Variscan development of the eastern margin of the Bobemian Massif in Austria and Czechia

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The 250 km long eastern boundary of the Bohemian Massif (BM) presents itself as a very significant zone for the understanding of the European Variscides. As further to the NW, the Variscan external boundary is mostly covered by later sedimentary cover, the importance of the this geologic feature is even greater. Three important megaunits (from below) build the the eastern boundary of the BM, the Brunovistulicum (BV), the Moravicum (MOR) and the Moldanubicum (MOL). The BV lithosphere is of Panafrican age (ca 750 – 550 Ma). It is covered by Devonian and Lower Carboniferous platform sediments. The BV lithosphere played the role of the lower plate during the Variscan continental collision time, 335 – 315 Ma ago. The Moravicum is today represented only by relatively narrow and thin tectonic slices composed of the (uppermost) Rehberg-Letovice metaophiolites with metasediments (Vranov-Olesnice series), the tectonically largely deformed Bites orthogneiss, and the (lowermost) Pernegg Formation slices. We anticipate that the voluminous Culm thin-skinned wedge is rooted here beneath the MOR and farther in the East thrust over BV.

Deep seismic reflection profiling shows a thick-skinned deep crustal and mantle suture of the MOR and the BV beneath MOL very far to the W under South Bohemia. It seems that after two subductional events (Rehberg – Letovice and Culm) the Variscan development of the BM ended by strong continental collision and high mountain building. Voluminous granitic magmatism, developed in the internal parts of the BM support this hypothesis.