



A long-term ionospheric TEC fluctuation index (ROTI) study

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For many scientific and technological purposes ionospheric Total Electron Content (TEC) fluctuations are even more crucial than absolute TEC value. Responding to growing scientific interest in the phenomenon of ionospheric plasma irregularities, the International GNSS Service (IGS) introduced in 2018 the Rate of TEC (Total Electron Content) Index maps. Product contains daily averages of ROTI for northern hemisphere.

We present hereby a long-term statistical analysis of the ROTI index. Our study includes ROTI observations from stations distributed along meridian 16E (+/- 3 degrees) from three years: 2013, 2015 and 2017. Such approach would allow study of latitudinal, diurnal, seasonal, annual and solar-cycle variation and morphology of ionospheric fluctuations. We also include solar and geomagnetic activity indices to examine responses to solar and geomagnetic events in ionospheric plasma irregularities.