



# **Results of Crust and Mantle Soundings in Central and Northern Europe in the 21st Century (Review)**

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## **A b s t r a c t**

The first decade of 21st century is characterized by the appearance of new approaches to deep induction soundings. The theory of magnetovariation and magnetotelluric soundings was generalised or corrected. Spatial derivatives of response functions (induction arrows) were obtained for the ultra-long periods. New phenomena have been detected by this method: secular variations of the Earth's apparent resistivity and the rapid changes of induction arrows over the last 50 years. The first one can be correlated with the number of earthquakes, and the second one – with geomagnetic jerks in Central Europe. The extensive studies of geoelectrical structure of the crust and mantle were realized in the frame of a series of international projects. New information about geoelectrical structures of the crust in Northern Europe and Ukraine was obtained by deep electromagnetic soundings involving controlled powerful sources. An influence of the crust magnetic permeability on the deep sounding results was confirmed.

**Key words:** induction soundings, conductivity, crust, mantle, Europe.