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A study of traveling ionospheric disturbances using GPS observations.

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Traveling ionospheric disturbances are manifestations of atmospheric gravity waves and can be investigated using a number of data sources e.g., ionosonde and GPS receiver networks. Previous studies classified these disturbances as medium scale and large scale traveling ionospheric disturbances (TIDs) based on their characteristics which include velocities, amplitudes and directions. The propagation characteristics may also vary depending on the level of Earth-Space interactions and the strength of the magnetosphere-ionosphere coupling especially during disturbed conditions. Recent studies indicate that storm-induced TIDs mainly travel equatorward with the source origin being the auroral/high latitude zones. However other investigations reported that large scale TIDs of auroral origin from both hemispheres could travel further, cross the magnetic equator and hence travel poleward. Very recent investigation confirmed an earlier proposed suggestion that the equatorial electrojet could also be a source of large scale TIDs. This project involves statistical analyses of traveling ionospheric disturbances during very quiet conditions in low latitude regions. This analysis will be aimed at establishing and quantifying the existence of ionospheric structures and their preferred direction of propagation using a historical data set.

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No

Level for award
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N/A

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No

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