

**Space Weather Highlights**  
**26 February – 04 March 2007**

**SEC PRF 1644**  
**06 March 2007**

Solar activity was very low. Isolated B-class flares occurred on 27 February and 02 March.

No proton events were observed at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit reached high levels during 01 – 04 March.

The geomagnetic field was at quiet to unsettled levels on 26 February. Activity increased to quiet to active levels on 27 February as a recurrent coronal hole high-speed stream began to influence the field. A further increase to quiet to minor storm levels occurred on 28 February with major storm periods at high latitudes. Activity decreased to quiet to active levels on 01 March with minor storm periods at high latitudes. Activity decreased to quiet levels at all latitudes during the remainder of the period. ACE near real-time solar wind data indicated the recurrent high-speed stream began early on 27 March, reached a peak of 700 km/sec at 28/2159 UTC, then began to gradually subside on 01 March. Maximum IMF variability occurred as the high-speed stream commenced with a minimum southward Bz reading of -15 nT observed at 27/0712 UTC and a maximum Bt reading of 15 nT at 27/0616 UTC. Proton density reached a peak of 44 pfu at 26/0221 UTC in advance of the high-speed stream.

**Space Weather Outlook**  
**07 March – 02 April 2007**

Solar activity is expected to be at very low levels.

No proton events are expected at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit is expected to reach high levels during 08 – 09, 14 – 23, and 28 - 31 March.

The geomagnetic field is expected to be at quiet to unsettled levels during 07 – 11 March.

Field activity is expected to increase to unsettled to minor storm levels during 12 – 13 March due to a recurrent coronal hole high-speed stream. Quiet to unsettled conditions are expected during 14 – 25 March. Field activity is expected to increase to unsettled to minor storm levels during 26 - 27 March due to a recurrent coronal hole high-speed stream. Quiet to unsettled conditions are expected during 28 March – 01 April. Activity is expected to increase to unsettled to minor storm levels on 02 April due to a recurrent coronal hole high-speed stream.



### Daily Solar Data

| Date        | Radio<br>Flux<br>10.7 cm | Sun<br>spot<br>No. | Sunspot<br>Area<br>(10 <sup>-6</sup> hemi.) | X-ray<br>Background | Flares     |   |   |         |   |   |   |   |
|-------------|--------------------------|--------------------|---------------------------------------------|---------------------|------------|---|---|---------|---|---|---|---|
|             |                          |                    |                                             |                     | X-ray Flux |   |   | Optical |   |   |   |   |
|             |                          |                    |                                             |                     | C          | M | X | S       | 1 | 2 | 3 | 4 |
| 26 February | 75                       | 22                 | 130                                         | <A1.0               | 0          | 0 | 0 | 0       | 0 | 0 | 0 | 0 |
| 27 February | 75                       | 23                 | 120                                         | <A1.0               | 0          | 0 | 0 | 0       | 0 | 0 | 0 | 0 |
| 28 February | 76                       | 22                 | 130                                         | <A1.0               | 0          | 0 | 0 | 0       | 0 | 0 | 0 | 0 |
| 01 March    | 75                       | 11                 | 90                                          | <A1.0               | 0          | 0 | 0 | 0       | 0 | 0 | 0 | 0 |
| 02 March    | 76                       | 23                 | 160                                         | <A1.0               | 0          | 0 | 0 | 0       | 0 | 0 | 0 | 0 |
| 03 March    | 73                       | 11                 | 90                                          | <A1.0               | 0          | 0 | 0 | 0       | 0 | 0 | 0 | 0 |
| 04 March    | 73                       | 24                 | 70                                          | <A1.0               | 0          | 0 | 0 | 0       | 0 | 0 | 0 | 0 |

### Daily Particle Data

| Date        | Proton Fluence<br>(protons/cm <sup>2</sup> -day-sr) |         |          | Electron Fluence<br>(electrons/cm <sup>2</sup> -day-sr) |        |        |
|-------------|-----------------------------------------------------|---------|----------|---------------------------------------------------------|--------|--------|
|             | >1 MeV                                              | >10 MeV | >100 MeV | >.6 MeV                                                 | >2MeV  | >4 MeV |
|             |                                                     |         |          |                                                         |        |        |
| 26 February | 1.8E+6                                              | 1.7E+4  | 3.7E+3   |                                                         | 2.3E+6 |        |
| 27 February | 2.0E+6                                              | 1.6E+4  | 3.8E+3   |                                                         | 2.9E+6 |        |
| 28 February | 3.0E+6                                              | 1.7E+4  | 3.6E+3   |                                                         | 7.9E+6 |        |
| 01 March    | 3.5E+6                                              | 1.6E+4  | 3.6E+3   |                                                         | 2.0E+8 |        |
| 02 March    | 1.1E+6                                              | 1.6E+4  | 3.7E+3   |                                                         | 2.5E+8 |        |
| 03 March    | 1.3E+6                                              | 1.7E+4  | 3.9E+3   |                                                         | 2.9E+8 |        |
| 04 March    | 1.7E+6                                              | 1.7E+4  | 3.9E+3   |                                                         | 1.9E+8 |        |

### Daily Geomagnetic Data

| Date        | Middle Latitude<br>Fredericksburg |                 | High Latitude<br>College |                 | Estimated<br>Planetary |                 |
|-------------|-----------------------------------|-----------------|--------------------------|-----------------|------------------------|-----------------|
|             | A                                 | K-indices       | A                        | K-indices       | A                      | K-indices       |
|             |                                   |                 |                          |                 |                        |                 |
| 26 February | 4                                 | 2-3-1-1-1-1-0-0 | 3                        | 1-2-1-2-0-0-0-0 | 4                      | 2-3-1-1-0-0-0-0 |
| 27 February | 7                                 | 0-0-2-2-2-2-3-3 | 16                       | 2-0-3-4-4-4-3-2 | 12                     | 0-0-3-2-1-3-4-3 |
| 28 February | 12                                | 3-3-3-3-2-2-2-3 | 38                       | 3-4-6-6-5-4-3-3 | 23                     | 3-5-5-4-3-3-3-3 |
| 01 March    | 7                                 | 3-2-3-1-2-1-1-1 | 21                       | 2-2-4-5-5-3-3-1 | 11                     | 4-3-3-2-3-2-1-2 |
| 02 March    | 4                                 | 0-2-2-1-1-1-1-1 | 3                        | 0-0-2-2-2-0-1-0 | 5                      | 1-2-2-1-1-2-2-1 |
| 03 March    | 0                                 | 0-0-0-0-0-1-0-0 | 1                        | 0-0-0-0-1-1-0-0 | 2                      | 0-0-0-0-1-1-1-1 |
| 04 March    | 4                                 | 0-1-1-1-2-1-1-2 | 2                        | 0-0-1-2-1-0-1-0 | 3                      | 0-0-1-1-1-0-1-2 |

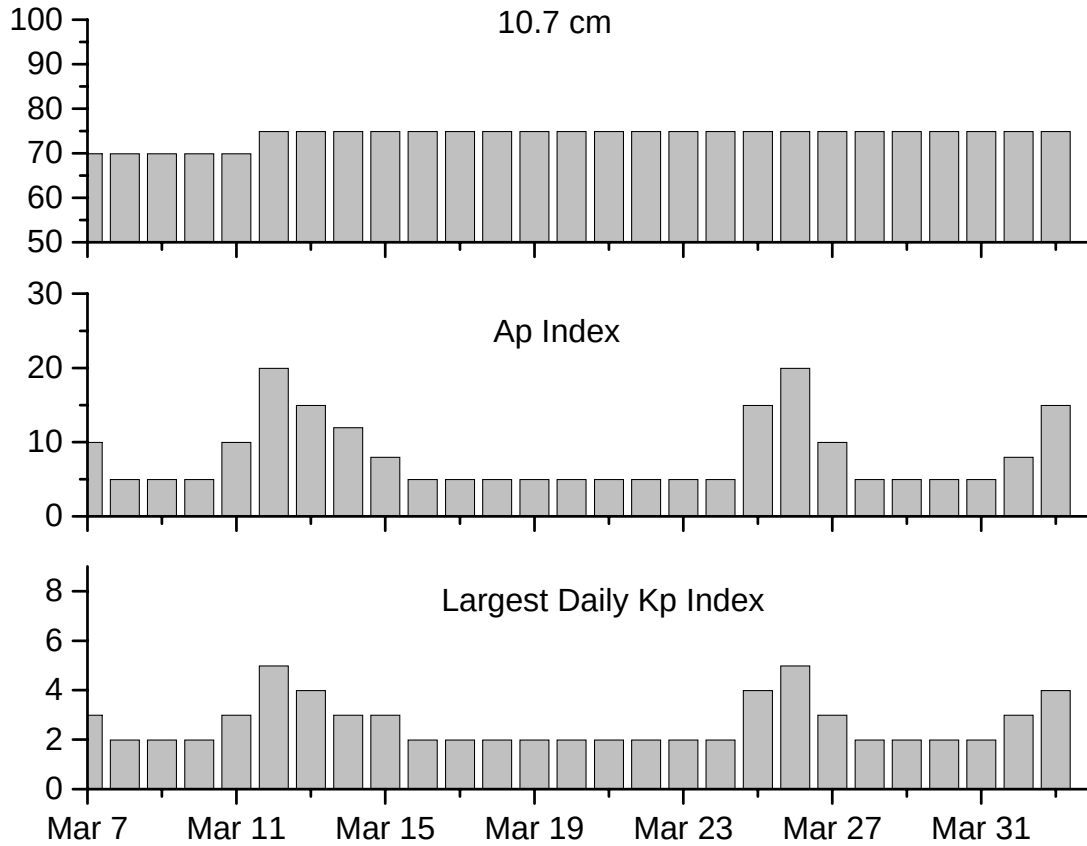


### *Alerts and Warnings Issued*

| Date & Time of Issue | Type of Alert or Warning                    | Date & Time of Event UTC  |
|----------------------|---------------------------------------------|---------------------------|
| 27 Feb 1624          | WARNING: Geomagnetic K=4                    | 27 Feb 1625 - 28/1600     |
| 27 Feb 1627          | ALERT: Geomagnetic K=4                      | 27 Feb 1627               |
| 28 Feb 0542          | WARNING: Geomagnetic K=5                    | 28 Feb 0543 - 1600        |
| 28 Feb 0829          | ALERT: Geomagnetic K=5                      | 28 Feb 0828               |
| 28 Feb 1558          | EXTENDED WARNING: Geomagnetic K=4           | 27 Feb 1625 - 01 Mar 1600 |
| 01 Mar 0636          | WARNING: Geomagnetic K=5                    | 01 Mar 0636 - 1600        |
| 01 Mar 1111          | ALERT: Electron 2MeV Integral Flux >1000pfu | 01 Mar 1055               |
| 02 Mar 0629          | ALERT: Electron 2MeV Integral Flux >1000pfu | 02 Mar 0605               |
| 03 Mar 0501          | ALERT: Electron 2MeV Integral Flux >1000pfu | 03 Mar 0500               |
| 04 Mar 0501          | ALERT: Electron 2MeV Integral Flux >1000pfu | 04 Mar 0500               |



### Twenty-seven Day Outlook



| Date   | Radio Flux<br>10.7 cm | Planetary<br>A Index | Largest<br>Kp Index | Date   | Radio Flux<br>10.7 cm | Planetary<br>A Index | Largest<br>Kp Index |
|--------|-----------------------|----------------------|---------------------|--------|-----------------------|----------------------|---------------------|
| 07 Mar | 70                    | 10                   | 3                   | 21 Mar | 75                    | 5                    | 2                   |
| 08     | 70                    | 5                    | 2                   | 22     | 75                    | 5                    | 2                   |
| 09     | 70                    | 5                    | 2                   | 23     | 75                    | 5                    | 2                   |
| 10     | 70                    | 5                    | 2                   | 24     | 75                    | 5                    | 2                   |
| 11     | 70                    | 10                   | 3                   | 25     | 75                    | 15                   | 4                   |
| 12     | 75                    | 20                   | 5                   | 26     | 75                    | 20                   | 5                   |
| 13     | 75                    | 15                   | 4                   | 27     | 75                    | 10                   | 3                   |
| 14     | 75                    | 12                   | 3                   | 28     | 75                    | 5                    | 2                   |
| 15     | 75                    | 8                    | 3                   | 29     | 75                    | 5                    | 2                   |
| 16     | 75                    | 5                    | 2                   | 30     | 75                    | 5                    | 2                   |
| 17     | 75                    | 5                    | 2                   | 31     | 75                    | 5                    | 2                   |
| 18     | 75                    | 5                    | 2                   | 01 Apr | 75                    | 8                    | 3                   |
| 19     | 75                    | 5                    | 2                   | 02     | 75                    | 15                   | 4                   |
| 20     | 75                    | 5                    | 2                   |        |                       |                      |                     |



### ***Energetic Events***

| Date | Time          |     |     | X-ray |      | Optical Information |          |     | Peak       |      | Sweep Freq |    |
|------|---------------|-----|-----|-------|------|---------------------|----------|-----|------------|------|------------|----|
|      | $\frac{1}{2}$ |     |     | Integ |      | Imp/                | Location | Rgn | Radio Flux |      | Intensity  |    |
|      | Begin         | Max | Max | Class | Flux | Brtns               | Lat CMD  | #   | 245        | 2695 | II         | IV |

***No Events Observed***

### ***Flare List***

| Date        | Time               |      |      | Optical         | Imp /<br>Brtns | Location<br>Lat CMD | Rgn |
|-------------|--------------------|------|------|-----------------|----------------|---------------------|-----|
|             | Begin              | Max  | End  | X-ray<br>Class. |                |                     |     |
| 26 February | No Flares Observed |      |      | B2.0            |                |                     |     |
| 27 February | 0723               | 0727 | 0730 |                 |                |                     |     |
| 28 February | No Flares Observed |      |      |                 |                |                     |     |
| 01 March    | No Flares Observed |      |      | B2.5            |                |                     | 944 |
| 02 March    | 0503               | 0529 | 0550 |                 |                |                     |     |
| 03 March    | No Flares Observed |      |      |                 |                |                     |     |
| 04 March    | No Flares Observed |      |      |                 |                |                     |     |

### ***Region Summary***

| Location |                |     | Sunspot Characteristics |         |       |       |       |       |   |   |         |   |   |   |   |
|----------|----------------|-----|-------------------------|---------|-------|-------|-------|-------|---|---|---------|---|---|---|---|
|          |                |     | Flares                  |         |       |       |       |       |   |   |         |   |   |   |   |
|          | Helio          |     | Area                    | Extent  | Spot  | Spot  | Mag   | X-ray |   |   | Optical |   |   |   |   |
| Date     | ( ° Lat ° CMD) | Lon | (10 <sup>-6</sup> hemi) | (helio) | Class | Count | Class | C     | M | X | S       | 1 | 2 | 3 | 4 |

#### ***Region 942***

|        |        |     |      |    |     |     |   |  |  |  |  |  |  |  |  |
|--------|--------|-----|------|----|-----|-----|---|--|--|--|--|--|--|--|--|
| 16 Feb | S13E69 | 131 | 0060 | 03 | Cao | 002 | B |  |  |  |  |  |  |  |  |
| 17 Feb | S11E55 | 132 | 0020 | 01 | Hsx | 001 | A |  |  |  |  |  |  |  |  |
| 18 Feb | S12E41 | 133 | 0040 | 03 | Cso | 002 | B |  |  |  |  |  |  |  |  |
| 19 Feb | S12E28 | 132 | 0060 | 02 | Cso | 003 | B |  |  |  |  |  |  |  |  |
| 20 Feb | S11E15 | 132 | 0040 | 02 | Bxo | 004 | B |  |  |  |  |  |  |  |  |
| 21 Feb | S11E05 | 129 | 0050 | 09 | Dso | 004 | B |  |  |  |  |  |  |  |  |
| 22 Feb | S10W09 | 130 | 0020 | 08 | Bxo | 004 | B |  |  |  |  |  |  |  |  |
| 23 Feb | S11W26 | 133 | 0010 | 01 | Axx | 001 | A |  |  |  |  |  |  |  |  |
| 24 Feb | S11W39 | 133 |      |    |     |     |   |  |  |  |  |  |  |  |  |
| 25 Feb | S11W52 | 133 |      |    |     |     |   |  |  |  |  |  |  |  |  |
| 26 Feb | S11W65 | 133 |      |    |     |     |   |  |  |  |  |  |  |  |  |
| 27 Feb | S11W78 | 133 |      |    |     |     |   |  |  |  |  |  |  |  |  |
| 28 Feb | S11W91 | 133 |      |    |     |     |   |  |  |  |  |  |  |  |  |

0 0 0 0 0 0 0 0

Crossed West Limb.

Absolute heliographic longitude: 129



### Region Summary-Continued

| Region Summary Continued |                |              |                         |         |       |       |       |       |   |   |         |   |   |   |   |
|--------------------------|----------------|--------------|-------------------------|---------|-------|-------|-------|-------|---|---|---------|---|---|---|---|
| Location                 |                |              | Sunspot Characteristics |         |       |       |       |       |   |   |         |   |   |   |   |
| Date                     | ( ° Lat ° CMD) | Helio<br>Lon | Flares                  |         |       |       |       | X-ray |   |   | Optical |   |   |   |   |
|                          |                |              | Area                    | Extent  | Spot  | Spot  | Mag   | C     | M | X | S       | 1 | 2 | 3 | 4 |
|                          |                |              | (10 <sup>-6</sup> hemi) | (helio) | Class | Count | Class |       |   |   |         |   |   |   |   |

#### Region 943

|        |        |     |      |    |     |     |   |
|--------|--------|-----|------|----|-----|-----|---|
| 19 Feb | S12E04 | 156 | 0050 | 03 | Cao | 003 | B |
| 20 Feb | S12W10 | 157 | 0040 | 03 | Bxo | 003 | B |
| 21 Feb | S12W23 | 157 |      |    |     |     |   |
| 22 Feb | S12W36 | 157 |      |    |     |     |   |
| 23 Feb | S12W49 | 157 |      |    |     |     |   |
| 24 Feb | S12W62 | 157 |      |    |     |     |   |
| 25 Feb | S12W75 | 157 |      |    |     |     |   |
| 26 Feb | S12W88 | 157 |      |    |     |     |   |

0 0 0 0 0 0 0 0

Crossed West Limb.

Absolute heliographic longitude: 156

#### Region 944

|        |        |     |      |    |     |     |   |
|--------|--------|-----|------|----|-----|-----|---|
| 22 Feb | S10E75 | 046 | 0120 | 03 | Hsx | 001 | A |
| 23 Feb | S03E61 | 046 | 0110 | 03 | Hsx | 001 | A |
| 24 Feb | S07E49 | 044 | 0090 | 03 | Hsx | 001 | A |
| 25 Feb | S08E37 | 043 | 0110 | 03 | Hsx | 002 | A |
| 26 Feb | S07E22 | 045 | 0110 | 03 | Hkx | 001 | A |
| 27 Feb | S06E11 | 043 | 0100 | 02 | Hsx | 001 | A |
| 28 Feb | S06W04 | 045 | 0100 | 02 | Hsx | 001 | A |
| 01 Mar | S06W17 | 045 | 0090 | 02 | Hsx | 001 | A |
| 02 Mar | S05W30 | 044 | 0090 | 03 | Hsx | 001 | A |
| 03 Mar | S06W43 | 044 | 0090 | 02 | Hsx | 001 | A |
| 04 Mar | S06W57 | 045 | 0060 | 02 | Hax | 001 | A |

0 0 0 0 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 045

#### Region 945

|        |        |     |      |    |     |     |   |
|--------|--------|-----|------|----|-----|-----|---|
| 26 Feb | S06E60 | 007 | 0020 | 02 | Hsx | 001 | A |
| 27 Feb | S05E48 | 006 | 0020 | 01 | Axx | 002 | A |
| 28 Feb | S05E34 | 007 | 0030 | 01 | Axx | 001 | A |
| 01 Mar | S05E21 | 007 |      |    |     |     |   |
| 02 Mar | S07E11 | 003 | 0070 | 02 | Dao | 002 | B |
| 03 Mar | S07W02 | 003 |      |    |     |     |   |
| 04 Mar | S07W15 | 003 |      |    |     |     |   |

0 0 0 0 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 003

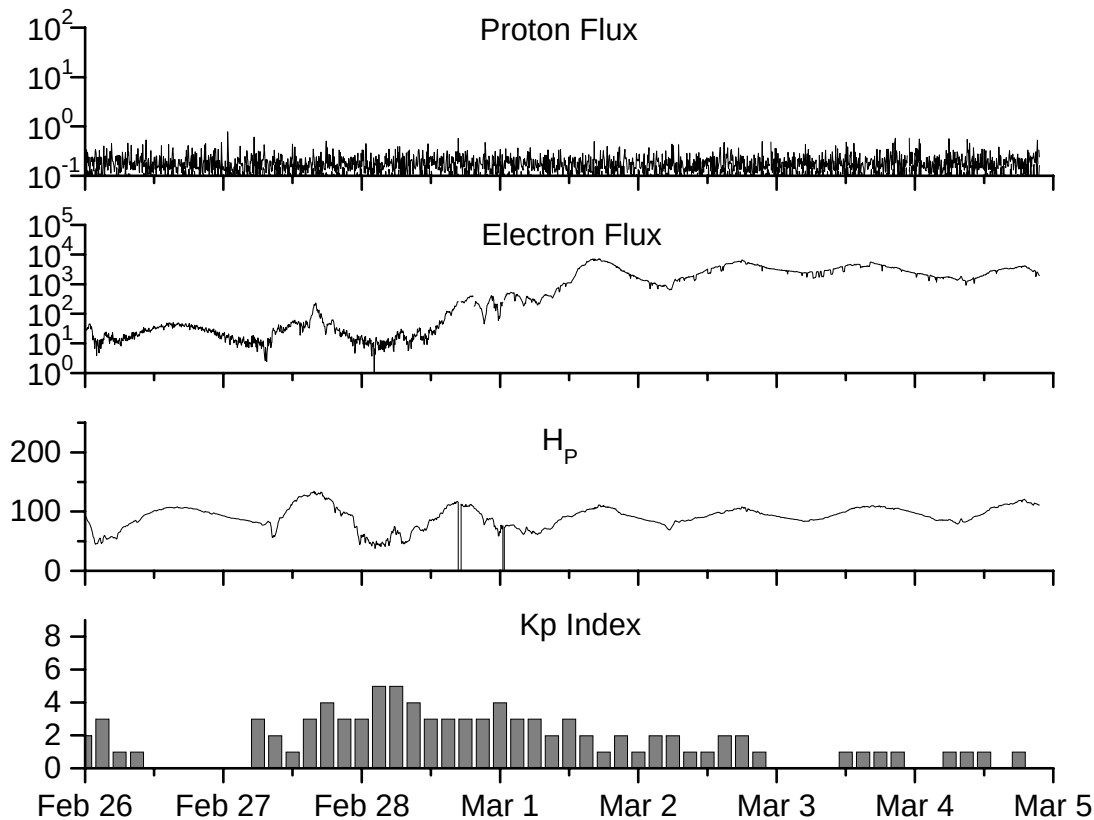


**Recent Solar Indices (preliminary)  
of the observed monthly mean values**

| Month     | of the observed monthly mean values |      |       |               |      | Radio Flux |        | Geomagnetic |        |
|-----------|-------------------------------------|------|-------|---------------|------|------------|--------|-------------|--------|
|           | Sunspot Numbers                     |      | Ratio | Smooth values |      | *Penticton | Smooth | Planetary   | Smooth |
|           | Observed values                     | SEC  |       | SEC           | RI   | 10.7 cm    | Value  | Ap          | Value  |
| 2005      |                                     |      |       |               |      |            |        |             |        |
| March     | 41.0                                | 24.8 | 0.60  | 55.8          | 33.6 | 90.0       | 97.2   | 12          | 15.3   |
| April     | 41.5                                | 24.4 | 0.59  | 52.6          | 31.7 | 85.9       | 95.5   | 12          | 15.7   |
| May       | 65.4                                | 42.6 | 0.65  | 48.3          | 29.0 | 99.5       | 93.2   | 20          | 14.8   |
| June      | 59.8                                | 39.6 | 0.66  | 47.9          | 28.9 | 93.7       | 91.9   | 13          | 13.9   |
| July      | 71.0                                | 39.9 | 0.56  | 48.1          | 29.2 | 96.6       | 90.9   | 16          | 13.1   |
| August    | 65.6                                | 36.4 | 0.55  | 45.4          | 27.5 | 90.7       | 89.3   | 16          | 12.2   |
| September | 39.2                                | 22.1 | 0.56  | 42.9          | 25.9 | 90.8       | 87.8   | 21          | 11.8   |
| October   | 13.0                                | 8.5  | 0.65  | 42.6          | 25.5 | 76.7       | 87.4   | 7           | 11.6   |
| November  | 32.2                                | 18.0 | 0.56  | 42.1          | 24.9 | 86.3       | 86.7   | 8           | 11.1   |
| December  | 62.6                                | 41.2 | 0.66  | 40.1          | 23.0 | 90.8       | 85.4   | 7           | 10.4   |
| 2006      |                                     |      |       |               |      |            |        |             |        |
| January   | 28.0                                | 15.4 | 0.55  | 37.2          | 20.8 | 83.8       | 84.0   | 6           | 9.9    |
| February  | 5.3                                 | 4.7  | 0.89  | 33.4          | 18.7 | 76.6       | 82.6   | 6           | 9.2    |
| March     | 21.3                                | 10.8 | 0.51  | 31.0          | 17.4 | 75.5       | 81.6   | 8           | 8.4    |
| April     | 55.2                                | 30.2 | 0.55  | 30.6          | 17.1 | 89.0       | 80.9   | 11          | 7.9    |
| May       | 39.6                                | 22.2 | 0.56  | 30.7          | 17.3 | 81.0       | 80.8   | 8           | 7.9    |
| June      | 37.7                                | 13.9 | 0.37  | 28.9          | 16.3 | 80.1       | 80.6   | 9           | 8.3    |
| July      | 22.6                                | 12.2 | 0.54  | 27.2          | 15.3 | 75.8       | 80.3   | 7           | 8.7    |
| August    | 22.8                                | 12.9 | 0.57  |               |      | 79.0       |        | 9           |        |
| September | 25.2                                | 14.5 | 0.58  |               |      | 77.8       |        | 8           |        |
| October   | 15.7                                | 10.4 | 0.66  |               |      | 74.3       |        | 8           |        |
| November  | 31.5                                | 21.5 | 0.68  |               |      | 86.4       |        | 9           |        |
| December  | 22.2                                | 13.6 | 0.61  |               |      | 84.3       |        | 15          |        |
| 2007      |                                     |      |       |               |      |            |        |             |        |
| January   | 26.6                                | 16.9 | 0.64  |               |      | 83.5       |        | 6           |        |
| February  | 17.2                                | 10.6 | 0.62  |               |      | 77.8       |        | 6           |        |

**NOTE:** All smoothed values after September 2002 and monthly values after March 2003 are preliminary estimates. The lowest smoothed sunspot index number for Cycle 22, RI = 8.0, occurred in May 1996. The highest smoothed sunspot number for Cycle 23, RI= 120.8, occurred April 2000. \*After June 1991, the 10.7 cm radio flux data source is Penticton, B.C. Canada. Prior to that, it was Ottawa.





*Weekly Geosynchronous Satellite Environment Summary*  
*Week Beginning 26 February 2007*

*Protons* plot contains the five-minute averaged integral proton flux (protons/cm<sup>2</sup>–sec–sr) as measured by GOES-11 (W135) for each of three energy thresholds: greater than 10, 50, and 100 MeV.

*Electrons* plot contains the five-minute averaged integral electron flux (electrons/cm<sup>2</sup>–sec–sr) with energies greater than 2 MeV at GOES-12 (W075).

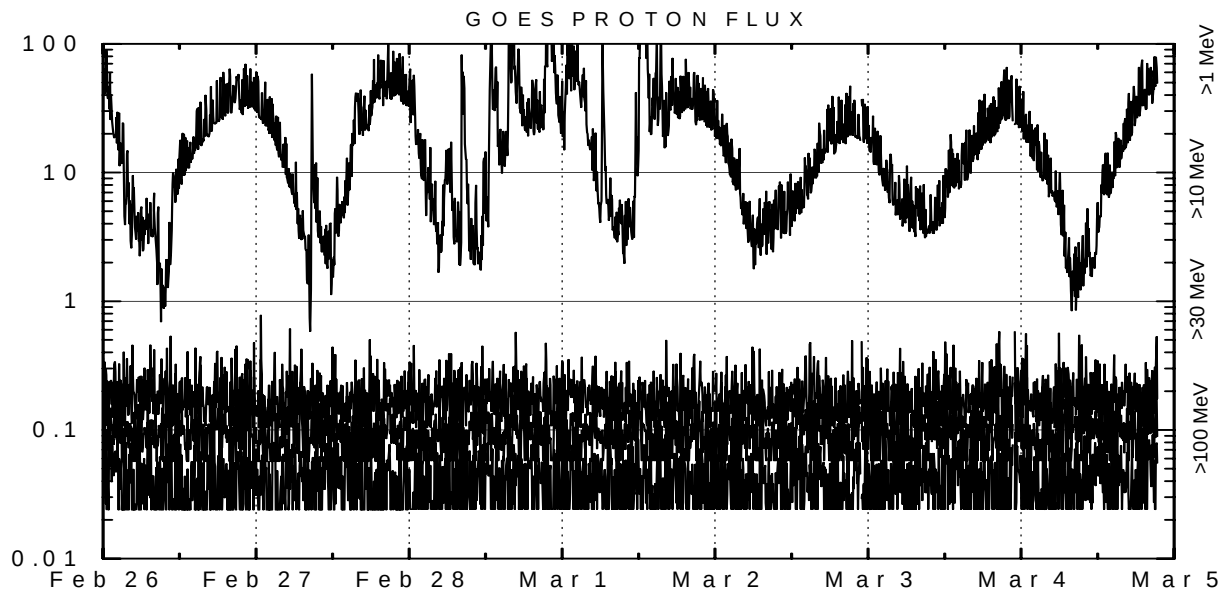
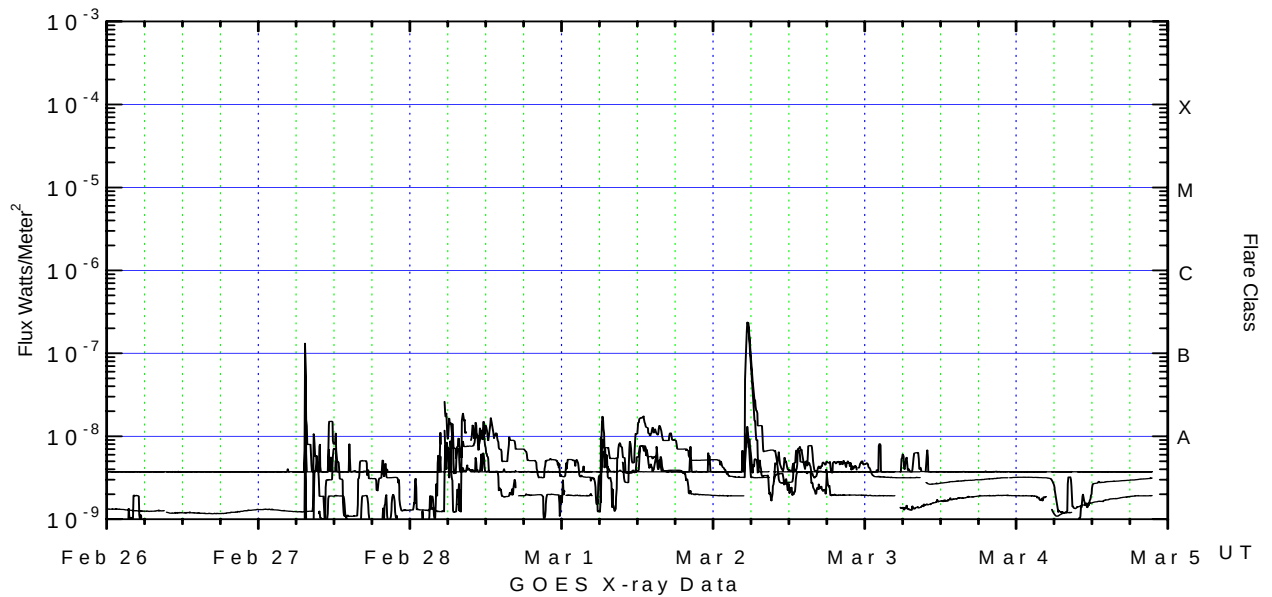
*H<sub>p</sub>* plot contains the five minute averaged magnetic field H - component in nanoteslas (nT) as measured by GOES-12. The H component is parallel to the spin axis of the satellite, which is nearly parallel to the Earth's rotation axis.

*K<sub>p</sub>* plot contains the estimated planetary 3-hour K-index (derived by the Air Force Weather Agency) in real time from magnetometers at Meanook, Canada; Sitka, AK; Glenlea, Canada; St. Johns, Canada; Ottawa, Canada; Newport, WA; Fredericksburg, VA; Boulder, CO; Fresno, CA and Hartland, UK. These data are made available through cooperation from the Geological Survey of Canada (GSC), British Geological Survey (BGS) and the US Geological Survey. These may differ from the final K<sub>p</sub> values derived from a more extensive network of magnetometers.

The data included here are those now available in real time at the SEC and are incomplete in that they do not include the full set of parameters and energy ranges known to cause satellite operating anomalies. The proton and electron fluxes and K<sub>p</sub> are “global” parameters that are applicable to a first order approximation over large areas. H parallel is subject to more localized phenomena and the measurements generally are applicable to within a few degrees of longitude of the measuring satellite.







### Weekly GOES Satellite X-ray and Proton Plots

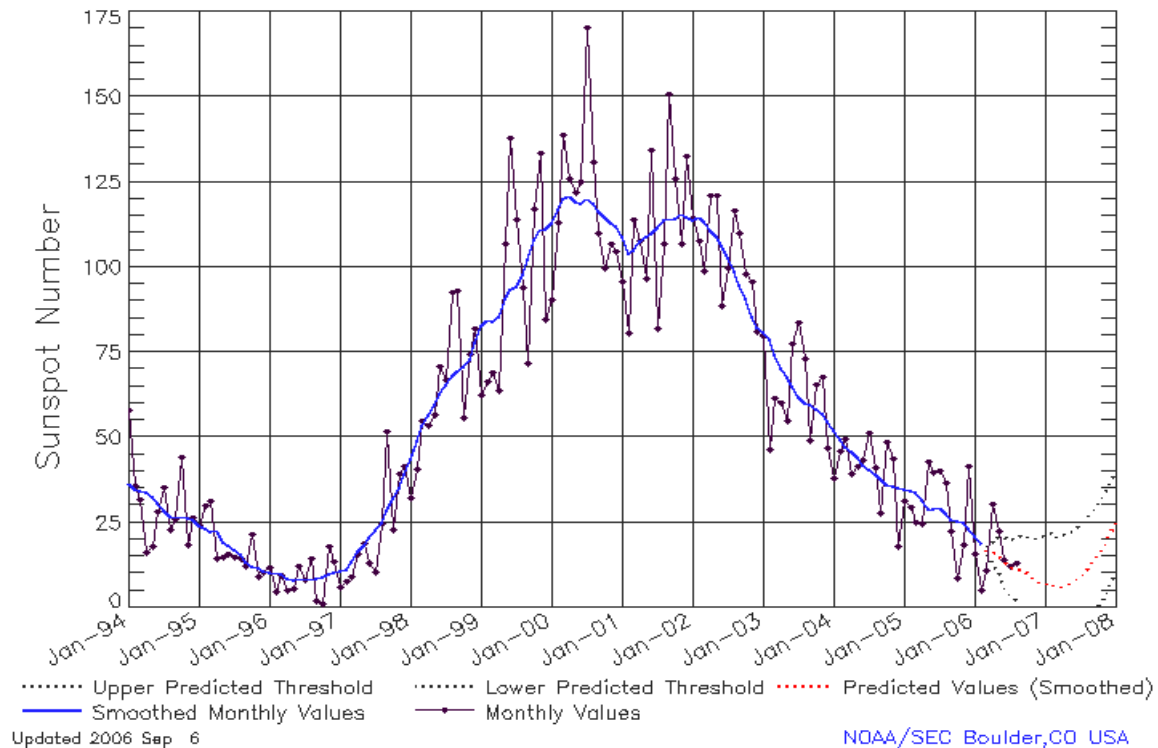
X-ray plot contains five-minute averaged x-ray flux (watts/m<sup>2</sup>) as measured by GOES 12 (W075) and GOES 11 (W135) in two wavelength bands, .05 - .4 and .1 - .8 nm. The letters A, B, C, M and X refer to x-ray event levels for the .1 - .8 nm band.

Proton plot contains the five-minute averaged integral proton flux (protons/cm<sup>2</sup>-sec-sr) as measured by GOES-11 (W135) for each of the energy thresholds: >1, >10, >30 and >100 MeV. P10 event threshold is 10



pfu (protons/cm<sup>2</sup>-sec-sr) at greater than 10 MeV.

# ISES Solar Cycle Sunspot Number Progression Data Through 31 Aug 06



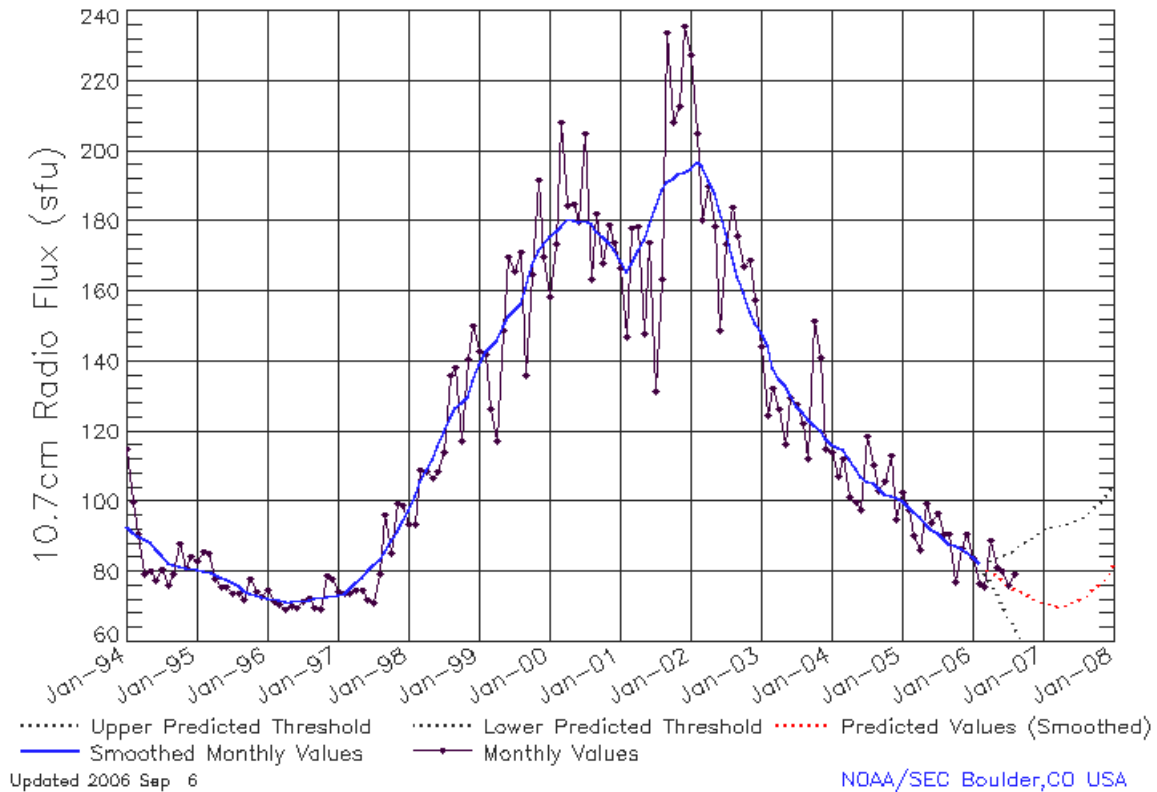
## SEC Prediction of Smoothed Sunspot Number

|      | Jan   | Feb   | Mar   | Apr   | May   | Jun   | Jul   | Aug   | Sep   | Oct   | Nov   | Dec   |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1998 | 44    | 49    | 53    | 57    | 59    | 63    | 66    | 68    | 70    | 71    | 73    | 78    |
|      | (***) | (***) | (***) | (***) | (***) | (***) | (***) | (***) | (***) | (***) | (***) | (***) |
| 1999 | 83    | 85    | 84    | 86    | 91    | 93    | 94    | 98    | 102   | 108   | 111   | 111   |
|      | (***) | (***) | (***) | (***) | (***) | (***) | (***) | (***) | (***) | (***) | (***) | (***) |
| 2000 | 113   | 117   | 120   | 121   | 119   | 119   | 120   | 119   | 116   | 115   | 113   | 112   |
|      | (***) | (***) | (***) | (***) | (***) | (***) | (***) | (***) | (***) | (***) | (***) | (***) |
| 2001 | 109   | 104   | 105   | 108   | 109   | 110   | 112   | 114   | 114   | 114   | 116   | 115   |
|      | (***) | (***) | (***) | (***) | (***) | (***) | (***) | (***) | (***) | (***) | (***) | (***) |
| 2002 | 114   | 115   | 113   | 111   | 109   | 106   | 103   | 99    | 95    | 91    | 85    | 82    |
|      | (***) | (***) | (***) | (***) | (***) | (***) | (***) | (***) | (***) | (***) | (***) | (***) |
| 2003 | 81    | 79    | 74    | 70    | 68    | 65    | 62    | 60    | 60    | 58    | 57    | 55    |
|      | (***) | (***) | (***) | (***) | (***) | (***) | (***) | (***) | (***) | (***) | (***) | (***) |
| 2004 | 52    | 49    | 47    | 46    | 44    | 42    | 40    | 39    | 38    | 36    | 35    | 35    |
|      | (***) | (***) | (***) | (***) | (***) | (***) | (***) | (***) | (***) | (***) | (***) | (***) |
| 2005 | 35    | 34    | 34    | 32    | 29    | 29    | 29    | 28    | 26    | 26    | 25    | 23    |
|      | (***) | (***) | (***) | (***) | (***) | (***) | (***) | (***) | (***) | (***) | (***) | (***) |
| 2006 | 21    | 19    | 17    | 16    | 16    | 14    | 12    | 11    | 11    | 10    | 8     | 8     |
|      | (***) | (***) | (1)   | (3)   | (5)   | (7)   | (8)   | (9)   | (10)  | (11)  | (12)  | (13)  |
| 2007 | 7     | 7     | 6     | 6     | 7     | 8     | 10    | 11    | 13    | 16    | 18    | 21    |
|      | (14)  | (15)  | (15)  | (15)  | (15)  | (15)  | (15)  | (15)  | (15)  | (15)  | (15)  | (15)  |



# ISES Solar Cycle F10.7cm Radio Flux Progression

Data Through 31 Aug 06



## SEC Prediction of Smoothed F10.7cm Radio Flux

|      | Jan       | Feb       | Mar       | Apr       | May       | Jun       | Jul       | Aug       | Sep       | Oct       | Nov       | Dec       |
|------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| 1998 | 98        | 102       | 106       | 109       | 112       | 116       | 120       | 124       | 127       | 128       | 130       | 134       |
|      | (***)     | (***)     | (***)     | (***)     | (***)     | (***)     | (***)     | (***)     | (***)     | (***)     | (***)     | (***)     |
| 1999 | 139       | 143       | 144       | 146       | 150       | 153       | 154       | 156       | 161       | 167       | 172       | 173       |
|      | (***)     | (***)     | (***)     | (***)     | (***)     | (***)     | (***)     | (***)     | (***)     | (***)     | (***)     | (***)     |
| 2000 | 176       | 177       | 178       | 181       | 180       | 180       | 180       | 179       | 177       | 176       | 174       | 172       |
|      | (***)     | (***)     | (***)     | (***)     | (***)     | (***)     | (***)     | (***)     | (***)     | (***)     | (***)     | (***)     |
| 2001 | 169       | 166       | 168       | 172       | 175       | 179       | 184       | 189       | 191       | 192       | 194       | 194       |
|      | (***)     | (***)     | (***)     | (***)     | (***)     | (***)     | (***)     | (***)     | (***)     | (***)     | (***)     | (***)     |
| 2002 | 195       | 197       | 196       | 192       | 188       | 183       | 176       | 170       | 164       | 159       | 154       | 151       |
|      | (***)     | (***)     | (***)     | (***)     | (***)     | (***)     | (***)     | (***)     | (***)     | (***)     | (***)     | (***)     |
| 2003 | 148       | 145       | 138       | 135       | 133       | 130       | 127       | 125       | 124       | 122       | 120       | 118       |
|      | (***)     | (***)     | (***)     | (***)     | (***)     | (***)     | (***)     | (***)     | (***)     | (***)     | (***)     | (***)     |
| 2004 | 116       | 116       | 115       | 112       | 109       | 107       | 106       | 105       | 104       | 102       | 102       | 101       |
|      | (***)     | (***)     | (***)     | (***)     | (***)     | (***)     | (***)     | (***)     | (***)     | (***)     | (***)     | (***)     |
| 2005 | 100       | 99        | 97        | 96        | 93        | 92        | 91        | 89        | 88        | 87        | 87        | 85        |
|      | (***)     | (***)     | (***)     | (***)     | (***)     | (***)     | (***)     | (***)     | (***)     | (***)     | (***)     | (***)     |
| 2006 | 84        | 83        | <b>81</b> | <b>80</b> | <b>79</b> | <b>78</b> | <b>76</b> | <b>75</b> | <b>75</b> | <b>74</b> | <b>73</b> | <b>72</b> |
|      | (***)     | (***)     | (1)       | (3)       | (5)       | (7)       | (9)       | (11)      | (13)      | (14)      | (14)      | (13)      |
| 2007 | <b>71</b> | <b>70</b> | <b>70</b> | <b>71</b> | <b>71</b> | <b>71</b> | <b>72</b> | <b>73</b> | <b>74</b> | <b>76</b> | <b>77</b> | <b>79</b> |
|      | (12)      | (11)      | (10)      | (10)      | (10)      | (10)      | (10)      | (10)      | (11)      | (11)      | (12)      | (13)      |



# ISES Solar Cycle Ap Progression

Data Through 31 Aug 06

