Geophysical Research Abstracts
Vol. 14, EGU2012-14388, 2012
EGU General Assembly 2012

Adapted geomorphological mapping for sediment budget analysis – mapping focus and data base structure

J Goetz and JC Otto
Department of Geography and Geology, University of Salzburg, Austria

The analysis of alpine sediment cascades requires the identification, differentiation and quantification of sediment sources, storages, and transport processes. Furthermore, in order to understand sediment transfer processes, information on landform coupling and sediment routing pathways are essential. Classical geomorphological field mapping in combination with digital terrain analysis can deliver helpful data that supports the qualitative and quantitative understanding of the sediment cascades.
Despite the large number of different geomorphological mapping systems, a uniform approach to account for sediment transfer and storage is still missing. We present a detailed geomorphological map of a high alpine setting that has been generated in order to analyse the sediment transfer system. A fundamental part of the mapping procedure was to capture additional data related to sediment storage and sediment coupling. This data was mainly gathered directly in the field; however post-mapping analysis was performed using high resolution digital elevation data (LIDAR) and digital aerial photography.
The applied procedure provides a detailed inventory of sediment storage landforms and their morphometrical characteristics together with additional information on surface characteristics, dominant and secondary erosion and deposition processes, process activity and sediment storage coupling. This data set enables to generate sediment routing pathways and provides the basis for sediment storage quantification using additional data like geophysical soundings. The prior could be used to verify existing attempts to (semi-)automatically extract coupling conditions. The approach emphasises the benefits of combining field mapping with digital elevation data analysis.