ESTIMATION OF D-REGION IONOSPHERE VLF REFLECTION HEIGHTS TO GEOMAGNETIC STORM

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ABSTRACT

This paper presents a study on D-region ionospheric variation in low latitude to a geomagnetic storm using tweek atmospherics. This paper identified the changes in the D-region ionosphere height by measuring the tweek atmospherics received at Selangor station, Malaysia (2.55°N, 101.46°E) during the 10 – 13 October 2010 geomagnetic storms. Using lightning discharges as natural source, the VLF range atmospheric is observed in order to determine the tweek reflection height by measuring the tweek cut-off frequency. In total, 448 tweeks were recorded during the 4 days period. The storm occurred in the local night time had a maximum reading of geomagnetic index, Dst of -79 nT recorded by the WDC. Tweek measurements during this period show a small increase of 4 km in the ionospherics VLF mean reflection heights compared to the 81 km on the magnetically quiet day height prior to the magnetic storm days. The result of this project is produced using Matlab and GetData Graph Digitizer softwares.

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