



The influence of local generator of electrical charges produced by the meteorological processes in surface layer of atmosphere on electric field in the polar ionosphere

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Influence of local generators of electrical charges produced by the meteorological processes in surface layer of atmosphere on value of electric field in the polar ionosphere is considered. Numerical model of a height distribution of electrical field from ground surface till ionosphere altitudes is presented. Cylindrical distribution of electrical charges in surface layer and exponential distribution of electrical conductivity with altitude is used in this model. The non-stationary and stationary approximations are solved. Value of electrical field defined this electrical charges has the following typical values for radial component in the polar ionosphere: (0.02-0.2)V/m for total charge in surface layer (1-10) C for non-stationary approximation and (100-1000) C for stationary case. Calculated values of electrical field strength are compared with values of the electrical field strength produced by the magnetospheric field-aligned currents in the polar ionosphere.