

Magmatism evolution on the last Neoproterozoic development stage of the western Siberian active continental margin

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Rocks from active continental margin complexes are characterized by a wide variety of chemical compositions from depleted in alkali to alkali differentiates. When addressing issues of geodynamic settings in which such rocks form, it is important to understand the evolution of the host tectonic structure, as well as the chemical affiliation of the various rocks composing it. The Yenisey Ridge orogen located in the south-western framing of Siberia is one of the more studied regions with a long history of Neoproterozoic magmatic events. This orogen was formed during the collision of the Central Angara terrane with Siberia, which took place 761–718 Ma. Subsequent subduction-related events in the orogen have been recorded in the coeval magmatism (711–629 Ma) of two complexes: one is the active continental margin complex (Nb enriched igneous rocks – gabbroids, trachybasalts, A-type granites and carbonatites, including contact metasomatites zones with Nb mineralization), and the other one is an island arc complex (differentiated series volcanics, gabbroids and plagiogranites). The rocks of these complexes are respectively located in two suture zones: the Tatarka-Ishimba zone that formed due to the collision mentioned above, and the Yenisei suture marking the subduction zone [Vernikovskiy et al., 2003; 2008]. The final Neoproterozoic stage in the evolution of the active margin of Siberia is manifested as adakite-gabbro-anorthosite magmatism in the 576–546 Ma interval. Our results indicate a genetic relationship between the adakites and their host NEB-type metabasites of the Zimovey massif. These Neoproterozoic adakites could have formed in a setting of transform-strike-slip drift of lithospheric plates after the subduction stopped, both from a crustal and mantle-crustal source, similarly to the Cenozoic magmatic complexes of the transform margin in the eastern framing of Eurasia [Khanchuk et al., 2016].

Vernikovskiy V.A., Vernikovskaya A.E., Kotov A.B., Sal'nikova E.B., Kovach V.P. Neoproterozoic accretionary and collisional events on the western margin of the Siberian craton: new geological and geochronological evidence from the Yenisey Ridge // *Tectonophysics*, 2003, V. 375, P. 147–168.

Vernikovskiy V.A., Vernikovskaya A.E., Sal'nikova E.B., Berezhnaya N.G., Larionov A.N., Kotov A.B., Kovach V.P., Vernikovskaya I.V., Matushkin N.Yu., Yasenev A.M. Late Riphean alkaline magmatism in the western margin of the Siberian Craton: A result of continental rifting or accretionary events? // *Doklady Earth Sciences*, 2008, V. 419, Iss. 1, P. 226–230.

Khanchuk A.I., Kemkin I.V., Kruk N.N. The Sikhote-Alin orogenic belt, Russian South East: Terranes and the formation of continental lithosphere based on geological and isotopic Data // *Journal of Asian Earth Sciences*, 2016, V. 120, P. 117–138.