

SIDC Space Weather Briefing

16 June 2024-23 June 2024

de Patoul Judith

& the SIDC forecaster team



Royal Observatory
of Belgium

www.sidc.be

Summary Report

Solar activity from 2024-06-16 12:00 to 2024-06-23 23:59

Active regions	Several & Complex Sunspot Groups: NOAA-AR 3708 → NOAA-AR 3722
Flares	# C-class flare: 47 # M-class flare: 14 # X-class flare: 0
Coronal Holes	Equatorial corona hole (+) & High latitude corona hole (-)
CMEs	No Earth directed CME

Proton flux	Background level
Electron flux	Normal level

Solar wind and geomagnetic conditions

ICMEs	None
Solar wind conditions	B : 0.33 - 12.15 nT // Bz: -10.56 nT to 8.61 nT // Speed: 292 – 629 km/s
Geomagnetic conditions	max K _{Be} : 4, max K _p (NOAA): 4, Active conditions

All Quiet Alert: NOT QUIET!

Solar Activity



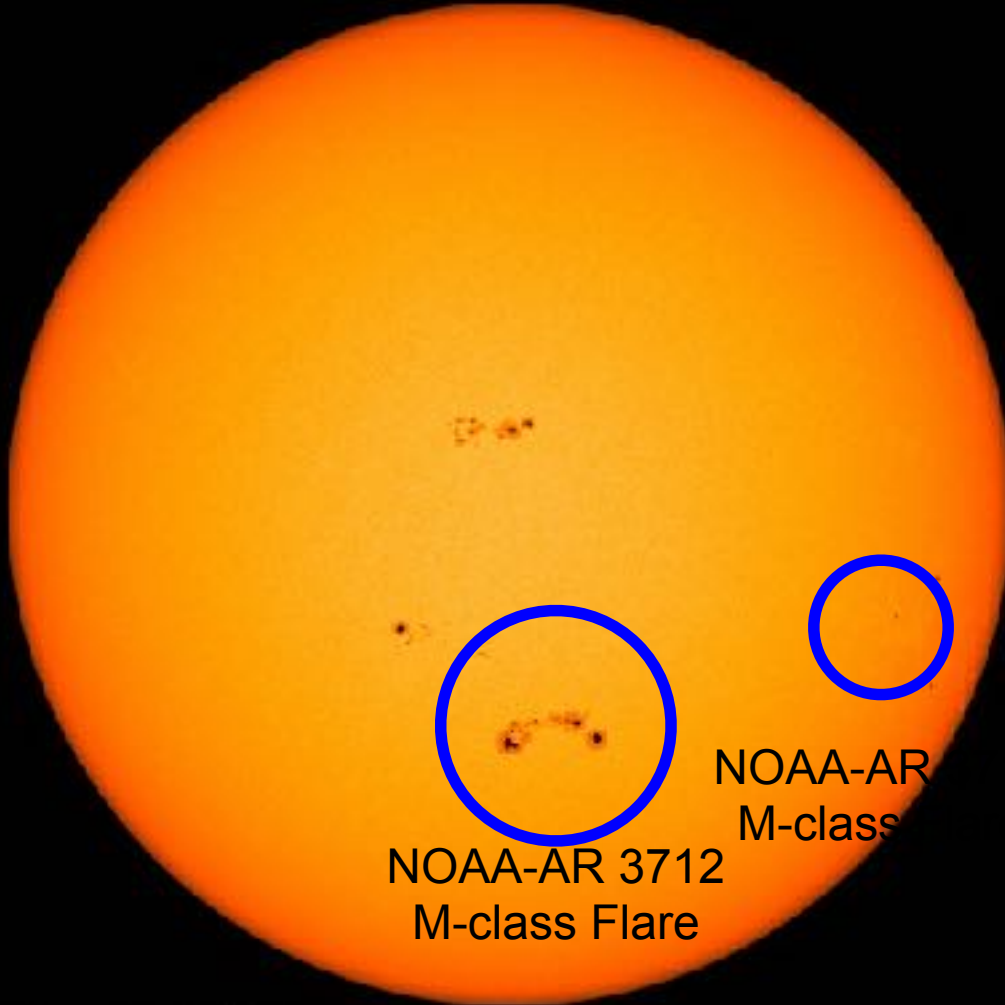
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Solar active regions

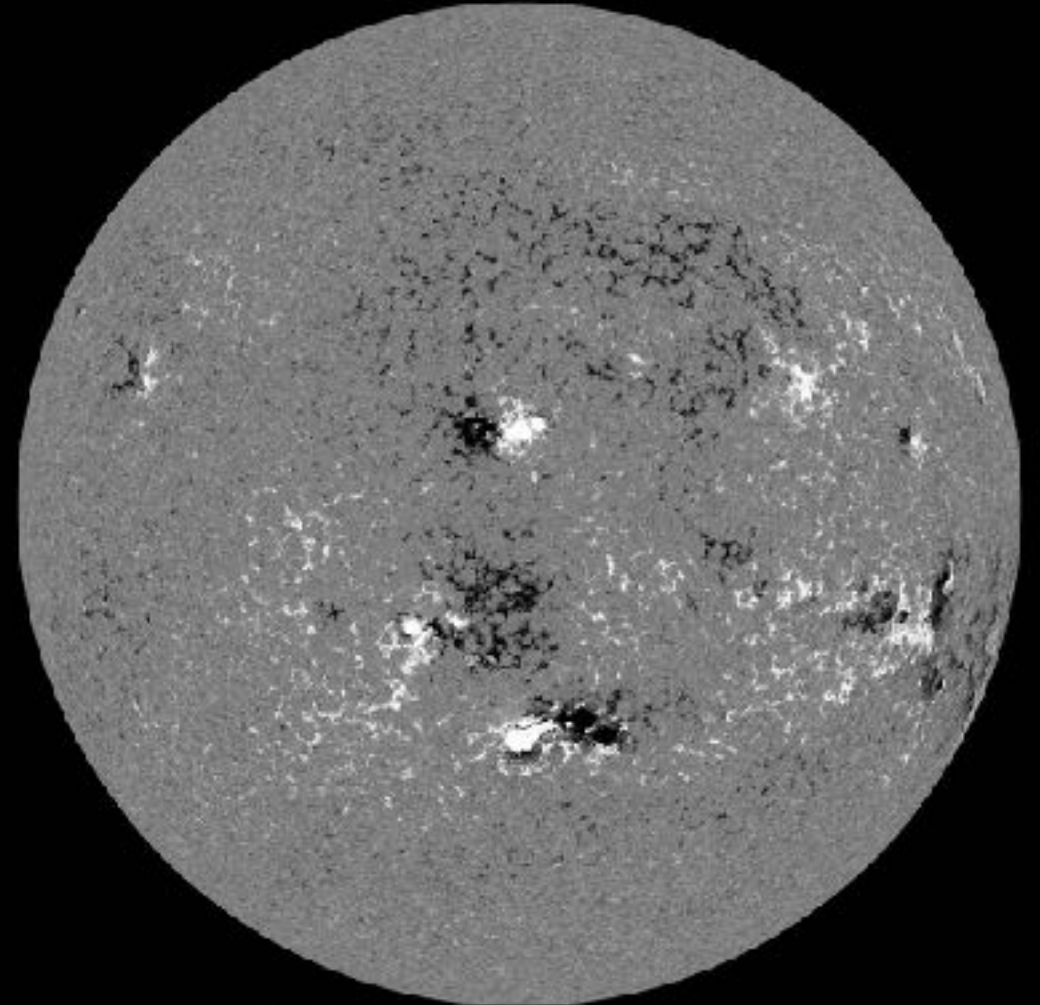
SDO/HMI White Light 2024-06-17

SDO/HMI Magnetogram 2024-06-17



NOAA-AR 3712
M-class Flare

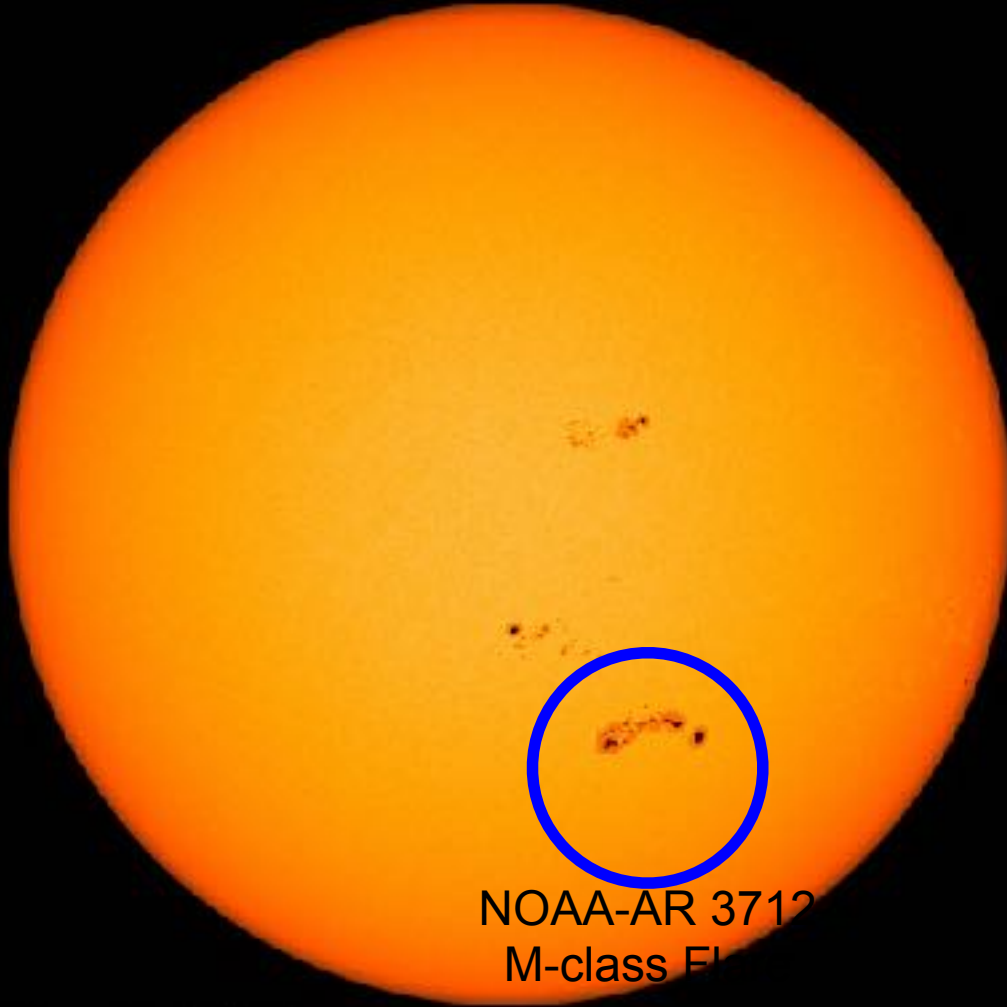
NOAA-AR
M-class



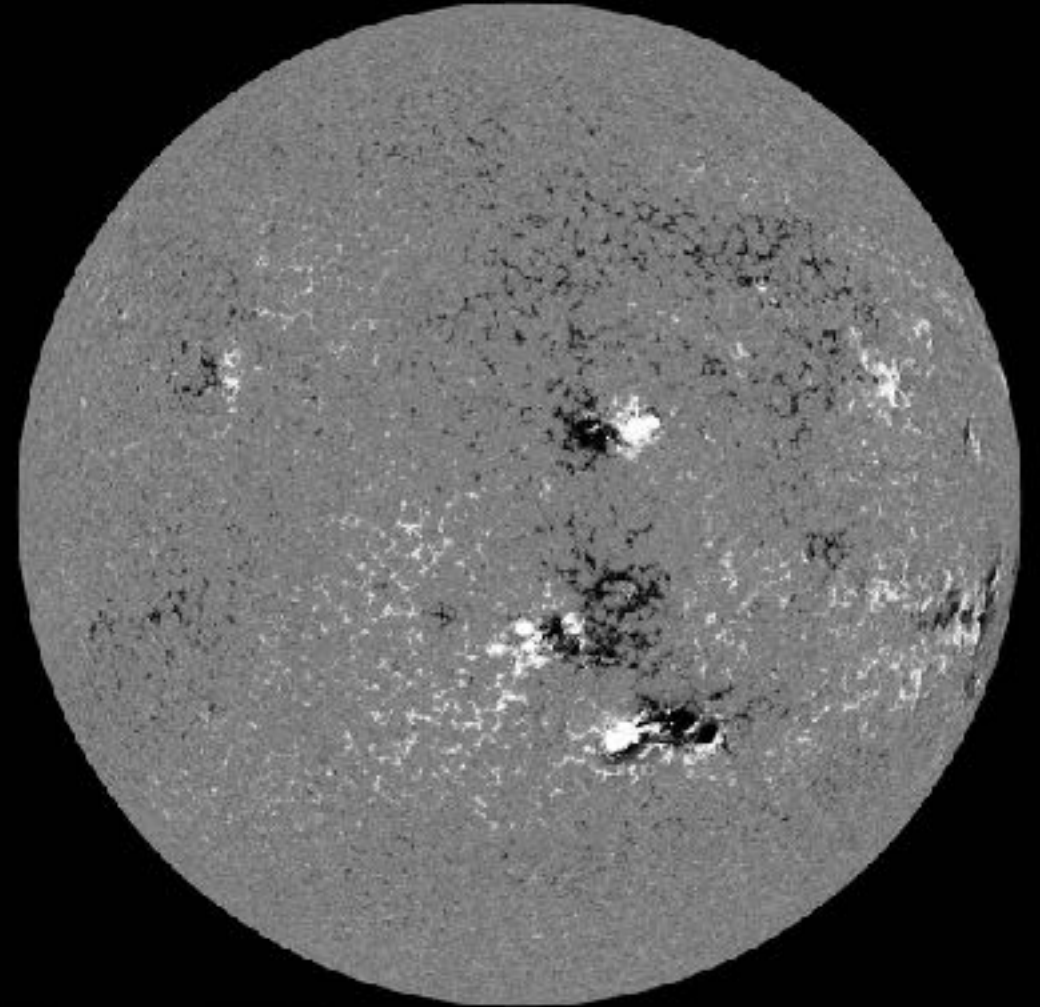
Solar active regions

SDO/HMI White Light 2024-06-18

SDO/HMI Magnetogram 2024-06-18



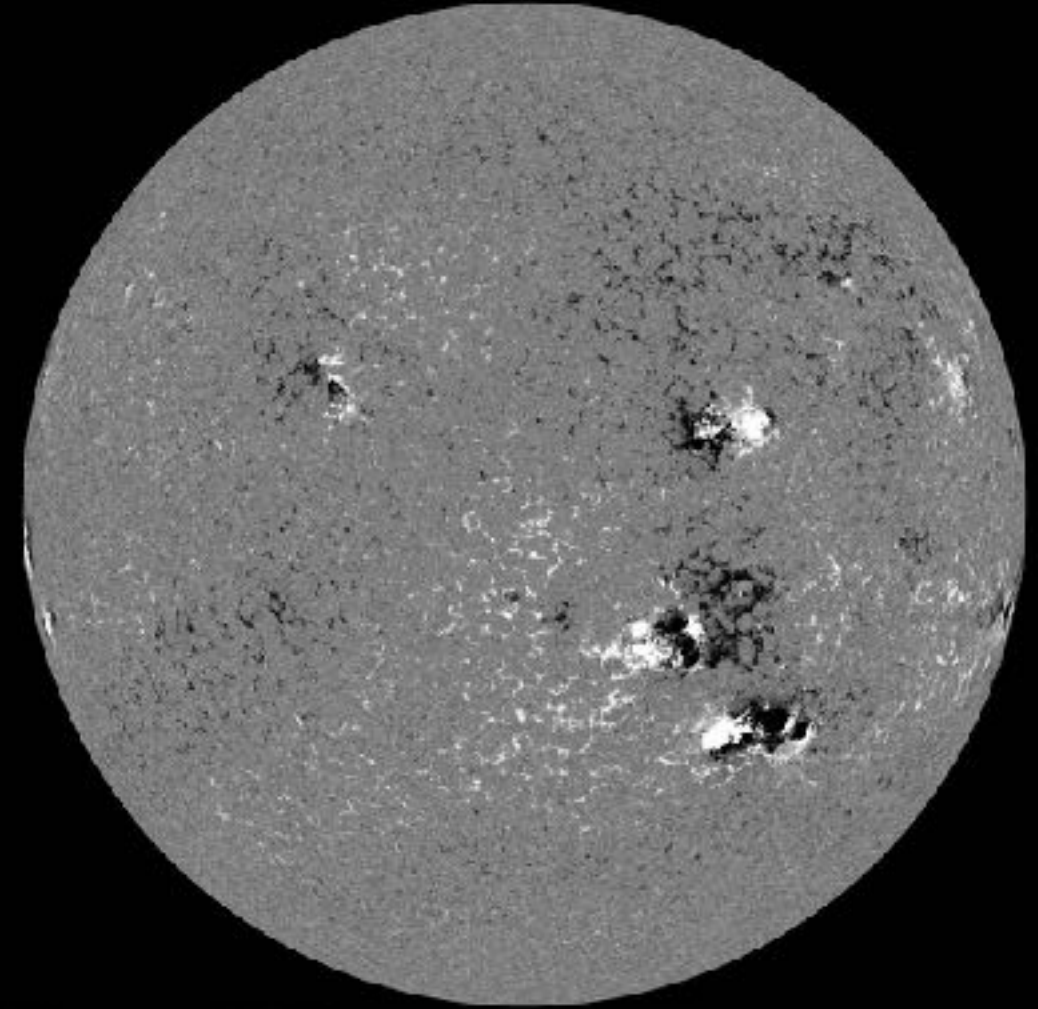
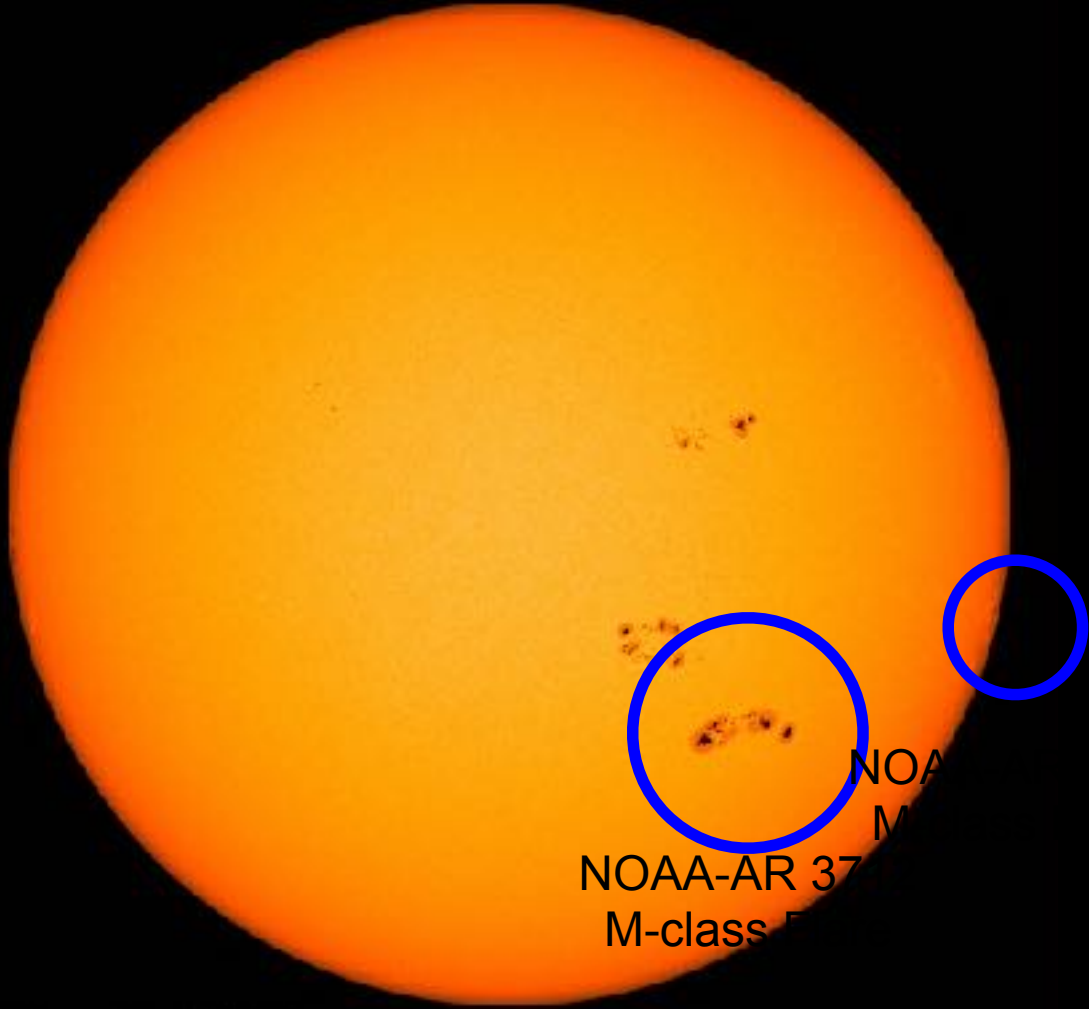
NOAA-AR 3712
M-class Flare



Solar active regions

SDO/HMI White Light 2024-06-19

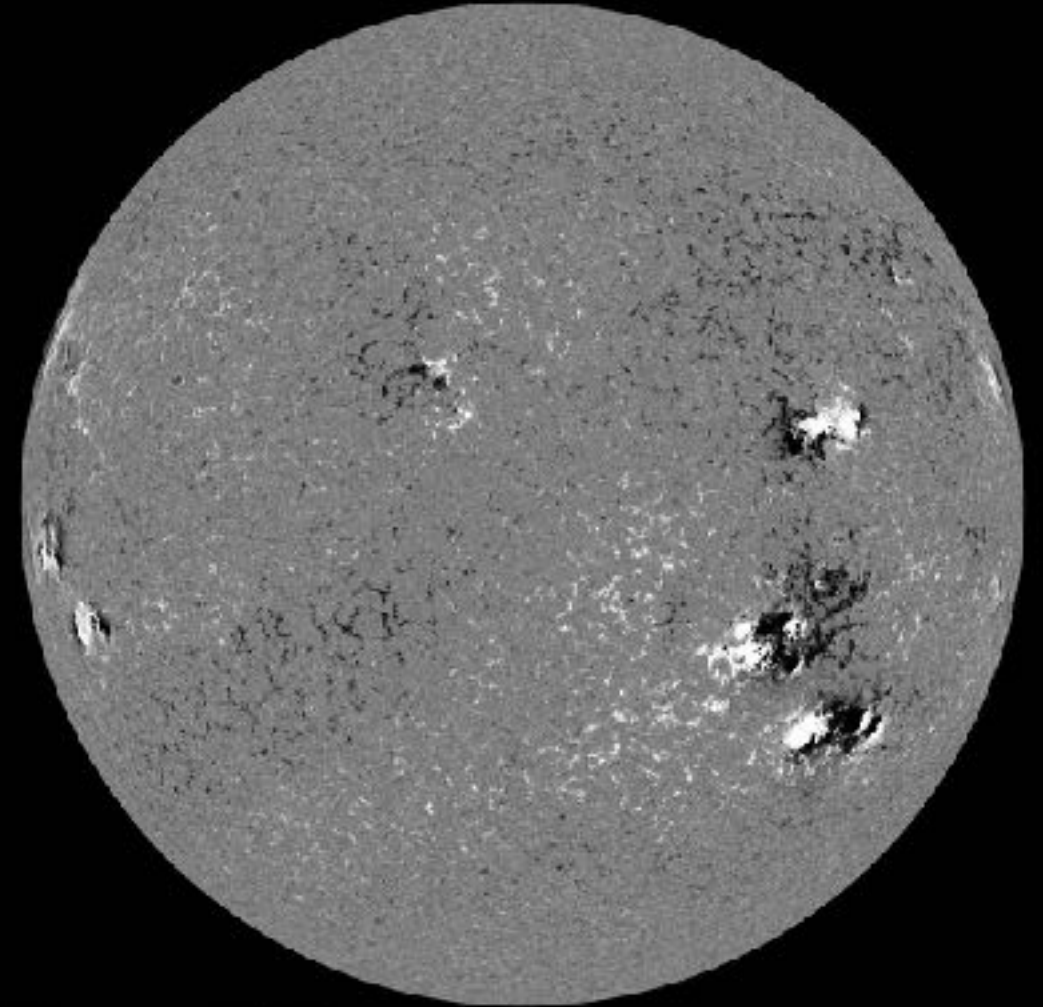
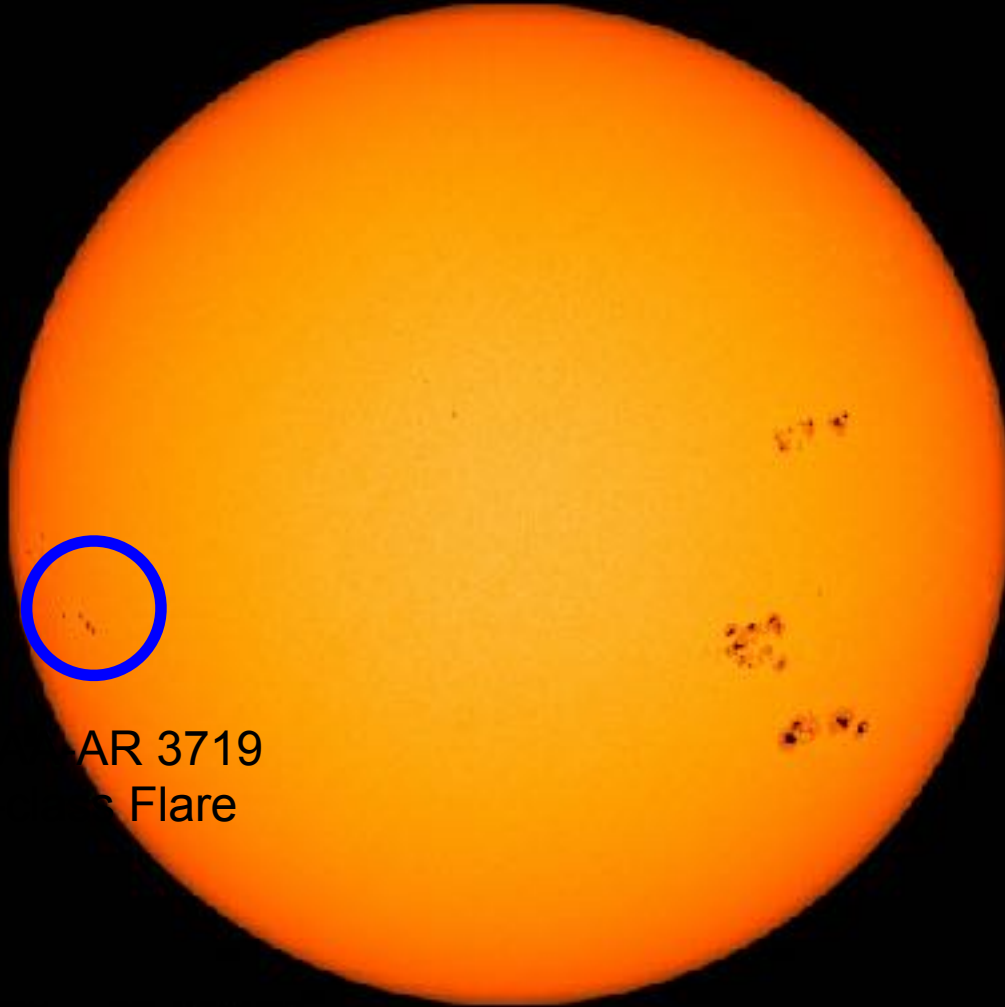
SDO/HMI Magnetogram 2024-06-19



Solar active regions

SDO/HMI White Light 2024-06-20

SDO/HMI Magnetogram 2024-06-20

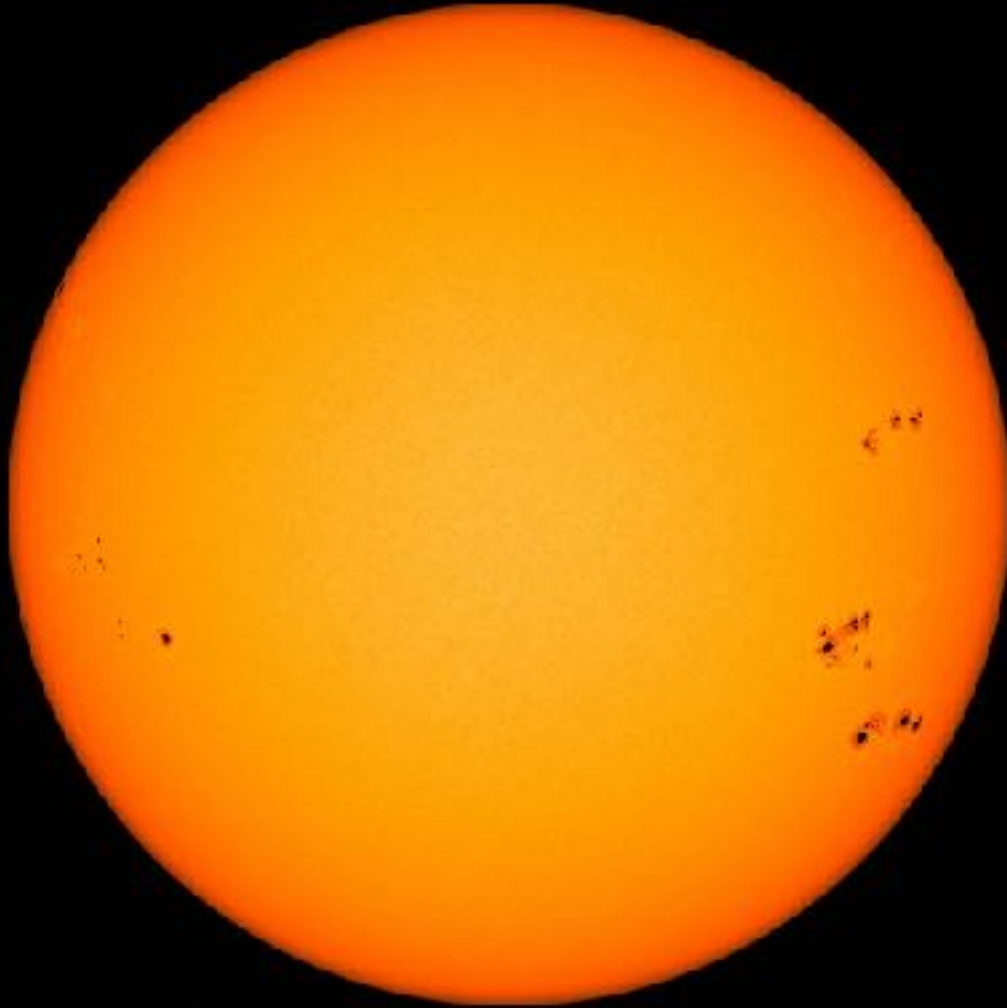


SDO/HMI White Light 2024-06-20

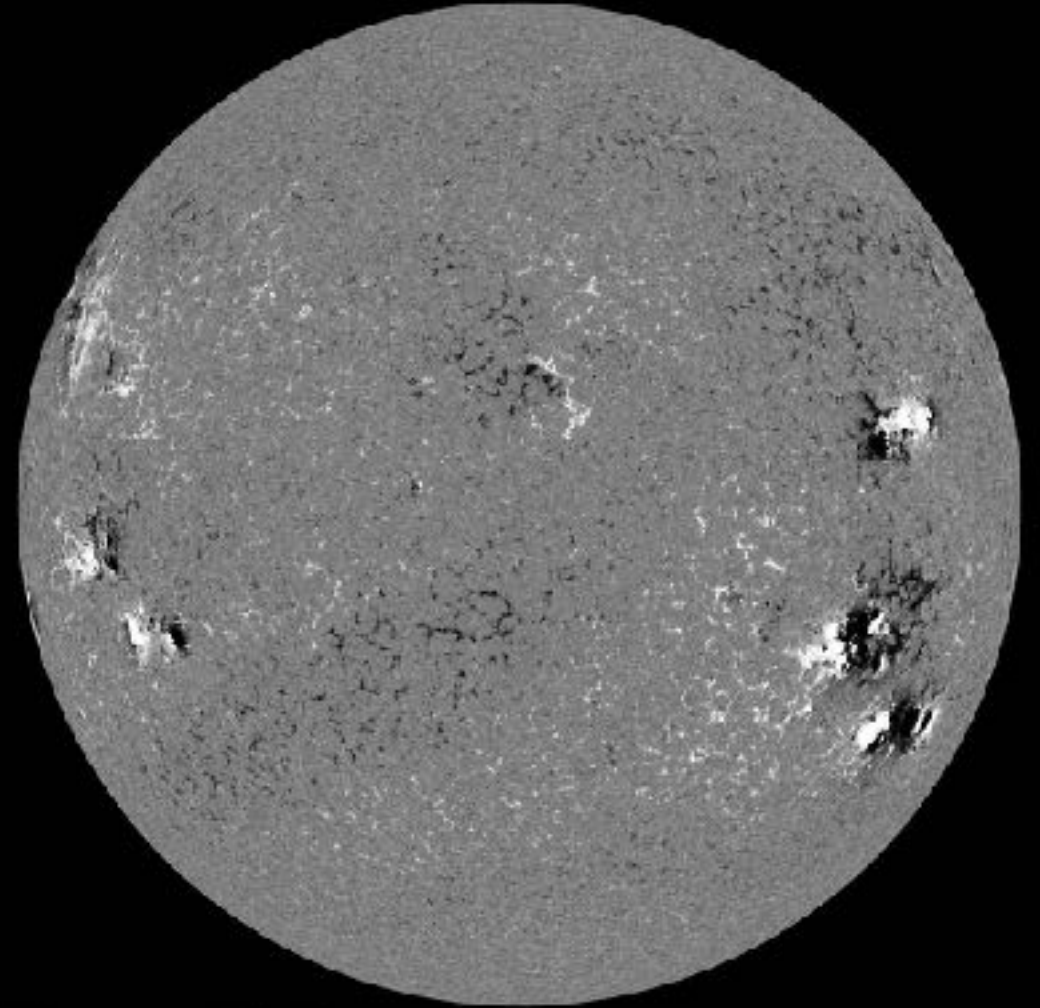
SDO/HMI Magnetogram 2024-06-20

Solar active regions

SDO/HMI White Light 2024-06-21



SDO/HMI Magnetogram 2024-06-21



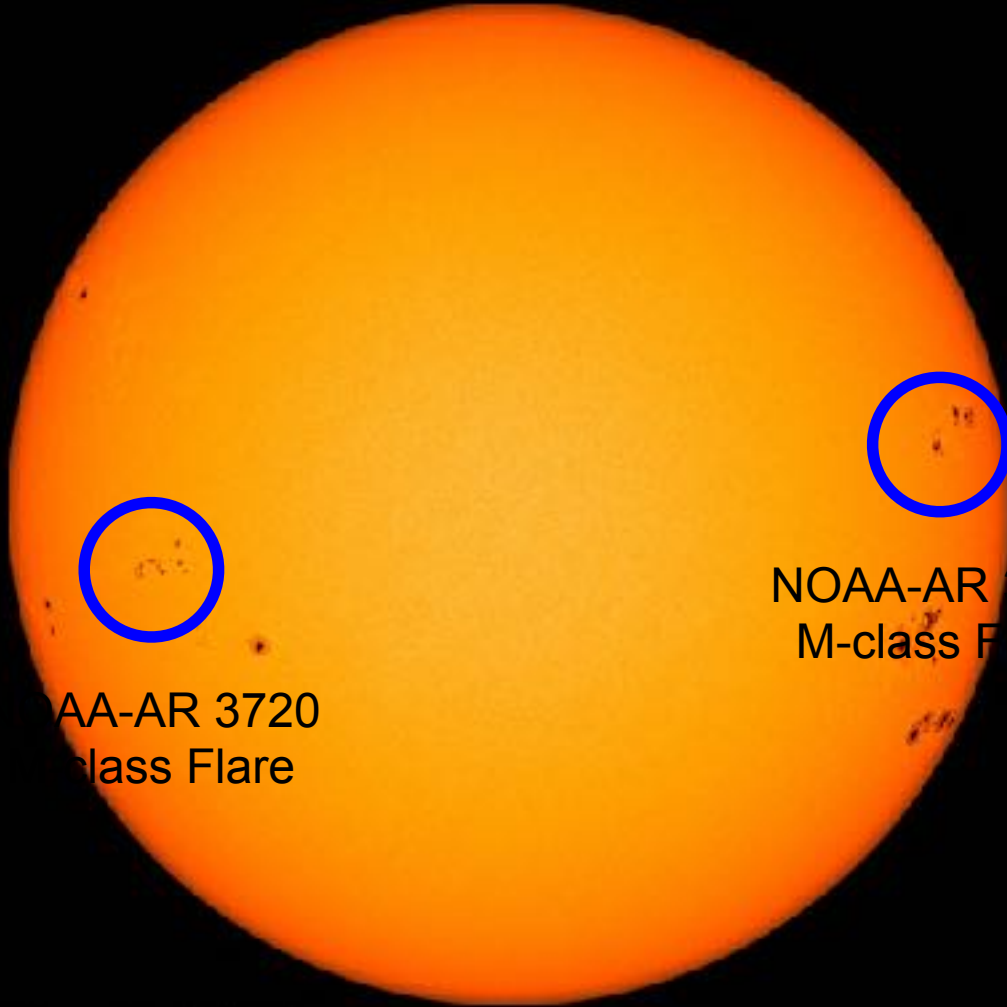
SDO/HMI White Light 2024-06-21

SDO/HMI Magnetogram 2024-06-21

Solar active regions

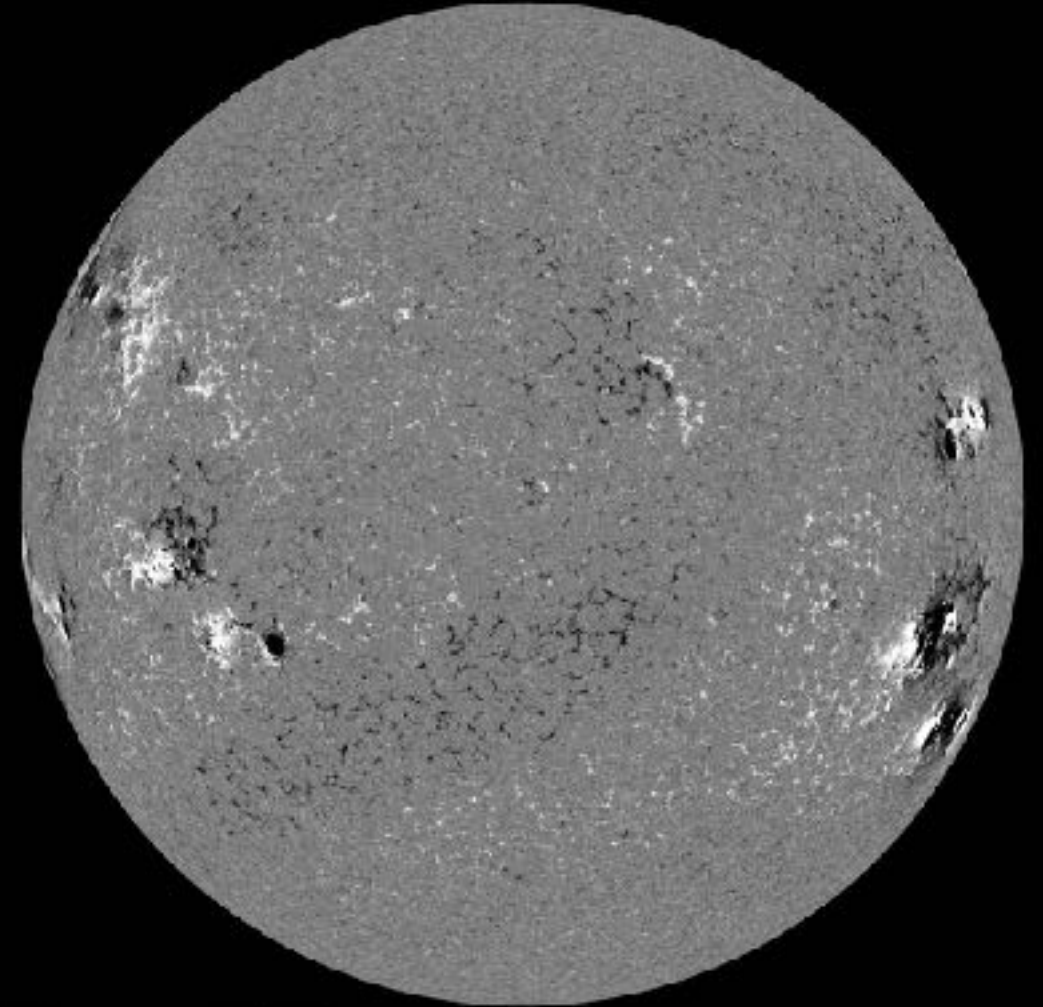
SDO/HMI White Light 2024-06-22

SDO/HMI Magnetogram 2024-06-22



NOAA-AR 3720
M-class Flare

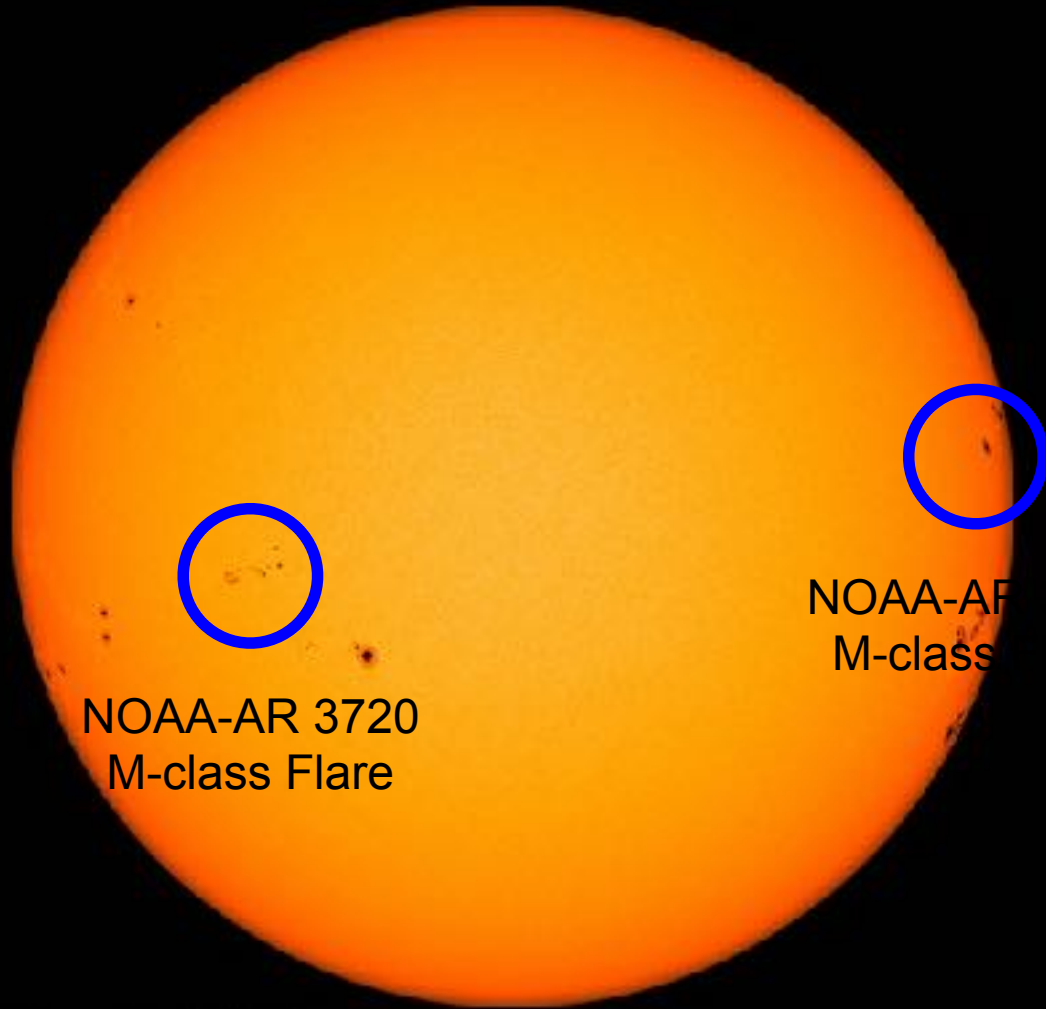
NOAA-AR 3721
M-class Flare



Solar active regions

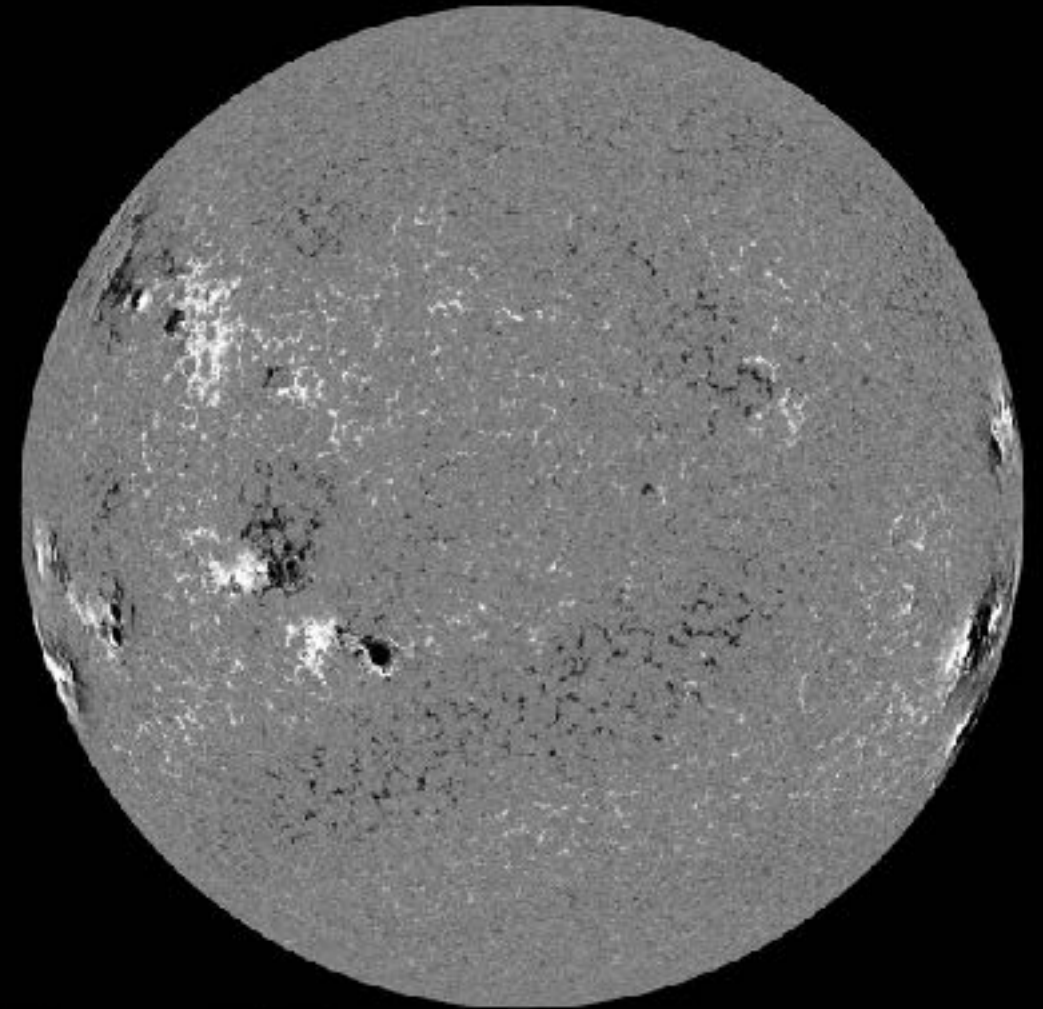
SDO/HMI White Light 2024-06-23

SDO/HMI Magnetogram 2024-06-23



NOAA-AR 3720
M-class Flare

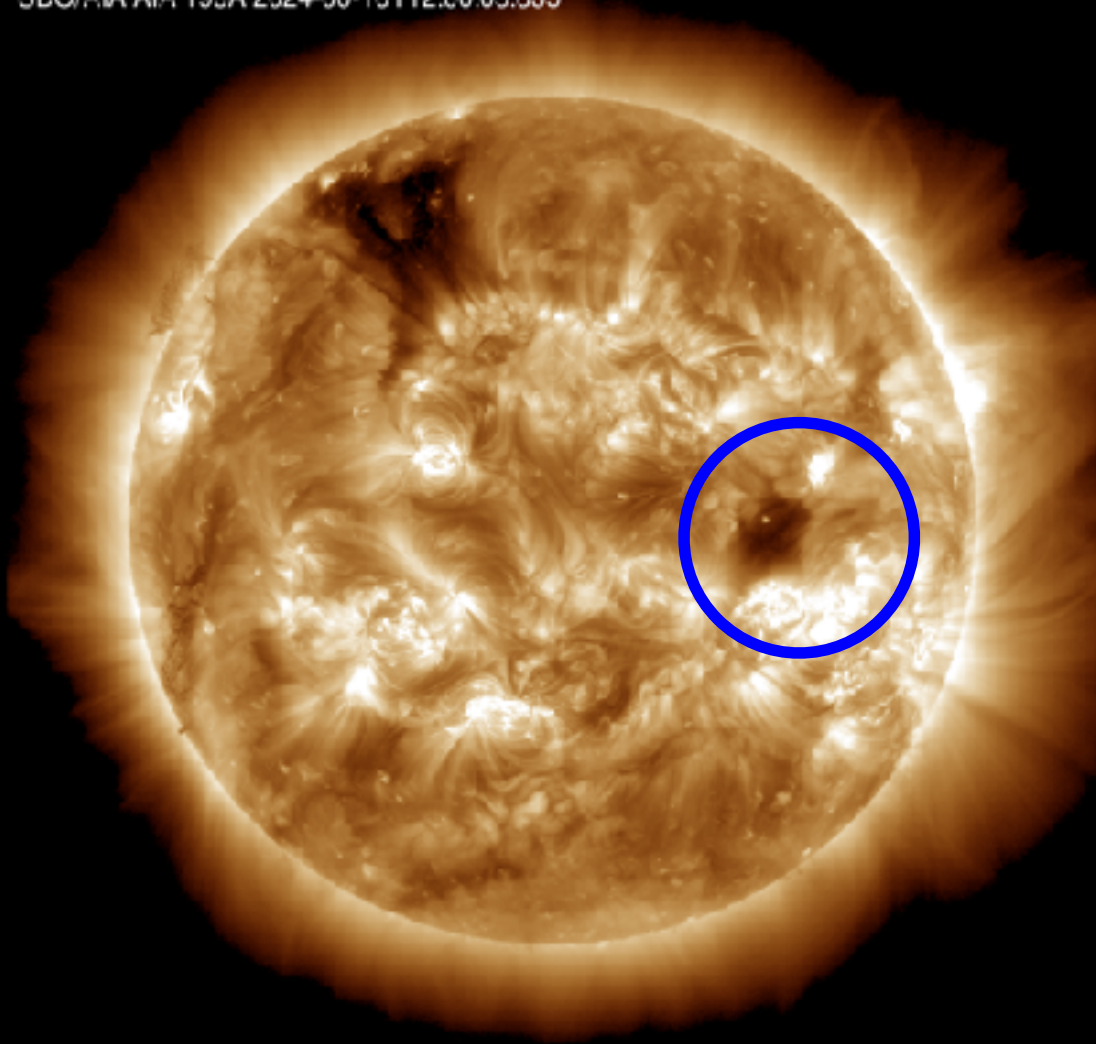
NOAA-AR
M-class



Coronal holes

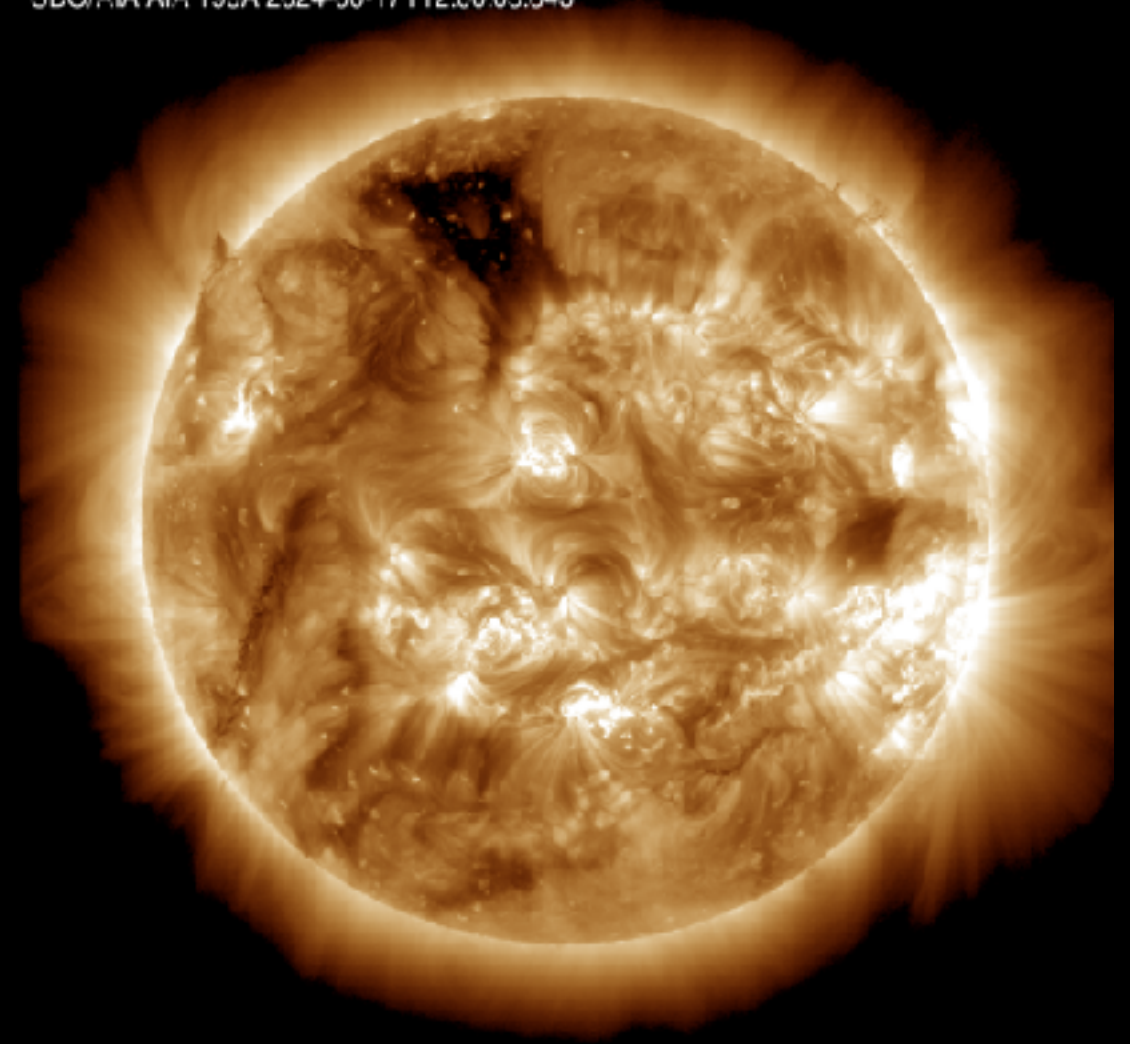
SDO/AIA 19.3 nm 2024-06-16

SDO/AIA AIA_193Å 2024-06-16T12:00:05.835



SDO/AIA 19.3 nm 2024-06-17

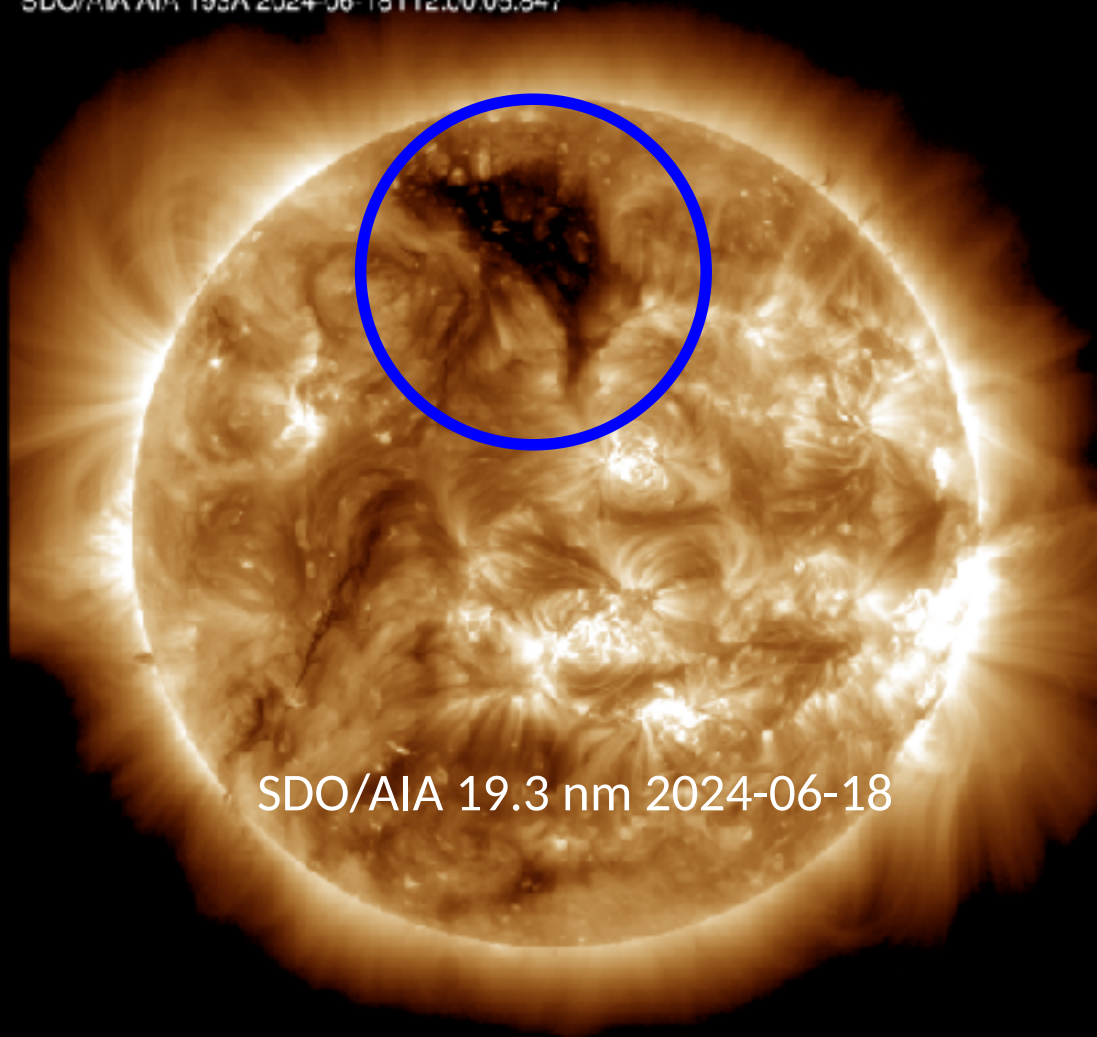
SDO/AIA AIA_193Å 2024-06-17T12:00:05.843



Coronal holes

SDO/AIA 19.3 nm 2024-06-18

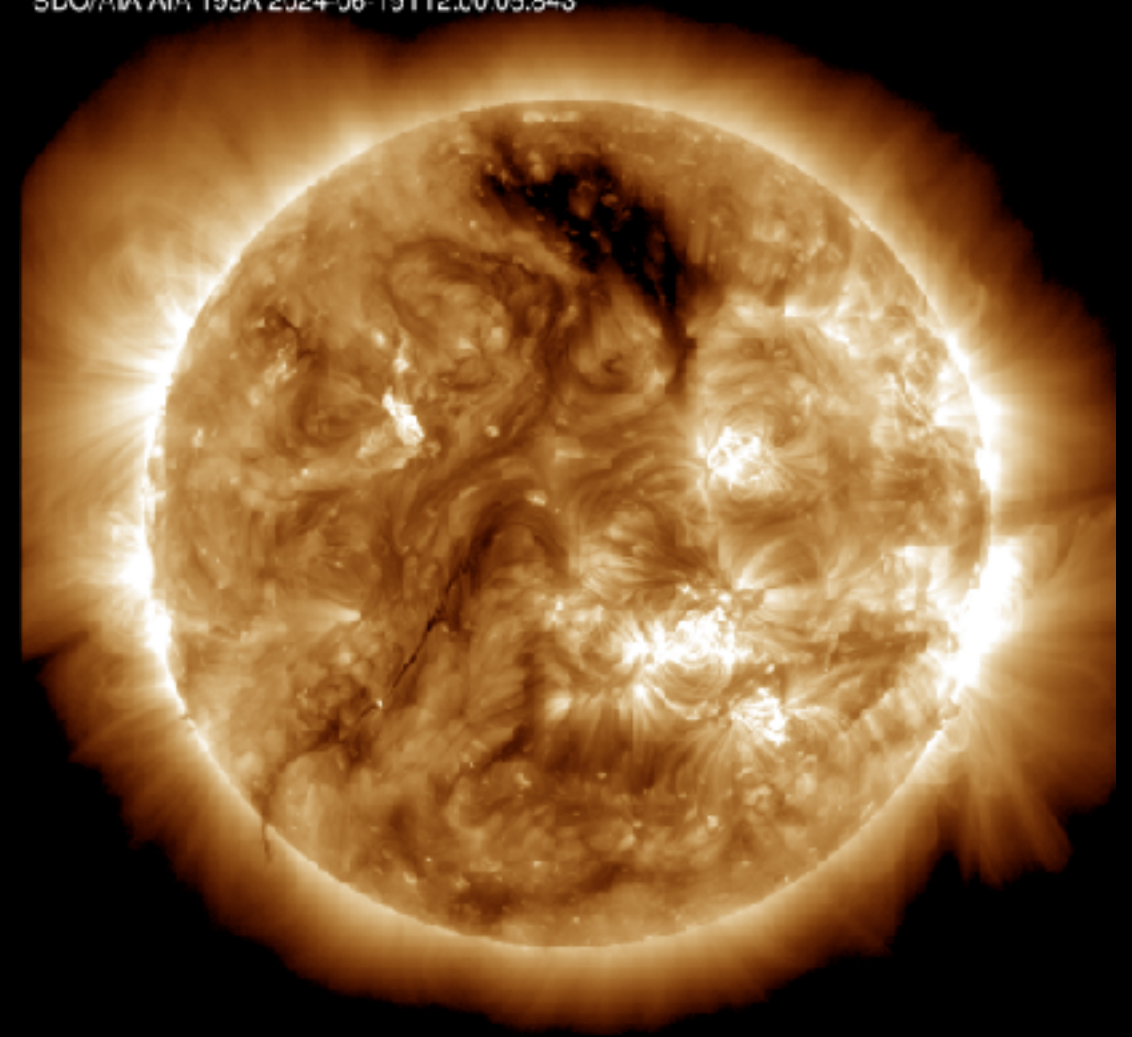
SDO/AIA AIA_193Å 2024-06-18T12:00:05.847



SDO/AIA 19.3 nm 2024-06-18

SDO/AIA 19.3 nm 2024-06-19

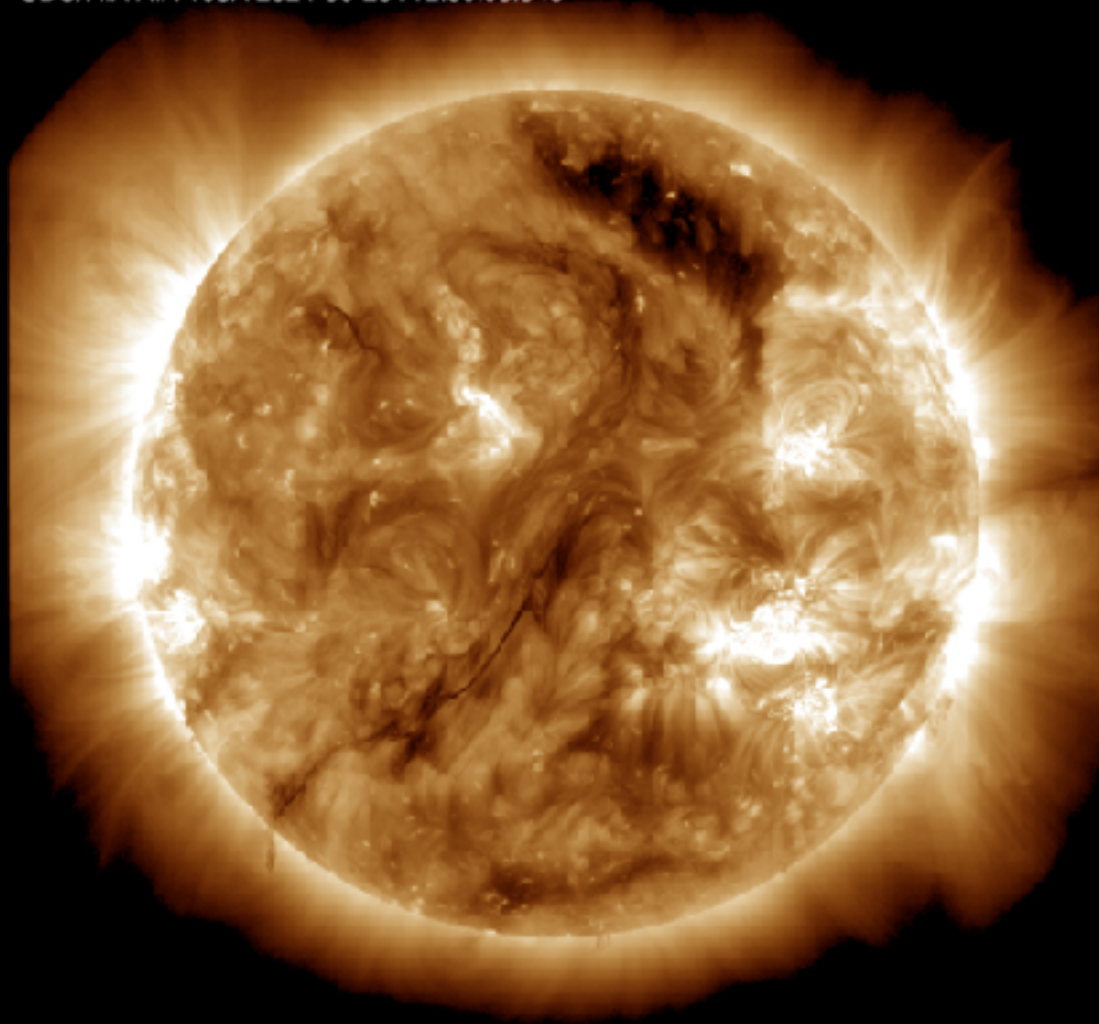
SDO/AIA AIA_193Å 2024-06-19T12:00:05.843



Coronal holes

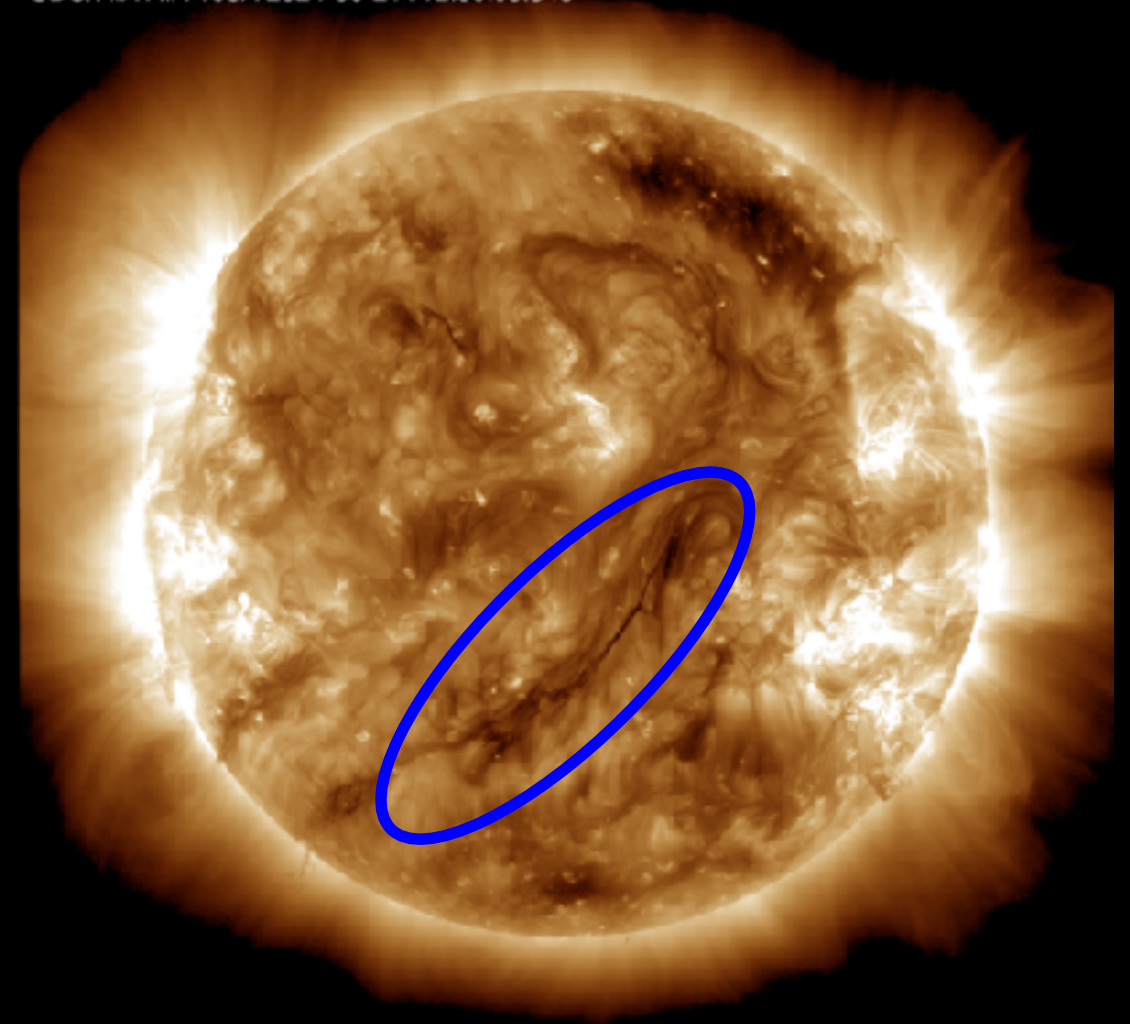
SDO/AIA 19.3 nm 2024-06-20

SDO/AIA AIA_193Å_2024_06_20T12:00:05.843



SDO/AIA 19.3 nm 2024-06-21

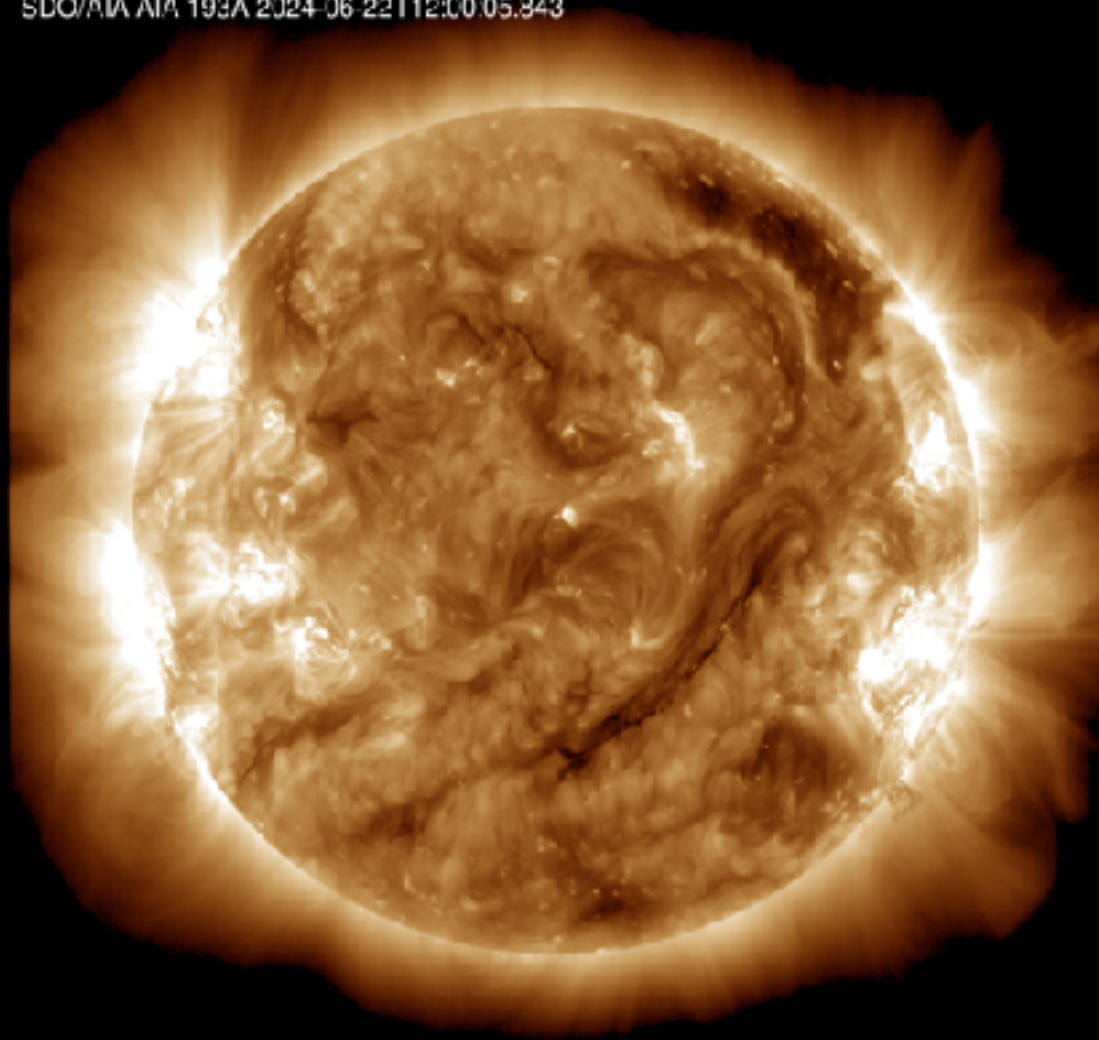
SDO/AIA AIA_193Å_2024_06_21T12:00:05.843



Coronal holes

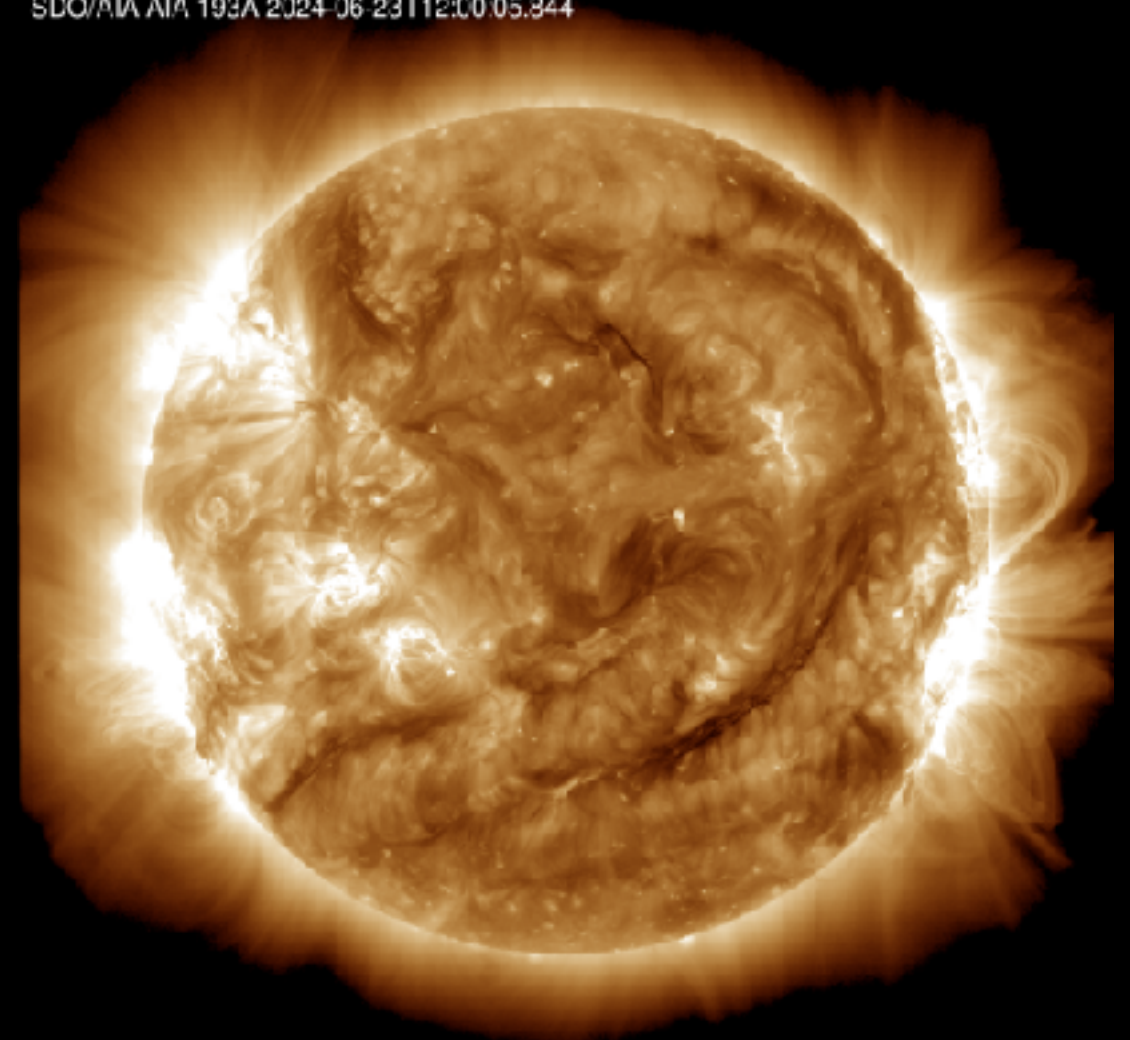
SDO/AIA 19.3 nm 2024-06-22

SDO/AIA AIA_193Å 2024_06_22T12:00:05.843



SDO/AIA 19.3 nm 2024-06-23

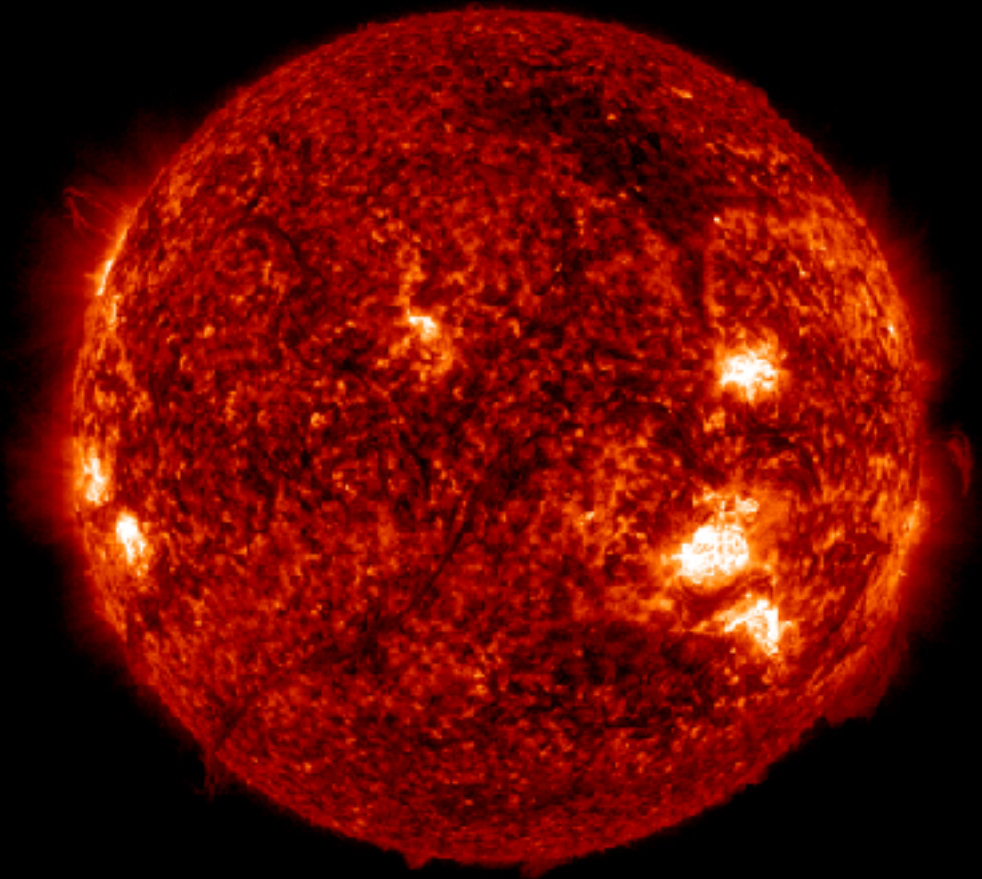
SDO/AIA AIA_193Å 2024_06_23T12:00:05.844



Filaments

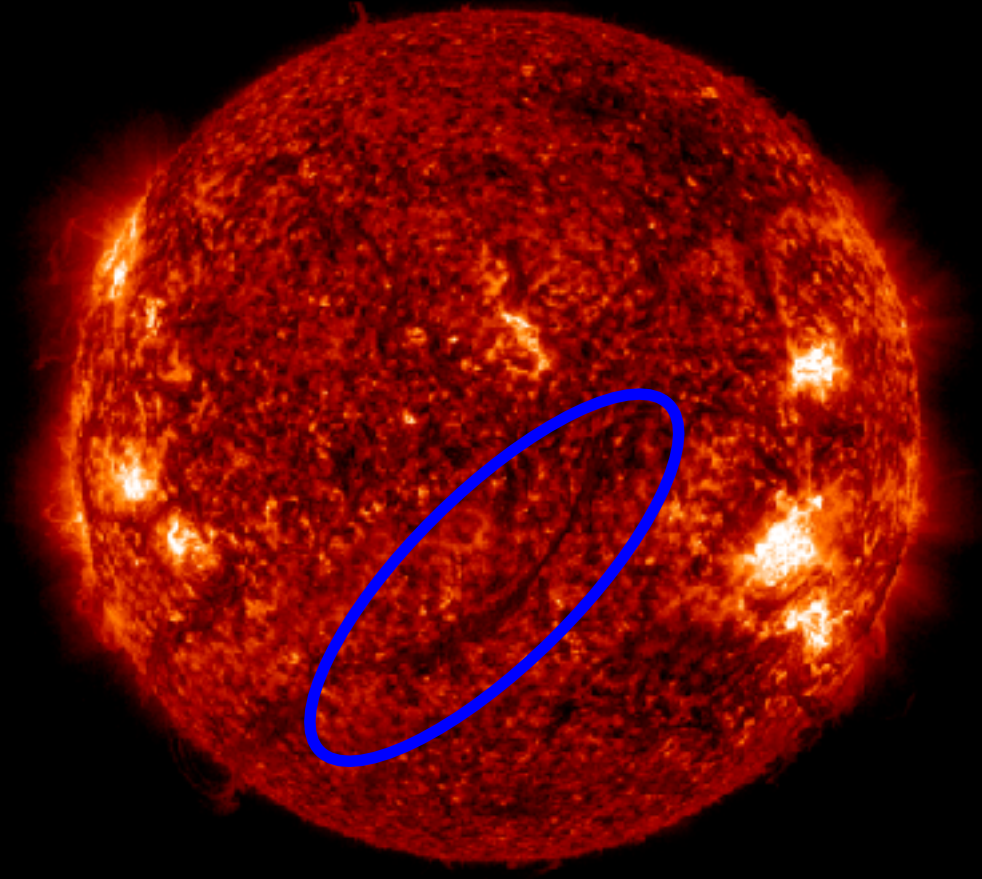
SDO/AIA 30.4 nm 2024-06-20

SDO/AIA AIA 304Å 2024-06-20T12:00:06.580



SDO/AIA 30.4 nm 2024-06-21

SDO/AIA AIA 304Å 2024-06-21T12:00:06.580



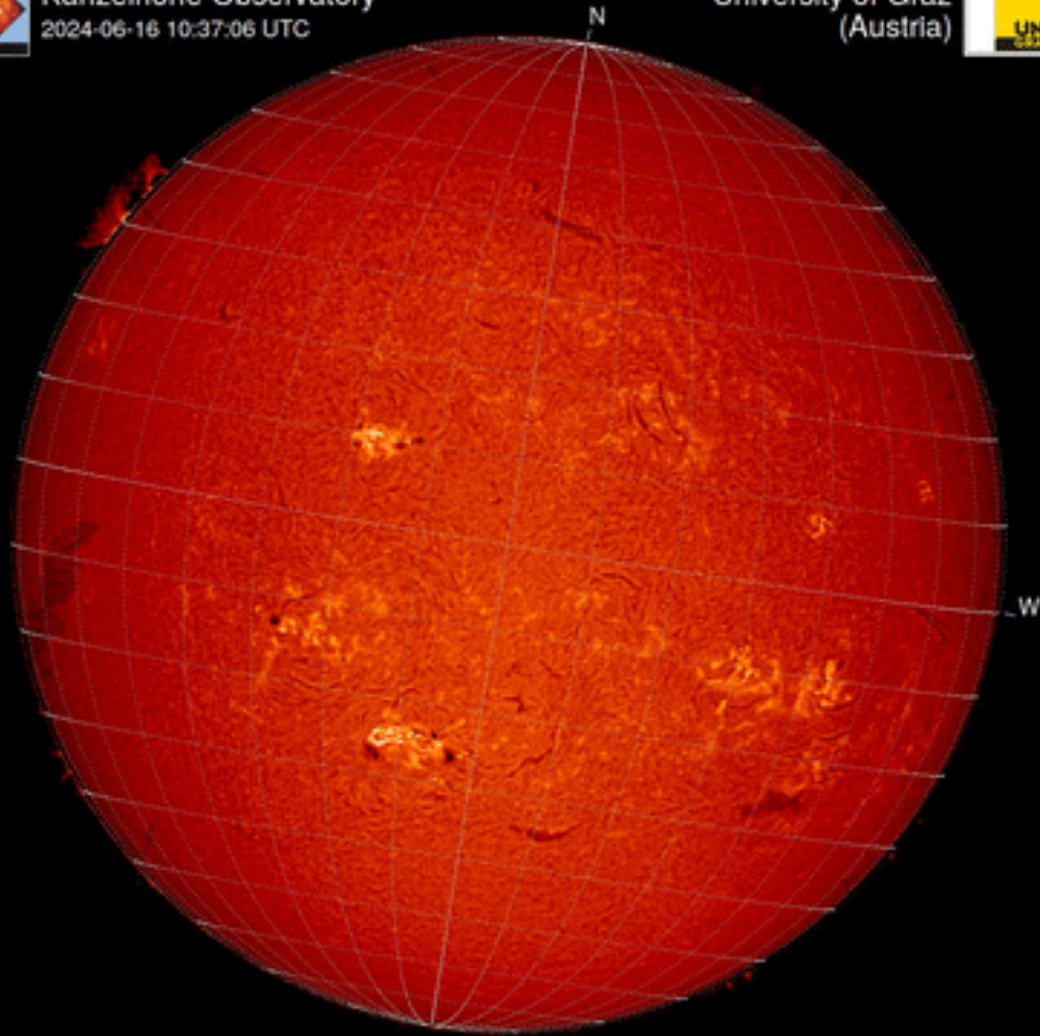
Filaments & Filament eruptions

H-alpha 2024-06-16



Kanzelhöhe Observatory
2024-06-16 10:37:06 UTC

University of Graz
(Austria)

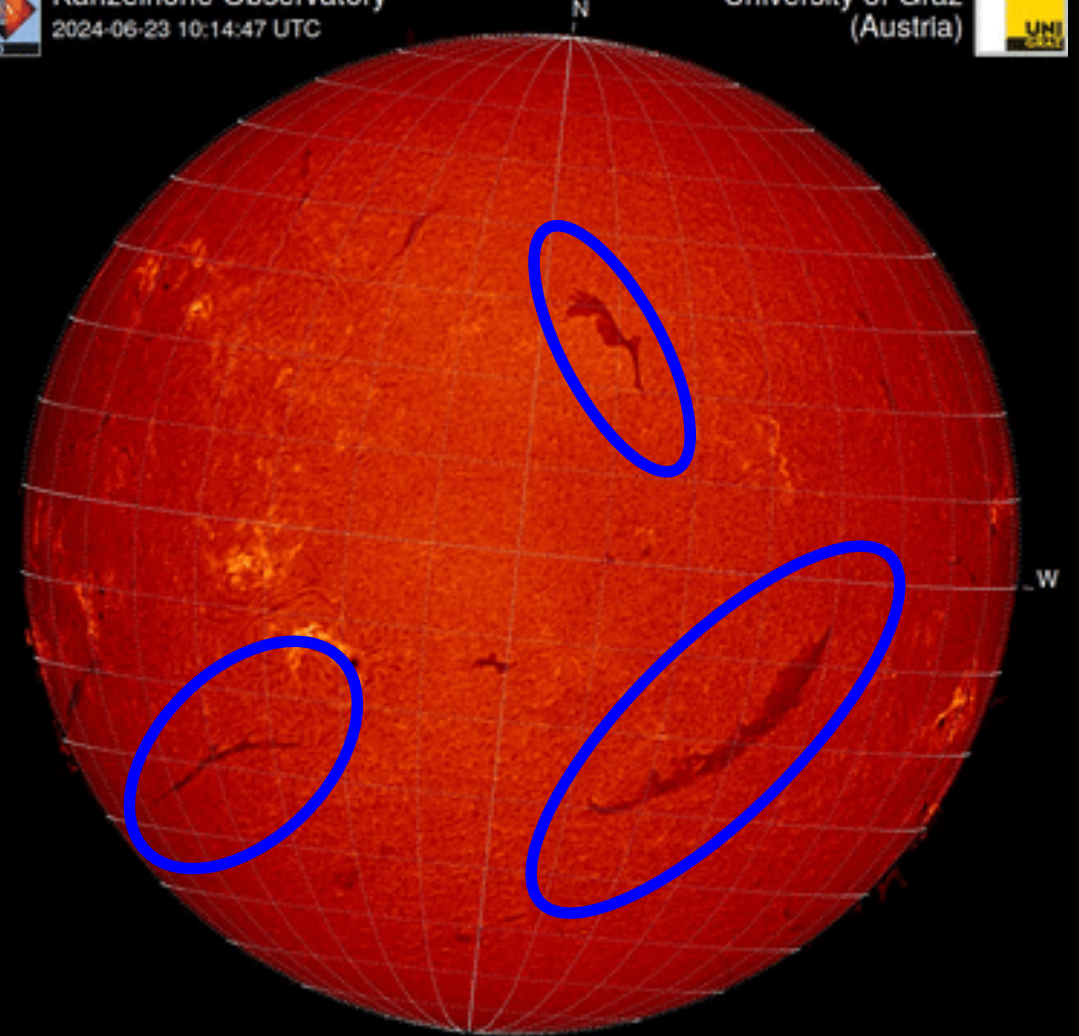


H-alpha 2024-06-23

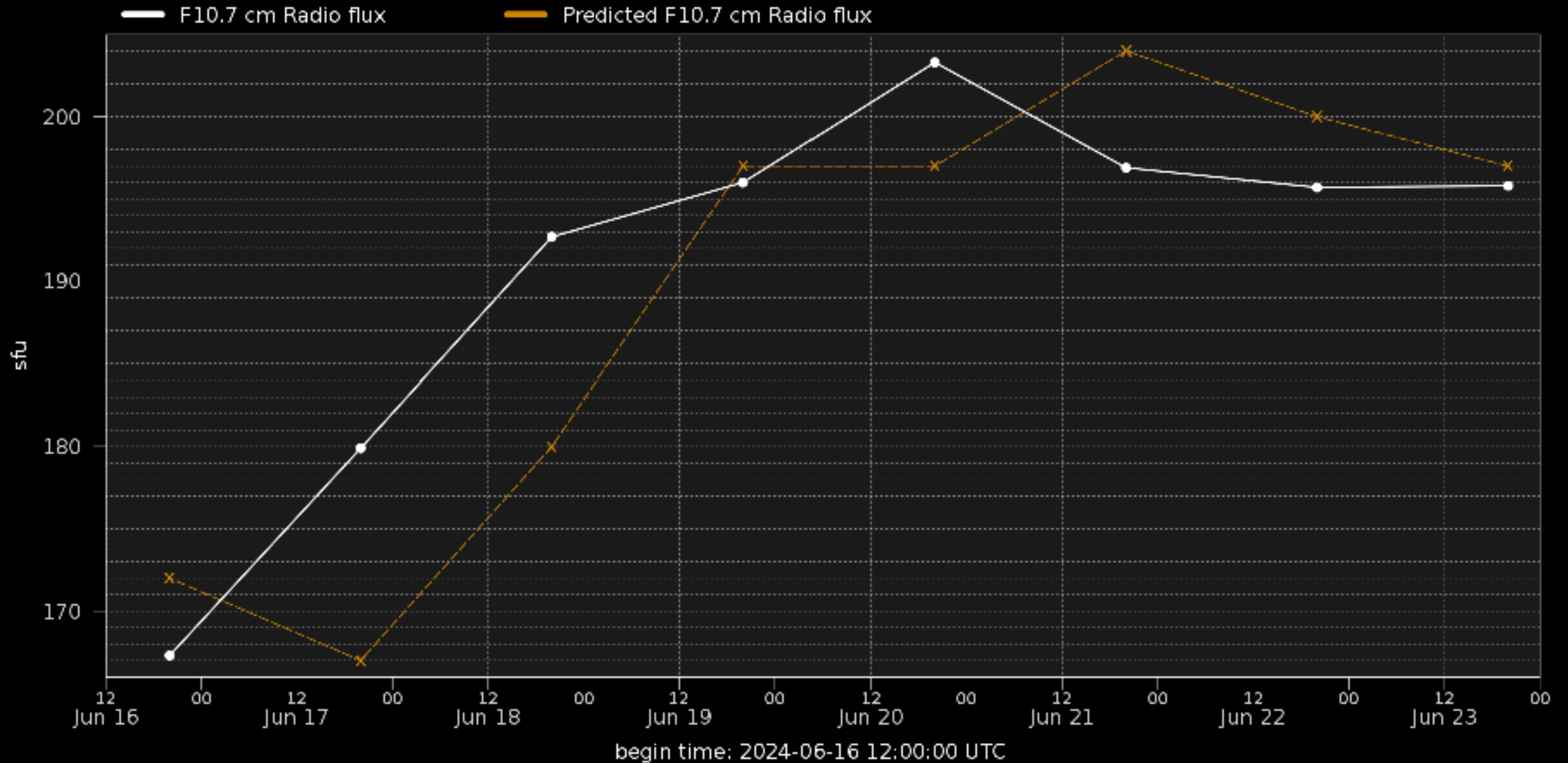


Kanzelhöhe Observatory
2024-06-23 10:14:47 UTC

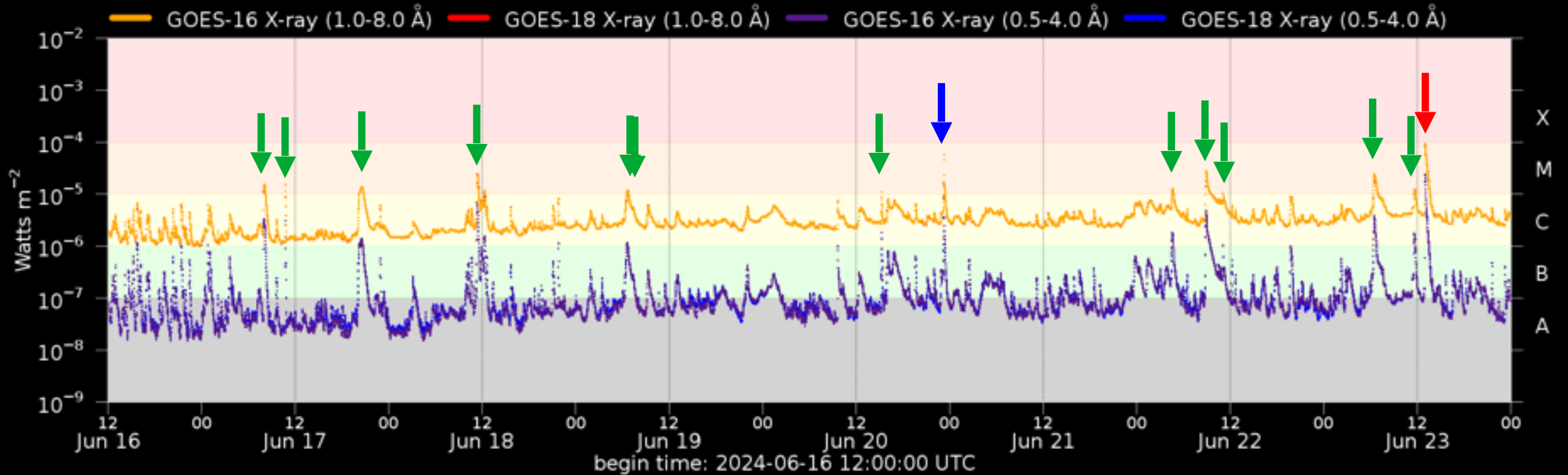
University of Graz
(Austria)



Solar F10.7cm radio flux



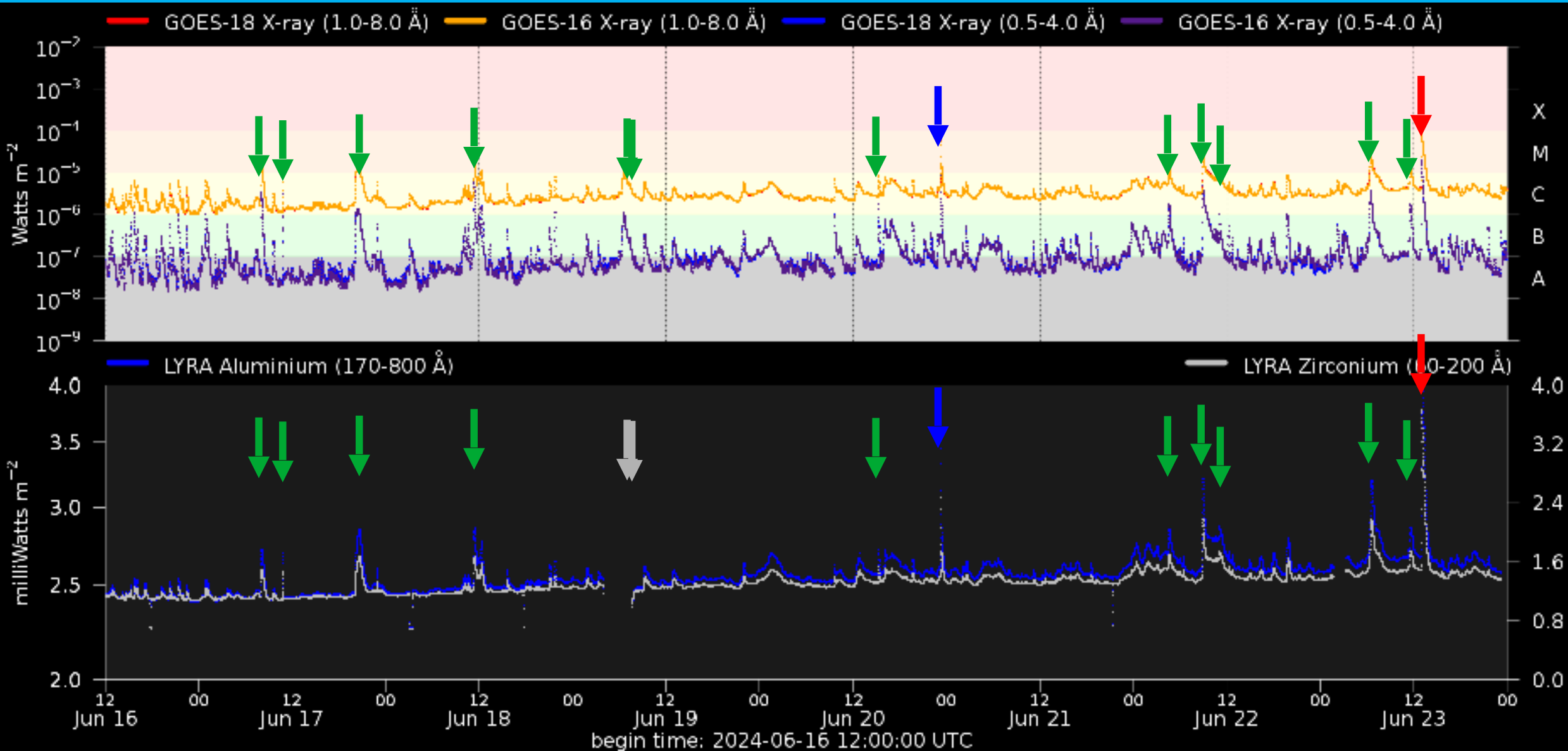
Flaring activity



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

Issue date	2024-06-16	2024-06-17	2024-06-18	2024-06-19	2024-06-20	2024-06-21	2024-06-22	2024-06-23
Probability (%)	99 65 15	95 60 15	95 55 05	95 65 10	95 50 05	95 65 10	99 75 15	99 75 15
Observed (#)	18 02 00	04 02 00	06 02 00	02 00 00	05 02 00	03 03 00	06 02 00	03 01 00

Solar X-Ray and UV flux



Coronal Mass Ejections

```
:Issued: 2024 Jun 17 1810 UTC
:Product: documentation at http://www.sidc.be/products/cactus
#-----#
# HALO CME ALERTS from the SIDC (RWC-Belgium), generated by CACTUS #
#-----#

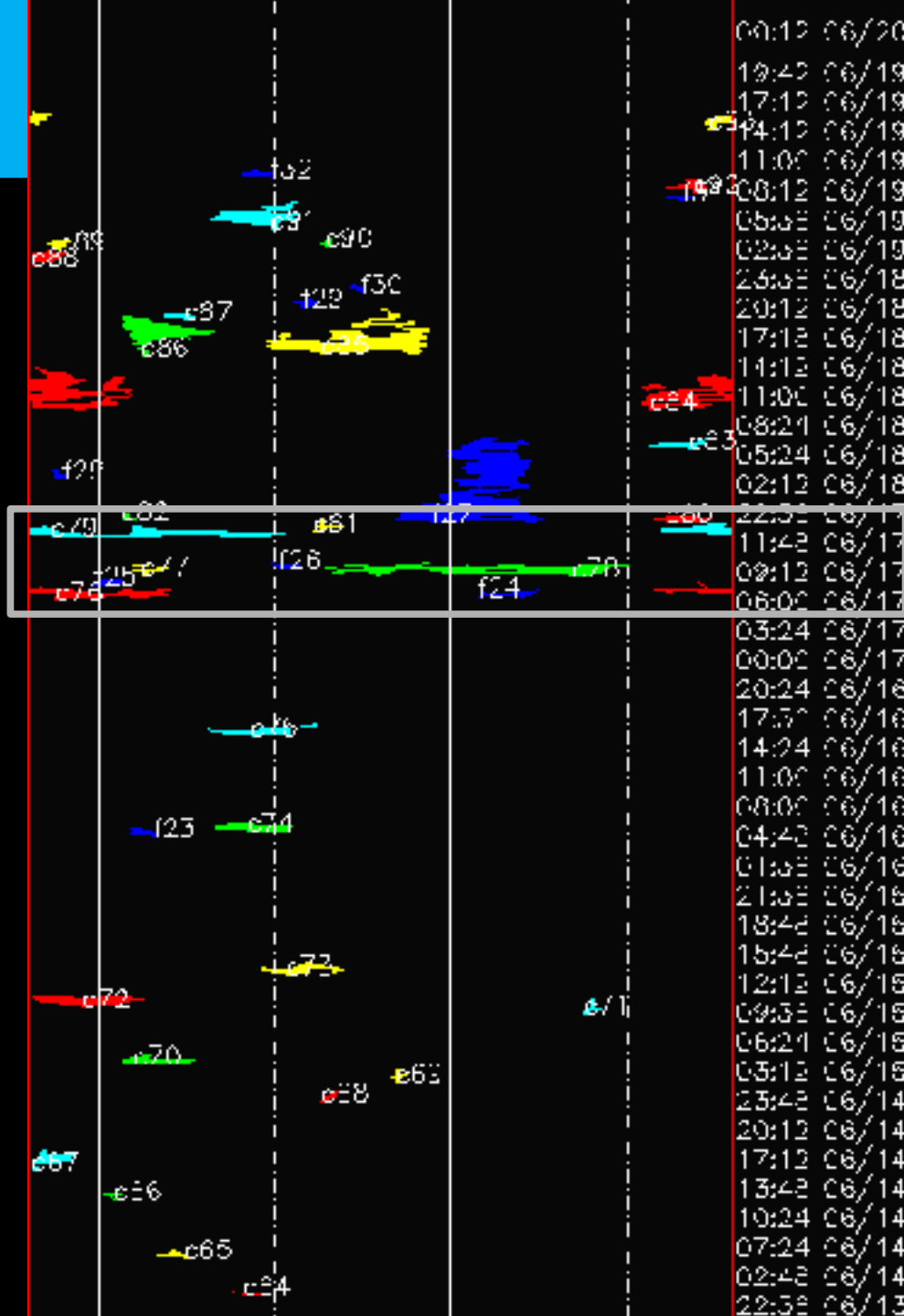
A halo or partial-halo CME was detected with the following characteristics:

      t0      | dt0| pa | da | v | dv | minv| maxv|
2024-06-17T11:00:07.427 | 1.0 | 359 | 184 | 611 | 103 | 380 | 800
```

```
:Issued: 2024 Jun 18 0850 UTC
:Product: documentation at http://www.sidc.be/products/presto
#-----#
# FAST WARNING 'PRESTO' MESSAGE from the SIDC (RWC-Belgium) #
#-----#

Another halo coronal mass ejection (CME) was observed by SOHO/LASCO-C2 at approximately 20:20 UTC on June 17, with a projected speed of around 800 km/s. This event likely resulted from multiple CMEs erupting simultaneously. The southwest-directed CME is probably associated with the M1.4 flare, which began at 19:57 UTC and peaked at 20:35 UTC on June 17, originating from NOAA active region 3711. The other component of the halo CME is believed to be on the far side of the Sun.
```

Given NOAA active region 3711's position at longitude 56 on the west side, the associated westward CME is not expected to have an Earth-directed component.



Coronal Mass Ejections

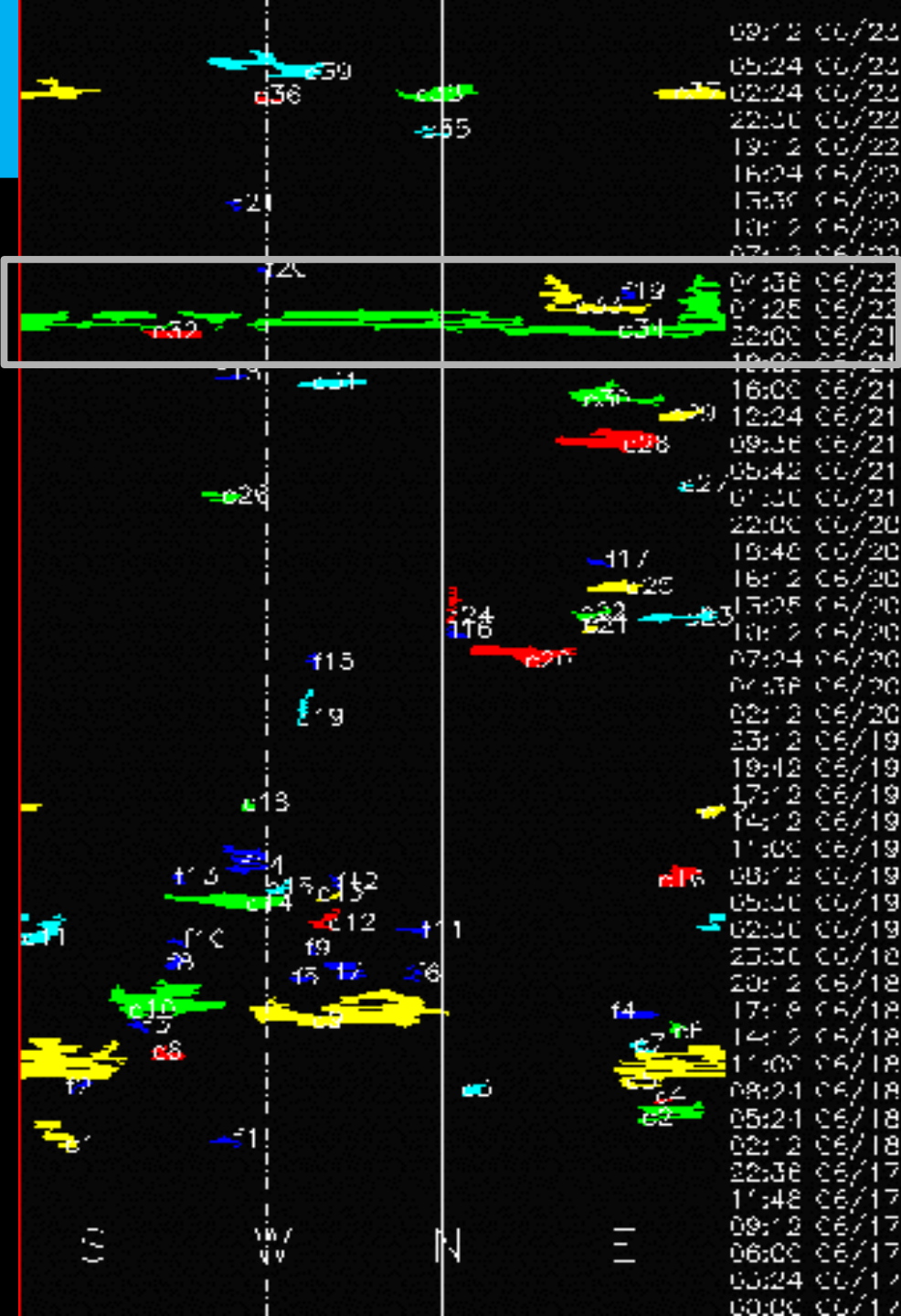
```
:Issued: 2024 Jun 22 0605 UTC
:Product: documentation at http://www.sidc.be/products/cactus
#-----#
# HALO CME ALERTS from the SIDC (RWC-Belgium), generated by CACTUS #
#-----#
```

A halo or partial-halo CME was detected with the following characteristics:

t0	dt0	pa	da	v	dv	minv	maxv
2024-06-22T00:12:07.482	3.0	52	342	845	437	370	1955

```
:Issued: 2024 Jun 22 1222 UTC
:Product: documentation at http://www.sidc.be/products/presto
#-----#
# FAST WARNING 'PRESTO' MESSAGE from the SIDC (RWC-Belgium) #
#-----#
```

A halo coronal mass ejection (CME) was observed by SOHO/LASCO-C2 at 00:12 UTC on June 22. This event is likely the result of two CMEs erupting simultaneously. The ejection in the eastward direction shows an estimated projected speed of about 1000 km/s and is likely originating from a region on the far side of the Sun. The other ejection, in the south-southwest direction, is much slower and is not expected to reach Earth.



Solar Wind and

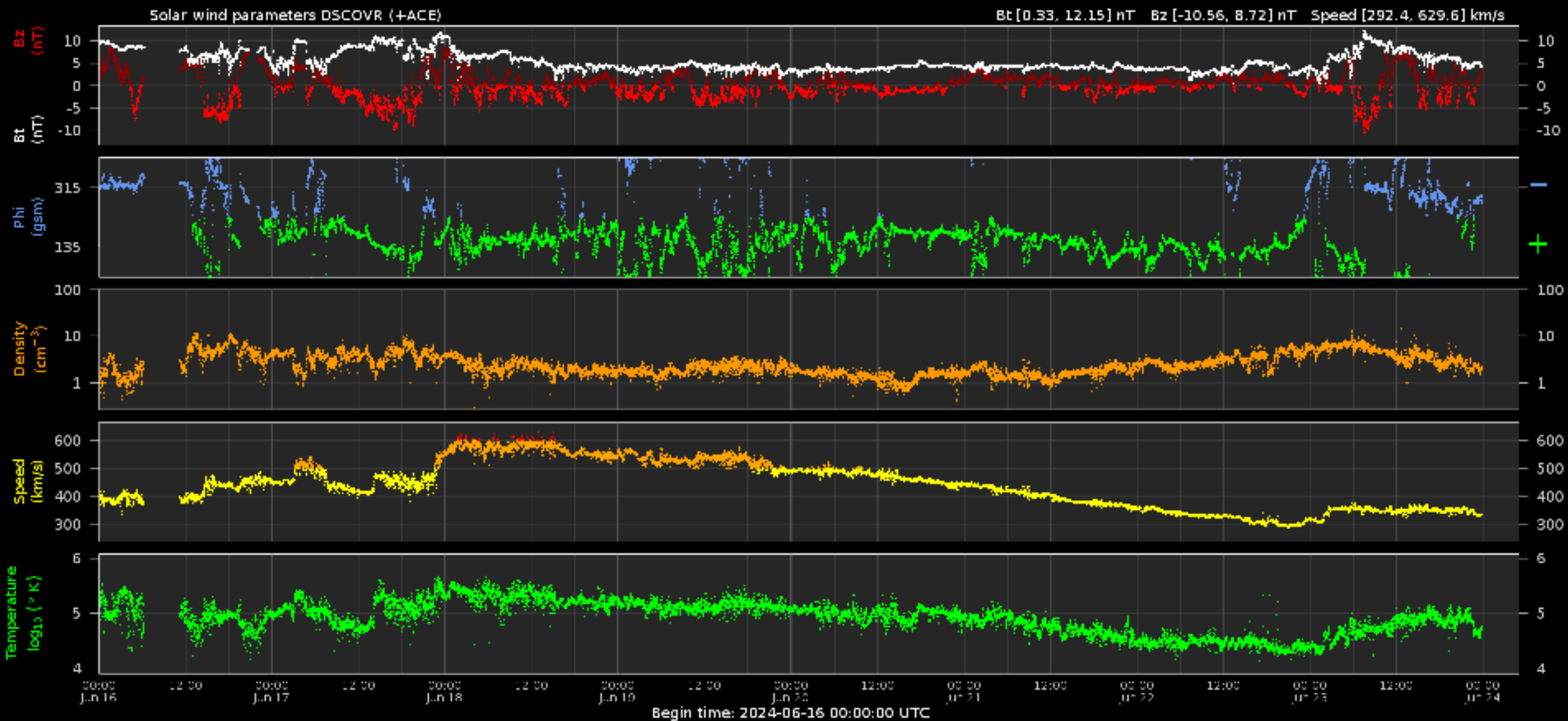
Geomagnetic Activity



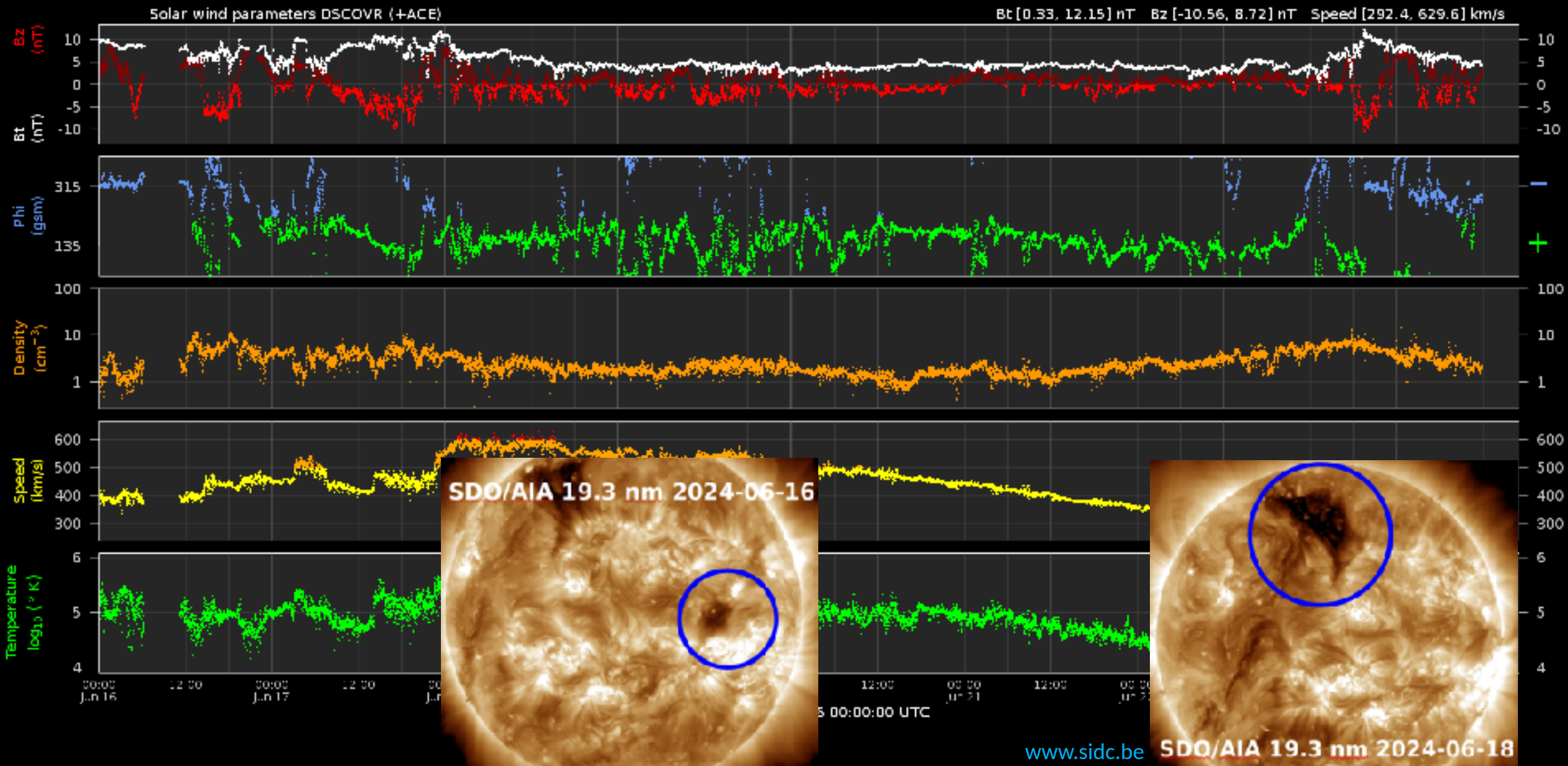
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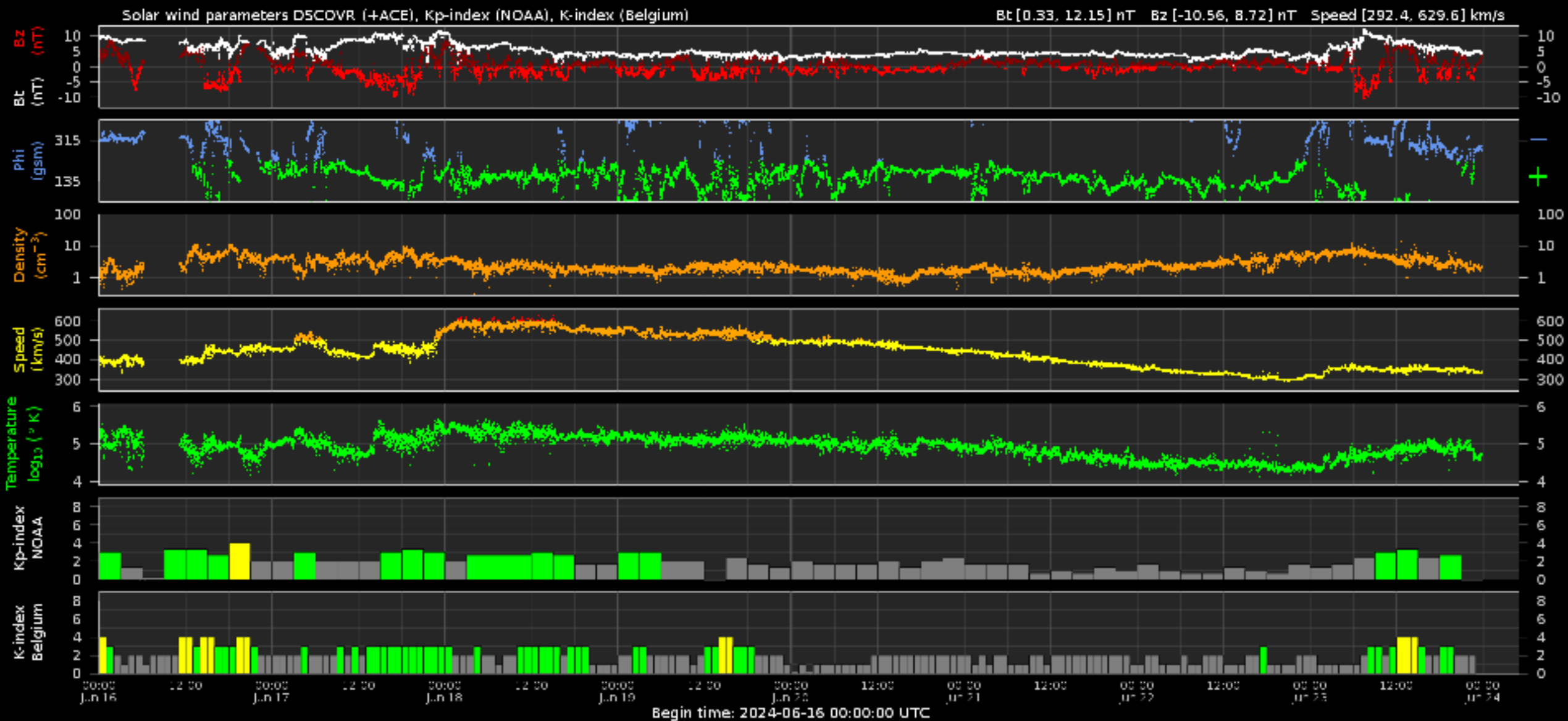
Solar wind parameters



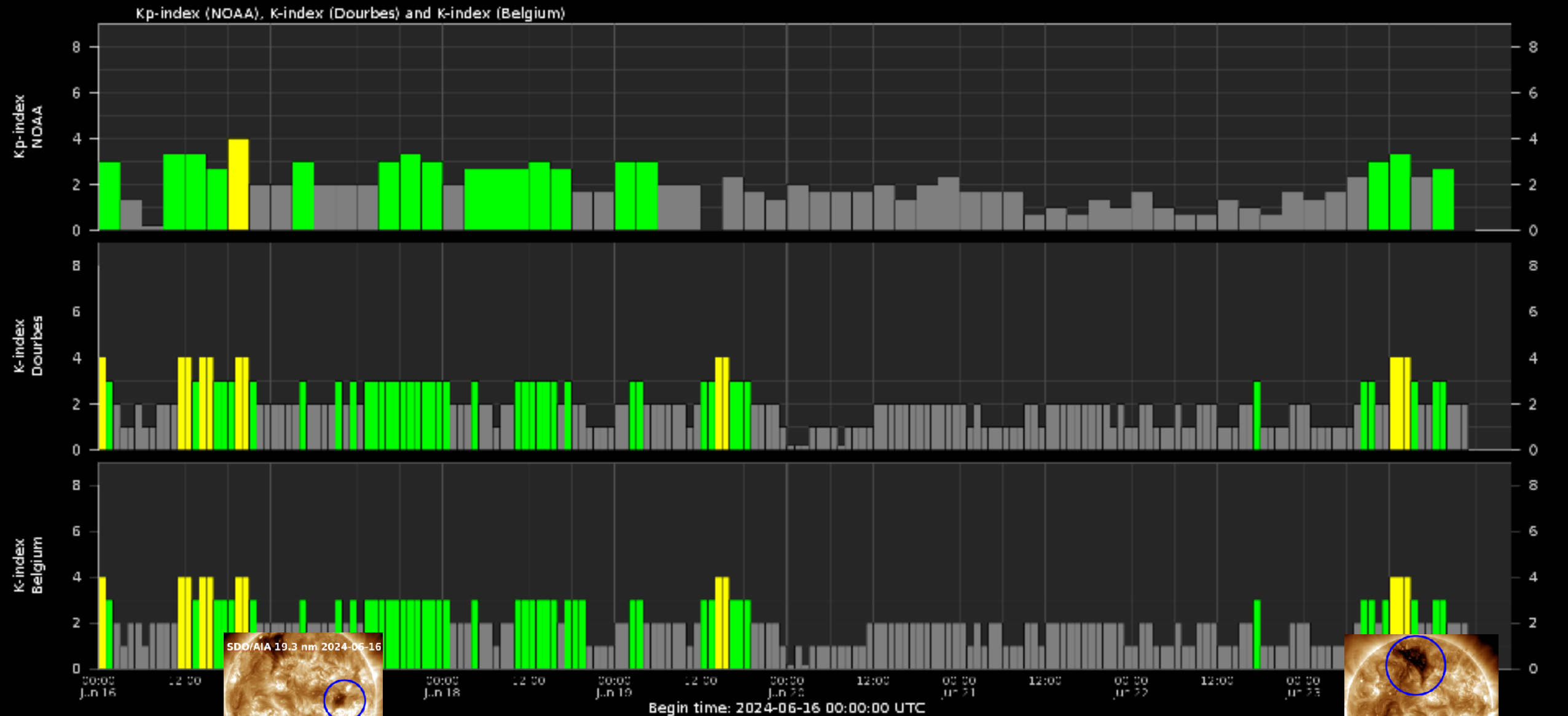
Solar wind parameters



Solar wind parameters & K-indices



Geomagnetic activity (K-indexes)



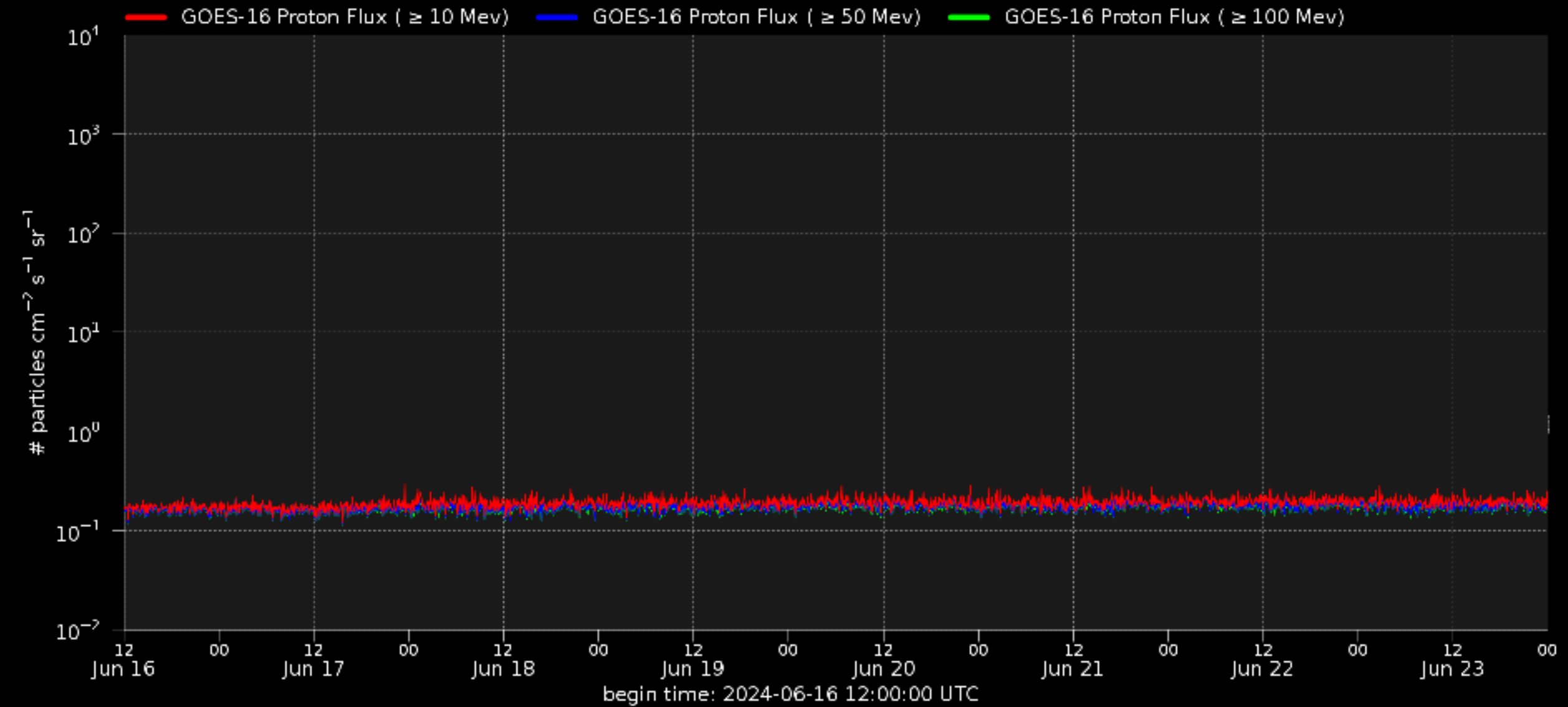
Energetic Particles



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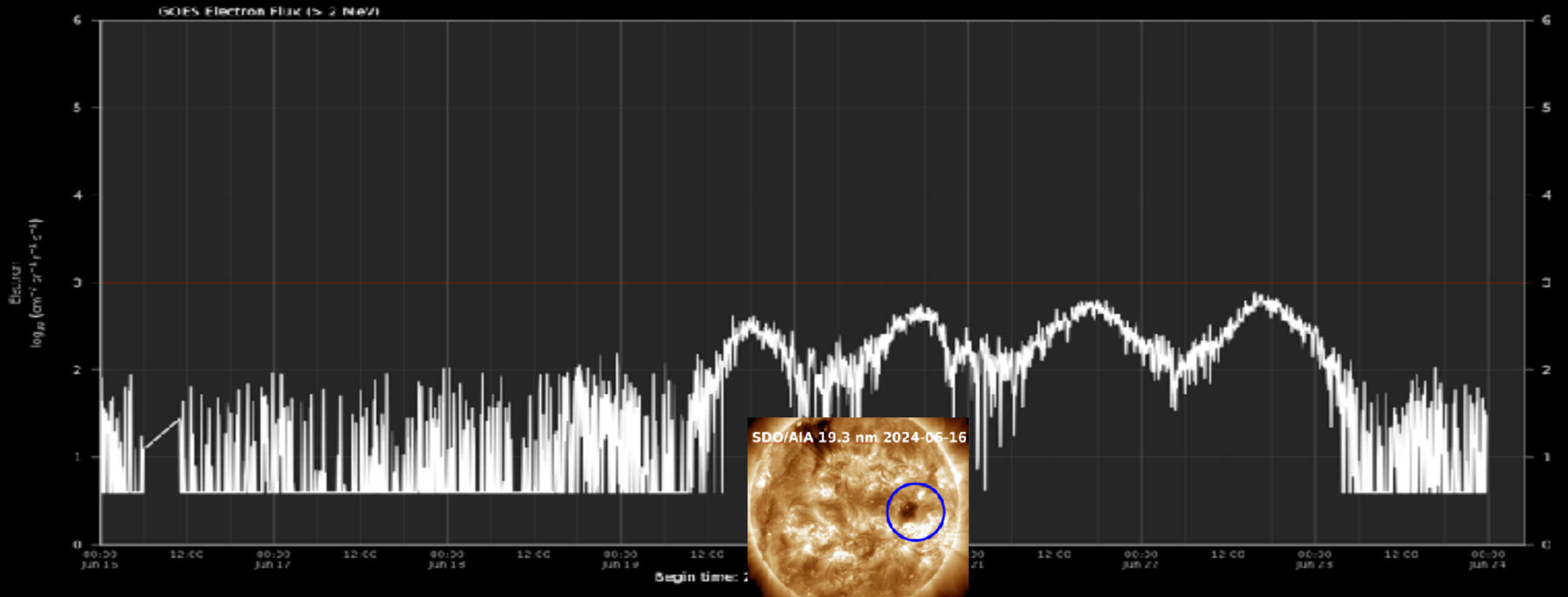
Solar proton flux



Electron flux at GEO

www.stce.be/educational/classification#electrons

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



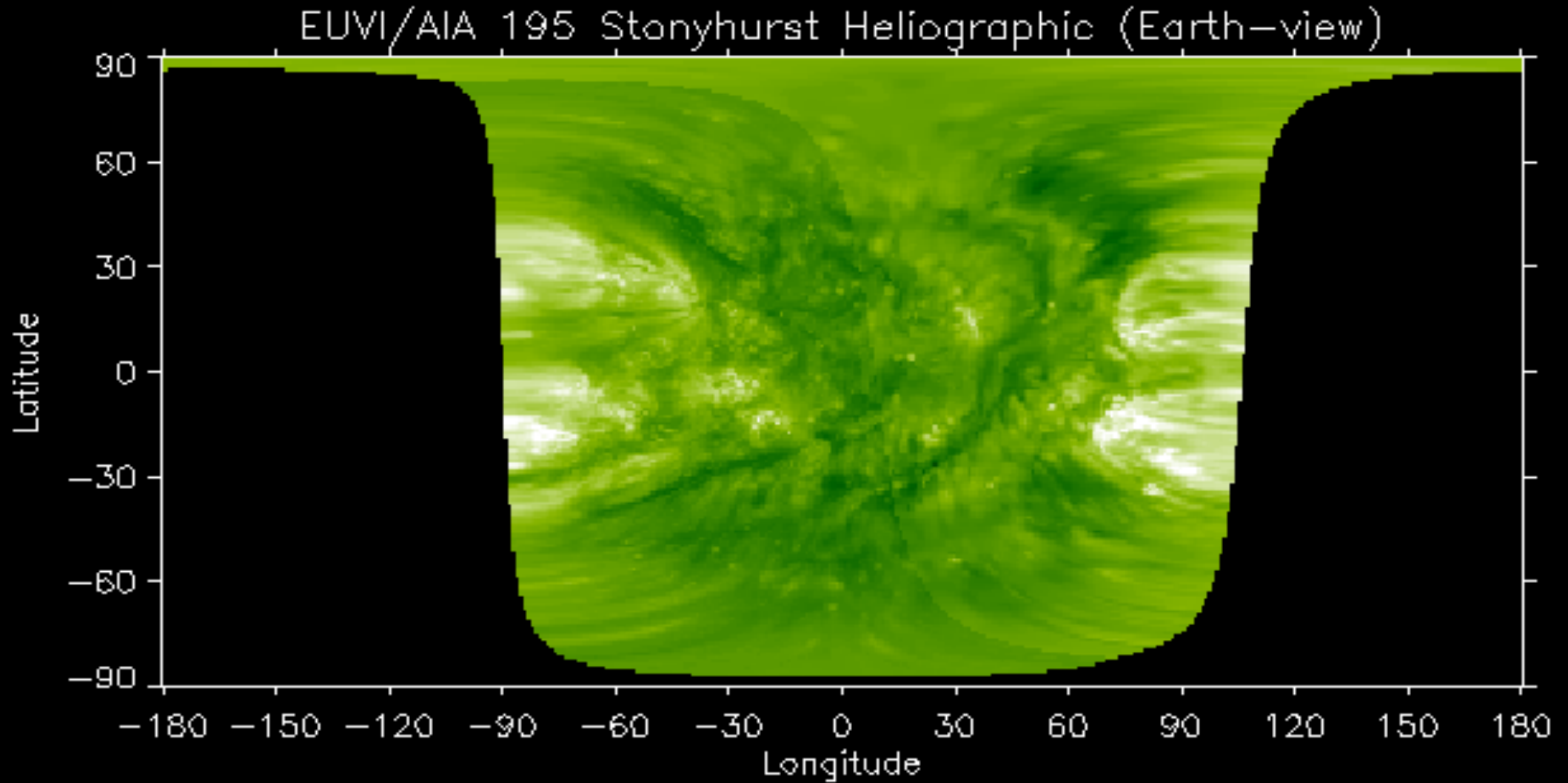
Outlook



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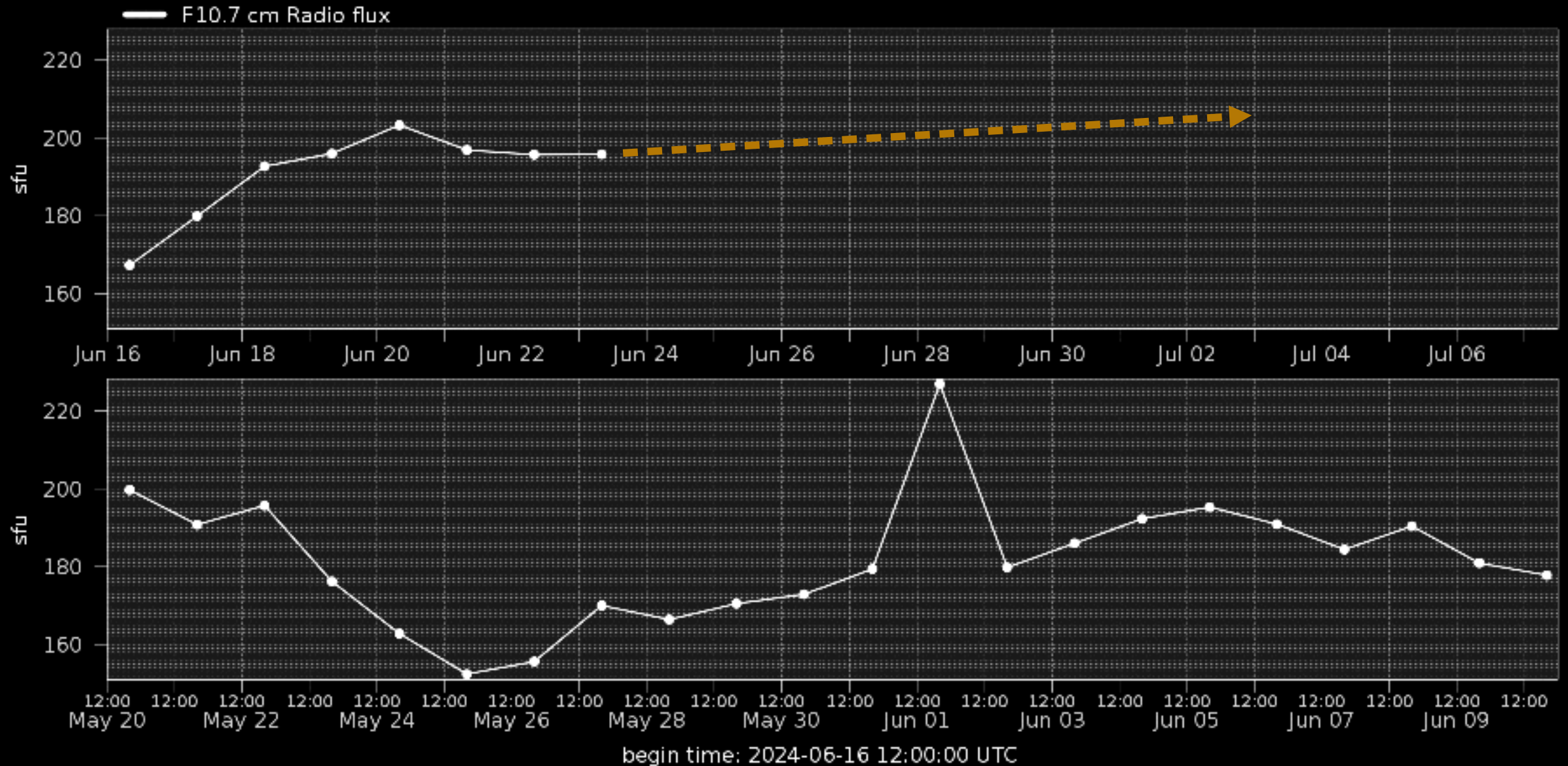
www.sidc.be

Outlook: Solar activity

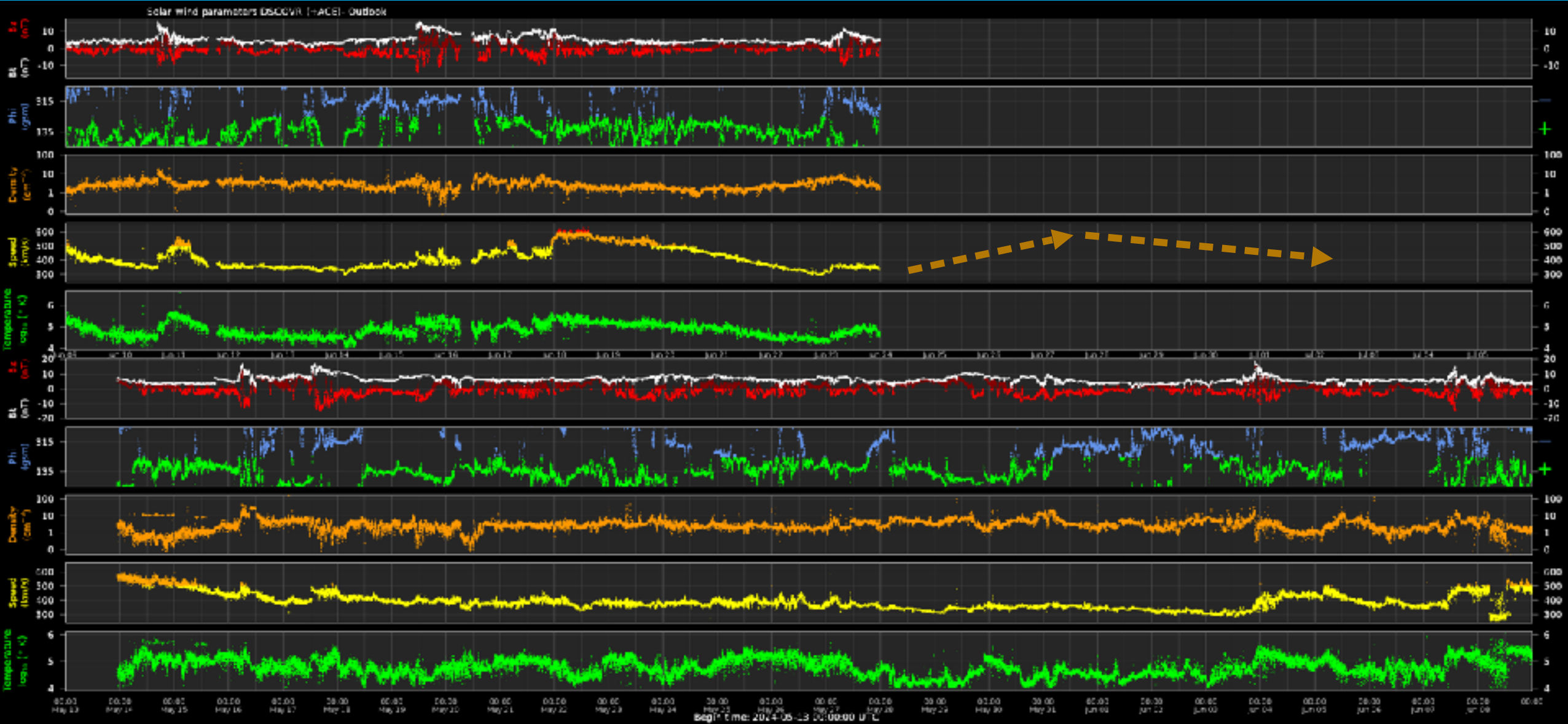


Observation date: 2024/06/23 17:05:00

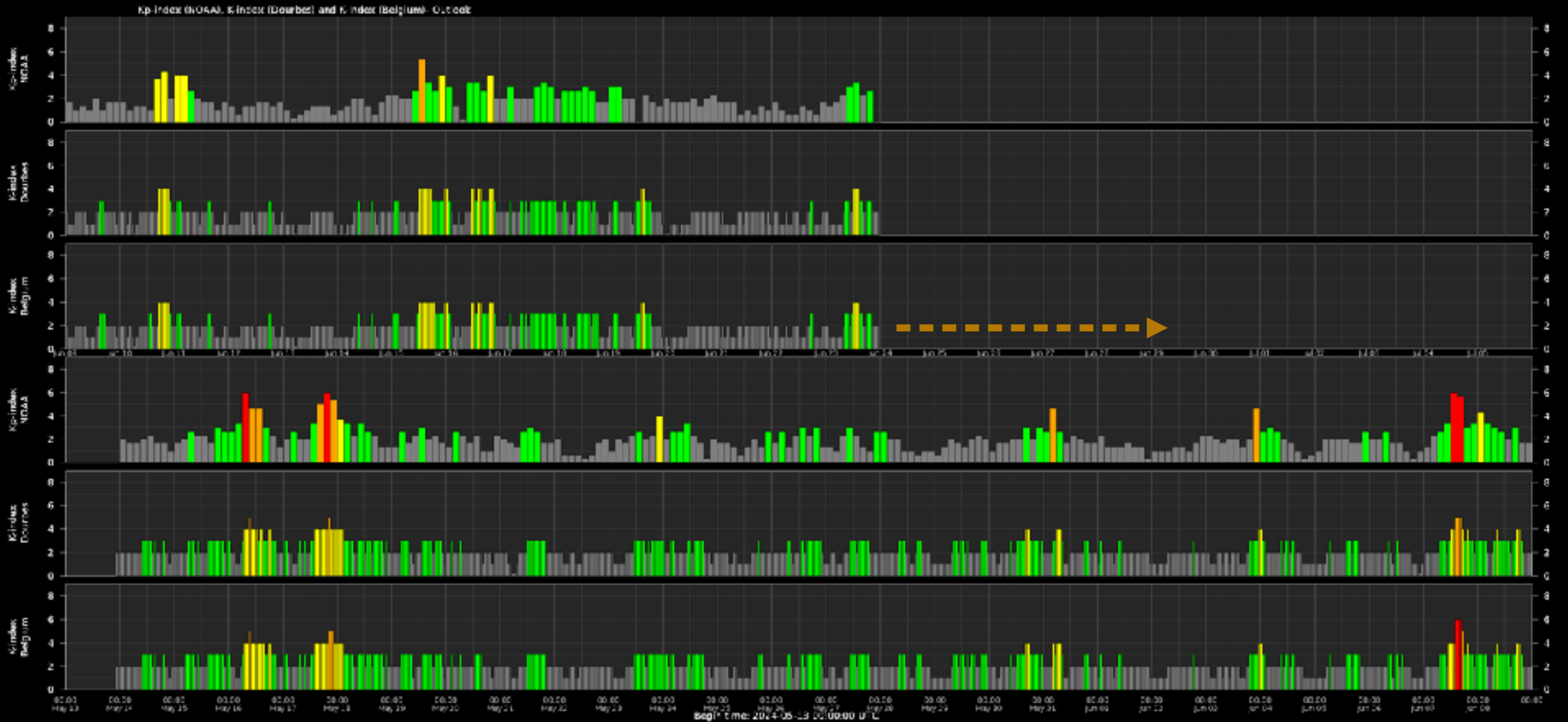
Outlook: Solar F10.7cm radio flux



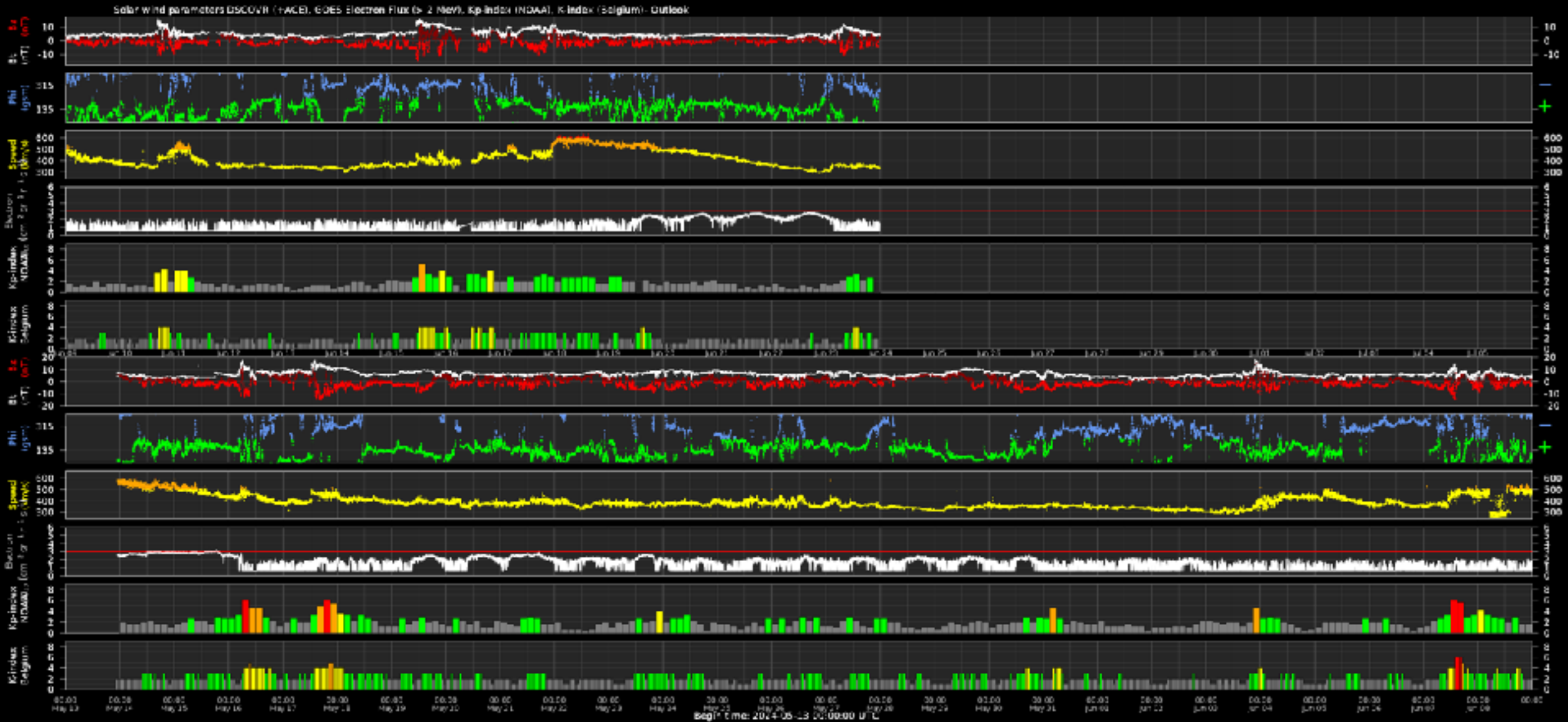
Outlook: Solar wind parameters



Outlook: Geomagnetic activity



Outlook: Electron Flux at GEO Outlook



PECASUS



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Pegasus related events

Anything notable that is Pegasus related?

SIDC Space Weather Briefing

See you at our next briefing!

Or visit us at www.sidc.be



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