

Climatology of Ionospheric Scintillation over Brazil

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The amplitude scintillation indices S4 from 1997 up to 2015 for different sites over the Brazilian territory are used to study and model the intensity of the ionospheric irregularities using least square and Fourier as data fitting techniques. The one minute average S4 data, measured by 3 arrays of GNSS receivers were classified according to different solar activities, seasons, Kp levels, local time and spatial dependency. Our analyze is for geomagnetically quiet conditions and the results confirm the main irregularity characteristics such as maximum (minimum) S4 values during December solstice (June solstice) inside the equatorial ionization anomaly crest (trough). The dependency of S4 index with the solar activity shows a linear increase from low to moderate solar flux levels and a saturation tendency for higher levels. The model was validated for different geophysical conditions presenting good performance.