Geophysical Research Abstracts
Vol. 17, EGU2015-2220, 2015
EGU General Assembly 2015

Influence of Strike-Slip Fault Activity on the Topographic Evolution of the Eastern Alps: A Modelling Study

Thorsten Bartosch and Kurt Stüwe

Institute of Earth Science, Karl-Franzens University, Graz, Austria (thorsten.bartosch@edu.uni-graz.at; kurt.stuewe@uni-graz.at)

We present results of a numerical model that couples a two-dimensional mechanical model with a landscape evolution model. This model was used by Stüwe et al. (2008) to investigate aspects of the coupling of topographic and tectonic processes in the India-Asia collision zone. The model was later refined by Robl et al. (2008) to account for brittle faulting, so that the model could be applied to investigate aspects of the landscape evolution of the Eastern Alps (where Miocene strike slip faulting is known to have played a major role in during the topographic history).
For this project, we have expanded the model to allow for temporal variation on the fault activity. Our model takes into account the activity history of strike slip faulting in the Eastern Alps, which were compiled form literature resources. Our results present a major improvement in the predicted topographic history:
Despite an under-prediction of topographic height the recent findings of a dominant dependency to strike-slip faulting could be confirmed and a more realistic topography was gained. Intra-montane basins close to e.g. Vienna, Seckau and Klagenfurt where simulated and an under-predicted uplift of the Tauern Window in terms of height evolved in the simulation, which appears to be closely related to Möll and DAV fault. We suggest that the model can be used to refine our understanding of the temporal variation of strike slip faulting.