

SIDC Space Weather Briefing

22 August 2021 - 29 August 2021

Jasmina Magdalenic

& the SIDC forecaster team



Royal Observatory
of Belgium

www.sidc.be

Summary Report

Solar activity from 2021-08-22 12:00 to 2021-08-29 23:59

Active regions	NOAA ARs 2858, 2859, 2860, 2861 and 2862
Flares	# C-class flare: 21 # M-class flare: 1 # X-class flare: 0
Filament eruptions	3 large filament eruptions, 2 from the northern hemisphere and 1 transequatorial
Coronal Holes	2 small positive polarity CHs in the first part of the week

Proton flux	At the background level
Electron flux	Crossed the 1000 pfu threshold on August 28 and stayed elevated

Solar wind and geomagnetic conditions

ICME	1 ICME associated with the 1 st filament eruption, arrived on August 27
SW Conditions	B : 0.5 - 16.44 nT // Bz: -15.5 nT to 8.45 nT // Speed: 287.1 - 557.0km/s
K-indices	max K-index (Dourbes): 4 max Kp-index (NOAA): 5

All Quiet Alert: no

Solar Activity

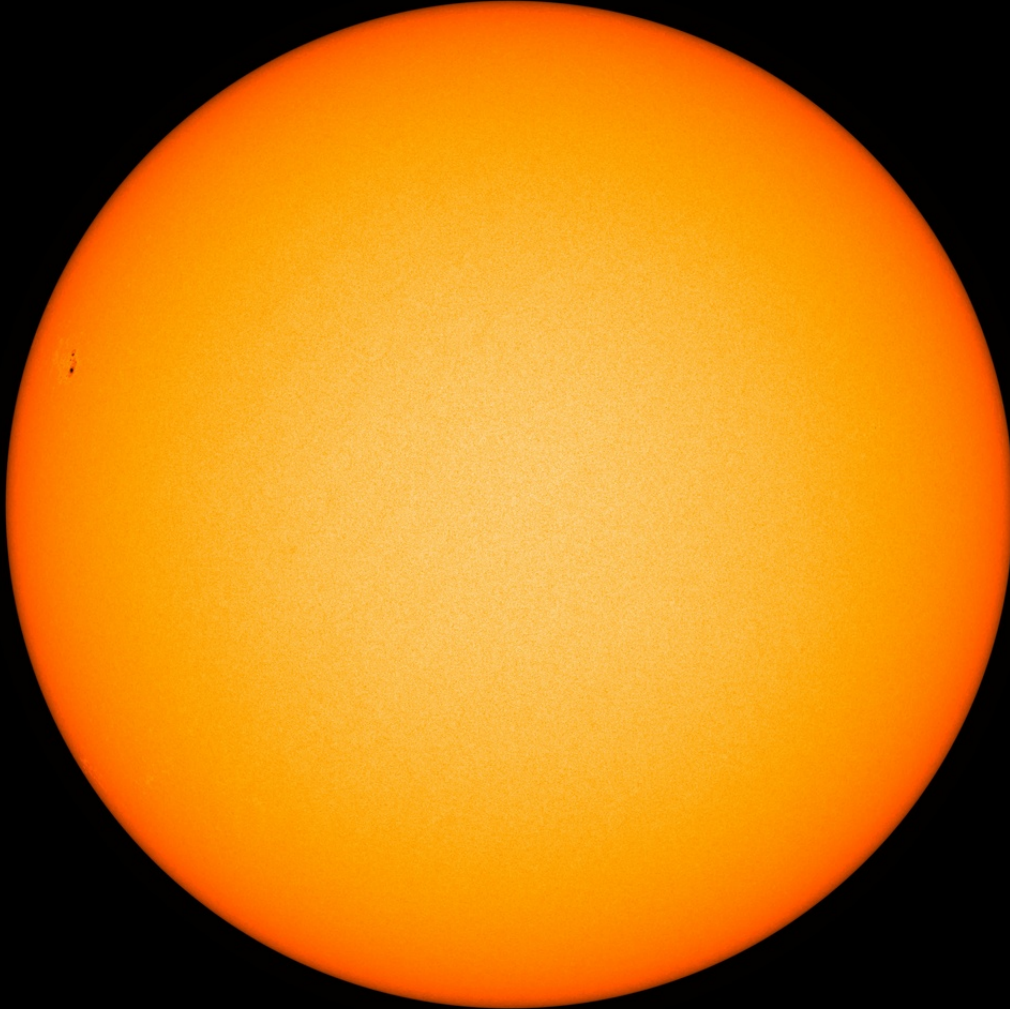


Royal Observatory
of Belgium

www.sidc.be

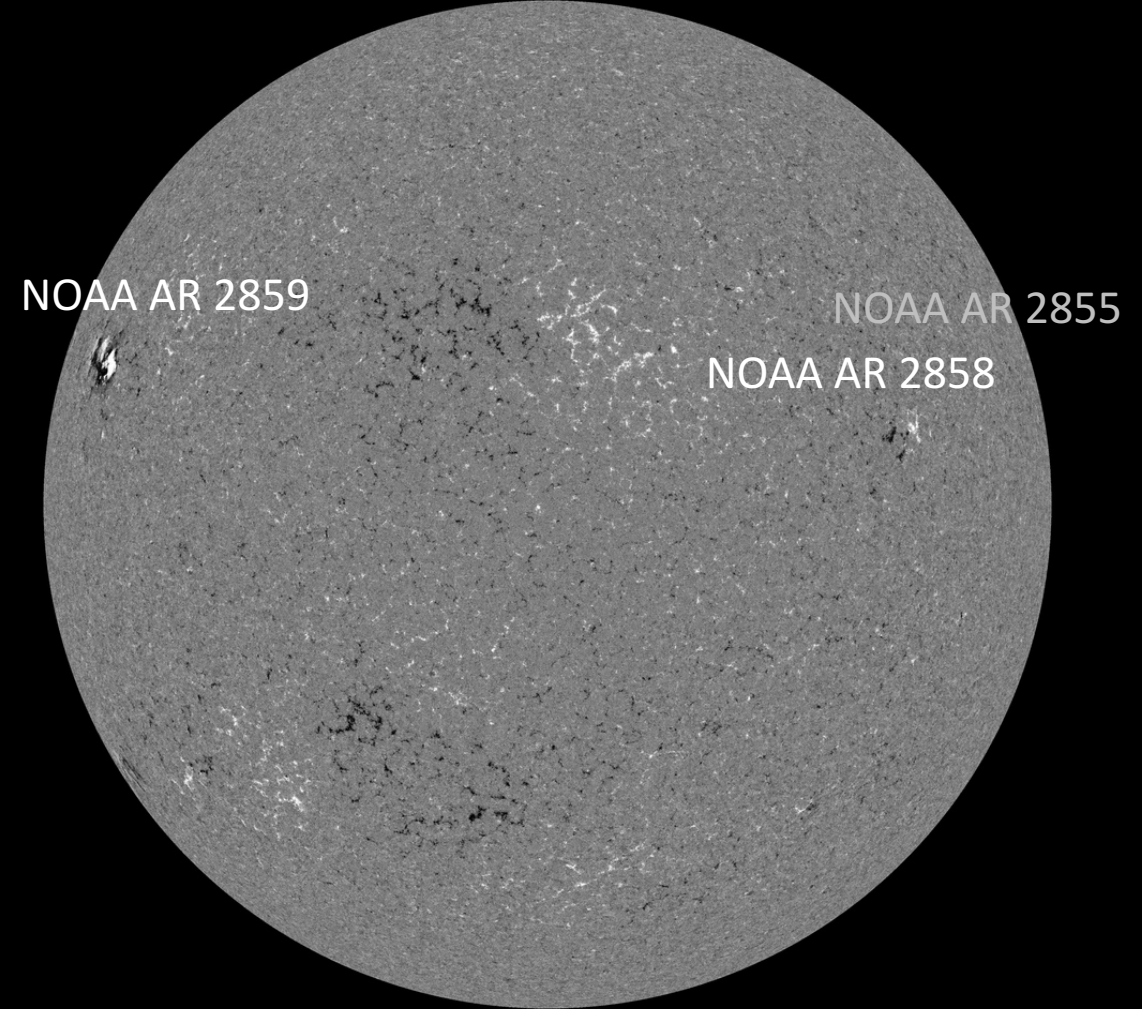
Solar active regions

SDO/HMI White Light 2021-08-22



SDO/HMI Quick-Look Continuum: 20210822_114500

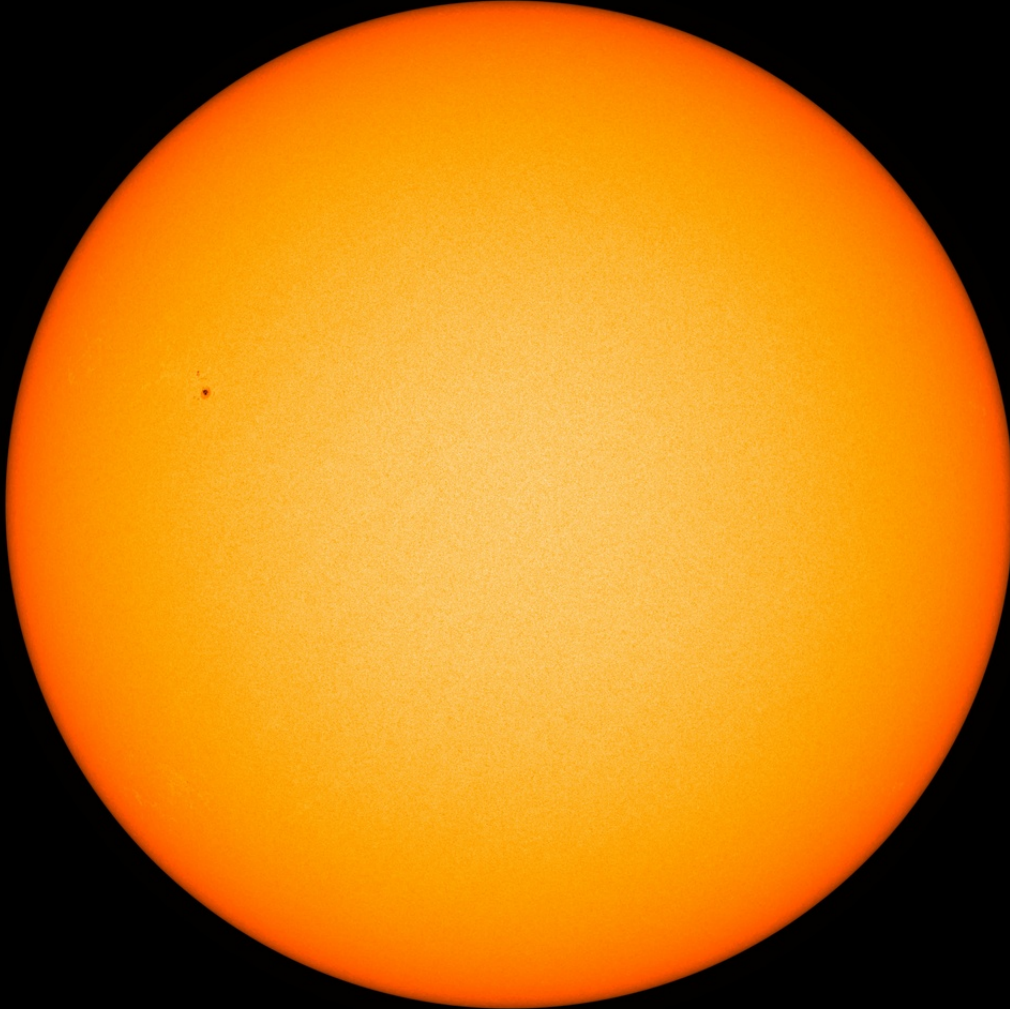
SDO/HMI Magnetogram 2021-08-22



SDO/HMI Quick-Look Magnetogram: 20210822_114500

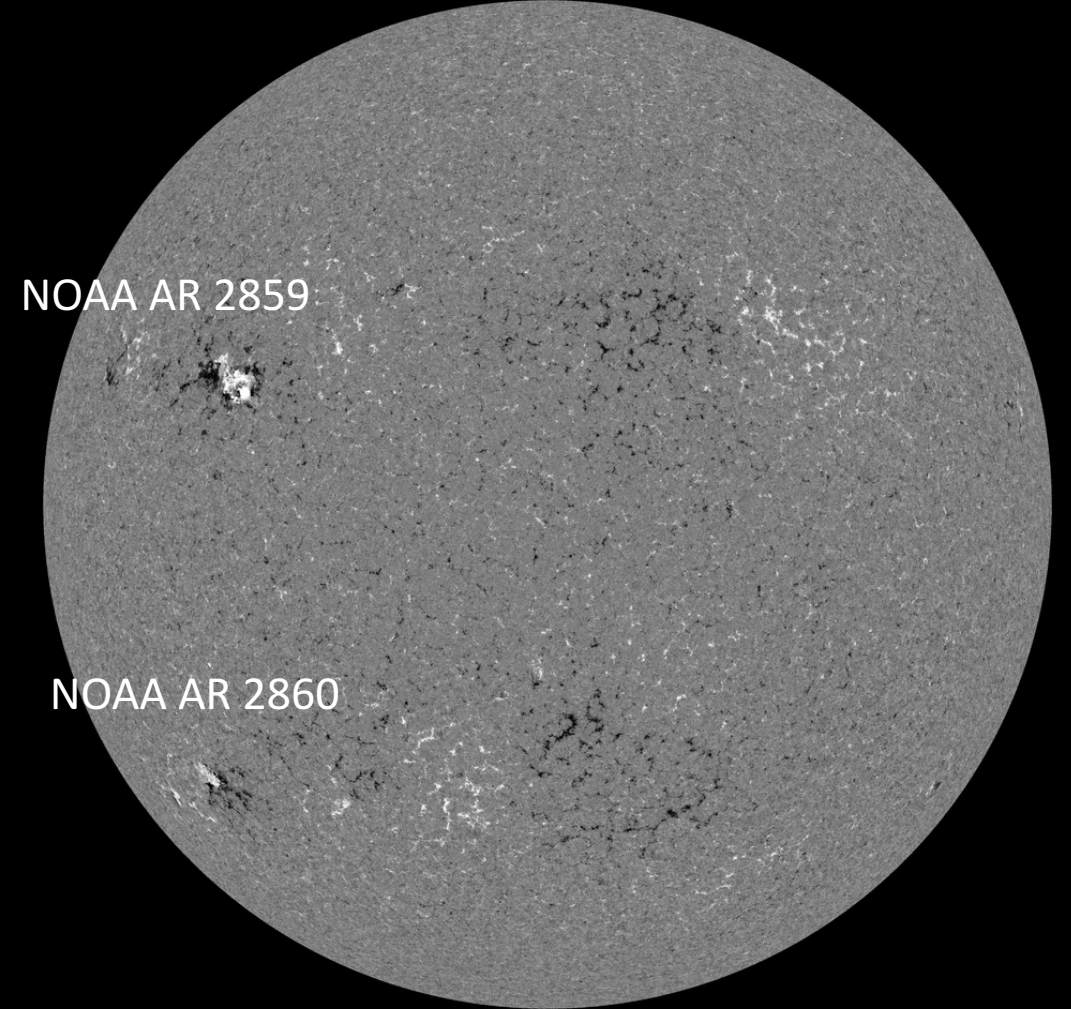
Solar active regions

SDO/HMI White Light 2021-08-24



SDO/HMI Quick-Look Continuum: 20210824_114500

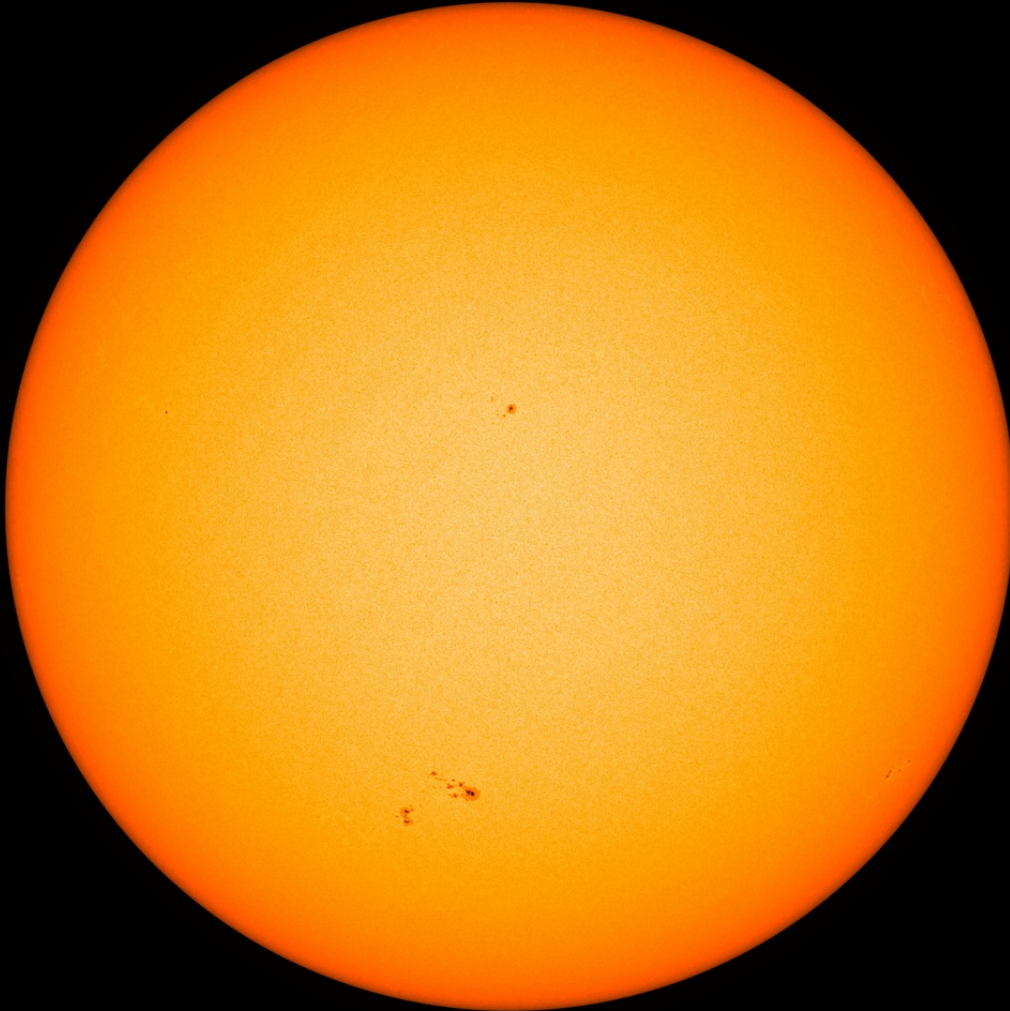
SDO/HMI Magnetogram 2021-08-24



SDO/HMI Quick-Look Magnetogram: 20210824_114500

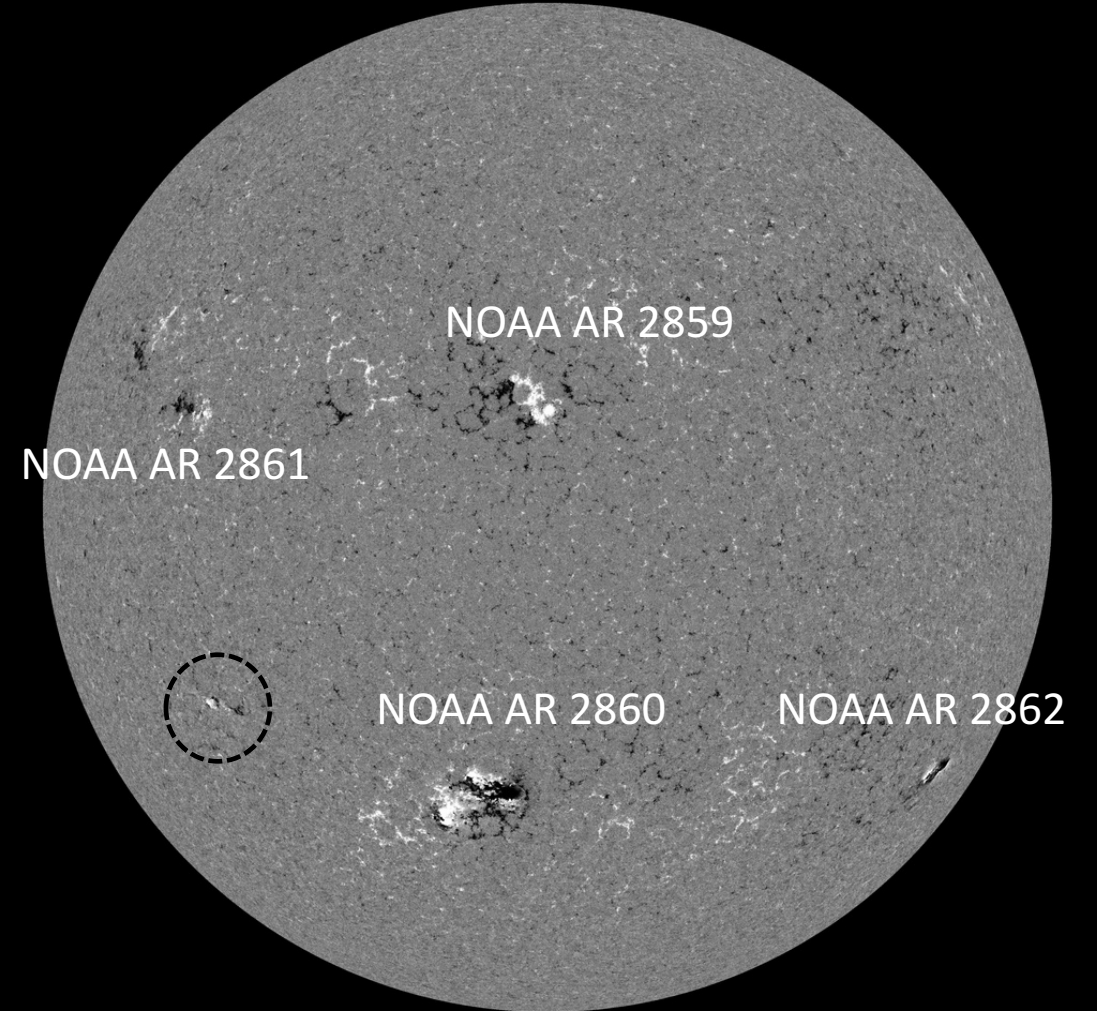
Solar active regions

SDO/HMI White Light 2021-08-27



SDO/HMI Quick-Look Continuum: 20210827_114500

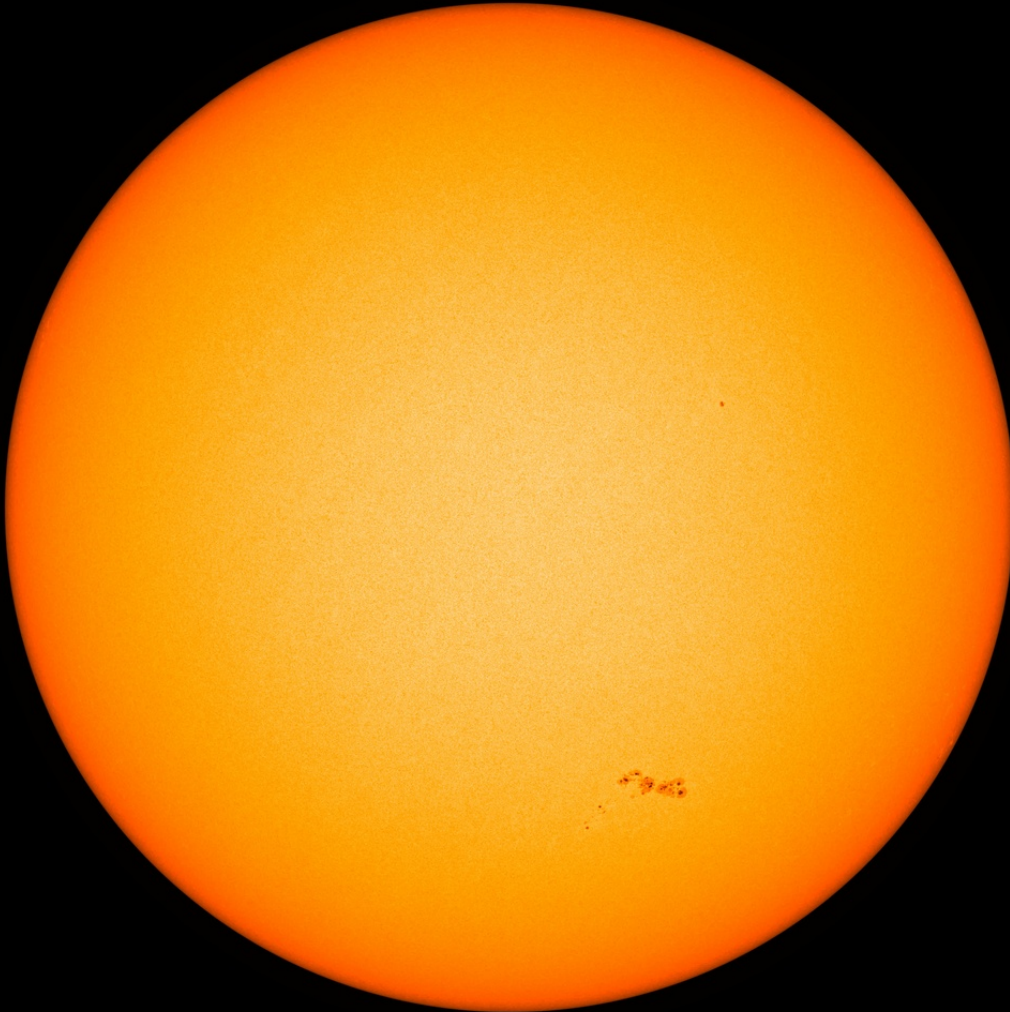
SDO/HMI Magnetogram 2021-08-27



SDO/HMI Quick-Look Magnetogram: 20210827_114500

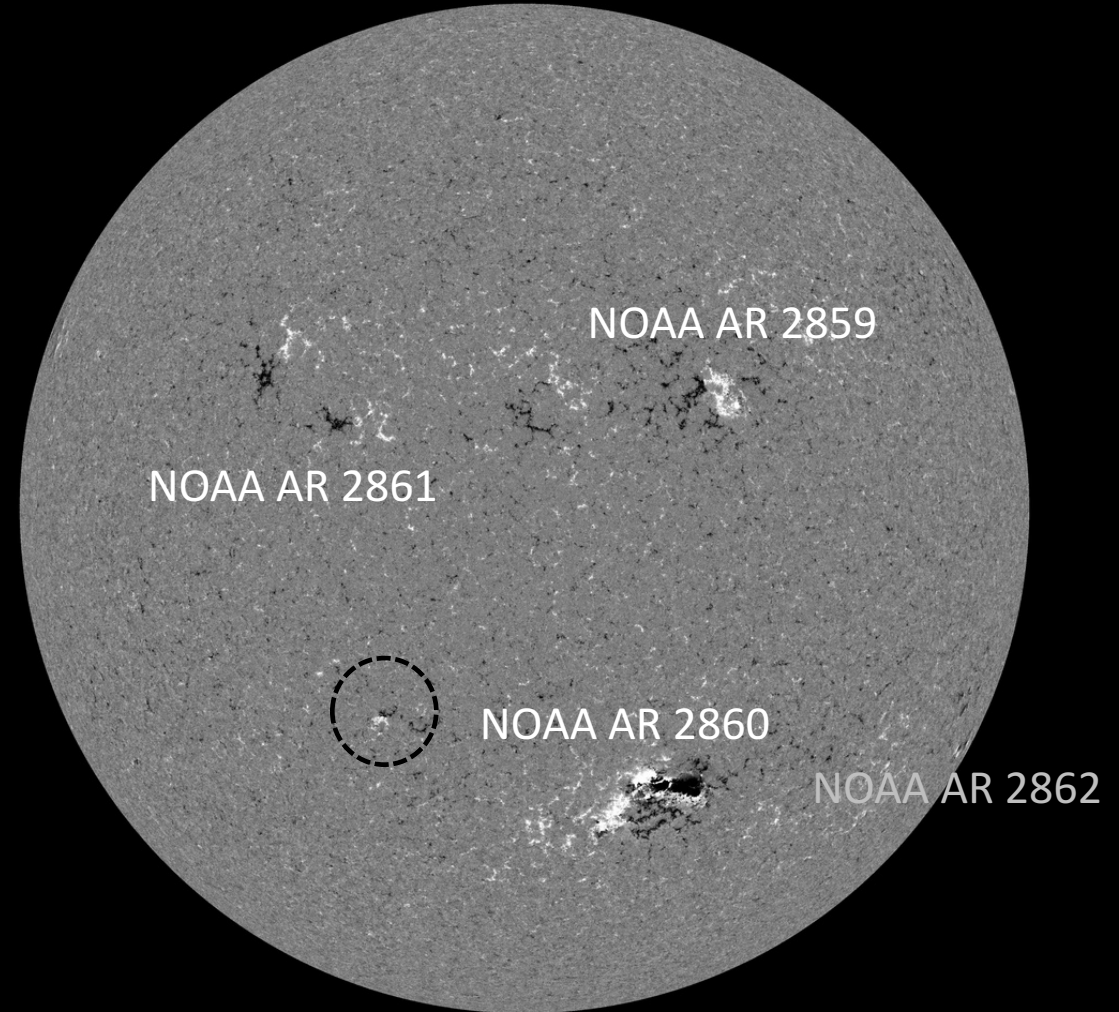
Solar active regions

SDO/HMI White Light 2021-08-29



SDO/HMI Quick-Look Continuum: 20210829_114500

SDO/HMI Magnetogram 2021-08-29

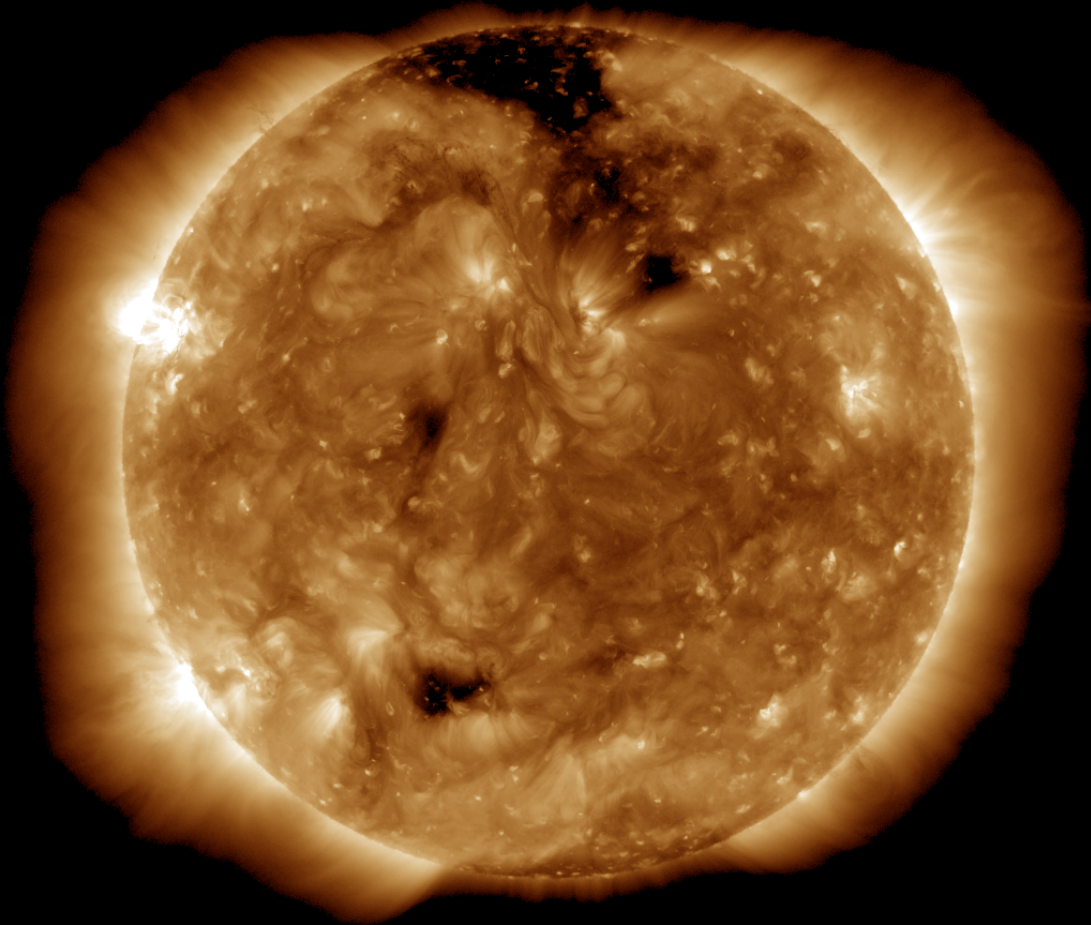


SDO/HMI Quick-Look Magnetogram: 20210829_114500

Coronal holes

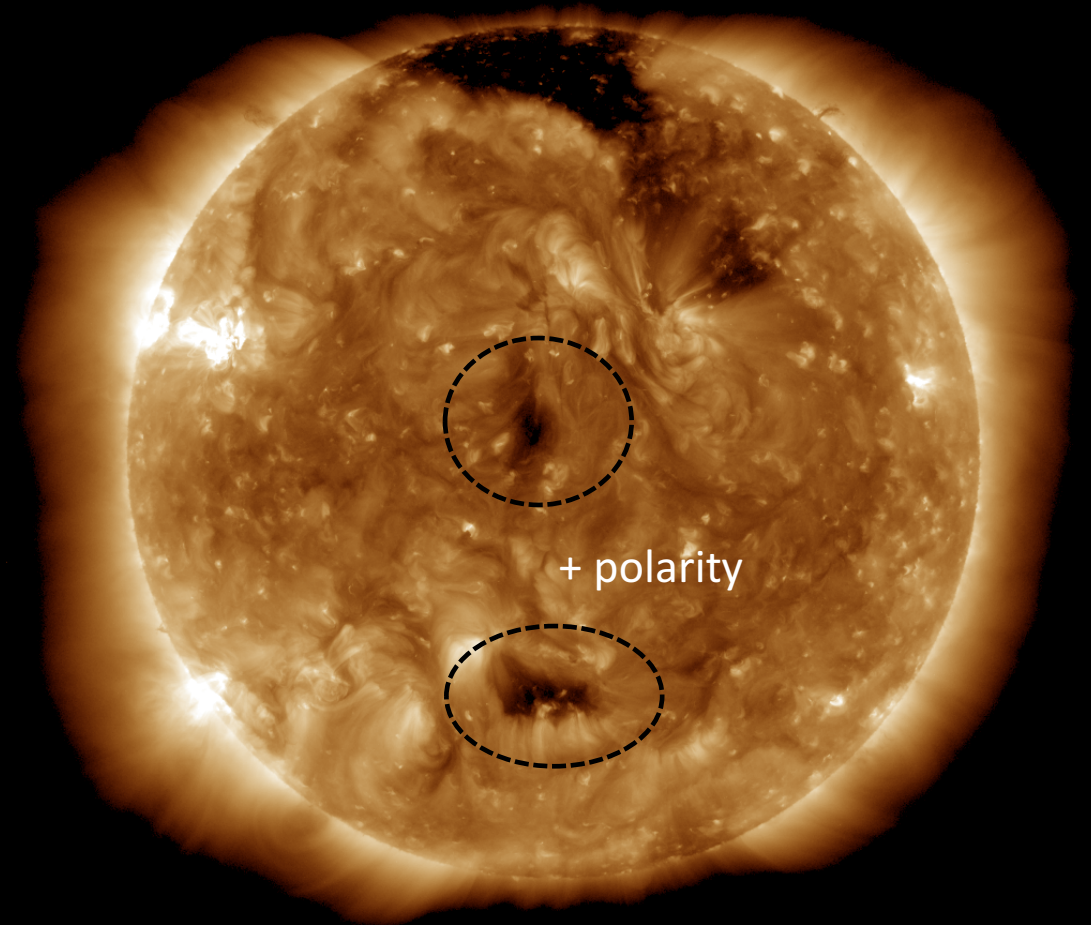
SDO/AIA 19.3 nm 2021-08-22

SDO/AIA AIA 193Å 2021-08-22T12:00:05.843



SDO/AIA 19.3 nm 2021-08-23

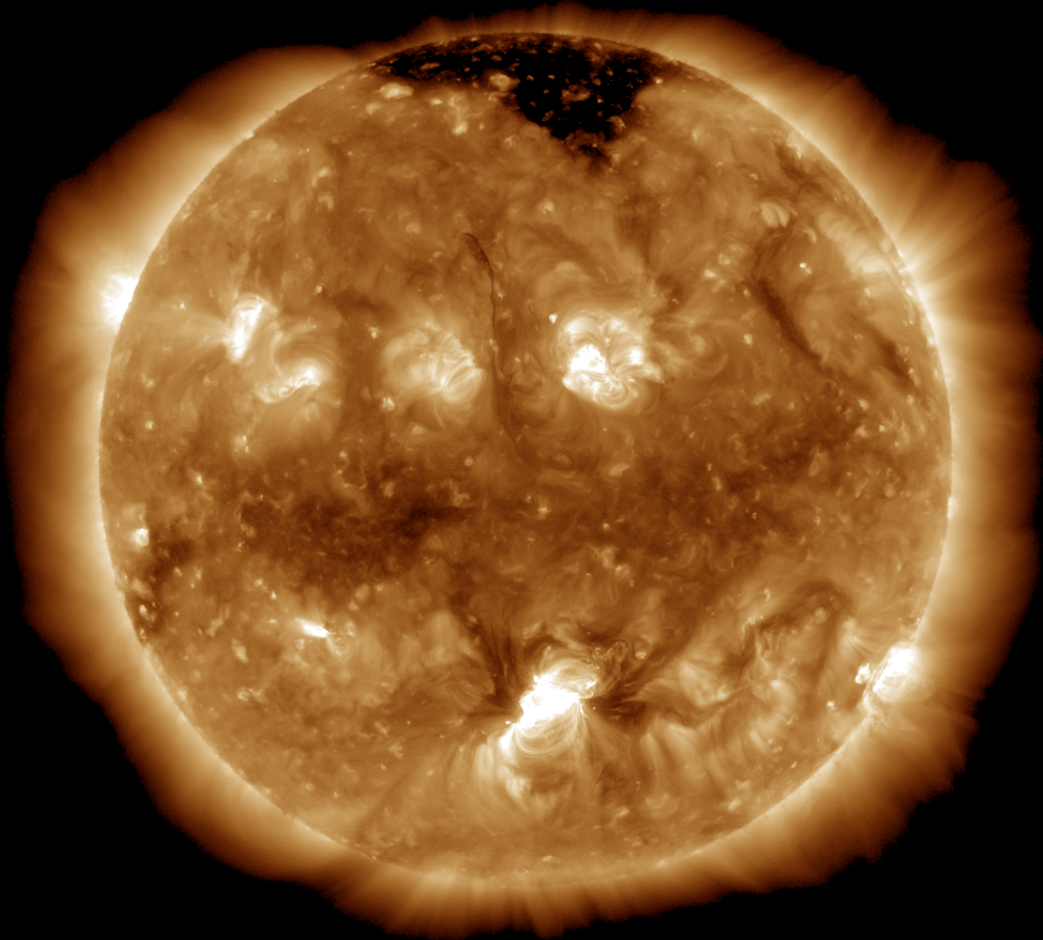
SDO/AIA AIA 193Å 2021-08-23T12:00:05.846



Coronal holes

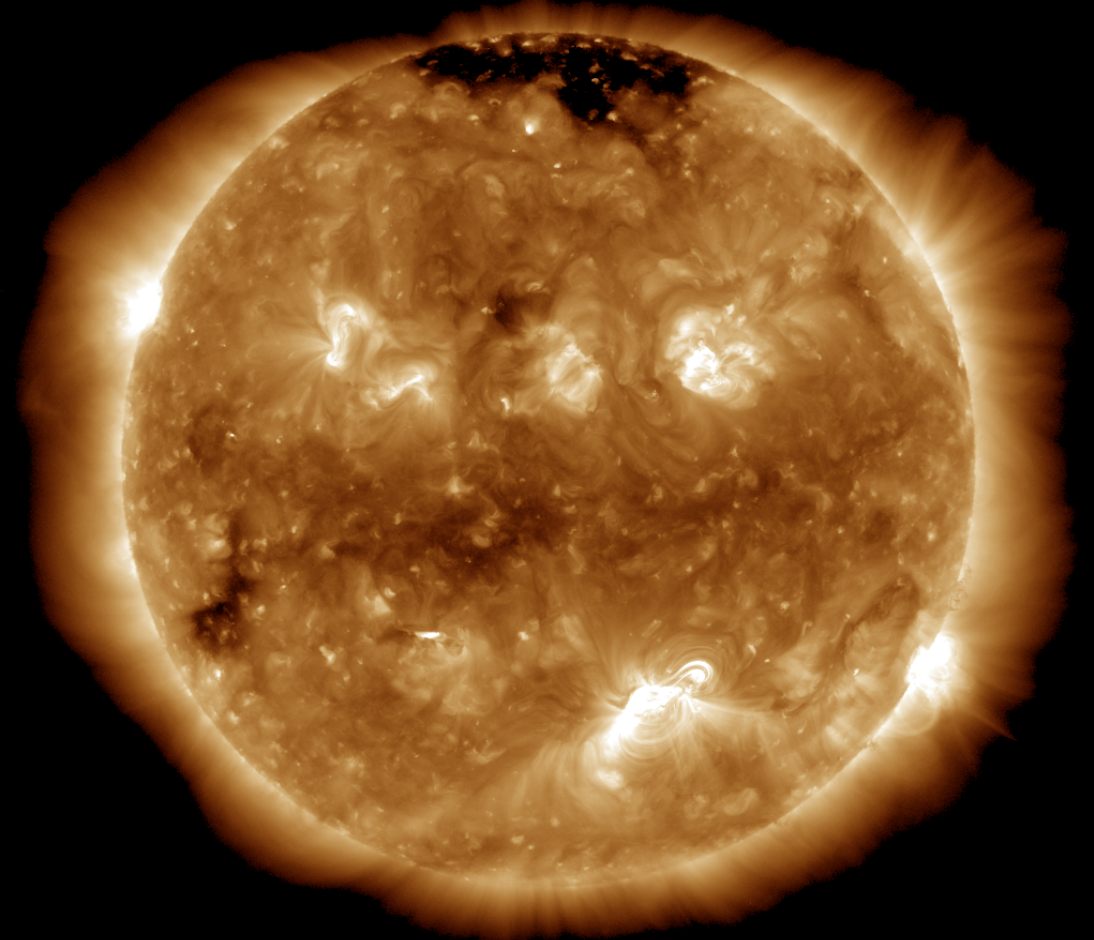
SDO/AIA 19.3 nm 2021-08-28

SDO/AIA AIA 193Å 2021-08-28T12:00:05.843



SDO/AIA 19.3 nm 2021-08-29

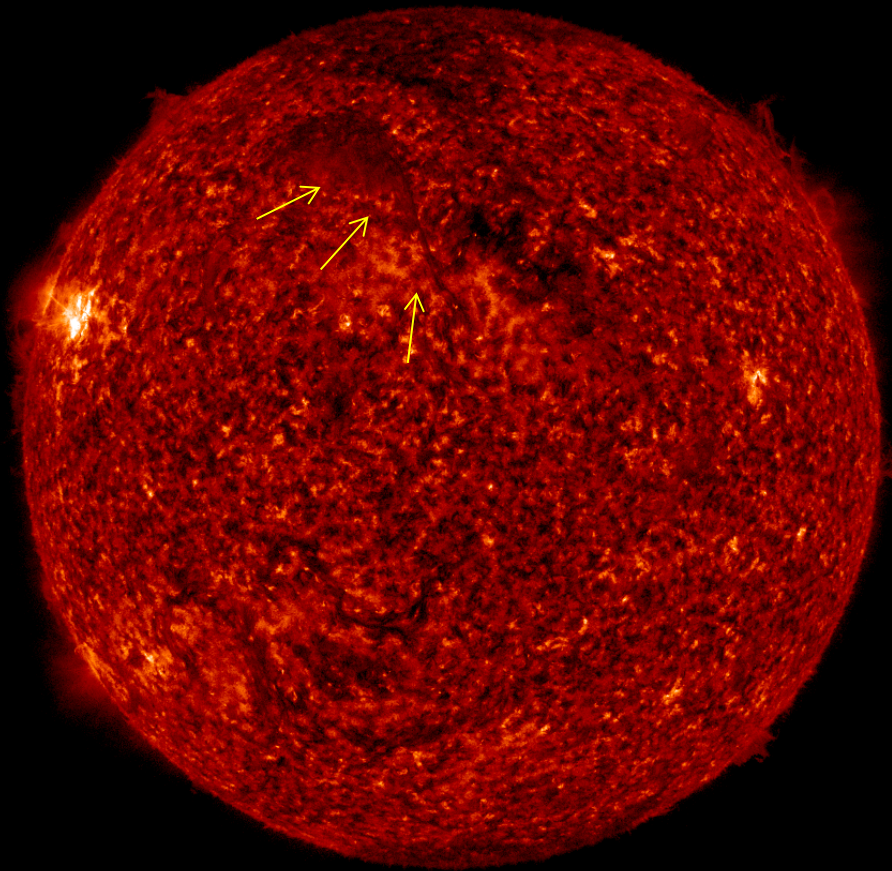
SDO/AIA AIA 193Å 2021-08-29T12:00:05.843



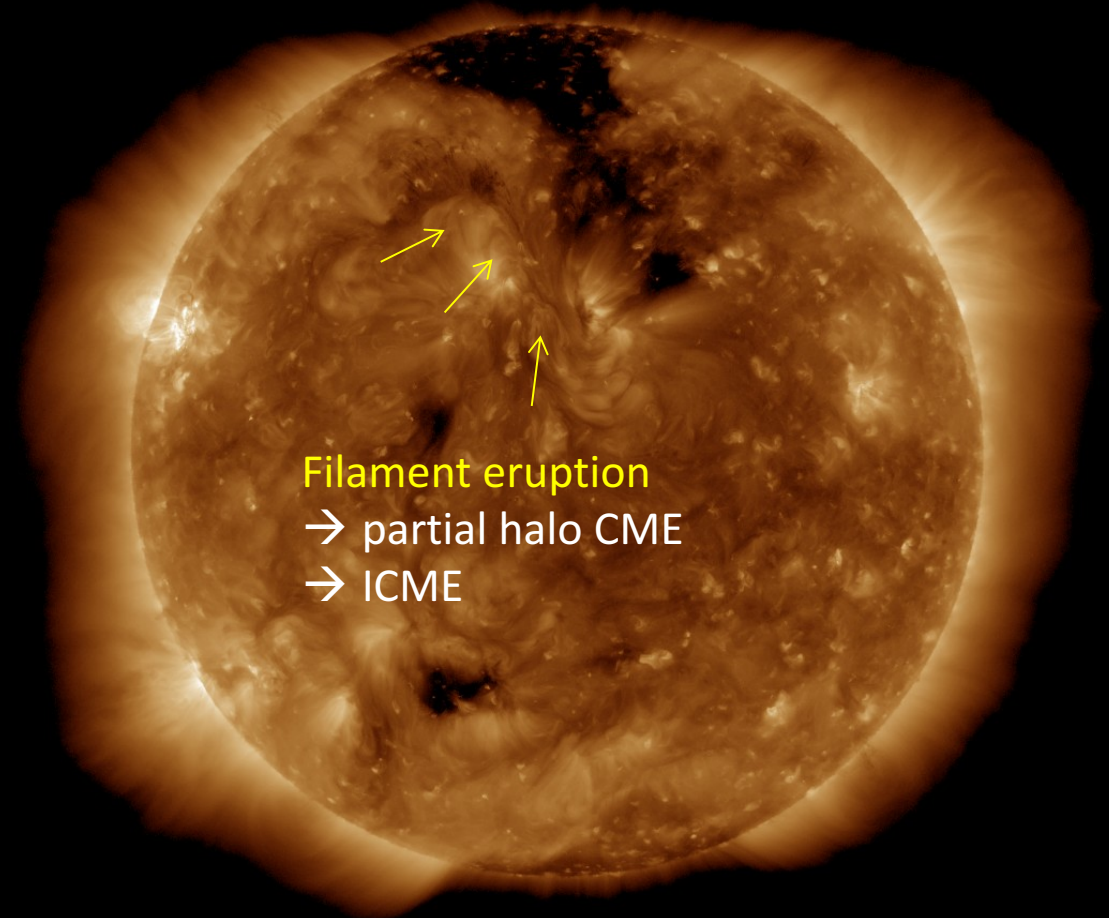
Filaments & Filament eruptions

SDO/AIA 30.4 nm 2021-08-22

SDO/AIA AIA 304Å 2021-08-22T12:00:06.580



SDO/AIA 30.4 nm 2021-08-22



Filament eruption

→ partial halo CME

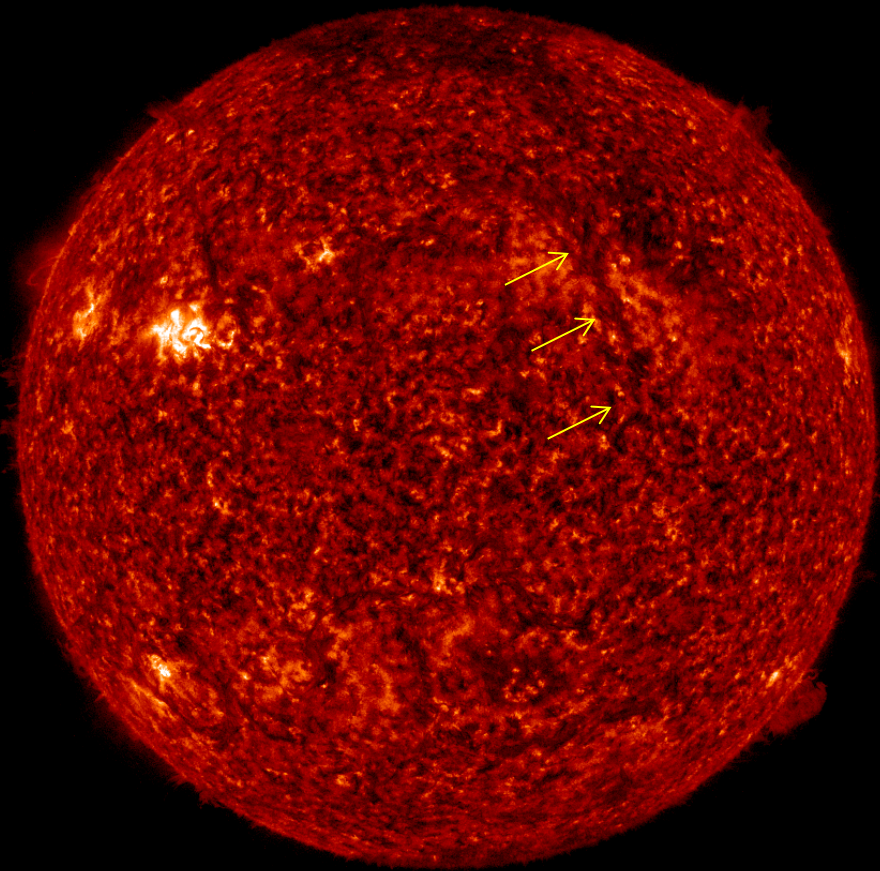
→ ICME

SDO/AIA 193 2021-08-22 11:17:29 UT

Filaments

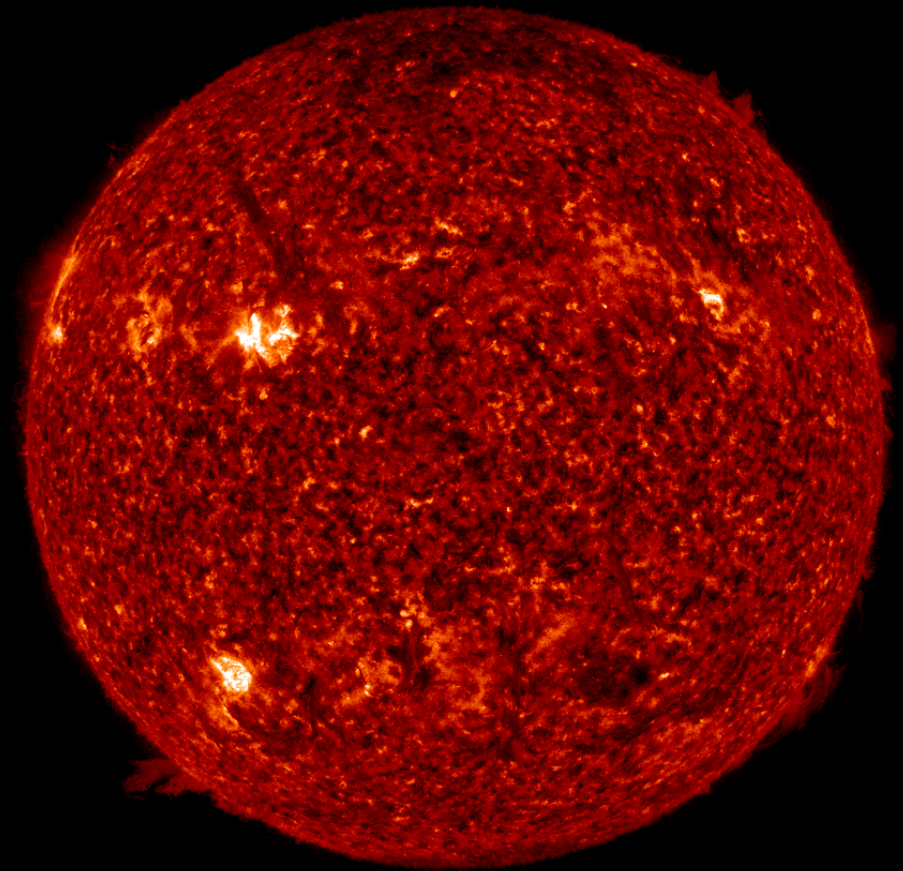
SDO/AIA 30.4 nm 2021-08-24

SDO/AIA AIA 304Å 2021-08-24T12:00:06.580



SDO/AIA 30.4 nm 2021-08-25

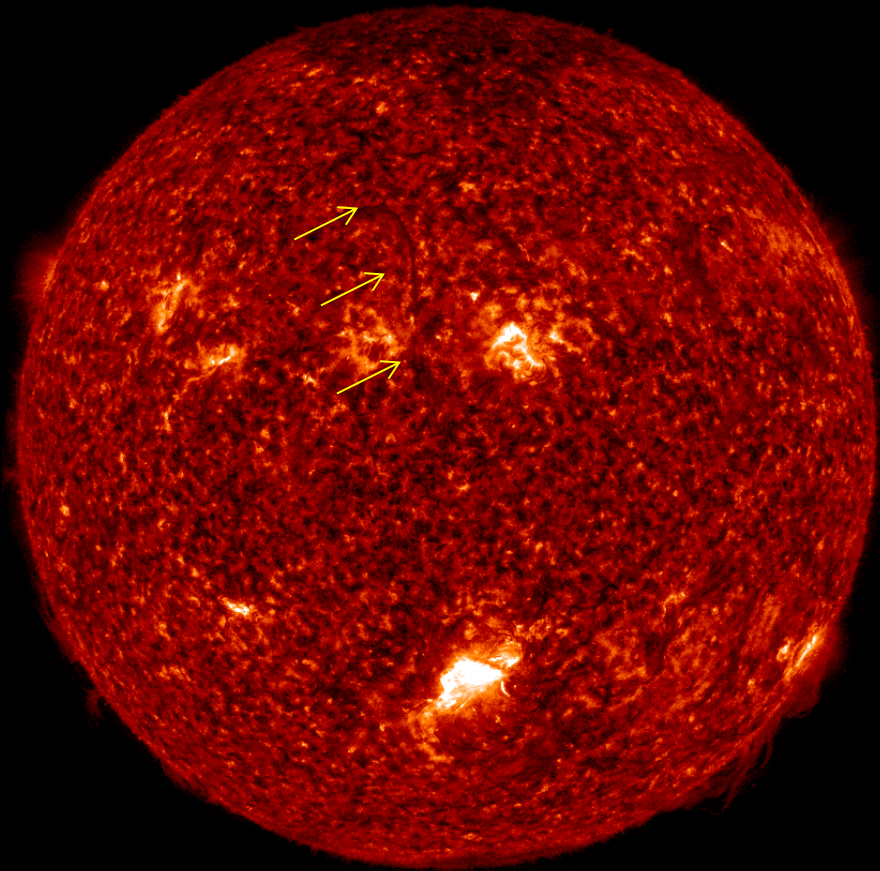
SDO/AIA AIA 304Å 2021-08-25T12:00:06.580



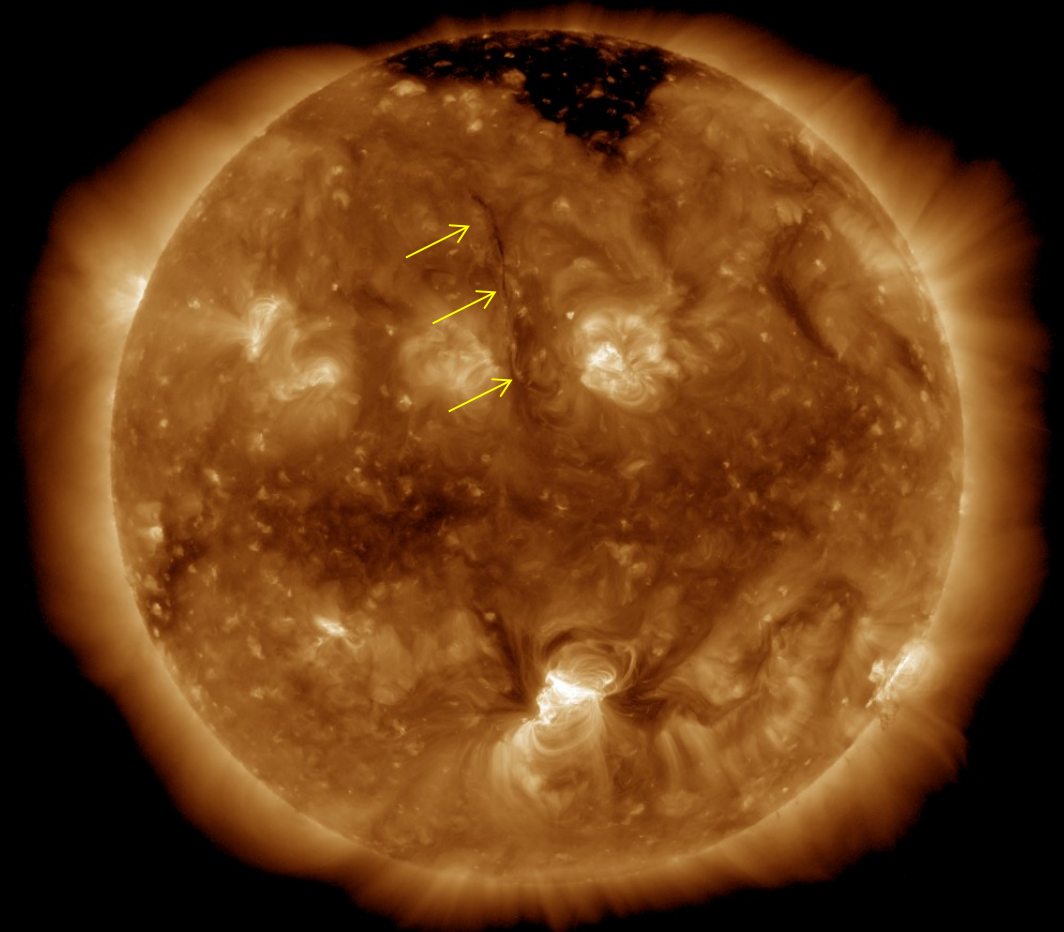
Filaments

SDO/AIA 30.4 nm 2021-08-28

SDO/AIA AIA 304Å 2021-08-28T12:00:06.581

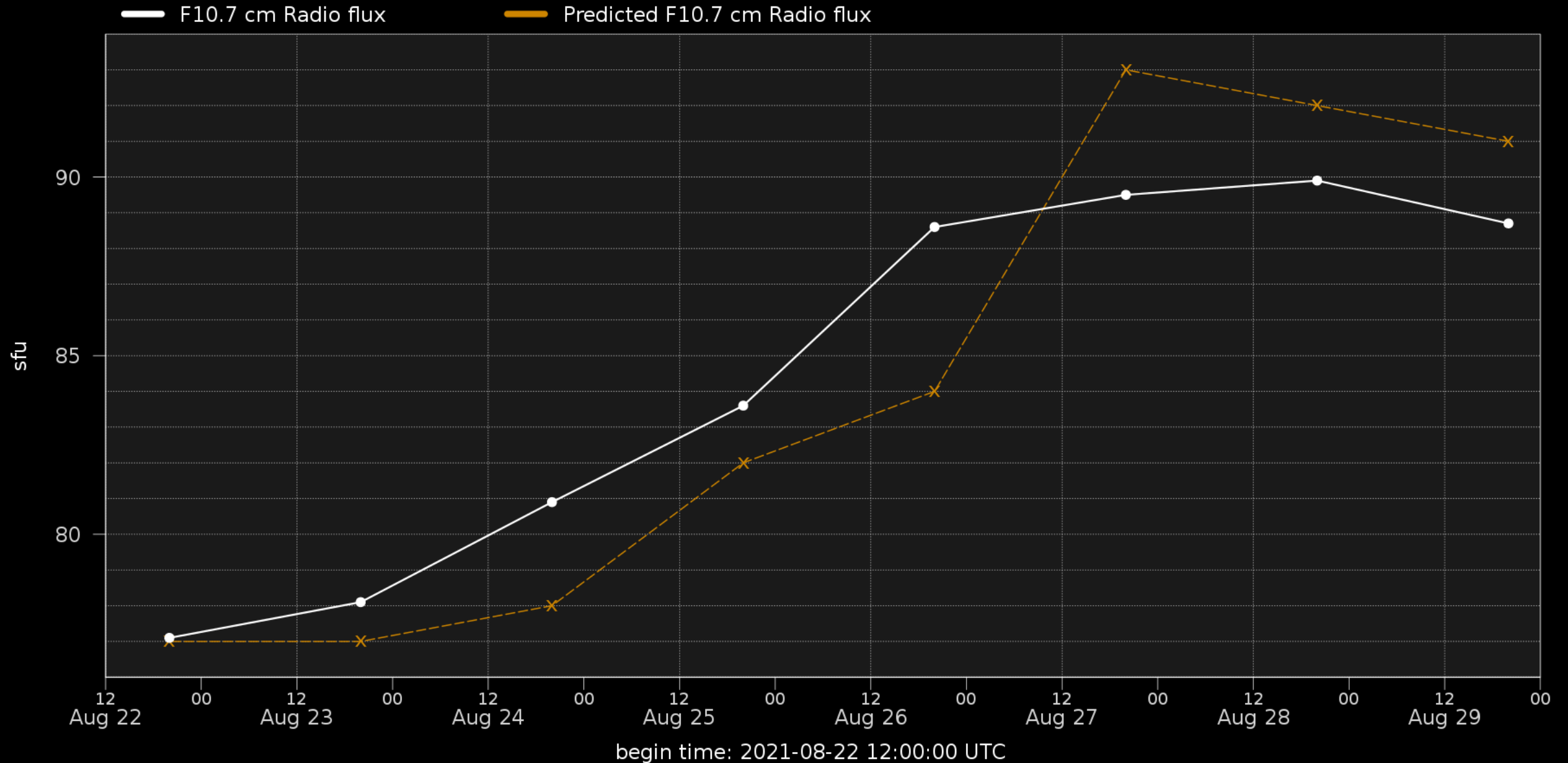


SDO/AIA 30.4 nm 2021-08-28

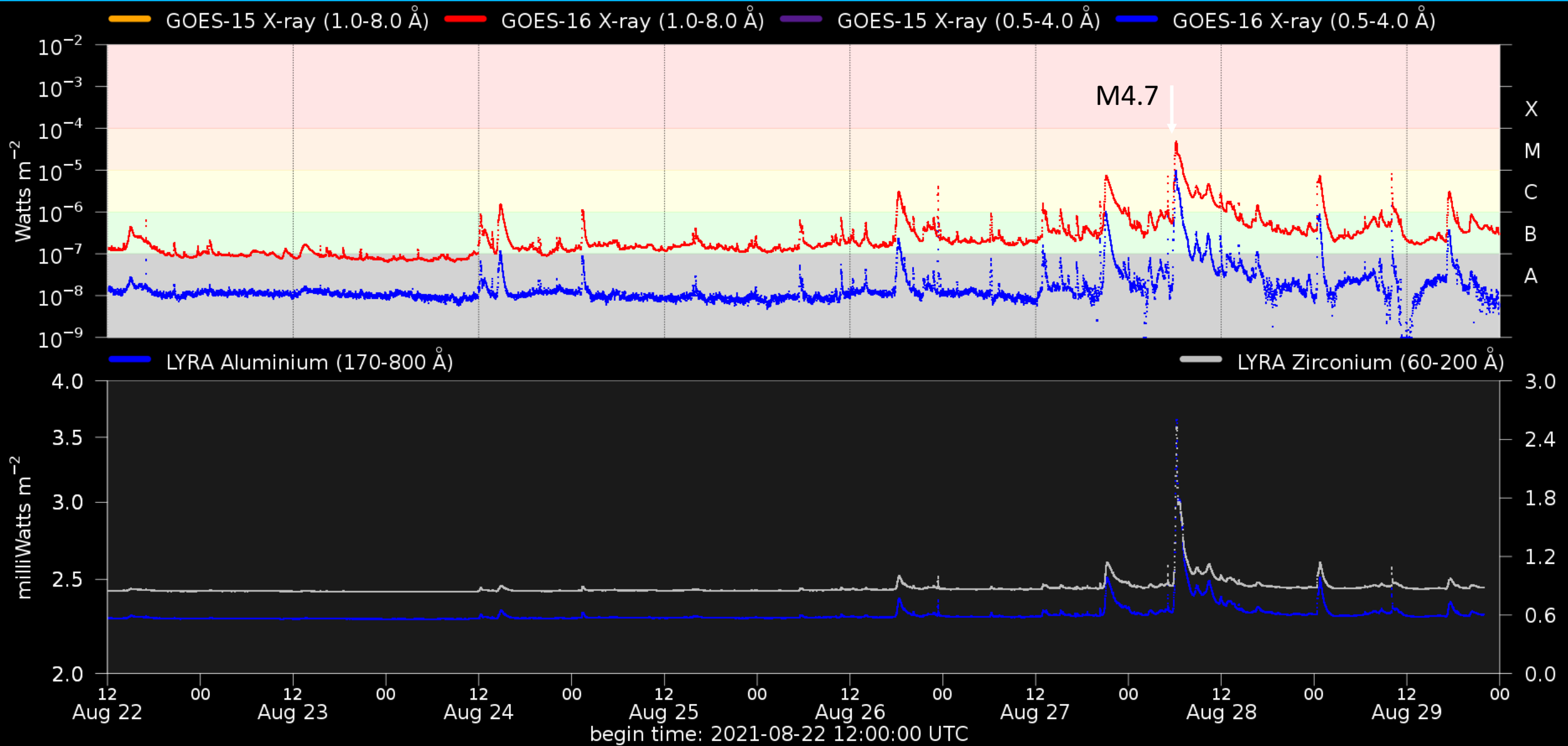


SDO/AIA 193 2021-08-28 13:28:05 UT

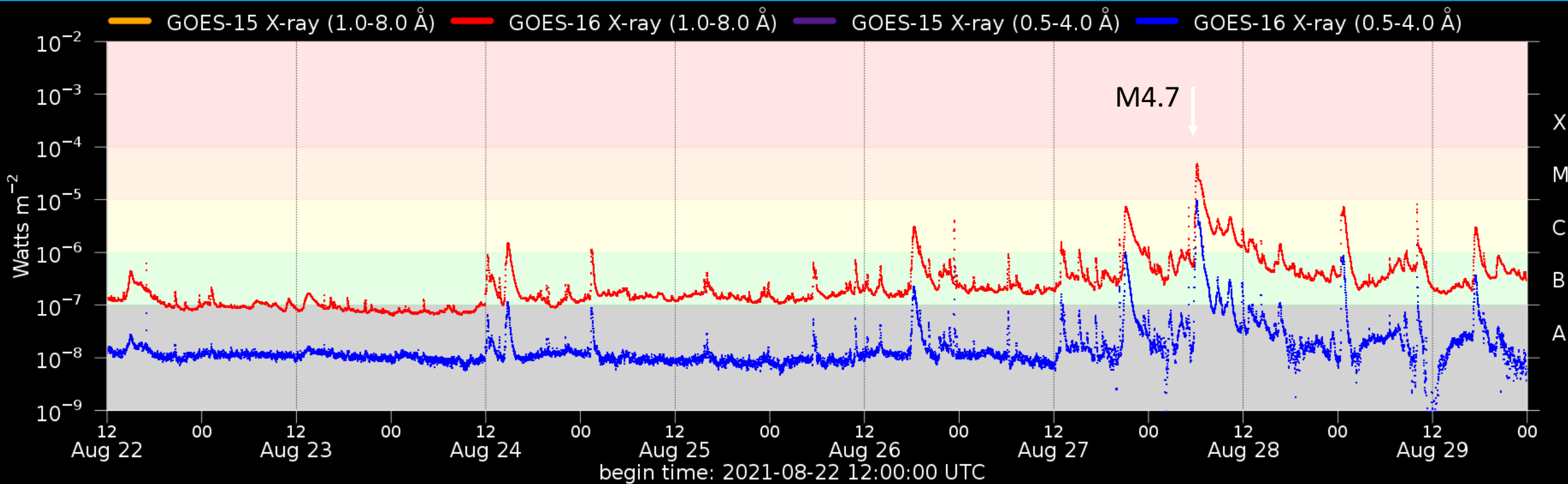
Solar F10.7cm radio flux



Solar X-Ray and UV flux



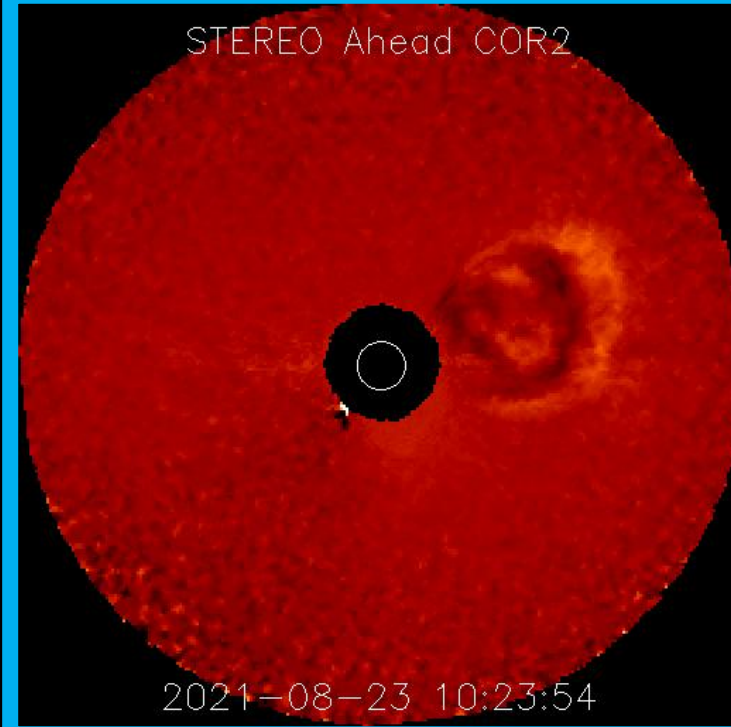
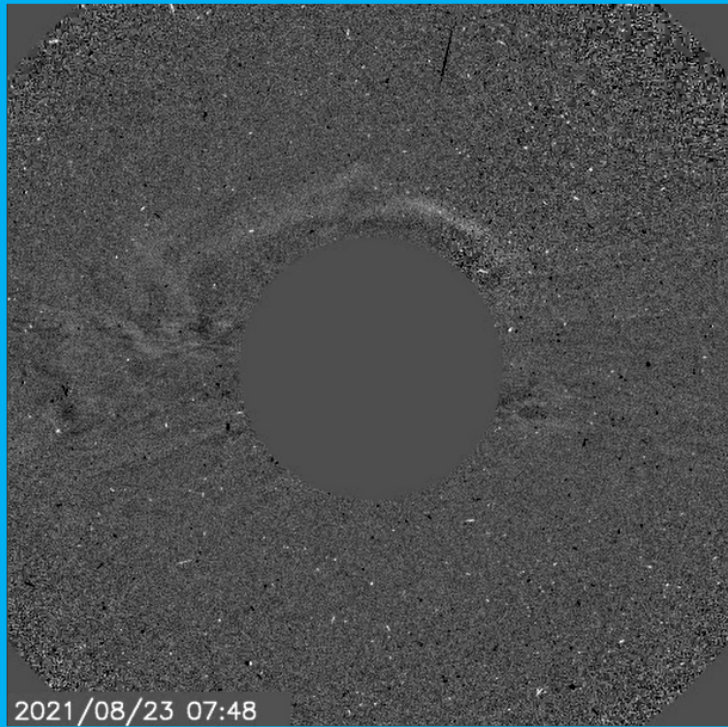
Flaring activity



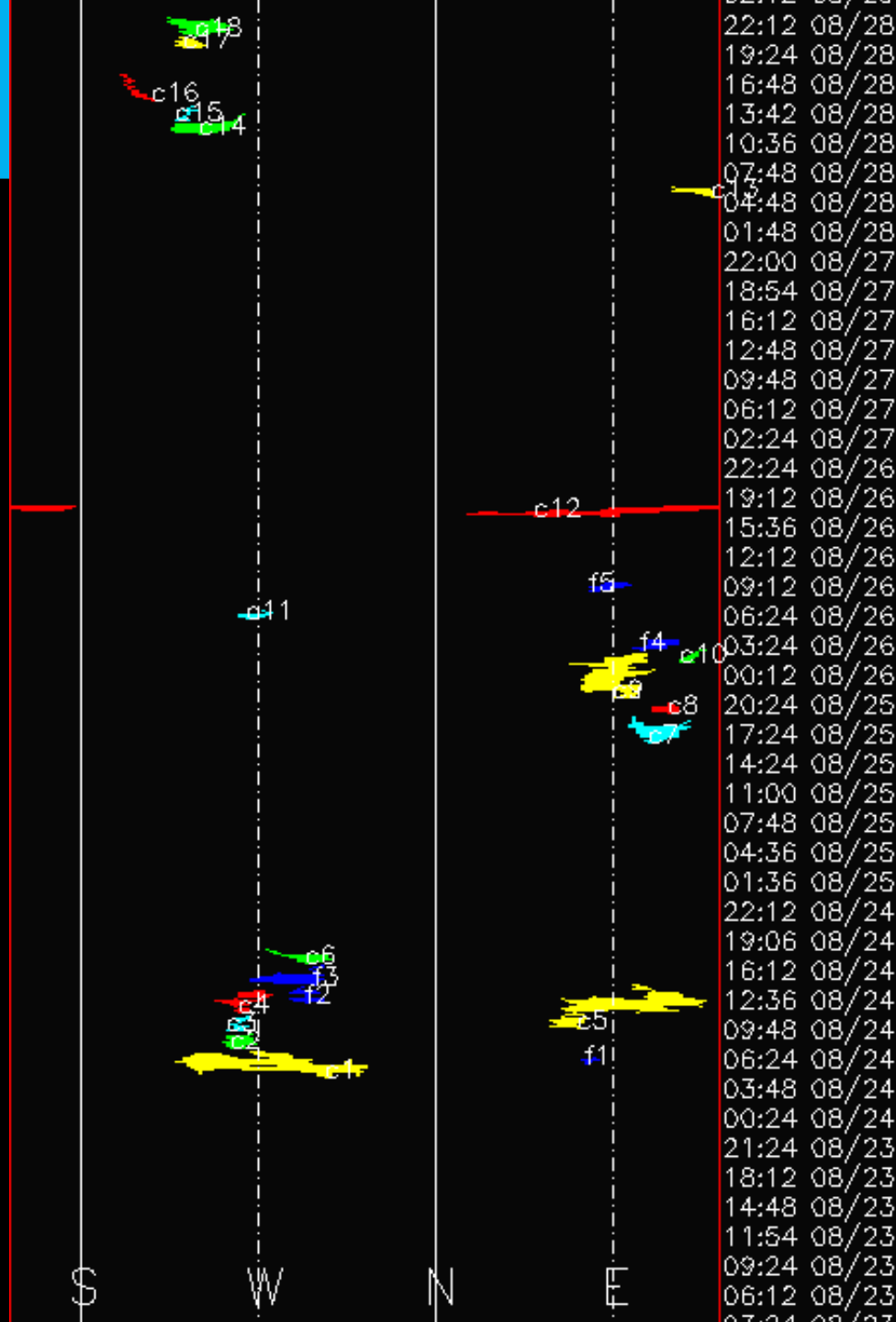
Probabilities (%) and occurrences (#) of C/M/X-flares daily, from noon to noon:

Issue date	2021-08-22	2021-08-23	2021-08-24	2021-08-25	2021-08-26	2021-08-27	2021-08-28	2021-08-29
Probability (%)	60 05 01	07 01 01	05 01 01	30 01 01	25 01 01	60 01 01	90 60 01	70 01 01
Observed (#)	01 00 00	00 00 00	02 00 00	00 00 00	02 00 00	09 01 00	05 00 00	02 00 00

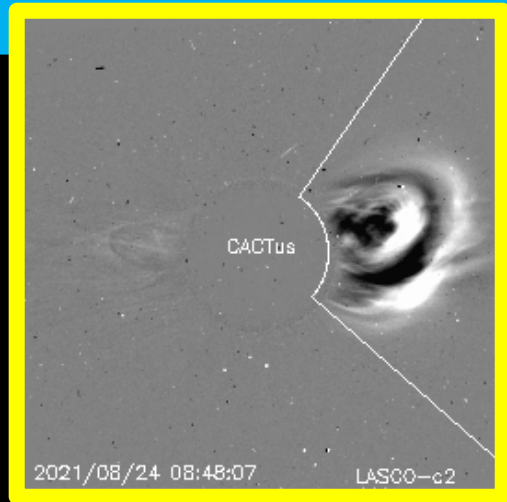
Coronal Mass Ejections



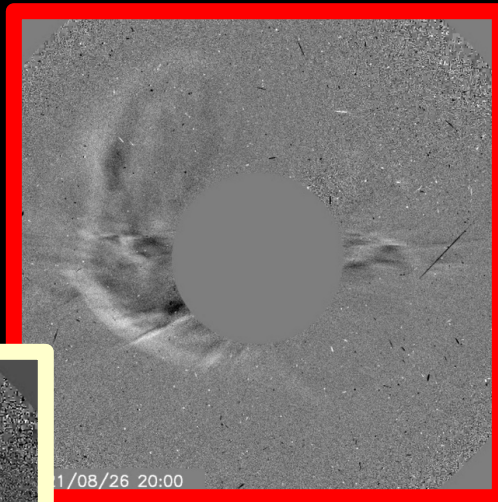
- filament eruption in the first hours of August 23
- Situated close to the extension of the northern polar coronal hole (down to 25 degrees)
- partial halo CME - angular width 180 deg, velocity 450 km/s
- CME was 1st observed in the SOHO/LASCO C2 field of view at 06:00 UT (August 23)
- Shock arrived on August 27, and was followed by ICME



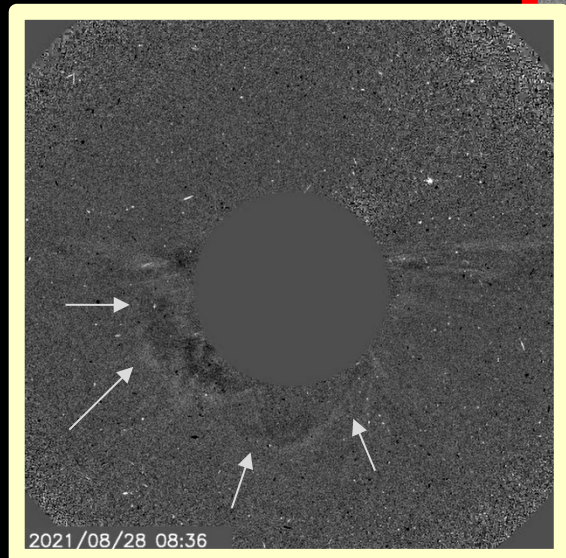
Coronal Mass Ejections



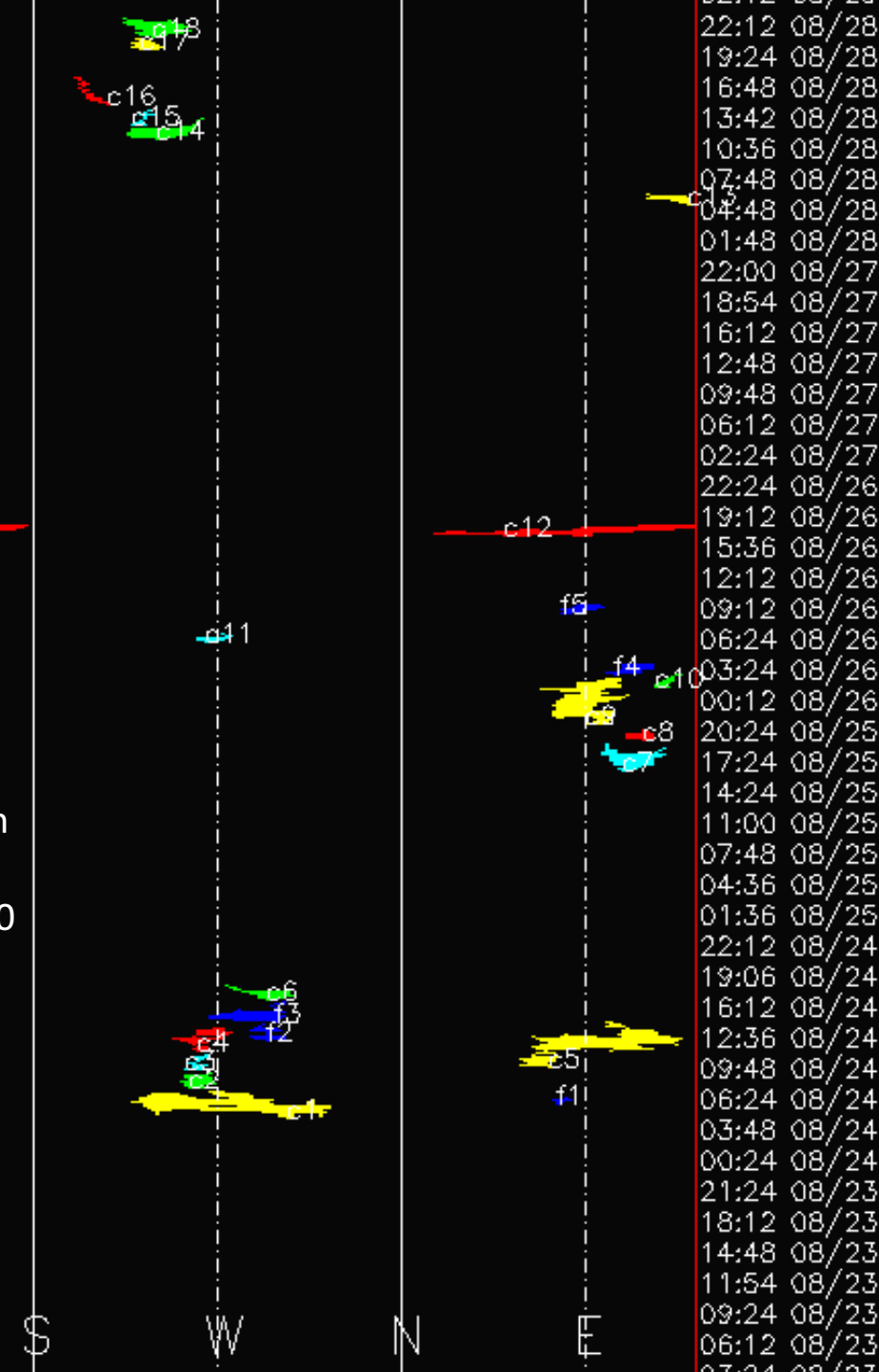
- eruption of filament on August 24
- first observed in the SOHO/LASCO C2 field of view at 06:36 UT on August 24
- did not arrived to Earth



- Halo CME (velocity 530 km/s, angular width 290 deg)
- 1st observed in the SOHO/LASCO C2 field of view at 19:00 UT on August 26
- Associated with long duration C3.0 flare (peaked at 18:18 UT on April 26) from NOAA AR 2859
- Expected to arrive on August 30



- Very faint partial halo CME (velocity 350 km/s, angular width 180 deg)
- Associated with M4.7 flare (peaked at 06:11 UT)
- 1st observed in the SOHO/LASCO C2 field of view at 07:48 UT on August 28
- Might arrive to Earth on September 2



Solar Wind and

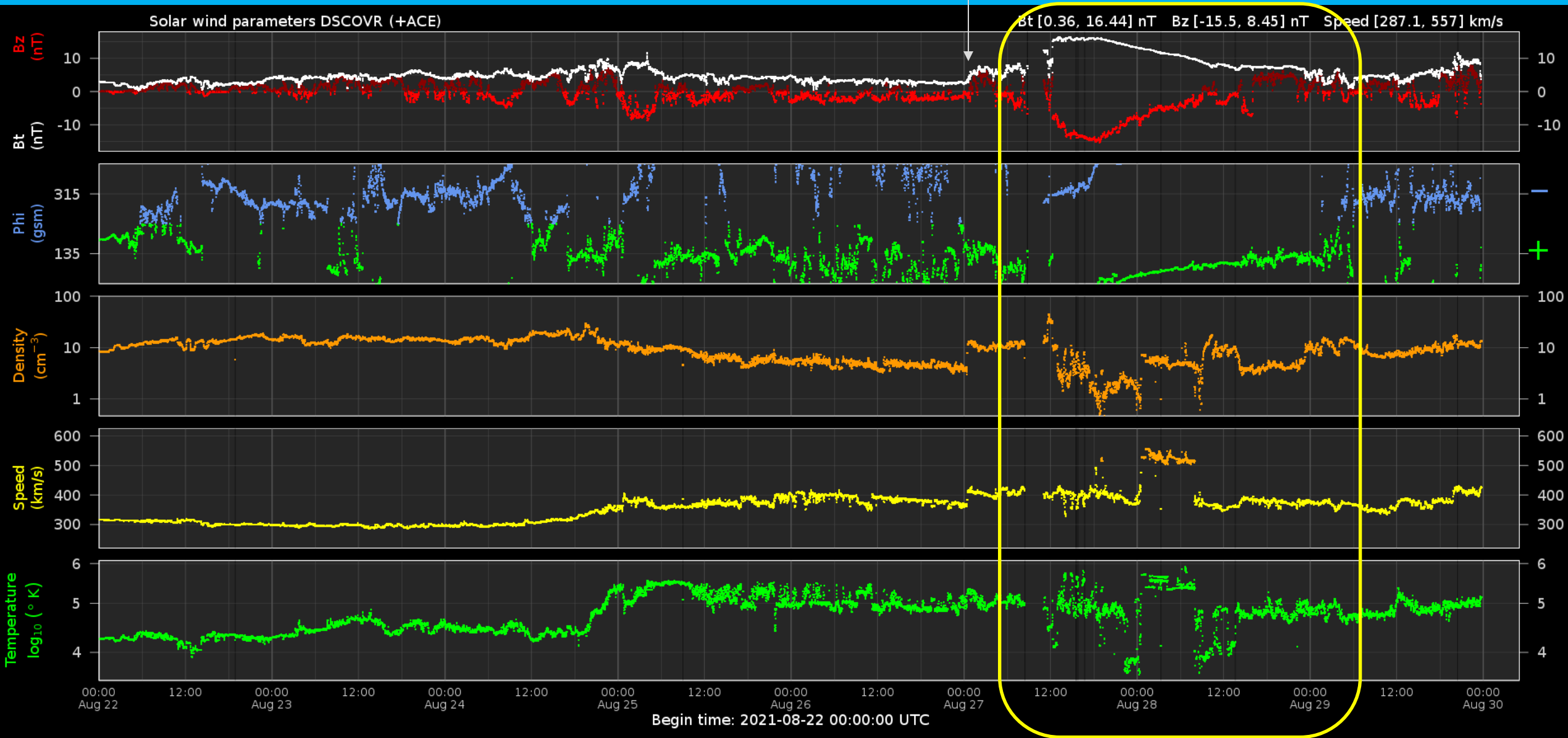
Geomagnetic Activity



Royal Observatory
of Belgium

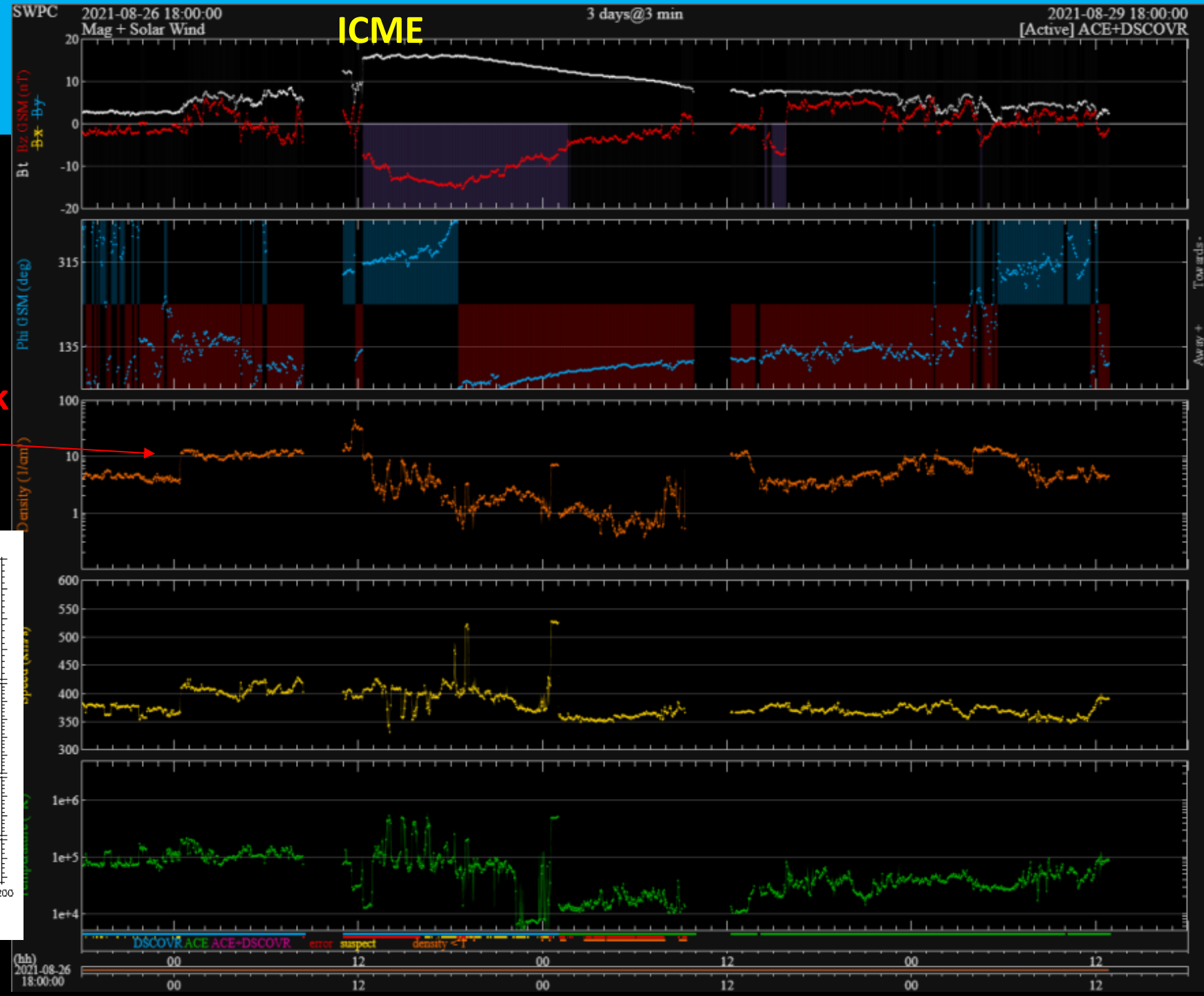
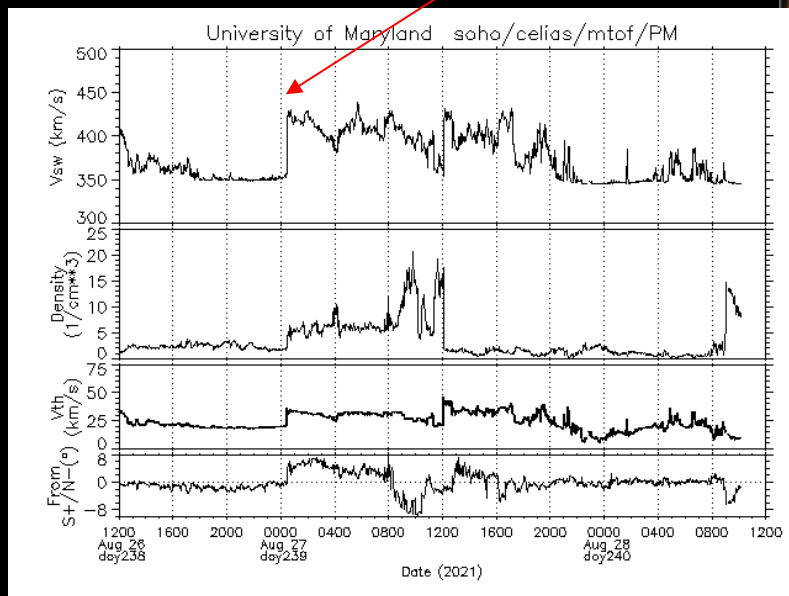
www.sidc.be

Solar wind parameters

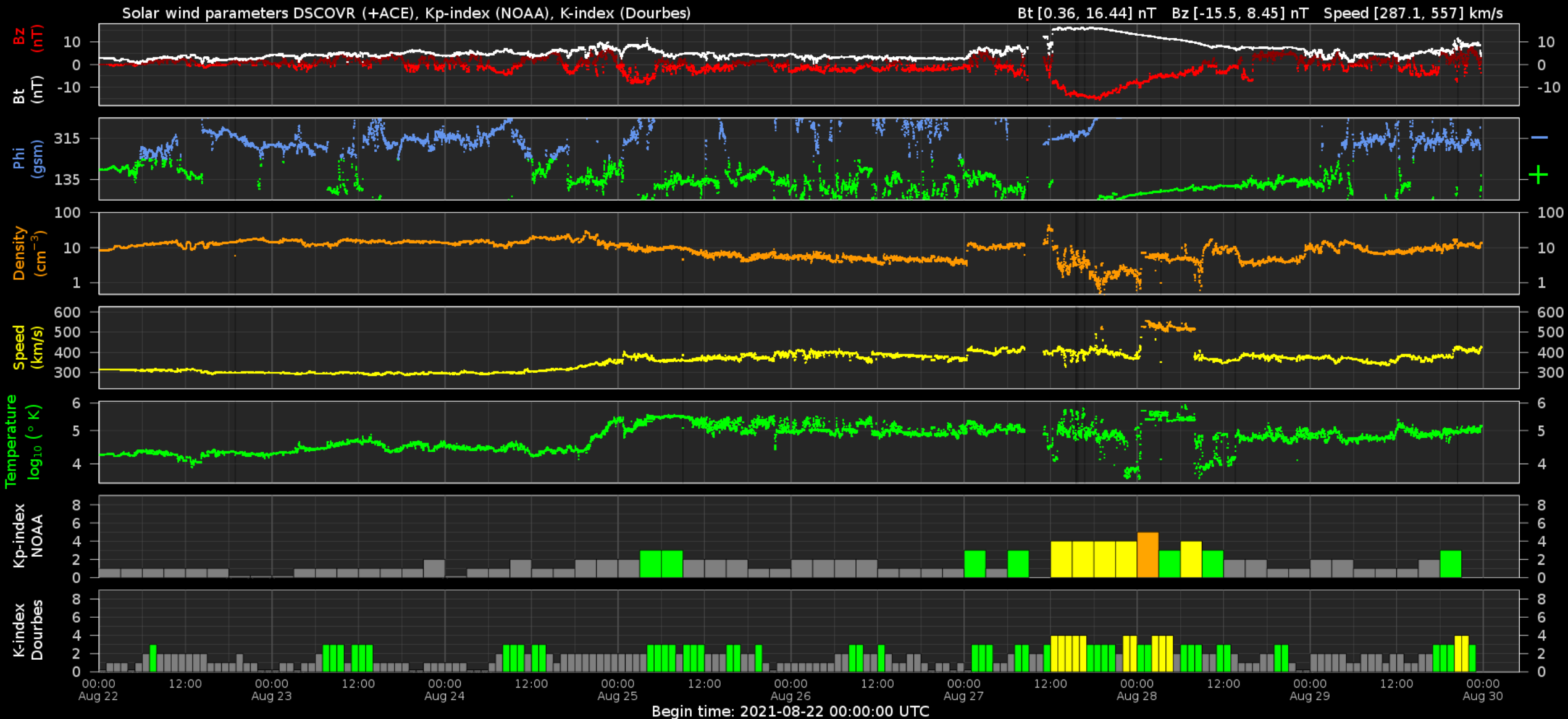


ICME

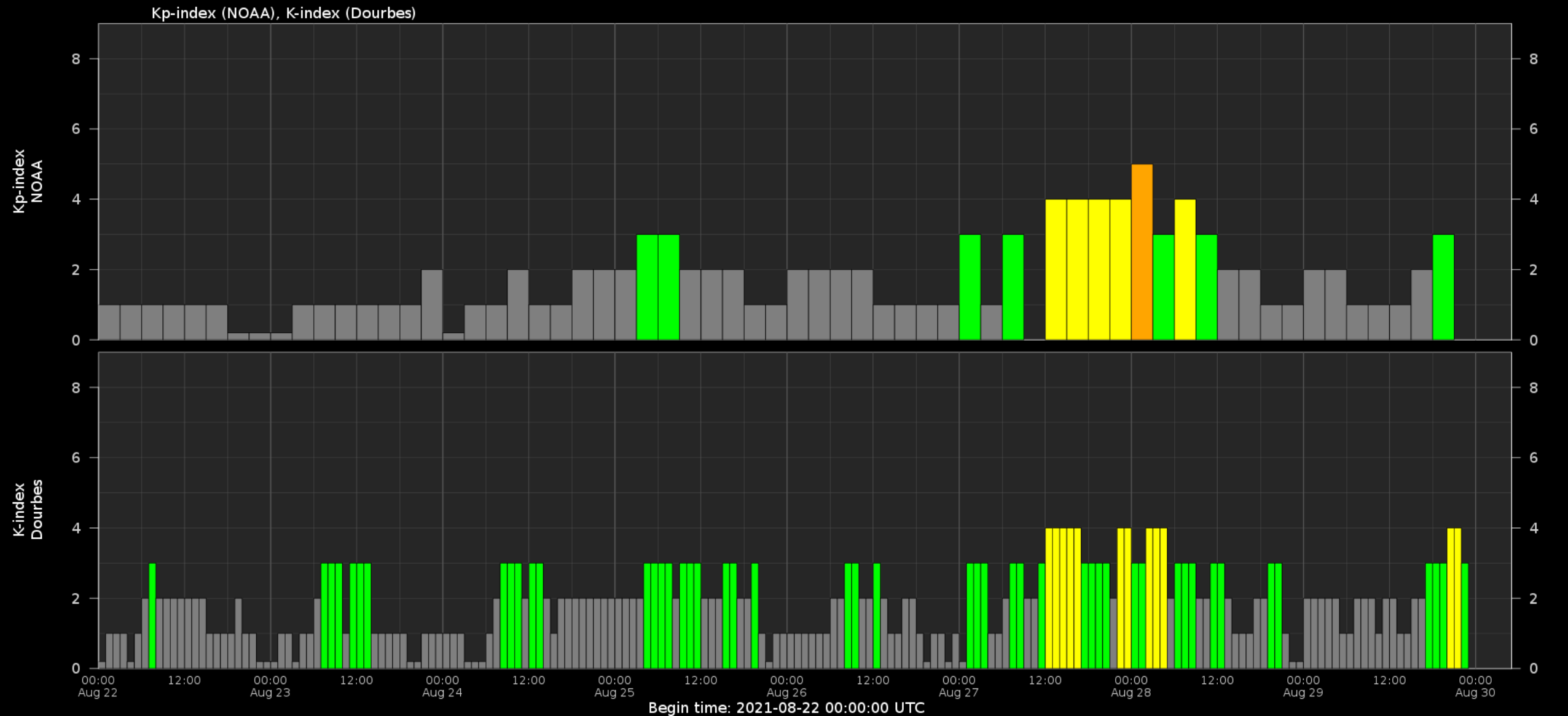
In situ shock



Solar wind parameters & K-indices



Geomagnetic activity (K-indexes)



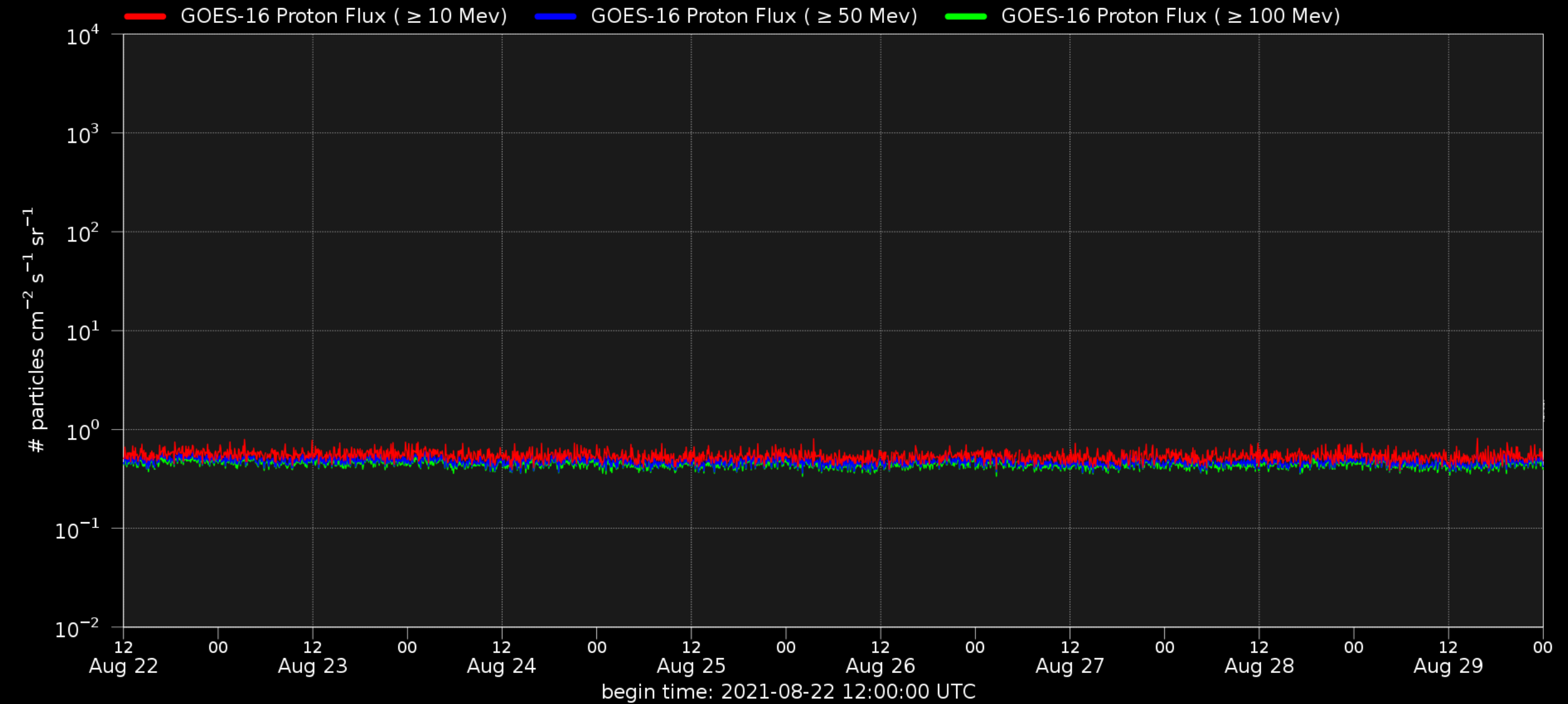
Energetic Particles



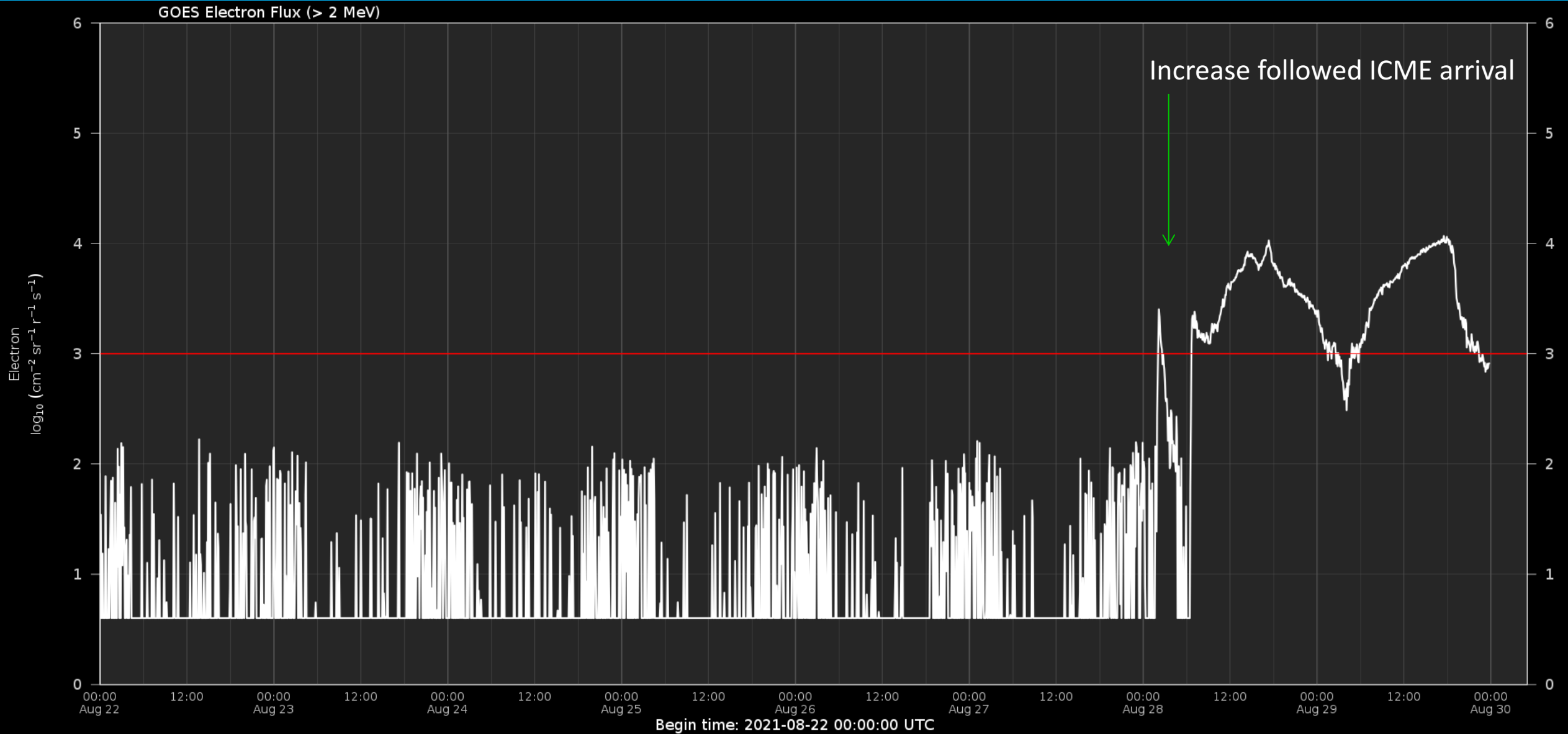
Royal Observatory
of Belgium

www.sidc.be

Solar proton flux



Electron flux at GEO



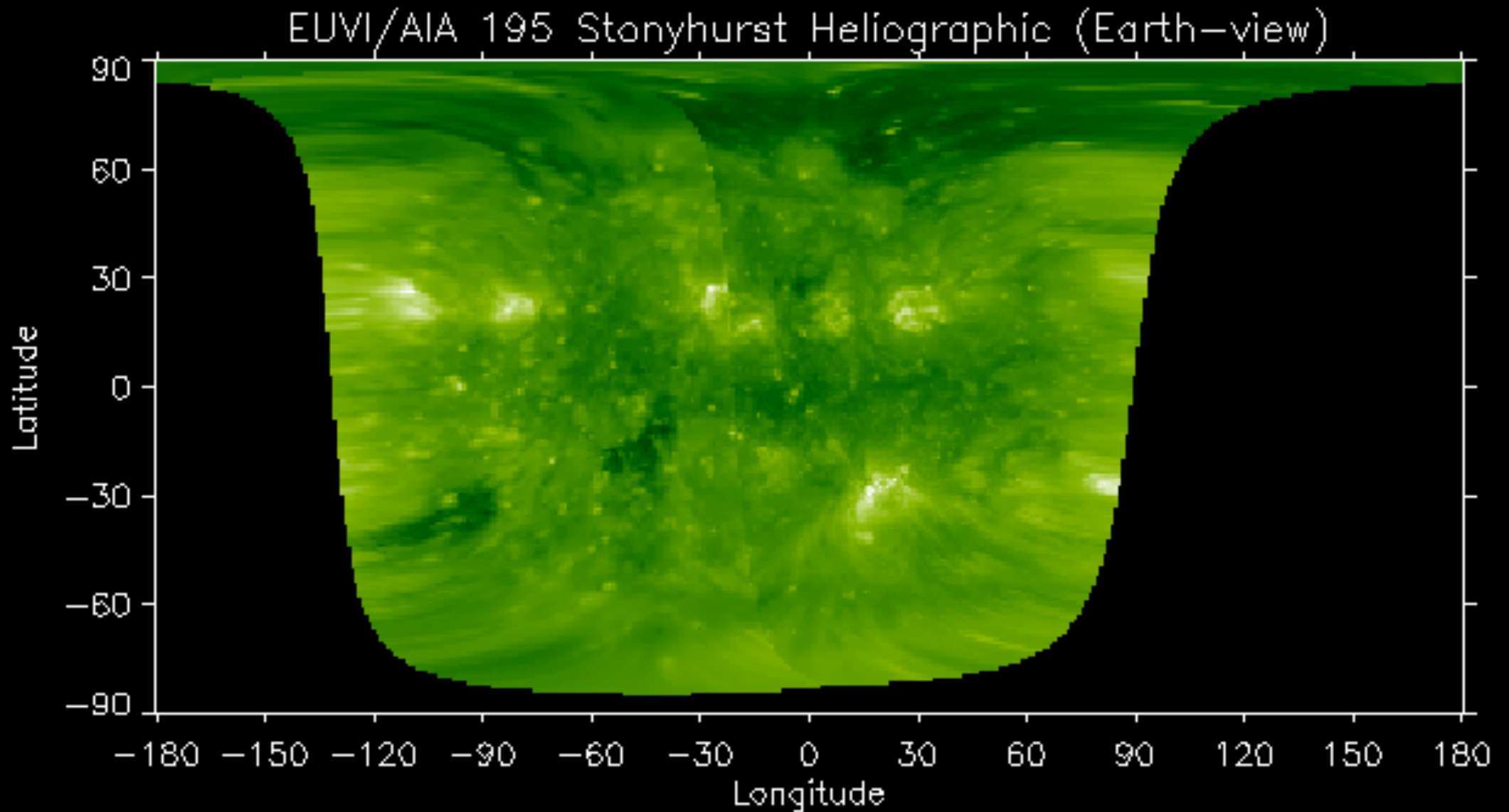
Outlook



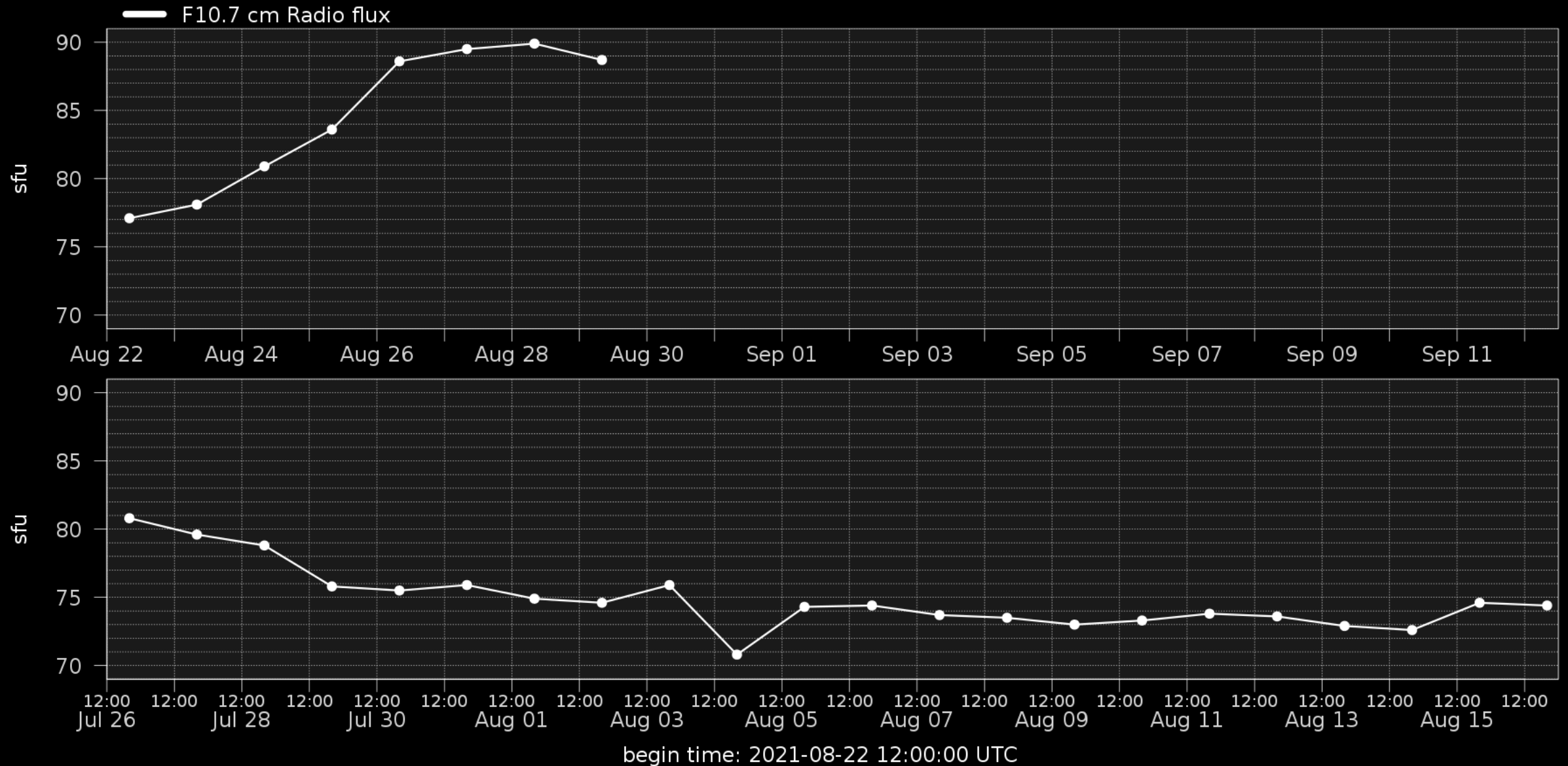
Royal Observatory
of Belgium

www.sidc.be

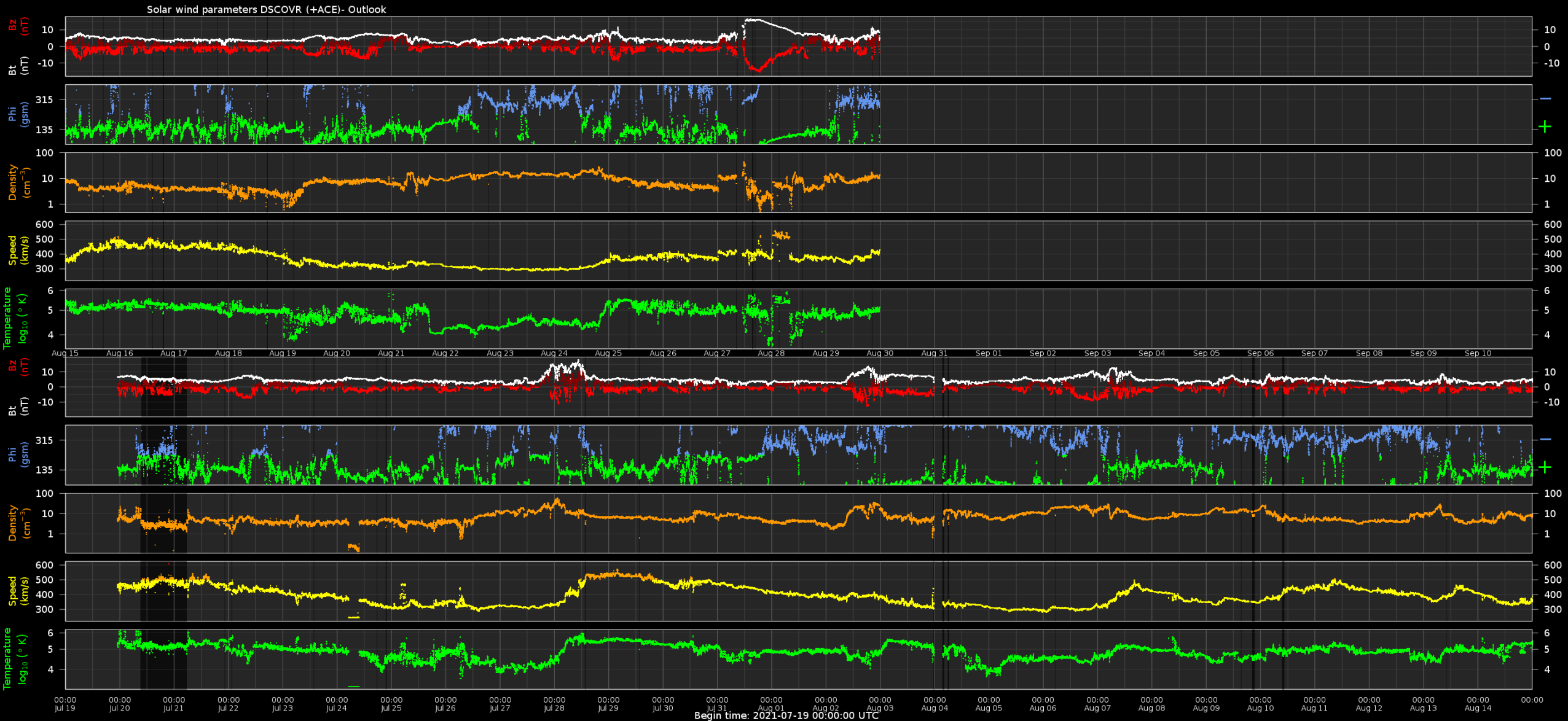
Outlook: Solar activity



Outlook: Solar F10.7cm radio flux



Outlook: Solar wind parameters



Outlook: Geomagnetic activity



Outlook: Electron Flux at GEO Outlook



SIDC Space Weather Briefing

See you at our next briefing!

Or visit us at www.sidc.be



Royal Observatory
of Belgium

www.sidc.be