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The geological processes time scale of the Ingozersky block TTG complex (Kola Peninsula)

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Ingozersky block located in the Tersky Terrane of the Kola Peninsula is composed of Archean gneisses and granitoids [1; 5; 8]. The Archaean basement complexes on the regional geological maps have called tonalite-trondemit-gneisses (TTG) complexes [6]. In the previous studies [1; 3; 4; 5; 7] within Ingozersky block the following types of rocks were established: biotite, biotite-amphibole, amphibole-biotite gneisses, granites, granodiorites and pegmatites [2].
In the rocks of the complex following corresponding sequence of endogenous processes observed (based on [5]): stage 1 - the biotitic gneisses formation; 2 - the introduction of dikes of basic rocks; 3 phase - deformation and foliation; 4 stage - implementation bodies of granite and migmatization; 5 stage - implementation of large pegmatite bodies; stage 6 - the formation of differently pegmatite and granite veins of low power, with and without garnet; stage 7 - quartz veins.
Previous U-Pb isotopic dating of the samples was done for biotite gneisses, amphibole-biotite gneisses and biotite-amphibole gneisses.
Thus, some Sm-Nd TDM ages are 3613 Ma – biotite gnesses, 2596 Ma – amphibole-biotite gnesses and 3493 Ma biotite-amphibole gneisses..
U-Pb ages of the metamorphism processes in the TTG complex are obtained: 2697±9 Ma – for the biotite gneiss, 2725±2 and 2667±7 Ma – for the amphibole-biotite gneisses, and 2727±5 Ma for the biotite-amphibole gneisses. The age defined for the biotite gneisses by using single zircon dating to be about 3149±46 Ma corresponds to the time of the gneisses protolith formation.
The purpose of these studies is the age establishing of granite and pegmatite bodies emplacement and finding a geological processes time scale of the Ingozerskom block. Preliminary U-Pb isotopic dating of zircon and other accessory minerals were held for granites - 2615±8 Ma, migmatites - 2549±30 Ma and veined granites - 1644±7 Ma.
As a result of the isotope U-Pb dating of the different Ingozerskogo TTG complex rocks, the following age-formation stages are determined: protolith of the biotite gneisses - 3149±46 Ma; metamorphism, deformation of rocks, foliation - 2727±5 - 2725±2 - 2697±9 - 2667±7 Ma, granite bodies formation - 2615±8 Ma and biotite gneisses migmatization - 2549±30 Ma, formation of different pegmatite and granite veins -1644±7 Ma.
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