
MULTILAYER MEDIA ELECTROPHYSICAL PARAMETERS RECOVERY ON COMPLETION DIRECT CURRENT SOUNDING

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Abstract

The paper deals with a mathematical model of a vertically-layered medium. We consider two-layer and three-layer media with different parameters. To solve the direct problem, we developed a universal algorithm which helps to determine the characteristics of the medium with a different number of layers and at different values of resistivity and layer thickness. To solve the inverse problem, we used Hooke-Jeeves method and the exhaustive method. We tested the implemented algorithms on various media models. The results obtained allowed us to determine the advantages and disadvantages of the algorithms used, identify the most effective method of solving the inverse problem, determine the characteristics of vertically-layered medium. The developed software package can be used for solving direct and inverse problems of vertical electrical sounding

Keywords

Electrical exploration, vertical electric sounding, vertically-layered medium, source electrode, electrical resistivity, medium potential function, direct problem, inverse problem

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