



Interactions of tectonic Uplift and the Drava Drainage System along the southwestern Margin of the Pannonian Basin (Pohorje Mountains, Slovenia)

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The Pohorje-Kozjak mountains in the southwestern corner of the Pannonian Basin appear to be topographically a part of the Alpine orogen. However, substantial portions of the Pohorje-Kozjak range are made up of alluvial and marine sediments related to Miocene basin formation. The range is one of the highest uplifted portions of the basin and dissected by one of the largest drainages of the Alps: the Drava river. Sedimentary features of the Paleo-Drava channel indicate that the uplift of the Pohorje dome must have occurred within the last 5 my. Geomorphological features suggest that the dome is still actively uplifted and an ideal region to investigate interaction processes between uplift and incision. In this combined geomorphological-tectonic study we describe the interactions of the Slovenian Pohorje-Kozjak range and its interaction with the incision history of the Drava.

The Pohorje-Kozjak range forms a dome-like structure of basement rocks partly covered by alluvial and marine Miocene sediments, surrounded by several small but km-deep marine troughs and basins of Miocene age.

The 720 km long Drava river follows the active Periadriatic Lineament ESE-wards, parallel to the Alpine mountain chain. Near the western end of the Pohorje-Kozjak range the Drava abruptly changes its course several times, finally flowing through the central part of the antiform almost parallel to its axis.

Geomorphologic and sedimentologic evidence show that the Drava channel was shifted ca. 1 km from a southern position to its modern course. Pliocene alluvial sediments (Winkler-Hermaden 1929) in the old channel provide the upper age limit for

this event. This shifting indicates, together with the geometry of the drainage pattern, the form of longitudinal river profiles and the deviation of rivers, a topographic disequilibrium and local uplift. The reason for this local uplift can be found in the basin inversion during the Late Miocene/Pliocene to recent, when the east-west extension in the Pannonian Basin ceased (Bada et al 1999), documented also by structural data from the study area (Fodor et al. 1998). The uplift pattern is described in a model with asymmetric uplift of the Pohorje Range along an inclined east-west axis, with the southern part lifted up more rapidly than the northern part.

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WINKLER-HERMADEN, A. 1929: Der Bau des Radlgebirges in der Südweststeiermark. *Jahrb. Geol. Bundesanst.*, 79: 479-530.