

Panels (P)

Monitoring and Forecasting of Space Weather Conditions (POIS.1)

## **THE SPACE WEATHER MONITORING AND FORECASTING OVER SOUTH AMERICA DURING STRONG AND WEAK STORM EVENTS**

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Space weather monitoring and forecasting over South America are crucial in understanding the space environment and its impacts on this peculiar neutral and ionized atmosphere. This service can provide subsidies to the civil defense, government regulatory agencies and operators of the affected systems to mitigate the possible impacts on technological, economic, and social activities from a regional perspective. Two distinct storm events were selected (i.e., strong, and weak magnetic storms) to present the Brazilian space weather team's capabilities (Space Weather Regional Warning Center Brazil-Embrace/INPE Program). The interplanetary medium conditions during the strong magnetic storm event present the Earth's magnetosphere embedded in a complex solar wind structure, in which one interplanetary coronal mass ejection (ICME) reached the Earth at 12:00 UT on August 25, followed by a high-speed solar wind stream (HSS) observed from 07:00 UT on August 26, 2018. In contrast, the weak magnetic storm event was driven by an ICME that reached the Earth's magnetosphere at 02:00 UT on September 17, 2014, with a recorded Dst value of -18 nT. The interaction of these solar wind structures with the inner magnetosphere presented different impacts in the radiation belts' electron flux. In the Brazilian ionosphere, the results showed that the plasma bubbles occurrence during this period is not associated with the magnetic conditions but seasonality. However, the localized neutral/ionized upper atmosphere responds differently, especially in the ionosphere over South America Magnetic Anomaly (SAMA), in which an auroral-type sporadic E layer was detected, which is associated with the electron particle precipitation driven by hiss waves.