THE VARAIATION OF GPS DERIVED TEC DURING LOW SOLAR ACTIVITY PERIOD (MAY 2007- APRIL 2009) NEAR THE EIA CREST REGION IN INDIA

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The dual frequency Global Positioning System (GPS) signals recorded at Varanasi (geomagnetic latitude 14^0, 55' and longitude 154^0 E), a station situated near the equatorial ionospheric anomaly (EIA) crest in India have been analyzed to study the ionospheric variability in terms of total electron content (TEC) for the low solar activity period from May 2007 to April 2009. In this study we have shown diurnal and seasonal variations of TEC, solar activity dependence of TEC and effect of a geomagnetic storm on TEC. The mean diurnal variation of TEC for different seasons is carried out. It is found that TEC at Varanasi is maximum during the equinoctial months, minimum during winter months and with intermediate values in summer months. TEC variations during selected geomagnetic storms have been studied and their positive as well as negative storm effects on TEC were also observed. The equatorial electrojet (EEJ) control on the development of the equatorial anomaly is also studied.

GPS, Ionosphere, Geomagnetic activity

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