

## **The Earth crust structure of the East Siberian continental margin by the results of integrated modelling of seismic, gravity and magnetic data**

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The problem of the Earth crust structure of the East Siberian continental margin is relevant in connection with the reconstruction of the Arctic evolution and the delimitation of the outer continental shelf limits. Weak and uneven study leads to ambiguity and controversy of the proposed structure models of the region. Further progress to solve this problem is possible through a joint interpretation of all factual data.

In the present research, the Earth crust structure has been studied by numerical modelling on the basis of solving forward and inverse problems of gravity and magnetometry in 2D and 3D formulation. The modelling technique allowed limiting geometry of boundaries and properties of crustal layers based on the MCS and DSS data, as well as taking into account multi-parameter petrophysical information about rheological, density and magnetic properties of the crust.

The diagnostic features of the main Earth crust structural elements have been identified on the basis of an integrated analysis of heterogeneous geophysical data. The 2D crustal models of the region were constructed for three possible types of passive continental margins: magma-rich, magma-poor and mantle exhumation. The model testing demonstrates that the factual data best correspond to the model of the hyperextended passive continental margin of the magmatic-rich type for the most part of the studied region.