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Ionospheric pre-geomagnetic disturbance enhancements over African equatorial and midlatitude regions

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Abstract content
   (Max 300 words)
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The ionosphere is used to reflect high frequency radio signals. In addition, the behaviour of the ionosphere can affect satellites and power grids. The behaviour of both the ionosphere and the magnetosphere as well as the interaction of these two regions is strongly affected by solar activity.

The response of the ionosphere to geomagnetic disturbances has been widely studied. A phenomenon which sometimes accompanies ionospheric storms is known as a pre-storm enhancement and this reaction of the ionosphere has not been as deeply studied as ionospheric storms themselves.

Studies over European latitudes have revealed that pre-storm enhancements accompany approximately 20% of strong storms and occur during both day and night times - with occurrences seen more frequently in winter months. The mechanism behind these pre-storm enhancements remains unknown.

We are exploring this phenomenon over African equatorial and mid-latitude regions in an effort to further understand this phenomenon and to explore its potential in predicting strong ionospheric storms. In particular, we explore three storm periods, namely 11-17 May 2005, 27 September – 3 October 2012 and 14-19 March 2013, using both GPS and ionosonde data.

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Main supervisor (name and email)
and his / her institution

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