

Global S4 index variations observed using FORMOSAT-3/COSMIC GPS RO technique during a solar minimum year

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Three-dimensional global morphology of scintillation index measured from the signal-to-noise intensity fluctuations of L1 channel GPS signals using FORMOSAT-3/COSMIC satellites for year 2008 is presented for the first time. The scintillation activity during both equinox seasons is found to start around post-sunset hours and persisted till post-midnight hours from 150 to 350 km while at lower altitudes it appeared during day and nighttime. However, high latitudes are characterized with moderate activity till 150 km only and weak or no activity is observed beyond 150 km. Scintillation activity maintained symmetry with magnetic equator and extends to $\sim \pm 25^{\circ}$ latitudes from 200 to 350 km while asymmetry with equator during June and December solstices is observed for altitudes up to 150 km though no such feature is noticed for higher altitudes. Further, scintillation activity at F-region altitudes during quiet days is more and extends to higher magnetic latitudes than disturbed days.