# Adakites in Relatively Thin Crust Above Continental Collisional Zones: Products of Continental Subduction-Related Melting

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Quaternary adakitic volcanic rocks from around the East and South Carpathians in Romania are to a first order puzzling because neither is the area subject to oceanic subduction (and has not been for at least over 100 Myr), nor is the local crust thicker than some 35 km.

These small volume aluminous intermediate shoshonitic rocks are highly enriched in LREE and depleted in HREE, and have every indication that they were extracted from an eclogite facies source that was free of amphibole. Moreover they contain petrographic evidence for mixing with mantle-derived forsteritic olivines, all suggesting that these crustal-derived melts traveled through upper mantle sections on their way to the surface. Geochemical and radiogenic isotopic data presented here are indicative of a continental source material, which was petrographically most likely a sanidine eclogite.

Moreover, inherited zircons show that the source is unlike any Carpathian domain near the location of these volcanic rocks, and similar to rocks found in the foreland in North Dobrogea.

Taken together these indicate that Carpathian adakites are the products of partial melting of subducted continental crust.