CHARACTERISTICS OF THE IONOSPHERIC IRREGULARITIES OVER BRAZILIAN LONGITUDINAL SECTOR

De Paula Eurico, E.A.Kherani, M.A. Abdu, I.S. Batista, J.H.A. Sobral,H. Takahashi, L. F.C. De Rezende, M.T. A.H. Muella, F.S. Rodrigues, P.M.Kintner, B.M. Ledvina

Aeronomy, National Institute for Space Research-INPE, Av. dos Astronautas 1758 Jardim da Granja, SÃo José dos Campos, São Paulo, Brasil 12.227-010

Based on one network of ionospheric sounders over Brazil the characteristics of the ionospheric irregularities during magnetically quiet and disturbed conditions are presented.The network is constituted by one 30 MHz coherent scatter radar at the magnetic equator, a network of 12 GPS scintillation monitors, 3 VHF receivers, 3 digisondes, 4 TECmeters, and all-sky imagers. The Brazilian network covers since the equatorial region up to the southern crest of the Equatorial Ionospheric Anomaly where large electron density gradients are observed. The influence of the local time, season, latitude, longitude, background ionization, solar cycle and magnetic activity on the ionospheric irregularities is presented. The ionospheric irregularity zonal velocities determined by different techniques like VHF radar, magnetically spaced GPS receivers and all-sky imagers, for different latitudes are also presented. The influence of the ionospheric irregularities on GPS global positioning and navigational systems is discussed. These multi-technique observations, complemented by computational simulations, may improve our understanding of the factors responsible for the generation, growth and dynamics of the equatorial E and F region instabilities.