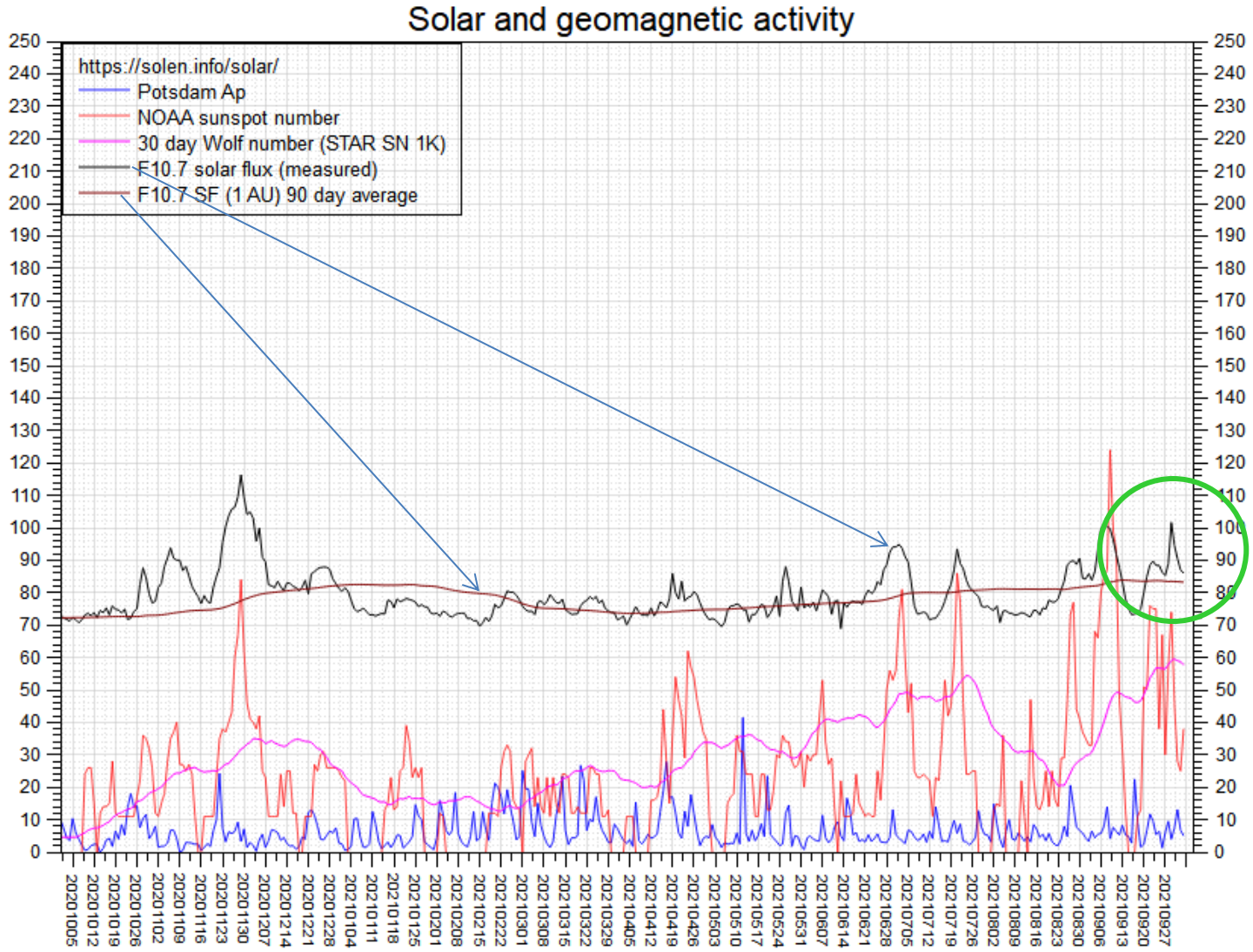
SOLAR WEATHER
5 OCT 2021

Lewis Thompson
W5IFQ

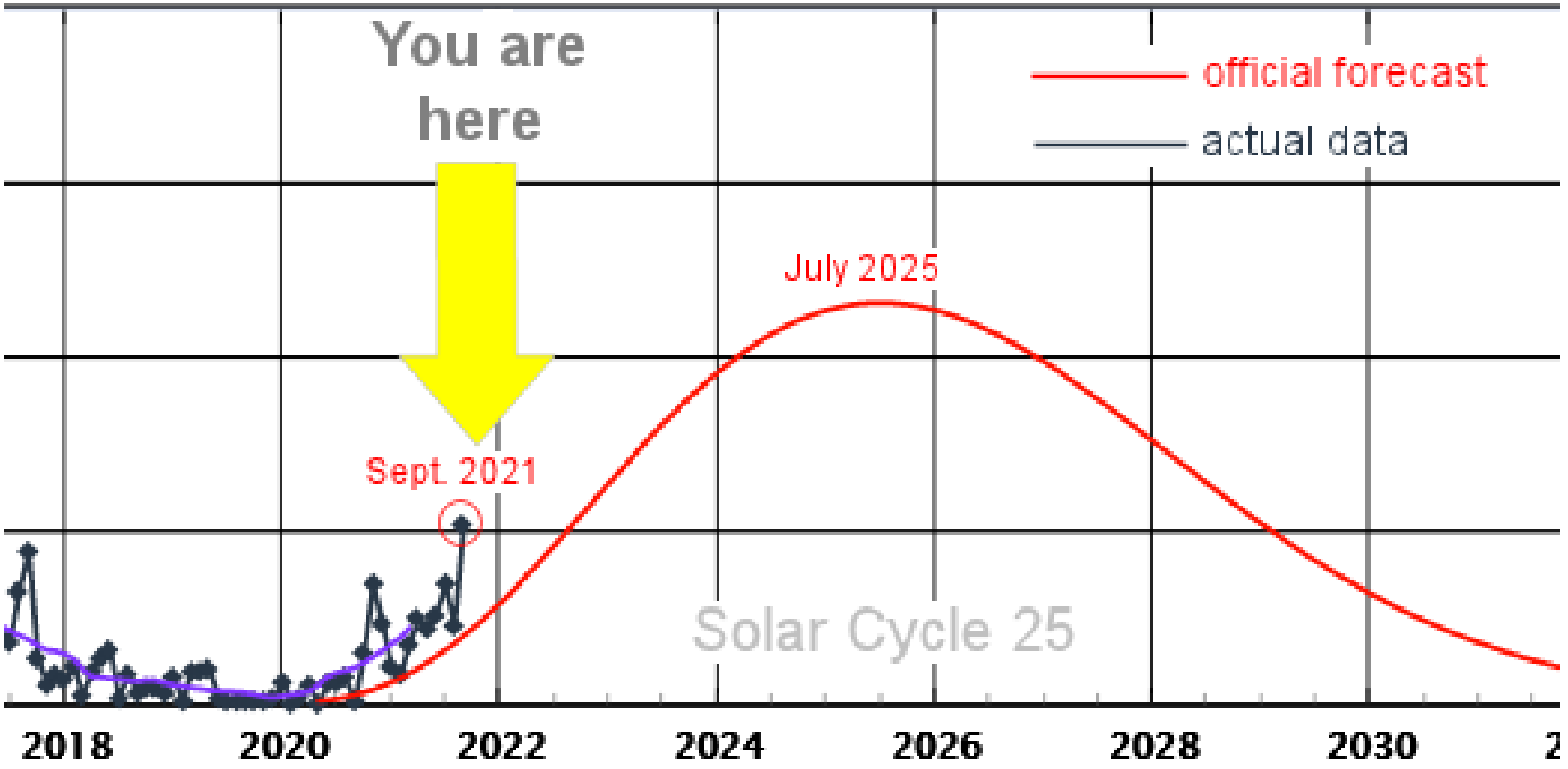
Taken by Greg Ash
on October 5, 2021
@ Fairbanks Alaska

SOLAR FLUX INDEX – 2021

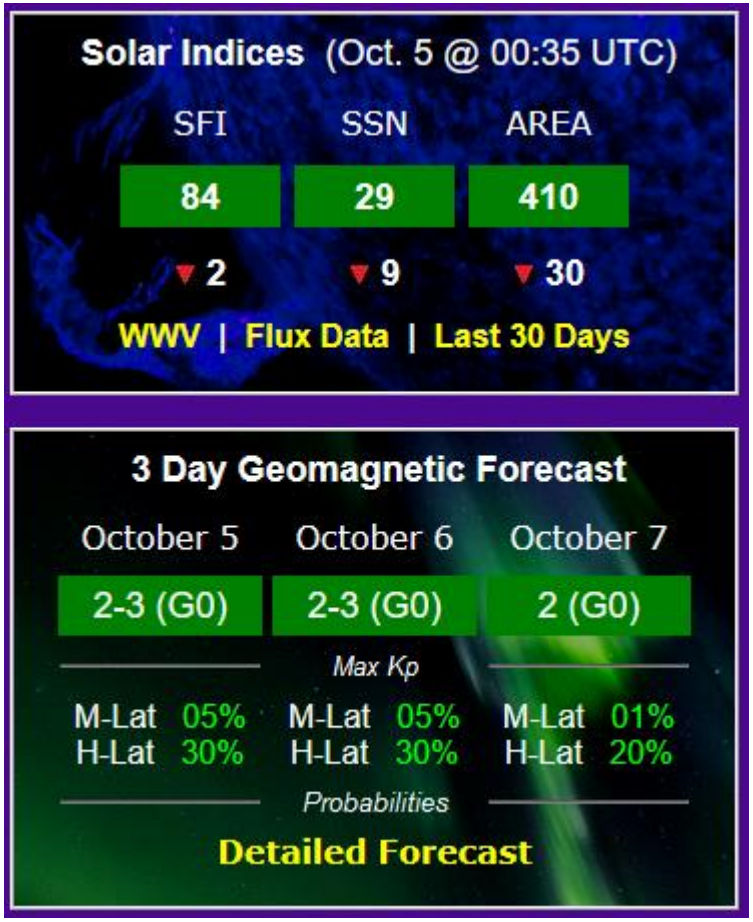


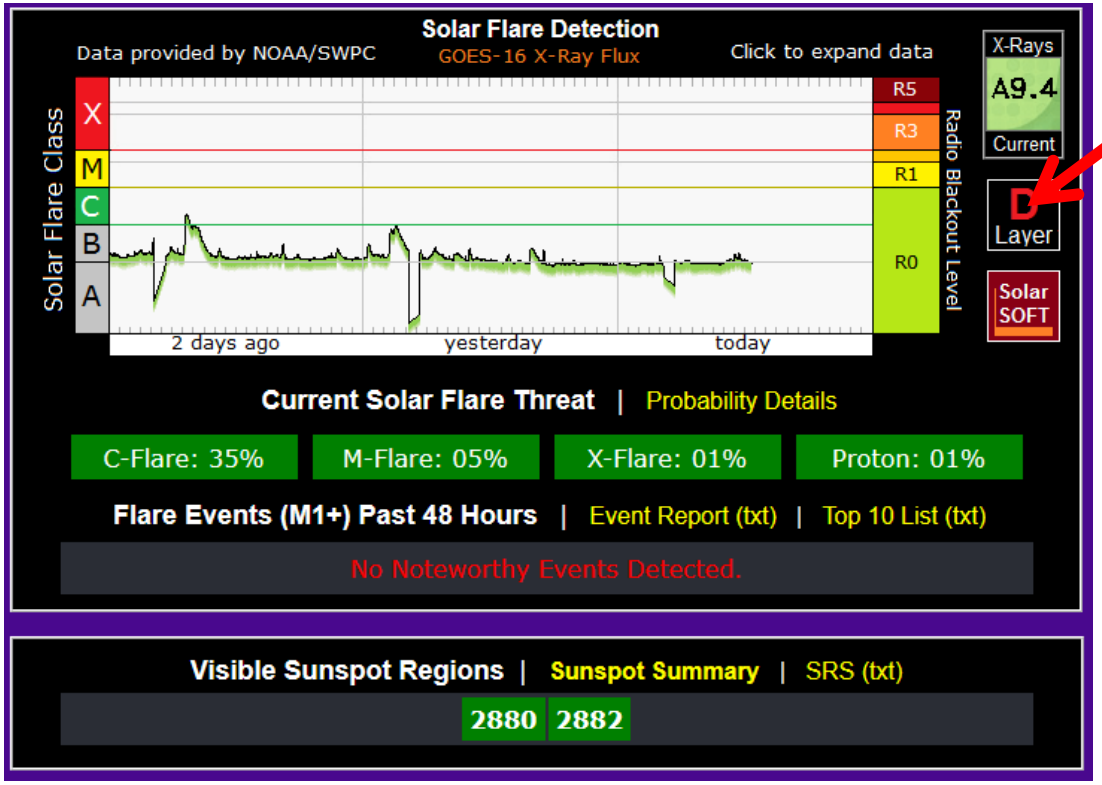
SF 83.5 (17.7 decrease from one previous 27 day solar rotation)

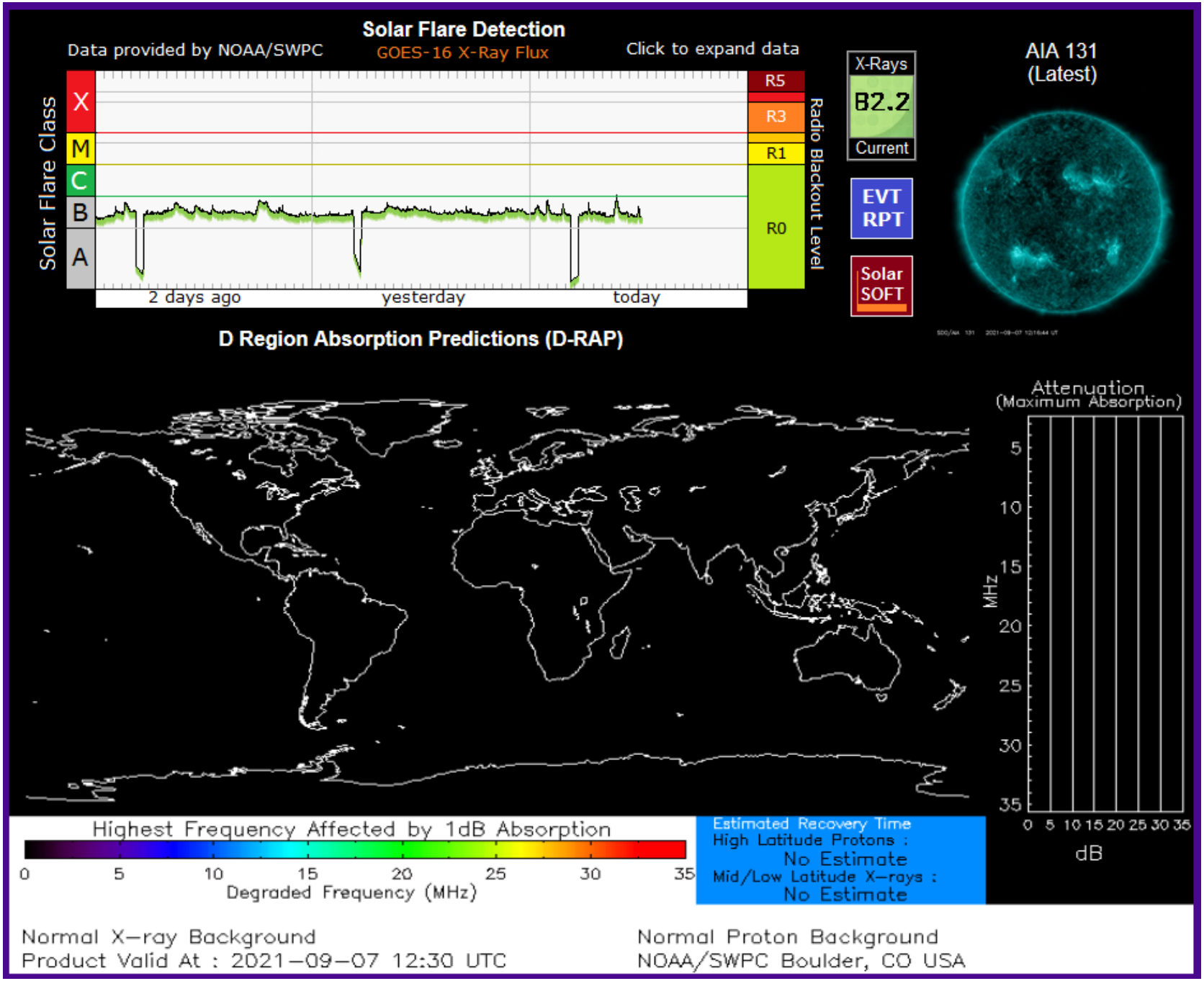
Sunspot Counts: Predicted vs. Actual



SolarHam.org Forecast






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
B2.2
Current
EVT RPT
Solar SOFT
AIA 131 (Latest)
D Region Absorption Predictions (D-RAP)
Attenuation (Maximum Absorption)
MHz
5
10
15
20
25
30
35
0 5 10 15 20 25 30 35
dB
Highest Frequency Affected by 1dB Absorption
0 5 10 15 20 25 30 35
Degraded Frequency (MHz)
Estimated Recovery Time
High Latitude Protons :
No Estimate
Mid/Low Latitude X-rays :
No Estimate
Normal X-ray Background
Product Valid At : 2021-09-07 12:30 UTC
Normal Proton Background
NOAA/SWPC Boulder, CO USA

Visible Sunspot Summary for October 4, 2021

Active Regions Visible Today	2	SESC Sunspot Number	29	Total Sunspot Area	410

Region	Location	Spot Count	Area
AR 2882	N16E66	1	250

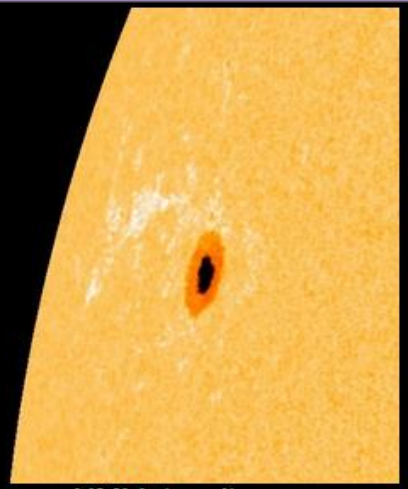
Magnetic Class	Spot Class
ALPHA	HHX

Flare Threat C: 05% M: 01% X: 01%

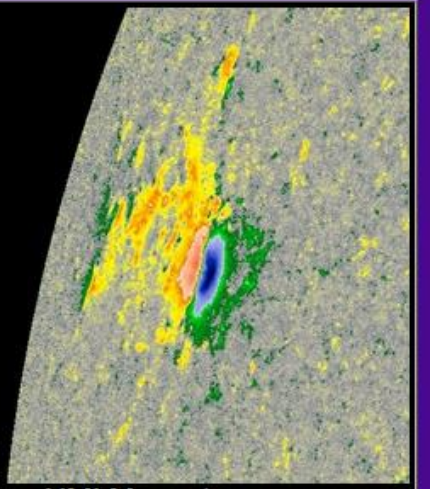
Date Assigned: October 3, 2021

Noteworthy Events

none



HMI Intensity



HMI Magnetogram

Region	Location	Spot Count	Area
AR 2880	N31W20	8	160

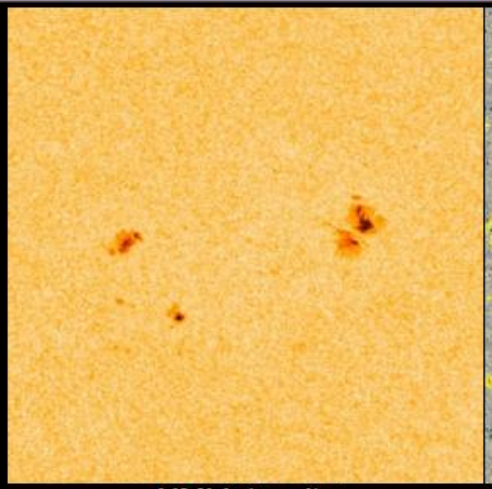
Magnetic Class	Spot Class
BETA	ESO

Flare Threat C: 35% M: 05% X: 01%

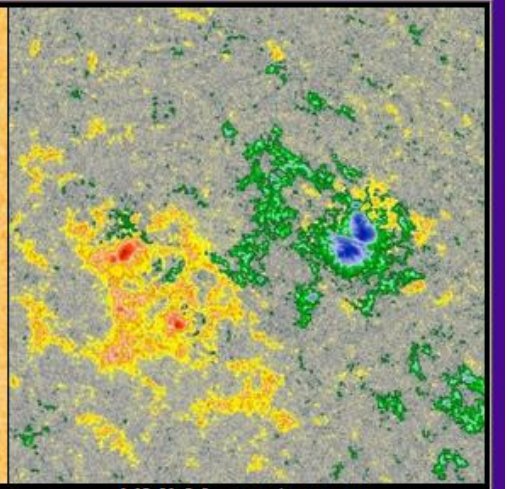
Date Assigned: September 28, 2021

Noteworthy Events

none

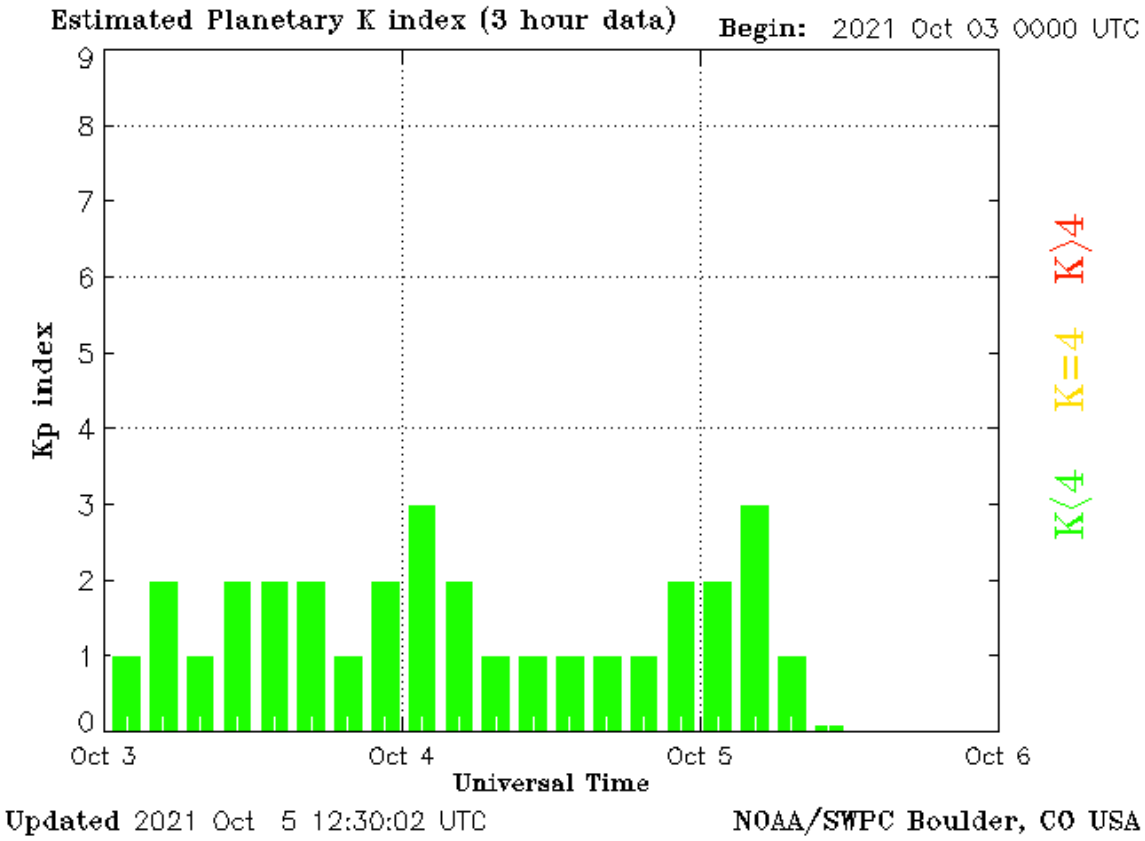


HMI Intensity



HMI Magnetogram

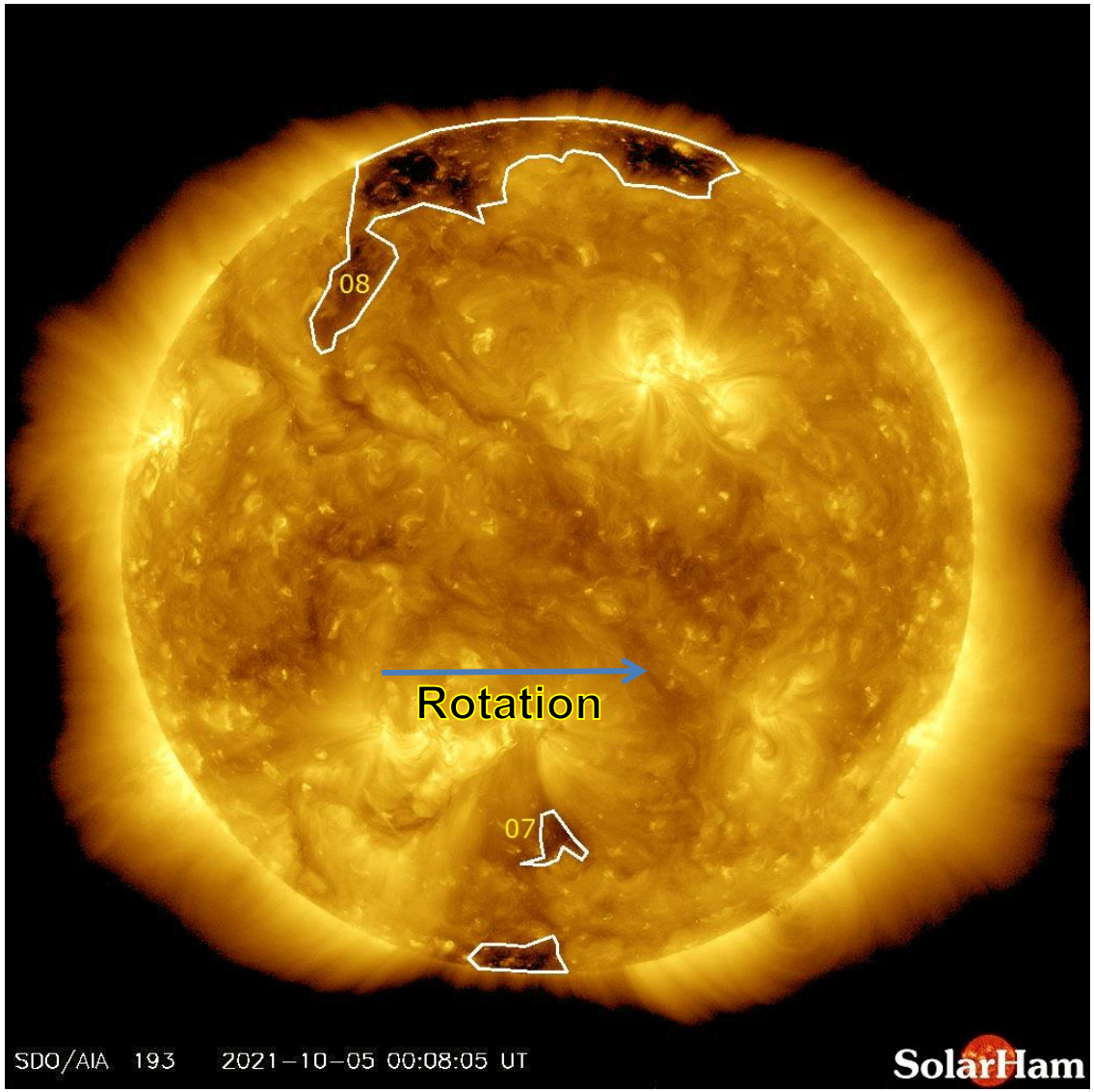
Planetary K index 3 – 5 OCT 2021



Generally, as planetary K-Index rises, critical frequency is suppressed.

K-Index	Effect
0-2	Inactive/Quiet, no impact on HF
3-4	Unsettled/Active, minor HF fade in higher latitudes
5-6	HF fade at higher latitudes
7-8	HF sporadic
9	HF impossible above 40M

Coronal Holes – 5 OCT 2021



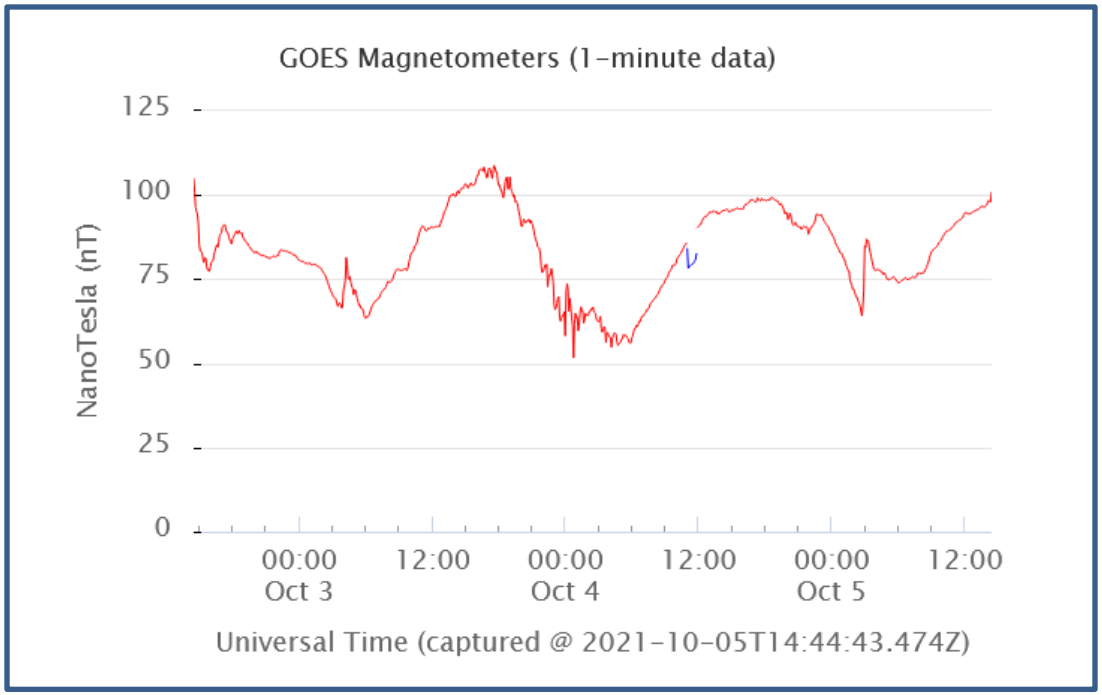
Analysis

There are currently no large coronal holes directly facing Earth.

Geomagnetic Conditions: 5 OCT 2021

Solar wind:
Bz = -0 nT
speed = 300 km/sec
density = 8.97 protons/cm^3

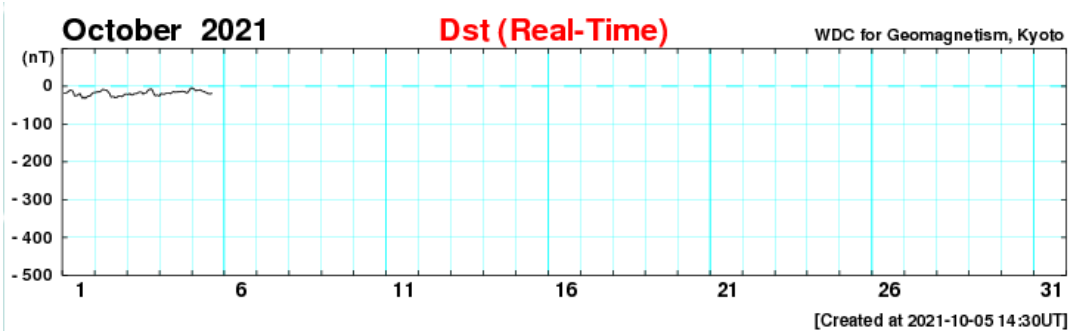
(From – NOAA DSCOVR
In L1, Lagrange Point)



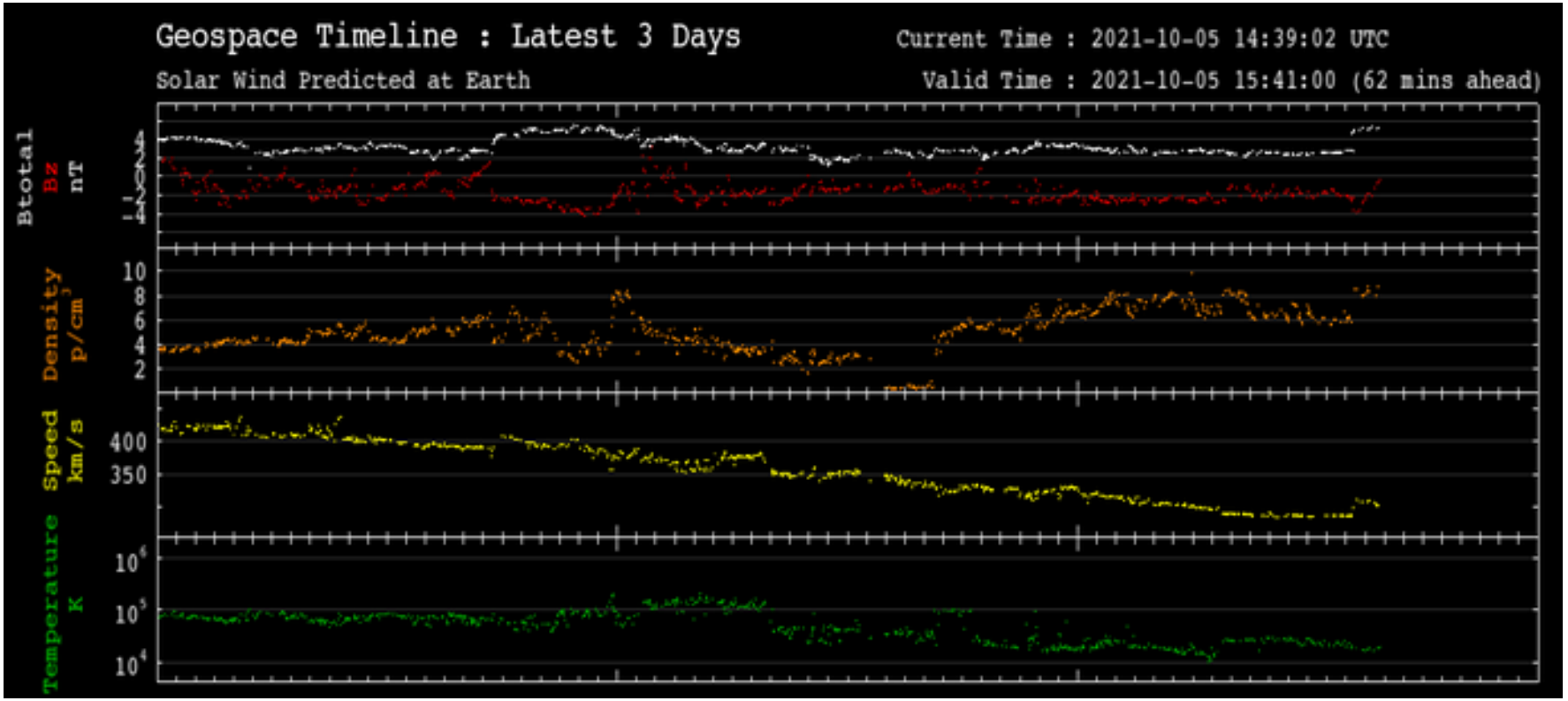
From – GOES 16
In geostationary orbit

Dst = -18 nT (Ring Field)

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



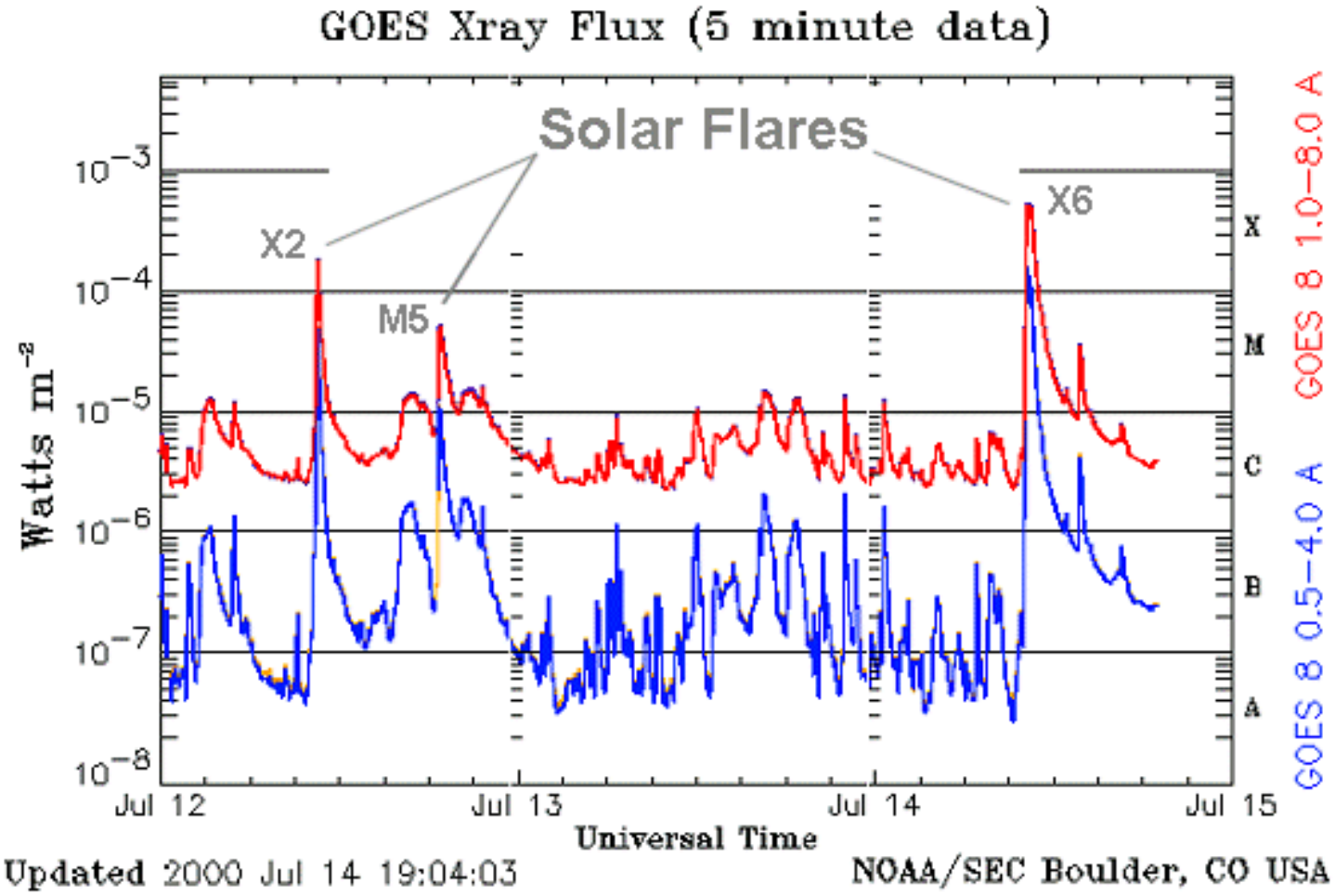
Real Time Solar Wind



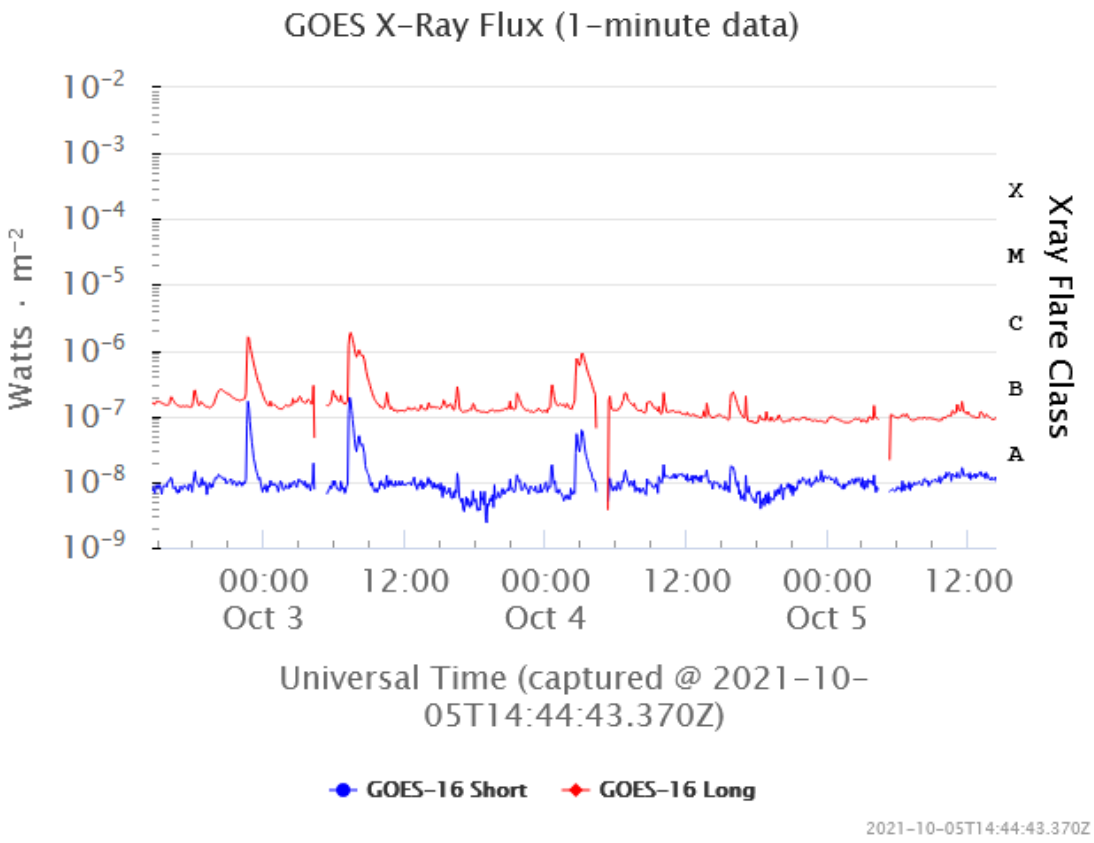
SolarHam

Solar Flare Classification – Intensity

(Why is This Important?)



Solar X-Ray Flux: 3 – 5 OCT 2021

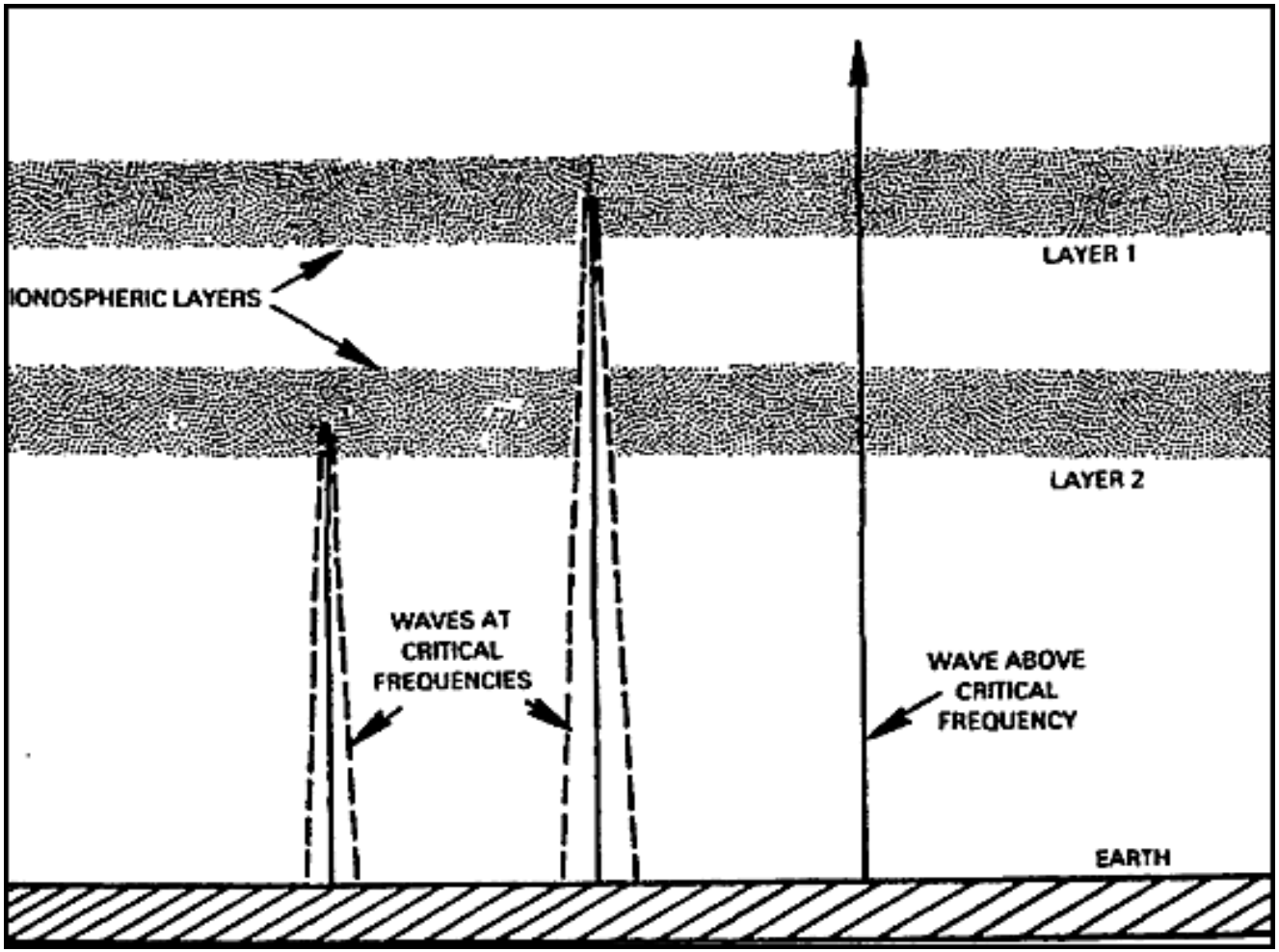


The X-ray radiation that ionizes the D-layer is the 1.0 - 8.0 A (red) plot. These measurements currently taken from the GOES 16 satelite.

Flare Category	Effect
A1-B9	No or minor impact on HF
C1	Low absorption of HF signals
M1	Occaisional loss of radio contact on sun-lit side
M5	Limited HF blackout for several minutes
X1	Wide area HF blackout for approx. 1 hr
X10	HF blackout over most of sun-lit side for 1-2 hrs
X20	Complete HF blackout of all sun-lit areas lasting hours

Critical or foF2 Frequency Definition
(Why is This Important?)

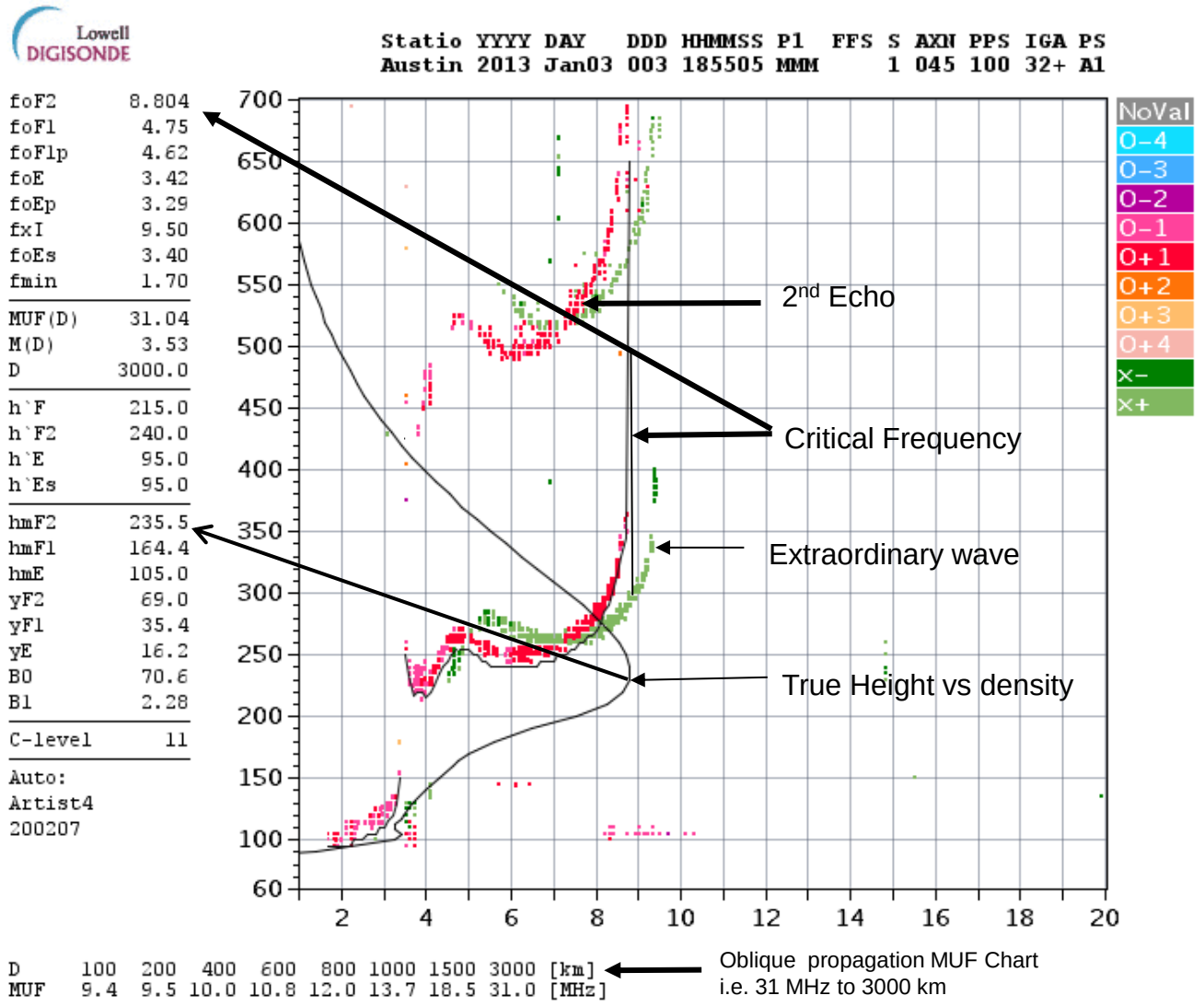
- For State-Wide HF communications (NVIS), must operate at or below CF



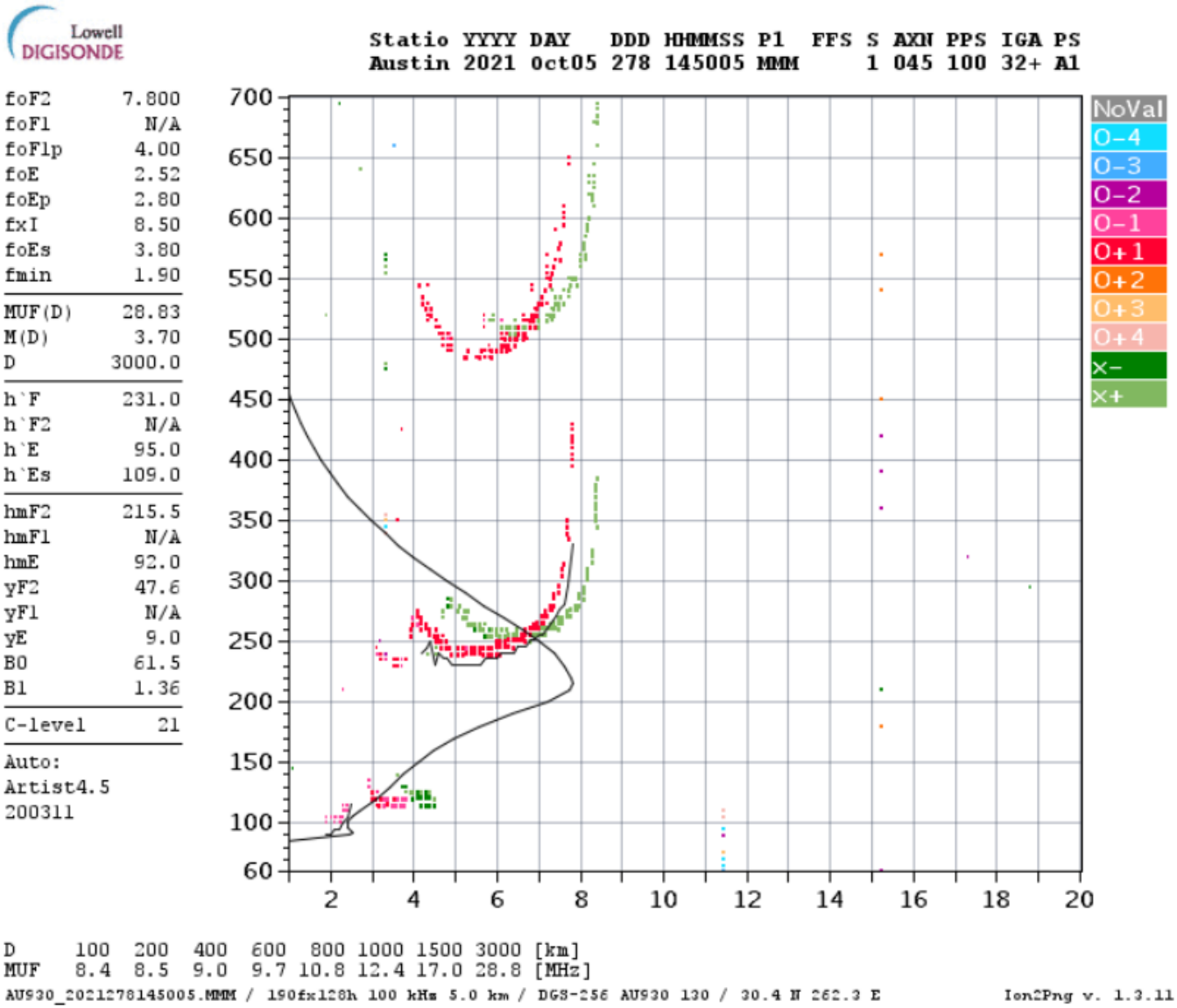
F2 layer

E layer

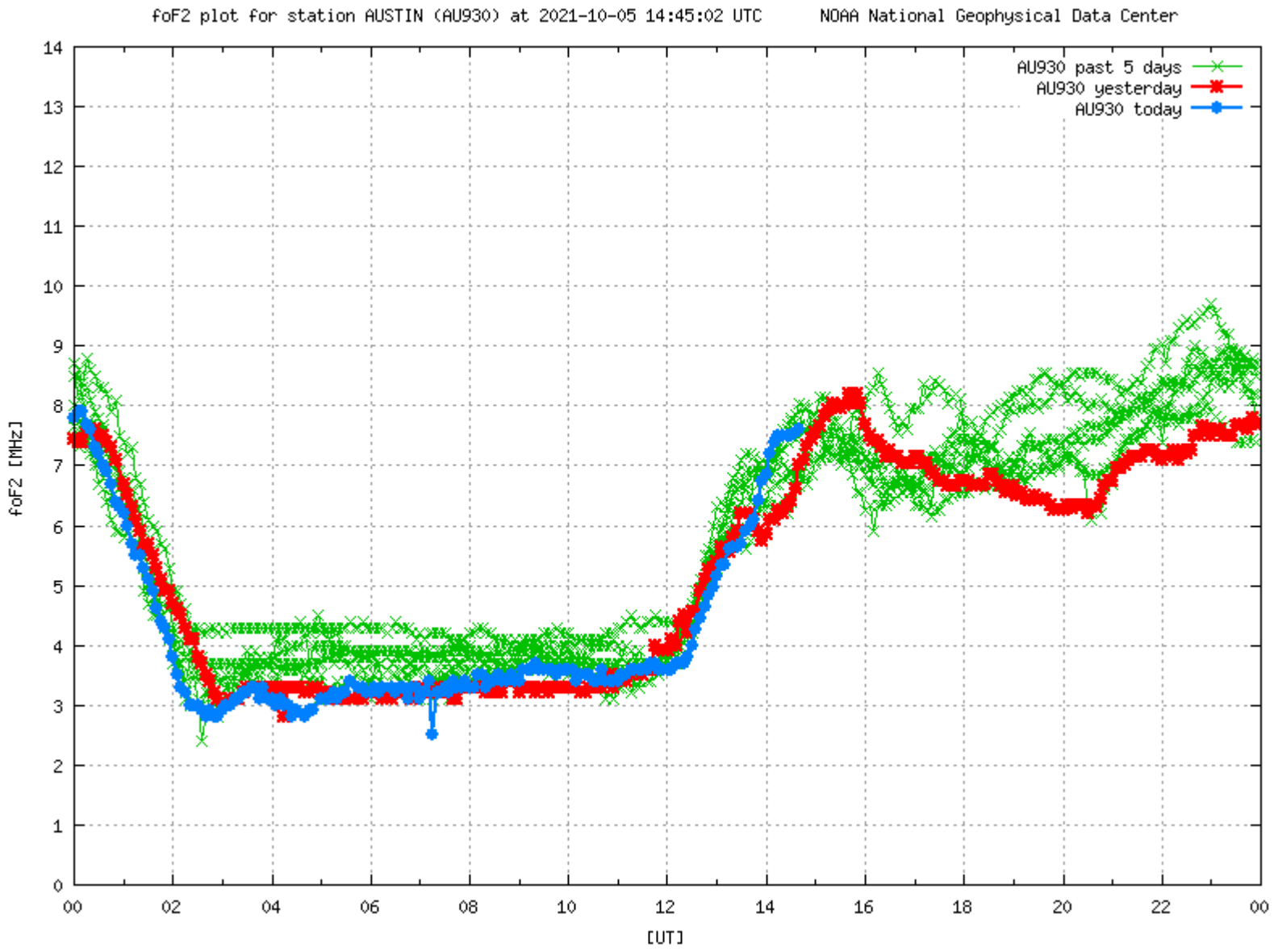
Ionogram Interpretation



Austin Ionogram – 5 OCT 1450Z



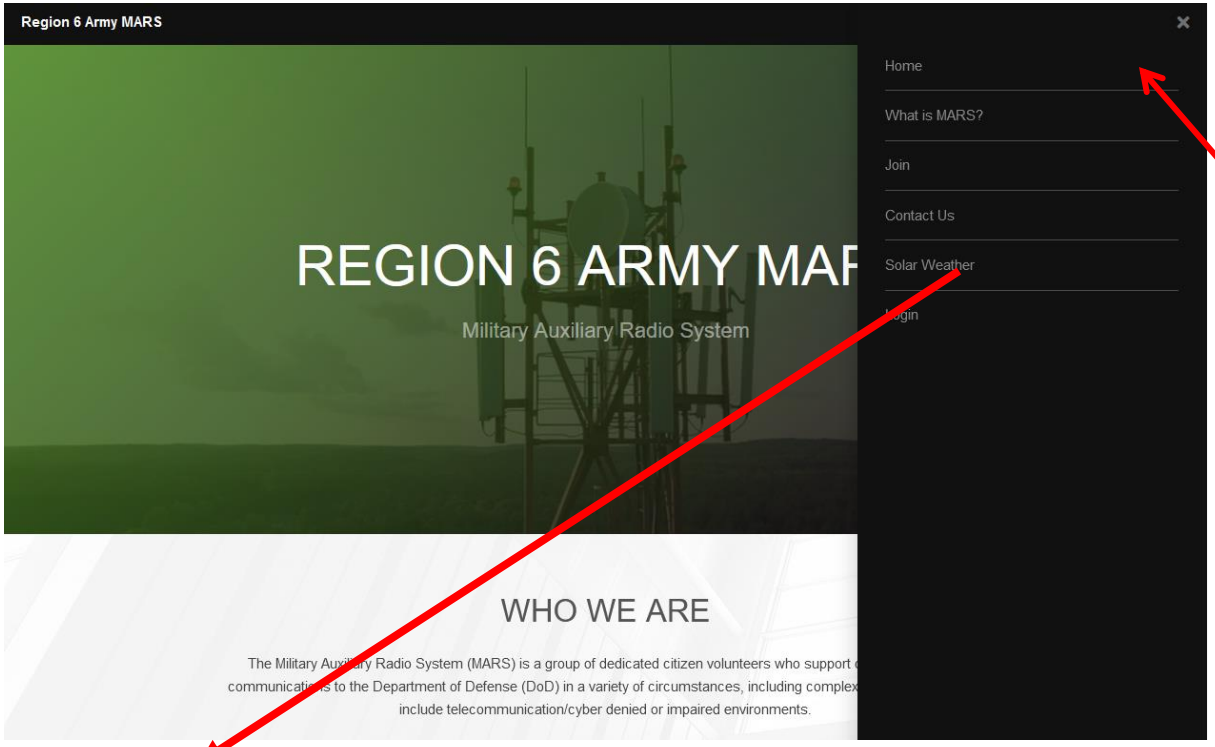
foF2 Trend – Austin Ionosonde



Verification of foF2 Trending Chart

- When it is important to have the correct Critical Frequency (foF2) and you see an unexpected trend, check actual Ionogram.
- The Ionosonde can be “fooled” by echo drop out due to exclusion of certain transmit frequencies by US government.

Solar Weather Data



Menu

Solar Weather

Other Solar Weather Links of Interest

All Ionosondes

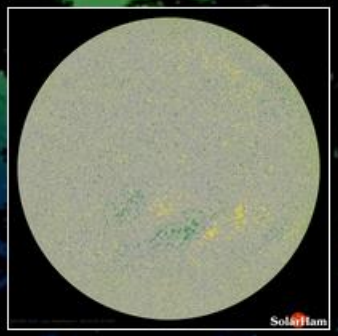
- DIDBase - Select Station List then EGLIN then year/month/day/time for Ionosonde plot.
- NOAA Solar Weather - Solar Weather plots of Kp and X-Ray and other solar emissions.
- Solen Solar Weather - Good general solar forecast from an individual.
- Solar Ham - SolarHam provides real time solar news, as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

SolarHam

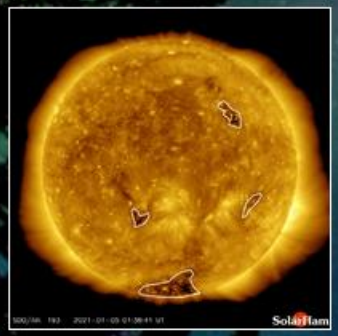
by Amateur Radio Station VE3EN

Space Weather for January 5, 2021 — **UTC Time 17:46:22 Tuesday**

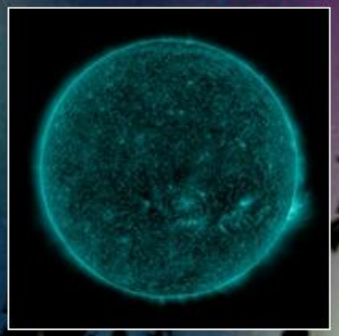
HMI Intensity
Analysis | Latest | Movie



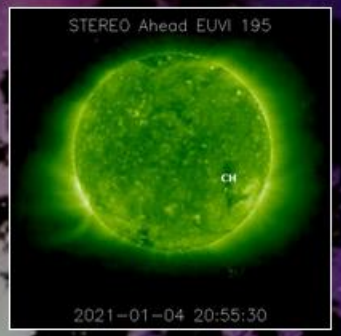
HMI Magnetogram
Latest | Movie



Coronal Holes
Analysis | Movie



AIA 131 (Latest)
Movie



Farside Watch
Analysis | Latest

Latest Imagery: SDO | GOES-16 | GONG | STEREO | LASCO

Video: SDO | SOHO | STEREO | Helioviewer | YouTube

Solar Indices (Jan 05 @ 00:35 UTC)

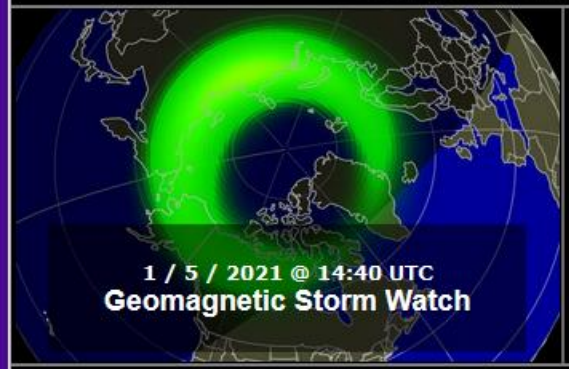
SFI	SSN	AREA
78	0	0
▼ 2	–	–

WWV | Flux Data | Last 30 Days

3 Day Geomagnetic Forecast

Jan 5	Jan 6	Jan 7
5 (G1)	4-5 (G1)	3 (G0)

Solar activity remains at very low levels.



Latest Solar Report | SWPC Space Weather Alerts | SolarHam News Archive

spaceweather.com

News and information about the Sun-Earth environment

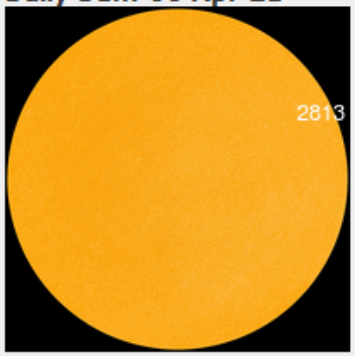
https://www.spaceweather.com/

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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