

SIDC Space Weather Briefing

17 July 2022-24 July 2022

Konstantina Loumou
& the SIDC forecaster team



Royal Observatory
of Belgium

Solar Influences
Data analysis Centre
www.sidc.be

Summary Report

Solar activity from 2022-07-17 12:00 to 2022-07-24 23:59

Active regions	NOAA AR 3053-3065, NOAA AR 3058 the most complex
Flares	# C-class flare: 32 # M-class flare: 0 # X-class flare: 0
Coronal Holes	2 large N and S negative polarity on CM 18-19/7 and 1 EQ positive polarity
CMEs	Numerous. 2 full halo CMEs.

Proton flux	Background levels
Electron flux	Above threshold 17/7 and 20-21/7

Solar wind and geomagnetic conditions

ICMEs	ICME of 15 July, shock registered 18 July 20:33 UT. Faint full halo of 21 July, shock registered 23 July 02:31UT
Solar wind conditions	B : 1.89 - 21.53 nT //Bz: -17.31 nT to 19.47 nT //Speed: 344.4 - 701.5km/s
K-indices	max K-index (K_Dourbes): 5 max Kp-index (NOAA): 5

All Quiet Alert: Not quiet

Solar Activity

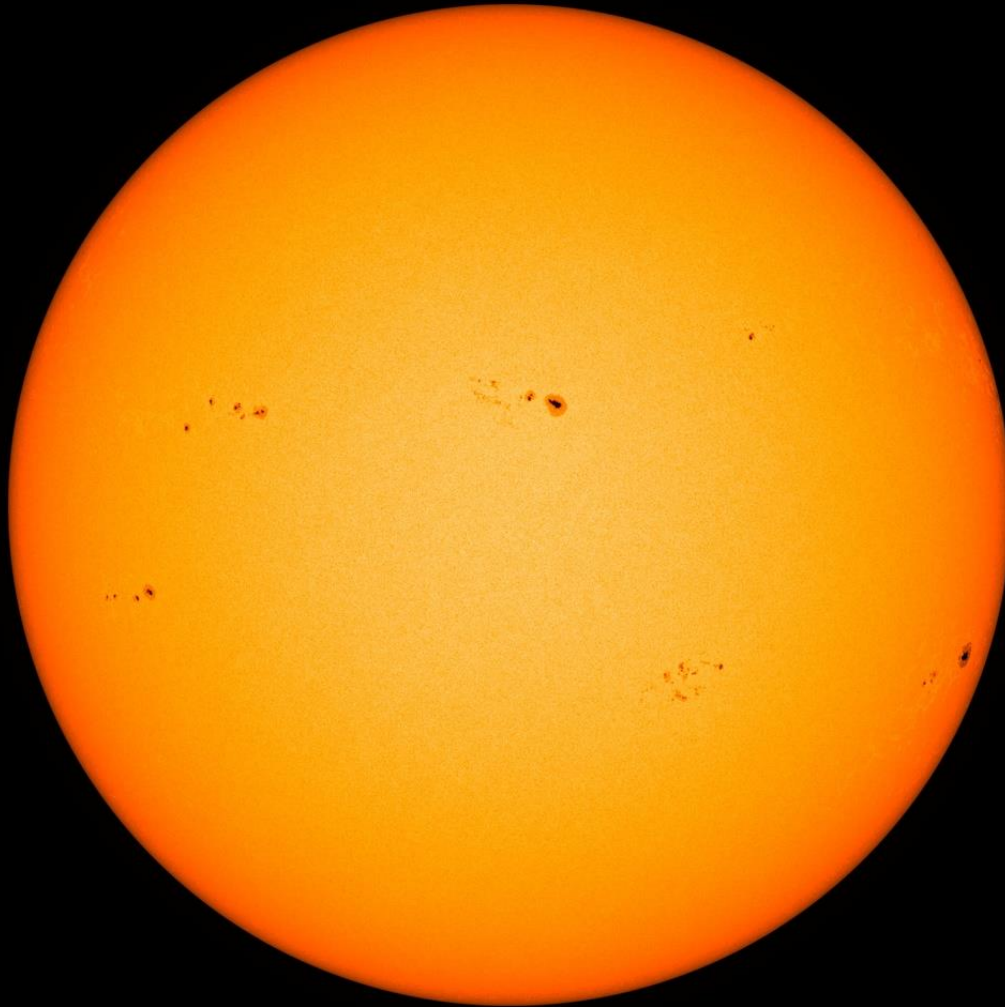


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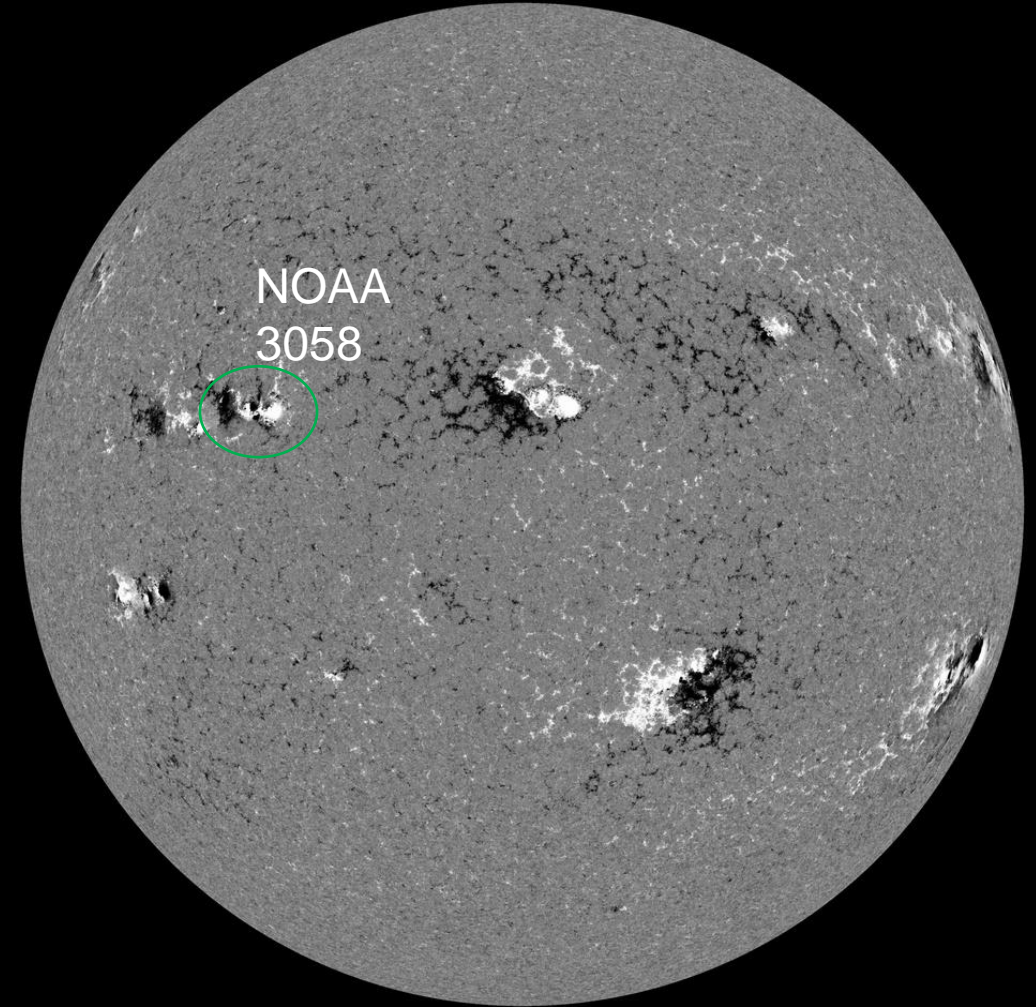
Solar active regions

SDO/HMI White Light 2022-07-17



SDO/HMI Quick-Look Continuum: 20220717_114500

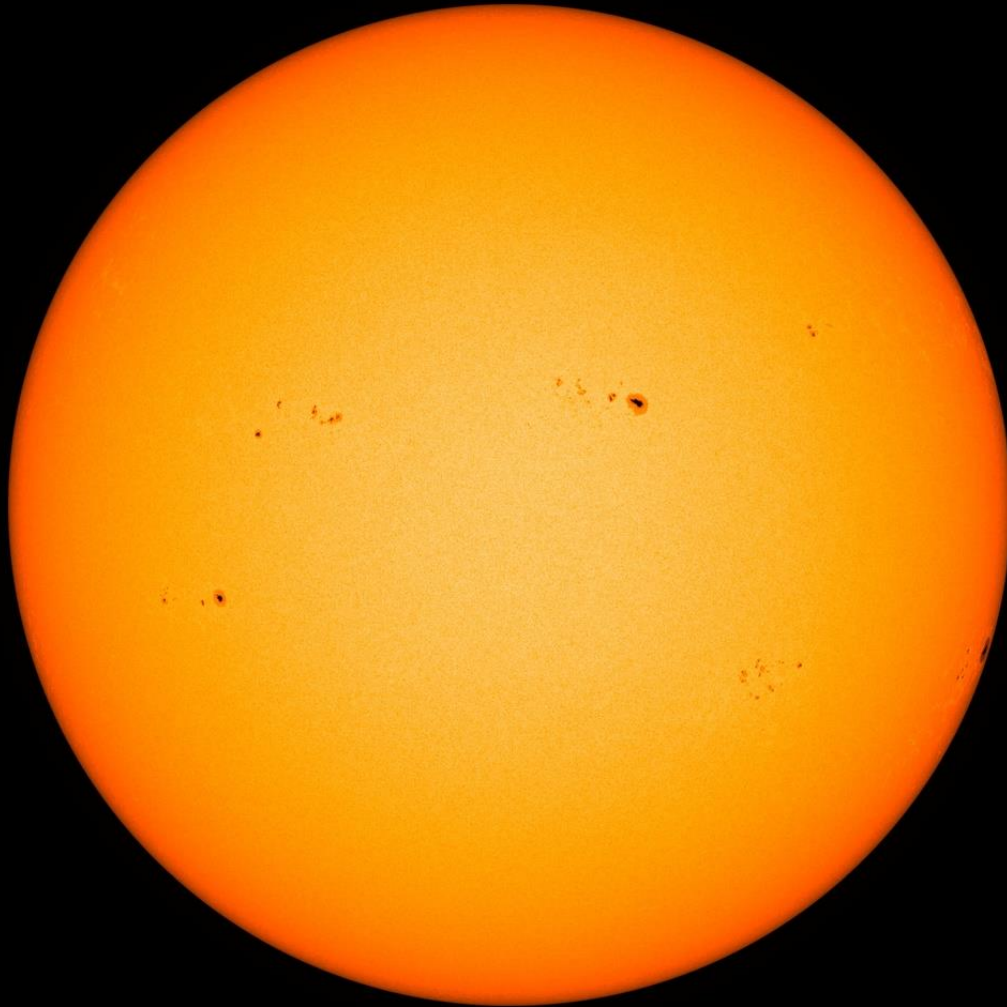
SDO/HMI Magnetogram 2022-07-17



SDO/HMI Quick-Look Magnetogram: 20220717_114500

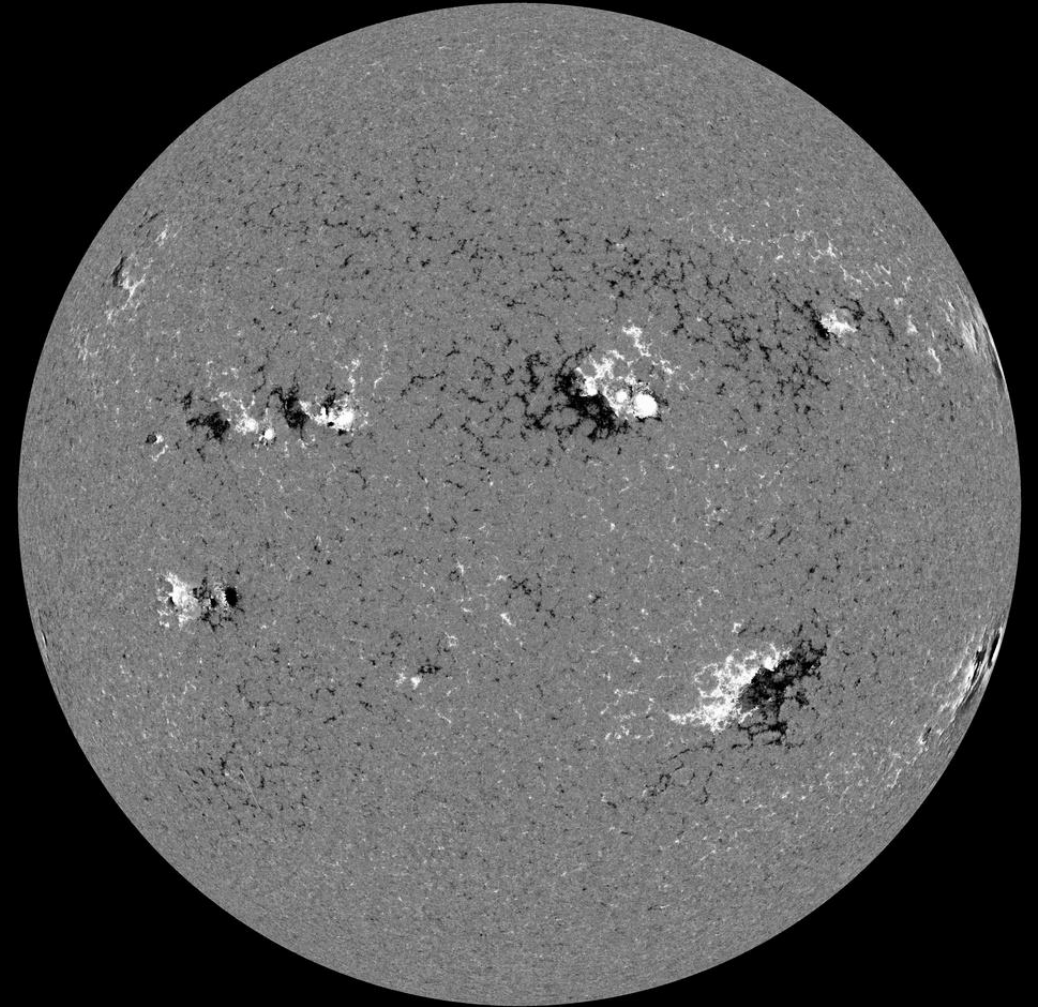
Solar active regions

SDO/HMI White Light 2022-07-18



SDO/HMI Quick-Look Continuum: 20220718_054500

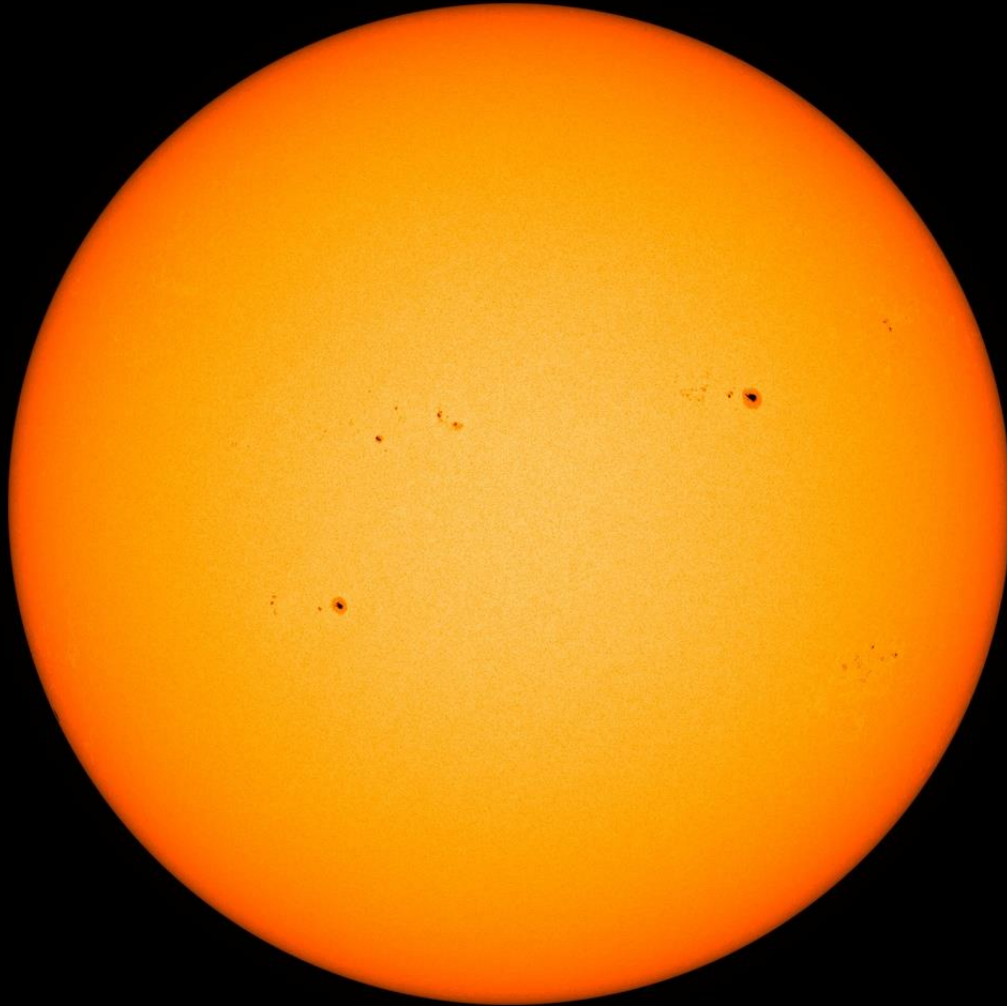
SDO/HMI Magnetogram 2022-07-18



SDO/HMI Quick-Look Magnetogram: 20220718_054500

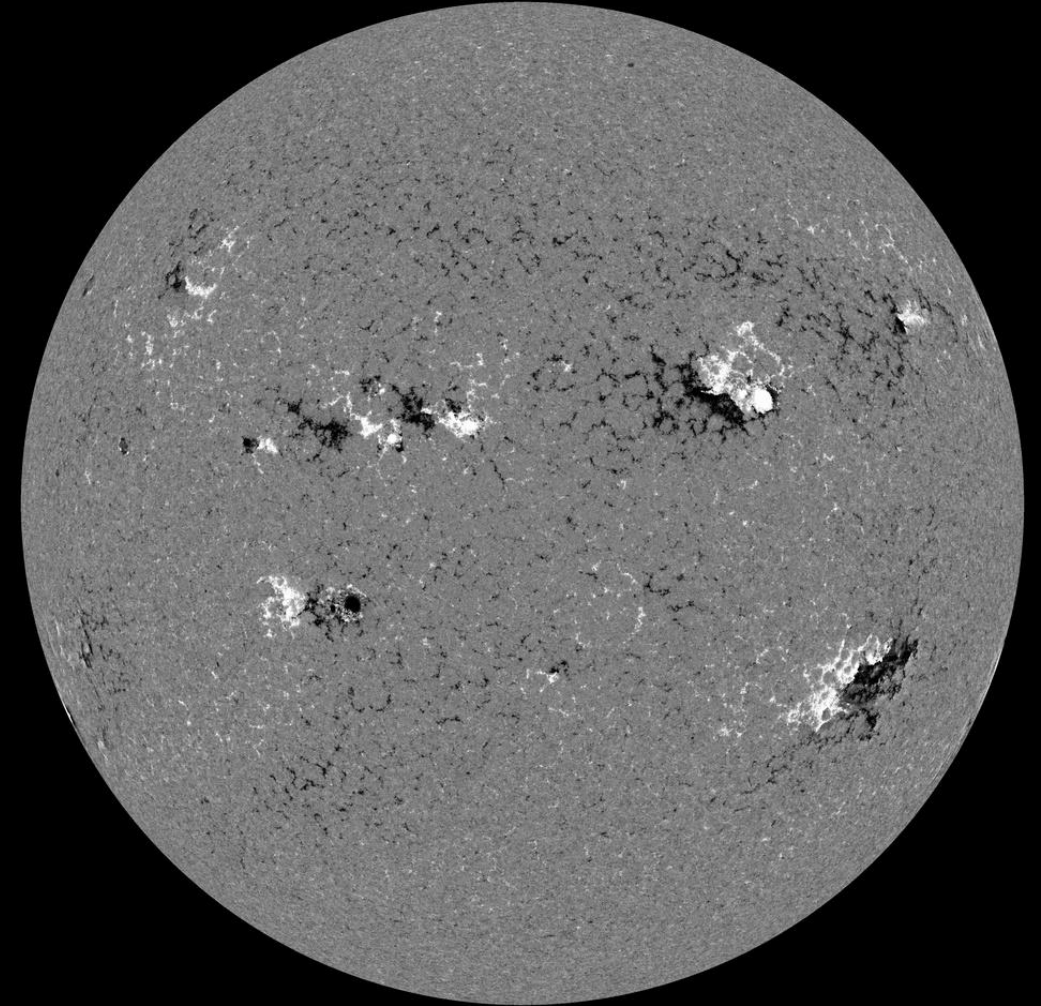
Solar active regions

SDO/HMI White Light 2022-07-19



SDO/HMI Quick-Look Continuum: 20220719_084500

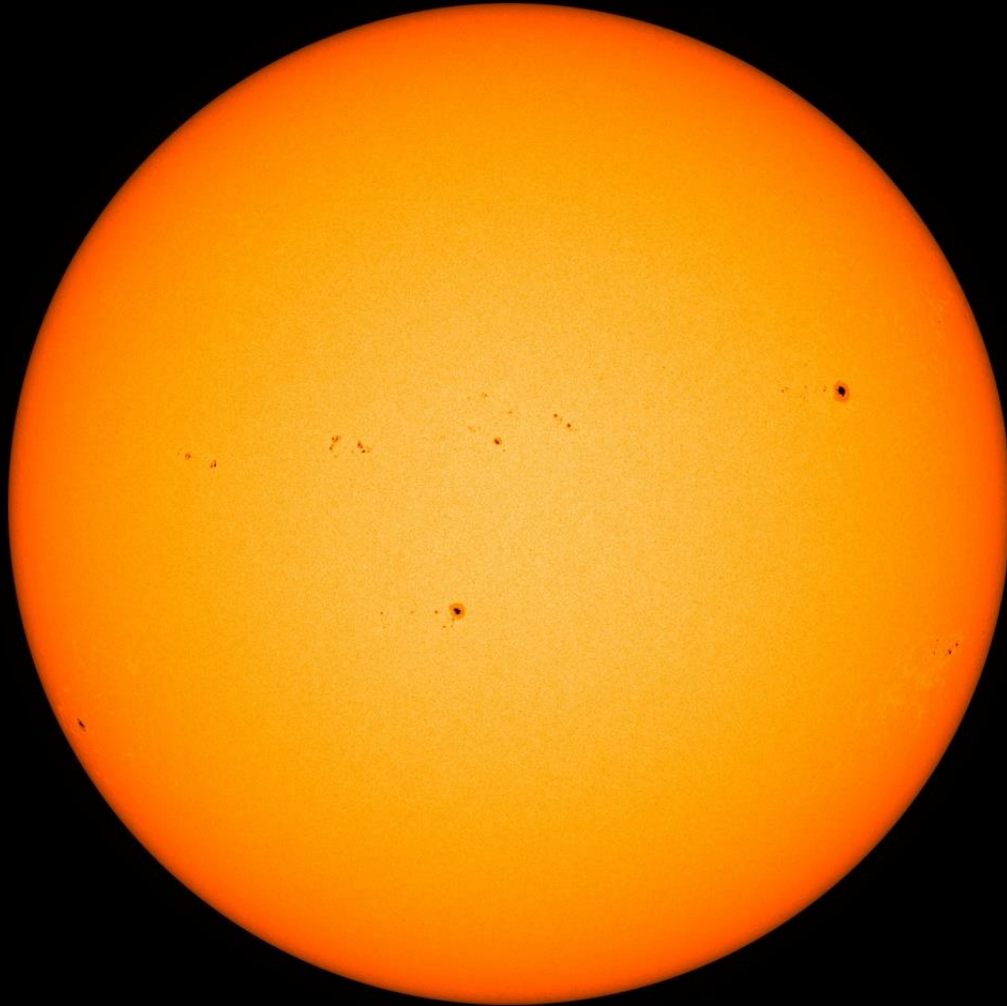
SDO/HMI Magnetogram 2022-07-19



SDO/HMI Quick-Look Magnetogram: 20220719_084500

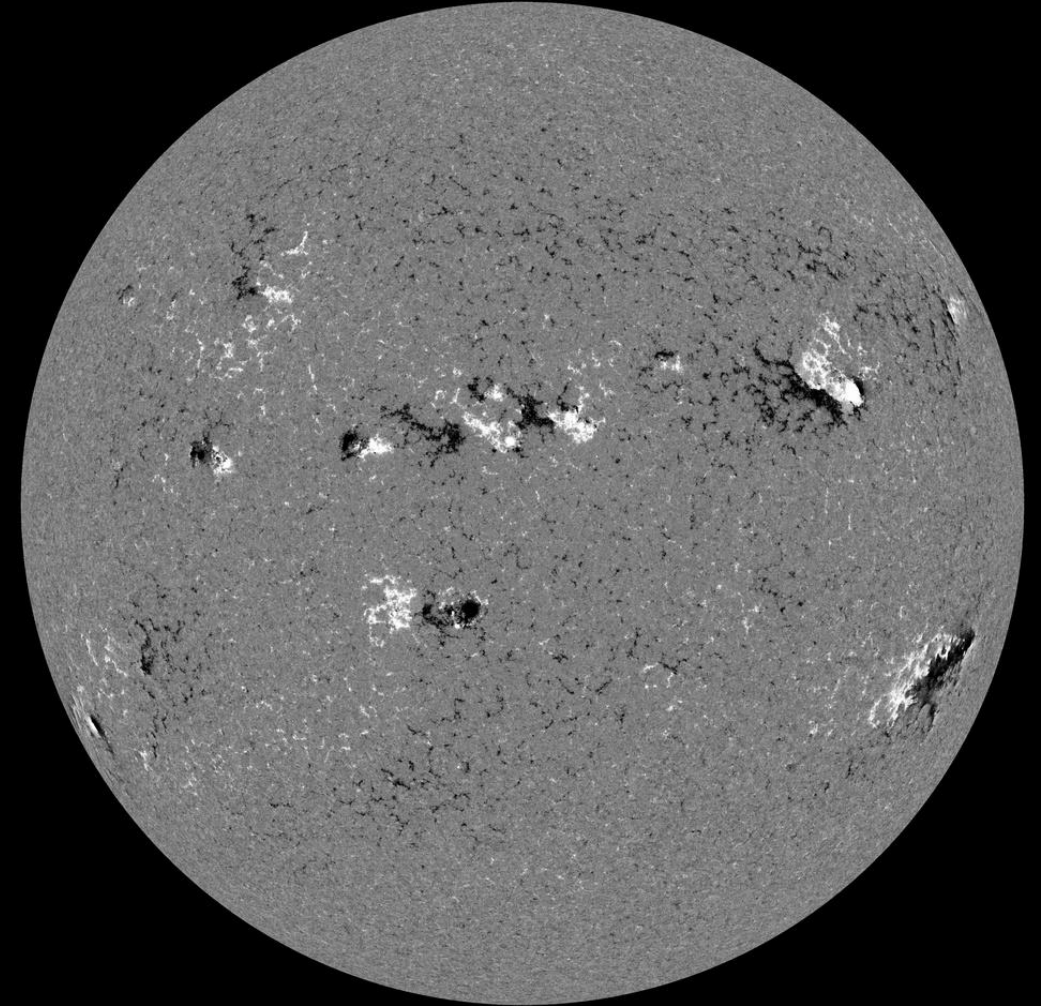
Solar active regions

SDO/HMI White Light 2022-07-20



SDO/HMI Quick-Look Continuum: 20220720_091500

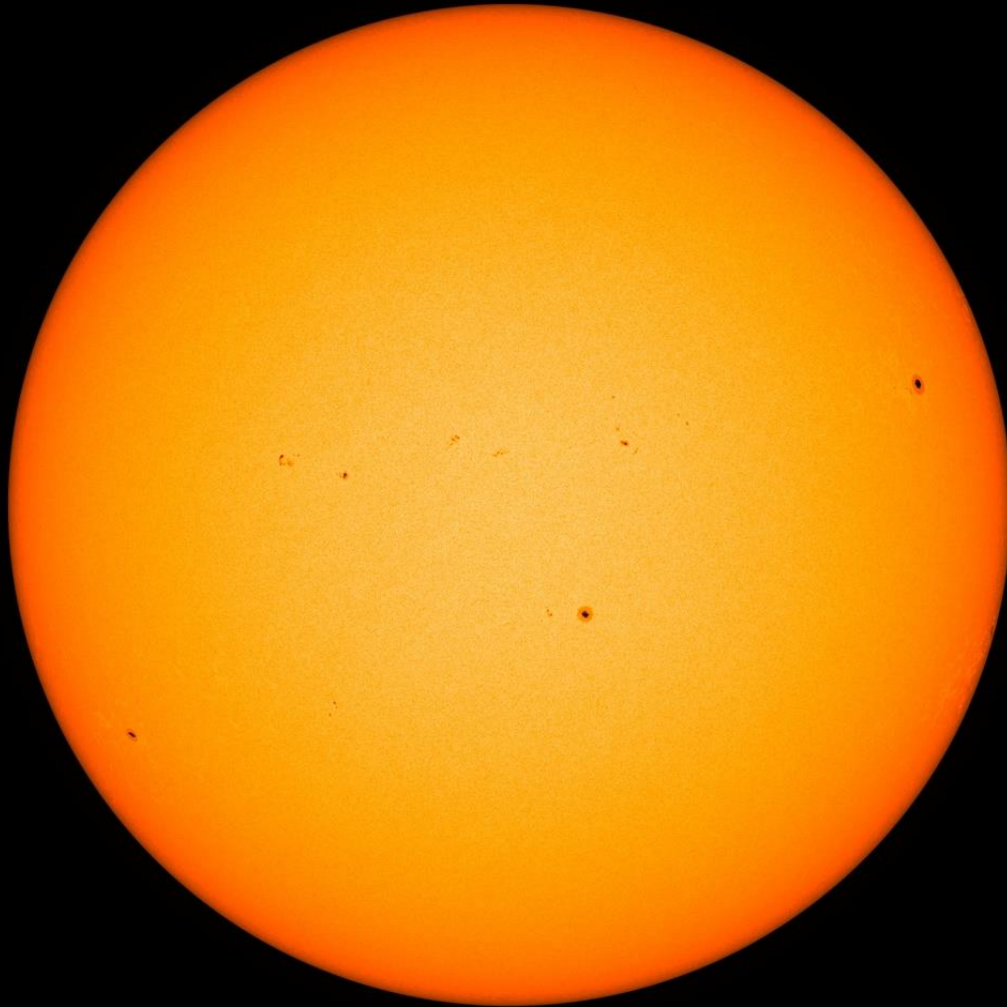
SDO/HMI Magnetogram 2022-07-20



SDO/HMI Quick-Look Magnetogram: 20220720_091500

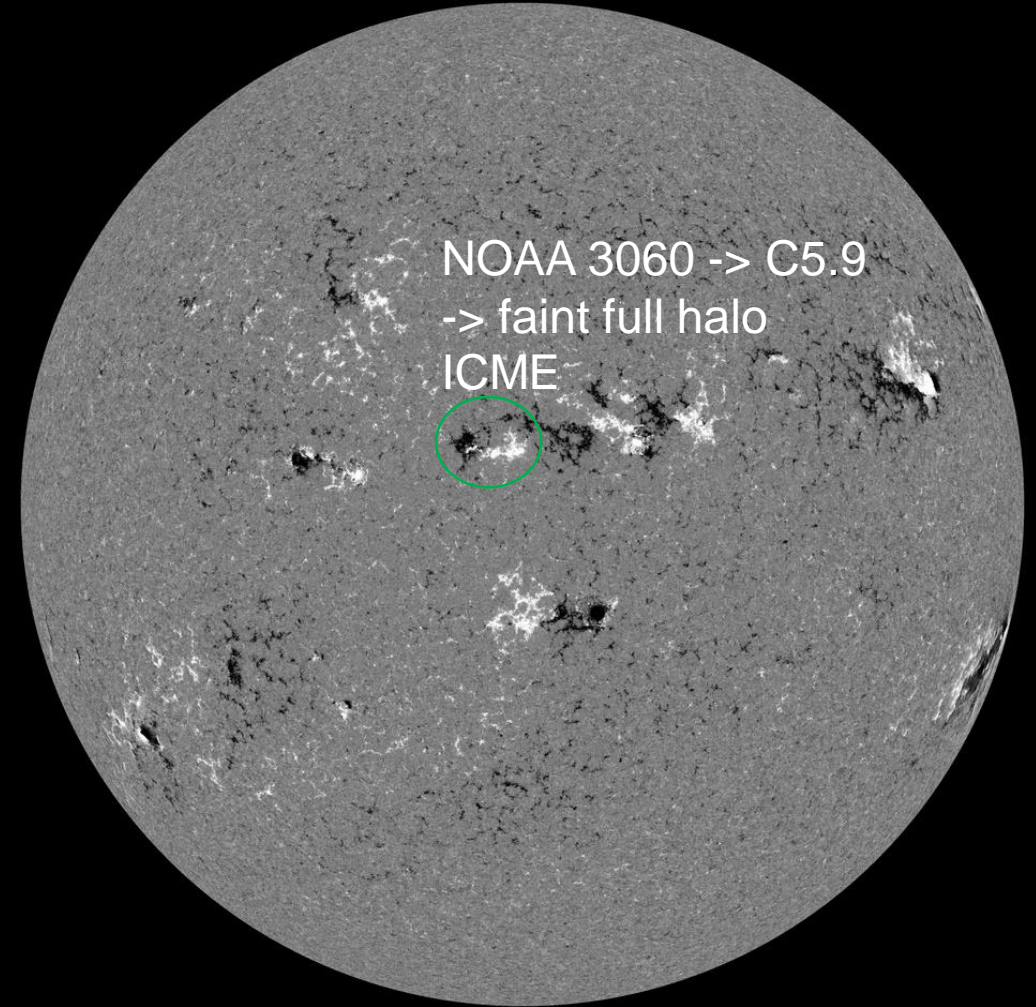
Solar active regions

SDO/HMI White Light 2022-07-21



SDO/HMI Quick-Look Continuum: 20220721_114500

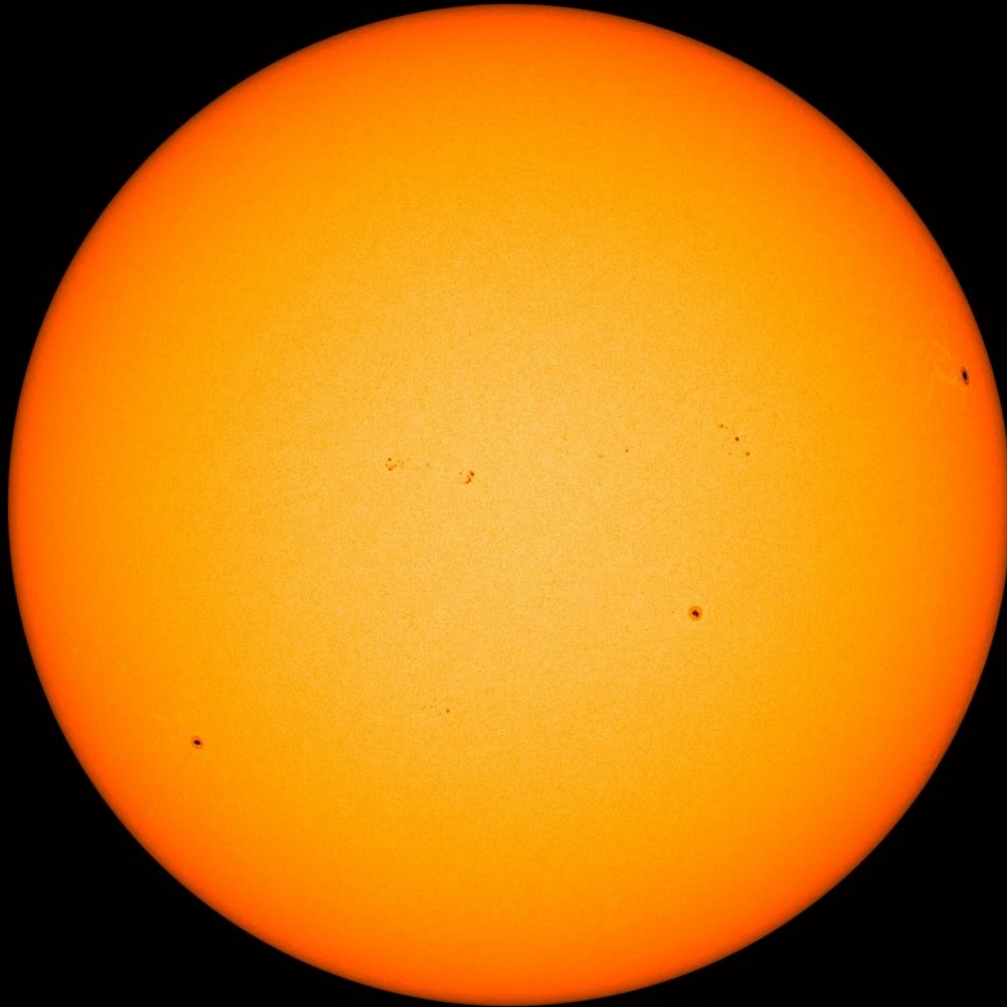
SDO/HMI Magnetogram 2022-07-21



SDO/HMI Quick-Look Magnetogram: 20220721_114500

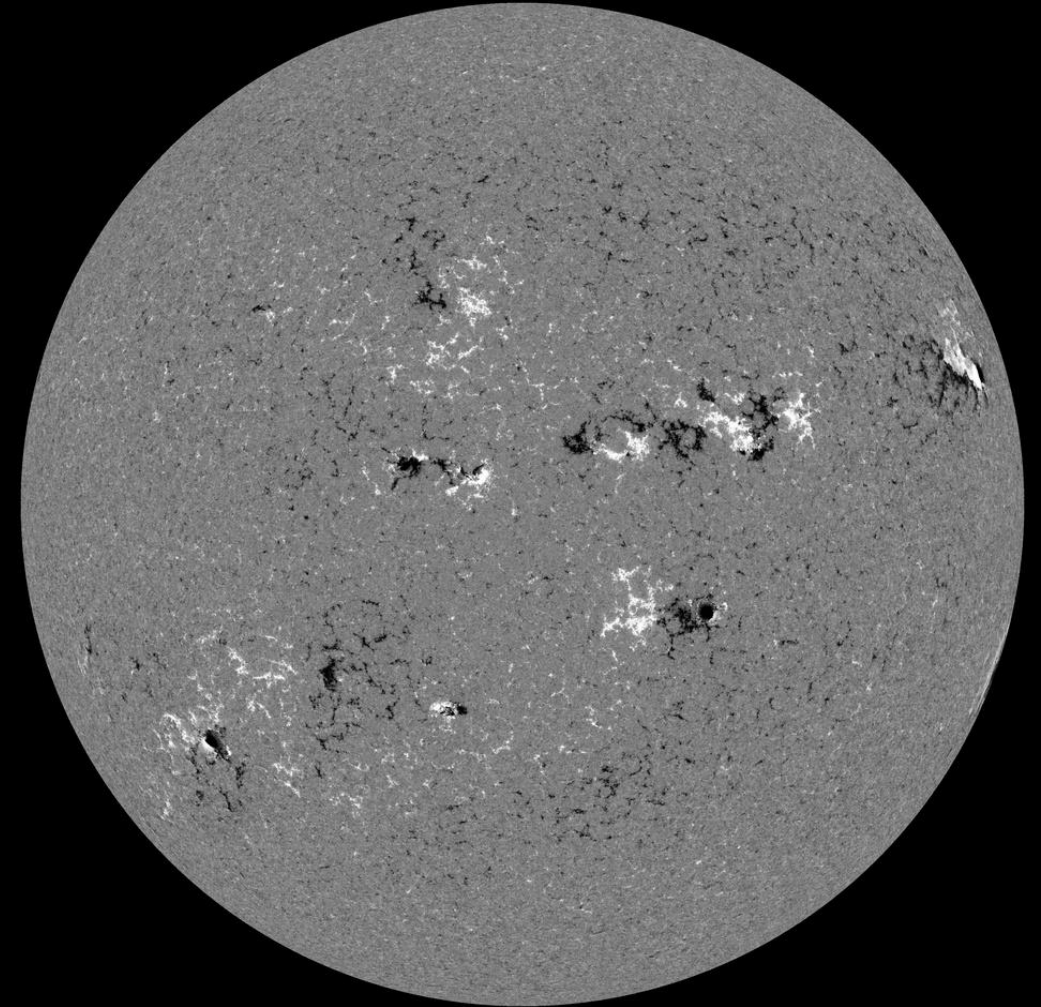
Solar active regions

SDO/HMI White Light 2022-07-22



SDO/HMI Quick-Look Continuum: 20220722_114500

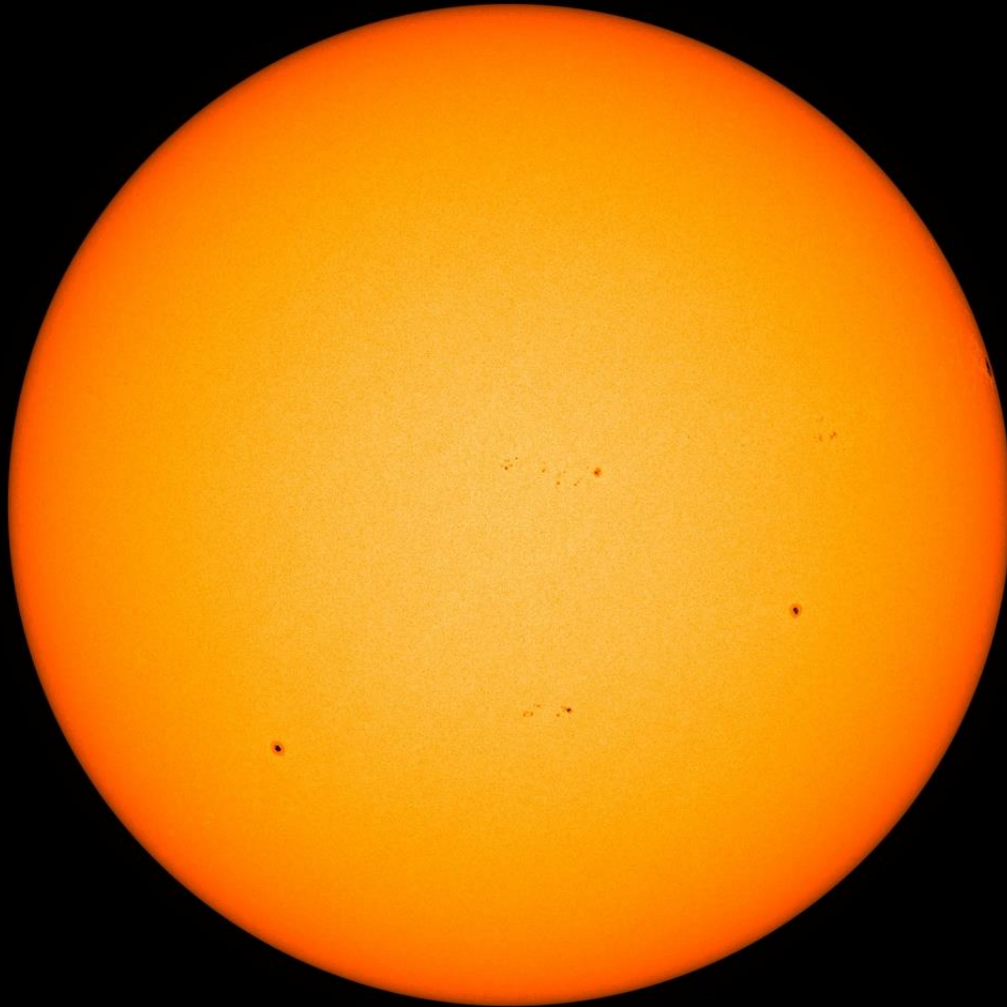
SDO/HMI Magnetogram 2022-07-22



SDO/HMI Quick-Look Magnetogram: 20220722_114500

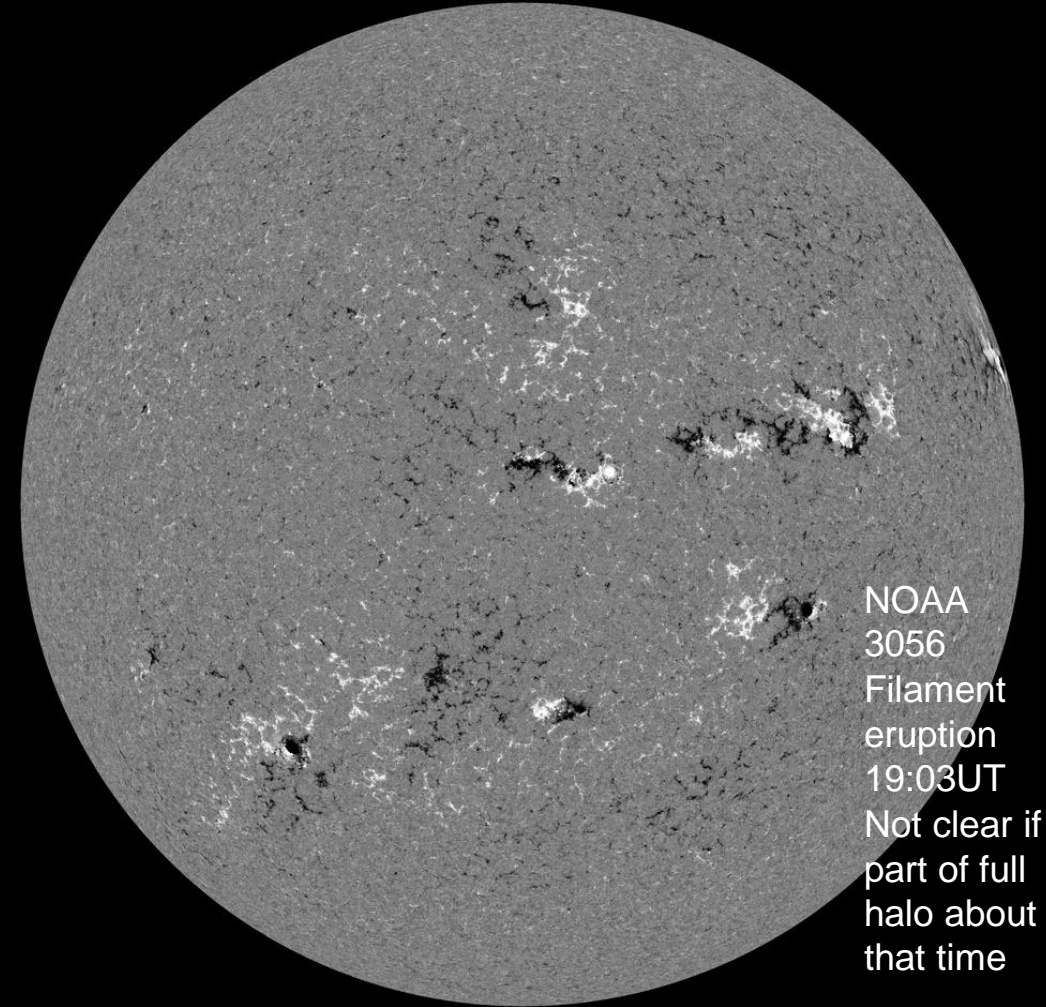
Solar active regions

SDO/HMI White Light 2022-07-23



SDO/HMI Quick-Look Continuum: 20220723_114500

SDO/HMI Magnetogram 2022-07-23

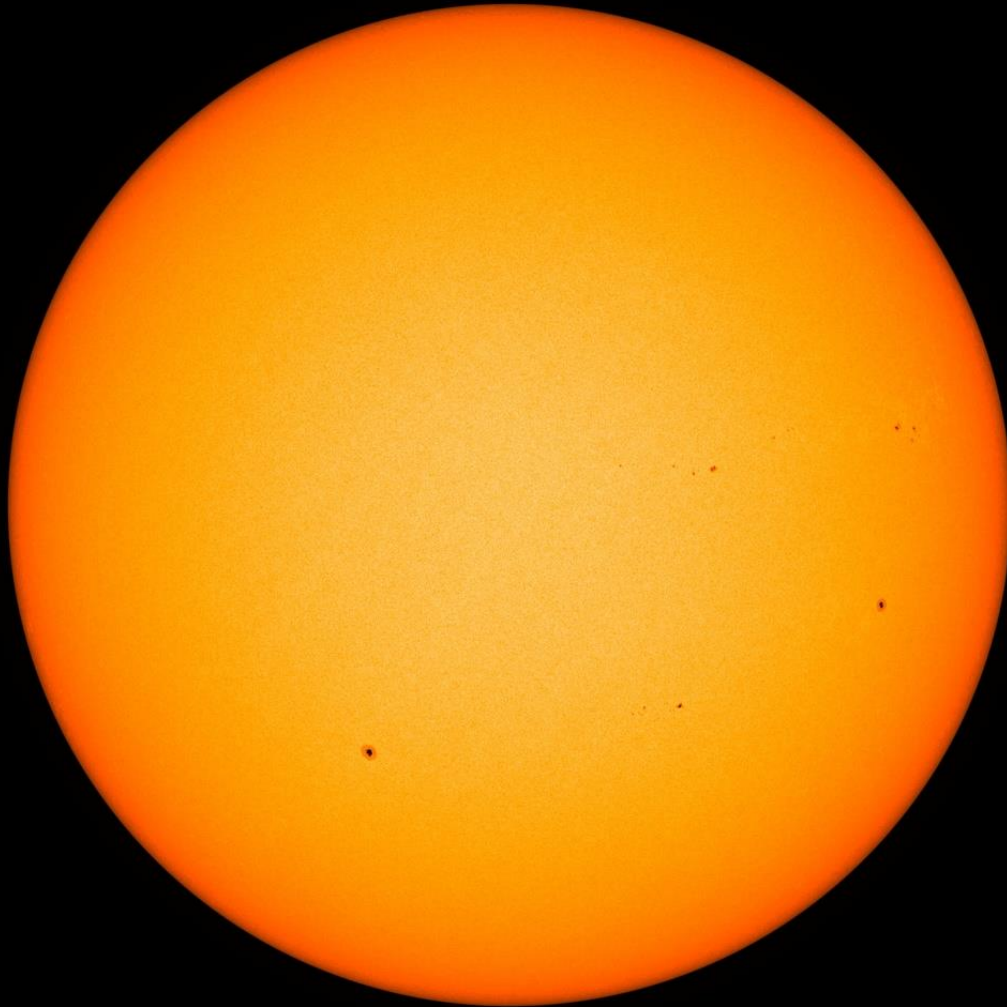


NOAA
3056
Filament
eruption
19:03UT
Not clear if
part of full
halo about
that time

SDO/HMI Quick-Look Magnetogram: 20220723_114500

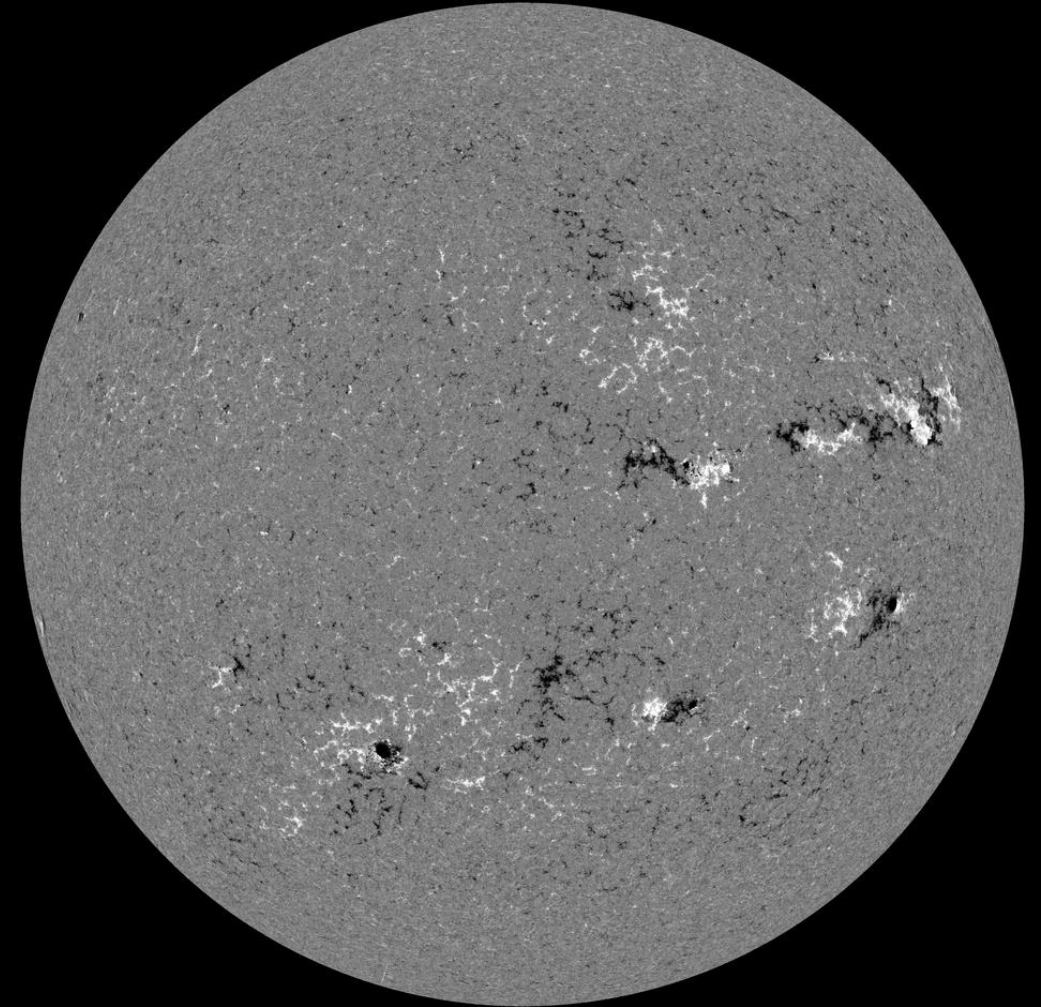
Solar active regions

SDO/HMI White Light 2022-07-24



SDO/HMI Quick-Look Continuum: 20220724_114500

SDO/HMI Magnetogram 2022-07-24

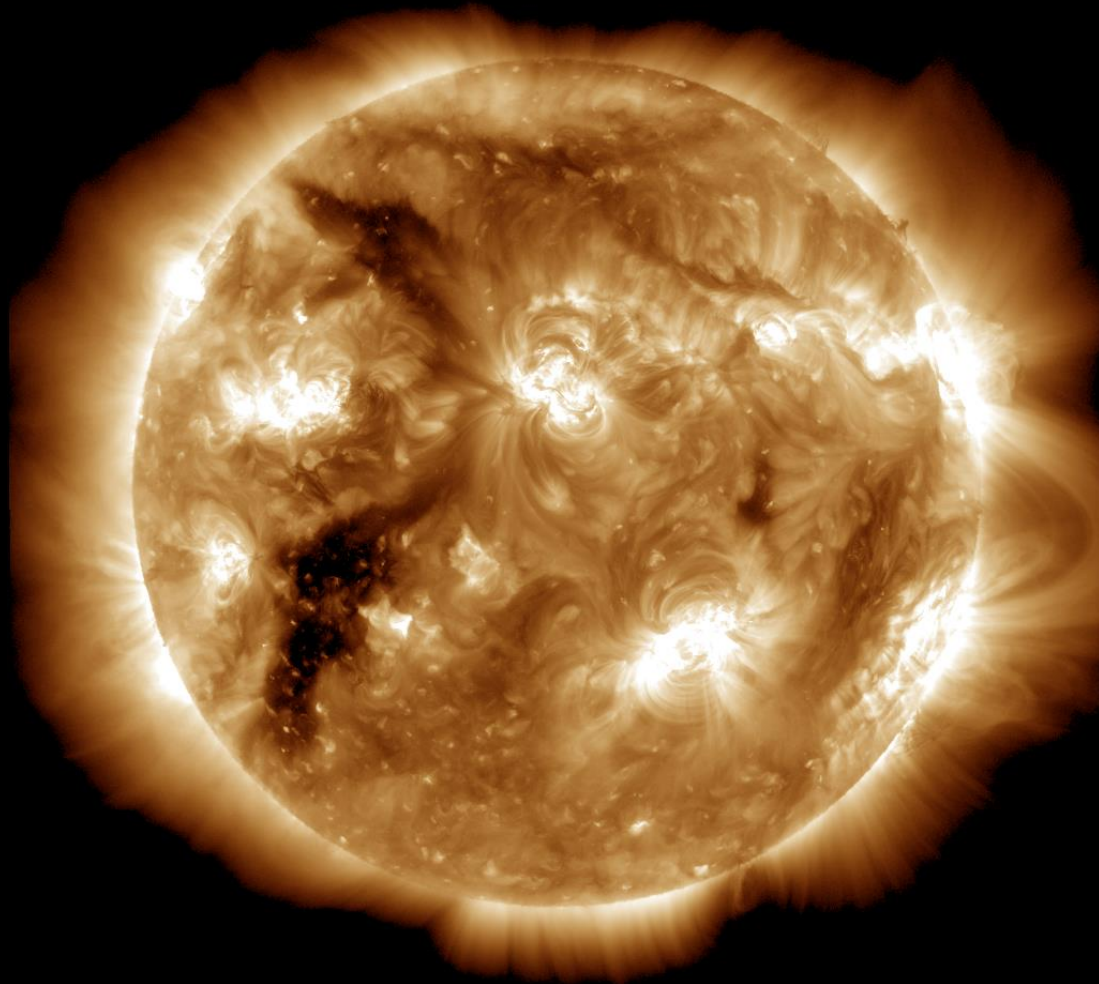


SDO/HMI Quick-Look Magnetogram: 20220724_114500

Coronal holes

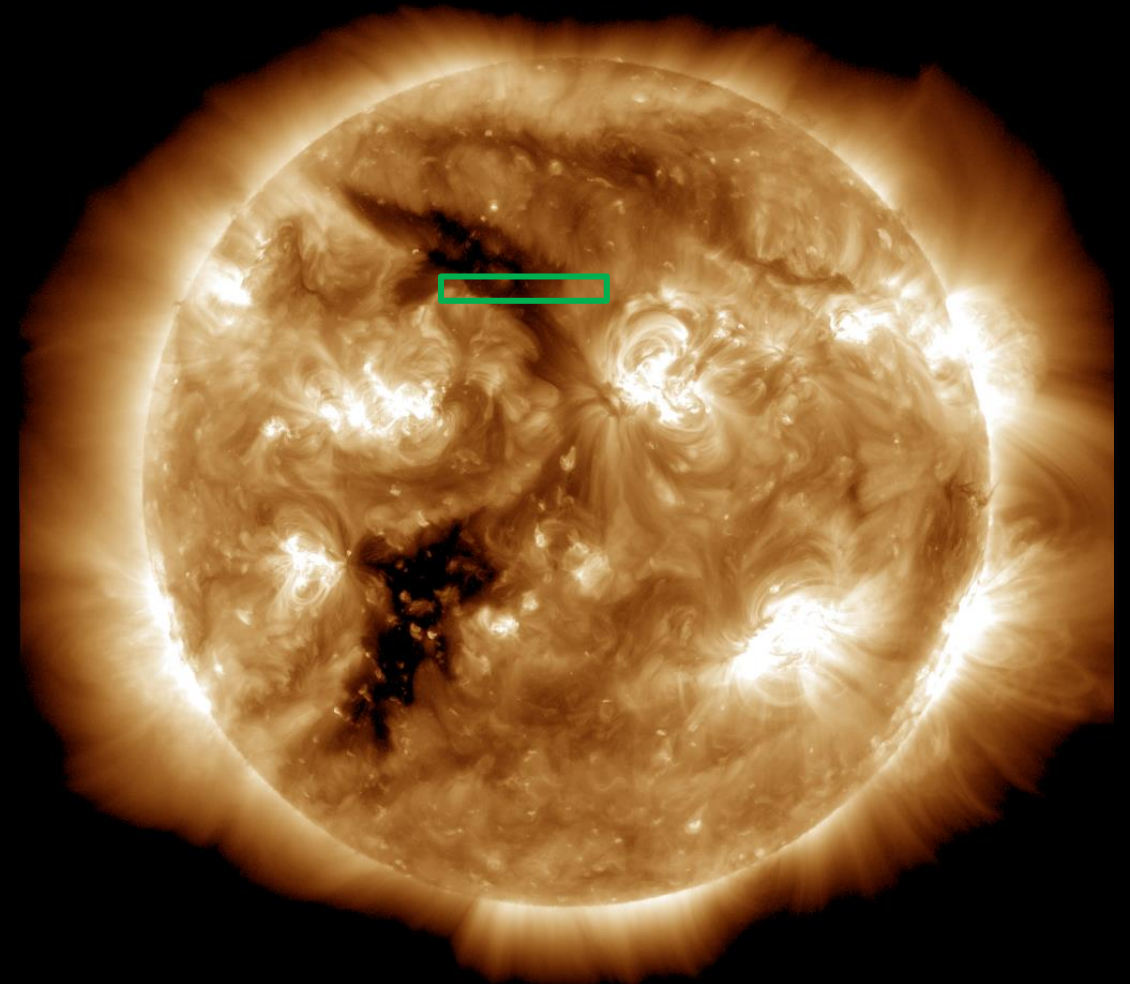
SDO/AIA 19.3 nm 2022-07-17

SDO/AIA AIA 193Å 2022-07-17T12:00:05.843



SDO/AIA 19.3 nm 2022-07-18

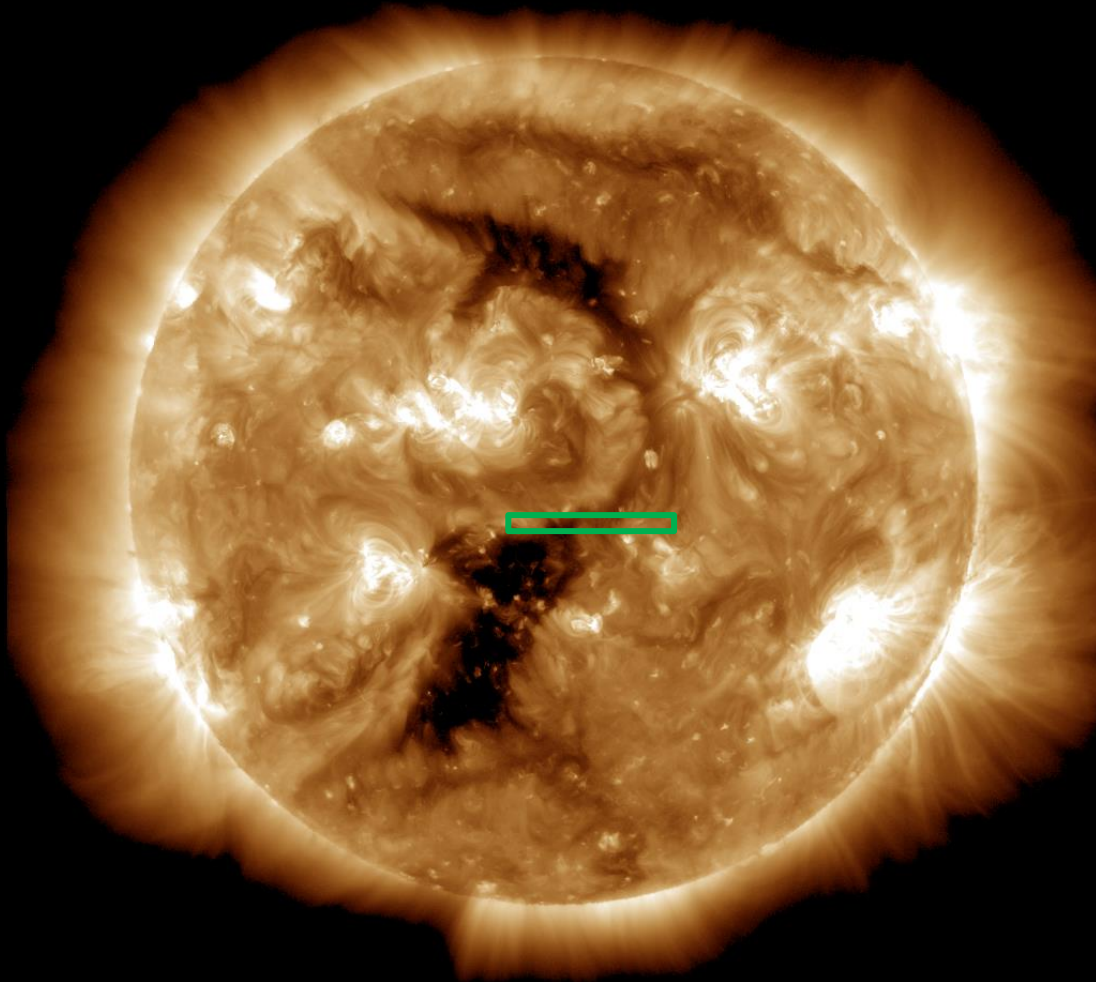
SDO/AIA AIA 193Å 2022-07-18T12:00:05.843



Coronal holes

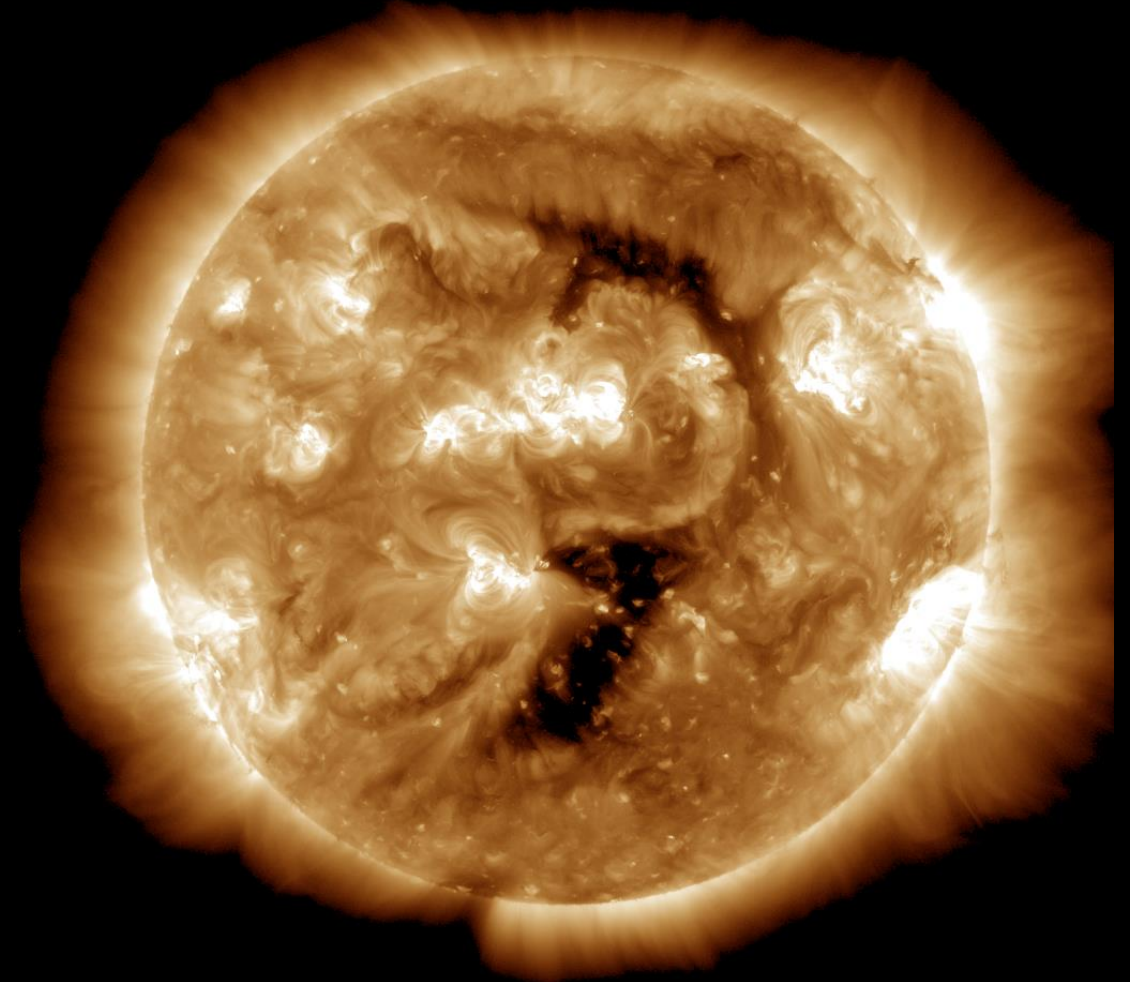
SDO/AIA 19.3 nm 2022-07-19

SDO/AIA AIA 193Å 2022-07-19T12:00:05.843



SDO/AIA 19.3 nm 2022-07-20

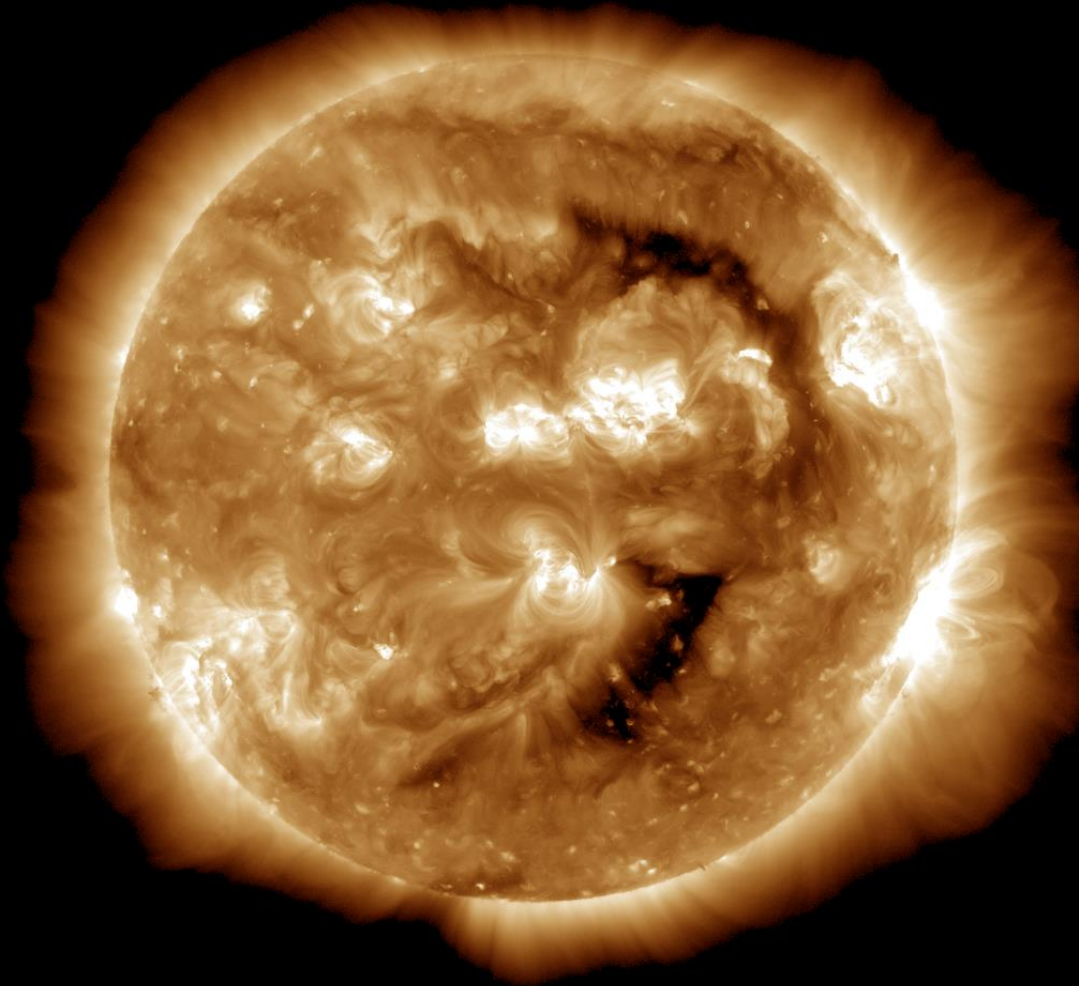
SDO/AIA AIA 193Å 2022-07-20T12:00:05.843



Coronal holes

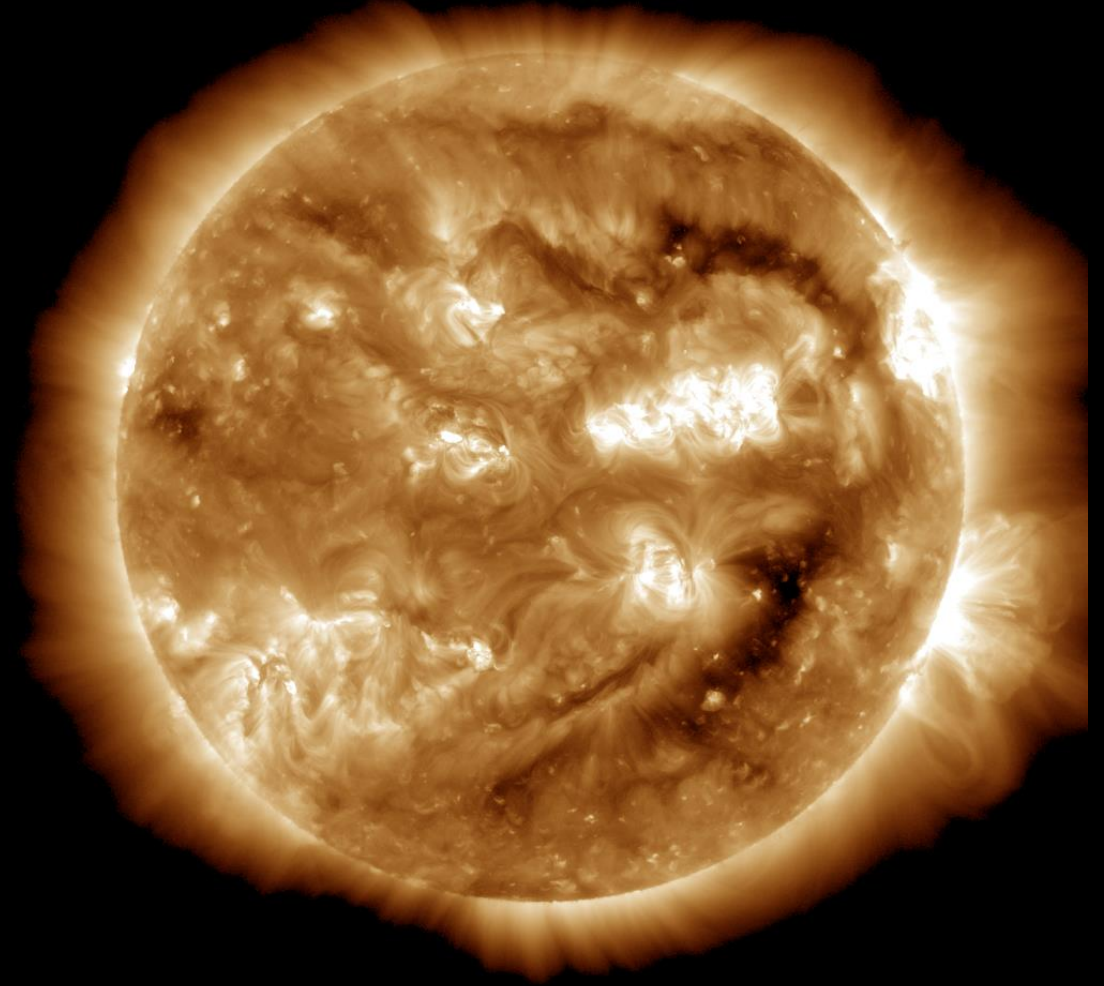
SDO/AIA 19.3 nm 2022-07-21

SDO/AIA AIA 193Å 2022-07-21T12:00:05.842



SDO/AIA 19.3 nm 2022-07-22

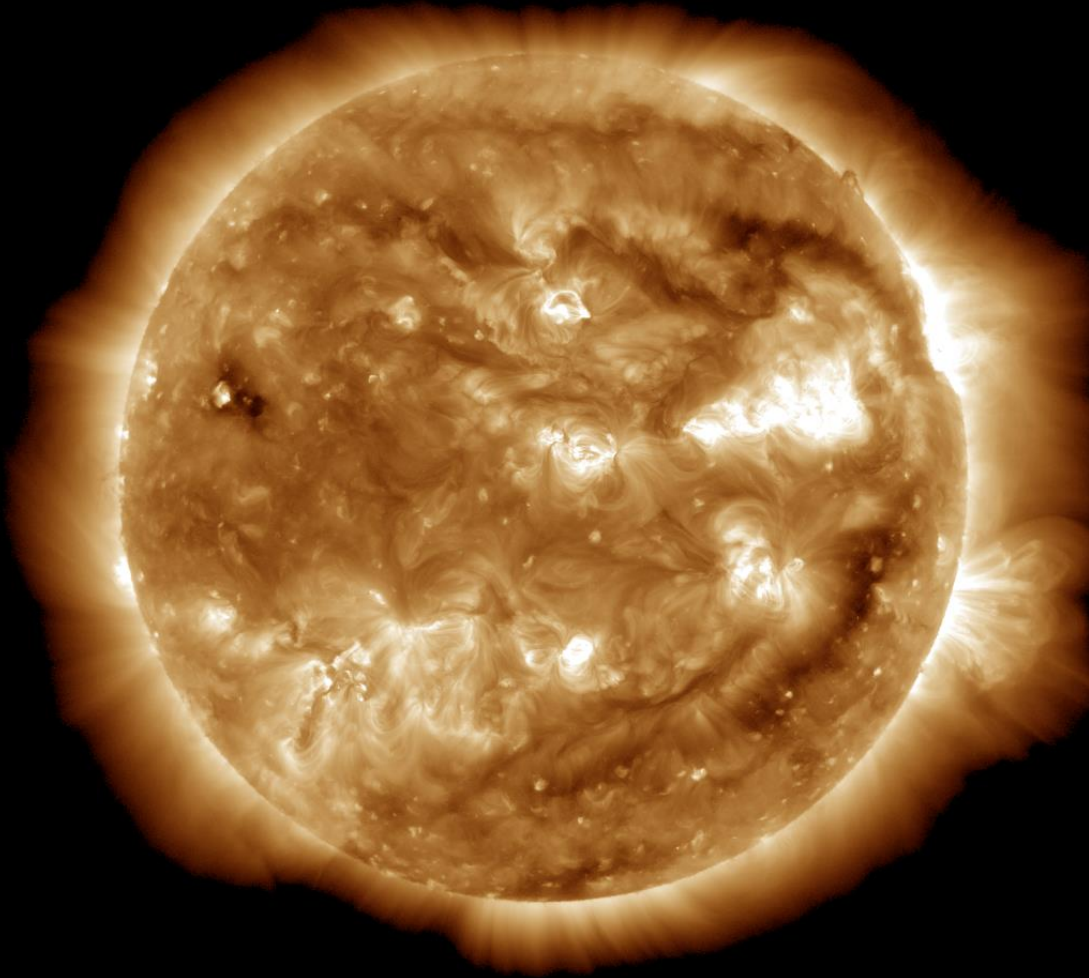
SDO/AIA AIA 193Å 2022-07-22T12:00:05.846



Coronal holes

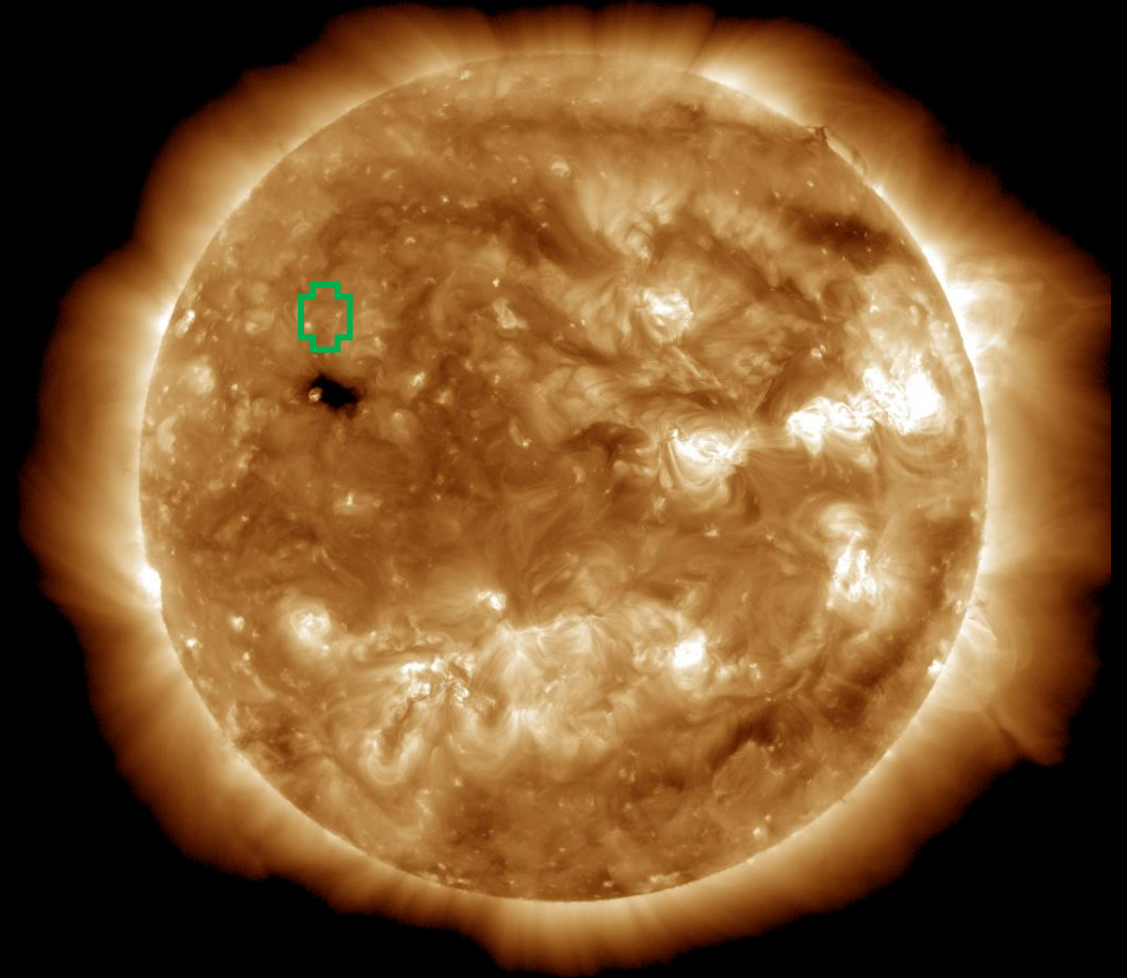
SDO/AIA 19.3 nm 2022-07-23

SDO/AIA AIA 193Å 2022-07-23T12:00:05.843



SDO/AIA 19.3 nm 2022-07-24

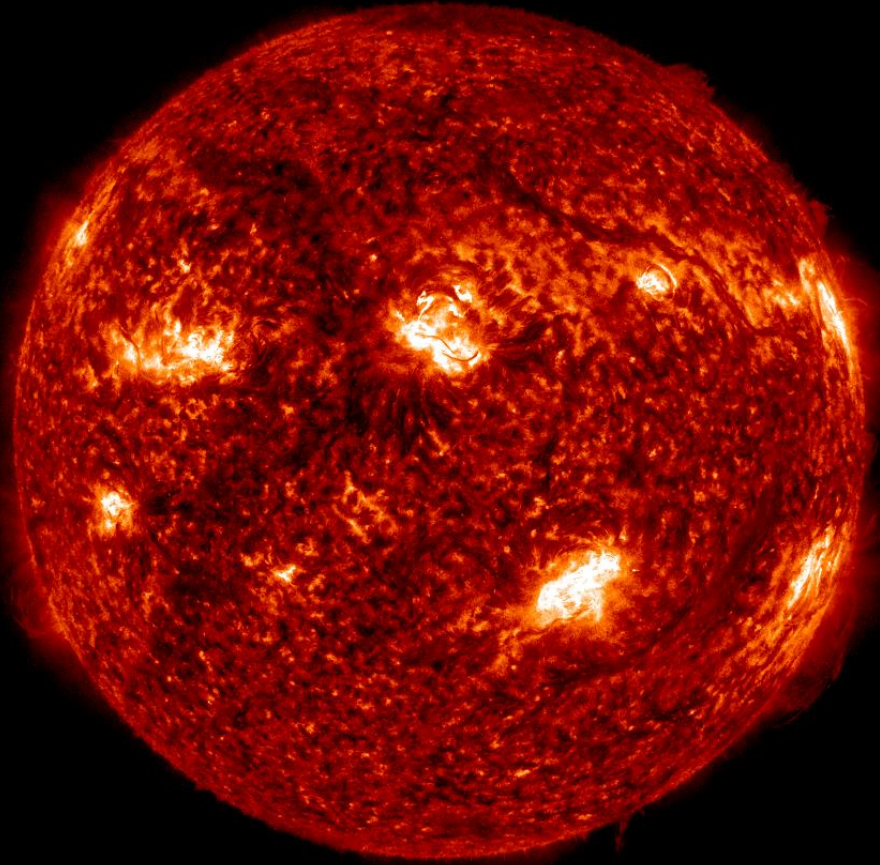
SDO/AIA AIA 193Å 2022-07-24T12:00:05.843



Filaments

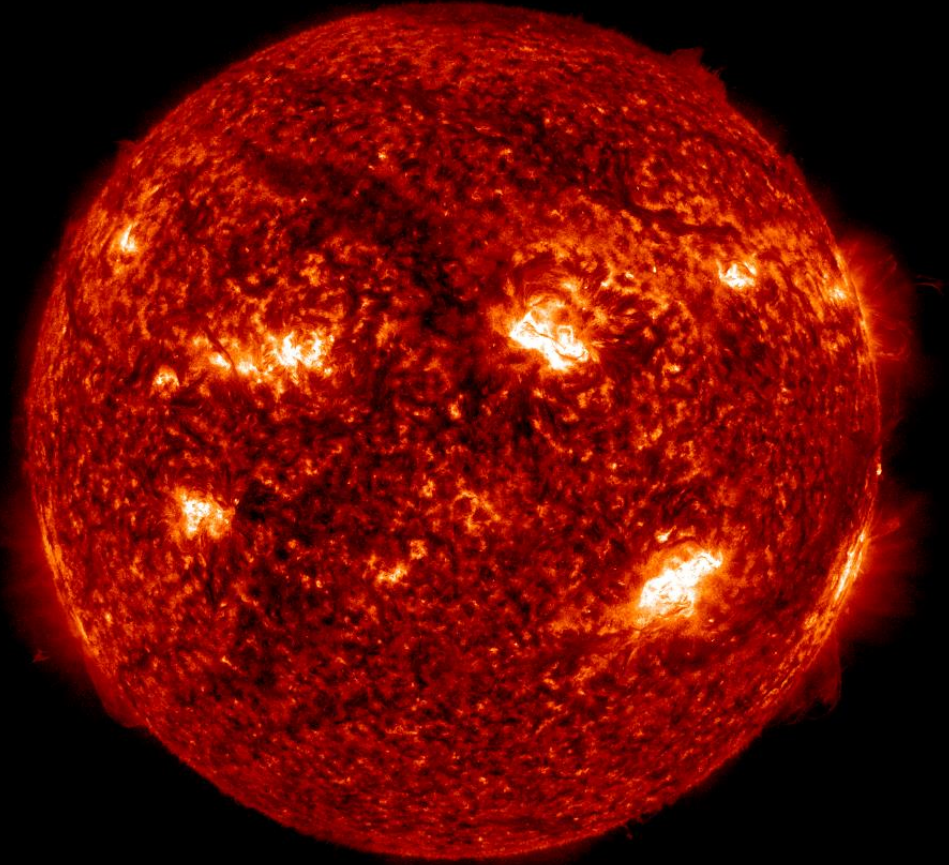
SDO/AIA 30.4 nm 2022-07-17

SDO/AIA AIA 304Å 2022-07-17T12:00:06.580



SDO/AIA 30.4 nm 2022-07-18

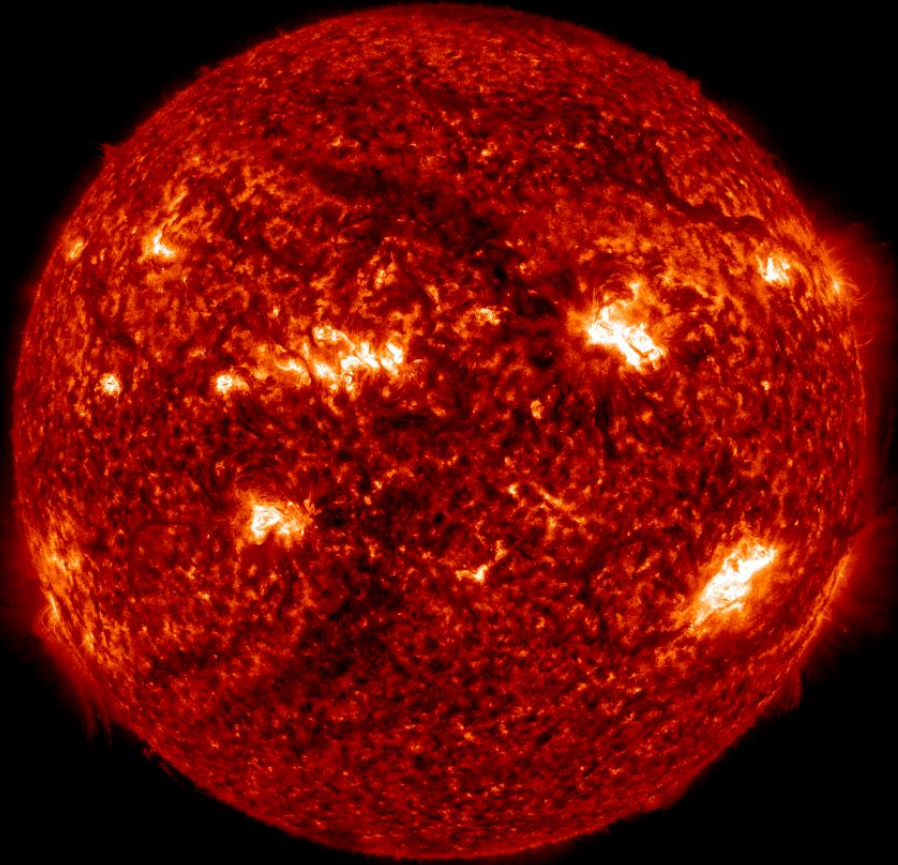
SDO/AIA AIA 304Å 2022-07-18T12:00:06.580



Filaments

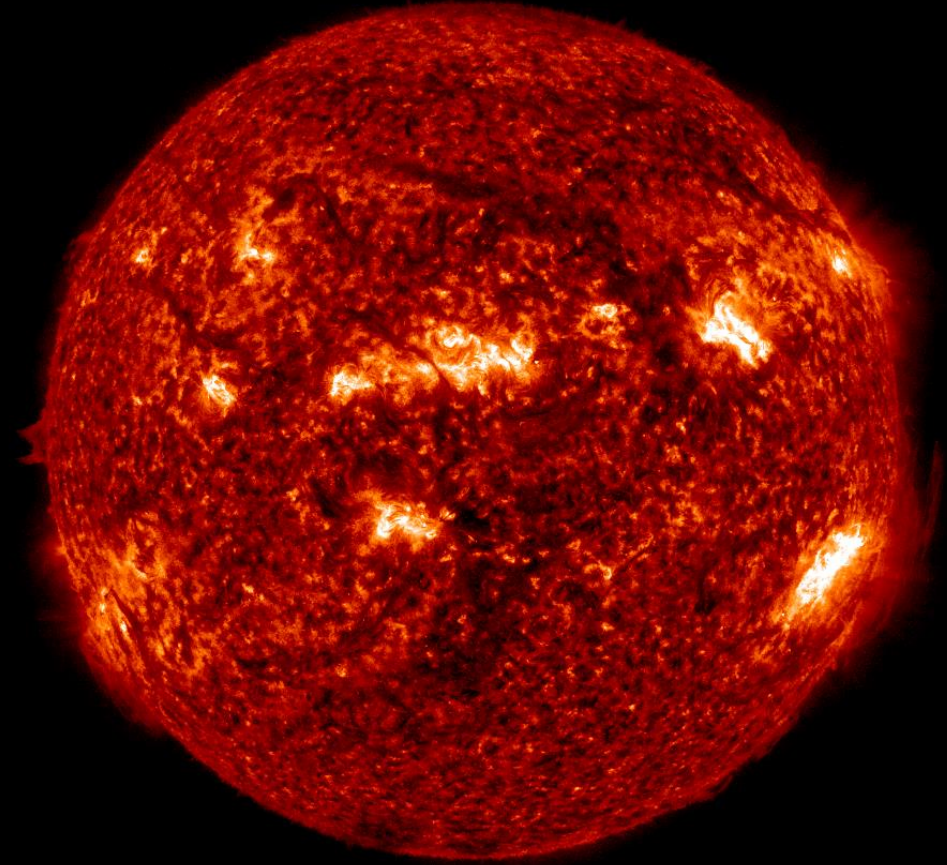
SDO/AIA 30.4 nm 2022-07-19

SDO/AIA AIA 304Å 2022-07-19T12:00:06.580



SDO/AIA 30.4 nm 2022-07-20

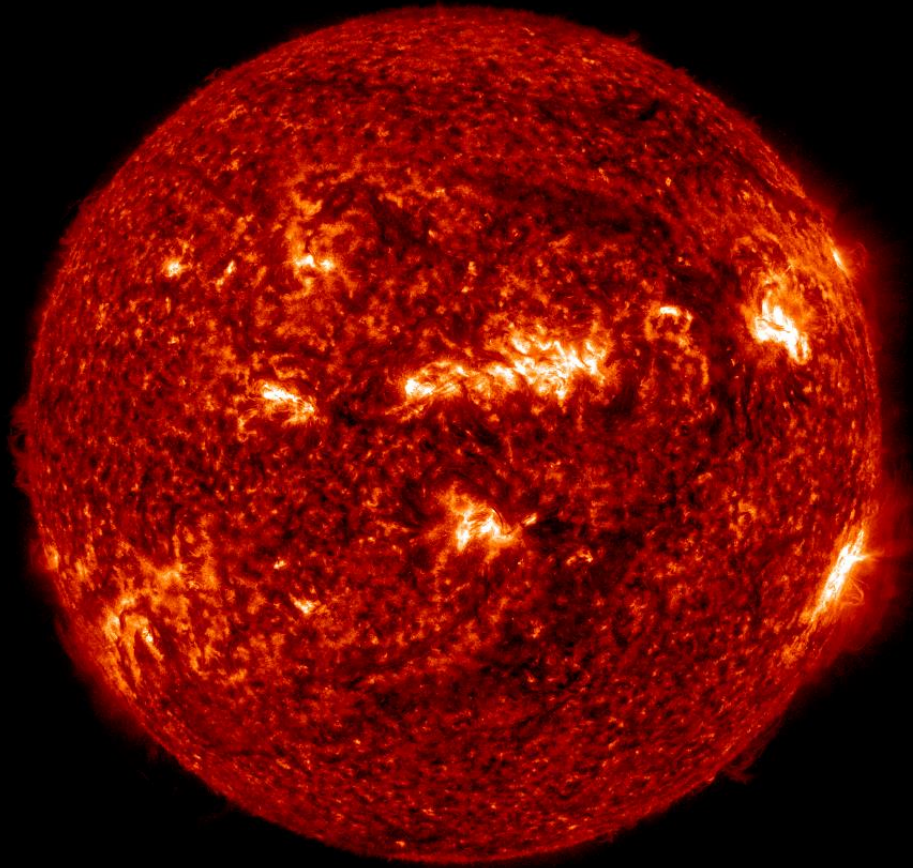
SDO/AIA AIA 304Å 2022-07-20T12:00:06.580



Filaments

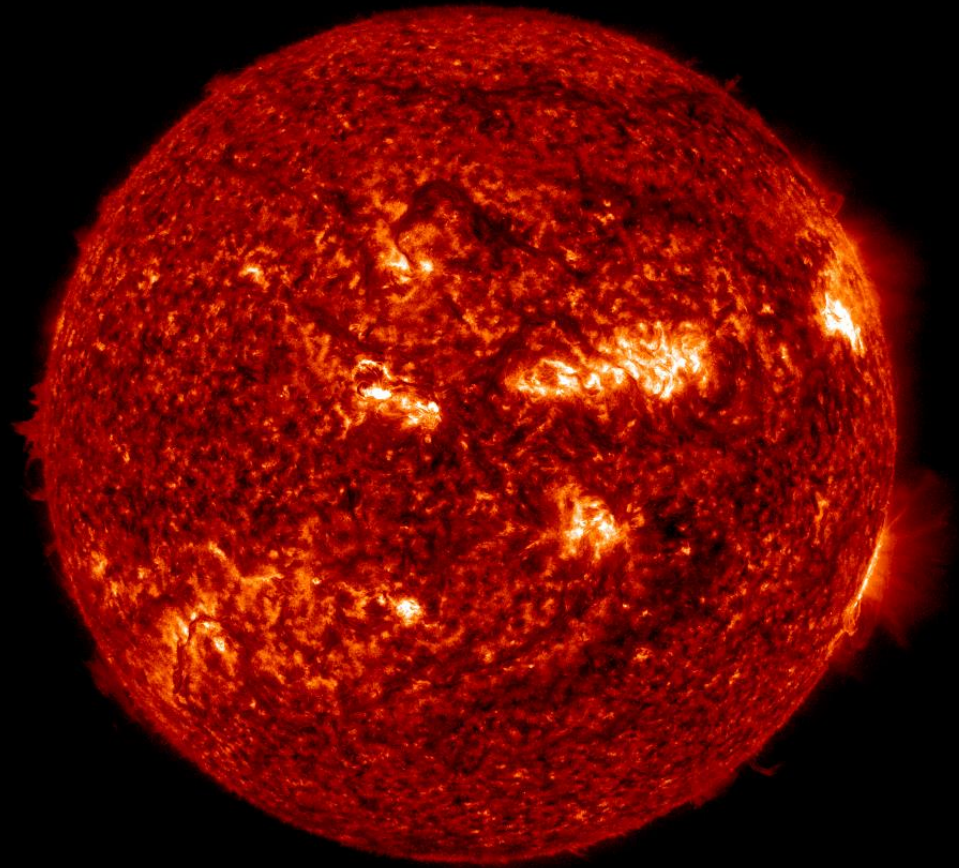
SDO/AIA 30.4 nm 2022-07-21

SDO/AIA AIA 304Å 2022-07-21T12:00:06.581



SDO/AIA 30.4 nm 2022-07-22

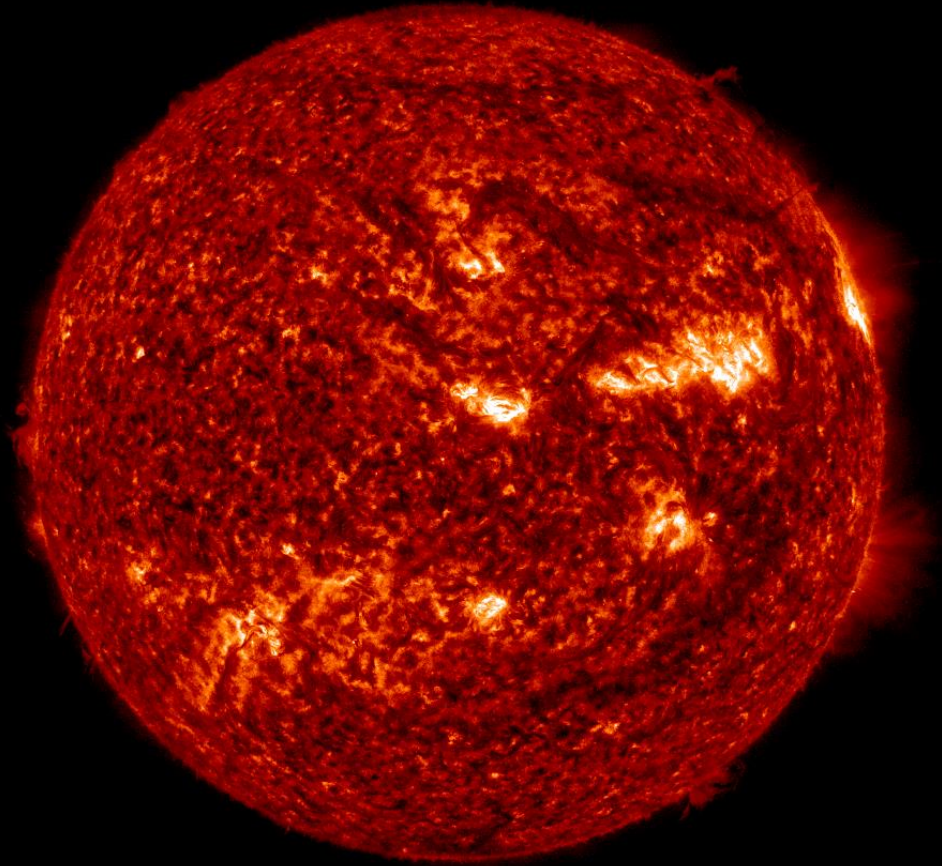
SDO/AIA AIA 304Å 2022-07-22T12:00:06.580



Filaments

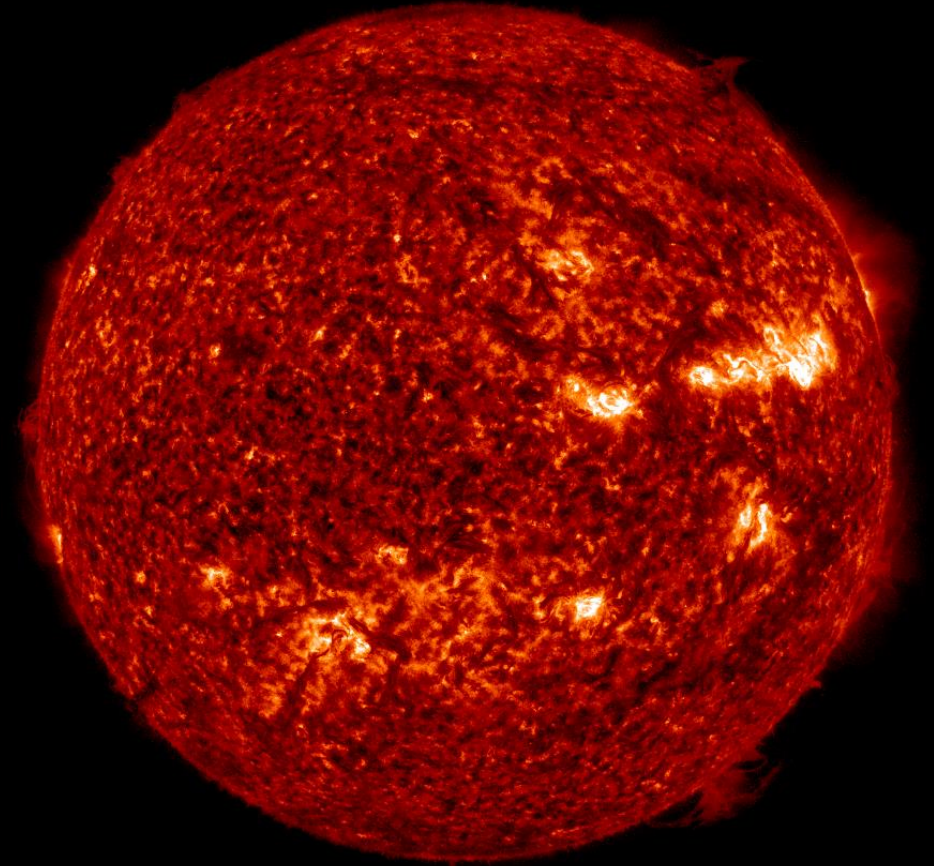
SDO/AIA 30.4 nm 2022-07-23

SDO/AIA AIA 304Å 2022-07-23T12:00:06.597



SDO/AIA 30.4 nm 2022-07-24

SDO/AIA AIA 304Å 2022-07-24T12:00:06.584



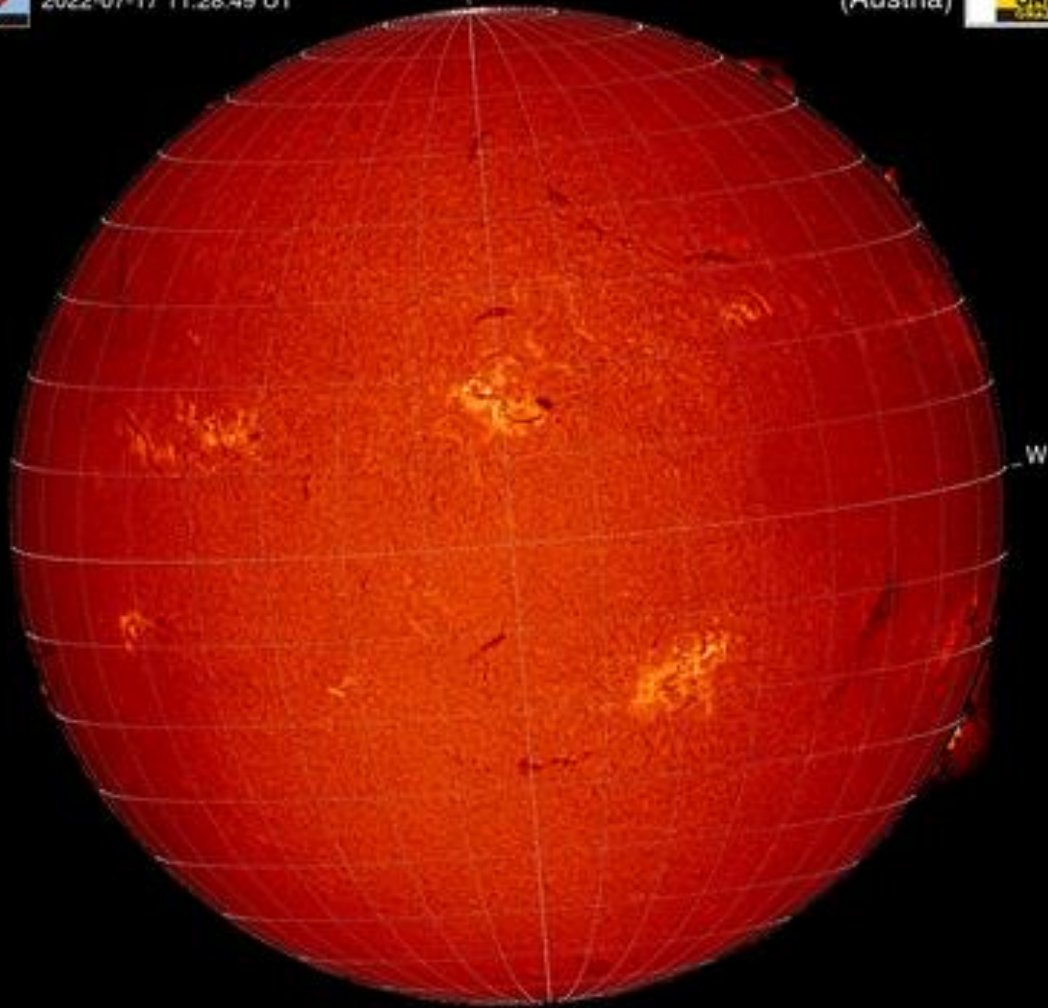
Filaments & Filament eruptions

H-alpha 2022-07-17



Kanzelhöhe Observatory
2022-07-17 11:28:49 UT

University of Graz
(Austria)

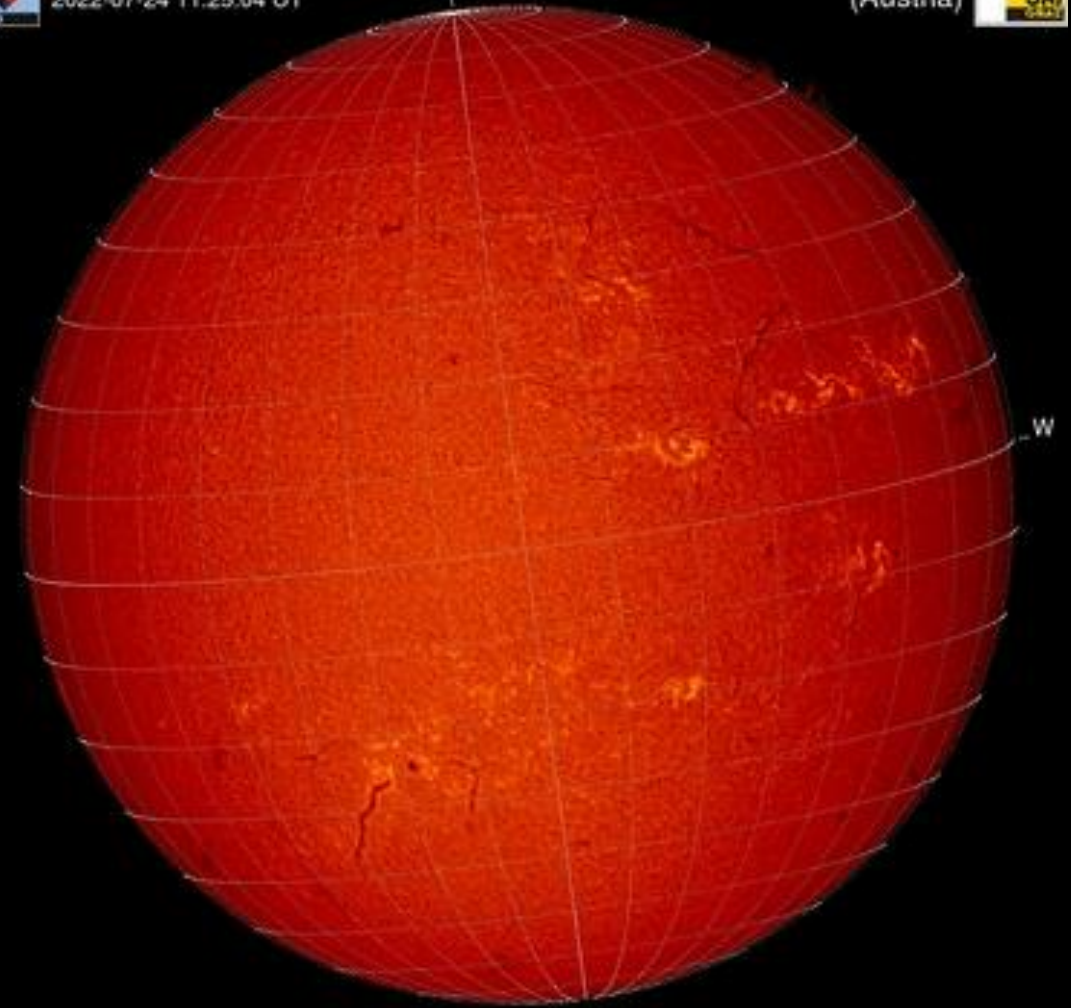


H-alpha 2022-07-24

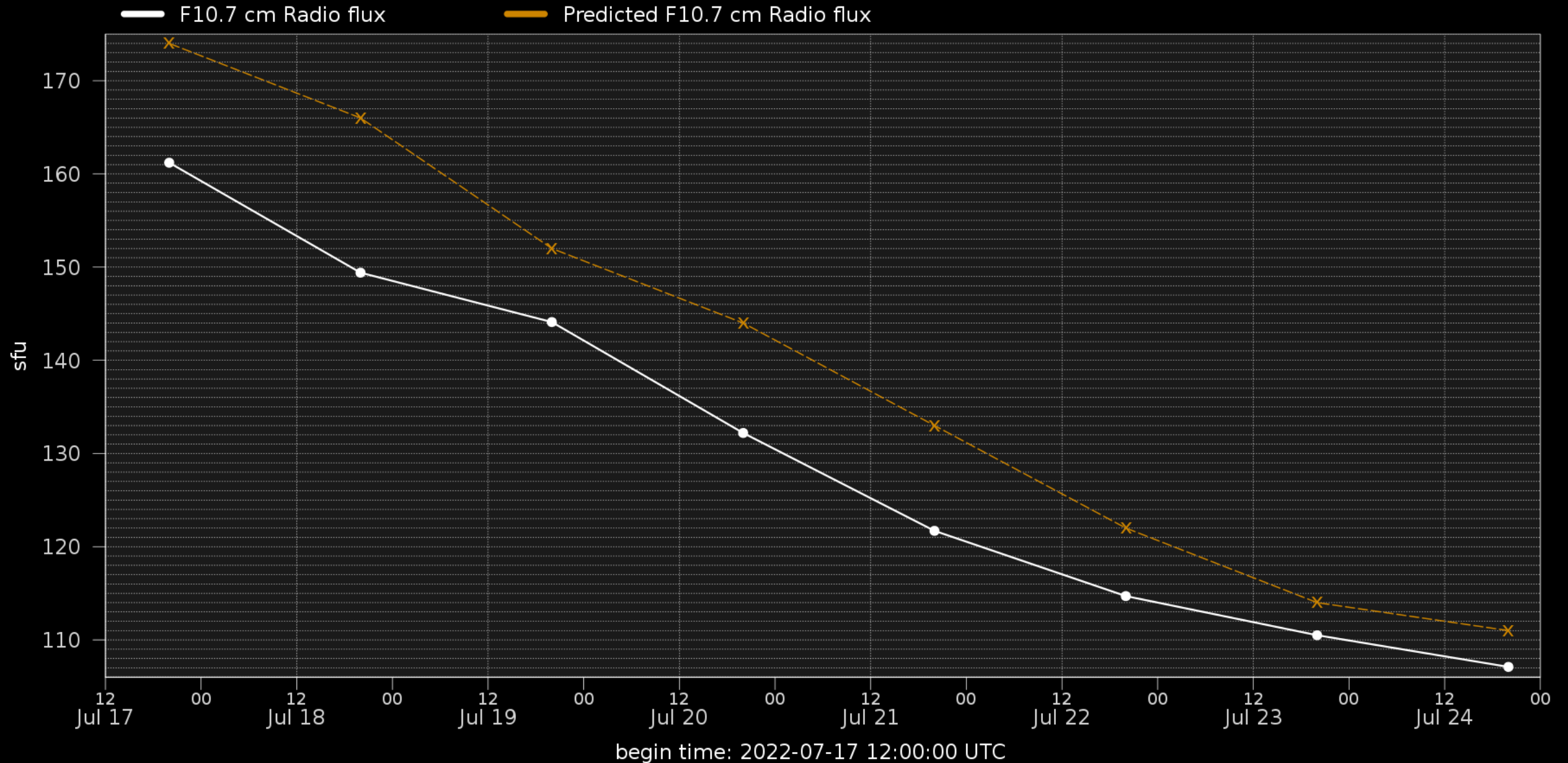


Kanzelhöhe Observatory
2022-07-24 11:25:04 UT

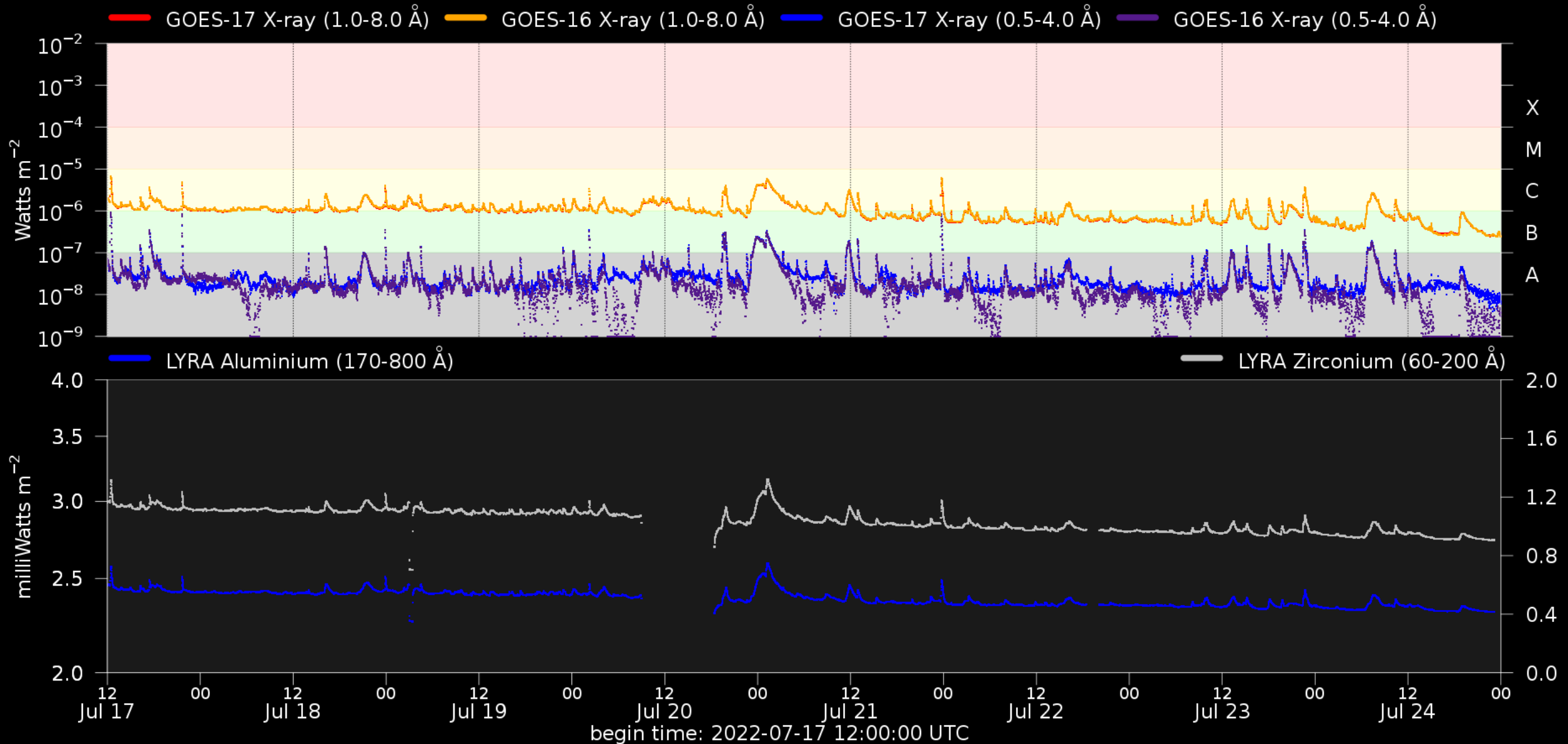
University of Graz
(Austria)



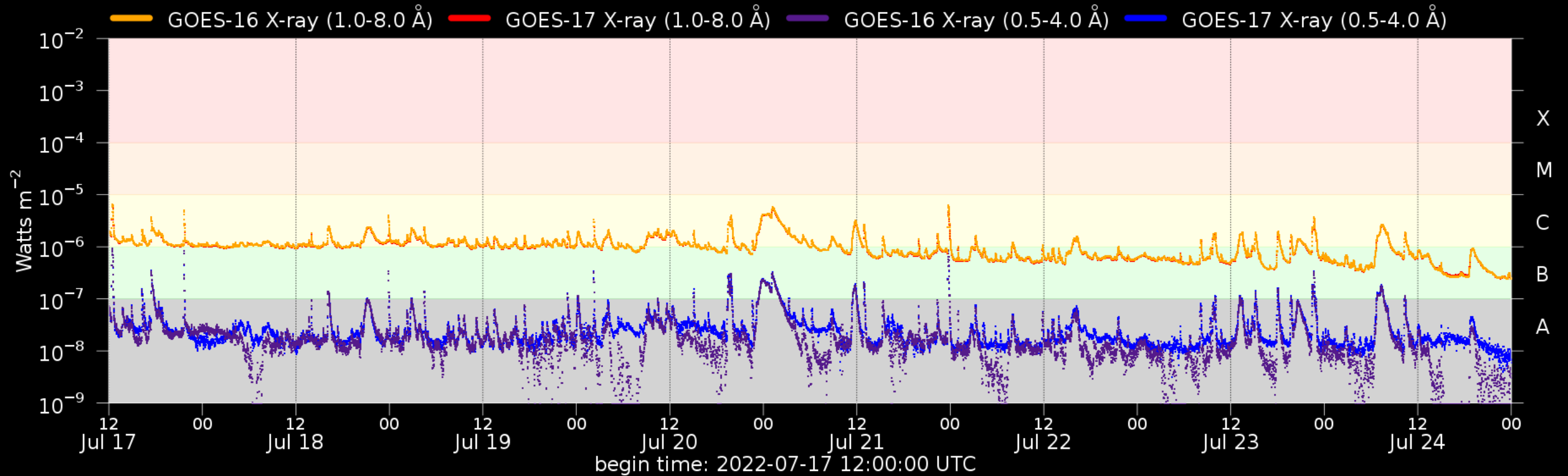
Solar F10.7cm radio flux



Solar X-Ray and UV flux



Flaring activity

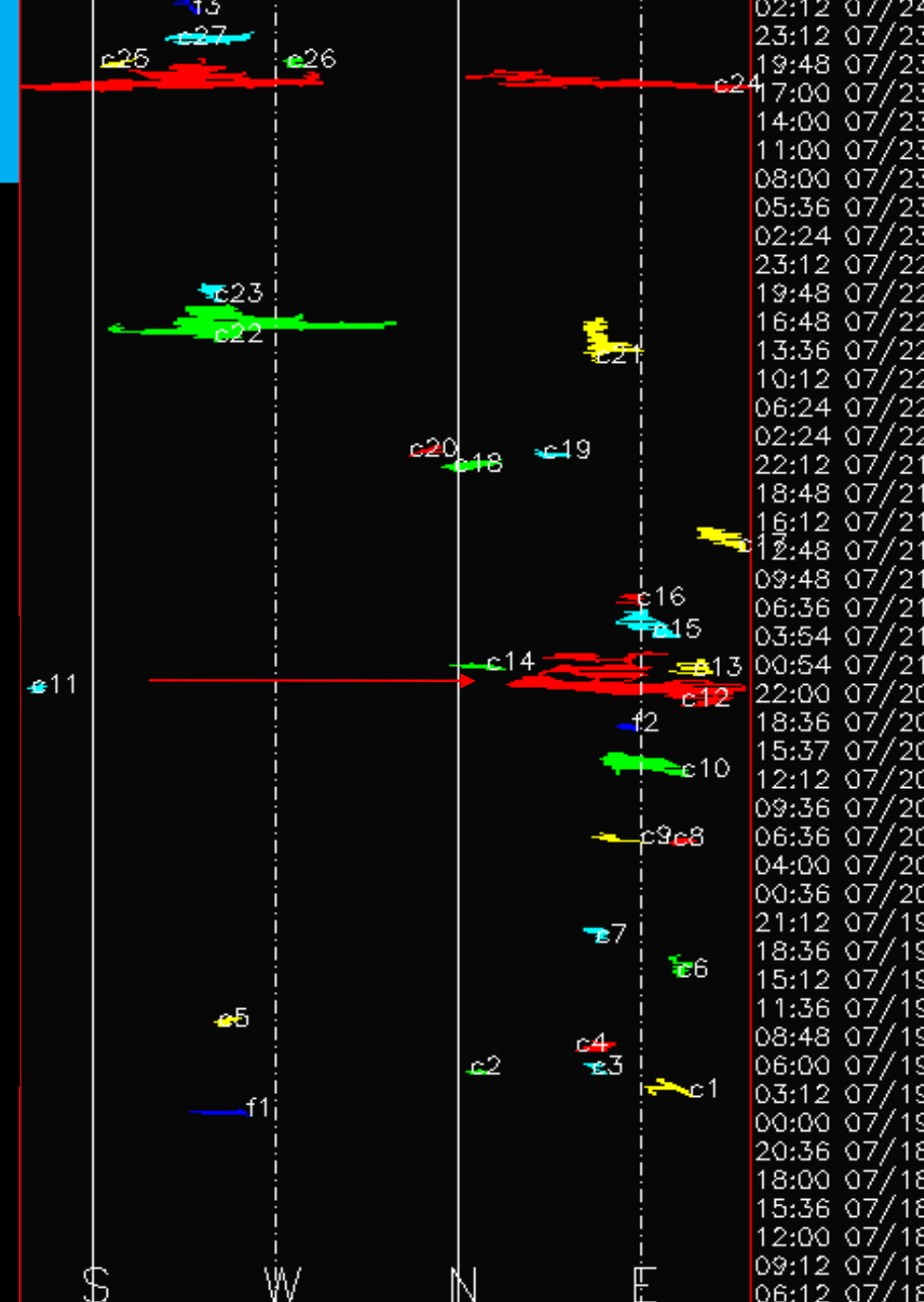
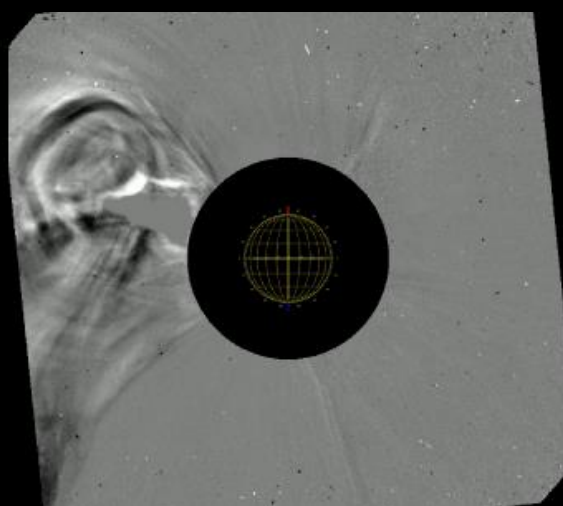


Probabilities (%) and occurrences (#) of C/M/X-flares daily, from noon to noon:

Issue date	2022-07-17	2022-07-18	2022-07-19	2022-07-20	2022-07-21	2022-07-22	2022-07-23	2022-07-24
Probability (%)	99 45 10	80 10 02	75 15 02	65 10 02	80 10 01	55 02 01	50 03 01	60 02 01
Observed (#)	04 00 00	05 00 00	04 00 00	04 00 00	07 00 00	02 00 00	06 00 00	00 00 00

Coronal Mass Ejections

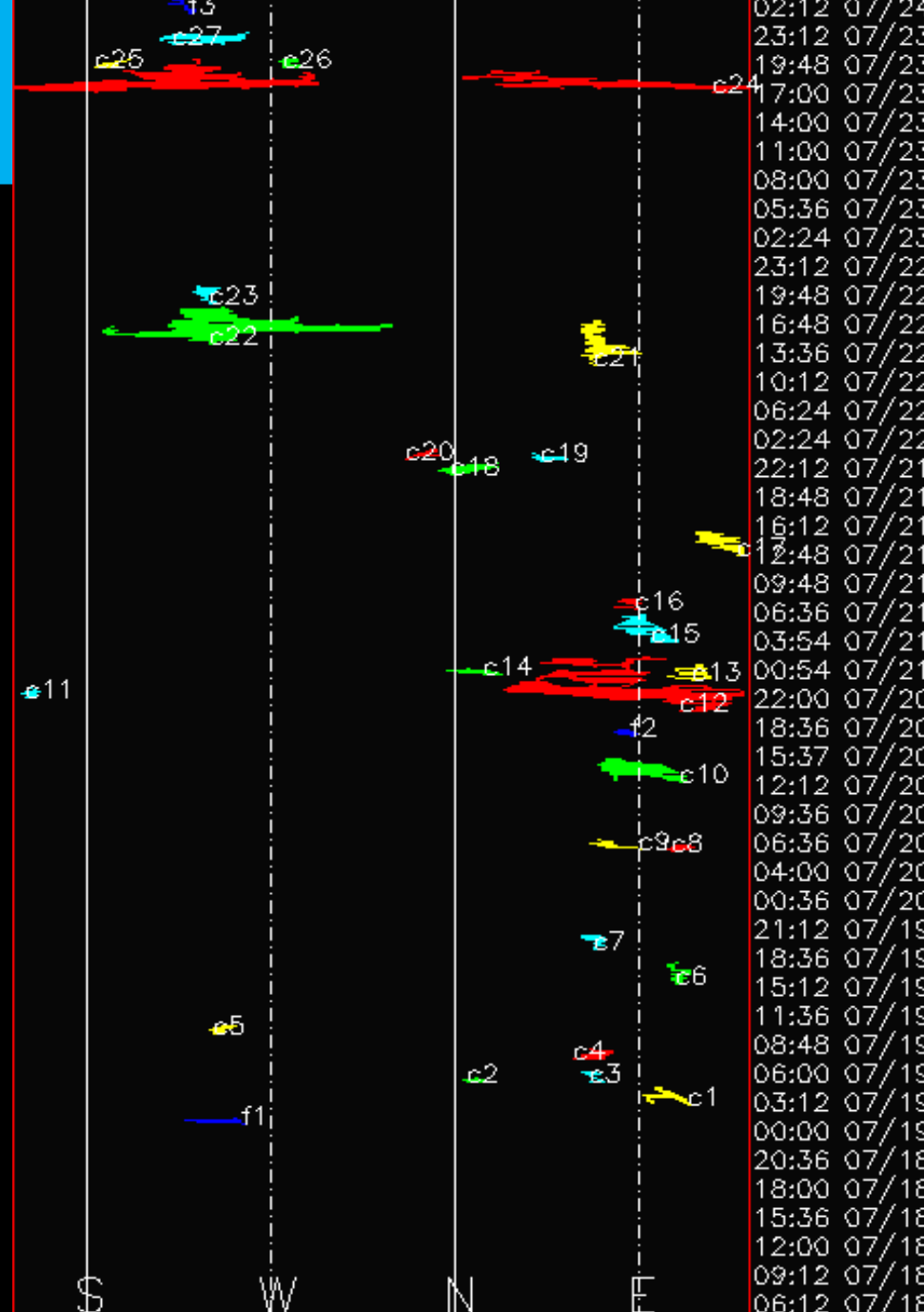
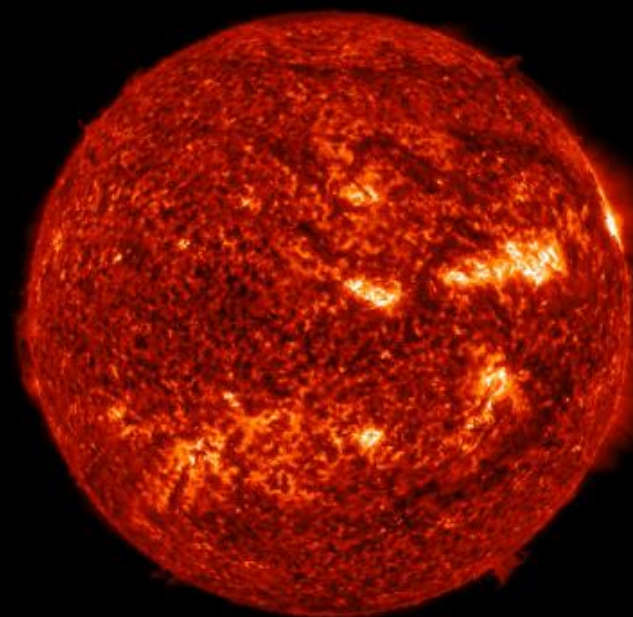
C5.6-class flare from region NOAA AR 3060 21 July 01:11 UT
Type II radio emission on 21 July 01:21UT
Seeing in Lasco C2 diff images as a faint halo.



Coronal Mass Ejections

Two fronts of what was detected as a full halo by CACTus
23 July 18:48 UT
Mainly backsided event. However, SE component may be
a result of filament eruption around NOAA AR 3056 23 July
19:03 UT.

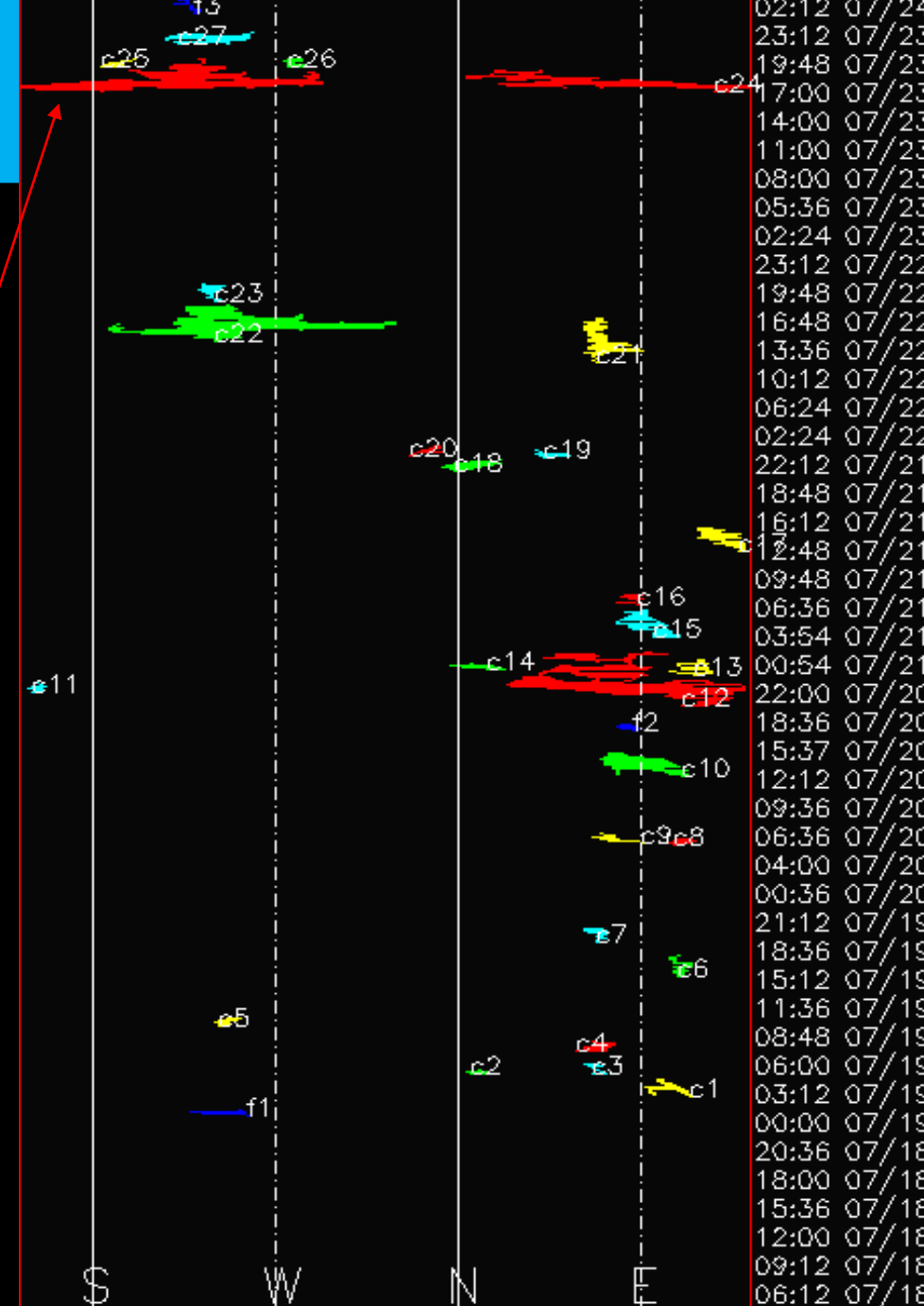
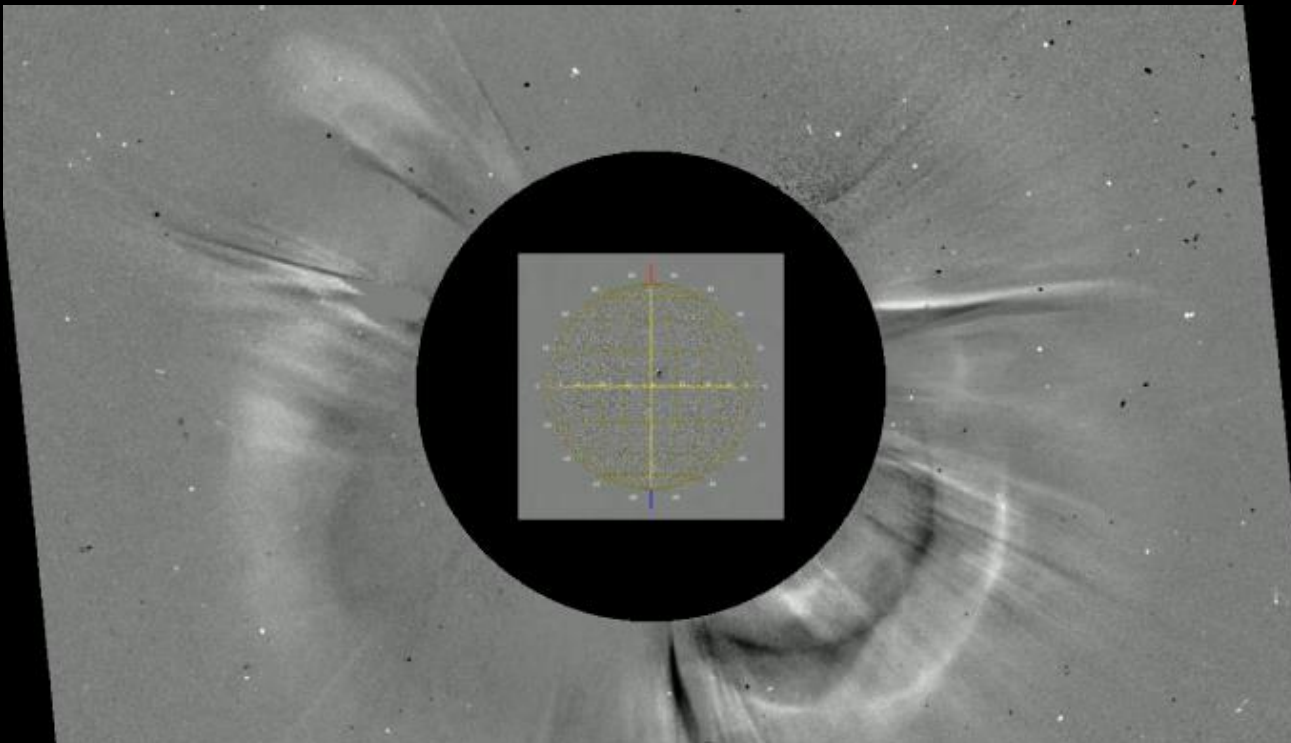
/AIA AIA 304A 2022-07-23T18:45:06.58T



Coronal Mass Ejections

Two fronts of what was detected as a full halo by CACTus
23 July 18:48 UT

Mainly backsided event. However, SE component may be
a result of filament eruption around NOAA AR 3056 23 July
19:03 UT.



Solar Wind and

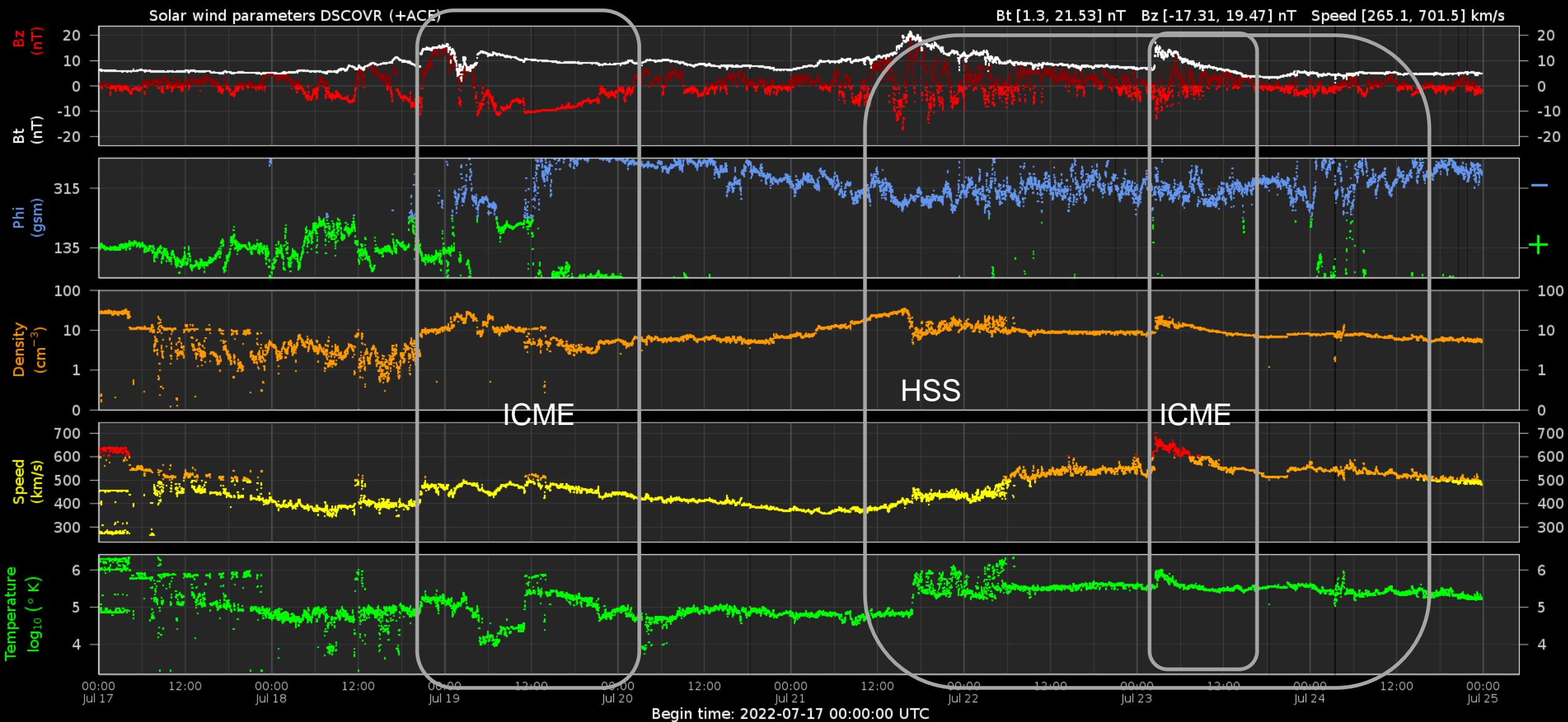
Geomagnetic Activity



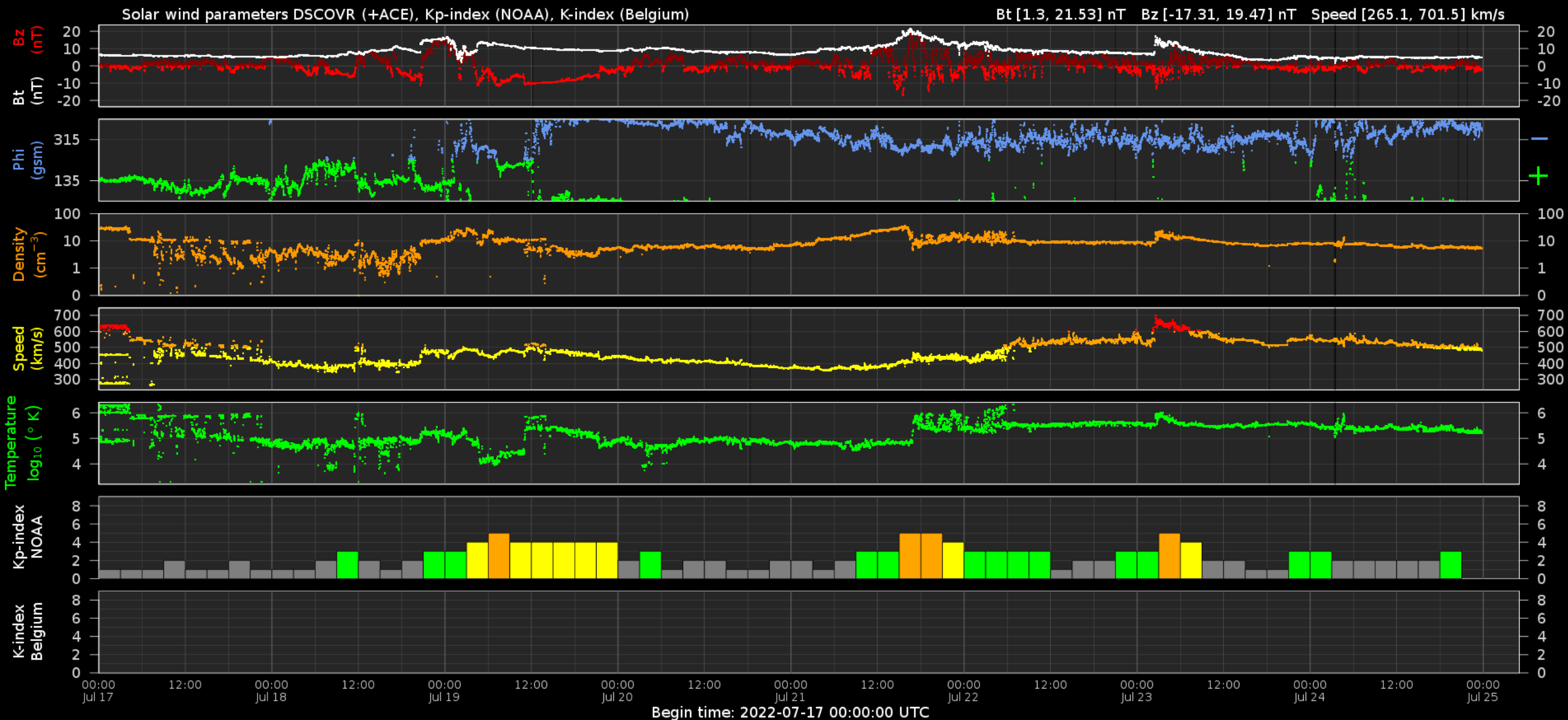
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Solar wind parameters



Solar wind parameters & K-indices



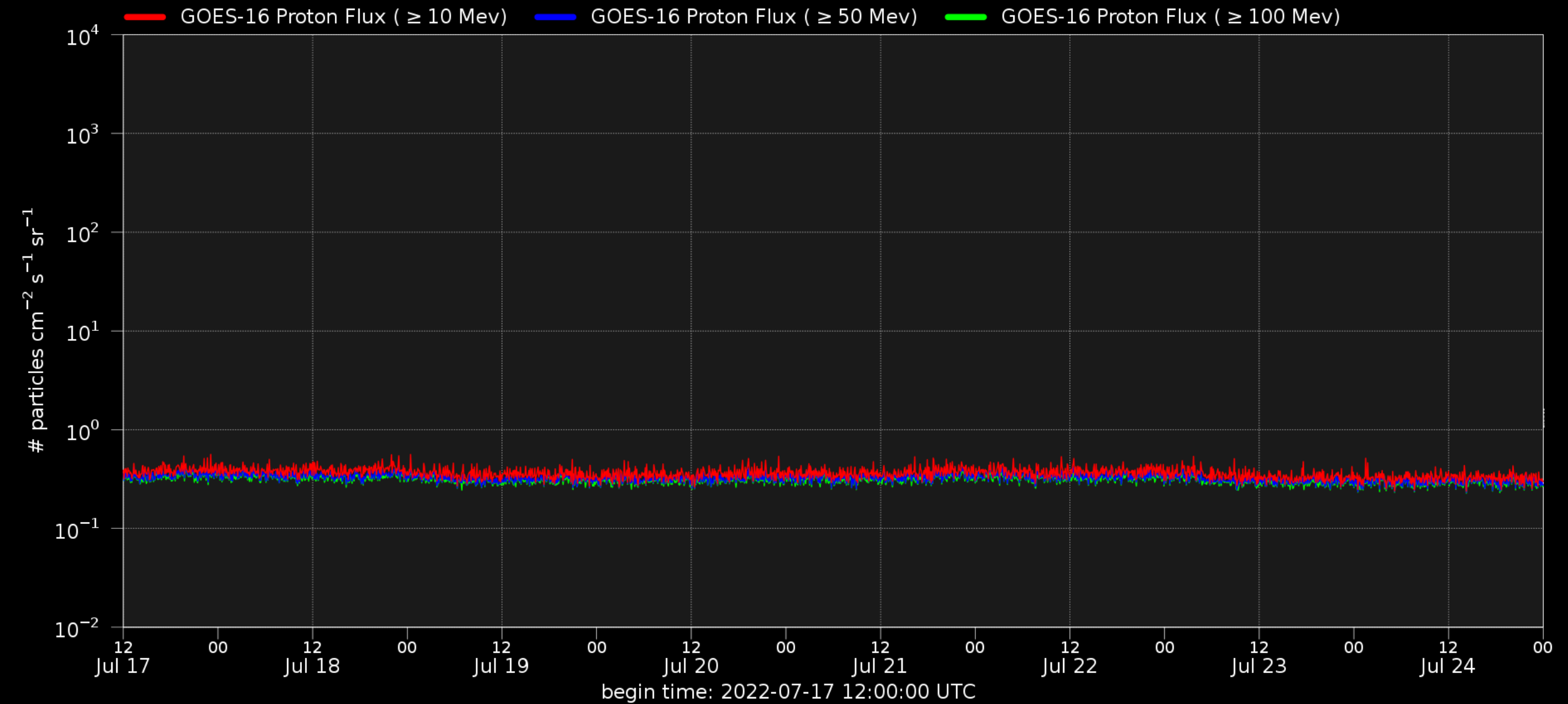
Energetic Particles



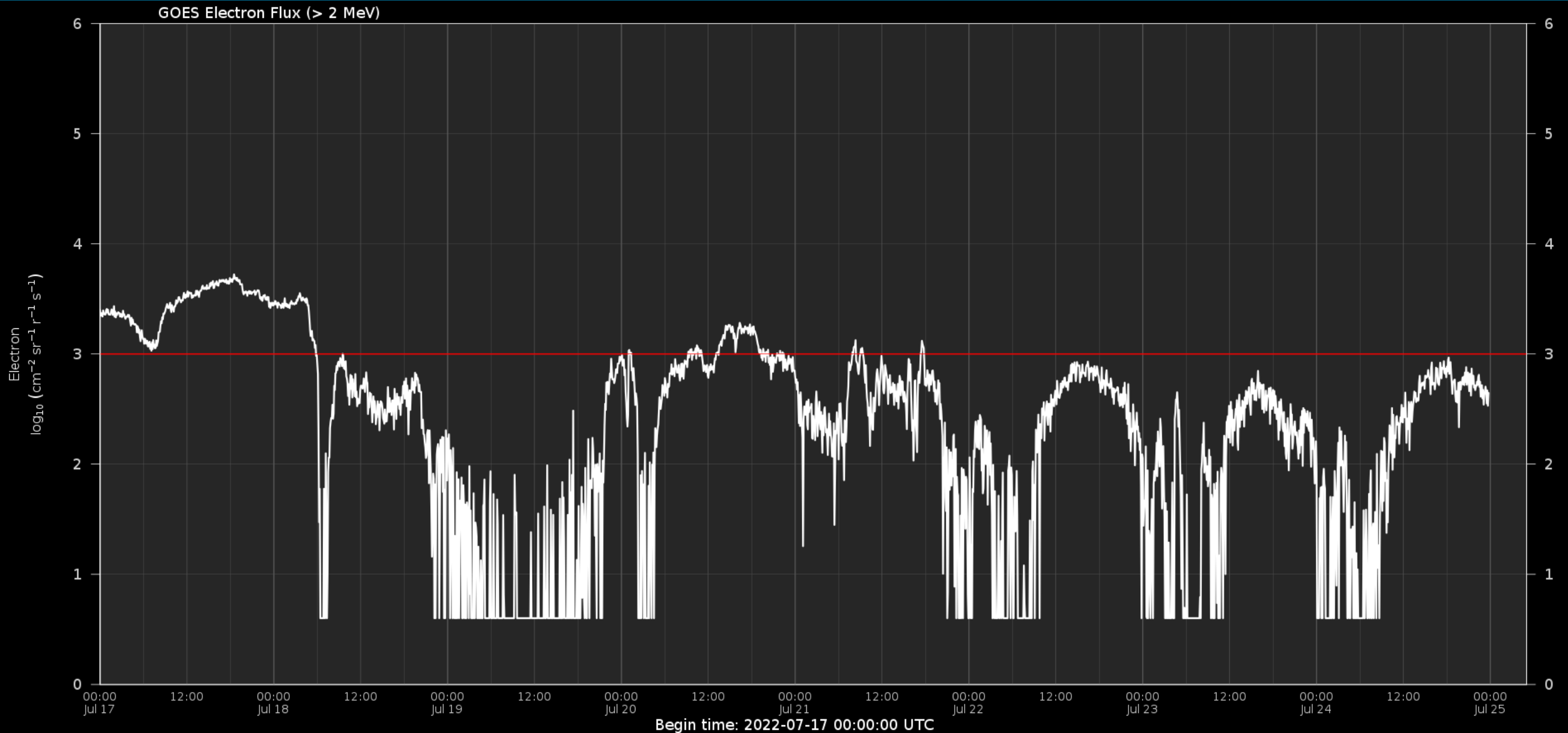
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Solar proton flux



Electron flux at GEO



Outlook

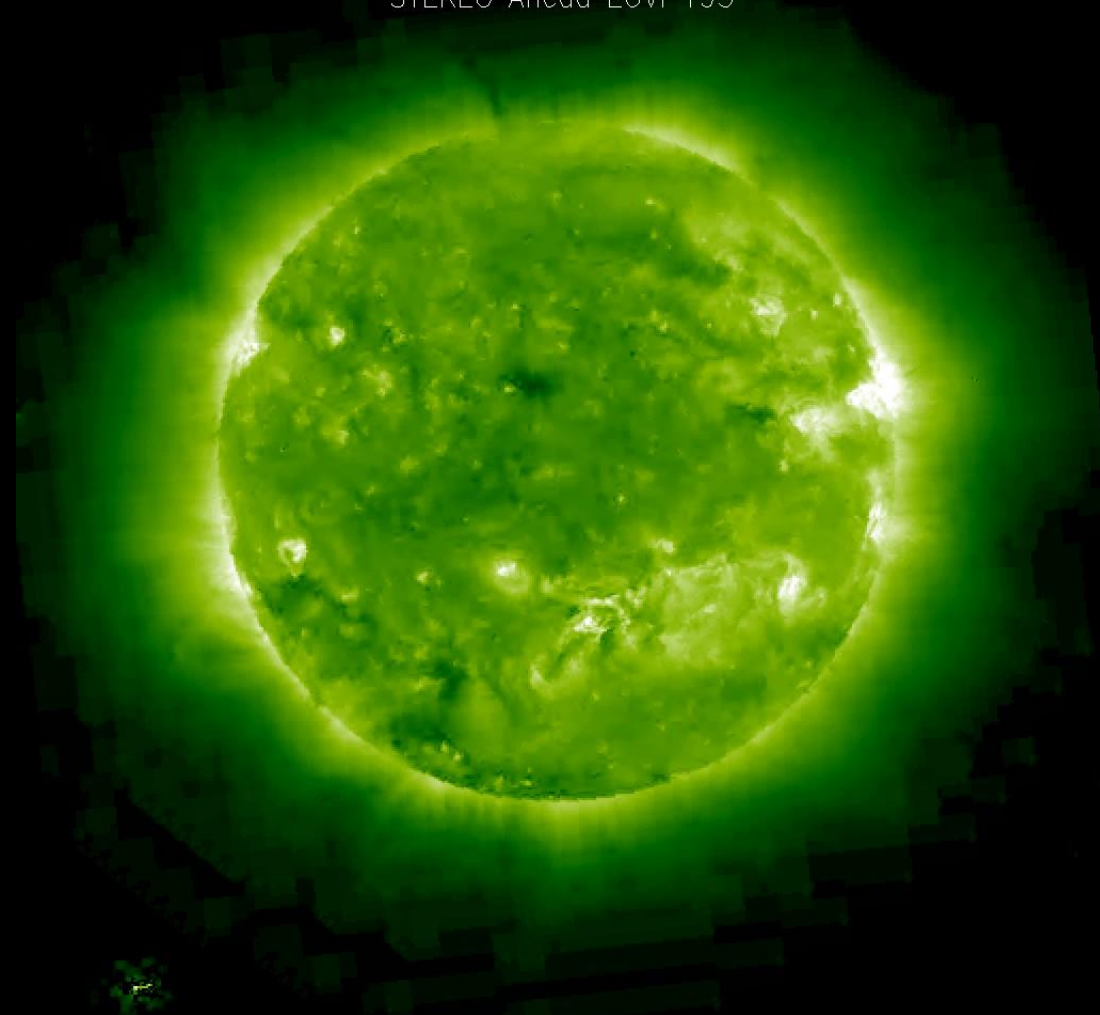


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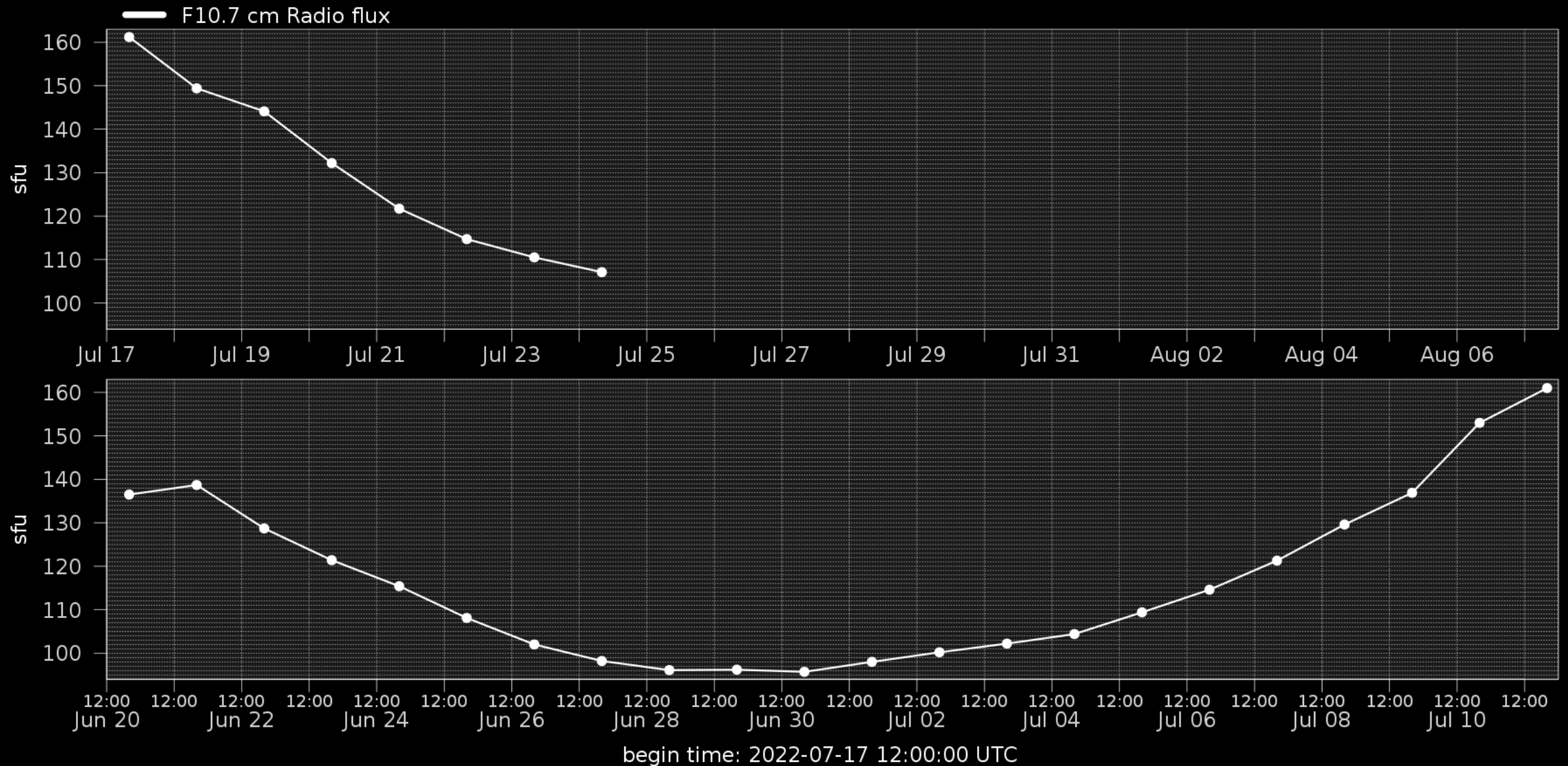
Outlook: Solar activity

STEREO Ahead EUVI 195

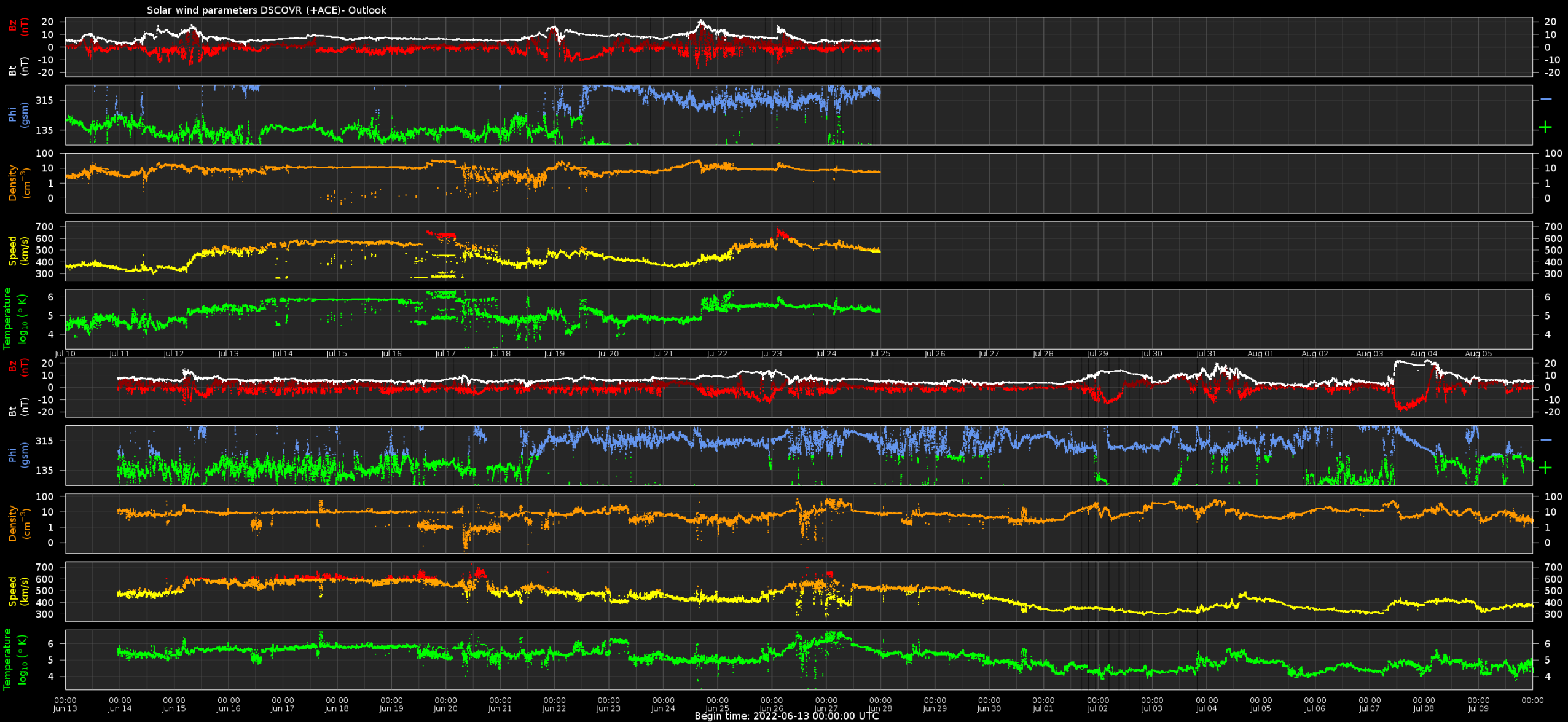


2022-07-24 21:15:00

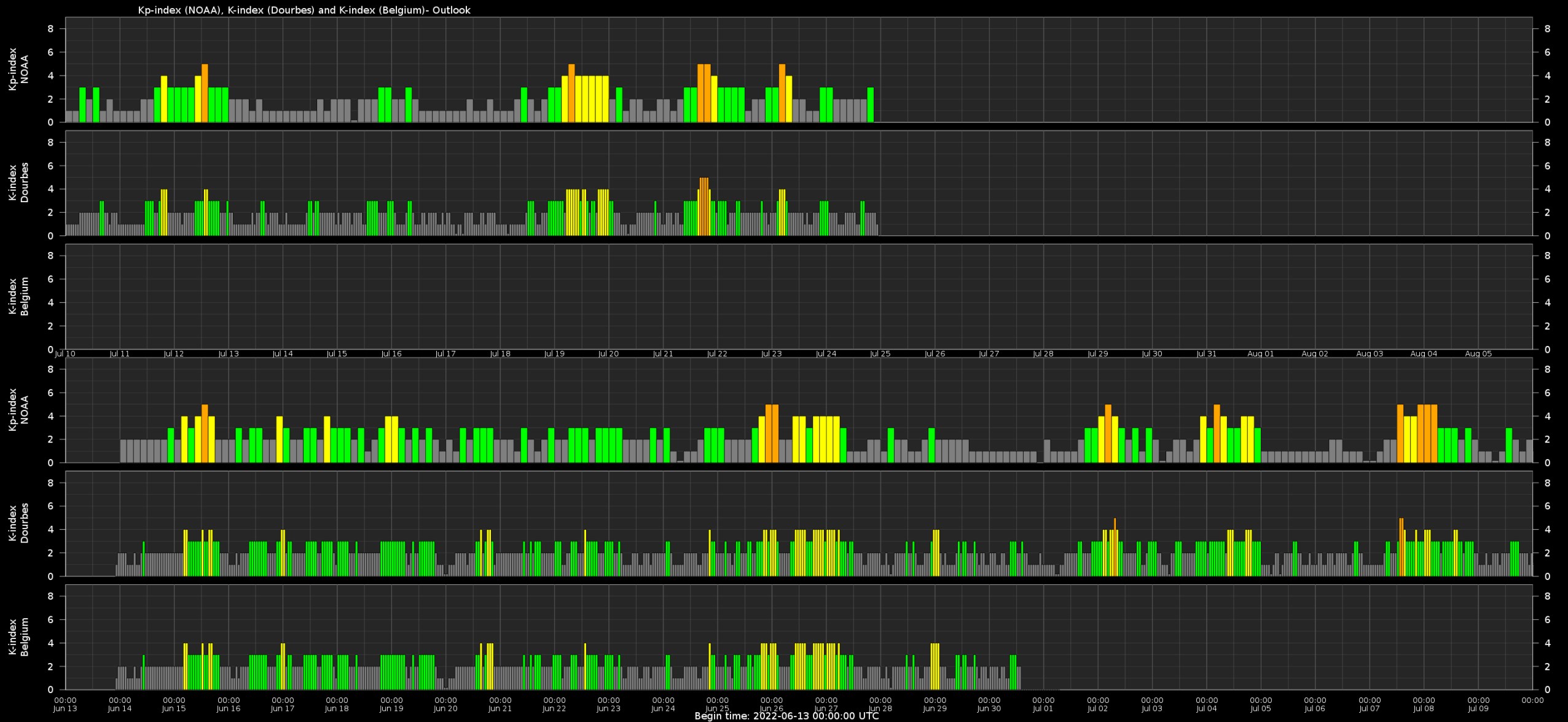
Outlook: Solar F10.7cm radio flux



Outlook: Solar wind parameters



Outlook: Geomagnetic activity



Outlook: Electron Flux at GEO Outlook



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See you at our next briefing!

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