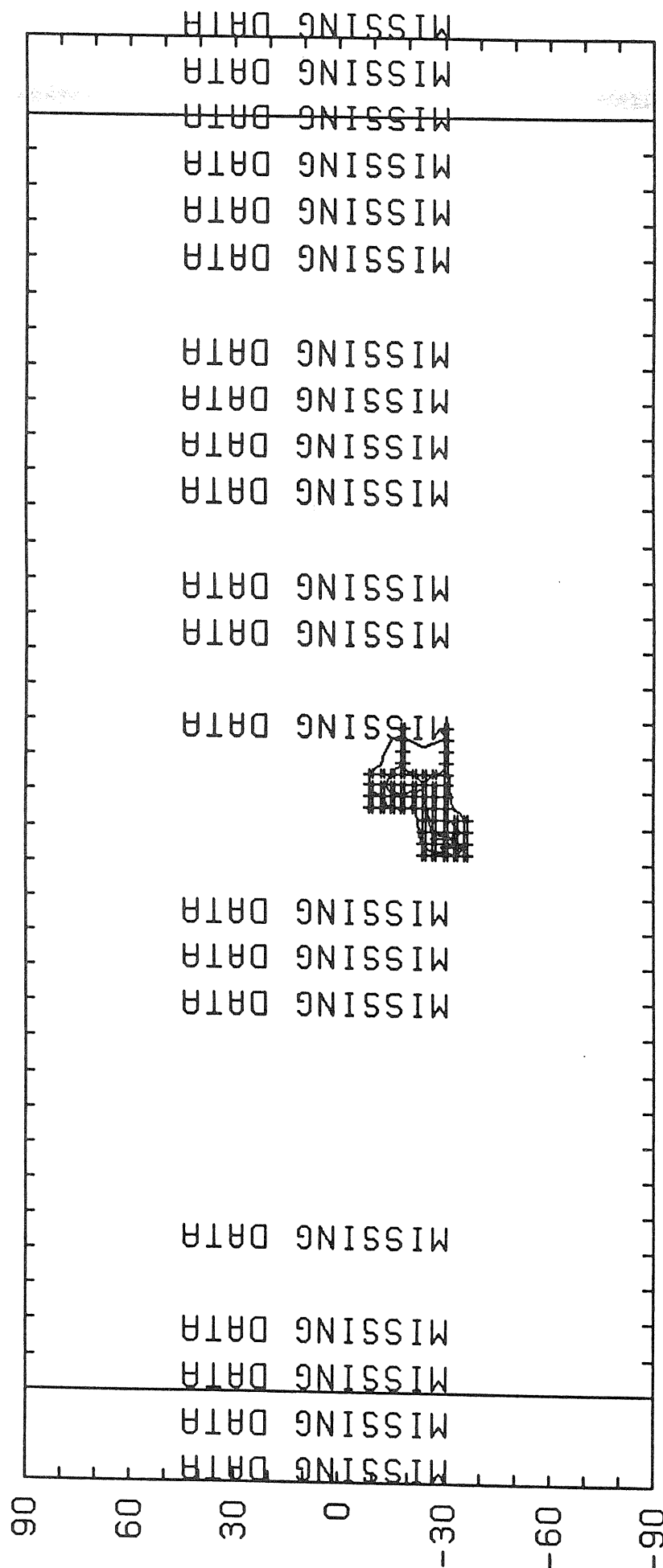


E  
W  
HELIOGRAPHIC LONGITUDE  
1992 EAST LIMB CONTOURS: YELLOW-MINIMUM, 1, 2, 4, 8 MILLIONTHS OF I<sub>o</sub>  
(23-Feb-93)

CARRINGTON ROTATION NUMBER 1864 : SAC. PEAK CA XV at R = 1.13

DOY OF CMP<sub>S</sub>

22 . . . . . 17 . . . . . 11 . . . . . 365 . . . . . 359 . . . . .



E Heliographic Longitude W

1992 WEST LIMB CONTOURS: YELLOW-MINIMUM, 1, 2, 4, 8 MILLIONTHS OF Io

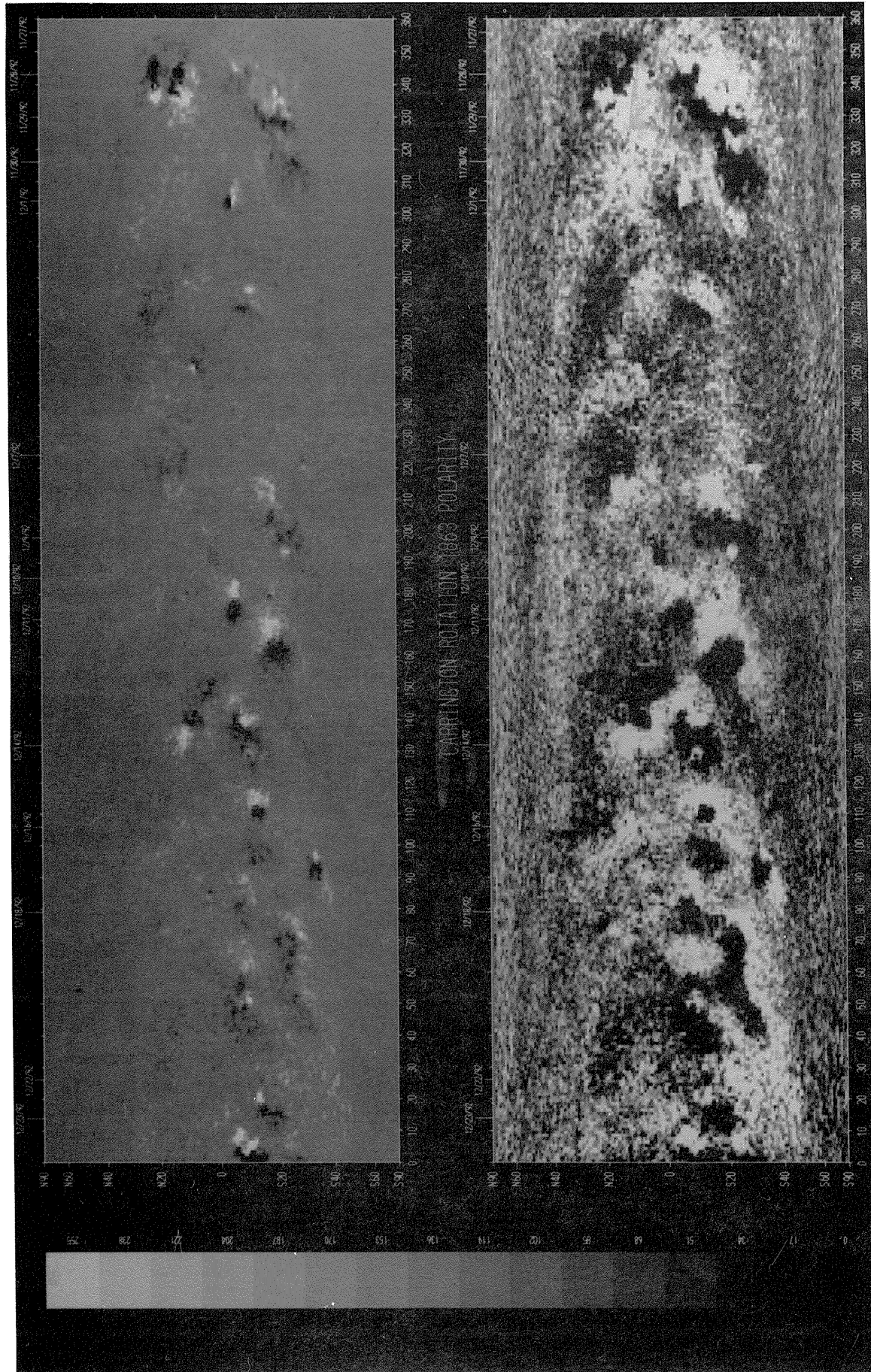
(23-Feb-93)



SOLAR MAGNETIC FIELD SYNOPSIS CHART  
CARRINGTON ROTATION NUMBER 1863  
(27 November to 24 December 1992)

Dates of Observation

National Solar Observatory/Kitt Peak



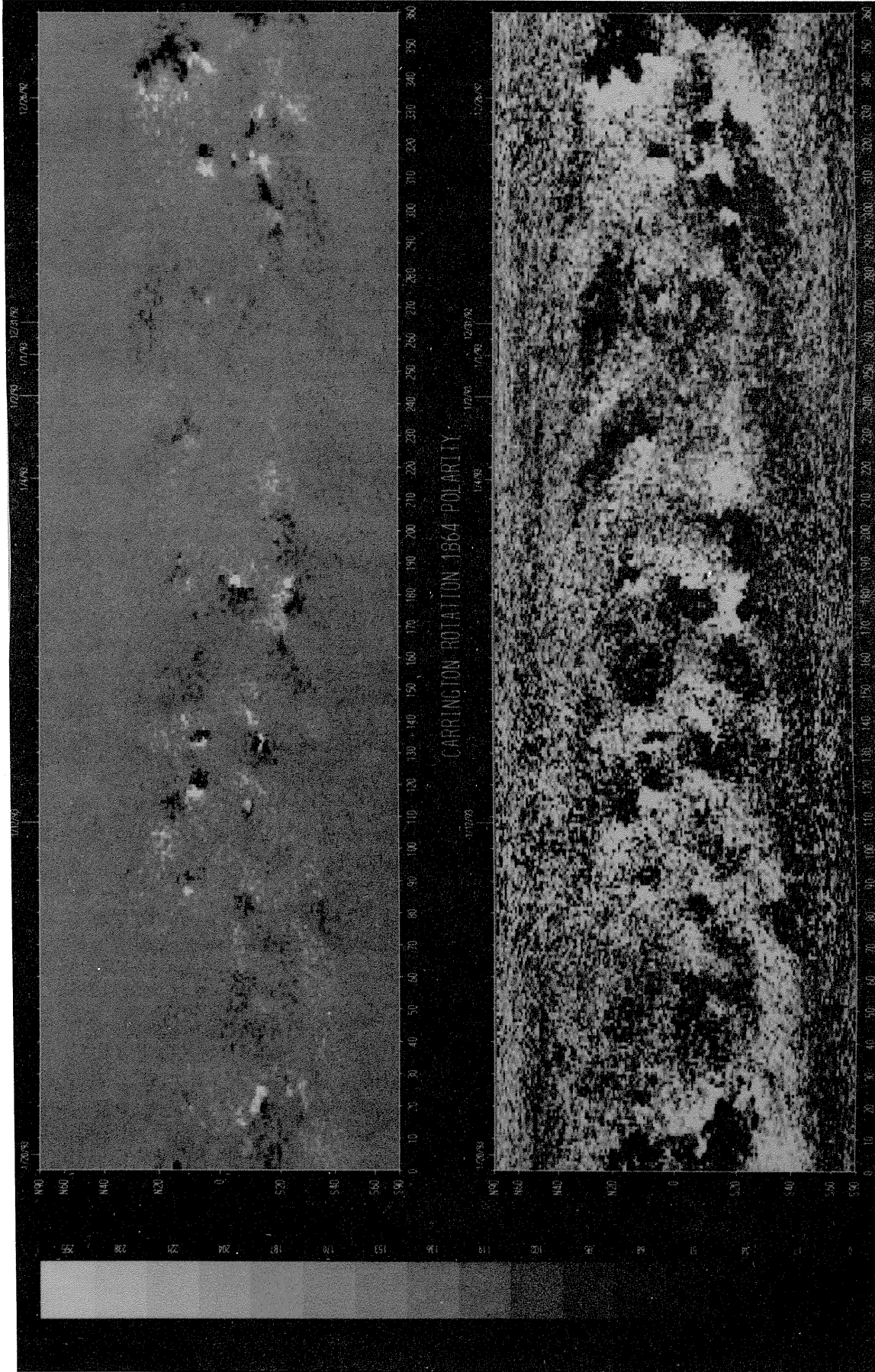
Heliographic Longitude



SOLAR MAGNETIC FIELD SYNOPSIS CHART  
CARRINGTON ROTATION NUMBER 1864  
(24 December 1992 to 21 January 1993)

National Solar Observatory/Kitt Peak

Dates of Observation

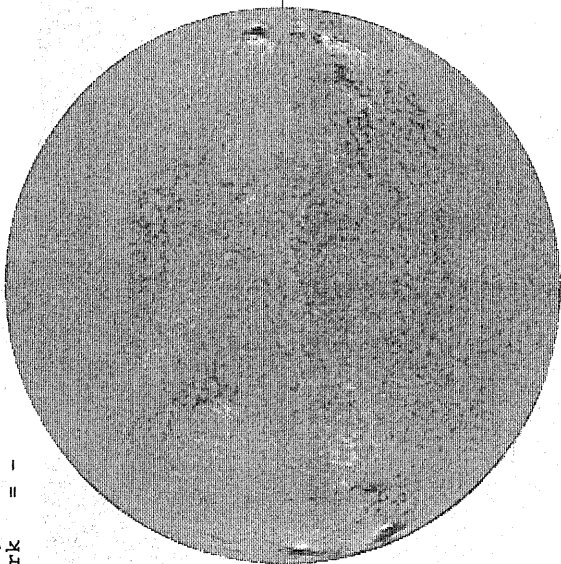


Heliographic Longitude

JANUARY 1, 1993 ( P= 2.01, B<sub>0</sub> = -3.04, L<sub>0</sub> = 264.18 )

KITT PEAK MAGNETOGRAM  
N \*\*5507A\*\*

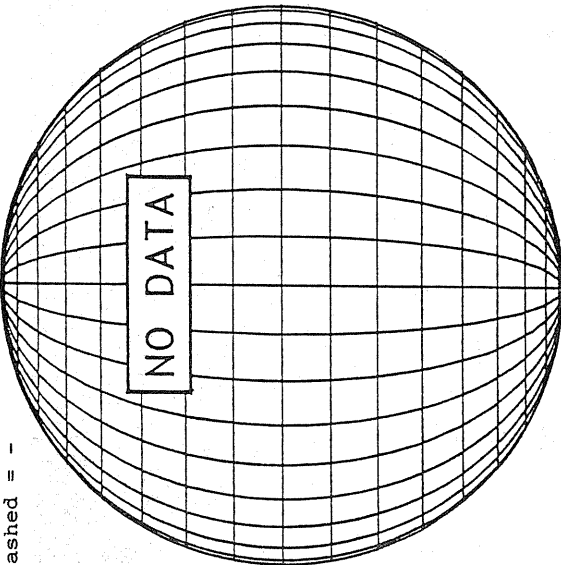
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Dark = -



1657 UT

STANFORD MAGNETOGRAM

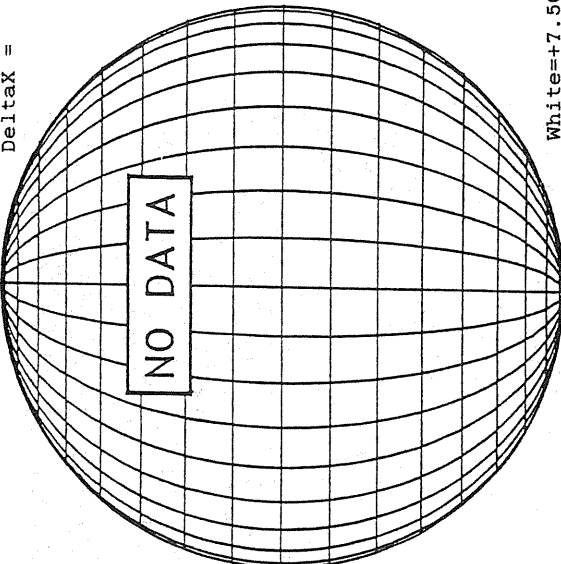
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NO DATA

MT. WILSON MAGNETOGRAM

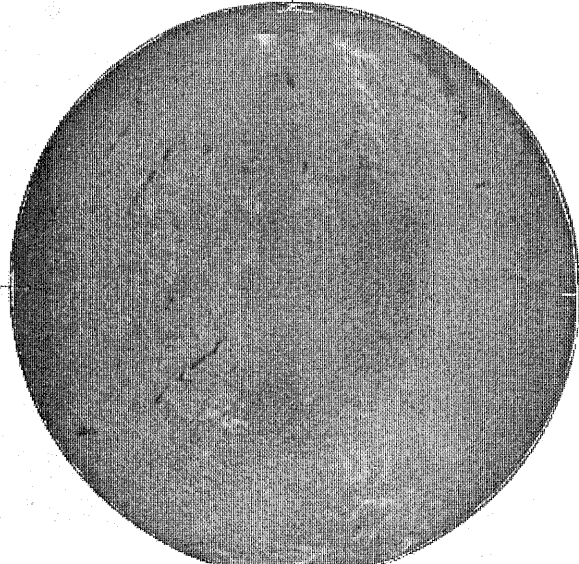
DeltaY =  
DeltaX =



NO DATA

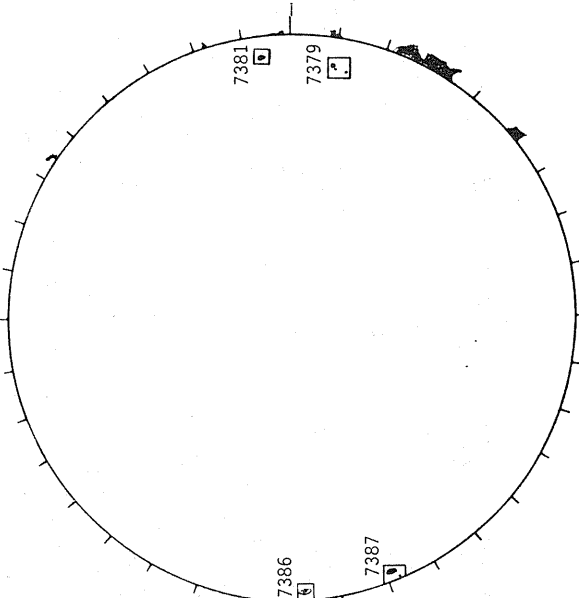
White = +7.5G  
Black = -7.5G

BOULDER H-ALPHA



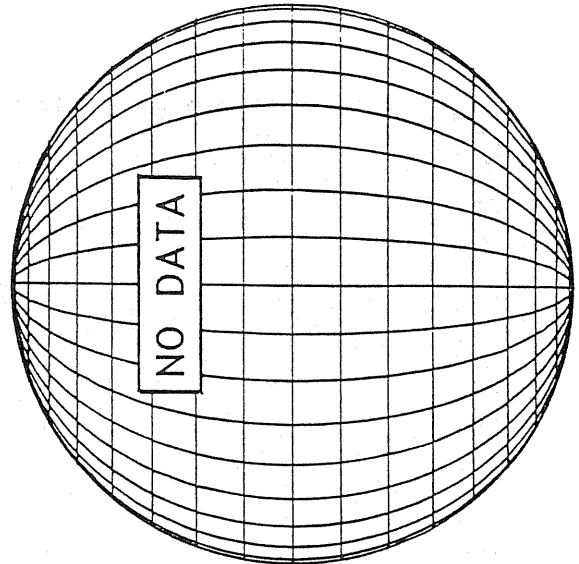
1708 UT

BOULDER SUNSPOT



1627 UT  
1708 UT BOUL Prom

SACRAMENTO PEAK CORONA (1.15 Radii)

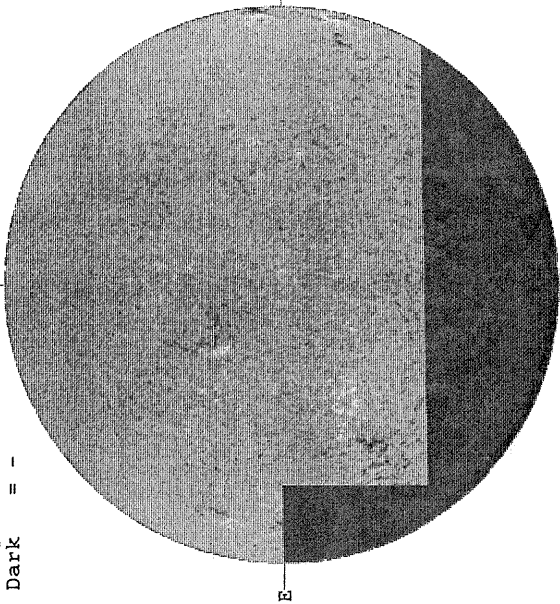


NO DATA

JANUARY 2, 1993 ( P= 1.53, B<sub>0</sub> =-3.15, L<sub>0</sub> = 251.01 )

KITT PEAK MAGNETOGRAM  
N \*\*5507A\*\*

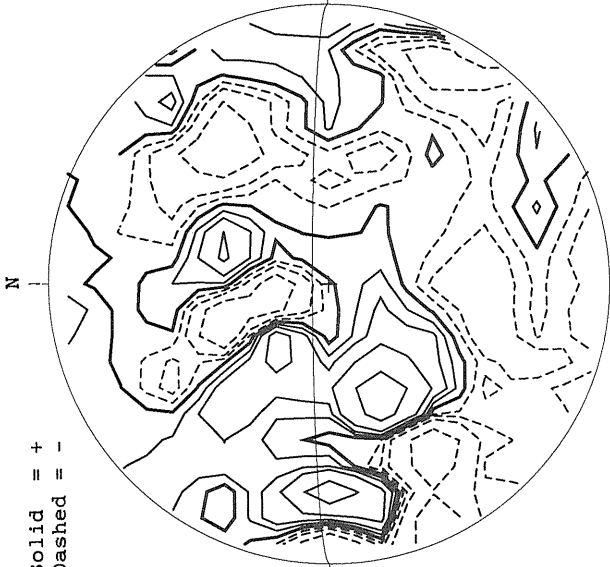
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1703 UT

STANFORD MAGNETOGRAM

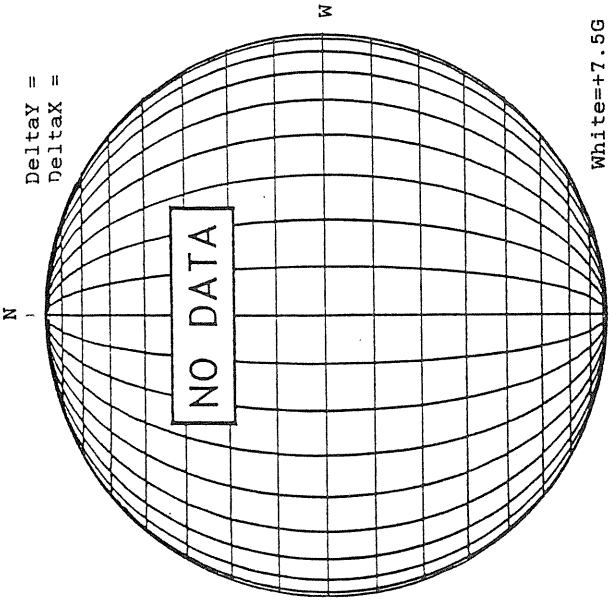
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Dashed = -



2248 UT

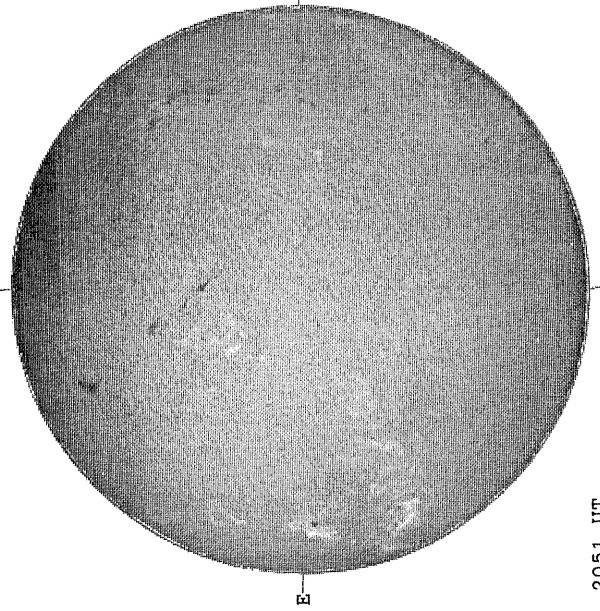
MT. WILSON MAGNETOGRAM

DeltaY =  
DeltaX =



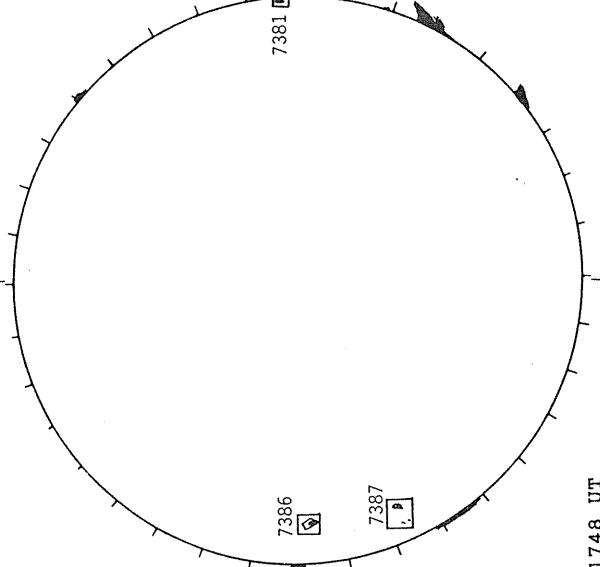
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SACRAMENTO PEAK H-ALPHA



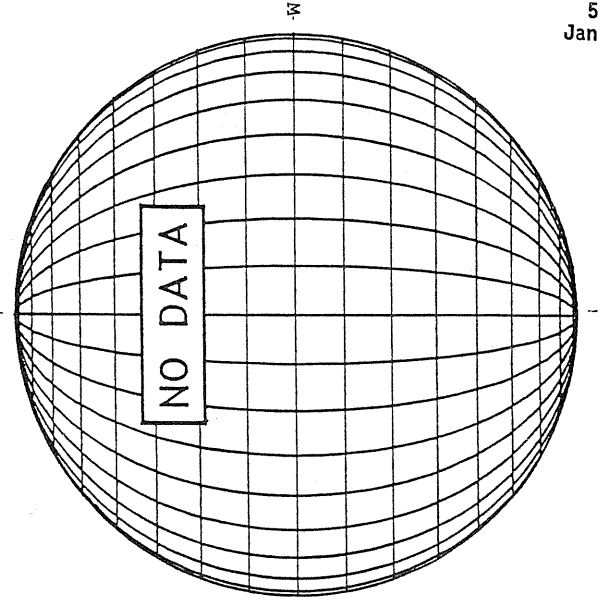
2051 UT

BOULDER SUNSPOT



1748 UT  
1754 UT BOUL Prom

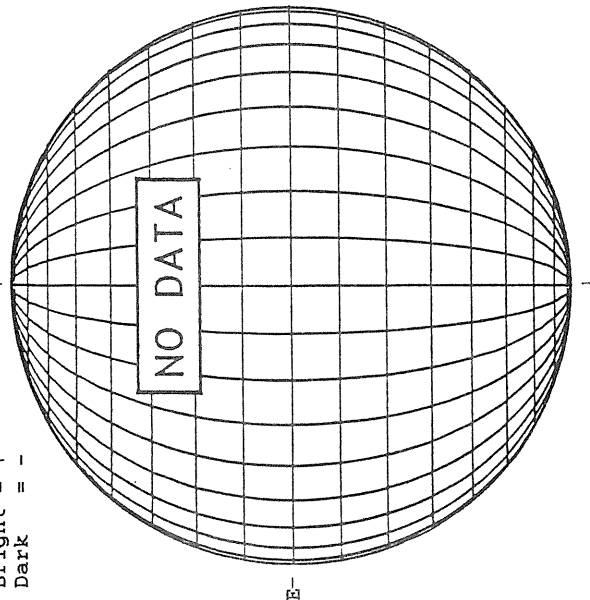
SACRAMENTO PEAK CORONA (1.15 Radii)



JANUARY 3, 1993 ( P= 1.04, B<sub>0</sub> = -3.27, L<sub>0</sub> = 237.84 )

KITT PEAK MAGNETOGRAM  
\*\*5507A\*\*

Bright = +  
Dark = -



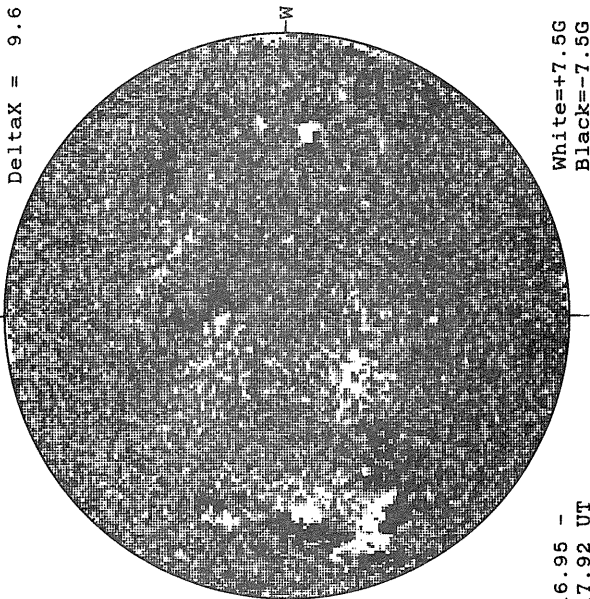
STANFORD MAGNETOGRAM

Solid = +  
Dashed = -



MT. WILSON MAGNETOGRAM

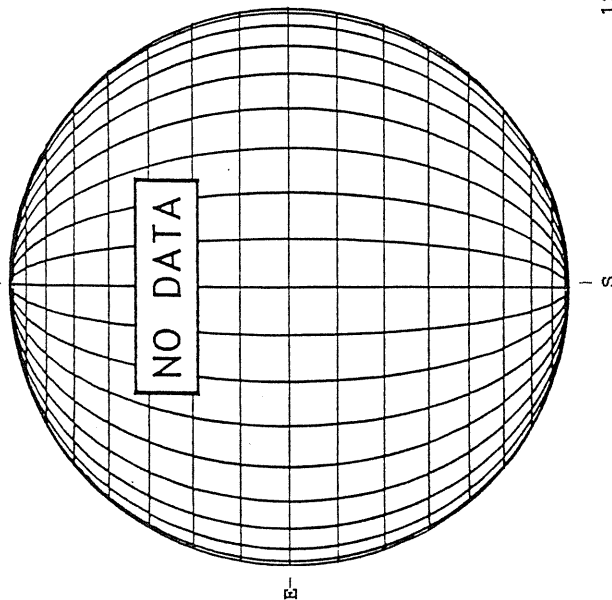
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DeltaX = 9.6



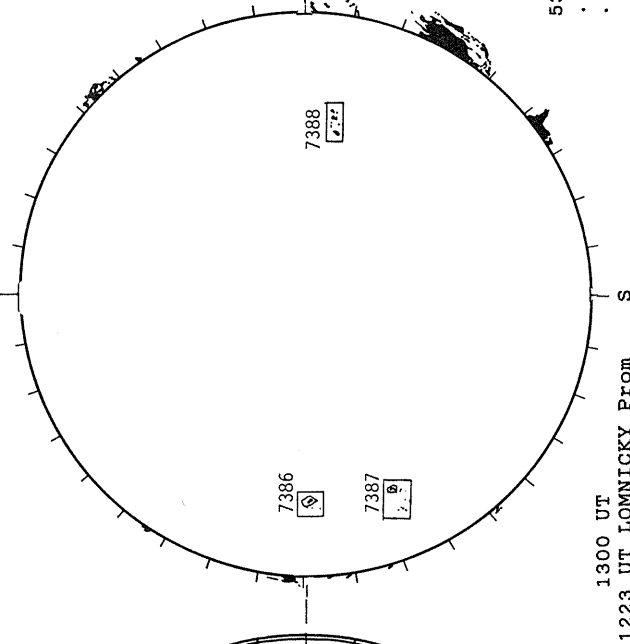
16.95 -  
17.92 UT

White = +7.5G  
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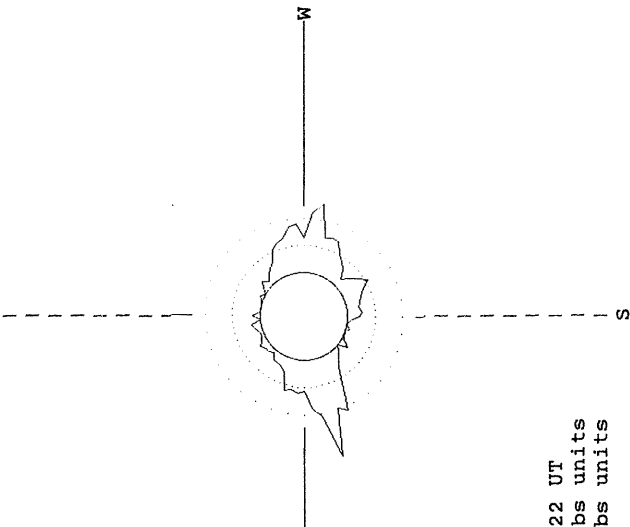
SACRAMENTO PEAK H-ALPHA



RAMEY SUNSPOT



LOMNICKY STIT CORONA (1.15 Radii)



5303A, 1322 UT  
... 50 abs units  
... 100 abs units

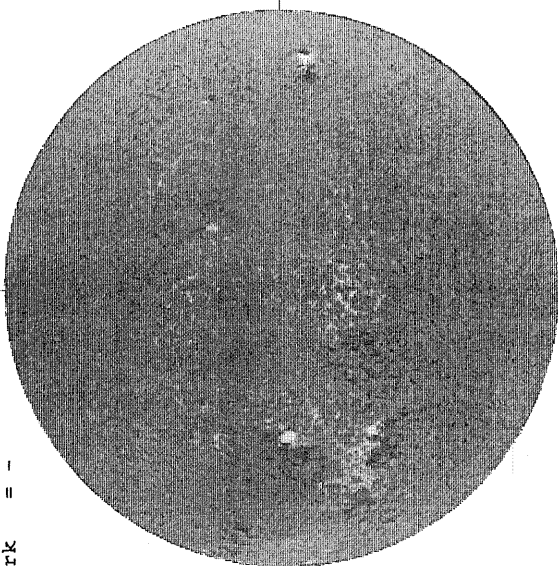
1300 UT  
1223 UT LOMNICKY Prom



JANUARY 4, 1993 ( P= 0.56, B<sub>0</sub> = -3.38, L<sub>0</sub> = 224.67 )

KITT PEAK MAGNETOGRAM  
N \*\*5507A\*\*

Bright = +  
Dark = -



1629 UT

STANFORD MAGNETOGRAM

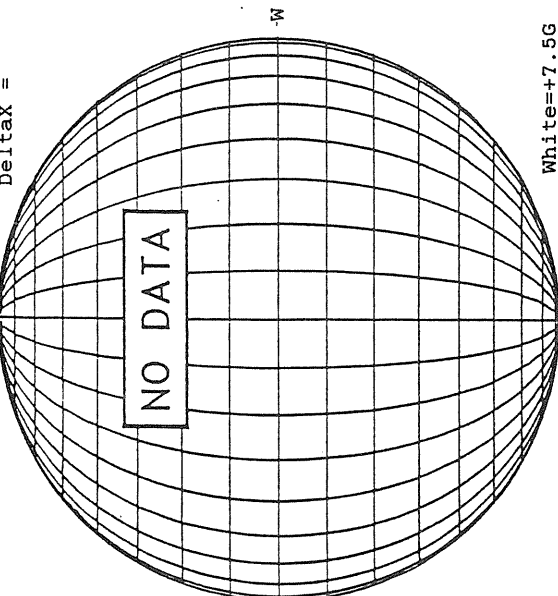
Solid = +  
Dashed = -



1952 UT

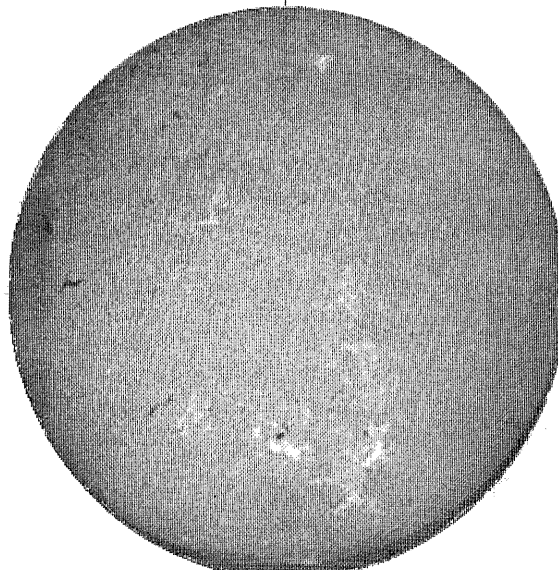
MT. WILSON MAGNETOGRAM

Delta Y =  
Delta X =



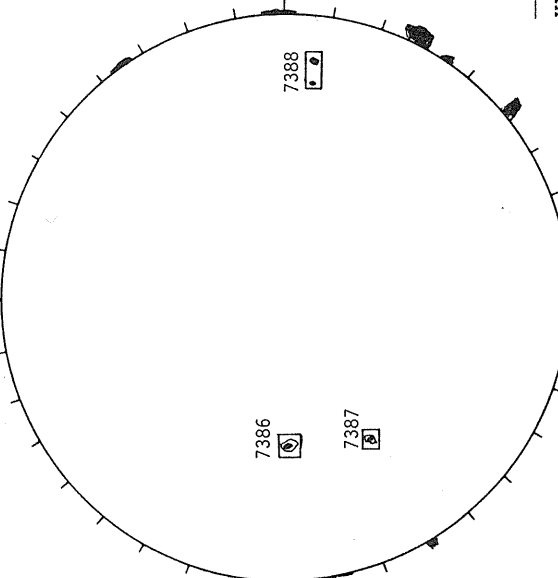
White = +7.5G  
Black = -7.5G

SACRAMENTO PEAK H-ALPHA



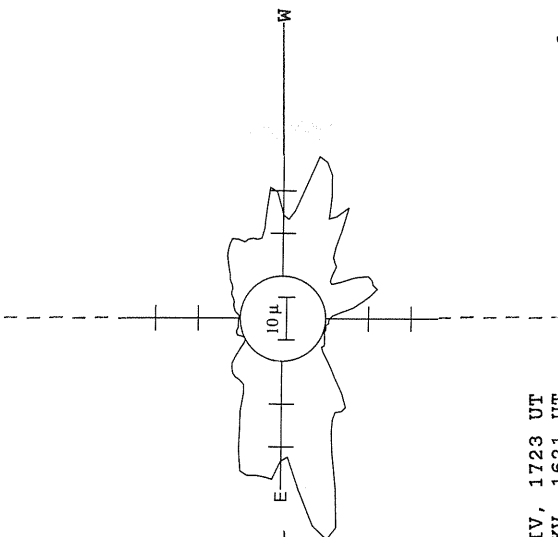
1538 UT

BOULDER SUNSPOT



1634 UT  
1644 UT BOUL Prom

SACRAMENTO PEAK CORONA (1.15 Radii)



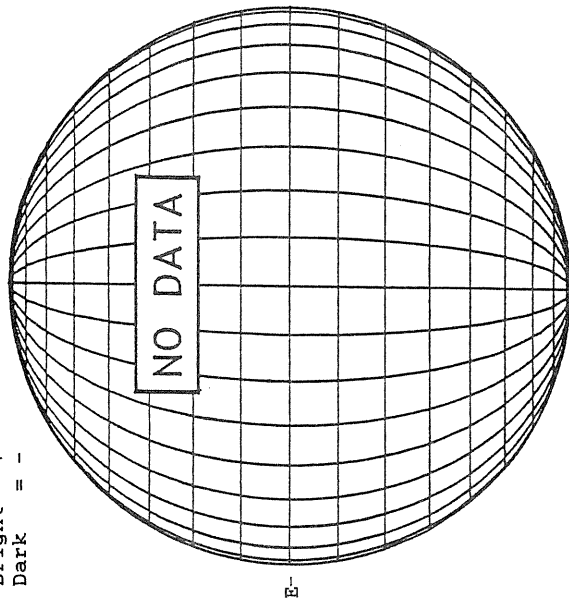
Fe XIV, 1723 UT  
Ca XV, 1621 UT  
NO CA XV ACTIVITY TODAY

JANUARY 5, 1993 ( P= 0.07, B<sub>0</sub> =-3.50, L<sub>0</sub> = 211.50 )

KITT PEAK MAGNETOGRAM

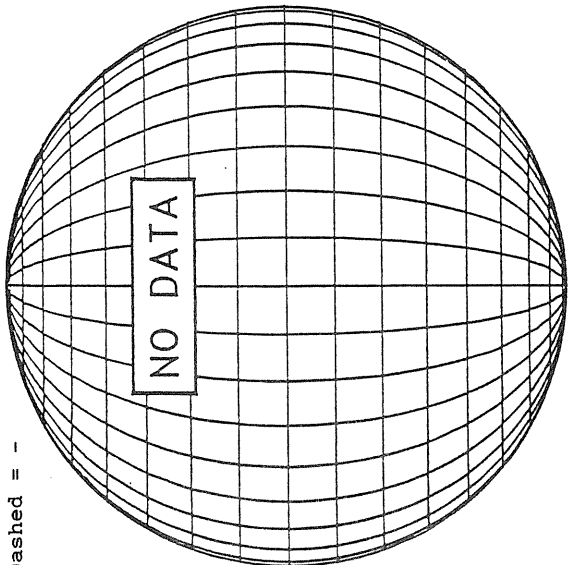
\*\*5507A\*\*

Bright = +  
Dark = -



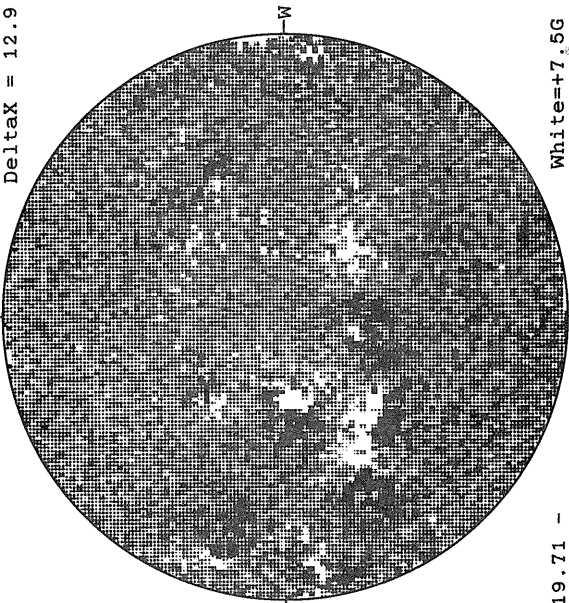
STANFORD MAGNETOGRAM

Solid = +  
Dashed = -



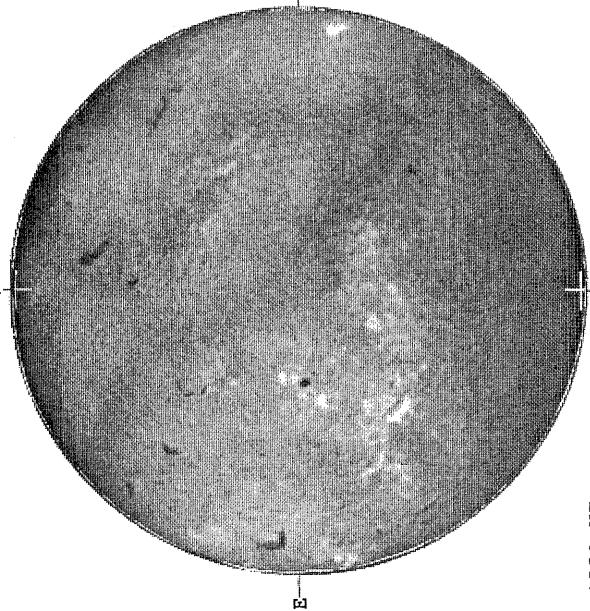
MT. WILSON MAGNETOGRAM

Delta<sub>Y</sub> = 20.0  
Delta<sub>X</sub> = 12.9



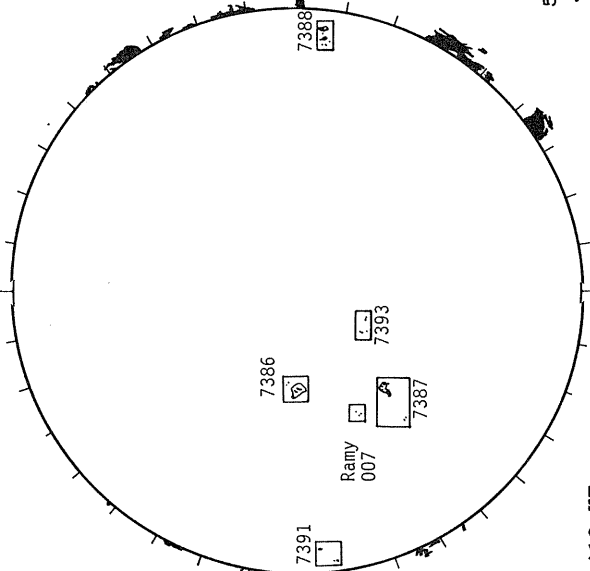
19.71 -  
20.14 UT

BOULDER H-ALPHA



1550 UT

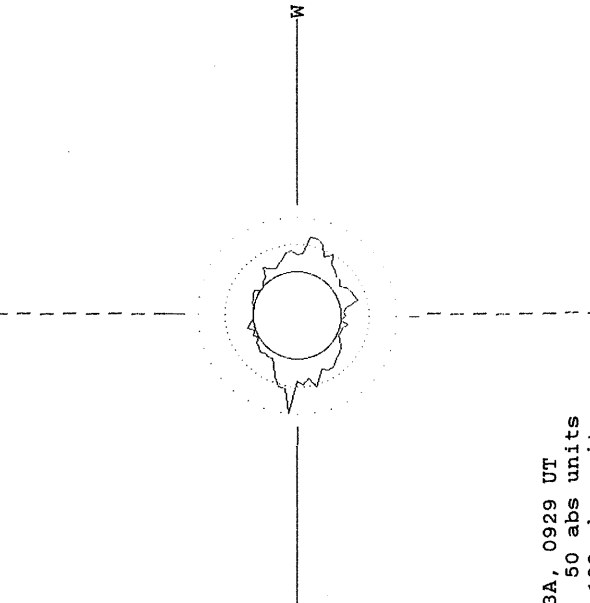
RAMEY SUNSPOT



1410 UT

0915 UT LOMNICKY Prom

LOMNICKY STIT CORONA (1.15 Radii)



5303A, 0929 UT  
... 50 abs units  
... 100 abs units

JANUARY 6, 1993 ( P= -0.41, B<sub>0</sub> =-3.61, L<sub>0</sub> = 198.33 )

KITT PEAK MAGNETOGRAM  
\*\*5507A\*\*

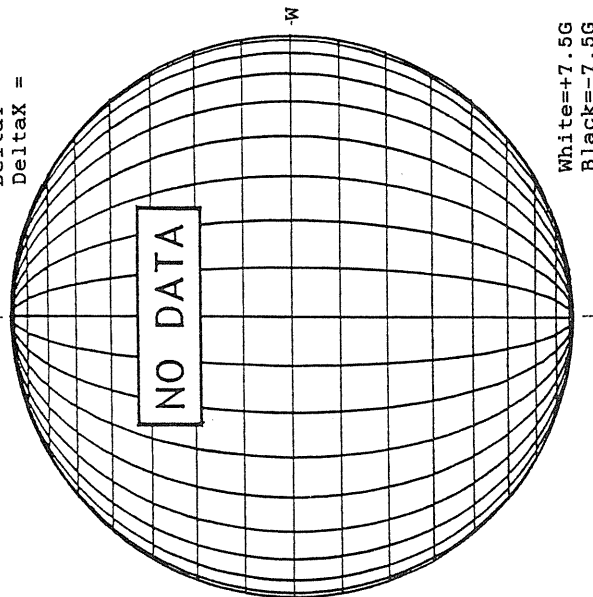
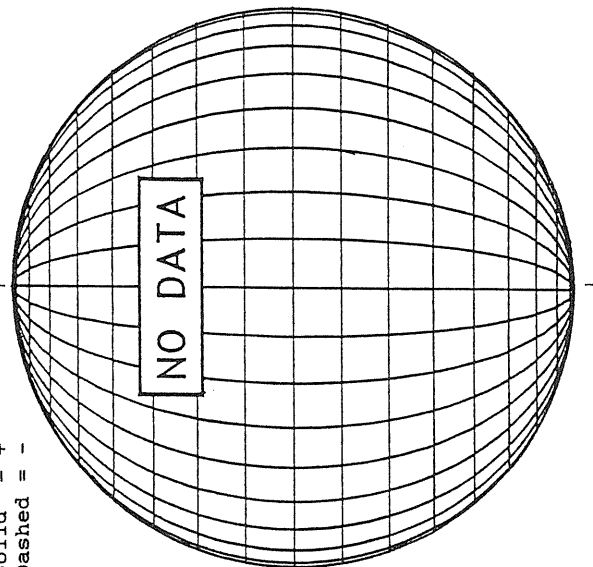
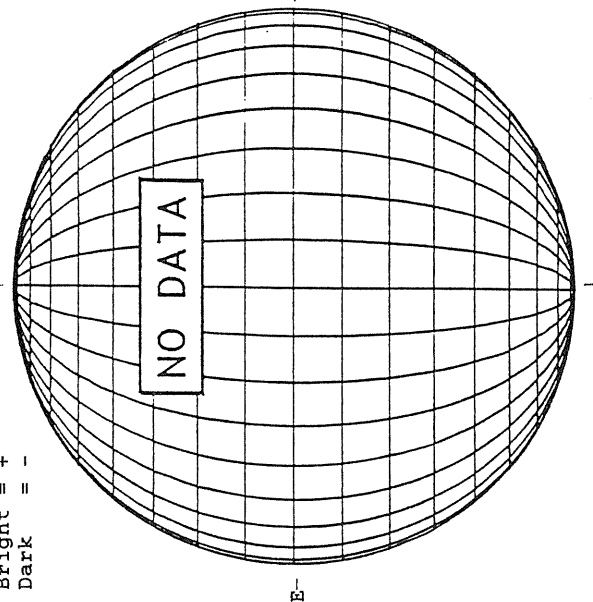
Bright = +  
Dark = -

Solid = +  
Dashed = -

STANFORD MAGNETOGRAM

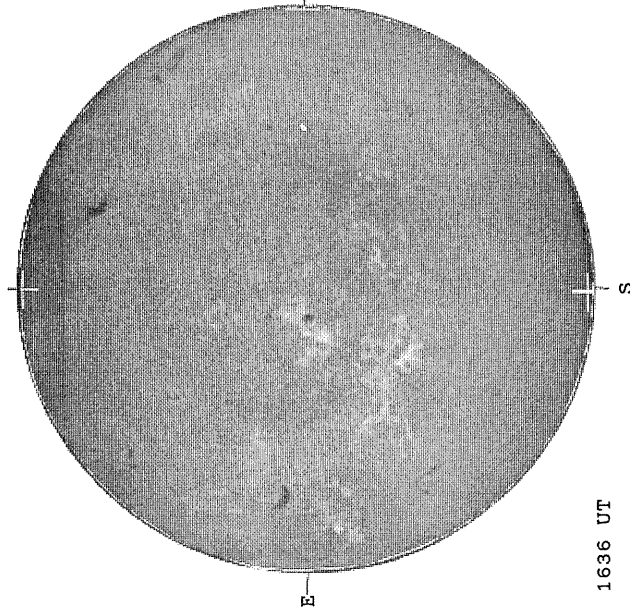
MT. WILSON MAGNETOGRAM

DeltaY =  
DeltaX =



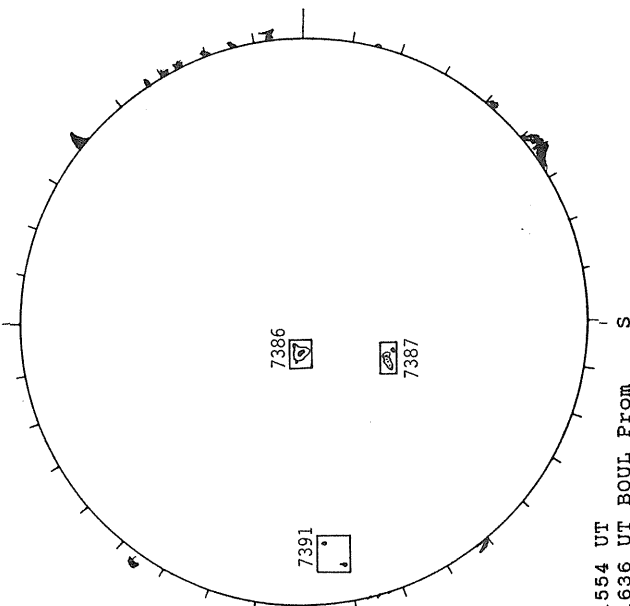
White=+7.5G  
Black=-7.5G

BOULDER H-ALPHA



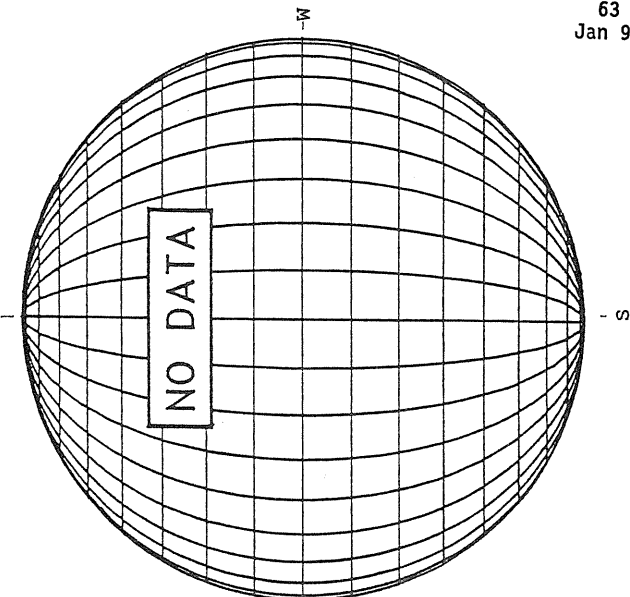
1636 UT

BOULDER SUNSPOT



1554 UT  
1636 UT BOUL Prom

SACRAMENTO PEAK CORONA (1.15 Radii)



JANUARY 7, 1993 ( P= -0.89 B<sub>0</sub> = -3.72, L<sub>0</sub> = 185.16 )

KITT PEAK MAGNETOGRAM  
\*\*5507A\*\*

Bright = +  
Dark = -

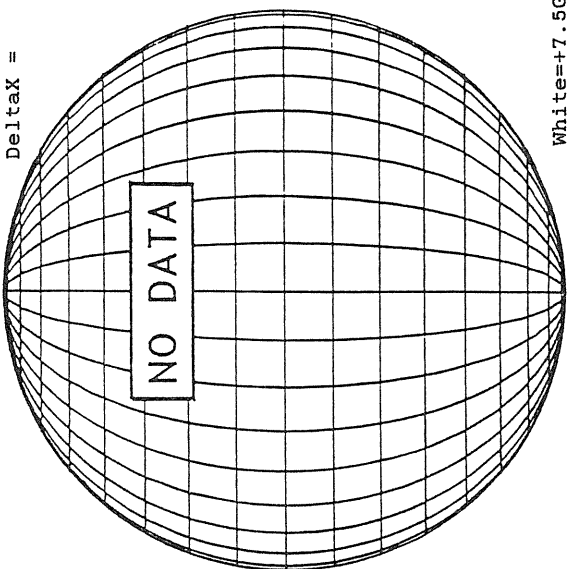
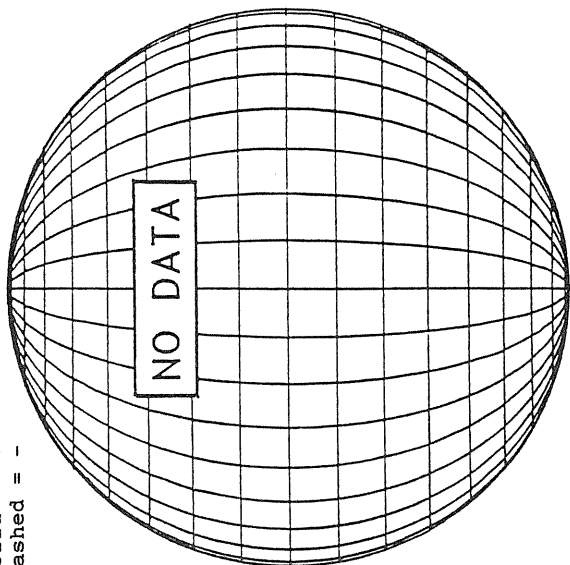
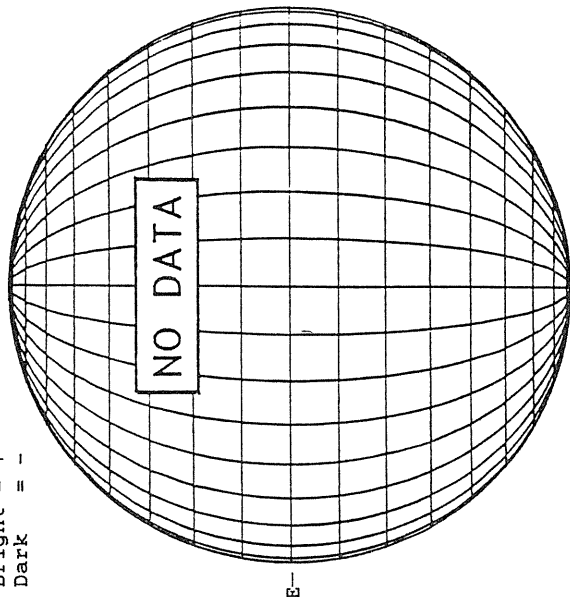
STANFORD MAGNETOGRAM

Solid = +  
Dashed = -

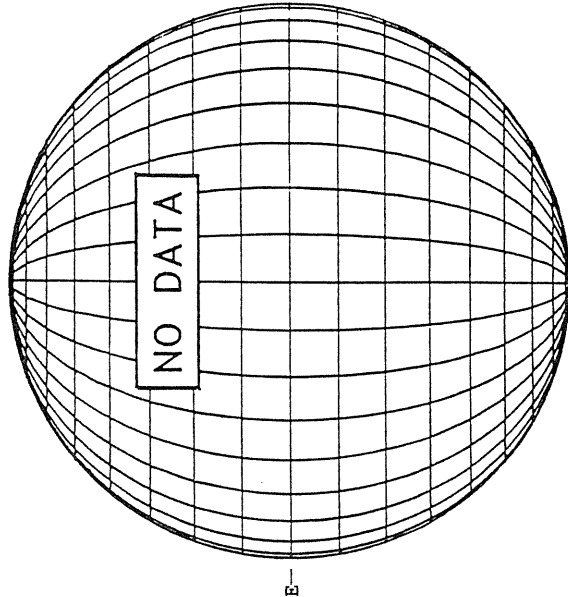
MT. WILSON MAGNETOGRAM

DeltaY =  
DeltaX =

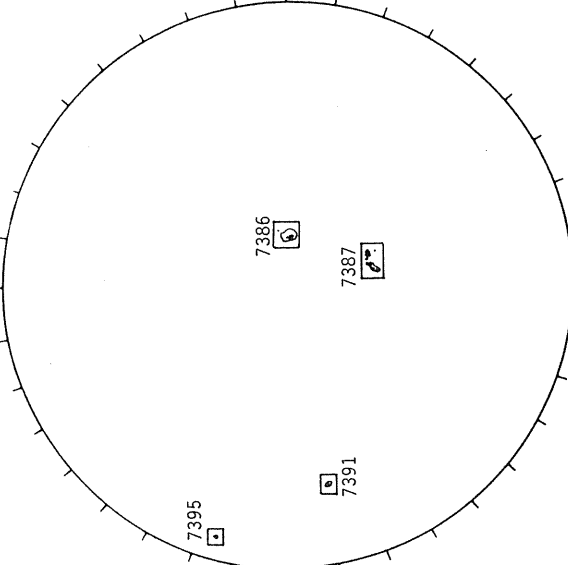
White=+7.5G  
Black=-7.5G



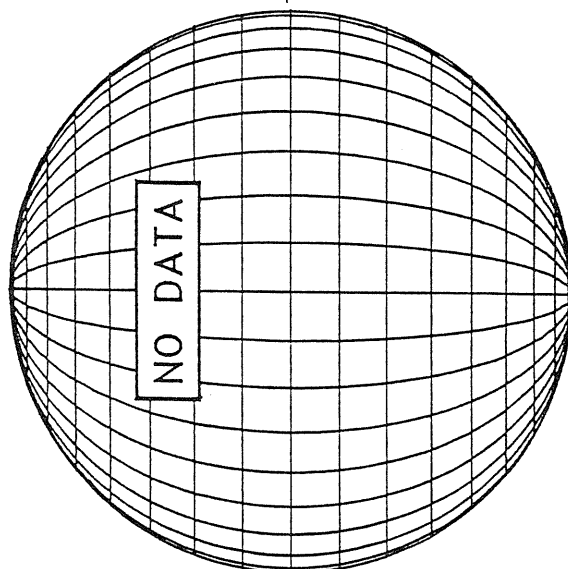
BOULDER H-ALPHA



BOULDER SUNSPOT



SACRAMENTO PEAK CORONA (1.15 Radii)



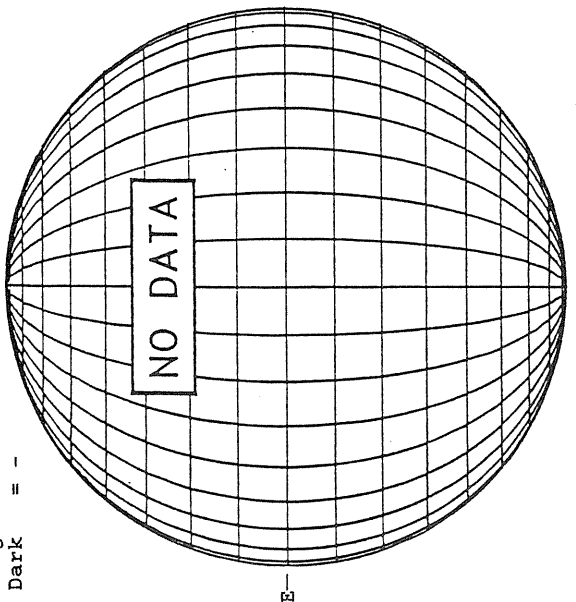
1644 UT



JANUARY 8, 1993 ( P= -1.38, B<sub>0</sub> = -3.83, L<sub>0</sub> = 171.99 )

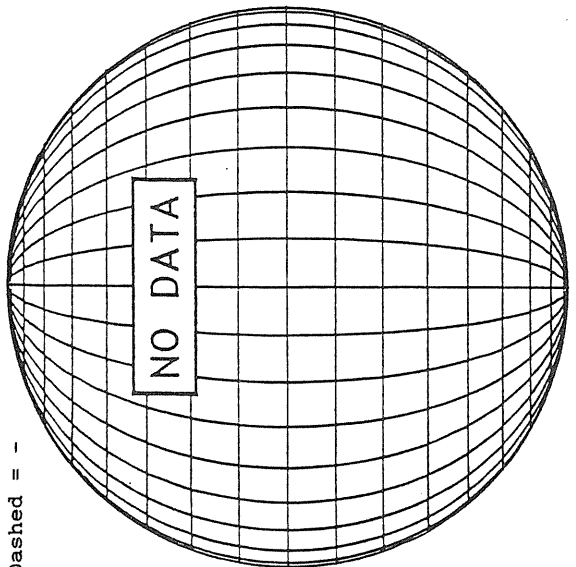
KITT PEAK MAGNETOGRAM  
N \*\*5507A\*\*

Bright = +  
Dark = -



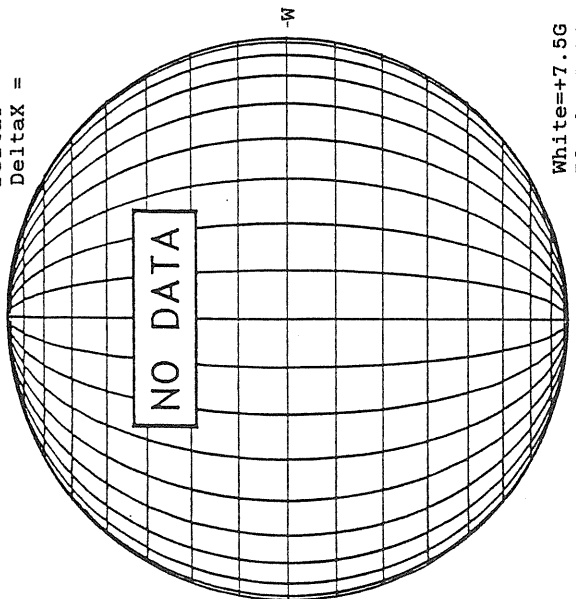
STANFORD MAGNETOGRAM  
N

Solid = +  
Dashed = -



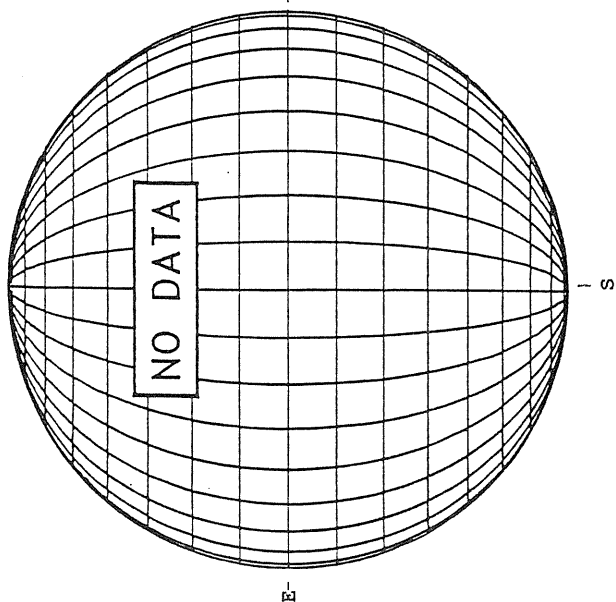
MT. WILSON MAGNETOGRAM  
N

DeltaY =  
DeltaX =

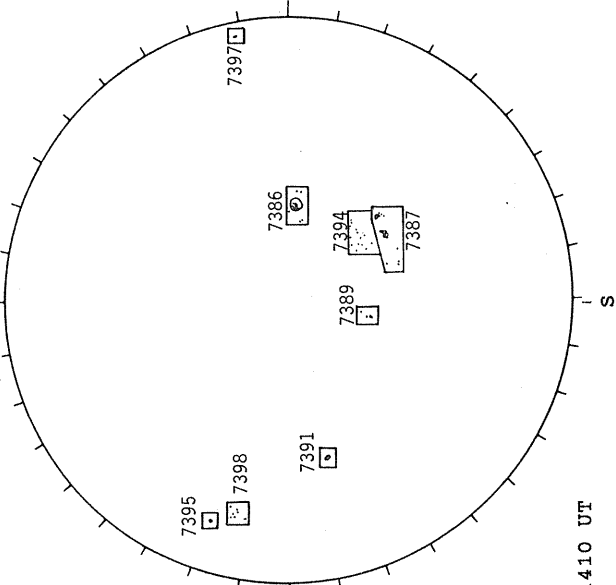


White=+7.5G  
Black=-7.5G

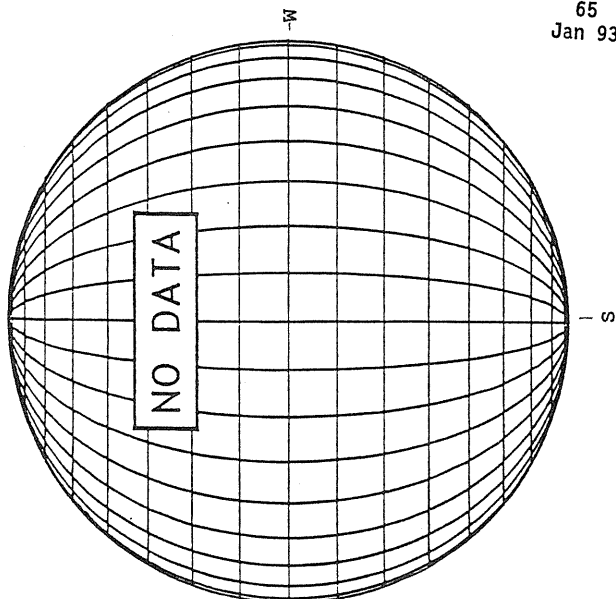
SACRAMENTO PEAK H-ALPHA



RAMEY SUNSPOT



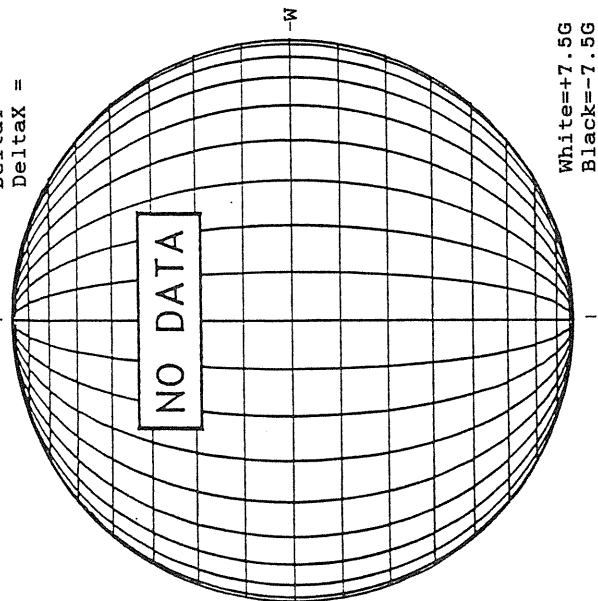
SACRAMENTO PEAK CORONA (1.15 Radii)



JANUARY 9, 1993 ( P = -1.86 B<sub>O</sub> = -3.94, L<sub>O</sub> = 158.82 )

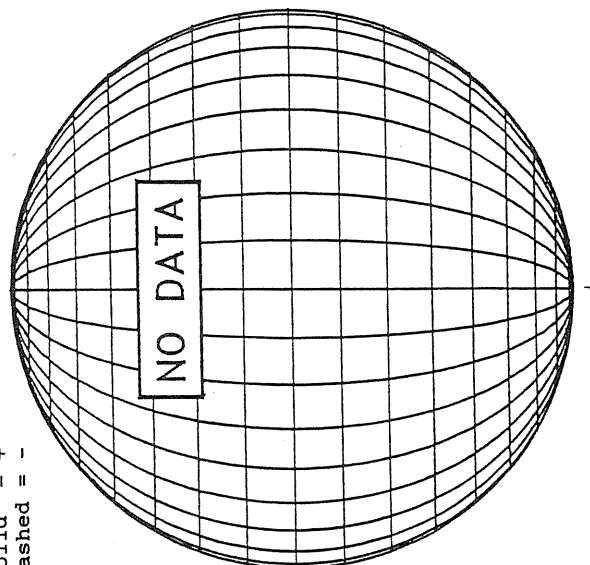
MT. WILSON MAGNETOGRAM

DeltaY =  
DeltaX =



STANFORD MAGNETOGRAM

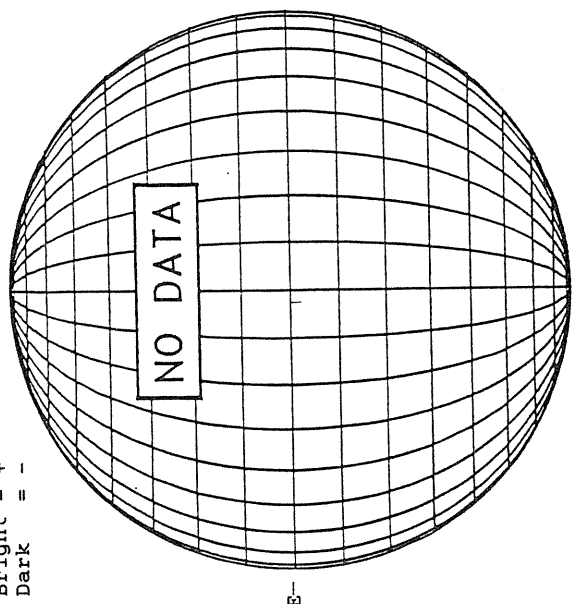
Solid = +  
Dashed = -



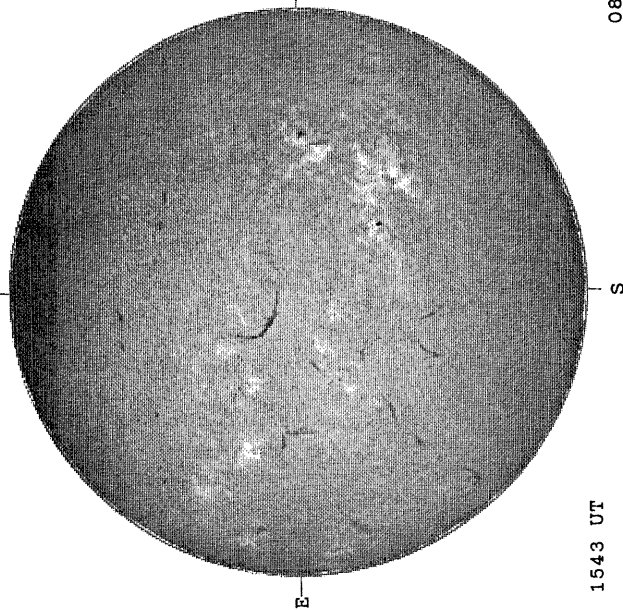
KITT PEAK MAGNETOGRAM

\*\*5507A\*\*

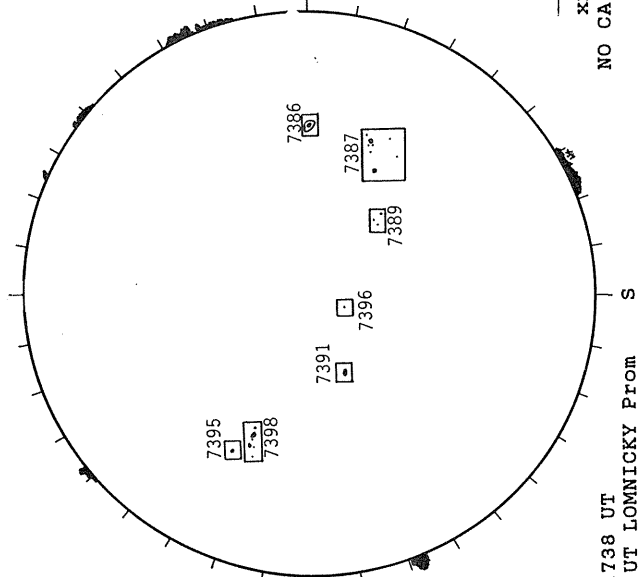
Bright = +  
Dark = -



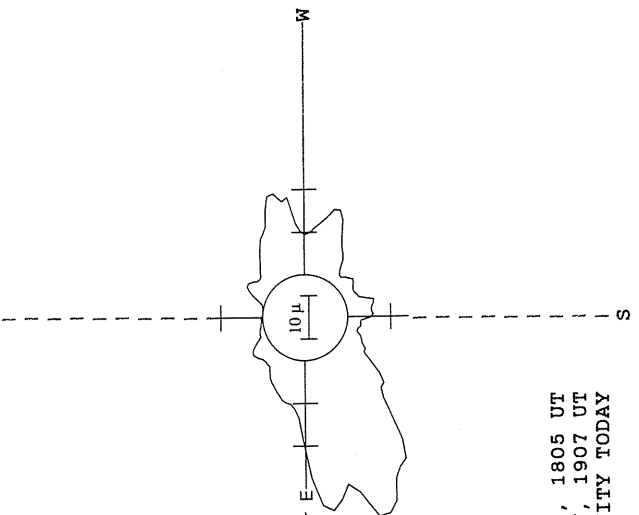
SACRAMENTO PEAK H-ALPHA



BOULDER SUNSPOT



SACRAMENTO PEAK CORONA (1.15 Radii)

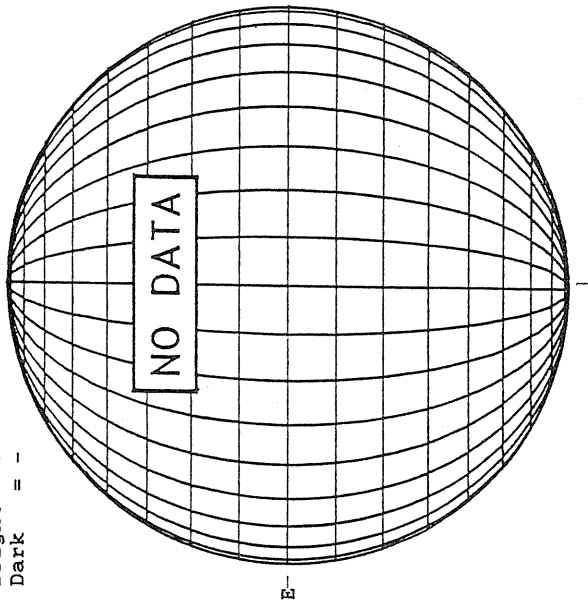


— FeXIV, 1805 UT  
xxxx Ca XV, 1907 UT  
NO CA XV ACTIVITY TODAY

JANUARY 10, 1993 ( P= -2.34, B<sub>0</sub> =-4.04, L<sub>0</sub> = 145.65 )

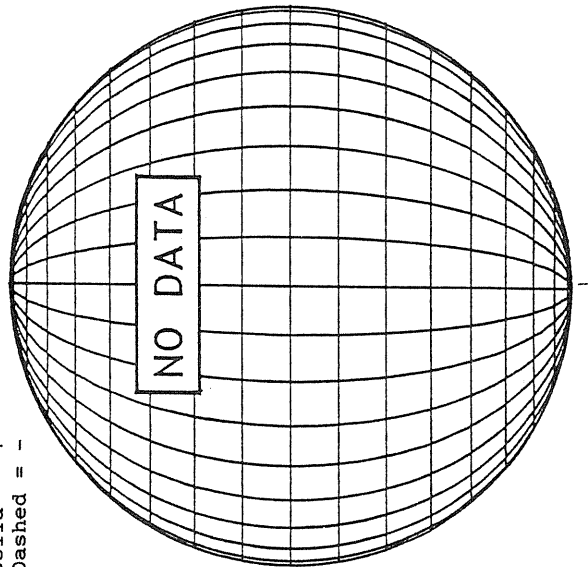
KITT PEAK MAGNETOGRAM  
N \*\*5507A\*\*

Bright = +  
Dark = -



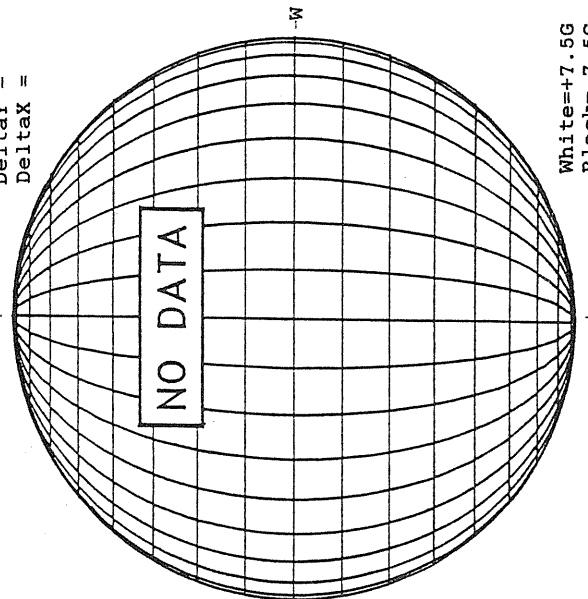
STANFORD MAGNETOGRAM  
N

Solid = +  
Dashed = -



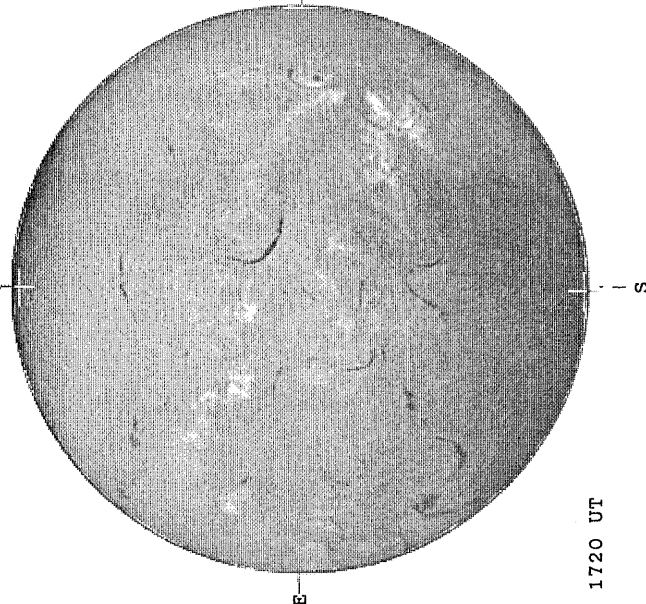
MT. WILSON MAGNETOGRAM  
N

DeltaY =  
DeltaX =



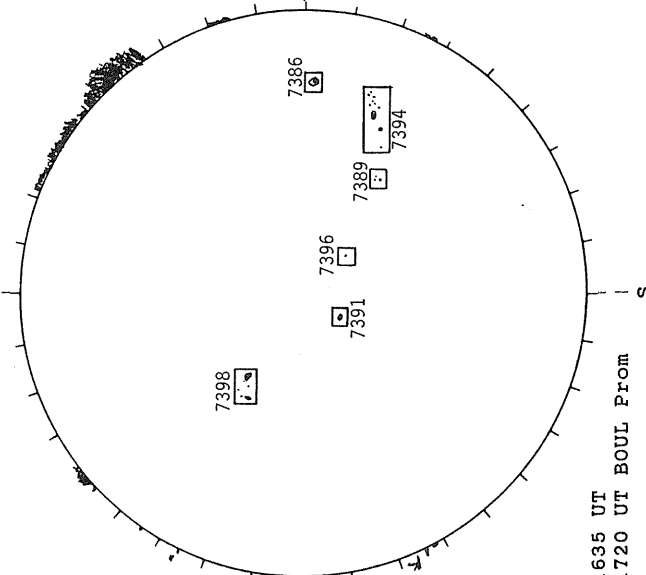
White=+7.5G  
Black=-7.5G

BOULDER H-ALPHA



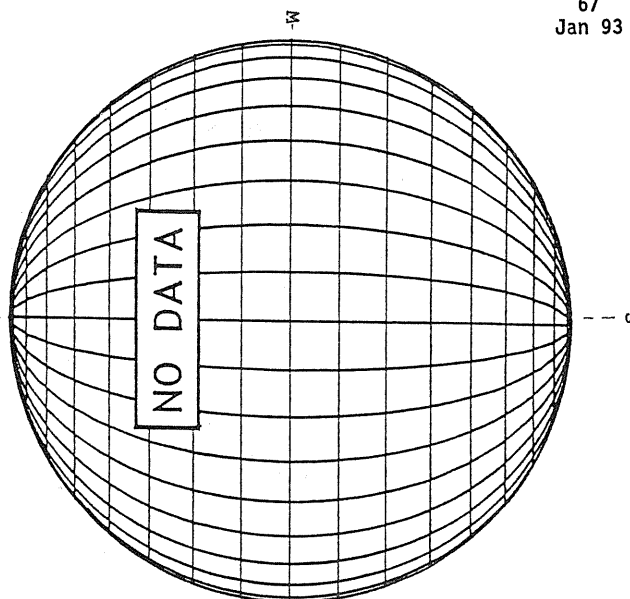
1720 UT

BOULDER SUNSPOT



1635 UT  
1720 UT BOUL FROM

SACRAMENTO PEAK CORONA (1.15 Radii)



JANUARY 11, 1993 ( P = -2.81, B<sub>0</sub> = -4.15, L<sub>0</sub> = 132.48 )

KITT PEAK MAGNETOGRAM  
N \*\*5507A\*\*

Bright = +  
Dark = -

STANFORD MAGNETOGRAM

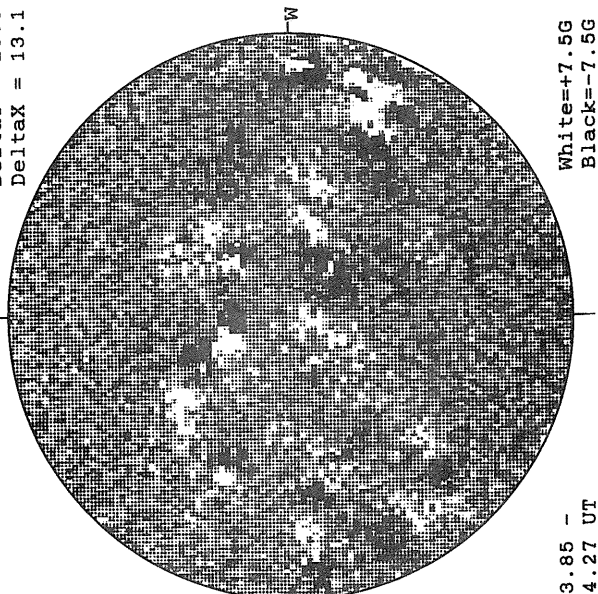
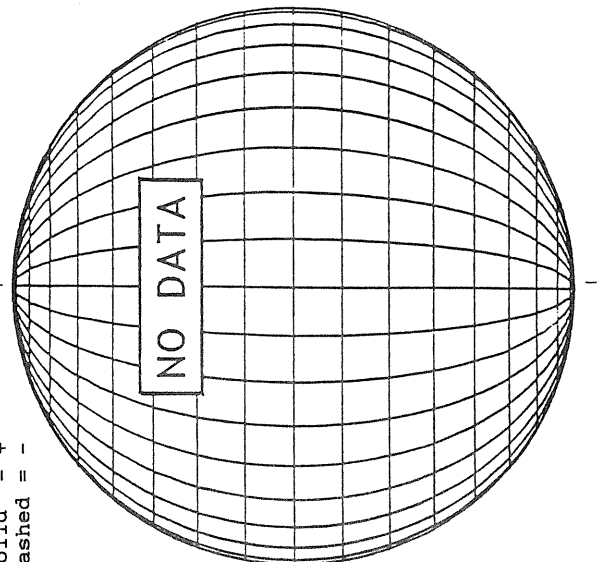
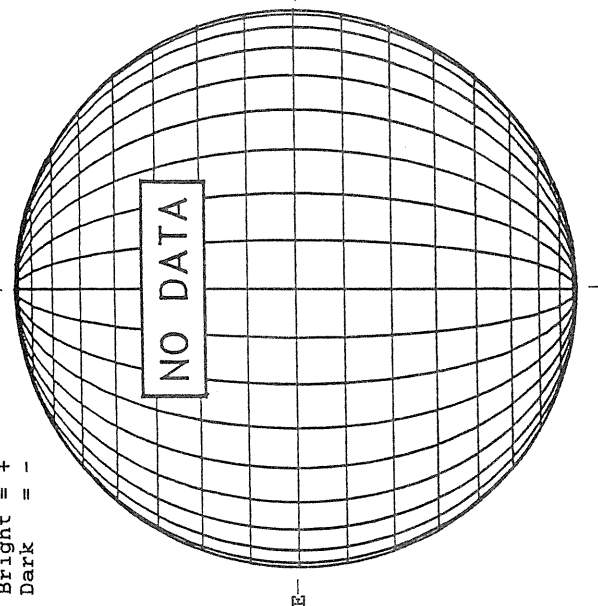
Solid = +  
Dashed = -

MT. WILSON MAGNETOGRAM

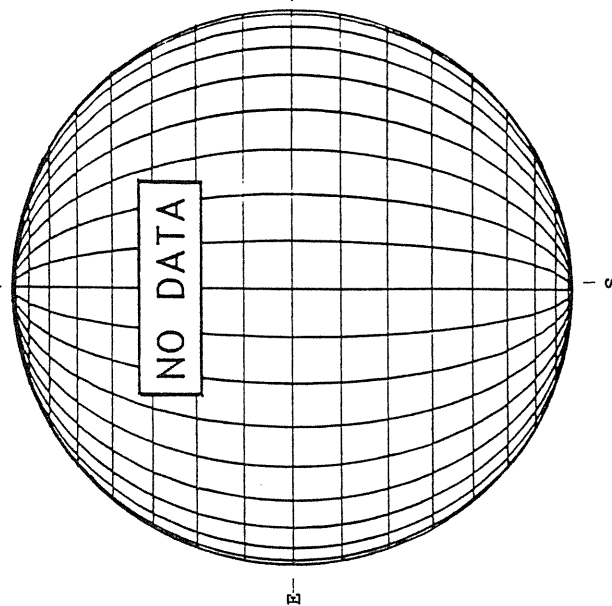
Delta<sub>y</sub> = 20.3  
Delta<sub>x</sub> = 13.1

White = +7.5G  
Black = -7.5G

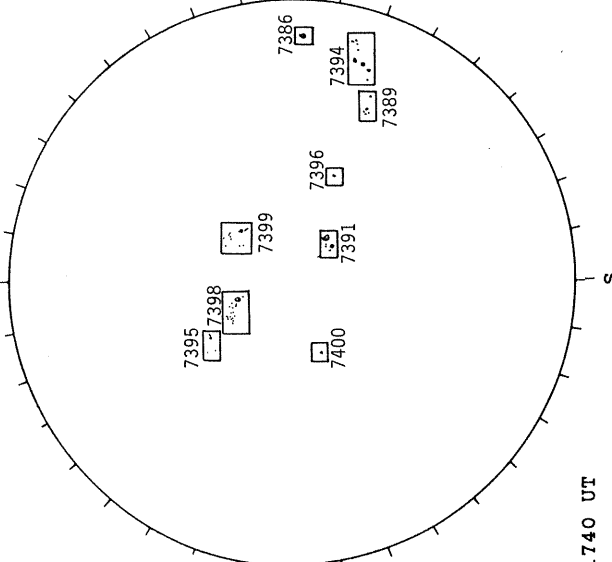
23.85 -  
24.27 UT



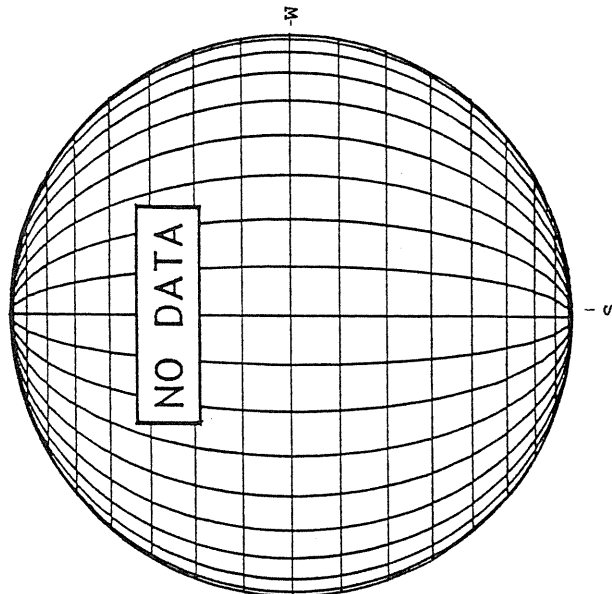
SACRAMENTO PEAK H-ALPHA



HOLLOMAN SUNSPOT



SACRAMENTO PEAK CORONA (1.15 Radii)



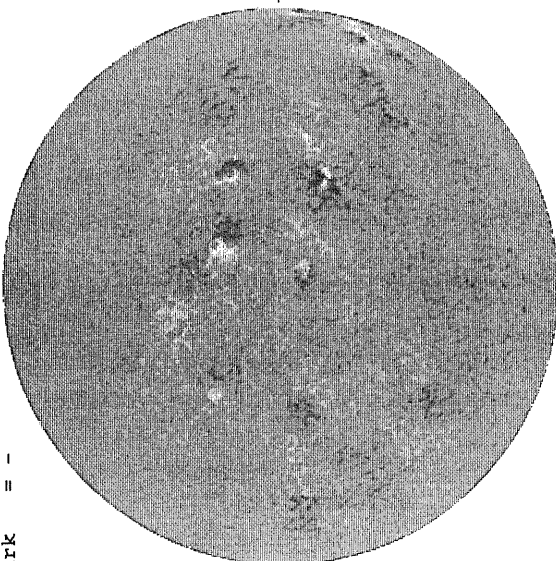
1740 UT

JANUARY 12, 1993 ( P = -3.29, B<sub>O</sub> = -4.26, L<sub>O</sub> = 119.31 )

KITT PEAK MAGNETOGRAM

N \*\*5507A\*\*

Bright = +  
Dark = -

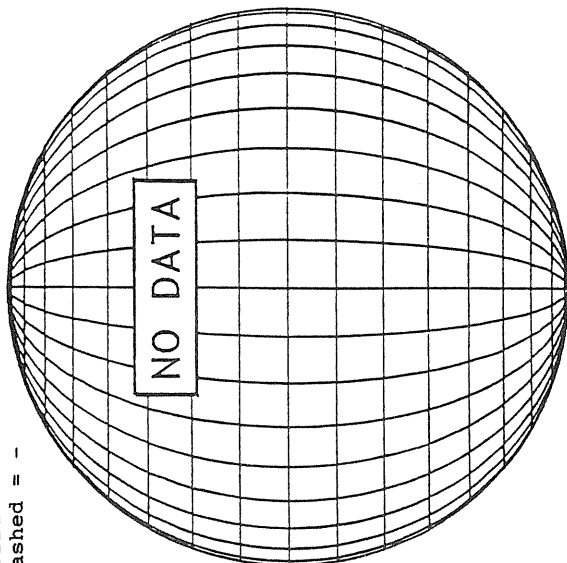


2008 UT

STANFORD MAGNETOGRAM

N

Solid = +  
Dashed = -

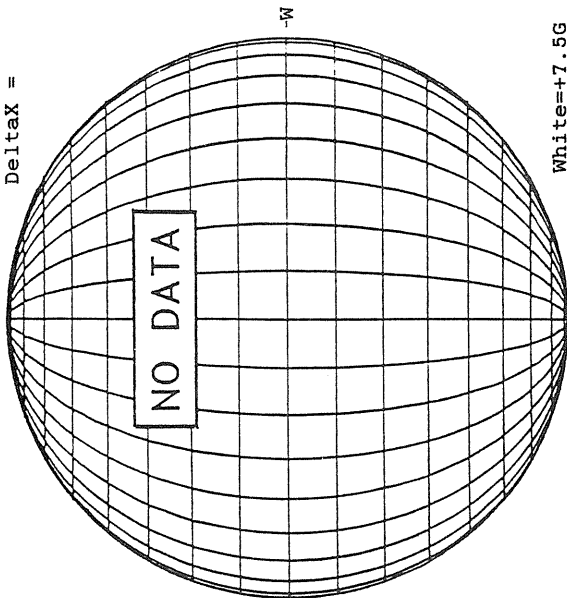


NO DATA

MT. WILSON MAGNETOGRAM

N

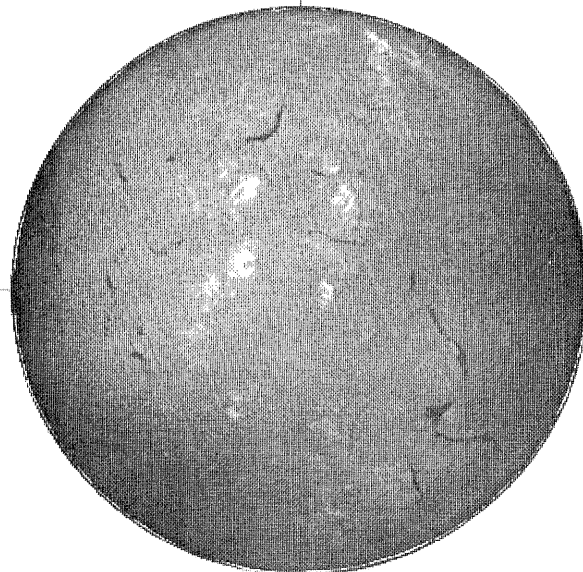
DeltaY =  
DeltaX =



NO DATA

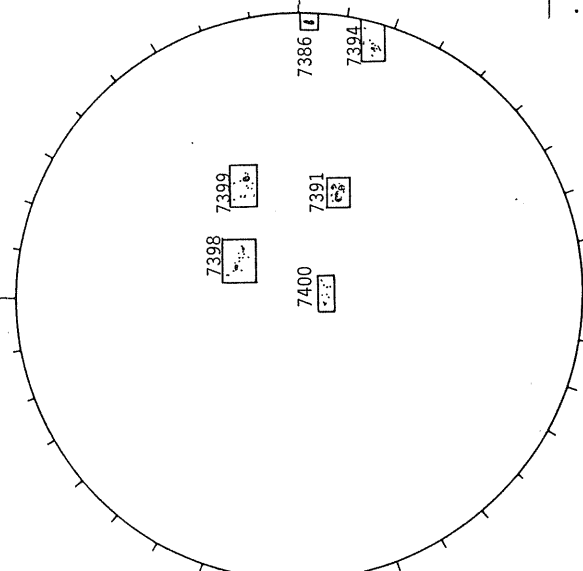
White = +7.5G  
Black = -7.5G

SACRAMENTO PEAK H-ALPHA



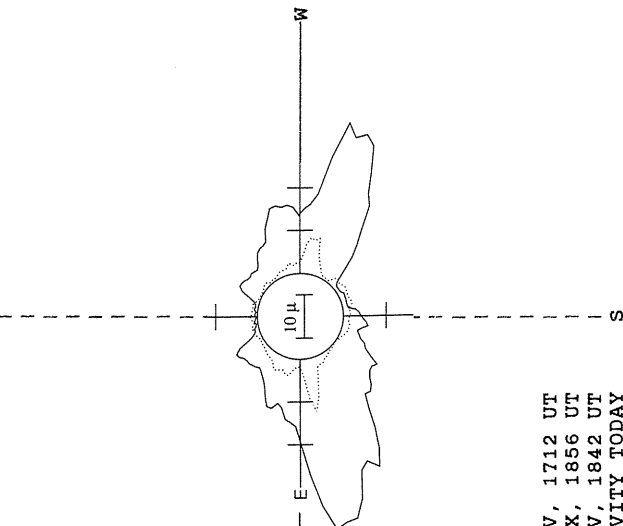
1549 UT

HOLLOMAN SUNSPOT



1723 UT

SACRAMENTO PEAK CORONA (1.15 Radii)



— Fe XIV, 1712 UT  
.... Fe X, 1856 UT  
xxxx Ca XV, 1842 UT  
NO CA XV ACTIVITY TODAY

JANUARY 13, 1993 ( P= -3.76, B<sub>0</sub> =-4.36, L<sub>0</sub> = 106.14 )

KITT PEAK MAGNETOGRAM  
\*\*5507A\*\*

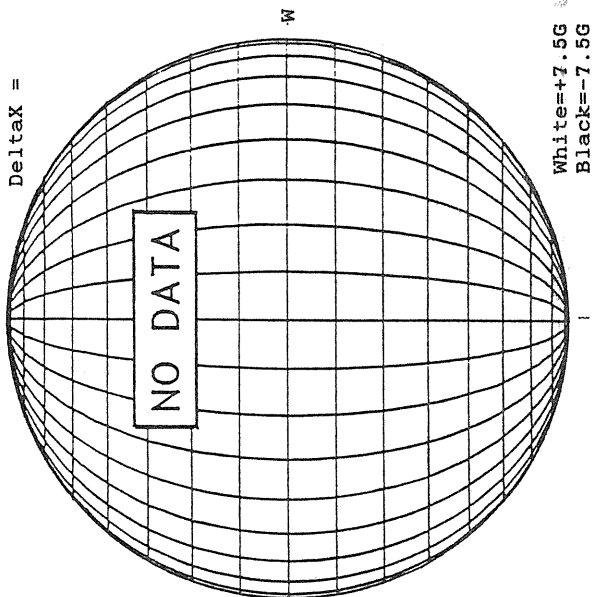
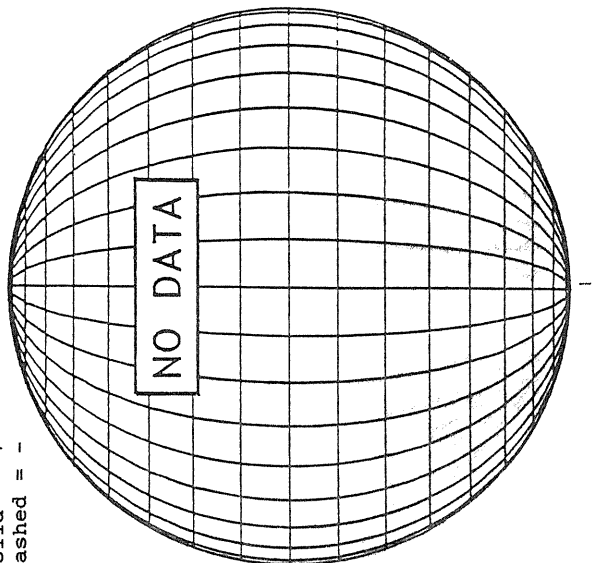
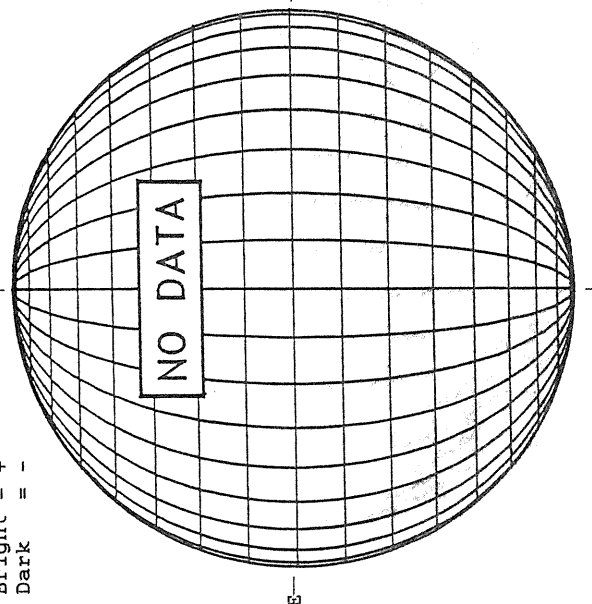
Bright = +  
Dark = -

STANFORD MAGNETOGRAM

Solid = +  
Dashed = -

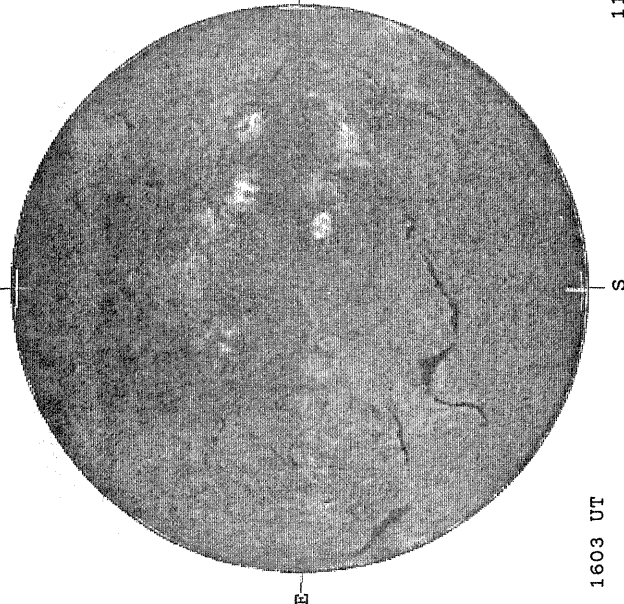
MT. WILSON MAGNETOGRAM

DeltaY =  
DeltaX =



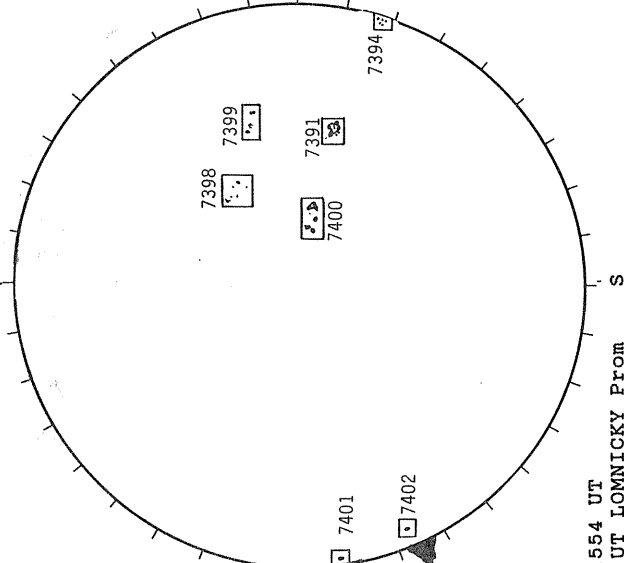
White=+7.5G  
Black=-7.5G

BOULDER H-ALPHA



1603 UT

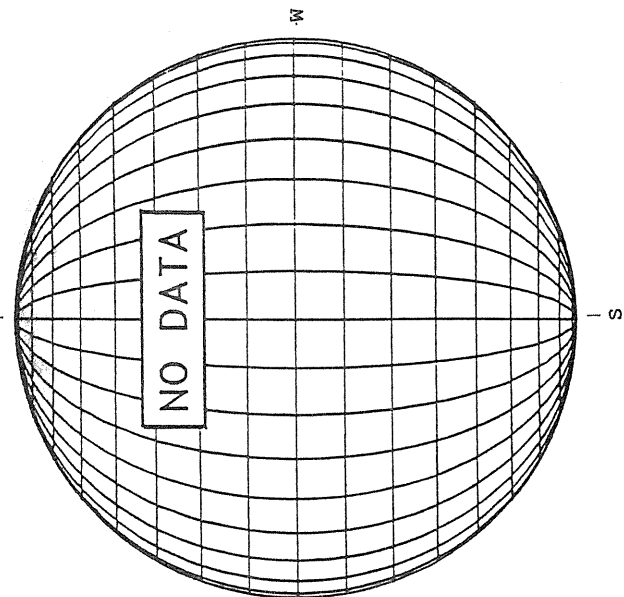
BOULDER SUNSPOT



1554 UT

1150 UT LOWNICKY Prom

SACRAMENTO PEAK CORONA (1.15 Radii)

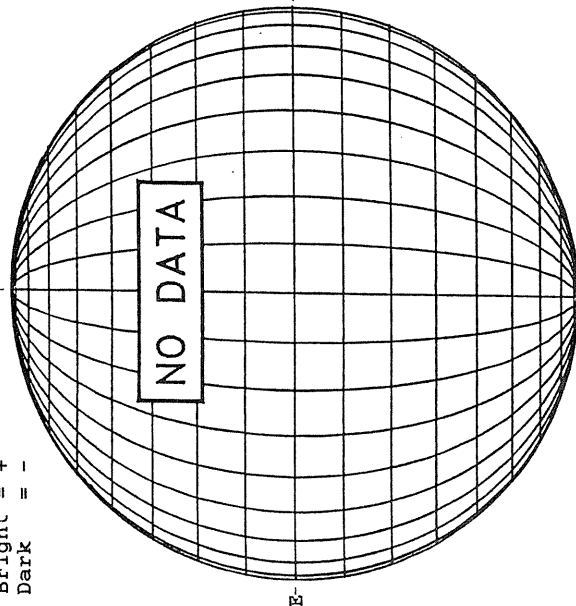




JANUARY 14, 1993 ( P= -4.24, B<sub>O</sub> =-4.46, L<sub>O</sub> = 92.98 )

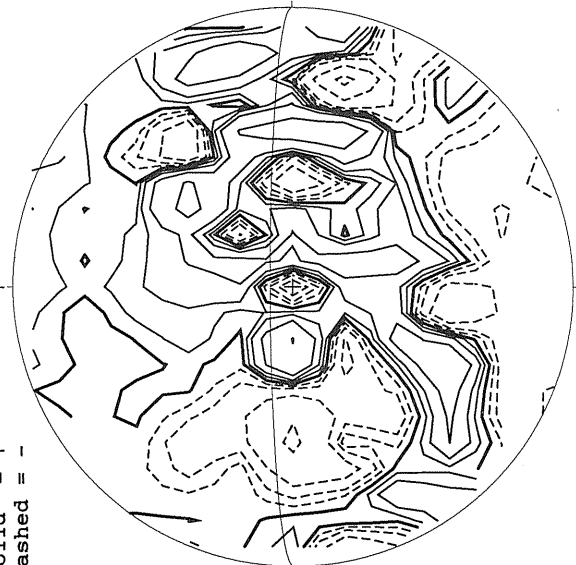
KITT PEAK MAGNETOGRAM  
\*\*5507A\*\*

Bright = +  
Dark = -



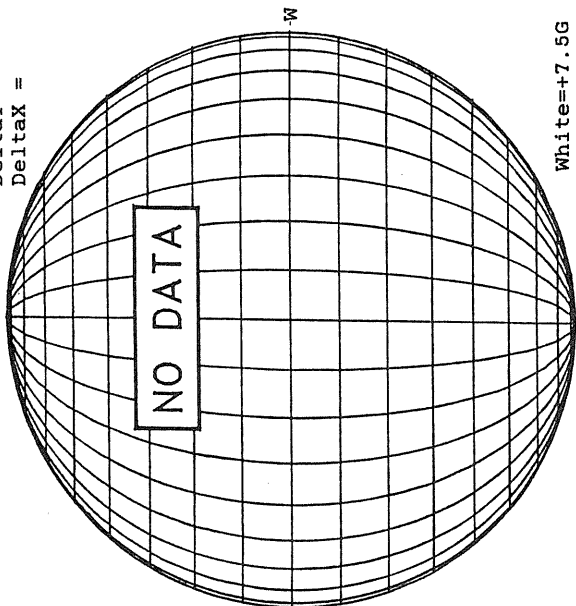
STANFORD MAGNETOGRAM

Solid = +  
Dashed = -



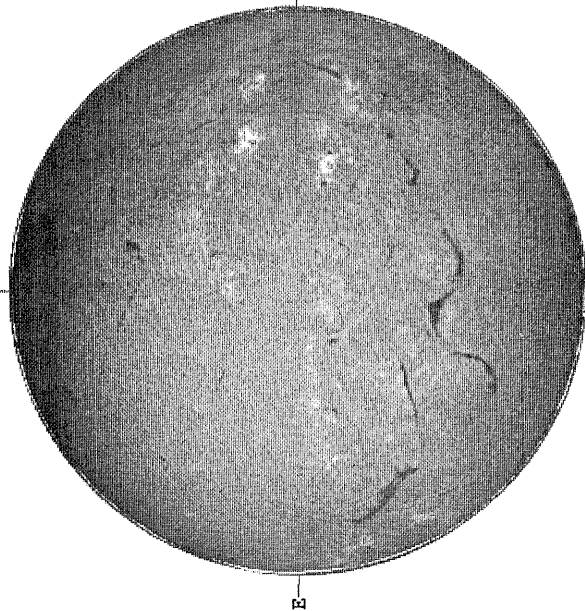
MT. WILSON MAGNETOGRAM

Delta Y =  
Delta X =



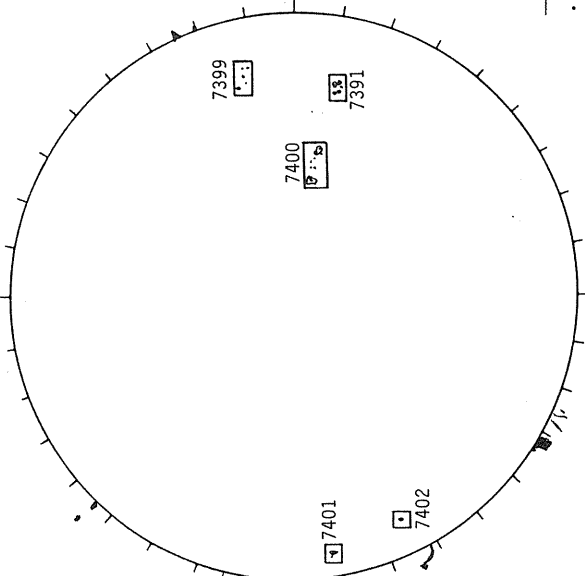
White=+7.5G  
Black=-7.5G

SACRAMENTO PEAK H-ALPHA



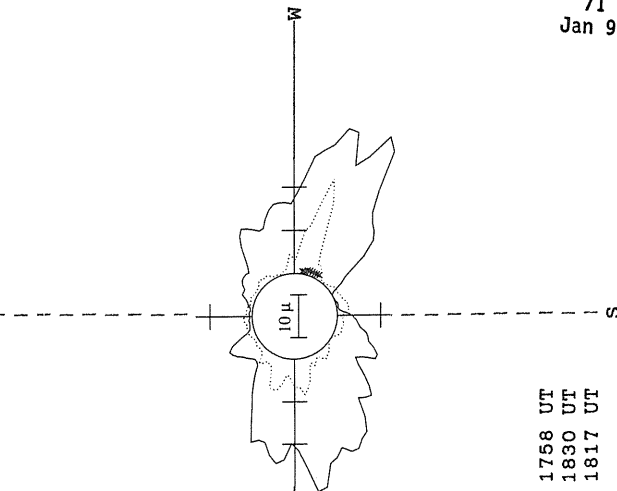
1556 UT

BOULDER SUNSPOT



1637 UT  
1628 UT BOUL Prom

SACRAMENTO PEAK CORONA (1.15 Radii)

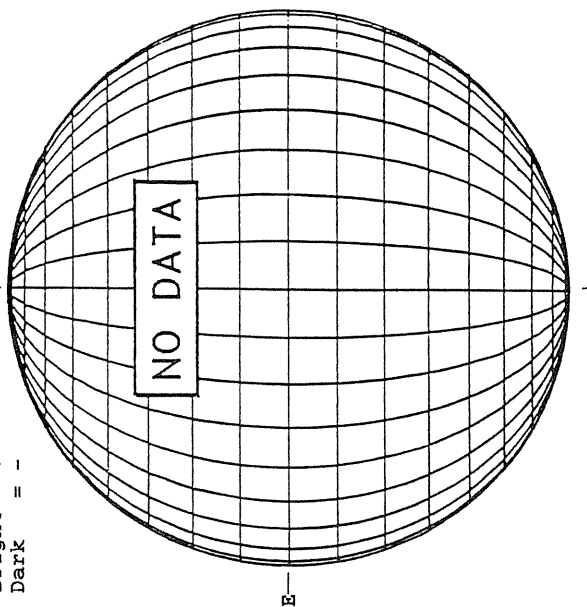


— Fe XIV, 1758 UT  
.... Fe X, 1830 UT  
xxxx Ca XV, 1817 UT

JANUARY 15, 1993 ( P= -4.71, B<sub>O</sub> = -4.56, L<sub>O</sub> = 79.81 )

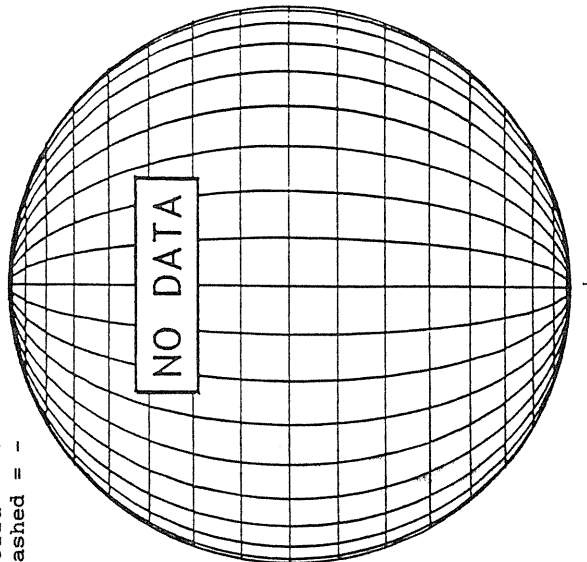
KITT PEAK MAGNETOGRAM  
N \*\*5507A\*\*

Bright = +  
Dark = -



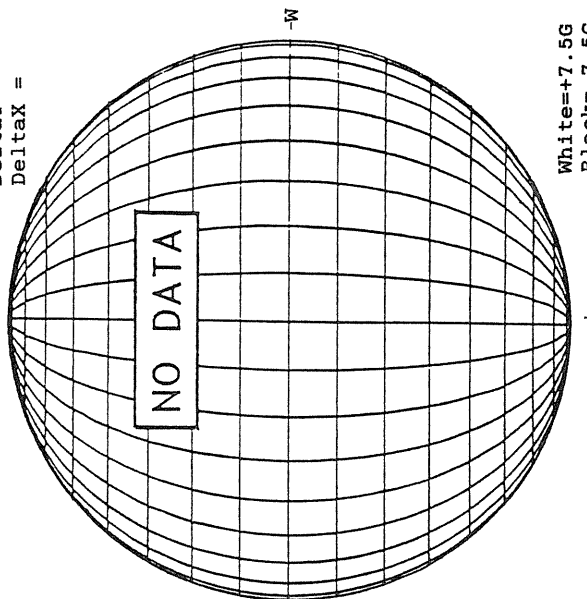
STANFORD MAGNETOGRAM  
N

Solid = +  
Dashed = -



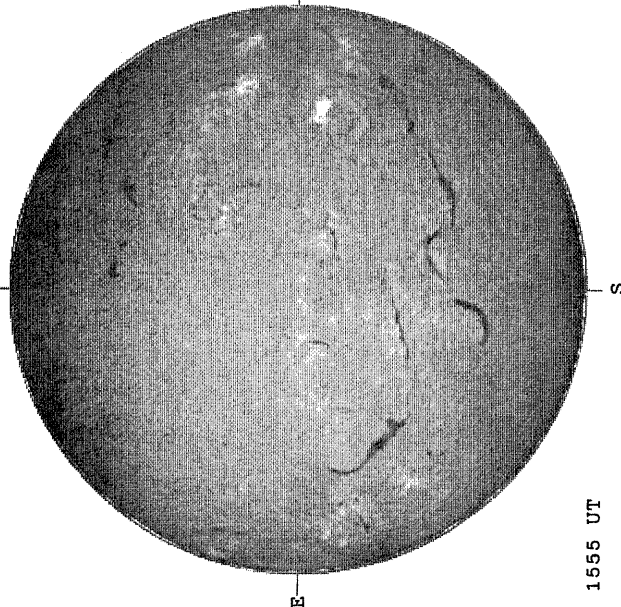
MT. WILSON MAGNETOGRAM  
N

DeltaY =  
DeltaX =



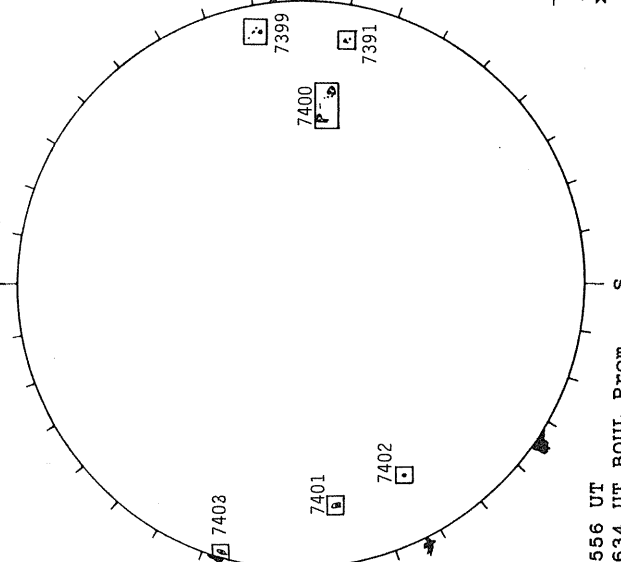
White=+7.5G  
Black=-7.5G

SACRAMENTO PEAK H-ALPHA



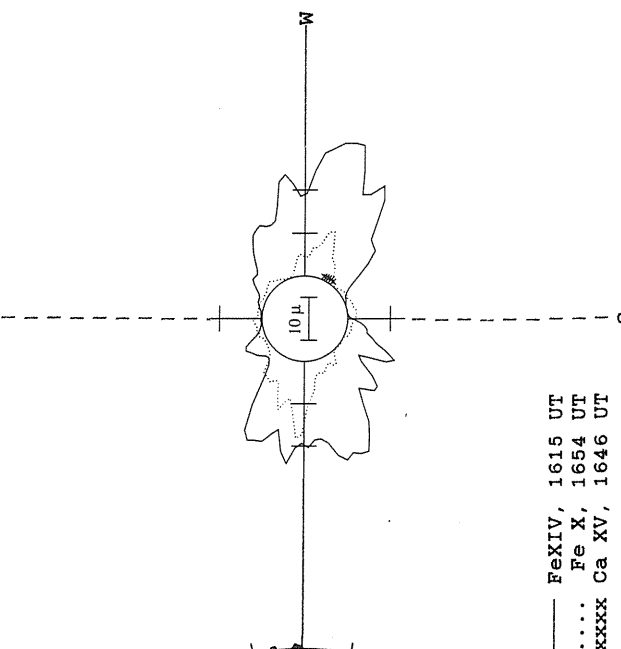
1555 UT

BOULDER SUNSPOT



1556 UT  
1634 UT BOUL Prom

SACRAMENTO PEAK CORONA (1.15 Radii)



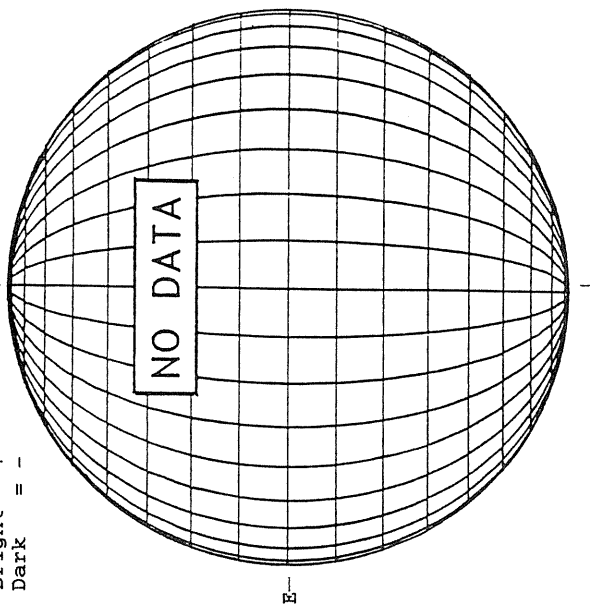
— FeXIV, 1615 UT  
.... Fe X, 1654 UT  
xxxx Ca XV, 1646 UT



JANUARY 16, 1993 ( P= -5.17, B<sub>0</sub> =-4.66, L<sub>0</sub> = 66.64 )

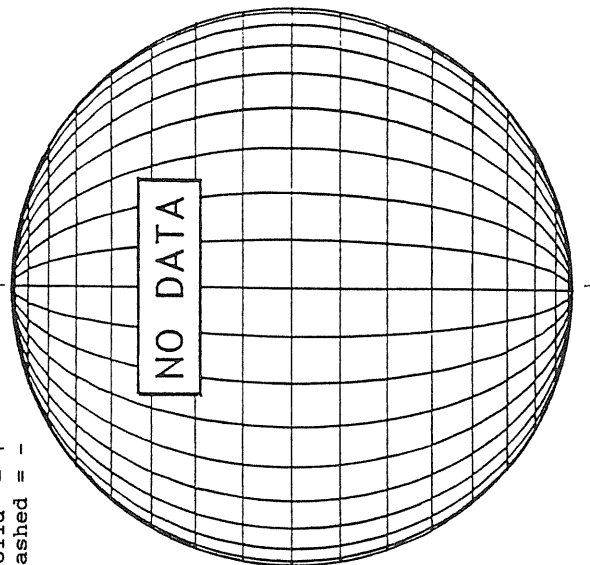
KITT PEAK MAGNETOGRAM  
N \*\*5507A\*\*

Bright = +  
Dark = -



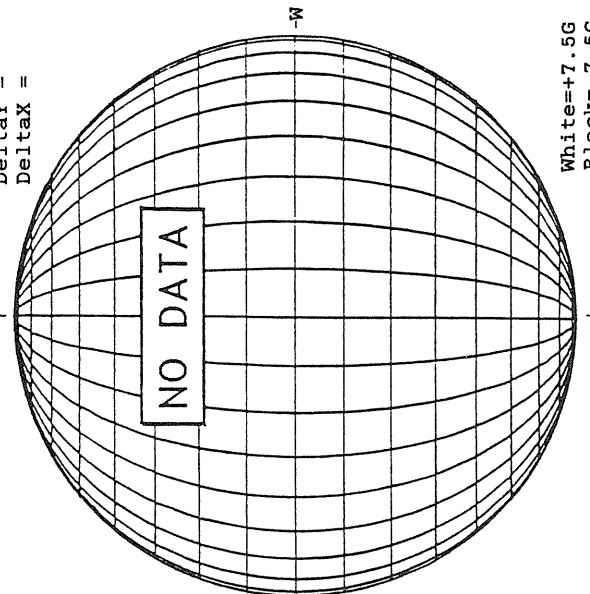
STANFORD MAGNETOGRAM

Solid = +  
Dashed = -



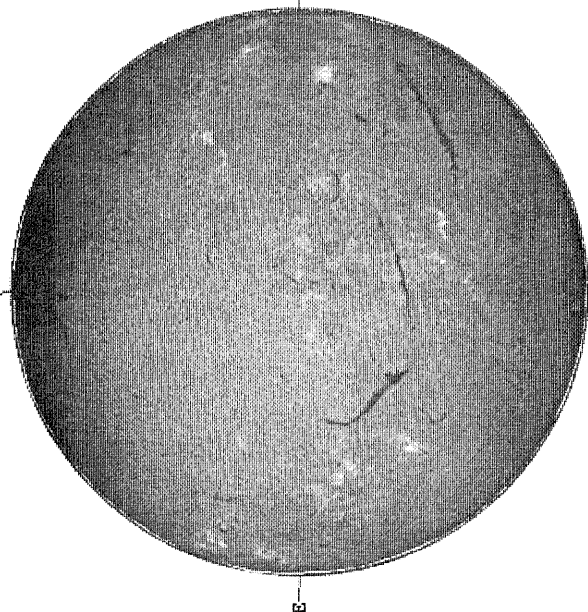
MT. WILSON MAGNETOGRAM

Delta y =  
Delta x =



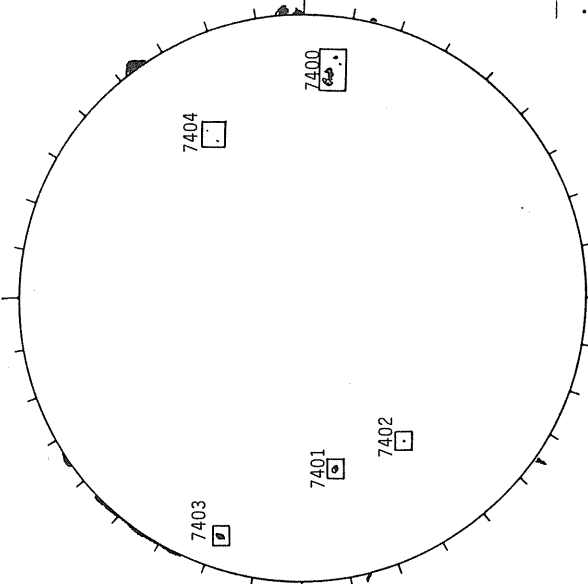
White=+7.5G  
Black=-7.5G

SACRAMENTO PEAK H-ALPHA



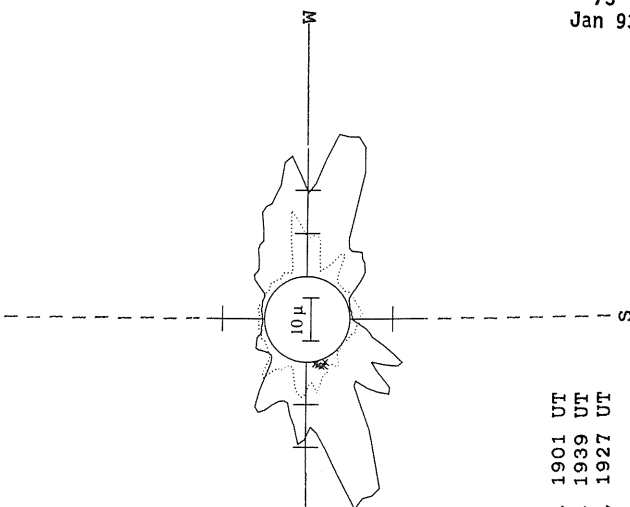
1549 UT

BOULDER SUNSPOT



1649 UT  
1642 UT BOUL Prom

SACRAMENTO PEAK CORONA (1.15 Radii)

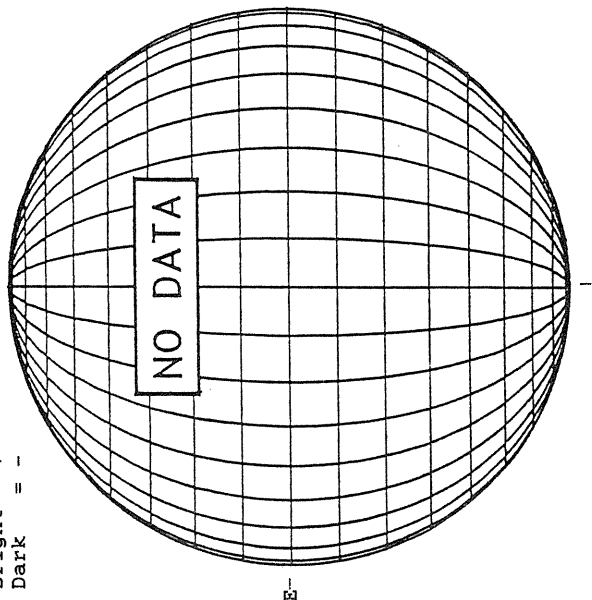


— FeXIV, 1901 UT  
... Fe X, 1939 UT  
xxxx Ca XV, 1927 UT

JANUARY 17, 1993 ( P= -5.64, B<sub>0</sub> =-4.76, L<sub>0</sub> = 53.47 )

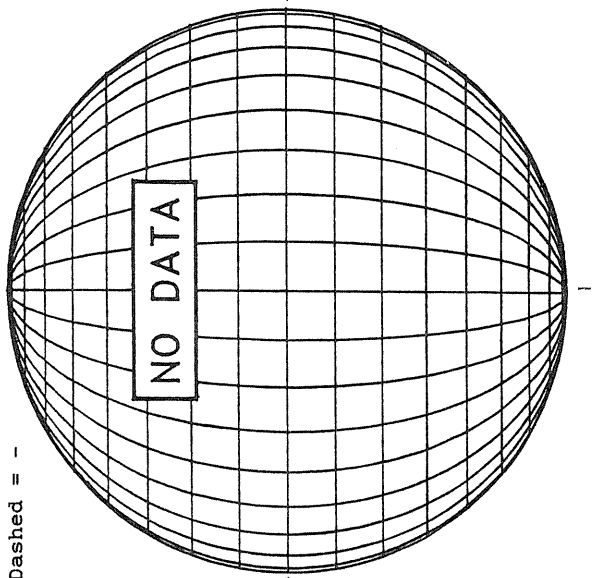
KITT PEAK MAGNETOGRAM  
\*\*5507A\*\*

Bright = +  
Dark = -



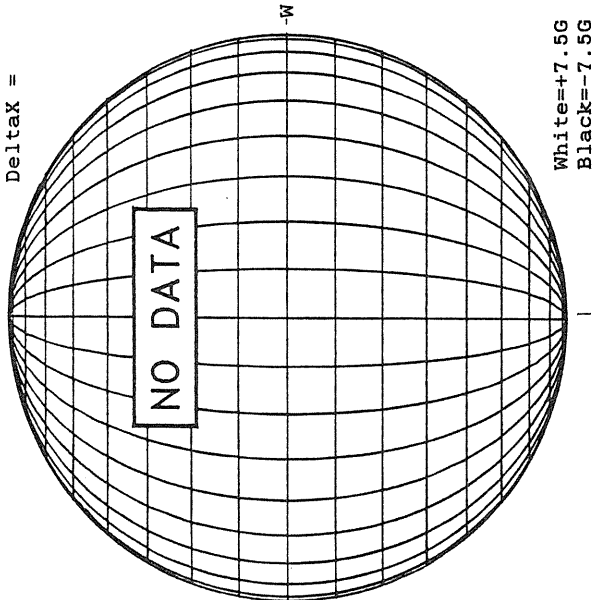
STANFORD MAGNETOGRAM

Solid = +  
Dashed = -



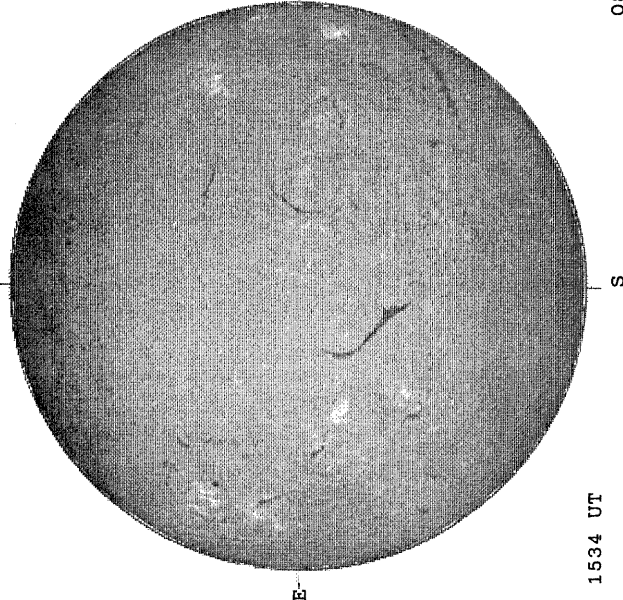
MT. WILSON MAGNETOGRAM

DeltaY =  
DeltaX =



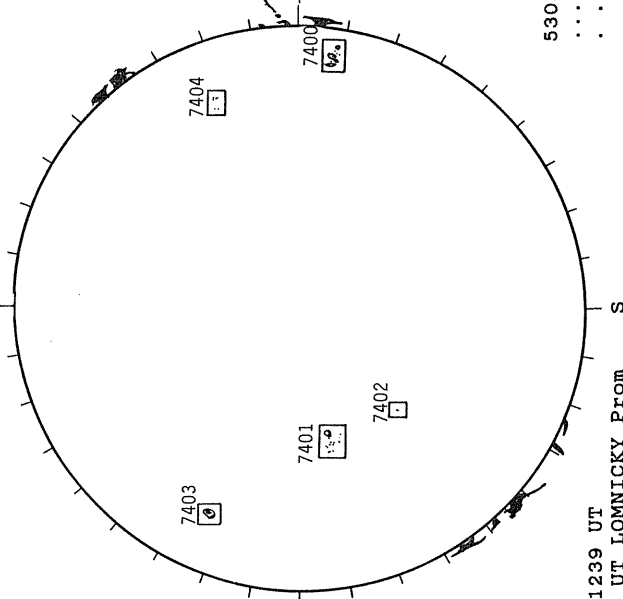
White=+7.5G  
Black=-7.5G

SACRAMENTO PEAK H-ALPHA



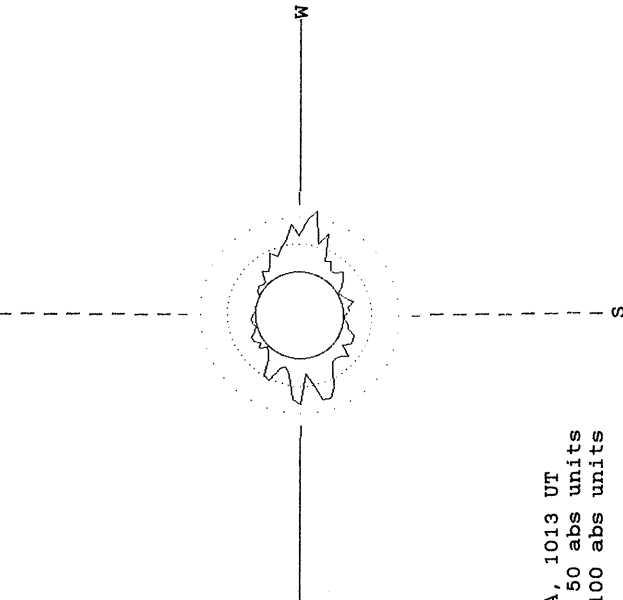
1534 UT

RAMEY SUNSPOT



1239 UT  
0854 UT LOMNICKY Prom

LOMNICKY STIT CORONA (1.15 Radii)

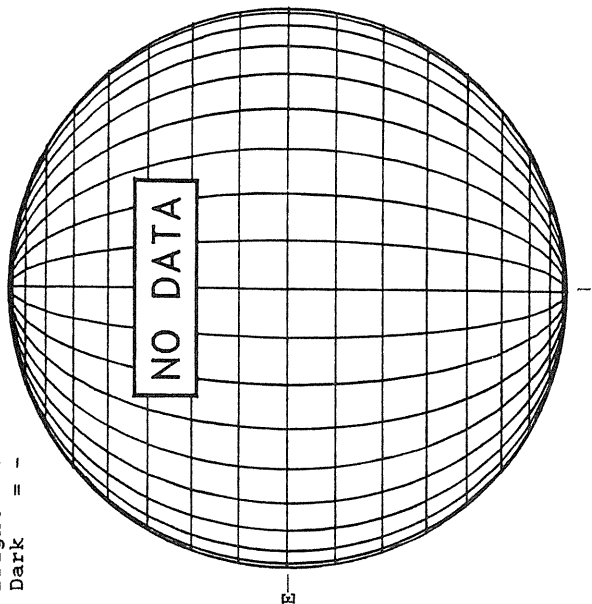


5303A, 1013 UT  
... 50 abs units  
... 100 abs units

JANUARY 18, 1993 ( P= -6.10, B<sub>0</sub> =-4.85, L<sub>0</sub> = 40.31 )

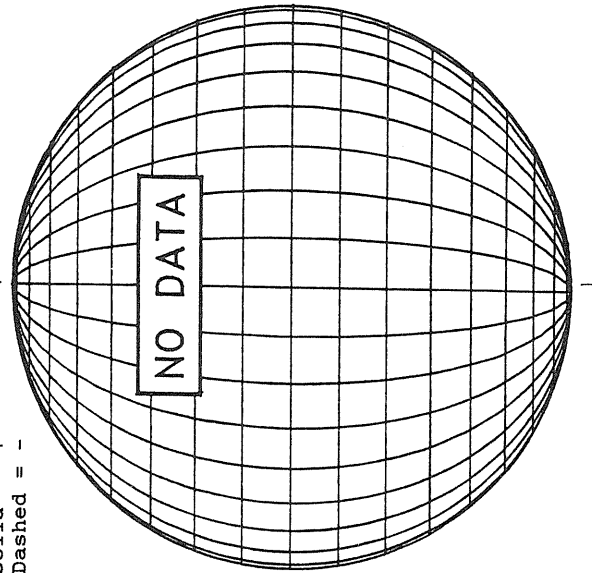
KITT PEAK MAGNETOGRAM  
N \*\*5507A\*\*

Bright = +  
Dark = -



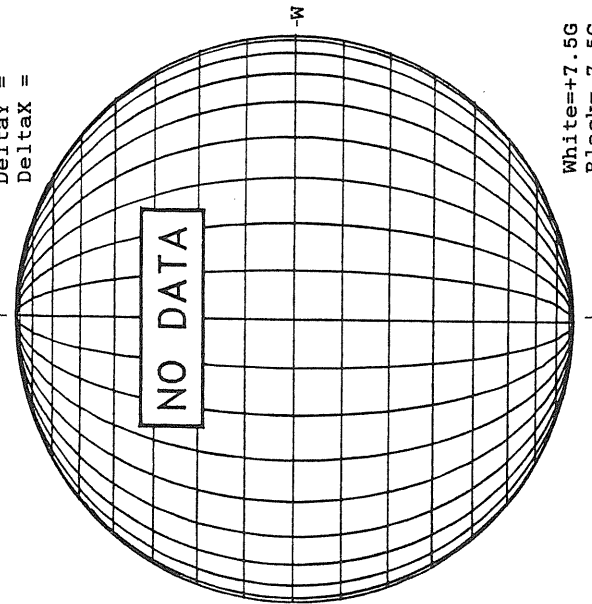
STANFORD MAGNETOGRAM  
N

Solid = +  
Dashed = -



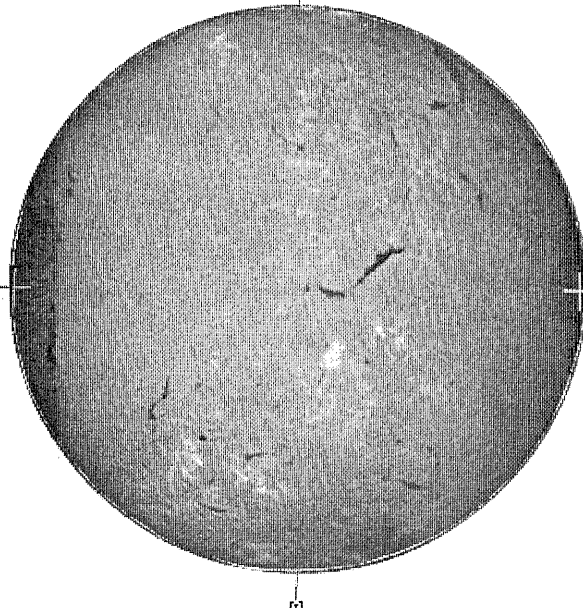
MT. WILSON MAGNETOGRAM  
N

Delta y =  
Delta x =



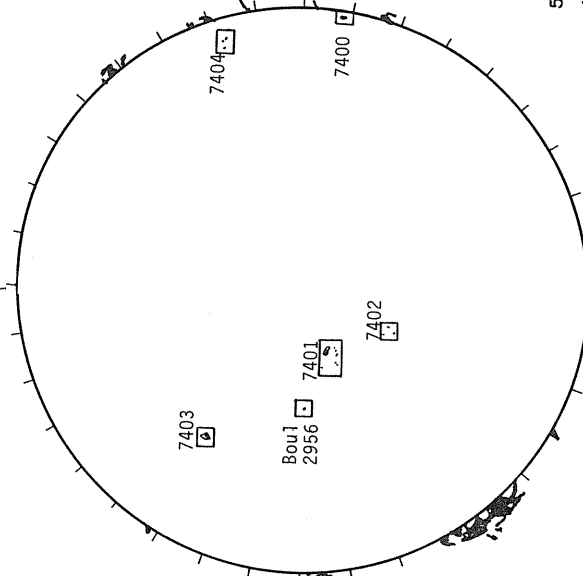
White=+7.5G  
Black=-7.5G

BOULDER H-ALPHA



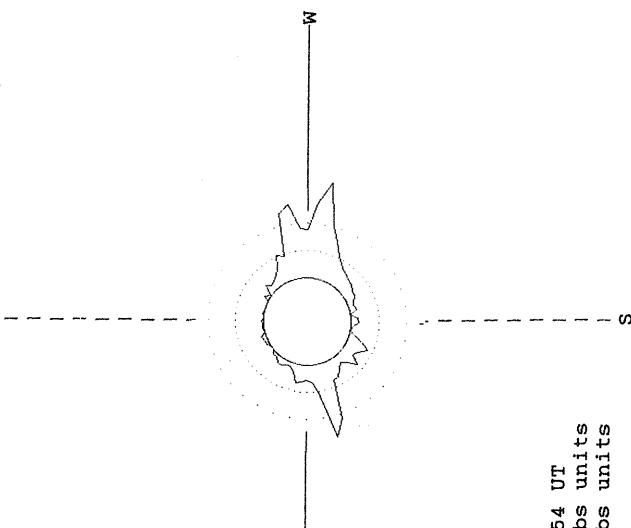
1540 UT

BOULDER SUNSPOT



1548 UT  
0840 UT LOMNICKY Prom

LOMNICKY STIT CORONA (1.15 Radii)

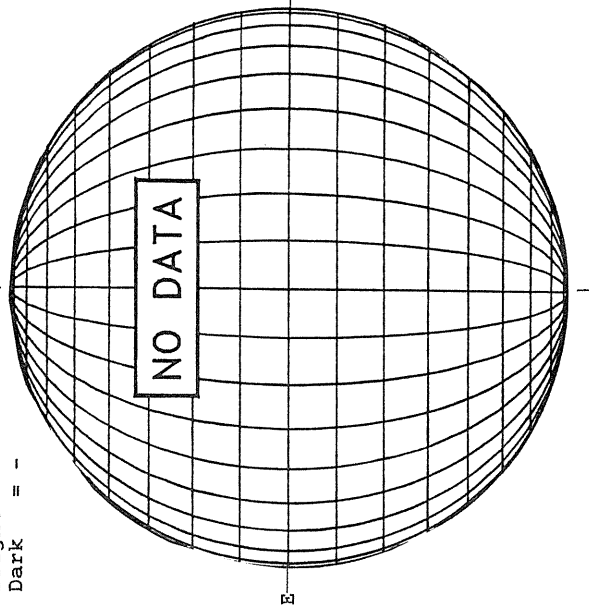


5303A, 0854 UT  
... 50 abs units  
... 100 abs units

JANUARY 19, 1993 ( P = -6.56, B<sub>0</sub> = -4.95, L<sub>0</sub> = 27.14 )

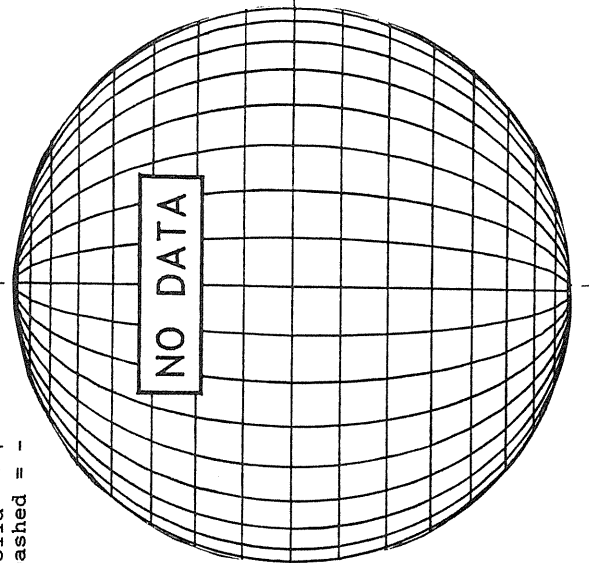
KITT PEAK MAGNETOGRAM  
N \*\*5507A\*\*

Bright = +  
Dark = -



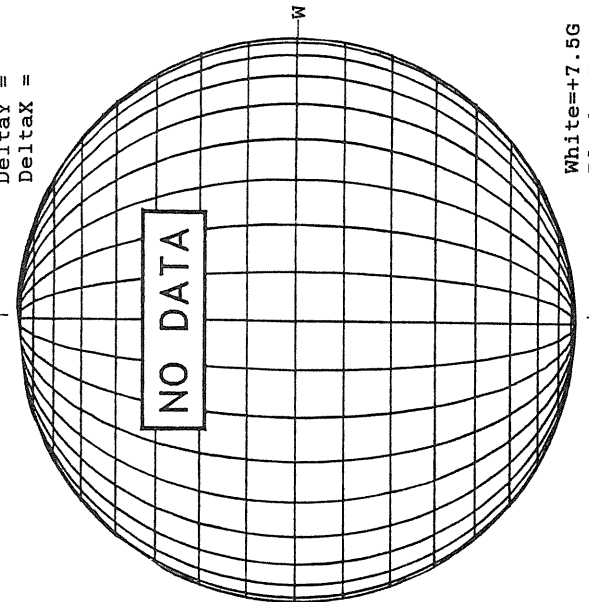
STANFORD MAGNETOGRAM  
N

Solid = +  
Dashed = -



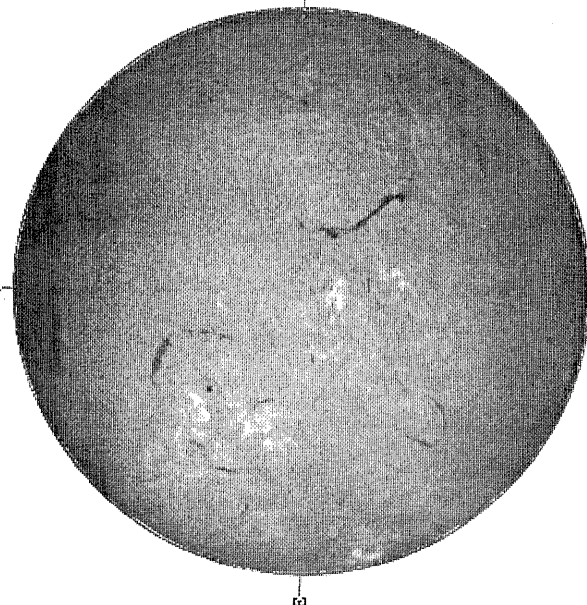
MT. WILSON MAGNETOGRAM  
N

DeltaY =  
DeltaX =



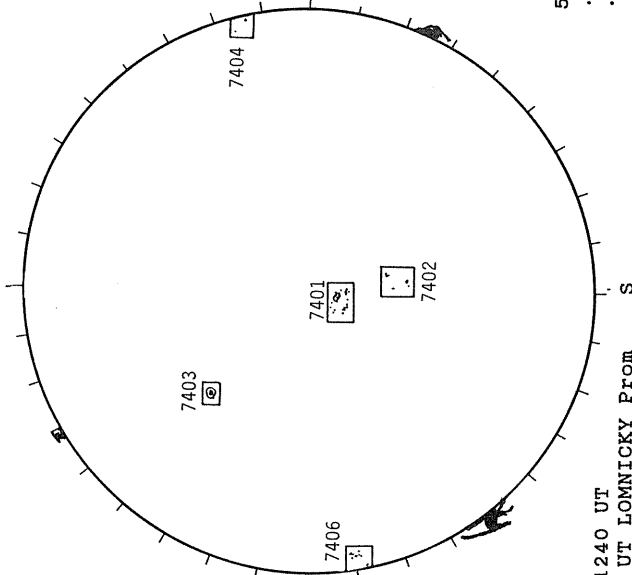
White = +7.5G  
Black = -7.5G

SACRAMENTO PEAK H-ALPHA



1621 UT

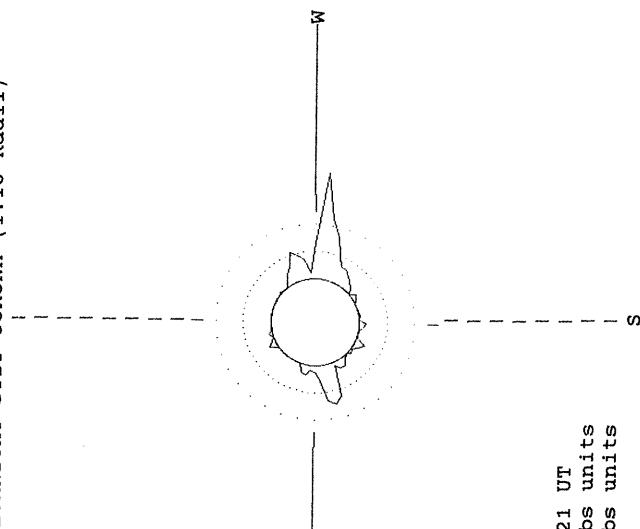
RAMEY SUNSPOT



1240 UT

0859 UT LOMNICKY FROM

LOMNICKY STIT CORONA (1.15 Radii)

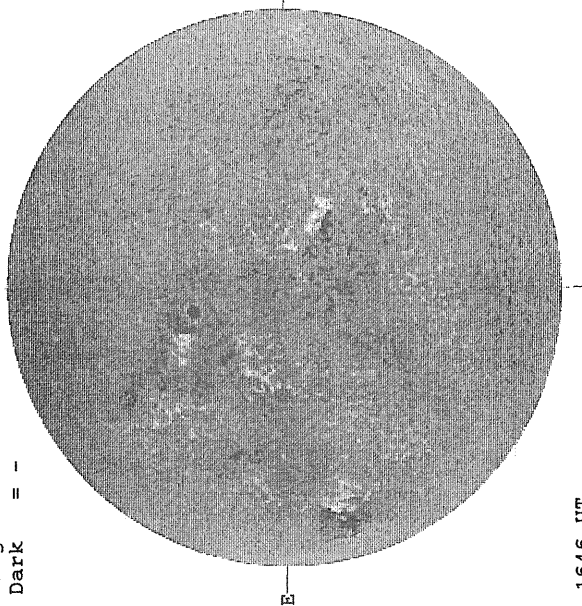


5303A, 0921 UT  
... 50 abs units  
... 100 abs units

JANUARY 20, 1993 ( P = -7.02, B<sub>0</sub> = -5.04, L<sub>0</sub> = 13.97 )

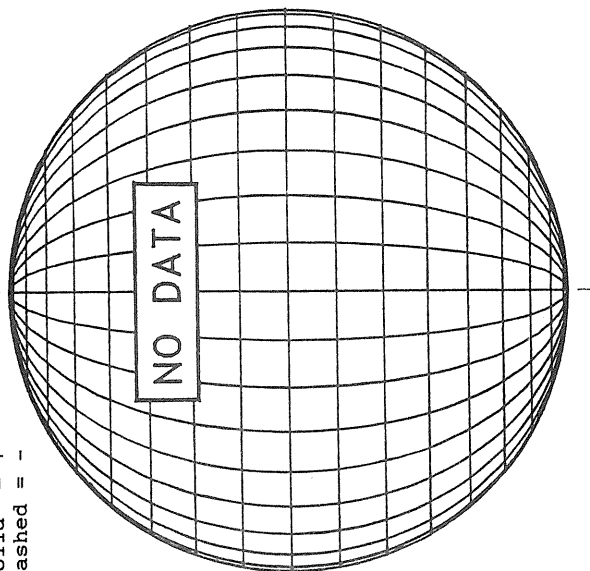
KITT PEAK MAGNETOGRAM  
N

Bright = +  
Dark = -



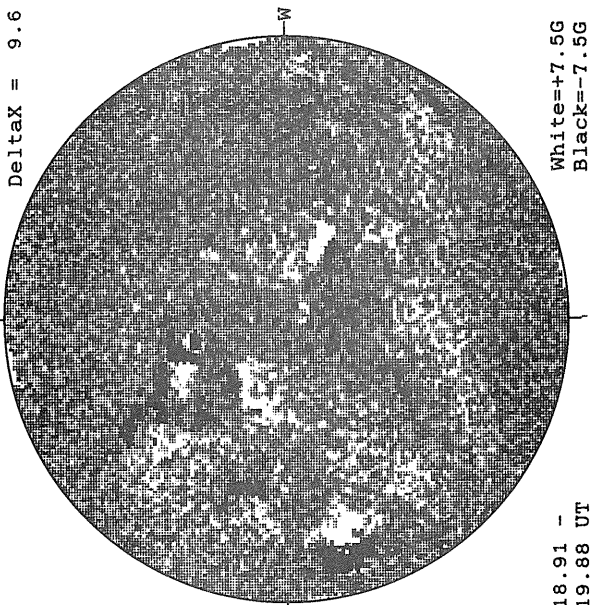
STANFORD MAGNETOGRAM  
N

Solid = +  
Dashed = -



MT. WILSON MAGNETOGRAM  
N

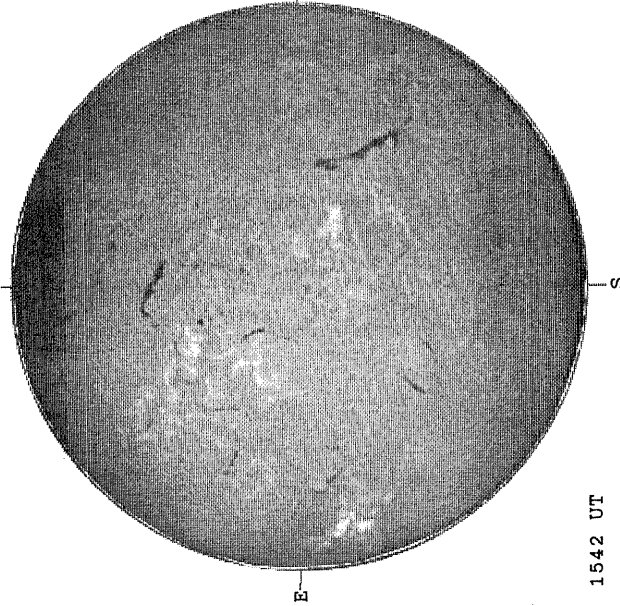
DeltaY = 13.0  
DeltaX = 9.6



18.91 -  
19.88 UT

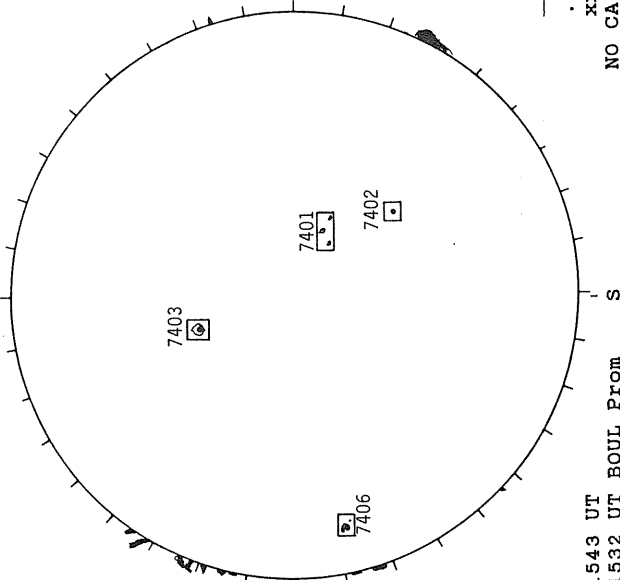
White = +7.5G  
Black = -7.5G

SACRAMENTO PEAK H-ALPHA



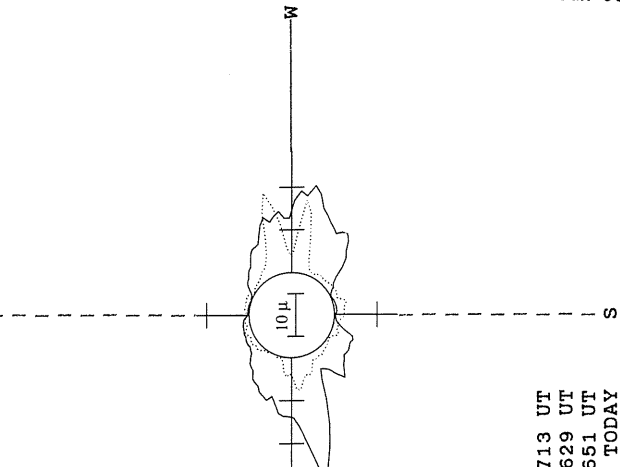
1542 UT

BOULDER SUNSPOT



1543 UT  
1532 UT BOUL Prom

SACRAMENTO PEAK CORONA (1.15 Radii)



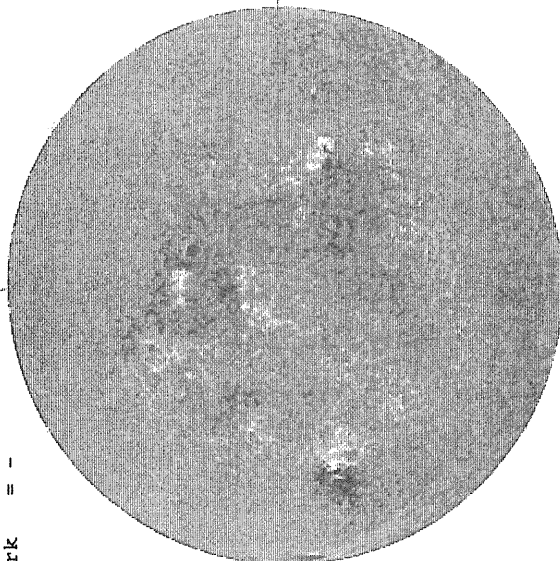
— Fe XIV, 1713 UT  
.... Fe X, 1629 UT  
xxxx Ca XV, 1651 UT  
NO CA XV ACTIVITY TODAY

JANUARY 21, 1993 ( P= -7.47, B<sub>0</sub> =-5.13 L<sub>0</sub> = 0.81 )

KITT PEAK MAGNETOGRAM

\*\*5507A\*\*

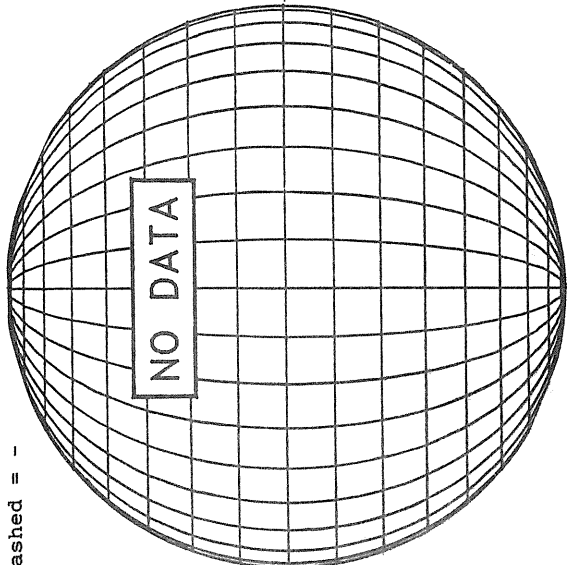
Bright = +  
Dark = -



1635 UT

STANFORD MAGNETOGRAM

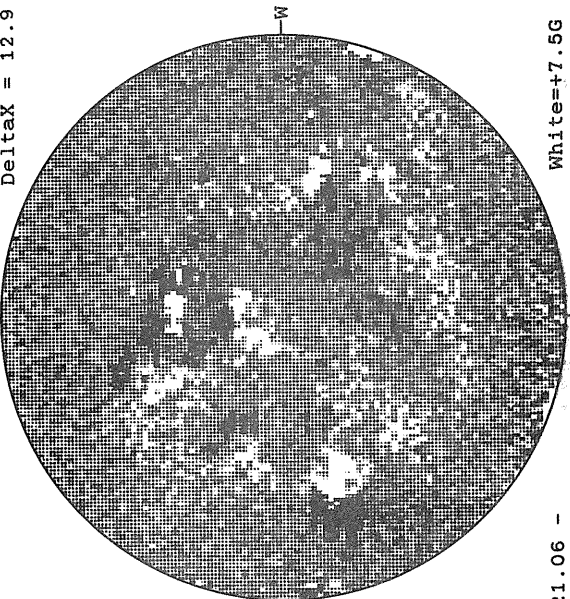
Solid = +  
Dashed = -



21.06 -  
21.49 UT

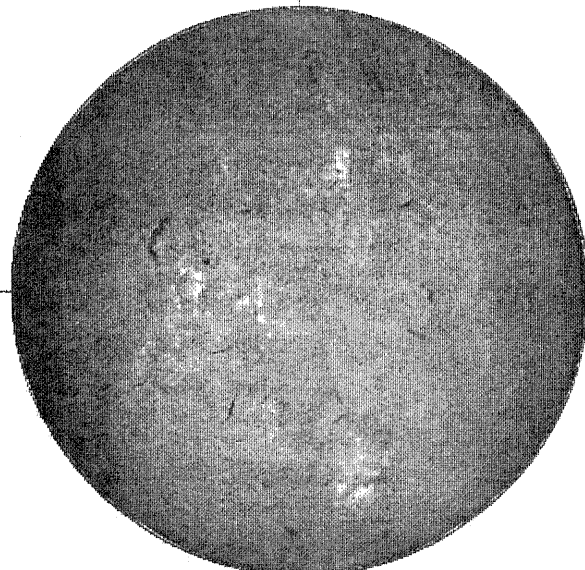
MT. WILSON MAGNETOGRAM

Delta<sub>Y</sub> = 20.1  
Delta<sub>X</sub> = 12.9



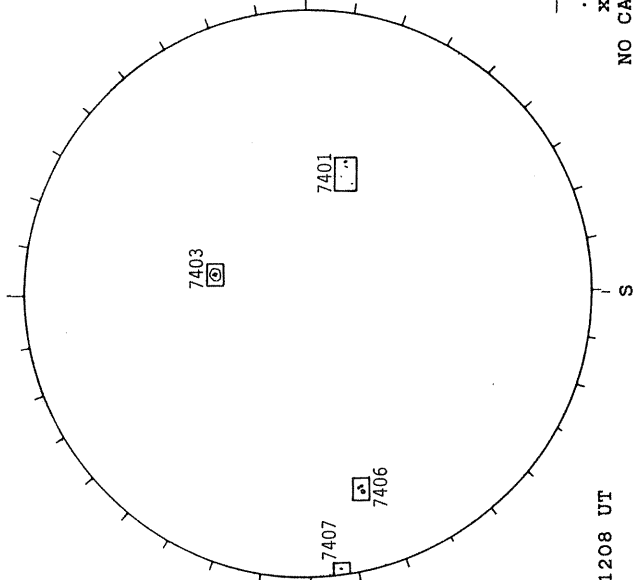
White = +7.5G  
Black = -7.5G

SACRAMENTO PEAK H-ALPHA



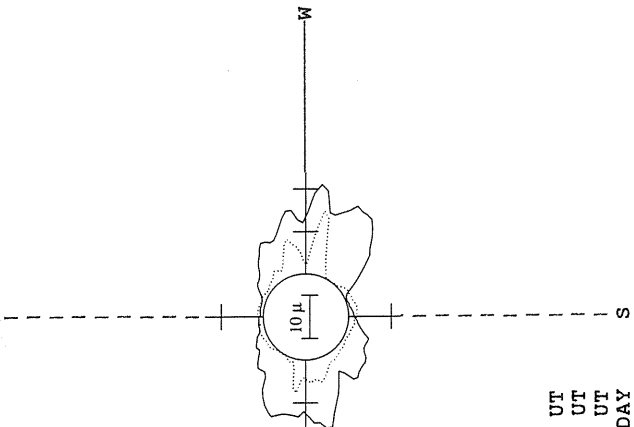
1628 UT

RAMEY SUNSPOT



1208 UT

SACRAMENTO PEAK CORONA (1.15 Radii)



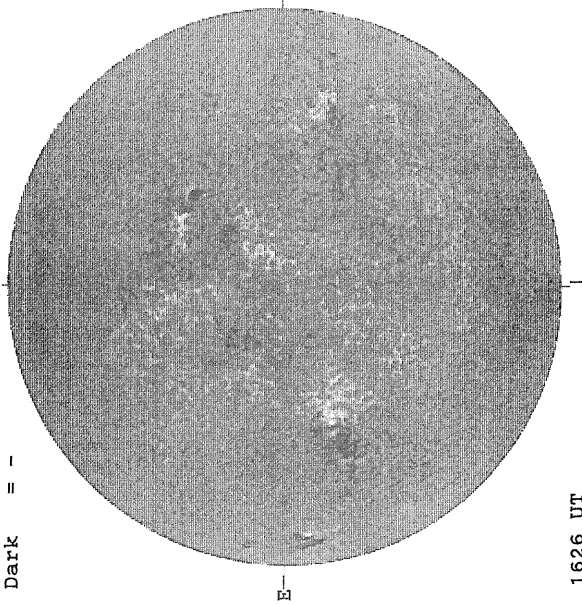
— Fe XIV, 1743 UT  
.... Fe X, 1833 UT  
xxxx Ca XV, 1817 UT  
NO CA XV ACTIVITY TODAY



JANUARY 22, 1993 ( P= -7.92, B<sub>0</sub> =-5.22, L<sub>0</sub> = 347.64 )

KITT PEAK MAGNETOGRAM  
N \*\*5507A\*\*

Bright = +  
Dark = -



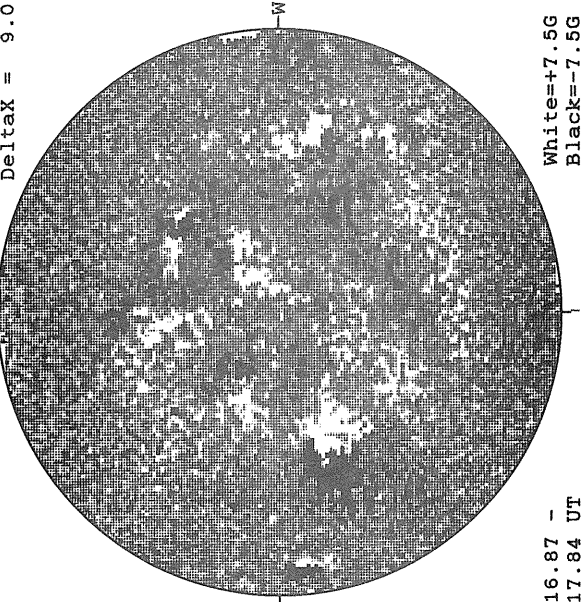
STANFORD MAGNETOGRAM  
N

Solid = +  
Dashed = -



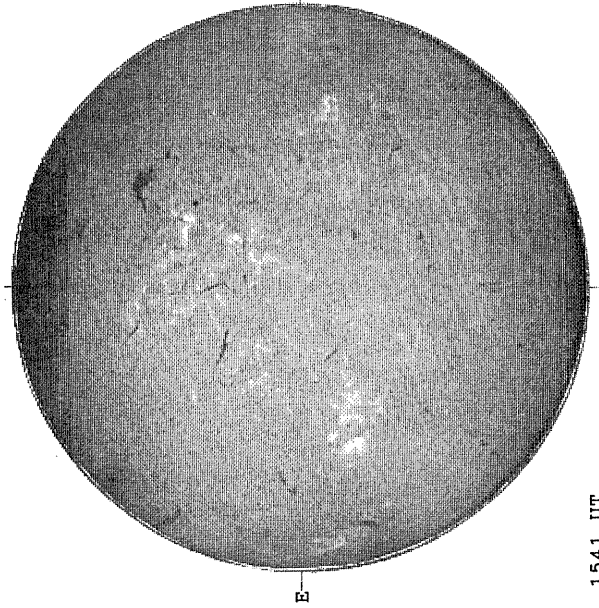
MT. WILSON MAGNETOGRAM  
N

Delta<sub>y</sub> = 13.0  
Delta<sub>x</sub> = 9.0

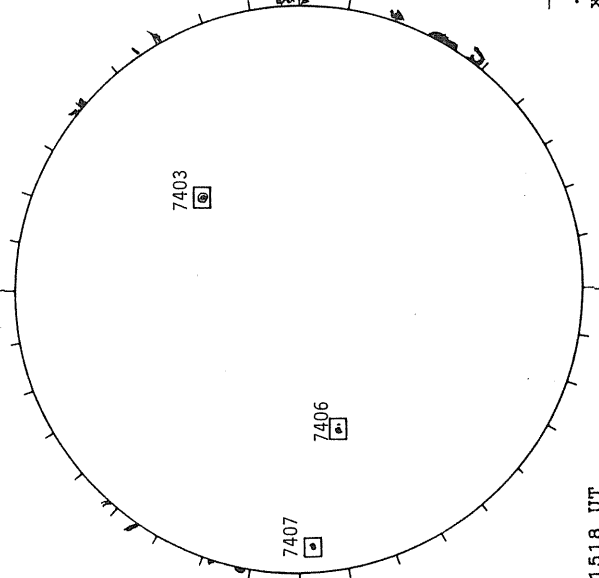


White = +7.5G  
Black = -7.5G

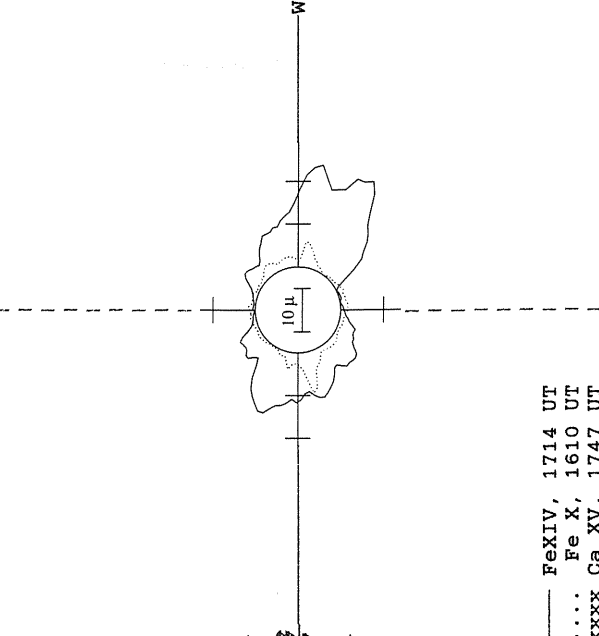
SACRAMENTO PEAK H-ALPHA



BOULDER SUNSPOT



SACRAMENTO PEAK CORONA (1.15 Radii)

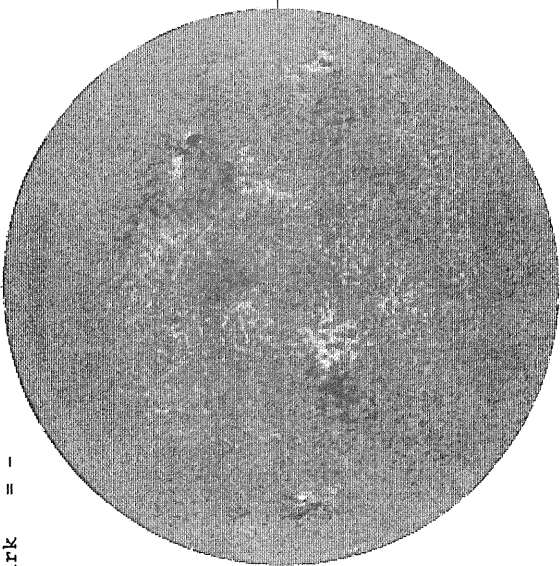


— Fe XIV, 1714 UT  
.... Fe X, 1610 UT  
xxxx Ca XV, 1747 UT  
NO CA XV ACTIVITY TODAY

JANUARY 23, 1993 ( P= -8.37, B<sub>0</sub> =-5.31, L<sub>0</sub> = 334.47 )

KITT PEAK MAGNETOGRAM  
\*\*5507A\*\*

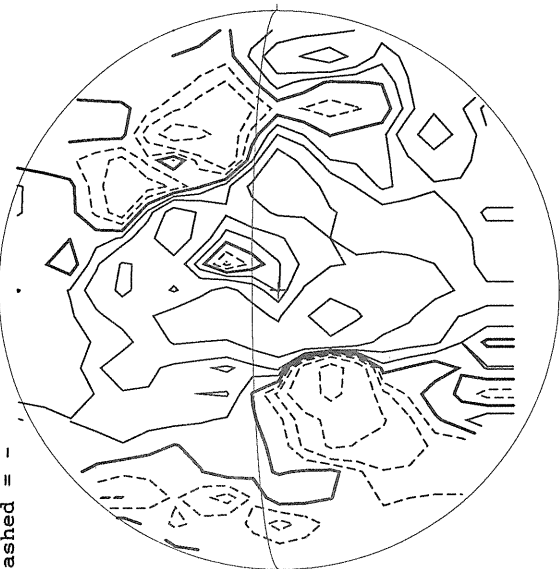
Bright = +  
Dark = -



1636 UT

STANFORD MAGNETOGRAM

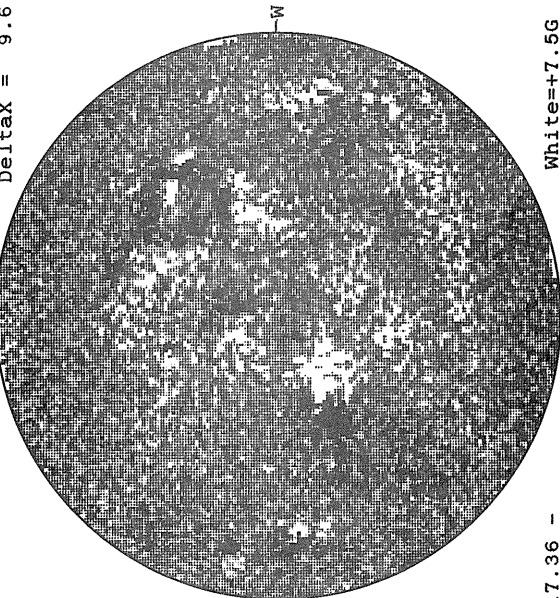
Solid = +  
Dashed = -



2259 UT

MT. WILSON MAGNETOGRAM

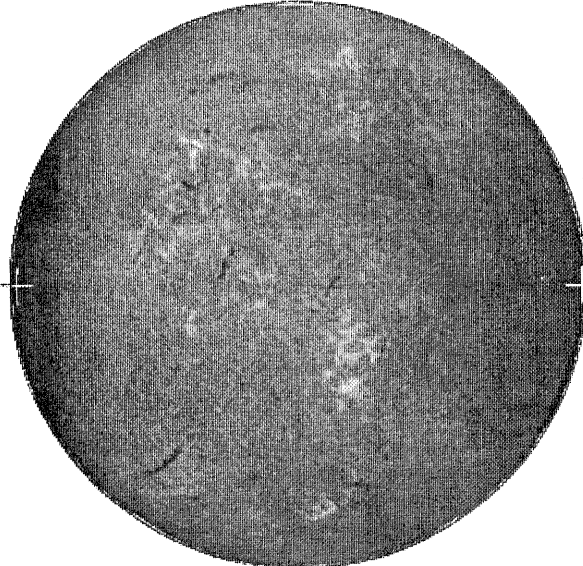
DeltaY = 13.0  
DeltaX = 9.6



17.36 -  
18.33 UT

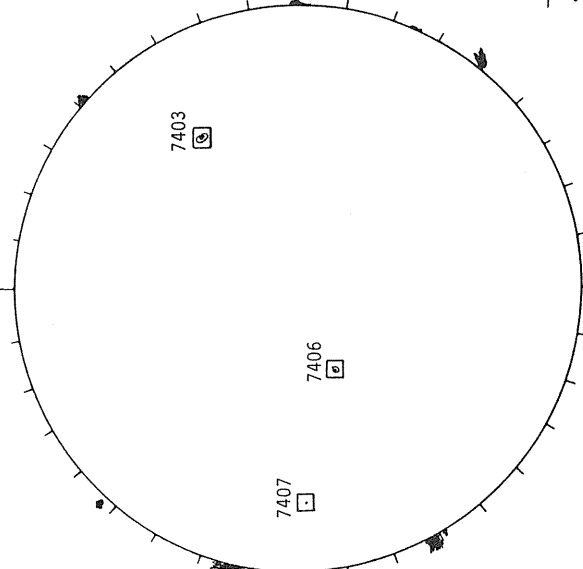
White=+7.5G  
Black=-7.5G

BOULDER H-ALPHA



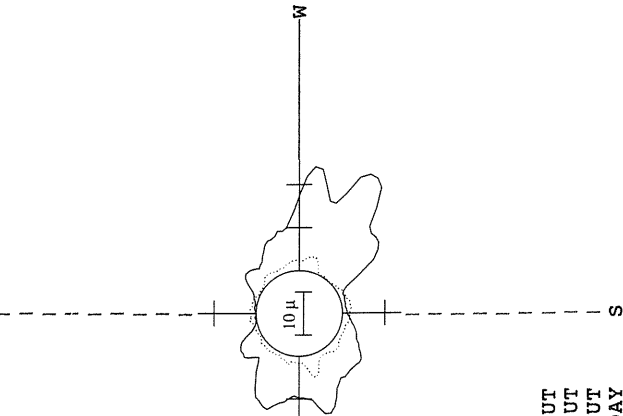
1614 UT

BOULDER SUNSPOT



1609 UT  
1614 UT BOUL Prom

SACRAMENTO PEAK CORONA (1.15 Radii)



— FeXIV, 1528 UT  
.... Fe X, 1607 UT  
xxxx Ca XV, 1554 UT  
NO CA XV ACTIVITY TODAY

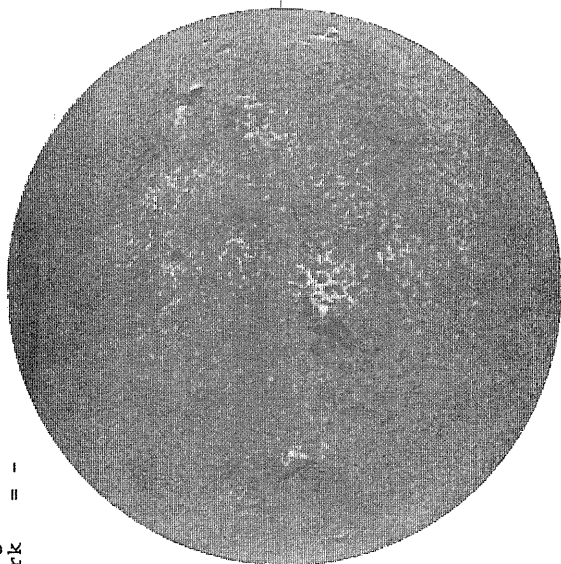


JANUARY 24, 1993 ( P = -8.81 B<sub>0</sub> = -5.40, L<sub>0</sub> = 321.31 )

KITT PEAK MAGNETOGRAM

N \*\*5507A\*\*

Bright = +  
Dark = -

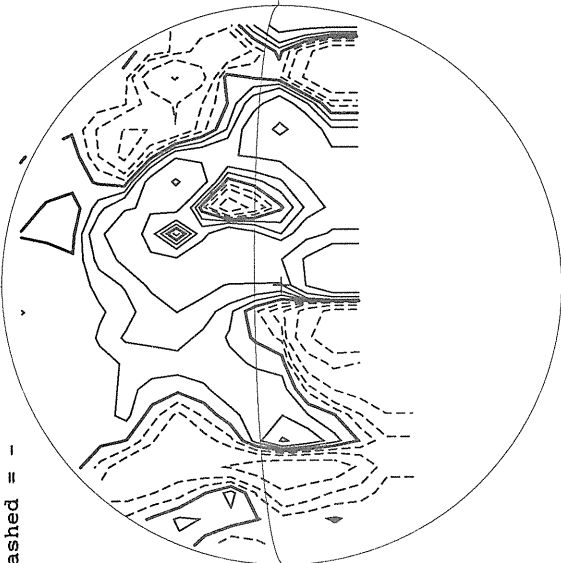


1626 UT

STANFORD MAGNETOGRAM

N

Solid = +  
Dashed = -

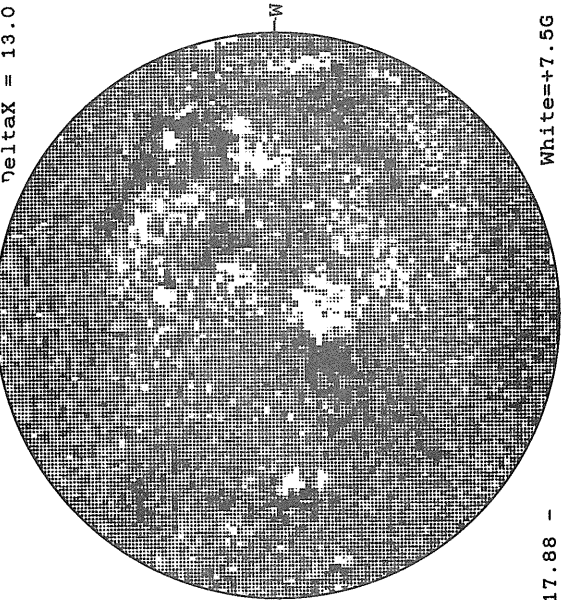


1925 UT

MT. WILSON MAGNETOGRAM

N

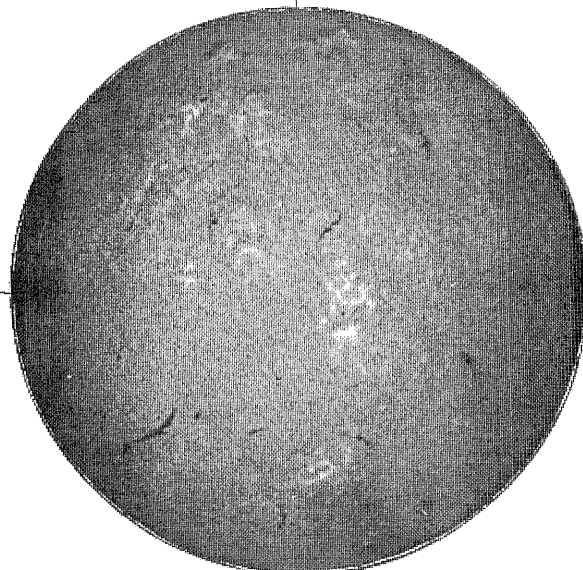
Delta<sub>Y</sub> = 20.2  
Delta<sub>X</sub> = 13.0



17.88 -  
18.31 UT

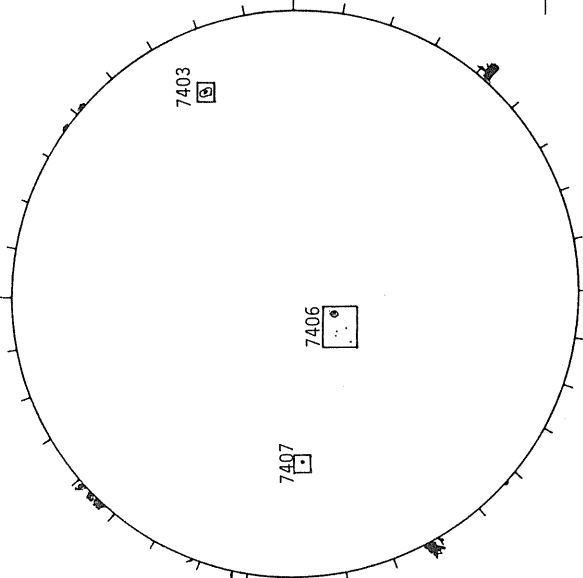
White = +7.5G  
Black = -7.5G

SACRAMENTO PEAK H-ALPHA



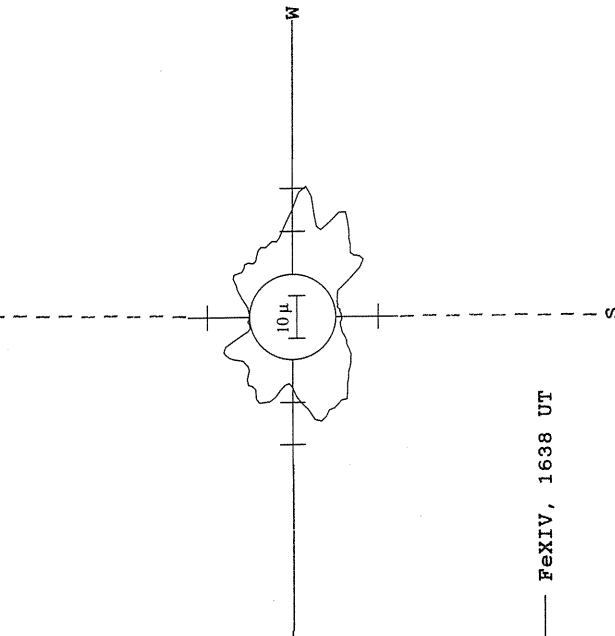
1541 UT

BOULDER SUNSPOT



1814 UT  
1810 UT BOUL Prom

SACRAMENTO PEAK CORONA (1.15 Radii)



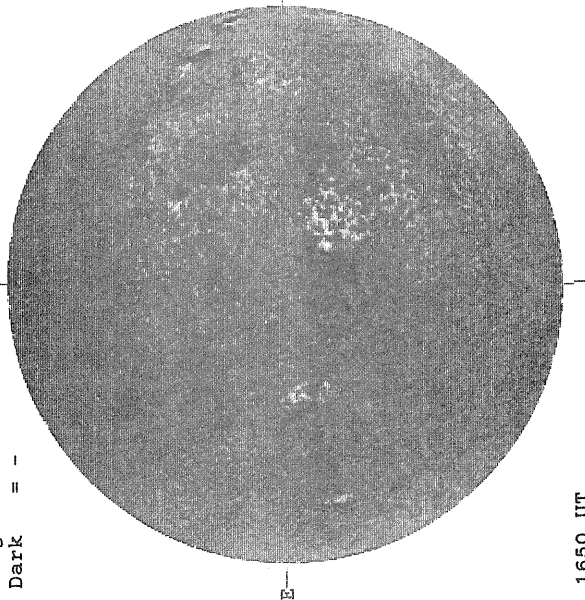
— FeXIV, 1638 UT

JANUARY 25, 1993 ( P = -9.25 B<sub>0</sub> = -5.48, L<sub>0</sub> = 308.14 )

KITT PEAK MAGNETOGRAM

\*\*5507A\*\*

Bright = +  
Dark = -



1650 UT

STANFORD MAGNETOGRAM

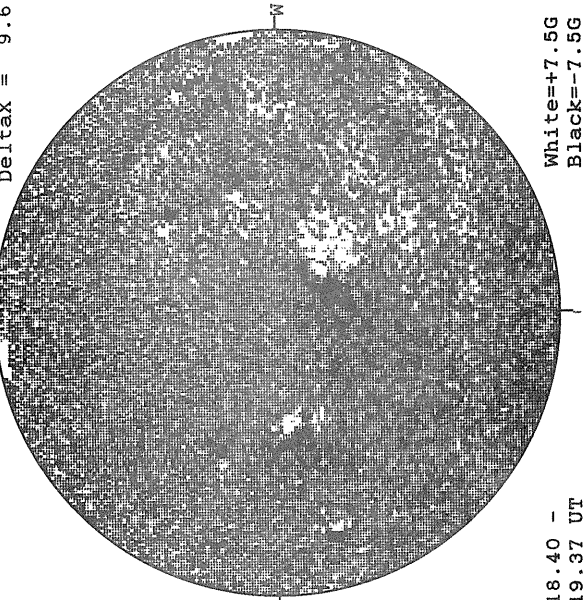
Solid = +  
Dashed = -



2231 UT

MT. WILSON MAGNETOGRAM

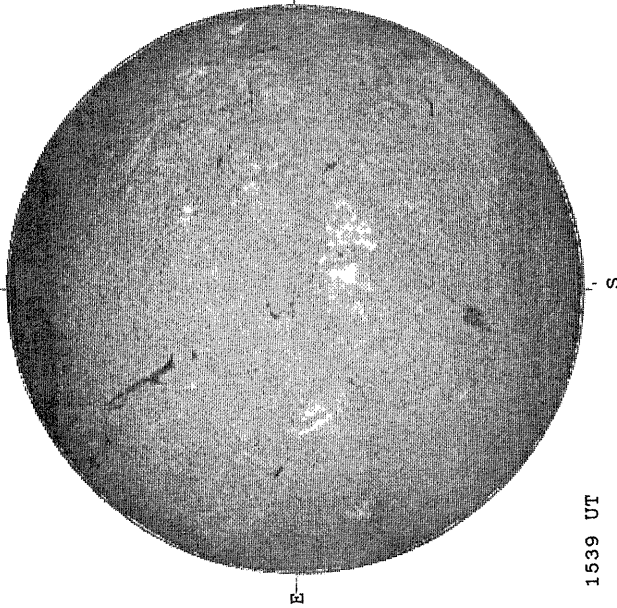
Delta $\gamma$  = 13.0  
Delta $\alpha$  = 9.6



18.40 -  
19.37 UT

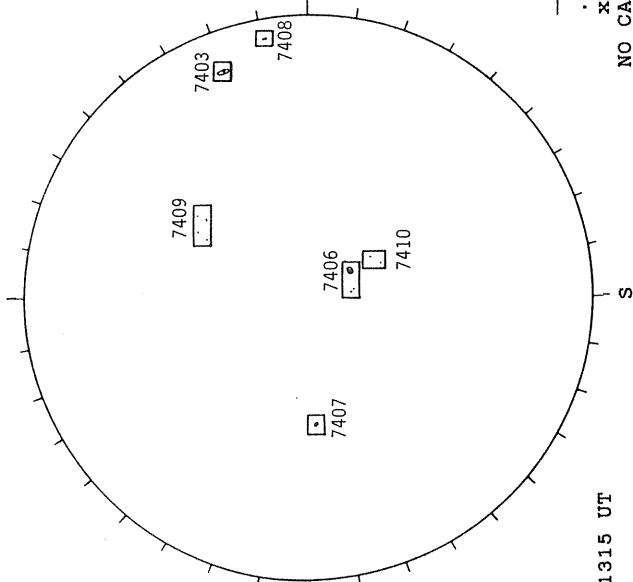
White = +7.5G  
Black = -7.5G

SACRAMENTO PEAK H-ALPHA



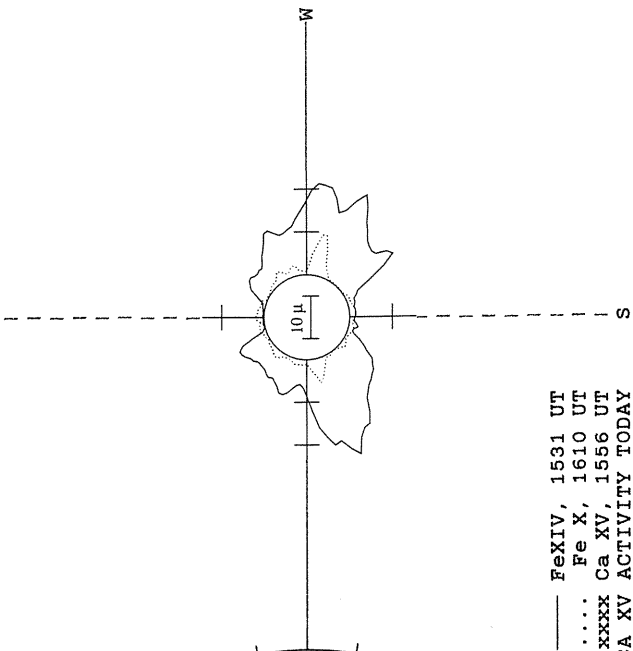
1539 UT

RAMEY SUNSPOT



1315 UT

SACRAMENTO PEAK CORONA (1.15 Radii)

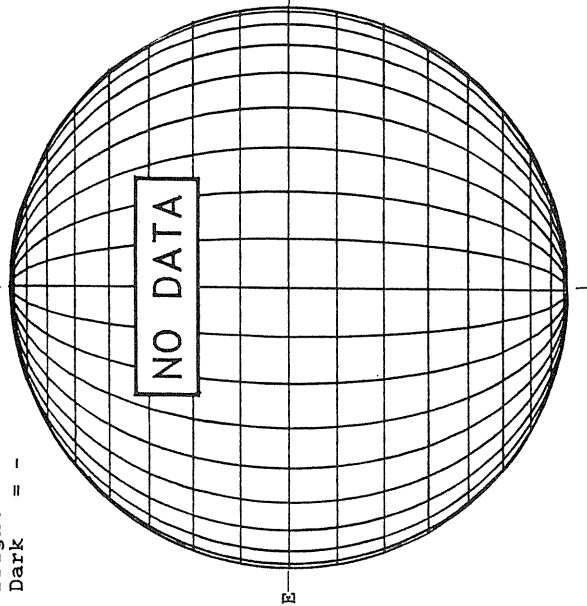


— Fe XIV, 1531 UT  
.... Fe X, 1610 UT  
xxxx Ca XV, 1556 UT  
NO CA XV ACTIVITY TODAY

JANUARY 26, 1993 ( P= -9.68, B<sub>0</sub> =-5.56, L<sub>0</sub> = 294.97 )

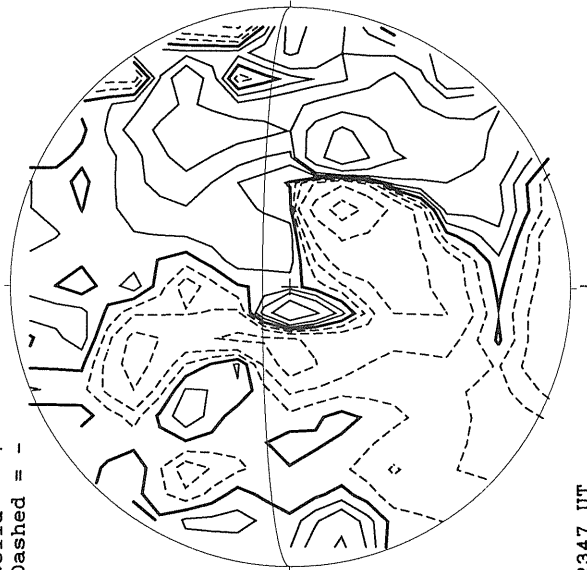
KITT PEAK MAGNETOGRAM  
\*\*5507A\*\*

Bright = +  
Dark = -



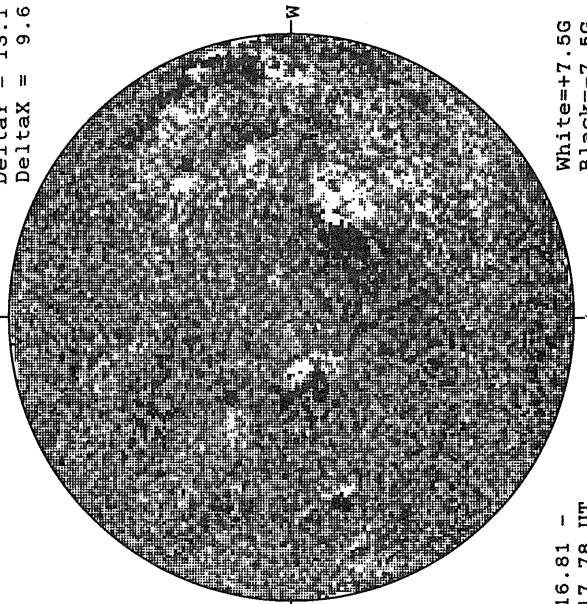
STANFORD MAGNETOGRAM

Solid = +  
Dashed = -



MT. WILSON MAGNETOGRAM

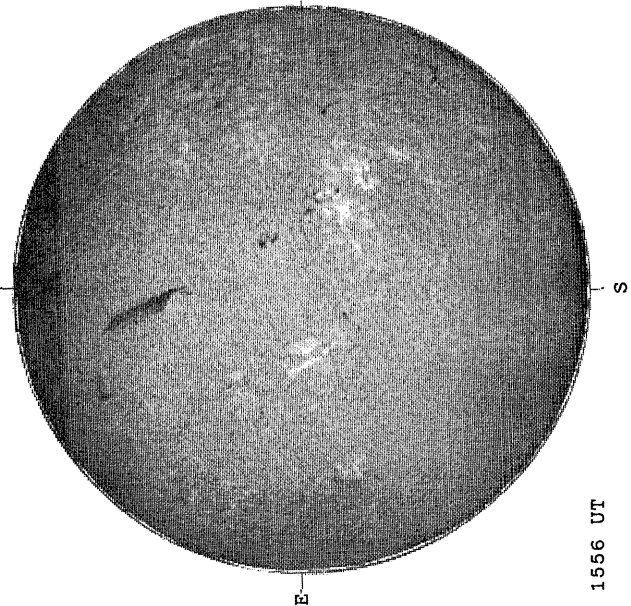
Delta Y = 13.1  
Delta X = 9.6



16.81 -  
17.78 UT

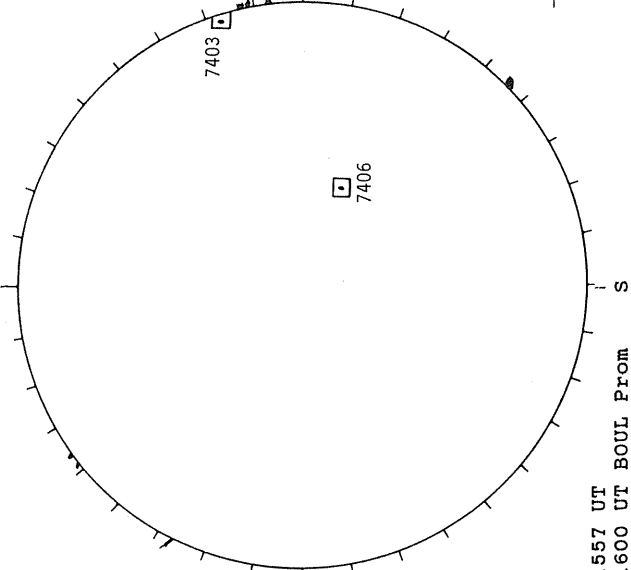
White=+7.5G  
Black=-7.5G

SACRAMENTO PEAK H-ALPHA



1556 UT

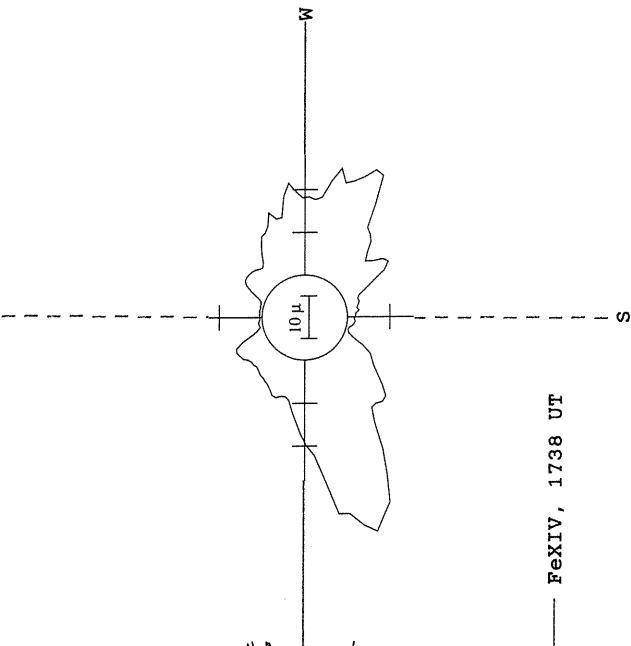
BOULDER SUNSPOT



1557 UT

1600 UT BOUL Prom

SACRAMENTO PEAK CORONA (1.15 Radii)

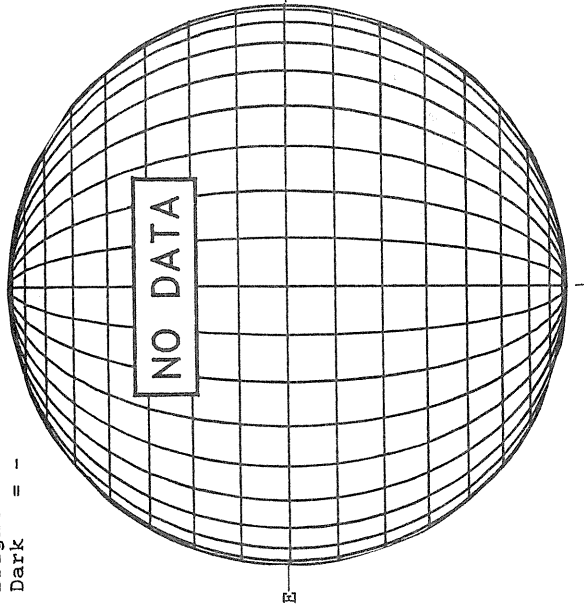


FeXIV, 1738 UT

JANUARY 27, 1993 ( P=-10.11, B<sub>0</sub> = -5.65, L<sub>0</sub> = 281.81 )

KITT PEAK MAGNETOGRAM  
\*\*5507A\*\*

Bright = +  
Dark = -



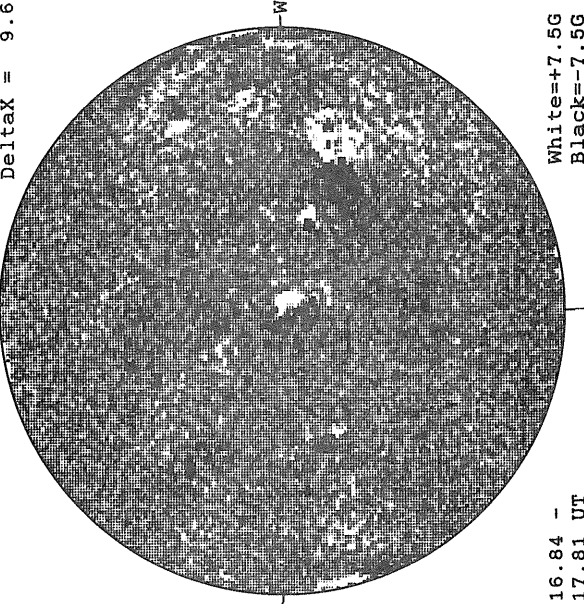
STANFORD MAGNETOGRAM

Solid = +  
Dashed = -



MT. WILSON MAGNETOGRAM

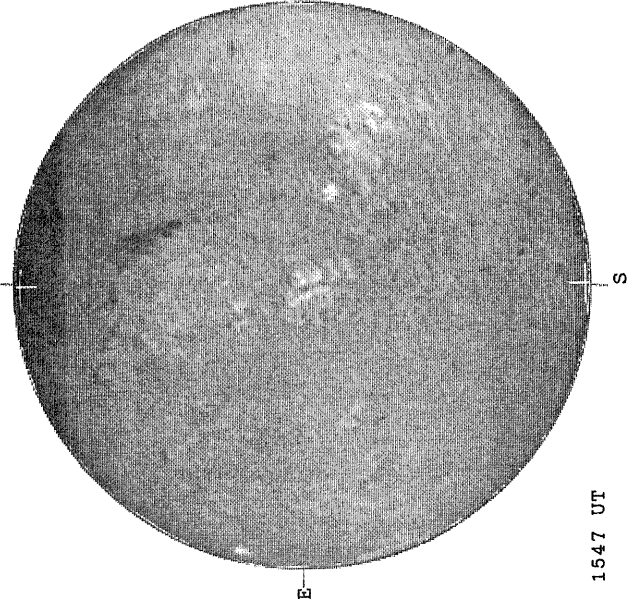
DeltaY = 13.1  
DeltaX = 9.6



16.84 -  
17.81 UT

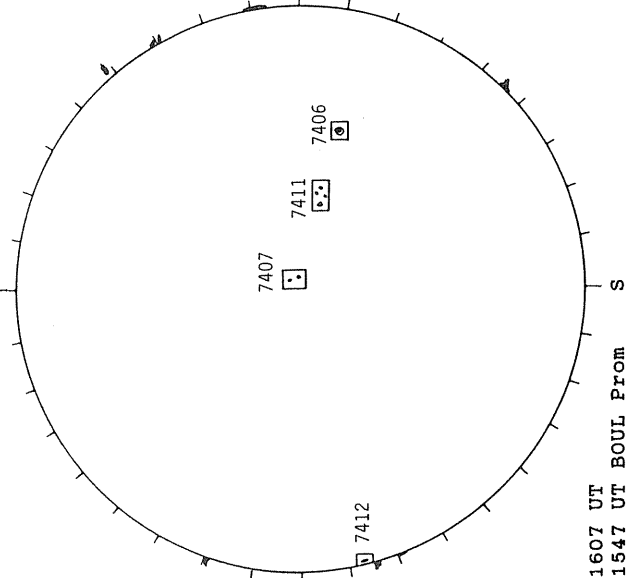
White = +7.5G  
Black = -7.5G

BOULDER H-ALPHA



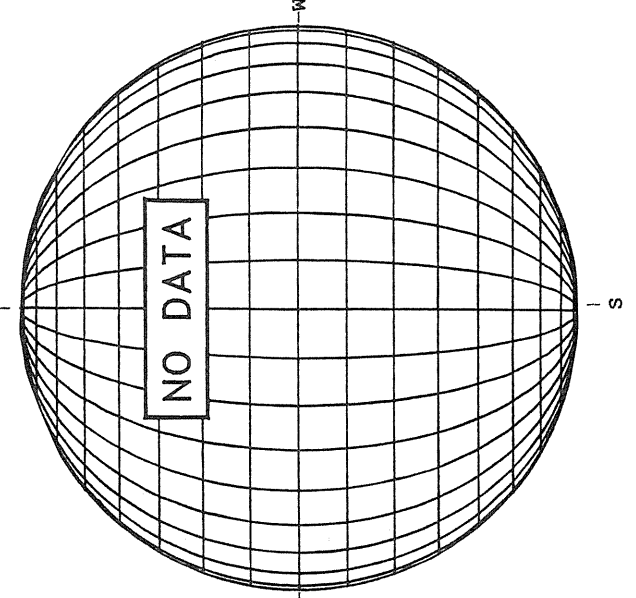
1547 UT

BOULDER SUNSPOT



1607 UT  
1547 UT BOUL Prom

SACRAMENTO PEAK CORONA (1.15 Radii)

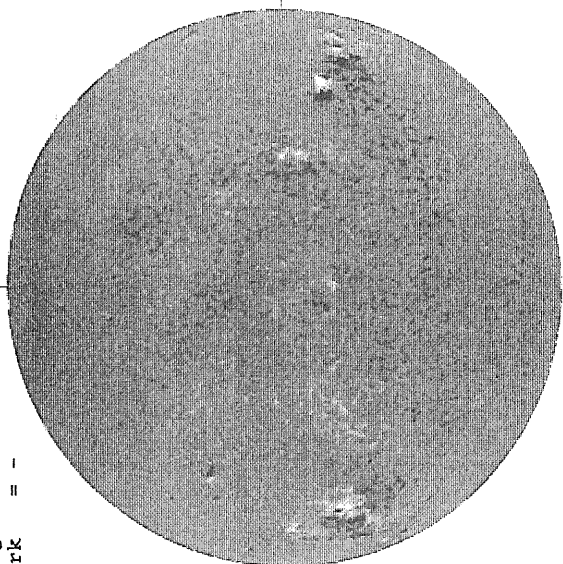




JANUARY 28, 1993 ( P=-10.54 B<sub>0</sub> =-5.73, L<sub>0</sub> = 268.64 )

KITT PEAK MAGNETOGRAM  
\*\*5507A\*\*

Bright = +  
Dark = -



1635 UT

STANFORD MAGNETOGRAM

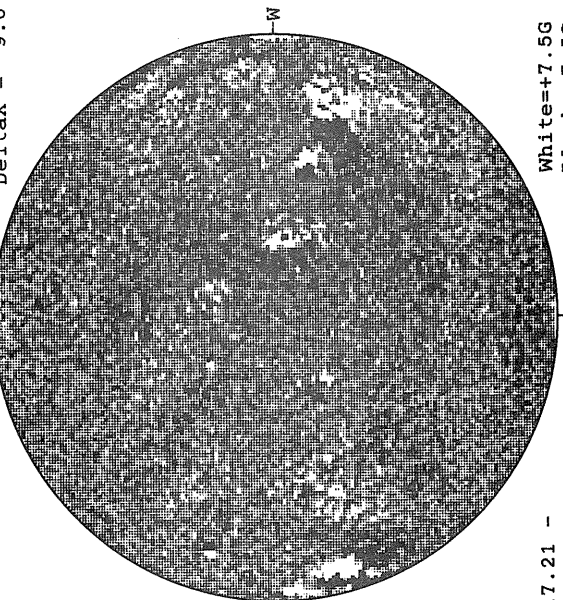
Solid = +  
Dashed = -



2327 UT

MT. WILSON MAGNETOGRAM

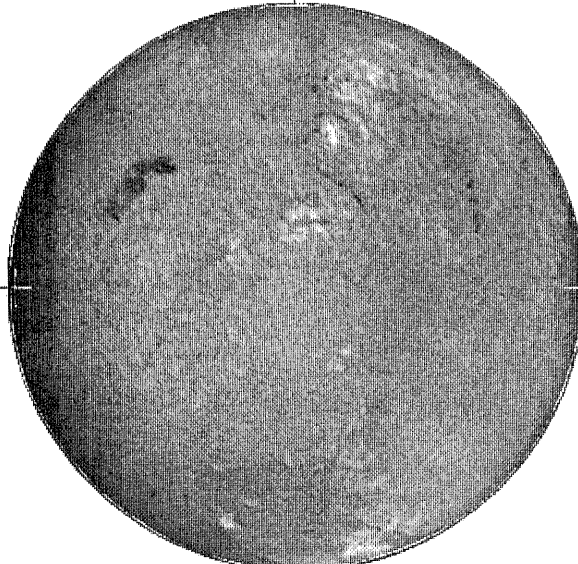
Delta<sub>Y</sub> = 13.1  
Delta<sub>X</sub> = 9.6



17.21 -  
18.18 UT

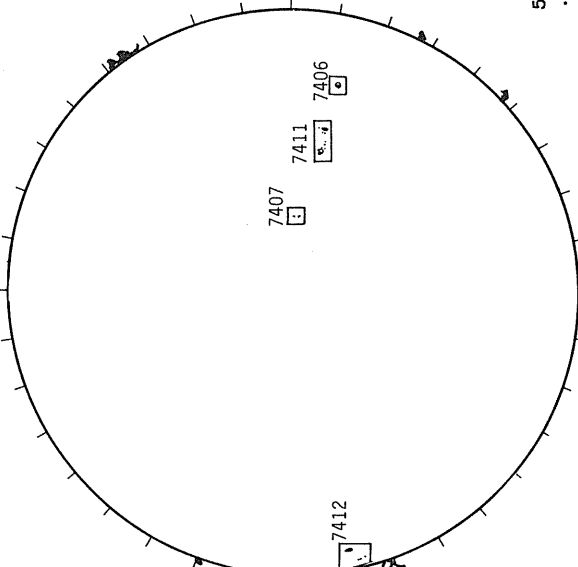
White=+7.5G  
Black=-7.5G

BOULDER H-ALPHA



1544 UT

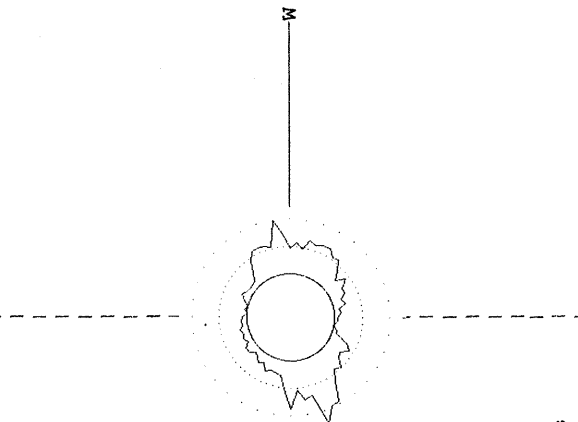
BOULDER SUNSPOT



1555 UT

1111 UT LOMNICKY Prom

LOMNICKY STIT CORONA (1.15 Radii)



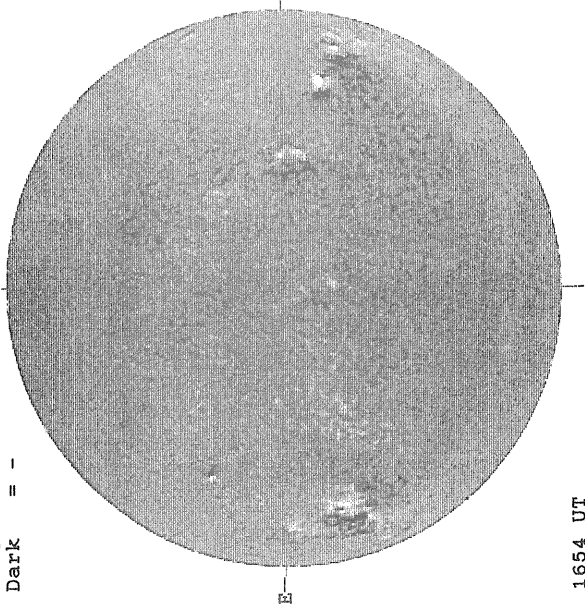
5303A, 1141 UT  
... 50 abs units  
... 100 abs units

JANUARY 29, 1993 ( P=-10.96, B<sub>0</sub> = -5.80, L<sub>0</sub> = 255.48 )

KITT PEAK MAGNETOGRAM

\*\*5507A\*\*

Bright = +  
Dark = -



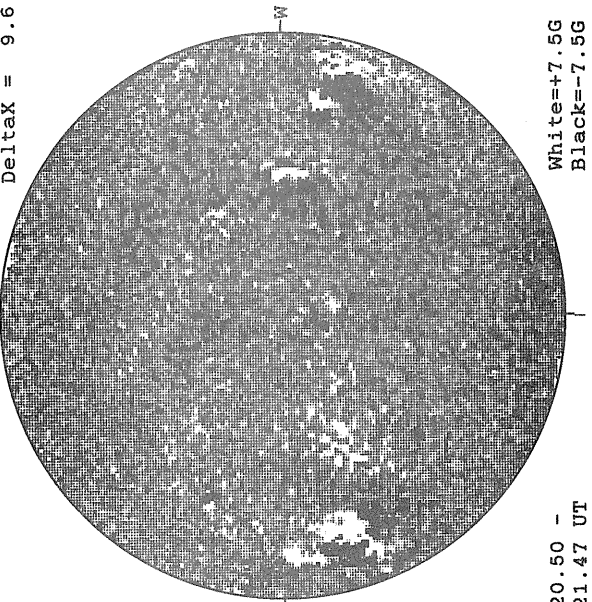
STANFORD MAGNETOGRAM

Solid = +  
Dashed = -



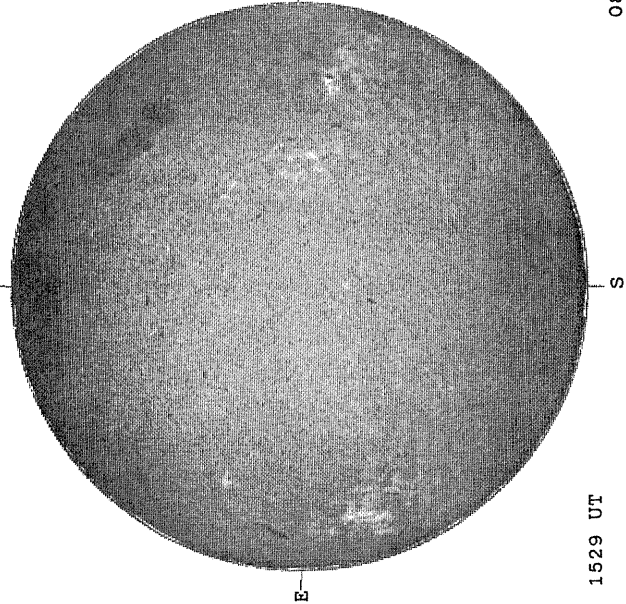
MT. WILSON MAGNETOGRAM

Delta<sub>y</sub> = 13.1  
Delta<sub>x</sub> = 9.6

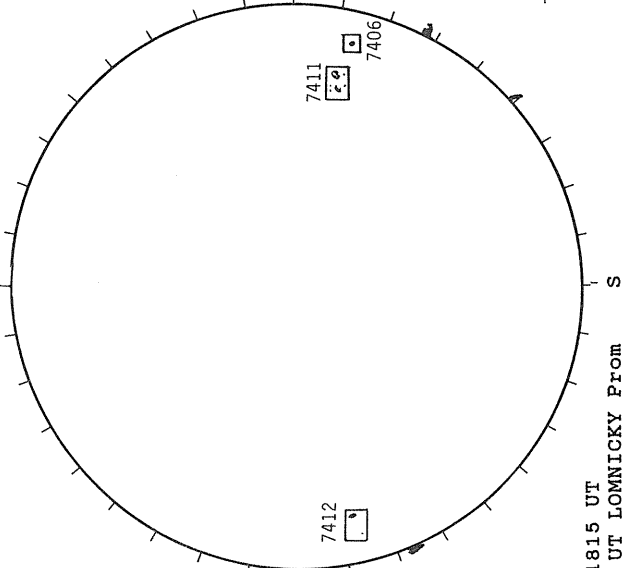


White = +7.5G  
Black = -7.5G

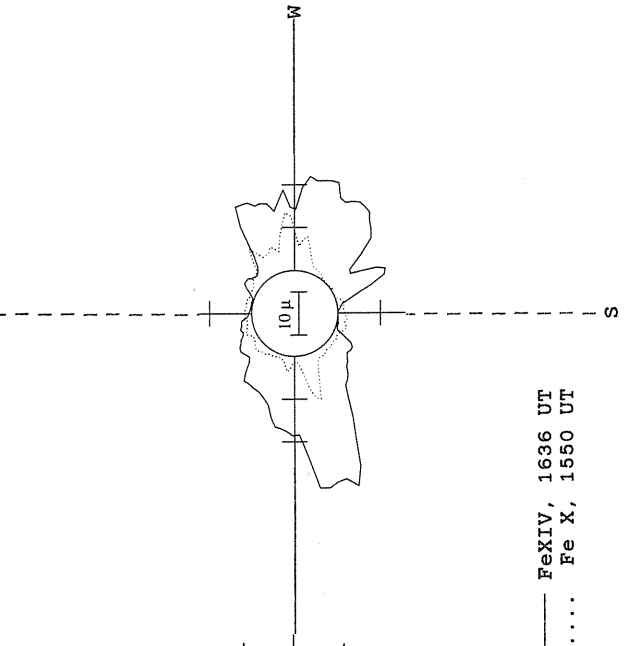
SACRAMENTO PEAK H-ALPHA



HOLLOMAN SUNSPOT



SACRAMENTO PEAK CORONA (1.15 Radii)



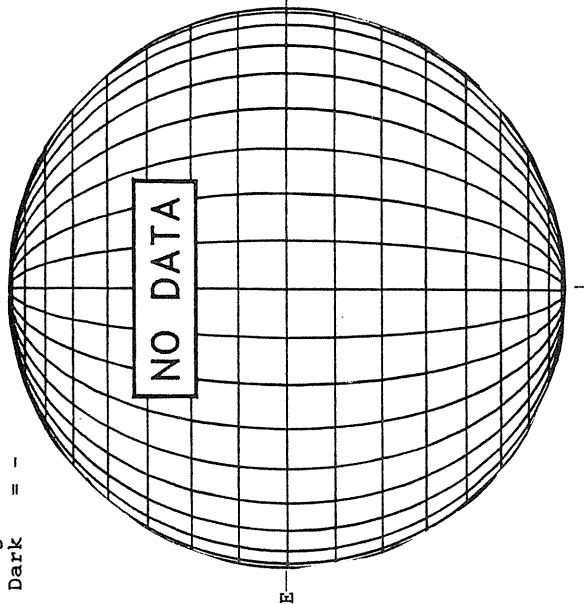
— Fe XIV, 1636 UT  
.... Fe X, 1550 UT

JANUARY 30, 1993 ( P=-11.38, B<sub>0</sub> =-5.88, L<sub>0</sub> = 242.31 )

KITT PEAK MAGNETOGRAM

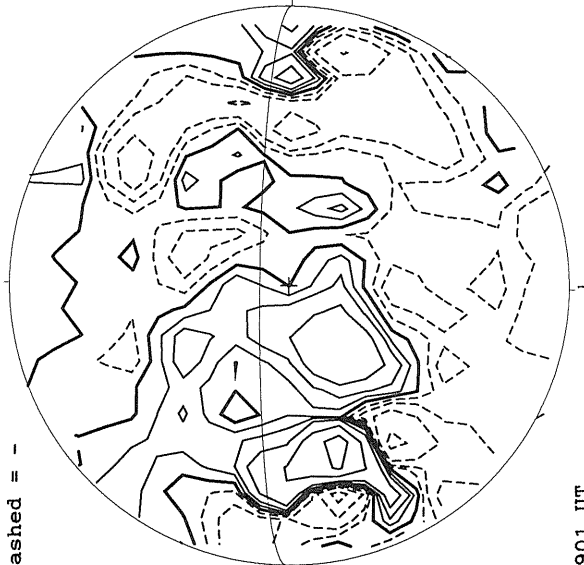
\*\*5507A\*\*

Bright = +  
Dark = -



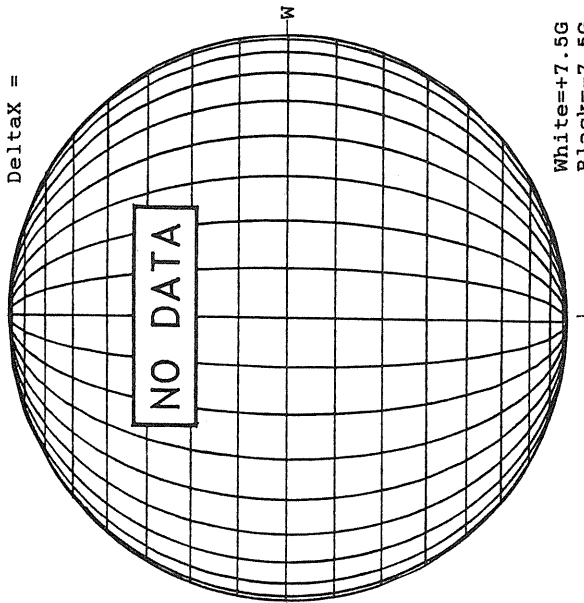
STANFORD MAGNETOGRAM

Solid = +  
Dashed = -



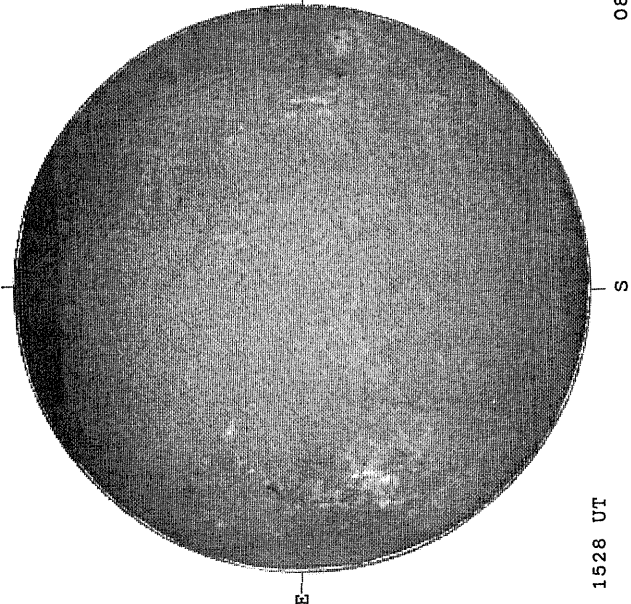
MT. WILSON MAGNETOGRAM

Deltaγ =  
DeltaX =



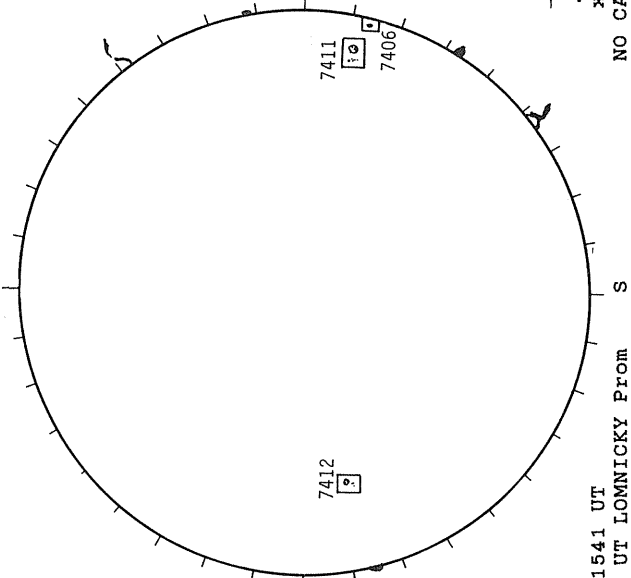
White=+7.5G  
Black=-7.5G

SACRAMENTO PEAK H-ALPHA



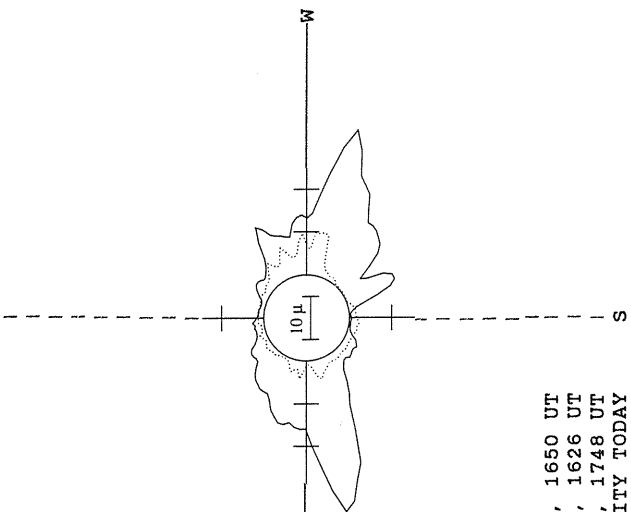
1528 UT

BOULDER SUNSPOT



1541 UT

SACRAMENTO PEAK CORONA (1.15 Radii)



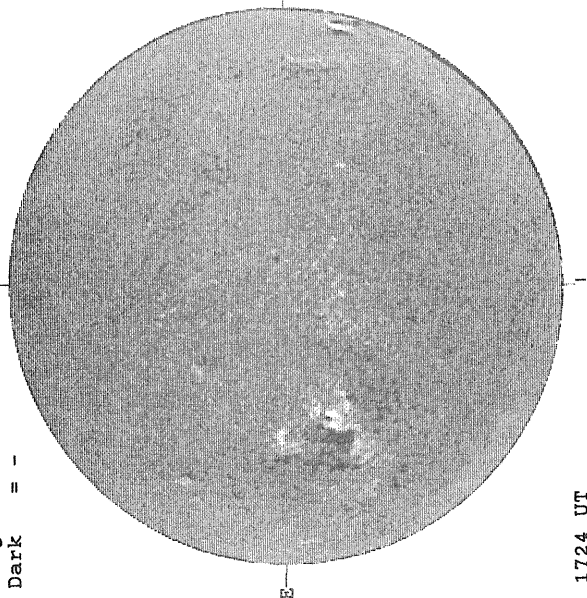
— FeXIV, 1650 UT  
.... Fe X, 1626 UT  
xxxx Ca XV, 1748 UT  
NO CA XV ACTIVITY TODAY

JANUARY 31, 1993 ( P=-11.80, B<sub>0</sub> = -5.95 L<sub>0</sub> = 229.14 )

KITT PEAK MAGNETOGRAM

\*\*5507A\*\*

Bright = +  
Dark = -



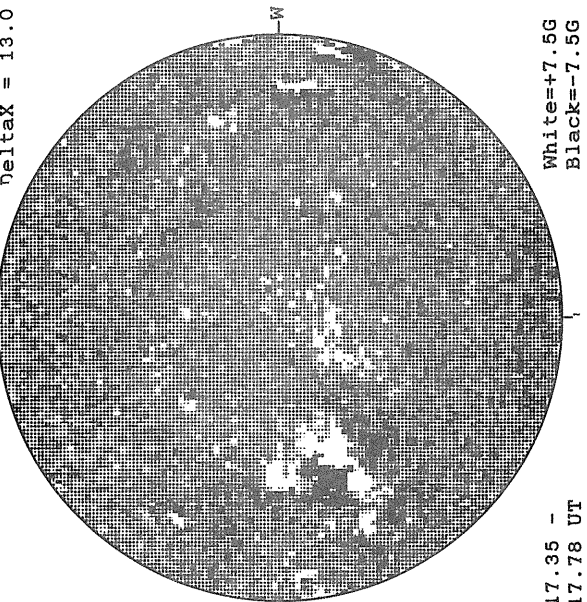
STANFORD MAGNETOGRAM

Solid = +  
Dashed = -



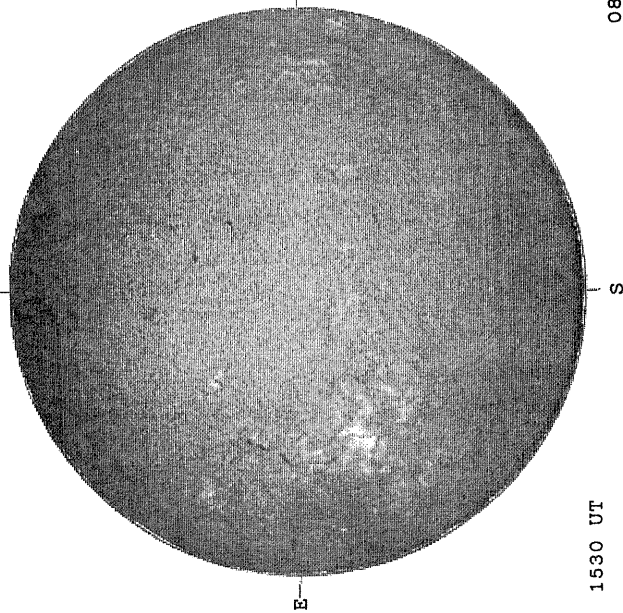
MT. WILSON MAGNETOGRAM

Delta<sub>Y</sub> = 20.2  
Delta<sub>X</sub> = 13.0

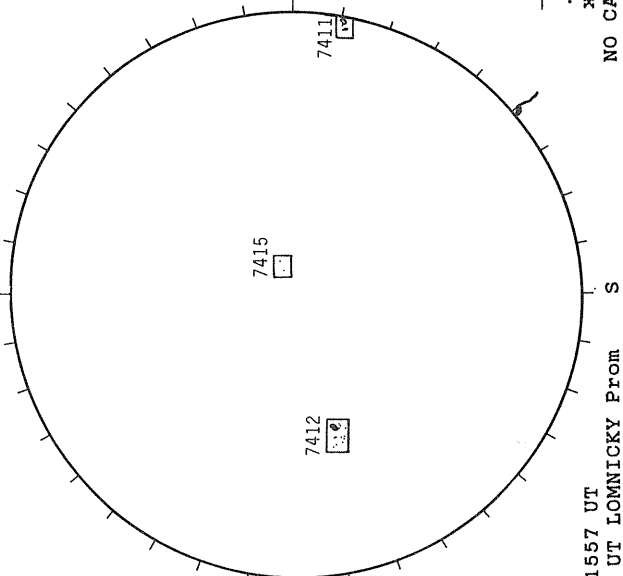


White = +7.5G  
Black = -7.5G

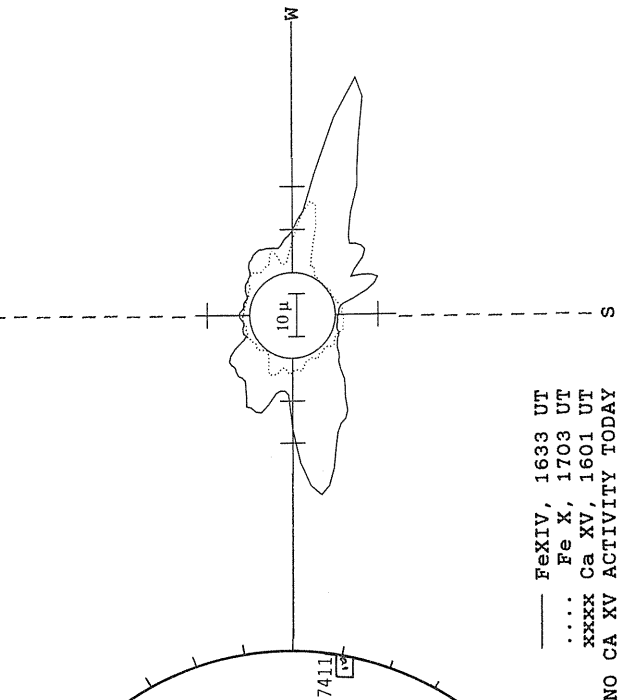
SACRAMENTO PEAK H-ALPHA



BOULDER SUNSPOT



SACRAMENTO PEAK CORONA (1.15 Radii)



— Fe XIV, 1633 UT  
.... Fe X, 1703 UT  
xxxx Ca XV, 1601 UT  
NO CA XV ACTIVITY TODAY



## DAILY SOFT X-RAY IMAGES FROM YOHKOH

The YOHKOH ("sunbeam") mission is a Japanese program designed to answer many questions in solar flare and coronal physics that have been raised by the highly successful Hinotori and SMM missions. It includes the United States and the United Kingdom as participating partners. The Japanese Institute for Space and Astronautical Sciences (ISAS) provided overall program management, the launch vehicle, the spacecraft, and two science instruments -- a Hard X-ray Telescope, one of the primary mission instruments, and a Wide Band Spectrometer. The other primary instrument, a Soft X-ray Telescope, was prepared by the Lockheed Palo Alto Research Laboratory, under NASA support, in collaboration with the National Astronomical Observatory of Japan and the University of Tokyo. The U.K., in collaboration with the E. O. Hulburt Center for Space Research, provided a Bragg Crystal Spectrometer. The NASA Deep Space Network cooperates in tracking Yohkoh.

The Soft X-ray Telescope (SXT) uses low-scatter grazing incidence optics to form direct images on a CCD detector. It employs a Nariai-Werner design which differs from the more commonly used Wolter Type 1 in that both mirror segments have been made hyperbolic in order to gain better off-axis performance at the expense of a slight loss of on-axis resolution. The optical system includes an entrance aperture filter, the X-ray mirror, a filter wheel assembly, a rotating shutter, and the CCD camera. A detailed description of the SXT has been published in Tsuneta, et al., **Solar Physics, Vol. 136**, pp. 37-67, 1991.

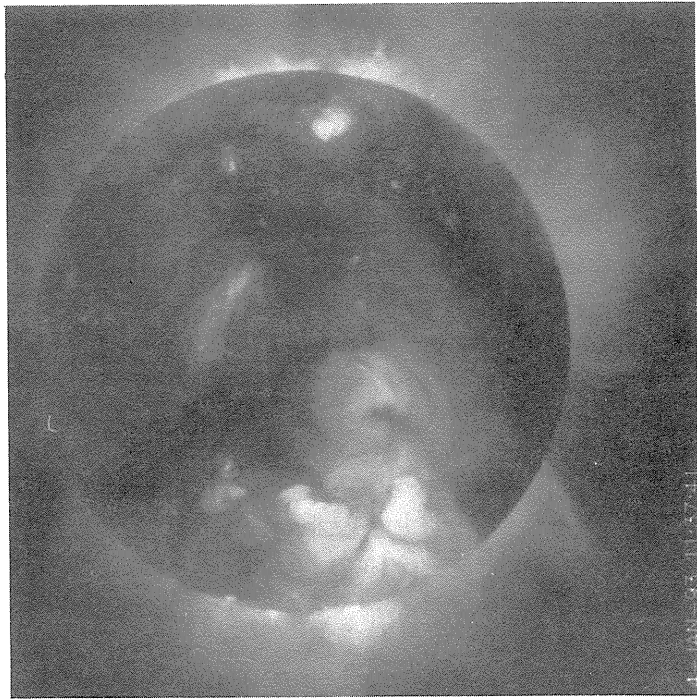
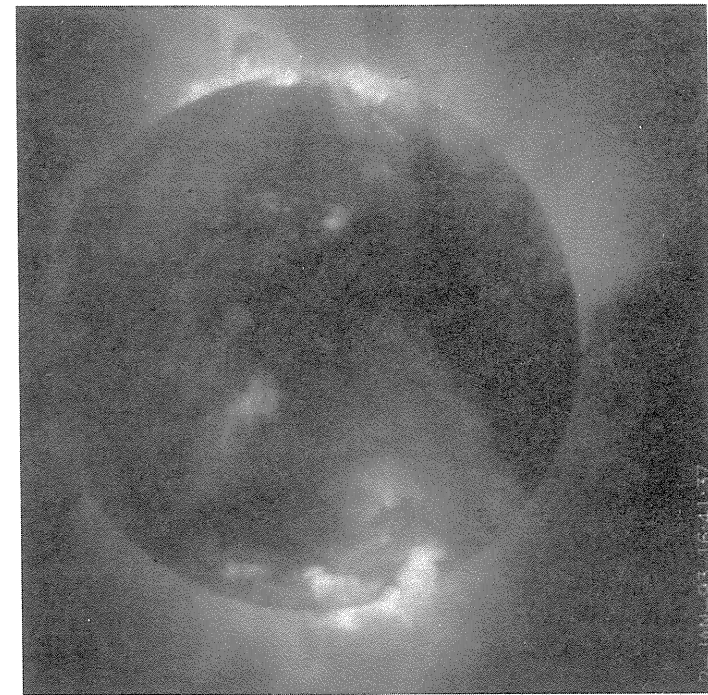
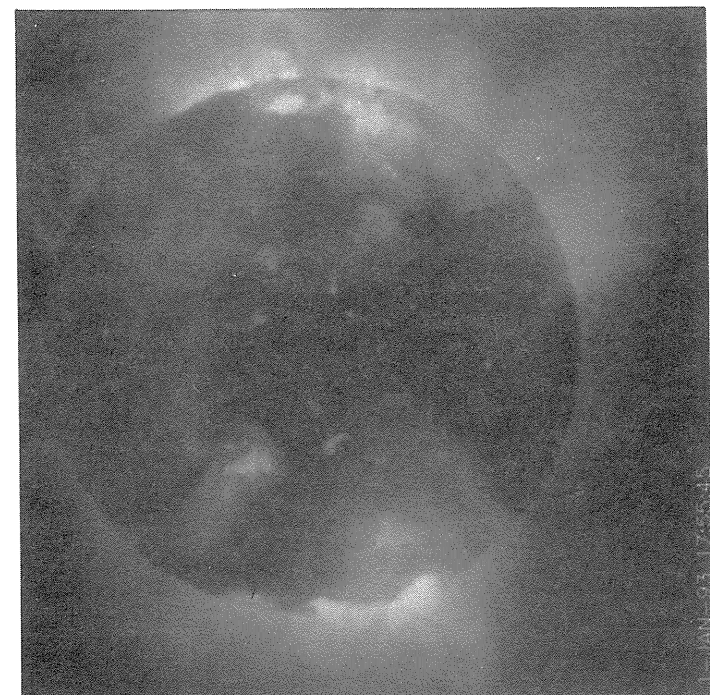
ISAS bears full responsibility for YOHKOH operations. U.S. and U.K. investigators in residence at ISAS participate in mission operations and scientific analyses. With the approval of Professor Y. Ogawara, Yohkoh Program Manager, and the YOHKOH Science Committee, the Lockheed Palo Alto Research Laboratory is kindly providing daily digital SXT images for publication in SGD. The digital images are 512x512 (5" pixels) or 256x256 (10" pixels) in size. They combine two exposures differing by a factor of 35 in duration and are printed with a logarithmic intensity scale to cope with the great range in intensity of the X-ray corona. The brightest features are typically more than 100,000 times brighter than the faintest. The mean wavelength of the pictures is about 20 angstroms. We display these images of the solar corona in soft X-rays in both positive and negative forms. They are printed on a dye sublimation printer at NGDC.

YOHKOH  
SOFT X-RAY  
TELESCOPE  
IMAGES

January  
1993

Day 1      Day 3  
17:55:45 UT    20:34:09 UT

Day 2      Day 4  
16:41:37 UT    11:37:41 UT

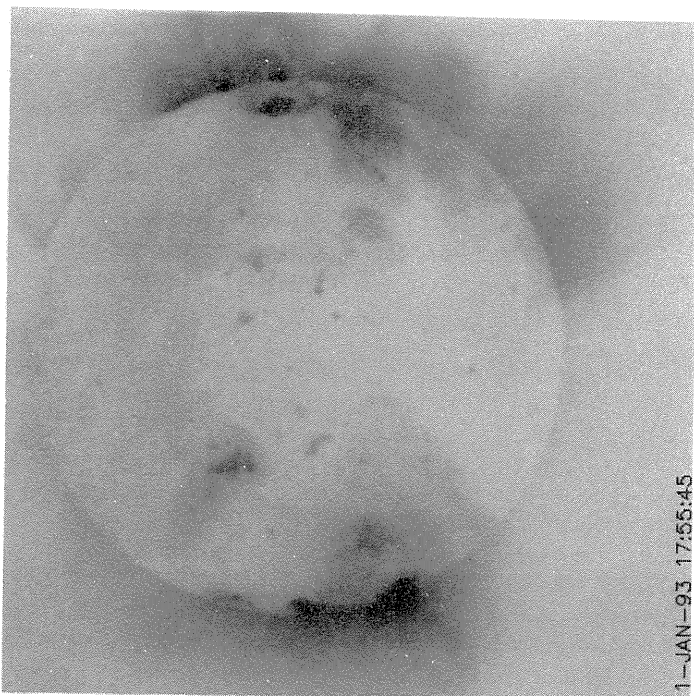


**YOHKOH  
SOFT X-RAY  
TELESCOPE  
IMAGES**

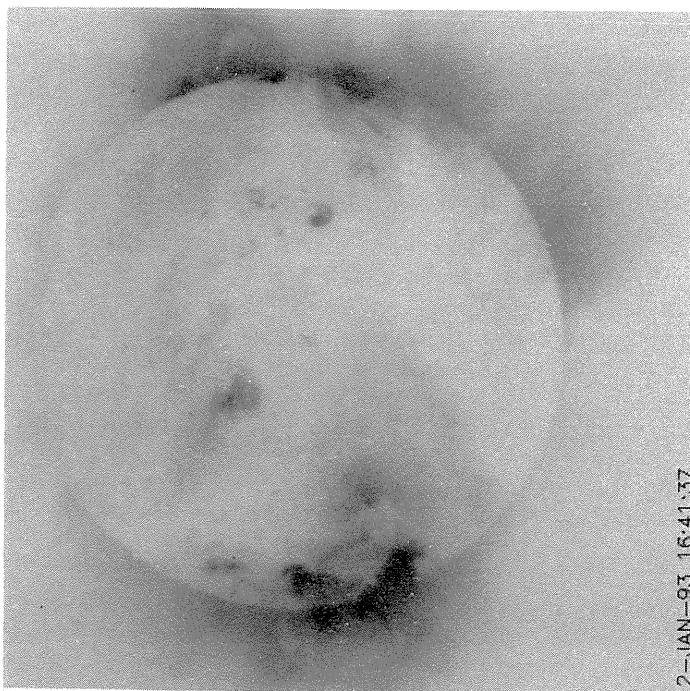
**January  
1993**

Day 1      Day 3  
17:55:45 UT    20:34:09 UT

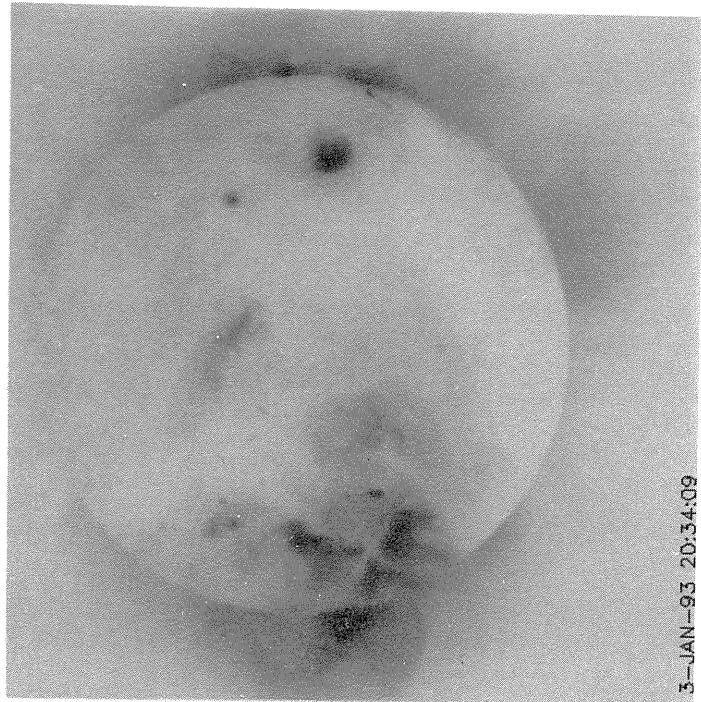
Day 2      Day 4  
16:41:37 UT    11:37:41 UT



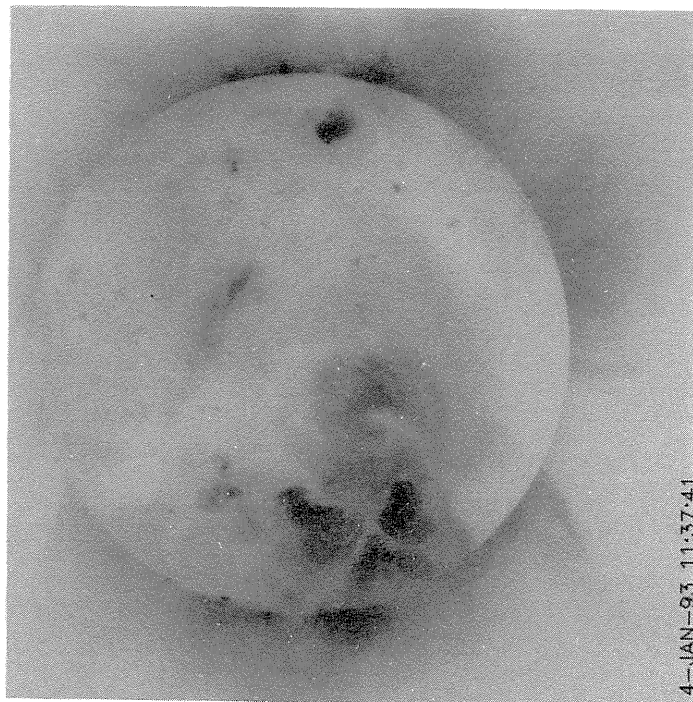
1-JAN-93 17:55:45



2-JAN-93 16:41:37

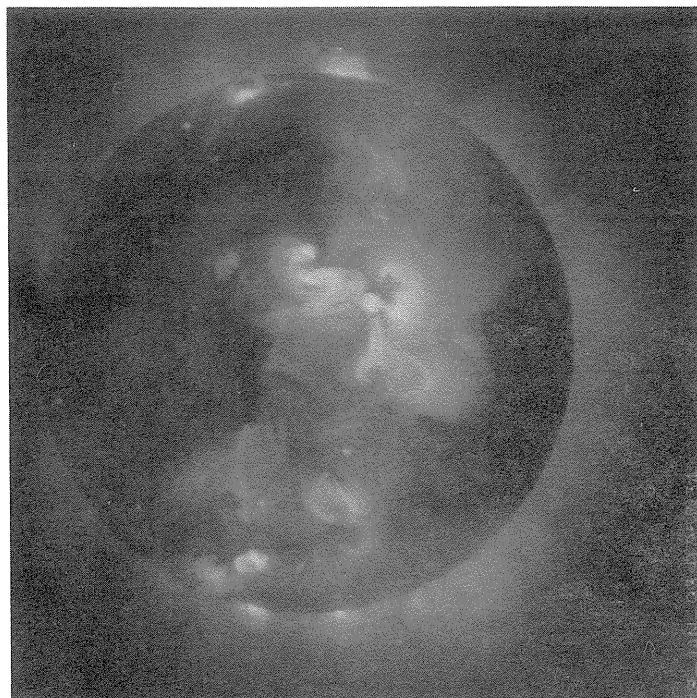
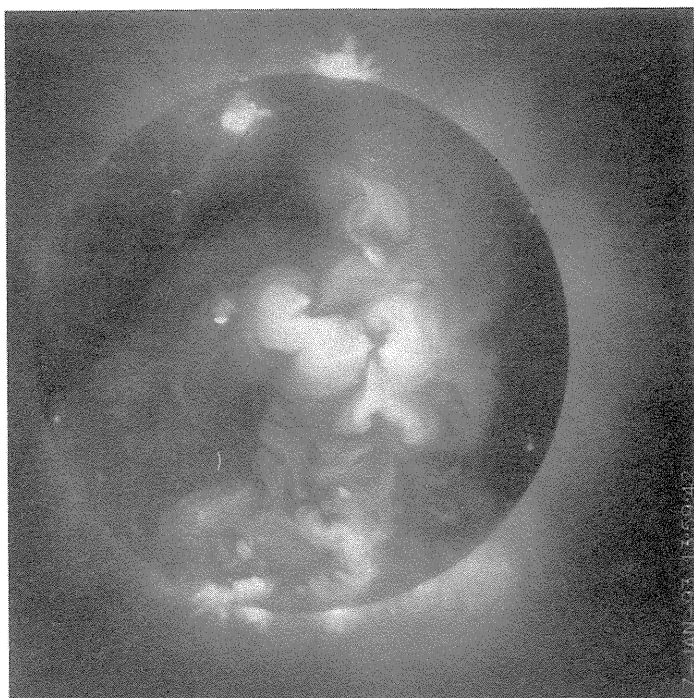


3-JAN-93 20:34:09



4-JAN-93 11:37:41



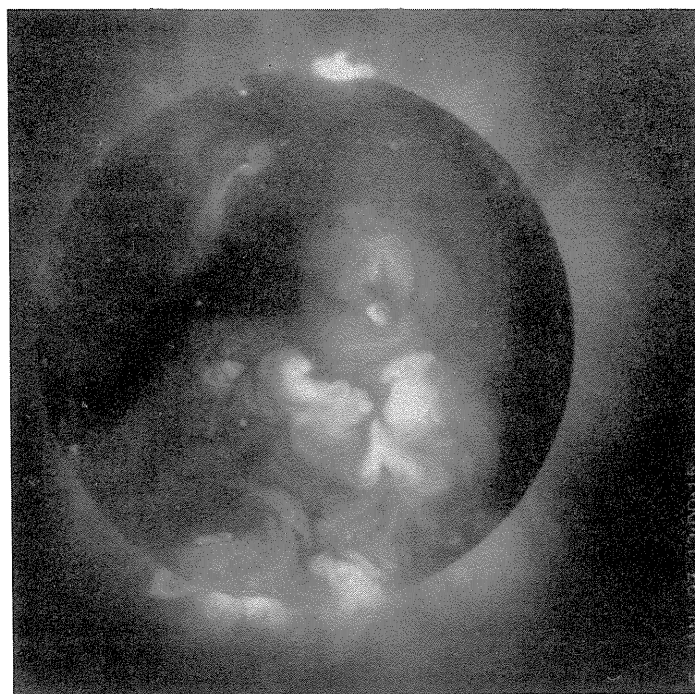
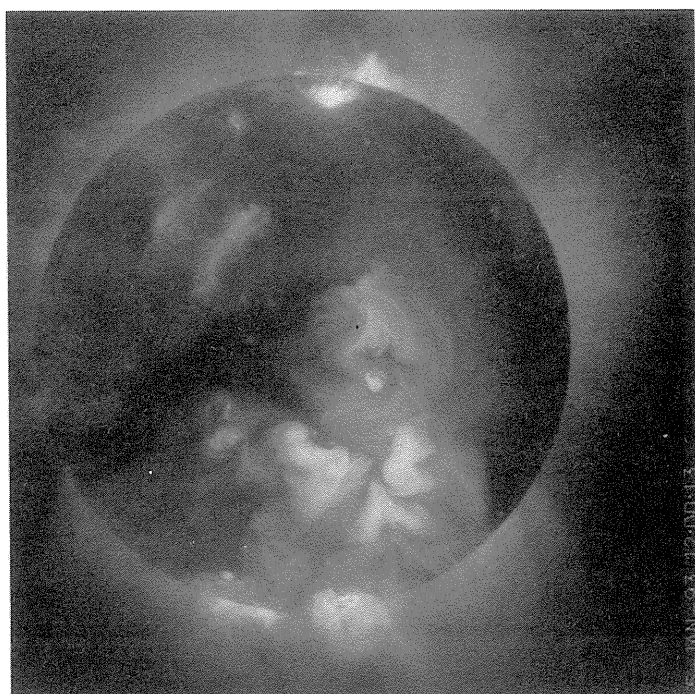


**YOHKOH  
SOFT X-RAY  
TELESCOPE  
IMAGES**

**January  
1993**

Day 5      Day 7  
12:00:13 UT    13:59:42 UT

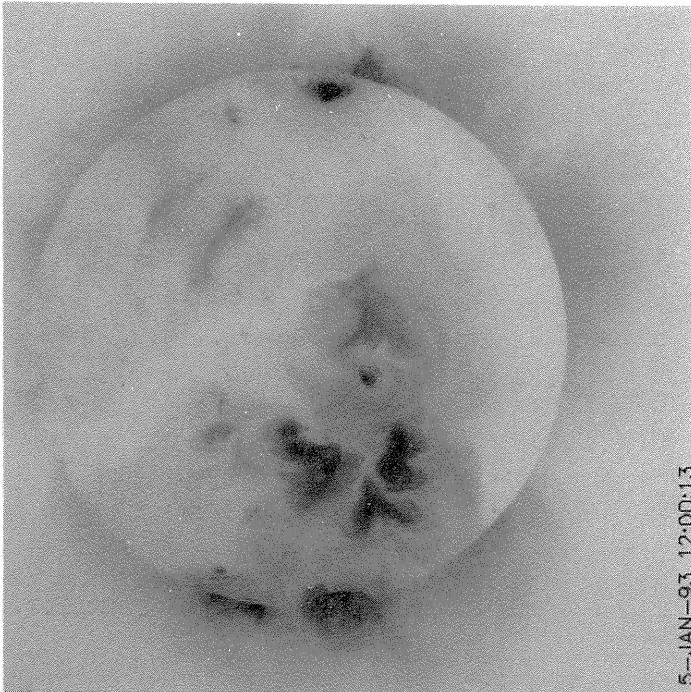
Day 6      Day 8  
12:00:15 UT    07:57:34 UT



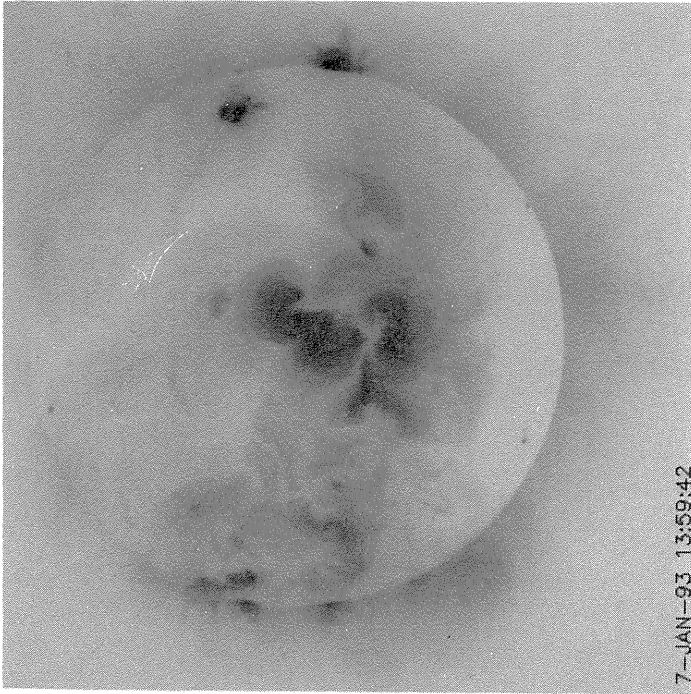
YOHKOH  
SOFT X-RAY  
TELESCOPE  
IMAGES

January  
1993

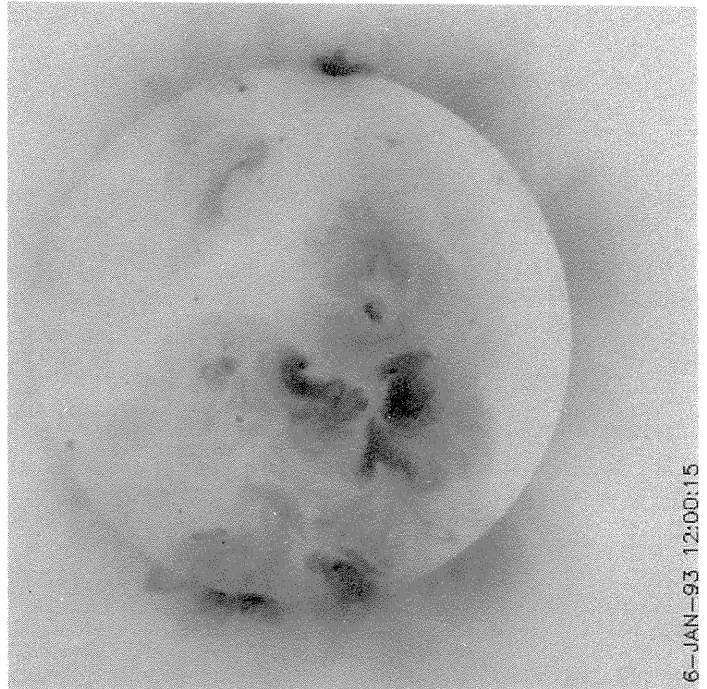
Day 5      Day 7  
12:00:13 UT    13:59:42 UT



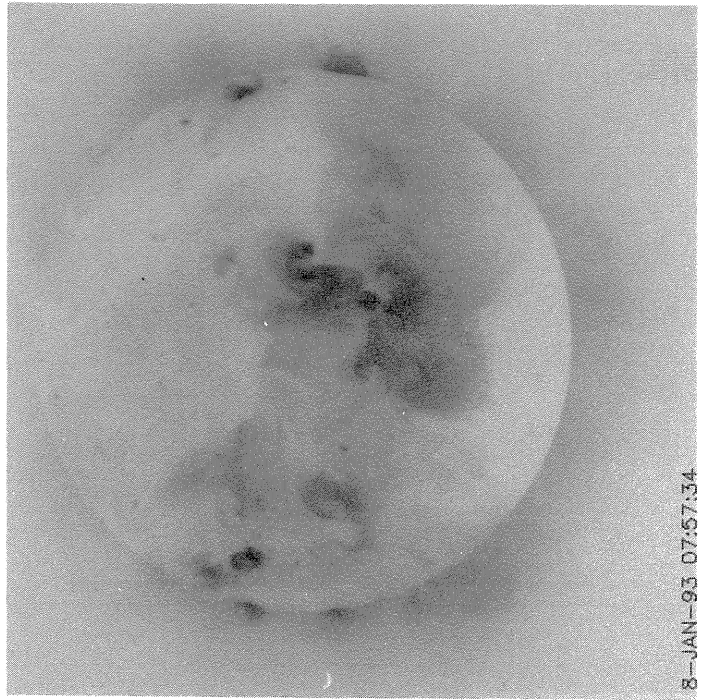
5-JAN-93 12:00:13



7-JAN-93 13:59:42



6-JAN-93 12:00:15



8-JAN-93 07:57:34

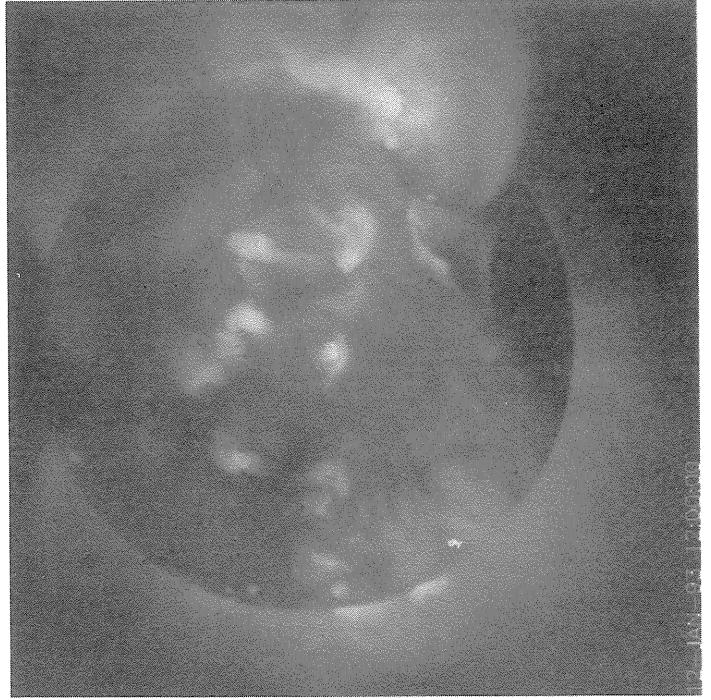
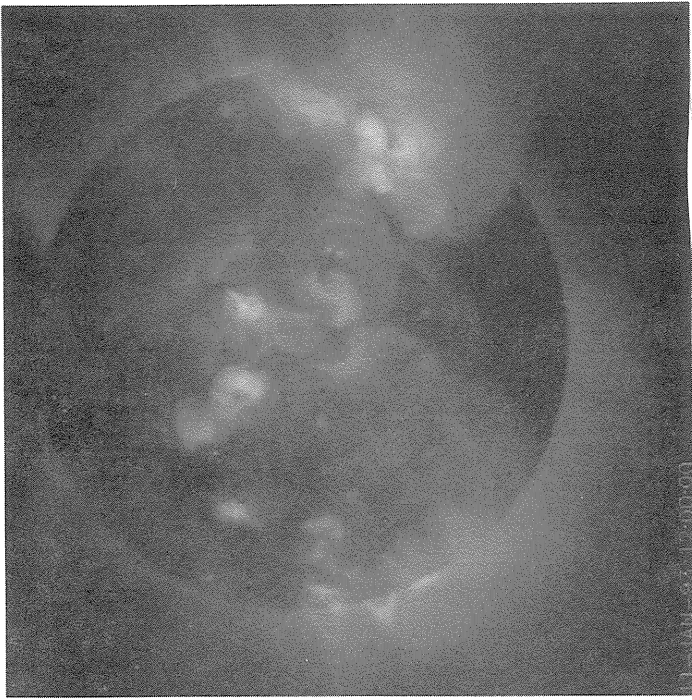
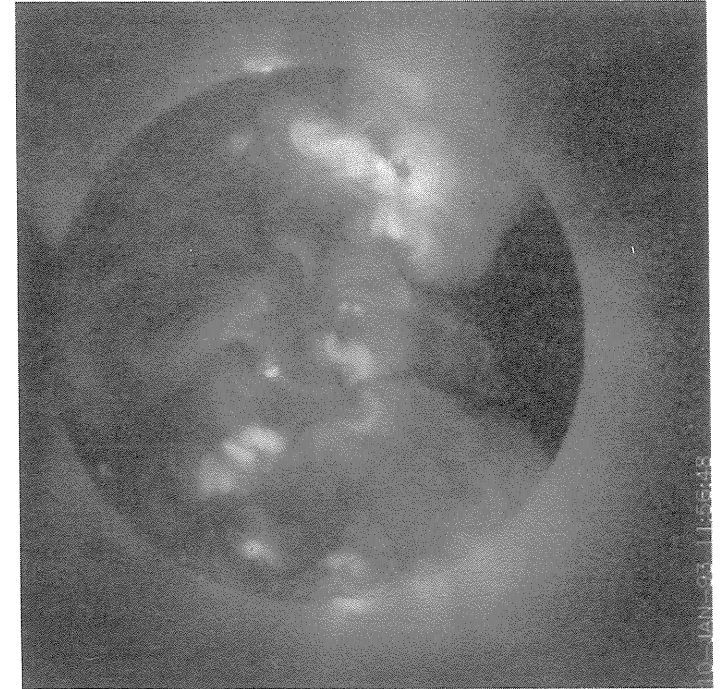
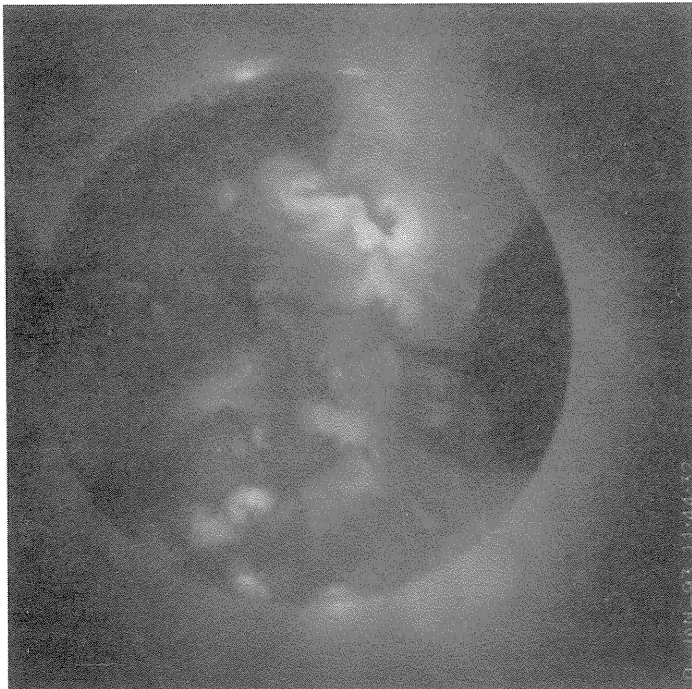
Day 6      Day 8  
12:00:15 UT    07:57:34 UT



YOHKOH  
SOFT X-RAY  
TELESCOPE  
IMAGES

January  
1993

Day 9      Day 11  
11:44:32 UT    12:00:00 UT

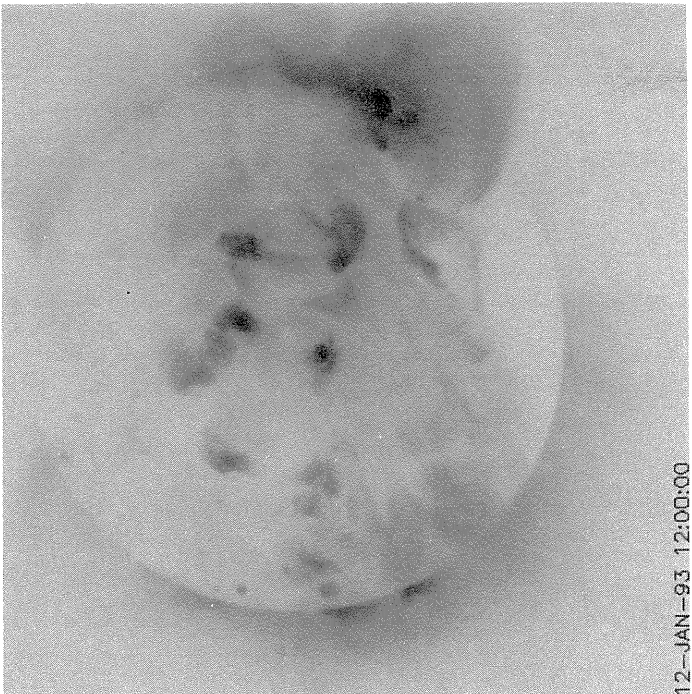
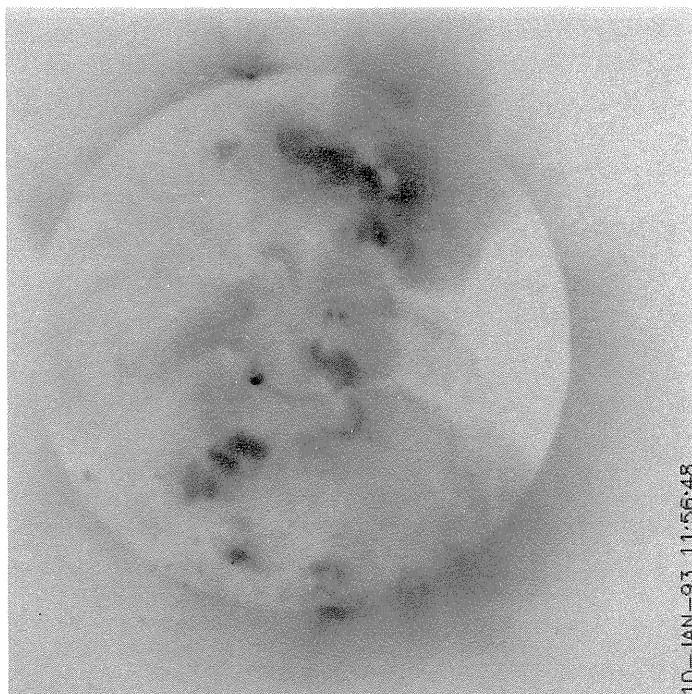
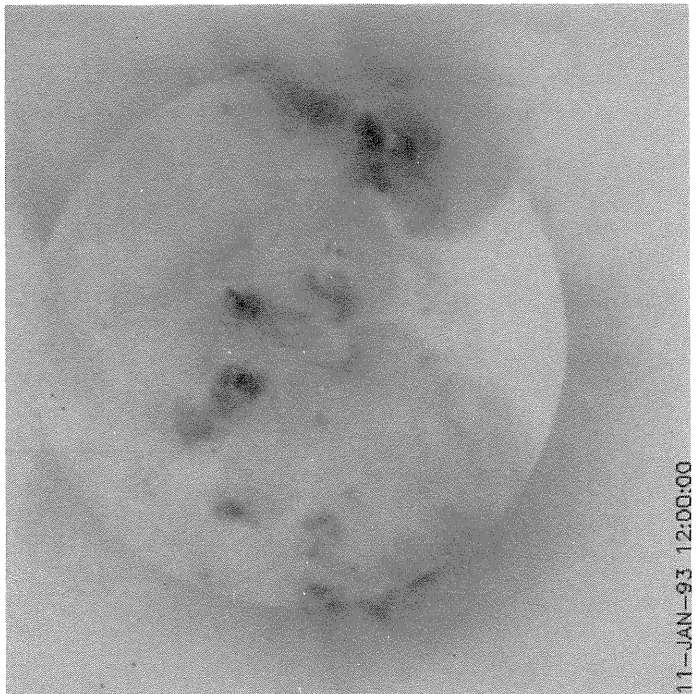
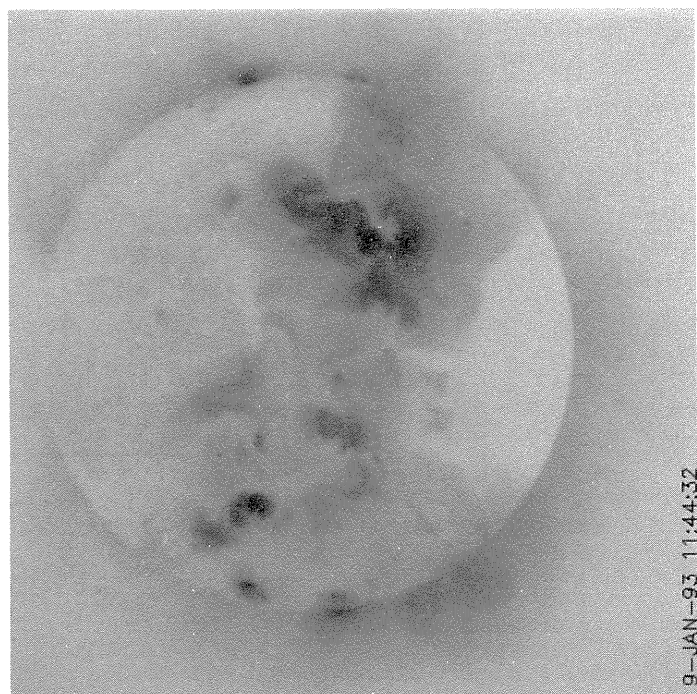


Day 10      Day 12  
11:56:48 UT    12:00:00 UT

# YOHKOH SOFT X-RAY TELESCOPE IMAGES

January  
1993

Day 9      Day 11  
11:44:32 UT    12:00:00 UT



Day 10      Day 12  
11:56:48 UT    12:00:00 UT

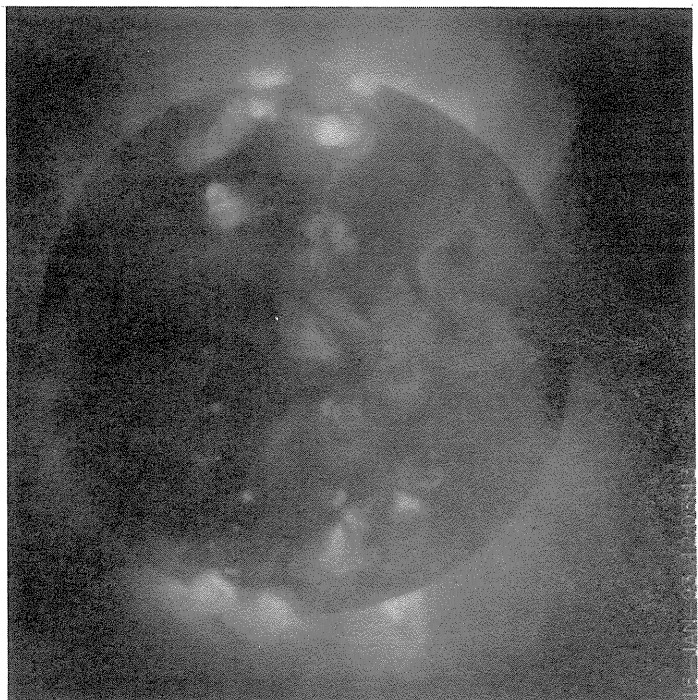
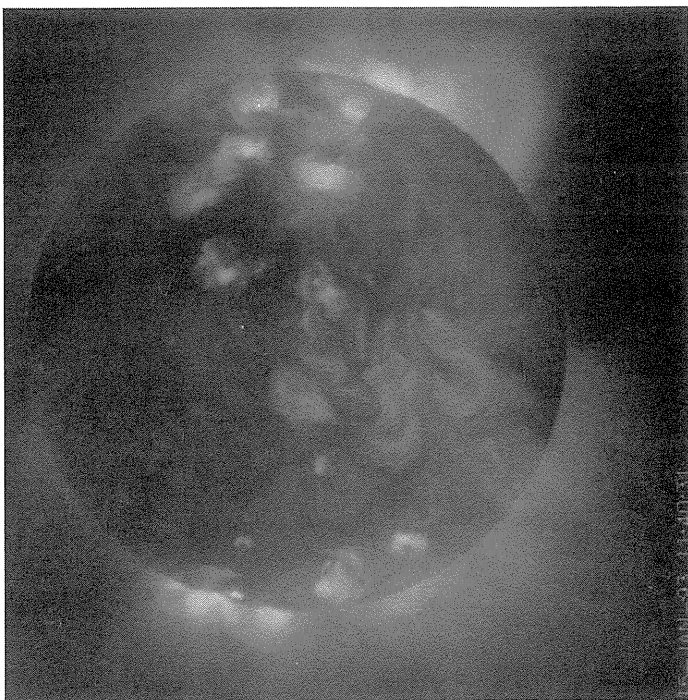
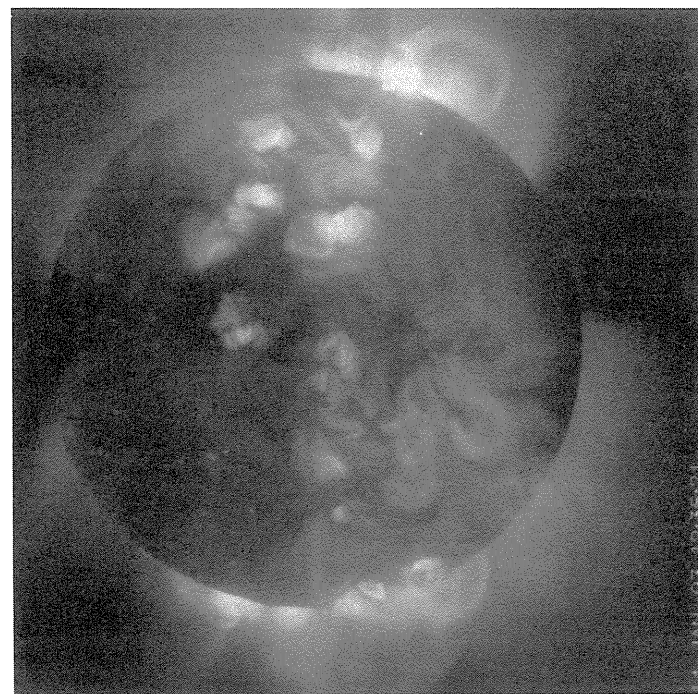
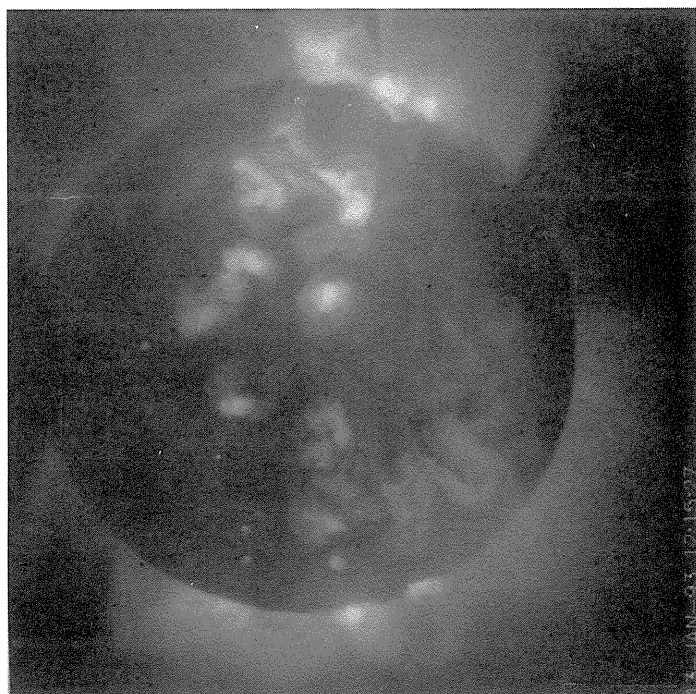


YOHKOH  
SOFT X-RAY  
TELESCOPE  
IMAGES

January  
1993

Day 13      Day 15  
12:15:27 UT    11:40:31 UT

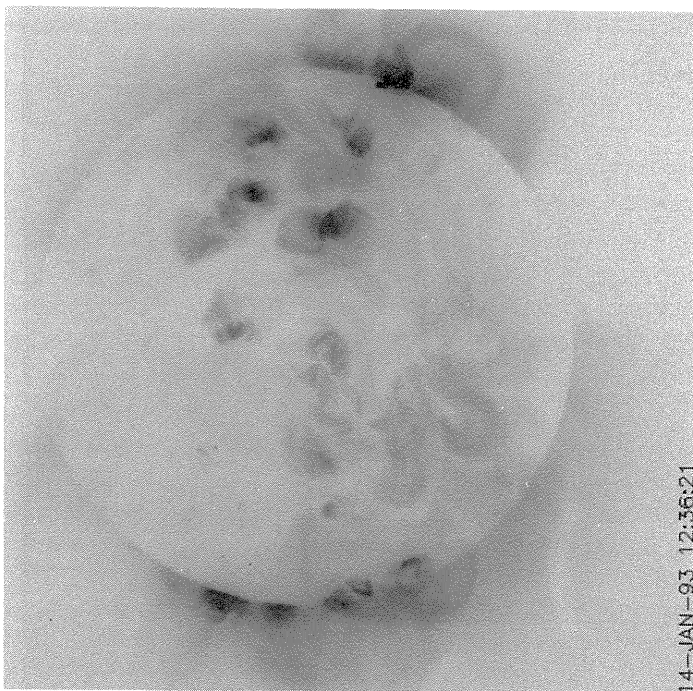
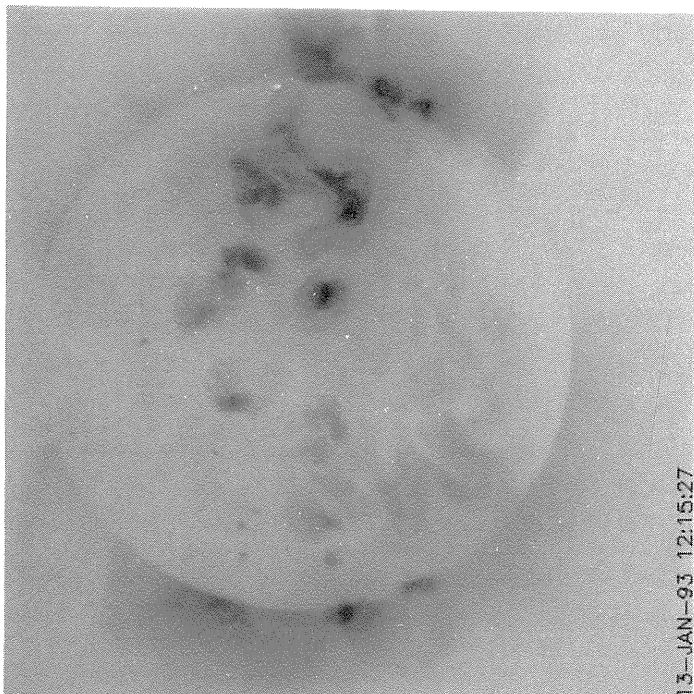
Day 14      Day 16  
12:36:21 UT    12:03:43 UT



# YOHKOH SOFT X-RAY TELESCOPE IMAGES

January  
1993

Day 13      Day 15  
12:15:27 UT    11:40:31 UT



Day 14      Day 16  
12:36:21 UT    12:03:43 UT

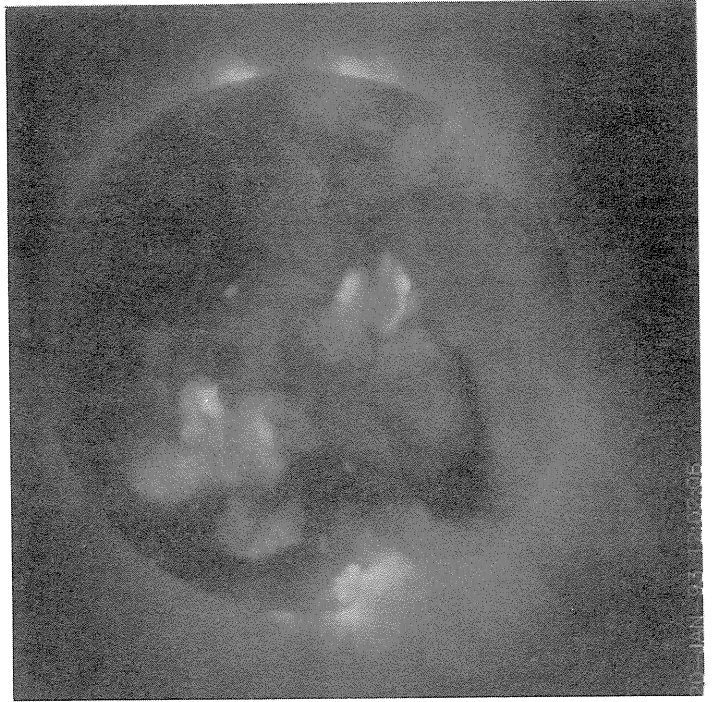
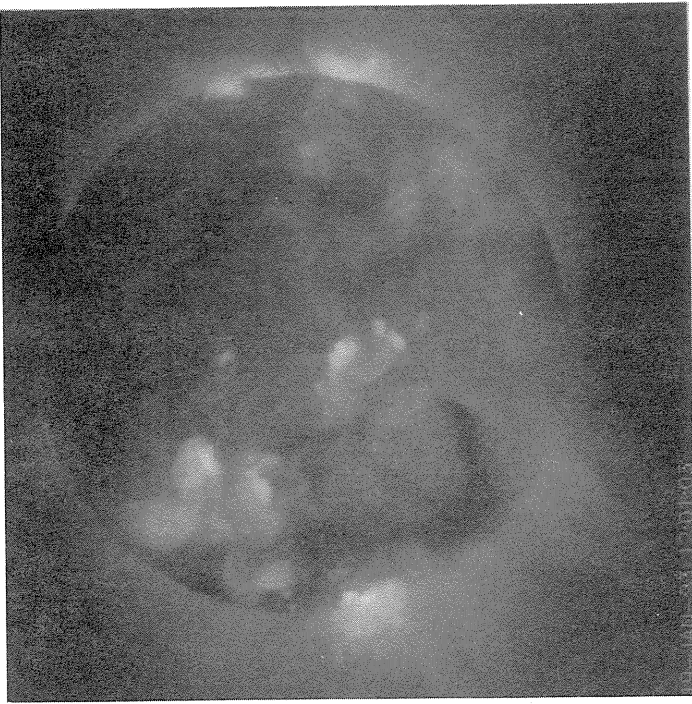
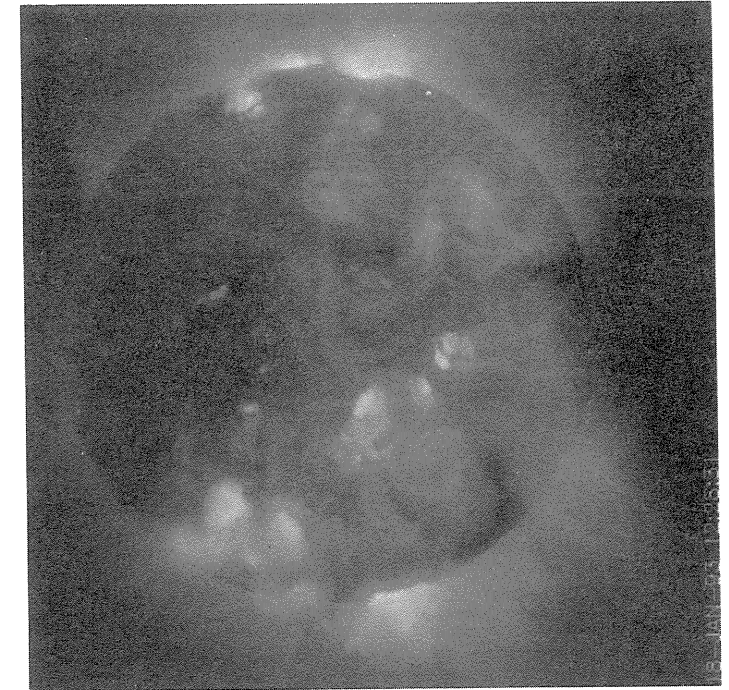
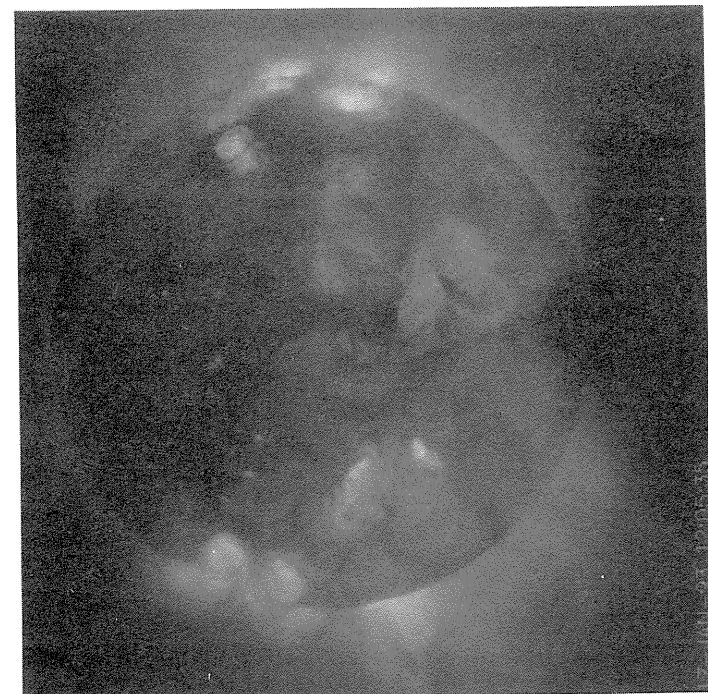


YOHKOH  
SOFT X-RAY  
TELESCOPE  
IMAGES

January  
1993

Day 17 12:05:35 UT  
Day 19 12:01:03 UT

Day 18 12:28:31 UT  
Day 20 12:02:06 UT





17-JAN-93 12:05:35

# YOHKOH SOFT X-RAY TELESCOPE IMAGES

January  
1993

Day 17      Day 19  
12:05:35 UT    12:01:03 UT



19-JAN-93 12:01:03



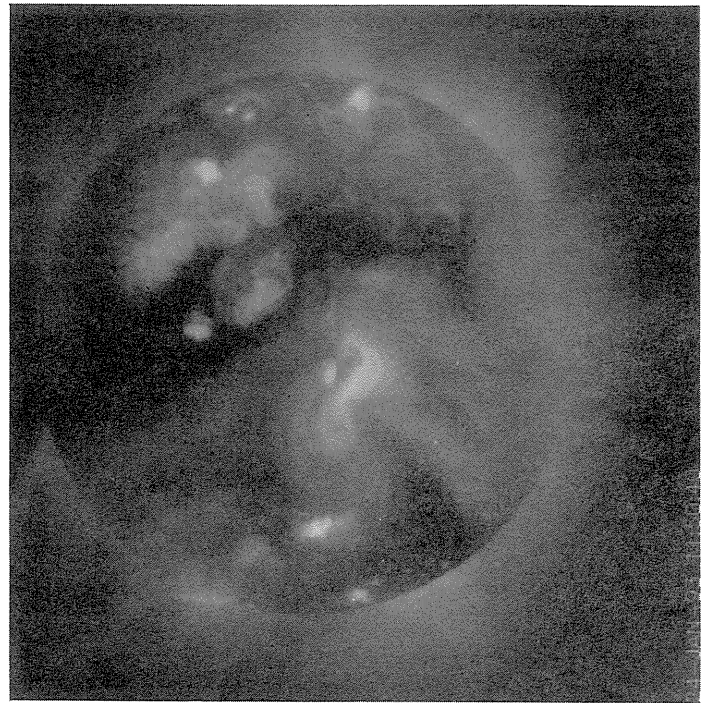
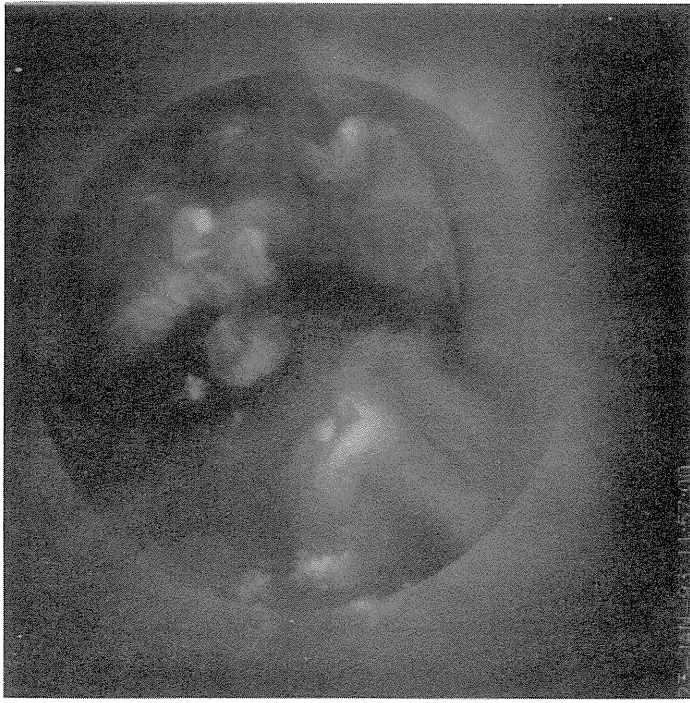
18-JAN-93 12:28:31

Day 18      Day 20  
12:28:31 UT    12:02:06 UT



20-JAN-93 12:02:06



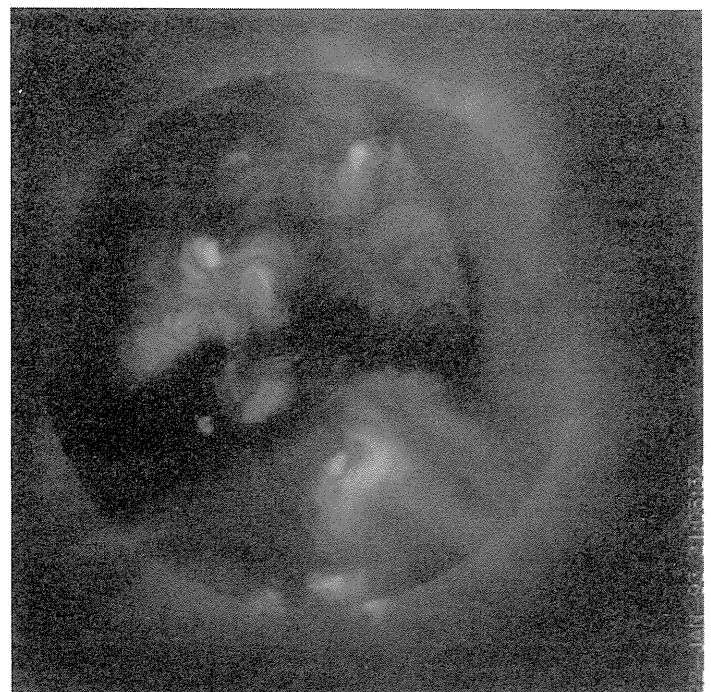
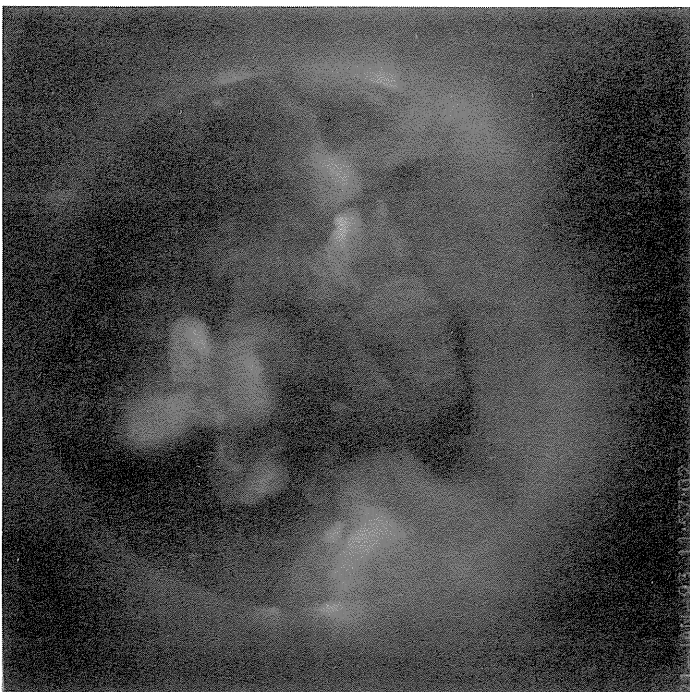


**YOHKOH  
SOFT X-RAY  
TELESCOPE  
IMAGES**

**January  
1993**

Day 21    Day 23  
11:57:02 UT    11:57:00 UT

Day 22    Day 24  
21:08:32 UT    11:50:40 UT

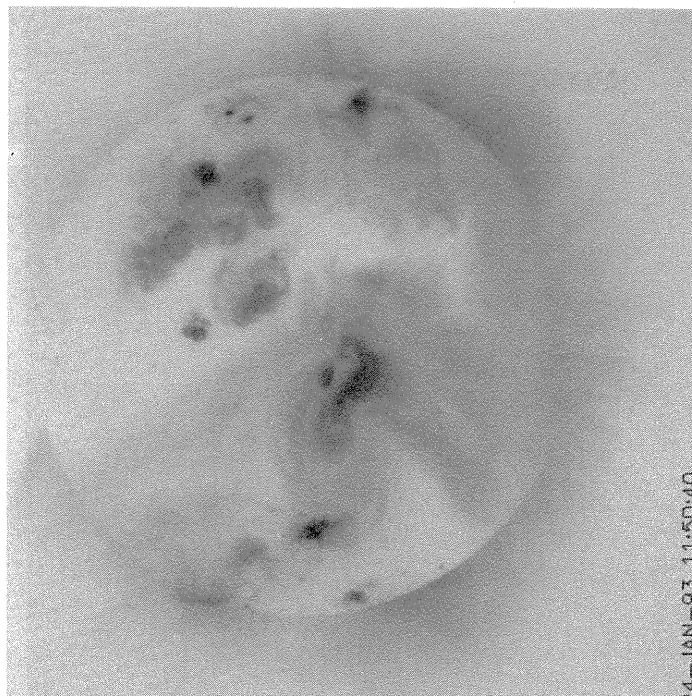
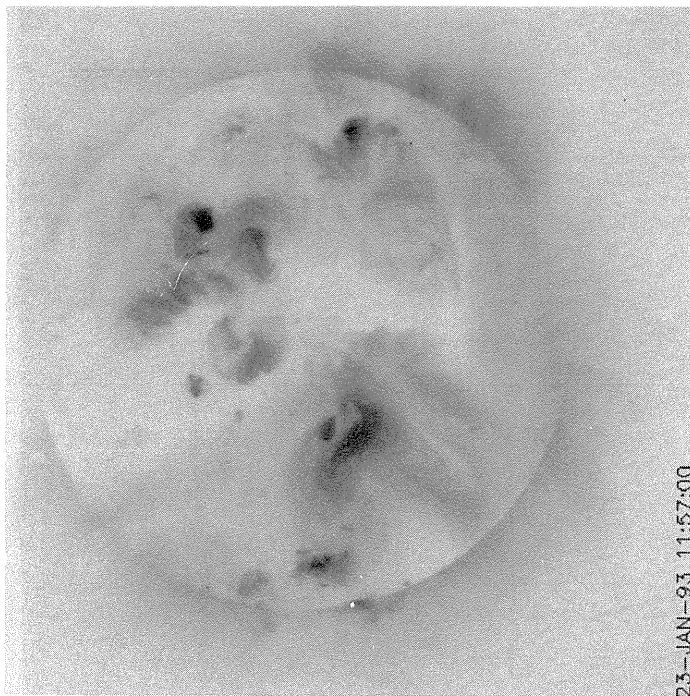
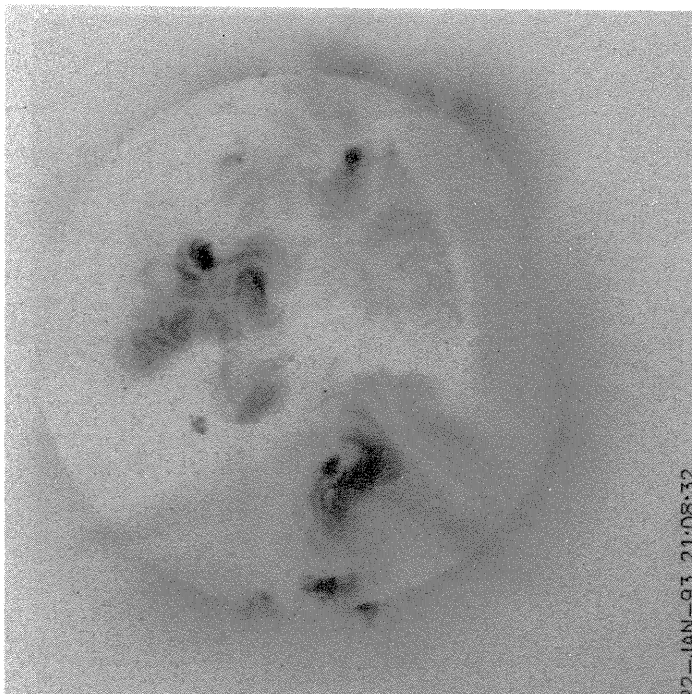


# YOHKOH SOFT X-RAY TELESCOPE IMAGES

January  
1993

Day 21      Day 23  
11:57:02 UT    11:57:00 UT

Day 22      Day 24  
21:08:32 UT    11:50:40 UT



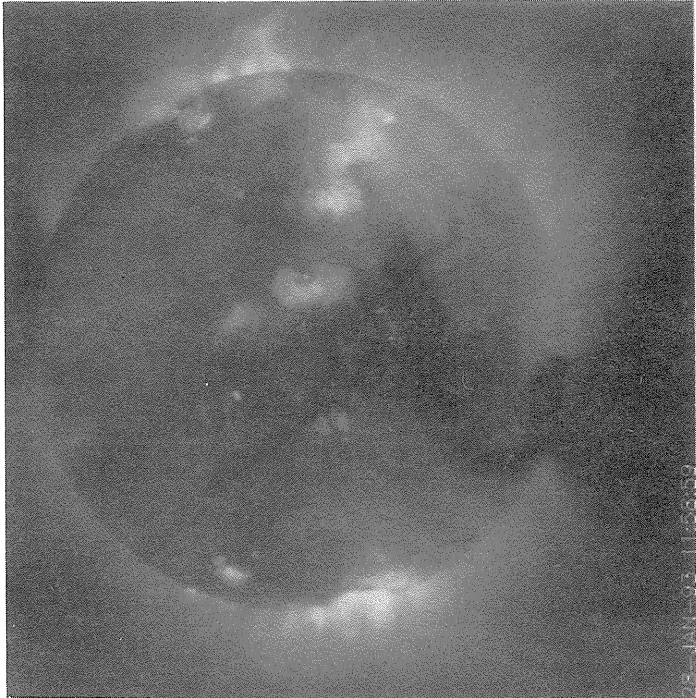
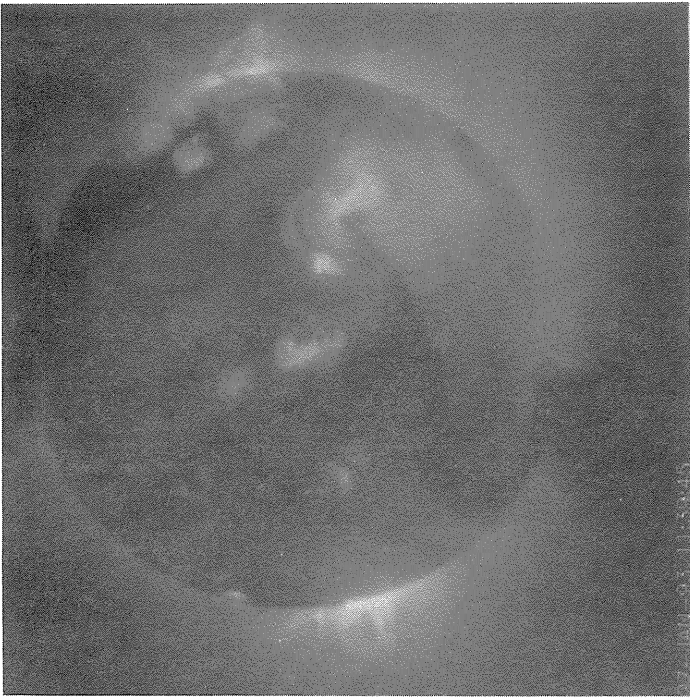
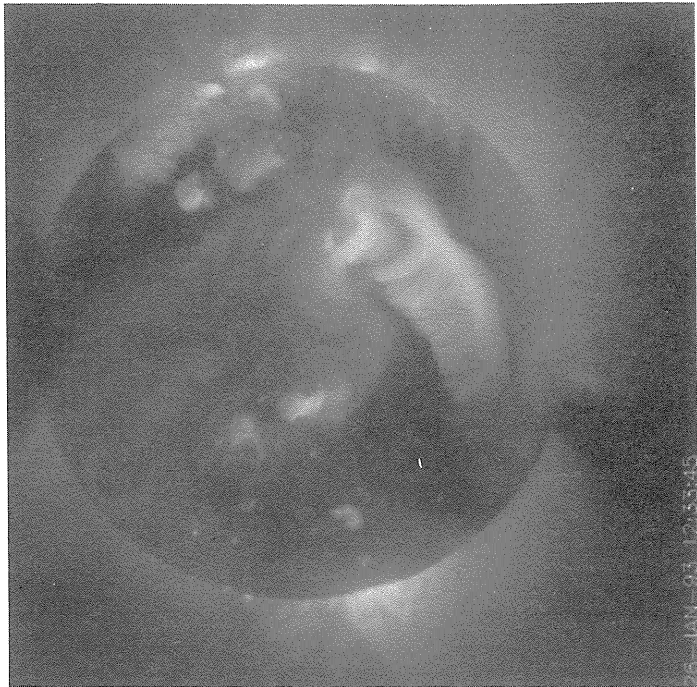
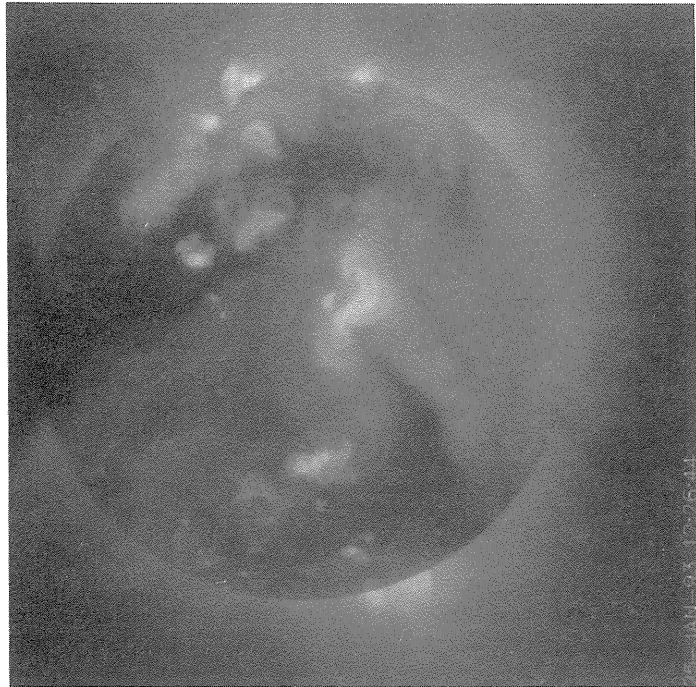


YOHKOH  
SOFT X-RAY  
TELESCOPE  
IMAGES

January  
1993

Day 25    Day 27  
12:26:44 UT    11:39:45 UT

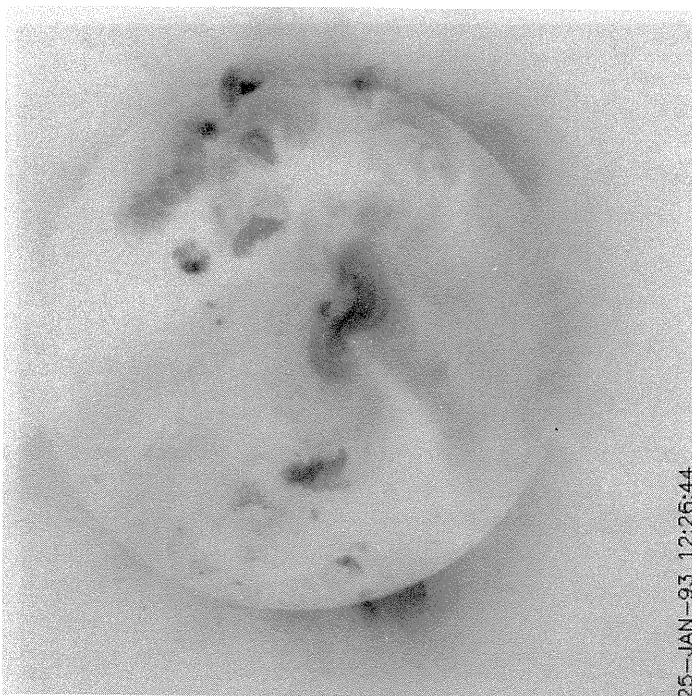
Day 26    Day 28  
12:33:45 UT    11:58:59 UT



**YOHKOH  
SOFT X-RAY  
TELESCOPE  
IMAGES**

**January  
1993**

Day 25      Day 27  
12:26:44 UT    11:39:45 UT



25-JAN-93 12:26:44



27-JAN-93 11:39:45



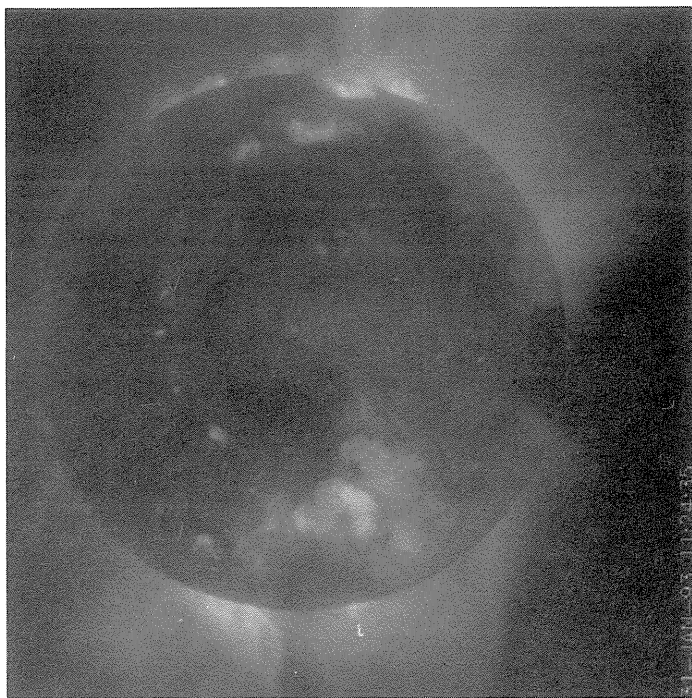
26-JAN-93 12:33:45



28-JAN-93 11:58:59

Day 26      Day 28  
12:33:45 UT    11:58:59 UT

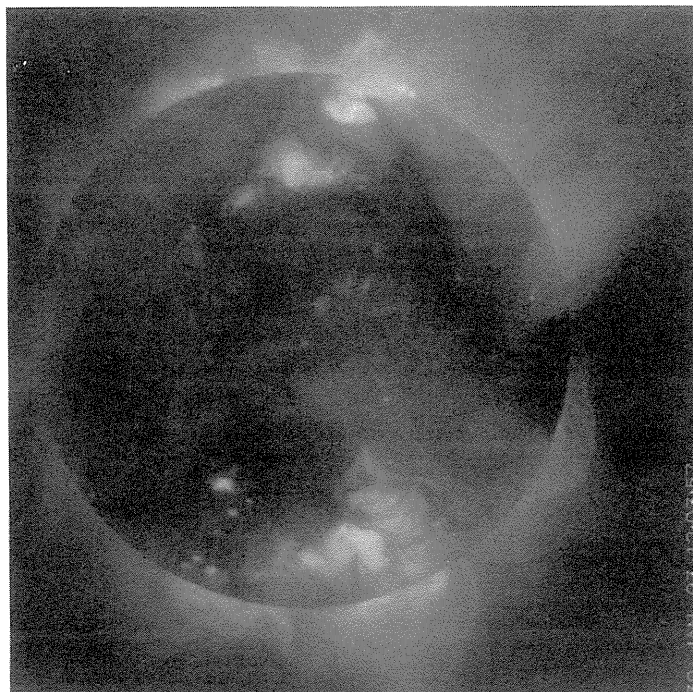
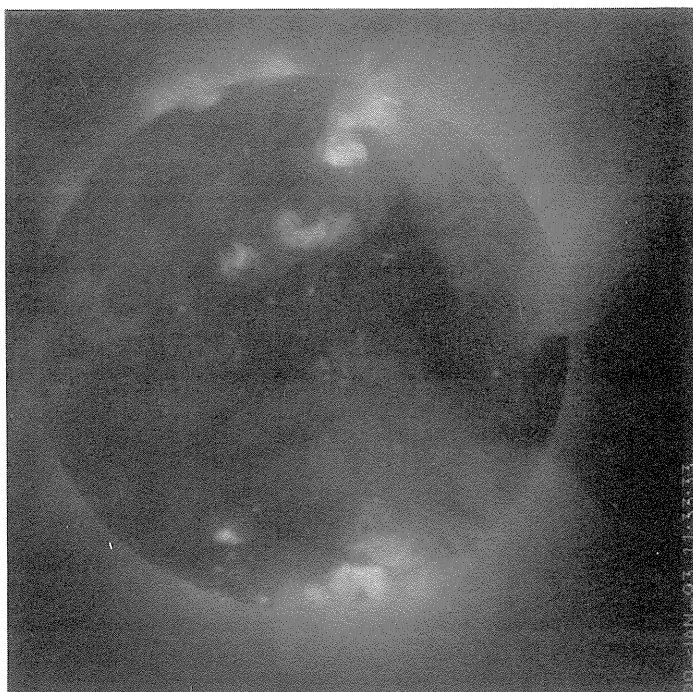




YOHKOH  
SOFT X-RAY  
TELESCOPE  
IMAGES

January  
1993

Day 29      Day 31  
11:33:33 UT    11:24:35 UT

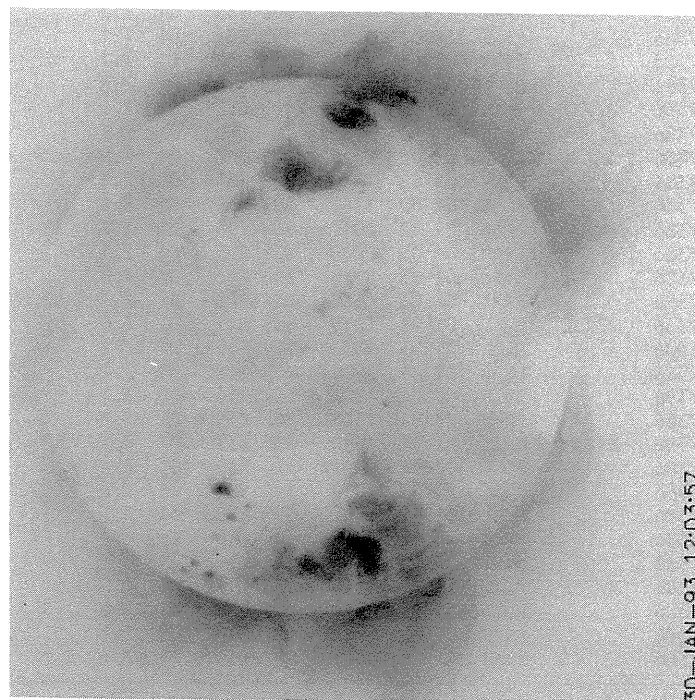
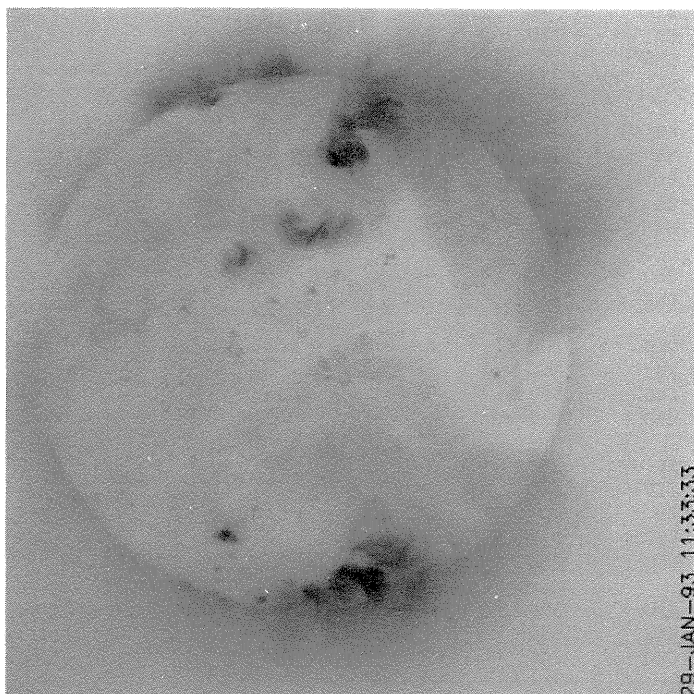


Day 30  
12:03:57 UT

**YOHKOH  
SOFT X-RAY  
TELESCOPE  
IMAGES**

**January  
1993**

Day 29      Day 31  
11:33:33 UT    11:24:35 UT



106  
Jan 93

SUNSPOT GROUPS  
(Ordered by Central Meridian Passage Date)

JANUARY 1993

| NOAA/<br>USAF<br>Group | Mt<br>Wilson<br>Group | Sta  | Mo | Day | Time<br>(UT) | Lat | CMD | CMP<br>Mo | Day | Max<br>H | Mag<br>Class | Spot<br>Class | Corrected<br>Area<br>(10-6 Hemi) | Spot<br>Count | Long.<br>Extent<br>(Deg) | Qual |
|------------------------|-----------------------|------|----|-----|--------------|-----|-----|-----------|-----|----------|--------------|---------------|----------------------------------|---------------|--------------------------|------|
| 7390                   |                       | RAMY | 01 | 02  | 1410         | N12 | W19 | 01        | 1.1 |          | A            | HR            | 20                               | 1             | 1                        | 3    |
| 7390                   |                       | PALE | 01 | 03  | 1830         | N12 | W32 | 01        | 1.4 |          | A            | AX            | 20                               | 4             | 2                        | 3    |
| 7390                   |                       | LEAR | 01 | 04  | 0025         | N12 | W35 | 01        | 1.4 |          | B            | BXO           | 20                               | 2             | 2                        | 3    |
| 7390                   |                       | SVTO | 01 | 04  | 1247         | N13 | W42 | 01        | 1.4 |          | B            | AX            | 10                               | 1             | 1                        | 2    |
| 7390                   |                       | RAMY | 01 | 04  | 1305         | N12 | W42 | 01        | 1.4 |          | A            | AX            | 110                              | 2             | 2                        | 3    |
| 7390                   | 27735                 | MWIL | 01 | 04  | 1630         | N13 | W43 | 01        | 1.4 | 4        | (B )         |               |                                  |               |                          |      |
| 7390                   |                       | PALE | 01 | 04  | 1831         | N12 | W44 | 01        | 1.4 |          | A            | AX            | 10                               | 1             | 1                        | 3    |
| 7390                   |                       | HOLL | 01 | 04  | 2050         | N14 | W48 | 01        | 1.2 |          | A            | AX            |                                  | 1             |                          | 3    |
| 7390                   | 27735                 | MWIL | 01 | 05  | 1600         | N12 | W58 | 01        | 1.3 | 4        | (AP)         |               |                                  |               |                          |      |
| 7397                   |                       | LEAR | 12 | 30  | 0005         | N12 | E57 | 01        | 3.3 |          | A            | AX            | 10                               | 2             | 3                        | 3    |
| 7397                   |                       | SVTO | 01 | 07  | 0808         | N11 | W53 | 01        | 3.3 |          | B            | BXO           | 30                               | 3             | 5                        | 2    |
| 7397                   |                       | RAMY | 01 | 07  | 1325         | N10 | W56 | 01        | 3.3 |          | B            | DAO           | 40                               | 3             | 4                        | 4    |
| 7397                   |                       | HOLL | 01 | 07  | 1720         | N10 | W59 | 01        | 3.3 |          | B            | CRO           | 40                               | 4             | 3                        | 3    |
| 7397                   |                       | PALE | 01 | 07  | 2300         | N10 | W65 | 01        | 3.1 |          | B            | BXO           | 20                               | 5             | 3                        | 2    |
| 7397                   |                       | SVTO | 01 | 08  | 1056         | N12 | W71 | 01        | 3.1 |          | A            | AX            | 20                               | 1             | 1                        | /    |
| 7397                   |                       | RAMY | 01 | 08  | 1410         | N09 | W72 | 01        | 3.2 |          | A            | HR            | 20                               | 1             | 1                        | 4    |
| 7397                   |                       | PALE | 01 | 08  | 1900         | N11 | W76 | 01        | 3.1 |          | A            | AX            | 20                               | 1             | 1                        | 4    |
| 7397A                  |                       | HOLL | 01 | 04  | 2050         | S15 | W02 | 01        | 4.7 |          | A            | AX            |                                  | 1             |                          | 3    |
| 7393                   |                       | PALE | 01 | 04  | 1831         | S18 | E18 | 01        | 6.1 |          | A            | AX            | 20                               | 2             | 2                        | 3    |
| 7393                   |                       | HOLL | 01 | 04  | 2050         | S18 | E17 | 01        | 6.2 |          | A            | AX            | 10                               | 2             | 2                        | 3    |
| 7393                   |                       | SVTO | 01 | 05  | 0928         | S18 | E09 | 01        | 6.1 |          | B            | CAO           | 30                               | 5             | 3                        | 3    |
| 7393                   |                       | RAMY | 01 | 05  | 1410         | S17 | E08 | 01        | 6.2 |          | B            | DRO           | 20                               | 5             | 4                        | 2    |
| 7393                   | 27737                 | MWIL | 01 | 05  | 1600         | S17 | E06 | 01        | 6.1 | 4        | (B )         |               |                                  |               |                          |      |
| 7393                   |                       | HOLL | 01 | 05  | 1910         | S19 | E04 | 01        | 6.1 |          | B            | BXO           | 20                               | 5             | 4                        | 3    |
| 7393                   |                       | PALE | 01 | 05  | 2240         | S18 | E03 | 01        | 6.2 |          | B            | BXO           | 20                               | 4             | 4                        | 1    |
| 7393                   |                       | LEAR | 01 | 06  | 0005         | S18 | E03 | 01        | 6.2 |          | B            | CRO           | 10                               | 3             | 3                        | 3    |
| 7393                   |                       | SVTO | 01 | 06  | 0935         | S18 | W04 | 01        | 6.1 |          | B            | BXO           | 10                               | 5             | 5                        | 3    |
| 7393                   |                       | RAMY | 01 | 06  | 1214         | S18 | W05 | 01        | 6.1 |          | B            | BXO           | 10                               | 5             | 4                        | 4    |
| 7393                   |                       | HOLL | 01 | 06  | 2145         | S18 | W11 | 01        | 6.1 |          | B            | BXO           | 10                               | 4             | 4                        | 3    |
| 7393                   |                       | LEAR | 01 | 07  | 0010         | S20 | W13 | 01        | 6.0 |          | A            | AX            | 10                               | 2             | 2                        | 3    |
| 7393A                  |                       | RAMY | 01 | 06  | 1214         | S28 | W02 | 01        | 6.3 |          | A            | AX            |                                  | 1             |                          | 4    |
| 7392                   |                       | RAMY | 01 | 04  | 1305         | N15 | E26 | 01        | 6.5 |          | A            | AX            |                                  | 1             | 1                        | 3    |
| 7392                   |                       | PALE | 01 | 04  | 1831         | N13 | E24 | 01        | 6.6 |          | A            | AX            | 10                               | 1             | 1                        | 3    |
| 7392                   |                       | HOLL | 01 | 04  | 2050         | N14 | E22 | 01        | 6.5 |          | A            | AX            |                                  | 1             |                          | 3    |
| 7386                   | 27732                 | MWIL | 12 | 31  | 1630         | S06 | E88 | 01        | 7.3 | 5        | AP           |               |                                  |               |                          |      |
| 7386                   |                       | RAMY | 12 | 31  | 1700         | S04 | E88 | 01        | 7.3 |          | A            | HS            | 70                               | 1             | 2                        | 3    |
| 7386                   |                       | LEAR | 01 | 01  | 0032         | S05 | E81 | 01        | 7.1 |          | A            | HH            | 180                              | 1             | 2                        | 3    |
| 7386                   |                       | RAMY | 01 | 01  | 1555         | S03 | E73 | 01        | 7.1 |          | B            | CKO           | 290                              | 5             | 6                        | 3    |
| 7386                   |                       | BOUL | 01 | 01  | 1627         | S03 | E75 | 01        | 7.3 |          | A            | HA            | 240                              | 1             | 3                        | 3    |
| 7386                   | 27732                 | MWIL | 01 | 01  | 1800         | S05 | E72 | 01        | 7.1 | 5        | (AP)         |               |                                  |               |                          |      |
| 7386                   |                       | PALE | 01 | 01  | 1955         | S04 | E70 | 01        | 7.1 |          | A            | HH            | 260                              | 1             | 2                        | 2    |
| 7386                   |                       | LEAR | 01 | 02  | 0028         | S05 | E67 | 01        | 7.0 |          | A            | HS            | 190                              | 1             | 3                        | 2    |
| 7386                   |                       | RAMY | 01 | 02  | 1410         | S03 | E61 | 01        | 7.1 |          | A            | HK            | 320                              | 2             | 11                       | 3    |
| 7386                   |                       | BOUL | 01 | 02  | 1748         | S04 | E59 | 01        | 7.1 |          | A            | HS            | 170                              | 1             | 3                        | 3    |
| 7386                   |                       | PALE | 01 | 02  | 2010         | S04 | E58 | 01        | 7.2 |          | A            | HS            | 250                              | 9             | 2                        | 3    |
| 7386                   |                       | LEAR | 01 | 03  | 0008         | S05 | E55 | 01        | 7.1 |          | B            | CKO           | 260                              | 3             | 5                        | 2    |
| 7386                   |                       | SVTO | 01 | 03  | 0958         | S06 | E48 | 01        | 7.0 |          | B            | CHO           | 300                              | 5             | 5                        | 3    |
| 7386                   |                       | RAMY | 01 | 03  | 1300         | S04 | E48 | 01        | 7.1 |          | B            | CKO           | 270                              | 4             | 5                        | 3    |
| 7386                   | 27732                 | MWIL | 01 | 03  | 1615         | S05 | E45 | 01        | 7.0 | 5        | (AP)         |               |                                  |               |                          |      |
| 7386                   |                       | PALE | 01 | 03  | 1830         | S04 | E45 | 01        | 7.1 |          | B            | CKO           | 220                              | 4             | 3                        | 3    |
| 7386                   |                       | LEAR | 01 | 04  | 0025         | S05 | E42 | 01        | 7.1 |          | A            | HS            | 160                              | 2             | 3                        | 3    |
| 7386                   |                       | SVTO | 01 | 04  | 1247         | S04 | E34 | 01        | 7.1 |          | B            | CHO           | 360                              | 9             | 4                        | 2    |
| 7386                   |                       | RAMY | 01 | 04  | 1305         | S03 | E35 | 01        | 7.2 |          | B            | CKO           | 290                              | 8             | 5                        | 3    |
| 7386                   | 27732                 | MWIL | 01 | 04  | 1630         | S05 | E32 | 01        | 7.1 | 5        | (BP)         |               |                                  |               |                          |      |
| 7386                   |                       | BOUL | 01 | 04  | 1634         | S04 | E32 | 01        | 7.1 |          | A            | HS            | 230                              | 1             | 3                        | 1    |
| 7386                   |                       | PALE | 01 | 04  | 1831         | S04 | E33 | 01        | 7.2 |          | B            | CKO           | 330                              | 6             | 4                        | 3    |
| 7386                   |                       | HOLL | 01 | 04  | 2050         | S05 | E30 | 01        | 7.1 |          | A            | HH            | 260                              | 3             | 3                        | 3    |
| 7386                   |                       | SVTO | 01 | 05  | 0928         | S08 | E24 | 01        | 7.2 |          | B            | CHO           | 310                              | 8             | 9                        | 3    |
| 7386                   |                       | RAMY | 01 | 05  | 1410         | S03 | E19 | 01        | 7.0 |          | B            | CKO           | 280                              | 4             | 5                        | 2    |
| 7386                   | 27732                 | MWIL | 01 | 05  | 1600         | S04 | E18 | 01        | 7.0 | 6        | (A )         |               |                                  |               |                          |      |
| 7386                   |                       | HOLL | 01 | 05  | 1910         | S05 | E17 | 01        | 7.1 |          | B            | CHO           | 300                              | 8             | 4                        | 3    |
| 7386                   |                       | PALE | 01 | 05  | 2240         | S04 | E16 | 01        | 7.1 |          | B            | CHO           | 330                              | 4             | 3                        | 1    |
| 7386                   |                       | LEAR | 01 | 06  | 0005         | S05 | E15 | 01        | 7.1 |          | B            | CHO           | 260                              | 12            | 5                        | 3    |

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

107  
Jan 93

JANUARY      1993

| NOAA/<br>USAF<br>Group | Mt<br>Wilson<br>Group | Sta  | Observation<br>Time<br>Mo Day (UT) | Lat | CMD | CMP<br>Mo Day | Max<br>H | Mag<br>Class | Spot<br>Class | Corrected<br>Area<br>(10-6 Hemi) | Spot<br>Count | Long.<br>Extent<br>(Deg) | Qual |
|------------------------|-----------------------|------|------------------------------------|-----|-----|---------------|----------|--------------|---------------|----------------------------------|---------------|--------------------------|------|
| 7386                   |                       | RAMY | 01 06 1214                         | S05 | E07 | 01            | 7.0      | BG           | DKI           | 310                              | 12            | 6                        | 4    |
| 7386                   |                       | BOUL | 01 06 1554                         | S04 | E06 | 01            | 7.1      | A            | HK            | 300                              | 4             | 4                        | 2    |
| 7386                   |                       | HOLL | 01 06 2145                         | S04 | E03 | 01            | 7.1      | B            | CKO           | 320                              | 16            | 6                        | 3    |
| 7386                   |                       | LEAR | 01 07 0010                         | S05 | E02 | 01            | 7.1      | B            | CKO           | 250                              | 12            | 6                        | 3    |
| 7386                   |                       | SVTO | 01 07 0808                         | S05 | W04 | 01            | 7.0      | B            | CHO           | 300                              | 18            | 7                        | 2    |
| 7386                   |                       | RAMY | 01 07 1325                         | S05 | W05 | 01            | 7.2      | BG           | DKO           | 330                              | 13            | 8                        | 4    |
| 7386                   |                       | BOUL | 01 07 1644                         | S04 | W09 | 01            | 7.0      | A            | HK            | 260                              | 2             | 3                        | 2    |
| 7386                   |                       | HOLL | 01 07 1720                         | S05 | W09 | 01            | 7.0      | B            | CKO           | 310                              | 16            | 7                        | 3    |
| 7386                   |                       | PALE | 01 07 2300                         | S06 | W11 | 01            | 7.1      | B            | HSO           | 210                              | 17            | 6                        | 2    |
| 7386                   |                       | LEAR | 01 08 0049                         | S04 | W11 | 01            | 7.2      | B            | CKO           | 250                              | 14            | 7                        | 3    |
| 7386                   |                       | SVTO | 01 08 1056                         | S04 | W17 | 01            | 7.2      | BG           | CHO           | 260                              | 14            | 7                        | /    |
| 7386                   |                       | RAMY | 01 08 1410                         | S05 | W20 | 01            | 7.1      | B            | CKO           | 240                              | 11            | 6                        | 4    |
| 7386                   |                       | PALE | 01 08 1900                         | S05 | W22 | 01            | 7.1      | B            | CSO           | 200                              | 11            | 8                        | 4    |
| 7386                   |                       | HOLL | 01 08 2247                         | S04 | W23 | 01            | 7.2      | B            | CHO           | 210                              | 4             | 3                        | 1    |
| 7386                   |                       | LEAR | 01 09 0106                         | S04 | W25 | 01            | 7.2      | B            | CKO           | 220                              | 6             | 4                        | 3    |
| 7386                   |                       | SVTO | 01 09 0915                         | S05 | W29 | 01            | 7.2      | B            | CHO           | 210                              | 4             | 5                        | 2    |
| 7386                   |                       | RAMY | 01 09 1304                         | S06 | W32 | 01            | 7.1      | B            | CKO           | 220                              | 2             | 3                        | 3    |
| 7386                   |                       | BOUL | 01 09 1738                         | S04 | W35 | 01            | 7.1      | A            | HS            | 170                              | 1             | 3                        | 2    |
| 7386                   |                       | HOLL | 01 09 1750                         | S05 | W35 | 01            | 7.1      | A            | HS            | 240                              | 3             | 3                        | 3    |
| 7386                   |                       | PALE | 01 09 1930                         | S05 | W36 | 01            | 7.1      | A            | HS            | 200                              | 1             | 3                        | 2    |
| 7386                   |                       | LEAR | 01 10 0050                         | S05 | W38 | 01            | 7.2      | B            | CAO           | 180                              | 5             | 3                        | 3    |
| 7386                   |                       | SVTO | 01 10 0753                         | S05 | W43 | 01            | 7.1      | B            | CSO           | 230                              | 3             | 3                        | 4    |
| 7386                   |                       | RAMY | 01 10 1318                         | S06 | W45 | 01            | 7.2      | B            | CKO           | 150                              | 6             | 5                        | 3    |
| 7386                   |                       | BOUL | 01 10 1635                         | S06 | W48 | 01            | 7.1      | A            | HS            | 100                              | 1             | 2                        | 2    |
| 7386                   |                       | HOLL | 01 10 1730                         | S04 | W48 | 01            | 7.1      | A            | HS            | 140                              | 6             | 4                        | 2    |
| 7386                   |                       | PALE | 01 10 2131                         | S04 | W49 | 01            | 7.2      | A            | HS            | 150                              | 4             | 3                        | 2    |
| 7386                   |                       | LEAR | 01 11 0122                         | S06 | W53 | 01            | 7.1      | A            | HS            | 100                              | 1             | 3                        | 3    |
| 7386                   |                       | SVTO | 01 11 1330                         | S05 | W57 | 01            | 7.3      | B            | CSO           | 110                              | 4             | 4                        | 2    |
| 7386                   |                       | HOLL | 01 11 1740                         | S04 | W59 | 01            | 7.3      | A            | HS            | 80                               | 1             | 2                        | 3    |
| 7386                   |                       | PALE | 01 11 1919                         | S05 | W62 | 01            | 7.2      | A            | HS            | 90                               | 1             | 1                        | 3    |
| 7386                   |                       | LEAR | 01 12 0004                         | S07 | W66 | 01            | 7.0      | A            | HS            | 130                              | 2             | 2                        | 3    |
| 7386                   |                       | HOLL | 01 12 1723                         | S03 | W75 | 01            | 7.1      | A            | HS            | 120                              | 2             | 2                        | 3    |
| 7386                   |                       | PALE | 01 12 1910                         | S03 | W75 | 01            | 7.2      | A            | HS            | 60                               | 1             | 2                        | 3    |
| 7386                   |                       | LEAR | 01 13 0122                         | S03 | W81 | 01            | 7.0      | A            | HS            | 120                              | 1             | 2                        | 3    |
| 7394                   |                       | RAMY | 01 05 1410                         | S16 | E26 | 01            | 7.6      | B            | BXO           | 10                               | 3             | 2                        | 2    |
| 7394                   | 27738                 | MWIL | 01 05 1600                         | S16 | E24 | 01            | 7.5      | 4 (B )       |               |                                  |               |                          |      |
| 7394                   |                       | HOLL | 01 05 1910                         | S18 | E23 | 01            | 7.6      | B            | BXO           | 20                               | 3             | 3                        | 3    |
| 7394                   |                       | PALE | 01 05 2240                         | S17 | E22 | 01            | 7.6      | A            | AX            | 10                               | 1             | 1                        | 1    |
| 7394                   |                       | LEAR | 01 06 0005                         | S17 | E21 | 01            | 7.6      | B            | BXO           | 10                               | 3             | 3                        | 3    |
| 7394                   |                       | SVTO | 01 06 0935                         | S17 | E15 | 01            | 7.5      | B            | BXO           | 10                               | 7             | 4                        | 3    |
| 7394                   |                       | RAMY | 01 06 1214                         | S16 | E14 | 01            | 7.6      | B            | BXO           | 10                               | 3             | 3                        | 4    |
| 7394                   |                       | HOLL | 01 06 2145                         | S16 | E08 | 01            | 7.5      | A            | AX            |                                  | 2             | 1                        | 3    |
| 7394                   |                       | LEAR | 01 07 0010                         | S17 | E07 | 01            | 7.5      | A            | AX            | 10                               | 3             | 2                        | 3    |
| 7394                   |                       | SVTO | 01 07 0808                         | S16 | W01 | 01            | 7.3      | B            | BXO           | 10                               | 0             | 2                        | 2    |
| 7394                   |                       | RAMY | 01 07 1325                         | S17 | W02 | 01            | 7.4      | B            | BXO           | 10                               | 3             | 4                        | 4    |
| 7394                   |                       | HOLL | 01 07 1720                         | S18 | W03 | 01            | 7.5      | B            | BXO           | 10                               | 3             | 4                        | 3    |
| 7394                   |                       | PALE | 01 07 2300                         | S18 | W07 | 01            | 7.4      | B            | BXO           | 20                               | 19            | 6                        | 2    |
| 7394                   |                       | LEAR | 01 08 0049                         | S17 | W08 | 01            | 7.4      | B            | BXO           | 60                               | 6             | 4                        | 3    |
| 7394                   |                       | SVTO | 01 08 1056                         | S17 | W13 | 01            | 7.5      | B            | DSO           | 120                              | 19            | 7                        | /    |
| 7394                   |                       | RAMY | 01 08 1410                         | S18 | W13 | 01            | 7.6      | B            | DRI           | 70                               | 28            | 7                        | 4    |
| 7394                   |                       | PALE | 01 08 1900                         | S18 | W18 | 01            | 7.4      | B            | DAO           | 50                               | 30            | 8                        | 4    |
| 7394                   |                       | HOLL | 01 08 2247                         | S17 | W17 | 01            | 7.6      | B            | DSO           | 60                               | 7             | 8                        | 1    |
| 7394                   |                       | LEAR | 01 09 0106                         | S17 | W20 | 01            | 7.5      | B            | DAO           | 70                               | 12            | 7                        | 3    |
| 7394                   |                       | SVTO | 01 09 0915                         | S18 | W24 | 01            | 7.5      | BG           | DSO           | 70                               | 17            | 9                        | 2    |
| 7394                   |                       | RAMY | 01 09 1304                         | S18 | W26 | 01            | 7.6      | B            | DAO           | 60                               | 13            | 10                       | 3    |
| 7394                   |                       | HOLL | 01 09 1750                         | S18 | W30 | 01            | 7.4      | B            | CAO           | 40                               | 10            | 9                        | 3    |
| 7394                   |                       | PALE | 01 09 1930                         | S17 | W30 | 01            | 7.5      | B            | DSO           | 50                               | 13            | 10                       | 2    |
| 7394                   |                       | LEAR | 01 10 0050                         | S16 | W32 | 01            | 7.6      | B            | DHO           | 80                               | 7             | 9                        | 3    |
| 7394                   |                       | SVTO | 01 10 0753                         | S17 | W37 | 01            | 7.5      | B            | CAO           | 60                               | 14            | 11                       | 4    |
| 7394                   |                       | RAMY | 01 10 1318                         | S18 | W39 | 01            | 7.6      | B            | EAI           | 80                               | 16            | 12                       | 3    |
| 7394                   |                       | BOUL | 01 10 1635                         | S18 | W41 | 01            | 7.6      | B            | ESO           | 60                               | 10            | 14                       | 2    |
| 7394                   |                       | HOLL | 01 10 1730                         | S17 | W42 | 01            | 7.5      | B            | CAI           | 40                               | 17            | 10                       | 2    |
| 7394                   |                       | PALE | 01 10 2131                         | S17 | W43 | 01            | 7.6      | B            | EAI           | 110                              | 17            | 11                       | 2    |
| 7394                   |                       | LEAR | 01 11 0122                         | S17 | W48 | 01            | 7.4      | B            | DAO           | 170                              | 11            | 10                       | 3    |
| 7394                   |                       | SVTO | 01 11 1330                         | S17 | W50 | 01            | 7.8      | B            | ESO           | 90                               | 17            | 14                       | 2    |
| 7394                   |                       | HOLL | 01 11 1740                         | S15 | W55 | 01            | 7.6      | B            | CSO           | 80                               | 9             | 12                       | 3    |
| 7394                   |                       | PALE | 01 11 1919                         | S17 | W58 | 01            | 7.4      | B            | CSO           | 120                              | 9             | 10                       | 3    |
| 7394                   |                       | LEAR | 01 12 0004                         | S16 | W59 | 01            | 7.5      | B            | ESO           | 150                              | 12            | 15                       | 3    |



108  
Jan 93

# SUNSPOT GROUPS (Ordered by Central Meridian Passage Date)

JANUARY 1993

| NOAA/<br>USAF<br>Group | Mt<br>Wilson<br>Group | Sta  | Mo | Day | Time<br>(UT) | Lat | CMD | CMP<br>Mo | Day | Max<br>H | Mag<br>Class | Spot<br>Class | Corrected<br>Area<br>(10-6 Hemi) | Spot<br>Count | Long.<br>Extent<br>(Deg) | Qual |
|------------------------|-----------------------|------|----|-----|--------------|-----|-----|-----------|-----|----------|--------------|---------------|----------------------------------|---------------|--------------------------|------|
| 7394                   |                       | HOLL | 01 | 12  | 1723         | S17 | W68 | 01        | 7.5 |          | B            | FAO           | 100                              | 13            | 16                       | 3    |
| 7394                   |                       | PALE | 01 | 12  | 1910         | S18 | W67 | 01        | 7.7 |          | B            | DAO           | 120                              | 11            | 7                        | 3    |
| 7394                   |                       | LEAR | 01 | 13  | 0122         | S18 | W71 | 01        | 7.6 |          | B            | EAO           | 250                              | 13            | 14                       | 3    |
| 7394                   |                       | SVTO | 01 | 13  | 1105         | S18 | W76 | 01        | 7.7 |          | B            | EAO           | 150                              | 20            | 11                       | 3    |
| 7394                   |                       | BOUL | 01 | 13  | 1554         | S19 | W78 | 01        | 7.7 |          | B            | BXO           | 80                               | 5             | 5                        | 3    |
| 7394                   |                       | PALE | 01 | 13  | 2100         | S20 | W85 | 01        | 7.4 |          | A            | AX            | 20                               | 1             | 1                        | 2    |
| 7394                   |                       | LEAR | 01 | 14  | 0015         | S19 | W85 | 01        | 7.5 |          | B            | BXO           | 60                               | 3             | 8                        | 2    |
| 7387                   |                       | LEAR | 01 | 01  | 0032         | S24 | E81 | 01        | 7.3 |          | A            | HS            | 120                              | 1             | 2                        | 3    |
| 7387                   |                       | RAMY | 01 | 01  | 1555         | S22 | E75 | 01        | 7.4 |          | B            | EAO           | 240                              | 12            | 11                       | 3    |
| 7387                   |                       | BOUL | 01 | 01  | 1627         | S23 | E77 | 01        | 7.6 |          | B            | CAO           | 190                              | 2             | 7                        | 3    |
| 7387                   | 27733                 | MWIL | 01 | 01  | 1800         | S23 | E73 | 01        | 7.4 | 4        | (BP)         |               |                                  |               |                          |      |
| 7387                   |                       | PALE | 01 | 01  | 1955         | S23 | E73 | 01        | 7.4 |          | B            | CSO           | 190                              | 4             | 10                       | 2    |
| 7387                   |                       | LEAR | 01 | 02  | 0028         | S24 | E70 | 01        | 7.4 |          | B            | CAO           | 130                              | 5             | 7                        | 2    |
| 7387                   |                       | RAMY | 01 | 02  | 1410         | S22 | E63 | 01        | 7.4 |          | BG           | EAO           | 200                              | 11            | 11                       | 3    |
| 7387                   |                       | BOUL | 01 | 02  | 1748         | S23 | E63 | 01        | 7.6 |          | B            | CSO           | 100                              | 3             | 11                       | 3    |
| 7387                   |                       | PALE | 01 | 02  | 2010         | S23 | E62 | 01        | 7.6 |          | B            | DSO           | 180                              | 10            | 10                       | 3    |
| 7387                   |                       | LEAR | 01 | 03  | 0008         | S24 | E57 | 01        | 7.4 |          | B            | CAO           | 100                              | 2             | 9                        | 2    |
| 7387                   |                       | SVTO | 01 | 03  | 0958         | S23 | E52 | 01        | 7.4 |          | B            | CHO           | 190                              | 8             | 9                        | 3    |
| 7387                   |                       | RAMY | 01 | 03  | 1300         | S21 | E51 | 01        | 7.4 |          | B            | DAO           | 200                              | 7             | 9                        | 3    |
| 7387                   | 27733                 | MWIL | 01 | 03  | 1615         | S23 | E46 | 01        | 7.2 | 5        | (BP)         |               |                                  |               |                          |      |
| 7387                   |                       | PALE | 01 | 03  | 1830         | S23 | E48 | 01        | 7.5 |          | B            | CAO           | 210                              | 14            | 9                        | 3    |
| 7387                   |                       | LEAR | 01 | 04  | 0025         | S22 | E41 | 01        | 7.2 |          | A            | HS            | 100                              | 2             | 2                        | 3    |
| 7387                   |                       | SVTO | 01 | 04  | 1247         | S22 | E33 | 01        | 7.1 |          | B            | CSO           | 230                              | 4             | 3                        | 2    |
| 7387                   |                       | RAMY | 01 | 04  | 1305         | S20 | E36 | 01        | 7.3 |          | A            | HA            | 110                              | 3             | 3                        | 3    |
| 7387                   | 27733                 | MWIL | 01 | 04  | 1630         | S22 | E32 | 01        | 7.1 | 5        | (AP)         |               |                                  |               |                          |      |
| 7387                   |                       | BOUL | 01 | 04  | 1634         | S21 | E33 | 01        | 7.2 |          | A            | HA            | 130                              | 1             | 2                        | 1    |
| 7387                   |                       | HOLL | 01 | 04  | 1730         | S22 | E35 | 01        | 7.4 |          | B            | CAO           | 150                              | 5             | 10                       | 3    |
| 7387                   |                       | PALE | 01 | 04  | 1831         | S22 | E33 | 01        | 7.3 |          | B            | CAO           | 190                              | 5             | 3                        | 3    |
| 7387                   |                       | SVTO | 01 | 05  | 0928         | S24 | E23 | 01        | 7.2 |          | B            | CAO           | 120                              | 9             | 5                        | 3    |
| 7387                   |                       | RAMY | 01 | 05  | 1410         | S24 | E25 | 01        | 7.5 |          | B            | CAO           | 100                              | 11            | 12                       | 2    |
| 7387                   | 27733                 | MWIL | 01 | 05  | 1600         | S23 | E22 | 01        | 7.4 | 5        | (BP)         |               |                                  |               |                          |      |
| 7387                   |                       | HOLL | 01 | 05  | 1910         | S23 | E19 | 01        | 7.3 |          | B            | CAO           | 140                              | 7             | 3                        | 3    |
| 7387                   |                       | PALE | 01 | 05  | 2240         | S22 | E18 | 01        | 7.3 |          | B            | DAO           | 100                              | 3             | 2                        | 1    |
| 7387                   |                       | LEAR | 01 | 06  | 0005         | S23 | E17 | 01        | 7.3 |          | B            | CAO           | 110                              | 10            | 4                        | 3    |
| 7387                   |                       | SVTO | 01 | 06  | 0935         | S25 | E11 | 01        | 7.2 |          | B            | DAO           | 150                              | 12            | 8                        | 3    |
| 7387                   |                       | RAMY | 01 | 06  | 1214         | S25 | E12 | 01        | 7.4 |          | BG           | DAO           | 170                              | 17            | 11                       | 4    |
| 7387                   |                       | BOUL | 01 | 06  | 1554         | S21 | E07 | 01        | 7.2 |          | B            | DAO           | 150                              | 6             | 5                        | 2    |
| 7387                   |                       | HOLL | 01 | 06  | 2145         | S23 | E07 | 01        | 7.4 |          | B            | CAO           | 170                              | 15            | 10                       | 3    |
| 7387                   |                       | LEAR | 01 | 07  | 0010         | S23 | E04 | 01        | 7.3 |          | B            | DAO           | 140                              | 10            | 5                        | 3    |
| 7387                   |                       | SVTO | 01 | 07  | 0808         | S23 | W03 | 01        | 7.1 |          | B            | DAO           | 110                              | 16            | 9                        | 2    |
| 7387                   |                       | RAMY | 01 | 07  | 1325         | S24 | W02 | 01        | 7.4 |          | BG           | DAO           | 150                              | 14            | 8                        | 4    |
| 7387                   |                       | BOUL | 01 | 07  | 1644         | S22 | W05 | 01        | 7.3 |          | B            | DAO           | 120                              | 7             | 4                        | 2    |
| 7387                   |                       | HOLL | 01 | 07  | 1720         | S22 | W04 | 01        | 7.4 |          | B            | DAO           | 150                              | 16            | 10                       | 3    |
| 7387                   |                       | PALE | 01 | 07  | 2300         | S26 | W08 | 01        | 7.3 |          | B            | DAO           | 60                               | 21            | 10                       | 2    |
| 7387                   |                       | LEAR | 01 | 08  | 0049         | S23 | W09 | 01        | 7.3 |          | B            | EAO           | 80                               | 11            | 10                       | 3    |
| 7387                   |                       | SVTO | 01 | 08  | 1056         | S23 | W17 | 01        | 7.1 |          | BG           | DAO           | 110                              | 9             | 6                        | /    |
| 7387                   |                       | RAMY | 01 | 08  | 1410         | S23 | W13 | 01        | 7.6 |          | BG           | EAO           | 120                              | 20            | 12                       | 4    |
| 7387                   |                       | PALE | 01 | 08  | 1900         | S23 | W20 | 01        | 7.2 |          | BG           | EAO           | 70                               | 22            | 12                       | 4    |
| 7387                   |                       | HOLL | 01 | 08  | 2247         | S22 | W20 | 01        | 7.4 |          | B            | DSO           | 50                               | 4             | 5                        | 1    |
| 7387                   |                       | LEAR | 01 | 09  | 0106         | S22 | W24 | 01        | 7.2 |          | B            | CSO           | 40                               | 6             | 5                        | 3    |
| 7387                   |                       | SVTO | 01 | 09  | 0915         | S23 | W26 | 01        | 7.4 |          | B            | DSO           | 40                               | 4             | 6                        | 2    |
| 7387                   |                       | RAMY | 01 | 09  | 1304         | S23 | W29 | 01        | 7.3 |          | B            | DAO           | 30                               | 5             | 5                        | 3    |
| 7387                   |                       | BOUL | 01 | 09  | 1738         | S20 | W29 | 01        | 7.5 |          | B            | DSO           | 40                               | 8             | 9                        | 2    |
| 7387                   |                       | HOLL | 01 | 09  | 1750         | S22 | W32 | 01        | 7.3 |          | B            | BXO           | 20                               | 5             | 6                        | 3    |
| 7387                   |                       | PALE | 01 | 09  | 1930         | S23 | W34 | 01        | 7.2 |          | B            | CRO           | 20                               | 5             | 7                        | 2    |
| 7387                   |                       | LEAR | 01 | 10  | 0050         | S22 | W36 | 01        | 7.3 |          | B            | CRO           | 40                               | 4             | 6                        | 3    |
| 7387                   |                       | SVTO | 01 | 10  | 0753         | S22 | W40 | 01        | 7.2 |          | B            | BXO           | 20                               | 4             | 5                        | 4    |
| 7387                   |                       | RAMY | 01 | 10  | 1318         | S22 | W43 | 01        | 7.2 |          | A            | HA            | 10                               | 1             | 1                        | 3    |
| 7387                   |                       | HOLL | 01 | 10  | 1730         | S21 | W48 | 01        | 7.0 |          | A            | AX            |                                  | 1             |                          | 2    |
| 7387                   |                       | PALE | 01 | 10  | 2131         | S21 | W48 | 01        | 7.2 |          | A            | AX            | 20                               | 1             | 1                        | 2    |
| 7389                   |                       | SVTO | 01 | 08  | 1056         | S19 | E03 | 01        | 8.7 |          | B            | BXO           | 10                               | 2             | 3                        | /    |
| 7389                   |                       | RAMY | 01 | 08  | 1410         | S19 | E03 | 01        | 8.8 |          | B            | CRO           | 10                               | 5             | 3                        | 4    |
| 7389                   |                       | PALE | 01 | 08  | 1900         | S21 | W01 | 01        | 8.7 |          | A            | HS            | 10                               | 1             | 1                        | 4    |
| 7389                   |                       | HOLL | 01 | 08  | 2247         | S20 | E00 | 01        | 8.9 |          | A            | AX            | 10                               | 1             |                          | 1    |
| 7389                   |                       | LEAR | 01 | 09  | 0106         | S21 | W03 | 01        | 8.8 |          | A            | AX            | 10                               | 1             | 1                        | 3    |
| 7389                   |                       | SVTO | 01 | 09  | 0915         | S22 | W07 | 01        | 8.8 |          | A            | AX            | 10                               | 2             | 1                        | 2    |
| 7389                   |                       | RAMY | 01 | 09  | 1304         | S20 | W10 | 01        | 8.8 |          | B            | BXO           |                                  | 2             | 3                        | 3    |

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

109  
Jan 93

JANUARY      1993

| NOAA/<br>USAF<br>Group | Mt<br>Wilson<br>Group | Sta  | Observation<br>Time<br>Mo Day (UT) | Lat | CMD | CMP<br>Mo Day | Max<br>H | Mag<br>Class | Spot<br>Class | Corrected<br>Area<br>(10-6 Hemi) | Spot<br>Count | Long.<br>Extent<br>(Deg) | Qual |
|------------------------|-----------------------|------|------------------------------------|-----|-----|---------------|----------|--------------|---------------|----------------------------------|---------------|--------------------------|------|
| 7389                   |                       | BOUL | 01 09 1738                         | S19 | W14 | 01 8.7        |          | B            | BXO           | 10                               | 3             | 3                        | 2    |
| 7389                   |                       | HOLL | 01 09 1750                         | S19 | W15 | 01 8.6        |          | B            | CSO           | 20                               | 4             | 3                        | 3    |
| 7389                   |                       | PALE | 01 09 1930                         | S20 | W16 | 01 8.6        |          | B            | BXO           | 20                               | 7             | 3                        | 2    |
| 7389                   |                       | LEAR | 01 10 0050                         | S20 | W20 | 01 8.5        |          | B            | CAO           | 70                               | 10            | 4                        | 3    |
| 7389                   |                       | SVTO | 01 10 0753                         | S18 | W23 | 01 8.6        |          | B            | BXO           | 30                               | 9             | 7                        | 4    |
| 7389                   |                       | RAMY | 01 10 1318                         | S20 | W26 | 01 8.6        |          | B            | CAO           | 30                               | 10            | 8                        | 3    |
| 7389                   |                       | BOUL | 01 10 1635                         | S19 | W25 | 01 8.8        |          | A            | AX            | 10                               | 3             | 1                        | 2    |
| 7389                   |                       | HOLL | 01 10 1730                         | S20 | W30 | 01 8.4        |          | B            | CSO           | 20                               | 8             | 8                        | 2    |
| 7389                   |                       | PALE | 01 10 2131                         | S20 | W30 | 01 8.6        |          | B            | BXO           | 20                               | 7             | 7                        | 2    |
| 7389                   |                       | LEAR | 01 11 0122                         | S21 | W36 | 01 8.3        |          | B            | BXO           | 70                               | 16            | 9                        | 3    |
| 7389                   |                       | SVTO | 01 11 1330                         | S19 | W36 | 01 8.8        |          | B            | BXO           | 20                               | 5             | 5                        | 2    |
| 7389                   |                       | HOLL | 01 11 1740                         | S19 | W40 | 01 8.7        |          | B            | BXO           | 20                               | 5             | 4                        | 3    |
| 7389                   |                       | PALE | 01 11 1919                         | S19 | W47 | 01 8.2        |          | B            | BXO           | 30                               | 3             | 3                        | 3    |
| 7389                   |                       | LEAR | 01 12 0004                         | S20 | W45 | 01 8.6        |          | B            | BXO           | 10                               | 3             | 7                        | 3    |
| 7396                   |                       | RAMY | 01 06 1214                         | S12 | E47 | 01 10.0       |          | A            | AX            |                                  | 1             |                          | 4    |
| 7396                   |                       | HOLL | 01 06 2145                         | S12 | E42 | 01 10.1       |          | A            | AX            |                                  | 1             |                          | 3    |
| 7396                   |                       | LEAR | 01 07 0010                         | S12 | E40 | 01 10.0       |          | A            | AX            | 10                               | 1             | 1                        | 3    |
| 7396                   |                       | LEAR | 01 08 0049                         | S12 | E27 | 01 10.1       |          | B            | BXO           | 40                               | 2             | 2                        | 3    |
| 7396                   |                       | RAMY | 01 09 1304                         | S11 | E06 | 01 10.0       |          | B            | CAO           | 10                               | 3             | 3                        | 3    |
| 7396                   |                       | BOUL | 01 09 1738                         | S12 | E04 | 01 10.0       |          | A            | AX            |                                  | 1             |                          | 2    |
| 7396                   |                       | HOLL | 01 09 1750                         | S12 | E04 | 01 10.0       |          | A            | AX            | 10                               | 4             | 2                        | 3    |
| 7396                   |                       | LEAR | 01 10 0050                         | S12 | W02 | 01 9.9        |          | B            | BXO           | 20                               | 5             | 4                        | 3    |
| 7396                   |                       | RAMY | 01 10 1318                         | S13 | W06 | 01 10.1       |          | B            | CRO           | 10                               | 2             | 1                        | 3    |
| 7396                   |                       | BOUL | 01 10 1635                         | S13 | W08 | 01 10.1       |          | A            | AX            |                                  | 1             |                          | 2    |
| 7396                   |                       | HOLL | 01 10 1730                         | S13 | W09 | 01 10.0       |          | A            | AX            |                                  | 1             |                          | 2    |
| 7396                   |                       | LEAR | 01 11 0122                         | S13 | W14 | 01 10.0       |          | A            | AX            | 10                               | 1             | 1                        | 3    |
| 7396                   |                       | HOLL | 01 11 1740                         | S12 | W22 | 01 10.1       |          | A            | AX            |                                  | 1             |                          | 3    |
| 7396                   |                       | LEAR | 01 12 0004                         | S13 | W26 | 01 10.0       |          | A            | AX            | 10                               | 1             | 1                        | 3    |
| 7391                   |                       | RAMY | 01 04 1305                         | S09 | E82 | 01 10.7       |          | A            | HA            | 30                               | 1             | 2                        | 3    |
| 7391                   | 27736                 | MWIL | 01 04 1630                         | S08 | E80 | 01 10.7       | 4        | (B           |               |                                  |               |                          |      |
| 7391                   |                       | HOLL | 01 04 1730                         | S10 | E80 | 01 10.7       |          | B            | CSO           | 30                               | 3             | 11                       | 3    |
| 7391                   |                       | PALE | 01 04 1831                         | S08 | E75 | 01 10.4       |          | A            | HR            | 30                               | 1             | 1                        | 3    |
| 7391                   |                       | HOLL | 01 04 2050                         | S10 | E78 | 01 10.7       |          | B            | CSO           | 120                              | 2             | 11                       | 3    |
| 7391                   |                       | SVTO | 01 05 0928                         | S12 | E71 | 01 10.7       |          | B            | DAO           | 100                              | 4             | 8                        | 3    |
| 7391                   |                       | RAMY | 01 05 1410                         | S08 | E69 | 01 10.8       |          | B            | DAO           | 60                               | 3             | 9                        | 2    |
| 7391                   | 27736                 | MWIL | 01 05 1600                         | S08 | E64 | 01 10.5       | 5        | (B )         |               |                                  |               |                          |      |
| 7391                   |                       | HOLL | 01 05 1910                         | S10 | E66 | 01 10.7       |          | B            | EAO           | 120                              | 5             | 11                       | 3    |
| 7391                   |                       | PALE | 01 05 2240                         | S10 | E63 | 01 10.7       |          | B            | DSO           | 60                               | 4             | 10                       | 1    |
| 7391                   |                       | LEAR | 01 06 0005                         | S09 | E65 | 01 10.9       |          | B            | DAO           | 100                              | 6             | 10                       | 3    |
| 7391                   |                       | SVTO | 01 06 0935                         | S12 | E57 | 01 10.7       |          | B            | DAO           | 70                               | 8             | 10                       | 3    |
| 7391                   |                       | RAMY | 01 06 1214                         | S09 | E56 | 01 10.7       |          | B            | DSO           | 70                               | 3             | 10                       | 4    |
| 7391                   |                       | BOUL | 01 06 1554                         | S08 | E56 | 01 10.9       |          | B            | DSO           | 80                               | 2             | 10                       | 2    |
| 7391                   |                       | HOLL | 01 06 2145                         | S10 | E50 | 01 10.7       |          | B            | CSO           | 80                               | 5             | 8                        | 3    |
| 7391                   |                       | LEAR | 01 07 0010                         | S09 | E50 | 01 10.7       |          | B            | DAO           | 80                               | 4             | 9                        | 3    |
| 7391                   |                       | SVTO | 01 07 0808                         | S11 | E45 | 01 10.7       |          | B            | CAO           | 70                               | 4             | 11                       | 2    |
| 7391                   |                       | RAMY | 01 07 1325                         | S09 | E42 | 01 10.7       |          | B            | EAO           | 60                               | 4             | 11                       | 4    |
| 7391                   |                       | BOUL | 01 07 1644                         | S11 | E45 | 01 11.1       |          | A            | HS            | 40                               | 1             | 1                        | 2    |
| 7391                   |                       | HOLL | 01 07 1720                         | S10 | E40 | 01 10.7       |          | B            | CSO           | 80                               | 3             | 9                        | 3    |
| 7391                   |                       | PALE | 01 07 2300                         | S12 | E42 | 01 11.1       |          | A            | HS            | 30                               | 1             | 1                        | 2    |
| 7391                   |                       | LEAR | 01 08 0049                         | S12 | E38 | 01 10.9       |          | B            | CSO           | 50                               | 3             | 8                        | 3    |
| 7391                   |                       | SVTO | 01 08 1056                         | S14 | E35 | 01 11.1       |          | B            | CSO           | 30                               | 3             | 5                        | /    |
| 7391                   |                       | RAMY | 01 08 1410                         | S12 | E33 | 01 11.1       |          | A            | HA            | 50                               | 1             | 2                        | 4    |
| 7391                   |                       | PALE | 01 08 1900                         | S12 | E31 | 01 11.1       |          | A            | HS            | 20                               | 1             | 1                        | 4    |
| 7391                   |                       | HOLL | 01 08 2247                         | S11 | E29 | 01 11.1       |          | A            | HS            | 40                               | 1             | 1                        | 1    |
| 7391                   |                       | LEAR | 01 09 0106                         | S13 | E27 | 01 11.1       |          | A            | HS            | 40                               | 1             | 2                        | 3    |
| 7391                   |                       | SVTO | 01 09 0915                         | S12 | E23 | 01 11.1       |          | A            | HS            | 20                               | 1             | 1                        | 2    |
| 7391                   |                       | RAMY | 01 09 1304                         | S11 | E21 | 01 11.1       |          | A            | HA            | 20                               | 1             | 1                        | 3    |
| 7391                   |                       | BOUL | 01 09 1738                         | S11 | E18 | 01 11.1       |          | A            | HS            | 20                               | 1             | 1                        | 2    |
| 7391                   |                       | HOLL | 01 09 1750                         | S12 | E18 | 01 11.1       |          | A            | HS            | 20                               | 1             | 1                        | 3    |
| 7391                   |                       | PALE | 01 09 1930                         | S12 | E17 | 01 11.1       |          | B            | CSO           | 50                               | 5             | 5                        | 2    |
| 7391                   |                       | LEAR | 01 10 0050                         | S12 | E13 | 01 11.0       |          | A            | HS            | 40                               | 1             | 2                        | 3    |
| 7391                   |                       | SVTO | 01 10 0753                         | S11 | E09 | 01 11.0       |          | A            | HS            | 30                               | 1             | 1                        | 4    |
| 7391                   |                       | RAMY | 01 10 1318                         | S12 | E08 | 01 11.1       |          | A            | HS            | 20                               | 1             | 2                        | 3    |
| 7391                   |                       | BOUL | 01 10 1635                         | S12 | E04 | 01 11.0       |          | A            | HS            | 30                               | 1             | 1                        | 2    |
| 7391                   |                       | HOLL | 01 10 1730                         | S13 | E06 | 01 11.2       |          | B            | CSO           | 20                               | 2             | 4                        | 2    |
| 7391                   |                       | PALE | 01 10 2131                         | S12 | E03 | 01 11.1       |          | A            | HR            | 20                               | 5             | 2                        | 2    |
| 7391                   |                       | LEAR | 01 11 0122                         | S12 | W01 | 01 11.0       |          | A            | HS            | 20                               | 1             | 1                        | 3    |

110  
Jan 93

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

JANUARY 1993

| NOAA/<br>USAF<br>Group | Mt<br>Wilson<br>Group | Sta  | Observation<br>Time<br>Mo Day (UT) | Lat CMD | CMP<br>Mo Day | Max<br>H | Mag<br>Class | Spot<br>Class | Corrected<br>Area<br>(10-6 Hemi) | Spot<br>Count | Long.<br>Extent<br>(Deg) | Qual |
|------------------------|-----------------------|------|------------------------------------|---------|---------------|----------|--------------|---------------|----------------------------------|---------------|--------------------------|------|
| 7391                   |                       | SVTO | 01 11 1330                         | S13 W05 | 01 11.2       |          | B            | CSO           | 40                               | 3             | 4                        | 2    |
| 7391                   |                       | HOLL | 01 11 1740                         | S11 W08 | 01 11.1       |          | B            | CAO           | 50                               | 6             | 4                        | 3    |
| 7391                   |                       | PALE | 01 11 1919                         | S12 W08 | 01 11.2       |          | B            | CAO           | 40                               | 4             | 3                        | 3    |
| 7391                   |                       | LEAR | 01 12 0004                         | S12 W12 | 01 11.1       |          | B            | DSI           | 90                               | 14            | 4                        | 3    |
| 7391                   |                       | HOLL | 01 12 1723                         | S11 W21 | 01 11.1       |          | B            | DSI           | 120                              | 15            | 5                        | 3    |
| 7391                   |                       | PALE | 01 12 1910                         | S12 W22 | 01 11.1       |          | B            | DSI           | 110                              | 14            | 5                        | 3    |
| 7391                   |                       | LEAR | 01 13 0122                         | S13 W26 | 01 11.1       |          | B            | DSI           | 110                              | 13            | 6                        | 3    |
| 7391                   |                       | SVTO | 01 13 1105                         | S12 W31 | 01 11.1       |          | B            | DSI           | 70                               | 16            | 5                        | 3    |
| 7391                   |                       | BOUL | 01 13 1554                         | S12 W33 | 01 11.2       |          | B            | DAO           | 140                              | 12            | 5                        | 3    |
| 7391                   |                       | PALE | 01 13 2100                         | S12 W38 | 01 11.0       |          | B            | DAO           | 50                               | 10            | 4                        | 2    |
| 7391                   |                       | LEAR | 01 14 0015                         | S12 W38 | 01 11.1       |          | B            | DSO           | 80                               | 10            | 4                        | 2    |
| 7391                   |                       | SVTO | 01 14 1040                         | S12 W44 | 01 11.1       |          | B            | DAO           | 40                               | 7             | 4                        | 2    |
| 7391                   |                       | BOUL | 01 14 1637                         | S12 W49 | 01 11.0       |          | B            | DSO           | 80                               | 5             | 4                        | 3    |
| 7391                   |                       | PALE | 01 14 1910                         | S12 W50 | 01 11.0       |          | B            | DSO           | 50                               | 9             | 4                        | 3    |
| 7391                   |                       | LEAR | 01 15 0044                         | S12 W53 | 01 11.0       |          | B            | BXO           | 70                               | 6             | 4                        | 3    |
| 7391                   |                       | BOUL | 01 15 1556                         | S12 W61 | 01 11.1       |          | B            | CSO           | 30                               | 3             | 2                        | 3    |
| 7391                   |                       | HOLL | 01 15 1915                         | S12 W63 | 01 11.0       |          | A            | AX            | 10                               | 2             | 2                        | 2    |
| 7391                   |                       | PALE | 01 15 2230                         | S13 W67 | 01 10.9       |          | A            | AX            | 20                               | 3             | 2                        | 2    |
| 7391                   |                       | LEAR | 01 16 0201                         | S11 W67 | 01 11.0       |          | A            | AX            | 30                               | 1             | 1                        | 3    |
| 7391                   |                       | LEAR | 01 17 0032                         | S12 W79 | 01 11.1       |          | A            | AX            | 10                               | 1             | 1                        | 3    |
|                        |                       |      |                                    |         |               |          |              |               |                                  |               |                          |      |
| 7399                   |                       | PALE | 01 08 1900                         | N06 E31 | 01 11.1       |          | B            | BXO           | 10                               | 3             | 3                        | 4    |
| 7399                   |                       | HOLL | 01 08 2247                         | N07 E31 | 01 11.3       |          | A            | AX            | 10                               | 2             | 1                        | 1    |
| 7399                   |                       | LEAR | 01 09 0106                         | N07 E29 | 01 11.2       |          | B            | BXO           | 20                               | 3             | 2                        | 3    |
| 7399                   |                       | SVTO | 01 09 0915                         | N06 E24 | 01 11.2       |          | A            | AX            | 10                               | 2             | 2                        | 2    |
| 7399                   |                       | RAMY | 01 09 1304                         | N07 E22 | 01 11.2       |          | A            | AX            |                                  | 2             | 2                        | 3    |
| 7399                   |                       | HOLL | 01 09 1750                         | N07 E19 | 01 11.2       |          |              | AX            | 10                               | 2             | 2                        | 3    |
| 7399                   |                       | PALE | 01 09 1930                         | N07 E17 | 01 11.1       |          | A            | AX            | 10                               | 2             | 2                        | 2    |
| 7399                   |                       | LEAR | 01 10 0050                         | N07 E16 | 01 11.2       |          | B            | BXO           | 20                               | 2             | 1                        | 3    |
| 7399                   |                       | SVTO | 01 10 0753                         | N05 E09 | 01 11.0       |          | B            | BXO           | 10                               | 3             | 1                        | 4    |
| 7399                   |                       | RAMY | 01 10 1318                         | N05 E07 | 01 11.1       |          | B            | BXO           | 10                               | 4             | 3                        | 3    |
| 7399                   |                       | HOLL | 01 10 1730                         | N08 E06 | 01 11.2       |          | B            | BXI           | 20                               | 11            | 4                        | 2    |
| 7399                   |                       | PALE | 01 10 2131                         | N06 E04 | 01 11.2       |          | B            | BXO           | 20                               | 9             | 2                        | 2    |
| 7399                   |                       | LEAR | 01 11 0122                         | N06 E00 | 01 11.0       |          | B            | BXO           | 60                               | 15            | 6                        | 3    |
| 7399                   |                       | SVTO | 01 11 1330                         | N07 W05 | 01 11.2       |          | B            | CRO           | 20                               | 10            | 5                        | 2    |
| 7399                   |                       | HOLL | 01 11 1740                         | N08 W08 | 01 11.1       |          | B            | CRO           | 30                               | 13            | 5                        | 3    |
| 7399                   |                       | PALE | 01 11 1919                         | N06 W11 | 01 11.0       |          | B            | CSO           | 30                               | 5             | 3                        | 3    |
| 7399                   |                       | LEAR | 01 12 0004                         | N08 W13 | 01 11.0       |          | B            | CSO           | 40                               | 10            | 6                        | 3    |
| 7399                   |                       | HOLL | 01 12 1723                         | N08 W23 | 01 11.0       |          | B            | DSO           | 60                               | 17            | 6                        | 3    |
| 7399                   |                       | PALE | 01 12 1910                         | N08 W22 | 01 11.1       |          | B            | DSO           | 60                               | 14            | 8                        | 3    |
| 7399                   |                       | LEAR | 01 13 0122                         | N07 W26 | 01 11.1       |          | B            | DAO           | 90                               | 13            | 6                        | 3    |
| 7399                   |                       | SVTO | 01 13 1105                         | N07 W32 | 01 11.1       |          | B            | DSO           | 60                               | 17            | 7                        | 3    |
| 7399                   |                       | BOUL | 01 13 1554                         | N05 W35 | 01 11.0       |          | B            | DSO           | 70                               | 7             | 5                        | 3    |
| 7399                   |                       | PALE | 01 13 2100                         | N07 W42 | 01 10.7       |          | B            | DSO           | 50                               | 6             | 6                        | 2    |
| 7399                   |                       | LEAR | 01 14 0015                         | N07 W40 | 01 11.0       |          | B            | BXO           | 30                               | 10            | 5                        | 2    |
| 7399                   |                       | SVTO | 01 14 1040                         | N05 W46 | 01 11.0       |          | B            | DSO           | 40                               | 6             | 6                        | 2    |
| 7399                   |                       | BOUL | 01 14 1637                         | N07 W50 | 01 10.9       |          | B            | CSO           | 70                               | 5             | 6                        | 3    |
| 7399                   |                       | PALE | 01 14 1910                         | N06 W52 | 01 10.9       |          | B            | BXO           | 20                               | 9             | 7                        | 3    |
| 7399                   |                       | LEAR | 01 15 0044                         | N06 W56 | 01 10.8       |          | B            | BXO           | 50                               | 3             | 4                        | 3    |
| 7399                   |                       | BOUL | 01 15 1556                         | N07 W63 | 01 10.9       |          | B            | CSO           | 50                               | 4             | 6                        | 3    |
| 7399                   |                       | HOLL | 01 15 1915                         | N06 W63 | 01 11.1       |          | A            | HS            | 40                               | 1             | 1                        | 2    |
| 7399                   |                       | PALE | 01 15 2230                         | N07 W65 | 01 11.1       |          | B            | BXO           | 30                               | 3             | 10                       | 2    |
| 7399                   |                       | LEAR | 01 16 0201                         | N07 W71 | 01 10.8       |          | A            | AX            | 30                               | 1             | 1                        | 3    |
| 7399                   |                       | SVTO | 01 16 0800                         | N07 W71 | 01 11.0       |          | A            | AX            | 30                               | 1             | 1                        | 2    |
|                        |                       |      |                                    |         |               |          |              |               |                                  |               |                          |      |
| 7398                   |                       | PALE | 01 07 2300                         | N08 E58 | 01 12.3       |          | B            | BXO           | 20                               | 4             | 3                        | 2    |
| 7398                   |                       | LEAR | 01 08 0049                         | N06 E55 | 01 12.1       |          | B            | BXO           | 80                               | 4             | 6                        | 3    |
| 7398                   |                       | SVTO | 01 08 1056                         | N06 E50 | 01 12.2       |          | B            | BXO           | 30                               | 6             | 5                        | /    |
| 7398                   |                       | RAMY | 01 08 1410                         | N08 E48 | 01 12.2       |          | B            | BXO           | 30                               | 9             | 5                        | 4    |
| 7398                   |                       | PALE | 01 08 1900                         | N08 E47 | 01 12.3       |          | B            | CRO           | 20                               | 9             | 4                        | 4    |
| 7398                   |                       | HOLL | 01 08 2247                         | N08 E42 | 01 12.1       |          | A            | AX            | 10                               | 2             | 1                        | 1    |
| 7398                   |                       | LEAR | 01 09 0106                         | N08 E43 | 01 12.3       |          | B            | BXO           | 40                               | 6             | 4                        | 3    |
| 7398                   |                       | SVTO | 01 09 0915                         | N07 E37 | 01 12.1       |          | B            | CSO           | 30                               | 10            | 5                        | 2    |
| 7398                   |                       | RAMY | 01 09 1304                         | N08 E35 | 01 12.2       |          | B            | DAI           | 60                               | 12            | 6                        | 3    |
| 7398                   |                       | BOUL | 01 09 1738                         | N08 E32 | 01 12.1       |          | B            | DSO           | 30                               | 6             | 5                        | 2    |
| 7398                   |                       | HOLL | 01 09 1750                         | N08 E32 | 01 12.1       |          | B            | DSO           | 50                               | 10            | 6                        | 3    |
| 7398                   |                       | PALE | 01 09 1930                         | N08 E32 | 01 12.2       |          | B            | DSO           | 70                               | 12            | 5                        | 2    |
| 7398                   |                       | LEAR | 01 10 0050                         | N07 E29 | 01 12.2       |          | B            | BXO           | 80                               | 11            | 5                        | 3    |
| 7398                   |                       | SVTO | 01 10 0753                         | N08 E25 | 01 12.2       |          | B            | DAO           | 60                               | 15            | 6                        | 4    |

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

111  
Jan 93

JANUARY    1993

| NOAA/<br>USAF<br>Group | Mt<br>Wilson<br>Group | Sta  | Observation<br>Time |    | Lat  | CMD     | CMP<br>Mo | Max<br>H | Mag<br>Class | Spot<br>Class | Corrected<br>Area<br>(10-6 Hemi) | Spot<br>Count | Long.<br>Extent<br>(Deg) | Qual |
|------------------------|-----------------------|------|---------------------|----|------|---------|-----------|----------|--------------|---------------|----------------------------------|---------------|--------------------------|------|
| 7398                   |                       | RAMY | 01                  | 10 | 1318 | N08 E22 | 01        | 12.2     | B            | DAI           | 70                               | 18            | 7                        | 3    |
| 7398                   |                       | BOUL | 01                  | 10 | 1635 | N08 E19 | 01        | 12.1     | B            | DSO           | 70                               | 7             | 6                        | 2    |
| 7398                   |                       | HOLL | 01                  | 10 | 1730 | N08 E20 | 01        | 12.2     | B            | DAO           | 40                               | 8             | 5                        | 2    |
| 7398                   |                       | PALE | 01                  | 10 | 2131 | N08 E18 | 01        | 12.2     | B            | DAO           | 60                               | 10            | 6                        | 2    |
| 7398                   |                       | LEAR | 01                  | 11 | 0122 | N07 E15 | 01        | 12.2     | B            | DAO           | 70                               | 15            | 6                        | 3    |
| 7398                   |                       | SVTO | 01                  | 11 | 1330 | N08 E10 | 01        | 12.3     | B            | DAO           | 60                               | 20            | 8                        | 2    |
| 7398                   |                       | HOLL | 01                  | 11 | 1740 | N07 E06 | 01        | 12.2     | B            | CSI           | 40                               | 17            | 7                        | 3    |
| 7398                   |                       | PALE | 01                  | 11 | 1919 | N08 E06 | 01        | 12.2     | B            | DSO           | 70                               | 7             | 6                        | 3    |
| 7398                   |                       | LEAR | 01                  | 12 | 0004 | N08 E03 | 01        | 12.2     | B            | DAO           | 80                               | 16            | 8                        | 3    |
| 7398                   |                       | HOLL | 01                  | 12 | 1723 | N08 W08 | 01        | 12.1     | B            | CSO           | 40                               | 16            | 7                        | 3    |
| 7398                   |                       | PALE | 01                  | 12 | 1910 | N08 W08 | 01        | 12.2     | B            | CSO           | 80                               | 15            | 6                        | 3    |
| 7398                   |                       | LEAR | 01                  | 13 | 0122 | N08 W11 | 01        | 12.2     | B            | CSO           | 50                               | 12            | 6                        | 3    |
| 7398                   |                       | SVTO | 01                  | 13 | 1105 | N07 W18 | 01        | 12.1     | B            | CSO           | 20                               | 20            | 6                        | 3    |
| 7398                   |                       | BOUL | 01                  | 13 | 1554 | N08 W19 | 01        | 12.2     | B            | CSO           | 40                               | 8             | 4                        | 3    |
| 7398                   |                       | PALE | 01                  | 13 | 2100 | N08 W25 | 01        | 12.0     | B            | BXO           | 10                               | 6             | 4                        | 2    |
| 7398                   |                       | LEAR | 01                  | 14 | 0015 | N08 W25 | 01        | 12.1     | B            | BXO           | 20                               | 6             | 4                        | 2    |
| 7398                   |                       | SVTO | 01                  | 14 | 1040 | N08 W24 | 01        | 12.6     | B            | BXO           | 10                               | 4             | 5                        | 2    |
| 7395                   |                       | SVTO | 01                  | 06 | 0935 | N09 E80 | 01        | 12.4     | A            | HS            | 60                               | 1             | 2                        | 3    |
| 7395                   |                       | RAMY | 01                  | 06 | 1214 | N13 E78 | 01        | 12.4     | A            | HS            | 30                               | 1             | 1                        | 4    |
| 7395                   |                       | HOLL | 01                  | 06 | 2145 | N12 E75 | 01        | 12.5     | A            | HS            | 60                               | 1             | 2                        | 3    |
| 7395                   |                       | LEAR | 01                  | 07 | 0010 | N13 E73 | 01        | 12.5     | A            | HS            | 60                               | 1             | 1                        | 3    |
| 7395                   |                       | SVTO | 01                  | 07 | 0808 | N09 E64 | 01        | 12.1     | B            | CSO           | 90                               | 2             | 12                       | 2    |
| 7395                   |                       | RAMY | 01                  | 07 | 1325 | N12 E63 | 01        | 12.3     | B            | CAO           | 50                               | 2             | 9                        | 4    |
| 7395                   |                       | BOUL | 01                  | 07 | 1644 | N13 E64 | 01        | 12.5     | A            | HS            | 50                               | 1             | 1                        | 2    |
| 7395                   |                       | HOLL | 01                  | 07 | 1720 | N11 E60 | 01        | 12.2     | B            | CSO           | 40                               | 3             | 7                        | 3    |
| 7395                   |                       | PALE | 01                  | 07 | 2300 | N13 E60 | 01        | 12.5     | A            | HS            | 30                               | 1             | 1                        | 2    |
| 7395                   |                       | LEAR | 01                  | 08 | 0049 | N11 E59 | 01        | 12.5     | A            | HS            | 40                               | 1             | 2                        | 3    |
| 7395                   |                       | SVTO | 01                  | 08 | 1056 | N12 E53 | 01        | 12.4     | A            | HX            | 40                               | 1             | 2                        | /    |
| 7395                   |                       | RAMY | 01                  | 08 | 1410 | N10 E50 | 01        | 12.3     | B            | CAO           | 60                               | 10            | 8                        | 4    |
| 7395                   |                       | PALE | 01                  | 08 | 1900 | N13 E49 | 01        | 12.5     | A            | HS            | 40                               | 2             | 1                        | 4    |
| 7395                   |                       | HOLL | 01                  | 08 | 2247 | N14 E48 | 01        | 12.6     | A            | HS            | 20                               | 1             | 1                        | 1    |
| 7395                   |                       | LEAR | 01                  | 09 | 0106 | N12 E46 | 01        | 12.5     | A            | HS            | 30                               | 1             | 1                        | 3    |
| 7395                   |                       | SVTO | 01                  | 09 | 0915 | N13 E42 | 01        | 12.5     | A            | HS            | 20                               | 2             | 1                        | 2    |
| 7395                   |                       | RAMY | 01                  | 09 | 1304 | N13 E38 | 01        | 12.4     | A            | HA            | 10                               | 1             | 1                        | 3    |
| 7395                   |                       | BOUL | 01                  | 09 | 1738 | N13 E35 | 01        | 12.4     | A            | HS            | 20                               | 1             | 1                        | 2    |
| 7395                   |                       | HOLL | 01                  | 09 | 1750 | N12 E37 | 01        | 12.5     | A            | HS            | 20                               | 1             | 1                        | 3    |
| 7395                   |                       | PALE | 01                  | 09 | 1930 | N13 E36 | 01        | 12.5     | A            | HR            | 10                               | 1             | 1                        | 2    |
| 7395                   |                       | LEAR | 01                  | 10 | 0050 | N13 E33 | 01        | 12.5     | A            | HS            | 40                               | 1             | 2                        | 3    |
| 7395                   |                       | SVTO | 01                  | 10 | 0753 | N13 E29 | 01        | 12.5     | A            | HS            | 30                               | 1             | 1                        | 4    |
| 7395                   |                       | RAMY | 01                  | 10 | 1318 | N14 E26 | 01        | 12.5     | A            | HA            | 10                               | 1             | 1                        | 3    |
| 7395                   |                       | HOLL | 01                  | 10 | 1730 | N13 E24 | 01        | 12.5     | A            | AX            | 1                                | 1             | 1                        | 2    |
| 7395                   |                       | PALE | 01                  | 10 | 2131 | N13 E22 | 01        | 12.5     | A            | HR            | 10                               | 1             | 1                        | 2    |
| 7395                   |                       | LEAR | 01                  | 11 | 0122 | N13 E19 | 01        | 12.5     | B            | BXO           | 40                               | 5             | 4                        | 3    |
| 7395                   |                       | SVTO | 01                  | 11 | 1330 | N13 E12 | 01        | 12.5     | A            | HS            | 20                               | 2             | 2                        | 2    |
| 7395                   |                       | HOLL | 01                  | 11 | 1740 | N12 E13 | 01        | 12.7     | B            | BXO           | 10                               | 4             | 4                        | 3    |
| 7395                   |                       | PALE | 01                  | 11 | 1919 | N13 E09 | 01        | 12.5     | A            | AX            | 10                               | 1             | 1                        | 3    |
| 7395                   |                       | LEAR | 01                  | 12 | 0004 | N17 E07 | 01        | 12.5     | B            | BXO           | 10                               | 2             | 3                        | 3    |
| 7395                   |                       | HOLL | 01                  | 12 | 1723 | N15 E00 | 01        | 12.7     | B            | BXO           | 20                               | 9             | 5                        | 3    |
| 7395                   |                       | LEAR | 01                  | 13 | 0122 | N15 W06 | 01        | 12.6     | B            | BXO           | 10                               | 2             | 3                        | 3    |
| 7400                   |                       | SVTO | 01                  | 09 | 0915 | S09 E50 | 01        | 13.1     | A            | HS            | 10                               | 1             | 1                        | 2    |
| 7400                   |                       | PALE | 01                  | 09 | 1930 | S10 E42 | 01        | 13.0     | B            | CRO           | 20                               | 5             | 3                        | 2    |
| 7400                   |                       | SVTO | 01                  | 10 | 0753 | S10 E39 | 01        | 13.2     | B            | BXO           | 10                               | 5             | 2                        | 4    |
| 7400                   |                       | LEAR | 01                  | 12 | 0004 | S09 E11 | 01        | 12.8     | A            | AX            | 10                               | 1             | 1                        | 3    |
| 7400                   |                       | PALE | 01                  | 12 | 1910 | S09 E00 | 01        | 12.8     | B            | BXO           | 70                               | 12            | 4                        | 3    |
| 7400                   |                       | LEAR | 01                  | 13 | 0122 | S09 W04 | 01        | 12.7     | B            | BXO           | 30                               | 11            | 7                        | 3    |
| 7400                   |                       | SVTO | 01                  | 13 | 1105 | S09 W09 | 01        | 12.8     | B            | DAO           | 80                               | 18            | 6                        | 3    |
| 7400                   |                       | BOUL | 01                  | 13 | 1554 | S08 W14 | 01        | 12.6     | B            | DAO           | 110                              | 8             | 6                        | 3    |
| 7400                   |                       | PALE | 01                  | 13 | 2100 | S09 W17 | 01        | 12.6     | B            | DAO           | 100                              | 18            | 7                        | 2    |
| 7400                   |                       | LEAR | 01                  | 14 | 0015 | S09 W17 | 01        | 12.7     | B            | DAO           | 130                              | 11            | 7                        | 2    |
| 7400                   |                       | SVTO | 01                  | 14 | 1040 | S10 W23 | 01        | 12.7     | B            | DAO           | 170                              | 21            | 8                        | 2    |
| 7400                   |                       | BOUL | 01                  | 14 | 1637 | S08 W27 | 01        | 12.7     | B            | DAO           | 190                              | 8             | 8                        | 3    |
| 7400                   |                       | PALE | 01                  | 14 | 1910 | S10 W29 | 01        | 12.6     | B            | DSO           | 170                              | 12            | 8                        | 3    |
| 7400                   |                       | LEAR | 01                  | 15 | 0044 | S09 W31 | 01        | 12.7     | B            | DAO           | 220                              | 9             | 9                        | 3    |
| 7400                   |                       | BOUL | 01                  | 15 | 1556 | S08 W40 | 01        | 12.7     | B            | DAO           | 170                              | 12            | 8                        | 3    |
| 7400                   |                       | HOLL | 01                  | 15 | 1915 | S10 W41 | 01        | 12.7     | B            | DAO           | 160                              | 10            | 8                        | 2    |
| 7400                   |                       | PALE | 01                  | 15 | 2230 | S10 W46 | 01        | 12.5     | B            | DAO           | 200                              | 7             | 9                        | 2    |
| 7400                   |                       | LEAR | 01                  | 16 | 0201 | S10 W45 | 01        | 12.7     | B            | EAO           | 220                              | 17            | 10                       | 3    |

112  
Jan 93

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

JANUARY 1993

| NOAA/<br>USAF<br>Group | Mt<br>Wilson<br>Group | Sta  | Observation<br>Time<br>Mo Day (UT) | Lat CMD | CMP<br>Mo Day | Max<br>H | Mag<br>Class | Spot<br>Class | Corrected<br>Area<br>(10-6 Hemi) | Spot<br>Count | Long.<br>Extent<br>(Deg) | Qual |
|------------------------|-----------------------|------|------------------------------------|---------|---------------|----------|--------------|---------------|----------------------------------|---------------|--------------------------|------|
| 7400                   |                       | SVTO | 01 16 0800                         | S09 W47 | 01 12.8       |          | B            | DAO           | 280                              | 14            | 9                        | 2    |
| 7400                   |                       | RAMY | 01 16 1301                         | S09 W51 | 01 12.7       |          | B            | DAI           | 310                              | 26            | 10                       | 4    |
| 7400                   |                       | BOUL | 01 16 1649                         | S08 W53 | 01 12.7       |          | B            | DSO           | 210                              | 10            | 10                       | 2    |
| 7400                   |                       | HOLL | 01 16 2000                         | S09 W54 | 01 12.8       |          | BD           | DKC           | 370                              | 20            | 10                       | 2    |
| 7400                   |                       | LEAR | 01 17 0032                         | S10 W58 | 01 12.7       |          | B            | DAO           | 310                              | 23            | 10                       | 3    |
| 7400                   |                       | RAMY | 01 17 1239                         | S09 W63 | 01 12.8       |          | B            | DAI           | 270                              | 14            | 10                       | 4    |
| 7400                   |                       | LEAR | 01 18 0007                         | S09 W70 | 01 12.7       |          | B            | DAO           | 250                              | 8             | 10                       | 3    |
| 7400                   |                       | RAMY | 01 18 1227                         | S09 W78 | 01 12.7       |          | B            | DAO           | 140                              | 7             | 10                       | 4    |
| 7400                   |                       | BOUL | 01 18 1548                         | S08 W79 | 01 12.7       |          | A            | HS            | 120                              | 1             | 2                        | 2    |
| 7400                   |                       | PALE | 01 18 2035                         | S12 W78 | 01 13.0       |          | A            | HS            | 50                               | 1             | 2                        | 3    |
| 7400                   |                       | LEAR | 01 19 0010                         | S09 W82 | 01 12.8       |          | A            | HS            | 120                              | 1             | 3                        | 3    |
| 7400                   |                       | SVTO | 01 19 0950                         | S09 W80 | 01 13.4       |          | A            | AX            | 30                               | 1             | 2                        | 3    |
| 7404                   |                       | LEAR | 01 13 0122                         | N20 E18 | 01 14.4       |          | A            | AX            | 10                               | 1             | 1                        | 3    |
| 7404                   |                       | LEAR | 01 16 0201                         | N14 W28 | 01 14.0       |          | B            | BXO           | 20                               | 2             | 3                        | 3    |
| 7404                   |                       | SVTO | 01 16 0800                         | N13 W29 | 01 14.1       |          | B            | BXO           | 10                               | 1             |                          | 2    |
| 7404                   |                       | RAMY | 01 16 1301                         | N13 W33 | 01 14.0       |          | B            | BXO           | 10                               | 4             | 3                        | 4    |
| 7404                   |                       | BOUL | 01 16 1649                         | N15 W37 | 01 13.9       |          | B            | BXO           | 10                               | 2             | 4                        | 2    |
| 7404                   |                       | HOLL | 01 16 2000                         | N14 W38 | 01 14.0       |          | B            | BXO           | 20                               | 4             | 4                        | 2    |
| 7404                   |                       | LEAR | 01 17 0032                         | N14 W41 | 01 13.9       |          | B            | BXO           | 20                               | 4             | 4                        | 3    |
| 7404                   |                       | RAMY | 01 17 1239                         | N14 W48 | 01 13.9       |          | B            | DAO           | 30                               | 5             | 4                        | 4    |
| 7404                   |                       | LEAR | 01 18 0007                         | N13 W55 | 01 13.8       |          | B            | CRO           | 40                               | 2             | 5                        | 3    |
| 7404                   |                       | RAMY | 01 18 1227                         | N13 W61 | 01 13.9       |          | B            | CRO           | 20                               | 3             | 8                        | 4    |
| 7404                   |                       | BOUL | 01 18 1548                         | N15 W64 | 01 13.8       |          | B            | BXO           | 20                               | 3             | 6                        | 2    |
| 7404                   |                       | PALE | 01 18 2035                         | N12 W65 | 01 14.0       |          | B            | CRO           | 60                               | 3             | 8                        | 3    |
| 7404                   |                       | LEAR | 01 19 0010                         | N14 W71 | 01 13.6       |          | A            | HS            | 30                               | 1             | 1                        | 3    |
| 7404                   |                       | RAMY | 01 19 1240                         | N14 W77 | 01 13.7       |          | B            | CRO           | 30                               | 2             | 10                       | 3    |
| 7404A                  |                       | HOLL | 01 15 1915                         | S08 E44 | 01 19.1       |          | A            | AX            |                                  | 1             |                          | 2    |
| 7404A                  |                       | LEAR | 01 16 0201                         | S11 E39 | 01 19.0       |          | A            | AX            | 10                               | 1             | 1                        | 3    |
| 7404A                  |                       | SVTO | 01 16 0800                         | S12 E36 | 01 19.0       |          | A            | AX            | 10                               | 2             | 2                        | 2    |
| 7404A                  |                       | RAMY | 01 16 1301                         | S12 E32 | 01 18.9       |          | A            | AX            |                                  | 1             |                          | 4    |
| 7404A                  | 27739                 | MWIL | 01 19 2100                         | S11 W10 | 01 19.1       | 3        | AP           |               |                                  |               |                          |      |
| 7404A                  | 27739                 | MWIL | 01 20 1600                         | S10 W21 | 01 19.1       | 3        | (AP)         |               |                                  |               |                          |      |
| 7402                   |                       | LEAR | 01 13 0122                         | S26 E80 | 01 19.3       |          | A            | AX            | 30                               | 1             | 1                        | 3    |
| 7402                   |                       | SVTO | 01 13 1105                         | S25 E75 | 01 19.3       |          | A            | HA            | 30                               | 1             | 2                        | 3    |
| 7402                   |                       | BOUL | 01 13 1554                         | S26 E72 | 01 19.2       |          | A            | HS            | 30                               | 1             | 1                        | 3    |
| 7402                   |                       | PALE | 01 13 2100                         | S27 E72 | 01 19.5       |          | A            | HR            | 30                               | 1             | 1                        | 2    |
| 7402                   |                       | LEAR | 01 14 0015                         | S26 E68 | 01 19.3       |          | A            | AX            | 10                               | 1             | 1                        | 2    |
| 7402                   |                       | SVTO | 01 14 1040                         | S26 E62 | 01 19.3       |          | A            | HR            | 10                               | 1             | 1                        | 2    |
| 7402                   |                       | BOUL | 01 14 1637                         | S25 E60 | 01 19.3       |          | A            | HS            | 20                               | 1             | 1                        | 3    |
| 7402                   |                       | PALE | 01 14 1910                         | S26 E60 | 01 19.5       |          | A            | HR            | 20                               | 1             | 1                        | 3    |
| 7402                   |                       | LEAR | 01 15 0044                         | S24 E57 | 01 19.4       |          | A            | HR            | 40                               | 1             | 1                        | 3    |
| 7402                   |                       | BOUL | 01 15 1556                         | S25 E46 | 01 19.2       |          | A            | HS            | 20                               | 1             | 1                        | 3    |
| 7402                   |                       | HOLL | 01 15 1915                         | S26 E46 | 01 19.4       |          | A            | HS            | 60                               | 1             | 1                        | 2    |
| 7402                   |                       | PALE | 01 15 2230                         | S23 E44 | 01 19.3       |          | A            | HR            | 10                               | 1             | 2                        | 2    |
| 7402                   |                       | LEAR | 01 16 0201                         | S25 E43 | 01 19.4       |          | B            | CSO           | 40                               | 3             | 3                        | 3    |
| 7402                   |                       | SVTO | 01 16 0800                         | S25 E37 | 01 19.2       |          | B            | CRO           | 20                               | 2             | 3                        | 2    |
| 7402                   |                       | RAMY | 01 16 1301                         | S26 E36 | 01 19.3       |          | A            | HR            | 10                               | 2             | 1                        | 4    |
| 7402                   |                       | BOUL | 01 16 1649                         | S26 E33 | 01 19.3       |          | A            | AX            |                                  | 1             |                          | 2    |
| 7402                   |                       | HOLL | 01 16 2000                         | S26 E33 | 01 19.4       |          | A            | HR            | 10                               | 1             | 1                        | 2    |
| 7402                   |                       | LEAR | 01 17 0032                         | S25 E30 | 01 19.3       |          | A            | HS            | 30                               | 3             | 1                        | 3    |
| 7402                   |                       | RAMY | 01 17 1239                         | S26 E23 | 01 19.3       |          | A            | HS            | 10                               | 1             | 1                        | 4    |
| 7402                   |                       | LEAR | 01 18 0007                         | S26 E18 | 01 19.4       |          | A            | HR            | 10                               | 1             | 1                        | 3    |
| 7402                   |                       | RAMY | 01 18 1227                         | S25 E09 | 01 19.2       |          | B            | HR            | 10                               | 1             | 1                        | 4    |
| 7402                   |                       | BOUL | 01 18 1548                         | S23 E07 | 01 19.2       |          | B            | BXO           | 10                               | 3             | 3                        | 2    |
| 7402                   |                       | PALE | 01 18 2035                         | S26 E07 | 01 19.4       |          | A            | AX            | 10                               | 2             | 2                        | 3    |
| 7402                   |                       | LEAR | 01 19 0010                         | S23 E04 | 01 19.3       |          | B            | CRO           | 20                               | 5             | 3                        | 3    |
| 7402                   |                       | SVTO | 01 19 0950                         | S23 W02 | 01 19.2       |          | B            | BXO           | 20                               | 4             | 5                        | 3    |
| 7402                   |                       | RAMY | 01 19 1240                         | S24 W06 | 01 19.1       |          | B            | DAO           | 20                               | 5             | 5                        | 3    |
| 7402                   |                       | HOLL | 01 19 1850                         | S23 W08 | 01 19.2       |          | B            | DRO           | 20                               | 2             | 4                        | 3    |
| 7402                   | 27740                 | MWIL | 01 19 2100                         | S26 W09 | 01 19.2       | 4        | AP           |               |                                  |               |                          |      |
| 7402                   |                       | PALE | 01 19 2150                         | S24 W08 | 01 19.3       |          | B            | DAO           | 10                               | 5             | 4                        | 3    |
| 7402                   |                       | LEAR | 01 20 0003                         | S23 W10 | 01 19.2       |          | B            | BXO           | 10                               | 2             | 2                        | 3    |
| 7402                   |                       | RAMY | 01 20 1220                         | S22 W18 | 01 19.1       |          | B            | CRO           | 10                               | 2             | 5                        | 4    |
| 7402                   |                       | BOUL | 01 20 1543                         | S25 W19 | 01 19.2       |          | A            | HS            | 10                               | 1             | 1                        | 1    |
| 7402                   | 27740                 | MWIL | 01 20 1600                         | S26 W19 | 01 19.2       | 4        | (AP)         |               |                                  |               |                          |      |
| 7402                   |                       | HOLL | 01 20 1650                         | S23 W20 | 01 19.2       |          | B            | CRO           | 30                               | 2             | 6                        | 3    |



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

113  
Jan 93

JANUARY      1993

| NOAA/<br>USAF<br>Group | Mt<br>Wilson<br>Group | Sta  | Observation<br>Time<br>Mo Day (UT) | Lat CMD | CMP<br>Mo Day | Max<br>H | Mag<br>Class | Spot<br>Class | Corrected<br>Area<br>(10-6 Hemi) | Spot<br>Count | Long.<br>Extent<br>(Deg) | Qual |
|------------------------|-----------------------|------|------------------------------------|---------|---------------|----------|--------------|---------------|----------------------------------|---------------|--------------------------|------|
| 7402                   |                       | PALE | 01 20 2048                         | S26 W22 | 01 19.1       |          | A            | AX            |                                  | 1             | 1                        | 3    |
| 7402                   |                       | LEAR | 01 21 0003                         | S26 W23 | 01 19.2       |          | A            | AX            | 10                               | 1             | 1                        | 4    |
| 7402                   |                       | SVTO | 01 21 0802                         | S25 W27 | 01 19.2       |          | A            | AX            | 10                               | 1             | 1                        | 4    |
| 7402                   |                       | HOLL | 01 21 1814                         | S25 W33 | 01 19.2       |          | A            | AX            |                                  | 1             | 1                        | 3    |
|                        |                       |      |                                    |         |               |          |              |               |                                  |               |                          |      |
| 7401                   |                       | SVTO | 01 13 1105                         | S11 E80 | 01 19.5       |          | B            | BXO           | 30                               | 2             | 3                        | 3    |
| 7401                   |                       | BOUL | 01 13 1554                         | S11 E79 | 01 19.6       |          | A            | HS            | 60                               | 1             | 2                        | 3    |
| 7401                   |                       | PALE | 01 13 2100                         | S12 E78 | 01 19.7       |          | A            | HS            | 60                               | 1             | 1                        | 2    |
| 7401                   |                       | LEAR | 01 14 0015                         | S11 E75 | 01 19.6       |          | A            | HS            | 60                               | 1             | 2                        | 2    |
| 7401                   |                       | SVTO | 01 14 1040                         | S12 E68 | 01 19.6       |          | A            | HS            | 100                              | 5             | 2                        | 2    |
| 7401                   |                       | BOUL | 01 14 1637                         | S10 E67 | 01 19.7       |          | A            | HA            | 130                              | 2             | 4                        | 3    |
| 7401                   |                       | PALE | 01 14 1910                         | S11 E67 | 01 19.8       |          | A            | HS            | 90                               | 1             | 2                        | 3    |
| 7401                   |                       | LEAR | 01 15 0044                         | S11 E61 | 01 19.6       |          | A            | HS            | 110                              | 2             | 2                        | 3    |
| 7401                   |                       | BOUL | 01 15 1556                         | S10 E51 | 01 19.5       |          | A            | HS            | 100                              | 1             | 2                        | 3    |
| 7401                   |                       | HOLL | 01 15 1915                         | S12 E49 | 01 19.5       |          | A            | HS            | 90                               | 1             | 2                        | 2    |
| 7401                   |                       | PALE | 01 15 2230                         | S09 E48 | 01 19.5       |          | A            | HA            | 90                               | 1             | 1                        | 2    |
| 7401                   |                       | LEAR | 01 16 0201                         | S09 E48 | 01 19.7       |          | B            | CSO           | 110                              | 5             | 4                        | 3    |
| 7401                   |                       | SVTO | 01 16 0800                         | S11 E42 | 01 19.5       |          | B            | CSO           | 130                              | 3             | 3                        | 2    |
| 7401                   |                       | RAMY | 01 16 1301                         | S11 E42 | 01 19.7       |          | B            | CAO           | 90                               | 5             | 5                        | 4    |
| 7401                   |                       | BOUL | 01 16 1649                         | S11 E37 | 01 19.5       |          | A            | HS            | 50                               | 1             | 2                        | 2    |
| 7401                   |                       | HOLL | 01 16 2000                         | S11 E37 | 01 19.6       |          | A            | HS            | 70                               | 2             | 2                        | 2    |
| 7401                   |                       | LEAR | 01 17 0032                         | S10 E35 | 01 19.6       |          | B            | CSO           | 80                               | 5             | 5                        | 3    |
| 7401                   |                       | RAMY | 01 17 1239                         | S12 E28 | 01 19.6       |          | B            | DAO           | 90                               | 17            | 5                        | 4    |
| 7401                   |                       | LEAR | 01 18 0007                         | S12 E22 | 01 19.7       |          | B            | DAO           | 90                               | 11            | 5                        | 3    |
| 7401                   |                       | RAMY | 01 18 1227                         | S12 E14 | 01 19.6       |          | B            | DAO           | 120                              | 28            | 6                        | 4    |
| 7401                   |                       | BOUL | 01 18 1548                         | S11 E13 | 01 19.6       |          | B            | CAI           | 90                               | 9             | 5                        | 2    |
| 7401                   |                       | PALE | 01 18 2035                         | S12 E12 | 01 19.8       |          | B            | CAI           | 90                               | 15            | 4                        | 3    |
| 7401                   |                       | LEAR | 01 19 0010                         | S12 E08 | 01 19.6       |          | B            | DAO           | 100                              | 18            | 6                        | 3    |
| 7401                   |                       | SVTO | 01 19 0950                         | S11 E03 | 01 19.6       |          | B            | DAO           | 120                              | 17            | 5                        | 3    |
| 7401                   |                       | RAMY | 01 19 1240                         | S14 E02 | 01 19.7       |          | B            | DAO           | 120                              | 20            | 6                        | 3    |
| 7401                   |                       | HOLL | 01 19 1525                         | S12 E01 | 01 19.7       |          | B            | DAO           | 110                              | 16            | 5                        | 3    |
| 7401                   | 27741                 | MWIL | 01 19 2100                         | S13 W05 | 01 19.5       | 4        | X            |               |                                  |               |                          |      |
| 7401                   |                       | PALE | 01 19 2150                         | S12 W03 | 01 19.7       |          | B            | DAO           | 110                              | 20            | 7                        | 3    |
| 7401                   |                       | LEAR | 01 20 0003                         | S12 W06 | 01 19.6       |          | B            | DAO           | 70                               | 17            | 6                        | 3    |
| 7401                   |                       | RAMY | 01 20 1220                         | S13 W12 | 01 19.6       |          | B            | DAO           | 40                               | 13            | 7                        | 4    |
| 7401                   |                       | BOUL | 01 20 1543                         | S11 W13 | 01 19.7       |          | B            | DSO           | 40                               | 3             | 6                        | 1    |
| 7401                   | 27741                 | MWIL | 01 20 1600                         | S12 W15 | 01 19.5       | 4        | (B )         |               |                                  |               |                          |      |
| 7401                   |                       | HOLL | 01 20 1650                         | S15 W12 | 01 19.8       |          | B            | DAO           | 110                              | 13            | 7                        | 3    |
| 7401                   |                       | PALE | 01 20 2048                         | S12 W17 | 01 19.6       |          | B            | CAO           | 30                               | 10            | 6                        | 3    |
| 7401                   |                       | LEAR | 01 21 0003                         | S13 W18 | 01 19.6       |          | B            | CRO           | 30                               | 4             | 7                        | 4    |
| 7401                   |                       | SVTO | 01 21 0802                         | S12 W23 | 01 19.6       |          | B            | BXO           | 30                               | 16            | 6                        | 4    |
| 7401                   |                       | RAMY | 01 21 1208                         | S12 W25 | 01 19.6       |          | B            | CRO           | 20                               | 5             | 5                        | 3    |
| 7401                   | 27741                 | MWIL | 01 21 1700                         | S13 W28 | 01 19.6       | 3        | (AP)         |               |                                  |               |                          |      |
| 7401                   |                       | HOLL | 01 21 1814                         | S10 W29 | 01 19.6       |          | B            | DRO           | 50                               | 5             | 5                        | 3    |
| 7401                   |                       | PALE | 01 21 1915                         | S11 W30 | 01 19.5       |          | B            | CRO           | 20                               | 6             | 7                        | 2    |
| 7401                   |                       | LEAR | 01 22 0048                         | S10 W36 | 01 19.3       |          | B            | BXO           | 10                               | 2             | 1                        | 3    |
| 7401                   |                       | SVTO | 01 22 1205                         | S11 W40 | 01 19.5       |          | A            | AX            | 10                               | 2             | 1                        | 3    |
| 7401                   |                       | RAMY | 01 22 1408                         | S11 W41 | 01 19.5       |          | A            | AX            | 10                               | 3             | 2                        | 3    |
| 7401                   |                       | SVTO | 01 23 1056                         | S12 W50 | 01 19.7       |          | A            | AX            | 10                               | 1             | 1                        | 3    |
| 7401                   |                       | RAMY | 01 23 1320                         | S14 W52 | 01 19.6       |          | A            | AX            | 10                               | 1             |                          | 3    |
| 7401                   |                       | SVTO | 01 24 1045                         | S10 W61 | 01 19.9       |          | B            | BXO           | 30                               | 2             | 2                        | 3    |
| 7401                   |                       | RAMY | 01 24 1310                         | S13 W67 | 01 19.5       |          | A            | AX            | 20                               | 3             | 2                        | 2    |
| 7401                   | 27746                 | MWIL | 01 24 1530                         | S13 W68 | 01 19.5       | 3        | X            |               |                                  |               |                          |      |
|                        |                       |      |                                    |         |               |          |              |               |                                  |               |                          |      |
| 7401A                  | 27747                 | MWIL | 01 24 1530                         | N14 W64 | 01 19.8       | 3        | (AP)         |               |                                  |               |                          |      |
|                        |                       |      |                                    |         |               |          |              |               |                                  |               |                          |      |
| 7408                   |                       | SVTO | 01 24 1045                         | N12 W60 | 01 19.9       |          | B            | BXO           | 20                               | 2             | 2                        | 3    |
| 7408                   |                       | RAMY | 01 24 1310                         | N11 W60 | 01 20.0       |          | B            | BXO           | 20                               | 3             | 8                        | 2    |
| 7408                   | 27748                 | MWIL | 01 24 1530                         | N10 W60 | 01 20.1       | 3        | (AP)         |               |                                  |               |                          |      |
| 7408                   |                       | PALE | 01 24 1945                         | N12 W64 | 01 20.0       |          | A            | AX            | 10                               | 1             |                          | 3    |
| 7408                   |                       | LEAR | 01 25 0108                         | N11 W65 | 01 20.1       |          | B            | BXO           | 10                               | 2             | 4                        | 2    |
| 7408                   |                       | SVTO | 01 25 1045                         | N09 W70 | 01 20.2       |          | B            | BXO           | 50                               | 3             | 3                        | 2    |
| 7408                   |                       | RAMY | 01 25 1315                         | N09 W70 | 01 20.3       |          | B            | DRO           | 30                               | 2             | 5                        | 3    |
| 7408                   |                       | HOLL | 01 25 1607                         | N10 W71 | 01 20.3       |          | B            | BXO           | 10                               | 2             | 5                        | 2    |
| 7408                   | 27748                 | MWIL | 01 25 1645                         | N11 W75 | 01 20.0       | 5        | (B )         |               |                                  |               |                          |      |
| 7408                   |                       | LEAR | 01 26 0246                         | N09 W79 | 01 20.2       |          | A            | AX            | 10                               | 1             | 1                        | 2    |
|                        |                       |      |                                    |         |               |          |              |               |                                  |               |                          |      |
| 7403B                  |                       | RAMY | 01 18 1227                         | S07 E26 | 01 20.5       |          | A            | AX            |                                  | 1             |                          | 4    |
| 7403B                  |                       | BOUL | 01 18 1548                         | S07 E23 | 01 20.4       |          | A            | AX            | 10                               | 1             |                          | 2    |

114  
Jan 93

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

JANUARY 1993

| NOAA/<br>USAF<br>Group | Mt<br>Wilson<br>Group | Sta  | Mo | Day | Time<br>(UT) | Lat | CMD | CMP<br>Mo | Day  | Max<br>H | Mag<br>Class | Spot<br>Class | Corrected<br>Area<br>(10-6 Hemi) | Spot<br>Count | Long.<br>Extent<br>(Deg) | Qual |
|------------------------|-----------------------|------|----|-----|--------------|-----|-----|-----------|------|----------|--------------|---------------|----------------------------------|---------------|--------------------------|------|
| 7403B                  | 27744                 | MWIL | 01 | 21  | 1700         | S07 | W13 | 01        | 20.7 | 2        | (AP)         |               |                                  |               |                          |      |
| 7403                   |                       | PALE | 01 | 14  | 1910         | N13 | E88 | 01        | 21.4 |          | A            | HS            | 60                               | 1             | 1                        | 3    |
| 7403                   |                       | LEAR | 01 | 15  | 0044         | N14 | E80 | 01        | 21.1 |          | A            | HA            | 120                              | 1             | 3                        | 3    |
| 7403                   |                       | BOUL | 01 | 15  | 1556         | N15 | E75 | 01        | 21.3 |          | A            | HS            | 120                              | 1             | 3                        | 3    |
| 7403                   |                       | HOLL | 01 | 15  | 1915         | N16 | E69 | 01        | 21.0 |          | A            | HS            | 180                              | 1             | 2                        | 2    |
| 7403                   |                       | PALE | 01 | 15  | 2230         | N18 | E69 | 01        | 21.2 |          | A            | HS            | 100                              | 1             | 1                        | 2    |
| 7403                   |                       | LEAR | 01 | 16  | 0201         | N16 | E68 | 01        | 21.2 |          | A            | HA            | 200                              | 1             | 3                        | 3    |
| 7403                   |                       | SVTO | 01 | 16  | 0800         | N13 | E64 | 01        | 21.2 |          | A            | HH            | 190                              | 1             | 3                        | 2    |
| 7403                   |                       | RAMY | 01 | 16  | 1301         | N14 | E61 | 01        | 21.1 |          | A            | HH            | 160                              | 1             | 2                        | 4    |
| 7403                   |                       | BOUL | 01 | 16  | 1649         | N15 | E60 | 01        | 21.2 |          | A            | HS            | 130                              | 1             | 2                        | 2    |
| 7403                   |                       | HOLL | 01 | 16  | 2000         | N14 | E58 | 01        | 21.2 |          | A            | HS            | 200                              | 1             | 2                        | 2    |
| 7403                   |                       | LEAR | 01 | 17  | 0032         | N16 | E55 | 01        | 21.2 |          | A            | HS            | 160                              | 1             | 3                        | 3    |
| 7403                   |                       | RAMY | 01 | 17  | 1239         | N14 | E48 | 01        | 21.1 |          | A            | HH            | 170                              | 2             | 3                        | 4    |
| 7403                   |                       | LEAR | 01 | 18  | 0007         | N15 | E42 | 01        | 21.2 |          | A            | HS            | 180                              | 1             | 3                        | 3    |
| 7403                   |                       | RAMY | 01 | 18  | 1227         | N15 | E34 | 01        | 21.1 |          | A            | HA            | 140                              | 1             | 2                        | 4    |
| 7403                   |                       | BOUL | 01 | 18  | 1548         | N15 | E32 | 01        | 21.1 |          | A            | HS            | 120                              | 1             | 2                        | 2    |
| 7403                   |                       | PALE | 01 | 18  | 2035         | N17 | E32 | 01        | 21.3 |          | A            | HA            | 180                              | 1             | 2                        | 3    |
| 7403                   |                       | LEAR | 01 | 19  | 0010         | N15 | E28 | 01        | 21.1 |          | A            | HS            | 180                              | 1             | 3                        | 3    |
| 7403                   |                       | SVTO | 01 | 19  | 0950         | N14 | E22 | 01        | 21.1 |          | A            | HS            | 170                              | 1             | 2                        | 3    |
| 7403                   |                       | RAMY | 01 | 19  | 1240         | N15 | E22 | 01        | 21.2 |          | A            | HS            | 190                              | 1             | 2                        | 3    |
| 7403                   |                       | HOLL | 01 | 19  | 1850         | N13 | E18 | 01        | 21.1 |          | A            | HH            | 220                              | 1             | 3                        | 3    |
| 7403                   | 27742                 | MWIL | 01 | 19  | 2100         | N14 | E17 | 01        | 21.1 | 5        | AP           |               |                                  |               |                          |      |
| 7403                   |                       | PALE | 01 | 19  | 2150         | N17 | E18 | 01        | 21.3 |          | A            | HH            | 180                              | 1             | 2                        | 3    |
| 7403                   |                       | LEAR | 01 | 20  | 0003         | N15 | E15 | 01        | 21.1 |          | A            | HA            | 160                              | 1             | 2                        | 3    |
| 7403                   |                       | RAMY | 01 | 20  | 1220         | N16 | E12 | 01        | 21.4 |          | B            | CAO           | 200                              | 2             | 7                        | 4    |
| 7403                   |                       | BOUL | 01 | 20  | 1543         | N15 | E06 | 01        | 21.1 |          | A            | HA            | 140                              | 1             | 2                        | 1    |
| 7403                   | 27742                 | MWIL | 01 | 20  | 1600         | N15 | E06 | 01        | 21.1 | 5        | (BP)         |               |                                  |               |                          |      |
| 7403                   |                       | HOLL | 01 | 20  | 1650         | N15 | E05 | 01        | 21.1 |          | A            | HS            | 160                              | 1             | 2                        | 3    |
| 7403                   |                       | PALE | 01 | 20  | 2048         | N15 | E03 | 01        | 21.1 |          | A            | HS            | 150                              | 1             | 2                        | 3    |
| 7403                   |                       | LEAR | 01 | 21  | 0003         | N15 | E02 | 01        | 21.1 |          | A            | HA            | 220                              | 1             | 3                        | 4    |
| 7403                   |                       | SVTO | 01 | 21  | 0802         | N14 | W02 | 01        | 21.2 |          | A            | HS            | 200                              | 1             | 2                        | 4    |
| 7403                   |                       | RAMY | 01 | 21  | 1208         | N14 | W04 | 01        | 21.2 |          | A            | HA            | 200                              | 1             | 2                        | 3    |
| 7403                   | 27742                 | MWIL | 01 | 21  | 1700         | N14 | W07 | 01        | 21.2 | 5        | (AP)         |               |                                  |               |                          |      |
| 7403                   |                       | HOLL | 01 | 21  | 1814         | N15 | W07 | 01        | 21.2 |          | A            | HS            | 220                              | 1             | 2                        | 3    |
| 7403                   |                       | PALE | 01 | 21  | 1915         | N14 | W09 | 01        | 21.1 |          | A            | HS            | 150                              | 1             | 2                        | 2    |
| 7403                   |                       | LEAR | 01 | 22  | 0048         | N17 | W12 | 01        | 21.1 |          | A            | HS            | 110                              | 1             | 1                        | 3    |
| 7403                   |                       | SVTO | 01 | 22  | 1205         | N15 | W19 | 01        | 21.1 |          | A            | HS            | 190                              | 1             | 2                        | 3    |
| 7403                   |                       | RAMY | 01 | 22  | 1408         | N15 | W18 | 01        | 21.2 |          | A            | HS            | 140                              | 1             | 2                        | 3    |
| 7403                   |                       | BOUL | 01 | 22  | 1518         | N15 | W19 | 01        | 21.2 |          | A            | HS            | 110                              | 1             | 3                        | 1    |
| 7403                   | 27742                 | MWIL | 01 | 22  | 1530         | N15 | W20 | 01        | 21.1 | 5        | (AP)         |               |                                  |               |                          |      |
| 7403                   |                       | HOLL | 01 | 22  | 1830         | N15 | W21 | 01        | 21.2 |          | A            | HS            | 170                              | 1             | 2                        | 3    |
| 7403                   |                       | PALE | 01 | 22  | 1910         | N15 | W23 | 01        | 21.0 |          | A            | HA            | 170                              | 1             | 3                        | 3    |
| 7403                   |                       | LEAR | 01 | 23  | 0009         | N16 | W25 | 01        | 21.1 |          | A            | HS            | 120                              | 1             | 2                        | 3    |
| 7403                   |                       | SVTO | 01 | 23  | 1056         | N15 | W29 | 01        | 21.3 |          | A            | HH            | 180                              | 1             | 3                        | 3    |
| 7403                   |                       | RAMY | 01 | 23  | 1320         | N14 | W32 | 01        | 21.1 |          | A            | HS            | 140                              | 1             | 2                        | 3    |
| 7403                   | 27742                 | MWIL | 01 | 23  | 1530         | N15 | W32 | 01        | 21.2 | 5        | (AP)         |               |                                  |               |                          |      |
| 7403                   |                       | BOUL | 01 | 23  | 1609         | N16 | W33 | 01        | 21.2 |          | A            | HS            | 170                              | 1             | 2                        | 3    |
| 7403                   |                       | HOLL | 01 | 23  | 1610         | N15 | W32 | 01        | 21.2 |          | A            | HS            | 180                              | 1             | 2                        | 3    |
| 7403                   |                       | PALE | 01 | 23  | 1850         | N13 | W32 | 01        | 21.4 |          | A            | HA            | 190                              | 1             | 2                        | 3    |
| 7403                   |                       | LEAR | 01 | 24  | 0005         | N15 | W38 | 01        | 21.1 |          | A            | HS            | 130                              | 1             | 2                        | 3    |
| 7403                   |                       | SVTO | 01 | 24  | 1045         | N14 | W42 | 01        | 21.3 |          | A            | HS            | 140                              | 1             | 3                        | 3    |
| 7403                   |                       | RAMY | 01 | 24  | 1310         | N13 | W44 | 01        | 21.2 |          | A            | HH            | 150                              | 1             | 3                        | 2    |
| 7403                   | 27742                 | MWIL | 01 | 24  | 1530         | N15 | W46 | 01        | 21.2 | 5        | (AP)         |               |                                  |               |                          |      |
| 7403                   |                       | HOLL | 01 | 24  | 1800         | N16 | W45 | 01        | 21.3 |          | A            | HS            | 180                              | 1             | 2                        | 1    |
| 7403                   |                       | BOUL | 01 | 24  | 1814         | N14 | W47 | 01        | 21.2 |          | A            | HS            | 170                              | 1             | 3                        | 3    |
| 7403                   |                       | PALE | 01 | 24  | 1945         | N13 | W48 | 01        | 21.2 |          | A            | HS            | 160                              | 1             | 2                        | 3    |
| 7403                   |                       | LEAR | 01 | 25  | 0108         | N15 | W52 | 01        | 21.1 |          | A            | HS            | 140                              | 1             | 2                        | 2    |
| 7403                   |                       | SVTO | 01 | 25  | 1045         | N13 | W56 | 01        | 21.2 |          | A            | HS            | 140                              | 1             | 2                        | 2    |
| 7403                   |                       | RAMY | 01 | 25  | 1315         | N14 | W57 | 01        | 21.2 |          | A            | HK            | 150                              | 1             | 2                        | 3    |
| 7403                   |                       | HOLL | 01 | 25  | 1607         | N14 | W57 | 01        | 21.4 |          | A            | HS            | 120                              | 1             | 2                        | 2    |
| 7403                   | 27742                 | MWIL | 01 | 25  | 1645         | N15 | W59 | 01        | 21.2 | 5        | (AP)         |               |                                  |               |                          |      |
| 7403                   |                       | LEAR | 01 | 26  | 0246         | N13 | W65 | 01        | 21.2 |          | A            | HS            | 140                              | 1             | 2                        | 2    |
| 7403                   |                       | SVTO | 01 | 26  | 1027         | N14 | W70 | 01        | 21.1 |          | A            | HS            | 200                              | 1             | 2                        | 2    |
| 7403                   |                       | RAMY | 01 | 26  | 1248         | N15 | W70 | 01        | 21.2 |          | A            | HS            | 150                              | 1             | 2                        | 3    |
| 7403                   |                       | HOLL | 01 | 26  | 1547         | N16 | W70 | 01        | 21.3 |          | A            | HS            | 120                              | 1             | 2                        | 3    |
| 7403                   |                       | BOUL | 01 | 26  | 1557         | N15 | W74 | 01        | 21.1 |          | A            | HS            | 110                              | 1             | 2                        | 1    |
| 7403                   | 27742                 | MWIL | 01 | 26  | 1600         | N15 | W72 | 01        | 21.2 | 5        | (AP)         |               |                                  |               |                          |      |
| 7403                   |                       | PALE | 01 | 26  | 1820         | N11 | W74 | 01        | 21.2 |          | A            | HA            | 80                               | 1             | 1                        | 3    |

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

115  
Jan 93

JANUARY      1993

| NOAA/<br>USAF<br>Group | Mt<br>Wilson<br>Group | Sta  | Observation<br>Time<br>(UT) | Lat | CMD | CMP<br>Mo Day | Max<br>H | Mag<br>Class | Spot<br>Class | Corrected<br>Area<br>(10-6 Hemi) | Spot<br>Count | Long.<br>Extent<br>(Deg) | Qual |
|------------------------|-----------------------|------|-----------------------------|-----|-----|---------------|----------|--------------|---------------|----------------------------------|---------------|--------------------------|------|
| 7403                   |                       | LEAR | 01 27 0525                  | N09 | W78 | 01 21.4       |          | A            | HS            | 120                              | 1             | 2                        | 2    |
| 7403                   |                       | RAMY | 01 27 1244                  | N14 | W85 | 01 21.1       |          | A            | HS            | 120                              | 1             | 2                        | 3    |
| 7403                   | 27742                 | MWIL | 01 27 1600                  | N14 | W89 | 01 20.9       | 5        | AP           |               |                                  |               |                          |      |
| 7403A                  |                       | HOLL | 01 21 1814                  | S22 | W06 | 01 21.3       |          | A            | AX            |                                  | 1             | 1                        | 3    |
| 7403A                  |                       | SVTO | 01 25 1045                  | S20 | W58 | 01 21.0       |          | B            | BXO           | 10                               | 2             | 3                        | 2    |
| 7403C                  | 27754                 | MWIL | 01 28 1600                  | S19 | W64 | 01 23.8       | 4        | (AF)         |               |                                  |               |                          |      |
| 7409                   |                       | LEAR | 01 24 0005                  | N18 | E05 | 01 24.4       |          | B            | BXO           | 10                               | 4             | 5                        | 3    |
| 7409                   |                       | SVTO | 01 24 1045                  | N17 | W02 | 01 24.3       |          | B            | BXO           | 10                               | 3             | 5                        | 3    |
| 7409                   |                       | RAMY | 01 24 1310                  | N17 | W04 | 01 24.2       |          | B            | DRO           | 20                               | 3             | 5                        | 2    |
| 7409                   | 27749                 | MWIL | 01 24 1530                  | N18 | W04 | 01 24.3       | 4        | (B )         |               |                                  |               |                          |      |
| 7409                   |                       | PALE | 01 24 1945                  | N17 | W07 | 01 24.3       |          | B            | BXO           | 20                               | 3             | 5                        | 3    |
| 7409                   |                       | LEAR | 01 25 0108                  | N18 | W12 | 01 24.1       |          | A            | AX            | 10                               | 2             | 2                        | 2    |
| 7409                   |                       | SVTO | 01 25 1045                  | N16 | W15 | 01 24.3       |          | B            | BXO           | 20                               | 4             | 4                        | 2    |
| 7409                   |                       | RAMY | 01 25 1315                  | N17 | W16 | 01 24.3       |          | B            | DRO           | 10                               | 2             | 4                        | 3    |
| 7409                   |                       | HOLL | 01 25 1607                  | N18 | W18 | 01 24.3       |          | B            | BXO           | 10                               | 4             | 4                        | 2    |
| 7409                   | 27749                 | MWIL | 01 25 1645                  | N18 | W18 | 01 24.3       | 4        | (B )         |               |                                  |               |                          |      |
| 7409                   |                       | LEAR | 01 26 0246                  | N17 | W25 | 01 24.2       |          | B            | BXO           | 10                               | 3             | 5                        | 2    |
| 7409                   |                       | RAMY | 01 26 1248                  | N18 | W30 | 01 24.2       |          | B            | BXO           | 10                               | 3             | 5                        | 3    |
| 7409                   |                       | HOLL | 01 26 1547                  | N18 | W28 | 01 24.5       |          | A            | AX            |                                  | 1             | 1                        | 3    |
| 7409                   | 27749                 | MWIL | 01 26 1600                  | N18 | W32 | 01 24.2       | 4        | (B )         |               |                                  |               |                          |      |
| 7409                   |                       | PALE | 01 26 1820                  | N16 | W30 | 01 24.5       |          | A            | AX            | 10                               | 1             | 1                        | 3    |
| 7409A                  | 27750                 | MWIL | 01 25 1645                  | S19 | W11 | 01 24.8       | 3        | (AP)         |               |                                  |               |                          |      |
| 7406                   |                       | RAMY | 01 18 1227                  | S12 | E83 | 01 24.8       |          | B            | CAO           | 50                               | 3             | 3                        | 4    |
| 7406                   |                       | PALE | 01 18 2035                  | S11 | E80 | 01 24.9       |          | B            | CAO           | 80                               | 3             | 3                        | 3    |
| 7406                   |                       | LEAR | 01 19 0010                  | S12 | E79 | 01 24.9       |          | B            | DAO           | 150                              | 5             | 5                        | 3    |
| 7406                   |                       | SVTO | 01 19 0950                  | S13 | E70 | 01 24.7       |          | A            | AX            | 70                               | 8             | 3                        | 3    |
| 7406                   |                       | RAMY | 01 19 1240                  | S12 | E75 | 01 25.2       |          | B            | EAO           | 120                              | 9             | 12                       | 3    |
| 7406                   |                       | HOLL | 01 19 1850                  | S14 | E68 | 01 24.9       |          | B            | CAO           | 80                               | 7             | 4                        | 3    |
| 7406                   | 27743                 | MWIL | 01 19 2100                  | S14 | E66 | 01 24.9       | 4        | X            |               |                                  |               |                          |      |
| 7406                   |                       | PALE | 01 19 2150                  | S11 | E68 | 01 25.0       |          | B            | CAO           | 90                               | 7             | 4                        | 3    |
| 7406                   |                       | LEAR | 01 20 0003                  | S13 | E66 | 01 25.0       |          | B            | CAO           | 70                               | 8             | 5                        | 3    |
| 7406                   |                       | RAMY | 01 20 1220                  | S15 | E62 | 01 25.2       |          | B            | CAO           | 120                              | 11            | 12                       | 4    |
| 7406                   |                       | BOUL | 01 20 1543                  | S13 | E56 | 01 24.9       |          | B            | DAO           | 140                              | 6             | 4                        | 1    |
| 7406                   | 27743                 | MWIL | 01 20 1600                  | S13 | E56 | 01 24.9       | 4        | (B )         |               |                                  |               |                          |      |
| 7406                   |                       | HOLL | 01 20 1650                  | S14 | E55 | 01 24.8       |          | B            | DAC           | 250                              | 12            | 5                        | 3    |
| 7406                   |                       | PALE | 01 20 2048                  | S14 | E54 | 01 24.9       |          | B            | DAO           | 110                              | 10            | 10                       | 3    |
| 7406                   |                       | LEAR | 01 21 0003                  | S13 | E55 | 01 25.1       |          | B            | DAO           | 100                              | 17            | 9                        | 4    |
| 7406                   |                       | SVTO | 01 21 0802                  | S14 | E46 | 01 24.8       |          | B            | DSO           | 110                              | 8             | 3                        | 4    |
| 7406                   |                       | RAMY | 01 21 1208                  | S13 | E46 | 01 25.0       |          | B            | DSO           | 60                               | 3             | 3                        | 3    |
| 7406                   | 27743                 | MWIL | 01 21 1700                  | S14 | E41 | 01 24.8       | 4        | (BP)         |               |                                  |               |                          |      |
| 7406                   |                       | HOLL | 01 21 1814                  | S13 | E43 | 01 25.0       |          | B            | DSI           | 100                              | 4             | 5                        | 3    |
| 7406                   |                       | PALE | 01 21 1915                  | S14 | E41 | 01 24.9       |          | B            | DSO           | 70                               | 7             | 3                        | 2    |
| 7406                   |                       | LEAR | 01 22 0048                  | S13 | E38 | 01 24.9       |          | B            | CSO           | 80                               | 5             | 5                        | 3    |
| 7406                   |                       | SVTO | 01 22 1205                  | S13 | E30 | 01 24.8       |          | B            | CSO           | 60                               | 4             | 5                        | 3    |
| 7406                   |                       | RAMY | 01 22 1408                  | S13 | E29 | 01 24.8       |          | B            | CAO           | 80                               | 6             | 5                        | 3    |
| 7406                   |                       | BOUL | 01 22 1518                  | S13 | E29 | 01 24.8       |          | B            | CSO           | 50                               | 2             | 3                        | 1    |
| 7406                   | 27743                 | MWIL | 01 22 1530                  | S13 | E29 | 01 24.8       | 5        | (AP)         |               |                                  |               |                          |      |
| 7406                   |                       | HOLL | 01 22 1830                  | S13 | E27 | 01 24.8       |          | B            | CSO           | 40                               | 3             | 6                        | 3    |
| 7406                   |                       | PALE | 01 22 1910                  | S10 | E26 | 01 24.7       |          | B            | CAO           | 70                               | 3             | 6                        | 3    |
| 7406                   |                       | LEAR | 01 23 0009                  | S13 | E25 | 01 24.9       |          | B            | CSO           | 40                               | 2             | 3                        | 3    |
| 7406                   |                       | SVTO | 01 23 1056                  | S13 | E21 | 01 25.0       |          | B            | CSO           | 40                               | 3             | 2                        | 3    |
| 7406                   |                       | RAMY | 01 23 1320                  | S13 | E19 | 01 25.0       |          | A            | HA            | 50                               | 3             | 2                        | 3    |
| 7406                   | 27743                 | MWIL | 01 23 1530                  | S14 | E18 | 01 25.0       | 5        | (AP)         |               |                                  |               |                          |      |
| 7406                   |                       | BOUL | 01 23 1609                  | S13 | E17 | 01 24.9       |          | A            | HA            | 50                               | 2             | 2                        | 3    |
| 7406                   |                       | HOLL | 01 23 1610                  | S15 | E17 | 01 25.0       |          | B            | CSO           | 60                               | 6             | 9                        | 3    |
| 7406                   |                       | PALE | 01 23 1850                  | S14 | E15 | 01 24.9       |          | B            | CAO           | 70                               | 6             | 7                        | 3    |
| 7406                   |                       | LEAR | 01 24 0005                  | S14 | E10 | 01 24.7       |          | B            | CSO           | 70                               | 3             | 5                        | 3    |
| 7406                   |                       | SVTO | 01 24 1045                  | S13 | E12 | 01 25.3       |          | B            | DSO           | 70                               | 9             | 8                        | 3    |
| 7406                   |                       | RAMY | 01 24 1310                  | S15 | E09 | 01 25.2       |          | B            | DSO           | 110                              | 8             | 8                        | 2    |
| 7406                   | 27743                 | MWIL | 01 24 1530                  | S15 | E06 | 01 25.1       | 5        | (BP)         |               |                                  |               |                          |      |
| 7406                   |                       | HOLL | 01 24 1800                  | S15 | E08 | 01 25.3       |          | B            | CSO           | 100                              | 5             | 8                        | 1    |
| 7406                   |                       | BOUL | 01 24 1814                  | S16 | E07 | 01 25.3       |          | B            | CSO           | 60                               | 5             | 7                        | 3    |
| 7406                   |                       | PALE | 01 24 1945                  | S14 | E07 | 01 25.3       |          | B            | CSO           | 100                              | 13            | 8                        | 3    |
| 7406                   |                       | LEAR | 01 25 0108                  | S14 | W01 | 01 25.0       |          | B            | CSO           | 60                               | 4             | 5                        | 2    |

116  
Jan 93

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

JANUARY 1993

| NOAA/<br>USAF<br>Group | Mt<br>Wilson<br>Group | Sta  | Observation<br>Time<br>Mo Day (UT) | Lat | CMD | CMP<br>Mo Day | Max<br>H | Mag<br>Class | Spot<br>Class | Corrected<br>Area<br>(10-6 Hemi) | Spot<br>Count | Long.<br>Extent<br>(Deg) | Qual |
|------------------------|-----------------------|------|------------------------------------|-----|-----|---------------|----------|--------------|---------------|----------------------------------|---------------|--------------------------|------|
| 7406                   |                       | SVTO | 01 25 1045                         | S14 | W04 | 01 25.1       |          | B            | CSO           | 70                               | 8             | 5                        | 2    |
| 7406                   |                       | RAMY | 01 25 1315                         | S15 | W04 | 01 25.2       |          | B            | CAO           | 70                               | 3             | 5                        | 3    |
| 7406                   |                       | HOLL | 01 25 1607                         | S16 | W07 | 01 25.1       |          | B            | CSO           | 40                               | 2             | 4                        | 2    |
| 7406                   | 27743                 | MWIL | 01 25 1645                         | S14 | W08 | 01 25.1       | 5        | (BP)         |               |                                  |               |                          |      |
| 7406                   |                       | LEAR | 01 26 0246                         | S17 | W12 | 01 25.2       |          | B            | CSO           | 40                               | 2             | 6                        | 2    |
| 7406                   |                       | SVTO | 01 26 1027                         | S12 | W18 | 01 25.1       |          | B            | CAO           | 40                               | 2             | 1                        | 2    |
| 7406                   |                       | RAMY | 01 26 1248                         | S13 | W17 | 01 25.2       |          | B            | CAO           | 50                               | 2             | 4                        | 3    |
| 7406                   |                       | HOLL | 01 26 1547                         | S12 | W25 | 01 24.8       |          | B            | CSO           | 90                               | 3             | 9                        | 3    |
| 7406                   |                       | BOUL | 01 26 1557                         | S13 | W21 | 01 25.1       |          | A            | HS            | 40                               | 1             | 1                        | 1    |
| 7406                   | 27743                 | MWIL | 01 26 1600                         | S13 | W22 | 01 25.0       | 5        | (BP)         |               |                                  |               |                          |      |
| 7406                   |                       | PALE | 01 26 1820                         | S14 | W23 | 01 25.0       |          | B            | CSO           | 130                              | 6             | 9                        | 3    |
| 7406                   |                       | LEAR | 01 27 0525                         | S17 | W28 | 01 25.1       |          | A            | HS            | 70                               | 2             | 2                        | 2    |
| 7406                   |                       | RAMY | 01 27 1244                         | S14 | W33 | 01 25.0       |          | A            | HA            | 70                               | 1             | 2                        | 3    |
| 7406                   | 27743                 | MWIL | 01 27 1600                         | S14 | W35 | 01 25.0       | 5        | (B )         |               |                                  |               |                          |      |
| 7406                   |                       | BOUL | 01 27 1607                         | S13 | W35 | 01 25.0       |          | A            | HS            | 70                               | 1             | 2                        | 3    |
| 7406                   |                       | PALE | 01 27 1818                         | S14 | W37 | 01 25.0       |          | A            | HS            | 80                               | 1             | 1                        | 3    |
| 7406                   |                       | HOLL | 01 27 1900                         | S13 | W37 | 01 25.0       |          | A            | HS            | 50                               | 1             | 1                        | 1    |
| 7406                   |                       | LEAR | 01 28 0146                         | S18 | W40 | 01 25.0       |          | A            | HS            | 80                               | 1             | 2                        | 3    |
| 7406                   |                       | SVTO | 01 28 1050                         | S13 | W45 | 01 25.0       |          | A            | HS            | 80                               | 1             | 2                        | 4    |
| 7406                   |                       | RAMY | 01 28 1520                         | S14 | W47 | 01 25.1       |          | A            | HA            | 50                               | 1             | 2                        | 2    |
| 7406                   |                       | BOUL | 01 28 1555                         | S13 | W48 | 01 25.0       |          | A            | HA            | 50                               | 1             | 2                        | 3    |
| 7406                   | 27743                 | MWIL | 01 28 1600                         | S14 | W48 | 01 25.0       | 5        | (AP)         |               |                                  |               |                          |      |
| 7406                   |                       | HOLL | 01 28 2015                         | S12 | W50 | 01 25.1       |          | A            | HS            | 60                               | 1             | 1                        | 3    |
| 7406                   |                       | LEAR | 01 29 0028                         | S13 | W53 | 01 25.0       |          | A            | HS            | 60                               | 1             | 2                        | 4    |
| 7406                   |                       | SVTO | 01 29 1125                         | S13 | W57 | 01 25.2       |          | A            | HA            | 50                               | 1             | 1                        | 3    |
| 7406                   | 27743                 | MWIL | 01 29 1740                         | S13 | W62 | 01 25.0       | 5        | (AP)         |               |                                  |               |                          |      |
| 7406                   |                       | HOLL | 01 29 1815                         | S13 | W63 | 01 25.0       |          | A            | HS            | 80                               | 1             | 1                        | 3    |
| 7406                   |                       | LEAR | 01 30 0007                         | S16 | W68 | 01 24.8       |          | A            | HS            | 100                              | 1             | 2                        | 4    |
| 7406                   |                       | RAMY | 01 30 1310                         | S13 | W73 | 01 25.0       |          | A            | HA            | 60                               | 1             | 2                        | 3    |
| 7406                   |                       | BOUL | 01 30 1541                         | S13 | W77 | 01 24.8       |          | A            | HS            | 50                               | 1             | 2                        | 3    |
| 7406                   | 27743                 | MWIL | 01 30 1600                         | S14 | W76 | 01 24.9       | 5        | (AP)         |               |                                  |               |                          |      |
| 7406                   |                       | LEAR | 01 31 0005                         | S14 | W78 | 01 25.1       |          | A            | HR            | 30                               | 1             | 2                        | 3    |
| 7406                   |                       | SVTO | 01 31 1043                         | S12 | W80 | 01 25.4       |          | A            | HS            | 30                               | 1             | 3                        | 3    |
| 7411                   |                       | RAMY | 01 25 1315                         | S12 | E08 | 01 26.1       |          | A            | AX            |                                  | 2             | 2                        | 3    |
| 7411                   |                       | RAMY | 01 27 1244                         | S12 | W17 | 01 26.2       |          | B            | DAO           | 40                               | 7             | 4                        | 3    |
| 7411                   | 27751                 | MWIL | 01 27 1600                         | S11 | W19 | 01 26.2       | 5        | (B )         |               |                                  |               |                          |      |
| 7411                   |                       | BOUL | 01 27 1607                         | S10 | W19 | 01 26.2       |          | B            | CSO           | 60                               | 4             | 4                        | 3    |
| 7411                   |                       | PALE | 01 27 1818                         | S12 | W19 | 01 26.3       |          | B            | CAO           | 50                               | 5             | 8                        | 3    |
| 7411                   |                       | HOLL | 01 27 1900                         | S11 | W21 | 01 26.2       |          | B            | DAO           | 60                               | 5             | 4                        | 1    |
| 7411                   |                       | LEAR | 01 28 0146                         | S14 | W25 | 01 26.2       |          | B            | CAO           | 80                               | 7             | 5                        | 3    |
| 7411                   |                       | SVTO | 01 28 1050                         | S11 | W30 | 01 26.2       |          | B            | DAO           | 60                               | 18            | 6                        | 4    |
| 7411                   |                       | RAMY | 01 28 1520                         | S12 | W33 | 01 26.1       |          | B            | DAO           | 80                               | 12            | 6                        | 2    |
| 7411                   |                       | BOUL | 01 28 1555                         | S11 | W33 | 01 26.2       |          | B            | DAO           | 90                               | 11            | 7                        | 3    |
| 7411                   | 27751                 | MWIL | 01 28 1600                         | S12 | W33 | 01 26.2       | 5        | (B )         |               |                                  |               |                          |      |
| 7411                   |                       | HOLL | 01 28 2015                         | S10 | W36 | 01 26.1       |          | B            | DSO           | 80                               | 7             | 8                        | 3    |
| 7411                   |                       | LEAR | 01 29 0028                         | S13 | W37 | 01 26.2       |          | B            | DAO           | 140                              | 14            | 6                        | 4    |
| 7411                   |                       | SVTO | 01 29 1125                         | S12 | W43 | 01 26.2       |          | B            | DAO           | 150                              | 14            | 7                        | 3    |
| 7411                   | 27751                 | MWIL | 01 29 1740                         | S11 | W49 | 01 26.0       | 5        | (B )         |               |                                  |               |                          |      |
| 7411                   |                       | HOLL | 01 29 1815                         | S11 | W47 | 01 26.2       |          | B            | DAO           | 140                              | 11            | 7                        | 3    |
| 7411                   |                       | LEAR | 01 30 0007                         | S11 | W54 | 01 25.9       |          | B            | DAO           | 140                              | 11            | 8                        | 4    |
| 7411                   |                       | RAMY | 01 30 1310                         | S12 | W57 | 01 26.2       |          | B            | DAO           | 90                               | 11            | 7                        | 3    |
| 7411                   |                       | BOUL | 01 30 1541                         | S12 | W60 | 01 26.1       |          | B            | DAO           | 210                              | 17            | 7                        | 3    |
| 7411                   | 27751                 | MWIL | 01 30 1600                         | S12 | W61 | 01 26.1       | 5        | (BP)         |               |                                  |               |                          |      |
| 7411                   |                       | LEAR | 01 31 0005                         | S12 | W65 | 01 26.1       |          | B            | CSO           | 130                              | 6             | 6                        | 3    |
| 7411                   |                       | SVTO | 01 31 1043                         | S10 | W68 | 01 26.3       |          | B            | CAO           | 200                              | 5             | 6                        | 3    |
| 7411                   |                       | RAMY | 01 31 1523                         | S14 | W70 | 01 26.3       |          | B            | DAO           | 130                              | 5             | 4                        | 3    |
| 7411                   |                       | BOUL | 01 31 1557                         | S11 | W74 | 01 26.1       |          | B            | DSO           | 130                              | 4             | 9                        | 3    |
| 7411                   | 27751                 | MWIL | 01 31 1630                         | S12 | W74 | 01 26.1       | 5        | (B )         |               |                                  |               |                          |      |
| 7411                   |                       | HOLL | 01 31 1945                         | S13 | W76 | 01 26.1       |          | B            | DAO           | 160                              | 4             | 5                        | 3    |
| 7411                   |                       | LEAR | 02 01 0020                         | S12 | W75 | 01 26.5       |          | B            | DAO           | 180                              | 6             | 8                        | 3    |
| 7411                   |                       | RAMY | 02 01 1401                         | S12 | W89 | 01 26.0       |          | A            | HA            | 400                              | 1             | 2                        | 2    |
| 7407                   |                       | LEAR | 01 21 0003                         | S06 | E80 | 01 27.0       |          | A            | AX            | 10                               | 1             | 1                        | 4    |
| 7407                   |                       | SVTO | 01 21 0802                         | S08 | E77 | 01 27.1       |          | A            | HA            | 30                               | 1             | 2                        | 4    |
| 7407                   |                       | RAMY | 01 21 1208                         | S06 | E78 | 01 27.3       |          | A            | HS            | 30                               | 1             | 1                        | 3    |
| 7407                   | 27745                 | MWIL | 01 21 1700                         | S07 | E76 | 01 27.4       | 3        | (AP)         |               |                                  |               |                          |      |
| 7407                   |                       | HOLL | 01 21 1814                         | S08 | E79 | 01 27.7       |          | A            | HS            | 60                               | 1             | 1                        | 3    |
| 7407                   |                       | PALE | 01 21 1915                         | S06 | E74 | 01 27.3       |          | A            | HS            | 60                               | 1             | 1                        | 2    |

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

117  
Jan 93

JANUARY      1993

| NOAA/<br>USAF<br>Group | Mt<br>Wilson<br>Group | Sta  | Observation<br>Time<br>Mo Day (UT) | Lat CMD | CMP<br>Mo Day | Max<br>H | Mag<br>Class | Spot<br>Class | Corrected<br>Area<br>(10-6 Hemi) | Spot<br>Count | Long.<br>Extent<br>(Deg) | Qual |
|------------------------|-----------------------|------|------------------------------------|---------|---------------|----------|--------------|---------------|----------------------------------|---------------|--------------------------|------|
| 7407                   |                       | LEAR | 01 22 0048                         | S05 E72 | 01 27.4       |          | A            | HS            | 30                               | 1             | 1                        | 3    |
| 7407                   |                       | SVTO | 01 22 1205                         | S07 E66 | 01 27.4       |          | A            | HA            | 40                               | 1             | 1                        | 3    |
| 7407                   |                       | RAMY | 01 22 1408                         | S06 E65 | 01 27.4       |          | A            | HA            | 40                               | 2             | 2                        | 3    |
| 7407                   |                       | BOUL | 01 22 1518                         | S06 E65 | 01 27.5       |          | A            | HA            | 70                               | 1             | 3                        | 1    |
| 7407                   | 27745                 | MWIL | 01 22 1530                         | S06 E64 | 01 27.4       | 4        | (AP)         |               |                                  |               |                          |      |
| 7407                   |                       | HOLL | 01 22 1830                         | S08 E63 | 01 27.5       |          | A            | HS            | 80                               | 2             | 2                        | 3    |
| 7407                   |                       | PALE | 01 22 1910                         | S03 E62 | 01 27.4       |          | A            | HA            | 80                               | 1             | 2                        | 3    |
| 7407                   |                       | LEAR | 01 23 0009                         | S07 E59 | 01 27.4       |          | A            | HS            | 40                               | 1             | 1                        | 3    |
| 7407                   |                       | SVTO | 01 23 1056                         | S07 E54 | 01 27.5       |          | A            | HA            | 30                               | 1             | 2                        | 3    |
| 7407                   |                       | RAMY | 01 23 1320                         | S06 E52 | 01 27.4       |          | A            | HA            | 30                               | 3             | 1                        | 3    |
| 7407                   | 27745                 | MWIL | 01 23 1530                         | S06 E50 | 01 27.4       | 4        | (AP)         |               |                                  |               |                          |      |
| 7407                   |                       | BOUL | 01 23 1609                         | S05 E50 | 01 27.4       |          | A            | HR            | 10                               | 1             |                          | 3    |
| 7407                   |                       | HOLL | 01 23 1610                         | S07 E50 | 01 27.4       |          | A            | HS            | 30                               | 1             | 1                        | 3    |
| 7407                   |                       | PALE | 01 23 1850                         | S06 E49 | 01 27.4       |          | B            | CAO           | 40                               | 2             | 3                        | 3    |
| 7407                   |                       | LEAR | 01 24 0005                         | S06 E46 | 01 27.4       |          | A            | HS            | 10                               | 1             | 1                        | 3    |
| 7407                   |                       | SVTO | 01 24 1045                         | S05 E39 | 01 27.4       |          | B            | BXO           | 10                               | 3             | 1                        | 3    |
| 7407                   |                       | RAMY | 01 24 1310                         | S07 E37 | 01 27.3       |          | A            | HS            | 20                               | 4             | 1                        | 2    |
| 7407                   | 27745                 | MWIL | 01 24 1530                         | S07 E37 | 01 27.4       | 4        | (AP)         |               |                                  |               |                          |      |
| 7407                   |                       | HOLL | 01 24 1800                         | S08 E38 | 01 27.6       |          | A            | HS            | 20                               | 1             | 1                        | 1    |
| 7407                   |                       | BOUL | 01 24 1814                         | S07 E36 | 01 27.4       |          | A            | HR            | 10                               | 1             | 1                        | 3    |
| 7407                   |                       | PALE | 01 24 1945                         | S06 E37 | 01 27.6       |          | A            | HS            | 20                               | 1             | 1                        | 3    |
| 7407                   |                       | LEAR | 01 25 0108                         | S07 E32 | 01 27.4       |          | A            | HS            | 10                               | 1             | 1                        | 2    |
| 7407                   |                       | SVTO | 01 25 1045                         | S08 E28 | 01 27.5       |          | A            | AX            | 20                               | 4             | 1                        | 2    |
| 7407                   |                       | RAMY | 01 25 1315                         | S07 E27 | 01 27.6       |          | A            | HA            | 20                               | 4             | 1                        | 3    |
| 7407                   |                       | HOLL | 01 25 1607                         | S08 E23 | 01 27.4       |          | A            | HR            | 10                               | 2             | 1                        | 2    |
| 7407                   | 27745                 | MWIL | 01 25 1645                         | S07 E24 | 01 27.5       | 4        | (AP)         |               |                                  |               |                          |      |
| 7407                   |                       | LEAR | 01 26 0246                         | S07 E19 | 01 27.5       |          | A            | AX            | 10                               | 3             | 1                        | 2    |
| 7407                   |                       | SVTO | 01 26 1027                         | S07 E13 | 01 27.4       |          | A            | AX            |                                  | 1             |                          | 2    |
| 7407                   |                       | RAMY | 01 26 1248                         | S08 E14 | 01 27.6       |          | B            | CAO           | 20                               | 3             | 4                        | 3    |
| 7407                   |                       | HOLL | 01 26 1547                         | S07 E12 | 01 27.5       |          | B            | CRO           | 20                               | 2             | 3                        | 3    |
| 7407                   | 27745                 | MWIL | 01 26 1600                         | S06 E12 | 01 27.6       | 4        | (B )         |               |                                  |               |                          |      |
| 7407                   |                       | PALE | 01 26 1820                         | S07 E10 | 01 27.5       |          | A            | AX            | 20                               | 1             | 1                        | 3    |
| 7407                   |                       | LEAR | 01 27 0525                         | S06 E04 | 01 27.5       |          | A            | HR            | 20                               | 1             | 1                        | 2    |
| 7407                   |                       | RAMY | 01 27 1244                         | S06 E01 | 01 27.6       |          | B            | CAO           | 20                               | 4             | 3                        | 3    |
| 7407                   | 27745                 | MWIL | 01 27 1600                         | S06 W02 | 01 27.5       | 4        | (B )         |               |                                  |               |                          |      |
| 7407                   |                       | BOUL | 01 27 1607                         | S05 W03 | 01 27.4       |          | B            | BXO           | 20                               | 2             | 1                        | 3    |
| 7407                   |                       | PALE | 01 27 1818                         | S06 W04 | 01 27.5       |          | A            | AX            | 20                               | 2             | 2                        | 3    |
| 7407                   |                       | HOLL | 01 27 1900                         | S07 W03 | 01 27.6       |          | A            | AX            | 20                               | 2             | 2                        | 1    |
| 7407                   |                       | LEAR | 01 28 0146                         | S05 W07 | 01 27.6       |          | A            | AX            | 10                               | 1             | 1                        | 3    |
| 7407                   |                       | BOUL | 01 28 1555                         | S07 W16 | 01 27.5       |          | A            | AX            | 20                               | 2             | 1                        | 3    |
| 7407                   | 27745                 | MWIL | 01 28 1600                         | S07 W16 | 01 27.5       | 4        | (G )         |               |                                  |               |                          |      |
| 7407                   |                       | RAMY | 01 30 1310                         | S06 W42 | 01 27.4       |          | A            | AX            | 10                               | 1             | 1                        | 3    |
| 7407                   |                       | RAMY | 01 31 1523                         | S06 W55 | 01 27.5       |          | B            | BXO           |                                  | 2             | 2                        | 3    |
| 7415                   |                       | BOUL | 01 31 1557                         | S04 W06 | 01 31.2       |          | B            | BXO           |                                  | 2             | 3                        | 3    |
| 7415                   | 27755                 | MWIL | 01 31 1630                         | S04 W06 | 01 31.2       | 4        | (B )         |               |                                  |               |                          |      |

Stations reporting:

BOUL = Boulder  
CULG = Culgoora

HOLL = Holloman  
LEAR = Learmonth

MWIL = Mt. Wilson  
PALE = Palehua

RAMY = Ramey  
SVTO = San Vito

## SUDDEN IONOSPHERIC DISTURBANCES

JANUARY 1993

| Day | Start<br>(UT) | Max<br>(UT) | End<br>(UT) | Imp | Wide<br>Spread<br>Index | Number of Station Reports by Type |     |     |            |     | Flare<br>(UT) | X-ray<br>Class | NOAA<br>Region |
|-----|---------------|-------------|-------------|-----|-------------------------|-----------------------------------|-----|-----|------------|-----|---------------|----------------|----------------|
|     |               |             |             |     |                         | SWF                               | SEA | SPA | LF-<br>SPA | SES |               |                |                |
| 01  | 0208          | 0217        | 0225        | 1   | 1                       | 1                                 |     |     |            |     | *             |                |                |
| 01  | 1152          | 1155        | 1205        | 1-  | 5                       |                                   |     |     |            | 2   | 1150          | C3.2           |                |
| 01  | 1334          | 1342        | 1402        | 1   | 5                       |                                   | 1   |     |            | 6   | 1333          | C4.2           |                |
| 02  | 0422          | 0434        | 0654        | 3-  | 3                       | 1                                 |     | 1   |            |     | 0419          | M1.1           |                |
| 02  | 1735          | 1745        | 1807        | 1+  | 1                       |                                   |     |     |            | 1   | 1739          | B6.1           |                |
| 02  | 1954          | 2012        | 2034        | 1+  | 3                       |                                   |     |     |            | 4   | 1943          | C1.1           |                |
| 02  | 2340          | 2352        | 2455        | 1+  | 5                       |                                   |     | 1   |            | 2   | 2341          | C8.4           | 7379           |
| 03  | 1027          | 1038        | 1052        | 1   | 1                       |                                   | 1   |     |            |     | No flare      |                |                |
| 03  | 1446          | 1456        | 1512        | 2   | 1                       |                                   |     |     |            | 1   | No flare      |                |                |
| 04  | 0047          | 0057        | 0150        | 2   | 5                       | 1                                 |     | 1   |            | 1   | 0043          | C6.6           |                |
| 04  | 0934          | 0945        | 1008        | 1   | 1                       |                                   | 1   |     |            |     | No flare      |                |                |
| 04  | 1200          | 1224        | 1252        | 2-  | 3                       |                                   | 3   |     |            |     | No flare      |                |                |
| 04  | 2014          | 2022        | 2042        | 1   | 3                       |                                   |     |     |            | 11  | 2011          | C4.6           |                |
| 04  | 2033          | 2040        | 2124        | 2   | 1                       |                                   |     |     |            | 1   | *             |                |                |
| 05  | 1010          | 1027        | 1041        | 1   | 3                       |                                   | 2   |     |            |     | No flare      |                |                |
| 05  | 1505          | 1509        | 1548        | 1   | 5                       |                                   | 1   |     |            | 1   | 1506          | C1.3           | 7391           |
| 06  | 0019          | 0024        | 0034        | 1-  | 1                       |                                   |     | 1   |            |     | 0016          | B6.7           |                |
| 06  | 0101          | 0103        | 0114        | 1-  | 1                       |                                   |     |     |            | 1   | 0101          | B5.8           | 7386           |
| 06  | 0627          | 0631        | 0644        | 1-  | 1                       |                                   |     |     |            | 1   | 0627          |                | 7388           |
| 07  | 0833          | 0847        | 0914        | 1-  | 1                       |                                   |     | 1   |            |     | 0809          | C2.6           | 7386           |
| 07  | 0916          | 0918        | 0930        | 1-  | 3                       |                                   |     |     |            | 2   | 0917          |                | 7387           |
| 07  | 0928          | 1026        | 1040        | 1   | 1                       |                                   | 1   |     |            |     | No flare      |                |                |
| 07  | 2049          | 2054        | 2114U       | 1   | 1                       |                                   |     |     |            | 1   | 2048          | C1.1           | 7391           |
| 08  | 1300          | 1310        | 1330        | 1   | 1                       |                                   | 1   |     |            |     | No flare      |                |                |
| 09  | 1417          | 1419        | 1512        | 1   | 1                       |                                   | 1   |     |            |     | No flare      |                |                |
| 09  | 2154          | 2202        | 2225        | 2-  | 1                       |                                   |     |     |            | 1   | 2152          |                | 7386           |
| 10  | 1309          | 1311U       | 1315        | 1   | 1                       |                                   |     |     |            | 1   | 1305          | C6.3           | 7394           |
| 10  | 1320          | 1334        | 1404        | 2-  | 5                       |                                   | 2   |     |            | 3   | 1305          | C6.3           | 7394           |
| 11  | 0042          | 0046        | 0058        | 1-  | 5                       |                                   |     | 1   |            | 2   | 0043          | C1.7           | 7399           |
| 11  | 0226          | 0232        | 0248        | 1-  | 1                       |                                   |     | 1   |            |     | 0222          | C2.0           | 7399           |
| 11  | 1713          | 1736        | 1847        | 3-  | 3                       |                                   |     |     |            | 2   | 1738E         | C3.2           | 7394           |
| 12  | 0622          | 0631        | 0654        | 1-  | 1                       |                                   |     | 1   |            |     | 0602          | C1.9           | 7391           |
| 12  | 0858          | 0908        | 0926        | 1-  | 5                       |                                   |     | 1   |            | 2   | 0855          | C3.4           | 7391           |
| 12  | 1035          | 1046        | 1118        | 1-  | 1                       |                                   |     | 1   |            |     | 1028          | C3.0           | 7394           |
| 12  | 1200          | 1202        | 1215        | 1   | 1                       |                                   | 1   |     |            |     | *             |                |                |
| 12  | 1403          | 1416        | 1435        | 1   | 3                       |                                   | 2   |     |            |     | *             |                |                |
| 12  | 1433          | 1437        | 1458        | 1-  | 5                       |                                   | 2   |     |            | 5   | 1432          | C6.1           | 7391           |
| 13  | 0212          | 0256        | 0426        | 2   | 3                       | 1                                 |     | 1   |            |     | 0257E         | C9.2           | 7386           |
| 13  | 0301          | 0314        | 0334        | 1+  | 1                       |                                   |     |     |            | 1   | 0257E         | C9.2           | 7386           |
| 13  | 0819          | 0826        | 0834        | 1-  | 3                       |                                   |     |     |            | 2   | 0823E         | C2.0           | 7394           |
| 13  | 0908          | 0912        | 0928        | 1-  | 1                       |                                   |     | 1   |            |     | 0829E         | C3.3           | 7400           |
| 13  | 1212          | 1213        | 1244        | 1+  | 3                       |                                   |     |     |            | 2   | 1212          | C3.4           | 7391           |
| 13  | 1402          | 1406        | 1422        | 1-  | 3                       |                                   |     |     |            | 4   | 1401          | C2.1           |                |
| 13  | 1707          | 1715        | 1745        | 1   | 1                       |                                   |     |     |            | 1   | 1704          | C1.4           |                |
| 13  | 2022          | 2027        | 2038        | 1-  | 3                       |                                   |     |     |            | 2   | 2017          | C1.3           |                |
| 14  | 0932          | 0940        | 1014        | 1-  | 5                       |                                   |     | 1   |            | 1   | 0931          | C1.3           |                |
| 14  | 0950          | 0954        | 1008        | 1-  | 1                       |                                   |     |     |            | 1   | 0951          | C1.4           |                |
| 14  | 1234          | 1242        | 1306        | 1   | 1                       |                                   |     |     |            | 1   | 1233          | C1.7           |                |
| 15  | 1543          | 1545        | 1601        | 1-  | 1                       |                                   |     |     |            | 1   | 1541          | B6.8           |                |
| 16  | 0126          | 0130        | 0148        | 1-  | 1                       |                                   |     | 1   |            |     | 0126          | C1.3           | 7403           |
| 16  | 0752          | 0758        | 0824        | 1-  | 5                       |                                   | 1   | 1   |            | 1   | 0748          | C3.0           | 7400           |
| 16  | 0821          | 0826        | 0910        | 1   | 1                       |                                   | 1   |     |            |     | No flare      |                |                |
| 16  | 0956          | 1002        | 1020        | 1-  | 5                       |                                   |     | 1   |            | 3   | 0947          | C4.1           | 7400           |

\* = no flare patrol.



SUDDEN IONOSPHERIC DISTURBANCES  
JANUARY 1993

119  
Jan 93

| Day | Start<br>(UT) | Max<br>(UT) | End<br>(UT) | Imp | Wide<br>Spread<br>Index | Number of Station Reports by Type |     |     |            |     | Flare<br>(UT) | X-ray<br>Class | NOAA<br>Region |
|-----|---------------|-------------|-------------|-----|-------------------------|-----------------------------------|-----|-----|------------|-----|---------------|----------------|----------------|
|     |               |             |             |     |                         | SWF                               | SEA | SPA | LF-<br>SPA | SES |               |                |                |
| 16  | 1354          | 1417        | 1434        | 0   | 1                       |                                   | 1   |     |            |     | No flare      |                |                |
| 16  | 1505          | 1509        | 1522        | 1-  | 1                       |                                   |     |     |            | 1   | 1503          | C1.0           |                |
| 16  | 1551          | 1552        | 1601        | 1-  | 1                       |                                   |     |     |            | 1   | 1552          | C1.3           | 7400           |
| 16  | 1645          | 1648        | 1654        | 1-  | 1                       |                                   |     |     |            | 1   | 1643E         | B9.0           | 7403           |
| 17  | 0851          | 0852        | 0900        | 1-  | 1                       |                                   |     |     |            | 1   | 0847          | B5.1           |                |
| 17  | 1431          | 1435        | 1451        | 1-  | 5                       |                                   | 2   |     |            | 11  | 1431          | C5.0           | 7400           |
| 17  | 1615          | 1620        | 1629U       | 1-  | 1                       |                                   |     |     |            | 1   | 1619          | B6.2           |                |
| 17  | 1718          | 1720        | 1732        | 1-  | 1                       |                                   |     |     |            | 1   | 1720          | C1.1           | 7400           |
| 17  | 1749          | 1750        | 1800        | 1-  | 1                       |                                   |     |     |            | 1   | 1749          | B6.7           |                |
| 17  | 1810          | 1822        | 1832        | 1   | 1                       |                                   |     |     |            | 1   | 1803          | C1.6           |                |
| 17  | 1900          | 1903        | 1915        | 1-  | 1                       |                                   |     |     |            | 1   | 1859          | B8.0           |                |
| 17  | 2151          | 2154        | 2214U       | 1   | 1                       |                                   |     |     |            | 1   | 2146          | C1.6           |                |
| 18  | 1259          | 1302        | 1312        | 1-  | 5                       |                                   |     |     |            | 3   | 1259          | C2.4           |                |
| 18  | 1444          | 1456        | 1520        | 1   | 1                       |                                   | 1   |     |            |     | No flare      |                |                |
| 18  | 1654          | 1657        | 1706        | 1-  | 3                       |                                   |     |     |            | 3   | 1654          | B7.7           |                |
| 20  | 1252          | 1254        | 1305        | 1-  | 1                       |                                   |     |     |            | 1   | 1252          | B2.5           |                |
| 20  | 1309          | 1314        | 1322        | 1-  | 1                       |                                   |     |     |            | 1   | 1309          | B9.8           |                |
| 20  | 2330          | 2332        | 2345U       | 1-  | 1                       |                                   |     |     |            | 1   | 2332          | B3.4           | 7403           |
| 21  | 1430          | 1435        | 1444        | 1-  | 1                       |                                   |     |     |            | 1   | 1430          | B2.0           |                |
| 23  | 1232          | 1254        | 1330        | 1   | 1                       |                                   | 1   |     |            |     | 1233          | B2.3           | 7403           |
| 24  | 0824          | 0828        | 0845        | 1   | 3                       |                                   |     |     |            | 2   | 0821          | B1.6           |                |
| 25  | 1221          | 1229        | 1235U       | 1-  | 1                       |                                   |     |     |            | 1   | 1221          |                | 7408           |
| 25  | 1504          | 1508        | 1518        | 1-  | 3                       |                                   |     |     |            | 2   | 1504          | B3.7           |                |
| 27  | 0912          | 0918        | 0950        | 1   | 1                       |                                   | 1   |     |            |     | *             |                |                |
| 27  | 1402          | 1408        | 1430        | 1   | 1                       |                                   | 1   |     |            |     | No flare      |                |                |
| 27  | 1500          | 1511        | 1527        | 1   | 1                       |                                   | 1   |     |            |     | No flare      |                |                |
| 27  | 1905          | 1909        | 1920        | 1-  | 1                       |                                   |     |     |            | 1   | 1905          | B5.3           |                |
| 27  | 2131          | 2135        | 2150        | 1   | 1                       |                                   |     |     |            | 1   | 2130          | C1.5           |                |
| 28  | 0811          | 0824        | 0836        | 1   | 1                       |                                   | 1   |     |            |     | No flare      |                |                |
| 28  | 1317          | 1317        | 1325        | 1-  | 1                       |                                   |     |     |            | 1   | 1317          | B5.9           | 7411           |
| 29  | 1604          | 1608        | 1614        | 1-  | 1                       |                                   |     |     |            | 1   | 1604          | B3.0           |                |
| 29  | 2054          | 2055        | 2100        | 1-  | 1                       |                                   |     |     |            | 1   | 2054          | B7.9           | 7411           |
| 30  | 1140          | 1149        | 1200        | 1-  | 5                       |                                   | 1   |     |            | 3   | 1147          | B7.9           |                |
| 30  | 1349          | 1401        | 1433        | 1-  | 5                       |                                   | 1   |     |            | 1   | 1352          | B6.0           | 7411           |
| 31  | 0858          | 0917        | 0935        | 1   | 1                       |                                   | 1   |     |            |     | No flare      |                |                |
| 31  | 1405          | 1428        | 1540        | 3-  | 5                       |                                   | 1   |     |            | 4   | 1333          | C6.3           |                |
| 31  | 1901          | 1912        | 1939        | 2   | 3                       |                                   |     |     |            | 2   | 1855          | C2.3           |                |
| 31  | 2250          | 2302        | 2406        | 2+  | 5                       | 2                                 |     | 1   |            | 2   | 2248          | M1.1           |                |

\* = no flare patrol.

OBSERVATORIES REPORTING FOR JANUARY 1993 -- Observations are not necessarily continuous.

|                                 |          |                                 |               |
|---------------------------------|----------|---------------------------------|---------------|
| Amherst, New Hampshire, USA     | SES      | LaCrescenta, California, USA    | SES           |
| Athens, Georgia, USA            | SES      | Locust Grove, Georgia, USA      | SES           |
| Ayrshire, Scotland              | SES      | Madison, Wisconsin, USA         | SES           |
| Boksburg, Rep of S. Africa      | SES      | Manahawkin, New Jersey, USA     | SES           |
| Cleveland, Ohio, USA            | SES      | Maui, Hawaii, USA               | SWF           |
| Cranford, New Jersey, USA       | SES      | Nampa, Idaho, USA               | SES           |
| Darmstadt, Germany              | SWF      | Nerja, Spain                    | SES           |
| Durham, New Hampshire, USA      | SES      | Panska Ves, Czechoslovakia      | SES, SEA, SWF |
| Farsta, Sweden                  | SES      | Paterson, New Jersey, USA       | SES           |
| Gettysburg, Pennsylvania, USA   | SES      | Rimavska Sobota, Czechoslovakia | SEA           |
| Hiraiso, Japan                  | SWF      | Rochester, New Hampshire, USA   | SES           |
| Houston, Texas, USA             | SES      | San Francisco, California, USA  | SES           |
| Hudson, Ohio, USA               | SES      | Tucson, Arizona, USA            | SES           |
| Humain, Belgium                 | SEA      | Upice, Czechoslovakia           | SEA           |
| Huntsville, Alabama, USA        | SES      | Wellington, Ohio, USA           | SES           |
| Inubo, Japan                    | SPA      | Ziar nad Hronom, Czechoslovakia | SEA           |
| Itapetinga, Brazil              | SPA, SES | Zilina, Czechoslovakia          | SEA           |
| Johannesburg, Rep of So. Africa | SES      |                                 |               |

120  
Jan 93

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

## Spectral Observations

JANUARY 1993

| Observation |            |          | Decimetric Band |            |          | Metric Band |            |          | Dekametric Band |            |          | Spectral Type |           |           |       |
|-------------|------------|----------|-----------------|------------|----------|-------------|------------|----------|-----------------|------------|----------|---------------|-----------|-----------|-------|
| Day         | Start (UT) | End (UT) | Sta             | Start (UT) | End (UT) | Int (1-3)   | Start (UT) | End (UT) | Int (1-3)       | Start (UT) | End (UT) |               | Int (1-3) |           |       |
| 01          |            |          | LEAR            |            |          |             | 0009.0     | 0009.0   | 3               |            |          |               | III       |           |       |
|             |            |          | PALE            |            |          |             | 0009.0     | 0009.0   | 1               |            |          |               | III       |           |       |
|             |            |          | LEAR            |            |          |             | 0017.0     | 0018.0   | 1               |            |          |               | III       |           |       |
|             |            |          | LEAR            |            |          |             | 0029.0     | 0030.0   | 2               |            |          |               | III       |           |       |
|             | 0653       | 1451     | PALE            |            |          |             | 0029.0     | 0030.0   | 1               |            |          |               | III       |           |       |
|             |            |          | POTS            |            |          |             | 0736.3     | 0736.4   | 1               |            |          |               | IIIB      |           |       |
|             |            |          | IZMI            |            |          |             | 0943.8     | 0944.9   | 2               |            |          |               | IIIG      |           |       |
|             | 0700       | 1200     | POTS            |            |          |             | 0943.8     | 0944.7   | 2               |            |          |               | IIIG      |           |       |
|             |            |          | LEAR            |            |          |             | 0944.0     | 0944.0   | 1               |            |          |               | III       |           |       |
|             |            |          | SVTO            |            |          |             | 0944.0     | 0944.0   | 2               |            |          |               | III       |           |       |
|             |            |          | ONDR            | 1150.5     | 1155.2   | 3           | 1150.5     | 1155.2   | 3               |            |          |               | IV        |           |       |
|             |            |          | POTS            |            |          |             | 1150.6     | 1158.0   | 3               |            |          |               | II HARM,H |           |       |
|             |            |          | POTS            |            |          |             | 1150.6     | 1158.0   | 3               |            |          |               | IIIGG,RS  |           |       |
|             |            |          | POTS            |            |          |             | 1150.6     | 1158.0   | 3               |            |          |               | IV        |           |       |
|             |            |          | POTS            |            |          |             | 1150.6     | 1158.0   | 3               |            |          |               | SPIKES    |           |       |
|             | 0700       | 1200     | IZMI            |            |          |             | 1151.6     | 1156.5   | 2               |            |          |               | IIIGG     |           |       |
|             |            |          |                 |            |          |             |            |          |                 |            |          |               | DCIM      |           |       |
|             |            |          |                 |            |          |             |            |          |                 |            |          |               | UNCLF     |           |       |
|             | 0838       | 1332     | ONDR            | 1152.5     | 1153.0   | 1           |            |          |                 |            |          |               |           | IIIGG     |       |
|             |            |          | POTS            |            |          |             | 1300.7     | 1300.8   | 1               |            |          |               |           | IIIB      |       |
|             |            |          | POTS            |            |          |             | 1318.6     | 1322.8   | 1               |            |          |               |           | II RS,H,U |       |
|             |            |          | ONDR            | 1320.9     | 1321.1   | 2           | 1320.9     | 1321.1   | 2               |            |          |               | IV        | IIIGG     |       |
|             |            |          | POTS            |            |          |             | 1335.6     | 1353.0   | 3               |            |          |               |           | II        |       |
|             |            |          | POTS            |            |          |             | 1335.6     | 1353.0   | 3               |            |          |               |           | IV        | IIIGG |
|             |            |          | SGMR            |            |          |             | 1338.0     | 1339.0   | 1               |            |          |               |           | III       |       |
|             |            |          | POTS            |            |          |             | 1405.1     | 1405.2   | 1               |            |          |               |           | UNCLF     |       |
|             |            |          | POTS            |            |          |             | 1414.1     | 1414.5   | 1               |            |          |               |           | UNCLF     |       |
|             |            |          | POTS            |            |          |             | 1420.9     | 1421.1   | 1               |            |          |               |           | RSG       |       |
|             |            |          | SGMR            |            |          |             | 1653.0     | 1654.0   | 1               |            |          |               |           | III       |       |
|             |            |          | PALE            |            |          |             | 1834.0     | 1834.0   | 1               |            |          |               |           | III       |       |
| SGMR        |            |          |                 |            |          | 1834.0      | 1834.0     | 1        |                 |            |          |               | III       |           |       |
| 02          |            |          |                 |            | PALE     |             |            |          | 0004.0          | 0008.0     | 1        |               |           |           | III   |
|             |            |          |                 |            | LEAR     |             |            |          | 0328.0          | 0329.0     | 3        |               |           |           | III   |
|             |            |          | LEAR            |            |          |             | 0534.0     | 0556.0   | 1               |            |          |               | II        |           |       |
|             | 0837       | 1319     | ONDR            |            |          |             |            |          |                 |            |          |               |           |           |       |
|             |            |          |                 |            |          |             |            |          |                 |            |          |               |           |           |       |
| 03          |            |          | LEAR            |            |          |             | 0004.0     | 0008.0   | 1               |            |          |               | MWB       |           |       |
|             | 0836       | 1334     | ONDR            |            |          |             | 1123.8     | 1124.0   | 1               |            |          |               | IIIG      |           |       |
|             |            |          | SVTO            |            |          |             | 1256.0     | 1258.0   | 2               |            |          |               | V         |           |       |
|             |            |          | SGMR            |            |          |             | 1257.0     | 1258.0   | 1               |            |          |               | V         |           |       |
|             |            |          | SGMR            |            |          |             | 1608.0     | 1608.0   | 1               |            |          |               | III       |           |       |
|             |            |          |                 |            |          |             |            |          |                 |            |          |               |           |           |       |
| 04          |            |          | LEAR            |            |          |             | 0045.0     | 0046.0   | 2               |            |          |               | III       |           |       |
|             |            |          | PALE            |            |          |             | 0046.0     | 0046.0   | 1               |            |          |               | III       |           |       |
|             |            |          | LEAR            |            |          |             | 0057.0     | 0059.0   | 1               |            |          |               | MWB       |           |       |
|             | 0655       | 1435     | POTS            |            |          |             | 0953.1     | 1029.0U  | 1               |            |          |               | I,S       |           |       |
|             |            |          | POTS            |            |          |             | 1005.2     | 1005.3   | 1               |            |          |               | IIIB      |           |       |
|             |            |          | POTS            |            |          |             | 1059.0U    | 1435.0U  | 1               |            |          |               | I,W,S     |           |       |
|             | 1120       | 1136     | ONDR            |            |          |             |            |          |                 |            |          |               |           |           |       |
|             |            |          | POTS            |            |          |             | 1216.0     | 1216.1   | 1               |            |          |               | IIIB,RS   |           |       |
|             |            |          | POTS            |            |          |             | 1315.1     | 1315.5   | 1               |            |          |               | IIIG      |           |       |
|             |            |          | PALE            |            |          |             | 2012.0     | 2014.0   | 1               |            |          |               | III       |           |       |
| 05          | 0700       | 1200     | IZMI            |            |          |             | 0725.0     | 0726.1   | 2               |            |          |               | IIIG      |           |       |
|             |            |          | LEAR            |            |          |             | 0725.0     | 0727.0   | 1               |            |          |               | III       |           |       |
|             |            |          | POTS            |            |          |             | 0725.0     | 0725.9   | 1               |            |          |               | IIIG      |           |       |
|             | 0639       | 1427     | POTS            |            |          |             | 0727.0U    | 1427.0U  | 1               |            |          |               | I,S,C,DC  |           |       |
|             |            |          | POTS            |            |          |             | 0733.7     | 0733.8   | 1               |            |          |               | IIIB      |           |       |
|             |            |          | ONDR            |            |          |             |            |          |                 |            |          |               |           |           |       |
|             | 0835       | 1337     | POTS            |            |          |             | 0843.8     | 0844.0   | 1               |            |          |               | IIIG      |           |       |
|             |            |          | POTS            |            |          |             | 0938.3     | 0945.0U  | 2               |            |          |               | IIIGG     |           |       |
|             |            |          | IZMI            |            |          |             | 0940.7     | 0941.5   | 1               |            |          |               | IIIG      |           |       |
|             | 0700       | 1200     | POTS            |            |          |             | 1003.1     | 1003.4   | 1               |            |          |               | IIIG      |           |       |
|             |            |          | POTS            |            |          |             | 1252.7     | 1252.8   | 1               |            |          |               | RS        |           |       |
|             |            |          | SGMR            |            |          |             | 1505.0     | 1507.0   | 1               |            |          |               | III       |           |       |
|             |            |          | PALE            |            |          |             | 2014.0     | 2015.0   | 1               |            |          |               | III       |           |       |
|             |            |          | SGMR            |            |          |             | 2014.0     | 2015.0   | 1               |            |          |               | V         |           |       |
|             |            |          |                 |            |          |             |            |          |                 |            |          |               |           |           |       |
|             |            |          |                 |            |          |             |            |          |                 |            |          |               |           |           |       |
| 06          |            |          | LEAR            |            |          |             | 0032.0     | 0033.0   | 1               |            |          |               | III       |           |       |
|             | 0654       | 1429     | POTS            |            |          |             | 0724.0E    | 1429.0U  | 1               |            |          |               | I,S,DC    |           |       |

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

## Spectral Observations

121  
Jan 93

JANUARY      1993

| Observation |            |          | Decimetric Band |            |          | Metric Band |            |          | Dekametric Band |            |          | Spectral Type |            |
|-------------|------------|----------|-----------------|------------|----------|-------------|------------|----------|-----------------|------------|----------|---------------|------------|
| Day         | Start (UT) | End (UT) | Sta             | Start (UT) | End (UT) | Int (1-3)   | Start (UT) | End (UT) | Int (1-3)       | Start (UT) | End (UT) |               | Int (1-3)  |
| 06          |            |          | POTS            |            |          |             | 0725.0     | 0725.1   | 1               |            |          |               | U          |
|             | 0834       | 1339     | ONDR            |            |          |             | 1113.0     | 1339.5   | 1               |            |          |               | IN         |
|             |            |          | POTS            |            |          |             | 1123.8     | 1124.0   | 1               |            |          |               | IIIG       |
|             | 0700       | 1200     | IZMI            |            |          |             | 1136.9     | 1138.7   | 2               |            |          |               | IIIG,U,V   |
|             |            |          | POTS            |            |          |             | 1136.9     | 1138.3   | 3               |            |          |               | IIIG,V,UG  |
|             |            |          | POTS            |            |          |             | 1321.5     | 1321.6   | 1               |            |          |               | IIIB       |
| 07          |            |          | LEAR            |            |          |             | 0204.0     | 0205.0   | 1               |            |          |               | III        |
|             | 0700       | 1200     | IZMI            |            |          |             | 0708.0     | 0709.7   | 2               |            |          |               | IIIG       |
|             |            |          | LEAR            |            |          |             | 0708.0     | 0709.0   | 2               |            |          |               | III        |
|             |            |          | POTS            |            |          |             | 0724.0U    | 1439.0U  | 3               |            |          |               | IIIGG/INT1 |
|             | 0633       | 1439     | POTS            |            |          |             | 0724.0U    | 1439.0U  | 3               |            |          |               | I,S,C,DC   |
|             |            |          | POTS            |            |          |             | 0738.2     | 0810.1   | 2               |            |          |               | IIIGG,RSG  |
|             | 0700       | 1200     | IZMI            |            |          |             | 0743.7     | 0748.1   | 1               |            |          |               | IIIGG      |
|             |            |          | LEAR            |            |          |             | 0754.0     | 0831.0   | 2               |            |          |               | S          |
|             |            |          | POTS            |            |          |             | 0754.5     | 0754.8   | 1               |            |          |               | UNCLF      |
|             | 0700       | 1200     | IZMI            |            |          |             | 0754.6     | 0755.6   | 1               |            |          |               | IIIG       |
|             | 0700       | 1200     | IZMI            |            |          |             | 0802.0     | 0830.0   | 1               |            |          |               | S          |
|             |            |          | POTS            |            |          |             | 0828.1     | 1005.0U  | 3               |            |          | II            | HARM ?     |
|             |            |          | POTS            |            |          |             | 0828.1     | 1005.0U  | 3               |            |          | IV            | DCIM,P     |
|             | 0700       | 1200     | IZMI            |            |          |             | 0830.0     | 1200.0   | 2               |            |          |               | CONT,DC    |
|             | 0700       | 1200     | IZMI            |            |          |             | 0831.2     | 0832.1   | 1               |            |          |               | IIIG       |
|             |            |          | LEAR            |            |          |             | 0836.0     | 0843.0   | 1               |            |          | II            |            |
|             |            |          | LEAR            |            |          |             | 0843.0     | 1054.0   | 2               |            |          | IV            |            |
|             |            |          | ONDR            | 0845.9     | 1013.0   | 3           |            |          |                 |            |          |               | DCIM       |
|             |            |          | SVTO            |            |          |             | 0849.0     | 0000.0   | 2               |            |          | IV            |            |
|             |            |          | ONDR            | 0853.1     | 0912.0   | 3           |            |          |                 |            |          | IV            | ,DCIM      |
|             | 0834       | 1340     | ONDR            | 0855.0     | 1002.5   | 2           | 0853.1     | 1003.0   | 2               |            |          |               | I,CONT     |
|             |            |          | ONDR            | 1003.0     | 1340.0   | 2           | 1003.0     | 1340.0   | 2               |            |          |               | IN         |
|             |            |          | POTS            | 1023.5     | 1023.7   | 1           |            |          |                 |            |          |               | DCIM       |
|             |            |          | POTS            | 1221.9     | 1222.0   | 1           |            |          |                 |            |          |               | DCIM       |
|             |            |          | SGMR            |            |          |             | 1237.0     | 2037.0   | 2               |            |          | IV            |            |
|             |            |          | POTS            | 1300.5     | 1300.8   | 1           |            |          |                 |            |          |               | DCIM       |
|             |            |          | PALE            |            |          |             | 1808.0     | 0200.0   | 1               |            |          |               | CONT       |
|             |            |          | LEAR            |            |          |             | 2205.0     | 0201.0   | 1               |            |          |               | CONT       |
|             | 08         | 0700     | 1200            | IZMI       |          |             |            | 0700.0   | 0800.0          | 1          |          |               |            |
|             |            |          | POTS            |            |          |             | 0723.0E    | 1424.0U  | 3               |            |          |               | IIIGG/INT1 |
| 0645        |            | 1424     | POTS            |            |          |             | 0723.0E    | 1424.0U  | 3               |            |          |               | I,S,C,DC   |
| 0700        |            | 1200     | IZMI            |            |          |             | 0728.9     | 0729.0   | 1               |            |          |               | IIIB       |
|             |            |          | POTS            |            |          |             | 0728.9     | 0729.0   | 1               |            |          |               | IIIB       |
|             |            |          | POTS            |            |          |             | 0932.9     | 0935.0   | 3               |            |          |               | IIIG,V     |
| 0700        |            | 1200     | IZMI            |            |          |             | 0934.7     | 0935.0   | 1               |            |          |               | IIIG       |
|             |            |          | POTS            |            |          |             | 1006.0     | 1026.1   | 3               |            |          |               | IIIGG,V,SP |
| 0834        |            | 1343     | ONDR            | 1006.1     | 1006.3   | 1           | 1006.1     | 1006.3   | 1               |            |          |               | IIIG       |
|             |            |          | ONDR            | 1017.9     | 1026.0   | 3           | 1017.9     | 1026.0   | 3               |            |          |               | IIIGG,U    |
| 0700        |            | 1200     | IZMI            |            |          |             | 1018.0     | 1019.4   | 2               |            |          |               | IIIG       |
|             |            |          | LEAR            |            |          |             | 1018.0     | 1019.0   | 1               |            |          |               | III        |
|             |            |          | SVTO            |            |          |             | 1018.0     | 1019.0   | 1               |            |          |               | III        |
|             |            |          | POTS            |            |          |             | 1042.7     | 1048.5   | 2               |            |          |               | IIIGG      |
| 0700        |            | 1200     | IZMI            |            |          |             | 1044.1     | 1048.2   | 1               |            |          |               | IIIG       |
|             |            |          | SVTO            |            |          |             | 1056.0     | 1056.0   | 3               |            |          |               | III        |
|             |            |          | POTS            |            |          |             | 1128.4     | 1128.5   | 1               |            |          |               | IIIB       |
|             |            |          | POTS            |            |          |             | 1151.7     | 1152.3   | 2               |            |          |               | IIIG,V,RS  |
| 0700        |            | 1200     | IZMI            |            |          |             | 1151.9     | 1152.3   | 1               |            |          |               | IIIG       |
|             |            |          | ONDR            |            |          |             | 1151.9     | 1152.1   | 1               |            |          |               | IIIG       |
| 0700        |            | 1200     | IZMI            |            |          |             | 1152.5     | 1200.0   | 1               |            |          |               | I,W        |
|             |            |          | POTS            |            |          |             | 1209.2     | 1210.7   | 2               |            |          |               | IIIG,RS    |
| 09          | 0700       | 1200     | IZMI            |            |          |             | 0700.0     | 0830.0   | 1               |            |          |               | I,N        |
|             | 0832       | 1345     | ONDR            |            |          |             |            |          |                 |            |          |               |            |
| 10          |            |          | LEAR            |            |          |             | 0249.0     | 0256.0   | 1               |            |          |               | III        |
|             |            |          | LEAR            |            |          |             | 0304.0     | 0305.0   | 2               |            |          |               | III        |
|             | 0831       | 1447     | ONDR            |            |          |             |            |          |                 |            |          |               |            |
|             |            |          | LEAR            |            |          |             | 0843.0     | 0844.0   | 2               |            |          |               | III        |
|             |            |          | LEAR            |            |          |             | 0913.0     | 0914.0   | 2               |            |          |               | III        |
|             | 0700       | 1200     | IZMI            |            |          |             | 0913.6     | 0913.8   | 1               |            |          |               | IIIG       |

122  
Jan 93

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

JANUARY 1993

| Day | Observation |          | Sta  | Decimetric Band |          |           | Metric Band |          |           | Dekametric Band |          |           | Spectral Type |
|-----|-------------|----------|------|-----------------|----------|-----------|-------------|----------|-----------|-----------------|----------|-----------|---------------|
|     | Start (UT)  | End (UT) |      | Start (UT)      | End (UT) | Int (1-3) | Start (UT)  | End (UT) | Int (1-3) | Start (UT)      | End (UT) | Int (1-3) |               |
| 11  | 0651        | 1425     | POTS |                 |          |           | 0747.5      | 0748.6   | 1         |                 |          |           | I             |
|     | 0830        | 1349     | ONDR |                 |          |           |             |          |           |                 |          |           |               |
|     |             |          | POTS |                 |          |           | 1035.9      | 1036.1   | 1         |                 |          |           | I             |
|     |             |          | POTS |                 |          |           | 1059.8      | 1100.0   | 1         |                 |          |           | I             |
|     |             |          | POTS |                 |          |           | 1108.8      | 1109.0   | 1         |                 |          |           | IIIG          |
|     |             |          | POTS |                 |          |           | 1137.4      | 1137.7   | 1         |                 |          |           | I             |
|     |             |          | POTS |                 |          |           | 1305.4      | 1305.5   | 1         |                 |          |           | IIIB          |
| 12  |             |          | POTS |                 |          |           | 1412.2      | 1412.8   | 1         |                 |          |           | IIIG          |
|     |             |          | LEAR |                 |          |           | 0335.0      | 0336.0   | 1         |                 |          |           | III           |
|     |             |          | LEAR |                 |          |           | 0629.0      | 0630.0   | 2         |                 |          |           | III           |
|     | 0639        | 0925     | POTS |                 |          |           | 0725.0U     | 0925.0U  | 1         |                 |          |           | I,S,DC        |
|     |             |          | POTS |                 |          |           | 0754.0      | 0754.1   | 1         |                 |          |           | IIIB          |
|     | 0829        | 1353     | ONDR |                 |          |           |             |          |           |                 |          |           |               |
|     |             |          | POTS |                 |          |           | 0901.2      | 0901.8   | 1         |                 |          |           | IIIG          |
|     | 0700        | 1200     | IZMI |                 |          |           | 0950.7      | 0952.5   | 1         |                 |          |           | IIIG          |
|     | 0700        | 1200     | IZMI |                 |          |           | 0956.5      | 0957.9   | 1         |                 |          |           | IIIGG         |
|     | 0700        | 1200     | IZMI |                 |          |           | 1009.6      | 1009.7   | 2         |                 |          |           | IIIB          |
|     |             |          | SVTO |                 |          |           | 1432.0      | 1435.0   | 2         |                 |          |           | V             |
|     |             |          | SGMR |                 |          |           | 1433.0      | 1435.0   | 1         |                 |          |           | V             |
| 13  |             |          | LEAR |                 |          |           | 0255.0      | 0255.0   | 1         |                 |          |           | III           |
|     |             |          | LEAR |                 |          |           | 0300.0      | 0303.0   | 1         |                 |          |           | III           |
|     | 0828        | 1353     | ONDR |                 |          |           |             |          |           |                 |          |           |               |
|     | 0700        | 1200     | IZMI |                 |          |           | 1000.0      | 1200.0   | 1         |                 |          |           | I,N           |
|     |             |          | PALE |                 |          |           | 2023.0      | 2031.0   | 1         |                 |          |           | V             |
| 14  |             |          | LEAR |                 |          |           | 0512.0      | 0512.0   | 1         |                 |          |           | III           |
|     | 0700        | 1200     | IZMI |                 |          |           | 0700.0      | 1200.0   | 1         |                 |          |           | I,W           |
|     | 0651        | 1435     | POTS |                 |          |           | 0725.0E     | 1435.0U  | 1         |                 |          |           | I,S           |
|     |             |          | LEAR |                 |          |           | 0755.0      | 0808.0   | 2         |                 |          |           | S             |
|     |             |          | POTS |                 |          |           | 0755.6      | 0756.1   | 1         |                 |          |           | IIIG          |
|     | 0700        | 1200     | IZMI |                 |          |           | 0755.9      | 0756.0   | 1         |                 |          |           | IIIB          |
|     | 0827        | 1454     | ONDR |                 |          |           |             |          |           |                 |          |           |               |
|     |             |          | POTS | 0921.6          | 0921.7   | 1         |             |          |           |                 |          |           | DCIM          |
|     |             |          | POTS |                 |          |           | 0929.4      | 0940.0   | 1         |                 |          |           | IIIGG,RS      |
|     |             |          | POTS |                 |          |           | 1133.8      | 1133.9   | 1         |                 |          |           | IIIB          |
| 15  |             |          | POTS |                 |          |           | 1200.4      | 1200.8   | 1         |                 |          |           | IIIG          |
|     |             |          | LEAR |                 |          |           | 0016.0      | 0017.0   | 1         |                 |          |           | III           |
|     |             |          | LEAR |                 |          |           | 0301.0      | 0302.0   | 2         |                 |          |           | III           |
|     |             |          | LEAR |                 |          |           | 0434.0      | 0435.0   | 1         |                 |          |           | III           |
|     |             |          | LEAR |                 |          |           | 0444.0      | 0444.0   | 1         |                 |          |           | III           |
|     |             |          | LEAR |                 |          |           | 0719.0      | 0720.0   | 2         |                 |          |           | III           |
|     | 0700        | 1200     | IZMI |                 |          |           | 0719.7      | 0720.1   | 1         |                 |          |           | IIIG          |
|     | 0641        | 1429     | POTS |                 |          |           | 0719.7      | 0720.1   | 1         |                 |          |           | IIIG          |
|     |             |          | POTS |                 |          |           | 0723.0E     | 1429.0U  | 1         |                 |          |           | I,W,S,DC      |
|     | 0700        | 1200     | IZMI |                 |          |           | 0823.7      | 0823.9   | 1         |                 |          |           | IIIU          |
|     |             |          | POTS |                 |          |           | 0823.7      | 0824.0   | 3         |                 |          |           | U,C           |
|     |             |          | POTS |                 |          |           | 0841.6      | 0842.0   | 1         |                 |          |           | IIIG          |
|     |             |          | POTS |                 |          |           | 0857.5      | 0857.6   | 1         |                 |          |           | IIIB          |
|     |             |          | POTS |                 |          |           | 0908.7      | 0916.6   | 1         |                 |          |           | IIIG          |
|     |             |          | SVTO |                 |          |           | 0922.0      | 0926.0   | 2         |                 |          |           | III           |
|     | 0825        | 1357     | ONDR |                 |          |           | 0923.1      | 0924.3   | 3         |                 |          |           | IIIGG         |
|     |             |          | POTS |                 |          |           | 0923.2      | 0930.6U  | 3         |                 |          |           | II H,U ?      |
|     |             |          | POTS |                 |          |           | 0923.2      | 0930.6U  | 3         |                 |          |           | IV            |
|     | 0700        | 1200     | IZMI |                 |          |           | 0923.6      | 0926.6   | 2         |                 |          |           | IIIGU,V       |
|     |             |          | LEAR |                 |          |           | 0925.0      | 0926.0   | 2         |                 |          |           | III           |
|     | 0700        | 1200     | IZMI |                 |          |           | 0926.9      | 0933.0   | 1         |                 |          |           | II            |
|     |             |          | LEAR |                 |          |           | 0927.0      | 0931.0   | 1         |                 |          |           | II            |
|     |             |          | SVTO |                 |          |           | 0928.0      | 0928.0   | 2         |                 |          |           | II            |
|     |             |          | LEAR |                 |          |           | 0941.0      | 0941.0   | 1         |                 |          |           | III           |
|     |             |          | POTS |                 |          |           | 0941.5      | 0941.6   | 1         |                 |          |           | IIIB          |
|     | 0700        | 1200     | IZMI |                 |          |           | 0941.6      | 0941.7   | 2         |                 |          |           | IIIG          |
|     | 0700        | 1200     | IZMI |                 |          |           | 1036.8      | 1037.4   | 1         |                 |          |           | IIIG          |
|     |             |          | POTS |                 |          |           | 1036.8      | 1037.3   | 2         |                 |          |           | IIIG          |
|     | 0700        | 1200     | IZMI |                 |          |           | 1059.1      | 1100.1   | 1         |                 |          |           | III           |
|     |             |          | POTS |                 |          |           | 1059.9      | 1100.0   | 1         |                 |          |           | IIIB          |
|     |             |          | POTS |                 |          |           | 1113.3      | 1120.9   | 2         |                 |          |           | IIIGG,RS      |

| Observation |            |          |      | Decimetric Band |          |           | Metric Band |          |           | Dekametric Band |          |           | Spectral Type |
|-------------|------------|----------|------|-----------------|----------|-----------|-------------|----------|-----------|-----------------|----------|-----------|---------------|
| Day         | Start (UT) | End (UT) | Sta  | Start (UT)      | End (UT) | Int (1-3) | Start (UT)  | End (UT) | Int (1-3) | Start (UT)      | End (UT) | Int (1-3) |               |
| 15          | 0700       | 1200     | IZMI |                 | 1114.8   | 1115.2    | 2           |          |           |                 |          |           | IIIG          |
|             | 0700       | 1200     | IZMI |                 | 1119.5   | 1121.0    | 2           |          |           |                 |          |           | IIIG          |
|             |            |          | POTS |                 | 1141.4   | 1143.3    | 2           |          |           |                 |          |           | IIIG,RS       |
|             | 0700       | 1200     | IZMI |                 | 1142.6   | 1142.7    | 1           |          |           |                 |          |           | IIIB          |
|             |            |          | POTS |                 | 1303.3   | 1304.3    | 2           |          |           |                 |          |           | IIIG          |
|             |            |          | POTS |                 | 1340.7   | 1349.6    | 2           |          |           |                 |          |           | IIIGG         |
|             |            |          | SGMR |                 | 1907.0   | 1907.0    | 1           |          |           |                 |          |           | III           |
|             |            |          | PALE |                 | 2034.0   | 2036.0    | 2           |          |           |                 |          |           | V             |
|             |            |          | SGMR |                 | 2034.0   | 2036.0    | 1           |          |           |                 |          |           | V             |
|             |            |          | PALE |                 | 2104.0   | 2106.0    | 2           |          |           |                 |          |           | V             |
| 16          |            |          | LEAR |                 | 0124.0   | 0131.0    | 3           |          |           |                 |          |           | III           |
|             |            |          | PALE |                 | 0126.0   | 0130.0    | 1           |          |           |                 |          |           | III           |
|             |            |          | LEAR |                 | 0132.0   | 0230.0    | 1           |          |           |                 |          |           | CONT          |
|             |            |          | LEAR |                 | 0459.0   | 0506.0    | 1           |          |           |                 |          |           | III           |
|             |            |          | LEAR |                 | 0609.0   | 0609.0    | 2           |          |           |                 |          |           | III           |
|             |            |          | LEAR |                 | 0653.0   | 0655.0    | 2           |          |           |                 |          |           | III           |
|             | 0650       | 1200     | IZMI |                 | 0654.0   | 0654.8    | 1           |          |           |                 |          |           | IIIGU,V       |
|             |            |          | LEAR |                 | 0738.0   | 0739.0    | 1           |          |           |                 |          |           | III           |
|             | 0700       | 1200     | IZMI |                 | 0738.3   | 0740.1    | 1           |          |           |                 |          |           | IIIG          |
|             | 0700       | 1200     | IZMI |                 | 0750.7   | 0750.8    | 1           |          |           |                 |          |           | IIIB          |
|             |            |          | LEAR |                 | 0752.0   | 0753.0    | 2           |          |           |                 |          |           | III           |
|             | 0700       | 1200     | IZMI |                 | 0753.9   | 0755.3    | 2           |          |           |                 |          |           | IIIG          |
|             |            |          | LEAR |                 | 0836.0   | 0841.0    | 2           |          |           |                 |          |           | III           |
|             | 0700       | 1200     | IZMI |                 | 0836.7   | 0836.9    | 2           |          |           |                 |          |           | IIIB          |
|             | 0700       | 1200     | IZMI |                 | 0840.7   | 0842.5    | 1           |          |           |                 |          |           | IIIG          |
|             |            |          | SVTO |                 | 1006.0   | 1007.0    | 2           |          |           |                 |          |           | V             |
|             | 0700       | 1200     | IZMI |                 | 1006.5   | 1007.3    | 1           |          |           |                 |          |           | IIIG,V        |
|             | 0700       | 1200     | IZMI |                 | 1027.6   | 1027.9    | 1           |          |           |                 |          |           | IIIG          |
|             | 0700       | 1200     | IZMI |                 | 1035.7   | 1041.3    | 1           |          |           |                 |          |           | IIIGG         |
|             | 0700       | 1200     | IZMI |                 | 1114.9   | 1115.1    | 1           |          |           |                 |          |           | IIIG          |
|             | 0700       | 1200     | IZMI |                 | 1150.0   | 1152.5    | 1           |          |           |                 |          |           | IIIGG         |
|             |            |          | SVTO |                 | 1153.0   | 1155.0    | 2           |          |           |                 |          |           | V             |
|             | 0823       | 1359     | ONDR |                 | 1153.8   | 1154.2    | 1           |          |           |                 |          |           | IIIG          |
|             |            |          | SGMR |                 | 1251.0   | 1251.0    | 1           |          |           |                 |          |           | III           |
|             |            |          | SVTO |                 | 1251.0   | 1251.0    | 1           |          |           |                 |          |           | III           |
|             |            |          | SGMR |                 | 1403.0   | 1405.0    | 2           |          |           |                 |          |           | V             |
|             |            |          | SVTO |                 | 1403.0   | 1405.0    | 2           |          |           |                 |          |           | V             |
|             |            |          | SGMR |                 | 1449.0   | 1454.0    | 2           |          |           |                 |          |           | V             |

124  
Jan 93

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

JANUARY 1993

| Day | Observation |          | Sta  | Decimetric Band |          |           | Metric Band |          |           | Dekametric Band |          |           | Spectral Type |
|-----|-------------|----------|------|-----------------|----------|-----------|-------------|----------|-----------|-----------------|----------|-----------|---------------|
|     | Start (UT)  | End (UT) |      | Start (UT)      | End (UT) | Int (1-3) | Start (UT)  | End (UT) | Int (1-3) | Start (UT)      | End (UT) | Int (1-3) |               |
| 21  | 0641        | 1440     | POTS |                 |          |           | 0711.0E     | 0745.0U  | 1         |                 |          |           | I,S           |
|     | 0816        | 1402     | ONDR |                 |          |           |             |          |           |                 |          |           |               |
|     |             |          | POTS |                 |          |           | 0845.5      | 0845.6   | 1         |                 |          |           | UNCLF         |
|     |             |          | POTS |                 |          |           | 0947.6      | 1022.0U  | 1         |                 |          |           | I,S           |
|     |             |          | POTS |                 |          |           | 1029.2      | 1029.3   | 1         |                 |          |           | UNCLF         |
|     |             |          | POTS |                 |          |           | 1149.4      | 1151.0   | 1         |                 |          |           | I             |
|     |             |          | POTS |                 |          |           | 1153.9      | 1154.0   | 1         |                 |          |           | 111B          |
|     |             |          | POTS |                 |          |           | 1228.7      | 1229.3   | 1         |                 |          |           | I             |
| 22  | 0815        | 1403     | ONDR |                 |          |           |             |          |           |                 |          |           |               |
|     | 0645        | 1441     | POTS |                 |          |           | 1113.5      | 1120.3   | 1         |                 |          |           | I,S           |
| 23  | 0700        | 1200     | IZMI |                 |          |           | 0737.0      | 1000.0   | 1         |                 |          |           | IS            |
|     | 0812        | 1404     | ONDR |                 |          |           |             |          |           |                 |          |           |               |
| 24  | 0811        | 1404     | ONDR |                 |          |           |             |          |           |                 |          |           |               |
| 25  | 0811        | 1405     | ONDR |                 |          |           |             |          |           |                 |          |           |               |
|     | 0627        | 1446     | POTS |                 |          |           | 1108.1      | 1108.2   | 1         |                 |          |           | 111B          |
| 26  | 0838        | 1401     | ONDR |                 |          |           |             |          |           |                 |          |           |               |
|     |             |          | LEAR |                 |          |           | 0914.0      | 0914.0   | 2         |                 |          |           | III           |
|     |             |          | LEAR |                 |          |           | 0943.0      | 0948.0   | 3         |                 |          |           | III           |
|     | 0631        | 1433     | POTS |                 |          |           | 1124.9      | 1125.2   | 1         |                 |          |           | 111B          |
| 27  |             |          | LEAR |                 |          |           | 0606.0      | 0606.0   | 1         |                 |          |           | III           |
|     | 0633        | 1447     | POTS |                 |          |           |             |          |           |                 |          |           |               |
|     | 0806        | 1403     | ONDR |                 |          |           |             |          |           |                 |          |           |               |
| 28  |             |          | LEAR |                 |          |           | 0103.0      | 0103.0   | 1         |                 |          |           | III           |
|     | 0637        | 1503     | POTS |                 |          |           |             |          |           |                 |          |           |               |
|     | 0804        | 1403     | ONDR |                 |          |           |             |          |           |                 |          |           |               |
| 29  | 0641        | 1522     | POTS |                 |          |           |             |          |           |                 |          |           |               |
|     | 0802        | 1402     | ONDR |                 |          |           |             |          |           |                 |          |           |               |
| 30  | 0800        | 1401     | ONDR |                 |          |           |             |          |           |                 |          |           |               |
| 31  |             |          | LEAR |                 |          |           | 0248.0      | 0307.0   | 2         |                 |          |           | S             |
|     |             |          | LEAR |                 |          |           | 0816.0      | 0817.0   | 2         |                 |          |           | III           |
|     |             |          | SVTO |                 |          |           | 0816.0      | 0817.0   | 2         |                 |          |           | III           |
|     | 0700        | 1200     | IZMI |                 |          |           | 0816.5      | 0816.7   | 1         |                 |          |           | 111B          |
|     |             |          | LEAR |                 |          |           | 0837.0      | 0837.0   | 1         |                 |          |           | III           |
|     | 0758        | 1403     | ONDR | 1013.5          | 1015.4   | 1         | 1013.5      | 1015.4   | 1         |                 |          |           | 111G          |
|     | 0700        | 1200     | IZMI |                 |          |           | 1155.1      | 1155.2   | 2         |                 |          |           | 111B          |
|     |             |          | SGMR |                 |          |           | 1427.0      | 1427.0   | 1         |                 |          |           | III           |

The symbols used under the column heading SPECTRAL TYPE have the following definitions:

|                                                                          |                               |
|--------------------------------------------------------------------------|-------------------------------|
| B = Single burst                                                         | RS = Reverse slope burst      |
| G = Small group (< 10) of bursts                                         | DP = Drifting pairs           |
| GG = Large group (> 10) of burst                                         | DC = Drifting Chains          |
| C = Underlying continuum (particularly with Type I)                      | H = Herringbone               |
| S = Storm in the sense of intermittent but apparently connected activity | W = Weak                      |
| N = Intermittent activity in this period                                 | P = Pulsations                |
| U = U-shaped burst of Type III                                           | CONT = Continuum              |
| SP = SPIKES                                                              | UNCLF = Unclassified activity |
|                                                                          | DCIM = Fast drift             |

## Stations Reporting:

|                 |                      |                  |                 |                  |
|-----------------|----------------------|------------------|-----------------|------------------|
| CULG = Culgoora | IZMI = IZMIRAN       | LEAR = Learmonth | ONDR = Ondrejov | PALE = Palehua   |
| POTS = Potsdam  | SGMR = Sagamore Hill |                  | SVTO = San Vito | WEIS = Weissenau |



JANUARY 1993

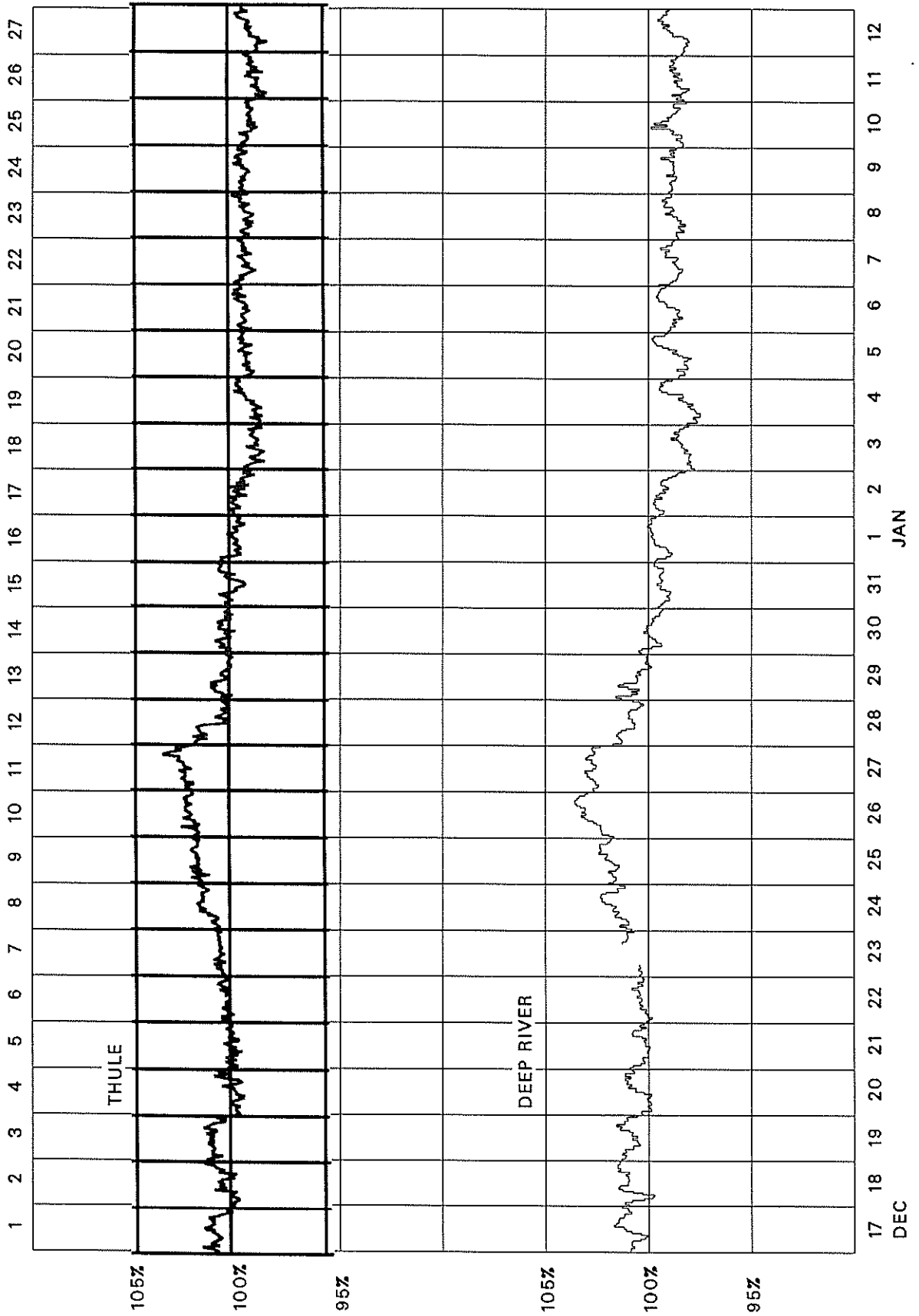
| Day  | THULE<br>Average<br>(cts/h)/100 | DEEP RIVER<br>Average<br>(cts/h)/300 | KIEL<br>Average<br>(cts/h)/100 | CLIMAX<br>Average<br>(cts/h)/100 | TOKYO<br>Average<br>(cts/h)/256 | HUANCAYO<br>Average<br>(cts/h)/100 |
|------|---------------------------------|--------------------------------------|--------------------------------|----------------------------------|---------------------------------|------------------------------------|
| 1    | 4319                            | 6809.1                               | 5955.5                         |                                  | 3498.2                          |                                    |
| 2    | 4308                            | 6787.1                               | 5956.5                         |                                  | 3498.0                          |                                    |
| 3    | 4274                            | 6718.0                               | 5930.1                         |                                  | 3489.0                          |                                    |
| 4    | 4290                            | 6726.7                               | 5963.4                         |                                  | 3501.0                          |                                    |
| 5    | 4295                            | 6753.1                               | 5953.3                         |                                  | 3508.6                          |                                    |
| 6    | 4302                            | 6769.3                               | 5941.6                         |                                  | 3501.6                          |                                    |
| 7    | 4296                            | 6756.9                               | 5942.4                         |                                  | 3495.2                          |                                    |
| 8    | 4294                            | 6752.7                               | 5941.4                         |                                  | 3505.8                          |                                    |
| 9    | 4301                            | 6759.8                               | 5931.7                         |                                  | 3507.2                          |                                    |
| 10   | 4284                            | 6754.5                               | 5919.4                         |                                  | 3496.5                          |                                    |
| 11   | 4273                            | 6742.5                               | 5934.2                         |                                  | 3507.3                          |                                    |
| 12   | 4285                            | 6753.3                               | 5961.5                         |                                  | 3517.3                          |                                    |
| 13   | 4308                            | 6798.4                               | 5978.4                         |                                  | 3522.2                          |                                    |
| 14   | 4345                            | 6841.9                               | 6005.3                         |                                  | 3531.7                          |                                    |
| 15   | 4371                            | 6889.1                               | 6024.4                         |                                  | 3539.6                          |                                    |
| 16   | 4381                            | 6898.4                               | 6027.6                         |                                  | 3540.8                          |                                    |
| 17   | 4393                            | 6942.9                               | 6053.4                         |                                  | 3563.5                          |                                    |
| 18   | 4408                            | 6954.7                               | 6082.2                         |                                  | 3556.5                          |                                    |
| 19   | 4379                            | 6952.5                               | 6079.1                         |                                  | 3562.2                          |                                    |
| 20   | 4315                            | 6836.7                               | 6008.0                         |                                  | 3550.4                          |                                    |
| 21   | 4343                            | 6859.7                               | 6002.7                         |                                  | 3542.8                          |                                    |
| 22   | 4370                            | 6876.8                               | 6043.5                         |                                  | 3552.1                          |                                    |
| 23   | 4382                            | 6913.8                               | 6064.6                         |                                  | 3552.5                          |                                    |
| 24   | 4392                            | 6932.8                               | 6092.0                         |                                  | 3563.2                          |                                    |
| 25   | 4371                            | 6900.5                               | 6094.0                         |                                  | 3546.5                          |                                    |
| 26   | 4310                            | 6826.2                               | 6022.5                         |                                  | 3519.9                          |                                    |
| 27   | 4299                            | 6806.4                               | 5995.3                         |                                  | 3509.5                          |                                    |
| 28   | 4306                            | 6828.2                               | 6002.8                         |                                  | 3512.7                          |                                    |
| 29   | 4324                            | 6842.8                               | 6013.8                         |                                  | 3510.9                          |                                    |
| 30   | 4317                            | 6841.3                               | 5990.1                         |                                  | 3514.3                          |                                    |
| 31   | 4292                            | 6776.4                               | 5954.5                         |                                  | 3519.4                          |                                    |
| Mean | 4327                            | 6825.9                               | 5995.7                         |                                  | 3523.8                          |                                    |

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

\* = A&B includes only hours when both A&B sections are available.

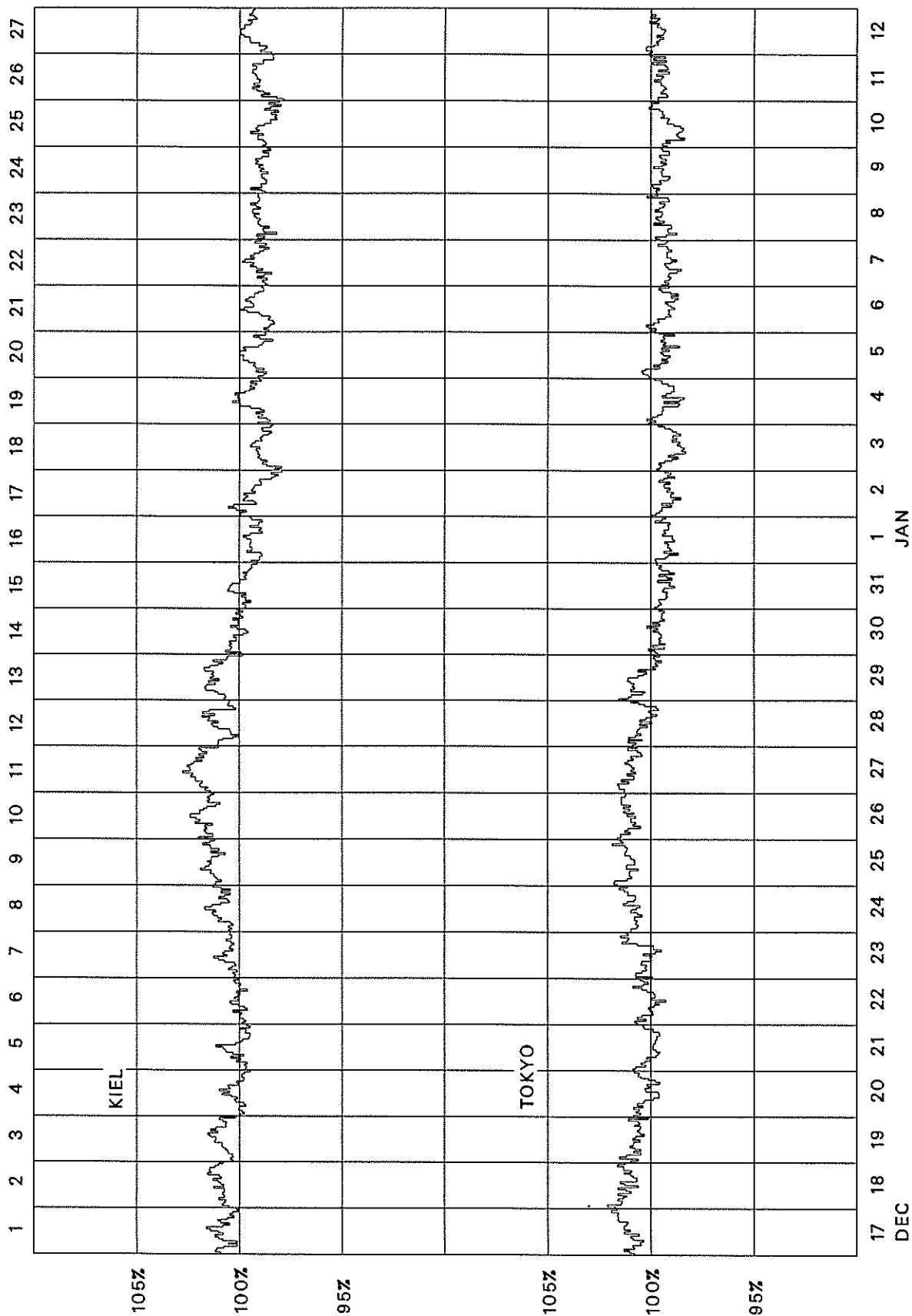
# COSMIC RAY INDICES (Neutron Monitor)

Bartels Rotation 2177 (December 1992-January 1993)



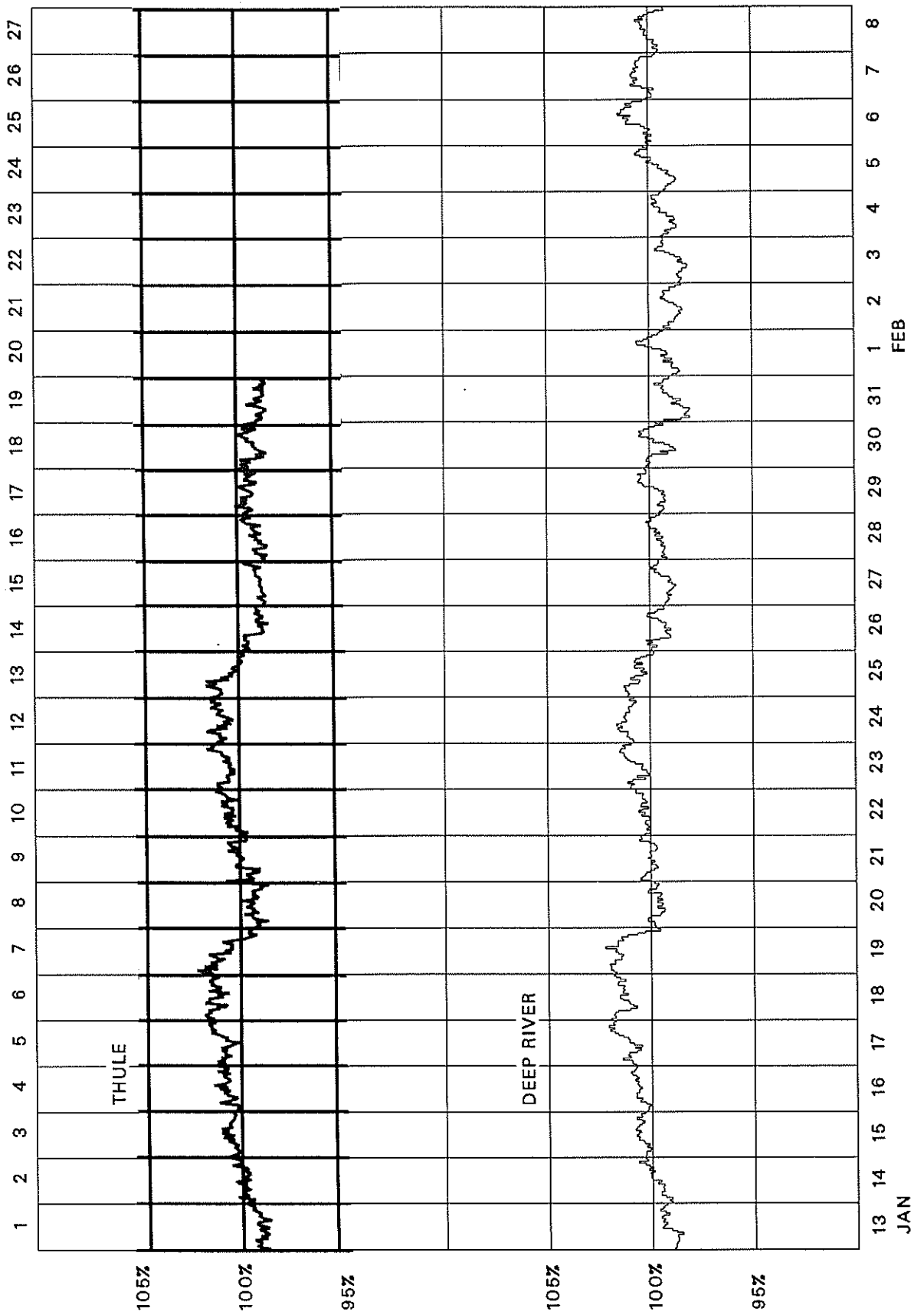
# COSMIC RAY INDICES (Neutron Monitor)

Bartels Rotation 2177 (December 1992-January 1993)



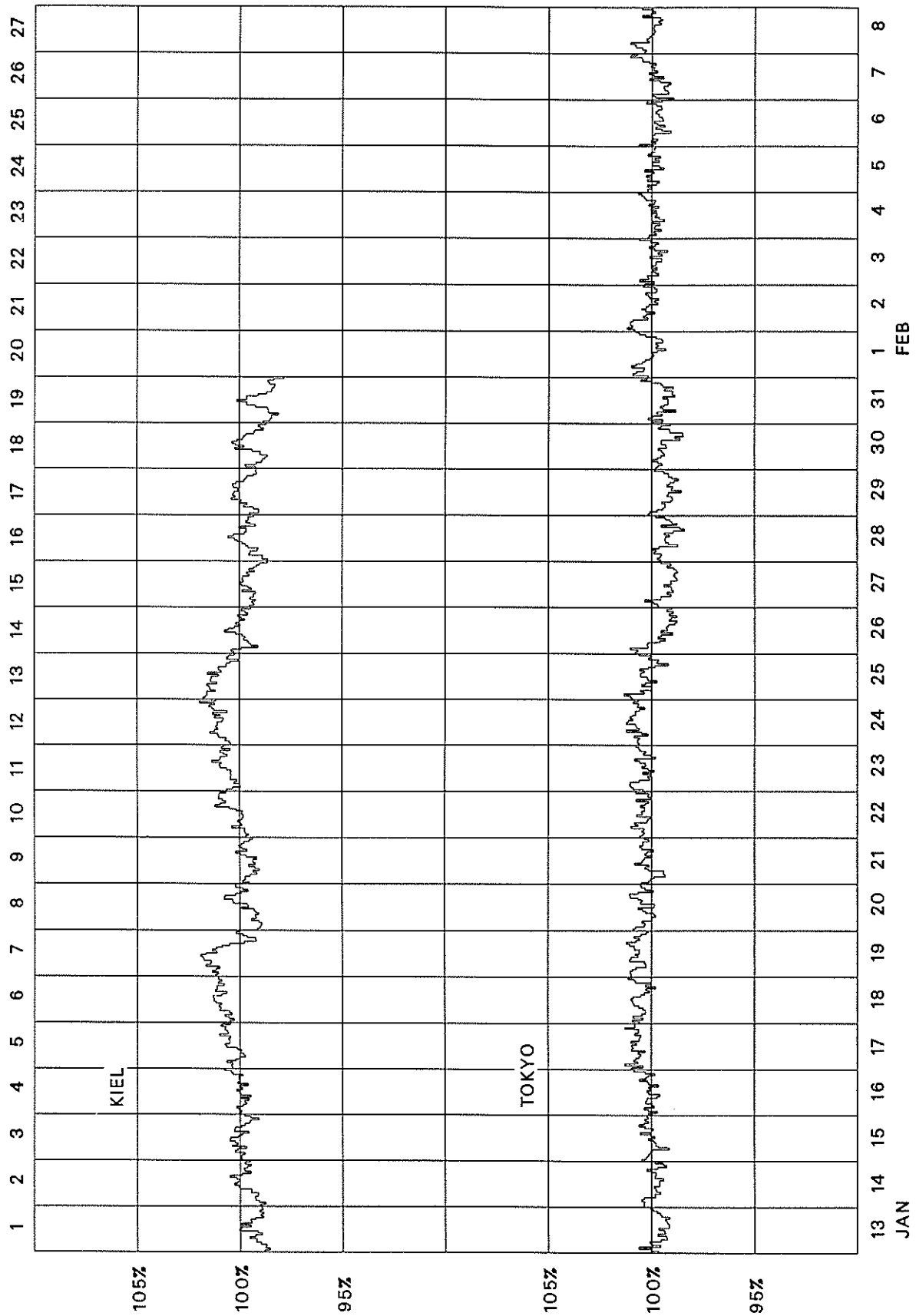
# COSMIC RAY INDICES (Neutron Monitor)

Bartels Rotation 2178 (January 1993-February 1993)



# COSMIC RAY INDICES (Neutron Monitor)

Bartels Rotation 2178 (January 1993-February 1993)



## GEOMAGNETIC ACTIVITY INDICES

January 1993

| Kp Three-Hourly Indices |      |                         |    |    |    |    |    |    |    |     |                         |      |    |    |    |    |    |    |    |       |      |     |      |       | Km Three-Hourly Indices |      |      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | aa Provisional |  |  |  |
|-------------------------|------|-------------------------|----|----|----|----|----|----|----|-----|-------------------------|------|----|----|----|----|----|----|----|-------|------|-----|------|-------|-------------------------|------|------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|----------------|--|--|--|
| Day                     |      | 1                       | 2  | 3  | 4  | 5  | 6  | 7  | 8  | Sum | Ap                      | Cp   | 1  | 2  | 3  | 4  | 5  | 6  | 7  | 8     | Am   | M   | S    | M     |                         |      |      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                |  |  |  |
| 1                       | Q7A  | 2                       | 3+ | 3  | 2  | 2  | 2  | 2  | 3  | 19+ | 10                      | 0.6  | 3- | 4- | 3+ | 2  | 2+ | 2  | 2+ | 3     | 24   | 20  | 42   | 42    | 20                      |      |      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                |  |  |  |
| 2                       | D4   | 3+                      | 3+ | 3+ | 5- | 4  | 4  | 4  | 4- | 30+ | 24                      | 1.2  | 3- | 3  | 3+ | 4+ | 5- | 4- | 4- | 3+    | 44   | 42  | 55   | 46    | 51                      |      |      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                |  |  |  |
| 3                       | D2   | 5+                      | 5  | 4  | 4+ | 3+ | 4+ | 4  | 4- | 34  | 33                      | 1.3  | 4+ | 4- | 3  | 4- | 3  | 4  | 4  | 4-    | 46   | 59  | 49   | 55    | 54                      |      |      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                |  |  |  |
| 4                       | D3   | 5+                      | 3+ | 4- | 4- | 5- | 4- | 4  | 4+ | 33+ | 31                      | 1.3  | 4+ | 3  | 3  | 4+ | 5- | 4- | 4- | 4+    | 52   | 62  | 54   | 53    | 63                      |      |      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                |  |  |  |
| 5                       |      | 3+                      | 4- | 3  | 4- | 3+ | 2+ | 3  | 3  | 25+ | 17                      | 0.9  | 3  | 3  | 3- | 3+ | 3+ | 2  | 3- | 3-    | 28   | 28  | 24   | 28    | 24                      |      |      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                |  |  |  |
| 6                       |      | 3+                      | 4- | 3  | 3- | 3  | 3  | 3+ | 3  | 25  | 16                      | 0.9  | 2+ | 3- | 2+ | 3- | 3  | 2+ | 3  | 3-    | 23   | 26  | 23   | 23    | 26                      |      |      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                |  |  |  |
| 7                       |      | 3-                      | 4- | 2+ | 4  | 3- | 4  | 5- | 5- | 29- | 23                      | 1.1  | 2+ | 3- | 2  | 4- | 2+ | 4  | 4+ | 4-    | 35   | 57  | 33   | 28    | 63                      |      |      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                |  |  |  |
| 8                       |      | 3+                      | 3- | 2  | 2  | 2+ | 4  | 4- | 4- | 23+ | 15                      | 0.8  | 3- | 2  | 2  | 2+ | 2+ | 3+ | 3+ | 3+    | 26   | 29  | 24   | 19    | 34                      |      |      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                |  |  |  |
| 9                       |      | 4                       | 3- | 3+ | 2+ | 3+ | 3+ | 3- | 3- | 24+ | 16                      | 0.9  | 4- | 2  | 2+ | 2+ | 3  | 3+ | 2+ | 2+    | 25   | 34  | 23   | 27    | 30                      |      |      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                |  |  |  |
| 10                      | D5   | 3+                      | 4  | 6  | 4  | 4  | 3  | 1  | 1  | 26+ | 25                      | 1.2  | 3- | 3  | 5  | 4  | 4- | 3  | 1+ | 2-    | 36   | 32  | 45   | 55    | 23                      |      |      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                |  |  |  |
| 11                      |      | 2                       | 2+ | 1+ | 3+ | 5+ | 4  | 4- | 4  | 26  | 21                      | 1.1  | 2- | 2- | 2- | 4- | 5  | 4  | 4- | 4-    | 39   | 48  | 39   | 18    | 68                      |      |      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                |  |  |  |
| 12                      |      | 4                       | 3+ | 3- | 2  | 2  | 3  | 2+ | 1+ | 21- | 12                      | 0.7  | 3  | 3- | 2+ | 2+ | 2  | 3- | 2  | 1     | 19   | 25  | 16   | 23    | 17                      |      |      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                |  |  |  |
| 13                      |      | 2                       | 1+ | 1+ | 2  | 3- | 3+ | 2  | 5- | 19+ | 12                      | 0.7  | 2- | 1  | 1+ | 2  | 2+ | 3  | 3- | 4+    | 22   | 32  | 21   | 11    | 41                      |      |      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                |  |  |  |
| 14                      |      | 4-                      | 5- | 3- | 3+ | 4- | 3+ | 3+ | 4  | 29- | 22                      | 1.1  | 3+ | 3+ | 3- | 3  | 4- | 3  | 3+ | 3+    | 34   | 40  | 32   | 37    | 35                      |      |      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                |  |  |  |
| 15                      |      | 3+                      | 3  | 2  | 3- | 2+ | 3  | 3- | 4- | 23- | 14                      | 0.8  | 3  | 2+ | 2  | 2+ | 2+ | 3+ | 3- | 3     | 24   | 29  | 21   | 21    | 28                      |      |      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                |  |  |  |
| 16                      | Q9A  | 3-                      | 4- | 2  | 1  | 2  | 3- | 2+ | 3  | 19+ | 11                      | 0.6  | 2  | 3  | 2  | 1+ | 2+ | 3- | 3- | 3-    | 19   | 19  | 26   | 22    | 23                      |      |      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                |  |  |  |
| 17                      |      | 4-                      | 3  | 4  | 3  | 2+ | 2- | 2- | 1+ | 21- | 13                      | 0.8  | 3- | 2+ | 3+ | 3  | 3  | 2  | 2- | 2-    | 22   | 25  | 19   | 28    | 15                      |      |      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                |  |  |  |
| 18                      | Q10A | 2                       | 3- | 1+ | 2  | 2  | 3- | 3- | 4  | 19+ | 11                      | 0.6  | 2- | 2+ | 2- | 2  | 2  | 3  | 3- | 4-    | 21   | 20  | 27   | 16    | 31                      |      |      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                |  |  |  |
| 19                      |      | 4                       | 3+ | 3- | 4- | 2+ | 3  | 5- | 5- | 28  | 22                      | 1.1  | 3+ | 3  | 3- | 4- | 3- | 3- | 5- | 5-    | 41   | 48  | 44   | 44    | 49                      |      |      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                |  |  |  |
| 20                      |      | 4-                      | 2- | 3+ | 3  | 4- | 3+ | 1  | 1- | 20+ | 14                      | 0.8  | 4  | 2  | 3+ | 3  | 4- | 3  | 2- | 1     | 28   | 29  | 36   | 36    | 29                      |      |      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                |  |  |  |
| 21                      | Q5A  | 2+                      | 3+ | 1+ | 2- | 2- | 1+ | 1- | 1- | 13  | 7                       | 0.3  | 2- | 2+ | 1  | 2  | 2  | 2- | 1  | 1-    | 11   | 17  | 13   | 19    | 11                      |      |      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                |  |  |  |
| 22                      | Q3A  | 1-                      | 2- | 1+ | 1  | 1  | 1+ | 3- | 3  | 13- | 7                       | 0.3  | 0+ | 1+ | 1+ | 1+ | 1+ | 2- | 2+ | 3-    | 12   | 14  | 11   | 8     | 17 KK                   |      |      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                |  |  |  |
| 23                      | Q1   | 2+                      | 1- | 0  | 0  | 1  | 0+ | 1  | 2- | 7+  | 4                       | 0.1  | 2- | 1- | 0  | 0  | 1+ | 1- | 1+ | 2     | 7    | 10  | 9    | 9     | 10 CK                   |      |      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                |  |  |  |
| 24                      | Q6A  | 1                       | 2+ | 2+ | 3+ | 2  | 2+ | 3+ | 1+ | 18  | 10                      | 0.6  | 2- | 2- | 2  | 3+ | 2  | 2+ | 3+ | 1+    | 19   | 22  | 19   | 18    | 23                      |      |      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                |  |  |  |
| 25                      |      | 1-                      | 1- | 2- | 3  | 5+ | 4  | 5+ | 4+ | 25  | 25                      | 1.2  | 1  | 1+ | 2  | 4- | 5+ | 4  | 5- | 4-    | 46   | 57  | 43   | 15    | 86                      |      |      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                |  |  |  |
| 26                      |      | 5                       | 4- | 4- | 3+ | 3+ | 3+ | 3+ | 2+ | 28  | 22                      | 1.1  | 4  | 3  | 3+ | 3+ | 3  | 3+ | 3+ | 3-    | 35   | 45  | 28   | 44    | 29                      |      |      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                |  |  |  |
| 27                      | Q8A  | 2                       | 3  | 3  | 3- | 2+ | 3  | 2+ | 2  | 20+ | 11                      | 0.6  | 2- | 2+ | 3- | 2+ | 2  | 3- | 2+ | 2-    | 18   | 24  | 14   | 19    | 19                      |      |      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                |  |  |  |
| 28                      | Q4A  | 1+                      | 3+ | 2  | 2  | 2- | 1  | 1  | 1- | 13  | 7                       | 0.3  | 1  | 2+ | 2- | 2+ | 2  | 1+ | 1+ | 2-    | 12   | 14  | 11   | 15    | 10 CC                   |      |      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                |  |  |  |
| 29                      | Q2   | 1-                      | 1  | 1+ | 1+ | 1  | 1  | 1+ | 2+ | 10  | 5                       | 0.2  | 1  | 1+ | 1  | 1+ | 1+ | 2- | 1+ | 2+    | 10   | 12  | 7    | 7     | 12 CK                   |      |      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                |  |  |  |
| 30                      |      | 3+                      | 4- | 2+ | 2  | 2+ | 2  | 2+ | 3+ | 21+ | 12                      | 0.7  | 3- | 3  | 2  | 2+ | 2  | 2+ | 3  | 3+    | 24   | 24  | 22   | 21    | 25                      |      |      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                |  |  |  |
| 31                      | D1   | 4+                      | 5+ | 6  | 6- | 5  | 5- | 6- | 6  | 43- | 59                      | 1.7  | 4- | 4  | 5  | 6- | 5  | 4+ | 5  | 6-    | 89   | 74  | 83   | 77    | 81                      |      |      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                |  |  |  |
| Mean                    |      |                         |    |    |    |    |    |    |    |     | 17                      | 0.83 |    |    |    |    |    |    |    |       |      |     |      | 28.7  | 32.9                    | 29.5 | 31.2 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                |  |  |  |
| Day                     |      | Kn Three-Hourly Indices |    |    |    |    |    |    |    | An  | Ks Three-Hourly Indices |      |    |    |    |    |    |    | As | Sa    | Prov | Ri  | Ra   | Rs    | IMF                     |      |      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                |  |  |  |
| 1                       |      | 2+                      | 3  | 3- | 2  | 2  | 2  | 2  | 3- | 20  | 3                       | 4    | 4- | 2  | 3- | 2+ | 3- | 3+ | 29 | 118.3 | 46   | 52  | 66   |       |                         |      |      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                |  |  |  |
| 2                       |      | 3-                      | 3- | 3  | 4  | 5- | 3+ | 4- | 3  | 41  | 3-                      | 3    | 4- | 5- | 5- | 4- | 4  | 4- | 48 | 117.4 | 37   | 50  | 65   |       |                         |      |      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                |  |  |  |
| 3                       |      | 5-                      | 4- | 3+ | 4- | 3+ | 4  | 4  | 3  | 48  | 4+                      | 3    | 3  | 3+ | 3  | 4  | 4  | 4  | 44 | 120.6 | 36   | 50  | 68   |       |                         |      |      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                |  |  |  |
| 4                       |      | 4                       | 3  | 3  | 4  | 5- | 4  | 4- | 4- | 50  | 5-                      | 3    | 3  | 4+ | 4+ | 3+ | 4  | 5- | 54 | 117.1 | 52   | 59  | 64   |       |                         |      |      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                |  |  |  |
| 5                       |      | 3-                      | 3+ | 3- | 4- | 4- | 2+ | 3- | 3  | 31  | 3                       | 3    | 3- | 3  | 3  | 2  | 3  | 3- | 26 | 120.8 | 66   | 71  | 68   |       |                         |      |      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                |  |  |  |
| 6                       |      | 3-                      | 3  | 2+ | 3- | 3+ | 3- | 3  | 3- | 26  | 2+                      | 2+   | 2+ | 2+ | 3- | 2  | 3  | 3- | 21 | 125.8 | 84   | 84  | 74   |       |                         |      |      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                |  |  |  |
| 7                       |      | 2+                      | 3- | 2  | 4- | 3- | 4  | 4+ | 4  | 37  | 3-                      | 2+   | 2  | 4- | 2  | 4  | 4  | 4- | 33 | 126.3 | 81   | 83  | 74   |       |                         |      |      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                |  |  |  |
| 8                       |      | 3-                      | 2  | 2- | 2  | 2+ | 3  | 3+ | 3+ | 25  | 3                       | 2    | 2+ | 2+ | 2  | 4- | 3+ | 3  | 26 | 128.6 | 89   | 98  | 77   |       |                         |      |      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                |  |  |  |
| 9                       |      | 3+                      | 2+ | 3- | 3- | 3  | 3+ | 2+ | 3- | 27  | 4-                      | 2    | 2- | 2  | 3  | 3  | 3- | 2+ | 23 | 124.5 | 94   | 96  | 72   |       |                         |      |      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                |  |  |  |
| 10                      |      | 3-                      | 3+ | 5  | 4- | 4- | 3  | 1  | 1+ | 37  | 2+                      | 3-   | 5- | 4  | 4- | 3  | 2  | 2  | 36 | 127.7 | 100  | 97  | 76   |       |                         |      |      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                |  |  |  |
| 11                      |      | 2-                      | 2- | 2- | 3+ | 5  | 4  | 4- | 4- | 38  | 2                       | 2    | 2  | 4- | 5  | 4  | 4  | 4- | 41 | 127.4 | 91   | 90  | 76   |       |                         |      |      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                |  |  |  |
| 12                      |      | 3+                      | 3- | 2  | 2+ | 2  | 3  | 2  | 1  | 20  | 3                       | 2+   | 3- | 2  | 2  | 3- | 2- | 1  | 18 | 135.6 | 94   | 105 | 84   |       |                         |      |      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                |  |  |  |
| 13                      |      | 1+                      | 1  | 1  | 2- | 2+ | 3  | 2  | 4  | 21  | 2-                      | 1    | 2- | 2  | 2+ | 3  | 3  | 4+ | 24 | 136.6 | 107  | 99  | 86   |       |                         |      |      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                |  |  |  |
| 14                      |      | 3-                      | 4- | 3- | 3  | 4- | 3+ | 3+ | 3+ | 34  | 4-                      | 3    | 3- | 3  | 4- | 3  | 4- | 3+ | 35 | 128.8 | 69   | 73  | 77   |       |                         |      |      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                |  |  |  |
| 15                      |      | 3+                      | 2+ | 2+ | 3- | 2  | 3+ | 3- | 3  | 26  | 3                       | 3-   | 2  | 2- | 3- | 3  | 3- | 3  | 23 | 121.9 | 58   | 56  | 70   |       |                         |      |      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                |  |  |  |
| 16                      |      | 2-                      | 2+ | 2- | 1- | 2+ | 3- | 2+ | 2+ | 16  | 2+                      | 3    | 2  | 2- | 3- | 3  | 3- | 3  | 22 | 129.1 | 59   | 65  | 77   |       |                         |      |      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                |  |  |  |
| 17                      |      | 3                       | 3- | 3+ | 3+ | 3  | 2+ | 1+ | 1+ | 23  | 3-                      | 2+   | 3+ | 3  | 3  | 2  | 2- | 2- | 22 | 121.9 | 62   | 64  | 70   |       |                         |      |      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                |  |  |  |
| 18                      |      | 1+                      | 2+ | 2- | 2- | 2  | 3  | 2  | 4- | 19  | 2-                      | 2+   | 2- | 2+ | 2  | 3  | 3  | 4  | 23 | 117.7 | 66   | 66  | 65   |       |                         |      |      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                |  |  |  |
| 19                      |      | 3+                      | 3- | 3- | 3+ | 3- | 3- | 4  | 4  | 37  | 3+                      | 3    | 3- | 4- | 3  | 3- | 5- | 5- | 44 | 112.7 | 68   | 61  | 60   |       |                         |      |      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                |  |  |  |
| 20                      |      | 3                       | 2- | 3  | 3  | 4- | 3+ | 1+ | 1- | 24  | 5-                      | 3-   | 4- | 3  | 3+ | 3  | 2- | 1+ | 31 | 106.5 | 52   | 51  | 53   |       |                         |      |      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                |  |  |  |
| 21                      |      | 1+                      | 3- | 1- | 2  | 2+ | 2  | 1- | 1- | 12  | 2                       | 2-   | 1+ | 2- | 2  | 1+ | 1+ | 1  | 11 | 103.3 | 47   | 44  | 50   |       |                         |      |      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                |  |  |  |
| 22                      |      | 0+                      | 2- | 1+ | 1  | 1+ | 2- | 3- | 3- | 13  | 0+                      | 1+   | 1+ | 2- | 1+ | 2- | 2+ | 3- | 12 | 101.0 | 34   | 34  | 47   |       |                         |      |      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                |  |  |  |
| 23                      |      | 2                       | 1  | 0  | 0+ | 1+ | 1  | 1  | 2- | 7   | 2-                      | 1-   | 0  | 0  | 1+ | 0  | 2- | 2+ | 7  | 102.7 | 30   | 33  | 49   |       |                         |      |      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                |  |  |  |
| 24                      |      | 1                       | 2- | 2+ | 4- | 2  | 3- | 3+ | 1  | 19  | 2                       | 2    | 2  | 3  | 2  | 2  | 3+ | 1+ | 18 | 101.6 | 45   | 43  | 48   |       |                         |      |      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                |  |  |  |
| 25                      |      | 0+                      | 1  | 2  | 3  | 5+ | 4+ | 5  | 3+ | 45  | 1+                      | 1+   | 2- | 4  | 6- | 4- | 5- | 4- | 46 | 102.6 | 51   | 51  | 49   |       |                         |      |      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                |  |  |  |
| 26                      |      | 4                       | 3+ | 4- | 3+ | 3  | 3+ | 3+ | 2+ | 37  | 4                       | 3    | 3+ | 3  | 3  | 3  | 3- | 3- | 33 | 103.3 | 37   | 40  | 50   |       |                         |      |      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                |  |  |  |
| 27                      |      | 2-                      | 3- | 3- | 3- | 2+ | 3- | 2+ | 2- | 20  | 2-                      | 2    | 3- | 2  | 1+ | 2+ | 2+ | 2- | 16 | 107.6 | 38   | 41  | 54   |       |                         |      |      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                |  |  |  |
| 28                      |      | 1                       | 3- | 1+ | 2+ | 3- | 1+ | 1+ | 1- | 12  | 1+                      | 2    | 2- | 2  | 2- | 1+ | 1  | 2+ | 12 | 108.6 | 37   | 44  | 55   |       |                         |      |      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                |  |  |  |
| 29                      |      | 1-                      | 1  | 1+ | 1+ | 1+ | 2  | 1+ | 2+ | 10  | 1+                      | 1+   | 1  | 2- | 1  | 2- | 2- | 2  | 10 | 110.7 | 35   | 37  | 58   |       |                         |      |      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                |  |  |  |
| 30                      |      | 3-                      | 3  | 2- | 2+ | 2  | 2+ | 3- | 3  | 22  | 3-                      | 3    | 2  | 2+ | 2  | 2  | 3  | 4- | 25 | 109.6 | 36   | 35  | 56   |       |                         |      |      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                |  |  |  |
| 31                      |      | 4-                      | 4  | 5  | 6- | 5- | 4  | 5+ | 5+ | 88  | 4-                      | 4+   | 5- | 6- | 5+ | 5- | 5- | 6- | 90 | 115.6 | 32   | 40  | 63   |       |                         |      |      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                |  |  |  |
| Mean                    |      |                         |    |    |    |    |    |    |    |     | 28.5                    |      |    |    |    |    |    |    |    |       |      |     | 29.1 | 117.2 | 59.1                    | 61.7 | 64.6 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                |  |  |  |



## DAILY AVERAGE INDICES Ap

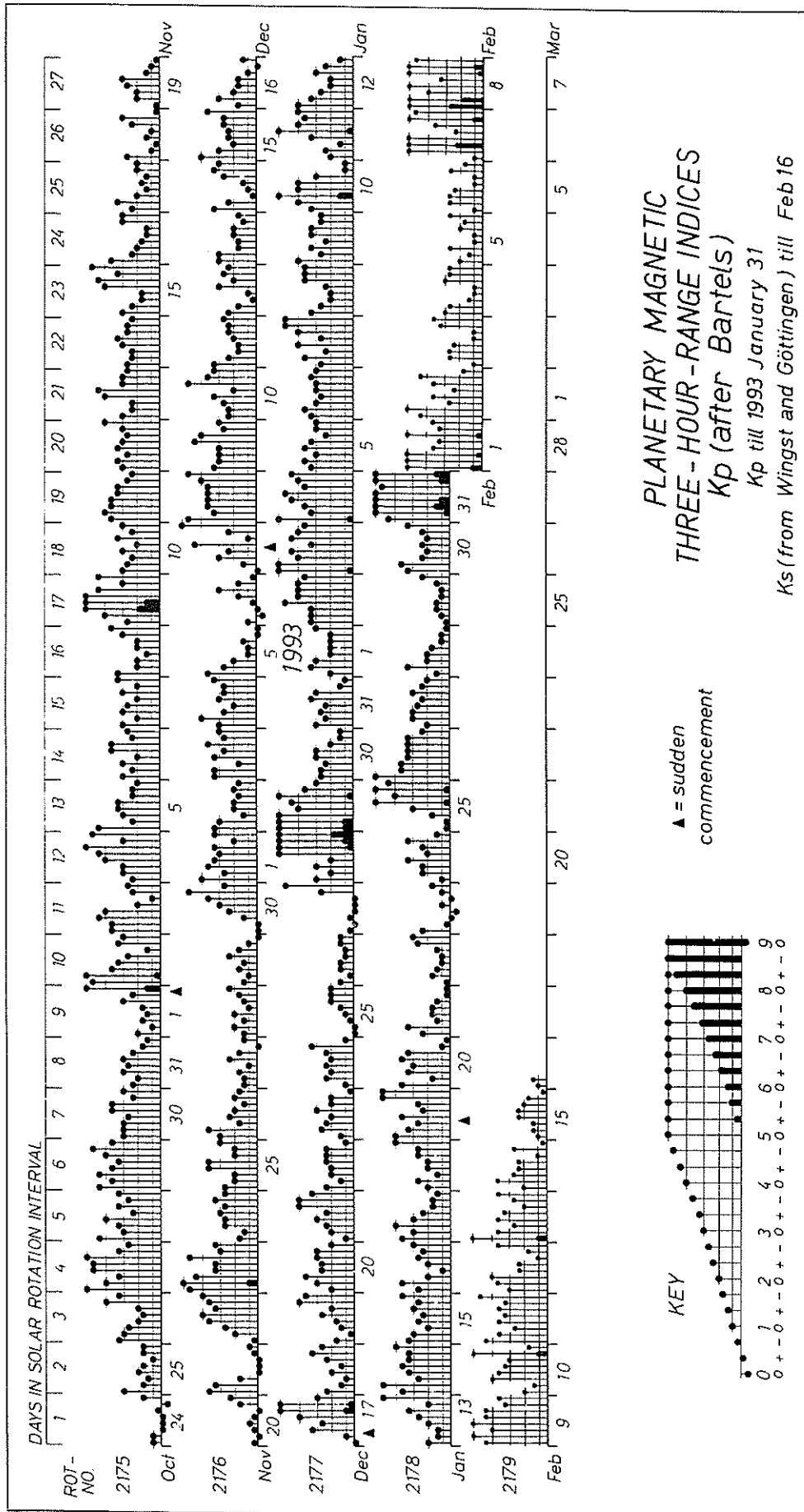
February 1992 to January 1993

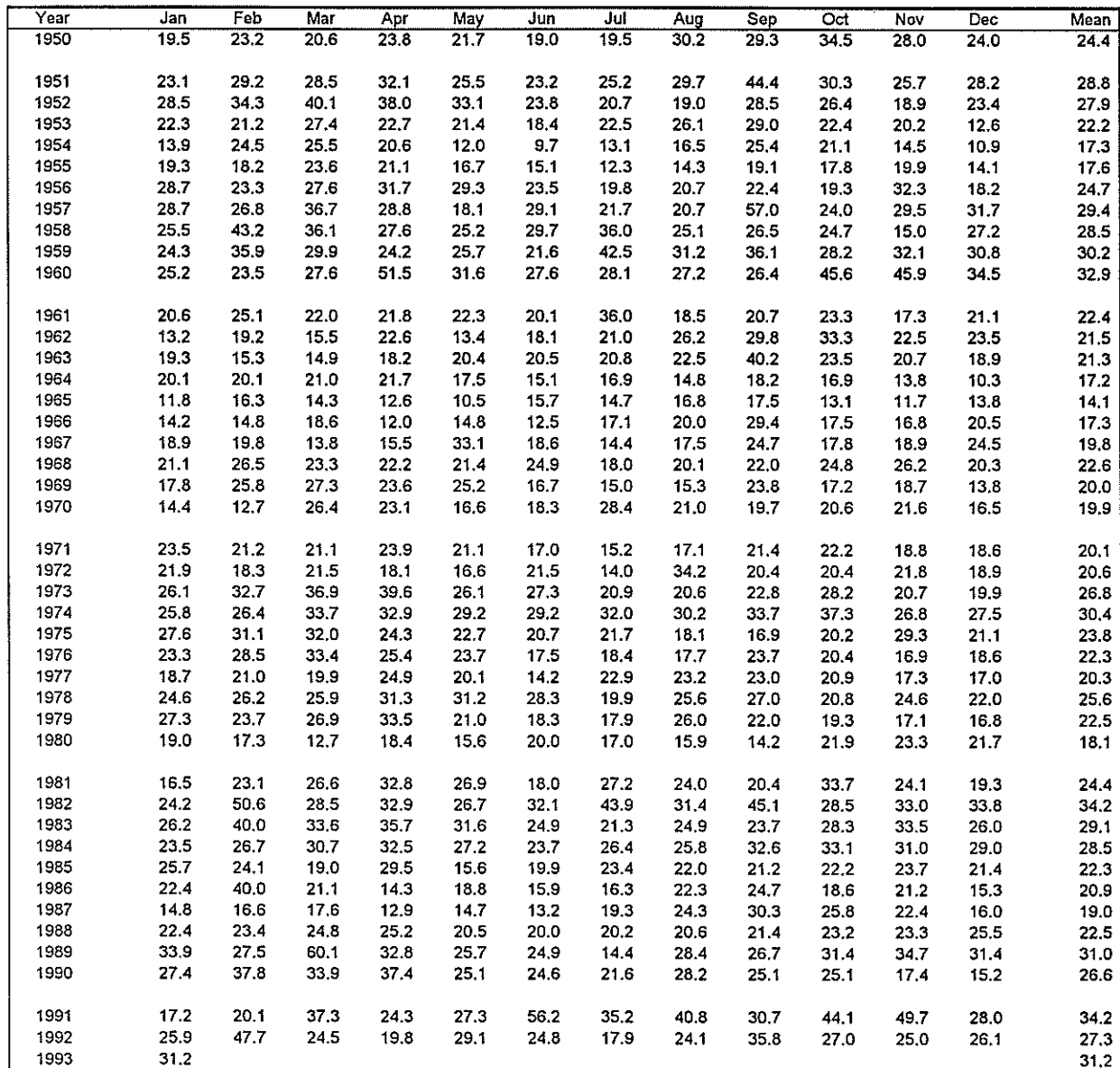
| DAY  | 1992<br>FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | 1993<br>JAN |
|------|-------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-------------|
| 1    | 29          | 16  | 13  | 15  | 8   | 19  | 8   | 2   | 26  | 16  | 17  | 10          |
| 2    | 56          | 12  | 6   | 12  | 5   | 16  | 5   | 23  | 9   | 23  | 9   | 24          |
| 3    | 92          | 11  | 32  | 9   | 6   | 5   | 4   | 48  | 6   | 17  | 15  | 33          |
| 4    | 27          | 13  | 12  | 12  | 4   | 4   | 15  | 33  | 7   | 25  | 15  | 31          |
| 5    | 7           | 12  | 15  | 5   | 6   | 9   | 35  | 28  | 5   | 15  | 7   | 17          |
| 6    | 7           | 8   | 24  | 5   | 5   | 5   | 16  | 17  | 10  | 14  | 5   | 16          |
| 7    | 17          | 10  | 19  | 13  | 12  | 4   | 26  | 22  | 8   | 12  | 16  | 23          |
| 8    | 49          | 11  | 20  | 29  | 46  | 5   | 16  | 18  | 8   | 11  | 26  | 15          |
| 9    | 79          | 25  | 6   | 39  | 17  | 4   | 12  | 84  | 26  | 42  | 19  | 16          |
| 10   | 25          | 17  | 5   | 179 | 20  | 6   | 7   | 88  | 10  | 12  | 17  | 25          |
| 11   | 7           | 20  | 3   | 70  | 26  | 4   | 13  | 32  | 24  | 19  | 10  | 21          |
| 12   | 11          | 12  | 4   | 11  | 40  | 15  | 6   | 5   | 34  | 16  | 8   | 12          |
| 13   | 10          | 6   | 6   | 21  | 12  | 23  | 11  | 5   | 23  | 17  | 8   | 12          |
| 14   | 10          | 4   | 6   | 4   | 6   | 12  | 15  | 8   | 25  | 12  | 10  | 22          |
| 15   | 4           | 9   | 10  | 5   | 10  | 6   | 8   | 10  | 35  | 19  | 14  | 14          |
| 16   | 4           | 13  | 5   | 4   | 4   | 12  | 8   | 12  | 22  | 10  | 6   | 11          |
| 17   | 16          | 25  | 4   | 3   | 5   | 5   | 4   | 93  | 16  | 8   | 25  | 13          |
| 18   | 14          | 17  | 19  | 16  | 27  | 5   | 6   | 31  | 12  | 7   | 9   | 11          |
| 19   | 13          | 4   | 17  | 14  | 12  | 4   | 9   | 13  | 16  | 7   | 11  | 22          |
| 20   | 63          | 4   | 18  | 8   | 7   | 8   | 26  | 8   | 12  | 4   | 13  | 14          |
| 21   | 69          | 23  | 8   | 8   | 9   | 11  | 20  | 7   | 6   | 7   | 14  | 7           |
| 22   | 27          | 17  | 12  | 50  | 10  | 34  | 39  | 17  | 9   | 17  | 7   | 7           |
| 23   | 16          | 26  | 8   | 14  | 13  | 16  | 73  | 9   | 5   | 31  | 8   | 4           |
| 24   | 28          | 22  | 13  | 8   | 22  | 7   | 10  | 4   | 3   | 12  | 8   | 10          |
| 25   | 55          | 16  | 10  | 10  | 14  | 11  | 5   | 11  | 7   | 12  | 5   | 25          |
| 26   | 65          | 12  | 8   | 8   | 8   | 4   | 11  | 8   | 14  | 10  | 4   | 22          |
| 27   | 60          | 11  | 5   | 10  | 11  | 7   | 14  | 4   | 31  | 5   | 8   | 11          |
| 28   | 7           | 10  | 10  | 13  | 15  | 17  | 5   | 16  | 19  | 6   | 39  | 7           |
| 29   | 44          | 18  | 7   | 19  | 38  | 5   | 16  | 62  | 27  | 5   | 42  | 5           |
| 30   |             | 12  | 10  | 14  | 37  | 9   | 6   | 35  | 16  | 13  | 10  | 12          |
| 31   |             | 14  |     | 8   |     | 10  | 4   |     | 10  |     | 11  | 59          |
| MEAN | 31          | 14  | 11  | 21  | 15  | 10  | 15  | 25  | 15  | 14  | 13  | 17          |

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

University of Göttingen

Kp through January 31, 1993





134  
Jan 93

# PRINCIPAL MAGNETIC STORMS

JANUARY 1993

| Sta | Geomag<br>Lat | Commencement     |      | Type | SC Amplitudes |              |              | Maximum 3-Hour K Index<br>Day(3-Hour Periods) | Ranges       |              |              | End |              |
|-----|---------------|------------------|------|------|---------------|--------------|--------------|-----------------------------------------------|--------------|--------------|--------------|-----|--------------|
|     |               | Time<br>Day (UT) |      |      | D<br>(Min)    | H<br>(Gamma) | Z<br>(Gamma) |                                               | D<br>K (Min) | H<br>(Gamma) | Z<br>(Gamma) | Day | Hour<br>(UT) |
| HYB | 07.6N         | 01               | 0000 | ..   | ..            | ..           | ..           | 01(2) 02(5)                                   | 5            | 5            | 127          | 31  | 03 23        |
| GUA | 04.3N         | 01               | 01-- | ..   | ..            | ..           | ..           | 01(2)                                         | 5            | --           | 100          | 40  | 01 12        |
| ETT | 00.7S         | 01               | 0000 | ..   | ..            | ..           | ..           |                                               | -            | 6            | 214          | 80  | 04 24        |
| FRD | 49.4N         | 02               | ---- | ..   | ..            | ..           | ..           | 03(1)                                         | 5            | 19           | 96           | 20  | 05 --        |
| GUA | 04.3N         | 02               | 09-- | ..   | ..            | ..           | ..           | 02(4)                                         | 5            | --           | 50           | 10  | 02 21        |
| CAN | 43.6S         | 02               | 00-- | ..   | ..            | ..           | ..           | 02(4,5) 04(4,5)                               | 5            | 16           | 135          | 44  | 05 15        |
| GUA | 04.3N         | 03               | 00-- | ..   | ..            | ..           | ..           | 03(1)                                         | 5            | --           | 80           | 30  | 03 18        |
| HYB | 07.6N         | 04               | 1124 | SC   | - .1          | 7            | 0            | 04(6)                                         | 5            | 3            | 73           | 12  | 06 19        |
| KRC | 16.4N         | 05               | 1300 | SC   | - 3           | 30           | 30           | 05(5) 07(6,7,8)                               | 5            | 4            | 70           | 40  | 08 --        |
| FRD | 49.4N         | 10               | 03-- | ..   | ..            | ..           | ..           | 10(3)                                         | 6            | 25           | 96           | 35  | 12 --        |
| BJI | 28.8N         | 10               | 00-- | ..   | ..            | ..           | ..           | 10(3)                                         | 5            | 6            | 75           | 13  | 10 23        |
| KRC | 16.4N         | 10               | 04-- | ..   | ..            | ..           | ..           | 10(3) 11(5,8)                                 | 5            | 4            | 110          | 40  | 12 06        |
| HYB | 07.6N         | 10               | 0000 | ..   | ..            | ..           | ..           | 10(3) 11(5)                                   | 5            | 4            | 146          | 13  | 12 04        |
| GUA | 04.3N         | 10               | 02-- | ..   | ..            | ..           | ..           | 10(3)                                         | 5            | --           | 130          | 50  | 10 18        |
| ETT | 00.7S         | 10               | 0300 | ..   | ..            | ..           | ..           |                                               | -            | 5            | 191          | 48  | 12 22        |
| CAN | 43.6S         | 10               | 03-- | ..   | ..            | ..           | ..           | 10(3)                                         | 6            | 14           | 122          | 40  | 10 16        |
| BJI | 28.8N         | 11               | 0523 | SC   | .5            | 8            | 0            | 11(4)                                         | 5            | 6            | 86           | 15  | 12 21        |
| KGL | 57.2S         | 11               | 0521 | SC   | 2             | 5            | - 1          | 11(5)                                         | 6            | 56           | 198          | 211 | 12 06        |
| GUA | 04.3N         | 13               | 22-- | ..   | ..            | ..           | ..           | 14(1)                                         | 5            | 10           | 80           | 40  | 14 07        |
| KRC | 16.4N         | 19               | 1024 | SC   | - 1           | 32           | 20           | 19(4,5,7,8) 20(1)                             | 5            | 5            | 120          | 50  | 20 19        |
| HYB | 07.6N         | 19               | 1022 | SC   | - .3          | 28           | - 2          | 19(3,7) 20(1,5,6)                             | 5            | 3            | 113          | 14  | 20 23        |
| GUA | 04.3N         | 19               | 17-- | ..   | ..            | ..           | ..           | 20(1)                                         | 5            | 10           | 110          | 40  | 20 21        |
| ETT | 00.7S         | 19               | 1022 | SC   | - .2          | 28           | 25           |                                               | -            | 4            | 136          | 59  | 20 20        |
| GNA | 43.0S         | 19               | 1020 | SC*  | - 2.1         | - 6 *        | - 15         | 19(7) 20(1)                                   | 5            | 18           | 70           | 100 | 20 15        |
| KGL | 57.2S         | 19               | 1023 | SC   | 6             | 32           | 9            | 19(6)                                         | 5            | 27           | 160          | 151 | 20 19        |
| FRD | 49.4N         | 25               | 09-- | ..   | ..            | ..           | ..           | 25(5)                                         | 5            | 17           | 133          | 39  | 26 22        |
| BJI | 28.8N         | 25               | 07-- | ..   | ..            | ..           | ..           | 25(5)                                         | 6            | 8            | 157          | 16  | 26 22        |
| KRC | 16.4N         | 25               | 04-- | ..   | ..            | ..           | ..           | 25(5)                                         | 7            | 2            | 160          | 50  | 26 23        |
| HYB | 07.6N         | 25               | 0500 | ..   | ..            | ..           | ..           | 25(5)                                         | 6            | 5            | 172          | 30  | 26 23        |
| GUA | 04.3N         | 25               | 07-- | ..   | ..            | ..           | ..           | 25(5)                                         | 6            | --           | 110          | 10  | 25 20        |
| GUA | 04.3N         | 25               | 23-- | ..   | ..            | ..           | ..           | 26(1)                                         | 5            | --           | 80           | 10  | 26 12        |
| ETT | 00.7S         | 25               | 0200 | ..   | ..            | ..           | ..           |                                               | -            | 4            | 169          | 90  | 27 19        |
| CAN | 43.6S         | 25               | 07-- | ..   | ..            | ..           | ..           | 25(5)                                         | 5            | 20           | 112          | 40  | 27 00        |
| KGL | 57.2S         | 25               | 0800 | ..   | ..            | ..           | ..           | 25(5,6,7)                                     | 5            | 40           | 213          | 250 | 27 01        |
| KRC | 16.4N         | 29               | 0055 | SC   | - 1.2         | 12           | 12           | 31(3,4,5,6,7,8)                               | 5            | 7            | 105          | 60  | 02 --        |
| FRD | 49.4N         | 30               | 23-- | ..   | ..            | ..           | ..           | 31(3,4)                                       | 6            | 26           | 148          | 68  | 02 05        |
| BJI | 28.8N         | 30               | 0103 | SC   | .2            | 10           | 0            | 01(6)                                         | 6            | 10           | 138          | 24  | 02 23        |
| HYB | 07.6N         | 30               | 0100 | ..   | ..            | ..           | ..           | 31(3,4,5,6,7,8) 01(6)                         | 5            | 5            | 128          | 16  | 01 19        |
| ETT | 00.7S         | 30               | 0100 | ..   | ..            | ..           | ..           |                                               | -            | 5            | 141          | 65  | 31 23        |
| GUA | 04.3N         | 31               | 07-- | ..   | ..            | ..           | ..           | 31(3)                                         | 5            | 10           | 90           | 20  | 01 19        |
| GNA | 43.0S         | 31               | 10-- | ..   | ..            | ..           | ..           | 31(4,5,8) 01(6)                               | 6            | 25           | 110          | 150 | 02 04        |
| CAN | 43.6S         | 31               | 01-- | ..   | ..            | ..           | ..           | 31(4)                                         | 6            | 23           | 143          | 60  | 02 21        |
| KGL | 57.2S         | 31               | 0735 | SC   | 3             | 22           | 14           |                                               | -            | --           | --           | --  | -- --        |

## Stations:

ABG = ALIBAG  
ANN = ANNAMALAINAGAR  
API = APIA  
BJI = BEIJING  
CAN = CANBERRA  
CMO = COLLEGE

ETT = ETAIYAPURAM  
FRD = FREDERICKSBURG  
GNA = GNANGARA  
GUA = GUAM  
HER = HERMANUS

HON = HONOLULU  
HYB = HYDERABAD  
JAI = JAIPUR  
KGL = KERGUELEN  
KRC = KARACHI

PMG = PORT MORESBY  
SHL = SHILLONG  
SIT = SITKA  
TRD = TRIVANDRUM  
UJJ = UJJAIN  
WIT = WITTEVEEN

# CONTENTS

Prompt Reports

Number 583 Part I

## LATE DATA

|                                                                      | Page    |
|----------------------------------------------------------------------|---------|
| COSMIC RAY MEASUREMENTS BY NEUTRON MONITOR                           |         |
| Climax November-December 1992                                        |         |
| Daily Counting Rate .....                                            | 137-138 |
| Chart of Variations .....                                            | 137-138 |
| GEOMAGNETIC INDICES   December 1992 .....                            | 139     |
| Sudden Commencements/Solar Flare Effects July-October 1992 .....     | 140-141 |
| Provisional Values of Hourly Equatorial Dst .....                    | 142-143 |
| PIONEER VENUS SOLAR WIND January-October 1992 .....                  | 144-149 |
| ERRATA: Stanford Sun-As-A-Star Magnetograms October 21-24, 1992 data |         |
| Daily Maps .....                                                     | 150     |
| Synoptic Charts .....                                                | 151-152 |





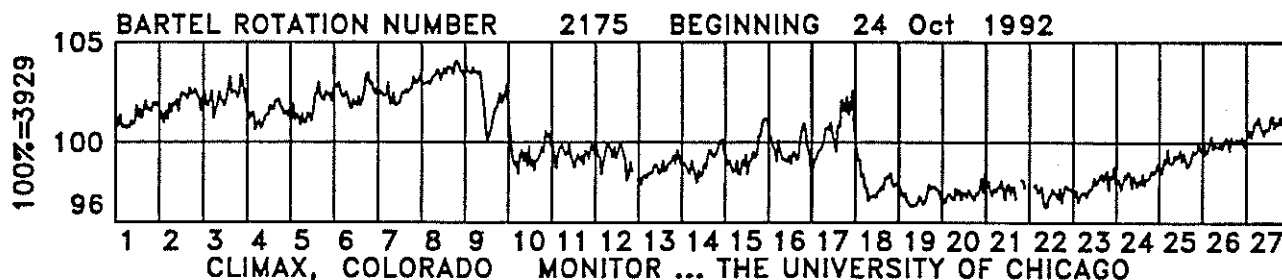
COSMIC RAY INDICES  
(Neutron Monitor)

NOVEMBER 1992

| Day  | THULE<br>Average<br>(cts/h)/100 | DEEP RIVER<br>Average<br>(cts/h)/300 | KIEL<br>Average<br>(cts/h)/100 | CLIMAX<br>Average<br>(cts/h)/100 | TOKYO<br>Average<br>(cts/h)/256 | HUANCAYO<br>Average<br>(cts/h)/100 |
|------|---------------------------------|--------------------------------------|--------------------------------|----------------------------------|---------------------------------|------------------------------------|
| 1    | 4396                            | 6909.2                               | 6064.5                         | 4019.7                           | 3534.9                          |                                    |
| 2    | 4253                            | 6726.9(23)                           | 5909.1                         | 3909.2                           | 3495.0                          |                                    |
| 3    | 4244                            | 6712.2                               | 5919.7                         | 3906.4                           | 3483.2                          |                                    |
| 4    | 4223                            | 6683.7                               | 5881.1                         | 3900.2                           | 3474.1                          |                                    |
| 5    | 4224                            | 6685.7                               | 5848.0                         | 3879.2                           | 3454.2                          |                                    |
| 6    | 4236                            | 6721.9                               | 5871.5                         | 3892.0                           | 3460.7                          |                                    |
| 7    | 4259                            | 6770.2                               | 5932.7                         | 3906.9                           | 3485.7                          |                                    |
| 8    | 4276                            | 6785.1                               | 5946.5                         | 3914.8                           | 3486.9                          |                                    |
| 9    | 4289                            | 6787.1                               | 5964.6                         | 3953.1                           | 3494.0                          |                                    |
| 10   | 4225                            | 6643.1                               | 5911.4                         | 3850.9                           | 3466.8                          |                                    |
| 11   | 4168                            | 6604.7                               | 5869.6                         | 3823.6                           | 3465.4                          |                                    |
| 12   | 4191                            | 6640.5                               | 5888.5                         | 3829.3                           | 3464.7                          |                                    |
| 13   | 4215                            | 6686.9                               | 5908.4                         | 3840.1                           | 3476.0                          |                                    |
| 14   | 4221                            | 6711.7                               | 5895.0                         | 3830.0                           | 3477.7                          |                                    |
| 15   | 4230                            | 6725.7                               | 5905.9                         | 3845.8                           | 3485.5                          |                                    |
| 16   | 4237                            | 6724.3                               | 5942.6                         | 3860.3                           | 3492.6                          |                                    |
| 17   | 4272                            | 6770.2                               | 5983.7                         | 3899.5                           | 3515.7                          |                                    |
| 18   | 4302                            | 6807.5                               | 6000.8                         | 3927.2                           | 3533.9                          |                                    |
| 19   | 4334                            | 6852.8                               | 6040.9                         | 3963.0                           | 3532.4                          |                                    |
| 20   | 4337                            | 6841.5                               | 6025.5                         | 3976.5                           | 3529.1                          |                                    |
| 21   | 4334                            | 6836.1                               | 6036.9                         | 3986.6                           | 3549.0                          |                                    |
| 22   | 4313                            | 6841.1                               | 6014.0                         | 3982.8                           | 3546.4                          |                                    |
| 23   | 4269                            | 6772.2                               | 5933.8                         | 3963.8                           | 3524.0                          |                                    |
| 24   | 4271                            | 6747.4                               | 5936.0                         | 3927.5                           | 3498.8                          |                                    |
| 25   | 4274                            | 6758.6                               | 5955.3                         | 3938.1                           | 3504.3                          |                                    |
| 26   | 4293                            | 6783.4                               | 5992.4                         | 3934.7                           | 3518.9                          |                                    |
| 27   | 4331                            | 6862.0                               | 6016.6                         | 3958.9                           | 3526.2                          |                                    |
| 28   | 4348                            | 6889.6                               | 6046.2                         | 3990.5                           | 3519.8                          |                                    |
| 29   | 4322                            | 6868.4                               | 6005.3                         | 3976.5                           | 3512.7                          |                                    |
| 30   | 4323                            | 6869.8                               | 6012.2                         | 3969.9                           | 3526.2                          |                                    |
| Mean | 4274                            | 6767.4                               | 5955.3                         | 3919.1                           | 3501.2                          |                                    |

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

\* = A&B includes only hours when both A&B sections are available.



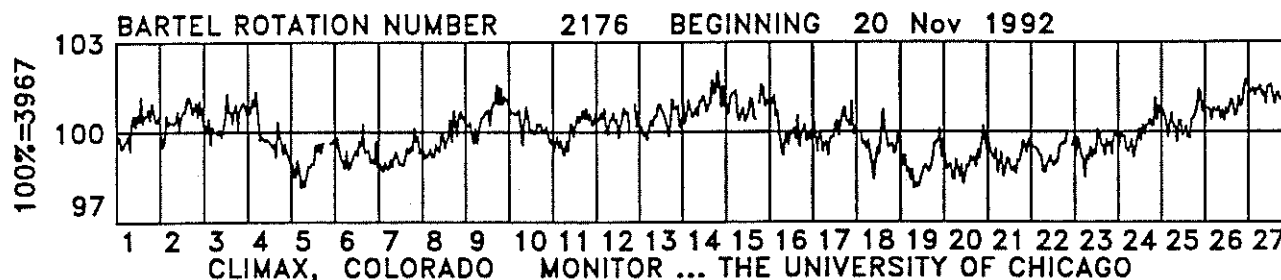
COSMIC RAY INDICES  
(Neutron Monitor)

DECEMBER 1992

| Day  | THULE<br>Average<br>(cts/h)/100 | DEEP RIVER<br>Average<br>(cts/h)/300 | KIEL<br>Average<br>(cts/h)/100 | CLIMAX<br>Average<br>(cts/h)/100 | TOKYO<br>Average<br>(cts/h)/256 | HUANCAYO<br>Average<br>(cts/h)/100 |
|------|---------------------------------|--------------------------------------|--------------------------------|----------------------------------|---------------------------------|------------------------------------|
| 1    | 4316                            | 6880.7                               | 6027.9                         | 3983.8                           | 3529.0                          |                                    |
| 2    | 4348                            | 6913.7                               | 6071.7                         | 3983.0                           | 3540.0                          |                                    |
| 3    | 4342                            | 6925.5                               | 6092.1                         | 4007.1                           | 3552.2                          |                                    |
| 4    | 4342                            | 6909.4                               | 6104.1                         | 4002.5                           | 3537.7                          |                                    |
| 5    | 4310                            | 6875.4                               | 6029.8                         | 3970.2                           | 3526.2                          |                                    |
| 6    | 4328                            | 6858.7                               | 6014.0                         | 3968.9                           | 3521.1                          |                                    |
| 7    | 4322                            | 6879.4(15)                           | 6002.9                         | 3952.2                           | 3504.1                          |                                    |
| 8    | 4275                            | 6818.2(5)                            | 5944.1                         | 3925.1                           | 3493.4                          |                                    |
| 9    | 4285                            | 6803.9                               | 5941.3                         | 3927.6                           | 3512.8                          |                                    |
| 10   | 4306                            | 6820.4                               | 5959.5                         | 3933.6                           | 3520.1                          |                                    |
| 11   | 4315                            | 6821.9                               | 5960.9                         | 3938.8                           | 3528.2                          |                                    |
| 12   | 4311                            | 6810.4                               | 5982.7                         | 3946.4                           | 3519.0                          |                                    |
| 13   | 4327                            | 6833.1                               | 5985.3                         | 3967.2                           | 3516.2                          |                                    |
| 14   | 4335                            | 6840.4                               | 5992.1                         | 3983.0                           | 3536.0                          |                                    |
| 15   | 4350                            | 6856.4                               | 6018.8                         | 4001.2                           | 3541.2                          |                                    |
| 16   | 4371                            | 6889.4                               | 6059.5                         | 4018.2                           | 3551.7                          |                                    |
| 17   | 4368                            | 6903.5                               | 6042.7                         | 4022.5                           | 3565.7                          |                                    |
| 18   | 4345                            | 6904.2                               | 6057.6                         | 4018.1                           | 3570.3                          |                                    |
| 19   | 4372                            | 6903.6                               | 6047.8                         | 4013.4                           | 3551.2                          |                                    |
| 20   | 4326                            | 6869.8                               | 6003.9                         | 3974.4                           | 3535.3                          |                                    |
| 21   | 4330                            | 6858.2                               | 5997.6                         | 3961.2                           | 3525.5                          |                                    |
| 22   | 4343                            | 6858.1                               | 5999.6                         | 3967.8                           | 3530.9                          |                                    |
| 23   | 4358                            | 6887.6(13)                           | 6027.3                         | 3973.5                           | 3541.4                          |                                    |
| 24   | 4386                            | 6945.0                               | 6051.6                         | 3990.5                           | 3556.9                          |                                    |
| 25   | 4409                            | 6967.3                               | 6077.4                         | 4019.7                           | 3567.2                          |                                    |
| 26   | 4422                            | 7033.2                               | 6098.6                         | 4052.8                           | 3565.9                          |                                    |
| 27   | 4439                            | 7022.2                               | 6118.3                         | 4073.5                           | 3561.4                          |                                    |
| 28   | 4370                            | 6903.2                               | 6052.6                         | 4031.6                           | 3539.7                          |                                    |
| 29   | 4346                            | 6874.2                               | 6066.4                         | 4055.4                           | 3540.8                          |                                    |
| 30   | 4343                            | 6825.0                               | 6006.7                         | 3997.9                           | 3512.0                          |                                    |
| 31   | 4335                            | 6791.4                               | 5987.5                         | 3951.8                           | 3502.7                          |                                    |
| Mean | 4344                            | 6880.2                               | 6026.5                         | 3987.4                           | 3535.3                          |                                    |

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

\* = A&B includes only hours when both A&B sections are available.



| Kp Three-Hourly Indices |      |   |   |   |   |   |   |   |     | Km Three-Hourly Indices |     |      |   |   |   |   |   |    |       | aa Provisional |      |       |      |       |      |      |
|-------------------------|------|---|---|---|---|---|---|---|-----|-------------------------|-----|------|---|---|---|---|---|----|-------|----------------|------|-------|------|-------|------|------|
| Day                     | 1    | 2 | 3 | 4 | 5 | 6 | 7 | 8 | Sum | Ap                      | Cp  | 1    | 2 | 3 | 4 | 5 | 6 | 7  | 8     | Am             | N    | S     | M    |       |      |      |
| 1                       | 4    | 3 | 4 | 3 | 3 | 3 | 2 | 3 | 25+ | 17                      | 0.9 | 3    | 2 | 3 | 4 | 3 | 3 | 2  | 3     | 30             | 34   | 25    | 26   | 33    |      |      |
| 2                       | 3    | 3 | 1 | 2 | 2 | 2 | 2 | 2 | 17  | 9                       | 0.5 | 3    | 3 | 2 | 2 | 2 | 2 | 2  | 2     | 18             | 17   | 16    | 18   | 15    |      |      |
| 3                       | 3    | 3 | 2 | 3 | 3 | 4 | 3 | 3 | 24  | 15                      | 0.9 | 2    | 3 | 2 | 3 | 3 | 3 | 3  | 3     | 26             | 31   | 26    | 21   | 37    |      |      |
| 4                       | 3    | 6 | 3 | 2 | 3 | 3 | 3 | 3 | 23+ | 15                      | 0.8 | 2    | 3 | 2 | 3 | 3 | 3 | 3  | 3     | 23             | 34   | 21    | 26   | 29    |      |      |
| 5                       | Q5A  | 4 | 3 | 2 | 1 | 1 | 1 | 0 | 12+ | 7                       | 0.4 | 3    | 2 | 2 | 1 | 1 | 2 | 1  | 0     | 11             | 13   | 14    | 17   | 10 K  |      |      |
| 6                       | Q3K  | 1 | 0 | 0 | 1 | 2 | 3 | 2 | 9   | 5                       | 0.2 | 1    | 0 | 0 | 1 | 2 | 3 | 2  | 1     | 11             | 14   | 15    | 8    | 21    |      |      |
| 7                       |      | 0 | 1 | 3 | 2 | 4 | 1 | 2 | 20  | 16                      | 0.9 | 1    | 1 | 3 | 3 | 5 | 1 | 3  | 5     | 32             | 30   | 45    | 22   | 54    |      |      |
| 8                       | D3   | 5 | 3 | 4 | 4 | 4 | 4 | 5 | 31+ | 26                      | 1.2 | 4    | 3 | 3 | 3 | 4 | 3 | 4  | 4     | 41             | 56   | 39    | 39   | 56    |      |      |
| 9                       | D5*  | 3 | 3 | 3 | 3 | 4 | 4 | 3 | 26+ | 19                      | 1.0 | 3    | 3 | 2 | 3 | 4 | 4 | 3  | 3     | 32             | 36   | 39    | 30   | 45    |      |      |
| 10                      |      | 2 | 2 | 3 | 3 | 2 | 5 | 4 | 24+ | 17                      | 0.9 | 2    | 2 | 2 | 3 | 2 | 4 | 4  | 3     | 28             | 36   | 30    | 22   | 43    |      |      |
| 11                      |      | 3 | 2 | 2 | 2 | 2 | 2 | 2 | 18+ | 10                      | 0.5 | 3    | 2 | 1 | 2 | 2 | 2 | 2  | 2     | 16             | 20   | 15    | 14   | 21    |      |      |
| 12                      | Q7A  | 2 | 2 | 1 | 1 | 3 | 2 | 3 | 16  | 8                       | 0.4 | 2    | 1 | 1 | 1 | 3 | 2 | 2  | 2     | 16             | 18   | 21    | 11   | 28    |      |      |
| 13                      | Q10A | 3 | 3 | 2 | 2 | 2 | 2 | 1 | 16+ | 8                       | 0.5 | 3    | 2 | 1 | 2 | 2 | 2 | 1  | 2     | 16             | 19   | 15    | 20   | 14    |      |      |
| 14                      |      | 3 | 2 | 1 | 1 | 1 | 3 | 3 | 18  | 10                      | 0.6 | 3    | 2 | 1 | 1 | 2 | 3 | 3  | 3     | 18             | 22   | 19    | 15   | 25    |      |      |
| 15                      |      | 4 | 3 | 2 | 2 | 2 | 3 | 4 | 23  | 14                      | 0.8 | 4    | 2 | 2 | 2 | 2 | 2 | 2  | 3     | 24             | 30   | 26    | 27   | 29    |      |      |
| 16                      | Q4K  | 2 | 3 | 2 | 2 | 2 | 1 | 0 | 13  | 6                       | 0.3 | 1    | 2 | 2 | 2 | 1 | 1 | 0  | 1     | 10             | 13   | 14    | 19   | 8     |      |      |
| 17                      | D4   | 0 | 1 | 3 | 3 | 4 | 6 | 5 | 25+ | 25                      | 1.2 | 1    | 1 | 4 | 3 | 4 | 5 | 5  | 3     | 49             | 52   | 61    | 30   | 82    |      |      |
| 18                      |      | 2 | 1 | 1 | 2 | 1 | 2 | 3 | 16  | 9                       | 0.5 | 3    | 1 | 1 | 2 | 1 | 2 | 3  | 3     | 17             | 22   | 16    | 13   | 25    |      |      |
| 19                      |      | 2 | 1 | 1 | 2 | 3 | 2 | 4 | 18  | 11                      | 0.6 | 1    | 1 | 1 | 2 | 3 | 2 | 4  | 4     | 23             | 23   | 23    | 12   | 34    |      |      |
| 20                      |      | 2 | 3 | 4 | 3 | 3 | 3 | 2 | 22  | 13                      | 0.8 | 2    | 2 | 3 | 3 | 3 | 3 | 3  | 2     | 23             | 21   | 24    | 21   | 24    |      |      |
| 21                      |      | 1 | 2 | 2 | 3 | 2 | 4 | 4 | 22  | 14                      | 0.8 | 1    | 2 | 3 | 3 | 2 | 4 | 4  | 3     | 29             | 34   | 27    | 17   | 44    |      |      |
| 22                      | Q6A  | 2 | 1 | 1 | 2 | 2 | 2 | 2 | 16  | 7                       | 0.4 | 2    | 1 | 2 | 2 | 2 | 3 | 2  | 2     | 15             | 18   | 13    | 14   | 17    |      |      |
| 23                      | Q9A  | 1 | 3 | 3 | 2 | 2 | 3 | 2 | 16  | 8                       | 0.4 | 2    | 2 | 2 | 3 | 3 | 2 | 2  | 1     | 16             | 16   | 19    | 17   | 18    |      |      |
| 24                      |      | 1 | 2 | 2 | 2 | 2 | 2 | 3 | 16+ | 8                       | 0.5 | 1    | 2 | 2 | 3 | 2 | 2 | 3  | 1     | 17             | 20   | 14    | 16   | 18    |      |      |
| 25                      | Q2   | 0 | 0 | 1 | 1 | 1 | 2 | 2 | 10  | 5                       | 0.2 | 1    | 1 | 1 | 1 | 1 | 2 | 2  | 2     | 10             | 14   | 8     | 6    | 17 CK |      |      |
| 26                      | Q1   | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 9+  | 4                       | 0.2 | 1    | 1 | 1 | 1 | 1 | 1 | 1  | 1     | 7              | 11   | 7     | 7    | 11 CC |      |      |
| 27                      | Q8A  | 1 | 0 | 1 | 0 | 0 | 0 | 3 | 10  | 8                       | 0.4 | 0    | 1 | 1 | 0 | 0 | 0 | 3  | 5     | 16             | 14   | 22    | 7    | 30    |      |      |
| 28                      | D2   | 3 | 2 | 3 | 2 | 5 | 5 | 6 | 32+ | 39                      | 1.4 | 3    | 1 | 3 | 2 | 5 | 5 | 5  | 6     | 62             | 72   | 56    | 20   | 108   |      |      |
| 29                      | D1   | 6 | 6 | 5 | 4 | 4 | 5 | 4 | 37  | 42                      | 1.5 | 5    | 4 | 4 | 4 | 4 | 5 | 3  | 3     | 59             | 64   | 54    | 62   | 57    |      |      |
| 30                      |      | 3 | 3 | 2 | 3 | 3 | 2 | 1 | 18+ | 10                      | 0.6 | 2    | 2 | 2 | 3 | 3 | 2 | 1  | 2     | 19             | 21   | 19    | 22   | 18    |      |      |
| 31                      |      | 3 | 2 | 3 | 2 | 3 | 3 | 1 | 19  | 11                      | 0.6 | 2    | 2 | 3 | 3 | 3 | 3 | 2  | 1     | 21             | 20   | 24    | 22   | 22    |      |      |
| Mean                    |      |   |   |   |   |   |   |   |     |                         | 13  | 0.67 |   |   |   |   |   |    |       |                |      |       | 23.7 | 27.4  | 24.9 | 26.1 |
| Kn Three-Hourly Indices |      |   |   |   |   |   |   |   |     | Ks Three-Hourly Indices |     |      |   |   |   |   |   |    |       | Prov           |      |       |      |       |      |      |
| Day                     | 1    | 2 | 3 | 4 | 5 | 6 | 7 | 8 | An  | 1                       | 2   | 3    | 4 | 5 | 6 | 7 | 8 | As | Sa    | Ri             | Ra   | Rs    | IMF  |       |      |      |
| 1                       | 3    | 2 | 3 | 4 | 3 | 4 | 2 | 3 | 32  | 3                       | 3   | 3    | 4 | 3 | 3 | 2 | 3 | 29 | 127.1 | 65             | 67   | 75    |      |       |      |      |
| 2                       | 3    | 3 | 2 | 2 | 2 | 2 | 3 | 1 | 17  | 3                       | 3   | 2    | 2 | 2 | 2 | 2 | 2 | 18 | 126.0 | 56             | 61   | 74    |      |       |      |      |
| 3                       | 3    | 3 | 2 | 3 | 3 | 3 | 3 | 3 | 27  | 2                       | 3   | 2    | 3 | 3 | 3 | 3 | 3 | 25 | 121.3 | 59             | 58   | 69    |      |       |      |      |
| 4                       | 2    | 3 | 2 | 2 | 3 | 3 | 3 | 3 | 26  | 2                       | 2   | 2    | 3 | 3 | 2 | 2 | 3 | 20 | 115.9 | 59             | 59   | 63    |      |       |      |      |
| 5                       | 3    | 2 | 2 | 1 | 1 | 2 | 1 | 0 | 13  | 3                       | 2   | 2    | 1 | 1 | 2 | 0 | 0 | 10 | 112.4 | 51             | 49   | 59    |      |       |      |      |
| 6                       | 1    | 0 | 0 | 0 | 2 | 3 | 2 | 1 | 11  | 1                       | 1   | 0    | 1 | 1 | 3 | 2 | 1 | 10 | 115.9 | 48             | 42   | 63    |      |       |      |      |
| 7                       | 0    | 1 | 3 | 3 | 4 | 1 | 3 | 4 | 26  | 1                       | 1   | 3    | 3 | 5 | 2 | 3 | 5 | 38 | 116.1 | 34             | 31   | 63    |      |       |      |      |
| 8                       | 4    | 3 | 3 | 4 | 4 | 4 | 3 | 4 | 41  | 4                       | 4   | 3    | 3 | 4 | 3 | 3 | 4 | 42 | 124.8 | 58             | 69   | 73    |      |       |      |      |
| 9                       | 3    | 2 | 3 | 3 | 4 | 4 | 3 | 3 | 33  | 3                       | 3   | 2    | 3 | 4 | 4 | 3 | 3 | 32 | 129.6 | 96             | 88   | 78    |      |       |      |      |
| 10                      | 2    | 2 | 2 | 3 | 2 | 5 | 3 | 3 | 30  | 2                       | 2   | 2    | 3 | 1 | 4 | 4 | 3 | 26 | 137.5 | 95             | 100  | 87    |      |       |      |      |
| 11                      | 3    | 2 | 1 | 1 | 3 | 2 | 2 | 2 | 16  | 3                       | 2   | 1    | 2 | 2 | 2 | 3 | 2 | 16 | 159.0 | 132            | 126  | 110   |      |       |      |      |
| 12                      | 2    | 1 | 1 | 1 | 3 | 2 | 2 | 3 | 16  | 2                       | 2   | 2    | 1 | 3 | 2 | 2 | 2 | 17 | 163.1 | 109            | 118  | 114   |      |       |      |      |
| 13                      | 3    | 3 | 1 | 2 | 2 | 2 | 1 | 1 | 15  | 3                       | 2   | 2    | 2 | 2 | 2 | 1 | 2 | 16 | 167.6 | 113            | 128  | 119   |      |       |      |      |
| 14                      | 3    | 2 | 1 | 1 | 2 | 3 | 3 | 2 | 16  | 3                       | 2   | 1    | 1 | 2 | 2 | 3 | 3 | 20 | 161.8 | 106            | 118  | 113   |      |       |      |      |
| 15                      | 4    | 2 | 2 | 3 | 3 | 3 | 2 | 3 | 25  | 4                       | 2   | 2    | 2 | 2 | 2 | 3 | 3 | 23 | 150.4 | 112            | 120  | 100   |      |       |      |      |
| 16                      | 1    | 2 | 1 | 2 | 1 | 1 | 0 | 1 | 9   | 2                       | 2   | 2    | 2 | 1 | 1 | 1 | 2 | 11 | 145.8 | 109            | 108  | 95    |      |       |      |      |
| 17                      | 0    | 1 | 3 | 3 | 4 | 5 | 5 | 3 | 44  | 1                       | 1   | 4    | 4 | 4 | 5 | 5 | 3 | 55 | 145.5 | 105            | 104  | 95    |      |       |      |      |
| 18                      | 2    | 1 | 1 | 2 | 1 | 2 | 3 | 3 | 16  | 3                       | 2   | 1    | 2 | 1 | 2 | 3 | 2 | 18 | 144.9 | 98             | 100  | 94    |      |       |      |      |
| 19                      | 1    | 1 | 1 | 2 | 2 | 2 | 4 | 3 | 20  | 2                       | 1   | 2    | 2 | 3 | 2 | 4 | 4 | 27 | 142.2 | 104            | 108  | 92    |      |       |      |      |
| 20                      | 1    | 2 | 3 | 3 | 3 | 3 | 3 | 2 | 26  | 2                       | 2   | 3    | 3 | 3 | 3 | 3 | 2 | 21 | 143.2 | 97             | 106  | 93    |      |       |      |      |
| 21                      | 1    | 2 | 2 | 3 | 3 | 4 | 4 | 3 | 29  | 2                       | 2   | 3    | 3 | 2 | 4 | 4 | 3 | 28 | 140.8 | 84             | 92   | 90    |      |       |      |      |
| 22                      | 1    | 1 | 2 | 2 | 3 | 2 | 2 | 1 | 14  | 2                       | 1   | 2    | 2 | 3 | 2 | 2 | 1 | 15 | 137.6 | 91             | 88   | 87    |      |       |      |      |
| 23                      | 1    | 2 | 2 | 3 | 3 | 2 | 2 | 1 | 16  | 2                       | 2   | 2    | 3 | 3 | 2 | 2 | 1 | 17 | 139.3 | 84             | 80   | 88    |      |       |      |      |
| 24                      | 1    | 2 | 1 | 3 | 2 | 2 | 3 | 1 | 16  | 1                       | 2   | 2    | 3 | 3 | 2 | 3 | 2 | 17 | 132.0 | 82             | 82   | 81    |      |       |      |      |
| 25                      | 0    | 0 | 1 | 1 | 1 | 2 | 2 | 2 | 10  | 1                       | 1   | 1    | 2 | 1 | 2 | 2 | 2 | 11 | 132.0 | 81             | 81   | 81    |      |       |      |      |
| 26                      | 1    | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 8   | 1                       | 1   | 1    | 1 | 1 | 1 | 1 | 1 | 7  | 127.2 | 95             | 90   | 75    |      |       |      |      |
| 27                      | 0    | 1 | 1 | 0 | 0 | 1 | 3 | 4 | 12  | 1                       | 0   | 1    | 1 | 0 | 0 | 3 | 5 | 20 | 121.2 | 73             | 82   | 69    |      |       |      |      |
| 28                      | 3    | 1 | 3 | 2 | 5 | 5 | 6 | 6 | 65  | 3                       | 1   | 2    | 3 | 5 | 5 | 5 | 6 | 60 | 123.4 | 80             | 80   | 71    |      |       |      |      |
| 29                      | 5    | 5 | 4 | 4 | 4 | 5 | 3 | 3 | 61  | 5                       | 4   | 5    | 4 | 4 | 5 | 3 | 3 | 56 | 121.3 | 78             | 78   | 69    |      |       |      |      |
| 30                      | 2    | 2 | 2 | 3 | 3 | 3 | 1 | 1 | 19  | 3                       | 2   | 2    | 3 | 3 | 2 | 1 | 2 | 18 | 121.9 | 69             | 67   | 70    |      |       |      |      |
| 31                      | 2    | 2 | 3 | 3 | 4 | 3 | 1 | 1 | 23  | 2                       | 2   | 2    | 3 | 3 | 3 | 2 | 1 | 20 | 125.8 | 59             | 54   | 74    |      |       |      |      |
| Mean                    | 23.6 |   |   |   |   |   |   |   |     |                         |     |      |   |   |   |   |   |    |       |                | 24.0 | 134.6 | 83.3 | 85.0  | 83.4 |      |

140  
Late  
Jul-Aug 92

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

JULY 1992

| Storm Sudden Commencements (ssc) |      |                         | Solar Flare Effects (sfe) |           |                                                                  |
|----------------------------------|------|-------------------------|---------------------------|-----------|------------------------------------------------------------------|
| Day                              | Time | Quality: Station Group* | Day                       | Begin-End | Station(s)                                                       |
|                                  |      |                         | 01                        | 1039-1110 | NGK (ssc: WNG BDV TEN)                                           |
|                                  |      |                         | 05                        | 2248-2305 | TEN                                                              |
|                                  |      |                         | 07                        | 1607-1618 | LER ESK HAD                                                      |
|                                  |      |                         | 08                        | 0944-1020 | (LER ESK WNG HAD BDV CLF<br>NAG EBR SPT TEN HYB HER<br>ssc: QUE) |
|                                  |      |                         | 09                        | 0353-0407 | HTY                                                              |
|                                  |      |                         | 09                        | 1608-1629 | LER ESK HAD                                                      |
|                                  |      |                         | 14                        | 1218-1240 | WNG BDV                                                          |
|                                  |      |                         | 16                        | 1655-1710 | BDV TEN                                                          |
|                                  |      |                         | 18                        | 1339-1351 | BDV                                                              |
|                                  |      |                         | 21                        | 1801-1816 | QUE                                                              |
|                                  |      |                         | 23                        | 0308-0315 | LNP                                                              |
|                                  |      |                         | 28                        | 1110-1125 | CLF AQU                                                          |

REPORTING ONSERVATORIES (up to the 3rd of September 1992):

SOD COL DOB NUR LER ESK WNG NGK HAD BDV CLF HRB NAG MMB  
AQU EBR COI BJI SPT FRD KAK HTY KNY QUE TEN LNP HYB ETT  
GNA HER CNB AMS CZT KGL DUM

AUGUST 1992

| Storm Sudden Commencements (ssc) |      |                                                                                                                                                     | Solar Flare Effects (sfe) |           |                         |
|----------------------------------|------|-----------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|-----------|-------------------------|
| Day                              | Time | Quality: Station Group*                                                                                                                             | Day                       | Begin-End | Station(s)              |
| 04                               | 0109 | B: WNG DOU COI ETT<br>C: BDV SPT TEN HYB                                                                                                            | 03                        | 0629-0643 | HTY                     |
|                                  |      |                                                                                                                                                     | 03                        | 0700-0745 | MMB KAK HTY KNY LNP ETT |
|                                  |      |                                                                                                                                                     | 06                        | 0104-0118 | LNP                     |
| 04                               | 1408 | A: WNG* NAG* AQU COI BJI SPT TEN HER<br>B: SOD* DOU BDV* CLF HRB GCK MMB EBR*<br>KAK KNY QUE LNP HYB ETT AMS CZT<br>KGL<br>C: LER* ESK* NGK HAD FRD | 11                        | 1347-1357 | BDV                     |
|                                  |      |                                                                                                                                                     | 13                        | 0010-0012 | LNP                     |
|                                  |      |                                                                                                                                                     | 15                        | 1110-1119 | BDV                     |
|                                  |      |                                                                                                                                                     | 20                        | 0904-0950 | WNG BDV (ssc: SPT)      |
|                                  |      |                                                                                                                                                     | 20                        | 1429-1459 | BDV                     |
|                                  |      |                                                                                                                                                     | 21                        | 0003-0005 | LNP                     |
| 06                               | 0424 | A: LNP ETT<br>B: LER* ESK* WNG* HAD* DOU HRB COI*<br>BJI SPT* QUE GNA<br>C: NGK* BDV CLF EBR* KGL                                                   | 26                        | 0151-0157 | LNP                     |
|                                  |      |                                                                                                                                                     | 27                        | 1737-1744 | TEN                     |
| 06                               | 0517 | B: DOU<br>si: LER* ESK* HAD* HRB                                                                                                                    |                           |           |                         |
| 13                               | 1514 | A: DOB NGK* DOU CLF* COI* BJI* LNP<br>B: SOD* NUR* WNG* BDV* HRB* NAG* GCK*<br>AQU* EBR* SPT* HYD ETT CNB*<br>C: QUE CZT*<br>si: LER* ESK* HAD*     |                           |           |                         |
| 19                               | 2223 | A: COI<br>B: FRD*<br>C: BDV CLF GCK EBR* BJI TEN LNP DUM*                                                                                           |                           |           |                         |

REPORTING ONSERVATORIES (up to the 1st of October 1992):

SOD DOB NUR LER ESK WNG NGK HAD DOU BDV CLF HRB NAG GCK MMB  
AQU EBR COI BJI SPT FRD KAK HTY KNY QUE TEN LNP HYB ETT  
GNA HER CNB AMS CZT KGL DUM

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, ordinary, but unmistakable; and C means very poor, doubtful.

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

SEPTEMBER 1992

| Storm Sudden Commencements (ssc) |      |          |                                         |             | Solar Flare Effects (sfe) |           |                                  |
|----------------------------------|------|----------|-----------------------------------------|-------------|---------------------------|-----------|----------------------------------|
| Day                              | Time | Quality: | Station Group*                          |             | Day                       | Begin-End | Station(s)                       |
| 02                               | 1039 | B:       | WNG                                     | HRB COI     | 06                        | 0509-0530 | KAK KNY LNP                      |
|                                  |      | C:       | BDV                                     | CLF SPT QUE | 07                        | 0345-0435 | MMB KAK KNY                      |
|                                  |      |          |                                         |             | 07                        | 0631-0704 | KAK KNY LNP                      |
| 09                               | 0139 | A:       | DOB* WNG* HRB* NAG* GCK* AQU* EBR* COI* |             | 08                        | 1205-1215 | BDV                              |
|                                  |      |          | BJI SPT* FRD* HTY* KNY* TEN* LNP ETT    |             | 11                        | 0604-0617 | LNP                              |
|                                  |      |          | HER CZT KGL DUM                         |             | 13                        | 0559-0616 | HYB ETT                          |
|                                  |      | B:       | NUR LER ESK NGK* HAD BDV* CLF*          |             | 22                        | 0210-0309 | TEN                              |
|                                  |      |          | MMB* KAK* CNB* AMS                      |             | 22                        | 0630-0651 | BDV                              |
|                                  |      | C:       | QUE HYB                                 |             | 23                        | 1036-1112 | AQU                              |
|                                  |      |          |                                         |             | 28                        | 0636-0648 | HYB ETT                          |
| 10                               | 0125 | A:       | AQU                                     | COI ETT     | 28                        | 1203-1216 | CLF NAG (SSC: WNG* BDV* SPT KGL) |
|                                  |      | B:       | LNP                                     | HYB         |                           |           |                                  |
|                                  |      | C:       | SPT                                     |             |                           |           |                                  |
| 17                               | 0429 | B:       | HRB*                                    | QUE         |                           |           |                                  |
|                                  |      | C:       | NGK                                     | SPT AMS     |                           |           |                                  |

REPORTING OBSERVATORIES (up to the 2nd of November 1992):

SOD DOB NUR LER ESK WNG NGK HAD BDV CLF HRB NAG GCK MMB  
AQU EBR COI BJI SPT FRD KAK HTY KNY QUE TEN LNP HYB ETT  
HER CNB AMS CZT KGL DUM

OCTOBER 1992

| Storm Sudden Commencements (ssc) |      |          |                                       |             | Solar Flare Effects (sfe) |           |                     |
|----------------------------------|------|----------|---------------------------------------|-------------|---------------------------|-----------|---------------------|
| Day                              | Time | Quality: | Station Group*                        |             | Day                       | Begin-End | Station(s)          |
| 08                               | 1839 | A:       | COI                                   | BJI PEN TEN | 02                        | 0748-0758 | HYB ETT             |
|                                  |      | B:       | LER* ESK* WNG HAD* HRB* NAG* EBR* SPT |             | 04                        | 0625-0658 | NGK TEN             |
|                                  |      |          | LNP AMS KGL                           |             | 05                        | 0925-0945 | BDV                 |
|                                  |      | C:       | NGK BDV* CLF* GCK MMB FRD* KAK HTY    |             | 07                        | 0500-0526 | MMB KAK HTY KNY LNP |
|                                  |      |          | KNY QUE HYB ETT HER CNB*              |             |                           |           | ETT                 |
| 09                               | 0912 | A:       | HRB                                   |             | 08                        | 0432-0445 | HTY                 |
|                                  |      | B:       | WNG NGK* BDV* CLF DUM                 |             | 10                        | 0718-0732 | HYB                 |
|                                  |      | C:       | DOB LER* ESK* HAD* NAG GCK AMS        |             | 13                        | 0105-0245 | TEN                 |
|                                  |      | si:      | EBR                                   |             | 20                        | 0911-0915 | BDV                 |
|                                  |      |          |                                       |             | 23                        | 0054-0118 | MMB KAK HTY KNY     |
|                                  |      |          |                                       |             | 29                        | 0731-0738 | BDV                 |
| 26                               | 0001 | B:       | WNG                                   | HRB         | 30                        | 2145-2250 | TEN (b: CLF HRB)    |
|                                  |      | C:       | BDV                                   | COI HYB ETT |                           |           |                     |

REPORTING OBSERVATORIES (up to the 1st of December 1992):

SOD DOB NUR LER ESK WNG NGK HAD BDV CLF HRB NAG GCK MMB  
EBR COI BJI SPT FRD PEN KAK HTY KNY QUE TEN LNP HYB ETT  
GNA HER CNB AMS CZT KGL DUM

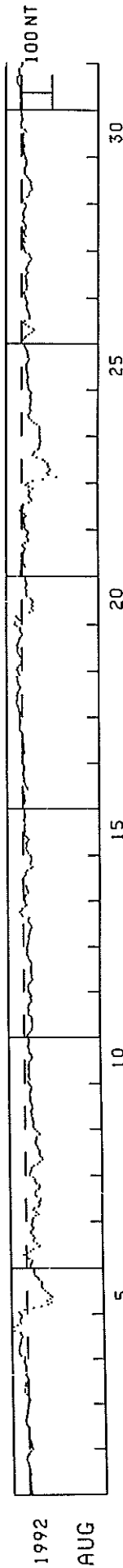
Three-letter codes identify each observatory. Reporting stations have been grouped by the character of the observed event. The letter A means very remarkable; B means fair, ordinary, but unmistakable; and C means very poor, doubtful.

142  
Late  
Aug 92

## HOURLY EQUATORIAL DST VALUES (PROVISIONAL)

AUGUST 1992

| DAY | UNIT=NT |     |      |     |     |     |     |     |     |     |     |     | U.T. |     |     |     |     |     |     |     |     |     |     |     |
|-----|---------|-----|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|     | 1       | 2   | 3    | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13   | 14  | 15  | 16  | 17  | 18  | 19  | 20  | 21  | 22  | 23  | 24  |
| 1   | -7      | -5  | -2   | -4  | -1  | -1  | -1  | 1   | 1   | -1  | -3  | -2  | 0    | 0   | 1   | 4   | 5   | 8   | 9   | 7   | 4   | 0   | -6  | -12 |
| 2   | -9      | -8  | -7   | -6  | -1  | 0   | 1   | 1   | 2   | -1  | -1  | 4   | 6    | 9   | 10  | 9   | 7   | 7   | 4   | 4   | 4   | 2   | 2   | 0   |
| 3   | -3      | -6  | -4   | 0   | 7   | 12  | 12  | 11  | 9   | 10  | 8   | 2   | 0    | 2   | 5   | 6   | 6   | 6   | 6   | 7   | 8   | 11  | 11  | 10  |
| 4   | 10      | 22  | 27   | 27  | 28  | 27  | 25  | 24  | 22  | 22  | 19  | 15  | 21   | 24  | 43  | 52  | 44  | 32  | 21  | 24  | 23  | 18  | 19  | 22  |
| 5   | 27      | 9   | -21  | -45 | -68 | -80 | -65 | -74 | -81 | -75 | -68 | -59 | -52  | -48 | -48 | -49 | -47 | -39 | -35 | -29 | -24 | -24 | -24 | -15 |
| 6   | -12     | -14 | -17  | -18 | -9  | -2  | 8   | -4  | -13 | -22 | -40 | -44 | -34  | -24 | -23 | -27 | -22 | -15 | -16 | -20 | -23 | -19 | -18 | -21 |
| 7   | -21     | -24 | -30  | -40 | -34 | -24 | -28 | -41 | -45 | -43 | -48 | -49 | -35  | -30 | -30 | -34 | -42 | -45 | -44 | -36 | -30 | -31 | -23 | -14 |
| 8   | -13     | -17 | -19  | -20 | -27 | -39 | -45 | -56 | -54 | -47 | -45 | -45 | -41  | -39 | -36 | -36 | -32 | -34 | -37 | -37 | -46 | -45 | -39 | -33 |
| 9   | -28     | -25 | -27  | -27 | -24 | -23 | -21 | -22 | -18 | -20 | -23 | -23 | -22  | -19 | -17 | -17 | -17 | -16 | -17 | -18 | -21 | -22 | -17 | -13 |
| 10  | -10     | -17 | -14  | -13 | -14 | -16 | -13 | -14 | -13 | -13 | -15 | -21 | -23  | -24 | -20 | -16 | -15 | -14 | -11 | -14 | -14 | -15 | -14 | -11 |
| 11  | -11     | -14 | -19  | -24 | -25 | -28 | -28 | -25 | -25 | -25 | -22 | -15 | -14  | -15 | -15 | -13 | -16 | -18 | -23 | -23 | -20 | -23 | -21 | -15 |
| 12  | -16     | -14 | -13  | -16 | -21 | -25 | -29 | -25 | -25 | -24 | -23 | -23 | -24  | -26 | -25 | -22 | -18 | -16 | -13 | -11 | -12 | -12 | -11 | -12 |
| 13  | -14     | -15 | -15  | -18 | -17 | -17 | -20 | -22 | -24 | -27 | -25 | -21 | -15  | -16 | -18 | 3   | 7   | 11  | 7   | 3   | -5  | -10 | -6  | -5  |
| 14  | -3      | -6  | -8   | -16 | -16 | -12 | -11 | -9  | -2  | 1   | 3   | 0   | -6   | -8  | -8  | -13 | -26 | -30 | -24 | -23 | -25 | -27 | -27 | -23 |
| 15  | -17     | -13 | -11  | -11 | -12 | -11 | -15 | -19 | -14 | -8  | -5  | -7  | -6   | -6  | -6  | -5  | -5  | -4  | -5  | -7  | -7  | -5  | -6  | -3  |
| 16  | 0       | -2  | -5   | -9  | -7  | -5  | -5  | 1   | -4  | -16 | -15 | -10 | -8   | -5  | -6  | -5  | -3  | -1  | -2  | -5  | -5  | -5  | -3  | 2   |
| 17  | 0       | 0   | 0    | -1  | -7  | -7  | -4  | -4  | -4  | -3  | -1  | -1  | 0    | 0   | 0   | 4   | 8   | 8   | 8   | 9   | 7   | 7   | 8   | 9   |
| 18  | 9       | 9   | 10   | 10  | 14  | 15  | 19  | 18  | 16  | 15  | 16  | 15  | 13   | 10  | 6   | 7   | 11  | 14  | 15  | 15  | 16  | 9   | 11  | 13  |
| 19  | 17      | 14  | 9    | 3   | 1   | 0   | 4   | 8   | 12  | 15  | 15  | 14  | 16   | 14  | 10  | 8   | 6   | 2   | -1  | 3   | 6   | 5   | 16  | 23  |
| 20  | 22      | 9   | 13   | 18  | 4   | -24 | -35 | -30 | -35 | -30 | -35 | -33 | -28  | -16 | -14 | -14 | -15 | -11 | -14 | -16 | -13 | -12 | -10 | -2  |
| 21  | 5       | 4   | 3    | 1   | -10 | -8  | -4  | -4  | -2  | -4  | -2  | -6  | -9   | -10 | -5  | -2  | -11 | -20 | -20 | -15 | -17 | -21 | -18 | -12 |
| 22  | -9      | -10 | -7   | -7  | -6  | -8  | -13 | -9  | 4   | 6   | -3  | -3  | -6   | -24 | -32 | -29 | -24 | -24 | -25 | -24 | -35 | -22 | -14 | -20 |
| 23  | -36     | -69 | -113 | -88 | -83 | -90 | -93 | -86 | -87 | -84 | -76 | -69 | -50  | -36 | -39 | -43 | -52 | -58 | -60 | -59 | -62 | -61 | -60 | -59 |
| 24  | -58     | -60 | -58  | -59 | -57 | -49 | -40 | -33 | -26 | -22 | -22 | -28 | -30  | -28 | -28 | -29 | -29 | -30 | -30 | -28 | -29 | -32 | -29 | -24 |
| 25  | -21     | -22 | -19  | -19 | -19 | -20 | -20 | -19 | -19 | -16 | -16 | -15 | -16  | -19 | -22 | -25 | -21 | -21 | -18 | -19 | -16 | -12 | -8  | -2  |
| 26  | 0       | -5  | -10  | -13 | -23 | -34 | -41 | -38 | -22 | -13 | -7  | -11 | -26  | -25 | -26 | -24 | -21 | -18 | -17 | -15 | -18 | -17 | -14 | -14 |
| 27  | -10     | -9  | -9   | -15 | -17 | -18 | -16 | -15 | -15 | -13 | -12 | -17 | -21  | -16 | -15 | -19 | -22 | -23 | -29 | -32 | -27 | -24 | -14 | -10 |
| 28  | -8      | -7  | -4   | -11 | -5  | -7  | -13 | -11 | -9  | -9  | -13 | -13 | -12  | -8  | -4  | -7  | -9  | -6  | -6  | -8  | -11 | -13 | -13 | -11 |
| 29  | -4      | -4  | -17  | -23 | -23 | -27 | -34 | -32 | -31 | -29 | -31 | -26 | -21  | -15 | -10 | -10 | -11 | -11 | -14 | -15 | -15 | -17 | -13 | -12 |
| 30  | -9      | -8  | -7   | -6  | -8  | -8  | -5  | -5  | -4  | -5  | -6  | -7  | -15  | -10 | 0   | 1   | 2   | 0   | -3  | -2  | 0   | -1  | 2   | 2   |
| 31  | 3       | 5   | 3    | 2   | 0   | 4   | 5   | 4   | 3   | 3   | 4   | 6   | 10   | 13  | 13  | 13  | 11  | 7   | 7   | 7   | 6   | 0   | -4  | -4  |



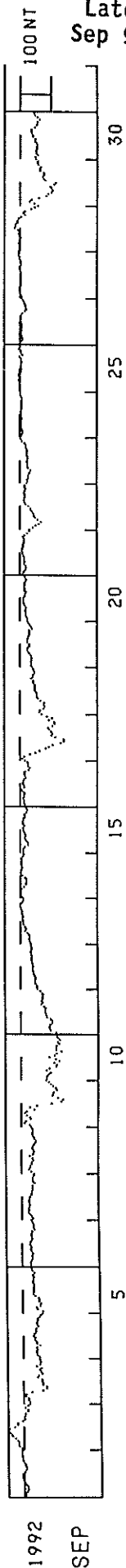
Note: The baselines for the observatories were adjusted for secular change. Therefore there is a small discontinuity in the Provisional Dst values between the last hour of July 1992 and the first hour of August 1992.



## HOURLY EQUATORIAL DST VALUES(PROVISIONAL)

SEPTEMBER 1992

| DAY | UNIT=NT |     |     |     |     |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      | U.T. |
|-----|---------|-----|-----|-----|-----|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
|     | 1       | 2   | 3   | 4   | 5   | 6    | 7    | 8    | 9    | 10   | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   | 21   | 22   | 23   | 24   |      |
| 1   | -6      | -6  | -11 | -14 | -12 | -10  | -5   | 0    | 4    | 5    | 5    | 3    | -1   | -7   | -8   | -6   | -4   | 1    | 4    | 5    | 6    | 7    | 6    | 5    |      |
| 2   | 7       | 15  | 16  | 16  | 21  | 27   | 35   | 39   | 44   | 50   | 45   | 29   | 20   | 21   | 4    | -3   | -2   | -5   | -5   | -13  | -13  | -6   | -14  | -21  |      |
| 3   | -20     | -17 | -15 | -9  | -9  | -27  | -62  | -75  | -74  | -62  | -63  | -60  | -59  | -45  | -50  | -61  | -58  | -53  | -57  | -43  | -55  | -56  | -54  | -53  |      |
| 4   | -53     | -46 | -44 | -42 | -45 | -44  | -54  | -45  | -42  | -38  | -39  | -33  | -36  | -40  | -41  | -43  | -49  | -45  | -44  | -48  | -48  | -54  | -58  | -64  |      |
| 5   | -65     | -48 | -44 | -56 | -60 | -52  | -54  | -51  | -41  | -34  | -36  | -36  | -36  | -38  | -38  | -33  | -34  | -35  | -36  | -34  | -39  | -33  | -29  | -25  |      |
| 6   | -27     | -28 | -29 | -32 | -34 | -33  | -35  | -31  | -28  | -30  | -27  | -25  | -28  | -32  | -32  | -31  | -31  | -33  | -40  | -38  | -37  | -38  | -34  | -31  |      |
| 7   | -35     | -32 | -27 | -22 | -23 | -22  | -25  | -27  | -24  | -23  | -25  | -28  | -33  | -32  | -34  | -36  | -36  | -36  | -42  | -38  | -36  | -36  | -40  | -40  |      |
| 8   | -31     | -24 | -28 | -29 | -34 | -34  | -39  | -36  | -27  | -38  | -41  | -39  | -36  | -35  | -40  | -46  | -47  | -42  | -39  | -35  | -35  | -37  | -36  | -33  |      |
| 9   | -27     | -11 | -15 | -31 | -29 | -18  | -12  | -18  | -43  | -29  | -51  | -99  | -130 | -135 | -119 | -101 | -103 | -107 | -115 | -112 | -103 | -96  | -90  | -82  |      |
| 10  | -83     | -84 | -90 | -97 | -83 | -92  | -114 | -115 | -106 | -123 | -112 | -91  | -108 | -115 | -130 | -113 | -113 | -116 | -124 | -119 | -125 | -120 | -116 | -117 |      |
| 11  | -114    | -97 | -93 | -94 | -95 | -102 | -102 | -96  | -85  | -83  | -81  | -78  | -80  | -80  | -74  | -67  | -71  | -68  | -72  | -72  | -73  | -70  | -62  | -55  |      |
| 12  | -52     | -53 | -48 | -46 | -47 | -47  | -46  | -42  | -40  | -39  | -39  | -40  | -39  | -37  | -35  | -36  | -38  | -36  | -34  | -32  | -35  | -36  | -34  | -34  |      |
| 13  | -31     | -29 | -29 | -29 | -27 | -22  | -16  | -18  | -15  | -11  | -10  | -8   | -7   | -8   | -7   | -6   | -6   | -1   | -1   | 1    | -1   | -7   | -11  | -9   |      |
| 14  | -4      | -2  | -2  | -2  | -6  | -12  | -18  | -19  | -20  | -21  | -16  | -7   | -1   | -2   | -3   | -7   | -6   | -4   | -3   | -5   | -4   | -8   | -12  | -10  |      |
| 15  | -11     | -11 | -15 | -25 | -25 | -20  | -17  | -16  | -19  | -15  | -12  | -11  | -9   | -13  | -10  | -7   | -11  | -12  | -15  | -14  | -21  | -24  | -20  | -16  |      |
| 16  | -15     | -12 | -13 | -11 | -12 | -13  | -15  | -9   | -6   | -13  | -13  | -9   | -10  | -13  | -18  | -15  | -13  | -15  | -28  | -32  | -26  | -26  | -23  | -16  |      |
| 17  | -8      | -13 | -32 | -49 | -63 | -83  | -93  | -105 | -130 | -141 | -141 | -113 | -102 | -105 | -100 | -94  | -90  | -105 | -112 | -111 | -94  | -104 | -86  | -69  |      |
| 18  | -63     | -64 | -76 | -80 | -76 | -78  | -67  | -58  | -55  | -54  | -52  | -48  | -47  | -47  | -47  | -42  | -43  | -36  | -41  | -43  | -48  | -46  | -42  | -39  |      |
| 19  | -36     | -38 | -36 | -38 | -37 | -35  | -31  | -27  | -24  | -26  | -30  | -31  | -24  | -24  | -26  | -27  | -31  | -30  | -31  | -39  | -35  | -31  | -28  | -24  |      |
| 20  | -23     | -21 | -18 | -18 | -17 | -19  | -21  | -16  | -12  | -12  | -10  | -12  | -15  | -17  | -20  | -16  | -16  | -14  | -16  | -16  | -20  | -20  | -15  | -12  |      |
| 21  | -11     | -14 | -18 | -21 | -18 | -14  | -16  | -13  | -14  | -12  | -10  | -8   | -7   | -8   | -11  | -11  | -14  | -14  | -13  | -11  | -16  | -23  | -31  | -31  |      |
| 22  | -42     | -51 | -61 | -68 | -58 | -50  | -46  | -44  | -39  | -36  | -34  | -28  | -19  | -16  | -14  | -14  | -17  | -15  | -13  | -15  | -18  | -15  | -15  | -22  |      |
| 23  | -25     | -23 | -28 | -28 | -31 | -32  | -35  | -26  | -23  | -26  | -22  | -24  | -25  | -25  | -22  | -22  | -23  | -22  | -19  | -18  | -15  | -7   | -3   | 0    |      |
| 24  | -5      | -8  | -10 | -9  | -6  | -3   | -4   | -4   | -5   | -7   | -4   | -4   | -3   | -4   | -6   | -6   | -6   | -5   | -5   | -7   | -5   | -2   | 0    | -2   |      |
| 25  | 0       | 1   | 1   | 1   | 3   | 3    | 2    | 3    | 3    | -4   | -6   | -6   | -4   | -4   | -6   | -4   | -3   | 1    | -8   | -4   | -1   | 4    | 0    | -3   |      |
| 26  | -2      | -7  | -11 | -7  | -5  | -4   | -5   | -6   | -7   | -7   | -5   | -2   | -2   | -2   | -3   | -9   | -16  | -20  | -19  | -17  | -16  | -12  | -9   | -6   |      |
| 27  | -5      | -1  | 0   | 1   | 1   | -2   | -4   | -3   | -3   | -4   | -3   | -3   | -3   | 0    | 1    | 0    | -3   | -2   | -2   | 1    | 2    | 5    | 4    | 3    |      |
| 28  | 2       | 3   | 3   | 5   | 3   | 0    | -3   | 2    | 5    | 3    | 9    | 19   | 15   | 13   | 9    | 8    | 3    | -3   | -15  | -11  | -16  | -35  | -48  | -58  |      |
| 29  | -45     | -30 | -38 | -61 | -85 | -91  | -102 | -107 | -101 | -98  | -111 | -116 | -81  | -76  | -73  | -78  | -77  | -65  | -64  | -68  | -60  | -56  | -57  | -51  |      |
| 30  | -50     | -58 | -52 | -51 | -55 | -54  | -56  | -52  | -47  | -49  | -42  | -41  | -38  | -35  | -35  | -48  | -54  | -56  | -56  | -62  | -56  | -48  | -44  | -49  |      |



1992

SEP

143  
Late  
Sep 92

144  
Late  
Jan 92

| Pioneer Venus |      |       |          |        |               |
|---------------|------|-------|----------|--------|---------------|
| DATE          | TIME | ESV   | Uh+      | Nh+    | Th+           |
| JAN92         | (UT) | (deg) | (km/sec) | (N/cc) | (x10E6 deg/K) |
| 1             | —    | 80.46 |          |        |               |
| 2             | 1159 |       | 348.     | 29.9   | .055          |
| 3             | —    |       |          |        |               |
| 4             | 1159 |       | 380.     | 5.13   | .185          |
| 5             | —    |       |          |        |               |
| 6             | —    |       |          |        |               |
| 7             | —    |       |          |        |               |
| 8             | 1205 |       | 477.     | 4.13   | .322          |
| 9             | —    |       |          |        |               |
| 10            | —    |       |          |        |               |
| 11            | —    |       |          |        |               |
| 12            | 1203 |       | 511.     | 14.9   | .333          |
| 13            | —    |       |          |        |               |
| 14            | —    |       |          |        |               |
| 15            | 1202 | 88.79 | 331.     | 17.9   | .030          |
| 16            | —    |       |          |        |               |
| 17            | 1201 |       | 334.     | 40.4   | .027          |
| 18            | —    |       |          |        |               |
| 19            | —    |       |          |        |               |
| 20            | —    |       |          |        |               |
| 21            | —    |       |          |        |               |
| 22            | —    |       |          |        |               |
| 23            | —    |       |          |        |               |
| 24            | —    |       |          |        |               |
| 25            | —    |       |          |        |               |
| 26            | —    |       |          |        |               |
| 27            | 1203 |       | 577.     | 13.9   | .423          |
| 28            | —    |       |          |        |               |
| 29            | 1204 |       | 370.     | 53.7   | .013          |
| 30            | 1200 |       | 405.     | 10.9   | .083          |
| 31            | 1220 | 98.17 | 390.     | 21.5   | .200          |

| Pioneer Venus |      |       |          |        |               |
|---------------|------|-------|----------|--------|---------------|
| DATE          | TIME | ESV   | Uh+      | Nh+    | Th+           |
| FEB92         | (UT) | (deg) | (km/sec) | (N/cc) | (x10E6 deg/K) |
| 1             | —    | 98.75 |          |        |               |
| 2             | —    |       |          |        |               |
| 3             | —    |       |          |        |               |
| 4             | —    |       |          |        |               |
| 5             | 1210 |       | 355.     | 32.5   | .050          |
| 6             | 1156 |       | 311.     | 27.9   | .138          |
| 7             | 1155 |       | 345.     | 27.2   | .051          |
| 8             | —    |       |          |        |               |
| 9             | —    |       |          |        |               |
| 10            | 1157 |       | 414.     | 82.4   | .026          |
| 11            | 1159 |       | 316.     | 50.7   | .047          |
| 12            | 1202 |       | 387.     | 18.0   | .149          |
| 13            | 1155 |       | 361.     | 36.6   | .224          |
| 14            | —    |       |          |        |               |
| 15            | —    | 106.9 |          |        |               |
| 16            | 1206 |       | 343.     | 28.7   | .054          |
| 17            | —    |       |          |        |               |
| 18            | 1202 |       | 457.     | 23.5   | .270          |
| 19            | 1200 |       | 404.     | 35.1   | .297          |
| 20            | 1202 |       | 470.     | 18.0   | .347          |
| 21            | —    |       |          |        |               |
| 22            | —    |       |          |        |               |
| 23            | 1156 |       | 439.     | 10.4   | .064          |
| 24            | 1153 |       | 516.     | 29.3   | .116          |
| 25            | —    |       |          |        |               |
| 26            | —    |       |          |        |               |
| 27            | —    |       |          |        |               |
| 28            | —    |       |          |        |               |
| 29            | 1201 | 114.4 | 523.     | 38.6   | .158          |

| Pioneer Venus |      |       |          |        |               |
|---------------|------|-------|----------|--------|---------------|
| DATE          | TIME | ESV   | Uh+      | Nh+    | Th+           |
| MAR92         | (UT) | (deg) | (km/sec) | (N/cc) | (x10E6 deg/K) |
| 1             | 1204 | 115.5 | 362.     | 25.1   | .028          |
| 2             | —    |       |          |        |               |
| 3             | —    |       |          |        |               |
| 4             | —    |       |          |        |               |
| 5             | —    |       |          |        |               |
| 6             | 1205 |       | 489.     | 12.0   | .257          |
| 7             | 1200 |       | 456.     | 16.0   | .259          |
| 8             | —    |       |          |        |               |
| 9             | —    |       |          |        |               |
| 10            | 1200 |       | 396.     | 96.1   | .018          |
| 11            | 2224 |       | 402.     | 29.7   | .165          |
| 12            | —    |       |          |        |               |
| 13            | 2329 |       | 408.     | 21.9   | .082          |
| 14            | 2333 |       | 390.     | 22.6   | .150          |
| 15            | 2152 | 123.6 | 460.     | 8.25   | .173          |
| 16            | 2333 |       | 582.     | 16.7   | .324          |
| 17            | 2333 |       | 532.     | 6.8    | .114          |
| 18            | 2333 |       | 667.     | 3.9    | .129          |
| 19            | 2332 |       | 595.     | 7.03   | .308          |
| 20            | 2143 |       | 539.     | 7.22   | .258          |
| 21            | 2332 |       | 423.     | 14.6   | .067          |
| 22            | 2332 |       | 478.     | 48.1   | .040          |
| 23            | 2218 |       | 384.     | 16.1   | .015          |
| 24            | 2332 |       | 373.     | 50.2   | .063          |
| 25            | 2331 |       | 373.     | 33.8   | .088          |
| 26            | —    |       |          |        |               |
| 27            | 2330 |       | 283.     | 43.2   | .013          |
| 28            | 2331 |       | 379.     | 86.2   | .045          |
| 29            | 2217 |       | 484.     | 36.1   | .035          |
| 30            | 2143 |       | 357.     | 28.9   | .022          |
| 31            | 2330 | 133.0 | 344.     | 64.9   | .024          |

| Pioneer Venus |      |       |          |        |               |
|---------------|------|-------|----------|--------|---------------|
| DATE          | TIME | ESV   | Uh+      | Nh+    | Th+           |
| APR92         | (UT) | (deg) | (km/sec) | (N/cc) | (x10E6 deg/K) |
| 1             | 2144 | 133.6 | 328.     | 22.4   | .063          |
| 2             | 2144 |       | 409.     | 31.1   | .140          |
| 3             | 2330 |       | 379.     | 41.1   | .094          |
| 4             | 2135 |       | 326.     | 19.3   | .038          |
| 5             | 2330 |       | 316.     | 23.9   | .063          |
| 6             | 2145 |       | 342.     | 25.0   | .053          |
| 7             | 2329 |       | 312.     | 25.9   | .039          |
| 8             | 2329 |       | 327.     | 29.1   | .072          |
| 9             | 2117 |       | 321.     | 95.4   | .042          |
| 10            | 2316 |       | 332.     | 25.5   | .079          |
| 11            | 2142 |       | 380.     | 26.0   | .021          |
| 12            | 2140 |       | 378.     | 15.1   | .134          |
| 13            | 2211 |       | 366.     | 37.8   | .066          |
| 14            | 2227 |       | 670.     | 12.9   | 1.263         |
| 15            | —    | 142.0 |          |        |               |
| 16            | —    |       |          |        |               |
| 17            | 2136 |       | 546.     | 156.1  | .425          |
| 18            | —    |       |          |        |               |
| 19            | 2329 |       | 395.     | 20.0   | .091          |
| 20            | 2330 |       | 395.     | 48.7   | .275          |
| 21            | 2329 |       | 371.     | 51.5   | .081          |
| 22            | 2201 |       | 585.     | 33.6   | .149          |
| 23            | —    |       |          |        |               |
| 24            | 2241 |       | 429.     | 15.4   | .124          |
| 25            | 2238 |       | 429.     | 48.0   | .218          |
| 26            | 1912 |       | 336.     | 25.0   | .147          |
| 27            | 0115 |       | 334.     | 9.21   | .061          |
| 28            | 2330 |       | 300.     | 38.4   | .044          |
| 29            | 2212 |       | 327.     | 36.2   | .015          |
| 30            | 2212 |       | 305.     | 48.3   | .102          |

146  
Late  
May 92

| Pioneer Venus |      |       |          |        |               |
|---------------|------|-------|----------|--------|---------------|
| DATE          | TIME | ESV   | Uh+      | Nh+    | Th+           |
| MAY92         | (UT) | (deg) | (km/sec) | (N/cc) | (x10E6 deg/K) |
| 1             | 2222 |       | 329.     | 45.6   | .069          |
| 2             | 2222 | 152.5 | 288.     | 57.1   | .106          |
| 3             | 2223 |       | 304.     | 20.9   | .068          |
| 4             | 2130 |       | 285.     | 27.9   | .044          |
| 5             | 1804 |       | 297.     | 31.8   | .087          |
| 6             | 2331 |       | 413.     | 74.4   | .030          |
| 7             | —    |       |          |        |               |
| 8             | —    |       |          |        |               |
| 9             | —    |       |          |        |               |
| 10            | —    |       |          |        |               |
| 11            | —    |       |          |        |               |
| 12            | —    |       |          |        |               |
| 13            | —    |       |          |        |               |
| 14            | —    |       |          |        |               |
| 15            | 2211 | 160.7 | 443.     | 13.1   | .345          |
| 16            | 2355 |       | 470.     | 16.3   | .879          |
| 17            | 2239 |       | 482.     |        | .300          |
| 18            | 2035 |       | 380.     | 19.9   | .100          |
| 19            | 2233 |       | 302.     | 44.6   | .032          |
| 20            | 2149 |       | 307.     | 67.0   | .011          |
| 21            | 2320 |       | 306.     | 114    | .026          |
| 22            | —    |       |          |        |               |
| 23            | —    |       |          |        |               |
| 24            | 0203 |       | 475.     | 12.5   | .407          |
| 25            | —    |       |          |        |               |
| 26            | —    |       |          |        |               |
| 27            | —    |       |          |        |               |
| 28            | —    |       |          |        |               |
| 29            | 1253 |       | 381.     | 15.5   | .219          |
| 30            | —    |       |          |        |               |
| 31            | 2045 | 171.0 | 352.     | 25.9   | .085          |

| Pioneer Venus |                      |       |          |        |               |
|---------------|----------------------|-------|----------|--------|---------------|
| DATE          | TIME                 | ESV   | Uh+      | Nh+    | Th+           |
| JUN92         | (UT)                 | (deg) | (km/sec) | (N/cc) | (x10E6 deg/K) |
| 1-28          | superior conjunction |       |          |        |               |
| 29            | —                    |       |          |        |               |
| 30            | —                    | 169.  |          |        |               |

| Pioneer Venus |      |       |          |        |               |
|---------------|------|-------|----------|--------|---------------|
| DATE          | TIME | ESV   | Uh+      | Nh+    | Th+           |
| JUL92         | (UT) | (deg) | (km/sec) | (N/cc) | (x10E6 deg/K) |
| 1             | —    |       |          |        |               |
| 2             | —    |       |          |        |               |
| 3             | 1229 |       | 425.     | 47.4   | .126          |
| 4             | —    |       |          |        |               |
| 5             | 0140 |       | 507.     | 50.5   | .094          |
| 6             | 1205 |       | 587.     | 6.93   | .144          |
| 7             | —    |       |          |        |               |
| 8             | 1202 |       | 541.     | 2.90   | .016          |
| 9             | 1202 |       | 504.     | 8.15   | .297          |
| 10            | 1202 |       | 406.     | 29.5   | .145          |
| 11            | 1200 |       | 429.     | 13.0   | .062          |
| 12            | 1200 |       | 357.     | 46.5   | .045          |
| 13            | 1157 |       | 470.     | 14.6   | .141          |
| 14            | —    |       |          |        |               |
| 15            | —    | 158.9 |          |        |               |
| 16            | 1200 |       | 573.     | 14.9   | .297          |
| 17            | —    |       |          |        |               |
| 18            | —    |       |          |        |               |
| 19            | 1157 |       | 518.     | 38.3   | .058          |
| 20            | 1159 |       | 452.     | 16.1   | .198          |
| 21            | 1201 |       | 411.     | 24.9   | .074          |
| 22            | —    |       |          |        |               |
| 23            | 1157 |       | 458.     | 64.0   | .045          |
| 24            | 1201 |       | 372.     | 20.2   | .015          |
| 25            | —    |       |          |        |               |
| 26            | —    |       |          |        |               |
| 27            | —    |       |          |        |               |
| 28            | —    |       |          |        |               |
| 29            | —    |       |          |        |               |
| 30            | —    |       |          |        |               |
| 31            | 1155 | 148.2 | 386.     | 27.5   | .024          |

| Pioneer Venus |      |       |          |        |               |
|---------------|------|-------|----------|--------|---------------|
| DATE          | TIME | ESV   | Uh+      | Nh+    | Th+           |
| AUG92         | (UT) | (deg) | (km/sec) | (N/cc) | (x10E6 deg/K) |
| 1             | —    | 147.6 |          |        |               |
| 2             | 1253 |       | 342.     | 20.5   | .054          |
| 3             | 1157 |       | 464.     | 21.6   | .235          |
| 4             | —    |       |          |        |               |
| 5             | —    |       |          |        |               |
| 6             | —    |       |          |        |               |
| 7             | —    |       |          |        |               |
| 8             | —    |       |          |        |               |
| 9             | —    |       |          |        |               |
| 10            | —    |       |          |        |               |
| 11            | —    |       |          |        |               |
| 12            | —    |       |          |        |               |
| 13            | —    |       |          |        |               |
| 14            | —    |       |          |        |               |
| 15            | —    |       |          |        |               |
| 16            | —    |       |          |        |               |
| 17            | —    |       |          |        |               |
| 18            | —    |       |          |        |               |
| 19            | —    |       |          |        |               |
| 20            | —    |       |          |        |               |
| 21            | —    |       |          |        |               |
| 22            | 1254 |       | 339.     | 13.5   | .324          |
| 23            | —    |       |          |        |               |
| 24            | —    |       |          |        |               |
| 25            | —    |       |          |        |               |
| 26            | —    |       |          |        |               |
| 27            | —    |       |          |        |               |
| 28            | —    |       |          |        |               |
| 29            | 1157 |       | 339.     | 20.5   | .065          |
| 30            | —    |       |          |        |               |
| 31            | —    | 128.0 |          |        |               |

148  
Late  
Sep 92

| Pioneer Venus |      |       |          |        |                        |
|---------------|------|-------|----------|--------|------------------------|
| DATE          | TIME | ESV   | Uh+      | Nh+    | Th+                    |
| SEP92         | (UT) | (deg) | (km/sec) | (N/cc) | ( $\times 10^6$ deg/K) |
| 1             | —    | 127.4 |          |        |                        |
| 2             | 1252 |       | 502.     | 90.6   | .125                   |
| 3             | 1250 |       | 400.     | 27.9   | .230                   |
| 4             | —    |       |          |        |                        |
| 5             | —    |       |          |        |                        |
| 6             | —    |       |          |        |                        |
| 7             | —    |       |          |        |                        |
| 8             | —    |       |          |        |                        |
| 9             | —    |       |          |        |                        |
| 10            | —    |       |          |        |                        |
| 11            | —    |       |          |        |                        |
| 12            | —    |       |          |        |                        |
| 13            | —    |       |          |        |                        |
| 14            | —    |       |          |        |                        |
| 15            | —    | 119.  |          |        |                        |
| 16            | —    |       |          |        |                        |
| 17            | —    |       |          |        |                        |
| 18            | —    |       |          |        |                        |
| 19            | —    |       |          |        |                        |
| 20            | —    |       |          |        |                        |
| 21            | —    |       |          |        |                        |
| 22            | —    |       |          |        |                        |
| 23            | —    |       |          |        |                        |
| 24            | —    |       |          |        |                        |
| 25            | —    |       |          |        |                        |
| 26            | —    |       |          |        |                        |
| 27            | —    |       |          |        |                        |
| 28            | —    |       |          |        |                        |
| 29            | —    |       |          |        |                        |
| 30            | 1156 | 108.9 | 685.     | 8.53   | .345                   |



| Pioneer Venus |                              |       |          |        |               |
|---------------|------------------------------|-------|----------|--------|---------------|
| DATE          | TIME                         | ESV   | Uh+      | Nh+    | Th+           |
| OCT92         | (UT)                         | (deg) | (km/sec) | (N/cc) | (x10E6 deg/K) |
| 1             | 1207                         | 108.3 | 310.     | 15.8   | .032          |
| 2             | —                            |       |          |        |               |
| 3             | —                            |       |          |        |               |
| 4             | —                            |       |          |        |               |
| 5             | —                            |       |          |        |               |
| 6             | —                            |       |          |        |               |
| 7             | 1156                         |       | 685.     | 8.53   | .245          |
| 8             | DATA ACQUISITION TERMINATION |       |          |        |               |

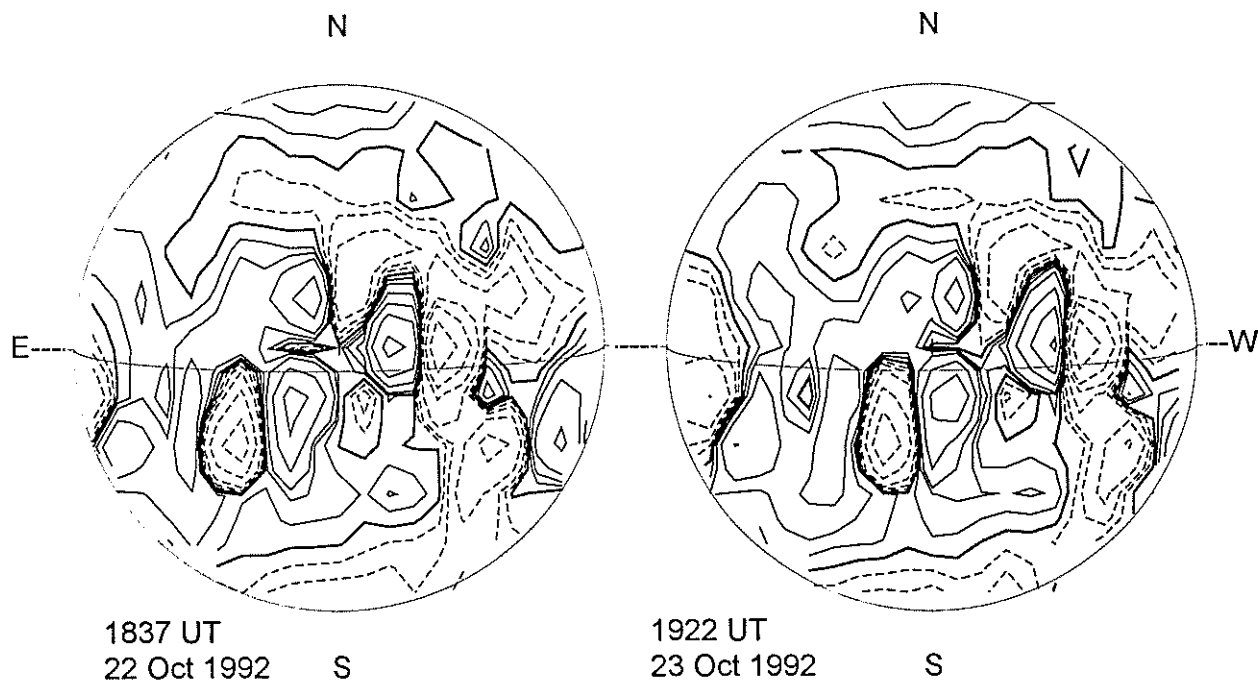
## Errata for STANFORD SOLAR MAGNETOGRAMS -- October 21-24, 1992

A timing error of 1 day was discovered for some of the observations taken on October 21-24, 1992. Revised data for this period are printed here. We hope the error was not a major inconvenience.

The corrected Stanford daily solar magnetograms for 22 and 23 October 1992 are given here, followed by the corrected synoptic charts (Sun-as-a Star and Source Field).

### STANFORD MAGNETOGRAM

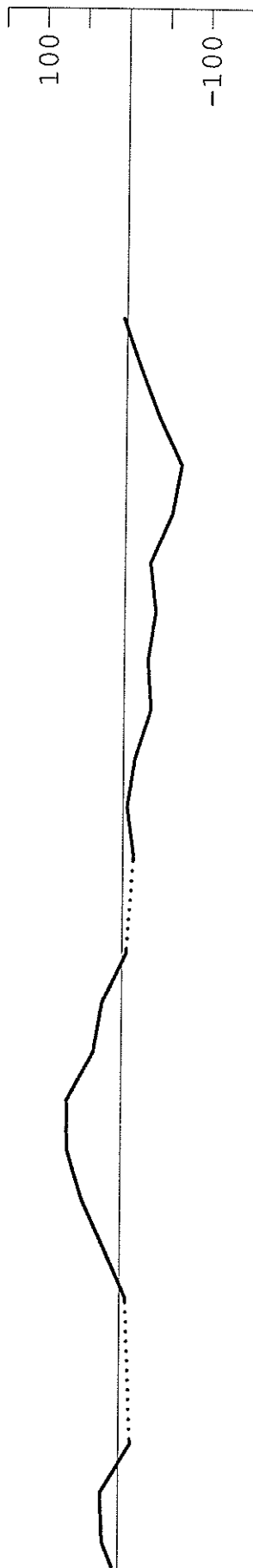
Solid = +  
Dashed = -



# **SOLAR MAGNETIC FIELD SYNOPSIS CHART** **CARRINGTON ROTATION NUMBER 1861** **(3 to 31 October 1992) -- CORRECTED DATA**

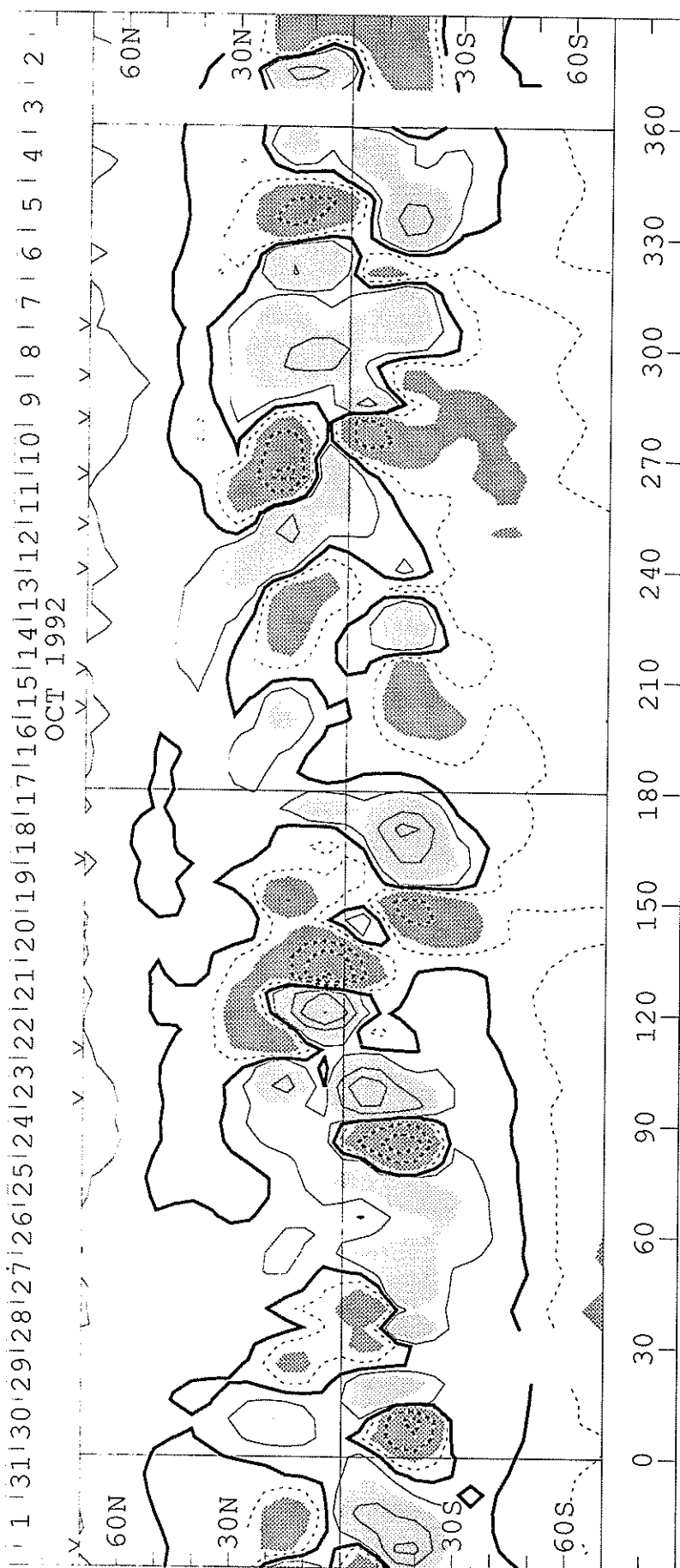
**WILCOX SOLAR OBSERVATORY**

Mean Field



Photospheric Magnetic Field

0, +100, 500, 1000, 2000 MicroTesla



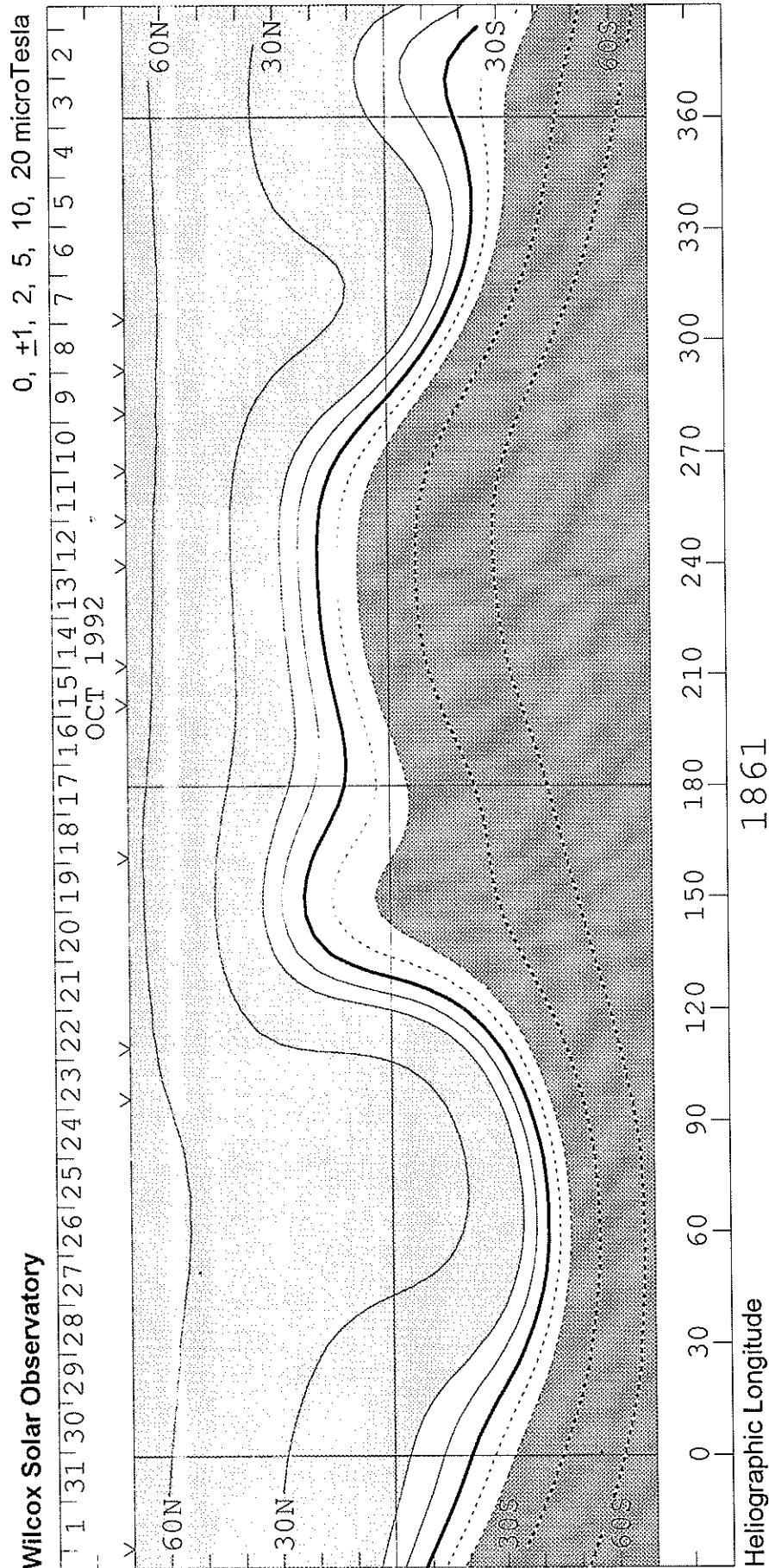
Heliographic Longitude

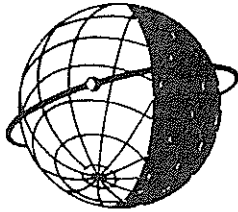
1861

151  
Late  
Oct 92

# SOLAR MAGNETIC FIELD SYNOPSIS CHART

SOURCE SURFACE FIELD  
CARRINGTON ROTATION NUMBER 1861  
(3 TO 31 October 1992) -- CORRECTED DATA

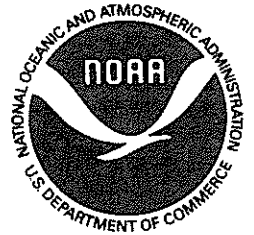




# **WORLD DATA CENTER A**

## **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."