**Mantle paleogeotherm and lithosphere thickness beneath Ingashi lamproite field**

The preliminary mantle paleogeotherm was numerically fitted from the clinopyroxene *P-T* data using the FITPLOT program (Mather et al., 2011). The FITPLOT program evaluates the surface heat flow and the lithosphere thickness, calculated as the intersection of the conductive geotherm with the adiabatic geotherm of the convecting mantle. The program requires several input parameters for the crust and the mantle. The thermal properties of the crust have been identified as a significant source of uncertainty when calculating cratonic paleogeotherms (Mather et al., 2011; Dymshits et al., 2020). We attempted to use the best available local estimations for the structure of the crust and its heat production. We fixed the heat production rate in the upper crust beneath the Ingashi field at 0.78 μW/m3 according to (Duchkov et al., 1999). The heat production rate for the lower crust is poorly constrained in this locality and we assumed value 0.2 μW/m3 (Duchkov et al., 1999). The thicknesses of the upper and lower crust were taken from Cherepanova et al. (2013) and they are 20 and 23 km, respectively. The heat production rate in the lithospheric mantle was assumed to be 0.0 μW/m3 and a potential temperature (Tp) for the asthenospheric isentrope of 1315 °C as recommended by Mather et al. (2011).

The preliminary mantle paleogeotherm beneath Ingashi field corresponds to a surface heat flow of 36.4 mW/m2 and a lithosphere thickness of 176 km ((Supplementary Fig. S5). The uncertainty of the paleogeotherm calculation is plotted as thin dashed lines (representing the 1-standard deviation misfit) parallel to the paleogeotherm ((Supplementary Fig. S5). The majority of the *P-T* points fall within this misfit.

Surface heat flow and lithosphere thickness evaluated from clinopyroxene xenocrysts-derived palaeogeotherm can be compared with the estimates of lithospheric properties obtained from the geophysical observations. The present-day lithospheric thicknesses obtained from the TC1 thermal model (Cherepanova and Artemieva, 2015) are only slightly lesser (5-15 km) than the xenocrysts palaeogeotherm-derived value. The values of the surface heat flux summarized for the south-western part of the Siberian craton varies in the range of 35-40 mW/m2 (Duchkov et al., 1999) and agree well with our data. Thus, the present-day lithosphere does not reflect any large-scale changes in the lithospheric properties beneath Ingashi field since the eruption of the lamproites.

Cherepanova, Y. and Artemieva, I.M. 2015. Density heterogeneity of the cratonic lithosphere: a case study of the Siberian Craton. *Gondwana Research*, **28**, 1344–1360, https://doi.org/10.1016/j.gr.2014.10.002