



Sol – Cecatto
Período: 08-15 de abril, 2024

Summary

- 04/08 – No M/X flare; No fast wind stream; 3 CME can have component toward the Earth;**
- 04/09 – No M/X flare; Fast (≤ 500 km/s) wind stream; 7 CME can have component toward the Earth *;**
- 04/10 – No M/X flare; Fast (≤ 500 km/s) wind stream; 6 CME can have component toward the Earth *;**
- 04/11 – M5.4 flare; Fast (≤ 500 km/s) wind stream; 13 CME can have component toward the Earth;**
- 04/12 – No M/X flare; Fast (≤ 450 km/s) wind stream; 8 CME can have component toward the Earth;**
- 04/13 – M2.4 flare; Fast (≤ 450 km/s) wind stream; 4 CME can have component toward the Earth **;**
- 04/14 – M4.3 flare; No fast wind stream; 7 CME can have component toward the Earth;**
- 04/15 – M1.7, M2.3 flares; No fast wind stream; No CME recorded up to now;**

Forecast: No fast wind stream for today and next 1-2 days; for while (70% M, 20% X) probability of M / X flares next 2 days; also, occasionally some other CME can present a component toward the Earth.

Resumo

- 08/04 – Sem "flare" M/X; Sem vento rápido; 3 CMEs podem ter uma componente para a Terra;***
- 09/04 – Sem "flare" M/X; Vento rápido (≤ 500 km/s); 7 CME podem ter uma componente para a Terra *;***
- 10/04 – Sem "flare" M/X; Vento rápido (≤ 500 km/s); 6 CME podem ter uma componente para a Terra *;***
- 11/04 – "Flare" M5.4; Vento rápido (≤ 500 km/s); 13 CME podem ter uma componente para a Terra;***
- 12/04 – Sem "flare" M/X; Vento rápido (≤ 450 km/s); 8 CME podem ter uma componente para a Terra;***
- 13/04 – "Flare" M2.4; Vento rápido (≤ 450 km/s); 4 CME podem ter uma componente para a Terra **;***
- 14/04 – "Flare" M4.3; Sem vento rápido; 7 CME podem ter uma componente para a Terra;***
- 15/04 – "Flares" M1.7, M2.3; Sem vento rápido; Sem CME registrado até o presente***

Prev.: Sem vento rápido para hoje e próximo(s) 1-2 dia(s); probabilidade de "flares" M/X (70% M, 20% X) nos próximos 02 dias; eventualmente alguma(s) outra(s) CME pode(m) apresentar componente dirigida para a Terra. alguma outra CME pode apresentar componente dirigida para a Terra.

EARTH'S RADIATION BELT

Responsible: Ligia Da Silva

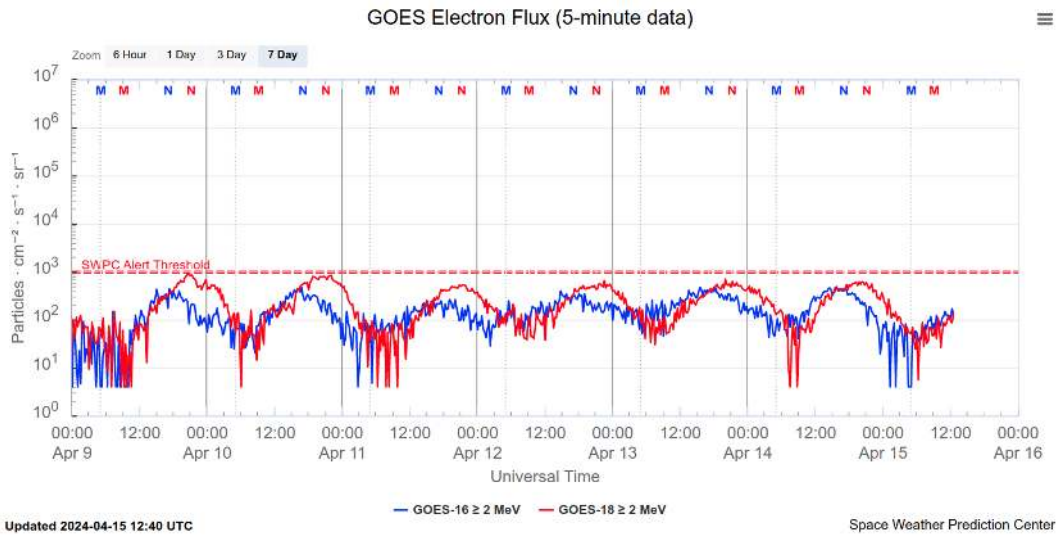


Figure 1: High-energy electron flux (> 2MeV) obtained from GOES-16 and GOES-18 satellite. Source: <https://www.swpc.noaa.gov/products/goes-electron-flux>

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 below 10^3 particles/(cm² s sr) throughout the analyzed period. The first twelve hours were confined to below 10^2 particles/(cm² s sr), presenting peaks close to 10^3 particles/(cm² s sr) at the end of April 9th and 10th.

Geomagnetic Field

Responsible: Karen Sarmiento/ Lívia Alves

Summary

During the week of 9/04 to 15/04, calm magnetic field conditions prevailed. The Dst index remained predominantly negative between 8-11/04, reaching a minimum value of -29nT on 9/04 (24 UT), and predominantly positive between 12-15/04, with a maximum value of 17nT on 14/04 (11 UT). Aurora activity in both hemispheres was weak, with the AE index staying below 500 nT for most of the period. There were brief spikes above 500 nT at specific times, between 7-8 UT, 10-12 UT, 13-14 UT on 9/04, and between 9-10, 16-17 UT on 10/04. The Kp index reached instability conditions (3+) only on 9/04 (6-9 UT), with calm magnetic field conditions prevailing. Embrace-Magnet network magnetometers detected a pronounced increase and decrease in the H component on 10/04 at the Santarém-STM station, related to the influence of the Equatorial Electrojet.

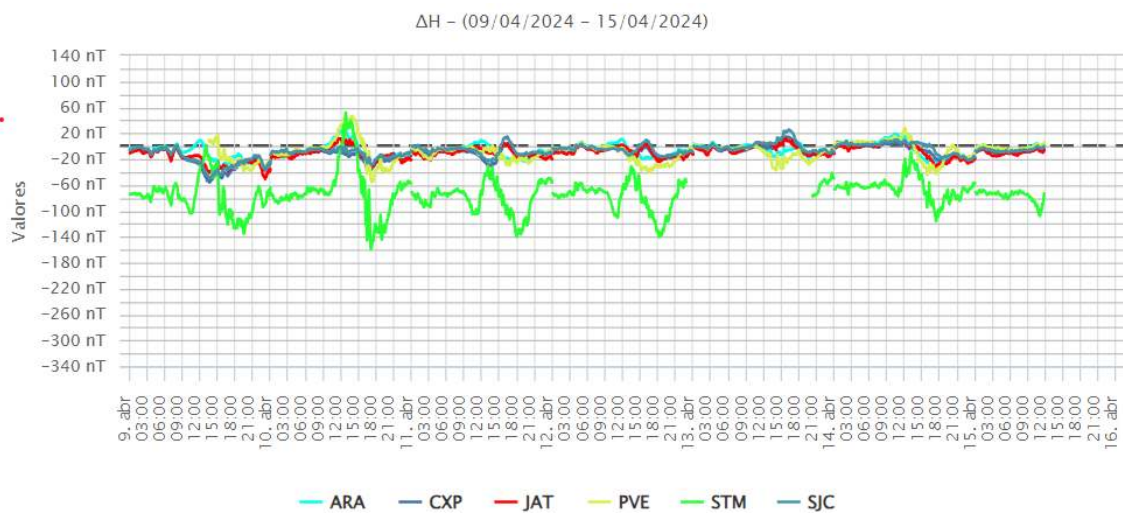


Figure 1- Daily variation of the geomagnetic field from H(nT) measured at Embrace MagNet.

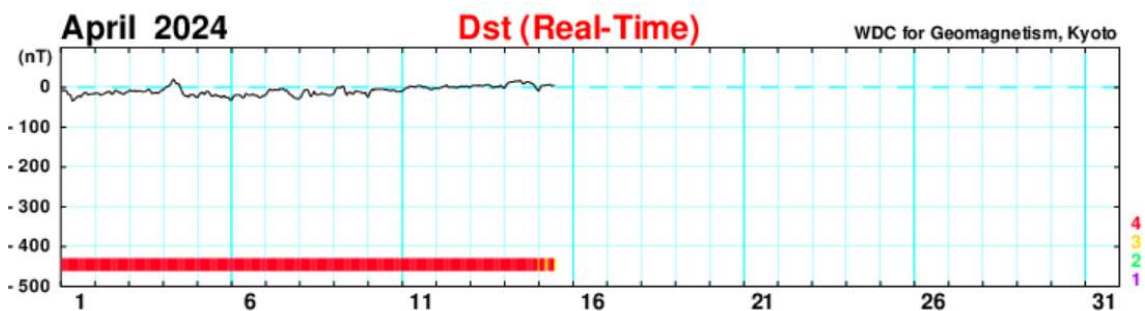


Figure 2- Dst Index.

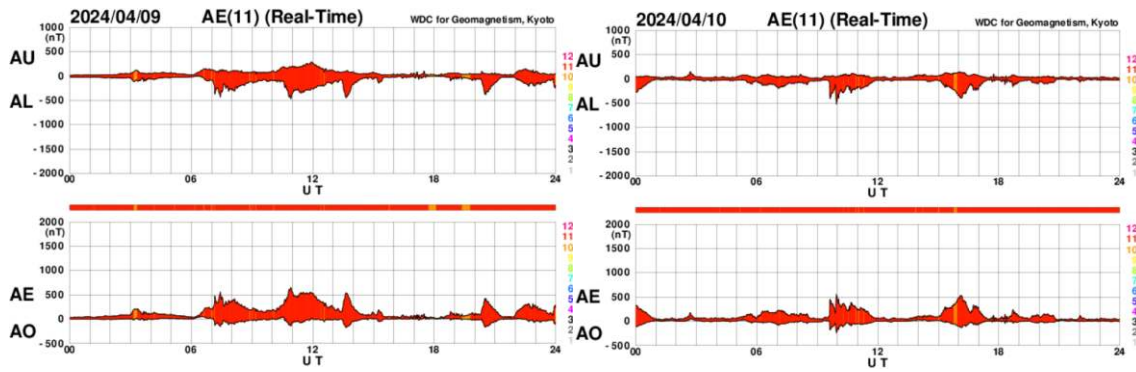


Figura 3- Índice AE para os dias da semana com maior atividade auroral.

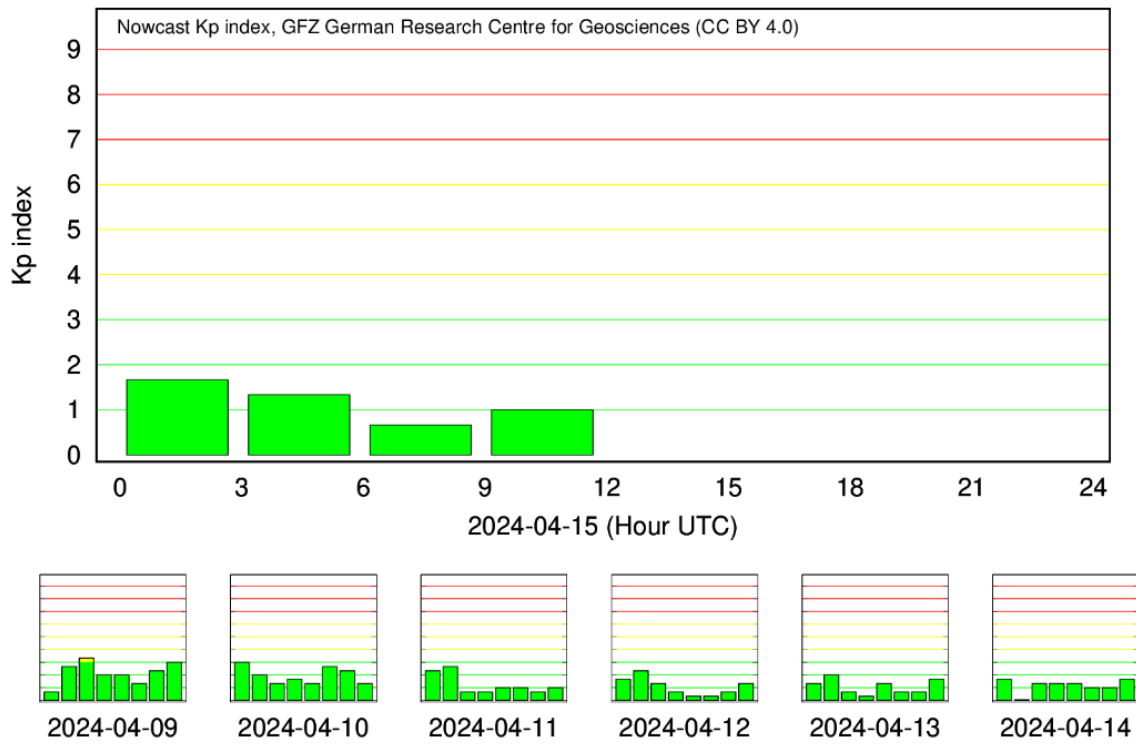


Figure 4- Kp index for the current week in logarithmic scale.

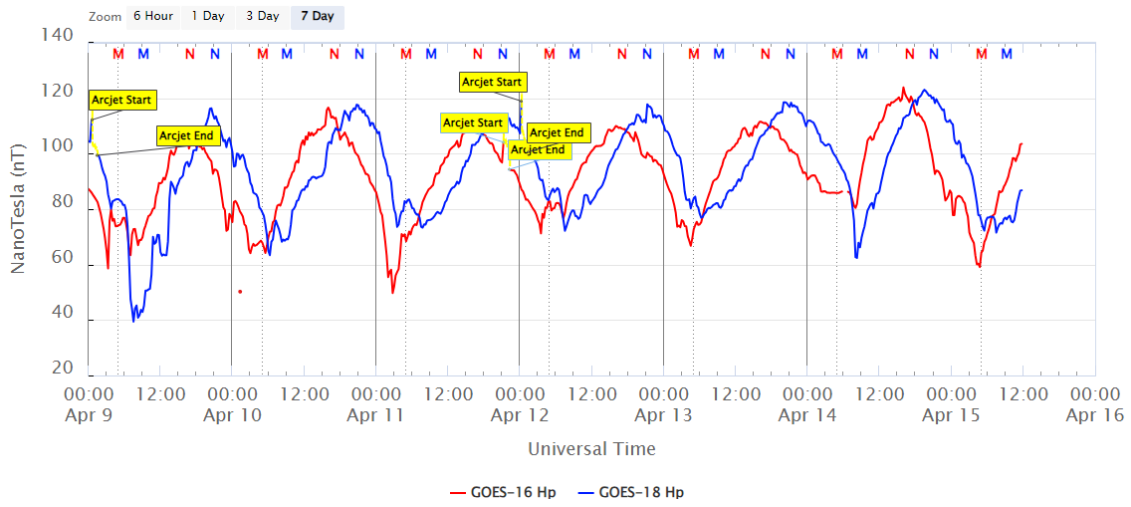


Figure 5- Magnetic field horizontal component at the GOES satellite orbit through.

Ionosfera – Digisonda (**Laysa Resende**)

Summary

Spread F was observed in the region closest to the magnetic equator only (São Luís). In Cachoeira Paulista, it was not observed spread F. The Es layer reached values of scale 3 in São Luís but reached scale 5 in Cachoeira Paulista (Figure 1).

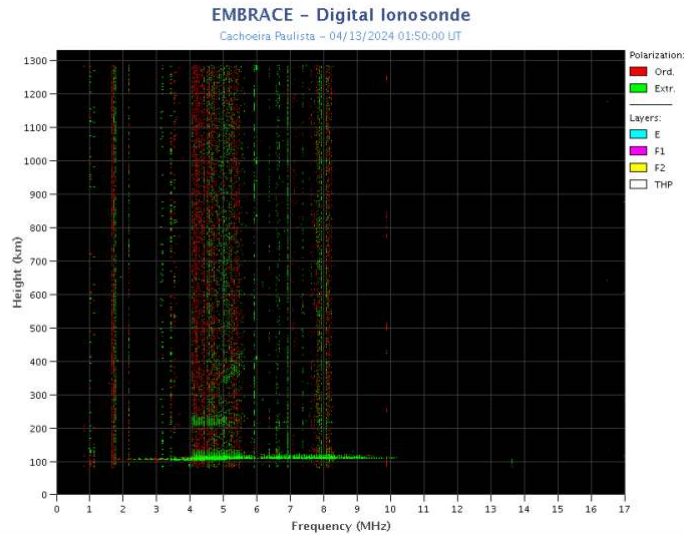


Figure 1 – Ionogram over Cachoeira Paulista, showing the Es layer occurred on April 13, 2024.

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 very weak scintillation (< 0.3) were found in SLMA and STCB stations after sunset (Figure 1). There were no significant events at SJCE; and in UFBA a scintillations events were recorded on 04/14/ after sunset. The plasma bubbles season is coming to an end and a similar behavior to this week is expected for the next 4 months.

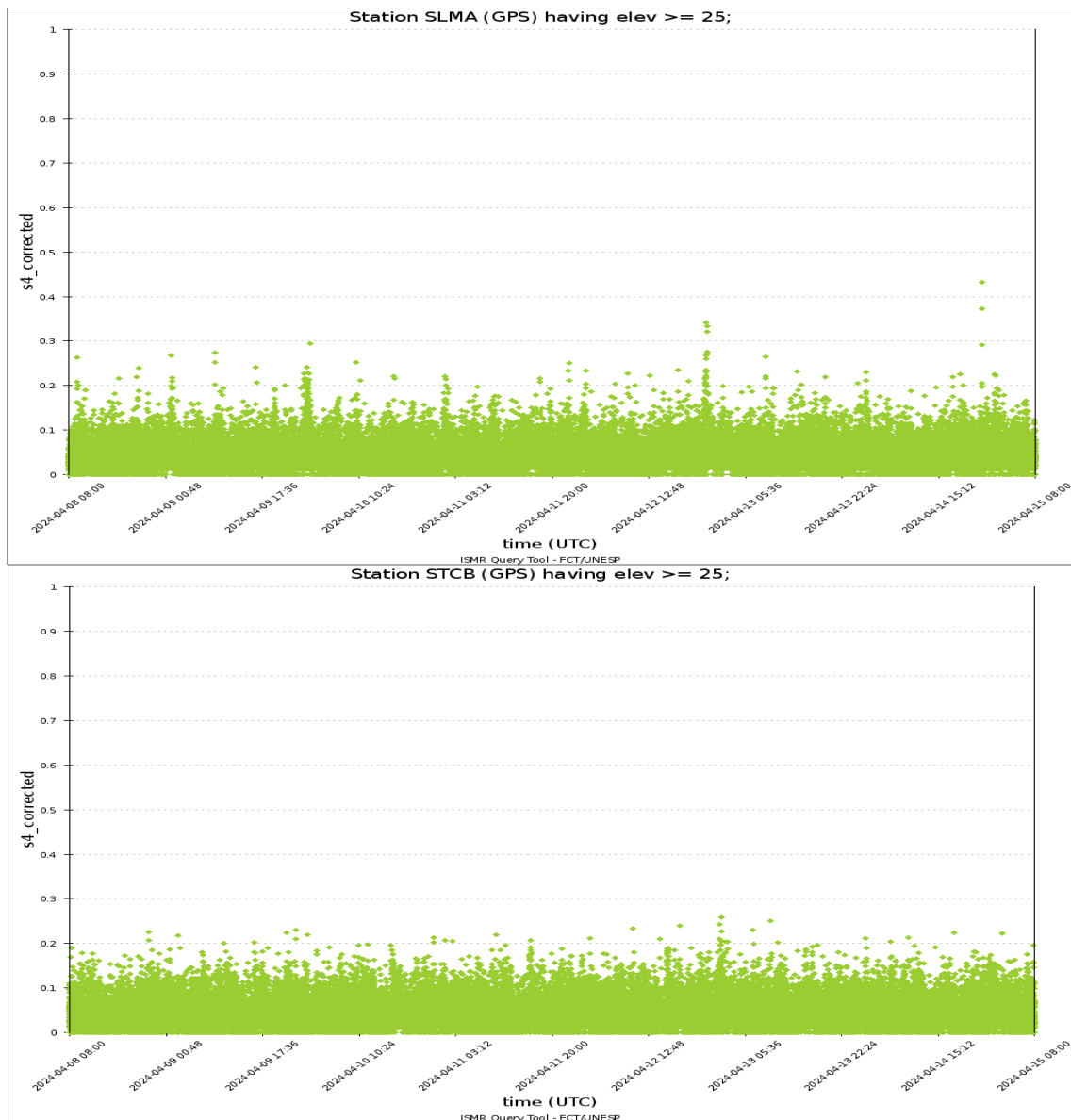


Figure 1 – S4 index values for the GPS constellation measured at SLMA (upper panel) and STCB (lower panel), during the week 04/08-15. A similar SLMA behavior was observed in UFBA and SJCE.

Ionosphere - ROTI Summary for Week 2309 (April 7 to 13, 2024)

Carolina de Sousa do Carmo

In the week 2309 (April 7 to 13, 2024), ionospheric irregularities (plasma bubbles) were observed on all analyzed nights at RNNA, except for April 9. The irregularities did not reach the other stations on most days. 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)).

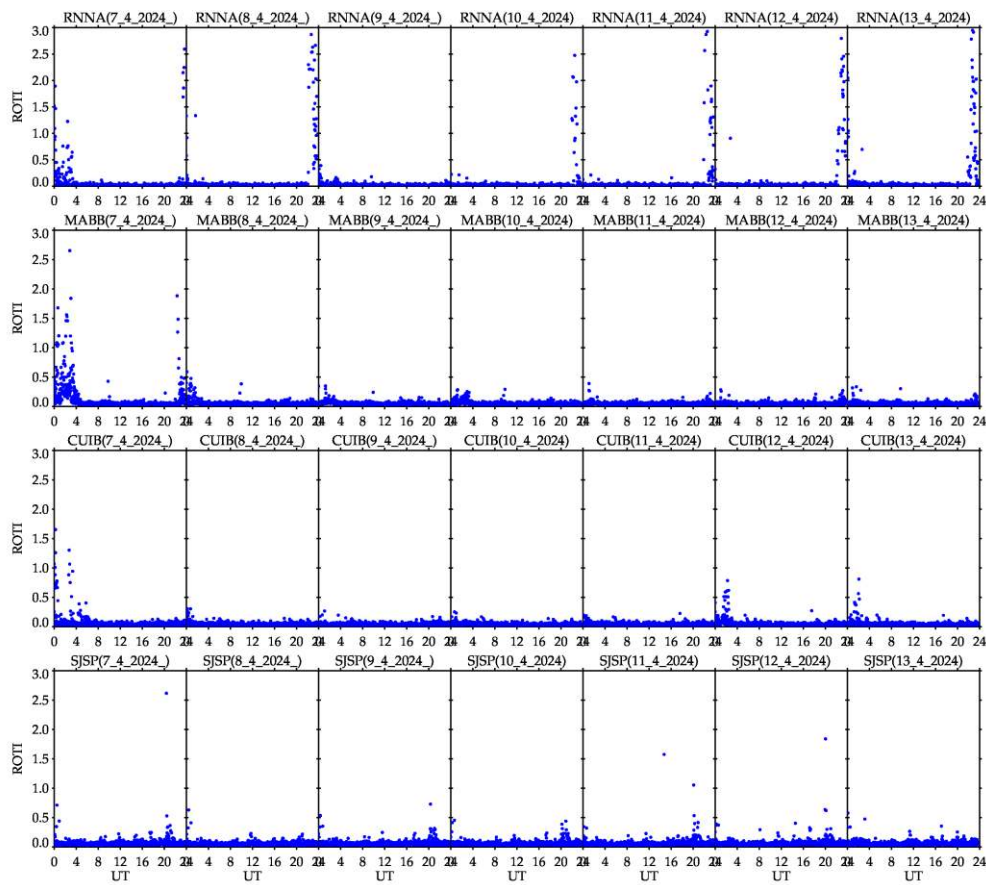


Figure – ROTI time series for four stations in the Brazilian sector (Natal (RNNA), Bacabal (MABB), Cuiabá (CUIB) and São José dos Campos (SJSP)), from April 7 to 13, 2024.