Alps to test if active tectonics is reflected in the shape of the channel profiles. In our approach we compare channel profiles measured from digital elevation models with numerically modelled channel profiles using a stream power approach. The impact of the Pleistocene glaciations is explored by comparing properties of rivers that drain in proximal and distal positions relative to the ice sheet during the last glacial maximum. It is shown that most knick points, wind gaps and other non-equilibrium features of the rivers may be correlated with features related to the last glacial maximum and appear unrelated to the young tectonic activity. Conversely, the largest drainage of the Alps which was never glaciated - the Mur drainage basin - (except or a broad uplift) is largely in morphological equilibrium with constant stream power over much of its catchment. Only the Adige and the upper Rhine / Danube catchment show dramatically perturbed channel profiles, probably due to the fact that these two rivers are the only Alpine rivers responding to a base level different from the Black Sea (i.e. the Mediterranean during the Messinian for the Adige and the Rhine graben for the upper Rhine / Danube catchment). We conclude that the rate of erosion of most rivers in the Eastern Alps is rapid compared to the rate of uplift so that their channels may be considered antecedent. As such, we suggest that morphological evidence from Alpine rivers - including those from the tectonically less active Western Alps - may not be conclusive to derive information on the state of tectonism.

Uplift of the Styrian Basin: Caused by crustal or mantle processes?

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The evolution of the Pannonian Basin is known to have ended with the termination of subduction underneath the Carpathian arc. Since then, the sedimentation largely ceased and the basin was inverted. In the Styrian basin along the western margin of the Pannonian basin, this inversion has produced some 200-300 m of uplift and a complicated topography that appears to be produced by a strong coupling of tectonically driven tilting and uplift versus erosion driven dissection. Several studies have attempted to unravel the tectonic component of the topography by investigating river terraces, valley asymmetries and planation surfaces.
However, seismic interpretations of the Miocene sedimentary pile in the basin do not appear to show any evidence of substantial convergent, post inversion tectonism and are well interpretable in terms of transgressive and regressive sedimentological cycles in the Miocene. Moreover, many of the morphological features in the Styrian basin appear to be easier interpreted by extension than by compression: The asymmetry of topographic ridges in the Central Styrian Basin is best interpreted by shallowly west dipping listric detachments, tilting individual blocks. Finally, the few brittle structures known to displace young terraces are usually extensional or displace units vertically. As such, it appears that upper crustal structures does not record the compressional stress field of basin inversion and allow the possibility that the topography may be unrelated to basin inversion.
In this contribution we discuss the idea that the uplift of the Styrian basin since its inversion is unrelated to compression, but relates to ongoing extension in the mantle part of the lithosphere. Then, uplift is caused by reducing the negatively buoyant part of the lower lithosphere and near-surface extension may simply be caused by potential energy contrasts at shallow crustal levels. Ongoing extension in the mantle part of the lithosphere may be caused by a series of processes already suggested for the Pannonian basin (e.g. Houseman, Hrovath) but implies a decoupling between crust and mantle at the present time.
Pliocene volcanism in the Styrian basin has been interpreted to be derived from deep seated mantle sources. We therefore suggest that this volcanism may provide constraints on this idea and ultimately may bear information on the causes of topographic development in the region.

Drowning and block tilting of Middle Anisian carbonate platform in the Middle Jurassic Zlatibor mélange of the Dinaridic Ophiolite Belt (SW Serbia)

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In the Middle Jurassic mélange of the Dinaridic Ophiolite Belt (DOB) in the Zlatibor Mt. area olistoliths of Triassic carbonates and radiolarites occur frequently. These slices differ in age, facies and paleogeographic origin. The carbonate rocks are thought to have originated from a zone that is now part of the Drina-Ivanjica Unit (DIU) whereas the radiolarites formed the basin floor and the ophiolitic rocks of the DOB the oceanic crust of the Neotethys Ocean. Originally, these different blocks were interpreted as derived from a former completely sedimentary sequence on top of DIU (DIMITRIJEVIC 1997). The carbonate blocks reaches sizes of several tens to hundreds of metres and include predominantly rocks of Triassic age.
In one of these blocks, whithin the so called Klisura quarry, a Middle Anisian shallow-water sequence (Ravni Formation, Dedovici Member) is exposed. A drowing of this platform is proved as Late Pelsonian by means of conodonts and ammonites in the overlying hemipelagic sequence (Bulog limestone). The Dedovici Mb. consists of Steinalm limestone type shallow-water limestones with calcareous algae in the upper part and contains neptunian dykes filled with reddish hemipelagic sediments which indicate an extensional tectonic regime. In analogy to similar tectono- sedimentary features reported by FÜCHTBAUER & RICHTER (1983) from the Pelsonian Eros Limestone in Greece we interpret this together with the following section as tilted blocks due to detachment faults. Conodonts (*Paragondolella bulgarica*) from these fissure fillings and from the lowermost part of the Bulog limestone indicate a Late Pelsonian age. Upsection follows the 17 m thick, red Bulog limestone of Early Illyrian age (*Paragondolella bifurcata*, *Paragondolella cornuta* and *Paragondolella excelsa*). The Bulog section is characterized by some condensed horizons with ammonite accumulations (MUDRENOVIC 1995) and a significant angular unconformity in the upper part of the interval. The Bulog limestone is tectonically overlain by Late Langobardian to Early Carnian grey cherty limestones (Klisura Member of ?Grivska Formation) with allodapic intercalations proved by means of conodonts (*Budurovignathus langobardicus* and upsection *P. polygnathiformis*). In former times this hemipelagic sequence with allodapic layers was interpreted as a part