KINEMATIC AND GEODYNAMIC EVOLUTION OF THE SE-BOHEMIAN MASSIF: EVIDENCE FROM THE THAYA SECTION AND THE MORAVIAN NAPPE PILE

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A tectonostratigraphic subdivision of the nappe assembly in the SE portion of the Bohemian Massif includes from hangingwall to footwall unit: 1) The granulite and Gföhl Gneiss units which are closesly connected within the Thaya section, 2) the Raabs unit which occurs mainly at the base of the granulite and Gföhl Gneiss terrane but, due to late Variscan imbrication, in other structural levels and 3) the Micaschist and Marble complexes of the Moldanubian Variegated Series and the Moravian Pernegg Formation (HÖCK & VETTERS, 1975) and the Moravian orthogneisses. Structural basement of this nappe assembly are the parautochthon Thaya and Brno batholith bodies and their host rocks, the Deblin Formation in the Czech Republic and the Therasburg Formation in Austria. Each of the units display different deformation paths and partitioned displacement directions as a response of deformation at different crustal levels and the distance to the paraautochthonous foreland. However, interaction of the deformation histories of the single structural units provides information about the mechanisms of Variscan continental collision.

Structural evolution of the tectonostratigraphic units include:

The Gföhl and granulite tectonostratigraphic unit: NNE directed non-coaxial rock flow associated with decompression of HP-rocks are the earliest structures observed in the ultramafic enclaves within the Blumau granulite body. Subsequent deformation is characterized by E-W coaxial penetrative deformation with high temperature quartz textures and mineral assemblages which indicate equilibration under upper amphibolite facies conditions. Localized low temperature deformations typically reworked the margins of the Blumau granulite body and the Gföhl Gneiss where cataclasites and low temperature mylonites developed.

The Raabs unit: Migmatic banding and partial melting of gneisses and amphibolites occurred during HT rock-flow. Melt enhanced deformation is towards north. Continuous HT regime in a changed, east directed, kinematic frame caused refolding of the migmatic foliation.

Moldanubian Variegated Unit and Moravian nappe complex: Depending on the location within the nappe assembly different deformation paths are realized. The Moldanubian Variegated unit is characterized by NE-directed HT shear followed by refolding of the mylonitic foliation at en enchelon oriented approximately N-S striking fold axes. The Moravian rock assembly suffered NNE-directed thrusting associated with the formation of the Thaya and Svratka basement domes (SCHULMANN et al., 1991). Subsequent exhumation is achieved by a system of LT low-angle normal faults, strike-slip faults and open folds (FRITZ & NEUBAUER, 1993).

The parautochthon basement: Basement Series are characterized by NNE-directed imbrication in more internal portions of the orogene forming basement duplexes in the Svratka and Thaya dome, followed by E-directed imbrication in a thin-skinned tectonic style in external parts.

Common features of the displacement histories are a clockwise displacement path with mainly viscous penetrative deformation in deep crustal levels and distinct localized deformation in upper crustal portions. This deformation path is related to dextral transpression along the southeastern margin of the Variscan orogen. Crustal thickening is achieved by thrusting of the Paleozoic Gföhl and granulite tectonostratigraphic unit onto the Moldanubian and Moravian Micaschist and Marble complexes of Proterozoic age (FRANK et al., 1990) and the orthogneisses. The Raabs Serie is interpreted to reflect the oceanic suture. Post-stacking coaxial rock-flow within the granulite unit is interpreted in postcollisional collapse of the overthickened crust. Folding occurred in the lower plate, within the Moldanubian Variegated Series, due to passive amplification as response of the crustal thickening. Stacking in the foreland in a thin-skined tectonic style and formation of the pericollisional flysch basin was coeval to extension in the hinterland. Late stage of the Variscan orogeny was characterized by modification of the plate boundary by a set of strike-slip and extensional faults. The repetition of the stratigraphy in the Drosendorf area is interpreted as positive flower structure between two major strike-slip faults.

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THE RAABS SERIE, A DISMEMBERED OPHIOLITE IN THE SE-BOHEMIAN MASSIF: A KEY FOR THE TECTONIC INTERPRETATION

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Variscan orogeny in the SE-Bohemian Massif has been classically explained by collision of the Moldanubian continental block with the Moravo-Silesian foreland. Consequently, a possible suture including oceanic fragments should be located along this boundary. Based on new geochronological, petrological and structural