AN OVERVIEW OF TECTONOMETAMORPHIC EVOLUTION OF THE BRANISKO AND ČIERNA HORA MTS. (WESTERN CARPATHIANS)

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The Branisko and Čierna hora Mts. form the eastern margin of the Tatric and Veporic domains of the Western Carpathian Internides (WCI). Their pre - Alpine structure comprises two Late-Variscan basement nappe sheets, namely the Upper lithotectonic unit (ULU) and the Middle lithotectonic unit (MLU). Cover sequences are build of Late Carboniferous to Malmian formations. The units are topped by klippes of the Choč nappe pile and/ or by Paleogene and Neogene post-nappe sequences, respectively.

The tectonometamorphic evolution of the pre - Tertiary units has been reevaluated by available palynological, geochronological and PT data and by new structural and field mapping. On the basis of these results four Variscan and four Alpine tectonometamorphic events have been recognized in these units.

* The first (likely Late Devonian - Early Carboniferous) HP-HT event occurred in ULU with P-T conditions of 630-1000 MPa and 675-770 °C. In the MLU reached the pressure of 300 - 500 MPa at temperature of 520-540 °C. Mesoscopic structures of the event indicate their formation in a simple shear regime. They are mostly represented by tight, rootless, generally E-W oriented cm-dm folds and their axial plane cleavage set, which represents the pre-Alpine schistosity of the basement metamorphic rocks.
* The second and third events are restricted to ULU only. They are related to granodiorite intrusions (334,5 Ma, Ar-Ar method). The second MT-MP event occurred at 620-648 °C and 400-450 MPa. The third, scarcely developed MT-MP event is tied to exocontacts of tiny autometamorphic granite bodies and resulted in replacement of mineral assemblage of previous events.
* The fourth, the LT-LP event (330-312 Ma, Ar-Ar method) relates to thrusting of the ULU onto MLU.

* The absence of Cretaceous cover formations and 135,7 Ma Ar-Ar age of muscovite from mylonitized granite of the ULU indicate the beginning of the Alpine tectonometamorphic events in the region. All four Alpine events (AD_{1-4}) occurred in green-schists facies conditions.
* The AD_1 E-W recumbent folding of the units, Choč nappe thrusting and a successive growth of chlorite, white mica and quartz within axial cleavage set of folded basement and cover units are typical for this likely Valangian-Albian event.
* During the AD_2 event the units have been penetratively folded into-SW-NE folds. For this event is typical a postkinematic blastesis of Chl + Mu ± Ab assemblage within the folds in the basement units - namely in diaphtorites of the MLU. The fold structure of all pre-Tertiary units has been successively sheared within the Margecany type reverse shear zones of the same direction. This event probably relates to the Middle Cretaceous uplift of the Veporic basement
* Within the AD_3 - the pre - Gossau event as well, the NW-SE shear zones have been opened for hydrothermal mineralization and rarely resulted in postkinematic growth of Q + Mu + Bi ± Ab.
* Regionally significant sinistral wrench zones of AD_4 event containing duplexes of Paleogene sequences likely connected with the Early Miocene oblique collision of the WCI edge with the Northern European Platform.