Numerical simulation of magnetosphere-ionosphere convection using the open magnetosphere Tsyganenko-96 model.

Volkov M.A.[1,2], Romanova N. Yu.[2]

(1) Murmansk State Technical University, 13 Sportivnaya Str., Murmansk, 183010, e-mail: Michael.Volkov@mstu.edu.ru.
(2) Polar Geophysical Institute, 15 Halturina Str., Murmansk, 183010, e-mail: Romanova@pgi.ru

The numerical model of the magnetosphere-ionosphere convection with the open magnetosphere Tsyganenko 96 model has been constructed. Input model parameters are parameters of the interplanetary solar wind and the magnetospheric tail plasma.
Model results give good coincidence witn experimental data if the coefficient of electric field penetration into the Earth magnetosphere is taken to be equal to 0.1.
We carried out calculation of electric fields and field-aligned currents in the cusp region and found that model distributions of currents in the cusp depending on the sign of the IMF By-component are in accordance with observation results.
Using the model the comparison of the ionospheric convection direction and cross-field anisotropy of ionospheric irregularities observed in the F-layer has been done.