



Isotope U-Pb dating of the Ingozero TTG complexes (Kola Peninsula).

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The Archaean basement complexes on the regional geological maps have called tonalite-trondemit-gneisses (TTG) complexes [Mitrofanov, 2001]. The processes of applying ultrametamorphism and melting in the basement complexes led to a change in the composition of rocks and minerals [Mitrofanov, 2001], including changes in isotopic zircon systems, that is the "rejuvenation" of age-dating. Different sizes of rocks and minerals, including zircon, which has the most stable structure, can be those relicts in the complexes.

More than 3.0 billion years dating of detrital zircons on the Kola Peninsula are widely known [Kozhevnikov et al, 2010; Vrevsky et al, 2010], which, according to Acad. F.P.Mitrofanov, shows a small transfer of material, i.e. massifs, of which this is brought zircon, are probably not far from the places of the zircons findings. In addition Archaean rocks are metamorphosed in the granulite facies metamorphism and there are small amounts of the terranes where the basement complex was metamorphosed in the amphibolite facies, including Ingozersky massiv.

Ingozersky block located in the Tersky Terrane of the Kola Peninsula is composed of Archean gneisses and granitoids [Batieva and Belkov 1968, Kozlov et al, 2006; Kharitonov, 1966]. In the previous studies [Batieva and Belkov 1968, Precambrian tectonics ..., 1992, Zagorodny and Radchenko, 1978; Kozlov et al, 2006; Explanatory Note..., 1994] within Ingozersky block the following types of rocks were established: biotite, biotite-amphibole, amphibole-biotite gneisses, granites, granodiorites and pegmatites [Belkov et al, 1971].

Preliminary U-Pb isotopic dating of samples held for biotite gneisses (H-10-01), amphibole-biotite gneisses (H-10-07) and biotite-amphibole gneisses (H-10-08).

Thus, some 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.

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