



Model calculation of the electrostatic field penetration into the ionosphere

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We report on the study of electrostatic field which occurs at the Earth's surface before strong seismic events. We review first the main investigations performed in the last two decades in particular the physical parameters and how they are related to the observations. Then we analyse some theoretical investigations of the electrostatic field penetration from a lithospheric origin into the ionosphere. The classical approach is to start from a modified Poisson-equation of the form $\nabla \cdot (\hat{\sigma} \cdot \vec{\nabla} \Phi) = \Psi_{source}$ where $\hat{\sigma}$, Φ , and Ψ_{source} are the electric conductivity, the potential of the electric field, and the external source term, respectively. We discuss more complicated models beginning from a simplified case, where the source term may be neglected and the inclination is taken to be of about 90° .