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Aeromagnetic data at the solution of regional geological tasks

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In Russia long-term mission for creation of the State geological maps of the third generation of scale 1:1 000 000 is carried out. These works are followed by preliminary geophysical surveys which come to the end with drawing up a geophysical basis of the State geological card of scale 1:1 000 000. The main maps in a set: map of magnetic anomalies and map of Bouguer anomalies (M1:1000 000). On these to data maps a transformant are formed (M1:1000 000). Data processing and a mapping is carried out by software of Geosoft and ArcGis(ArcMap). Total digital materials are presented in database on a grid 500kh500m.
These materials serve for geological interpretation in the form of the regional forecast of minerals, structural and tectonic division into districts, studying of a deep structure of crust and other applied tasks.
Results of interpretation of geophysical materials on the sheet R-58 which all area is covered with digital aero geophysical survey (aero magnetic and aero gravimetric researches) M1:200 000 (the land and part of the East Siberian Sea) are given in this article.
As a result of works new reliable data on the water area of the East Siberian Sea which allowed to specify the provision of geological objects are for the first time obtained. On the land of are observed the positive magnetic anomalies connected with a gabbro diabases and diabase porfirita. Communication of the localized magnetic anomalies with volcanic educations is noted. These regularities are looked through and on the water area of the East Siberian Sea.
According to aeromagnetic data, a two-layer structure of magnetized formations is assumed. The upper layer is composed of pyrrhotinized sedimentary, volcanogenic-sedimentary rocks of Triassic age. The bodies are located serially, have, apparently, a steep fall. The lower layer is composed by bodies of a gabbro diabases of high magnetization. The bodies are located serially, have, apparently, a steep fall.
To determine the depth of the magnetic sources, the magnetic field in the lower half-space was calculated from the profiles passing through the epicenters of anomalies using the analytical continuation method with chain fractions (Ermokhin K., 2009). The focus was on the anomalies of the magnetic field in the East Siberian Sea sheet R-58.According to calculations, the variation of the depths of magnetoactive sources ranges from 0, 0.4 (bottom) to –(2-3) km.
Characteristic of this region is the wide spread of the ring and semi-ring negative magnetic anomalies of the granitoid nature (polyphase granites) bordered with the intensive positive narrow arc magnetic anomalies caused by gabbroida. Tin-gold ore mineralization is associated with this type of anomaly. With the help of geophysical data, hidden anomalies that do not come to the surface and are promising in search of gold ore mineralization have been identified. Gold-bearing veins are confined to zones of increased fracturing of the northeast, near-latitude and north-west strike. A characteristic feature of the deposit is the overwhelming development of ore veins in the bodies of gabbro-diabases.