

SIDC Space Weather Briefing

09 July 2023-16 July 2023

Yana Maneva

& the SIDC forecaster team



Royal Observatory
of Belgium

Solar Influences
Data analysis Centre
www.sidc.be

Summary Report

Solar activity from 2023-07-09 12:00 to 2023-07-16 23:59

Active regions	Over 18 ARs, NOAA 3355 - NOAA 3374
Flares	# C-class flare: 57 # M-class flare: 20 # X-class flare: 0
Coronal Holes	weak CH-
CMEs	multiple partial halo and halo CMEs

Proton flux	Minor proton storm
Electron flux	Mostly nominal

Solar wind and geomagnetic conditions

ICMEs	Several ICME arrivals
Solar wind conditions	B : 0.89 - 18 nT //Bz: -13.66 nT to 14.29 nT //Speed: 282.3 - 670.6km/s
K-indices	max K-index (KBel): 5 max Kp-index (NOAA): 4

All Quiet Alert: OFF (Not Quiet)

Solar Activity

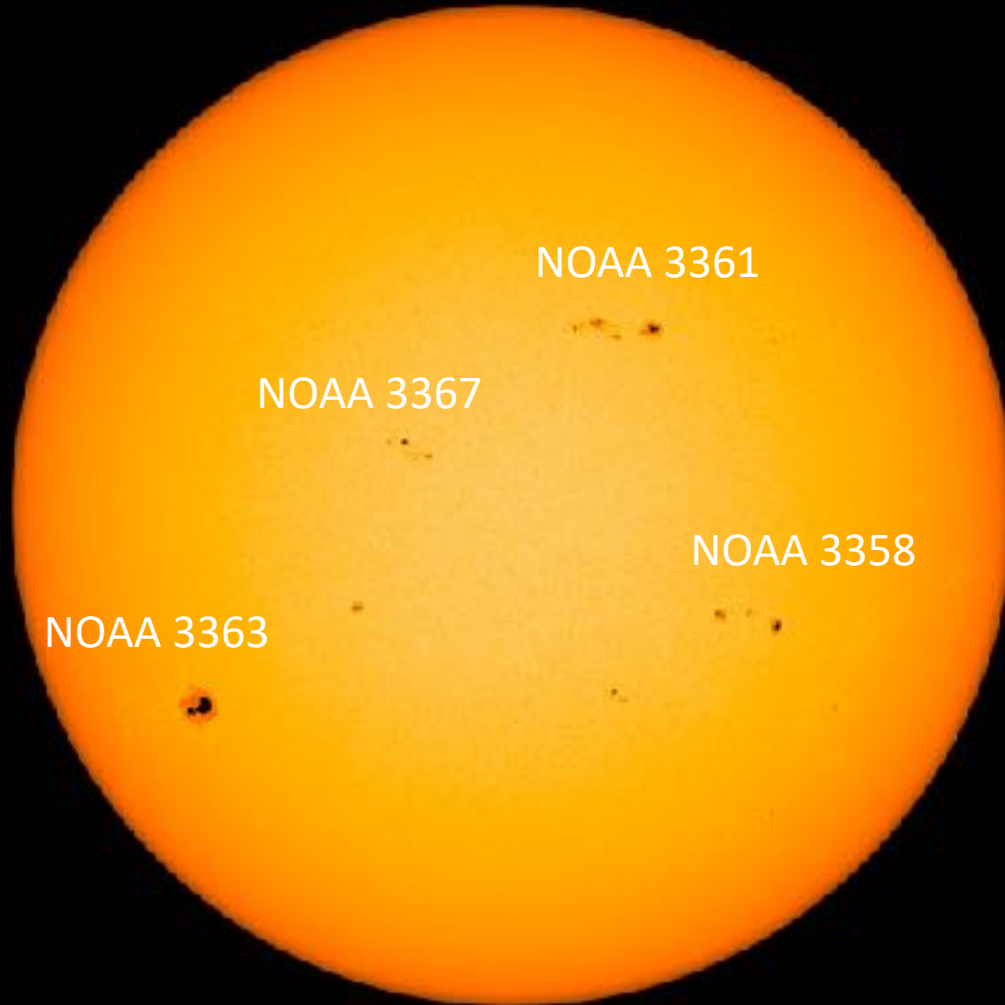


Royal Observatory
of Belgium

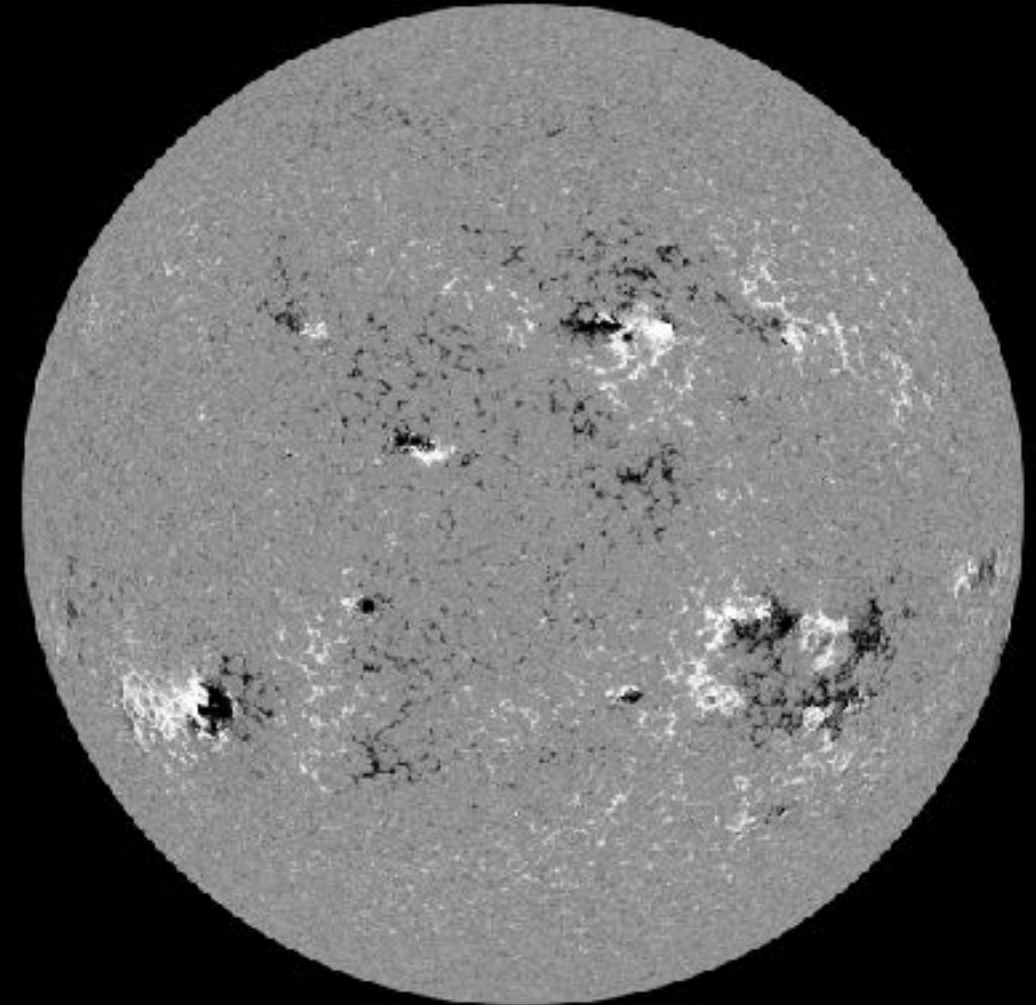
Solar Influences
Data analysis Centre
www.sidc.be

Solar active regions

SDO/HMI White Light 2023-07-09

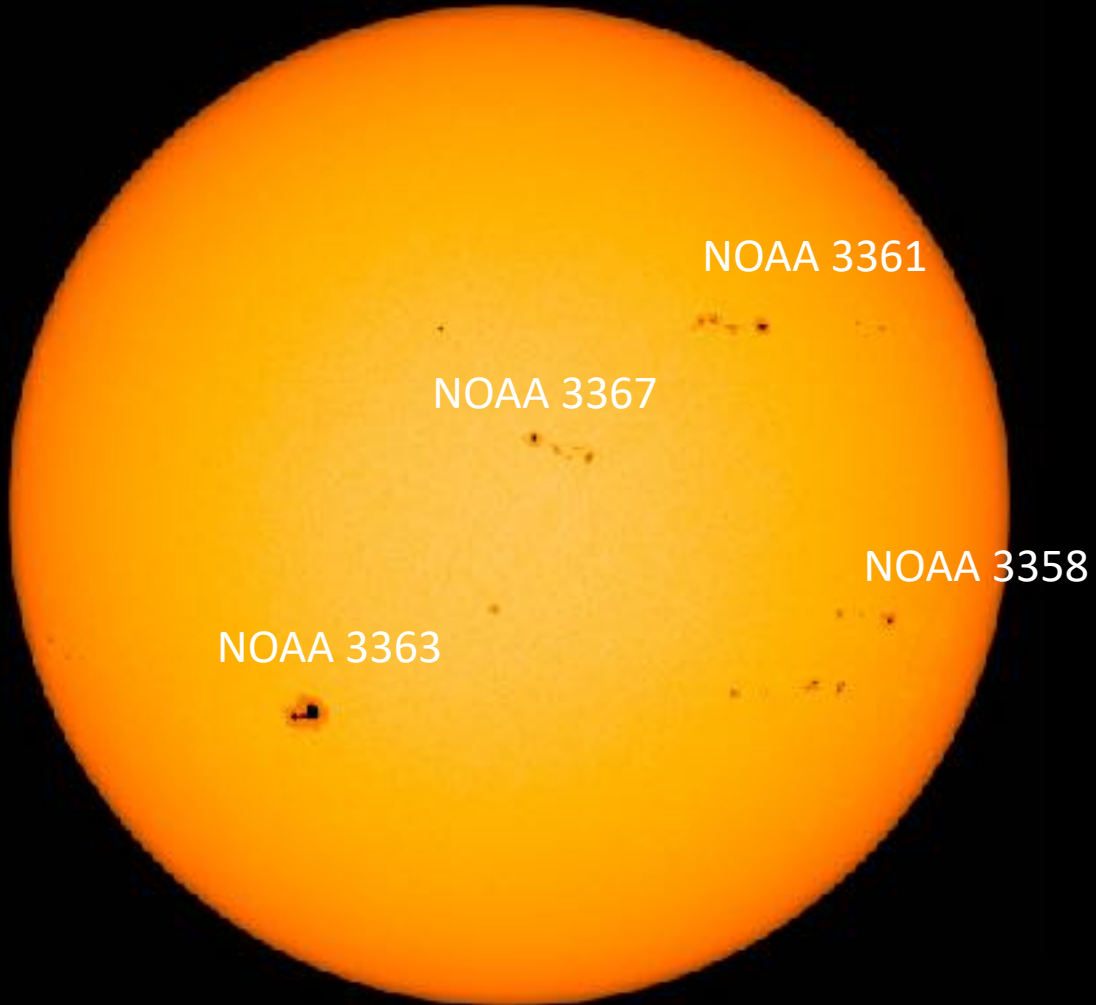


SDO/HMI Magnetogram 2023-07-09

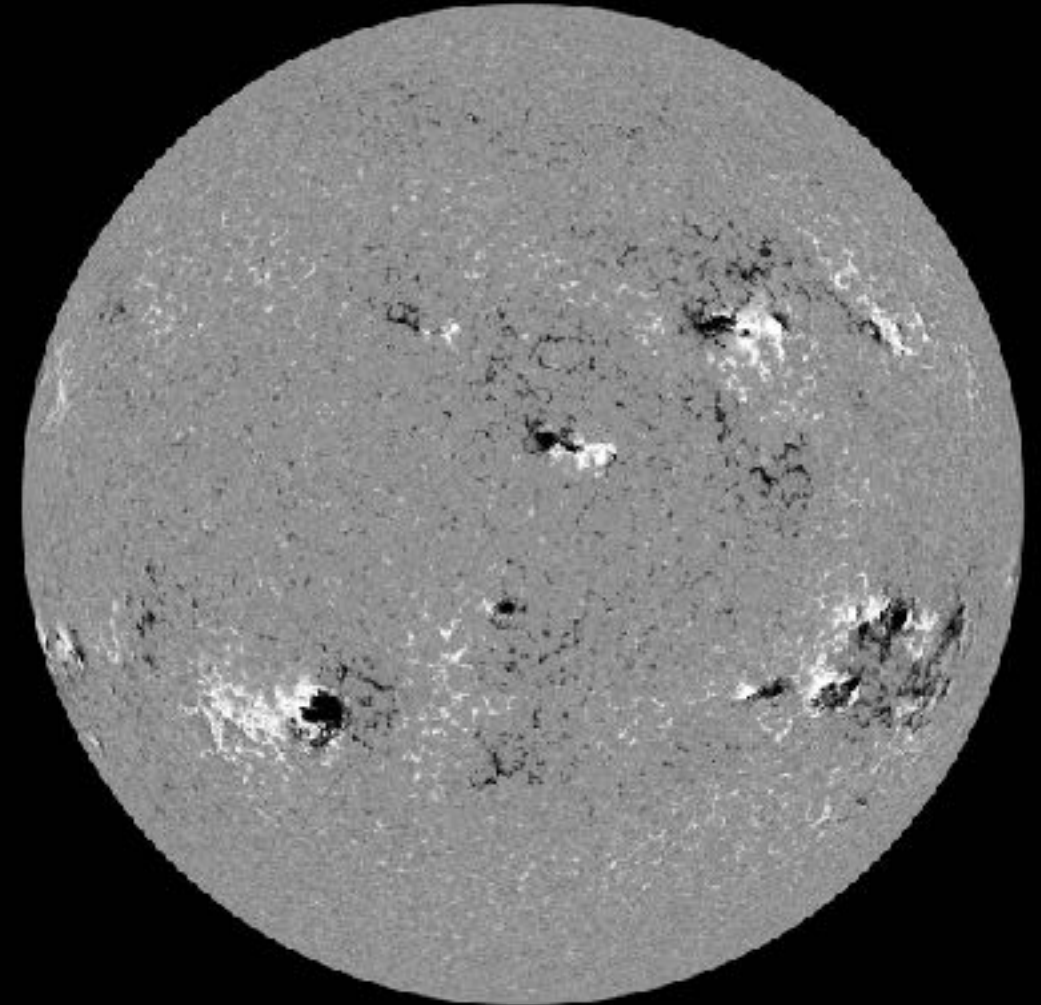


Solar active regions

SDO/HMI White Light 2023-07-10

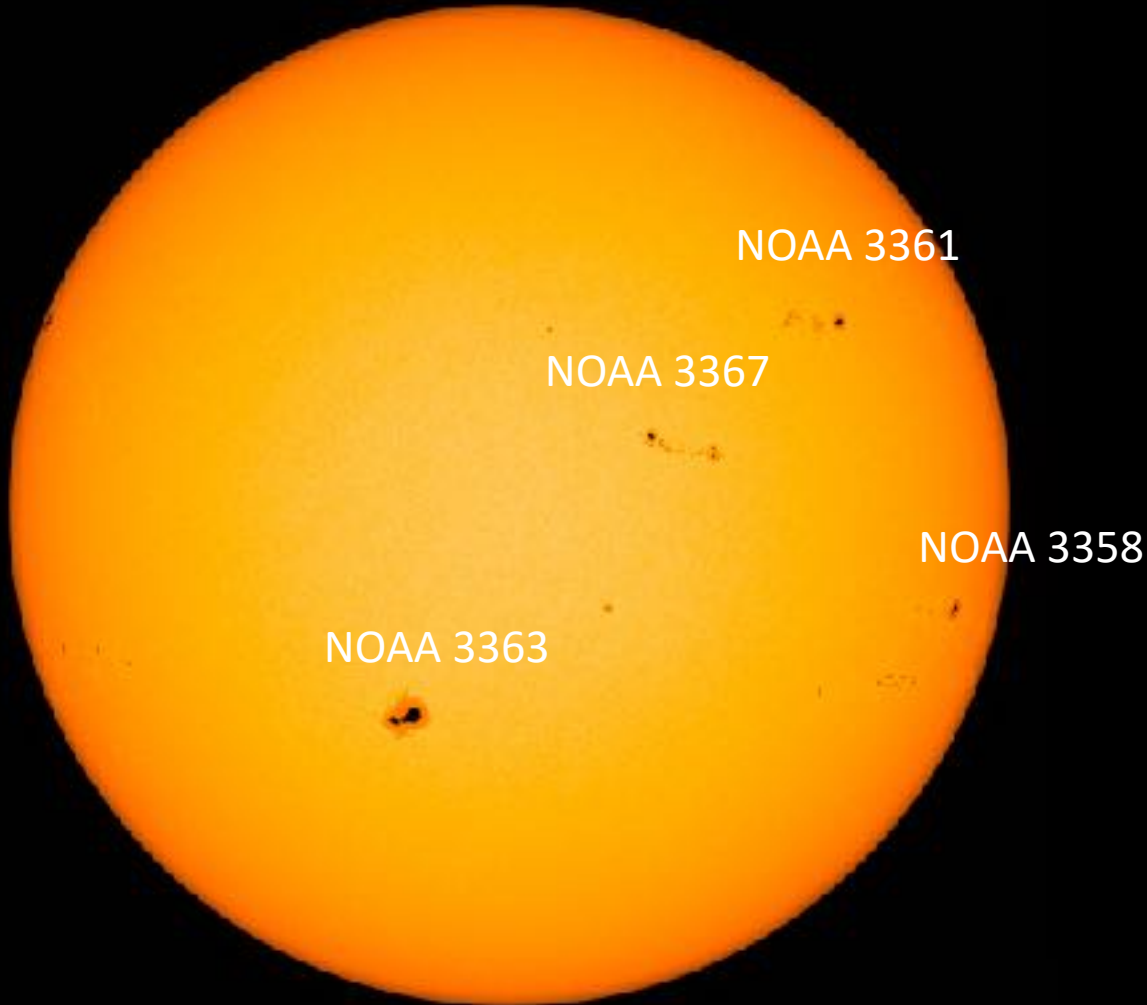


SDO/HMI Magnetogram 2023-07-10

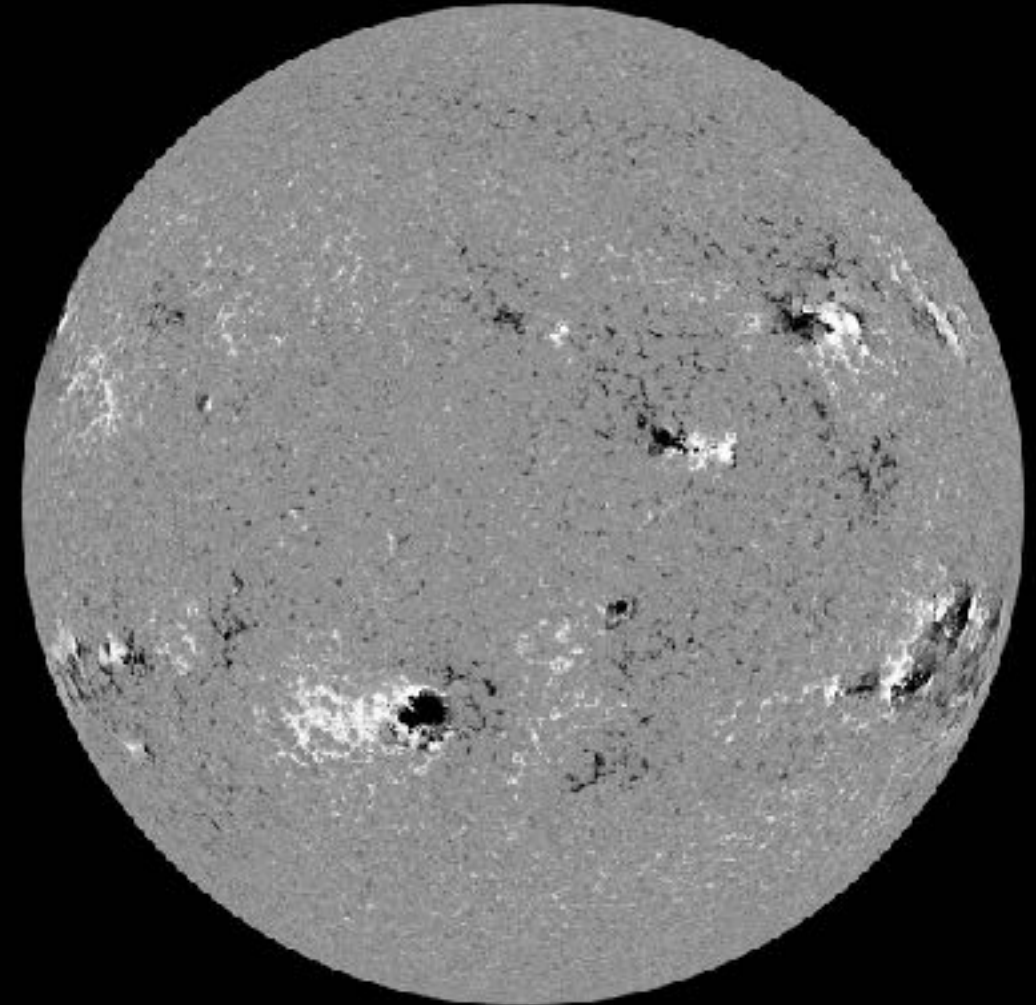


Solar active regions

SDO/HMI White Light 2023-07-11

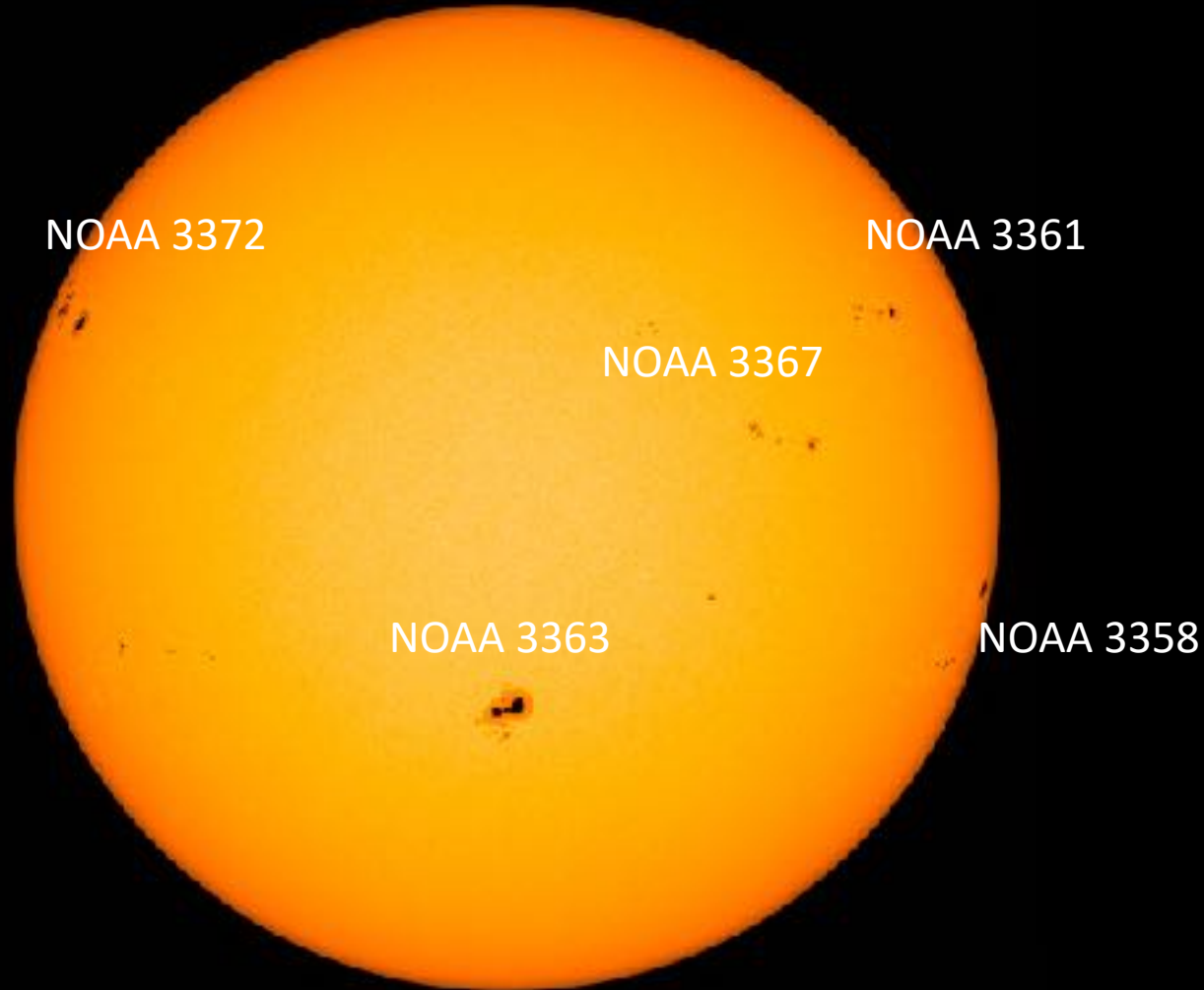


SDO/HMI Magnetogram 2023-07-11

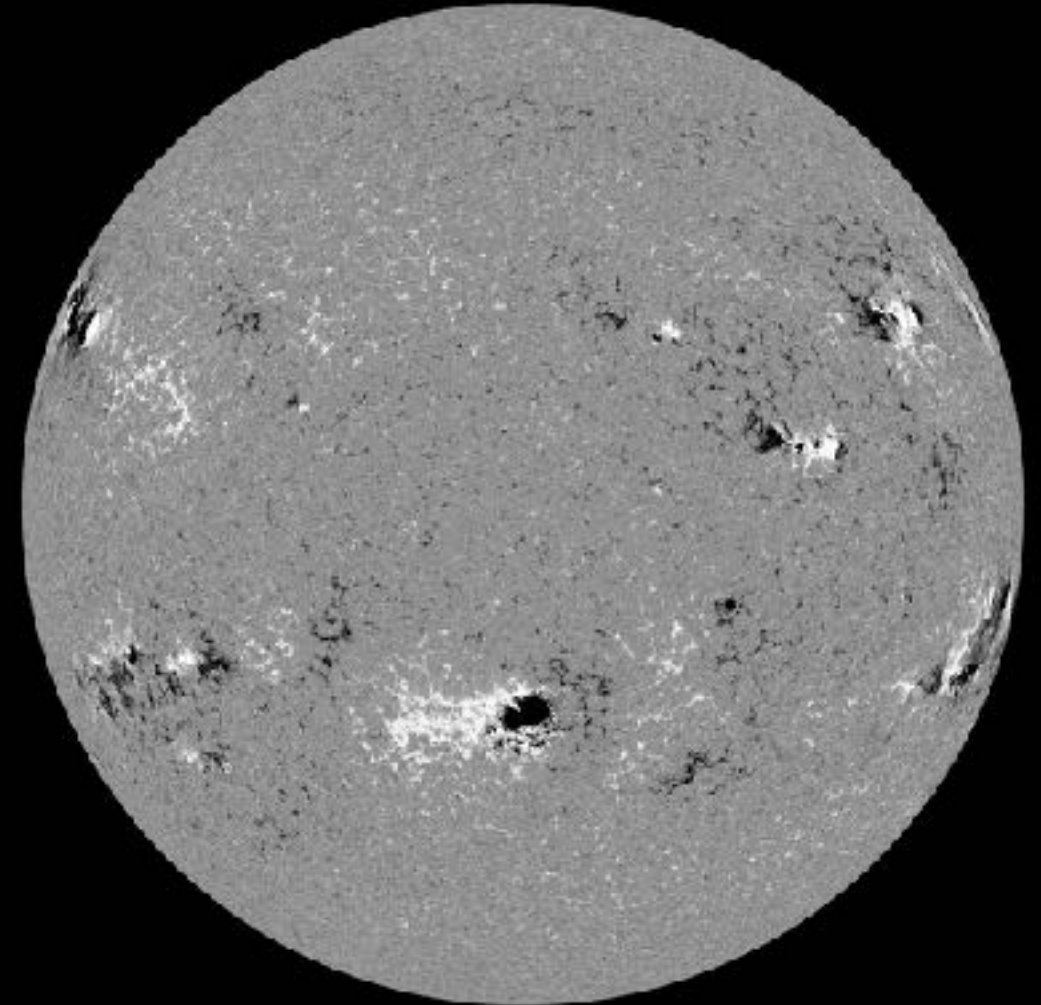


Solar active regions

SDO/HMI White Light 2023-07-12

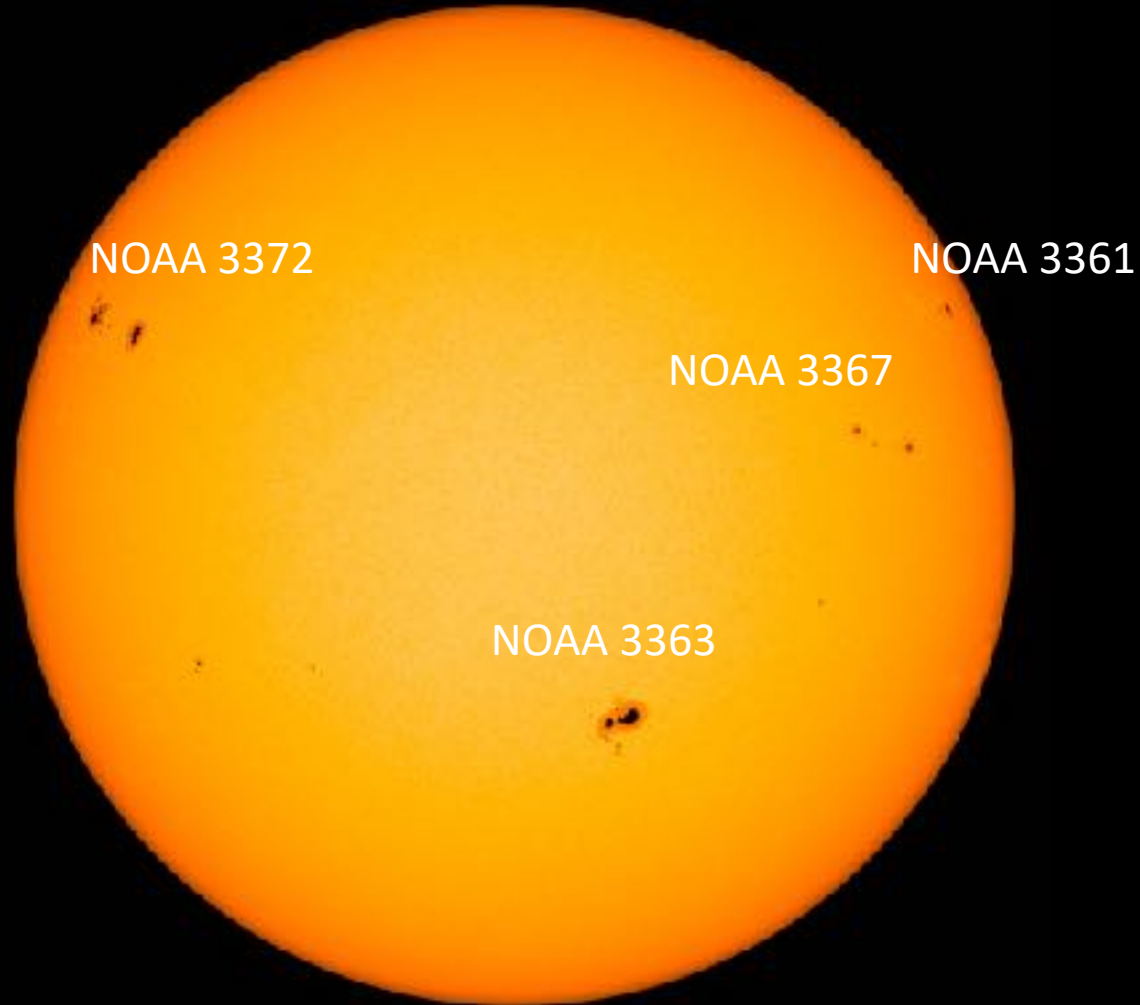


SDO/HMI Magnetogram 2023-07-12

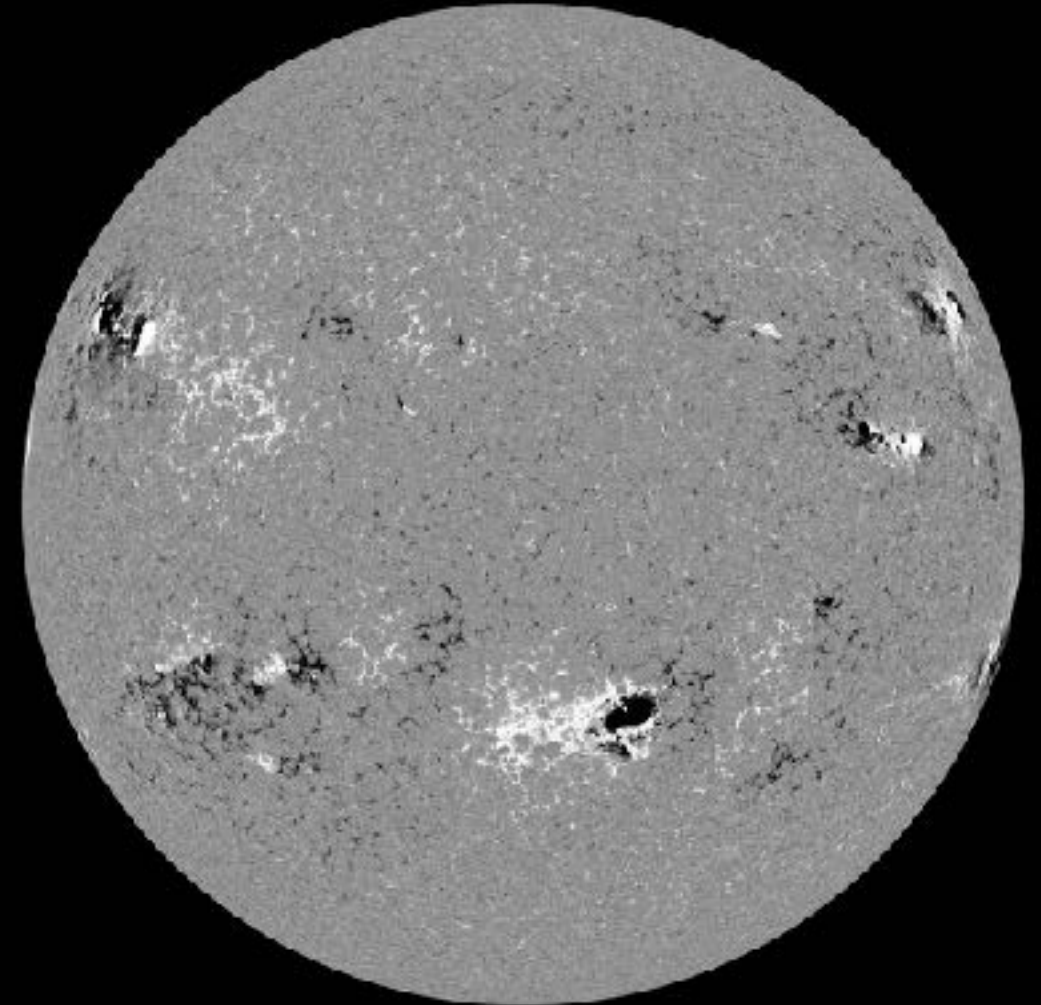


Solar active regions

SDO/HMI White Light 2023-07-13



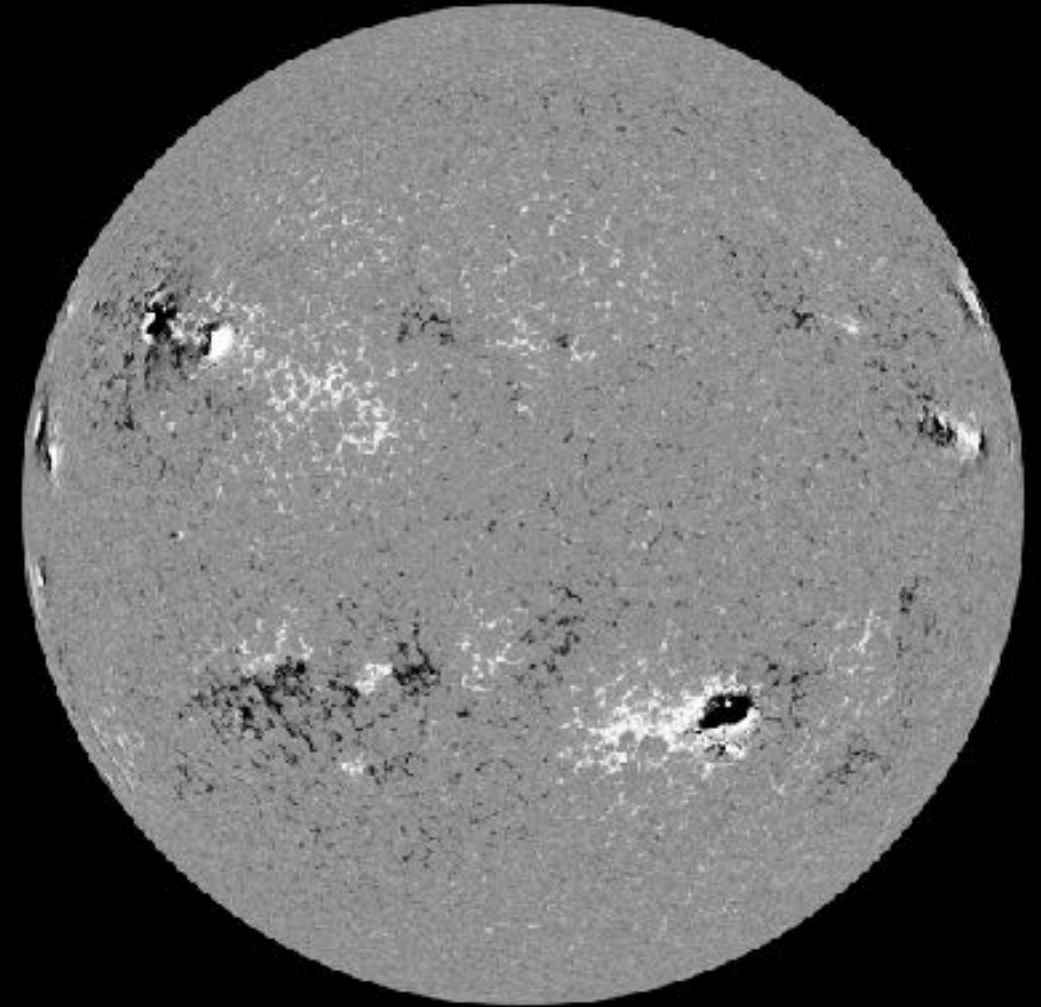
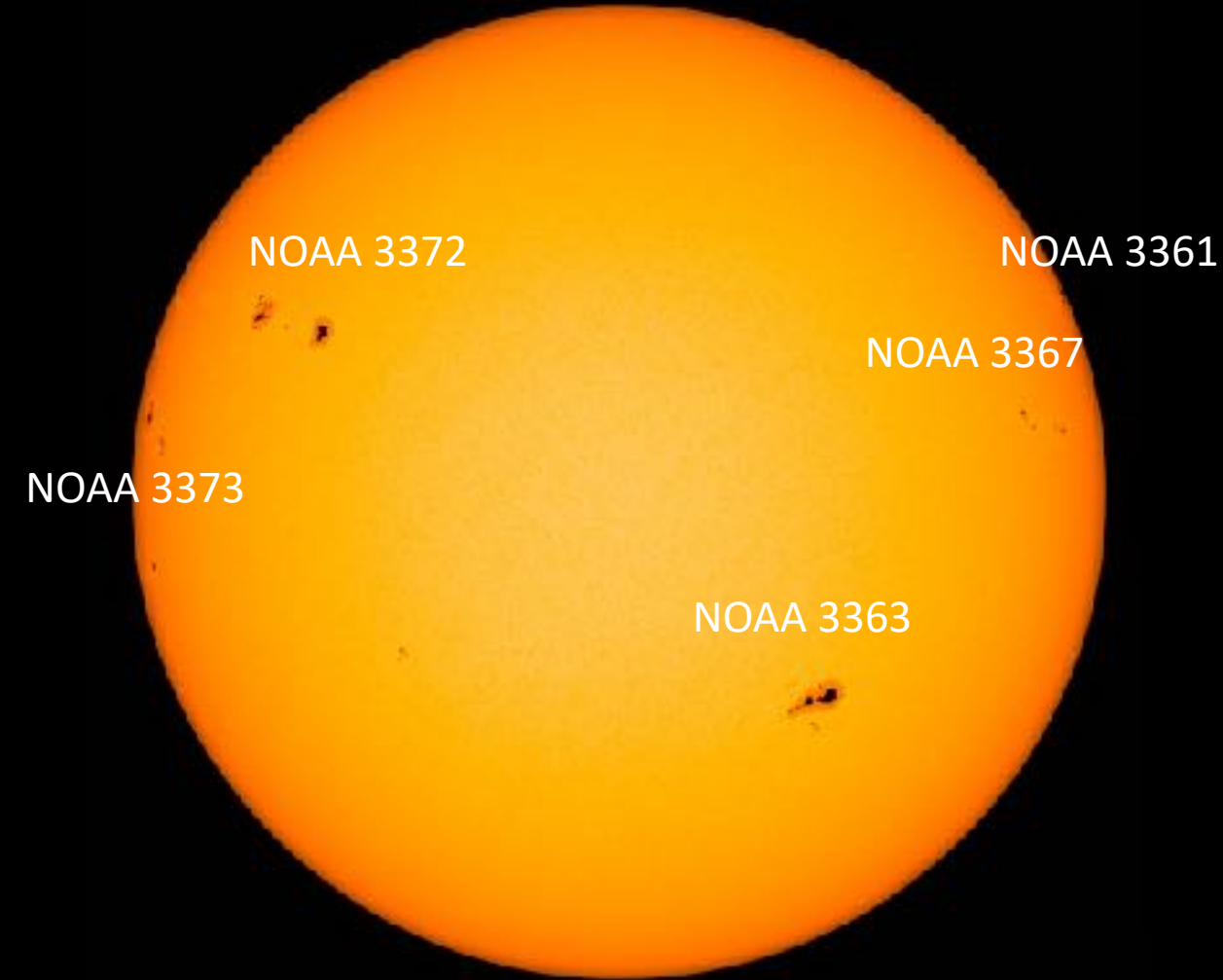
SDO/HMI Magnetogram 2023-07-13



Solar active regions

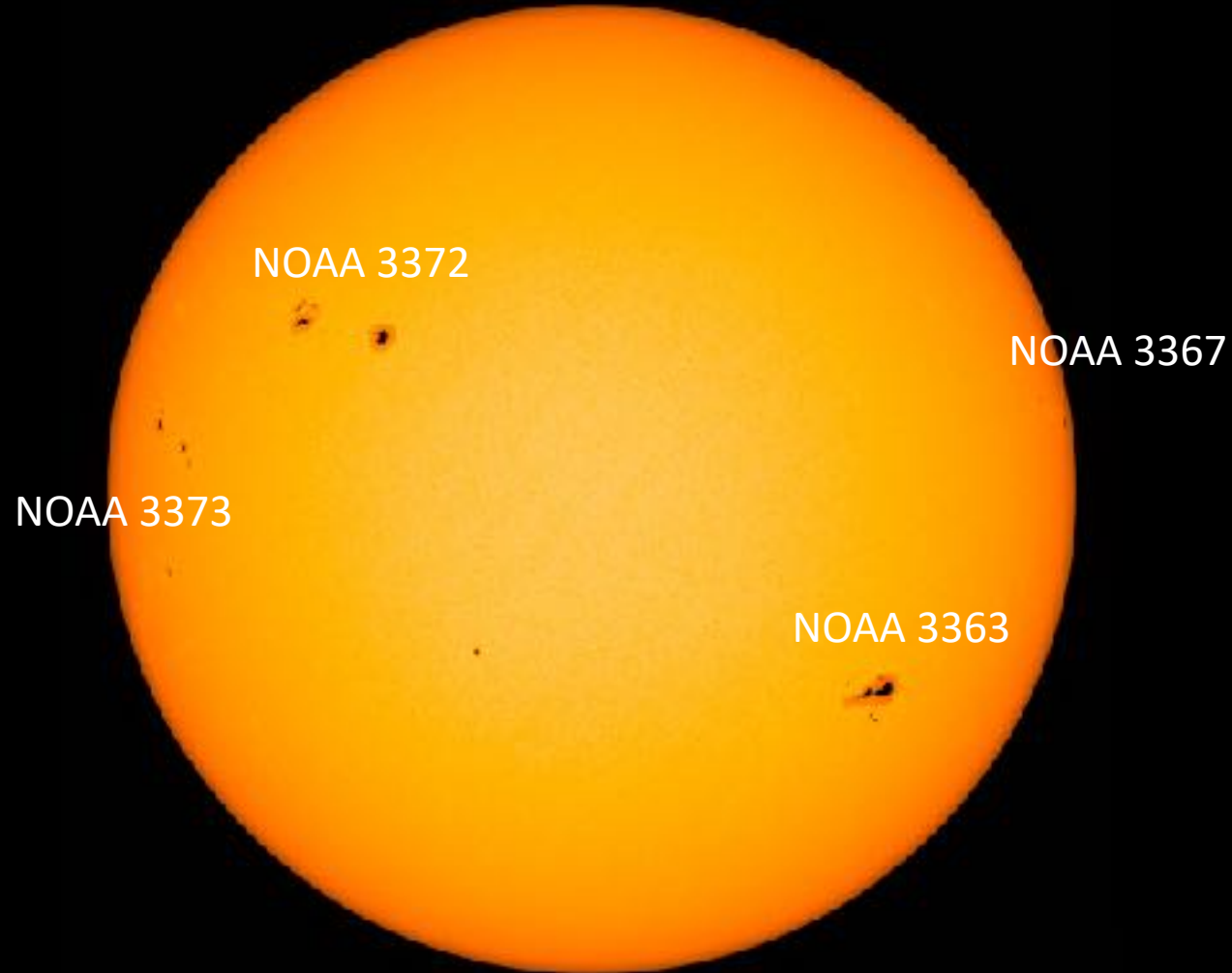
SDO/HMI White Light 2023-07-14

SDO/HMI Magnetogram 2023-07-14

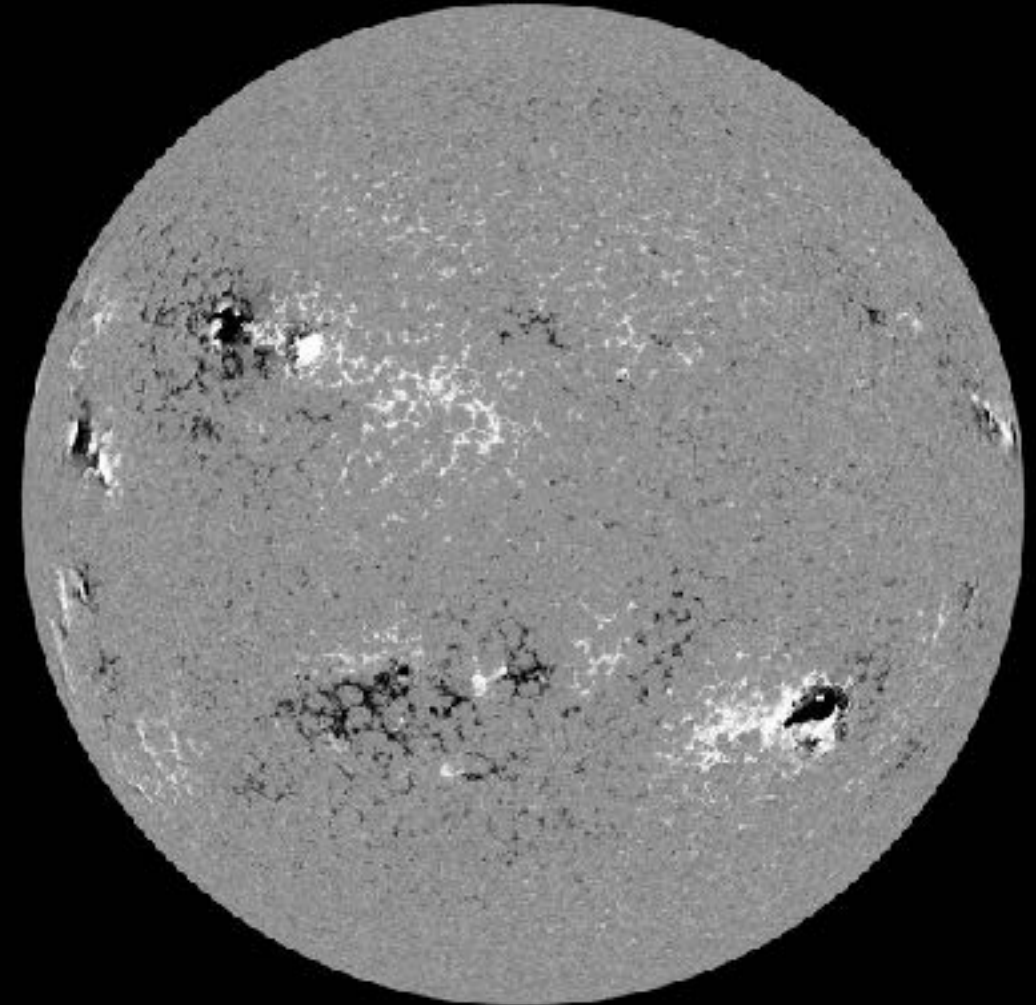


Solar active regions

SDO/HMI White Light 2023-07-15

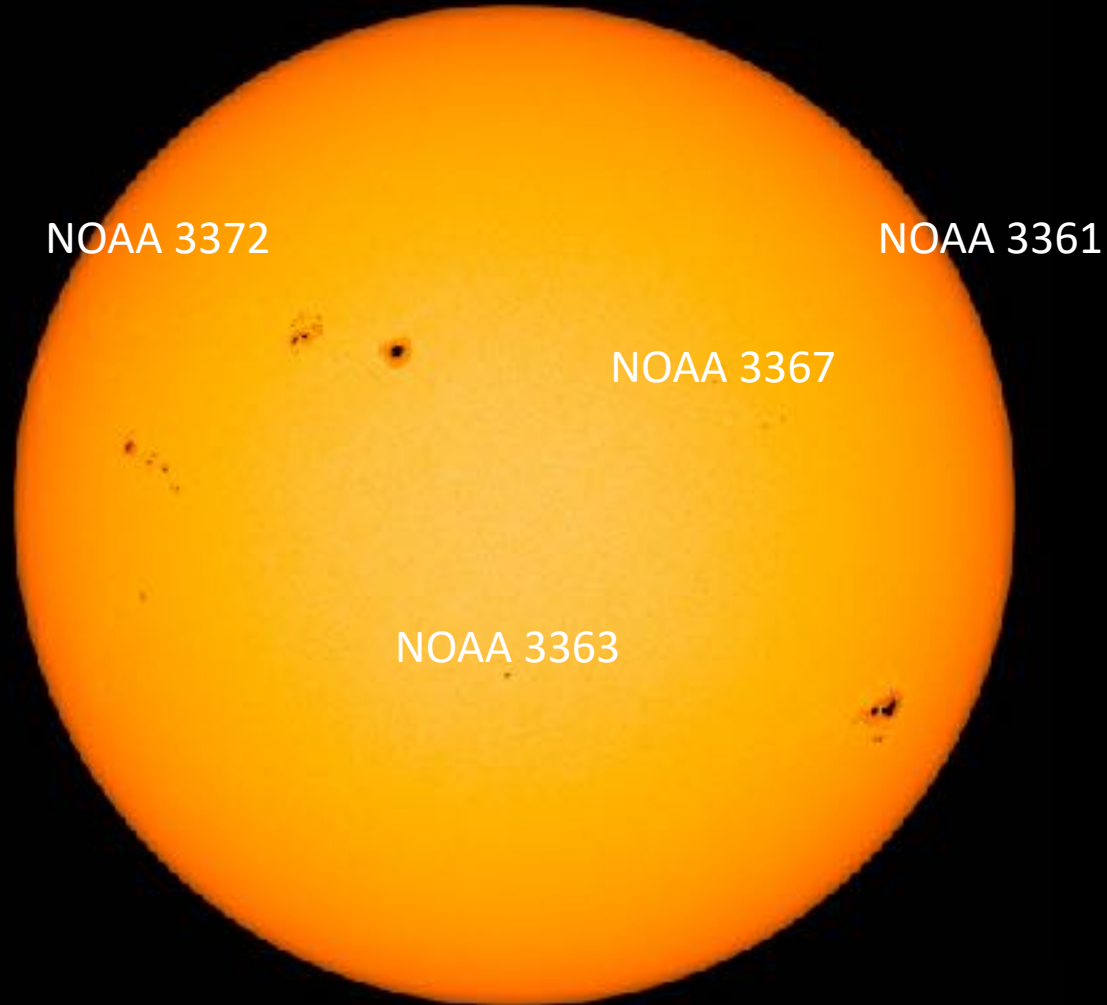


SDO/HMI Magnetogram 2023-07-15

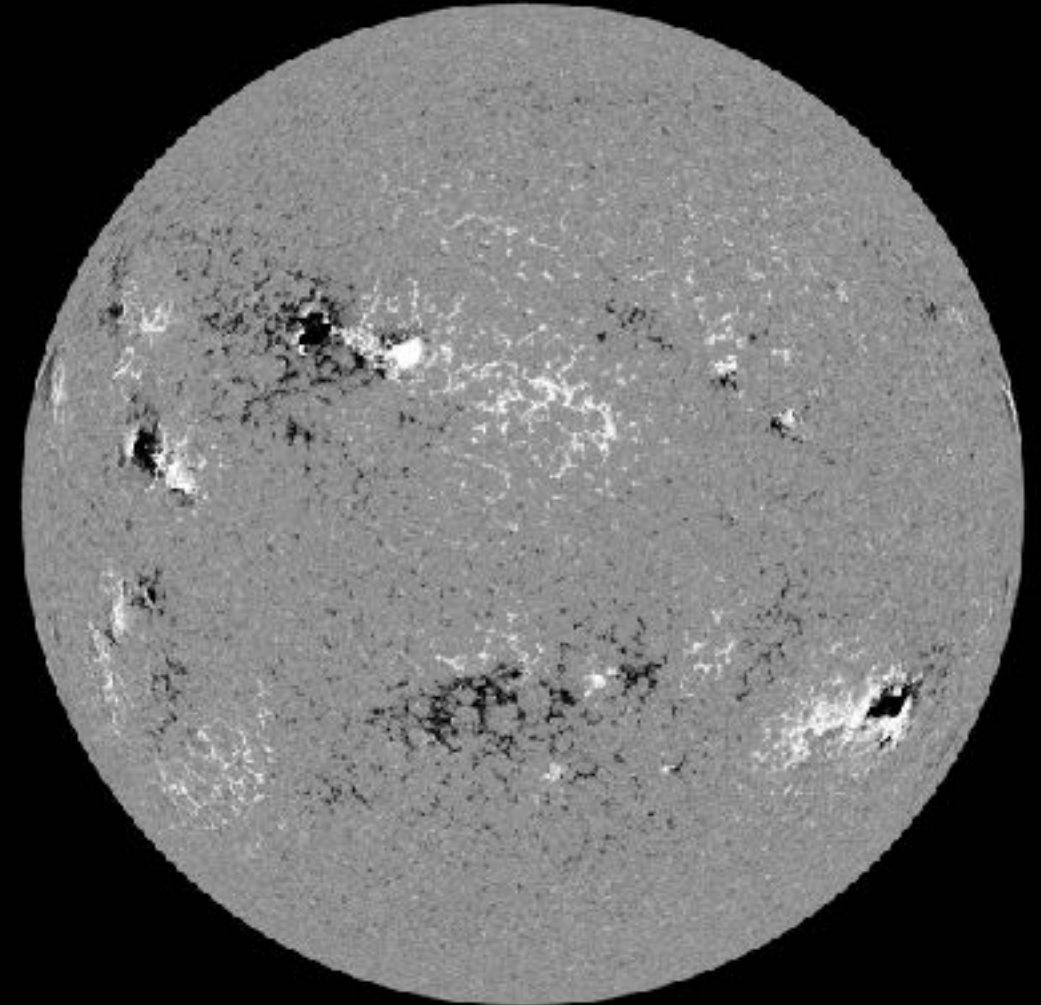


Solar active regions

SDO/HMI White Light 2023-07-16



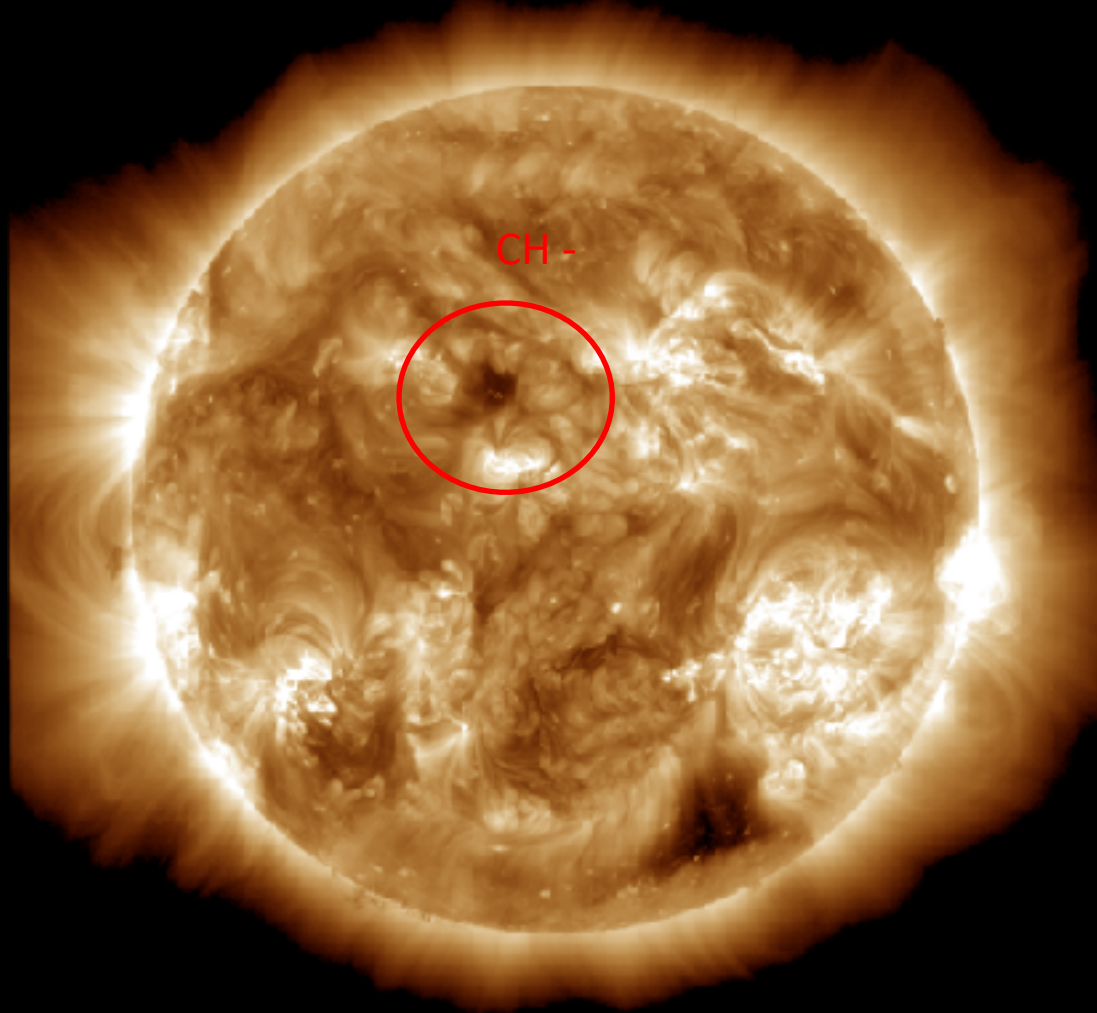
SDO/HMI Magnetogram 2023-07-16



Coronal holes

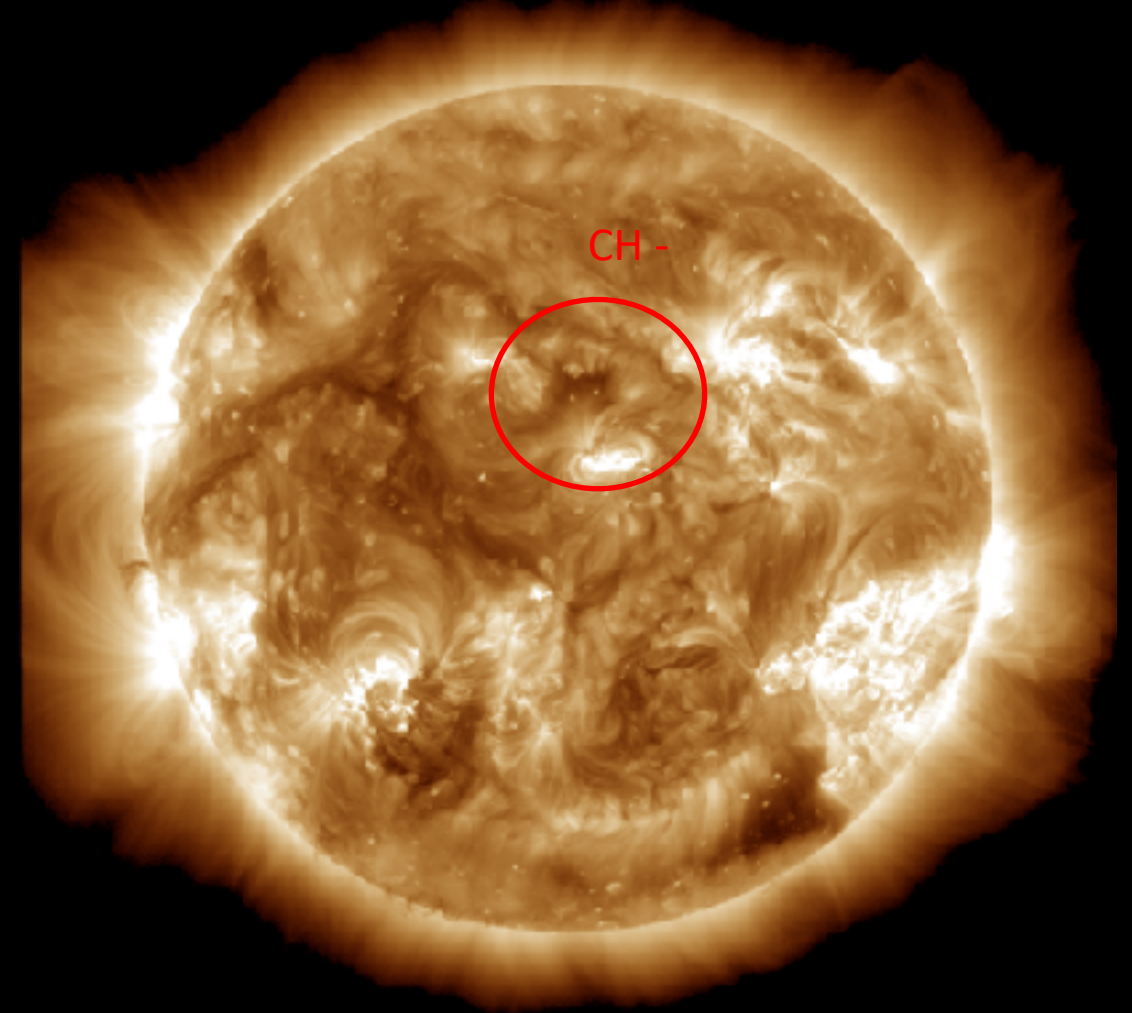
SDO/AIA 19.3 nm 2023-07-09

SDO/AIA AIA 193Å 2023-07-09T16:00:05.846



SDO/AIA 19.3 nm 2023-07-10

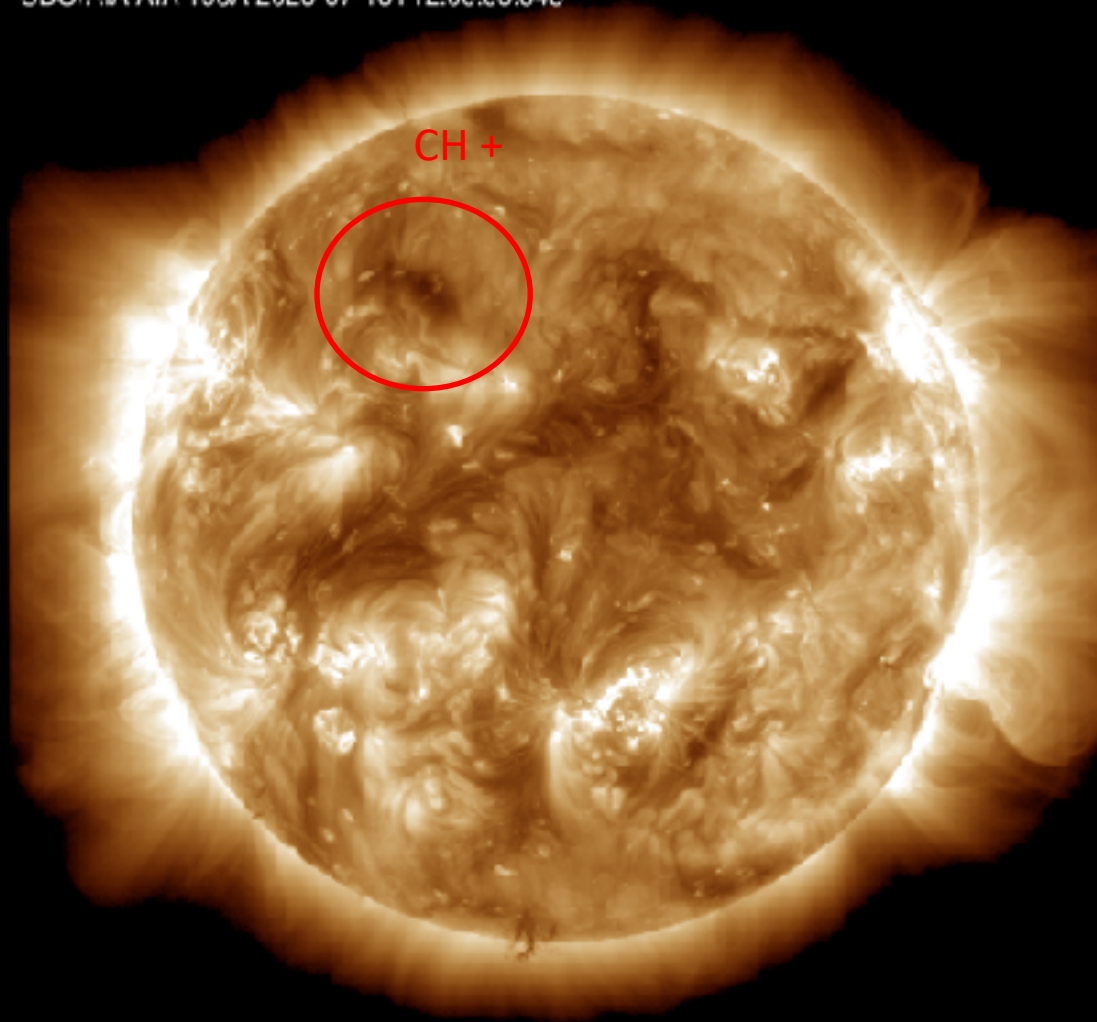
SDO/AIA AIA 193Å 2023-07-10T12:00:05.848



Coronal holes

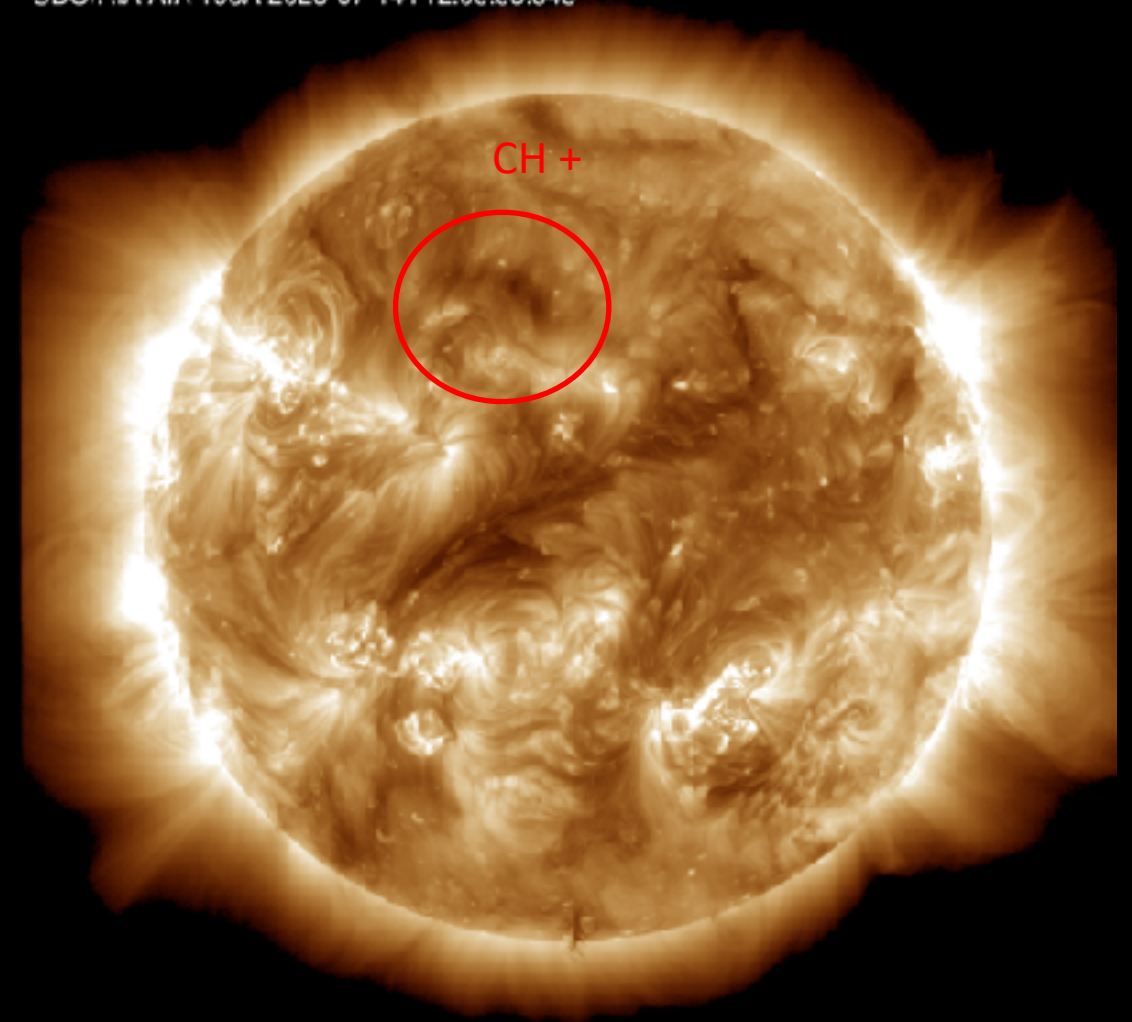
SDO/AIA 19.3 nm 2023-07-13

SDO/AIA AIA 193Å 2023-07-13T12:00:05.843



SDO/AIA 19.3 nm 2023-07-14

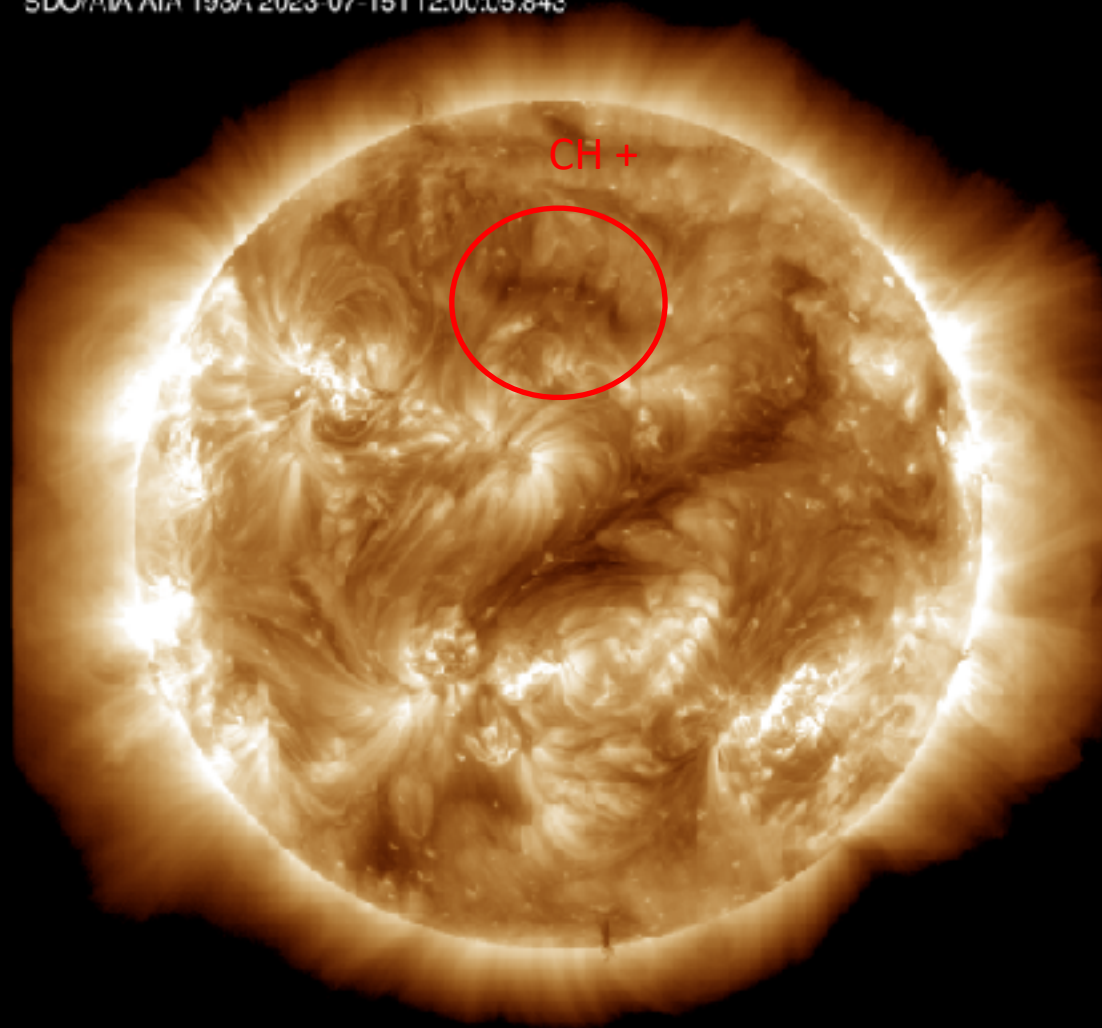
SDO/AIA AIA 193Å 2023-07-14T12:00:05.843



Coronal holes

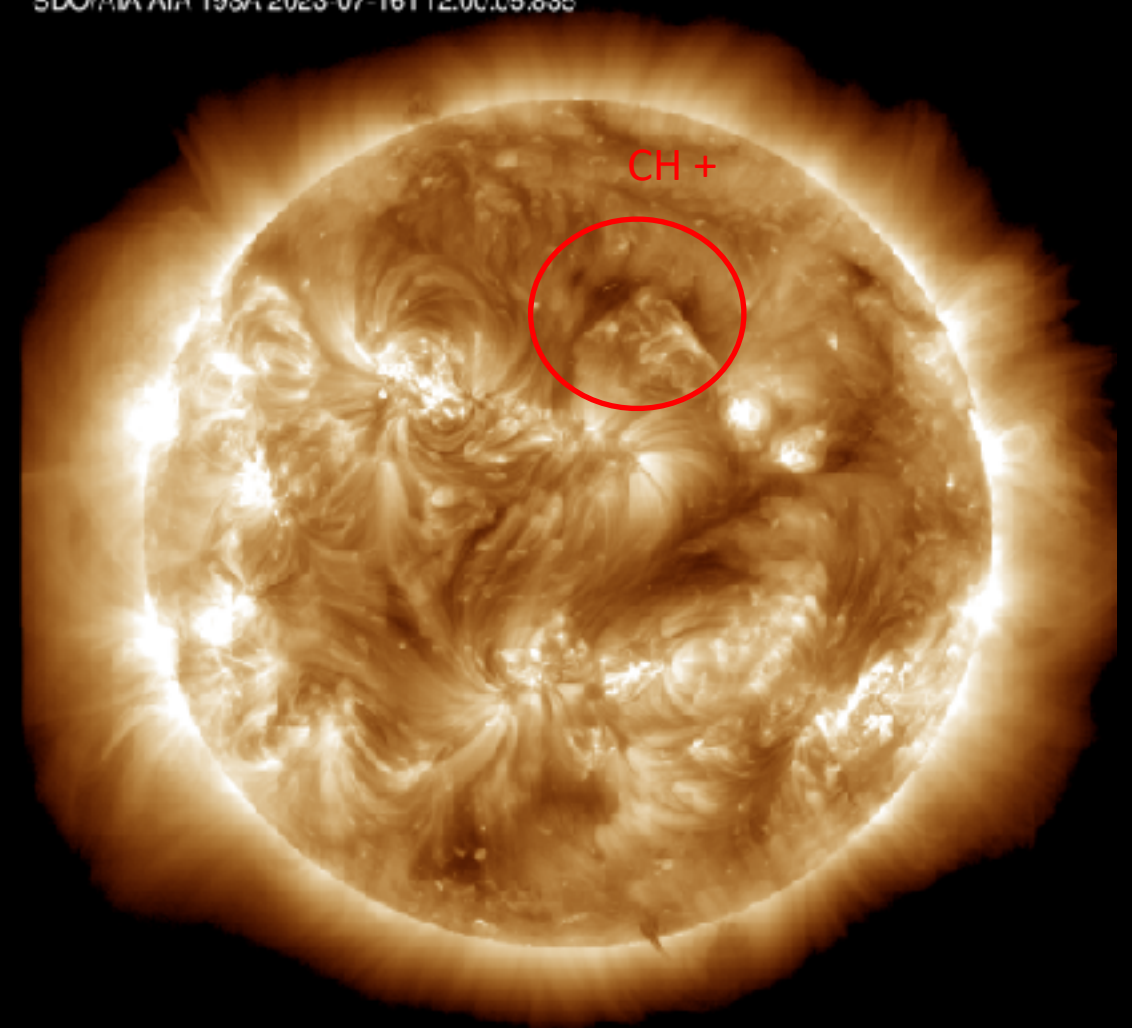
SDO/AIA 19.3 nm 2023-07-15

SDO/AIA AIA 193Å 2023-07-15T12:00:05.843



SDO/AIA 19.3 nm 2023-07-16

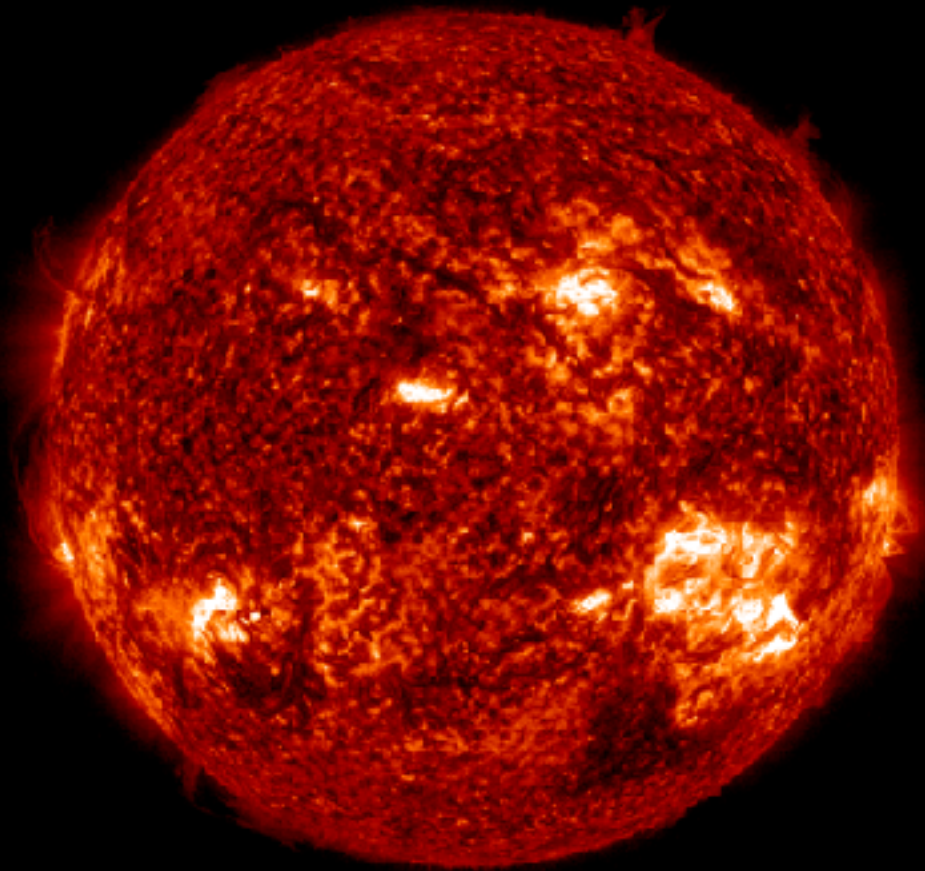
SDO/AIA AIA 193Å 2023-07-16T12:00:05.835



Filaments

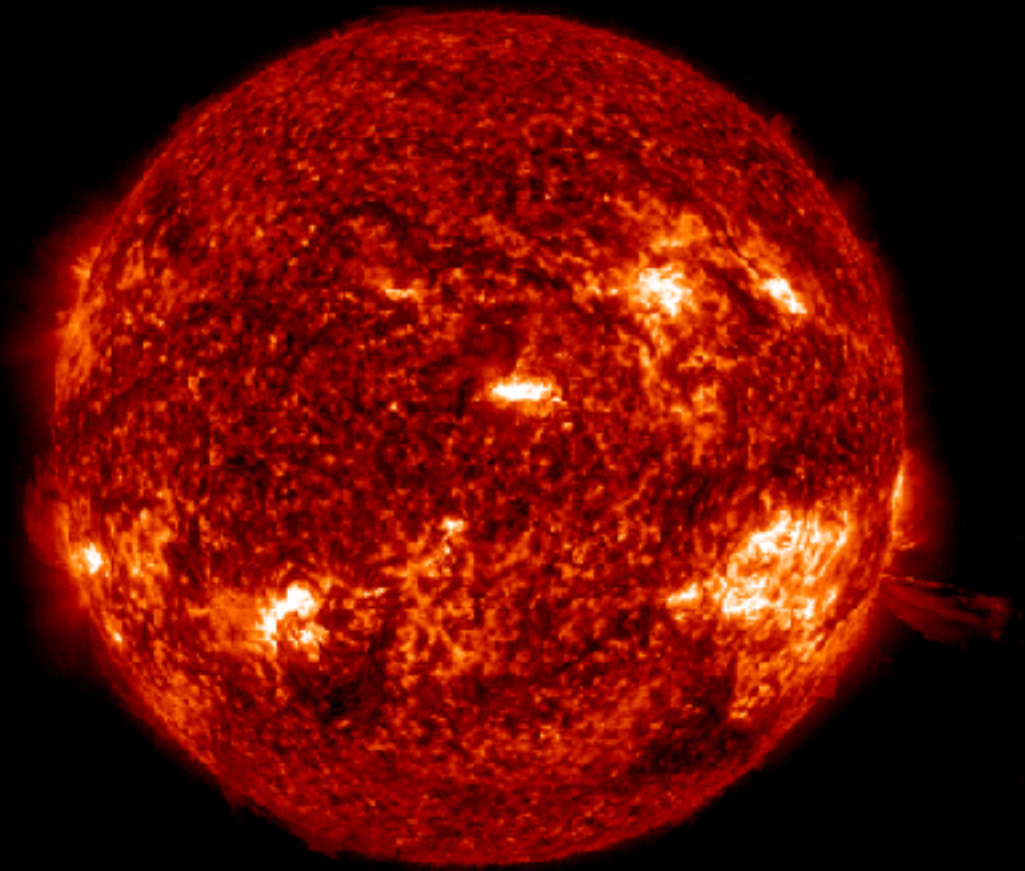
SDO/AIA 30.4 nm 2023-07-09

SDO/AIA AIA 304Å 2023-07-09T14:00:06.602

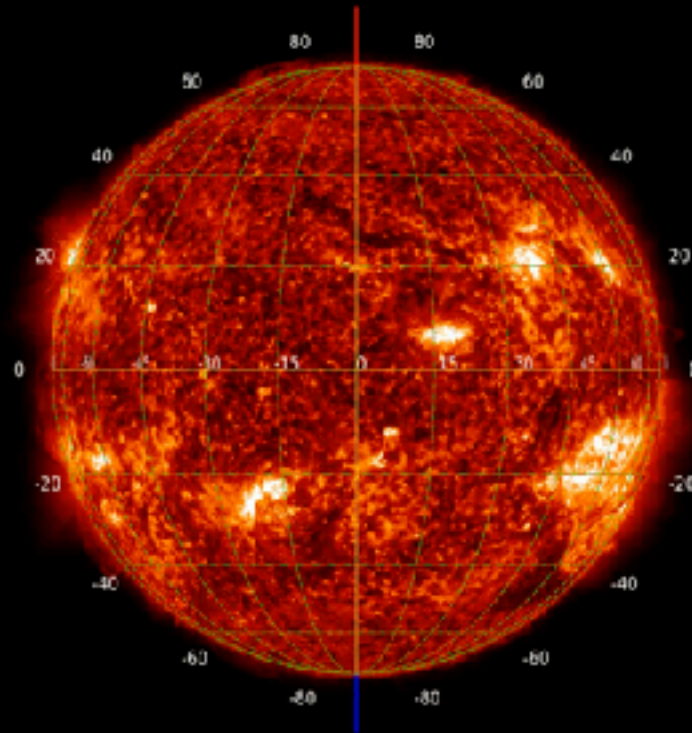


SDO/AIA 30.4 nm 2023-07-10

SDO/AIA AIA 304Å 2023-07-10T12:00:06.584



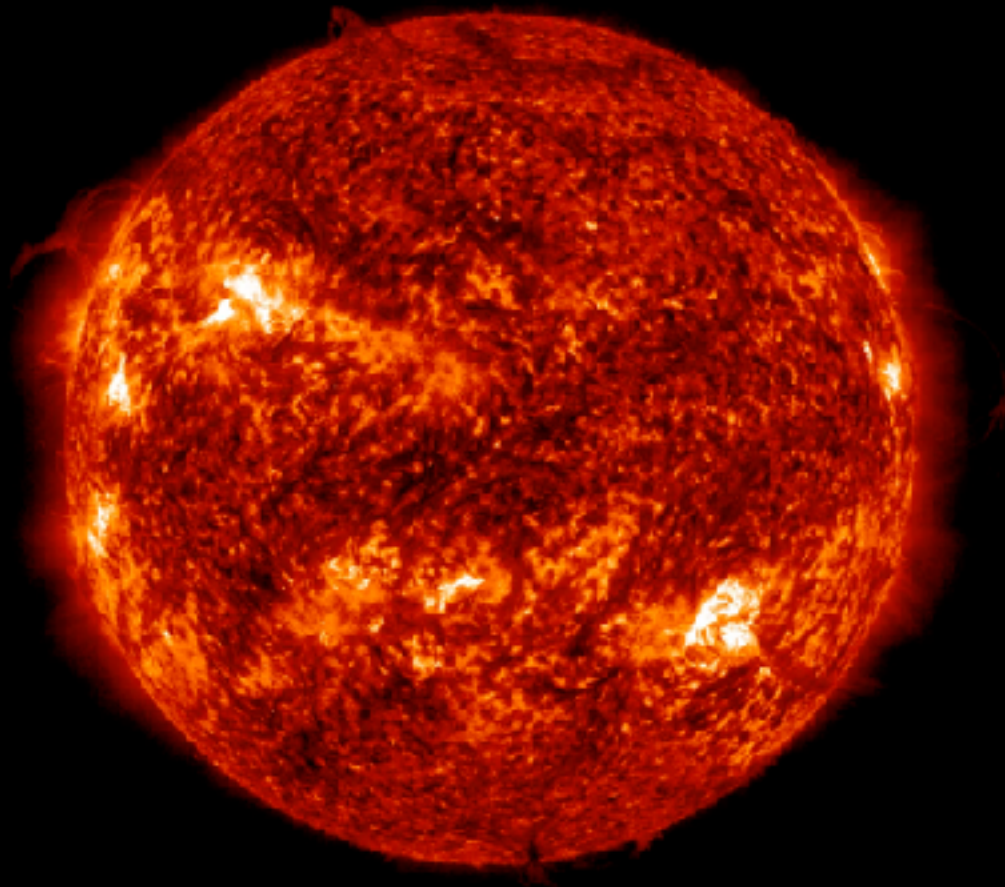
Filaments: July 11th, July 15th



Filaments

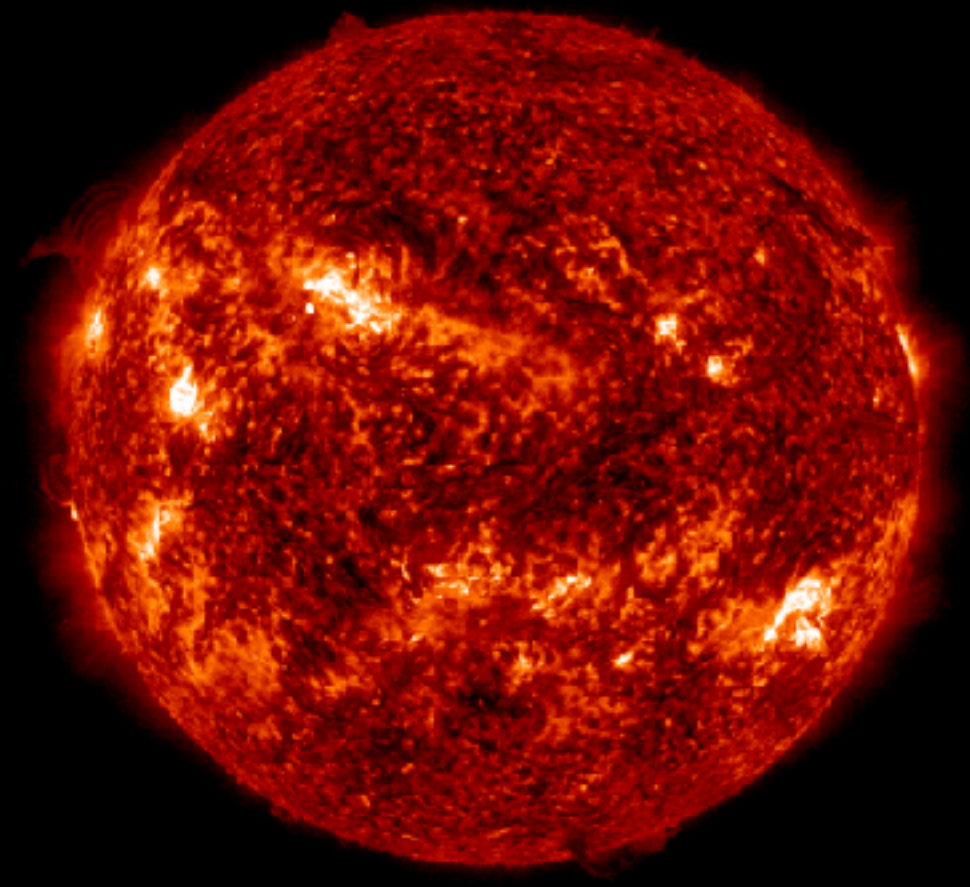
SDO/AIA 30.4 nm 2023-07-15

SDO/AIA AIA 304Å 2023-07-15T10:00:06.580



SDO/AIA 30.4 nm 2023-07-16

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



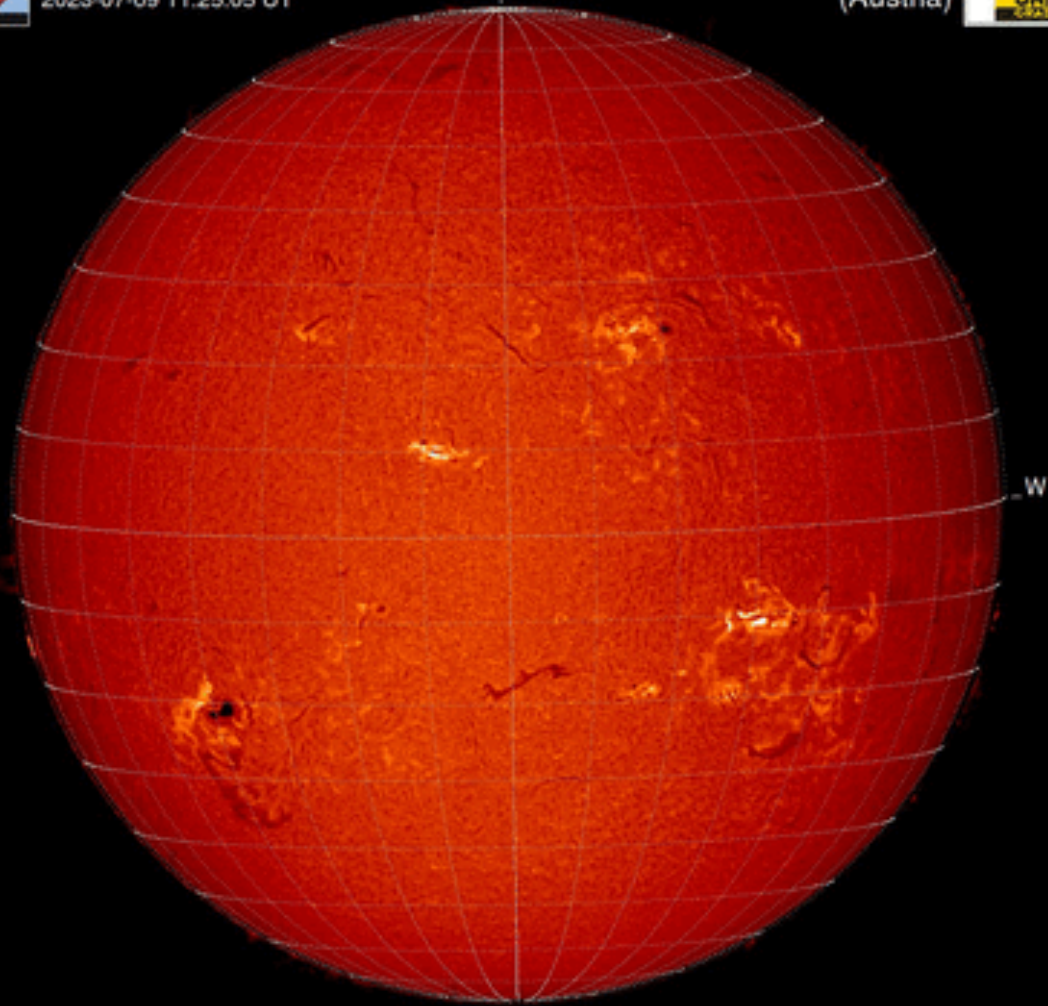
Filaments & Filament eruptions

H-alpha 2023-07-09



Kanzelhöhe Observatory
2023-07-09 11:25:05 UT

University of Graz
(Austria)

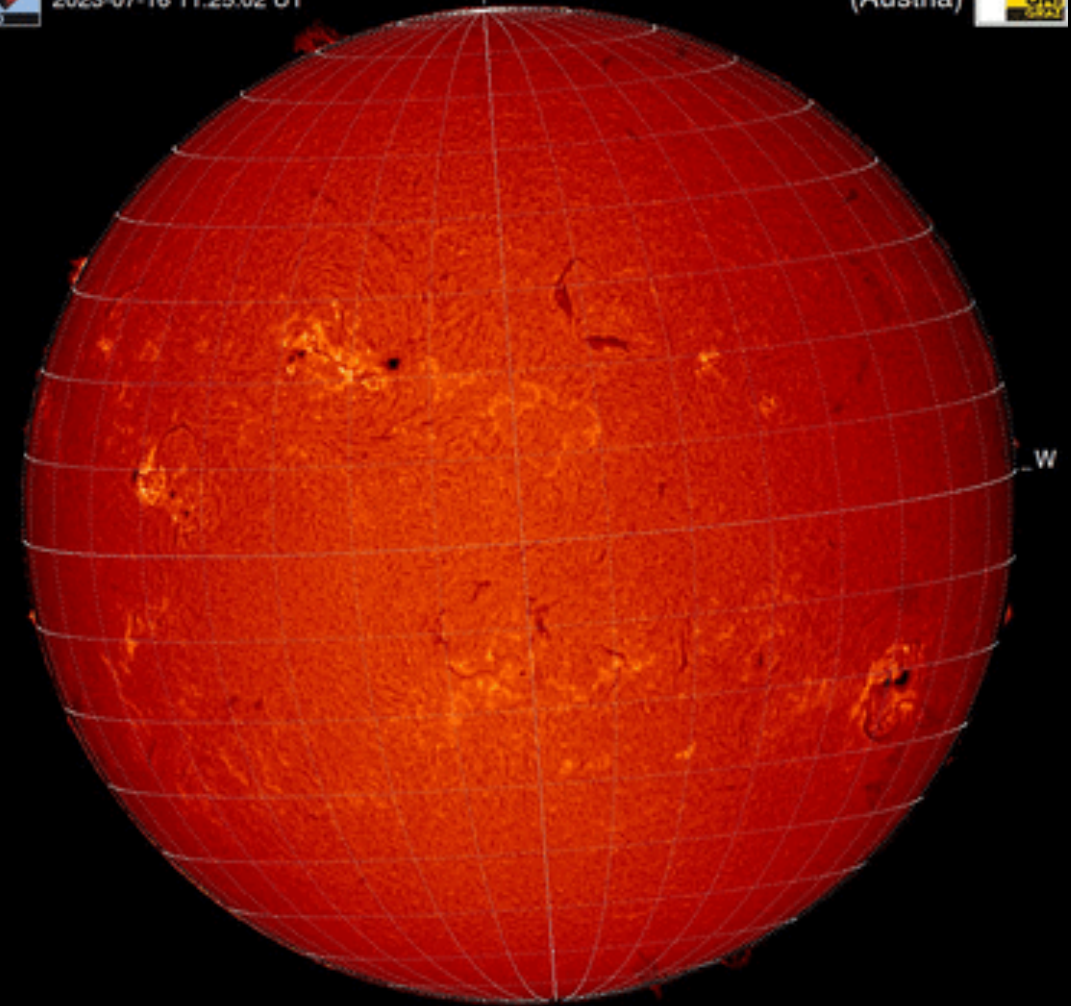


H-alpha 2023-07-16

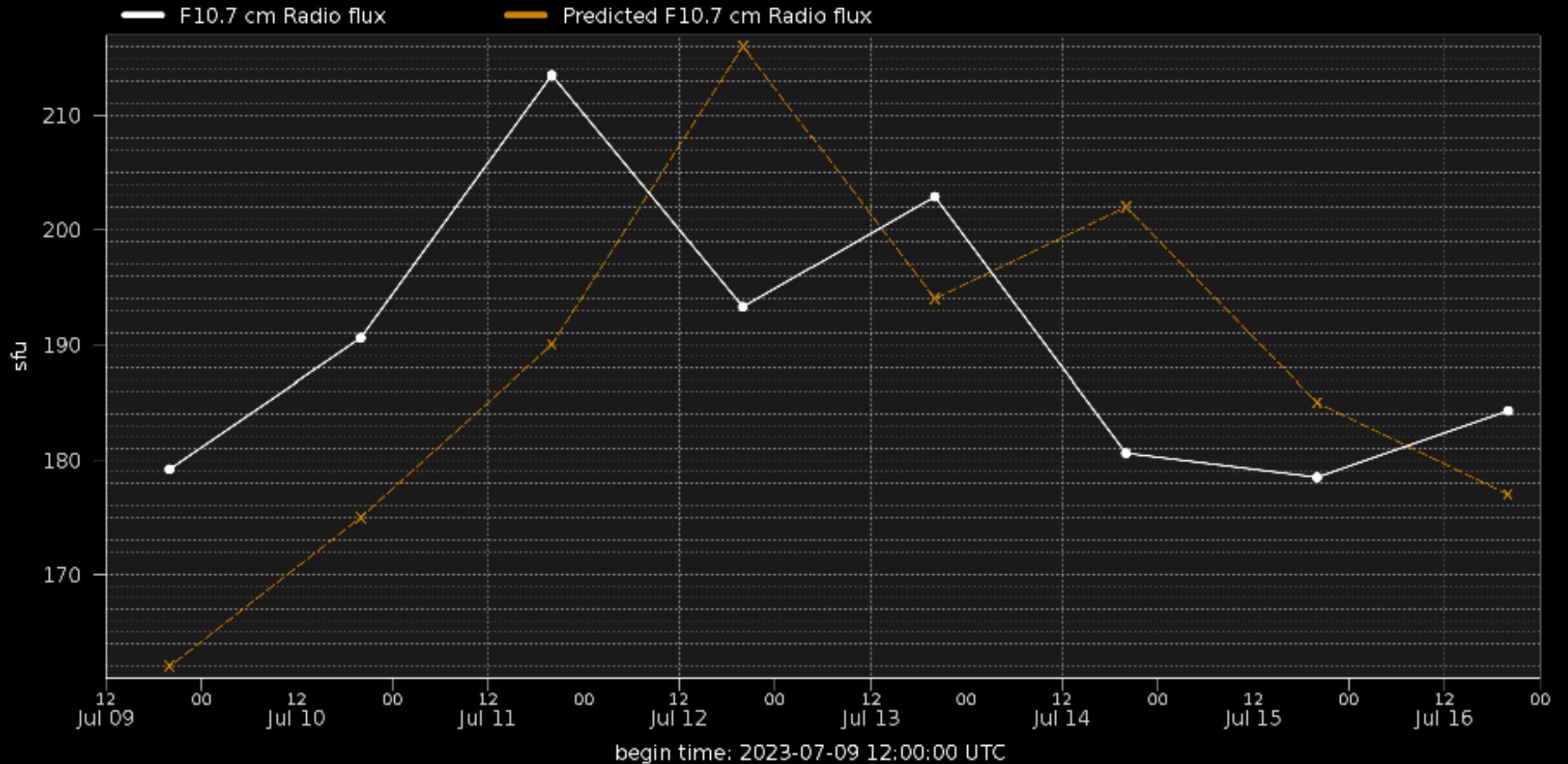


Kanzelhöhe Observatory
2023-07-16 11:25:02 UT

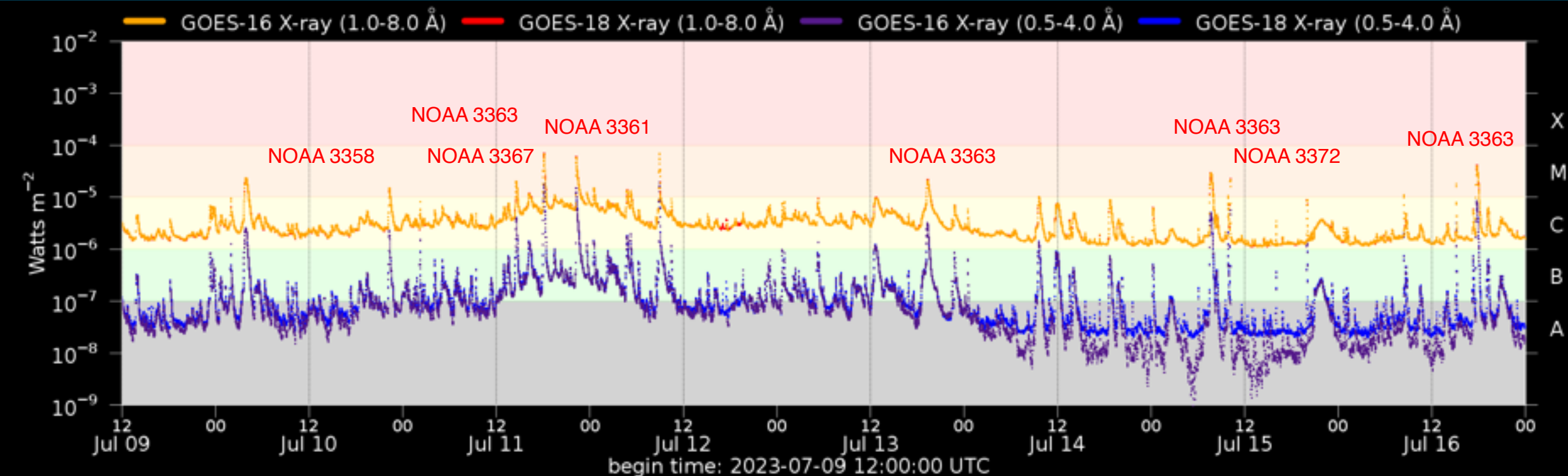
University of Graz
(Austria)



Solar F10.7cm radio flux



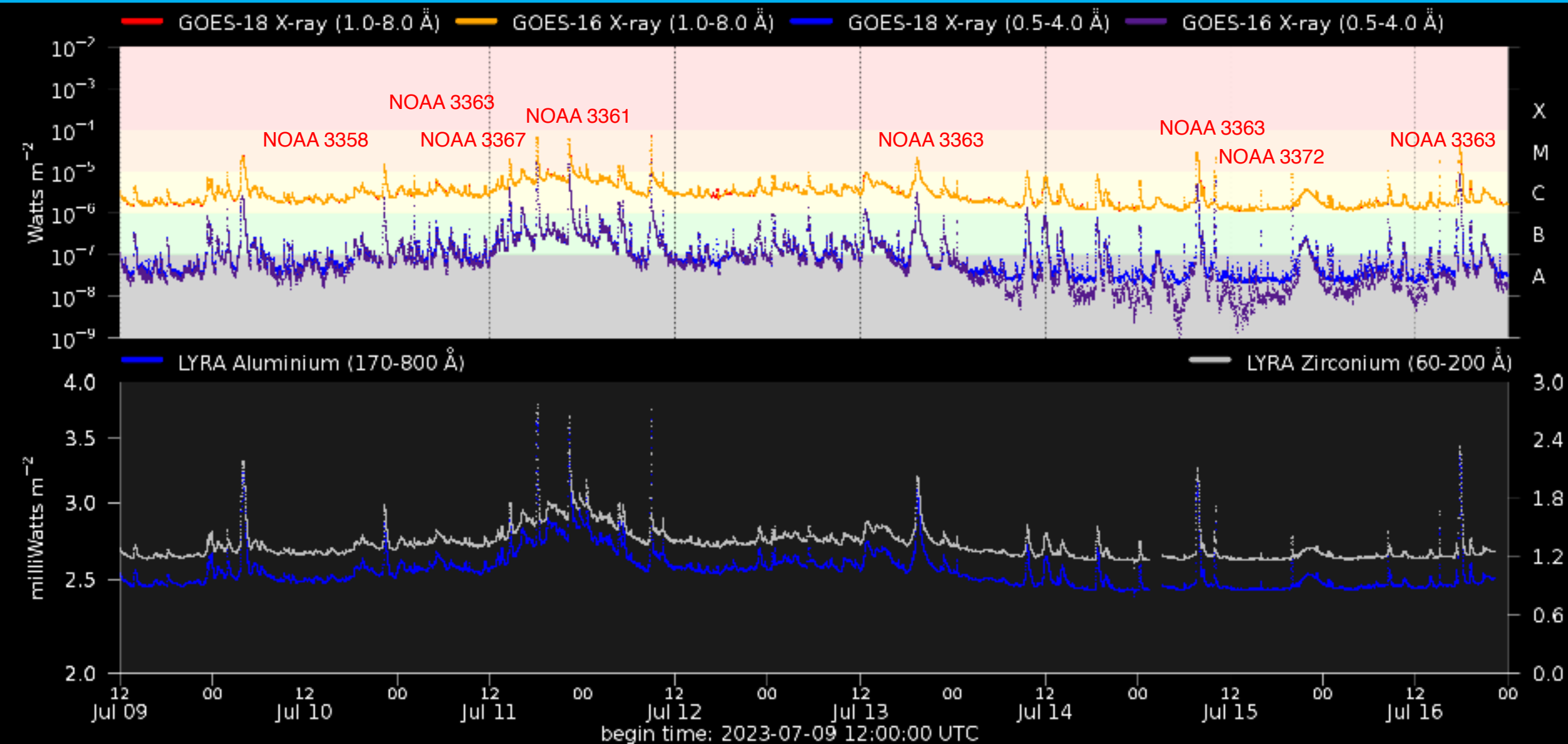
Flaring activity



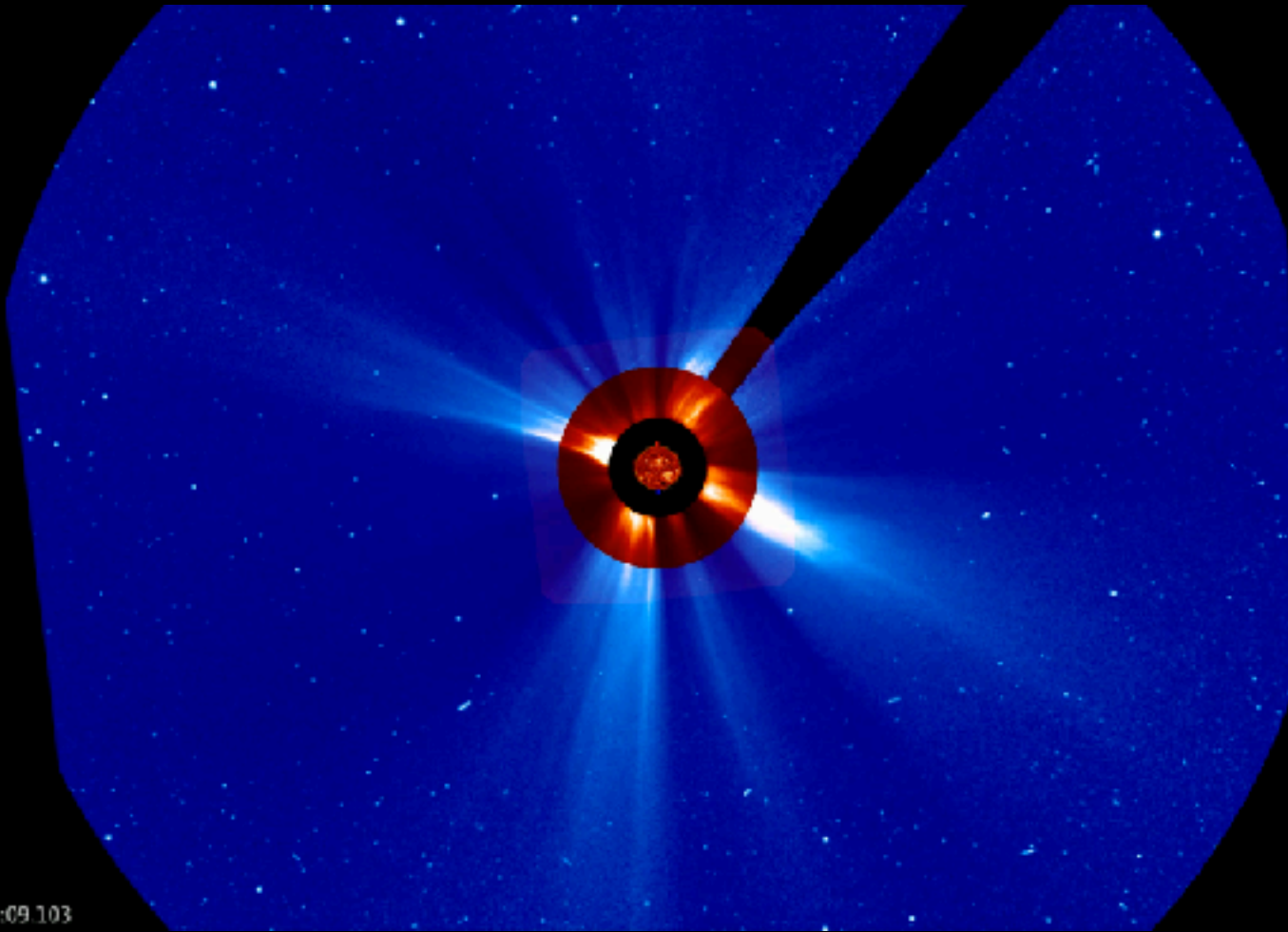
Probabilities (%) and occurrences (#) of C/M/X-flares daily, from noon to noon:

Issue date	2023-07-09	2023-07-10	2023-07-11	2023-07-12	2023-07-13	2023-07-14	2023-07-15	2023-07-16
Probability (%)	95 40 10	98 55 10	99 55 10	99 70 20	99 65 15	99 70 15	98 65 15	90 50 10
Observed (#)	10 01 00	06 01 00	04 10 00	06 00 00	06 02 00	12 03 00	09 01 00	04 02 00

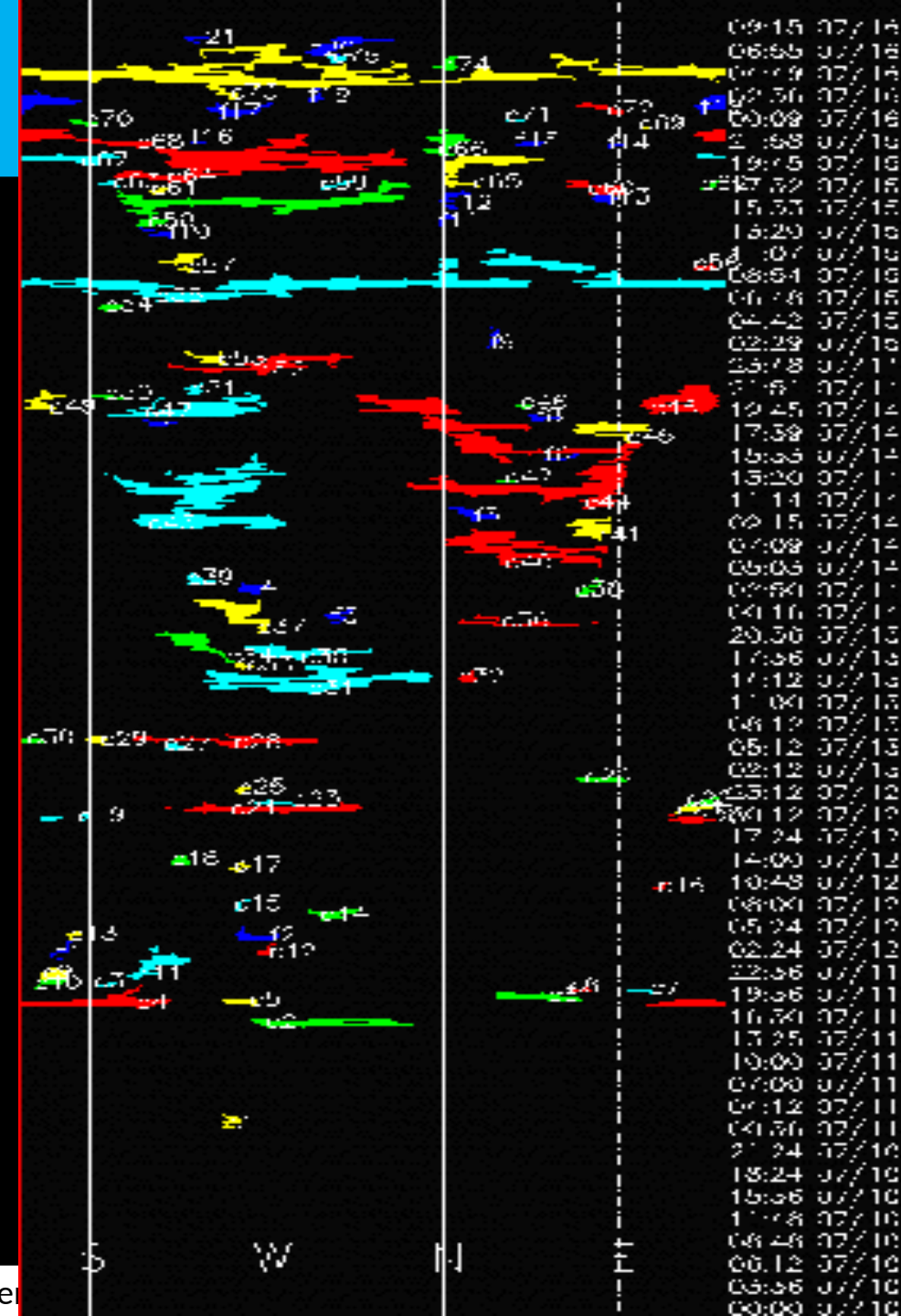
Solar X-Ray and UV flux



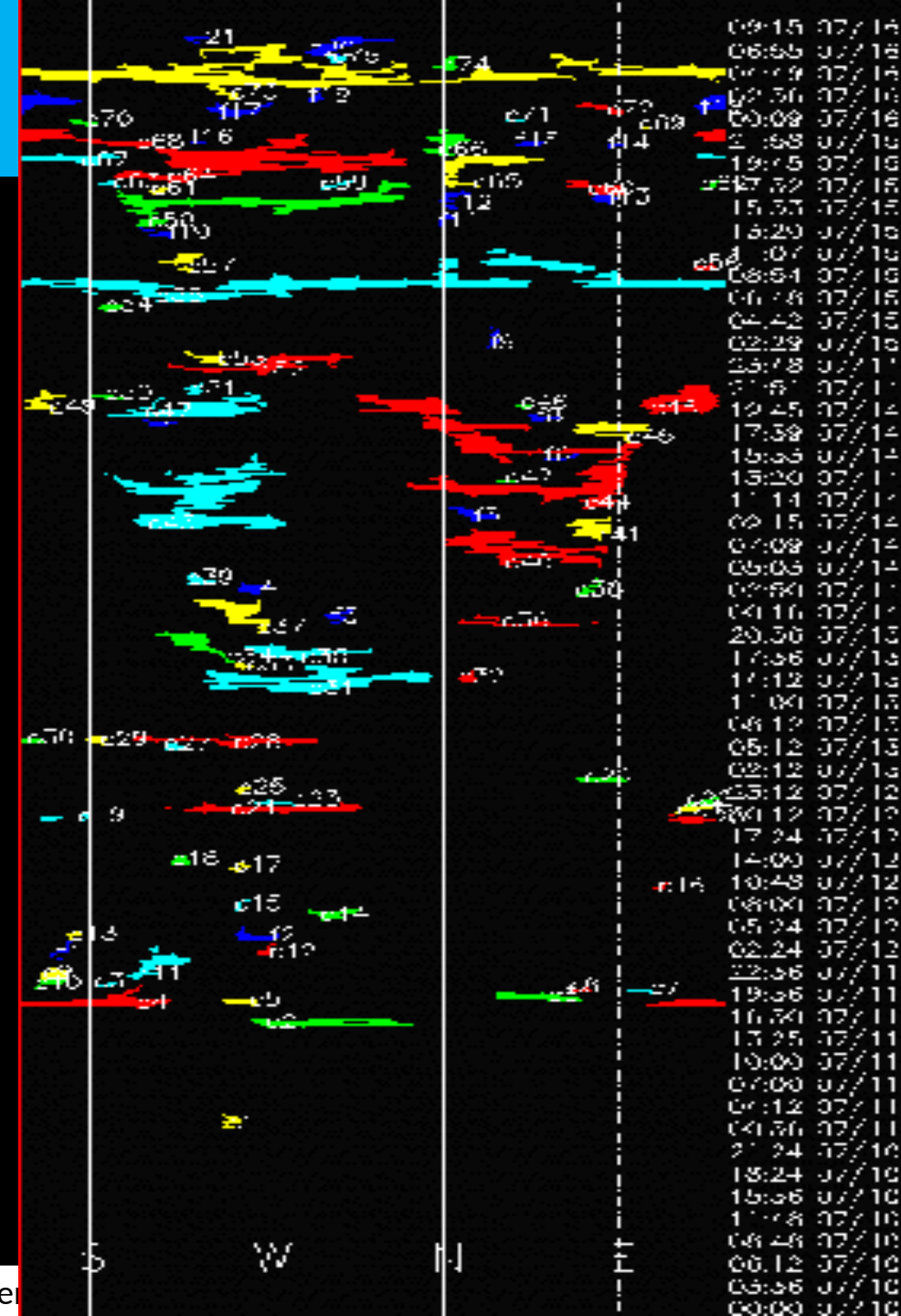
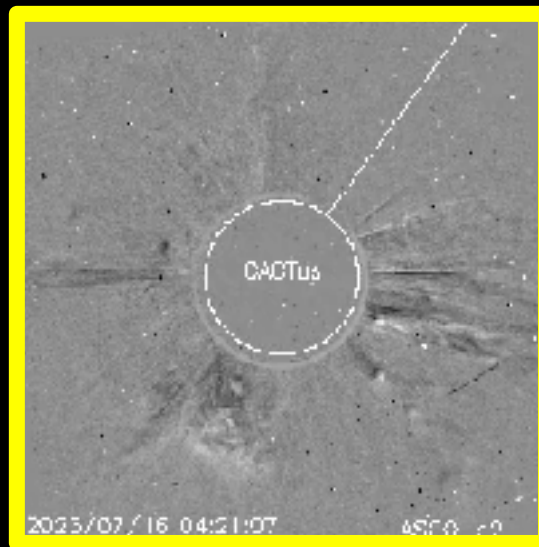
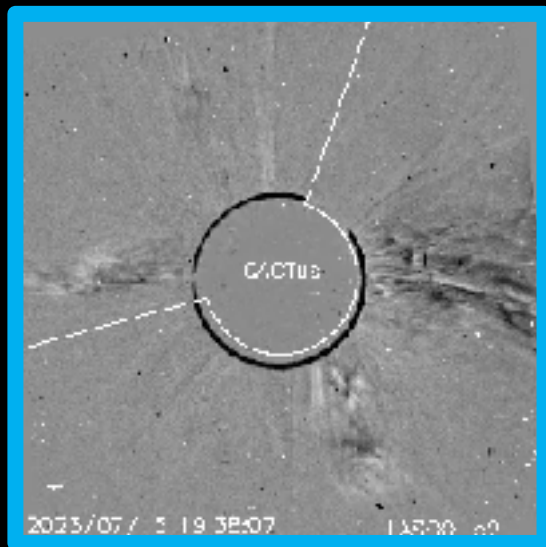
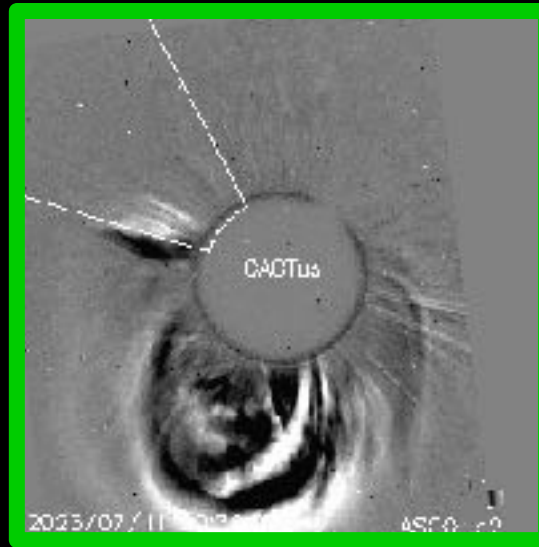
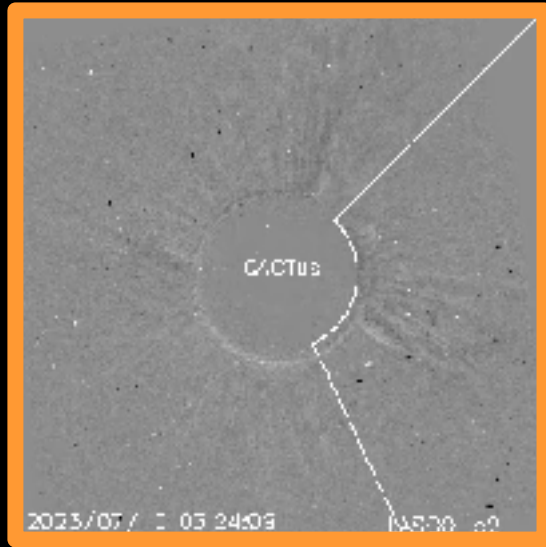
Coronal Mass Ejections



2023-07-09T07:30:09.103



Coronal Mass Ejections



Solar Wind and Geomagnetic Activity



Royal Observatory
of Belgium

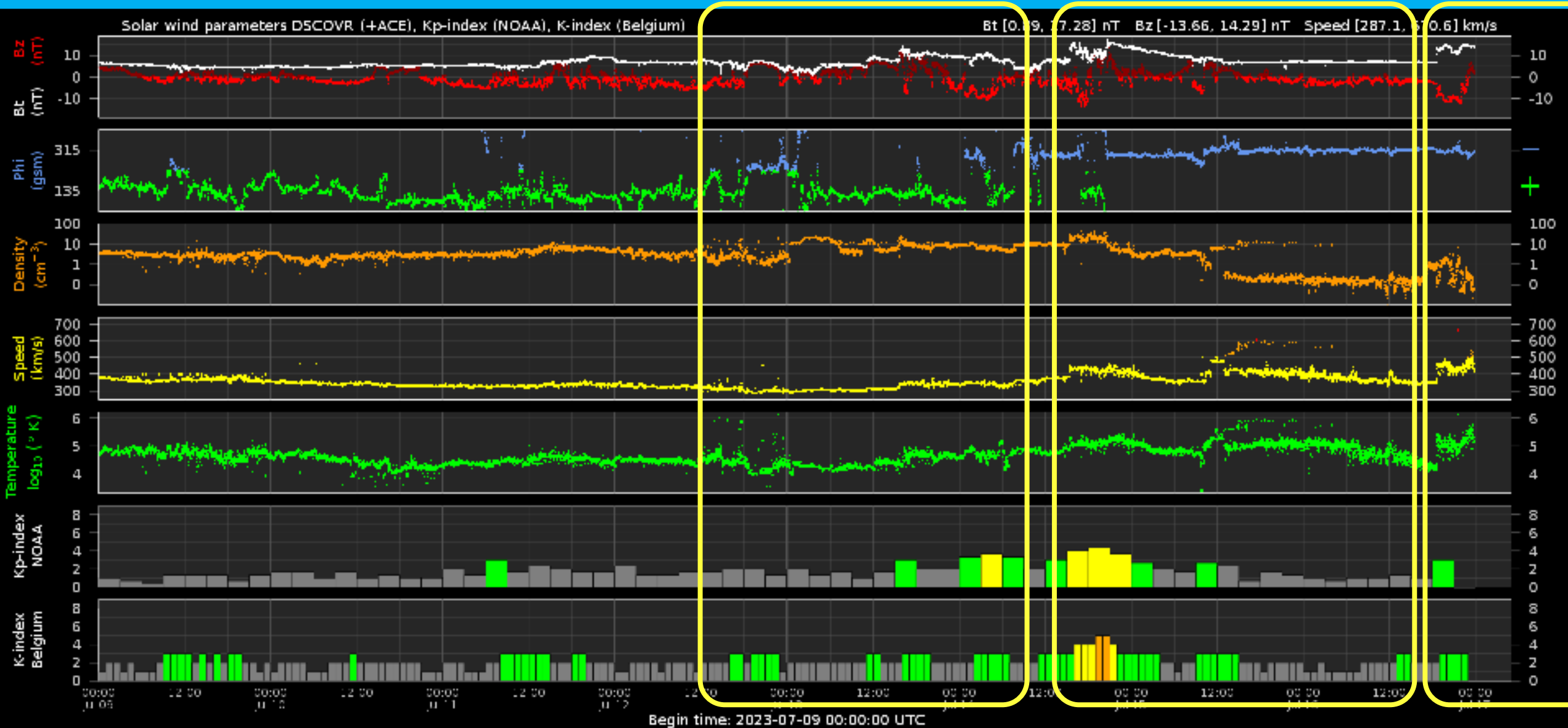
Solar Influences
Data analysis Centre
www.sidc.be

Solar wind parameters & K-indices

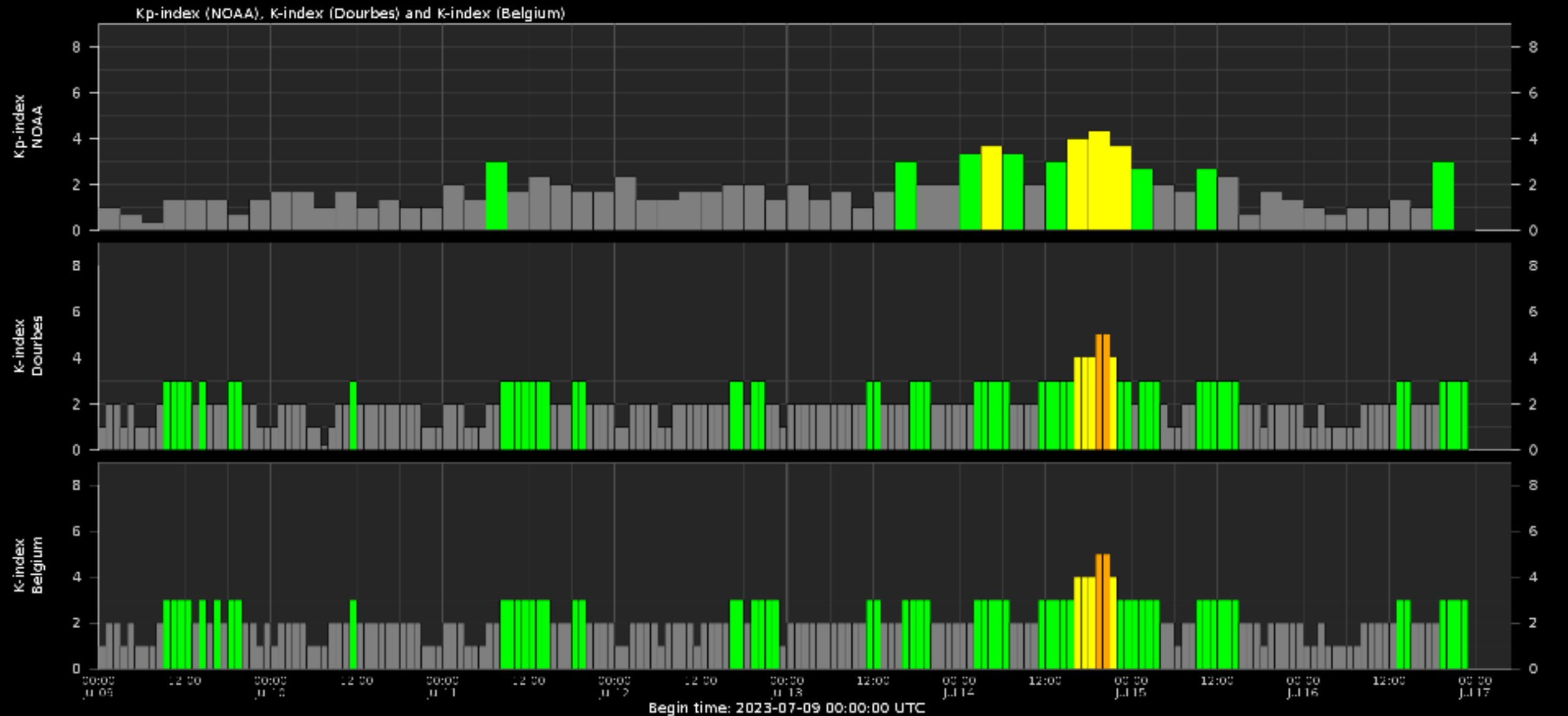
2 ICMEs?: July 10th + ?

ICME: July 11th

ICME



Geomagnetic activity (K-indexes)



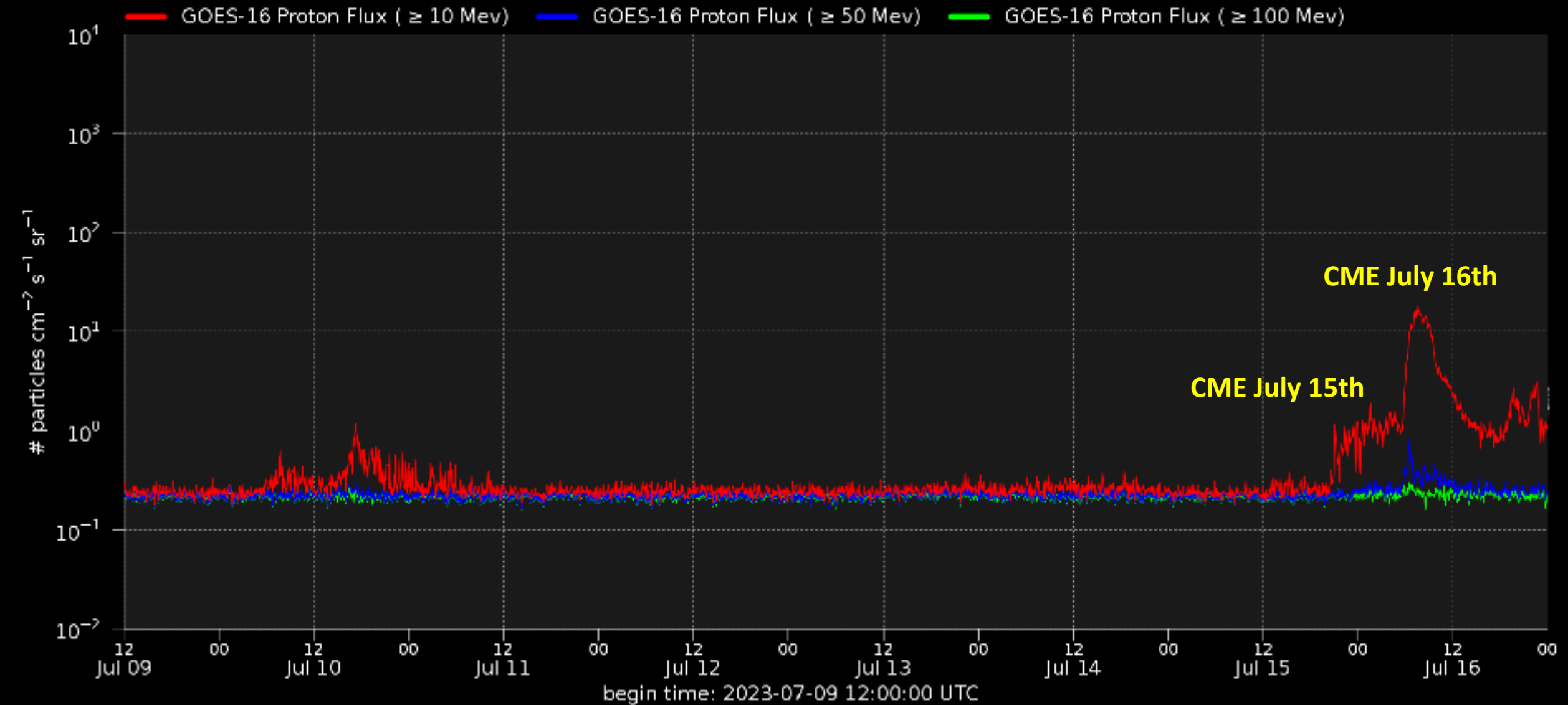
Energetic Particles



Royal Observatory
of Belgium

Solar Influences
Data analysis Centre
www.sidc.be

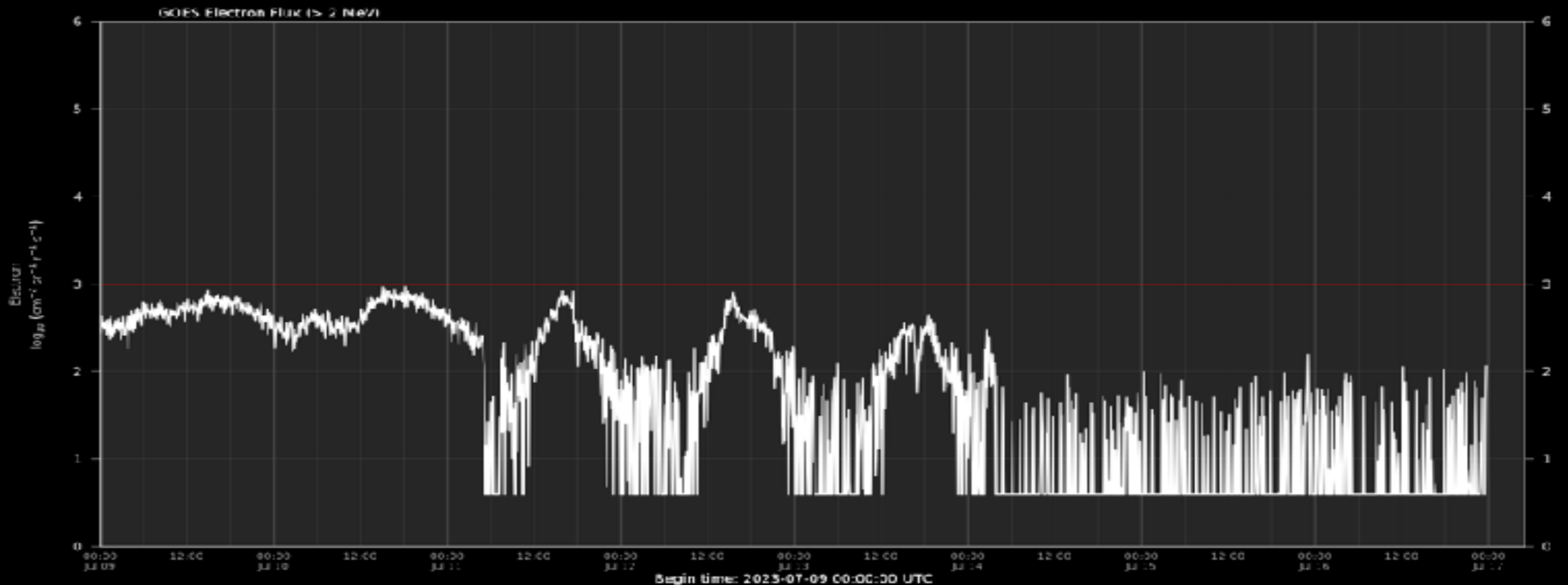
Solar proton flux



Electron flux at GEO

www.stce.be/educational/classification#electrons

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



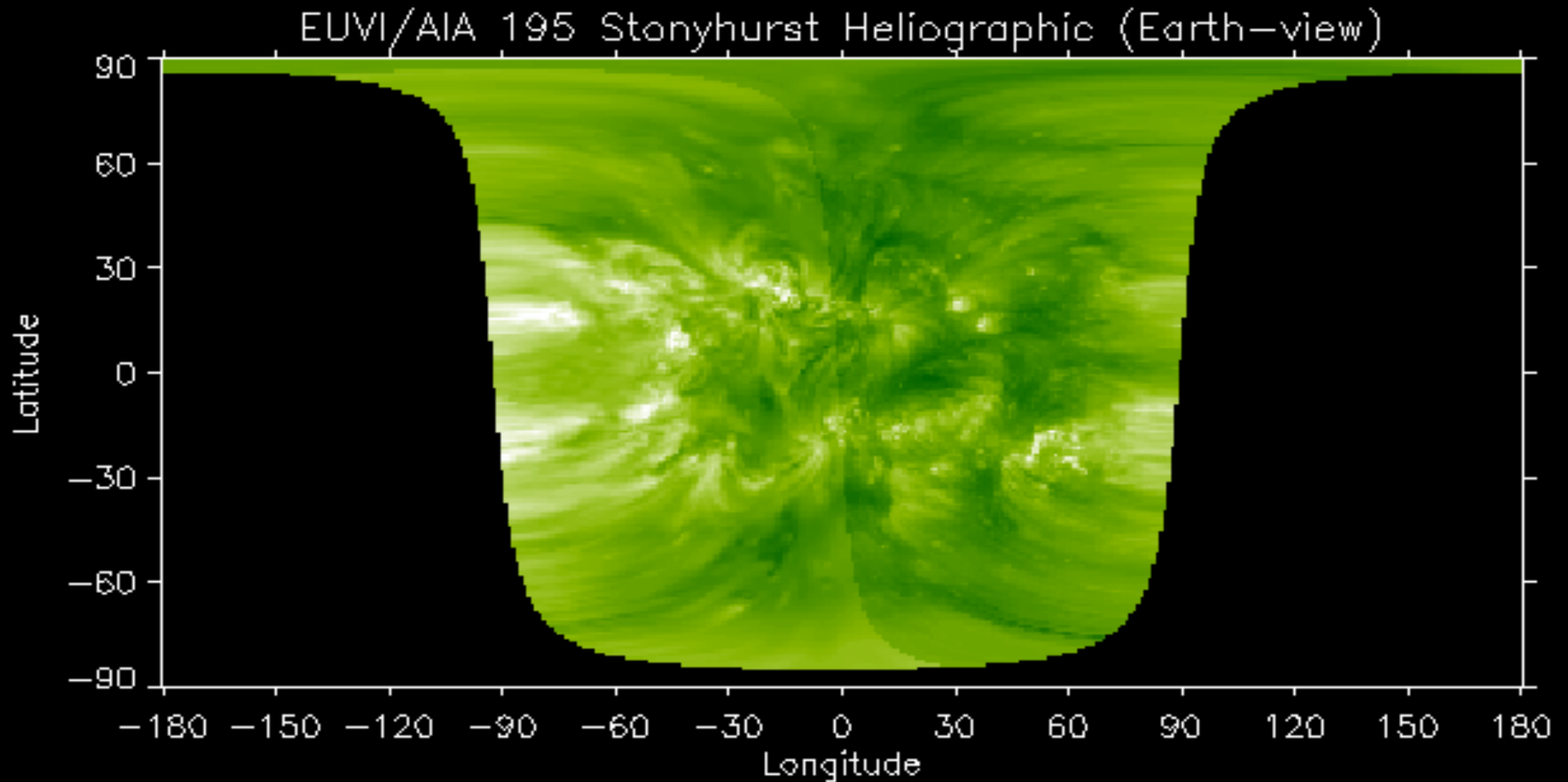
Outlook



Royal Observatory
of Belgium

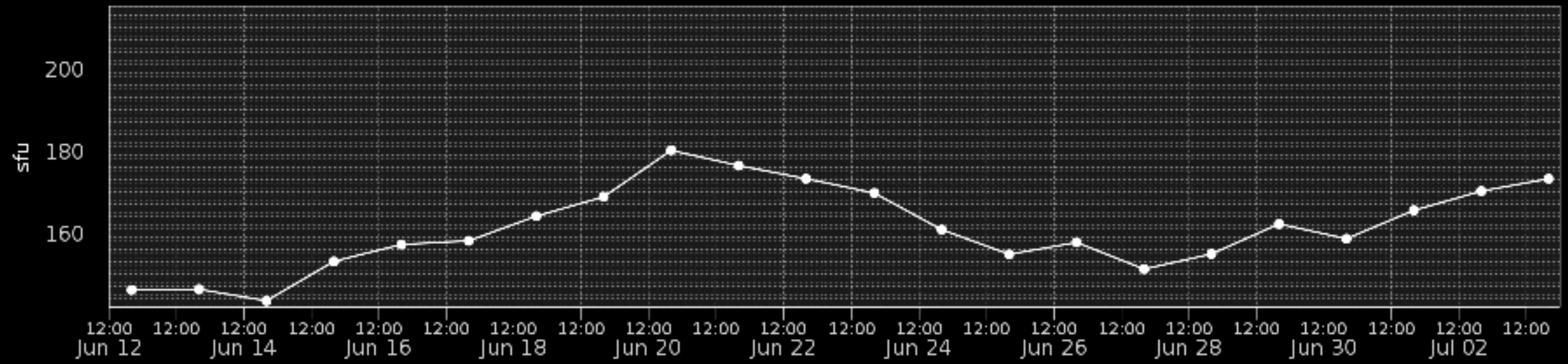
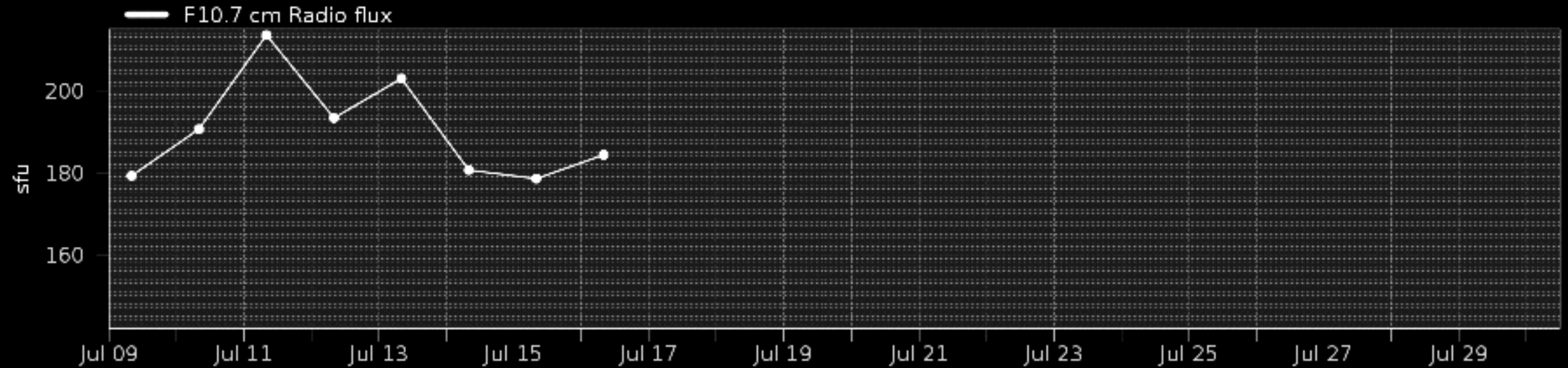
Solar Influences
Data analysis Centre
www.sidc.be

Outlook: Solar activity



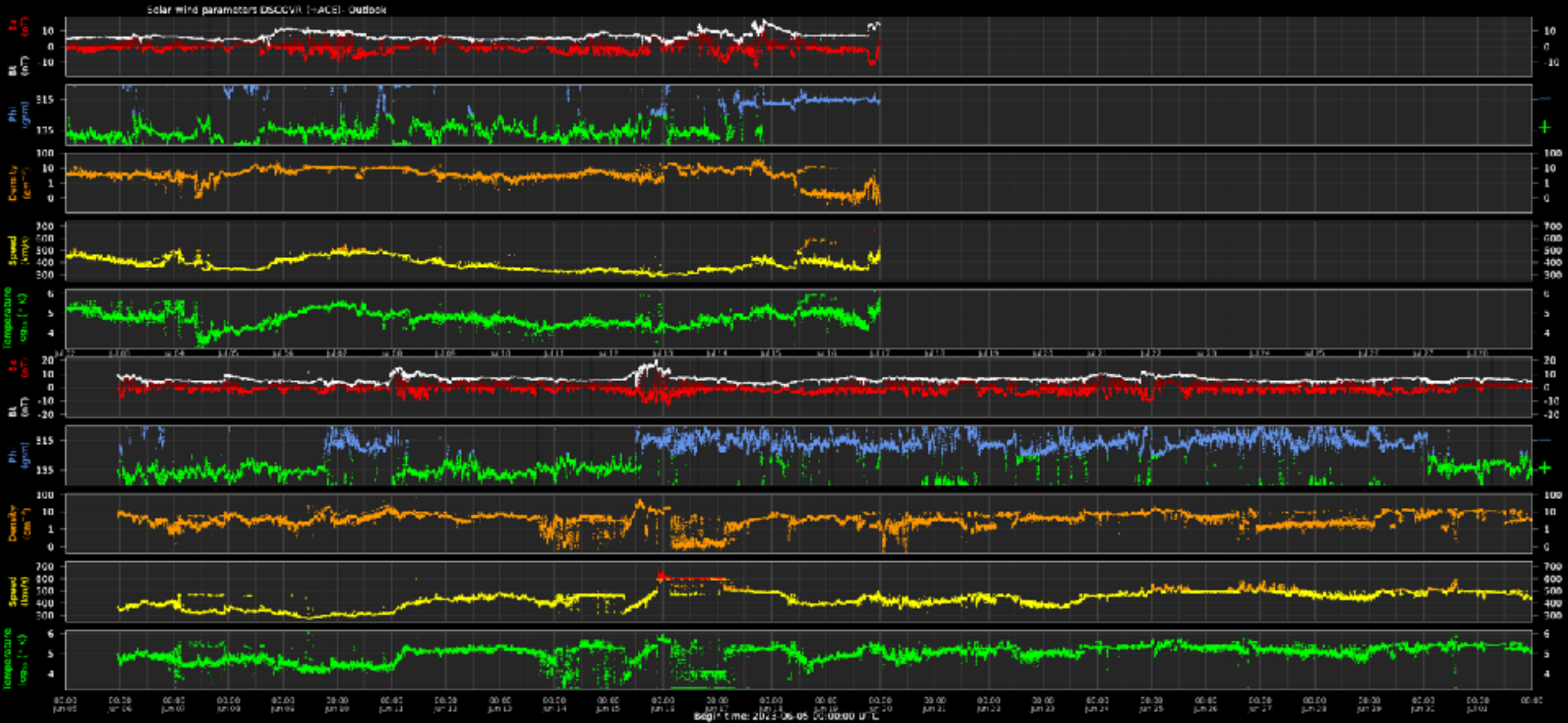
Observation date: 2023/07/16 20:45:00

Outlook: Solar F10.7cm radio flux



begin time: 2023-07-09 12:00:00 UTC

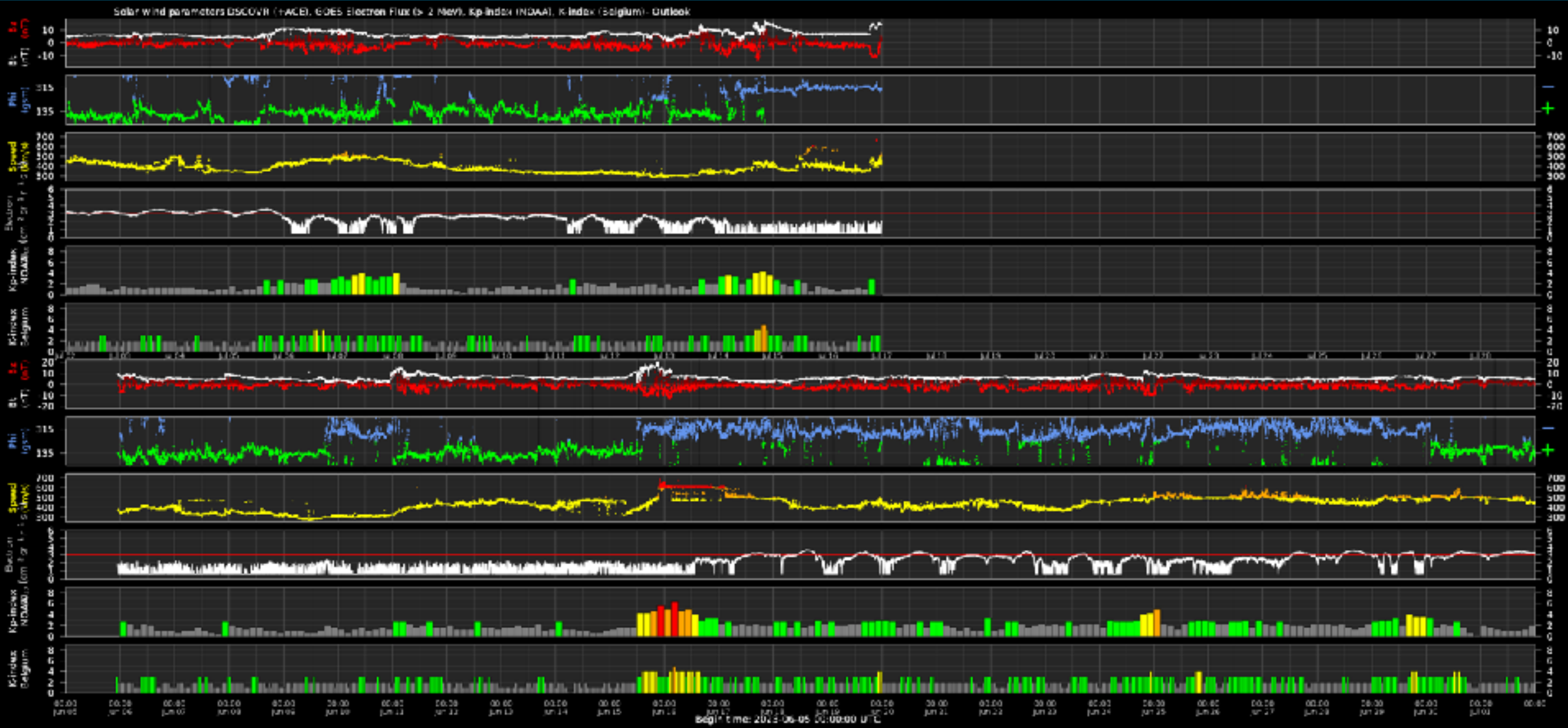
Outlook: Solar wind parameters



Outlook: Geomagnetic activity



Outlook: Electron Flux at GEO Outlook



Pegasus

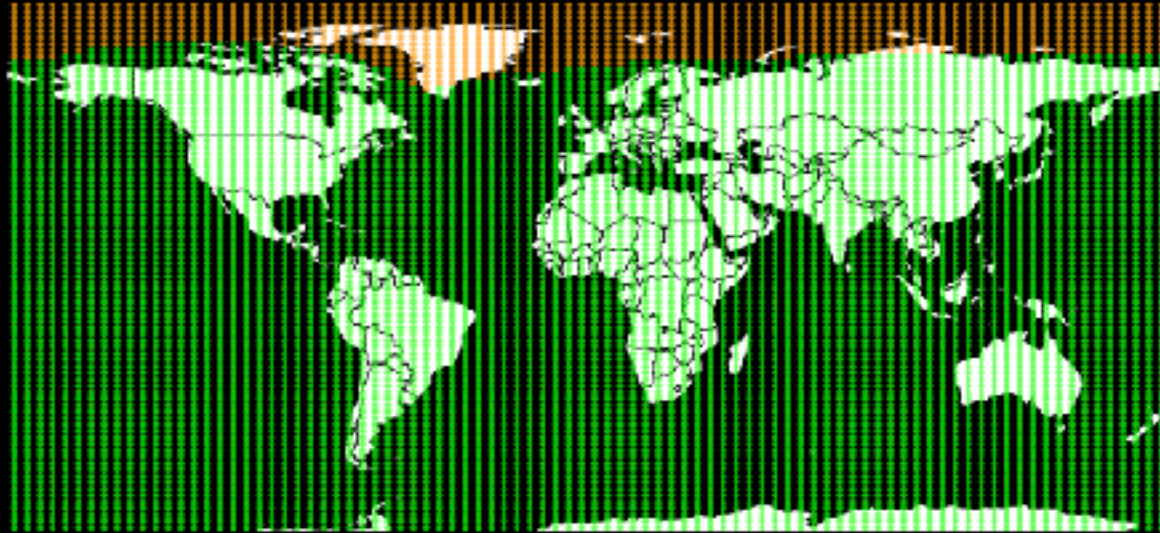


Royal Observatory
of Belgium

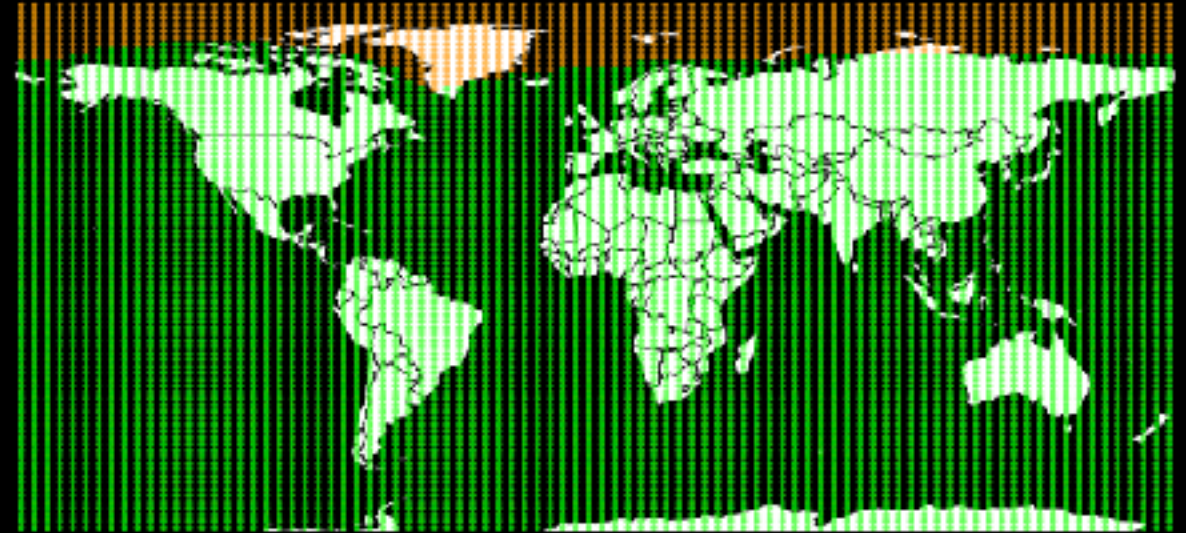
Solar Influences
Data analysis Centre
www.sidc.be

Pegasus related events: PCA following the S1 storm

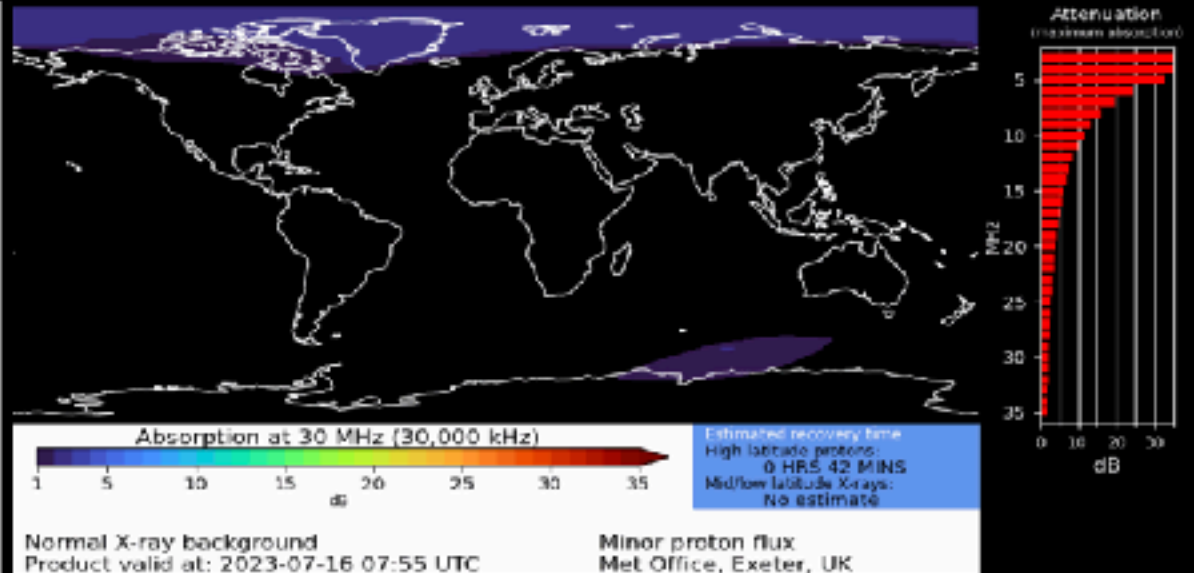
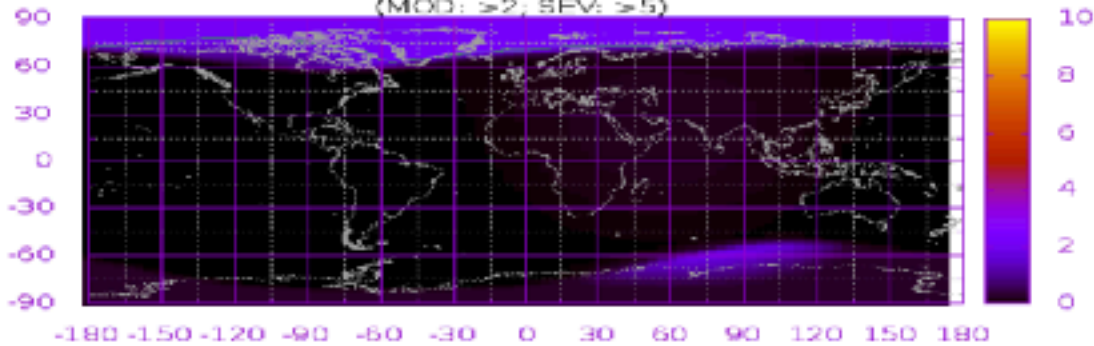
NOAA_DRAP: 2023-07-16 07:58:00 UTC



UKMO DRAP: 2023-07-16 08:00:00 UTC



Absorption [dB] at 30 MHz on 2023-07-16 07:58 UTC
(MOD: >2, SFV: >5)



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