**Space Weather Highlights**
**20 March - 26 March 2023**

**SWPC PRF 2482**
**27 March 2023**

Solar activity reached moderate levels on 20 March due to an isolated M1 flare (R1-Minor) at 20/0148 UTC from Region 3256 (S23, L=010, class/area, Eho/300 on 25 Mar). The large collection of remaining sunspot regions produced nothing higher than C-class flare activity throughout the rest of the reporting period.

No proton events were observed at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit reached moderate levels throughout the reporting period.

On 23-24 March, Earth was impacted by the most significant geomagnetic storm of the current solar cycle. It began as a Strong (G3) geomagnetic storm on 23 March at about 1500 UTC and peaked on 24 March at around 0400 UTC as a Severe (G4) geomagnetic storm. This was the first Severe Geomagnetic Storm since 04 November 2021 (as reported from Potsdam). The storm was significantly stronger than expected. On 22 March, the Space Weather Prediction Center (SWPC) issued G1 and G2 watches for 23 and 24 March respectively. The most likely source of the geomagnetic storm was a long duration solar flare on 20 March at 1534 UTC. SWPC and international partner modeling suggested weak glancing impacts from the 20 March CME. ENLIL modeling parameters were likely degraded due to the unavailability of wide angle coronagraph (SOHO/LASCO C3) or STEREO Ahead imagery. The solar wind environment was significantly disturbed after the CME arrival. Total field strength peaked at 22 nT. The Bz component reflected prolonged southward deviation of -15 to -17 nT for over 14.5 hours. The remainder of the summary period observed unsettled to active geomagnetic levels.

**Space Weather Outlook**
**27 March - 22 April 2023**

Solar activity is expected to be at low levels with a slight chance for (R1-R2, Minor-Moderate) events.

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 27 March - 06 April, with moderate levels on 07-22 April.

Geomagnetic field activity is expected to reach G1 (Minor) storm levels on 20-21 April, with active conditions on 31 Mar and 01, 10-11, 16, 18 April in response to recurrent CH HSS influence. Quiet to unsettled levels are anticipated 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 |
| 20 March | 156 | 75 | 550 | C1.0 | 3 | 1 | 0 | 1 | 1 | 0 | 0 | 0 |
| 21 March | 152 | 70 | 640 | B9.0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 22 March | 159 | 81 | 800 | B7.9 | 5 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| 23 March | 151 | 73 | 710 | B5.9 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 |
| 24 March | 158 | 108 | 800 | B6.8 | 6 | 0 | 0 | 5 | 0 | 0 | 0 | 0 |
| 25 March | 160 | 105 | 880 | B7.0 | 3 | 0 | 0 | 3 | 0 | 0 | 0 | 0 |
| 26 March | 159 | 125 | 840 | B7.4 | 5 | 0 | 0 | 9 | 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 |
| 20 March | 4.2e+06 | 1.1e+05 | 7.4e+06 |
| 21 March | 3.2e+06 | 7.6e+04 | 7.6e+06 |
| 22 March | 1.4e+06 | 4.1e+04 | 1.4e+07 |
| 23 March | 1.2e+06 | 2.6e+04 | 3.5e+06 |
| 24 March | 1.4e+06 | 2.1e+04 | 1.5e+06 |
| 25 March | 2.8e+05 | 2.2e+04 | 2.3e+07 |
| 26 March | 1.0e+05 | 2.2e+04 | 3.7e+07 |

## *Daily Geomagnetic Data*

| Date | Middle Latitude Fredericksburg | | High Latitude College | | Estimated Planetary | |
|---|---|---|---|---|---|---|
| | A | K-indices | A | K-indices | A | K-indices |
| 20 March | 10 | 2-0-0-2-4-4-1-2 | 25 | 1-1-0-5-5-6-2-2 | 13 | 3-1-1-3-4-4-2-3 |
| 21 March | 8 | 3-1-2-2-2-3-1-2 | 9 | 1-1-2-4-1-3-1-2 | 8 | 3-1-2-2-1-3-2-2 |
| 22 March | 14 | 3-3-3-4-3-2-3-1 | 38 | 3-3-6-7-4-3-2-1 | 17 | 4-3-4-4-3-3-3-1 |
| 23 March | 28 | 1-2-3-4-5-4-3-6 | 51 | 1-1-6-6-7-5-4-4 | 60 | 1-2-4-4-7-5-6-7 |
| 24 March | 40 | 5-7-5-4-2-2-4-3 | 68 | 4-6-8-6-4-5-4-3 | 66 | 7-8-7-4-2-3-5-4 |
| 25 March | 12 | 2-2-4-3-2-3-2-2 | 28 | 3-4-5-6-4-2-3-1 | 15 | 3-3-4-4-3-2-3-3 |
| 26 March | 6 | 2-2-1-1-2-2-2-1 | 7 | 2-3-2-1-1-1-2-2 | 15 | 3-3-2-1-1-1-3-2 |

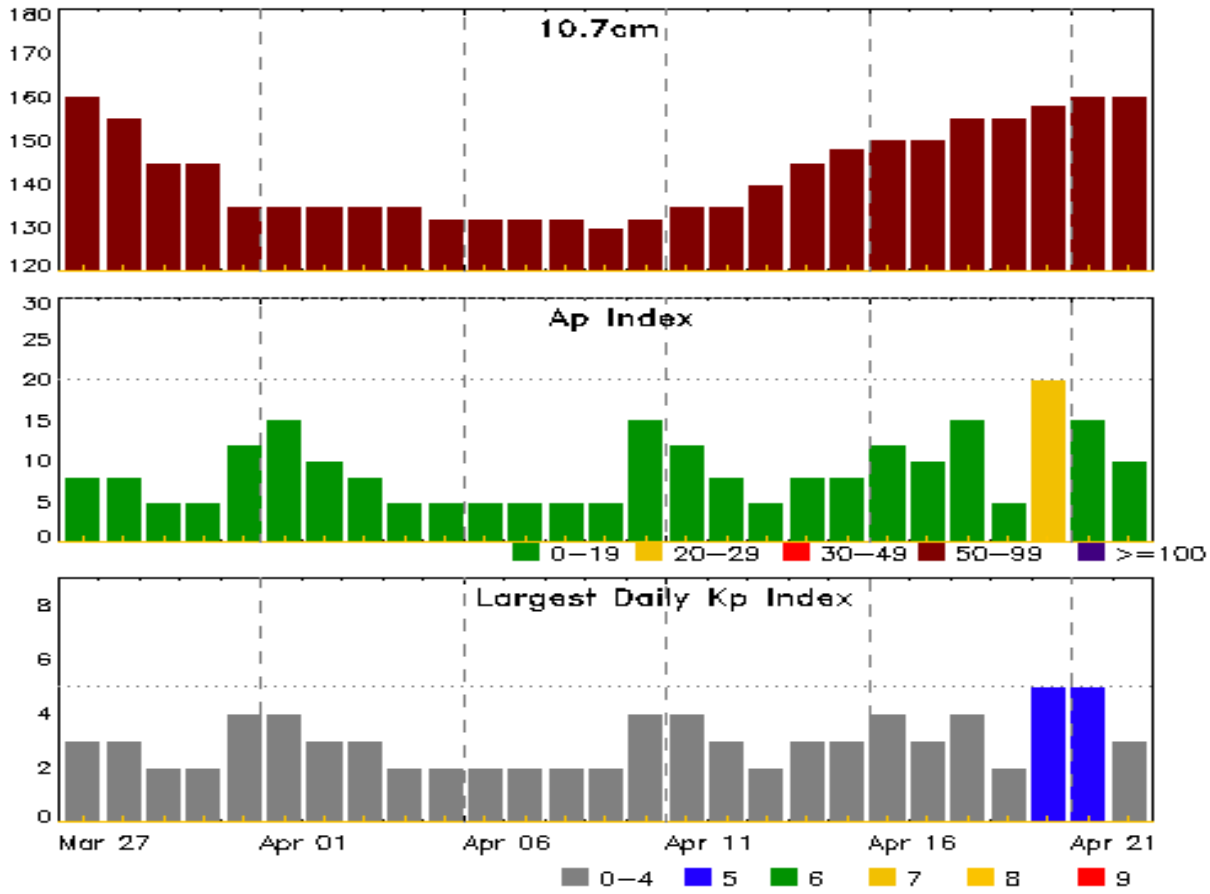
## *Alerts and Warnings Issued*

| Date & Time of Issue UTC | Type of Alert or Warning | Date & Time of Event UTC |
|---|---|---|
| 20 Mar 1453 | WARNING: Geomagnetic K = 4 | 20/1453 - 21/0900 |
| 20 Mar 1512 | ALERT: Geomagnetic K = 4 | 20/1459 |
| 21 Mar 2159 | WATCH: Geomagnetic Storm Category G2 predicted | |
| 22 Mar 0045 | WARNING: Geomagnetic K = 4 | 22/0045 - 0600 |
| 22 Mar 0237 | ALERT: Geomagnetic K = 4 | 22/0237 |
| 22 Mar 0555 | EXTENDED WARNING: Geomagnetic K = 4 | 22/0045 - 1500 |
| 22 Mar 1653 | WATCH: Geomagnetic Storm Category G1 predicted | |
| 23 Mar 0828 | WARNING: Geomagnetic K = 4 | 23/0827 - 1500 |
| 23 Mar 0836 | ALERT: Geomagnetic K = 4 | 23/0836 |
| 23 Mar 0905 | EXTENDED WARNING: Geomagnetic K = 4 | 23/0827 - 2100 |
| 23 Mar 0905 | WARNING: Geomagnetic K = 5 | 23/0905 - 1500 |
| 23 Mar 1236 | ALERT: Geomagnetic K = 5 | 23/1234 |
| 23 Mar 1420 | WARNING: Geomagnetic K = 6 | 23/1420 - 2100 |
| 23 Mar 1421 | EXTENDED WARNING: Geomagnetic K = 5 | 23/0905 - 24/0600 |
| 23 Mar 1426 | ALERT: Geomagnetic K = 6 | 23/1423 |
| 23 Mar 1447 | WARNING: Geomagnetic K>= 7 | 23/1447 - 1800 |
| 23 Mar 1450 | ALERT: Geomagnetic K = 7 | 23/1446 |
| 23 Mar 1531 | ALERT: Geomagnetic K = 7 | 23/1449 |
| 23 Mar 1725 | ALERT: Geomagnetic K = 5 | 23/1722 |
| 23 Mar 1946 | ALERT: Geomagnetic K = 6 | 23/1942 |
| 23 Mar 1950 | EXTENDED WARNING: Geomagnetic K = 6 | 23/1420 - 24/0300 |
| 23 Mar 2006 | EXTENDED WARNING: Geomagnetic K = 4 | 23/0827 - 24/1500 |
| 23 Mar 2122 | WATCH: Geomagnetic Storm Category G1 predicted | |
| 23 Mar 2136 | ALERT: Geomagnetic K = 5 | 23/2133 |
| 23 Mar 2148 | ALERT: Geomagnetic K = 6 | 23/2146 |
| 23 Mar 2251 | WARNING: Geomagnetic K>= 7 | 23/2250 - 24/0300 |
| 23 Mar 2355 | ALERT: Geomagnetic K = 7 | 23/2354 |
| 24 Mar 0015 | ALERT: Geomagnetic K = 5 | 24/0014 |
| 24 Mar 0027 | ALERT: Geomagnetic K = 6 | 24/0025 |

## *Alerts and Warnings Issued*

| Date & Time of Issue UTC | Type of Alert or Warning | Date & Time of Event UTC |
|---|---|---|
| 24 Mar 0157 | ALERT: Geomagnetic K = 7 | 24/0155 |
| 24 Mar 0200 | EXTENDED WARNING: Geomagnetic K>= 7 | 23/2250 - 24/0900 |
| 24 Mar 0200 | EXTENDED WARNING: Geomagnetic K = 6 | 23/1420 - 24/1200 |
| 24 Mar 0200 | EXTENDED WARNING: Geomagnetic K = 5 | 23/0905 - 24/1500 |
| 24 Mar 0325 | ALERT: Geomagnetic K = 5 | 24/0317 |
| 24 Mar 0329 | ALERT: Geomagnetic K = 6 | 24/0323 |
| 24 Mar 0344 | ALERT: Geomagnetic K = 7 | 24/0339 |
| 24 Mar 0416 | ALERT: Geomagnetic K = 8 | 24/0404 |
| 24 Mar 0624 | ALERT: Geomagnetic K = 5 | 24/0617 |
| 24 Mar 0650 | ALERT: Geomagnetic K = 6 | 24/0644 |
| 24 Mar 0901 | EXTENDED WARNING: Geomagnetic K = 4 | 23/0827 - 24/2359 |
| 24 Mar 0901 | EXTENDED WARNING: Geomagnetic K = 5 | 23/0905 - 24/1800 |
| 24 Mar 0901 | EXTENDED WARNING: Geomagnetic K = 6 | 23/1420 - 24/1800 |
| 24 Mar 0901 | ALERT: Geomagnetic K = 7 | 24/0859 |
| 24 Mar 0901 | EXTENDED WARNING: Geomagnetic K>= 7 | 23/2250 - 24/1200 |
| 24 Mar 1718 | EXTENDED WARNING: Geomagnetic K = 4 | 23/0827 - 25/1200 |
| 24 Mar 1719 | EXTENDED WARNING: Geomagnetic K = 5 | 23/0905 - 25/0600 |
| 24 Mar 2005 | ALERT: Geomagnetic K = 5 | 24/2004 |
| 25 Mar 1101 | EXTENDED WARNING: Geomagnetic K = 4 | 23/0827 - 25/2100 |
| 25 Mar 2055 | EXTENDED WARNING: Geomagnetic K = 4 | 23/0827 - 26/0900 |
| 26 Mar 0855 | EXTENDED WARNING: Geomagnetic K = 4 | 23/0827 - 26/2100 |

## *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 |
|---|---|---|---|---|---|---|---|
| 27 Mar | 160 | 8 | 3 | 10 Apr | 132 | 15 | 4 |
| 28 | 155 | 8 | 3 | 11 | 135 | 12 | 4 |
| 29 | 145 | 5 | 2 | 12 | 135 | 8 | 3 |
| 30 | 145 | 5 | 2 | 13 | 140 | 5 | 2 |
| 31 | 135 | 12 | 4 | 14 | 145 | 8 | 3 |
| 01 Apr | 135 | 15 | 4 | 15 | 148 | 8 | 3 |
| 02 | 135 | 10 | 3 | 16 | 150 | 12 | 4 |
| 03 | 135 | 8 | 3 | 17 | 150 | 10 | 3 |
| 04 | 135 | 5 | 2 | 18 | 155 | 15 | 4 |
| 05 | 132 | 5 | 2 | 19 | 155 | 5 | 2 |
| 06 | 132 | 5 | 2 | 20 | 158 | 20 | 5 |
| 07 | 132 | 5 | 2 | 21 | 160 | 15 | 5 |
| 08 | 132 | 5 | 2 | 22 | 160 | 10 | 3 |
| 09 | 130 | 5 | 2 | | | | |

## *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 |
| 20 Mar | | 0119 | 0148 | 0226 | M1.2 | | 0.042 | | 3256 | | | |

## *Flare List*

| | Time | | | | Optical | | |
|---|---|---|---|---|---|---|---|
| Date | Begin | Max | End | X-ray Class | Imp/ Brtns | Location Lat CMD | Rgn # |
| 20 Mar | 0057 | 0114 | 0119 | C4.1 | | | 3256 |
| 20 Mar | 0119 | 0148 | 0226 | M1.2 | | | 3256 |
| 20 Mar | B0731 | U0805 | A0857 | | SF | S20E54 | 3259 |
| 20 Mar | 0924 | 0937 | 0949 | C5.2 | | | 3256 |
| 20 Mar | 0928 | 0933 | 0947 | | 1F | S25E39 | 3256 |
| 20 Mar | 1407 | 1534 | 1814 | C4.4 | | | 3258 |
| 21 Mar | 0809 | 0812 | 0822 | C1.4 | | | 3252 |
| 21 Mar | 1016 | 1029 | 1041 | C1.7 | | | 3258 |
| 21 Mar | 1346 | 1354 | 1358 | C4.6 | | | 3257 |
| 21 Mar | 2207 | 2213 | 2217 | C1.5 | | | 3257 |
| 21 Mar | 2349 | 2357 | 0001 | C1.7 | | | 3257 |
| 22 Mar | 0653 | 0703 | 0710 | C1.4 | | | 3260 |
| 22 Mar | 0710 | 0716 | 0720 | C1.3 | | | 3261 |
| 22 Mar | 1152 | 1201 | 1205 | C1.6 | SF | S27E36 | 3257 |
| 22 Mar | 1539 | 1605 | 1624 | C1.7 | | | 3262 |
| 22 Mar | 1909 | 1957 | 2100 | C2.5 | | | 3256 |
| 23 Mar | 1155 | 1202 | 1221 | B9.6 | SF | S14E22 | |
| 23 Mar | 1313 | 1322 | 1330 | B9.2 | | | |
| 23 Mar | 2142 | 2148 | 2154 | B8.6 | SF | N17E16 | |
| 24 Mar | 0305 | 0305 | 0308 | | SF | N22E19 | 3260 |
| 24 Mar | 0401 | 0412 | 0422 | B9.6 | | | |
| 24 Mar | 0604 | 0607 | 0611 | C1.7 | SF | S21E05 | 3259 |
| 24 Mar | 0625 | 0629 | 0633 | C0.9 | SF | S25E02 | 3259 |
| 24 Mar | 1204 | 1214 | 1225 | C1.3 | SF | S23W02 | 3259 |
| 24 Mar | 1323 | 1340 | 1350 | C2.2 | S18 | S21E00 | 3259 |
| 24 Mar | 1641 | 1650 | 1706 | C1.1 | | | 3260 |
| 24 Mar | 1822 | 1827 | 1835 | C1.0 | | | 3260 |
| 25 Mar | 0032 | 0039 | 0045 | C1.5 | | | 3263 |
| 25 Mar | 0037 | 0037 | 0041 | C1.6 | SF | N17E03 | 3263 |
| 25 Mar | 0216 | 0217 | 0223 | | SF | S19E46 | 3262 |

## *Flare List*

| | Time | | | Optical | | | |
|---|---|---|---|---|---|---|---|
| Date | Begin | Max | End | X-ray Class | Imp/ Brtns | Location Lat CMD | Rgn # |
| 25 Mar | 1252 | 1301 | 1314 | C1.1 | | | 3258 |
| 25 Mar | 1528 | 1531 | 1540 | | SF | N28E06 | 3260 |
| 26 Mar | 0359 | 0406 | 0416 | C2.6 | SF | S21E04 | 3259 |
| 26 Mar | 0442 | 0506 | 0520 | C2.3 | SF | S19E33 | 3262 |
| 26 Mar | 0549 | 0551 | 0559 | | SF | N21W05 | 3263 |
| 26 Mar | 0551 | 0551 | 0555 | | SF | N22E19 | 3260 |
| 26 Mar | 1435 | 1442 | 1448 | C1.3 | SF | S21E26 | 3262 |
| 26 Mar | 1527 | 1527 | 1537 | | SF | N20W21 | 3263 |
| 26 Mar | 1538 | 1539 | 1550 | | SF | N20W21 | 3263 |
| 26 Mar | 1554 | U1602 | A1617 | | SF | N20W21 | 3263 |
| 26 Mar | 1658 | 1708 | 1717 | C2.9 | SF | S21W29 | 3256 |
| 26 Mar | 2137 | 2141 | 2146 | C1.1 | | | 3256 |

## *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 3249*** | | | | | | | | | | | | |
| 07 Mar | S12E75 | 141 | 120 | 1 | Hsx | 1 | A | | | | | | | | |
| 08 Mar | S12E61 | 142 | 150 | 2 | Hax | 1 | A | | | | | | | | |
| 09 Mar | S11E47 | 143 | 30 | 1 | Hax | 1 | A | | | | | | | | |
| 10 Mar | S11E34 | 142 | 70 | 2 | Hsx | 1 | A | | | | | | | | |
| 11 Mar | S11E21 | 142 | 60 | 1 | Hsx | 1 | A | | | | | | | | |
| 12 Mar | S11E08 | 142 | 50 | 2 | Hsx | 2 | A | | | | | | | | |
| 13 Mar | S11W06 | 143 | 20 | 3 | Cro | 2 | B | | | | | | | | |
| 14 Mar | S11W19 | 143 | 10 | 1 | Axx | 1 | A | | | | | | | | |
| 15 Mar | S11W33 | 143 | 10 | 1 | Axx | 1 | A | | | | | | | | |
| 16 Mar | S11W44 | 141 | 10 | 1 | Axx | 1 | A | | | | | | | | |
| 17 Mar | S11W57 | 141 | plage | | | | | | | | 1 | | | | |
| 18 Mar | S11W71 | 142 | plage | | | | | | | | | | | | |
| 19 Mar | S11W85 | 143 | plage | | | | | | | | | | | | |
| | | | | | | | | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |

Crossed West Limb.
Absolute heliographic longitude: 143

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | ***Region 3250*** | | | | | | | | | | | | |
| 09 Mar | S20E45 | 145 | 10 | 3 | Bxo | 4 | B | 2 | | | | | | | |
| 10 Mar | S20E32 | 144 | 10 | 4 | Bxo | 5 | B | | | | | | | | |
| 11 Mar | S20E19 | 144 | 70 | 4 | Cao | 7 | B | | | | | | | | |
| 12 Mar | S20E06 | 144 | 80 | 5 | Cao | 7 | B | | | | | | | | |
| 13 Mar | S18W08 | 145 | 30 | 4 | Dri | 9 | B | | | | 1 | | | | |
| 14 Mar | S18W22 | 146 | 10 | 4 | Bxo | 5 | B | 1 | | | 1 | | | | |
| 15 Mar | S19W37 | 147 | 10 | 3 | Axx | 3 | A | | | | | | | | |
| 16 Mar | S18W47 | 144 | 10 | 1 | Axx | 1 | A | | | | | | | | |
| 17 Mar | S18W61 | 145 | plage | | | | | | | | | | | | |
| 18 Mar | S18W75 | 146 | plage | | | | | | | | | | | | |
| 19 Mar | S18W89 | 147 | plage | | | | | | | | | | | | |
| | | | | | | | | 3 | 0 | 0 | 2 | 0 | 0 | 0 | 0 |

Crossed West Limb.
Absolute heliographic longitude: 144

## *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 3251*** | | | | | | | | | | | | |
| 09 Mar | S13E69 | 121 | 50 | 2 | Hsx | 1 | A | | | | | | | | |
| 10 Mar | S13E55 | 121 | 50 | 3 | Hsx | 1 | A | | | | | | | | |
| 11 Mar | S13E42 | 121 | 50 | 2 | Hsx | 1 | A | | | | | | | | |
| 12 Mar | S13E29 | 121 | 50 | 2 | Hsx | 1 | A | | | | | | | | |
| 13 Mar | S13E16 | 121 | 50 | 1 | Hsx | 1 | A | | | | | | | | |
| 14 Mar | S13E02 | 122 | 50 | 1 | Hsx | 1 | A | | | | | | | | |
| 15 Mar | S13W12 | 122 | 60 | 2 | Hax | 1 | A | | | | | | | | |
| 16 Mar | S13W22 | 119 | 40 | 1 | Hsx | 1 | A | | | | | | | | |
| 17 Mar | S13W35 | 119 | 40 | 1 | Hsx | 1 | A | | | | | | | | |
| 18 Mar | S13W48 | 119 | 30 | 1 | Hsx | 1 | A | | | | | | | | |
| 19 Mar | S13W62 | 120 | 30 | 1 | Hsx | 1 | A | | | | | | | | |
| 20 Mar | S13W75 | 118 | 10 | | Axx | 1 | A | | | | | | | | |
| 21 Mar | S13W89 | 120 | plage | | | | | | | | | | | | |
| | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Crossed West Limb.
Absolute heliographic longitude: 122

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | ***Region 3252*** | | | | | | | | | | | | |
| 09 Mar | N16E74 | 116 | plage | | | | | 1 | | | | | | | |
| 10 Mar | N16E60 | 116 | 20 | 1 | Hsx | 1 | A | | | | | | | | |
| 11 Mar | N13E47 | 116 | 20 | 1 | Hsx | 1 | A | | | | | | | | |
| 12 Mar | N13E34 | 116 | 20 | 1 | Hsx | 1 | A | | | | | | | | |
| 13 Mar | N12E20 | 117 | 20 | 1 | Hrx | 1 | A | | | | | | | | |
| 14 Mar | N13E06 | 118 | 10 | 1 | Hrx | 1 | A | | | | | | | | |
| 15 Mar | N13W09 | 119 | 10 | 1 | Axx | 1 | A | | | | | | | | |
| 16 Mar | N13W21 | 118 | 10 | 1 | Axx | 1 | A | | | | | | | | |
| 17 Mar | N13W35 | 119 | 10 | 1 | Axx | 1 | A | | | | | | | | |
| 18 Mar | N13W49 | 120 | plage | | | | | | | | | | | | |
| 19 Mar | N13W63 | 121 | plage | | | | | | | | | | | | |
| 20 Mar | N13W77 | 122 | plage | | | | | | | | | | | | |
| | | | | | | | | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Died on Disk.
Absolute heliographic longitude: 118

## *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 3255*** | | | | | | | | | | | | |
| 14 Mar | S05E39 | 85 | 10 | 3 | Bxo | 1 | B | | | | | | | | |
| 15 Mar | S05E24 | 86 | 10 | 4 | Bxo | 3 | B | | | | | | | | |
| 16 Mar | S05E13 | 84 | 10 | 4 | Bxo | 2 | B | | | | | | | | |
| 17 Mar | S05W02 | 86 | plage | | | | | | | | | | | | |
| 18 Mar | S05W17 | 88 | plage | | | | | | | | | | | | |
| 19 Mar | S05W32 | 90 | plage | | | | | | | | | | | | |
| 20 Mar | S05W47 | 92 | plage | | | | | | | | | | | | |
| 21 Mar | S05W62 | 93 | plage | | | | | | | | | | | | |
| 22 Mar | S05W77 | 95 | plage | | | | | | | | | | | | |
| | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Died on Disk.
Absolute heliographic longitude: 86

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | ***Region 3256*** | | | | | | | | | | | | |
| 17 Mar | S21E73 | 11 | 60 | 2 | Hsx | 1 | A | 4 | | | 1 | | | | |
| 18 Mar | S22E66 | 9 | 250 | 15 | Eho | 2 | B | 2 | | | 2 | 1 | | | |
| 19 Mar | S22E54 | 6 | 270 | 15 | Eko | 3 | B | 4 | | | 4 | | | | |
| 20 Mar | S20E39 | 4 | 250 | 15 | Eho | 6 | B | 2 | 1 | | | 1 | | | |
| 21 Mar | S23E25 | 8 | 240 | 5 | Cso | 6 | B | | | | | | | | |
| 22 Mar | S22E07 | 10 | 270 | 5 | Cho | 4 | B | 1 | | | | | | | |
| 23 Mar | S22W04 | 9 | 230 | 5 | Cso | 4 | B | | | | | | | | |
| 24 Mar | S23W18 | 10 | 240 | 15 | Eao | 15 | B | | | | | | | | |
| 25 Mar | S23W31 | 10 | 300 | 15 | Eho | 18 | BG | | | | | | | | |
| 26 Mar | S23W45 | 10 | 280 | 15 | Eho | 18 | BG | 2 | | | 1 | | | | |
| | | | | | | | | 15 | 1 | 0 | 8 | 2 | 0 | 0 | 0 |

Still on Disk.
Absolute heliographic longitude: 9

## *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 3257*** | | | | | | | | | | | | |
| 18 Mar | S27E82 | 349 | 40 | 3 | Dao | 2 | B | | | | | | | | |
| 19 Mar | S27E68 | 350 | 120 | 4 | Hax | 2 | A | 5 | | | 2 | | | | |
| 20 Mar | S27E54 | 349 | 140 | 3 | Dso | 2 | B | | | | | | | | |
| 21 Mar | S28E40 | 351 | 170 | 4 | Hax | 2 | A | 3 | | | | | | | |
| 22 Mar | S23E27 | 350 | 130 | 5 | Cao | 5 | B | 1 | | | 1 | | | | |
| 23 Mar | S27E14 | 350 | 190 | 3 | Hax | 2 | A | | | | | | | | |
| 24 Mar | S27E01 | 351 | 180 | 6 | Hsx | 2 | A | | | | | | | | |
| 25 Mar | S27W11 | 350 | 180 | 4 | Hax | 2 | A | | | | | | | | |
| 26 Mar | S28W24 | 349 | 160 | 5 | Hax | 5 | A | | | | | | | | |
| | | | | | | | | 9 | 0 | 0 | 3 | 0 | 0 | 0 | 0 |

Still on Disk.
Absolute heliographic longitude: 351

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | ***Region 3258*** | | | | | | | | | | | | |
| 19 Mar | N18E32 | 26 | 10 | 1 | Axx | 2 | A | | | | | | | | |
| 20 Mar | N19E18 | 25 | 10 | | Axx | 2 | A | 1 | | | | | | | |
| 21 Mar | N18E04 | 26 | plage | | | | | 1 | | | | | | | |
| 22 Mar | N18W10 | 28 | plage | | | | | | | | | | | | |
| 23 Mar | N18W24 | 29 | plage | | | | | | | | | | | | |
| 24 Mar | N18W37 | 29 | 20 | 3 | Cro | 5 | B | | | | | | | | |
| 25 Mar | N18W49 | 28 | 30 | 4 | Cao | 7 | B | 1 | | | | | | | |
| 26 Mar | N18W61 | 26 | 40 | 5 | Cao | 6 | B | | | | | | | | |
| | | | | | | | | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Still on Disk.
Absolute heliographic longitude: 26

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | ***Region 3259*** | | | | | | | | | | | | |
| 19 Mar | S16E69 | 351 | 20 | 4 | Bxo | 4 | B | | | | | | | | |
| 20 Mar | S21E56 | 354 | 20 | 2 | Cro | 3 | B | | | | 1 | | | | |
| 21 Mar | S23E31 | 359 | 30 | 4 | Bxo | 4 | B | | | | | | | | |
| 22 Mar | S22E20 | 357 | 30 | 5 | Bxo | 6 | B | | | | | | | | |
| 23 Mar | S22E07 | 357 | 20 | 5 | Bxo | 8 | B | | | | | | | | |
| 24 Mar | S21W05 | 357 | 20 | 6 | Cro | 8 | B | 4 | | | 4 | | | | |
| 25 Mar | S22W17 | 356 | 20 | 3 | Cro | 4 | B | | | | | | | | |
| 26 Mar | S21W31 | 356 | 10 | 8 | Bxo | 7 | B | 1 | | | 1 | | | | |
| | | | | | | | | 5 | 0 | 0 | 6 | 0 | 0 | 0 | 0 |

Still on Disk.
Absolute heliographic longitude: 357

## *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 3260*** | | | | | | | | | | | | |
| 19 Mar | N22E70 | 348 | 60 | 2 | Hsx | 1 | A | | | | | | | | |
| 20 Mar | N24E58 | 346 | 120 | 2 | Hsx | 1 | A | | | | | | | | |
| 21 Mar | N24E41 | 349 | 160 | 2 | Hsx | 1 | A | | | | | | | | |
| 22 Mar | N24E31 | 346 | 180 | 3 | Cao | 3 | B | 1 | | | | | | | |
| 23 Mar | N20E16 | 348 | 140 | 9 | Cso | 7 | B | | | | | | | | |
| 24 Mar | N20E04 | 348 | 180 | 7 | Cso | 5 | B | 2 | | | 1 | | | | |
| 25 Mar | N23W08 | 347 | 170 | 3 | Cso | 2 | B | | | | 1 | | | | |
| 26 Mar | N23W21 | 346 | 160 | 3 | Cso | 3 | B | | | | 1 | | | | |
| | | | | | | | | 3 | 0 | 0 | 3 | 0 | 0 | 0 | 0 |

Still on Disk.
Absolute heliographic longitude: 348

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | ***Region 3261*** | | | | | | | | | | | | |
| 21 Mar | S23W66 | 96 | 40 | 3 | Cro | 7 | B | | | | | | | | |
| 22 Mar | S22W79 | 97 | 10 | 5 | Axx | 2 | A | 1 | | | | | | | |
| | | | | | | | | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Crossed West Limb.
Absolute heliographic longitude: 96

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | ***Region 3262*** | | | | | | | | | | | | |
| 22 Mar | S19E72 | 306 | 180 | 2 | Hsx | 1 | A | 1 | | | | | | | |
| 23 Mar | S18E56 | 308 | 130 | 2 | Cao | 2 | B | | | | | | | | |
| 24 Mar | S19E43 | 309 | 130 | 3 | Hax | 2 | A | | | | | | | | |
| 25 Mar | S19E30 | 308 | 130 | 2 | Hsx | 1 | A | | | | 1 | | | | |
| 26 Mar | S19E17 | 308 | 130 | 2 | Hsx | 1 | A | 2 | | | 2 | | | | |
| | | | | | | | | 3 | 0 | 0 | 3 | 0 | 0 | 0 | 0 |

Still on Disk.
Absolute heliographic longitude: 308

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | ***Region 3264*** | | | | | | | | | | | | |
| 24 Mar | N16E70 | 281 | 30 | 2 | Hsx | 1 | A | | | | | | | | |
| 25 Mar | N16E56 | 283 | 50 | 2 | Hsx | 1 | A | | | | | | | | |
| 26 Mar | N16E44 | 281 | 50 | 2 | Hsx | 1 | A | | | | | | | | |
| | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Still on Disk.
Absolute heliographic longitude: 281

## *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 3265*** | | | | | | | | | | | | | |
| 26 Mar | N21W04 | 329 | 10 | 3 | Bxo | 4 | B | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Still on Disk.
Absolute heliographic longitude: 329

## *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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