

Project Details

ROSES ID: NRA-01-OSS-01

Selection Year: 2002

Program Element: Independent Investigation: Geospace LWS

Project Title:

Towards a Predictive Model of Equatorial Ionospheric F-region Irregularities

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Summary:

The objective of the proposed research is to develop a model of the spatial and temporal structure of the plasma density irregularities in the equatorial and low latitude F-region ionosphere for a range of geophysical conditions. The focus will be on ionospheric irregularities that can lead to disruptive effects on communications, navigation, and radar systems. The approach will be to study the nonlinear evolution of the Rayleigh-Taylor instability in the equatorial ionosphere for a range of conditions. The effects of pre-reversal vertical drifts, neutral wind effects, background Pedersen conductivity effects, and magnetic storm conditions will be studied. A predictive model of equatorial spread-F irregularities will be developed.

Publication References:

Summary: "

Reference: Equatorial Ionospheric Irregularities , Ionospheric Scintillations - Keskinen, Michael J. NRL