SOLAR WEATHER
7 JAN 2025

Lewis Thompson
W5IFQ

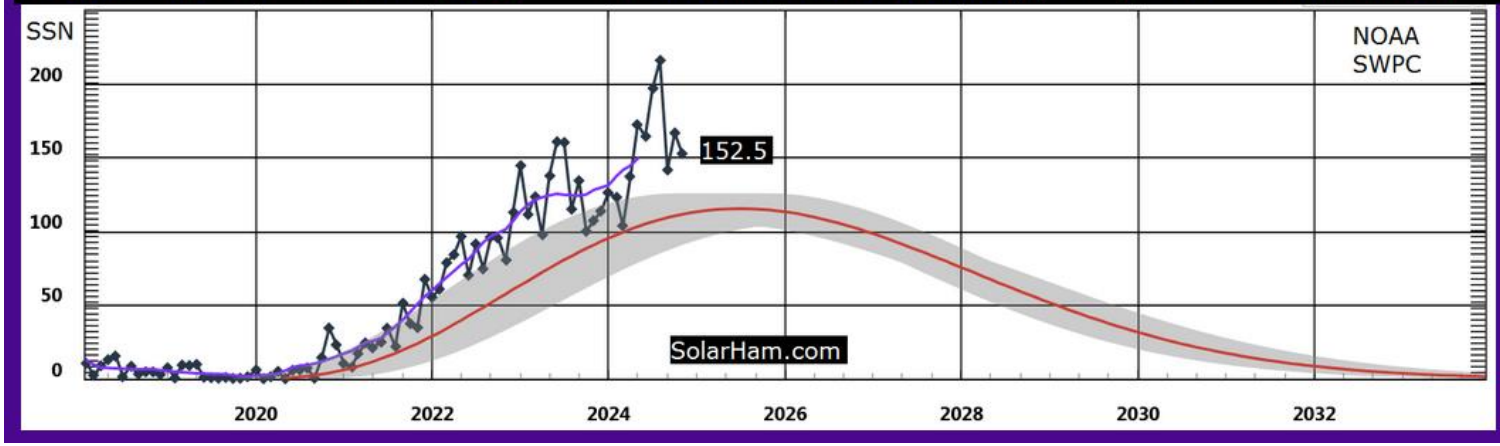
Taken by Robert Trejo on January 2, 2025 @ Healy, Alaska

Solar Cycle 25 Progression

(Updated December 3, 2024)

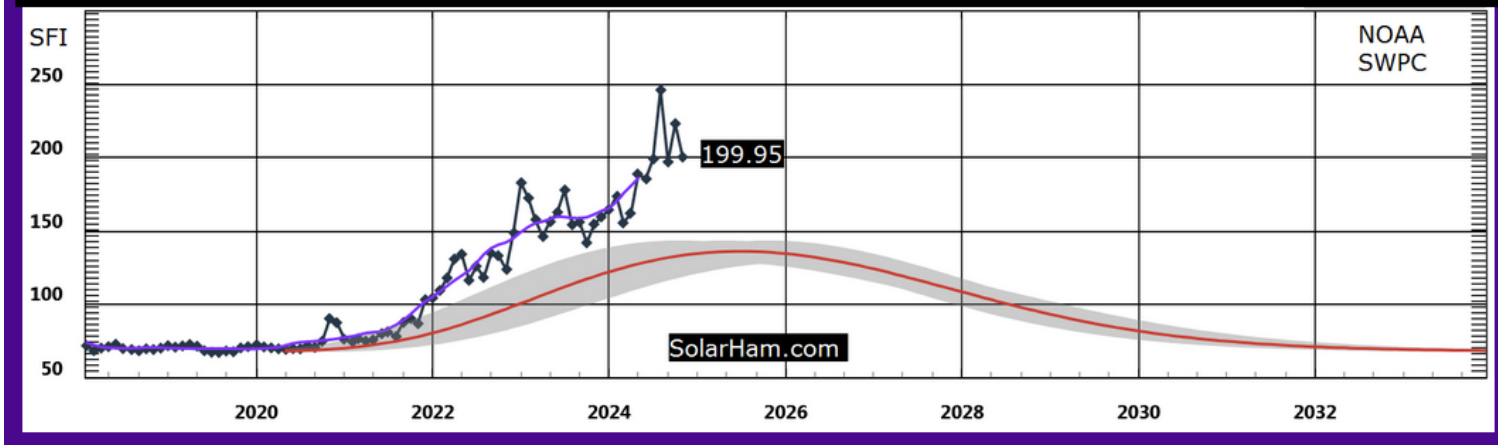
Sunspot Number Progression (November 2024)

Predicted SSN: **111.3** Actual: **152.5** Latest Smoothed Predicted SSN (5/2024): **103.1** Actual: **149.1**



10.7cm Solar Flux Progression (November 2024)

Predicted SFI: **133.1** Actual: **199.9** Latest Smoothed Predicted SFI (5/2024): **127.3** Actual: **185.7**



SolarHam

Indices: (1/7 @ 00:35 UTC) SFI 172 ▲3 SSN 154 ▼24 AREA 720 ▼110

3 Day Geomagnetic Forecast

Jan. 7	Jan. 8	Jan. 9
3-4 (G0)	2-3 (G0)	2 (G0)
Max Kp		
M-Lat 15%	M-Lat 05%	M-Lat 01%
H-Lat 55%	H-Lat 30%	H-Lat 20%
Probabilities		

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

Detailed Forecast

Current Moon Phase:
56% Illumination
Waxing Crescent

Flare Events (M2+) Past 48 Hours

M4.8	AR 3947	1/6/25 @ *16:24 UTC*
└ Type II RE (445 km/s) IV		
M3.1	AR 3947	1/6/25 @ *01:52 UTC*
M2.5	AR 3947	1/5/25 @ *15:37 UTC*

Event Report | Top Solar Flares

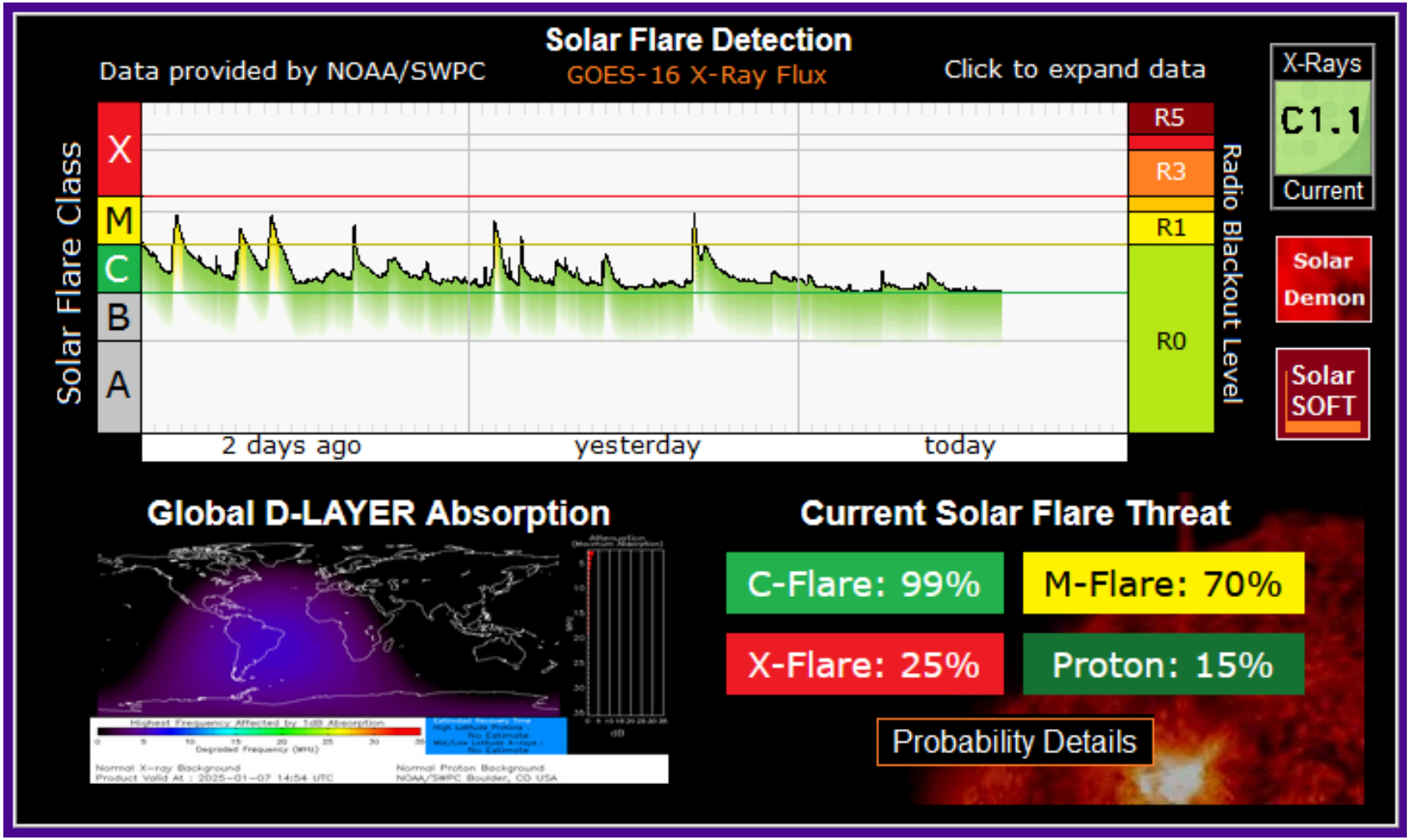
Visible Sunspot Regions

Sunspot Summary | SRS

AR 3951	A	S14W01	*Declining*
AR 3950	A	S18E36	*Declining*
AR 3948	B	N16W09	*Stable*
AR 3947	BGD	N11E17	*Declining*
AR 3945	B	S09W10	*Declining*
AR 3944	B	S14W48	*Declining*
AR 3943	B	S16W21	*Declining*

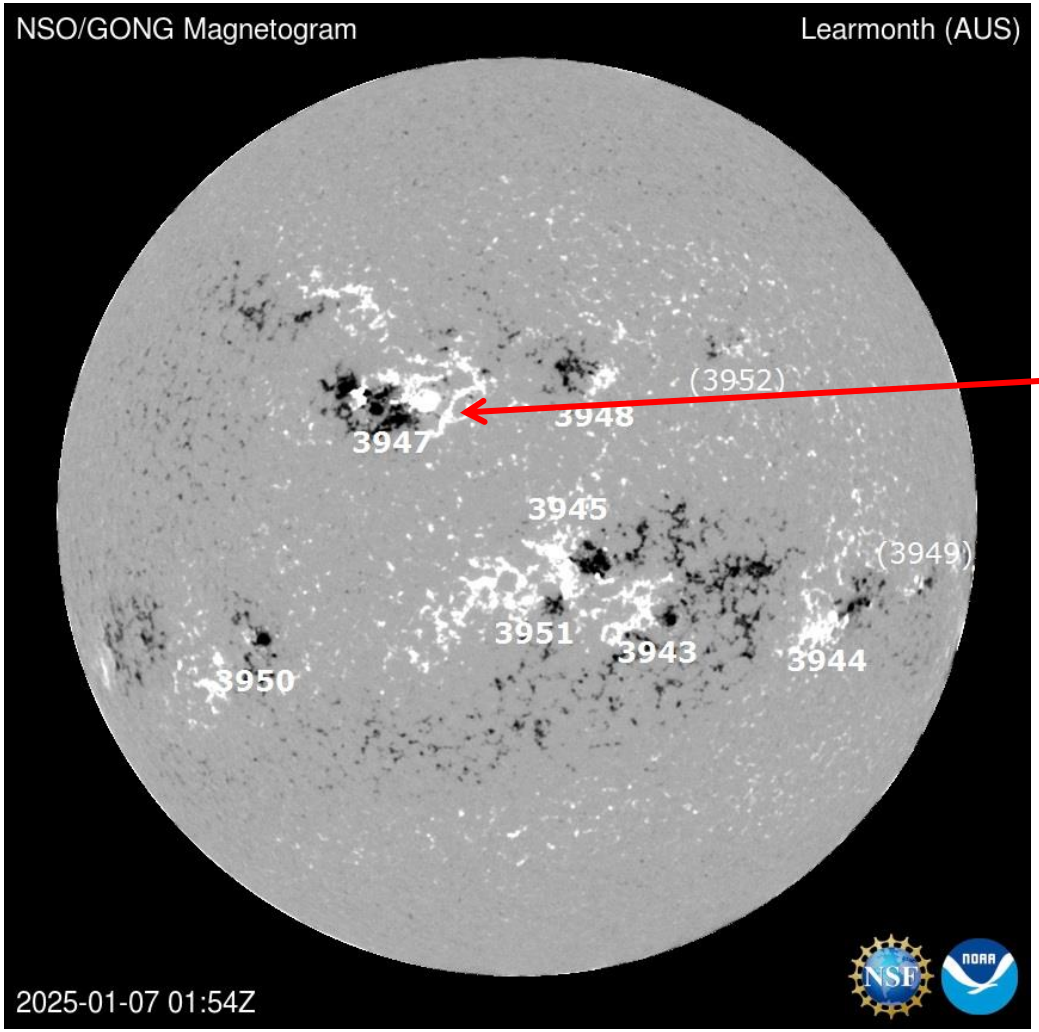
Updated @ 00:45 UTC (January 7)

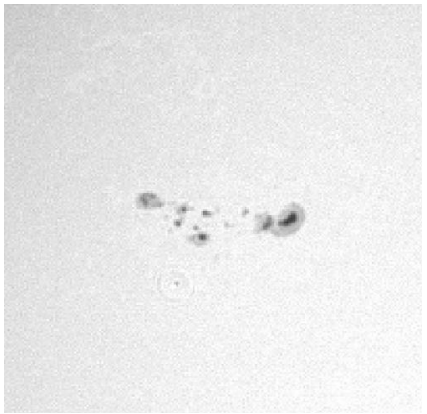
SolarHam


Solar Flare Detection
Data provided by NOAA/SWPC
GOES-16 X-Ray Flux
Click to expand data
Solar Flare Class
X
M
C
B
A
R5
R3
R1
R0
Radio Blackout Level
2 days ago
yesterday
today
X-Rays
C1.1
Current
Solar Demon
Solar SOFT
Global D-LAYER Absorption
Current Solar Flare Threat
C-Flare: 99%
M-Flare: 70%
X-Flare: 25%
Proton: 15%
Probability Details

Sun Spots

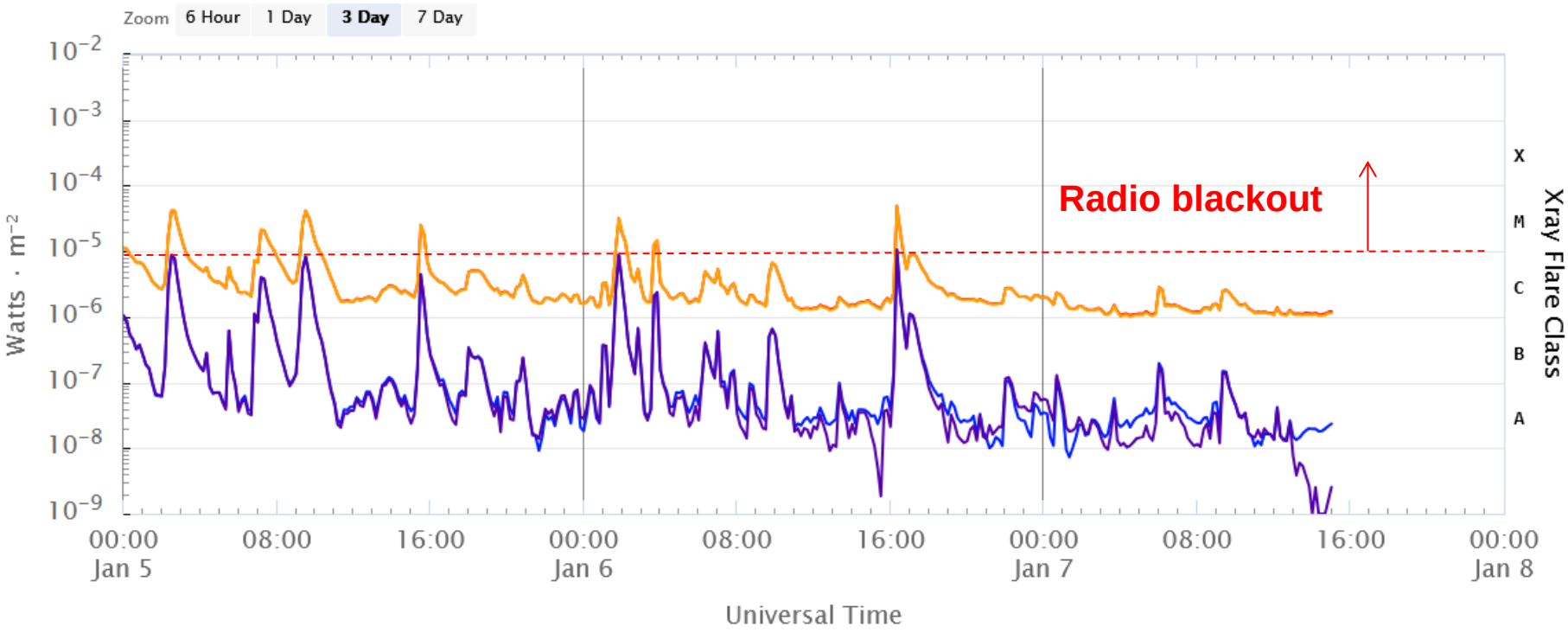
Magnetogram Image (Updated January 7, 2025)



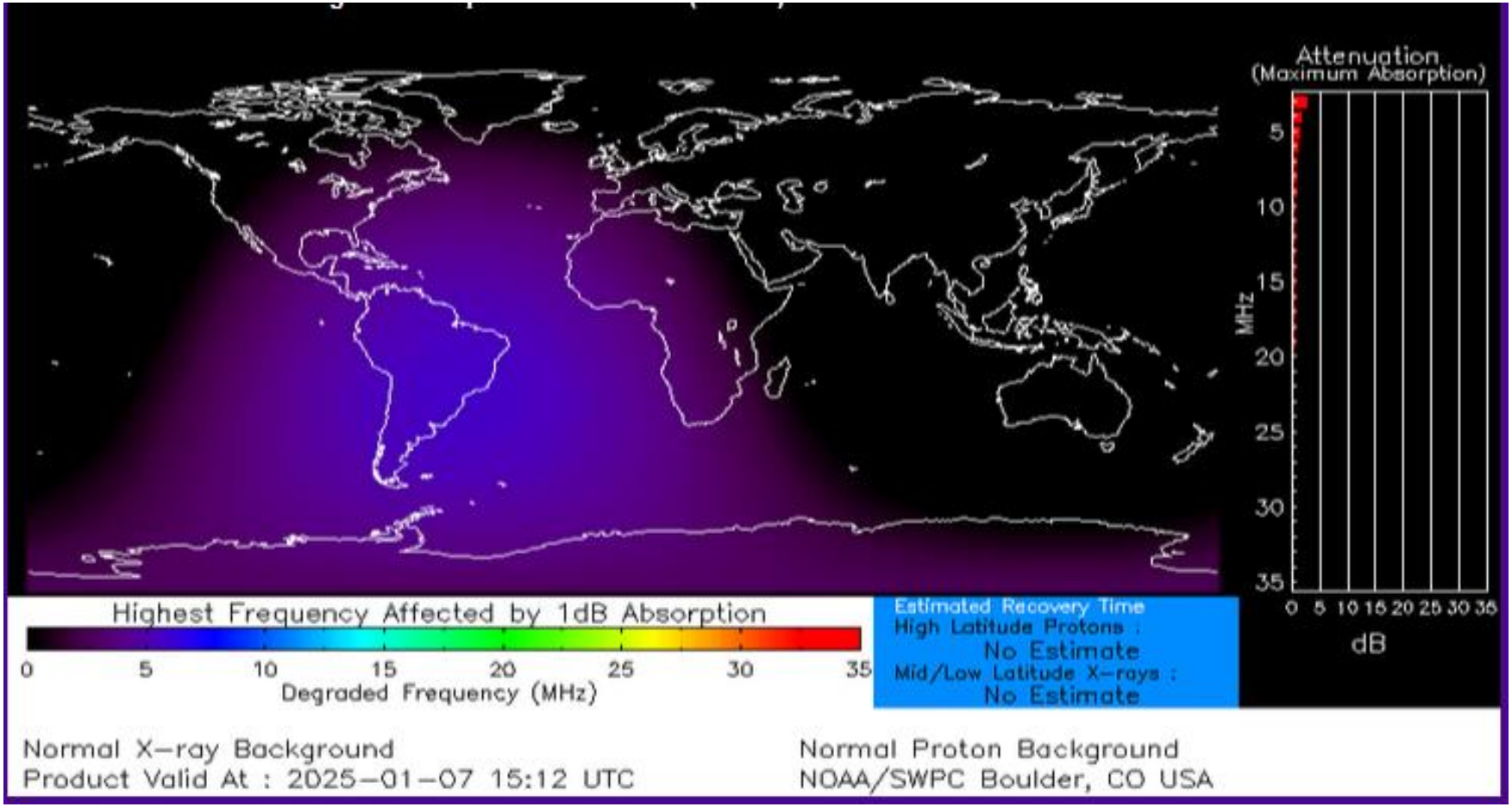


Beta-Gamma-Delta

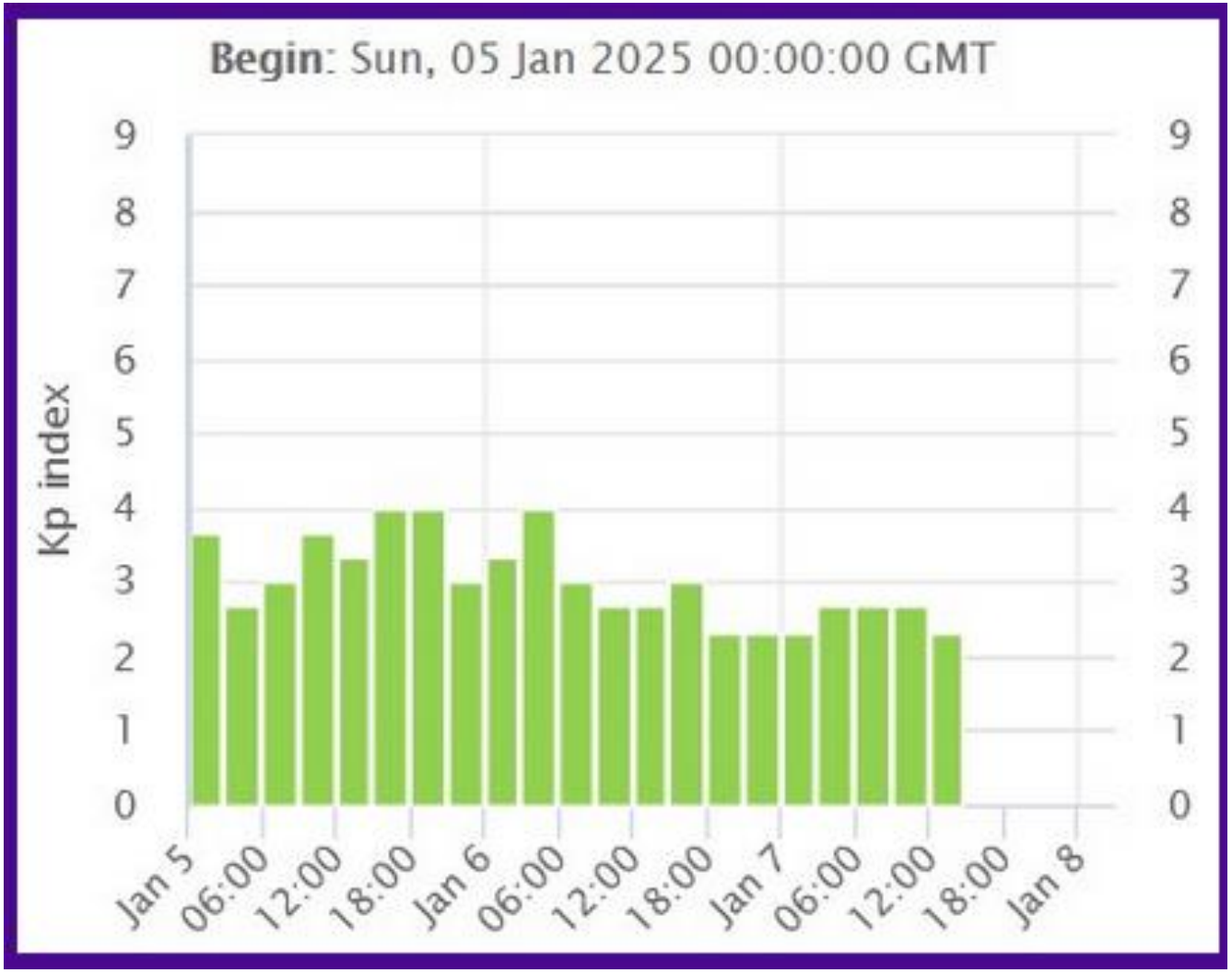
Solar X-Ray Flux: 5 – 7 JAN 2025



NOAA – D-Region Absorption Predictions



Earth’s Geomagnetic Activity



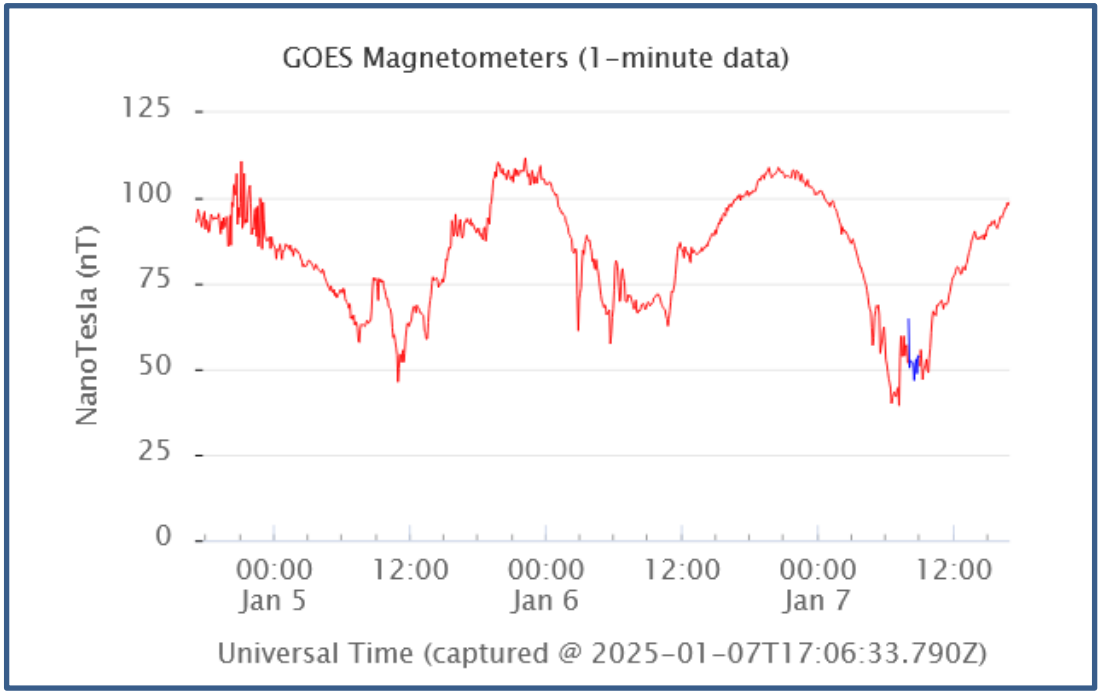
Geomagnetic Conditions: 7 JAN 2025

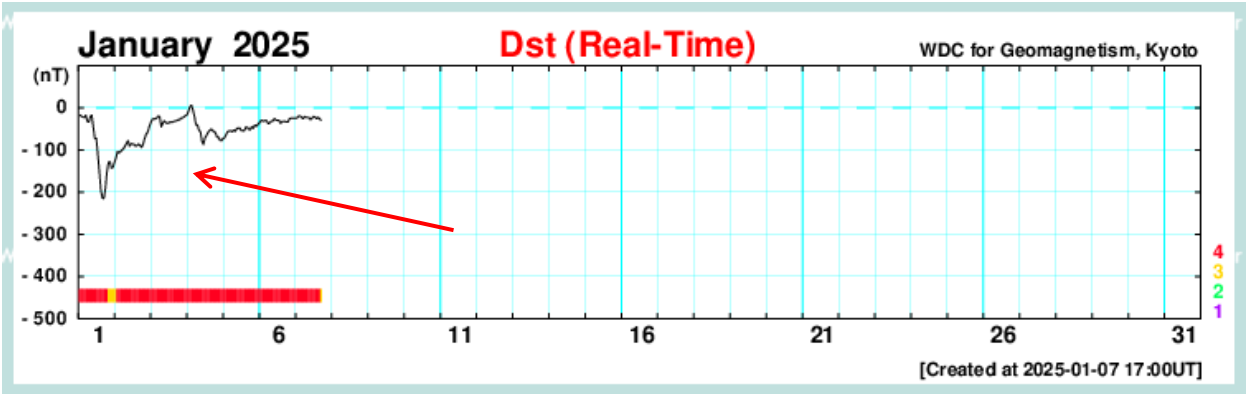
Solar wind:
Bz = -4 nT
speed = 494 km/sec
density = 2.1 protons/cm^3

(From – NOAA DSCOVR
In L1, Lagrange Point)

Dst = -26 nT (Ring Field)

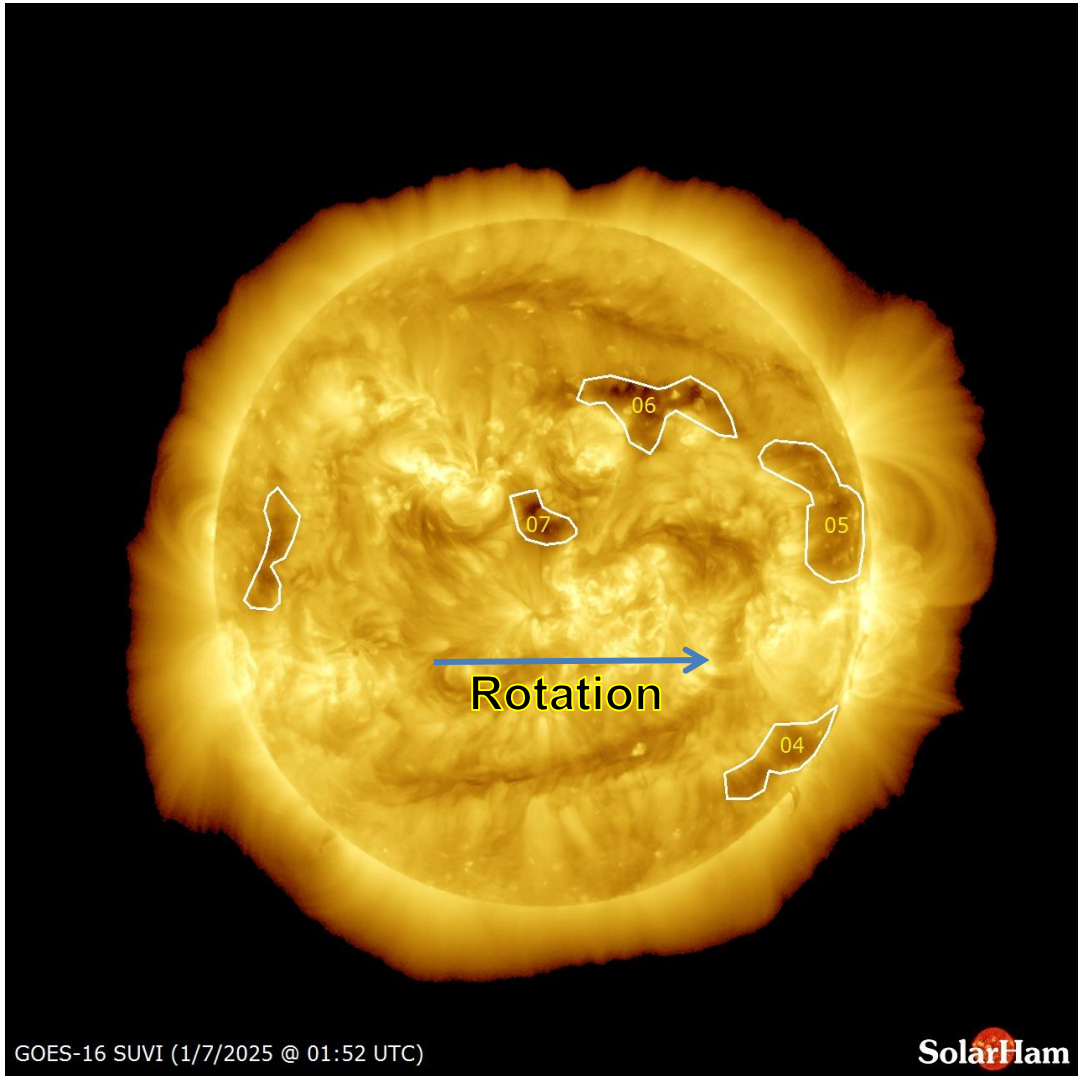
(From – Data Analysis Center
For Geomagnetics and Space
Magnetism – Kyoto University)





From – GOES 16
In geostationary orbit

Coronal Holes – 7 JAN 2025

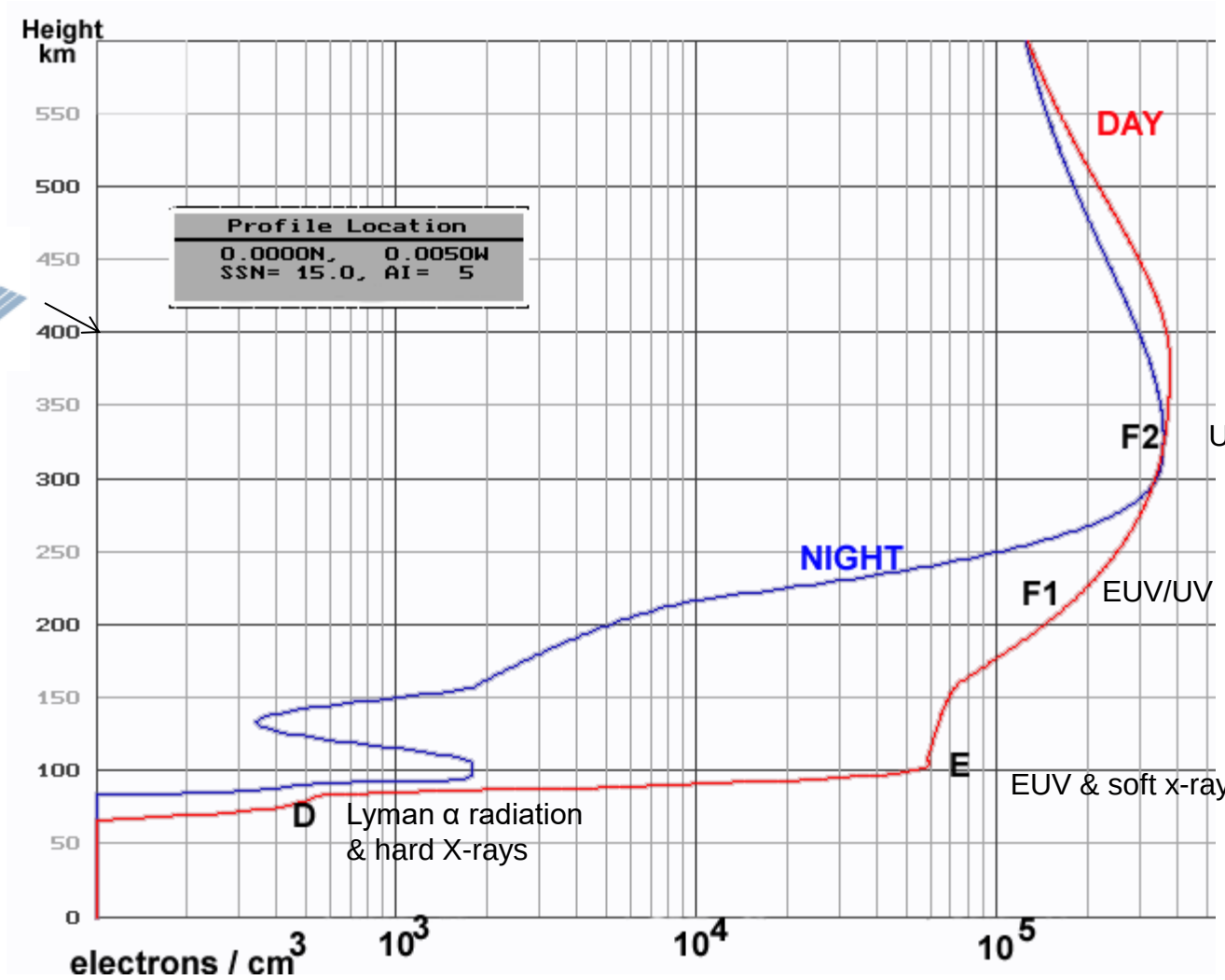


Analysis

Small coronal holes #06 and 07 are now facing Earth.

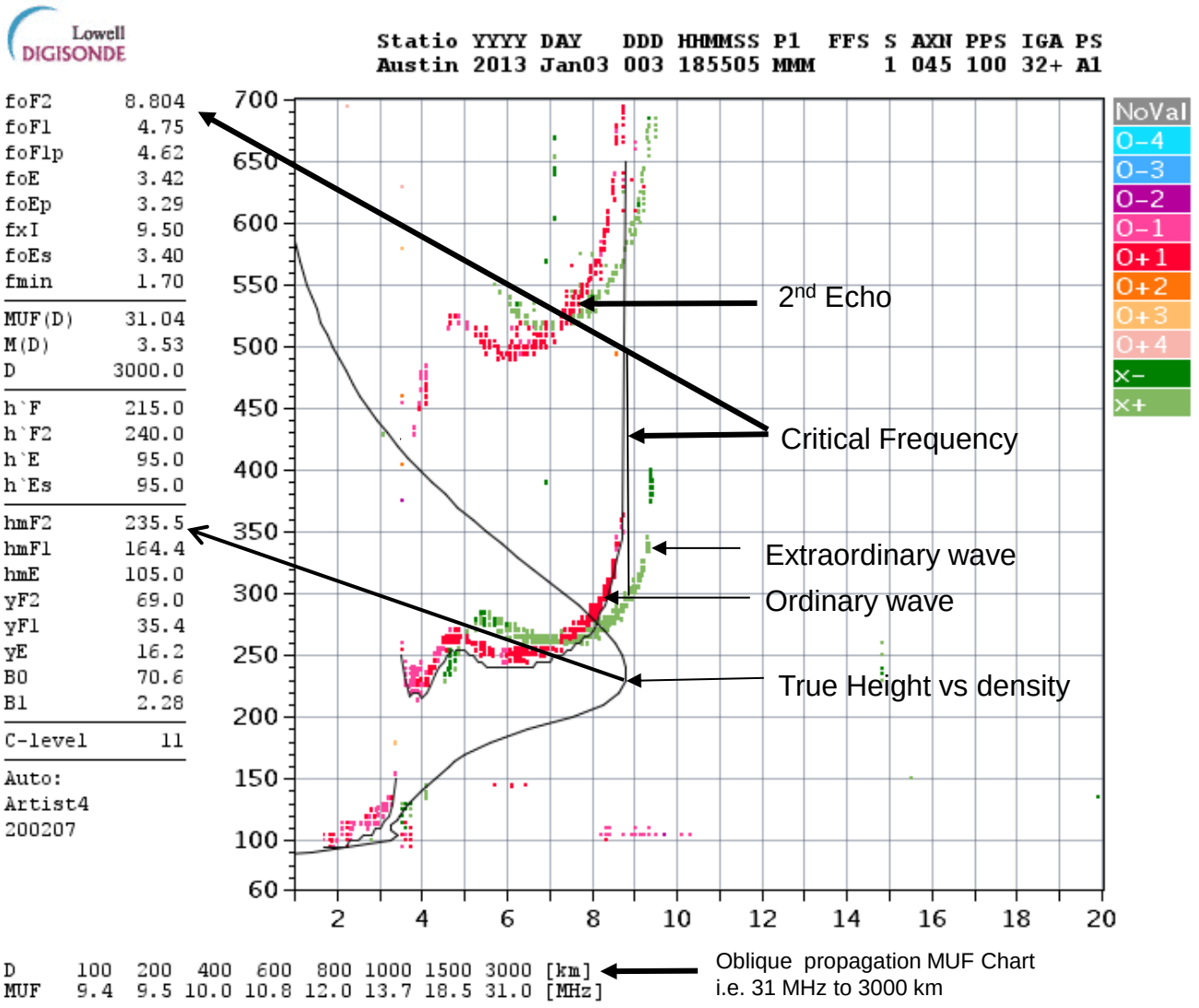
Ionosphere Creation

Gravity

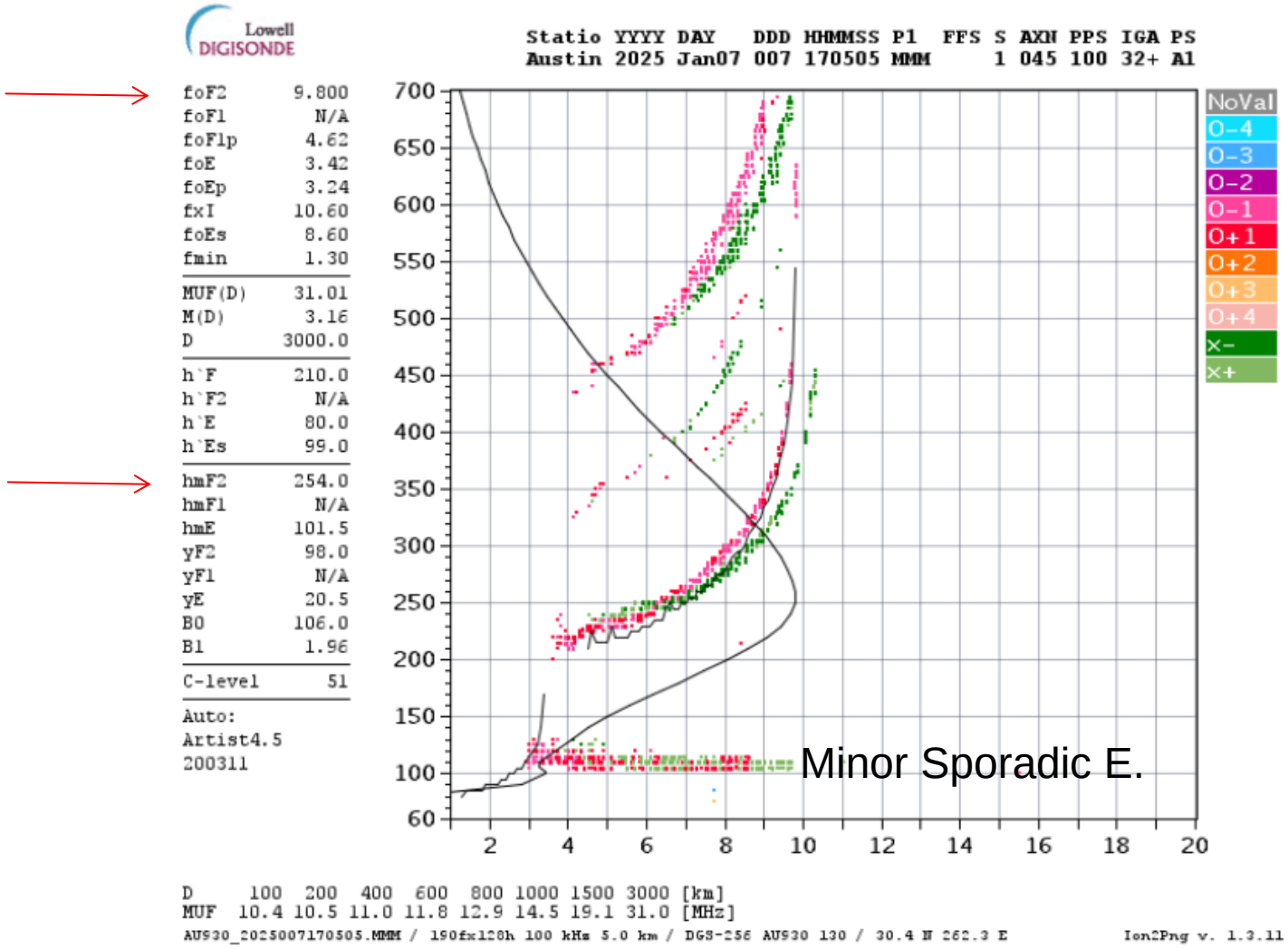


Solar Radiation

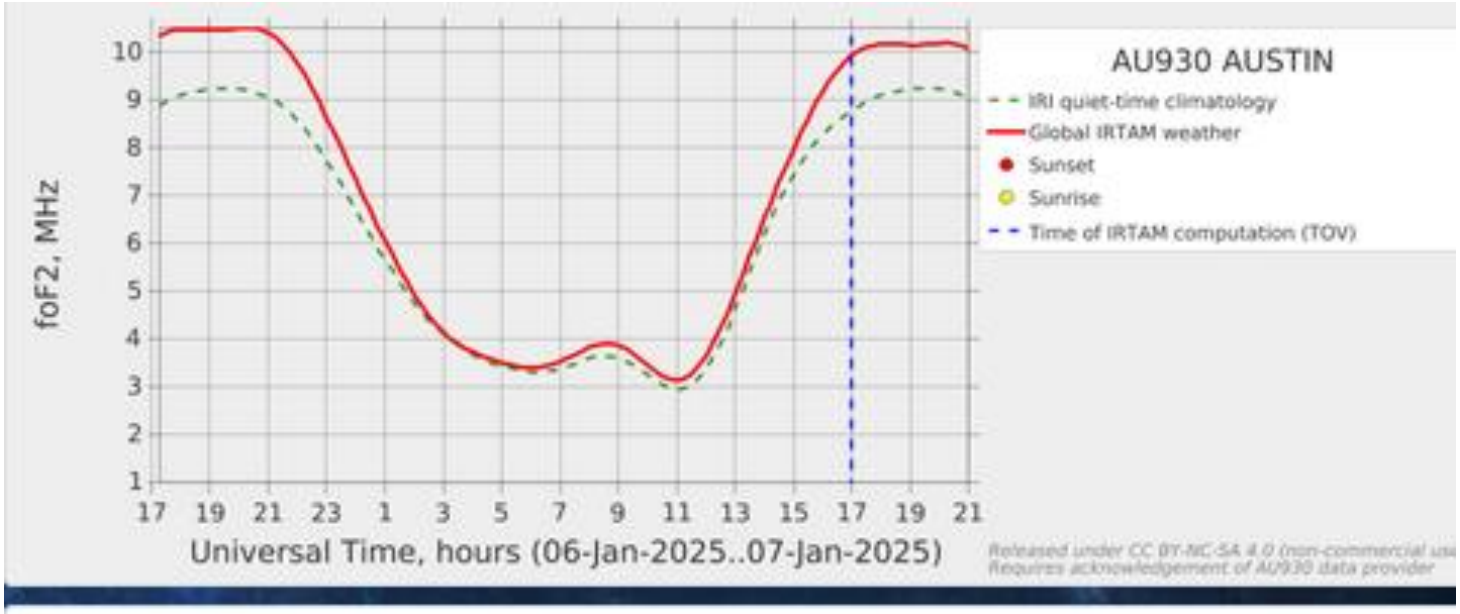
Ionogram Interpretation



Austin Ionosonde – 7 Jan (11:12 CST)



GAMBIT – Trending Chart for Austin Ionosonde



Notable Recent Events

CME – 1 Jan 2025

Severe New Year's Geomagnetic Storm

January 1, 2025 @ 10:00 UTC (UPDATED)

Happy New Year!

Geomagnetic storming continues on Wednesday morning and the moderate G2 storm threshold was reached at 10:44 UTC (Jan 1). The Bz component of the interplanetary magnetic field (IMF) is currently tipped sharply south (-17 nT) and the solar wind speed is moving past Earth just above 500 km/s. Visible aurora is also being reported across many locations at higher latitudes.

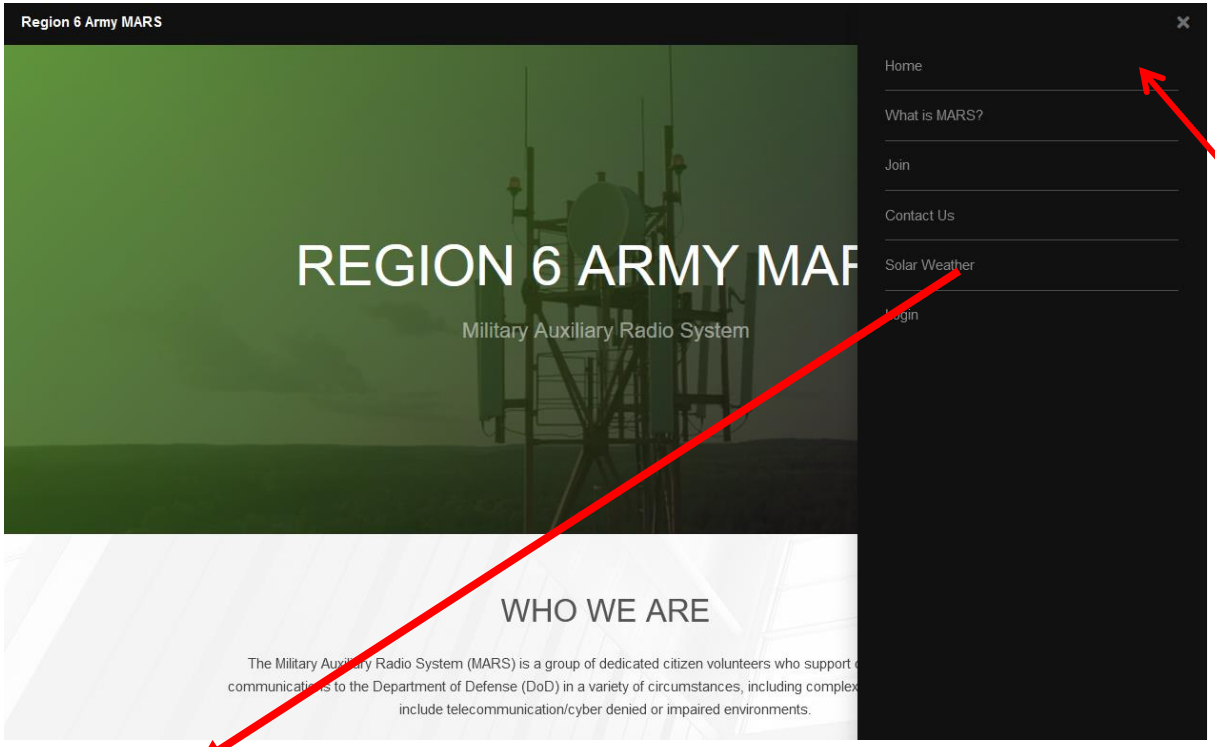
UPDATE: The Bz component of the interplanetary magnetic field (IMF) is now tilted -20 nT south. This is allowing energy from the solar wind to more freely interact with Earth's upper atmosphere. A **strong (G3) geomagnetic storm** is currently in progress. Viewers at middle to high latitudes should be alert for visible aurora if local weather and light conditions allow.

UPDATE #2: The ongoing storm has intensified. The **severe (G4) geomagnetic storm** threshold was reached at 17:41 UTC (Jan 1). Visible aurora is likely happening now at middle latitudes where it is dark outside. It should also be noted that the 6 meter (50 MHz) ham radio band is also now open for stations at higher latitudes to make contacts via the aurora..

The amazing aurora photo below was captured by **Marketa Murray** and **The Aurora Chasers** from Alaska. Thanks for sharing!

ALERT: Geomagnetic K-index of 7
Threshold Reached: 2025 Jan 01 1405 UTC
Synoptic Period: 1200-1500 UTC
Active Warning: Yes
NOAA Scale: G3 - Strong

Solar Weather Data



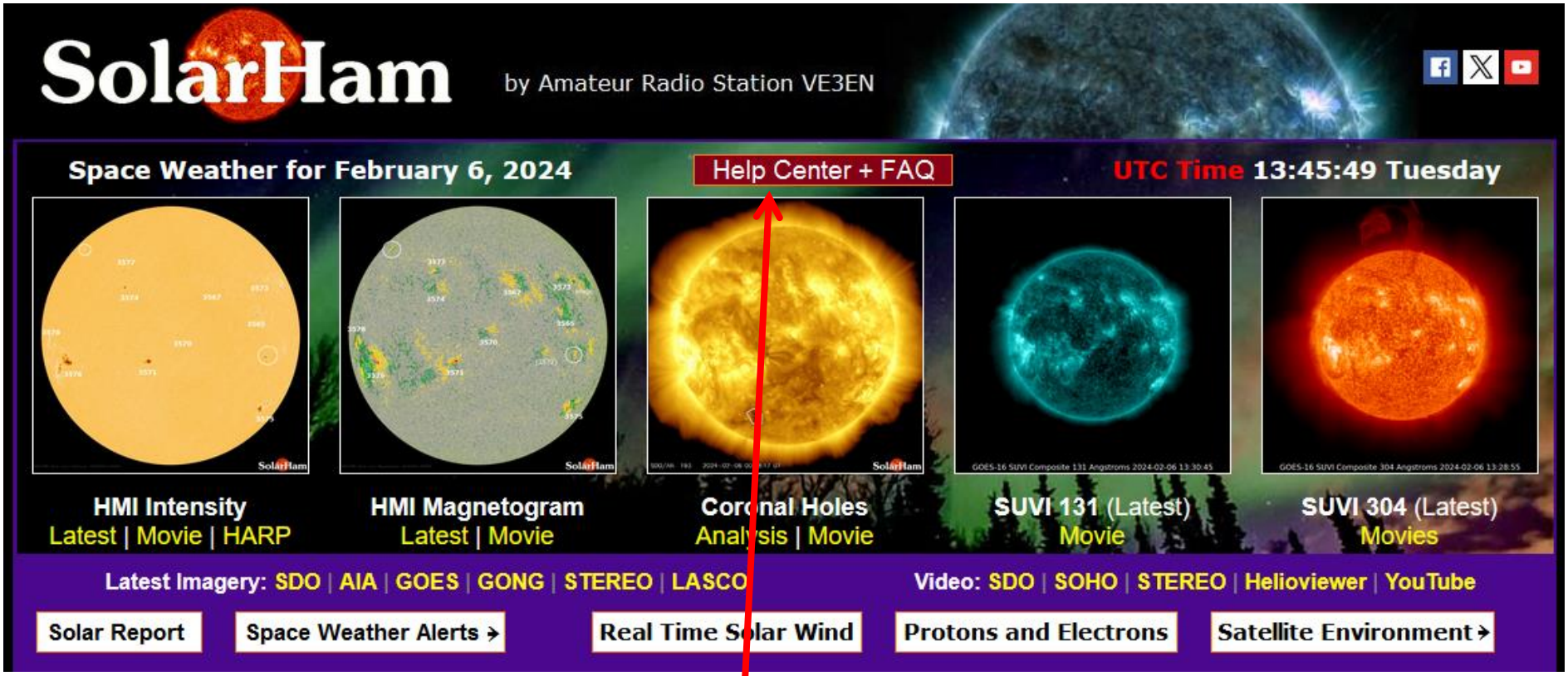
Menu

Solar Weather

Other Solar Weather Links of Interest

All Ionosondes GAMBIT URL

- 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.



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.

spaceweather.com

News and information about the Sun-Earth environment

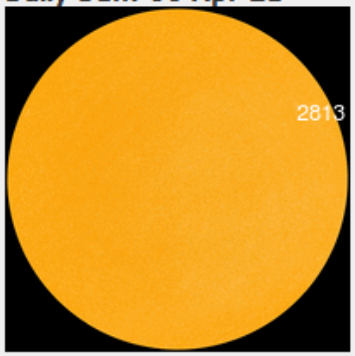
https://www.spaceweather.com/

Current Conditions

Solar wind
speed: **314.8** km/sec
density: **9.9** protons/cm^3
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?

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