



Thermal state and nature of the low crust in the Baikal Rift zone according to the lower crust xenoliths of Cenozoic volcanics and Paleozoic magmas.

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The lower crust and Moho pyroxenites and xenocrysts from Cenozoic volcanoes studied with the EPMA, SEM and LA ICP MS for trace elements evidence about the structure and composition of the transitional zone from the crust to mantle in Cenozoic volcanic regions In Vitim (picrite basalts), Dzhida, (Bartoy volcanoes) and Tunka valley (Karierny volcano). For the comparisons the lower crust xenocrysts from the Angara Vitim batholite were studied. The calculated PT conditions show the PT estimates are localizing within the Moho –and just beneath giving the vast range of temperatures. Lower they trace 90 mw/m² geotherm. Within the crust the variation of temperature regime are varying from the conductive to advective. Xenocrysts and pyroxenite xenoliths mainly trace 90 mw/m² SEA plume geotherm the area of the intrusions is over heated to 1350oC.

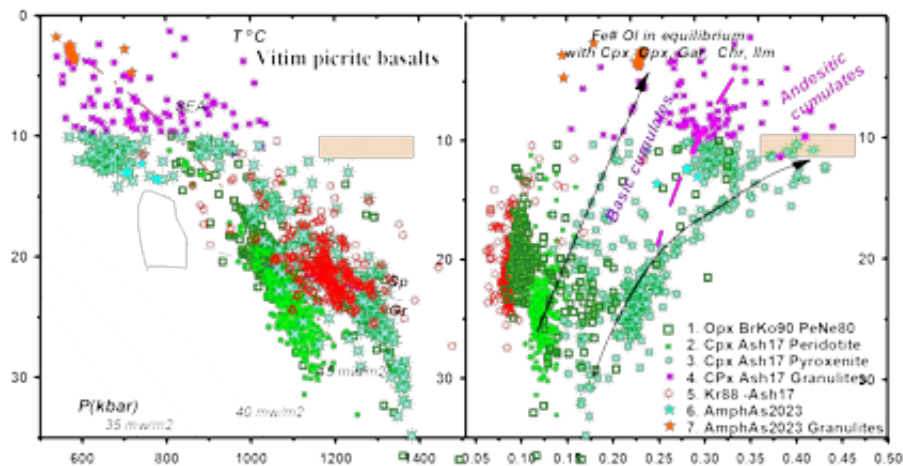


Fig.1 PT diagram for the xenoliths from Vitim Miocene Picrite basalts

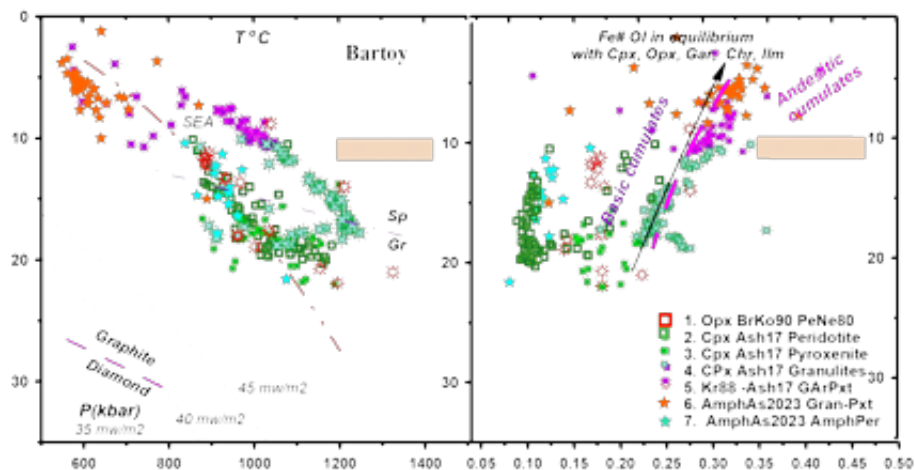


Fig.2 PT diagram for the xenoliths from Bartoy Pleistocene basalts

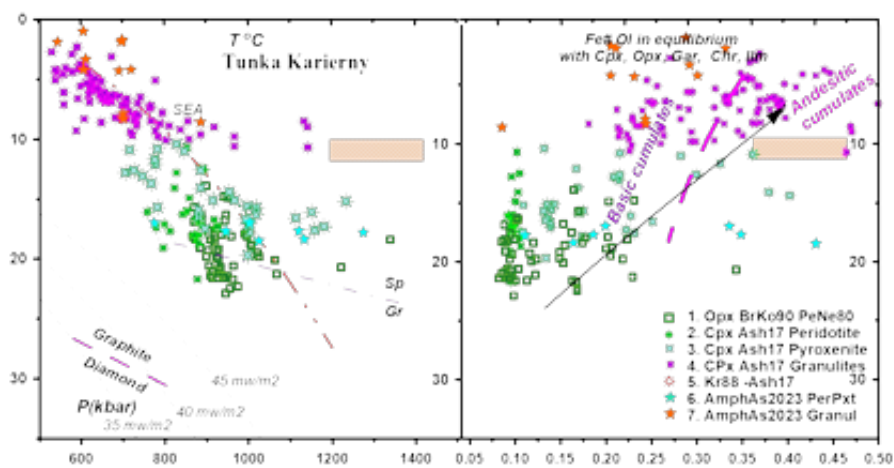


Fig.3 PT diagram for the xenoliths from Tunka Pliocene basalts

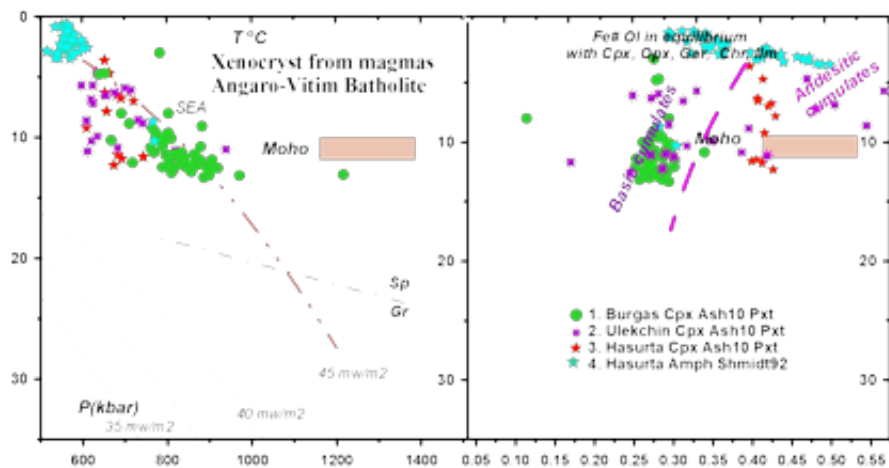


Fig.4 PT diagram for the xenocrysts from Magmas of Angara-Vitim batholite

The granulites are typically represent the more colder conditions than SEA geotherm. Xenocrysts from Angara Vitim batholith magmas reveal more depleted material of lower crust than those found in Cenozoic lavas and possibly are skialites. The xenocrysts and granulate xenoliths in Cenozoic lavas are mainly basic cumulates. The lower crust became more acid to the upper part. The lateral variations in the lower crust sampled material show enrichment in K₂O at the boundary with the Siberian craton in Tunka, more metasomatic and hydrous nature in Dzhida zone and more basic and CaO rich characteristic in Vitim area. These data give the evidence for the conditions of the creation of magmas of Angara-Vitim Batholiths. It was created by the hot spot created kimberlites and basalts in north and Center of Yakutia in Silurian- Devonian time and Ingashi lamproites, than it turned in Transbaikalia and after returned to central and Northern Siberia.

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