



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

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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 Neoproterozoic 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 Neoproterozoic and Paleoproterozoic dikes of the Murmansk block are absent.

We present the results of comprehensive paleomagnetic and rock magnetic studies of the Neoproterozoic-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.

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References:

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