

Neoproterozoic mafic dike swarms of the Sharyzhalgai metamorphic massif, southern Siberian craton
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Abstract:

Geochemical, petrographic, mineralogical and geochronological study of mafic dikes in the Sharyzhalgai massif of the south Siberian craton has revealed the presence of three distinct generations of dikes. The youngest and most abundant dikes are non-metamorphosed and largely unaltered dolerites. They include both tholeiitic and subalkaline types that were probably intruded during a single magmatic episode. A 3-point whole rock-mineral Sm-Nd isochron age of 743 +/- 47 Ma indicates that these dikes are Neoproterozoic. The Ar-40/Ar-39 plateau age of 758 +/- 4 Ma is broadly in accord with the Sm-Nd age. A geochemical study of these dikes indicates that both tholeiitic and subalkaline dolerites have similar trace element abundances, suggesting that they were derived from a single mantle source. On the basis of their age, it is possible that these dikes were part of either the well-known Franklin swarm in northern Canada, or of the 780Ma swarm in western Laurentia. However, more evidence is needed to test this hypothesis.

Author Keywords:

mafic dike swarms, Neoproterozoic, Sharyzhalgai massif, Siberian craton

KeyWords Plus:

ROCK REFERENCE SAMPLES, U-PB GEOCHRONOLOGY, VOLCANIC-ROCKS, LITHOSPHERIC MANTLE, LAURENTIA, CONNECTION, PALEOMAGNETISM, CONSTRAINTS, SEPARATION, PROVINCE

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