Sol – Cecatto
Period: May 05 – May 12, 2025

Summary

05/05 – No M/X flare; Fast (=< 800 km/s) wind stream; 8 CME can have component toward the Earth;
05/06 – No M/X flare; Fast (=< 700 km/s) wind stream; 8 CME can have component toward the Earth;
05/07 – No M/X flare; Fast (=< 600 km/s) wind stream; 6 CME can have component toward the Earth;
05/08 – No M/X flare; Fast (=< 500 km/s) wind stream; 7 CME can have component toward the Earth;
05/09 – No M/X flare; Fast (=< 500 km/s) wind stream; 10 CME can have component toward the Earth;
05/10 – No M/X flare; Fast (=< 550 km/s) wind stream; 10 CME can have component toward the Earth;
05/11 – No M/X flare; Fast (=< 450 km/s) wind stream; 10 CME can have component toward the Earth;
05/12 – M1.9 flare; Fast (=< 450 km/s) wind stream; 1 CME can have component toward the Earth
For.: No fast wind stream for the next 1-2 days; for while (01% M, 01% X) probability of M / X flares next 2 days; also, occasionally some other CME can present a component toward the Earth.
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Resumo

05/05 – Sem "Flare" M/X; Vento rápido (=< 800 km/s); 8 CMEs podem ter componente p Terra;
06/05 – Sem "Flare" M/X; Vento rápido (=< 700 km/s); 8 CME com componente p/ Terra;
07/05 – Sem "Flare" M/X; Vento rápido (=< 600 km/s); 6 CME com componente p/ Terra;
08/05 – Sem "Flare" M/X; Vento rápido (=< 500 km/s); 7 CME podem ter componente p Terra;
09/05 – Sem "Flare" M/X; Vento rápido (=< 500 km/s); 10 CME podem componente p Terra;
10/05 – Sem "Flare" M/X; Vento rápido (=< 550 km/s); 10 CME com componente p Terra;
11/05 – Sem "Flare" M/X; Vento rápido (=< 450 km/s); 10 CME podem ter componente p/ a Terra;
12/05 – "Flare" M1.9; Vento rápido (=< 450 km/s); 1 CME com componente para a Terra
Prev.: Sem vento rápido para o(s) próximo(s) 1-2 dia(s); probabilidade de “flares” M/X (01% M, 01% X) nos próximos 02 dias; eventualmente alguma(s) outra(s) CME pode(m) apresentar componente dirigida para a Terra.

Geomagnetic Field

Responsible: Karen Sarmiento/ Lívia Alves

Summary

Earth's magnetic field exhibited a predominantly diurnal variation pattern between May 6 and 9. On May 10 and 11, rapid and significant fluctuations were observed in the magnitude of the northward component of the magnetic field (Hp), mainly on the nightside, indicating an intensification of current systems in the magnetospheric tail. GOES satellites detected minimum values of 54.7 nT in this component at 03:15 UT on May 11. The AL index experienced a sharp drop, reaching values below -1000 nT on May 9 (between 18 and 20 UT), indicating a strengthening of the westward auroral electrojet. This behavior was associated with an increase in the AE index, which ranged between 1000 and 1500 nT during the same interval and fluctuated between 500 and 1000 nT at various times on May 5, 6, 8, 9, 10, and 11. These events suggest stretching and subsequent energy release in the magnetotail, with the occurrence of moderate substorms in the nightside sector, reinforcing the auroral electrojet current system. The passage of Alfvén waves was evidenced by a sustained and gradual increase in the AE index on May 5, accompanied by repeated substorms with an oscillatory pattern. The geomagnetic field varied across different levels of geomagnetic activity: unsettled (May 6 and 7), active (May 8, 9, and 11), minor G1 storm (May 10), and quiet (May 12), with the Kp index oscillating between 5− and 2o. The maximum Kp value, 5−, was recorded between 00 and 03 UT on May 10. The Dst index remained predominantly negative, reaching moderate storm levels with a minimum value of -70 nT at 24 UT on May 9. Data from the Embrace-Magnet magnetometer network recorded a significant increase in the H component variation between the end of May 9 and the beginning of May 10, coinciding with increases in solar wind speed and temperature, a drop in density, and Bz component fluctuations between +2.38 nT and -4.18 nT. These variations are consistent with the passage of a High-Speed Stream (HSS), followed by the glancing encounter of an Interplanetary Coronal Mass Ejection (ICME).

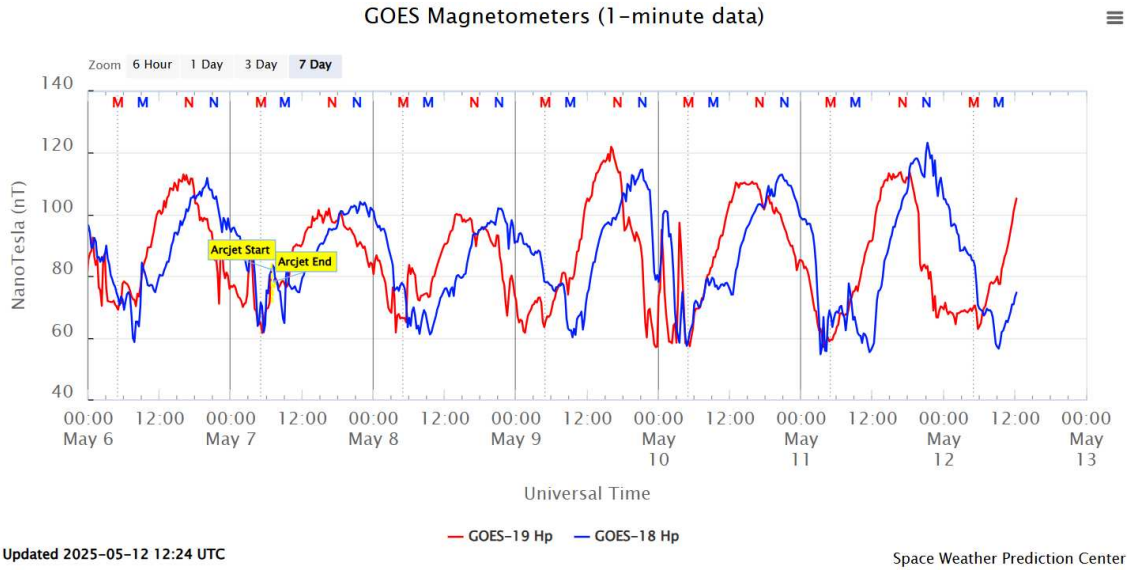


Figure 1- Magnetic field horizontal component at the GOES satellite orbit through.

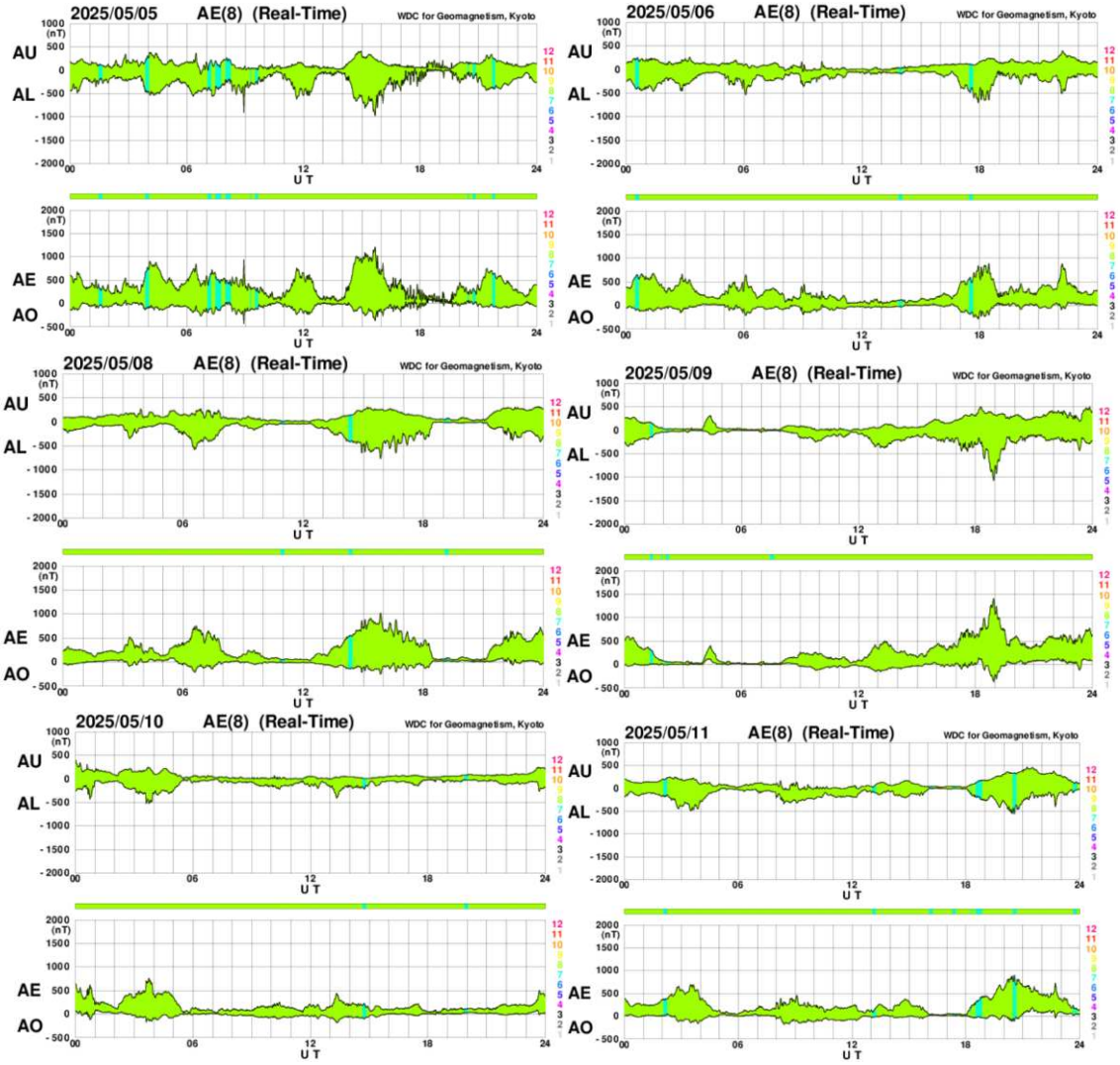


Figure 2- AE index.

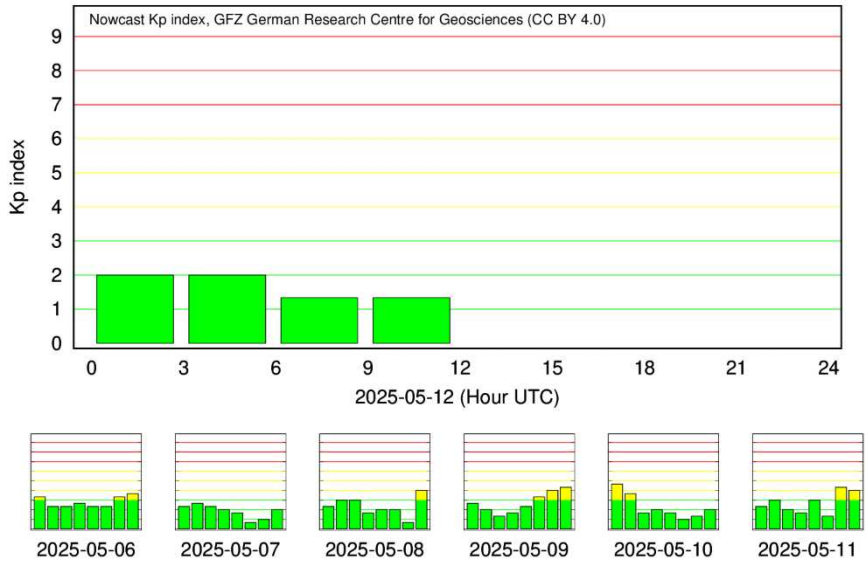


Figure 3- Kp index in logarithmic scale.

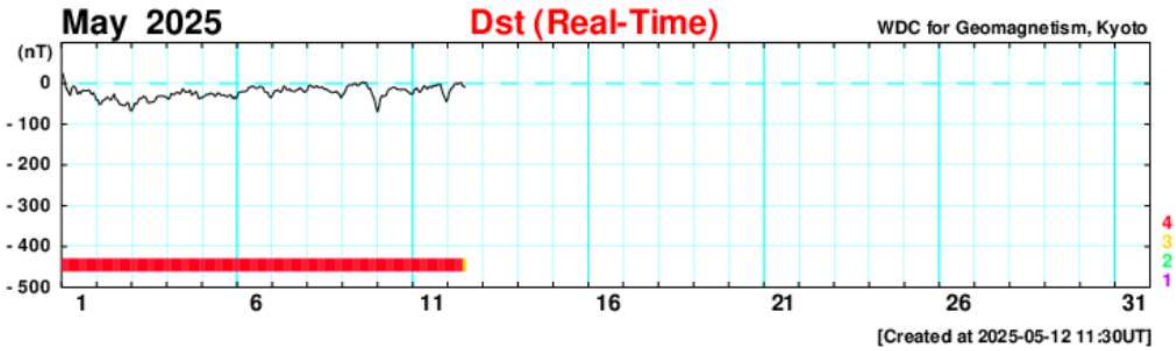


Figure 4- Dst Index

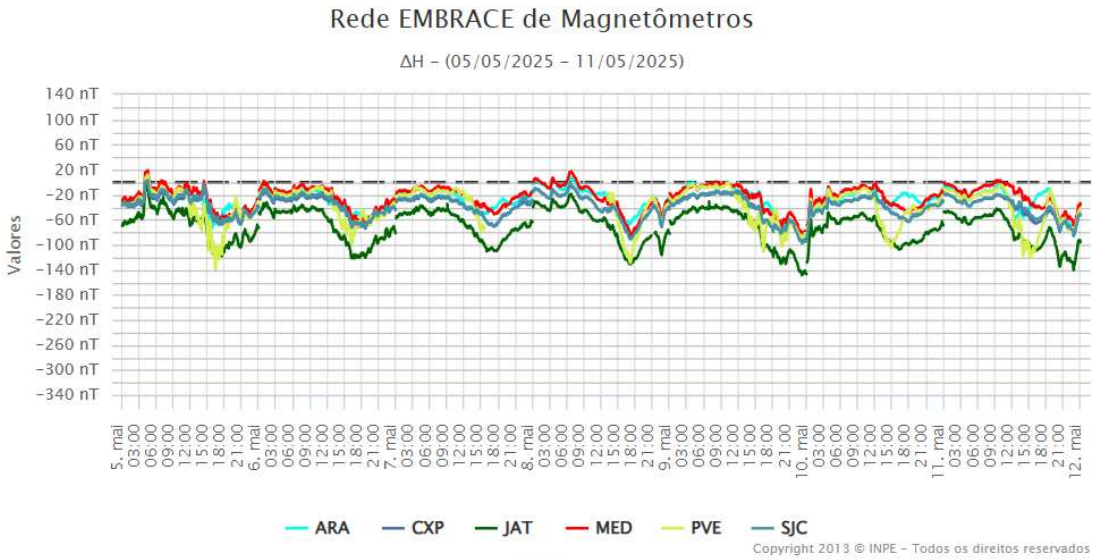
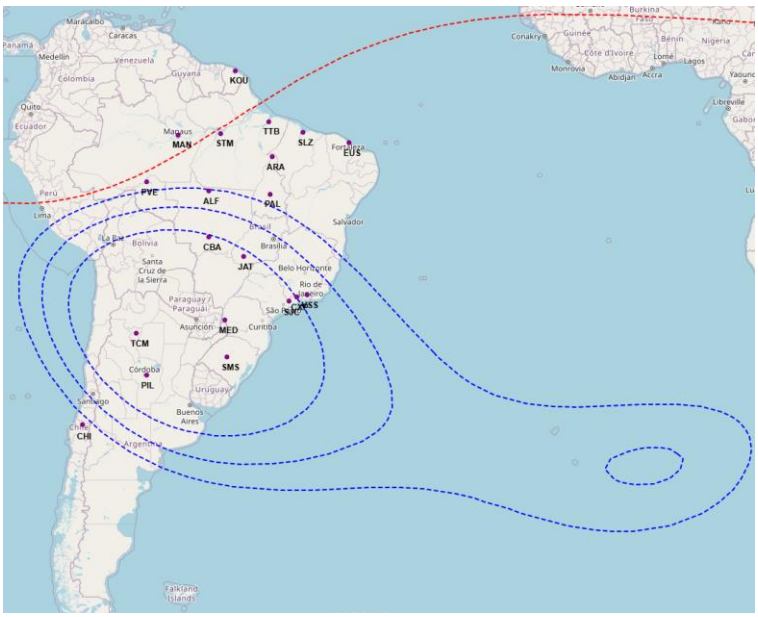


Figure 5- Daily variation of the geomagnetic field from H(nT) measured at Embrace MagNet.



Ionosphere - ROTI
Summary for Week 2365 (May 4 to 10, 2025)

Carolina de Sousa do Carmo

In the week 2365 (May 4 to 10, 2025), ionospheric irregularities (plasma bubbles) were observed at Boa Vista on May 4, 7 and 8. The Figure below shows the ROTI time series for four stations in the Brazilian sector (Boa Vista (BOAV), Bacabal (MABB), São Luis (SALU), and Cachoeira Paulista (CHPI)).

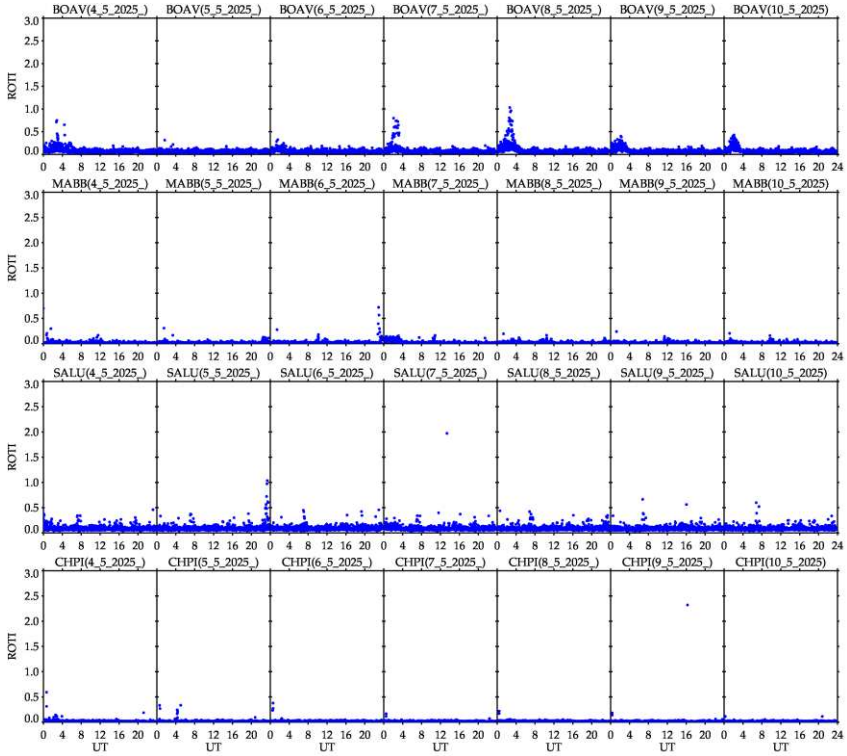


Figure – ROTI time series for four stations in the Brazilian sector (Boa Vista (BOAV), Bacabal (MABB), São Luis (SALU), and Cachoeira Paulista (CHPI)), from May 4 to 10, 2025.