



New data on the structure and age of the crystalline basement of the Fore Range of the Greater Caucasus

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The Fore Range of the Greater Caucasus has nappe structure. The rocks of the crystalline basement are overlapped here with a pack of thrust sheets of different genesis and the Early-Middle Carboniferous molasses in upper part. The crystalline basement of the Fore Range zone is exposed in several different-sized salients, the largest of which is the Blyb salient. Within Blyb metamorphic complex the Balkan mafic formation cut by Balkan quartz metadiorites massif and the Armovka formation are distinguished. The preceded U-Pb dating of the rocks of the Balkan massif gave Ediacaran ages (549–574 Ma) [1]. The Armovka formation has a Middle Paleozoic age of the protolith and is made up of garnet-mica schists and kyanite gneisses. We have obtained a new U-Pb data on zircons from garnet-mica schists, which yielded an age of 362.2 ± 1.9 Ma. The strong age unconformity of the rocks of the Armovka and Balkan formations along with the previously established signs of the tectonic contact of these units [1] confirms the concept of the structure of the Blyb complex as the Precambrian basement and the Middle Paleozoic thrust sheet. According to the latest, we identify Armovka formation as a nappe independent from Blyb metamorphic complex.

In addition, new zircon U-Pb age data from linear intrusive body of monzodiorites, contouring the southern boundary of the Blyb complex and the Fore Range zone, have been obtained. Monzodiorites yielded an age of 393.7 ± 1.7 Ma. Based on geochronological studies, we also identified a Late Paleozoic magmatic event within the Fore Range zone basement. The age of granitoids of the nameless intrusion located in the southern part of the Blyb complex is Early Carboniferous (319 ± 3.8 Ma) [1].

Hereby, we have identified following magmatic events within the Blyb complex: the Ediacaran, associated with the emplacement of the largest Balkan massif of quartz metadiorites, the Middle Devonian, related to the intruding of monzodiorite bodies, the Early Carboniferous, expressed in the emplacement of a group of granitoid intrusions, and the Late Devonian hypogene event, revealed in rocks of Armovka nappe. These magmatic events represent important geological markers and can be a key for understanding and reconstruction of Paleozoic history of the Fore Range of the Greater Caucasus. We assume that Ediacaran magmatism is related to northern margin of Gondwana, where Ediacaran magmatic events are known in some peri-Gondwanan terranes including Transcaucasian massif [2], whereas the Early Carboniferous magmatism can be related to the accretion of Gondwana-derived terranes to the southern margin of East European platform.

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2. Zakariadze G., Dilek Y., Adamia S., Oberhansli R., Karpenko S., Bazylev B., Solov'eva N. Geochemistry and geochronology of the Neoproterozoic Pan-African Transcaucasian Massif (Republic of Georgia) and implications for island-arc evolution of the late Precambrian Arabian-Nubian Shield // *Gondwana Research*. 2007. 11, 92–108.