



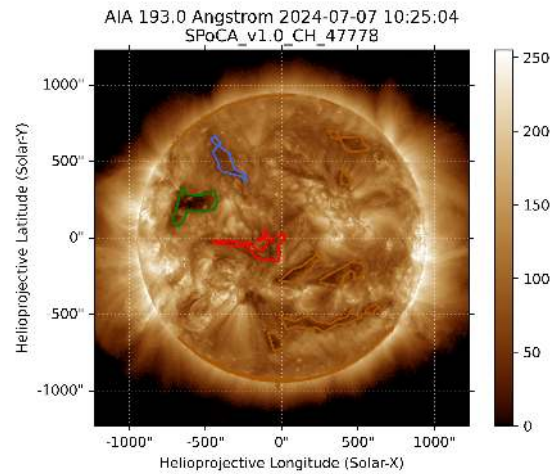
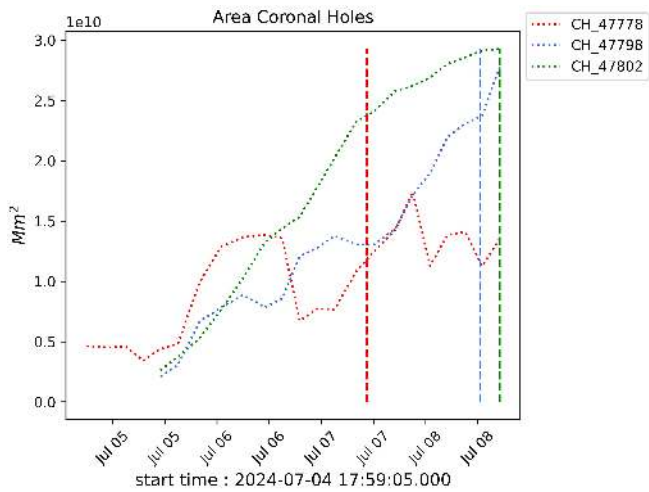
## Solar - WSA-ENLIL

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

WSA-ENLIL(CME 2024-07-09 06:24:00 UT )

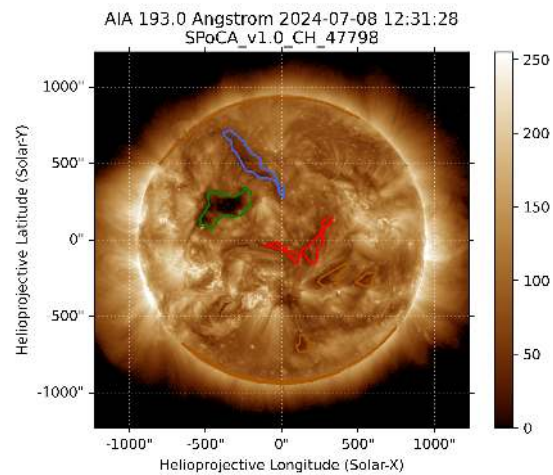
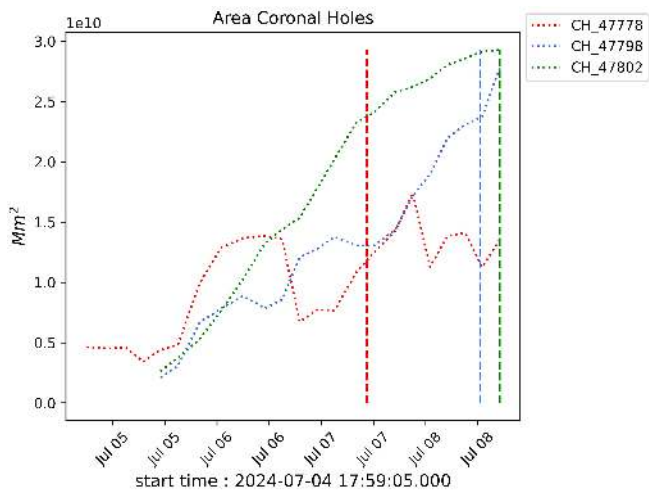
The simulation results indicate that the flank of CME will reach the DSCOVR mission between 2024-07-13 05:00:00 UT and 2024-07-13 19:00:00 UT.

## 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 July 02 and 08, 2024.

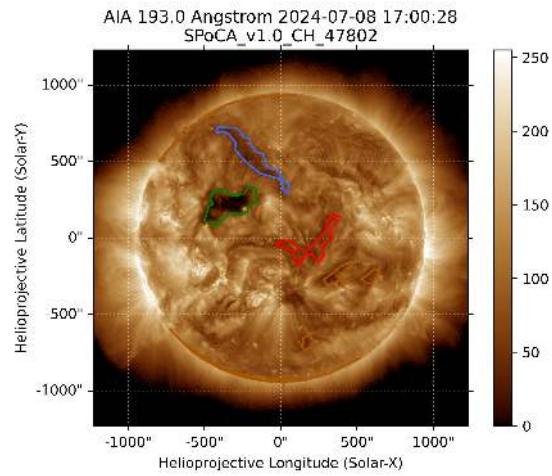
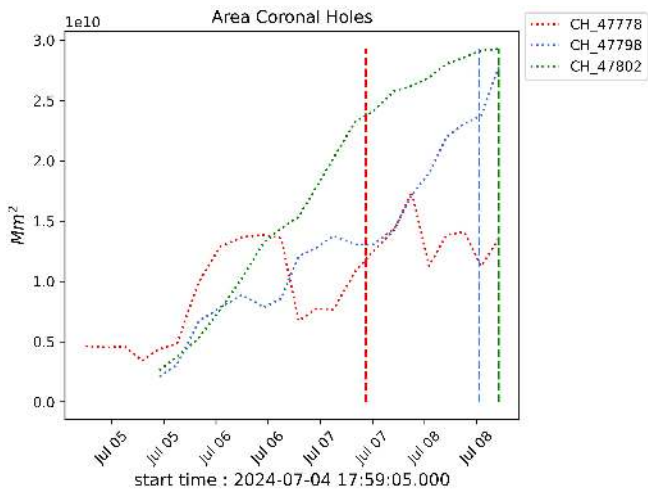
(b) Above the 193 Å image of the Sun are highlighted coronal holes observed by SPOCA around 10:25 UT on July 07, 2024 (red dot line).



(a) The solid black line depicts the products of the sum of areas for each detection interval performed by SPOCA between July 02 and 08, 2024.

(b) Above the 193 Å image of the Sun are highlighted coronal holes observed by SPOCA around 12:31 UT on July 08, 2024 (blue dot line).

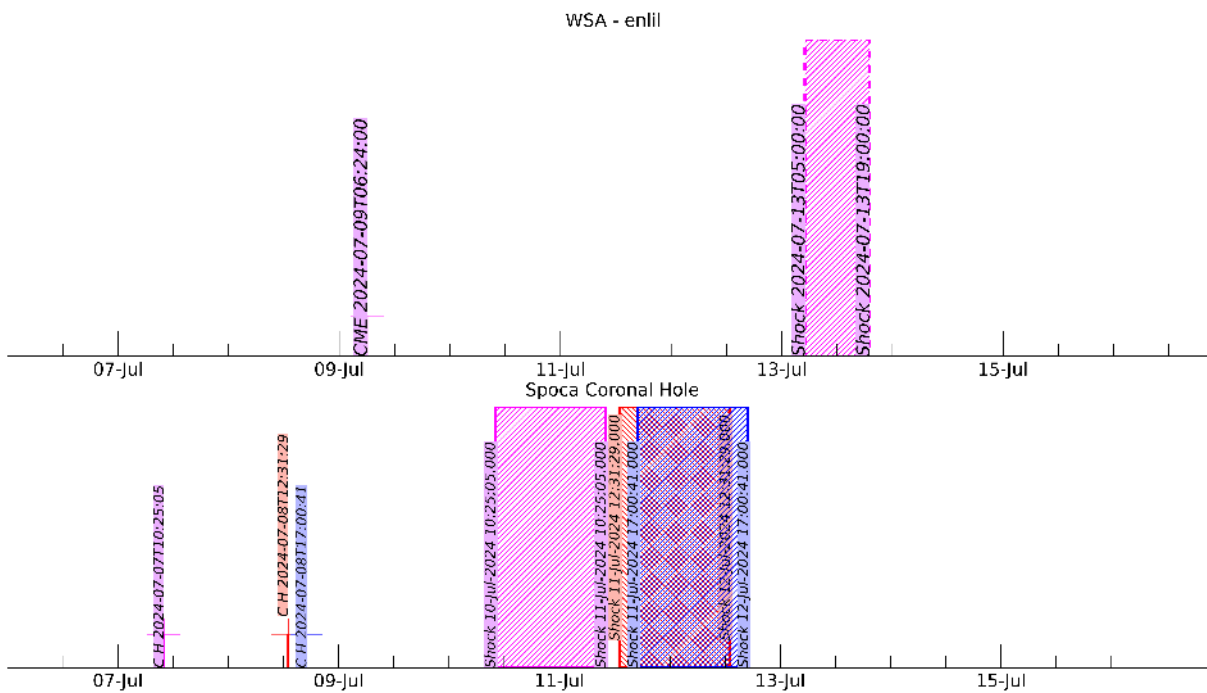
# Solar - Coronal holes Spatial Possibilistic Clustering Algorithm (SPoCAS):



(a) The solid black line depicts the products of the sum of areas for each detection interval performed by SPOCA between July 02 and 08, 2024.

(b) Above the 193 Å image of the Sun are highlighted coronal holes observed by SPOCA around 17:00 UT on July 08, 2024 (green dot line).

# Solar - WSA - ENLIL and SPoCA



## EARTH'S RADIATION BELT

Responsible: Ligia Da Silva

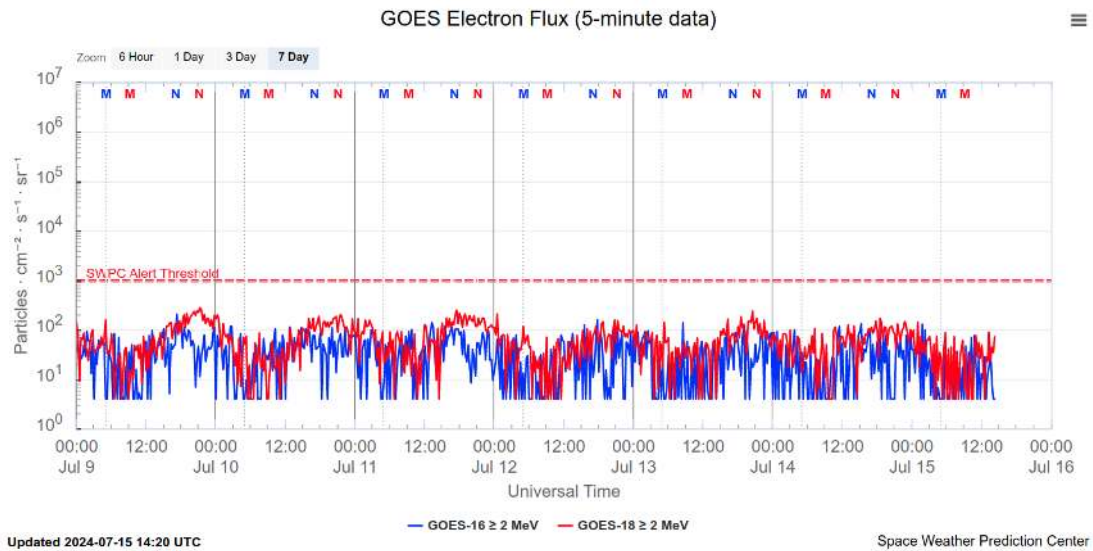


Figure 1: High-energy electron flux (> 2MeV) obtained from GOES-16 and GOES-18 satellite. Source: <https://www.swpc.noaa.gov/products/goes-electron-flux>

### 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 close to  $10^2$  particles/(cm<sup>2</sup> s sr) until the beginning of July 12<sup>th</sup>, after that, the electron flux is confined below  $10^2$  particles/(cm<sup>2</sup> s sr).

## Geomagnetic Field

**Responsible: Karen Sarmiento/ Lívia Alves**

### Summary

During the week of 07/09 to 07/15, data from the GOES satellites showed a predominance of diurnal variation in the magnetic field, with a stronger field on the dayside and a weaker field on the nightside in geosynchronous orbit. Auroral activity in both hemispheres was weak, with the AE index remaining below 500 nT during the observed period. There were small, non-prolonged oscillations indicating a slight increase in activity in the magnetotail region at specific times: between 0-2 UT, 5-6 UT, and 16-17 UT on 07/11, and between 1-2 UT and 7-10 UT on 07/12. The global Kp index reflected calm magnetic field conditions (G0) throughout the analyzed period. The Dst index varied between insignificant negative and positive values throughout the week, oscillating between -7 nT (on 07/10 at 16 UT) and 19 nT (on 07/11 at 14 UT). Data provided by the Embrace-Magnet program did not reveal significant variations in the magnetic field, with diurnal variation predominating at the Porto Velho (PVE) and Santarém (STM) stations, located in the region influenced by the Equatorial Electrojet.

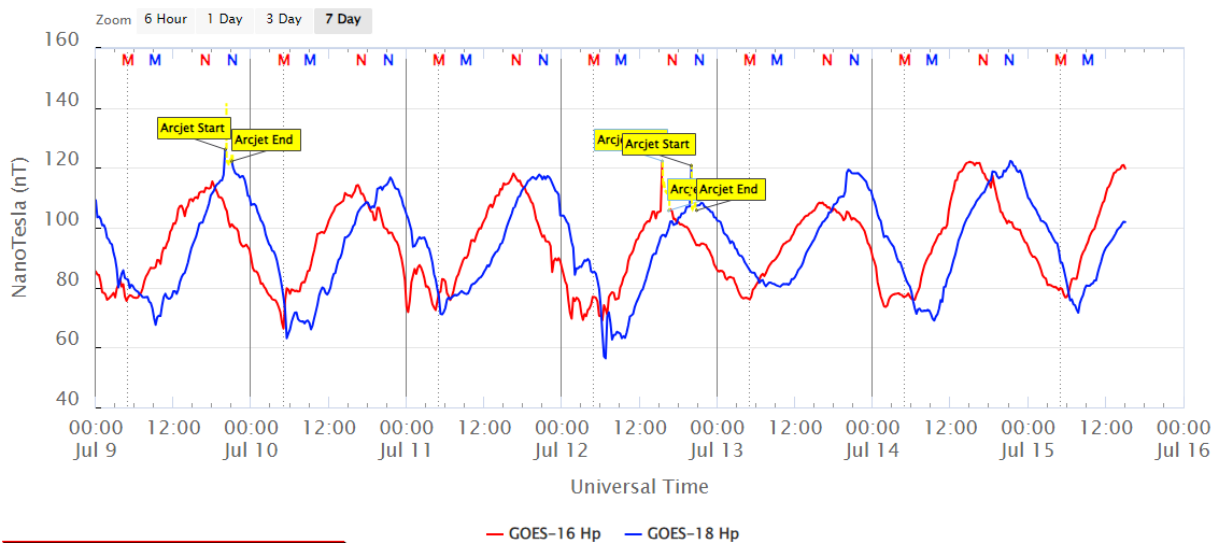


Figure 1- Magnetic field horizontal component at the GOES satellite orbit through.

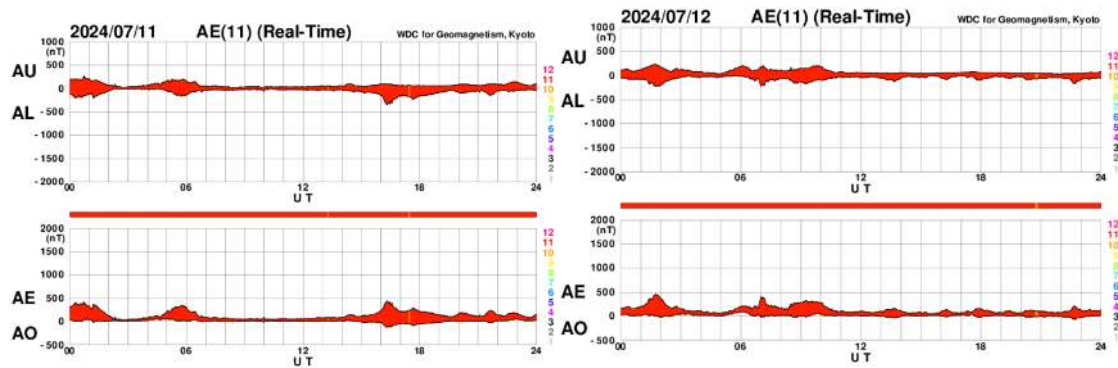


Figura 2- Índice AE para os dias da semana com maior atividade auroral.

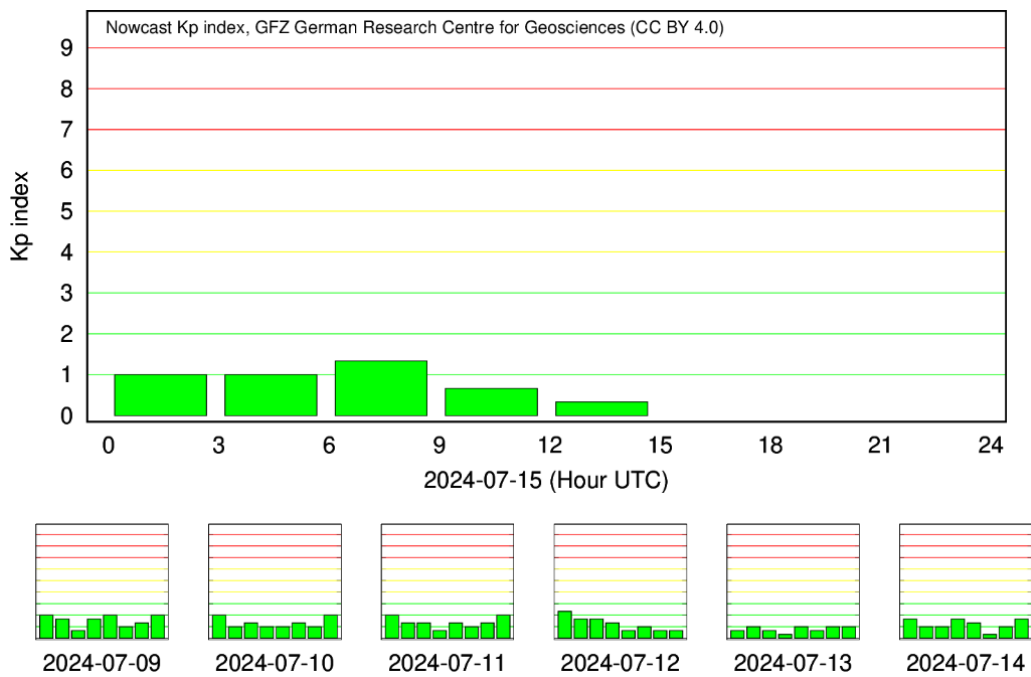


Figure 3- Kp index in logarithmic scale.

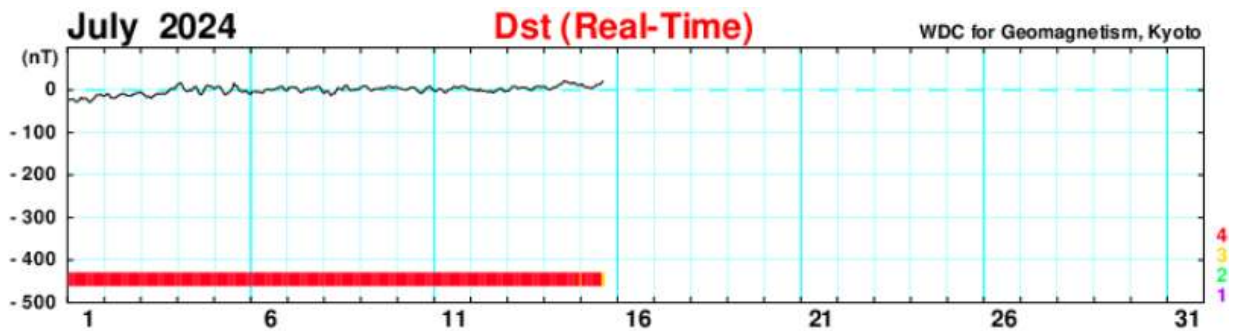


Figure 4- Dst Index

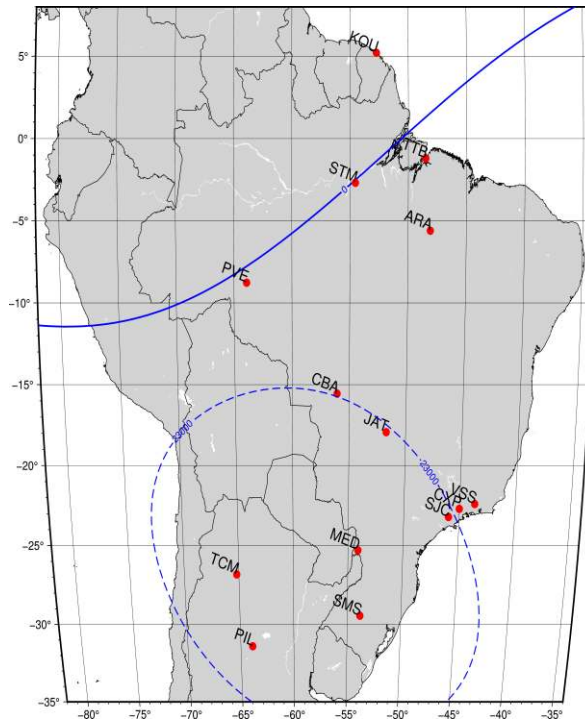
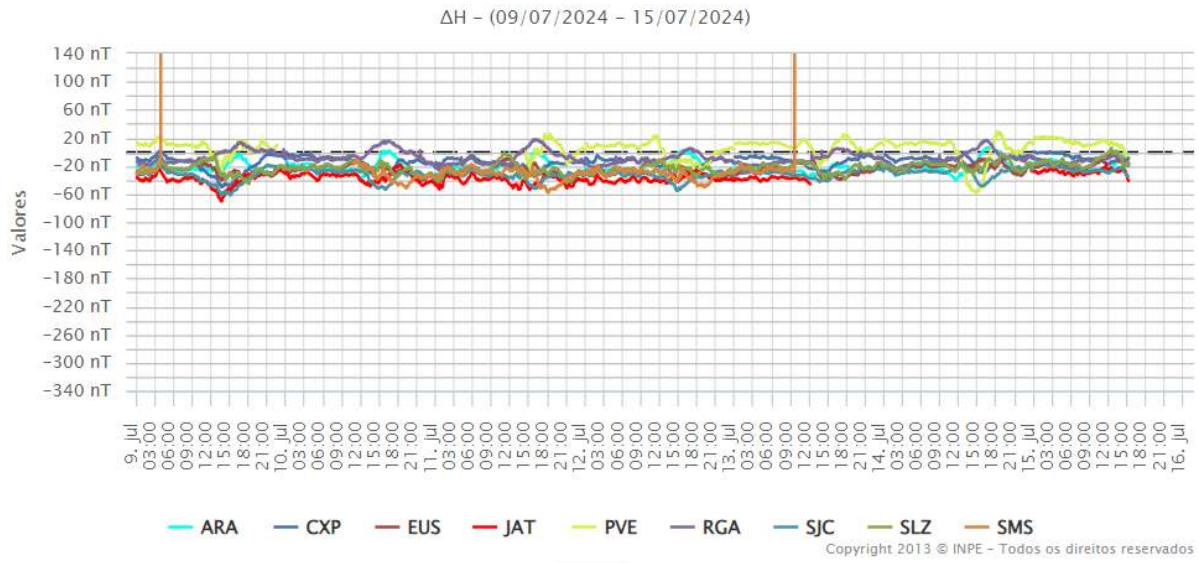


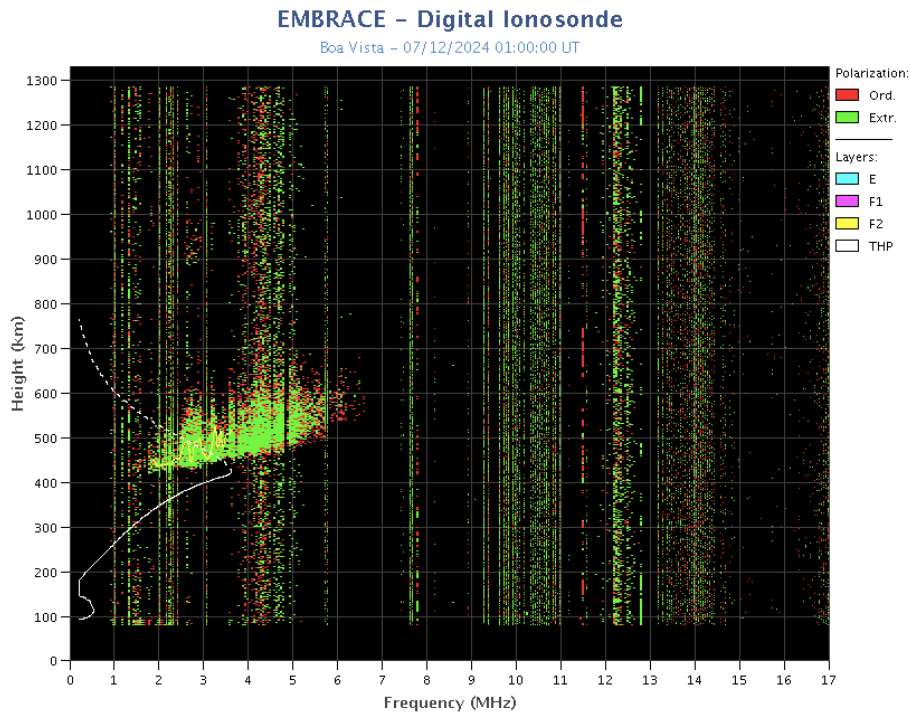
Figure 5- Daily variation of the geomagnetic field from  $H(nT)$  measured at Embrace MagNet.



## Ionosphere – Digisonde (Laysa Resende)

### Summary

We observed spread F in Boa Vista during this week (Figure 1). Over Cachoeira Paulista, the F region trace was typical. The Es layers were weak, reaching the scale 3.



**Figure 1** – Ionogram over Boa Vista, showing the spread F.

# Summary: Ionosphere Retrospective (Scintillation S4) July 08-15, 2024

In this report on the S4 scintillation index, data from SLMA in São Luiz/MA, UFBA in Salvador/BA, 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 S4 index registered scintillation values lower than 0.3 during the whole week in all stations (Figure 1). The behavior is expected for the month of July, taking into account the well-known seasonality of the bubble period in the South American hemisphere.

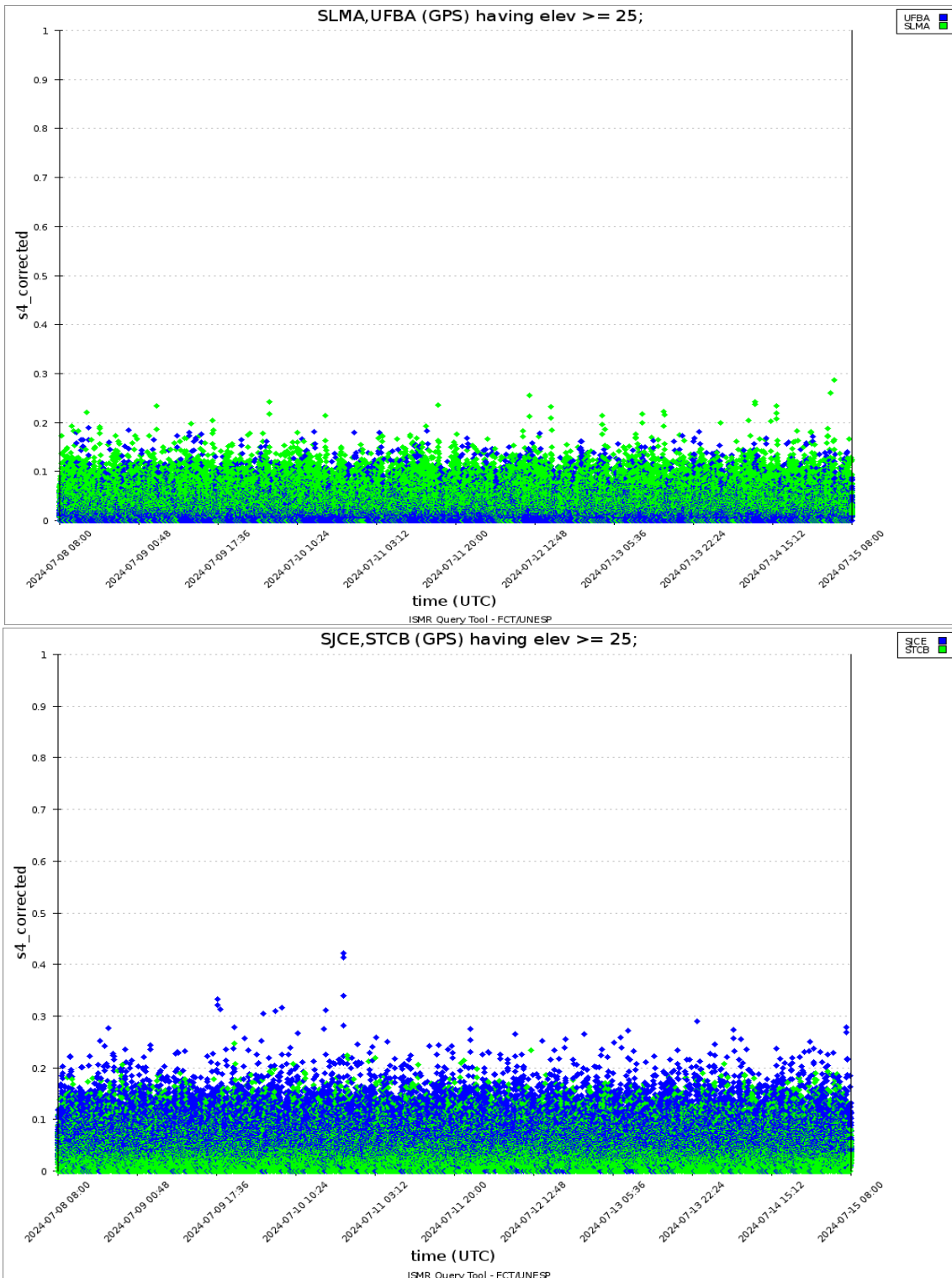
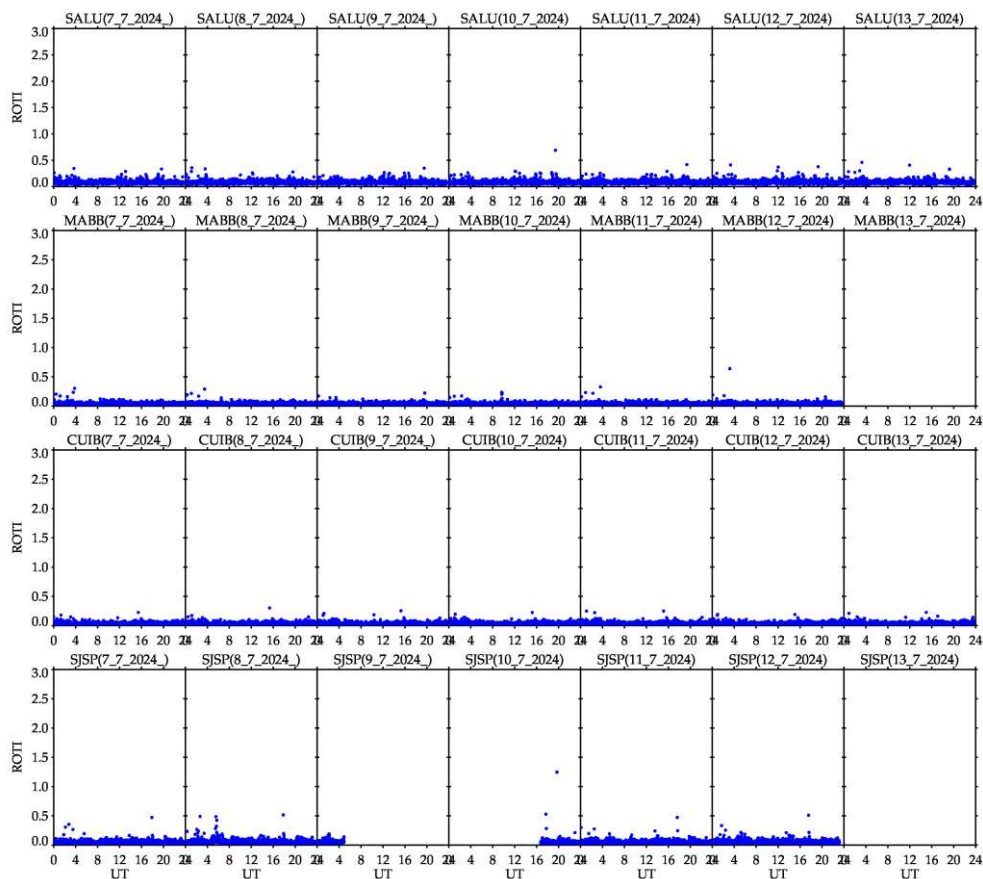


Figure 1: S4 index values for the GPS constellation measured at SLMA (green) and UFBA (blue) in the upper panel. Stations STCB (green) and SJCE (blue) appears in the lower panel. The data corresponds to 07/08—15.

## Ionosphere - ROTI Summary for Week 2322 (July 7 to 13, 2024)

Carolina de Sousa do Carmo

In the week 2322 (July 7 to 13, 2024), ionospheric irregularities (plasma bubbles) were not observed. The Figure below shows the ROTI time series for four stations in the Brazilian sector (São Luís (SALU), Bacabal (MABB), Cuiabá (CUIB) and São José dos Campos (SJSP)).



**Figure** – ROTI time series for four stations in the Brazilian sector (São Luís (SALU), Bacabal (MABB), Cuiabá (CUIB) and São José dos Campos (SJSP)), from July 7 to 13, 2024.