

SIDC Space Weather Briefing

13 February 2022 - 20 February 2022

Jennifer O'Hara

& the SIDC forecaster team



Royal Observatory
of Belgium

Solar Influences
Data analysis Centre
www.sidc.be

Summary Report

Solar activity from 2022-02-13 12:00 to 2022-02-20 23:59

Active regions	NOAA region 2941 , NOAA region 2945, NOAA region 2946, NOAA region 2947, NOAA region 2948, NOAA region 2949, NOAA region 2950, NOAA region 2951, NOAA region 2952, NOAA region 2953, NOAA region 2954
Flares	# C-class flare: 13 # M-class flare: 2 # X-class flare: 0
Coronal Holes	Extension to southern polar CH (-ve), Equatorial CH (+ve)
CMEs	No Earth-directed CMEs
Proton flux	Below 10pfu threshold, but slightly enhanced from background.
Electron flux	Exceeded the 1000pfu threshold for much of the week

Solar wind and geomagnetic conditions

ICMEs	None
SW Conditions	B : 0.28 - 12.28 nT // Bz: -11.1 nT to 8.6 nT // Speed: 312.6 - 554.5km/s
K-indices	max K-index (K_Bel): 4 max Kp-index (NOAA): 5

All Quiet Alert: Off for the whole week

Solar Activity

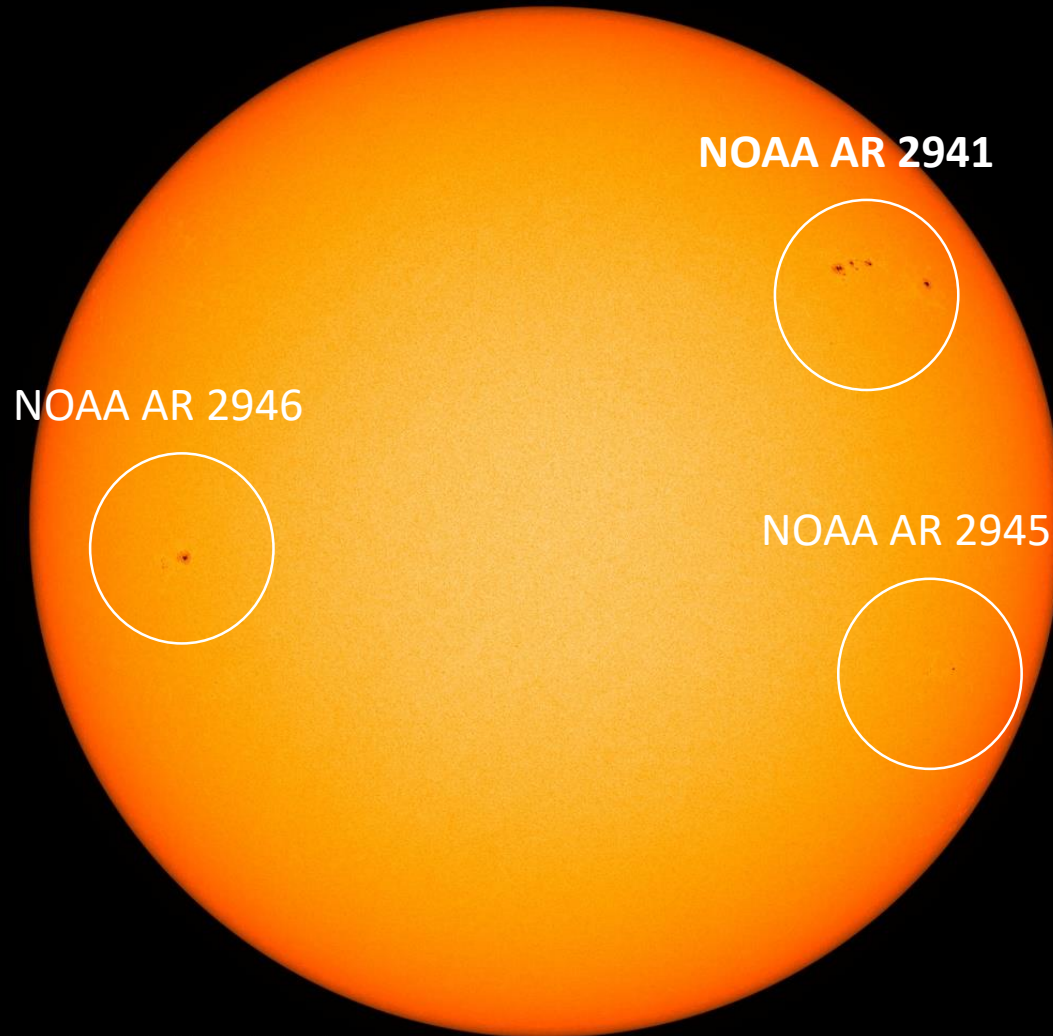


Royal Observatory
of Belgium

Solar Influences
Data analysis Centre
www.sidc.be

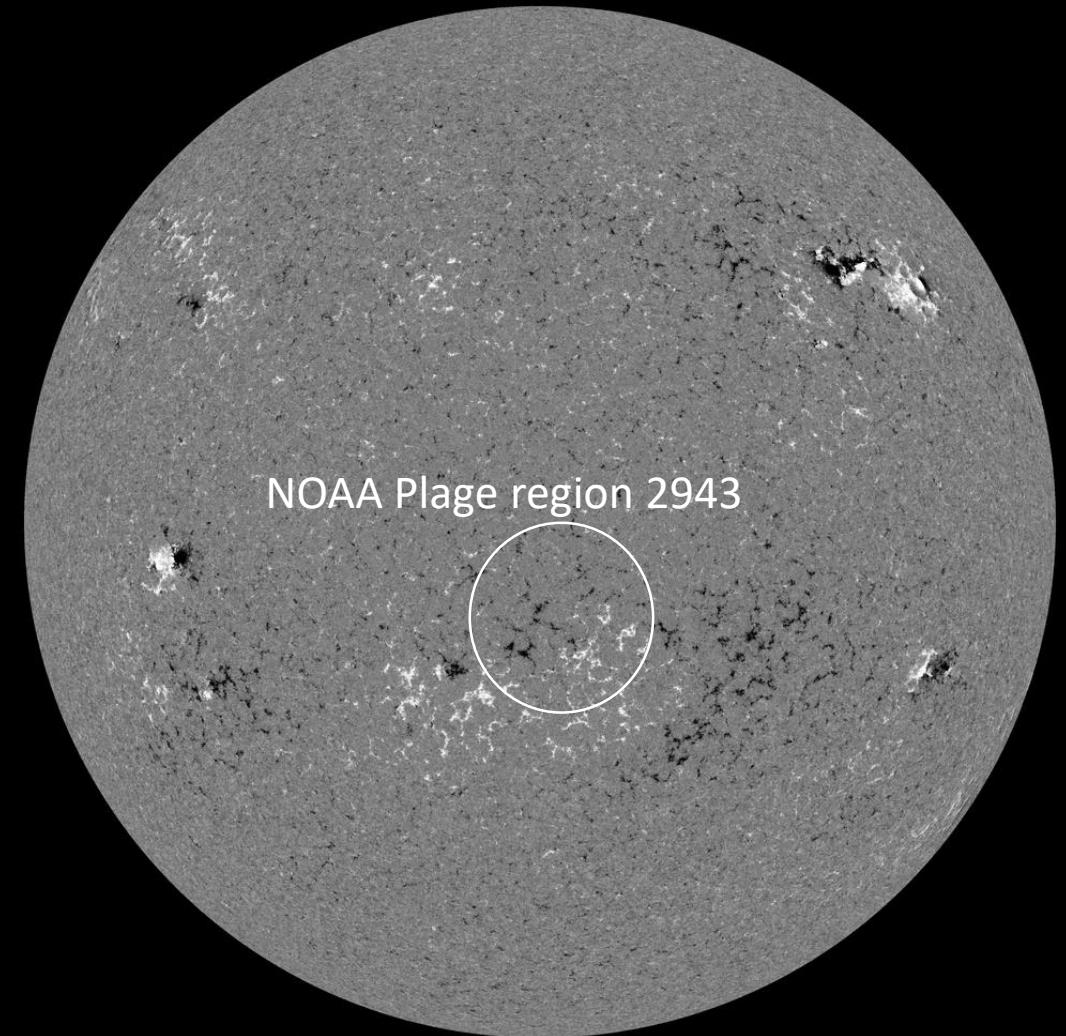
Solar active regions

SDO/HMI White Light 2022-02-13



SDO/HMI Quick-Look Continuum: 20220213_114500

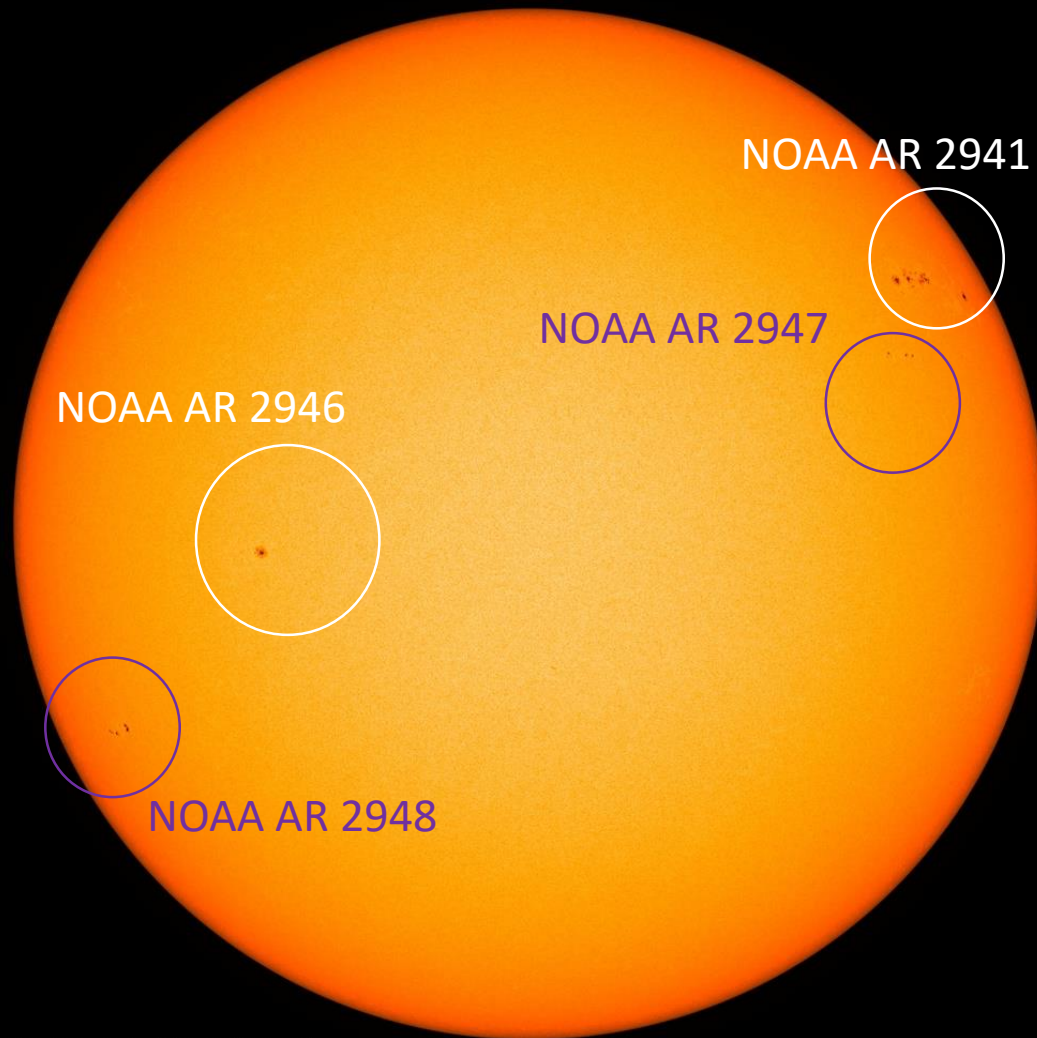
SDO/HMI Magnetogram 2022-02-13



SDO/HMI Quick-Look Magnetogram: 20220213_114500

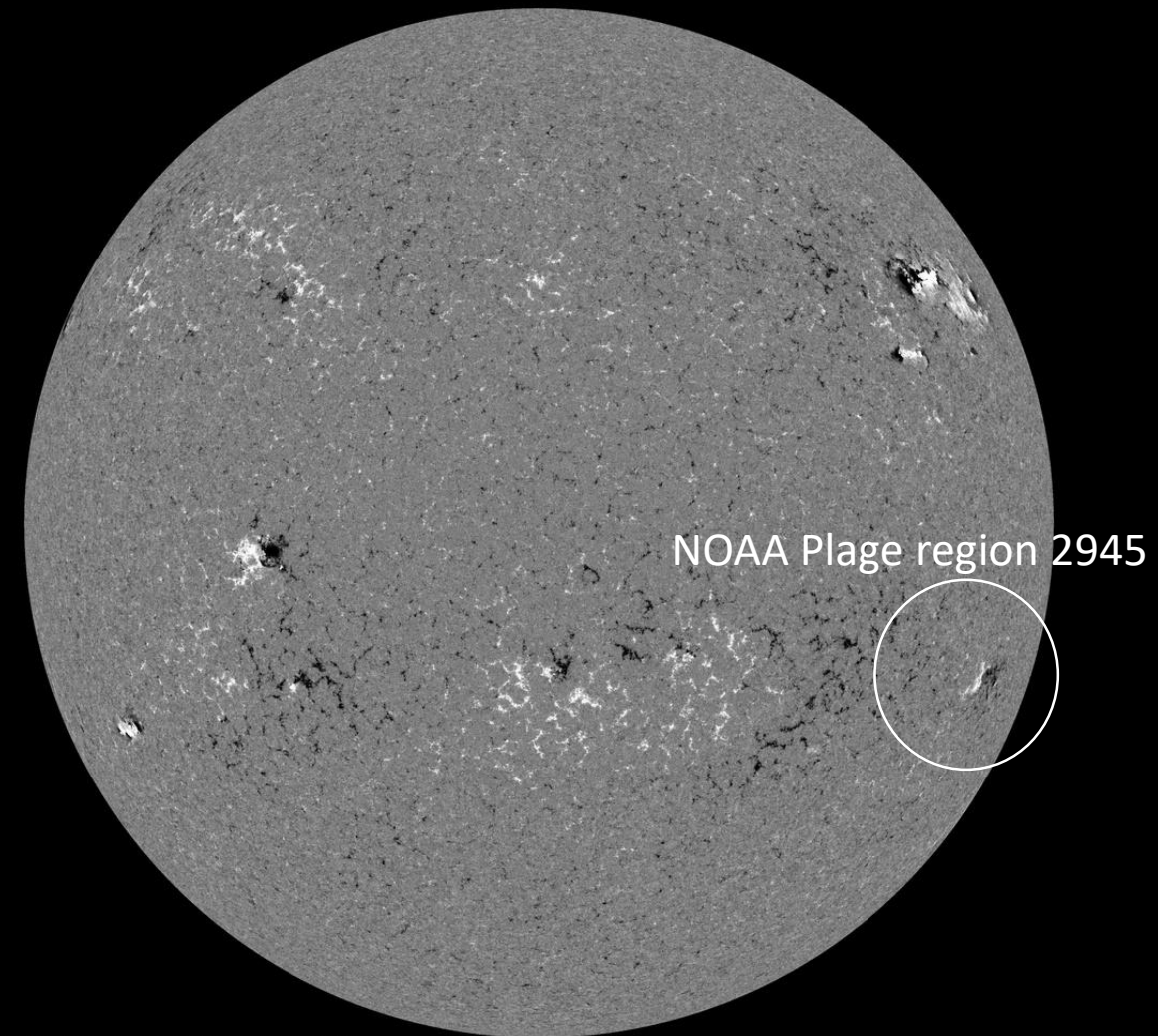
Solar active regions

SDO/HMI White Light 2022-02-14



SDO/HMI Quick-Look Continuum: 20220214_114500

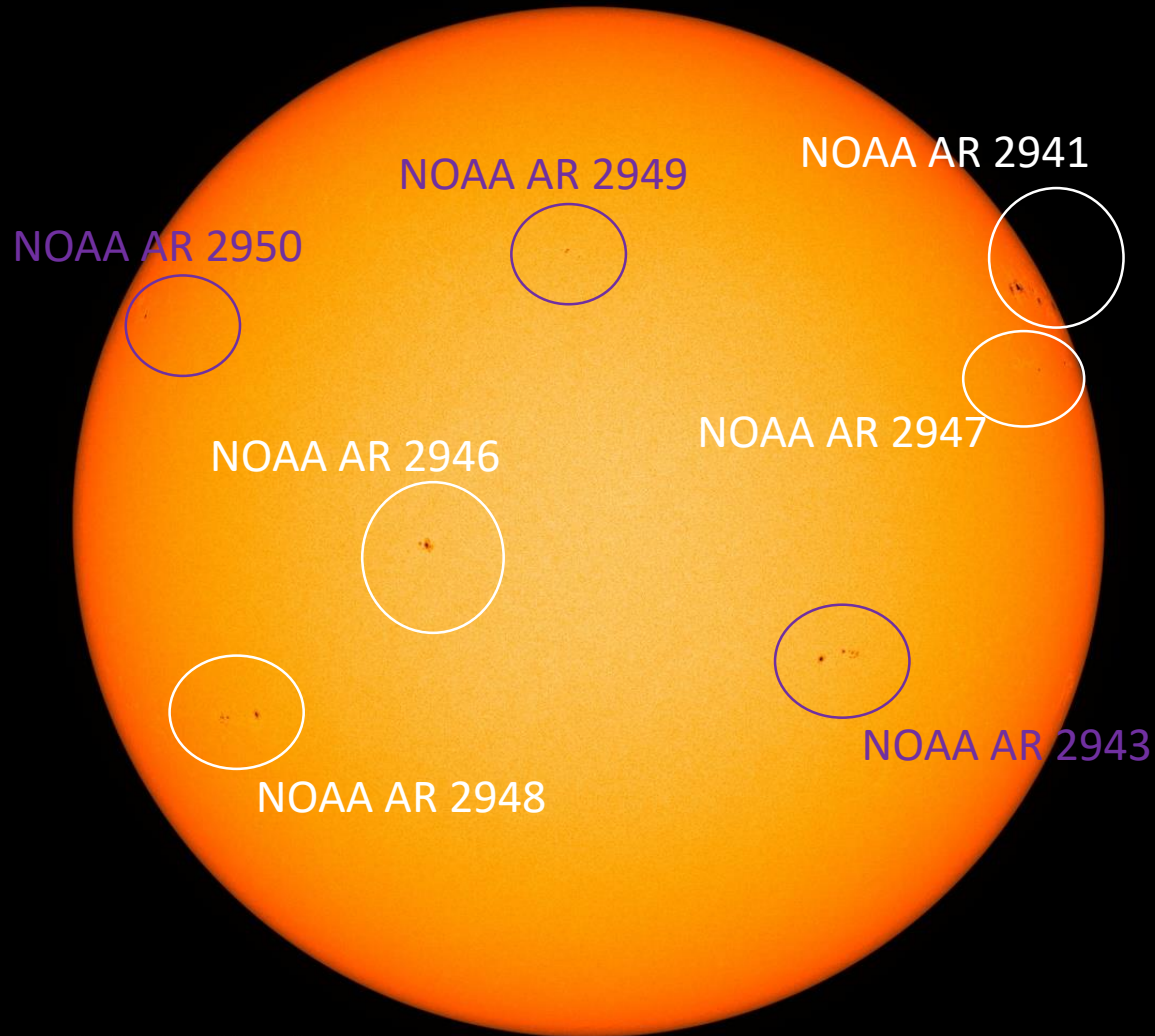
SDO/HMI Magnetogram 2022-02-14



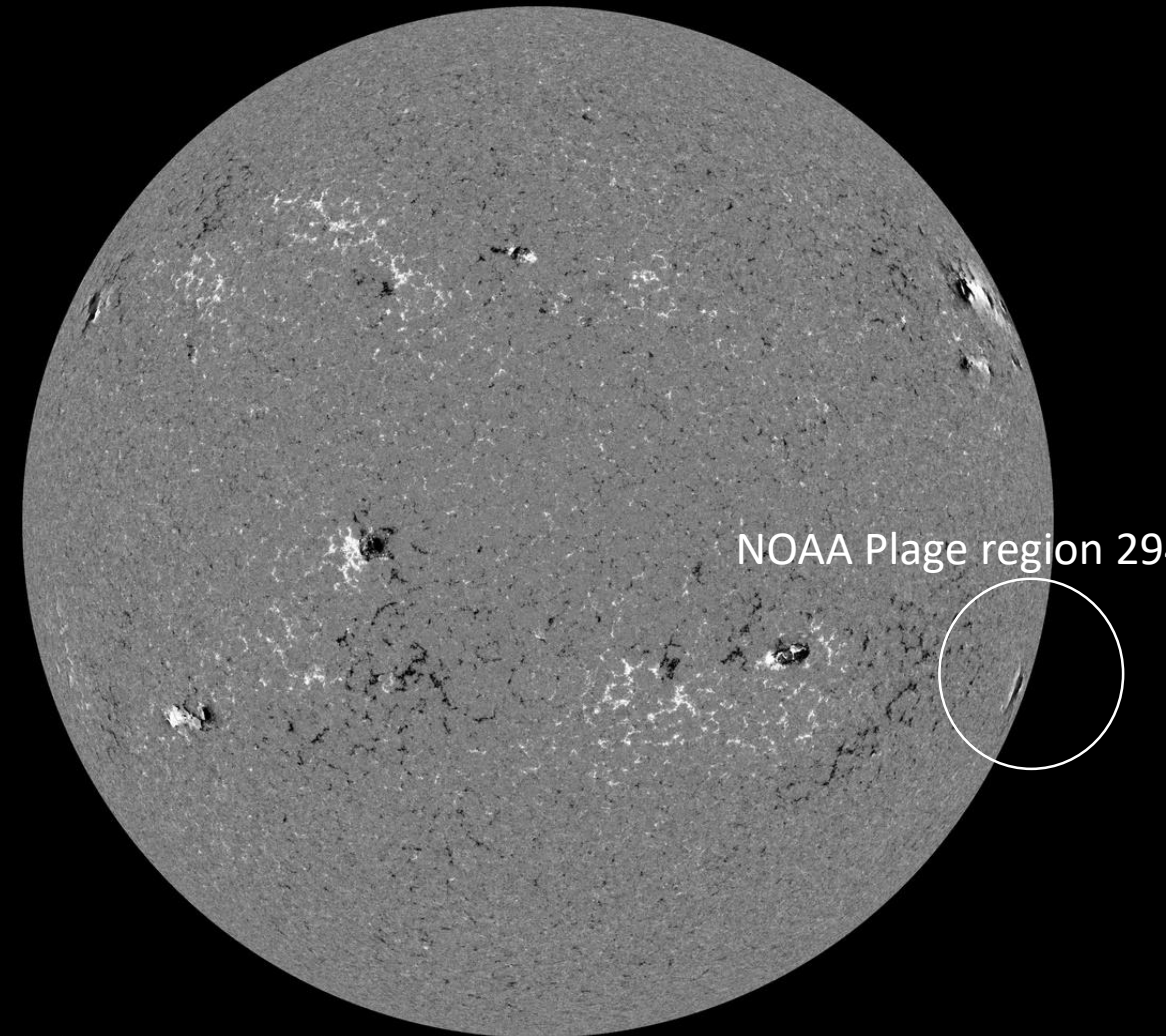
SDO/HMI Quick-Look Magnetogram: 20220214_114500

Solar active regions

SDO/HMI White Light 2022-02-15

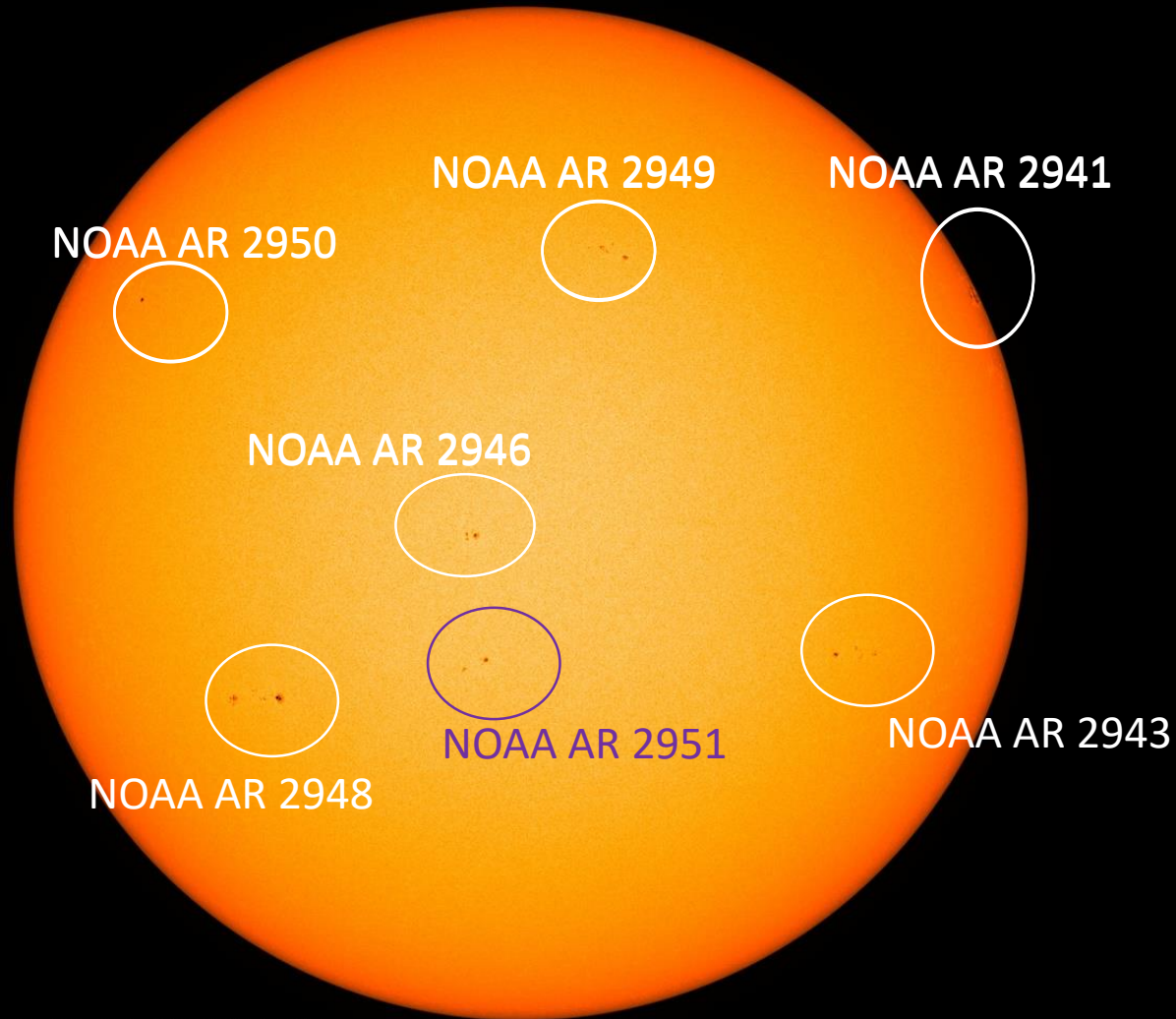


SDO/HMI Magnetogram 2022-02-15

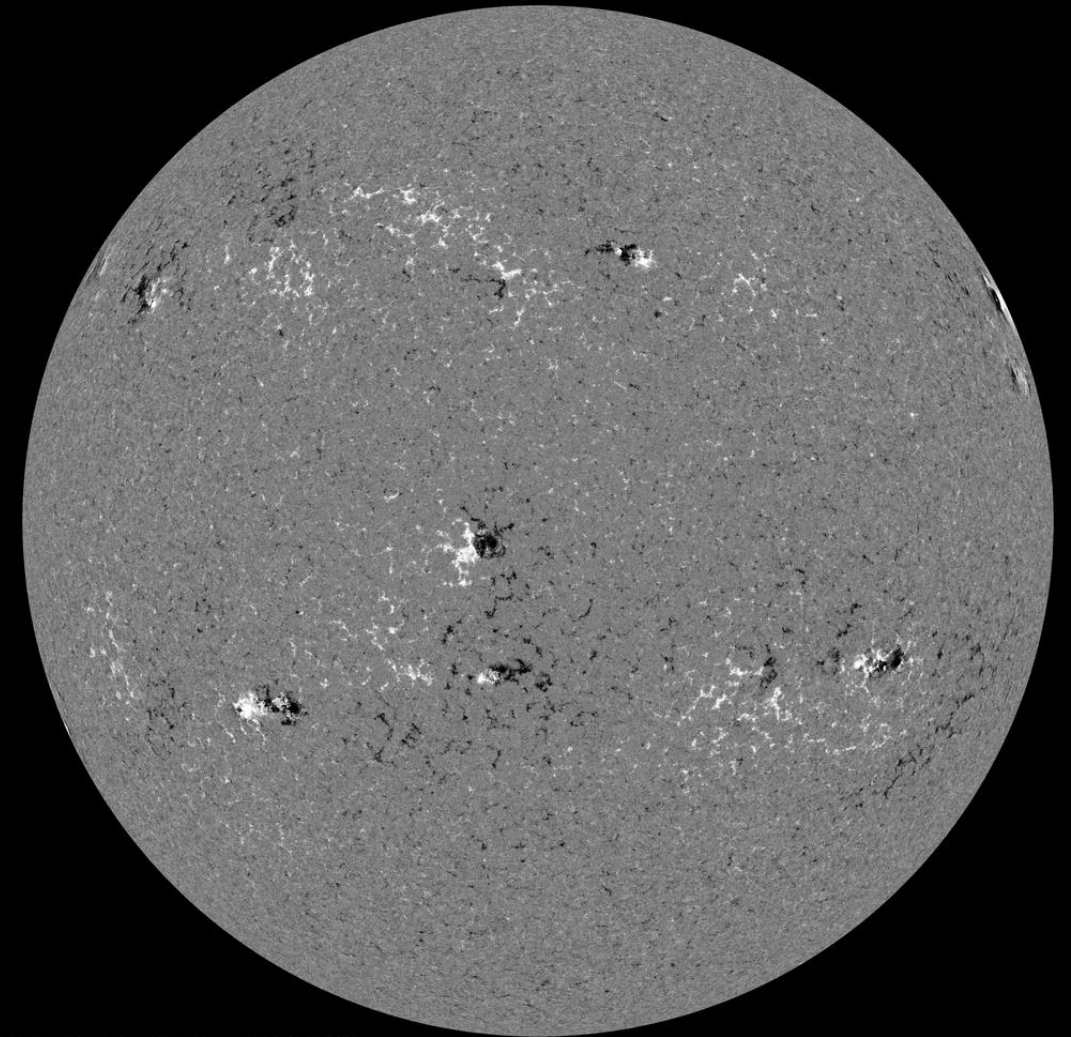


Solar active regions

SDO/HMI White Light 2022-02-16

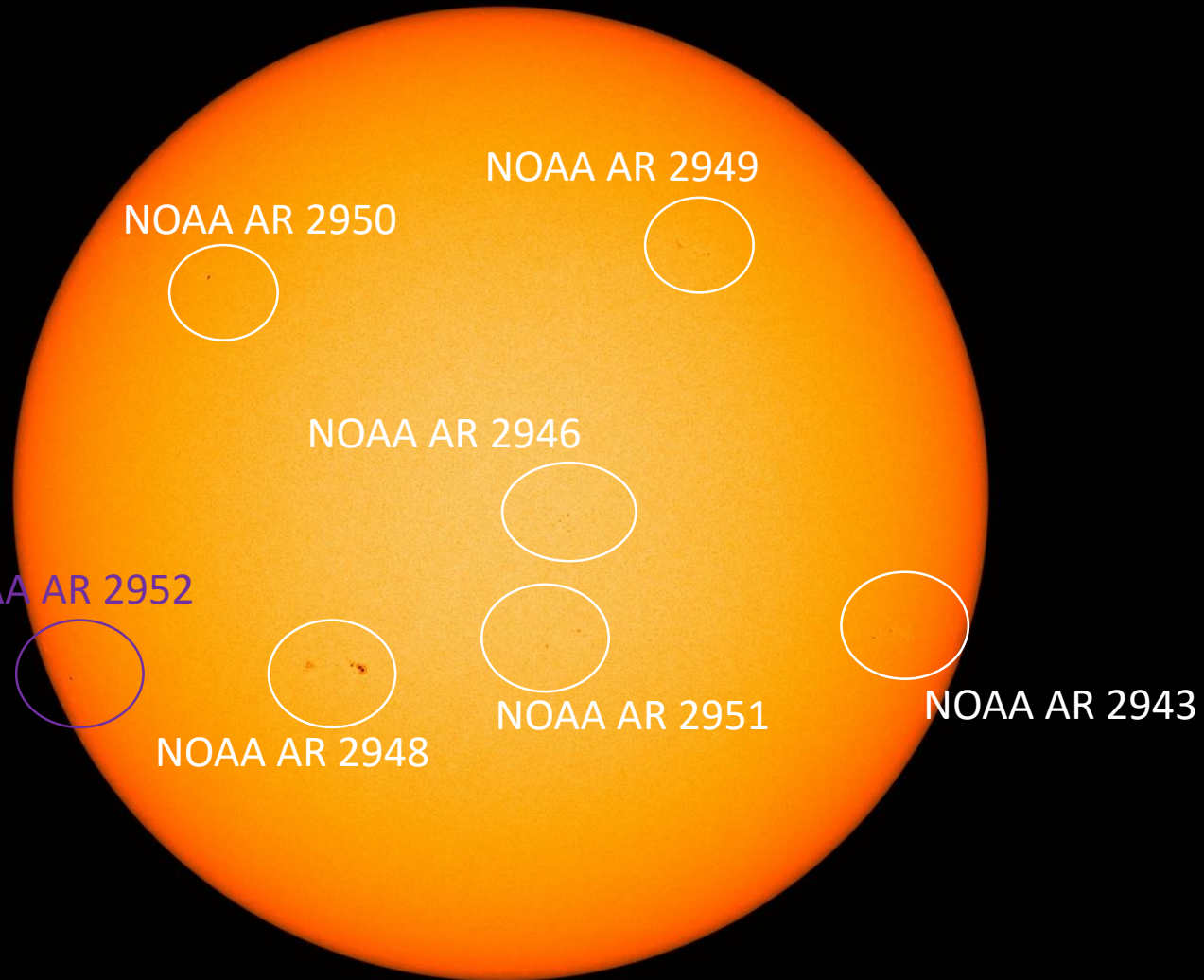


SDO/HMI Magnetogram 2022-02-16

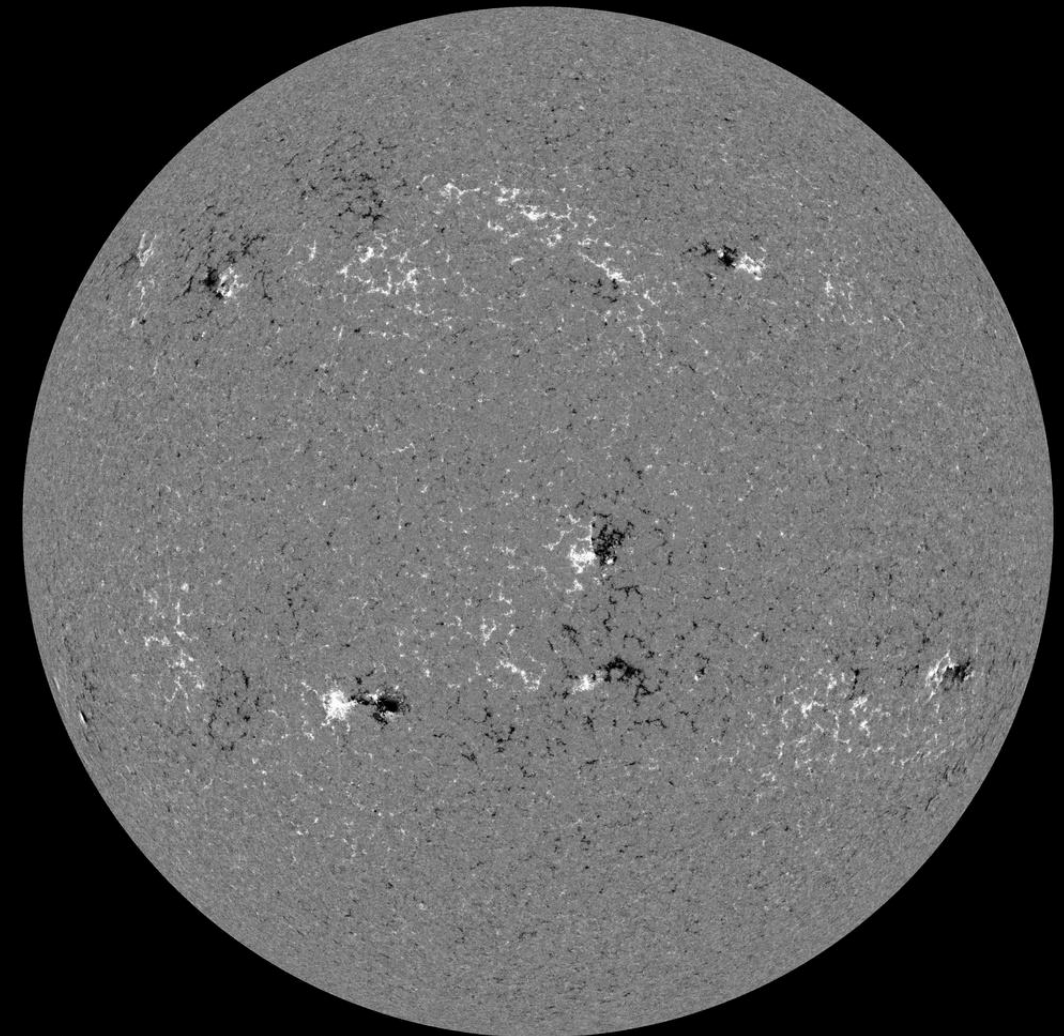


Solar active regions

SDO/HMI White Light 2022-02-17

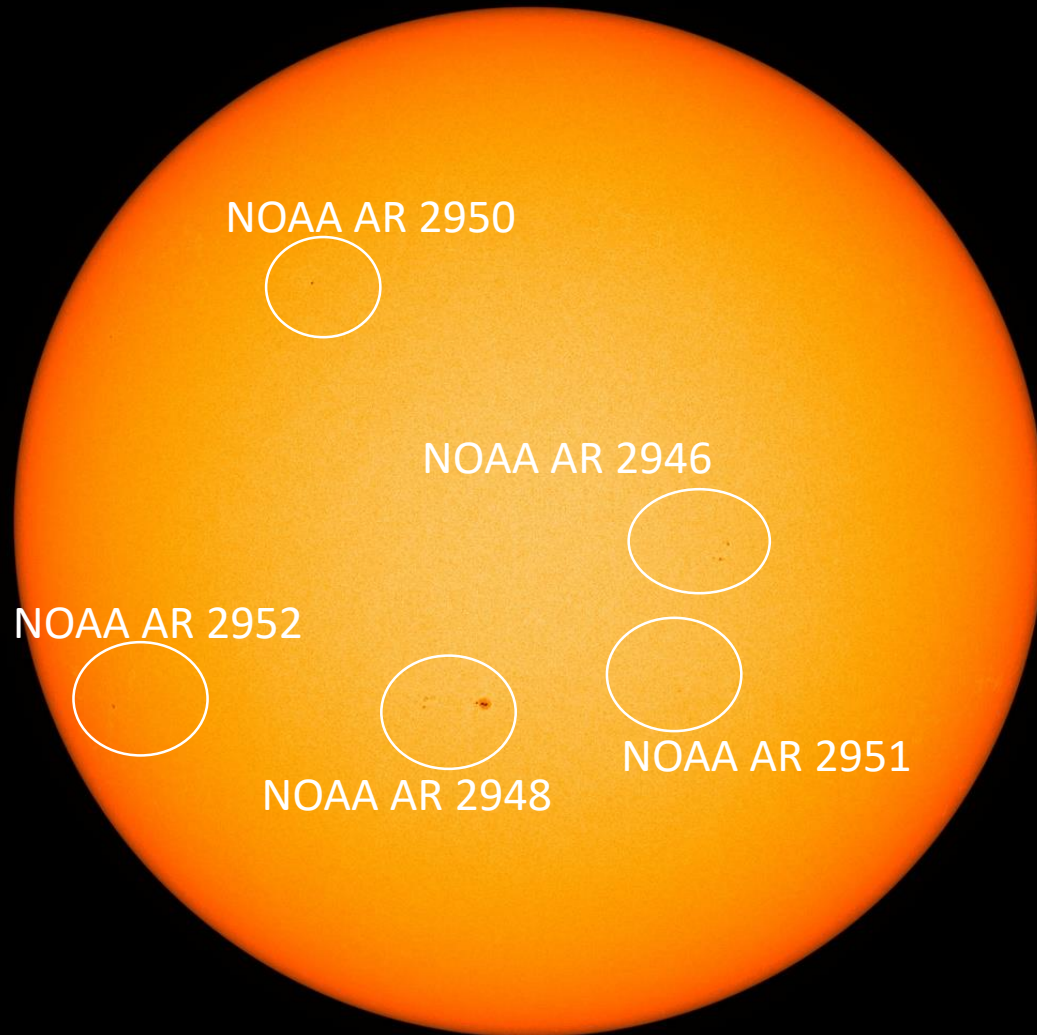


SDO/HMI Magnetogram 2022-02-17



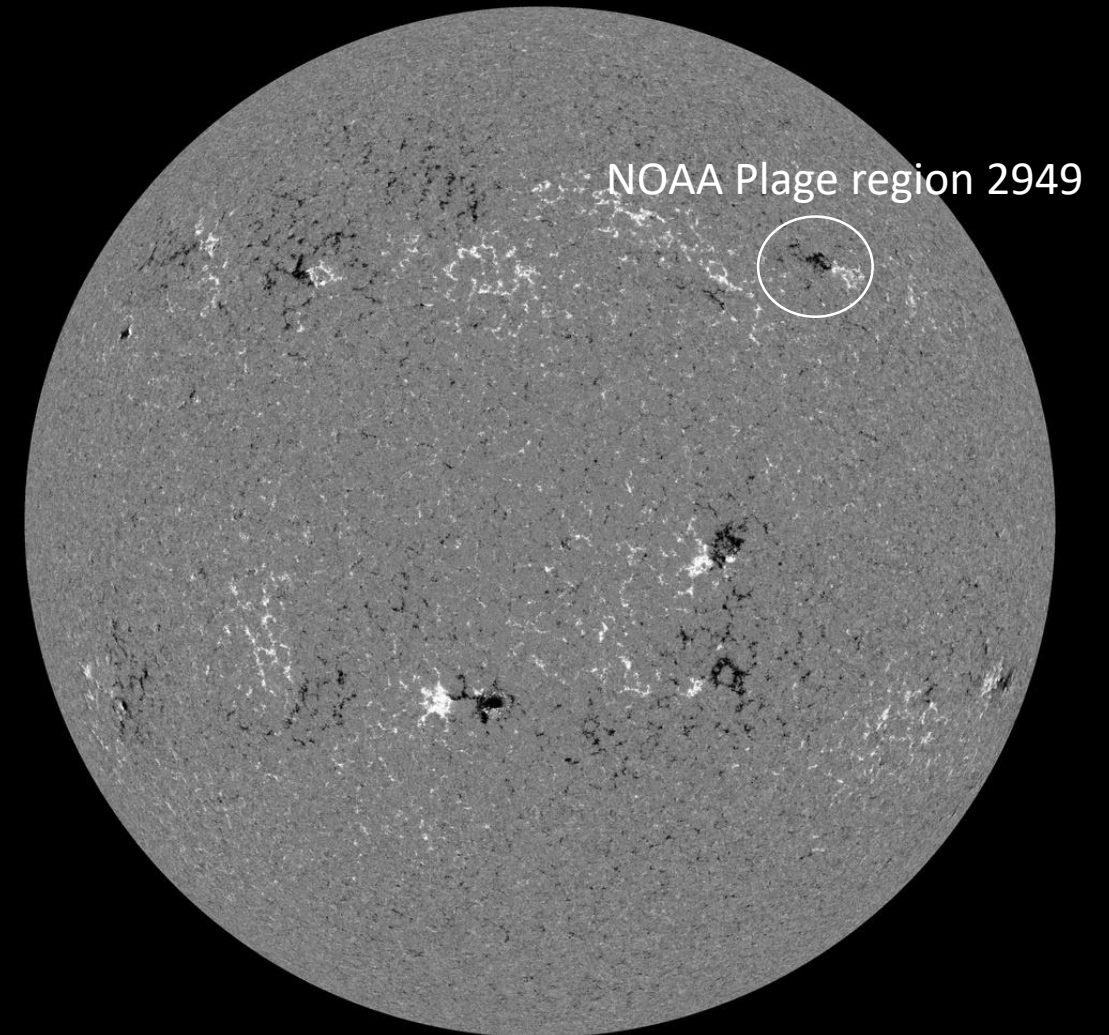
Solar active regions

SDO/HMI White Light 2022-02-18



SDO/HMI Quick-Look Continuum: 20220218_114500

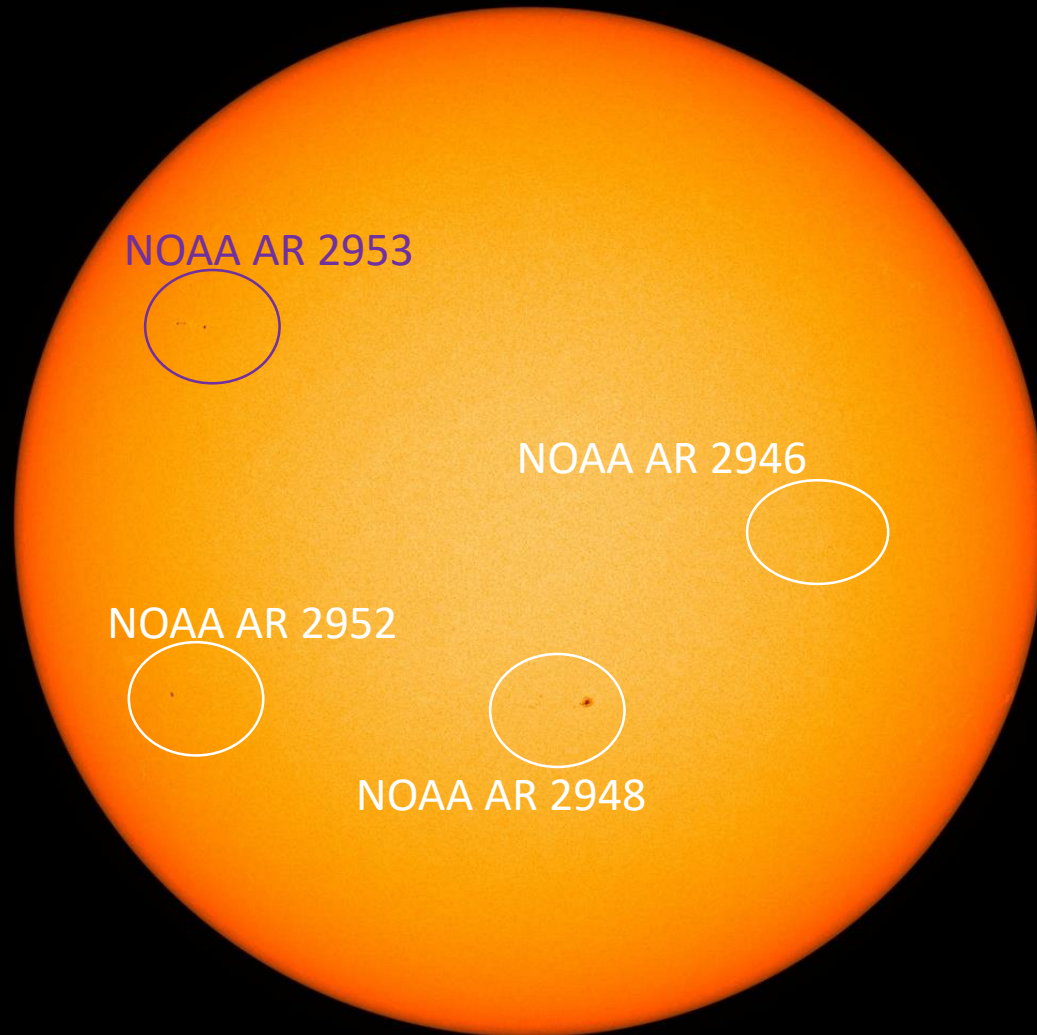
SDO/HMI Magnetogram 2022-02-18



SDO/HMI Quick-Look Magnetogram: 20220218_114500

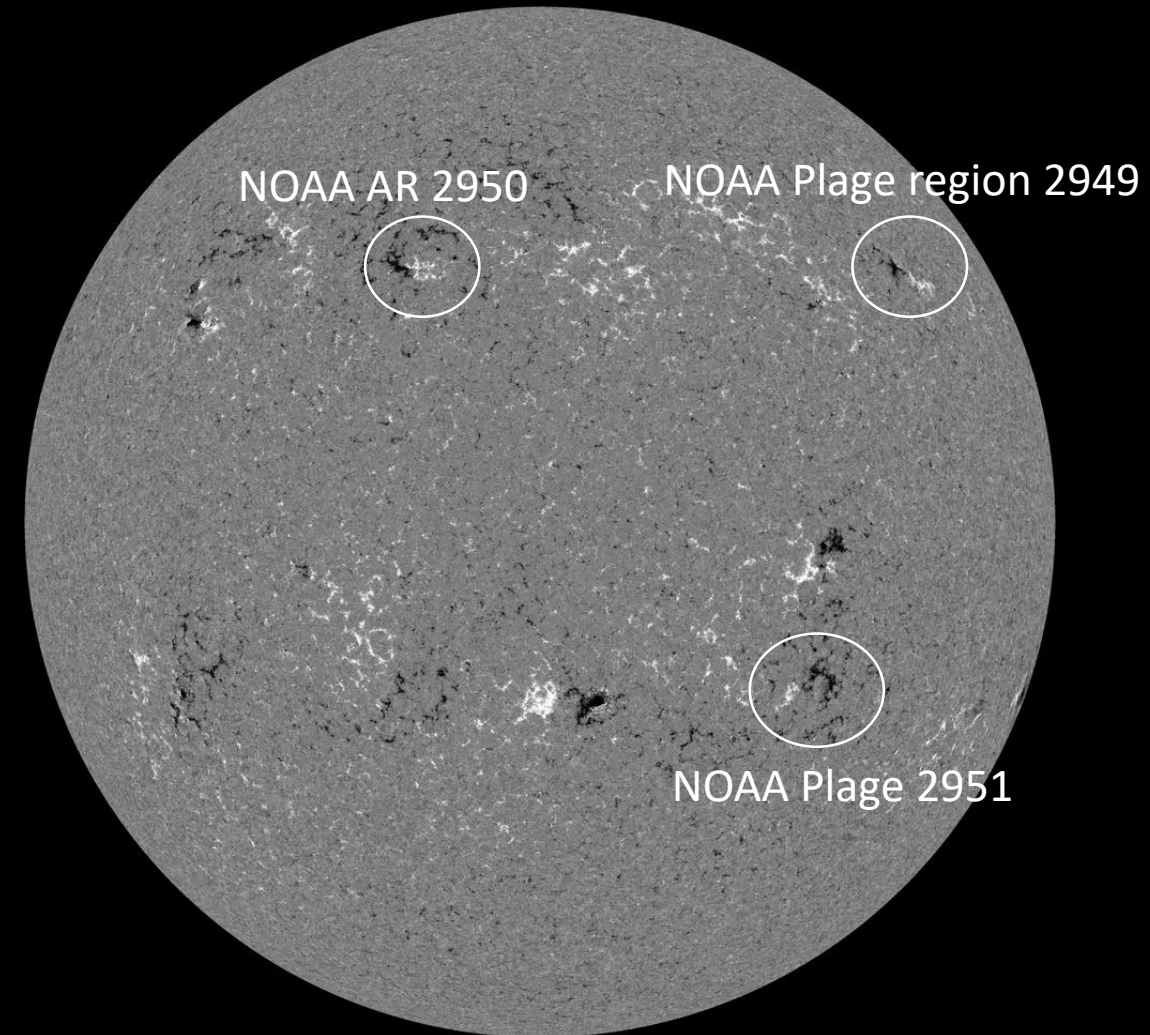
Solar active regions

SDO/HMI White Light 2022-02-19



SDO/HMI Quick-Look Continuum: 20220219_114500

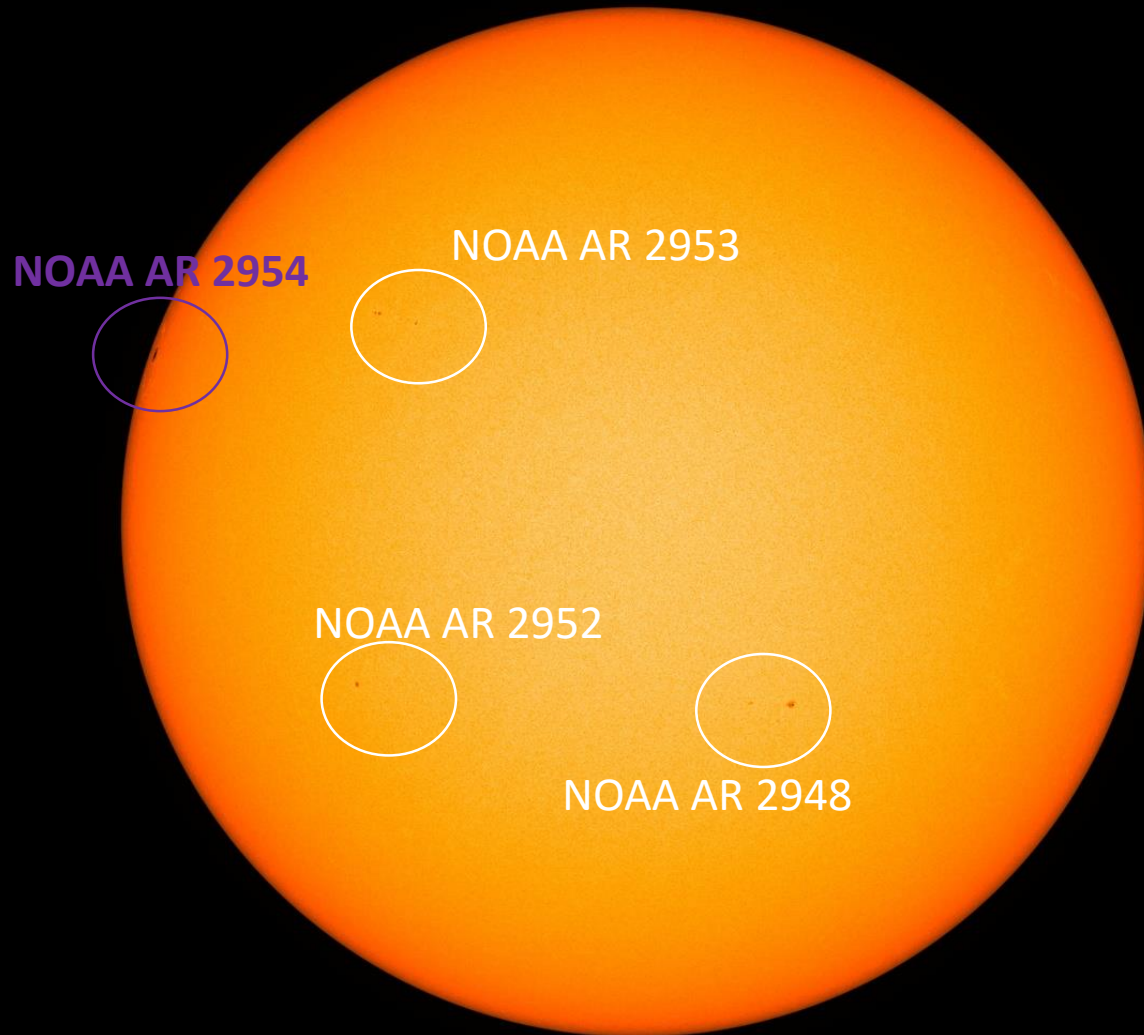
SDO/HMI Magnetogram 2022-02-19



SDO/HMI Quick-Look Magnetogram: 20220219_114500

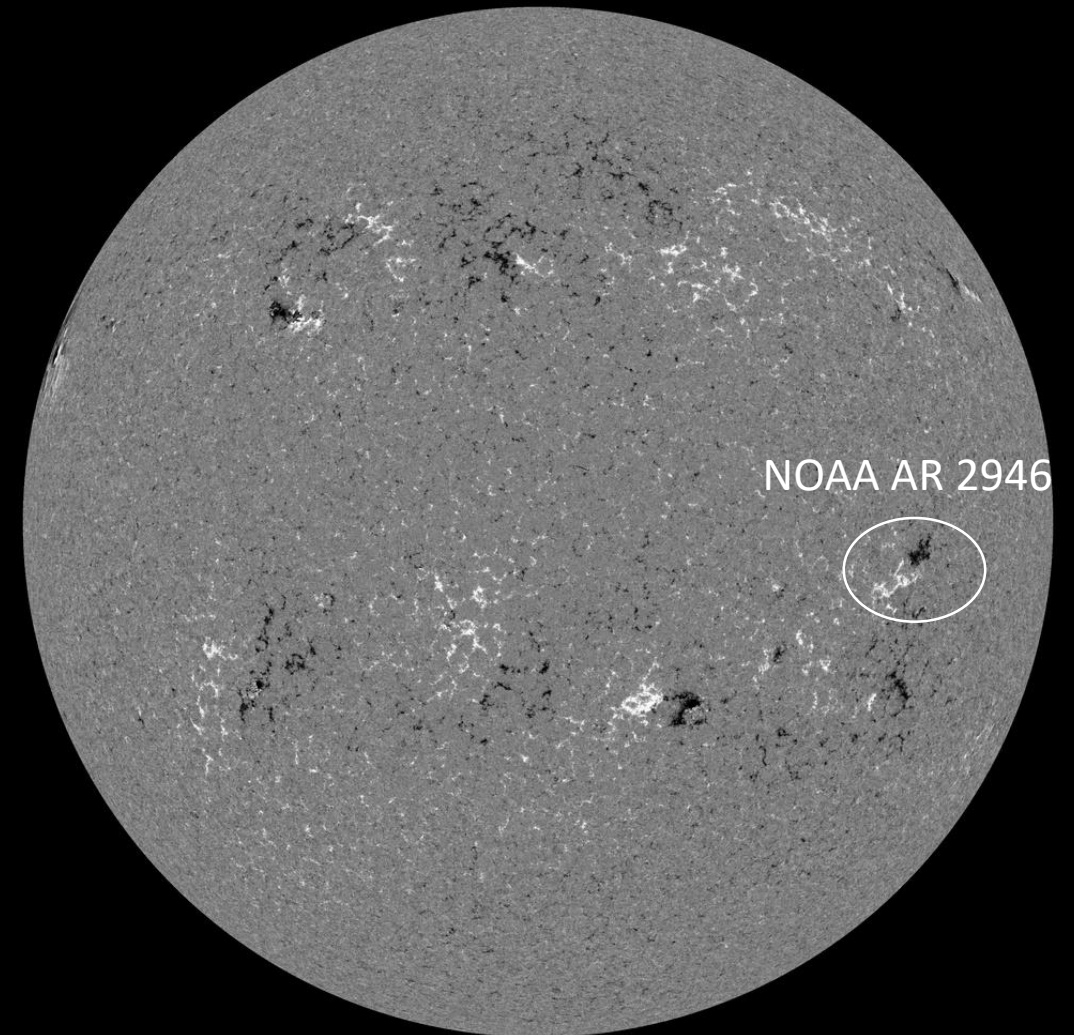
Solar active regions

SDO/HMI White Light 2022-02-20



SDO/HMI Quick-Look Continuum: 20220220_114500

SDO/HMI Magnetogram 2022-02-20

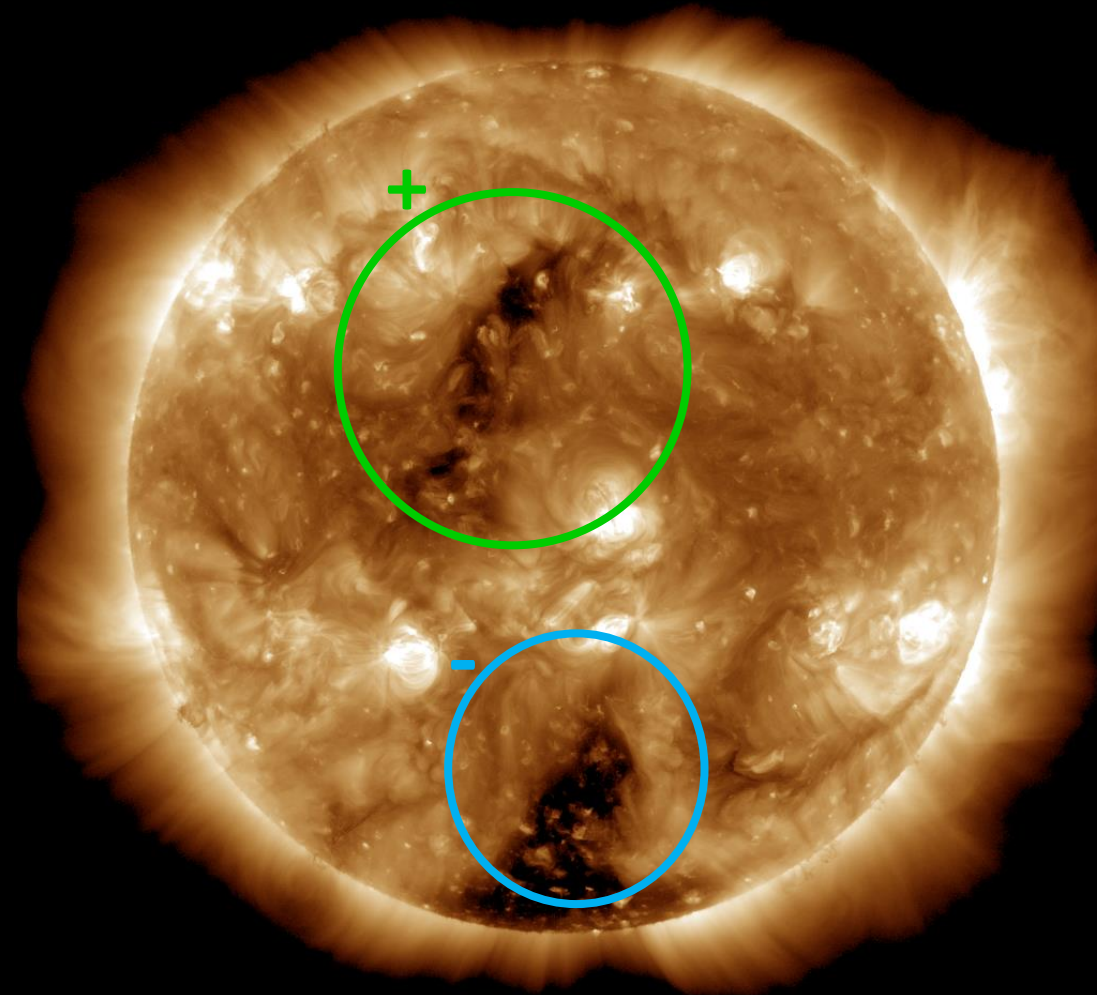


SDO/HMI Quick-Look Magnetogram: 20220220_114500

Coronal holes

SDO/AIA 19.3 nm 2022-02-17

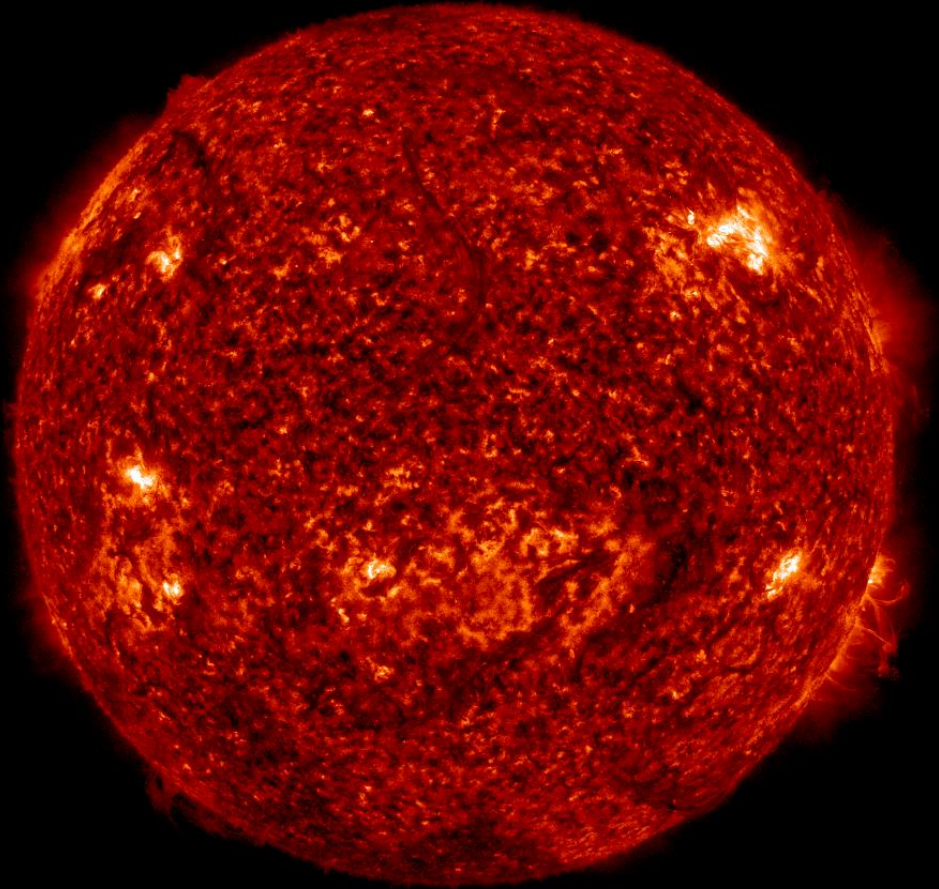
SDO/AIA AIA 193Å 2022-02-17T12:00:05.835



Filaments

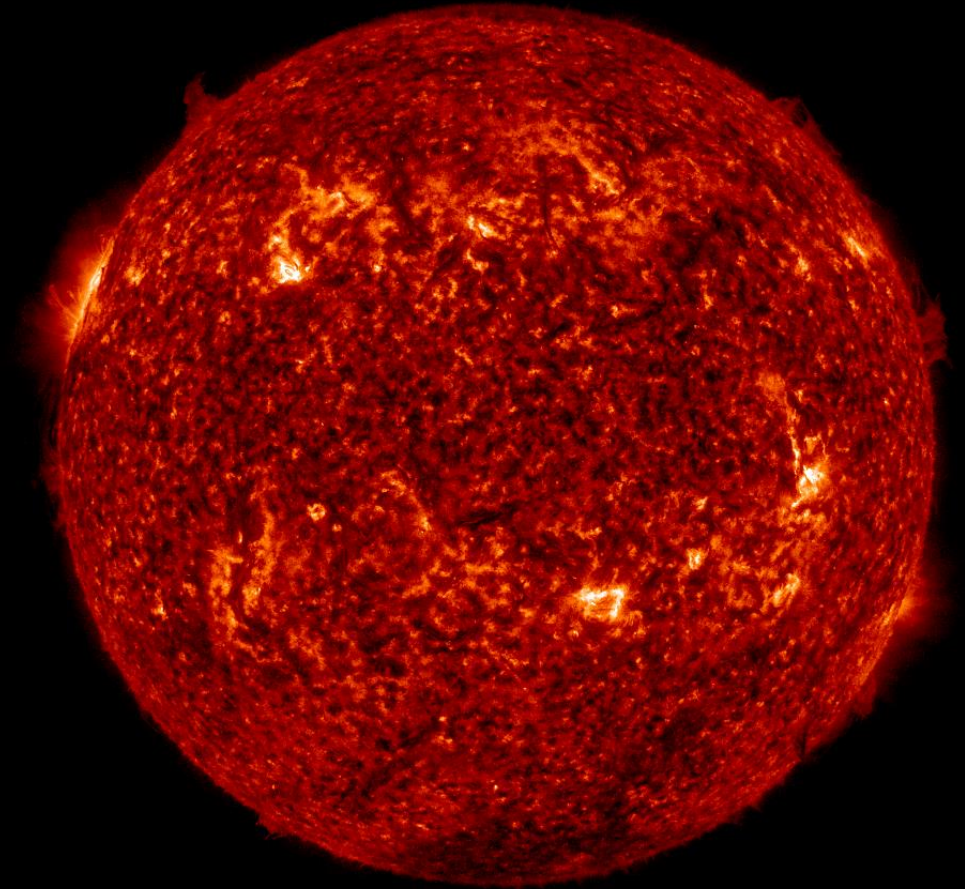
SDO/AIA 30.4 nm 2022-02-13

SDO/AIA AIA 304Å 2022-02-13T12:00:06.580



SDO/AIA 30.4 nm 2022-02-20

SDO/AIA AIA 304Å 2022-02-20T12:00:06.580



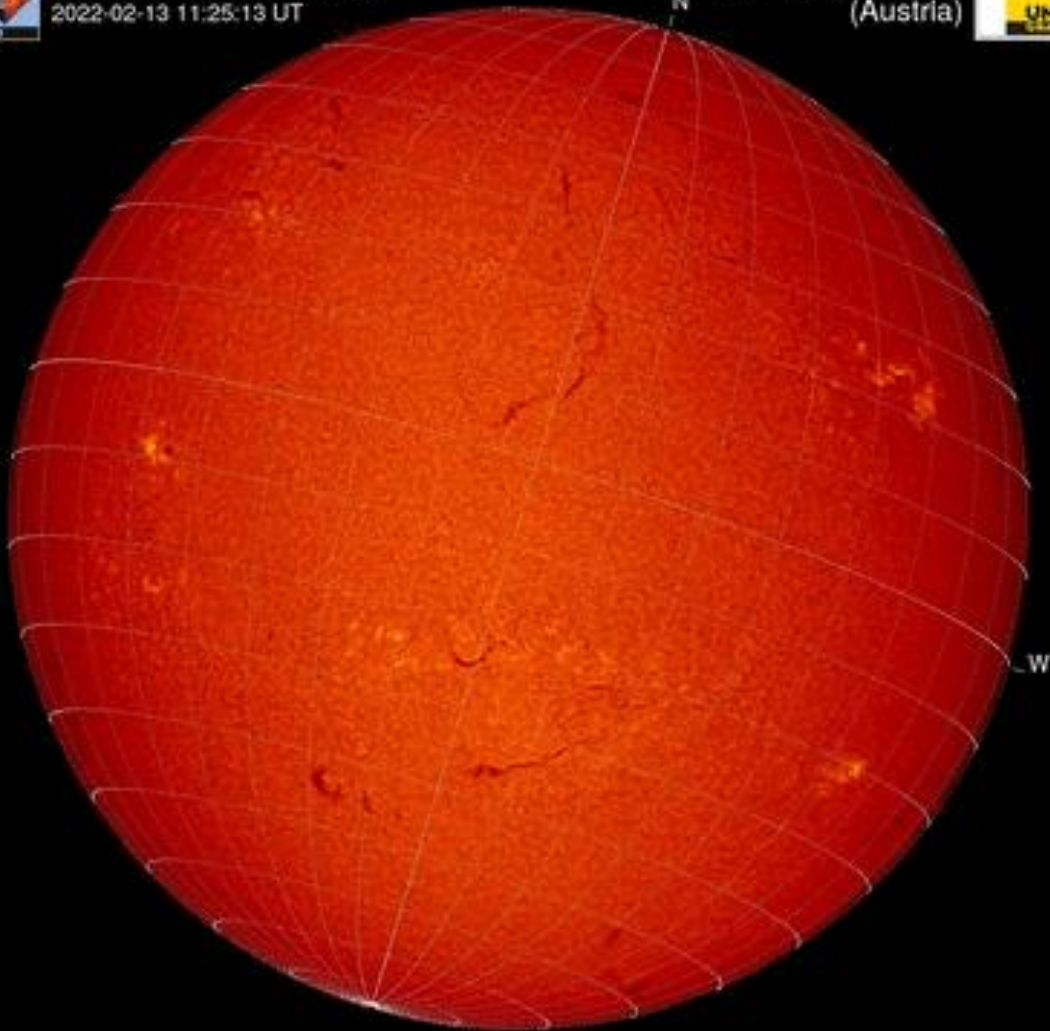
Filaments & Filament eruptions

H-alpha 2022-02-13



Kanzelhöhe Observatory
2022-02-13 11:25:13 UT

University of Graz
(Austria)

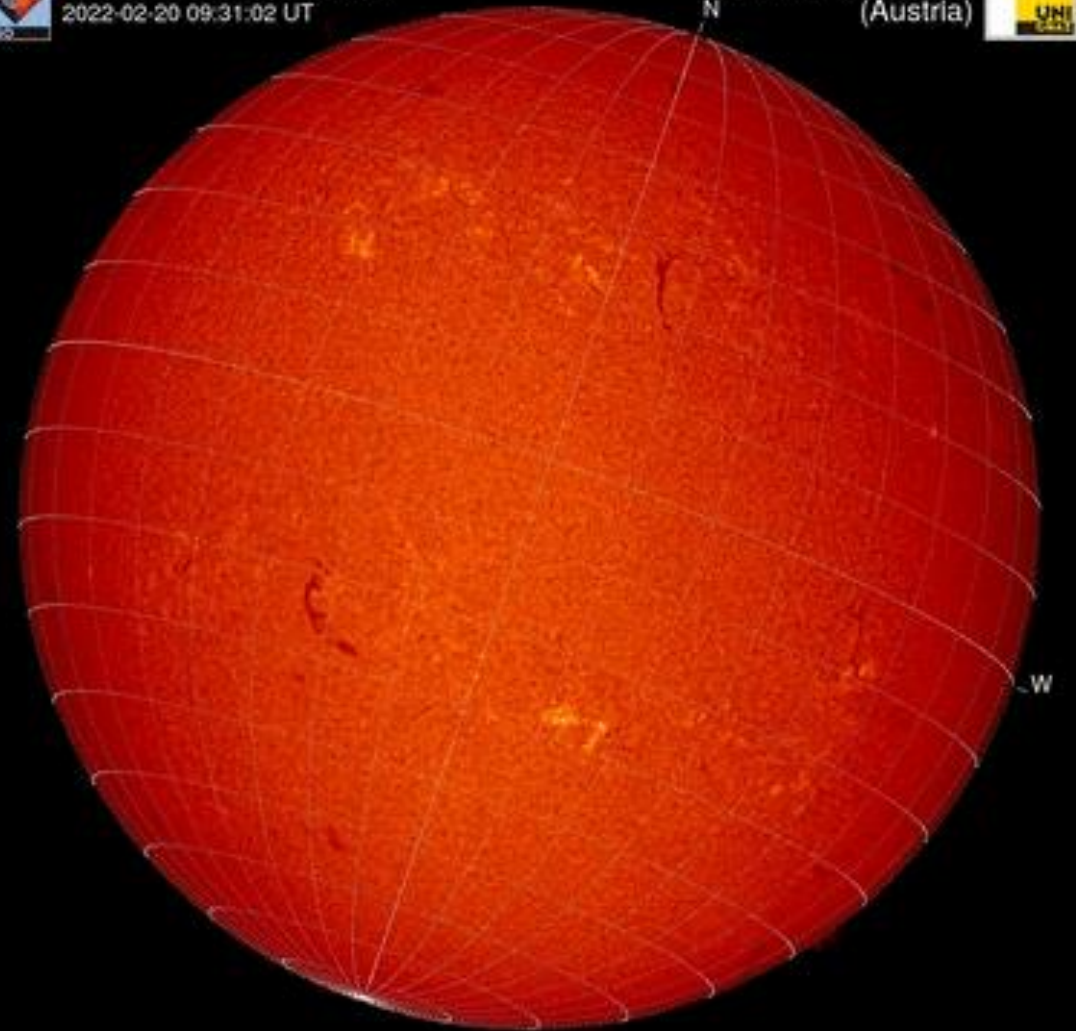


H-alpha 2022-02-20

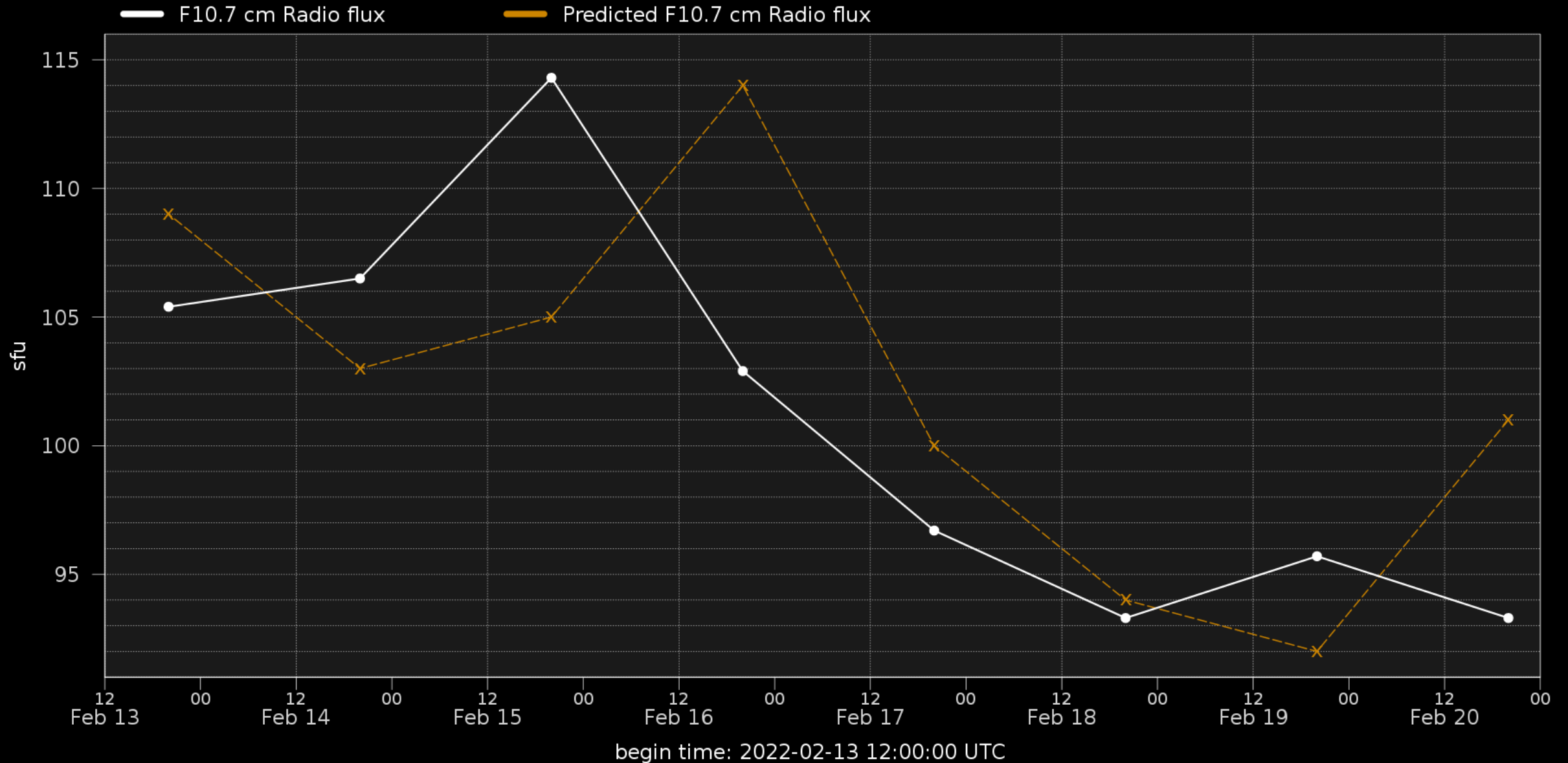


Kanzelhöhe Observatory
2022-02-20 09:31:02 UT

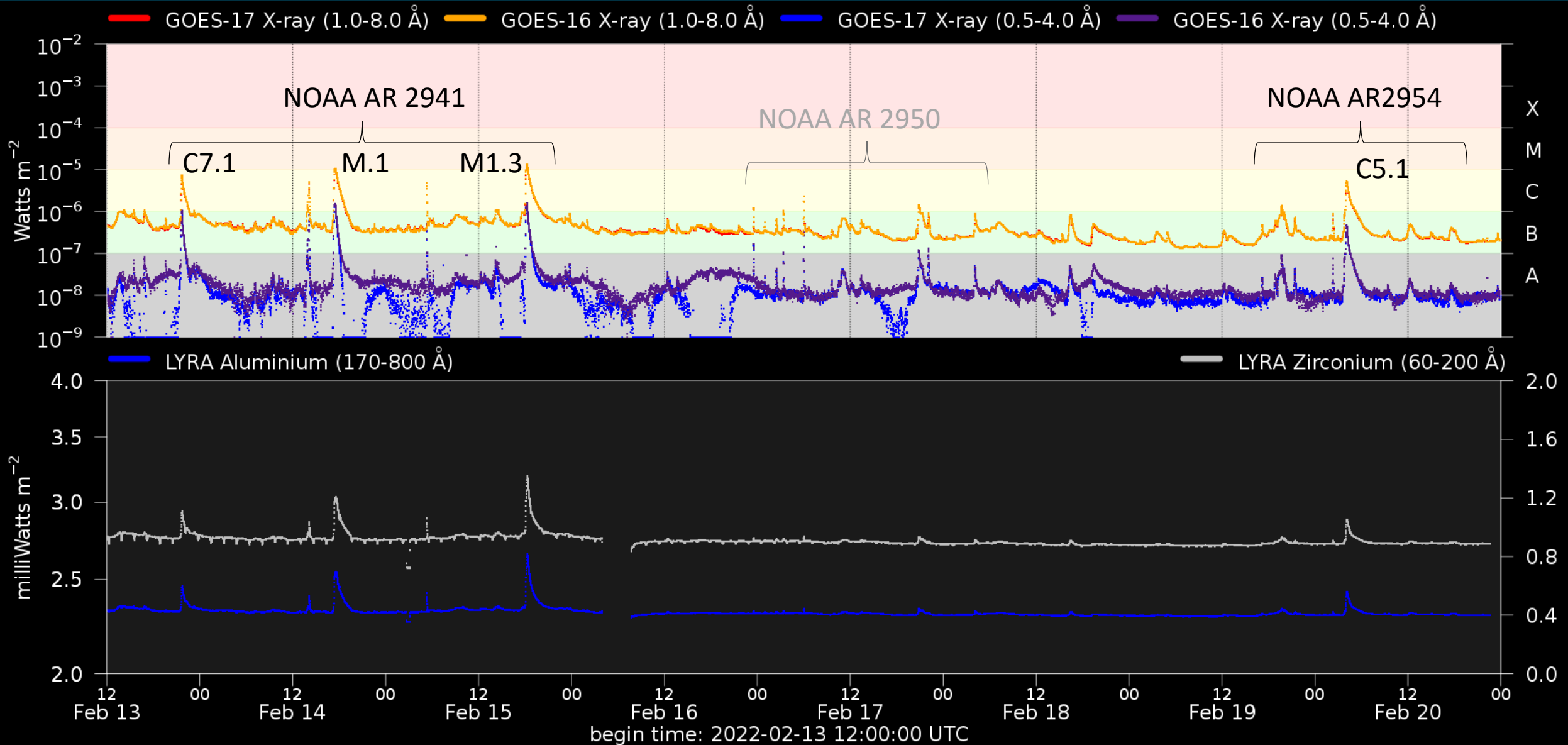
University of Graz
(Austria)



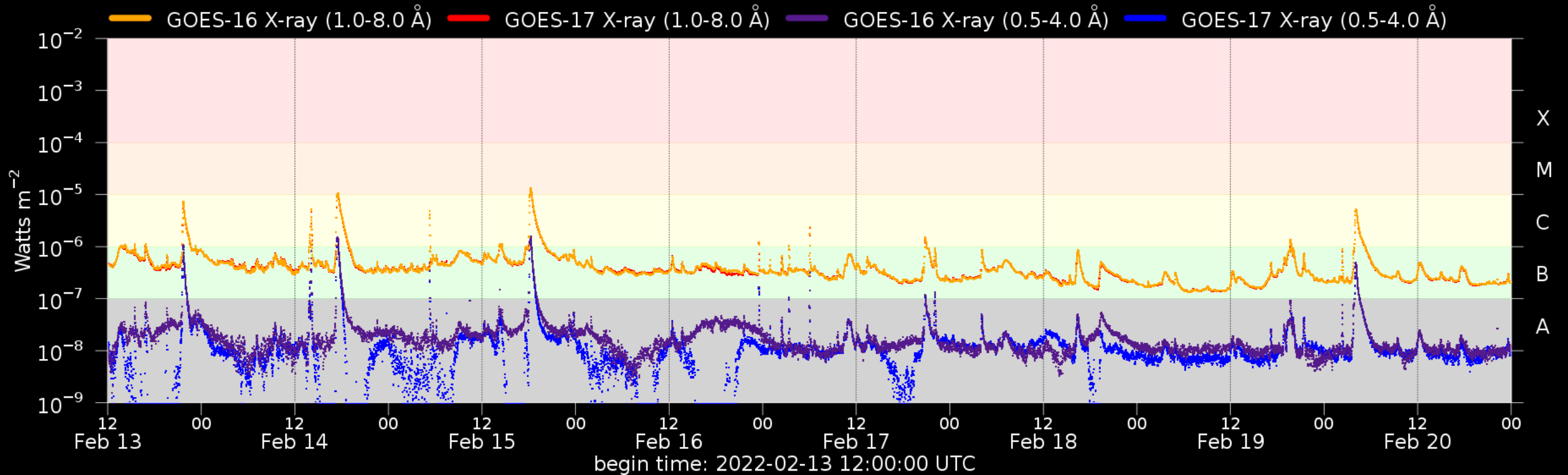
Solar F10.7cm radio flux



Solar X-Ray and UV flux



Flaring activity



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

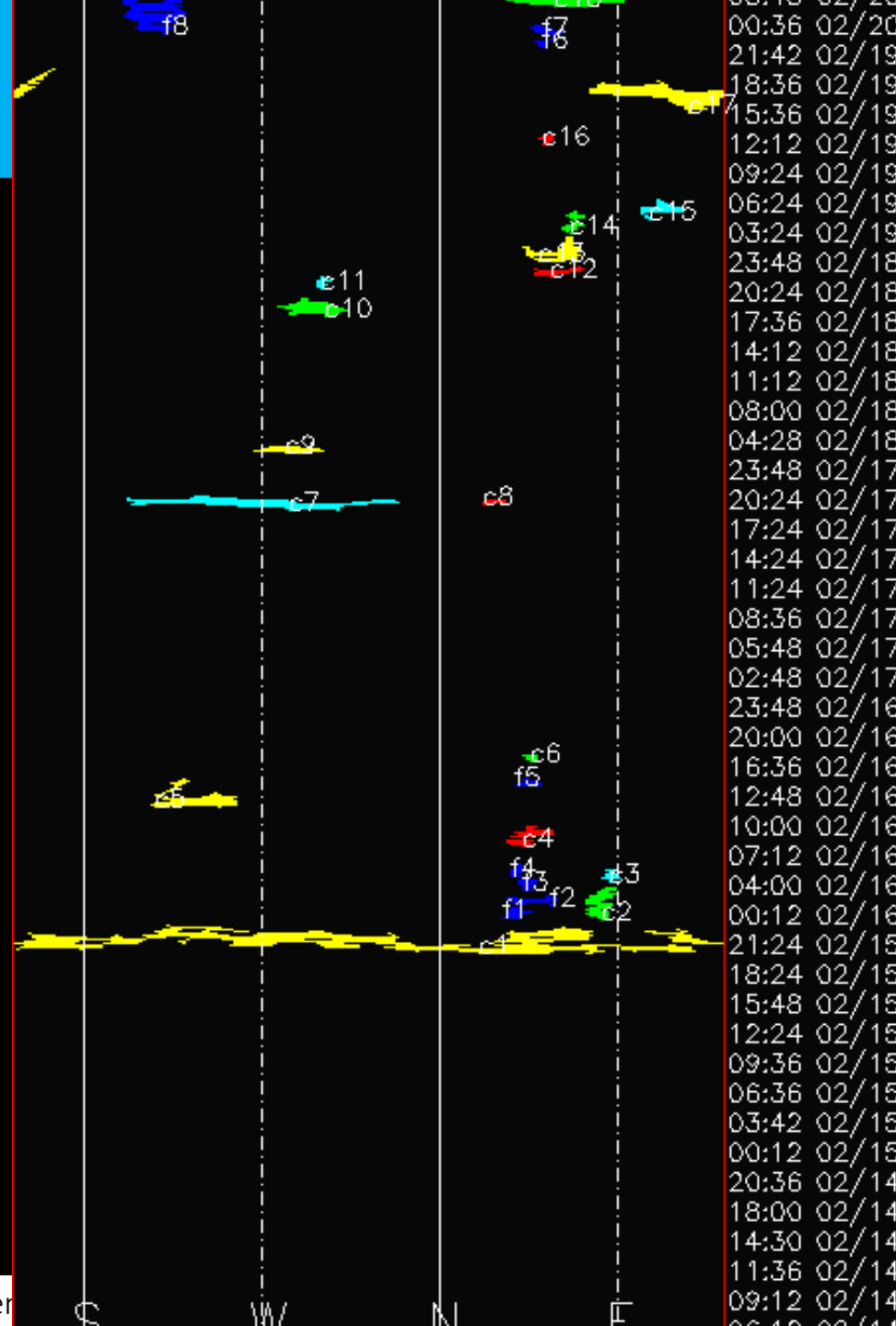
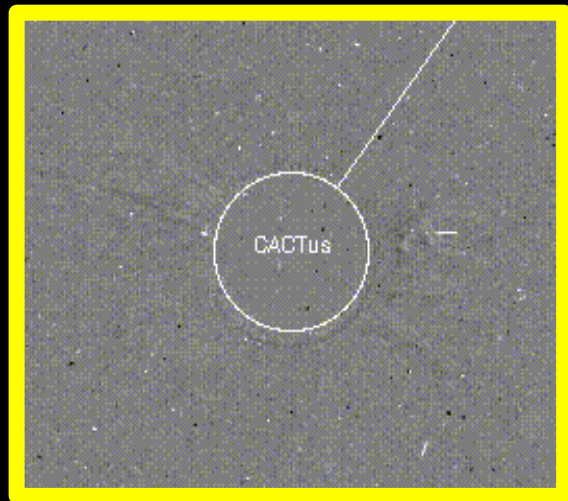
Issue date	2022-02-13	2022-02-14	2022-02-15	2022-02-16	2022-02-17	2022-02-18	2022-02-19	2022-02-20
Probability (%)	75 15 01	75 20 01	70 20 01	60 15 01	55 05 01	35 01 01	40 05 01	55 10 01
Observed (#)	03 00 00	02 01 00	02 01 00	03 00 00	01 00 00	00 00 00	02 00 00	00 00 00

Coronal Mass Ejections

No Earth-directed CMEs

Halo CME 15 Feb

Observed in LASCO C2 from 22:12
UT Feb 15
(back-sided).



Coronal Mass

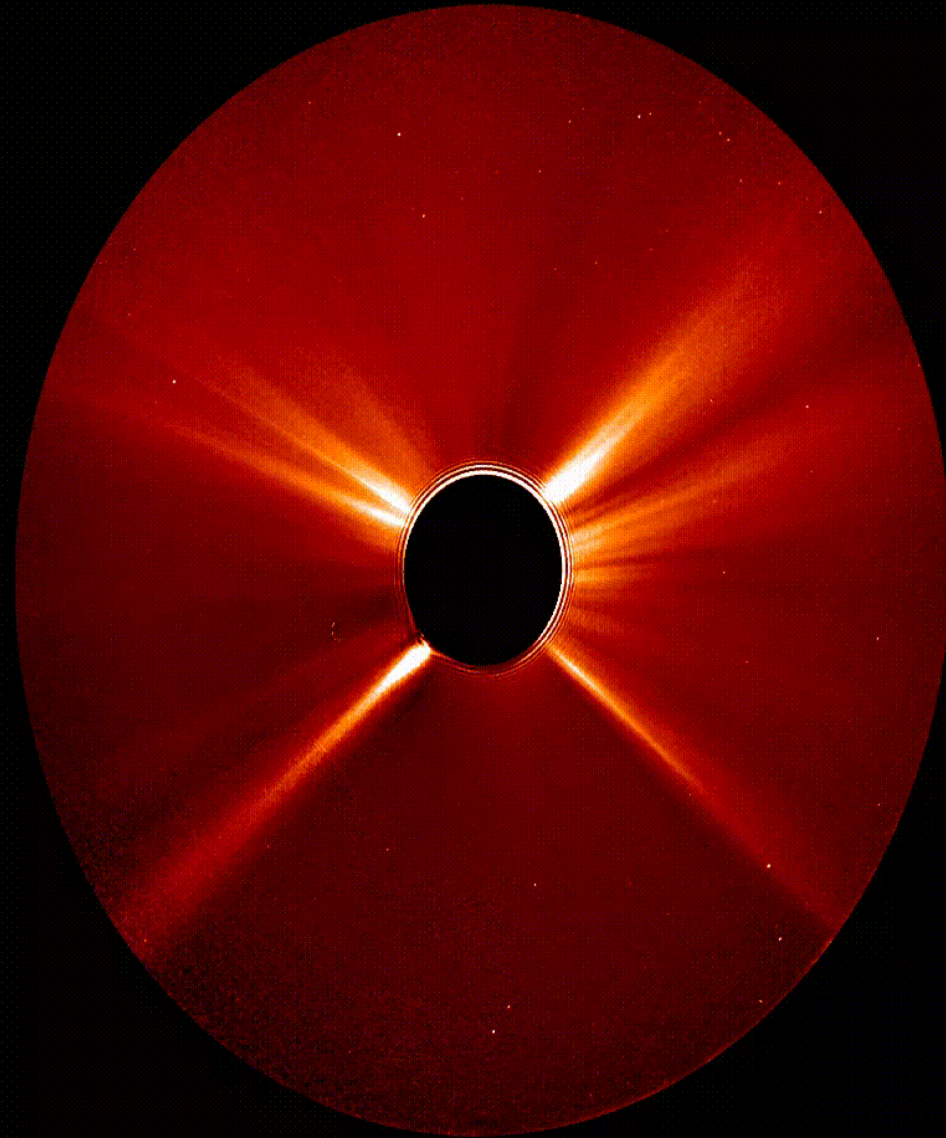
Halo CME 15 Feb

Seen to the N-E in
STEREO-A COR2 data

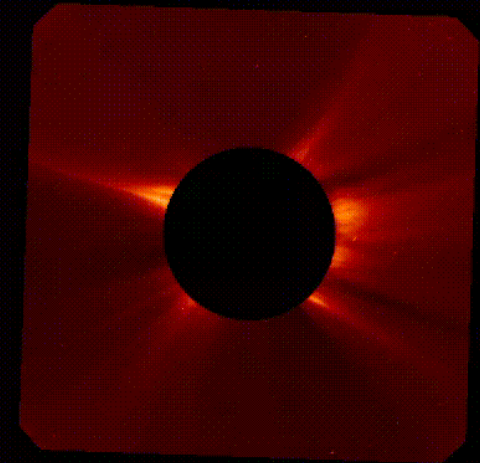
Observed in STEREO-
A COR2 data.

Believed to originate
from 30 -35 degrees
behind the limb.

Associated with
large filament
eruption



2022-02-15T11:23:30 STEREO-A COR2

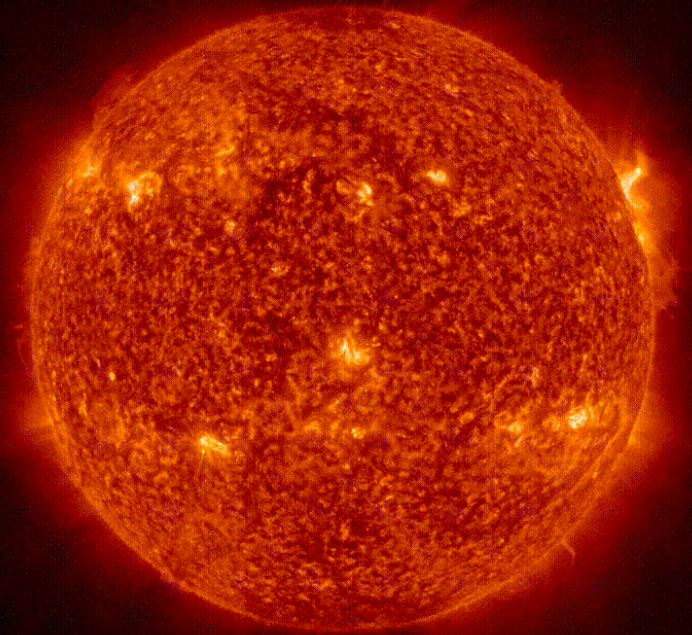


2022-02-15T11:36:07 LASCO C2

Coronal Mass Ejection

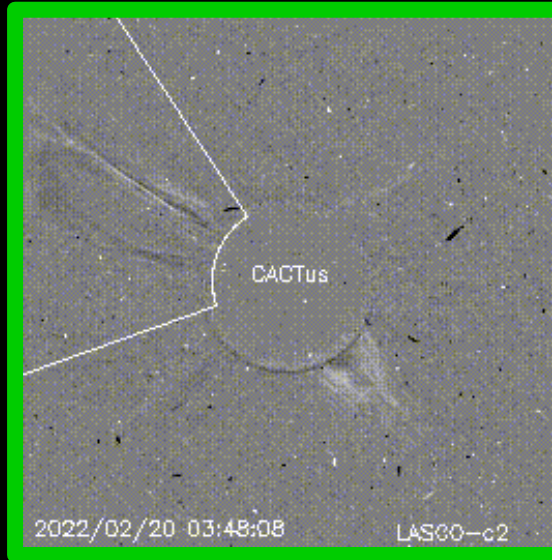
Halo CME 15 Feb

As seen from Solar Orbiter EUI - FSI 304
15 degrees East of Earth perspective



Coronal Mass Ejections

Second large filament eruption to the N-E.
From Behind the East limb.
Seen in LASCO C2 from 04:24
Associated to C5 flare,
Possibly from AR 2954
while it was beyond the limb.



Solar Wind and

Geomagnetic Activity



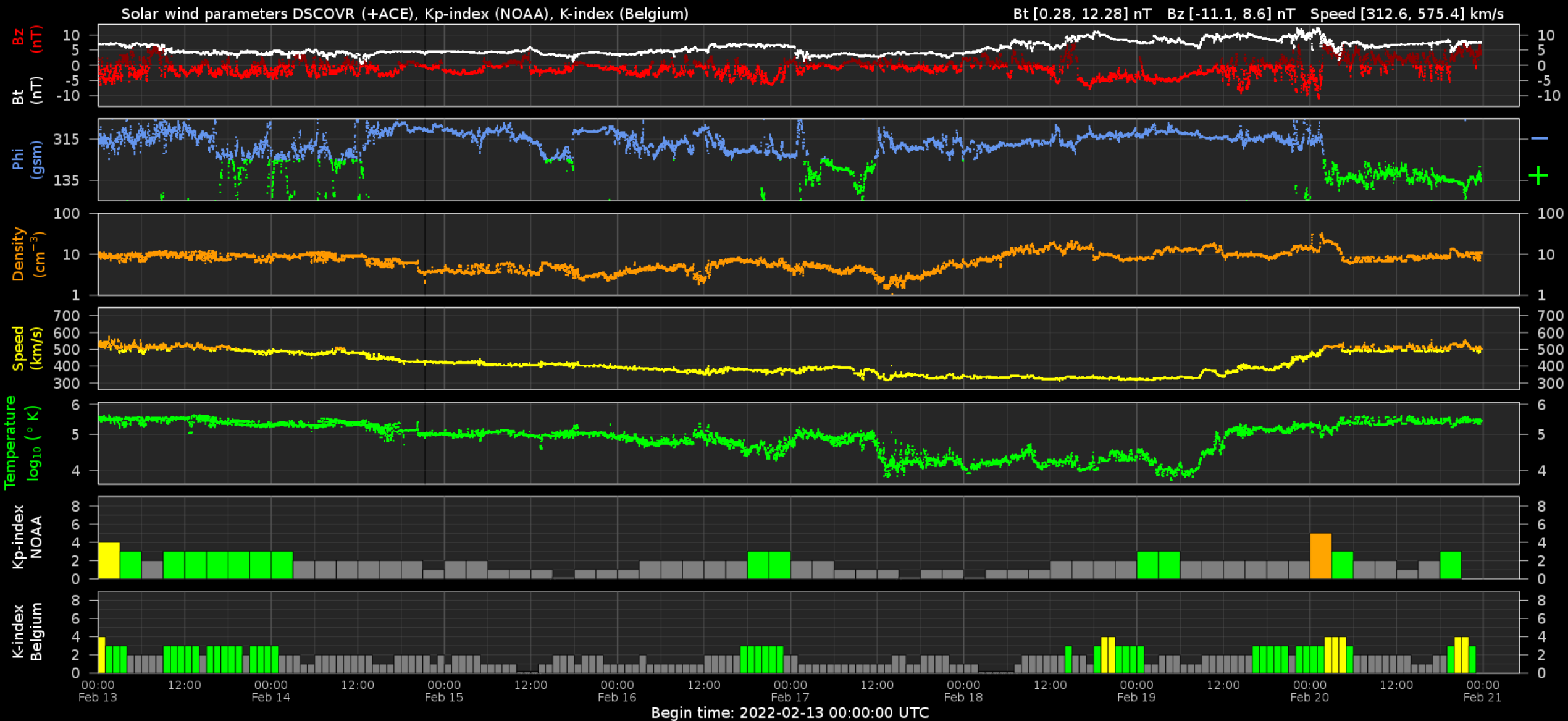
Royal Observatory
of Belgium

Solar Influences
Data analysis Centre
www.sidc.be

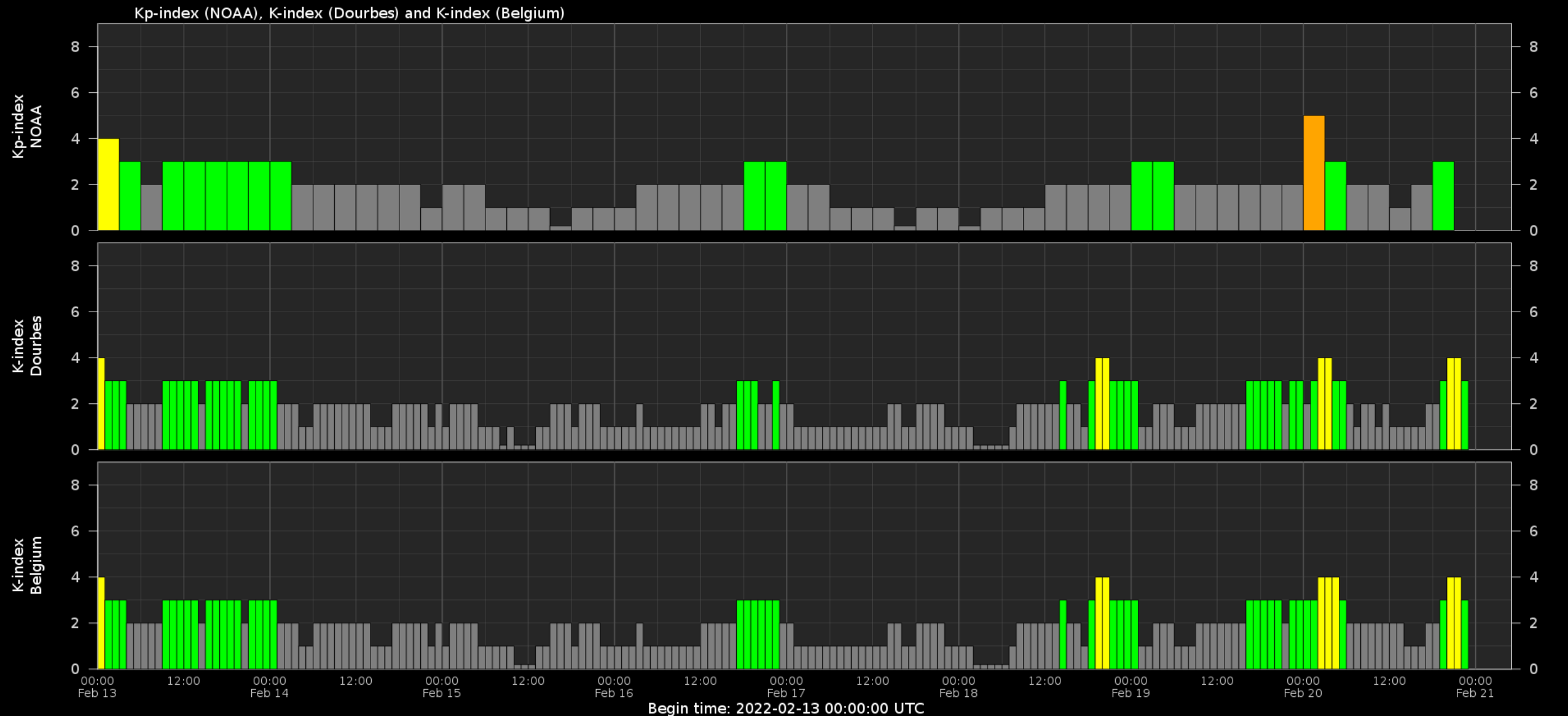
Solar wind parameters



Solar wind parameters & K-indices



Geomagnetic activity (K-indexes)



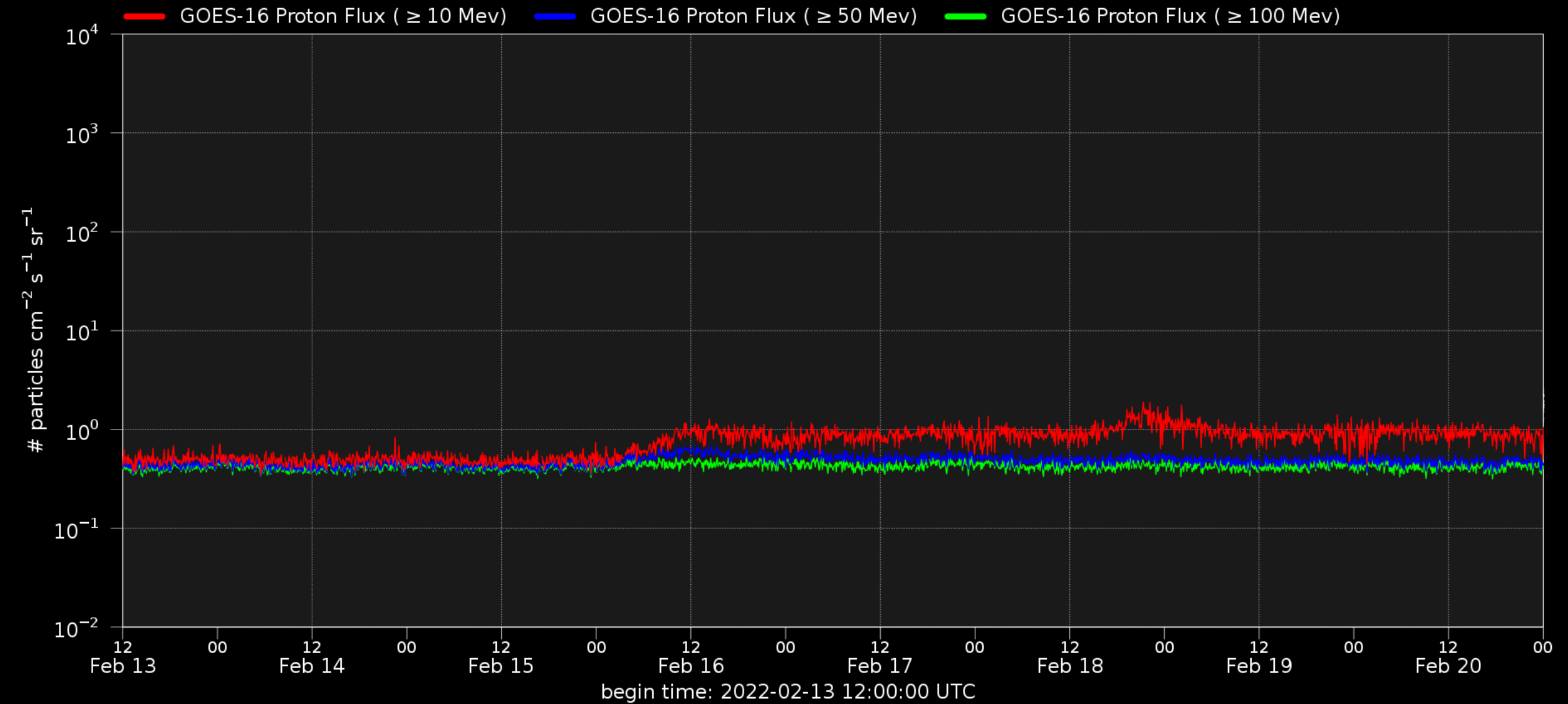
Energetic Particles



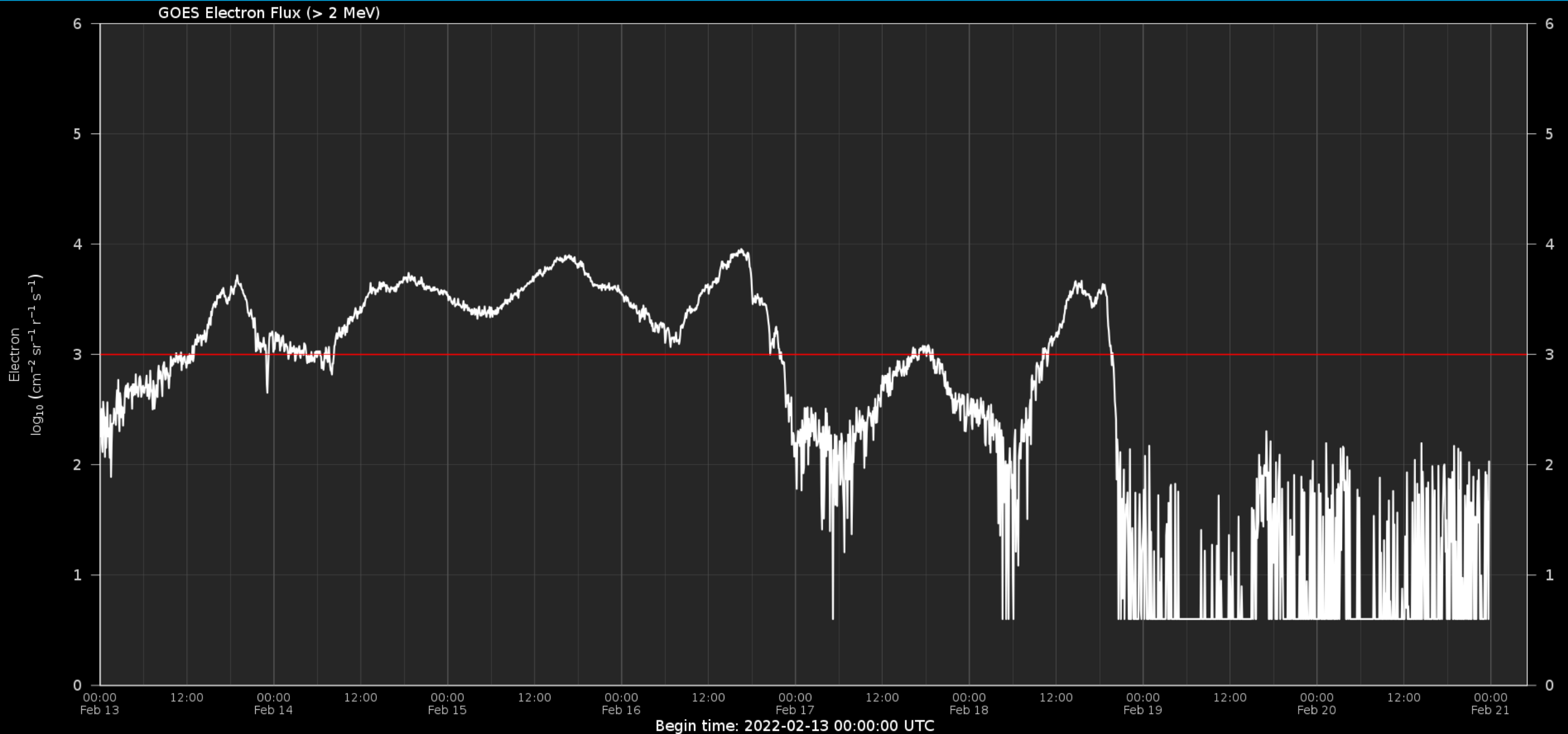
Royal Observatory
of Belgium

Solar Influences
Data analysis Centre
www.sidc.be

Solar proton flux



Electron flux at GEO



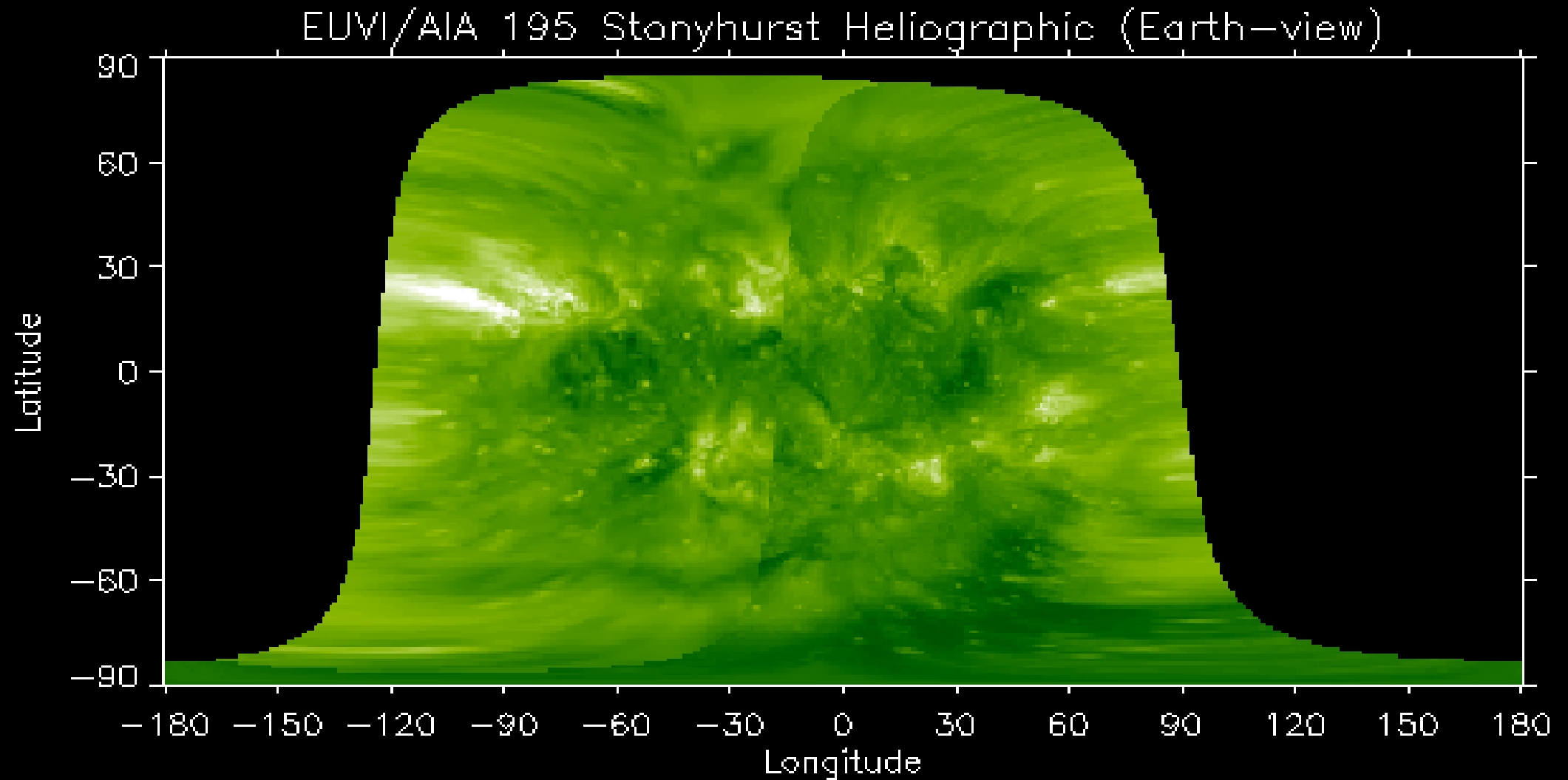
Outlook



Royal Observatory
of Belgium

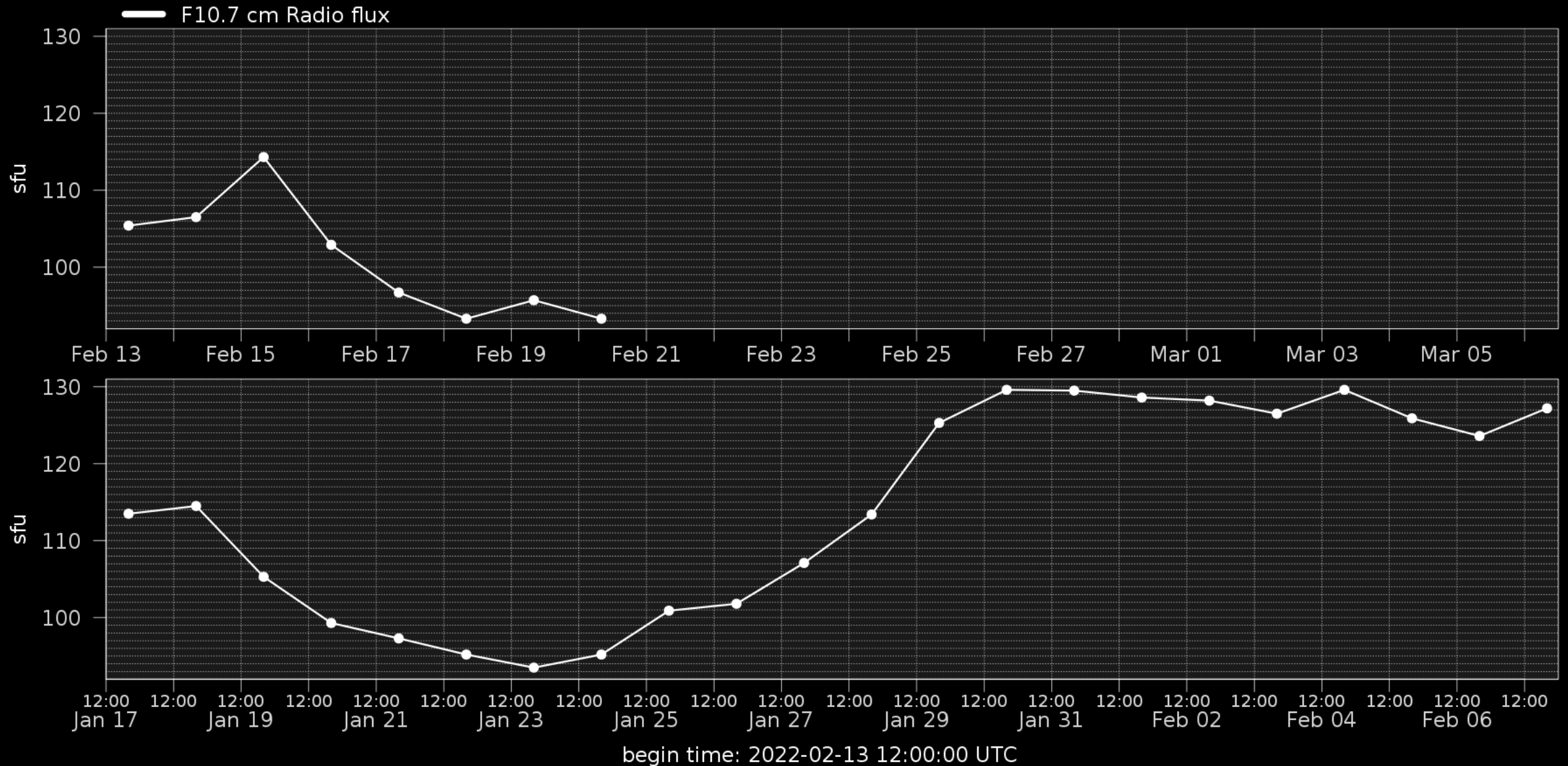
Solar Influences
Data analysis Centre
www.sidc.be

Outlook: Solar activity

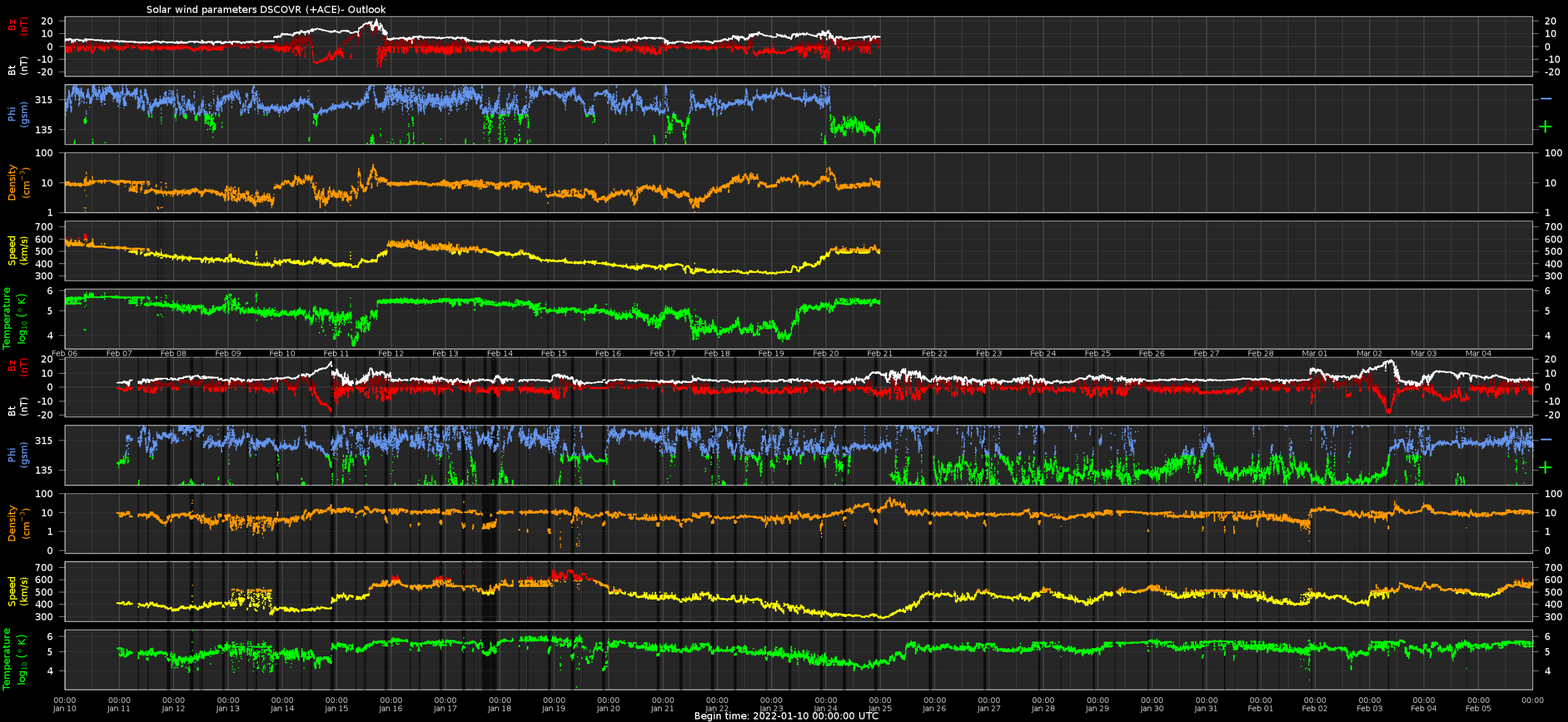


Observation date: 2022/02/20 23:15:00

Outlook: Solar F10.7cm radio flux



Outlook: Solar wind parameters



Outlook: Geomagnetic activity



Outlook: Electron Flux at GEO Outlook



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