

SIDC Space Weather Briefing

16 March 2025-23 March 2025

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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 2025-03-16 12:00 to 2025-03-23 23:59

Active regions	24 regions on disk over the week: NOAA ARs 4018 - 4042
Flares	# M-class flare: 3 # X-class flare: 0
Coronal Holes	2 small negative CHs, 2 positive polarity CHs
CMEs	Multiple CMEs determined to have a possible Earth directed component

Proton flux	Below 10 pfu threshold
Electron flux	Above 1000 pfu threshold Mar 16 to Mar 18

Solar wind and geomagnetic conditions

ICMEs	ICME arrival on March 21
Solar wind conditions	B : 1.54 - 39.87 nT //Bz: -21.5 nT to 32.4 nT //Speed: 335.1 - 640.0km/s
Geomagnetic conditions	max K _{BeI} : 5.0, max K _p (NOAA): 5.67, Moderate Storm conditions

All Quiet Alert: Not all quiet

Solar Activity

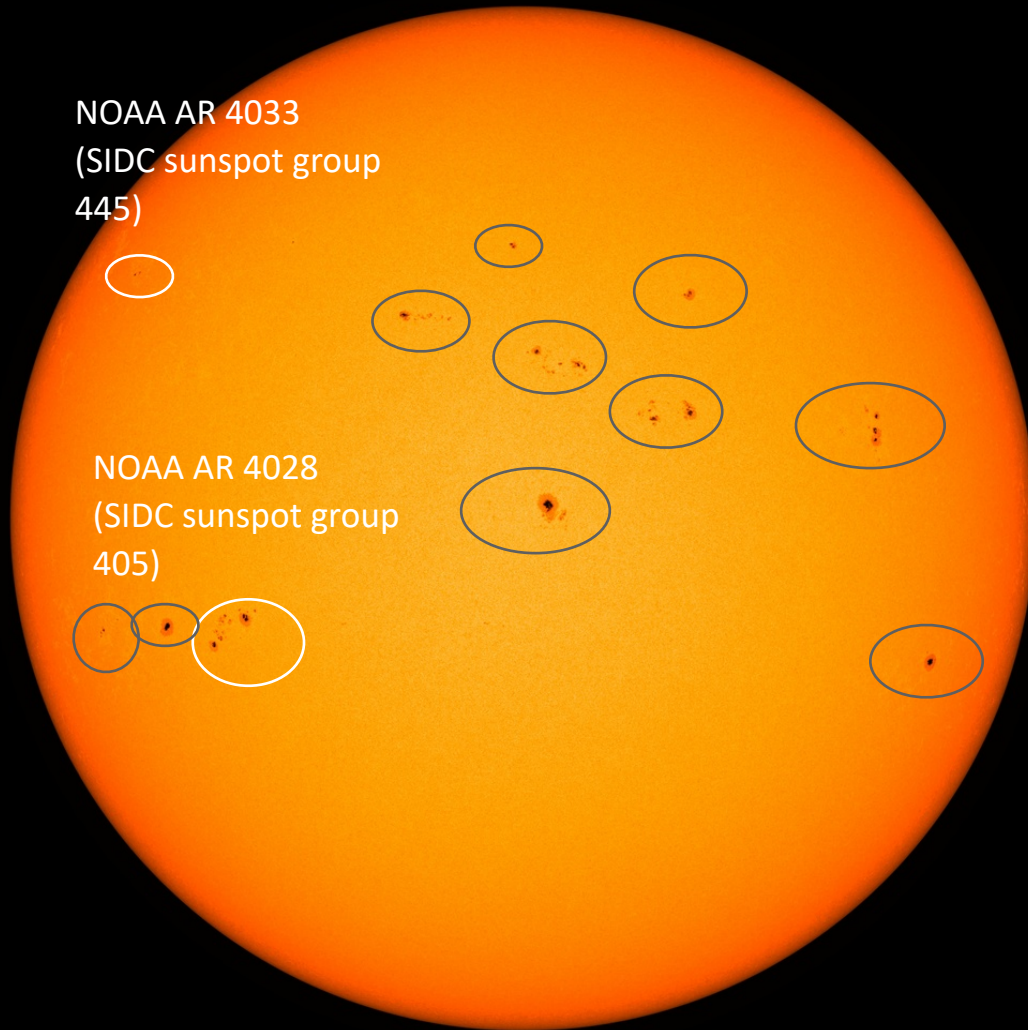


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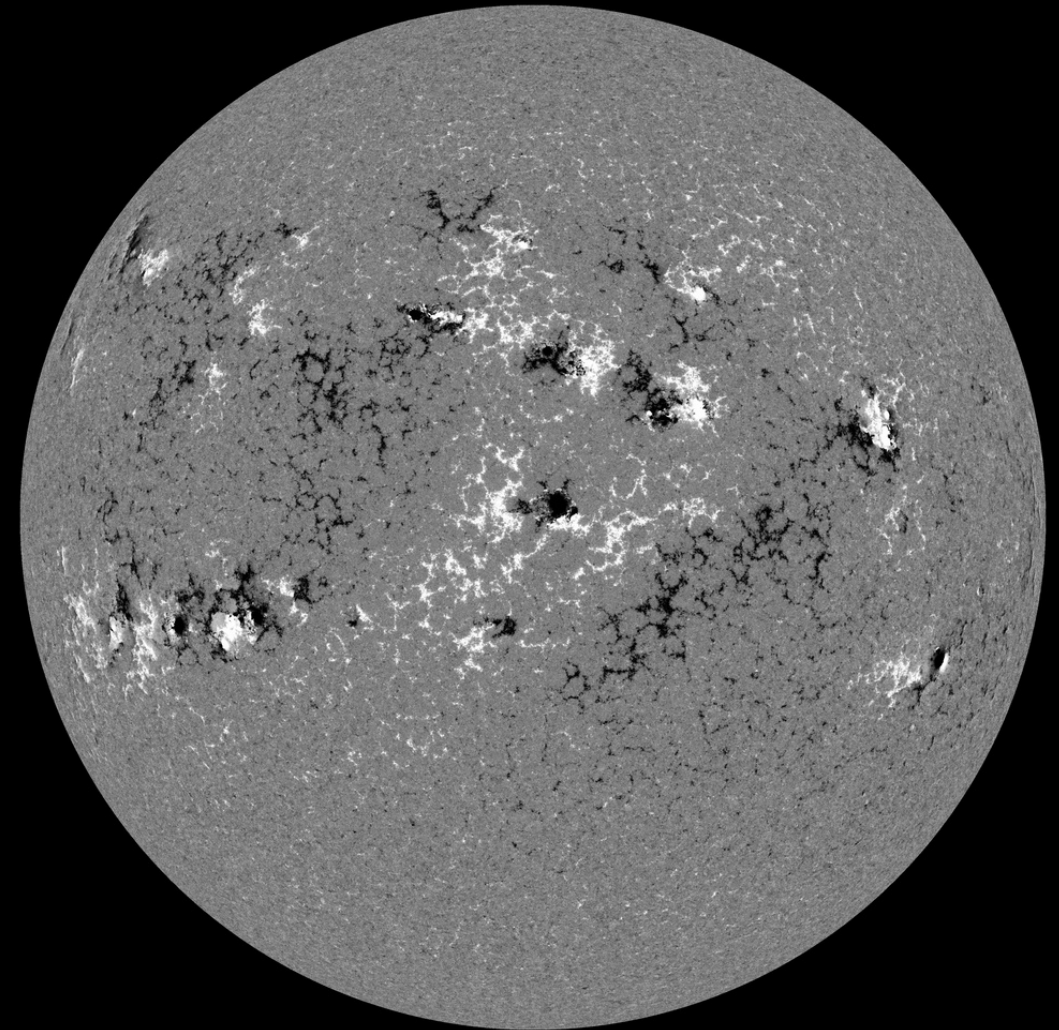
Solar active regions

SDO/HMI White Light 2025-03-16



SDO/HMI Quick-Look Continuum: 20250316_114500

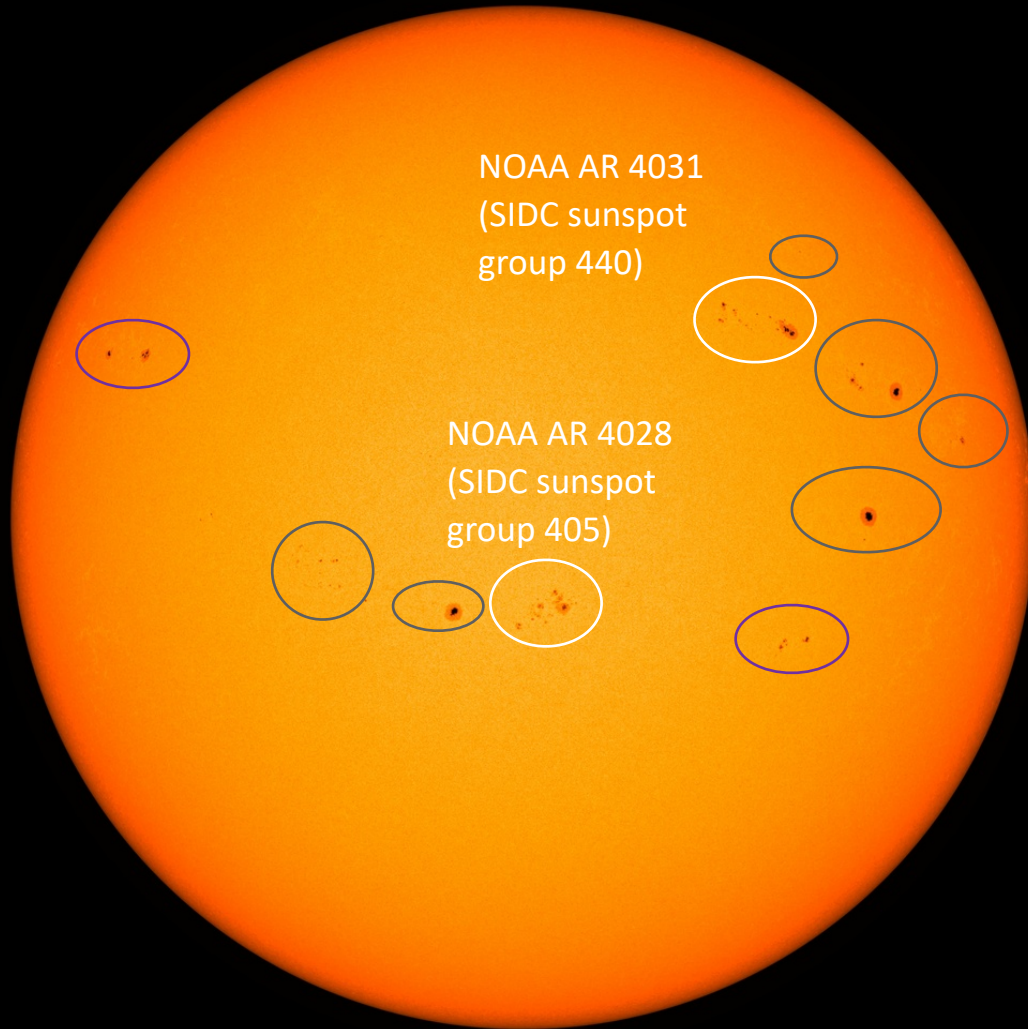
SDO/HMI Magnetogram 2025-03-16



SDO/HMI Quick-Look Magnetogram: 20250316_114500

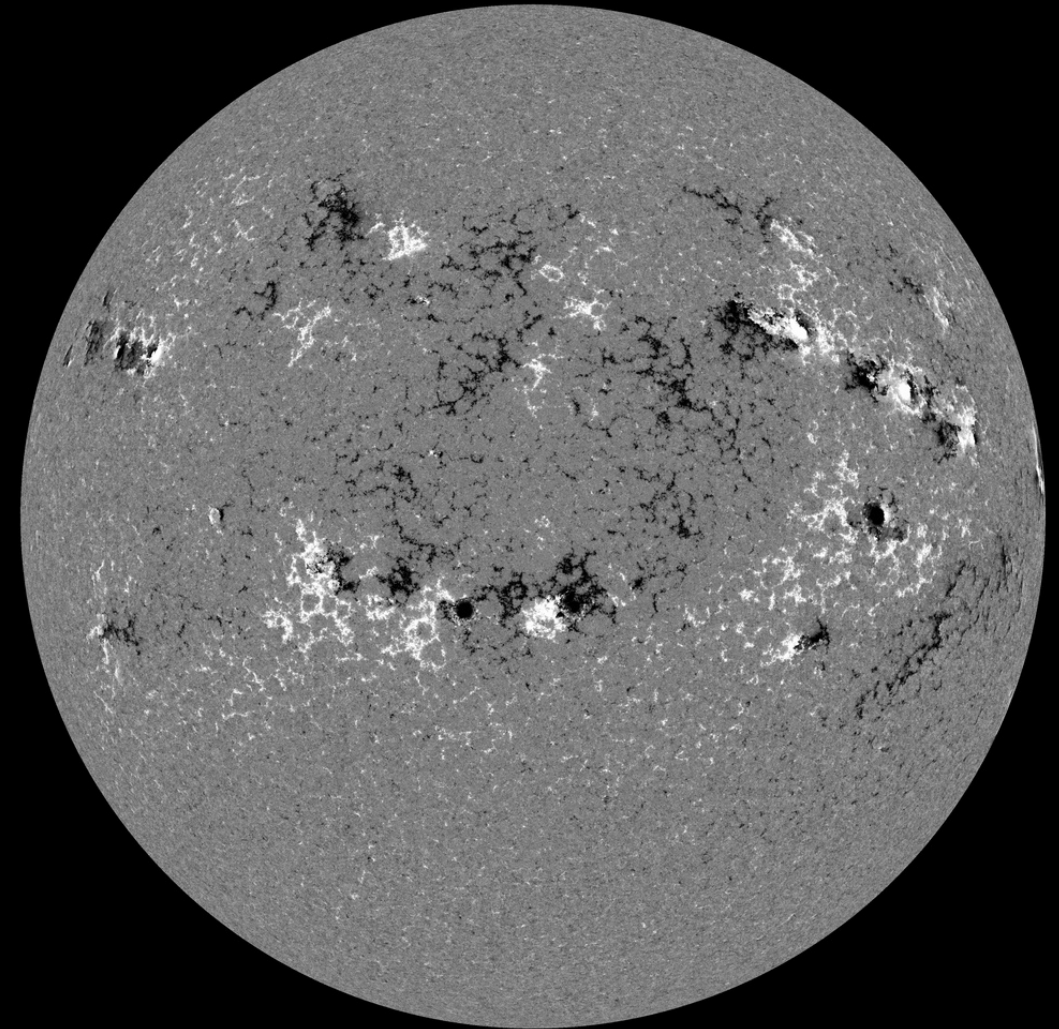
Solar active regions

SDO/HMI White Light 2025-03-19



SDO/HMI Quick-Look Continuum: 20250319_114500

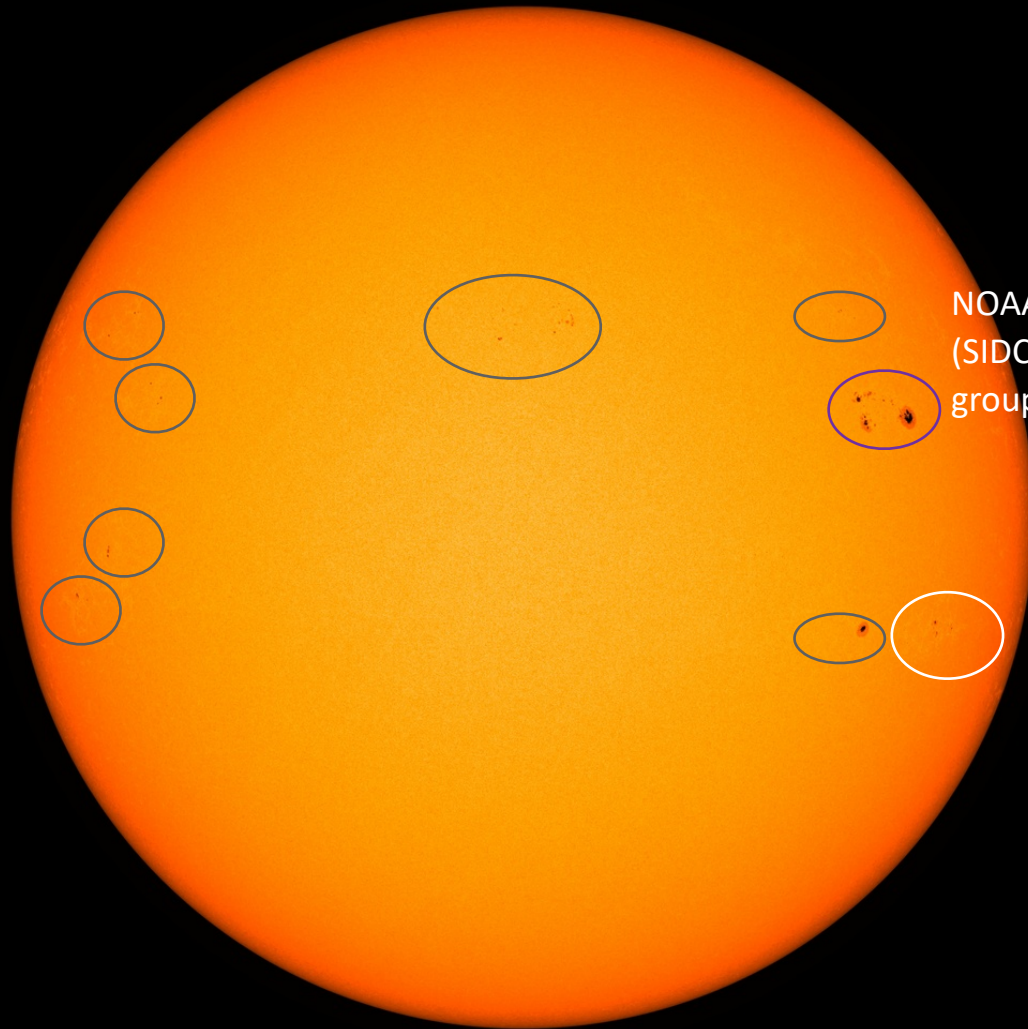
SDO/HMI Magnetogram 2025-03-19



SDO/HMI Quick-Look Magnetogram: 20250319_114500

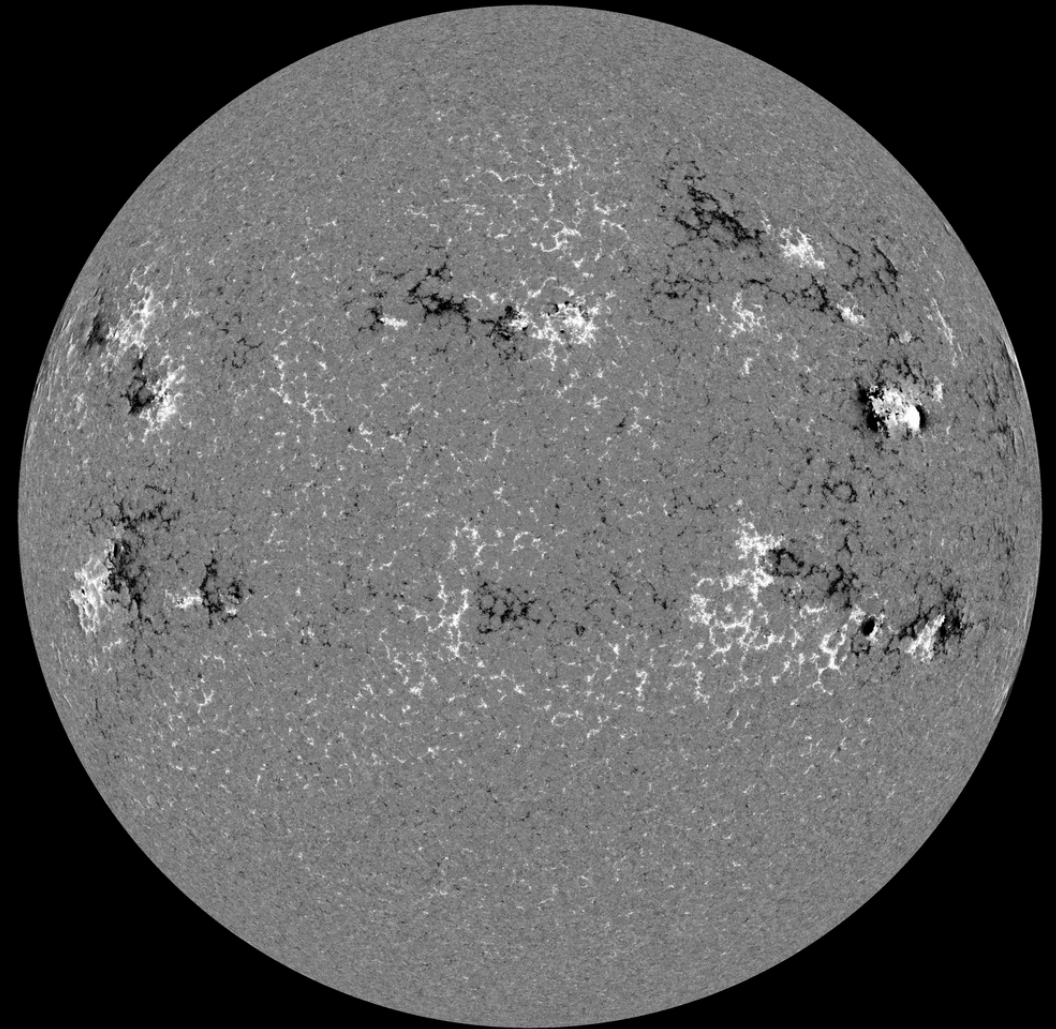
Solar active regions

SDO/HMI White Light 2025-03-23



NOAA AR 4036
(SIDC sunspot
group 450)

SDO/HMI Magnetogram 2025-03-23

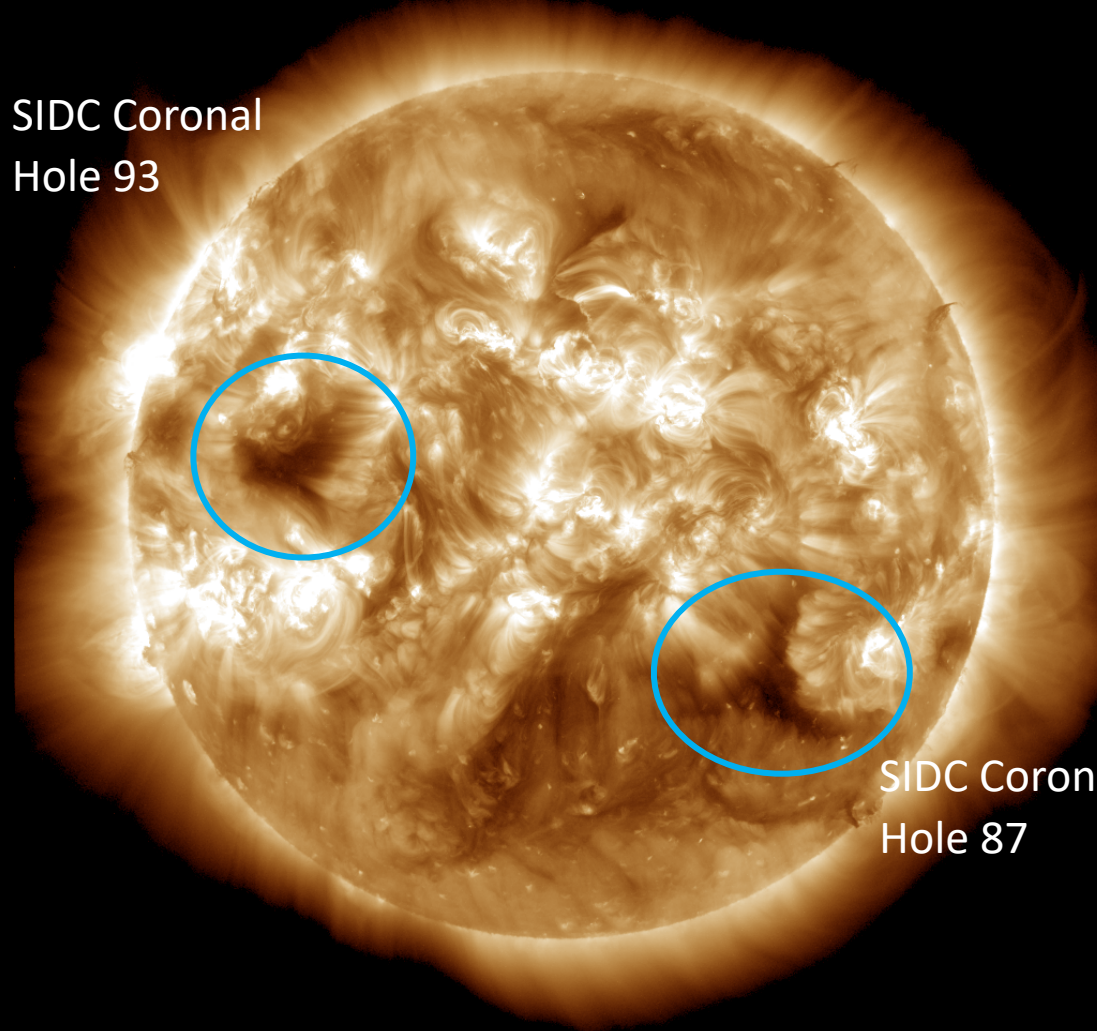


Coronal holes

SDO/AIA 19.3 nm 2025-03-16

SDO/AIA AIA 193Å 2025-03-16T12:00:05.844

SIDC Coronal
Hole 93

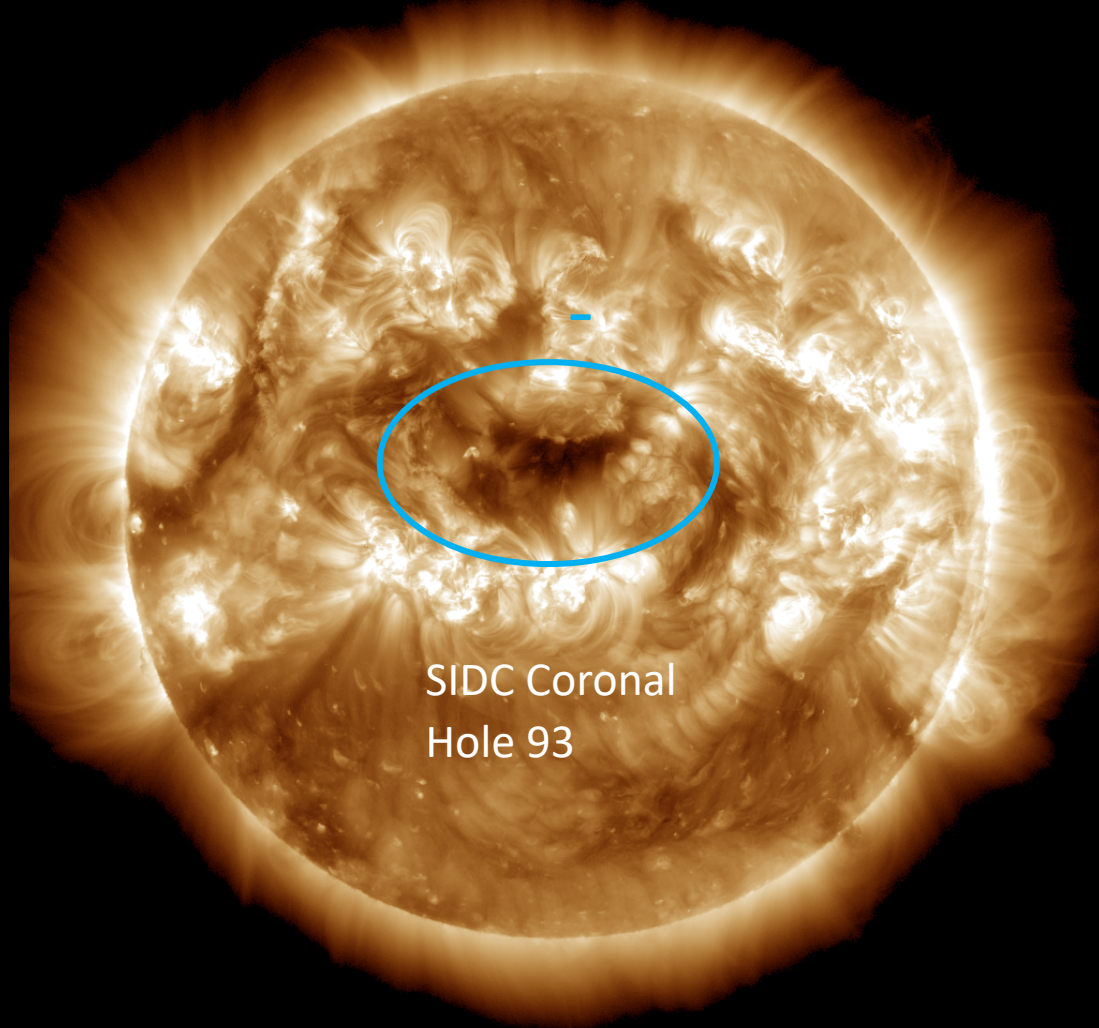


SIDC Coronal
Hole 87

Coronal holes

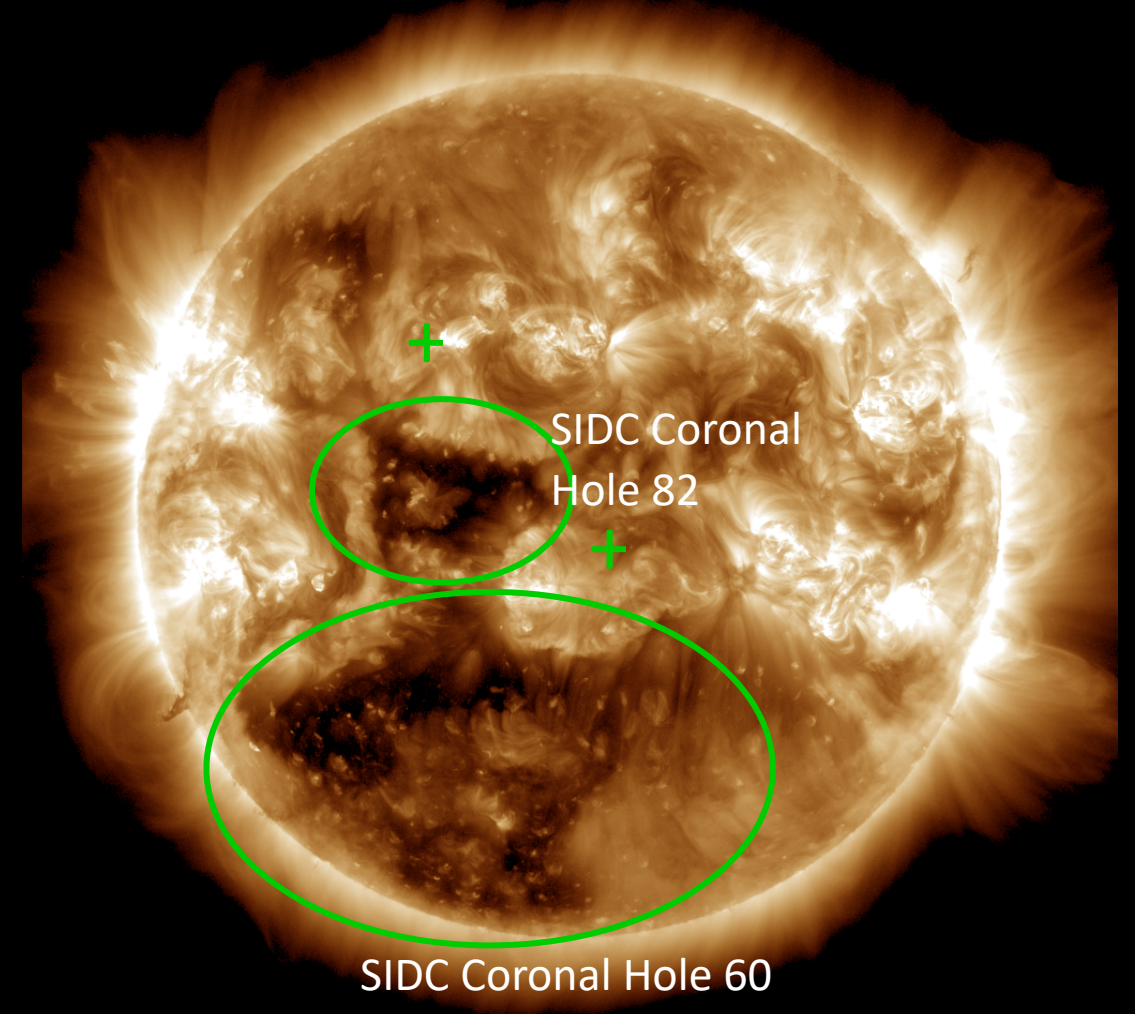
SDO/AIA 19.3 nm 2025-03-19

SDO/AIA AIA 193Å 2025-03-19T12:00:05.835



SDO/AIA 19.3 nm 2025-03-23

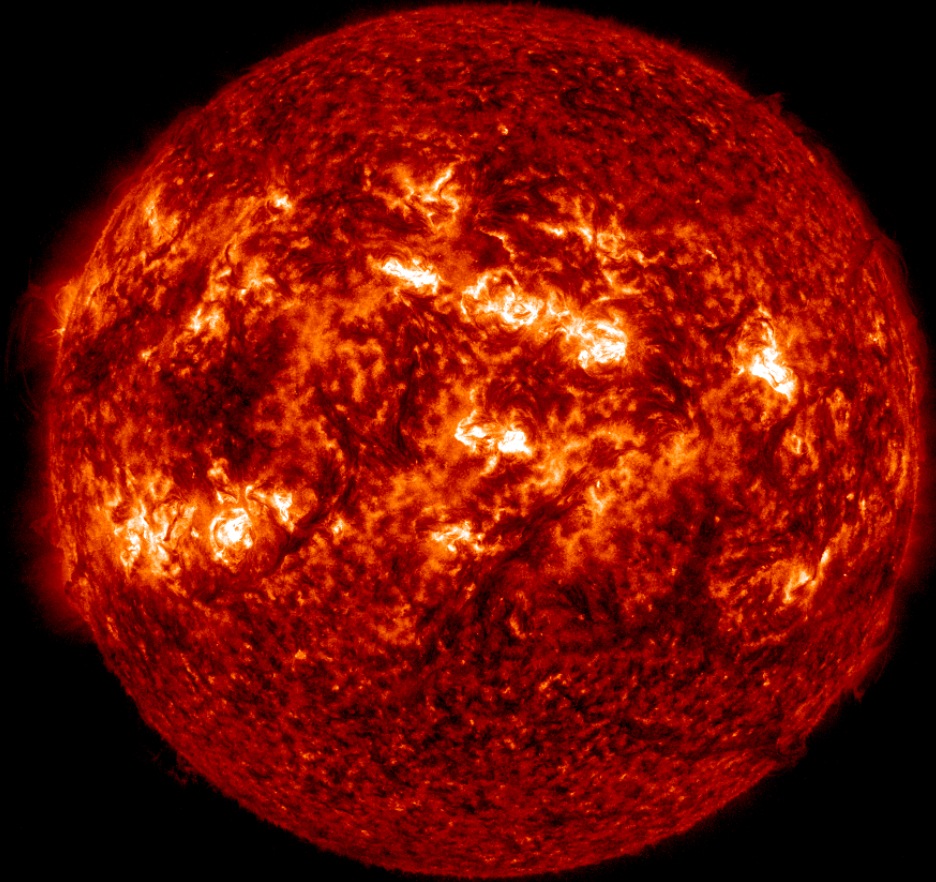
SDO/AIA AIA 193Å 2025-03-23T12:00:05.843



Filaments

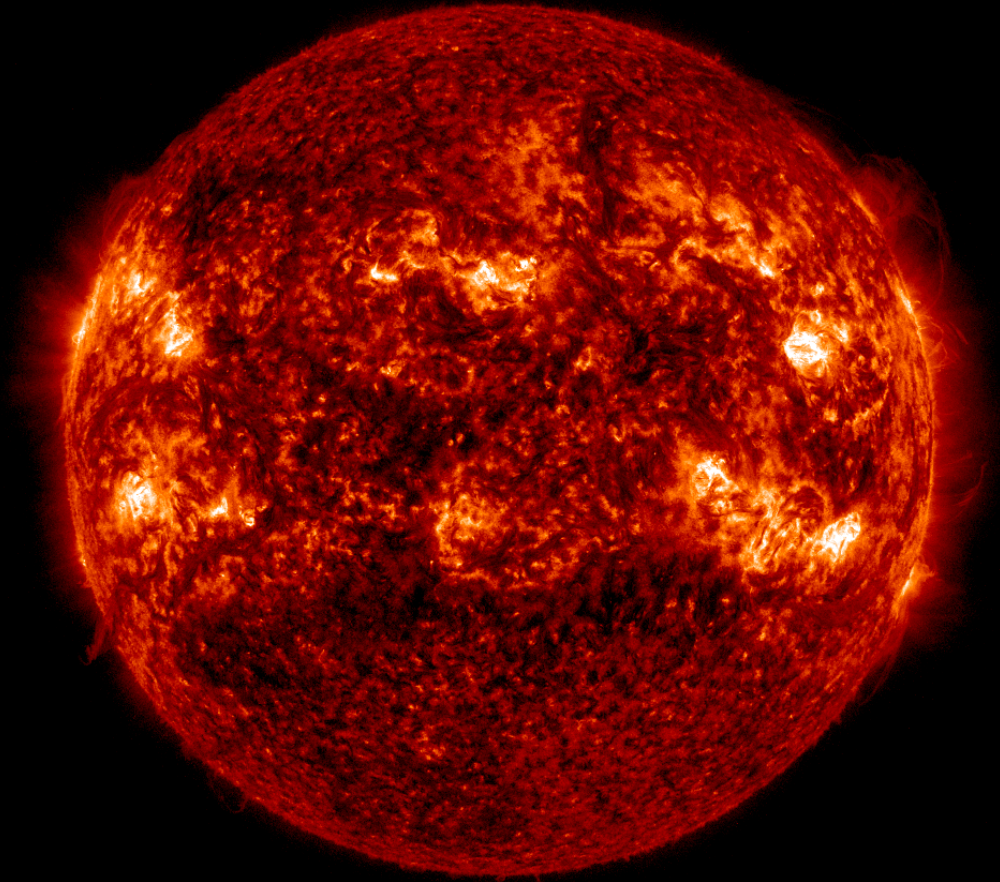
SDO/AIA 30.4 nm 2025-03-16

SDO/AIA AIA 304Å 2025-03-16T12:00:06.588

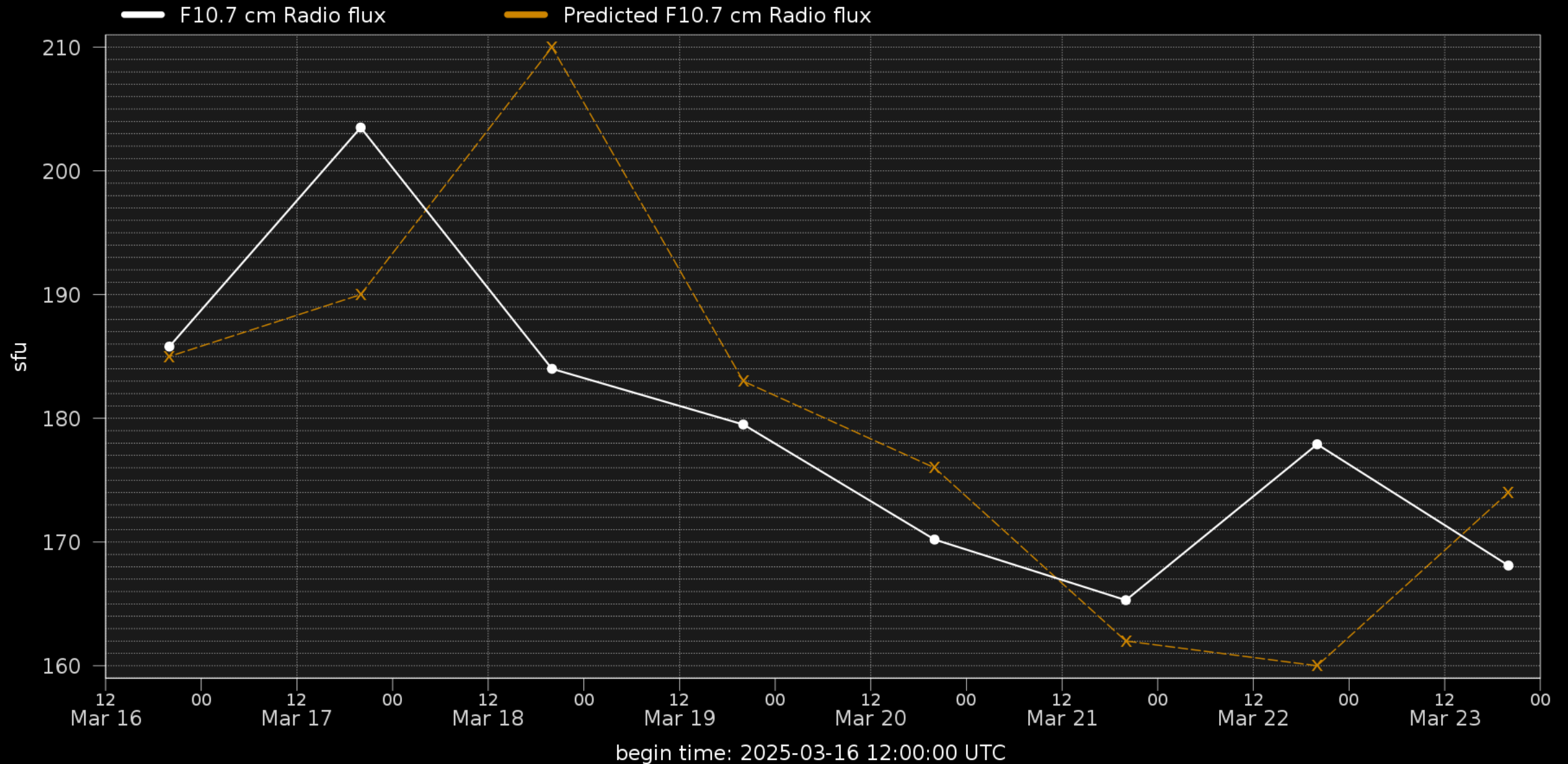


SDO/AIA 30.4 nm 2025-03-23

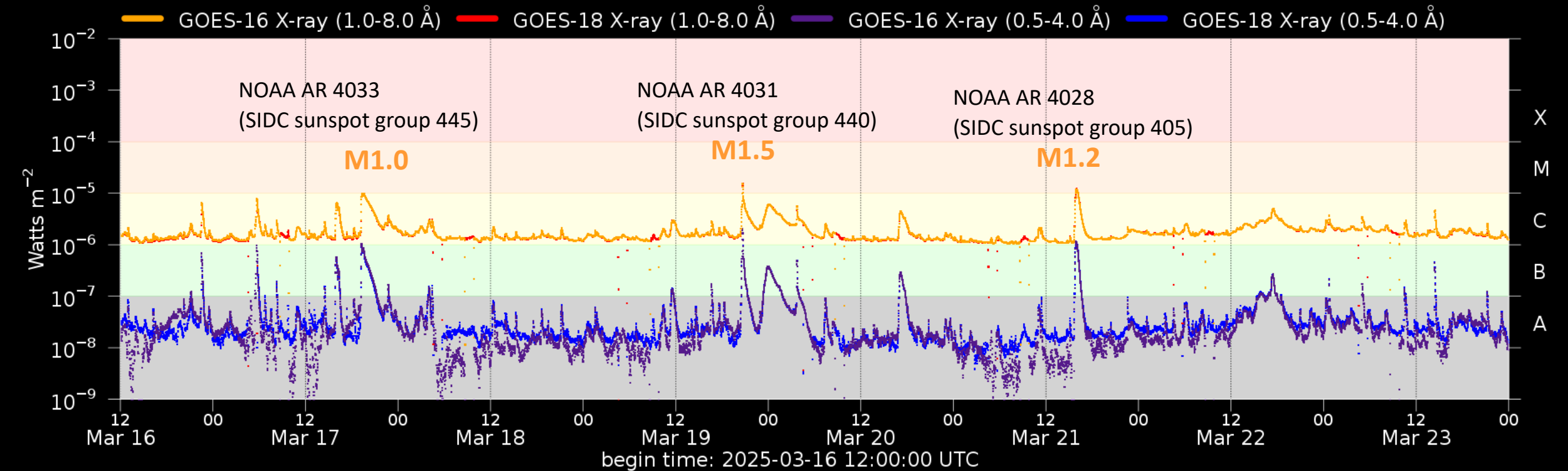
SDO/AIA AIA 304Å 2025-03-23T12:00:06.580



Solar F10.7cm radio flux



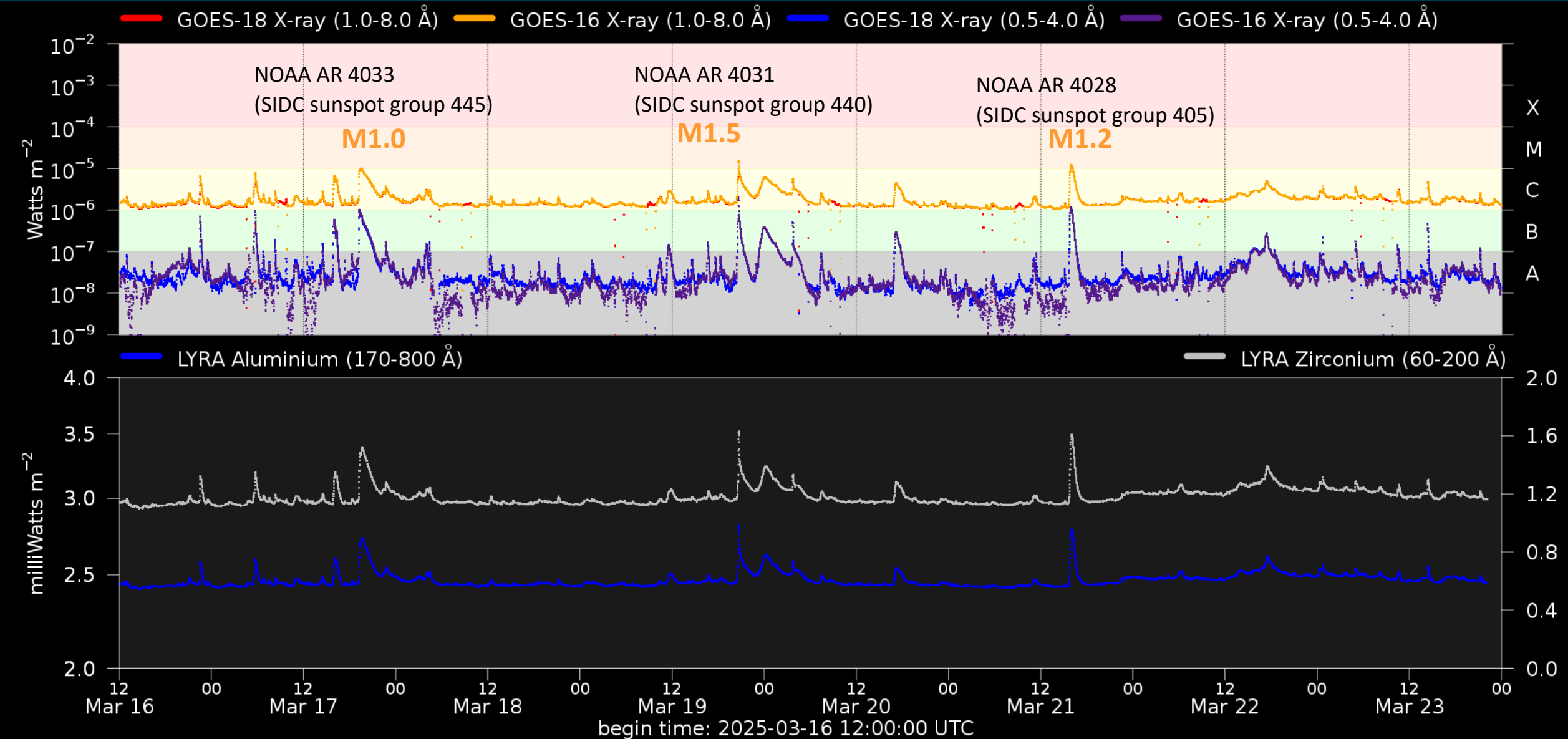
Flaring activity



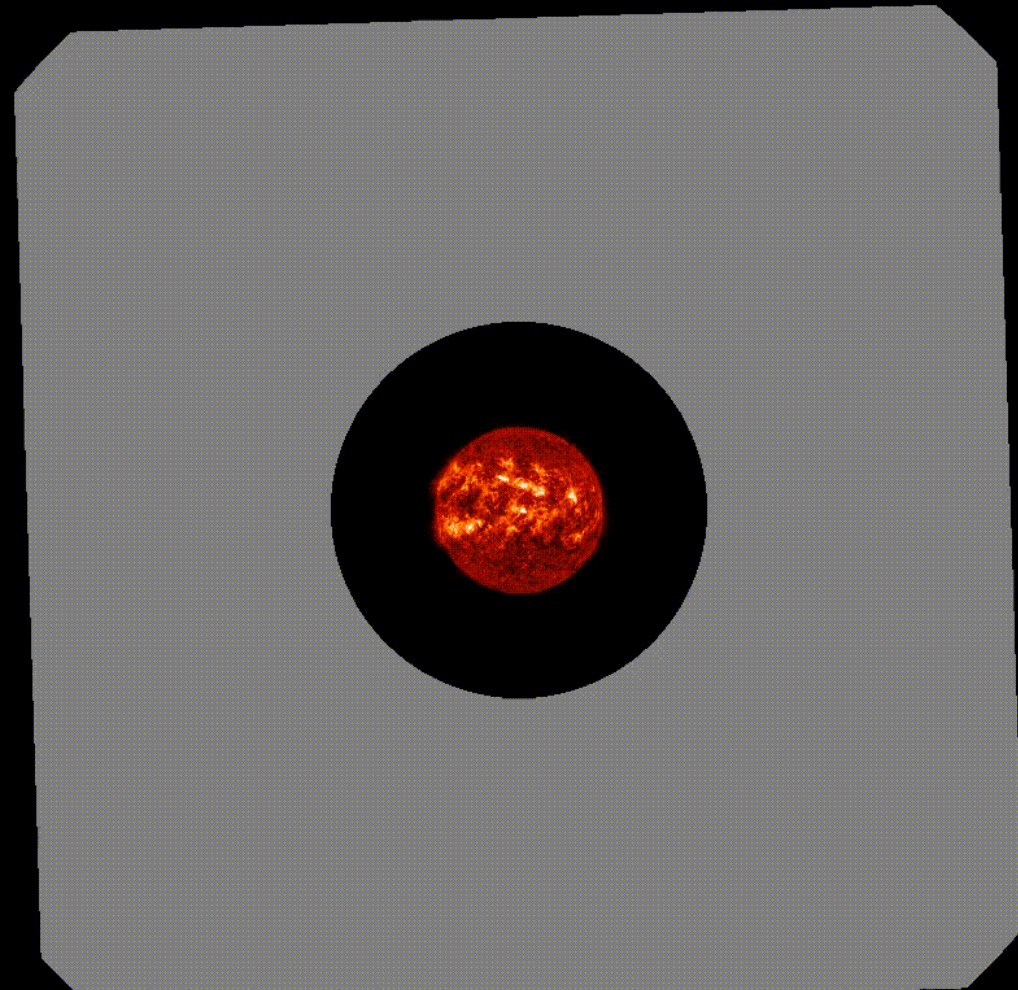
Probabilities (%) and occurrences (#) of C/M/X-flares daily, from noon to noon:

Issue date	2025-03-16	2025-03-17	2025-03-18	2025-03-19	2025-03-20	2025-03-21	2025-03-22	2025-03-23
Probability (%)	99 57 01	99 50 05	99 55 05	99 72 01	99 67 01	98 50 01	99 40 05	99 45 05
Observed (#)	04 00 00	03 01 00	05 00 00	05 01 00	02 00 00	00 01 00	04 00 00	02 00 00

Solar X-Ray and UV flux



Coronal Mass Ejections

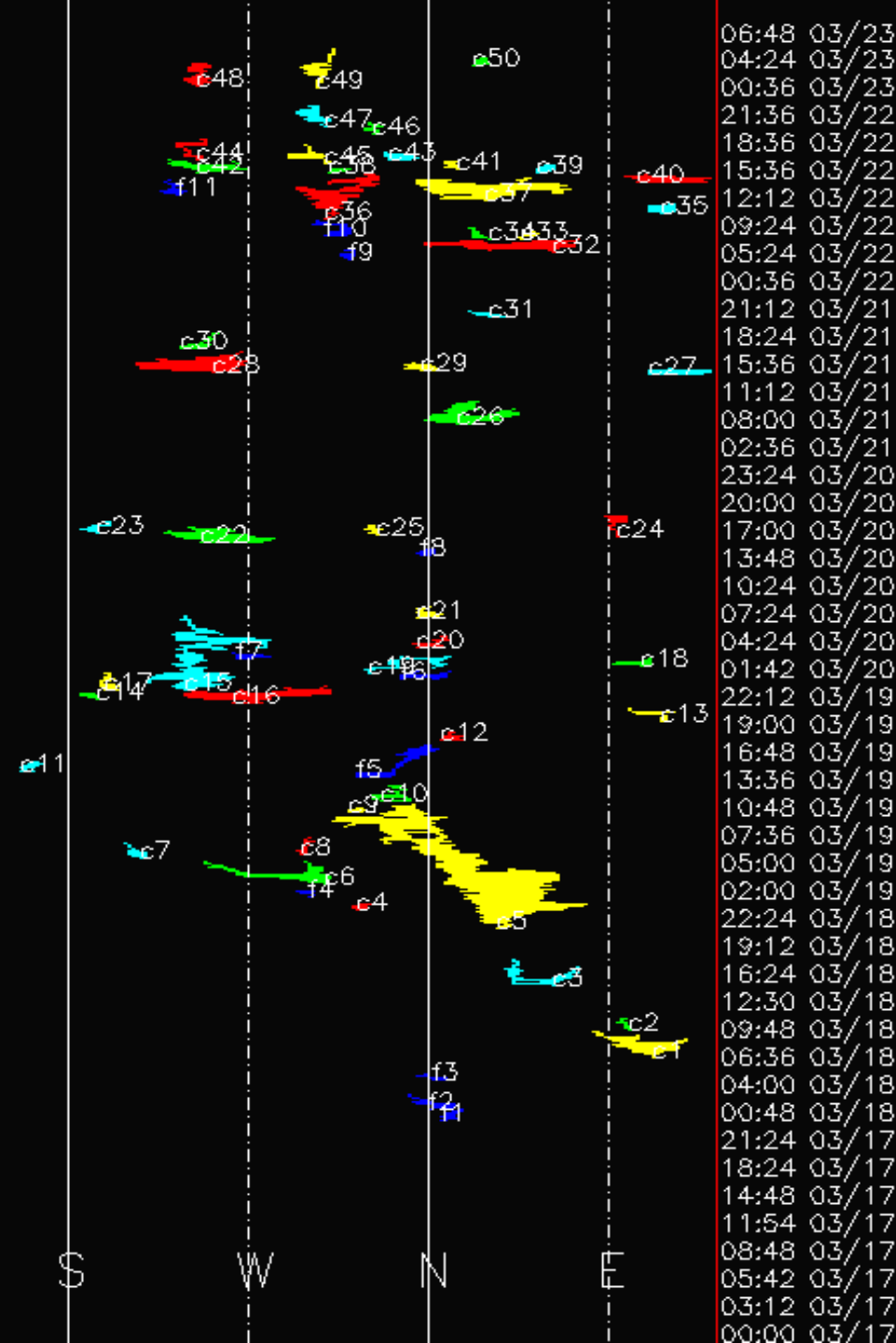


2025-03-16T09:34:28.843

Partial halo CME
north-east

Source: eruption and
on disk dimming
seen in north-east
quadrant

Predicted Earth
arrival on March
20



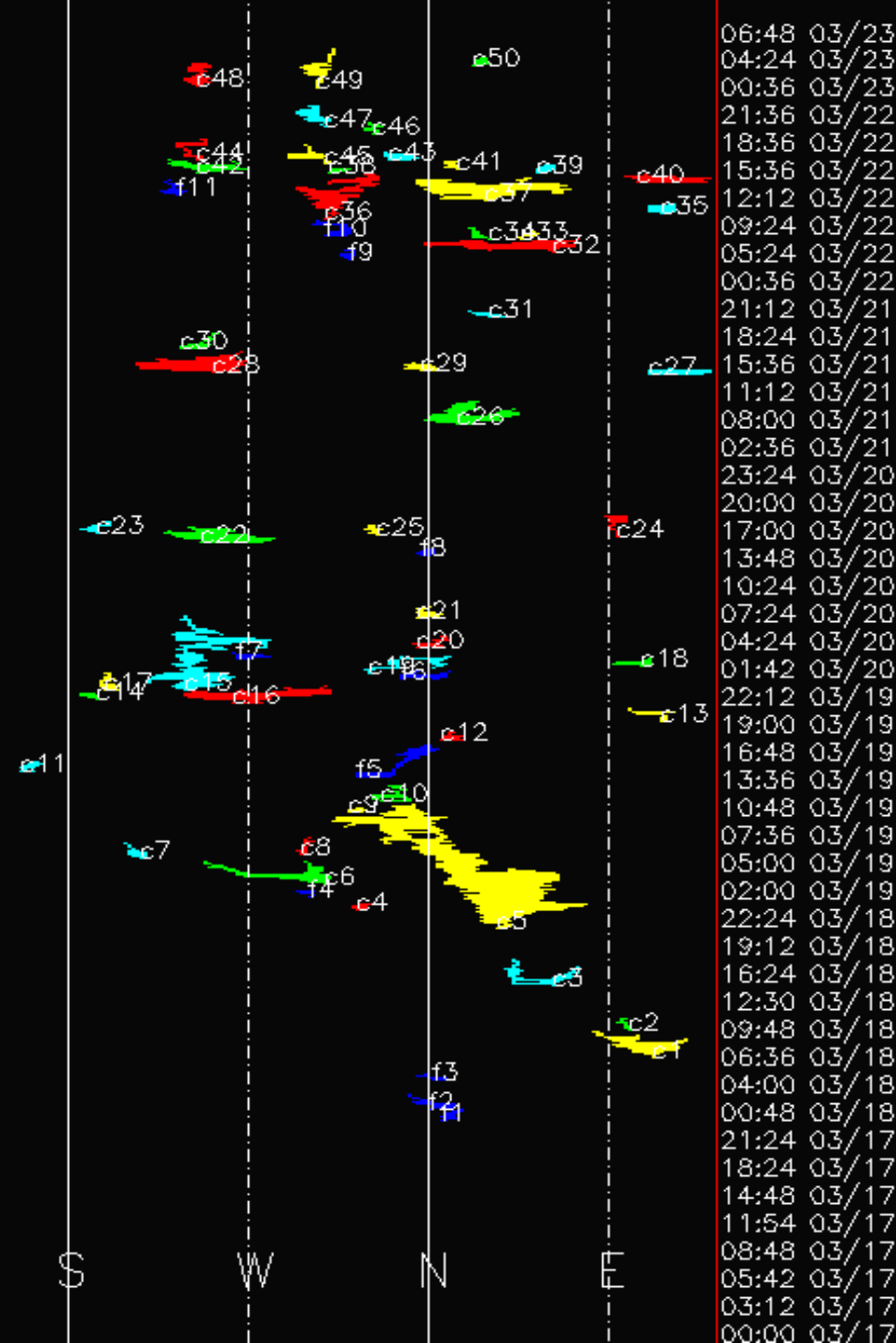
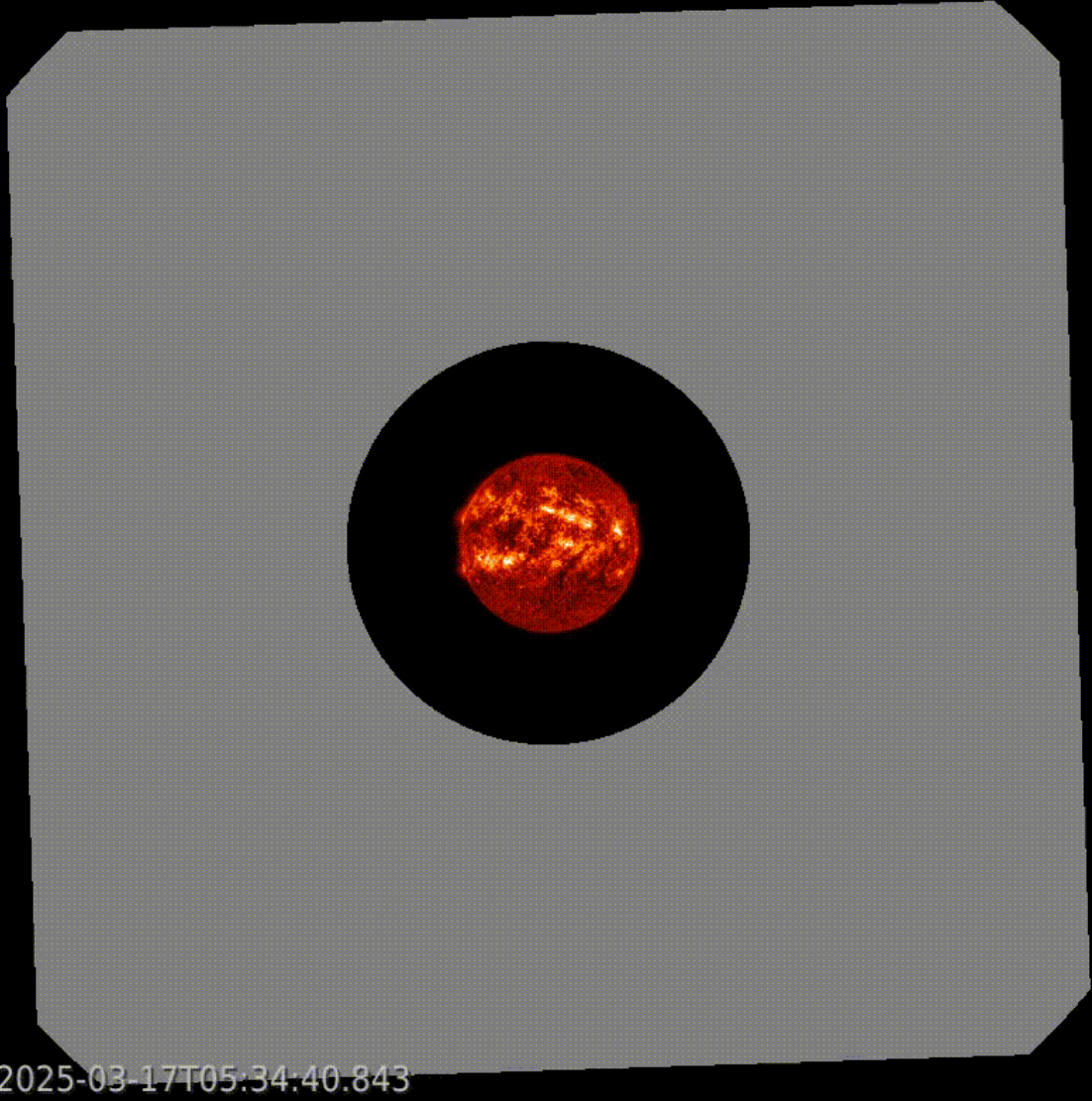
Coronal Mass Ejections

A filament eruption from the north-west quadrant:

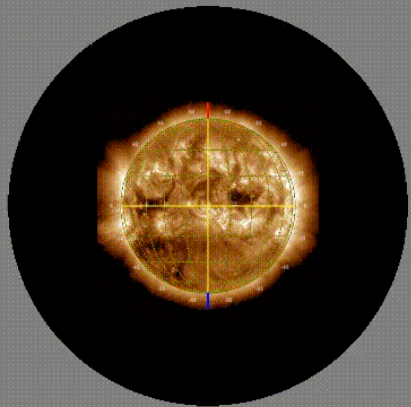
March 17 around 10:30 UTC.

CME in SOHO/LASCO-C2 data from 11:24 UTC.

Slow CME, predominantly directed to the west. Possible glancing blow predicted on March 21.



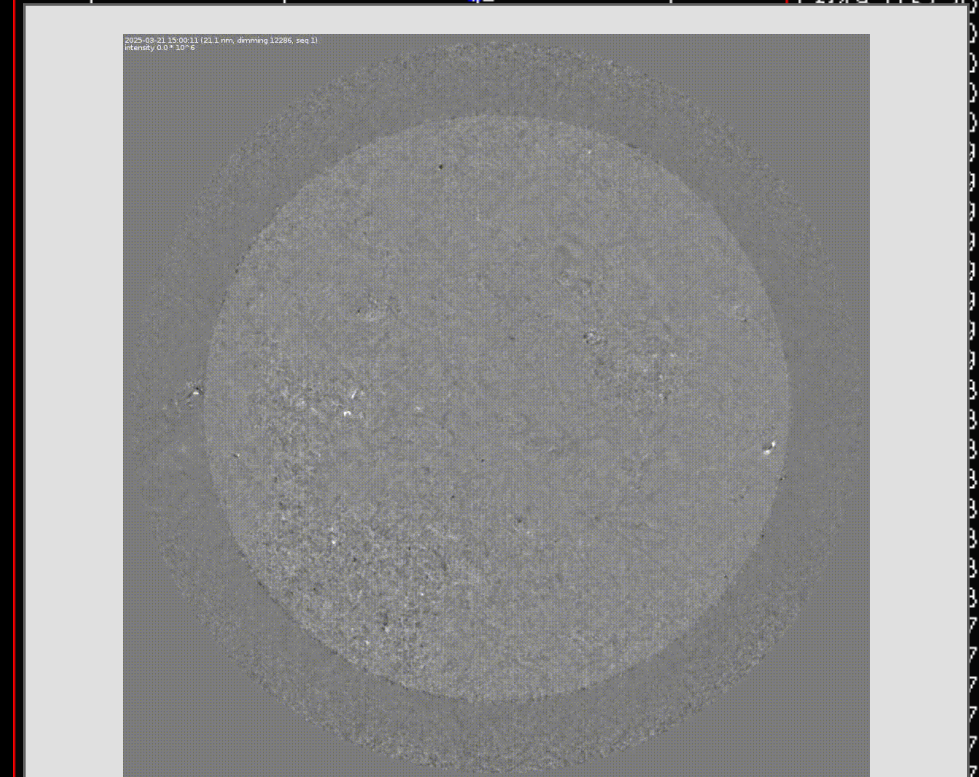
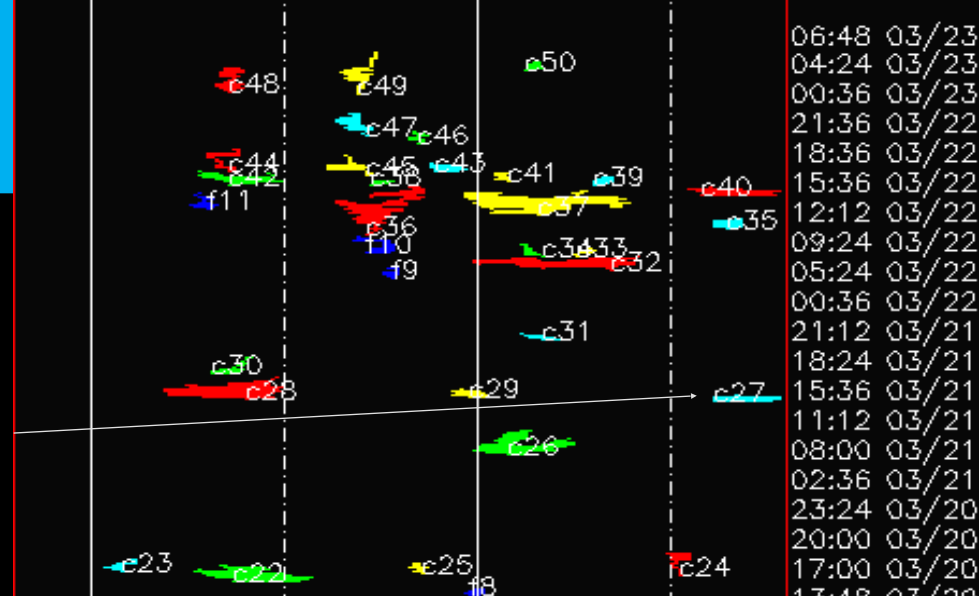
Coronal Mass Ejections



Faint partial halo
CME to the south-
east in SOHO/
LASCO-C2 March
21 16:00 UTC.
(sympathetic to
M1.2 flare)

Associated dimming
near the central
meridian around
15:45 UTC March
21.

Earth arrival
predicted from
March 23. (Possible
arrival March 24



Credit: Solar demon <https://www.sidc.be/solardemon/>

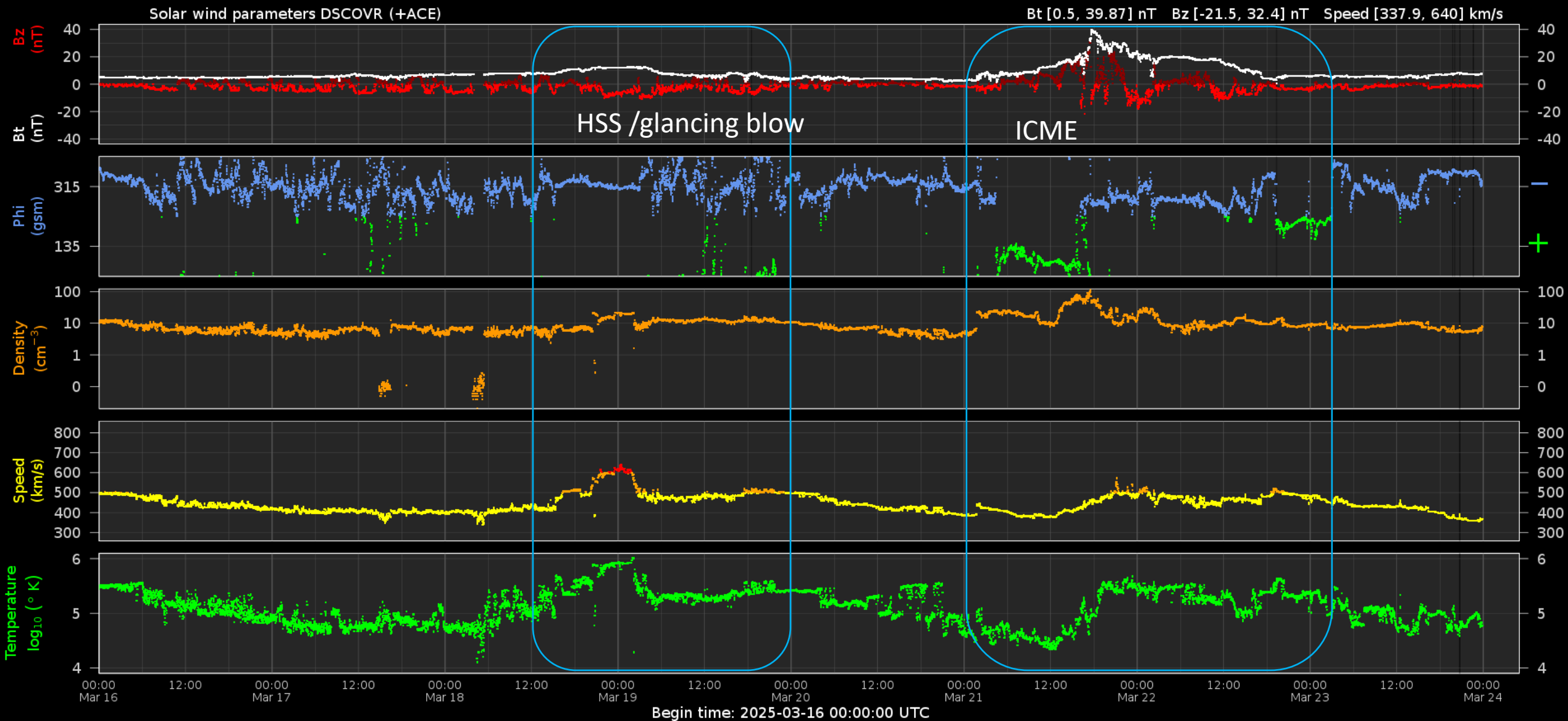
Solar Wind and Geomagnetic Activity



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Solar wind parameters



Solar wind parameters & K-indices



Geomagnetic activity (K-indexes)



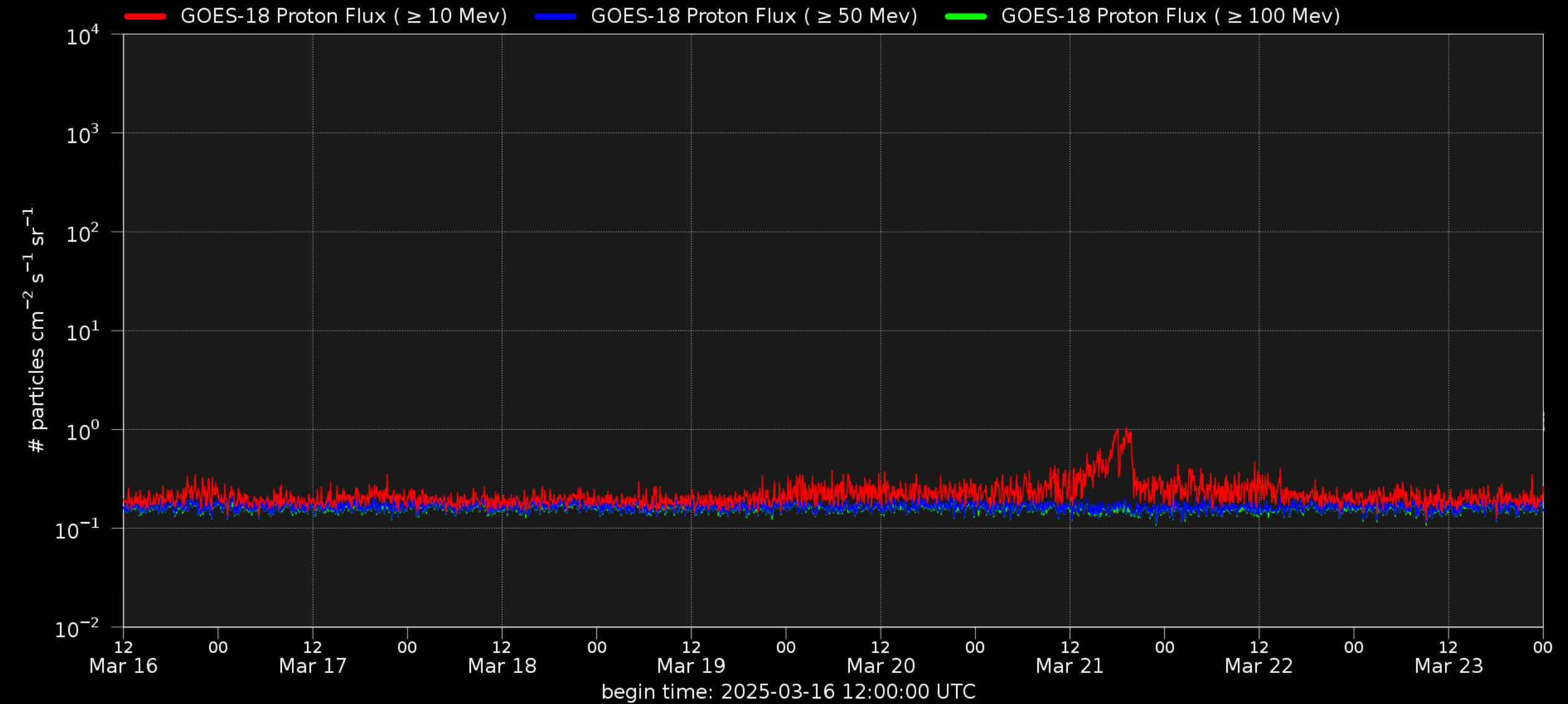
Energetic Particles



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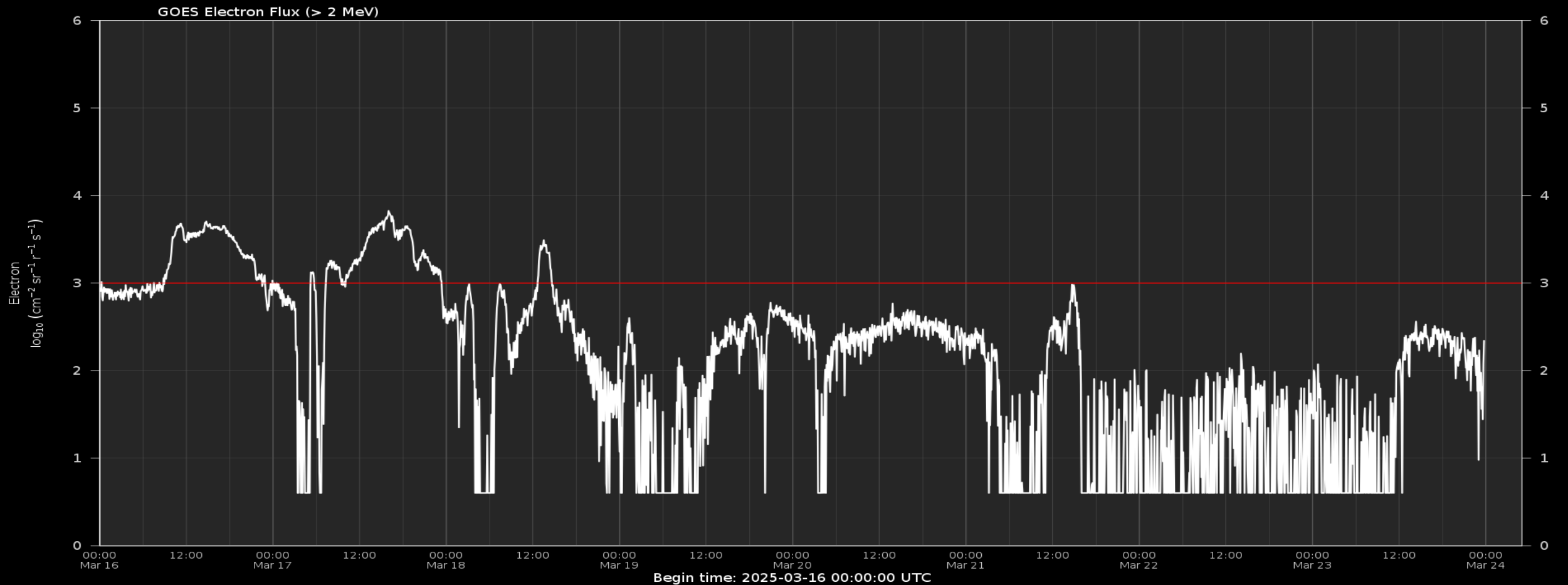
Solar proton flux



Electron flux at GEO

www.stce.be/educational/classification#electrons

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



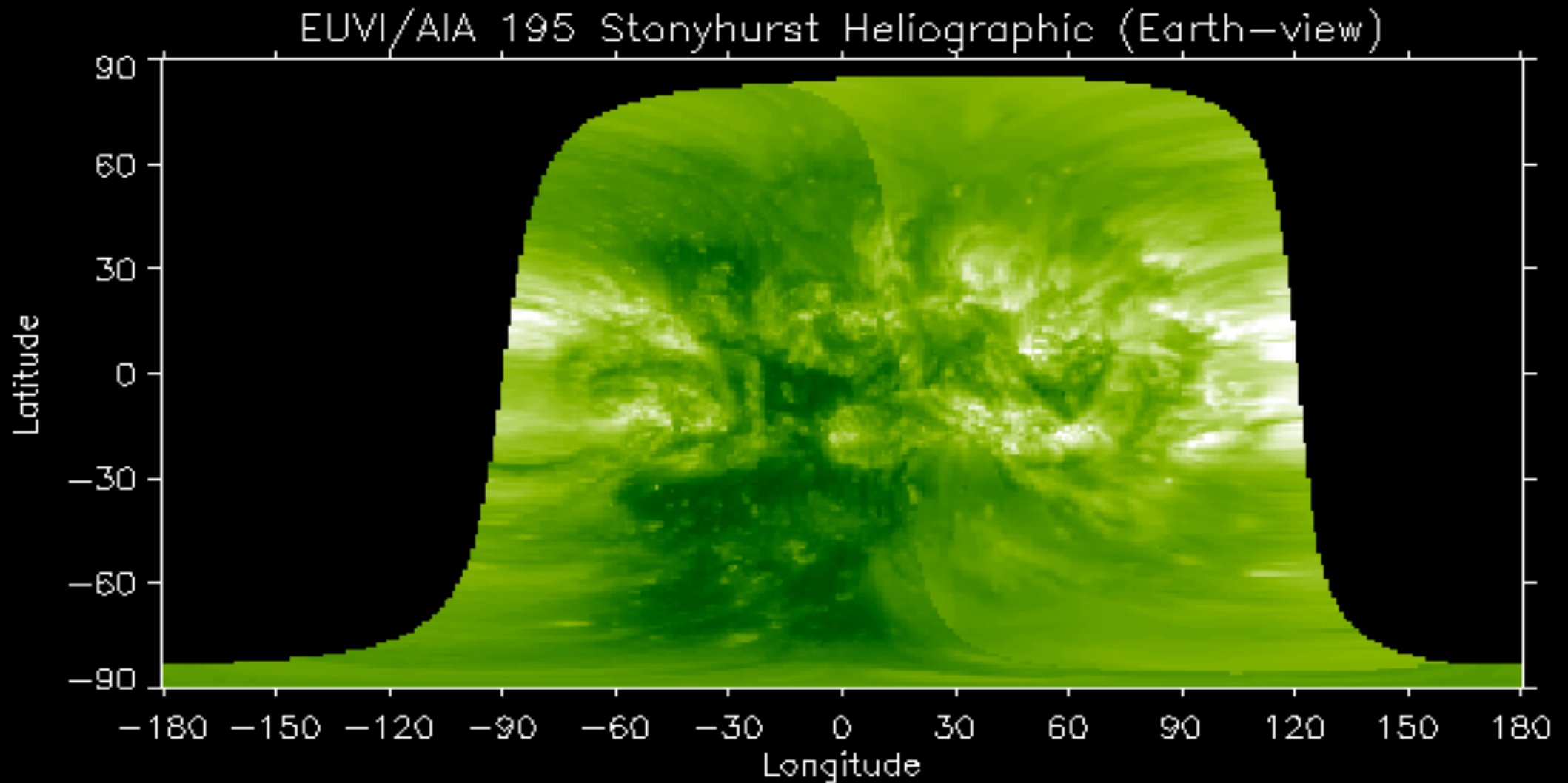
Outlook



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Outlook: Solar activity

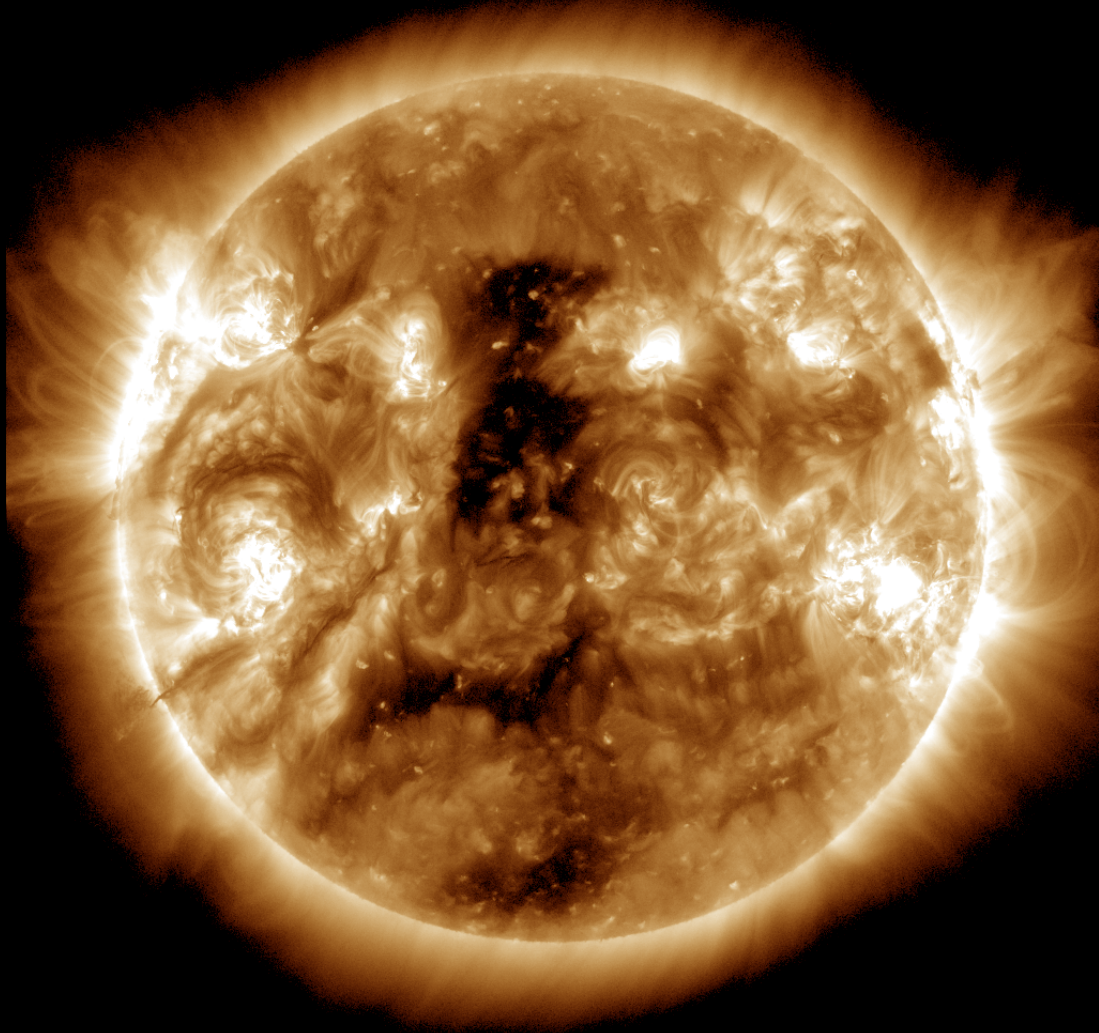


Observation date: 2025/03/23 23:05:00

Coronal holes: Comparison with previous rotation

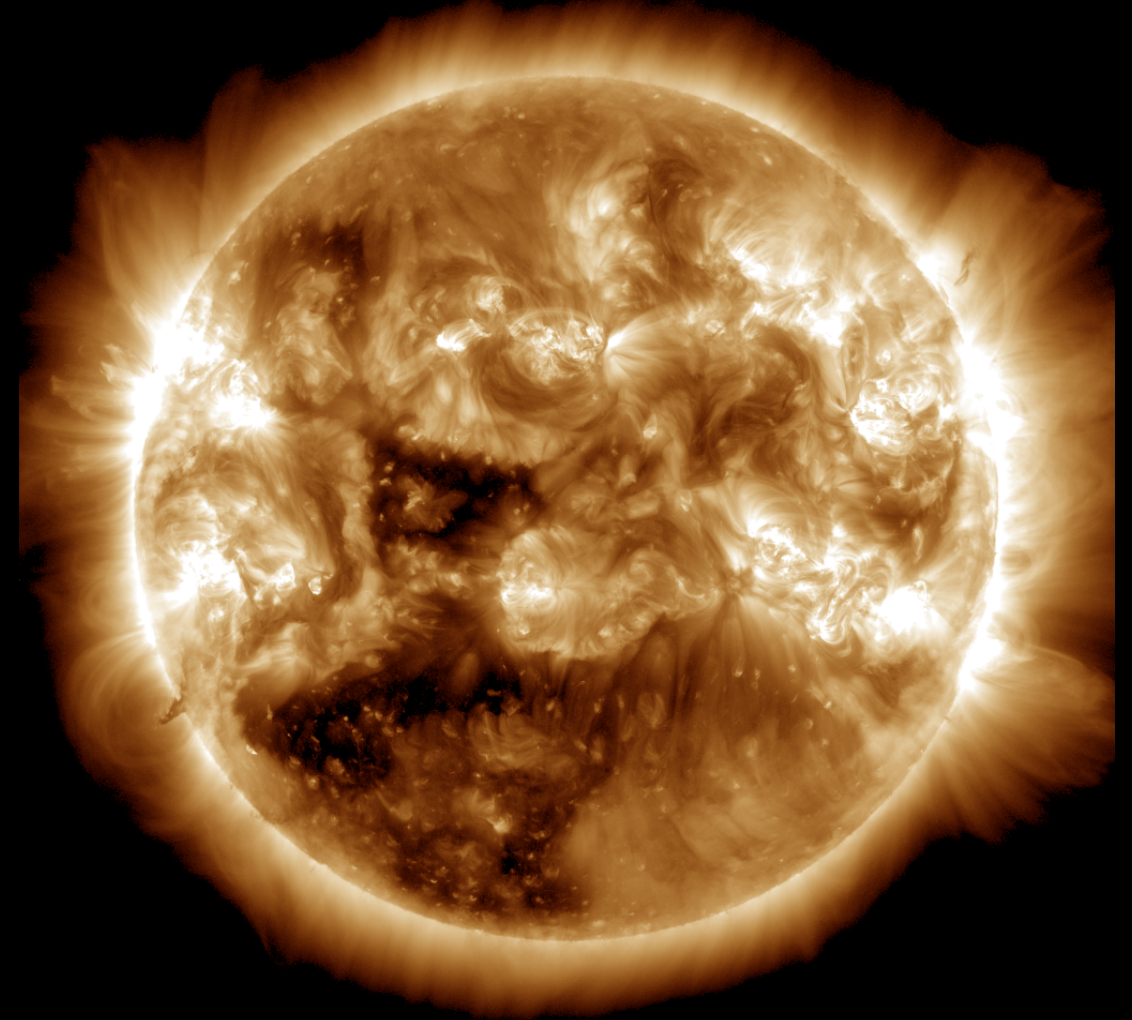
SDO/AIA 19.3 nm 2025-02-25

SDO/AIA AIA 193Å 2025-02-25T12:00:07.313

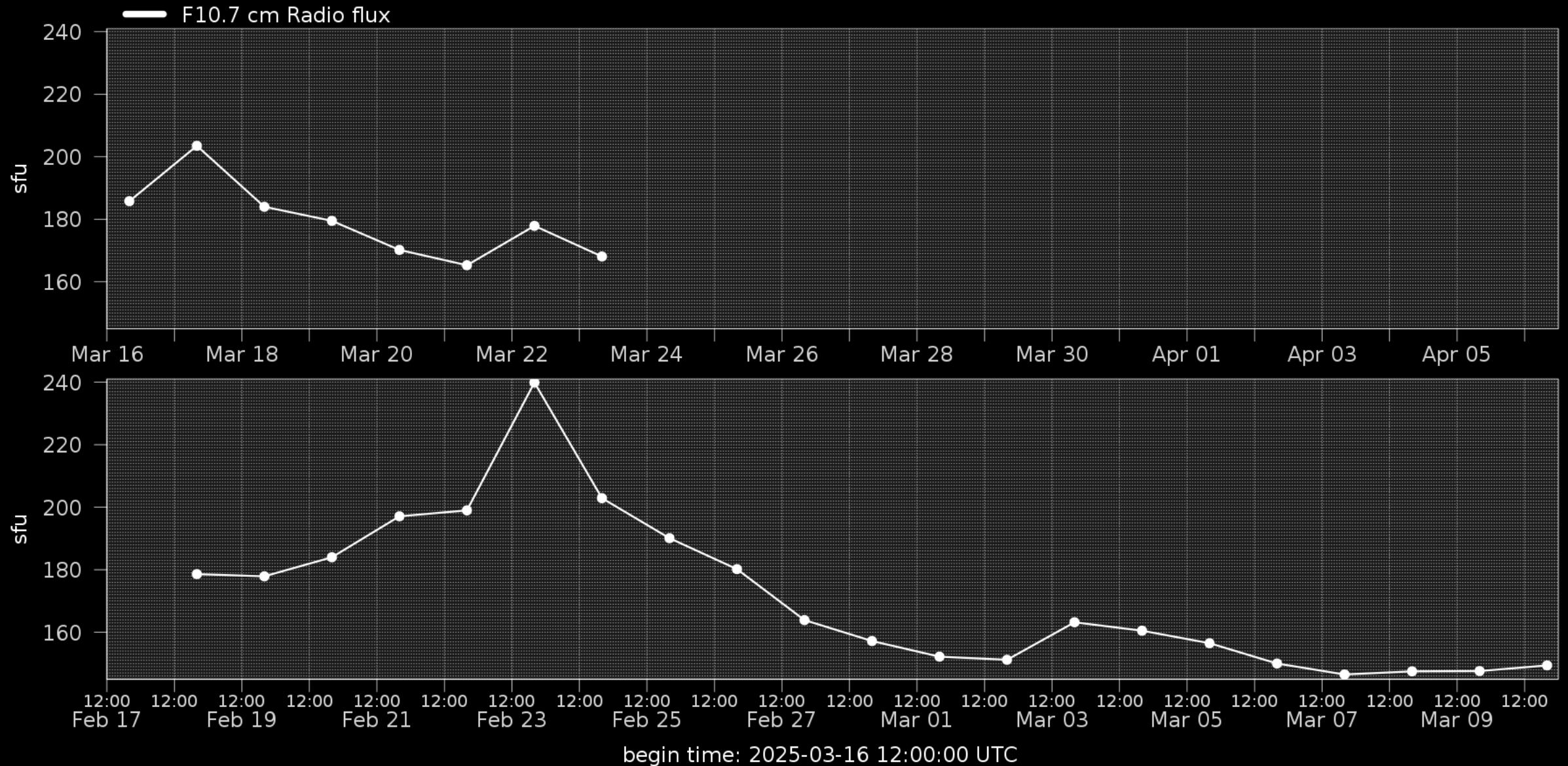


SDO/AIA 19.3 nm 2025-03-23

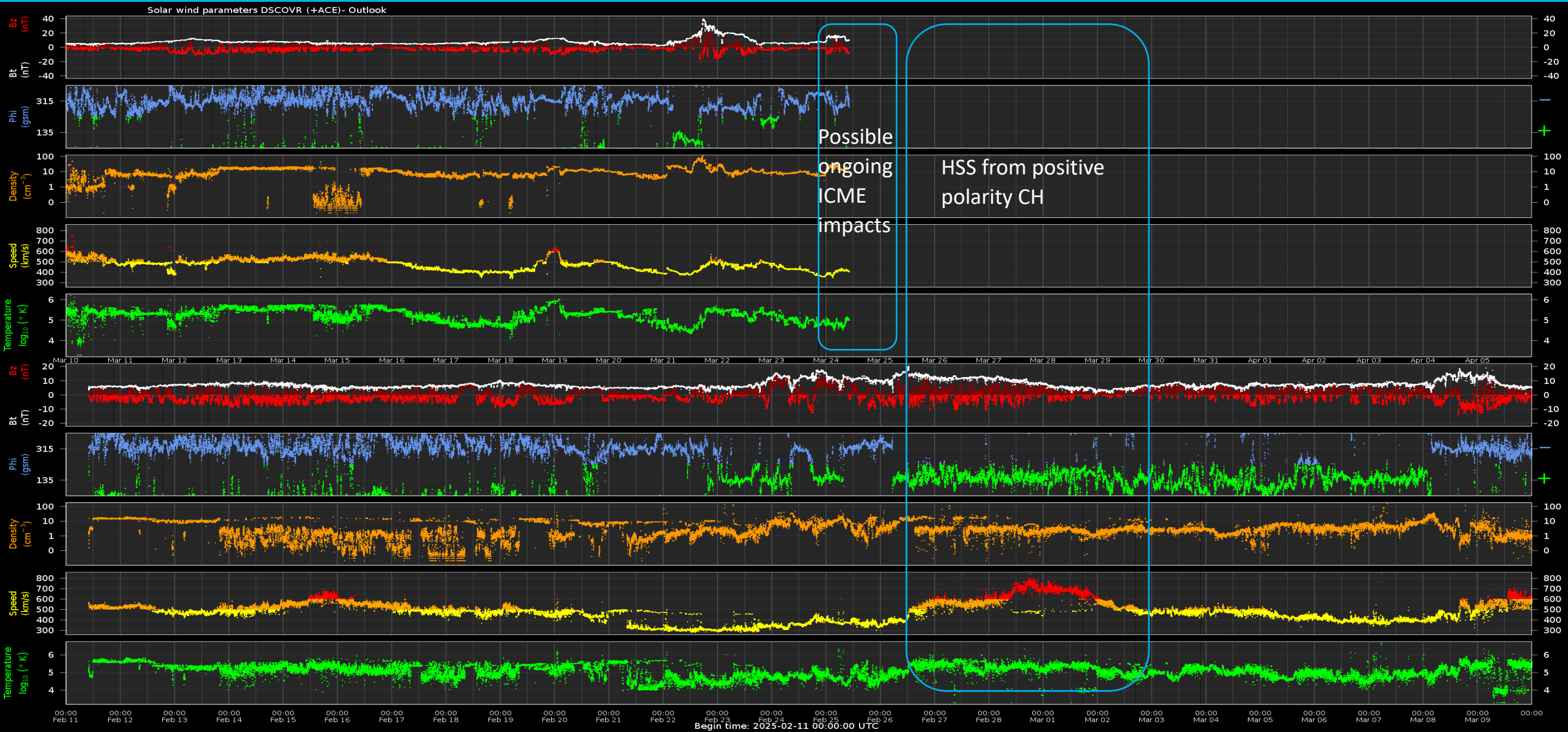
SDO/AIA AIA 193Å 2025-03-23T12:00:05.843



Outlook: Solar F10.7cm radio flux



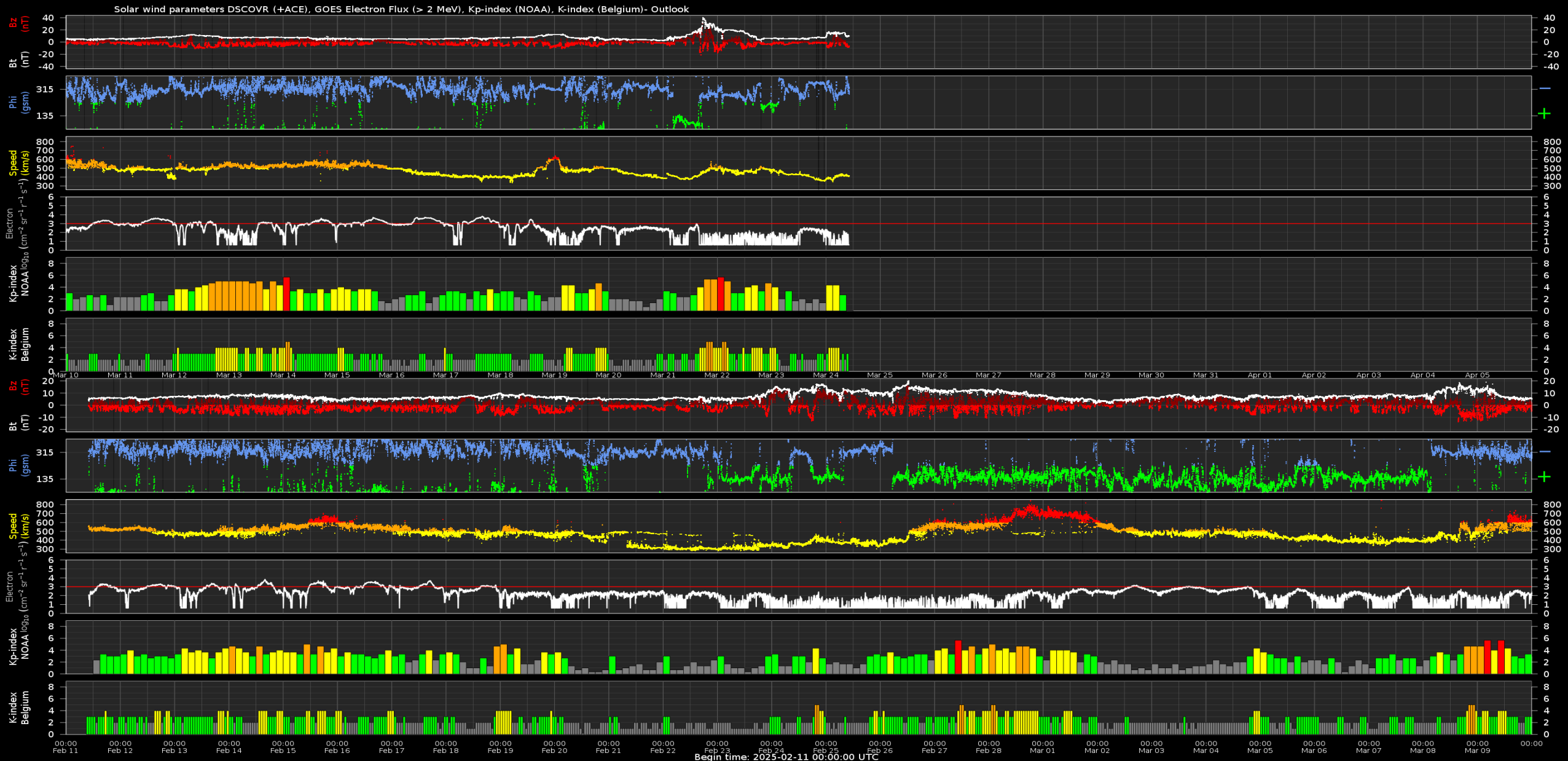
Outlook: Solar wind parameters



Outlook: Geomagnetic activity



Outlook: Electron Flux at GEO Outlook



PECASUS



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Pecasus related events

Secondary back up Centre.

Advisories issued for:

PSD for Kp 6-

Scintillation

VTEC

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