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# Neural network recovery of missing data of one geophysical method from known data of another one in solving inverse problems of exploration geophysics.

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This study is devoted to the inverse problems of exploration geophysics, which consist in reconstructing the spatial distribution of the properties of the medium in the Earth's thickness from the geophysical fields measured on its surface. We consider the methods of gravimetry, magnetometry, and magnetotelluric sounding, as well as their integration, i.e. simultaneous use of data from several geophysical methods to solve the inverse problem. In their previous studies, the authors have shown that the integration of geophysical methods allows improving the quality of the solution of the inverse problem in comparison with the individual use of each of them.

One of the obstacles to using the integration of geophysical methods can be the situation when for some measurement points there is no data from one of the geophysical methods used. At the same time, the data spaces of different integrated geophysical methods are interconnected, and the values of the observed quantities (fields) for one of the methods can be possibly recovered from the known values of the observed quantities of another geophysical method by constructing a preliminary adaptive mapping of one of the spaces to another. In this study, we investigate the neural network recovery of missing data of one geophysical method from the known data of another one and compare the quality of the solution of the inverse problem on full and on recovered data.

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