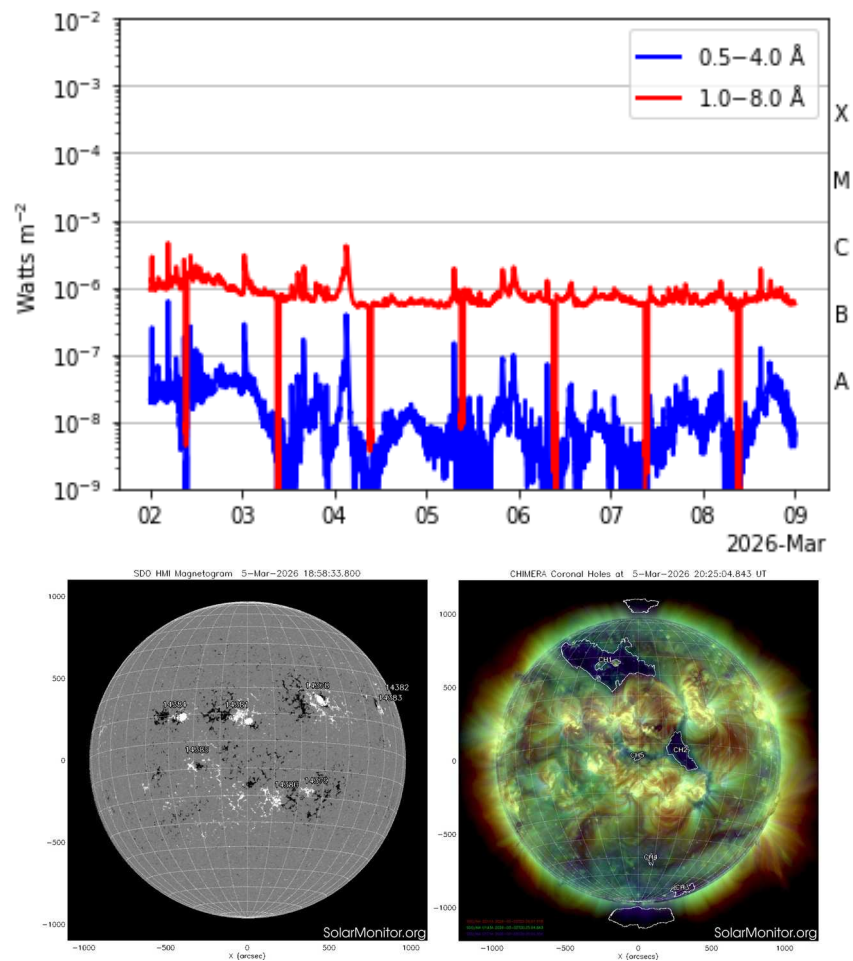


## Sun – Solar Activity (Jean C. Santos)

### Summary

The Sun showed little activity during the week, with the presence of active regions of low (alpha) and medium (beta) magnetic complexity on the solar surface. No M- or X-class solar flares occurred during this period, and several CMEs were observed, but none of the halo type (angular width greater than 180 degrees). A coronal hole with a significant area (>2.0% of the solar disk area) was identified at high latitudes.



**Figure 1** – X-ray flux measured by the GOES satellite (top panel) for the period of March 2-8, magnetic field in the line of sight (bottom left panel) and image at 193 angstroms (bottom right panel) measured on March 5, 2026.



## **Interplanetary Medium – IM – Daniele da S. F. Medeiros and Paulo R. Jauer**

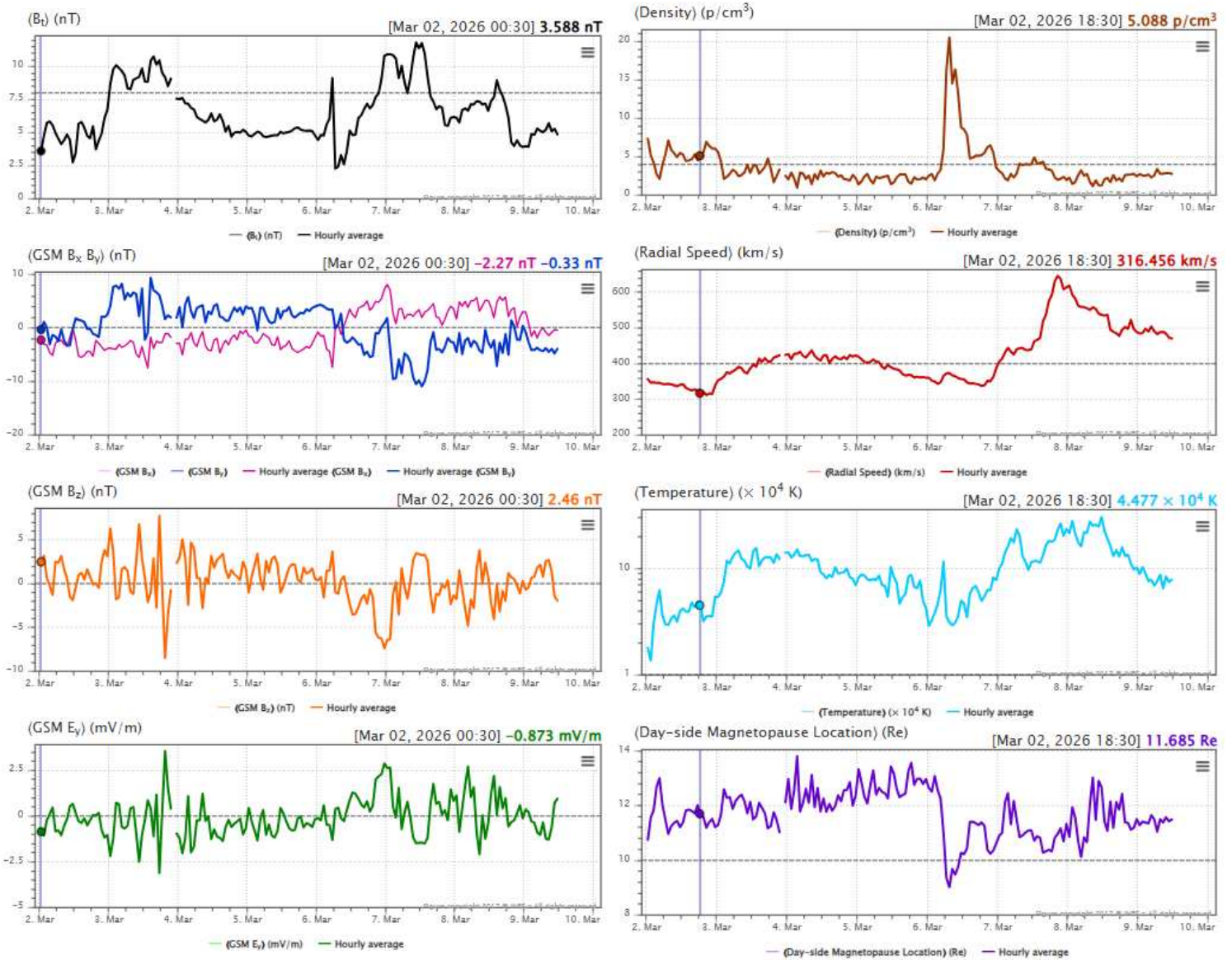
### **Period: March 2nd to 9th**

#### **Summary**

Summary of IM conditions for the last week. The interplanetary medium region in the last week showed a moderate level of plasma disturbances due to the possible interaction with the solar wind identified by the DSCOVR satellite in the interplanetary medium. The interplanetary Kp index obtained by NOAA/SWPC and the modeling.

- The magnitude of the interplanetary magnetic field component peaked on March 7th at 10:30 UT at +11.79 nT.
- The BxBy components presented variations in the analyzed period, keeping both oscillating within the interval [-10.92, +9.34] nT. Showing a rotations of the By component.
- The Bz component presents negative values for most of the week with a maximum negative -8.52 nT at 19:30 UT on March 3rd. It presented positive value of +7.72 nT on March 3rd at 17:30 UT. On March 3rd, the Bz is purely southward at 19:30 UT.
- The solar wind density maximum peaked on March 6th at 07:30 UT, reaching 20.49 protons/cm<sup>3</sup>. On March 6 th, a sector crossing was observed by satellite at approximately 05:30 UT.
- The solar wind speed fluctuated between 311 to 644 km/s, with an increase beginning at 11:30 UT on March 7th.
- The magnetopause position remained relaxed almost throughout the analyzed period, reaching maximum compression (9.01 RE) at 07:30 UT on March 6th.
- The measured interplanetary Kp index reached a peak value of approximately 5 (Kp = 5) on March 4th, which is classified as a minor geomagnetic storm (G1 level). The modeled interplanetary Kp index reached values close to 4 (Kp = 4). From March 7th onward, both the measured and modeled Kp indices fluctuated between 2 and 5, ending the week with values below 3 (Kp < 3).

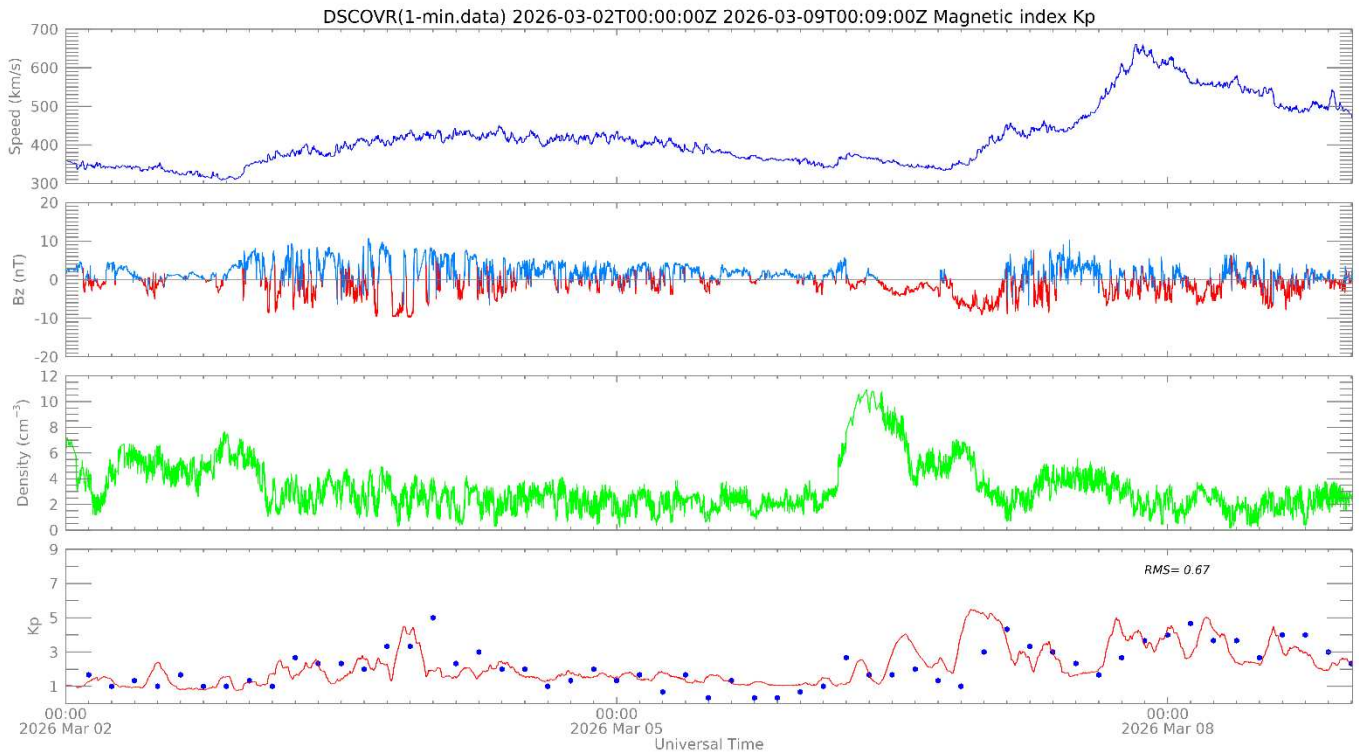
Figure 1 illustrates a set of parameters observed in the solar wind by the DSCVR satellite. The measured solar wind parameters can be identified in the following order starting in column 1: Interplanetary magnetic field modulus (IMF), the Bx and By components, Bz component, convection electric field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



Please, acknowledge EMBRACE/INPE for the data in your publication  
The  $B_t$ ,  $B_x$ ,  $B_y$ ,  $B_z$ , Density, Radial Speed and Temperature Solar Wind data are provided by the DSCOVR (SWPC/NOAA) spacecraft

**Figure 1:** Illustrates a set of parameters observed in the solar wind by the DSCVR satellite.

Figure 2 illustrates a set of parameters observed in the solar wind by the DSCOVR satellite. The measured solar wind parameters can be identified in the following order, starting with the panels below: solar wind speed, Bz component of the interplanetary magnetic field (IMF), solar wind density, and the last graph represents the Kp index obtained by NOAA/SWPC and the modeling.



**Figure 2:** Illustrates a set of parameters observed in the solar wind by the DSCVR satellite and the Kp index by NOAA/SWPC, blue dot, and the modeling, red line.

## EARTH'S RADIATION BELT

**Responsible: Ligia Da Silva**

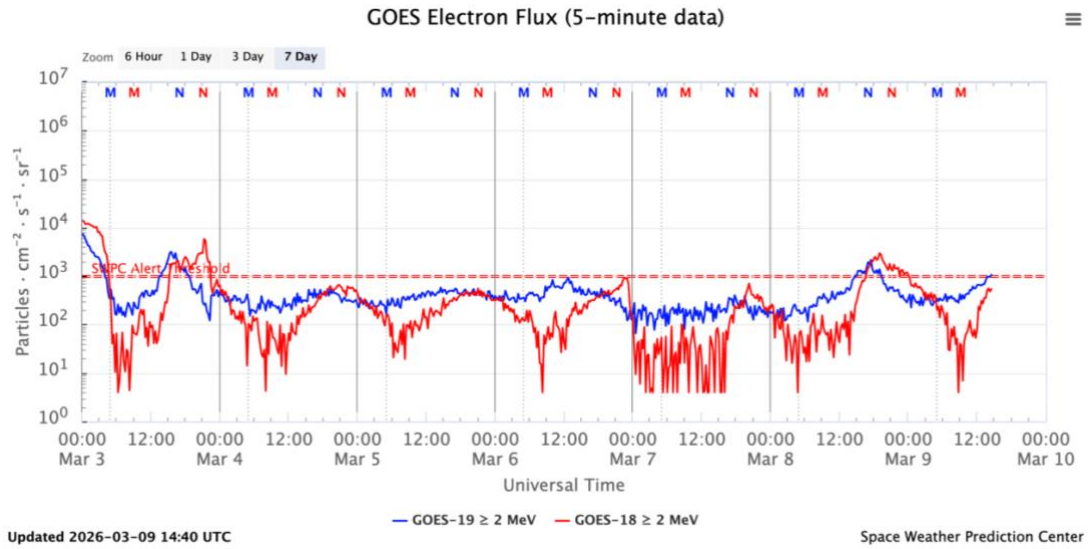


Figure 1: High-energy electron flux (> 2MeV) obtained from GOES-18 and GOES-19 satellite. Source: <https://www.swpc.noaa.gov/products/goes-electron-flux>

### 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) exhibits an abrupt dropout on March 3rd, exceeding three orders of magnitude. An electron flux increase exceeding the alert threshold ( $10^3$  particles/( $\text{cm}^2 \text{ s sr}$ )) is also observed on March 3rd, followed by another dropout, which confines the flux below the alert threshold for several consecutive days. On March 7th, the flux drops abruptly, but then gradually increases until reaching the minimum threshold on March 8th.

## Geomagnetic field

**Responsible: Karen Sarmiento /Lívia Alves/Sony Su Chen**

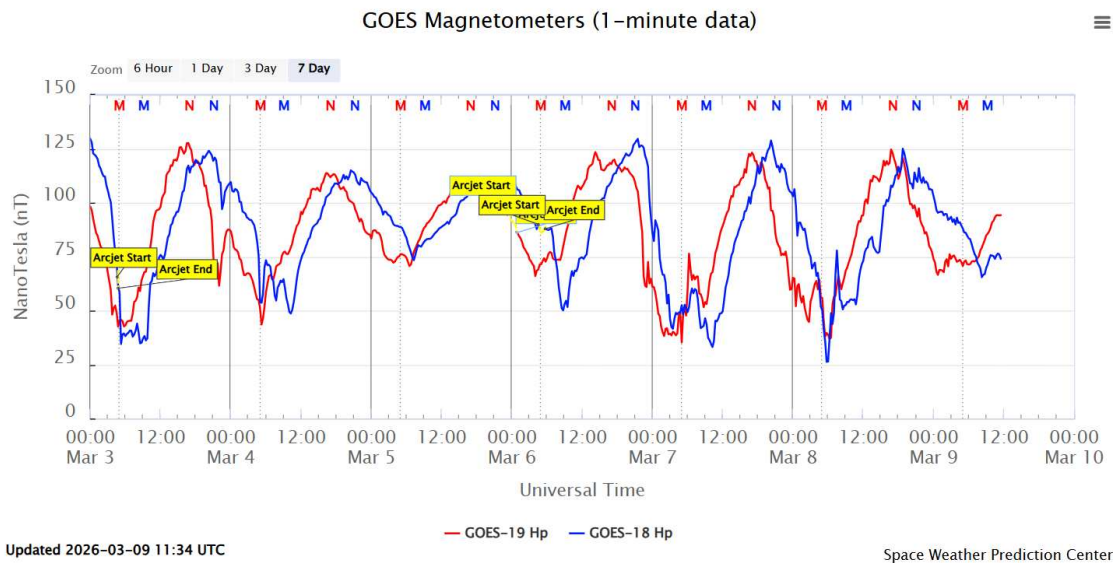
### Summary

*Between March 2 and 9, the geomagnetic field showed a predominance of quiet activity, except for a few intervals of instability. Notably, on March 3 and during the period March 6–8, when the Kp index reached 5o (G1 geomagnetic storm level) between 21–24 UT on March 3, and 5- during the 00–03 UT interval on March 8.*

*The Ksa index remained below the G1 storm threshold throughout the entire period, reaching a maximum value of 4+. The Dst index recorded a minimum value of -26 nT at 23 UT on March 3, as well as -25 nT at 04 UT on March 7 and 07 UT on March 8. The dHsa index varied between -49 nT and 32 nT during this interval.*

*During periods of greater instability, the AE index fluctuated around 500 nT, with peaks exceeding 1000 nT. On the remaining days, geomagnetic activity was predominantly quiet, with the indices remaining close to their nominal values.*

*On March 9, geomagnetic conditions remain predominantly quiet, with the indices fluctuating near typical levels.*



*Figure 1 - Magnetic field measurement at the GOES satellite position.*

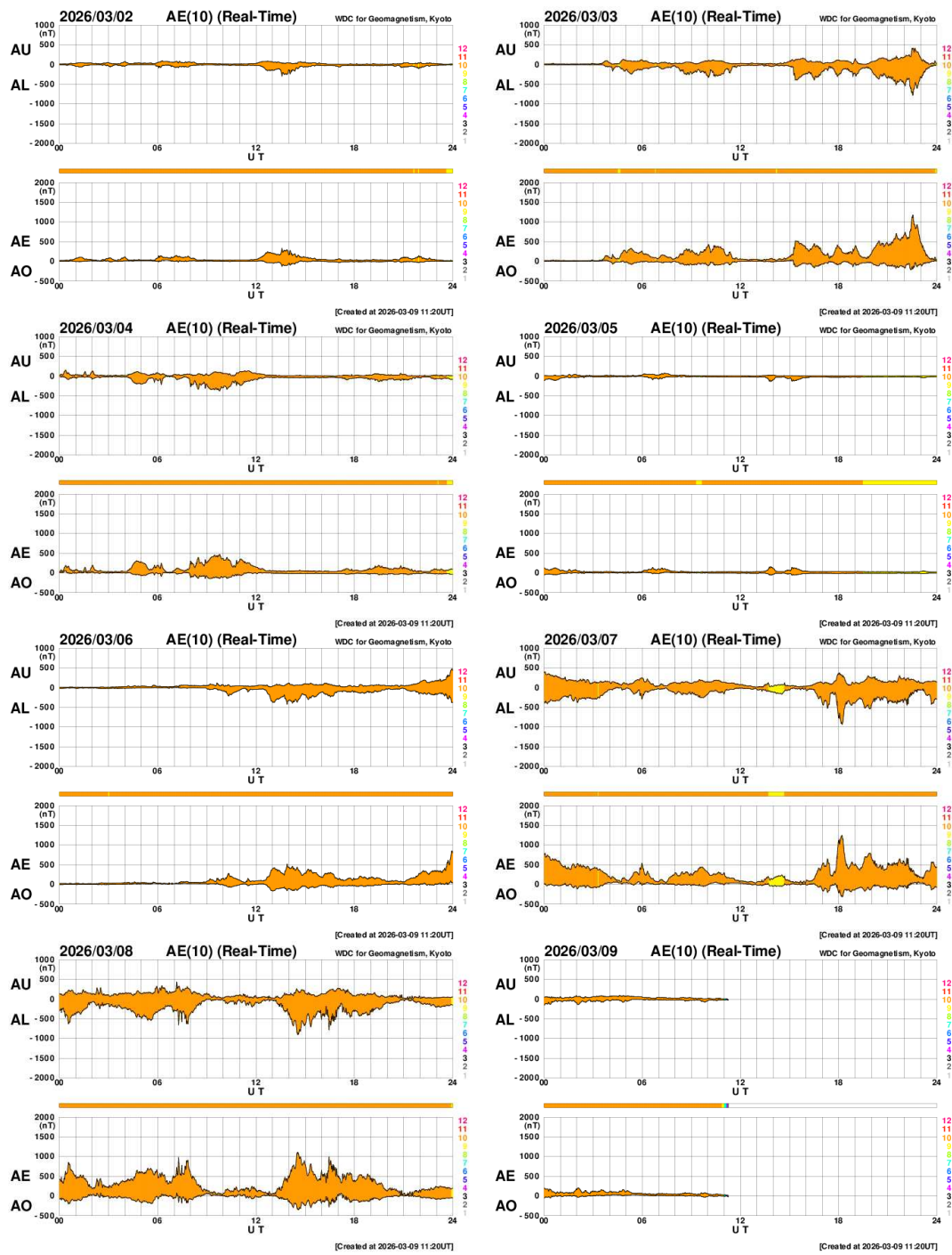


Figure 2 – AE index for the days of the week.

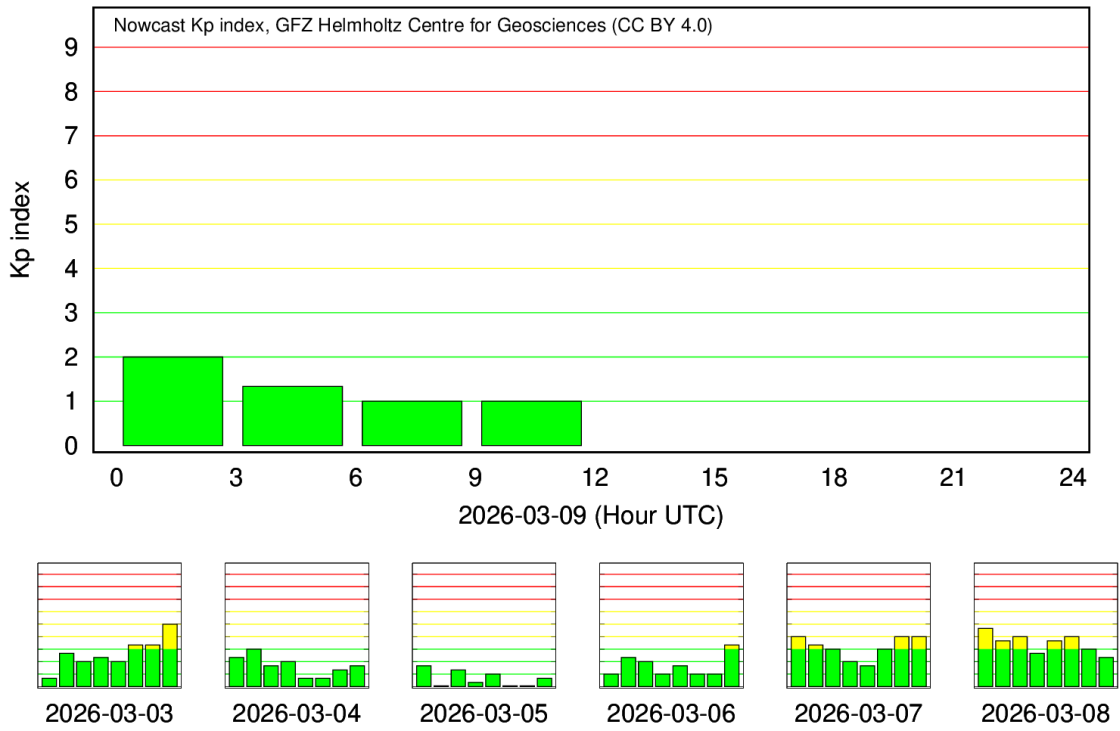


Figure 3 – Kp index on a logarithmic scale.

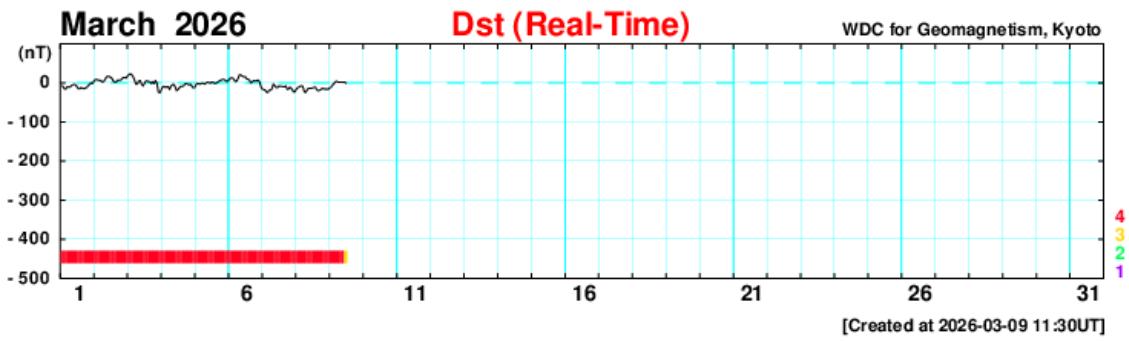
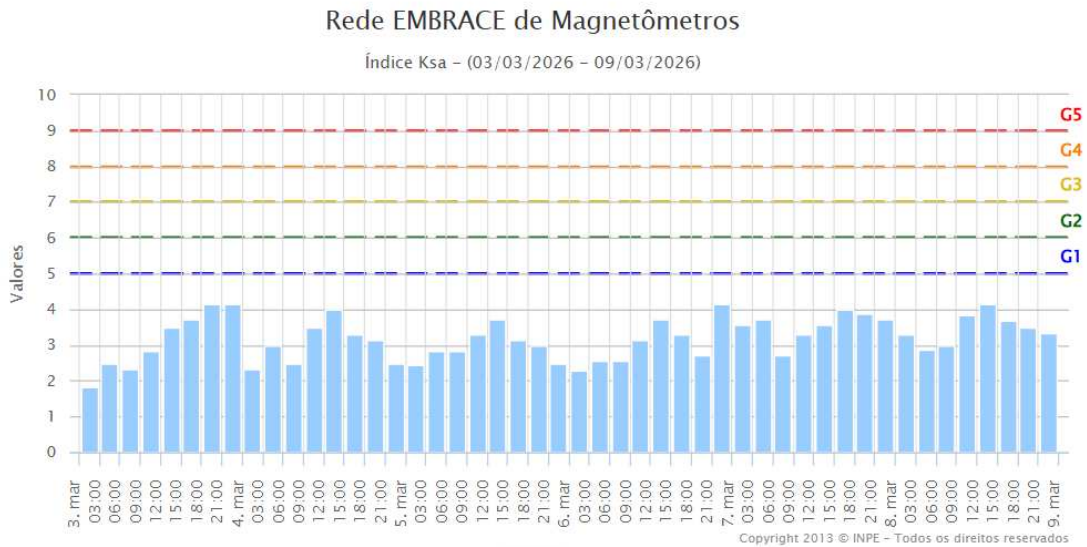


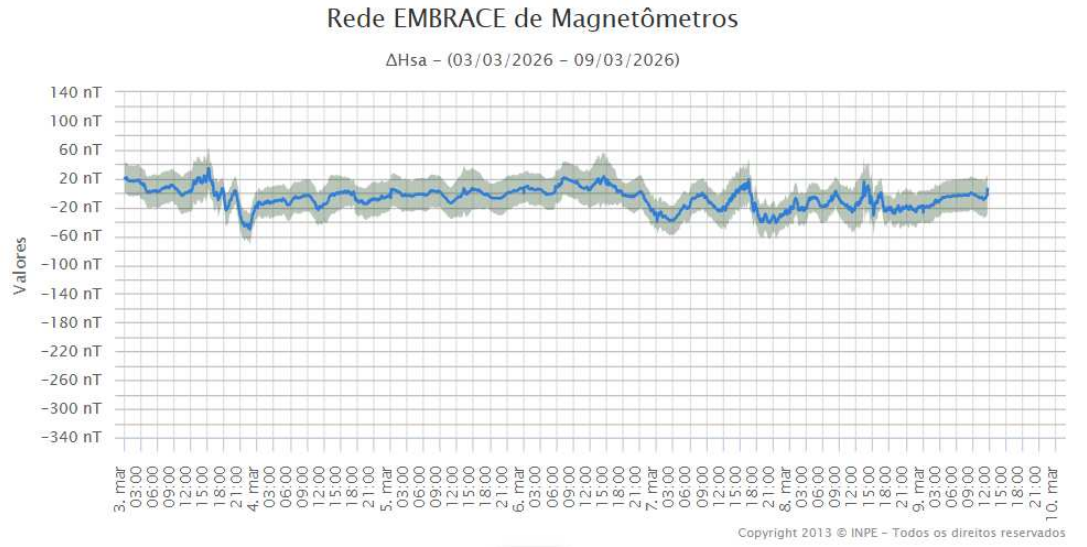
Figure 4 – Dst index.



[Ajuda](#)

Por favor, não esqueça de agradecer em sua publicação ao EMBRACE/INPE pelos dados aqui obtidos.

*Figure 5 – Geomagnetic index in South America – K<sub>sa</sub> Index.*



[Ajuda](#)

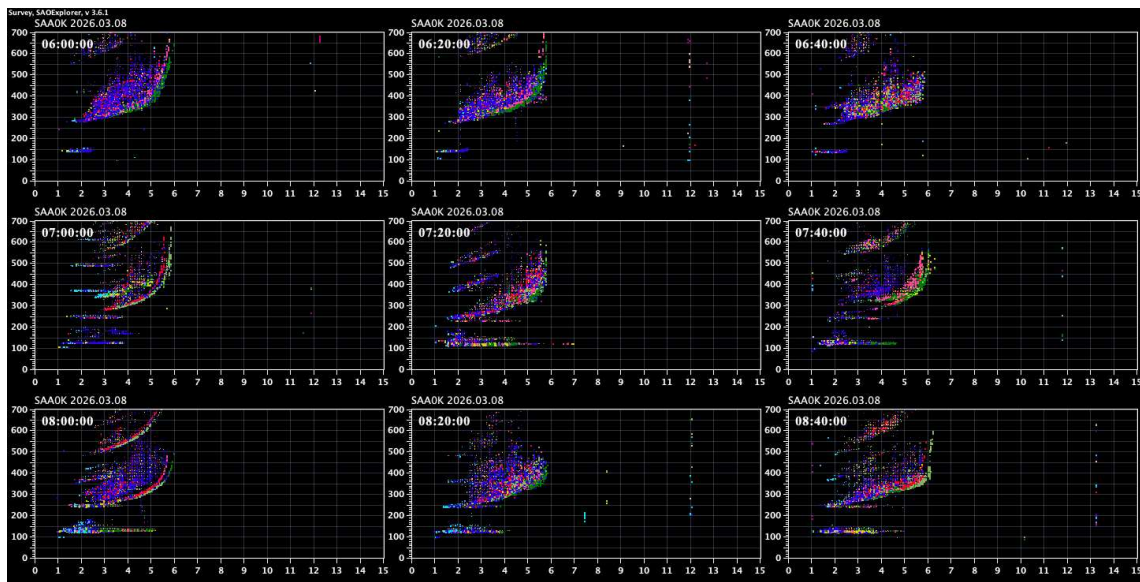
Por favor, não esqueça de agradecer em sua publicação ao EMBRACE/INPE pelos dados aqui obtidos.

*Figure 6 – Geomagnetic index in South America –  $\Delta H$  index at magnetic stations of the EMBRACE Program.*

## Ionosfera – Digisonde (Laysa Resende)

### Summary

During the analyzed week, spread F was recorded at several Brazilian stations situated close to the magnetic equator and within the equatorial region, notably at Boa Vista and São Luís. On the other hand, spread F was not observed at Cachoeira Paulista during the first part of the week, between March 02 and March 04. Sporadic E (Es) layers were generally weak across all stations, with the highest intensity reaching scale 4 on March 03 at São Luís (Figure 1). Meanwhile, the observed variations in the Maximum Usable Frequency (MUF) did not exceed the threshold commonly used to characterize moderate ionospheric conditions, suggesting that the ionospheric response, although detectable, was not particularly severe.



**Figure 1** – Sequence of ionograms over São Luís, showing the strongest Es layer in this week (scale 4).