



The Vienna Basin, Austria, as natural laboratory for testing tectonic geomorphology methods in slowly deforming plate interiors

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Modern seismic hazard estimates rely increasingly on recognizing tectonically active structures in the region of interest. To accomplish this with inexpensive geomorphic observations, specific analysis tools must be designed and tested in different tectonic and climatic contexts. In mid-latitude plate interiors, one faces the difficulty that morpho-tectonic records are dramatically affected by rapid erosion and sedimentation, implying that geomorphic markers disappear fairly rapidly.

In this work, we present methodological results gathered in the Austrian part of the Vienna Basin, an active pull-apart basin formed between the Eastern Alps and the Western Carpathians. The landscape of the Vienna Basin has evolved under alternating peri-glacial and temperate climatic conditions, and tectonic deformation distributed on arrays of strike-slip and normal faults.

The methods tested in this case study range from qualitative examination of remarkable morphological escarpments and river terraces to quantitative and systematic analysis of river catchments morphology. In particular, we present the results of slope, drainage area and distance to outlet analyses performed on a Digital Elevation Model (SRTM3- 90m pixel) as indicators of, perhaps tectonically induced, disequilibrium in river catchments.

Surprisingly, in the region where tectonics is most active according to instrumental seismicity and subsurface imaging of faults and sediments, there is a quasi absence of morphological signature at the surface. From a quantitative point of view, the dise-

quilibrium detected in river catchments appears rather widespread inside and outside the Vienna Basin, which evokes a regional cause rather than localized tectonic activity. Do these results demonstrate that morphotectonic observations are inadequate in places of slow deformation rates and rapid surface process rates?