

SOLAR WEATHER

3 SEP 2024

Lewis Thompson
W5IFQ



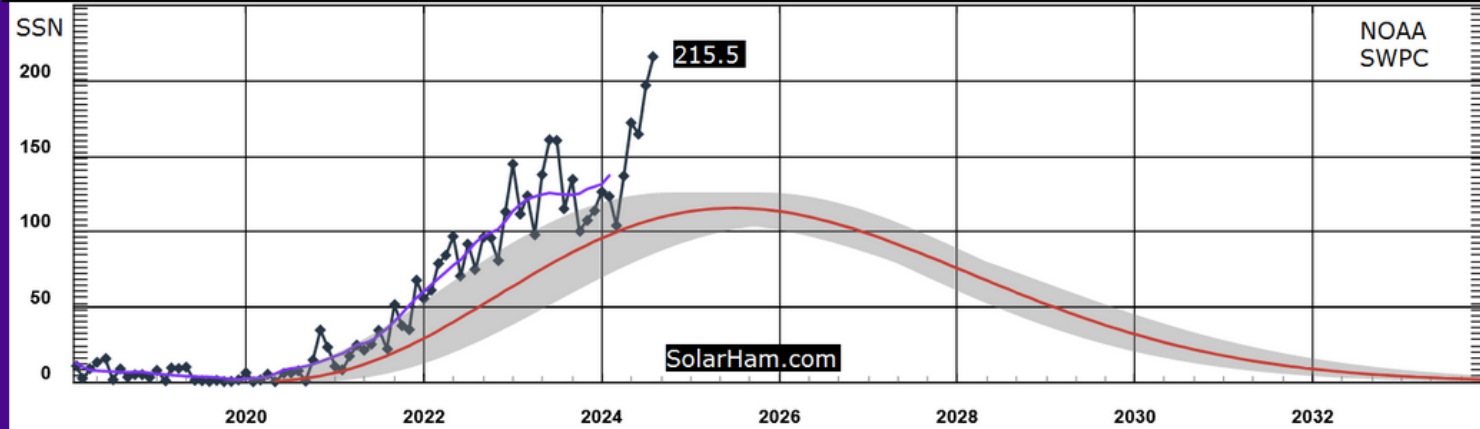
Taken by Oliver
Schwenn on August 31,
2024 @ Skagen,
Nordjylland, Denmark

Solar Cycle 25 Progression

(Updated September 1, 2024)

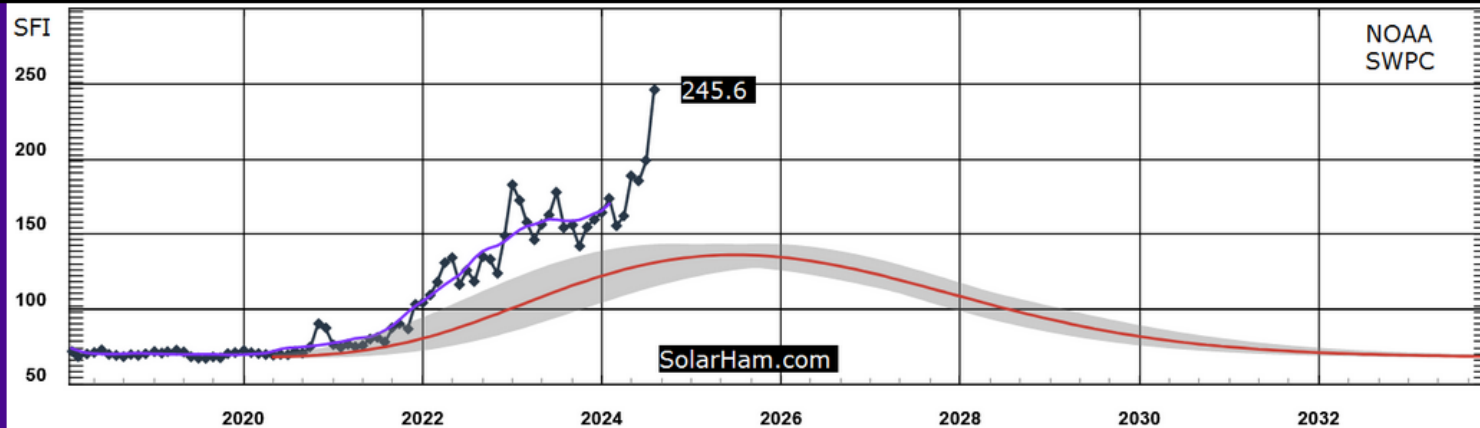
Sunspot Number Progression (August 2024)

Predicted SSN: 107.8 **Actual: 215.5** **Latest Smoothed Predicted SSN (2/2024): 97.3** **Actual: 136.8**



10.7cm Solar Flux Progression (August 2024)

Predicted SFI: 130.6 **Actual: 245.6** **Latest Smoothed Predicted SFI (2/2024): 123.3** **Actual: 169.8**



SolarHam

3 Day Geomagnetic Forecast

Sept. 3 Sept. 4 Sept. 5

2-3 (G0)

3 (G0)

2 (G0)

Max Kp

M-Lat 05%

M-Lat 10%

M-Lat 01%

H-Lat 25%

H-Lat 35%

H-Lat 20%

Probabilities

Latest SWPC Forecast (@ 00:30 + 12:30 UTC)

[Detailed Forecast](#)

Current Moon Phase:

0% Illumination
New Moon

Flare Events (M2+) Past 48 Hours

M2.9 AR 3807 9/2/24 @ 13:43 UTC

M5.5 SE Limb 9/1/24 @ 13:21 UTC

[Event Report](#)

[Top Solar Flares](#)

Visible Sunspot Regions

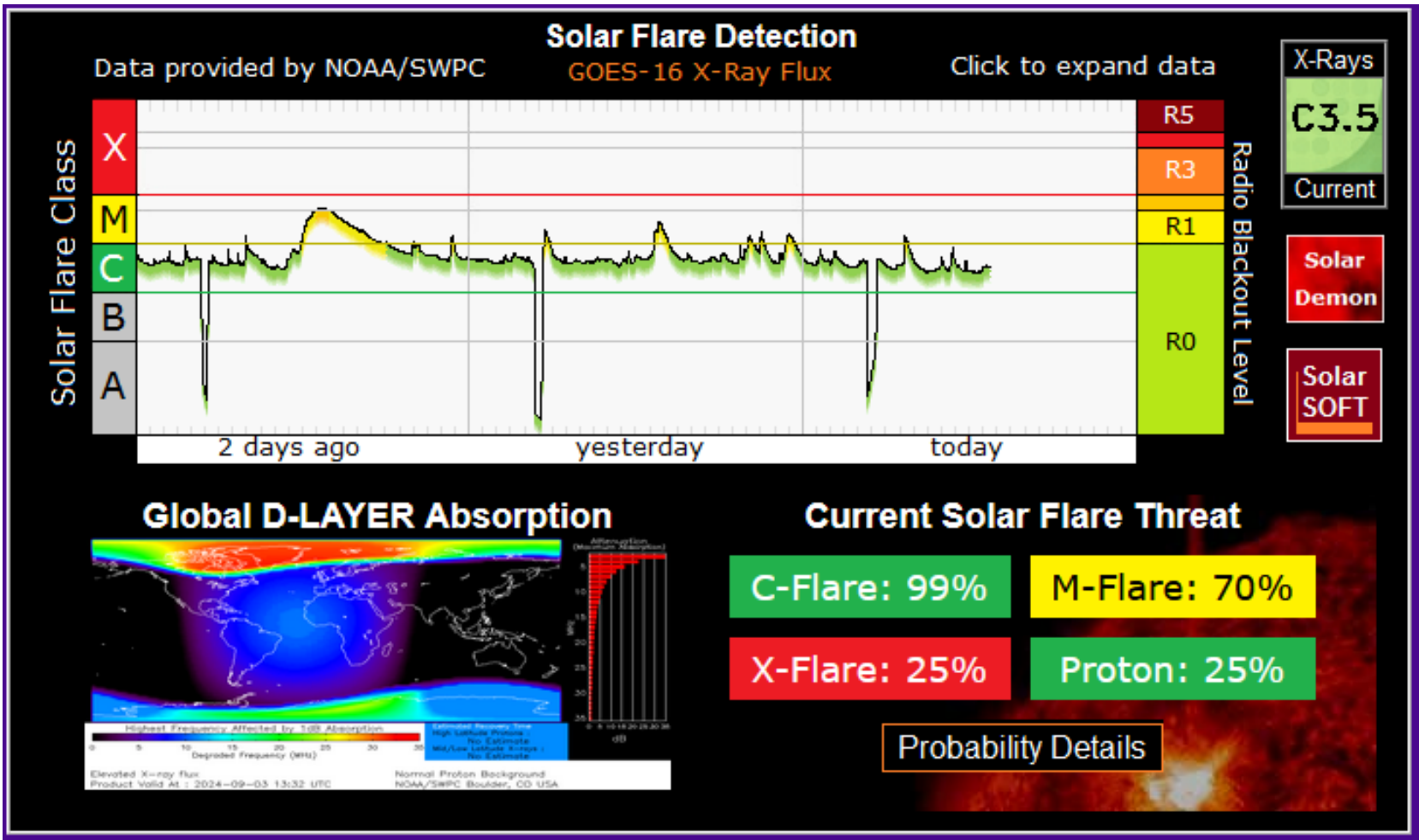
[Sunspot Summary](#)

[SRS](#)

| | | | |
|---------|----|--------|-----------|
| AR 3813 | BG | S22E58 | Growing |
| AR 3811 | B | S10E42 | Stable |
| AR 3810 | B | N16E10 | Declining |
| AR 3808 | B | S11E16 | Declining |
| AR 3807 | BG | S16W45 | Growing |
| AR 3806 | BG | S11E06 | Declining |
| AR 3803 | A | N15W23 | Declining |

Updated @ 01:30 UTC (September 3)

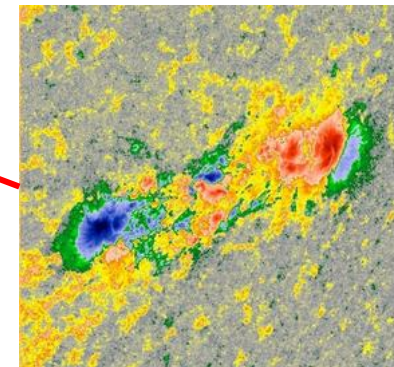
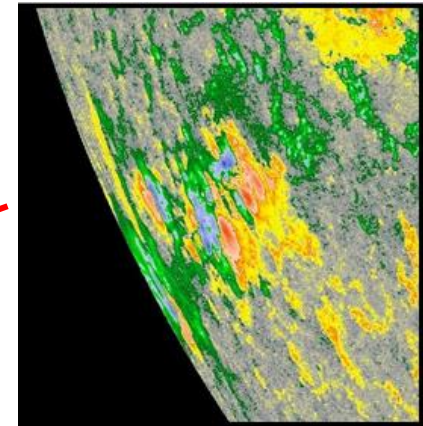
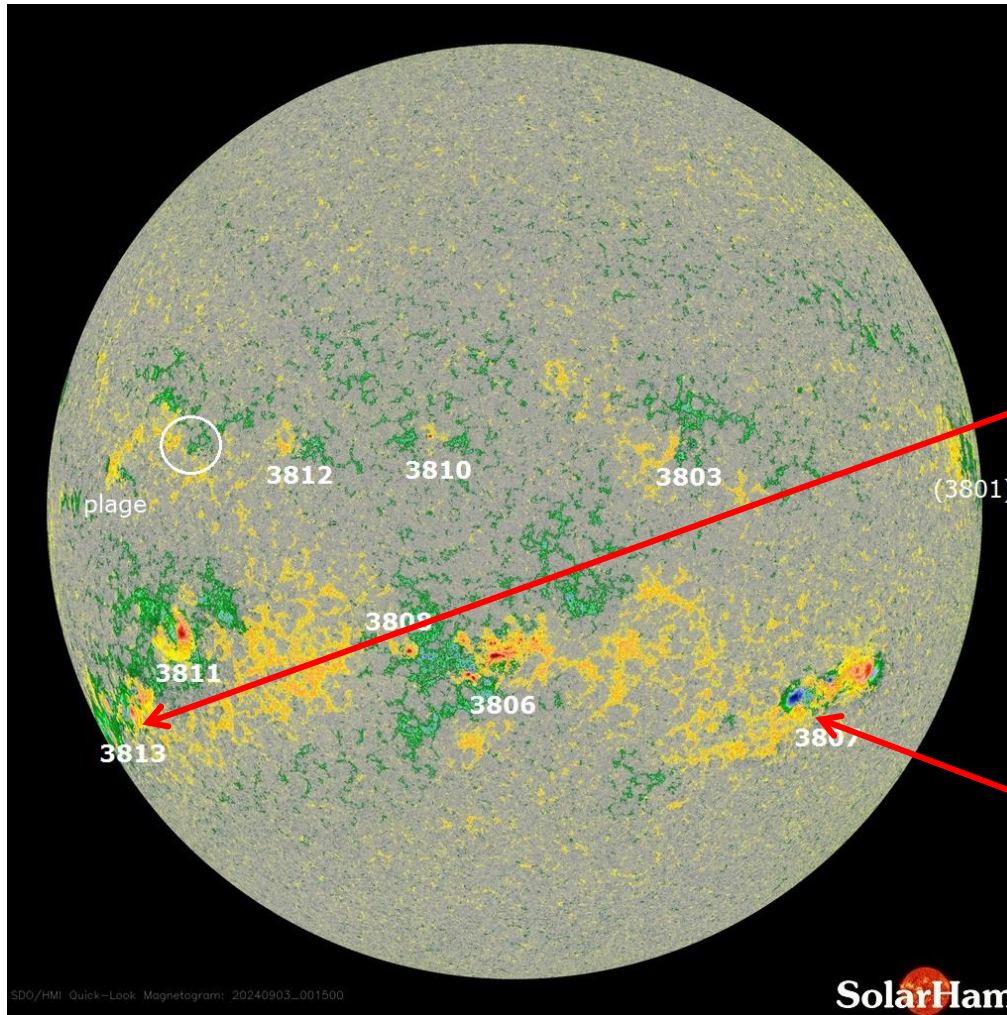
SolarHam



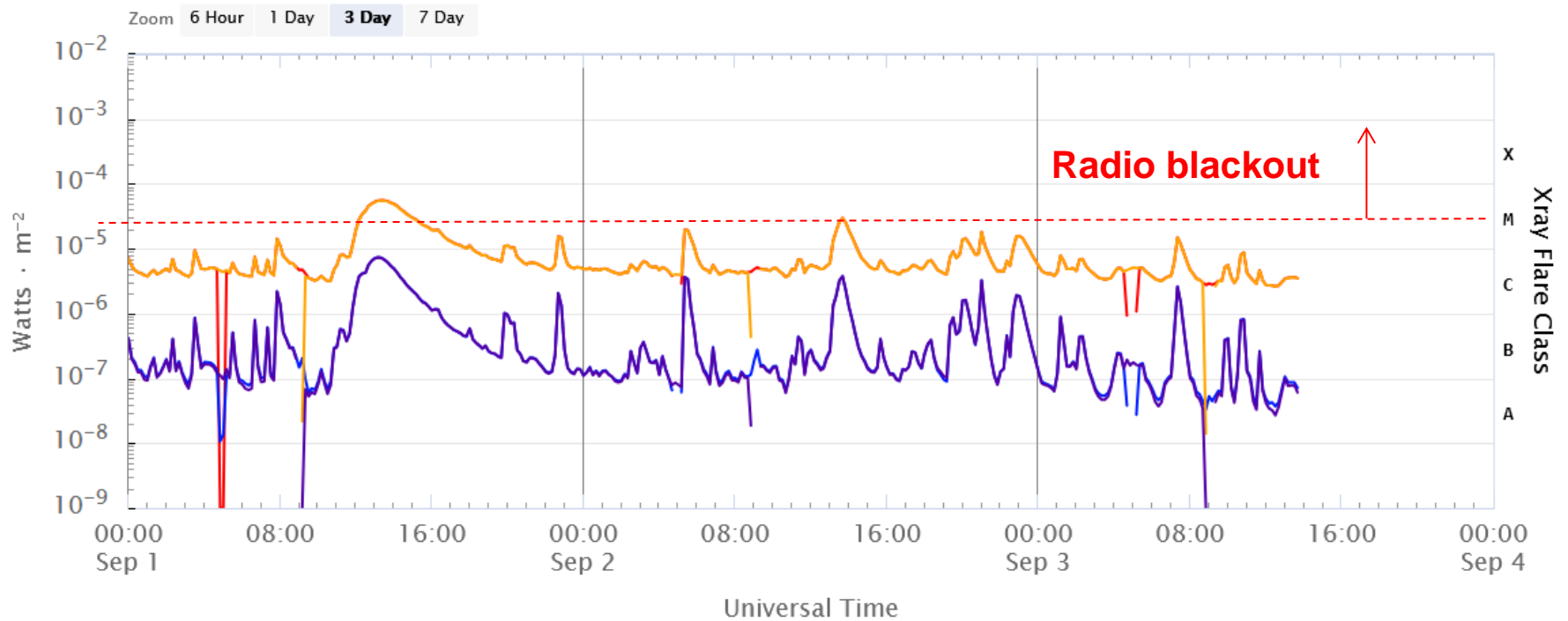
Sun Spots

Magnetogram Image (Updated September 3, 2024)

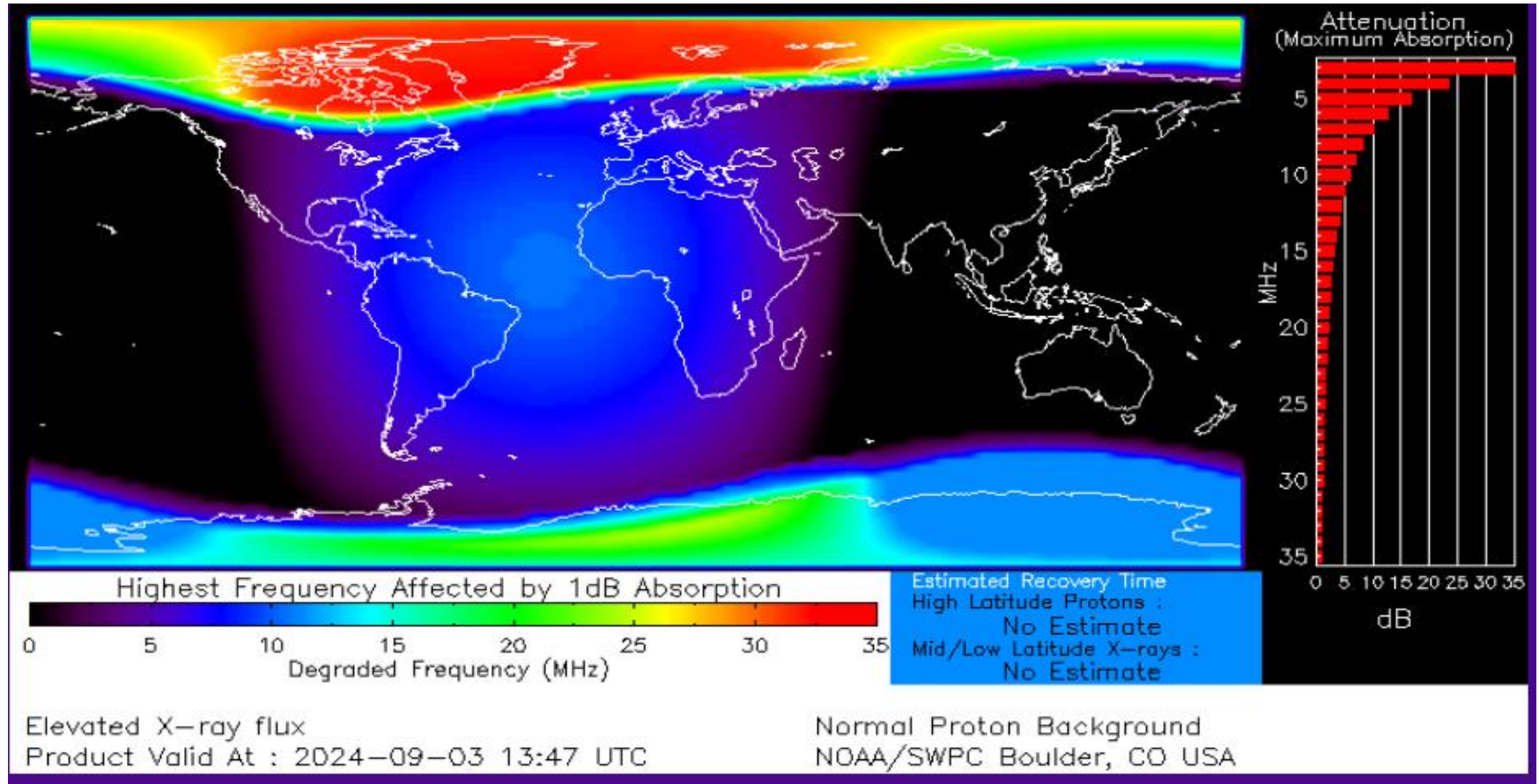
Uses Zeeman effect to measure polarity of magnetic fields



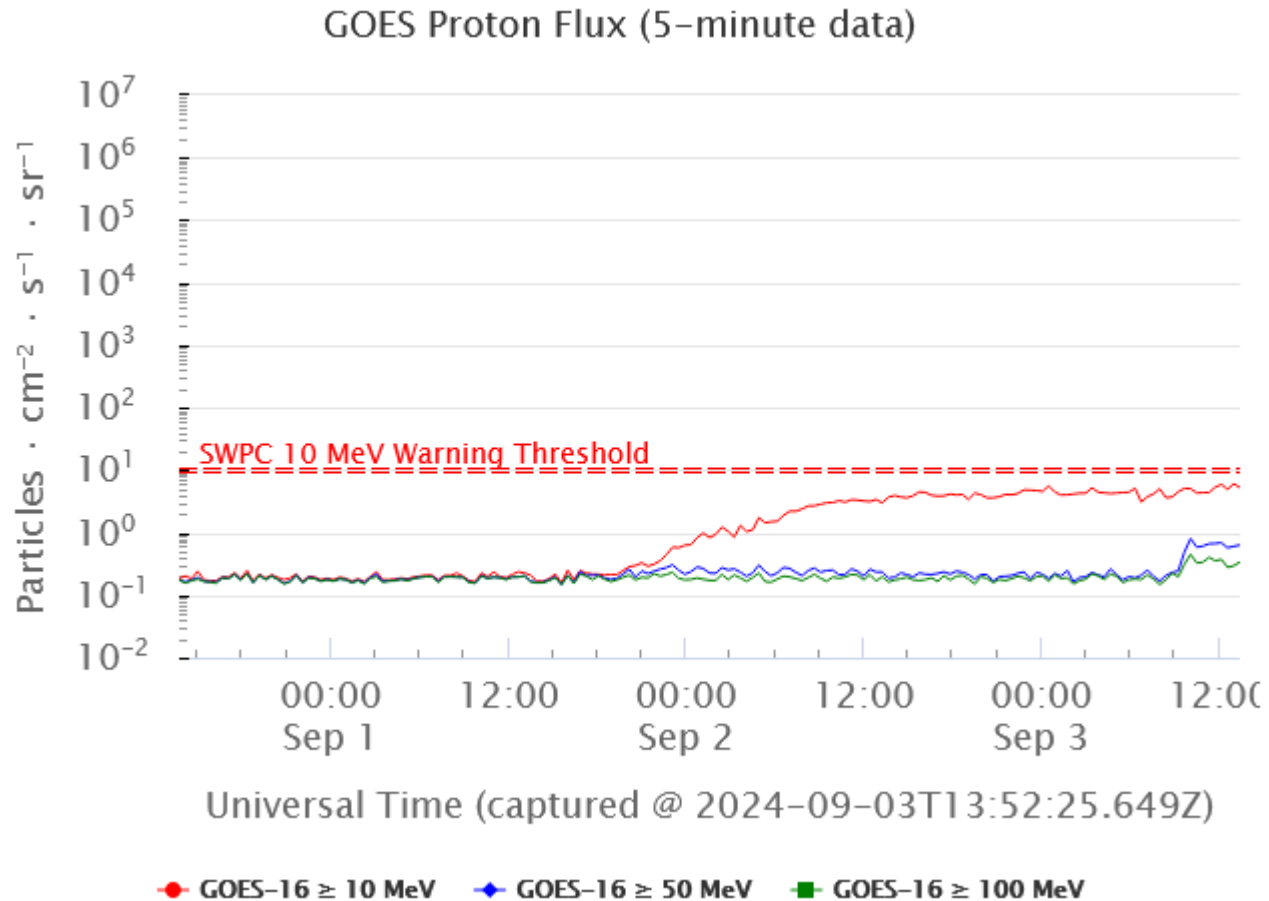
Solar X-Ray Flux: 1 – 3 SEP 2024



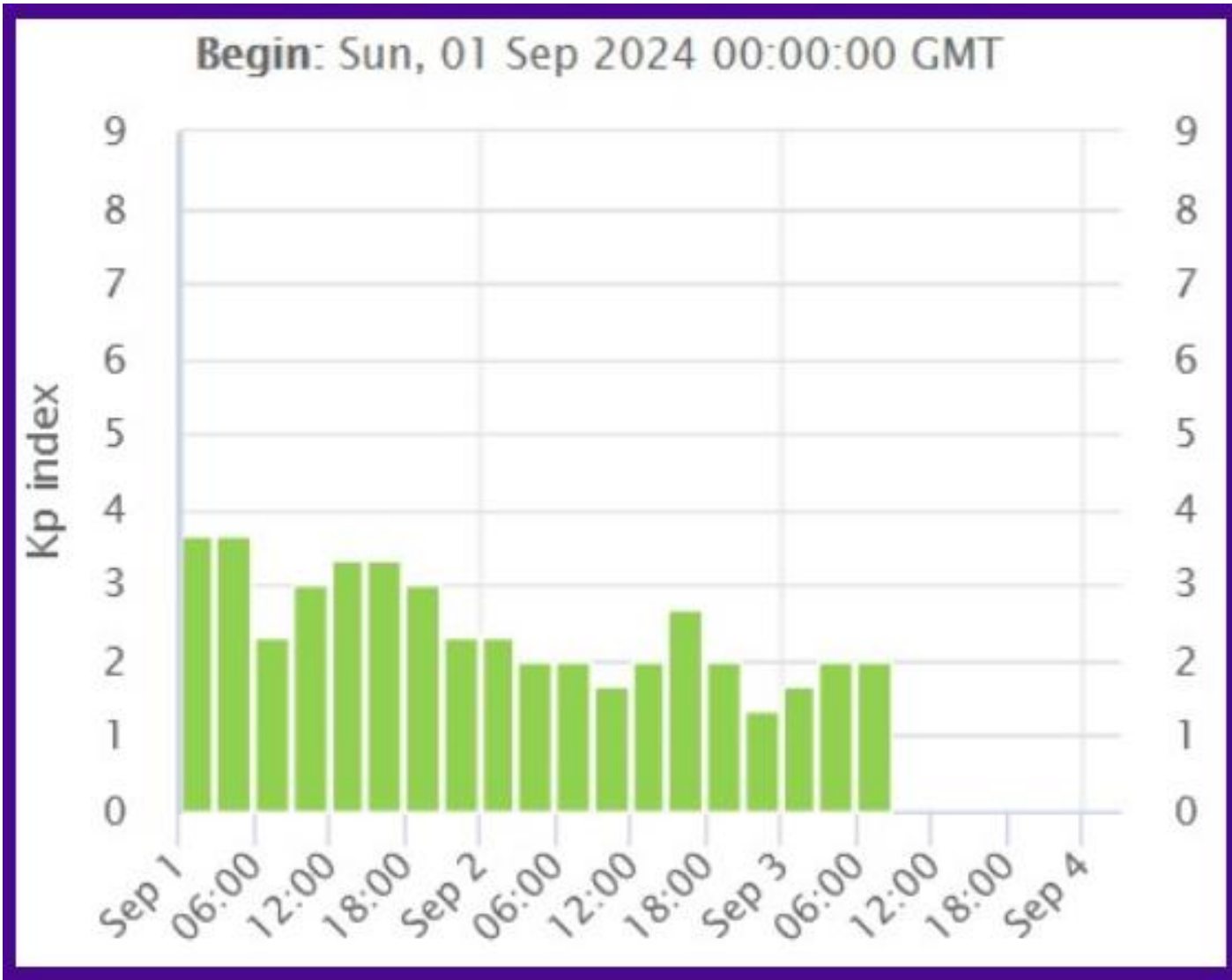
NOAA – D-Region Absorption Predictions



Proton Flux 1-3 SEP 2024



Earth's Geomagnetic Activity



Geomagnetic Conditions: 3 SEP 2024

Solar wind:

$B_z = 6 \text{ nT}$

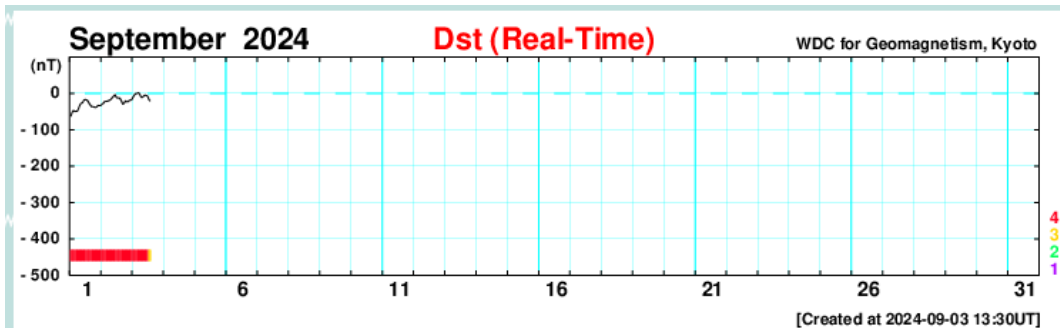
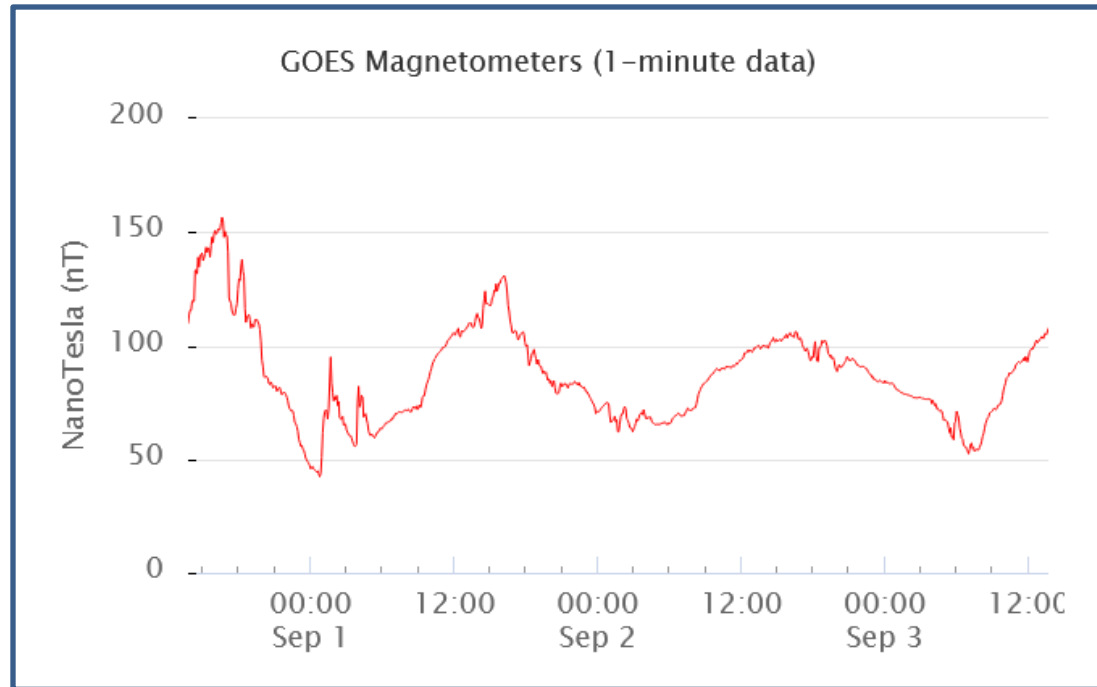
speed = 376 km/sec

density = 0.1 protons/cm³

(From – NOAA DSCOVR
In L1, Lagrange Point)

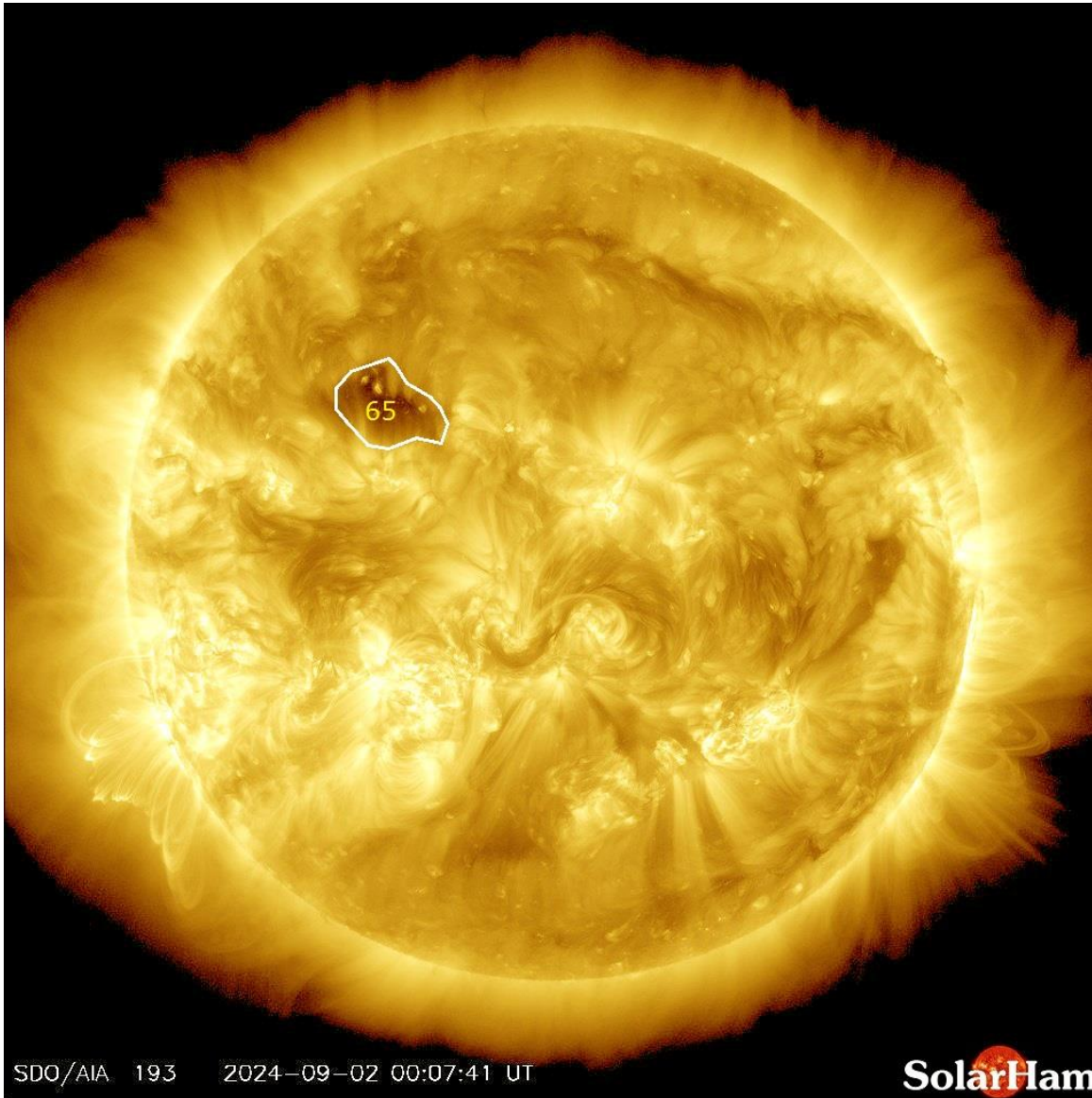
Dst = -21 nT (Ring Field)

(From – Data Analysis Center
For Geomagnetism and Space
Magnetism – Kyoto University)



From – GOES 16
In geostationary orbit

Coronal Holes – 3 SEP 2024



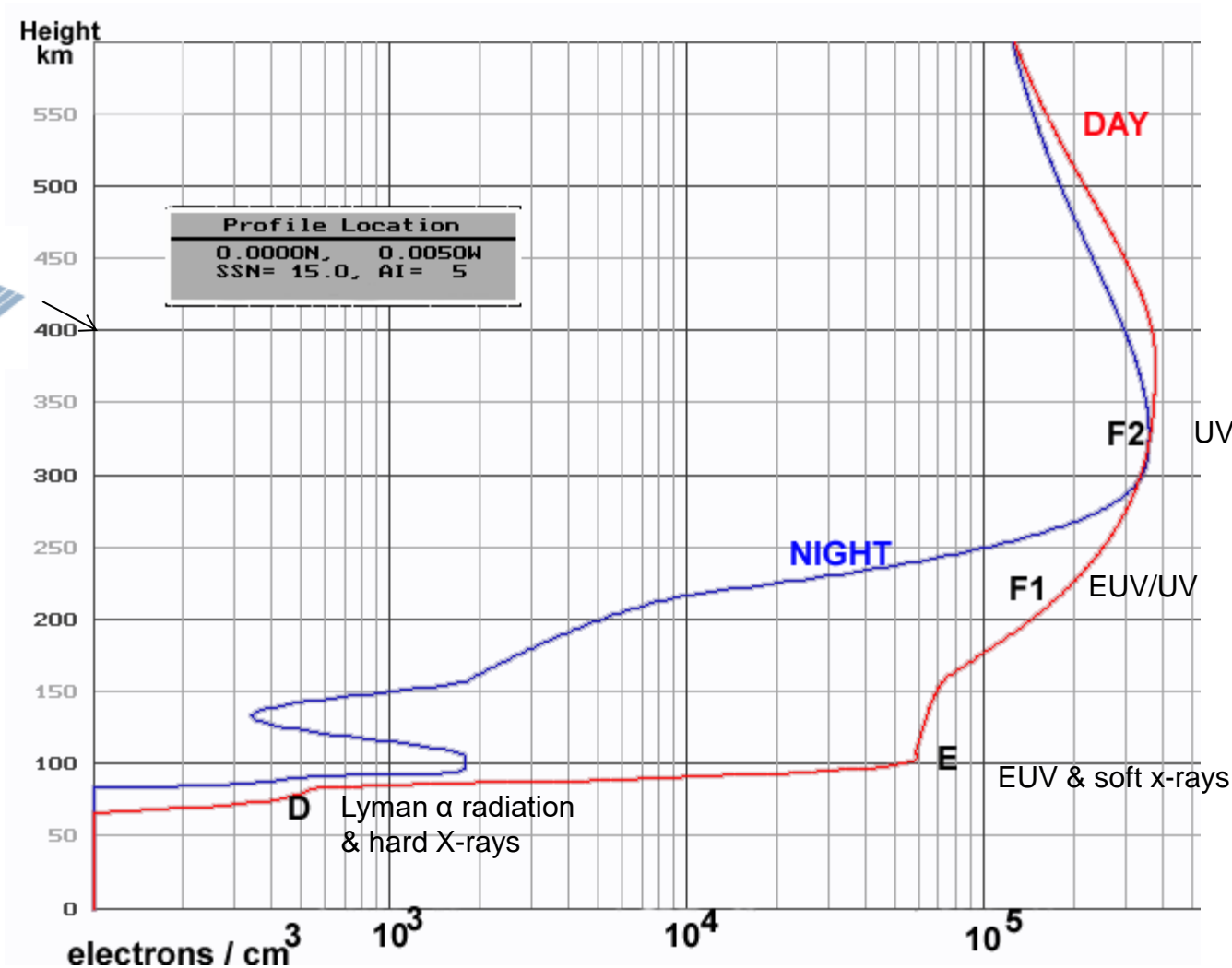
Analysis

Small coronal hole #65 is now beginning to face Earth.

Ionosphere Creation



Gravity
↓



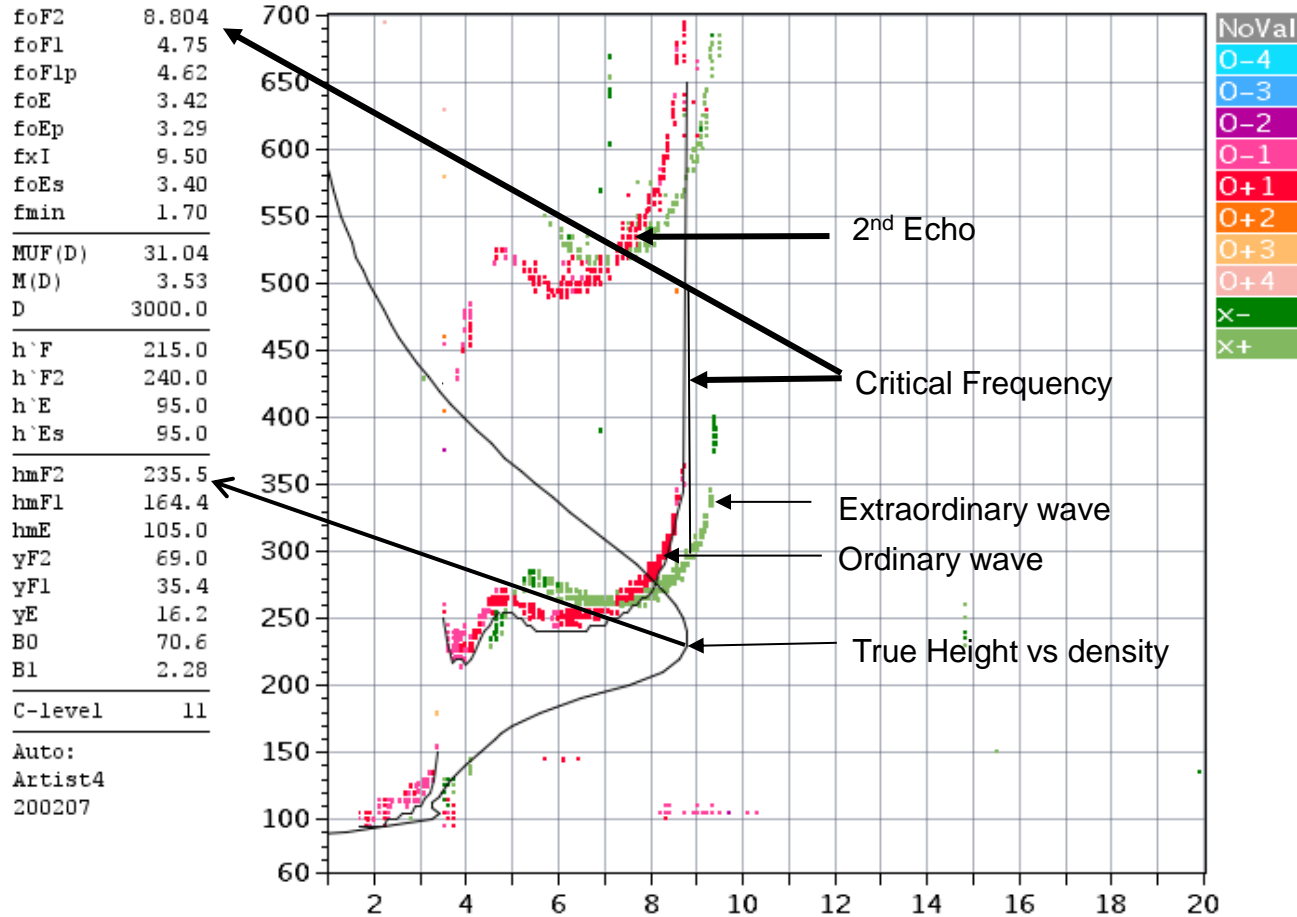
Solar Radiation
↓

Monoatomic oxygen

Ionogram Interpretation



Statio YYYY DAY DDD HHMMSS P1 FFS S AXN PPS IGA PS
 Austin 2013 Jan03 003 185505 MMM 1 045 100 32+ A1



D 100 200 400 600 800 1000 1500 3000 [km] ← Oblique propagation MUF Chart
 MUF 9.4 9.5 10.0 10.8 12.0 13.7 18.5 31.0 [MHz] i.e. 31 MHz to 3000 km

Austin Ionosonde – 3 SEP (0855 CDT)



Statio YYYY DAY DDD HHMMSS P1 FFS S AXN PPS IGA PS
 Austin 2024 Sep03 247 135505 MMM 1 045 100 33+ A1

foF2 10.650
 foF1 N/A
 foF1p N/A
 foE 2.62
 foEp 2.83
 fxI 11.60
 foEs 3.50
 fmin 1.10

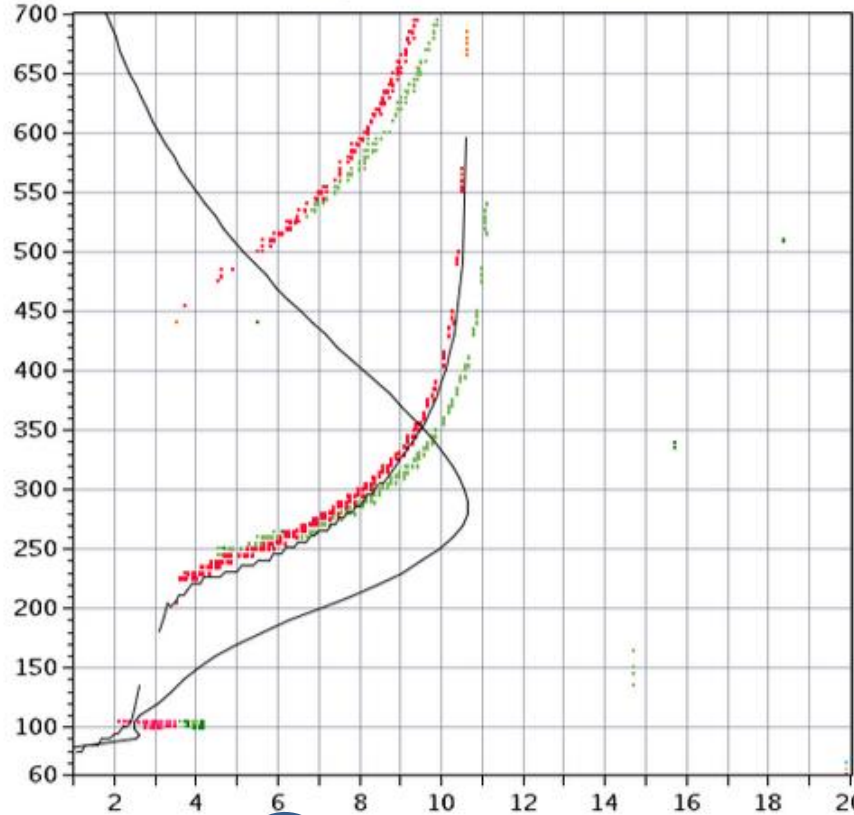
MUF(D) 31.78
 M(D) 3.00
 D 3000.0

h'F 181.0
 h'F2 N/A
 h'E 80.0
 h'Es 92.0

hmF2 283.3
 hmF1 N/A
 hmE 93.0
 yF2 106.4
 yF1 N/A
 yE 12.9
 BO 113.9
 B1 1.93

C-level 11

Auto:
 Artist4.5
 200311



NoVal
 0-4
 0-3
 0-2
 0-1
 0+1
 0+2
 0+3
 0+4
 X-
 X+

D 100 200 400 600 800 1000 1500 3000 [km]
 MUF 11.3 11.4 11.8 12.6 13.7 15.3 19.8 31.8 [MHz]
 AUSA90_2024247135505.MMM / 190fx120h 100 kHz 5.0 km / D6S-256 AUSA90 130 / 30.4 H 262.3 E IonCPng v. 1.0.11

Notable Recent Events

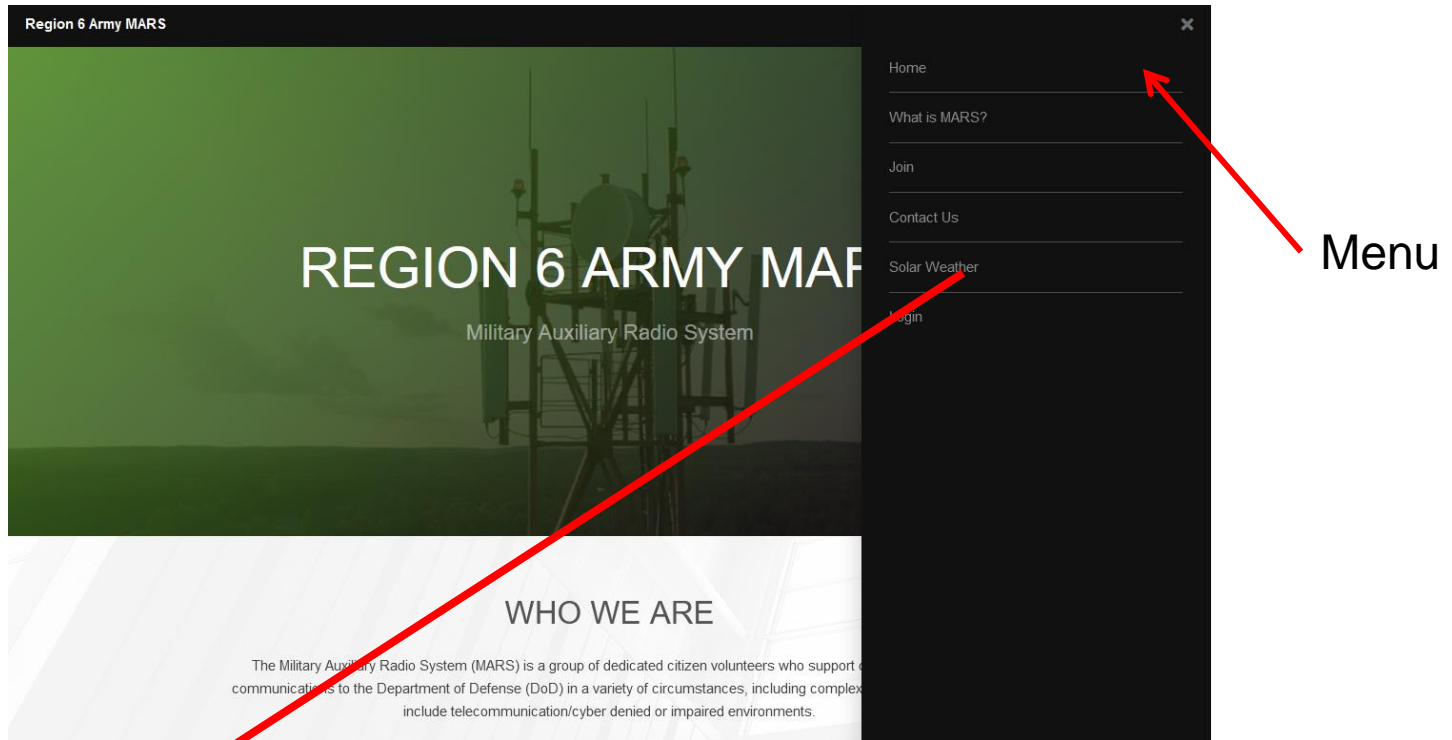
Large Solar Eruption

September 1, 2024 @ 12:20 UTC

A noteworthy eruption beginning around 12:00 UTC (Sept 1) was observed off the southeast limb. GOES-16 measured the flare at M5.5, but may have been stronger due to the location not being fully in view. A bright, fast moving coronal mass ejection (CME) **was produced** and should be directed away from Earth. We will get a better look at the source region during the next 24-48 hours.



Solar Weather Data



Solar Weather

Other Solar Weather Links of Interest

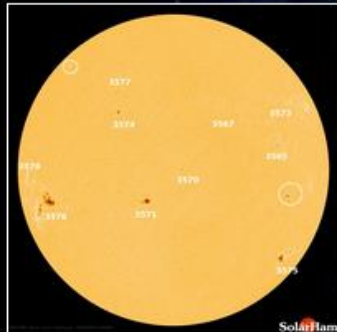
All Ionosondes

- [DIDBase](#) - Select Station List then EGLIN then year/month/day/time for Ionosonde plot.
- [NOAA Solar Weather](#) - Solar Weather plots of Kp and X-Ray and other solar emissions.
- [Solen Solar Weather](#) - Good general solar forecast from an individual.
- [Solar Ham](#) - SolarHam provides real time solar news, as well as consolidated data from various sources.

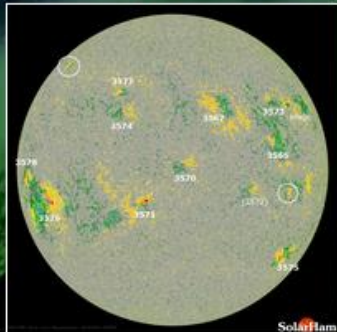
Space Weather for February 6, 2024

[Help Center + FAQ](#)

UTC Time 13:45:49 Tuesday



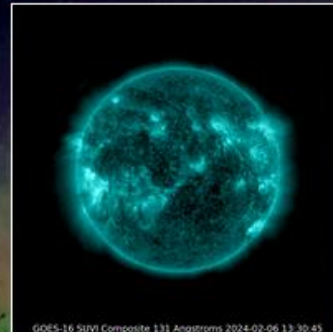
HMI Intensity
Latest | Movie | HARP



HMI Magnetogram
Latest | Movie



Coronal Holes
Analysis | Movie



SUVI 131 (Latest)
Movie



SUVI 304 (Latest)
Movies

Latest Imagery: [SDO](#) | [AIA](#) | [GOES](#) | [GONG](#) | [STEREO](#) | [LASCO](#)

Video: [SDO](#) | [SOHO](#) | [STEREO](#) | [Heliviewer](#) | [YouTube](#)

[Solar Report](#)

[Space Weather Alerts](#) >

[Real Time Solar Wind](#)

[Protons and Electrons](#)

[Satellite Environment](#) >

Note: URL is now
<https://solarham.com/>

See New Addition

Welcome to the SolarHam Help Center

Below you will find an explanation of frequency used terms regarding space weather used on the SolarHam website. Please note that this section is currently being built and will contain more information and answers to frequently asked questions soon.

<https://www.spaceweather.com/>

Current Conditions

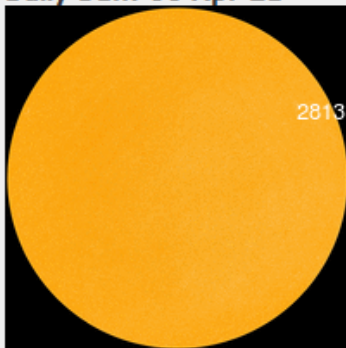
Solar wind

speed: **314.8** km/sec
density: **9.9** protons/cm³
more data: [ACE](#), [DSCOVR](#)
Updated: Today at 1225 UT

X-ray Solar Flares

6-hr max: **A1** 1027 UT Apr06
24-hr: **A1** 1515 UT Apr05
[explanation](#) | [more data](#)
Updated: Today at: 1230 UT

Daily Sun: 06 Apr 21



Sunspot AR2813 is decaying, and poses no threat for strong flares.
Credit: SDO/HMI

FLYING TO THE VOLCANO: Iceland's Geldingadalur volcano has turned into an popular tourist attraction—especially since auroras were sighted [above the glowing lava](#). Early this morning, Tuesday, April 6th, Brian Emfinger saw auroras before he even reached the Reykjanes peninsula:



QUESTIONS?

Lewis Thompson

W5IFQ@att.net

512-587-9944