

SIDC Space Weather Briefing

19-26 February 2023

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& the SIDC forecaster team



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Data analysis Centre
www.sidc.be

Summary Report

Solar activity from 2023-02-19 12:00 to 2023-02-26 23:59

Active regions	3226 rotating of the disc.. Main activity by 3229 and 3234 complex with mixed pol.
Flares	# C-class flare: 56 # M-class flare: 10 # X-class flare: 0
Coronal Holes	1 CH- extension of south pole, equatorial CH-
CMEs	2 Earth directed (partial) halo's

Proton flux	Protons event following the M6 flare and 2e CME (initially enhanced after 1e CME)
Electron flux	Below event threshold

Solar wind and geomagnetic conditions

ICMEs	Shock arrival of Feb17 CME early in the week with minor impact, Shock and CME arrival late on 26 of the Feb24 CME with significant impact
Solar wind conditions	B : 0.84 - 22.32 nT //Bz: -18.85 nT to 14.81 nT //Speed: 310 - 700km/s
K-indices	max K-index (KBel): 5 max Kp-index (NOAA): 6-

All Quiet Alert: Not quiet

Solar Activity

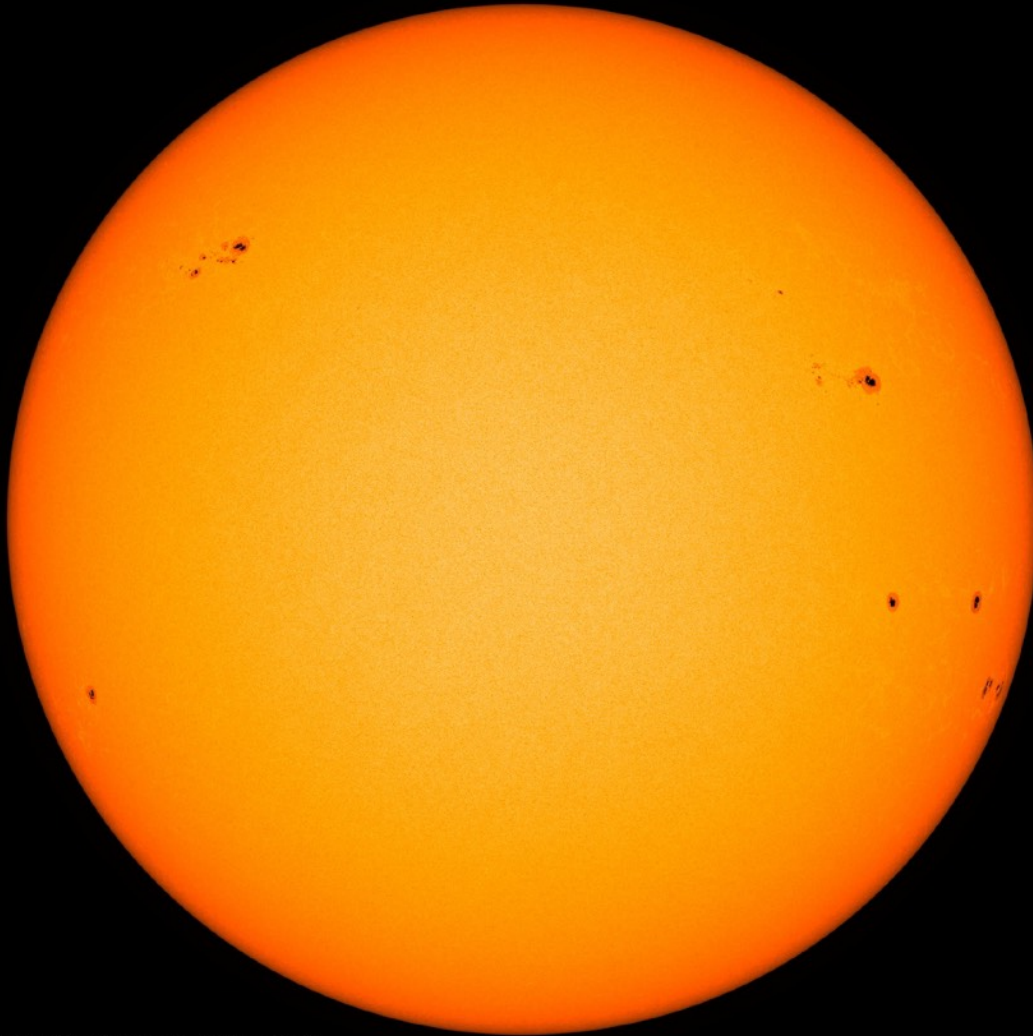


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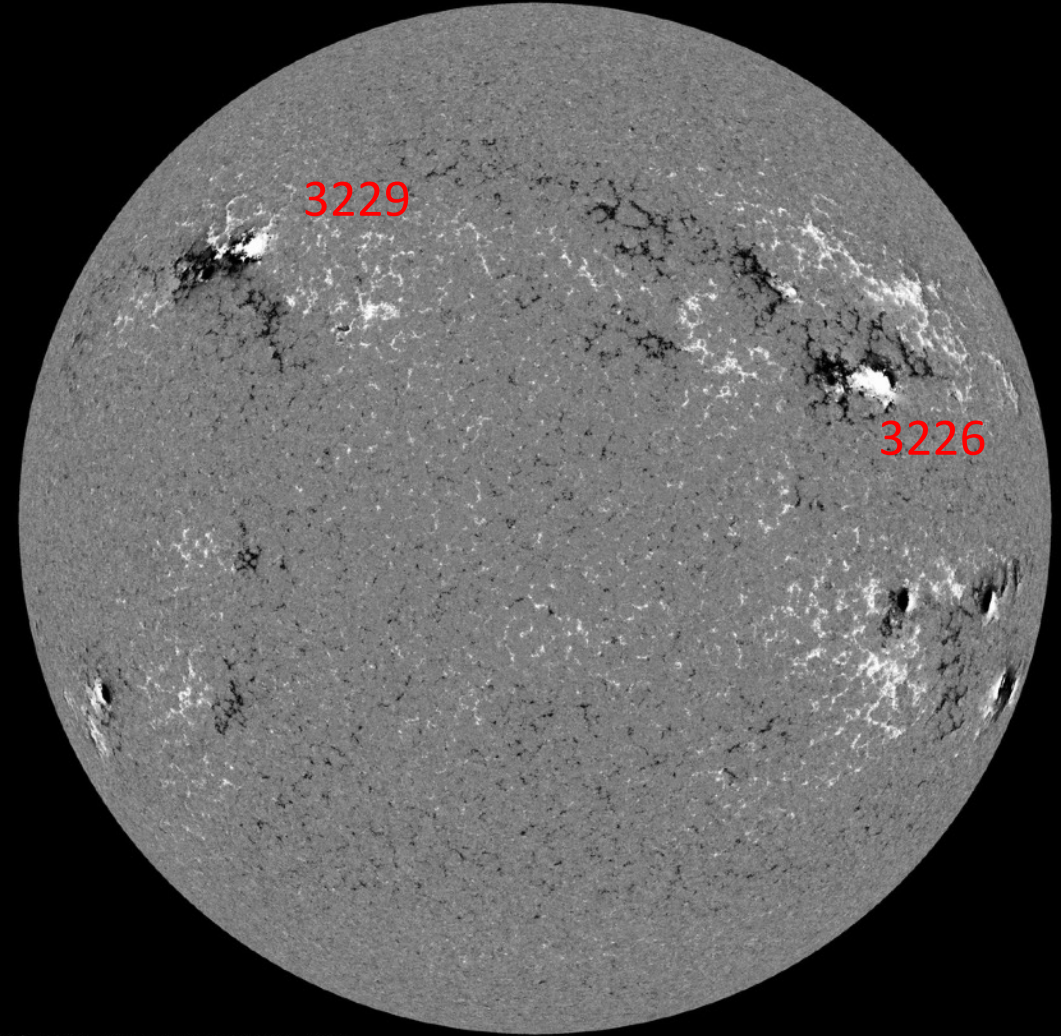
Solar active regions

SDO/HMI White Light 2023-02-19



SDO/HMI Quick-Look Continuum: 20230219_114500

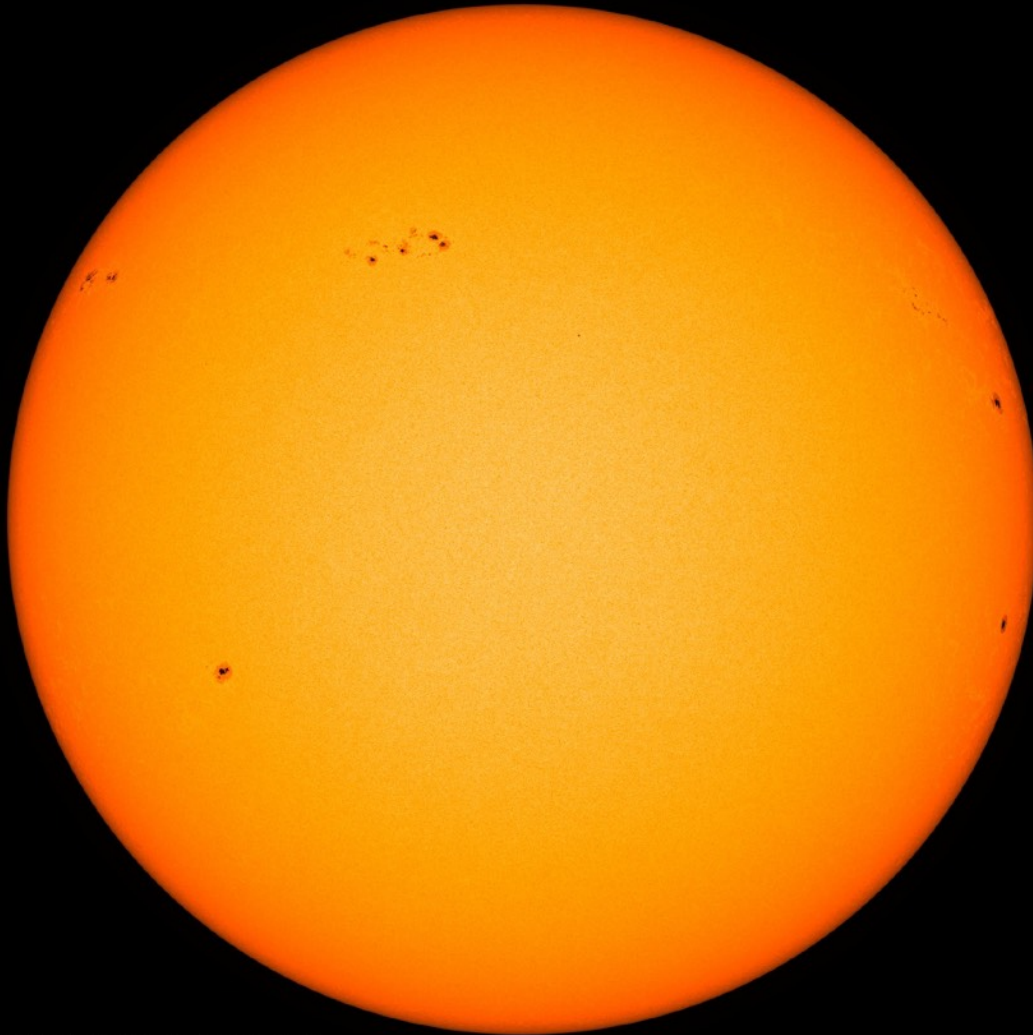
SDO/HMI Magnetogram 2023-02-19



SDO/HMI Quick-Look Magnetogram: 20230219_114500

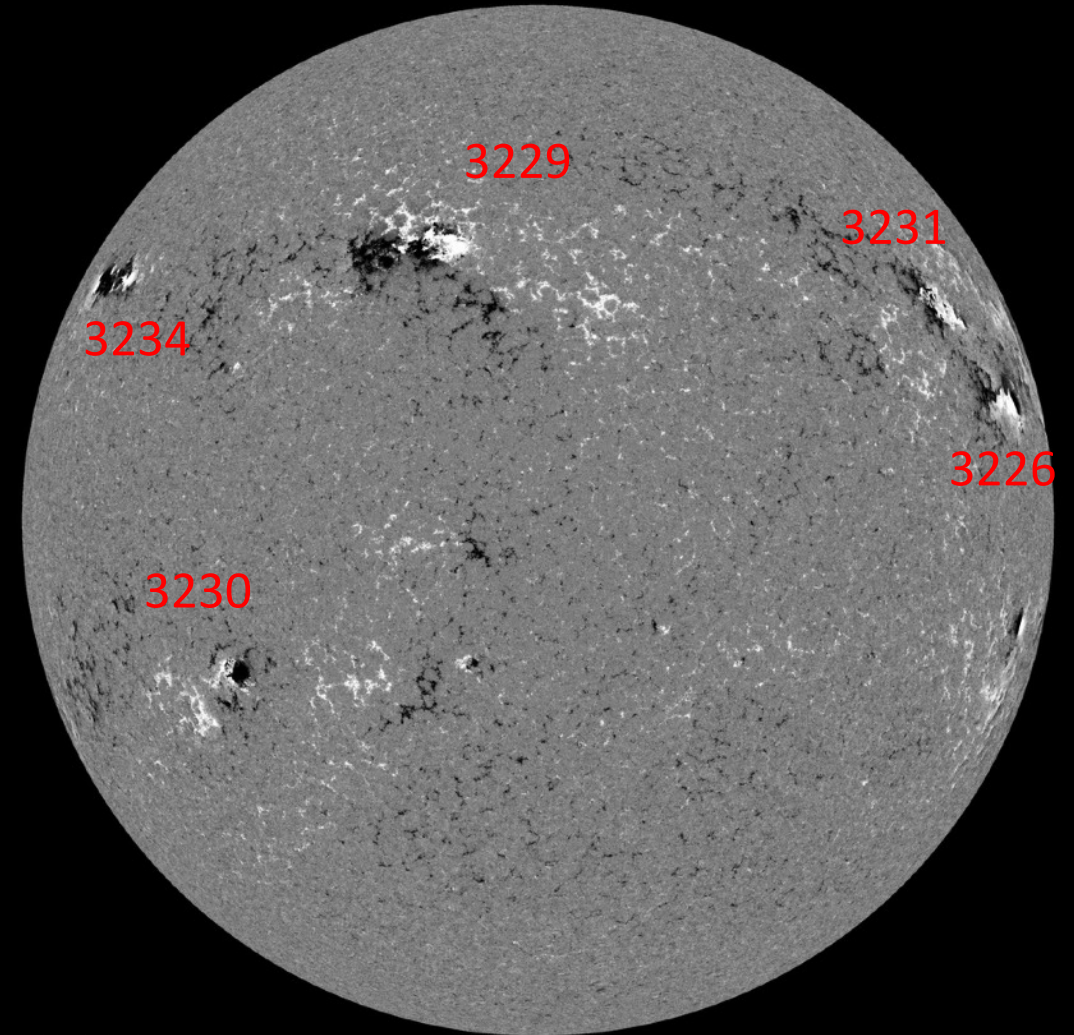
Solar active regions

SDO/HMI White Light 2023-02-21



SDO/HMI Quick-Look Continuum: 20230221_114500

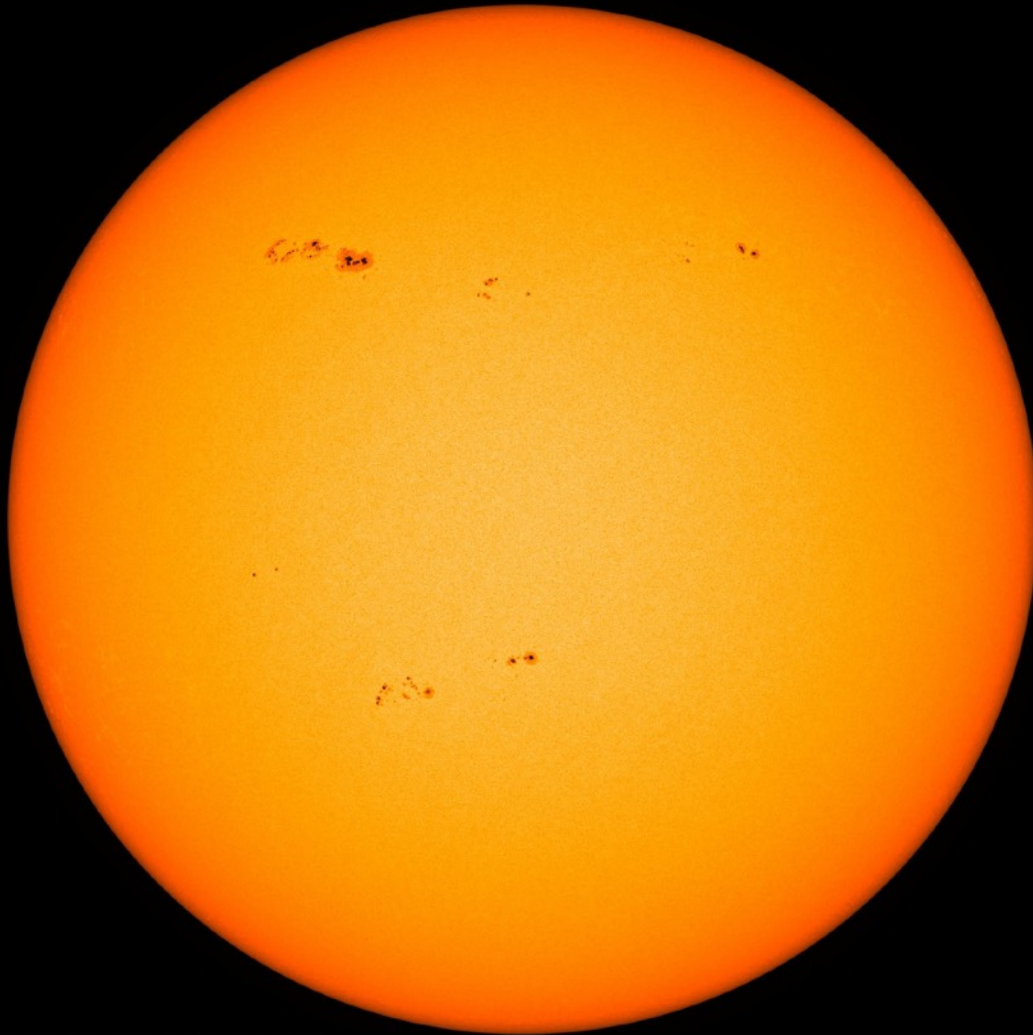
SDO/HMI Magnetogram 2023-02-21



SDO/HMI Quick-Look Magnetogram: 20230221_114500

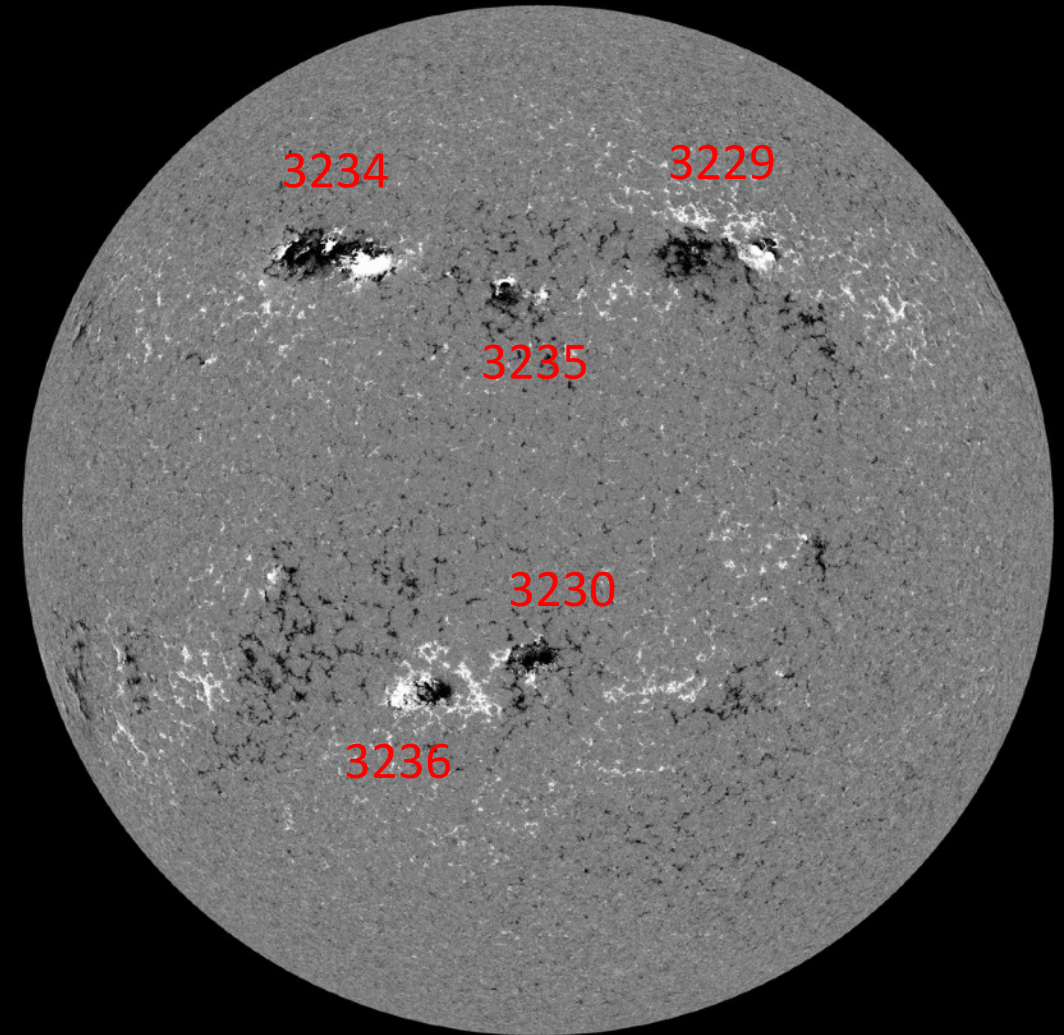
Solar active regions

SDO/HMI White Light 2023-02-24



SDO/HMI Quick-look Continuum: 20230224_114500

SDO/HMI Magnetogram 2023-02-24

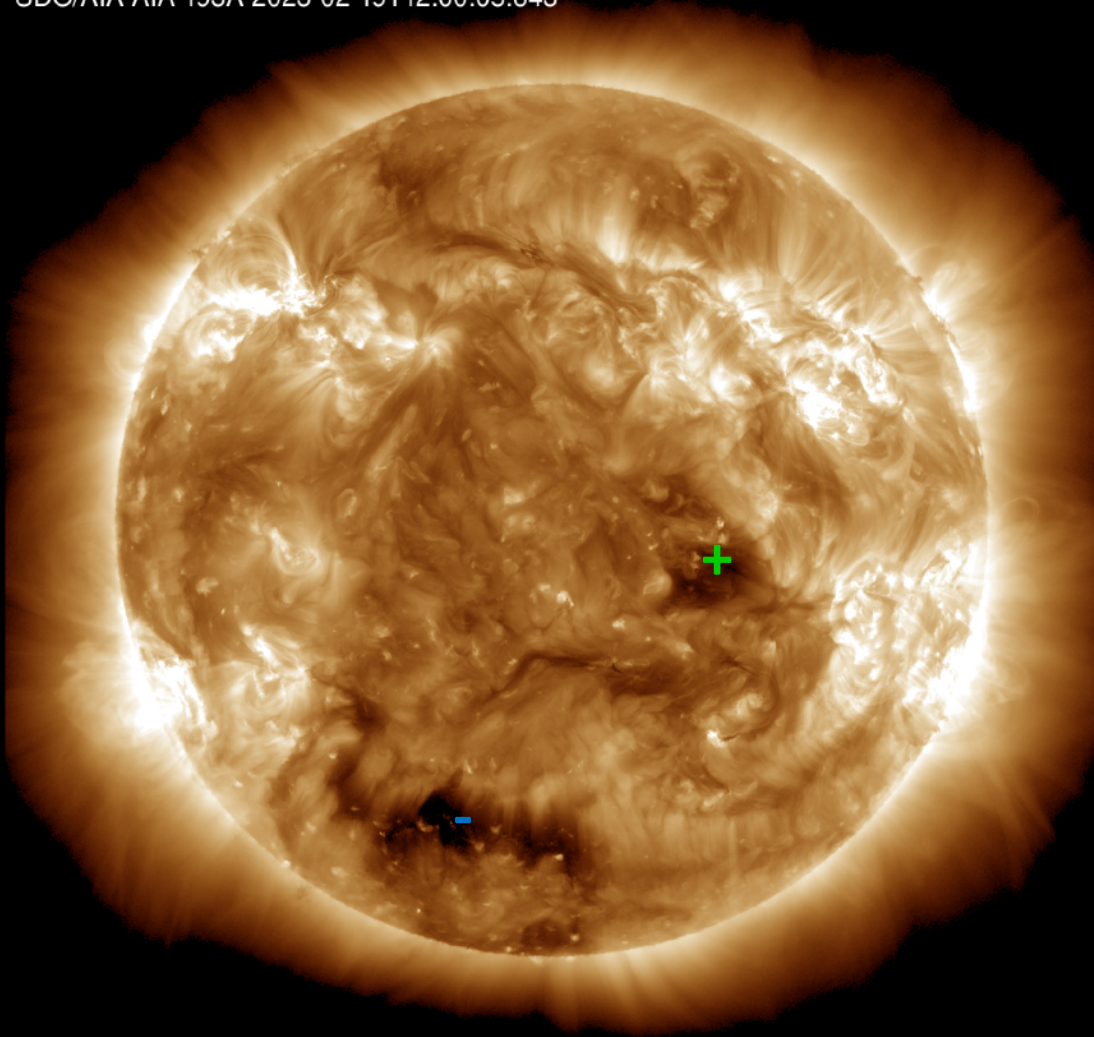


SDO/HMI Quick-look Magnetogram: 20230224_114500

Coronal holes

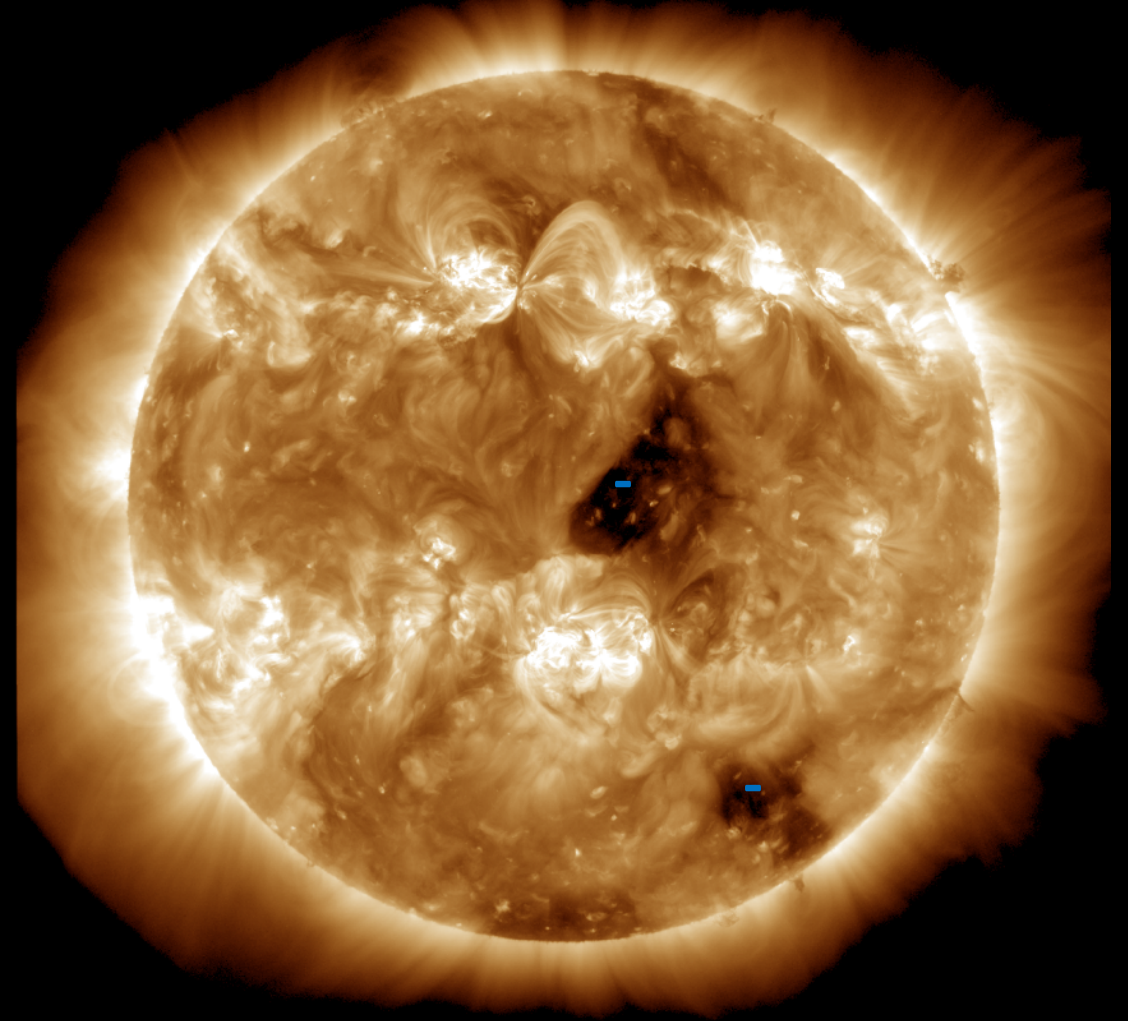
SDO/AIA 19.3 nm 2023-02-19

SDO/AIA AIA 193Å 2023-02-19T12:00:05.843



SDO/AIA 19.3 nm 2023-02-25

SDO/AIA AIA 193Å 2023-02-25T12:00:05.843



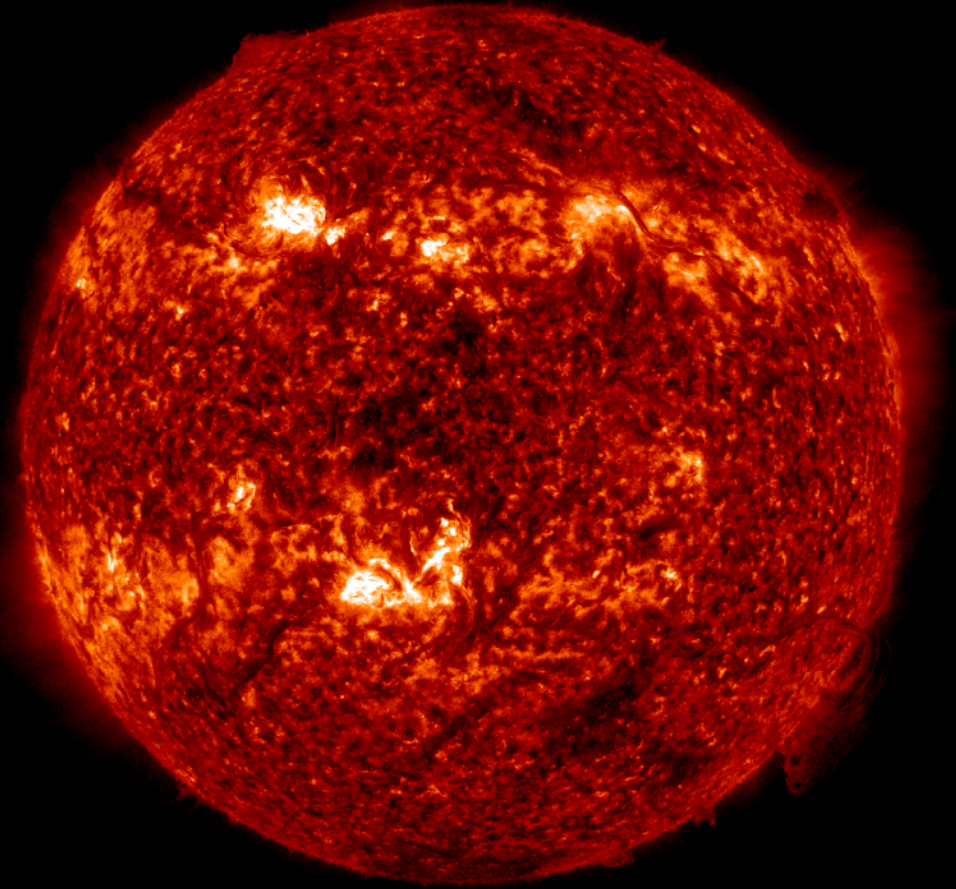
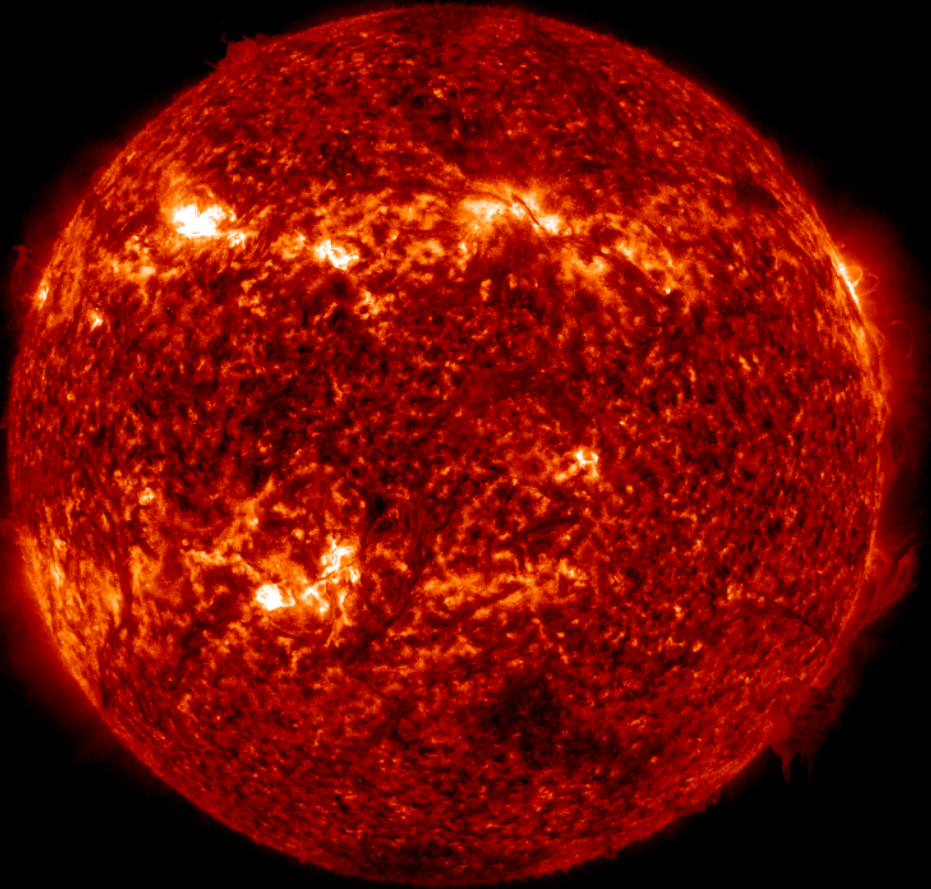
Filaments

SDO/AIA 30.4 nm 2023-02-23

SDO/AIA AIA 304Å 2023-02-23T12:00:06.580

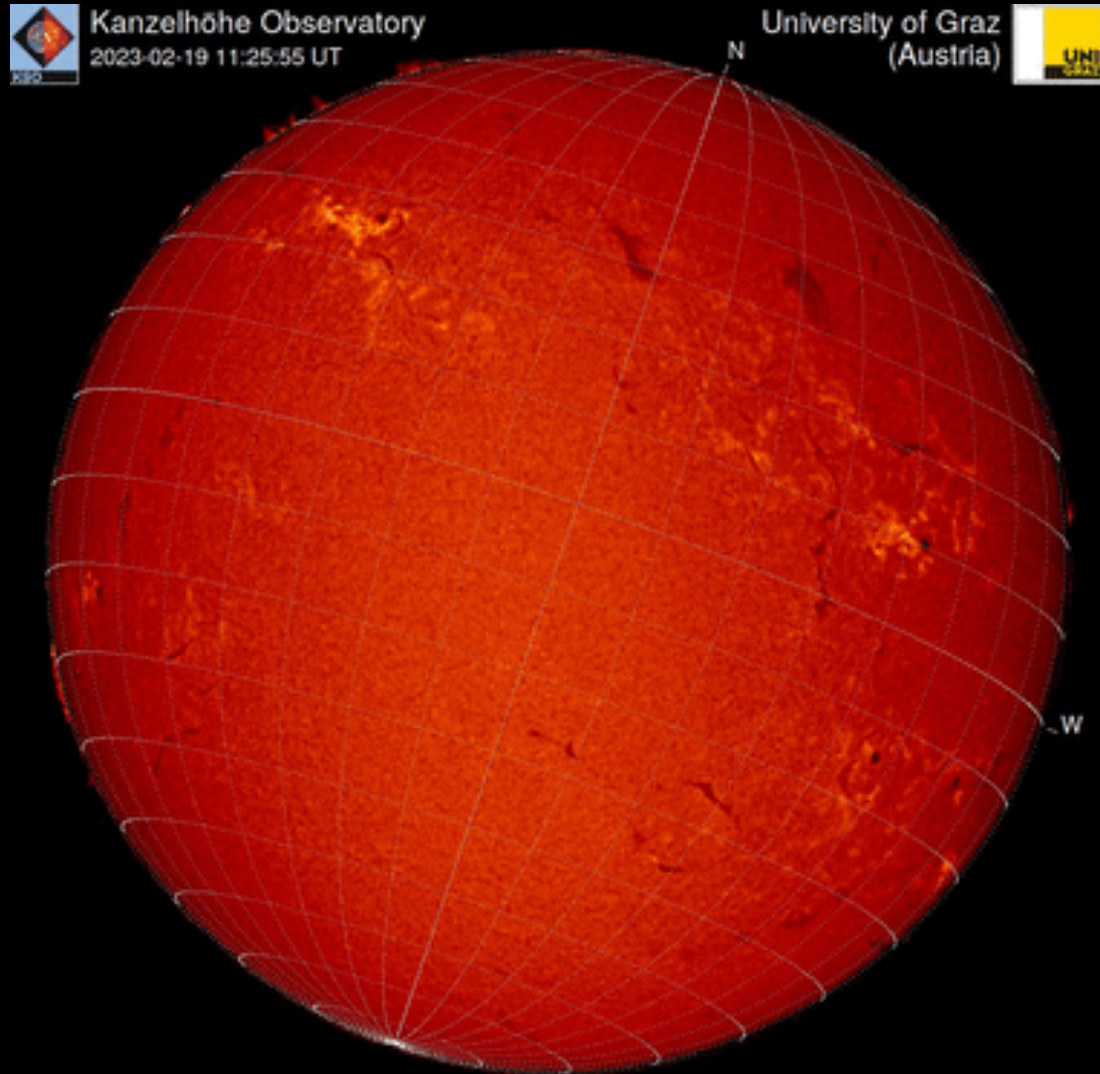
SDO/AIA 30.4 nm 2023-02-24

SDO/AIA AIA 304Å 2023-02-24T12:00:06.580

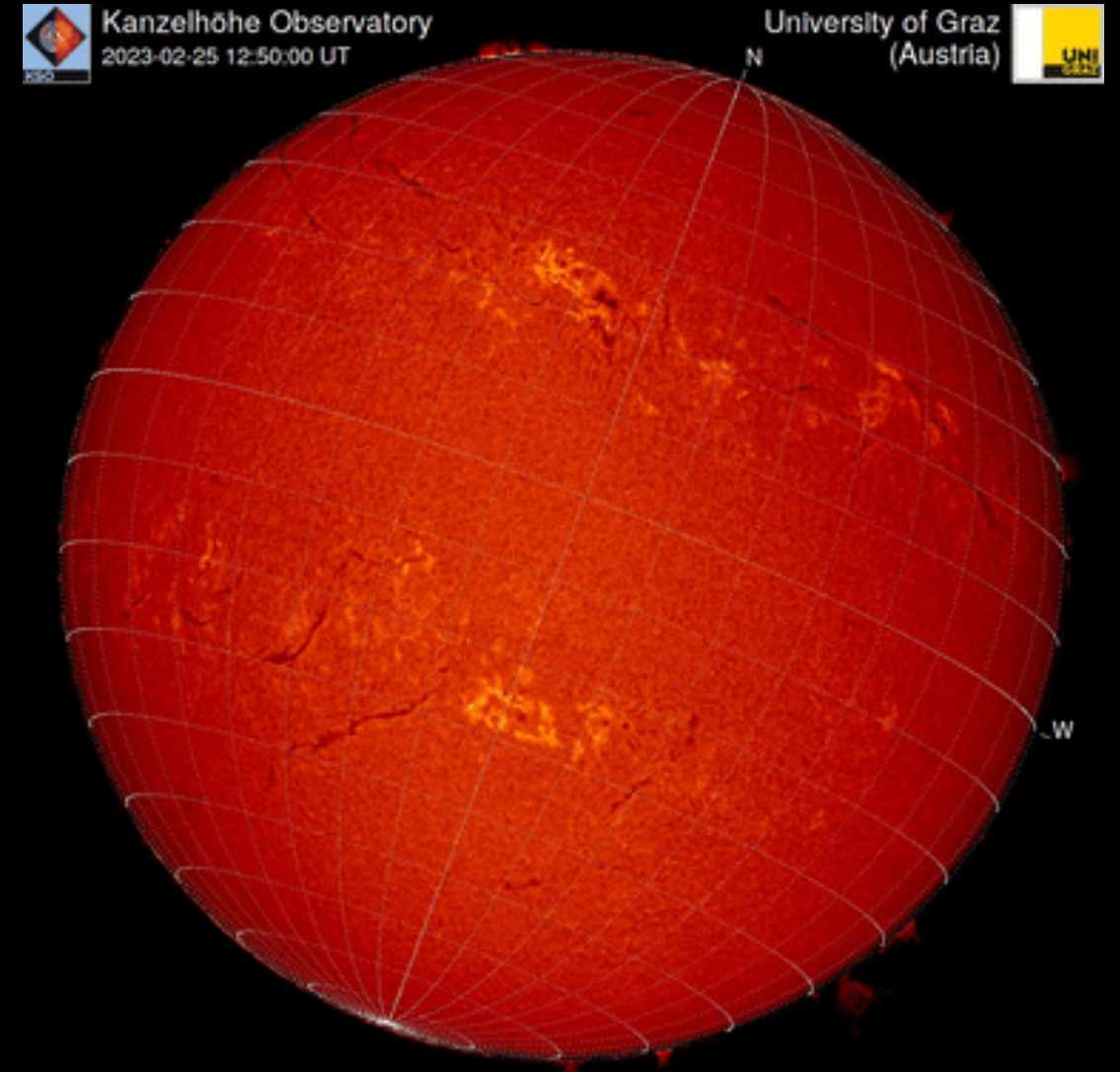


Filaments & Filament eruptions

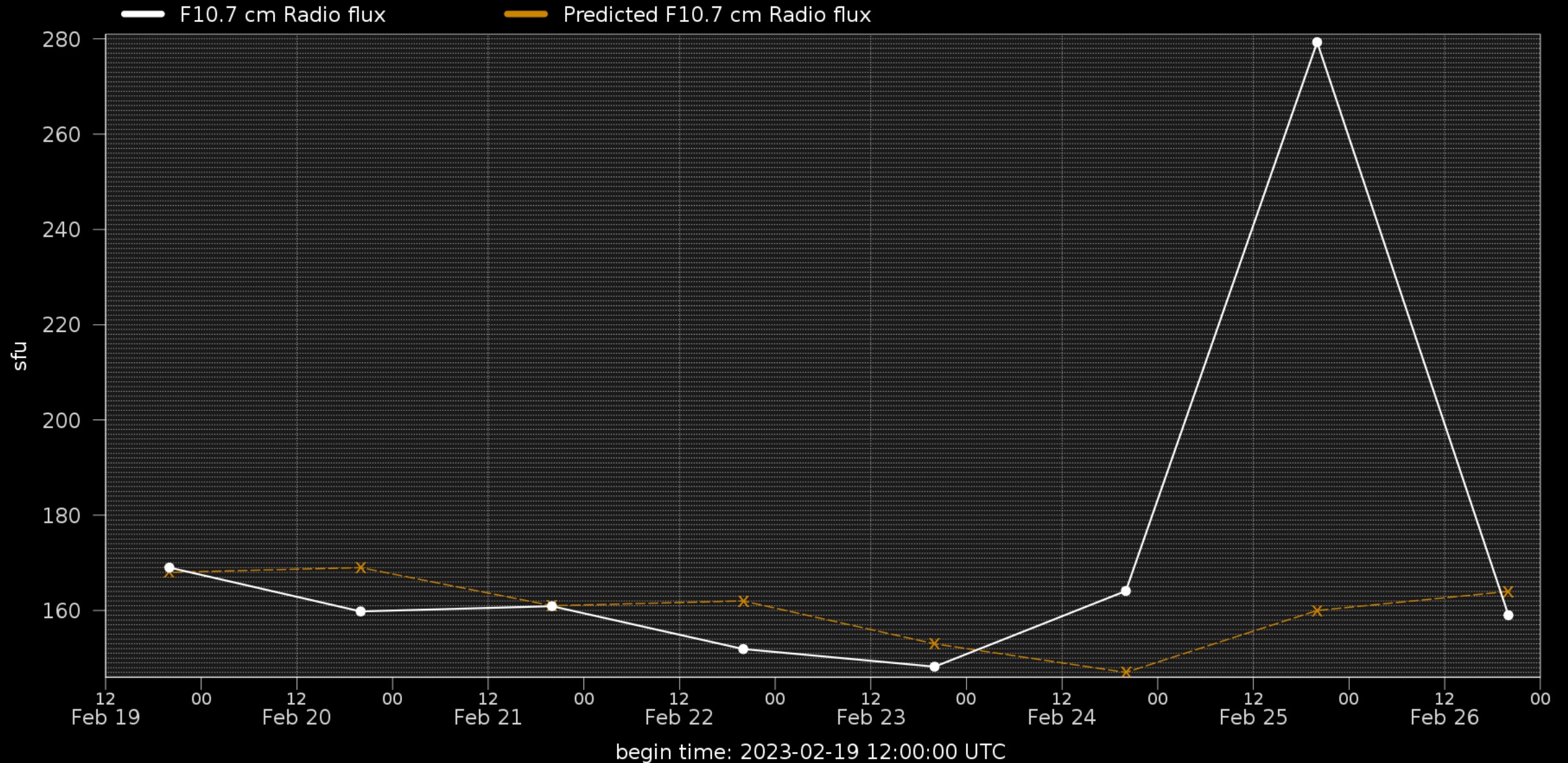
H-alpha 2023-02-19



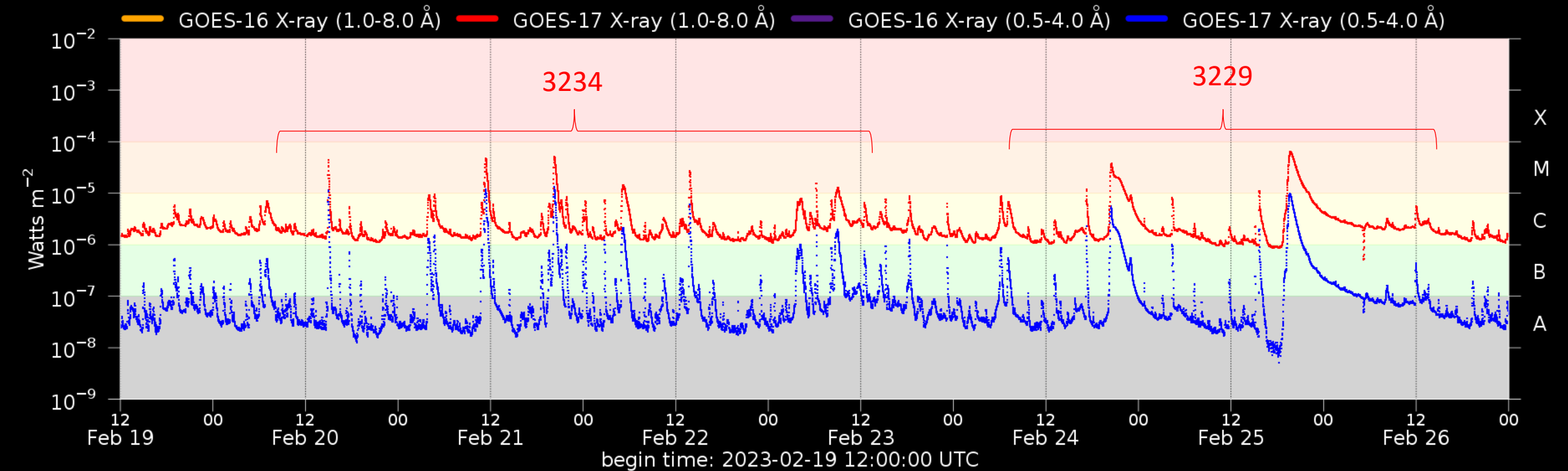
H-alpha 2023-02-26



Solar F10.7cm radio flux



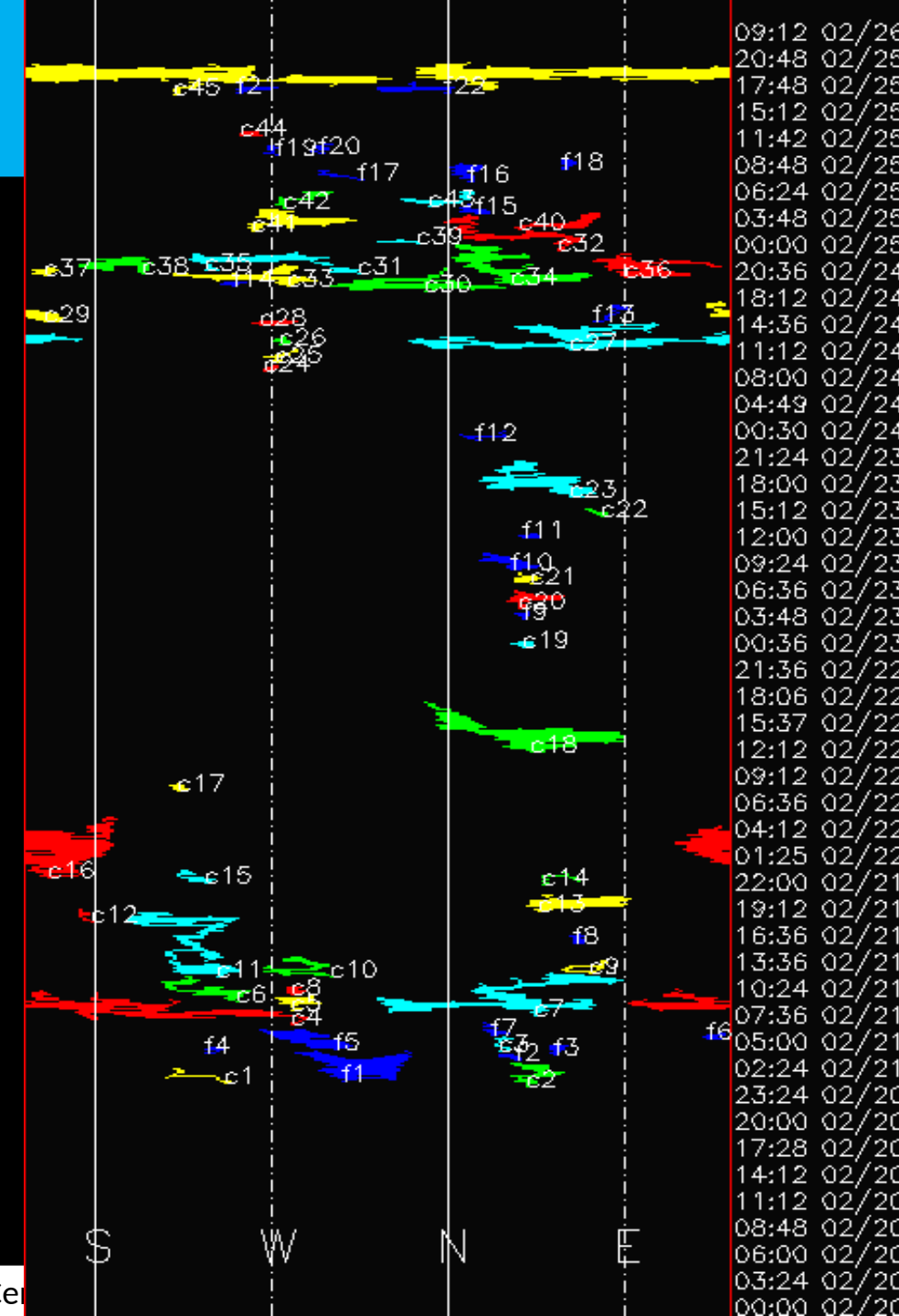
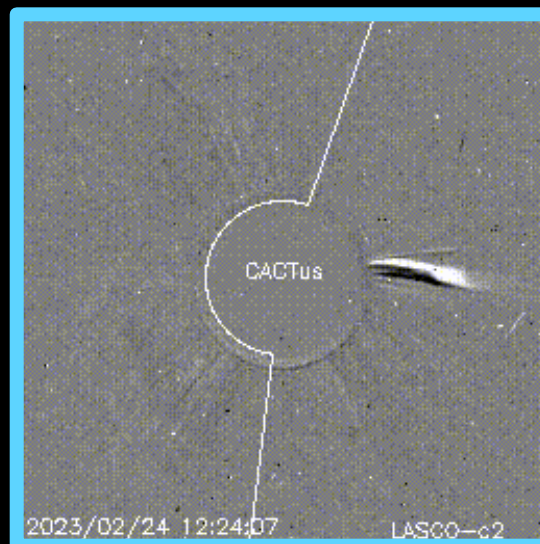
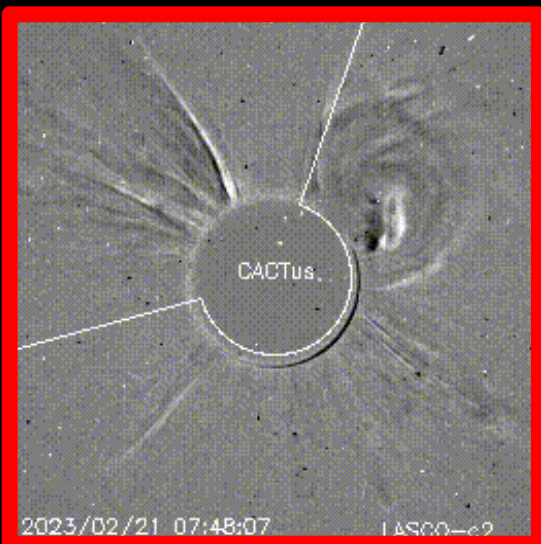
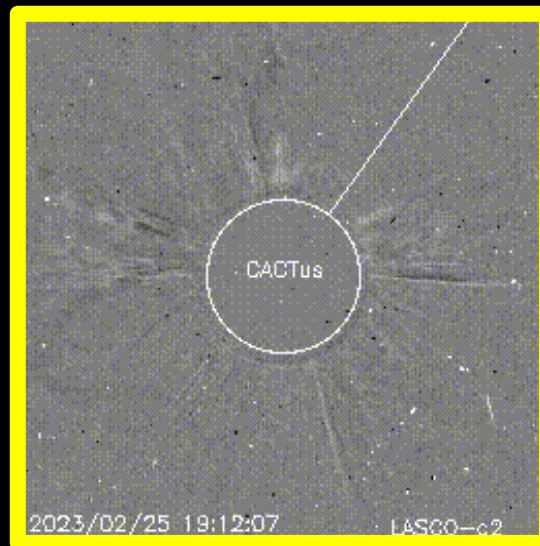
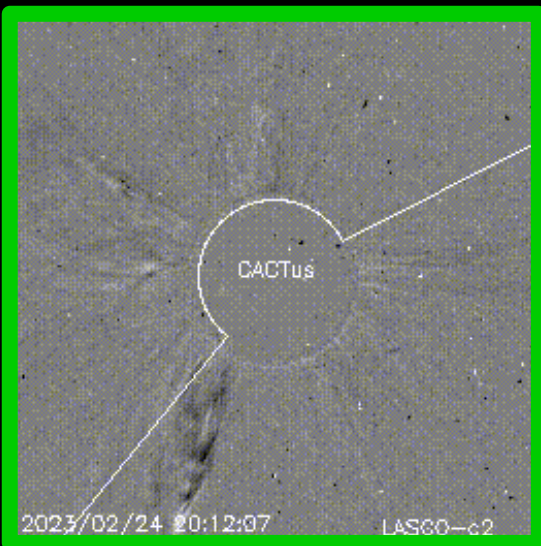
Flaring activity



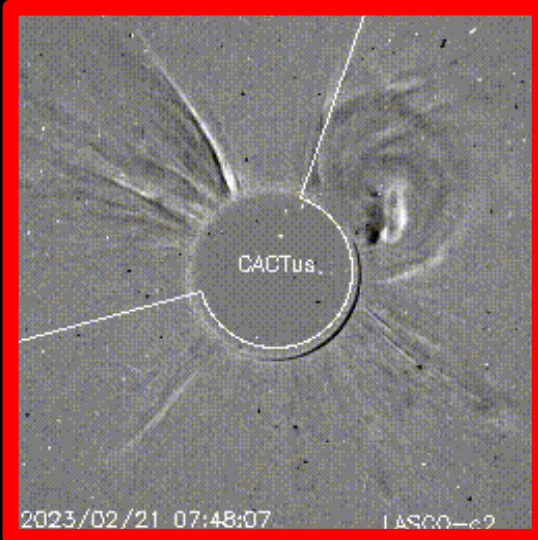
Probabilities (%) and occurrences (#) of C/M/X-flares daily, from noon to noon:

Issue date	2023-02-19	2023-02-20	2023-02-21	2023-02-22	2023-02-23	2023-02-24	2023-02-25	2023-02-26
Probability (%)	99 50 15	95 50 15	95 45 10	95 50 10	95 55 20	95 45 10	95 55 15	99 55 15
Observed (#)	10 00 00	08 02 00	13 02 00	06 03 00	10 00 00	05 01 00	00 02 00	04 00 00

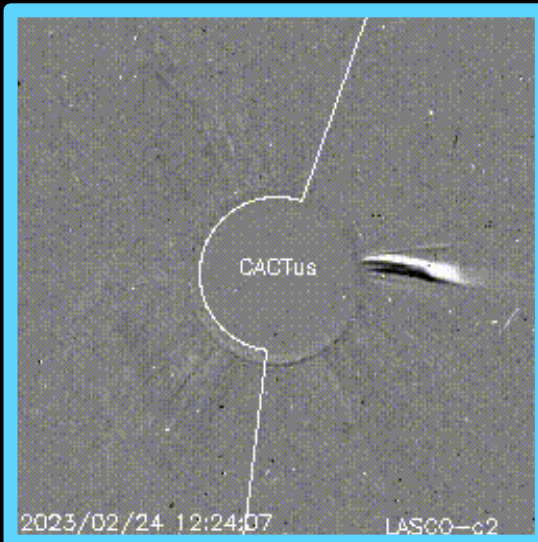
Coronal Mass Ejections



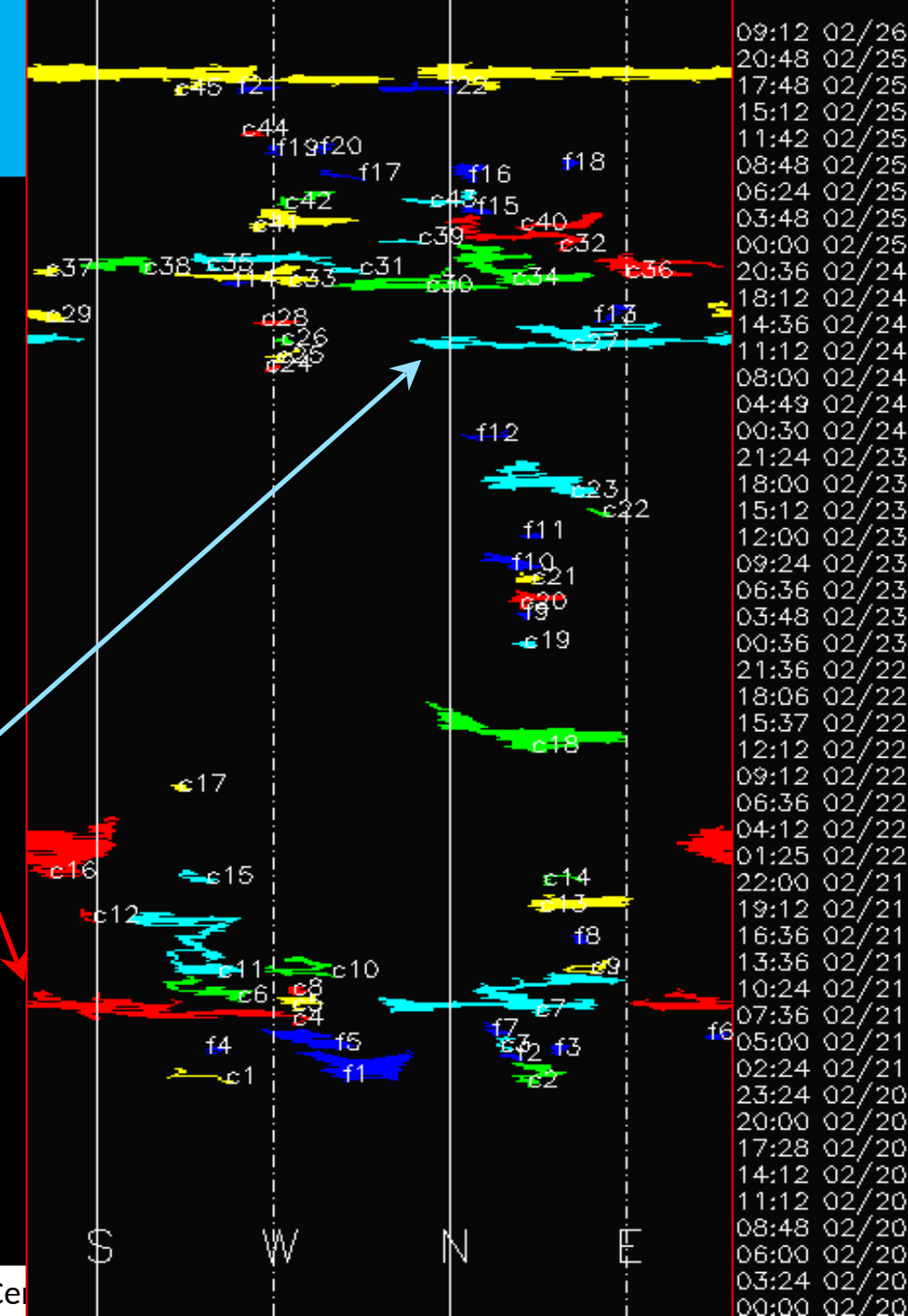
Coronal Mass Ejections



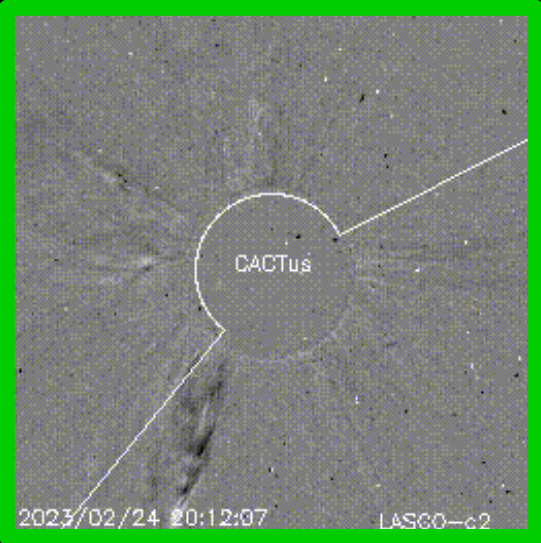
Partial Halo to the south-west judged to be back-sided



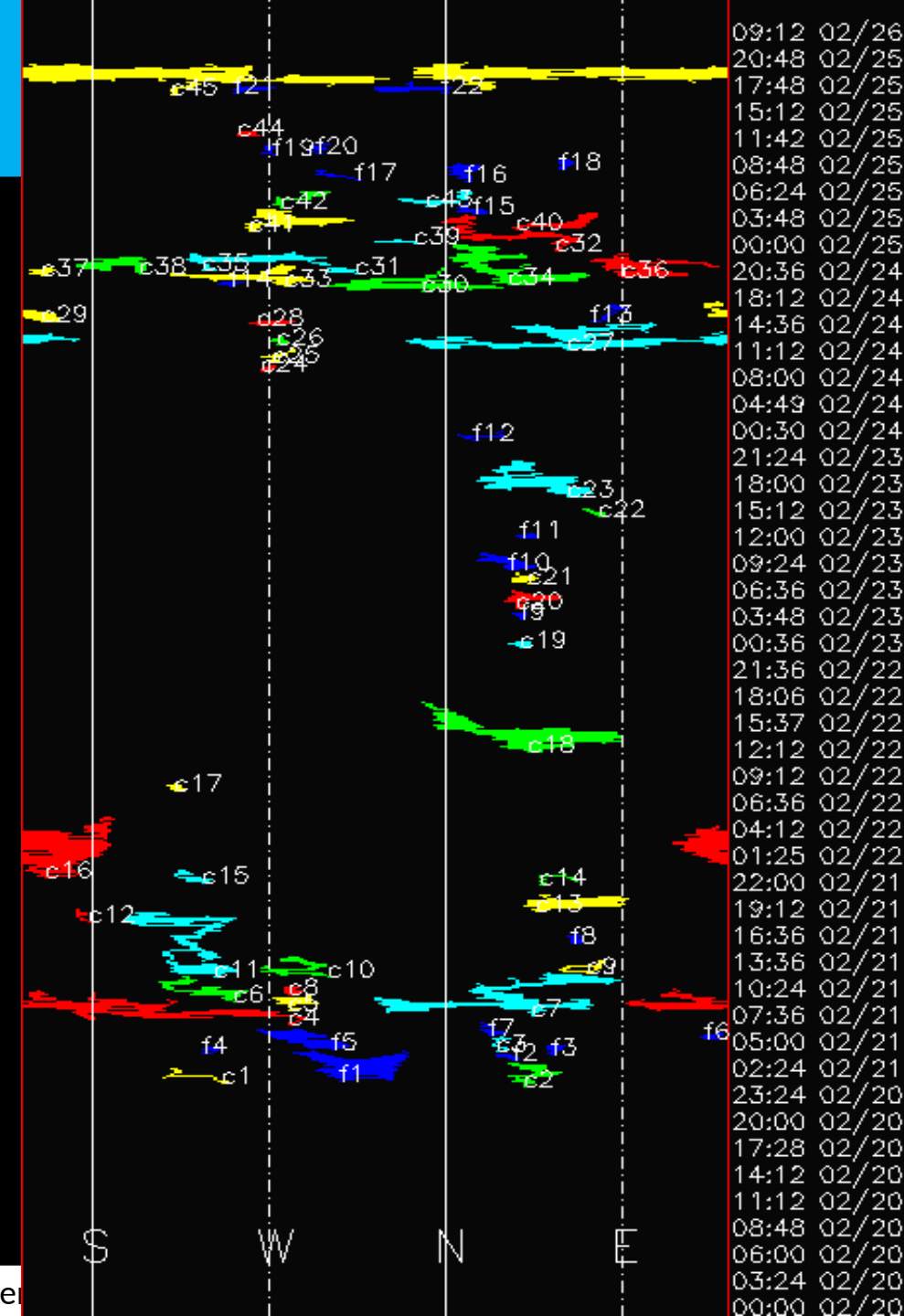
Partial Halo to the north-east judged to be back-sided



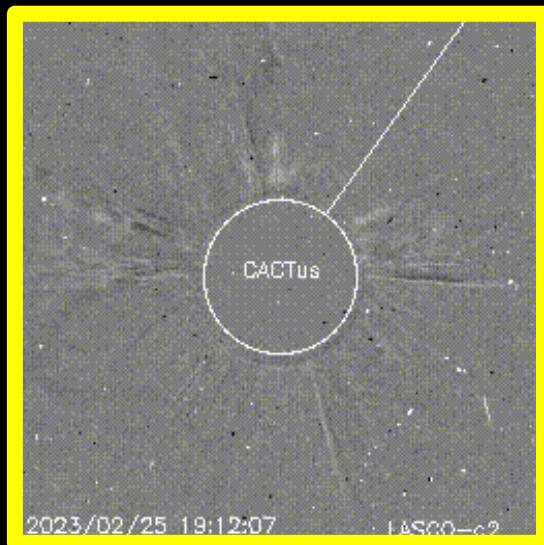
Coronal Mass Ejections



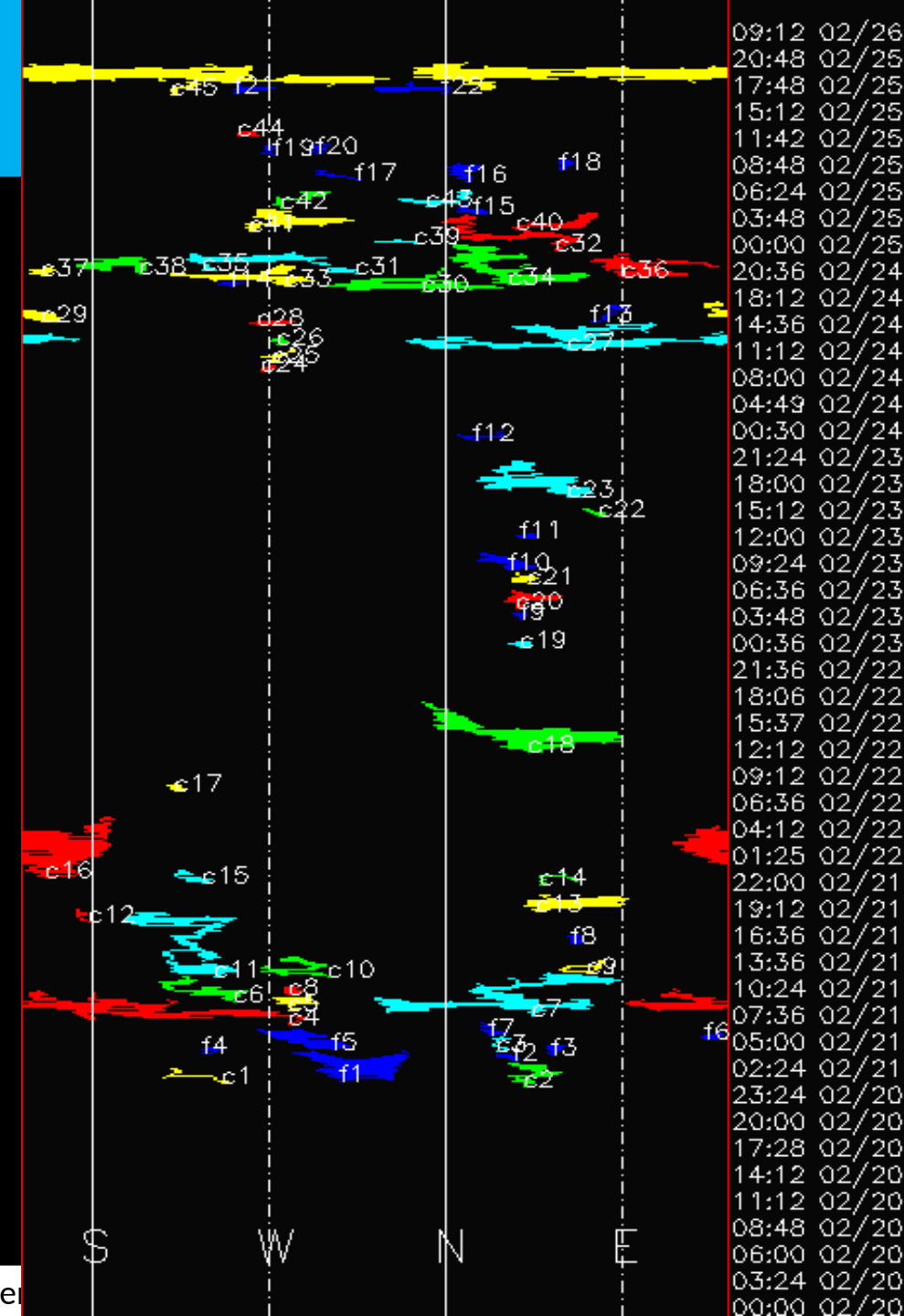
A-symmetric full halo towards north west
associated to M3.7 flare (24/20:30Z)
from NOAA AR 3229.
SoHO/LASCO C2 entry 24/20:36Z.
Projected speed around 1000-1100km/s.
Earth-directed: estimated arrival late 26



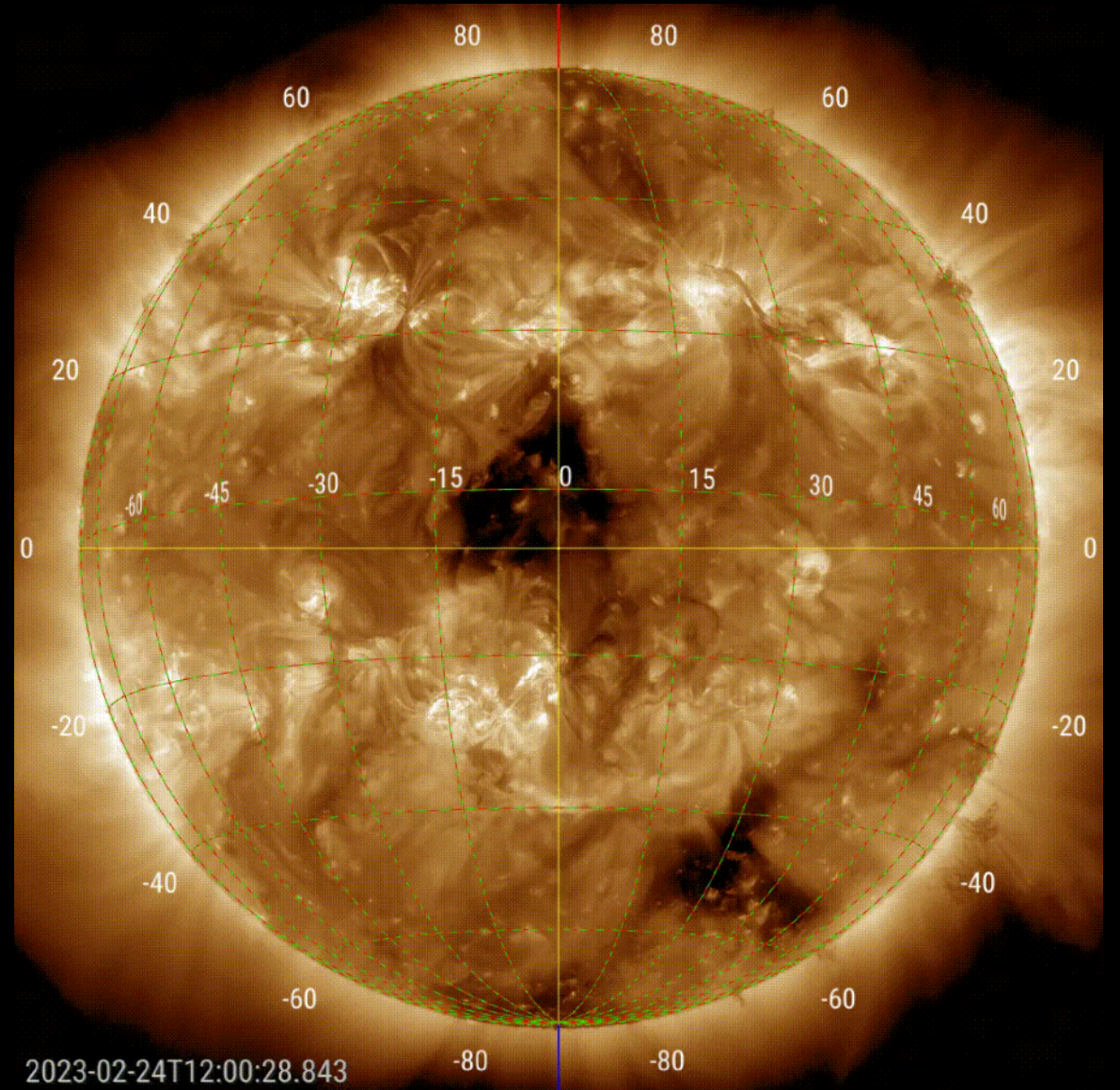
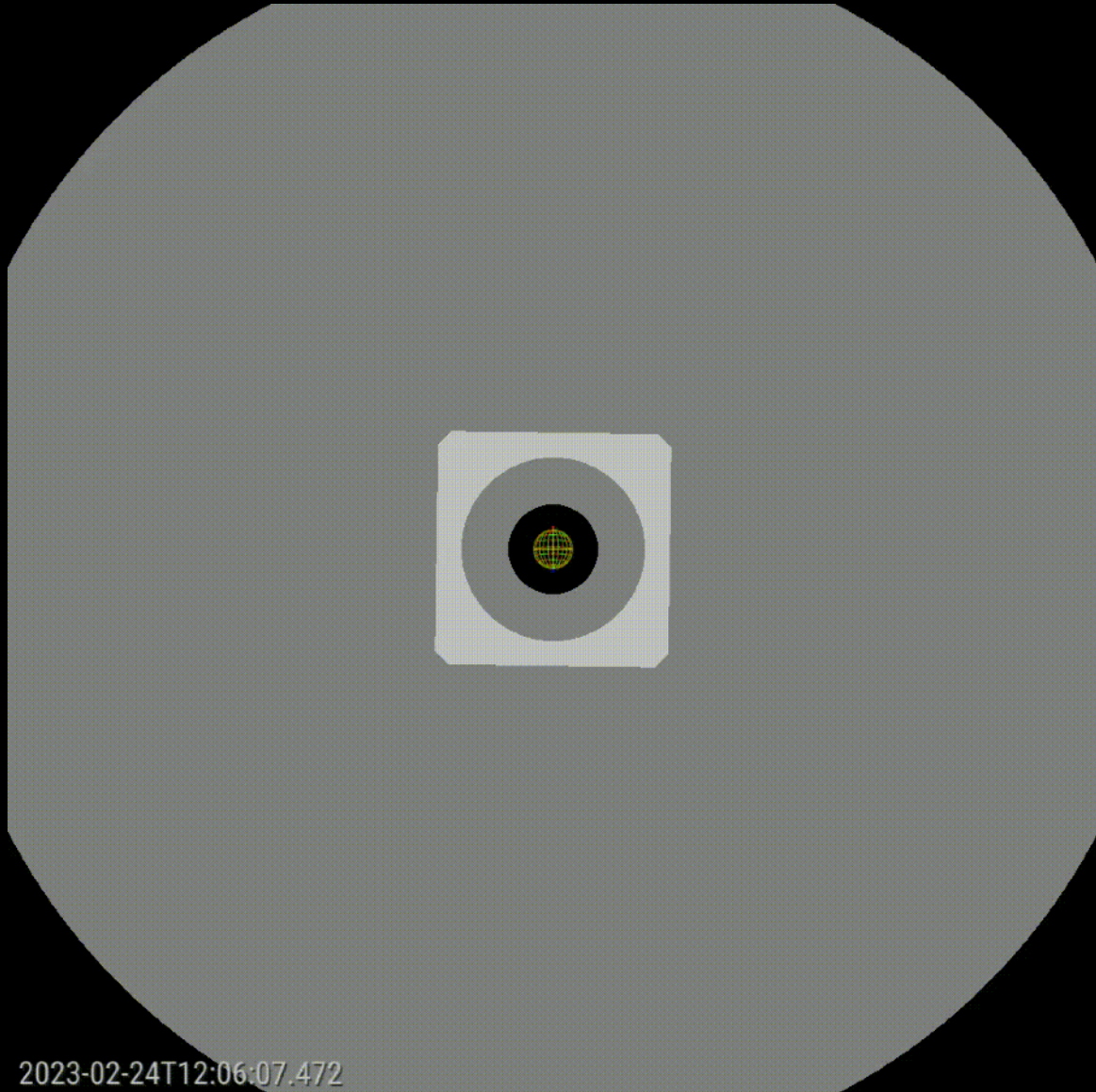
Coronal Mass Ejections



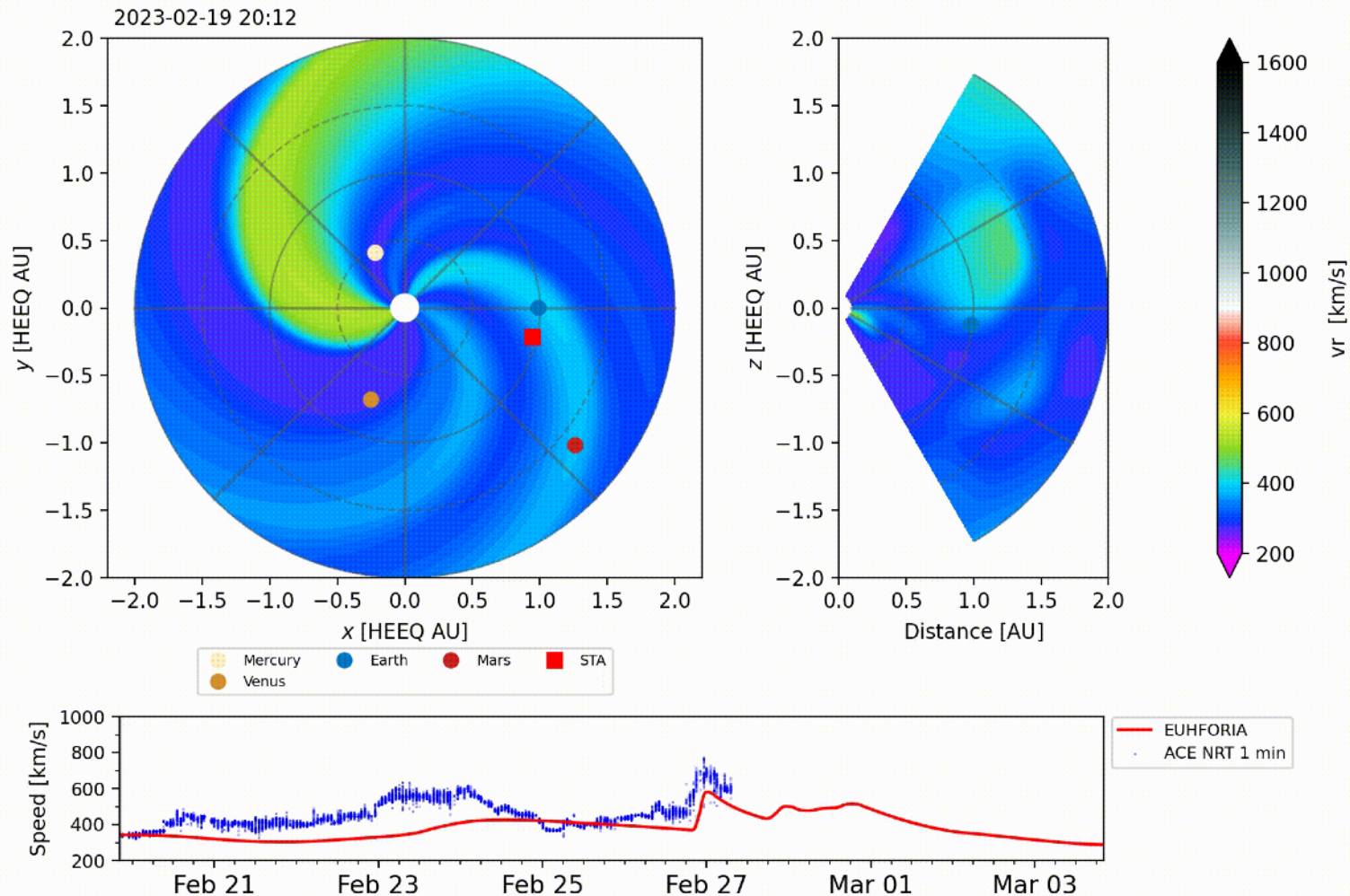
A-symmetric full halo towards north west
associated to M6.3 flare (25/19:44Z)
from NOAA AR 3229.
SoHO/LASCO C2 entry 25/19:36Z.
Projected speed around 1000-1100km/s.
Earth-directed: estimated arrival late 27



Coronal Mass Ejections



Coronal Mass Ejections



Estimated arrivals:

26/23:00 speed around 600 km/s

27/23:00 speed lower up to 500 km/s (less direct hit, almost glancing blow)

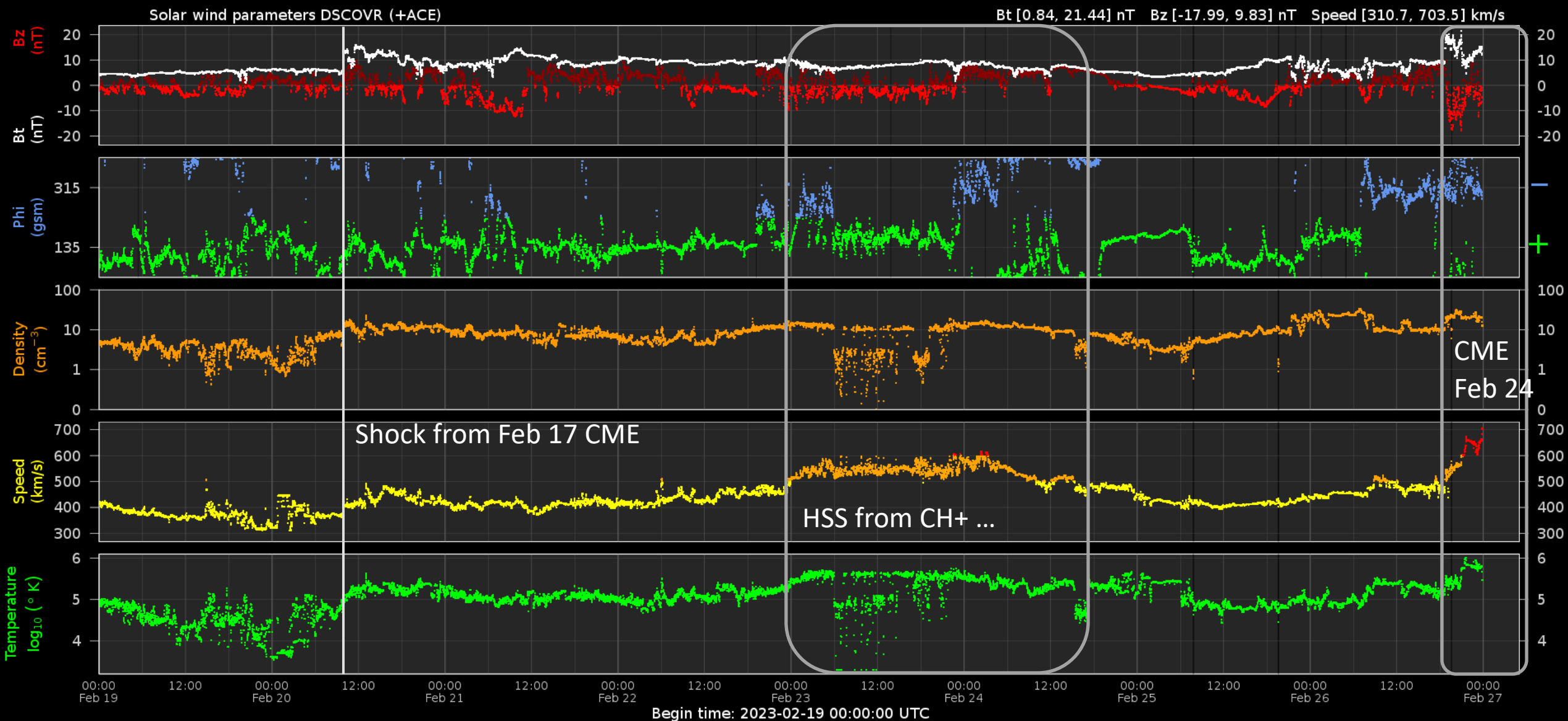
Solar Wind and Geomagnetic Activity



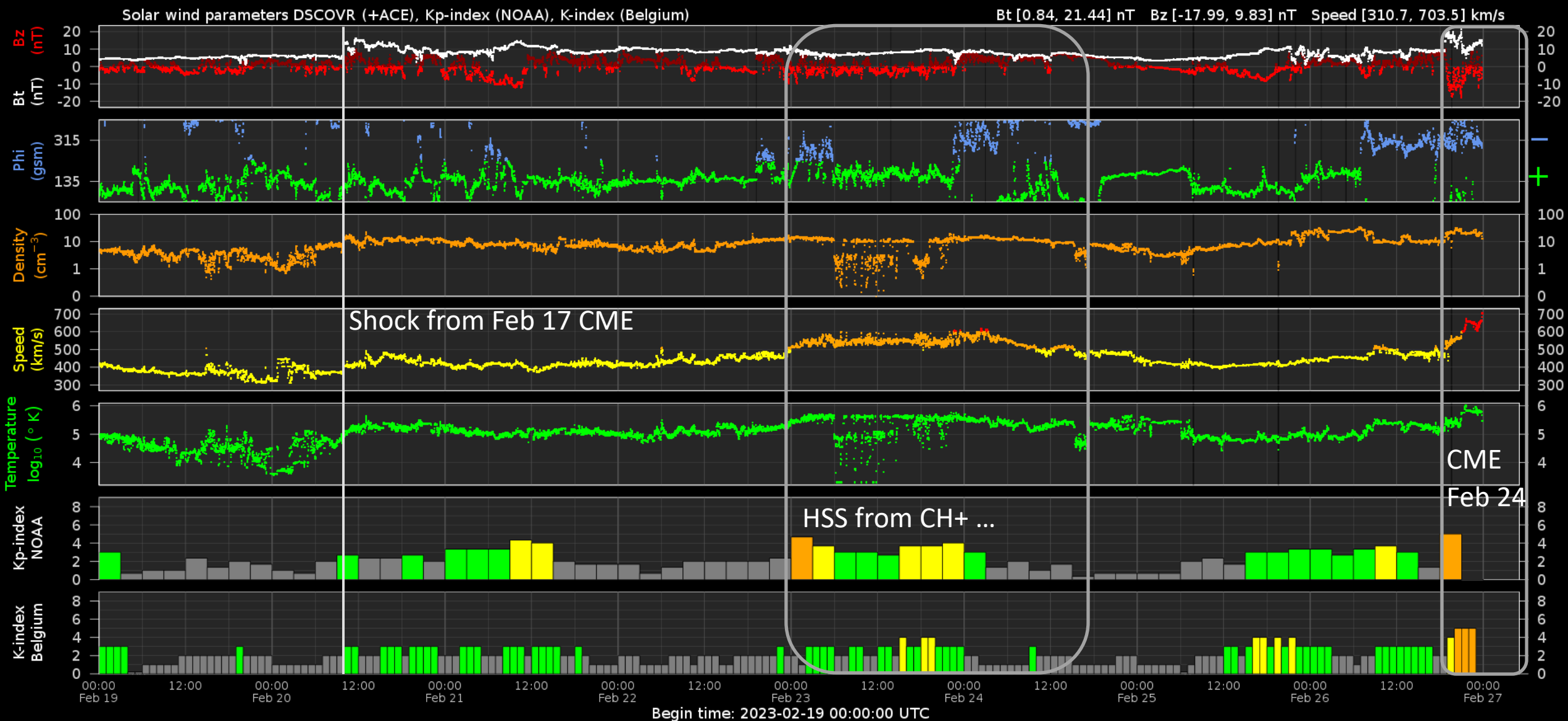
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Solar wind parameters



Solar wind parameters & K-indices



Geomagnetic activity (K-indexes)



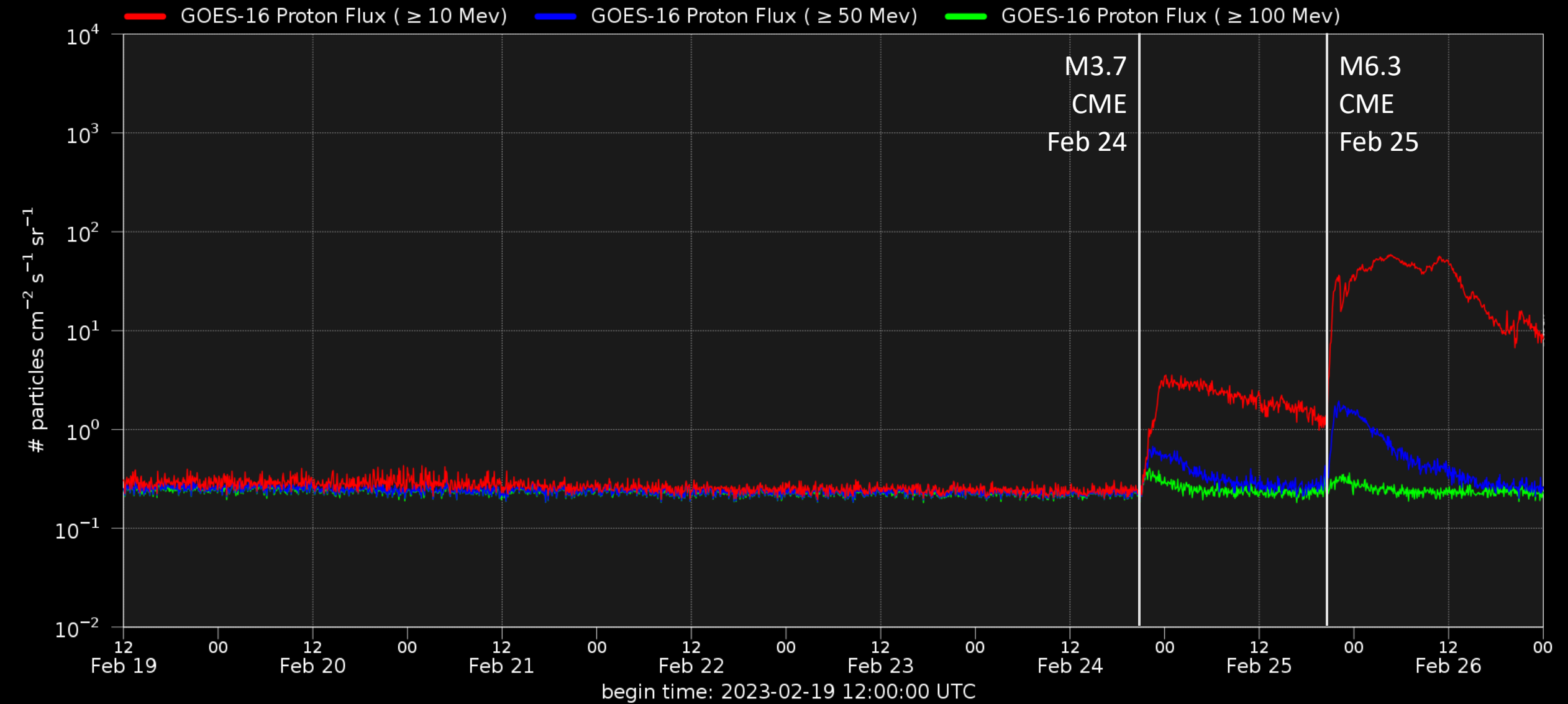
Energetic Particles



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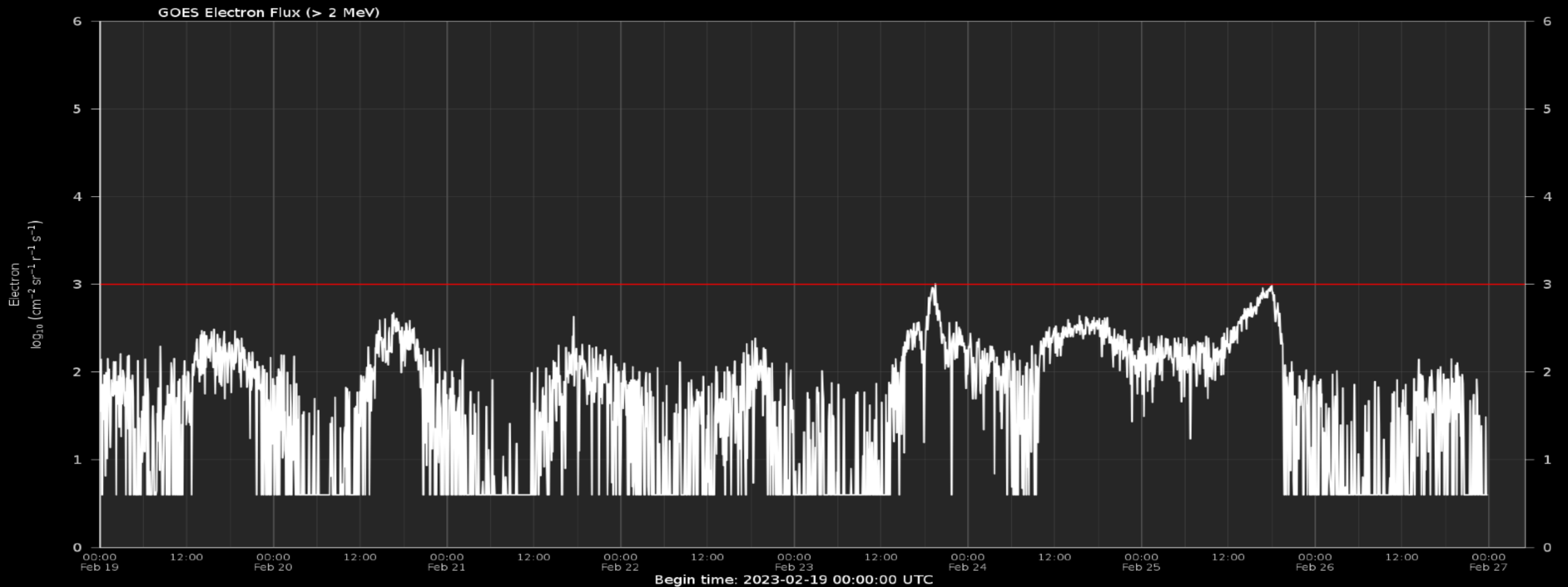
Solar proton flux



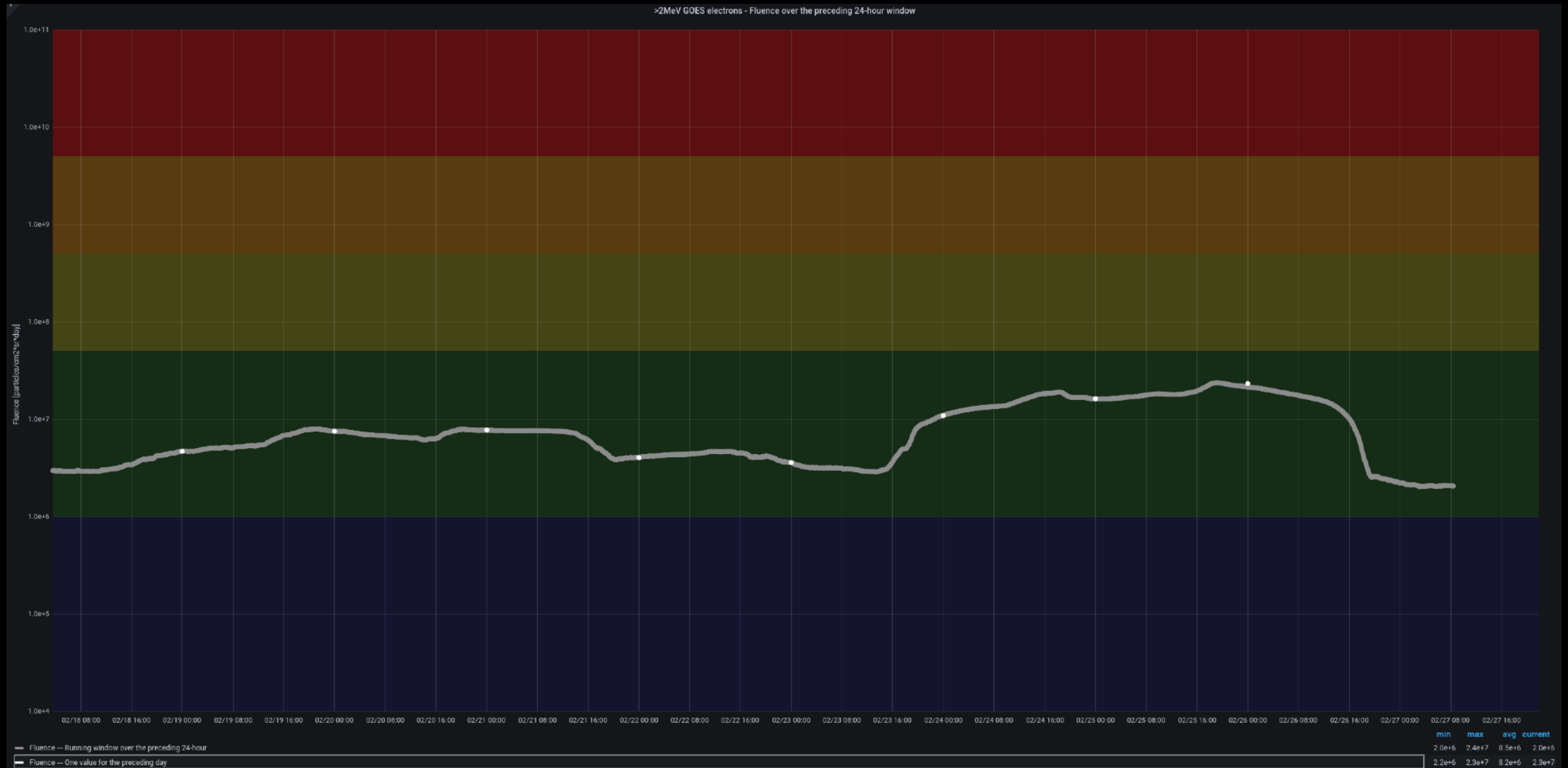
Electron flux at GEO

www.stce.be/educational/classification#electrons

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



Electron flux at GEO



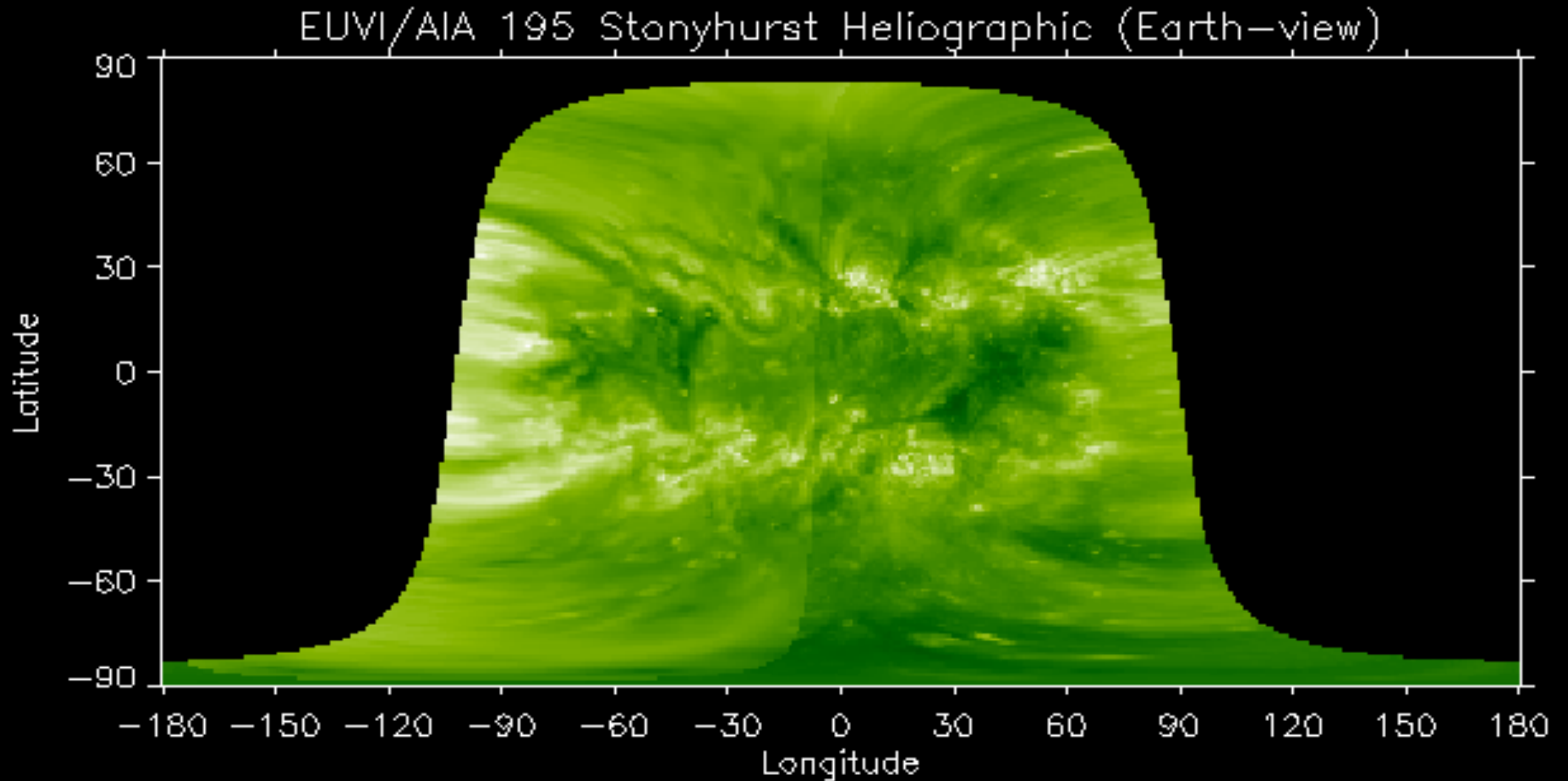
Outlook



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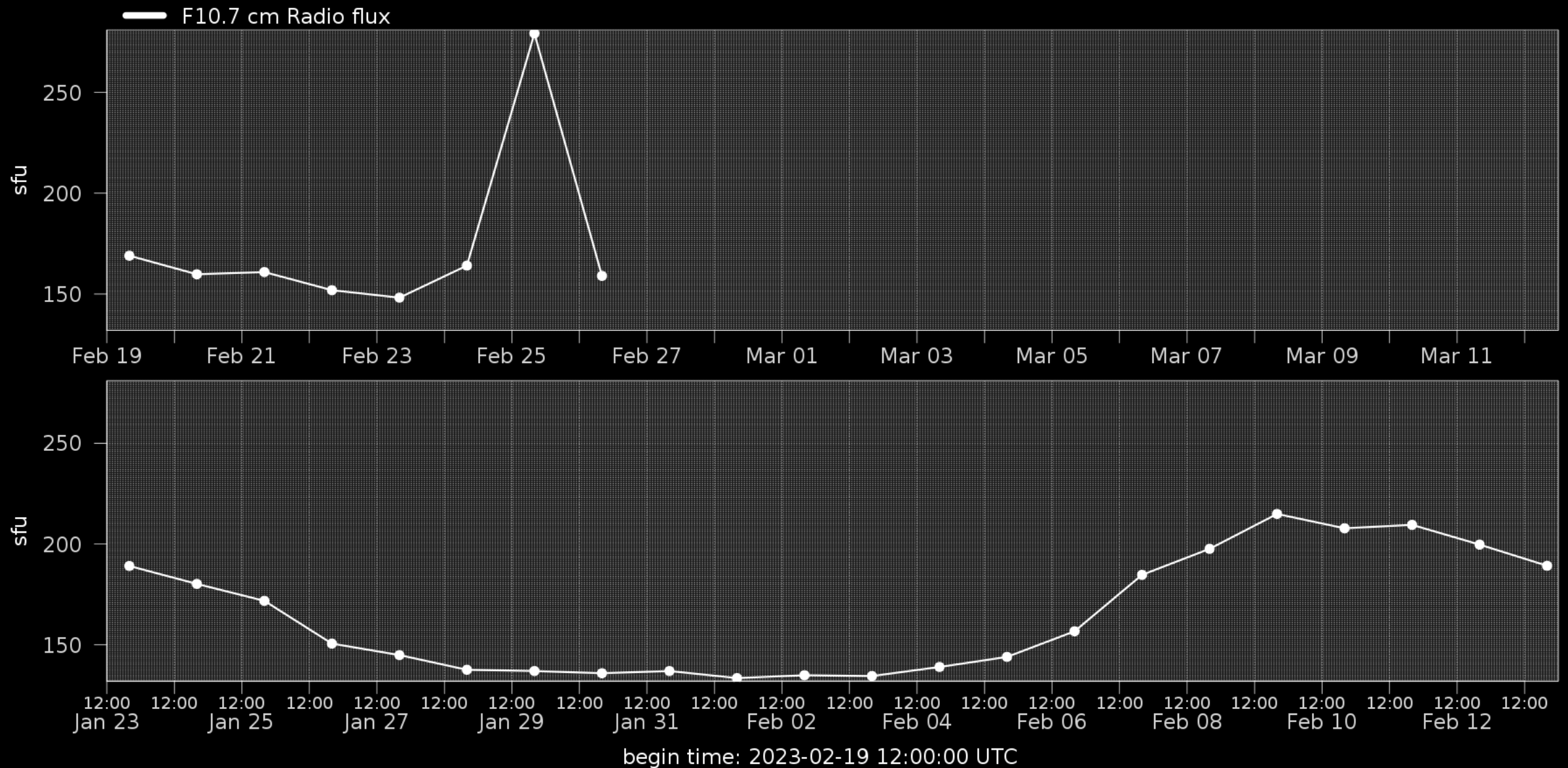
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Outlook: Solar activity

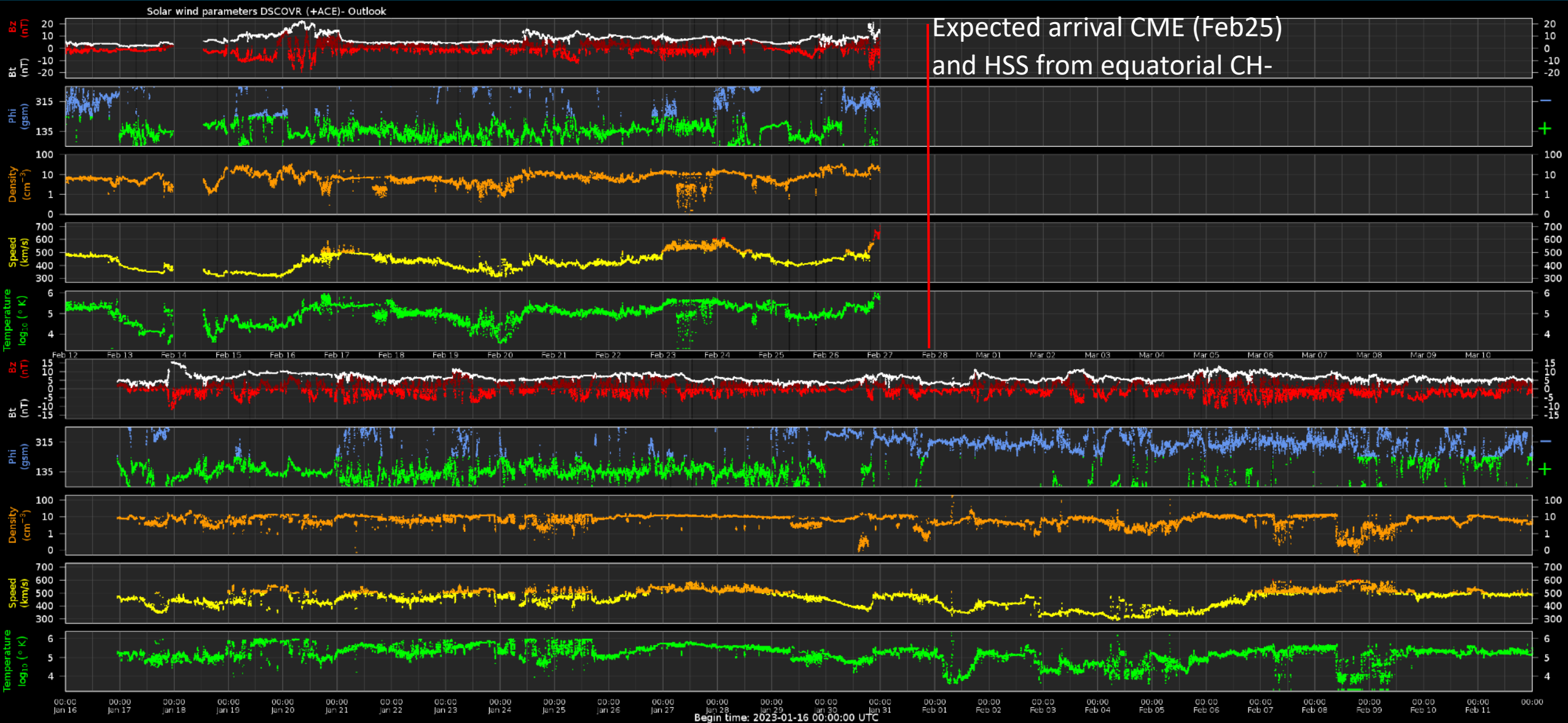


Observation date: 2023/02/26 23:05:00

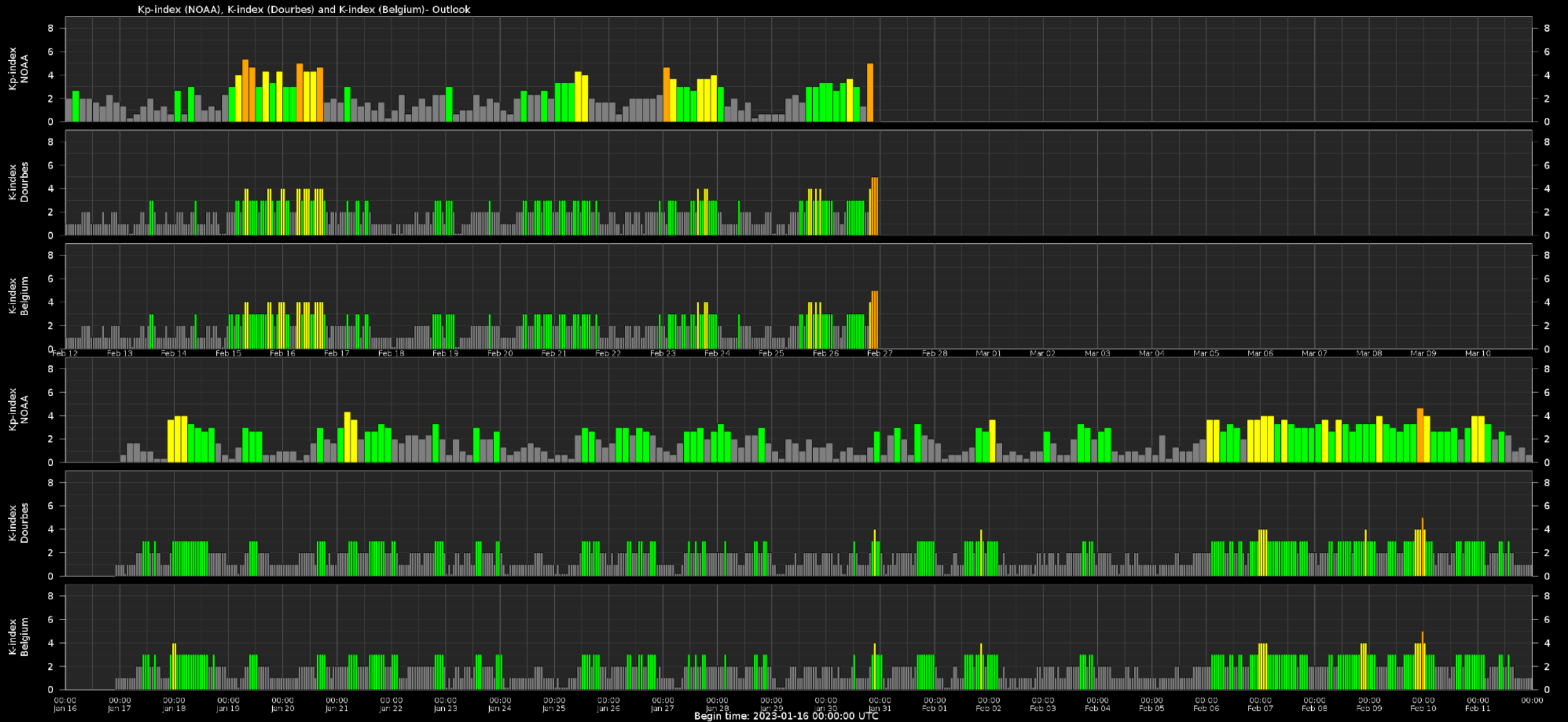
Outlook: Solar F10.7cm radio flux



Outlook: Solar wind parameters



Outlook: Geomagnetic activity



Outlook: Electron Flux at GEO Outlook



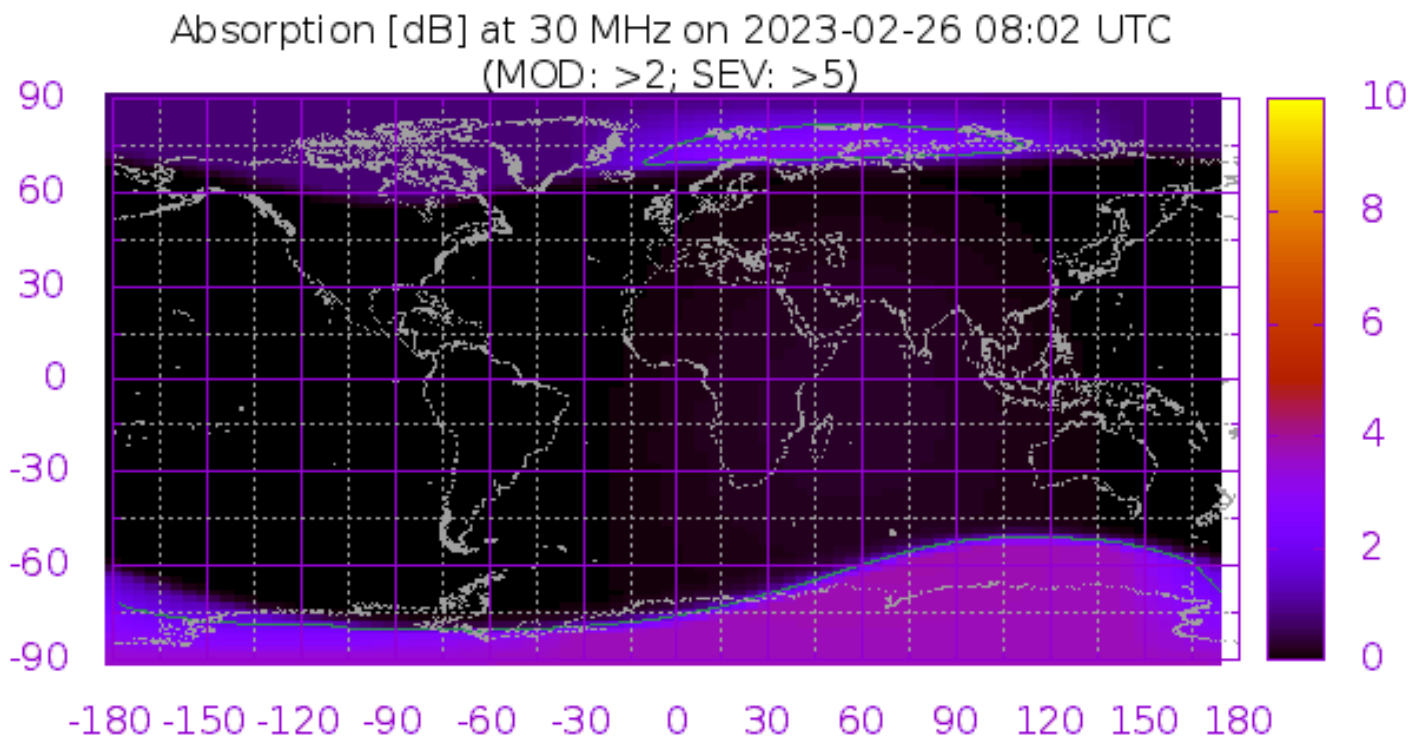
ICAO service



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PCA HF advisories



Advisories for Moderate HF polar CAP absorption since 25/2145Z, closed this morning 27/0825Z

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