

SIDC Space Weather Briefing

01 January 2023-08 January 2023

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& the SIDC forecaster team



Royal Observatory
of Belgium

Solar Influences
Data analysis Centre
www.sidc.be

Summary Report

Solar activity from 2023-01-01 12:00 to 2023-01-08 23:59

Active regions	NOAA ARs 3176, 3177, 3179, 3180, 3181, <u>3182</u> , 3183, 3184
Flares	# C-class flare: 41 # M-class flare: 5 # X-class flare: 1
Coronal Holes	2 Negative polarity Coronal Holes
CMEs	No Earth directed CMEs detected in coronagraph data

Proton flux	Nominal values
Electron flux	Above 1000 pfu threshold, electron fluence reached moderate levels (1.6×10^8)

Solar wind and geomagnetic conditions

ICMEs	ICME arrival on January 03/04
Solar wind conditions	B : 0.43 - 21.91 nT //Bz: -12.76 nT to 16.89 nT //Speed: 248.7 - 569.7km/s
K-indices	max K-index (K dourbes): 4 max Kp-index (NOAA): 5

All Quiet Alert: Not all quiet

Solar Activity

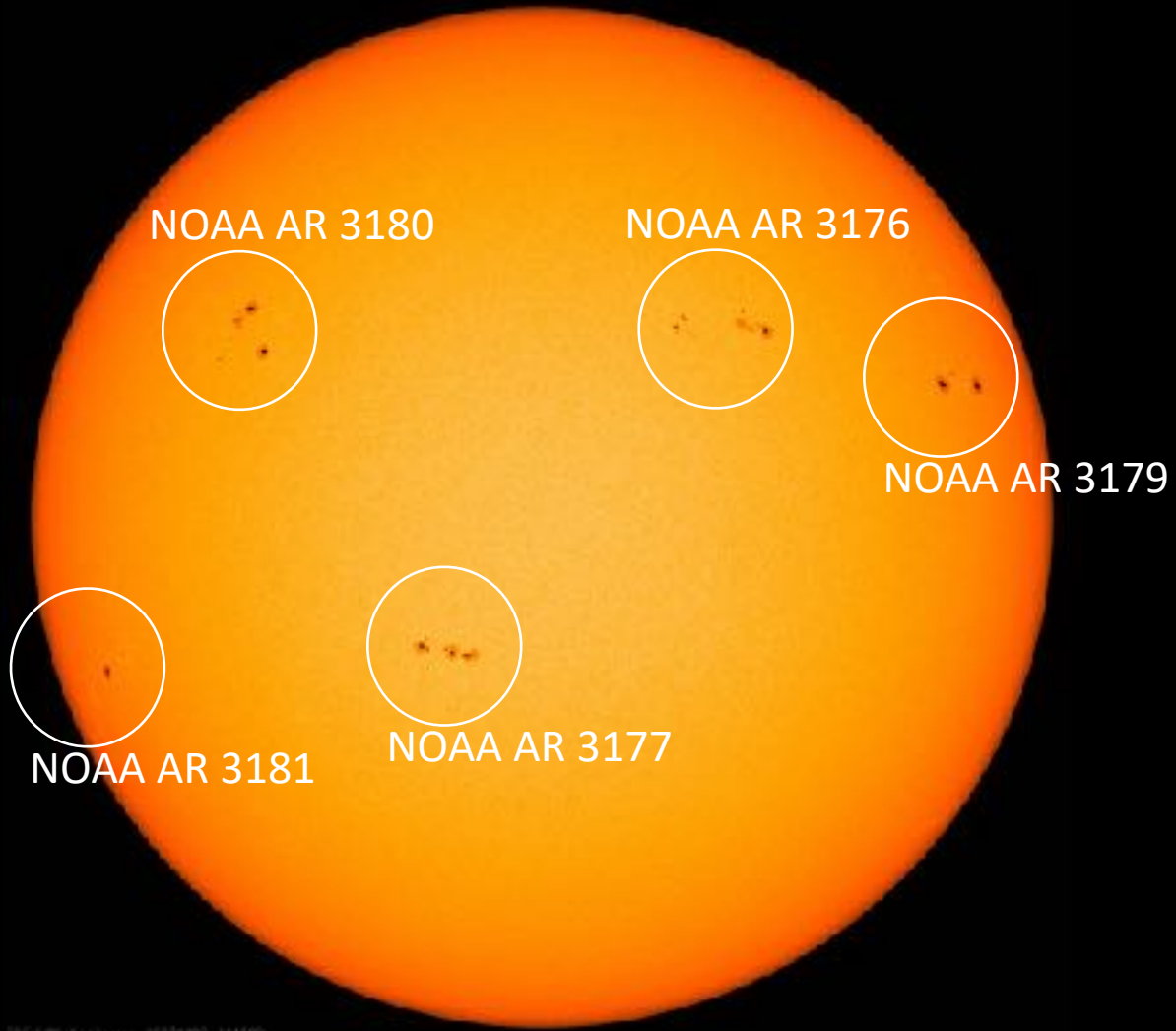


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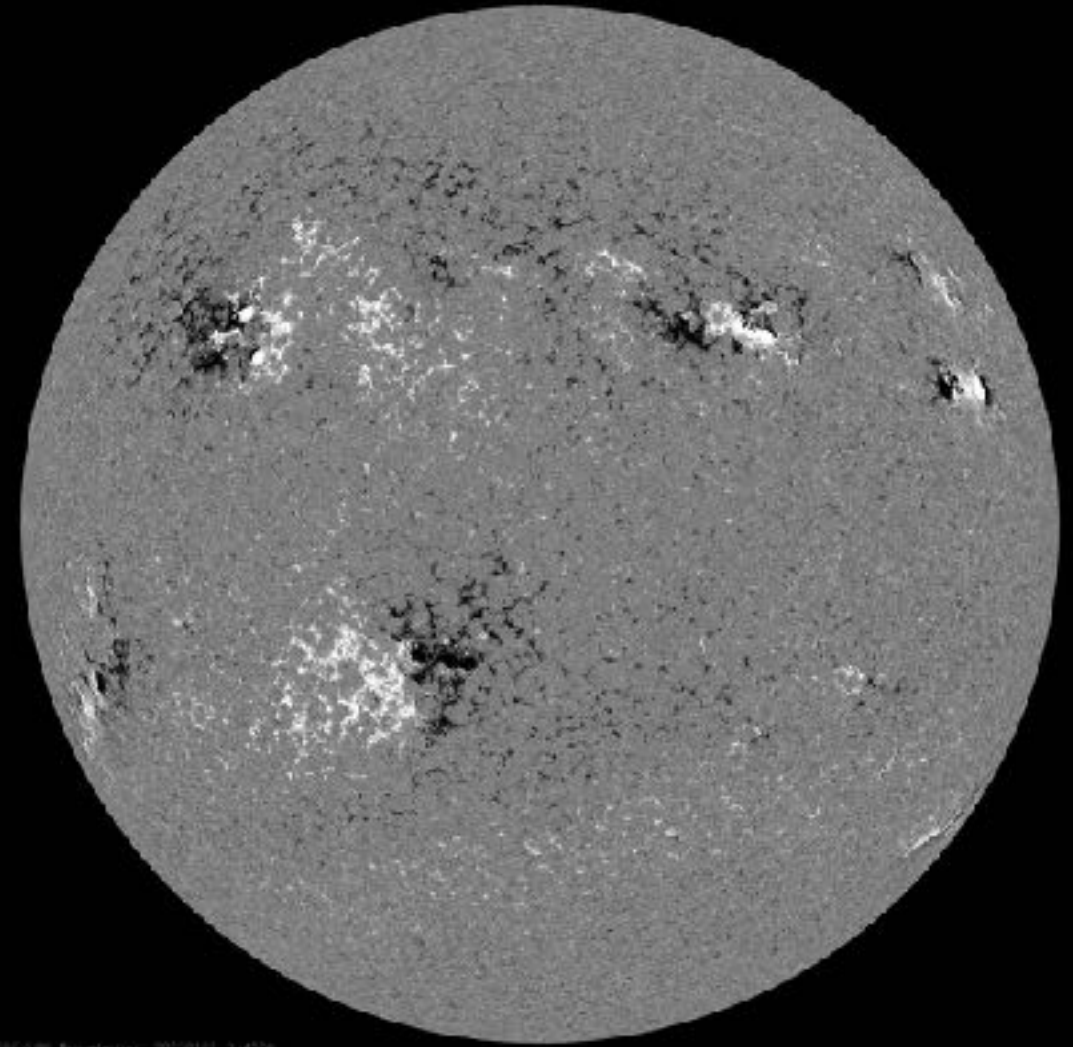
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Solar active regions

SDO/HMI White Light 2023-01-02

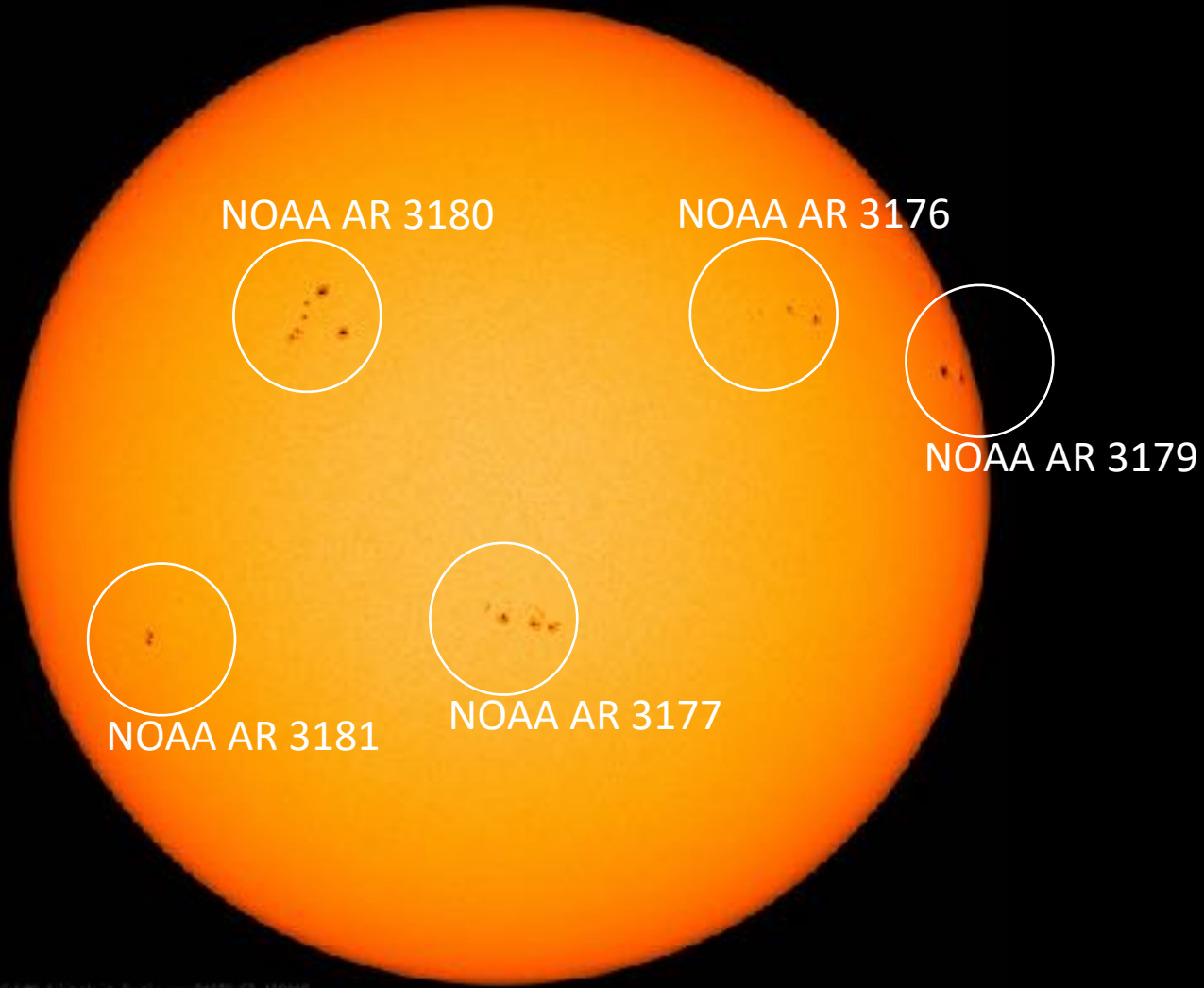


SDO/HMI Magnetogram 2023-01-02

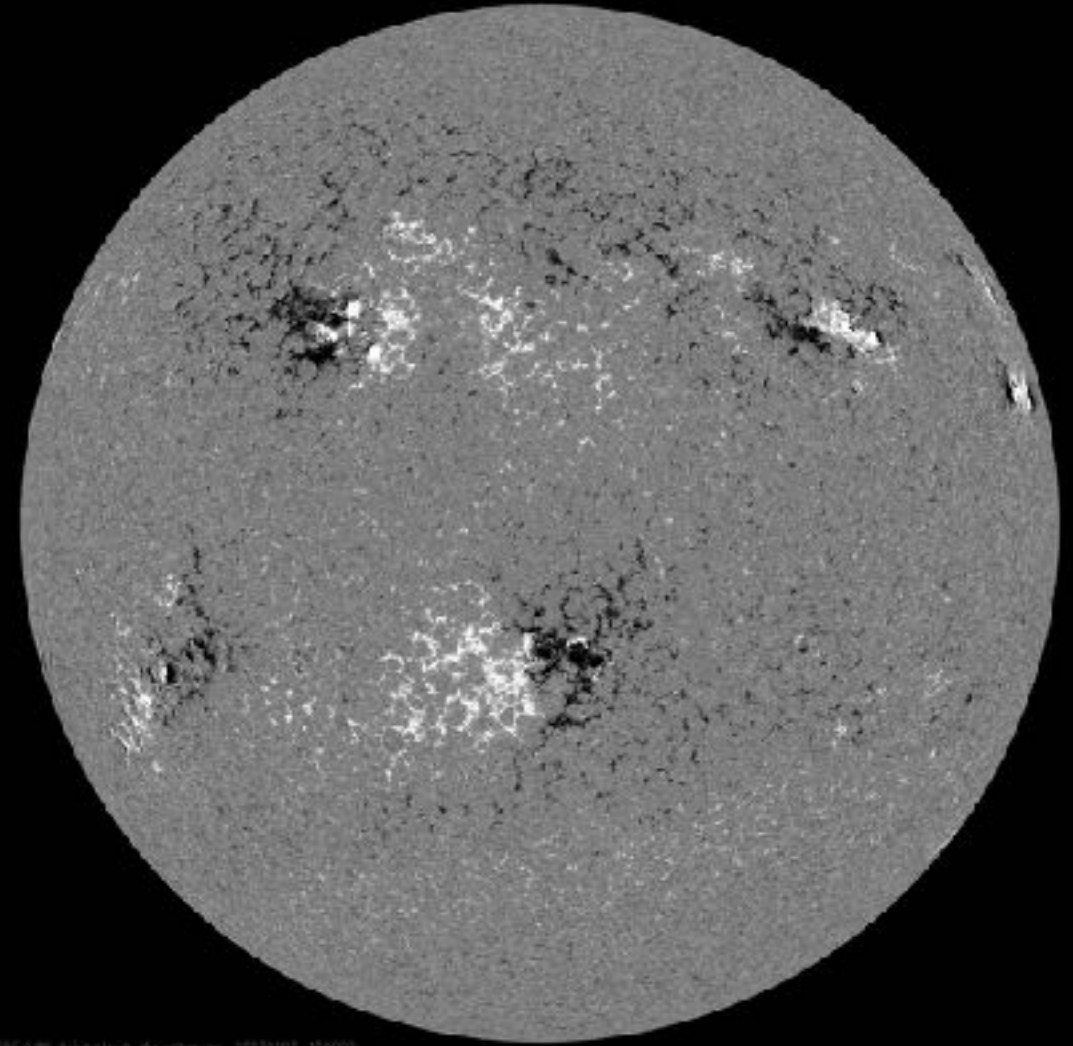


Solar active regions

SDO/HMI White Light 2023-01-03

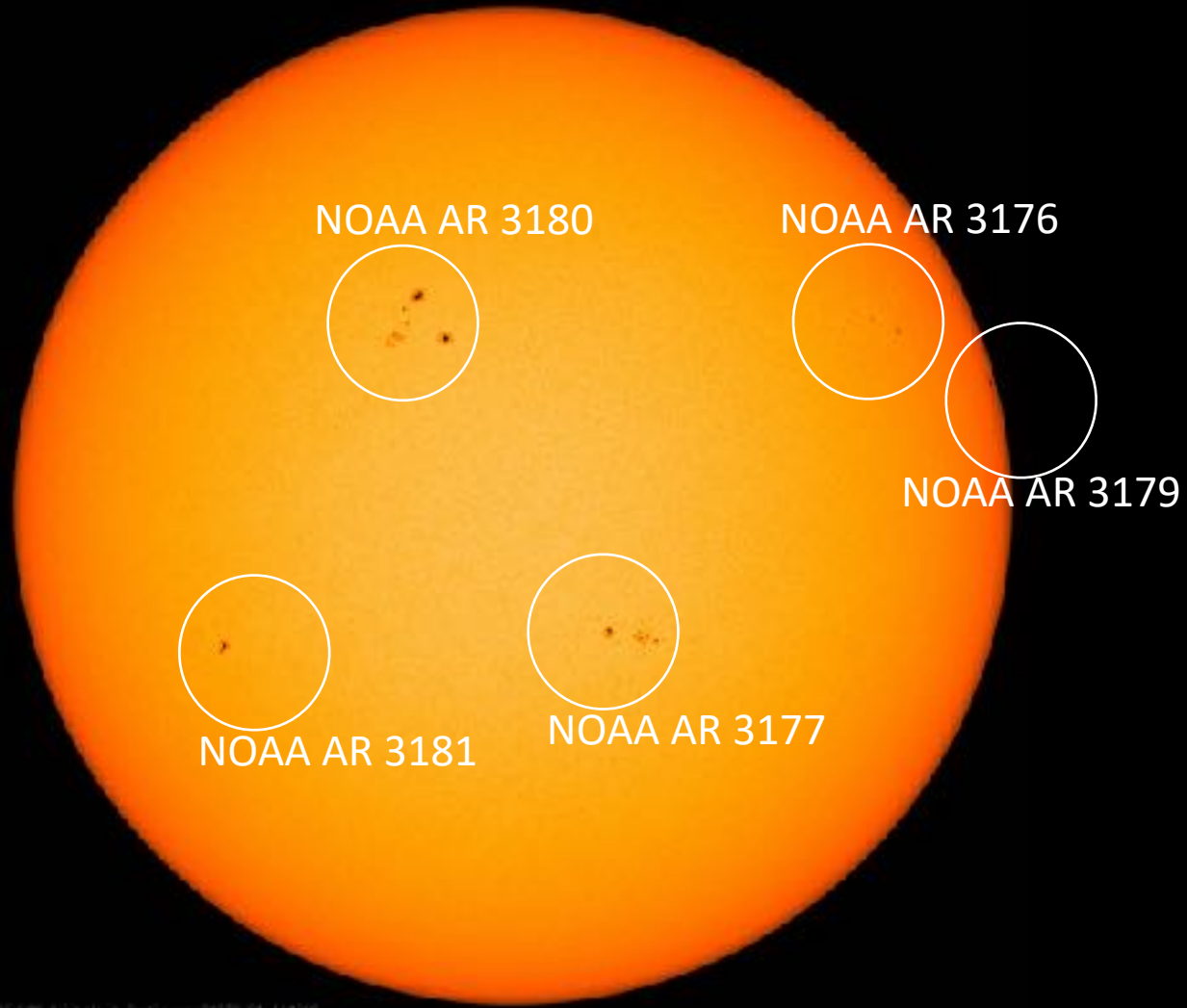


SDO/HMI Magnetogram 2023-01-03

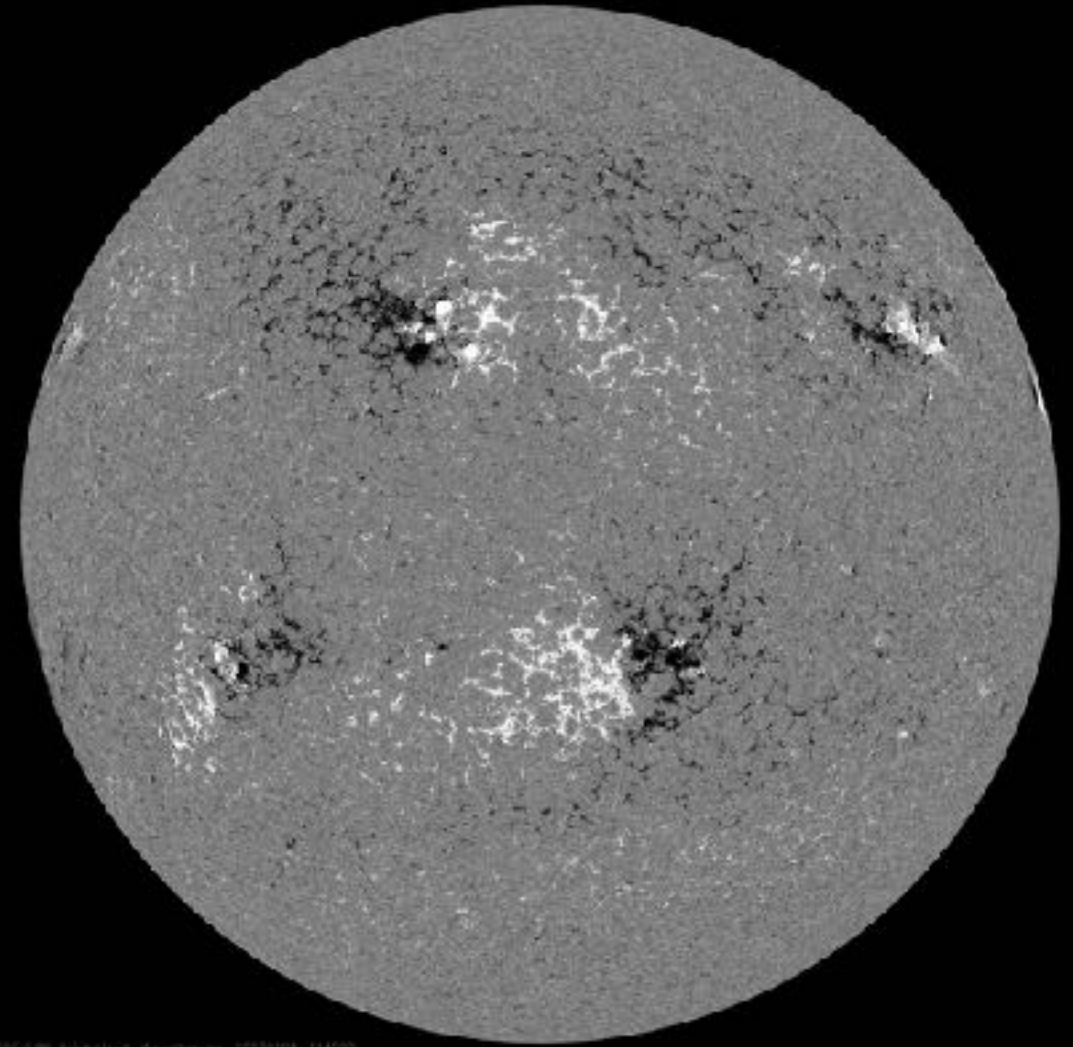


Solar active regions

SDO/HMI White Light 2023-01-04



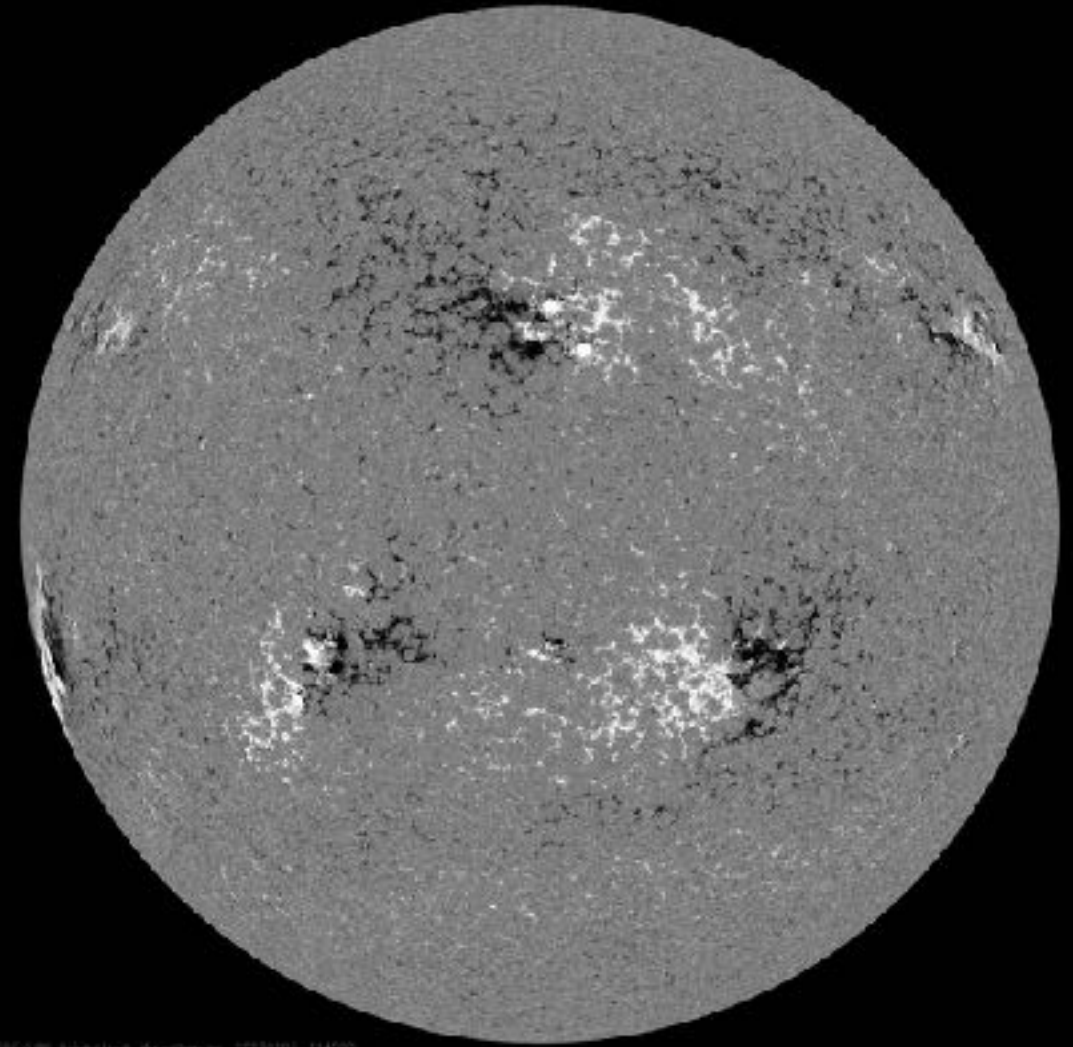
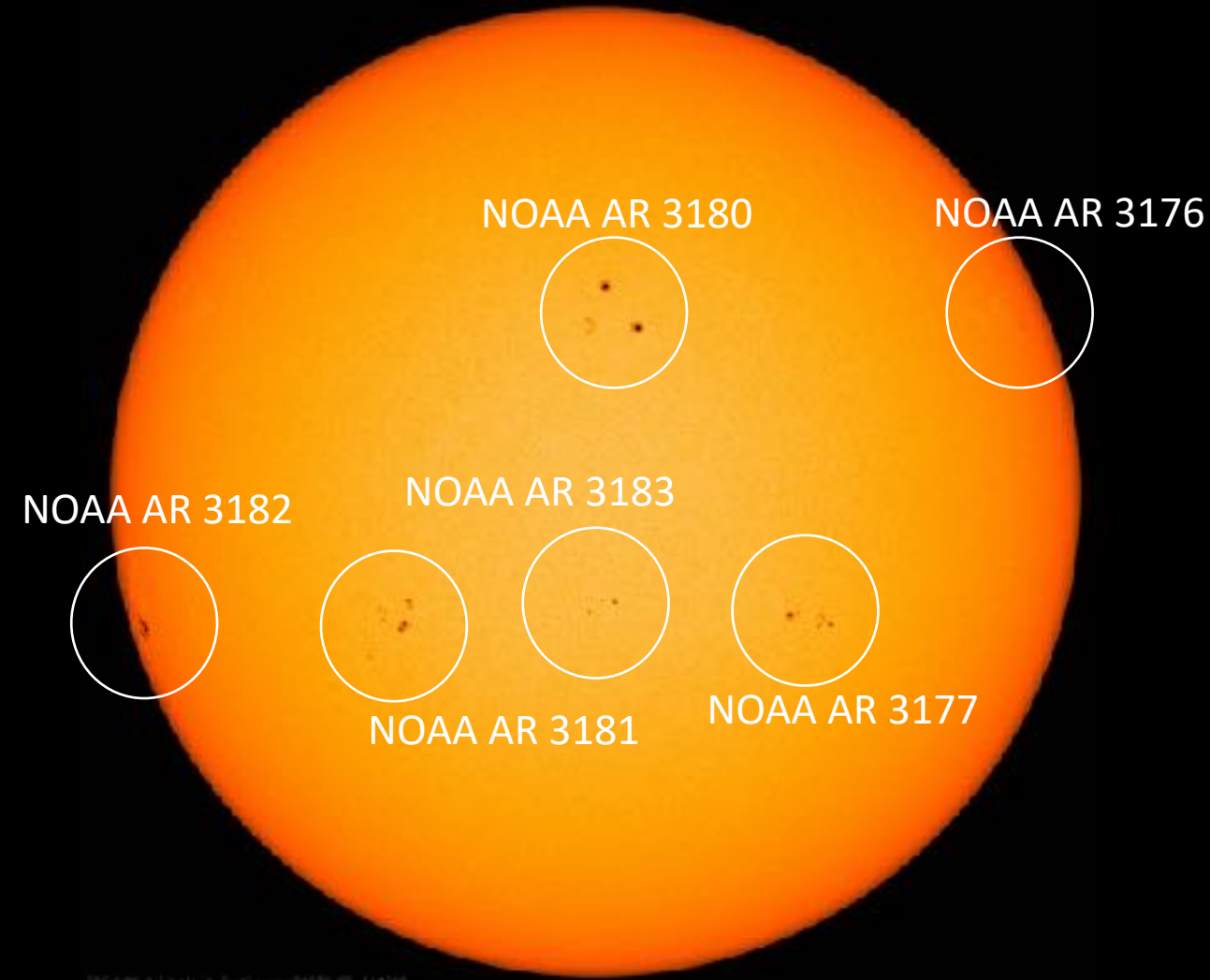
SDO/HMI Magnetogram 2023-01-04



Solar active regions

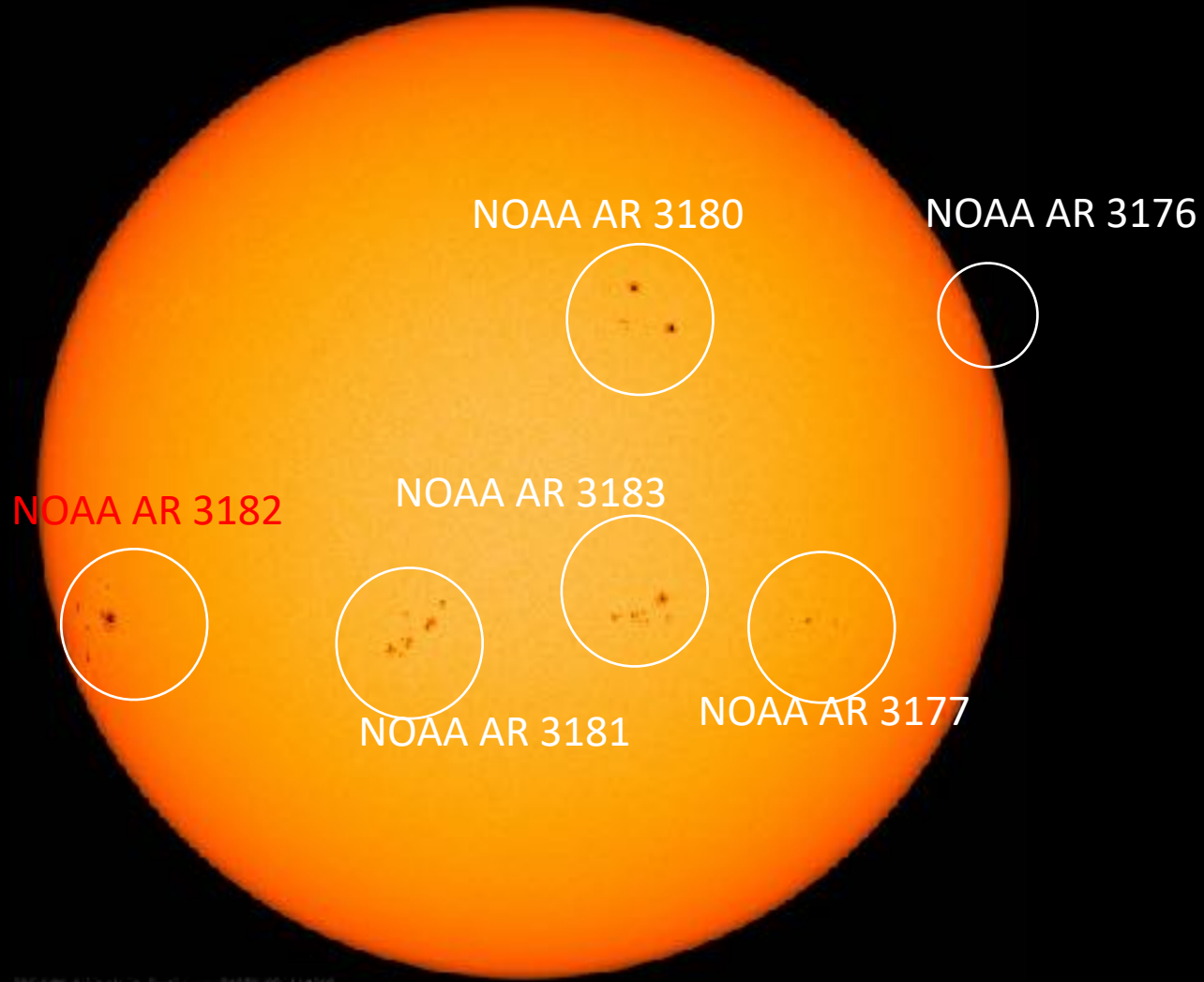
SDO/HMI White Light 2023-01-05

SDO/HMI Magnetogram 2023-01-05

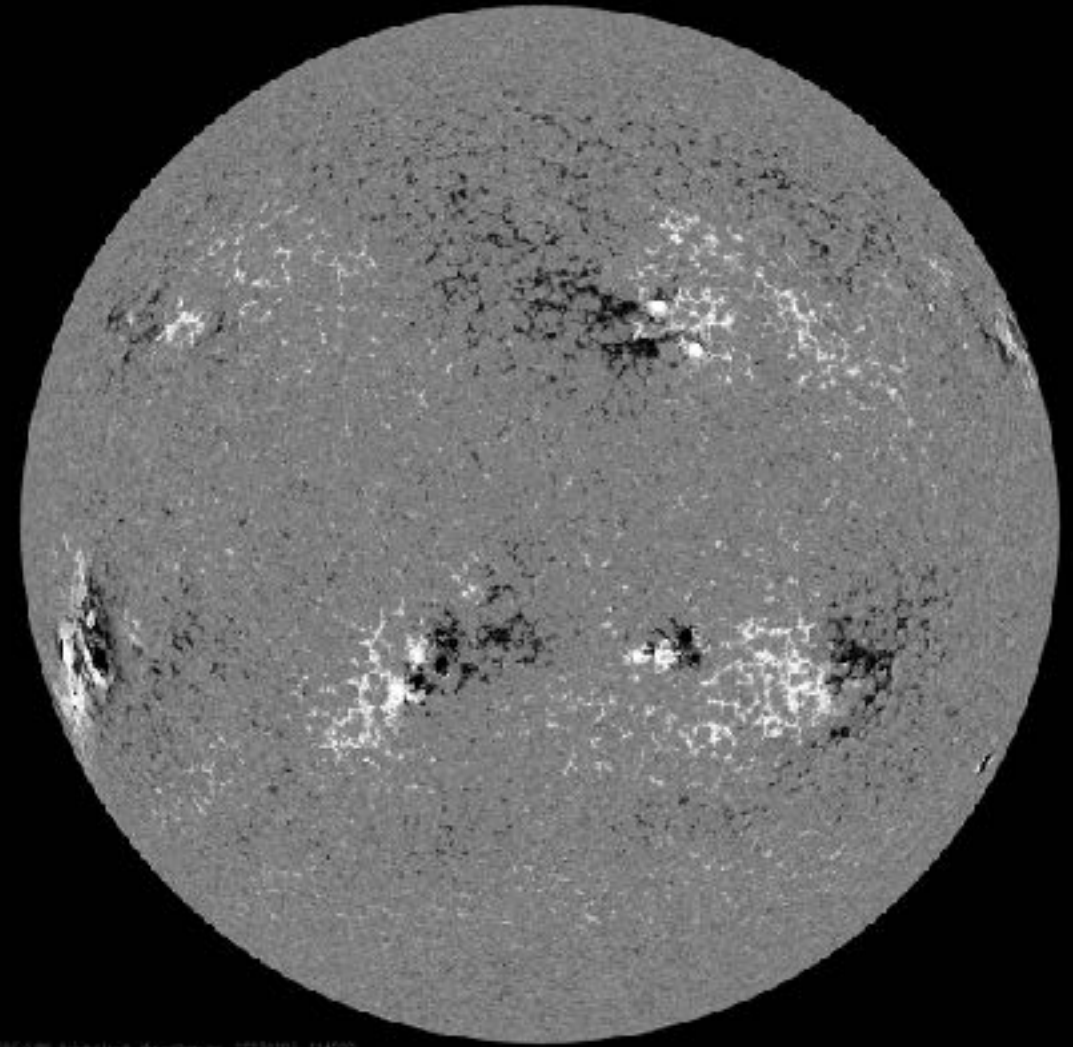


Solar active regions

SDO/HMI White Light 2023-01-06

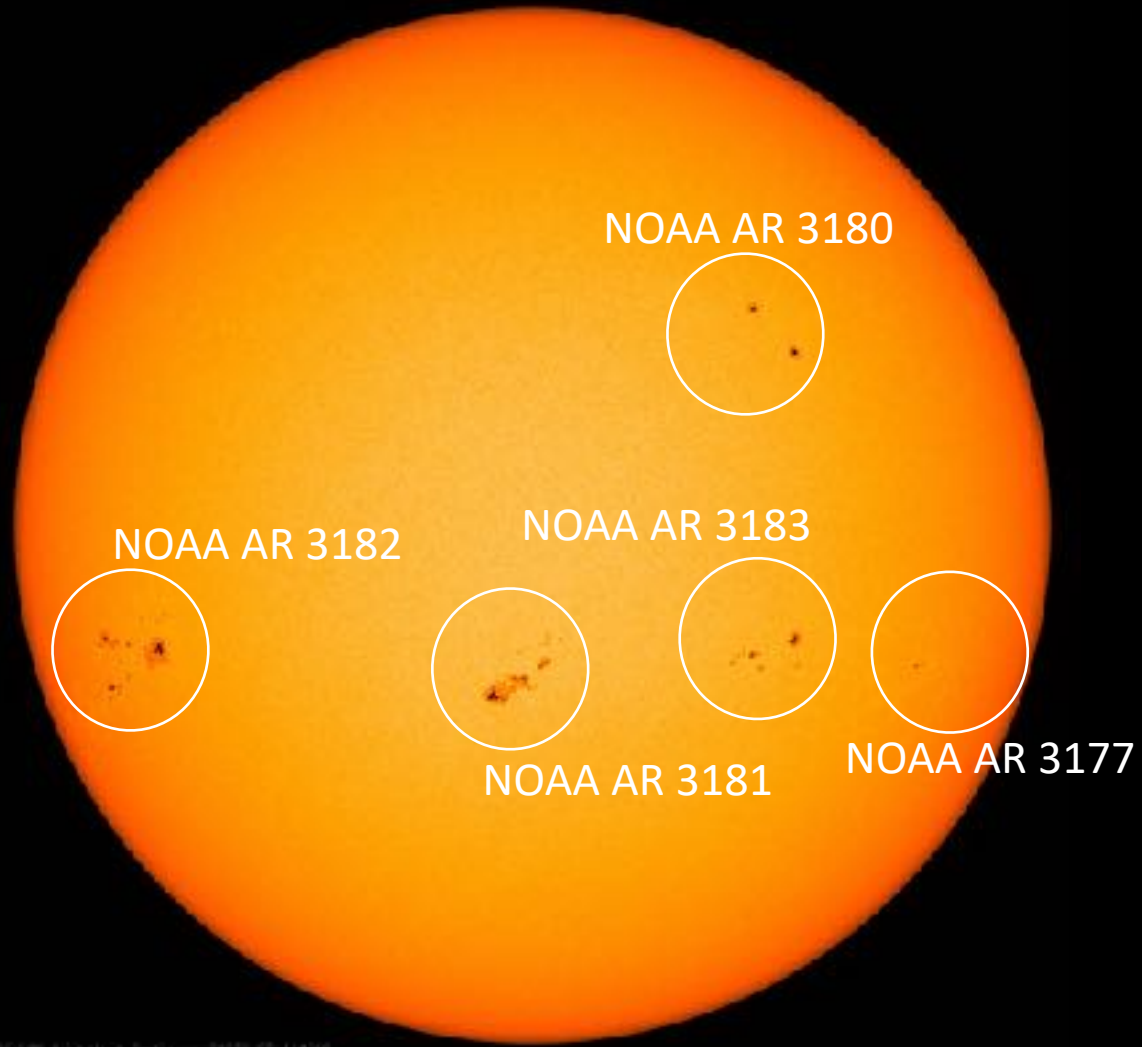


SDO/HMI Magnetogram 2023-01-06

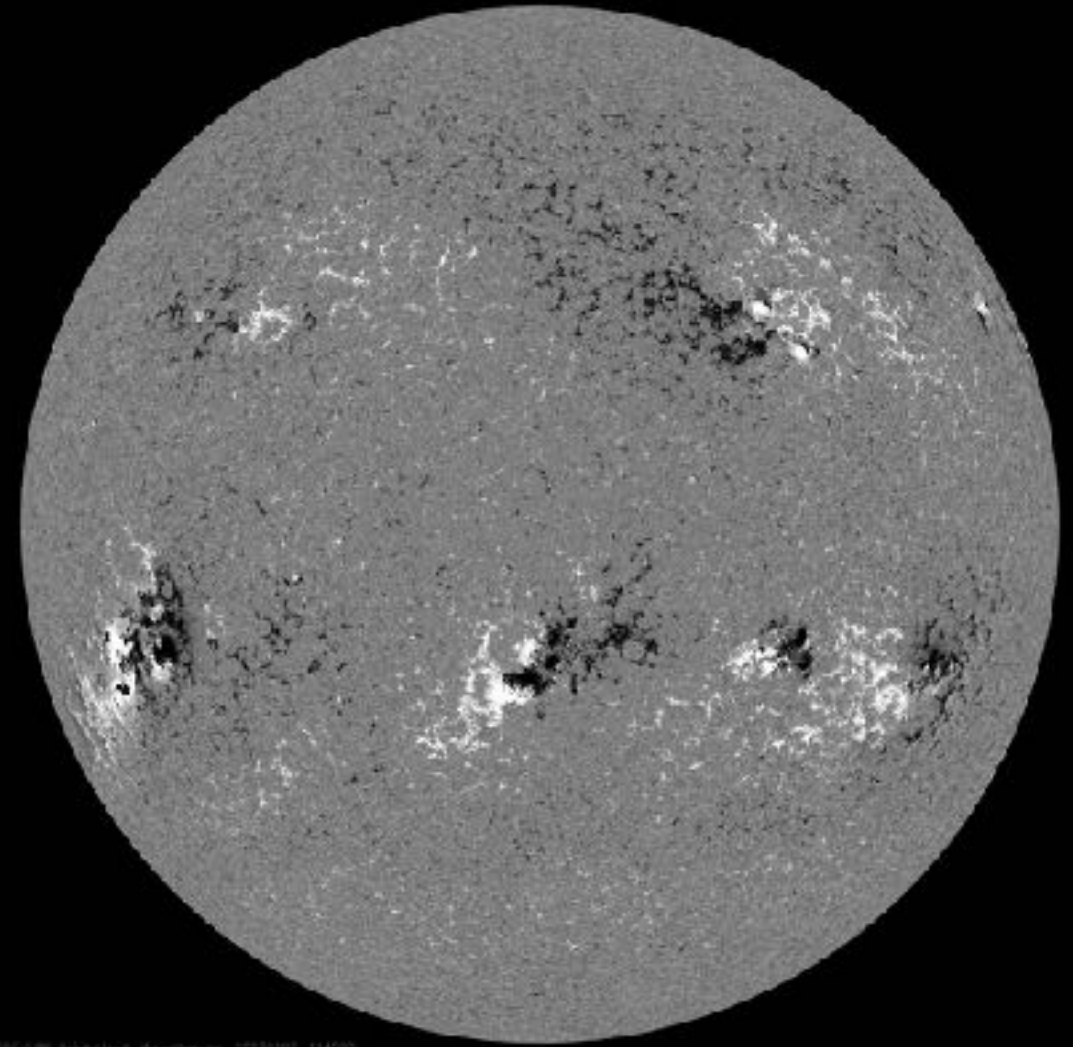


Solar active regions

SDO/HMI White Light 2023-01-07

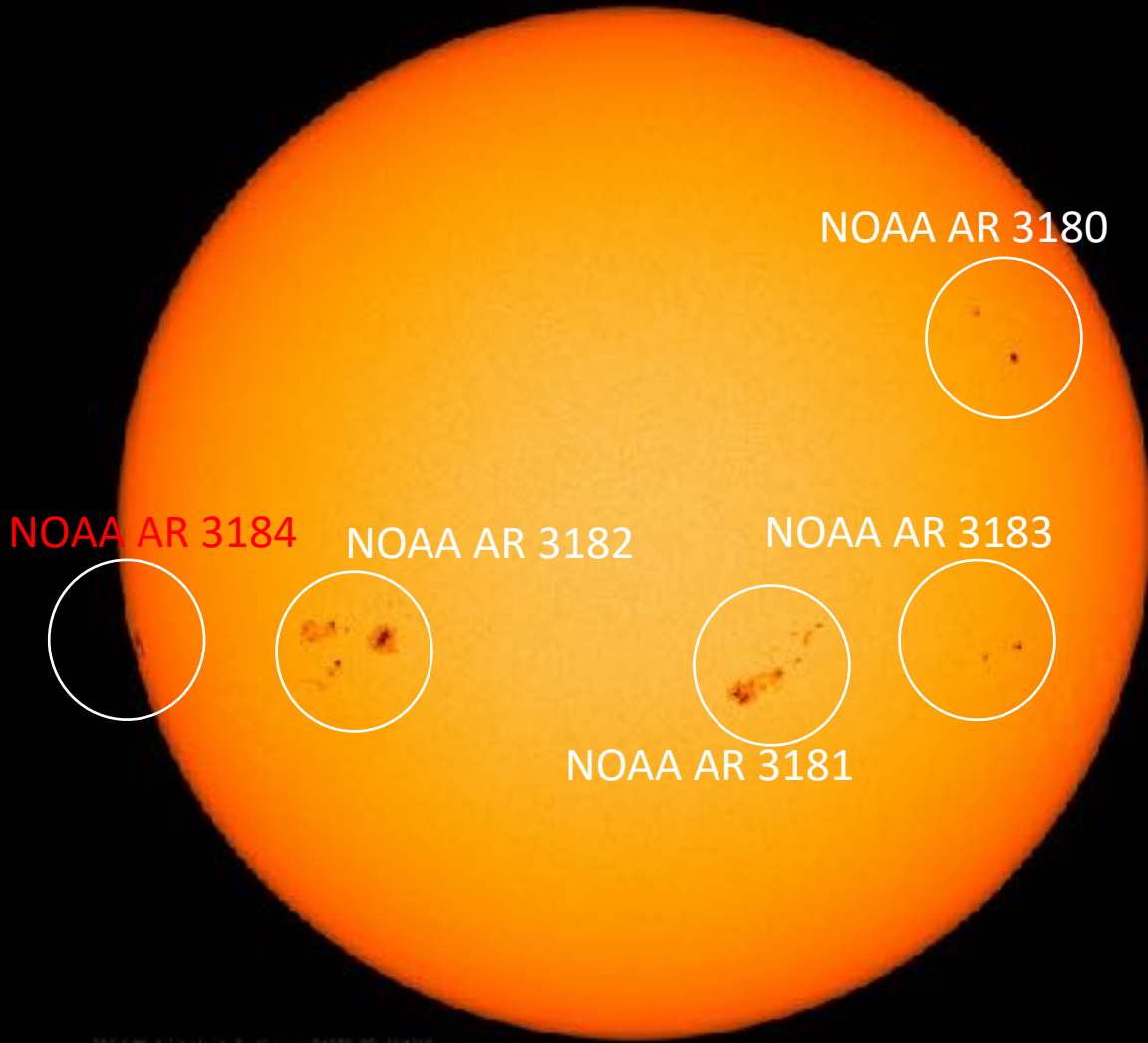


SDO/HMI Magnetogram 2023-01-07

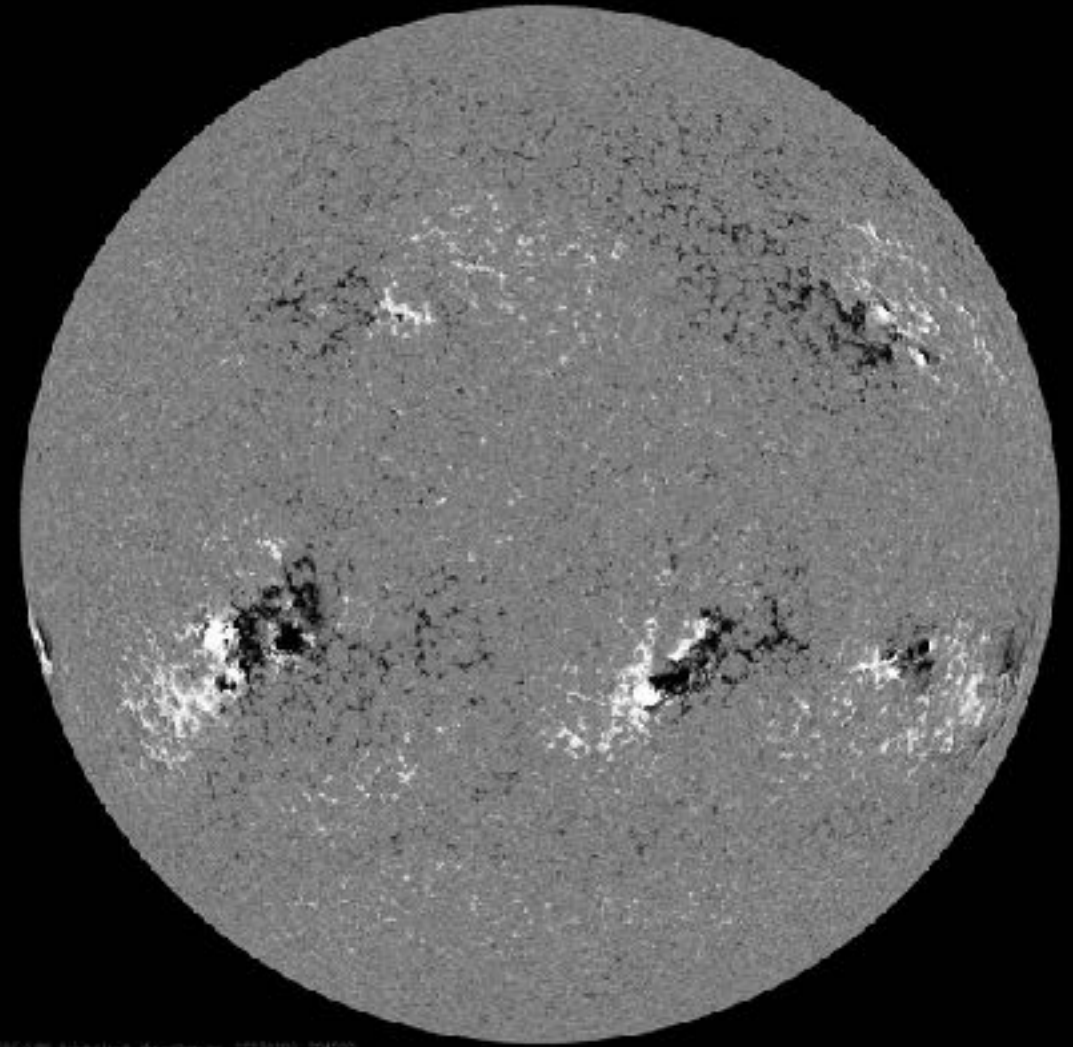


Solar active regions

SDO/HMI White Light 2023-01-08



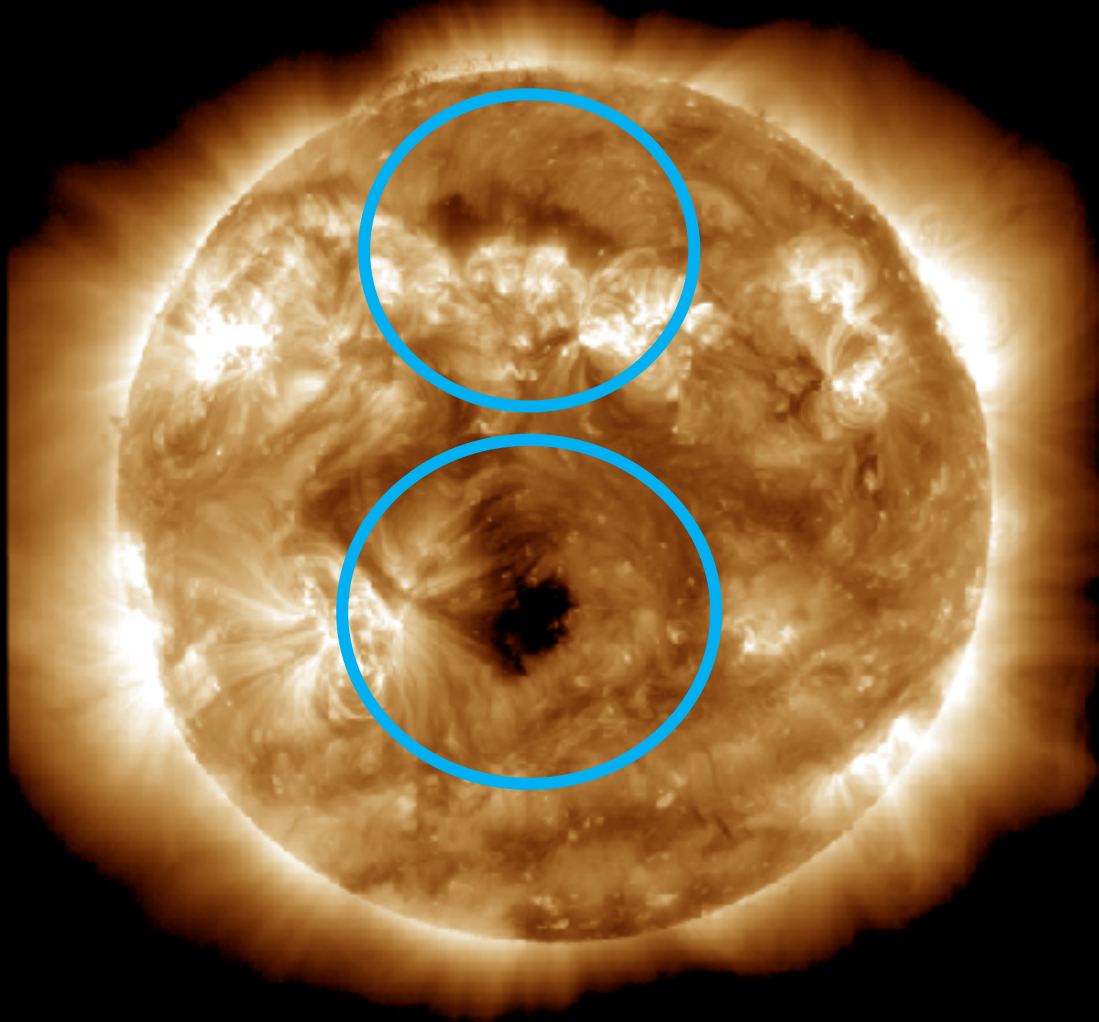
SDO/HMI Magnetogram 2023-01-08



Coronal holes

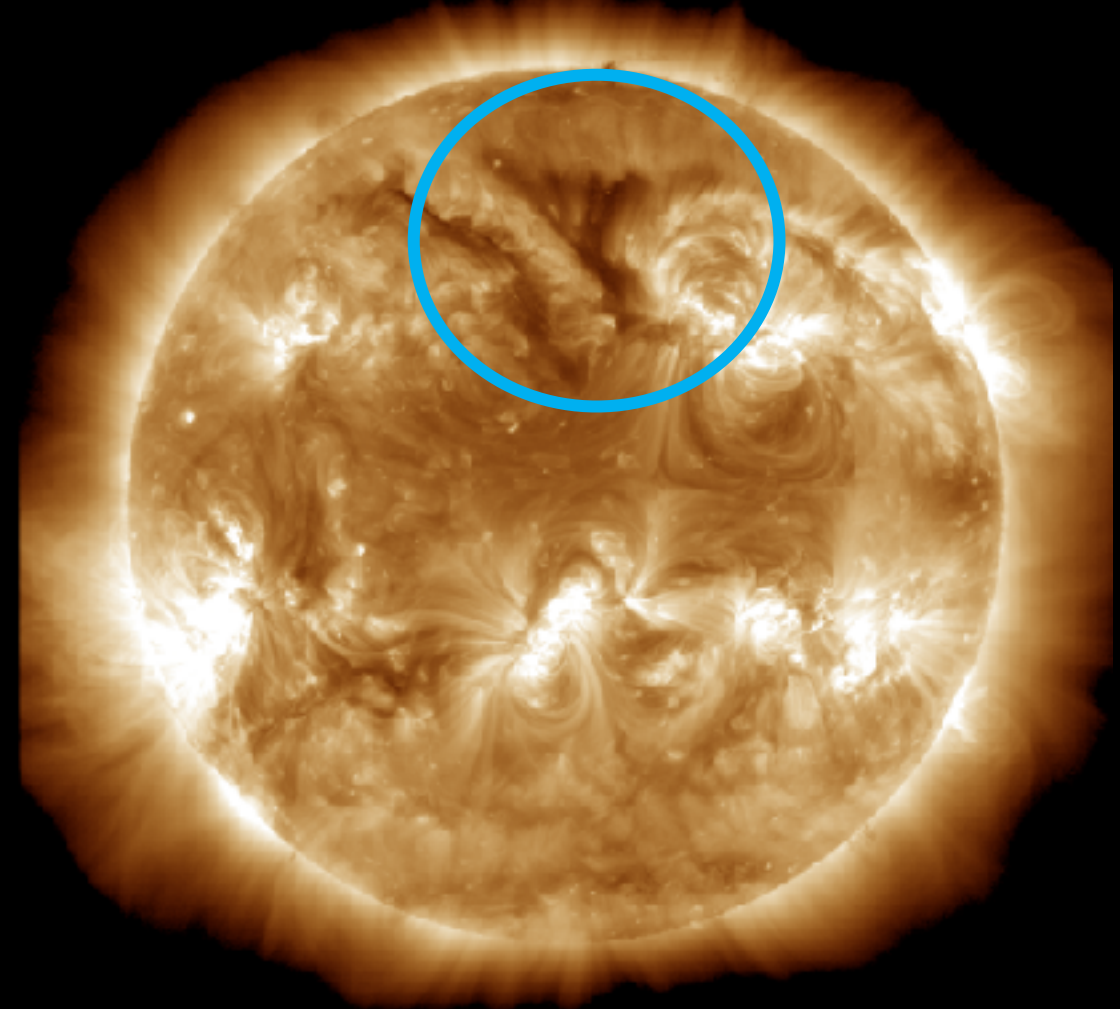
SDO/AIA 19.3 nm 2023-01-01

SDO/AIA AIA 193Å 2023-01-01T12:00:05.843



SDO/AIA 19.3 nm 2023-01-07

SDO/AIA AIA 193Å 2023-01-07T12:00:05.843



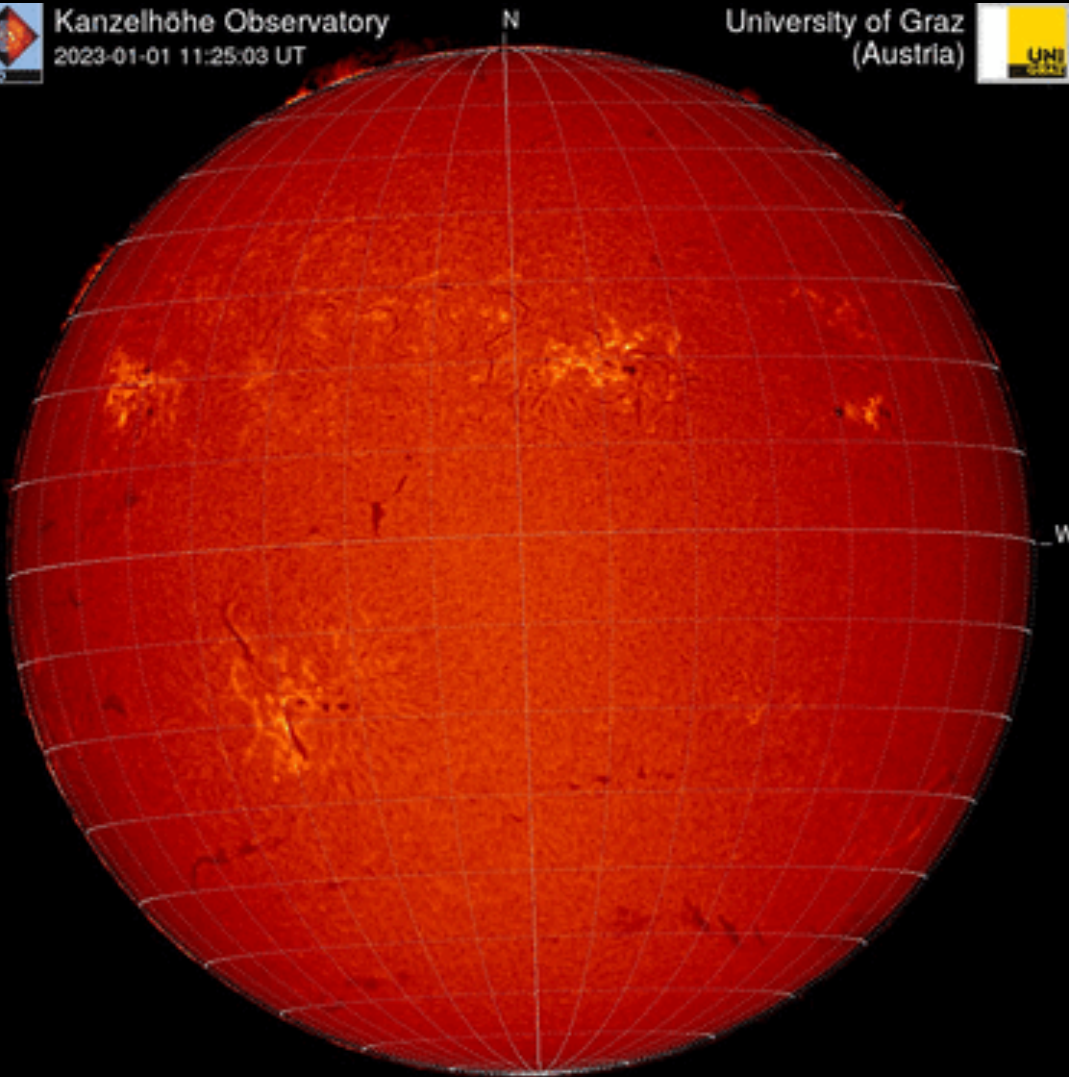
Filaments & Filament eruptions

H-alpha 2023-01-01



Kanzelhöhe Observatory
2023-01-01 11:25:03 UT

University of Graz
(Austria)

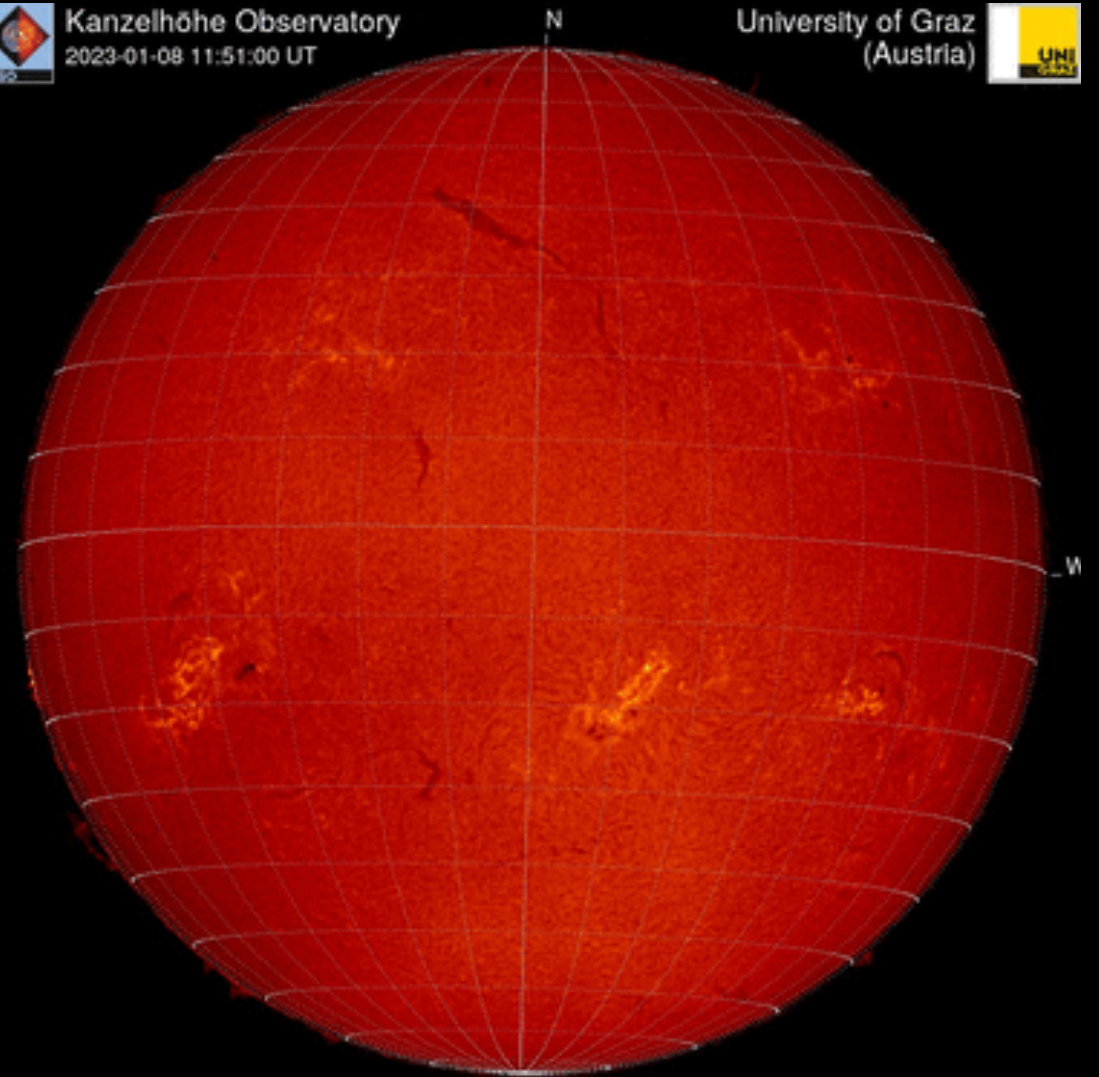


H-alpha 2023-01-08

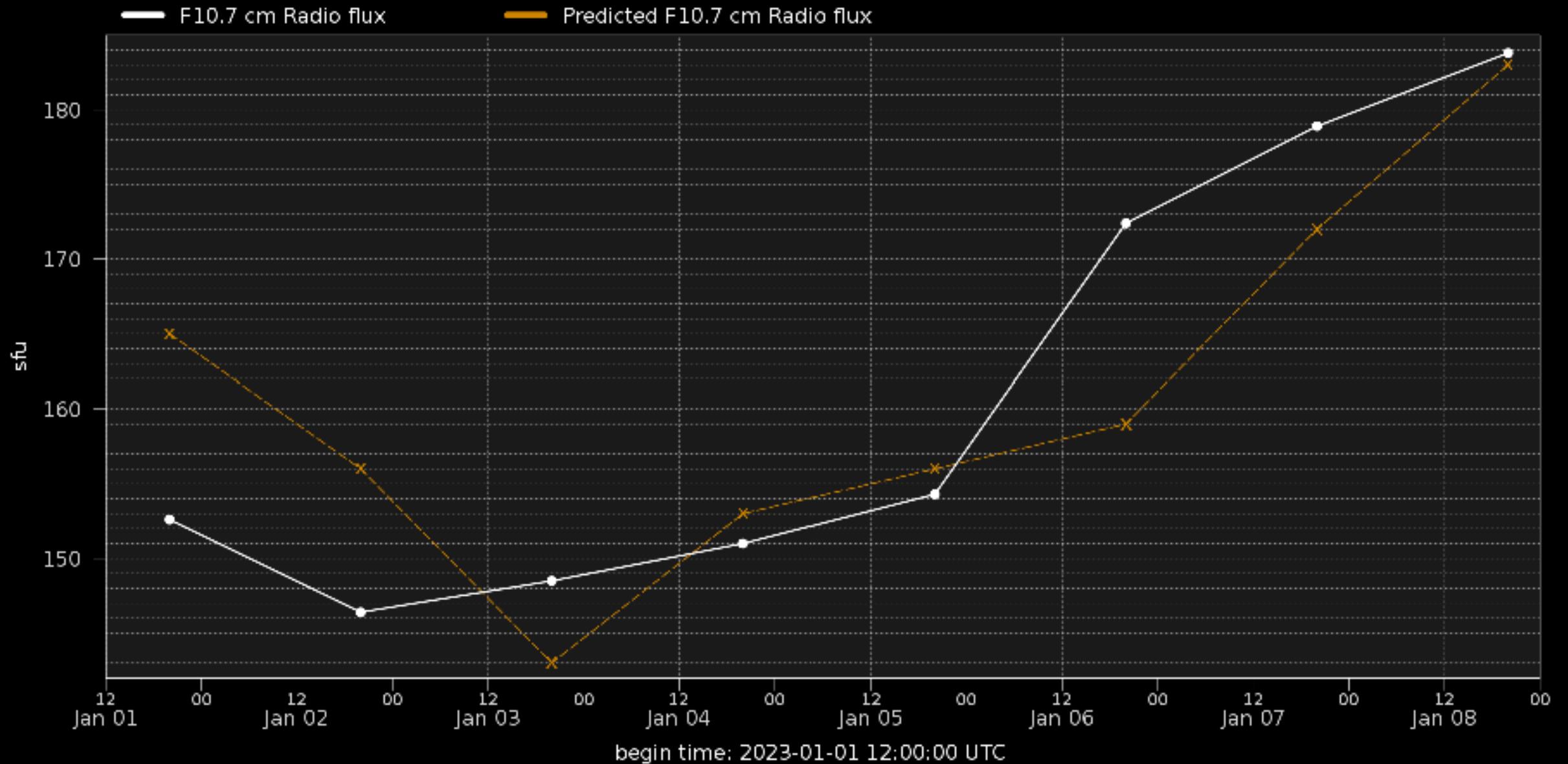


Kanzelhöhe Observatory
2023-01-08 11:51:00 UT

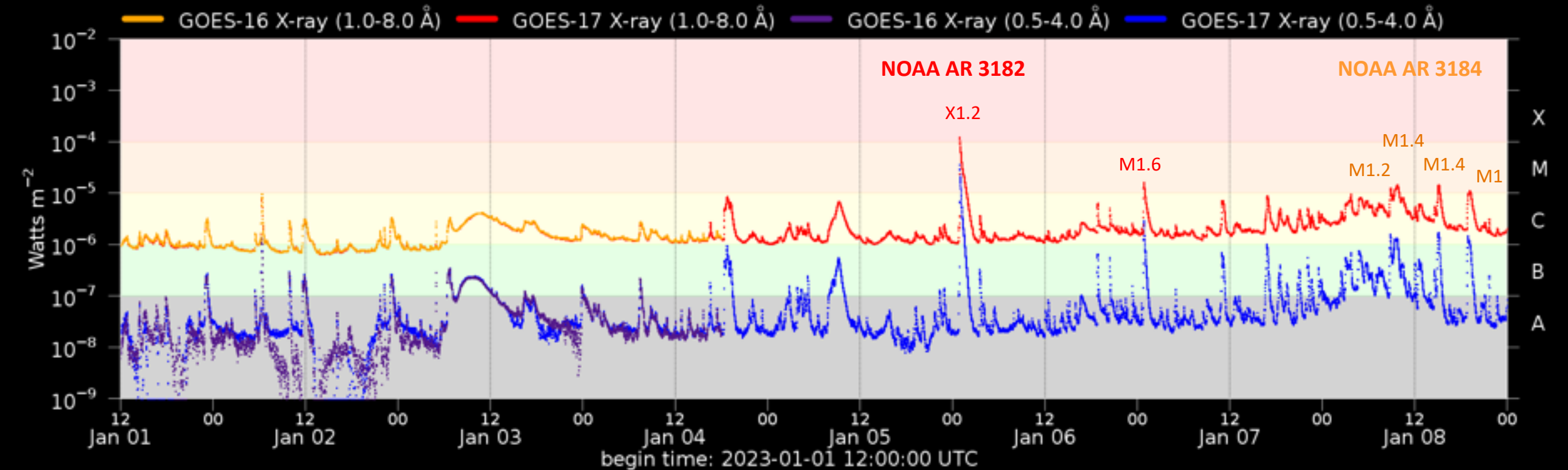
University of Graz
(Austria)



Solar F10.7cm radio flux



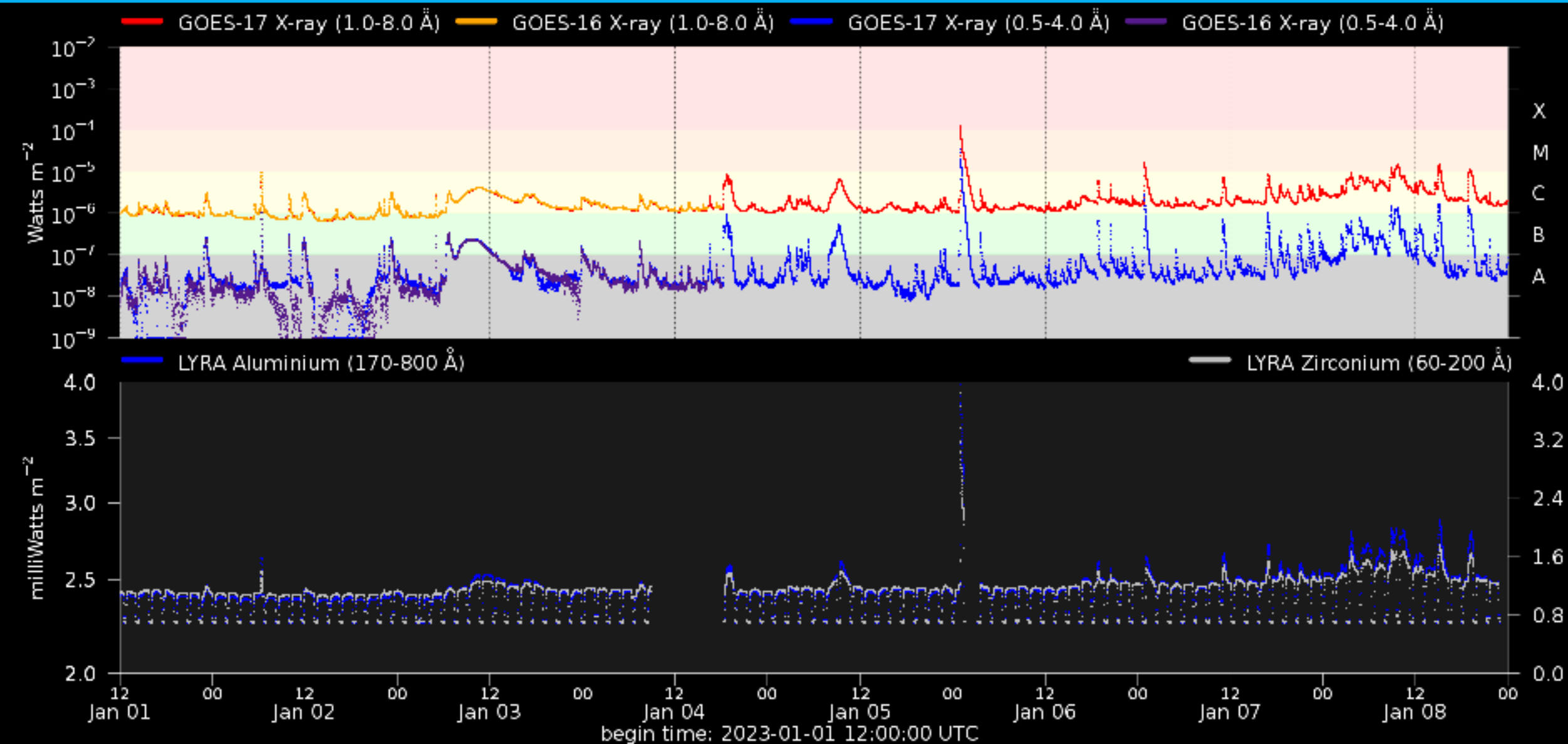
Flaring activity



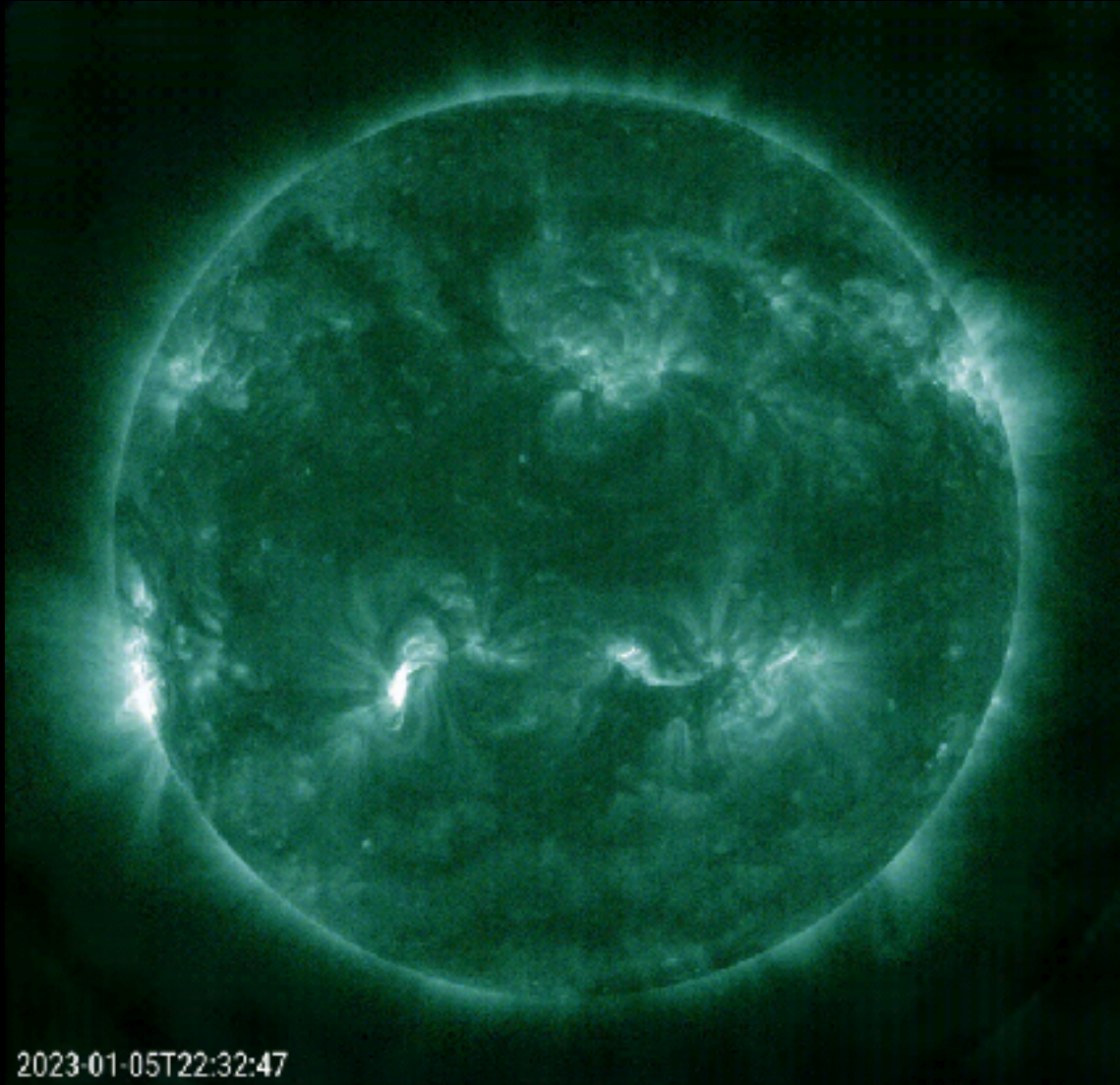
Probabilities (%) and occurrences (#) of C/M/X-flares daily, from noon to noon:

Issue date	2023-01-01	2023-01-02	2023-01-03	2023-01-04	2023-01-05	2023-01-06	2023-01-07	2023-01-08
Probability (%)	95 40 03	95 40 03	95 35 03	95 30 05	95 30 05	99 50 20	99 50 20	99 60 25
Observed (#)	07 00 00	06 00 00	01 00 00	06 00 00	03 00 01	08 01 00	08 02 00	02 02 00

Solar X-Ray and UV flux

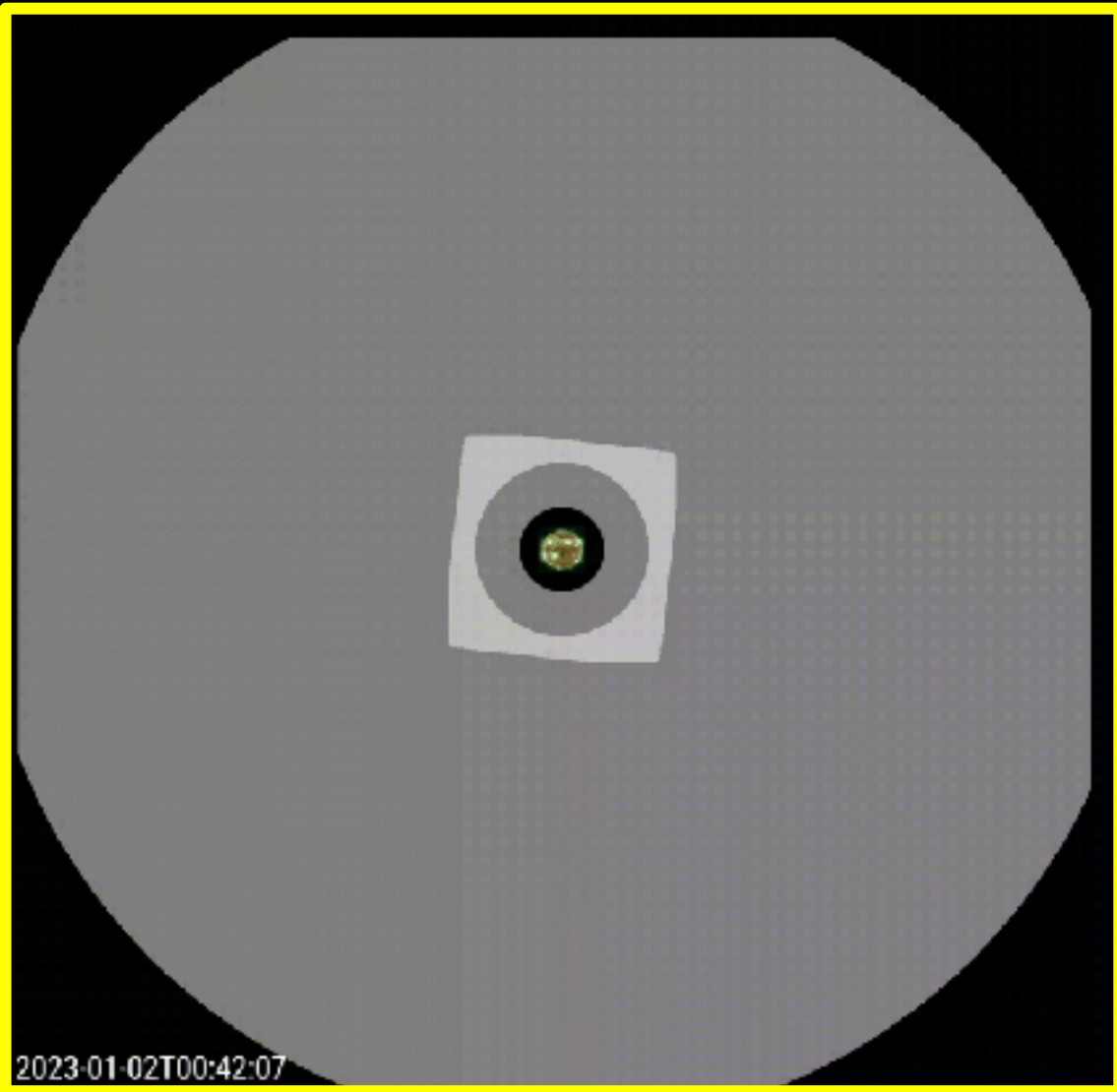


Flaring activity



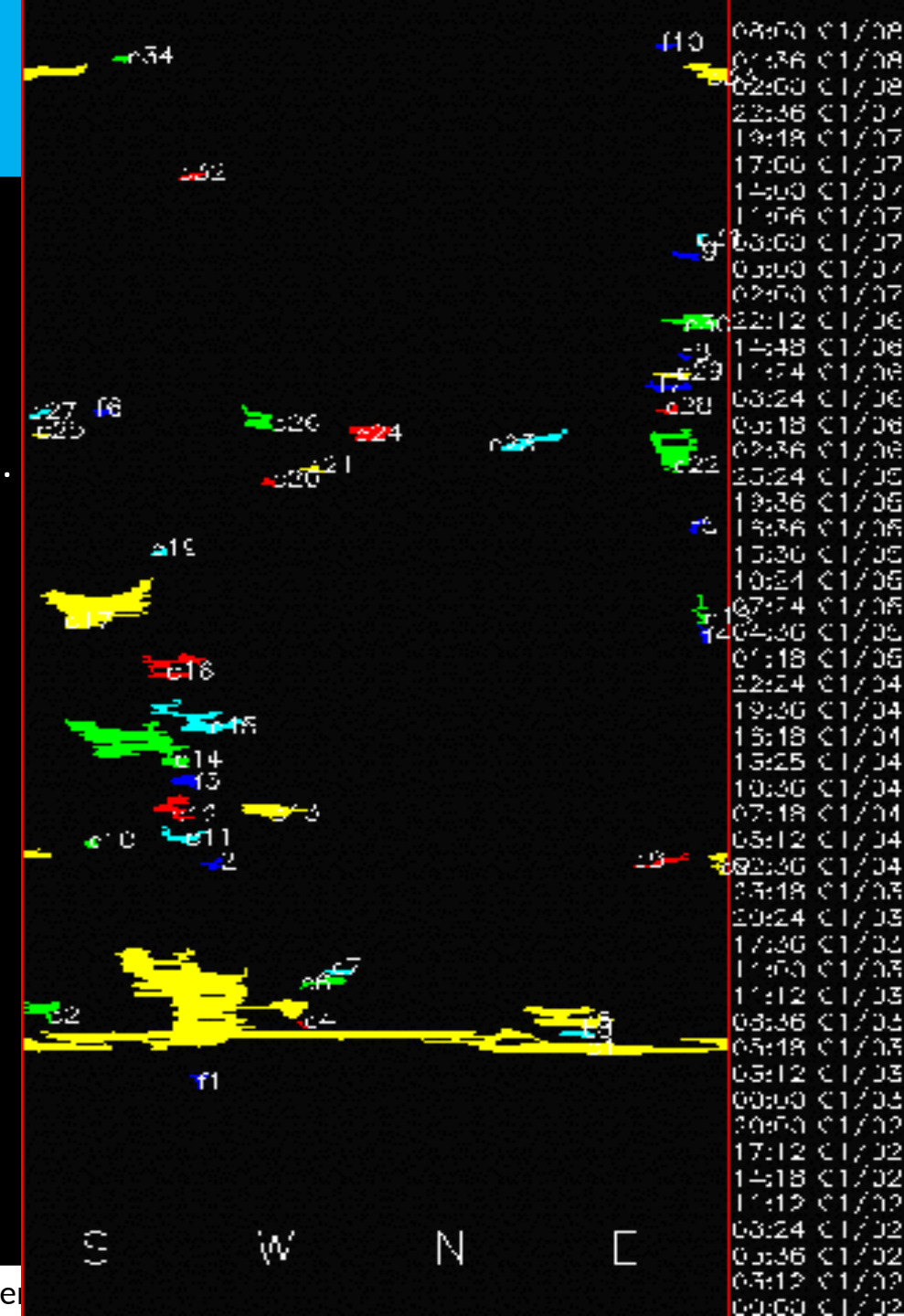
NOAA Active Region (AR) 3182
produced an X1.2 flare, peaking at
00:57 UTC January 06.

Coronal Mass Ejections



Partial Halo CME:
From beyond the
east solar limb.

Not Earth directed.



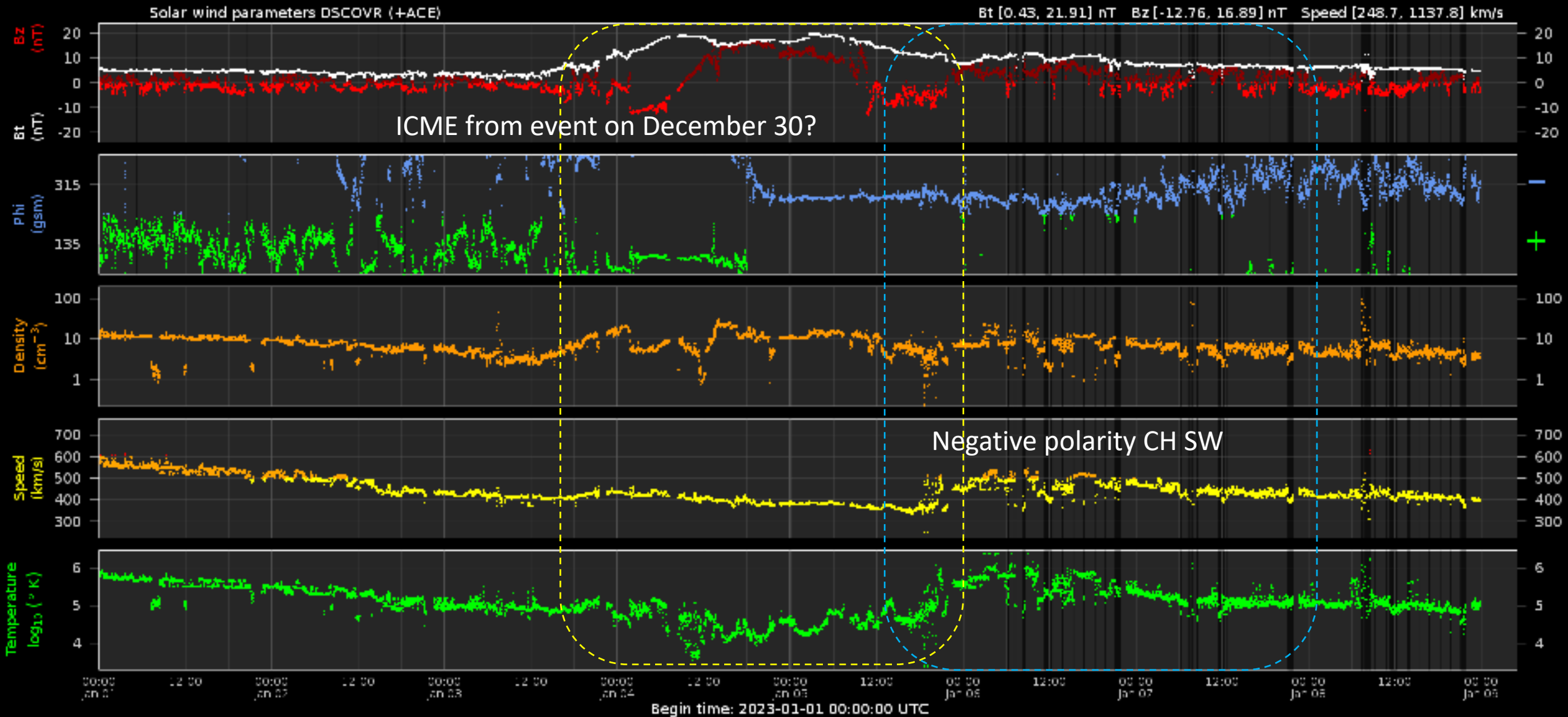
Solar Wind and Geomagnetic Activity



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Solar wind parameters



Solar wind parameters & K-indices



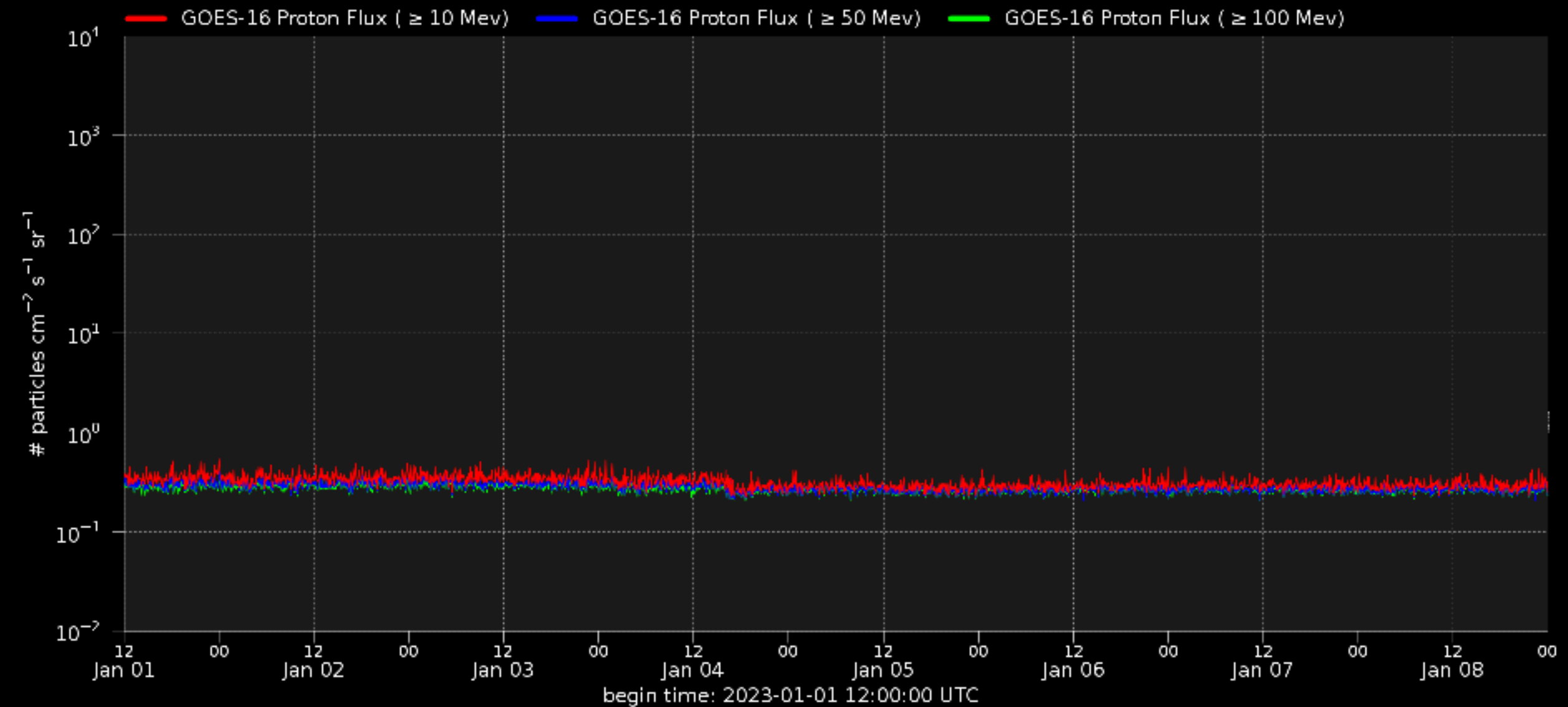
Energetic Particles



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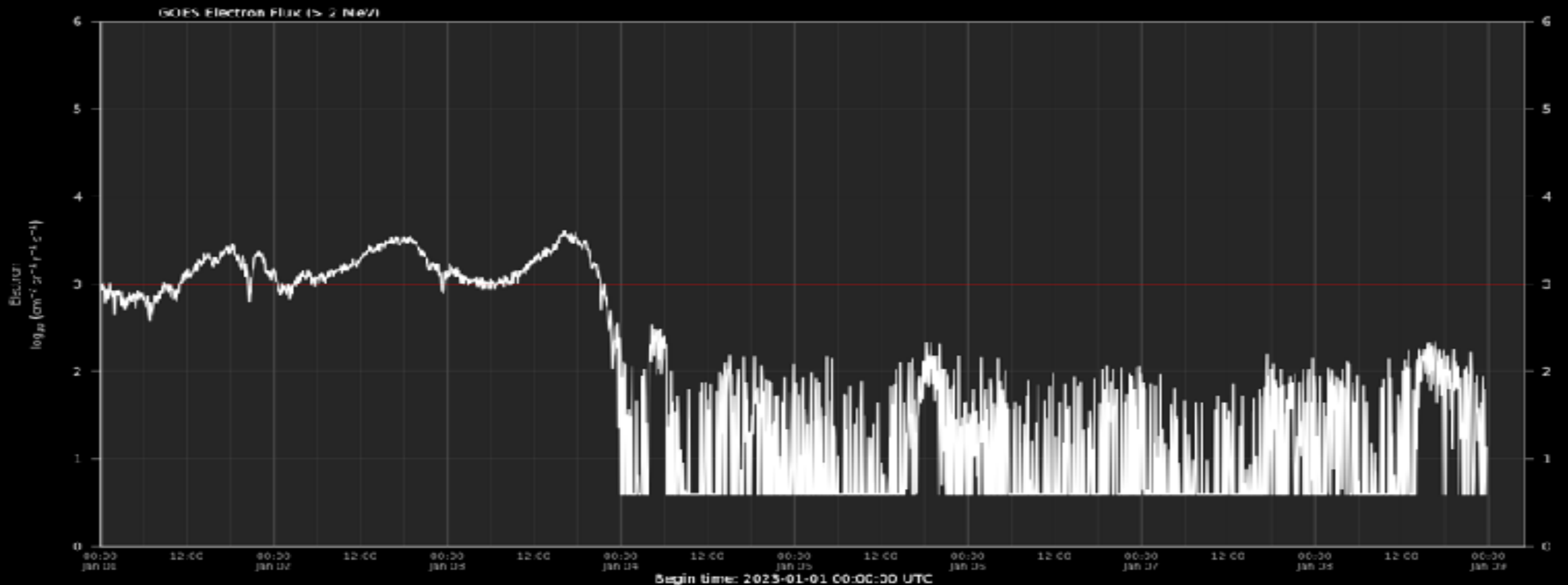
Solar proton flux



Electron flux at GEO

www.stce.be/educational/classification#electrons

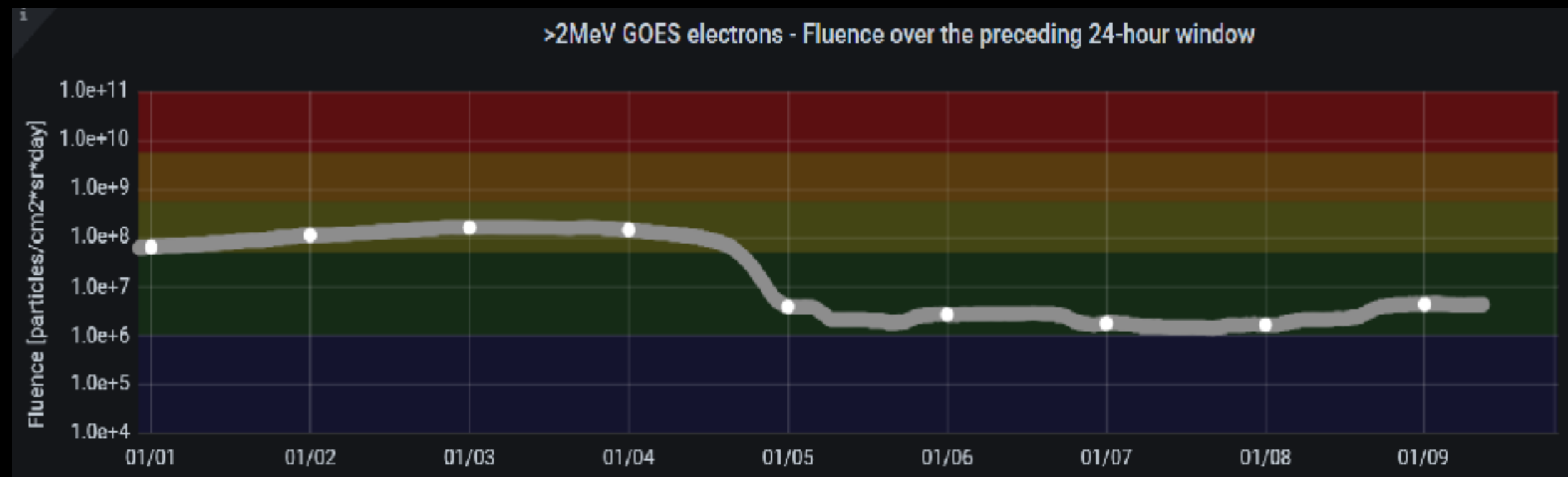
www.spaceweather.gc.ca/forecast-prevision/space-spatiale/sffl-en.php



Electron fluence at GEO

www.stce.be/educational/classification#electrons

www.spaceweather.gc.ca/forecast-prevision/space-spatiale/sffl-en.php



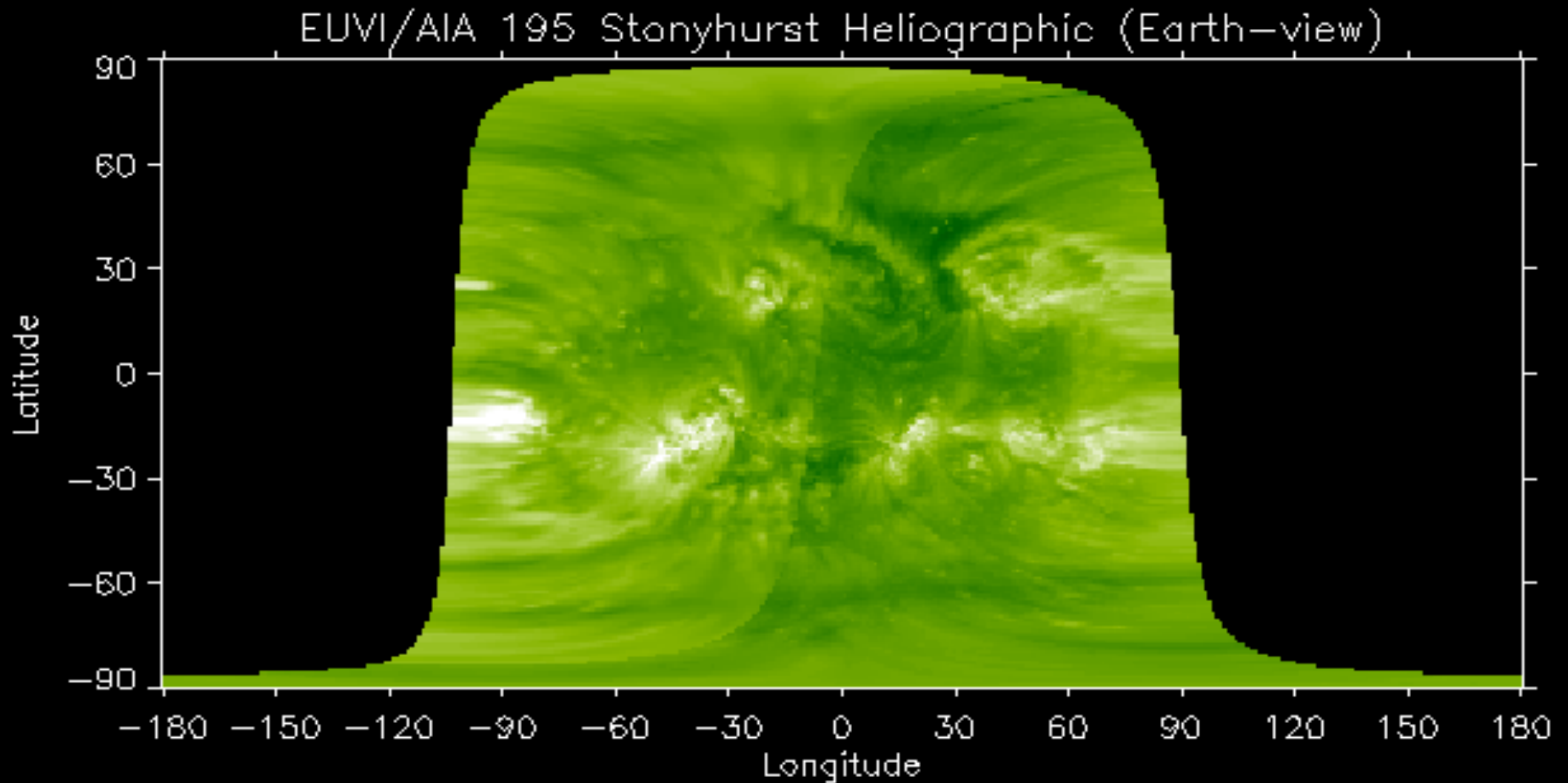
Outlook



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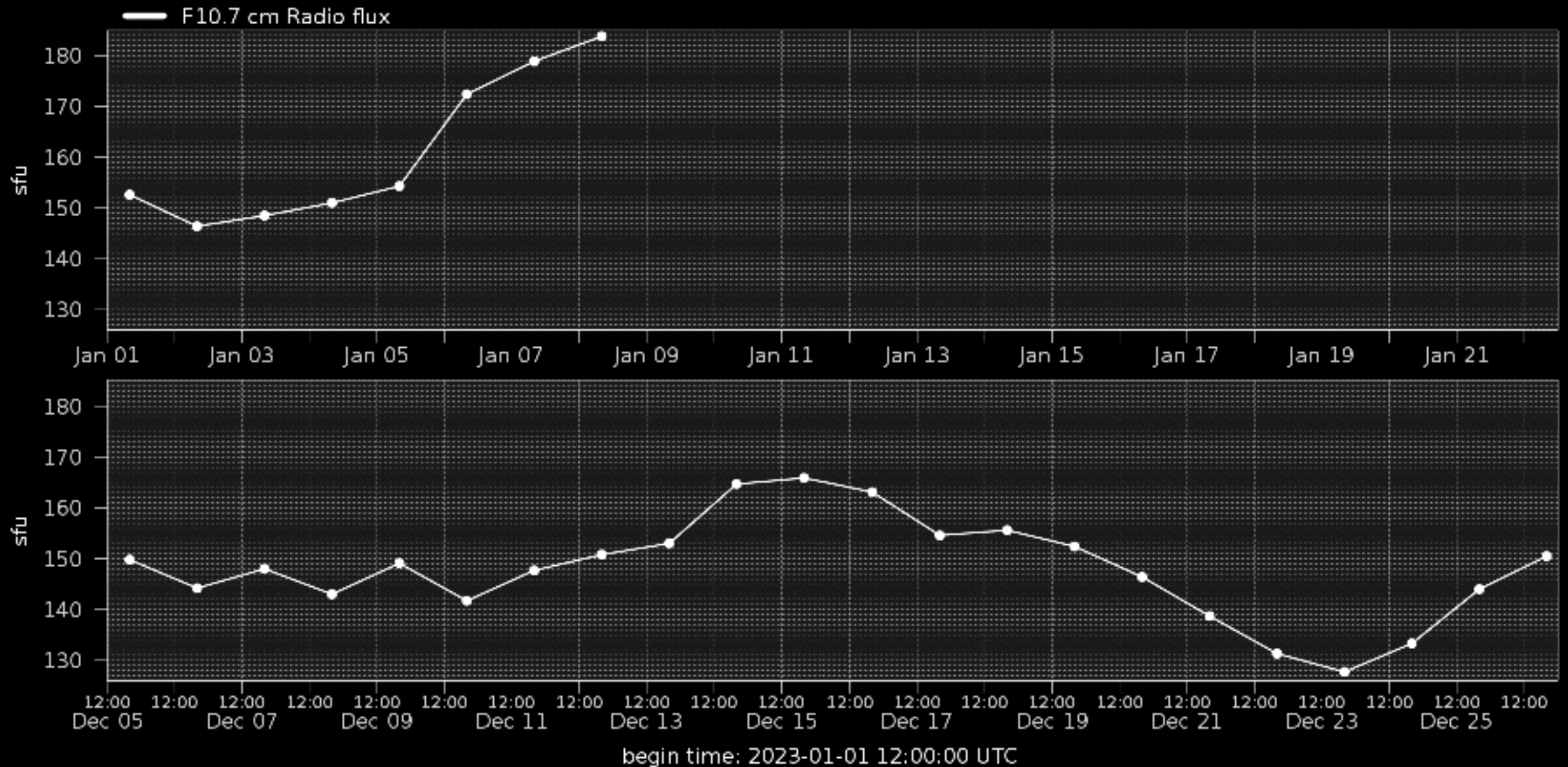
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Outlook: Solar activity

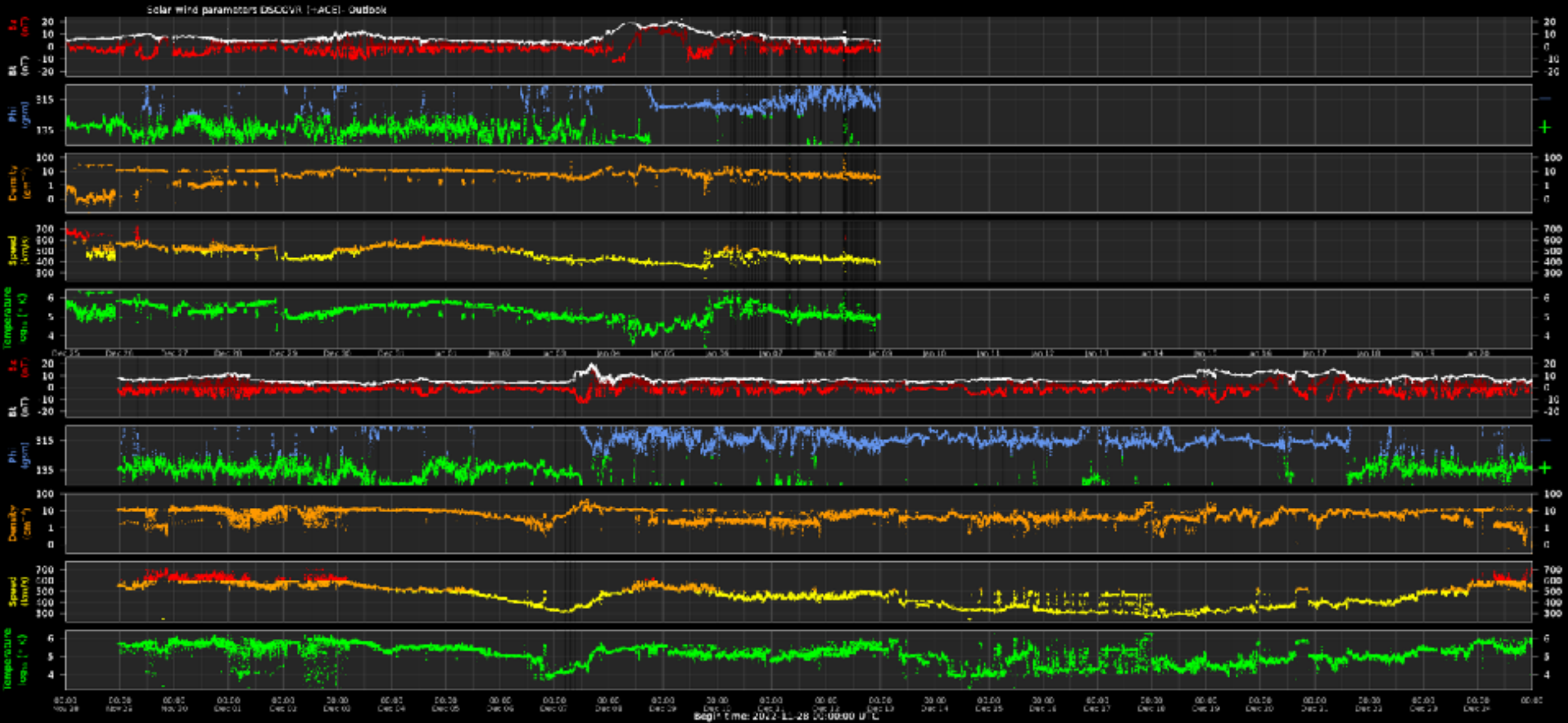


Observation date: 2023/01/08 22:35:00

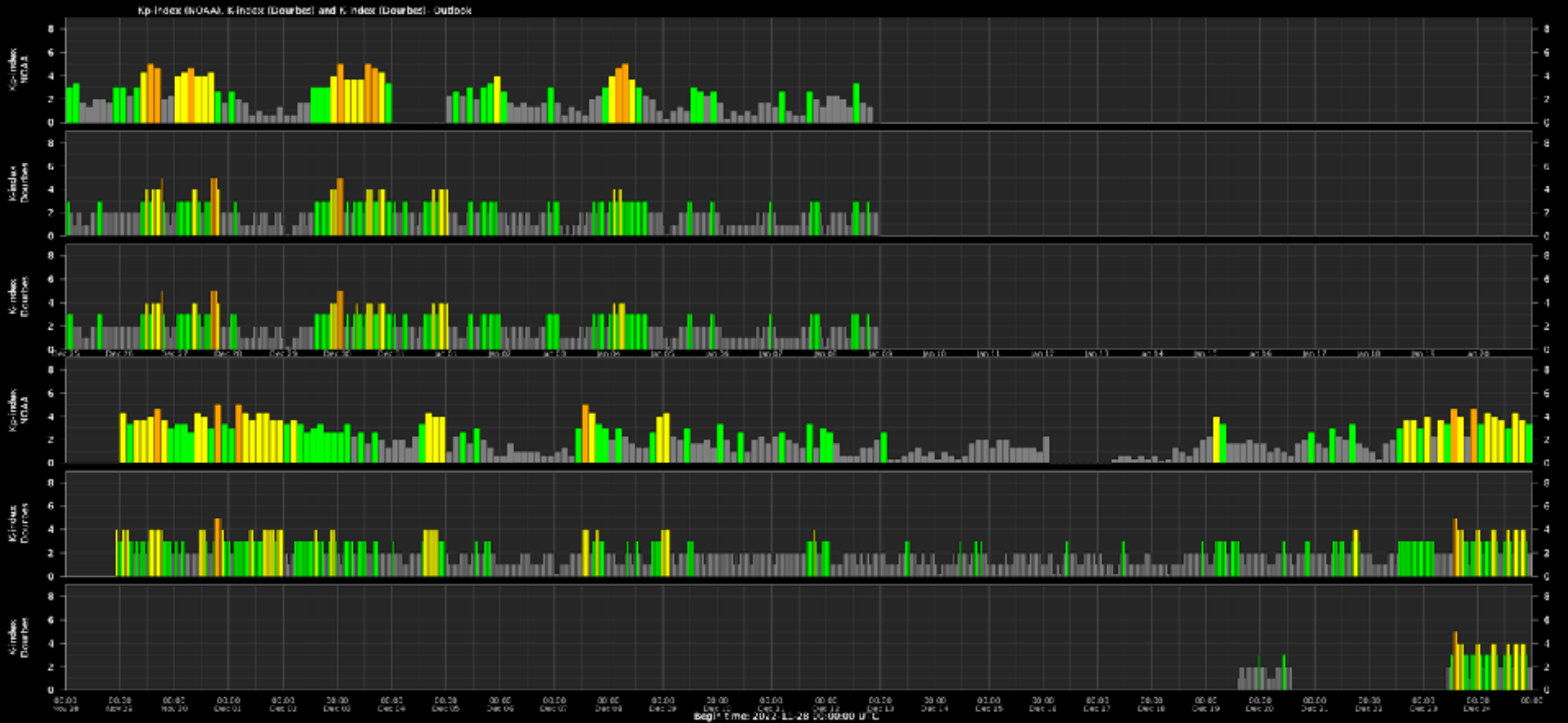
Outlook: Solar F10.7cm radio flux



Outlook: Solar wind parameters



Outlook: Geomagnetic activity



Outlook: Electron Flux at GEO Outlook



SIDC Space Weather Briefing

See you at our next briefing!

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