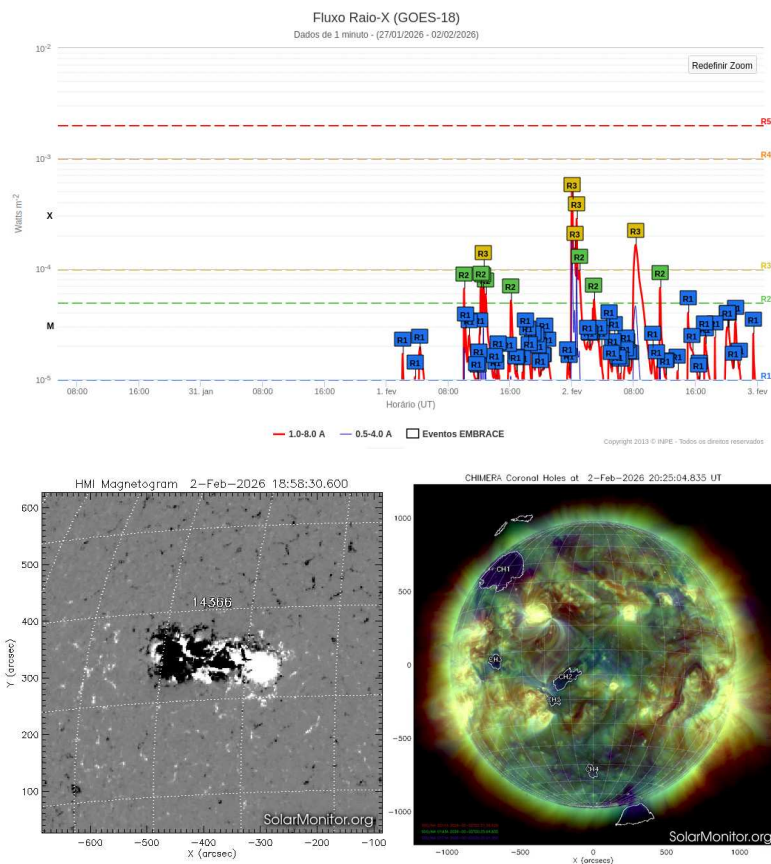


## Sun – Solar Activity (Jean C. Santos)

### Summary

The Sun spent the week relatively calm, with the presence of several active regions of low (alpha) and medium (beta) magnetic complexity. However, on February 2nd, the active region NOAA 14366 evolved to a high magnetic complexity (beta-gamma-delta), being responsible for several M and X class solar flares. During this period, several CMEs also occurred, but none of the halo type (angular width greater than 180 degrees). No coronal holes with a significant area (>2.0% of the solar disk area) were identified during this period.



**Figure 1** – X-ray flux measured by the GOES satellite (top panel) for the period from January 27 to February 2, magnetic field in the line of sight (bottom left panel) associated with NOAA active region 14366 and image at 193 angstroms (bottom right panel) measured on February 2, 2026.

## Sol – Atividade Solar (Jean C. Santos)



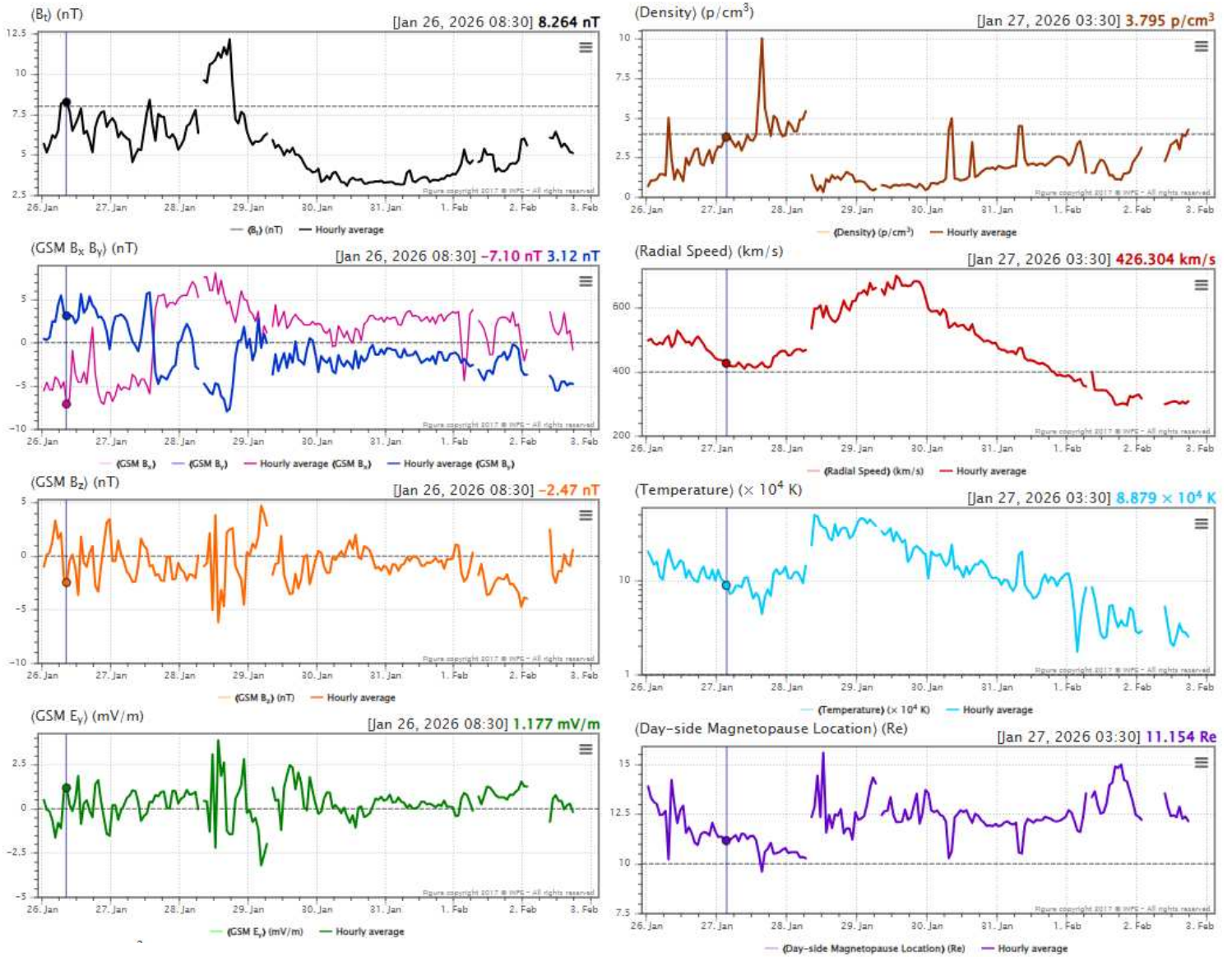
**Interplanetary Medium – IM – Daniele da S. F. Medeiros and Paulo R. Jauer**  
**Period: January 26th to February 2nd.**

**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 a CME 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 January 28th at 17:30 UT at +12.16 nT due to CME.
- The BxBy components presented variations in the analyzed period, keeping both oscillating within the interval [-7.96, +8.07] nT. Showing three rotations of the By component.
- The Bz component presents negative values for most of the week with a maximum negative -6.18 nT at 13:30 UT on January 28th. It presented positive value of +4.70 nT on January 29th at 04:30 UT.
- The solar wind density maximum peaked on January 27th at 15:30 UT, reaching 10.04 protons/cm<sup>3</sup>.
- The solar wind speed fluctuated between 300 to 700 km/s, with a increase on January 28th starting at 17:30 UT due to CME.
- The magnetopause position remained relaxed almost throughout the analyzed period, reaching maximum compression (9.60 RE) at 15:30 UT on January 27th.
- The measured interplanetary Kp index reached a peak next to 5 (Kp > 5) on January 29th, corresponding to a G1-level geomagnetic storm (minor geomagnetic storm), while the modeled interplanetary Kp index exhibited values above 4 (Kp > 4) characterizing an unstable or turbulent period.

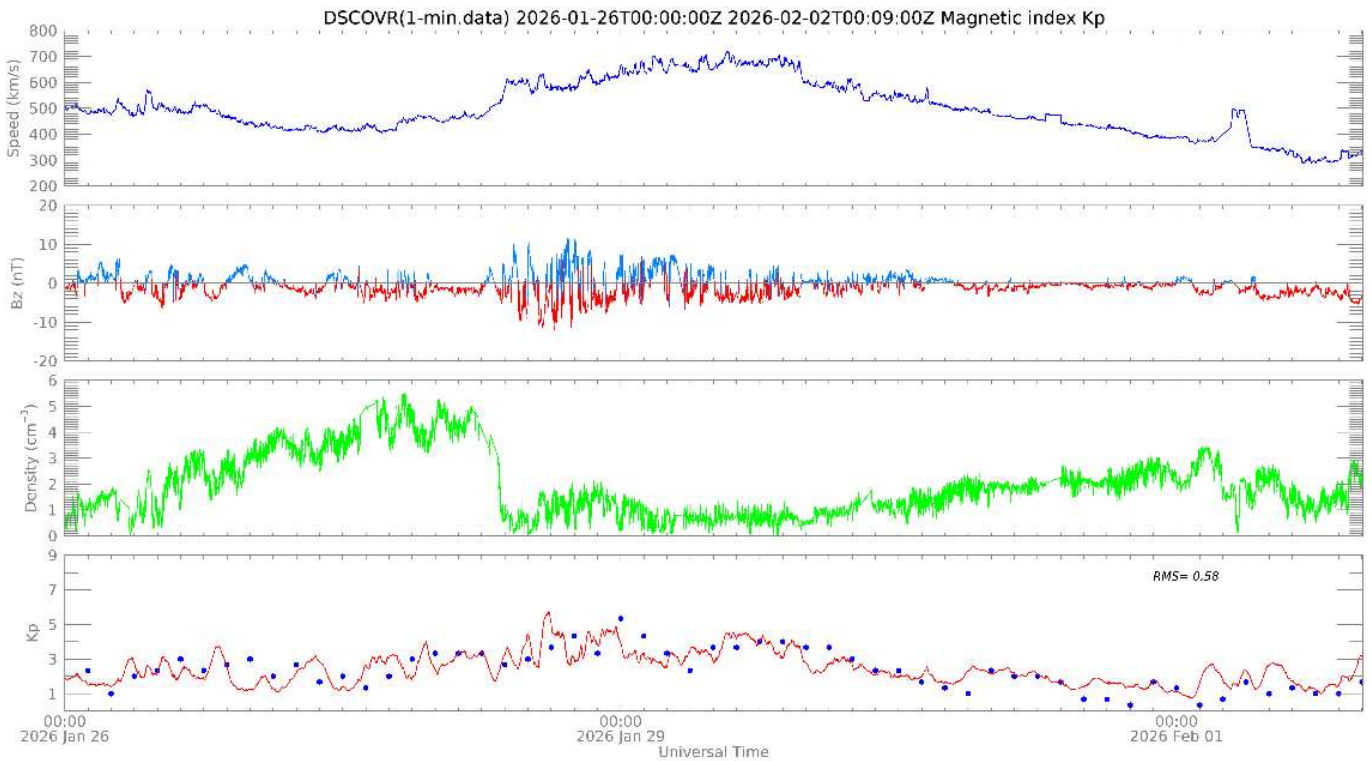
Figure 1 illustrates a set of parameters observed in the solar wind by the DSCVR satellite. The measured solar wind parameters can be identified in the following order starting in column 1: Interplanetary magnetic field modulus (IMF), the Bx and By components, Bz component, convection electric field 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 Bt, Bx, By, Bz, 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

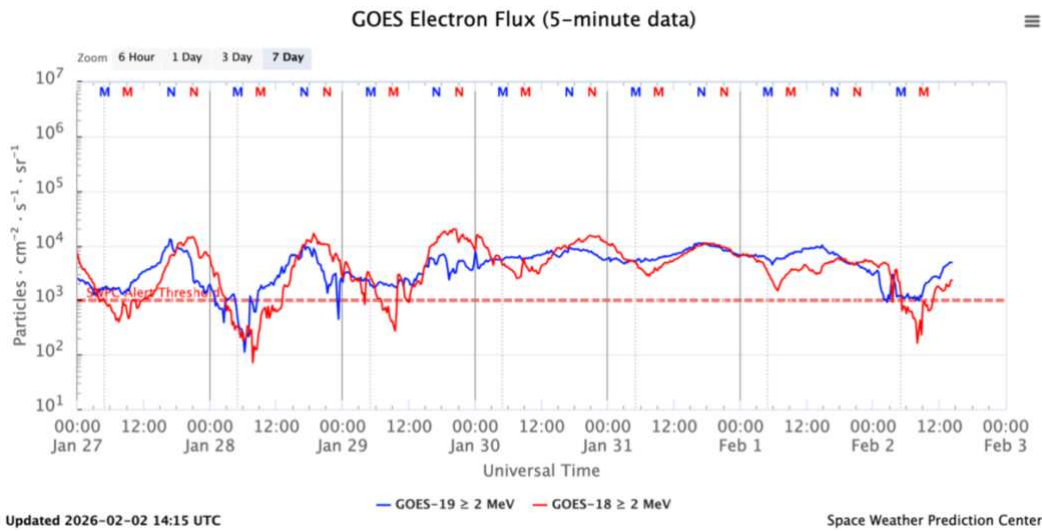


Figure 1: High-energy electron flux (> 2MeV) obtained from GOES-18 and GOES-19 satellite. Source: <https://www.swpc.noaa.gov/products/goes-electron-flux>

### Summary

The high-energy electron flux (>2 MeV) in the outer boundary of the outer radiation belt obtained from the GOES-18 and GOES-19 geostationary satellites (Figure 1) is above the alert threshold ( $10^3$  particles/(cm<sup>2</sup> s sr)) for almost the entire analyzed period. Two significant dropouts were observed on January 28th and February 2nd, respectively, associated with the arrival of solar wind structures.

## Geomagnetic field

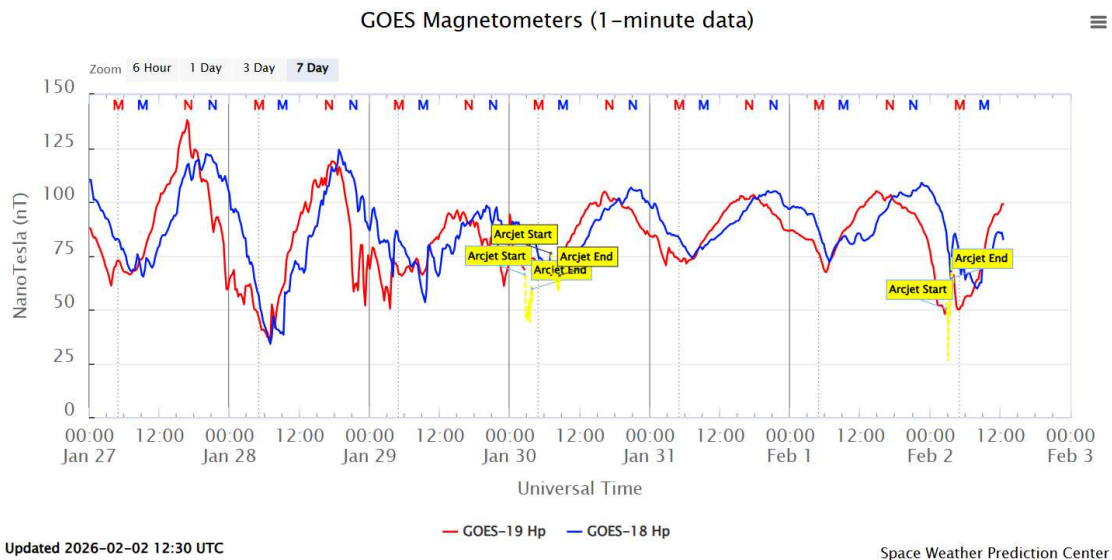
**Responsible: Karen Sarmiento /Lívia Alves/Sony Su Chen**

### Summary

*Between January 27 and 29, geomagnetic activity showed periods of instability, reaching the G1 alert level. This peak occurred when the Ksa index reached a value of 5o during multiple intervals, particularly between 12h-18h UT and 21h-24h UT on January 28, as well as from 09h to 21h UT on January 29. The Kp index reached the G1 storm level only between 21h and 24h UT on January 28, when it attained a value of 5+.*

*These instabilities were also observed in the auroral region, when the AE index exceeded 1000 nT. During this period, the Dst index reached a minimum value of -36 nT. Subsequently, geomagnetic activity again reached the G1 level on January 30, between 12h and 15h UT, once more associated with the Ksa index reaching a value of 5o. After this episode, the geomagnetic field recovered and returned to stable conditions.*

*Between January 31 and February 2, geomagnetic activity remained predominantly quiet. During this interval, the Kp index ranged from 0+ to 3-, the Ksa index oscillated between 2+ and 4o, the AE index remained below 500 nT, and the Dst index recovered to values between -14 and 3 nT.*



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

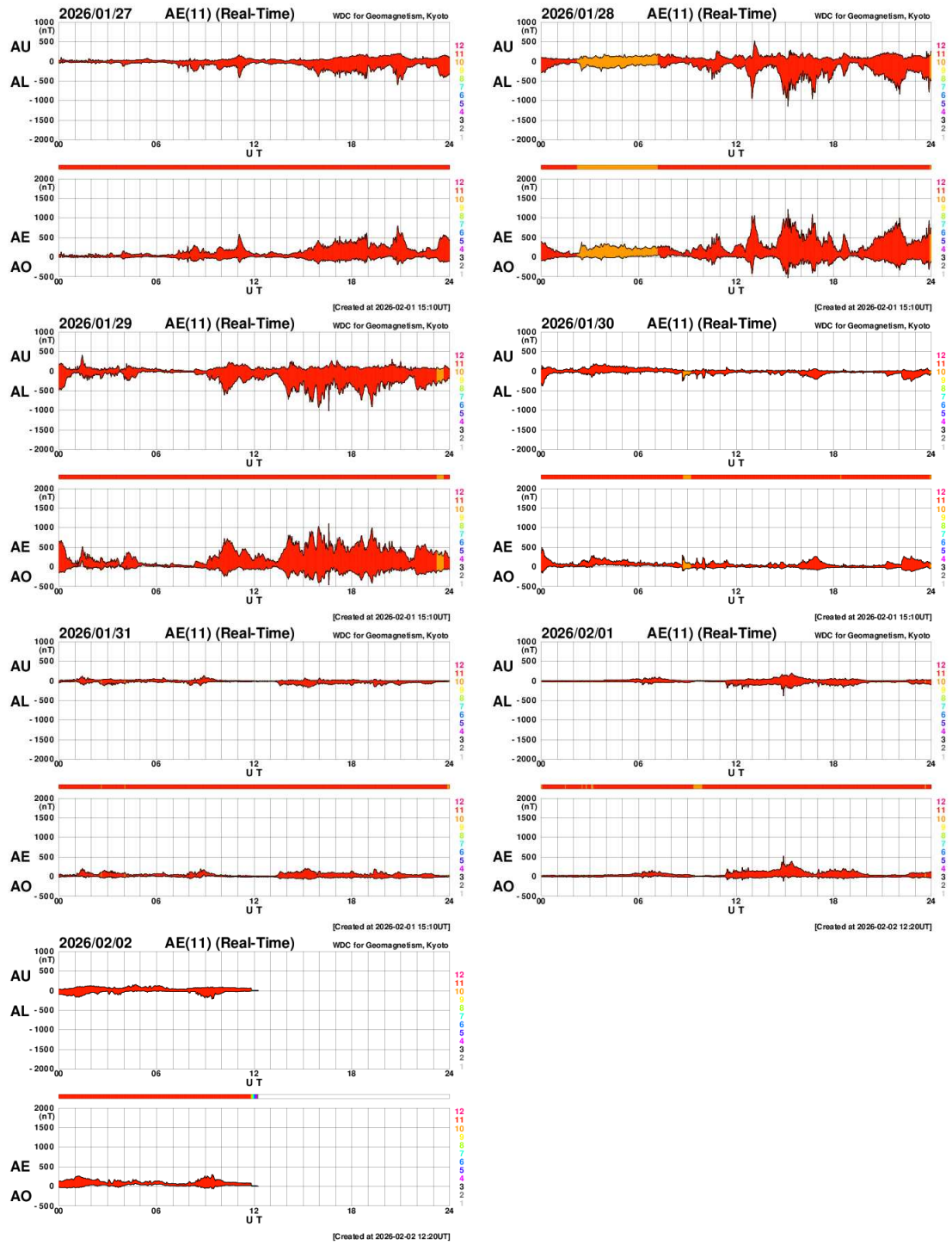


Figure 2 – AE index for the days of the week.

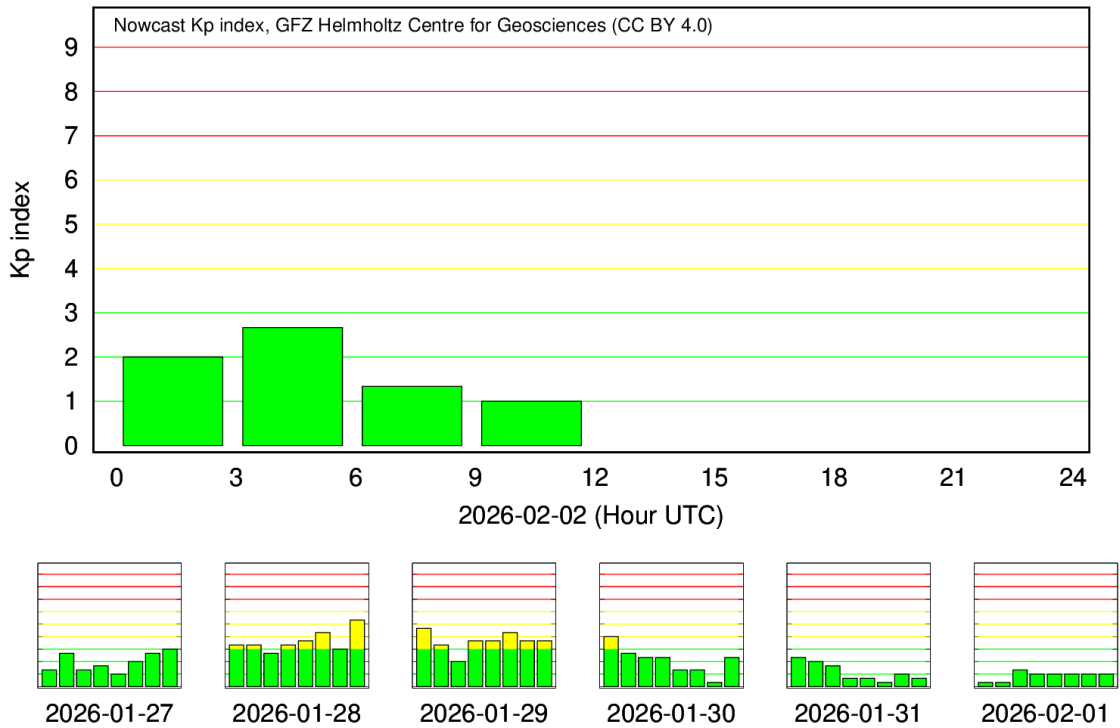


Figure 3 – Kp index on a logarithmic scale.

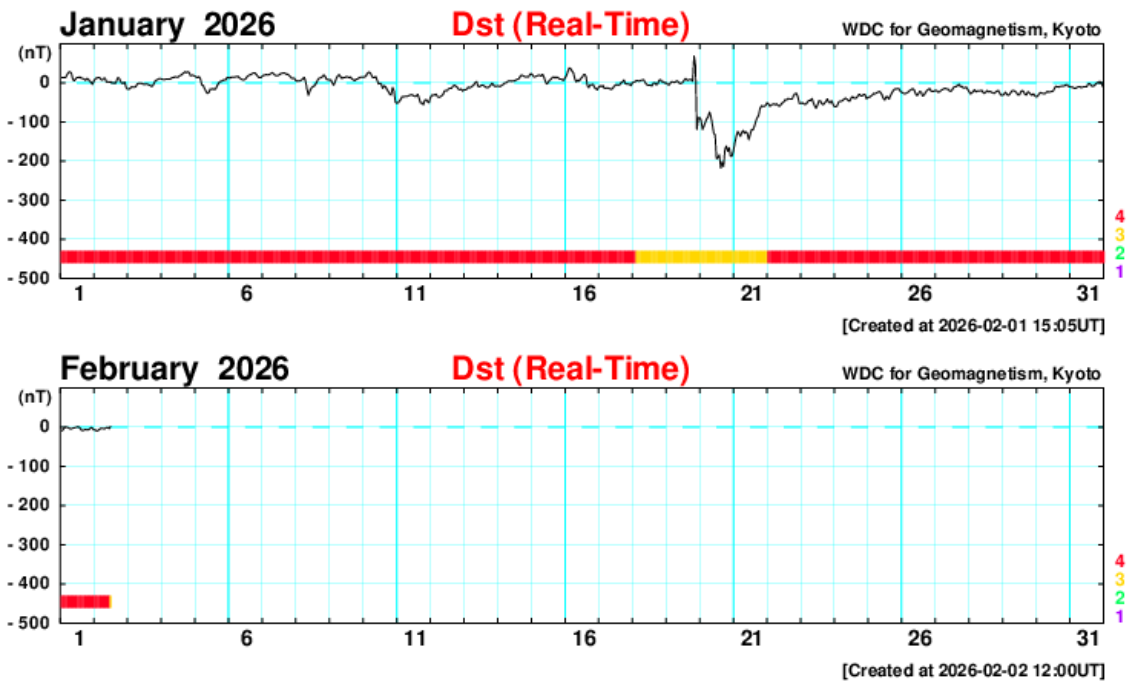
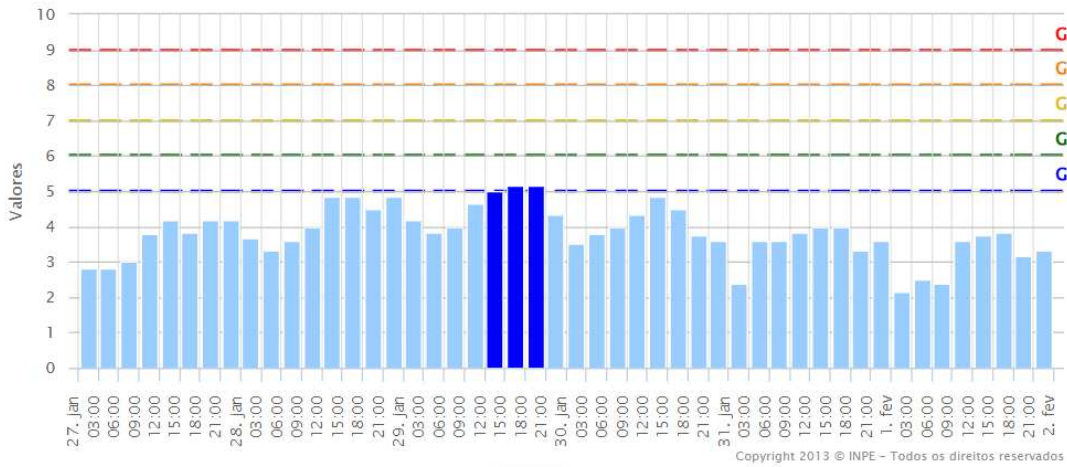


Figure 4 – Dst index.

### Rede EMBRACE de Magnetômetros

Índice Ksa - (27/01/2026 - 02/02/2026)



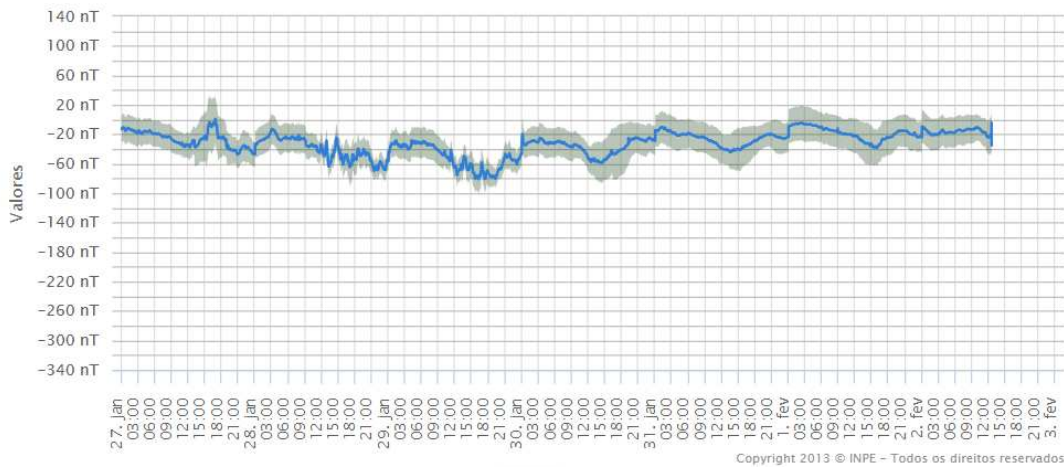
[Ajuda](#)

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

*Figure 5 – Geomagnetic index in South America – Ksa Index.*

### Rede EMBRACE de Magnetômetros

$\Delta H_{sa}$  - (27/01/2026 - 02/02/2026)



[Ajuda](#)

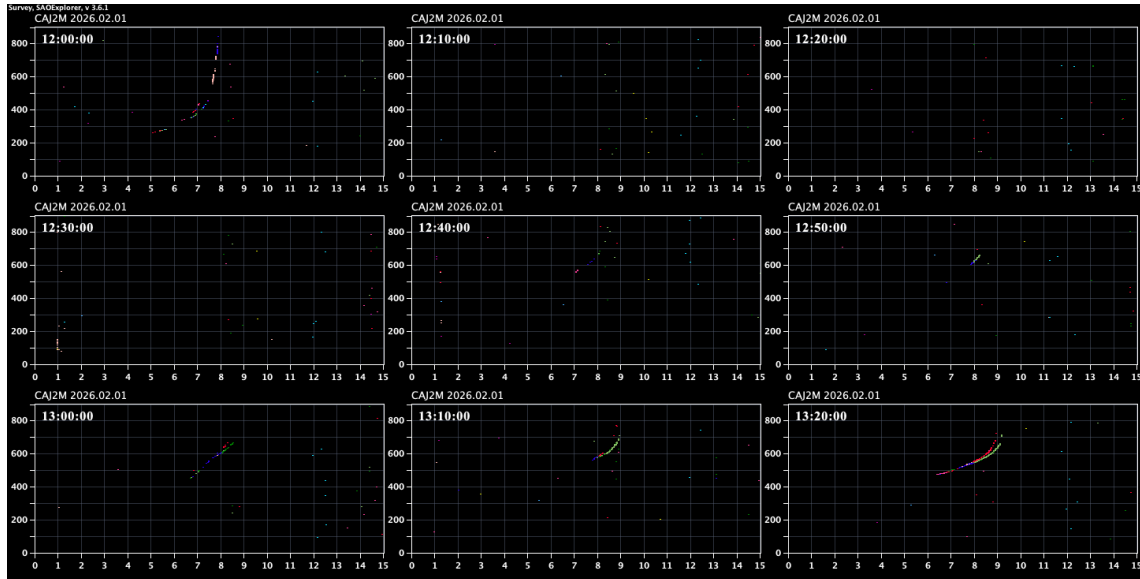
Por favor, não esqueça de agradecer em sua publicação ao EMBRACE/INPE pelos dados aqui obtidos.

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

## Ionosfera – Digisonde (Laysa Resende)

### Summary

During this week, spread-F was not detected at Brazilian stations on January 29, 2026. Sporadic E (Es) layers were very strong at all Brazilian stations, reaching scale 5 over São Luís. Partial radio blackouts were observed in Boa Vista and São Luís, and a total blackout occurred over Cachoeira Paulista on February 2 (Figure 1). The MUF variation did not reach the threshold for a moderate index.



**Figure 1** – Ionogram over Cachoeira Paulista, showing the total blackout at 1220-1230 UT.

# Summary: Ionosphere Retrospective (Scintillation S4) February 26-02, 2026

In this report on the S4 scintillation index, data from SLMA in São Luiz/MA, STMN in Manaus/AM, STCB in Cuiabá/MT and SJCE in São José dos Campos/SP are presented. The S4 index tracks the presence of irregularities in the ionosphere having a spatial scale  $\sim 400$  m.

The recorded S4 index scintillation values above 0.8 throughout the week (very strong scintillation) at all stations except on January 30th (Figure 1). This behavior is expected for the month of January, considering the known seasonality of the bubble period in the South American hemisphere.

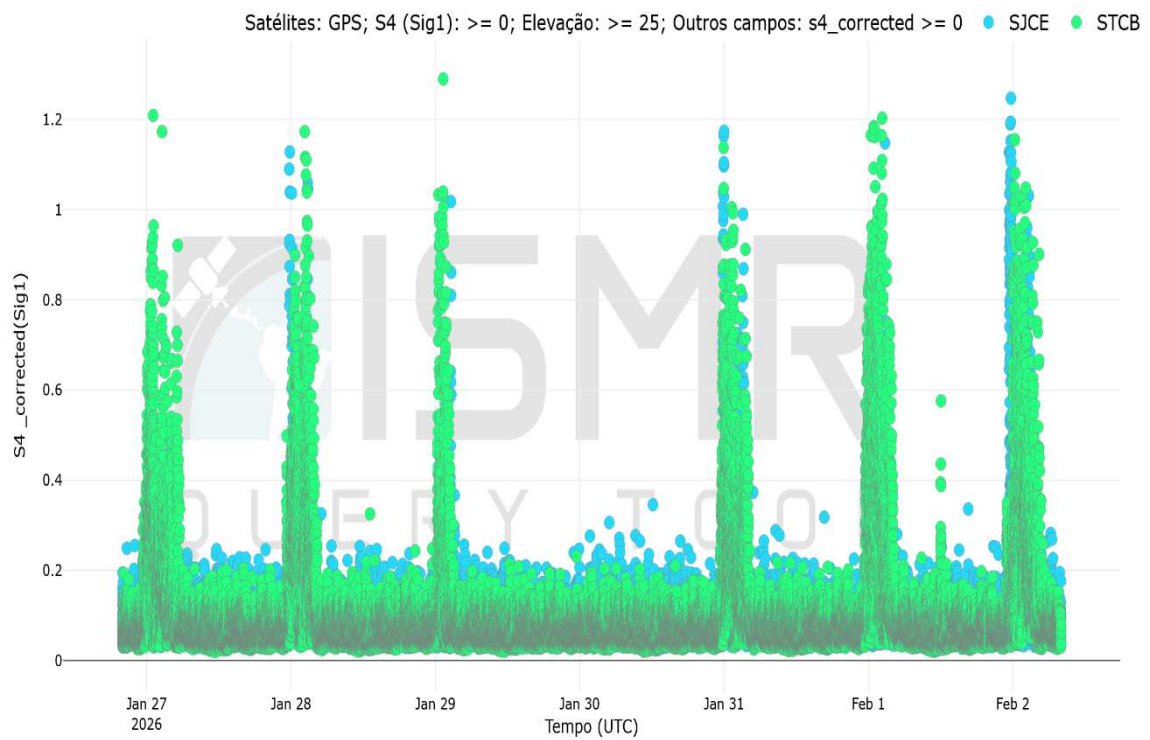
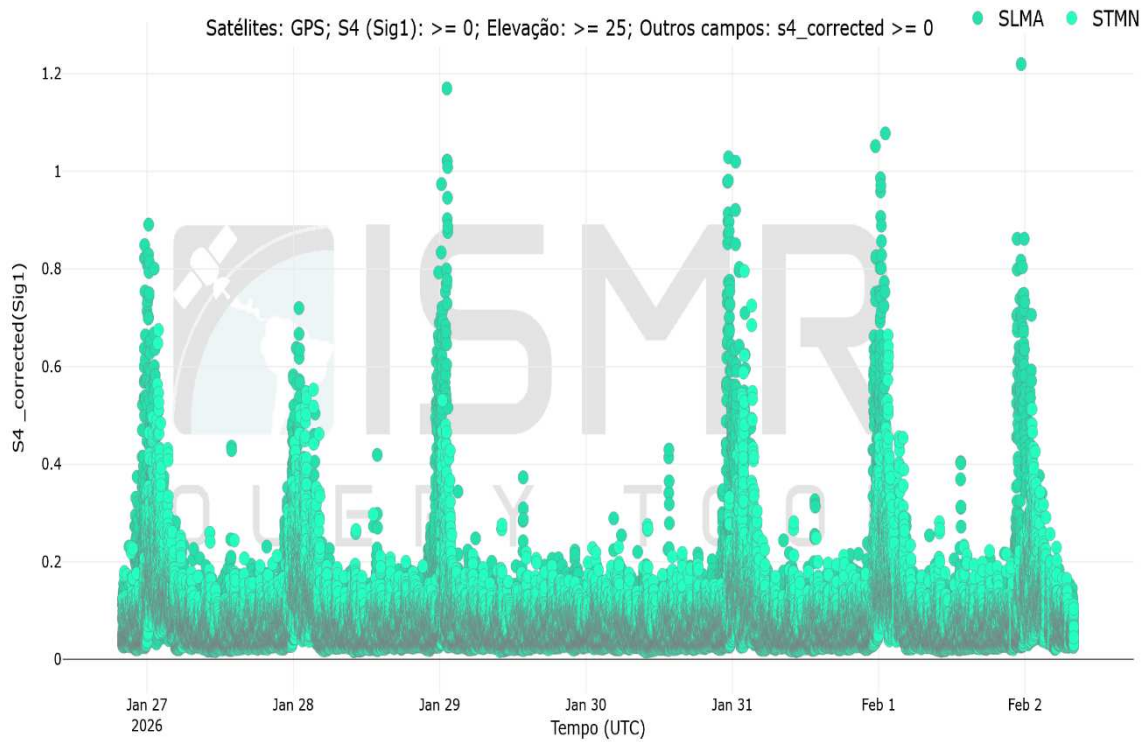


Figure 1: S4 index values for the GPS constellation measured at SLMA (dark green) and STMN (light green) in the upper panel. Stations STCB (light green) and SJCE (blue) appears in the lower panel. The data corresponds to 02/26—02.