
LISN
SECOND LOW-LATITUDE IONOSPHERIC
SENSOR NETWORK WORKSHOP
São José dos Campos - SP Brazil, November 7-10, 2011

Abstracts

Equatorial TEC over South American sector with different magnetic declination angles

P. A. B. Nogueira*1, M. A. Abdu1 , J. R. Souza1, I. S. Batista1, E. B. Shume1, R.Y.C. Cueva1, C.V. Ely1, G. J. Bailey2.

1Instituto Nacional de Pesquisas Espaciais, Caixa Postal 515, São José dos Campos, SP, Brasil;
2Department of Applied Mathematics, University of Sheffield, Sheffield, S3 7RH, U.K.

We study the climatology of the Total Electron Content (TEC) as observed by GPS receivers in two equatorial stations in South America with different magnetic declination angles, São Luís (2.33° S, 315.8ºE, declination = -19o) in Brazil and Arequipa (16.5°S, 288.5ºE, declination = 0.5o) in Peru. TEC variations for three solar activity levels (high, moderate and low) have been analyzed. TEC values recorded over São Luís are larger than that ones over Arequipa independent of the season and solar cycle conditions. The main aim of the present work is to investigate the longitudinal differences in the TEC values associated with the large variations in the magnetic declination angle using the Sheffield University Plasmasphere Ionosphere Model (SUPIM). The equatorial ionospheric answers to combined effects of thermospheric neutral winds and zonal electric field will be also analyzed for the South American sector.