The role of the thermospheric winds and electric fields on the nighttime midlatitude electron density enhancement forming

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The role of the thermospheric winds and electric fields on the nighttime midlatitude electron density enhancement forming in the ionosphere and plasmasphere has been investigated on the basis of the mathematical modeling of the upper atmosphere behaviour during the April 15-20, 2002 period. The model calculations using the Upper Atmosphere Model (UAM) have been performed 1) with winds and electric fields taken into account; 2) without winds but with electric fields; 3) with winds but without electric fields; 4) without winds and electric fields. In that way the predominant role of winds on the forming of the nighttime midlatitude electron density enhancements in the ionosphere and plasmasphere has been established and the strong UT-dependence of the effect has been found.
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