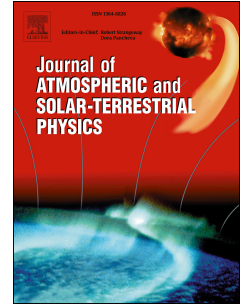


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Variation of the TEC over a dip equatorial station, Trivandrum and a mid latitude station, Hanle during the descending phase of the solar cycle 24 (2014–2016): Comparison with the IRI 2012 model

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Variation of the TEC over a dip equatorial station,
Trivandrum and a mid latitude station, Hanle during
the descending phase of the solar cycle 24 (2014-2016) :
Comparison with the IRI 2012 model.

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Abstract

Morphological variations in the Total Electron Content (TEC) of the ionosphere over a dip equatorial station, Trivandrum (8.47°N, 76.91° E) and a mid latitude station, Hanle (32.78° N, 78.95° E) during the period 2014-2016 is studied using the GPS TEC measurements from the InSWIM (Indian Network for Space Weather Impact Monitoring) network of stations. The variation of the TEC over Hanle, which is located in the same longitude sector as that of Trivandrum, is presented here for the first time. At Hanle, the TEC peaks at local noontime while its peak appears with a delay (1600 LT) at Trivandrum. The minima in the TEC at both stations appear during the early morning hours. Nighttime enhancements in TEC are seen at Trivandrum during the equinoctial months while at Hanle they appear in the summer months. The TEC over both the stations exhibit semi-annual anomaly and equinoctial asymmetry. However, the winter anomaly is seen only at Trivandrum. The TEC over both Trivandrum and Hanle is seen to display strong solar activity dependence with the average TEC decreasing as solar activity decreases. We surmise that the observed diurnal/seasonal/annual variations in the TEC at the dip equatorial station, Trivandrum is controlled by the processes induced by electrodynamics while the TEC variations over the mid latitude station, Hanle is mostly affected by the

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