

Crust - mantle boundary beneath the Pripjat rift: Insights from minerals of hornblenditic xenoliths

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Hornblenditic xenoliths found in the Devonian alkaline volcanics of the continental Pripjat rift vary from pure hornblendites and clinopyroxene hornblendites through hornblende melagabbros to garnet-biotite-amphibole-shales. Similar xenoliths have been reported worldwide in either intraplate or suprasubduction settings.

After detailed study of petrography, mineral and bulk-rock composition of the xenoliths, isotopic investigations, calculation of melts in equilibrium with amphiboles of the xenoliths, T-P estimations, and amphibole comparison with amphiboles of different tectonic settings, we found that pure hornblendites, clinopyroxene hornblendites and hornblende melagabbros represent lower crustal cumulates of the Devonian alkaline magmas, which were parental magmas for the host rocks (in case of pure hornblendite xenoliths) or more evolved derivative magmas (in other cases), while garnet-biotite-amphibole-shales were developed by Devonian metasomatic reworking of the subduction-related lower crustal granulites of the Pripjat rift. Previous ⁴⁰Ar/³⁹Ar studies [1] and our Sr-Nd data confirm Devonian ages of hornblendite, clinopyroxene hornblendite and hornblende melagabbro xenoliths and their belonging to their hosts, while Sr-Nd results for garnet-biotite-amphibole-shales show their affinity to the lower crustal granulites. Therefore, these xenoliths indicate that the lower crust nearby the crust-mantle boundary beneath the Pripjat rift is composed of garnet granulites reworked by Devonian magmas and hornblenditic cumulates of such magmas. The study was funded by RFBR projects 17-05-00534 and 18-55-00006.

[1] Markwick, Downes, & Veretennikov (2001) *Tectonophysics* **339**, 215–237.