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IONOSPHERIC RESPONSES TO GEOMAGNETIC STORMS OVER THE MIDDLE EAST REGION
FROM GNSS TEC AND GUVI**Abstract**

Total electron content (TEC) is used to analyze the ionospheric behavior under geomagnetically quiet and disturbed conditions over the low latitude Middle East (ME) region. By using the data of GNSS receivers in the ME Region, we analyzed significant TEC variations during the three geomagnetic storms of different intensities: two super storms (March 2015–June 2015) and one intense storm (September 2017). The daily mean day/night TEC behavior of each station is studied. In the equatorial and near equatorial regions, the ionospheric parameters are largely disturbed by the geophysical/geomagnetic activity. In order to study the impact of storm activity, the solar parameters are analyzed along with the Dst Index. The study confirms that the seasonal effects have different impact upon ionospheric responses. The global thermospheric composition maps shows a storm time variation in O/N₂ ratio. The positive and negative storm effects are observed before and after storms. It is evident from our research that O/N₂ ratio occurs in the Middle East Region depending upon the seasonal variability.