

SIDC Space Weather Briefing

04 June 2023-11 June 2023

Daria Shukhobodskaja

& the SIDC forecaster team



Royal Observatory
of Belgium

Solar Influences
Data analysis Centre
www.sidc.be

Summary Report

Solar activity from 2023-06-04 12:00 to 2023-06-11 23:59

Active regions	13 Active Regions NOAA AR 3319 – 3321, 3323 - 3332
Flares	# C-class flare: 40 # M-class flare: 2 # X-class flare: 0
Coronal Holes	CH+ effecting Earth since June 10th, CH- expected to effect Earth since June 15
CMEs	CMEs from June 04 and June 09

Proton flux	Nominal levels
Electron flux	Below event threshold

Solar wind and geomagnetic conditions

ICMEs	22:10UTC on June 07 (possible source 10:36UTC, June 04)
Solar wind conditions	B : 1.21 - 15.65 nT //Bz: -11.75 nT to 14.88 nT //Speed: 277.0 - 486.4km/s
K-indices	max K-index (KBel): 4 max Kp-index (NOAA): 4

All Quiet Alert: Not all quiet

Solar Activity

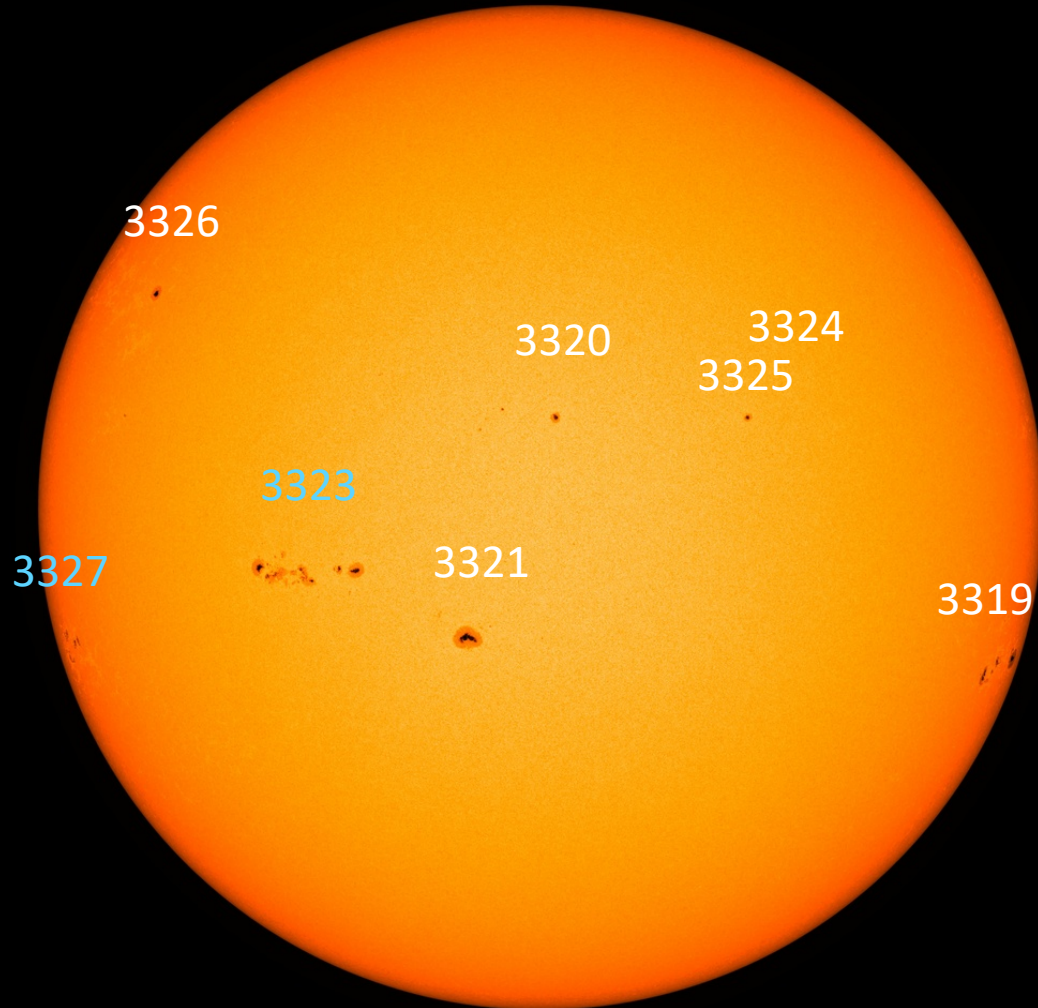


Royal Observatory
of Belgium

Solar Influences
Data analysis Centre
www.sidc.be

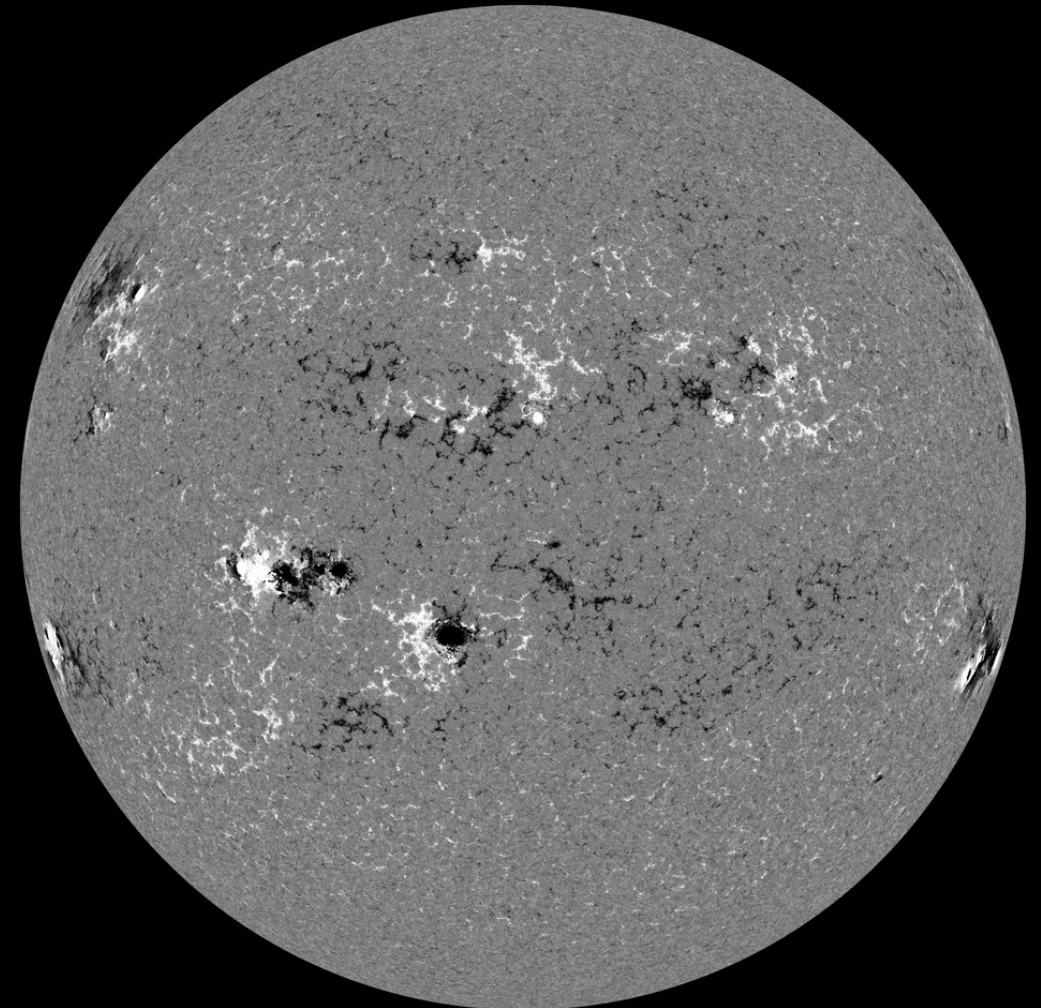
Solar active regions

SDO/HMI White Light 2023-06-04



SDO/HMI Quick-Look Continuum: 20230604_114500

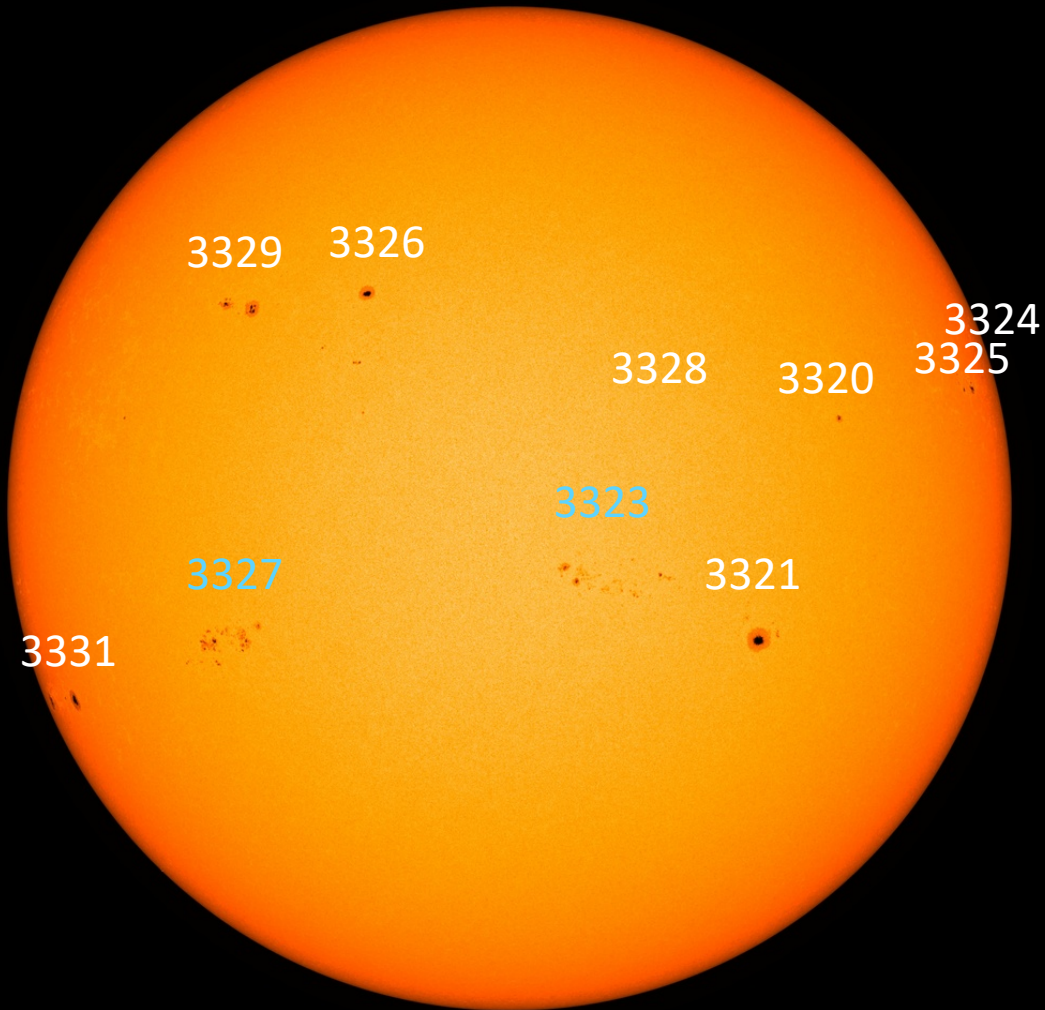
SDO/HMI Magnetogram 2023-06-04



SDO/HMI Quick-Look Magnetogram: 20230604_114500

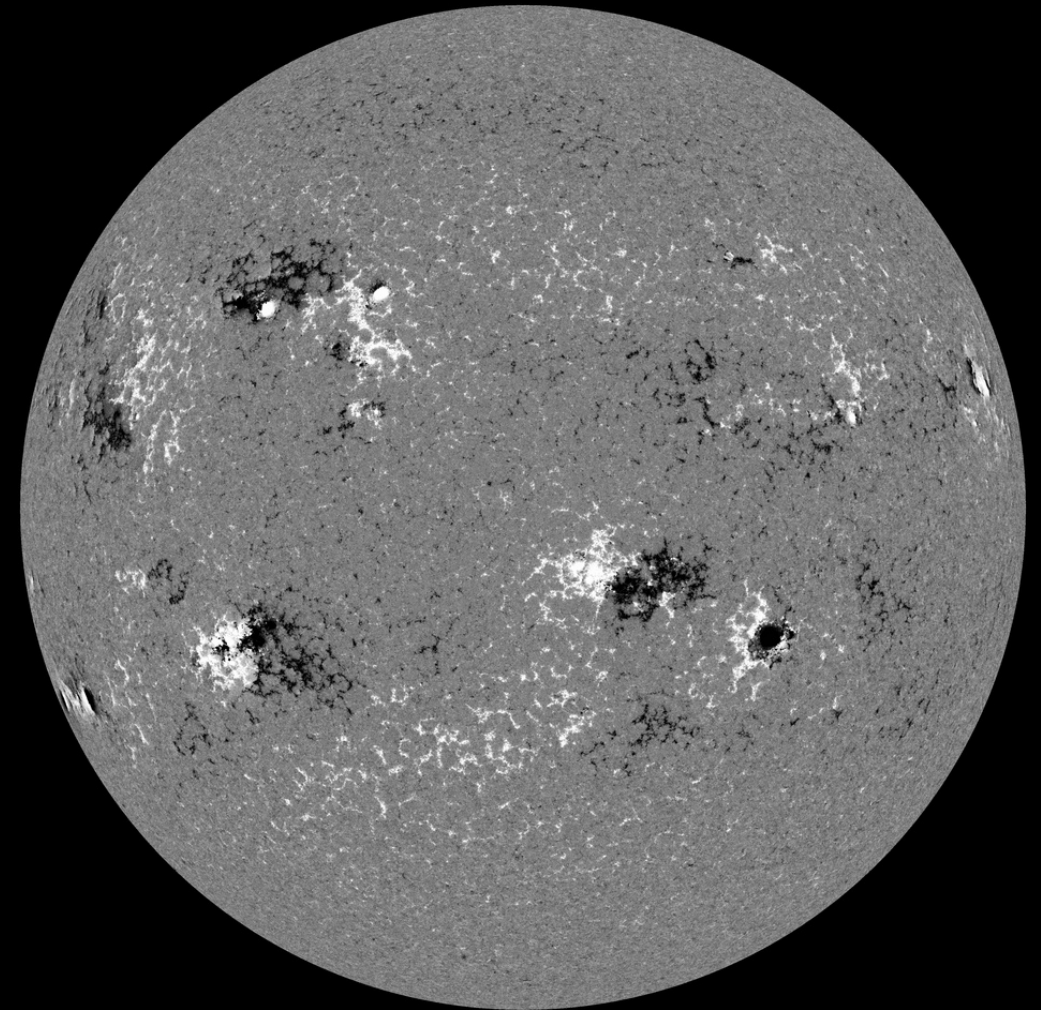
Solar active regions

SDO/HMI White Light 2023-06-07



SDO/HMI Quick-Look Continuum: 20230607_114500

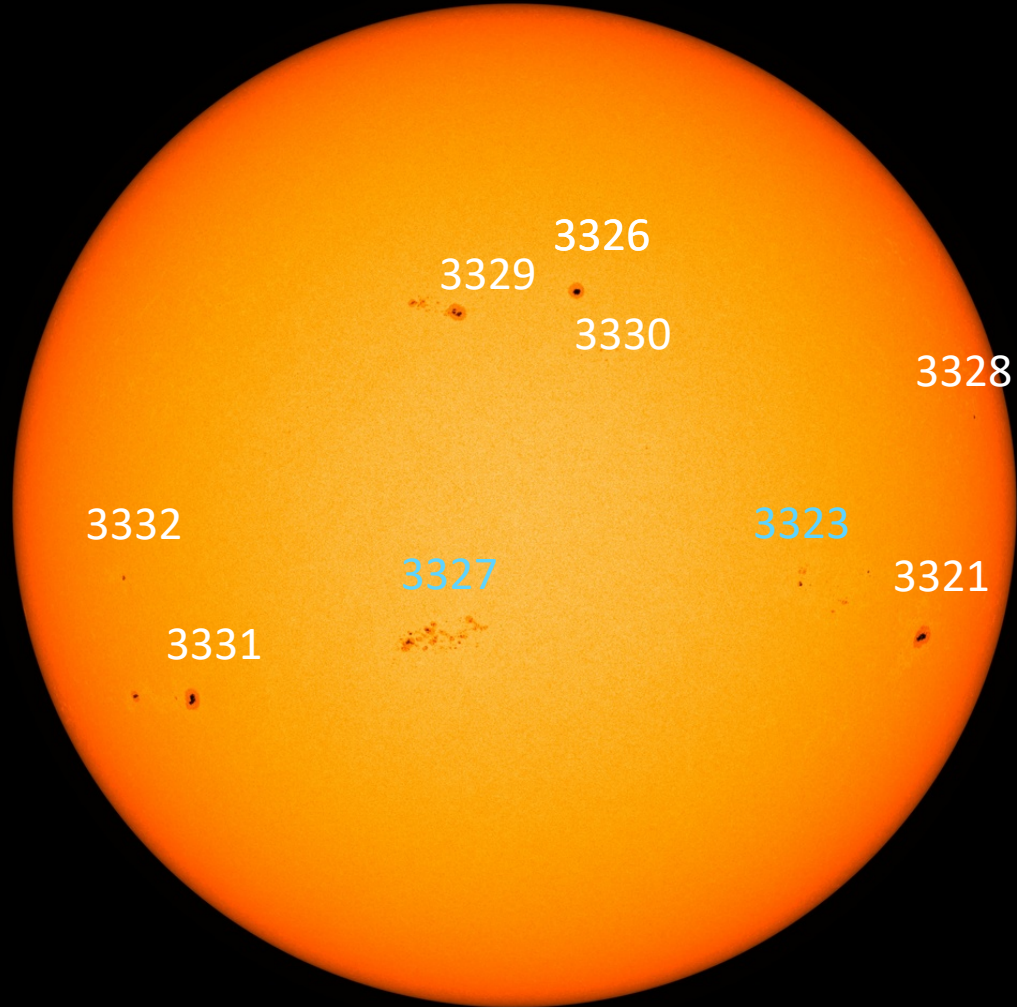
SDO/HMI Magnetogram 2023-06-07



SDO/HMI Quick-Look Magnetogram: 20230607_114500

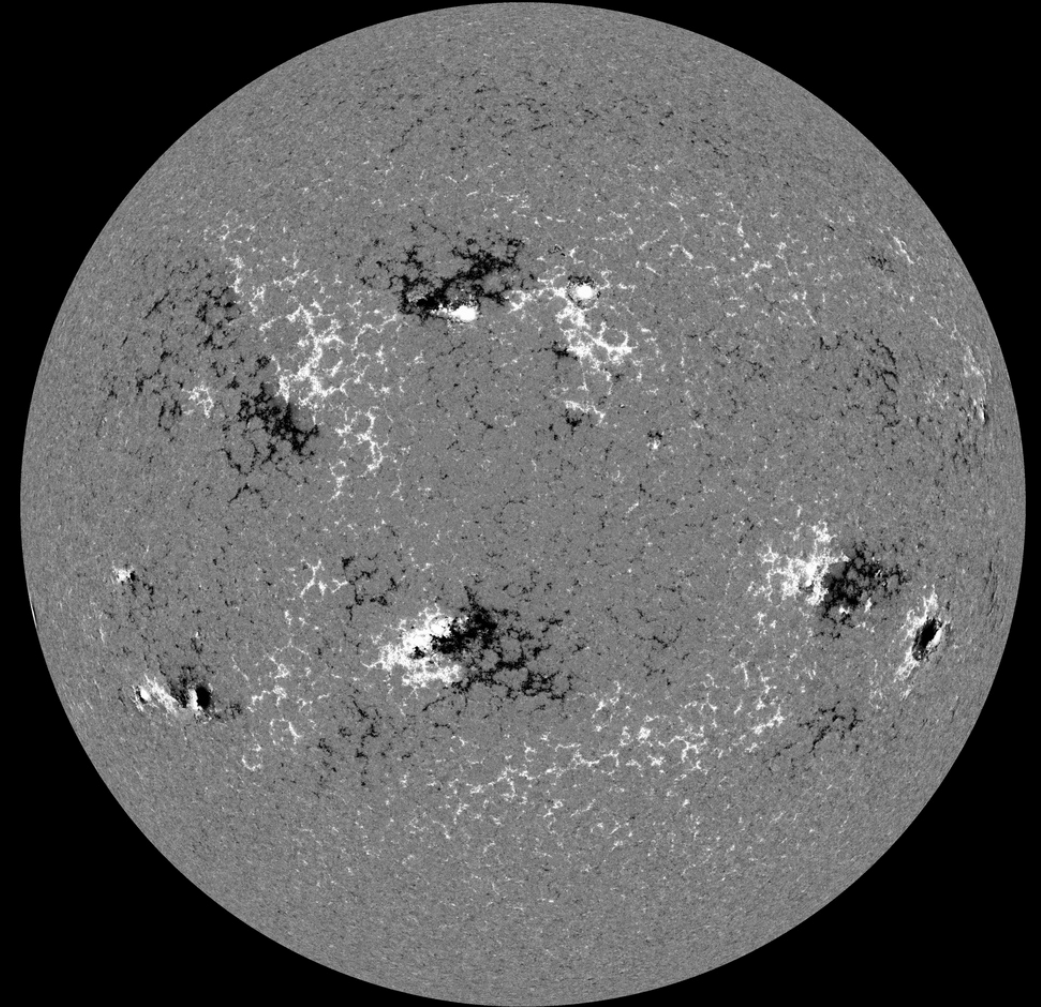
Solar active regions

SDO/HMI White Light 2023-06-09



SDO/HMI Quick-Look Continuum: 20230609_114500

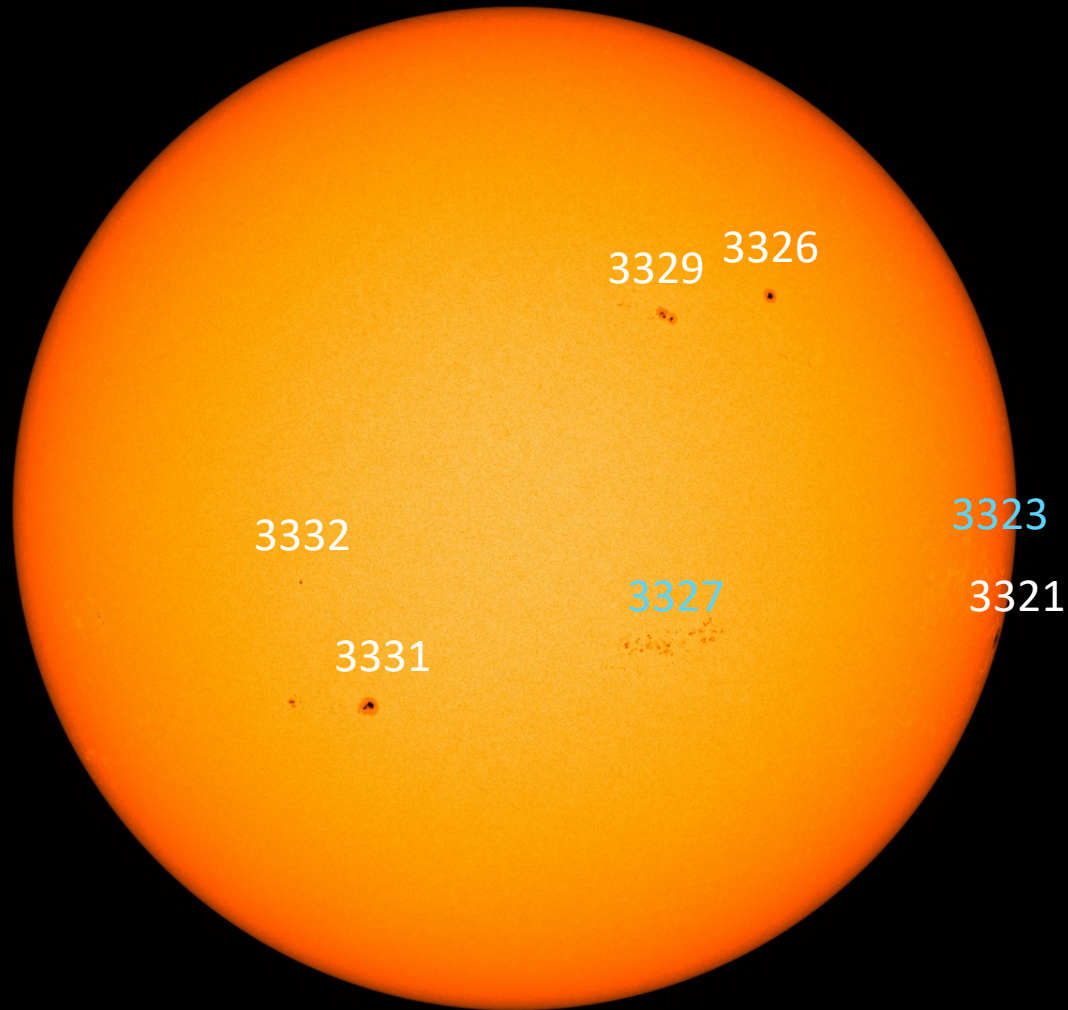
SDO/HMI Magnetogram 2023-06-09



SDO/HMI Quick-Look Magnetogram: 20230609_114500

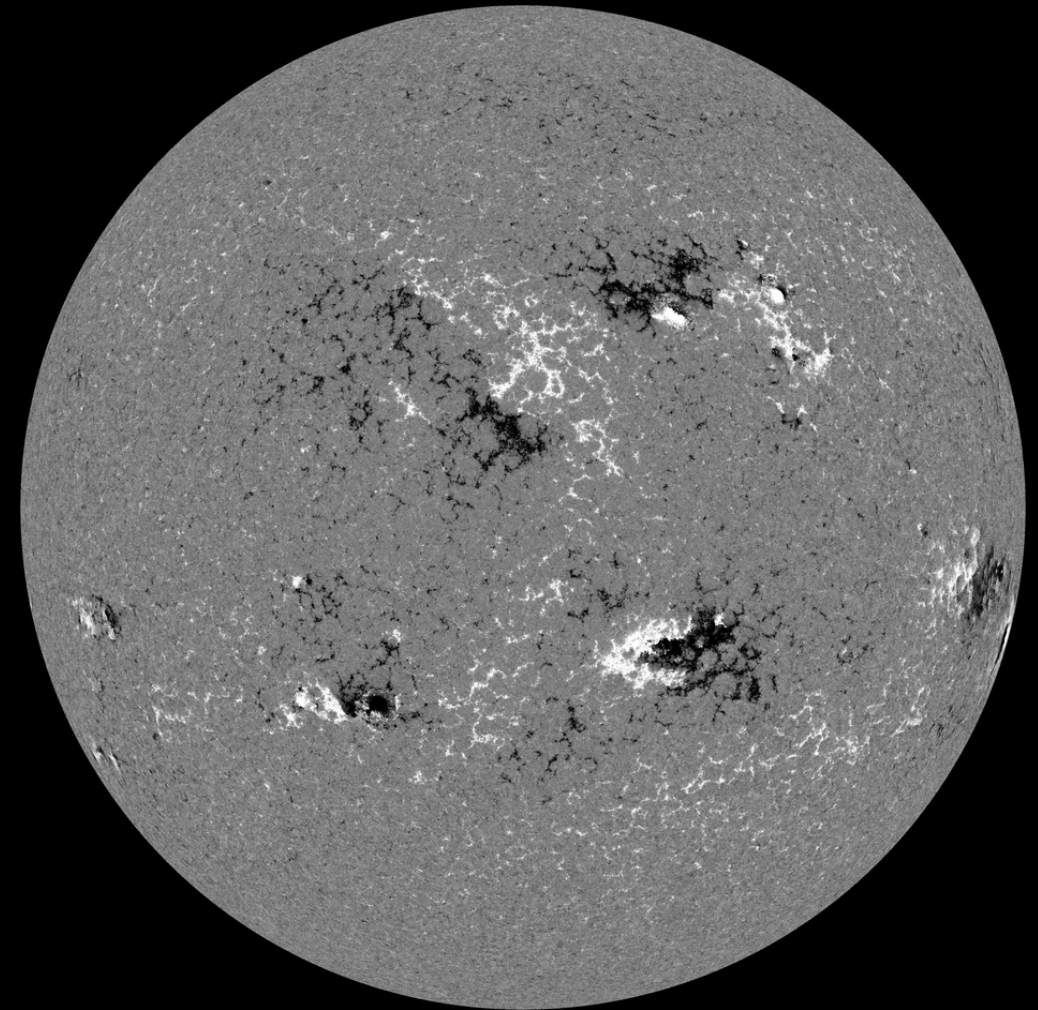
Solar active regions

SDO/HMI White Light 2023-06-11



SDO/HMI Quick-Look Continuum: 20230611_114500

SDO/HMI Magnetogram 2023-06-11

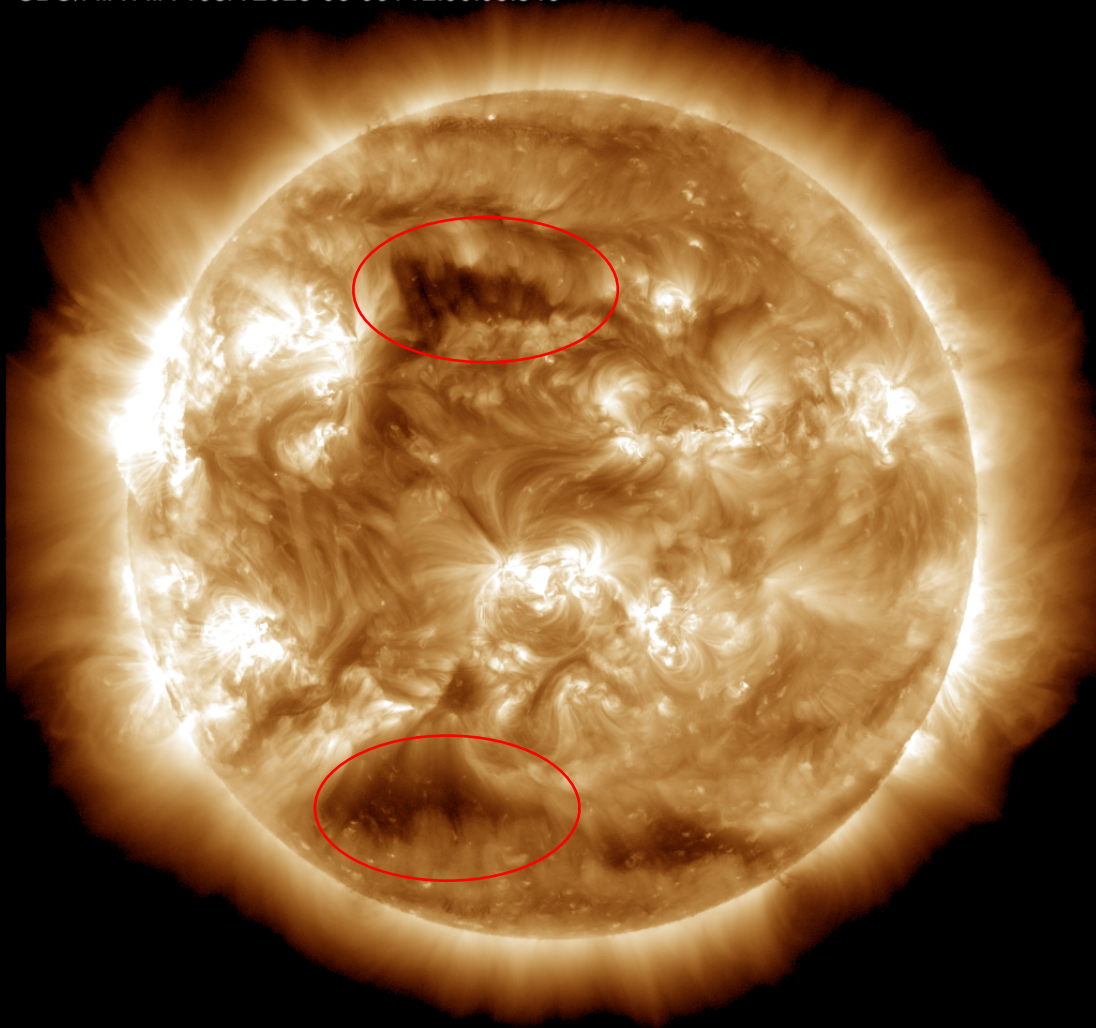


SDO/HMI Quick-Look Magnetogram: 20230611_114500

Coronal holes

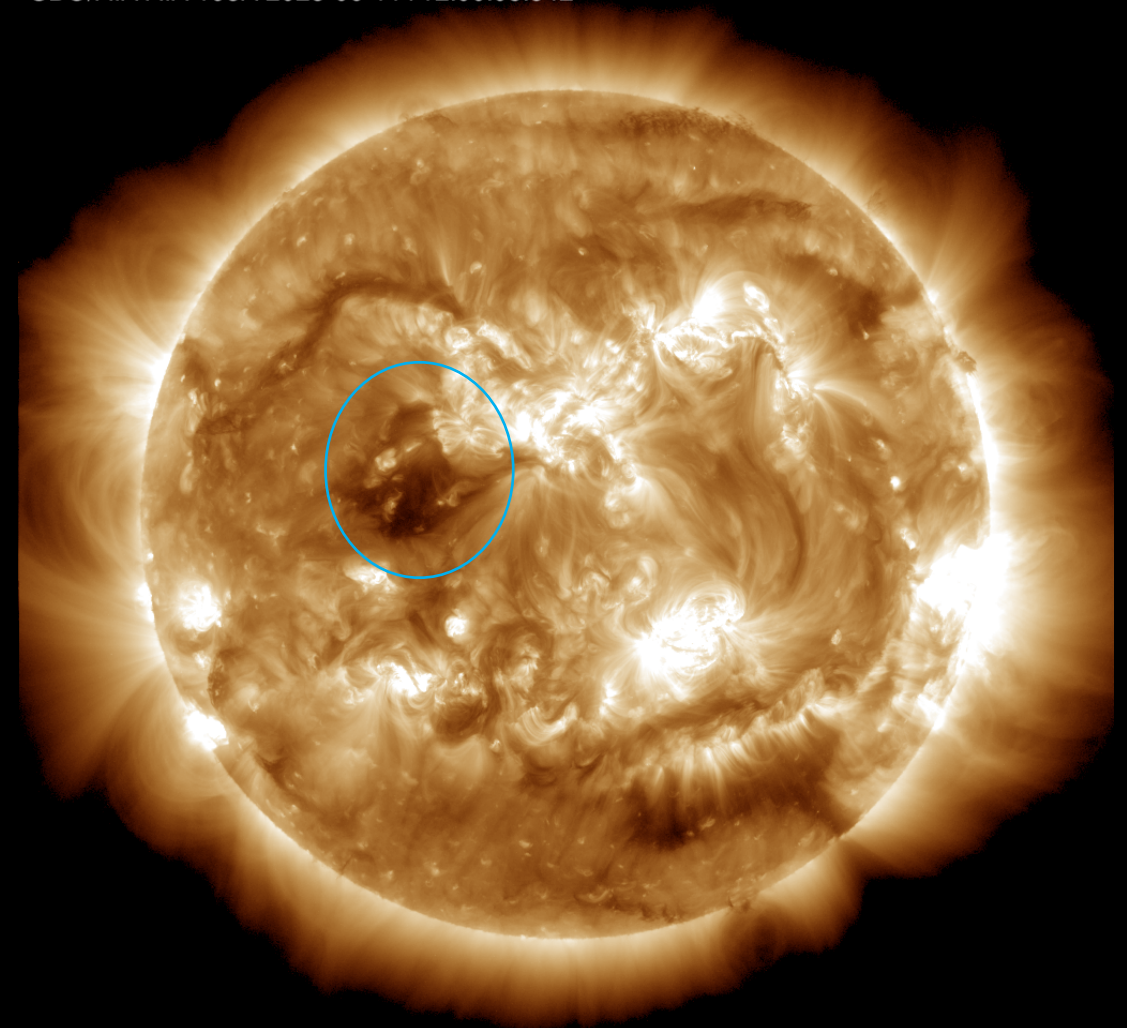
SDO/AIA 19.3 nm 2023-06-06

SDO/AIA AIA 193Å 2023-06-06T12:00:05.846



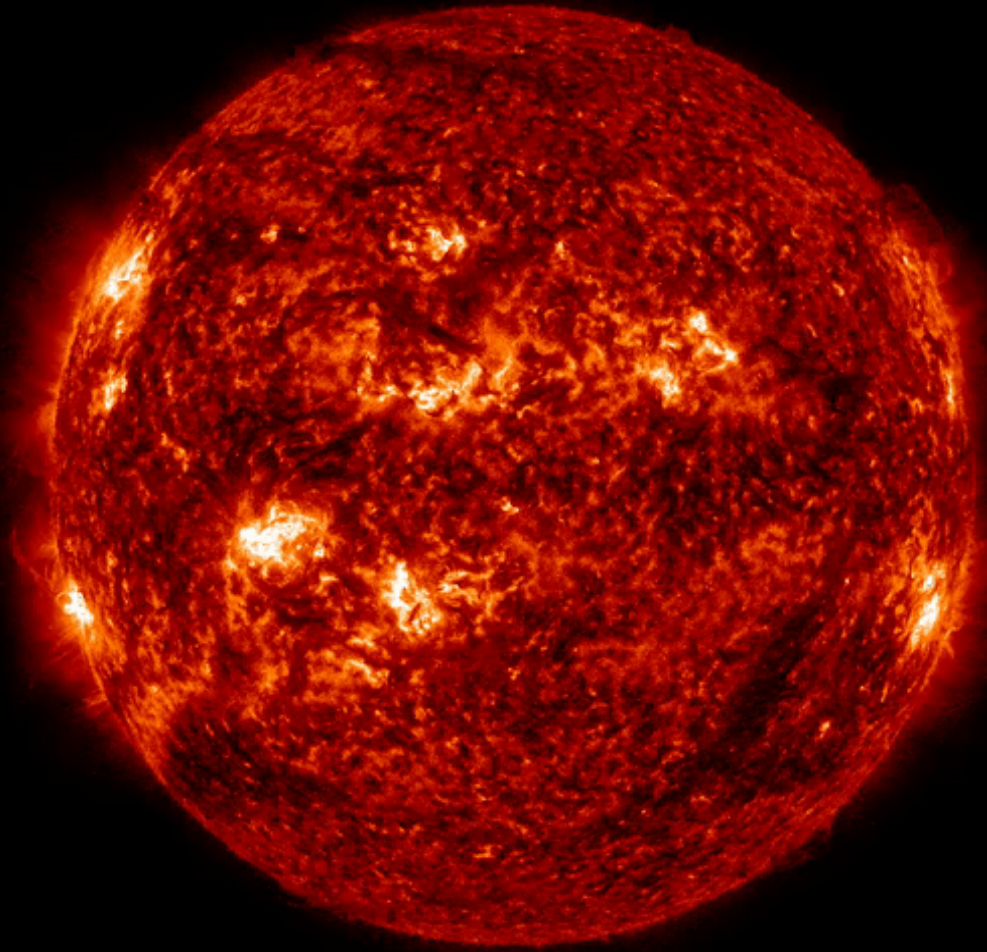
SDO/AIA 19.3 nm 2023-06-11

SDO/AIA AIA 193Å 2023-06-11T12:00:05.842



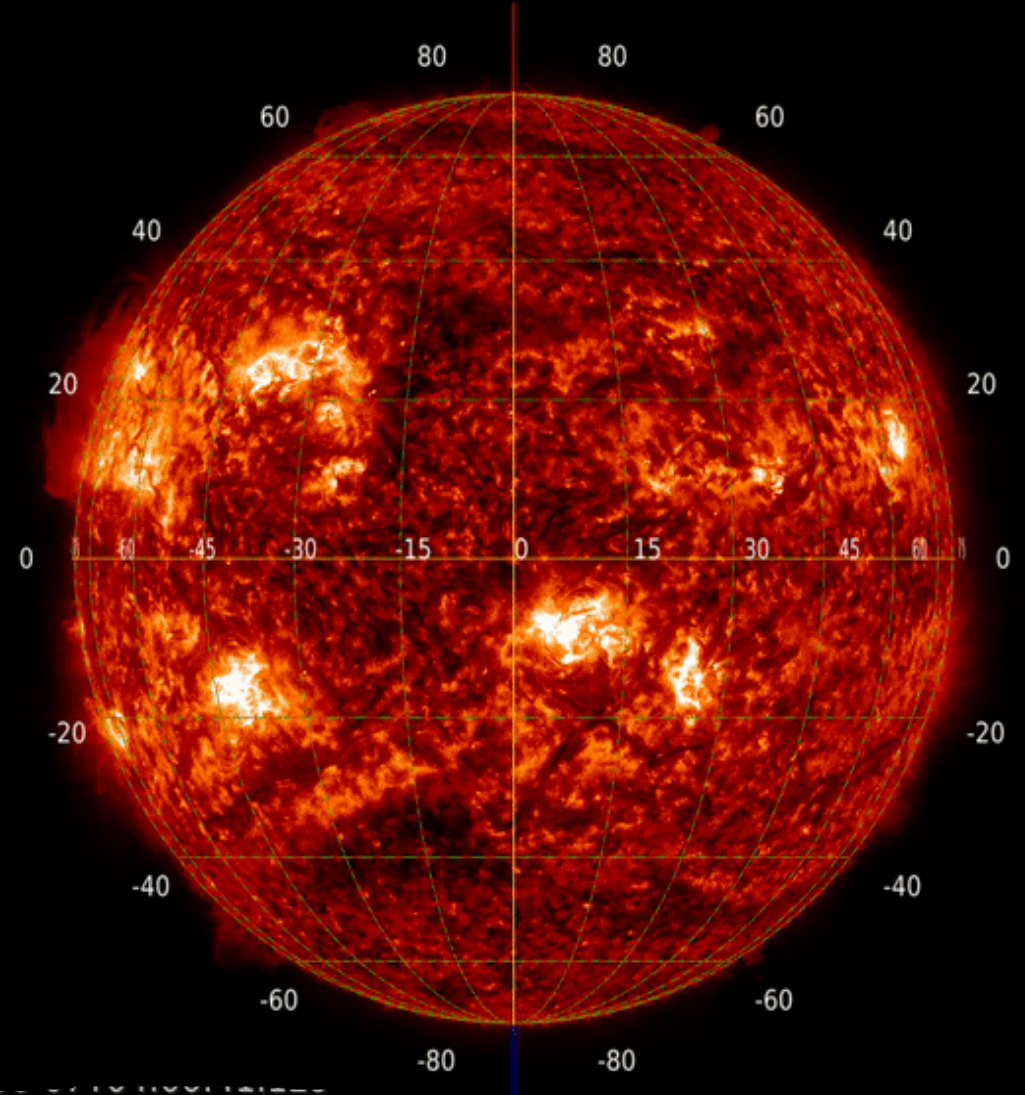
Filaments

SDO/AIA 30.4 nm 2023-06-04



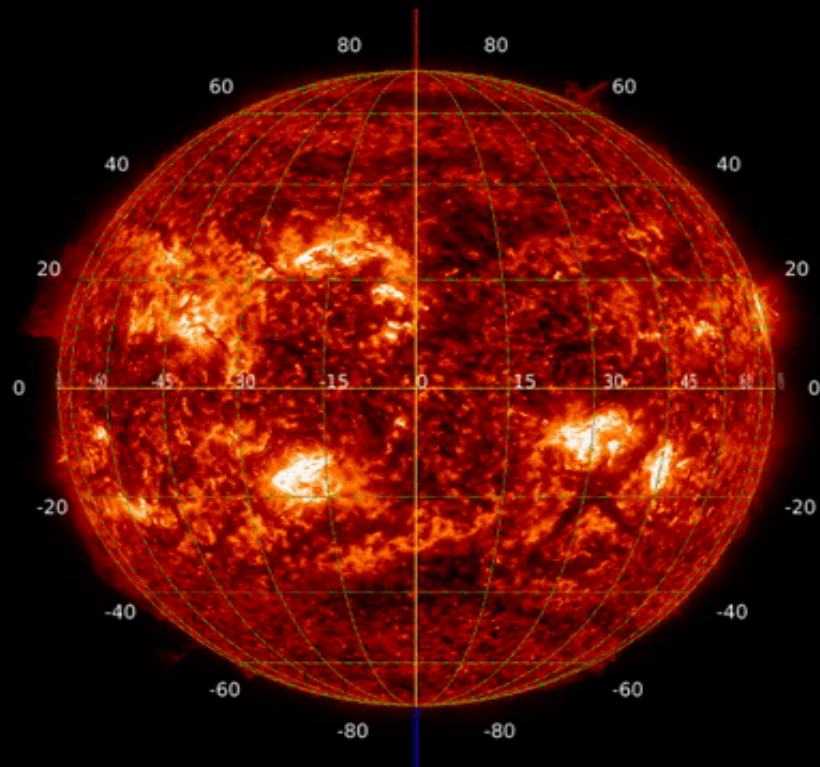
2023-06-04T06:48:07.411

SDO/AIA 30.4 nm 2023-06-07



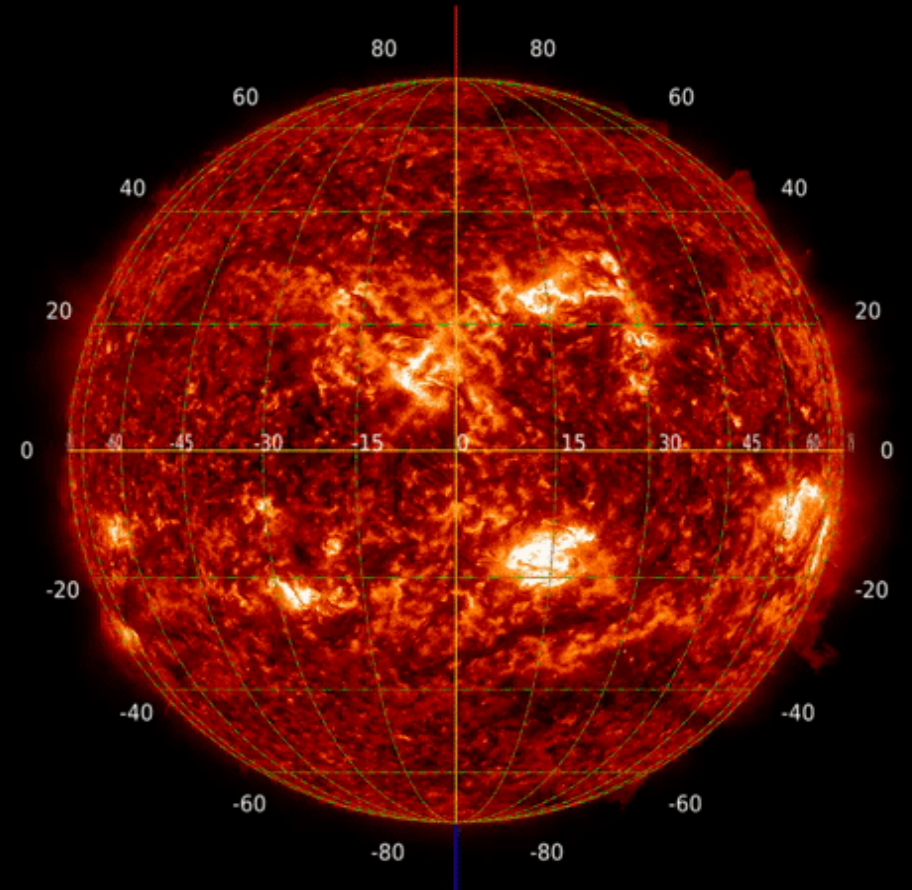
Filaments

SDO/AIA 30.4 nm 2023-06-08



2023-06-08T18:00:41.129

SDO/AIA 30.4 nm 2023-06-11



2023-06-11T18:00:41.129

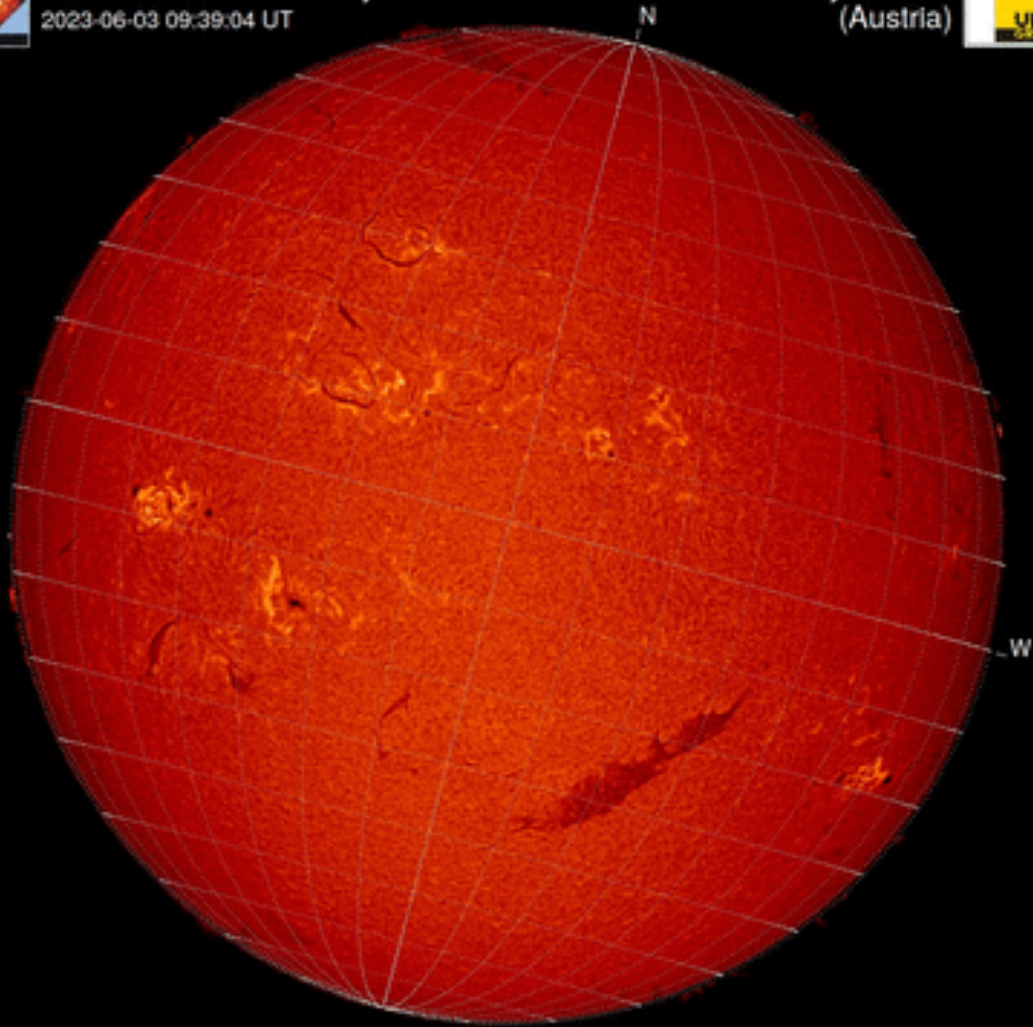
Filaments & Filament eruptions

H-alpha 2023-06-04



Kanzelhöhe Observatory
2023-06-03 09:39:04 UT

University of Graz
(Austria)

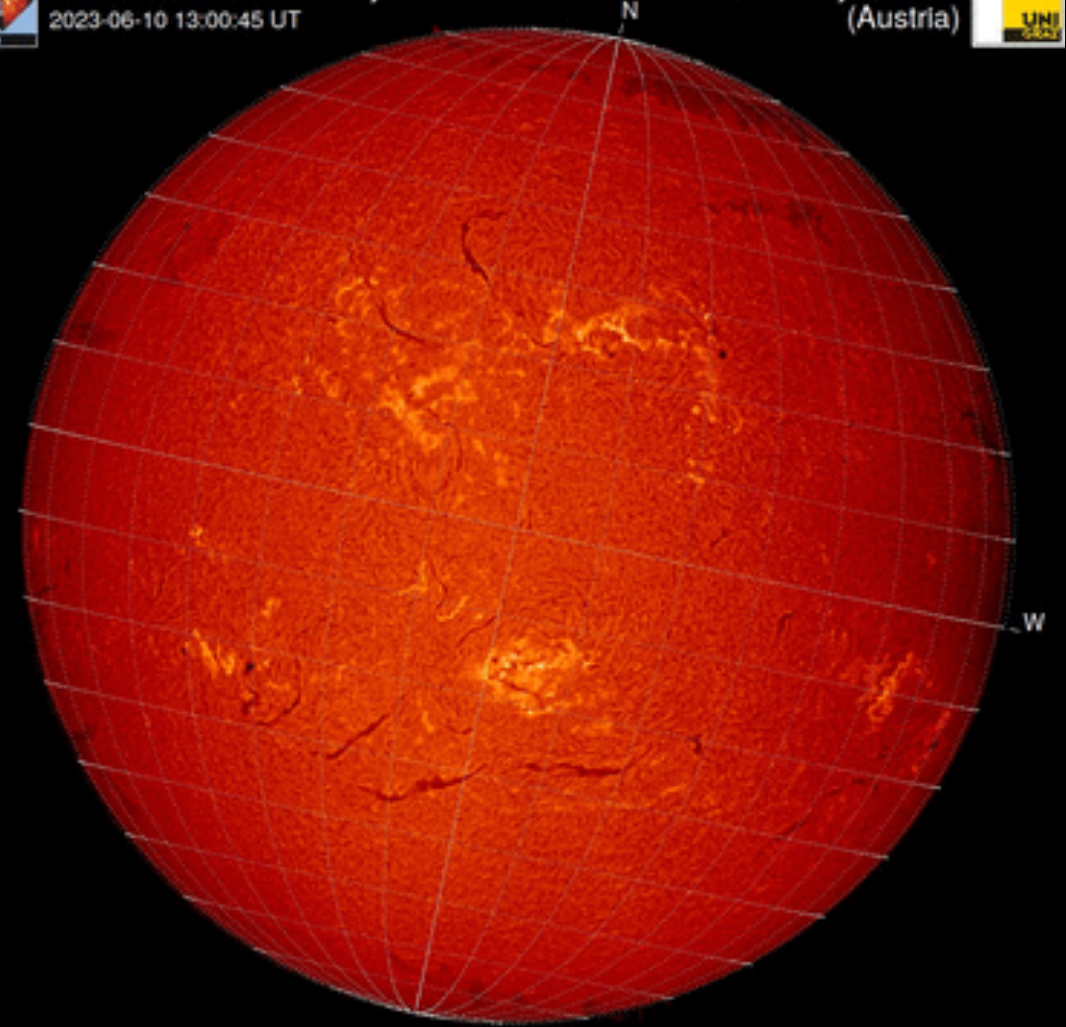


H-alpha 2023-06-11

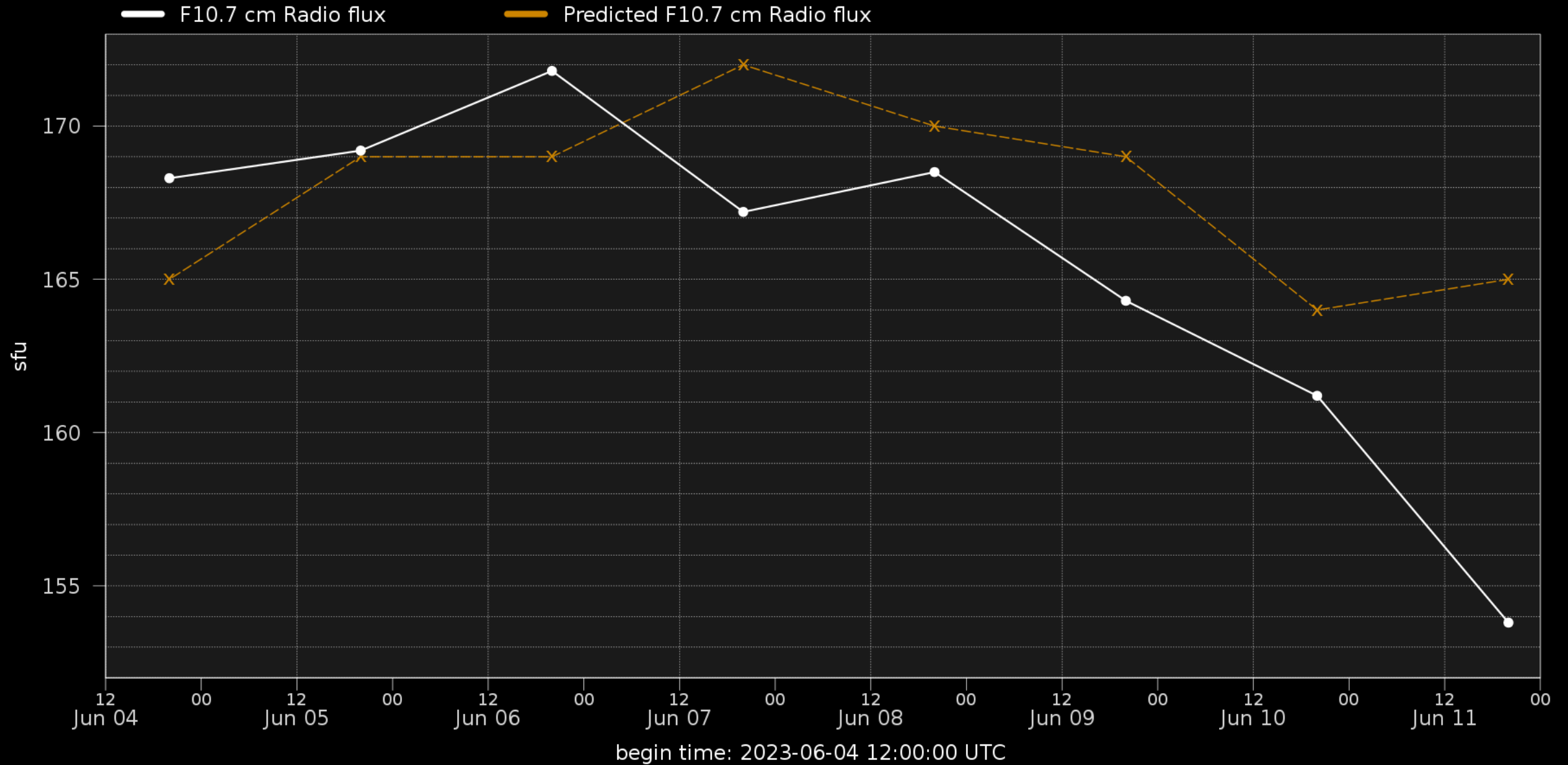


Kanzelhöhe Observatory
2023-06-10 13:00:45 UT

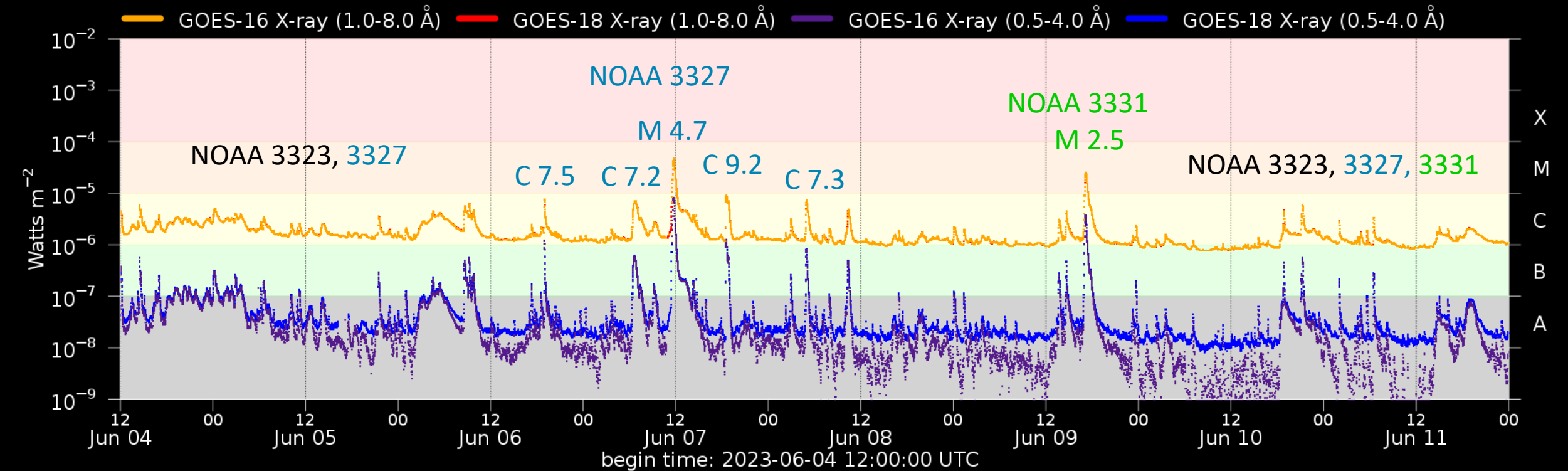
University of Graz
(Austria)



Solar F10.7cm radio flux



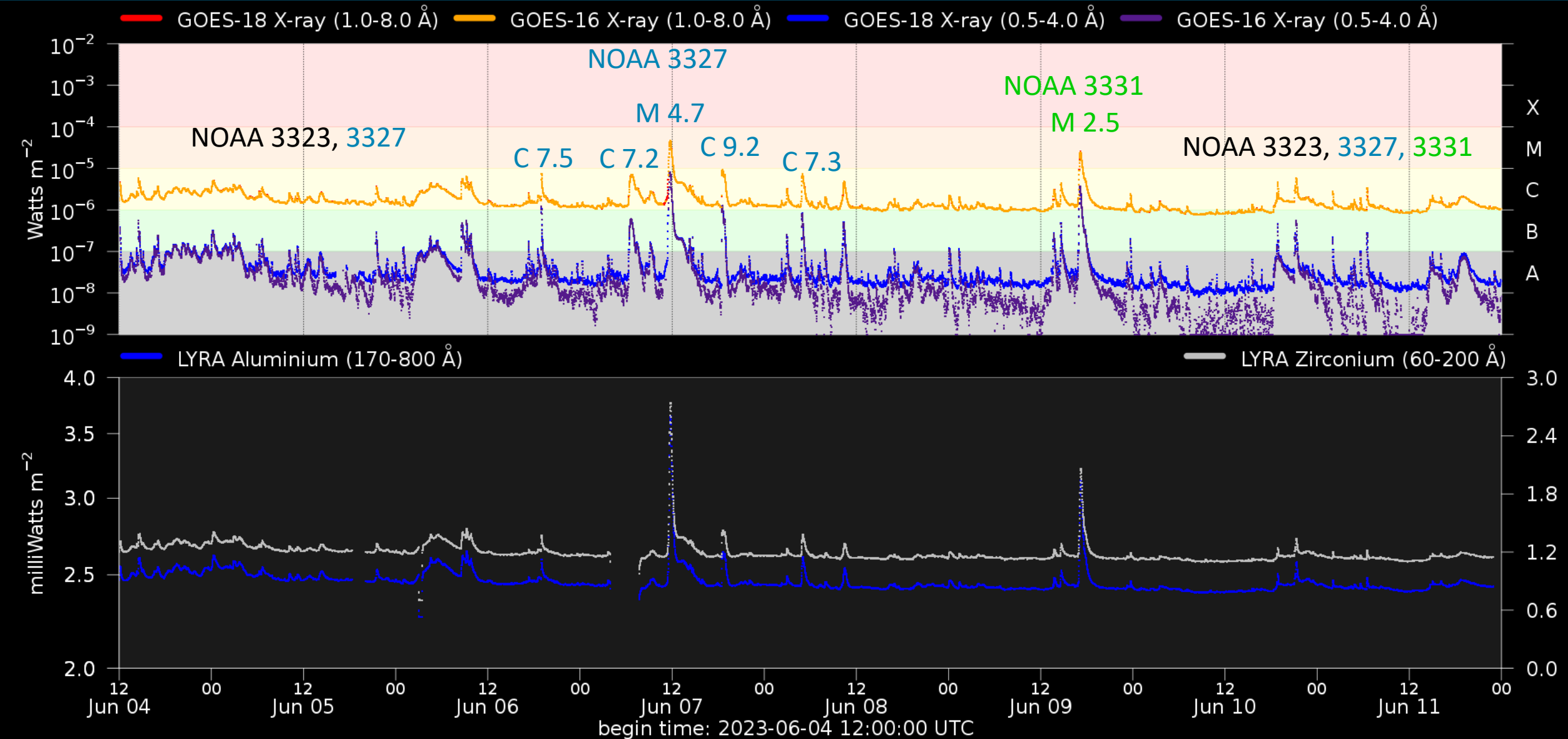
Flaring activity



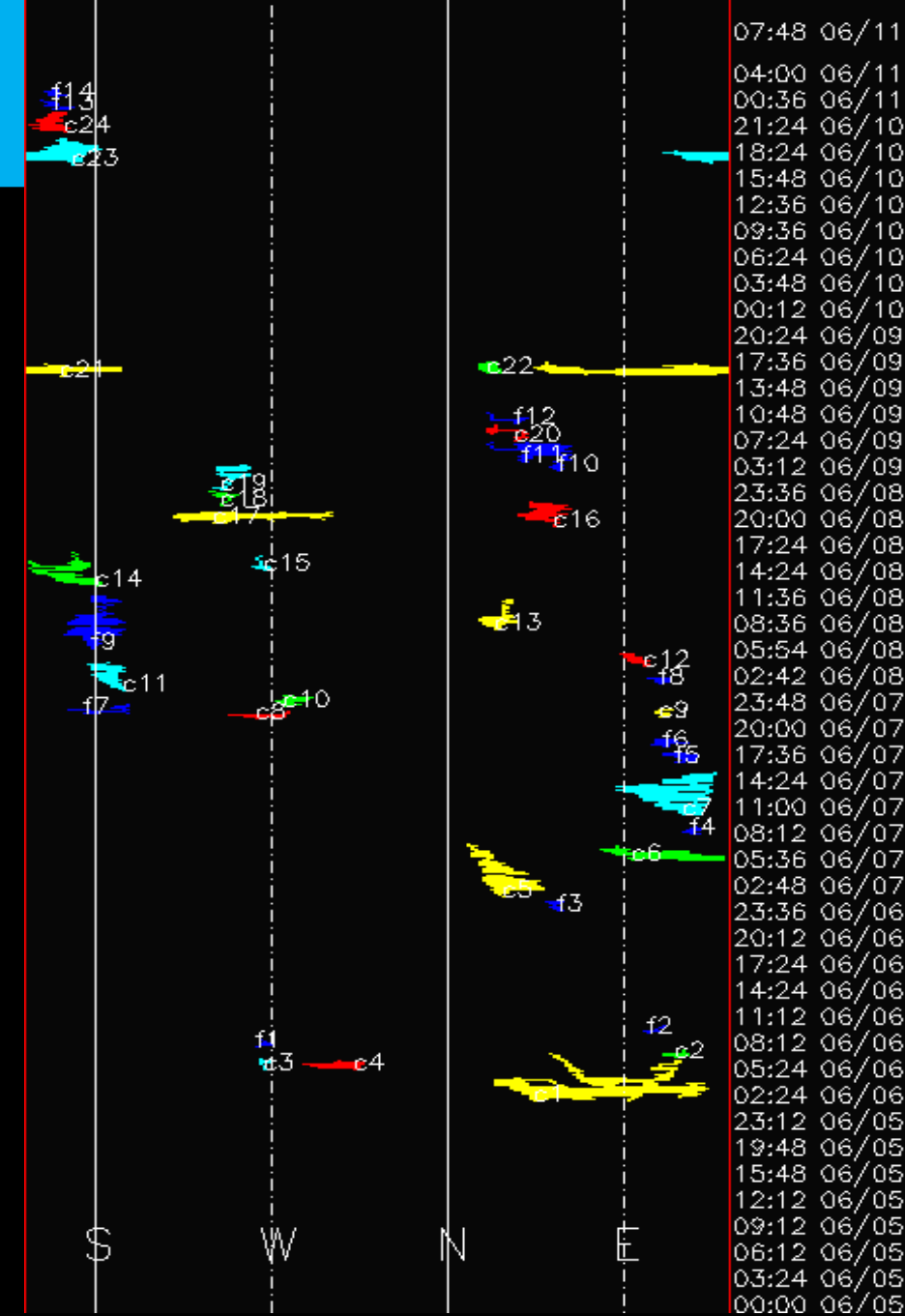
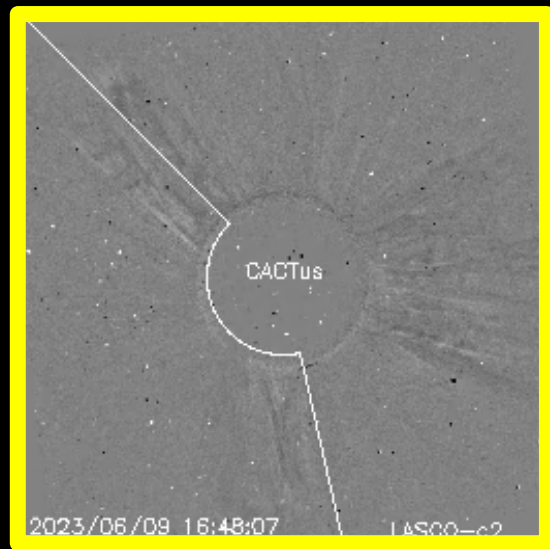
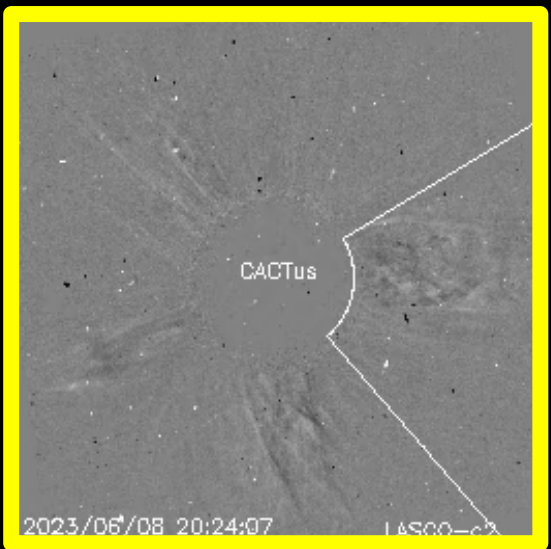
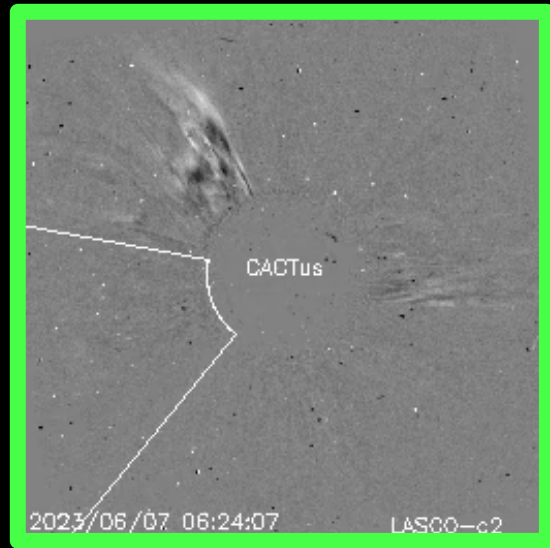
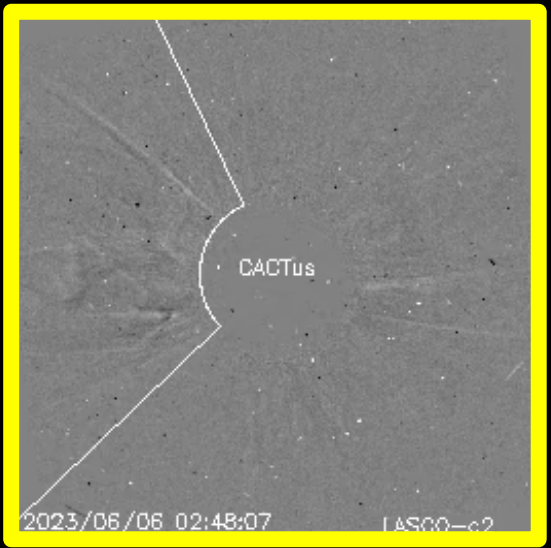
Probabilities (%) and occurrences (#) of C/M/X-flares daily, from noon to noon:

Issue date	2023-06-04	2023-06-05	2023-06-06	2023-06-07	2023-06-08	2023-06-09	2023-06-10	2023-06-11
Probability (%)	90 60 15	95 50 15	95 40 10	99 45 15	99 45 15	99 45 10	99 45 10	99 35 10
Observed (#)	04 00 00	05 00 00	05 01 00	10 00 00	03 00 00	04 01 00	07 00 00	02 00 00

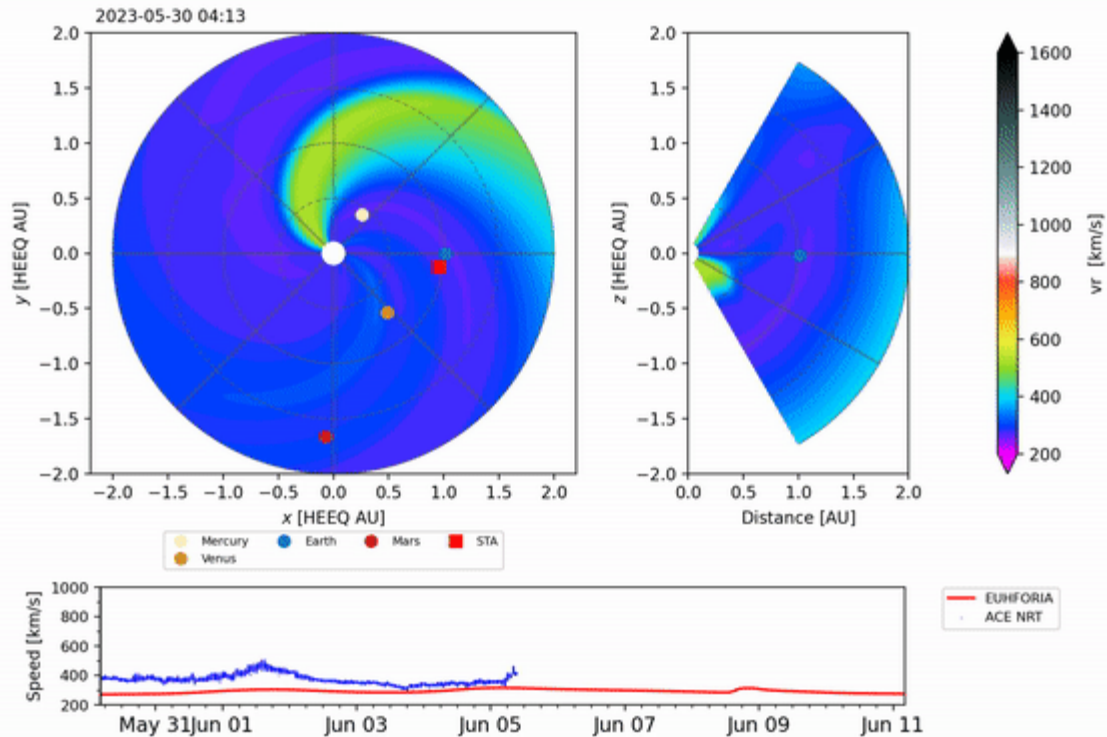
Solar X-Ray and UV flux



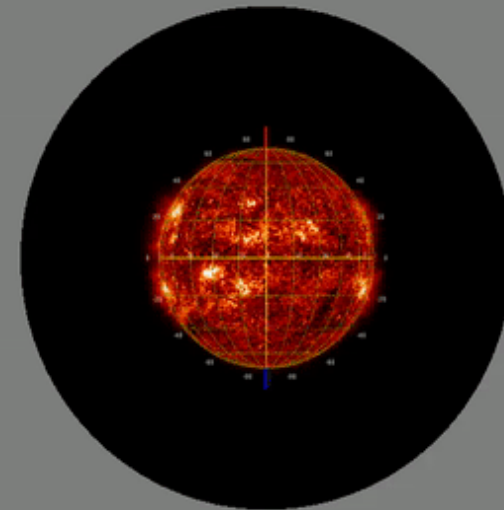
Coronal Mass Ejections



Coronal Mass Ejections

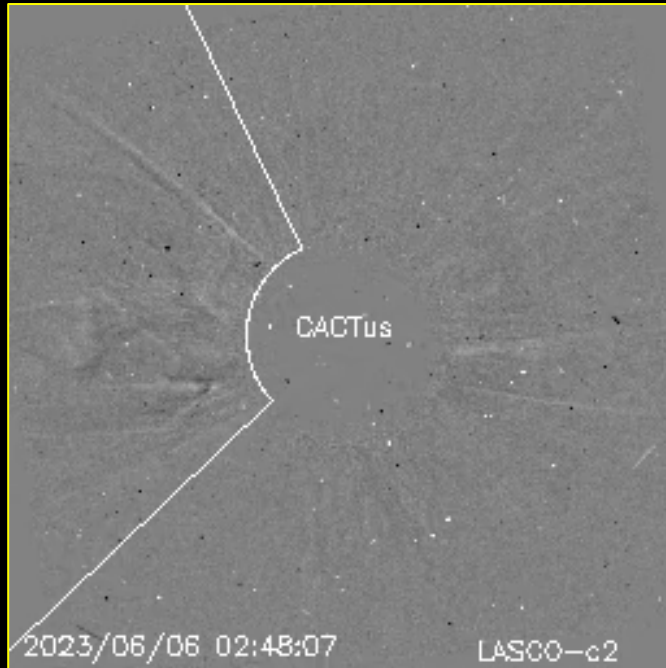


When: 10:36 UTC on June 04
Prediction: Predicted arrival at Earth at 07:00 on June 08 (possibly arrived at 22:25 UTC on June 07)



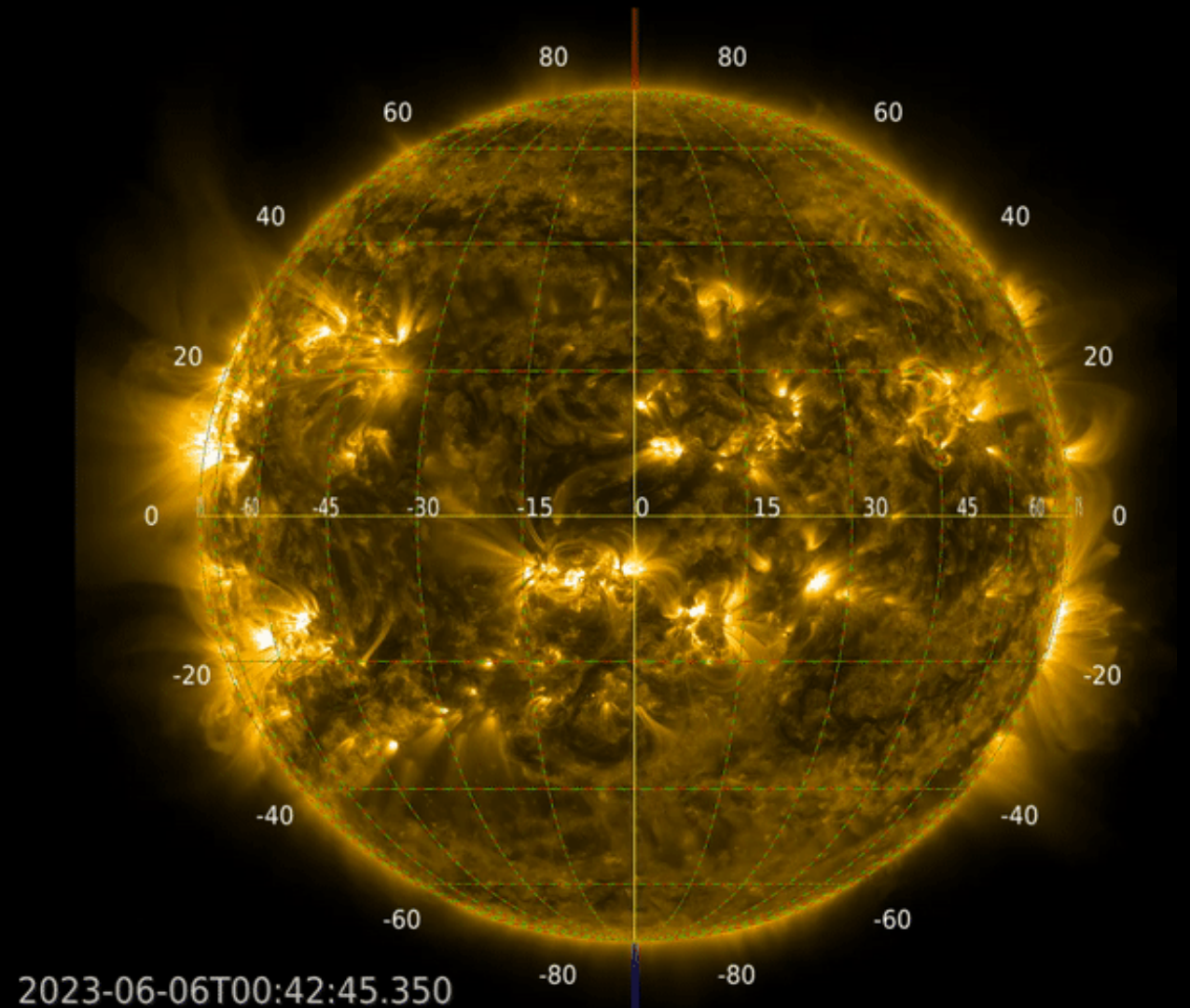
2023-06-04T06:48:07.411

Coronal Mass Ejections

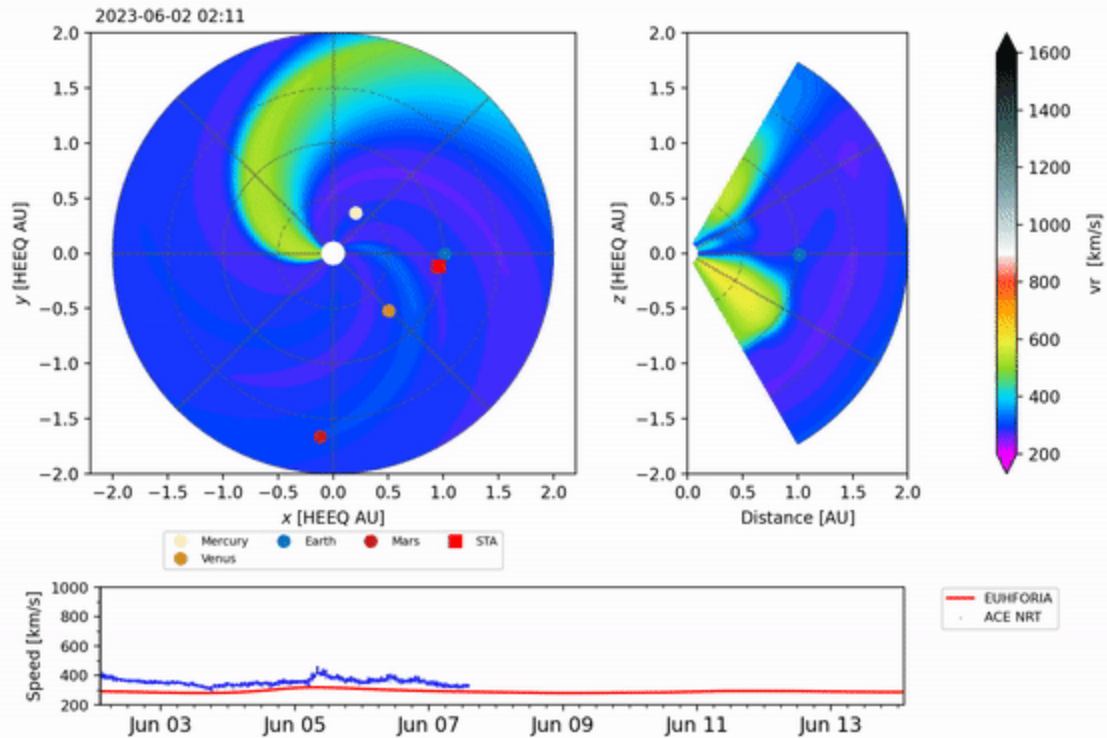


When: 03:35 UTC on June 06

Prediction: not expected to arrive to Earth



Coronal Mass Ejections

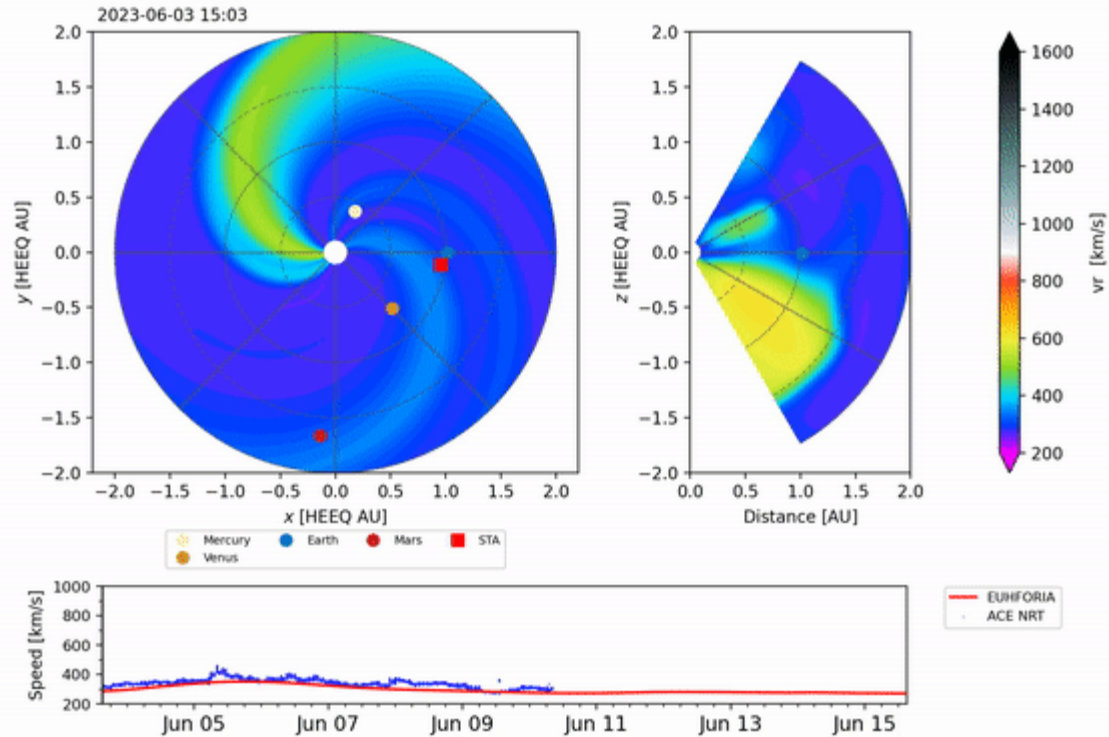


When: 07:05 UTC on June 07, likely related to the C7.2 flare from S22E40 with an accompanying on disc dimming and a type II radio burst detected around 06:37 UTC.

Prediction: not expected to arrive to Earth

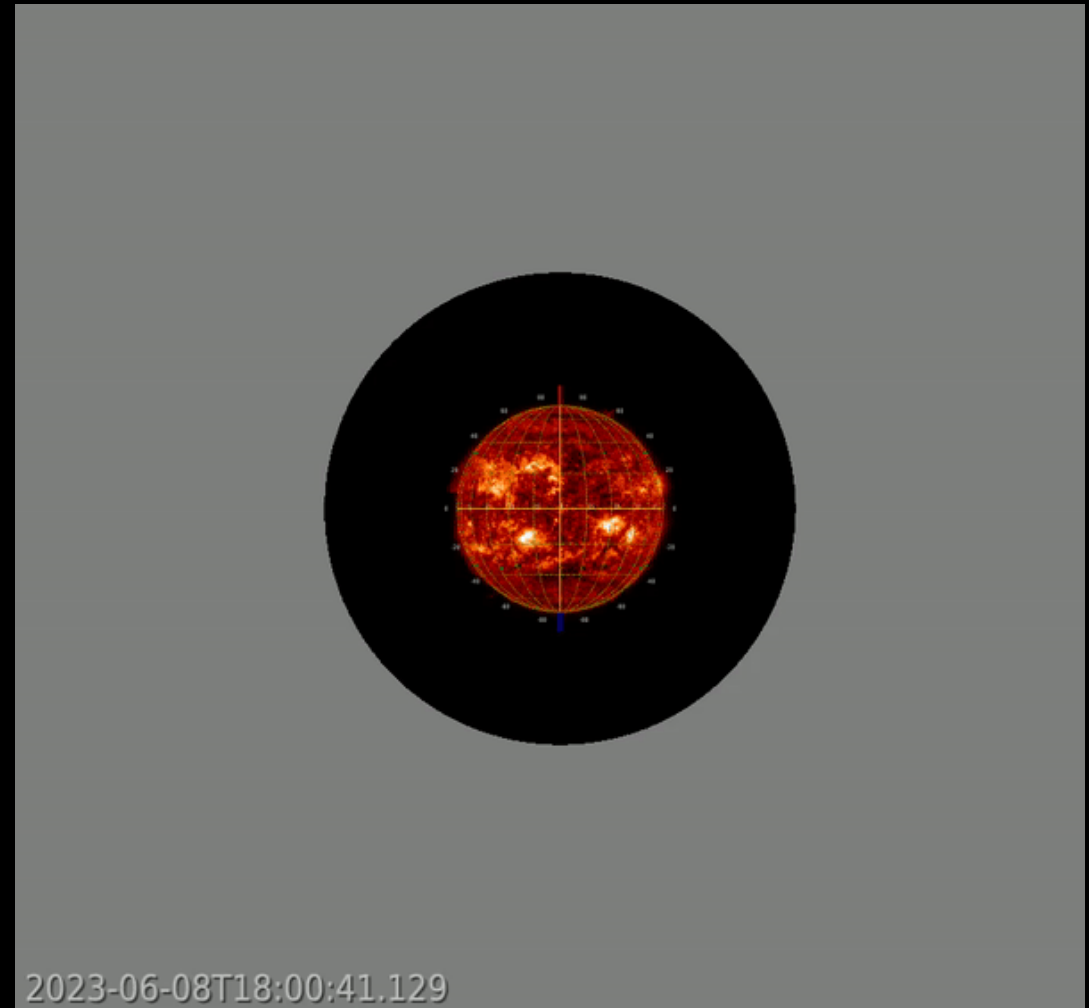
2023-06-07T04:12:07.540

Coronal Mass Ejections

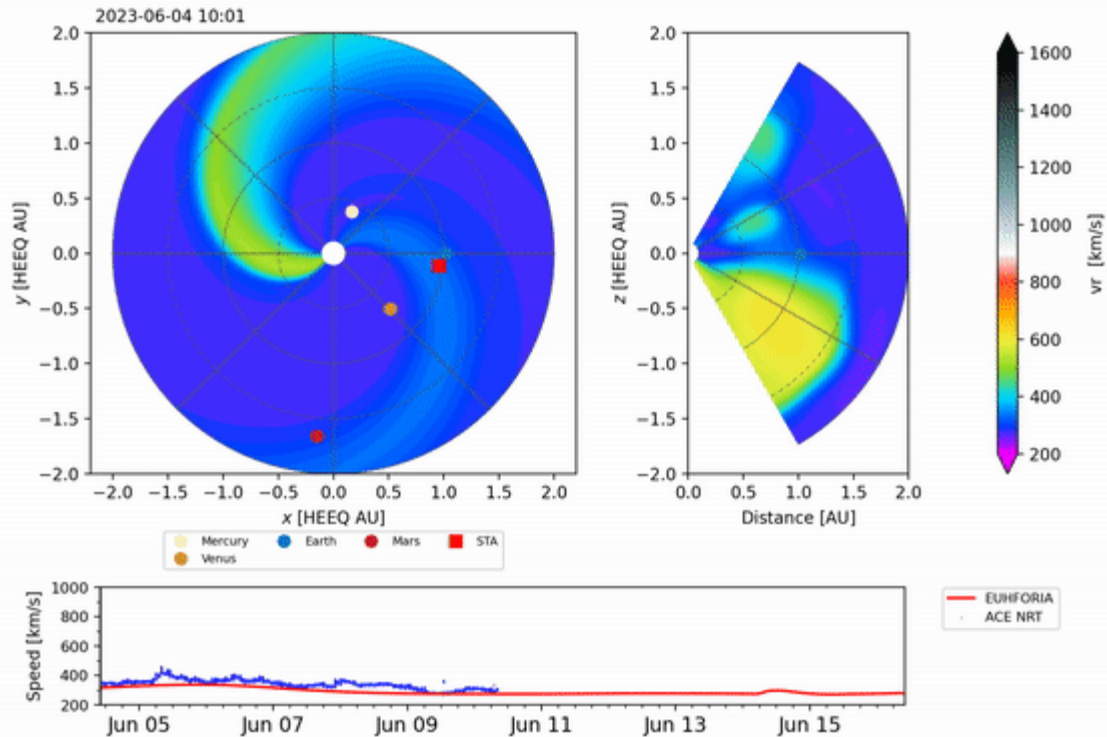


When: 21:27 UTC on June 08, likely related to the small filament eruption in the southwestern quadrant with an accompanying on disc dimming and a type II radio burst detected around 21:14 UTC on June 08

Prediction: not expected to arrive to Earth

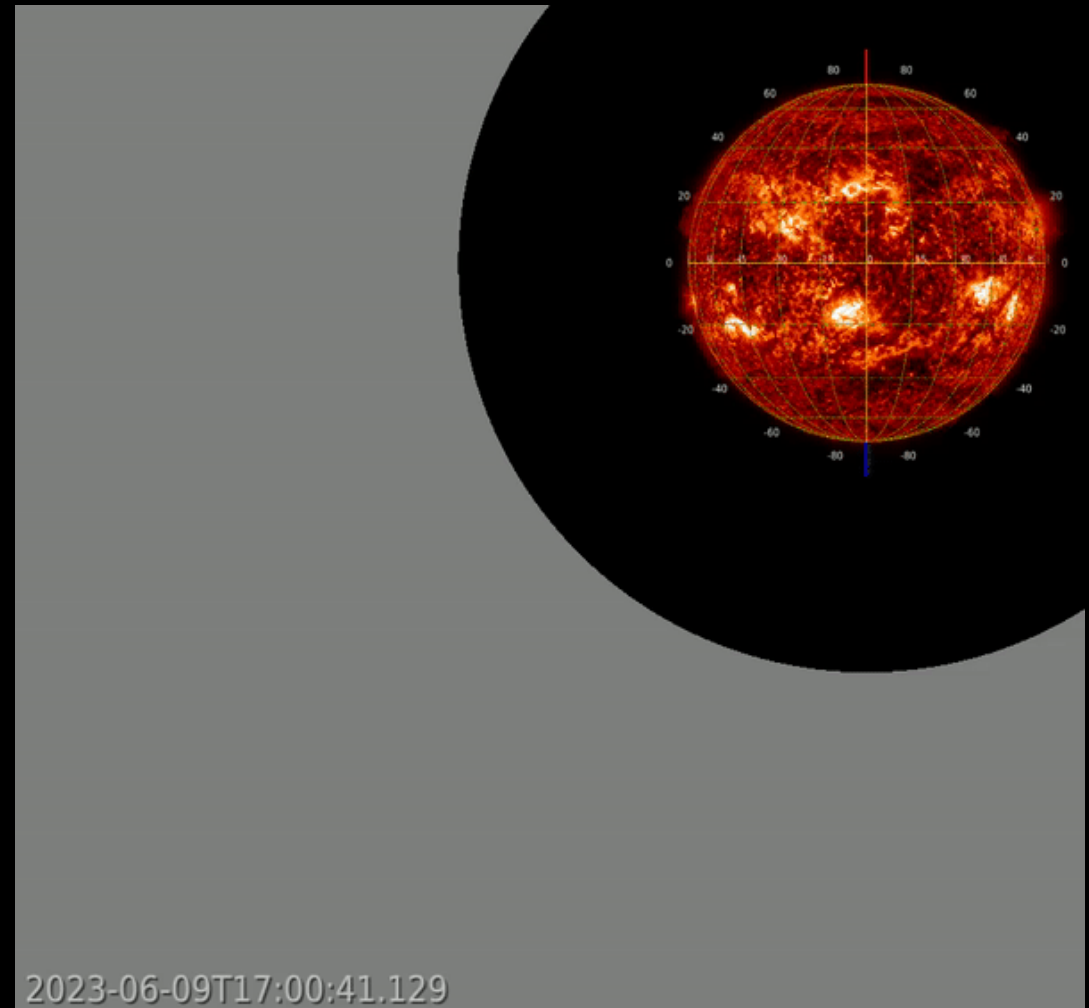


Coronal Mass Ejections



When: 17:24 UTC on June 09, likely related to the M2.5 flare from NOAA AR 3331

Prediction: Predicted arrival at Earth at 03:39 on June 14



Solar Wind and Geomagnetic Activity



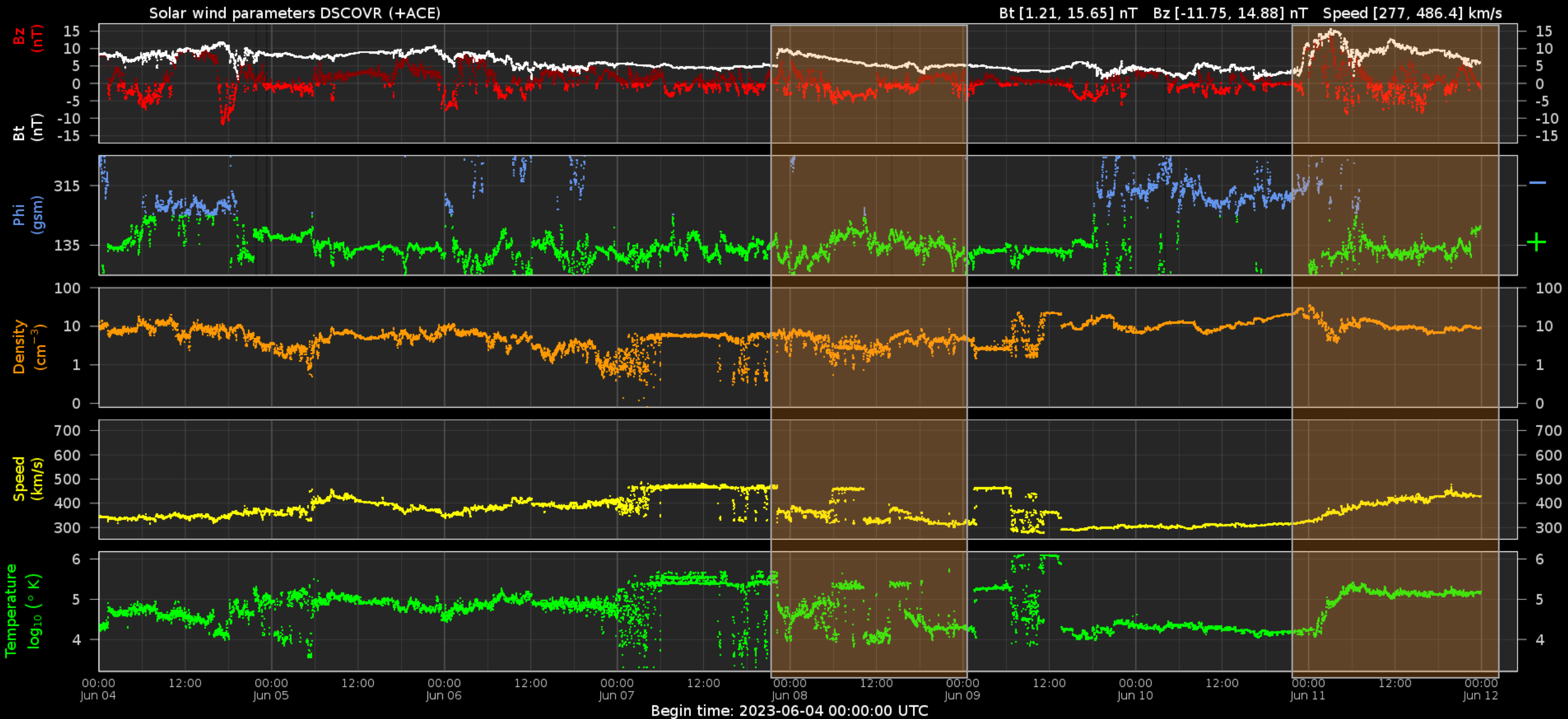
Royal Observatory
of Belgium

Solar Influences
Data analysis Centre
www.sidc.be

Solar wind parameters

ICME

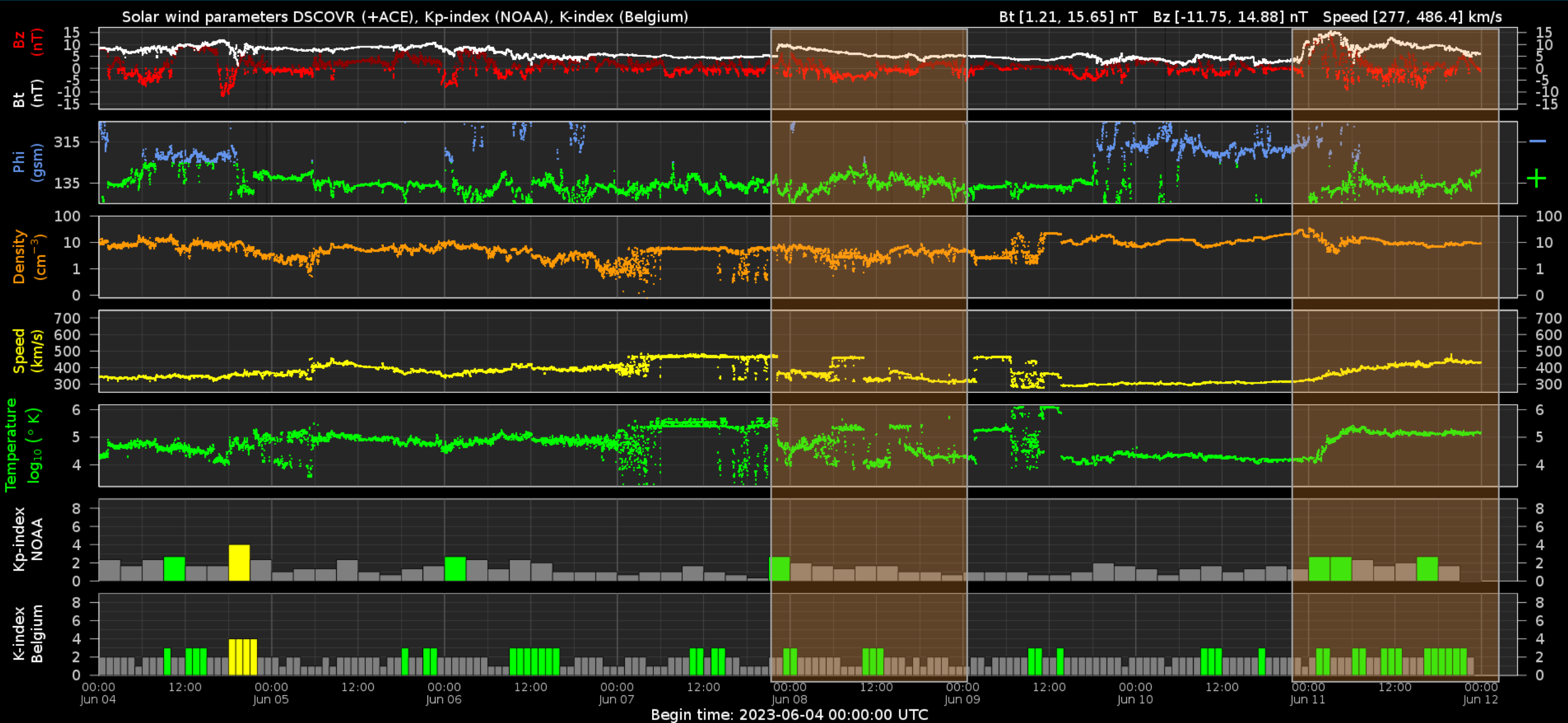
HSS



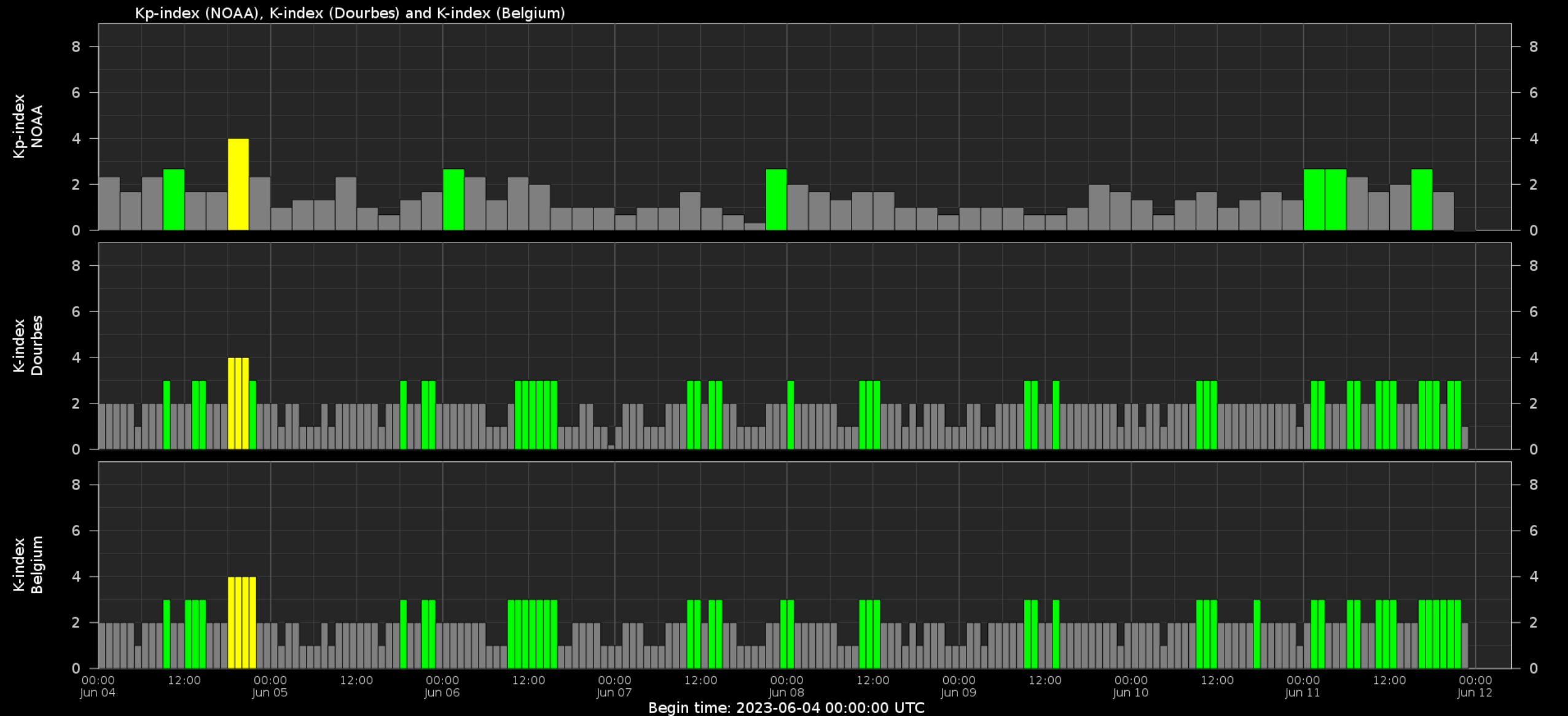
Solar wind parameters & K-indices

ICME

HSS



Geomagnetic activity (K-indexes)



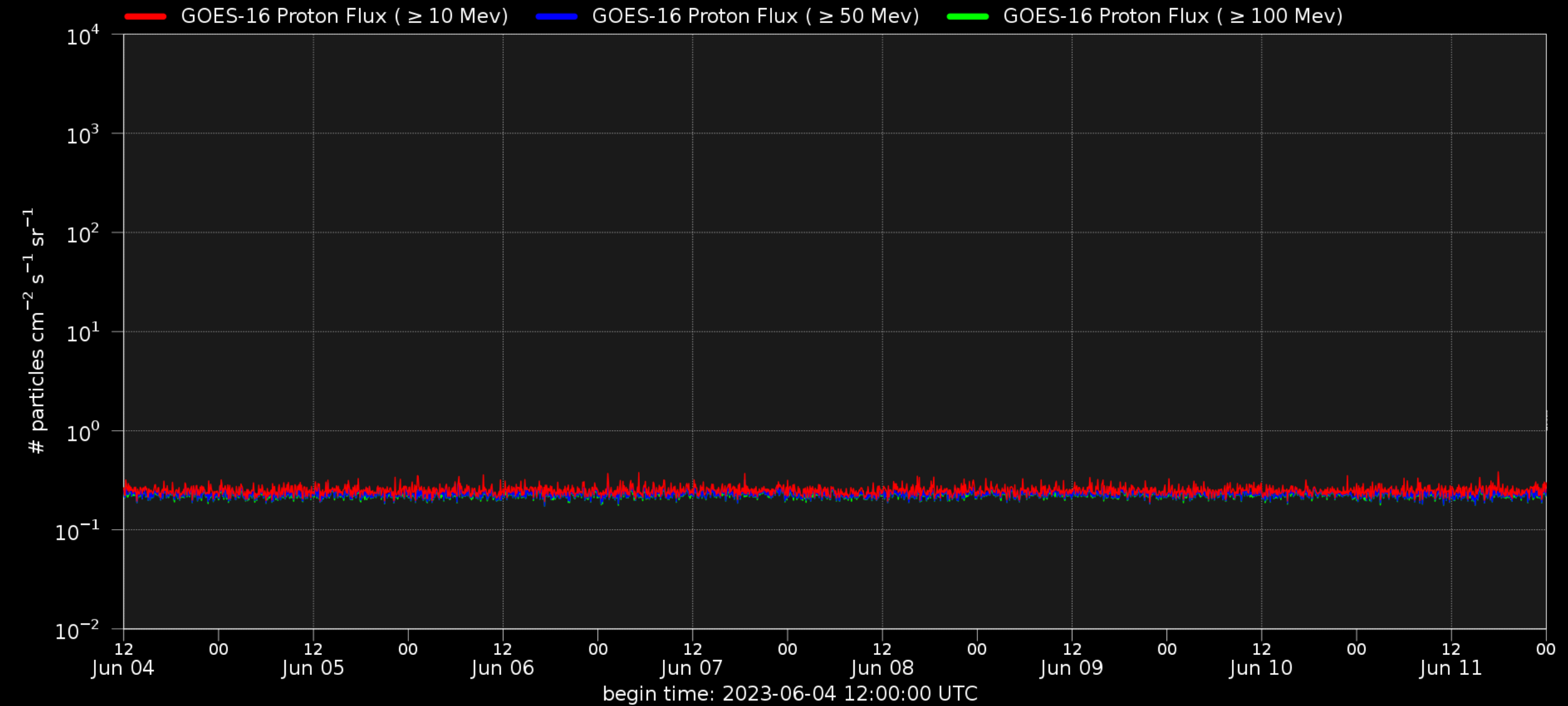
Energetic Particles



Royal Observatory
of Belgium

Solar Influences
Data analysis Centre
www.sidc.be

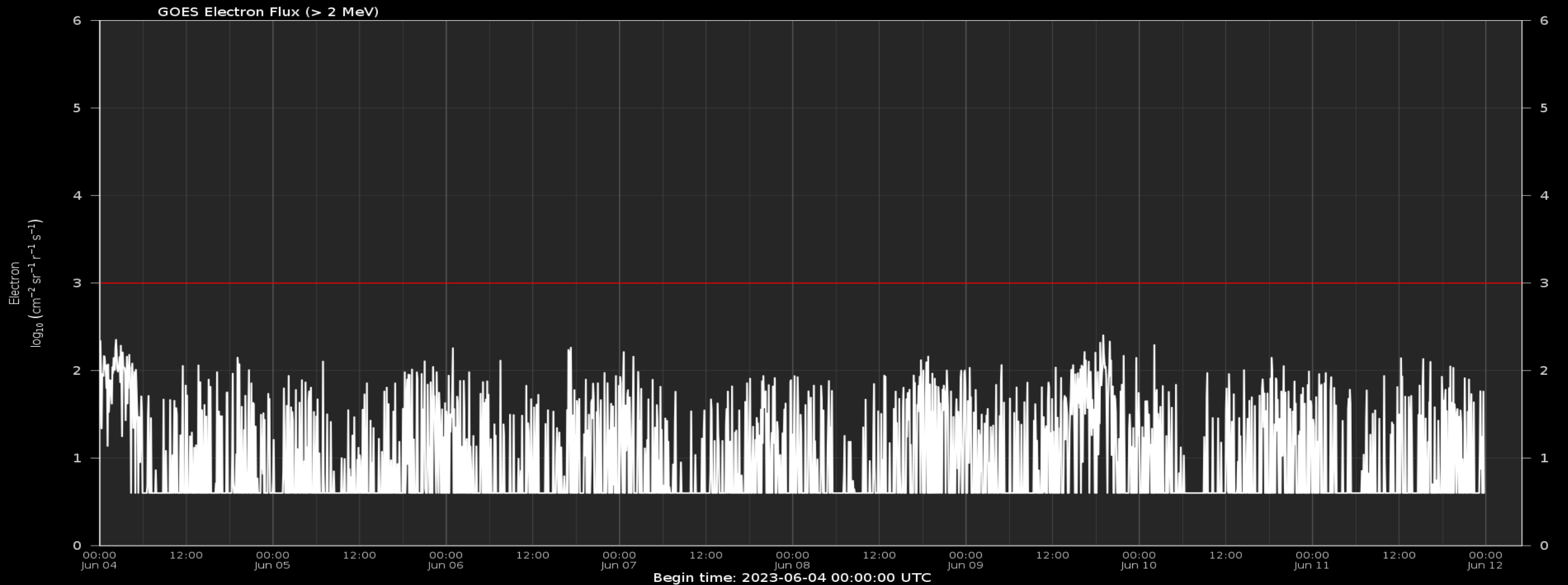
Solar proton flux



Electron flux at GEO

www.stce.be/educational/classification#electrons

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



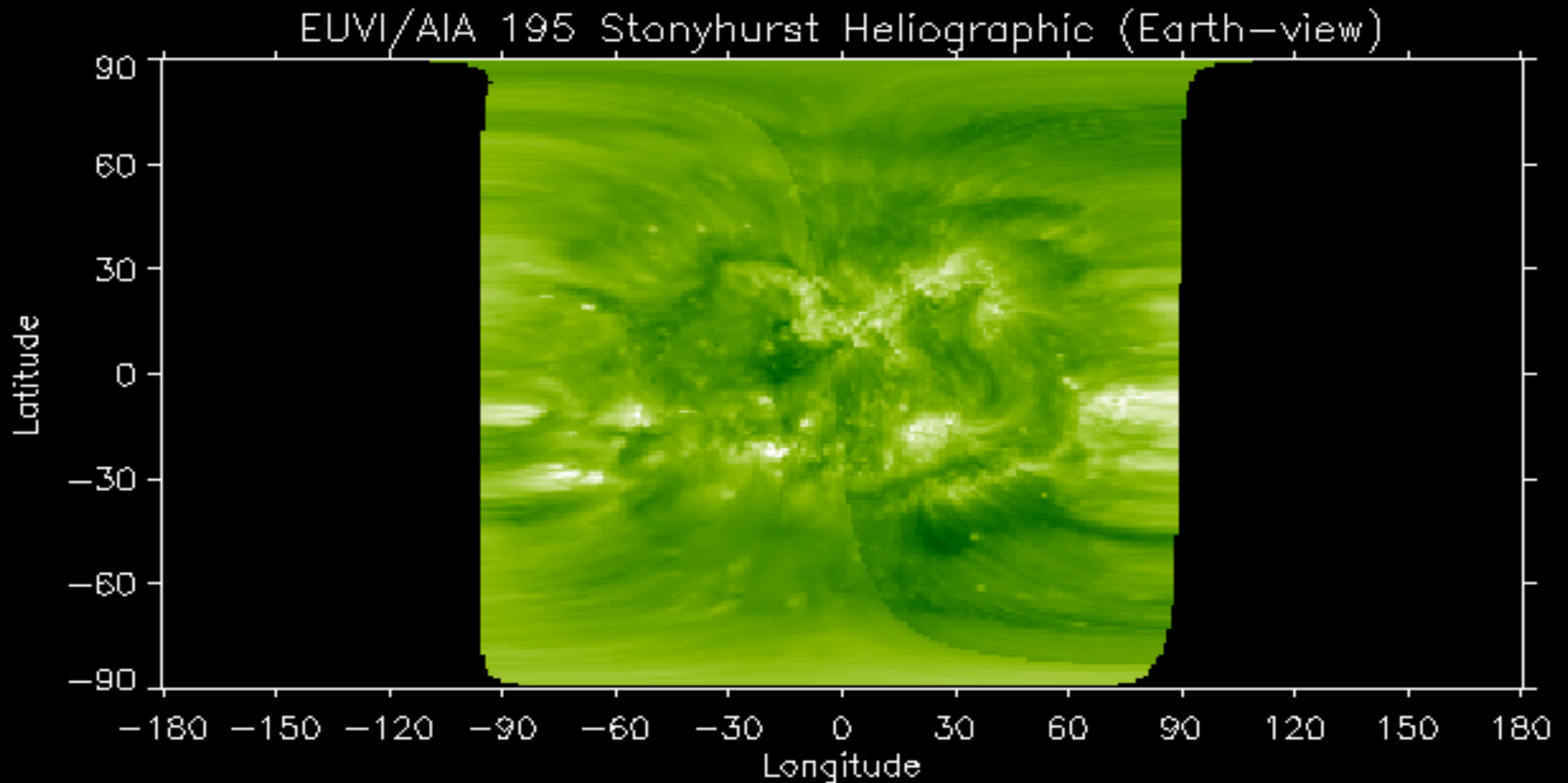
Outlook



Royal Observatory
of Belgium

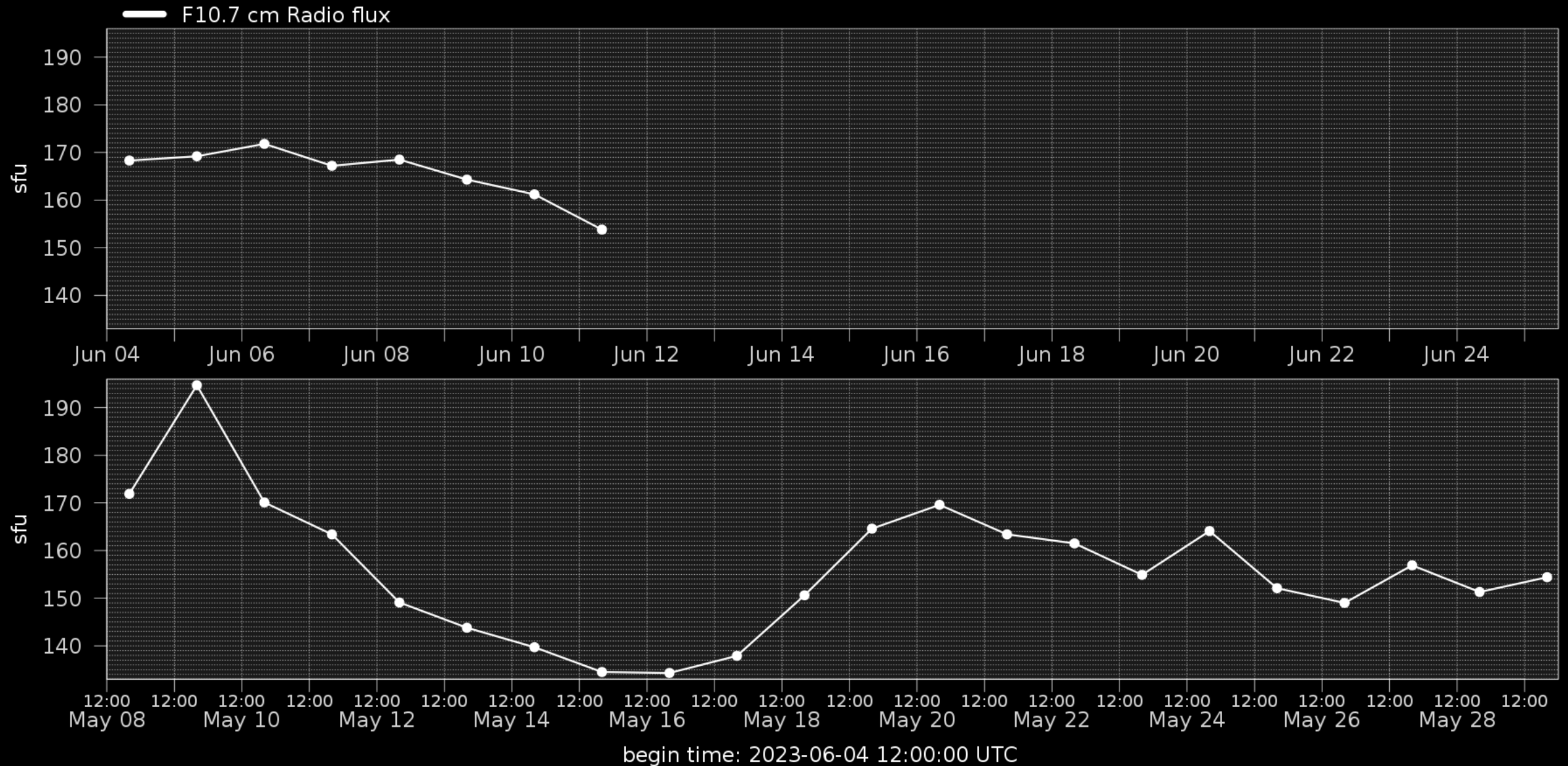
Solar Influences
Data analysis Centre
www.sidc.be

Outlook: Solar activity



Observation date: 2023/06/11 22:55:00

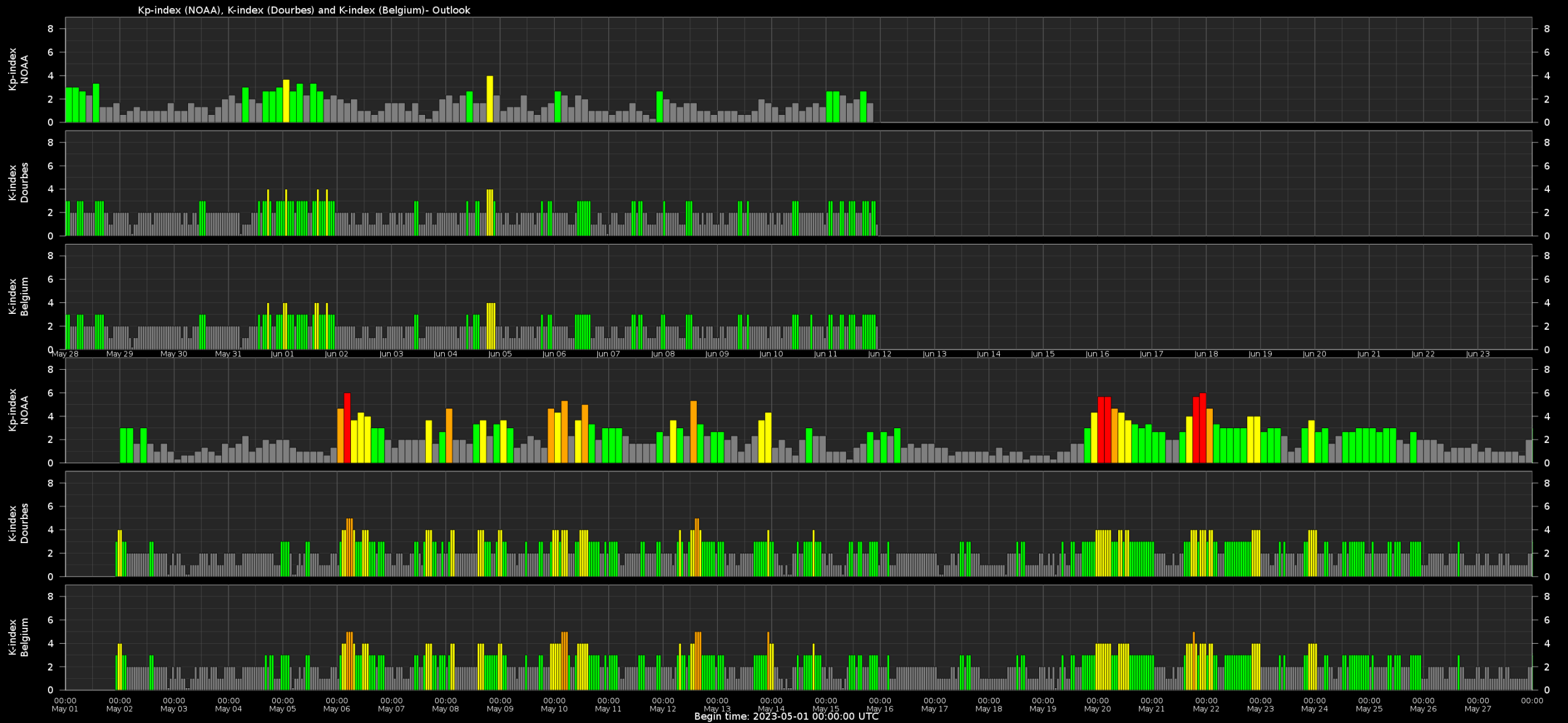
Outlook: Solar F10.7cm radio flux



Outlook: Solar wind parameters



Outlook: Geomagnetic activity



Outlook: Electron Flux at GEO Outlook



Pegasus



Royal Observatory
of Belgium

Solar Influences
Data analysis Centre
www.sidc.be

Pegasus related events

No advisories sent during the week

SIDC Space Weather Briefing

See you at our next briefing!

Or visit us at www.sidc.be



Royal Observatory
of Belgium

Solar Influences
Data analysis Centre
www.sidc.be