Overall kinematic is explained by foreward propagation of thrusts. Major decollement developed at the base of the Early Paleozoic Gföhl and granulite terrane seperating two crustal blocks. Remnants of the suture are preserved in the Raabs and Letovice ophiolite bodies (Mísař et al, 1984). During thrust propagation the Moldanubian/Moravian boundary developed as a deep crustal decollement as effect of continental underplating. Rapid uplift and exhumation of deep crustal rocks together with a steep temperature gradient is explained by thrusting in a thick skinned tectonic style.

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THICK-SKINNED VERSUS THIN-SKINNED THRUSTING: MECHANISMS OR THE FORMATION OF INVERTED METAMORPHIC SECTIONS IN THE SE BOHEMIAN MASSIF.

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Variscan orogeny in Central Europe resulted from continental collision between the Devonian and Early Carboniferous. The Bohemian Massif is interpreted as a root zone characterized by "deep" crustal nappe assembly within an overall transpressive regime. Typical features of the Bohemian Massif include: 1) many crystalline nappes which record large-scale assembly during granulite to amphibolite facies conditions in internal orogenic zones; and, 2) nappe assembly which occured under very low to low-grade metamorphic conditions in external parts.

Structural characteristics indicate a deformation path which initiated close to peak metamorphic conditions and progressed during decreasing temperatures. These correspond with a clockwise tectonic displacement path with orogen-parallel HT displacement. This was followed by orogen-perpendicular LT displacements. In later stage of trans-pression, extensional structures developed. Extension in the hinterland is contemporanous with compression in the foreland. Displacement partitioning effected distribution of extensional structures associated with both orogen-parallel and orogen-perpendicular displacements. Foreland units were overthrust by HT-metamorphosed nappes during oblique collision. Structural investigations indicate an inverted metamorphic zonation with HT fabrics (related to nappe assembly) in the hangingwall units and LT-fabrics in the footwall units.

$^{40}Ar/^{39}Ar$ muscovite and hornblende ages reflect complete resetting of Cadomian Ar isotopic system during late Variscan thrusting tectonics (Figure 1). White mica and hornblende within hangingwall units record plateau ages between 331 Ma and 325 Ma. This contrasts with c. 580-560 Ma $^{40}Ar/^{39}Ar$ hornblende and muscovite ages from igneous suites in footwall units immediately below the Variscan HT thrust plane. These ages date post-magmatic cooling of the Cadomian plutons.

Kinematic and geodynamic models which explain this situation must consider a deep crustal decollement which did not effect the temperature regimes maintained in footwall units. This situation may have developed during rapid uplift associated with formation of ramp anticlines during forward nappe propagation. HT nappe assembly initiated in deep crustal levels in a thick-skinned tectonic style, and was approximately coeval to maximum subsidence of a narrow and deep foreland basin. Maximum basin subsidence occurred in Visean. Uplift and exhumation of deep crustal nappes changed the rheological behaviour; subsequent thrusts progressively developed under LT conditions and thin-skinned tectonic style. Rapid uplift with a steep temperature gradient together with the narrow, deep and rapidly subsiding foreland basin suggests collision with a hot and weak lithospere plate.

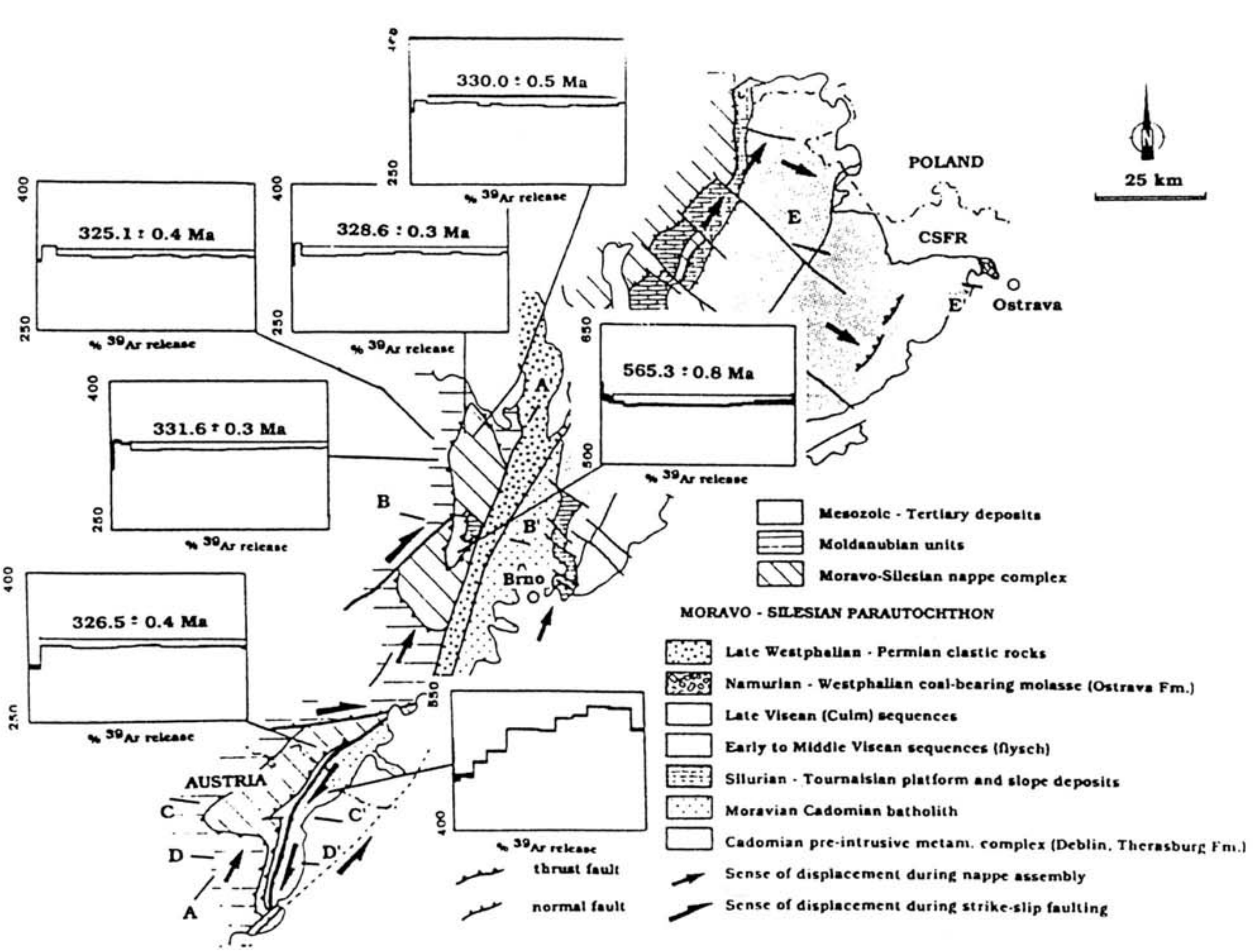

Fig.1. Simplified geological map of the southeastern Bohemian Massif with argon release spectra of muscovite concentrates.

A 1.38 Ga PROTOLITH AGE FOR THE DOBRA ORTHOGNEISS (MOLDANUBIAN ZONE OF THE SOUTHERN BOHEMIAN MASSIF, NE-AUSTRIA): EVIDENCE FROM ION-MICROPROBE (SHRIMP) DATING OF ZIRCON

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Zircons were extracted from the granodioritic, I–type Dobra orthogneiss, a main constituent of the granitoid basement of the southern Bohemian Massif. Tectonically the Dobra gneiss forms the base of the Varied Group or Drosendorf unit (Fuchs,1976). The latter belongs to the lower part of the Variscan (Carboniferous) nappe pile that developed during E–directed thrusting of the Moldanubicum over the Moravo–Silesicum.

Oscillatory zoning as detected by cathodoluminescence (CL) using a scanning electron microscope, demonstrate the magmatic origin of the zircons. Spots placed within magmatically resorbed zircon cores plot on the same discordia trajectory as spots run in the volumetrically much larger and uniformly shaped main population. Additionally, both Th/U ratios (0.21–0.59) and U–contents (ca.1000 –1500 ppm) are indistinguishable in these only existing, two magmatic zircon types. On a Concordia diagram all 'magmatic' spots plot concordantly to subconcordantly on a zero line discordia yielding an upper intercept age of 1377 Ma±10 Ma. This age is interpreted to reflect the emplacement age of the protolith of the Dobra gneiss (Gebauer and Friedl, in prep.).