The analysis of multielectrode resistivity measurements in case of subhorizontal boundaries

Abstract:

The aim of the diploma thesis is to analyse resolution of multielectrode resistivity measurements in case of subhorizontal boundaries. In many cases the position of horizontal boundaries from the 2D inverted section is not definitely determined. For this reason is looked for new methods to specify the localization of the boundaries. New parameters – reflection coefficient and longitudinal conductance – which were not used in these connections before are examined. Characteristics of these parameters for horizontally layered sections are studied by means of forward modelling. In addition, usability of these parameters is tested by applying them to measured field data on a profile which geological section is known from the boreholes. Attention is also payed to 1D inversion of measured field data.

Key words : multielectrode resistivity measurements, horizontal boundaries, data inversion, reflection coefficient, longitudinal conductance