THIN-SHEET INVERSION OF THE HORIZONTAL MAGNETIC INTER-STATION RESPONSES FROM THE EMTESZ-POMERANIA ARRAY

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Large amount of long period horizontal inter-station transfer functions (M-responses) collected in the EMTESZ-Pomerania EM sounding array across the Trans-European Suture Zone (TESZ) in NW Poland and NE Germany were inverted in the class of quasi-3D thin sheet conductance models using two different techniques: a linearized unimodal thin sheet technique with the sheet (or multiple sheets) placed at different depths in the Earth and the Monte Carlo Markov chain stochastic method (MCMC) in a bimodal thin sheet approximation with the sheet at the Earth's surface. From the stochastic inversion, histograms for unknown grid cell conductance were obtained and the most probable regional conductance model was inferred. The results of the MCMC are compared with the results of the linearized unimodal inversion. Solutions made by both techniques are compared for two different reference stations. The inversion models obtained for M-responses seem less distorted by the influence of peripheral structures than models resulting from the same inversion approaches for induction arrows, generally fit with 2D inversion models at EMTESZ profiles and give reasonable extrapolation of conductors away from them. To consider the complicated superposition of anomalies related to Polish and N-German sedimentary basins, crustal conductors within the TESZ and upper mantle inhomogeneities suggested from the resulting 2D models a unimodal thin sheet technique is further applied with the account of a second thin sheet with a fixed, but inhomogeneous conductance. Primarilly, we fix sedimentary conductance resulted from the short period MT data as *a priori* knowledge and search for crustal structure; then we fix sedimentary+crustal conductance and investigate upper mantle anomalies.

satellites, M-responses, thin sheet inversion

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