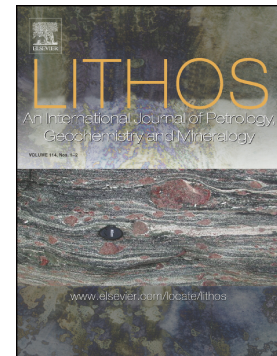


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Combined Lu-Hf and Sm-Nd geochronology of the Mariánské Lázně Complex: New constraints on the timing of eclogite- and granulite-facies metamorphism

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ABSTRACT

Lu-Hf and Sm-Nd garnet-whole rock geochronology combined with petrographic observations, mineral-chemical variations, thermodynamic modelling and structural data was used to constrain the P–T–t–d evolution of eclogites from the Mariánské Lázně Complex (Bohemian Massif). Boudins of mostly isotropic eclogite with relict steep eclogite-facies fabric are affected by steep migmatitic foliation, which is followed on a regional scale by the development of almost pervasive, predominantly SE-dipping, extensional foliation. The structural succession shows continuous transition from eclogite to garnetiferous migmatitic amphibolite and to amphibolite migmatite. A least retrogressed sample of eclogite shows clusters of fine-grained inclusion-poor garnet, omphacite relicts surrounded by a fine-grained clinopyroxene-plagioclase symplectite with minor amphibole, biotite-plagioclase intergrowths after white mica, kyanite with plagioclase-spinel coronas and accessory rutile. Rare potassic white mica occurs as inclusions in omphacite. A more retrogressed eclogite, with no omphacite or kyanite relicts, contains inclusion-poor garnet surrounded by

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