Development of a Prediction Model for HF Absorption in South America

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The propagation of high frequency (HF, 3-30 MHz) radio waves may be affected by space weather events, such as solar proton events (SPEs) and solar X-ray flares. These events may cause an extra ionization in the ionospheric D-region and E-region (60-110 km), and can block the HF radio waves from few minutes to hours. The purpose of this work is analyze a methodology in order to develop a prediction model of ionospheric absorption over the South America region, which predicts absorption from real-time measurements of solar X-ray and protons flux (>10 MeV) at one of the Geostationary Operational Environmental Satellites (GOES). The preliminary results of this model will be compared with cosmic noise absorption (CNA) measurements from riometers of the South America Riometer Network (SARINET). This model will be used in Brazilian Study and Monitoring of Space Weather (EMBRACE/INPE) Program.

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