SOL (Cecatto)

Summary – Week December 11 – December 18

12/11 – No M/X flare; Fast (=< 450 km/s) wind stream; 5 CME can have component toward the Earth;
12/12 – No M/X flare; No fast wind stream; 4 CME can have component toward the Earth *;
12/13 – No M/X flare; No fast wind stream; 6 CME can have component toward the Earth;
12/14 – Flares M5.8, M2.3, X2.8; No fast wind stream; 6 CME can have component toward the Earth;
12/15 – Flares M6.3, M6.9; Fast (=< 500 km/s) wind stream; 8 CME can have component toward the Earth;
12/16 – No M/X flare; Fast (=< 550 km/s) wind stream; 6 CME can have component toward the Earth;
12/17 – No M/X flare; Fast (=< 550 km/s) wind stream; 8 CME can have component toward the Earth;
12/18 – No M/X flare; ? Fast (=< 500 km/s) wind stream; 2 CME can have component toward the Earth
Prev.: Fast wind stream for today and next 1-2 days; for while low (25% M, 05% X) probability of M / X flares next 2 days; also, occasionally some other CME can present a component toward the Earth.

Resumo – Semana de 11 a 18 de Dezembro

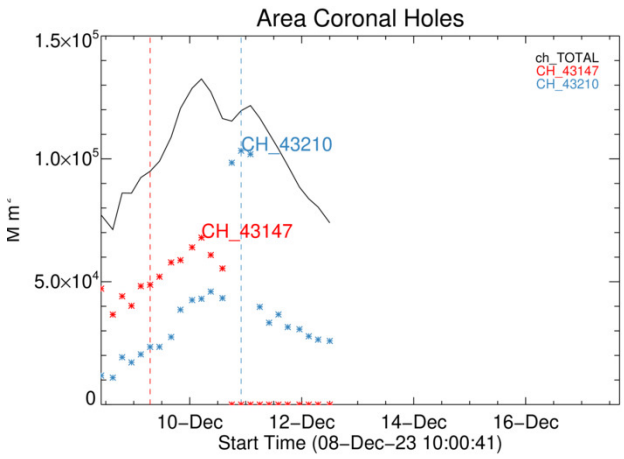
11/12 – Sem "flare" M/X; Vento rápido (< 450 km/s); 5 CME podem ter uma componente para a Terra;
12/12 – Sem "flare" M/X; Sem vento solar rápido; 4 CME podem ter uma componente para a Terra *;
13/12 – Sem "flare" M/X; Sem vento solar rápido; 6 CME podem ter uma componente para a Terra;
14/12 – "Flares" M5.8, M2.3, X2.8; Sem vento solar rápido; 6 CME podem ter uma componente para a Terra *;
15/12 – "Flares" M6.3, M6.9; Vento rápido (< 500 km/s); 8 CME podem ter uma componente para a Terra *;
16/12 – Sem "flare" M/X; Vento rápido (< 550 km/s); 6 CME podem ter uma componente para a Terra;
17/12 – Sem "flare" M/X; Vento rápido (< 550 km/s); 8 CME podem ter uma componente para a Terra;
18/12 – Sem "flare" M/X; ? Vento rápido (< 500 km/s); 2 CME podem ter uma componente para a Terra
Prev.: Vento rápido para hoje e próximos 1-2 dias; baixa probabilidade de "flares" (25% M, 05% X) nos próximos 02 dias; eventualmente alguma outra CME pode apresentar componente dirigida para a Terra.

Solar - WSA-ENLIL

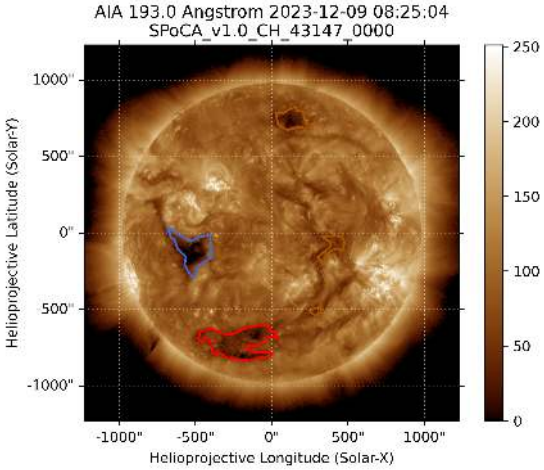
EMC (https://ccmc.gsfc.nasa.gov/donki/):

WSA-ENLIL(CME 2023-12-16 01:48:00 UT)
The simulation results indicate that the flank of CME will reach the DSCOVR mission between 2023-12-19 17:00:00 UT and 2023-12-20 07:00:00 UT.

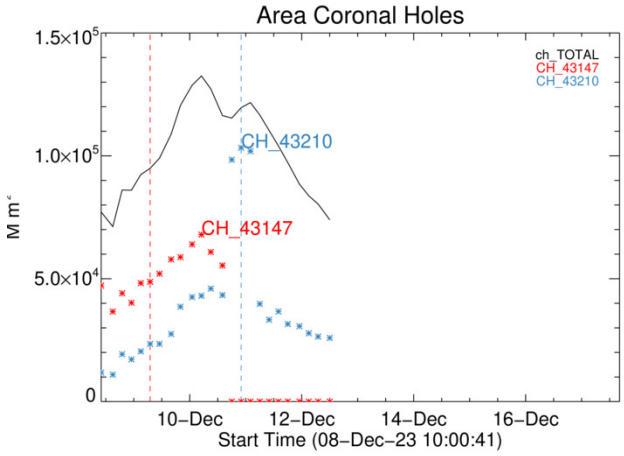
Solar - Coronal holes Spatial Possibilistic Clustering Algorithm (SPoCAS):



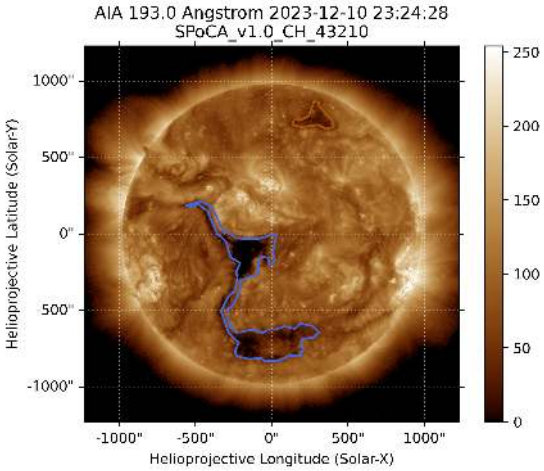
(a) The solid black line depicts the products of the sum of areas for each detection interval performed by SPOCA between December 08 and 12, 2023.



(b) Above the 193 Å image of the Sun are highlighted coronal holes observed by SPOCA around 08:25 UT on December 09, 2023 (red dot line).

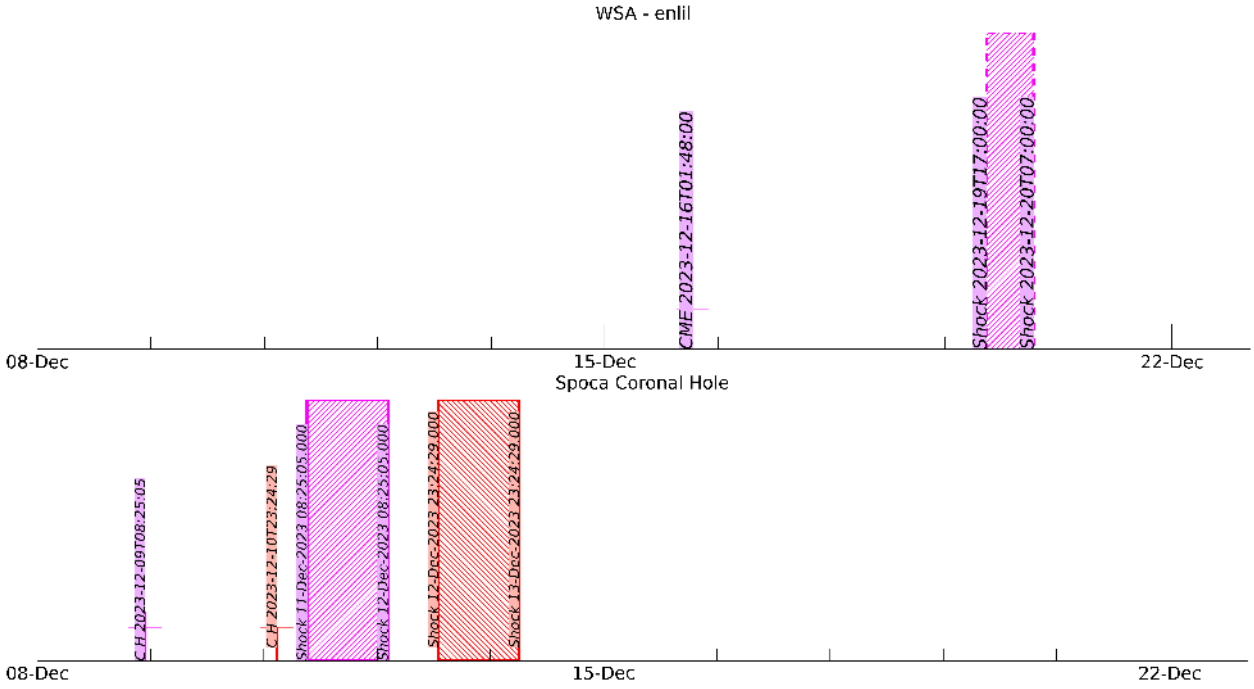


(a) The solid black line depicts the products of the sum of areas for each detection interval performed by SPOCA between December 08 and 12, 2023.



(b) Above the 193 Å image of the Sun are highlighted coronal holes observed by SPOCA around 23:24 UT on December 10, 2023 (blue dot line).

Solar - WSA - ENLIL and SPoCA



Geomagnetic Field / Campo Geomagnético

Summary

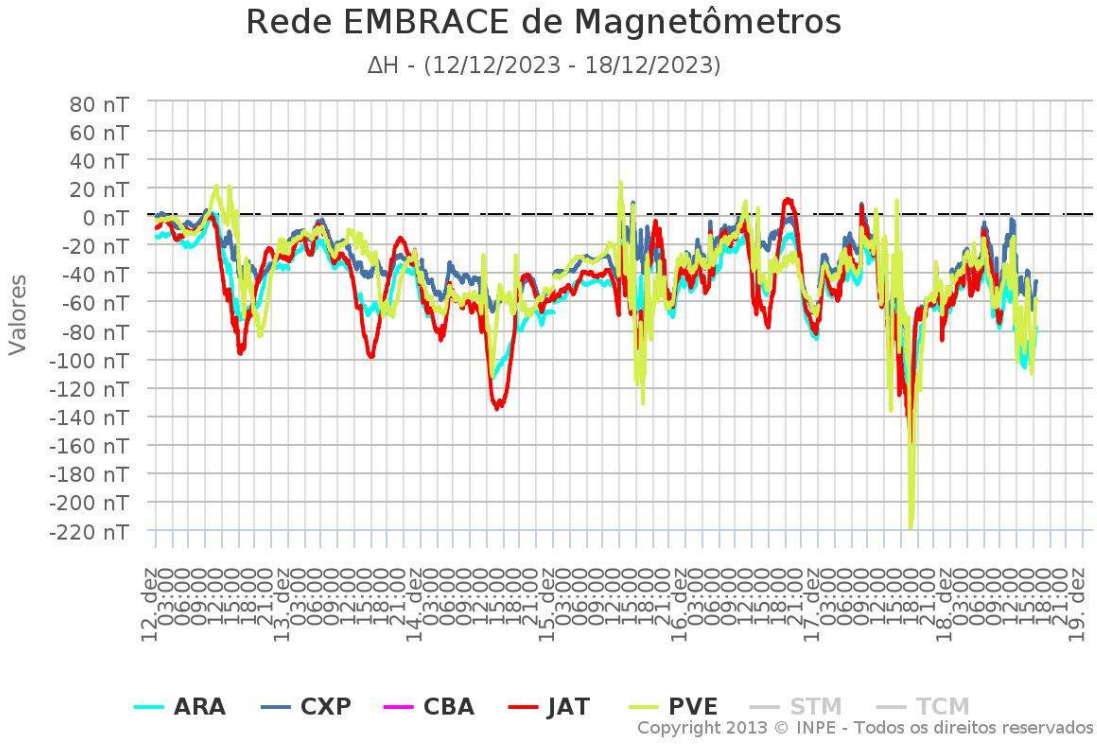
In the week of 12-18/12, the Embrace magnetometer network data recorded instabilities throughout the week, with emphasis on:

- 14, 15, and 17/12: The magnet Embrace Magnetometers recorded a drop of -160 nT in JAT.
- AE index was active, above 500 nT on the Dec 14 and 17. The minimum Dst index was -83 nT. The highest Kp of the week was 6-.

Resumo

Na semana de 12 a 18/12, os dados provenientes da rede de magnetômetros Embrace registraram instabilidades ao longo de toda semana, com destaque para:

- 14, 15 e 17/12: Os magnetometros da rede Embrace MagNet registraram queda na componente H de até - 160 nT em JAT.
- índice AE esteve ativo, acima de 500 nT no dia 14 e 17. O índice Dst mínimo foi -83 nT. O Kp mais alto da semana foi 6-.



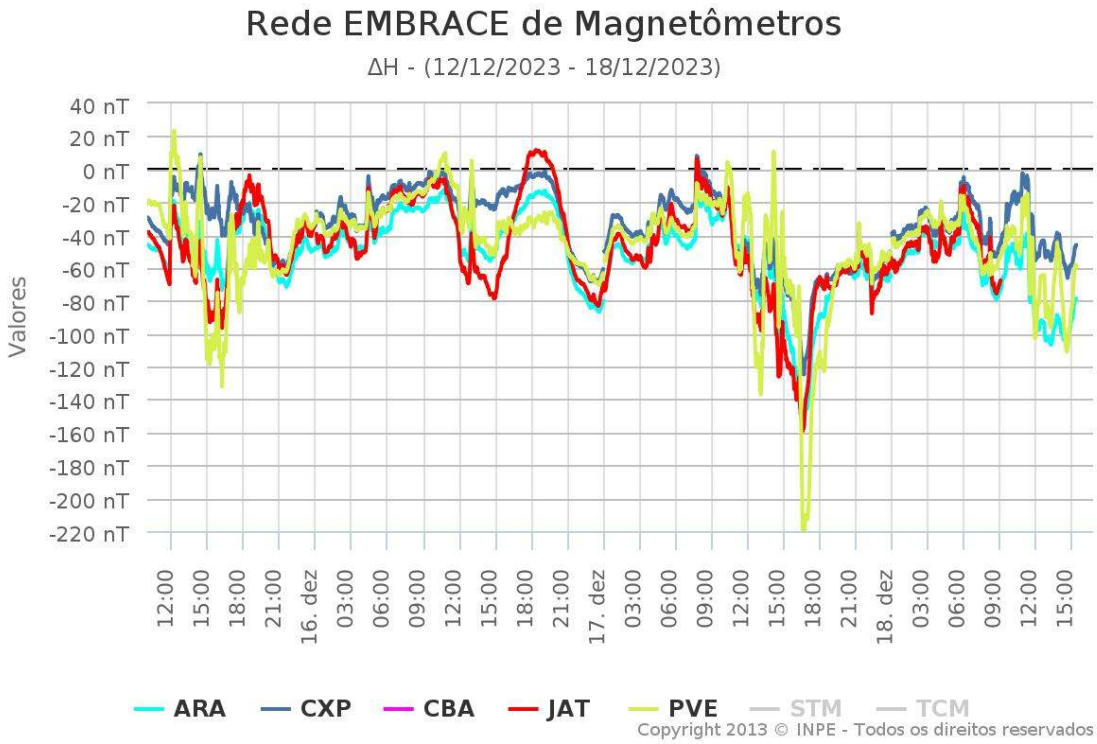


Figura 1.: Variação diurna da componente geomagnética H (nT) das estações da rede Embrace para o período de 04 à 11 de Dezembro de 2023
Figure 1.: Daily variation of the geomagnetic field from H (nT) measured at Embrace MagNet from 04-11 December 2023

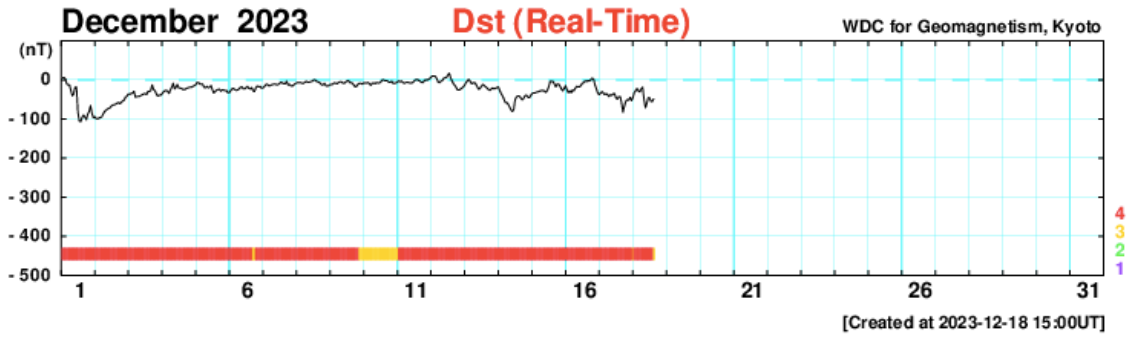


Figura 2.: Índice Dst para o mês de Dezembro de 2023.
Figure 2: Dst index for Decemberr 2023

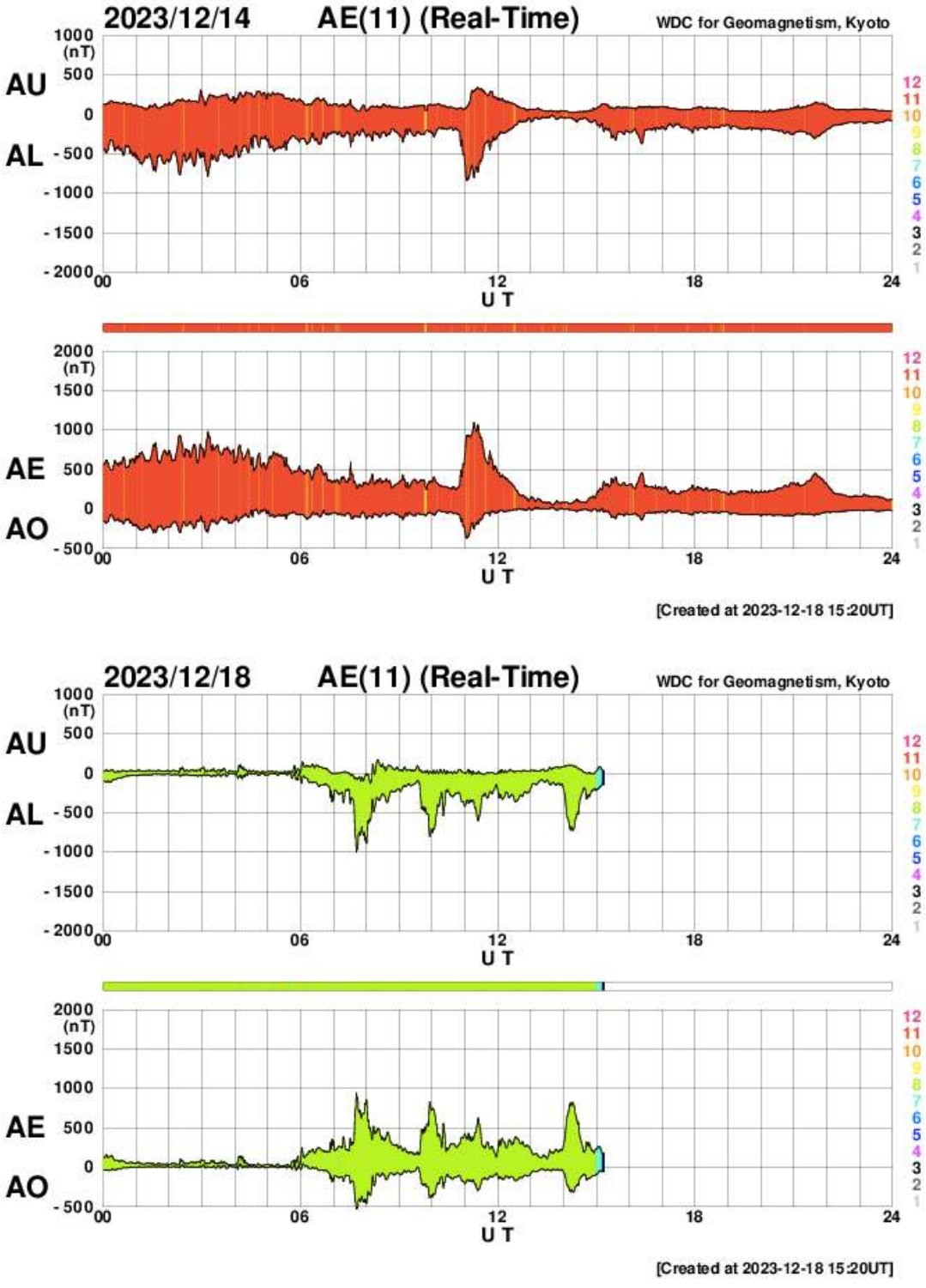


Figura 3.: Índice AE para os dias mais perturbados da semana.
Figure 3.: AE index for the most disturbed days in the current week.

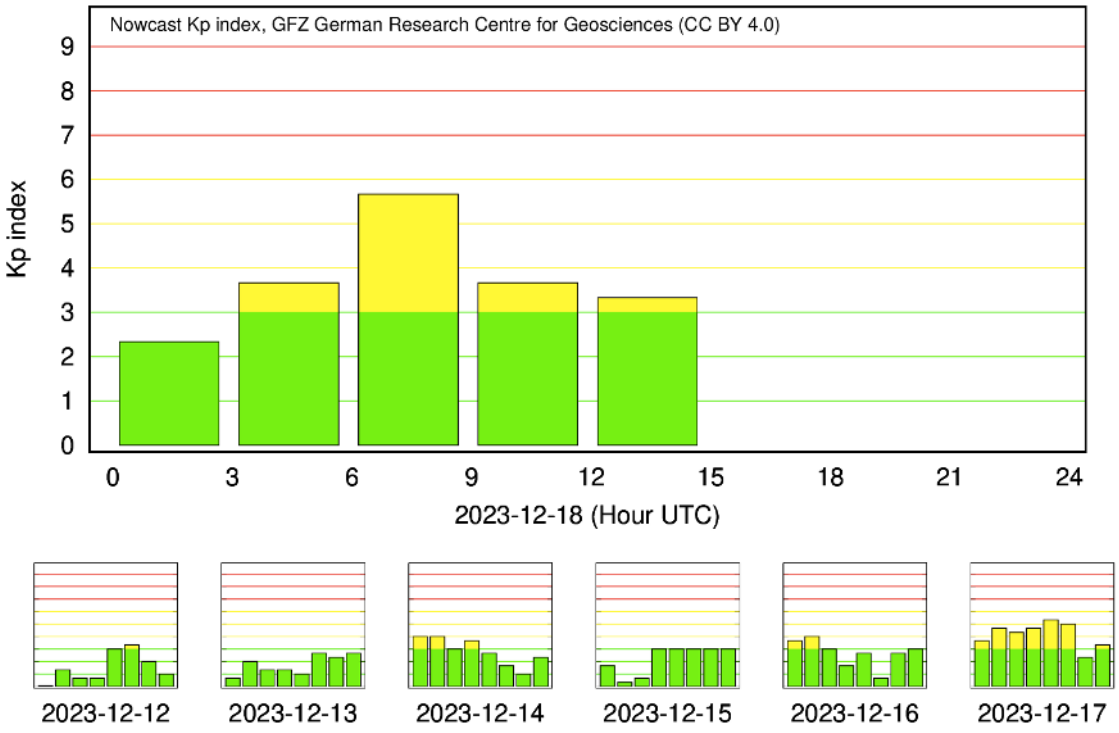


Figura 4.: Índice Kp referente a semana de 12 à 18 de Dezembro de 2023.
Figure 4: Kp index for the current week (12-18 December 2023)

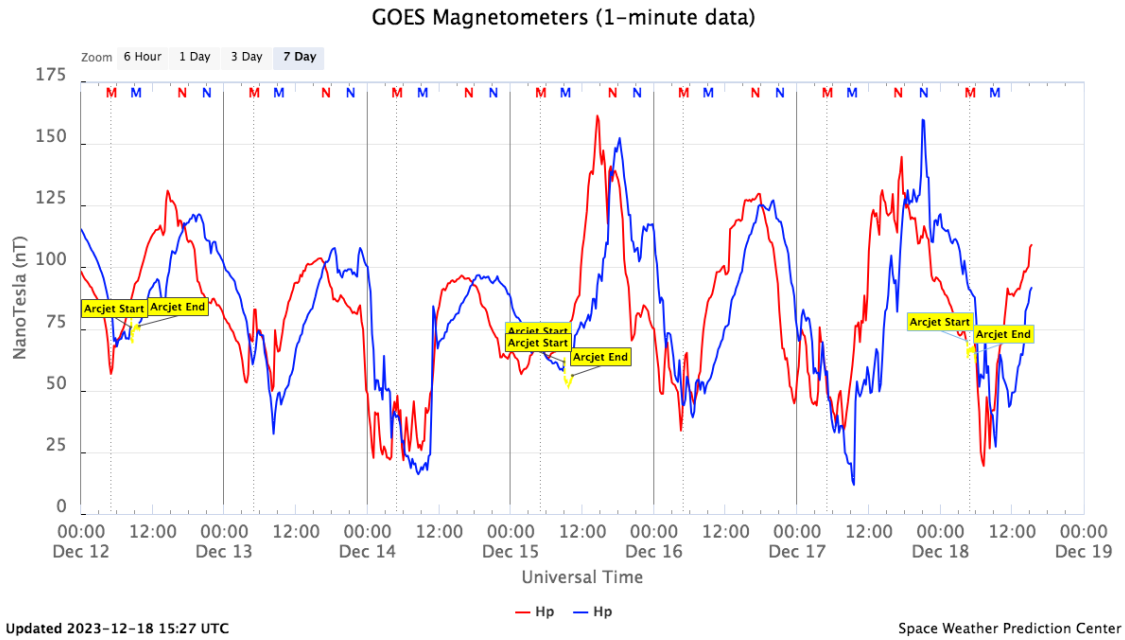


Figura5. Medida de Campo magnético na posição do satélite GOES na semana de 12 à 18 de Dezembro de 2023

Figure 5.: Magnetic field horizontal component at the GOES satellite orbit through 12 to 18 December 2023

Ionosfera – Digissonda (Laysa Resende)

Summary

We observed the F spread F in Fortaleza and Cachoeira Paulista every day during this week (Figure 1). The Es layers reached a maximum of scale 3 in Cachoeira Paulista and Fortaleza. Also, we observed the occurrence of backout on December 14 due to solar flares X2.8 over all the Brazilian stations (Figure 2).

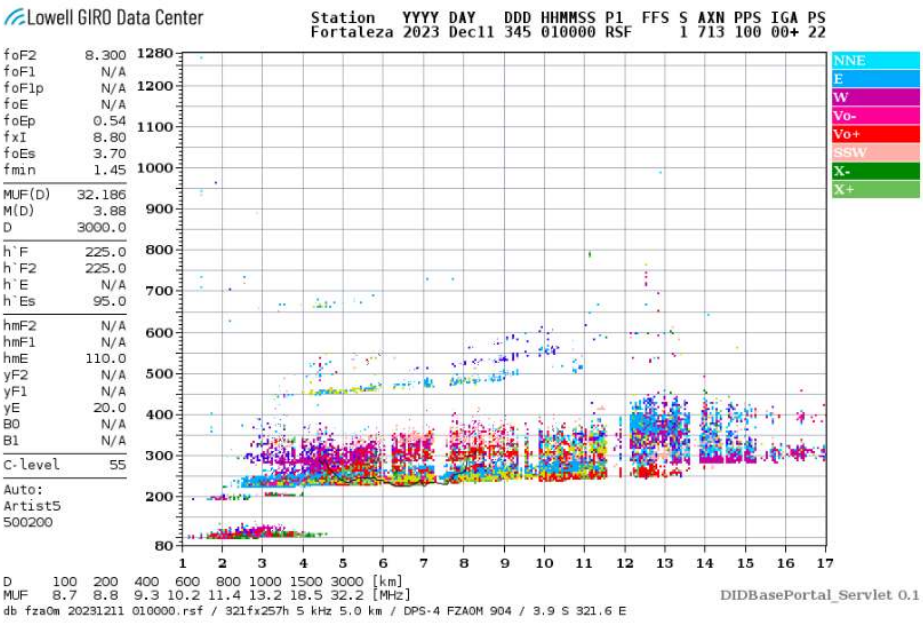


Figure 1 – Ionogram over Fortaleza, showing the spread F occurrence on December 11, 2023.

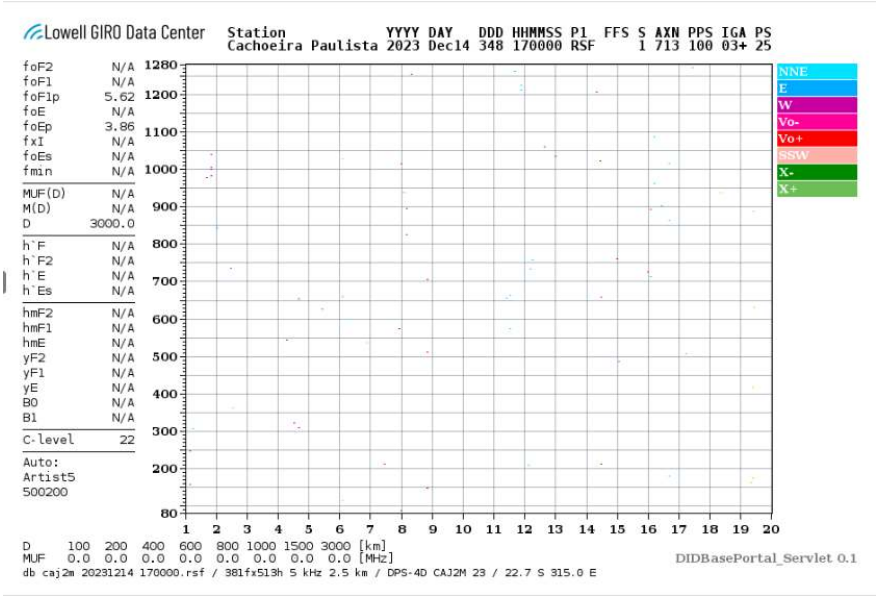


Figure 2 – Ionogram over Cachoeira Paulista, showing the blackout event.

Ionosphere - ROTI
Summary for Week 2292 (December 10 to 16, 2023)

Carolina de Sousa do Carmo

In the week 2292 (December 10 to 16, 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)).

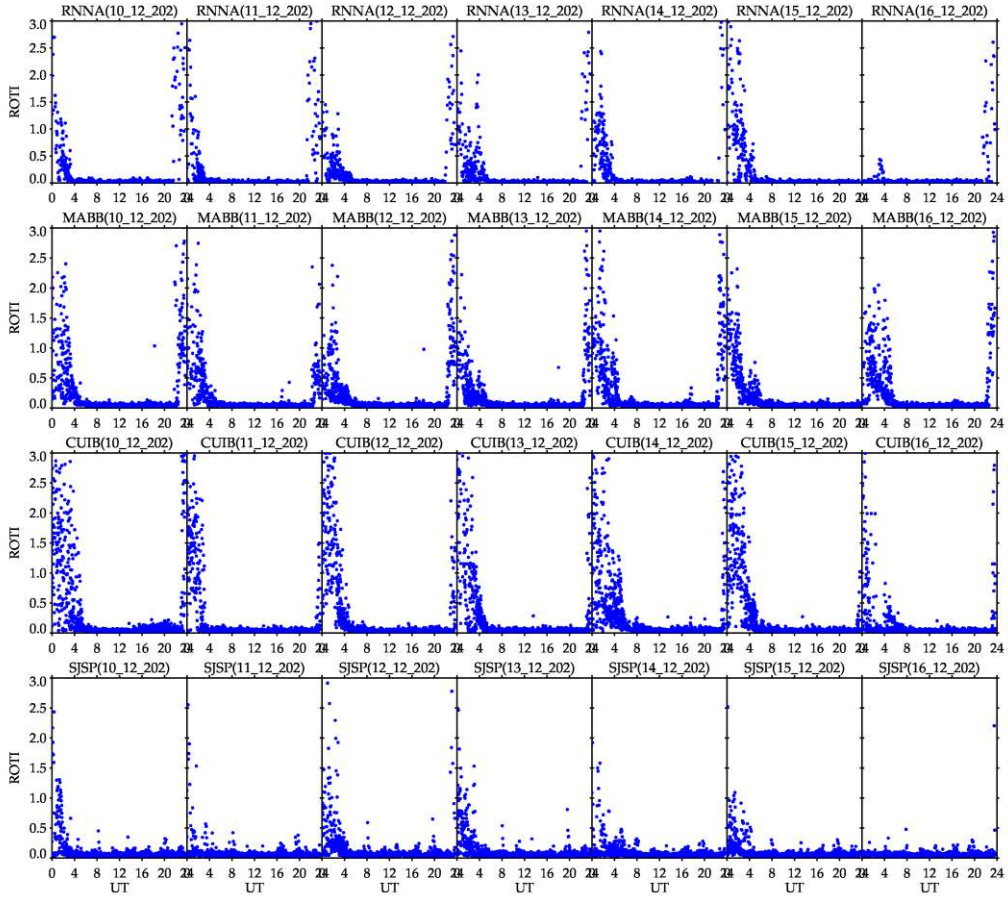


Figure – ROTI time series for four stations in the Brazilian sector (Natal (RNNA), Bacabal (MABB), Cuiabá (CUIB) and São José dos Campos (SJSP)), from December 10 to 16, 2023.