



## **Frequency considerations in evaluation of geomagnetically induced currents in transmission lines**

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Significant impacts of large geomagnetically induced currents on power transmission systems lead to the necessity to properly evaluate the size of these currents. Several simplified assumptions which are used for the modelling of these currents would be clarified in the presentations.

The following two classes of possible sources of errors will be discussed:

1. “Geophysical” uncertainties in the evaluation of the earth geoelectric field, such as a) influence of geomagnetic sampling rate on the “true” waveform of the geomagnetic disturbance and b) influence of the uncertainties in the 1-dimensional layered earth models;
2. Assumptions in the power network modelling, such as a) DC-approximation of the response of transmission line and b) not taking into accounts the impacts of the conducting system (transmission lines) on the ambient (geophysical) electric field.

The results of presented research will help in proper evaluations of the GIC and, therefore, in preparing the adequate mitigation measures to counteract the space weather impacts on critical infrastructure.