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Poster
The impact of High-speed Solar Wind Streams, HSSs, and Corotating Interaction Regions, CIRs, during the last two solar minima on the Brazilian low latitude ionosphere is investigated. HSSs emanate from coronal holes and propagate in the interplanetary medium where they reach preceding low-speed streams creating Corotating Interaction Regions, CIRs. These structures are characterized by high plasma density and strong and highly oscillatory magnetic fields. When they arrive at the Earth's magnetosphere, southward excursions of IMF_Bz lead to reconnection processes with the geomagnetic field responsible for the occurrence of geomagnetic storms which trigger various processes from high to low latitudes. The low-latitude ionosphere in the Brazilian sector is markedly characterized by complex electrodynamics processes, especially owing to the high negative declination angle of the magnetic field, which results in strong plasma density gradients and in high occurrence rate of large-scale plasma irregularities, or equatorial plasma bubbles, EPBs, responsible for ionospheric scintillation processes. Scintillation processes can cause errors and loss of lock of the radio signals, which can severely affect global navigation and positioning systems as well as radio wave communications. Although the low latitude ionospheric variability is well-known, the effects of CIR/HSS-driven storms have not yet been extensively investigated. In this way, this work aims to get a better understanding of the impact of CIR/HSS-driven storms on the Brazilian low-latitude ionosphere during solar minimum. For this purpose, we analyzed ionospheric parameters such as Total Electron Content (VTEC) and other ground-based ionospheric parameters. We have also performed a spectral analysis using wavelet technique. We present and discuss the low latitude ionosphere response to a moderate geomagnetic storms during solar minimum 2018.
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