



Sol – Cecatto
Period: Sept. 02 – Sept. 09, 2024

Summary

09/02 – M1.9, M2.9, M1.4, M1.8, M1.5 flares; Fast (≤ 450 km/s) wind stream; 4 CME can have component toward the Earth;

09/03 – M1.4, M3.3 flares; Fast (≤ 450 km/s) wind stream; 12 CME can have component toward the Earth;

09/04 – M1.4, M1.2, M1.0, M1.0, M1.0, M1.2 flares; No fast wind stream; 1 CME can have component toward the Earth *;

09/05 – M1.0, M1.1, M1.0, M2.8, M1.6, M1.3 flares; Fast (≤ 450 km/s) wind stream; 6 CME can have component toward the Earth;

09/06 – No M/X flare; No fast wind stream; 6 CME can have component toward the Earth;

09/07 – M1.6 flare; Fast (≤ 450 km/s) wind stream; 6 CME can have component toward the Earth;

09/08 – M1.5 flare; No fast wind stream; 3 CME can have component toward the Earth *;

09/09 – M1.0, M1.8, M1.5, M1.7, M1.0 flares; Fast (≤ 450 km/s) wind stream; 5 CME can have component toward the Earth **, *, *;

For.: Fast wind stream for next 1-2 days; for while (55% M, 15% X) probability of M / X flares next 2 days; also, occasionally some other CME can present a component toward the Earth.

Resumo - 02-09/09/2024

02/09 – "Flares" M1.9, M2.9, M1.4, M1.8, M1.5; Vento rápido (≤ 450 km/s); 4 CMEs podem ter componente p Terra;

03/09 – "Flares" M1.4, M3.3 ; Vento rápido (≤ 450 km/s); 12 CME com componente p/ Terra;

04/09 – "Flares" M1.4, M1.2, M1.0, M1.0, M1.0, M1.; Sem vento rápido; 1 CME podem ter componente p Terra *;

05/09 – "Flares" M1.0, M1.1, M1.0, M2.8, M1.6, M1.3; Vento rápido (≤ 450 km/s); 6 CME podem ter componente p Terra;

06/09 – Sem "Flare" M/X; Sem vento rápido; 6 CME podem componente p Terra;

07/09 – "Flare" M1.6; Vento rápido (≤ 450 km/s); 6 CME com componente p Terra;

08/09 – "Flare" M1.5; Sem vento rápido; 3 CME podem ter componente p/ a Terra *;

09/09 – "Flares" M1.0, M1.8, M1.5, M1.7, M1.0; Vento rápido (≤ 450 km/s); 5 CME podem ter componente para a Terra **, *, *

Prev.: Vento rápido para os próximo(s) 1-2 dia(s); probabilidade de "flares" M/X (55% M, 15% X) nos próximos 02 dias; eventualmente alguma(s) outra(s) CME pode(m) apresentar componente dirigida para a Terra.

Prev.: Vento rápido para hoje e próximo(s) 1-2 dia(s); probabilidade de "flares" M/X (95% M, 75% X) nos próximos 02 dias; eventualmente alguma(s) outra(s) CME pode(m) apresentar componente dirigida para a Terra.



Solar - WSA-ENLIL

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

WSA-ENLIL(CME 2024-09-01 03:24:00 UT)

The simulation results indicate that the flank of CME will reach the DSCOVR mission between 2024-09-04 01:00:00 UT and 2024-09-04 15:00:00 UT.

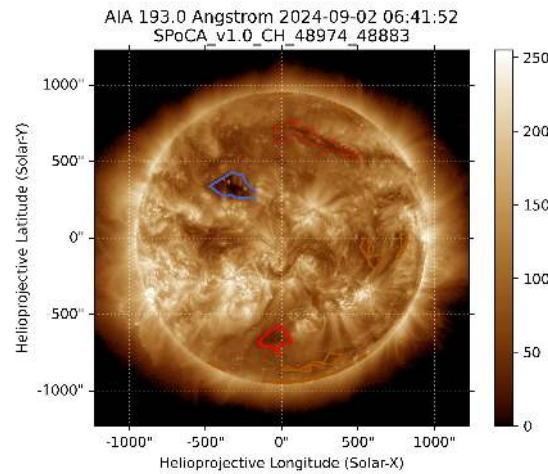
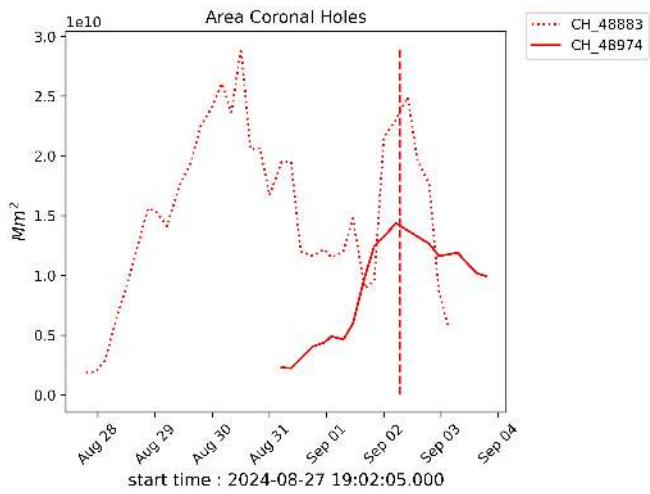
WSA-ENLIL(CME 2024-09-03 20:12:00 UT)

The simulation results indicate that the flank of CME will reach the DSCOVR mission between 2024-09-06 03:00:00 UT and 2024-09-06 17:00:00 UT.

WSA-ENLIL(CMEs 2024-09-07 07:36:00 UT and 2024-09-07 08:00:00 UT)

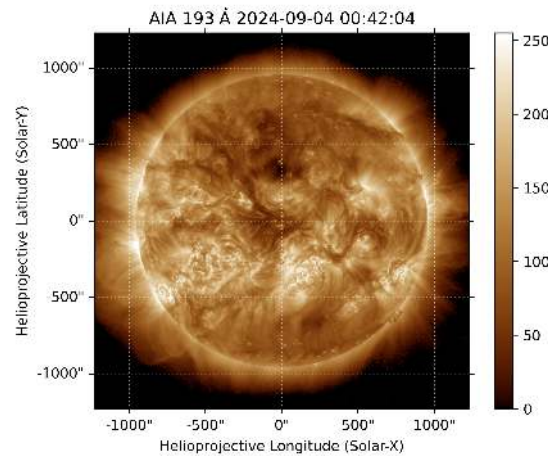
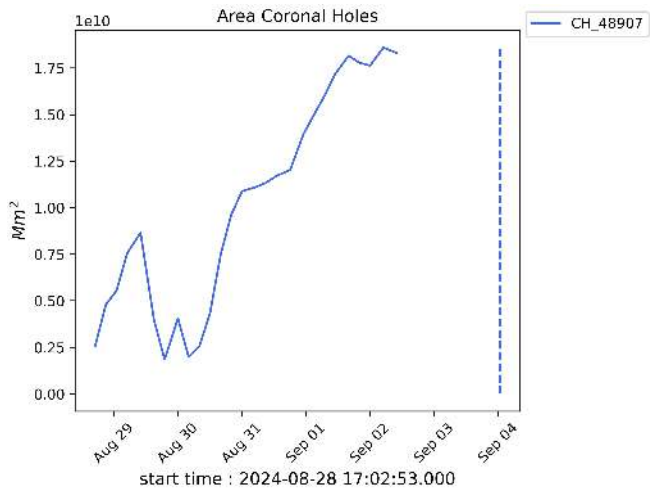
The simulation results indicate that the flank of CME will reach the DSCOVR mission between 2024-09-11 23:00:00 UT and 2024-09-12 13:00:00 UT.

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 August 26 and September 03,2024.

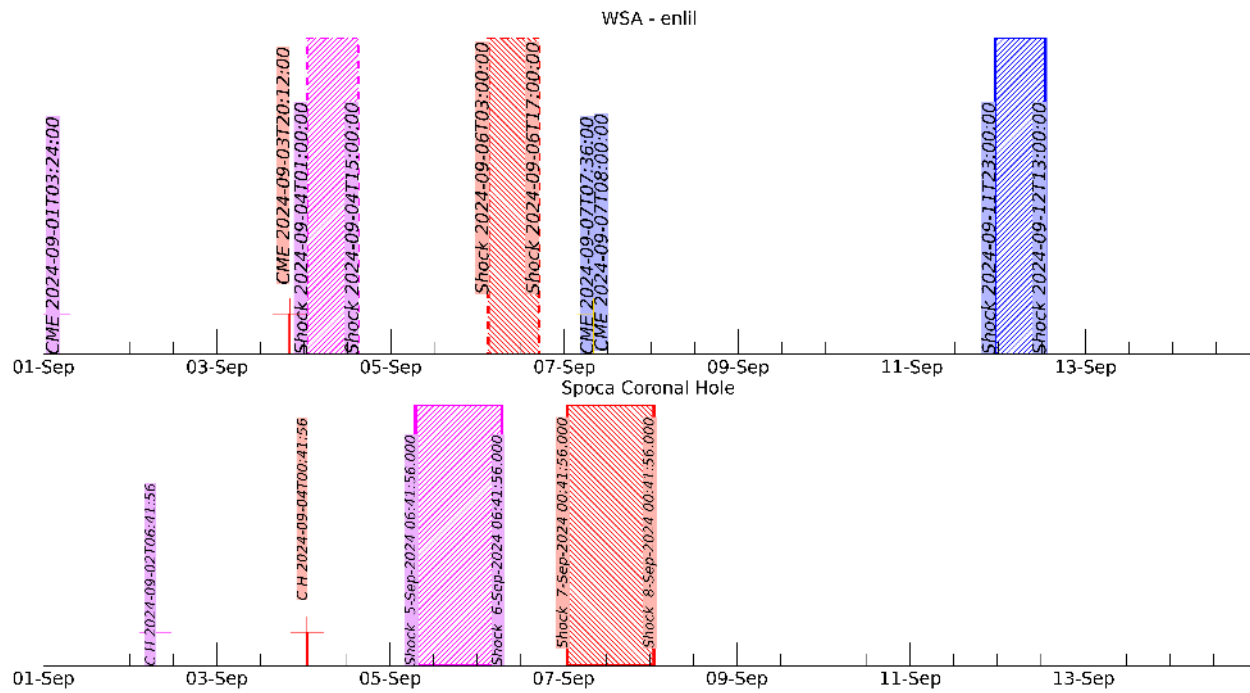
(b) Above the 193 Å image of the Sun are highlighted coronal holes observed by SPOCA around 06:41 UT on September 02, 2024 (red dot line).



(a) The solid black line depicts the products of the sum of areas for each detection interval performed by SPOCA between August 26 and September 03,2024.

(b) Above the 193 Å image of the Sun are highlighted coronal holes observed by SPOCA around 00:41 UT on September 04, 2024 (blue dot line).

Solar - WSA - ENLIL and SPoCA





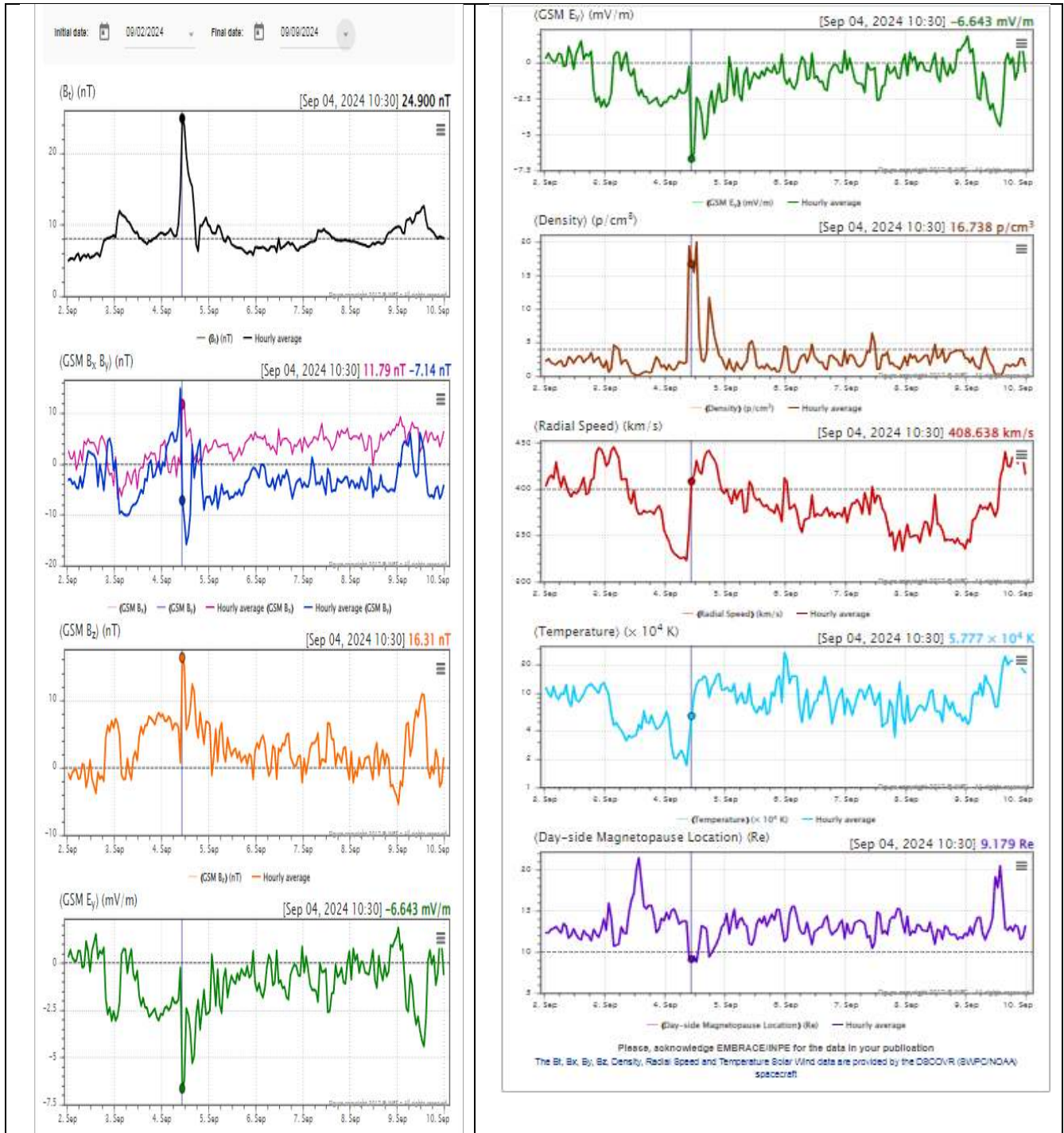
Meio interplanetário – IM – Paulo Ricardo Jauer 02/09 to 09/09 2024

Summary

Summary of IM conditions for the last week. The interplanetary medium region in the last week showed a low to moderate level of plasma disturbances due to the possible interaction of CME-like structures identified by the DSCOVR satellite in the interplanetary medium.

- The magnitude of the interplanetary magnetic field component peaked on 4 Sep at 10:30 UT at -24 nT due to CME.
- The BxBy components presented variations in the analyzed period, keeping both oscillating within the interval [+14, -15] nT. Showing a possible rotation of the By component due to CME
- The Bz component presented positive values for most of the week with a maximum positive value of ~16 nT on 04 Sep at 10:30 UT. It presented a small negative value of -5nT on 09 Sep at 00:30 UT.
- The solar wind density peaked on 4 Sep at 12:30 UT at ~20 p/cm³ due to the CME interaction.
- The solar wind speed fluctuated between 323 to 445 km/s with the presence of a discontinuity on 04 Sep at 08:30 UT.
- The magnetopause position remained above the equilibrium position throughout the week.

Figure 1 illustrates a set of parameters observed in the solar wind by the DSCVR satellite. The measured solar wind parameters can be identified in the following order starting in column 1: Interplanetary magnetic field modulus (IMF), the Bx and By components, Bz component, convection electric field Ey, solar wind density, speed, temperature and the last graph represents the position of the subsolar magnetopause. Note that some profiles are repeated in column 2.



Geomagnetic Field

Responsible: Karen Sarmiento/ Lívia Alves

Summary

The data from GOES satellites showed the predominance of the diurnal variation of the magnetic field. On September 4th, fluctuations in the amplitude of the north component of the magnetic field were recorded starting at 10:30 UT (GOES-18) until 18:00 UT (GOES-16) on the dayside, with a peak of 50 nT at 10:30 UT. This decrease in amplitude coincided with an increase in temperature, density, and solar wind speed. Auroral activity in both hemispheres was weak, with the AE index remaining below 500 nT, although some instabilities were observed starting at 10:30 UT on September 4th, with AE index values exceeding 500 nT and magnetic signatures characteristic of substorms. The maximum Kp index was 4+ on September 4th (12-15 UT), indicating active geomagnetic field conditions. The Dst index oscillated between positive and negative values, with a maximum positive value of 34 nT at 11 UT on September 4th and a minimum of -15 nT at 5 UT on September 9th. The magnetometers of the Embrace-Magnet network recorded a sudden increase in amplitude at 10:35 UT on 09/04, followed by rapid variations in the magnetic field, without reaching storm conditions. The rest of the week showed greater variations at the Porto Velho (PVE) station, located in the region influenced by the Equatorial Electrojet. These disturbances were possibly due to the passage of an ICME that reached Earth on 09/04 at 10:30 UT.

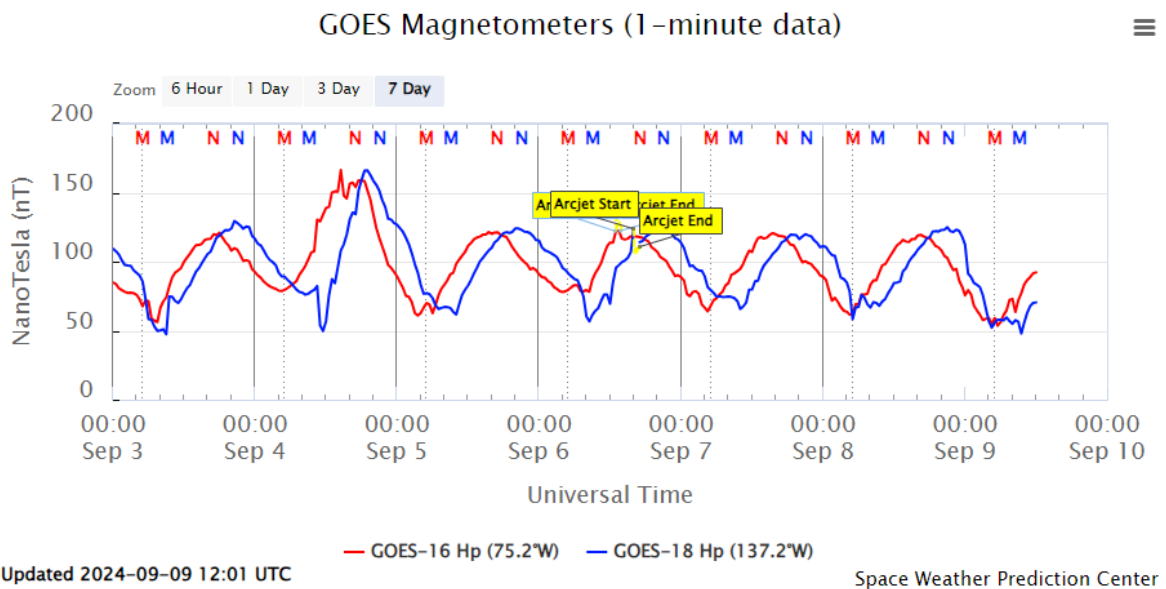


Figure 1- Magnetic field horizontal component at the GOES satellite orbit through.

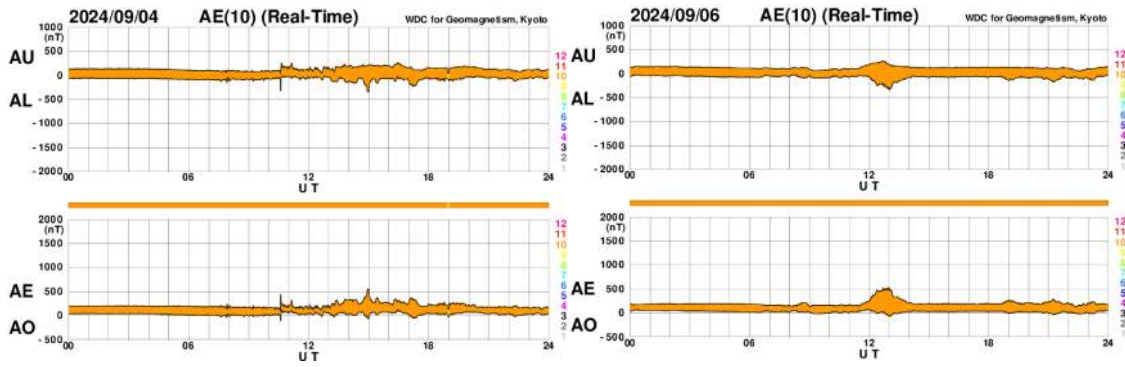


Figure 2- AE index for the days of the week with greater auroral activity.

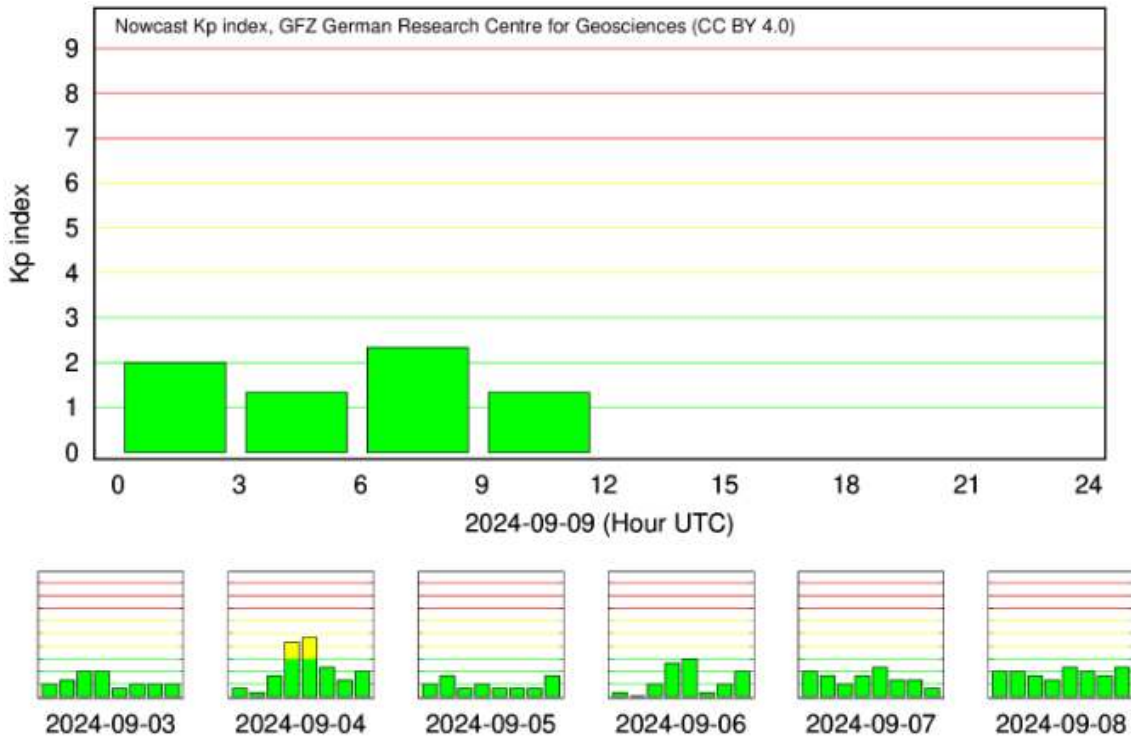


Figure 3- Kp index in logarithmic scale.

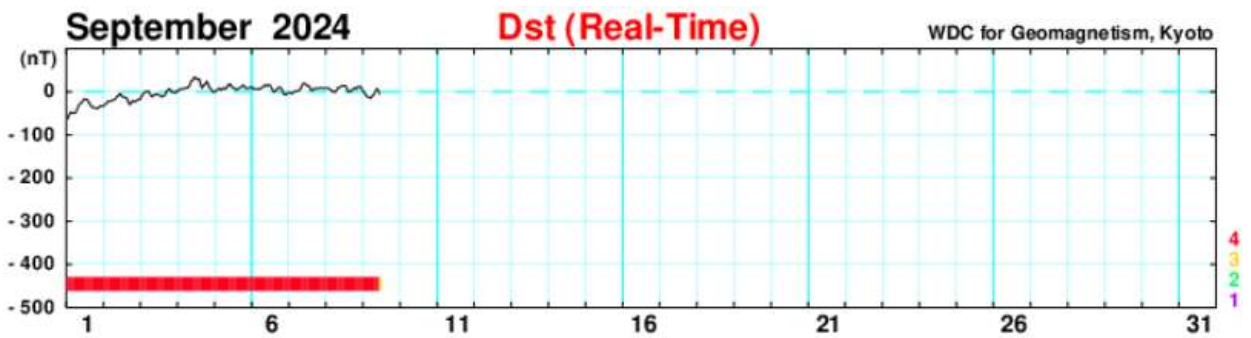


Figure 4- Dst Index

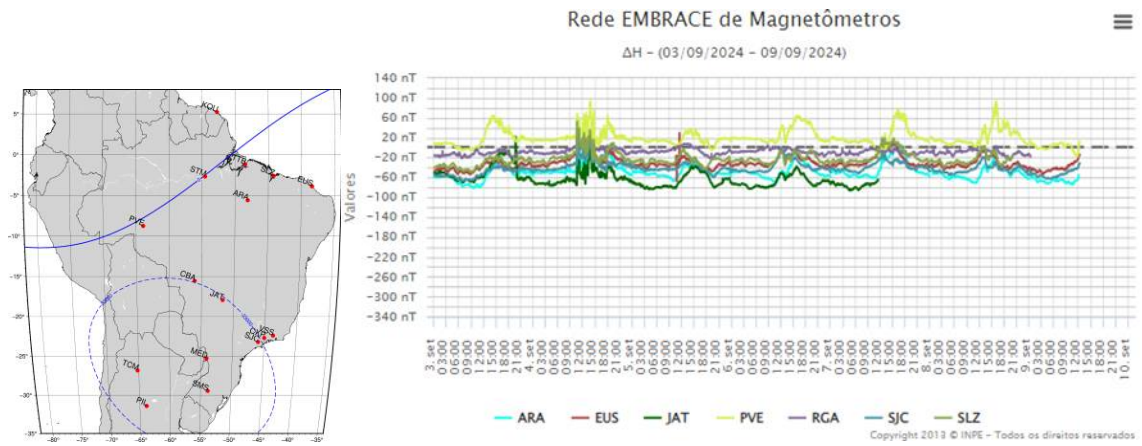


Figure 5- Daily variation of the geomagnetic field from $H(nT)$ measured at Embrace MagNet.

Ionosphere – Digisonde (Laysa Resende)

Summary

We observed Spread-F over São Luís this week (see Figure 1). However, Spread-F was not detected over Cachoeira Paulista. Regarding the Es layer, the scale reached a maximum of 2.

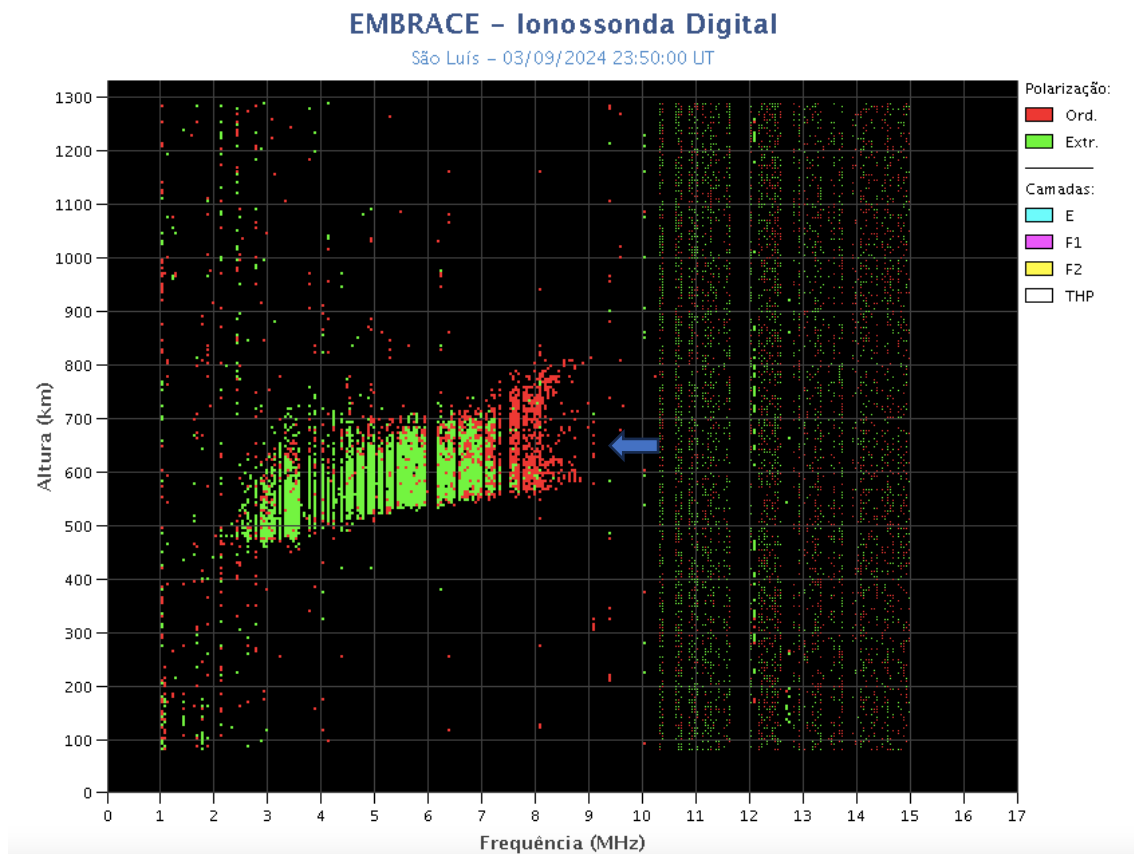


Figure 1 – Ionogram over São Luís, showing the spread F.