High-latitude potential distribution for superstorms

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We have developed an empirical model of the electric potentials in the high-latitude ionosphere which can express the distribution for superstorms. Our model is the numerical solution of the Laplace's equation with the boundary conditions obtained from the statistical analysis of the DE 2 electric field data. By incorporating data for the precipitation particle boundary detected by DMSP spacecraft during several superstorms into our model, we obtained the distribution for superstorms. Results show that the duskside negative potential cell is composed of two parts.

Keywords: Electric potential, electric field, plasma convection, superstorms, solar wind, modeling