



Assessment of gravity and magnetic effects of trap formations in Eastern Siberia

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Research of Eastern Siberia began after the discovery of hydrocarbons. At the same time, on the territory of a platform there is the largest trap province in the world - the Siberian province with ubiquitous magmatic bodies of the main composition, which complicate the upper part of the section assessment.

To construct geological sections, borehole data are most often used to determine the power and structure of magmatic complexes. However, drilling cannot provide sufficient details.

Magmatic formations are distinguished by large variations in magnetic properties (from 100 to $1000 \cdot 10^{-5}$ SI) and density (from 2.65 to 2.95 g/cm³). They create local gravitational anomalies up to 5-10 mGal, and magnetic ones - from dozens to the first hundreds of nanoteslas.

With the usage of geological sections as the starting model framework, 2D modeling and selection of the physical properties and geometry of the trap bodies was done. The magnetic field along the profile is set according to the digital model EMAG2 (2009). The gravitational effect was calculated based on the final models, which were assigned density properties.

Modeling of typical sections makes the shape of anomalous sources and supply channels positions more precise. This approach allows to restore the upper part of the section, saturated with trap intrusions.