Geophysical Research Abstracts
Vol. 20, EGU2018-3670, 2018
EGU General Assembly 2018

Thermal history of the NE Fennoscandia during the last 400 Myr

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The absence of thermochronology data from the NE part of Fennoscandia, now represented by the Kola Peninsula, does not allow to reconstruct its tectonic exhumation and thermal history during Phanerozoic. Recently we got the first apatite fission track (AFT) data from the different depths of the Khibina alkaline-ultramafic pluton (Veselovskiy et al., 2015), which makes possible to create a preliminary version of the time-temperature model of this part of Fennoscandia and to estimate the geothermal gradient value in the central part of the Kola Peninsula for the last 300 Myr. Unfortunately, our achievements were based on the AFT data from the single magmatic body only, and their extrapolation overall NE Fennoscandia area was questionable. In this study, we present a new time-temperature model (and its tectonic interpretation) of the NE Fennoscandia for the last 400 Myr, which is based on the new AFT data from the Precambrian basement as well as the Devonian intrusive massifs, represent different regions of the Kola Peninsula. Moreover, we test the proposed time-temperature model by a computer modeling of the thermal processes in the upper crust.

The studies were supported by the Russian Federation Government (project no. 14.Z50.31.0017) and grant of the RF President (MD-1116.2018.5).