

Solar activity ranged from very low to high levels during the period. The period began with low activity on 31 July - 01 August, with C-class flares predominantly from Regions 1261 (N15, L=332, class/area Dai/380 on 04 August) and Region 1263 (N17, L=301, class/area Ekc/720 on 04 August). Activity increased to moderate levels on 02 August due to a long-duration M1/1n at 02/0619Z from Region 1261, with associated Type IV, Type II (estimated speed of 1067 km/s), and Tenflare (220 sfu) radio emissions. LASCO C3 imagery indicated a full halo coronal mass ejection with this flare. Activity increased to high levels on 03 August with three M-class flares. The largest of these was an M6/2b at 03/1348Z from Region 1261, with associated Type IV, Type II (estimated speed of 812 km/s). A CME was subsequently observed in STEREO-A Cor2 imagery at 03/1409Z. Solar activity remained at high levels on 04 August due to an M9/2b from Region 1261 at 04/0357Z, with associated Type IV, Type II (estimated speed of 750 km/s), and Tenflare (720 sfu). A CME was also associated with the M9 flare with an approximate speed of 2100 km/s in STEREO-A COR-2 imagery. Activity decreased to low levels on 05 - 07 August, with C-class flares predominantly from Regions 1261, 1263, and 1267 (S17, L=243, class/area Bxo/010 on 05 August). A long duration C1 flare was observed at 06/1807Z. Two CMEs were observed by SOHO/LASCO C2 at 06/1036Z and 06/1736Z, but the majority of the ejecta was directed to the west and not geoeffective. Late on 06 August, a recurrent positive polarity CH moved into a potentially geoeffective position.

No proton events were observed at geosynchronous orbit during 31 July - 03 August. The 100 MeV proton flux at geosynchronous orbit exceeded 1 pfu beginning at 04/0510Z, reaching maximum at 04/0740Z, and ending at 04/1110Z. The maximum 100 MeV proton flux was 1.8 pfu. The 10 MeV proton flux at geosynchronous orbit exceeded 10 pfu beginning at 04/0635Z, reaching maximum of 96 pfu at 05/2150Z, and ending at 06/0515Z. The 10 MeV proton flux remained enhanced, but below threshold and trailing towards quiet background on 07 August.

The greater than 2 MeV electron flux at geosynchronous orbit was at normal levels on 31 July. Fluxes increased from normal to moderate levels during 01 - 02 August. Flux values returned to moderate levels on 03 and 04 August. Normal to moderate levels were observed on 05 - 07 August.

Geomagnetic activity was quiet to unsettled, with isolated active levels on 31 July due to a coronal hole high-speed stream (CH HSS). Quiet to unsettled levels were observed on 01 August as the CH HSS subsided. Activity remained quiet on 02 - 03 August. Predominantly quiet levels were observed on 04 August, before the first of three CME shocks was observed transiting ACE at 04/2105Z, followed by a 20 nT sudden impulse observed by Earth based magnetometers at 04/2155Z. A magnetopause crossing was also observed by the GOES 13 and 15 satellites. Quiet to unsettled levels were observed between 04/2100 - 05/1800Z. Two additional shock passages were seen by ACE at 05/1722Z and 05/1834Z, accompanied by a noticeable increase in solar wind density, velocity and magnetic field, which included Bz fluctuation to -20 nT. Activity increased to minor to severe storms during 05/2100 - 06/0600Z due to effects from the CME shock arrivals. Early on 06 August, activity steadily declined from active to quiet levels, before



the polarity transitioned to a mostly positive Phi angle and recurrent CH HSS effects began. This triggered an isolated minor storm at high latitudes between 06/1200-1500Z. Otherwise, geomagnetic activity remained mostly quiet for the remainder of 06 August and throughout 07 August.

Space Weather Outlook

10 August - 05 September 2011

Solar activity is likely to be at Moderate (R1 - Minor) during 10 August, with a chance for M-class flares from Region 1263. Activity is expected to decrease to very low to low levels during 11 - 17 August with the absence of mature spot groups on the disk. Activity is expected to increase to very low to low levels, with a chance for M-class flares from 18 August - 03 September from old regions; 1260 (N19, L=001), 1261 (N15, L=332), and 1263 (N17, L=301). Activity is expected to decrease to very low to low levels 04 - 05 September. However, there is a chance that new, rapidly emerging flux regions could increase activity to moderate or greater levels at any time during the outlook period.

The greater than 10 MeV Proton flux levels at geosynchronous orbit are likely to remain above threshold (S1 - Minor) on 10 August, as an event that is currently in progress carries over early into the period. No proton events are expected at geosynchronous after 10 August though the end of the period.

The greater than 2 MeV electron flux at geosynchronous orbit is expected to be at moderate to high levels on 10 and 11 August. Normal to moderate levels are expected 12 - 15 August. Moderate to high levels are expected again 16 - 31 August. Normal to moderate levels are expected 01 - 03 September.

The geomagnetic field is expected to be at quiet to unsettled levels, with a chance for active levels 10 - 11 August, due to a CH HSS. Activity is expected to decrease to predominantly quiet levels during 12 - 15 August. Activity is expected to increase to quiet to unsettled levels, with a chance for active levels 16 - 18 August and again 21 - 22 August due to two recurrent CH High Speed Streams. Activity is expected to decrease to quiet to unsettled levels on 23 August CH HSS effects subside. Quiet levels are expected 23 - 25 August, before increasing to quiet to unsettled levels, with a chance for active levels at high latitudes 26 - 28 August due to another CH HSS. Mostly quiet conditions are again forecast to return from 29 August until 03 September, before another CH HSS ends out the period (04 - 05 September) with unsettled and active conditions.



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 |
| 01 August | 125 | 130 | 1120 | B4.7 | 8 | 0 | 0 | 19 | 3 | 0 | 0 | 0 |
| 02 August | 122 | 98 | 1255 | B4.1 | 5 | 1 | 0 | 29 | 1 | 0 | 0 | 0 |
| 03 August | 120 | 66 | 1100 | B4.5 | 6 | 3 | 0 | 20 | 1 | 1 | 0 | 0 |
| 04 August | 116 | 81 | 1380 | B4.3 | 13 | 1 | 0 | 31 | 0 | 1 | 0 | 0 |
| 05 August | 109 | 94 | 1040 | B3.2 | 6 | 0 | 0 | 9 | 0 | 0 | 0 | 0 |
| 06 August | 110 | 85 | 660 | B3.9 | 5 | 0 | 0 | 12 | 0 | 0 | 0 | 0 |
| 07 August | 105 | 89 | 670 | B4.3 | 7 | 0 | 0 | 16 | 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 |
| | 01 August | 2.1e+05 | 1.2e+04 | 3.0e+03 | | 3.2e+07 |
| 02 August | 3.8e+05 | 7.9e+04 | 3.6e+03 | | 3.4e+07 | |
| 03 August | 5.0e+05 | 3.7e+04 | 3.2e+03 | | 4.1e+07 | |
| 04 August | 8.5e+06 | 3.7e+06 | 4.6e+04 | | 3.9e+07 | |
| 05 August | 9.7e+07 | 4.6e+06 | 5.3e+03 | | 1.5e+07 | |
| 06 August | 3.9e+07 | 5.0e+05 | 2.4e+03 | | 2.6e+06 | |
| 07 August | 3.5e+06 | 4.8e+04 | 3.6e+03 | | 3.9e+06 | |

Daily Geomagnetic Data

| Date | Middle Latitude Fredericksburg | | High Latitude College | | Estimated Planetary | |
|-----------|-----------------------------------|-----------------|--------------------------|-----------------|------------------------|-----------------|
| | A | K-indices | A | K-indices | A | K-indices |
| | 01 August | 6 | 2-3-2-1-1-1-1-2 | 7 | 2-3-3-2-0-1-0-2 | 9 |
| 02 August | 3 | 2-1-1-1-1-1-1-0 | 2 | 2-1-0-1-1-1-0-0 | 3 | 2-1-0-0-1-1-0-1 |
| 03 August | 3 | 1-0-0-0-2-2-1-0 | 2 | 1-0-0-0-0-1-1-1 | 3 | 1-0-0-0-1-1-1-1 |
| 04 August | 3 | 0-0-1-0-1-1-0-3 | 2 | 0-1-0-0-1-1-0-2 | 4 | 1-0-0-0-1-2-1-3 |
| 05 August | 32 | 3-1-0-0-1-3-6-7 | 18 | 2-2-0-0-0-1-5-6 | 49 | 3-2-0-0-1-2-8-7 |
| 06 August | 14 | 3-3-4-3-3-2-1-3 | 33 | 5-5-5-4-5-4-2-2 | 31 | 6-5-4-4-3-3-2-3 |
| 07 August | 6 | 3-2-2-1-1-0-1-2 | 7 | 2-1-3-2-2-1-2-2 | 7 | 3-2-2-1-1-1-1-2 |



Alerts and Warnings Issued

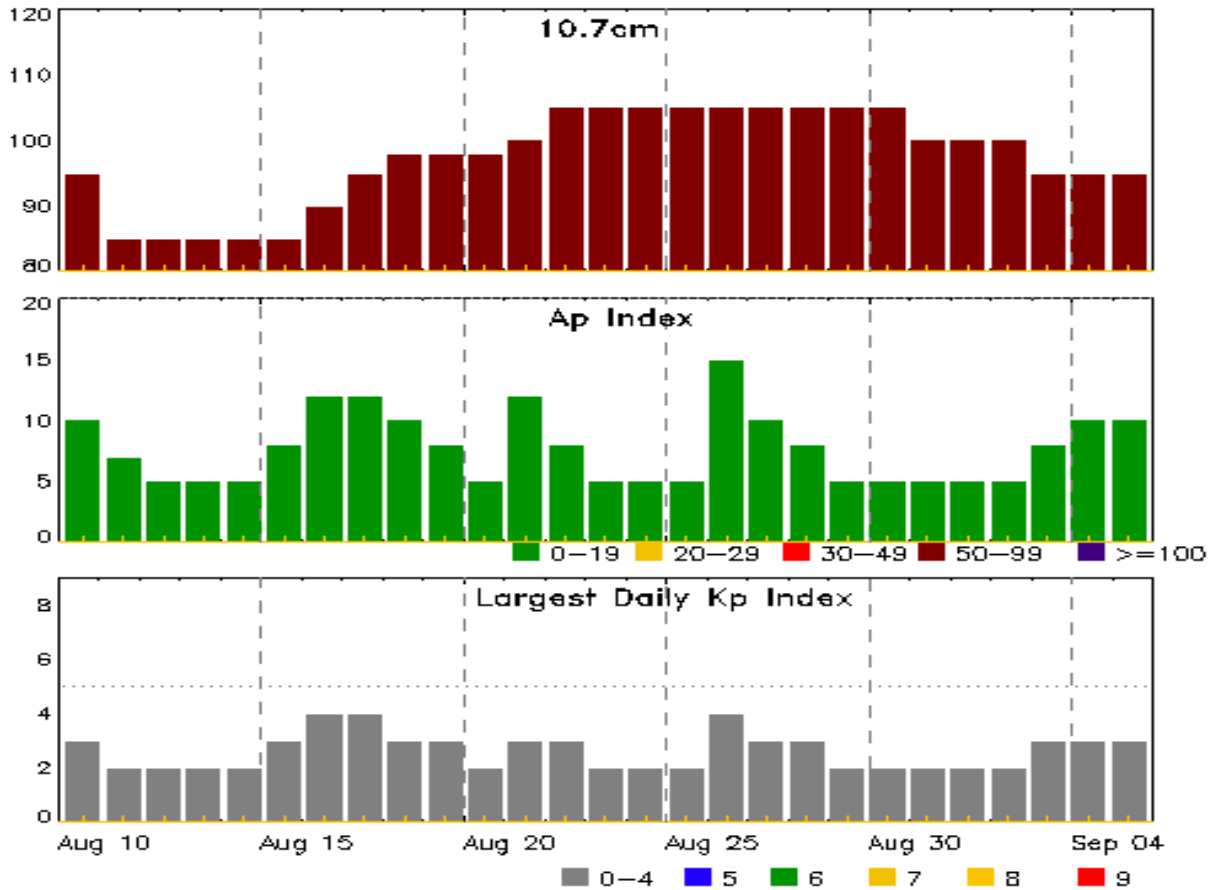
| Date & Time of Issue UTC | Type of Alert or Warning | Date & Time of Event UTC |
|---|--|---|
| 02 Aug 0650 | ALERT: Type II Radio Emission | 02/0608 |
| 02 Aug 0651 | ALERT: Type IV Radio Emission | 02/0612 |
| 02 Aug 0656 | SUMMARY: 10cm Radio Burst | 02/0600 - 0625 |
| 03 Aug 0445 | SUMMARY: 10cm Radio Burst | 03/0431 - 0432 |
| 03 Aug 0448 | WATCH: Geomagnetic A \geq 20 | 05/ |
| 03 Aug 1337 | ALERT: X-ray Flux exceeded M5 | 03/1337 |
| 03 Aug 1350 | SUMMARY: 10cm Radio Burst | 03/1326 - 1335 |
| 03 Aug 1428 | ALERT: Type II Radio Emission | 03/1335 |
| 03 Aug 1429 | ALERT: Type IV Radio Emission | 03/1330 |
| 03 Aug 1447 | SUMMARY: X-ray Event exceeded M5 | 03/1317 - 1410 |
| 03 Aug 2359 | ALERT: Type IV Radio Emission | 03/2059 |
| 04 Aug 0354 | ALERT: X-ray Flux exceeded M5 | 04/0353 |
| 04 Aug 0413 | SUMMARY: 10cm Radio Burst | 03/0349 - 0359 |
| 04 Aug 0426 | CANCELLATION: 10cm Radio Burst | |
| 04 Aug 0427 | SUMMARY: 10cm Radio Burst | 04/0349 - 0359 |
| 04 Aug 0429 | SUMMARY: X-ray Event exceeded M5 | 04/0341 - 0404 |
| 04 Aug 0439 | ALERT: Type II Radio Emission | 04/0354 |
| 04 Aug 0459 | WARNING: Proton 100MeV Integral Flux $>$ 1pfu | 04/0459 - 1100 |
| 04 Aug 0503 | WARNING: Proton 10MeV Integral Flux $>$ 10pfu | 04/0530 - 2100 |
| 04 Aug 0530 | ALERT: Proton Event 100MeV Integral Flux $>$ 1pfu | 04/0510 |
| 04 Aug 0656 | ALERT: Proton Event 10MeV Integral Flux \geq 10pfu | 04/0635 |
| 04 Aug 1047 | EXTENDED WARNING: Proton 100MeV Integral Flux $>$ 1pfu | 04/0459 - 1300 |
| 04 Aug 1602 | CANCELLATION: Geomagnetic A \geq 20 | |
| 04 Aug 1603 | WATCH: Geomagnetic A \geq 50 | 05/ |
| 04 Aug 1603 | WATCH: Geomagnetic A \geq 30 | 06/ |
| 04 Aug 2034 | EXTENDED WARNING: Proton 10MeV Integral Flux $>$ 10pfu | 04/0530 - 05/1200 |
| 04 Aug 2206 | SUMMARY: Geomagnetic Sudden Impulse | 04/2155 |



| | | |
|-------------|--|-------------------|
| 04 Aug 2219 | WARNING: Geomagnetic K = 4 | 04/2245 - 05/0300 |
| 05 Aug 1157 | EXTENDED WARNING: Proton 10MeV Integral Flux > 10pfu | 04/0530 - 05/2100 |
| 05 Aug 1728 | WARNING: Geomagnetic K = 4 | 05/1727 - 06/1200 |
| 05 Aug 1729 | EXTENDED WARNING: Proton 10MeV Integral Flux > 10pfu | 04/0530 - 06/1200 |
| 05 Aug 1731 | WARNING: Geomagnetic Sudden Impulse expected | 05/1800 - 1845 |
| 05 Aug 1905 | ALERT: Geomagnetic K = 4 | 05/1905 |
| 05 Aug 1906 | WARNING: Geomagnetic K = 5 | 05/1905 - 06/1200 |
| 05 Aug 1922 | ALERT: Geomagnetic K = 5 | 05/1922 |
| 05 Aug 1938 | WARNING: Geomagnetic K = 6 | 05/1937 - 06/0600 |
| 05 Aug 2143 | ALERT: Geomagnetic K = 6 | 05/2143 |
| 05 Aug 2146 | WARNING: Geomagnetic K >= 7 | 05/2200 - 06/0300 |
| 05 Aug 2328 | ALERT: Geomagnetic K = 7 | 05/2328 |
| 06 Aug 0147 | ALERT: Geomagnetic K = 6 | 06/0147 |
| 06 Aug 0816 | SUMMARY: Proton Event 10MeV Integral Flux >= 10pfu | 04/0635 - 06/0515 |
| 06 Aug 1140 | EXTENDED WARNING: Geomagnetic K = 4 | 05/1727 - 06/1800 |
| 06 Aug 2251 | WARNING: Geomagnetic K = 4 | 06/2330 - 07/0600 |



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 Aug | 95 | 10 | 3 | 24 Aug | 105 | 5 | 2 |
| 11 | 85 | 7 | 2 | 25 | 105 | 5 | 2 |
| 12 | 85 | 5 | 2 | 26 | 105 | 15 | 4 |
| 13 | 85 | 5 | 2 | 27 | 105 | 10 | 3 |
| 14 | 85 | 5 | 2 | 28 | 105 | 8 | 3 |
| 15 | 85 | 8 | 3 | 29 | 105 | 5 | 2 |
| 16 | 90 | 12 | 4 | 30 | 105 | 5 | 2 |
| 17 | 95 | 12 | 4 | 31 | 100 | 5 | 2 |
| 18 | 98 | 10 | 3 | 01 Sep | 100 | 5 | 2 |
| 19 | 98 | 8 | 3 | 02 | 100 | 5 | 2 |
| 20 | 98 | 5 | 2 | 03 | 95 | 8 | 3 |
| 21 | 100 | 12 | 3 | 04 | 95 | 10 | 3 |
| 22 | 105 | 8 | 3 | 05 | 95 | 10 | 3 |
| 23 | 105 | 5 | 2 | | | | |



Energetic Events

| Date | Time | | | X-ray | | Optical Information | | | Peak | | Sweep Freq | |
|--------|-------|------|------|-------|------------|---------------------|------------------|-------|------------|------|------------|----|
| | Begin | Max | Half | Class | Integ Flux | Imp/ Brtns | Location Lat CMD | Rgn # | Radio Flux | | Intensity | |
| | | | Max | | | | | | 245 | 2695 | II | IV |
| 02 Aug | 0519 | 0619 | 0648 | M1.4 | 0.039 | 1N | N14W15 | 1261 | 620 | 220 | 2 | |
| 03 Aug | 0308 | 0337 | 0351 | M1.1 | 0.016 | SF | N17W24 | 1261 | | | | |
| 03 Aug | 0429 | 0432 | 0435 | M1.7 | 0.003 | 1F | N15E08 | 1263 | 130 | | | |
| 03 Aug | 1317 | 1348 | 1410 | M6.0 | 0.120 | 2B | N16W30 | 1261 | 1400 | 180 | 1 | 2 |
| 04 Aug | 0341 | 0357 | 0404 | M9.3 | 0.054 | 2B | N19W36 | 1261 | 13000 | 720 | 2 | |

Flare List

| Date | Time | | | X-ray Class | Optical | | |
|--------|-------|------|------|-------------|------------|------------------|-------|
| | Begin | Max | End | | Imp/ Brtns | Location Lat CMD | Rgn # |
| 01 Aug | 0003 | 0007 | 0025 | C1.0 | | | |
| 01 Aug | 0039 | 0047 | 0111 | C2.1 | SF | N18E34 | 1263 |
| 01 Aug | 0142 | 0145 | 0149 | B9.0 | | | |
| 01 Aug | 0703 | 0703 | 0709 | | SF | N19W25 | 1260 |
| 01 Aug | 0719 | 0732 | 0744 | C4.0 | 1F | N14E05 | 1261 |
| 01 Aug | 0748 | 0750 | 0800 | | 1F | N14E05 | 1261 |
| 01 Aug | 0810 | 0814 | 0817 | C1.4 | | | |
| 01 Aug | 0942 | 0949 | 0952 | | 1F | N15E01 | 1261 |
| 01 Aug | 0943 | 0943 | 0950 | | SF | N15E33 | 1263 |
| 01 Aug | 1018 | 1020 | 1026 | | SF | N16E31 | 1263 |
| 01 Aug | 1029 | 1034 | 1039 | | SF | N16E32 | 1263 |
| 01 Aug | 1044 | 1045 | 1047 | | SF | N18E28 | 1263 |
| 01 Aug | 1050 | 1106 | 1120 | | SF | N18E28 | 1263 |
| 01 Aug | 1123 | 1133 | 1204 | | SF | N16E31 | 1263 |
| 01 Aug | 1204 | 1215 | 1218 | | SF | N18E27 | 1263 |
| 01 Aug | 1233 | 1240 | 1245 | C2.0 | SF | N01W15 | 1261 |
| 01 Aug | 1355 | 1359 | 1409 | | SF | N15E30 | 1263 |
| 01 Aug | 1556 | 1600 | 1607 | B9.4 | SF | N15W07 | 1261 |
| 01 Aug | 1624 | 1625 | 1637 | | SF | N16W33 | 1260 |
| 01 Aug | 1651 | 1706 | 1711 | C1.3 | SF | N14W07 | 1261 |
| 01 Aug | 1850 | 1901 | 1909 | | SF | N16W07 | 1261 |
| 01 Aug | 2141 | 2141 | 2148 | | SF | N17E24 | 1263 |
| 01 Aug | 2149 | 2201 | 2209 | C1.8 | SF | N16W09 | 1261 |
| 01 Aug | 2210 | 2213 | 2216 | C3.2 | | | 1261 |
| 01 Aug | 2230 | 2232 | 2235 | | SF | N18E22 | 1263 |
| 01 Aug | 2312 | 2314 | 2318 | | SF | N15W11 | 1261 |
| 02 Aug | 0010 | 0010 | 0014 | | SF | N15W06 | 1261 |



Flare List

| Date | Time | | | X-ray Class | Imp/ Brtns | Optical | |
|--------|-------|-------|-------|----------------|---------------|---------------------|----------|
| | Begin | Max | End | | | Location Lat CMD | Rgn # |
| 02 Aug | 0019 | 0022 | 0024 | | SF | N15W11 | 1261 |
| 02 Aug | 0050 | 0102 | 0111 | B9.9 | SF | N13W12 | 1261 |
| 02 Aug | 0310 | 0314 | 0316 | C1.2 | | | 1263 |
| 02 Aug | 0317 | 0319 | 0321 | | SF | N15E25 | 1263 |
| 02 Aug | 0357 | 0400 | 0423 | C1.2 | SF | N15E24 | 1263 |
| 02 Aug | 0403 | 0408 | 0420 | | SF | N14W14 | 1261 |
| 02 Aug | 0431 | 0434 | 0440 | | SF | N14W14 | 1261 |
| 02 Aug | 0519 | 0619 | 0648 | M1.4 | 1N | N14W15 | 1261 |
| 02 Aug | 0553 | 0554 | 0558 | | SF | N18E18 | 1263 |
| 02 Aug | B0658 | U0704 | A0710 | | SF | N15W10 | 1261 |
| 02 Aug | 0712 | 0713 | 0720 | | SF | N15W10 | 1261 |
| 02 Aug | B0753 | U0759 | A0807 | | SF | N16W13 | 1261 |
| 02 Aug | B0753 | U0755 | A0815 | | SF | N18E16 | 1263 |
| 02 Aug | B0824 | U0824 | A0829 | | SF | N18E16 | 1263 |
| 02 Aug | B0912 | U0912 | A0919 | | SF | N18E16 | 1263 |
| 02 Aug | 0924 | 0927 | 0929 | C2.0 | SF | N16W14 | 1261 |
| 02 Aug | B0934 | U0935 | A0943 | | SF | N19W39 | 1260 |
| 02 Aug | B1008 | U1046 | A1107 | | SF | N15W16 | 1261 |
| 02 Aug | 1053 | 1053 | 1101 | | SF | N18E15 | 1263 |
| 02 Aug | B1112 | U1134 | A1157 | | SF | N16W15 | 1261 |
| 02 Aug | 1136 | 1139 | 1142 | C2.0 | SF | N16E20 | 1263 |
| 02 Aug | 1221 | 1222 | 1227 | | SF | N16W16 | 1261 |
| 02 Aug | B1237 | U1250 | A1254 | | SF | N16W16 | 1261 |
| 02 Aug | 1256 | 1316 | 1331 | | SF | N16W16 | 1261 |
| 02 Aug | 1335 | 1346 | 1402 | | SF | N16W16 | 1261 |
| 02 Aug | 1404 | 1412 | 1449 | B7.0 | SF | N16W17 | 1261 |
| 02 Aug | 1437 | 1441 | 1443 | B6.0 | SF | N18E13 | 1263 |
| 02 Aug | 1713 | 1722 | 1737 | C1.1 | SF | N16W18 | 1261 |
| 02 Aug | 1808 | 1808 | 1813 | | SF | N18W18 | 1261 |
| 02 Aug | 1931 | 1934 | 1939 | B8.5 | | | |
| 02 Aug | 2336 | 2344 | 2352 | B8.6 | SF | N15W24 | 1261 |
| 03 Aug | 0024 | 0028 | 0034 | | SF | N16W23 | 1261 |
| 03 Aug | 0235 | 0238 | 0240 | C1.2 | | | |
| 03 Aug | 0308 | 0337 | 0351 | M1.1 | SF | N17W24 | 1261 |
| 03 Aug | 0429 | 0432 | 0435 | M1.7 | 1F | N15E08 | 1263 |
| 03 Aug | 0450 | 0451 | 0453 | | SF | N16W24 | 1261 |
| 03 Aug | 0523 | 0525 | 0528 | | SF | N17W24 | 1261 |
| 03 Aug | 0642 | 0646 | 0649 | C1.1 | SF | N15W27 | 1261 |



Flare List

| Date | Time | | | X-ray Class | Imp/ Brtns | Optical | |
|--------|-------|-------|-------|----------------|---------------|---------------------|----------|
| | Begin | Max | End | | | Location Lat CMD | Rgn # |
| 03 Aug | 0738 | 0758 | 0806 | C8.7 | SN | N15W29 | 1261 |
| 03 Aug | 0844 | 0845 | 0859 | | SF | N16E06 | 1263 |
| 03 Aug | 0930 | 0930 | 0943 | | SF | N16E05 | 1263 |
| 03 Aug | 0951 | 0954 | 0959 | | SF | N16W27 | 1261 |
| 03 Aug | 1001 | 1004 | 1006 | C1.0 | SF | N16W28 | 1261 |
| 03 Aug | 1016 | 1029 | 1047 | | SF | N16E06 | 1263 |
| 03 Aug | 1027 | 1030 | 1046 | | SF | N16W28 | 1261 |
| 03 Aug | 1211 | 1211 | 1215 | | SF | N18E02 | 1263 |
| 03 Aug | 1317 | 1348 | 1410 | M6.0 | 2B | N16W30 | 1261 |
| 03 Aug | 1322 | 1326 | 1343 | | SF | N18E02 | 1263 |
| 03 Aug | 1738 | 1738 | 1746 | | SF | N14W34 | 1261 |
| 03 Aug | 1747 | 1752 | 1757 | | SF | N12W35 | 1261 |
| 03 Aug | 1808 | 1813 | 1829 | | SF | N16W32 | 1261 |
| 03 Aug | 1847 | 1901 | 1923 | C2.3 | SF | N16E00 | 1263 |
| 03 Aug | 1905 | 1906 | 1910 | | SF | N18W89 | 1265 |
| 03 Aug | 1923 | 1930 | 1942 | C8.5 | SF | N13W36 | 1261 |
| 04 Aug | 0047 | 0109 | 0123 | C1.7 | SF | N16W38 | 1261 |
| 04 Aug | 0214 | 0223 | 0228 | C3.2 | SF | N16W36 | 1261 |
| 04 Aug | 0341 | 0357 | 0404 | M9.3 | 2B | N19W36 | 1261 |
| 04 Aug | B0429 | U0429 | A0521 | | SF | N16W38 | 1261 |
| 04 Aug | 0506 | 0507 | 0512 | | SF | N16W38 | 1261 |
| 04 Aug | 0526 | 0527 | 0532 | | SF | N16W38 | 1261 |
| 04 Aug | 0533 | 0554 | 0600 | | SF | N16W38 | 1261 |
| 04 Aug | 0603 | 0611 | 0619 | | SF | N16W38 | 1261 |
| 04 Aug | 0620 | 0628 | 0632 | | SF | N16W38 | 1261 |
| 04 Aug | 0709 | 0709 | 0719 | | SF | N16W39 | 1261 |
| 04 Aug | 0756 | 0802 | 0806 | C3.5 | SF | N16W39 | 1261 |
| 04 Aug | 0842 | 0842 | 0850 | | SF | N17W41 | 1261 |
| 04 Aug | 0843 | 0845 | 0854 | | SF | N16W09 | 1263 |
| 04 Aug | 0856 | 0857 | 0901 | | SF | N16W40 | 1261 |
| 04 Aug | 0915 | 0920 | 0923 | C2.5 | SF | N17W41 | 1261 |
| 04 Aug | 1006 | 1012 | 1019 | C1.6 | SF | N16W41 | 1261 |
| 04 Aug | 1024 | 1025 | 1049 | | SF | N18W09 | 1263 |
| 04 Aug | 1124 | 1124 | 1129 | | SF | N16W41 | 1261 |
| 04 Aug | 1134 | 1147 | 1201 | C1.2 | SF | N16W43 | 1261 |
| 04 Aug | 1203 | 1208 | 1213 | | SF | N18W10 | 1263 |
| 04 Aug | 1231 | 1232 | 1238 | | SF | N16W11 | 1263 |
| 04 Aug | 1252 | 1255 | 1320 | | SF | N15W44 | 1261 |



Flare List

| Date | Time | | | X-ray Class | Imp/ Brtns | Optical | | Rgn # |
|--------|-------|-------|------|----------------|---------------|---------------------|--|----------|
| | Begin | Max | End | | | Location Lat CMD | | |
| 04 Aug | 1304 | 1307 | 1312 | C2.1 | SF | N18W10 | | 1263 |
| 04 Aug | 1333 | 1333 | 1351 | | SF | N16W43 | | 1261 |
| 04 Aug | 1346 | 1351 | 1355 | | SF | N18W11 | | 1263 |
| 04 Aug | 1409 | 1417 | 1426 | C1.0 | | | | 1261 |
| 04 Aug | 1409 | 1417 | 1419 | | SF | N16W11 | | 1263 |
| 04 Aug | 1411 | 1416 | 1422 | | SF | N14W44 | | 1261 |
| 04 Aug | 1432 | 1438 | 1444 | C1.8 | | | | 1263 |
| 04 Aug | B1548 | U1550 | 1601 | | SF | N16W13 | | 1263 |
| 04 Aug | 1735 | 1736 | 1741 | | SF | N16W12 | | 1263 |
| 04 Aug | 1825 | 1828 | 1831 | B6.8 | | | | 1263 |
| 04 Aug | 2107 | 2115 | 2124 | C3.2 | SF | N14W49 | | 1261 |
| 04 Aug | 2203 | 2208 | 2213 | C1.2 | | | | |
| 04 Aug | 2228 | 2234 | 2247 | | SF | N17W17 | | 1263 |
| 04 Aug | 2247 | 2250 | 2252 | B9.6 | | | | 1261 |
| 04 Aug | 2250 | 2258 | 2305 | C1.7 | SF | N16W48 | | 1261 |
| 04 Aug | 2321 | 2328 | 2332 | C3.6 | | | | 1261 |
| 05 Aug | 0332 | 0341 | 0350 | C1.0 | | | | 1260 |
| 05 Aug | 0556 | 0607 | 0614 | C1.3 | SF | S15E37 | | 1267 |
| 05 Aug | 0643 | 0644 | 0655 | | SF | N20W50 | | 1261 |
| 05 Aug | 0757 | 0802 | 0807 | B8.1 | SF | N19W51 | | 1261 |
| 05 Aug | 0922 | 0925 | 0928 | B8.3 | | | | 1261 |
| 05 Aug | 1023 | 1030 | 1037 | C1.0 | | | | 1261 |
| 05 Aug | 1238 | 1245 | 1257 | C2.0 | SF | N19W24 | | 1263 |
| 05 Aug | 1629 | 1630 | 1632 | | SF | N18W57 | | 1260 |
| 05 Aug | 1740 | 1742 | 1756 | C1.8 | SF | N18W27 | | 1263 |
| 05 Aug | 1800 | 1802 | 1812 | | SF | N18W26 | | 1263 |
| 05 Aug | 1823 | 1824 | 1828 | | SF | N19W84 | | 1260 |
| 05 Aug | 1941 | 1945 | 1949 | C1.4 | SF | N16W60 | | 1261 |
| 05 Aug | 2104 | 2108 | 2112 | B8.0 | | | | 1261 |
| 06 Aug | 0510 | 0518 | 0532 | | SF | N17W27 | | 1263 |
| 06 Aug | 0805 | 0811 | 0820 | B9.8 | SF | N18W29 | | 1263 |
| 06 Aug | 0837 | 0847 | 0851 | C4.1 | SF | S16E22 | | 1267 |
| 06 Aug | 0936 | 0942 | 0951 | | SF | N17W30 | | 1263 |
| 06 Aug | 1019 | 1137 | 1155 | | SF | N17W32 | | 1263 |
| 06 Aug | 1141 | 1144 | 1211 | C1.3 | SF | S17E20 | | 1267 |
| 06 Aug | 1209 | 1227 | 1258 | C1.4 | SF | N17W32 | | 1263 |
| 06 Aug | 1314 | 1319 | 1329 | | SF | N18W31 | | 1263 |
| 06 Aug | 1333 | 1334 | 1343 | | SF | S16E19 | | 1267 |



Flare List

| Date | Time | | | X-ray Class | Optical | | Rgn # |
|--------|-------|------|------|----------------|---------------|---------------------|----------|
| | Begin | Max | End | | Imp/ Brtns | Location Lat CMD | |
| 06 Aug | 1626 | 1636 | 1643 | B9.8 | | | 1267 |
| 06 Aug | 1655 | 1807 | 1841 | C1.4 | | | |
| 06 Aug | 1757 | 1802 | 1817 | | SF | N16W34 | 1263 |
| 06 Aug | 1922 | 1927 | 1932 | C1.4 | SF | N16W35 | 1263 |
| 06 Aug | 2233 | 2251 | 2305 | | SF | N16W35 | 1263 |
| 07 Aug | 0017 | 0021 | 0027 | B7.6 | SF | N17W42 | 1263 |
| 07 Aug | 0100 | 0103 | 0106 | B9.2 | | | 1263 |
| 07 Aug | 0212 | 0222 | 0225 | C1.3 | SF | N19W37 | 1263 |
| 07 Aug | 0242 | 0243 | 0247 | | SF | N19W37 | 1263 |
| 07 Aug | 0304 | 0319 | 0324 | C2.1 | SF | N18W38 | 1263 |
| 07 Aug | 0338 | 0343 | 0348 | C1.4 | | | |
| 07 Aug | 0404 | 0408 | 0411 | C1.6 | SF | N19W38 | 1263 |
| 07 Aug | 0420 | 0422 | 0425 | | SF | S18E09 | 1267 |
| 07 Aug | 0542 | 0543 | 0550 | | SF | N18W39 | 1263 |
| 07 Aug | 0551 | 0552 | 0555 | | SF | N18W39 | 1263 |
| 07 Aug | 0615 | 0623 | 0630 | B9.7 | | | |
| 07 Aug | 0824 | 0832 | 0837 | C1.6 | SF | S16E09 | 1267 |
| 07 Aug | 0923 | 0927 | 0933 | C2.1 | SN | N17W46 | 1263 |
| 07 Aug | 1251 | 1254 | 1256 | B7.2 | SF | N17W47 | 1263 |
| 07 Aug | 1305 | 1306 | 1310 | | SF | N19W53 | 1263 |
| 07 Aug | 1330 | 1331 | 1335 | | SF | N17W48 | 1263 |
| 07 Aug | 1402 | 1406 | 1410 | C1.3 | SF | N17W48 | 1263 |
| 07 Aug | 1428 | 1435 | 1440 | | SF | N17W45 | 1263 |
| 07 Aug | 1450 | 1450 | 1453 | | SF | N17W46 | 1263 |



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 1260 | | | | | | | | | | | | | | | | | | |
| 24 Jul | N20E71 | 358 | 10 | 1 | Axx | | A | | | | | | | | | | | |
| 25 Jul | N20E58 | 357 | 20 | 6 | Bxo | 4 | B | | | | | | 3 | | | | | |
| 26 Jul | N20E45 | 357 | 120 | 10 | Dao | 8 | B | 2 | | | | | 5 | | | | | |
| 27 Jul | N18E30 | 357 | 110 | 10 | Dsi | 15 | BG | 8 | 1 | | | | 11 | 1 | | | | |
| 28 Jul | N19E17 | 358 | 220 | 11 | Eac | 16 | BGD | 9 | | | | | 10 | 1 | | | | |
| 29 Jul | N19E03 | 358 | 310 | 12 | Eai | 20 | BG | 2 | | | | | 5 | | | | | |
| 30 Jul | N19W09 | 358 | 330 | 12 | Ehi | 12 | B | | | | | | | | | | | |
| 31 Jul | N19W22 | 358 | 300 | 12 | Ehi | 21 | BG | | | | | | | | | | | |
| 01 Aug | N18W36 | 358 | 300 | 12 | Eho | 16 | B | | | | | | 2 | | | | | |
| 02 Aug | N19W49 | 358 | 300 | 12 | Eho | 7 | B | | | | | | 1 | | | | | |
| 03 Aug | N18W62 | 358 | 200 | 10 | Cso | 5 | B | | | | | | | | | | | |
| 04 Aug | N19W78 | 1 | 260 | 5 | Dho | 2 | B | | | | | | | | | | | |
| 05 Aug | N19W92 | 1 | 180 | 4 | Hsx | 1 | A | 1 | | | | | 2 | | | | | |
| | | | | | | | | 22 | 1 | 0 | | | 39 | 2 | 0 | 0 | 0 | 0 |

Crossed West Limb.

Absolute heliographic longitude: 358

Region 1261

| | | | | | | | | | | | | | | | | | | |
|--------|--------|-----|-----|----|-----|----|-----|----|---|---|--|--|----|---|---|---|---|---|
| 26 Jul | N16E74 | 330 | 200 | 2 | Dho | 2 | B | | | | | | 1 | | | | | |
| 27 Jul | N15E60 | 327 | 250 | 8 | Dko | 5 | B | | | | | | 1 | | | | | |
| 28 Jul | N15E49 | 326 | 280 | 8 | Dko | 10 | B | 1 | | | | | 2 | | | | | |
| 29 Jul | N16E33 | 328 | 300 | 9 | Dai | 21 | BG | 10 | | | | | 12 | 1 | | | | |
| 30 Jul | N17E22 | 327 | 350 | 10 | Dkc | 23 | BGD | | 1 | | | | 1 | | | | | |
| 31 Jul | N16E05 | 330 | 350 | 11 | Eki | 35 | BGD | 2 | | | | | 3 | 1 | | | | |
| 01 Aug | N16W08 | 330 | 350 | 16 | Fkc | 50 | BGD | 5 | | | | | 6 | 3 | | | | |
| 02 Aug | N15W21 | 330 | 390 | 16 | Fkc | 25 | BGD | 2 | 1 | | | | 19 | 1 | | | | |
| 03 Aug | N16W37 | 333 | 300 | 9 | Dki | 15 | BG | 4 | 2 | | | | 13 | | 1 | | | |
| 04 Aug | N15W49 | 332 | 380 | 10 | Dai | 19 | BGD | 10 | 1 | | | | 21 | | 1 | | | |
| 05 Aug | N14W64 | 333 | 270 | 9 | Dsi | 12 | BG | 2 | | | | | 3 | | | | | |
| 06 Aug | N16W77 | 333 | 150 | 9 | Dso | 8 | B | | | | | | | | | | | |
| 07 Aug | N16W89 | 332 | 90 | 8 | Cso | 6 | B | | | | | | | | | | | |
| | | | | | | | | 36 | 5 | 0 | | | 82 | 6 | 2 | 0 | 0 | 0 |

Still on Disk.

Absolute heliographic longitude: 330



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 1263 | | | | | | | | | | | | | | | | |
| 28 Jul | N18E73 | 302 | 260 | 9 | Dho | 3 | B | | | | | | | 2 | | |
| 29 Jul | N18E59 | 303 | 310 | 7 | Dho | 5 | B | 1 | | | | | | 2 | | |
| 30 Jul | N18E48 | 301 | 470 | 9 | Dhi | 12 | B | | | | | | | 1 | | |
| 31 Jul | N18E34 | 301 | 460 | 10 | Dki | 17 | B | 4 | | | | | | 8 | | |
| 01 Aug | N17E21 | 301 | 460 | 9 | Dki | 23 | BGD | 1 | | | | | | 11 | | |
| 02 Aug | N17E08 | 301 | 560 | 14 | Eki | 25 | BGD | 3 | | | | | | 9 | | |
| 03 Aug | N17W06 | 301 | 600 | 10 | Dki | 16 | BGD | 1 | 1 | | | 6 | 1 | | | |
| 04 Aug | N17W18 | 301 | 720 | 10 | Ekc | 17 | BGD | 2 | | | | | | 10 | | |
| 05 Aug | N16W31 | 300 | 570 | 11 | Ekc | 20 | BGD | 2 | | | | | | 3 | | |
| 06 Aug | N18W42 | 298 | 440 | 13 | Ekc | 23 | BGD | 2 | | | | | | 9 | | |
| 07 Aug | N17W55 | 298 | 510 | 14 | Ekc | 27 | BGD | 5 | | | | | | 14 | | |
| | | | | | | | | 21 | 1 | 0 | | 75 | 1 | 0 | 0 | 0 |

Still on Disk.

Absolute heliographic longitude: 301

Region 1264

| | | | | | | | | | | | | | | | | |
|--------|--------|-----|-------|---|-----|---|---|---|---|---|--|---|---|---|---|---|
| 28 Jul | S31E50 | 325 | 10 | 3 | Bxo | 4 | B | | | | | | | | | |
| 29 Jul | S32E37 | 325 | 10 | 1 | Bxo | 2 | B | | | | | | | | | |
| 30 Jul | S29E20 | 329 | 10 | 1 | Axx | 2 | A | | | | | | | | | |
| 31 Jul | S23E07 | 328 | 10 | 2 | Bxo | 2 | B | | | | | | | | | |
| 01 Aug | S23W07 | 330 | plage | | | | | | | | | | | | | |
| 02 Aug | S23W21 | 331 | plage | | | | | | | | | | | | | |
| 03 Aug | S23W35 | 332 | plage | | | | | | | | | | | | | |
| 04 Aug | S23W49 | 332 | plage | | | | | | | | | | | | | |
| 05 Aug | S23W63 | 333 | plage | | | | | | | | | | | | | |
| 06 Aug | S23W77 | 334 | plage | | | | | | | | | | | | | |
| | | | | | | | | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | 0 |

Died on Disk.

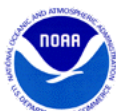
Absolute heliographic longitude: 328

Region 1265

| | | | | | | | | | | | | | | | | |
|--------|--------|----|-------|---|-----|---|---|---|---|---|--|---|---|---|---|---|
| 30 Jul | N18W41 | 30 | 10 | 2 | Bxo | 2 | B | 1 | | | | | | 2 | | |
| 31 Jul | N17W54 | 30 | 10 | 3 | Bxo | 3 | B | 1 | | | | | | 1 | | |
| 01 Aug | N17W67 | 30 | 10 | 2 | Axx | 1 | A | | | | | | | | | |
| 02 Aug | N16W80 | 30 | 5 | 1 | Axx | 1 | A | | | | | | | | | |
| 03 Aug | N16W94 | 31 | plage | | | | | | | | | | | 1 | | |
| | | | | | | | | 2 | 0 | 0 | | 4 | 0 | 0 | 0 | 0 |

Crossed West Limb.

Absolute heliographic longitude: 30



Region Summary - continued

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

Region 1266

| | | | | | | | | | | | | | | | | | |
|--------|--------|-----|-------|---|-----|---|---|---|---|---|---|---|---|---|---|---|--|
| 04 Aug | N18E38 | 245 | 20 | 4 | Cro | 3 | B | | | | | | | | | | |
| 05 Aug | N17E27 | 241 | 10 | 5 | Bxo | 5 | B | | | | | | | | | | |
| 06 Aug | N17E13 | 244 | plage | | | | | | | | | | | | | | |
| 07 Aug | N18E01 | 242 | 30 | 5 | Dso | 8 | B | | | | | | | | | | |
| | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |

Still on Disk.

Absolute heliographic longitude: 242

Region 1267

| | | | | | | | | | | | | | | | | | |
|--------|--------|-----|----|---|-----|----|-----|---|---|---|---|---|---|---|---|---|--|
| 05 Aug | S17E26 | 243 | 10 | 5 | Bxo | 6 | B | 1 | | | | 1 | | | | | |
| 06 Aug | S17E13 | 243 | 60 | 6 | Dso | 10 | BGD | 2 | | | | 3 | | | | | |
| 07 Aug | S17W00 | 243 | 40 | 7 | Dso | 8 | B | 1 | | | | 2 | | | | | |
| | | | | | | | | 4 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | |

Still on Disk.

Absolute heliographic longitude: 243

Region 1268

| | | | | | | | | | | | | | | | | | |
|--------|--------|-----|-------|---|-----|---|---|---|---|---|---|---|---|---|---|---|--|
| 06 Aug | N17E34 | 222 | 10 | 4 | Bxo | 4 | B | | | | | | | | | | |
| 07 Aug | N17E20 | 224 | plage | | | | | | | | | | | | | | |
| | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |

Still on Disk.

Absolute heliographic longitude: 224

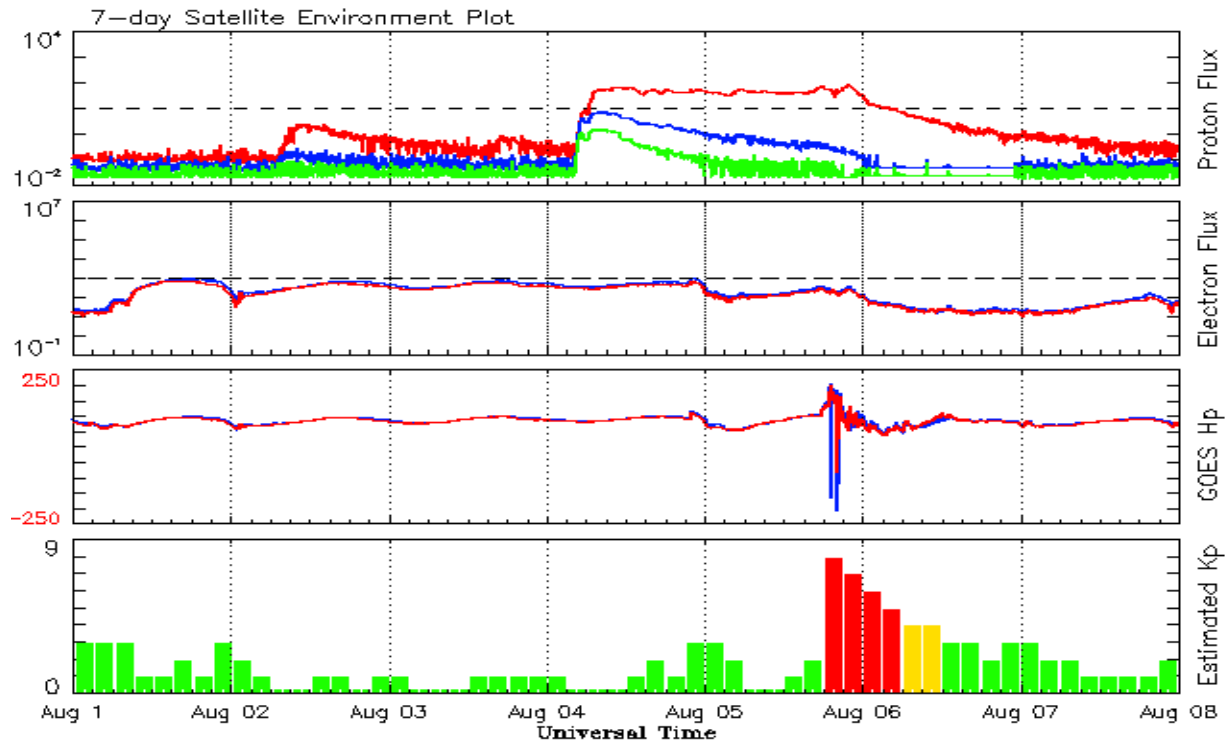


Recent Solar Indices (preliminary)
Observed monthly mean values

| 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 |
| 2009 | | | | | | | | | |
| August | 0.3 | 0.0 | 0.00 | 7.7 | 4.8 | 67.4 | 72.1 | 5 | 3.8 |
| September | 6.6 | 4.3 | 0.64 | 9.9 | 6.2 | 70.5 | 73.3 | 4 | 3.8 |
| October | 7.0 | 4.8 | 0.66 | 11.3 | 7.1 | 72.3 | 74.1 | 3 | 4.1 |
| November | 7.7 | 4.1 | 0.55 | 12.4 | 7.6 | 73.6 | 74.5 | 3 | 4.5 |
| December | 15.7 | 10.8 | 0.68 | 13.6 | 8.3 | 76.8 | 74.9 | 2 | 4.8 |
| 2010 | | | | | | | | | |
| January | 21.3 | 13.2 | 0.62 | 14.8 | 9.3 | 81.1 | 75.5 | 3 | 5.0 |
| February | 31.0 | 18.8 | 0.60 | 16.7 | 10.6 | 84.7 | 76.5 | 5 | 5.1 |
| March | 24.7 | 15.4 | 0.62 | 19.1 | 12.3 | 83.3 | 77.5 | 5 | 5.3 |
| April | 11.2 | 8.0 | 0.71 | 21.4 | 14.0 | 75.9 | 78.3 | 10 | 5.5 |
| May | 19.9 | 8.7 | 0.44 | 23.8 | 15.5 | 73.8 | 79.0 | 8 | 5.7 |
| June | 17.9 | 13.6 | 0.75 | 25.2 | 16.4 | 72.6 | 79.7 | 7 | 5.8 |
| July | 23.1 | 16.1 | 0.70 | 25.9 | 16.7 | 79.9 | 80.1 | 5 | 6.0 |
| August | 28.2 | 19.6 | 0.70 | 27.3 | 17.4 | 79.7 | 80.7 | 8 | 6.2 |
| September | 35.6 | 25.2 | 0.71 | 30.6 | 19.6 | 81.1 | 82.4 | 5 | 6.3 |
| October | 35.0 | 23.5 | 0.67 | 35.9 | 23.2 | 81.6 | 85.3 | 6 | 6.4 |
| November | 36.1 | 21.5 | 0.60 | 40.5 | 26.5 | 82.5 | 87.7 | 5 | 6.4 |
| December | 22.0 | 14.4 | 0.66 | 43.8 | 28.8 | 84.3 | 89.6 | 4 | 6.5 |
| 2011 | | | | | | | | | |
| January | 32.1 | 18.8 | 0.59 | 47.2 | 31.0 | 83.7 | 91.2 | 6 | 6.7 |
| February | 53.2 | 29.6 | 0.55 | | | 94.5 | | 6 | |
| March | 81.0 | 55.8 | 0.69 | | | 115.3 | | 7 | |
| April | 81.7 | 54.4 | 0.67 | | | 112.6 | | 9 | |
| May | 61.4 | 41.6 | 0.68 | | | 95.9 | | 9 | |
| June | 55.5 | 37.0 | 0.67 | | | 95.8 | | 8 | |
| July | 67.0 | 43.9 | 0.66 | | | 94.2 | | 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 01 August 2011*

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.

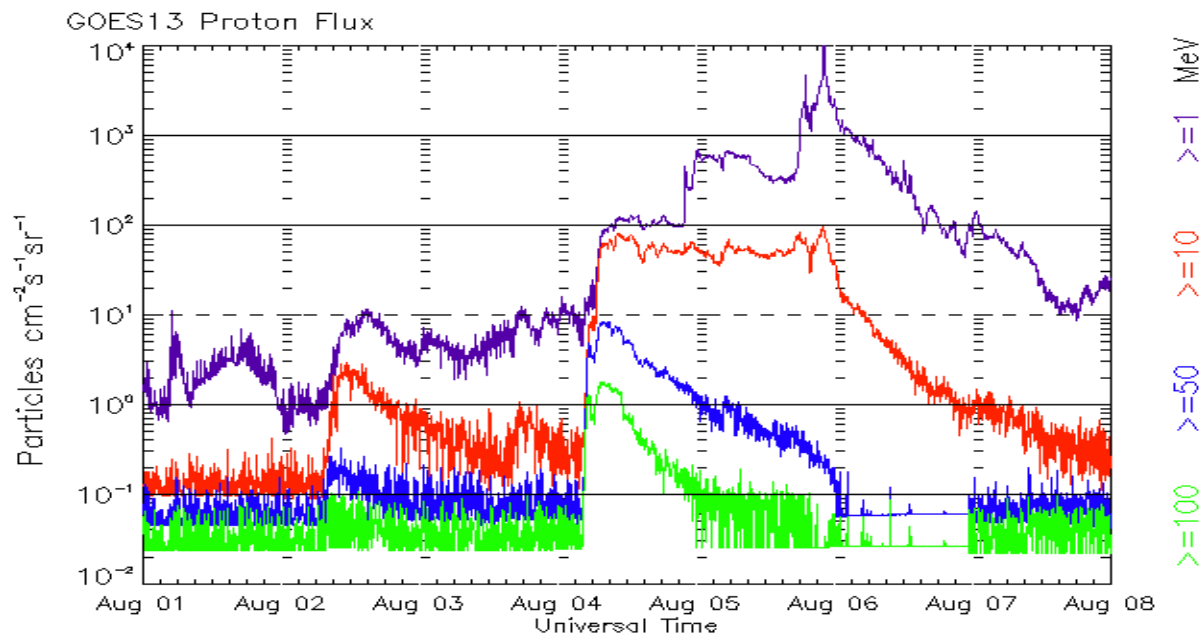
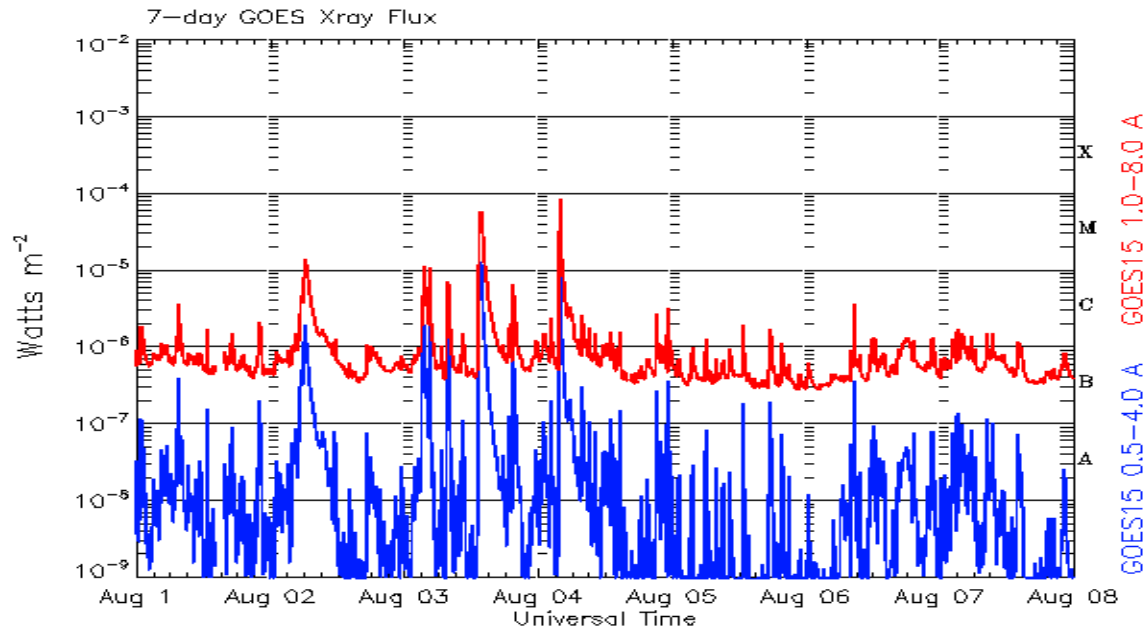
The electron flux plot contains the five-minute averaged integral electron flux (electrons/cm²-sec -sr) with energies greater than 2 MeV by the SWPC Primary GOES satellite.

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.

Kp 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 Kp values derived from a more extensive network of magnetometers.

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 01 August 2011*

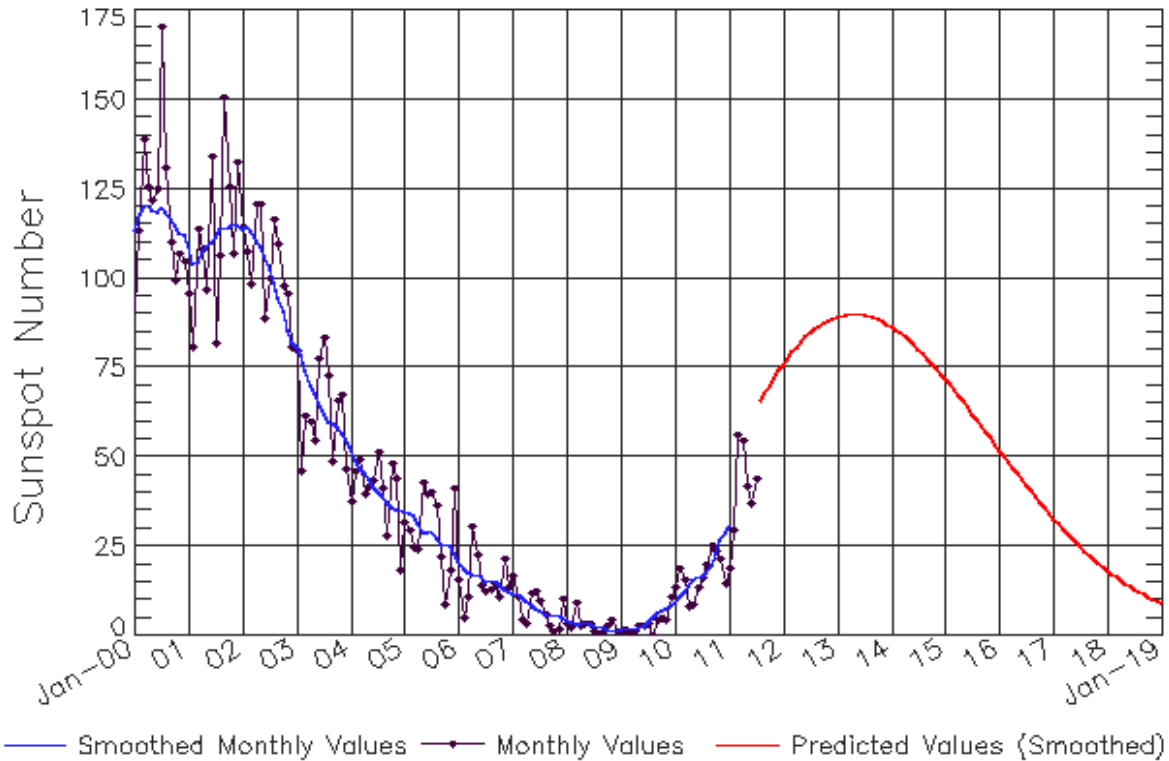
The x-ray plots contains five-minute averages x-ray flux ($Watt/m^2$) as measure by the SWPC primary GOES X-ray satellite, usually at West 105 longitude, in two wavelength bands, 0.05 - 0.4 and 0.1 - 0.8 nm. The letters A, B, C, M and X refer to x-ray event levels for the 0.1 - 0.8 nm band.

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.



ISES Solar Cycle Sunspot Number Progression

Observed data through Jul 2011



Updated 2011 Aug 9

NOAA/SWPC Boulder, CO USA

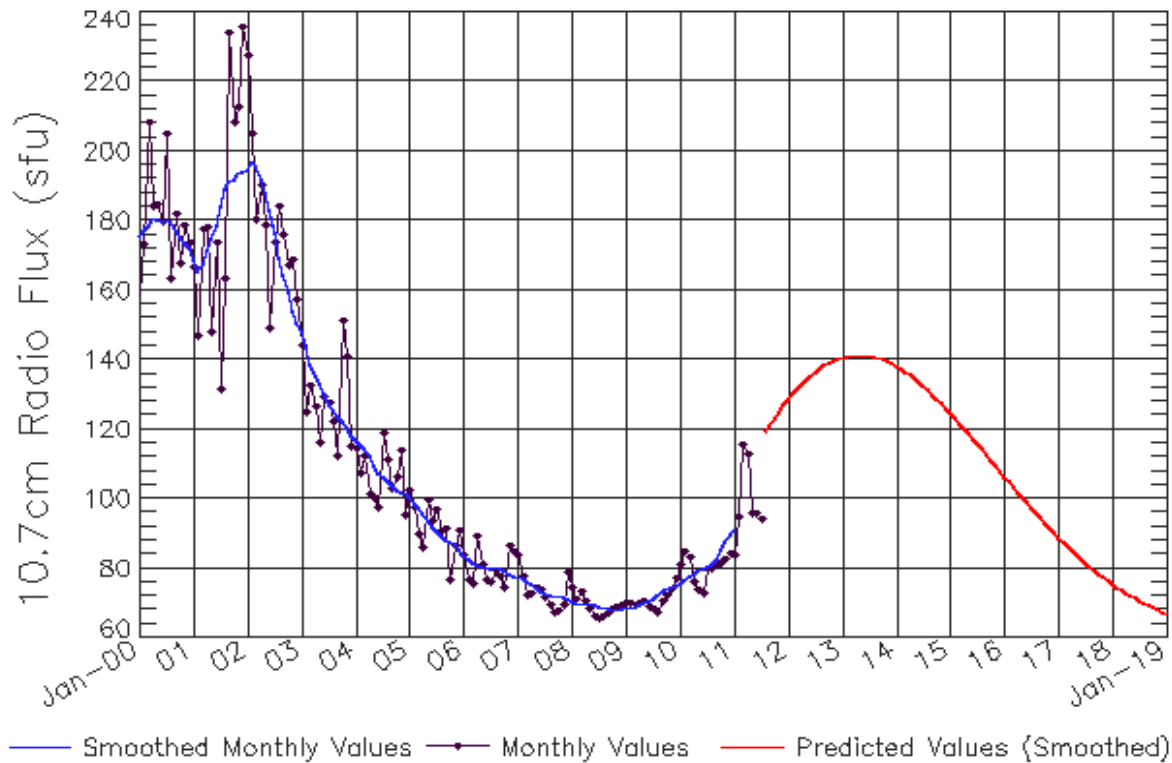
Smoothed Sunspot Number Prediction

| 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 (***) | 34 (1) | 38 (2) | 41 (3) | 46 (5) | 50 (5) | 55 (6) | 59 (7) | 62 (7) | 64 (8) | 67 (9) | 71 (9) |
| 2012 | 74 (10) | 78 (10) | 79 (10) | 81 (10) | 82 (10) | 84 (10) | 85 (10) | 86 (10) | 87 (10) | 88 (10) | 88 (10) | 89 (10) |
| 2013 | 89 (10) | 90 (10) | 90 (10) | 90 (10) | 90 (10) | 90 (10) | 90 (10) | 89 (10) | 89 (10) | 89 (10) | 88 (10) | 87 (10) |
| 2014 | 86 (10) | 86 (10) | 85 (10) | 84 (10) | 83 (10) | 81 (10) | 80 (10) | 79 (10) | 78 (10) | 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 Jul 2011



Updated 2011 Aug 9

NOAA/SWPC Boulder, CO USA

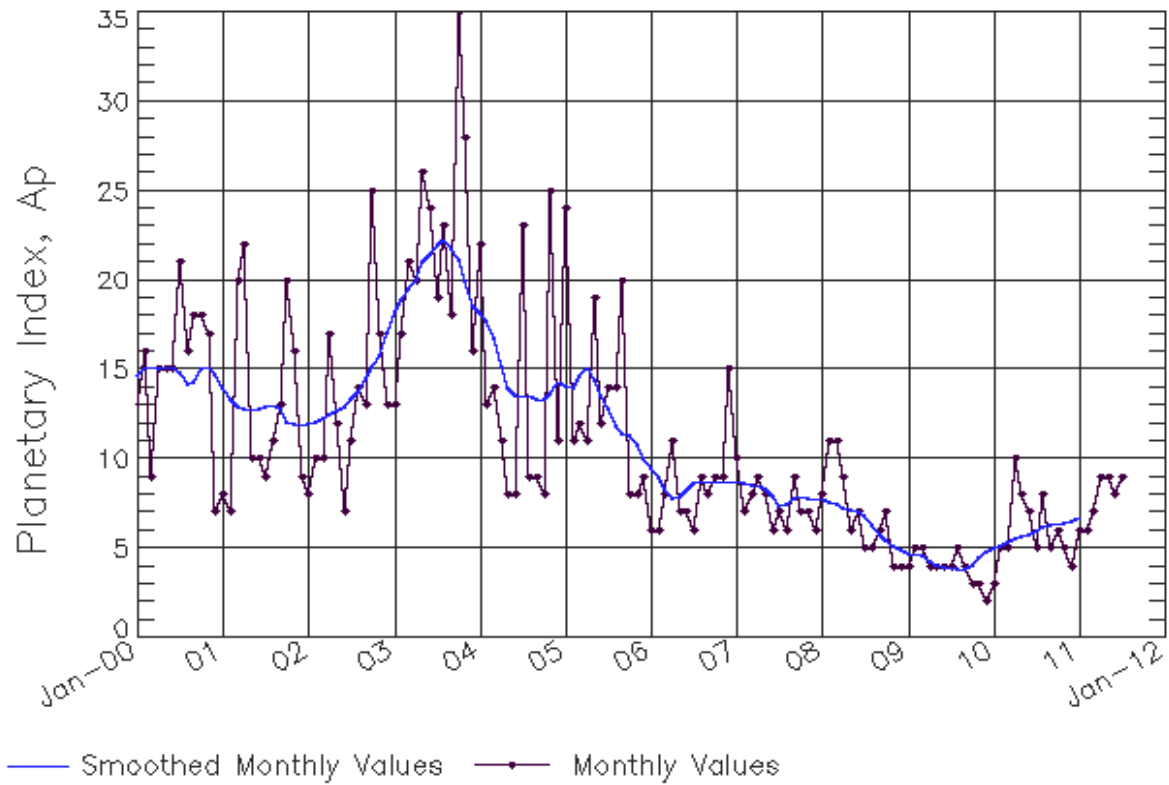
Smoothed F10.7cm Radio Flux Prediction

| 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 (1) | 97 (1) | 100 (2) | 104 (3) | 107 (4) | 111 (4) | 114 (5) | 116 (6) | 118 (7) | 120 (8) | 123 (8) |
| 2012 | 127 (9) | 130 (9) | 132 (9) | 133 (9) | 134 (9) | 135 (9) | 136 (9) | 137 (9) | 138 (9) | 139 (9) | 140 (9) | 140 (9) |
| 2013 | 141 (9) | 141 (9) | 141 (9) | 141 (9) | 141 (9) | 141 (9) | 141 (9) | 141 (9) | 140 (9) | 140 (9) | 139 (9) | 139 (9) |
| 2014 | 138 (9) | 137 (9) | 136 (9) | 136 (9) | 135 (9) | 134 (9) | 132 (9) | 131 (9) | 130 (9) | 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 Jul 2011



Updated 2011 Aug 9

NOAA/SWPC Boulder, CO USA

Solar Cycle Comparison charts are temporarily unavailable.



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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

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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

