

**Paleoproterozoic PGE-layered intrusions of the Arctic region (the N-E part of the Fennoscandian Shield): new isotope-geochemistry data.**

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Paleoproterozoic mafic-ultramafic layered intrusions with strategically commercial Co-Cu-Ni, Pt-Pd and Cr-T-V-Fe deposits (Monchegorsk ore region, Fedorovo-Pansky and Kandalaksha-Kolvitsa complexes, Imandra lopolith etc.) belong to the Central Kola and Belomorian blocks.

At the first time baddeleyite with zircon reflect long duration from 2.53 to 2.40 Ga of deposits origin and multistages 2.53, 2.50, 2.45, 2.40 Ga history of magmatic activity using U-Pb precise single grains dating.

Isochrones Sm-Nd ages of rock-forming and firstly sulphides minerals from the different parts of the intrusions are coeval to the U-Pb data on zircon-baddeleyite geochronometr.

Systematically isotope-geochemical ( $\epsilon_{Nd-I_{Sr}}$ ) whole-rock data from the deposits indicate a primary enriched mantle reservoir (EM-1). Additionally dyke complexes were derived from N-MORB, E-MORB and OIB mantle sources [1].

Isotope  $He^3/He^4$  data on rock-forming and sulphides minerals as well as magnetite and ilmenite are considered to contribution of upper and lower mantle.

New isotope Re-Os data for ore gabbrorites of Penikat intrusion (Finland) with  $^{187}Os/^{188}Os$  ratio (0.174009) are higher than BSE [2]. Evidence for an Early-Proterozoic mantle plume beneath rifted Achaean continental lithosphere of the Baltic Shield were based on Re-Os data by Puchtel *et al.* [3, 4].

All isotope (U-Pb, Sm-Nd, Re-Os) and geochemical ( $\epsilon_{Nd-I_{Sr}}$ ,  $He^3/He^4$  etc.) data lead to a conclusion about presence of the fertile [5] mantle plume about 2.53-2.40 Ga and break-up the oldest Kenorland supercontinent.

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[1] Nerovich *et al.* (2014), *Geochemistry international* 7, 605-624; [2] Eisele *et al.* (2002), *Earth Planet Sci.* 196, 197-212; [3] Puchtel *et al.* (1997), *Geochim.Cosmochim.Acta* 61, 1205-1222; [4] Puchtel *et al.* (2001), *Contrib.Mineral.Petrol.* 140, 588-599; [5] Robb (2005), *Introduction to ore-forming processes.*