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## **MELISSA Observations of F-Region Irregularities**

Abstract:

Ionospheric F-region irregularities are perturbations in the ionospheric electron density at F-region heights known to affect the propagation of radio waves used for communication, navigation and remote sensing. We currently seek a better understanding of F-region irregularities for fundamental and applied reasons. Coherent backscatter radar observations of meter-scale irregularities allow us to better understand the genesis, development and decay of different types of ionospheric irregularities including those occurring at F-region heights. Measurements of Equatorial and Low-latitude Ionospheric irregularities over Sao Luis, South America (MELISSA) is a 30 MHz coherent backscatter radar interferometer recently deployed Sao Luis, Brazil (2.59 deg. S, 44.21 deg. N) near the magnetic equator. We have been developing analysis tools that allow us to extract information about the irregularities causing the echoes detected by this new system. In this presentation, we provide details about the system, information about our analyses, and interpretation of the first F-region soundings made around March Equinox and June Solstice 2014.