



Tectonic, eustatic, and climatic controls on terrace development: the example of the Albanian terraces

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The formation of terraces located in an active tectonic setting has been studied by the way of field mapping, topographic survey and dating. The Erzen, Osum and Devoll rivers cross the active frontal thrust system of the Albanides and the active graben system of the inner Albanides. These rivers depict a very different terrace pattern: the Erzen terraces are strath terraces, composed of a thin (few meters) layer of coarse sediment, attributed to the river bed load, and covered by a thin silty layer. The terraces of the Devoll are fill terraces with very thick gravel beds deposited above erosion surfaces or aggraded above slope. Terraces of the upper catchment of the Osum are tectonically uplifted fill-cut terraces. ^{14}C dating of 24 carbon samples and in situ ^{10}Be dating of 15 quartz-rich pebbles, collected on alluvial terraces allow establishing the chronology of terraces abandonment. Dating of Erzen terraces strongly differs from the others rivers. A rapid abandonment of the Erzen terraces is evident from upstream migration of the abandonment at a rate higher than 20 m/yr connected to a 50 m eustatic sea level fall at 30 ka. The incision is low with respect to the eustatic lowering. This difference is linked to a major knick-point that migrates very slowly upstream, (less than 2m/yr, and probably less than 0.5 m/yr). For the others rivers, the effect of eustatic lowering is hidden by the aggradation caused by sediment supplies larger than the rivers transport capacity during the Last Glacial Maximum. These examples outline that the upstream climatic response (sediment and water flux), and the eustatic variation both play an important role in shaping the transient morphology of river networks. This precludes the use of simple rules of correlation of terraces, even in zones controlled by the same climate and same geodynamic setting.