

# **Incorporation of subduction-modified mantle xenoliths into extrusive Cenozoic alkaline rocks of the Bohemian Massif – lithium isotope evidence**

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Large-scale Cenozoic European alkaline volcanic occurrences extend from France through Germany to Czech Republic, broadly following the European Cenozoic Rift System. These rocks are thought to be derived during extensional regime and predominantly source the lithospheric mantle, with rare instances of deep asthenospheric source mantle. In the Bohemian Massif, most of these alkaline volcanic rocks are located within and near the Ohře Rift, forming two large complexes, Doupovské hory and České středohoří.

We acquired Li contents and  $^7\text{Li}/^6\text{Li}$  ratios for a suite of high-MgO basalts to avoid contamination by local evolved crustal lithologies. Most samples display  $d^7\text{Li}$  values within the mantle range ( $\sim 2\%$  to  $5\%$ ), irrespective of the eruptive phase (pre-rift, doming, syn-rift, post-rift) and position (within-rift, off-rift). However, olivine isolated from selected samples across the entire range of the Ohře Rift displays striking negative correlation between [Li] and  $d^7\text{Li}$ , broadly mimicking that observed for volcanic centres in Germany [1]. Although it is possible that this trend reflects a kinetic process, the broad regional consistency of the correlation, encompassing most of the Cenozoic alkaline volcanic rocks in the Bohemian Massif, may indicate variable incorporation of olivine which was previously modified by deep subducted fluids, derived from eclogites and/or amphibolites, ubiquitous in western part of the Bohemian Massif and typically carrying  $d^7\text{Li}$  as low as  $-16\%$  [2]. Mantle xenoliths in W Bohemia, overprinted by subduction-derived fluids, also carry similarly low  $d^7\text{Li}$  [3]. Further investigations are required to identify the exact origin of  $^7\text{Li}$ -depleted signature in olivine.

[1] Weyer & Seitz (2012) *ChG* 294-295, 42-50. [2] Magna et al. (2023) *Goldschmidt Conf. Abstracts*, #19091. [3] Ackerman et al. (2013) *JPet* 54, 2597-2633.

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