

Riftogenic A-type granites of the Polar Urals, Russia

Oksana Udoratina, Ksenia Kulikova, and Alexander Shuysky

Institute of Geology KSC UB RAS, Syktyvkar, Russian Federation (Udoratina@geo.komisc.ru)

There are granitoids-markers of the riftogenic geodynamic setting in the Polar Urals. Isotope-geochronological and petrographic-petrogeochemical data on granitoids indicate the post-collisional conditions of their formation. Granitoids along with other alkaline massifs North Urals mark rifting in this part of the Urals. These granitoids formed after the collision peak of Timanides formation, after 520 Ma in the absolute chronology, when the intensity of magmatism fell sharply and only small volumes of rhyolite and A-type granites were formed. Granitoid massifs occur within the Northern Urals fragment of the Central Ural uplift composed of preuralide complexes.

According to the recent data (U-Pb, SIMS) for single zircon the granitoids of the massifs (hereinafter Ma): Syadatayakhinsky (516 ± 2 , 503 ± 6.3), Ochetinsky (500 ± 5), Ingilorsky (487.3 ± 6.9 , 503 ± 5), the northern part of Gerdizsky (496.2 ± 7.1), Marunkeu Ridge (495 ± 2.4) and part of massifs of kharbeysky complex of Laptayugansky and Evyugansky domes (497 ± 3 and 487.1 ± 2.1) were formed in the Late Cambrian-Early Ordovician time. Within rare metal ore deposits of Taykeyusky ore unit, except for older granitoids with ages 600-560-540 Ma, the granitoids occur with the following ages: Longotyugansky (512 ± 8 , 482 ± 8 , 511 ± 11), Taykeusky (513 ± 3.4 , 518.6 ± 3.9 , 477 ± 12), Ust-Mramorny (516 ± 16).

There are the following situation localization of granites in the area of the Central Urals uplift:

- 1) in Ochetinsky and Syadatayakhinsky blocks without significant tectonic deformations among greenschist metamorphites;
- 2) in the areas of intense tectonic transformations (Longotyugansky, Taykeusky, Ust-Mramorny), but also among greenschist metamorphites;
- 3) in highly metamorphized rocks (Marunkeu Ridge, Ingilorsky, Gerdizsky, small bodies of Kharbeysky complex). Granitoids differ by the material and structural-textural features of the rocks. Some are massive with preserved granite fabric (1), the other have clearly expressed secondary gneiss-likeness and cataclastic, metamorphic or metasomatic fabric (2, 3).

Petrographic features of the granitoid vary widely: 1) alkali granites with developed alkali amphibole or pyroxene, 2) subalkaline granites with developed postcataclase metasomatic facies and metasomatic alkaline pyroxene in albitites and quartz-feldspar metasomatites, 3) subalkaline granites with biotite-muscovite parageneses with amphibole (actinolite, tremolite).

With 2 type of granites associated ore complex (Nb-Ta, Y and HREE, Zr, rarely Be) deposit, although we consider it is incorrect to regard granites with a wide display of metasomatic facies, because all the characteristic data in them are increased due to the high content of ore components.

The studied granites of the Polar Urals are small magmatic intrusions of cutting or layered melt intrusion, as well as metasomatically transformed bodies (metasomatic facies, developing on older granitoids). Granites high alkalinity, potassium, potassium-sodium series with intraplate characteristics. Formation of granitoids occurred in the period 515 (510) -490 (480) Ma.