



## **Active tectonics and topography development in the Pannonian basin: problems and progress**

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This paper presents the latest progress and problems in the research of active tectonics and continental topography development in the Pannonian basin system. The main issues of Quaternary through recent deformation pattern and related landscape evolution is addressed. A strong spatial as well as temporal variation of horizontal and vertical motions have been reconstructed for the latest stages of basin evolution. Due to “Adria-push”, the main engine behind active tectonic processes in the East Alpine-Pannonian region, considerable compressional stresses are concentrated in the Pannonian lithosphere leading to its gradual structural inversion. Compressional basin inversion has led to large-scale lithospheric buckling manifested in significant differential vertical motions and active faulting associated with the recorded seismicity. Coeval subsidence and uplift in various parts of the system show a characteristic pattern that offers an excellent natural laboratory to study related landforms, erosion/deposition processes and drainage pattern development in a closely coupled system. The main characteristics of this local source-to-sink system are introduced, along with a focus on the societal importance of related processes. In this context, the latest results of the following main research topics are presented: (i) Dynamics of basin inversion: rheology and stress field in the Pannonian lithosphere; (ii) Mapping of active geological structures; (iii) Active tectonics vs. drainage pattern; (iiii) Temporal aspects: reconstruction of vertical vs. horizontal strain rates.