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## Trans-Carpathian transects from Precambrian platform to Pannonian basin - lithospheric structure beneath CELEBRATION 2000 seismic profiles CEL01, CEL04 and CEL05

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CELEBRATION 2000 was a large international cooperative experiment that focused on lithospheric structure in Central Europe. It consisted of a series of profiles along which wide-angle reflection and refraction seismic data were recorded. Profiles CEL01, CEL04 and CEL05 are located in the transition from the old East European Craton (EEC) and Palaeozoic Platforms to the young Alpine orogen (Carpathians). The depth of Moho boundary varies from 27-33 km under the Pannonian basin system area, 30-35 under the Carpathians and within the TESZ to 40-45 km under the EEC. No substantial differences in the crustal structure between the TISZA unit and the ALCAPA unit were observed. Therefore, the Mid-Hungarian Line separating these units is not discernible. Very clear crustal thickening from the Pannonian basin to the Carpathians, TESZ and EEC region together with the configuration of the lower lithospheric reflectors suggests northward subduction of mantle underlying Carpathian-Pannonian plate toward the north under the European plate. This however conflicts with strong geological evidence for southward subduction, and we present three possible tectonic models to explain the lithospheric structure of the area: (1) northward "old" subduction of the Pannonian lithosphere under the East European craton in the Jurassic - Lower Cretaceous, (2) a collisional zone containing a "crocodile" structure where Carpathian-Pannonian upper crust is obducting over the crystalline crust of EEC and Carpathian-Pannonian mantle lithosphere is underthrusting cratonic lower crust, and (3) lithosphere thinning due to the effects of extension and heating with the slab associated with "young" subduction southward in the Tertiary (Miocene) having rolled-back to the east under Southern Carpathians in Romania. In the last case, the northwestward dipping of the lithosphere can beprojekt-pokaz.sxi interpreted as being due to isotherms that could represent the lithosphere/asthenosphere boundary in the Pannonian region.

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