

## New paleomagnetic data from precisely dated Paleoproterozoic-Neoarchean dikes in NE Fennoscandia, the Kola Peninsula

Roman Veselovskiy (1,2), Alexander Samsonov (3), and Alexandra Stepanova (4)

(1) Schmidt Institute of Physics of the Earth of the Russian Academy of Sciences, Geological, Moscow, Russian Federation (roman.veselovskiy@ya.ru), (2) Lomonosov Moscow State University, Faculty of Geology, (3) Institute of Geology of Ore Deposits Petrography Mineralogy and Geochemistry, Russian Academy of Sciences, (4) Institute of Geology, Karelian Research Centre RAS

The validity and reliability of paleocontinental reconstructions depend on using multiple methods, but among these approaches the paleomagnetic method is particularly important. However, the potential of paleomagnetism for the Early Precambrian rocks is often dramatically restricted, primarily due to the partial or complete loss of the primary magnetic record during the rocks' life, as well as because of difficulties with dating the characteristic magnetization.

The Fennoscandian Shield is the best-exposed and well-studied crustal segment of the East European craton. The north-eastern part of the shield is composed of Archean crust, penetrated by Paleoproterozoic and Neoarchean mafic intrusions, mostly dikes. The Murmansk craton is a narrow (60-70 km in width) segment of the Archean crust traced along the Barents Sea coast of the Kola Peninsula for 600 km from Sredniy Peninsula to the east. At least five episodes of mafic magmatism of age 2.68, 2.50, 1.98, 1.86 and 0.38 Ga are distinguished in the Murmansk craton according to U-Pb baddeleyite and zircon dating results (Stepanova et al., 2018). However, any contemporary paleomagnetic data from the Neoarchean and Paleoproterozoic dikes of the Murmansk block are absent.

We present the results of comprehensive paleomagnetic and rock magnetic studies of the Neoarchean-Paleoproterozoic (2.5 Ga) dikes. The age of characteristic magnetization is proven mostly by Ar/Ar method on feldspar, mica and amphibole. We also discuss the possible impact and worth of the obtained data for reconstructions the place of the Murmansk craton within Kenorland supercontinent configuration.

The studies were supported by the grant of the RF President (MD-1116.2018.5) and by RSF, grant #16-17-10260.

### References:

Stepanova, A.V., Salnikova, E.B., Samsonov, A.V., Larionova, U.O., Arzamascev, A.A., Larionov, A.N., 2018. U-Pb geochronology of Early Precambrian mafic rocks in Kola-Murmansk province, Eastern Fennoscandia: dyke "bar-code" as the basis of paleocontinental reconstructions, in: Methods and Geological Results of Studying of Geochronometric Systems in Rocks and Minerals. p. 340–343. (in Russian).