

**BURIAL AND EXHUMATION OF ECLOGITES IN CONTINENTAL  
ACCRETIONARY WEDGE: AN INDENTATION MODEL OF ECLOGITE  
FORMATION IN VARISCAN COLLISIONAL ZONE**

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Numerous eclogite boudins surrounded by orthogneisses, metavolcanics and metapelites form a unit separating a Neoproterozoic foreland from the Variscan orogenic root at the NE margin of the Bohemian Massif. Eclogites record peak conditions of 15.5 kbar and 700 °C (indicating burial to 55 km) and near-isothermal exhumation to 40 km, whereas the enclosing metapelites show an almost complete *P-T* loop with peak pressure conditions at 11 kbar and 640 °C. These different paths suggest differential burial and exhumation of rocks with tectonic amalgamation at mid-crustal levels. Structural features show viscous pure shear-dominated deformation of gneiss-eclogite blocks at deep crustal levels and essentially non-coaxial partitioned deformation of these blocks and their volcano-sedimentary matrix at shallower levels. Based on U/Pb zircon ages (561 - 633 Ma, 2004 Ma), calc-alkaline intrusive rocks associated with the eclogites are interpreted as a part of the lower crust of the Neoproterozoic Brunian continent. The eclogite protolith ages, geothermal gradients deduced from prograde and peak *P-T* conditions and geological structures are compared with coherent eclogite-bearing crustal units of the subducted Saxothuringian lithosphere and thickened Variscan (Moldanubian) orogenic root. Based on this comparison, a new model suggests the development of HP rocks at the tip of Brunian lithospheric indenter which penetrated a weak orogenic root in the west with Cambro-Ordovician protolith ages. Subsequent exhumation of HP blocks enclosed in a weak metasedimentary matrix was controlled by ongoing indentation and is similar to that of block-matrix flow in sedimentary or serpentinite wedges. The block-matrix relationship is a characteristic feature of the eclogite-micaschist wedge along the entire eastern margin of the Variscan collisional front.