

SIDC Space Weather Briefing

18-25 September 2022

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& the SIDC forecaster team



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Summary Report

Solar activity from 2022-09-18 12:00 to 2022-09-25 23:59

Active regions	Activity dominated by NOAA 3102, NOAA 3107 and NOAA 3110
Flares	# C-class flare: 49 # M-class flare: 3 # X-class flare: 0
Coronal Holes	Equatorial CH+ ; extension of South polar CH-
CMEs	Several CMEs in the second half of the week, but mostly off the Sun-Earth line

Proton flux	Slightly enhanced but decreasing
Electron flux	Background levels until the end of the week

Solar wind and geomagnetic conditions

ICMEs	None
Solar wind conditions	B : 0.39 - 11.15 nT //Bz: -7.68 nT to 9.03 nT //Speed: 293.1 - 552.2km/s
K-indices	max K-index (K_Dou): 4 max Kp-index (NOAA): 4

All Quiet Alert: Not quiet

Solar Activity

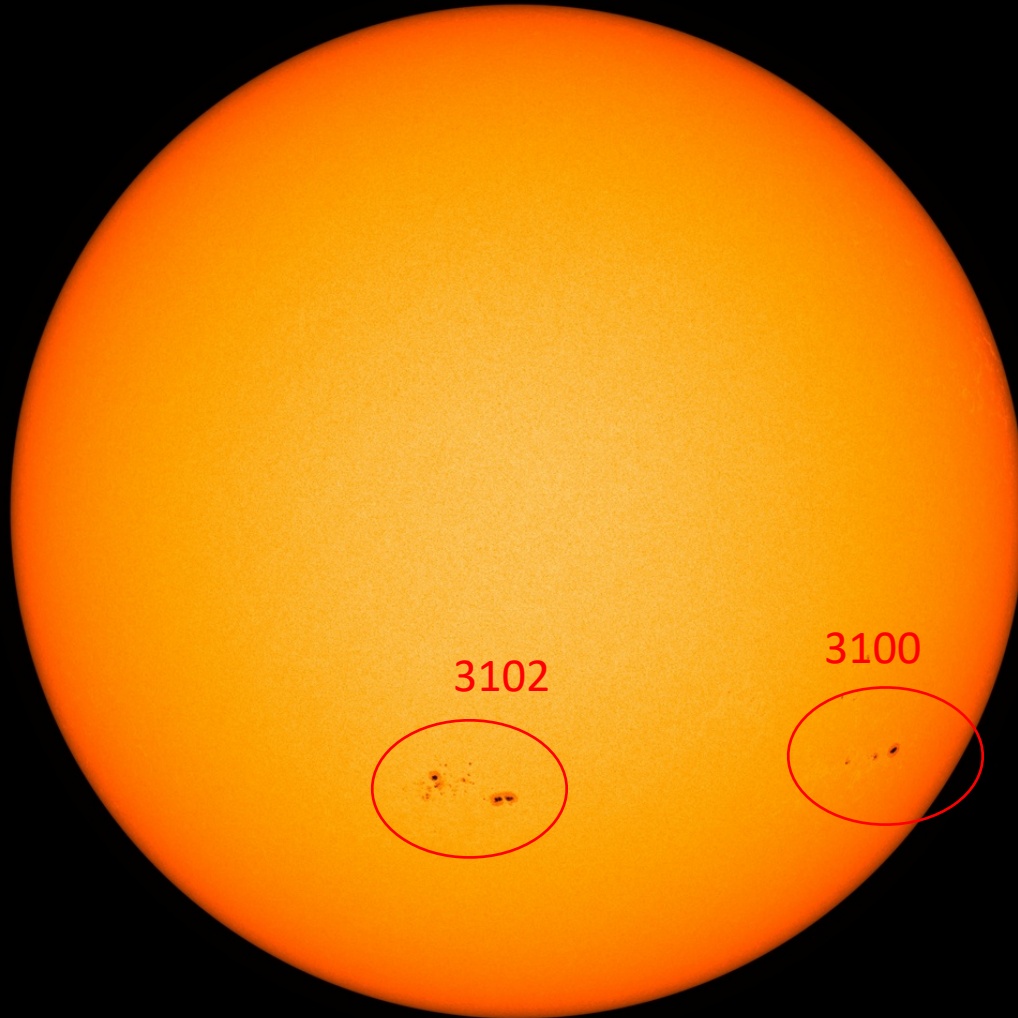


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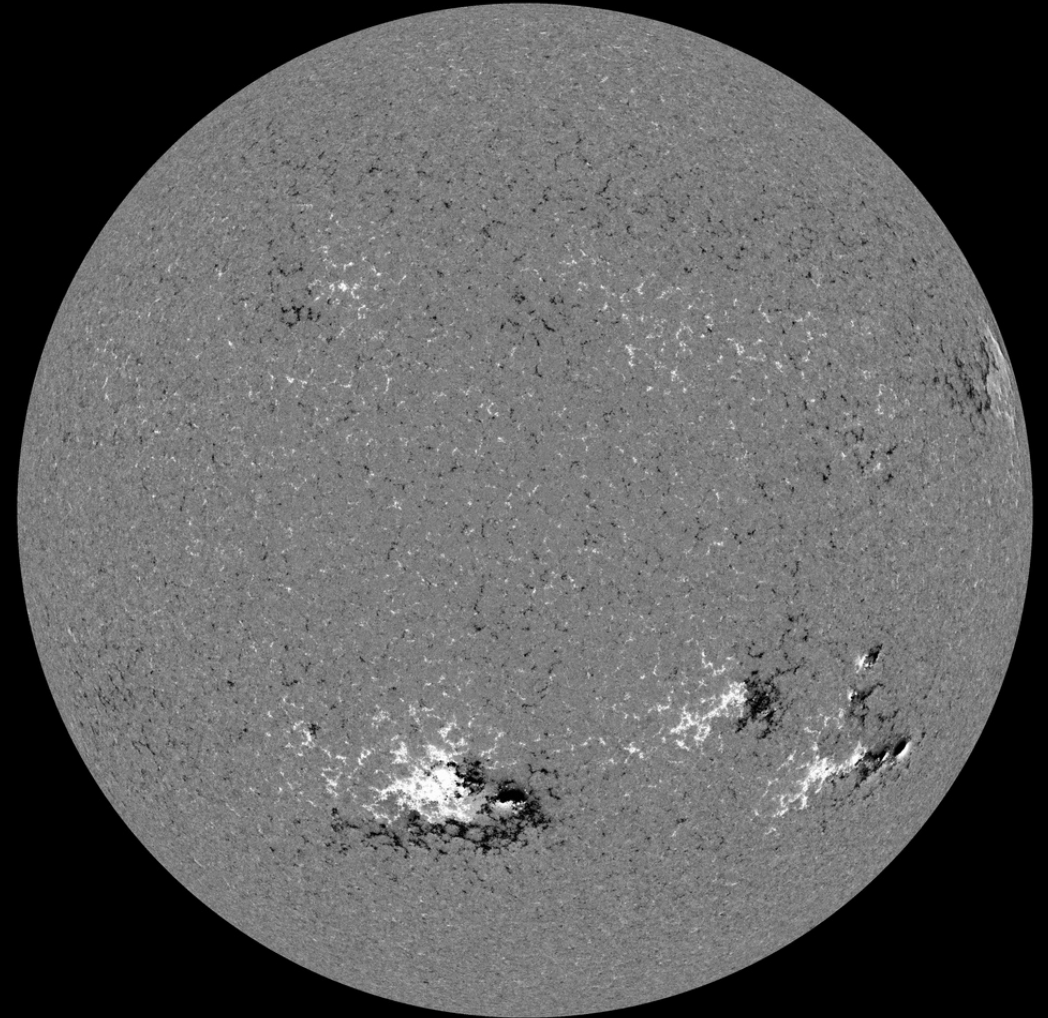
Solar active regions

SDO/HMI White Light 2022-09-18



SDO/HMI Quick-Look Continuum: 20220918_114500

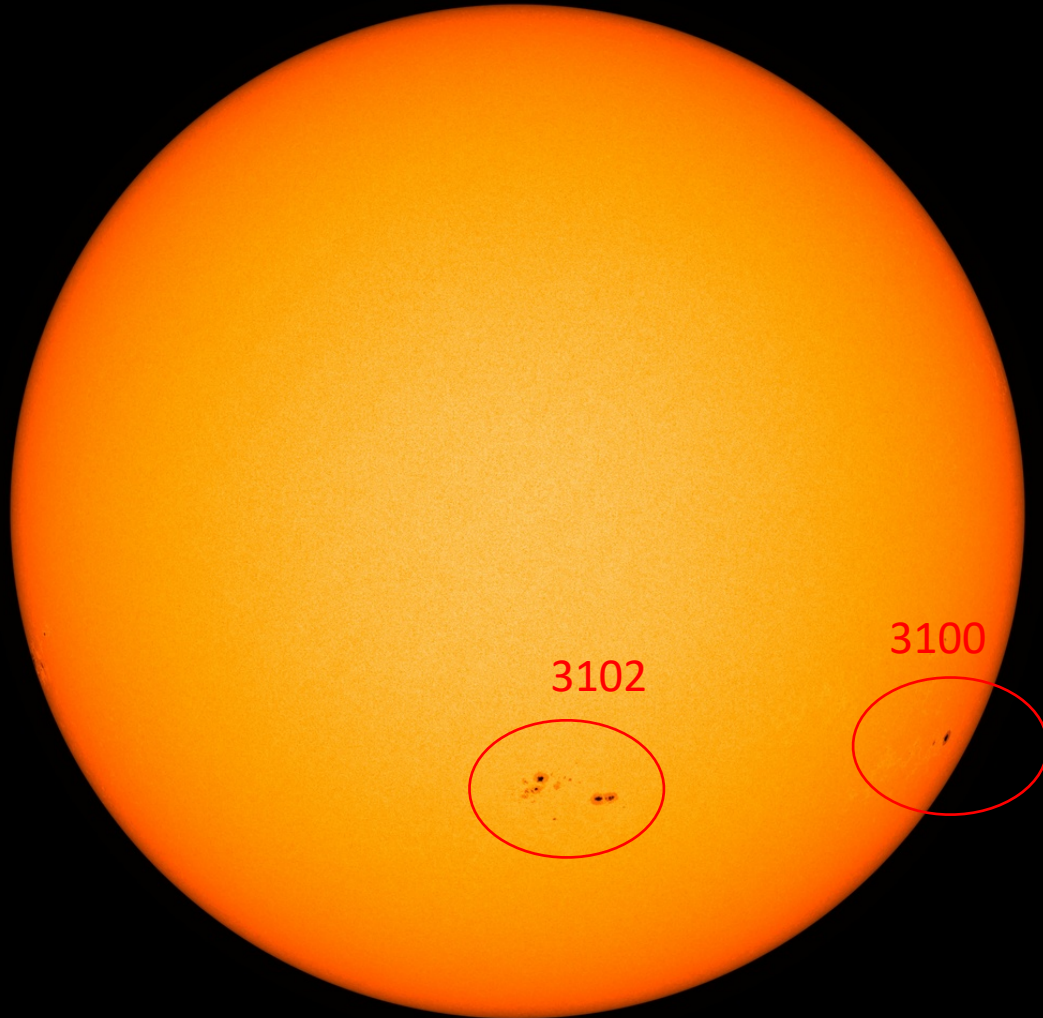
SDO/HMI Magnetogram 2022-09-18



SDO/HMI Quick-Look Magnetogram: 20220918_114500

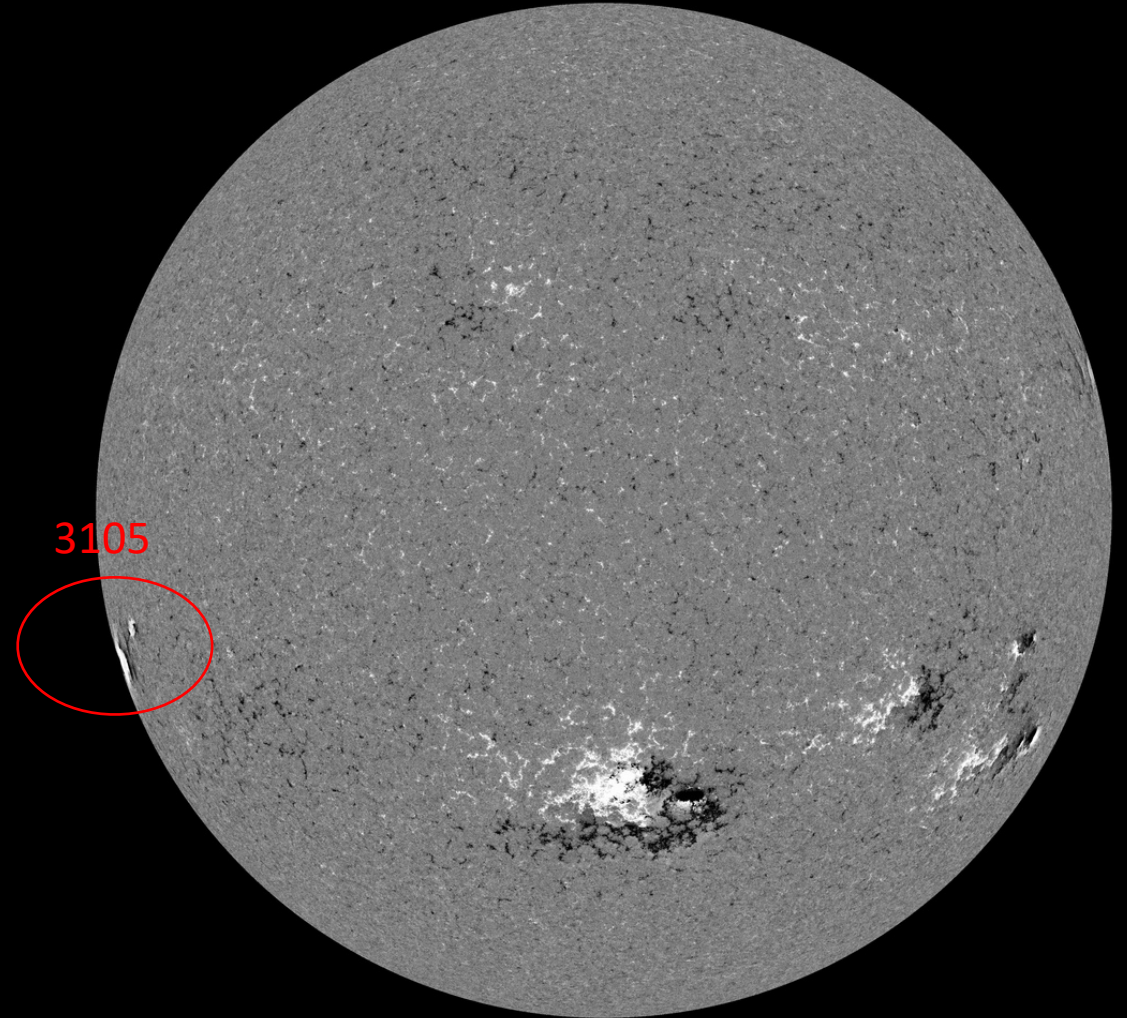
Solar active regions

SDO/HMI White Light 2022-09-19



SDO/HMI Quick-Look Continuum: 20220919_114500

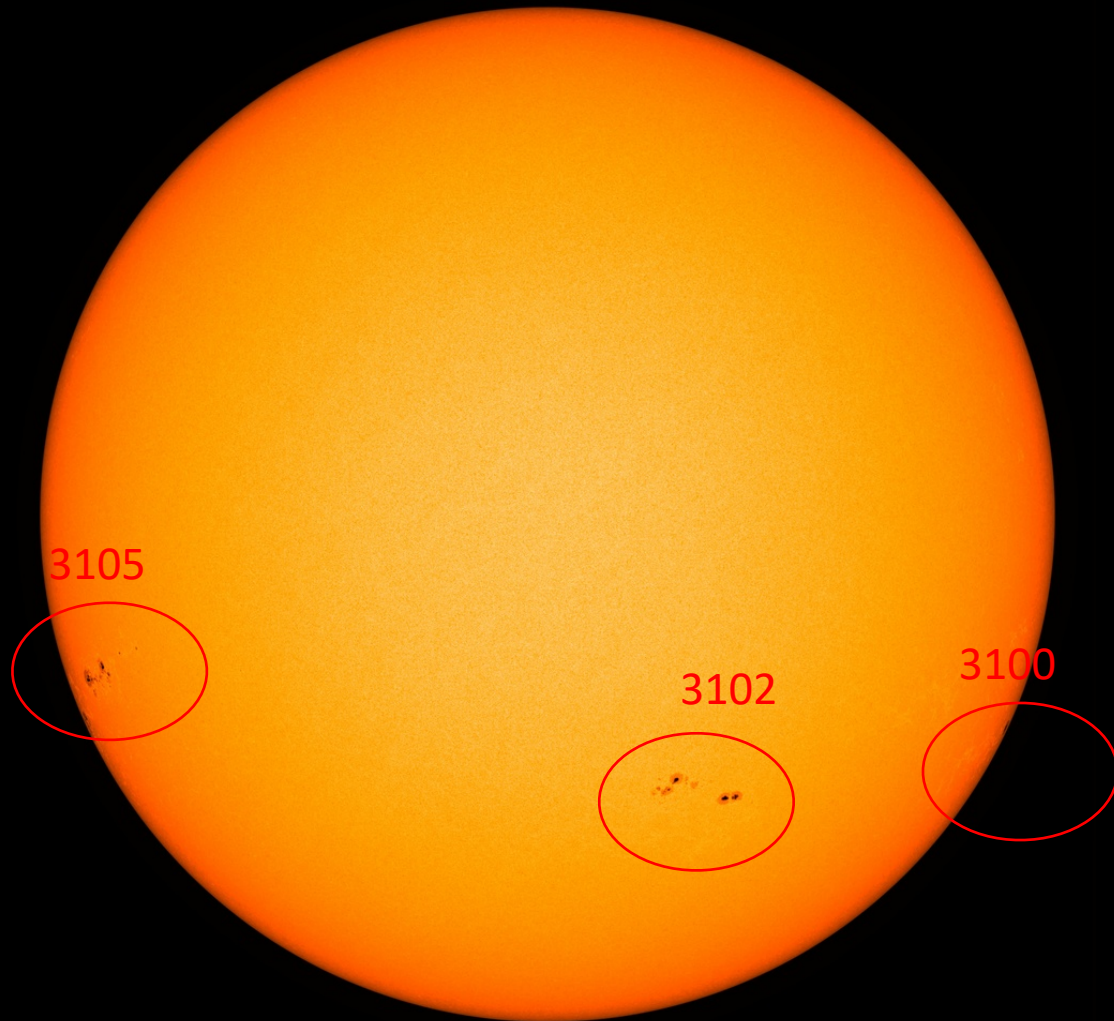
SDO/HMI Magnetogram 2022-09-19



SDO/HMI Quick-Look Magnetogram: 20220919_114500

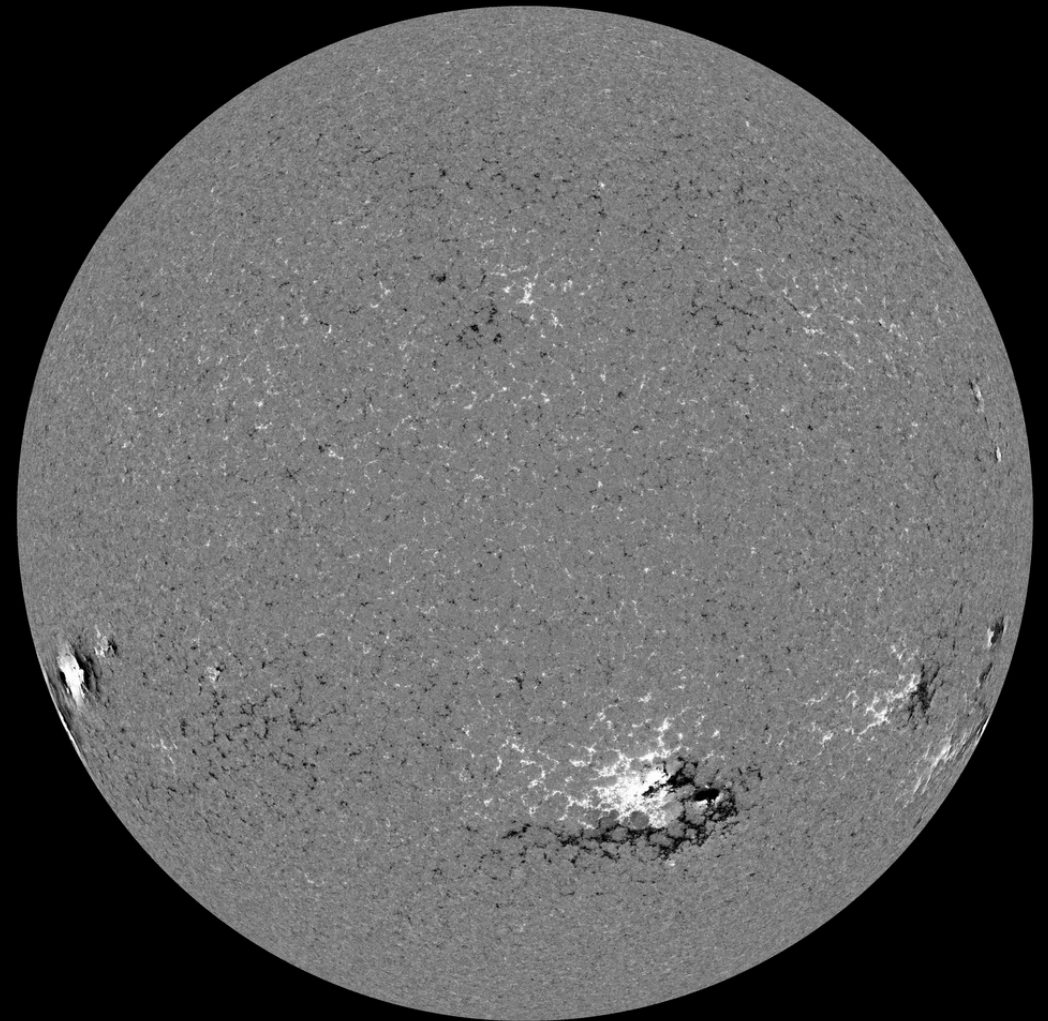
Solar active regions

SDO/HMI White Light 2022-09-20



SDO/HMI Quick-Look Continuum: 20220920_114500

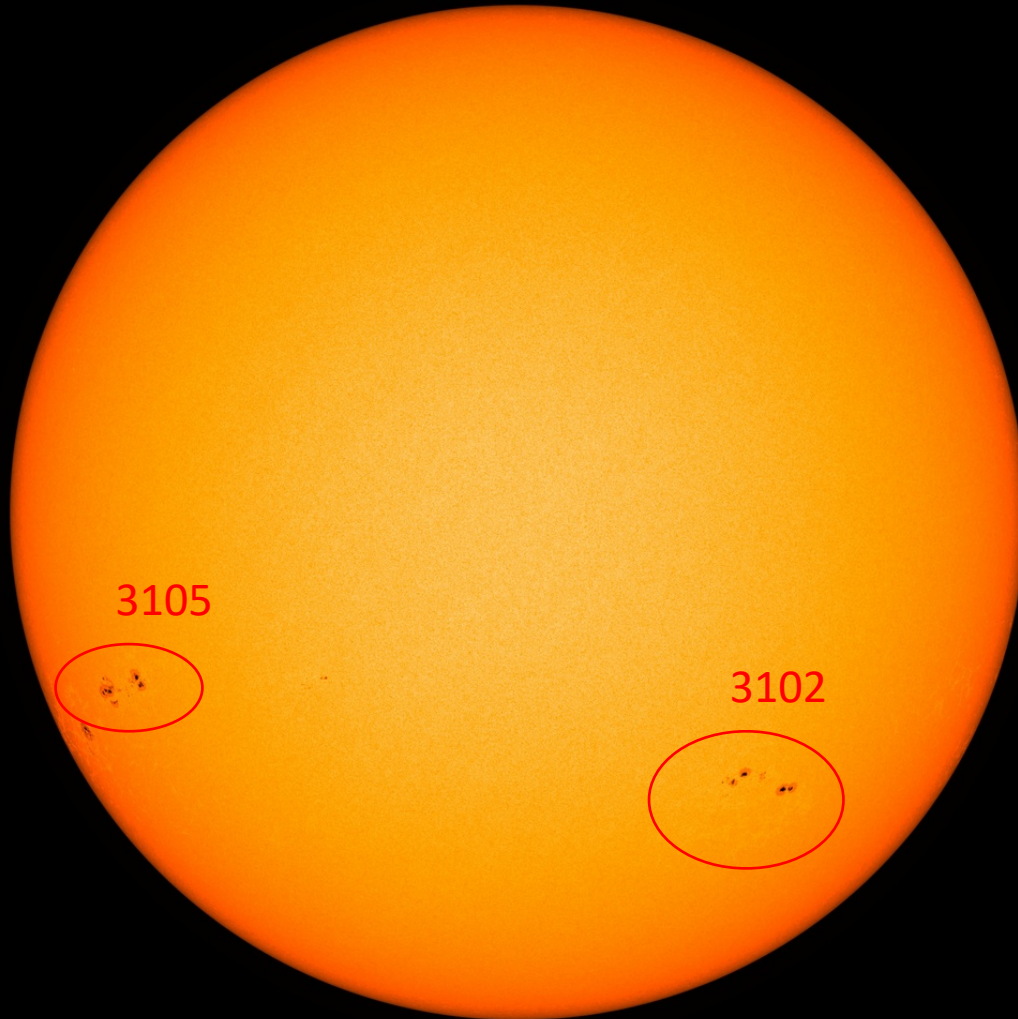
SDO/HMI Magnetogram 2022-09-20



SDO/HMI Quick-Look Magnetogram: 20220920_114500

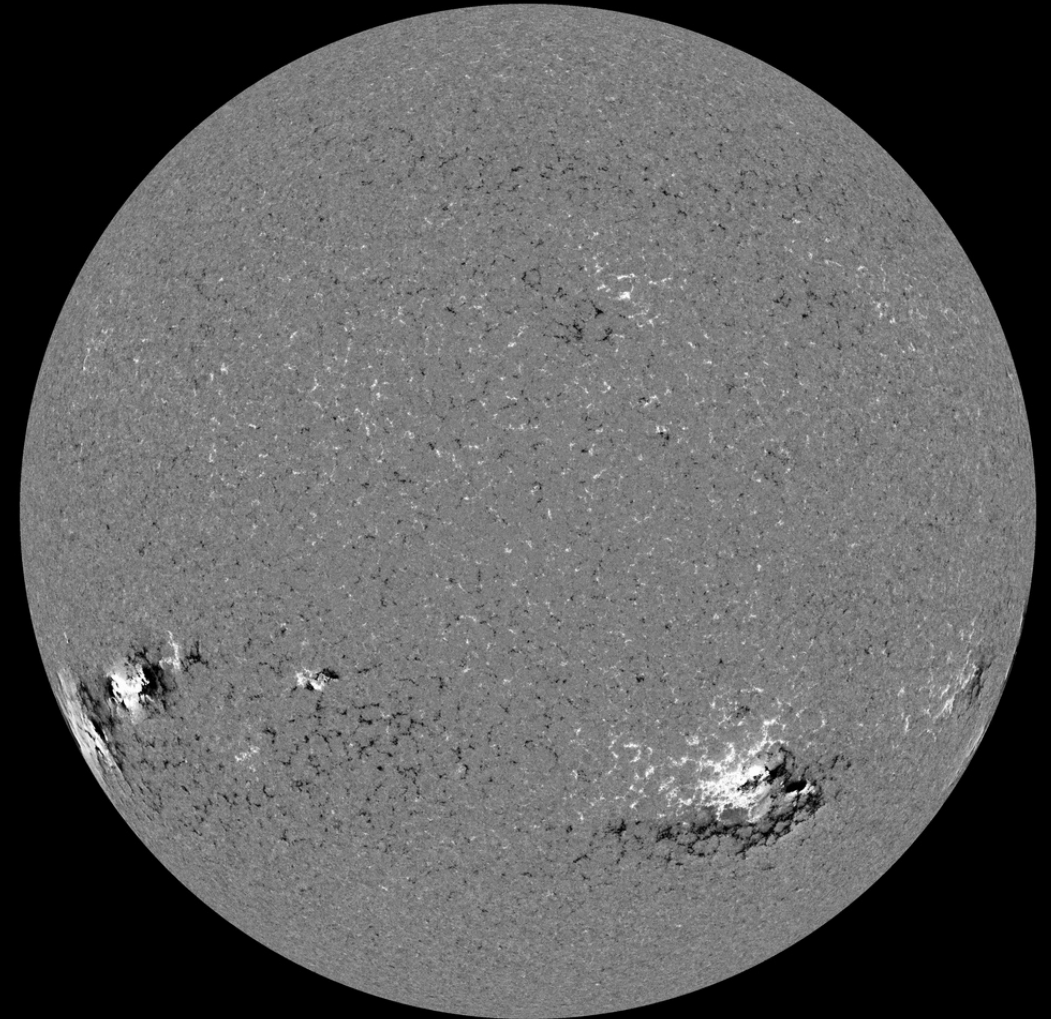
Solar active regions

SDO/HMI White Light 2022-09-21



SDO/HMI Quick-Look Continuum: 20220921_114500

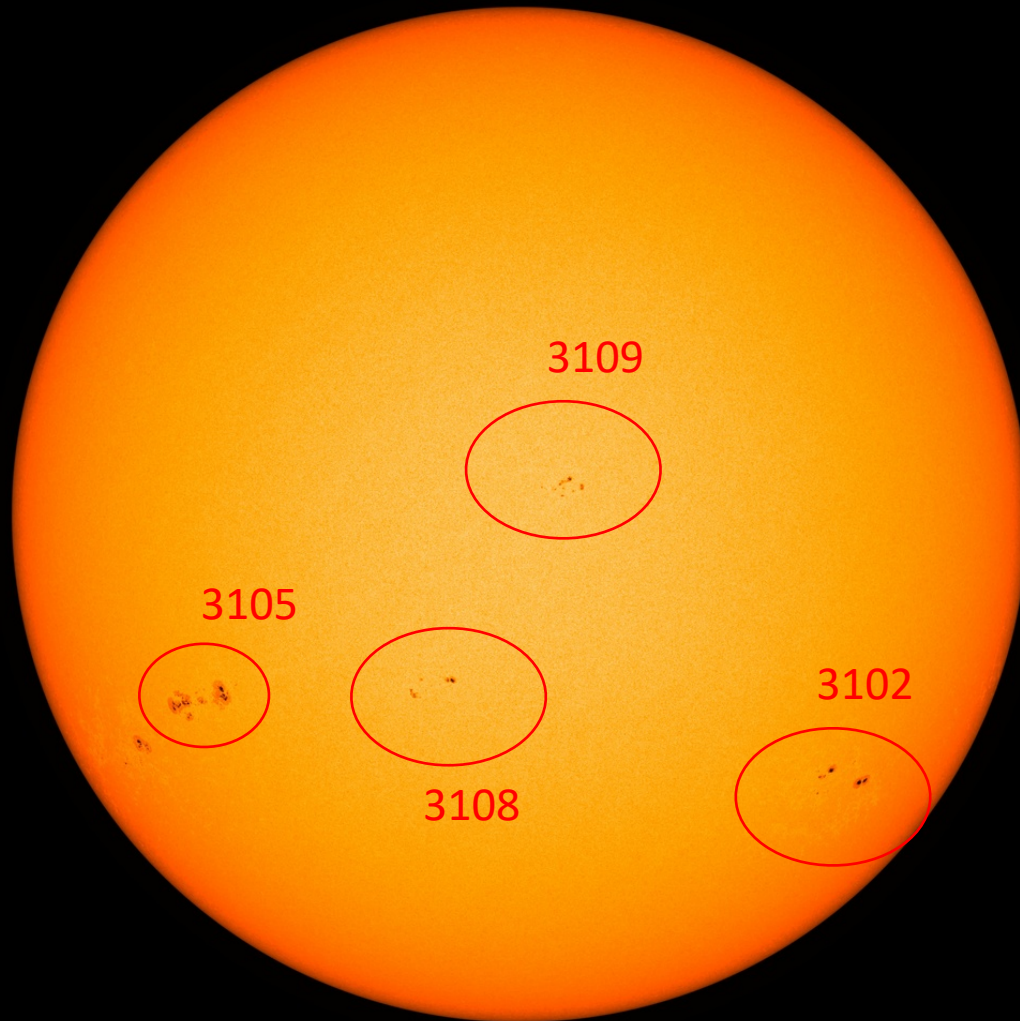
SDO/HMI Magnetogram 2022-09-21



SDO/HMI Quick-Look Magnetogram: 20220921_114500

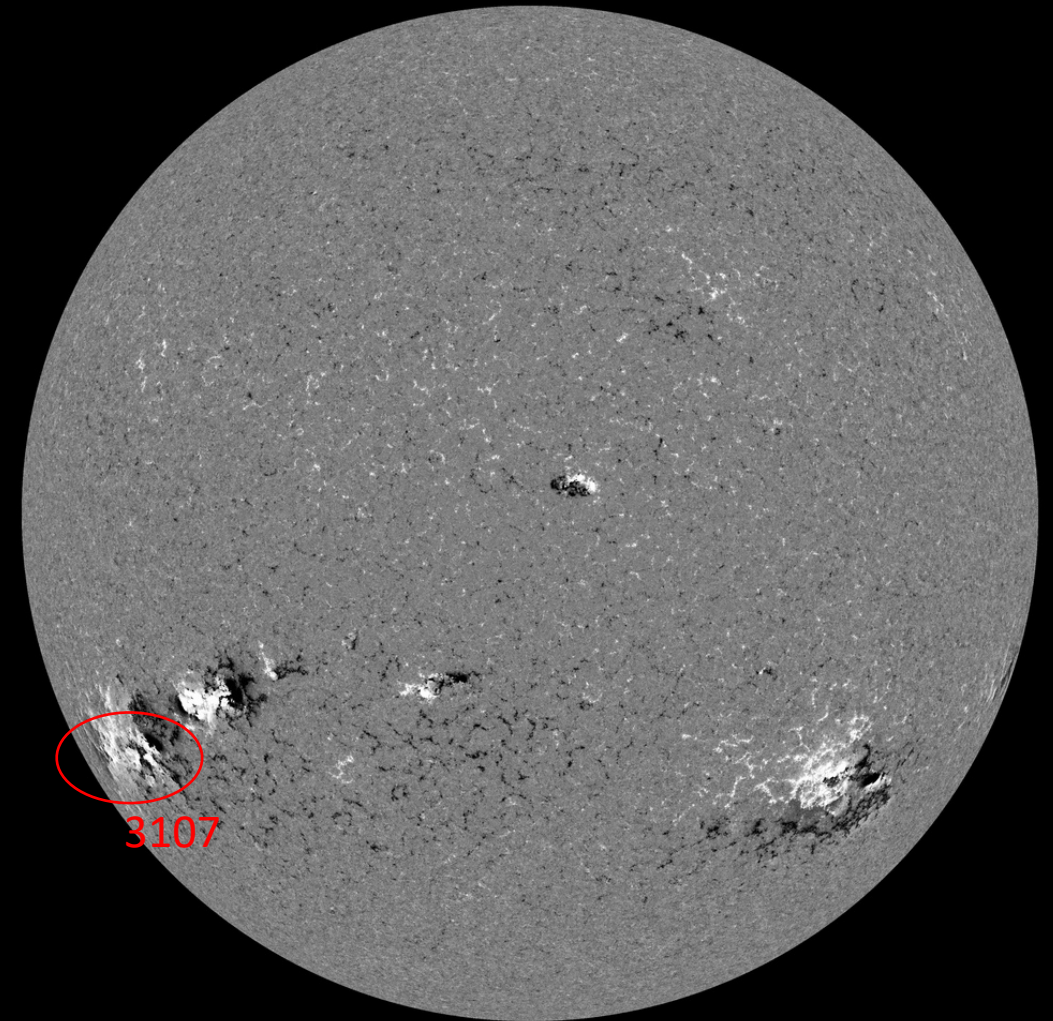
Solar active regions

SDO/HMI White Light 2022-09-22



SDO/HMI Quick-Look Continuum: 20220922_114500

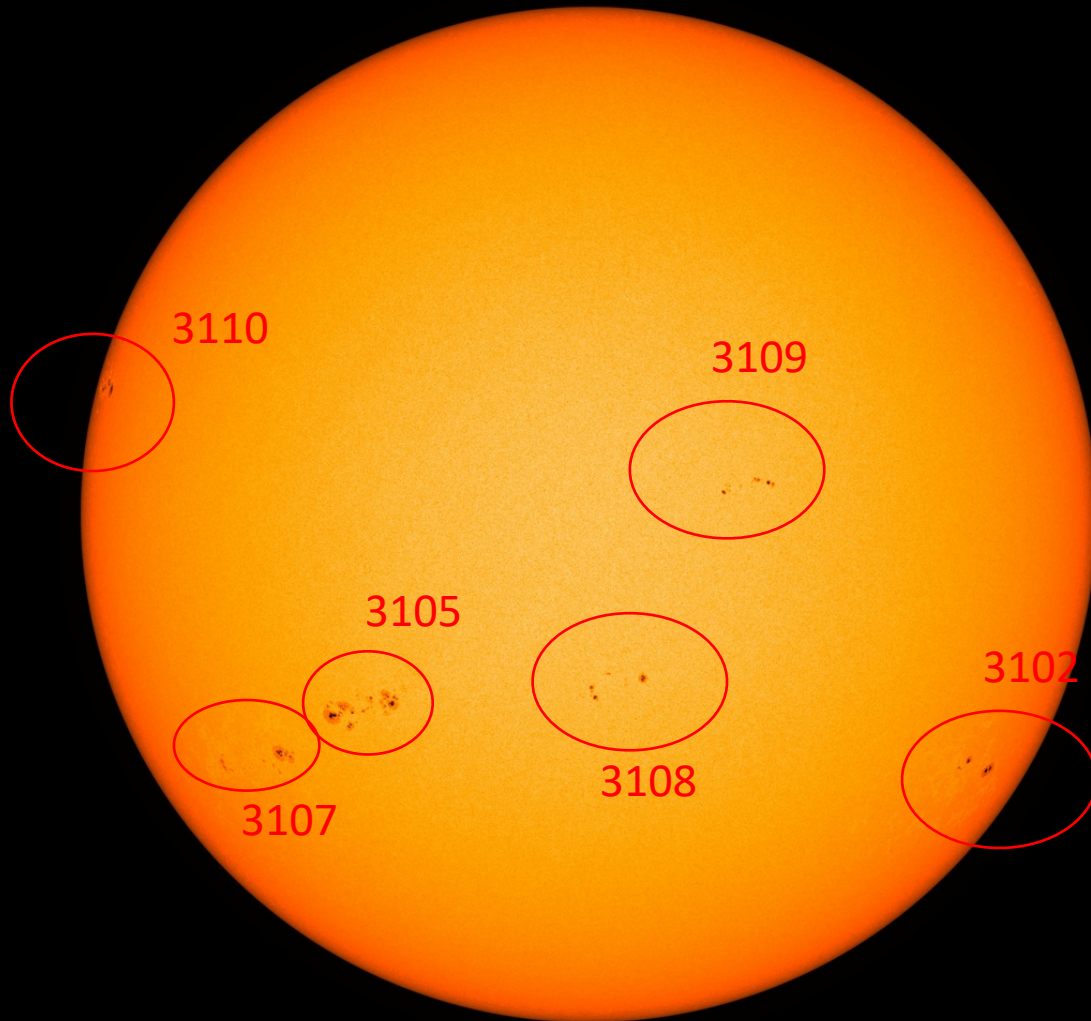
SDO/HMI Magnetogram 2022-09-22



SDO/HMI Quick-Look Magnetogram: 20220922_114500

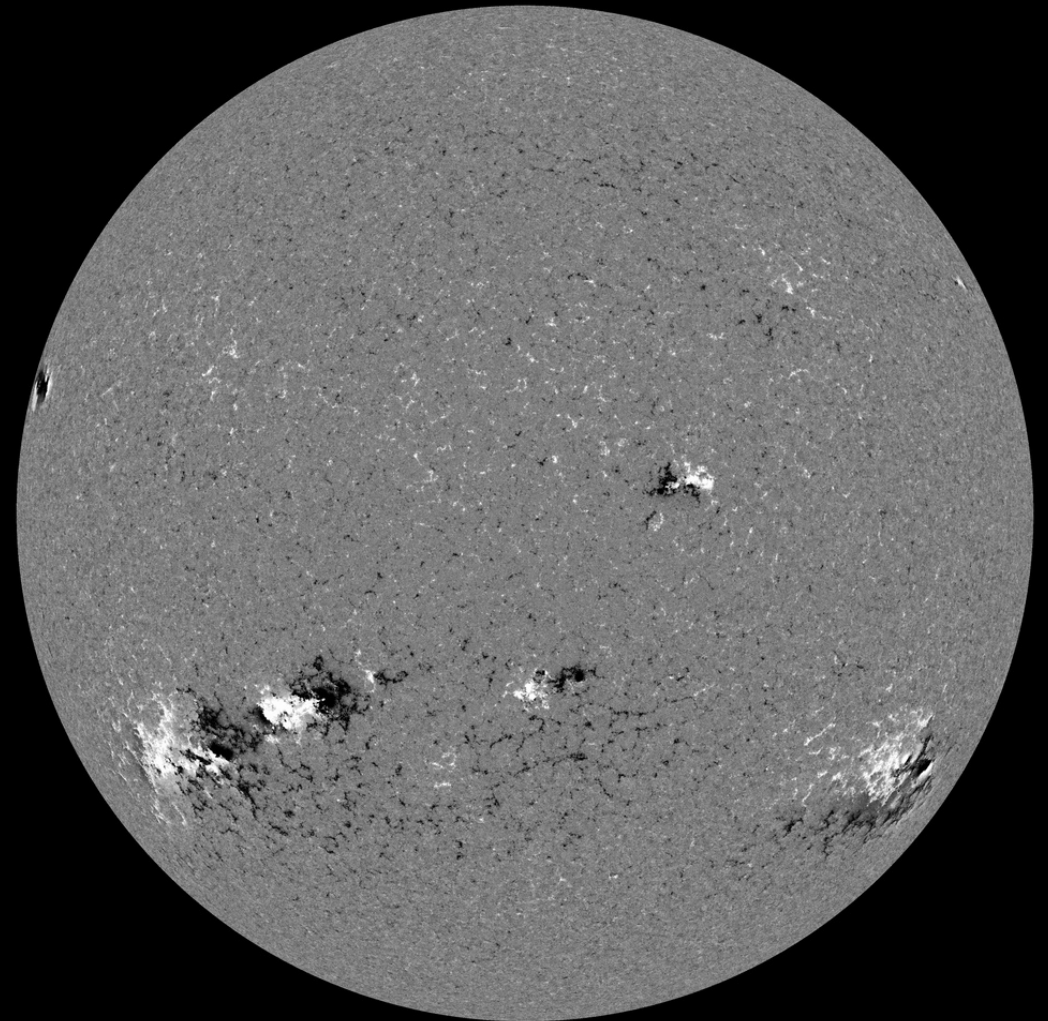
Solar active regions

SDO/HMI White Light 2022-09-23



SDO/HMI Quick-Look Continuum: 20220923_114500

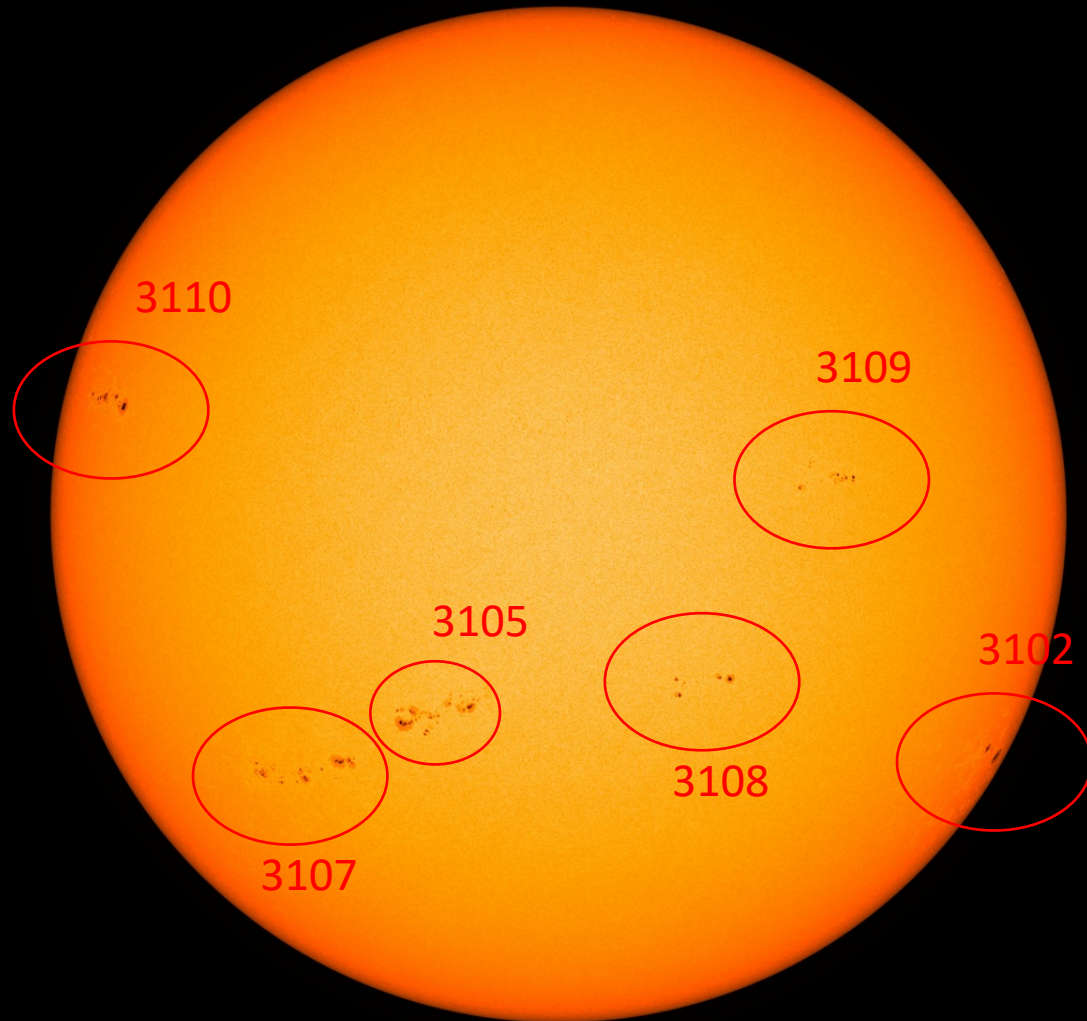
SDO/HMI Magnetogram 2022-09-23



SDO/HMI Quick-Look Magnetogram: 20220923_114500

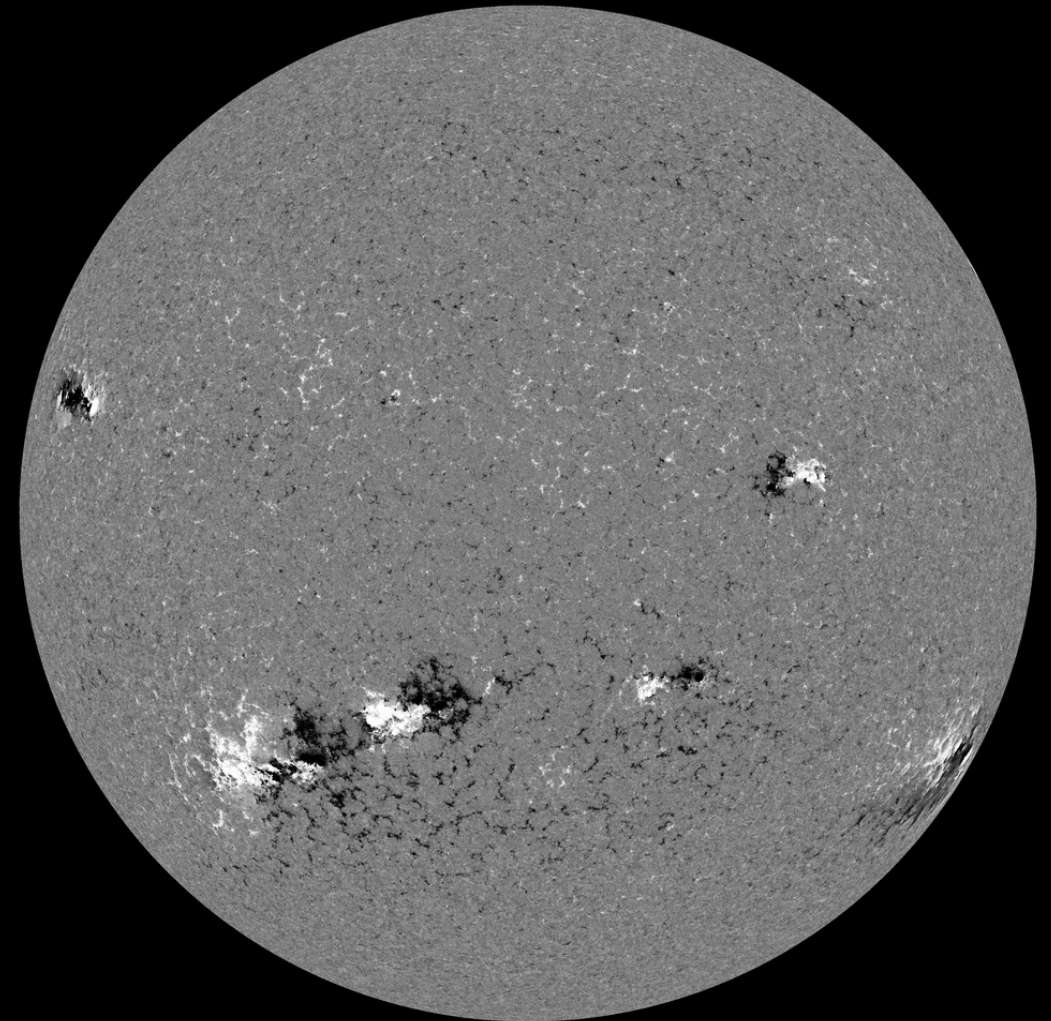
Solar active regions

SDO/HMI White Light 2022-09-24



SDO/HMI Quick-Look Continuum: 20220924_120000

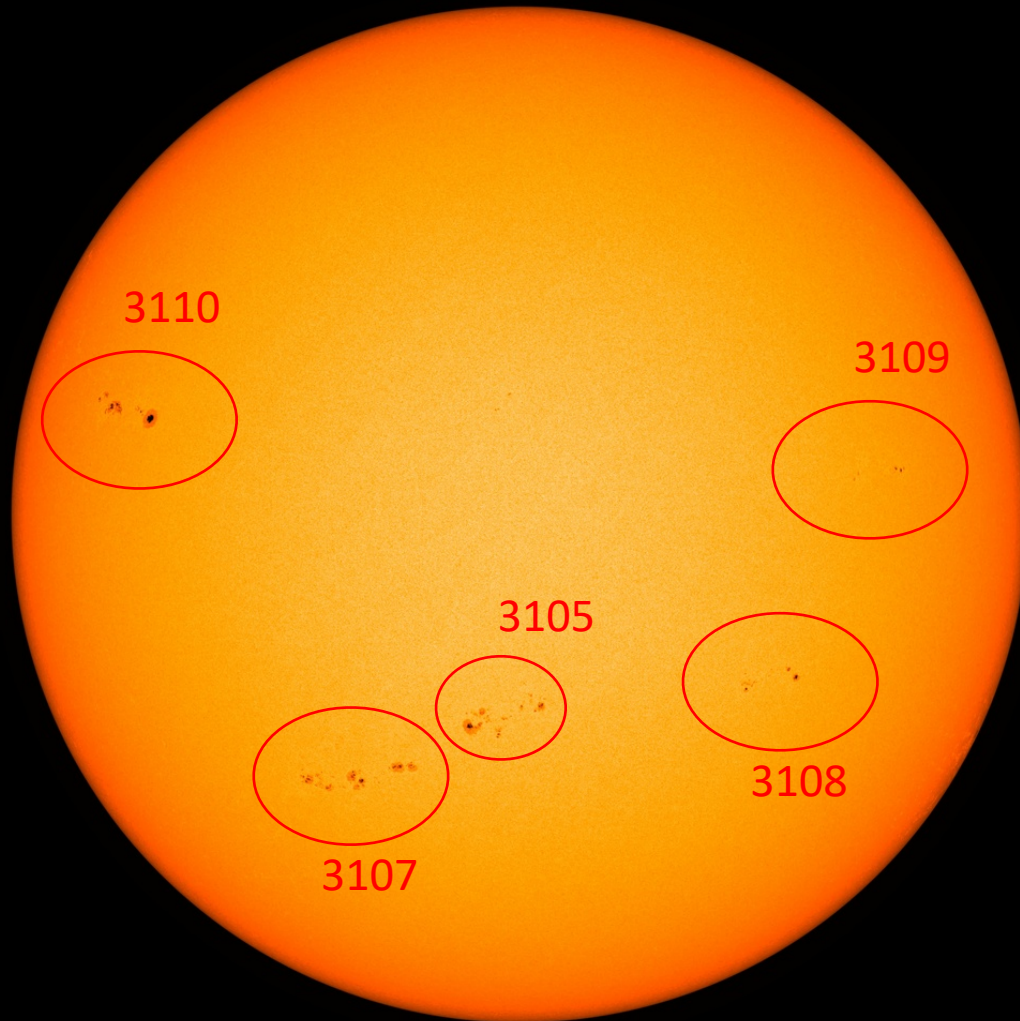
SDO/HMI Magnetogram 2022-09-24



SDO/HMI Quick-Look Magnetogram: 20220924_120000

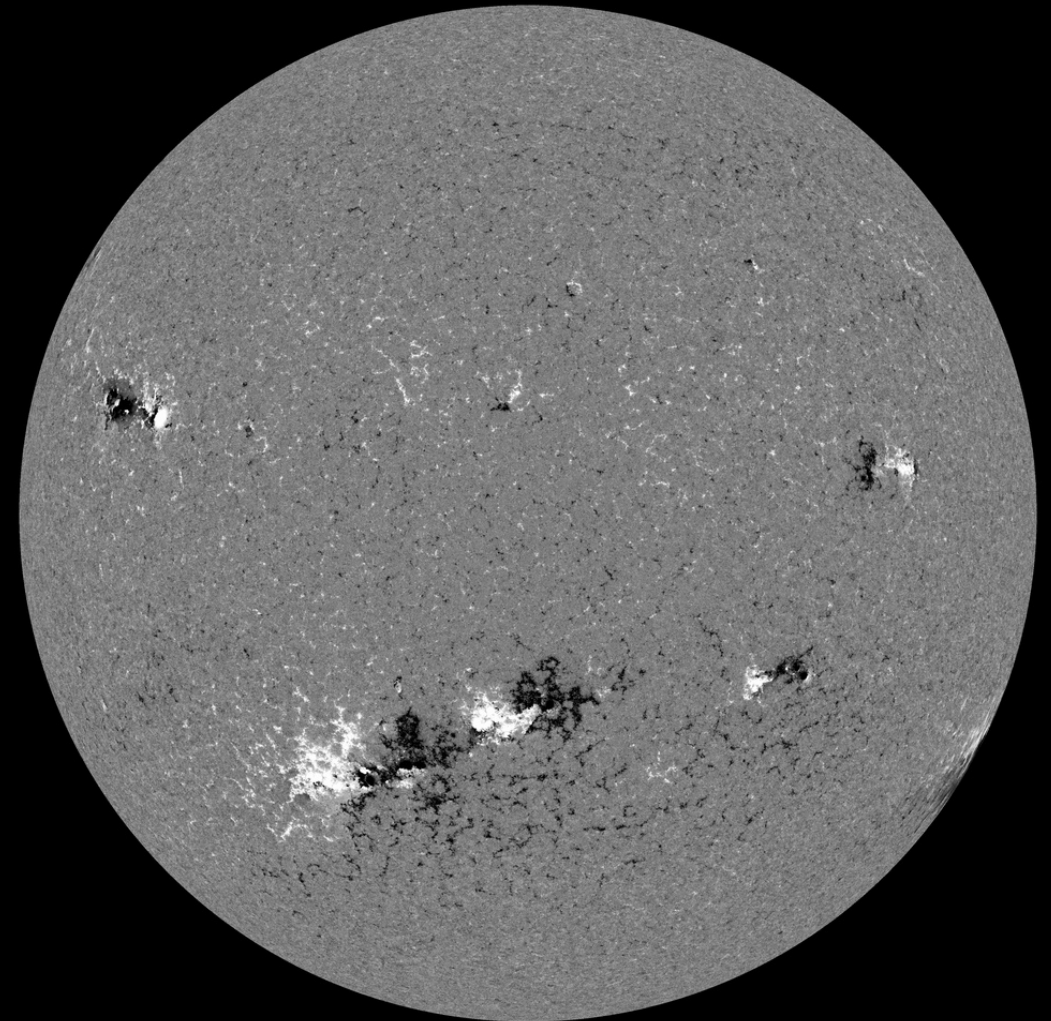
Solar active regions

SDO/HMI White Light 2022-09-25



SDO/HMI Quick-Look Continuum: 20220925_114500

SDO/HMI Magnetogram 2022-09-25

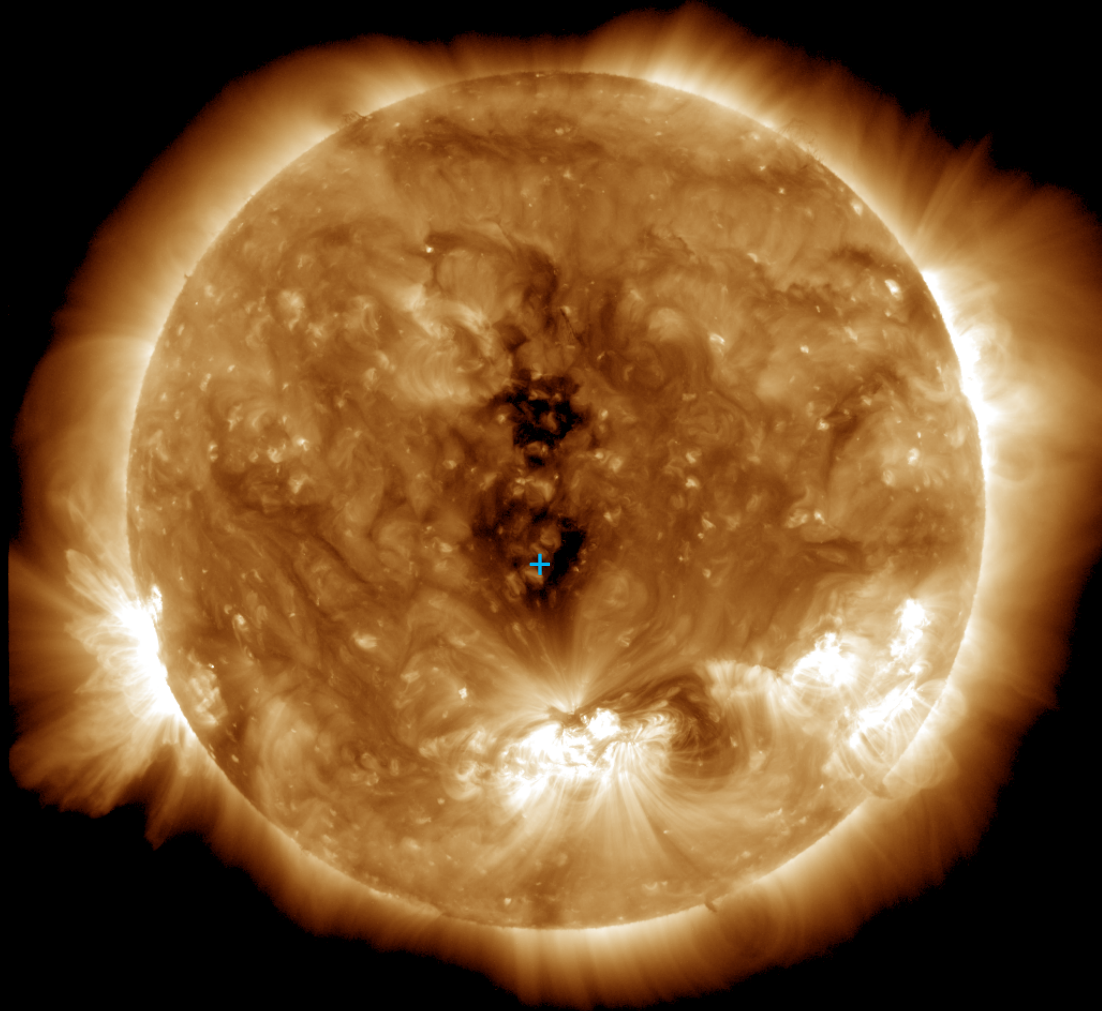


SDO/HMI Quick-Look Magnetogram: 20220925_114500

Coronal holes

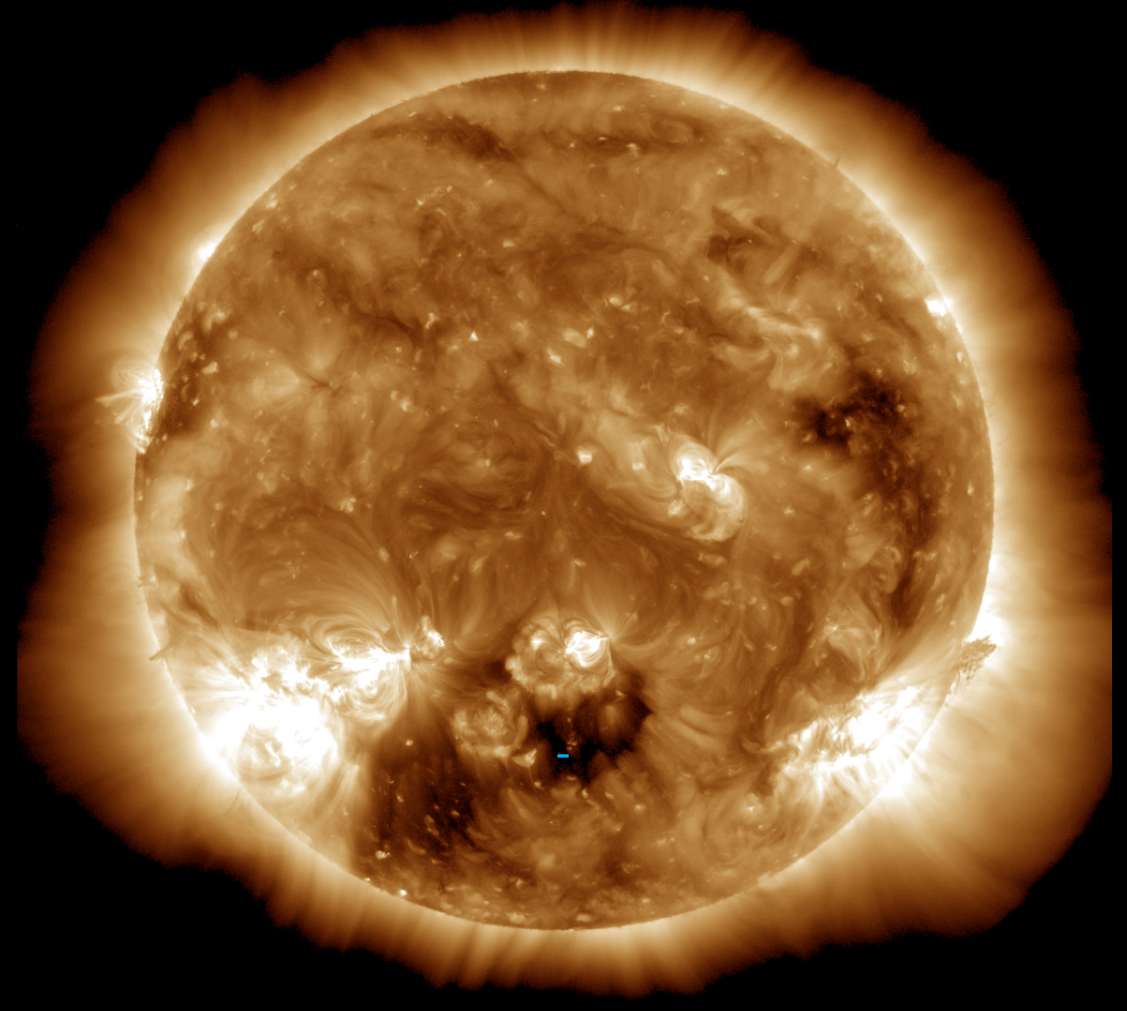
SDO/AIA 19.3 nm 2022-09-19

SDO/AIA AIA 193Å 2022-09-19T12:00:29.843



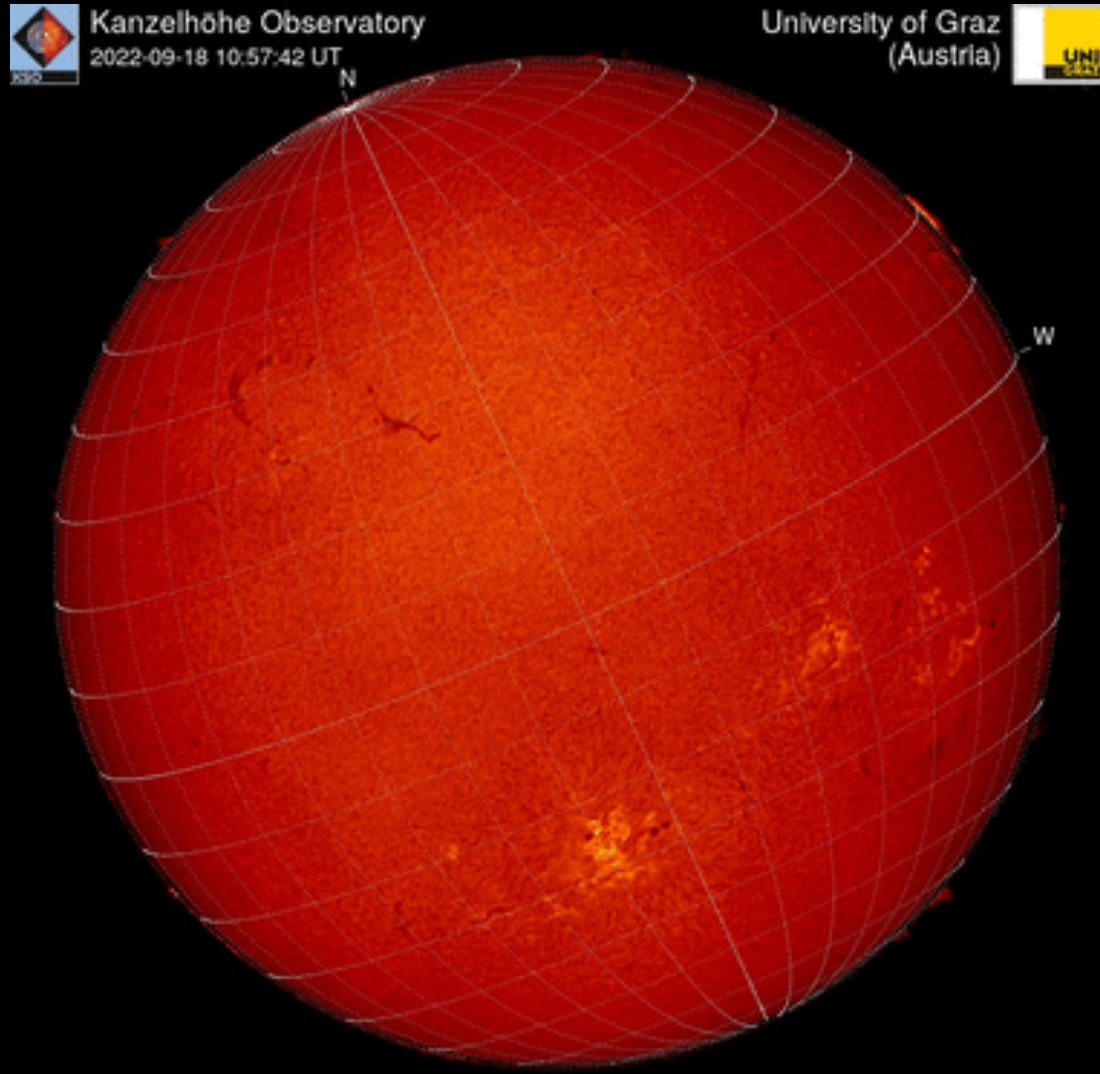
SDO/AIA 19.3 nm 2022-09-23

SDO/AIA AIA 193Å 2022-09-23T12:00:05.846

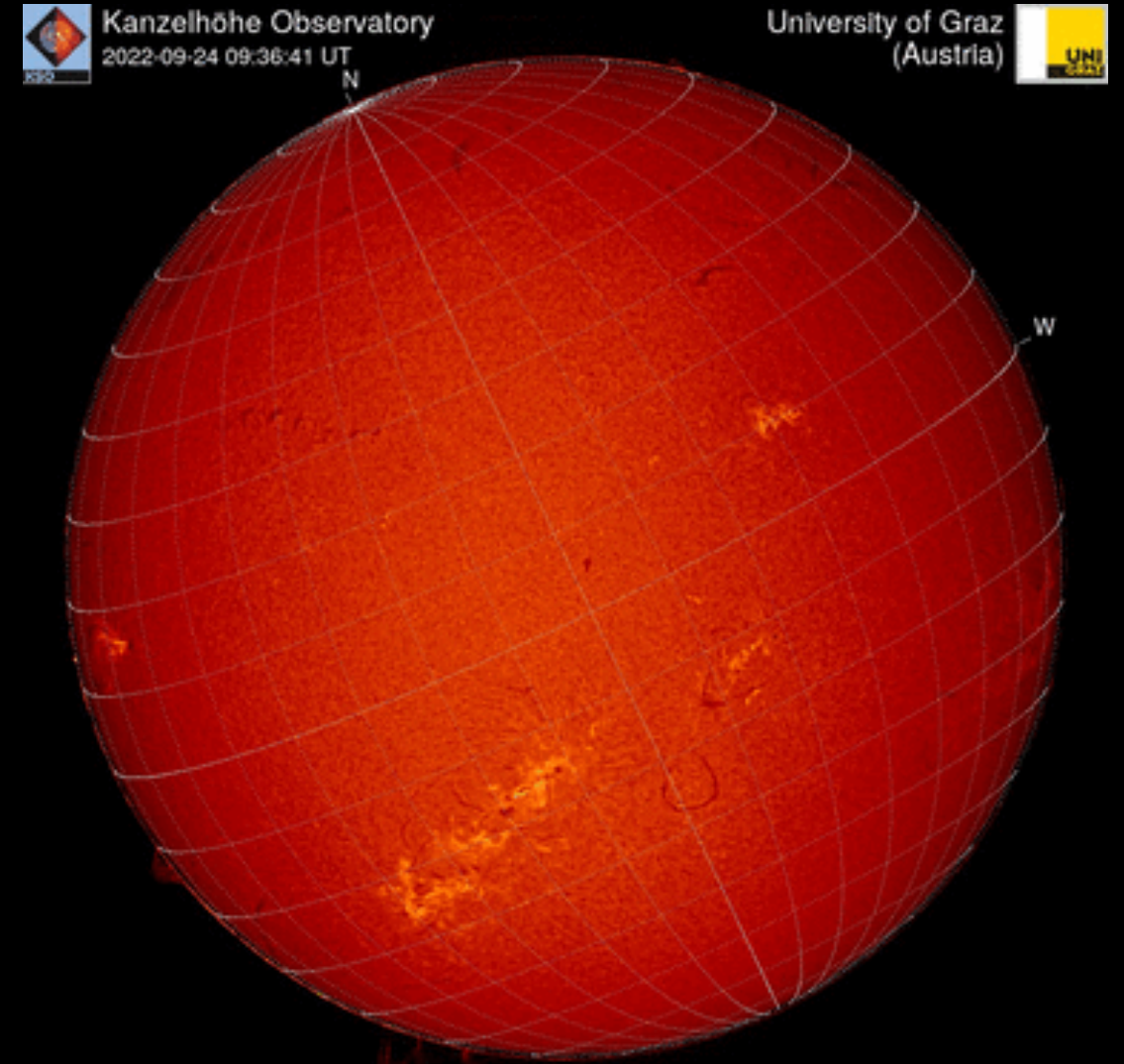


Filaments & Filament eruptions

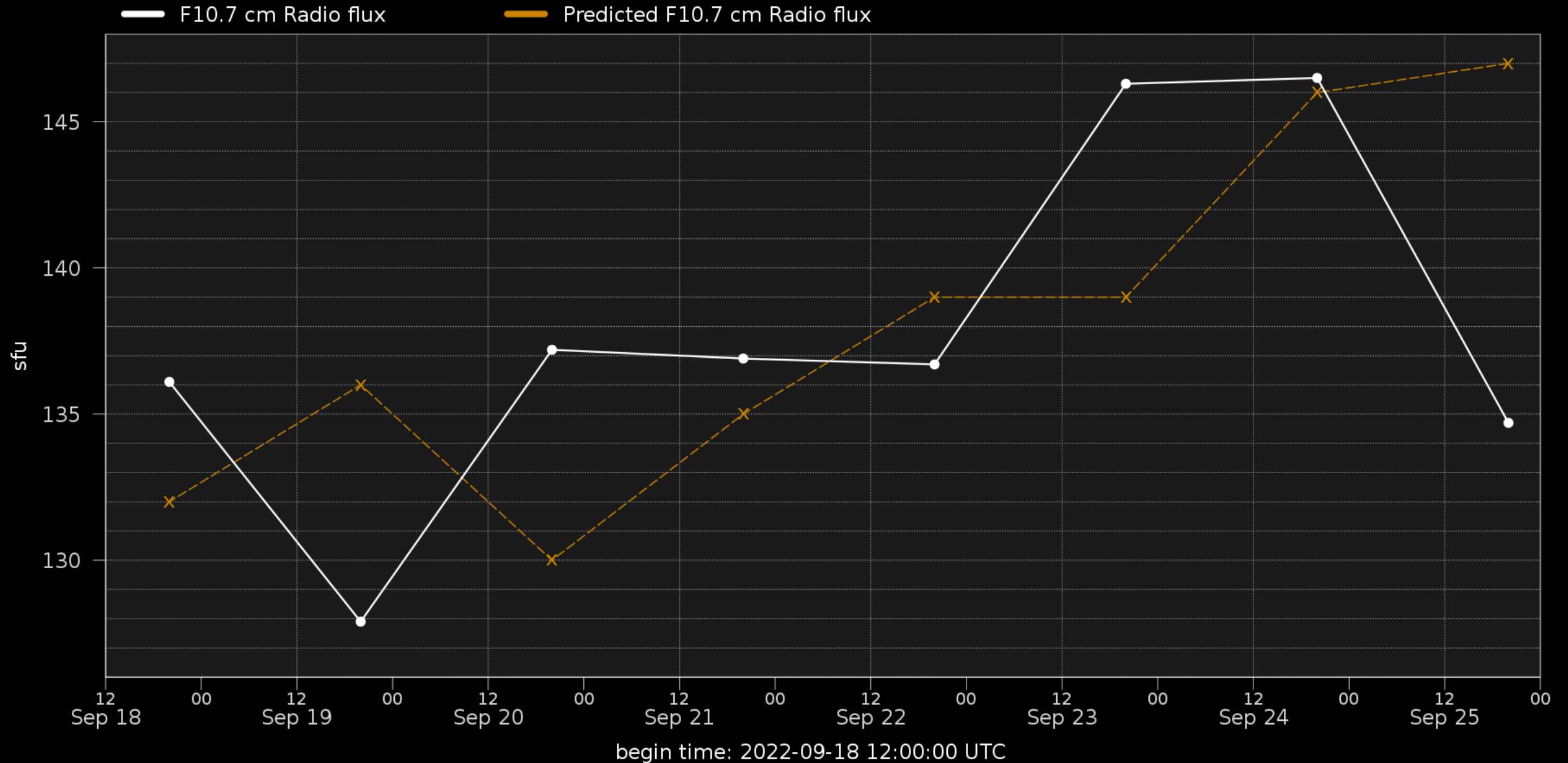
H-alpha 2022-09-18



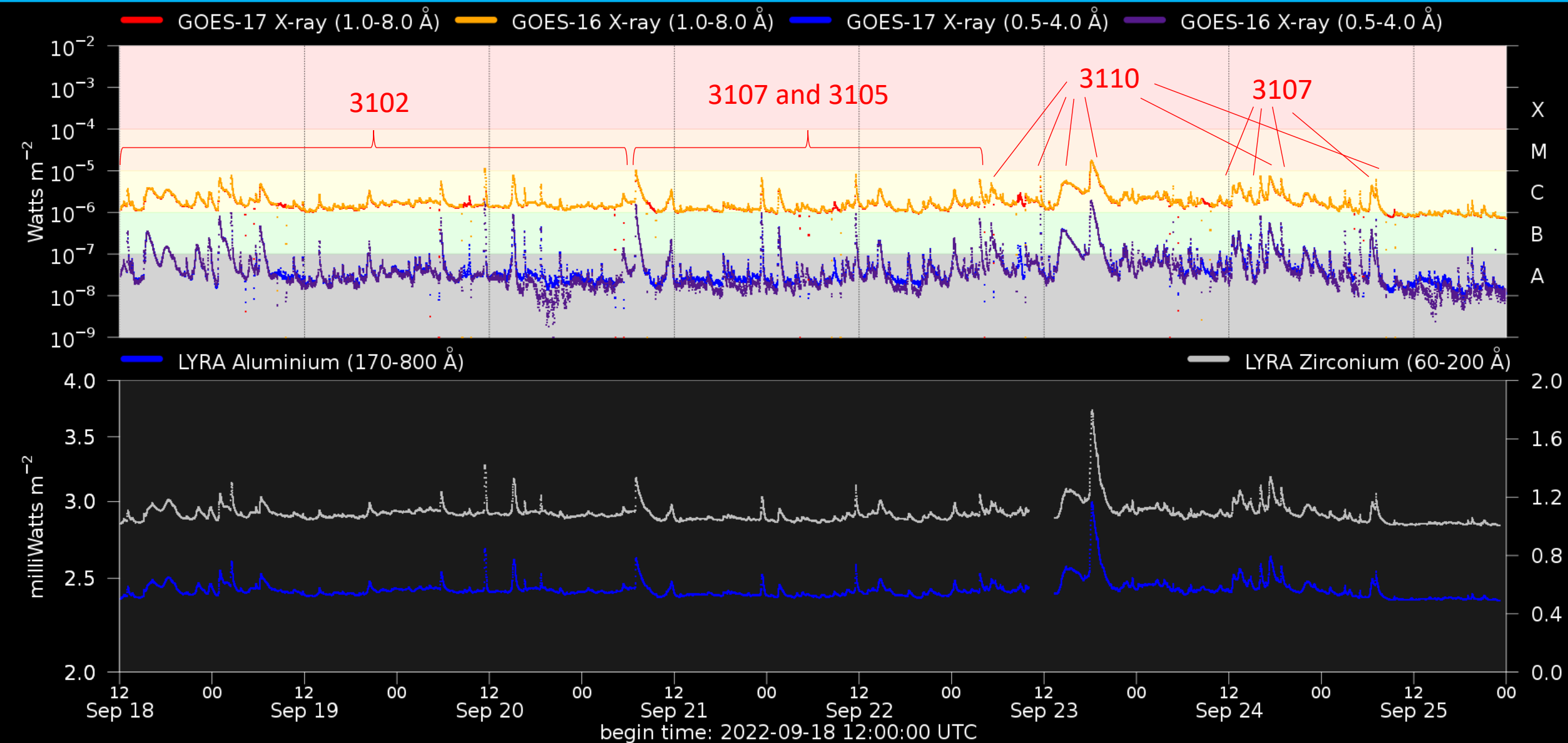
H-alpha 2022-09-25



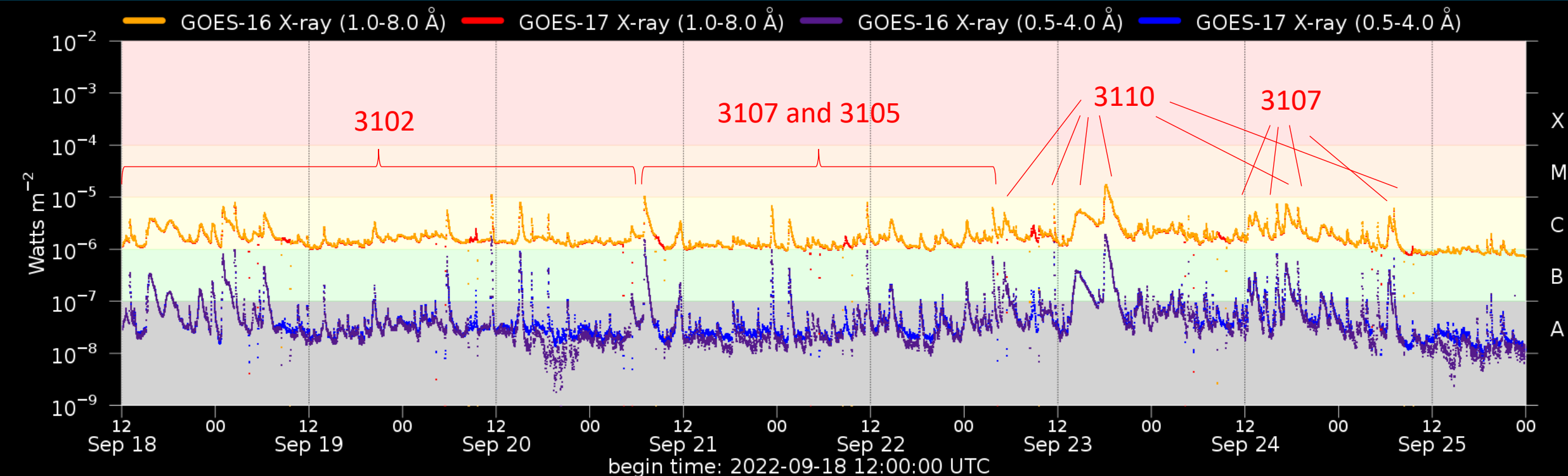
Solar F10.7cm radio flux



Solar X-Ray and UV flux



Flaring activity

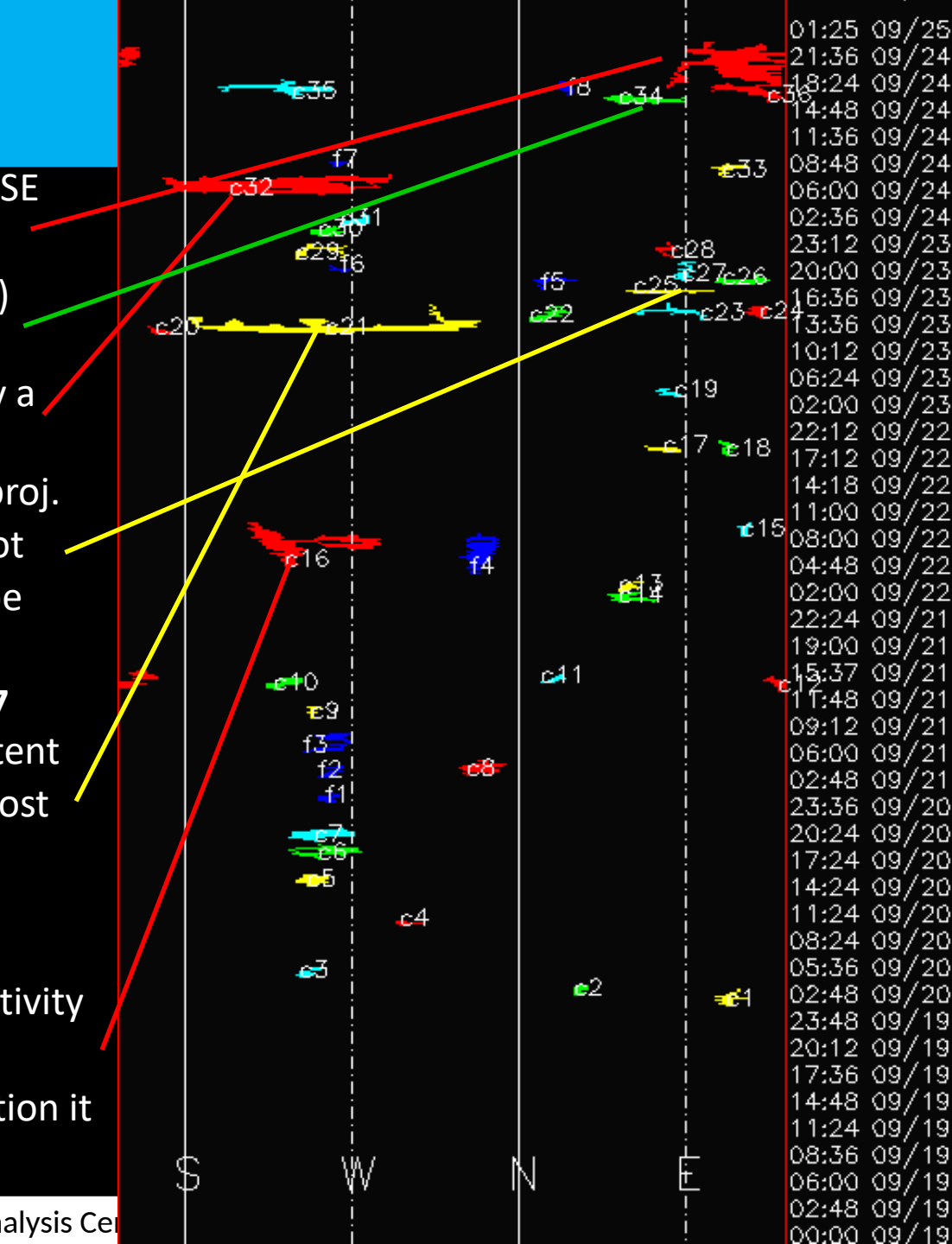


Probabilities (%) and occurrences (#) of C/M/X-flares daily, from noon to noon:

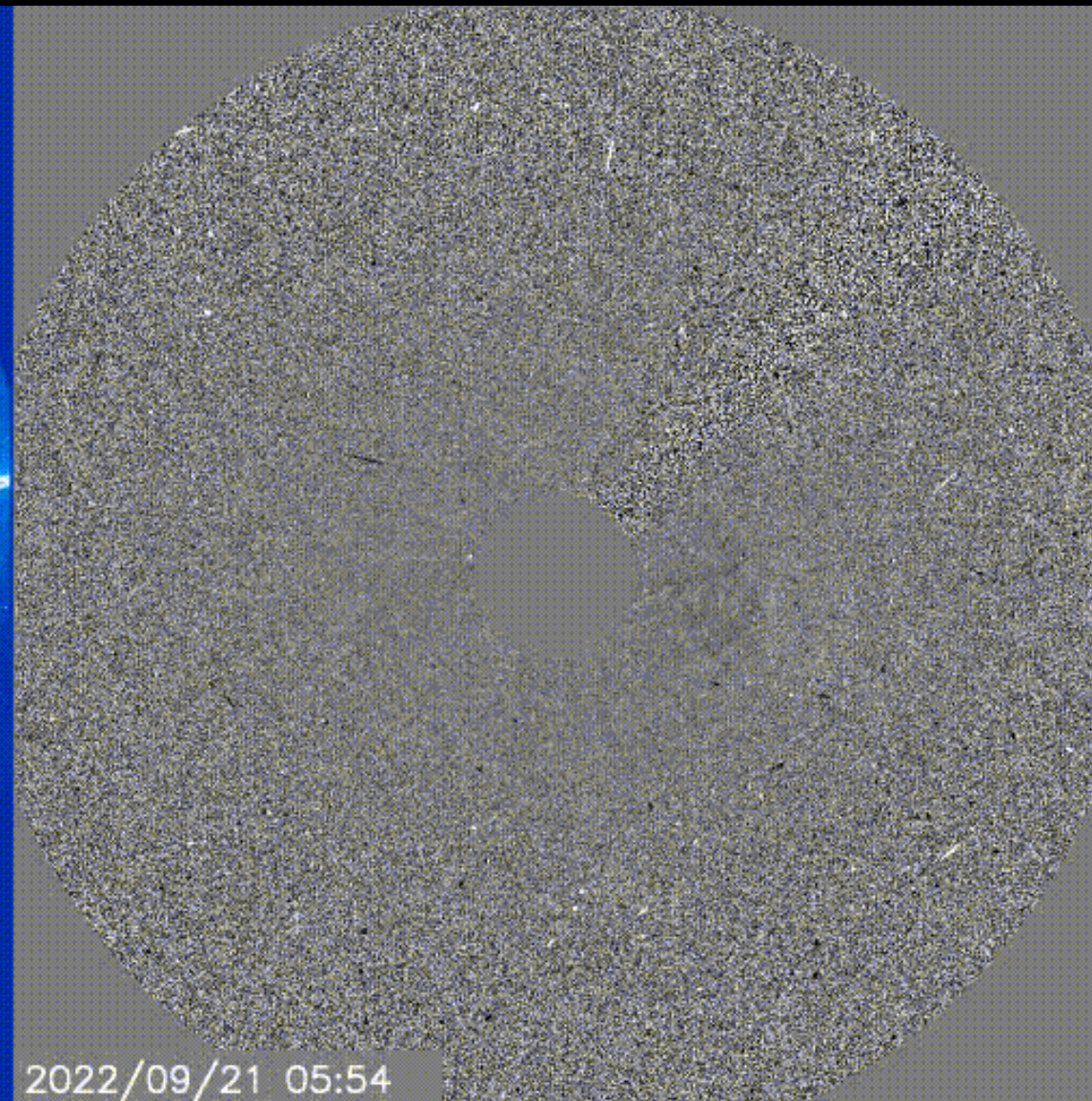
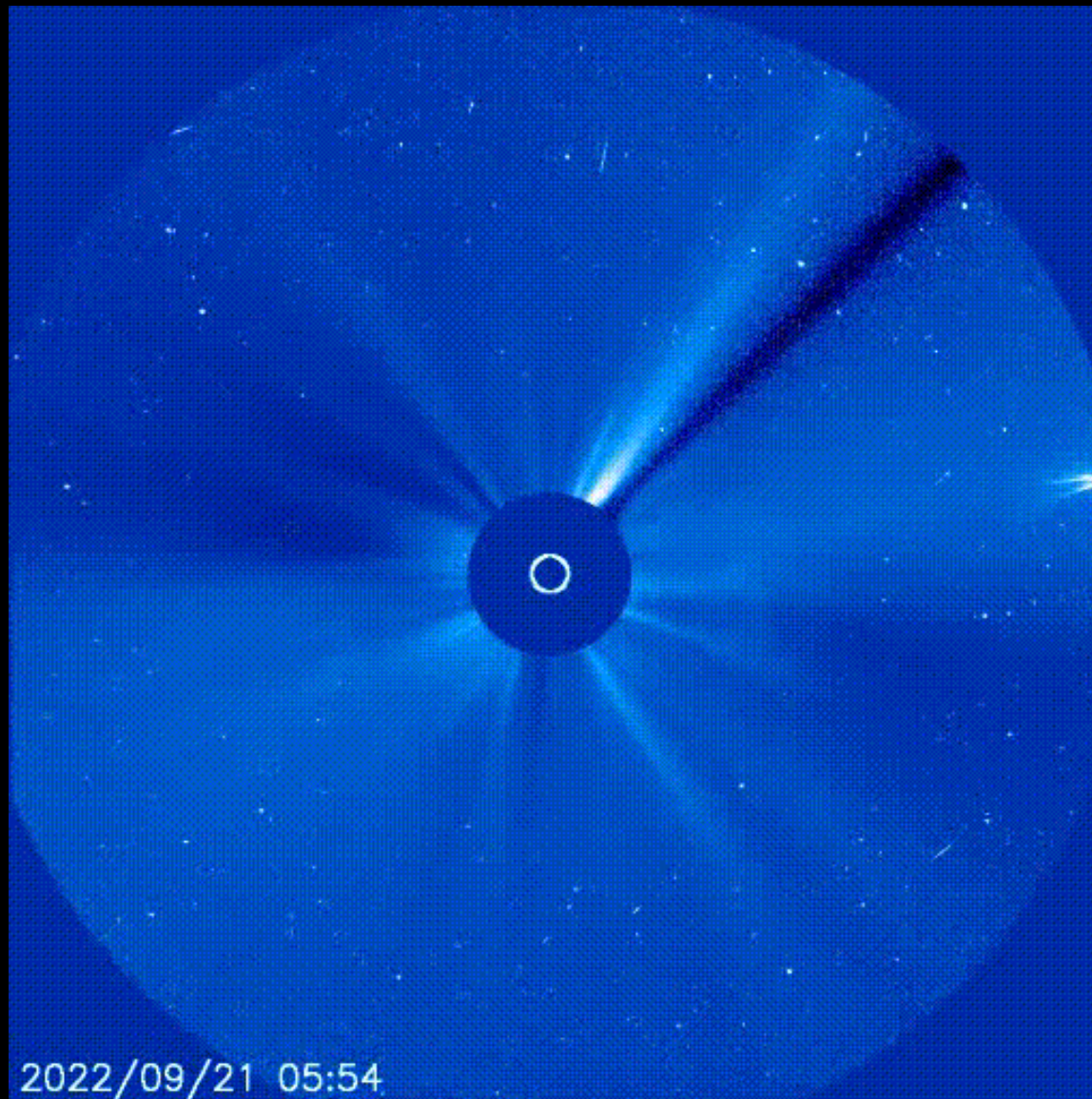
Issue date	2022-09-18	2022-09-19	2022-09-20	2022-09-21	2022-09-22	2022-09-23	2022-09-24	2022-09-25
Probability (%)	85 25 05	85 30 04	75 25 04	95 45 05	90 40 04	90 25 03	95 45 05	95 45 05
Observed (#)	07 00 00	04 01 00	06 01 00	06 00 00	08 00 00	06 01 00	09 00 00	03 00 00

Coronal Mass Ejections

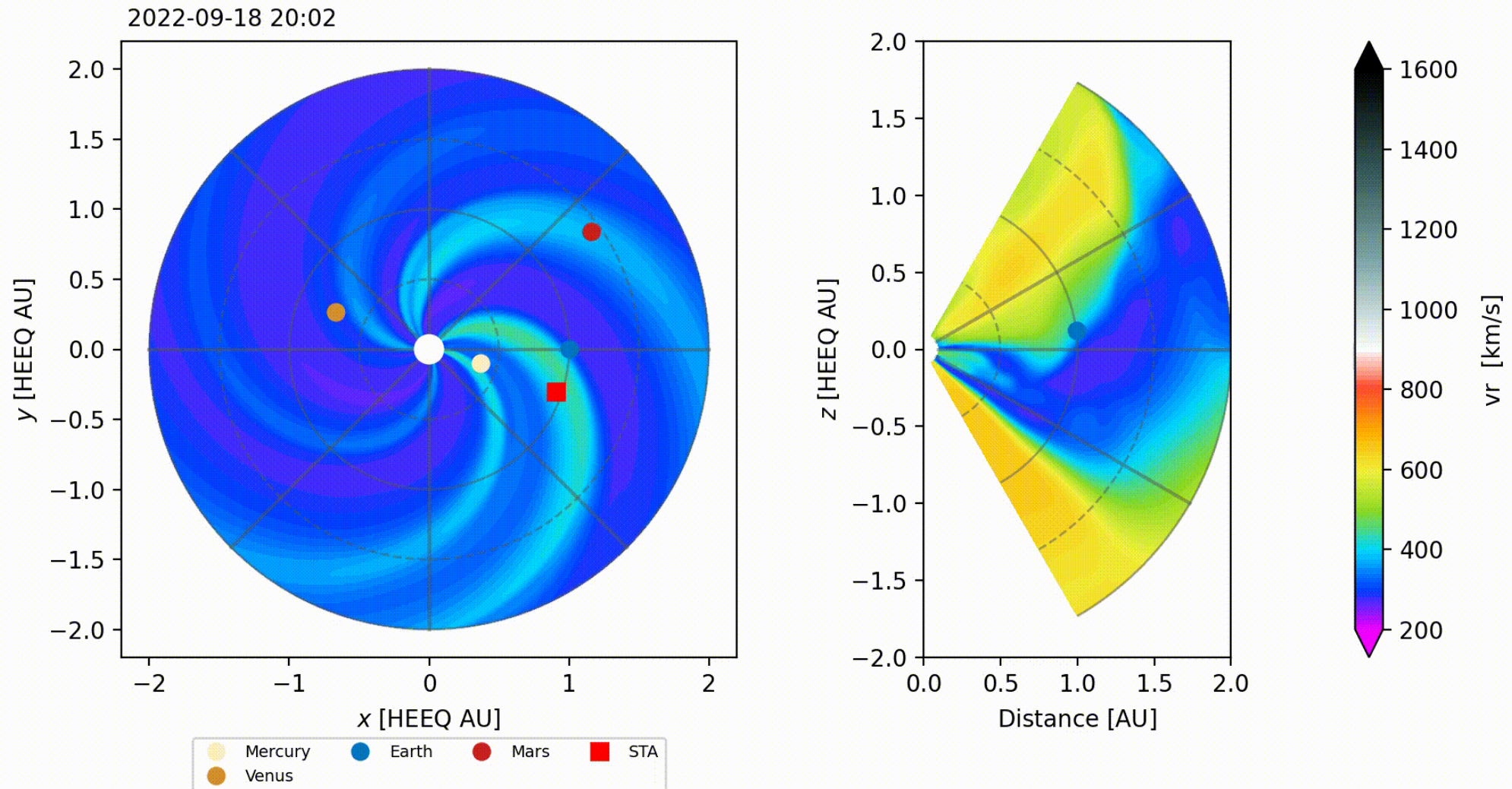
- **2022-09-24 21:24UTC** South-East associated to filament eruption from SE quadrant. Too narrow and too far off the Sun-Earth line to affect Earth.
 - **2022-09-24 17:36UTC** (associated to C7.2 flare from NOAA 3110) Eastward. Judged too narrow to reach Earth.
- **2022-09-24 07:12UTC** South-Westward. From EUV images this is clearly a limb event. No influence at Earth expected
 - **2022-09-23 18:12UTC** (associated to M1.7 flare) Eastward with proj. speed 1500km/s. Angular extent 160 degrees. Given direction not likely to reach Earth but given the speed a shock arrival cannot be excluded.
 - EUHForia arrival: **Late September 26 to early September 27**
- **2022-09-23 13:48UTC** Westward with proj. speed 550km/s. Angular extent 180degrees. Eruption of filament stretching from 3102 westward. At most a glancing blow to be expected
 - DBM arrival: Early September 27.
 - EUHForia arrival: **Late September 27**
- **2022-09-22** Very slow and faint North-West. Although there is shy activity on the disc, there is not clear on disc eruptive signature. The CME signature could equally well be backside and given speed and direction it is unlikely that anything would be seen from this at Earth.



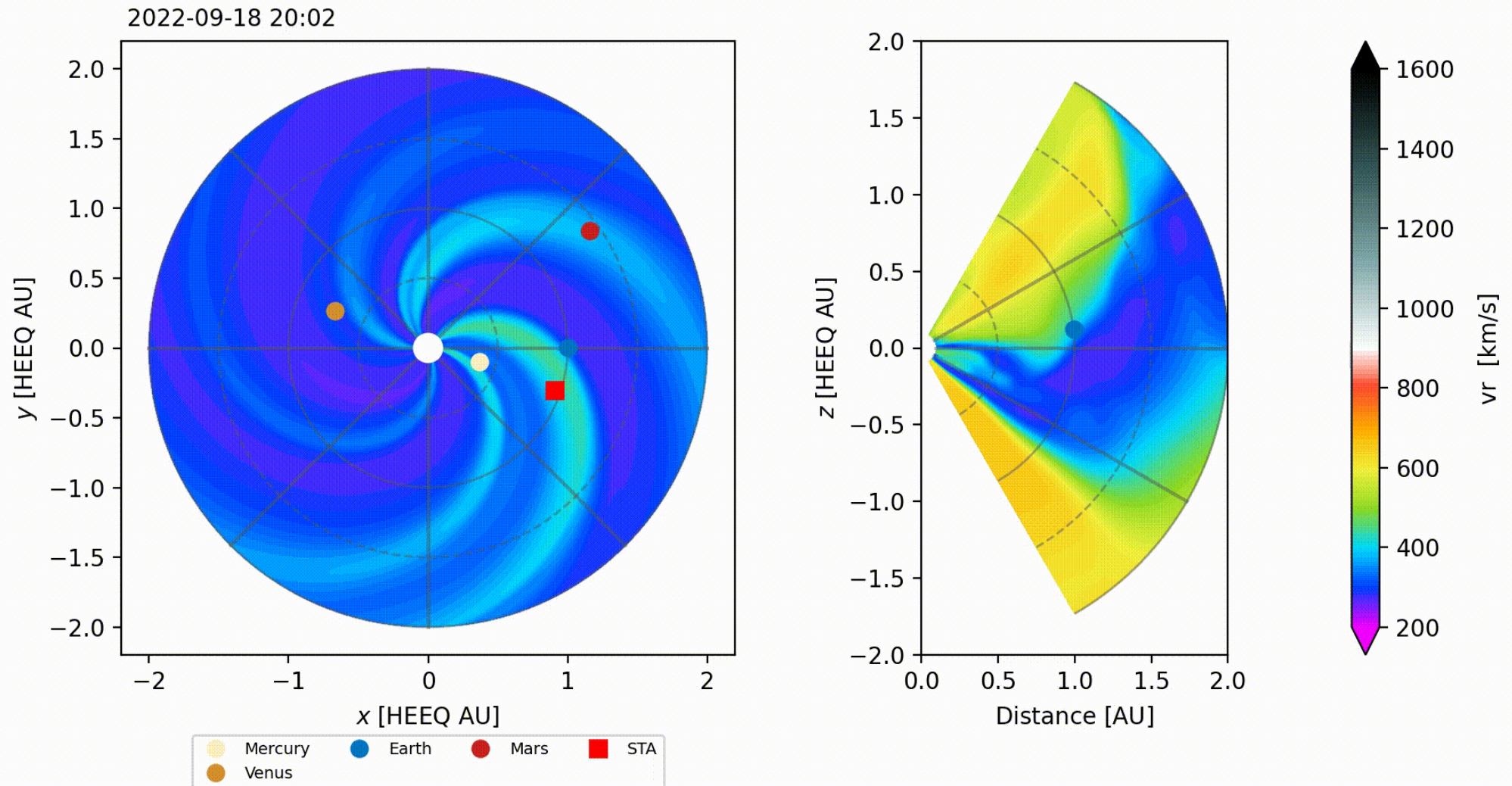
Coronal Mass Ejections



Coronal Mass Ejections (2022-09-23 West)



Coronal Mass Ejections (2022-09-23 East)



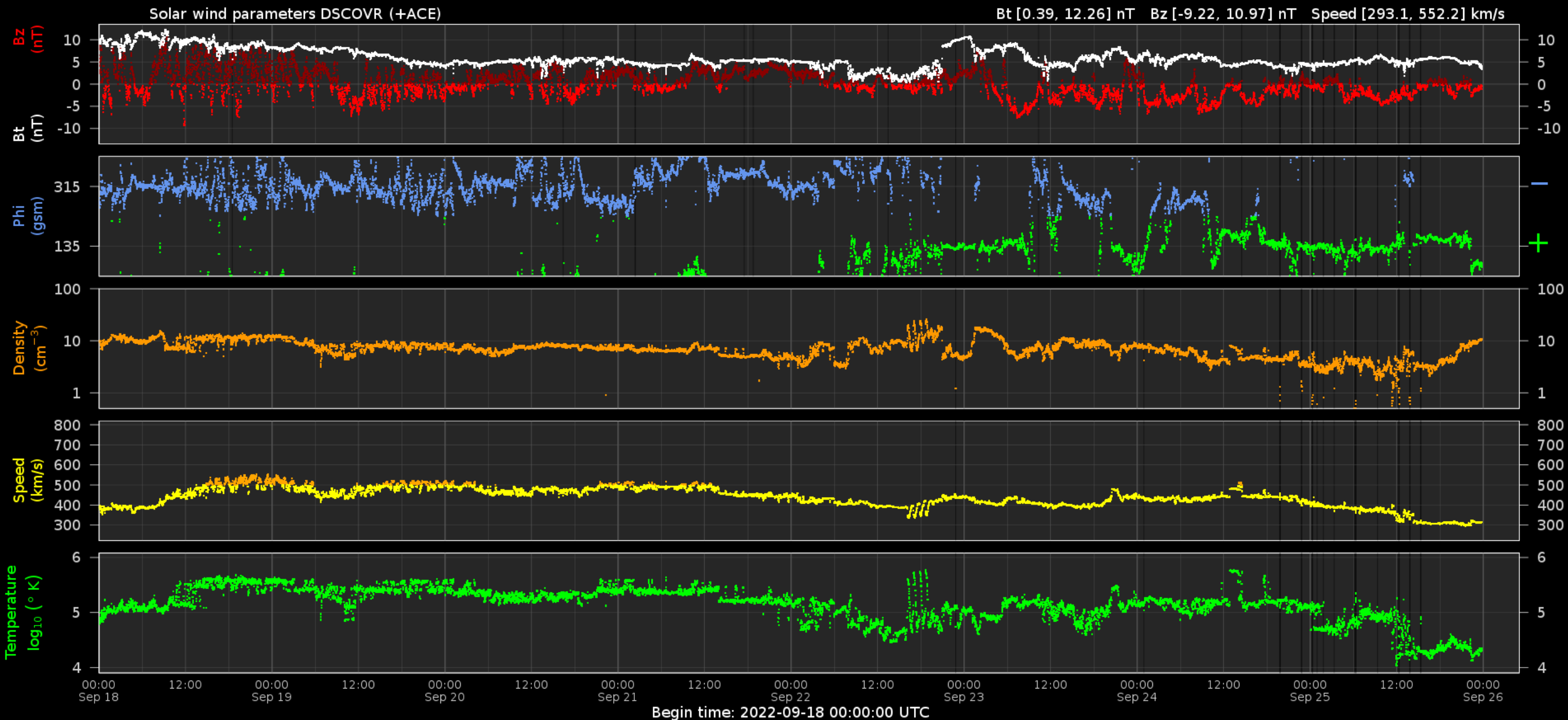
Solar Wind and Geomagnetic Activity



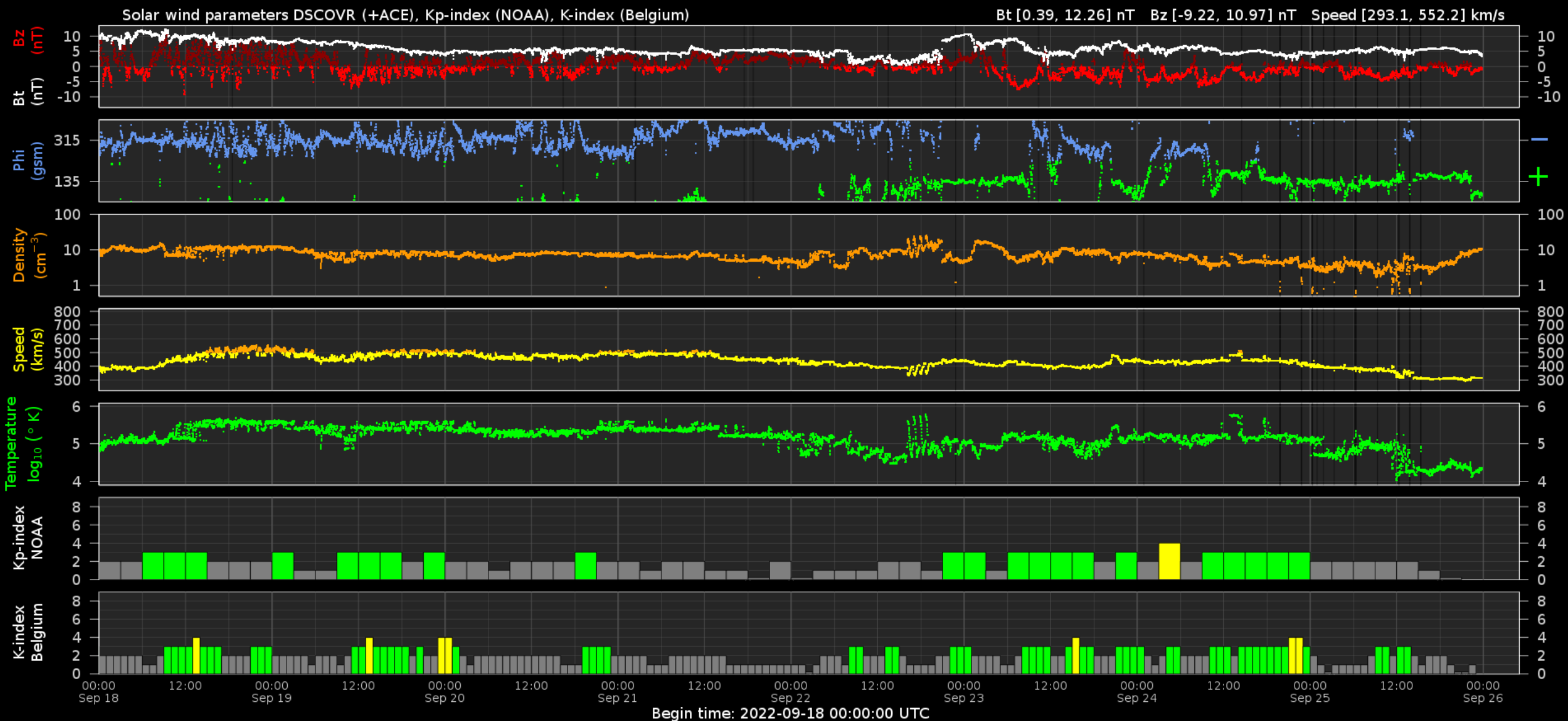
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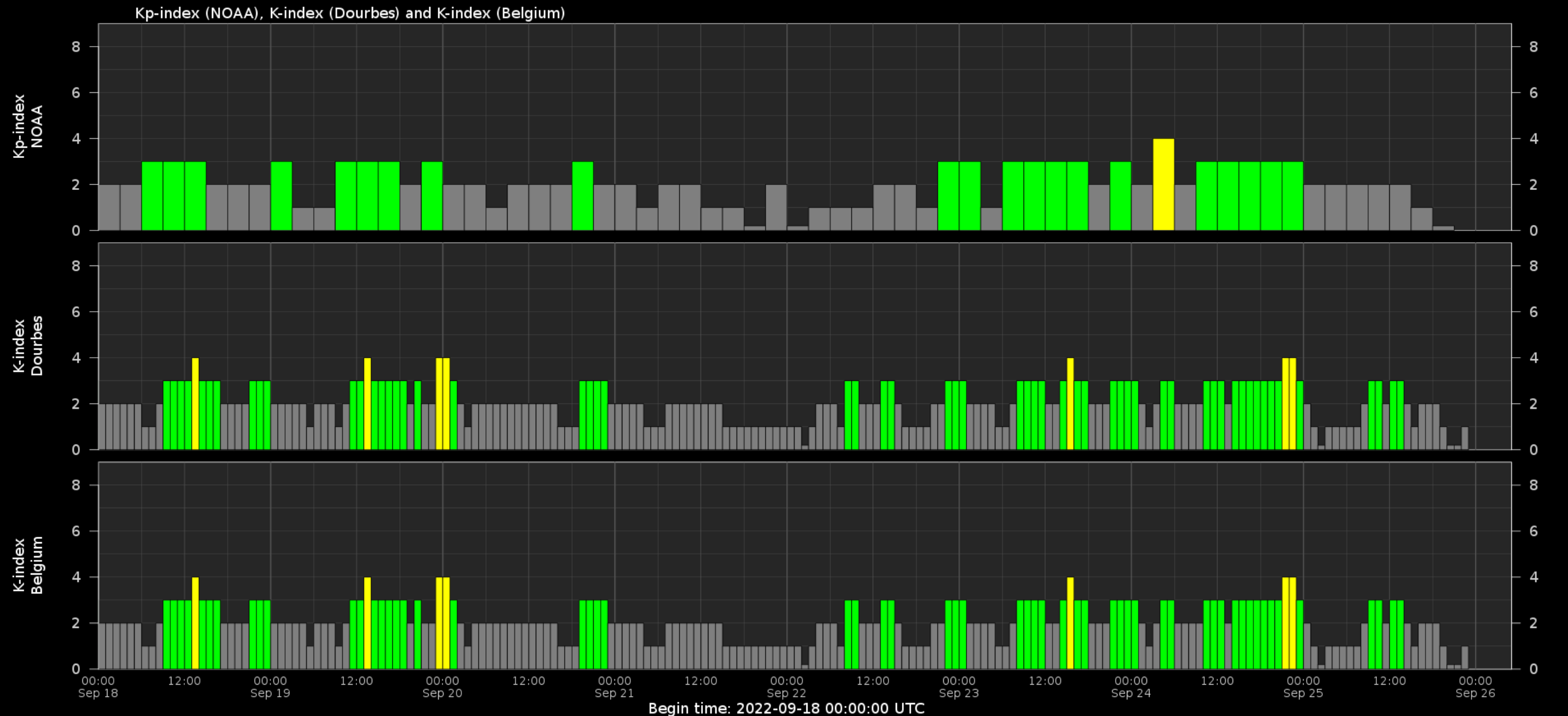
Solar wind parameters



Solar wind parameters & K-indices



Geomagnetic activity (K-indexes)



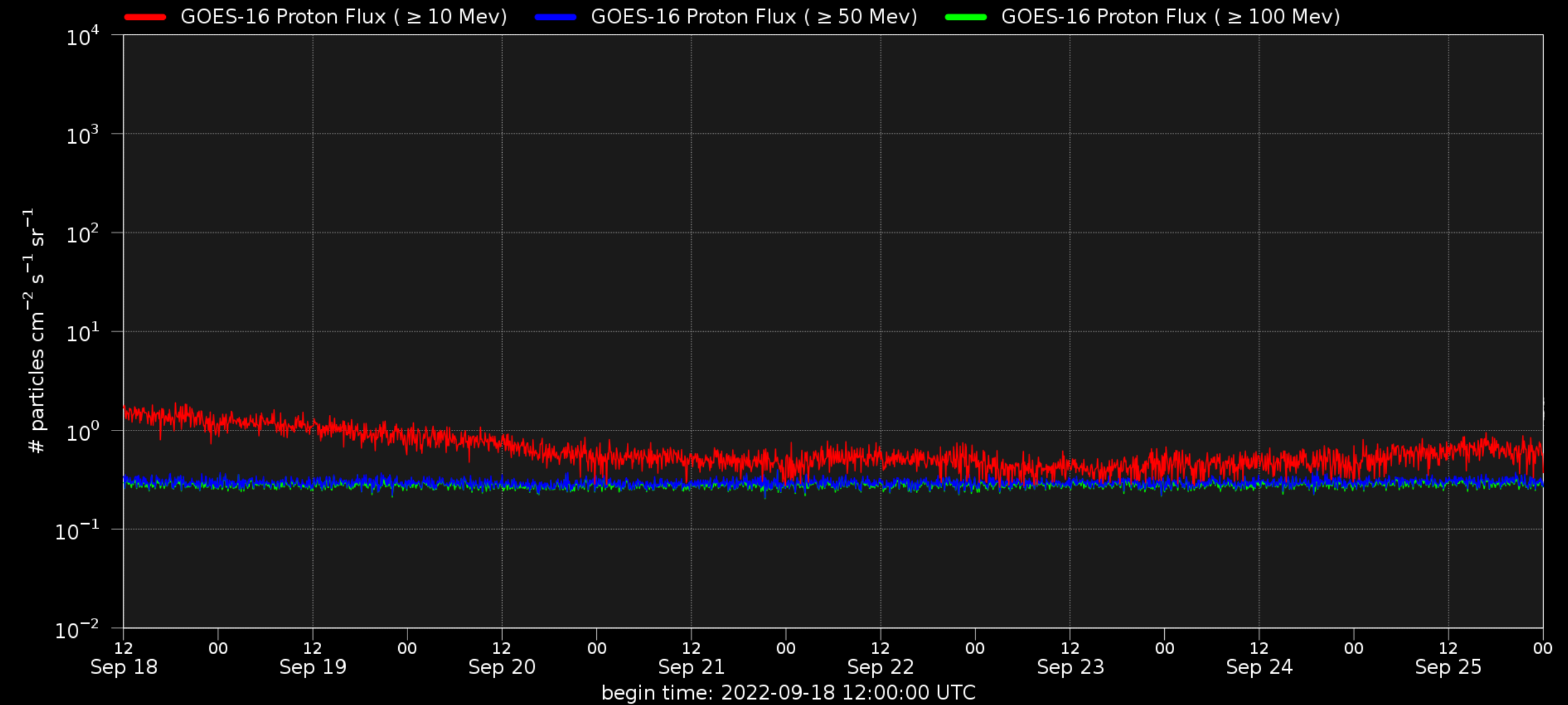
Energetic Particles



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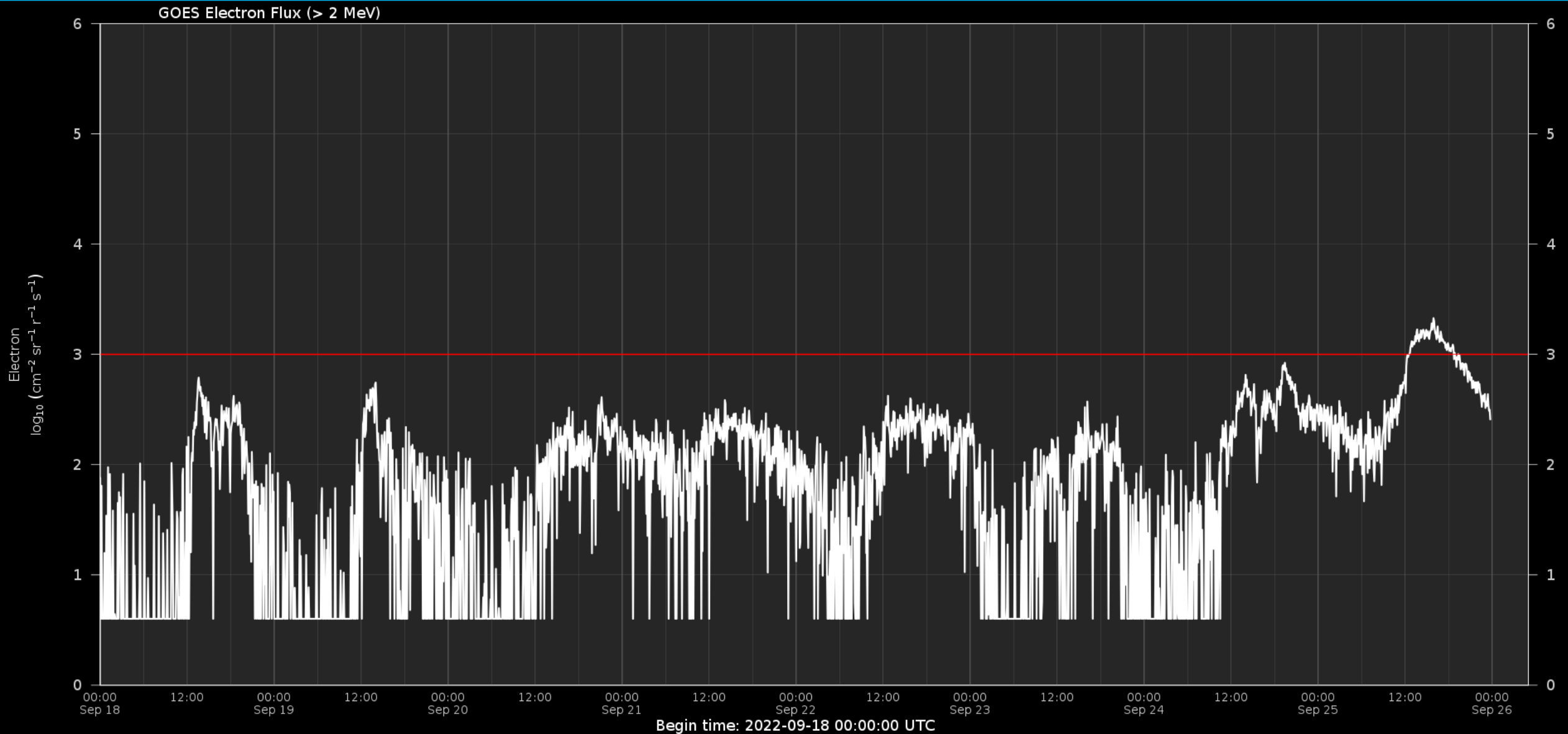
Solar proton flux



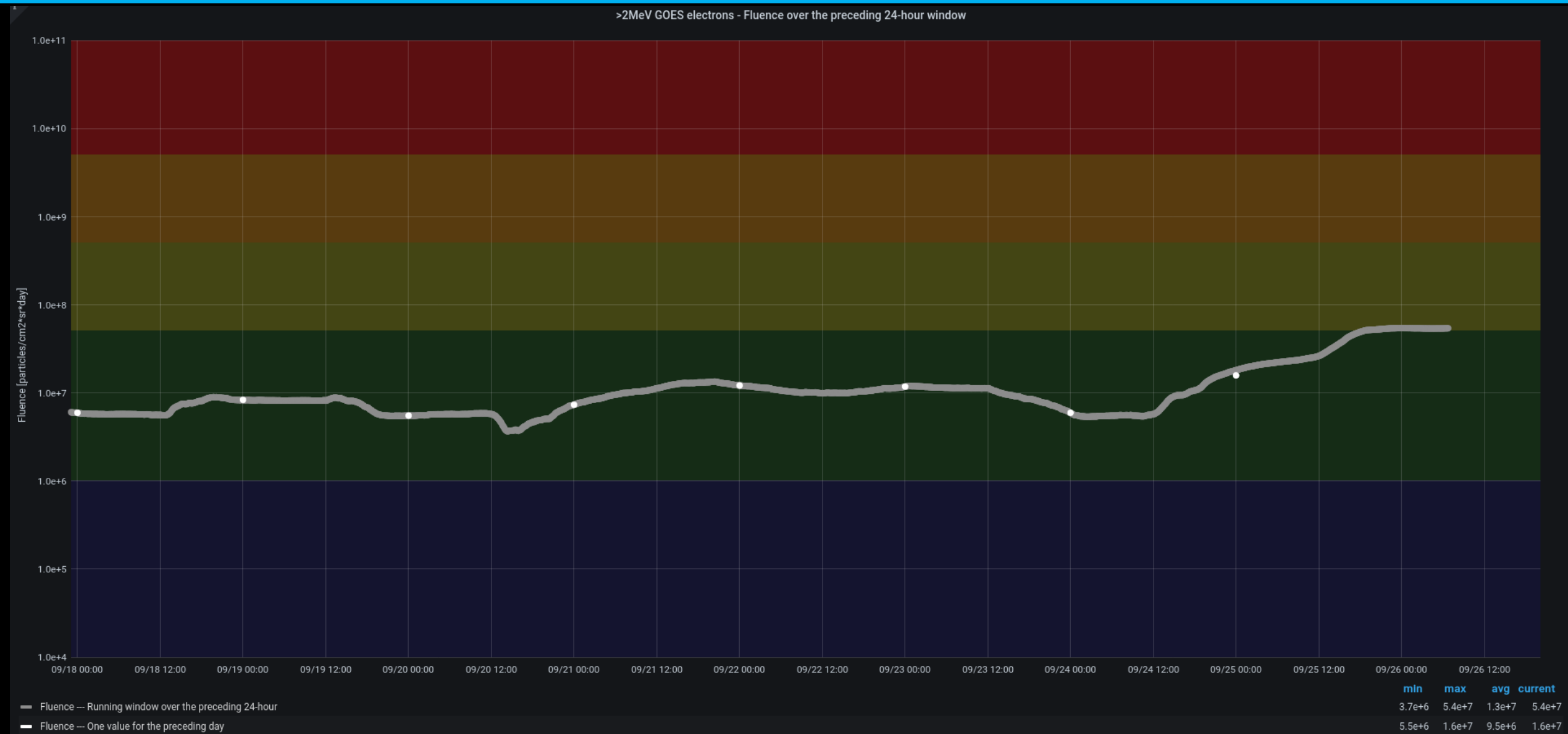
Solar proton flux



Electron flux at GEO



Electron fluence at GEO



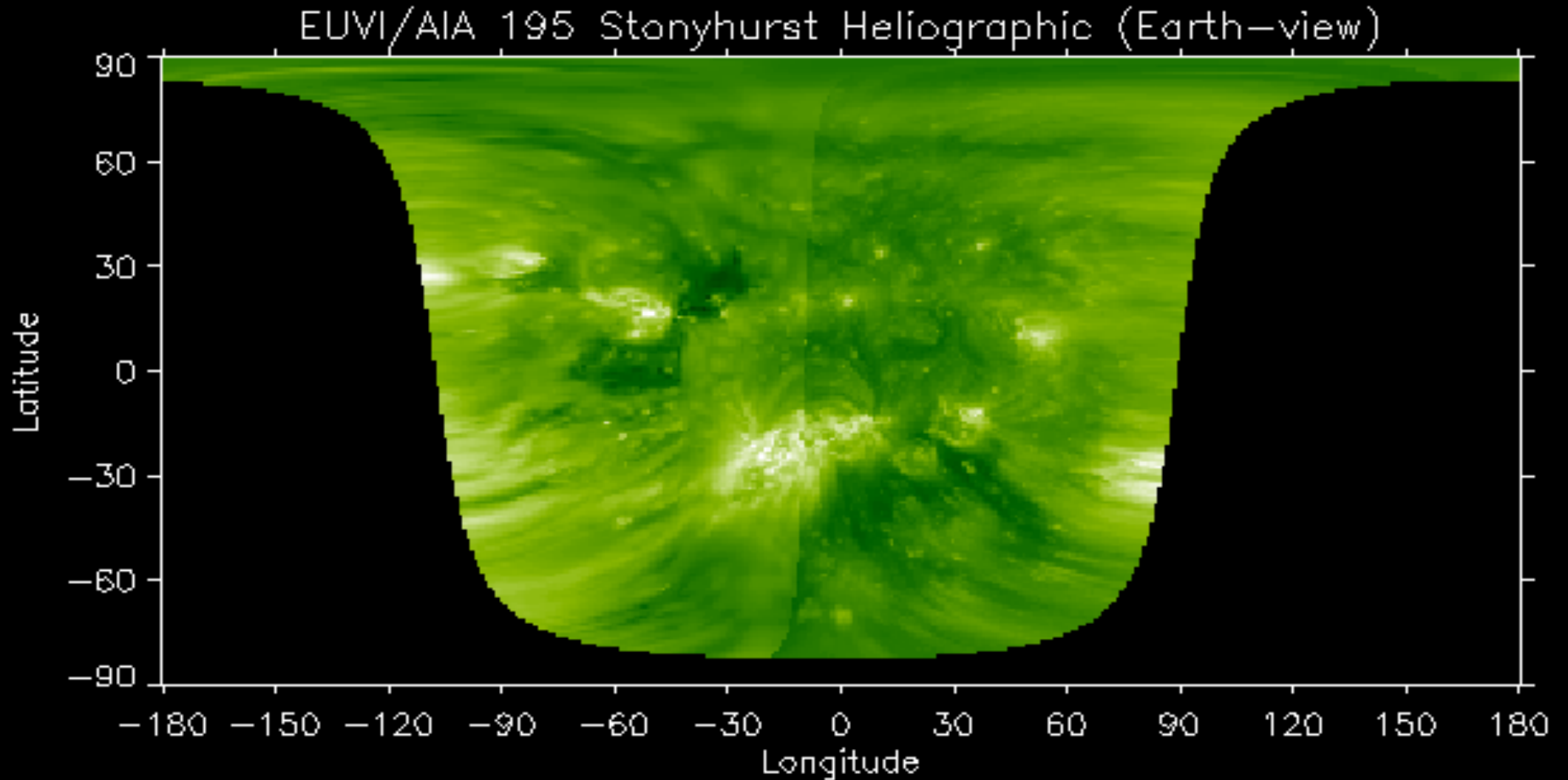
Outlook



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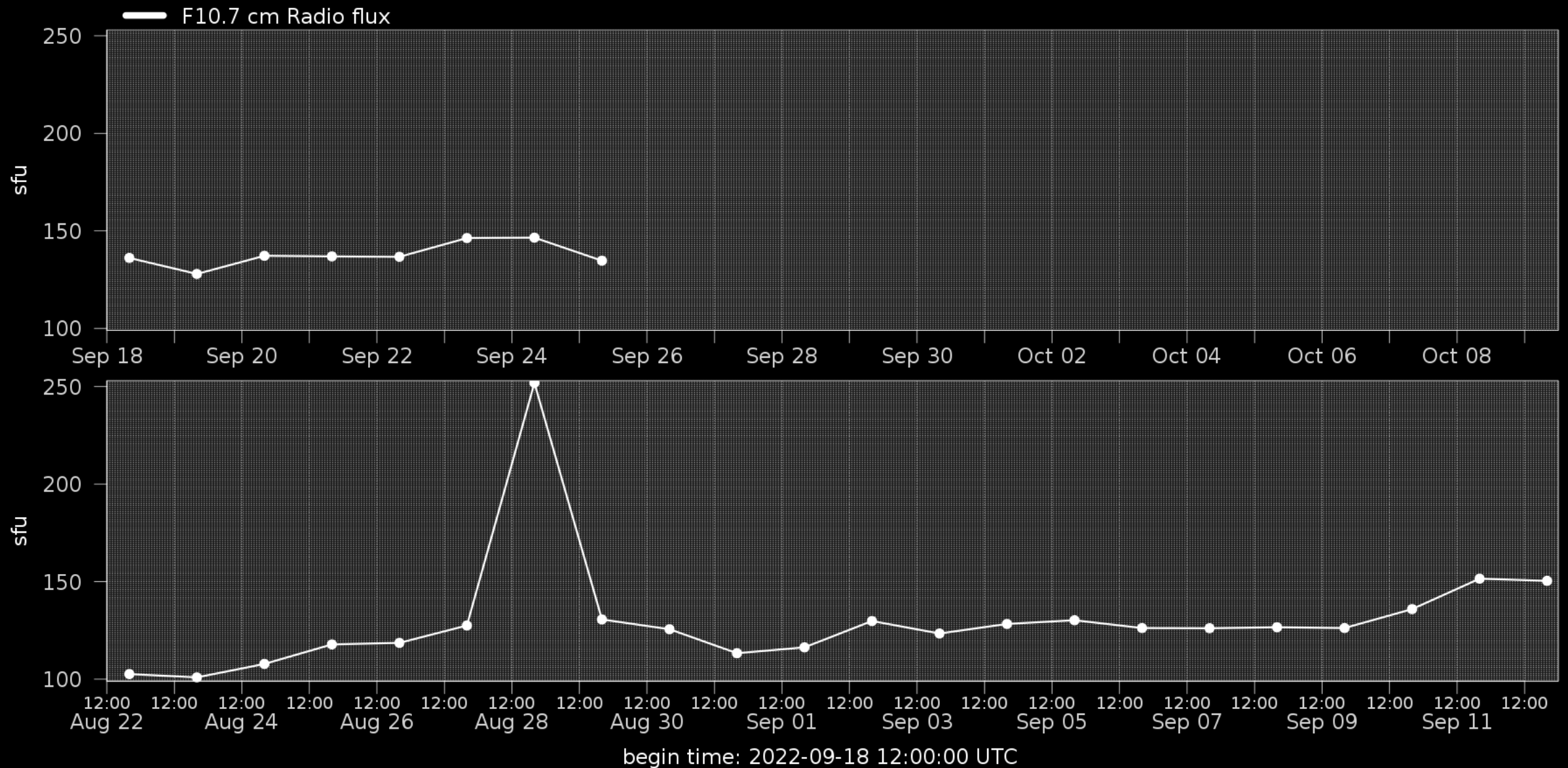
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Outlook: Solar activity



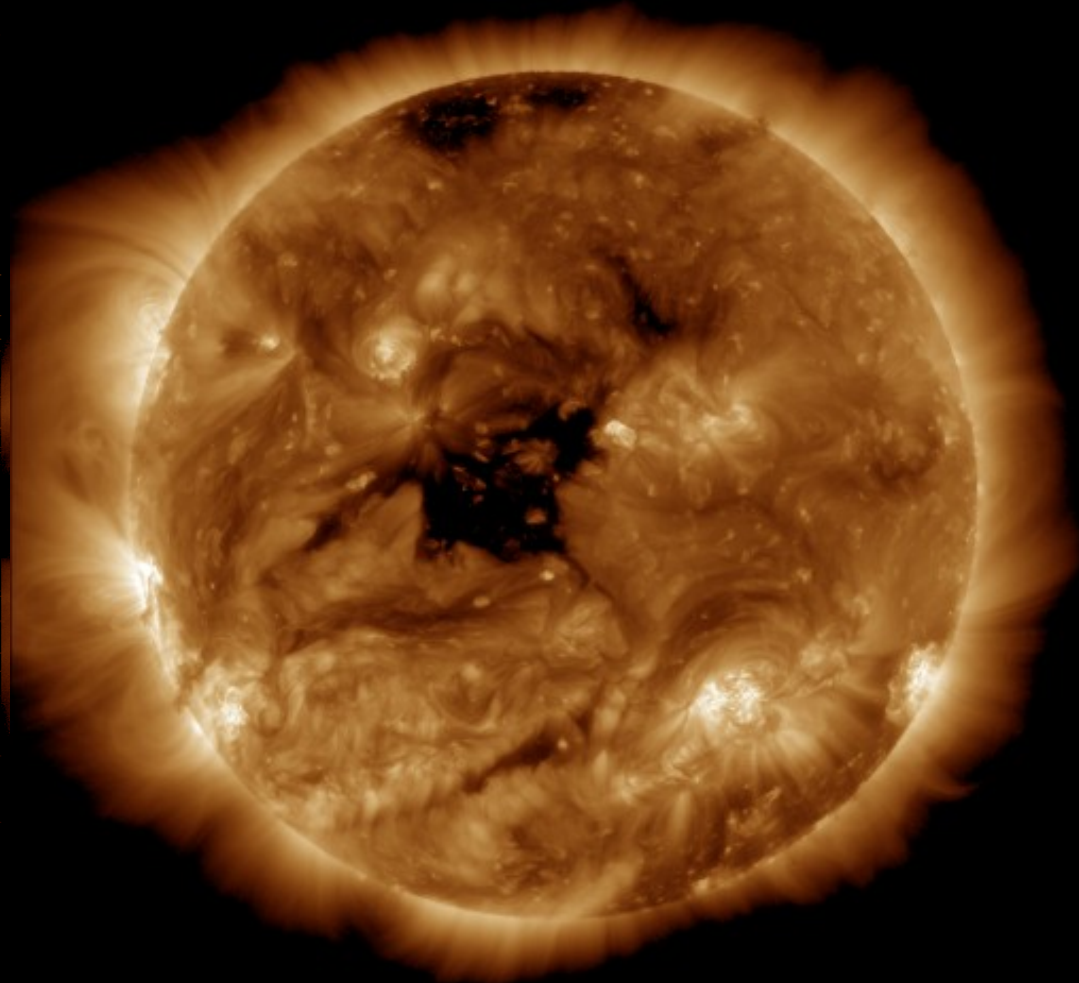
Observation date: 2022/09/25 19:45:00

Outlook: Solar F10.7cm radio flux



Coronal holes

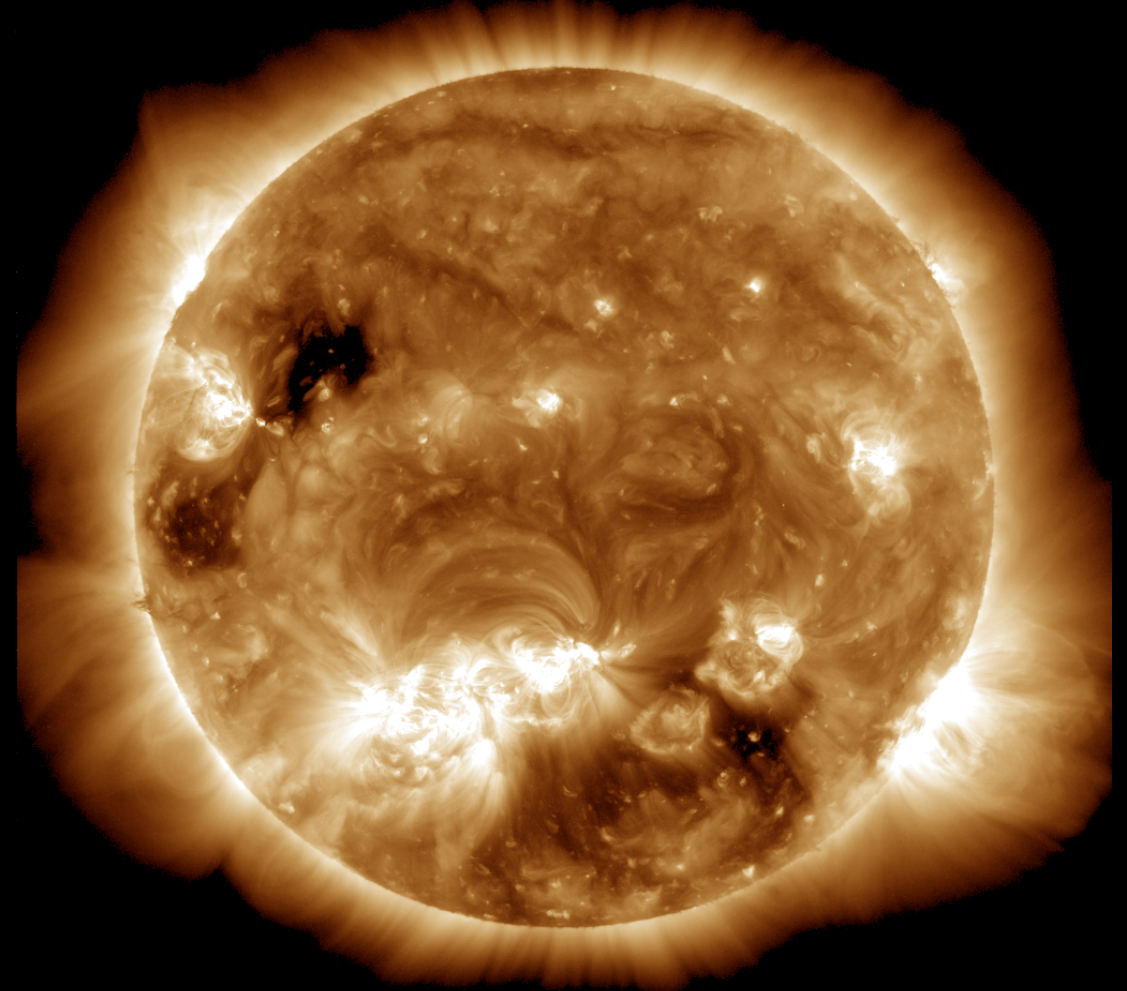
SDO/AIA 19.3 nm 2022-09-01



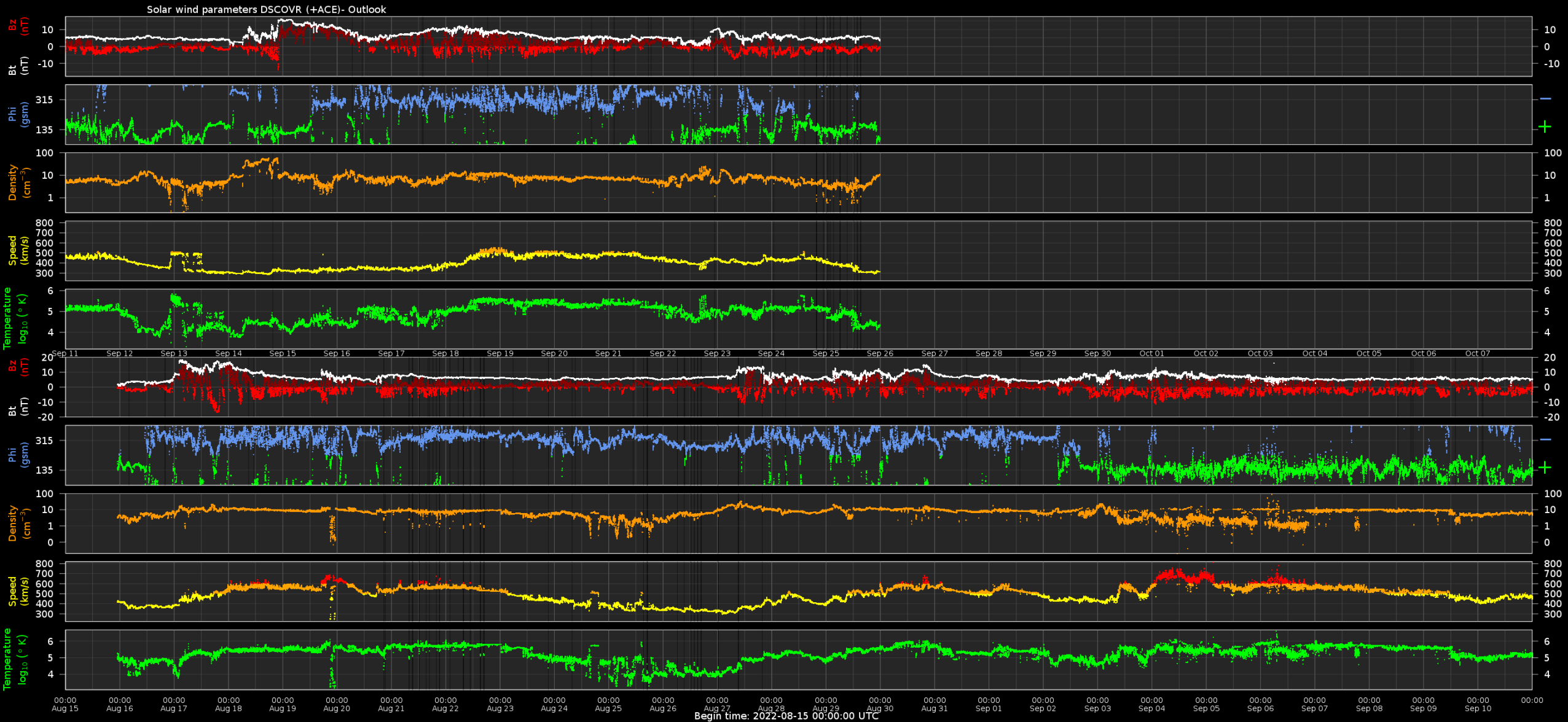
SDO/AIA 193 2022-09-01 14:17:29 UT

SDO/AIA 19.3 nm 2022-09-25

SDO/AIA AIA 193Å 2022-09-25T12:00:05.843



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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