

## Unknown details of Palaeoproterozoic evolution of the Karelian Craton: new U-Pb and geochemical data for mafic dykes

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New U-Pb (ID TIMS, baddeleyite, SIMS, zircon), geochemical and Sr-Nd isotopic data for the mafic dyke swarms in the Karelian Craton (Russia) have been obtained. These data give an additional information to the mafic igneous events sequence described in [1] and [2].

The U-Pb data for ca. 2.45 Ga mafic dykes demonstrate that a wide range of both low-Ti and high-Ti rocks were formed during ca. 10-15 M.y. period, and probably indicate a similarity between Paleoproterozoic and Phanerozoic plume events. New data for ca. 2.4-2.1 Ga period reveal existence of several pulses of mafic magmatism related to fragmentation of the Neoproterozoic continental crust followed by continental breakup at ca. 2.13 Ga. Data for the 2.1-1.95 Ga period indicate a wide spread of the ca. 1.98 Ga mafic sills and dykes in the central part of the Craton, and previously unknown ca. 1.956 Ga mafic sills in the Onega structure.

The recognized magmatic events, “recorded” in the Neoproterozoic Karelian craton, give insights into mantle melting processes during divergent stage of an Early Precambrian supercontinental cycle since final assemblage of Kenorland to the beginning of Columbia (Nuna) amalgamation.

### References:

1. Vuollo J., Huhma H. 2005. Paleoproterozoic mafic dikes in NE Finland // Precambrian Geol. Finl. Key to Evol. Fennoscandian Shield / ed. Lehtinen M., Nurmi P.A., Rämö B T. Elsevier,. Vol. Volume 14. P. 195–236.
2. Hanski E. 2013. Evolution of the Palaeoproterozoic (2.50–1.95 Ga) Non-orogenic Magmatism in the Eastern Part of the Fennoscandian Shield // Read. Arch. Earth's Oxyg. Vol. 1 Palaeoproterozoic Fennoscandia as Context Fennoscandian Arct. Russ. - Drill. Early Earth Proj./ed. Melezhik V.A. et al. Springer Berlin Heidelberg,. Vol. 1. P. 179–245.