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## Pristine metasomatic melt preserved in mantle rocks of the Bohemian Massif

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Melt inclusions of very unusual nature occur in garnets of eclogites of the Granulitgebirge, Bohemian Massif. This is one of the first direct characterization of a preserved metasomatic melt responsible for the formation of eclogites enclosed in garnet peridotites. The inclusions are micrometric, from glassy to fully crystalized as nanogranitoids and randomly distributed in the garnet core. Nanogranitoids contain kumdykolite/albite, phlogopite, osumilite and kokchetavite with a variable amount of quartz, pyroxene, carbonate and rare white mica. The melt has a granitic composition rather than basaltic or tonalitic/trondhjemitic as would be expected from the partial melting of ultramafic or mafic rocks and it is as well hydrous and peraluminous. The trace elements composition is also unusual for melts in mantle rocks with elements typical of continental crust (Cs, Li, B, Pb and Rb) and subduction zone (Th and U). Similar signatures, i.e. continental crust and subduction, are visible also in the whole rock trace elements in the form of high amounts of LILE and U. The eclogite major elements composition is similar to a Ca- and Fe - rich mafic rock akin more to the crust than to the mantle.

The peculiar melt composition and the lack of a clear residue of a melting reaction in the eclogites suggest that this melt is external, i.e. metasomatic. It infiltrated the peridotites during subduction of the continental crust at mantle depth and aided the transformation of basic layers, already in the peridotite, to eclogite. In addition, similar trace elements patterns to the melt reported here can be found in the so-called durbachite -ultrapotassic melanosyenite present in the high-grade Variscan basement- and in the garnet peridotites and garnet pyroxenites of the T-7 borehole. In both case metasomatism was suggested but the agent was just inferred based on the geochemical signature. All these occurrences suggest that mantle contaminated by melts from deeply subducted continental crust is widespread beneath the Bohemian Massif.