

# SIDC Space Weather Briefing

25 February 2024-03 March 2024

Camilla Scolini

& 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 2024-02-25 12:00 to 2024-03-03 23:59

Active regions	11 ARs: NOAA AR 3586, 3590-3592, 3594-3600
Flares	# C-class flare: 26 # M-class flare: 2 # X-class flare: 0
Coronal Holes	2 mid-latitude CHs (-) & 2 small high latitude CHs (+ and -)
CMEs	1 partial halo CME + 2 possibly Earth-directed CMEs on Feb 28, arrival on Mar 3

Proton flux	At nominal level
Electron flux	At nominal level

## Solar wind and geomagnetic conditions

ICMEs	08:47 UTC on Mar 3
Solar wind conditions	B : 1 - 19 nT // Bz: -18 nT to 17 nT // Speed: 256 – 455 km/s
Geomagnetic conditions	max KBel: 5, max Kp(NOAA): 6, Minor Storm conditions

All Quiet Alert: Off

# Solar Activity

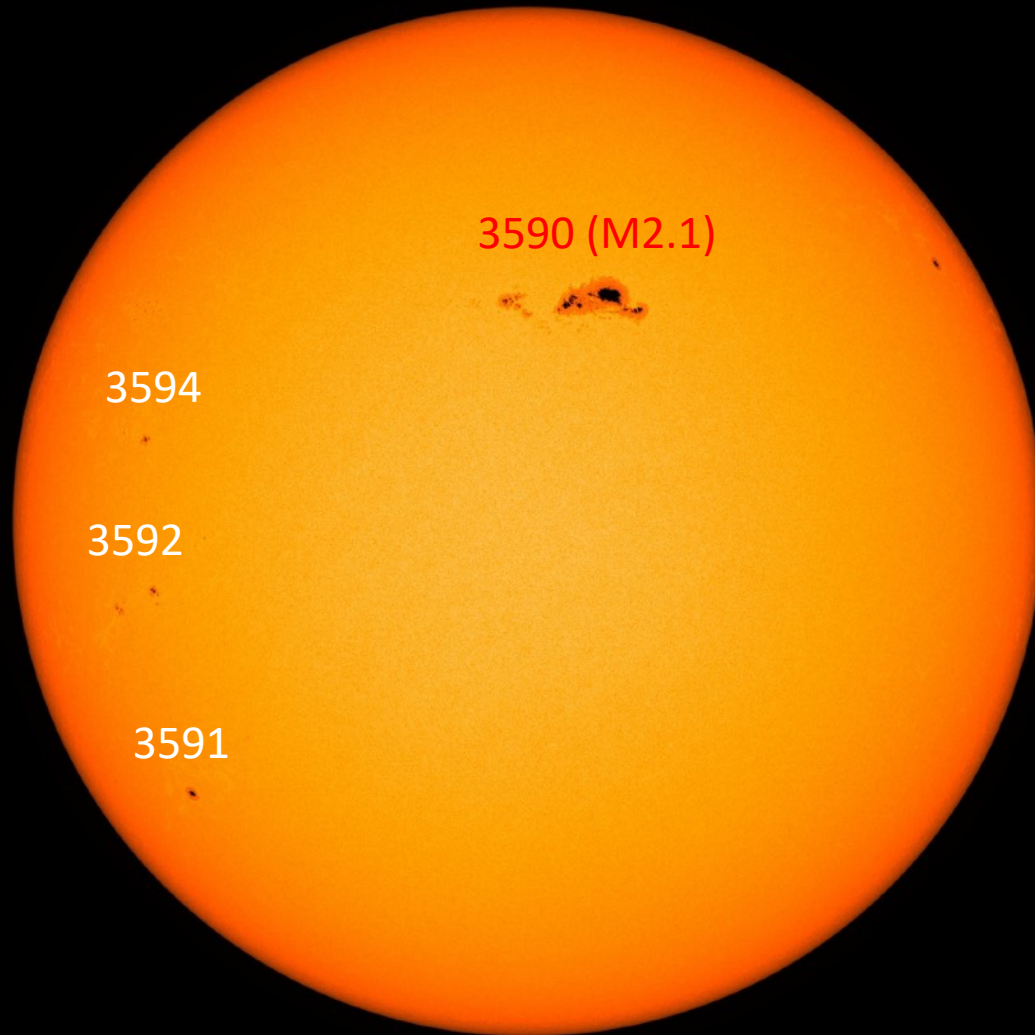


Royal Observatory  
of Belgium

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

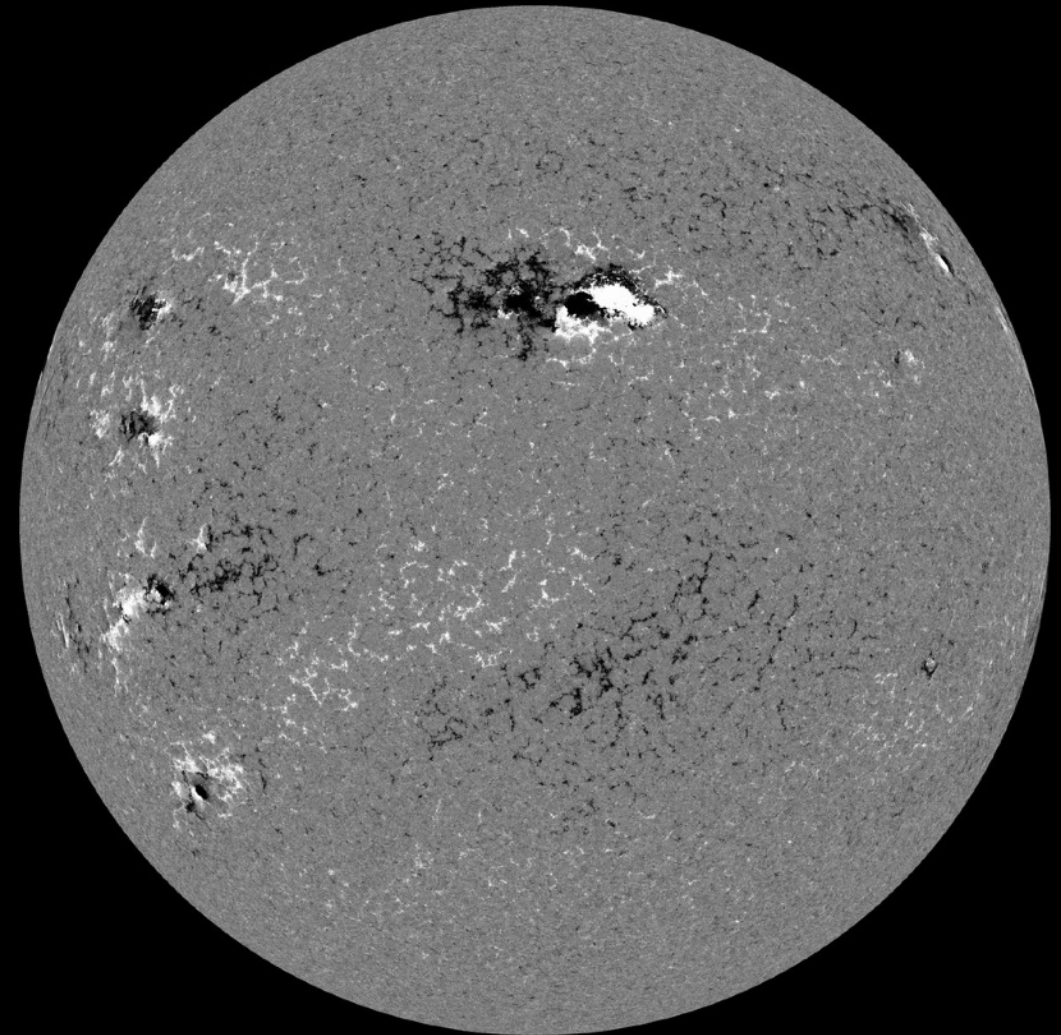
# Solar active regions

SDO/HMI White Light 2024-02-25



SDO/HMI Quick-Look Continuum: 20240225\_114500

SDO/HMI Magnetogram 2024-02-25

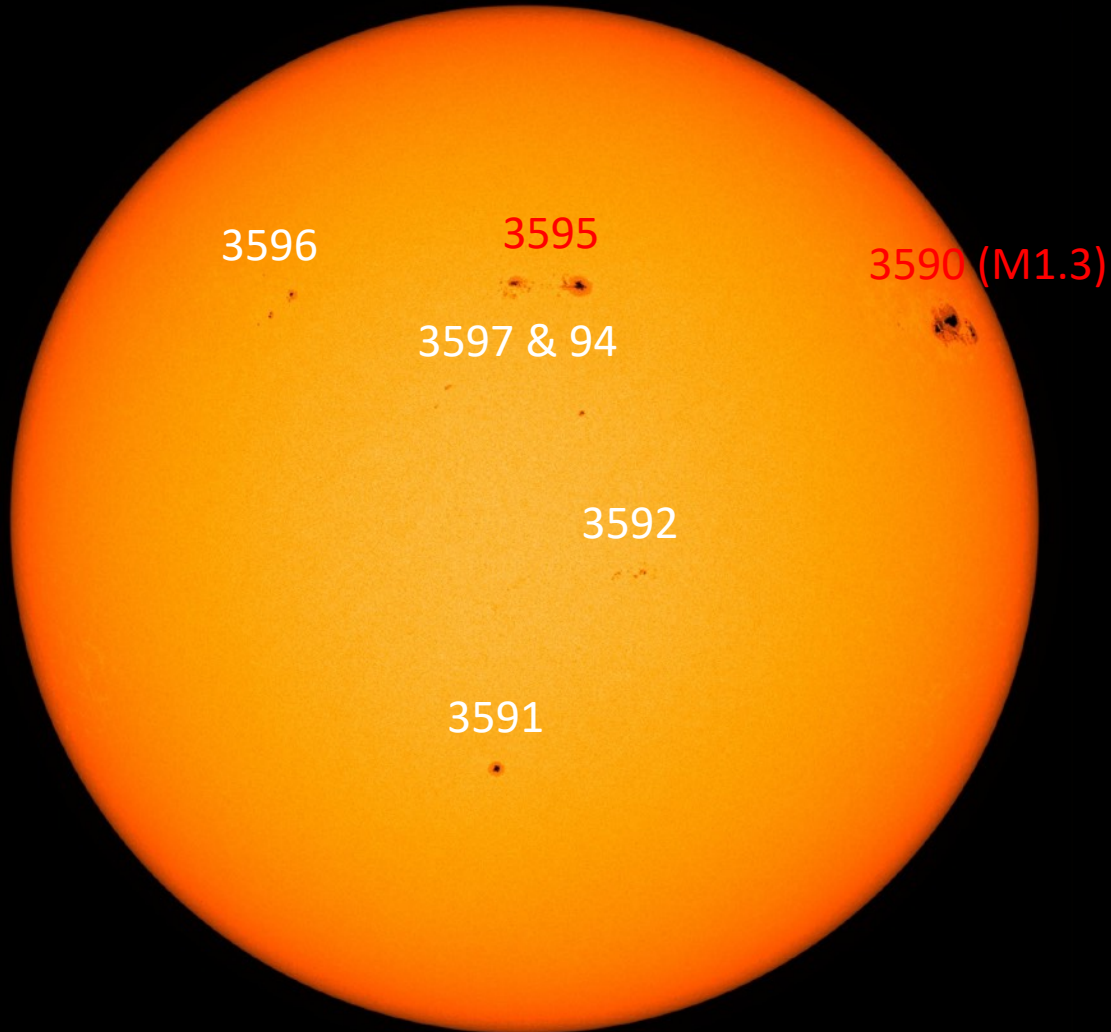


SDO/HMI Quick-Look Magnetogram: 20240225\_114500



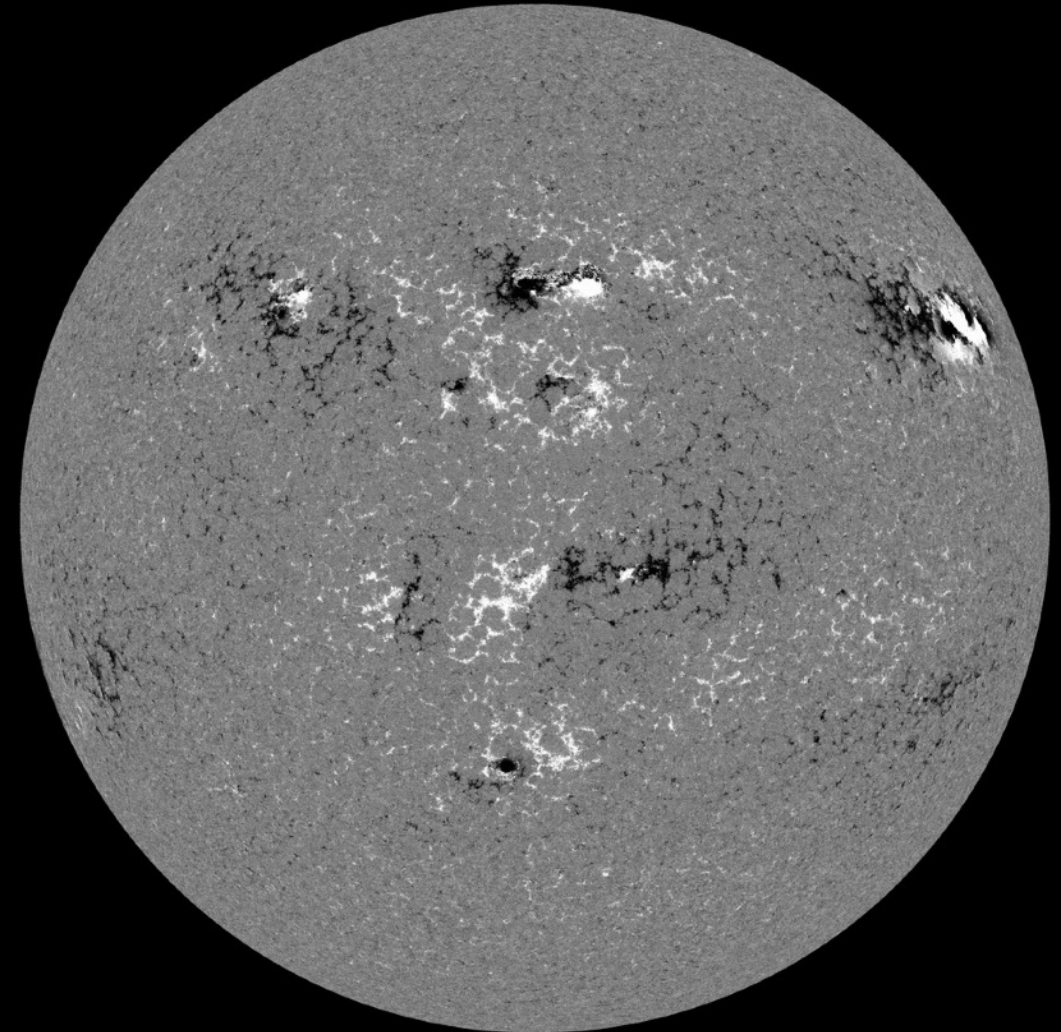
# Solar active regions

SDO/HMI White Light 2024-02-29



SDO/HMI Quick-Look Continuum: 20240229\_114500

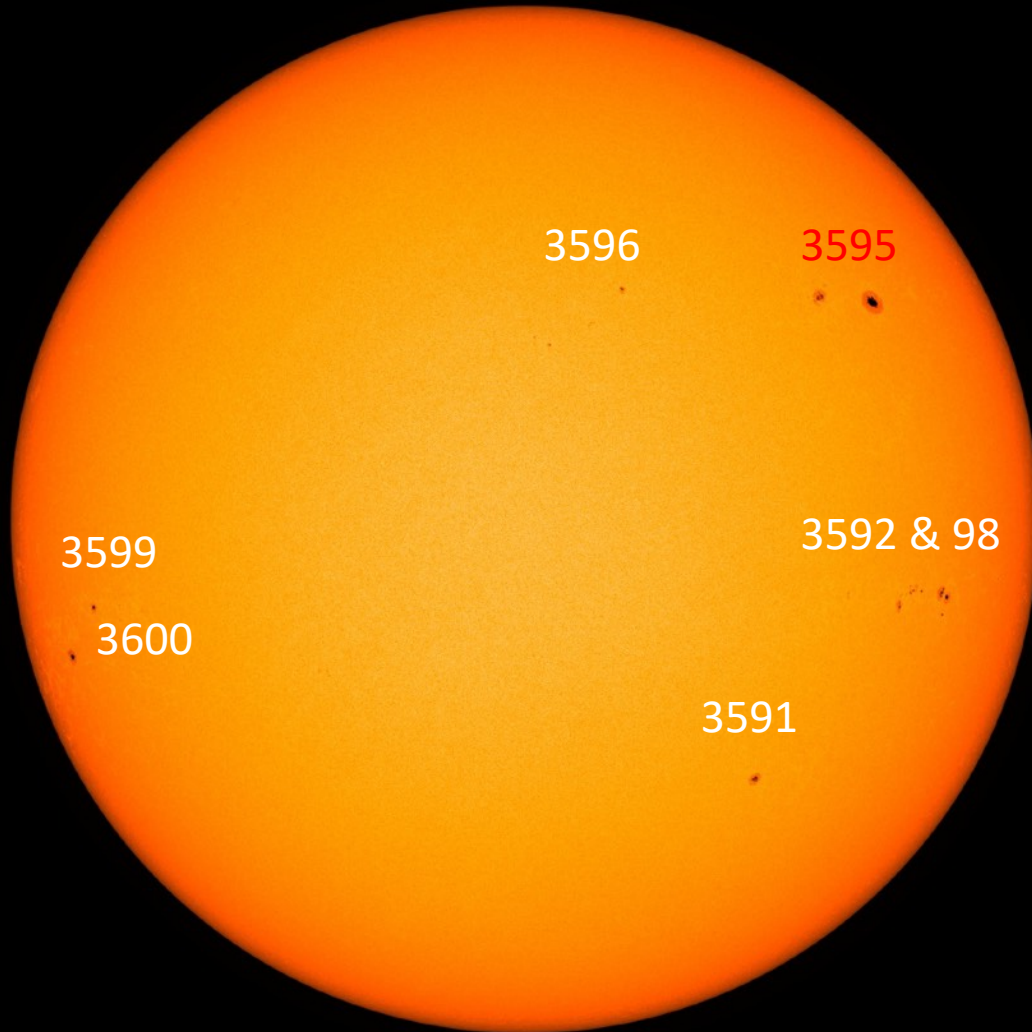
SDO/HMI Magnetogram 2024-02-29



SDO/HMI Quick-Look Magnetogram: 20240229\_114500

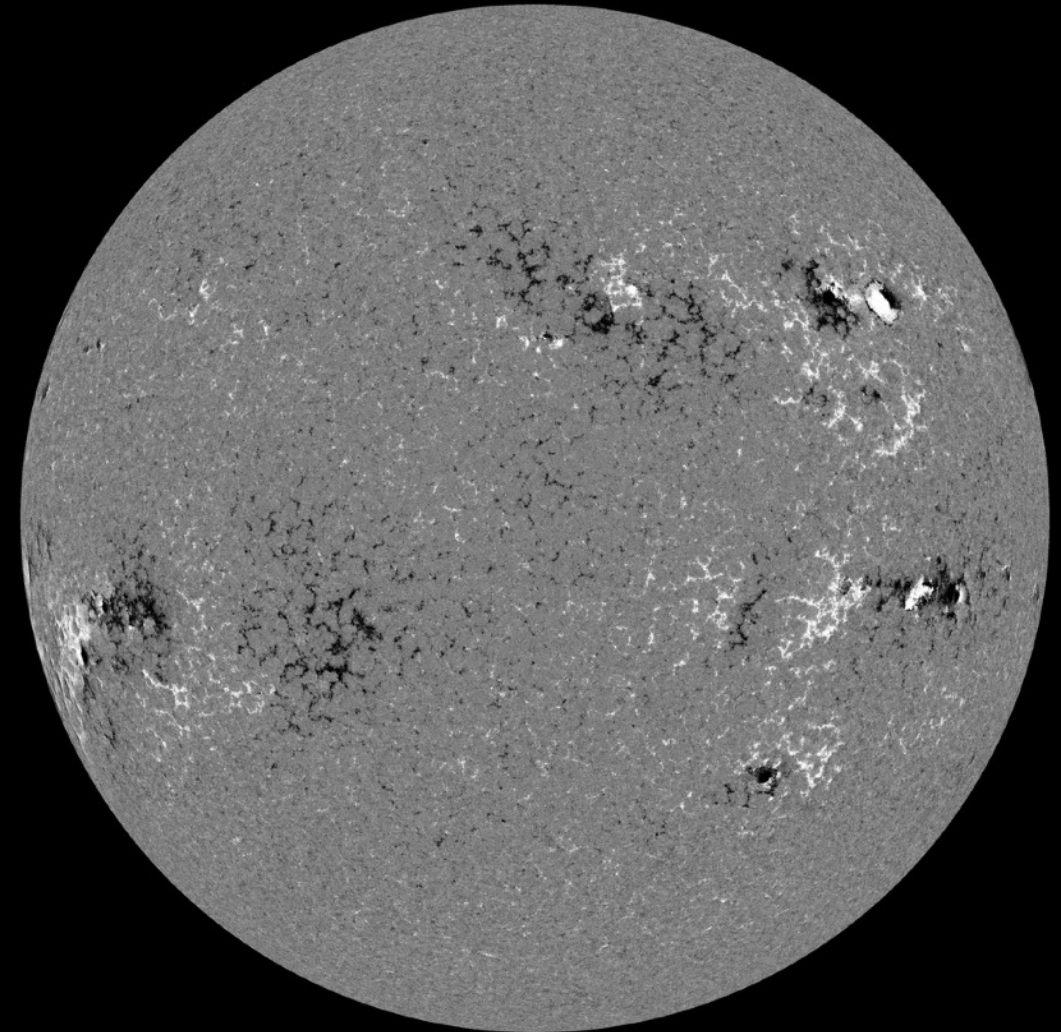
# Solar active regions

SDO/HMI White Light 2024-03-03



SDO/HMI Quick-look Continuum: 20240303\_114500

SDO/HMI Magnetogram 2024-03-03

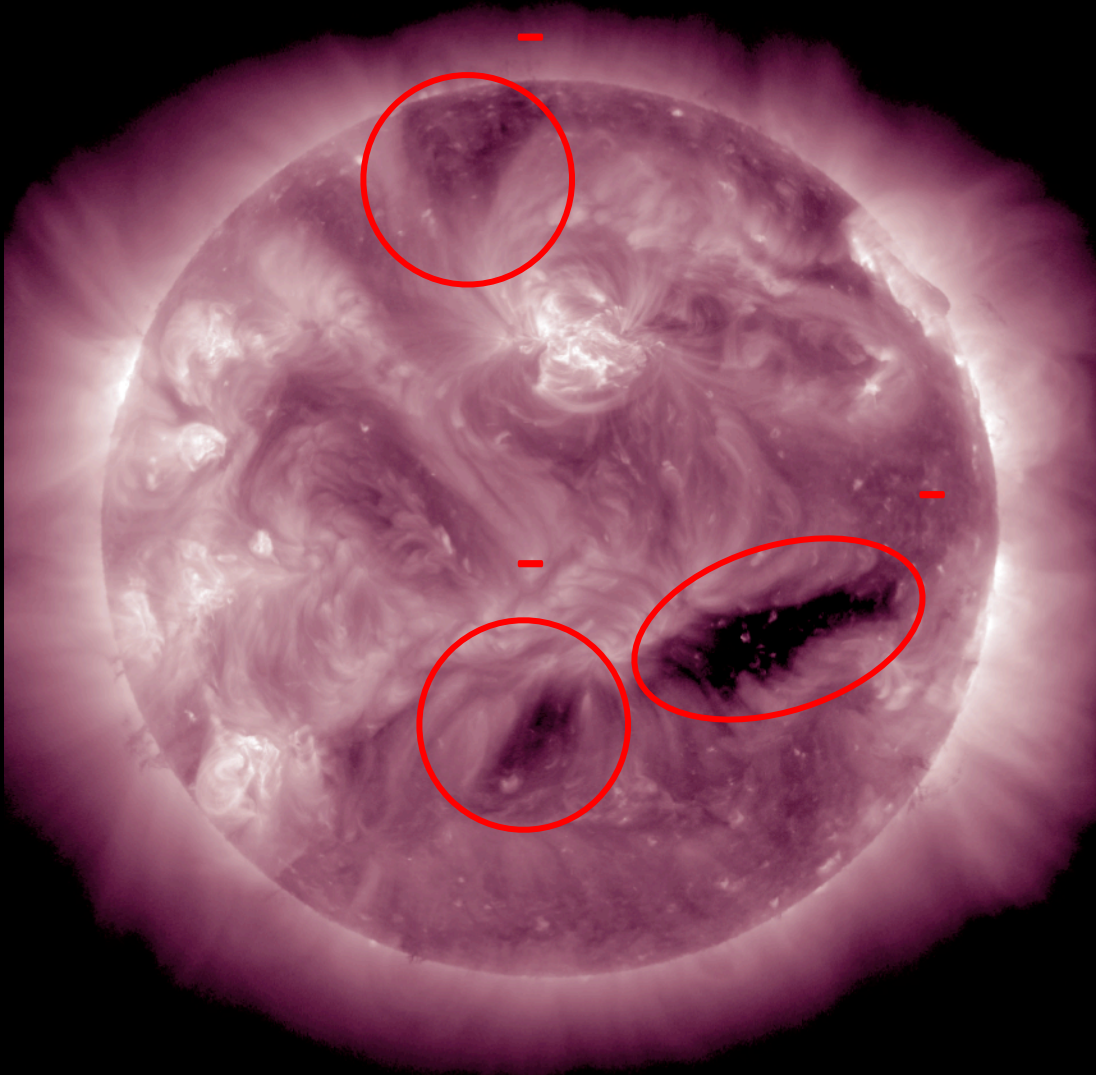


SDO/HMI Quick-look Magnetogram: 20240303\_114500

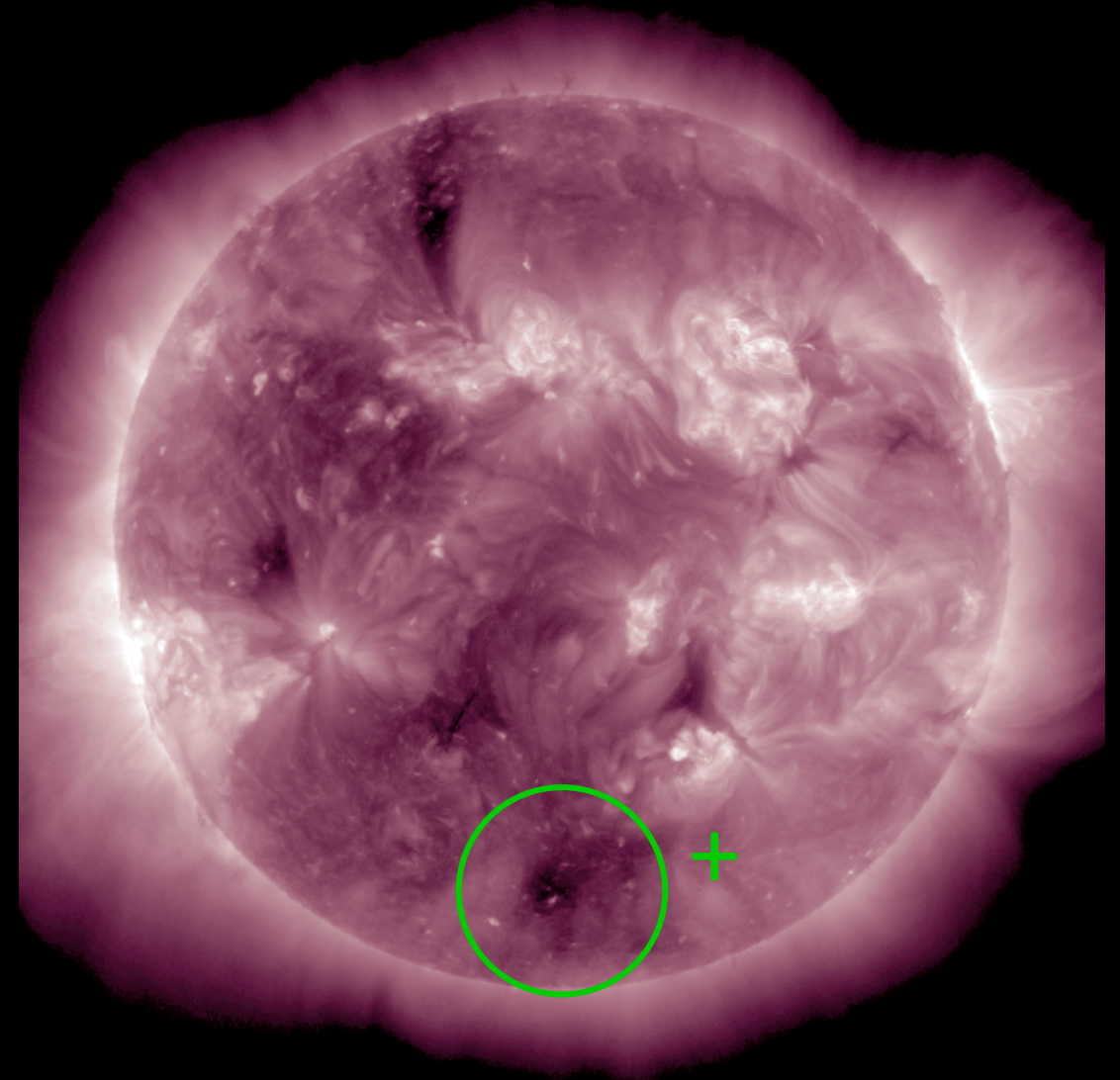


# Coronal holes

SDO/AIA 21.1 nm 2024-02-25 12:00



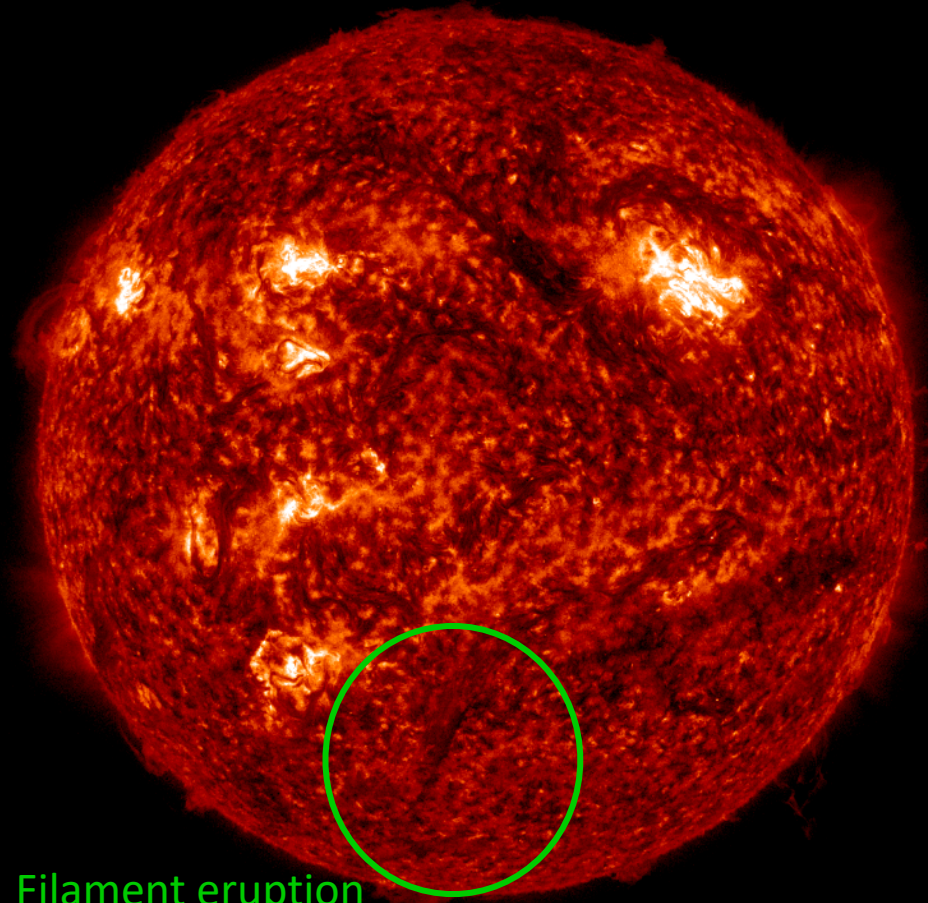
SDO/AIA 21.1 nm 2024-03-02 12:00



# Filaments

SDO/AIA 30.4 nm 2024-02-27

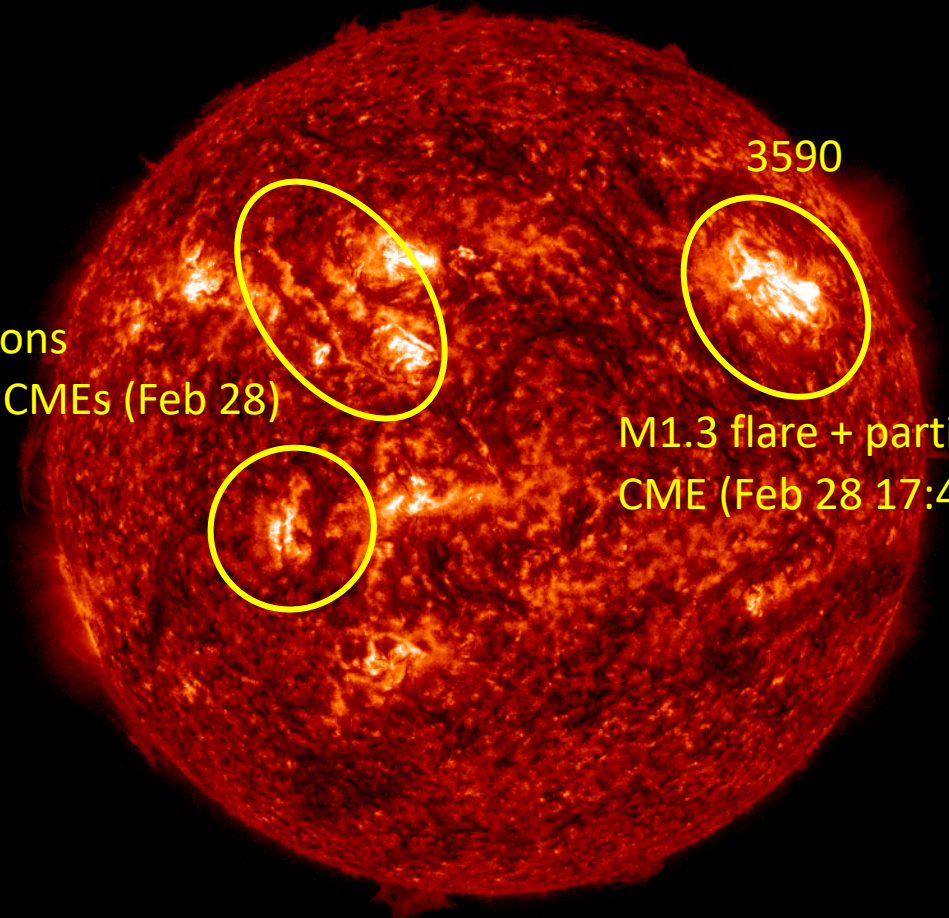
SDO/AIA AIA 304Å 2024-02-27T12:00:06.581



Filament eruption  
Southward CME (Feb 27)

SDO/AIA 30.4 nm 2024-02-28

SDO/AIA AIA 304Å 2024-02-28T12:00:06.583



Flare ribbons  
Eastward CMEs (Feb 28)

3590  
M1.3 flare + partial halo  
CME (Feb 28 17:48)



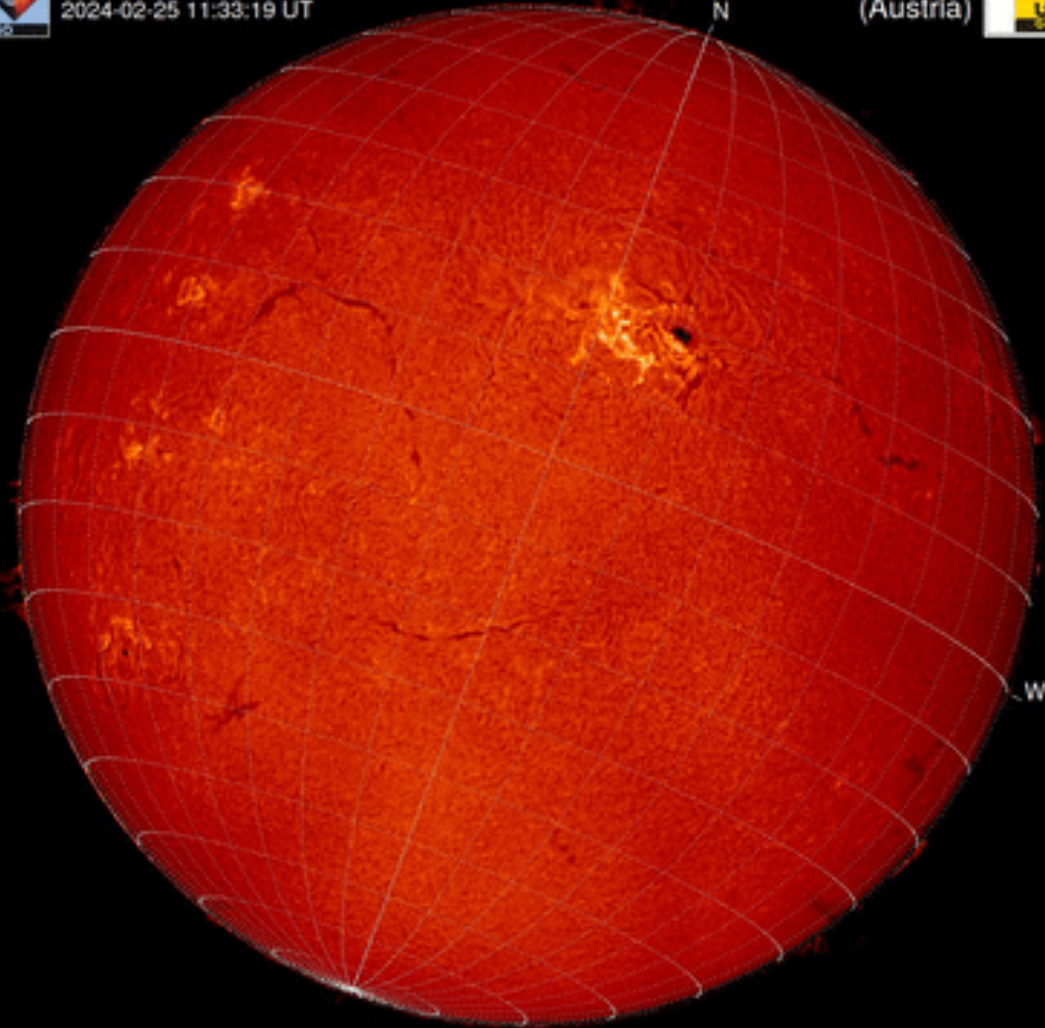
# Filaments & Filament eruptions

H-alpha 2024-02-25



Kanzelhöhe Observatory  
2024-02-25 11:33:19 UT

University of Graz  
(Austria)

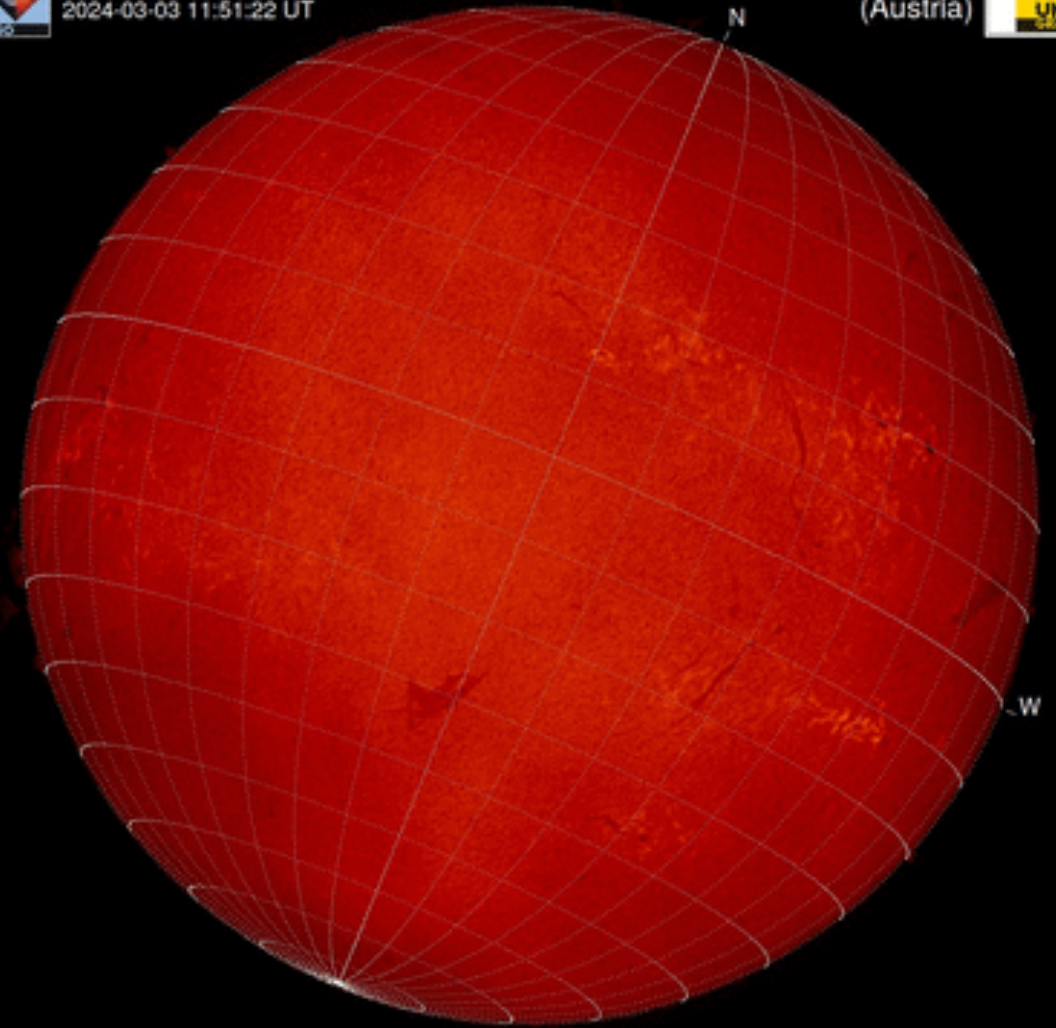


H-alpha 2024-03-03

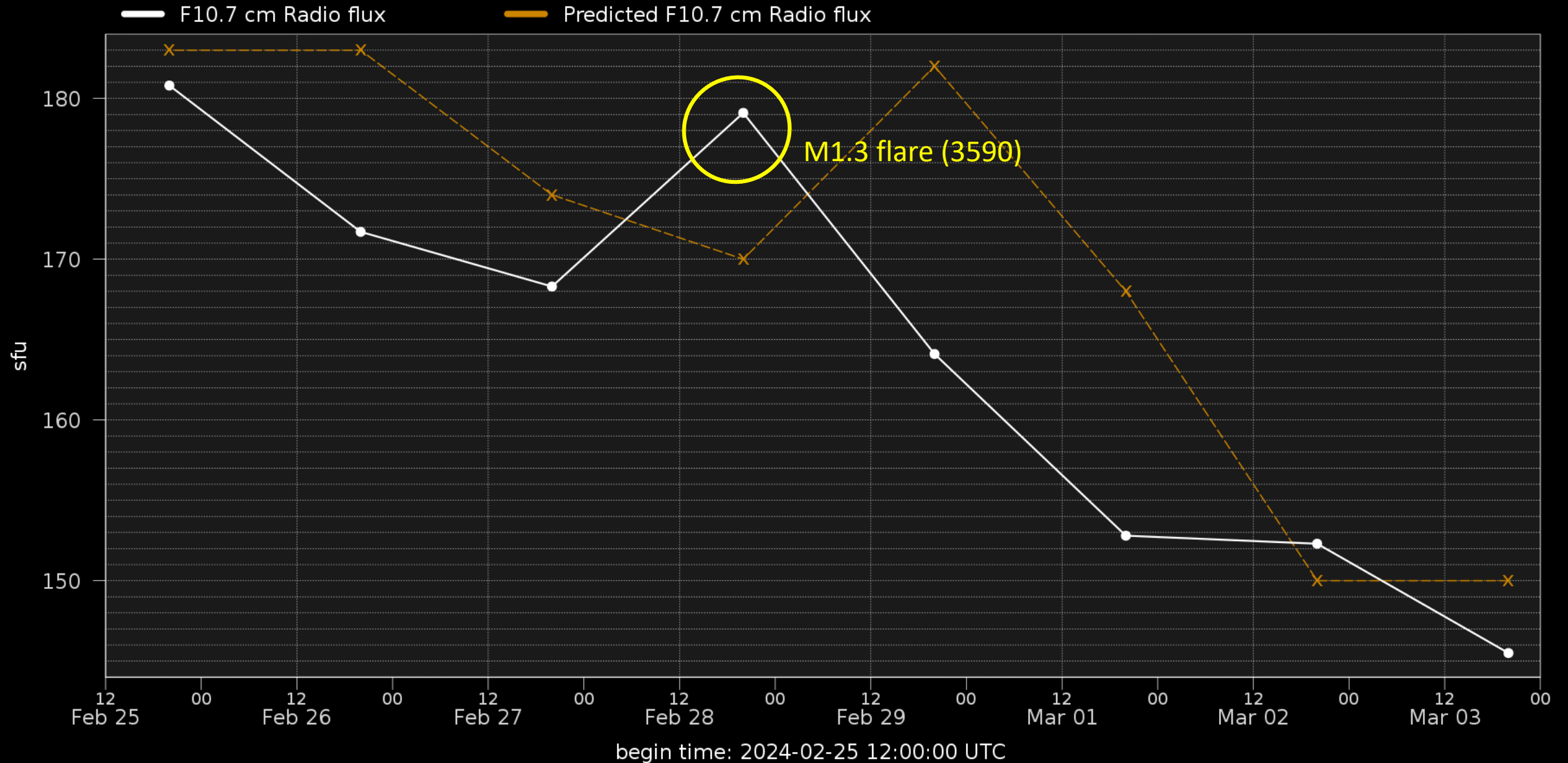


Kanzelhöhe Observatory  
2024-03-03 11:51:22 UT

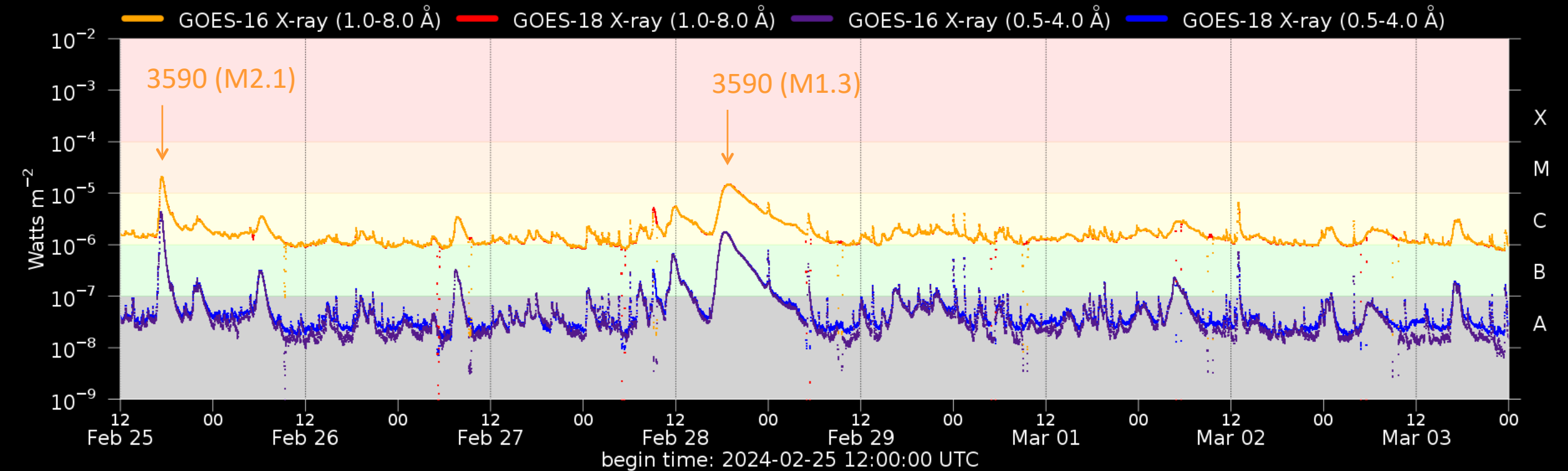
University of Graz  
(Austria)



# Solar F10.7cm radio flux



# Flaring activity

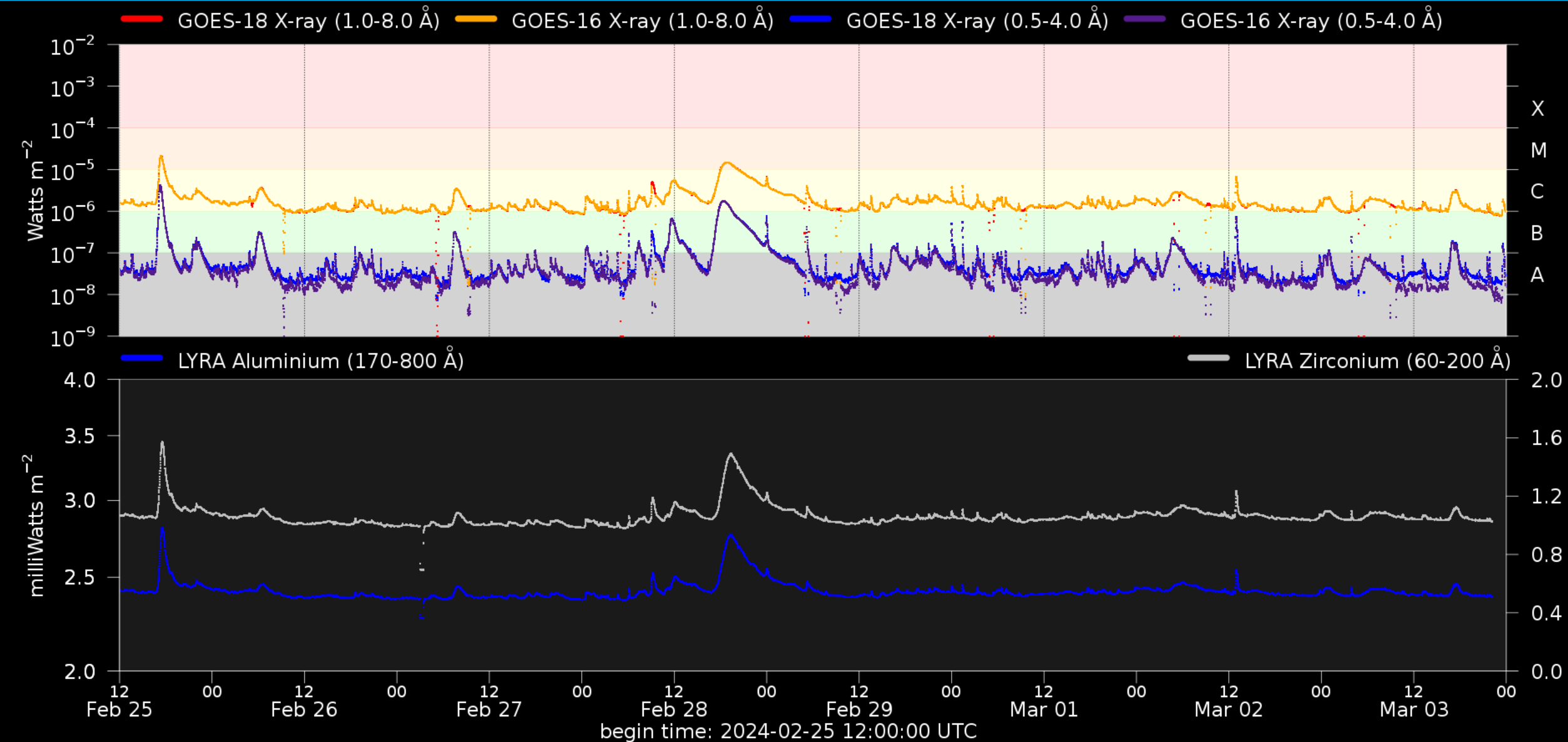


Probabilities (%) and occurrences (#) of C/M/X-flares daily, from noon to noon:

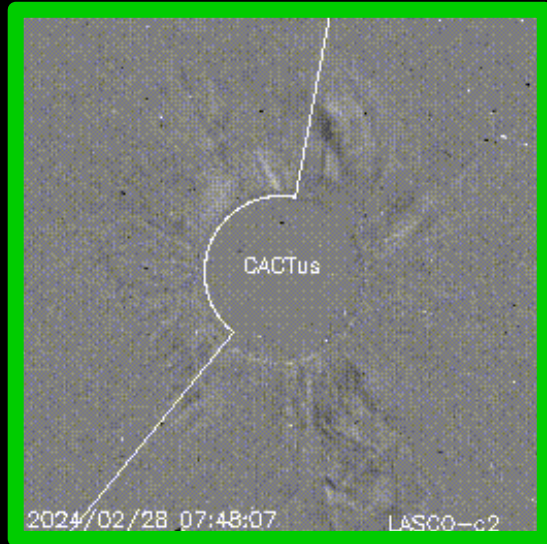
Issue date	2024-02-25	2024-02-26	2024-02-27	2024-02-28	2024-02-29	2024-03-01	2024-03-02	2024-03-03
Probability (%)	99 70 25	99 70 30	99 60 20	99 60 20	99 60 20	99 60 15	99 55 10	99 50 10
Observed (#)	00 01 00	03 00 00	06 00 00	03 01 00	05 00 00	03 00 00	03 00 00	03 00 00



# Solar X-Ray and UV flux

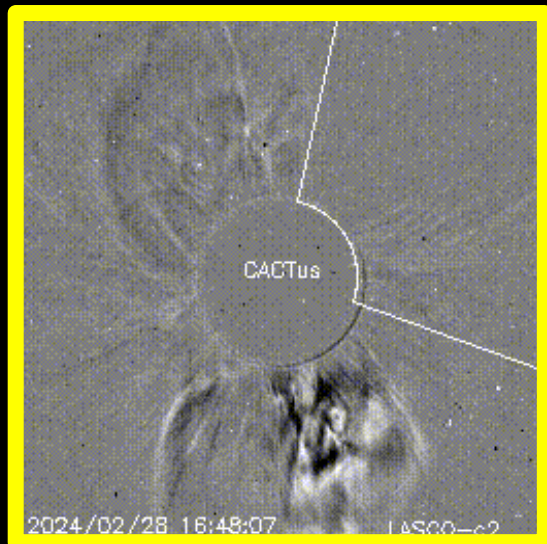


# Coronal Mass Ejections



## CME1 & CME2 on Feb 28 around 08:24

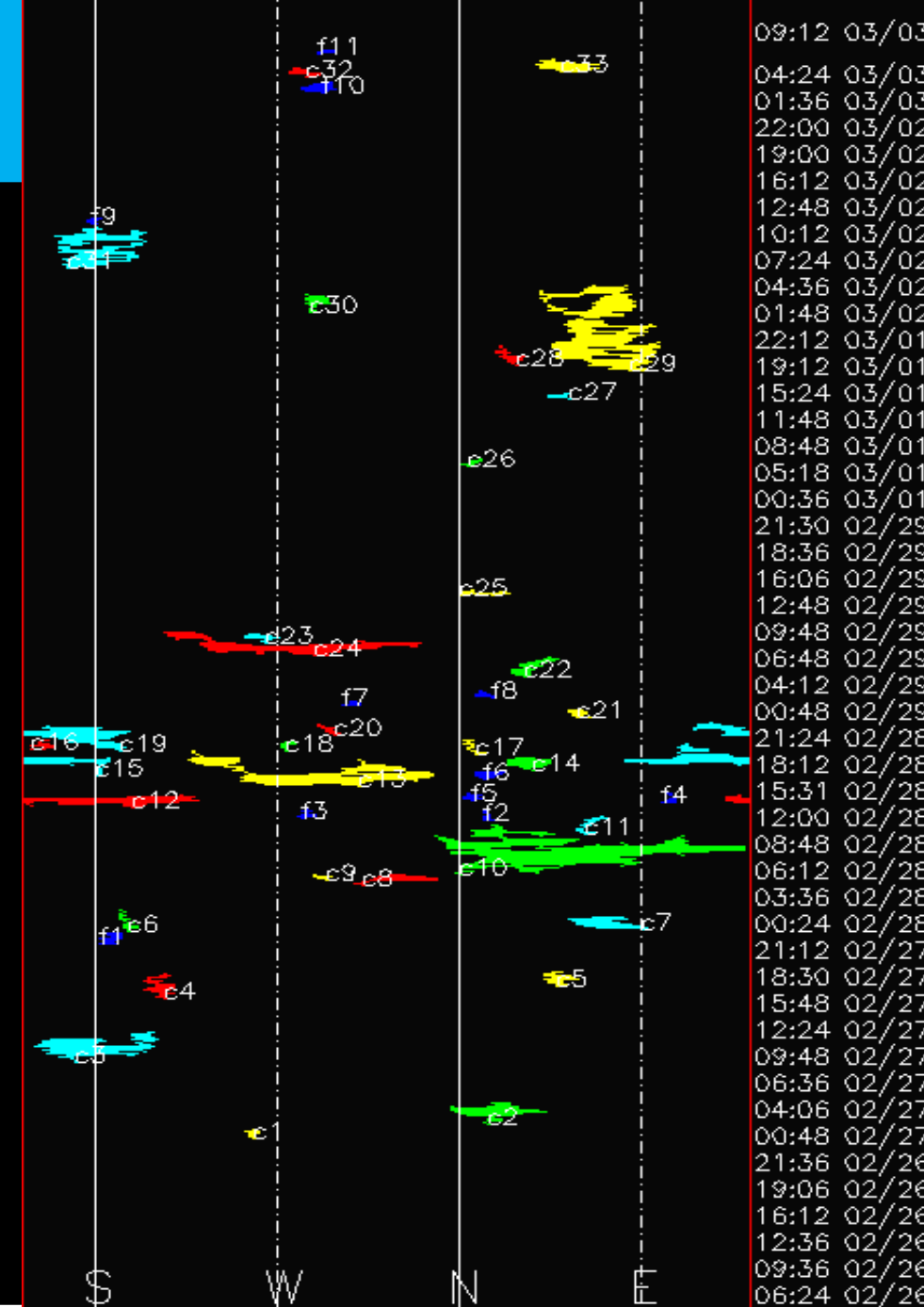
- CACTus - partial halo CME --> correction sent for 2 CMEs
- widths ~ 90 deg ,  $v \sim 300$  &  $600$  km/s
- Predicted not to arrive



## CME3 on Feb 28 around 17:36

Partial halo from NOAA AR 3590 (M1.2)

- width ~ 120 deg ,  $v \sim 600$  km/s
- Small chance for flank arrival on Mar 3



Solar Wind and

# Geomagnetic Activity

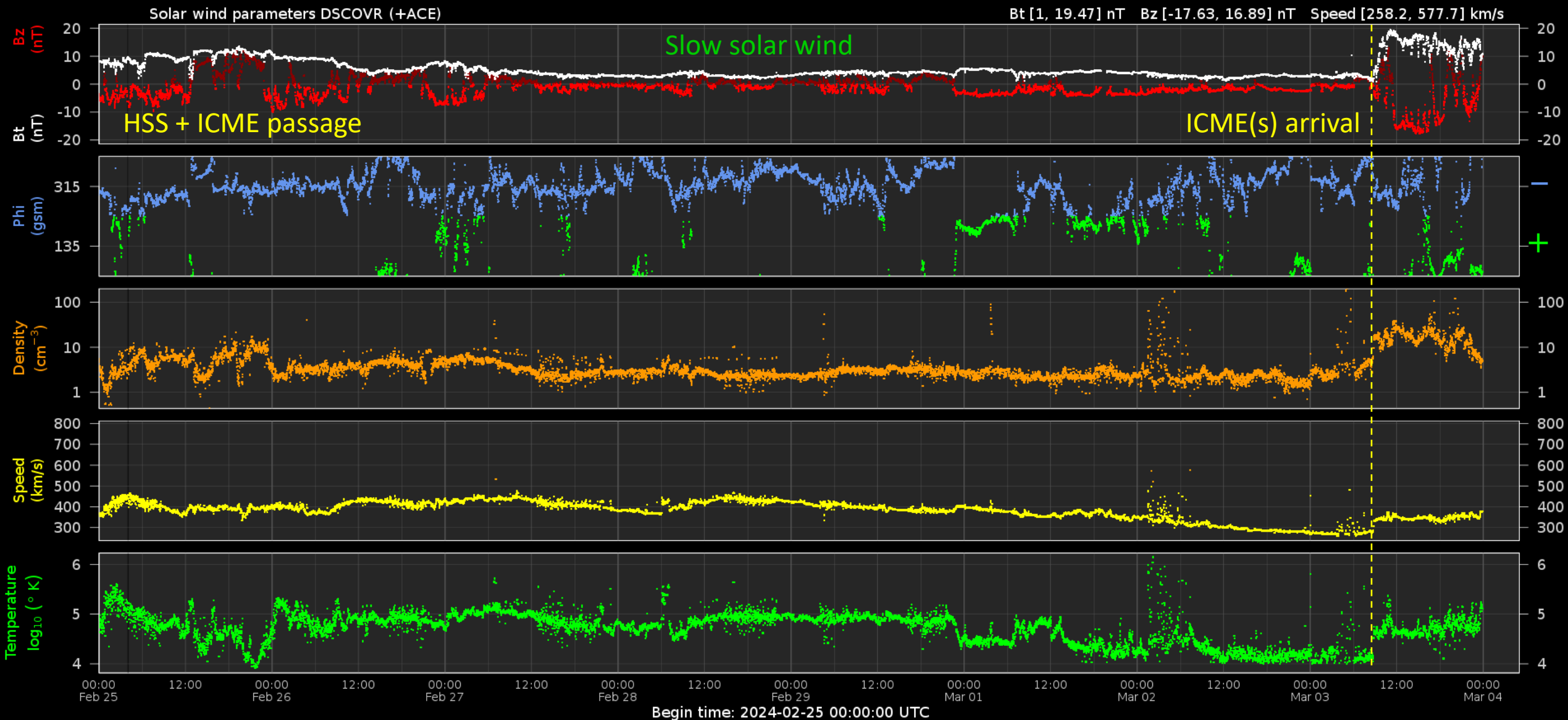


Royal Observatory  
of Belgium

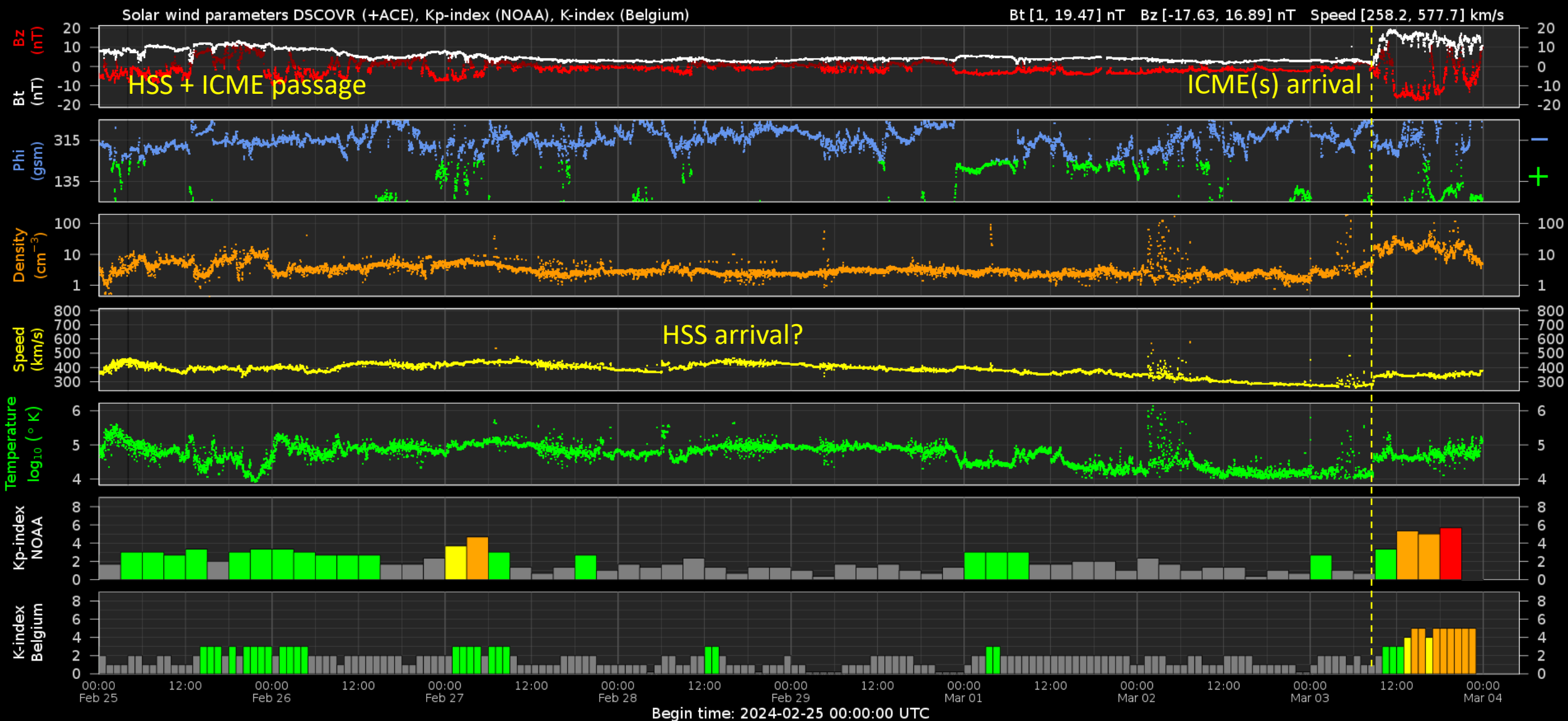
Solar Influences  
Data analysis Centre  
[www.sidc.be](http://www.sidc.be)



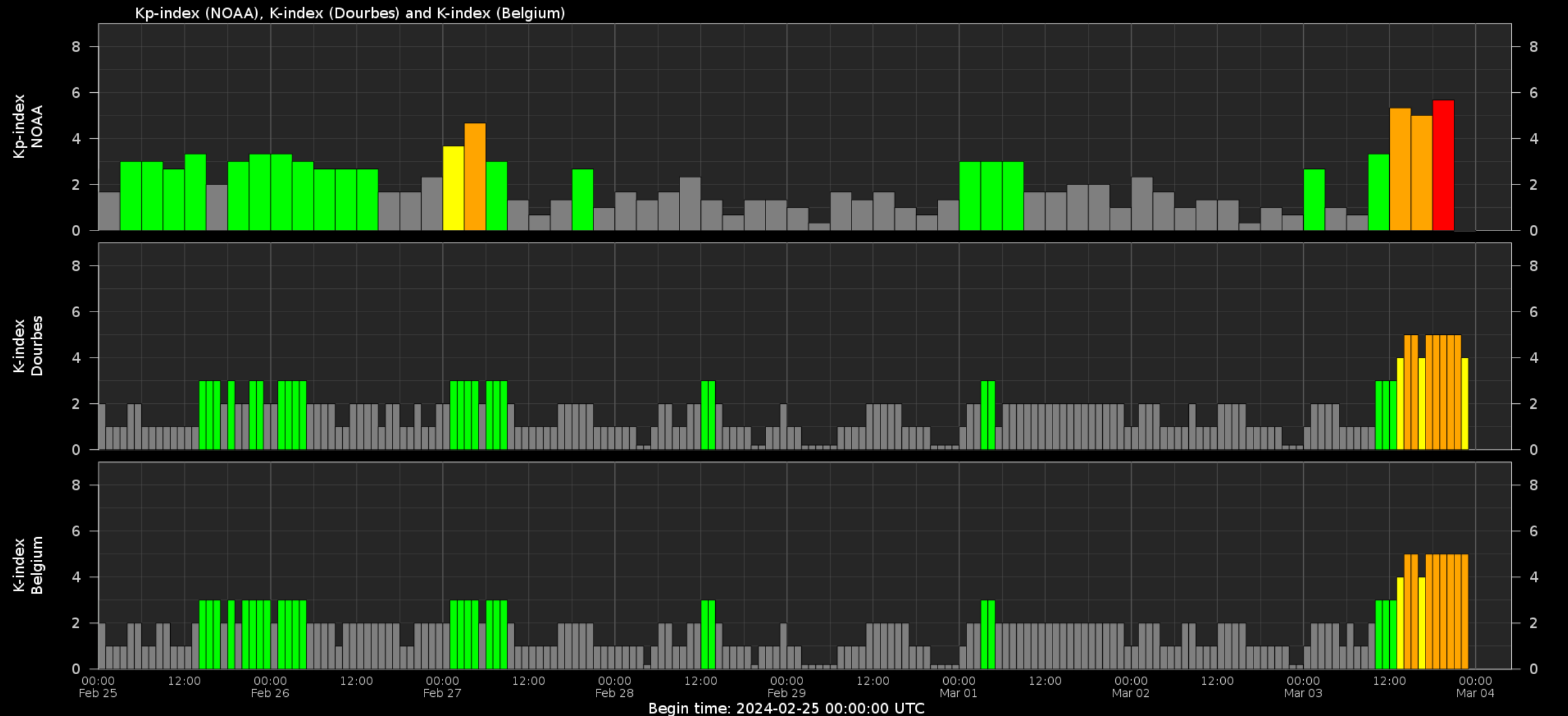
# Solar wind parameters



# Solar wind parameters & K-indices



# Geomagnetic activity (K-indexes)





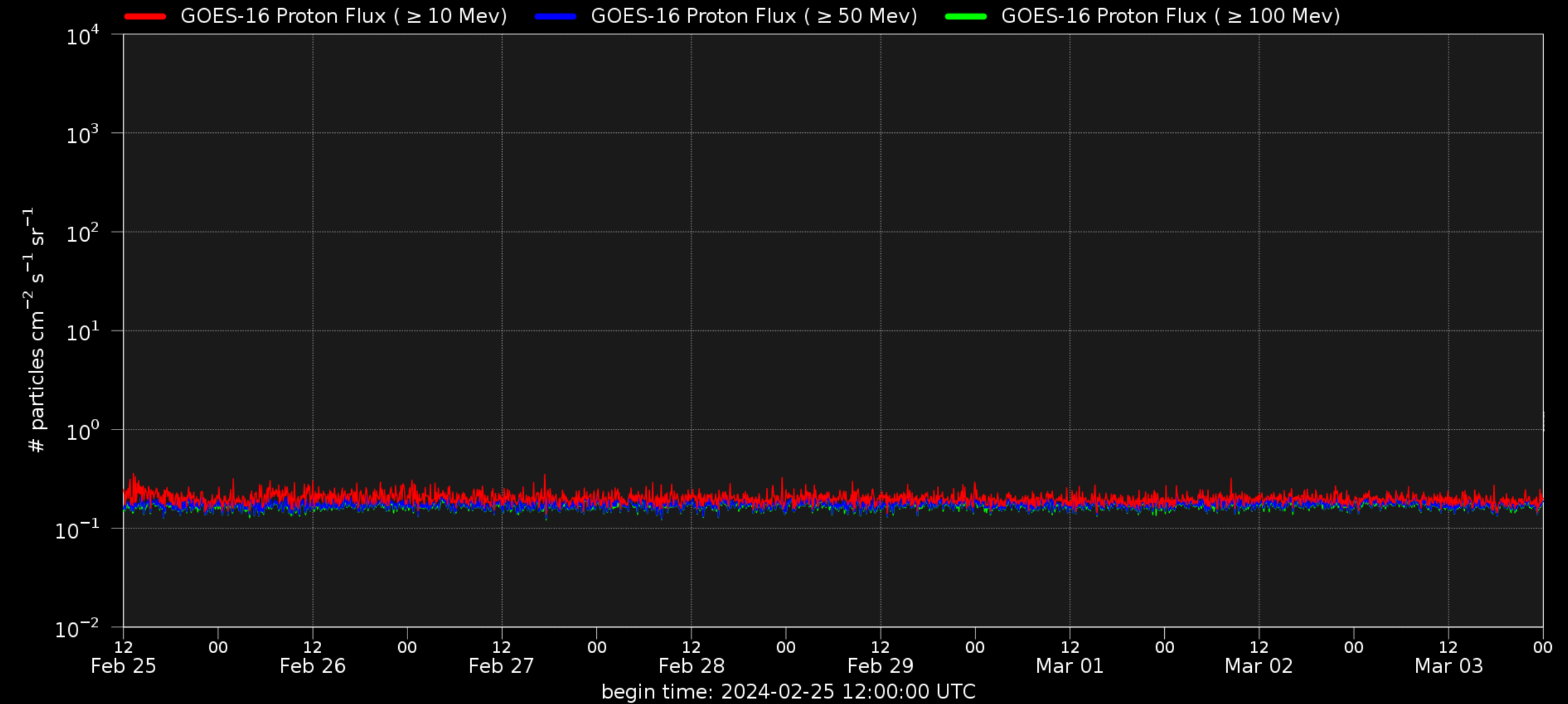
# Energetic Particles



Royal Observatory  
of Belgium

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

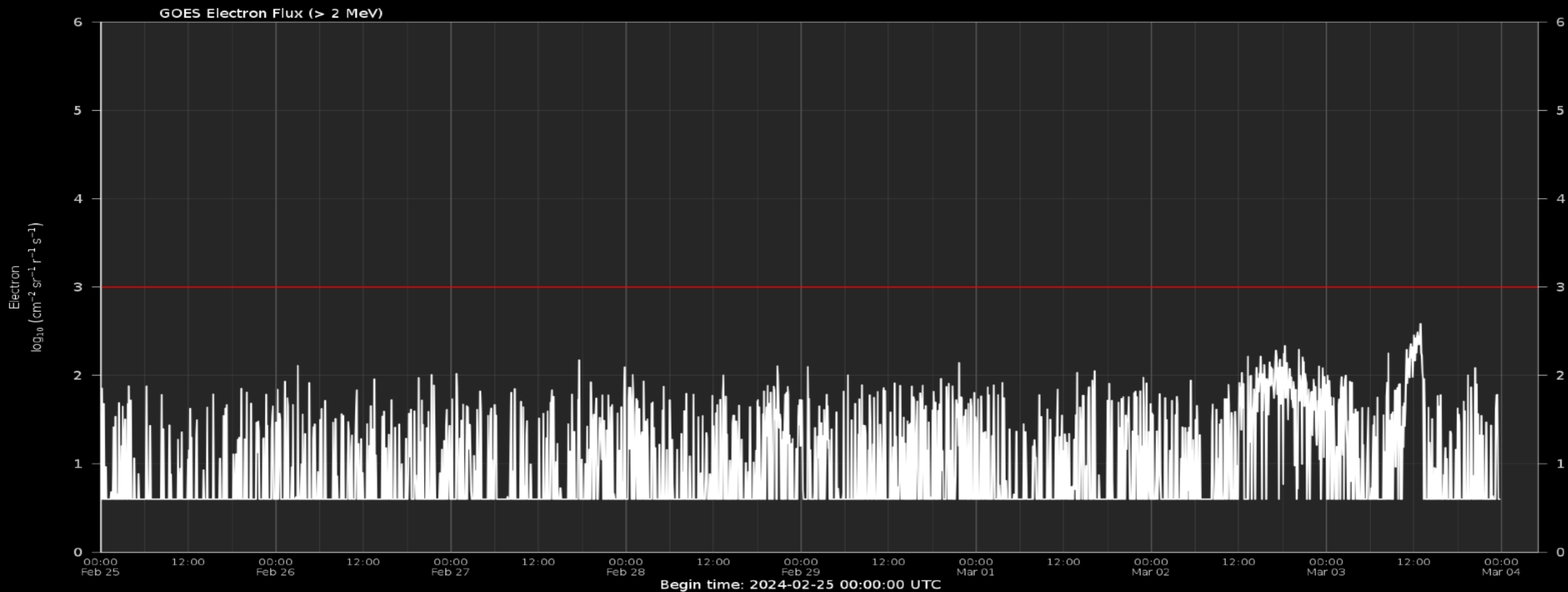
# Solar proton flux



# 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

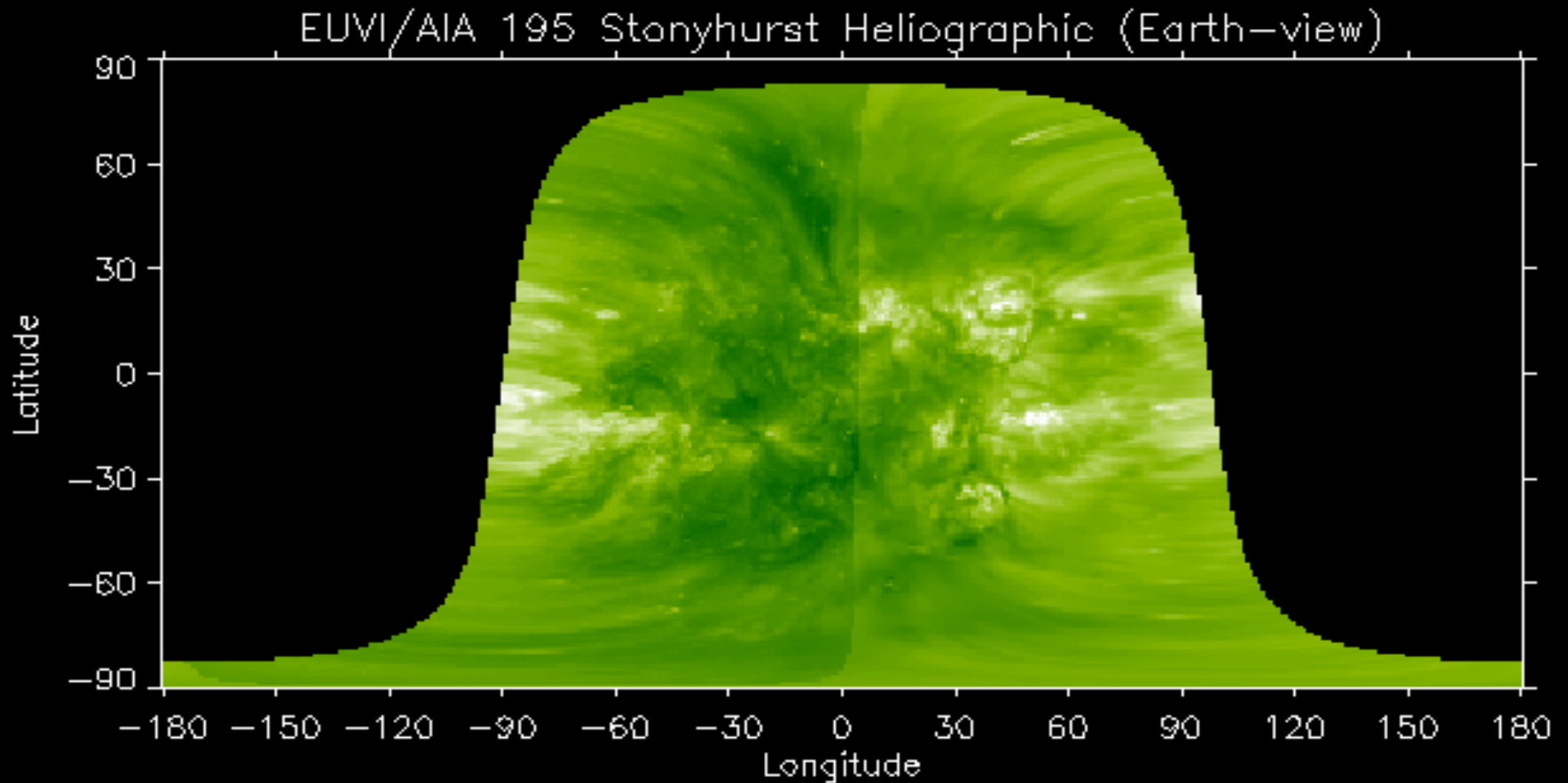


Royal Observatory  
of Belgium

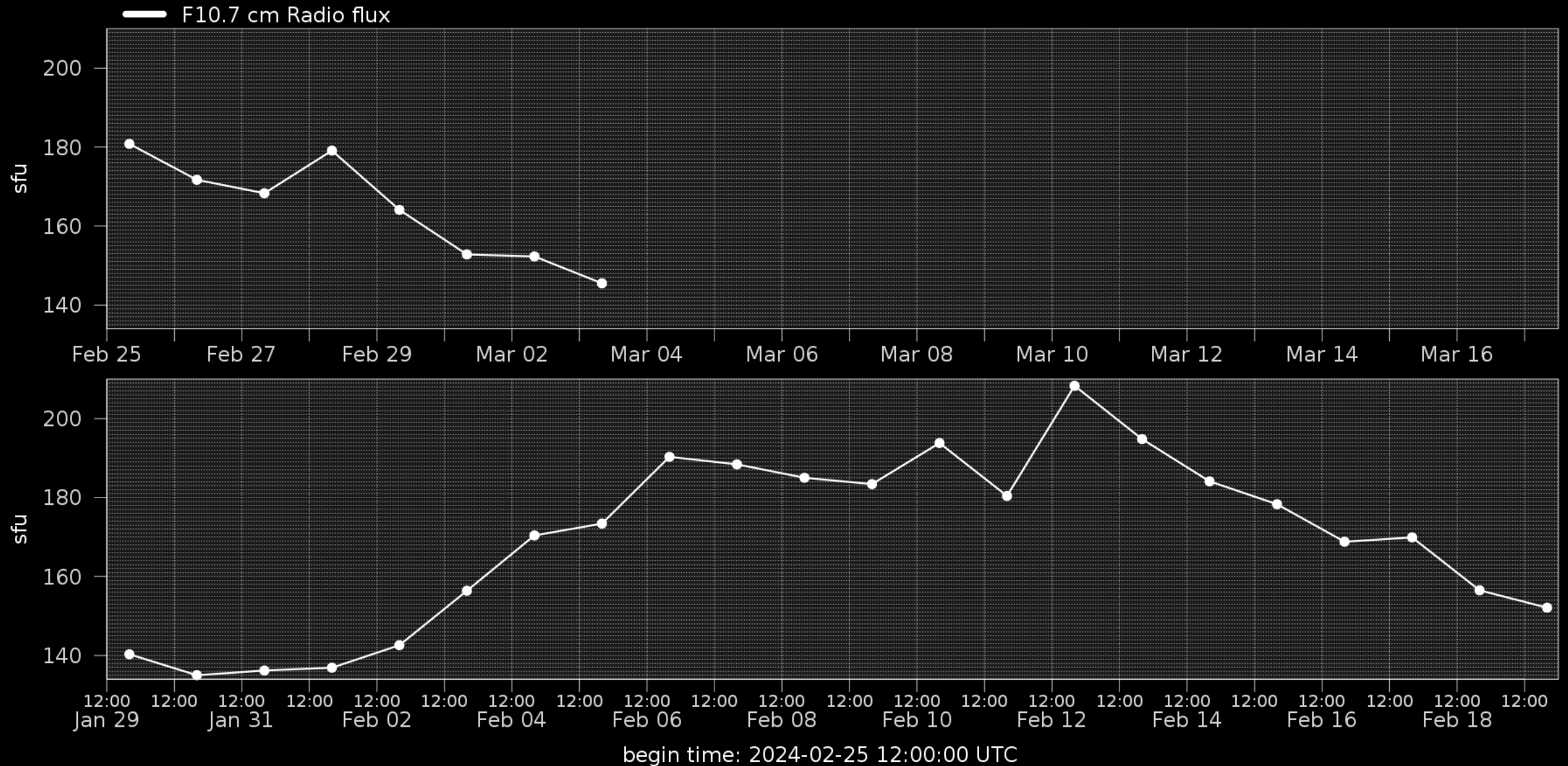
Solar Influences  
Data analysis Centre  
[www.sidc.be](http://www.sidc.be)



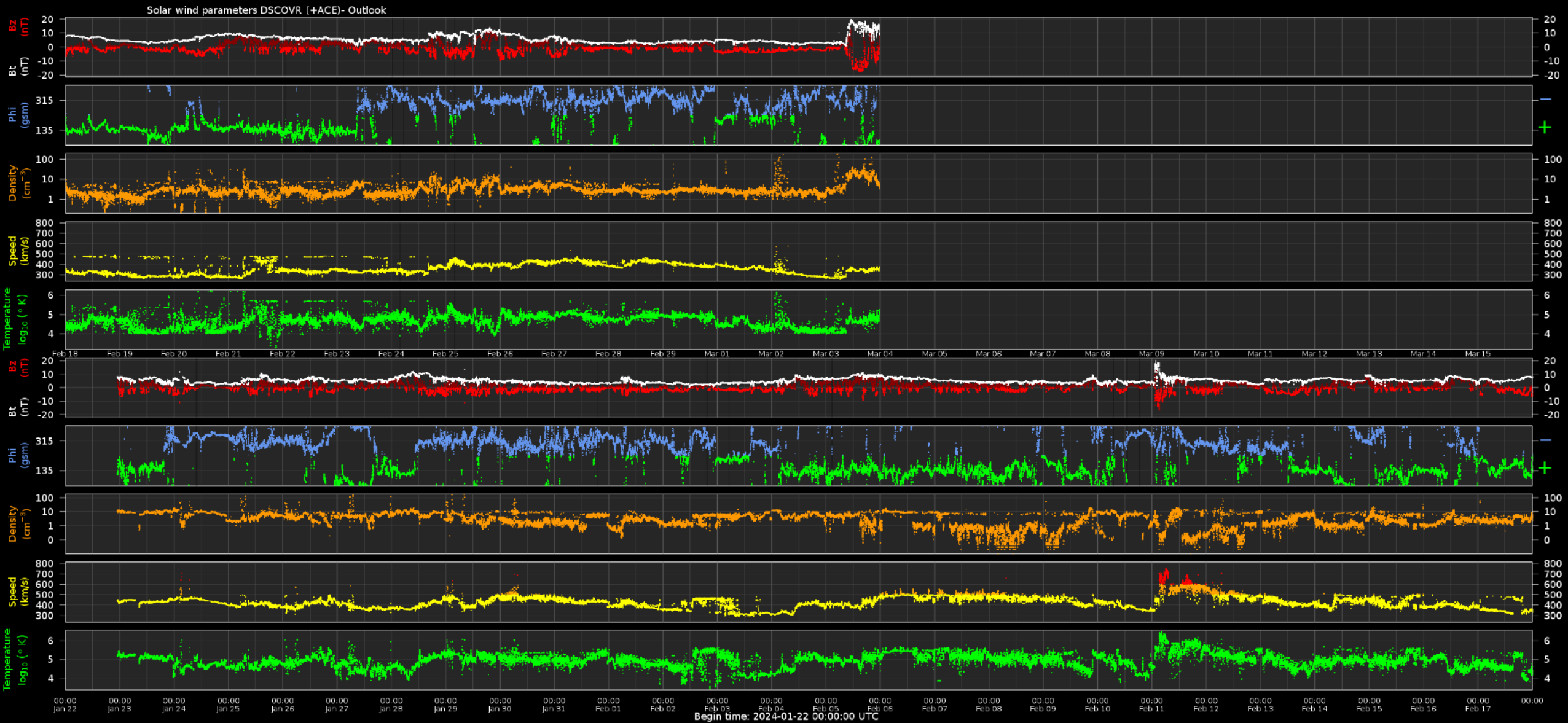
# Outlook: Solar activity



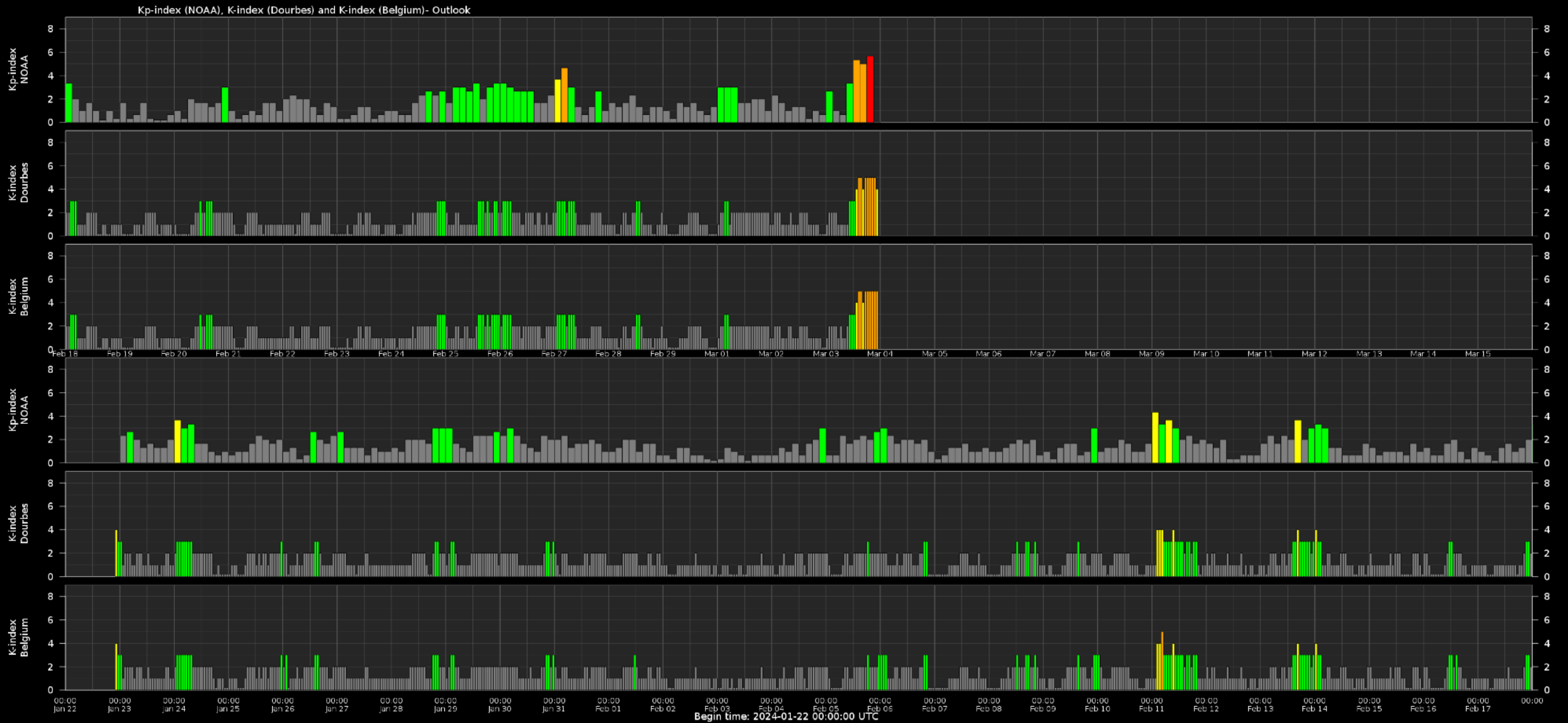
# Outlook: Solar F10.7cm radio flux



# Outlook: Solar wind parameters

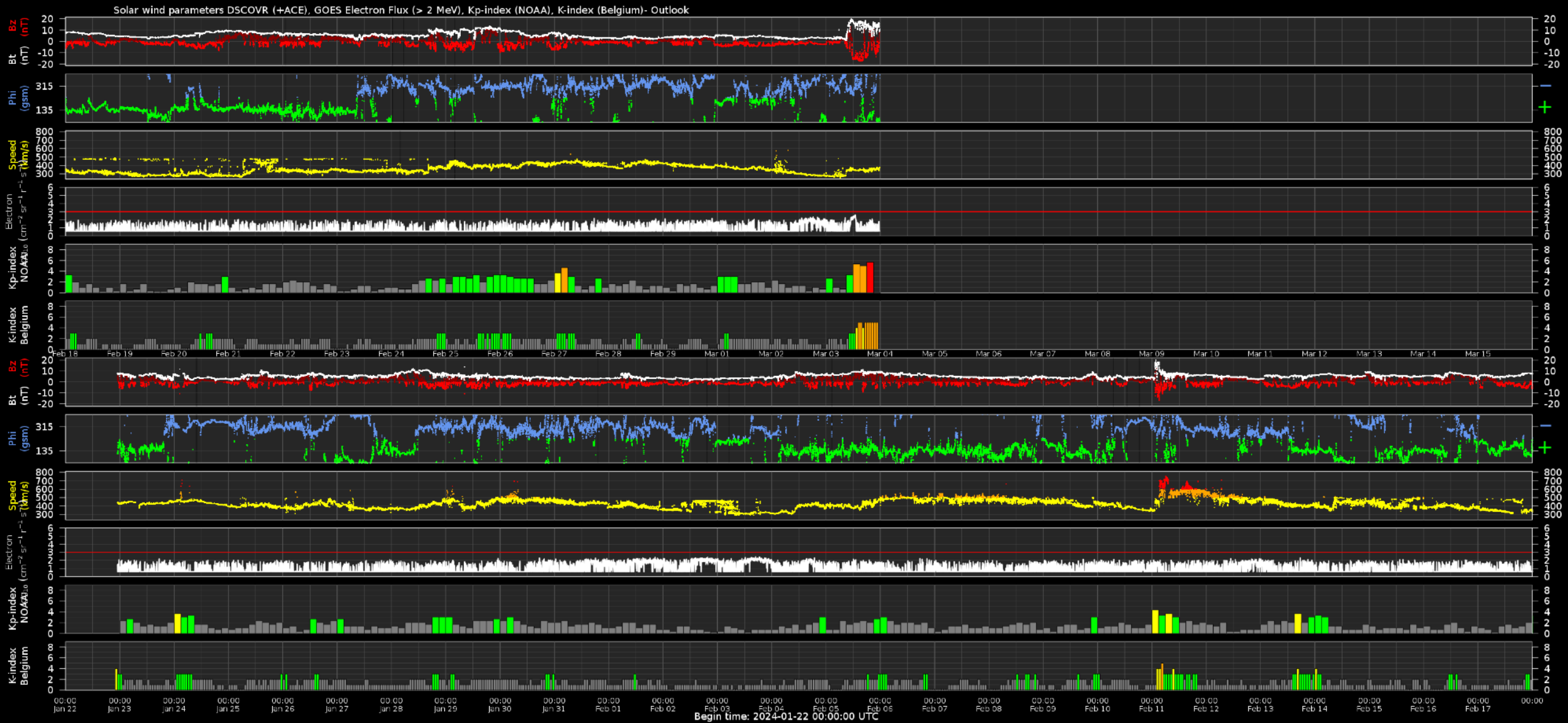


# Outlook: Geomagnetic activity





# Outlook: Electron Flux at GEO Outlook



PECASUS



Royal Observatory  
of Belgium

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

# Pegasus related events

- moderate/severe amplitude scintillation (AS) and phase scintillation (PS) events (equatorial and auroral)
- severe post-storm depression (PSD) on going following Kp 6 storm

SIDC Space Weather Briefing

See you at our next briefing!

Or visit us at [www.sidc.be](http://www.sidc.be)



Royal Observatory  
of Belgium

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