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PEM032-P06

Room:Convention Hall

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## Observations of total electron content variations using GPS networks in Europe

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Using GPS receiver networks in Europe, we have disclosed two-dimensional structure of Total Electron Content (TEC) over Europe and detected ionospheric troughs and Medium-Scale Traveling Ionospheric Disturbances (MSTIDs) on the TEC perturbation maps. In this study, the perturbation component of TEC is obtained by subtracting 1-hour running average from a time series of TEC along the GPS satellite and receiver. From statistical study of the GPS-TEC maps in 2008, we found that the ionospheric troughs were observed frequently between sunset and midnight on equinoxes. This result is consistent with previous studies. We also find that the observed MSTIDs can be categorized into two types. One type is daytime MSTIDs, which frequently occur in winter. Since most of the daytime MSTIDs propagate southeastward, we speculate that the daytime MSTIDs could be caused by atmospheric gravity waves in the thermosphere. Second type is nighttime MSTIDs, which also frequently occur in winter. Nighttime MSTIDs propagate southwestward. This propagation direction is consistent with the idea that polarization electric fields could play an important role in generating nighttime MSTIDs.

Keywords: GPS, TEC, ionosphere, ionospheric trough, TID