**Space Weather Highlights**
**03 April - 09 April 2017**

**SWPC PRF 2171**
**10 April 2017**

Solar activity ranged from very low to high during the period due to multiple M-class flares from Region 2644 (N13, L=57, class/area Fkc/520 on 03 April). The first was an M1/Sf flare observed at 03/0105 UTC. The second M-flare was an M5/2n at 03/1429 UTC with an associated Type II (estimated shock speed 746 km/s) and Type IV radio sweeps. Coronal mass ejections (CMEs) were observed with both flares, however, neither was deemed to be Earth-directed. No Earth-directed CMEs were observed during the period.

No proton events were observed at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit was at normal to moderate levels on 05-08 April, high levels on 04, 09 April, and very high levels on 03 April. The largest flux of the period was 53,552 pfu at 03/1330 UTC.

Geomagnetic field activity ranged from quiet to G1 (Minor) storm conditions. The period began under the influence of a southern polar, negative polarity, coronal hole high-speed stream (CH HSS). Total field ranged between 2 and 6 nT until approximately 04/0000 UTC when it began to increase to a period maximum of 16 nT at 04/1019 UTC. The Bz component reached a period minimum value of -13 nT at 04/0932 UTC. Total field values were at near nominal levels between 05/2200 and 07/2000 when Bt ranged from 2 to 7 nT. An additional enhancement in the interplanetary magnetic field occured shortly after 07/2000 UTC when Bt increased to 10 nT in conjunction with a solar sector boundary crossing (SSBC) from a negative to a positve solar sector orientation. Solar wind speed began the period near 445 km/s and peaked to a maximum speed of 680 km/s at 08/1544 UTC. The geomagnetic field responded with G1 (Minor) storm conditions on 04, 09 April, and quiet to active levels on 03, 05-08 April.

**Space Weather Outlook**
**10 April - 06 May 2017**

Solar activity is expected to be very low with a slight chance for C-class flare activity on 10-17 April and 05-06 May. Solar activity is likely to be at moderate levels (R1-R2, Minor-Moderate) with a slight chance for X-class flares (R3-Strong or greater) on 18-30 April and 01-04 May due to potential in Regions 2644 and 2645 (S10, L=18, class/area Ekc/700 on 03 April).

No proton events are expected at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit is expected to be at normal to moderate levels with high levels likely from 10-12, 18-28 April and 01, 06 May with very high levels likely on 29-30 April due to CH HSS influence.

Geomagnetic field activity is expected to be at unsettled to active levels on 10-13, 17-19, 23-29 April, and 01-06 May with G1 (Minor) storm levels likely on 17, 23-27 April and G2 (Moderate)

storm levels likely on 23 April due to recurrent CH HSS effects. Quiet conditions are expected for the remainder of the period.

## *Daily Solar Data*

| Date | Radio Flux 10.7cm | Sun spot No. | Sunspot Area ($10^{-6}$ hemi.) | X-ray Background | Flux | | Flares | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | X-ray | | | Optical | | | |
| | | | | | | | C | M | X | S | 1 | 2 | 3 | 4 |
| 03 April | 108 | 97 | 1270 | C1.2 | 14 | 2 | 0 | 28 | 0 | 1 | 0 | 0 | | |
| 04 April | 94 | 75 | 890 | B5.5 | 13 | 0 | 0 | 9 | 0 | 0 | 0 | 0 | | |
| 05 April | 85 | 37 | 550 | B2.7 | 2 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | | |
| 06 April | 76 | 38 | 400 | B1.6 | 2 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | | |
| 07 April | 74 | 27 | 70 | A9.4 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | | |
| 08 April | 73 | 0 | 0 | B1.0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| 09 April | 74 | 13 | 20 | A7.2 | 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 |
| 03 April | 7.6e+06 | 1.5e+04 | 3.5e+03 | 1.9e+09 | | |
| 04 April | 5.4e+06 | 1.5e+04 | 3.3e+03 | 8.6e+07 | | |
| 05 April | 3.8e+06 | 1.4e+04 | 3.4e+03 | 5.7e+06 | | |
| 06 April | 4.3e+06 | 1.4e+04 | 3.5e+03 | 6.0e+06 | | |
| 07 April | 5.9e+06 | 1.5e+04 | 3.6e+03 | 7.8e+06 | | |
| 08 April | 6.0e+06 | 1.5e+04 | 3.5e+03 | 1.2e+07 | | |
| 09 April | 8.8e+06 | 1.5e+04 | 3.4e+03 | 8.3e+07 | | |

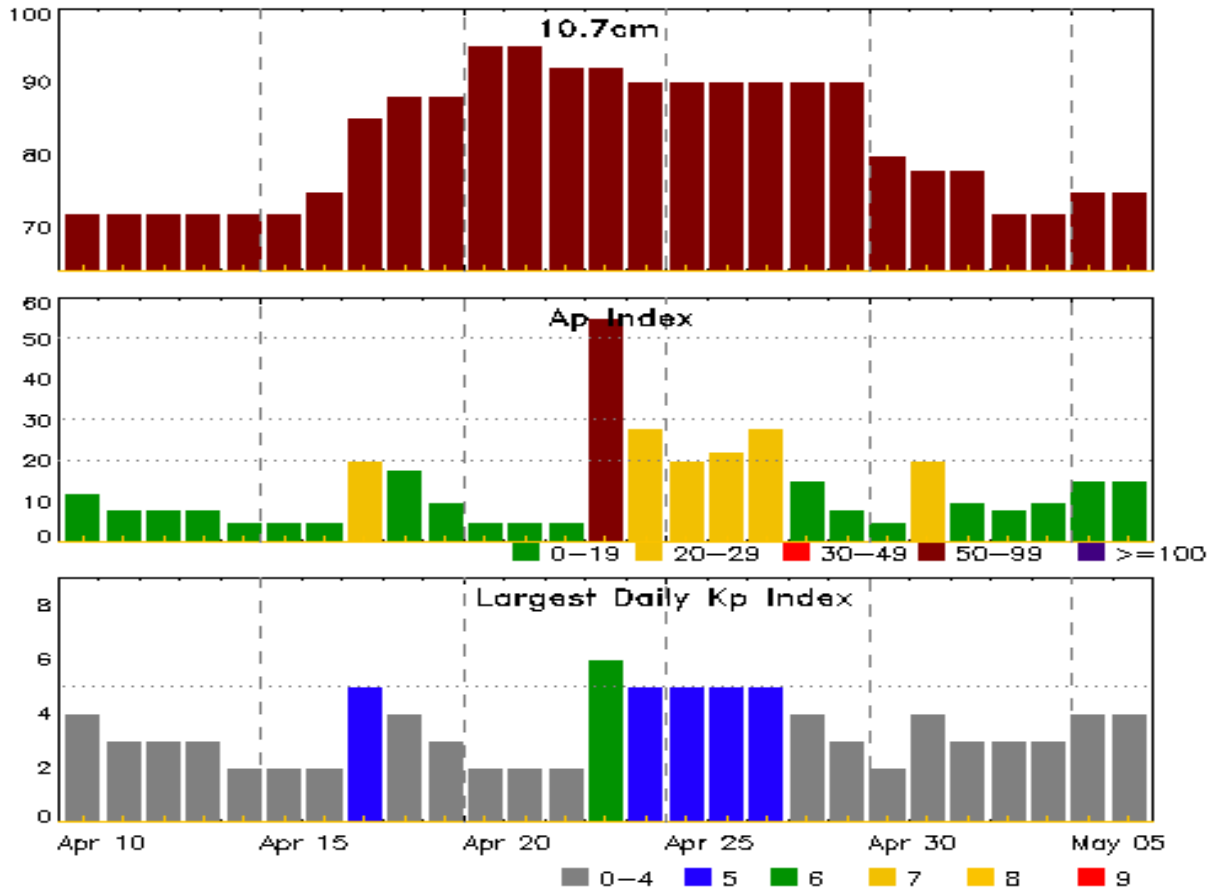
## *Daily Geomagnetic Data*

| Date | Middle Latitude Fredericksburg | | High Latitude College | | Estimated Planetary | |
|---|---|---|---|---|---|---|
| | A | K-indices | A | K-indices | A | K-indices |
| 03 April | 4 | 1-1-0-1-3-1-1-1 | 5 | 0-1-0-3-3-2-0-0 | 4 | 1-1-0-2-2-1-0-1 |
| 04 April | 17 | 2-3-5-4-3-1-1-3 | 28 | 2-4-6-6-3-1-1-2 | 20 | 2-4-5-5-3-1-1-3 |
| 05 April | 10 | 1-1-3-1-2-3-3-3 | 5 | 1-2-3-1-1-1-1-1 | 10 | 2-1-3-2-1-2-2-4 |
| 06 April | 5 | 1-0-1-1-2-2-2-2 | 20 | 1-1-1-3-5-6-2-1 | 7 | 2-1-1-2-2-3-2-1 |
| 07 April | 9 | 2-2-2-2-2-1-3-3 | 8 | 1-2-4-3-1-0-1-2 | 10 | 3-2-2-2-1-1-3-4 |
| 08 April | 14 | 3-3-3-2-3-2-2-4 | 20 | 3-3-5-5-2-2-2-3 | 16 | 4-3-4-2-2-2-3-4 |
| 09 April | 16 | 4-5-3-3-2-2-1-1 | 31 | 4-5-5-5-5-4-0-0 | 32 | 4-5-4-3-3-2-1-1 |

## *Alerts and Warnings Issued*

| Date & Time of Issue UTC | Type of Alert or Warning | Date & Time of Event UTC |
|---|---|---|
| 03 Apr 0500 | CONTINUED ALERT: Electron 2MeV Integral Flux >= 1000pfu | 28/1045 |
| 03 Apr 1433 | ALERT: X-ray Flux exceeded M5 | 03/1429 |
| 03 Apr 1447 | SUMMARY: X-ray Event exceeded M5 | 03/1419 - 1434 |
| 03 Apr 1803 | ALERT: Type II Radio Emission | 03/1429 |
| 03 Apr 1804 | ALERT: Type IV Radio Emission | 03/1432 |
| 04 Apr 0439 | WARNING: Geomagnetic K = 4 | 04/0440 - 0900 |
| 04 Apr 0544 | SUMMARY: 10cm Radio Burst | 04/0520 - 0520 |
| 04 Apr 0601 | ALERT: Geomagnetic K = 4 | 04/0559 |
| 04 Apr 0734 | EXTENDED WARNING: Geomagnetic K = 4 | 04/0440 - 1500 |
| 04 Apr 0734 | WARNING: Geomagnetic K = 5 | 04/0733 - 1200 |
| 04 Apr 0815 | ALERT: Geomagnetic K = 5 | 04/0814 |
| 04 Apr 1152 | ALERT: Geomagnetic K = 5 | 04/1152 |
| 04 Apr 1455 | EXTENDED WARNING: Geomagnetic K = 4 | 04/0440 - 2100 |
| 04 Apr 2155 | SUMMARY: 10cm Radio Burst | 04/2134 - 2136 |
| 05 Apr 2250 | WARNING: Geomagnetic K = 4 | 05/2250 - 06/0300 |
| 06 Apr 0006 | ALERT: Geomagnetic K = 4 | 05/2359 |
| 07 Apr 2349 | WARNING: Geomagnetic K = 4 | 07/2348 - 08/0900 |
| 07 Apr 2355 | ALERT: Geomagnetic K = 4 | 07/2355 |
| 08 Apr 0834 | EXTENDED WARNING: Geomagnetic K = 4 | 07/2348 - 08/1800 |
| 08 Apr 1755 | EXTENDED WARNING: Geomagnetic K = 4 | 07/2348 - 09/0300 |
| 09 Apr 0130 | EXTENDED WARNING: Geomagnetic K = 4 | 07/2348 - 09/1300 |
| 09 Apr 0130 | WARNING: Geomagnetic K = 5 | 09/0130 - 0600 |
| 09 Apr 0458 | ALERT: Geomagnetic K = 5 | 09/0458 |
| 09 Apr 0542 | EXTENDED WARNING: Geomagnetic K = 5 | 09/0130 - 1200 |
| 09 Apr 1239 | EXTENDED WARNING: Geomagnetic K = 4 | 07/2348 - 10/0300 |
| 09 Apr 1346 | ALERT: Electron 2MeV Integral Flux >= 1000pfu | 09/1330 |

## *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 |
|---|---|---|---|---|---|---|---|
| 10 Apr | 72 | 12 | 4 | 24 Apr | 90 | 28 | 5 |
| 11 | 72 | 8 | 3 | 25 | 90 | 20 | 5 |
| 12 | 72 | 8 | 3 | 26 | 90 | 22 | 5 |
| 13 | 72 | 8 | 3 | 27 | 90 | 28 | 5 |
| 14 | 72 | 5 | 2 | 28 | 90 | 15 | 4 |
| 15 | 72 | 5 | 2 | 29 | 90 | 8 | 3 |
| 16 | 75 | 5 | 2 | 30 | 80 | 5 | 2 |
| 17 | 85 | 20 | 5 | 01 May | 78 | 20 | 4 |
| 18 | 88 | 18 | 4 | 02 | 78 | 10 | 3 |
| 19 | 88 | 10 | 3 | 03 | 72 | 8 | 3 |
| 20 | 95 | 5 | 2 | 04 | 72 | 10 | 3 |
| 21 | 95 | 5 | 2 | 05 | 75 | 15 | 4 |
| 22 | 92 | 5 | 2 | 06 | 75 | 15 | 4 |
| 23 | 92 | 55 | 6 | | | | |

## *Energetic Events*

| | Time | | | X-ray | | Optical Information | | | Peak Radio Flux | | Sweep Freq Intensity | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date | Begin | Max | Half Max | Class | Integ Flux | Imp/ Brtns | Location Lat CMD | Rgn # | 245 | 2695 | II | IV |
| 03 Apr | 0056 | 0105 | 0112 | M1.2 | 0.008 | SF | N15W75 | 2644 | | | | |
| 03 Apr | 1419 | 1429 | 1434 | M5.8 | 0.031 | | | 2644 | 6800 | 100 | 2 | 1 |

## *Flare List*

| | Time | | | Optical | | | |
|---|---|---|---|---|---|---|---|
| Date | Begin | Max | End | X-ray Class | Imp/ Brtns | Location Lat CMD | Rgn # |
| 03 Apr | 0056 | 0105 | 0112 | M1.2 | SF | N15W75 | 2644 |
| 03 Apr | 0347 | 0349 | 0350 | | SF | N14W78 | 2644 |
| 03 Apr | 0419 | 0426 | 0431 | C2.3 | SF | N12W71 | 2644 |
| 03 Apr | 0437 | 0437 | 0442 | | SF | S11W32 | 2645 |
| 03 Apr | 0455 | 0527 | 0536 | C5.7 | SF | N13W73 | 2644 |
| 03 Apr | 0521 | 0521 | 0526 | | SF | N13W72 | 2644 |
| 03 Apr | 0606 | 0607 | 0612 | | SF | N13W72 | 2644 |
| 03 Apr | 0616 | 0621 | 0627 | | SF | S11W32 | 2645 |
| 03 Apr | 0639 | 0642 | 0643 | | SF | N12W72 | 2644 |
| 03 Apr | 0644 | 0648 | 0657 | | SF | N12W72 | 2644 |
| 03 Apr | 0733 | 0734 | 0735 | | SF | N12W71 | 2644 |
| 03 Apr | 0806 | 0812 | 0817 | C3.8 | SF | S11W33 | 2645 |
| 03 Apr | 0914 | 0916 | 0919 | C2.5 | SF | N12W73 | 2644 |
| 03 Apr | 0932 | 0933 | 0936 | | SF | N11W77 | 2644 |
| 03 Apr | 1107 | 1113 | 1125 | C3.9 | | | 2645 |
| 03 Apr | 1140 | 1143 | 1145 | C2.6 | | | 2645 |
| 03 Apr | 1216 | 1220 | 1226 | C2.6 | | | 2645 |
| 03 Apr | 1301 | 1306 | 1309 | C3.4 | | | 2645 |
| 03 Apr | B1313 | 1323 | 1355 | C7.3 | SF | N17W80 | 2644 |
| 03 Apr | 1415 | 1423 | 1454 | | 2N | N19W80 | 2644 |
| 03 Apr | 1419 | 1429 | 1434 | M5.8 | | | 2644 |
| 03 Apr | 1529 | 1530 | 1533 | | SF | N18W80 | 2644 |
| 03 Apr | 1543 | 1545 | 1548 | | SF | N16W78 | 2644 |
| 03 Apr | 1549 | 1549 | 1553 | | SF | N17W78 | 2644 |
| 03 Apr | 1613 | 1615 | 1618 | | SF | N16W77 | 2644 |
| 03 Apr | 1623 | 1623 | 1627 | | SF | N16W77 | 2644 |
| 03 Apr | 1701 | U1703 | 1707 | | SF | N16W80 | 2644 |
| 03 Apr | 1754 | 1758 | 1801 | | SF | N19W83 | 2644 |
| 03 Apr | 1906 | 1910 | 1914 | C2.5 | | | |

## *Flare List*

| Date | Time | | | Optical | | | |
|---|---|---|---|---|---|---|---|
| | Begin | Max | End | X-ray Class | Imp/ Brtns | Location Lat CMD | Rgn # |
| 03 Apr | 1957 | 1958 | 1959 | | SF | N19W83 | 2644 |
| 03 Apr | 2007 | 2013 | 2020 | C5.0 | SF | N15W77 | 2644 |
| 03 Apr | 2046 | 2050 | 2055 | | SF | N15W77 | 2644 |
| 03 Apr | 2113 | 2116 | 2118 | C1.6 | SF | N15W77 | 2644 |
| 03 Apr | 2249 | 2251 | 2302 | C2.3 | SF | N15W76 | 2644 |
| 03 Apr | 2343 | 2352 | 2356 | C1.7 | SF | S09W37 | 2645 |
| 04 Apr | 0035 | 0039 | 0054 | C1.4 | SF | S12W37 | 2645 |
| 04 Apr | 0128 | 0132 | 0136 | C1.9 | SF | S04E50 | 2648 |
| 04 Apr | 0609 | 0616 | 0619 | C1.1 | SF | N13W76 | 2644 |
| 04 Apr | 0702 | 0712 | 0725 | C3.7 | SF | N13W85 | 2644 |
| 04 Apr | B0811 | U0811 | A0817 | | SF | S12W39 | 2645 |
| 04 Apr | B0833 | U0833 | A0903 | | SF | N13W81 | 2644 |
| 04 Apr | 0946 | 0951 | 0958 | C2.3 | SF | N12W75 | 2644 |
| 04 Apr | 1145 | 1148 | 1150 | B9.5 | | | |
| 04 Apr | 1212 | 1216 | 1218 | C1.9 | | | 2644 |
| 04 Apr | 1331 | 1341 | 1356 | C2.3 | | | 2644 |
| 04 Apr | 1614 | 1617 | 1619 | C1.0 | | | 2645 |
| 04 Apr | 1623 | 1627 | 1634 | B9.1 | | | |
| 04 Apr | 1655 | 1701 | 1703 | C1.9 | | | 2644 |
| 04 Apr | 1921 | 1925 | 1927 | C1.1 | | | 2645 |
| 04 Apr | 1942 | 1945 | 1948 | B9.4 | | | |
| 04 Apr | 2131 | 2136 | 2139 | C2.1 | SF | S10W48 | 2645 |
| 04 Apr | 2144 | 2148 | 2150 | B9.9 | | | |
| 04 Apr | 2222 | 2225 | 2227 | C1.2 | | | |
| 04 Apr | 2330 | 2342 | 2346 | C4.9 | SF | S09W50 | 2645 |
| 05 Apr | 0004 | 0005 | 0008 | | SF | S09W50 | 2645 |
| 05 Apr | 0118 | 0121 | 0123 | B5.7 | | | |
| 05 Apr | 0245 | 0250 | 0253 | B9.8 | | | |
| 05 Apr | 0318 | 0322 | 0327 | B5.0 | | | |
| 05 Apr | 0451 | 0455 | 0458 | C1.1 | SF | S13W52 | 2645 |
| 05 Apr | 0837 | 0937 | 0942 | C1.0 | SF | S12W53 | 2645 |
| 05 Apr | 1224 | 1229 | 1238 | B4.3 | | | |
| 05 Apr | 1551 | 1555 | 1558 | B5.9 | | | |
| 05 Apr | 1734 | 1740 | 1745 | B9.1 | SF | S10W57 | 2645 |
| 05 Apr | 2339 | 2340 | 2351 | | SF | S10W60 | 2645 |
| 06 Apr | 0647 | 0650 | 0652 | B2.9 | | | 2645 |
| 06 Apr | 0723 | 0732 | 0743 | B8.4 | SF | S15W67 | 2645 |
| 06 Apr | 0839 | 0934 | 0945 | B4.0 | | | 2645 |

## *Flare List*

| Date | Time | | | Optical | | | |
|---|---|---|---|---|---|---|---|
| | Begin | Max | End | X-ray Class | Imp/ Brtns | Location Lat CMD | Rgn # |
| 06 Apr | 1015 | 1026 | 1029 | C1.1 | SF | S12W65 | 2645 |
| 06 Apr | 1201 | 1210 | 1220 | C5.5 | SF | S13W68 | 2645 |
| 06 Apr | 1721 | 1727 | 1734 | B5.5 | SF | S10W71 | 2645 |
| 06 Apr | 2106 | 2116 | 2121 | B4.8 | | | 2645 |
| 06 Apr | 2259 | 2304 | 2311 | B4.7 | | | 2645 |
| 07 Apr | 0013 | 0025 | 0033 | C2.7 | | | 2645 |
| 07 Apr | 0849 | 0855 | 0903 | B9.8 | | | 2645 |
| 07 Apr | 1558 | 1559 | 1602 | | SF | S13W84 | 2645 |
| 07 Apr | 1713 | 1720 | 1724 | B2.6 | | | 2645 |
| 07 Apr | 1942 | 1949 | 1952 | C4.3 | | | 2645 |
| 08 Apr | 0038 | 0047 | 0051 | B4.0 | | | 2645 |
| 08 Apr | 0142 | 0148 | 0153 | B3.0 | | | 2650 |
| 08 Apr | 0255 | 0309 | 0317 | C1.1 | | | 2645 |
| 08 Apr | 0847 | 0905 | 0912 | C1.2 | | | 2645 |
| 08 Apr | 1323 | 1328 | 1335 | B3.2 | | | 2650 |
| 08 Apr | 1414 | 1417 | 1423 | B3.3 | | | 2645 |
| 08 Apr | 1505 | 1510 | 1516 | B3.6 | | | 2650 |
| 08 Apr | 1703 | 1714 | 1726 | B3.1 | | | 2650 |
| 08 Apr | 1918 | 1929 | 1945 | B4.9 | | | 2645 |
| 08 Apr | 2351 | 0016 | 0023 | B2.3 | | | 2650 |
| 09 Apr | 1721 | 1726 | 1730 | B1.8 | | | 2648 |

## *Region Summary*

| | Location | | Sunspot Characteristics | | | | | Flares | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Helio | Area | Extent | Spot | Spot | Mag | X-ray | | | Optical | | | | |
| Date | Lat CMD | Lon | $10^{-6}$ hemi. | (helio) | Class | Count | Class | C | M | X | S | 1 | 2 | 3 | 4 |
| | | | ***Region 2644*** | | | | | | | | | | | | |
| 26 Mar | N12E30 | 54 | 50 | 6 | Dao | 10 | B | 1 | | | 4 | | | | |
| 27 Mar | N13E17 | 54 | 150 | 8 | Dai | 15 | BG | | | | 6 | | | | |
| 28 Mar | N12E04 | 54 | 240 | 10 | Dsi | 12 | B | 1 | | | 4 | | | | |
| 29 Mar | N12W09 | 53 | 220 | 11 | Eso | 10 | B | | | | 1 | | | | |
| 30 Mar | N12W23 | 54 | 190 | 12 | Eso | 3 | B | | | | | | | | |
| 31 Mar | N12W37 | 55 | 190 | 11 | Eao | 4 | B | | | | 1 | | | | |
| 01 Apr | N12W52 | 57 | 200 | 12 | Eao | 8 | B | 1 | 1 | | 2 | 1 | | | |
| 02 Apr | N12W65 | 57 | 450 | 17 | Fkc | 19 | BG | 4 | 4 | | 17 | | 1 | | |
| 03 Apr | N13W79 | 57 | 520 | 18 | Fkc | 12 | BGD | 7 | 2 | | 24 | | 1 | | |
| 04 Apr | N13W92 | 57 | 150 | 13 | Eao | 7 | B | 6 | | | 4 | | | | |
| | | | | | | | | 20 | 7 | 0 | 63 | 1 | 2 | 0 | 0 |

Crossed West Limb.
Absolute heliographic longitude: 54

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | ***Region 2645*** | | | | | | | | | | | | |
| 27 Mar | S09E59 | 12 | 30 | 4 | Cso | 3 | B | 3 | | | 6 | | | | |
| 28 Mar | S09E44 | 14 | 70 | 7 | Dai | 8 | BG | 4 | | | 9 | | | | |
| 29 Mar | S10E29 | 15 | 180 | 9 | Dsi | 12 | B | | | | 2 | | | | |
| 30 Mar | S10E16 | 15 | 260 | 10 | Dki | 10 | B | | | | | | | | |
| 31 Mar | S10E01 | 17 | 380 | 12 | Ekc | 29 | BG | 2 | | | 4 | | | | |
| 01 Apr | S11W13 | 17 | 520 | 12 | Ekc | 25 | BG | 1 | | | 1 | | | | |
| 02 Apr | S10W26 | 18 | 600 | 14 | Ehc | 23 | BGD | 3 | | | 2 | | | | |
| 03 Apr | S10W40 | 18 | 700 | 15 | Ekc | 35 | BGD | 6 | | | 4 | | | | |
| 04 Apr | S10W53 | 18 | 680 | 15 | Ekc | 16 | BGD | 5 | | | 4 | | | | |
| 05 Apr | S10W67 | 18 | 500 | 16 | Fkc | 12 | BGD | 2 | | | 5 | | | | |
| 06 Apr | S10W79 | 18 | 380 | 15 | Ekc | 14 | BG | 2 | | | 4 | | | | |
| 07 Apr | S09W91 | 17 | 70 | 6 | Cao | 5 | B | 2 | | | 1 | | | | |
| | | | | | | | | 30 | 0 | 0 | 42 | 0 | 0 | 0 | 0 |

Crossed West Limb.
Absolute heliographic longitude: 17

## *Region Summary - continued*

| | Location | | Sunspot Characteristics | | | | | Flares | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Helio | Area | Extent | Spot | Spot | Mag | X-ray | | | Optical | | | | |
| Date | Lat CMD | Lon | $10^{-6}$ hemi. | (helio) | Class | Count | Class | C | M | X | S | 1 | 2 | 3 | 4 |
| | | | ***Region 2647*** | | | | | | | | | | | | |
| 31 Mar | N11E01 | 17 | 10 | 2 | Bxo | 2 | B | | | | | | | | |
| 01 Apr | N11W13 | 18 | 10 | 3 | Bxo | 4 | B | | | | | | | | |
| 02 Apr | N11W27 | 19 | plage | | | | | | | | | | | | |
| 03 Apr | N11W41 | 19 | plage | | | | | | | | | | | | |
| 04 Apr | N11W55 | 20 | plage | | | | | | | | | | | | |
| 05 Apr | N11W69 | 21 | plage | | | | | | | | | | | | |
| 06 Apr | N11W83 | 22 | plage | | | | | | | | | | | | |
| | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Crossed West Limb.
Absolute heliographic longitude: 17

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | ***Region 2648*** | | | | | | | | | | | | |
| 01 Apr | S03E72 | 293 | 10 | 3 | Bxo | 2 | B | | | | | | | | |
| 02 Apr | S03E61 | 291 | 20 | 5 | Cro | 3 | B | | | | | | | | |
| 03 Apr | S03E50 | 288 | 30 | 7 | Dro | 6 | B | | | | | | | | |
| 04 Apr | S03E37 | 288 | 30 | 8 | Cro | 8 | B | 1 | | | 1 | | | | |
| 05 Apr | S02E22 | 288 | 50 | 7 | Bxo | 5 | B | | | | | | | | |
| 06 Apr | S03E07 | 292 | 20 | 4 | Bxo | 4 | B | | | | | | | | |
| 07 Apr | S03W04 | 290 | 0 | 3 | Axx | 2 | A | | | | | | | | |
| 08 Apr | S03W19 | 291 | plage | | | | | | | | | | | | |
| 09 Apr | S03W34 | 293 | plage | | | | | | | | | | | | |
| | | | | | | | | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |

Still on Disk.
Absolute heliographic longitude: 290

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | ***Region 2649*** | | | | | | | | | | | | |
| 03 Apr | N15W58 | 36 | 20 | 4 | Cro | 4 | B | | | | | | | | |
| 04 Apr | N14W70 | 35 | 30 | 5 | Cro | 4 | B | | | | | | | | |
| 05 Apr | N14W84 | 36 | plage | | | | | | | | | | | | |
| | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Crossed West Limb.
Absolute heliographic longitude: 36

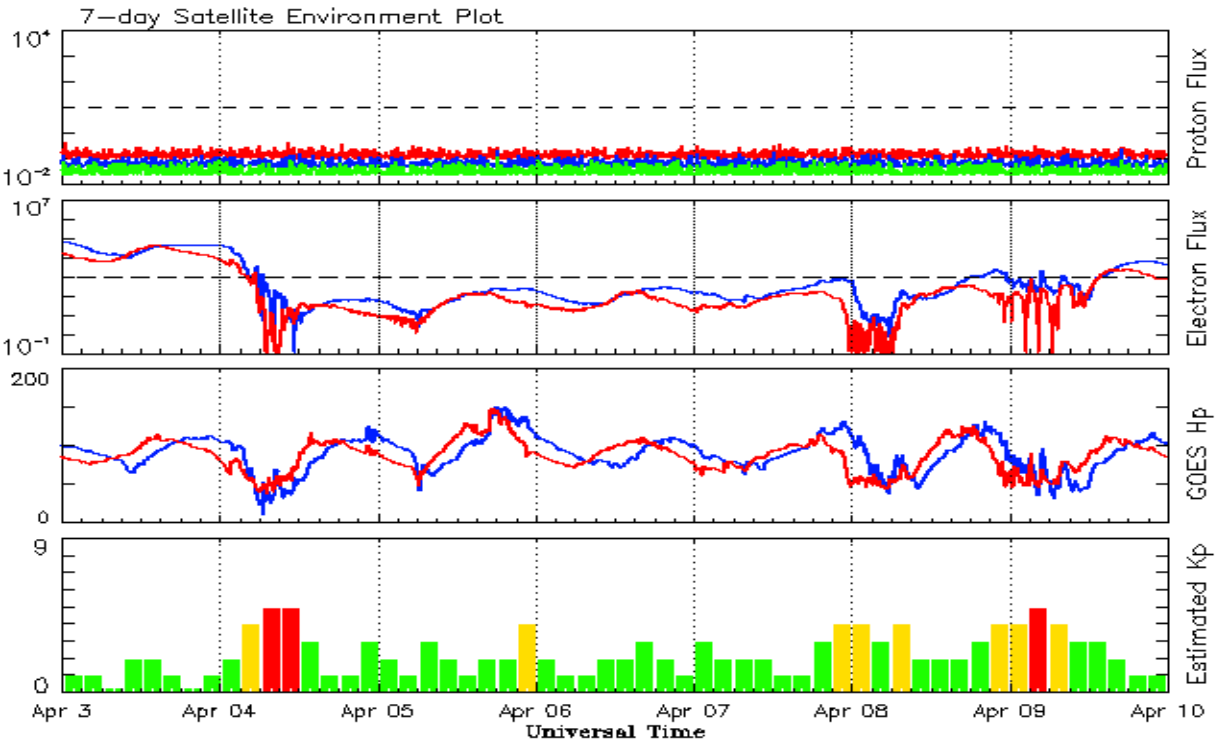
| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | ***Region 2650*** | | | | | | | | | | | | |
| 09 Apr | N08E71 | 188 | 20 | 4 | Cro | 3 | B | | | | | | | | |
| | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Still on Disk.
Absolute heliographic longitude: 188

## *Recent Solar Indices (preliminary)*
## *Observed monthly mean values*

| | Sunspot Numbers | | | | | Radio Flux | | Geomagnetic | |
|---|---|---|---|---|---|---|---|---|---|
| | Observed values | | Ratio | Smooth values | | Penticton | Smooth | Planetary | Smooth |
| Month | SEC | RI | RI/SEC | SEC | RI | 10.7 cm | Value | Ap | Value |
| | | | | ***2015*** | | | | | |
| April | 72.5 | 45.2 | 0.75 | 80.5 | 47.3 | 129.2 | 127.3 | 12 | 12.4 |
| May | 83.0 | 53.3 | 0.71 | 77.5 | 45.7 | 120.1 | 123.3 | 9 | 12.7 |
| June | 77.3 | 39.9 | 0.53 | 73.1 | 43.3 | 123.2 | 119.5 | 14 | 13.0 |
| July | 68.4 | 39.5 | 0.58 | 68.2 | 41.0 | 107.0 | 116.0 | 10 | 13.1 |
| August | 61.6 | 38.6 | 0.63 | 65.5 | 39.8 | 106.2 | 113.3 | 16 | 13.1 |
| September | 72.5 | 47.2 | 0.65 | 64.0 | 39.5 | 102.1 | 110.8 | 16 | 12.8 |
| October | 59.5 | 38.2 | 0.62 | 61.8 | 38.6 | 104.1 | 107.9 | 15 | 12.5 |
| November | 61.8 | 37.3 | 0.61 | 59.0 | 36.7 | 109.6 | 105.3 | 13 | 12.5 |
| December | 54.1 | 34.8 | 0.64 | 55.1 | 34.7 | 112.8 | 102.5 | 15 | 12.5 |
| | | | | ***2016*** | | | | | |
| January | 50.4 | 34.2 | 0.67 | 51.4 | 32.6 | 103.5 | 99.9 | 10 | 12.3 |
| February | 56.0 | 33.8 | 0.61 | 49.6 | 31.5 | 103.5 | 98.1 | 10 | 12.0 |
| March | 40.9 | 32.5 | 0.80 | 47.7 | 30.2 | 91.6 | 96.6 | 11 | 11.8 |
| April | 39.2 | 22.7 | 0.58 | 45.0 | 28.7 | 93.4 | 95.3 | 10 | 11.8 |
| May | 48.9 | 30.9 | 0.64 | 42.1 | 26.9 | 93.1 | 93.2 | 12 | 11.7 |
| June | 19.3 | 12.3 | 0.65 | 39.0 | 24.9 | 81.9 | 90.4 | 9 | 11.4 |
| July | 36.8 | 19.4 | 0.53 | 36.5 | 23.1 | 85.9 | 87.7 | 10 | 11.2 |
| August | 50.4 | 30.1 | 0.60 | 34.2 | 21.6 | 85.0 | 85.5 | 10 | 11.2 |
| September | 37.4 | 26.8 | 0.72 | 31.0 | 19.9 | 87.8 | 83.7 | 16 | 11.3 |
| October | 30.0 | 20.0 | 0.67 | | | 86.1 | | 16 | |
| November | 22.4 | 12.8 | 0.57 | | | 78.7 | | 10 | |
| December | 17.6 | 11.1 | 0.64 | | | 75.1 | | 10 | |
| | | | | ***2017*** | | | | | |
| January | 28.1 | 15.5 | 0.55 | | | 77.4 | | 10 | |
| February | 22.0 | 15.7 | 0.71 | | | 76.9 | | 10 | |
| March | | 10.6 | | | | 74.6 | | 15 | |

**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 03 April 2017*

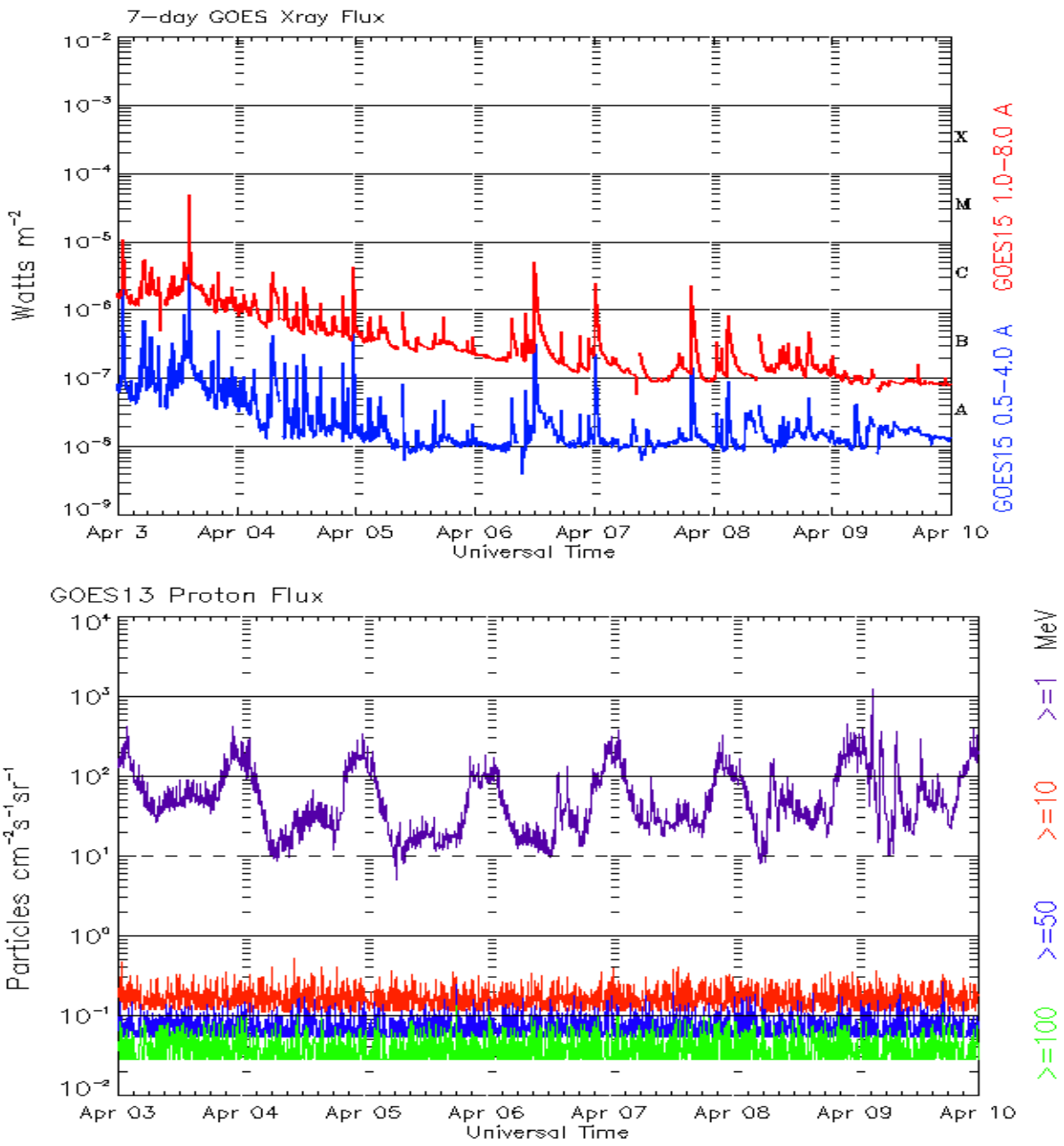
The proton flux plot contains the five-minute averaged integral proton flux (protons/cm$^2$-sec -sr) as measured by the SWPC Primary GOES satellite, near West 75, for each of three energy thresholds: greater than 10, 50, and 100 MeV.

The electron flux plot contains the five-minute averaged integral electron flux (electrons/cm$^2$-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 03 April 2017*

The x-ray plots contains five-minute averages x-ray flux (Watt/m$^2$) 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 intergral flux units (pfu = protons/cm$^2$ -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.

## *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.

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