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A comparison of measured TEC data with the IRI2011 and NeQuick 2 model results over the transition regions from low to mid-latitudes

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Abstract content
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It is well known that the variations of the Earth's ionosphere are complicated and behave quite differently in various regions of the Earth. Over the past several years, the total electron content (TEC) has become an important and readily available parameter used to track the global characteristics of the ionospheric dynamics. In the recent past, a vast body of TEC data has been amassed over the African continent from numerous Global Positioning System (GPS) receiver stations in various locations giving a fair coverage of the mid and low latitude regions. This paper presents results of a comparative investigation of the TEC derived from three different sources namely: the International Reference Ionosphere (IRI) model, the NeQuick model and the GPS measurements. Measured TEC data over a chain of stations near the geographic meridian of 230 is used and the study highlights the complex ionospheric characteristics of the transition region from mid to low latitude regions and how the commonly used ionospheric models represent the ionospheric behaviour in this region

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