

SOL (Cecatto)

Summary – Week October 16 to October 23

10/16 – No M/X flare, C9.8 flare; No fast wind stream; 5 CME can have component toward the Earth;

*10/17 – No M/X flare; No fast wind stream; 4 CME can have component toward the Earth *;*

10/18 – No M/X flare; Fast (≤ 450 km/s) wind stream; 3 CME can have component toward the Earth;

10/19 – No M/X flare; No fast wind stream; 7 CME can have component toward the Earth;

10/20 – No M/X flare; No fast wind stream; 4 CME can have component toward the Earth;

10/21 – No M/X flare; No fast wind stream; 10 CME can have component toward the Earth;

10/22 – No M/X flare; No fast wind stream; 7 CME can have component toward the Earth;

10/23 – No M/X flare; No fast wind stream; 4 CME can have component toward the Earth;

Prev.: No fast wind stream for today and fast wind for next 1-2 days; for while low (05% M, 01% X) probability of M / X flares next 2 days; also, occasionally some other CME can present a component toward the Earth.

Resumo – Semana de 16 a 23 de Outubro

16/10 – Sem "flare" M/X, C9.8; Sem corrente de vento rápido; 5 CME podem ter uma componente para a Terra;

*17/10 – Sem "flare" M/X; Sem corrente de vento rápido; 4 CME podem ter uma componente para a Terra *;*

18/10 – Sem "flare" M/X; Vento rápido (< 450 km/s); 3 CME podem ter uma componente para a Terra;

19/10 – Sem "flare" M/X; Sem corrente de vento rápido; 7 CME podem ter uma componente para a Terra;

20/10 – Sem "flare" M/X; Sem corrente de vento rápido; 4 CME podem ter uma componente para a Terra;

21/10 – Sem "flare" M/X; Sem corrente de vento rápido; 10 CME podem ter uma componente para a Terra;

22/10 – Sem "flare" M/X; Sem corrente de vento rápido; 7 CME podem ter uma componente para a Terra;

23/10 – Sem "flare" M/X; Sem corrente de vento rápido; 4 CME podem ter uma componente para a Terra;

Prev.: Sem vento rápido para hoje e vento rápido p/ próximos 1-2 dias; baixa probabilidade de "flares" (05% M, 01% X) nos próximos 02 dias; eventualmente alguma outra CME pode apresentar componente dirigida para a Terra.



Solar - WSA-ENLIL

EMC (<https://ccmc.gsfc.nasa.gov/donki/>):

WSA-ENLIL(CME 2023-10-14 04:48:00 UT)

The simulation results indicate that the flank of CME will reach the DSCOVR mission between 2023-10-17 22:00:00 UT and 2023-10-18 12:00:00 UT.

WSA-ENLIL(CME 2023-10-14 14:00:00 UT)

The simulation results indicate that the flank of CME will reach the DSCOVR mission between 2023-10-18 01:00:00 UT and 2023-10-18 15:00:00 UT.

WSA-ENLIL(CME 2023-10-16 12:09:00 UT)

The simulation results indicate that the flank of CME will reach the DSCOVR mission between 2023-10-19 08:00:00 UT and 2023-10-19 22:00:00 UT.

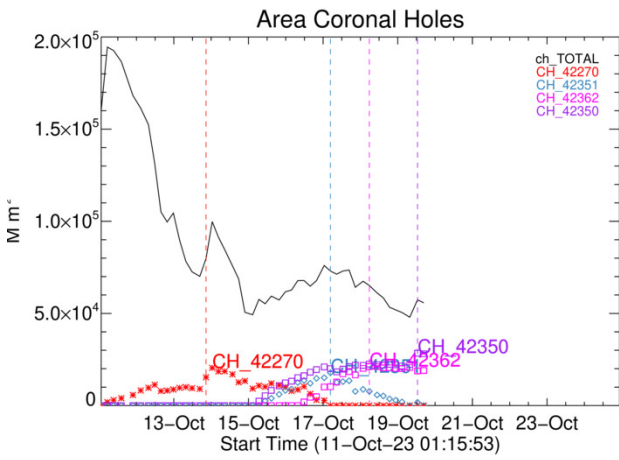
WSA-ENLIL(CME 2023-10-17 05:48:00 UT)

The simulation results indicate that the flank of CME will reach the DSCOVR mission between 2023-10-20 21:00:00 UT and 2023-10-21 11:00:00 UT.

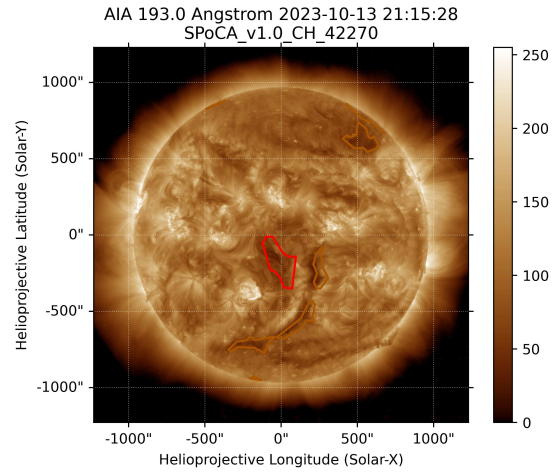
WSA-ENLIL(CME 2023-10-18 06:12:00 UT)

The simulation results indicate that the flank of CME will reach the DSCOVR mission between 2023-10-21 17:00:00 UT and 2023-10-22 07:00:00 UT.

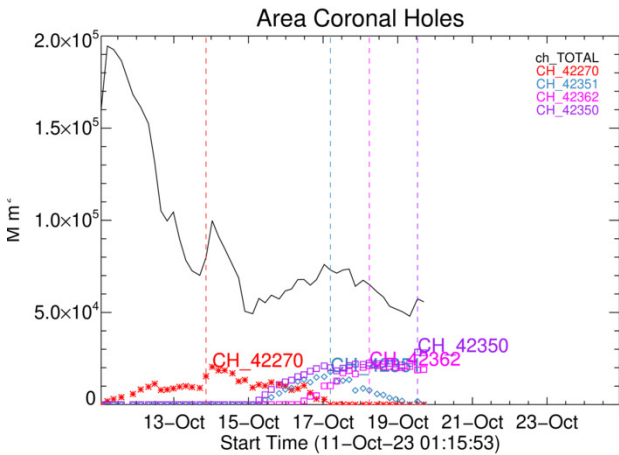
Solar - Coronal holes Spatial Possibilistic Clustering Algorithm (SPoCAS):



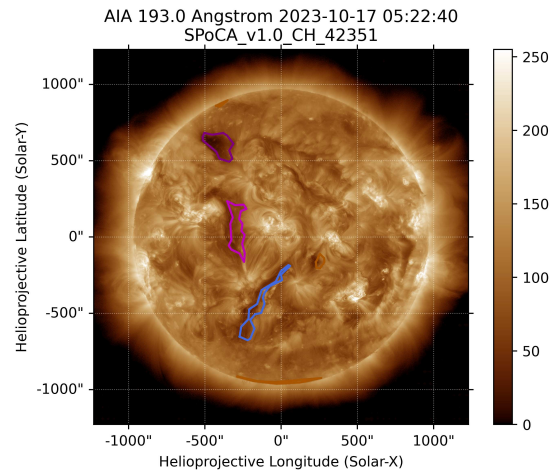
(a) The solid black line depicts the products of the sum of areas for each detection interval performed by SPOCA between October 11 and 20, 2023.



(b) Above the 193 Å image of the Sun are highlighted coronal holes observed by SPOCA around 21:15 UT on October 13, 2023 (red dot line).

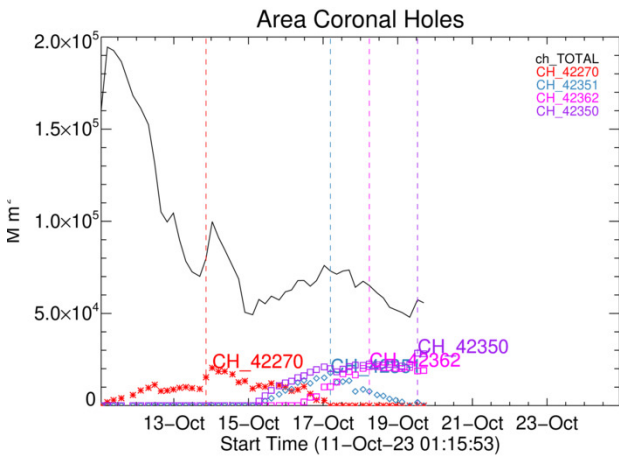


(a) The solid black line depicts the products of the sum of areas for each detection interval performed by SPOCA between October 11 and 20, 2023.

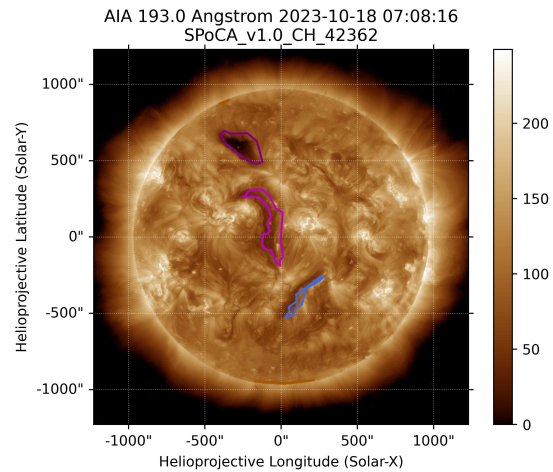


(b) Above the 193 Å image of the Sun are highlighted coronal holes observed by SPOCA around 05:22 UT on October 17, 2023 (blue dot line).

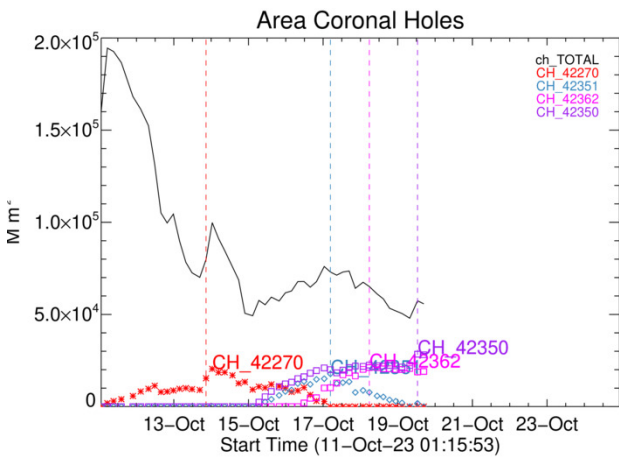
Solar - Coronal holes Spatial Possibilistic Clustering Algorithm (SPoCAS):



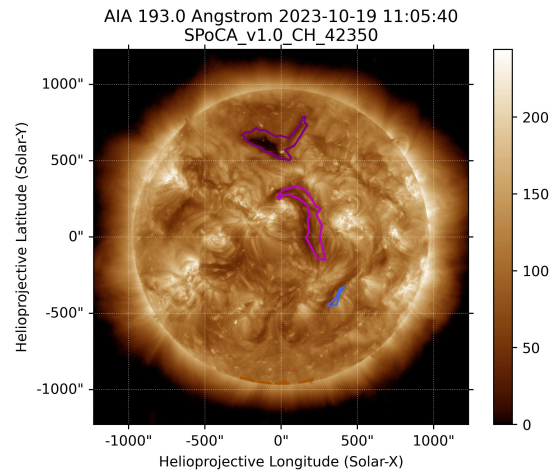
(a) The solid black line depicts the products of the sum of areas for each detection interval performed by SPOCA between October 11 and 20, 2023.



(b) Above the 193 Å image of the Sun are highlighted coronal holes observed by SPOCA around 07:08 UT on October 18, 2023 (magenta dot line).

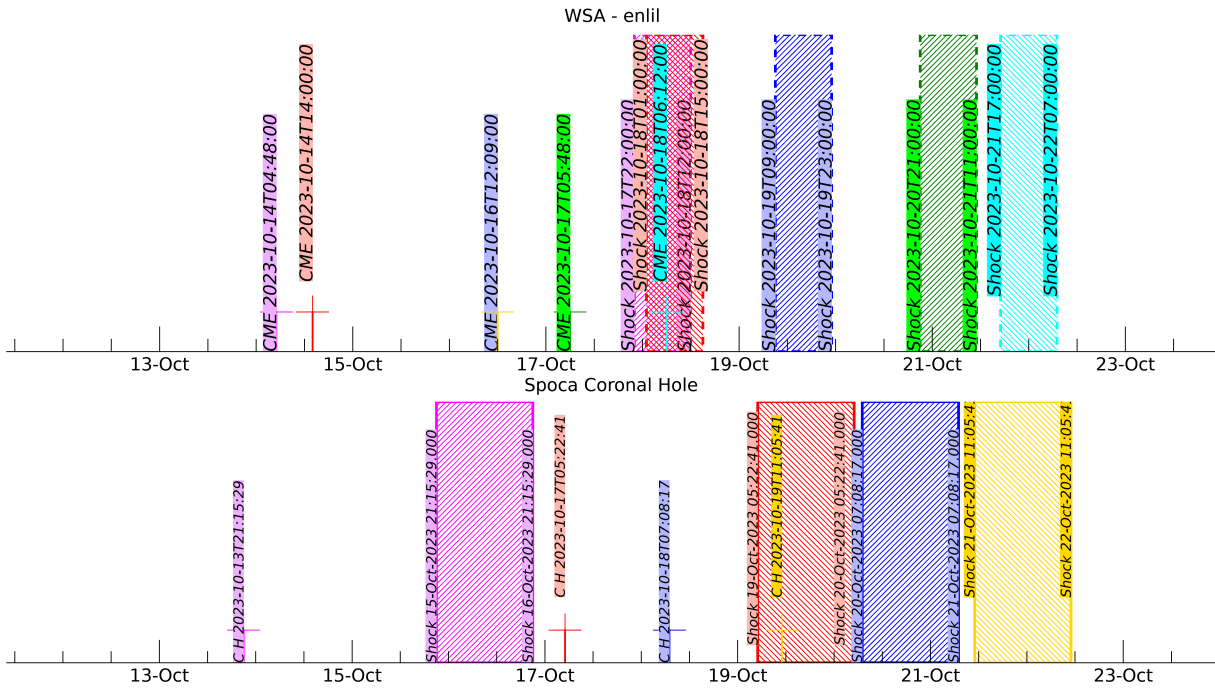


(a) The solid black line depicts the products of the sum of areas for each detection interval performed by SPOCA between October 11 and 20, 2023.



(b) Above the 193 Å image of the Sun are highlighted coronal holes observed by SPOCA around 11:05 UT on October 19, 2023 (purple dot line).

Solar - WSA - ENLIL and SPoCA



EARTH'S RADIATION BELT

Responsible: Ligia Da Silva

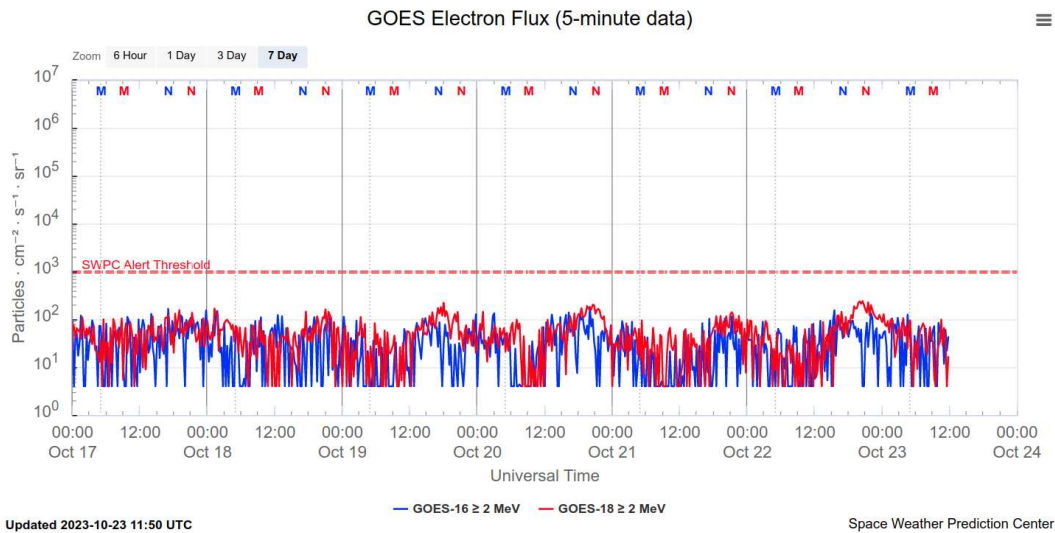


Figure 1: High-energy electron flux (> 2MeV) obtained from GOES-16 and GOES-18 satellite. Source: <https://www.swpc.noaa.gov/products/goes-electron-flux>

Summary

The high-energy electron flux (>2 MeV) in the outer boundary of the outer radiation belt obtained from geostationary satellite data GOES-16 and GOES-18 (Figure 1) is below 10^3 particles/(cm² s sr) throughout the period analyzed. Small variations can be observed in the electron flux, which slightly exceed 10^2 particles/(cm² s sr) on the 19th, 20th and 22nd of October, and are below 10^2 particles/(cm² s sr) on the 19th, October 21st and 22nd. These small variabilities in electron flux occur during influences of solar wind structures.

Geomagnetic Field / Campo Geomagnético

Summary

In the week of 17-23/10, the Embrace magnetometer network data recorded instabilities throughout the week, with emphasis on:

- 18 and 21/10: The magnetometers of the Embrace network recorded a SSC on 18th, followed by a -20 nT drop of H-component. On 21st, it was measured a second drop of H-component, reaching -105 nT in PVE.
- AE index was active, above 500 nT on the 21th. The minimum Dst index was -82 nT. The highest Kp of the week was 5o.

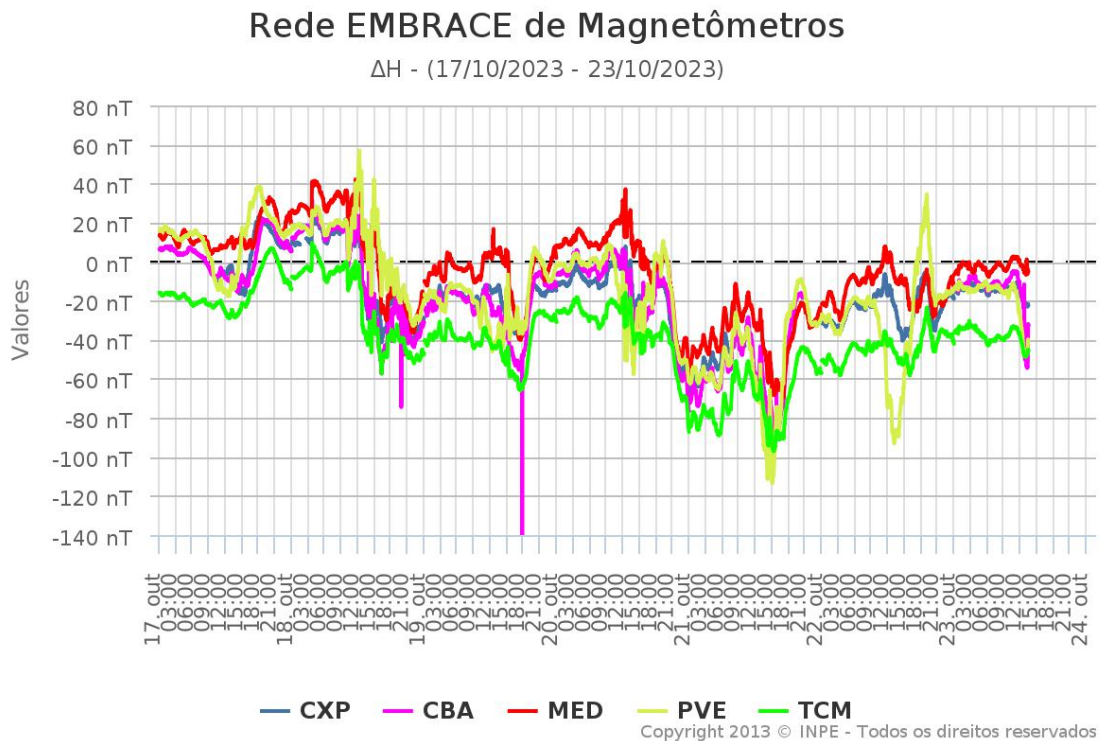


Figure 1.: Daily variation of the geomagnetic field from H (nT) measured at Embrace MagNet from 17 to 23 October 2023

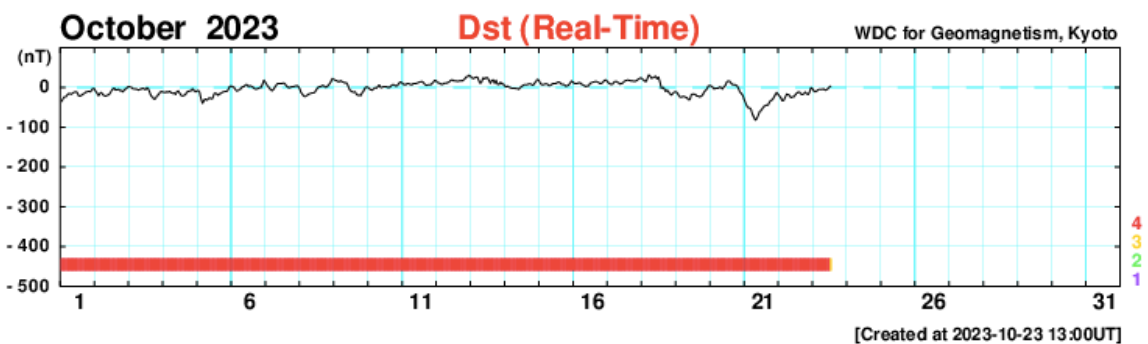


Figure 2: Dst index for October 2023

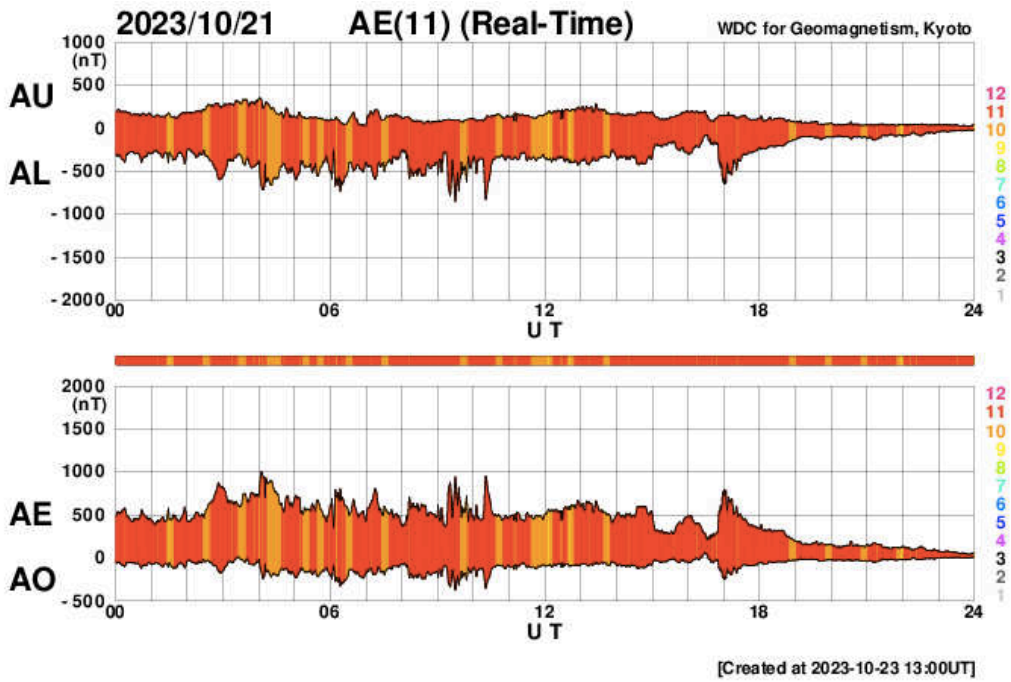
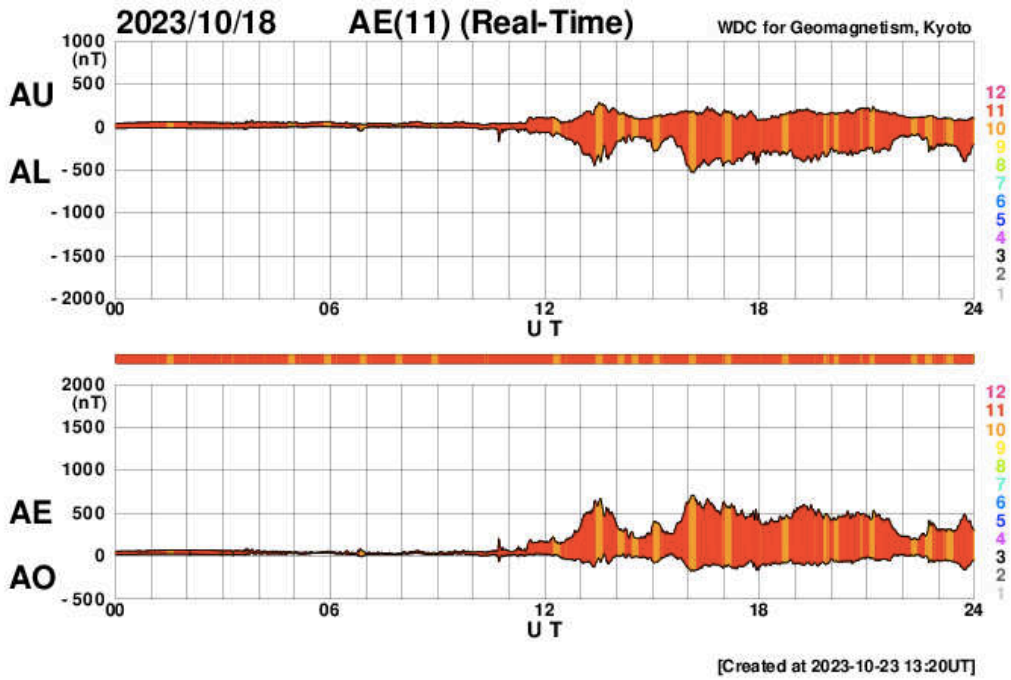


Figure 3.: AE index for the most disturbed days in the current week.

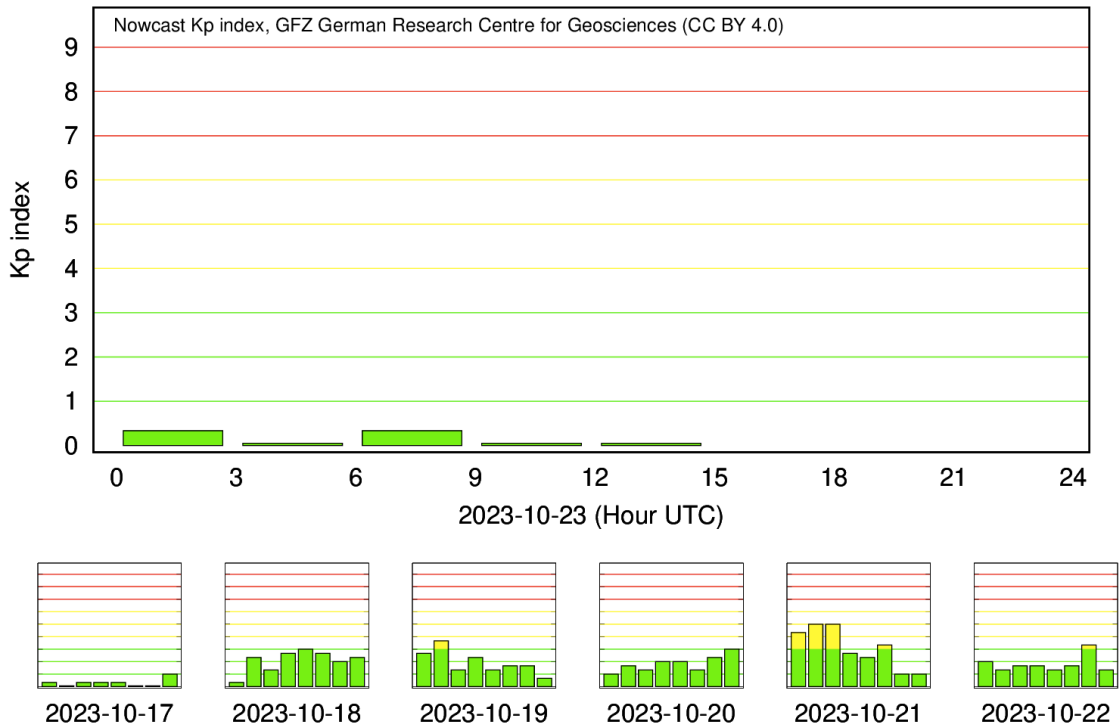


Figure 4: Kp index for the current week (17-23 October 2023)

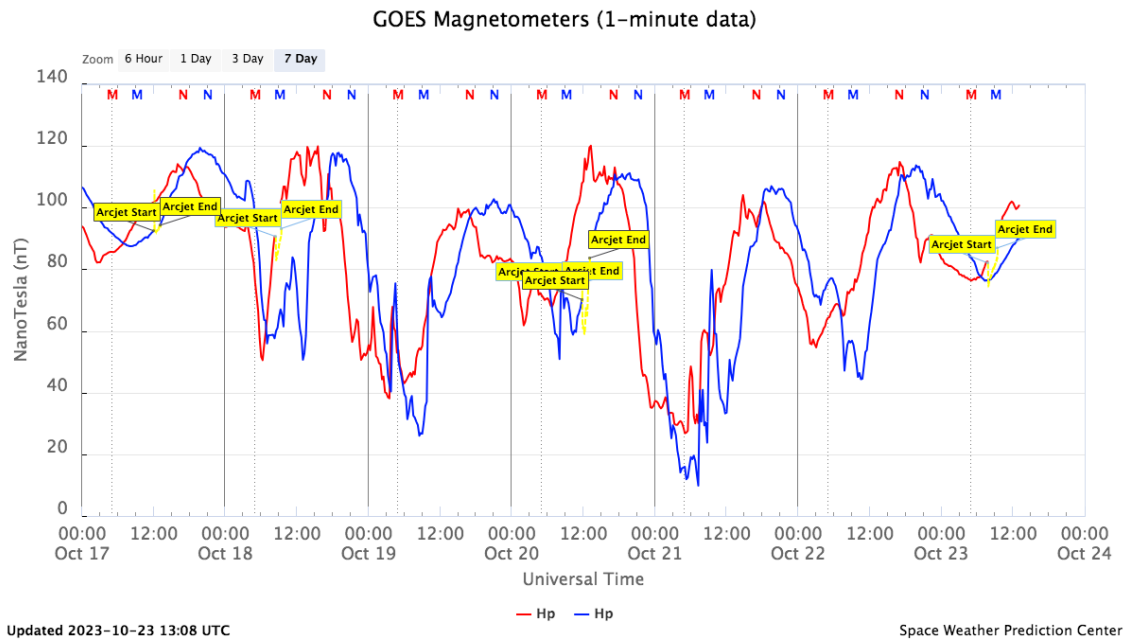


Figure 5.: Magnetic field horizontal component at the GOES satellite orbit through 17 to 23 October 2023

Ionosfera – Digissonda (Laysa Resende)

Summary

We observed the F spread-F in Fortaleza and Cachoeira Paulista every day during this week (Figures 1 and 2). The Es layers reached a maximum of scale 2 in Cachoeira Paulista and a maximum of scale 3 in Fortaleza.

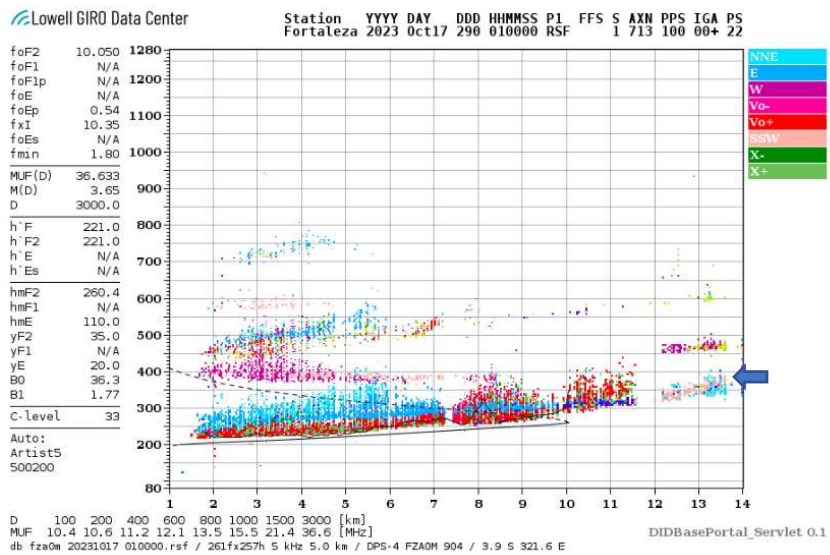


Figure 1 – Ionogram over Fortaleza, showing the spread F occurrence on October 17, 2023.

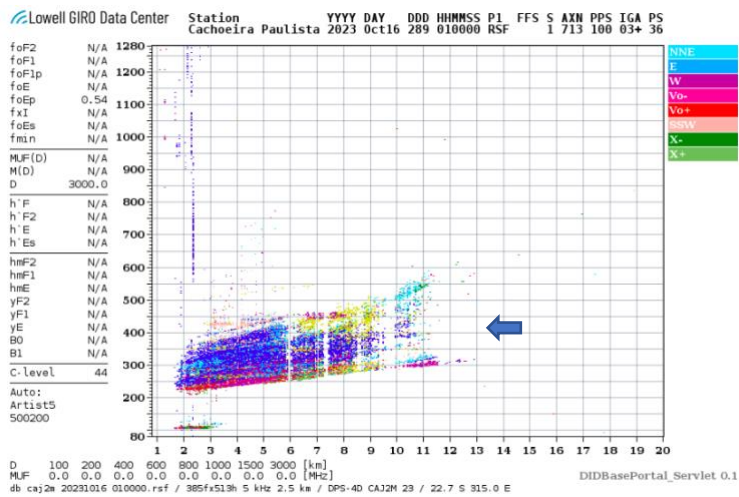


Figure 2 – Ionogram over Cachoeira Paulista, showing the spread F occurrence on October 16, 2023.

Ionosphere - ROTI Summary for Week 2284 (October 15 to 21, 2023)

Carolina de Sousa do Carmo

In the week 2284 (October 15 to 21, 2023) there were ionospheric irregularities (plasma bubbles) on all nights analyzed. The Figure below shows the ROTI time series for four stations in the Brazilian sector (Natal (RNNA), Bacabal (MABB), Cuiabá (CUIB) and São José dos Campos (SJSP)).

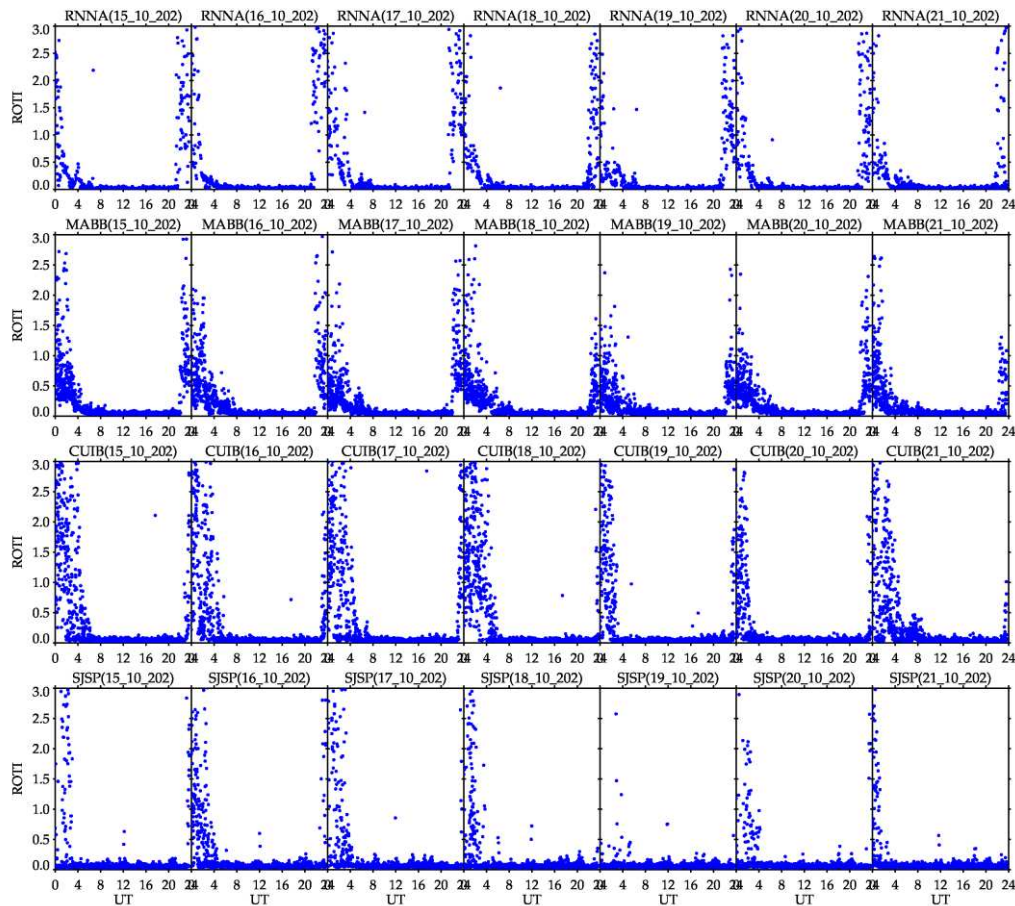


Figure – ROTI time series for four stations in the Brazilian sector (Natal (RNNA), Bacabal (MABB), Cuiabá (CUIB) and São José dos Campos (SJSP)), from October 15 to 21, 2023.