



## Solar - WSA-ENLIL

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

WSA-ENLIL(CME 2024-03-10 12:48:00 UT )

The simulation results indicate that the flank of CME will reach the DSCOVR mission between 2024-03-13 22:00:00 UT and 2024-03-14 12:00:00 UT.

WSA-ENLIL(CME 2024-03-10 23:36:00 UT )

The simulation results indicate that the flank of CME will reach the DSCOVR mission between 2024-03-14 03:00:00 UT and 2024-03-14 17:00:00 UT.

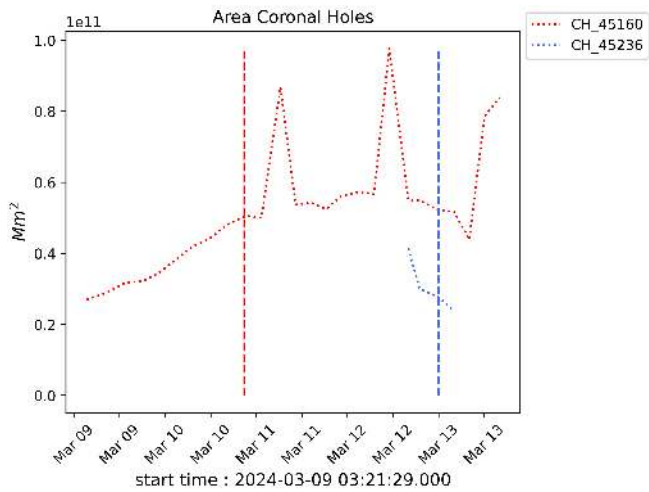
WSA-ENLIL(CME 2024-03-14 09:23:00 UT )

The simulation results indicate that the flank of CME will reach the DSCOVR mission between 2024-03-17 08:00:00 UT and 2024-03-17 22:00:00 UT.

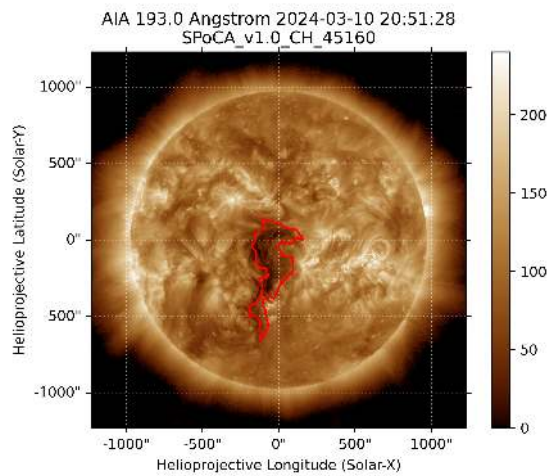
WSA-ENLIL(CME 2024-03-17 03:36:00 UT )

The simulation results indicate that the flank of CME will reach the DSCOVR mission between 2024-03-20 18:00:00 UT and 2024-03-21 08:00:00 UT.

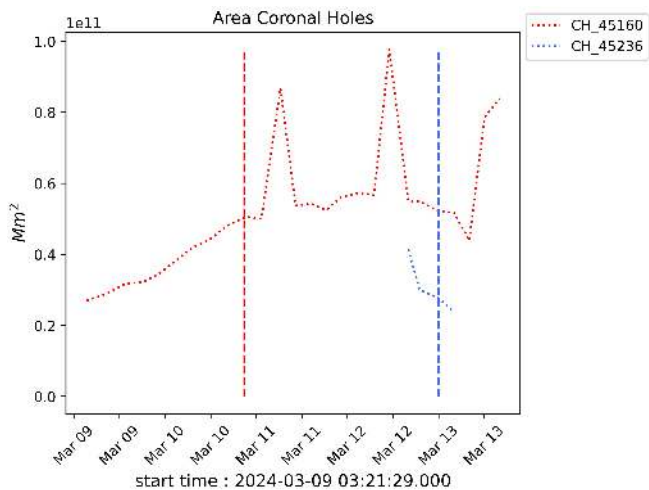
## Solar - Coronal holes Spatial Possibilistic Clustering Algorithm (SPoCAS):



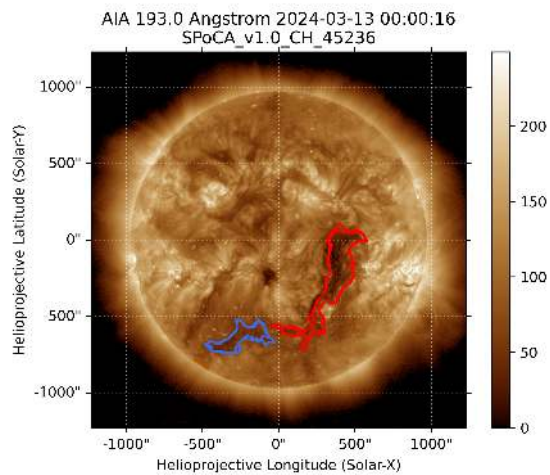
(a) The solid black line depicts the products of the sum of areas for each detection interval performed by SPOCA between March 09 and 13, 2024.



(b) Above the 193 Å image of the Sun are highlighted coronal holes observed by SPOCA around 20:51 UT on March 10, 2024 (red dot line).

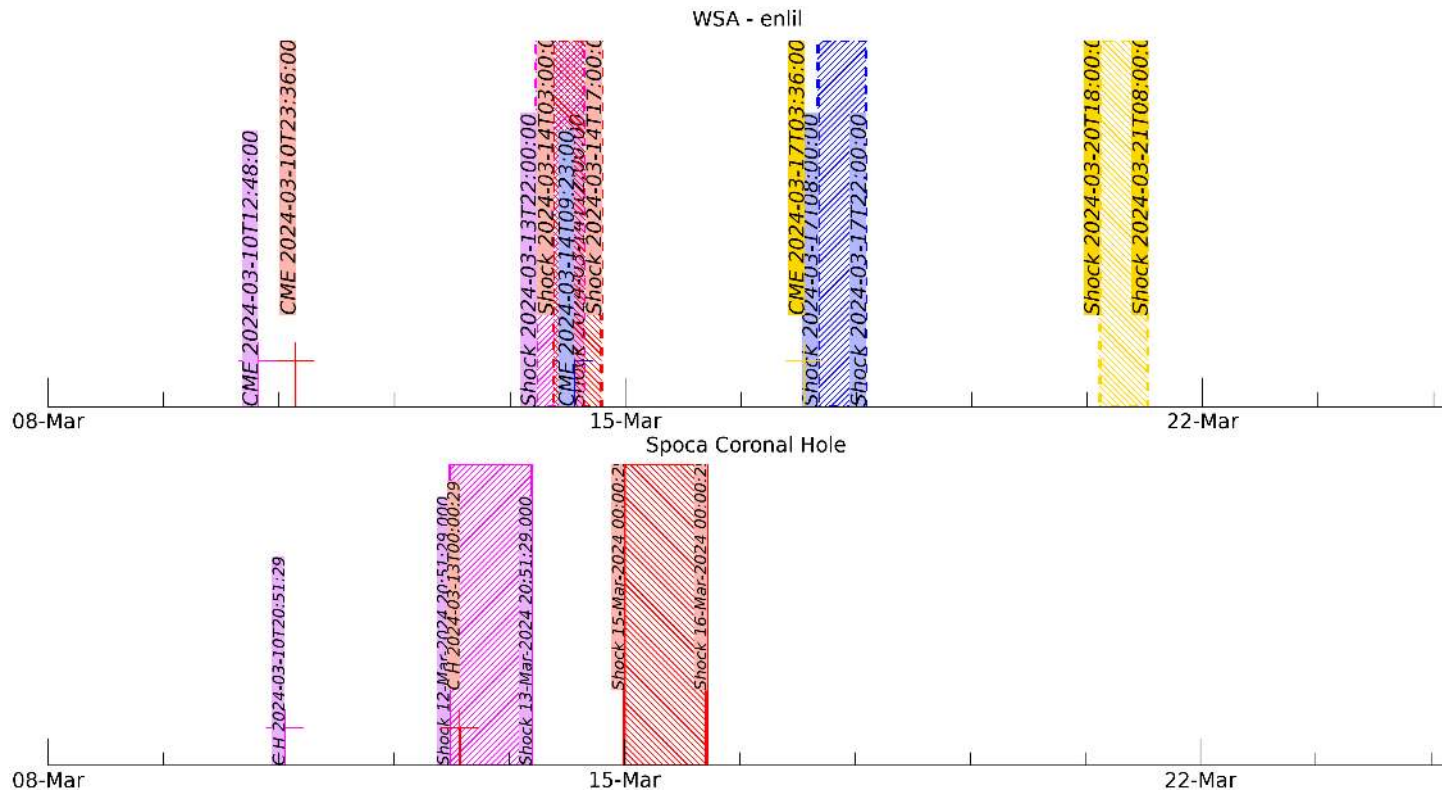


(a) The solid black line depicts the products of the sum of areas for each detection interval performed by SPOCA between March 09 and 13, 2024.



(b) Above the 193 Å image of the Sun are highlighted coronal holes observed by SPOCA around 00:00 UT on March 13, 2024 (blue dot line).

# Solar - WSA - ENLIL and SPoCA



## EARTH'S RADIATION BELT

Responsible: Ligia Da Silva

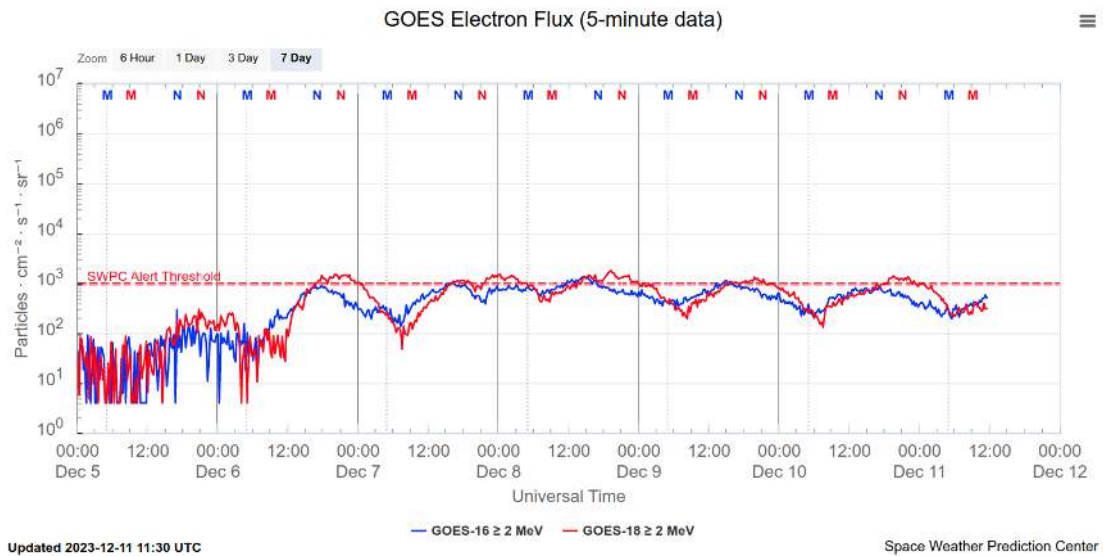


Figure 1: High-energy electron flux ( $> 2$  MeV) obtained from GOES-16 and GOES-18 satellite. Source: <https://www.swpc.noaa.gov/products/goes-electron-flux>

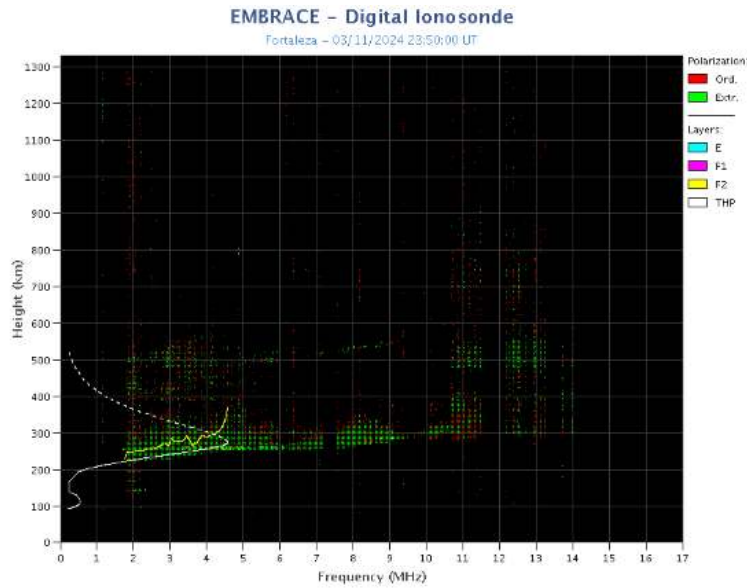
### Summary

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  $10^3$  particles/( $\text{cm}^2 \text{ s sr}$ ) at the beginning of the period analyzed, showing a slight decrease from the early hours of March 13<sup>th</sup>. This electron flux remains close to  $10^2$  particles/( $\text{cm}^2 \text{ s sr}$ ) until the end of the analyzed period

## Ionosfera – Digisonda (Laysa Resende)

### Summary

We observed the F spread F in Fortaleza in all days during this week. Cachoeira Paulista, we did not observe spread F. The Es layers reached a maximum of scale 3 in Cachoeira Paulista and Fortaleza (Figure 1).



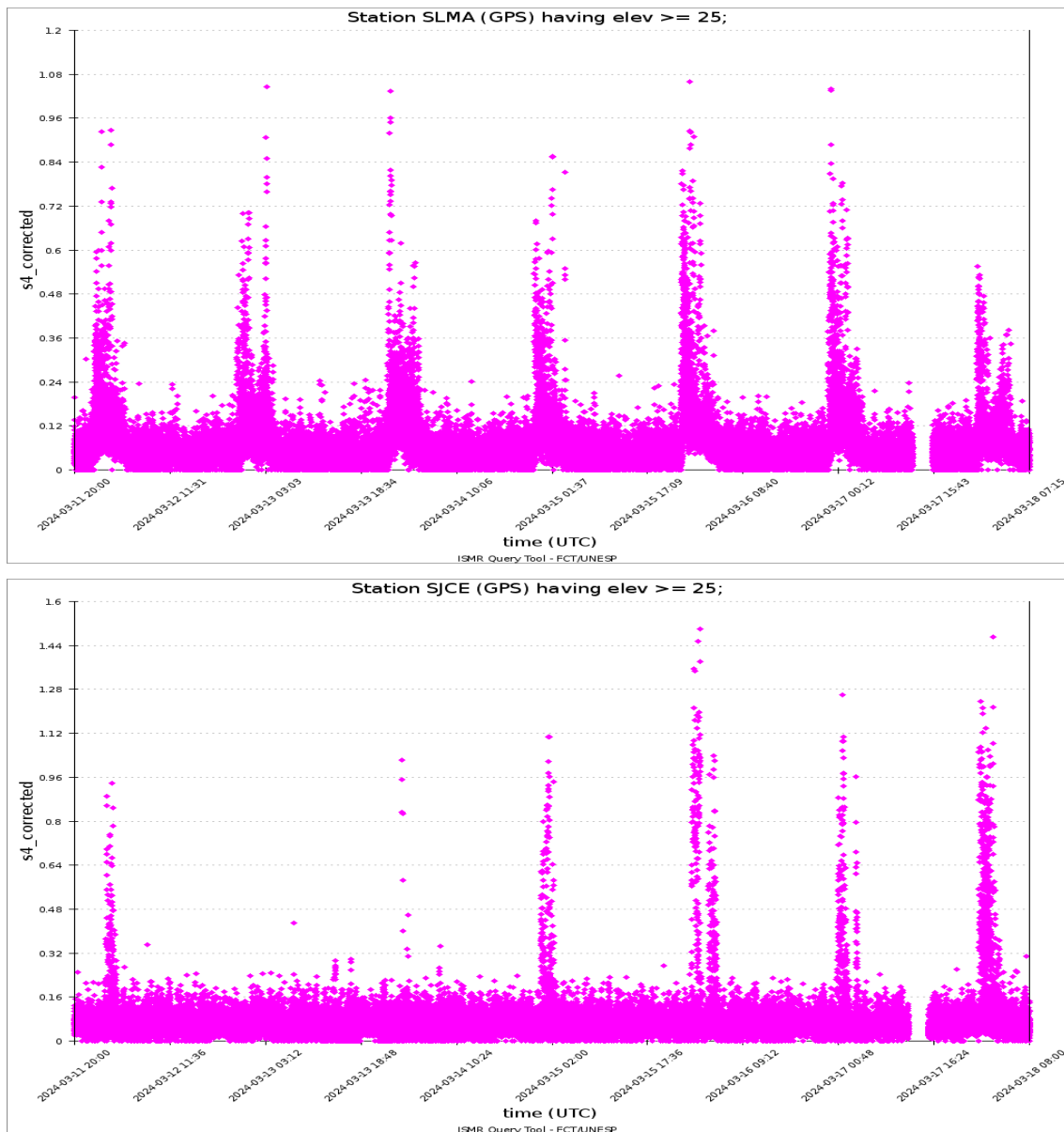
**Figure 1** – Ionogram over Fortaleza, showing the spread F.

## Ionosfera –S4 (Cintilação receptores GNSS)

### Summary

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 ~ 400 m.

Records of strong scintillation ( $> 0.8$ ) were found in SLMA, UFBA and STCB stations. In SJCE, relevant scintillations events was recorded on 03/11/ and 03/15—17 period. (Figure 1). The weekly behavior is in line with plasma bubble season.

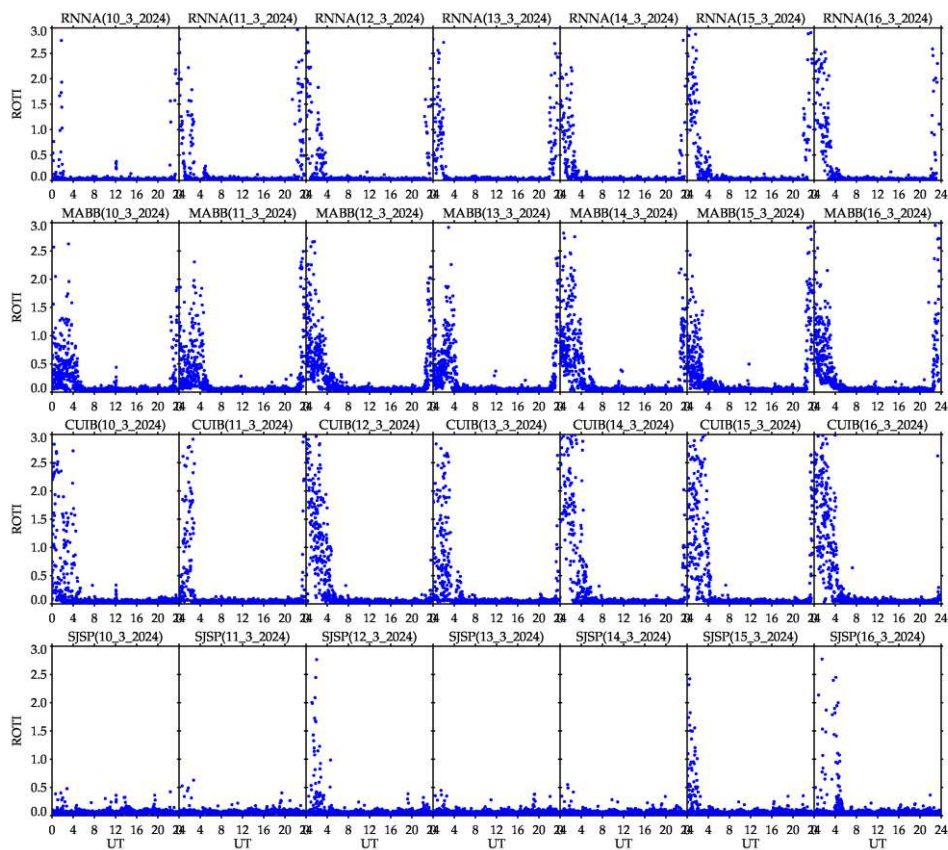


**Figure 1** – S4 index values for the GPS constellation measured at SLMA (upper panel) and SJCE (lower panel), during the week 03/11-18. A similar SLMA behavior was observed in UFBA and STCB.

## Ionosphere - ROTI Summary for Week 2305 (March 10 to 16, 2024)

Carolina de Sousa do Carmo

In the week 2305 (March 10 to 16, 2024) there were ionospheric irregularities (plasma bubbles) on all analyzed nights. 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 March 10 to 16, 2024.