

Space Weather Highlights
27 August - 02 September 2018

SWPC PRF 2244
03 September 2018

Solar activity was at very low levels. Both Regions 2719 (S07, L=131 class/area Cro/040 on 23 Aug) and 2720 (N08, L=136 class/area Dao/100 on 25 Aug) quietly rotated off the disk on 29 Aug as areas of plage. Region 2720 resided on the disk as a low latitude, reverse polarity group. No Earth-directed CMEs were observed.

No proton events were observed at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit was at very high levels on 28-29 Aug and at high levels on 27 Aug, 30-31 Aug and 01-02 Sep). A peak flux of 97,630 pfu was observed at 28/2145 UTC.

Geomagnetic field activity ranged from unsettled to G1 (Minor) and G2 (Moderate) storm levels on 27 Aug followed by unsettled to active levels on 28 Aug. Quiet levels persisted on 29 Aug - 02 Sep. The period began under the continued, but waning, effects from the 19 and 20 Aug CMEs. This was coupled with influence from a positive polarity CH HSS. Solar wind speeds began the period near 550 km/s and gradually increased to a peak speed of 666 km/s observed at 17/1730 UTC. Total IMF reached 7 nT at 27/1607 UTC while the Bz component reached a maximum southward extent of -6 nT at 27/1627 UTC.

By midday on 28 Aug, field activity declined to quiet levels and remained so through the end of the summary period. The IMF was at nominal levels while solar wind speed gradually decreased to near 340 km/s by the end of the period.

Space Weather Outlook
03 September - 29 September 2018

Solar activity is expected to be at very low levels through the outlook period. A slight chance for low levels is possible from 05-24 Sep with the return of old Regions 2718 (S07, L=191), 2719 (S07, L=131) and 2720 (N08, L=136).

No proton events are expected at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit is expected to be at high levels on 03-04 Sep, 13-20 Sep and 23-26 Sep due to recurrent CH HSS influence. Normal to moderate levels are expected on 05-12 Sep, 21-22 Sep and 27-29 Sep.

Geomagnetic field activity is expected to be at unsettled levels on 03 Sep due to effects from a SSBC. Unsettled to active levels are anticipated on 07-09 Sep, 11-17 Sep and 22-23 Sep with G1 (Minor) geomagnetic storm levels possible on 11 Sep, all due to CH HSS activity.



Daily Solar Data

| Date | Radio | Sun | Sunspot | X-ray | | Flares | | | | | | | |
|--------------|--------|------|--------------------------|------------|---|--------|---|---|---------|---|---|---|---|
| | Flux | spot | Area | Background | | X-ray | | | Optical | | | | |
| | 10.7cm | No. | (10 ⁻⁶ hemi.) | Flux | | C | M | X | S | 1 | 2 | 3 | 4 |
| 27 August | 70 | 12 | 50 | A1.2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 28 August | 70 | 11 | 10 | A1.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 29 August | 71 | 0 | 0 | A1.2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 30 August | 68 | 0 | 0 | A1.2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 31 August | 68 | 0 | 0 | A0.0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 01 September | 68 | 0 | 0 | A0.0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 02 September | 68 | 0 | 0 | A0.0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Daily Particle Data

| Date | Proton Fluence (protons/cm ² -day -sr) | | | Electron Fluence (electrons/cm ² -day -sr) | | |
|--------------|--|---------|----------|--|---------|--------|
| | >1 MeV | >10 MeV | >100 MeV | >0.6 MeV | >2MeV | >4 MeV |
| | | | | | | |
| 27 August | | 4.2e+06 | 1.8e+04 | 3.6e+03 | 8.8e+08 | |
| 28 August | | 2.6e+06 | 1.7e+04 | 3.5e+03 | 3.5e+09 | |
| 29 August | | 1.7e+06 | 1.7e+04 | 3.5e+03 | 3.1e+09 | |
| 30 August | | 2.1e+06 | 1.7e+04 | 3.5e+03 | 3.2e+09 | |
| 31 August | | 2.5e+06 | 1.7e+04 | 3.5e+03 | 1.9e+09 | |
| 01 September | | 1.9e+06 | 1.8e+04 | 3.5e+03 | 1.0e+09 | |
| 02 September | | 2.4e+06 | 1.8e+04 | 3.4e+03 | 7.4e+08 | |

Daily Geomagnetic Data

| Date | Middle Latitude Fredericksburg | | High Latitude College | | Estimated Planetary | |
|--------------|-----------------------------------|-----------------|--------------------------|-----------------|------------------------|-----------------|
| | A | K-indices | A | K-indices | A | K-indices |
| | | | | | | |
| 27 August | 20 | 3-3-3-4-4-4-4-2 | 56 | 2-2-6-6-6-7-5-1 | 26 | 2-3-3-4-4-6-5-3 |
| 28 August | 9 | 3-3-2-3-2-1-1-2 | 21 | 3-2-3-6-5-0-1-0 | 10 | 4-3-2-3-2-1-0-1 |
| 29 August | 7 | 2-2-2-2-2-2-2-2 | 5 | 1-1-1-3-1-1-1-1 | 6 | 2-2-1-1-1-2-1-2 |
| 30 August | 5 | 2-1-1-2-2-0-1-2 | 2 | 1-1-1-1-0-0-0-0 | 4 | 2-1-1-1-1-0-1-2 |
| 31 August | 4 | 1-1-1-1-2-1-2-0 | 4 | 1-1-0-2-2-2-2-0 | 5 | 2-1-1-1-1-2-2-1 |
| 01 September | 5 | 1-1-0-2-3-1-1-1 | 2 | 1-1-0-0-1-0-1-1 | 5 | 1-1-1-1-2-1-2-1 |
| 02 September | 5 | 1-2-2-1-1-1-1-2 | 2 | 1-1-1-0-0-1-1-1 | 6 | 2-2-2-1-1-1-1-2 |

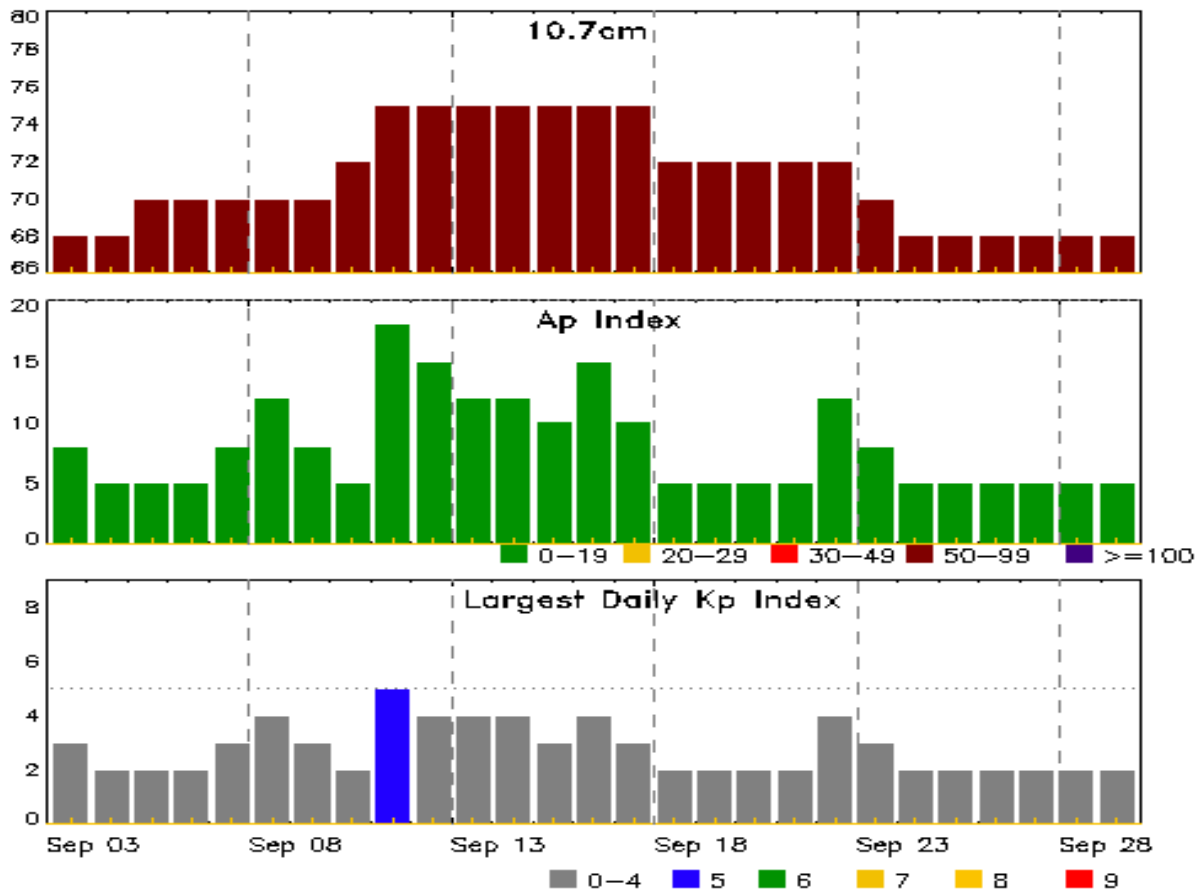


Alerts and Warnings Issued

| Date & Time of Issue UTC | Type of Alert or Warning | Date & Time of Event UTC |
|---|--|---|
| 27 Aug 0856 | EXTENDED WARNING: Geomagnetic K = 4 | 25/2109 - 27/1500 |
| 27 Aug 0902 | CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu | 18/1410 |
| 27 Aug 1359 | EXTENDED WARNING: Geomagnetic K = 4 | 25/2109 - 27/2100 |
| 27 Aug 1633 | WARNING: Geomagnetic K = 5 | 27/1632 - 2000 |
| 27 Aug 1739 | ALERT: Geomagnetic K = 5 | 27/1739 |
| 27 Aug 1749 | WARNING: Geomagnetic K = 6 | 27/1748 - 2000 |
| 27 Aug 1759 | ALERT: Geomagnetic K = 6 | 27/1759 |
| 27 Aug 1837 | EXTENDED WARNING: Geomagnetic K = 4 | 25/2109 - 28/0300 |
| 27 Aug 1912 | ALERT: Geomagnetic K = 5 | 27/1912 |
| 27 Aug 1914 | EXTENDED WARNING: Geomagnetic K = 5 | 27/1632 - 2359 |
| 28 Aug 0203 | EXTENDED WARNING: Geomagnetic K = 4 | 25/2109 - 28/0900 |
| 28 Aug 0901 | CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu | 18/1410 |
| 29 Aug 0859 | CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu | 18/1410 |
| 30 Aug 0900 | CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu | 18/1410 |
| 31 Aug 0859 | CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu | 18/1410 |
| 01 Sep 0901 | CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu | 18/1410 |
| 02 Sep 0900 | CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu | 18/1410 |



Twenty-seven Day Outlook



| Date | Radio Flux 10.7cm | Planetary A Index | Largest Kp Index | Date | Radio Flux 10.7cm | Planetary A Index | Largest Kp Index |
|--------|----------------------|----------------------|---------------------|--------|----------------------|----------------------|---------------------|
| 03 Sep | 68 | 8 | 3 | 17 Sep | 75 | 10 | 3 |
| 04 | 68 | 5 | 2 | 18 | 72 | 5 | 2 |
| 05 | 70 | 5 | 2 | 19 | 72 | 5 | 2 |
| 06 | 70 | 5 | 2 | 20 | 72 | 5 | 2 |
| 07 | 70 | 8 | 3 | 21 | 72 | 5 | 2 |
| 08 | 70 | 12 | 4 | 22 | 72 | 12 | 4 |
| 09 | 70 | 8 | 3 | 23 | 70 | 8 | 3 |
| 10 | 72 | 5 | 2 | 24 | 68 | 5 | 2 |
| 11 | 75 | 18 | 5 | 25 | 68 | 5 | 2 |
| 12 | 75 | 15 | 4 | 26 | 68 | 5 | 2 |
| 13 | 75 | 12 | 4 | 27 | 68 | 5 | 2 |
| 14 | 75 | 12 | 4 | 28 | 68 | 5 | 2 |
| 15 | 75 | 10 | 3 | 29 | 68 | 5 | 2 |
| 16 | 75 | 15 | 4 | | | | |

Energetic Events

| Date | Time | | | X-ray | | Optical Information | | | Peak | | Sweep Freq | |
|------|-------|-----|------|-------|------|---------------------|----------|-----|------------|------|------------|----|
| | Begin | Max | Half | Class | Flux | Imp/ | Location | Rgn | Radio Flux | | Intensity | |
| | | | Max | | | Brtns | | | 245 | 2695 | II | IV |

No Events Observed

Flare List

| Date | Time | | | X-ray Class | Optical | | |
|------|-------|-----|-----|----------------|---------------|---------------------|----------|
| | Begin | Max | End | | Imp/ Brtns | Location Lat CMD | Rgn # |
| | | | | | | | |

No Flares Observed



Region Summary

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

Region 2719

| | | | | | | | | | | | | | | | |
|--------|--------|-----|-------|---|-----|---|----|---|---|---|---|---|---|---|---|
| 19 Aug | S06E43 | 133 | 10 | 3 | Bxo | 5 | B | | | | | | | | |
| 20 Aug | S07E29 | 134 | 10 | 4 | Bxo | 5 | B | | | | | | | | |
| 21 Aug | S12E15 | 135 | 10 | 5 | Bxo | 5 | B | | | | | | | | |
| 22 Aug | S06E03 | 133 | 10 | 1 | Axx | 2 | A | | | | | | | | |
| 23 Aug | S07W08 | 131 | 40 | 5 | Cro | 5 | BG | | | | | | | | |
| 24 Aug | S08W21 | 131 | 30 | 5 | Cro | 4 | B | | | | 1 | | | | |
| 25 Aug | S06W36 | 133 | 30 | 5 | Cro | 4 | B | | | | | | | | |
| 26 Aug | S06W53 | 136 | 10 | 1 | Axx | 1 | A | | | | | | | | |
| 27 Aug | S06W66 | 136 | plage | | | | | | | | | | | | |
| 28 Aug | S06W81 | 138 | plage | | | | | | | | | | | | |
| | | | | | | | | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |

Crossed West Limb.

Absolute heliographic longitude: 133

Region 2720

| | | | | | | | | | | | | | | | |
|--------|--------|-----|-------|---|-----|---|---|---|---|---|---|---|---|---|---|
| 24 Aug | N08W24 | 133 | 30 | 4 | Dro | 5 | B | | | | | | | | |
| 25 Aug | N08W39 | 136 | 100 | 6 | Dao | 7 | B | | | | 2 | | | | |
| 26 Aug | N08W55 | 138 | 60 | 8 | Cso | 5 | B | | | | | | | | |
| 27 Aug | N08W68 | 137 | 50 | 6 | Hsx | 2 | A | | | | | | | | |
| 28 Aug | N07W83 | 139 | 10 | 4 | Axx | 1 | A | | | | | | | | |
| 29 Aug | N07W98 | 142 | plage | | | | | | | | | | | | |
| | | | | | | | | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 |

Crossed West Limb.

Absolute heliographic longitude: 133

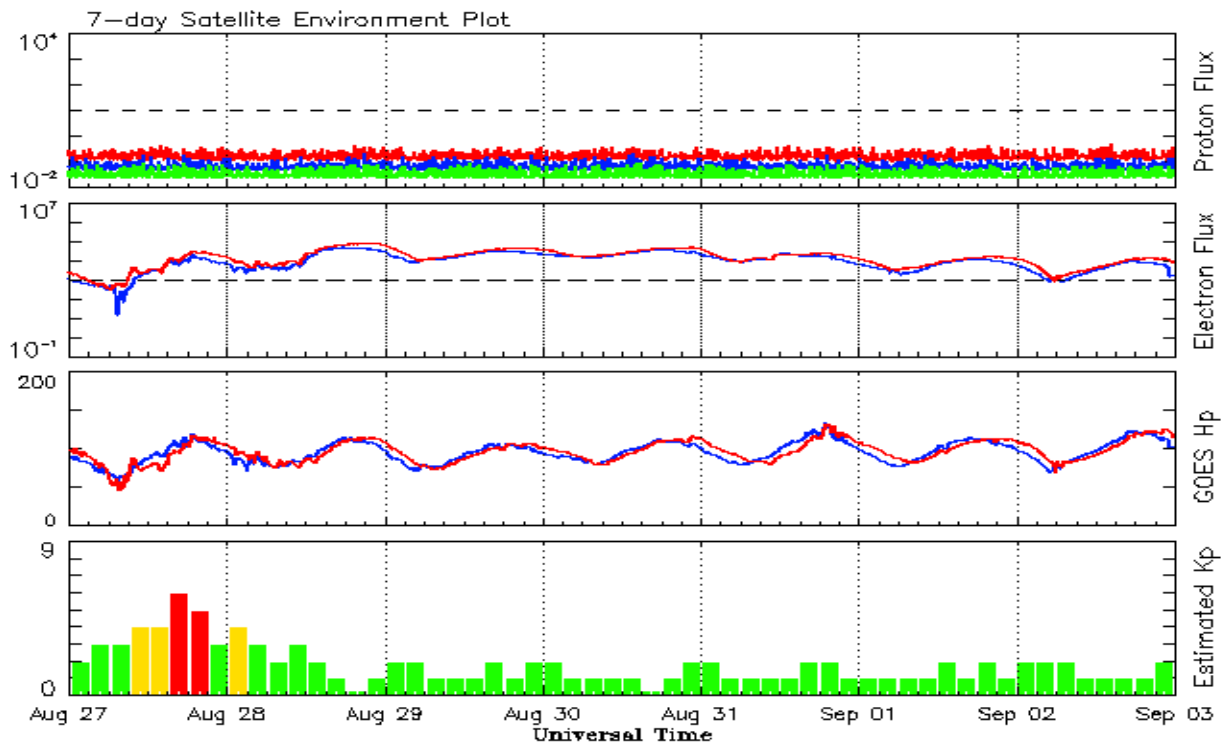


Recent Solar Indices (preliminary)
Observed monthly mean values

| Month | Sunspot Numbers | | | | | Radio Flux | | Geomagnetic | |
|-------------|-----------------|------|--------|---------------|------|------------|--------|-------------|--------|
| | Observed values | | Ratio | Smooth values | | Penticton | Smooth | Planetary | Smooth |
| | SEC | RI | RI/SEC | SEC | RI | 10.7 cm | Value | Ap | Value |
| 2016 | | | | | | | | | |
| September | 37.4 | 26.8 | 0.72 | 32.1 | 19.9 | 87.8 | 83.7 | 16 | 11.3 |
| October | 30.0 | 20.0 | 0.67 | 31.1 | 18.9 | 86.1 | 82.5 | 16 | 11.6 |
| November | 22.4 | 12.8 | 0.57 | 29.4 | 17.9 | 78.7 | 81.1 | 10 | 11.6 |
| December | 17.6 | 11.1 | 0.64 | 28.1 | 17.1 | 75.1 | 80.0 | 10 | 11.4 |
| 2017 | | | | | | | | | |
| January | 28.1 | 15.7 | 0.55 | 27.3 | 16.7 | 77.4 | 79.4 | 10 | 11.3 |
| February | 22.0 | 15.8 | 0.71 | 25.5 | 15.9 | 76.9 | 78.7 | 10 | 11.3 |
| March | 25.4 | 10.6 | 0.42 | 24.6 | 15.4 | 74.6 | 78.6 | 15 | 11.5 |
| April | 30.4 | 19.4 | 0.64 | 24.3 | 14.9 | 80.9 | 78.4 | 13 | 11.5 |
| May | 18.1 | 11.3 | 0.62 | 23.1 | 14.0 | 73.5 | 77.7 | 9 | 11.3 |
| June | 18.0 | 11.5 | 0.64 | 22.0 | 13.3 | 74.8 | 77.3 | 7 | 11.3 |
| July | 18.8 | 10.7 | 0.59 | 20.8 | 12.6 | 77.7 | 76.8 | 9 | 11.0 |
| August | 25.0 | 19.6 | 0.80 | 19.7 | 11.8 | 77.9 | 76.3 | 12 | 10.7 |
| September | 42.2 | 26.2 | 0.62 | 18.6 | 11.0 | 92.0 | 75.9 | 19 | 10.3 |
| October | 16.0 | 7.9 | 0.49 | 16.8 | 10.0 | 76.4 | 75.1 | 11 | 9.8 |
| November | 7.7 | 3.4 | 0.44 | 15.7 | 9.2 | 72.1 | 74.6 | 11 | 9.5 |
| December | 7.6 | 4.9 | 0.64 | 15.7 | 9.1 | 71.5 | 74.4 | 8 | 9.4 |
| 2018 | | | | | | | | | |
| January | 7.8 | 4.1 | 0.51 | 15.0 | 8.6 | 70.0 | 74.0 | 6 | 9.3 |
| February | 16.0 | 6.4 | 0.40 | 13.7 | 7.6 | 72.0 | 73.3 | 7 | 9.1 |
| March | 6.0 | 1.5 | 0.25 | | | 68.4 | | 8 | |
| April | 7.0 | 5.3 | 0.76 | | | 70.0 | | 7 | |
| May | 15.0 | 7.9 | 0.53 | | | 70.9 | | 8 | |
| June | 19.7 | 9.5 | 0.48 | | | 72.5 | | 7 | |
| July | 1.3 | 1.0 | 0.77 | | | 69.7 | | 6 | |
| August | 10.0 | 5.3 | 0.53 | | | 69.1 | | 10 | |

Note: Values are final except for the most recent 6 months which are considered preliminary.
Cycle 24 started in Dec 2008 with an RI=1.7.





*Weekly Geosynchronous Satellite Environment Summary
Week Beginning 27 August 2018*

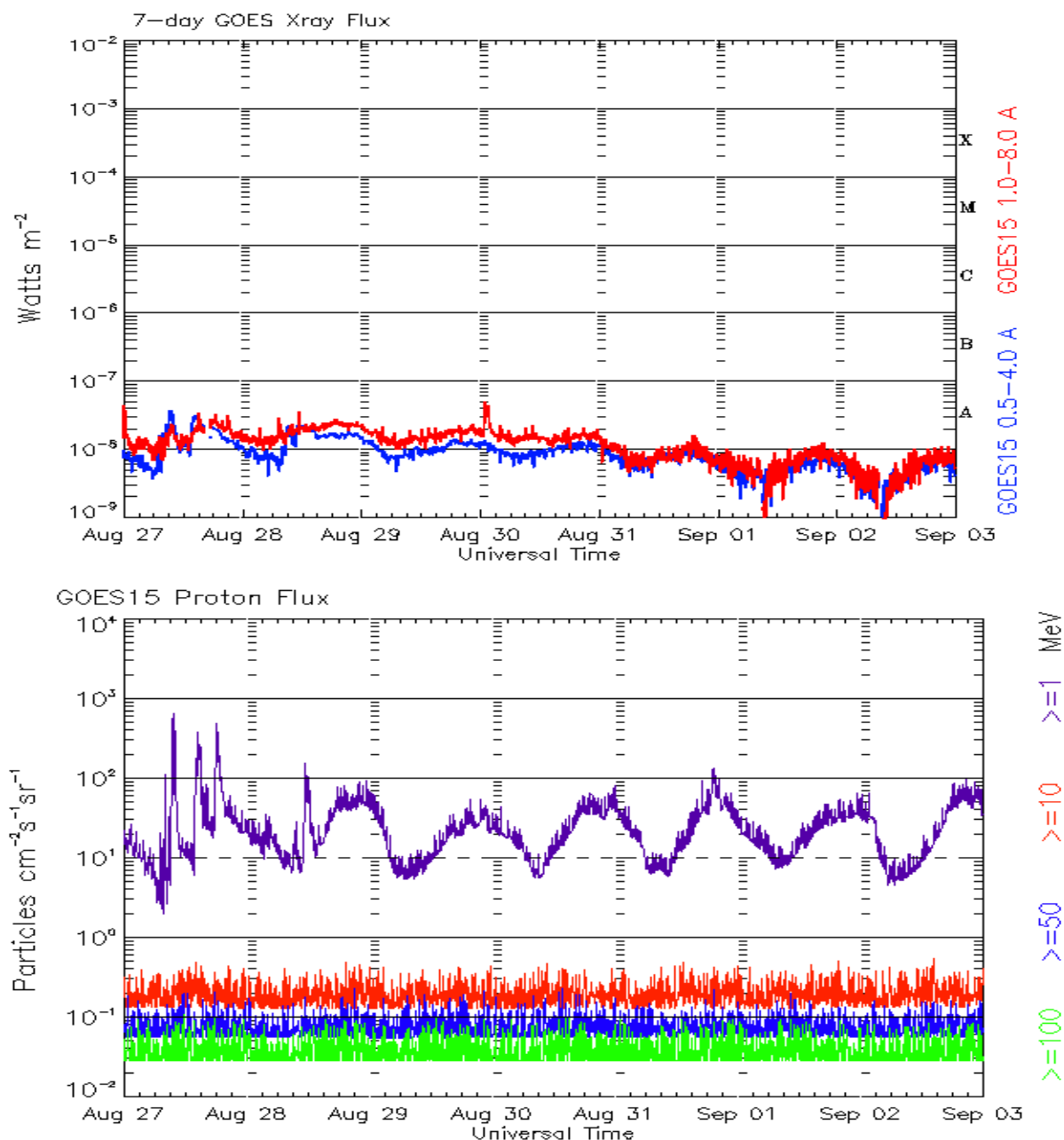
The proton flux plot contains the five-minute averaged integral proton flux (protons/cm²-sec -sr) as measured by the SWPC Primary GOES satellite, near West 75, for each of three energy thresholds: greater than 10, 50, and 100 MeV.

The electron flux plot contains the five-minute averaged integral electron flux (electrons/cm²-sec -sr) with energies greater than 2 MeV by the SWPC Primary GOES satellite.

The Hp plot contains the five minute averaged Hp magnetic field component in nanoteslas (nT) as by the SWPC Primary GOES satellite. The Hp component is parallel to the spin axis of the satellite, which is nearly parallel to the Earth's rotation axis.

The Estimated 3-hour Planetary Kp-index is derived at the NOAA Space Weather Prediction Center using data from the following ground-based magnetometers: Boulder, Colorado; Chambon la Foret, France; Fredericksburg, Virginia; Fresno, California; Hartland, UK; Newport, Washington; Sitka, Alaska. These data are made available thanks to the cooperative efforts between SWPC and data providers around the world, which currently includes the U.S. Geological Survey, the British Geological Survey, and the Institut de Physique du Globe de Paris.

The data included here are those now available in real time at the SWPC 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 Kp 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
Week Beginning 27 August 2018*

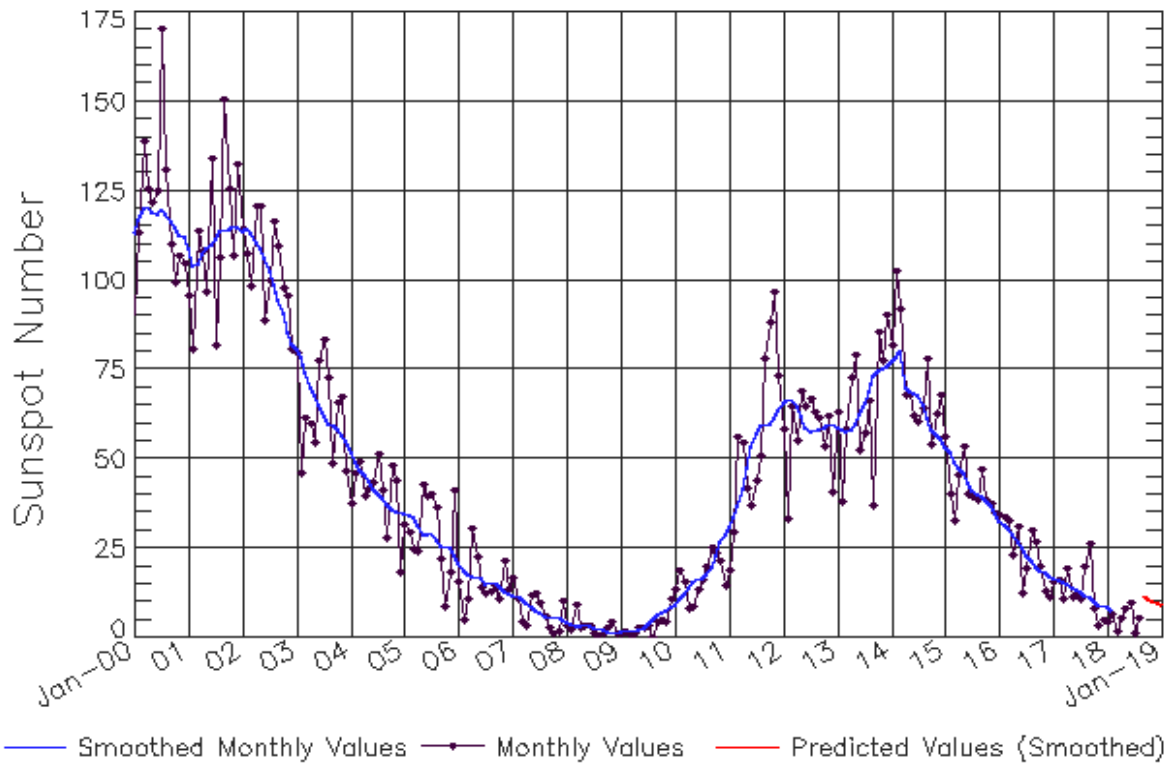
The x-ray plots contains five-minute averages x-ray flux (Watt/m²) as measure by the SWPC primary GOES X-ray satellite, usually at West 105 longitude, in two wavelength bands, 0.05 - 0.4 and 0.1 - 0.8 nm. The letters A, B, C, M and X refer to x-ray event levels for the 0.1 - 0.8 nm band.

The proton plot contains the five-minute averaged integral flux units (pfu = protons/cm² -sec -sr) as measured by the primary SWPC GOES Proton satellite for each of the energy thresholds: >1, >10, >30, and >100 MeV. The P10 event threshold is 10 pfu at greater than 10 MeV.



ISES Solar Cycle Sunspot Number Progression

Observed data through Aug 2018



Updated 2018 Sep 3

NOAA/SWPC Boulder, CO USA

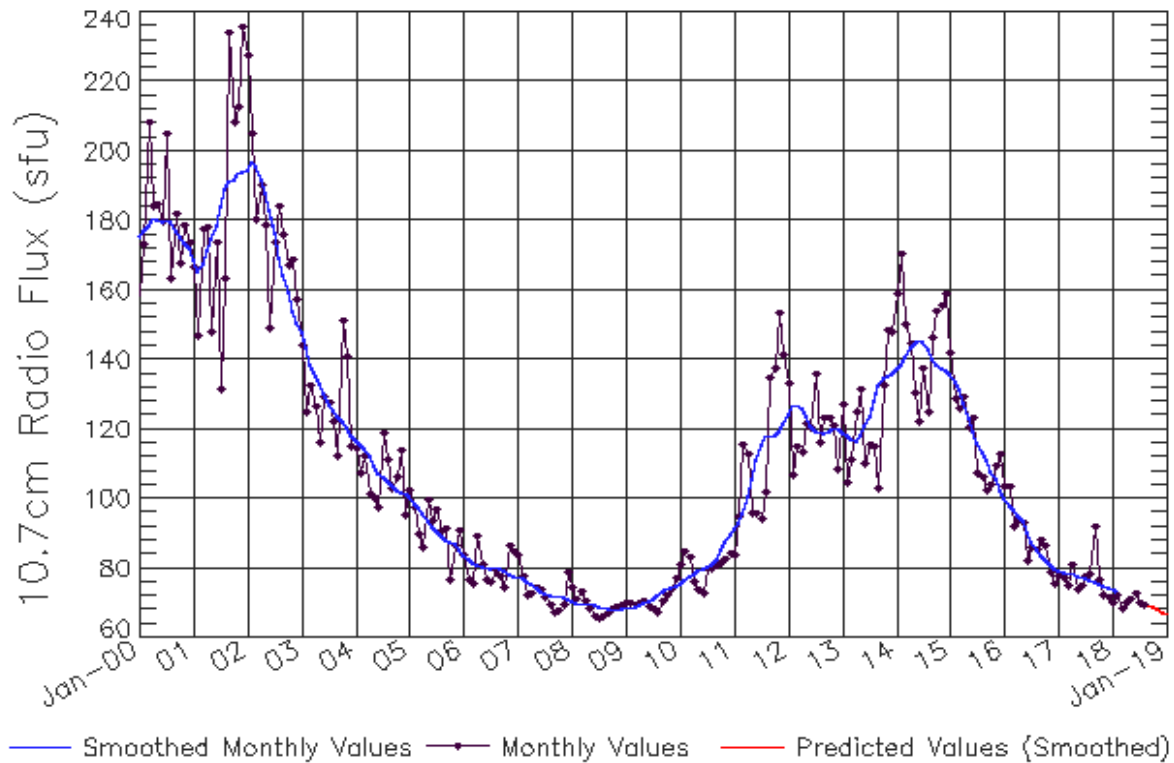
Smoothed Sunspot Number Prediction

| Year | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|------|------------|-------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| 2010 | 9 (1) | 10 (2) | 11 (3) | 13 (5) | 15 (5) | 16 (6) | 17 (7) | 17 (7) | 20 (8) | 23 (9) | 27 (9) | 29 (10) |
| 2011 | 19 (10) | 30 (10) | 56 (10) | 54 (10) | 42 (10) | 37 (10) | 44 (10) | 51 (10) | 78 (10) | 88 (10) | 97 (10) | 73 (10) |
| 2012 | 58 (10) | 33 (10) | 64 (10) | 55 (10) | 69 (10) | 65 (10) | 67 (10) | 63 (10) | 61 (10) | 53 (10) | 62 (10) | 41 (10) |
| 2013 | 63 (10) | 38 (10) | 58 (10) | 72 (10) | 79 (10) | 53 (10) | 57 (10) | 66 (10) | 37 (10) | 86 (10) | 78 (10) | 90 (10) |
| 2014 | 82 (10) | 102 (10) | 92 (10) | 68 (10) | 68 (10) | 62 (10) | 60 (10) | 64 (10) | 78 (10) | 54 (10) | 62 (10) | 68 (10) |
| 2015 | 56 (10) | 40 (10) | 33 (10) | 45 (10) | 53 (10) | 40 (10) | 40 (10) | 39 (10) | 47 (10) | 38 (10) | 37 (10) | 35 (10) |
| 2016 | 34 (10) | 34 (10) | 33 (10) | 23 (10) | 31 (10) | 12 (10) | 19 (10) | 30 (10) | 27 (10) | 20 (10) | 13 (10) | 11 (10) |
| 2017 | 16 (10) | 16 (10) | 11 (10) | 19 (10) | 11 (10) | 12 (10) | 11 (10) | 20 (10) | 26 (10) | 8 (10) | 3 (10) | 5 (10) |
| 2018 | 4 (10) | 6 (10) | 2 (10) | 5 (10) | 8 (10) | 10 (10) | 1 (10) | 5 (10) | 12 (10) | 11 (10) | 10 (10) | 10 (10) |
| 2019 | 9 (10) | 8 (10) | 8 (10) | 7 (10) | 7 (10) | 6 (10) | 6 (10) | 6 (10) | 5 (10) | 5 (10) | 4 (10) | 4 (10) |



ISES Solar Cycle F10.7cm Radio Flux Progression

Observed data through Aug 2018



Updated 2018 Sep 3

NOAA/SWPC Boulder, CO USA

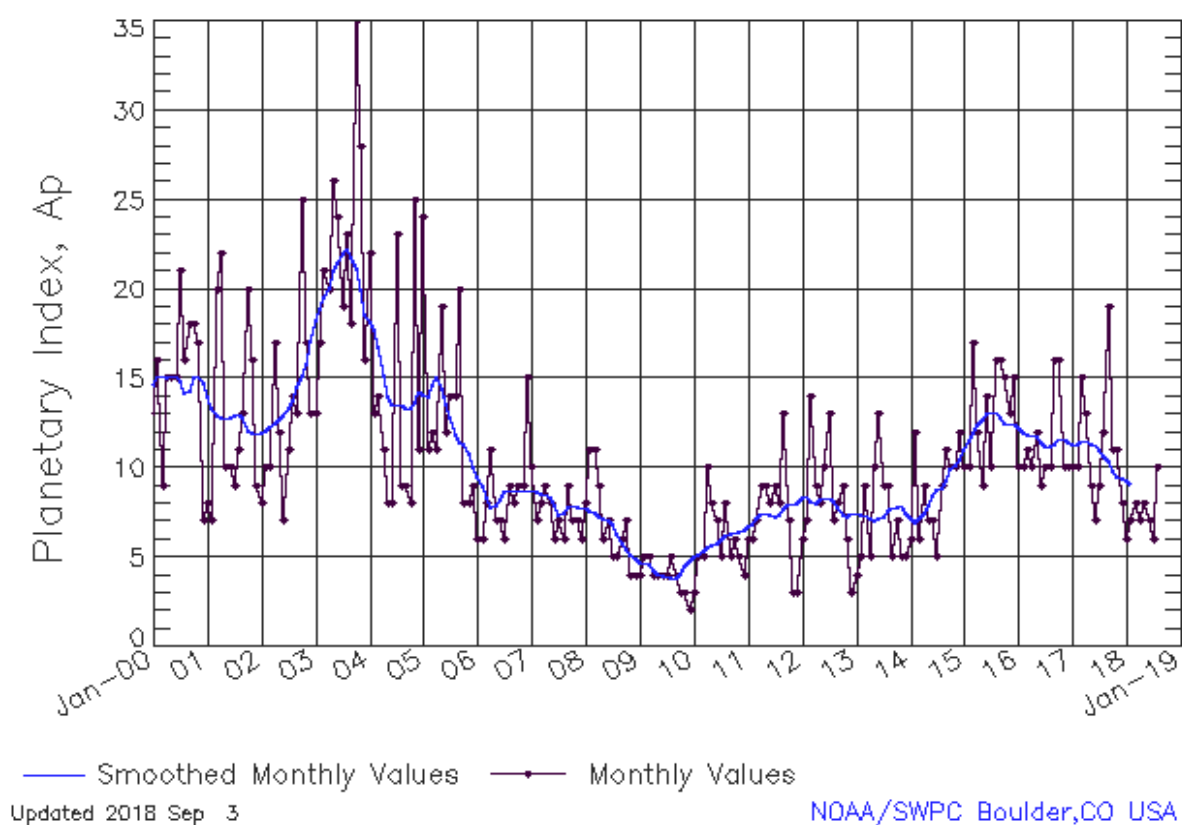
Smoothed F10.7cm Radio Flux Prediction

| Year | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| 2010 | 76 (***) | 77 (***) | 78 (***) | 78 (***) | 79 (***) | 80 (***) | 80 (***) | 81 (***) | 82 (***) | 85 (***) | 88 (***) | 90 (***) |
| 2011 | 91 (***) | 93 (***) | 96 (***) | 100 (***) | 106 (***) | 111 (***) | 115 (***) | 118 (***) | 118 (***) | 118 (***) | 120 (***) | 122 (***) |
| 2012 | 124 (***) | 127 (***) | 127 (***) | 126 (***) | 124 (***) | 121 (***) | 120 (***) | 119 (***) | 119 (***) | 119 (***) | 120 (***) | 120 (***) |
| 2013 | 119 (***) | 118 (***) | 117 (***) | 117 (***) | 118 (***) | 121 (***) | 124 (***) | 128 (***) | 132 (***) | 135 (***) | 135 (***) | 136 (***) |
| 2014 | 137 (***) | 139 (***) | 141 (***) | 144 (***) | 145 (***) | 146 (***) | 145 (***) | 143 (***) | 140 (***) | 138 (***) | 137 (***) | 137 (***) |
| 2015 | 136 (***) | 134 (***) | 131 (***) | 127 (***) | 123 (***) | 120 (***) | 116 (***) | 113 (***) | 111 (***) | 108 (***) | 105 (***) | 103 (***) |
| 2016 | 100 (***) | 98 (***) | 97 (***) | 95 (***) | 93 (***) | 90 (***) | 88 (***) | 86 (***) | 84 (***) | 83 (***) | 81 (***) | 80 (***) |
| 2017 | 79 (***) | 79 (***) | 79 (***) | 78 (***) | 78 (***) | 77 (***) | 77 (***) | 76 (***) | 76 (***) | 75 (***) | 75 (***) | 74 (***) |
| 2018 | 74 (***) | 73 (***) | 72 (1) | 71 (1) | 70 (2) | 70 (3) | 70 (4) | 69 (4) | 69 (5) | 69 (6) | 68 (7) | 68 (8) |
| 2019 | 67 (8) | 67 (9) | 66 (9) | 65 (9) | 65 (9) | 65 (9) | 64 (9) | 64 (9) | 63 (9) | 63 (9) | 63 (9) | 63 (9) |



ISES Solar Cycle Ap Progression

Observed data through Aug 2018



Solar Cycle Comparison charts are temporarily unavailable.

Preliminary Report and Forecast of Solar Geophysical Data (The Weekly)

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Notice: The 27-day Outlook, Satellite Environment, X-ray and Proton plots have been redesigned.
Comments and suggestions are welcome SWPC.Webmaster@noaa.gov

The Weekly has been published continuously since 1951 and is available online since 1997.

<http://spaceweather.gov/weekly/> -- Current and previous year

<http://spaceweather.gov/ftpmenu/warehouse.html> -- Online archive from 1997

<http://spaceweather.gov/ftpmenu/> -- Some content as ascii text

<http://spaceweather.gov/SolarCycle/> -- Solar Cycle Progression web site

<http://spaceweather.gov/contacts.html> -- Contact and Copyright information

http://spaceweather.gov/weekly/Usr_guide.pdf -- User Guide

