

Space Weather Highlights
14 June - 20 June 2021

SWPC PRF 2390
21 June 2021

Solar activity was at very low levels. The two regions on the disk, Region 2833 (N24, L=210, class/area Cso/120 on 19 Jun) and Region 2834 (N20, L=281, class/area Bxo/010 on 18 Jun) were both quiet and stable. No Earth-directed CMEs were observed in available coronagraph imagery.

No proton events were observed at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit was at moderate levels on 14-16 Jun and high levels on 17-20 Jun. A maximum flux of 4,860 pfu was observed at 17/1435 UTC.

Geomagnetic field activity was at quiet levels on 14 Jun through midday on 15 Jun. Unsettled to Gi (Minor) storm levels were observed midday on 15 Jun due to influences from the arrival of a recurrent, negative polarity CH HSS. Unsettled to active levels continued through 16 Jun into early on 17 Jun. Solar wind speeds reached near 625 km/s, with total field readings of 15 nT and Bz readings of -10 nT, all on 16 Jun.

Space Weather Outlook
21 June - 17 July 2021

Solar activity is expected to be very low through the outlook period.

No proton events are expected at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit is expected to be at high levels on 21-23 Jun and on 14-17 Jul due to recurrent CH HSS influences.

Geomagnetic field activity is expected to be at unsettled to active levels on 24 Jun, 04 Jul, 09-10 Jul and 12-13 Jul due to recurrent CH HSS influences. Mostly quiet conditions are expected for the remainder of the outlook 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 |
| 14 June | 77 | 11 | 100 | A5.2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 15 June | 76 | 11 | 60 | A3.9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 16 June | 76 | 11 | 130 | A3.6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 17 June | 75 | 12 | 130 | A3.9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 18 June | 77 | 24 | 130 | A3.7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 19 June | 77 | 15 | 120 | A3.7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 20 June | 76 | 13 | 90 | A4.5 | 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 | >2MeV | |
| | 14 June | 5.0e+04 | 4.5e+04 | 1.5e+06 |
| 15 June | 7.8e+04 | 4.3e+04 | 1.3e+06 | |
| 16 June | 1.1e+05 | 4.3e+04 | 2.6e+07 | |
| 17 June | 1.0e+05 | 4.3e+04 | 2.0e+08 | |
| 18 June | 5.4e+04 | 4.2e+04 | 1.6e+08 | |
| 19 June | 5.4e+04 | 4.4e+04 | 2.0e+08 | |
| 20 June | 6.2e+04 | 4.4e+04 | 2.4e+08 | |

Daily Geomagnetic Data

| Date | Middle Latitude Fredericksburg | | High Latitude College | | Estimated Planetary | |
|---------|-----------------------------------|-----------------|--------------------------|-----------------|------------------------|-----------------|
| | A | K-indices | A | K-indices | A | K-indices |
| | 14 June | 7 | 0-0-1-2-3-3-2-2 | 2 | 1-1-1-1-0-0-1-1 | 4 |
| 15 June | 15 | 2-2-3-2-4-3-4-3 | 13 | 2-3-1-3-4-3-2-3 | 17 | 2-2-2-2-3-3-5-4 |
| 16 June | 15 | 4-4-2-3-2-3-2-3 | 14 | 3-4-0-1-4-3-1-2 | 14 | 4-3-3-3-2-3-2-3 |
| 17 June | 9 | 2-3-3-2-2-2-1-2 | 9 | 2-2-4-3-2-1-1-1 | 7 | 2-2-3-2-1-2-1-1 |
| 18 June | 8 | 2-2-2-2-3-1-2-2 | 18 | 2-3-3-5-5-2-1-1 | 7 | 2-2-2-2-2-1-1-2 |
| 19 June | 5 | 2-1-1-1-2-1-2-1 | 5 | 2-2-1-3-1-0-0-1 | 4 | 2-1-1-1-1-1-1-1 |
| 20 June | 4 | 0-1-0-1-2-1-1-3 | 2 | 1-1-0-1-0-0-1-1 | 3 | 1-1-1-1-1-0-1-3 |

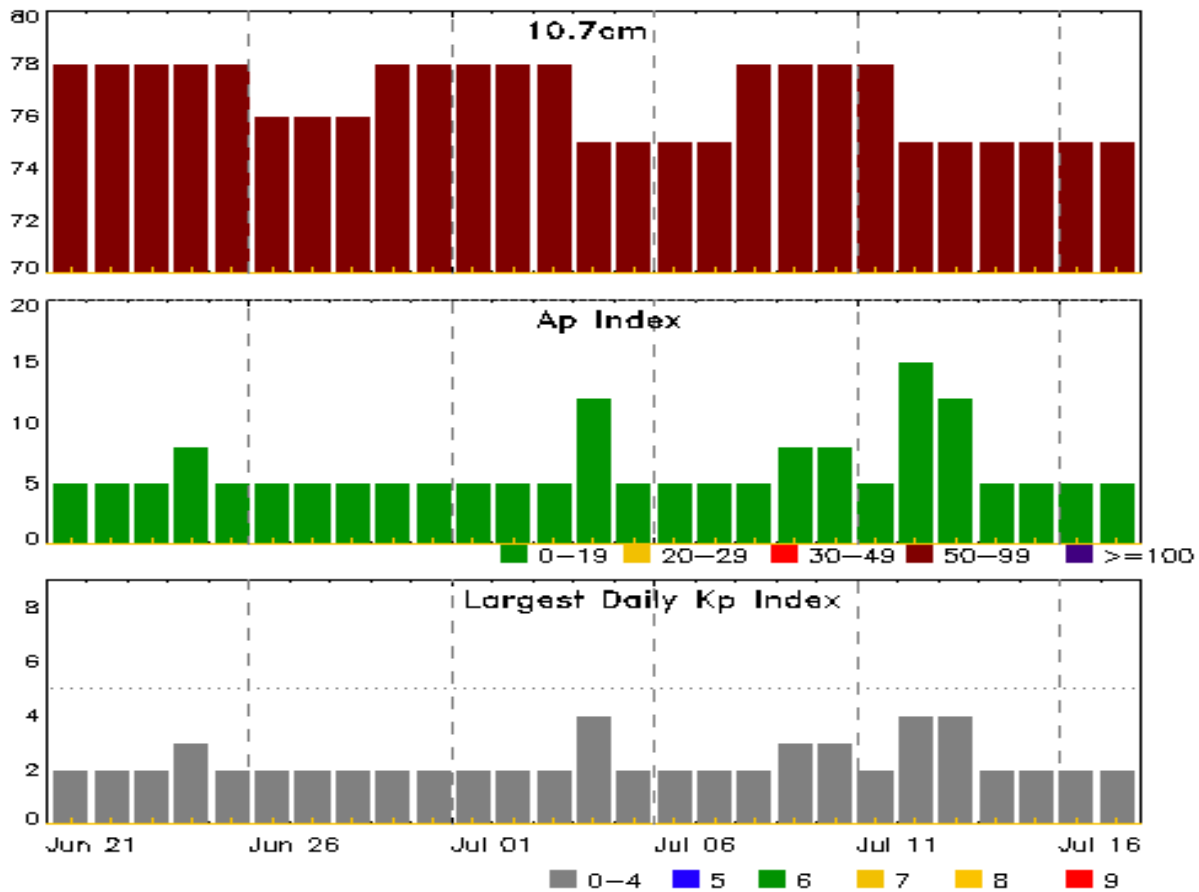


Alerts and Warnings Issued

| Date & Time of Issue UTC | Type of Alert or Warning | Date & Time of Event UTC |
|-----------------------------|--|-----------------------------|
| 15 Jun 1214 | WATCH: Geomagnetic Storm Category G1 predicted | |
| 15 Jun 1339 | WARNING: Geomagnetic K = 4 | 15/1345 - 2359 |
| 15 Jun 2058 | EXTENDED WARNING: Geomagnetic K = 4 | 15/1345 - 16/0600 |
| 15 Jun 2058 | WARNING: Geomagnetic K = 5 | 15/2055 - 16/0300 |
| 15 Jun 2058 | ALERT: Geomagnetic K = 4 | 15/2057 |
| 15 Jun 2101 | ALERT: Geomagnetic K = 5 | 15/2100 |
| 16 Jun 0255 | EXTENDED WARNING: Geomagnetic K = 5 | 15/2055 - 16/0900 |
| 16 Jun 0255 | EXTENDED WARNING: Geomagnetic K = 4 | 15/1345 - 16/0900 |
| 17 Jun 0837 | ALERT: Electron 2MeV Integral Flux \geq 1000pfu | 17/0835 |
| 18 Jun 0721 | CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu | 17/0835 |
| 19 Jun 0459 | CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu | 17/0835 |
| 20 Jun 0500 | CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu | 17/0835 |



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 |
|--------|----------------------|----------------------|---------------------|--------|----------------------|----------------------|---------------------|
| 21 Jun | 78 | 5 | 2 | 05 Jul | 75 | 5 | 2 |
| 22 | 78 | 5 | 2 | 06 | 75 | 5 | 2 |
| 23 | 78 | 5 | 2 | 07 | 75 | 5 | 2 |
| 24 | 78 | 8 | 3 | 08 | 78 | 5 | 2 |
| 25 | 78 | 5 | 2 | 09 | 78 | 8 | 3 |
| 26 | 76 | 5 | 2 | 10 | 78 | 8 | 3 |
| 27 | 76 | 5 | 2 | 11 | 78 | 5 | 2 |
| 28 | 76 | 5 | 2 | 12 | 75 | 15 | 4 |
| 29 | 78 | 5 | 2 | 13 | 75 | 12 | 4 |
| 30 | 78 | 5 | 2 | 14 | 75 | 5 | 2 |
| 01 Jul | 78 | 5 | 2 | 15 | 75 | 5 | 2 |
| 02 | 78 | 5 | 2 | 16 | 75 | 5 | 2 |
| 03 | 78 | 5 | 2 | 17 | 75 | 5 | 2 |
| 04 | 75 | 12 | 4 | | | | |



Energetic Events

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

No Events Observed

Flare List

| Date | Time | | | X-ray Class | Optical | | | Rgn # |
|--------|-------|------|------|-------------|------------|------------------|--|-------|
| | Begin | Max | End | | Imp/ Brtns | Location Lat CMD | | |
| 14 Jun | 0258 | 0303 | 0307 | B1.0 | | | | 2832 |



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 2832 | | | | | | | | | | | | | | | | | |
| 09 Jun | N15W00 | 328 | 10 | 3 | Bxo | 4 | B | | | | | | | | | | |
| 10 Jun | N14W12 | 328 | 10 | 3 | Bxo | 6 | B | | | | | | | | | | |
| 11 Jun | N14W26 | 329 | 10 | 3 | Axx | 3 | A | | | | | | | | | | |
| 12 Jun | N14W40 | 330 | plage | | | | | | | | | | | | | | |
| 13 Jun | N14W50 | 326 | 0 | | Axx | 1 | A | | | | | | | | | | |
| 14 Jun | N15W65 | 328 | plage | | | | | | | | | | | | | | |
| 15 Jun | N15W79 | 329 | plage | | | | | | | | | | | | | | |
| | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |

Crossed West Limb.
Absolute heliographic longitude: 328

| | | | | | | | | | | | | | | | | | |
|--------------------|--------|-----|-----|---|-----|---|---|---|---|---|---|---|---|---|---|---|--|
| Region 2833 | | | | | | | | | | | | | | | | | |
| 13 Jun | N08E64 | 211 | 140 | 3 | Hsx | 1 | A | | | | | | | | | | |
| 14 Jun | N26E51 | 211 | 100 | 2 | Hsx | 1 | A | | | | | | | | | | |
| 15 Jun | N25E38 | 211 | 60 | 2 | Hsx | 1 | A | | | | | | | | | | |
| 16 Jun | N24E25 | 211 | 130 | 2 | Hsx | 1 | A | | | | | | | | | | |
| 17 Jun | N24E11 | 211 | 130 | 5 | Hsx | 2 | A | | | | | | | | | | |
| 18 Jun | N22W00 | 210 | 120 | 2 | Hsx | 2 | A | | | | | | | | | | |
| 19 Jun | N24W13 | 210 | 120 | 5 | Cso | 5 | B | | | | | | | | | | |
| 20 Jun | N25W27 | 210 | 90 | 4 | Cso | 3 | B | | | | | | | | | | |
| | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |

Still on Disk.
Absolute heliographic longitude: 210

| | | | | | | | | | | | | | | | | | |
|--------------------|--------|-----|-------|---|-----|---|---|---|---|---|---|---|---|---|---|---|--|
| Region 2834 | | | | | | | | | | | | | | | | | |
| 18 Jun | N20W71 | 281 | 10 | 2 | Bxo | 2 | B | | | | | | | | | | |
| 19 Jun | N20W87 | 283 | plage | | | | | | | | | | | | | | |
| | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |

Crossed West Limb.
Absolute heliographic longitude: 281



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

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