Ediacaran magmatism in the evolution of the transform active continental margin of the Siberian craton: geochemistry, geochronology and geodynamics

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An Ediacaran complex of dike rocks has been identified for the first time in the Yenisei Ridge orogen. These igneous rocks are represented by basic, intermediate and acid variants and have chemical and mineralogical compositions that correspond to the intermediate characteristics of magmatic sources, between the OIB and E-MORB. The studied dikes are predominantly not deformed, but break through largely deformed weakly metamorphosed sedimentary rocks (metasandstones and marbled limestone) and igneous rocks (gabbroids). The presence of deformations in the latter is explained by the previous tectonic processes – the collision of the Central Angara terrane with the Siberian Craton and the accretion of island-arc blocks to it [1].

Based on new U-Th-Pb isotope data for zircons (SHRIMP-II method) we established that the studied dikes of the picrodolerite – quartz diorite – leucogranite association formed in the interval of 626-623 Ma. They formed in the conditions of the transform active continental margin along the south-western margin of Siberia during the entire Ediacaran. Subsequent tectonothermal events, as evidenced by new $^{39}Ar/^{40}Ar$ isotope data for amphibole and muscovite, 600.2 ± 4.8 and 563.8 ± 3.8 Ma correspondingly, continued in the late Ediacaran. At the final stage, these processes went on synchronously with the intrusion of adakite dikes and associating gabbro-anorthosites [2] of the transform continental margin, that is to say prior to and during the interruption of subduction and slab breakoff.

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[1] Vernikovsky et al. (2003). *Tectonophysics*, 375, 147-168.

[2] Vernikovskaya et al. (2017). *Russian Geology and Geophysics* 58, 1154–1170.

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