

Petrology, age and textural anisotropy of lithospheric mantle xenoliths of the Central European Cenozoic Igneous Province (CECIP)

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Xenoliths of the sub-continental lithospheric mantle are abundant in mafic magmas of the mid-European Cenozoic volcanic fields and several studies aimed to investigate their pT-equilibrium conditions based on their mineral chemistry (e.g. Witt-Eickschen & Kramm 1997, 1998, Downes 2001, Ackerman et al. 2007). However, still unknown are (1) the age of the formation of the sub-continental lithospheric mantle in Western Europe as well as (2) the origin of seismic anisotropies (Babuška & Plomerová 1988, 1992, 2001). While a Late Proterozoic to early Phanerozoic (Pan-African) age is proposed from seismic heterogeneities, thought to be inherited from its origin as Armorican terrane (e.g. Babuška & Plomerová 1988), Th. Meier (pers.comm. 2009) proposes a Permo-Carboniferous age based on the uniform depth of the MOHO.

To solve the age and nature of the lithospheric mantle, within this project we intend to study the xenoliths with respect to their

- minerochemical compositions as geothermometers and geobarometers in order to derive the pT-conditions of equilibrium,
- model ages (e.g. Rb/Sr-, Sm/Nd-, Re/Os-, Lu/Hf-ages) in order to deduce the age of formation and younger metasomatic events of the lithospheric mantle,
- mineral orientations by EBSD-SEM in order to define the lateral variation in the intensity of the textural anisotropy.

The compilation of the derived data allows to identify spatial variations in the textural anisotropy as well as in the age of processes affecting the Mid-European lithospheric mantle.

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