

SIDC Space Weather Briefing

15 October 2023-22 October 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 2023-10-15 12:00 to 2023-10-22 23:59

Active regions	10 Active regions on disk over the week. These were all relatively small and simple.
Flares	# C-class flare: 21 # M-class flare: 0 # X-class flare: 0
Coronal Holes	2 small negative polarity CHs and 1 positive polarity CHs
CMEs	3 CMEs detected which may impact Earth (glancing blow)

Proton flux	Nominal levels
Electron flux	Nominal levels

Solar wind and geomagnetic conditions

ICMEs	Possible Weak transient features / glancing ICMEs
Solar wind conditions	B : 0.44 - 13 nT //Bz: -10.67 nT to 7 nT //Speed: 274.5 - 484.6km/s
Geomagnetic conditions	max K-Bel: 4, max Kp(NOAA): 5, Minor Storm conditions

All Quiet Alert: All quiet off

Solar Activity

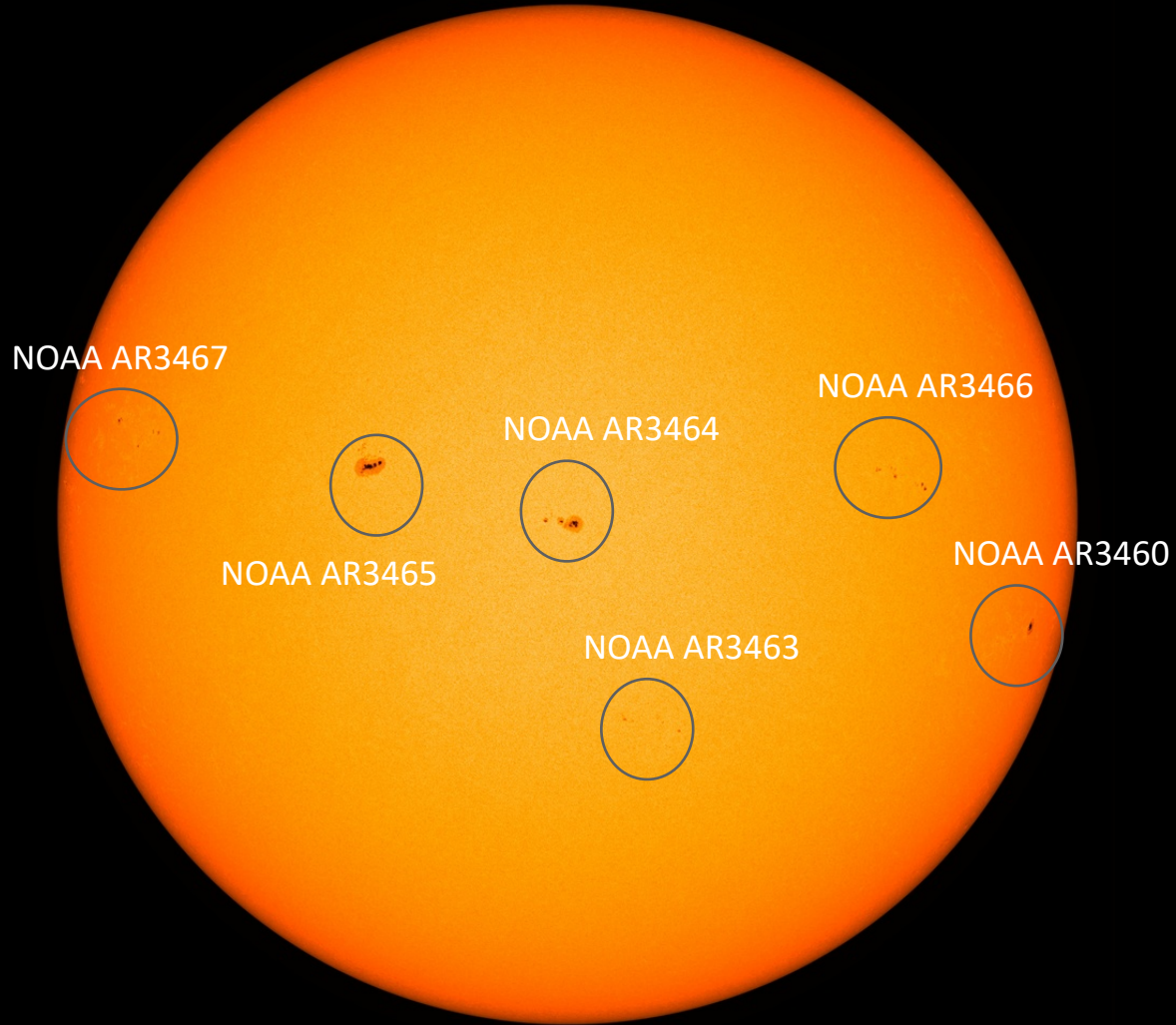


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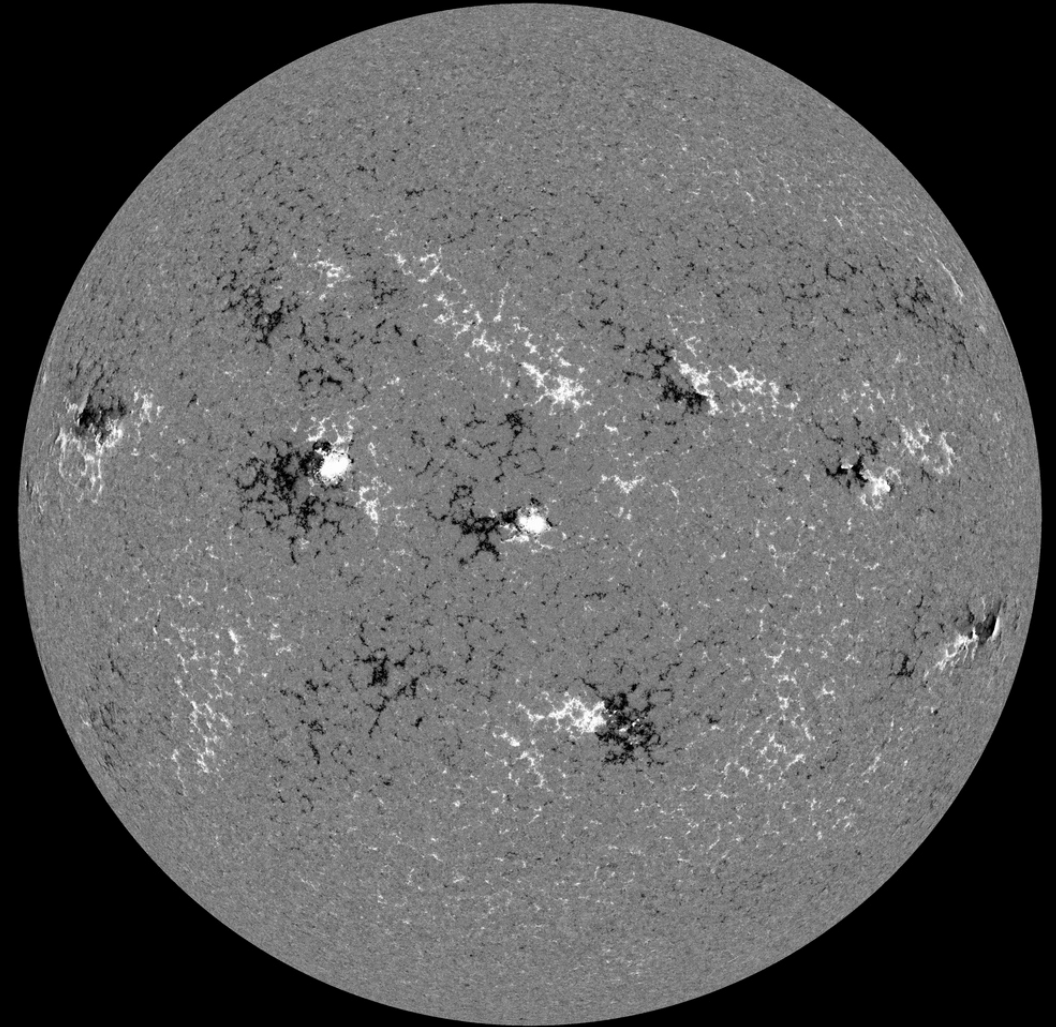
Solar active regions

SDO/HMI White Light 2023-10-15



SDO/HMI Quick-Look Continuum: 20231015_114500

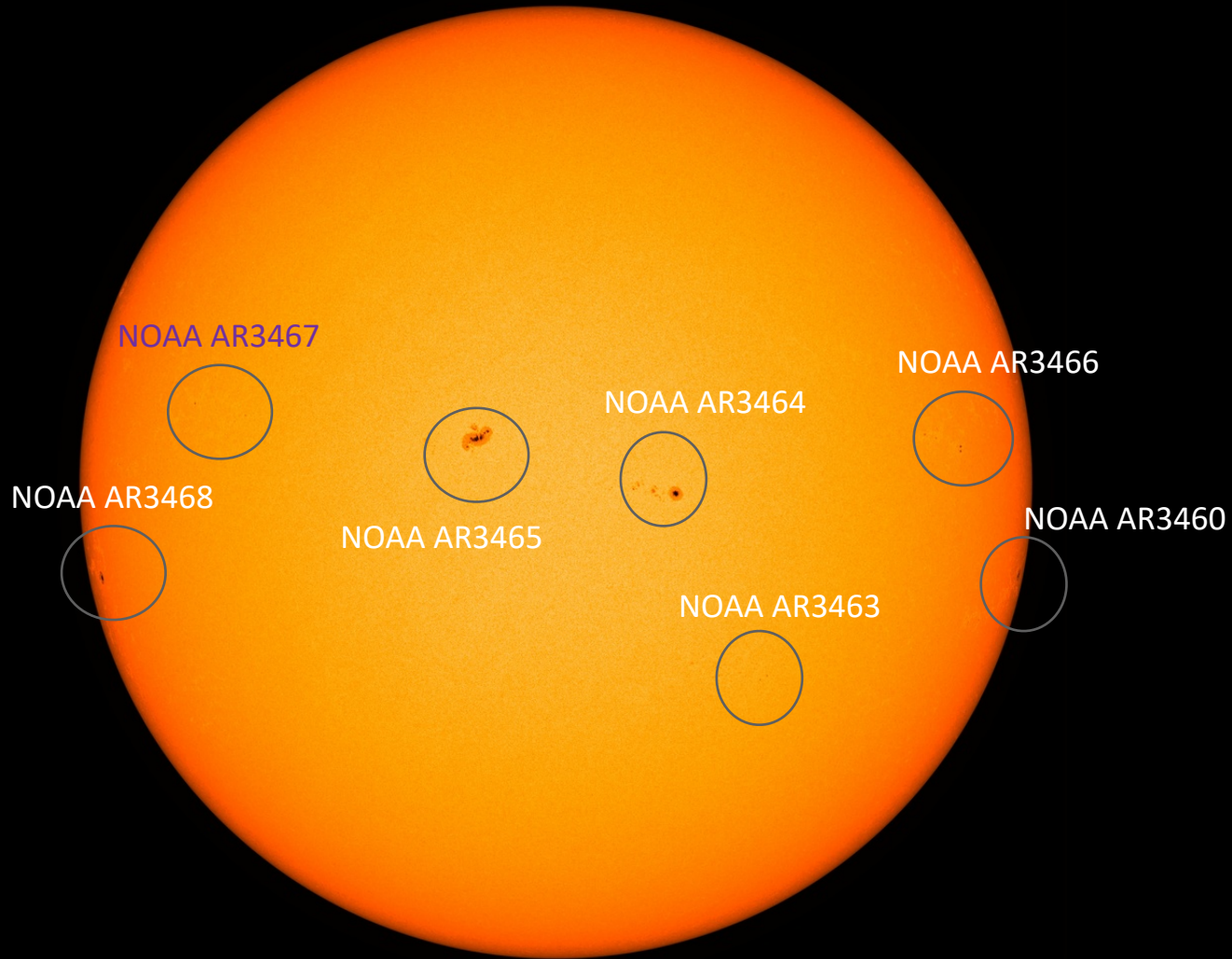
SDO/HMI Magnetogram 2023-10-15



SDO/HMI Quick-Look Magnetogram: 20231015_114500

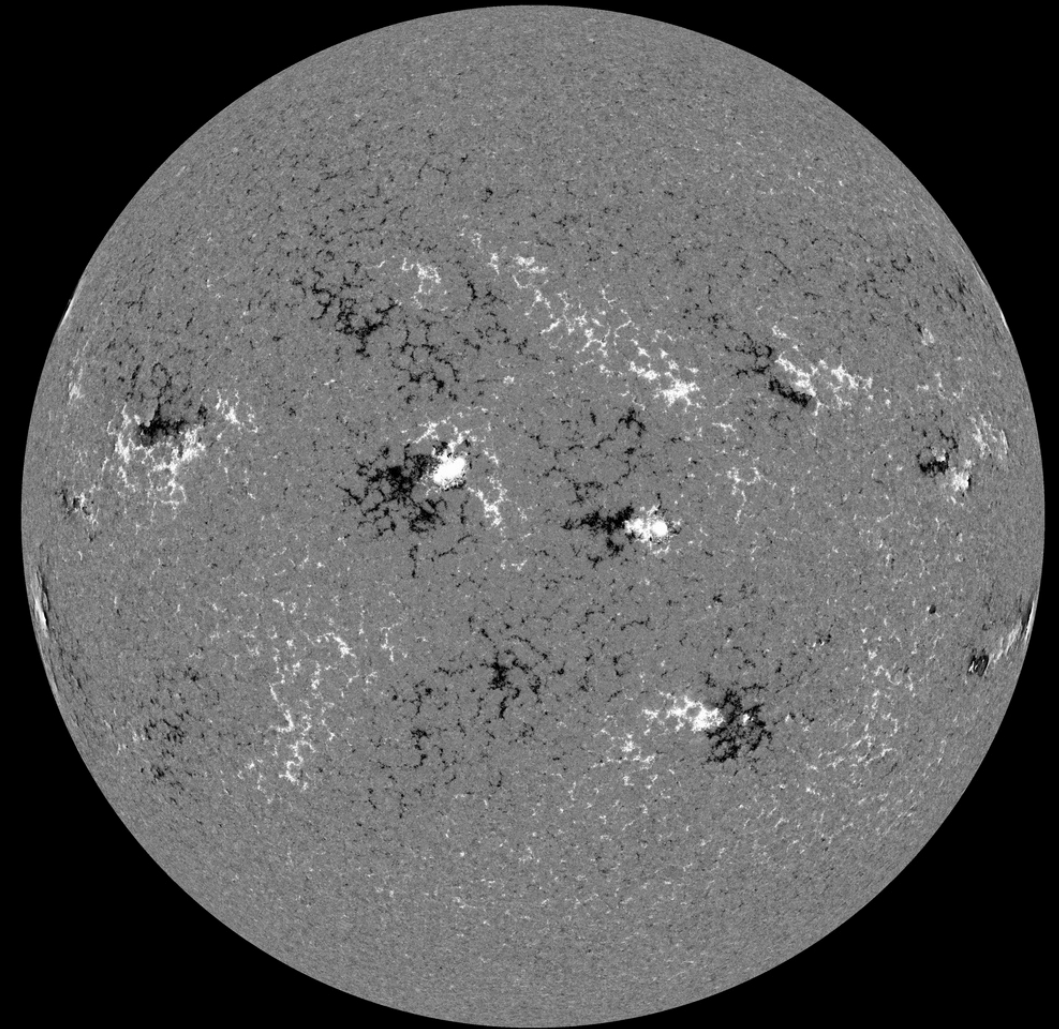
Solar active regions

SDO/HMI White Light 2023-10-16



SDO/HMI Quick-Look Continuum: 20231016_120000

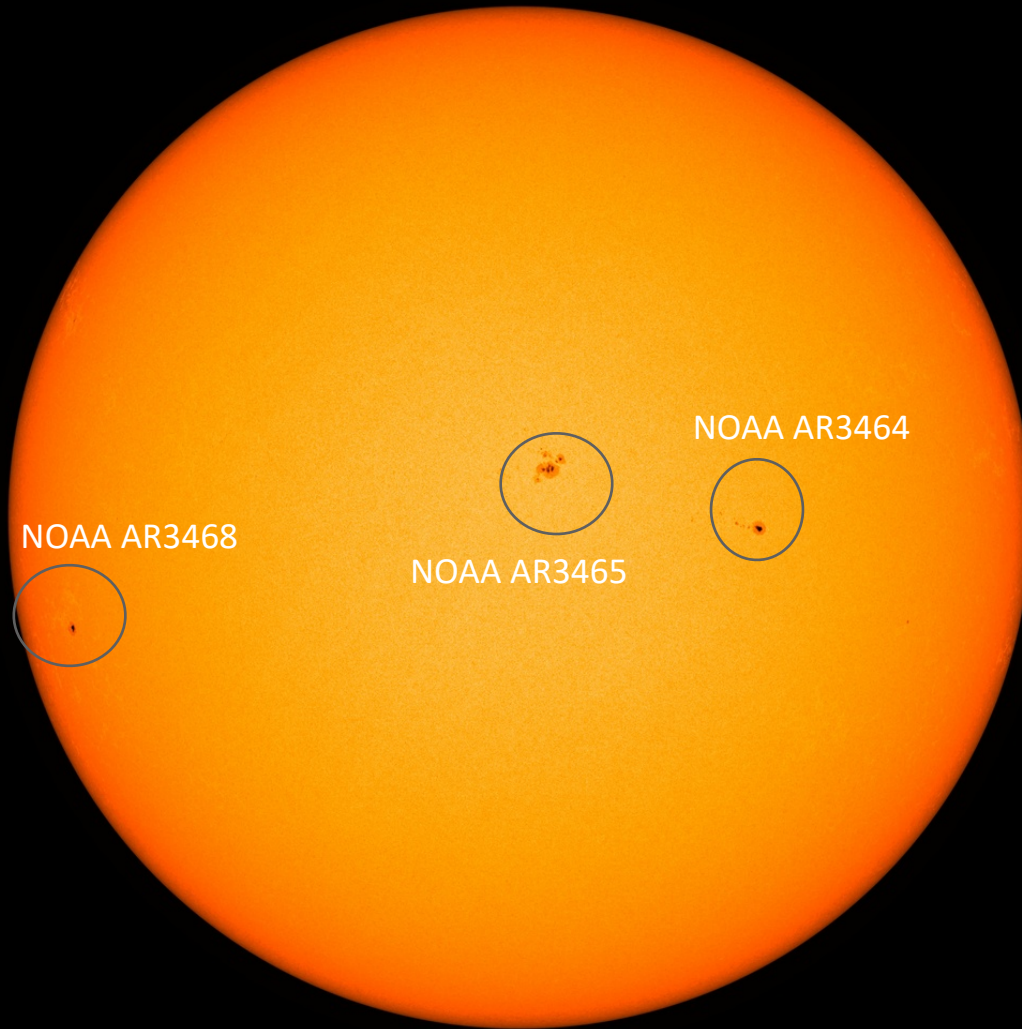
SDO/HMI Magnetogram 2023-10-16



SDO/HMI Quick-Look Magnetogram: 20231016_120000

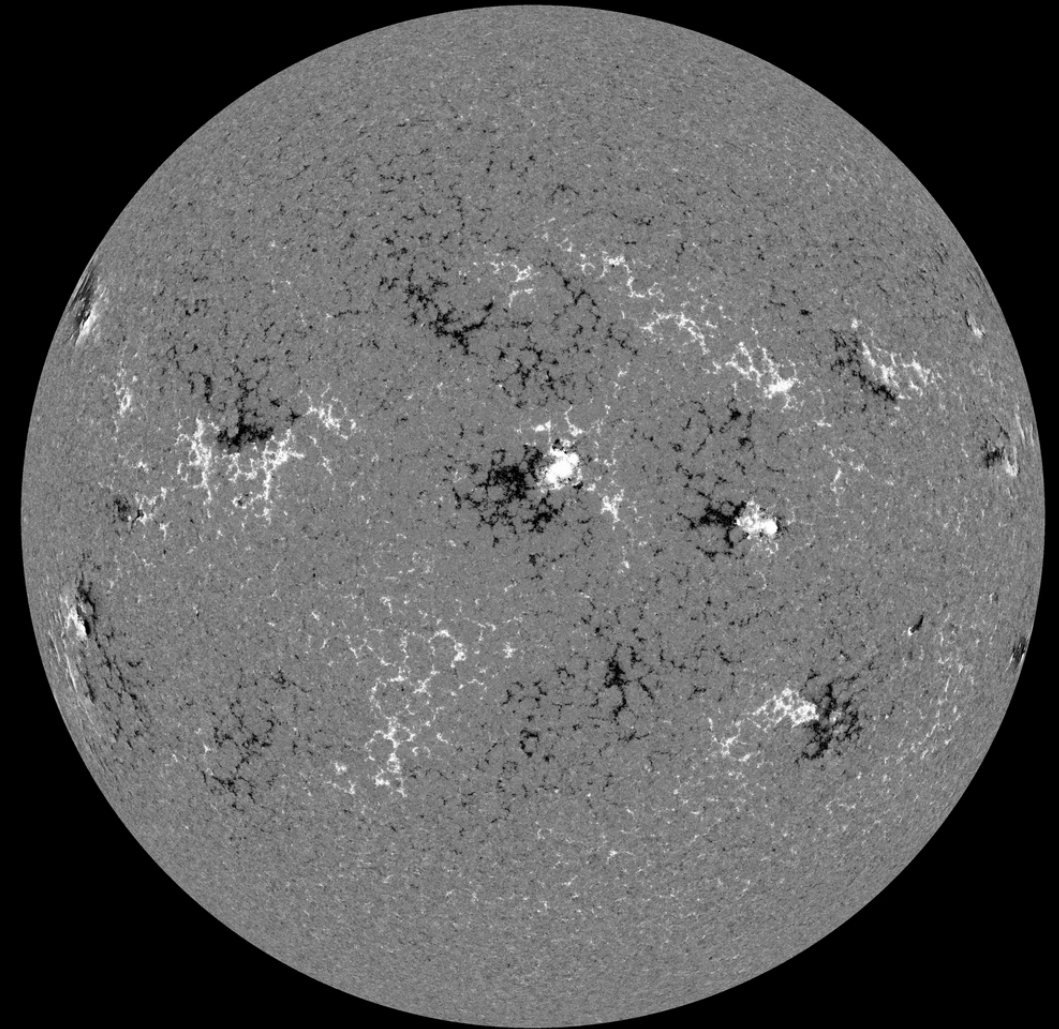
Solar active regions

SDO/HMI White Light 2023-10-17



SDO/HMI Quick-Look Continuum: 20231017_114500

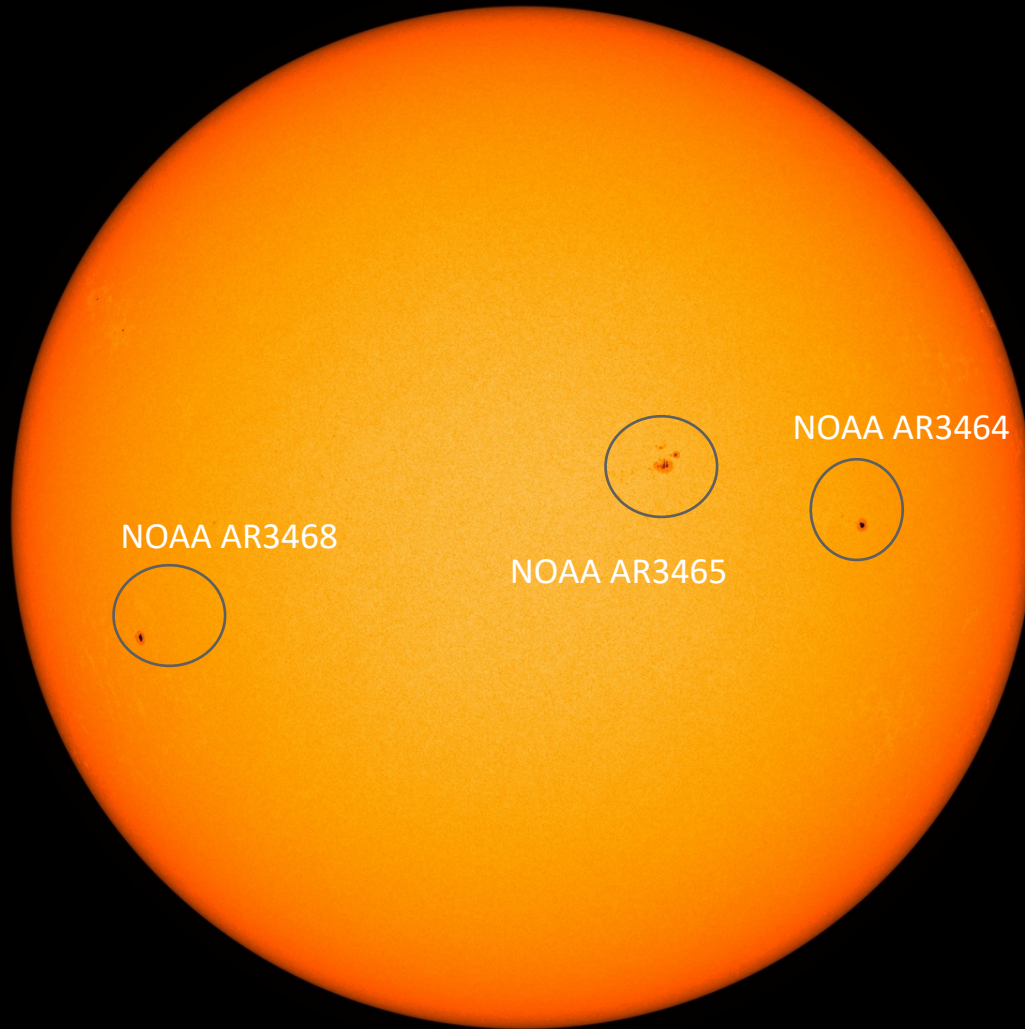
SDO/HMI Magnetogram 2023-10-17



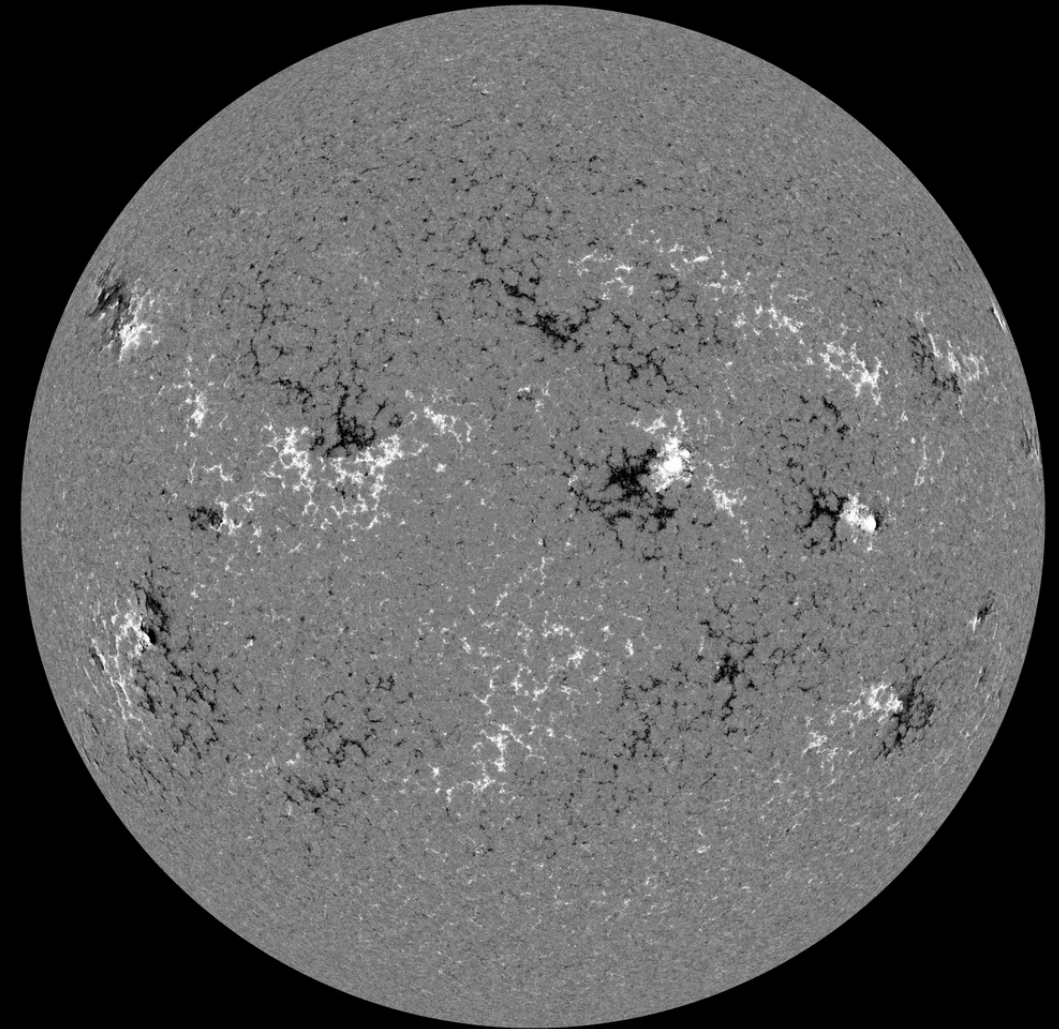
SDO/HMI Quick-Look Magnetogram: 20231017_114500

Solar active regions

SDO/HMI White Light 2023-10-18



SDO/HMI Magnetogram 2023-10-18

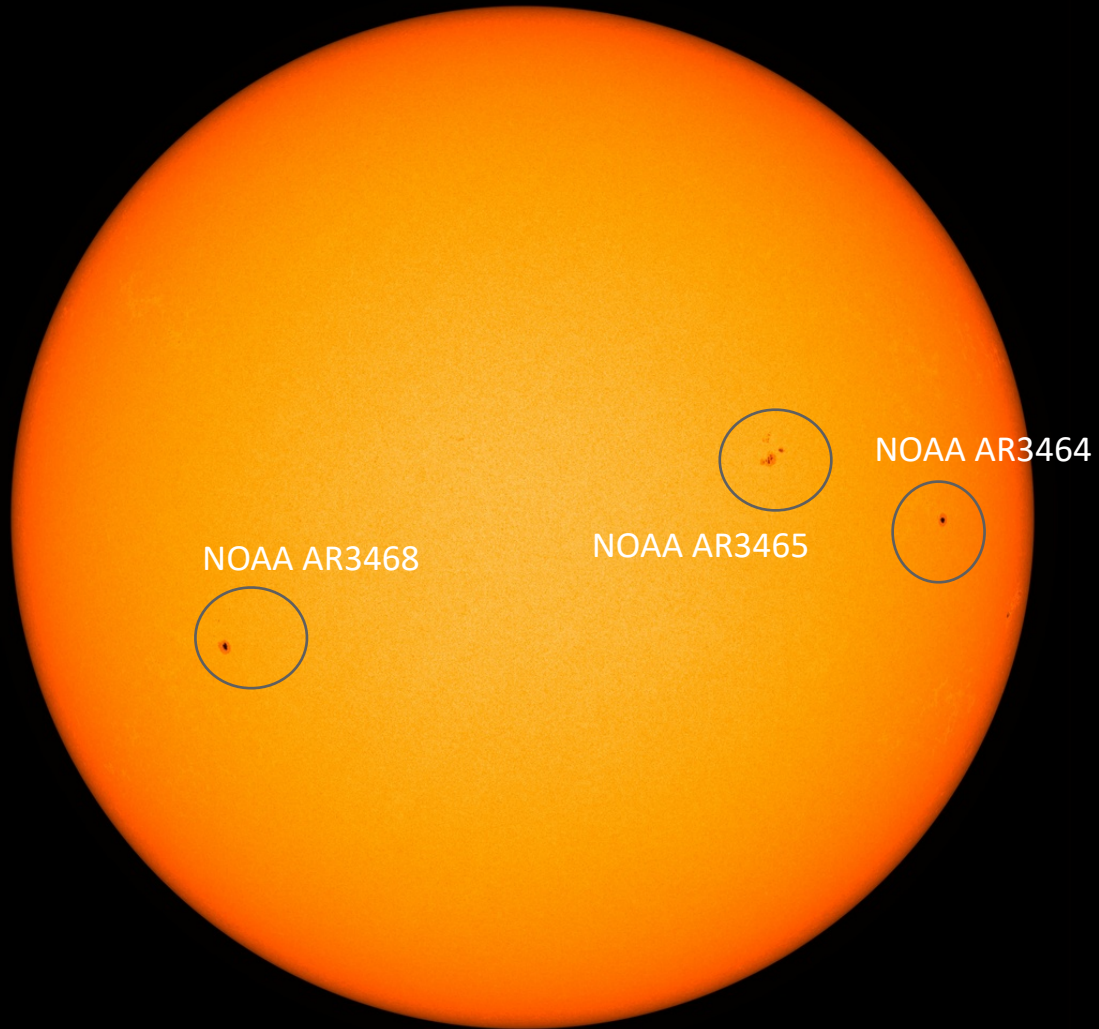


SDO/HMI Quick-Look Continuum: 20231018_114500

SDO/HMI Quick-Look Magnetogram: 20231018_114500

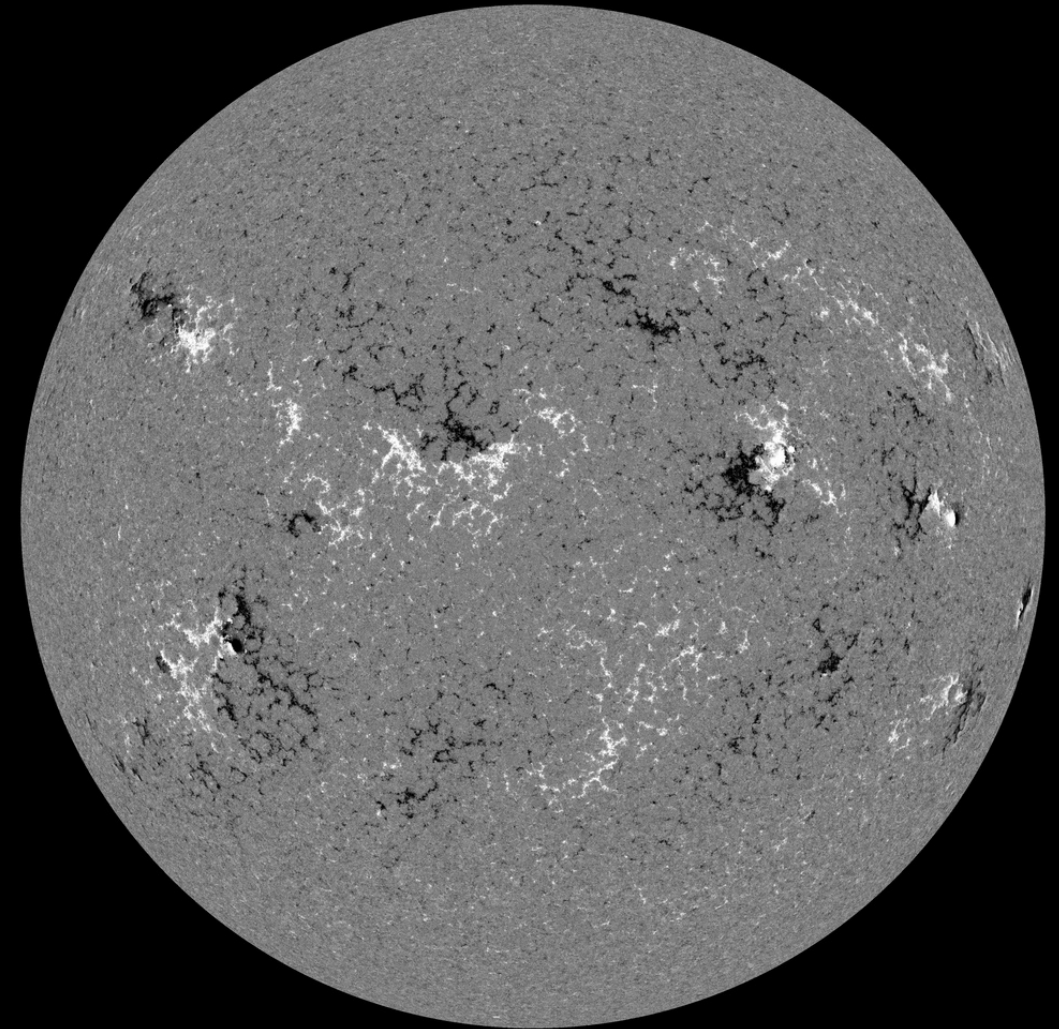
Solar active regions

SDO/HMI White Light 2023-10-19



SDO/HMI Quick-Look Continuum: 20231019_114500

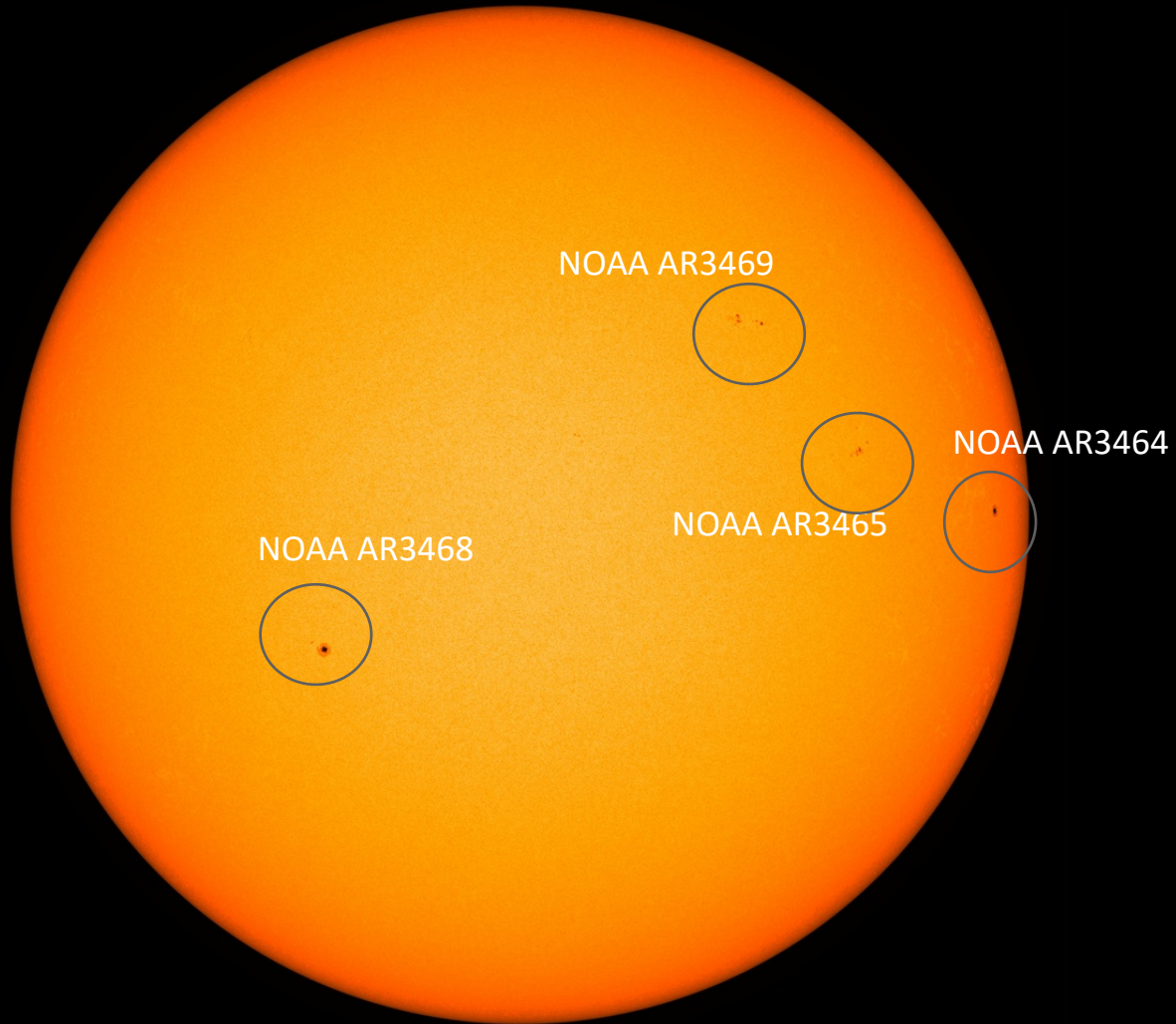
SDO/HMI Magnetogram 2023-10-19



SDO/HMI Quick-Look Magnetogram: 20231019_114500

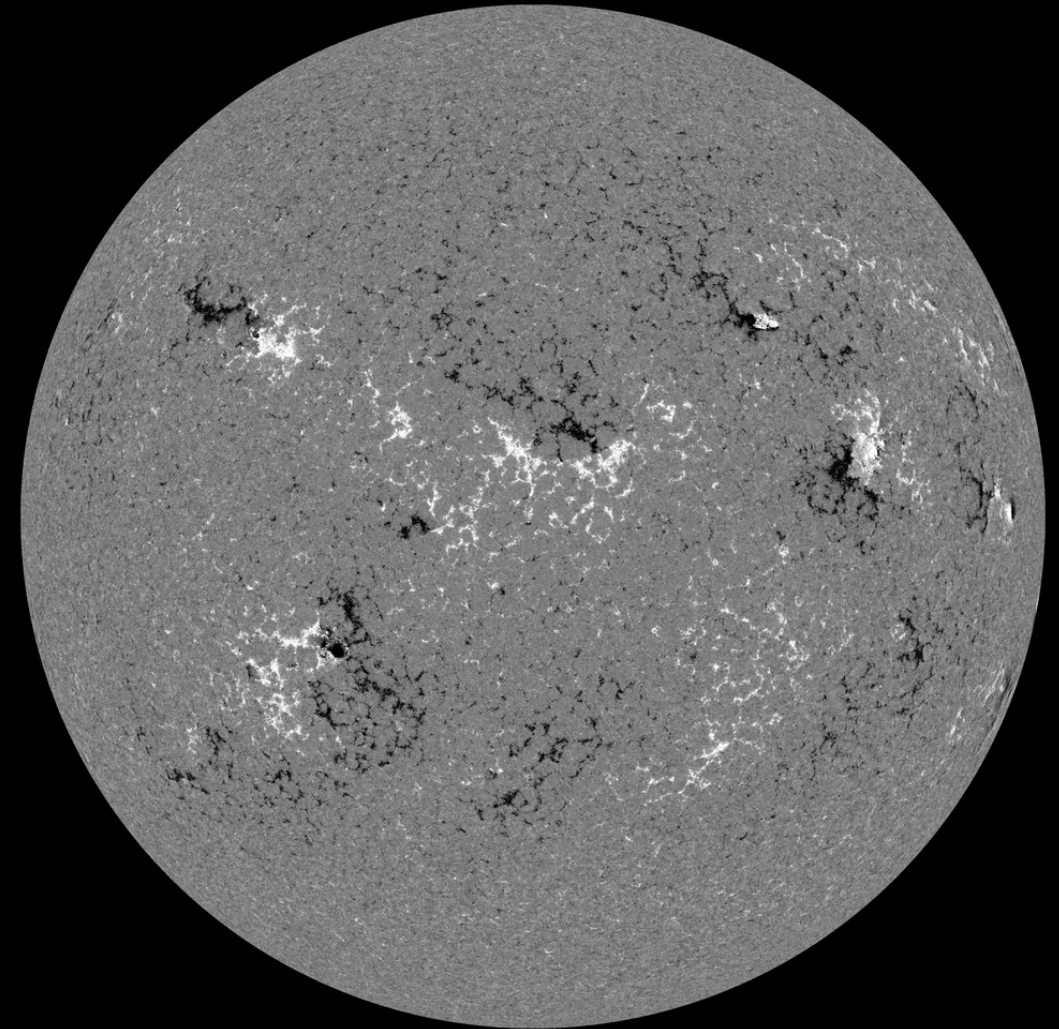
Solar active regions

SDO/HMI White Light 2023-10-20



SDO/HMI Quick-Look Continuum: 20231020_114500

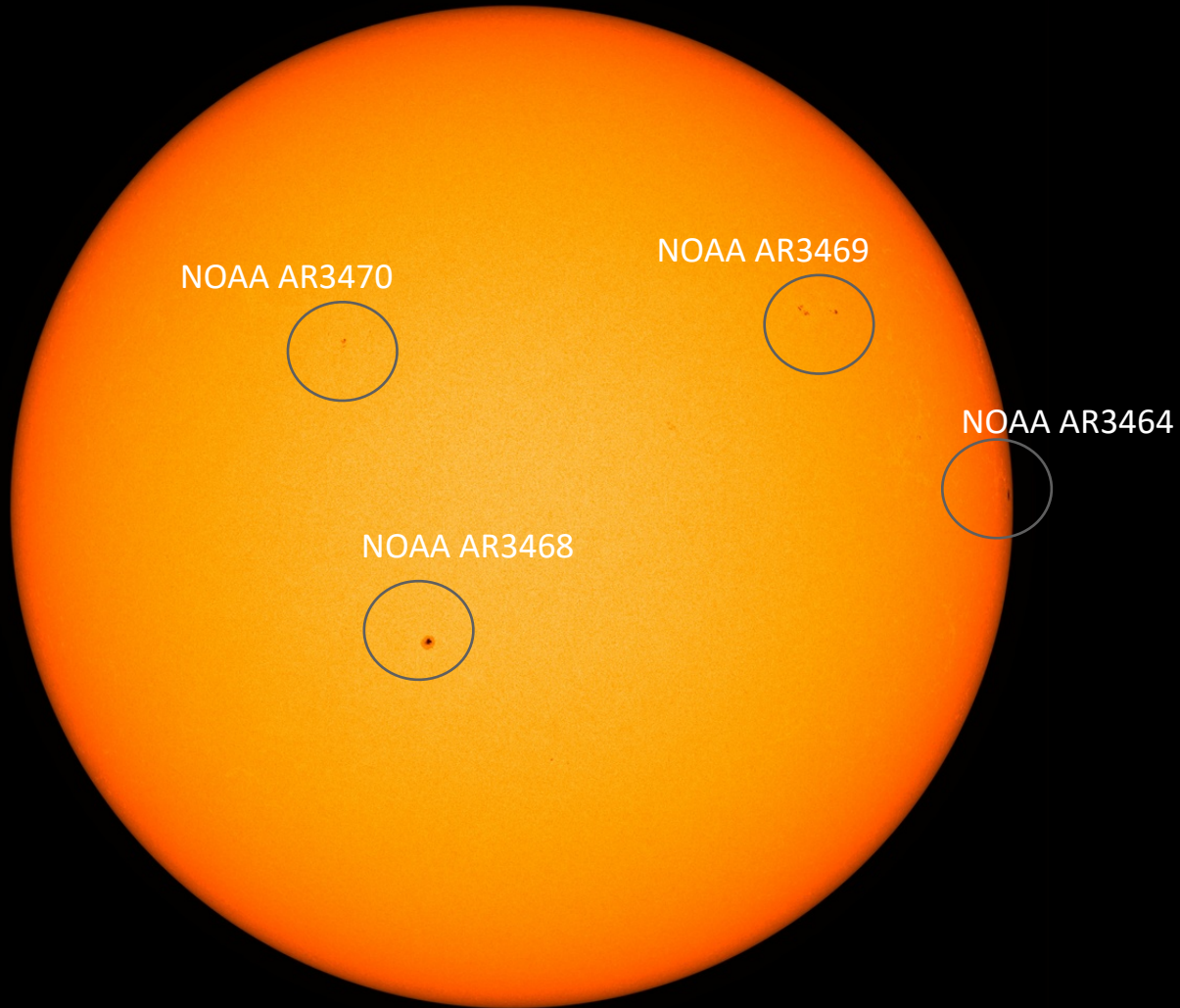
SDO/HMI Magnetogram 2023-10-20



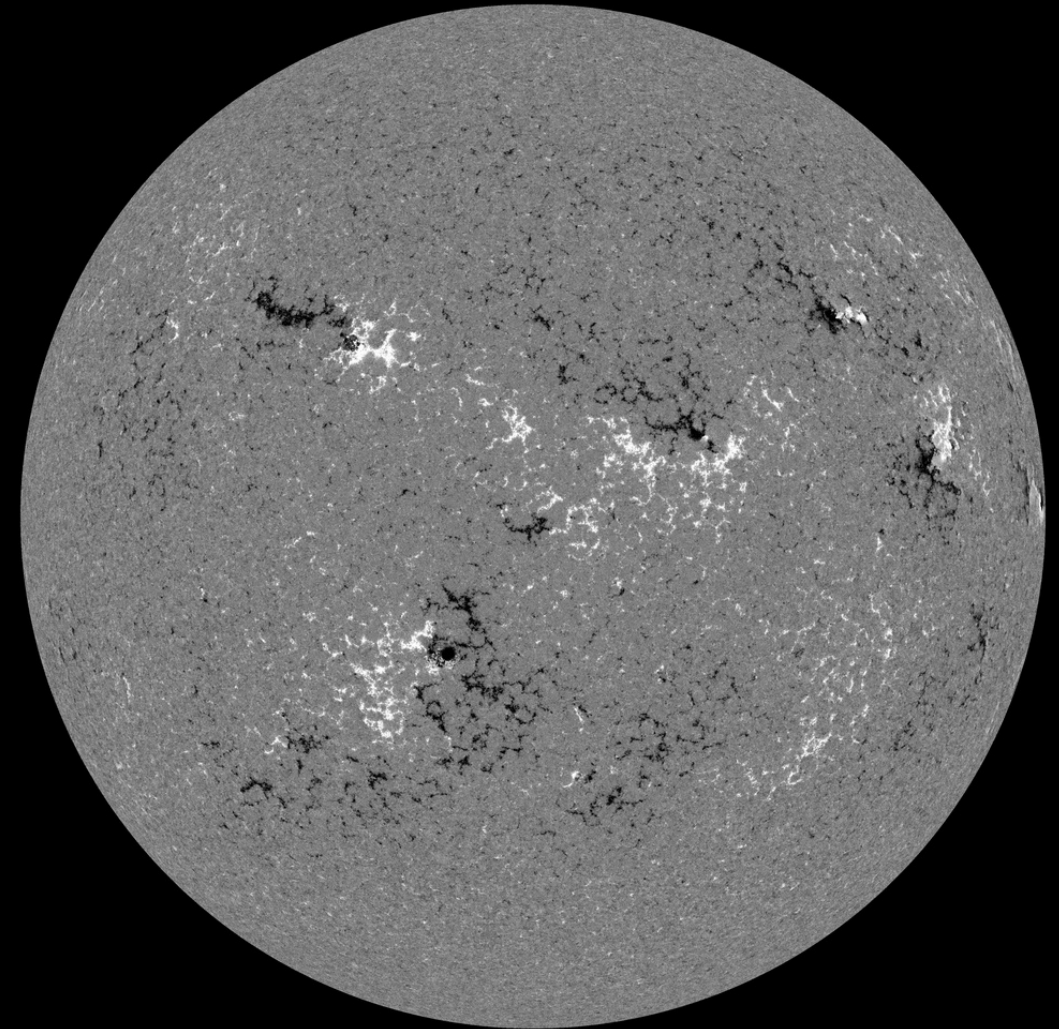
SDO/HMI Quick-Look Magnetogram: 20231020_114500

Solar active regions

SDO/HMI White Light 2023-10-21

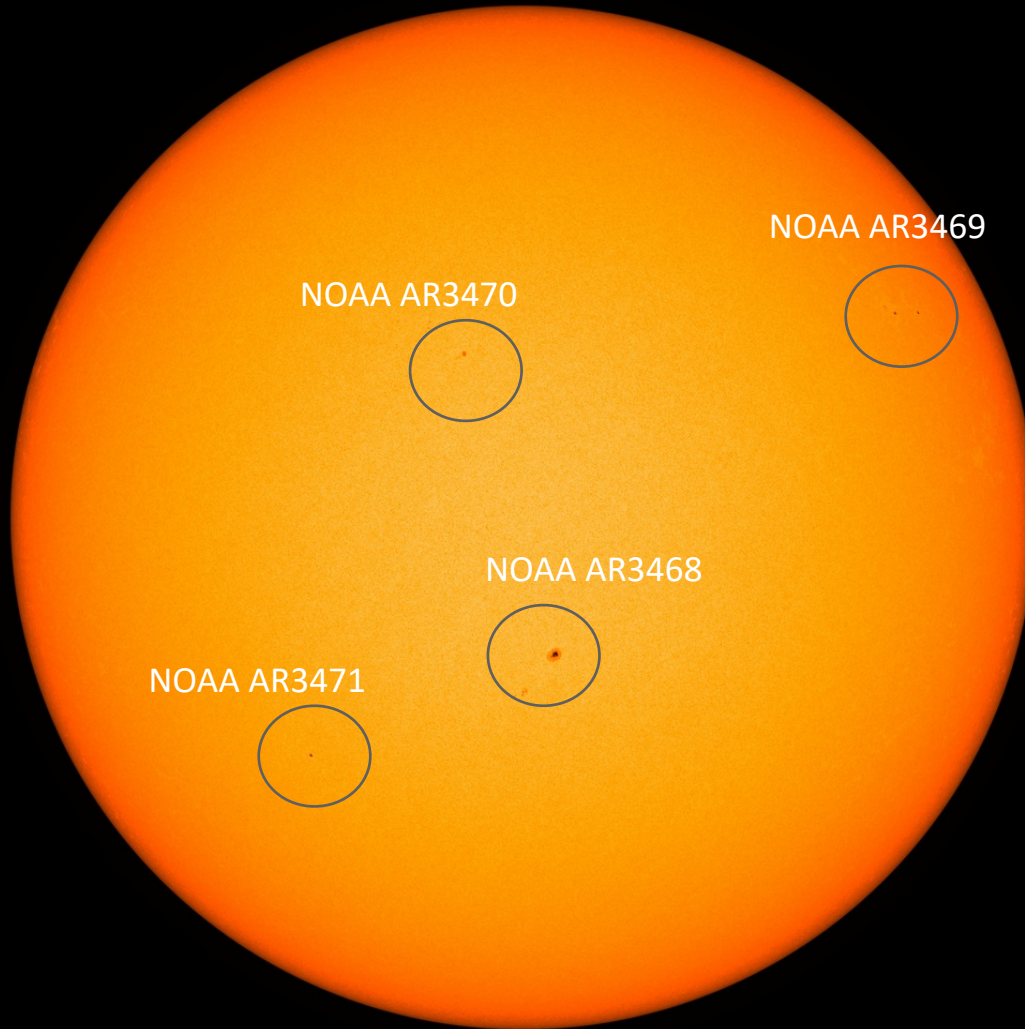


SDO/HMI Magnetogram 2023-10-21



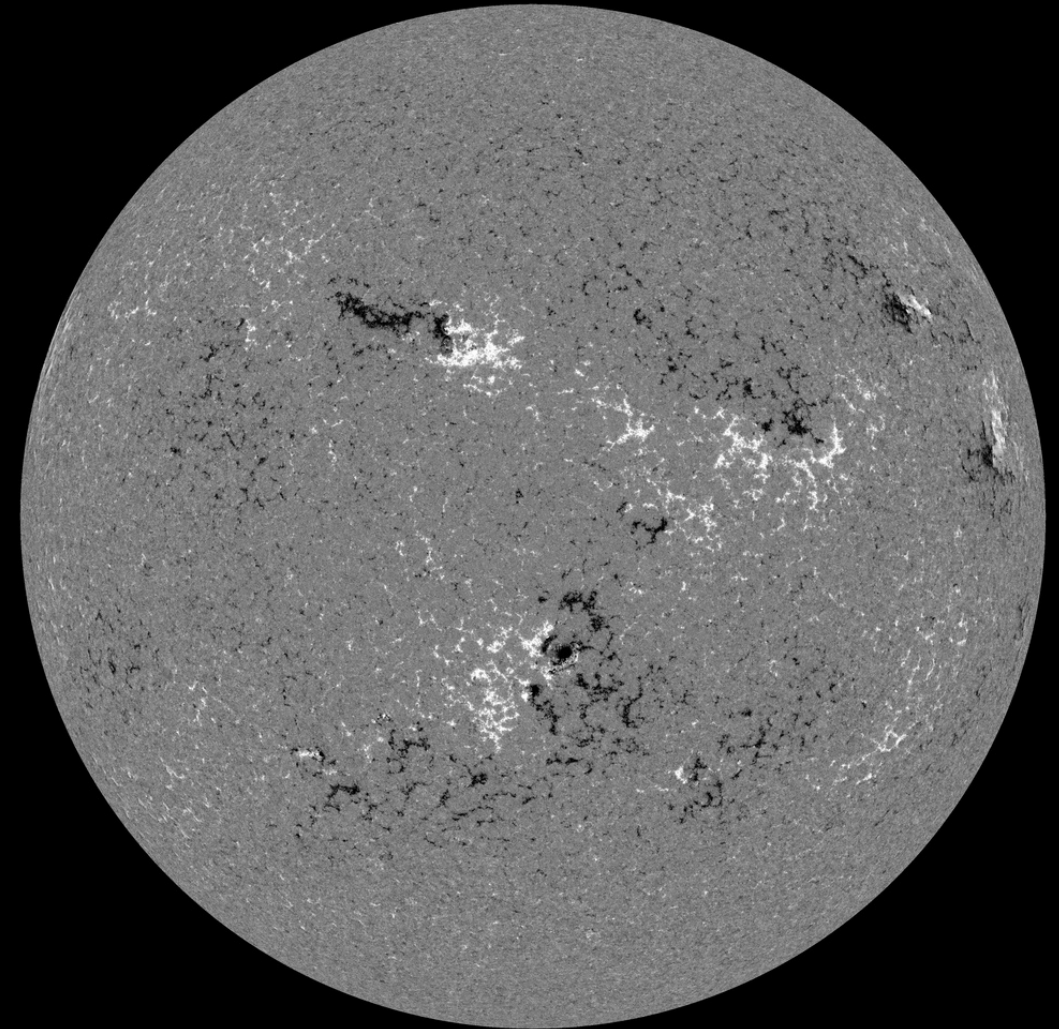
Solar active regions

SDO/HMI White Light 2023-10-22



SDO/HMI Quick-Look Continuum: 20231022_114500

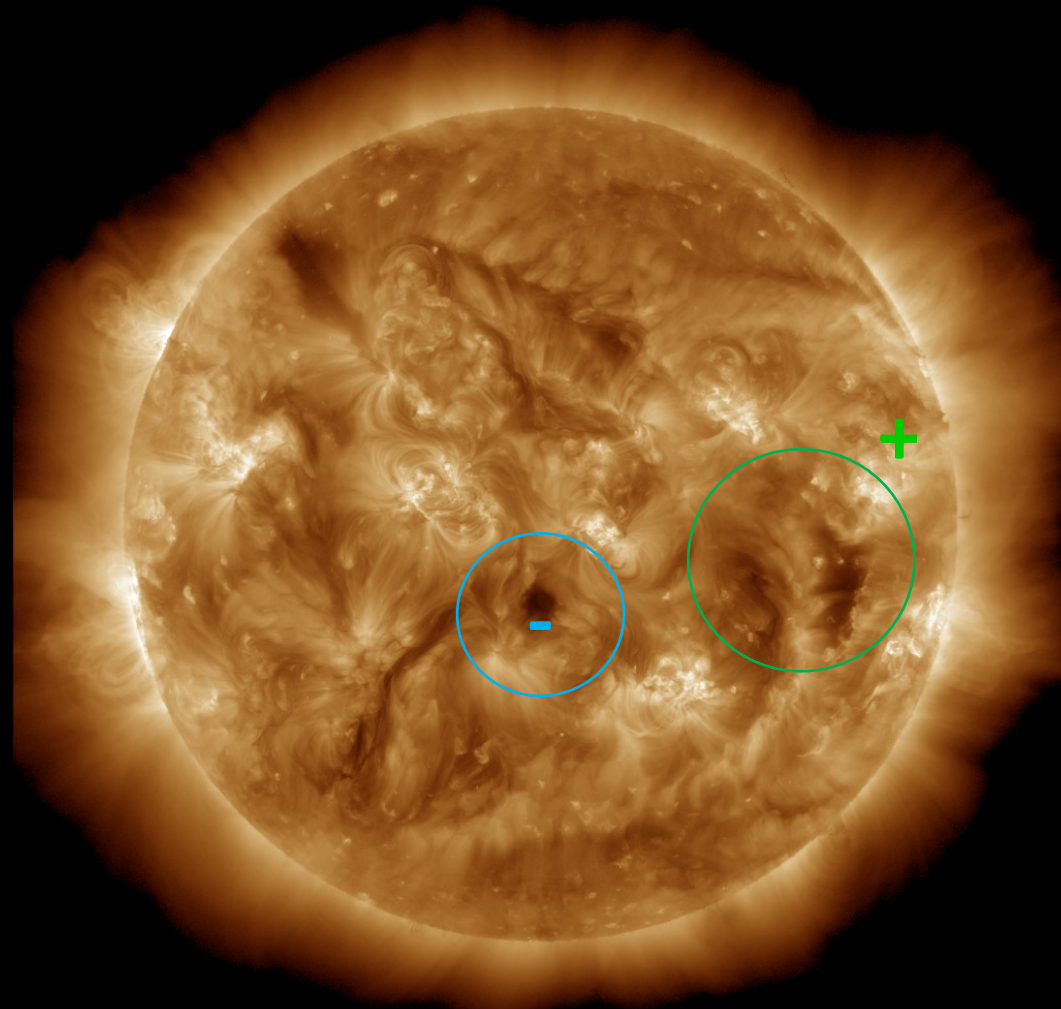
SDO/HMI Magnetogram 2023-10-22



SDO/HMI Quick-Look Magnetogram: 20231022_114500

Coronal holes

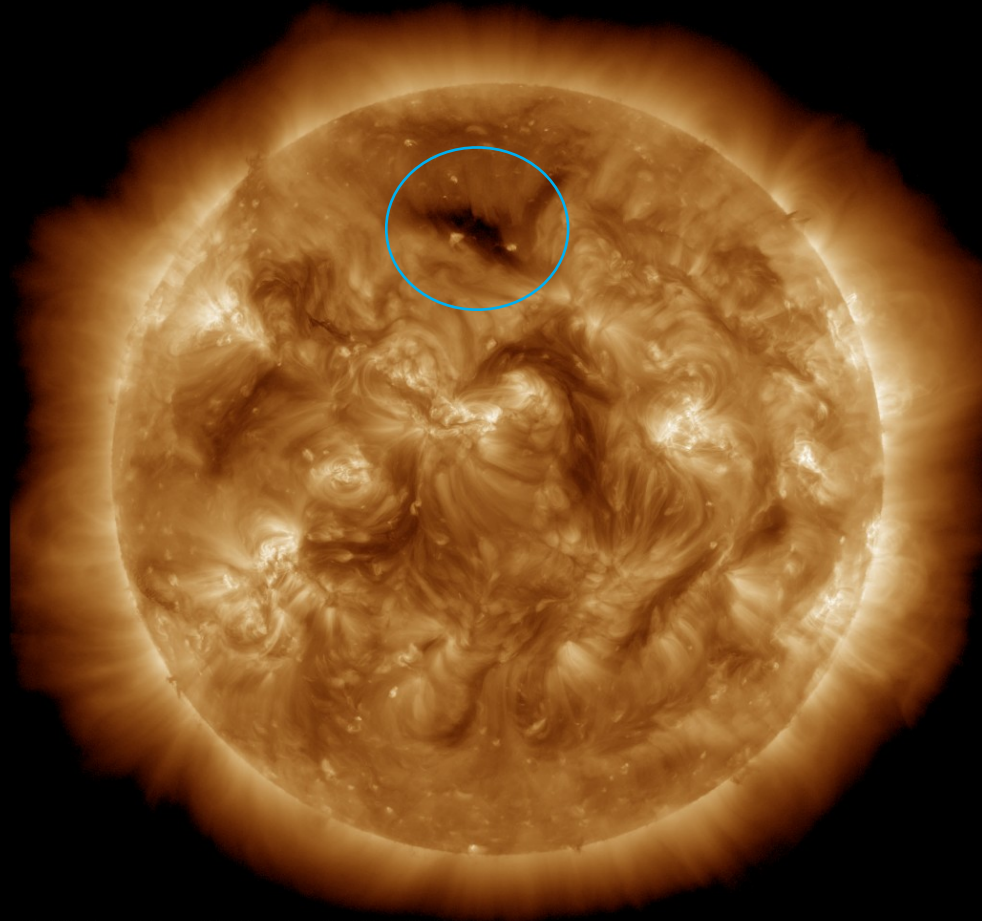
SDO/AIA 19.3 nm 2023-10-16



SDO/AIA 193 2023-10-16 06:57:05 UT

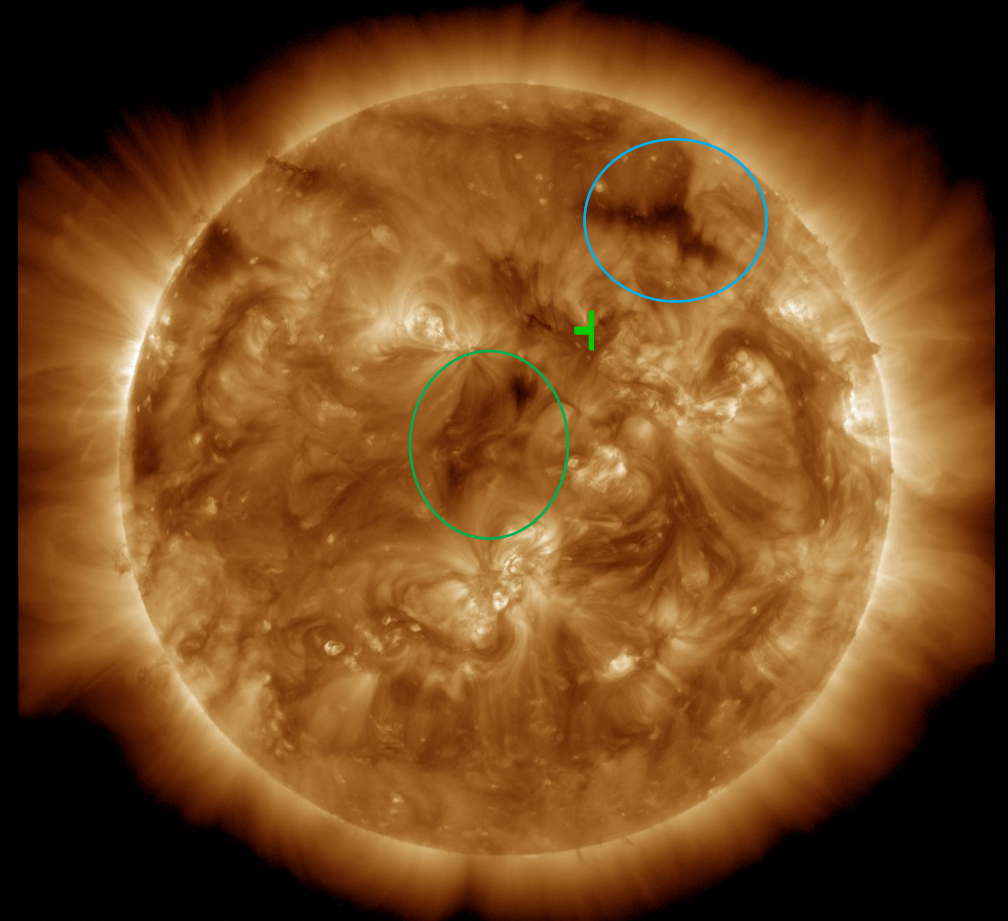
Coronal holes

SDO/AIA 19.3 nm 2023-10-21



SDO/AIA 193 2023-10-19 15:57:53 UT

SDO/AIA 19.3 nm 2023-10-22



SDO/AIA 193 2023-10-22 11:08:29 UT

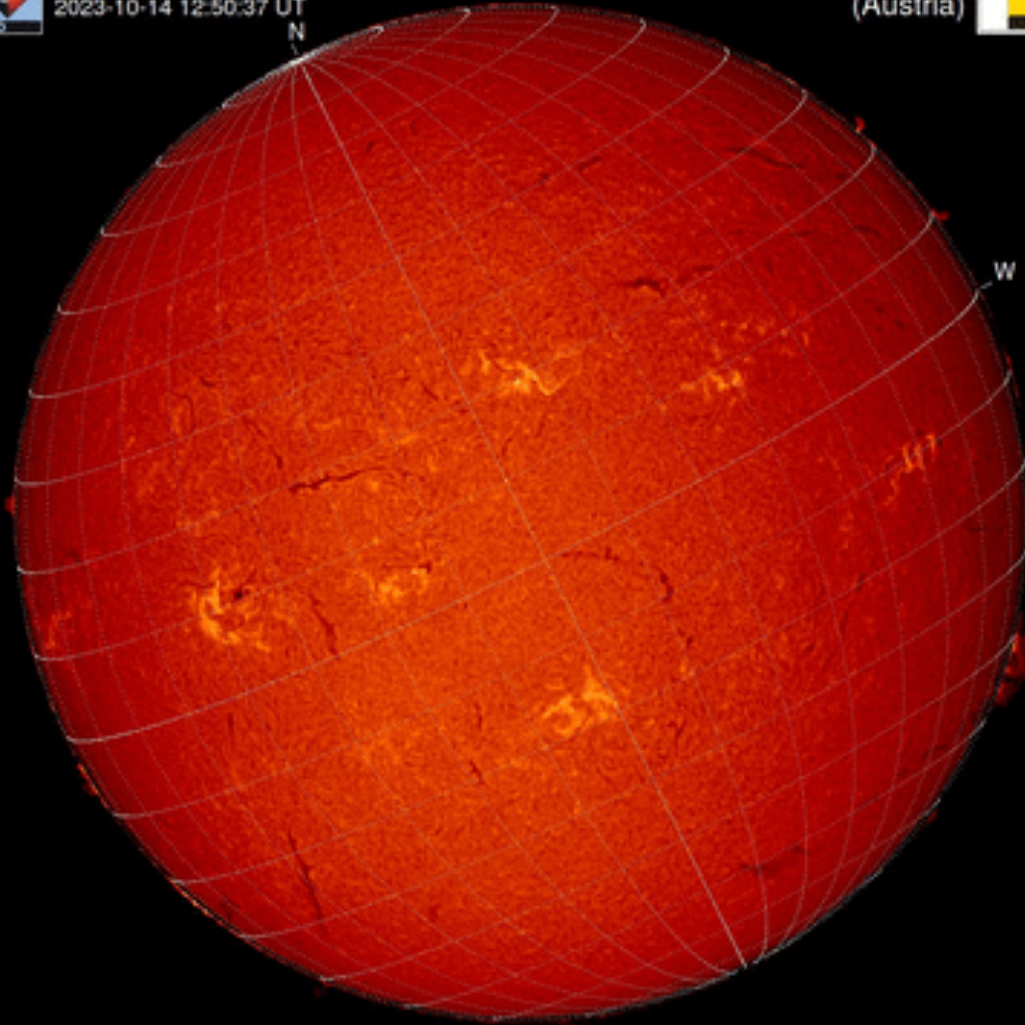
Filaments & Filament eruptions

H-alpha 2023-10-15



Kanzelhöhe Observatory
2023-10-14 12:50:37 UT

University of Graz
(Austria)

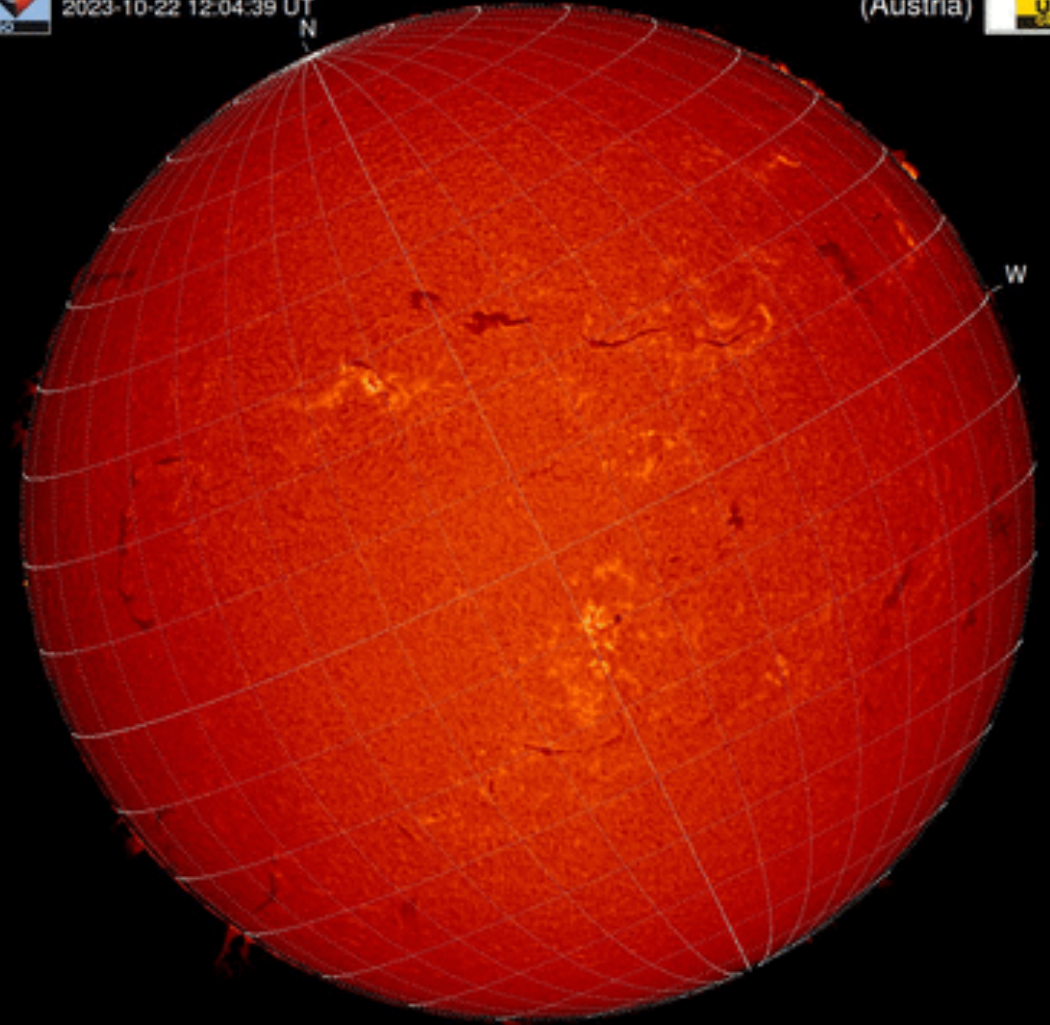


H-alpha 2023-10-22

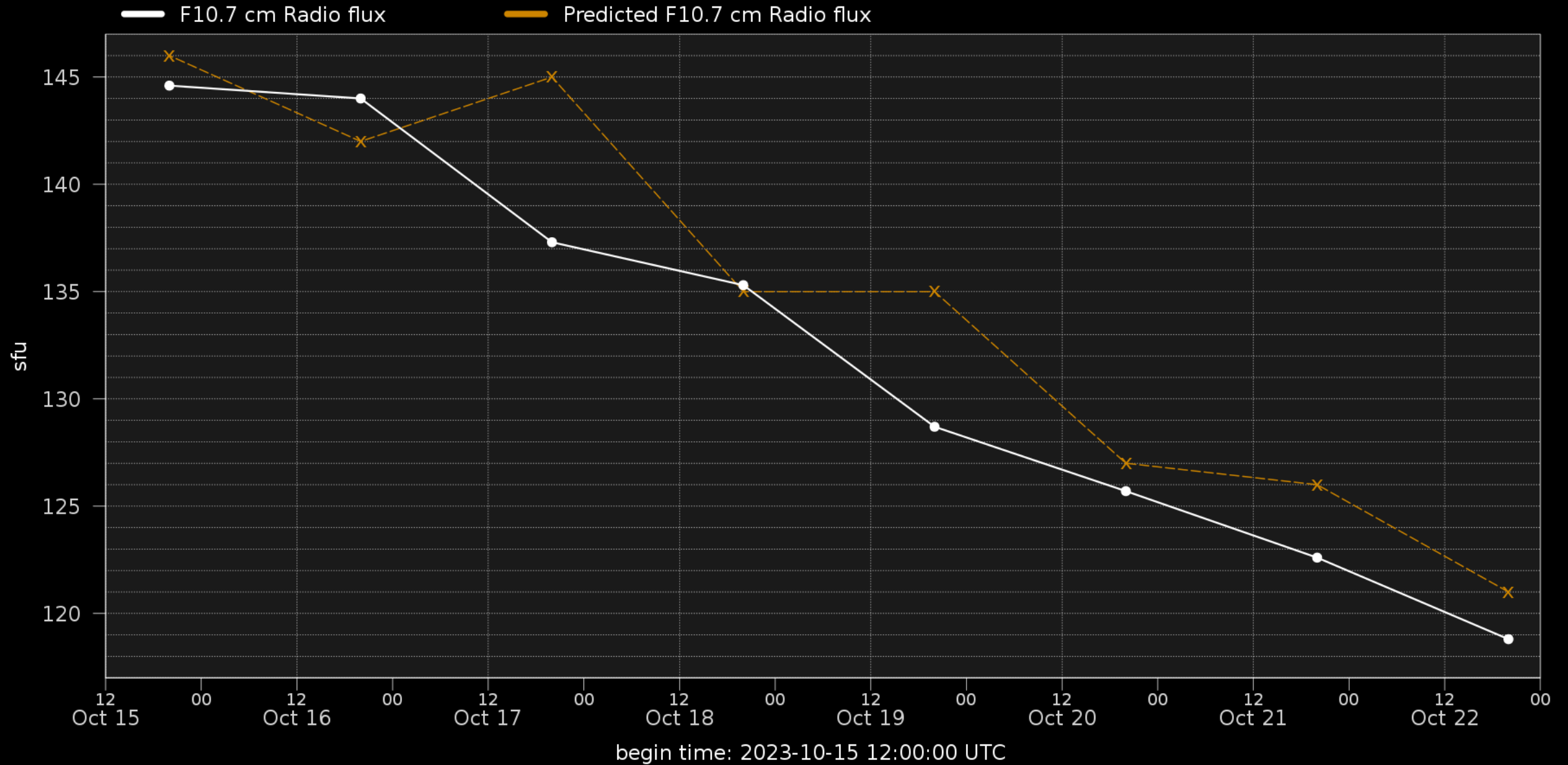


Kanzelhöhe Observatory
2023-10-22 12:04:39 UT

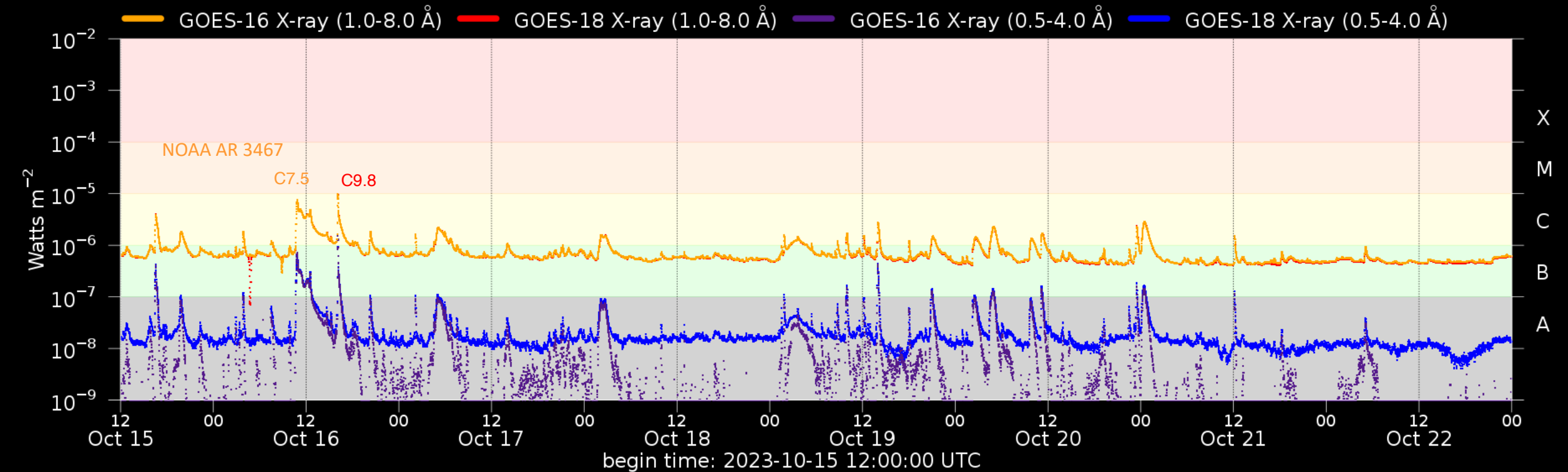
University of Graz
(Austria)



Solar F10.7cm radio flux



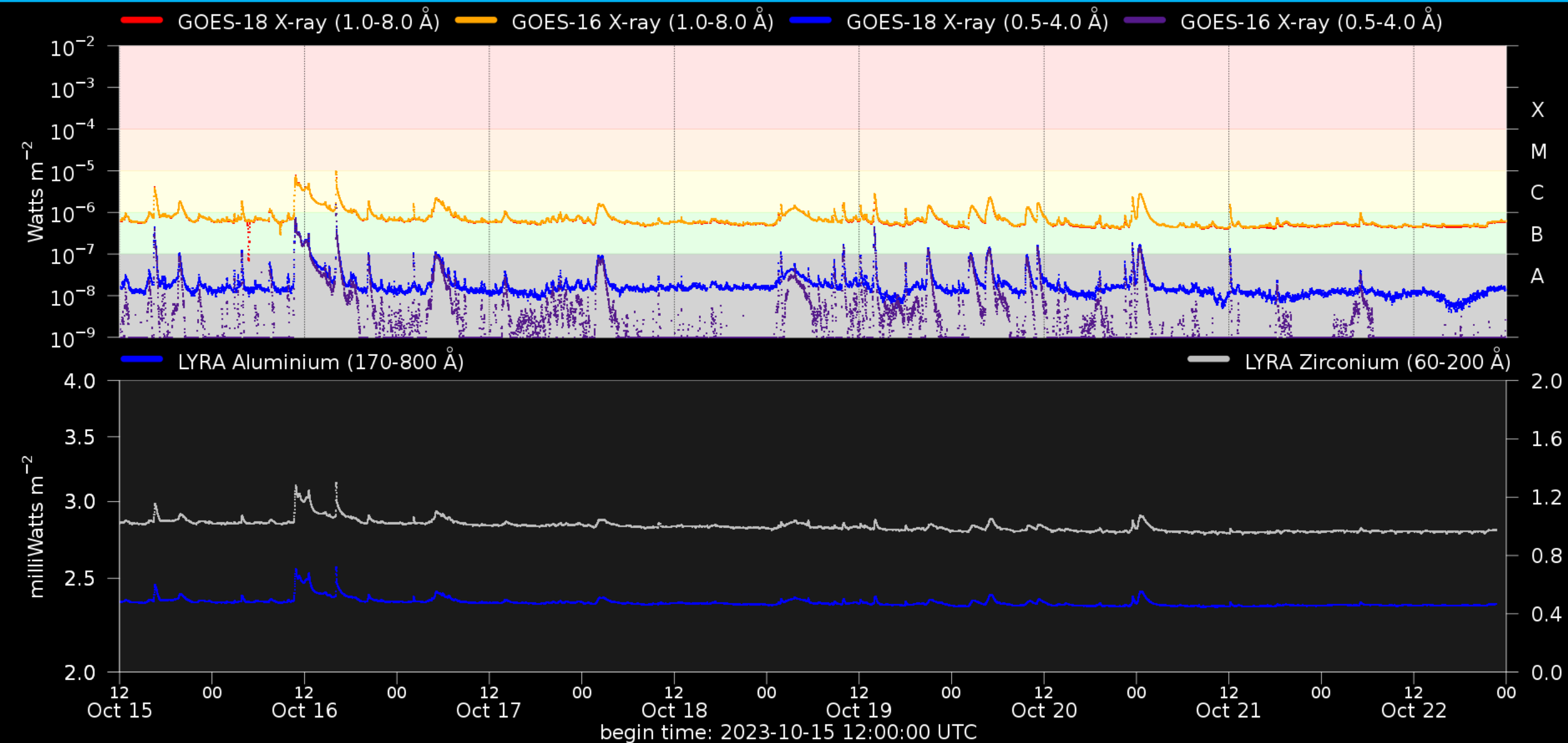
Flaring activity



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

Issue date	2023-10-15	2023-10-16	2023-10-17	2023-10-18	2023-10-19	2023-10-20	2023-10-21	2023-10-22
Probability (%)	90 05 01	80 10 01	85 10 01	80 05 01	70 05 01	60 01 01	55 05 01	40 01 01
Observed (#)	03 00 00	04 00 00	01 00 00	03 00 00	07 00 00	02 00 00	01 00 00	00 00 00

Solar X-Ray and UV flux

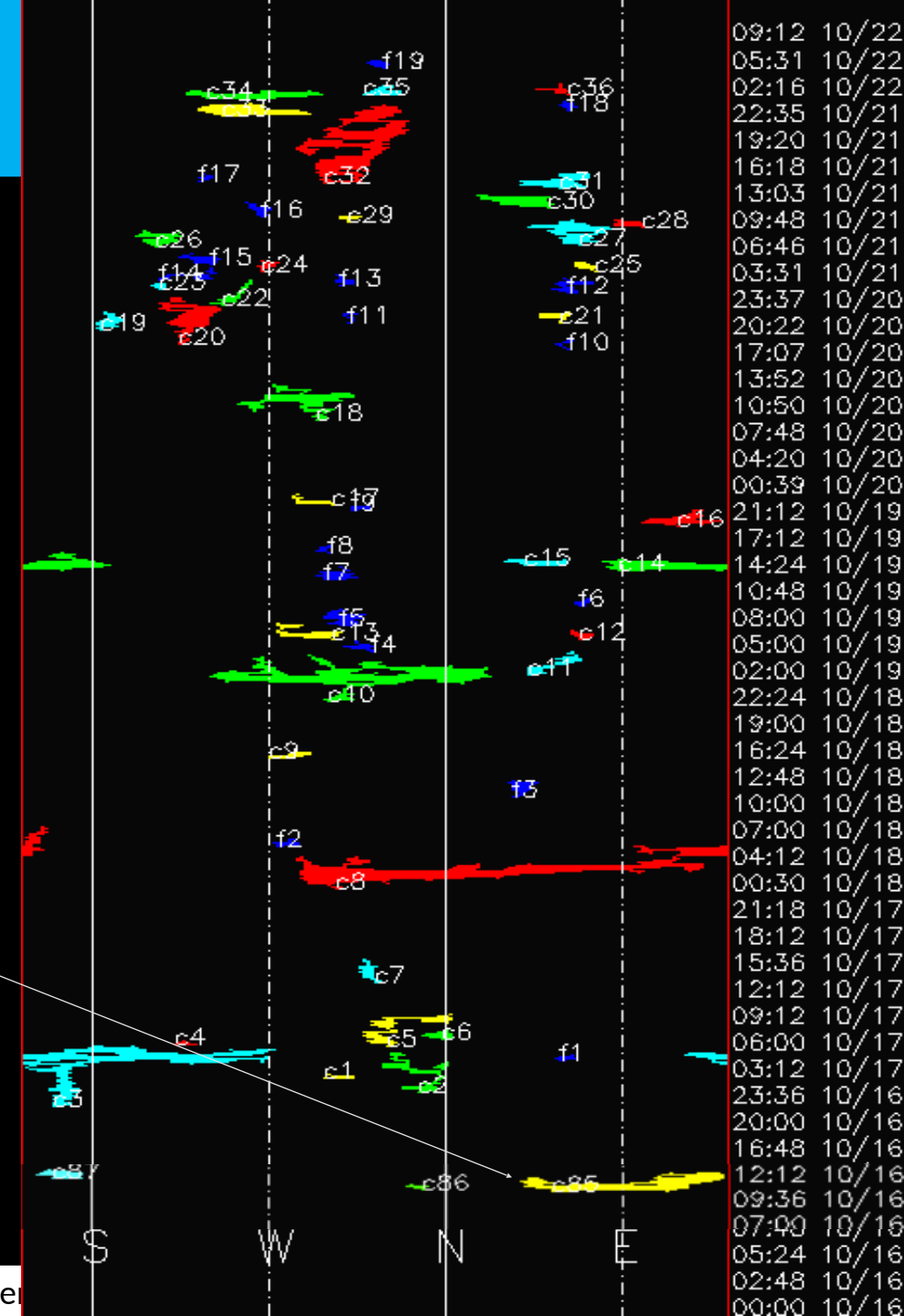


Coronal Mass Ejections

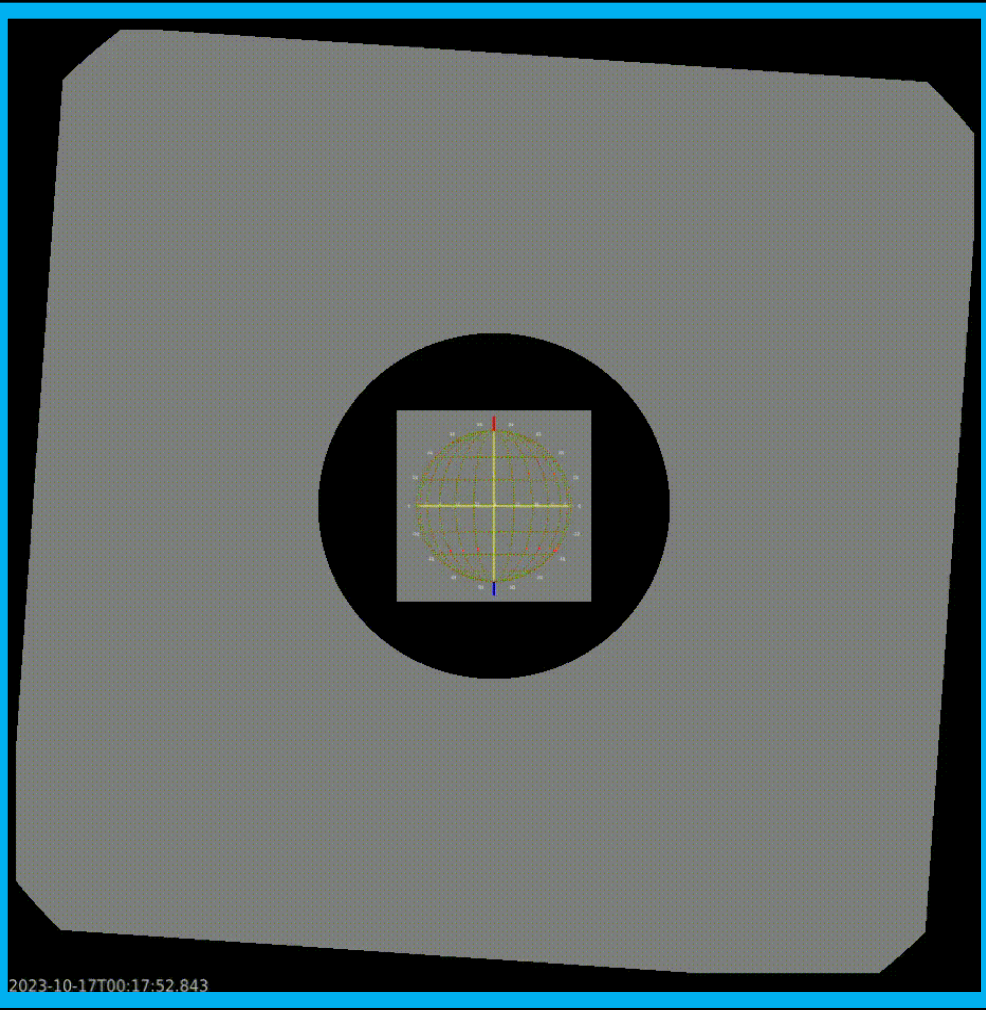
A Coronal Mass Ejection (CME) to the east was observed in SOHO/LASCO-C2 data from 11:48 UTC. This was associated with a long duration C7.5 flare on October 16, peaking at 10:51 UTC. The CME appears to mostly be directed to the east but a wider shock is visible.

~500km/s

Predicted early Oct 20 - Glancing blow



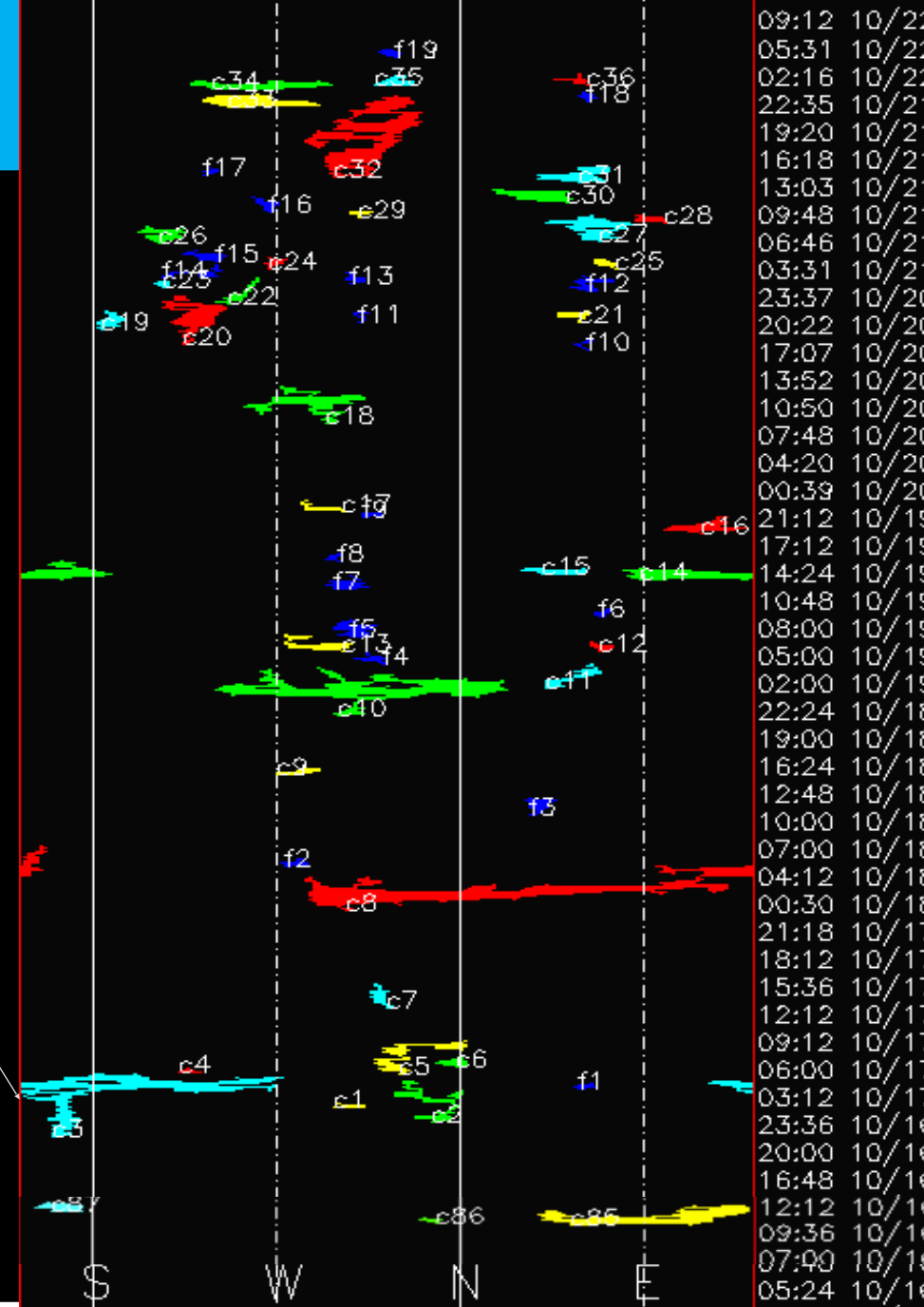
Coronal Mass Ejections



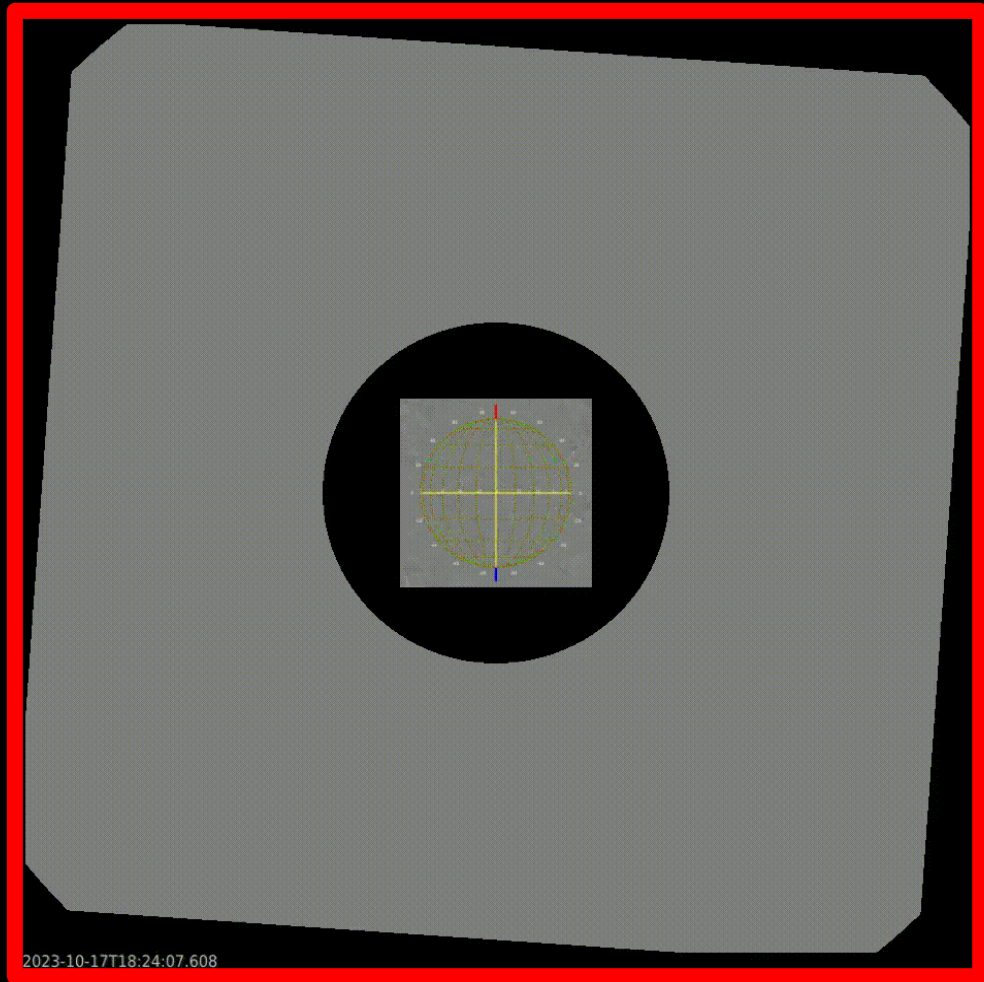
A CME, first observed from 05:17 UTC October 17 in SOHO/LASCO-C2 to the south-west, was associated with the long duration C2 flare from NOAA3463.

~350 km/s

Predicted late Oct 20 - Glancing blow



Coronal Mass Ejections

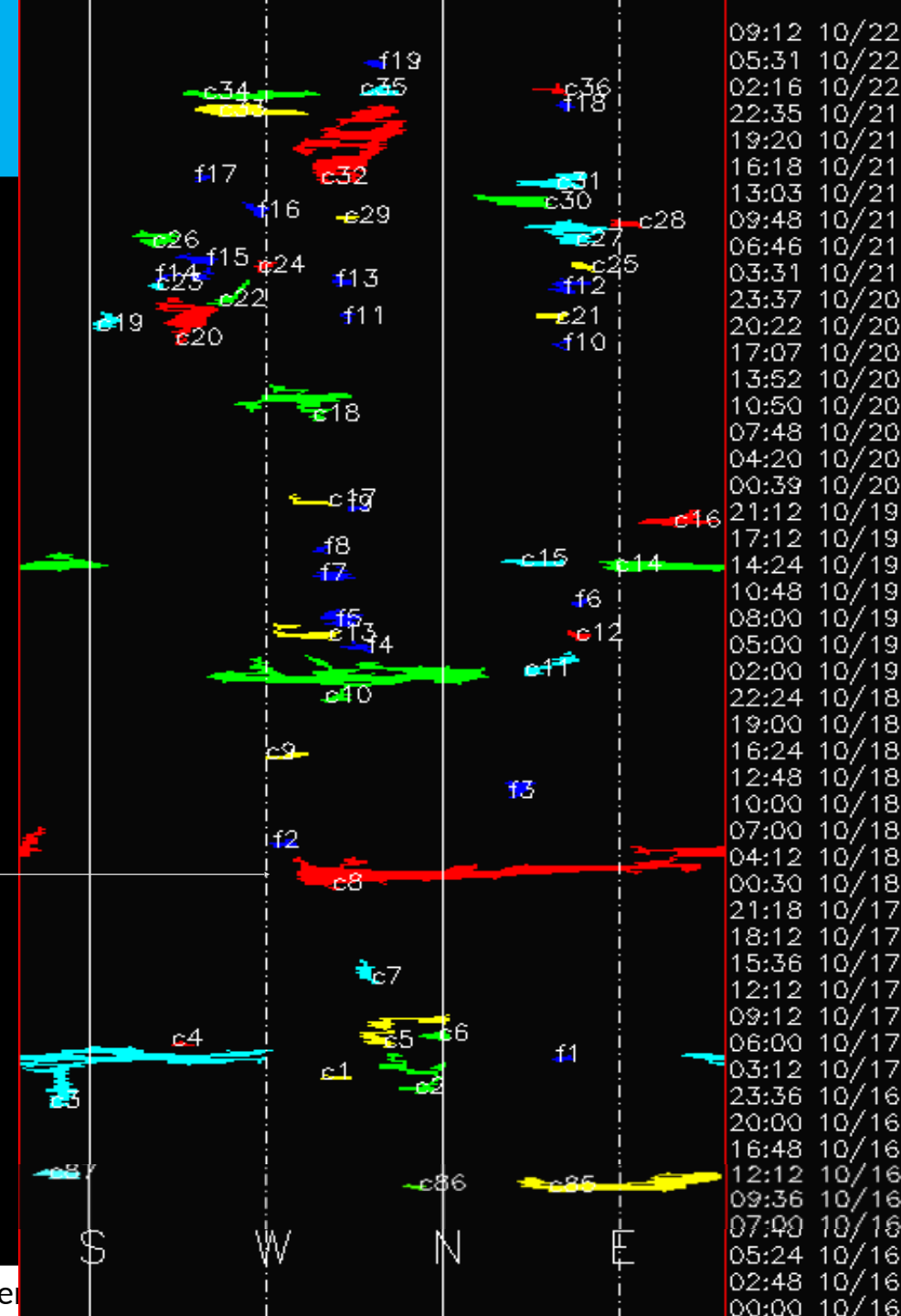


2023-10-17T18:24:07.608

3 CMEs: not one halo. North and east CMEs not Earth directed.

A faint Coronal Mass Ejection directed to the south-east, visible in SOHO/LASCO-C2 data from 06:12 UTC October 18, was associated with an eruption to the south-west of NOAA 3468.

Predicted late October 21 glancing blow.



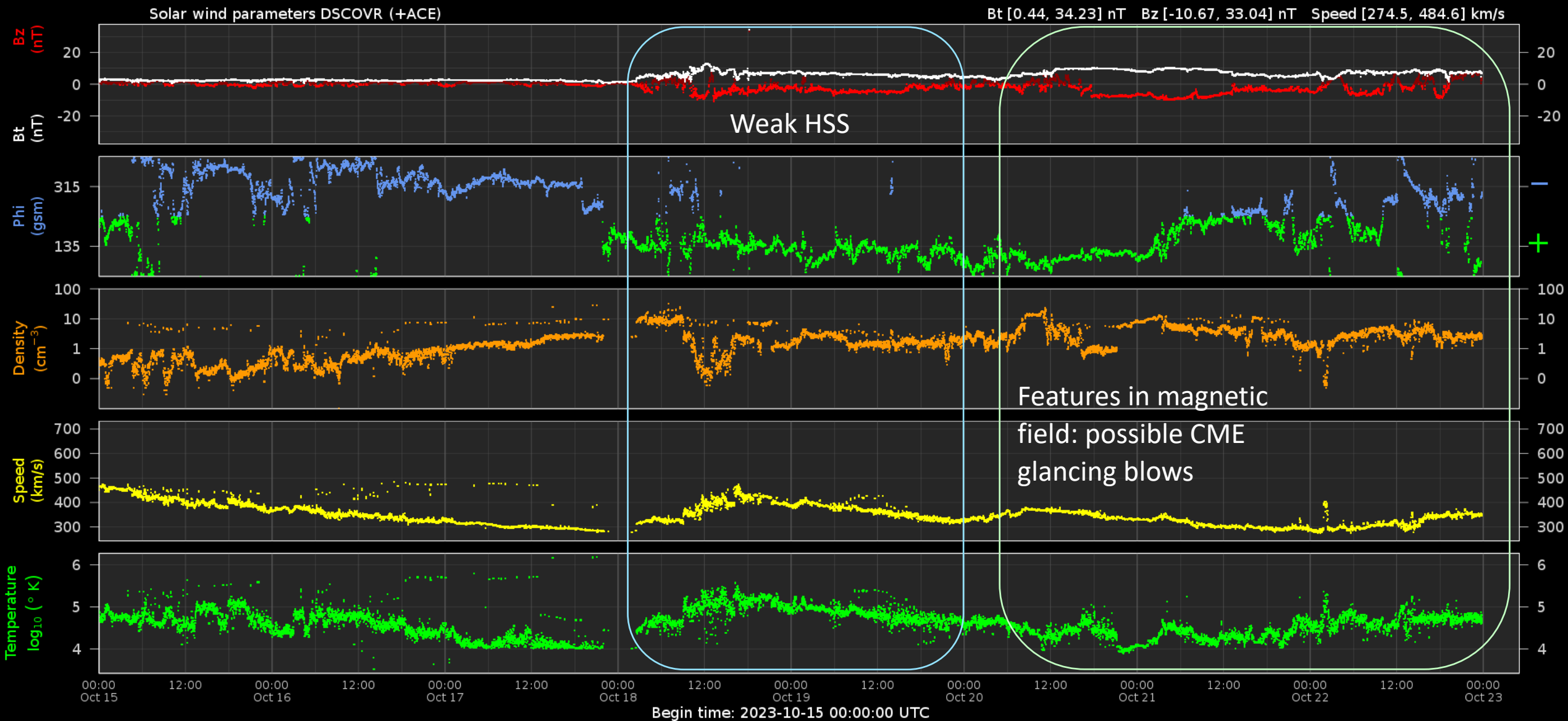
Solar Wind and Geomagnetic Activity



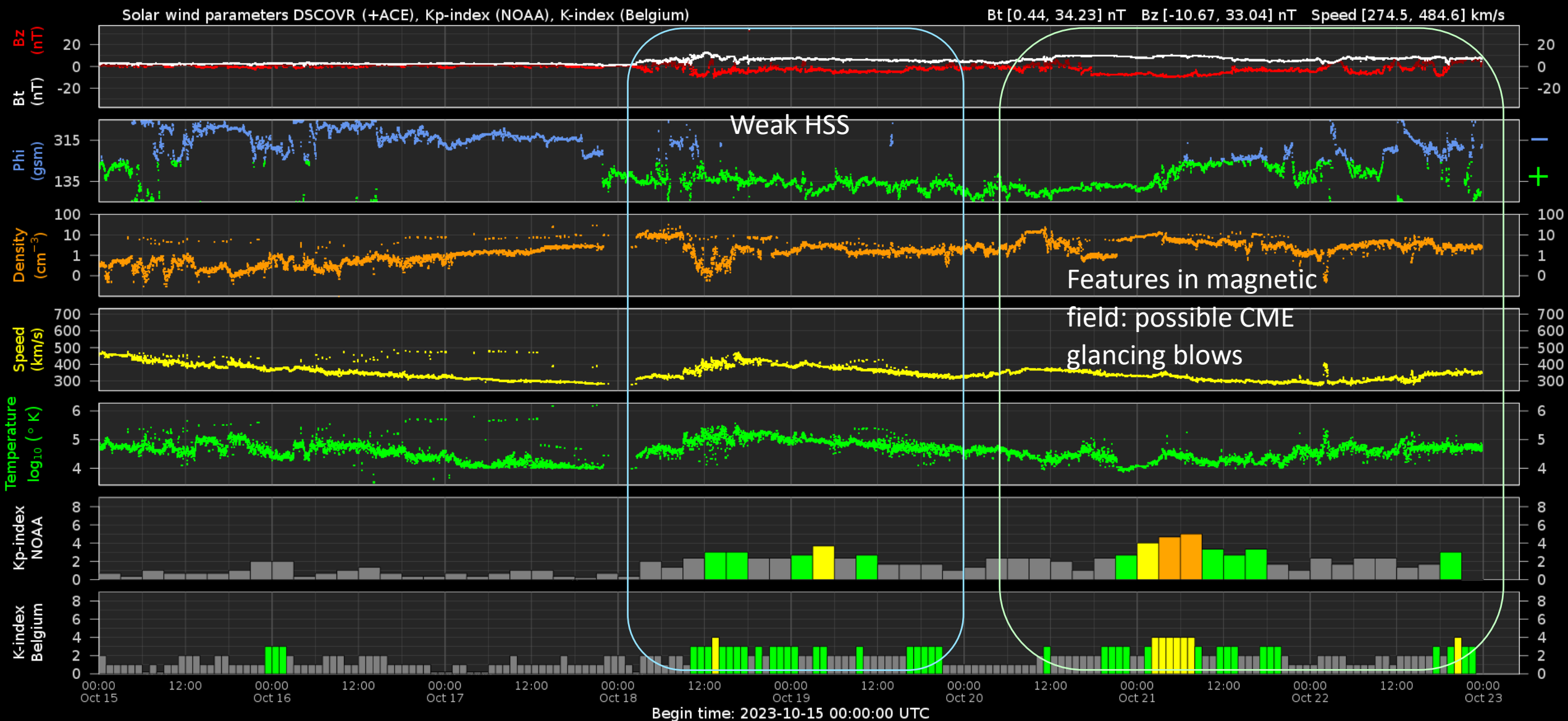
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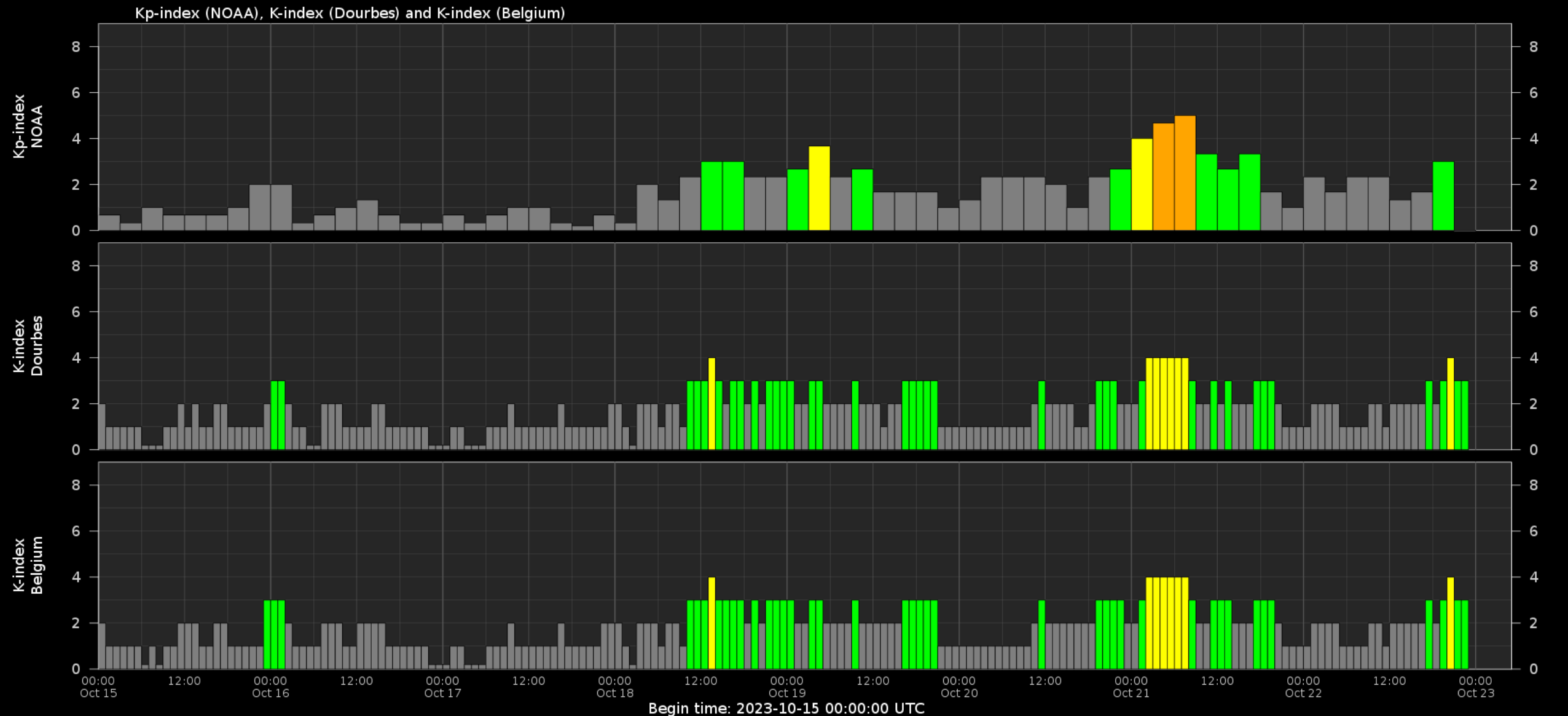
Solar wind parameters



Solar wind parameters & K-indices



Geomagnetic activity (K-indexes)



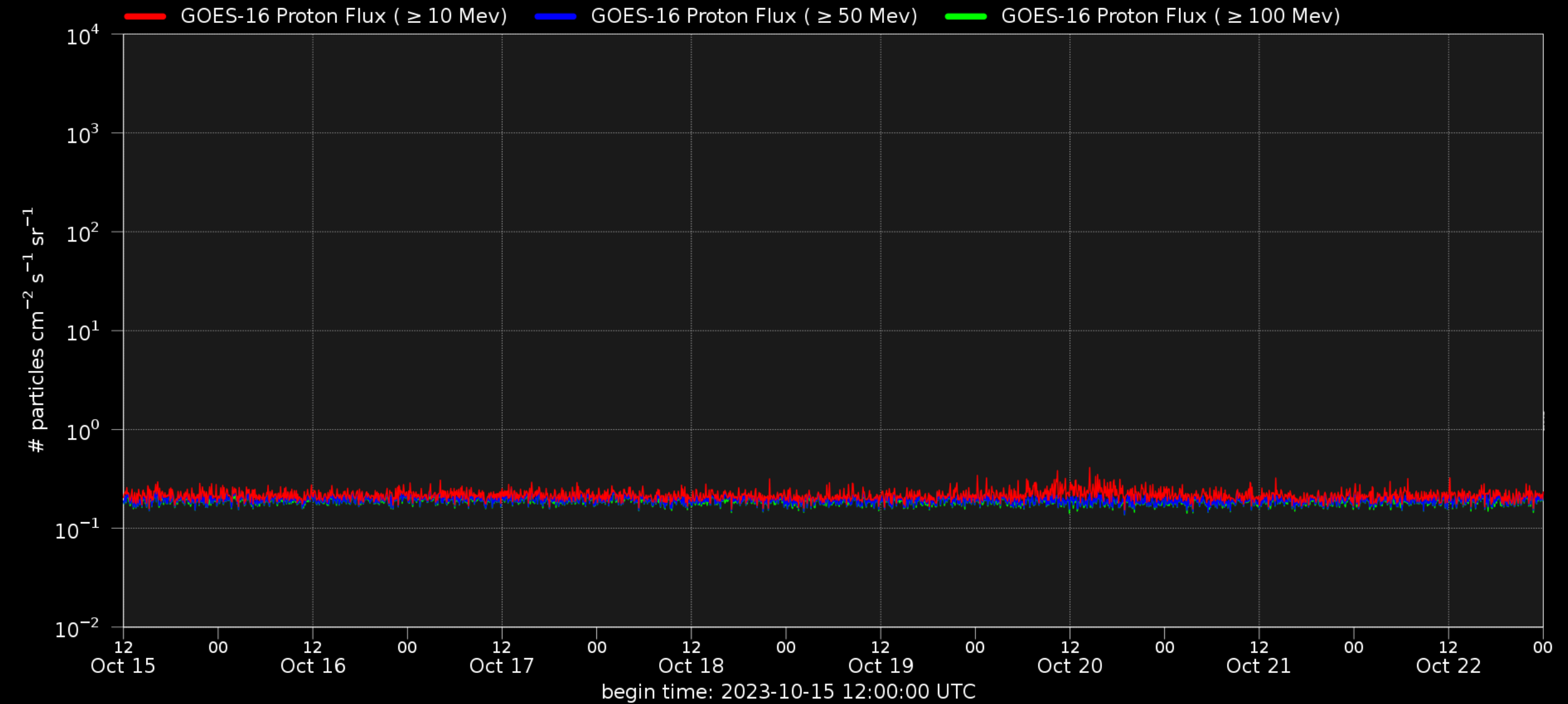
Energetic Particles



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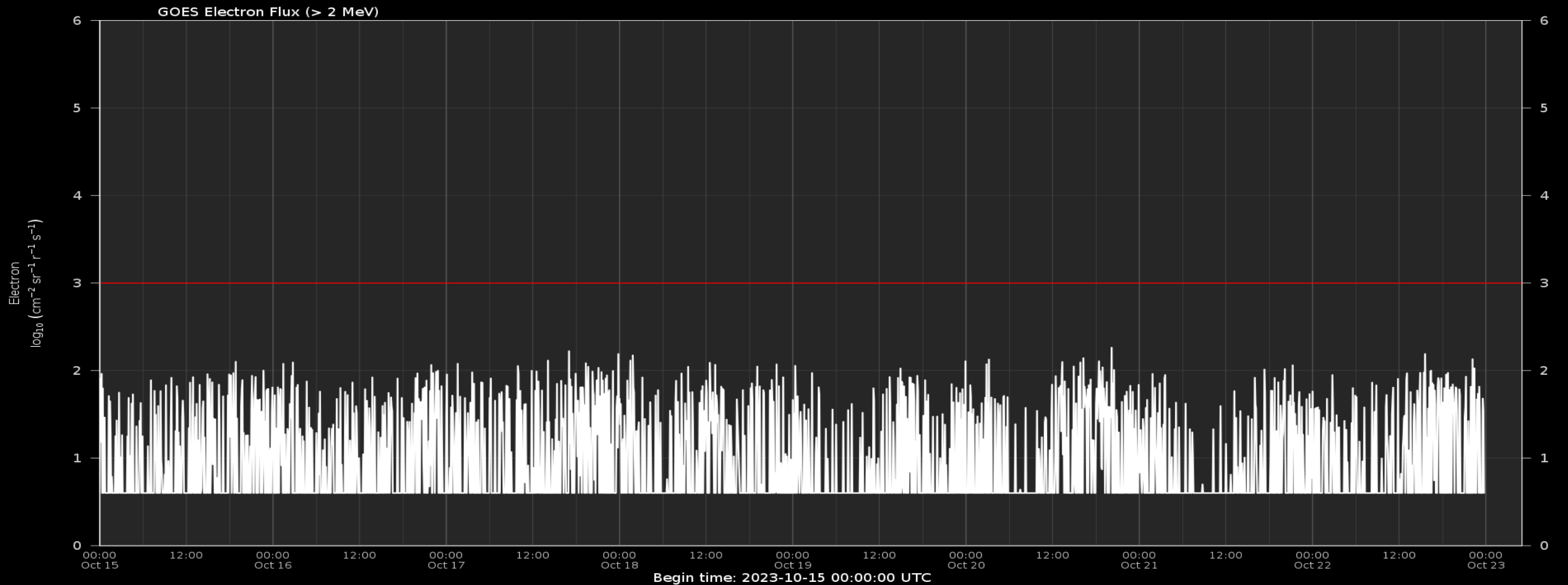
Solar proton flux



Electron flux at GEO

www.stce.be/educational/classification#electrons

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



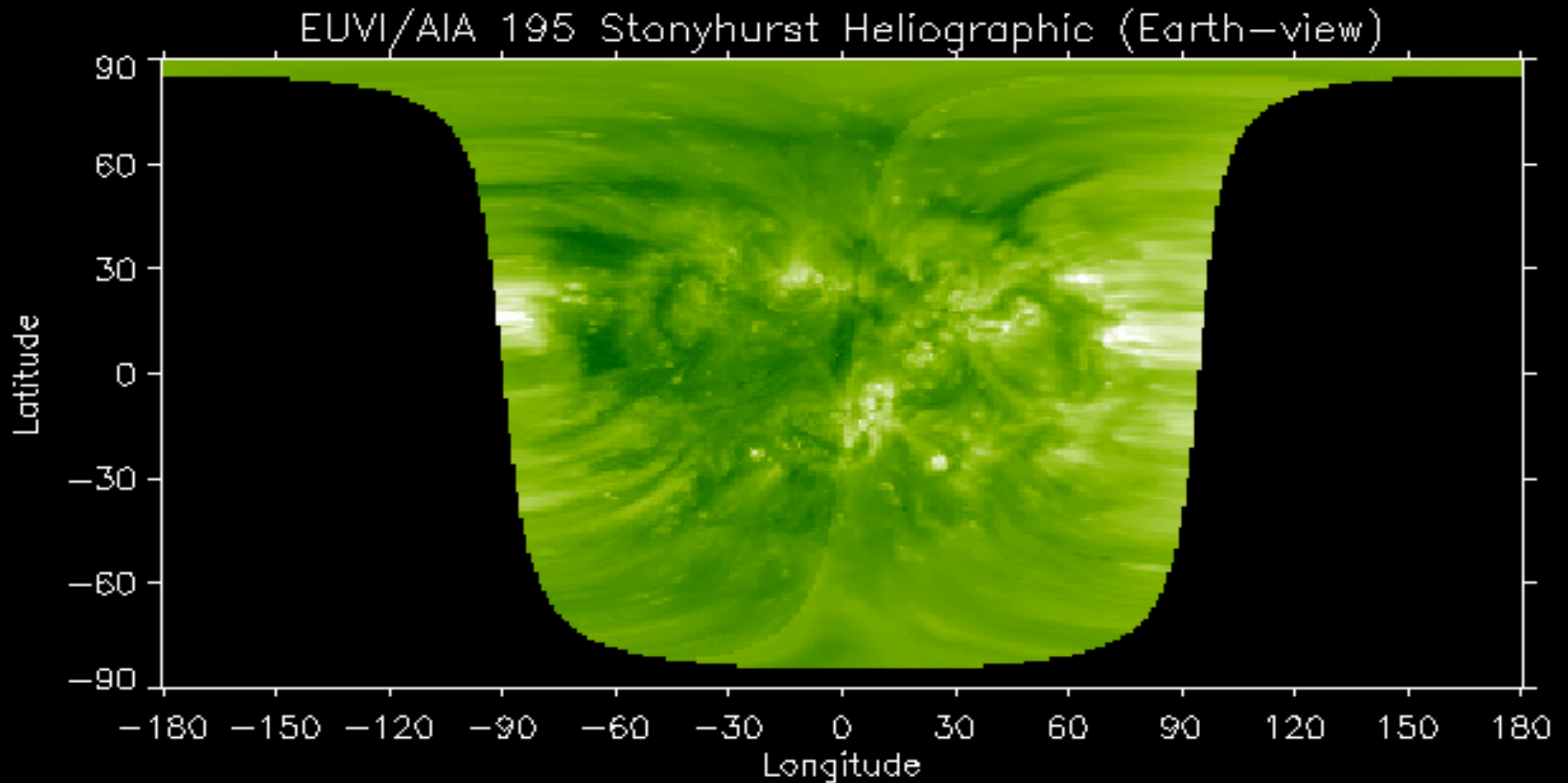
Outlook



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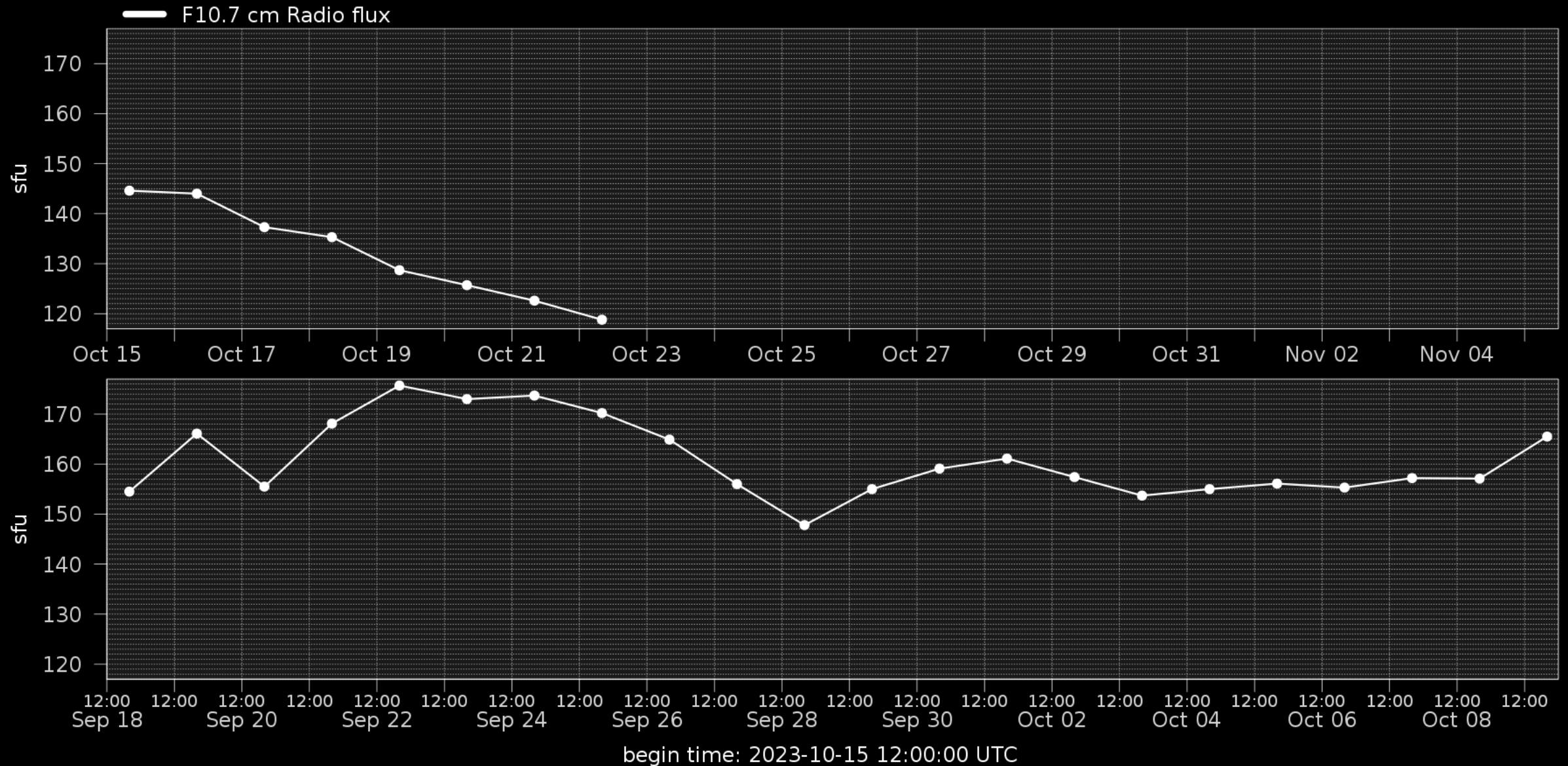
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Outlook: Solar activity



Observation date: 2023/10/22 22:55:00

Outlook: Solar F10.7cm radio flux



Outlook: Solar wind parameters



Outlook: Geomagnetic activity



Outlook: Electron Flux at GEO Outlook



Pegasus



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Pecasus related events

PECASUS handed over ODC status.

SIDC Space Weather Briefing

See you at our next briefing!

Or visit us at www.sidc.be



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