

SIDC Space Weather Briefing

16 July 2023-23 July 2023

Vansintjan Robbe

& the SIDC forecaster team



Royal Observatory
of Belgium

Solar Influences
Data analysis Centre
www.sidc.be

Summary Report

Solar activity from 2023-07-16 12:00 to 2023-07-23 23:59

Active regions	9 AR – M5.7 proton event July 17 NOAA AR 3363
Flares	# C-class flare: 47 # M-class flare: 7 # X-class flare: 0
Coronal Holes	Weak CH -
CMEs	Multiple partial halo and halo CMEs

Proton flux	Moderate solar radiation storm on July 18
Electron flux	Slightly above the 1000 pfu threshold for several intervals of a few hours.

Solar wind and geomagnetic conditions

ICMEs	ICME arrivals
Solar wind conditions	B : 0.74 - 15.42 nT //Bz: -14.92 nT to 8.79 nT //Speed: 280.5 - 727.9km/s
K-indices	max K-index (KBel): 5 max Kp-index (NOAA): 4

All Quiet Alert: NOT QUIET

Solar Activity

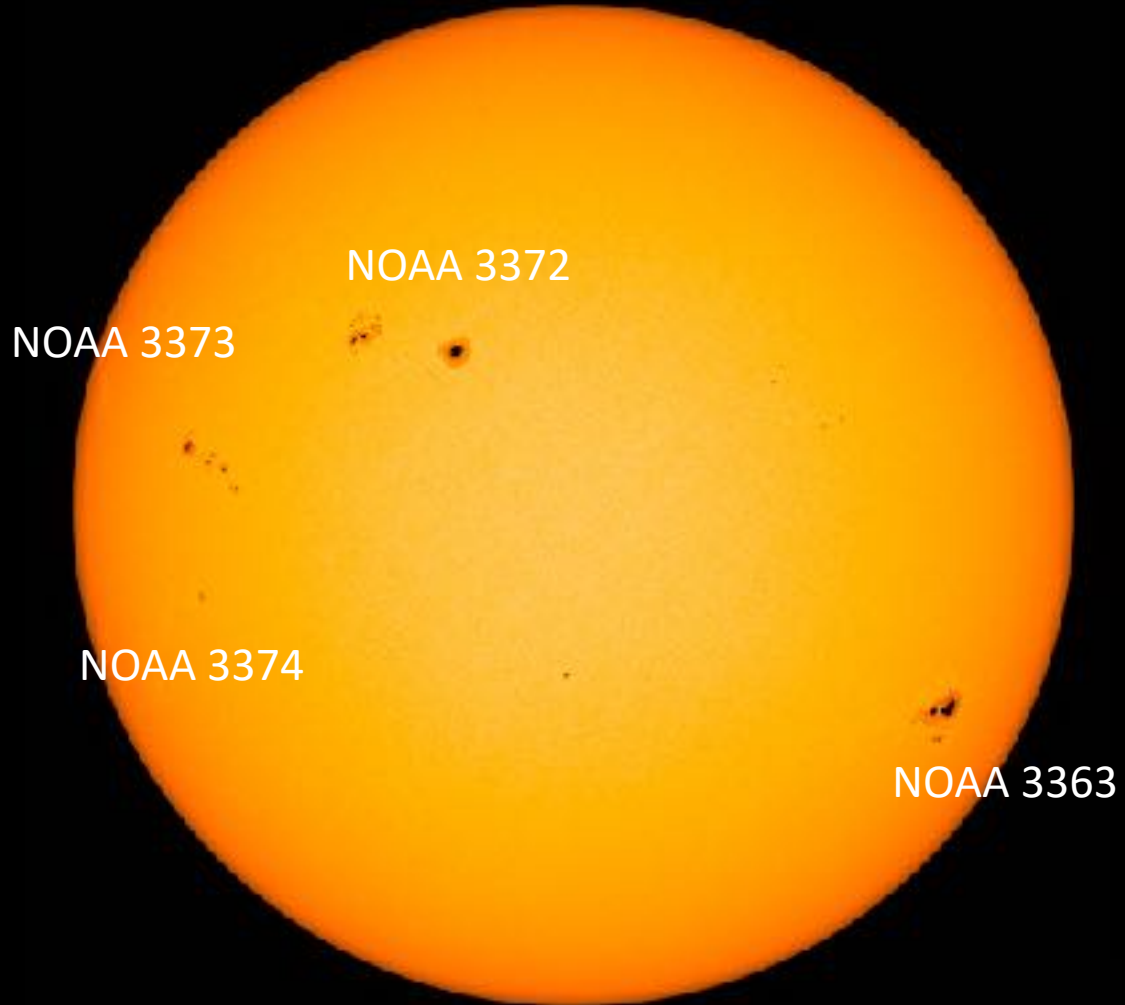


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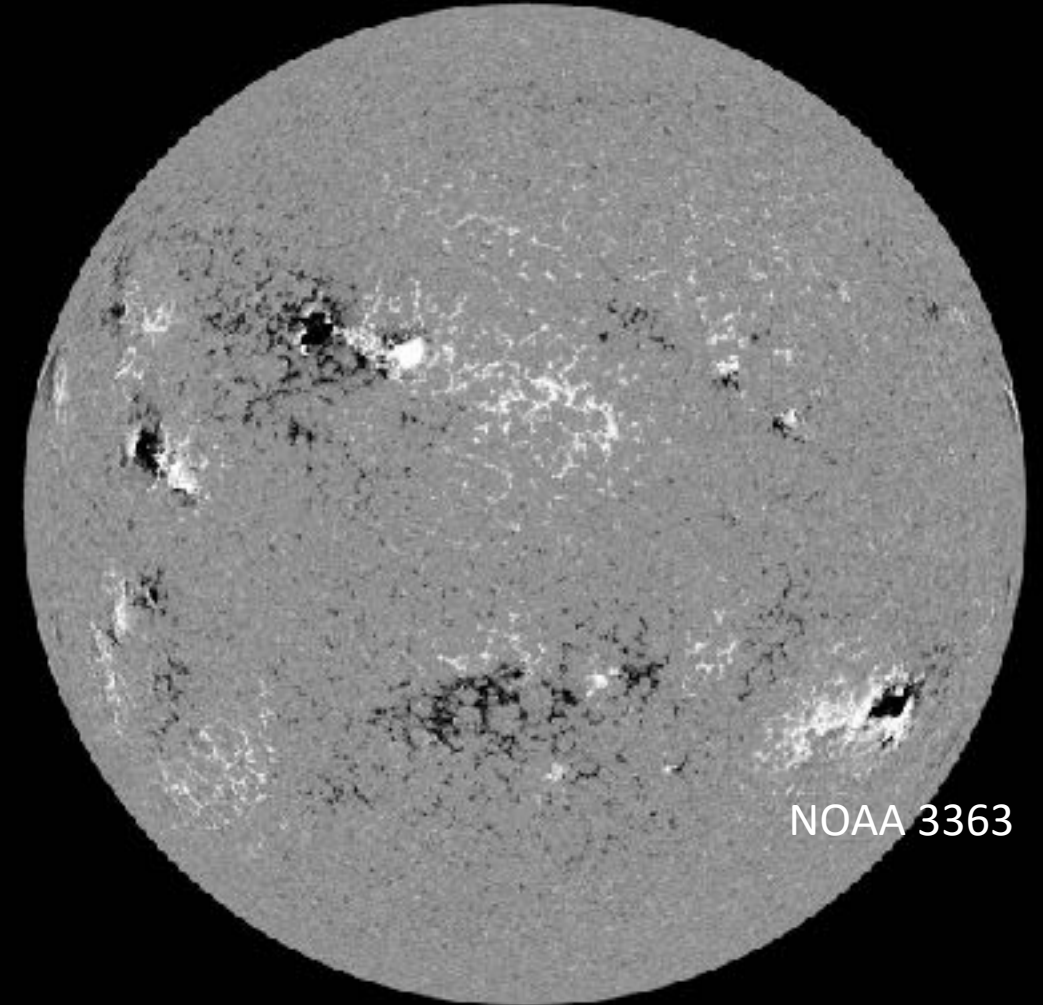
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Solar active regions

SDO/HMI White Light 2023-07-16

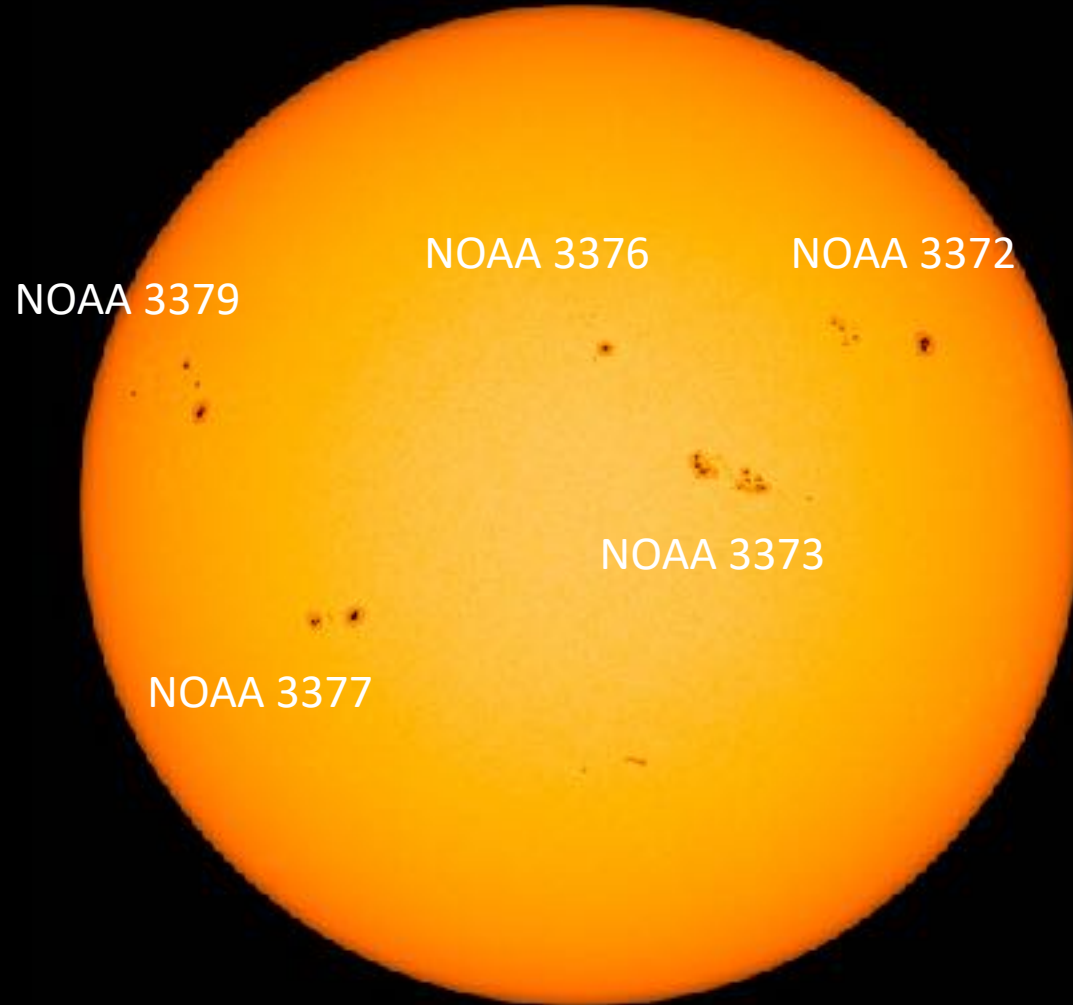


SDO/HMI Magnetogram 2023-07-16

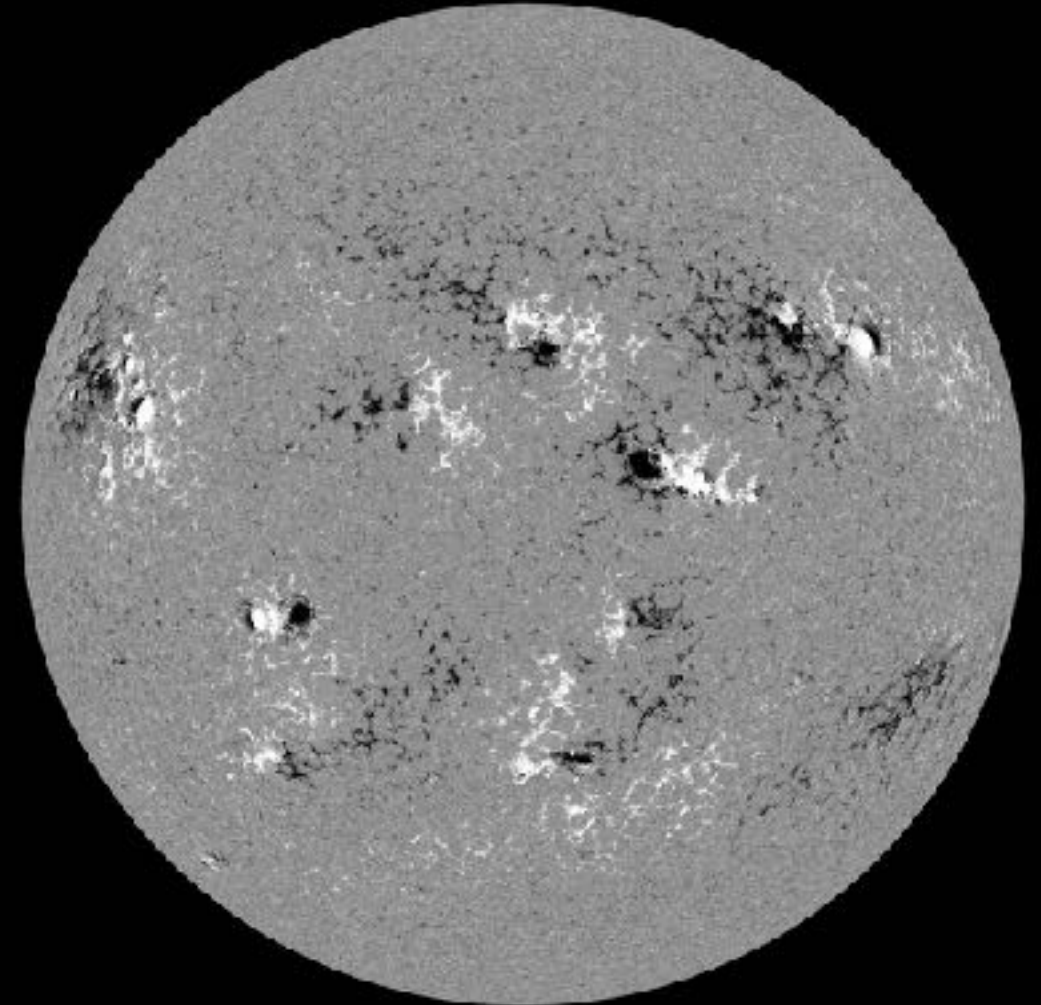


Solar active regions

SDO/HMI White Light 2023-07-21

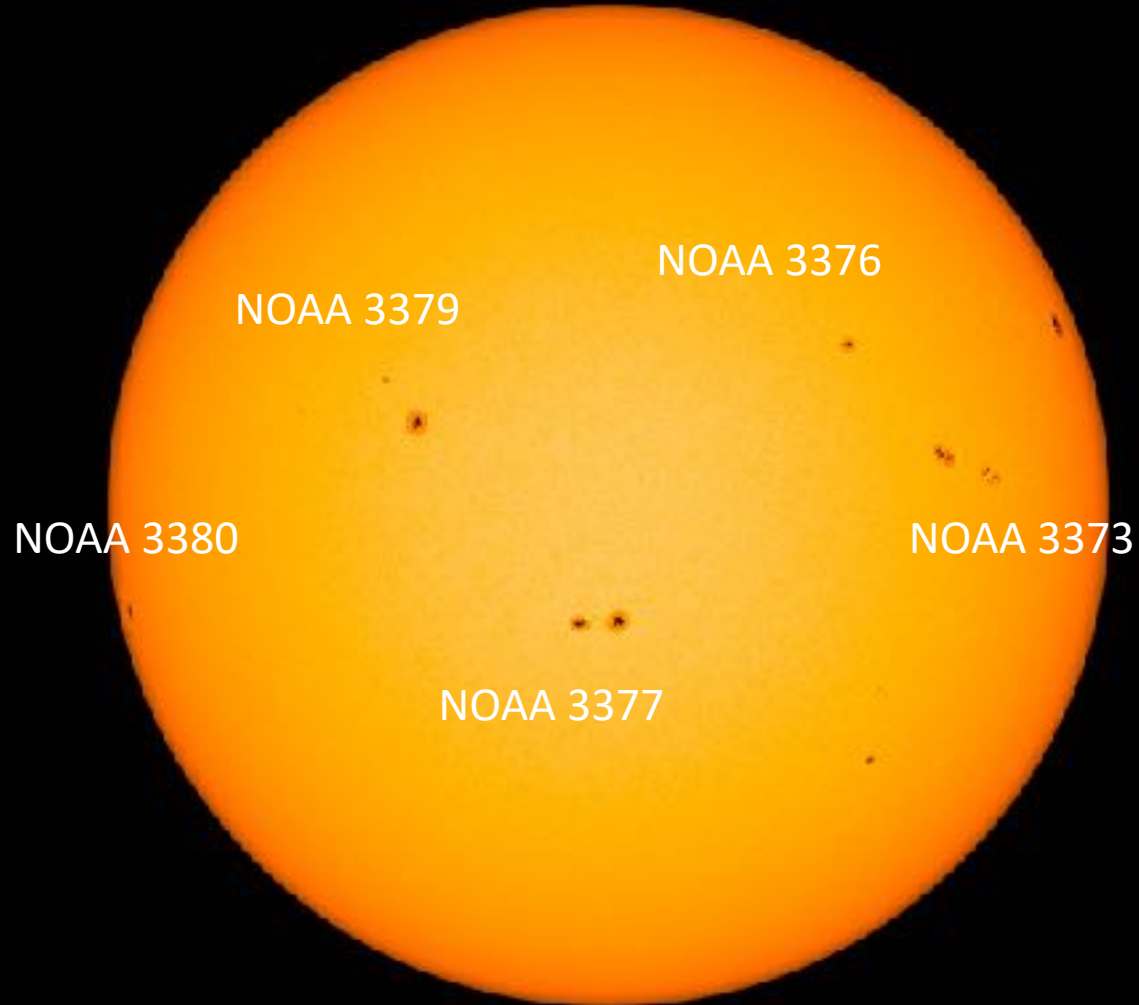


SDO/HMI Magnetogram 2023-07-21

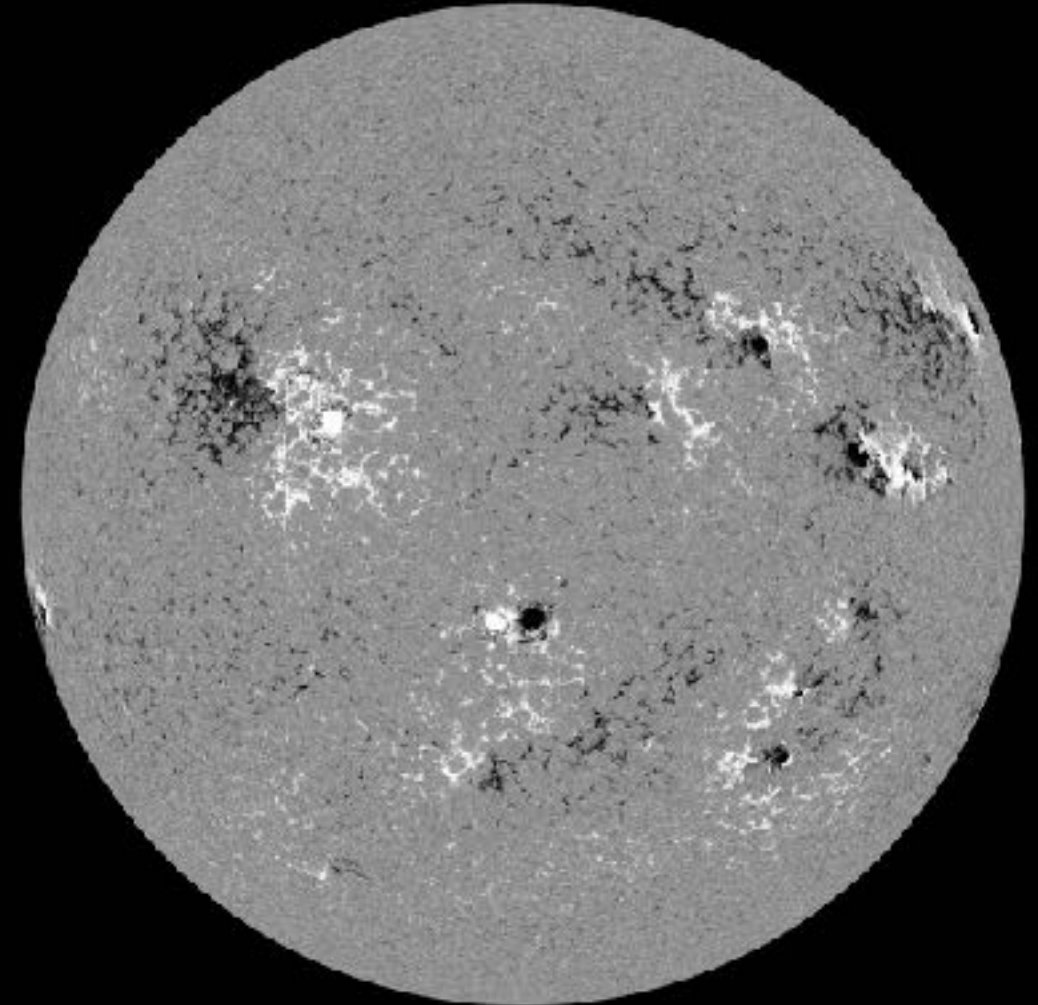


Solar active regions

SDO/HMI White Light 2023-07-23



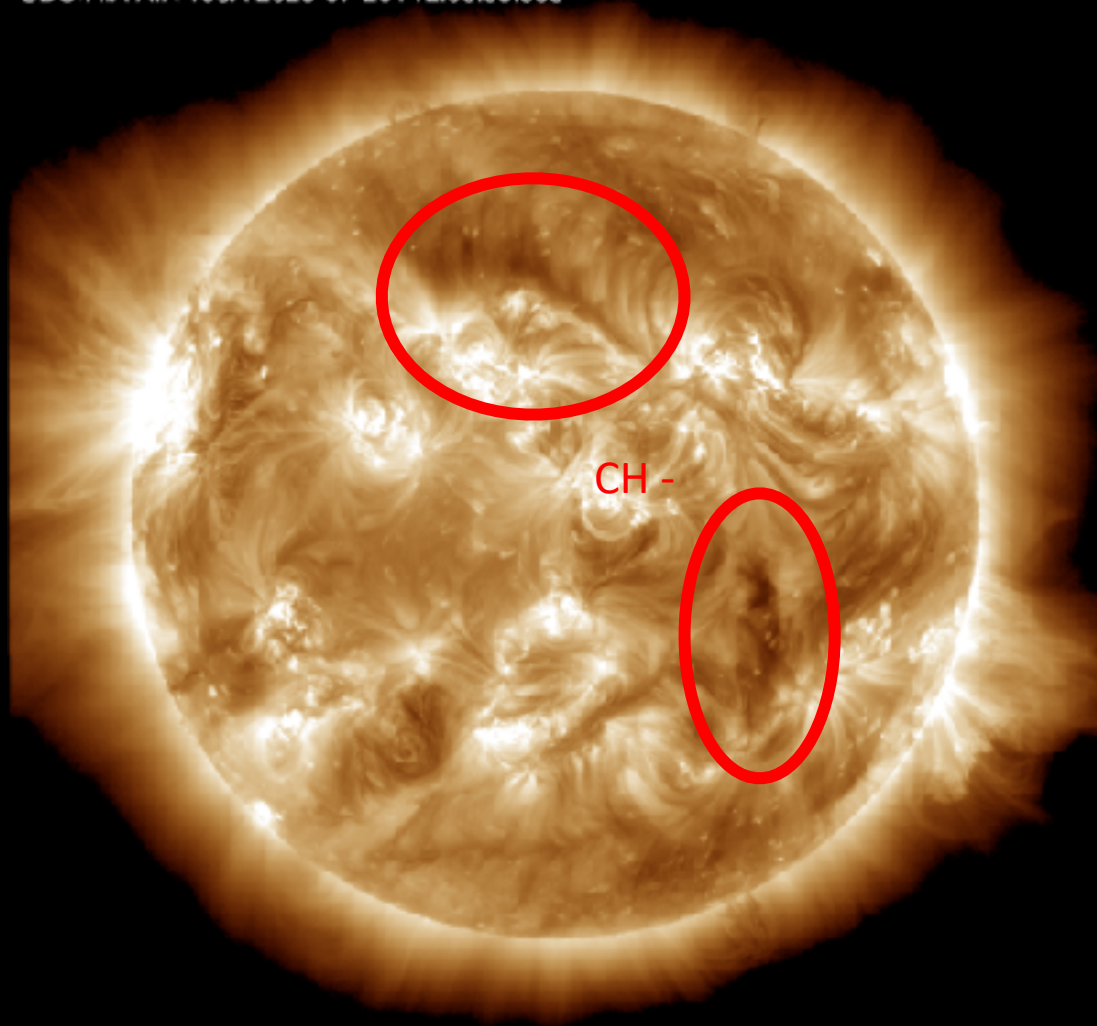
SDO/HMI Magnetogram 2023-07-23



Coronal holes

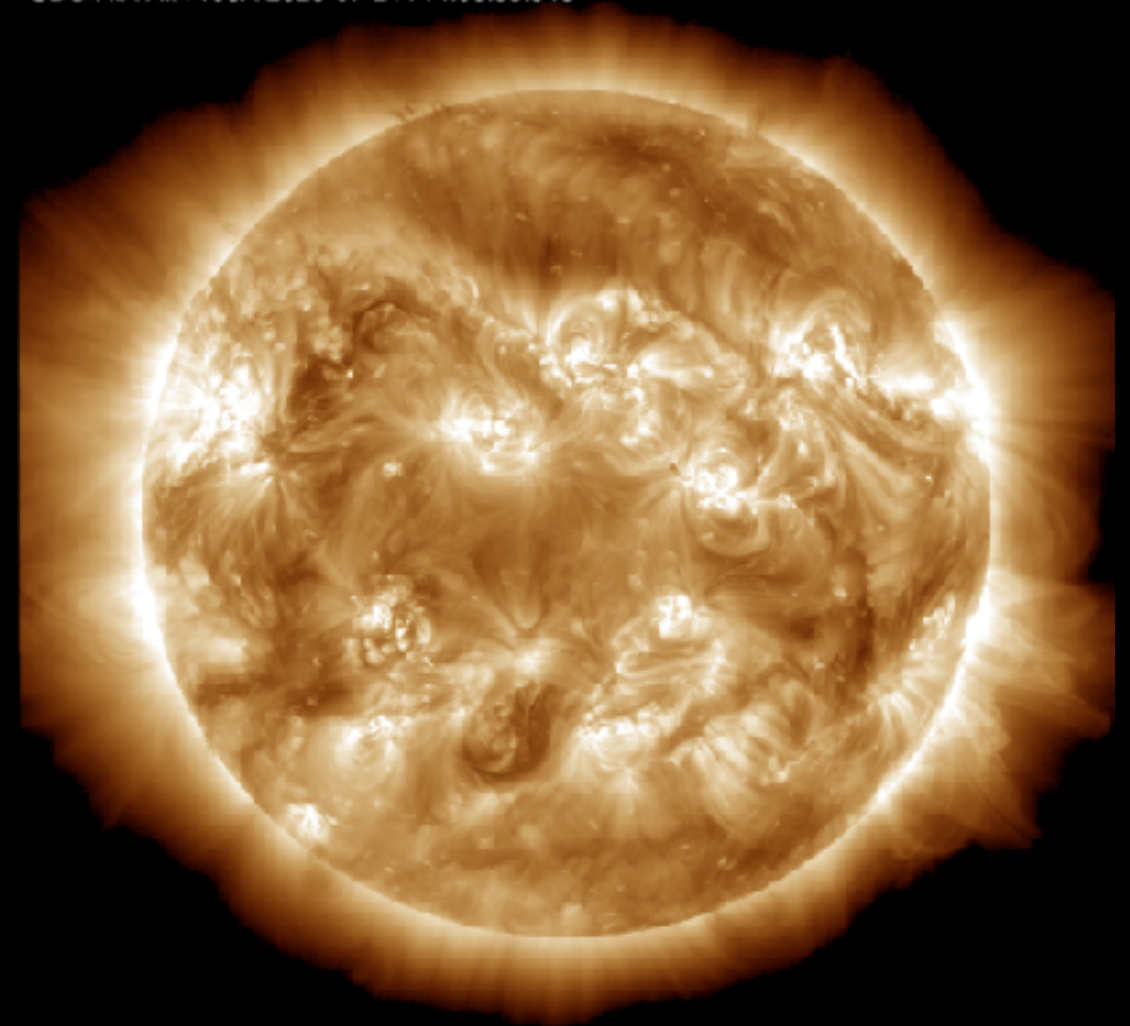
SDO/AIA 19.3 nm 2023-07-20

SDO/AIA AIA 193Å 2023-07-20T12:00:05.835



SDO/AIA 19.3 nm 2023-07-21

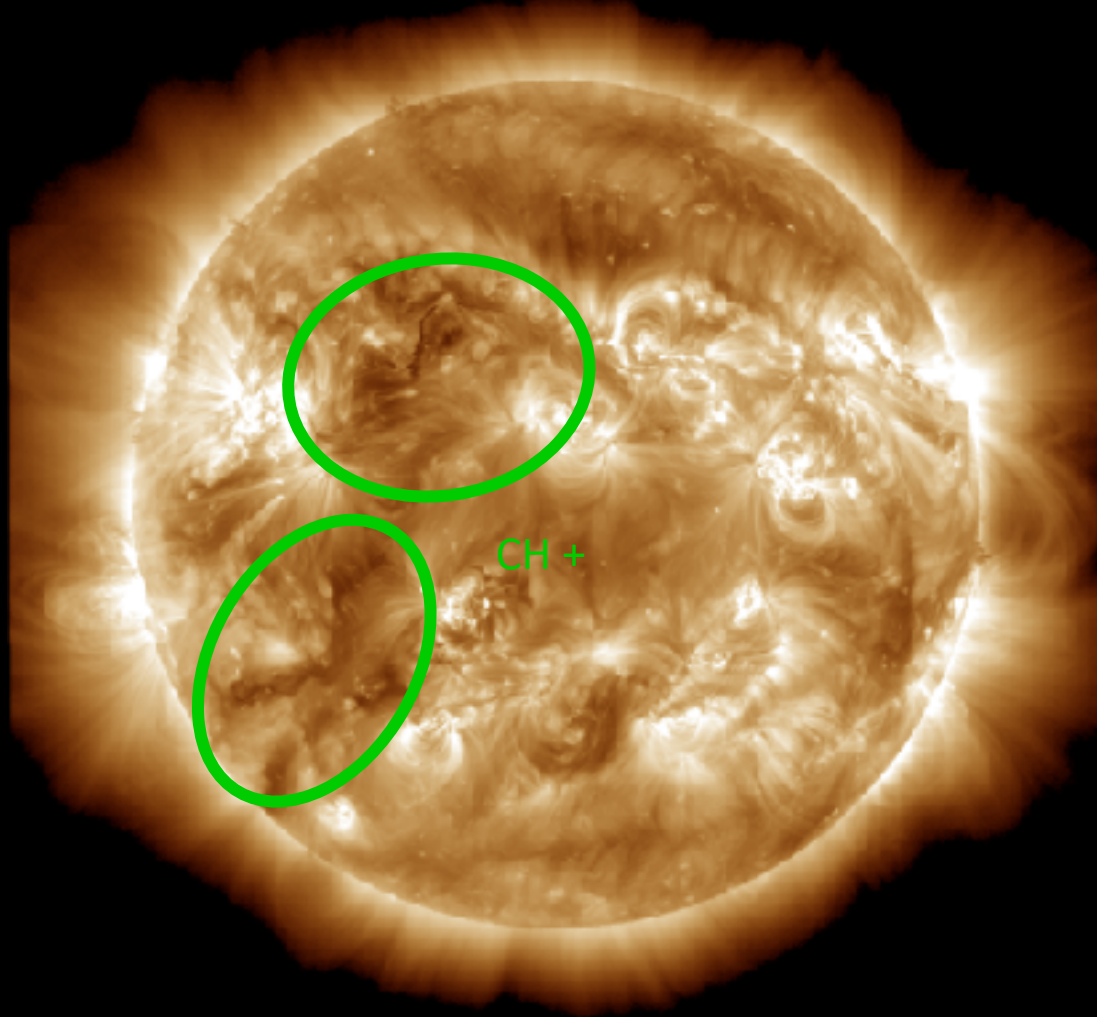
SDO/AIA AIA 193Å 2023-07-21T14:00:05.846



Coronal holes

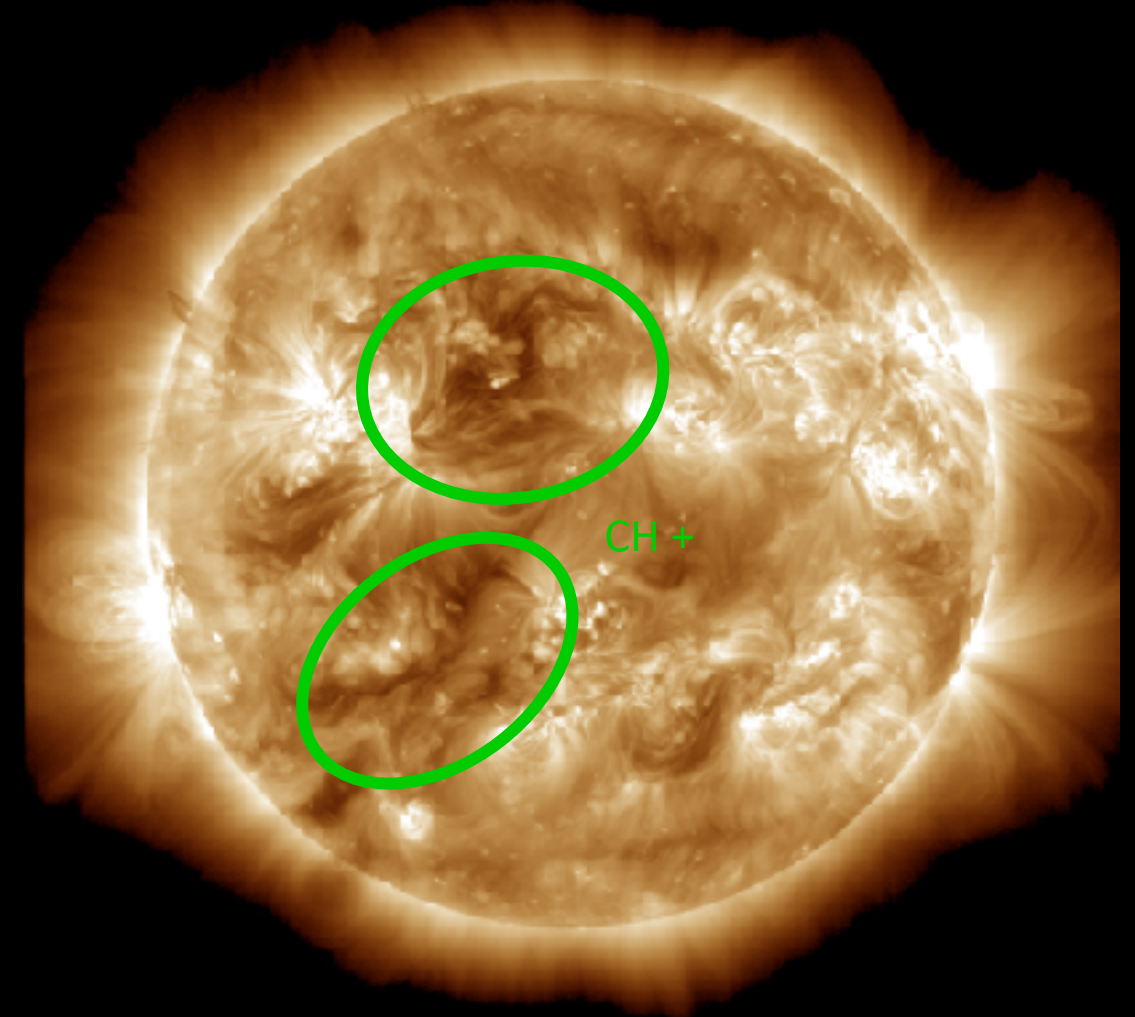
SDO/AIA 19.3 nm 2023-07-22

SDO/AIA AIA 193Å 2023-07-22T12:00:05.843



SDO/AIA 19.3 nm 2023-07-23

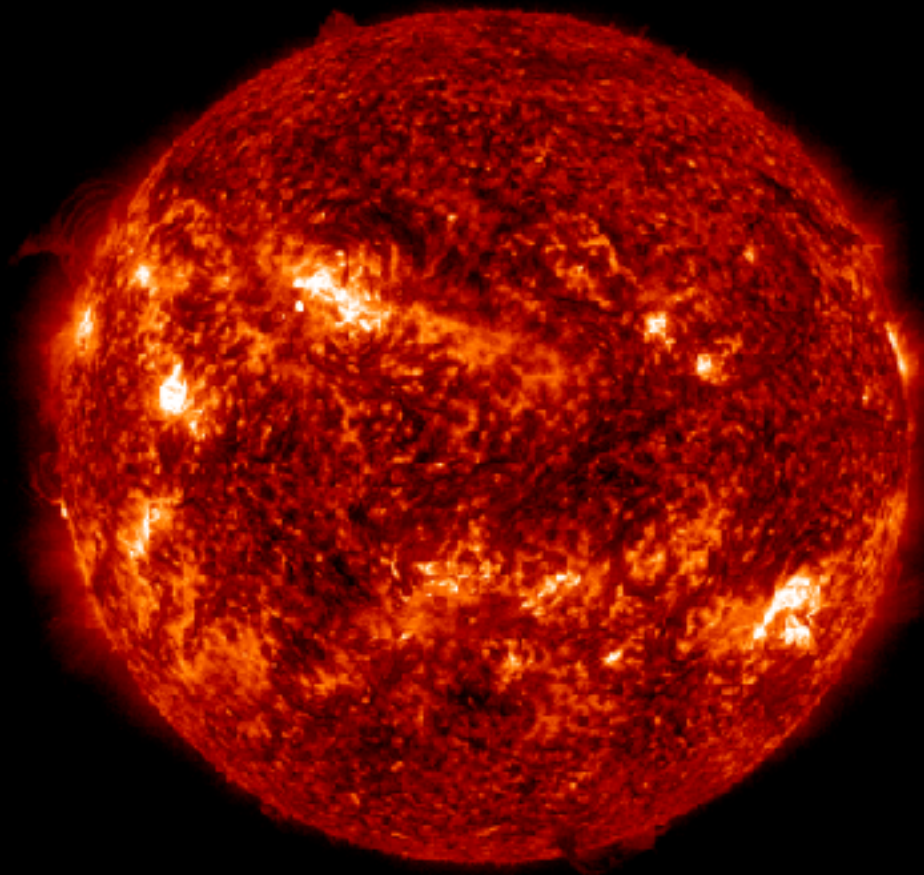
SDO/AIA AIA 193Å 2023-07-23T12:00:05.842



Filaments

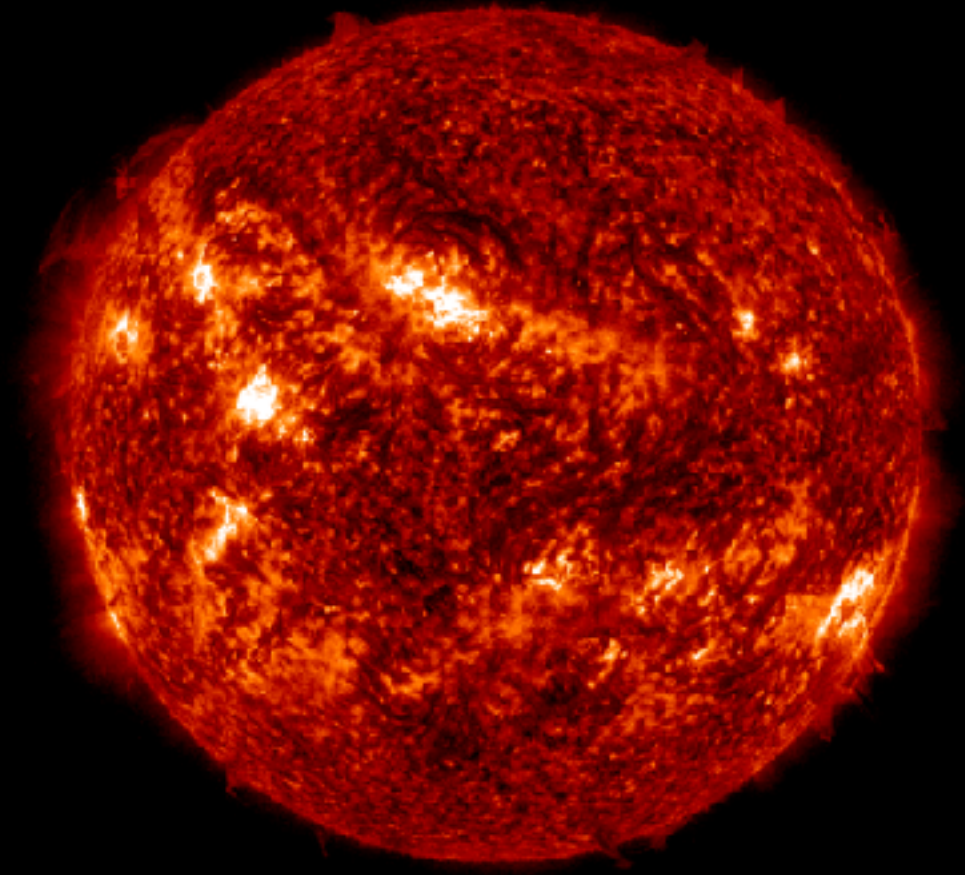
SDO/AIA 30.4 nm 2023-07-16

SDO/AIA AIA 304Å 2023-07-16T12:00:06.580



SDO/AIA 30.4 nm 2023-07-17

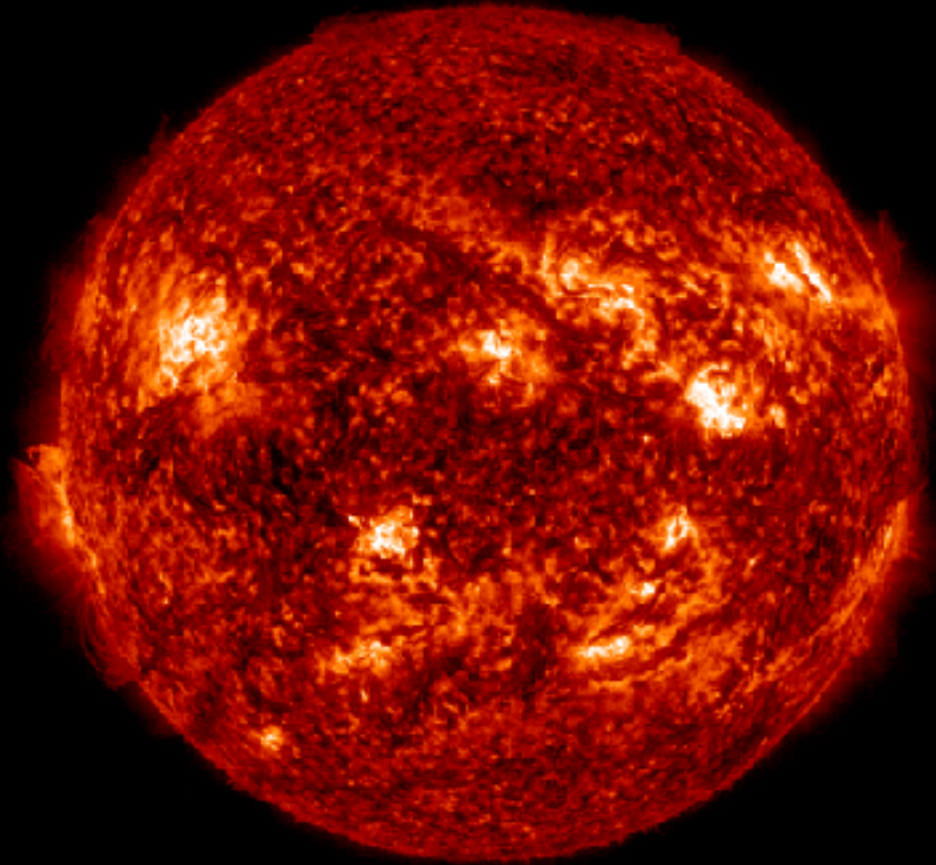
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Filaments

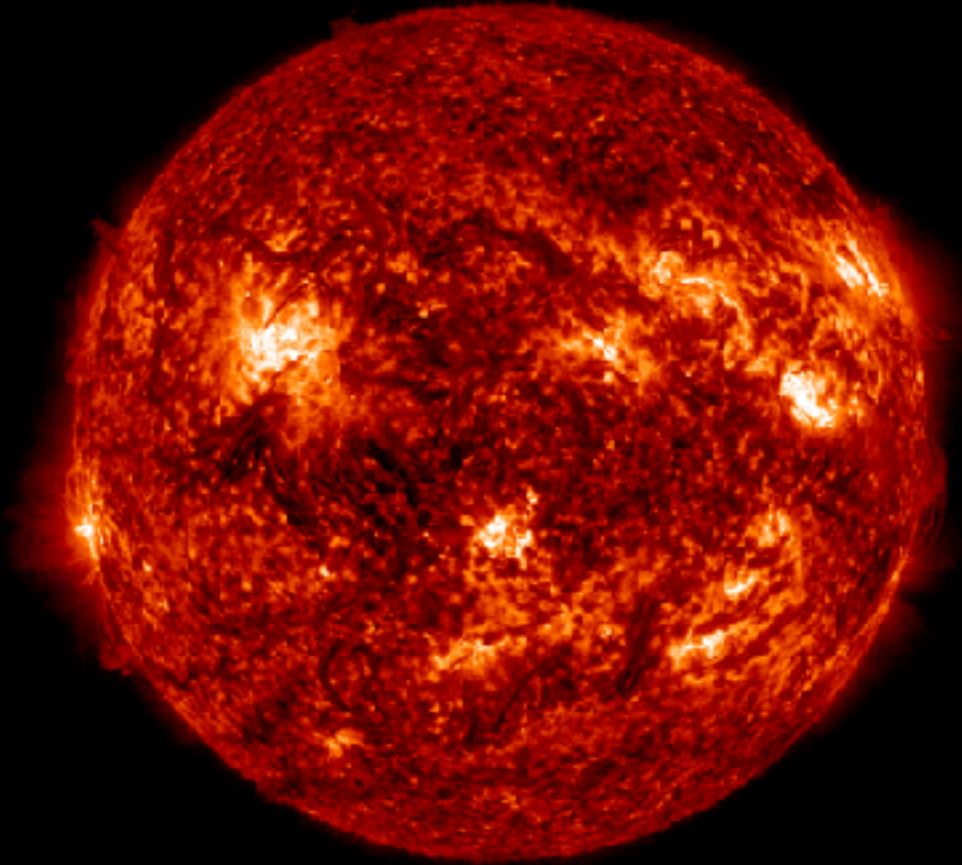
SDO/AIA 30.4 nm 2023-07-22

SDO/AIA AIA 304Å 2023-07-22T12:00:06.582

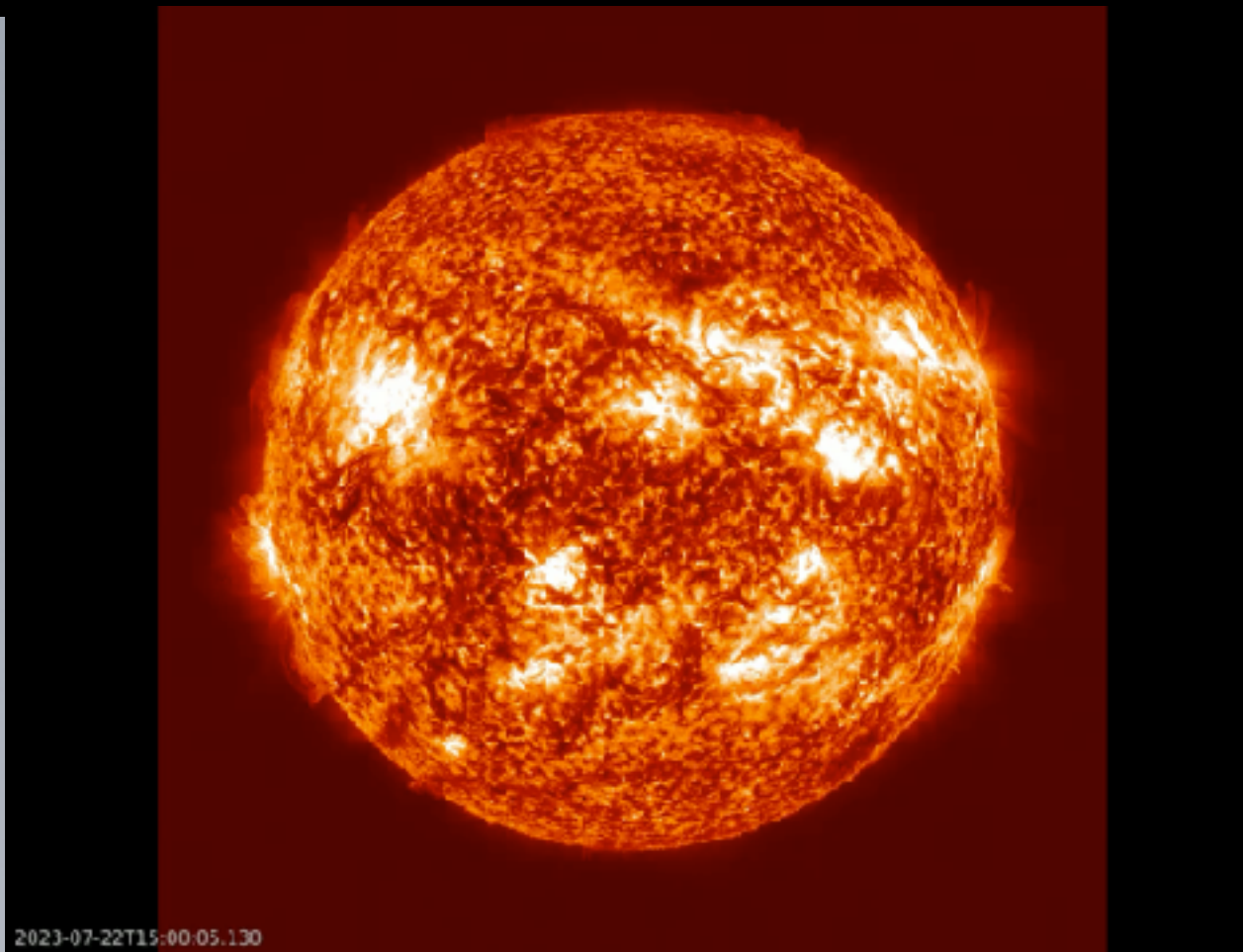


SDO/AIA 30.4 nm 2023-07-23

SDO/AIA AIA 304Å 2023-07-23T12:00:06.573



Filaments



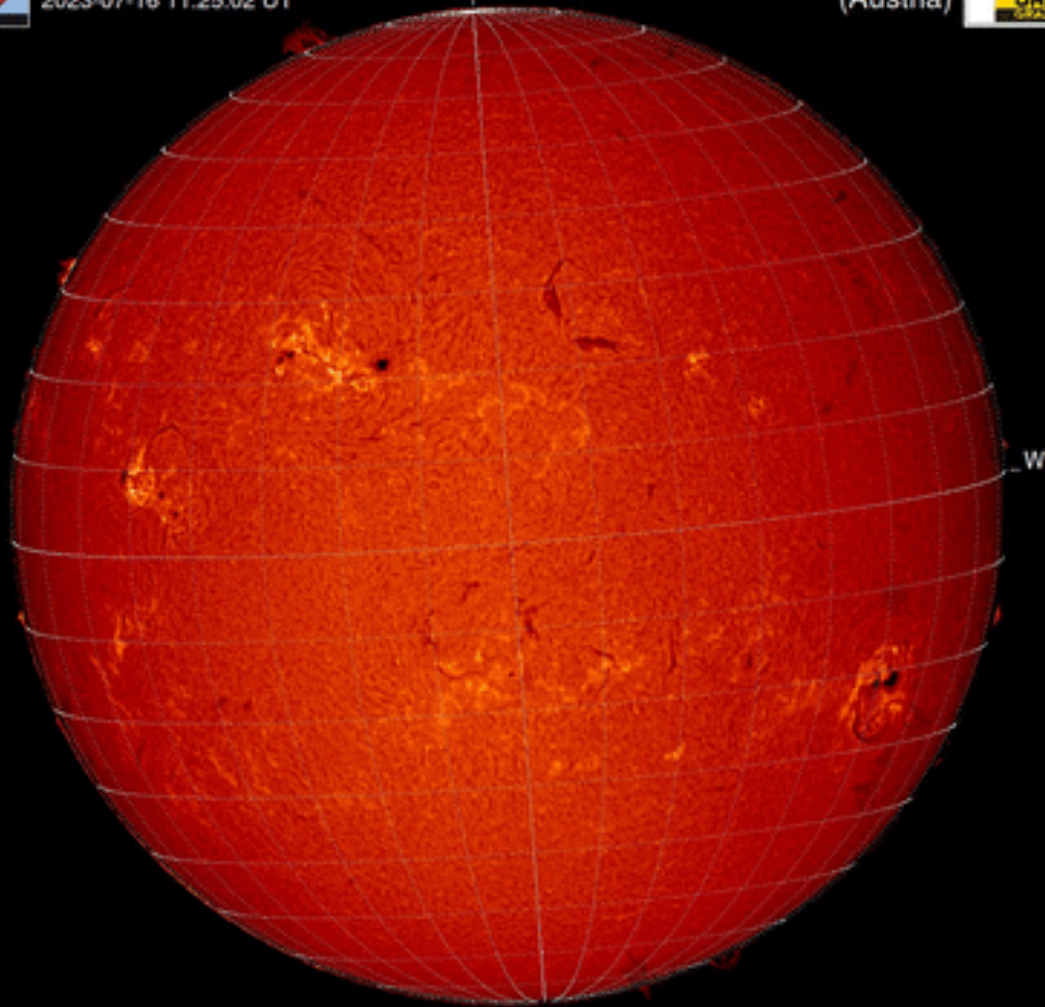
Filaments & Filament eruptions

H-alpha 2023-07-16



Kanzelhöhe Observatory
2023-07-16 11:25:02 UT

University of Graz
(Austria)

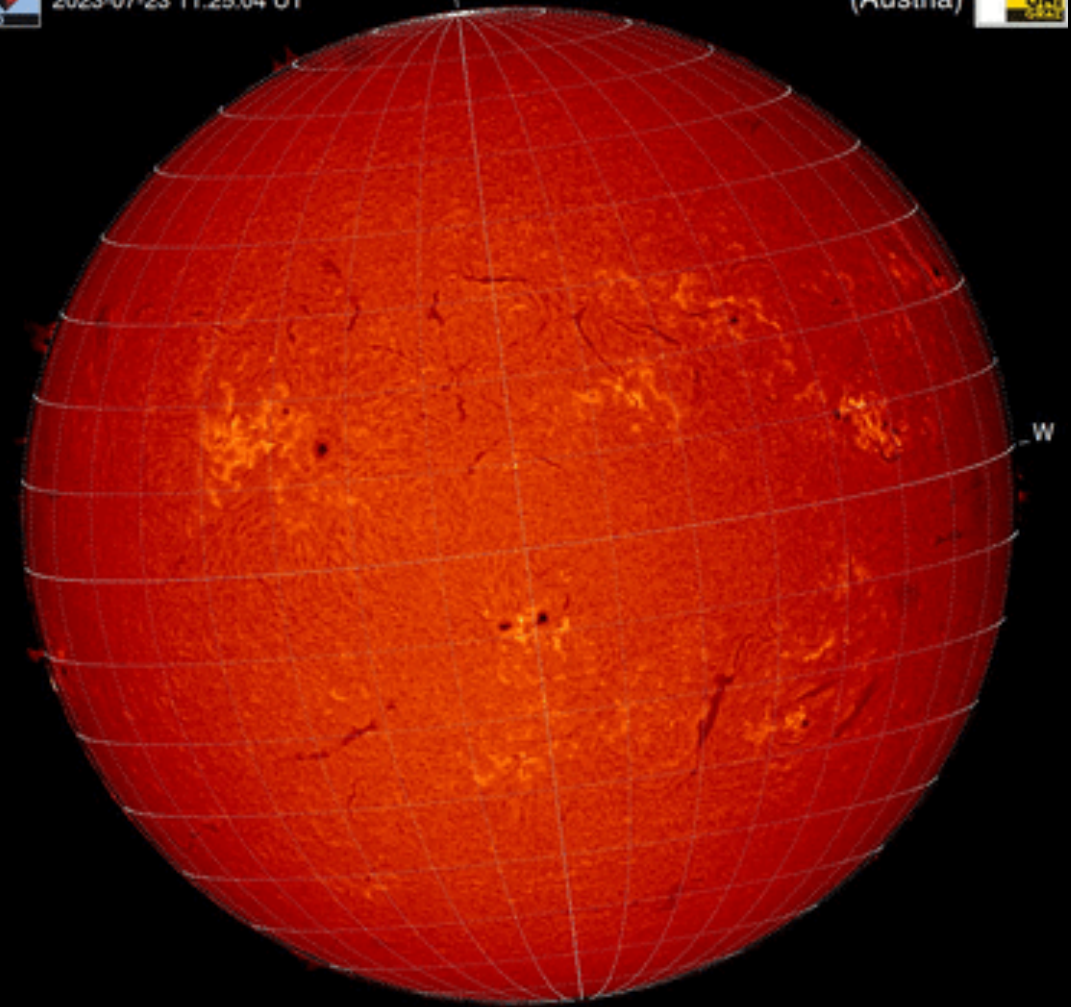


H-alpha 2023-07-23

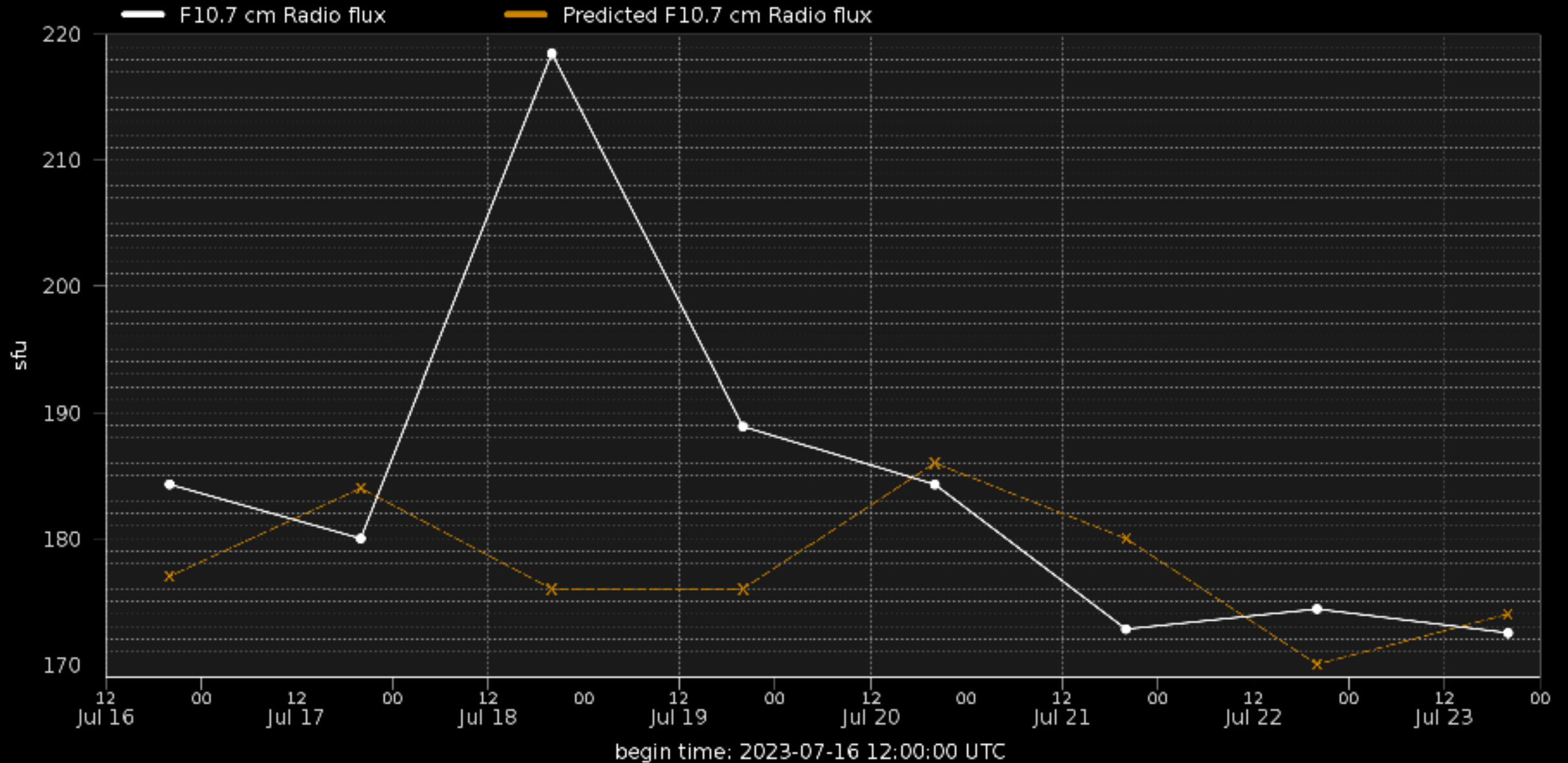


Kanzelhöhe Observatory
2023-07-23 11:25:04 UT

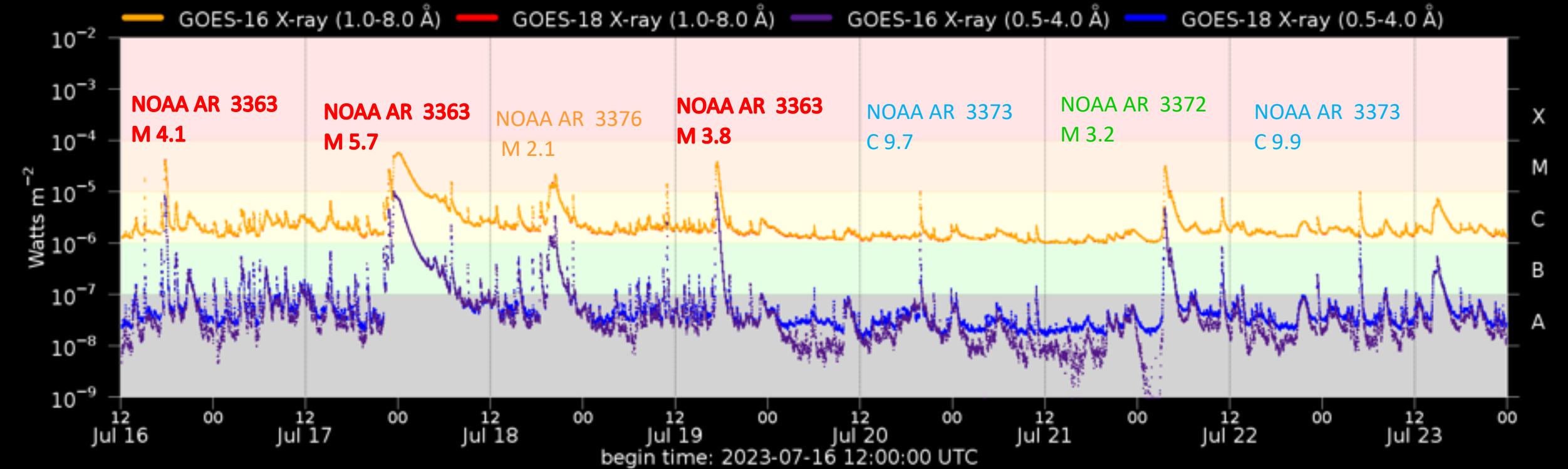
University of Graz
(Austria)



Solar F10.7cm radio flux



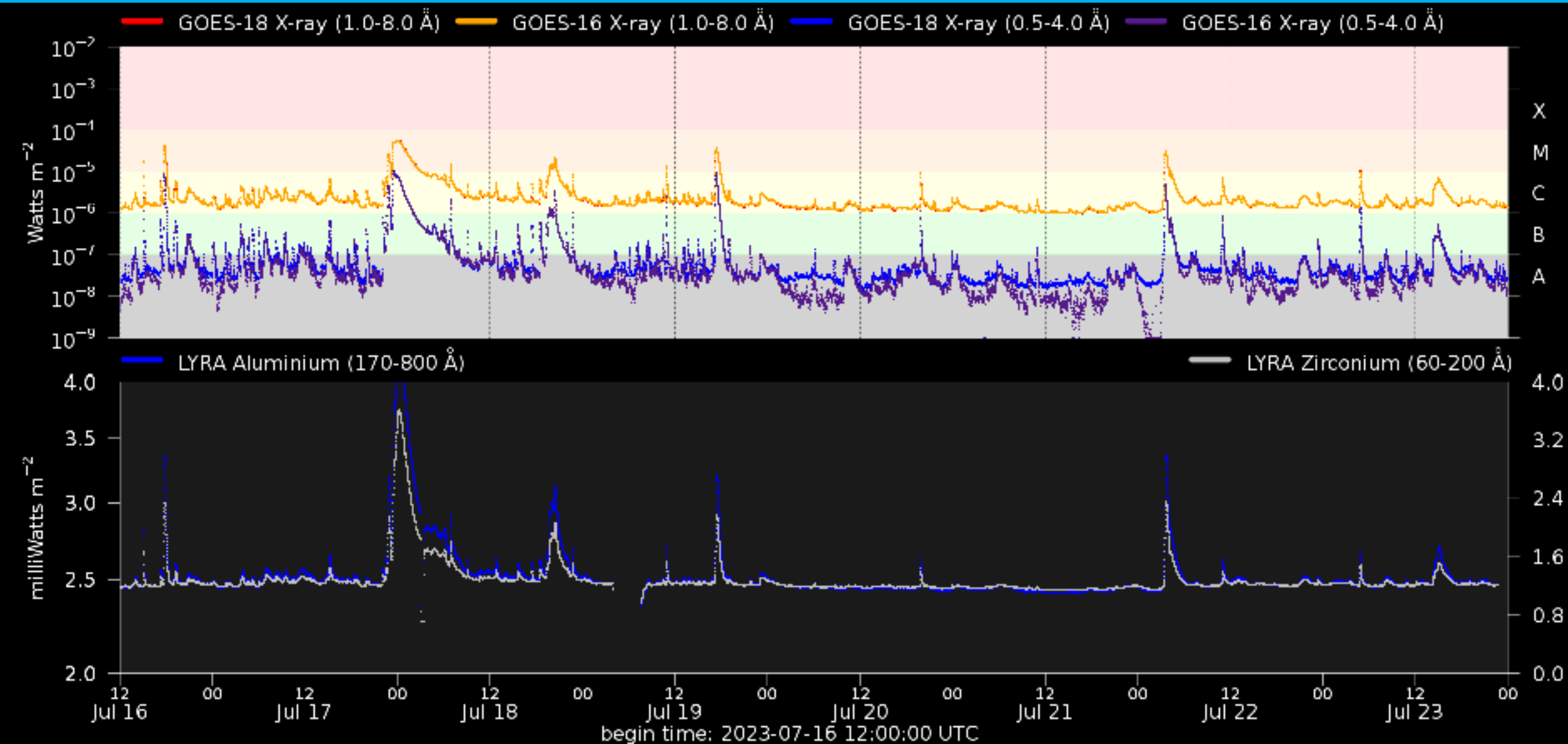
Flaring activity



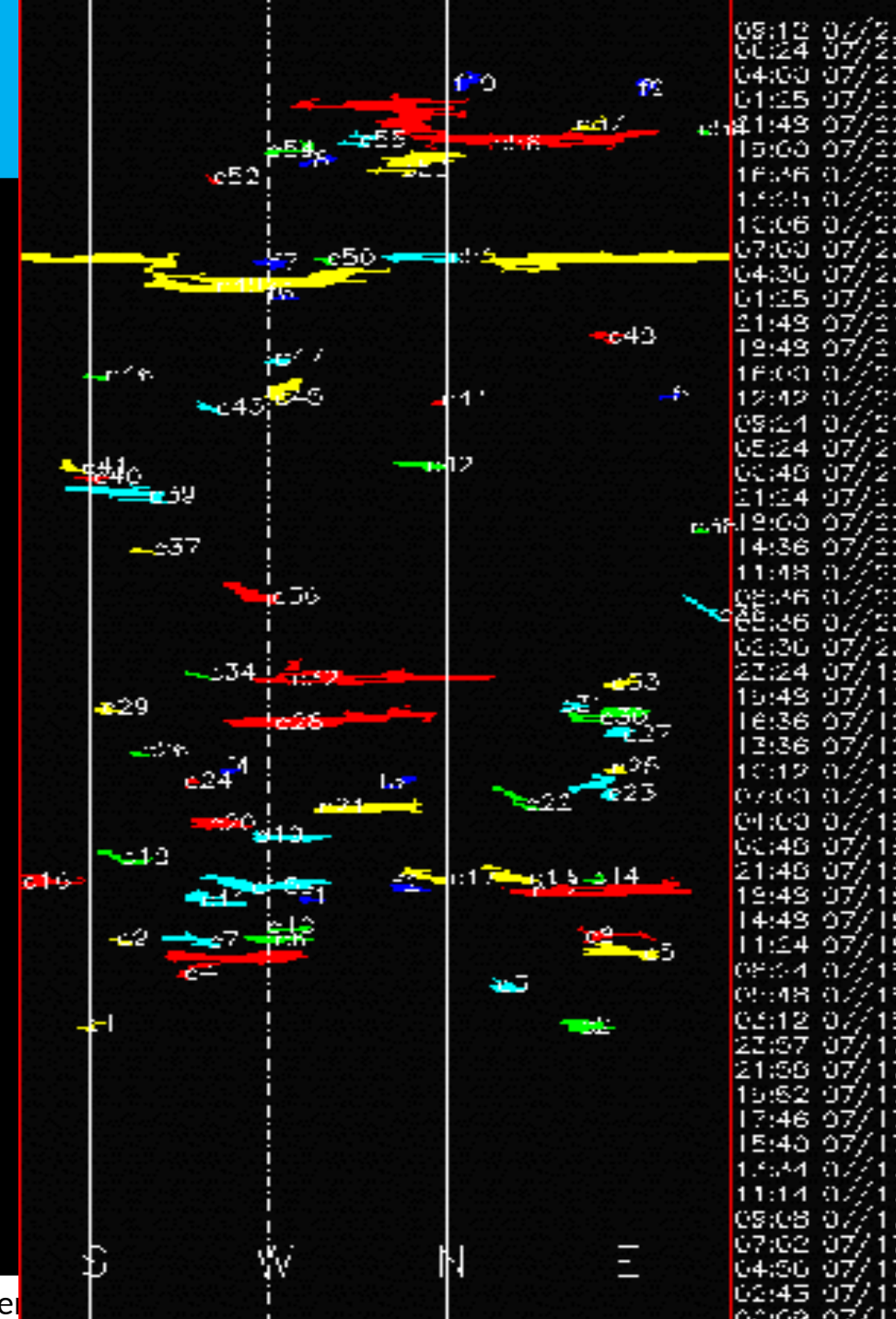
Probabilities (%) and occurrences (#) of C/M/X-flares daily, from noon to noon:

Issue date	2023-07-16	2023-07-17	2023-07-18	2023-07-19	2023-07-20	2023-07-21	2023-07-22	2023-07-23
Probability (%)	90 50 10	99 55 10	99 55 20	99 50 05	99 55 10	99 45 05	95 45 05	99 30 05
Observed (#)	13 02 00	08 01 00	13 02 00	04 01 00	04 00 00	01 01 00	03 00 00	01 00 00

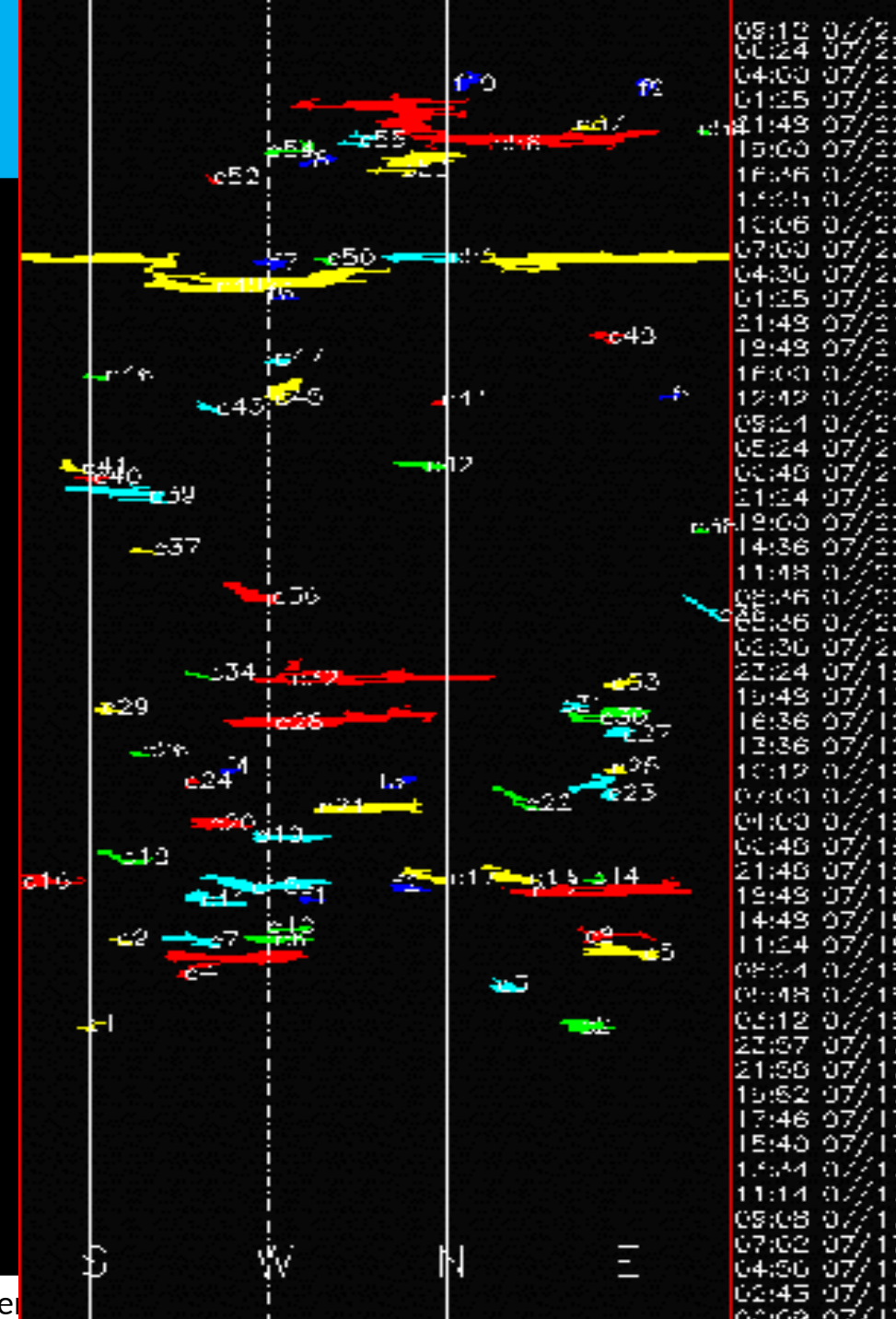
Solar X-Ray and UV flux



Coronal Mass Ejections



Coronal Mass Ejections



Solar Wind and Geomagnetic Activity



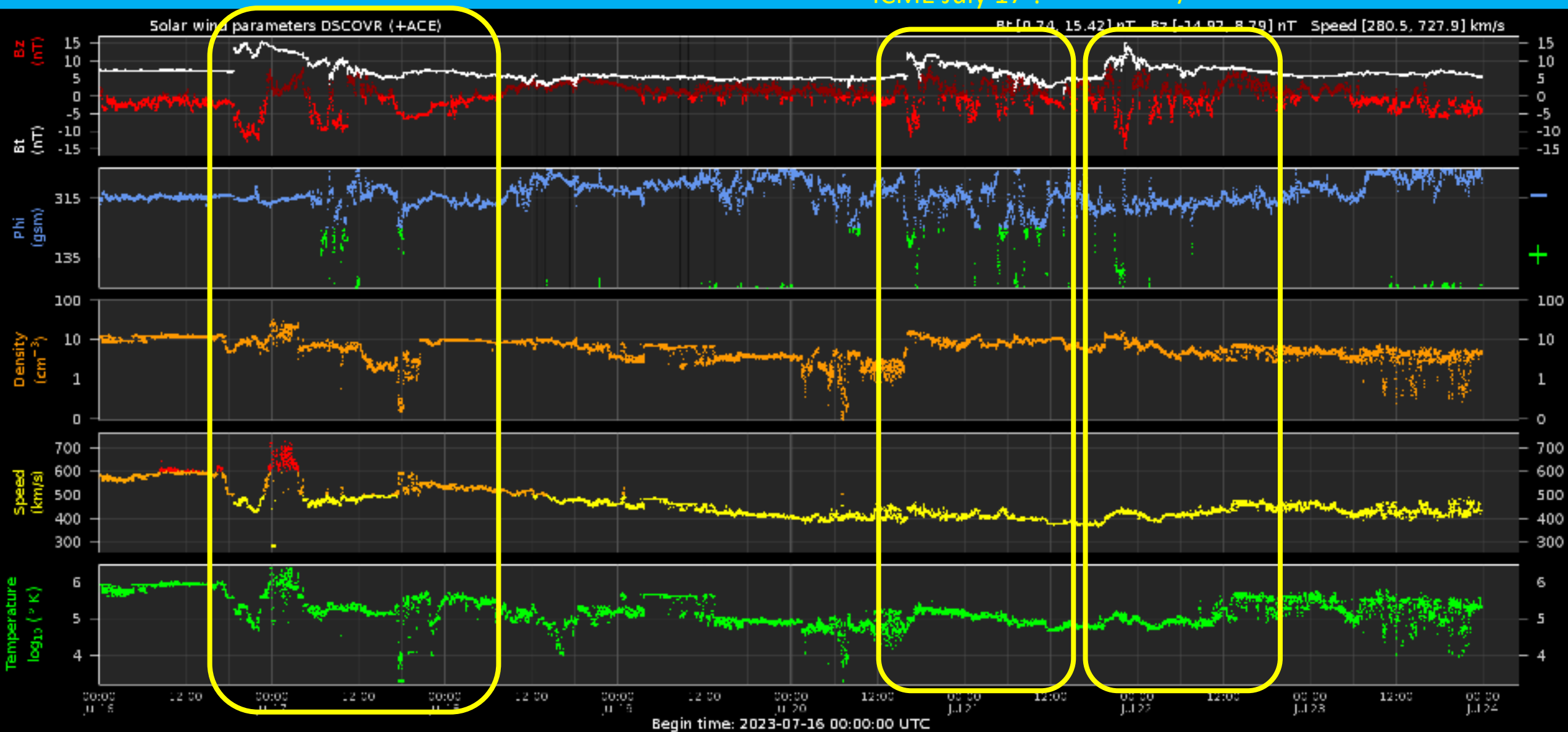
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Solar wind parameters

ICME July 15 ?

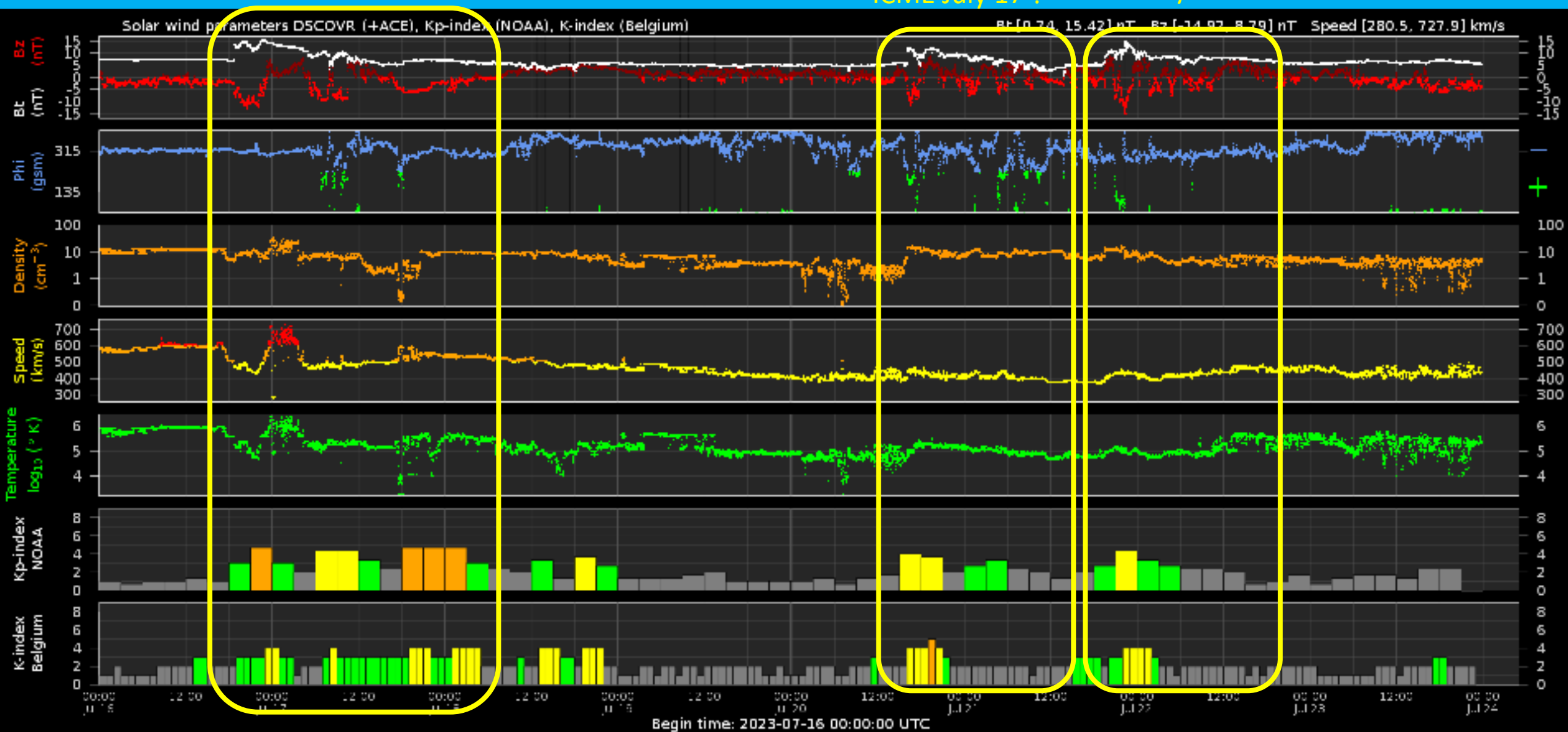
ICME July 17 ? ICME July 18 + HSS ?



Solar wind parameters & K-indices

ICME July 15 ?

ICME July 17 ? ICME July 18 + HSS ?



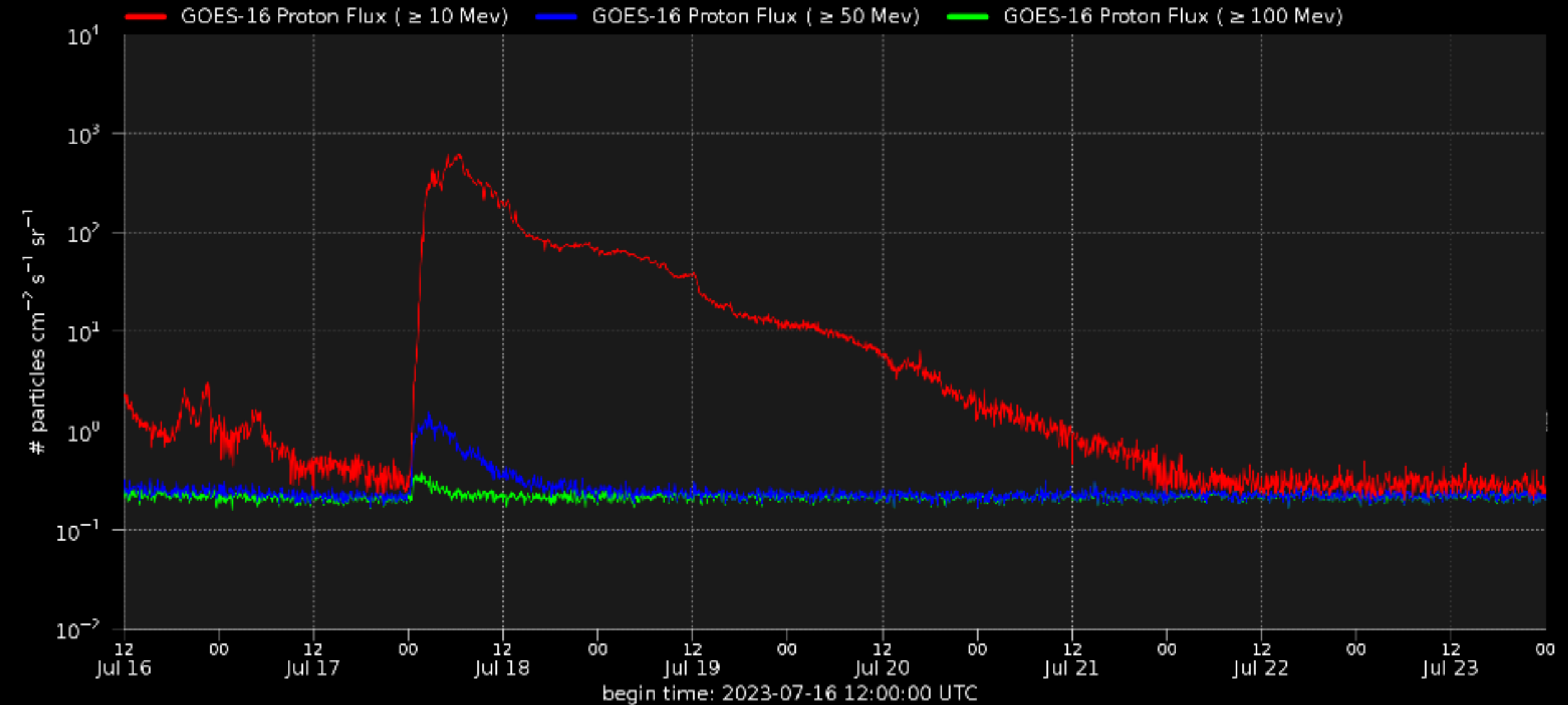
Energetic Particles



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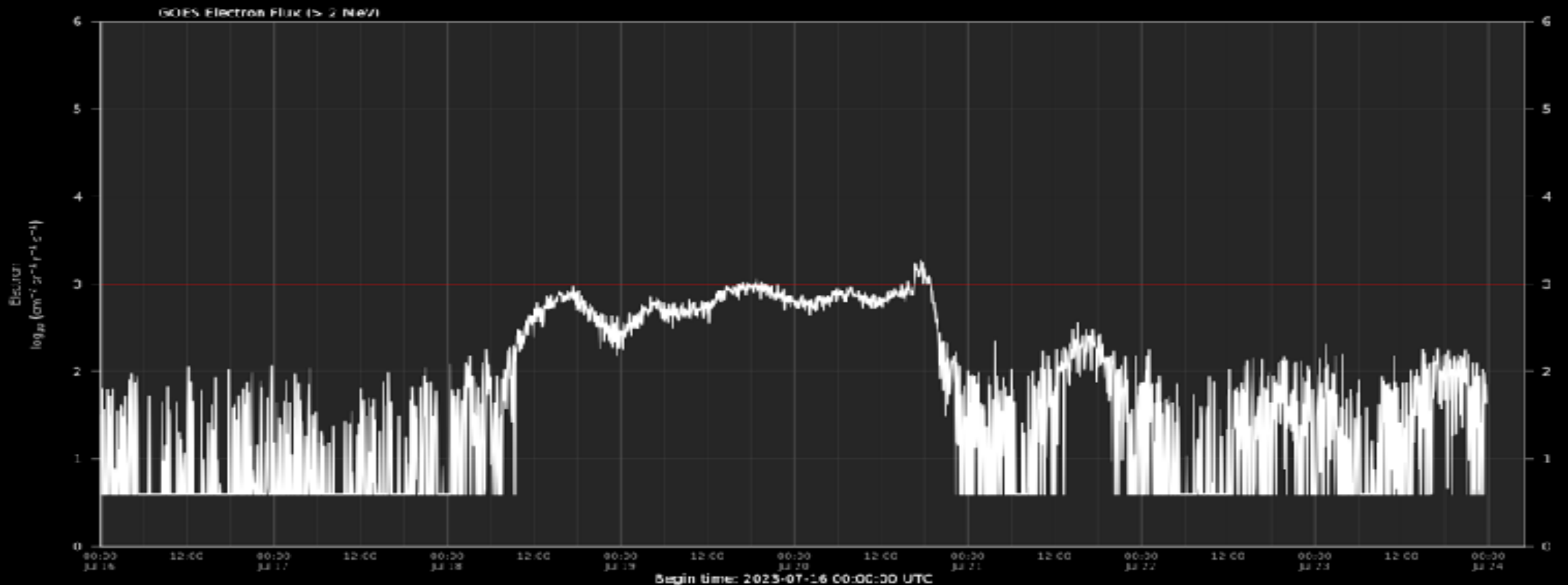
Solar proton flux



Electron flux at GEO

www.stce.be/educational/classification#electrons

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



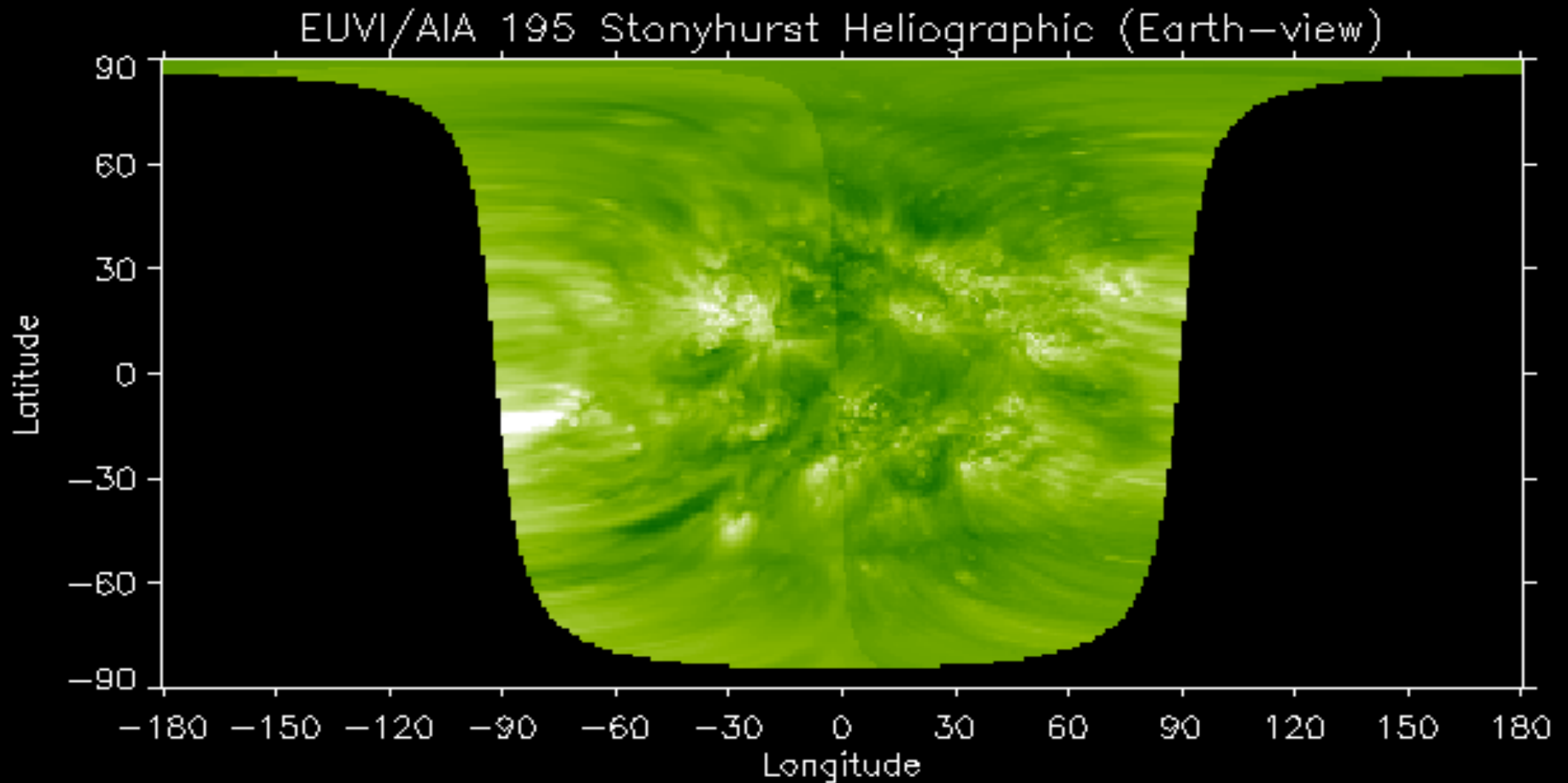
Outlook



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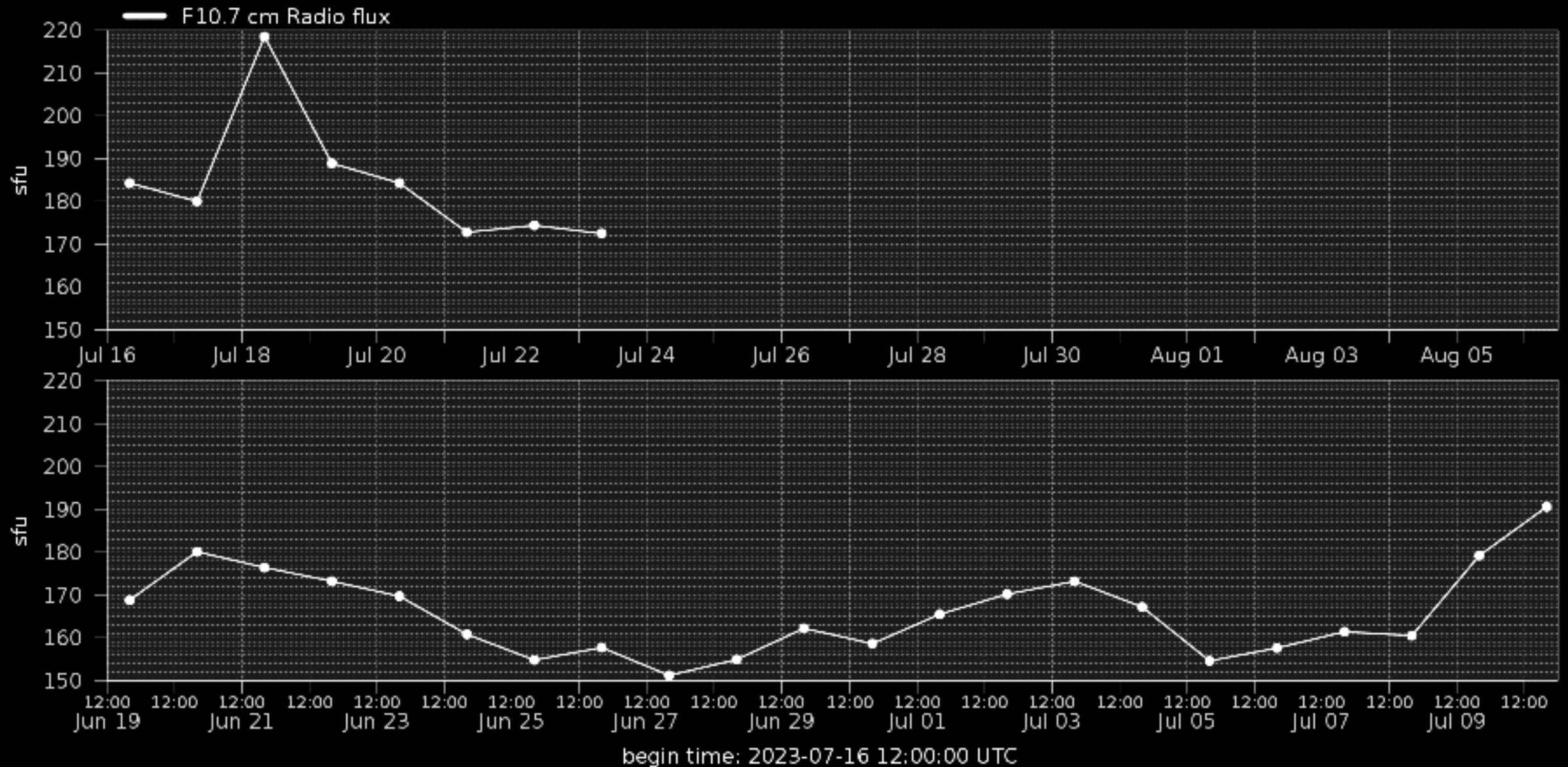
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Outlook: Solar activity

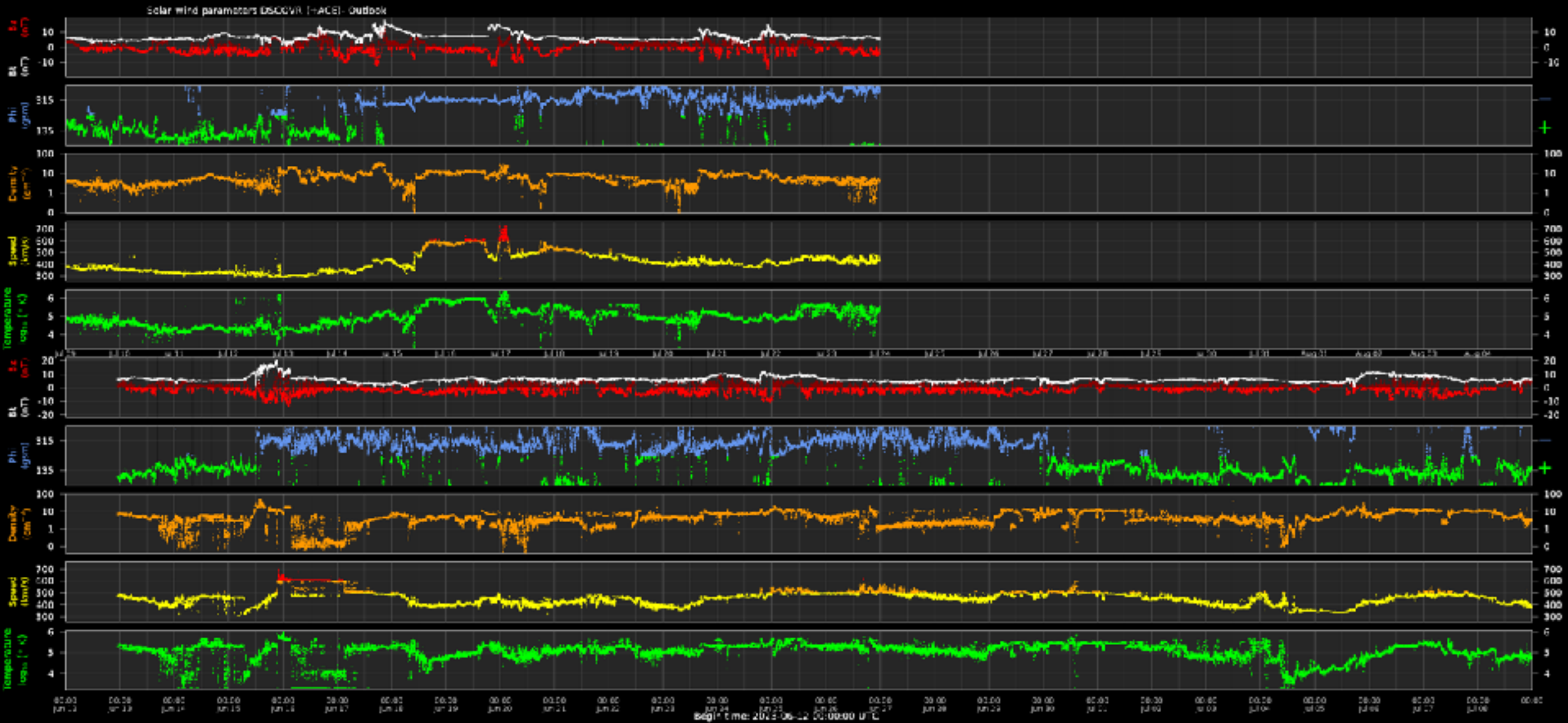


Observation date: 2023/07/23 20:35:00

Outlook: Solar F10.7cm radio flux



Outlook: Solar wind parameters



Outlook: Geomagnetic activity



Outlook: Electron Flux at GEO Outlook



Pegasus



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