

Crustal cross section through the Western Carpathians - an example of dislocation of the Variscan orogen

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The Western Carpathians belong to the Alpine orogen, formed during the Mesozoic and Tertiary. It contains large remnants of the Paleozoic basement, which constitutes dislocated parts of the southern branch of the European Variscides. The following events are characterized: 1. Building of a Variscan orogen, resulting from the collision between the Laurasia and Gondwana continents. This tectonics is followed by rifting, strike-slip fault movements, resulting in a first destruction of the consolidated Variscan crust. 2. Jurassic rifting. Oceanic domains formed (Meliatum, Penninum), separating continental microblocks. 3. Palealpine collision of microcontinents and the European platform. Crustal tectonic units (Tatricum, Veporicum, Gemericum) collided and developed large north-vergent imbricate structures. 4. Oblique collision during the Tertiary. The uplift and movements of Palealpine blocks along horizontal strike-slip faults towards NE are dominant. 5. Final extension and collapse of the orogen. Large Neogene sedimentary basins, volcanism and horsts and grabens, exhibiting various structural levels of the crust, developed. The outlined tectonic processes result in a variegated mosaic of apparently disconnected Variscan fragments in the Western Carpathians. The complete reconstruction of these tectonic events enable a modelling of their original location.