

# SIDC Space Weather Briefing

22 September 2024-29 September 2024

Rodriguez Luciano

& the SIDC forecaster team



Royal Observatory  
of Belgium

Solar Influences  
Data analysis Centre  
[www.sidc.be](http://www.sidc.be)

# Summary Report

Solar activity from 2024-09-22 12:00 to 2024-09-29 23:59

Active regions	NOAA AR 3825 to 3842
Flares	# C-class flare: 15 # M-class flare: 5 # X-class flare: 0
Coronal Holes	2 small and narrow equatorial CHs
CMEs	1 with possible Earth component

Proton flux	Below thresholds
Electron flux	Mostly below threshold

## Solar wind and geomagnetic conditions

ICMEs	1 (from a CME in the previous week)
Solar wind conditions	B : 1.19 - 14.91 nT //Bz: -11.66 nT to 13.0 nT //Speed: 270.8 - 579.8km/s
Geomagnetic conditions	max K <sub>Be</sub> : 5.0, max K <sub>p</sub> (NOAA): 5.0, Minor Storm conditions

All Quiet Alert: Off

# Solar Activity

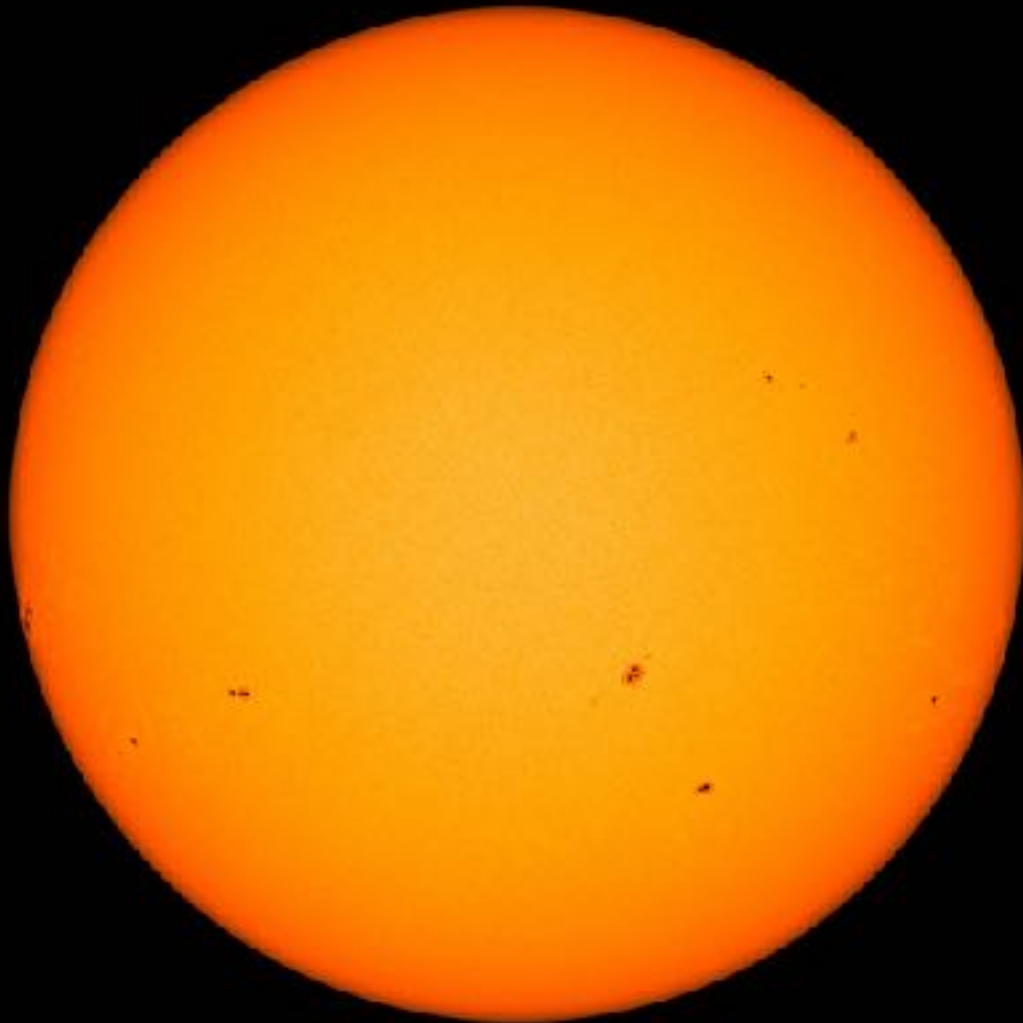


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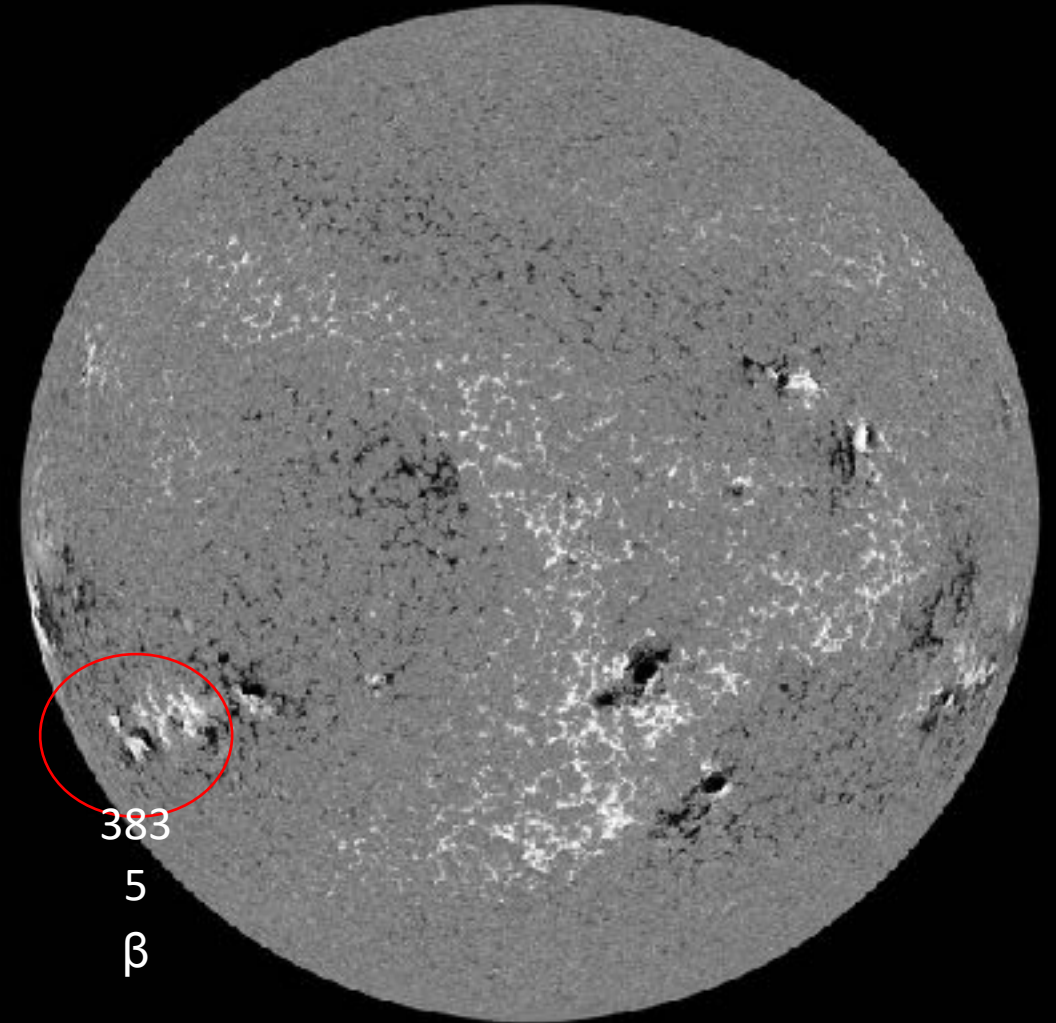
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# Solar active regions

SDO/HMI White Light 2024-09-23

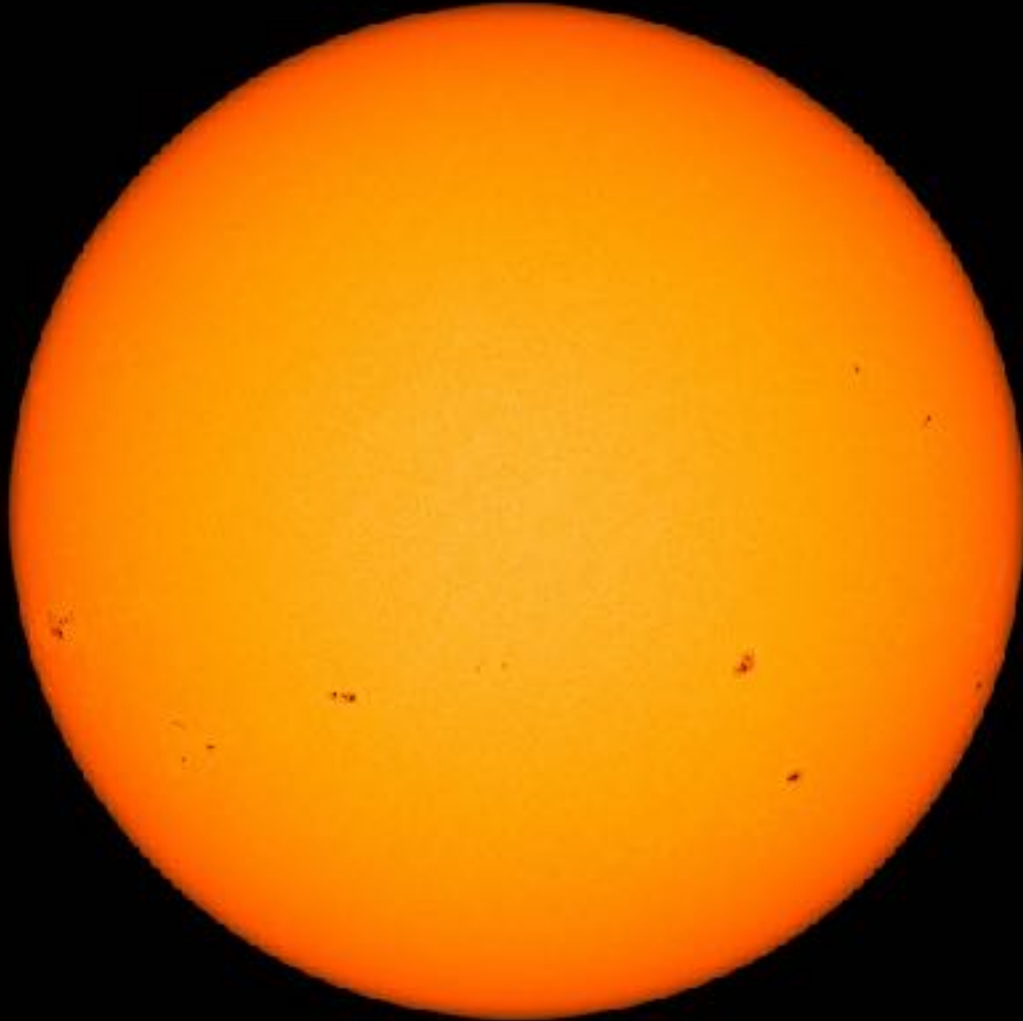


SDO/HMI Magnetogram 2024-09-23

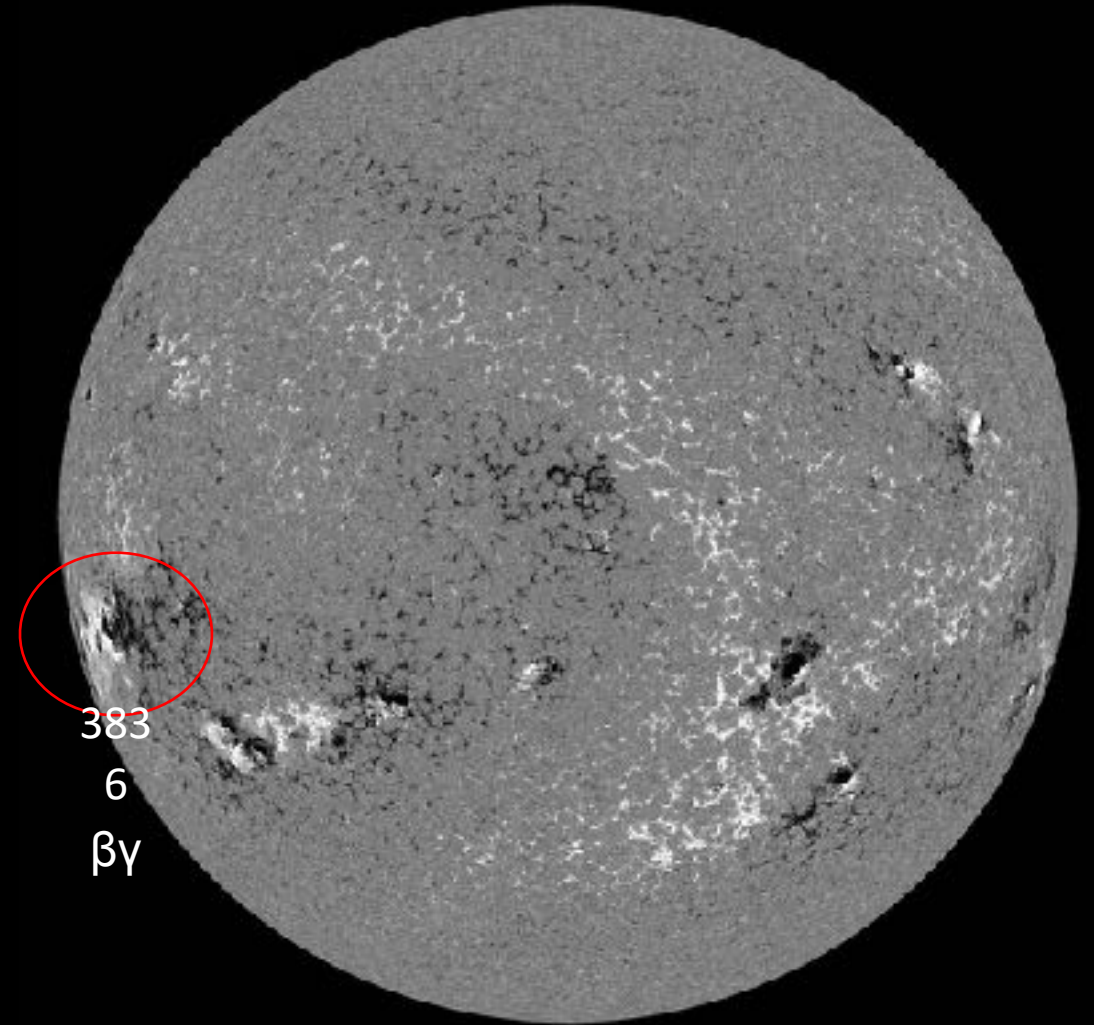


# Solar active regions

SDO/HMI White Light 2024-09-24

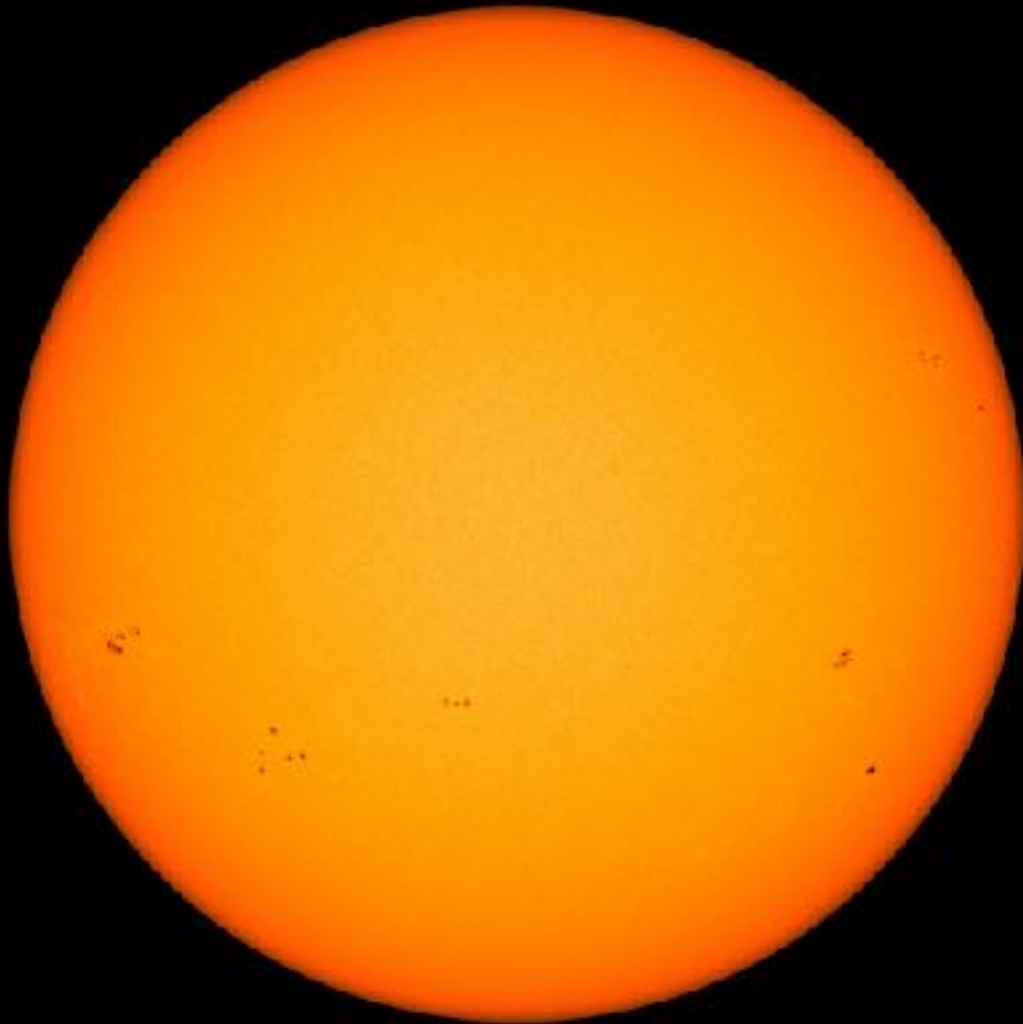


SDO/HMI Magnetogram 2024-09-24

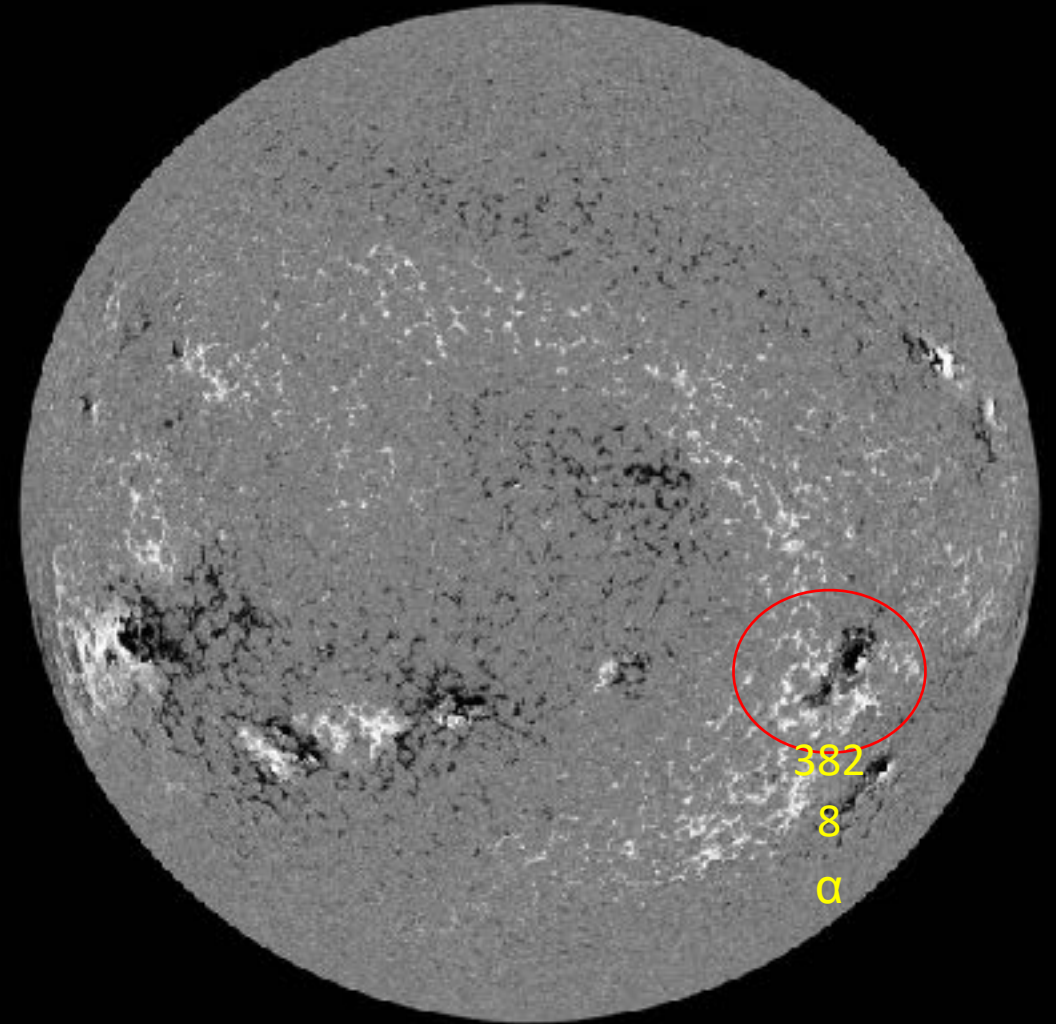


# Solar active regions

SDO/HMI White Light 2024-09-25

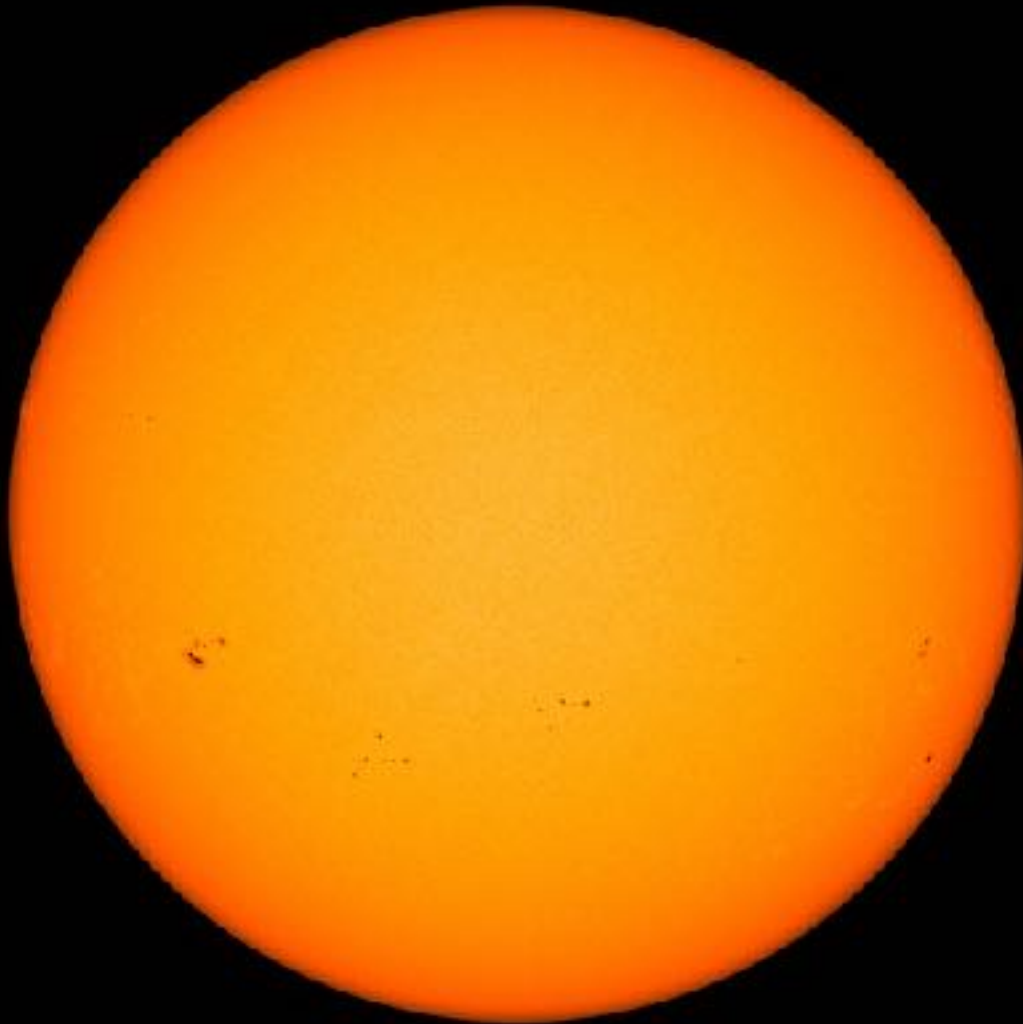


SDO/HMI Magnetogram 2024-09-25

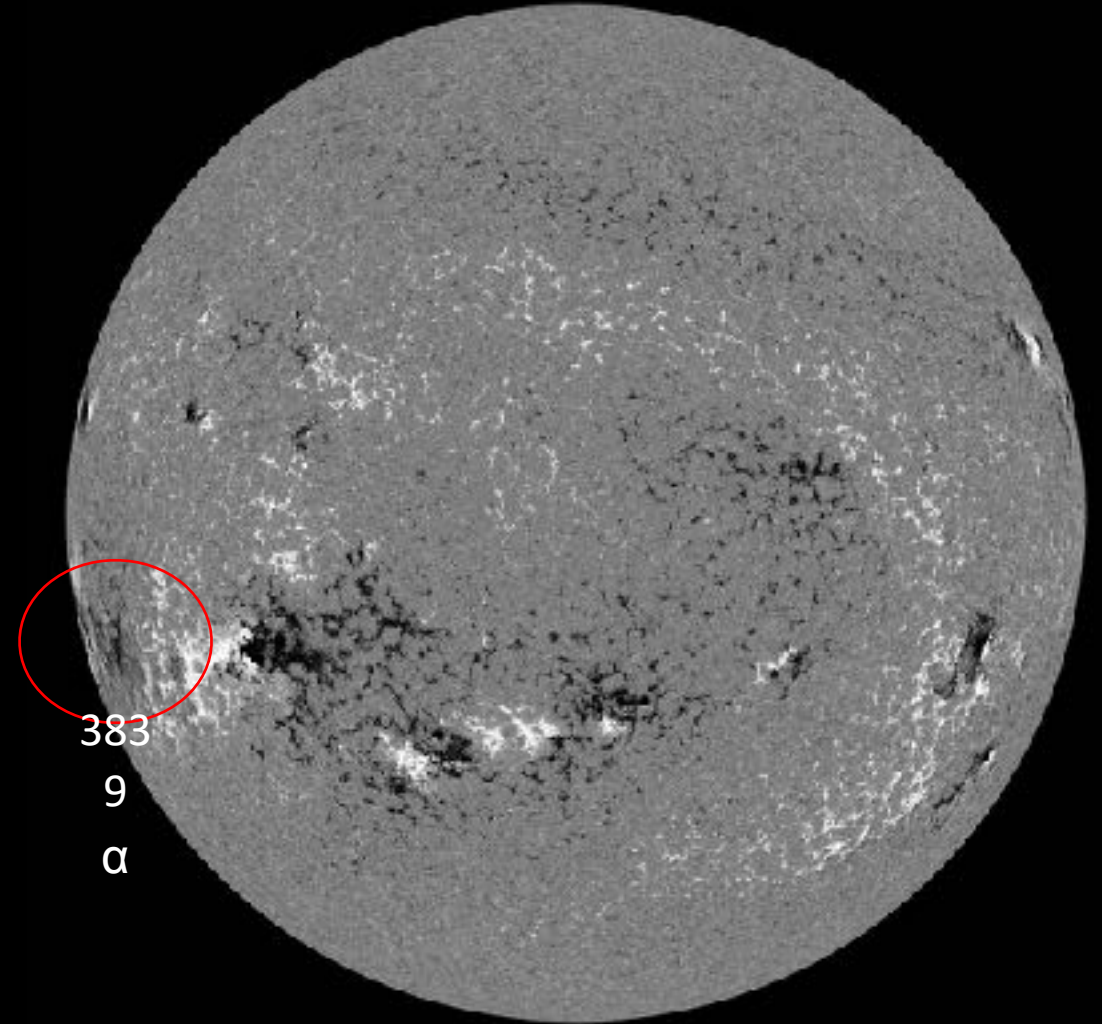


# Solar active regions

SDO/HMI White Light 2024-09-26

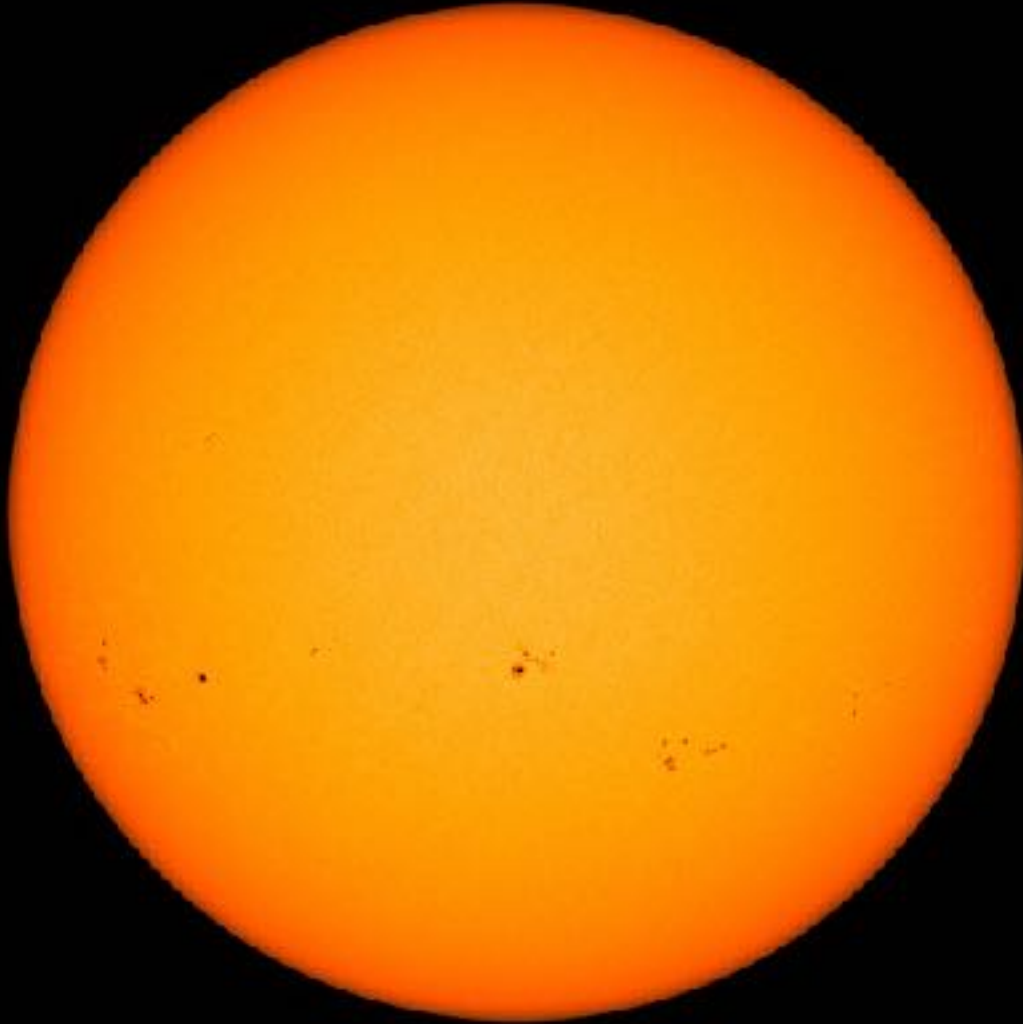


SDO/HMI Magnetogram 2024-09-26

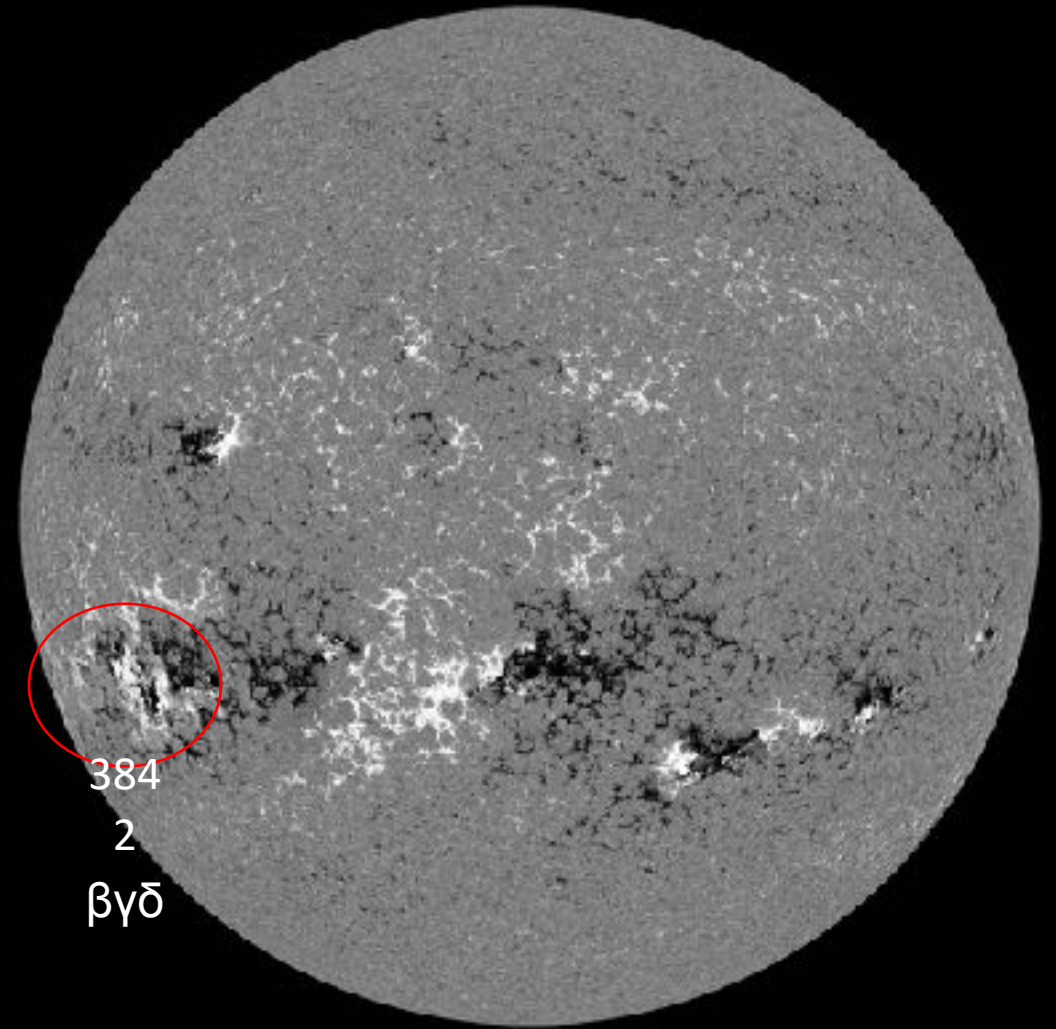


# Solar active regions

SDO/HMI White Light 2024-09-29



SDO/HMI Magnetogram 2024-09-29

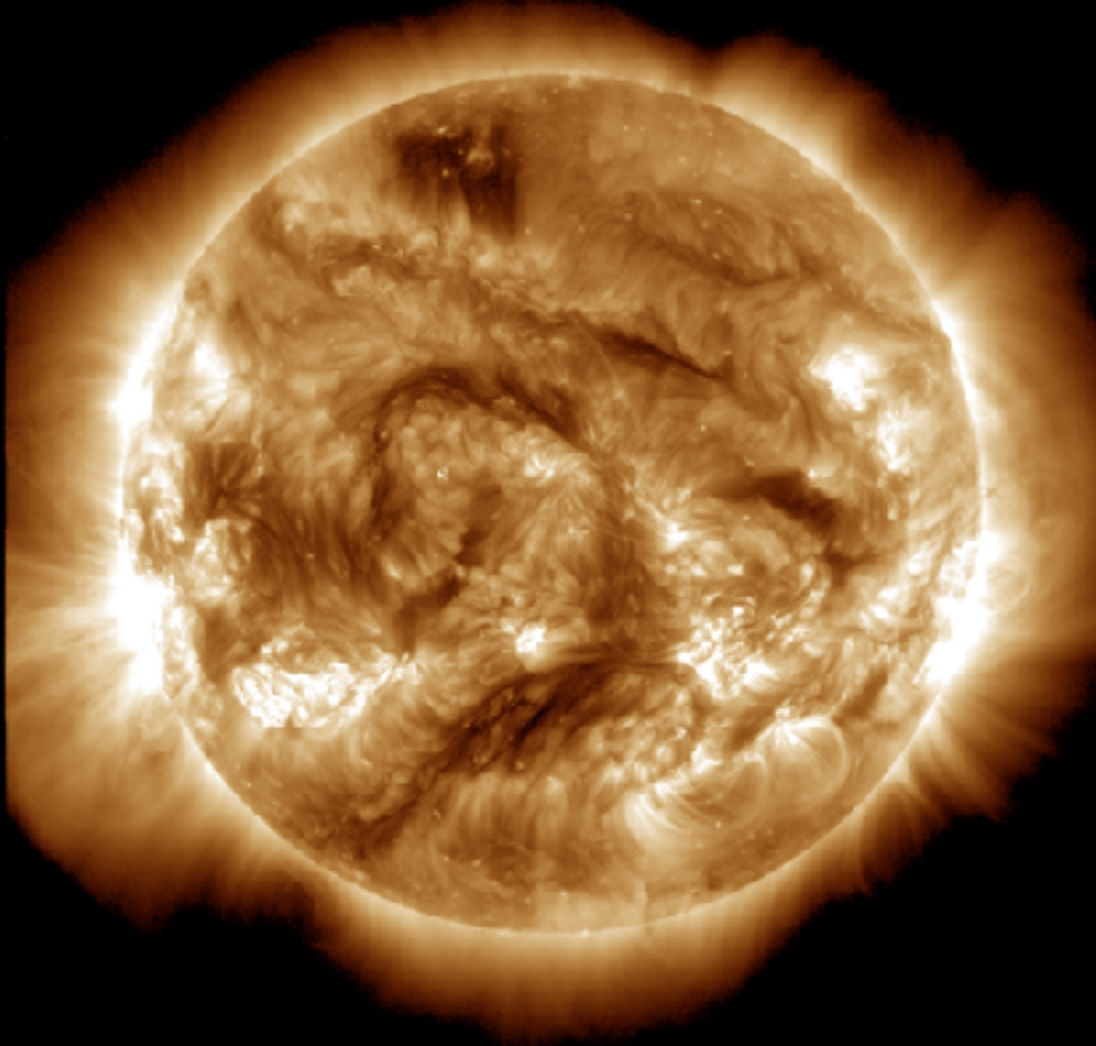




# Coronal holes

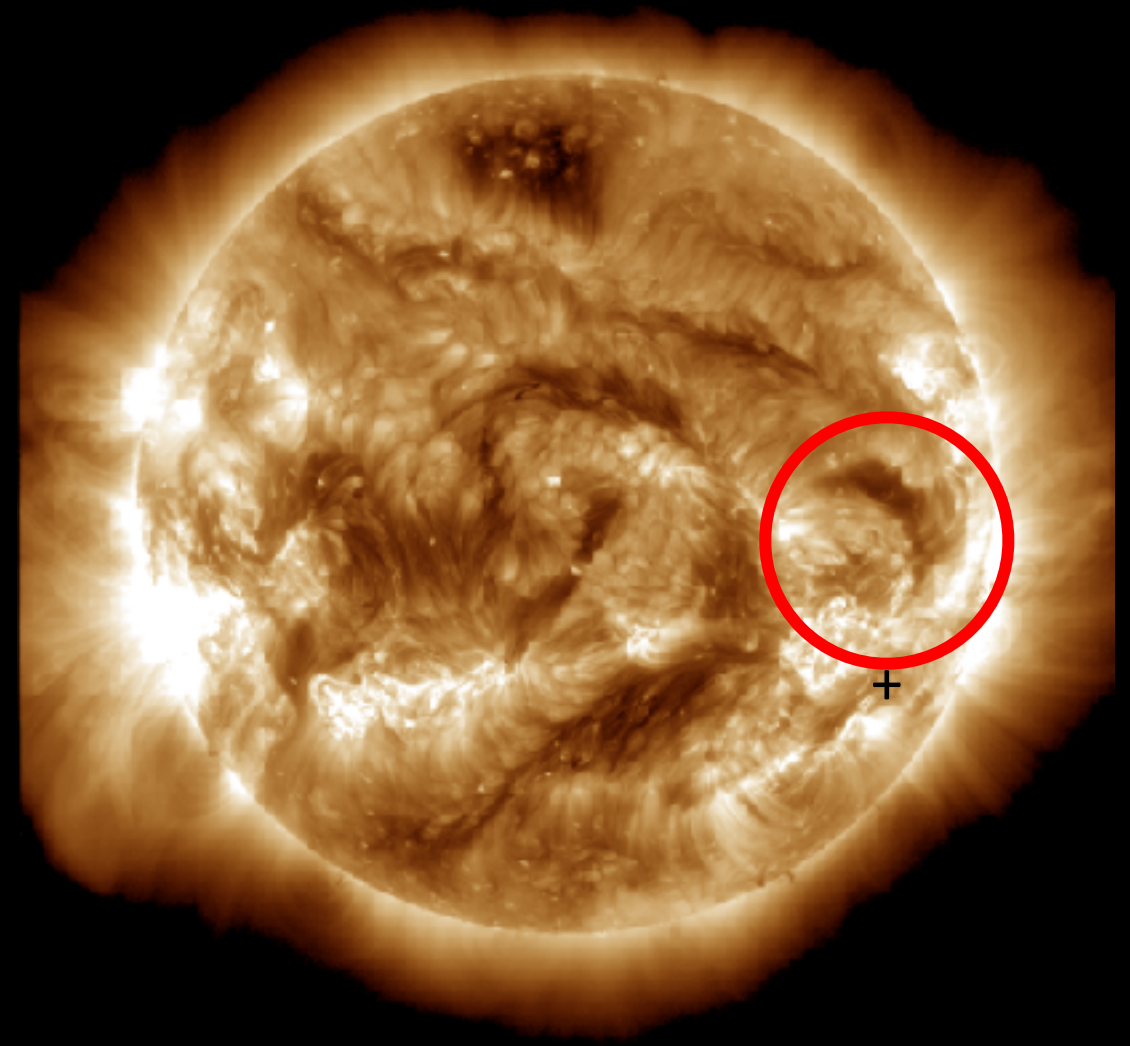
SDO/AIA 19.3 nm 2024-09-24

SDO/AIA AIA 193Å 2024-09-24T12:00:07.095



SDO/AIA 19.3 nm 2024-09-25

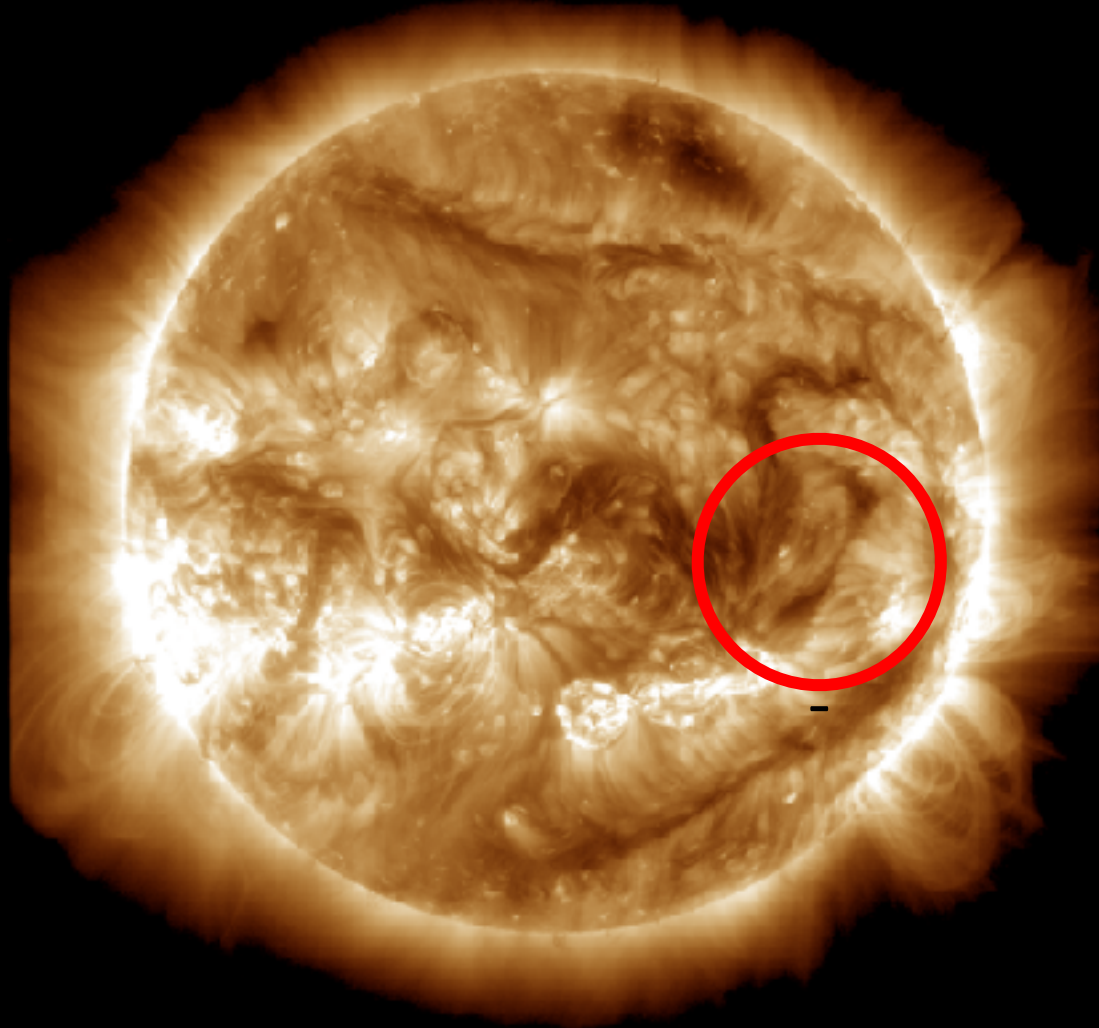
SDO/AIA AIA 193Å 2024-09-25T12:00:05.843



# Coronal holes

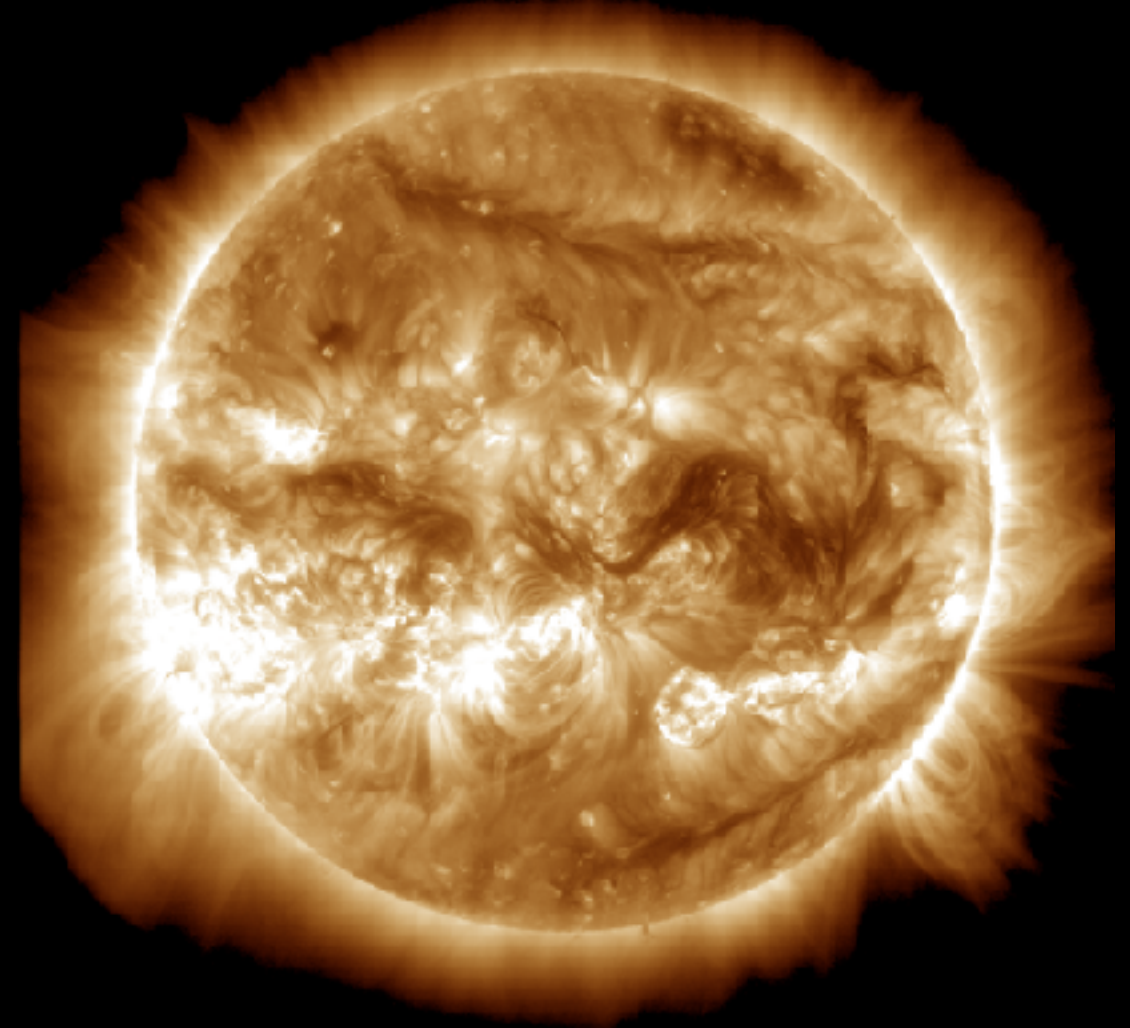
SDO/AIA 19.3 nm 2024-09-28

SDO/AIA AIA 193Å 2024-09-28T12:00:05.843



SDO/AIA 19.3 nm 2024-09-29

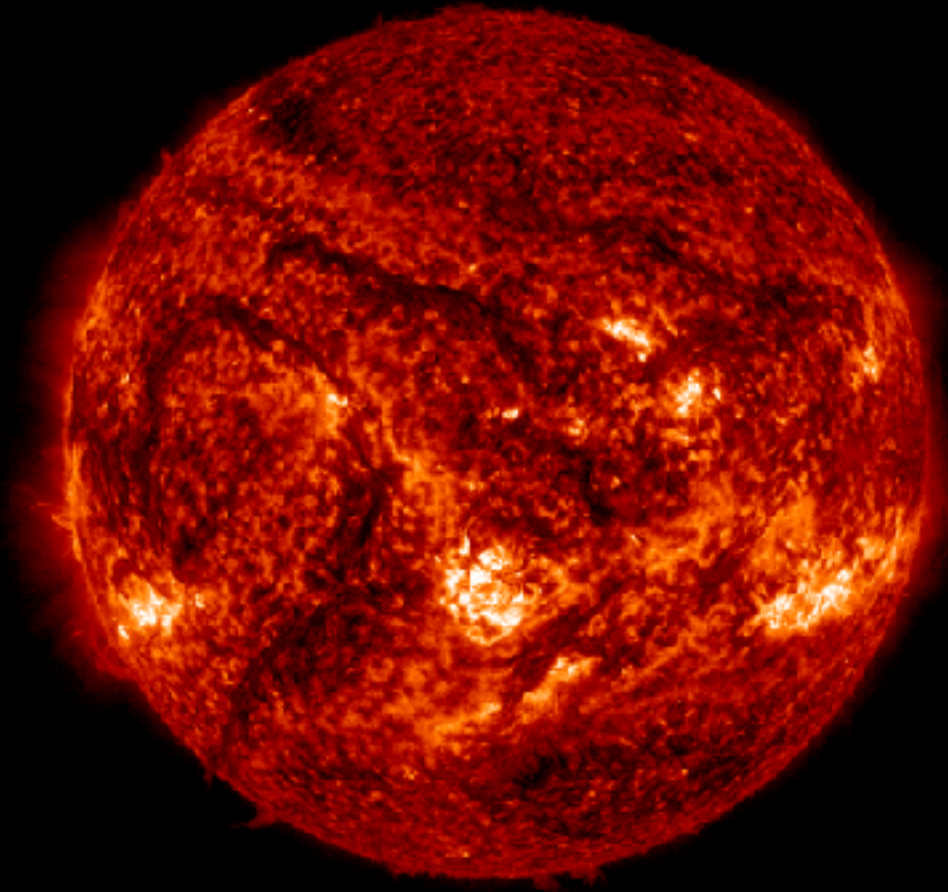
SDO/AIA AIA 193Å 2024-09-29T12:00:05.843



# Filaments

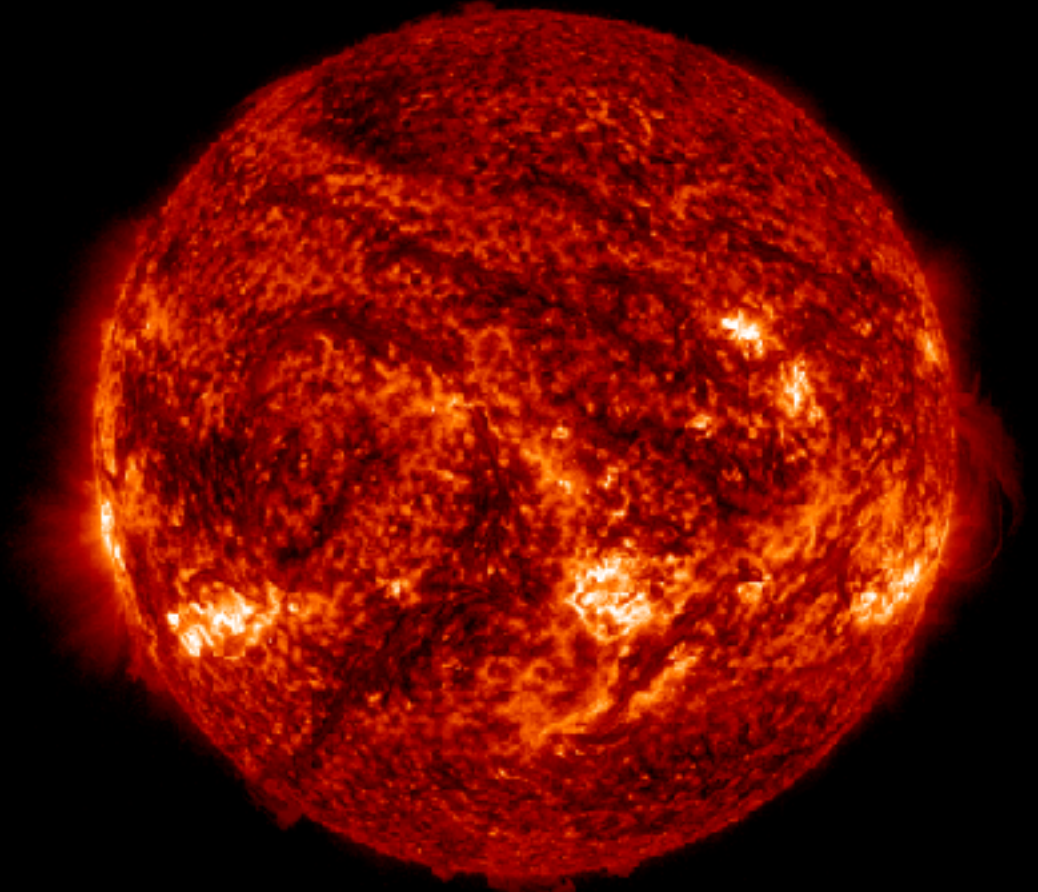
SDO/AIA 30.4 nm 2024-09-22

SDO/AIA AIA 304Å 2024-09-22T12:00:06.580



SDO/AIA 30.4 nm 2024-09-23

SDO/AIA AIA 304Å 2024-09-23T12:00:06.591



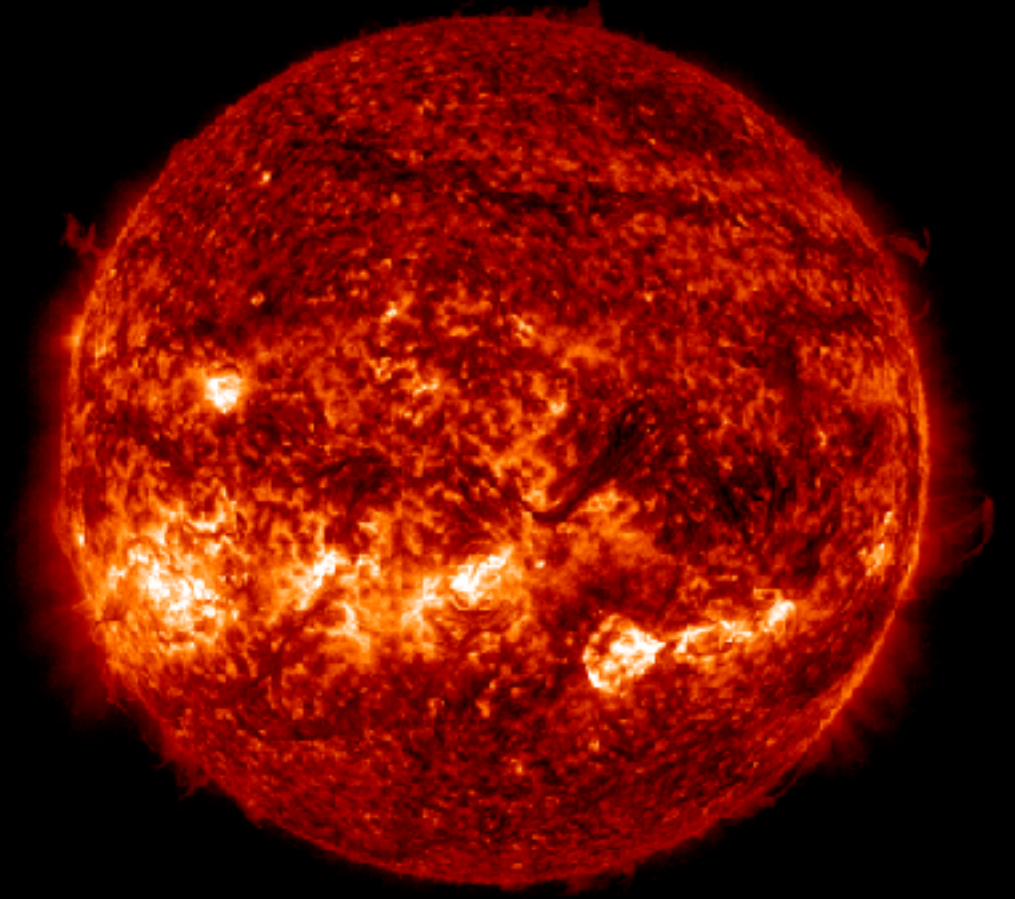
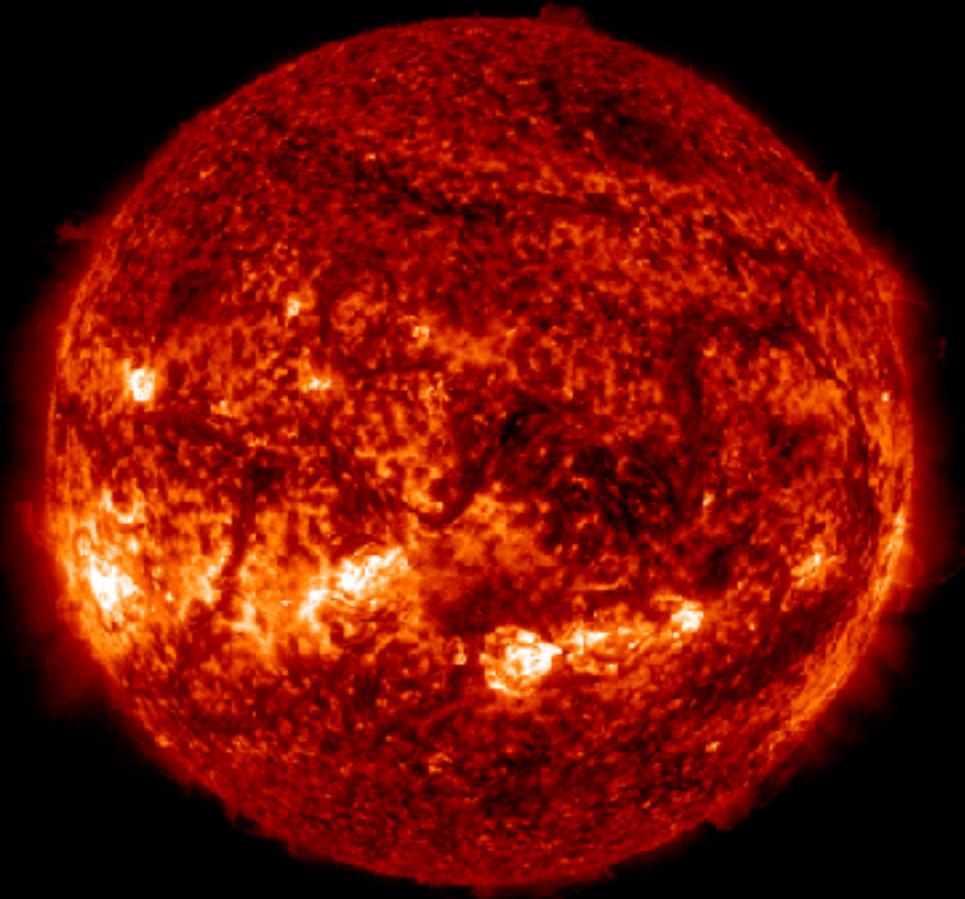
# Filaments

SDO/AIA 30.4 nm 2024-09-28

SDO/AIA AIA 304Å 2024-09-28T12:00:06.581

SDO/AIA 30.4 nm 2024-09-29

SDO/AIA AIA 304Å 2024-09-29T12:00:06.573



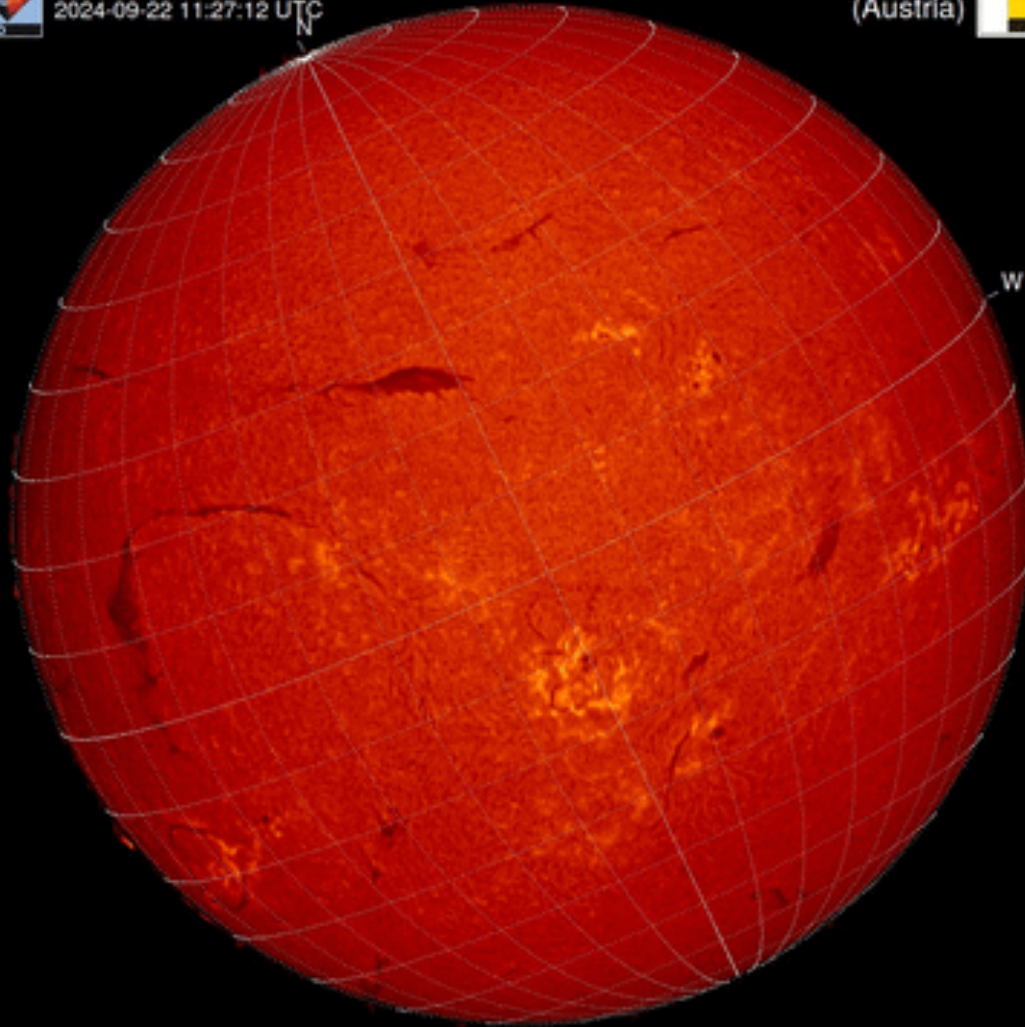
# Filaments & Filament eruptions

H-alpha 2024-09-22



Kanzelhöhe Observatory  
2024-09-22 11:27:12 UTC

University of Graz  
(Austria)

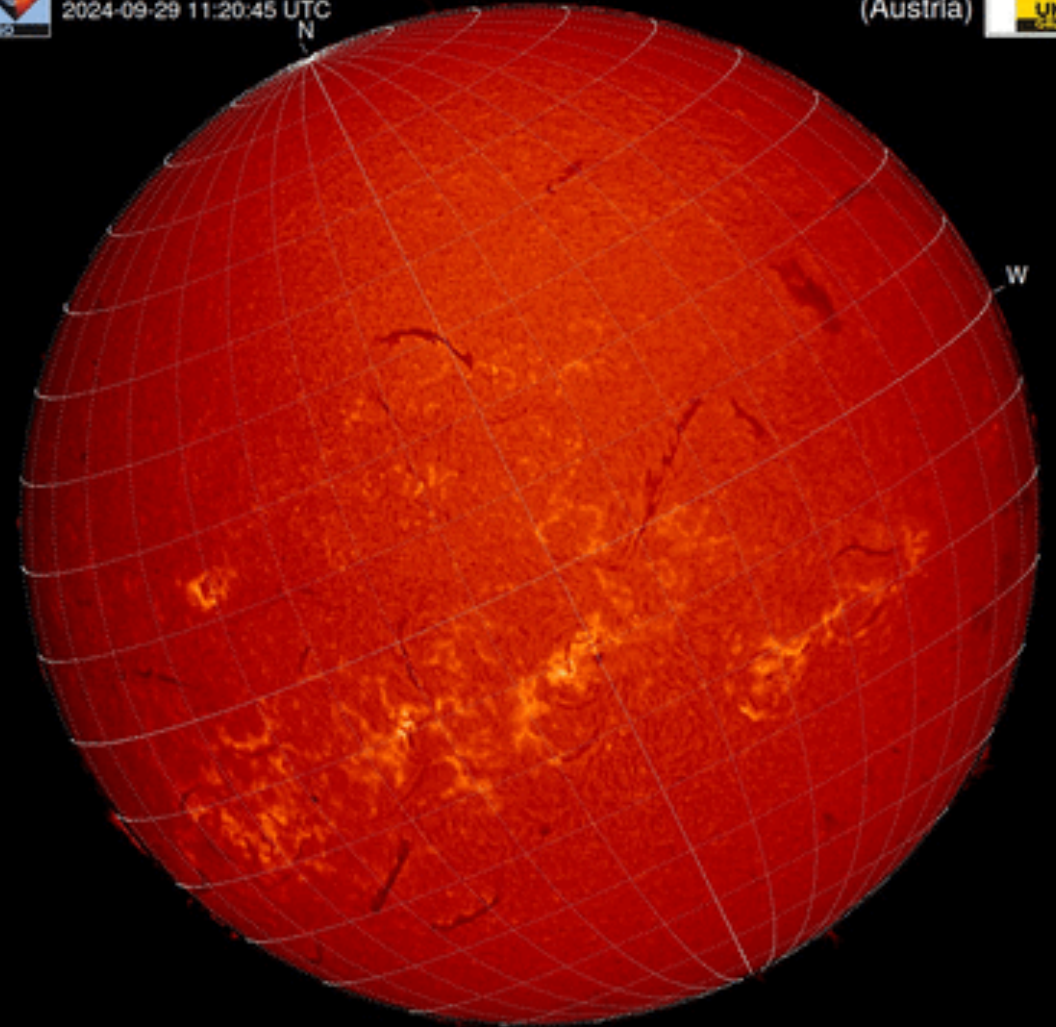


H-alpha 2024-09-29

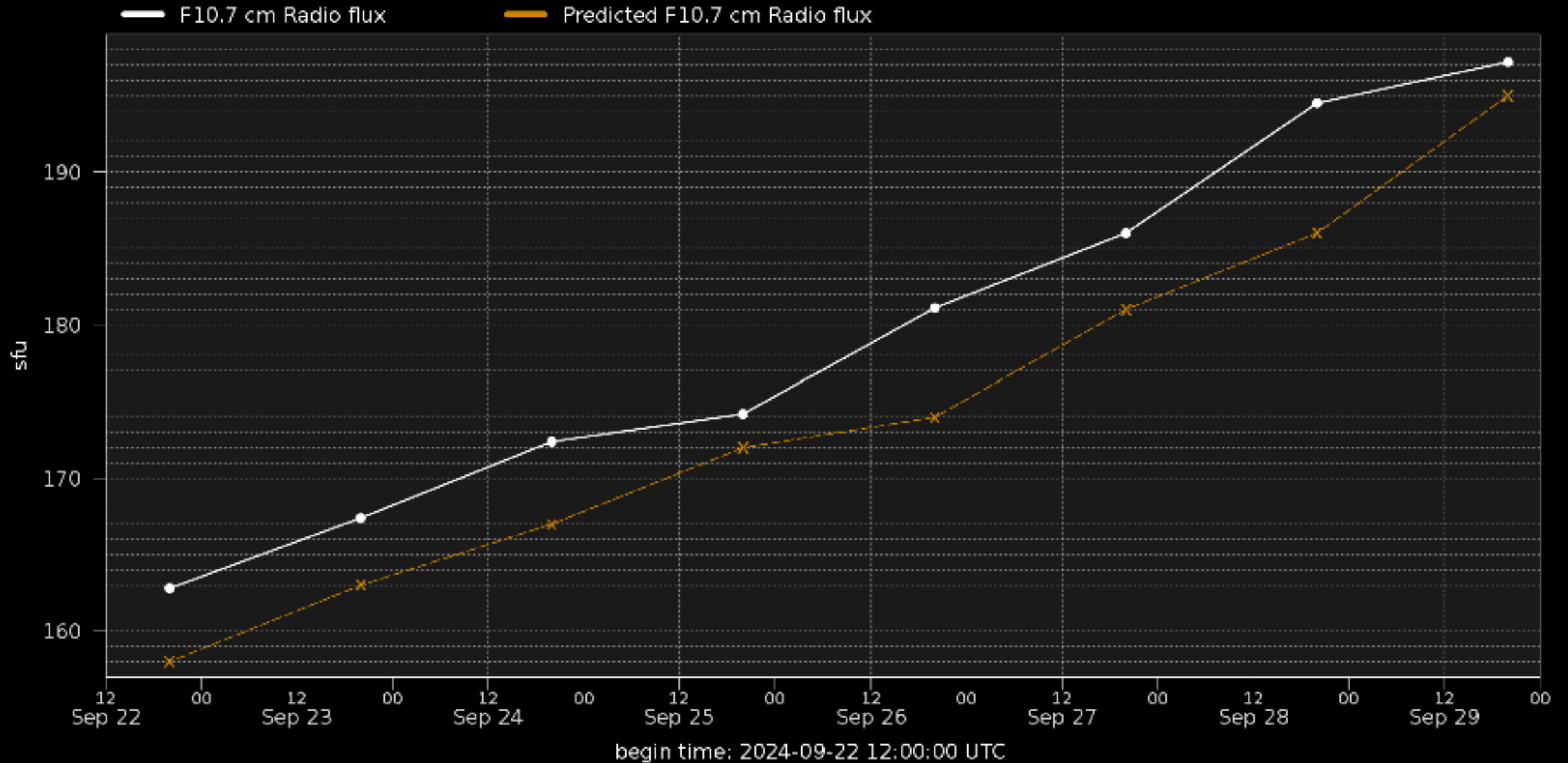


Kanzelhöhe Observatory  
2024-09-29 11:20:45 UTC

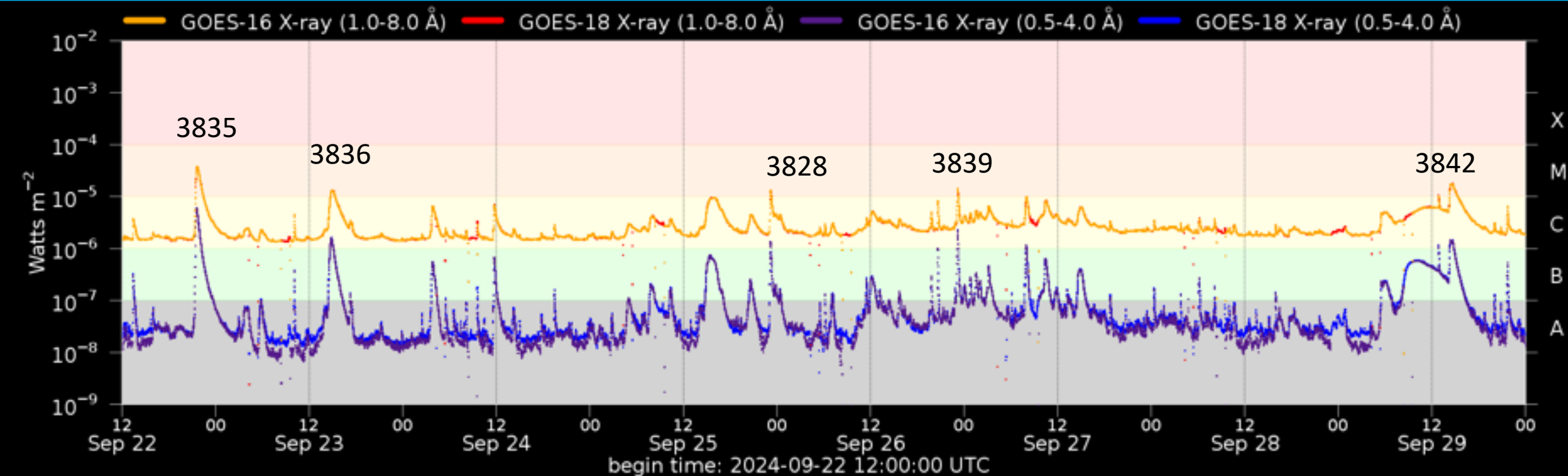
University of Graz  
(Austria)



# Solar F10.7cm radio flux



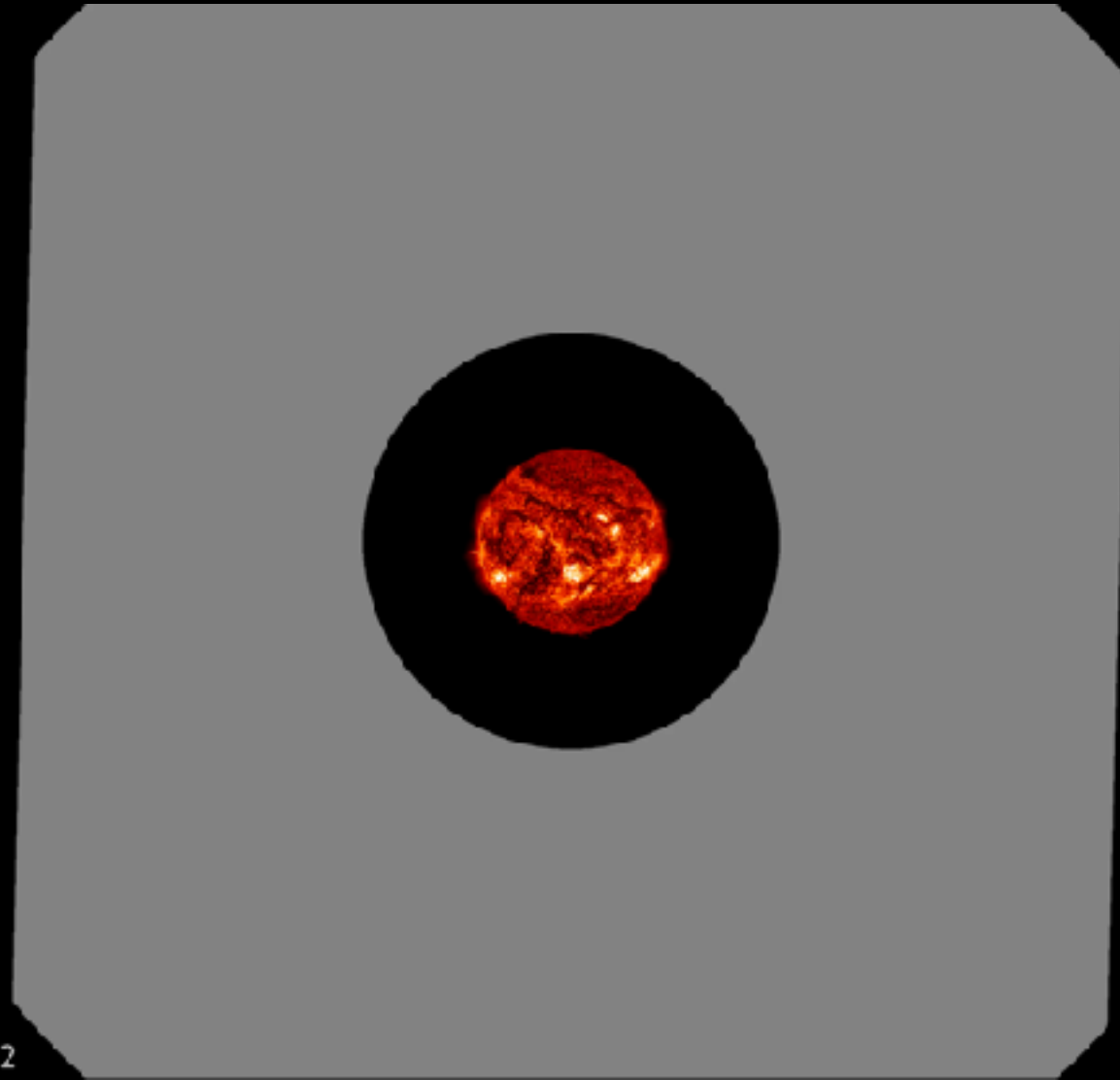
# Flaring activity



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

Issue date	2024-09-22	2024-09-23	2024-09-24	2024-09-25	2024-09-26	2024-09-27	2024-09-28	2024-09-29
Probability (%)	90 45 10	95 60 20	95 60 20	99 67 10	97 62 10	99 61 10	99 70 10	99 60 10
Observed (#)	02 01 00	03 00 00	01 00 00	02 01 00	03 01 00	03 00 00	00 00 00	01 02 00

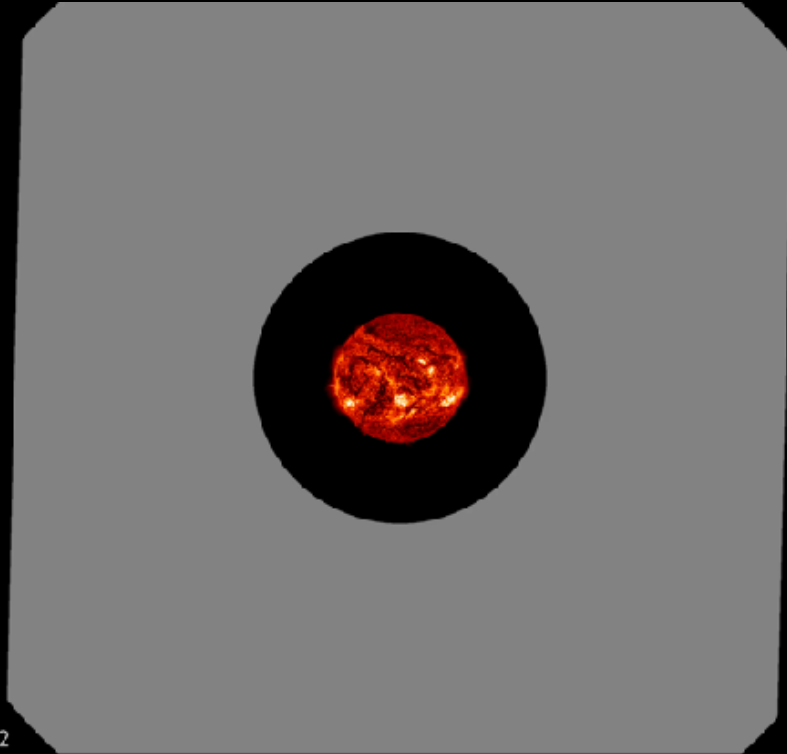
# Coronal Mass Ejections



2024-09-22T16:49:05.132



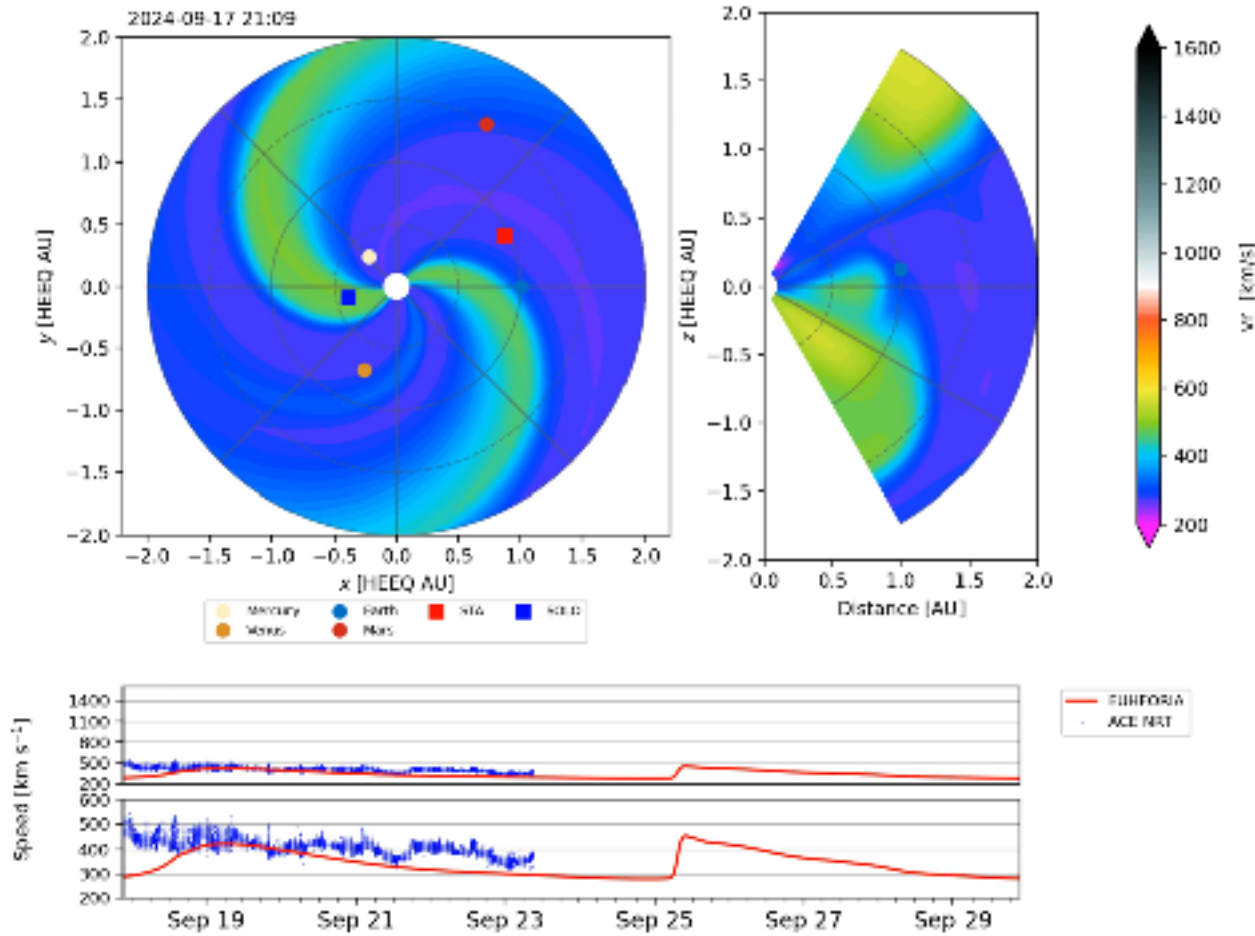
# Coronal Mass Ejections



2024-09-22T16:49:05.132

- $V$  around 1300 km/s
- Earth component
- Arrival estimated on 25 September

# Coronal Mass Ejections - EUHFORIA



# Coronal Mass Ejections - EUHFORIA

**CME: 2024-09-22T21:36:00-CME-001**

This CME was not detected at Earth!

Observed Geomagnetic Storm Parameters:

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CME Note CME first seen in the SW by SOHO LASCO C2 beginning at 2024-09-22T21:36Z. The source of this event is an M3.7 flare and filament eruption from S23E65 beginning at 2024-09-22T21:12Z. This flare is seen clearly in SDO AIA 94 and 131, and the filament material is seen best in SDO AIA 304. Field line opening is also visible in SDO AIA 171, 193, and GOES SUVI 284 along with post eruptive arcades visible in SDO AIA 94 and 131. This filament appears to deflect towards the SW as it progresses as seen in GOES SUVI 304. A faint EUV wave seen in SDO AIA 193 also appears to expand more to the west.

<a href="#">Predicted Shock Arrival Time</a>	<a href="#">Difference (hrs)</a>	<a href="#">Confidence (%)</a>	<a href="#">Submitted On</a>	<a href="#">Lead Time (hrs)</a>	<a href="#">Predicted Geomagnetic Storm Parameter(s)</a>	<a href="#">Method</a>	<a href="#">Submitted By</a>	
2024-09-25T18:00Z (-7.0h, +7.0h)	----	----	2024-09-23T01:28Z	64.53	Max Kp Range: 3.0 - 5.0	WSA-ENLIL + Core (NASA M2M)	Mary Arnone (M2M Office)	<a href="#">Detail</a>
2024-09-25T01:00Z (-12.0h, +12.0h)	----	60.0	2024-09-23T09:23Z	39.62	Max Kp Range: 5.0 - 7.0	<a href="#">Other/SIDC</a>	Chris Stuberanca (M2M Office)	<a href="#">Detail</a>
2024-09-25T06:00Z (-12.0h, +12.0h)	----	60.0	2024-09-23T11:43Z	42.28	Max Kp Range: 4.0 - 6.0	<a href="#">Other/SIDC</a>	Tony Iampietro (M2M)	<a href="#">Detail</a>
2024-09-24T18:55Z (-7.0h, +7.0h)	----	----	2024-09-23T11:50Z	31.08	Max Kp Range: 6.0 - 8.0	WSA-ENLIL + Core (NASA M2M)	Mary Arnone (M2M Office)	<a href="#">Detail</a>
2024-09-26T01:07Z (-8.8h, +10.92h)	----	----	2024-09-23T14:44Z	58.38	----	<a href="#">CMEFM v.0.1</a>	Guirett Imhoff (Clerk)	<a href="#">Detail</a>
2024-09-25T07:00Z	----	----	2024-09-23T15:10Z	39.33	Max Kp Range: 4.0 - 5.0	<a href="#">WSA-ENLIL + Core (NOAA/SWPC)</a>	Hannah Hermann (M2M Office)	<a href="#">Detail</a>
2024-09-24T20:34Z	----	----	2024-09-23T17:00Z	27.57	Max Kp Range: 5.0 - 7.0	<a href="#">SARM</a>	Marlon Nunez (UMA)	<a href="#">Detail</a>
2024-09-25T12:00Z	----	----	2024-09-23T18:52Z	41.13	Max Kp Range: 4.0 - 5.0	<a href="#">WSA-ENLIL + Core (Met Office)</a>	Met Office (Met Office)	<a href="#">Detail</a>
2024-09-25T21:00Z	----	50.0	2024-09-26T06:30Z	-9.50	Max Kp Range: 3.0 - 6.0	<a href="#">WSA-ENLIL + Core (BoM)</a>	Duty Forecaster (ASWFC)	<a href="#">Detail</a>
2024-09-25T09:04Z	----	56.5667	---	---	Max Kp Range: 4.25 - 6.125	Average of all Methods	Auto Generated (CCMC)	<a href="#">Detail</a>

The ICME missed Earth

Solar Wind and

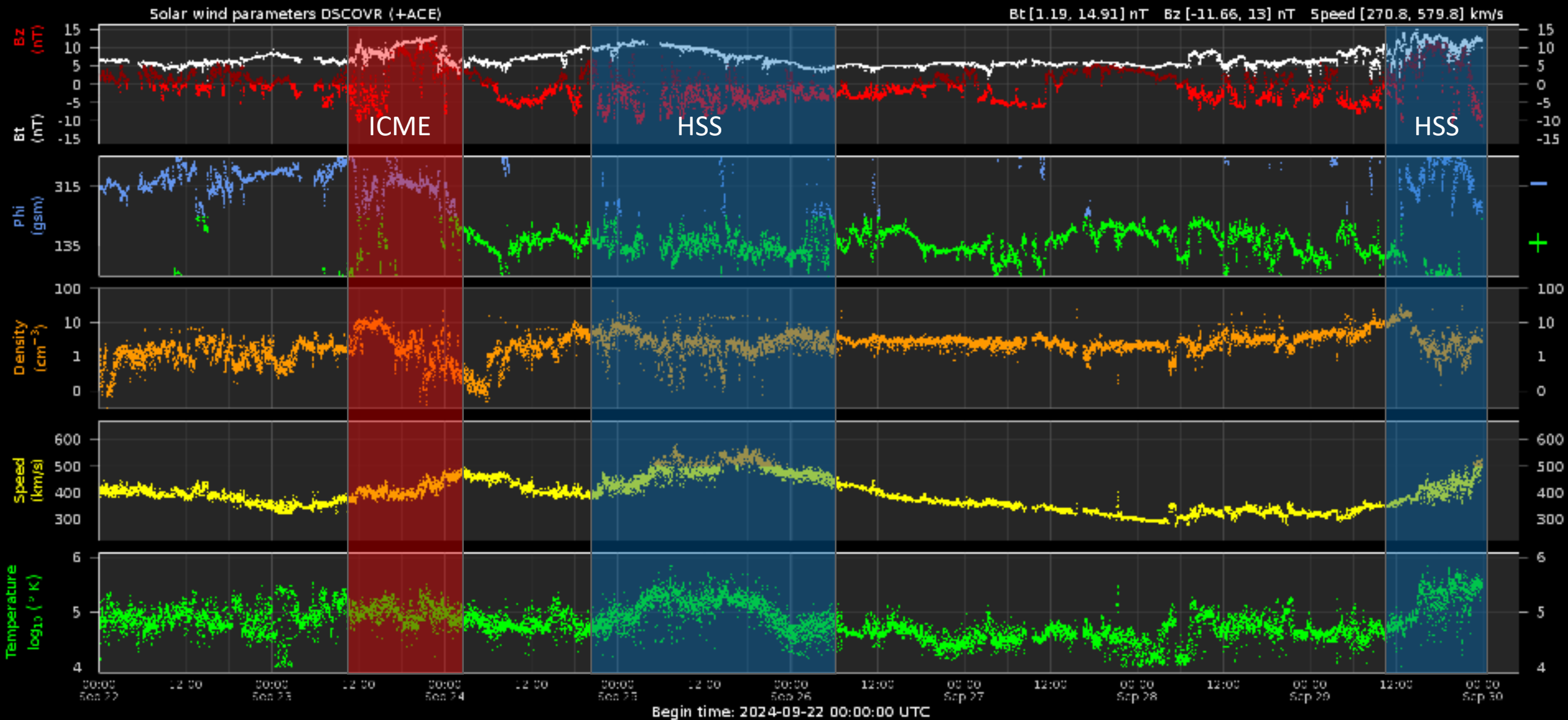
# Geomagnetic Activity



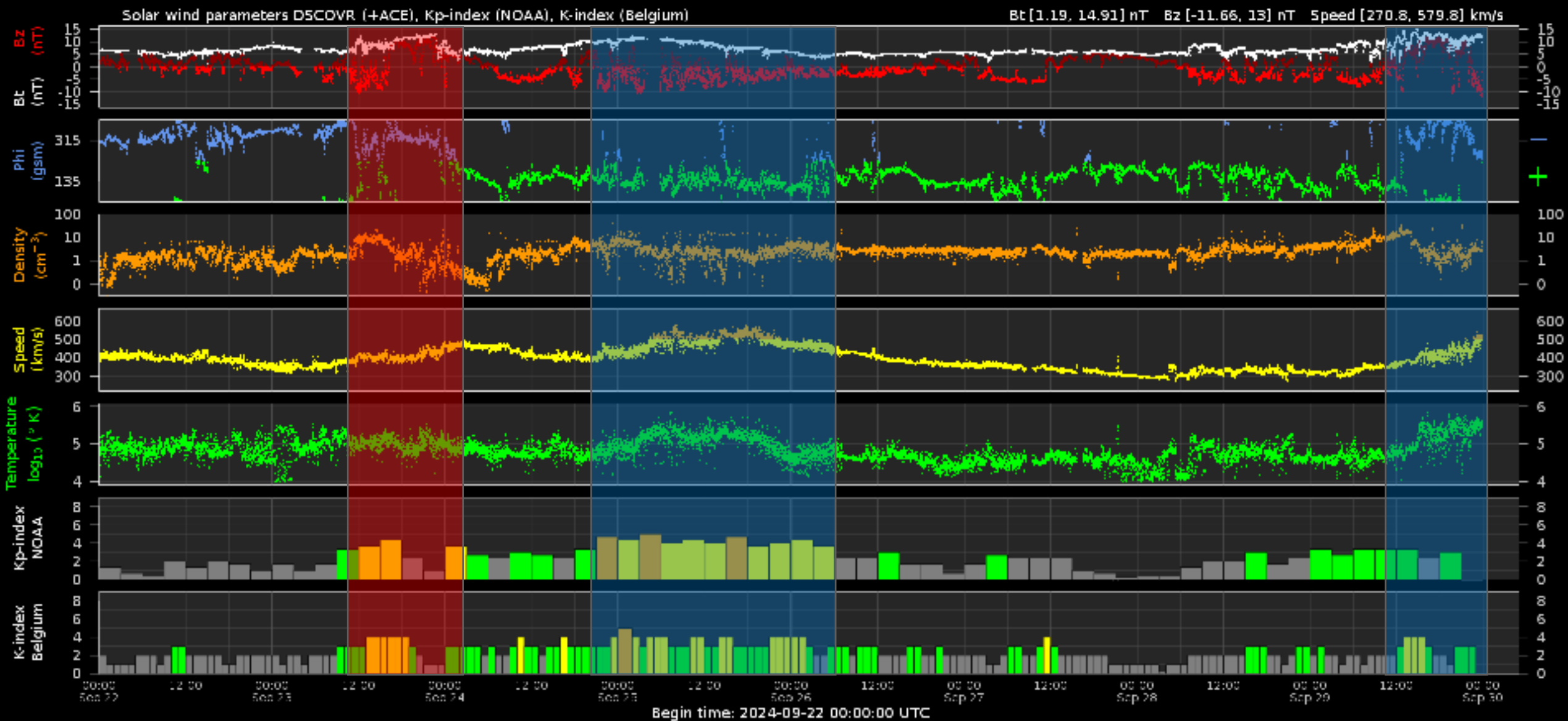
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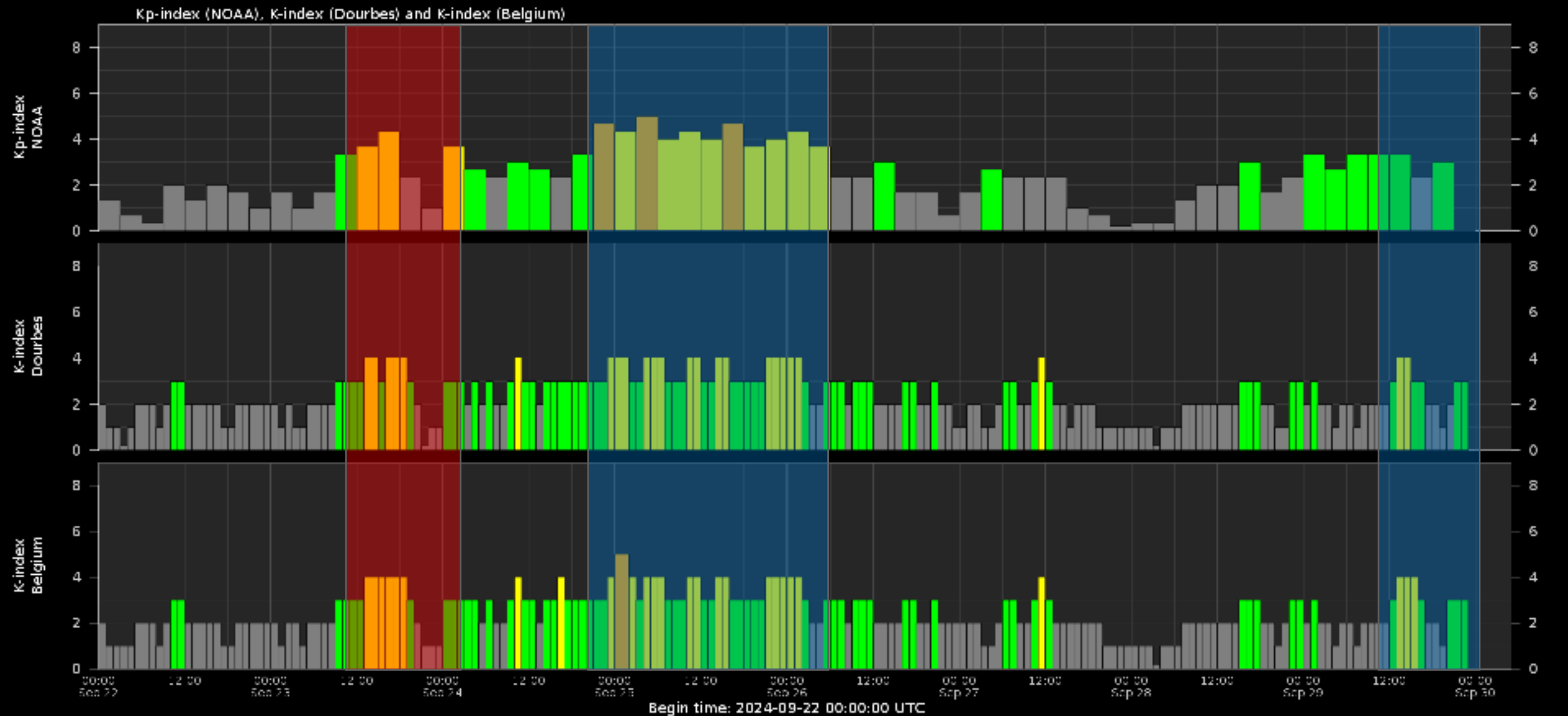
# Solar wind parameters



# Solar wind parameters & K-indices



# Geomagnetic activity (K-indexes)



# Energetic Particles

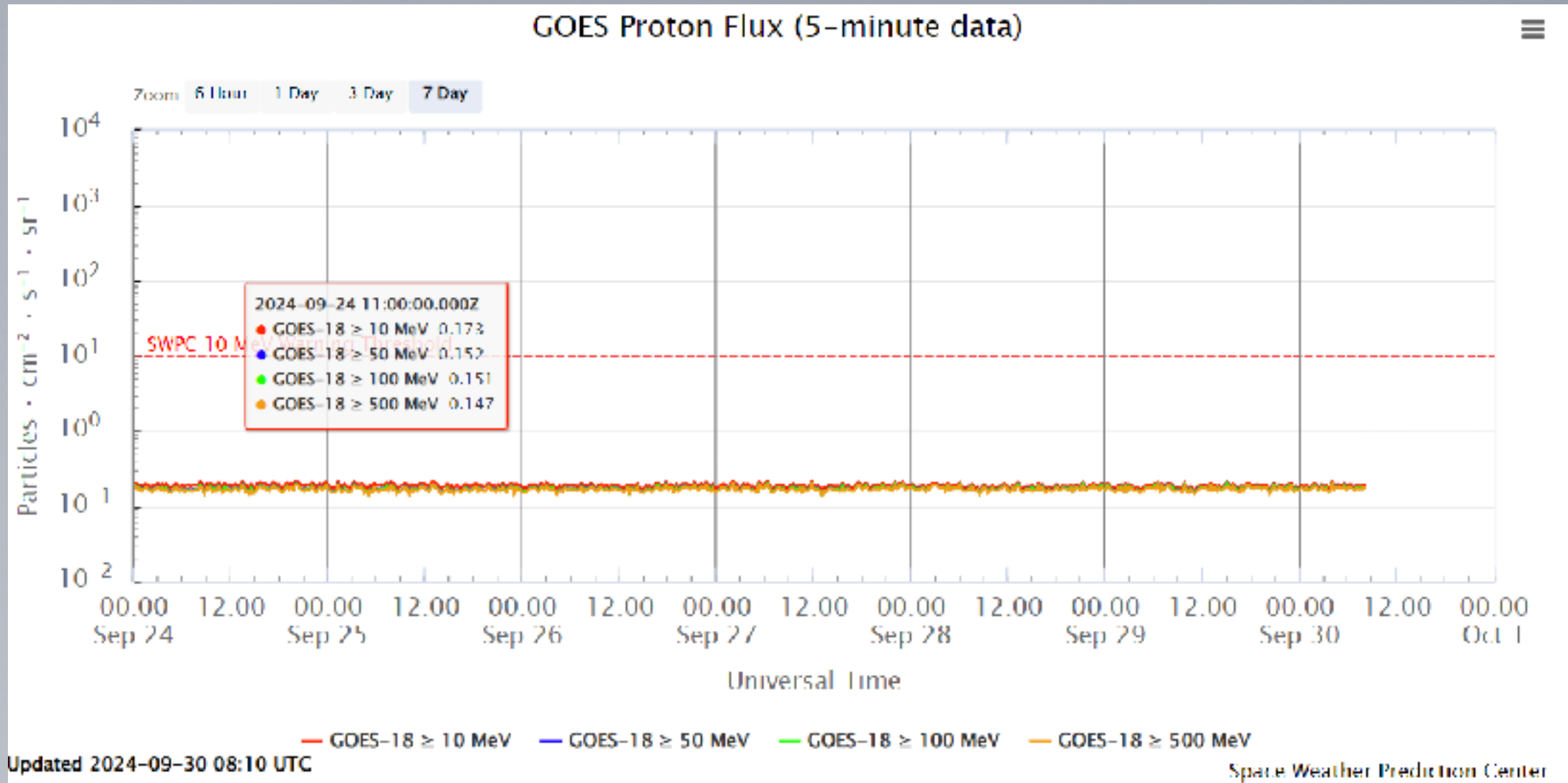


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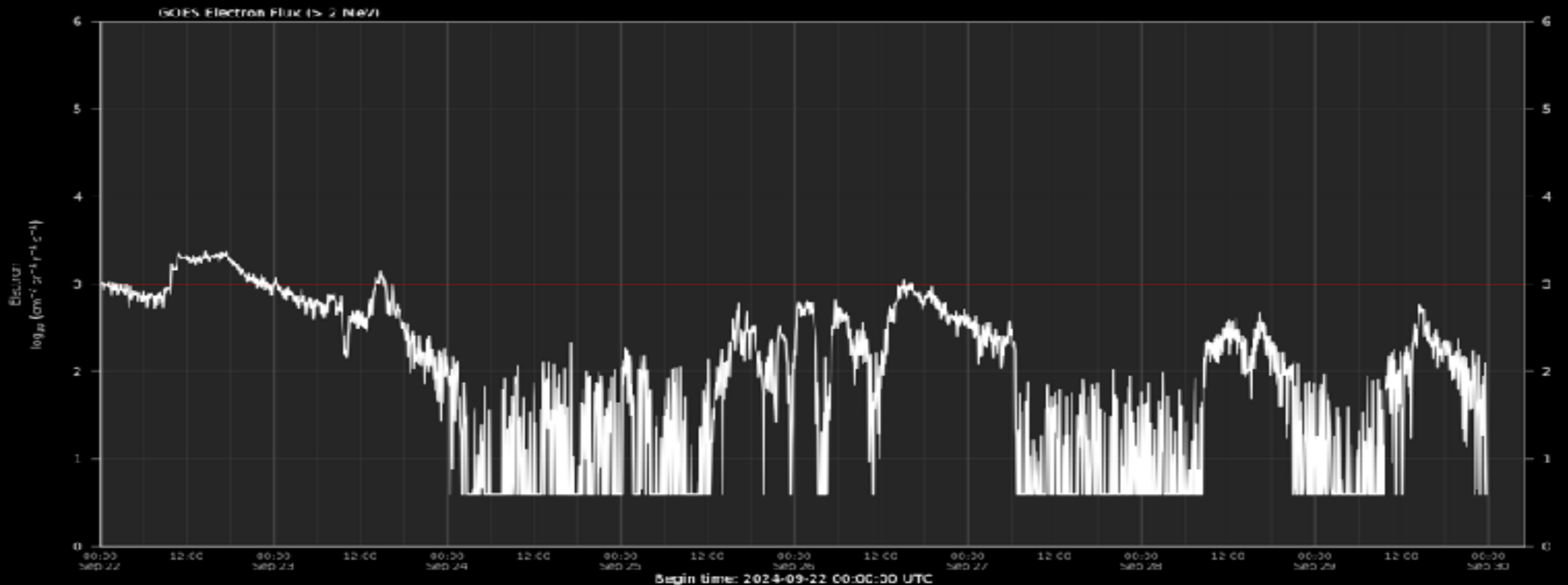
# Solar proton flux



# Electron flux at GEO

[www.stce.be/educational/classification#electrons](http://www.stce.be/educational/classification#electrons)

[www.spaceweather.gc.ca/forecast-prevision/space-spatiale/sffl-en.php](http://www.spaceweather.gc.ca/forecast-prevision/space-spatiale/sffl-en.php)



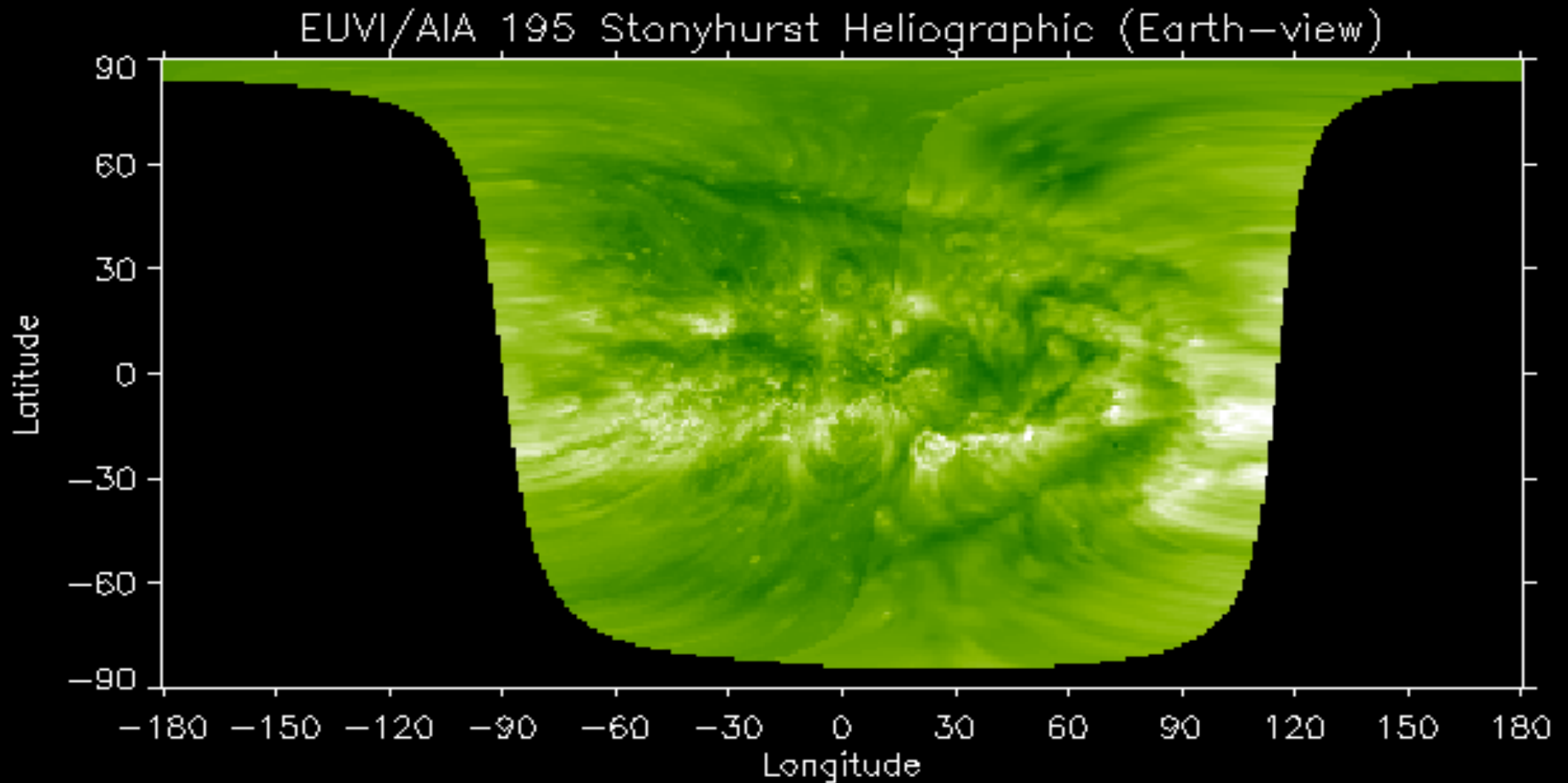
# Outlook



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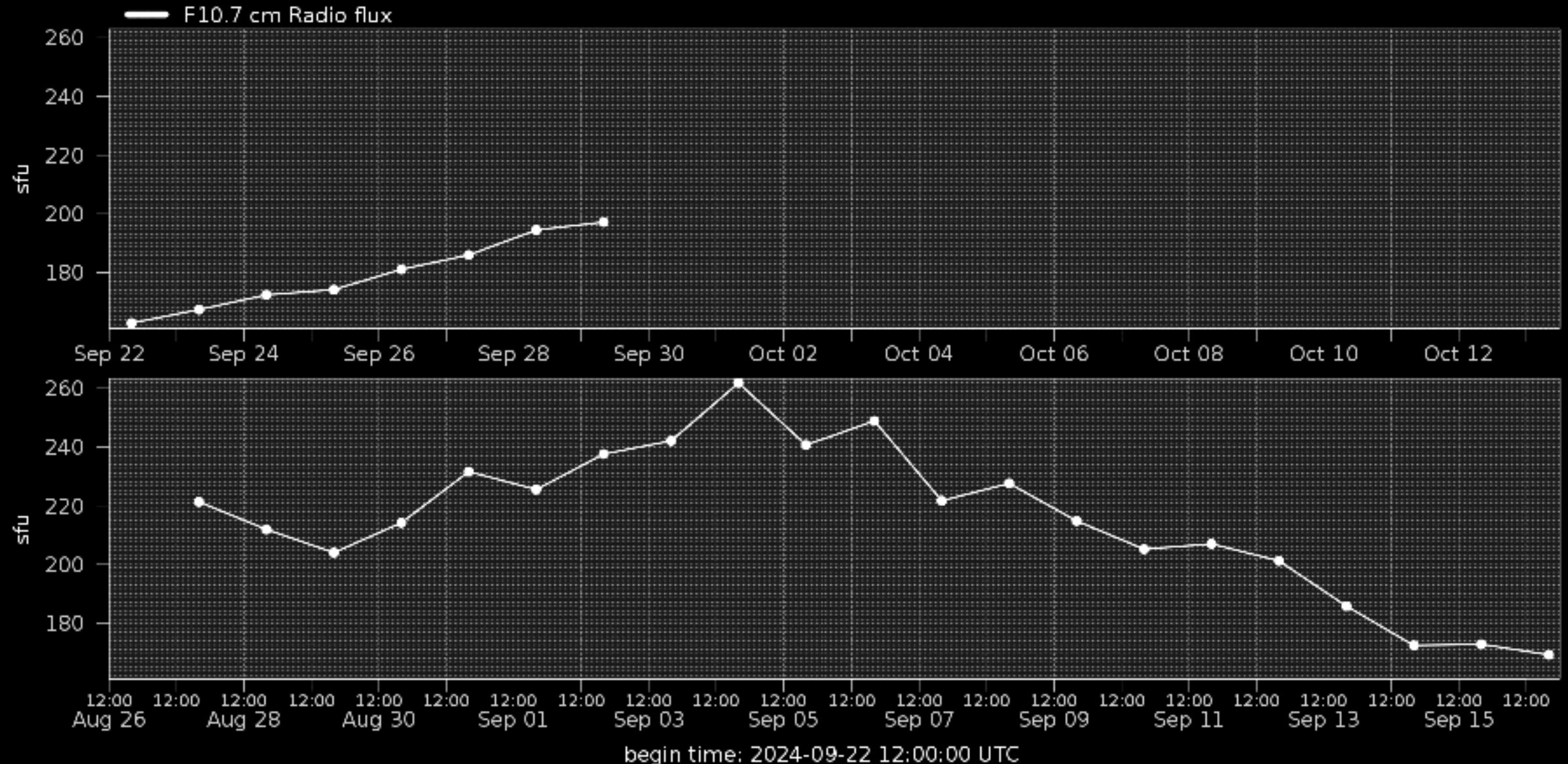
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# Outlook: Solar activity

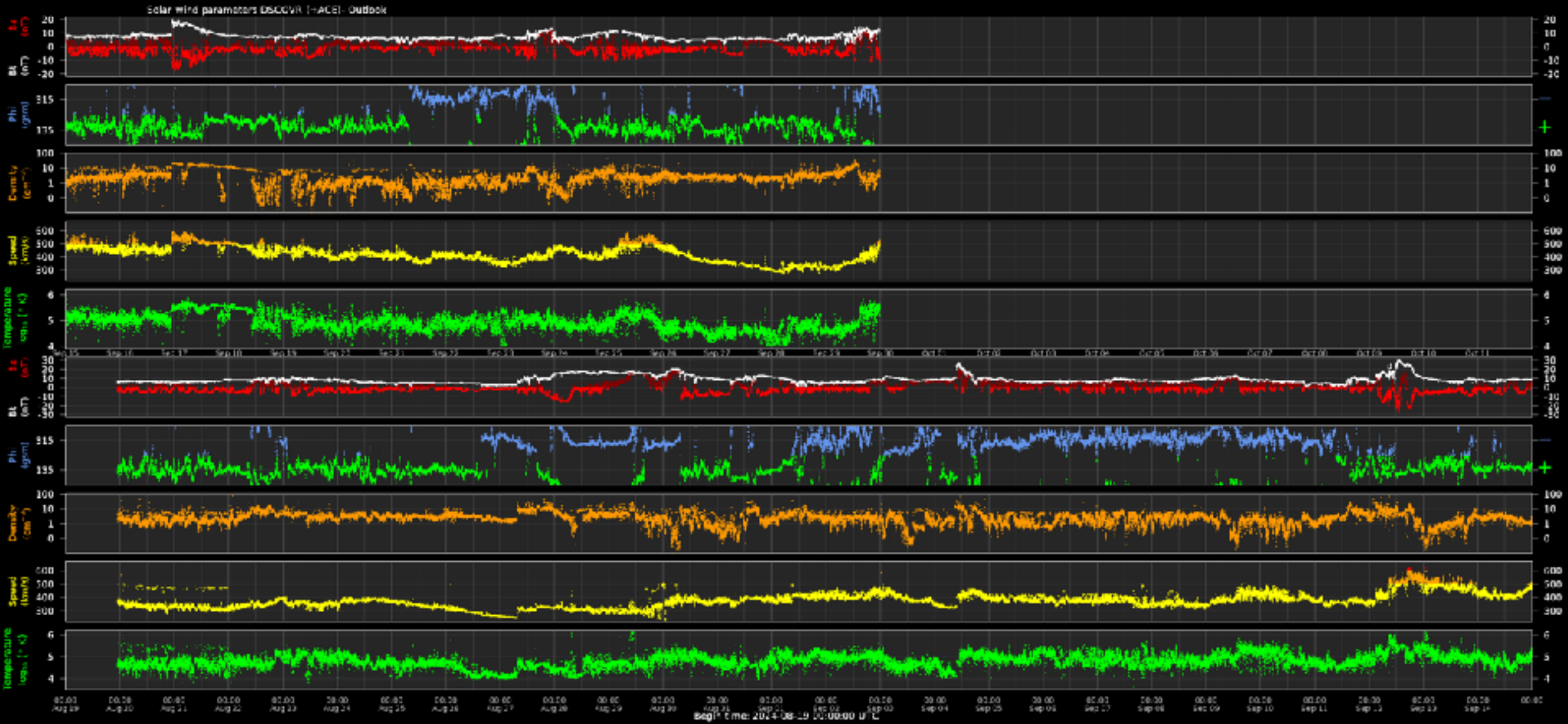


Observation date: 2024/09/29 23:35:00

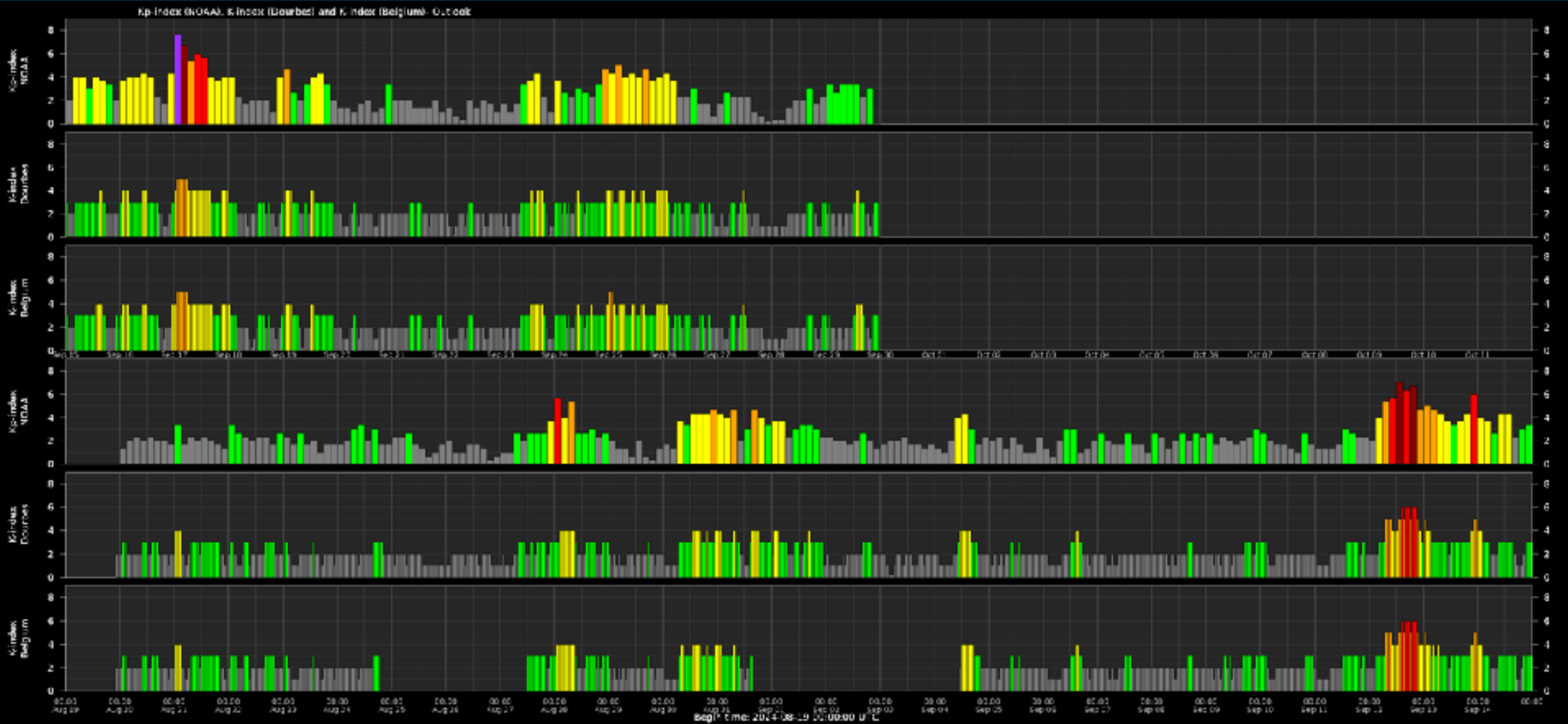
# Outlook: Solar F10.7cm radio flux



# Outlook: Solar wind parameters



# Outlook: Geomagnetic activity



PECASUS



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# Pegasus related events

GNSS: Daily scintillation advisories were issued, and a few isolated VTEC

SIDC Space Weather Briefing

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