

OCTOBER 2008 NUMBER 770 - Part II

Solar-Geophysical Data comprehensive reports



Data for April 2008

Explanation of Data Reports Issued as Number 515 (Supplement) July 1987

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NATIONAL OCEANIC AND
ATMOSPHERIC ADMINISTRATION

NATIONAL ENVIRONMENTAL SATELLITE,
DATA, AND INFORMATION SERVICE

NATIONAL GEOPHYSICAL
DATA CENTER

BOULDER,
COLORADO



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OCTOBER 2008 NUMBER 770 - Part II

Solar-Geophysical Data comprehensive reports

Data for April 2008

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NATIONAL GEOPHYSICAL DATA CENTER

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Boulder, Colorado

SOLAR-GEOPHYSICAL DATA

Number 770

(Issued in Two Parts)

Editor: Edward H. Erwin

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Solar-Terrestrial Physics Division

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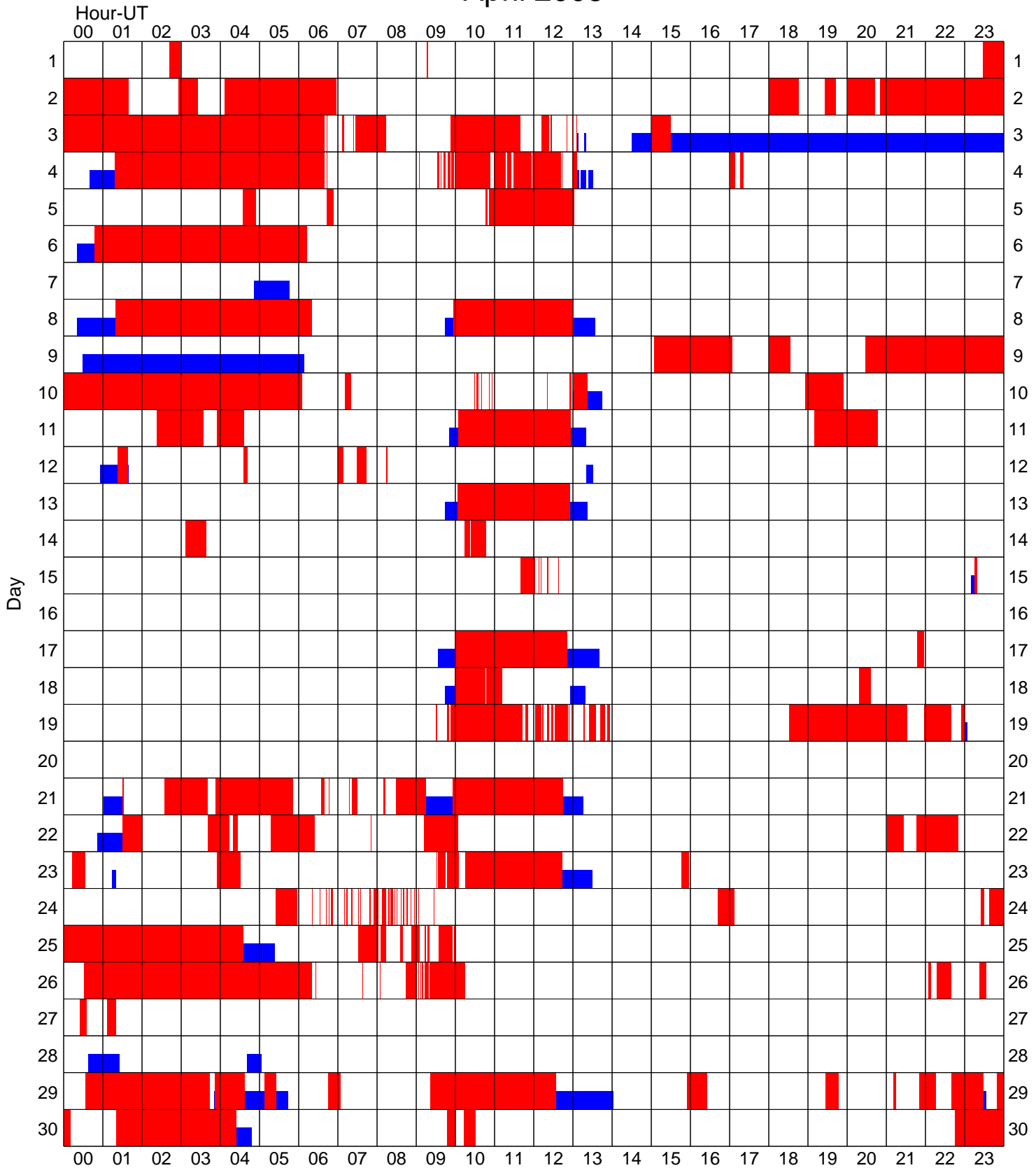
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DATA FOR APRIL

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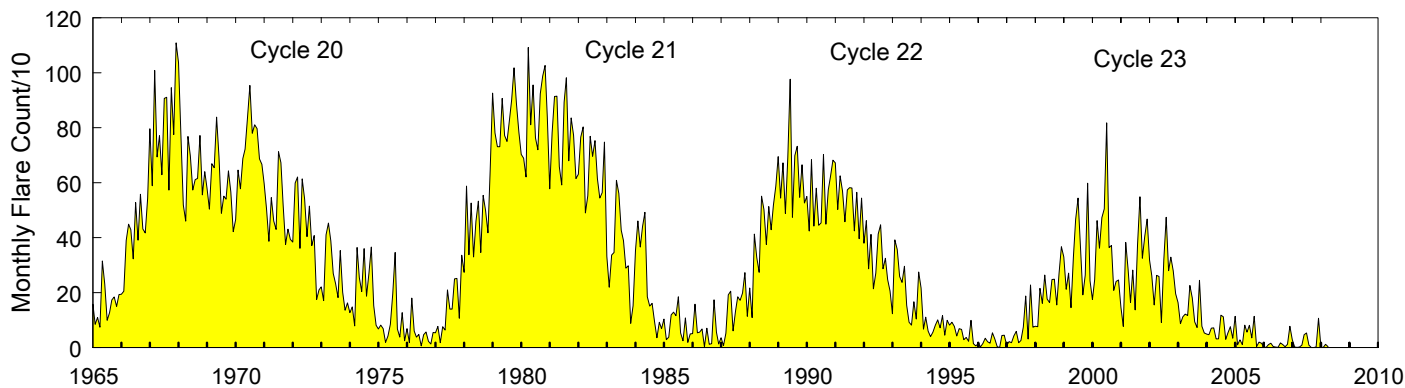
April 2008



■ Times of no flare patrol of any kind.
■ Times of no cinematographic flare patrol.

Stations participating: Holloman, Learmonth, SanVito, Kanzelhoehe.

Monthly Counts of Grouped Solar Flares Jan 1965 - Apr 2008



| Year | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Total |
|------|------|-----|------|------|-----|-----|-----|-----|-----|------|------|------|-------|
| 1965 | 158 | 85 | 110 | 74 | 315 | 231 | 99 | 127 | 173 | 184 | 150 | 193 | 1899 |
| 1966 | 194 | 205 | 390 | 449 | 429 | 323 | 528 | 391 | 558 | 432 | 417 | 543 | 4859 |
| 1967 | 796 | 589 | 1009 | 694 | 771 | 629 | 907 | 911 | 573 | 946 | 775 | 1109 | 9709 |
| 1968 | 1037 | 773 | 519 | 460 | 768 | 697 | 573 | 611 | 616 | 772 | 556 | 640 | 8022 |
| 1969 | 581 | 504 | 669 | 655 | 839 | 694 | 489 | 551 | 540 | 643 | 566 | 422 | 7153 |
| 1970 | 466 | 646 | 578 | 688 | 722 | 836 | 954 | 780 | 811 | 797 | 687 | 667 | 8632 |
| 1971 | 598 | 505 | 387 | 546 | 461 | 430 | 713 | 673 | 518 | 375 | 431 | 394 | 6031 |
| 1972 | 384 | 599 | 621 | 361 | 614 | 541 | 404 | 515 | 371 | 408 | 175 | 210 | 5203 |
| 1973 | 221 | 171 | 410 | 453 | 388 | 270 | 232 | 182 | 353 | 201 | 136 | 163 | 3180 |
| 1974 | 127 | 148 | 79 | 364 | 255 | 204 | 360 | 187 | 270 | 366 | 153 | 81 | 2594 |
| 1975 | 68 | 82 | 69 | 19 | 42 | 85 | 196 | 346 | 68 | 38 | 127 | 25 | 1165 |
| 1976 | 69 | 18 | 180 | 60 | 38 | 48 | 6 | 47 | 57 | 23 | 13 | 55 | 614 |
| 1977 | 54 | 77 | 18 | 76 | 64 | 210 | 140 | 140 | 250 | 252 | 107 | 336 | 1724 |
| 1978 | 274 | 588 | 338 | 526 | 330 | 460 | 533 | 346 | 554 | 499 | 418 | 648 | 5514 |
| 1979 | 926 | 781 | 731 | 731 | 907 | 772 | 750 | 821 | 901 | 1018 | 888 | 786 | 10012 |
| 1980 | 703 | 689 | 621 | 1092 | 811 | 956 | 763 | 720 | 924 | 988 | 1027 | 838 | 10132 |
| 1981 | 578 | 782 | 914 | 915 | 658 | 592 | 893 | 982 | 680 | 836 | 773 | 615 | 9218 |
| 1982 | 631 | 766 | 803 | 490 | 553 | 769 | 696 | 753 | 615 | 544 | 564 | 748 | 7932 |
| 1983 | 332 | 220 | 337 | 346 | 609 | 561 | 427 | 389 | 289 | 298 | 88 | 152 | 4048 |
| 1984 | 353 | 461 | 366 | 440 | 492 | 185 | 151 | 161 | 95 | 36 | 92 | 69 | 2901 |
| 1985 | 104 | 29 | 38 | 119 | 129 | 116 | 185 | 53 | 25 | 108 | 19 | 50 | 975 |
| 1986 | 51 | 158 | 54 | 56 | 68 | 3 | 71 | 12 | 14 | 174 | 56 | 13 | 730 |
| 1987 | 36 | 7 | 52 | 192 | 205 | 61 | 132 | 185 | 172 | 198 | 273 | 114 | 1627 |
| 1988 | 217 | 109 | 413 | 328 | 274 | 551 | 502 | 375 | 513 | 429 | 518 | 587 | 4816 |
| 1989 | 695 | 544 | 672 | 488 | 691 | 977 | 474 | 699 | 733 | 547 | 665 | 526 | 7711 |
| 1990 | 550 | 424 | 684 | 442 | 580 | 445 | 454 | 703 | 449 | 574 | 623 | 682 | 6610 |
| 1991 | 672 | 503 | 625 | 570 | 458 | 574 | 582 | 581 | 425 | 565 | 396 | 544 | 6495 |
| 1992 | 380 | 462 | 287 | 412 | 214 | 271 | 413 | 447 | 287 | 325 | 248 | 206 | 3952 |
| 1993 | 123 | 392 | 357 | 262 | 237 | 296 | 154 | 92 | 82 | 167 | 104 | 275 | 2541 |
| 1994 | 217 | 67 | 111 | 60 | 40 | 56 | 81 | 101 | 72 | 117 | 45 | 99 | 1066 |
| 1995 | 82 | 95 | 77 | 42 | 69 | 66 | 29 | 37 | 23 | 99 | 14 | 6 | 639 |
| 1996 | 14 | 3 | 15 | 34 | 21 | 16 | 54 | 31 | 3 | 0 | 44 | 45 | 280 |
| 1997 | 8 | 22 | 18 | 43 | 59 | 18 | 26 | 75 | 188 | 31 | 228 | 74 | 790 |
| 1998 | 78 | 76 | 216 | 161 | 264 | 177 | 164 | 248 | 249 | 155 | 268 | 367 | 2423 |
| 1999 | 330 | 212 | 271 | 145 | 330 | 466 | 544 | 368 | 192 | 264 | 598 | 243 | 3963 |
| 2000 | 175 | 248 | 462 | 362 | 473 | 505 | 818 | 364 | 372 | 208 | 241 | 246 | 4474 |
| 2001 | 147 | 77 | 383 | 284 | 164 | 282 | 137 | 376 | 549 | 325 | 405 | 468 | 3597 |
| 2002 | 318 | 261 | 155 | 263 | 259 | 91 | 318 | 474 | 280 | 329 | 279 | 196 | 3223 |
| 2003 | 164 | 87 | 112 | 122 | 117 | 226 | 181 | 94 | 73 | 245 | 78 | 53 | 1552 |
| 2004 | 49 | 47 | 71 | 72 | 32 | 33 | 118 | 112 | 30 | 54 | 76 | 34 | 728 |
| 2005 | 114 | 10 | 28 | 11 | 82 | 56 | 81 | 35 | 114 | 4 | 20 | 16 | 571 |
| 2006 | 4 | 0 | 11 | 16 | 4 | 2 | 1 | 17 | 11 | 3 | 12 | 78 | 159 |
| 2007 | 29 | 2 | 1 | 2 | 9 | 47 | 53 | 9 | 0 | 0 | 2 | 107 | 261 |
| 2008 | 2 | 0 | 12 | 4 | | | | | | | | | 18 |

The term 'grouped' means observations of the same event by different sites were lumped together and counted as one.

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

Apr 08

APRIL 2008

| Day | Freq | Sta | Type | Start (UT) | Time of Maximum (UT) | Duration (Min) | Flux Density | | Int | Remarks |
|-----|-------|------|-------|---------------|----------------------------|-------------------|--------------------------------------|------|-----|-----------------|
| | | | | | | | Peak (10 -22 W/m ² Hz) | Mean | | |
| 03 | 15400 | SGMR | 8 S | 1631.0 | 1631.0 | U | 69.0 | | | QL=4 ST=2 TYP=3 |
| 04 | 410 | SGMR | 43 NS | 1331.0 | 1337.0 | 629.0 | 350.0 | | | QL=4 ST=1 TYP=1 |
| | 410 | SGMR | 48 C | 1331.0 | 1337.0 | 13.0 | 350.0 | | | QL=2 ST=2 TYP=8 |
| 18 | 33 | UPIC | 2 S/F | 1252.5 | 1253.0 | 1.0U | | | | |
| 26 | 33 | UPIC | 40 F | 1404.0 | 1412.5 | 15.0U | | | | |

Reports are received routinely from the following observatories:

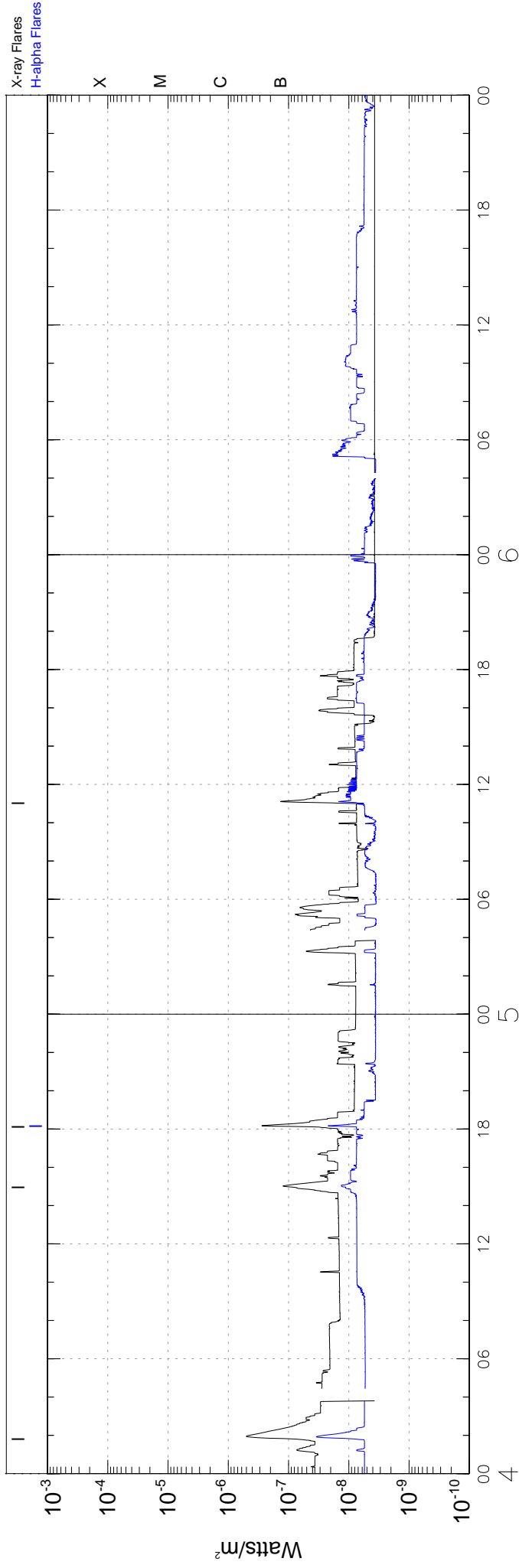
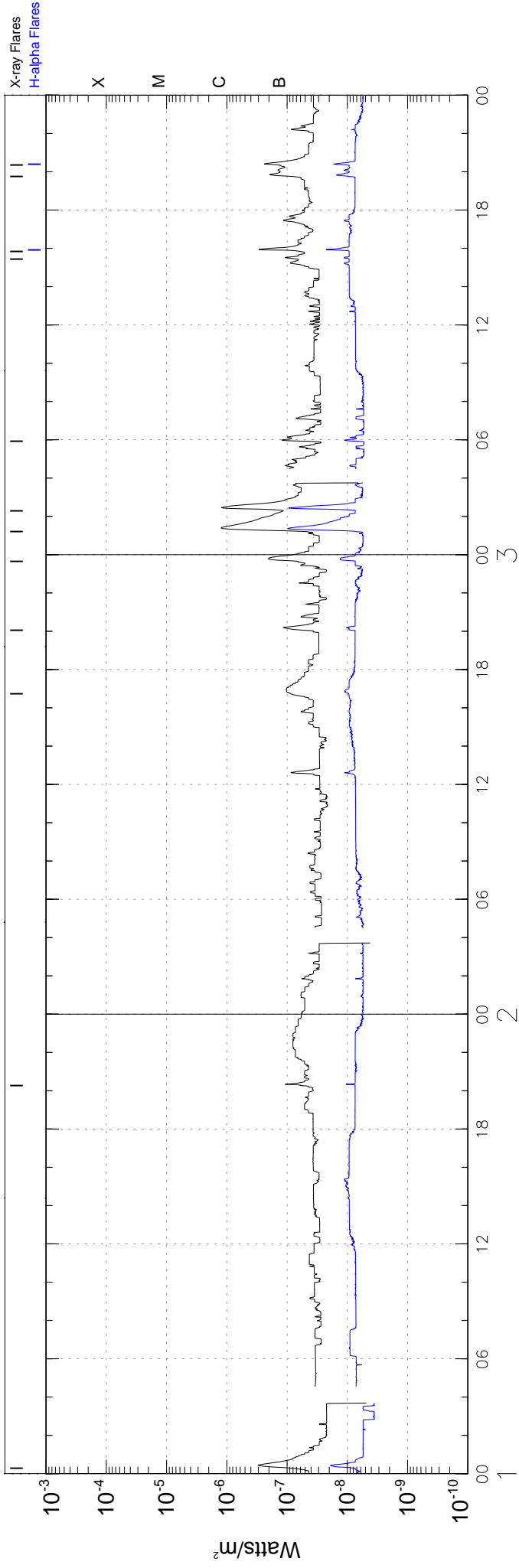
LEAR = Learmonth SGMR = Sagamore Hill SVTO = San Vito

Explanation of Type Code:

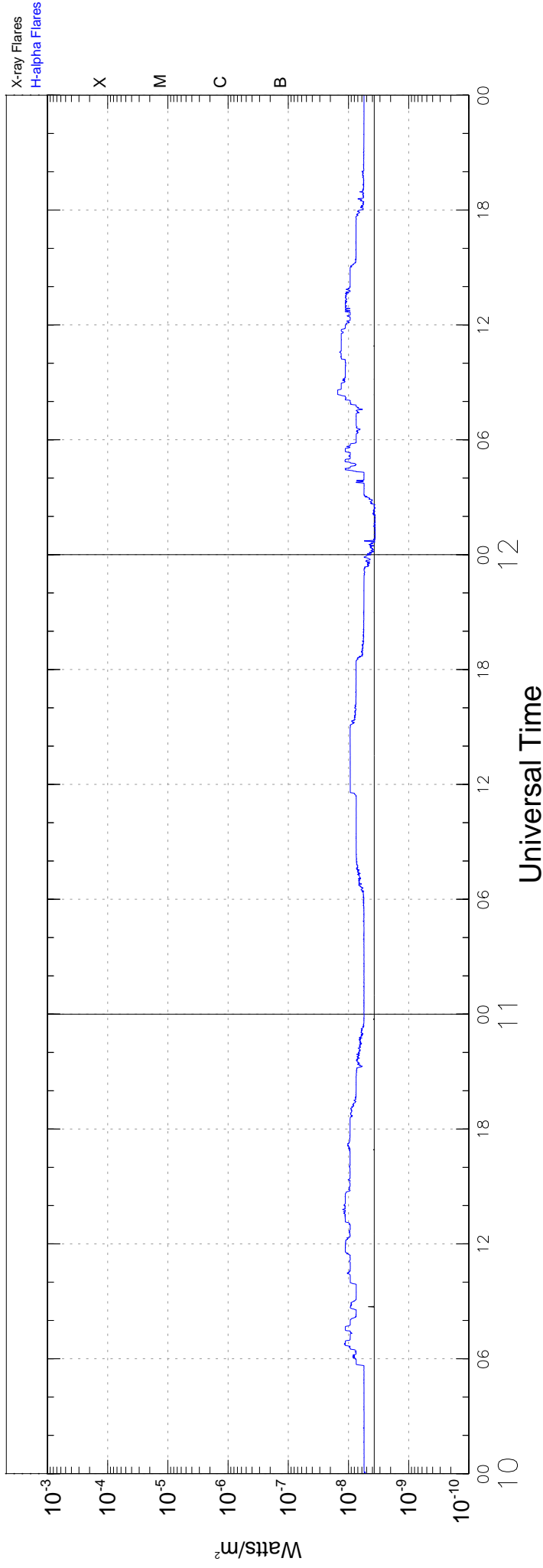
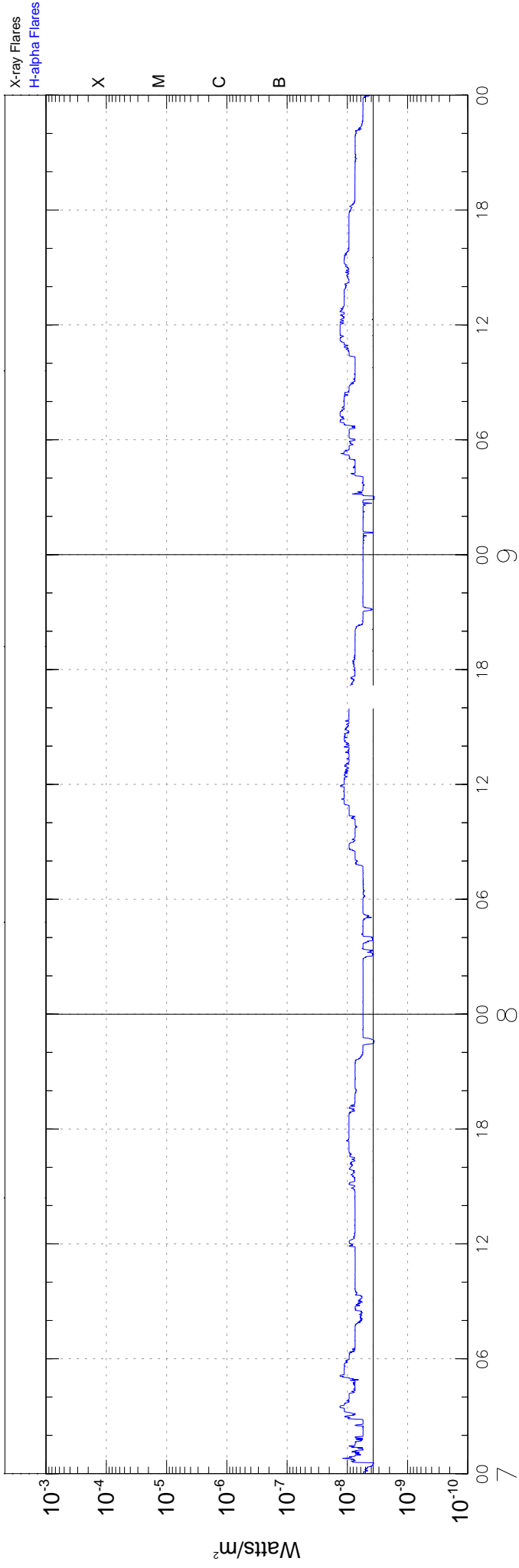
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|-------------------|---------------|------------------------|--------------------------|----------------------------|
| 1 Simple 1 | 7 Minor + | 24 Rise | 30 Post Burst Increase A | 43 Onset of Noise Storm |
| 2 Simple 1F | 8 Spike | 25 Rise A | 31 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 | | 4O Rise Only | 16A Fall A | 27AF Rise and Fall AF |
| 21A Simple 3A GRF | | 4OF Rise Only F | 26O Fall Only | 31A Post Burst Decrease A |
| 2A Simple 1AF | | 4P Post Rise | 26F Fall F | 32A Absorption A |

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

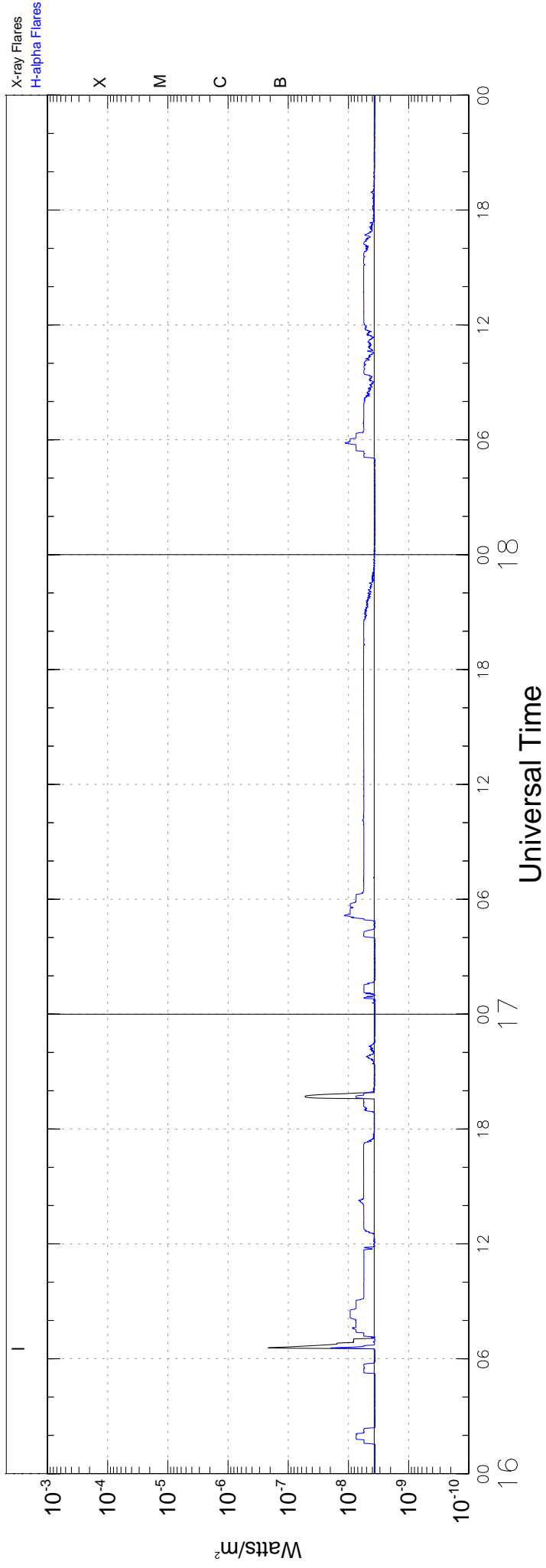
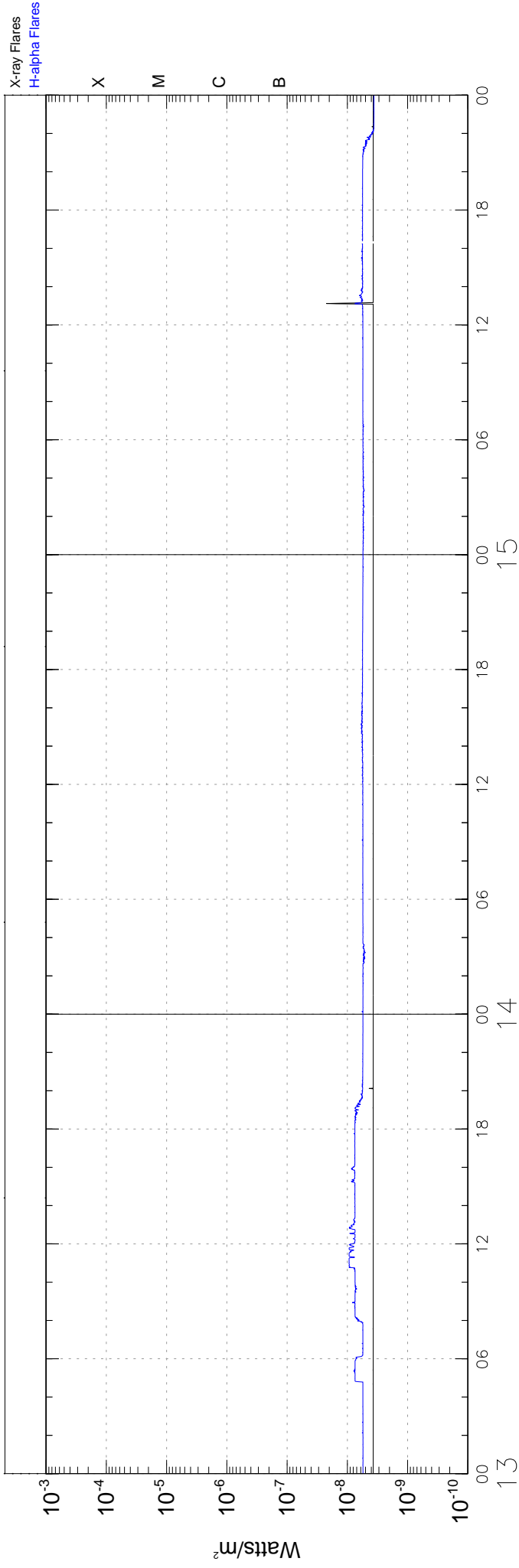
GOES-10 Solar X-Rays (1-Minute Averages) April 2008



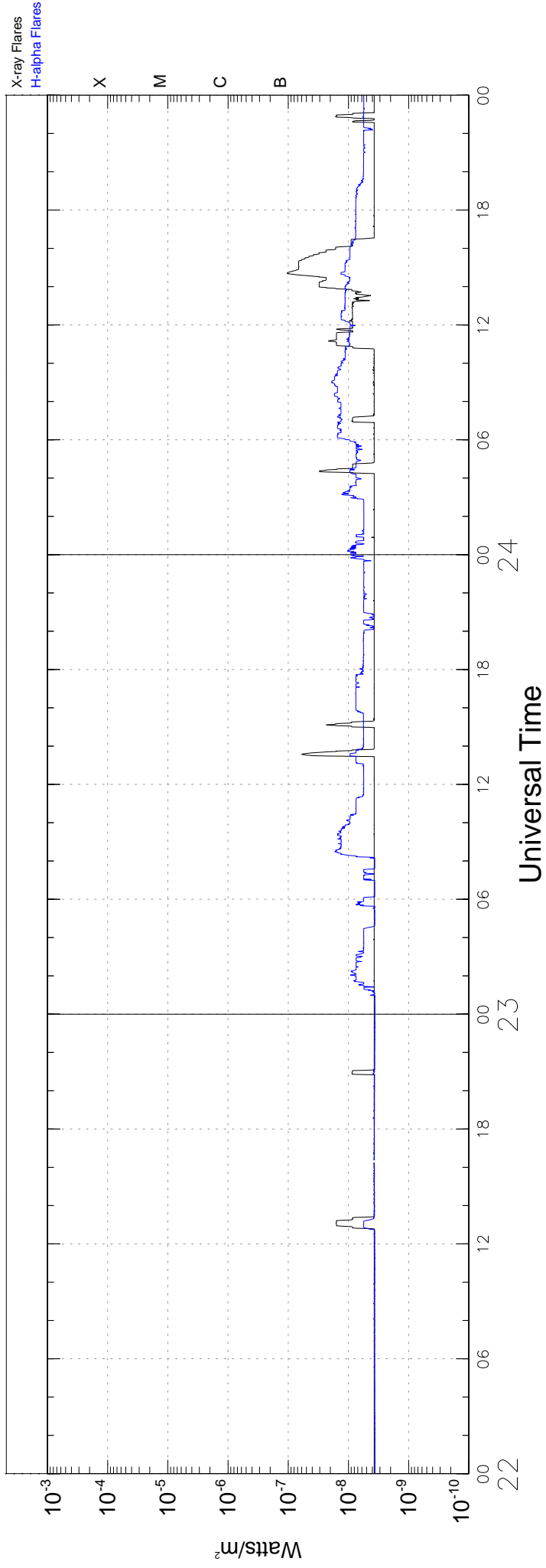
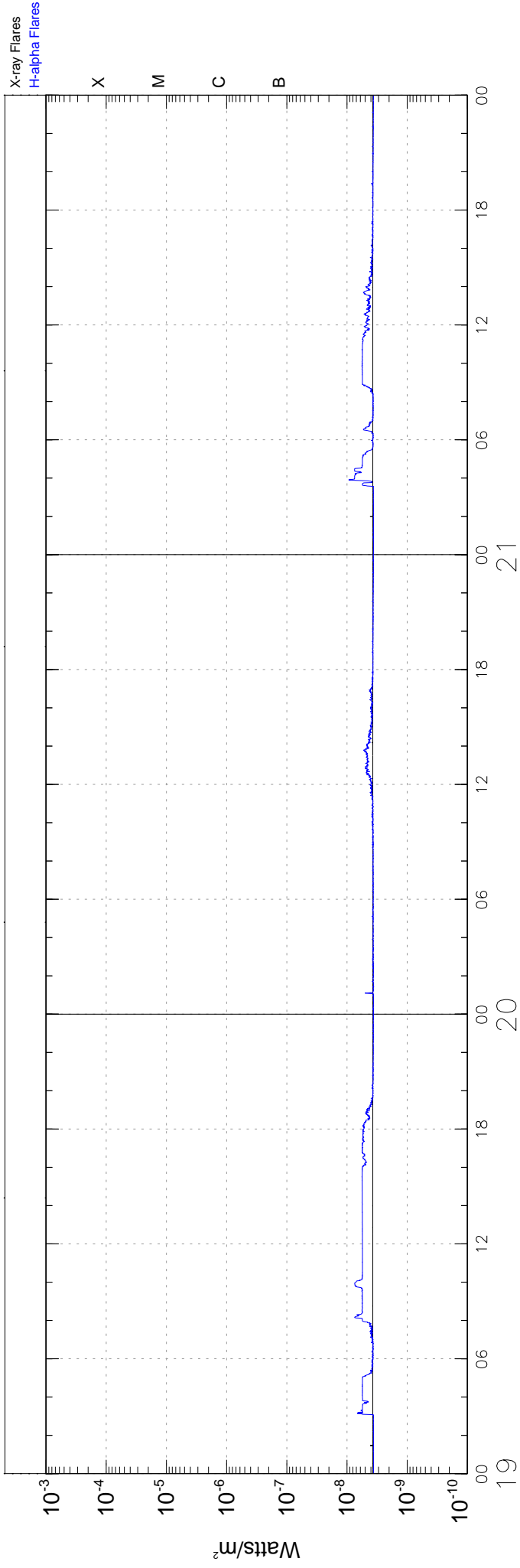
GOES-10 Solar X-Rays (1-Minute Averages) April 2008



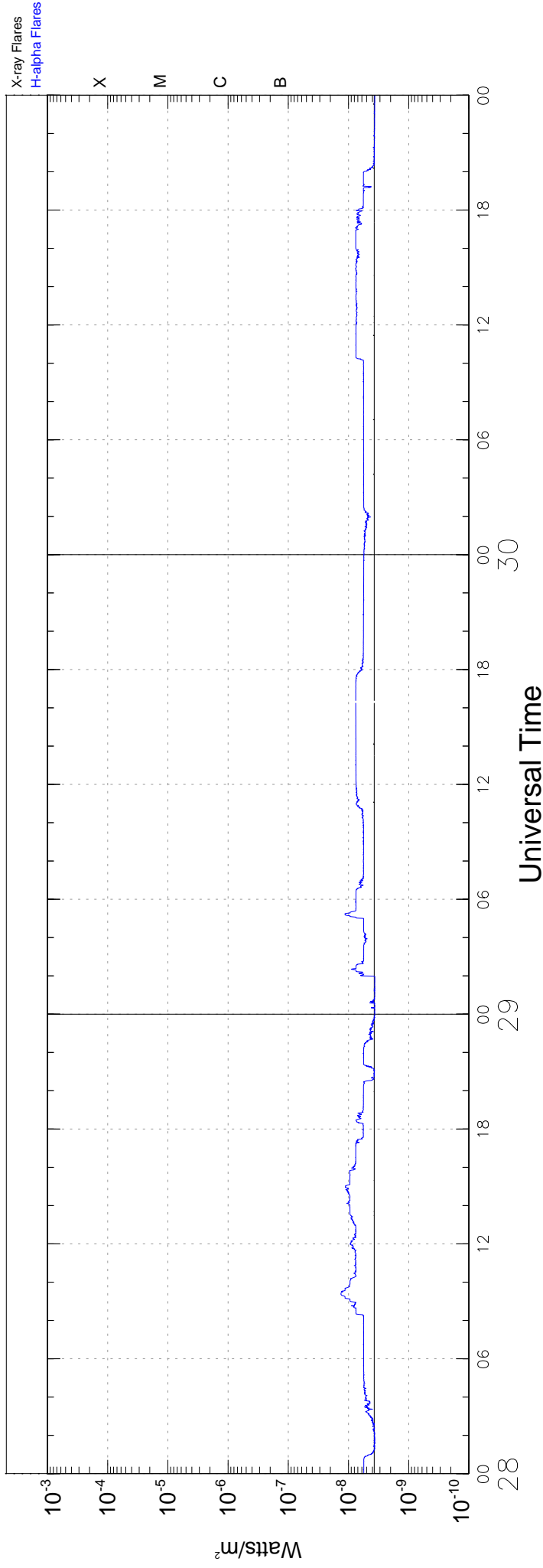
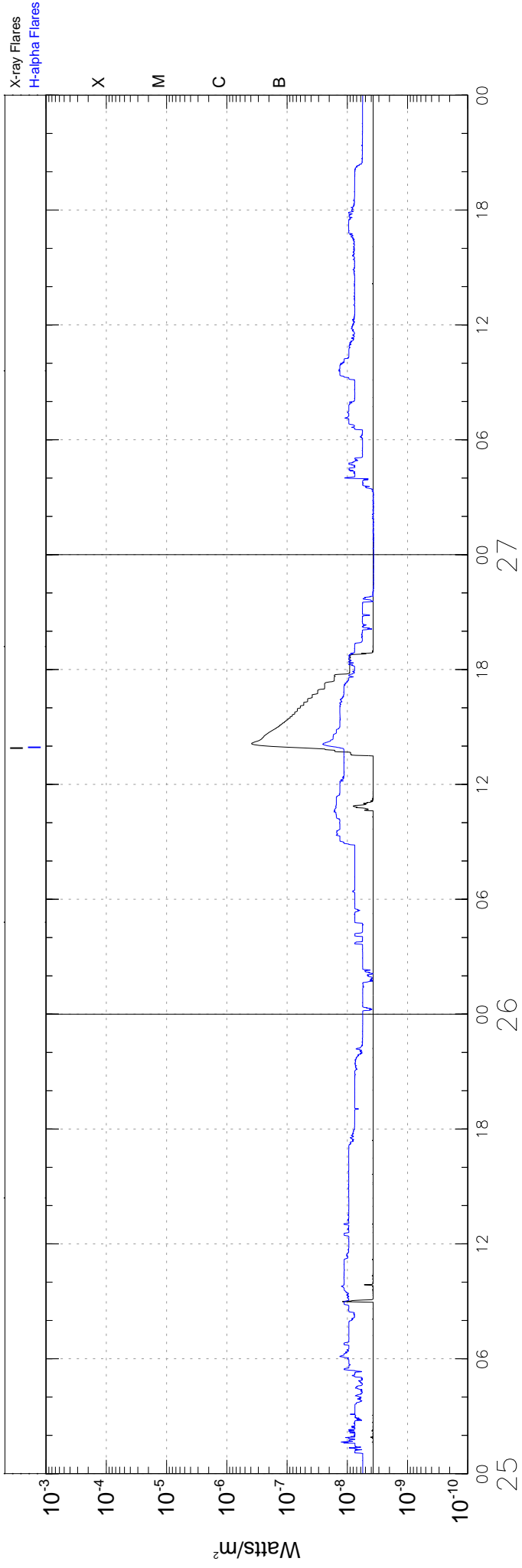
GOES-10 Solar X-Rays (1-Minute Averages) April 2008



GOES-10 Solar X-Rays (1-Minute Averages) April 2008

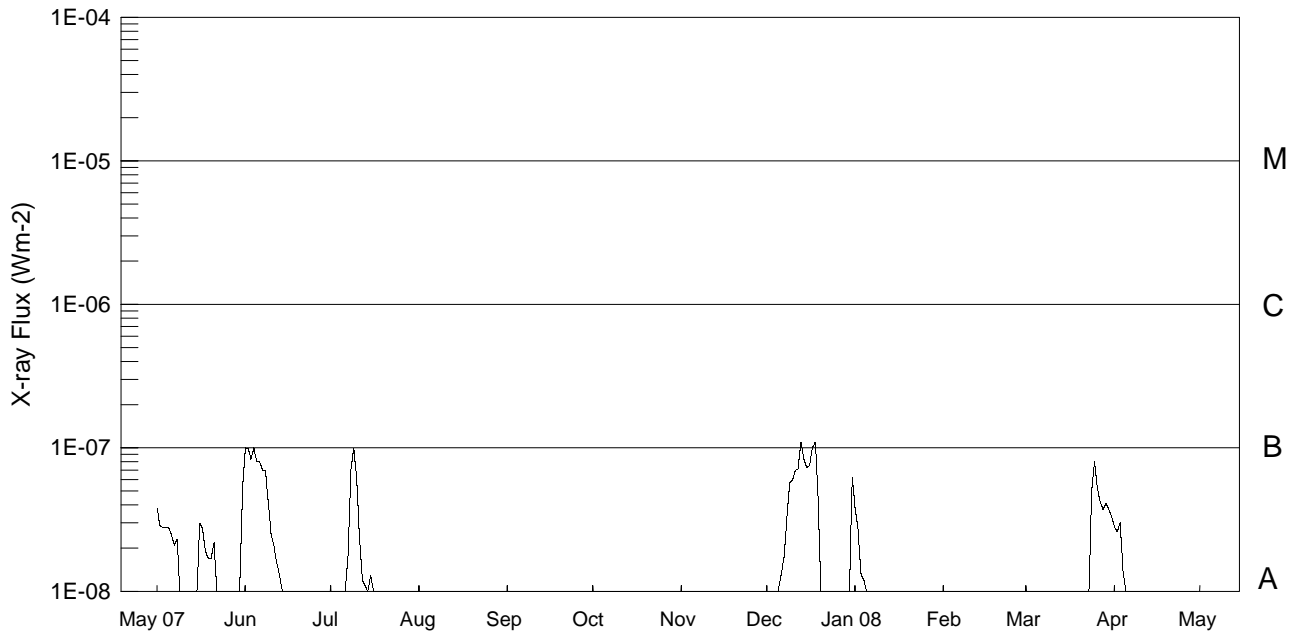


GOES-10 Solar X-Rays (1-Minute Averages) April 2008



Preliminary GOES Satellite Daily X-Ray Background May 2007 - Apr 2008

15
Apr 08



| Day | May 07 | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Jan 08 | Feb | Mar | Apr |
|-----|--------|-------|-------|-------|-------|-------|-------|-------|--------|-------|-------|-------|
| 1 | A3.8 | B1.0 | <A1.0 | <A1.0 | <A1.0 | <A1.0 | <A1.0 | <A1.0 | A3.8 | <A1.0 | <A1.0 | A2.8 |
| 2 | A2.9 | A9.9 | <A1.0 | <A1.0 | <A1.0 | <A1.0 | <A1.0 | <A1.0 | A2.7 | <A1.0 | <A1.0 | A2.6 |
| 3 | A2.8 | A8.3 | <A1.0 | <A1.0 | <A1.0 | <A1.0 | <A1.0 | <A1.0 | A1.3 | <A1.0 | <A1.0 | A3.0 |
| 4 | A2.8 | B1.0 | <A1.0 | <A1.0 | <A1.0 | <A1.0 | <A1.0 | <A1.0 | A1.2 | <A1.0 | <A1.0 | A1.4 |
| 5 | A2.8 | A8.0 | <A1.0 | <A1.0 | <A1.0 | <A1.0 | <A1.0 | <A1.0 | A1.0 | <A1.0 | <A1.0 | <A1.0 |
| 6 | A2.5 | A8.0 | <A1.0 | <A1.0 | <A1.0 | <A1.0 | <A1.0 | A1.3 | <A1.0 | <A1.0 | <A1.0 | <A1.0 |
| 7 | A2.1 | A7.0 | A1.7 | <A1.0 | <A1.0 | <A1.0 | <A1.0 | A1.7 | <A1.0 | <A1.0 | <A1.0 | <A1.0 |
| 8 | A2.3 | A7.0 | A6.9 | <A1.0 | <A1.0 | <A1.0 | <A1.0 | A3.2 | <A1.0 | <A1.0 | <A1.0 | <A1.0 |
| 9 | <A1.0 | A4.2 | B1.0 | <A1.0 | <A1.0 | <A1.0 | <A1.0 | A5.7 | <A1.0 | <A1.0 | <A1.0 | <A1.0 |
| 10 | <A1.0 | A2.5 | A6.3 | <A1.0 | <A1.0 | <A1.0 | <A1.0 | A6.0 | <A1.0 | <A1.0 | <A1.0 | <A1.0 |
| 11 | <A1.0 | A2.1 | A2.4 | <A1.0 | <A1.0 | <A1.0 | <A1.0 | A7.0 | <A1.0 | <A1.0 | <A1.0 | <A1.0 |
| 12 | <A1.0 | A1.6 | A1.2 | <A1.0 | <A1.0 | <A1.0 | <A1.0 | A7.1 | <A1.0 | <A1.0 | <A1.0 | <A1.0 |
| 13 | <A1.0 | A1.3 | A1.1 | <A1.0 | <A1.0 | <A1.0 | <A1.0 | B1.1 | <A1.0 | <A1.0 | <A1.0 | <A1.0 |
| 14 | <A1.0 | <A1.0 | <A1.0 | <A1.0 | <A1.0 | <A1.0 | <A1.0 | A8.4 | <A1.0 | <A1.0 | <A1.0 | <A1.0 |
| 15 | <A1.0 | <A1.0 | A1.3 | <A1.0 | <A1.0 | <A1.0 | <A1.0 | A7.3 | <A1.0 | <A1.0 | <A1.0 | <A1.0 |
| 16 | A3.0 | <A1.0 | <A1.0 | <A1.0 | <A1.0 | <A1.0 | <A1.0 | A7.5 | <A1.0 | <A1.0 | <A1.0 | <A1.0 |
| 17 | A2.7 | <A1.0 | <A1.0 | <A1.0 | <A1.0 | <A1.0 | <A1.0 | B1.0 | <A1.0 | <A1.0 | <A1.0 | <A1.0 |
| 18 | A1.9 | <A1.0 | <A1.0 | <A1.0 | <A1.0 | <A1.0 | <A1.0 | B1.1 | <A1.0 | <A1.0 | <A1.0 | <A1.0 |
| 19 | A1.7 | <A1.0 | <A1.0 | <A1.0 | <A1.0 | <A1.0 | <A1.0 | A4.0 | <A1.0 | <A1.0 | <A1.0 | <A1.0 |
| 20 | A1.7 | <A1.0 | <A1.0 | <A1.0 | <A1.0 | <A1.0 | <A1.0 | <A1.0 | <A1.0 | <A1.0 | <A1.0 | <A1.0 |
| 21 | A2.2 | <A1.0 | <A1.0 | <A1.0 | <A1.0 | <A1.0 | <A1.0 | <A1.0 | <A1.0 | <A1.0 | <A1.0 | <A1.0 |
| 22 | <A1.0 | <A1.0 | <A1.0 | <A1.0 | <A1.0 | <A1.0 | <A1.0 | <A1.0 | <A1.0 | <A1.0 | <A1.0 | <A1.0 |
| 23 | <A1.0 | <A1.0 | <A1.0 | <A1.0 | <A1.0 | <A1.0 | <A1.0 | <A1.0 | <A1.0 | <A1.0 | <A1.0 | <A1.0 |
| 24 | <A1.0 | <A1.0 | <A1.0 | <A1.0 | <A1.0 | <A1.0 | <A1.0 | <A1.0 | <A1.0 | <A1.0 | A5.1 | <A1.0 |
| 25 | <A1.0 | <A1.0 | <A1.0 | <A1.0 | <A1.0 | <A1.0 | <A1.0 | <A1.0 | <A1.0 | <A1.0 | A8.1 | <A1.0 |
| 26 | <A1.0 | <A1.0 | <A1.0 | <A1.0 | <A1.0 | <A1.0 | <A1.0 | <A1.0 | <A1.0 | <A1.0 | A5.2 | <A1.0 |
| 27 | <A1.0 | <A1.0 | <A1.0 | <A1.0 | <A1.0 | <A1.0 | <A1.0 | <A1.0 | <A1.0 | <A1.0 | A4.2 | <A1.0 |
| 28 | <A1.0 | <A1.0 | <A1.0 | <A1.0 | <A1.0 | <A1.0 | <A1.0 | <A1.0 | <A1.0 | <A1.0 | A3.7 | <A1.0 |
| 29 | <A1.0 | A1.0 | <A1.0 | <A1.0 | <A1.0 | <A1.0 | <A1.0 | <A1.0 | <A1.0 | <A1.0 | A4.1 | <A1.0 |
| 30 | <A1.0 | <A1.0 | <A1.0 | <A1.0 | <A1.0 | <A1.0 | <A1.0 | <A1.0 | <A1.0 | | A3.7 | <A1.0 |
| 31 | A5.1 | | <A1.0 | <A1.0 | | <A1.0 | | A6.2 | <A1.0 | | A3.3 | |

Levels below B1.0 are unreliable.

ACTIVE PROMINENCES AND FILAMENTS

APRIL 2008

| Day | Event Type | Start (UT) | End (UT) | Lat | CMD | CMP Mo | Day | Imp | Extent | Blue Shift (.1 A) | Red Shift (.1 A) | Obs Type | Sta | NOAA/USAF Reg# | Remarks |
|-----|------------|------------|----------|-----|-----|--------|------|-----|--------|-------------------|------------------|----------|------|----------------|---------|
| 24 | DSF | 1633U | 0524U | S10 | W18 | 04 | 23.3 | | 09 | 0 | 0 | E | SVTO | | |

| | | |
|----------------------------|---|--|
| ADF = Active Dark Filament | BSL = Bright Surge on Limb | EPL = Eruptive Prominence on Limb |
| AFS = Arch Filament System | CAP = CAP Prominence (Tandberg-Hanssen) | LPS = Loops |
| APR = Active Prominence | CRN = Coronal Rain | MDP = Mound Prominence |
| ASR = Active Surge Region | DSD = Dark Surge on Disk | SDF/DSF = Sudden Disappearing Filament |
| BSD = Bright Surge on Disk | DSF = Disappearing Solar Filament | SPY = Spray |
| | | SSB = Solar Sector Boundary |

For SOLAR SECTOR BOUNDARY REPORTS, the latitude field contains the Carrington longitude of the point where a neutral line crosses the solar equator. The comments field may contain the Carrington longitude and central meridian distance of two more intersection points.

The EXTENT field for limb events is the radial extent above the limb in hundredths of solar radius. For disk events this field contains the heliographic extent in whole degrees.

The remark "Bright Emission 1/3" indicates that bright emission was observed 1/3 of time. The remark "Normal Emission 1/3" indicates that normal emission was observed 1/3 of time.

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

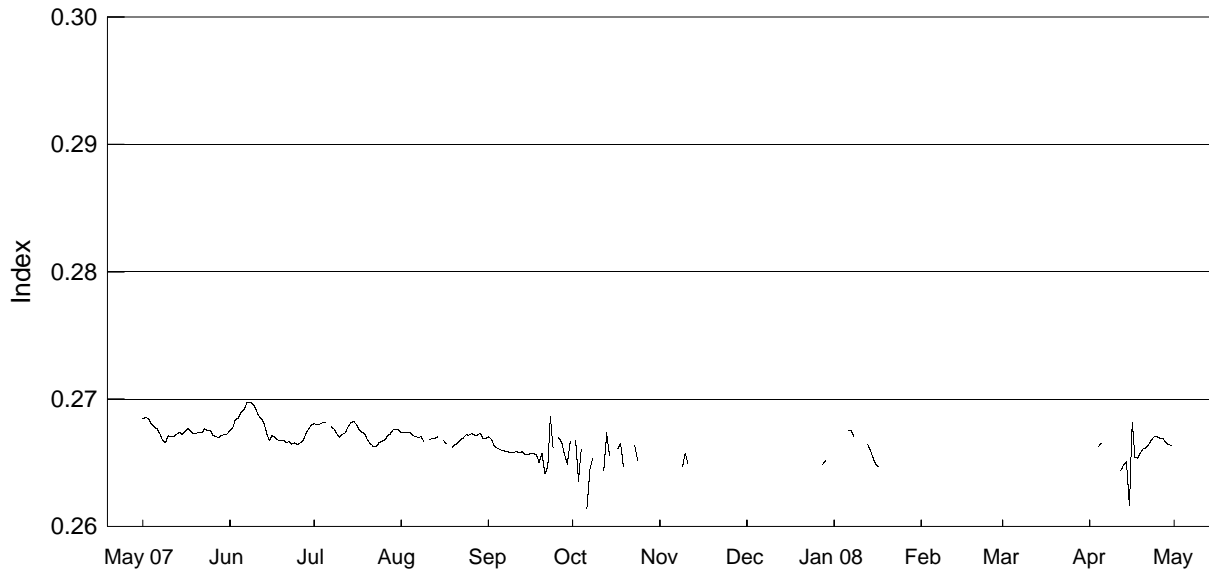
| | | |
|-------------------|------------------|-------------------------|
| ABST = Abastumani | HOLL = Holloman | RAMY = Ramey |
| ATHN = Athens | KHAR = Kharkov | SVTO = San Vito |
| BUCA = Bucharest | LEAR = Learmonth | VORO = Voroshilov |
| CATA = Catania | PALE = Palehua | VALA = Valasse Mezirici |
| | | WROC = Wroclaw |

NOTE: The U.S. Air Force solar observing sites (HOLL, LEAR, RAMY, AND SVTO) have changed operational requirements and will only report the following: BSL, EPL, LPS, SPY, and DSF's.

NOAA Solar Ultraviolet (UV) MgII Core-to-Wing Index

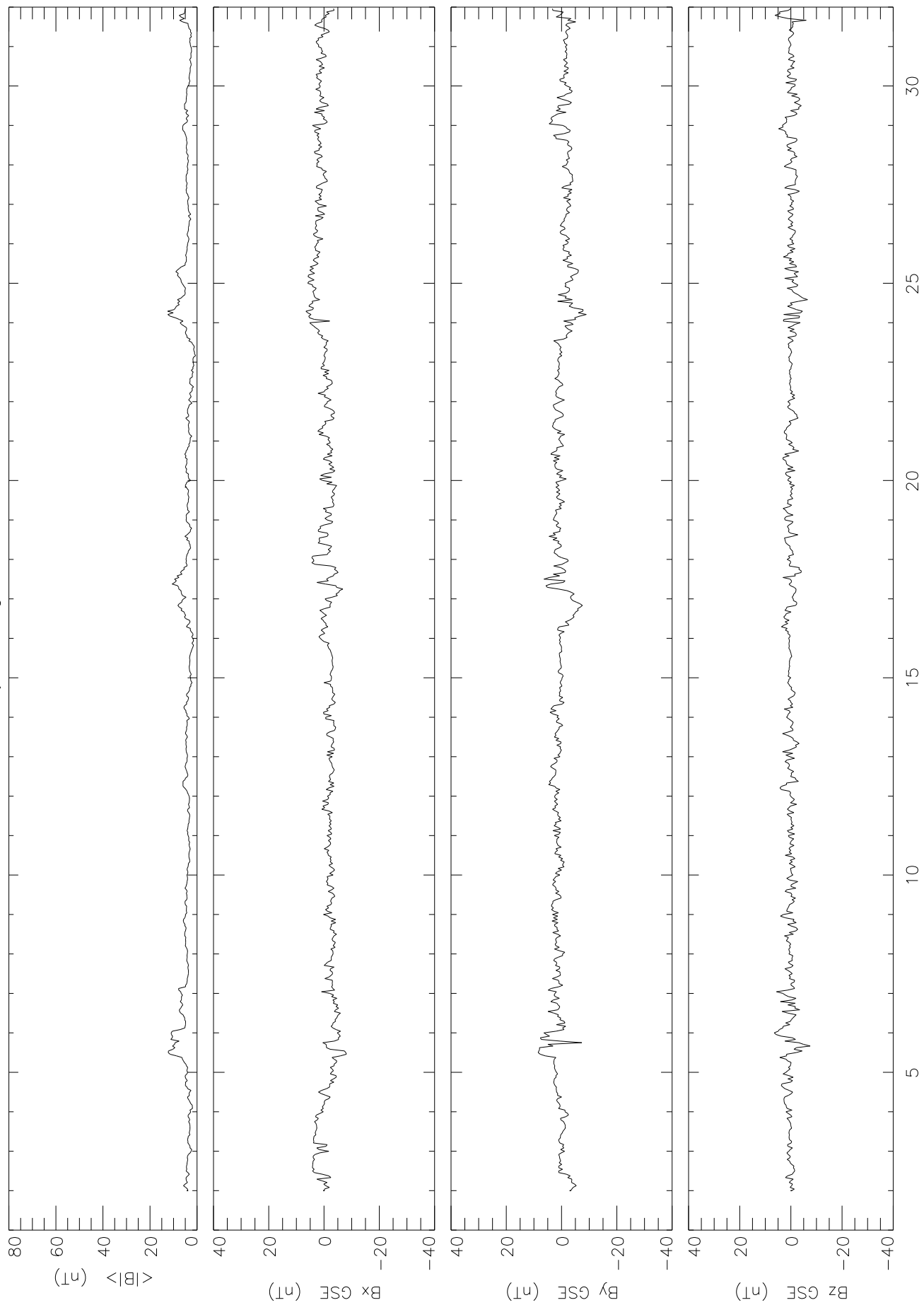
May 2007 - Apr 2008

Version 9.1



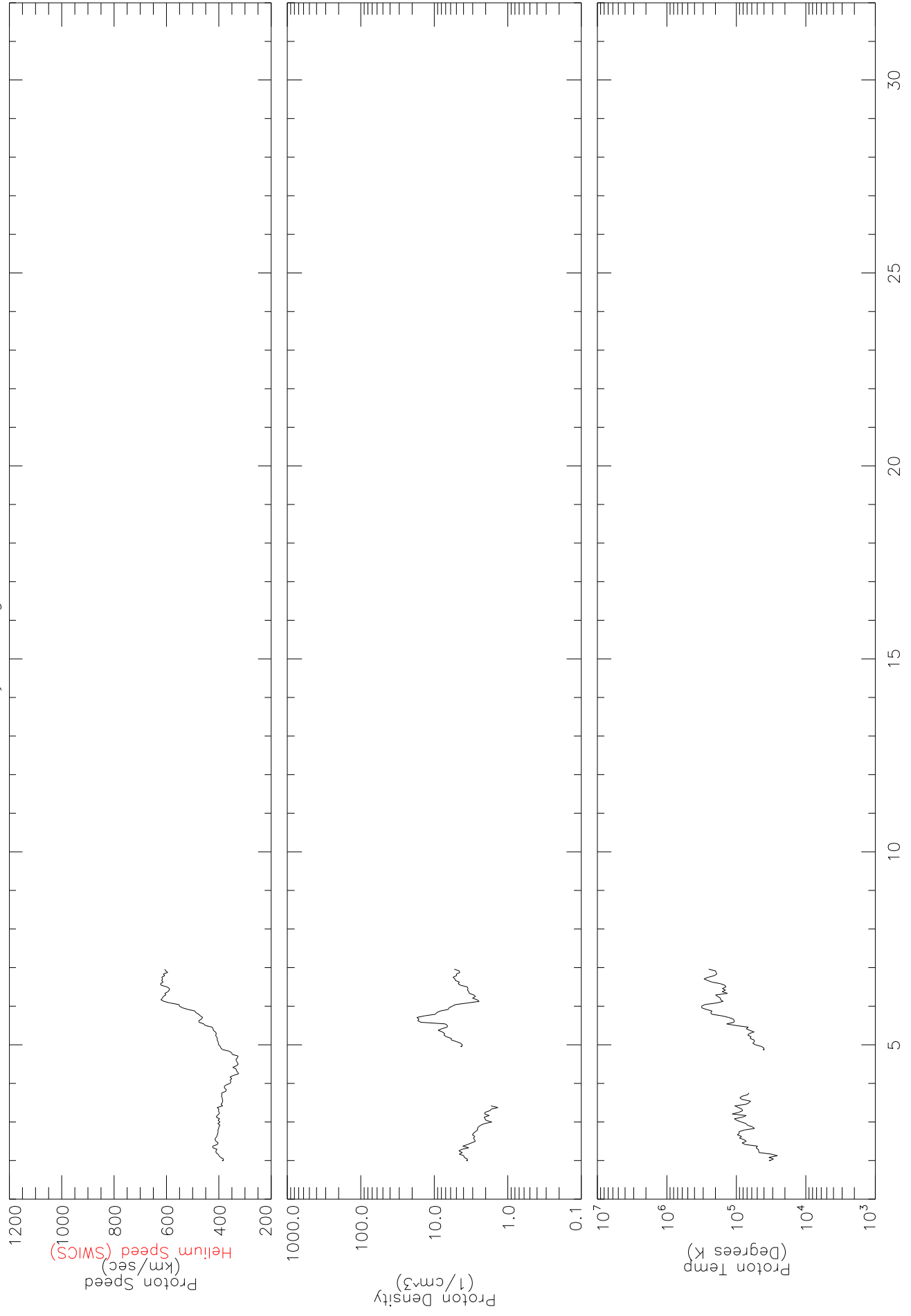
| Day | May 07 | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Jan 08 | Feb | Mar | Apr |
|------|--------|--------|--------|--------|--------|--------|--------|--------|--------|-----|-----|--------|
| 1 | 0.2685 | 0.2676 | 0.2681 | 0.2674 | 0.2671 | --- | --- | --- | --- | --- | --- | --- |
| 2 | 0.2686 | 0.2678 | 0.2680 | 0.2674 | 0.2669 | 0.2668 | --- | --- | 0.2658 | --- | --- | --- |
| 3 | 0.2685 | 0.2684 | 0.2681 | 0.2674 | 0.2663 | 0.2635 | --- | --- | --- | --- | --- | --- |
| 4 | 0.2680 | 0.2685 | 0.2682 | 0.2674 | 0.2662 | 0.2661 | --- | --- | --- | --- | --- | 0.2663 |
| 5 | 0.2679 | 0.2690 | 0.2682 | 0.2672 | 0.2661 | --- | --- | --- | --- | --- | --- | 0.2665 |
| 6 | 0.2677 | 0.2692 | --- | 0.2671 | 0.2660 | 0.2615 | --- | --- | 0.2675 | --- | --- | --- |
| 7 | 0.2673 | 0.2697 | 0.2678 | 0.2670 | 0.2659 | 0.2645 | 0.2644 | --- | 0.2675 | --- | --- | --- |
| 8 | 0.2667 | 0.2698 | 0.2677 | 0.2671 | 0.2659 | 0.2654 | --- | --- | 0.2671 | --- | --- | --- |
| 9 | 0.2666 | 0.2697 | 0.2673 | 0.2667 | 0.2658 | --- | 0.2647 | --- | --- | --- | --- | --- |
| 10 | 0.2671 | 0.2693 | 0.2670 | --- | 0.2659 | --- | 0.2658 | --- | --- | --- | --- | --- |
| 11 | 0.2671 | 0.2688 | 0.2673 | 0.2668 | 0.2659 | --- | 0.2650 | --- | 0.2527 | --- | --- | --- |
| 12 | 0.2671 | 0.2685 | 0.2674 | 0.2669 | 0.2658 | 0.2644 | --- | --- | --- | --- | --- | 0.2644 |
| 13 | 0.2672 | 0.2682 | 0.2678 | 0.2670 | 0.2659 | 0.2674 | --- | --- | 0.2664 | --- | --- | 0.2649 |
| 14 | 0.2674 | 0.2674 | 0.2681 | 0.2671 | 0.2657 | 0.2655 | --- | --- | 0.2659 | --- | --- | 0.2651 |
| 15 | 0.2672 | 0.2667 | 0.2683 | --- | 0.2656 | --- | --- | --- | 0.2653 | --- | --- | 0.2617 |
| 16 | 0.2675 | 0.2672 | 0.2680 | 0.2668 | 0.2657 | --- | --- | --- | 0.2648 | --- | --- | 0.2682 |
| 17 | 0.2677 | 0.2670 | 0.2676 | 0.2665 | 0.2657 | 0.2661 | --- | --- | 0.2647 | --- | --- | 0.2655 |
| 18 | 0.2675 | 0.2668 | 0.2674 | --- | 0.2656 | 0.2665 | --- | --- | --- | --- | --- | 0.2654 |
| 19 | 0.2673 | 0.2668 | 0.2672 | 0.2662 | 0.2650 | 0.2647 | --- | --- | --- | --- | --- | 0.2658 |
| 20 | 0.2673 | 0.2668 | 0.2667 | 0.2664 | 0.2657 | --- | --- | --- | --- | --- | --- | 0.2661 |
| 21 | 0.2674 | 0.2666 | 0.2665 | 0.2666 | 0.2641 | --- | --- | --- | --- | --- | --- | 0.2662 |
| 22 | 0.2674 | 0.2667 | 0.2663 | 0.2668 | 0.2647 | --- | --- | --- | --- | --- | --- | 0.2665 |
| 23 | 0.2677 | 0.2665 | 0.2663 | 0.2670 | 0.2687 | 0.2664 | --- | --- | --- | --- | --- | 0.2669 |
| 24 | 0.2675 | 0.2666 | 0.2666 | 0.2672 | 0.2662 | 0.2652 | --- | 0.2665 | --- | --- | --- | 0.2671 |
| 25 | 0.2676 | 0.2664 | 0.2667 | 0.2672 | --- | --- | --- | --- | --- | --- | --- | 0.2670 |
| 26 | 0.2672 | 0.2666 | 0.2668 | 0.2673 | 0.2670 | --- | --- | --- | --- | --- | --- | 0.2669 |
| 27 | 0.2671 | 0.2667 | 0.2671 | 0.2672 | 0.2666 | --- | --- | --- | --- | --- | --- | 0.2669 |
| 28 | 0.2670 | 0.2673 | 0.2673 | 0.2672 | 0.2656 | --- | --- | 0.2649 | --- | --- | --- | 0.2666 |
| 29 | 0.2672 | 0.2677 | 0.2676 | 0.2673 | 0.2649 | 0.2658 | --- | 0.2652 | --- | --- | --- | 0.2664 |
| 30 | 0.2672 | 0.2680 | 0.2676 | 0.2669 | 0.2667 | --- | --- | --- | --- | --- | --- | 0.2664 |
| 31 | 0.2673 | --- | 0.2676 | 0.2669 | --- | --- | --- | --- | --- | --- | --- | --- |
| Mean | 0.2674 | 0.2677 | 0.2674 | 0.2670 | 0.2660 | 0.2653 | 0.2650 | 0.2655 | 0.2661 | --- | --- | 0.2660 |

Interplanetary Magnetic Field
ACE LEVEL2 DATA Hourly Averages for APRIL 2008, from MAG

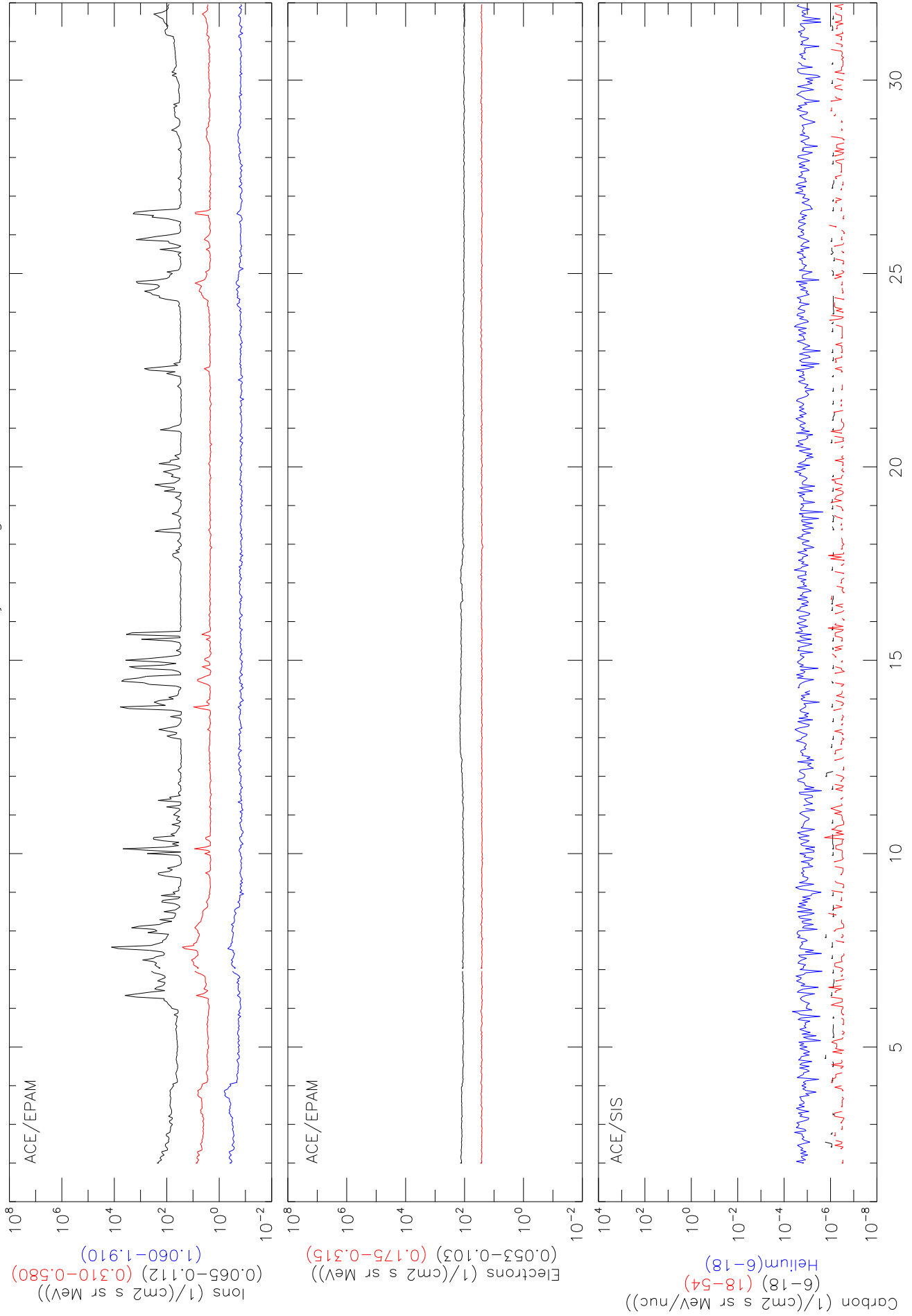


DAYS OF APRIL 2008

ACE LEVEL2 DATA Solar Wind Plasma Hourly Averages for APRIL 2008, from SWEPPAM



Solar Energetic Particles ACE LEVEL2 DATA Hourly Averages for APRIL 2008



SOLAR CORONAL MASS EJECTIONS (CMEs) FROM SOHO/LASCO

<http://cdaw.gsfc.nasa.gov/>

Center for Solar Physics and Space Weather (CSPSW) – The Catholic University of America/NRL/NASA
APRIL 2008

| First C2 Appearance | | Central Width | | | Linear Fit | | | Measurement | | Remarks |
|---------------------|----------|-----------------------|----------------------|------------|--------------|------------|----------|------------------------|-----------------------|--------------------------|
| Date | Time UT | Position Angle degree | Angular Width degree | Speed km/s | Initial km/s | Final km/s | 20R km/s | Accel m/s ² | Position Angle degree | |
| 2008/04/01 | 05:06:04 | 289 | 15 | 214 | 240 | 184 | 0 | -2.5* | 287 | Poor Event |
| 2008/04/01 | 15:30:06 | 241 | 46 | 129 | 57 | 197 | 243 | 2.4* | 241 | Poor Event |
| 2008/04/01 | 19:31:41 | 308 | 10 | 160 | 170 | 151 | 0 | -2.3* | 306 | Very Poor; Only C2 |
| 2008/04/01 | 19:31:41 | 110 | 11 | 295 | 248 | 340 | 679 | 17.0* | 107 | Very Poor; Only C2 |
| 2008/04/02 | 19:54:04 | 259 | 63 | 243 | 300 | 180 | 166 | -2.7* | 261 | |
| 2008/04/02 | 23:54:04 | 354 | 7 | 213 | 301 | 126 | 0 | -28.7* | 355 | Very Poor; Only C2 |
| 2008/04/03 | 17:06:04 | 178 | 6 | 200 | 264 | 132 | 0 | -34.9* | 177 | Very Poor; Only C2 |
| 2008/04/03 | 19:50:04 | 264 | 62 | 225 | 283 | 159 | 0 | -5.0* | 265 | Poor Event |
| 2008/04/04 | 06:06:06 | 201 | 4 | 142 | 193 | 94 | 0 | -20.1* | 200 | Very Poor; Only C2 |
| 2008/04/05 | 02:26:04 | 179 | 11 | 166 | 253 | 82 | 0 | -23.4* | 177 | Very Poor; Only C2 |
| 2008/04/05 | 04:26:07 | 223 | 5 | 241 | 267 | 214 | 170 | -2.0* | 231 | Very Poor Event |
| 2008/04/05 | 06:50:04 | 244 | 11 | 299 | 388 | 213 | 0 | -11.1* | 245 | Poor Event |
| 2008/04/05 | 16:06:04 | 254 | 209 | 962 | 1137 | 782 | 884 | -21.3 | 283 | Partial Halo |
| 2008/04/05 | 21:26:09 | 236 | 21 | 306 | 186 | 434 | 620 | 14.4* | 241 | |
| 2008/04/05 | 22:26:04 | 267 | 18 | 349 | 266 | 437 | 491 | 7.4* | 270 | |
| 2008/04/06 | 10:06:04 | 124 | 16 | 186 | 220 | 151 | 0 | -10.6* | 121 | Very Poor; Only C2 |
| 2008/04/07 | 15:26:09 | 4 | 5 | 141 | 22 | 269 | 1575 | 103.3* | 6 | Very Poor; 3pts; Only C2 |
| 2008/04/07 | 16:26:04 | 251 | 9 | 316 | 336 | 295 | 206 | -3.6* | 252 | Very Poor Event |
| 2008/04/07 | 18:26:04 | 294 | 15 | 212 | 197 | 227 | 396 | 5.0* | 291 | Very Poor; Only C2 |
| 2008/04/08 | 08:26:04 | 108 | 14 | 234 | 148 | 317 | 538 | 11.4* | 115 | Poor Event |
| 2008/04/08 | 11:06:05 | 14 | 8 | 302 | 407 | 200 | 0 | -78.6* | 18 | Very Poor; 3pts; Only C2 |
| 2008/04/08 | 17:26:04 | 258 | 89 | 257 | 243 | 271 | 331 | 2.1* | 267 | |
| 2008/04/09 | 10:26:05 | 232 | 67 | 650 | 636 | 664 | 662 | 1.4 | 250 | |
| 2008/04/09 | 15:26:09 | 81 | 17 | 116 | 106 | 125 | 204 | 1.3* | 78 | Poor Event |
| 2008/04/09 | 21:26:04 | 215 | 13 | 212 | 235 | 188 | 106 | -2.0* | 216 | Very Poor Event |
| 2008/04/10 | 02:50:04 | 78 | 13 | 191 | 162 | 227 | 277 | 2.2* | 82 | Very Poor Event |
| 2008/04/10 | 16:26:04 | 241 | 4 | 362 | 185 | 552 | 1917 | 153.1* | 242 | Very Poor; 3pts; Only C2 |
| 2008/04/10 | 16:26:04 | 286 | 5 | 186 | 161 | 211 | 293 | 2.9* | 287 | Very Poor Event |
| 2008/04/11 | 02:06:05 | 286 | 20 | 254 | 209 | 303 | 322 | 2.5* | 287 | Very Poor Event |
| 2008/04/11 | 03:26:08 | 257 | 24 | 178 | 164 | 193 | 402 | 5.7* | 251 | Very Poor; Only C2 |
| 2008/04/11 | 23:06:04 | 64 | 29 | 432 | 468 | 390 | 409 | -2.2 | 63 | |
| 2008/04/12 | 12:06:04 | 184 | 36 | 119 | 96 | 143 | 216 | 1.6* | 184 | Very Poor Event |
| 2008/04/12 | 18:06:04 | 175 | 72 | 115 | 27 | 197 | 282 | 3.3* | 162 | Very Poor Event |
| 2008/04/13 | 10:06:04 | 159 | 52 | 179 | 130 | 221 | 387 | 5.5* | 171 | Very Poor Event |
| 2008/04/13 | 16:06:04 | 13 | 5 | 295 | 286 | 305 | 503 | 7.2* | 16 | Very Poor; 3pts; Only C2 |
| 2008/04/14 | 01:27:15 | 140 | 28 | 177 | 184 | 171 | 0 | -2.5* | 144 | Very Poor; Only C2 |
| 2008/04/14 | 05:26:04 | 115 | 51 | 381 | 359 | 405 | 400 | 1.4* | 123 | |
| 2008/04/14 | 07:27:16 | 15 | 4 | 281 | 85 | 490 | 2063 | 174.0* | 14 | Very Poor; 3pts; Only C2 |
| 2008/04/14 | 07:27:16 | 290 | 26 | 164 | 239 | 91 | 0 | -30.9* | 291 | Very Poor; Only C2 |
| 2008/04/15 | 01:27:10 | 344 | 5 | 308 | 245 | 371 | 959 | 36.2* | 341 | Very Poor; Only C2 |
| 2008/04/15 | 10:26:04 | 327 | 7 | 160 | 149 | 172 | 419 | 6.4* | 322 | Very Poor; 3pts; Only C2 |
| 2008/04/15 | 15:26:08 | 133 | 8 | 107 | 113 | 101 | 0 | -1.0* | 131 | Very Poor; Only C2 |
| 2008/04/15 | 23:26:05 | 13 | 7 | 263 | 46 | 592 | 2441 | 265.9* | 14 | Very Poor; 3pts; Only C2 |

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SOLAR CORONAL MASS EJECTIONS (CMEs) FROM SOHO/LASCO

<http://cdaw.gsfc.nasa.gov/>

Center for Solar Physics and Space Weather (CSPSW) – The Catholic University of America/NRL/NASA
APRIL 2008

| First C2 Appearance | | Central Width | | | Linear Fit | | | Measurement | | Remarks |
|---------------------|----------|-----------------------|----------------------|------------|--------------|------------|----------|------------------------|-----------------------|---------------------------|
| Date | Time UT | Position Angle degree | Angular Width degree | Speed km/s | Initial km/s | Final km/s | 20R km/s | Accel m/s ² | Position Angle degree | |
| 2008/04/16 | 04:50:04 | 93 | 24 | 100 | 116 | 84 | 0 | -3.3* | 92 | Very Poor; Only C2 |
| 2008/04/16 | 09:26:08 | 83 | 53 | 200 | 247 | 151 | 0 | -2.9* | 88 | Poor Event |
| 2008/04/16 | 13:04:43 | 15 | 9 | 468 | 421 | 520 | 901 | 27.0* | 14 | Poor Event; 3pts; Only C2 |
| 2008/04/16 | 21:26:04 | 284 | 15 | 243 | 375 | 117 | 0 | -39.5* | 283 | Very Poor Event |
| 2008/04/16 | 22:06:04 | 82 | 18 | 227 | 266 | 188 | 0 | -3.3* | 86 | |
| 2008/04/17 | 21:50:04 | 241 | 16 | 538 | 447 | 624 | 918 | 27.1* | 245 | Poor Event |
| 2008/04/18 | 16:54:04 | 168 | 26 | 279 | 230 | 333 | 646 | 15.2* | 168 | Very Poor; Only C2 |
| 2008/04/18 | 22:30:04 | 229 | 7 | 184 | 128 | 241 | 682 | 18.7* | 240 | Very Poor; Only C2 |
| 2008/04/19 | 06:06:26 | 88 | 14 | 375 | 422 | 328 | 0 | -7.8* | 89 | Very Poor Event |
| 2008/04/19 | 14:30:04 | 21 | 7 | 197 | 187 | 206 | 353 | 3.8* | 22 | Very Poor; Only C2 |
| 2008/04/19 | 15:30:04 | 305 | 7 | 205 | 139 | 264 | 753 | 22.7* | 307 | Very Poor; Only C2 |
| 2008/04/21 | 16:54:28 | 275 | 32 | 325 | 325 | 325 | 324 | -0.0* | 276 | Very Poor Event |
| 2008/04/22 | 01:54:04 | 109 | 4 | 309 | 283 | 334 | 642 | 13.9* | 109 | Very Poor; Only C2 |
| 2008/04/23 | 06:30:04 | 270 | 26 | 227 | 136 | 314 | 832 | 28.3* | 272 | Very Poor; Only C2 |
| 2008/04/24 | 05:06:04 | 64 | 28 | 185 | 213 | 157 | 0 | -5.3* | 67 | Very Poor; Only C2 |
| 2008/04/24 | 12:54:05 | 25 | 7 | 420 | 196 | 663 | 1753 | 129.7* | 25 | Very Poor; 3pts; Only C2 |
| 2008/04/24 | 13:31:42 | 80 | 25 | 153 | 166 | 139 | 0 | -1.8* | 88 | Very Poor Event |
| 2008/04/25 | 00:06:04 | 62 | 30 | 155 | 199 | 110 | 0 | -11.7* | 62 | Very Poor; Only C2 |
| 2008/04/25 | 04:30:04 | 264 | 12 | 447 | 486 | 408 | 0 | -22.4* | 266 | Very Poor; Only C2 |
| 2008/04/25 | 11:30:05 | 207 | 11 | 370 | 411 | 324 | 0 | -40.5* | 212 | Very Poor; 3pts; Only C2 |
| 2008/04/25 | 14:54:04 | 290 | 6 | 296 | 214 | 372 | 936 | 34.7* | 290 | Very Poor; Only C2 |
| 2008/04/25 | 23:06:06 | 313 | 33 | 71 | 61 | 81 | 156 | 0.8* | 315 | Very Poor; Only C2 |
| 2008/04/26 | 02:30:04 | 234 | 29 | 230 | 84 | 360 | 447 | 8.6* | 226 | Poor Event |
| 2008/04/26 | 04:30:04 | 284 | 22 | 703 | 899 | 502 | 0 | -49.5 | 277 | |
| 2008/04/26 | 14:30:04 | 65 | 281 | 515 | 407 | 621 | 603 | 8.2 | 59 | Partial Halo |
| 2008/04/27 | 16:30:04 | 97 | 49 | 76 | 34 | 122 | 171 | 1.2* | 98 | Very Poor Event |
| 2008/04/28 | 00:54:05 | 229 | 14 | 101 | 108 | 94 | 0 | -1.9* | 233 | Very Poor; Only C2 |
| 2008/04/28 | 02:06:04 | 292 | 10 | 190 | 255 | 125 | 0 | -13.4* | 287 | Poor Event; Only C2 |
| 2008/04/28 | 22:06:04 | 289 | 7 | 200 | 177 | 224 | 404 | 5.5* | 288 | Poor Event; Only C2 |
| 2008/04/29 | 00:30:04 | 31 | 7 | 197 | 315 | 86 | 0 | -61.6* | 35 | Very Poor; 3pts; Only C2 |
| 2008/04/29 | 00:54:04 | 292 | 14 | 411 | 386 | 438 | 444 | 2.0* | 290 | |
| 2008/04/29 | 06:30:05 | 95 | 14 | 201 | 191 | 213 | 223 | 0.6* | 97 | |
| 2008/04/29 | 10:06:29 | 300 | 9 | 233 | 207 | 259 | 437 | 6.1* | 298 | Very Poor; Only C2 |
| 2008/04/29 | 19:55:28 | 232 | 13 | 295 | 230 | 368 | 370 | 4.1* | 239 | Poor Event |
| 2008/04/30 | 09:30:04 | 337 | 6 | 289 | 18 | 588 | 2489 | 264.0* | 333 | Very Poor; 3pts; Only C2 |
| 2008/04/30 | 11:06:04 | 24 | 5 | 169 | 121 | 218 | 892 | 33.6* | 29 | Very Poor; 3pts; Only C2 |
| 2008/04/30 | 13:31:40 | 296 | 6 | 298 | 229 | 375 | 644 | 15.1* | 292 | Very Poor Event |

* Acceleration is uncertain due to either poor height measurement or a small number of height-time measurements.

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