

MAGNETOACTIVE CRUSTAL LAYER OF THE ANTARCTIC COAST OF THE STATION “ACADEMIC VERNADSKY”

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The magnetoactive layer is represented by breeds of different composition and physical properties to a depth of 20 km, to the limit of the Curie isotherm of magnetite. The continental type of the Earth's crust on thermodynamic parameters is examined. The scopes of layer of magnetized formations are determined from data of complex information: by seismic velocity cuts, Curie isotherm position, aeromagnetic and land survey data and other geologic-geophysical materials. Thus, above all things, correlation dependences of magnetic, elastic, density characteristics of a specially chosen collection of breeds of Antarctic Peninsula were used.

According to results of a correlation analysis of physical parameters of breeds of the magnetoactive layer, three horizons were separated:

- a “granitic” horizon (granitoids, tuffs, alkaline rocks) with $V_p=5,3$ km/s, $J=0,06-2,61$ A/m where granodiorites ($V_p=5,62$ km/s, $J=\text{up to } 4,4$ A/m), are most common,
- a “dioritic” layer is made by diorites, dioritic porphyrites, metabasic rocks ($V_p=6,1$ km/s, $J=\text{up to } 4,6$ A/m),
- a “basaltic” layer is represented by gabbroids ($V_p= 7,08$ km/s, $J=\text{up to } 2,6$ A/m). In a cut there are effusive and other rocks whose magnetization is of minor importance.

The magnetization of layers was estimated from the total magnetization (J) with subsequent correlation and referring to stratigraphic and structural elements. According to the results of PT-experiments made on rocks of the same type, J values were corrected for their changes with depth due to the PT effect. The calculated values of the total magnetization for the breeds in situ enable modeling of the geometrical cuts of magnetic layers, estimating intensity created by them the anomalous field.

Varying mineral composition of magnetic layers, the depth of occurrence and dimensions of magnetic geological bodies (determining intensity of the total anomalous field) is determine their age relations, regional structural features, tectonophysical conditions of forming and transformation of breeds of magnetoactive layer of each specific structural element.

breeds, magnetoactive layer, total magnetization, petrogroups

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