



The low-latitude Ionospheric convective instabilities: Observations, 3D linear analysis and numerical simulation

M. Mascarenhas (1), E. Alam Kherani (2), J.H.A. Sobral (1), Eurico R. de Paula (1),
M.A. Abdu(1) and F.C. Bertoni(1)

1. Institute de National Physicae Espaciaes, Sao Jose dos Campos, Brazil
2. Institut de Physique du Globe de Paris, Paris, France

The presence of kilometer to meter size density irregularities in the ionosphere is known for last four decades. Their presence significantly modifies the radio signal and poses a problem in Navigation system. It has been known that these irregularities are initiated by Convective or collisional interchange instabilities. Since then, there are various simulation studies which have un-fold the nature of these irregularities. In this report, we present the optical-radio observations of ionospheric irregularities over Brazilian longitude sector. These observations are further quantified by 3D linear analysis and numerical simulation of collisional interchange instabilities.