

difference to the Gosau basin is supported by basin modeling based on vitrinite reflectance (Schuller 2004).

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## Crustal Structure of the Western Carpathians from CELEBRATION 2000 Data

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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 and CEL04 are located in the transition from the old Precambrian and Palaeozoic Platforms to the young Alpine orogen (Carpathians). The data were modelled using 2D tomographic and forward modeling techniques. The profile CEL01 (about 900 km long) crosses the southwest margin of the East European Craton, the Trans-European Suture Zone, the Carpathians and reaches the Pannonian basin system. The depth of Moho boundary varies along the profile from 27–33 km under the Pannonian basin system area, 30–35 km under the Carpathians and within the TESZ to 40–45 km under the East European Craton. The CEL04 profile (630 km long) starts in the Polish trough and crosses the Małopolska unit, the Carpathians and the Pannonian basin system. Along the CEL04 profile, the Moho interface shallows from 40 km beneath the Polish trough to about 35 km in the Małopolska unit. The crustal thickness is 43 km beneath the Carpathians, while in the Pannonian basin sys-

tem the Moho interface shallows to 25 km. In the Pannonian basin system low upper mantle velocities of 7.8 km/s are observed. The structure of the West Carpathians was formed due to interplay between Palaeogene to middle Miocene subduction of the oceanic or suboceanic crust and subsequent collision. The architecture of the collision-related crustal suture was altered by subsequent mantle upwelling collapse and continuing convergence of plates. The subduction-related orogenic root is at least partially preserved in both profiles. Crustal thickness reaches there 35 km (CEL01) and 43 km (CEL04). The boundary between the Małopolska unit and the Bruno-Silesian unit is discernible north of the Carpathian frontal thrust along the CEL01 profile, but is not observed farther to the SE (CEL04) beneath the Carpathians. 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. Upper mantle reflections observed along both profiles originate from a north-dipping mantle discontinuity, probably representing a shear zone related to collision and possibly ongoing convergence between European plate and ALCAPA unit.