



Achaean TTG and high alimunia gneisses on Baltic Shield: Precise U-Pb (ID-TIMS) and SHRIMP-II ages on single zircon

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New U-Pb (ID-TIMS) data on single zircon from high alimunia gneisses near Murmansk in the Central-Kola domain gave 3.17 Ga. Core from these zircon population has the age 3695 ± 5 Ma by SHRIMP-II. Time of amphibolites metamorphism was dated with 2753 ± 3 Ma.

Achaean gneisses in Monchegorsk ore region were firstly dated in the Central-Kola domain. Single zircon from gneisses in Monchegorsk region which are the basement for Paleoproterozoic PGE layered intrusions with U-Pb ages on zircon and baddeleyite from 2.4-to 2.5 Ga (Bayanova et all, 2009) has 3.16 Ga. Single zircon from gneisses gave 2776 ± 3 Ma and is considered as amphibolites metamorphism.

Voche-Lambina international polygon lies on the boundary between Belomorian mobile block and Central –Kola domain (Morozova et al, 2011). New neoarhaean U-Pb data on single zircon from TTG of polygon yielded 3158.2 ± 8.2 . Zircon are characterized by low concentration U and Pb, low U/Th ratio with 0.2. REE diagrams of grey gneisses reflect high fractionation $\text{La/Yb} > 30$, enriched by light REE and depleted by heavy $\text{Yb} < 0.6$ ppm. Model Sm-Ng ages on the rocks have protolith from with the ages 3.4 to 3.2 Ga, positive ε_{Nd} from +1.29 to +3.3, ISr equals 0.702. Precise (ID-TIMS) age of amphibolites metamorphism has been dated on single zircon with 2704.3 ± 5.9 Ma.

In the frame of the Central-Kola domain there is an Ingosersky TTG complex. Firstly U-Pb dating on single zircon from Bt-gneisses reflects 3149 ± 49 Ma. Metamorphic alterations were in 2725.2 ± 2.5 Ma and connected with origin of Amf-Bt gneisses and 2733.6 ± 6.6 with Bt-Amf gneisses. (Nitkina et al., 2012).

Therefore based on the new data on single zircon from TTG and high alimunia gneisses from Central-Kola domain leads to the long history of continental crust origin in the Baltic or Fennoscandian Shield from 3.16 to 3.7 Ga.

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