

SIDC Space Weather Briefing

11 June 2023-18 June 2023

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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 2023-06-11 12:00 to 2023-06-18 23:59

Active regions	14 Regions on the solar disk over the week
Flares	# C-class flare: 32 # M-class flare: 5 # X-class flare: 0
Coronal Holes	Negative polarity CH crossed central meridian June 12. Two small CHs (positive and negative) on June 17.
CMEs	Multiple filament eruptions, one with possible Earth directed component

Proton flux	Nominal Levels
Electron flux	Exceeded 1000pfu threshold

Solar wind and geomagnetic conditions

ICMEs	None observed
Solar wind conditions	B : 0.66 - 20.26 nT //Bz: -13.1 nT to 14.99 nT //Speed: 309.0 - 748.3km/s
K-indices	max K-index (KBel): 5 max Kp-index (NOAA): 6

All Quiet Alert: off for the whole week

Solar Activity

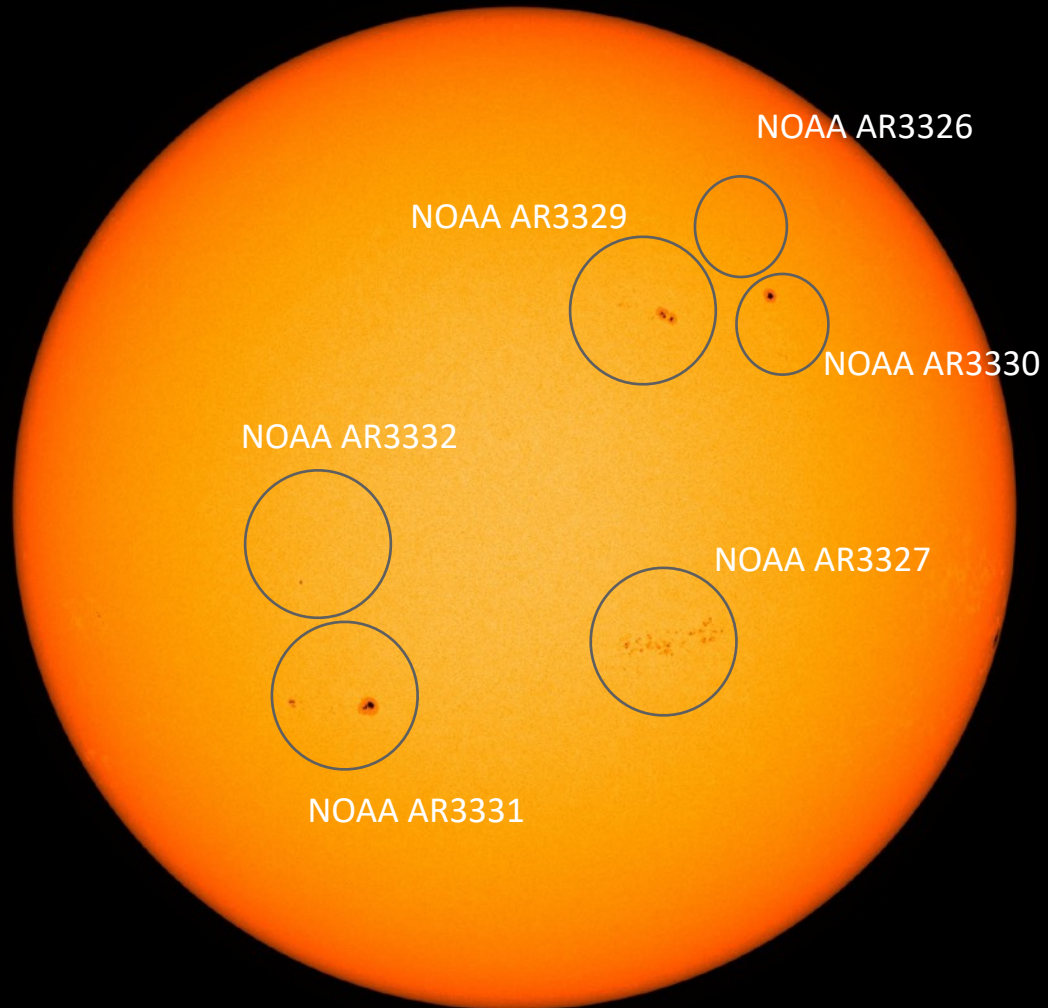


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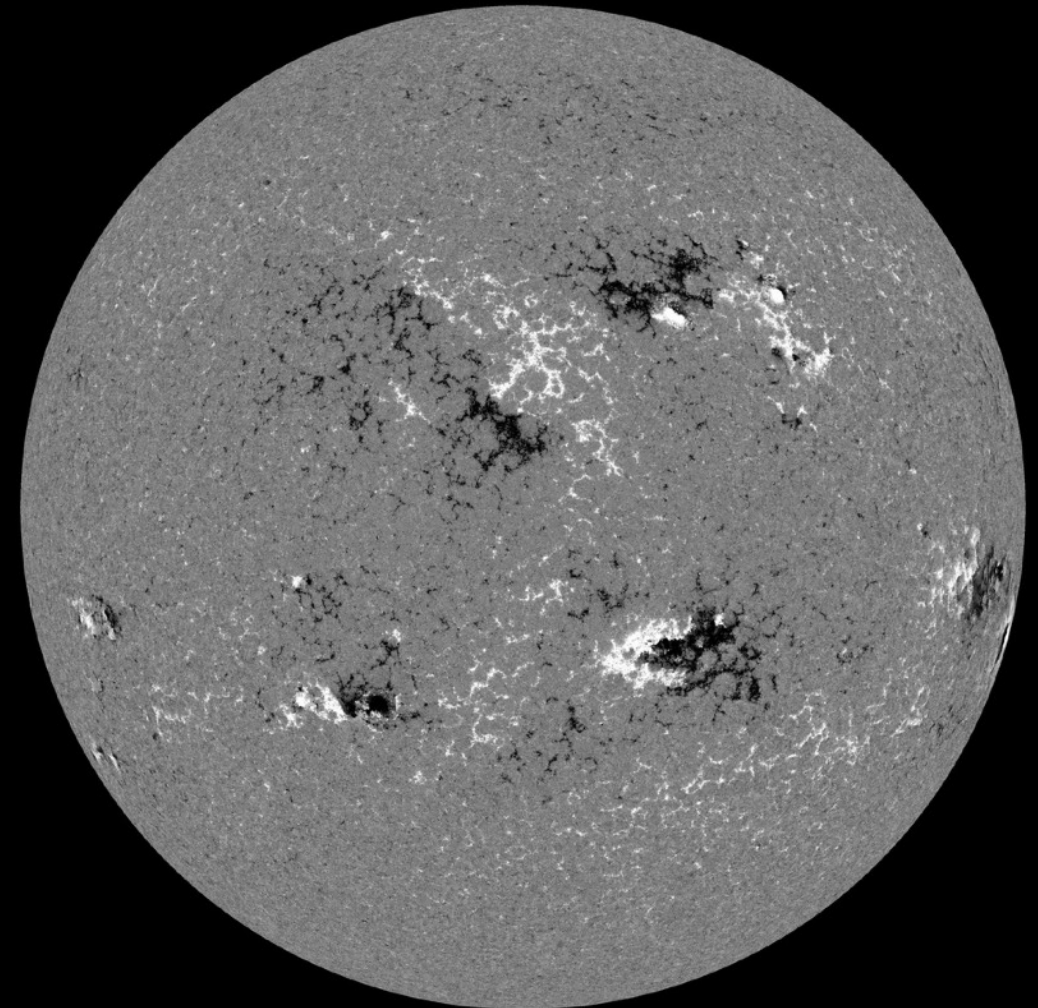
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Solar active regions

SDO/HMI White Light 2023-06-11

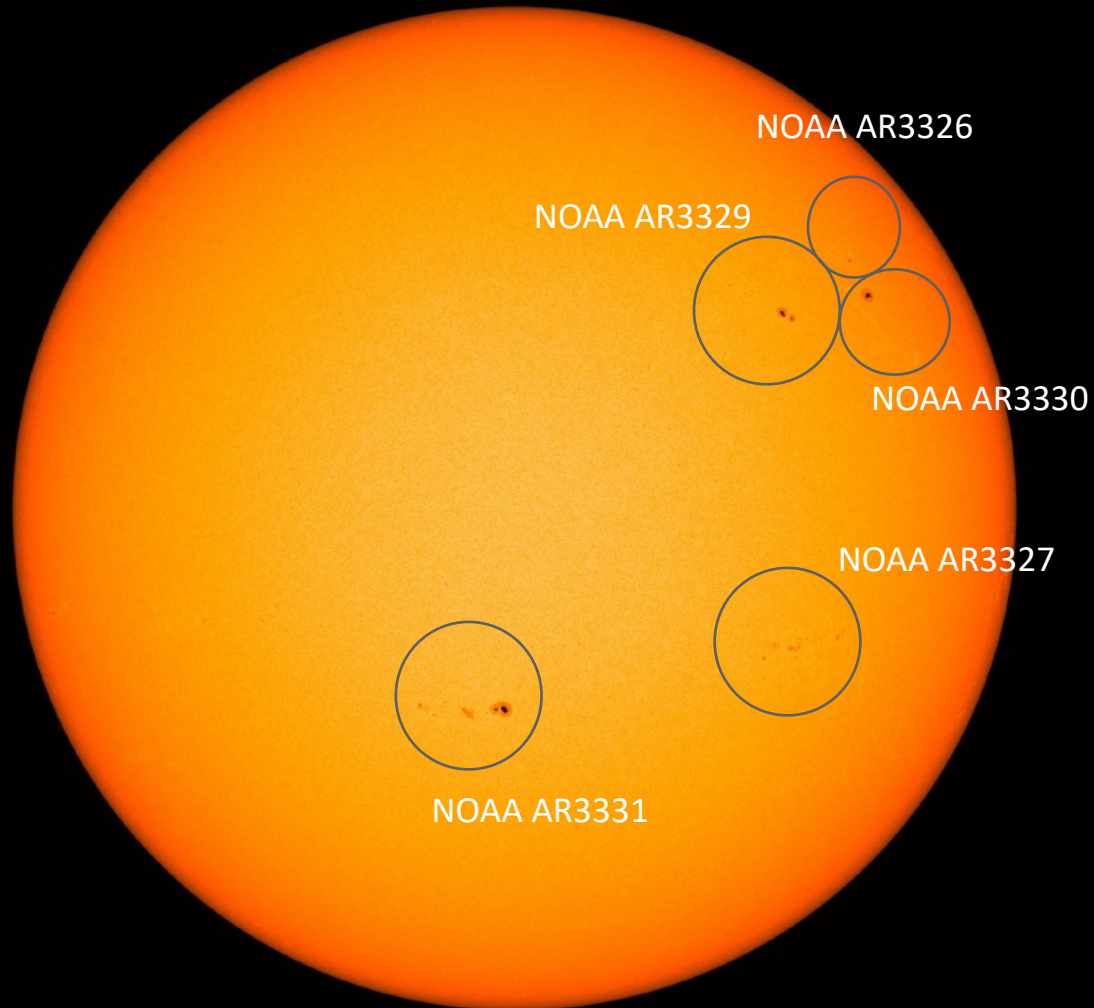


SDO/HMI Magnetogram 2023-06-11

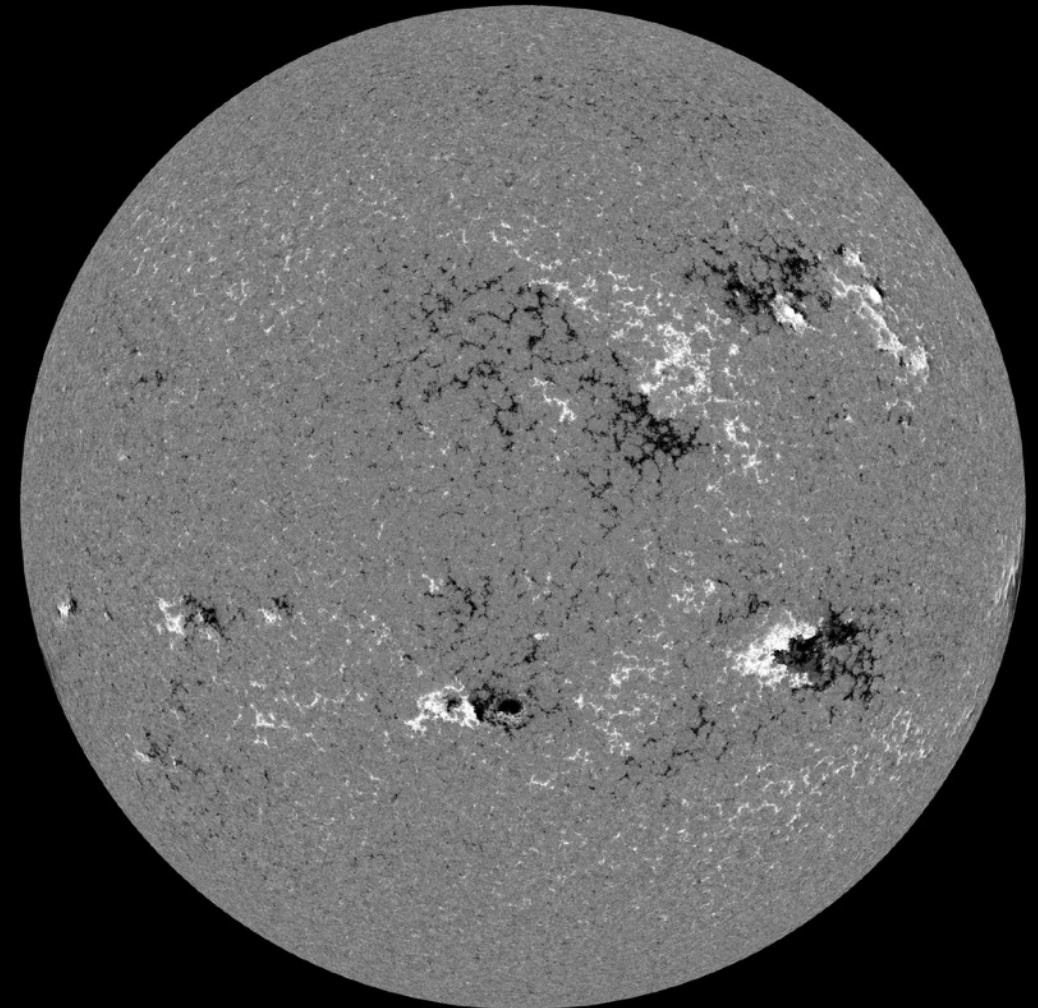


Solar active regions

SDO/HMI White Light 2023-06-12

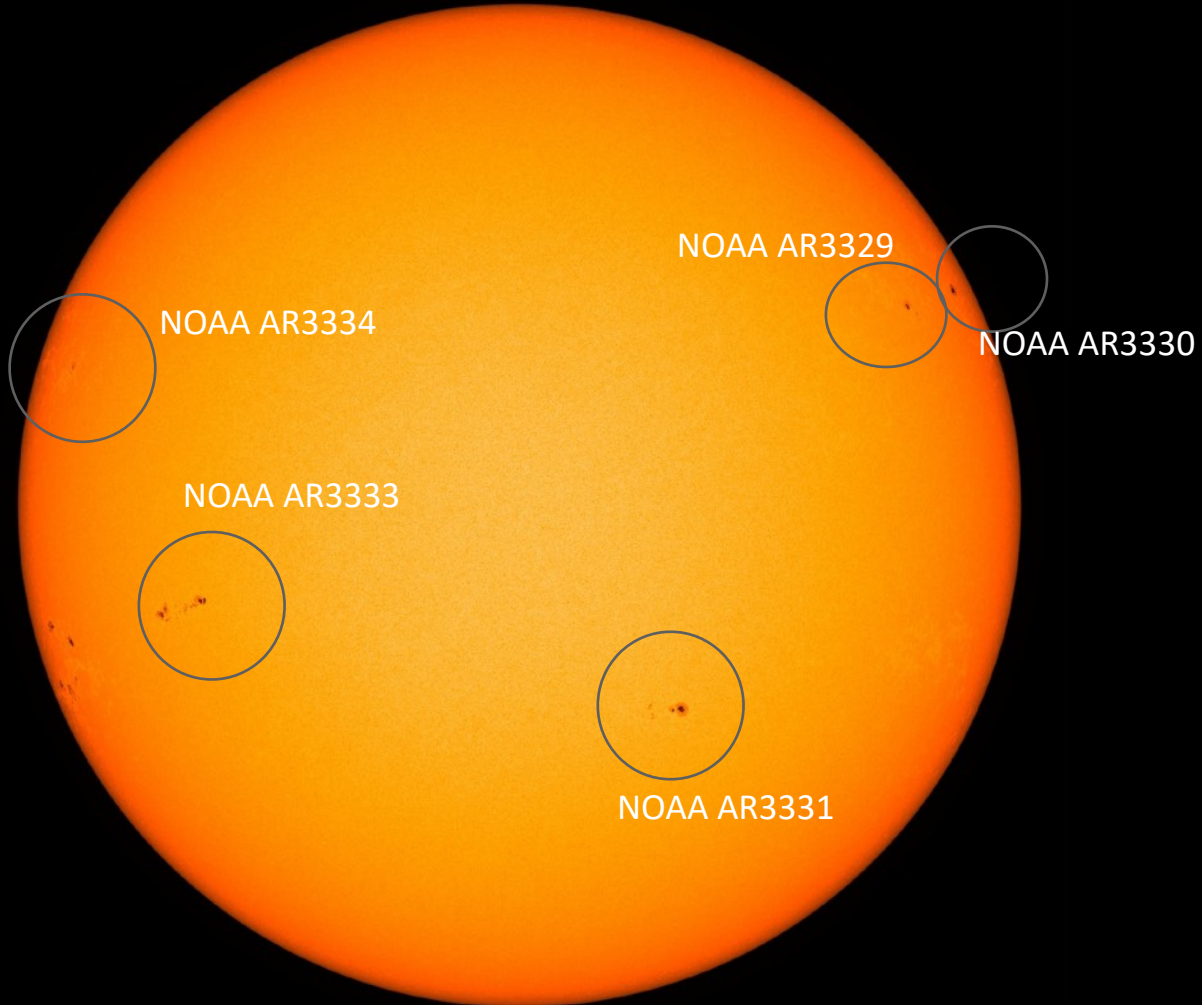


SDO/HMI Magnetogram 2023-06-12

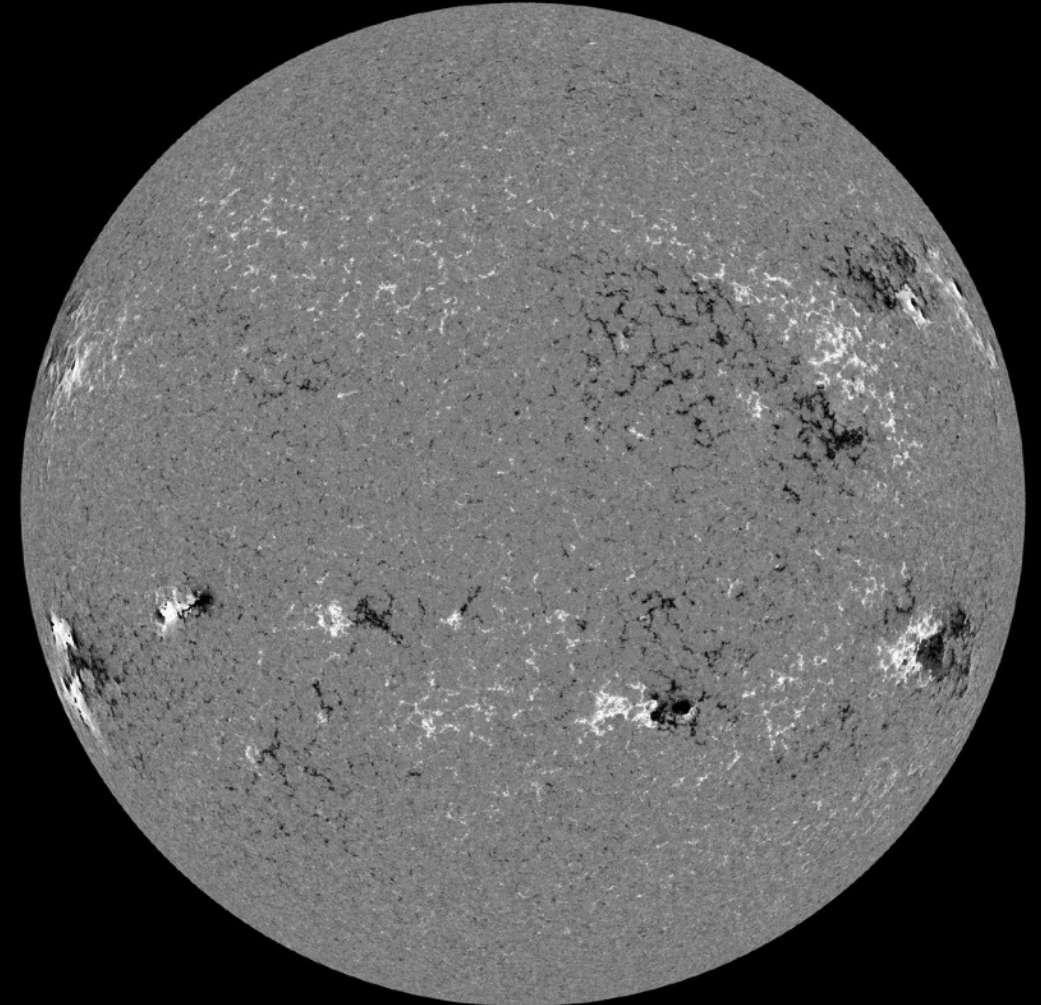


Solar active regions

SDO/HMI White Light 2023-06-14

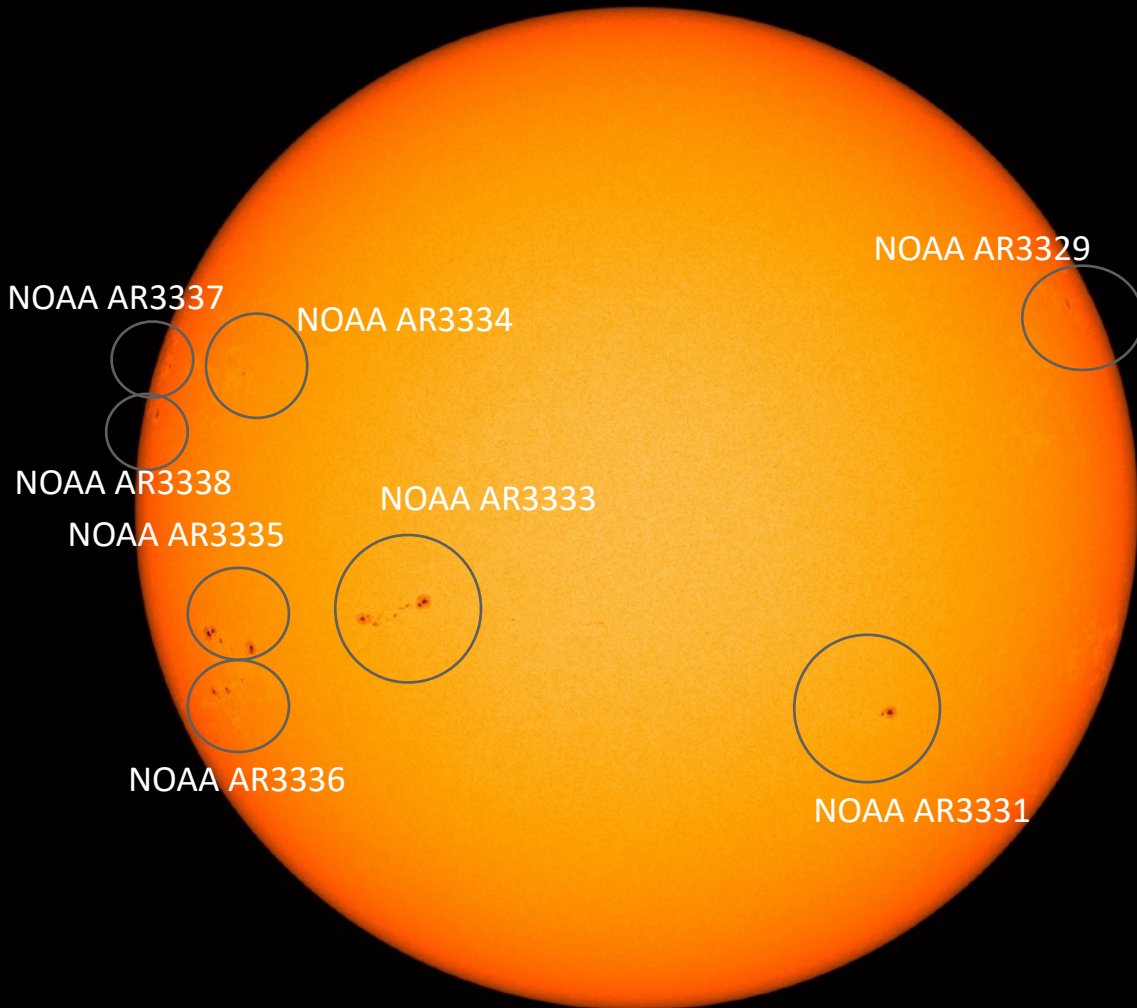


SDO/HMI Magnetogram 2023-06-14

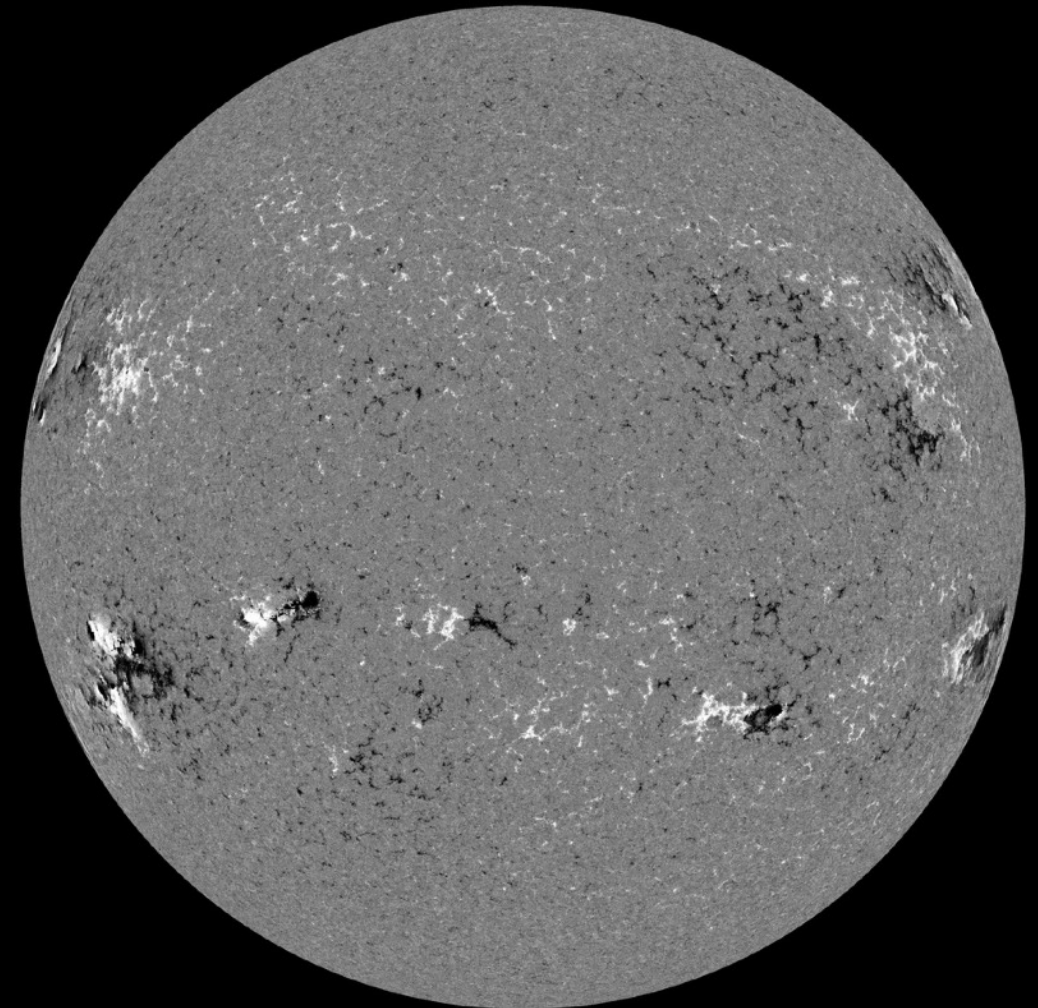


Solar active regions

SDO/HMI White Light 2023-06-15

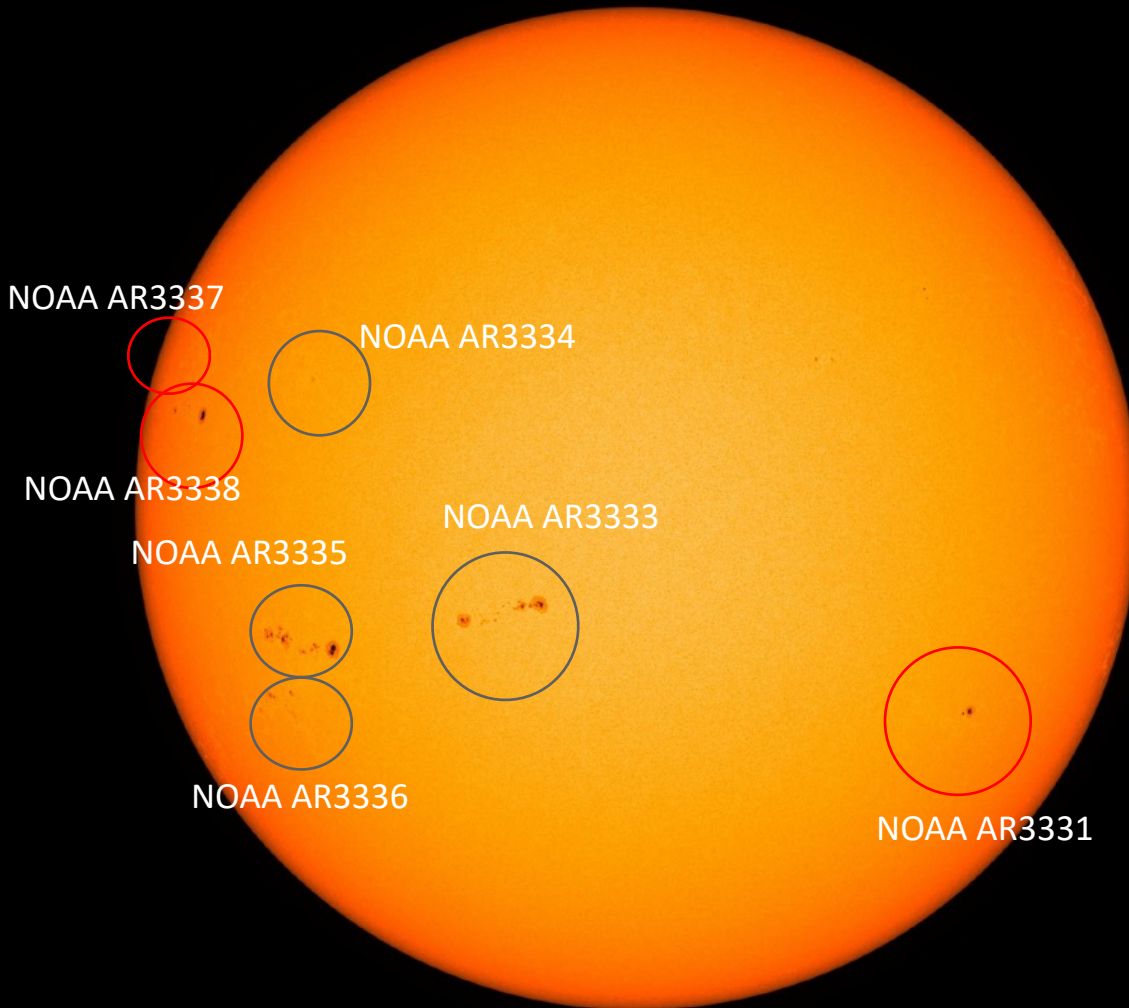


SDO/HMI Magnetogram 2023-06-15



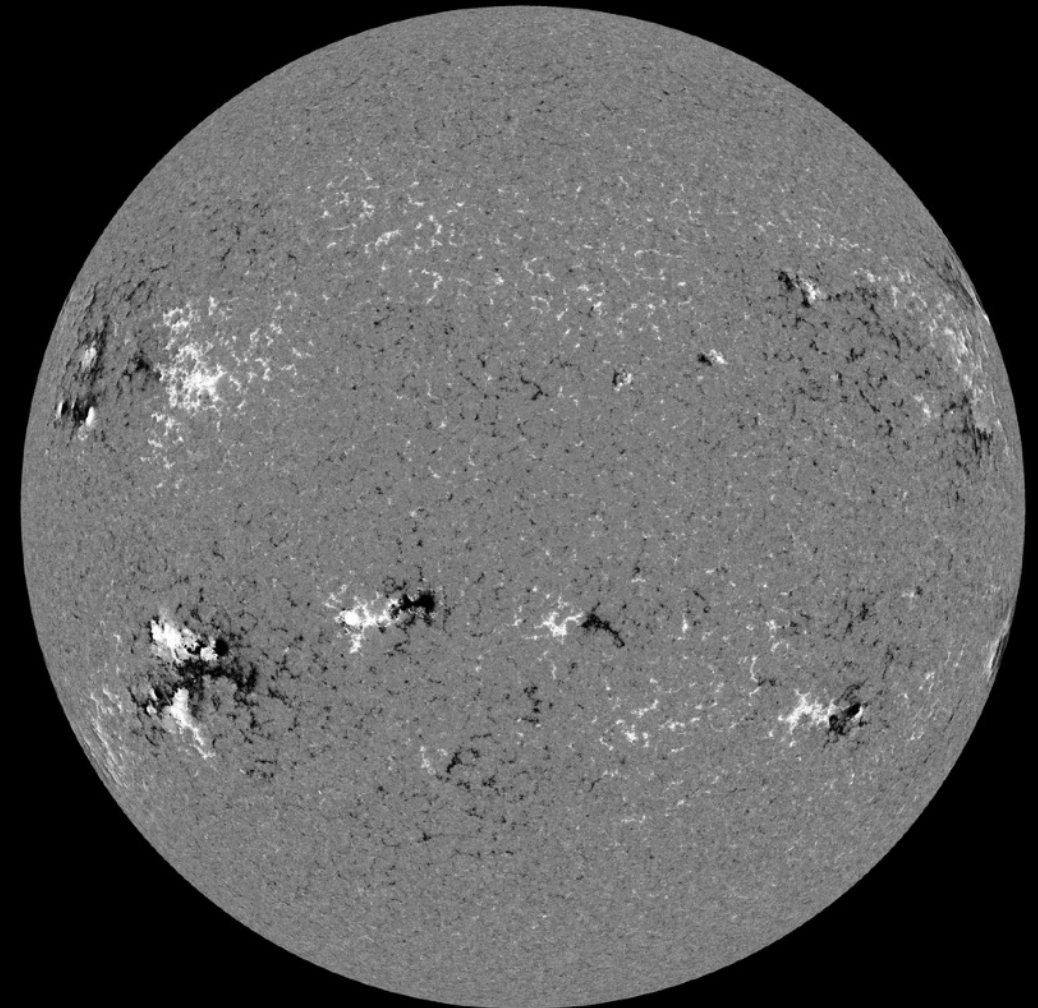
Solar active regions

SDO/HMI White Light 2023-06-16



SDO/HMI Quick-look Continuum: 20230616_114500

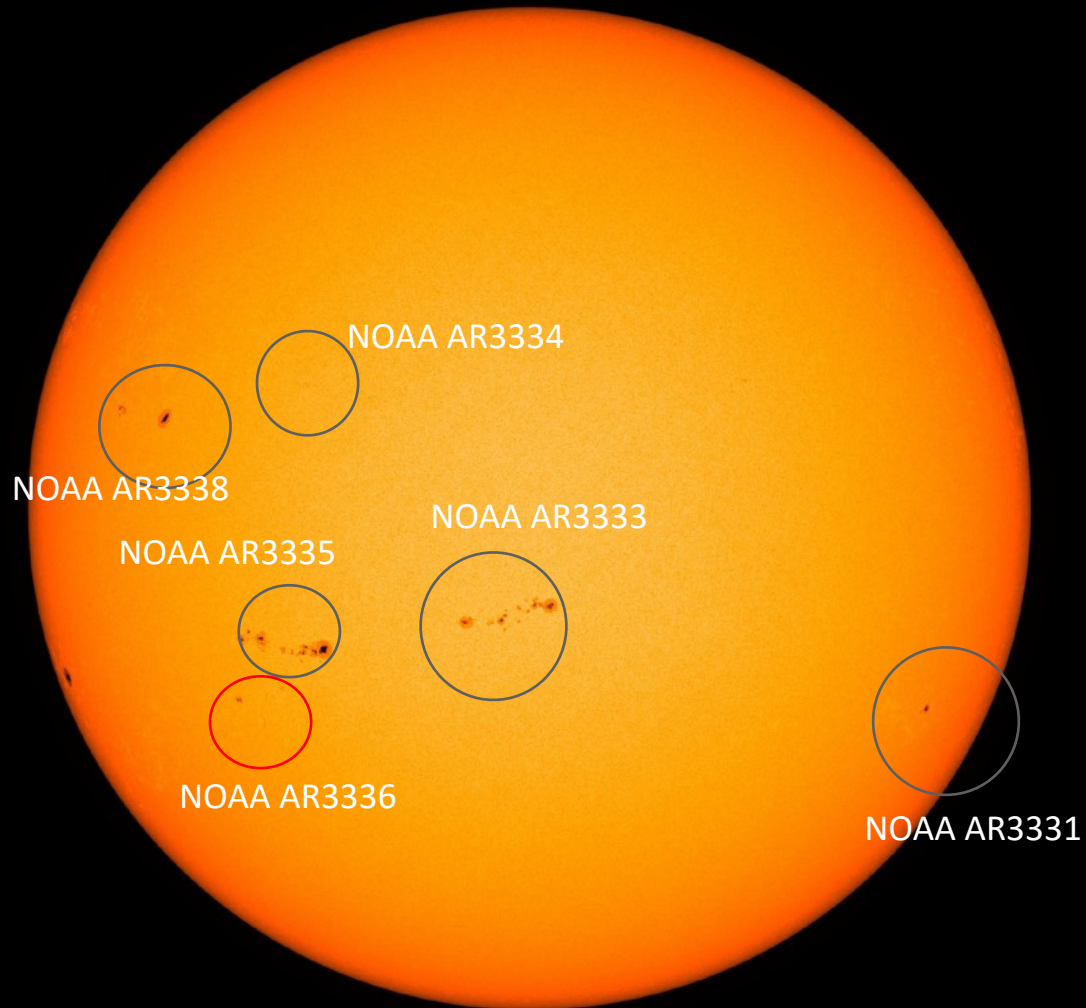
SDO/HMI Magnetogram 2023-06-16



SDO/HMI Quick-look Magnetogram: 20230616_114500

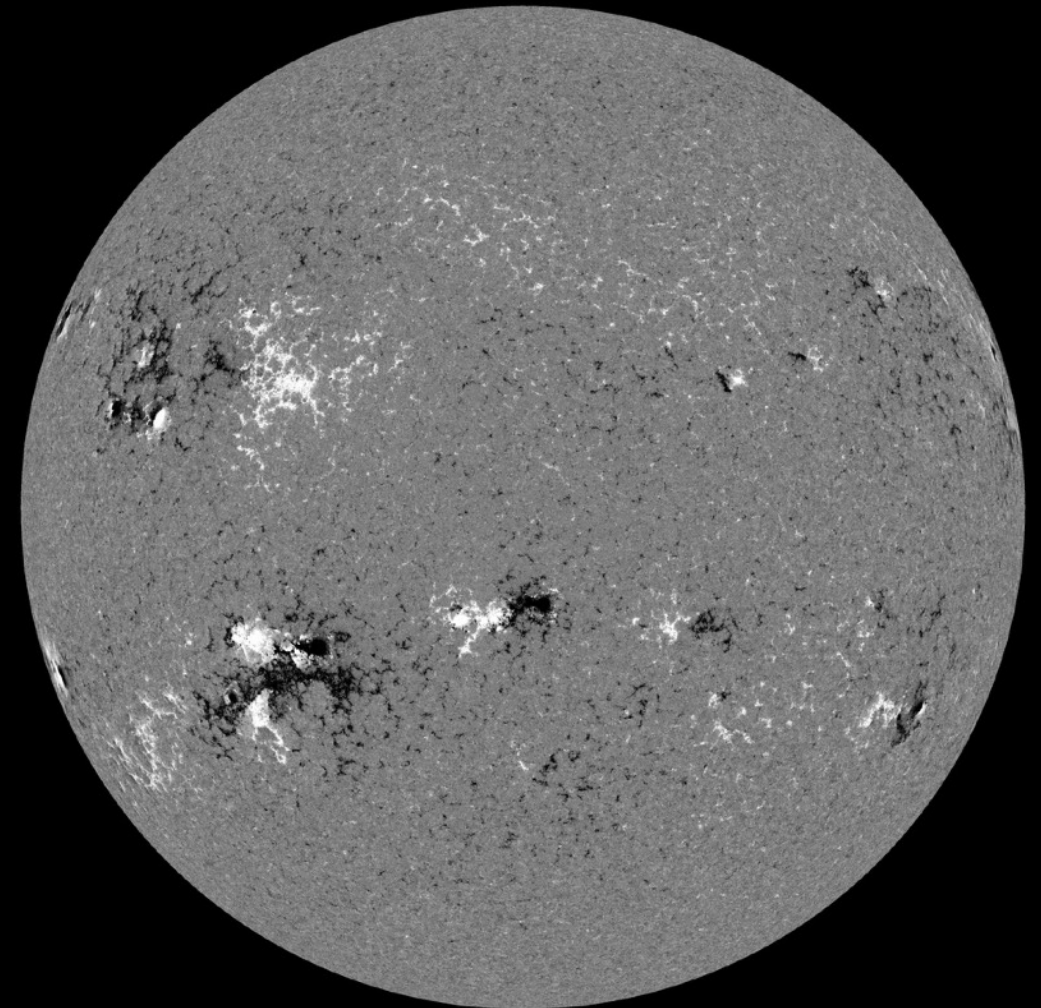
Solar active regions

SDO/HMI White Light 2023-06-17



SDO/HMI Quick-Look Continuum: 20230617_114500

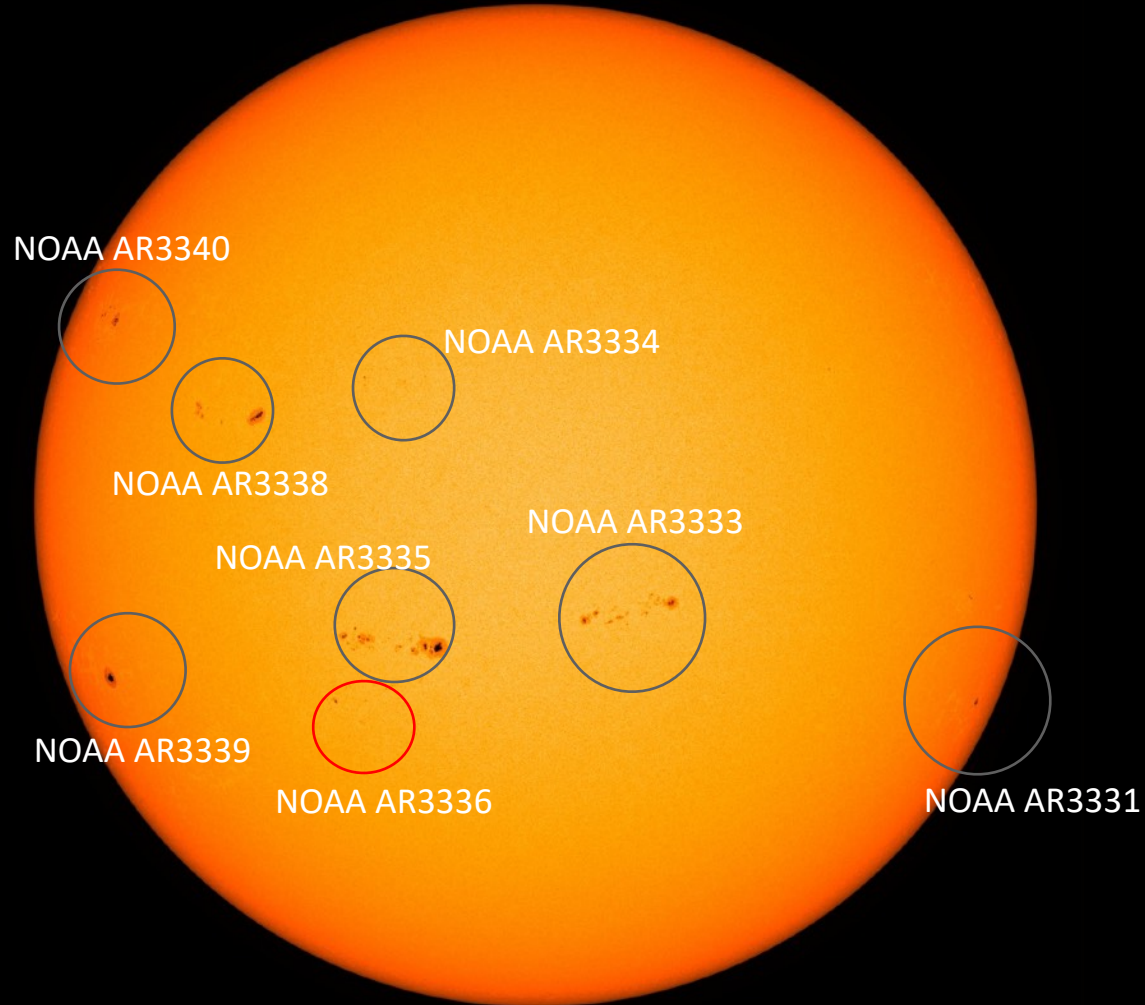
SDO/HMI Magnetogram 2023-06-17



SDO/HMI Quick-Look Magnetogram: 20230617_114500

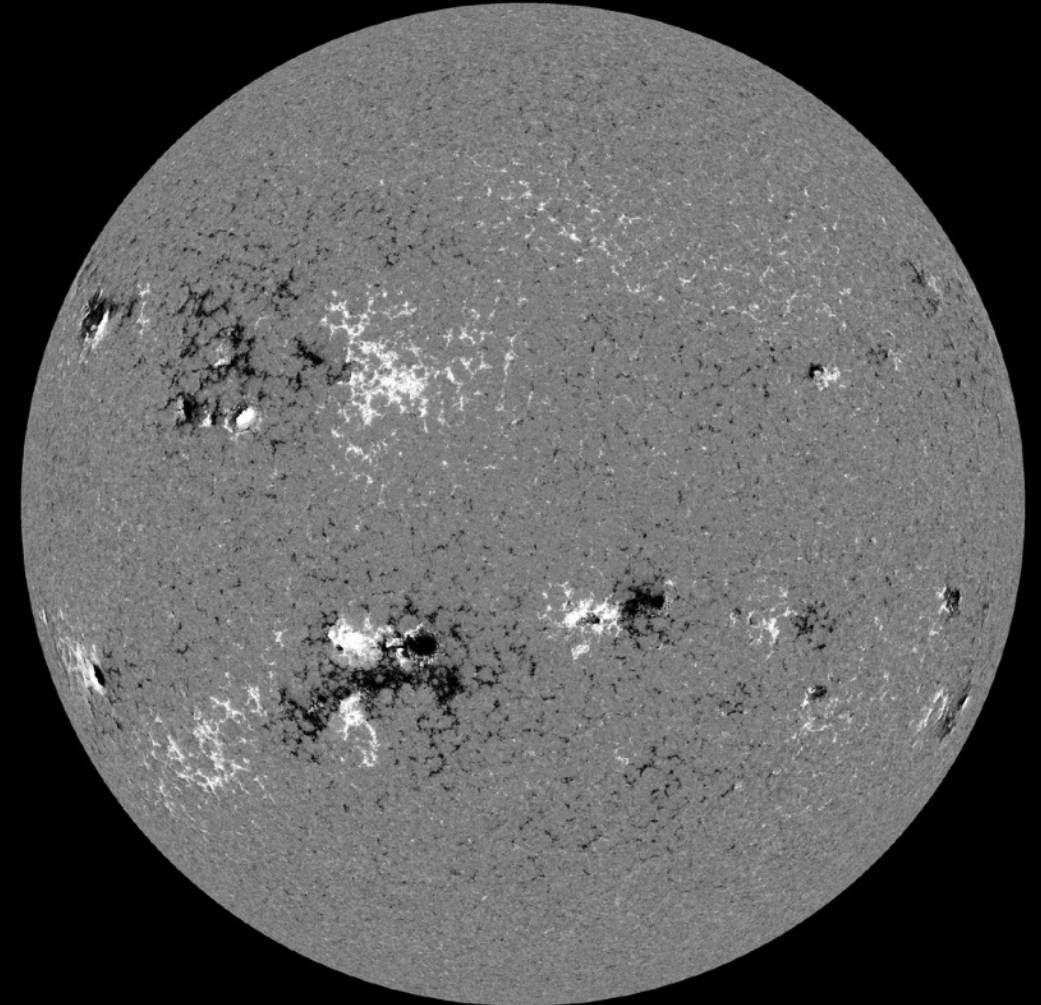
Solar active regions

SDO/HMI White Light 2023-06-18



SDO/HMI Quick-Look Continuum: 20230618_114500

SDO/HMI Magnetogram 2023-06-18

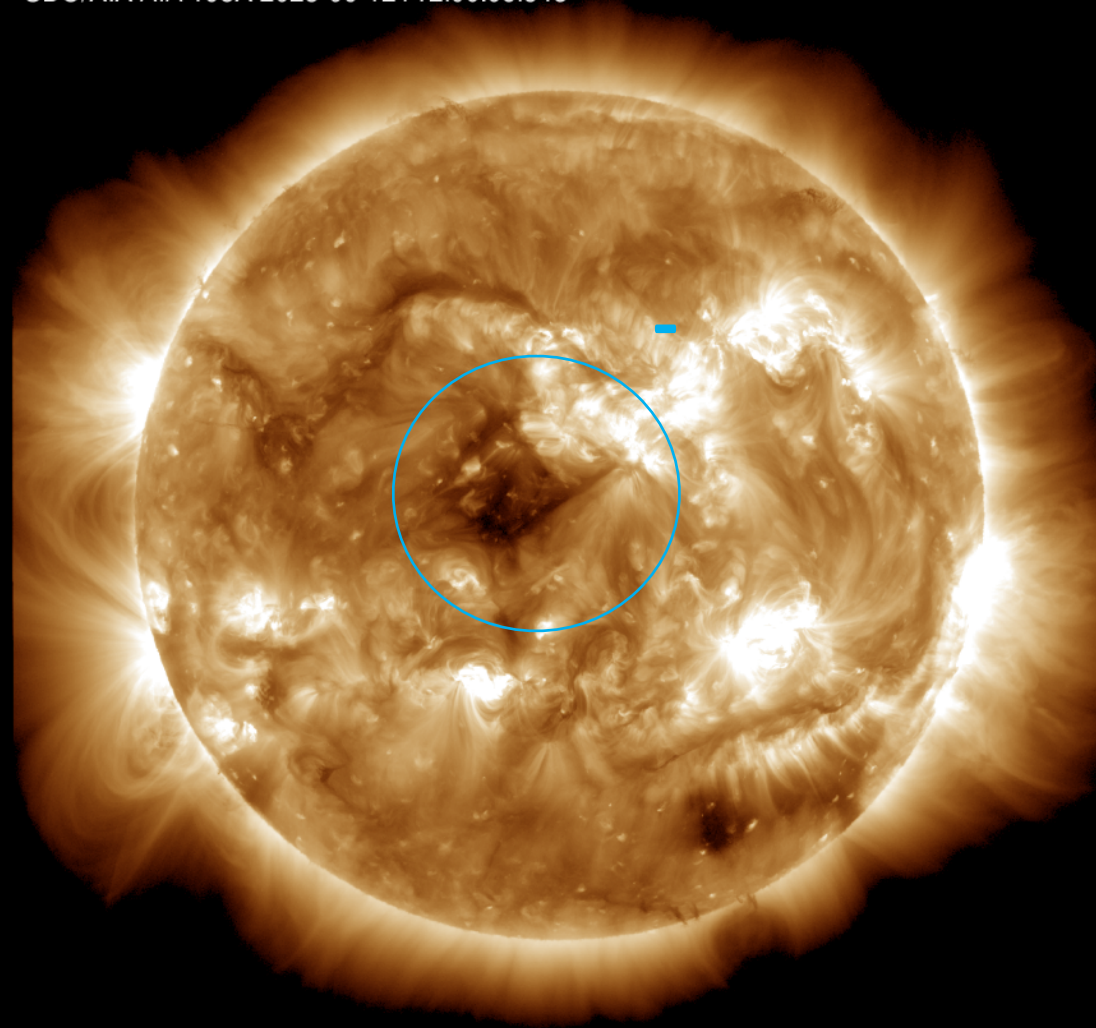


SDO/HMI Quick-Look Magnetogram: 20230618_114500

Coronal holes

SDO/AIA 19.3 nm 2023-06-12

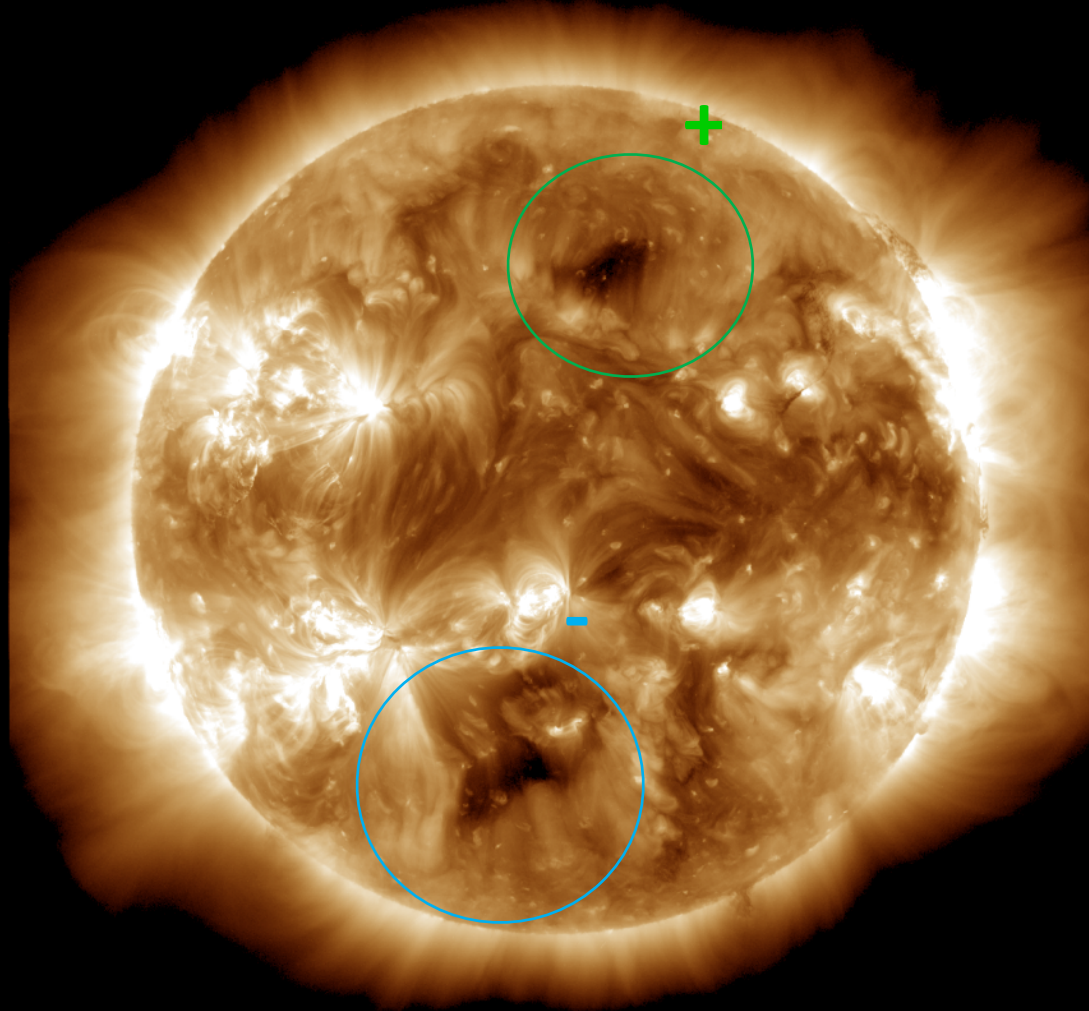
SDO/AIA AIA 193Å 2023-06-12T12:00:05.843



Coronal holes

SDO/AIA 19.3 nm 2023-06-17

SDO/AIA AIA 193Å 2023-06-17T12:00:05.843



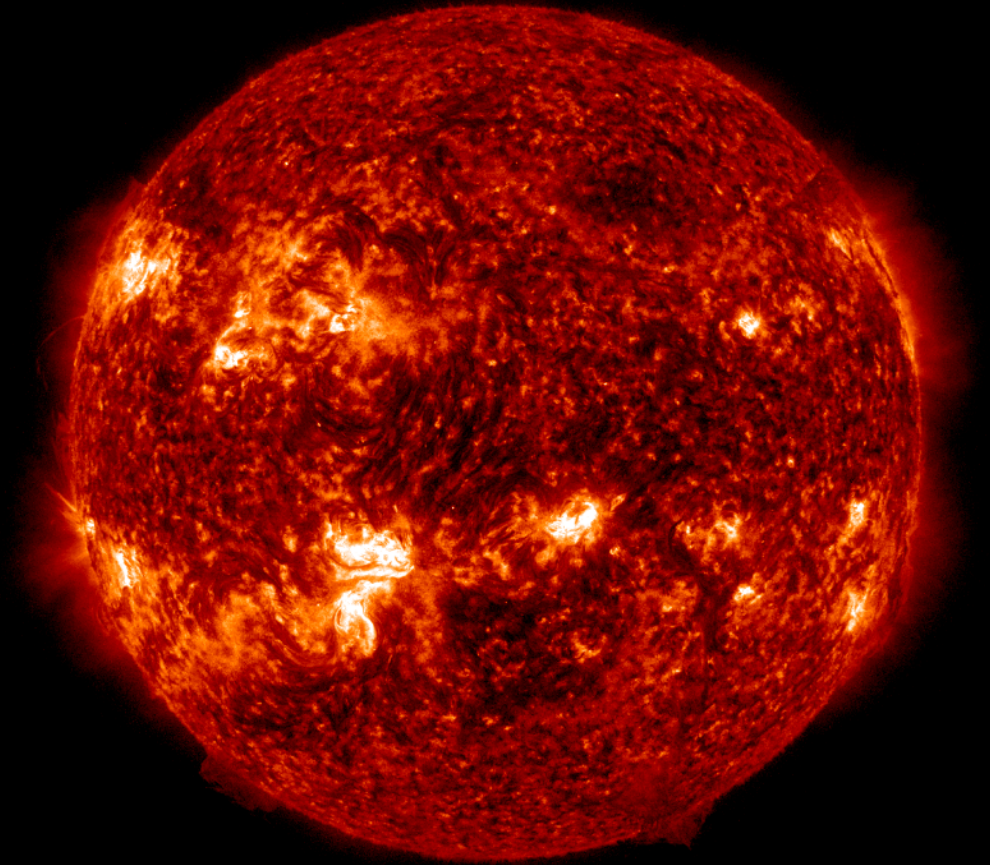
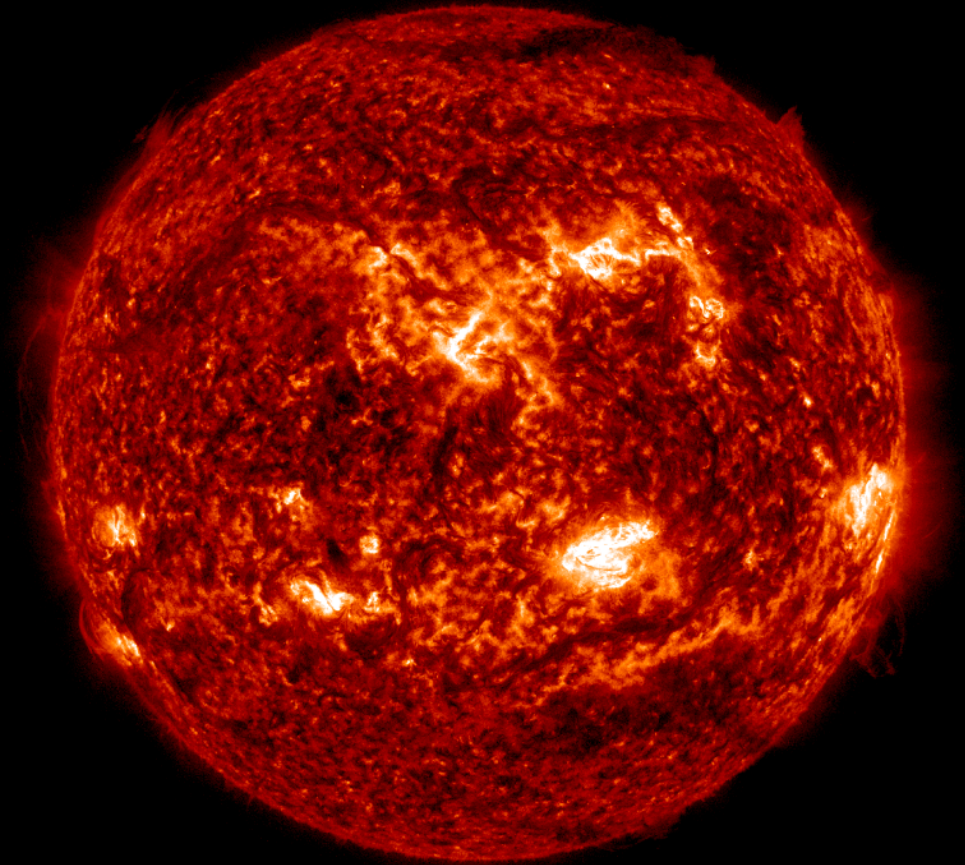
Filaments

SDO/AIA 30.4 nm 2023-06-11

SDO/AIA AIA 304Å 2023-06-11T12:00:06.580

SDO/AIA 30.4 nm 2023-06-18

SDO/AIA AIA 304Å 2023-06-18T12:00:06.580



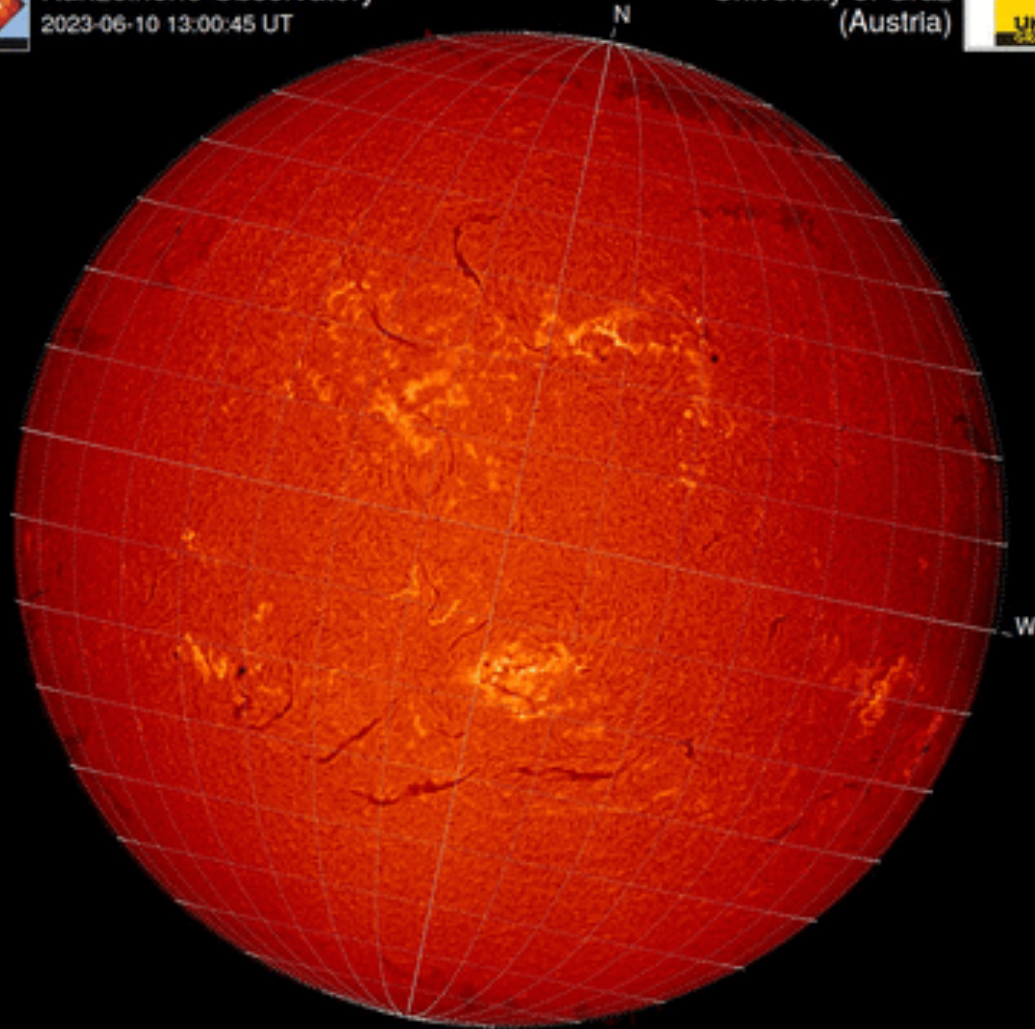
Filaments & Filament eruptions

H-alpha 2023-06-11



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

University of Graz
(Austria)

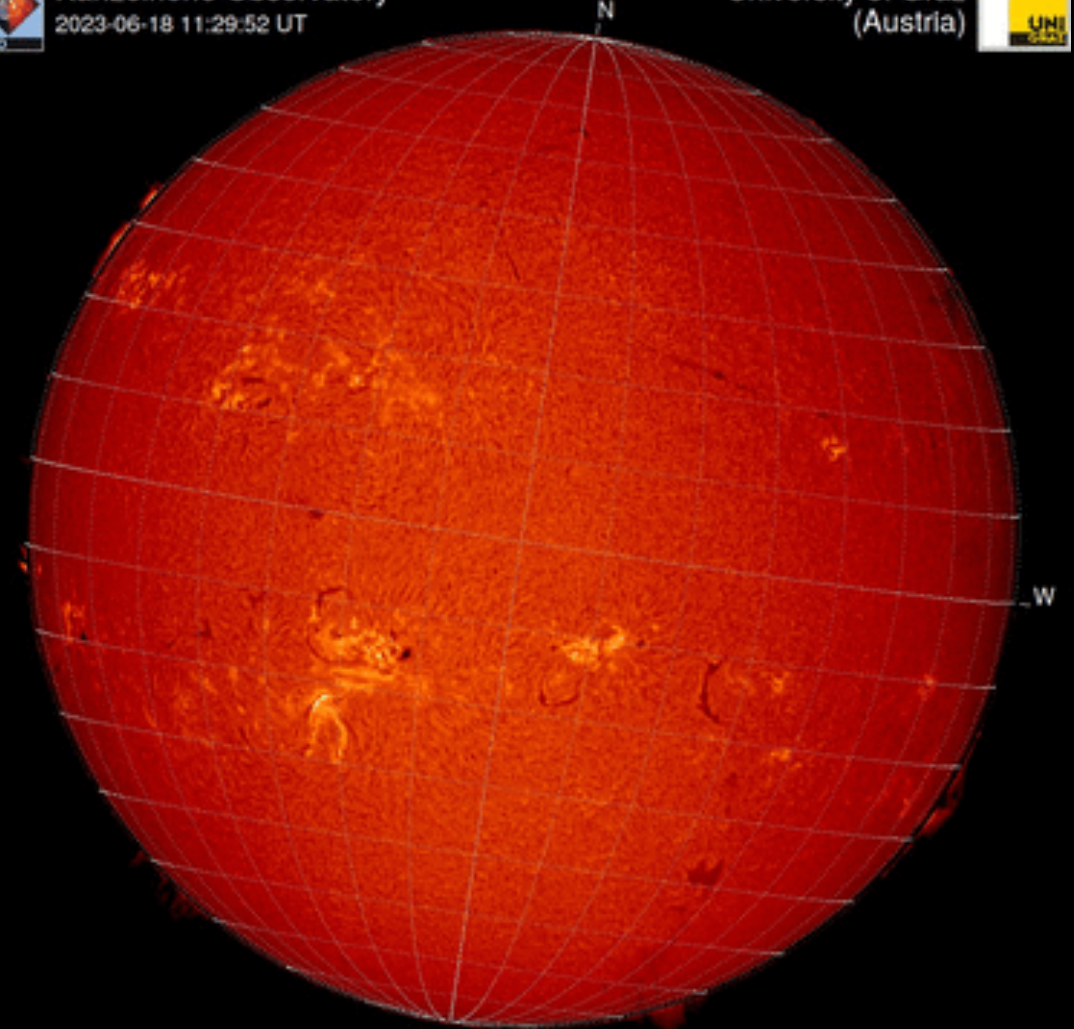


H-alpha 2023-06-18



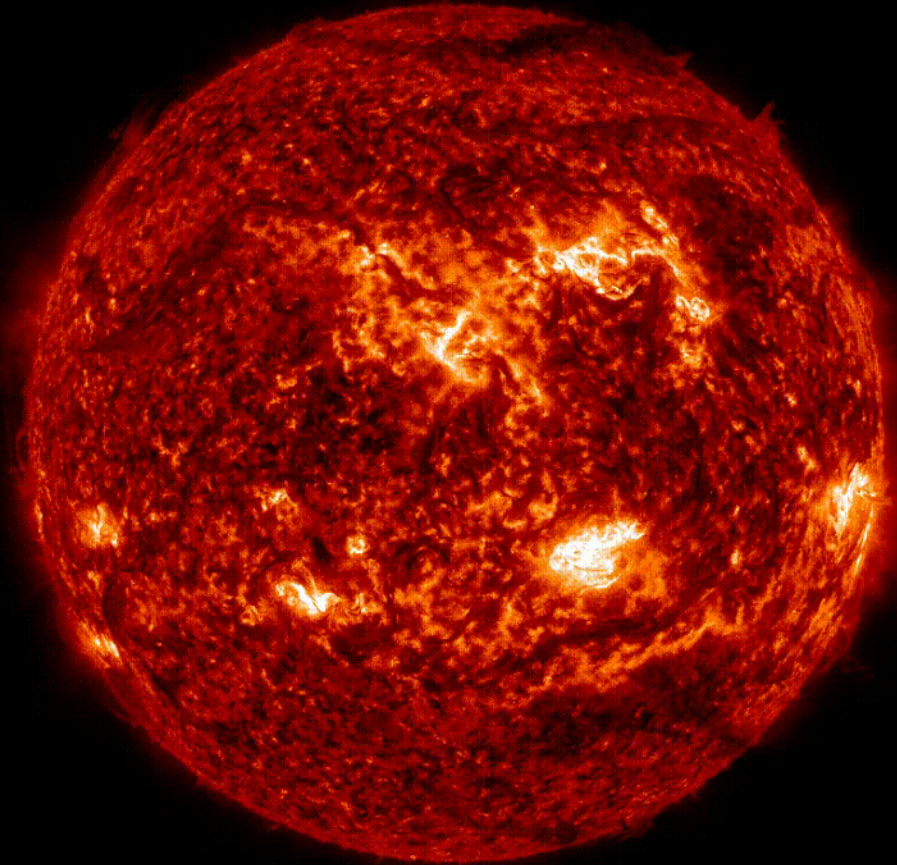
Kanzelhöhe Observatory
2023-06-18 11:29:52 UT

University of Graz
(Austria)



Filaments

SDO/AIA 30.4 nm 2023-06-11 to 2023-06-12

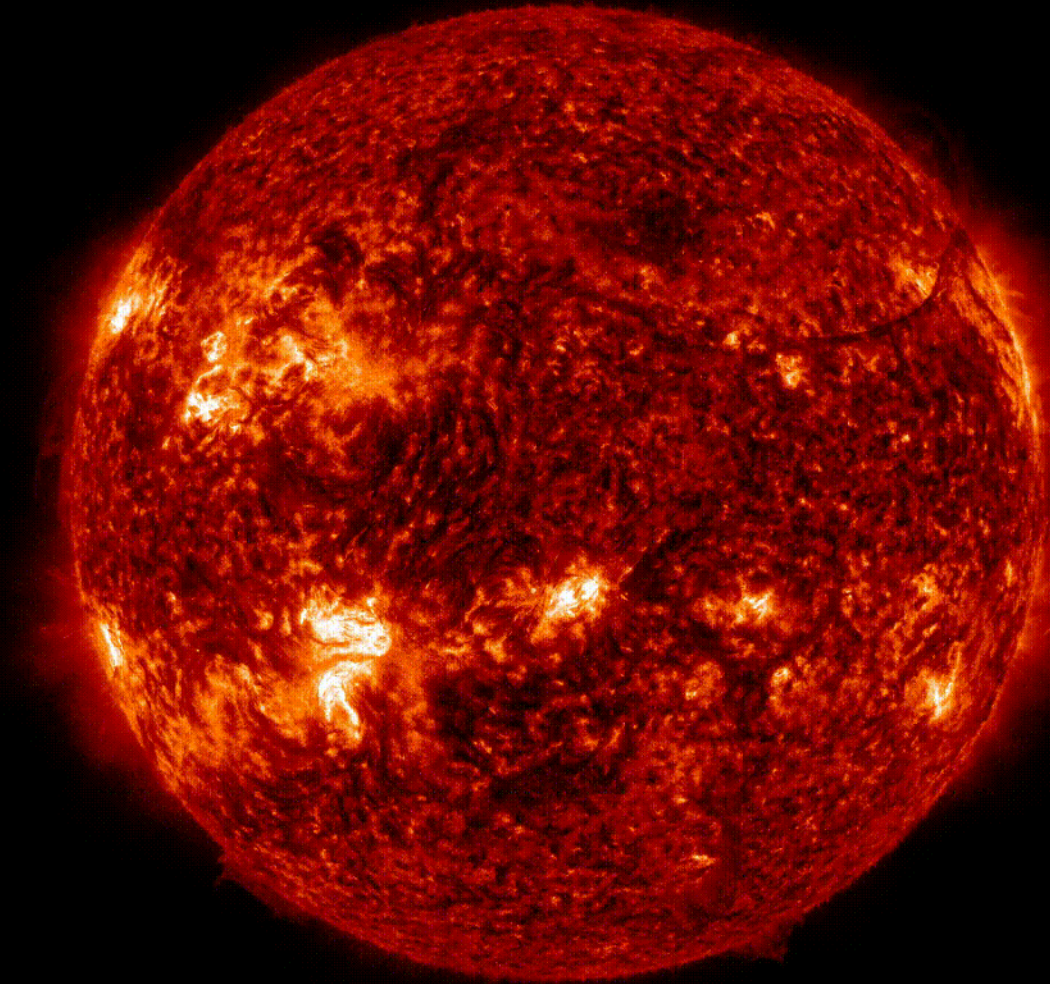


Two filament
eruptions
above north
pole

2023-06-11T14:33:41.129

Filaments

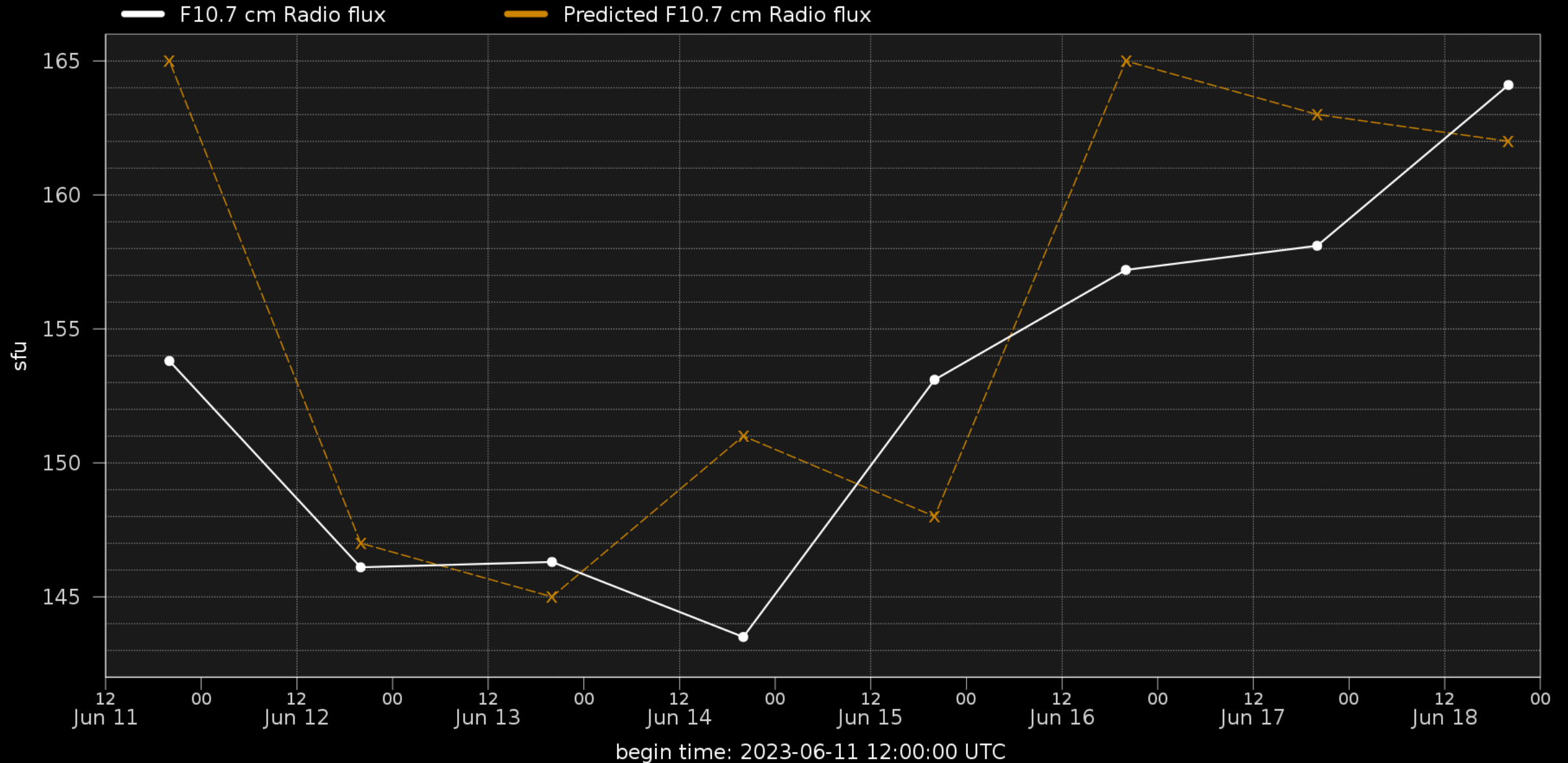
SDO/AIA 30.4 nm 2023-06-17 to 2023-06-18



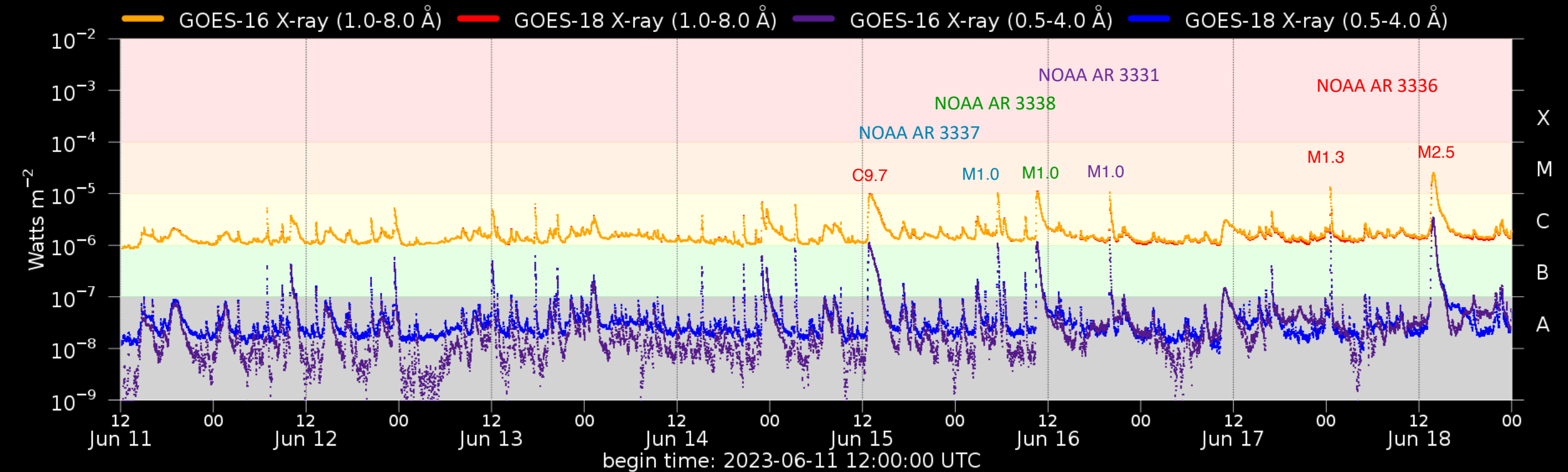
A large filament eruption, which stretched from the central meridian to the north-west quadrant was observed in SDO/AIA from 17:57 UTC June 17.

2023-06-16T14:33:28.835

Solar F10.7cm radio flux



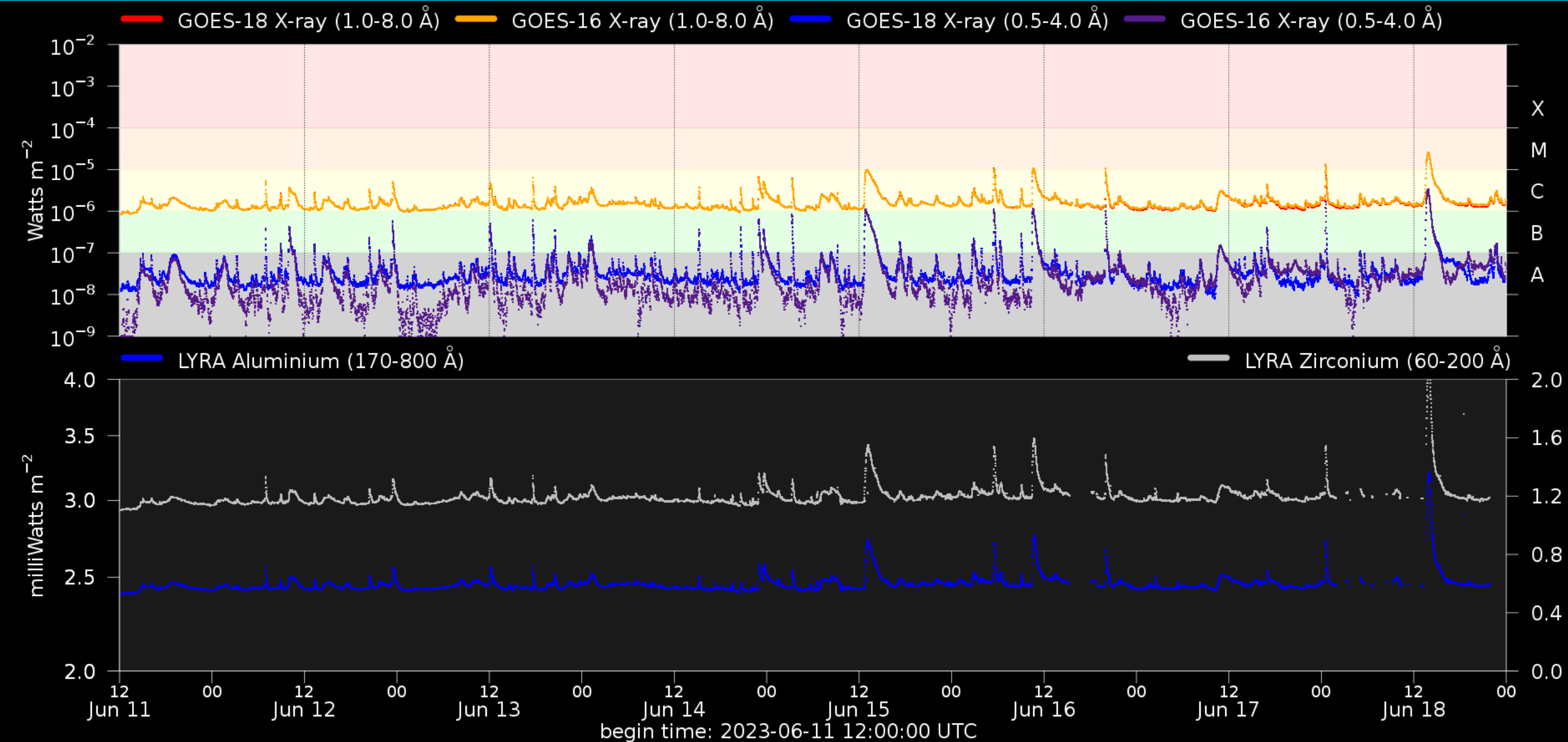
Flaring activity



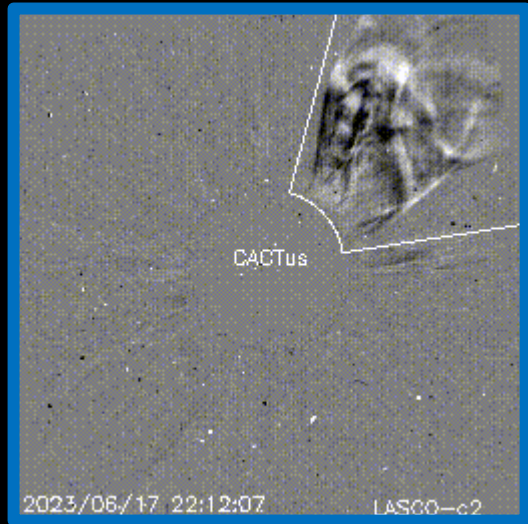
Probabilities (%) and occurrences (#) of C/M/X-flares daily, from noon to noon:

Issue date	2023-06-11	2023-06-12	2023-06-13	2023-06-14	2023-06-15	2023-06-16	2023-06-17	2023-06-18
Probability (%)	99 35 10	99 20 10	99 20 05	99 10 01	99 15 05	99 20 05	99 35 05	99 35 05
Observed (#)	05 00 00	03 00 00	04 00 00	09 00 00	05 02 00	00 01 00	06 01 00	00 01 00

Solar X-Ray and UV flux



Coronal Mass Ejections

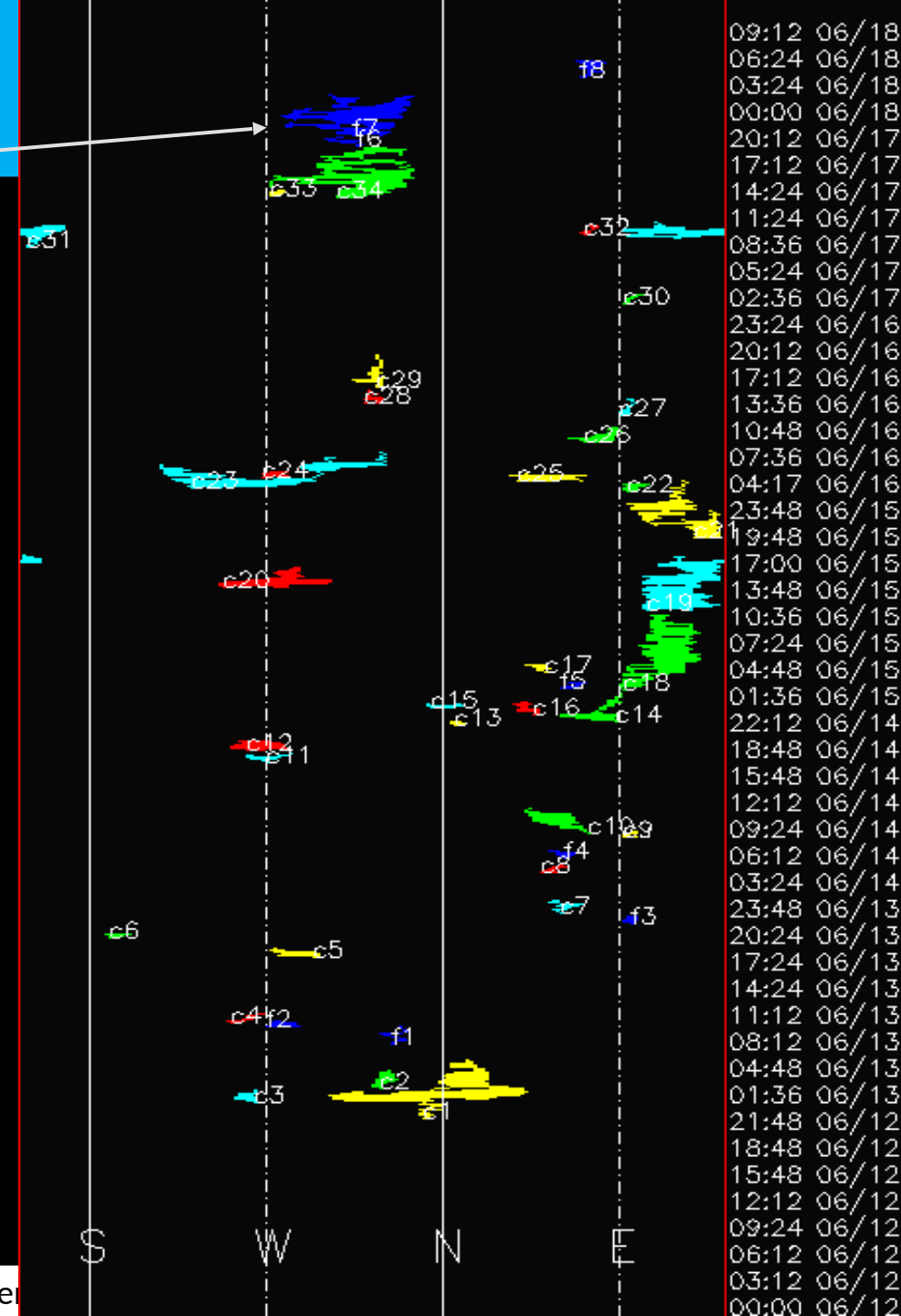


Origin: A large filament eruption, which stretched from the central meridian to the north-west quadrant was observed in SDO/AIA from 17:57 UTC June 17.

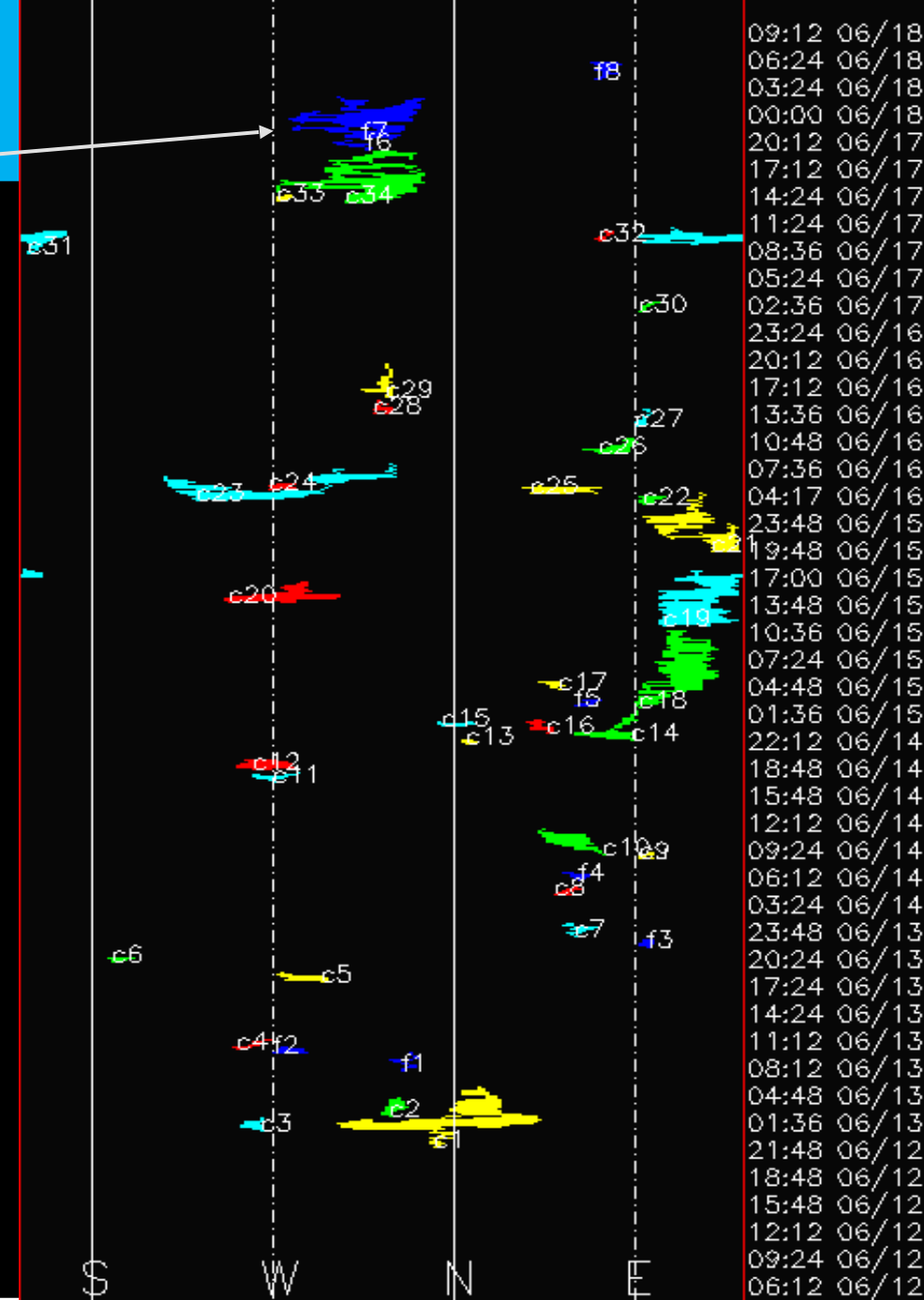
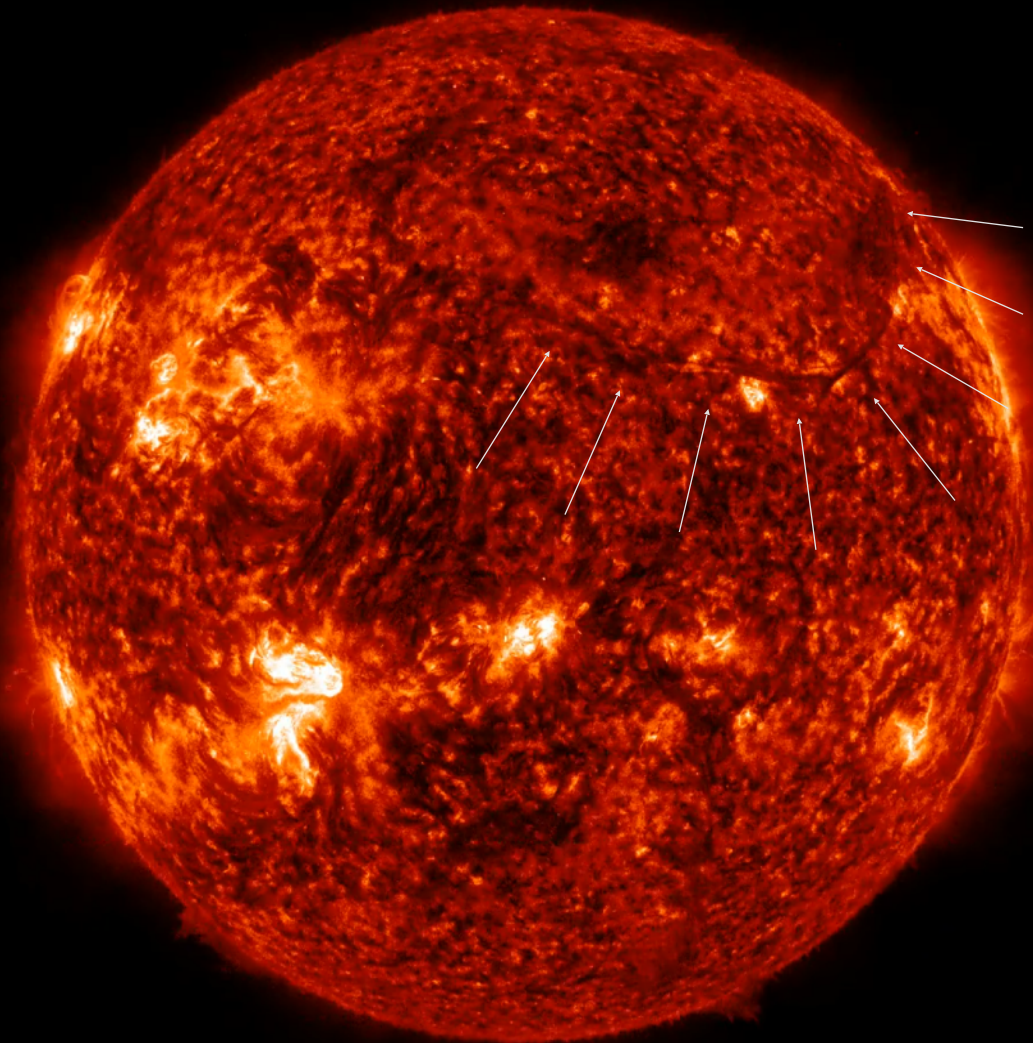
Preceded by another filament eruption to north-west (which was not Earth directed)

CME speed: very slow around 350 km/s

Glancing blow at Earth predicted late 22nd June / Early 23rd June -> due to low speed large impact not expected.

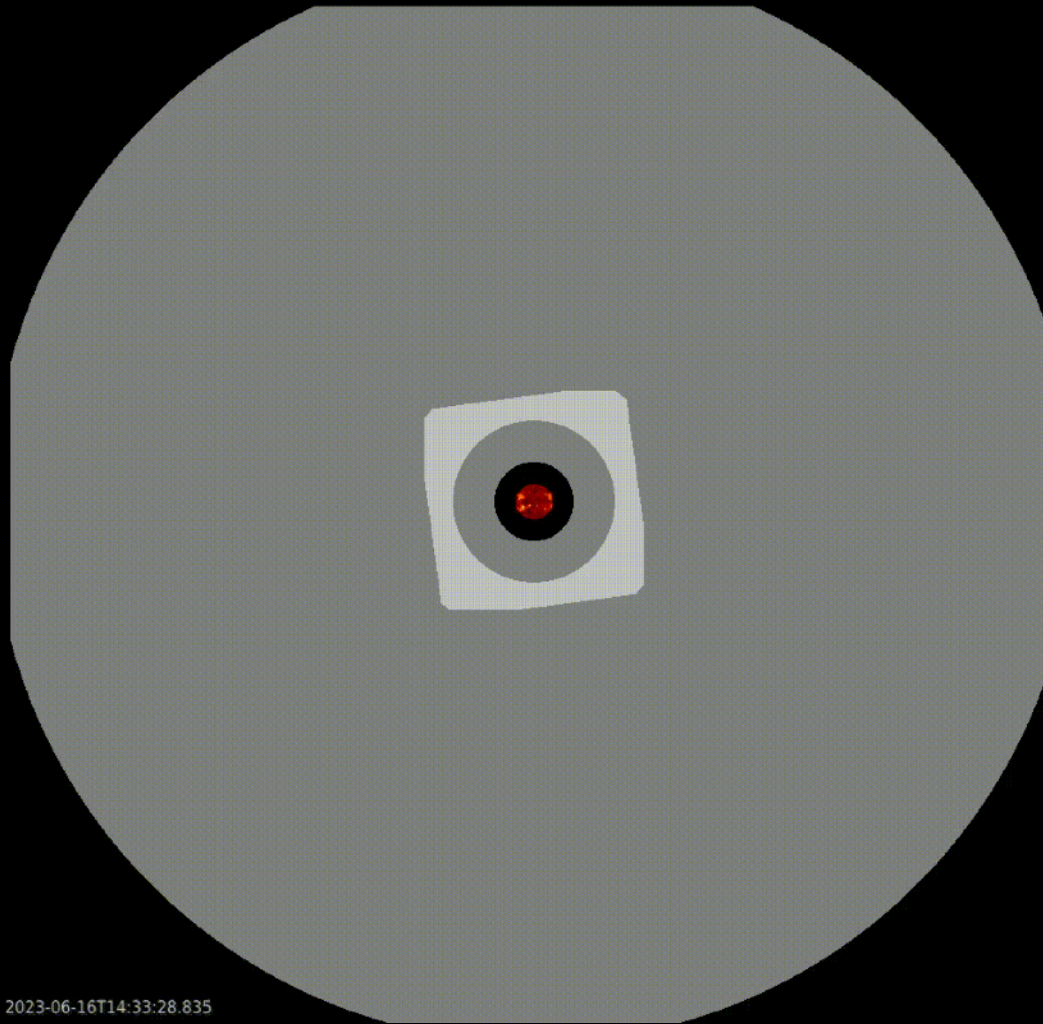


Coronal Mass Ejections

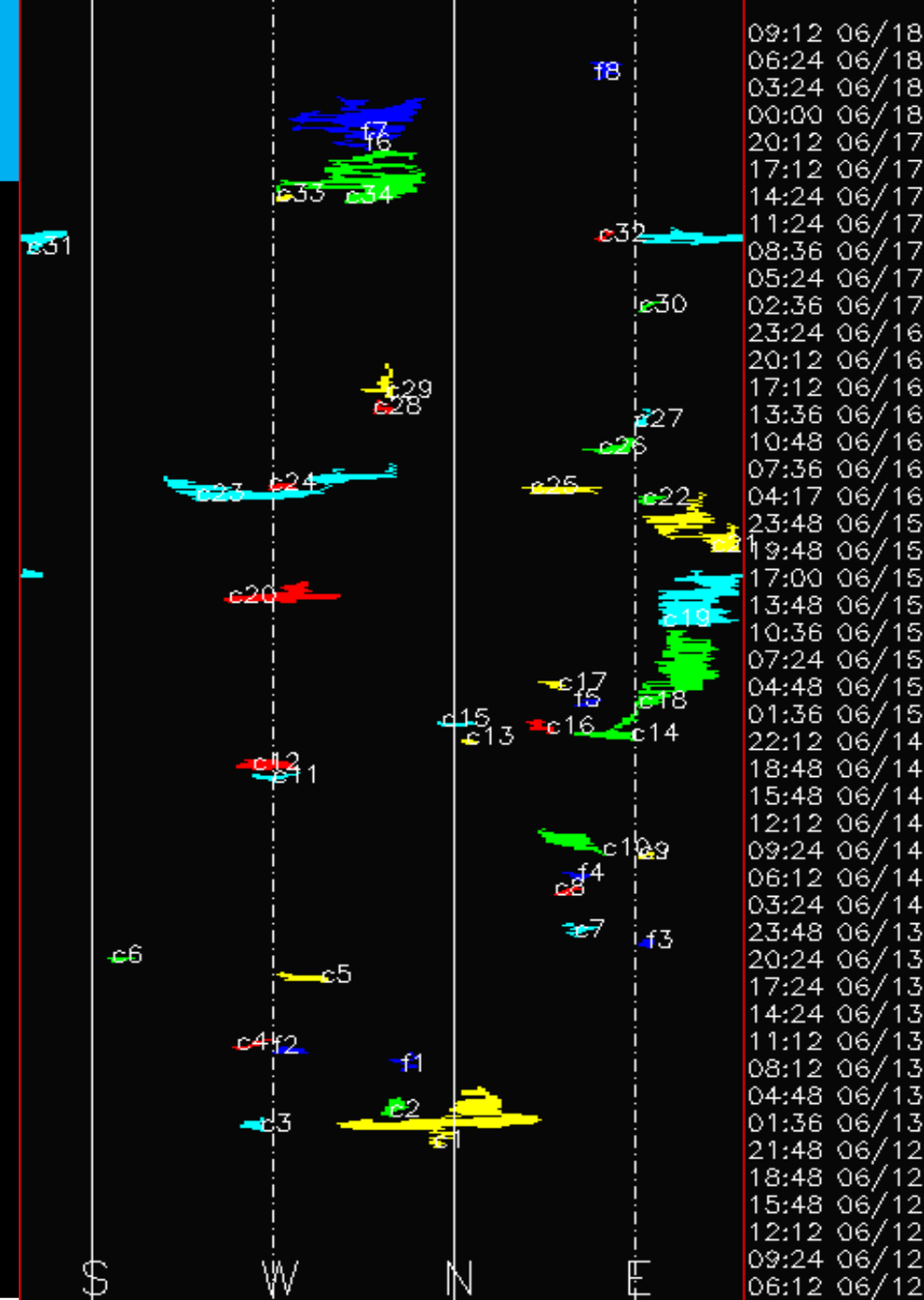


2023-06-17T17:35:16.843

Coronal Mass Ejections



2023-06-16T14:33:28.835



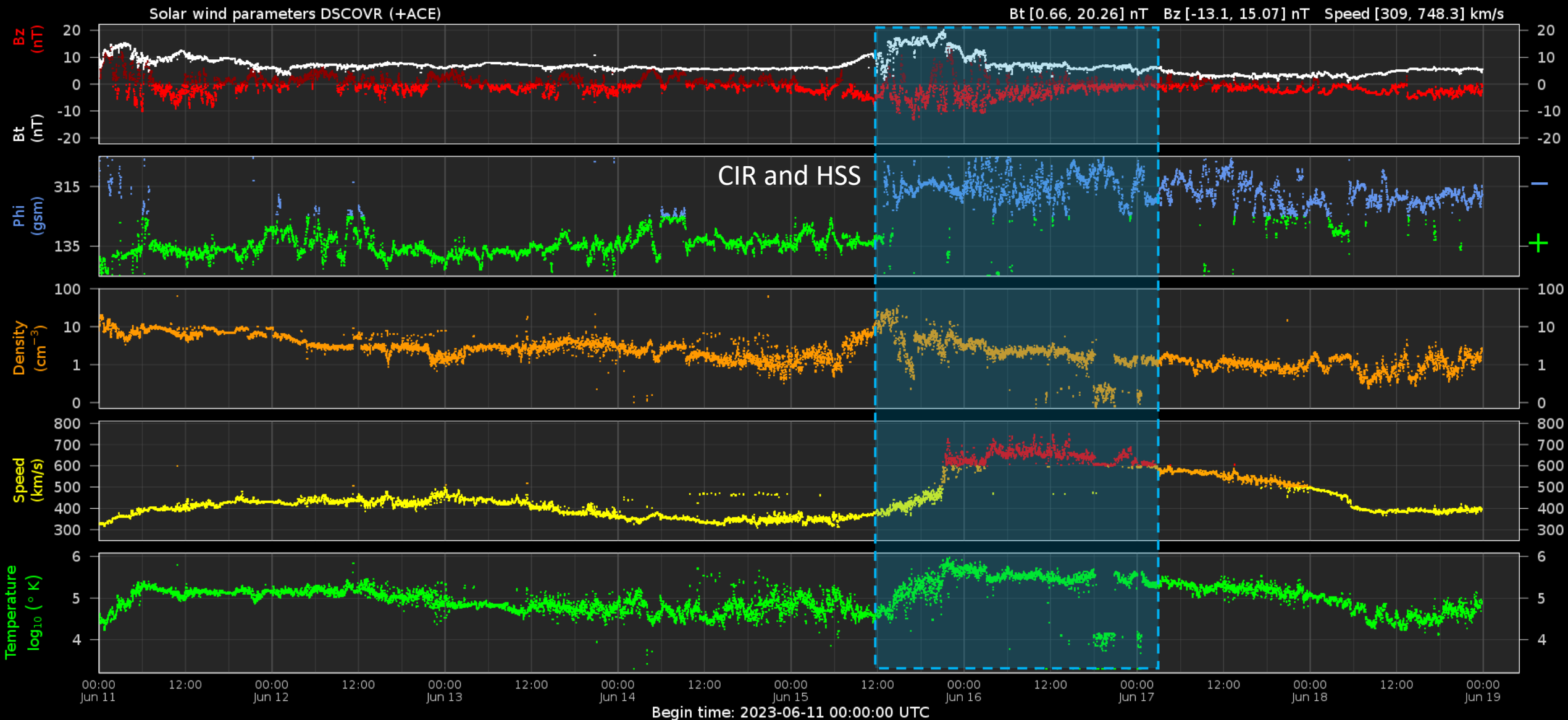
Solar Wind and Geomagnetic Activity



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Solar wind parameters



Solar wind parameters & K-indices



Geomagnetic activity (K-indexes)



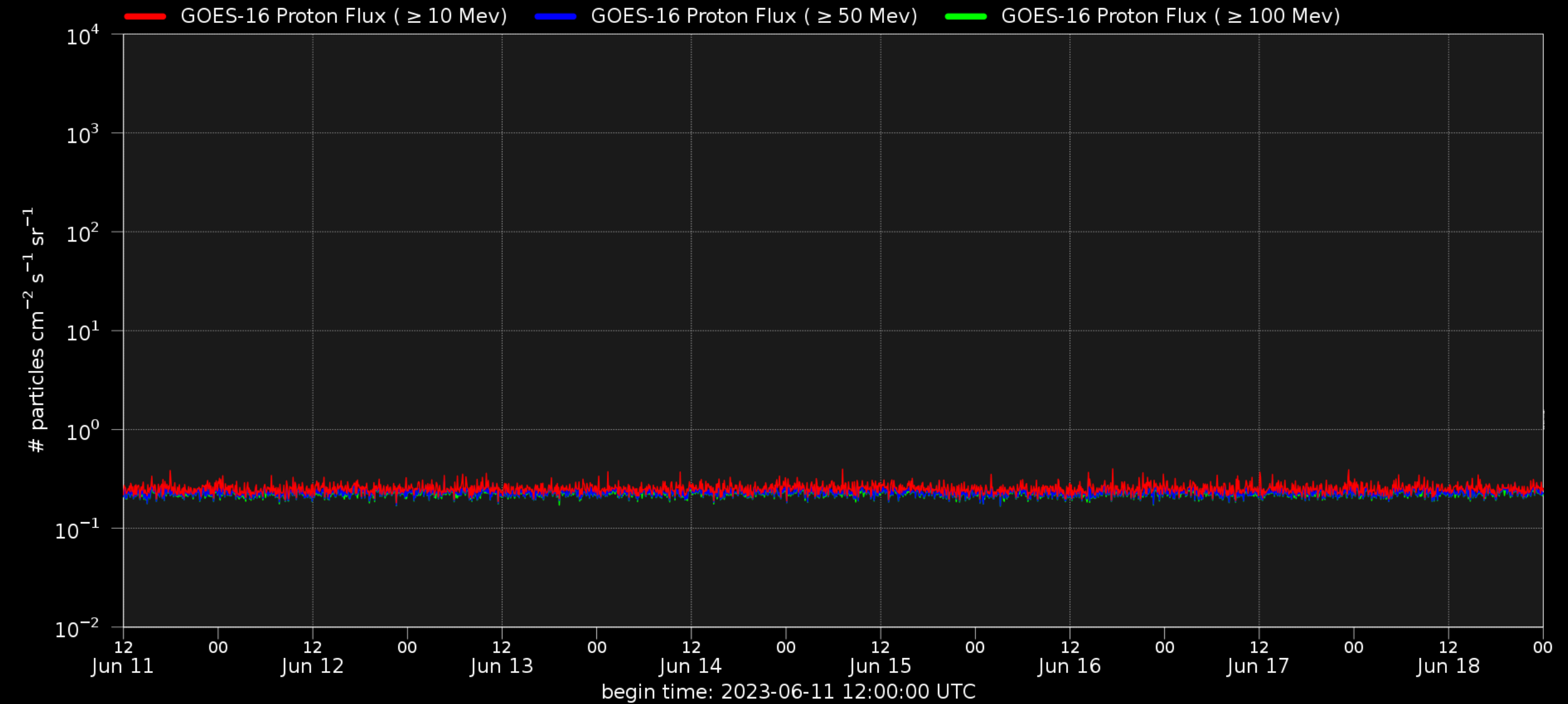
Energetic Particles



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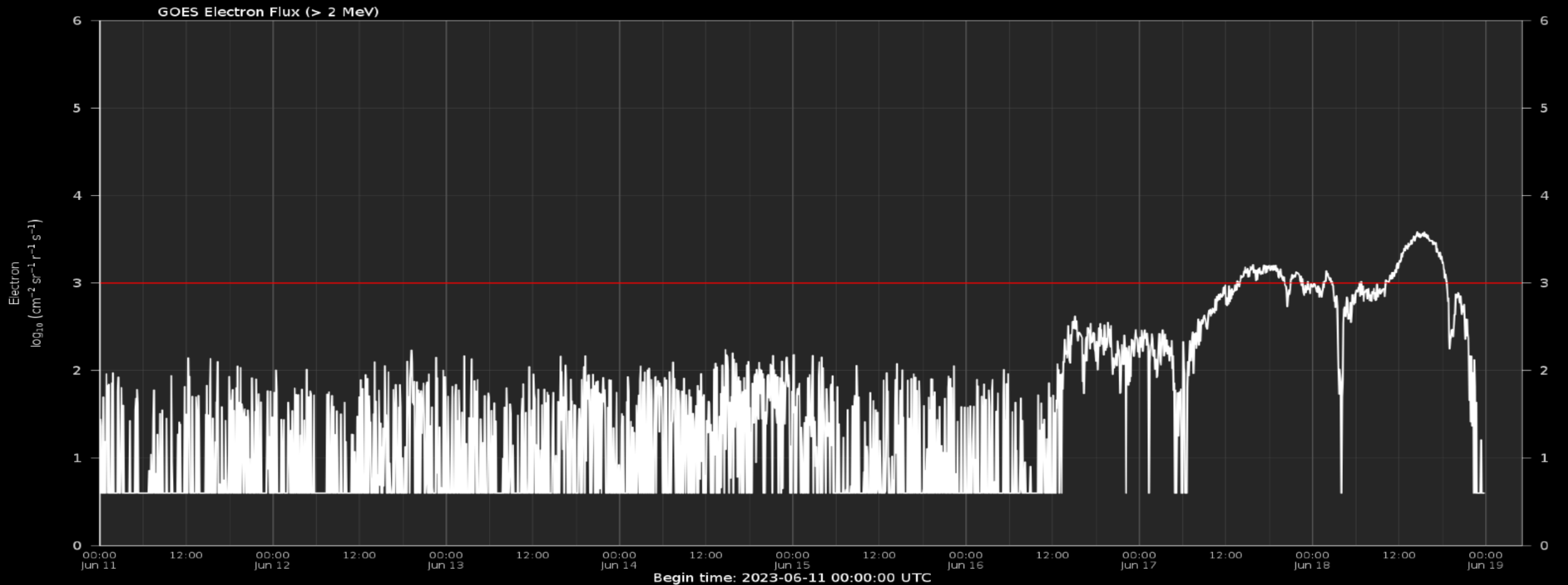
Solar proton flux



Electron flux at GEO

www.stce.be/educational/classification#electrons

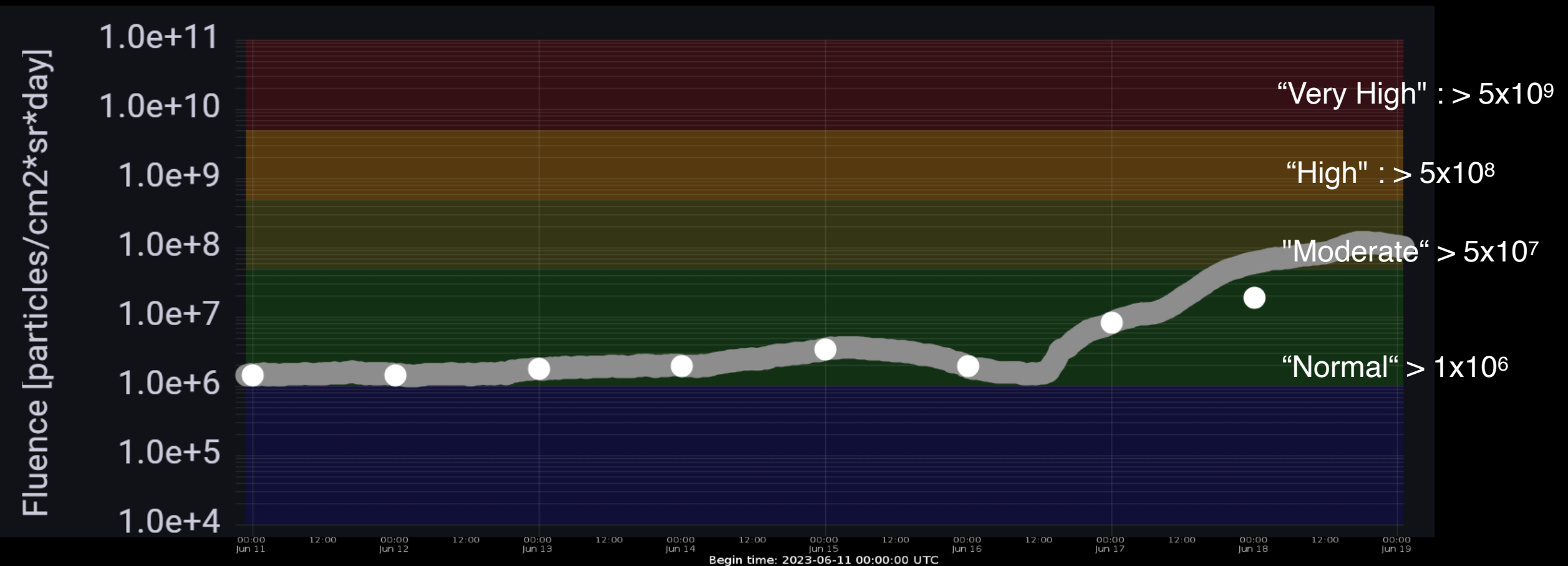
www.spaceweather.gc.ca/forecast-prevision/space-spatiale/sffl-en.php



Electron Fluence over the preceding 24-hour window at GEO

www.stce.be/educational/classification#electrons

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



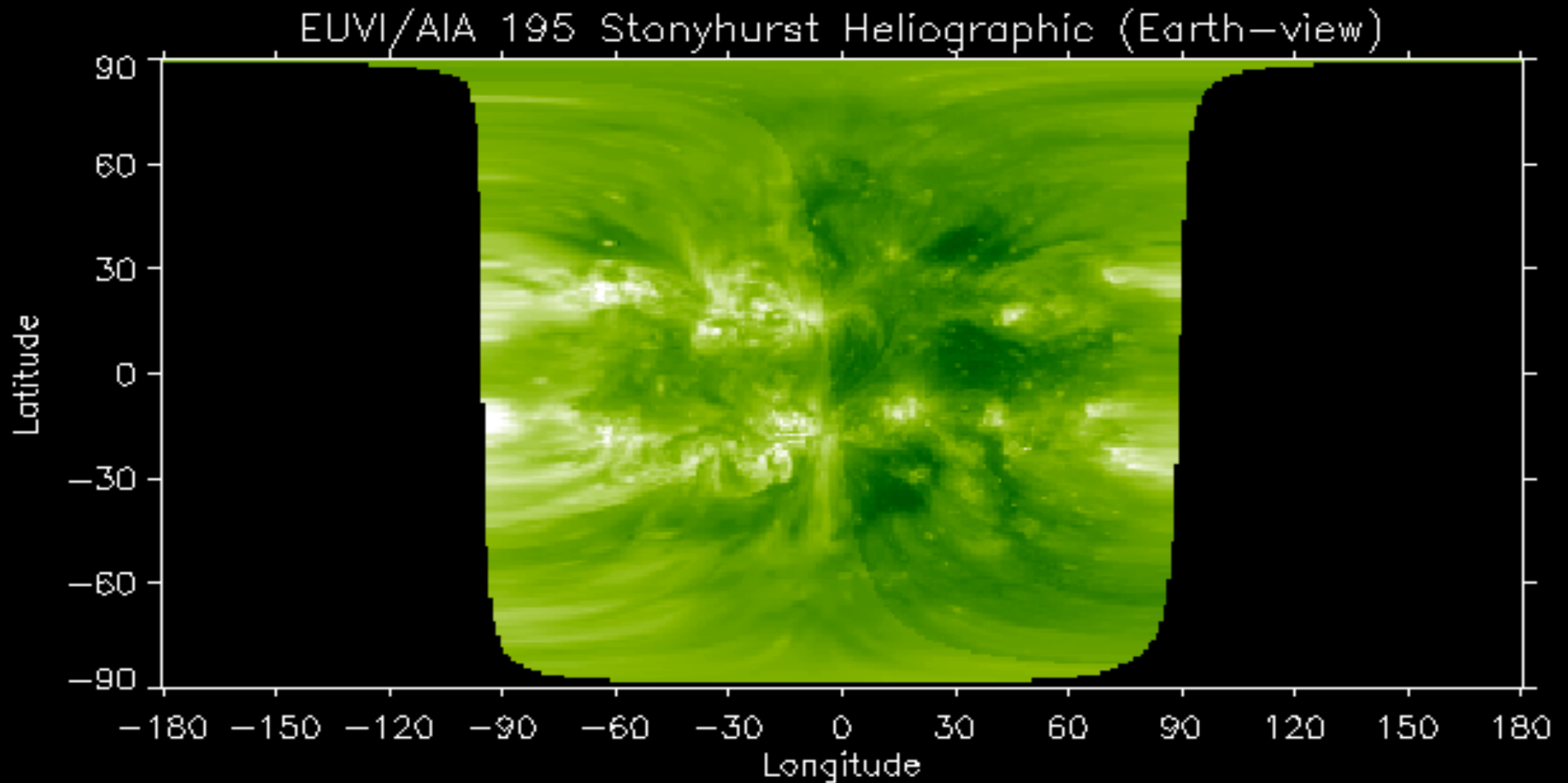
Outlook



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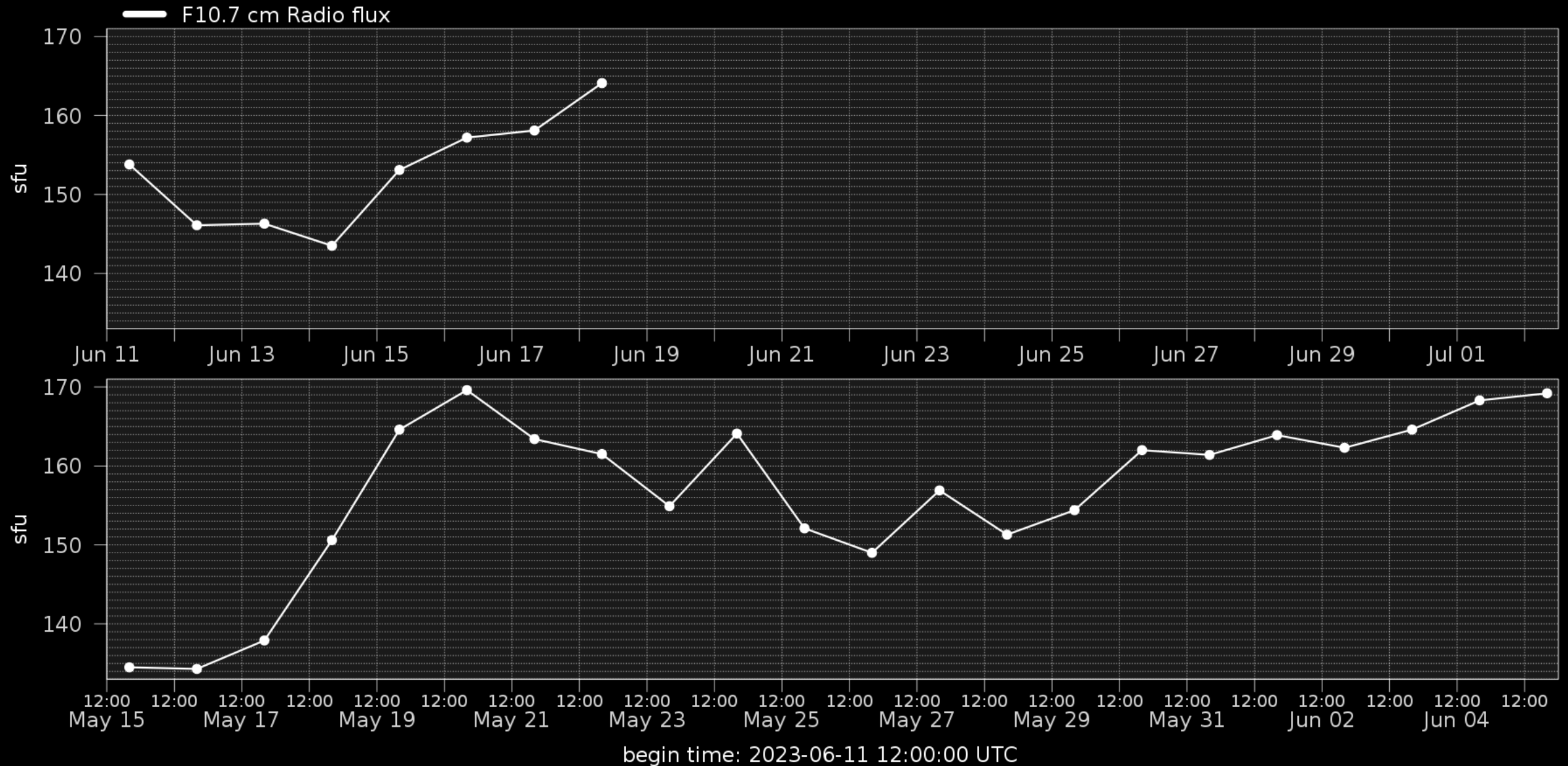
Solar Influences
Data analysis Centre
www.sidc.be

Outlook: Solar activity

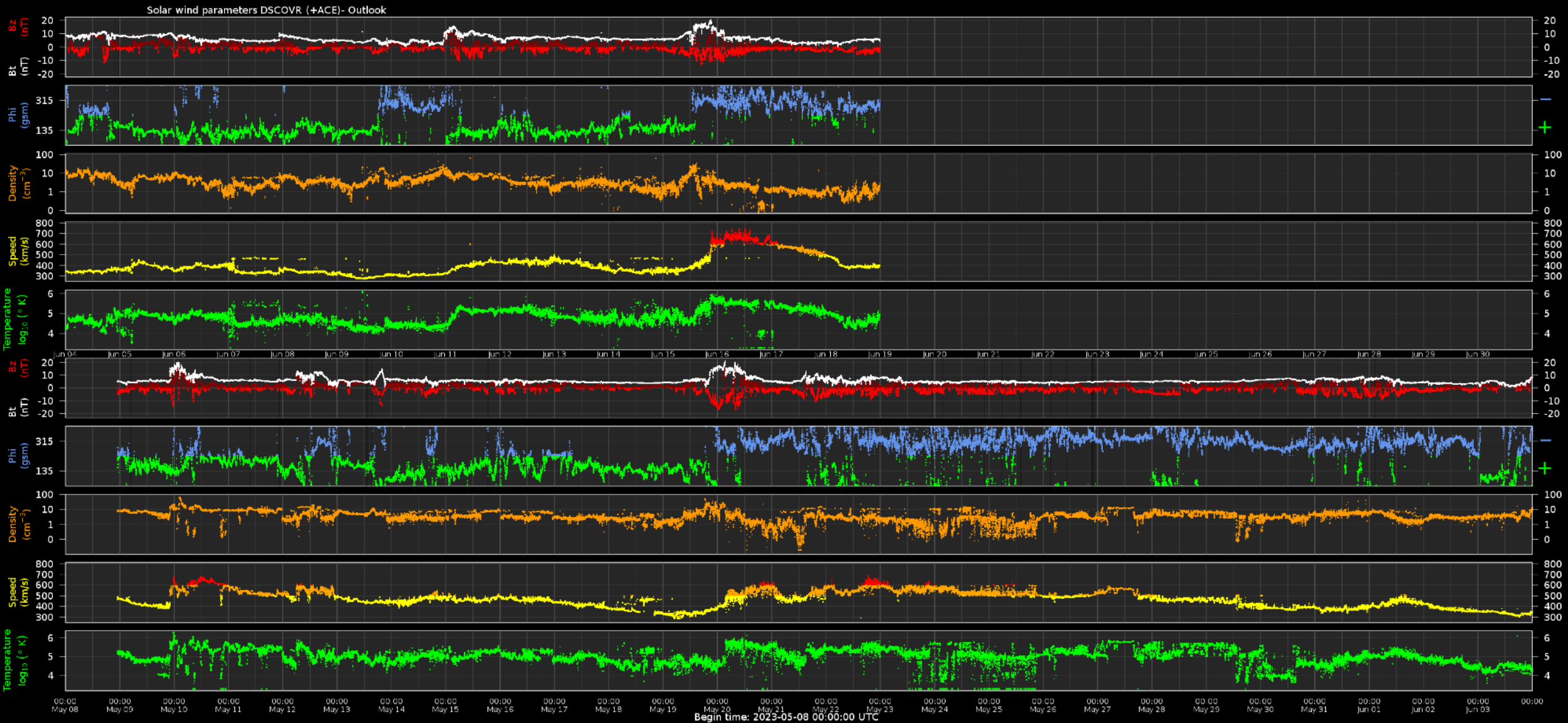


Observation date: 2023/06/18 22:35:00

Outlook: Solar F10.7cm radio flux



Outlook: Solar wind parameters



Outlook: Geomagnetic activity



Outlook: Electron Flux at GEO Outlook



Pegasus



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Pegasus related events

Post Storm Depression advisory series issued following period of NOAA Kp 6 (June 16 to now):

HF Advisory:

0000054901

FNXX02 EFKL 160536

SWX ADVISORY

DTG: 20230616/0536Z

SWXC: PECASUS

ADVISORY NR: 2023/112

SWX EFFECT: HF COM SEV

OBS SWX: 16/0526Z EQN EQS W090 - E045

FCST SWX +6 HR: 16/1200Z NOT AVBL

FCST SWX +12 HR: 16/1800Z NOT AVBL

FCST SWX +18 HR: 17/0000Z NOT AVBL

FCST SWX +24 HR: 17/0600Z NOT AVBL

RMK: SPACE WEATHER EVENT (MAXIMUM USABLE

FREQUENCY DEPRESSION) IS IN PROGRESS. IMPACT ON HIGHER HF

COM FREQUENCY BANDS EXPECTED.

NXT ADVISORY: WILL BE ISSUED BY 20230616/1126Z=

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See you at our next briefing!

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