

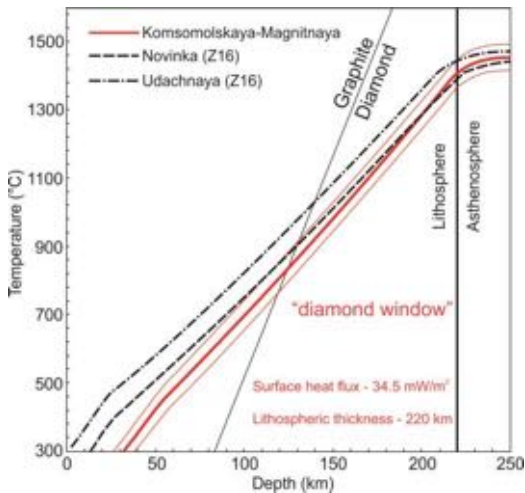
## Thermal state and composition of the lithospheric mantle beneath the Upper Muna kimberlite field, Yakutia

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Mantle xenoliths brought up by kimberlitic magmas are the main source of data on the composition and physical conditions of cratonic mantle. Temperature variations in a complete lithospheric mantle section (80-200 km) of the Siberian craton beneath the Upper Muna kimberlite field are estimated based 49 peridotite xenolith and 330 Cpx grains from the Komsomolskaya-Magnitnaya pipe. Pressure and temperature estimates closely follow the 34.5 mW/m<sup>2</sup> conductive geotherm. Thermal lithosphere thickness is of ~220 km, and “diamond window” in the Paleozoic is ~75 km thick (Fig.1). Olivine compositions range in Mg# from 82 to 94 and the majority of olivines has very high Mg# > 93. Garnets compositions mainly follow to harzburgite-dunite and lherzolite trends plotted as Cr<sub>2</sub>O<sub>3</sub> vs CaO. The composition of the minerals indicated the extremely depleted lithospheric mantle beneath the Upper-Muna kimberlite field.



**Figure 1:** Model palaeogeotherms calculated using the program FITPLOT. Komsomolskaya-Magnitnaya - our data, Novinka and Udachaya are from Z16 [1].

[1] Zibera et al., (2016) *AM* **101**, 2222-2232.

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