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TEC response over the African sector during selected storm conditions

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Abstract content
   (Max 300 words)

In this paper, total electron content (TEC) changes during two successive ionospheric storms of 7-12 November 2004 are analysed using GPS data derived from dual frequency receivers located at African equatorial and midlatitudes. Equatorial TEC variability is considered over Libreville (0.36deg;N, 9.67deg;E), Gabon and Mbarara (0.60deg;S, 30.74deg;E), Uganda. TEC over midlatitude stations Sutherland (32.38deg;S, 20.81deg;E) and Springbok (29.67deg;S, 17.88deg;E), South Africa are analysed. The analysis of the storm time ionospheric variability over South Africa was undertaken by comparing critical frequency of the F2 layer (foF2) and the peak height of the F2 layer (hmF2) values obtained from Grahamstown (33.30deg;S, 26.53deg;E) and Madimbo (22.4deg;S, 30.9deg;E) ionosonde measurements. Results show that GPS TEC for midlatitudes for the analysed periods was depleted significantly during the storm period with a corresponding depletion in foF2. Over the equatorial latitudes, positive storm effects are more dominant especially during the storm main phase. Negative storm effects are observed over both mid and equatorial latitudes during the recovery phase. Suggested physical mechanisms responsible for TEC dynamics over both African latitude sectors will be discussed in this paper.

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