



Ionospheric variability observed in connection to mesoscale systems above Europe

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Ionospheric plasma is highly variable in a wide range of scales. Atmospheric waves originating in the lower atmosphere seems to contribute substantially to its variability. Particular mesoscale systems are assumed to be effective in generation of Acoustic-gravity waves (AGW) that are able to propagate upward and potentially reach the ionospheric heights. Our study indicates that there are particular synoptic situations that significantly contribute to state of ionosphere up to F2 region. We focus on tropospheric mesoscale system passing above Europe during periods of rather low solar and geomagnetic activity when most of the observed ionospheric variability could be attributed to the sources within lower laying atmosphere. Our observation shows an increase of Spread F echo and irregularities after the frontal passage on Continuous Doppler Sounder spectra and DPS 4D ionograms, oscillation (ionospheric parameters) in the gravity wave mode, distortion in diurnal foF2 and hmF2 distribution and changes in plasma flow.