

Solar activity was at predominately low levels through the period with very low levels observed on 29 April and again on 01 May. The period began with a C3/Sf flare observed at 28/1526 UTC from Region 2048 (N20, L=125, class/area Dso/060 on 28 Apr). On 29 April, a B9/Sf flare was recorded at 29/2254 UTC from Region 2047 (S18, L=048, class/area Dkc/360 on 02 May). Associated with this event a partial-halo CME observed off the west limb, first visible in LASCO C2 imagery at 30/0024 UTC. Low-level C-class flares were observed on 30 April and 02 May; the largest a C4/Sf at 02/0940 UTC from Region 2047. Activity on 03 May was dominated by Region 2051 (S09, L=058, class/area Dkc/310 on 03 May) which rapidly emerged on 01 May in the SE quadrant. At 03/0608 UTC, the region produced a long-duration C5 event with an associated asymmetric CME. The CME was observed off the west limb, first visible in LASCO C2 imagery at 03/0612 UTC. The period ended on 04 May with a C9 x-ray event observed from Region 2051 at 04/1231 UTC.

No proton events were observed at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit was at moderate levels on 28 - 29 April and briefly on 03 May. Normal levels were observed for the remainder of the period.

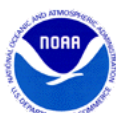
Geomagnetic field activity began the period on 29 April at quiet to unsettled levels due to a period of sustained negative Bz. Late on 29 April through early on 01 May, field activity ranged from quiet to active levels due to a slow-moving transient feature. The majority of 01 May through late on 03 May saw quiet conditions. By late on 03 May, and through the balance of the summary period, quiet to active conditions were present as effects from the 29 April CME impacted Earth. Wind parameters, measured at the ACE spacecraft, reflected the varying geomagnetic conditions described above. Wind speed began the period at about 350 km/s, dipped to a low of near 250 km/s early on 29 April before a gradual rise to about 390 km/s was observed late on 01 May. Wind speeds then declined to about 300 km/s midday on 03 May before exhibiting a slow rise to end-of period speeds near 370 km/s. IMF Bt ranged from 1 to 11 nT. The Bz component ranged from +8 to -8 nT with sustained negative periods of -8 nT observed from 29/2200 - 30/1500 UTC and again from 03/1800 - 04/0700 UTC. The phi component began the period varying between a positive (away) to a negative (towards) sector through about 30/0900 UTC where it settled into a predominately positive orientation. By about 02/2100 UTC, phi rotated back to a more negative sector and remained so through the end of the summary period.

Space Weather Outlook

05 May - 31 May 2014

Solar activity is expected to be at low levels with a chance for M-class (R1-R2, Minor-Moderate) flare activity through 19 May due to the return of old Regions 2035 (S13, L=224) and 2036 (S15, L=246).

No proton events are expected at geosynchronous orbit.



The greater than 2 MeV electron flux at geosynchronous orbit is expected to be moderate to high levels from 08 - 17 May and again from 24 - 28 May due to solar wind enhancements from recurrent coronal hole high speed streams (CH HSS).

Geomagnetic field activity is expected to be quiet to unsettled for 05 - 08 May (positive CH HSS / weak CME effects), 09 - 11 May (negative CH HSS / sustained - Bz), 14 - 15 May (sustained - Bz) and 21 - 22 May (negative CH HSS). Predominately quiet geomagnetic field activity is expected for the remainder of the period, barring any unforeseeable transient features.



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 |
| 28 April | 121 | 79 | 620 | B2.5 | 1 | 0 | 0 | 11 | 0 | 0 | 0 | 0 |
| 29 April | 120 | 80 | 570 | B2.7 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 |
| 30 April | 124 | 81 | 540 | B2.7 | 2 | 0 | 0 | 10 | 0 | 0 | 0 | 0 |
| 01 May | 126 | 93 | 650 | B2.8 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 |
| 02 May | 135 | 114 | 1010 | B5.4 | 7 | 0 | 0 | 5 | 0 | 0 | 0 | 0 |
| 03 May | 133 | 121 | 1060 | B5.6 | 9 | 0 | 0 | 4 | 0 | 0 | 0 | 0 |
| 04 May | 132 | 128 | 780 | B5.5 | 8 | 0 | 0 | 7 | 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 |
| | 28 April | 1.4e+05 | 1.1e+04 | 2.6e+03 | | 3.2e+07 |
| 29 April | 2.1e+05 | 1.0e+04 | 2.8e+03 | | 2.2e+07 | |
| 30 April | 6.8e+04 | 1.1e+04 | 2.6e+03 | | 4.8e+04 | |
| 01 May | 7.2e+04 | 1.1e+04 | 2.8e+03 | | 5.0e+05 | |
| 02 May | 8.3e+04 | 1.0e+04 | 2.5e+03 | | 2.2e+06 | |
| 03 May | 1.6e+05 | 1.0e+04 | 2.6e+03 | | 3.6e+06 | |
| 04 May | 4.4e+04 | 1.0e+04 | 2.3e+03 | | 3.0e+04 | |

Daily Geomagnetic Data

| Date | Middle Latitude Fredericksburg | | High Latitude College | | Estimated Planetary | |
|----------|-----------------------------------|-----------------|--------------------------|-----------------|------------------------|-----------------|
| | A | K-indices | A | K-indices | A | K-indices |
| | 28 April | 7 | 1-2-2-2-3-1-1-2 | 9 | 2-2-2-5-1-0-0-0 | 6 |
| 29 April | 7 | 1-0-0-1-3-1-1-4 | 1 | 1-0-0-0-0-0-0-2 | 6 | 2-1-1-1-1-1-1-4 |
| 30 April | 12 | 3-2-3-3-4-2-2-1 | 36 | 3-4-5-5-5-6-3-2 | 18 | 3-3-4-3-4-3-3-1 |
| 01 May | 5 | 1-3-2-1-2-1-1-0 | 5 | 2-3-1-0-1-1-2-1 | 6 | 2-3-2-1-1-1-1-1 |
| 02 May | 3 | 1-2-1-1-2-0-1-0 | 1 | 1-1-0-0-0-0-0-0 | 3 | 1-2-1-1-1-0-0-0 |
| 03 May | 5 | 0-0-0-1-2-2-2-3 | 2 | 0-0-0-0-0-0-2-2 | 7 | 1-1-1-1-1-2-3-3 |
| 04 May | 15 | 2-4-4-3-4-2-1-1 | 25 | 3-5-6-4-3-2-2-1 | 16 | 3-4-4-3-3-2-2-1 |

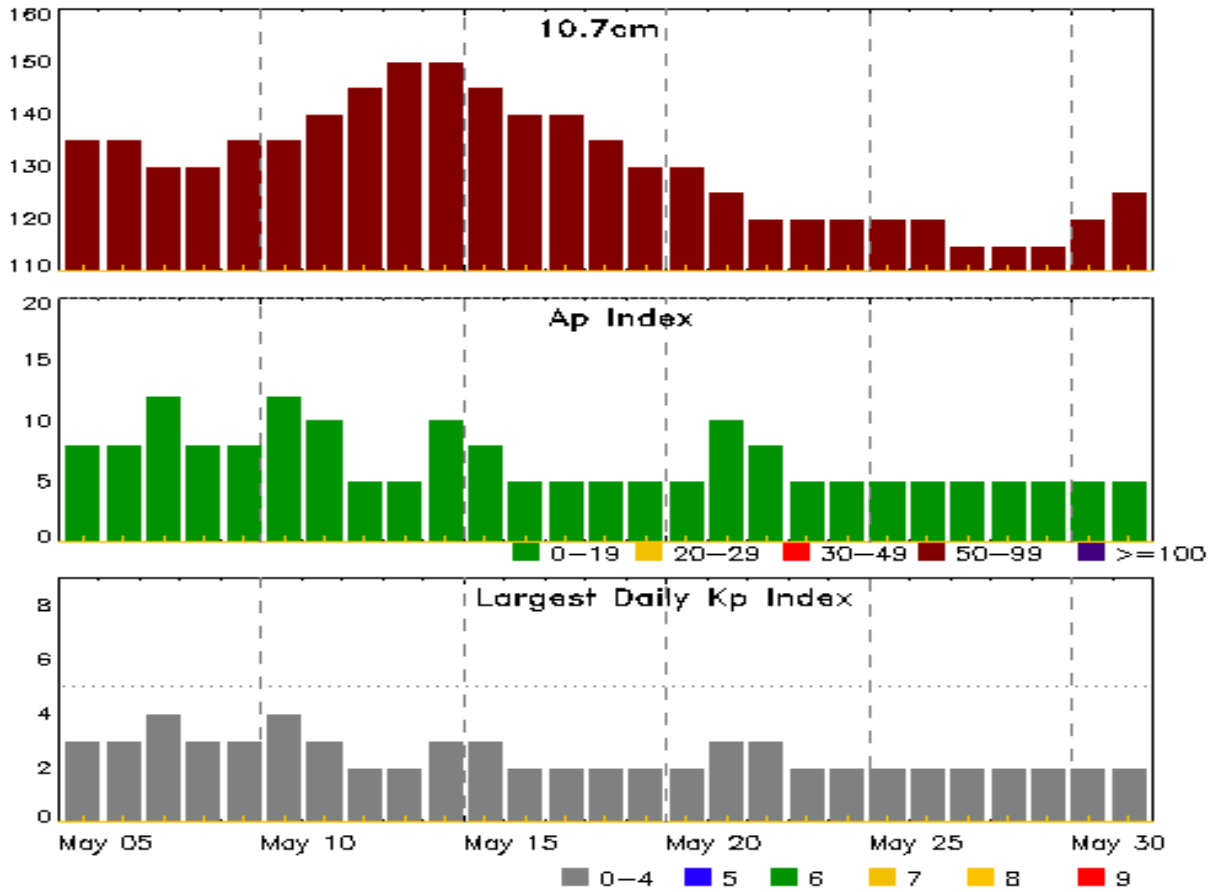


Alerts and Warnings Issued

| Date & Time of Issue UTC | Type of Alert or Warning | Date & Time of Event UTC |
|---|-------------------------------------|---|
| 29 Apr 2155 | WARNING: Geomagnetic K = 4 | 29/2154 - 30/0300 |
| 29 Apr 2158 | ALERT: Geomagnetic K = 4 | 29/2157 |
| 30 Apr 0255 | EXTENDED WARNING: Geomagnetic K = 4 | 29/2154 - 30/1200 |
| 30 Apr 1231 | WARNING: Geomagnetic K = 4 | 30/1230 - 1800 |
| 30 Apr 1316 | ALERT: Geomagnetic K = 4 | 30/1313 |
| 30 Apr 1738 | EXTENDED WARNING: Geomagnetic K = 4 | 30/1230 - 01/0600 |
| 04 May 0423 | WARNING: Geomagnetic K = 4 | 04/0422 - 1300 |
| 04 May 0434 | ALERT: Geomagnetic K = 4 | 04/0430 |



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 |
|--------|----------------------|----------------------|---------------------|--------|----------------------|----------------------|---------------------|
| 05 May | 135 | 8 | 3 | 19 May | 130 | 5 | 2 |
| 06 | 135 | 8 | 3 | 20 | 130 | 5 | 2 |
| 07 | 130 | 12 | 4 | 21 | 125 | 10 | 3 |
| 08 | 130 | 8 | 3 | 22 | 120 | 8 | 3 |
| 09 | 135 | 8 | 3 | 23 | 120 | 5 | 2 |
| 10 | 135 | 12 | 4 | 24 | 120 | 5 | 2 |
| 11 | 140 | 10 | 3 | 25 | 120 | 5 | 2 |
| 12 | 145 | 5 | 2 | 26 | 120 | 5 | 2 |
| 13 | 150 | 5 | 2 | 27 | 115 | 5 | 2 |
| 14 | 150 | 10 | 3 | 28 | 115 | 5 | 2 |
| 15 | 145 | 8 | 3 | 29 | 115 | 5 | 2 |
| 16 | 140 | 5 | 2 | 30 | 120 | 5 | 2 |
| 17 | 140 | 5 | 2 | 31 | 125 | 5 | 2 |
| 18 | 135 | 5 | 2 | | | | |



Energetic Events

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

No Events Observed

Flare List

| Date | Time | | | X-ray Class | Imp/ Brtns | Location Lat CMD | Rgn # |
|--------|-------|-------|-------|-------------|------------|------------------|-------|
| | Begin | Max | End | | | | |
| 28 Apr | 0407 | 0415 | 0422 | B7.3 | | | 2048 |
| 28 Apr | 1220 | 1226 | 1236 | B7.3 | SF | N18W44 | 2048 |
| 28 Apr | B1317 | U1333 | A1335 | | SF | N17W45 | 2048 |
| 28 Apr | 1345 | 1346 | 1349 | | SF | N20W44 | 2048 |
| 28 Apr | B1436 | U1448 | A1513 | | SF | N17W46 | 2048 |
| 28 Apr | 1516 | 1516 | 1531 | C3.4 | SF | N21W47 | 2048 |
| 28 Apr | B1552 | U1553 | A1602 | | SF | S05E65 | 2049 |
| 28 Apr | B1604 | U1608 | A1659 | | SF | N18W46 | 2048 |
| 28 Apr | B1614 | U1620 | A1659 | | SF | S05E65 | 2049 |
| 28 Apr | 1718 | 1720 | 1725 | | SF | S08E64 | 2049 |
| 28 Apr | 2228 | 2234 | 2247 | B7.8 | SF | S19W61 | 2044 |
| 28 Apr | 2255 | 2259 | 2304 | B7.6 | SF | N20W48 | 2048 |
| 29 Apr | 1048 | 1056 | 1104 | B9.7 | SF | N18W56 | 2048 |
| 29 Apr | 1731 | 1742 | 1803 | B5.8 | | | 2048 |
| 29 Apr | 2228 | 2254 | 2314 | B9.1 | SF | S12E15 | 2047 |
| 30 Apr | 0029 | 0032 | 0035 | B8.0 | SF | S09E48 | 2049 |
| 30 Apr | 0120 | 0126 | 0132 | C1.1 | | | 2050 |
| 30 Apr | 0456 | 0458 | 0501 | | SF | S06E45 | 2049 |
| 30 Apr | 0532 | 0532 | 0537 | | SF | S07E45 | 2049 |
| 30 Apr | 0615 | 0619 | 0636 | C1.5 | SF | S05E44 | 2049 |
| 30 Apr | 1009 | 1010 | 1033 | | SF | S06E42 | 2049 |
| 30 Apr | 1041 | 1053 | 1112 | | SF | S06E42 | 2049 |
| 30 Apr | 1112 | 1114 | 1124 | B4.8 | SF | N18W70 | 2048 |
| 30 Apr | 1336 | 1339 | 1341 | B6.4 | SF | S17E03 | 2047 |
| 30 Apr | 1345 | 1348 | 1354 | | SF | S07E40 | 2049 |
| 30 Apr | 1445 | 1449 | 1451 | B6.0 | | | 2047 |
| 30 Apr | 1938 | 1942 | 1945 | B7.1 | SF | S07E39 | 2049 |
| 30 Apr | 2022 | 2026 | 2028 | B6.9 | | | |
| 01 May | 0041 | 0043 | 0046 | | SF | N19W78 | 2048 |
| 01 May | 0132 | 0142 | 0156 | B7.2 | | | |
| 01 May | 0358 | 0401 | 0404 | B6.3 | | | 2048 |



Flare List

| Date | Time | | | X-ray Class | Imp/ Brtns | Optical | | Rgn # |
|--------|-------|-------|-------|----------------|---------------|---------------------|--|----------|
| | Begin | Max | End | | | Location Lat CMD | | |
| 01 May | B1411 | U1414 | 1422 | | SF | S19W07 | | 2047 |
| 01 May | 1744 | 1749 | 1754 | B6.8 | | | | 2050 |
| 01 May | 2329 | 2333 | 2336 | B5.8 | | | | 2047 |
| 02 May | 0301 | 0304 | 0313 | B9.4 | | | | 2047 |
| 02 May | 0759 | 0802 | 0805 | C1.3 | SF | S19W19 | | 2047 |
| 02 May | 0917 | 0940 | 1001 | C4.4 | SF | S22W18 | | 2047 |
| 02 May | 1403 | 1413 | 1429 | C1.4 | SF | S17E03 | | 2047 |
| 02 May | 1532 | U1533 | A1602 | | SF | S12W31 | | 2051 |
| 02 May | 1936 | 1940 | 1945 | C1.0 | | | | 2052 |
| 02 May | 2014 | 2019 | 2022 | C2.1 | SF | S12E51 | | 2052 |
| 02 May | 2201 | 2205 | 2211 | C1.3 | | | | 2049 |
| 02 May | 2233 | 2238 | 2243 | C1.0 | | | | 2052 |
| 03 May | 0111 | 0114 | 0118 | B8.7 | | | | |
| 03 May | 0355 | 0359 | 0401 | C2.6 | | | | 2051 |
| 03 May | 0429 | 0433 | 0435 | C2.0 | | | | 2051 |
| 03 May | 0531 | 0608 | 0644 | C5.3 | | | | 2051 |
| 03 May | 0922 | 0928 | 0931 | C1.8 | | | | 2051 |
| 03 May | 1010 | 1023 | 1029 | C1.1 | | | | 2051 |
| 03 May | B1310 | U1311 | A1425 | | SF | S12W42 | | 2051 |
| 03 May | B1502 | U1504 | A1510 | | SF | S09E41 | | 2052 |
| 03 May | 1602 | 1611 | 1626 | C1.7 | SF | S08W03 | | 2049 |
| 03 May | 1646 | 1651 | 1654 | C1.4 | | | | 2051 |
| 03 May | 2018 | 2025 | 2031 | C1.8 | SF | S11W37 | | 2047 |
| 03 May | 2327 | 2354 | 0030 | C1.1 | | | | 2047 |
| 04 May | 0219 | 0223 | 0237 | C1.2 | | | | 2051 |
| 04 May | 0857 | 0905 | 0914 | C2.5 | | | | 2051 |
| 04 May | 1222 | 1231 | 1239 | C9.2 | | | | 2051 |
| 04 May | 1253 | 1253 | 1312 | | SF | S11W57 | | 2051 |
| 04 May | 1313 | 1314 | 1319 | | SF | S10W57 | | 2051 |
| 04 May | 1554 | 1601 | 1604 | C1.3 | SF | S08W13 | | 2049 |
| 04 May | 1716 | 1738 | 1750 | C1.4 | SF | N10E44 | | 2053 |
| 04 May | 1826 | 1826 | 1831 | | SF | N10E43 | | 2053 |
| 04 May | 1842 | 1850 | 1855 | C1.2 | SF | N10E43 | | 2053 |
| 04 May | 2252 | 2256 | 2259 | C1.1 | | | | 2051 |
| 04 May | 2307 | 2311 | 2314 | C1.1 | SF | N10E40 | | 2053 |



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 2042 | | | | | | | | | | | | | | | | | |
| 16 Apr | N19E69 | 163 | 70 | 6 | Cso | 2 | B | 2 | | | 8 | | | | | | |
| 17 Apr | N18E54 | 165 | 240 | 9 | Dso | 4 | B | | | | | | | | | | |
| 18 Apr | N18E41 | 164 | 230 | 9 | Dao | 12 | B | | | | | | | | | | |
| 19 Apr | N19E27 | 166 | 270 | 11 | Eko | 11 | B | | | | | | | | | | |
| 20 Apr | N19E15 | 165 | 170 | 9 | Cso | 4 | B | | | | | | | | | | |
| 21 Apr | N18E02 | 165 | 160 | 9 | Dao | 4 | B | | | | | | | | | | |
| 22 Apr | N18W11 | 163 | 170 | 8 | Cao | 5 | B | | | | | | | | | | |
| 23 Apr | N17W24 | 163 | 180 | 8 | Cso | 11 | B | | | | | | | | | | |
| 24 Apr | N18W40 | 166 | 160 | 2 | Hsx | 1 | A | | | | | | | | | | |
| 25 Apr | N18W53 | 167 | 140 | 5 | Cso | 2 | B | | | | | | | | | | |
| 26 Apr | N18W67 | 168 | 140 | 5 | Cso | 2 | B | | | | | | | | | | |
| 27 Apr | N19W81 | 168 | 110 | 2 | Hsx | 1 | A | | | | | | | | | | |
| | | | | | | | | 2 | 0 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | |

Crossed West Limb.
 Absolute heliographic longitude: 165

| | | | | | | | | | | | | | | | | | |
|--------------------|--------|-----|-------|---|-----|----|---|---|---|---|---|---|---|---|---|---|--|
| Region 2044 | | | | | | | | | | | | | | | | | |
| 19 Apr | S20E52 | 141 | 10 | 5 | Bxo | 6 | B | 2 | | | 2 | | | | | | |
| 20 Apr | S20E37 | 143 | 30 | 9 | Dro | 11 | B | | | | | | | | | | |
| 21 Apr | S21E24 | 143 | 30 | 9 | Cao | 12 | B | | | | | | | | | | |
| 22 Apr | S19E10 | 142 | 20 | 9 | Cso | 5 | B | | | | | | | | | | |
| 23 Apr | S18E04 | 136 | 30 | 4 | Cro | 7 | B | 1 | | | | | | | | | |
| 24 Apr | S21W14 | 139 | 30 | 4 | Cro | 7 | B | | | | | | | | | | |
| 25 Apr | S21W27 | 141 | 20 | 6 | Cso | 6 | B | | | | | | | | | | |
| 26 Apr | S21W41 | 142 | 20 | 6 | Cso | 6 | B | | | | | | | | | | |
| 27 Apr | S21W55 | 142 | plage | | | | | | | | | | | | | | |
| 28 Apr | S21W69 | 143 | plage | | | | | | | | 1 | | | | | | |
| 29 Apr | S21W83 | 144 | plage | | | | | | | | | | | | | | |
| | | | | | | | | 3 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | |

Crossed West Limb.
 Absolute heliographic longitude: 136



Region Summary - continued

| 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 2045 | | | | | | | | | | | | | | | | | | | | | | | |
| 19 Apr | S25E78 | 115 | 50 | 2 | Hax | 2 | A | 2 | | | | 1 | | | | | | | | | | | |
| 20 Apr | S22E62 | 118 | 50 | 3 | Cao | 4 | B | | | | | | | | | | | | | | | | |
| 21 Apr | S23E47 | 120 | 50 | 2 | Cao | 4 | B | 1 | | | | 1 | | | | | | | | | | | |
| 22 Apr | S23E36 | 117 | 80 | 5 | Dao | 10 | B | | | | | 1 | | | | | | | | | | | |
| 23 Apr | S24E23 | 117 | 100 | 10 | Dao | 13 | B | | | | | | | | | | | | | | | | |
| 24 Apr | S25E09 | 117 | 120 | 2 | Cso | 1 | B | | | | | | | | | | | | | | | | |
| 25 Apr | S24W02 | 116 | 140 | 5 | Cao | 8 | B | 1 | | | | | | | | | | | | | | | |
| 26 Apr | S24W16 | 117 | 140 | 5 | Cao | 8 | B | | | | | | | | | | | | | | | | |
| 27 Apr | S25W29 | 116 | 140 | 5 | Cao | 6 | B | | | | | | | | | | | | | | | | |
| 28 Apr | S24W43 | 117 | 100 | 3 | Hsx | 2 | A | | | | | | | | | | | | | | | | |
| 29 Apr | S24W57 | 118 | 60 | 2 | Hsx | 1 | A | | | | | | | | | | | | | | | | |
| 30 Apr | S24W71 | 119 | 70 | 3 | Cso | 2 | B | | | | | | | | | | | | | | | | |
| 01 May | S24W85 | 120 | 30 | 2 | Hsx | 1 | A | | | | | | | | | | | | | | | | |
| | | | | | | | | 4 | 0 | 0 | | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | |

Crossed West Limb.
 Absolute heliographic longitude: 116

| | | | | | | | | | | | | | | | | | | | | | | | |
|--------------------|--------|----|-----|----|-----|----|----|---|---|---|--|---|---|---|---|---|---|---|--|--|--|--|--|
| Region 2047 | | | | | | | | | | | | | | | | | | | | | | | |
| 27 Apr | S18E42 | 45 | 10 | 5 | Cro | 2 | B | | | | | | | | | | | | | | | | |
| 28 Apr | S18E28 | 46 | 60 | 6 | Dso | 9 | B | | | | | | | | | | | | | | | | |
| 29 Apr | S18E14 | 47 | 80 | 8 | Dai | 11 | B | | | | | 1 | | | | | | | | | | | |
| 30 Apr | S18E01 | 47 | 90 | 8 | Dai | 14 | B | | | | | 1 | | | | | | | | | | | |
| 01 May | S18W13 | 48 | 150 | 8 | Dsc | 19 | BG | | | | | 1 | | | | | | | | | | | |
| 02 May | S18W28 | 48 | 360 | 10 | Dkc | 25 | BG | 3 | | | | 3 | | | | | | | | | | | |
| 03 May | S17W41 | 49 | 260 | 11 | Eko | 20 | BG | 2 | | | | 1 | | | | | | | | | | | |
| 04 May | S17W54 | 49 | 170 | 10 | Dao | 16 | B | | | | | | | | | | | | | | | | |
| | | | | | | | | 5 | 0 | 0 | | 7 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | |

Still on Disk.
 Absolute heliographic longitude: 47

| | | | | | | | | | | | | | | | | | | | | | | | |
|--------------------|--------|-----|----|---|-----|----|---|---|---|---|--|---|---|---|---|---|---|---|--|--|--|--|--|
| Region 2048 | | | | | | | | | | | | | | | | | | | | | | | |
| 27 Apr | N20W37 | 124 | 40 | 8 | Dai | 11 | B | | | | | | | | | | | | | | | | |
| 28 Apr | N20W51 | 125 | 60 | 8 | Dao | 11 | B | 1 | | | | 7 | | | | | | | | | | | |
| 29 Apr | N20W65 | 126 | 60 | 8 | Dso | 3 | B | | | | | 1 | | | | | | | | | | | |
| 30 Apr | N20W79 | 127 | 50 | 8 | Dso | 3 | B | | | | | 1 | | | | | | | | | | | |
| | | | | | | | | 1 | 0 | 0 | | 9 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | |

Crossed West Limb.
 Absolute heliographic longitude: 124



Region Summary - continued

| Date | Location | | Sunspot Characteristics | | | | | Flares | | | | | | | | | | | | | | | |
|--------------------|----------|-----|---------------------------------|------|-------------------|---------------|---------------|--------------|-------|---|---|---------|----|---|---|---|---|---|--|--|--|--|--|
| | Lat CMD | Lon | Helio 10 ⁻⁶ hemi. | Area | Extent (helio) | Spot Class | Spot Count | Mag Class | X-ray | | | Optical | | | | | | | | | | | |
| | | | | | | | | | C | M | X | S | 1 | 2 | 3 | 4 | | | | | | | |
| Region 2049 | | | | | | | | | | | | | | | | | | | | | | | |
| 27 Apr | S07E71 | | 16 | 180 | 7 | Dao | 3 | B | | | | | | | | | | | | | | | |
| 28 Apr | S07E57 | | 17 | 350 | 10 | Dho | 6 | B | | | | | | 3 | | | | | | | | | |
| 29 Apr | S07E43 | | 18 | 340 | 10 | Dki | 14 | BG | | | | | | | | | | | | | | | |
| 30 Apr | S07E29 | | 19 | 300 | 10 | Dki | 11 | BG | 1 | | | | | 8 | | | | | | | | | |
| 01 May | S07E15 | | 20 | 430 | 11 | Ekc | 18 | BG | | | | | | | | | | | | | | | |
| 02 May | S07W00 | | 21 | 400 | 11 | Ekc | 18 | BG | 1 | | | | | | | | | | | | | | |
| 03 May | S07W07 | | 15 | 360 | 9 | Dkc | 17 | B | 1 | | | | 1 | | | | | | | | | | |
| 04 May | S07W20 | | 15 | 270 | 9 | Dkc | 18 | BG | 1 | | | | 1 | | | | | | | | | | |
| | | | | | | | | | 4 | 0 | 0 | | 13 | 0 | 0 | 0 | 0 | 0 | | | | | |

Still on Disk.

Absolute heliographic longitude: 21

| | | | | | | | | | | | | | | | | | | | | | | | |
|--------------------|--------|--|----|----|---|-----|---|---|---|---|---|--|---|---|---|---|---|---|--|--|--|--|--|
| Region 2050 | | | | | | | | | | | | | | | | | | | | | | | |
| 27 Apr | N12E73 | | 14 | 40 | 2 | Hsx | 1 | A | | | | | | | | | | | | | | | |
| 28 Apr | N12E59 | | 15 | 50 | 2 | Hsx | 1 | A | | | | | | | | | | | | | | | |
| 29 Apr | N12E45 | | 16 | 30 | 2 | Hsx | 1 | A | | | | | | | | | | | | | | | |
| 30 Apr | N12E31 | | 17 | 30 | 2 | Hsx | 1 | A | 1 | | | | | | | | | | | | | | |
| 01 May | N12E17 | | 18 | 30 | 2 | Hax | 1 | A | | | | | | | | | | | | | | | |
| 02 May | N12E05 | | 16 | 40 | 1 | Hax | 1 | A | | | | | | | | | | | | | | | |
| 03 May | N12W05 | | 13 | 20 | 2 | Hax | 2 | A | | | | | | | | | | | | | | | |
| 04 May | N12W19 | | 14 | 20 | 1 | Hsx | 1 | A | | | | | | | | | | | | | | | |
| | | | | | | | | | 1 | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | | | | | |

Still on Disk.

Absolute heliographic longitude: 16

| | | | | | | | | | | | | | | | | | | | | | | | |
|--------------------|--------|--|----|-----|---|-----|----|-----|----|---|---|--|---|---|---|---|---|---|--|--|--|--|--|
| Region 2051 | | | | | | | | | | | | | | | | | | | | | | | |
| 01 May | S09W22 | | 56 | 10 | 3 | Bxo | 4 | B | | | | | | | | | | | | | | | |
| 02 May | S10W37 | | 57 | 180 | 4 | Dac | 16 | BGD | | | | | | 1 | | | | | | | | | |
| 03 May | S09W50 | | 58 | 310 | 5 | Dkc | 11 | BGD | 6 | | | | | 1 | | | | | | | | | |
| 04 May | S09W64 | | 59 | 180 | 6 | Dac | 10 | BGD | 4 | | | | | 2 | | | | | | | | | |
| | | | | | | | | | 10 | 0 | 0 | | 4 | 0 | 0 | 0 | 0 | 0 | | | | | |

Still on Disk.

Absolute heliographic longitude: 56



Region Summary - continued

| 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 |

Region 2052

| | | | | | | | | | | | | | | | | | |
|--------|--------|-----|-----|---|-----|---|---|---|---|---|---|---|---|---|---|---|--|
| 02 May | S11E49 | 331 | 30 | 2 | Cro | 4 | B | 3 | | | | 1 | | | | | |
| 03 May | S11E35 | 333 | 100 | 5 | Dso | 9 | B | | | | | 1 | | | | | |
| 04 May | S12E22 | 333 | 80 | 5 | Dao | 8 | B | | | | | | | | | | |
| | | | | | | | | 3 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | |

Still on Disk.

Absolute heliographic longitude: 333

Region 2053

| | | | | | | | | | | | | | | | | | |
|--------|--------|-----|----|---|-----|---|---|---|---|---|---|---|---|---|---|---|--|
| 03 May | N10E50 | 318 | 10 | 3 | Bxo | 2 | B | | | | | | | | | | |
| 04 May | N10E40 | 315 | 20 | 3 | Bxo | 4 | B | 3 | | | | 4 | | | | | |
| | | | | | | | | 3 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | |

Still on Disk.

Absolute heliographic longitude: 315

Region 2054

| | | | | | | | | | | | | | | | | | |
|--------|--------|-----|----|---|-----|---|---|---|---|---|---|---|---|---|---|---|--|
| 04 May | S12E65 | 290 | 40 | 2 | Hsx | 1 | A | | | | | | | | | | |
| | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |

Still on Disk.

Absolute heliographic longitude: 290

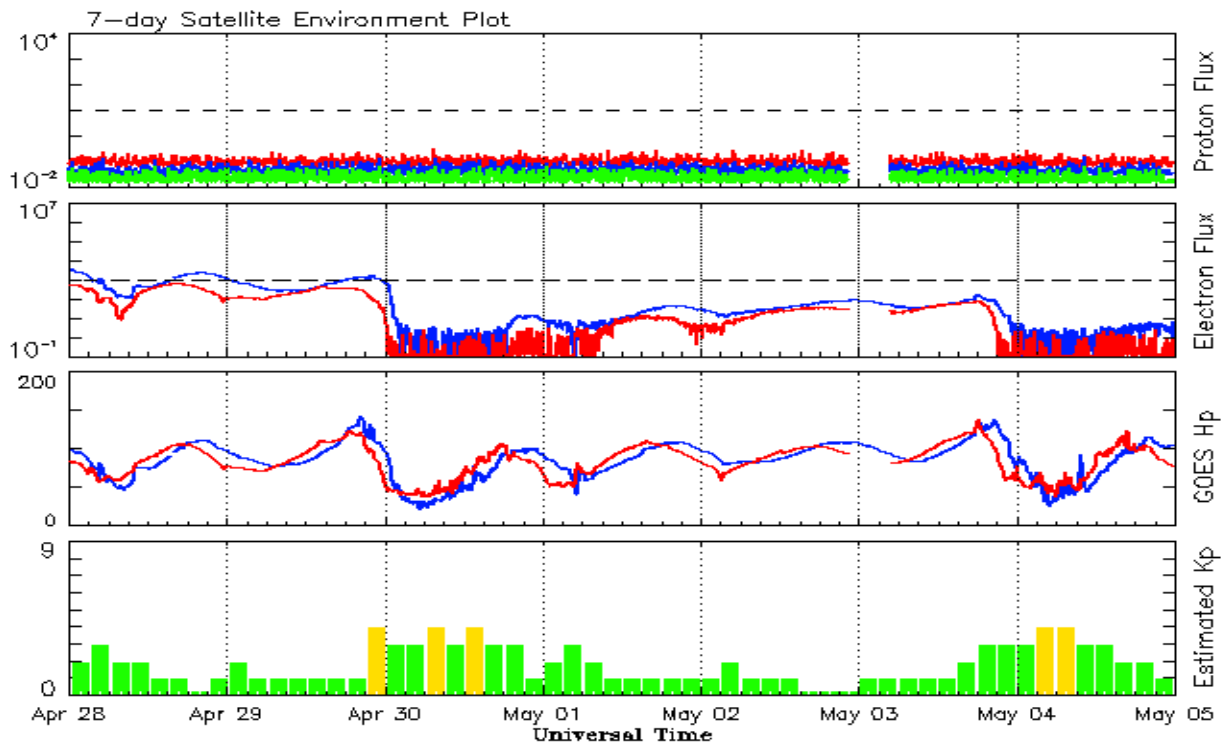


Recent Solar Indices (preliminary)
Observed monthly mean values

| 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 |
| 2012 | | | | | | | | | |
| May | 99.5 | 69.0 | 0.69 | 87.7 | 61.7 | 121.5 | 123.8 | 8 | 8.2 |
| June | 88.6 | 64.5 | 0.73 | 83.9 | 58.9 | 120.5 | 121.1 | 10 | 8.3 |
| July | 99.6 | 66.5 | 0.67 | 82.4 | 57.8 | 135.6 | 119.5 | 13 | 8.3 |
| August | 85.8 | 63.0 | 0.74 | 83.1 | 58.2 | 115.7 | 119.2 | 7 | 8.1 |
| September | 84.0 | 61.4 | 0.73 | 83.7 | 58.1 | 123.2 | 118.9 | 8 | 7.8 |
| October | 73.5 | 53.3 | 0.73 | 85.0 | 58.6 | 123.3 | 119.2 | 9 | 7.4 |
| November | 89.2 | 61.8 | 0.69 | 87.3 | 59.7 | 120.9 | 120.1 | 6 | 7.3 |
| December | 60.4 | 40.8 | 0.68 | 88.0 | 59.6 | 108.4 | 120.1 | 3 | 7.5 |
| 2013 | | | | | | | | | |
| January | 99.8 | 62.9 | 0.63 | 87.1 | 58.7 | 127.1 | 118.9 | 4 | 7.5 |
| February | 60.0 | 38.1 | 0.63 | 86.7 | 58.4 | 104.4 | 118.0 | 5 | 7.4 |
| March | 81.0 | 57.9 | 0.71 | 85.7 | 57.6 | 111.2 | 117.1 | 9 | 7.4 |
| April | 112.8 | 72.4 | 0.64 | 86.7 | 57.9 | 125.0 | 116.6 | 5 | 7.2 |
| May | 125.5 | 78.7 | 0.63 | 90.5 | 59.9 | 131.3 | 118.1 | 10 | 7.0 |
| June | 80.1 | 52.5 | 0.66 | 94.4 | 62.6 | 110.2 | 120.9 | 13 | 7.1 |
| July | 86.1 | 57.0 | 0.66 | 97.9 | 65.5 | 115.6 | 123.9 | 9 | 7.3 |
| August | 90.2 | 66.0 | 0.73 | 103.7 | 69.0 | 114.7 | 127.9 | 9 | 7.6 |
| September | 55.0 | 37.0 | 0.67 | 111.0 | 73.1 | 102.7 | 132.3 | 5 | 7.8 |
| October | 127.1 | 85.6 | 0.67 | 114.3 | 75.0 | 132.3 | 134.7 | 7 | 7.8 |
| November | 125.7 | 77.6 | 0.62 | | | 148.4 | | 5 | |
| December | 118.2 | 90.3 | 0.76 | | | 147.7 | | 5 | |
| 2014 | | | | | | | | | |
| January | 125.9 | 82.0 | 0.65 | | | 158.6 | | 6 | |
| February | 174.6 | 102.8 | 0.59 | | | 170.3 | | 12 | |
| March | 141.1 | 92.2 | 0.65 | | | 149.9 | | 6 | |
| April | 130.5 | 84.7 | 0.65 | | | 144.3 | | 9 | |

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 28 April 2014*

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.

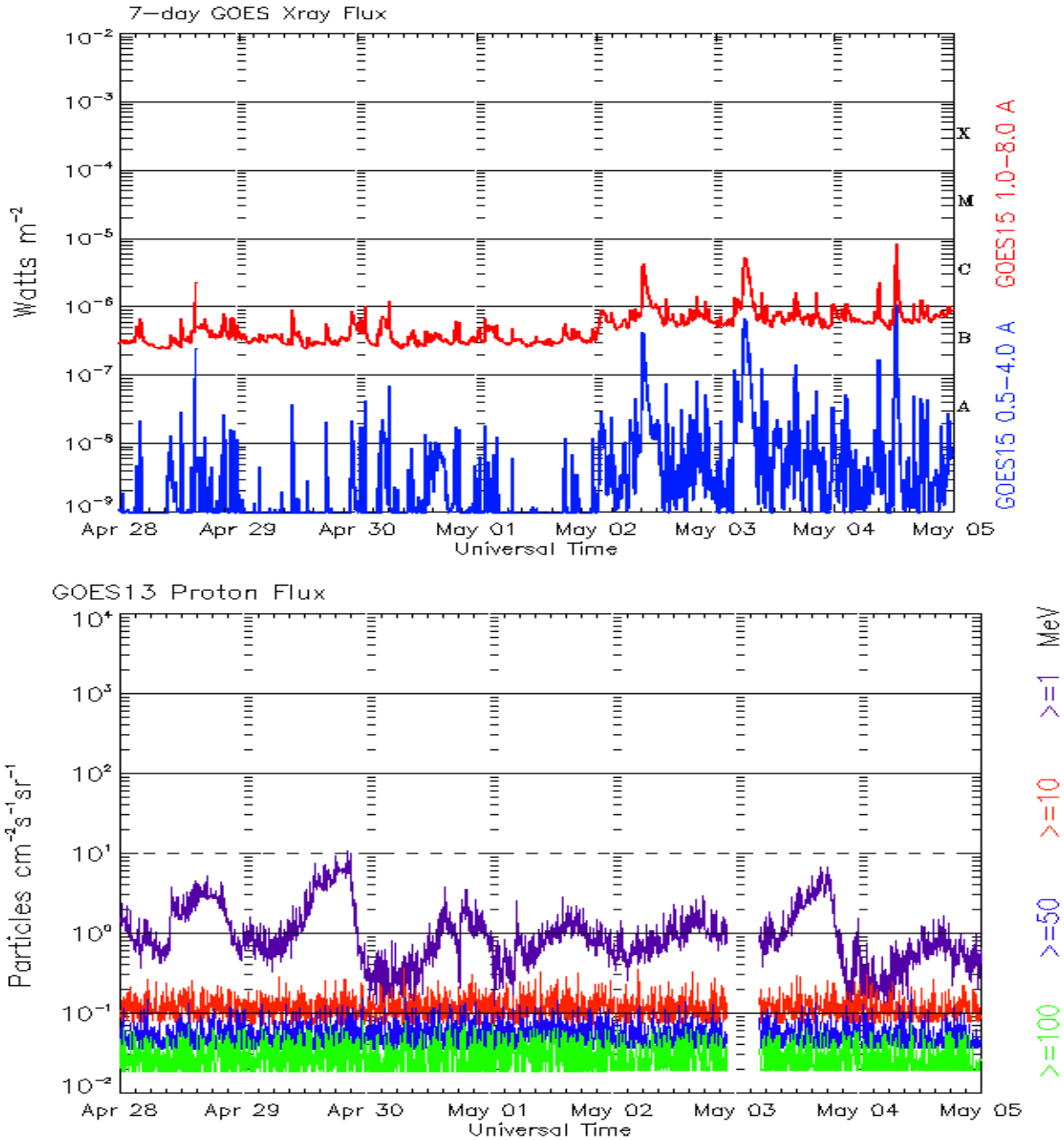
The electron flux plot contains the five-minute averaged integral electron flux (electrons/cm²-sec -sr) with energies greater than 2 MeV by the SWPC Primary GOES satellite.

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 28 April 2014*

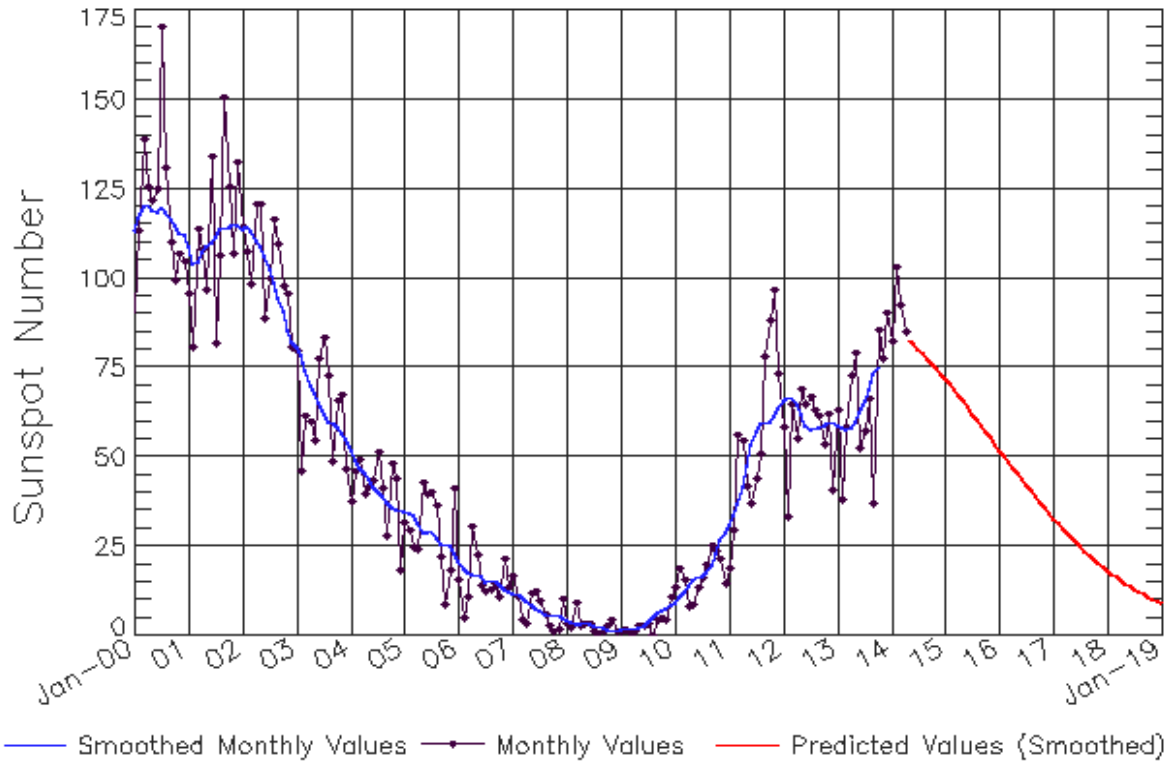
The x-ray plots contains five-minute averages x-ray flux (Watt/m²) as measure by the SWPC primary GOES X-ray satellite, usually at West 105 longitude, in two wavelength bands, 0.05 - 0.4 and 0.1 - 0.8 nm. The letters A, B, C, M and X refer to x-ray event levels for the 0.1 - 0.8 nm band.

The proton plot contains the five-minute averaged intergral 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 Apr 2014



Updated 2014 May 5

NOAA/SWPC Boulder, CO USA

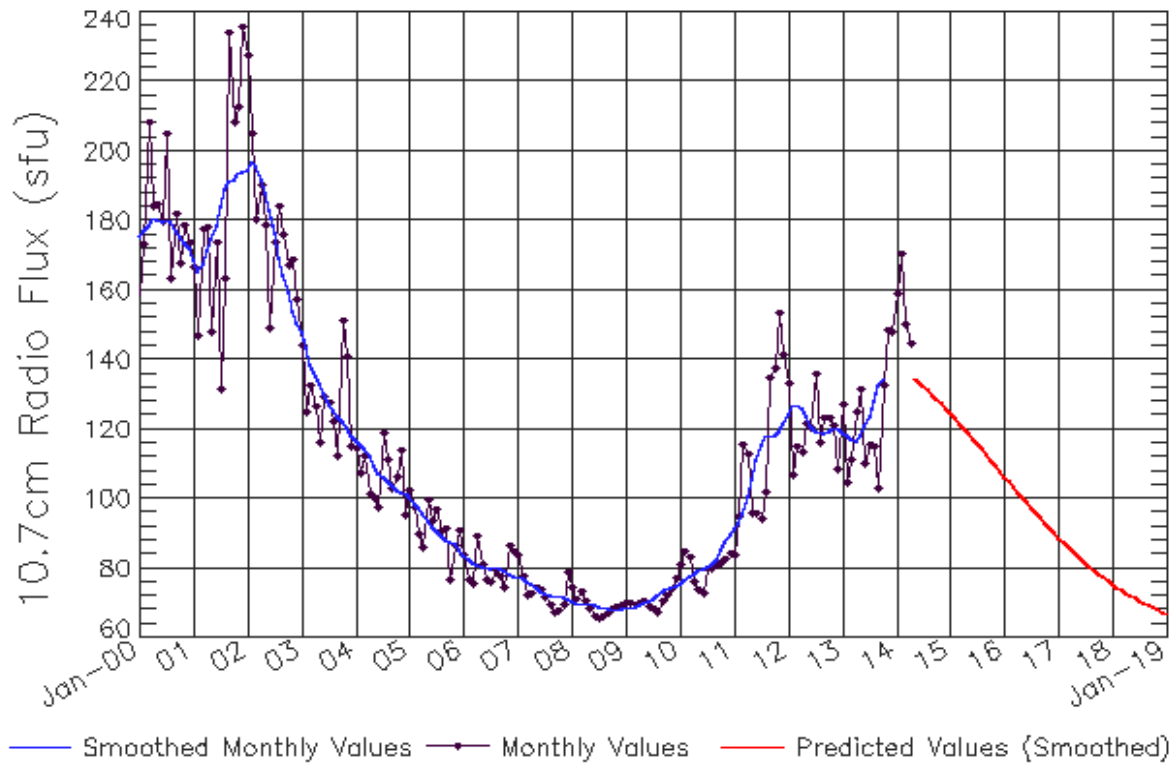
Smoothed Sunspot Number Prediction

| Year | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| 2010 | 9 (***) | 11 (***) | 12 (***) | 14 (***) | 16 (***) | 16 (***) | 17 (***) | 17 (***) | 20 (***) | 23 (***) | 27 (***) | 29 (***) |
| 2011 | 31 (***) | 33 (***) | 37 (***) | 42 (***) | 48 (***) | 53 (***) | 57 (***) | 59 (***) | 60 (***) | 60 (***) | 61 (***) | 63 (***) |
| 2012 | 66 (***) | 67 (***) | 67 (***) | 65 (***) | 62 (***) | 59 (***) | 58 (***) | 58 (***) | 58 (***) | 59 (***) | 60 (***) | 60 (***) |
| 2013 | 59 (***) | 58 (***) | 58 (***) | 58 (***) | 60 (***) | 63 (***) | 66 (***) | 69 (***) | 73 (***) | 75 (***) | 76 (1) | 77 (2) |
| 2014 | 79 (3) | 81 (5) | 83 (5) | 84 (6) | 84 (7) | 83 (7) | 82 (8) | 80 (9) | 78 (9) | 76 (10) | 75 (10) | 73 (10) |
| 2015 | 72 (10) | 70 (10) | 69 (10) | 67 (10) | 65 (10) | 64 (10) | 62 (10) | 60 (10) | 59 (10) | 57 (10) | 55 (10) | 54 (10) |
| 2016 | 52 (10) | 50 (10) | 49 (10) | 47 (10) | 45 (10) | 44 (10) | 42 (10) | 40 (10) | 39 (10) | 37 (10) | 36 (10) | 34 (10) |
| 2017 | 33 (10) | 31 (10) | 30 (10) | 29 (10) | 27 (10) | 26 (10) | 25 (10) | 24 (10) | 23 (10) | 21 (10) | 20 (10) | 19 (10) |
| 2018 | 18 (10) | 17 (10) | 16 (10) | 15 (10) | 15 (10) | 14 (10) | 13 (10) | 12 (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 Apr 2014

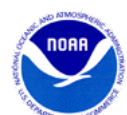


Updated 2014 May 5

NOAA/SWPC Boulder, CO USA

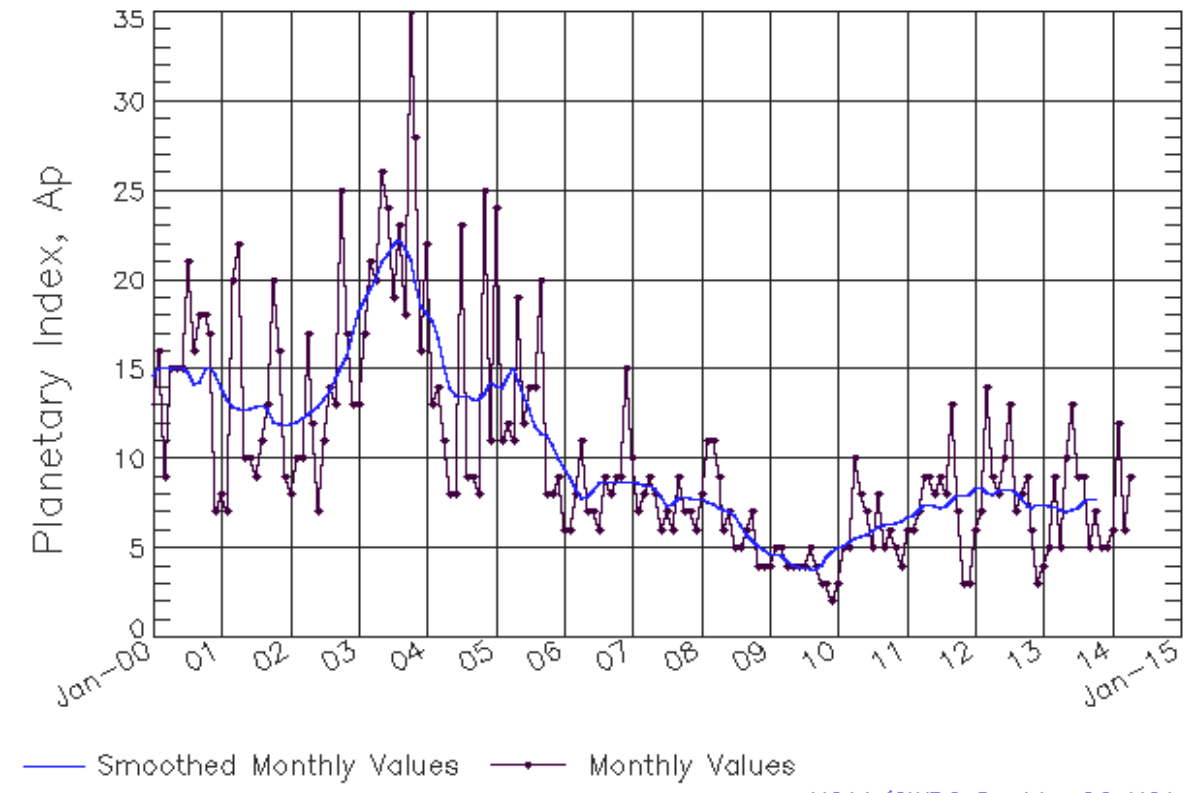
Smoothed F10.7cm Radio Flux Prediction

| 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 (**) | 136 (1) | 137 (1) |
| 2014 | 138 (2) | 140 (3) | 142 (4) | 143 (4) | 142 (5) | 140 (6) | 138 (7) | 134 (8) | 131 (8) | 129 (9) | 127 (9) | 126 (9) |
| 2015 | 125 (9) | 123 (9) | 122 (9) | 120 (9) | 119 (9) | 117 (9) | 116 (9) | 114 (9) | 113 (9) | 111 (9) | 110 (9) | 108 (9) |
| 2016 | 106 (9) | 105 (9) | 103 (9) | 102 (9) | 100 (9) | 99 (9) | 97 (9) | 96 (9) | 94 (9) | 93 (9) | 92 (9) | 90 (9) |
| 2017 | 89 (9) | 88 (9) | 86 (9) | 85 (9) | 84 (9) | 83 (9) | 82 (9) | 80 (9) | 79 (9) | 78 (9) | 77 (9) | 76 (9) |
| 2018 | 75 (9) | 75 (9) | 74 (9) | 73 (9) | 72 (9) | 71 (9) | 71 (9) | 70 (9) | 69 (9) | 69 (9) | 68 (9) | 67 (9) |
| 2019 | 67 (9) | 66 (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 Apr 2014



Updated 2014 May 5

NOAA/SWPC Boulder, CO USA

Solar Cycle Comparison charts are temporarily unavailable.



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

Published every Monday by the Space Weather Prediction Center.

U.S. Department of Commerce
NOAA / National Weather Service
Space Weather Prediction Center
325 Broadway, Boulder CO 80305

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

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<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

