

Jalovchat Gabbroic Intrusive of the Caucasus: Petrological Study, Geochemical Peculiarities and Formation Conditions

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Abstract : The Jalovchat intrusive is built up of hornblende gabbros, gabbro-norites and norites. Within the intrusive hornblende-bearing gabbro-pegmatites are widespread. That is a coarse-grained rock with gigantic hornblende crystals. By its unusual composition, the Jalovchat intrusive has no analogue in the Caucasus. However, petrologically and geochemically, the intrusive rocks were studied insufficiently. For comprehensive investigations, the authors applied appropriate methodologies: Microscopic study of thin sections, petro- and geochemical analyses of the samples and also different petrogenetic, rare and rare earth elements diagrams and spidergrams. Analytical study established that the Jalovchat intrusive by its composition corresponds mainly to the mid-ocean ridge basalts and according to geodynamic type belongs to the subduction type. In general, it is an anomalous phenomenon, as in the rocks of such composition crystallization of hornblende and especially of its gigantic crystals is atypical. The authors believe that the water-rich magma reservoir, which was necessary for the crystallization of gigantic hornblende crystals, appeared as a result of melting of water-rich mid-ocean ridge basaltic rocks during the subduction process in Bajocian time.

Keywords : gabbro-pegmatite, intrusive, petrogenesis, petrogeochemistry, the Caucasus

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