DEEP SEISMIC REFLECTION LINE 8HR THROUGH THE SVRATKA WINDOW, EASTERN MARGIN OF THE BOHEMIAN MASSIF

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The Svratka tectonic window is situated on the eastern margin of the Bohemian Massif and presents itself together with the Thaya (Dyje) window major antiformal structures within the stack of the Moldanubian, Moravian and Brunovistulian nappes and imbrications. Deep seismic reflection line 8HR was shot on the ESE-WNW trending line passing from the Carpathian foredeep through the Brno Massif north of Brno, the Boskovice Furrow to the central part of the Svratka window and then to the Moldanubicum. All upper crustal reflections beneath both - the Brno Massif and Svratka window - dip uniformly 40 degrees to the WNW. WE interpret them as deep upper crustal shear zones within the tectonically lower Brunovistulic complexes. There is good evidence on the seismic line that the Boskovice (Diendorf) fault divides this package of reflections into two parts. The shallower eastern portion - about 6 - 8 km thick belongs to the Brno Massif, the deeper western one to the core of the Svratka window made by the strongly sheared Svratka granite gneiss complex. The western reflection package reaches a depth of at least 20 km. Moldanubian and Moravian nappes are observable as relatively thin overthrust complex lying on thick Brunovistulian crustal imbrications. There are two approaches how to explain the origin of the Svratka Window. The first - classical one from the Suess times - describes the window as an antiformal duplex structure (of course in modern terminology) directed by the movement of the Moldanubian plate from the West to the East. The second puts emphasis on the lateral ramp geometry double stage nappe stacking due to a northwards directed dextral transpression. Seismic results support the classical view in the JAROS and MISAR (1976) variant, i. e. eastward compressional movement of the Moldanubian - Moravian nappe complex over the Tisnov - Brunnides (part of the Brunovistulicum). The Tisnov - Brunnides were strongly deformed and sheared in thick - skinned style. The Moldanubian and the Moravian complex had been amalgamated earlier due to ductile nappe stacking. This event might be dominated by north- to northeastwards directed movements, but there is no seismic indication confirming southward dipping reflexes.

The origin of the window itself, however, was not necessarily tied to any deformation event described above. Indeed, the information from the N-S oriented seismic line 3 and the analysis of the Permian folding in the Boskovice Furrow might lead to a new interpretation of the origin of the Svratka window. It could possibly interpreted, including its opposing part in the Brno Massif, as large-scale Permian basement fold cut by the steep Boskovice thrust fault.