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Comparing short and long term sediment fluxes in an Alpine basin (Reintal, Bavarian Alps)

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Spatial and temporal sediment fluxes within alpine sediment cascading systems are still poorly understood. Specific patterns of sediment storage types in alpine environments may be interpreted to be a result of temporal and spatial interaction of geomorphic processes. Major problems encountered in this research area appear to be related to the highly variable and changing residence times of stored sediments and to different buffering capacities in alpine catchments. This would seem to have a significant influence on sediment yield and hence on sediment budget.

Applying a multi-method approach (orthophoto-interpretation, field measurements, GIS-techniques), short term sediment fluxes in the basin of the Reintal have been observed on three spatial scales (3.4 km^2, 0.38 km^2, and 0.05 km^2) since 1960. Differentiated by sediment input and remobilisation it could be shown that, subject to the considered spatial scales, the latter is overbalancing by different factors (6, 11, and 115). Confirming the paraglacial model, these results are varying by an order of magnitude, what should be kept in mind for the choice of size and location of eventual test sites.

The quantification of long term sediment fluxes in the catchment is based on Holocene sediment storage volumes, derived from a previous geophysical and geomorphometrical approach. Herein, opposed scale-dependent sedimentation patterns could be observed. Whereas recent rates of sediment input on the catchment scale (3.4 km^2) just explain one third of the presently stored sediments, this relation is showing an inverse behaviour on the smallest scale, a stretch of highly active talus slopes (0.05 km^2). Again, an unrealistic linear sedimentation progress over the Holocene assumed (ap-

prox. 12.000 years), recent rates of sediment input would yield to even higher volumes of stored sediments.

These opposed, scale-dependent tendencies support the basically high spatio-temporal variability of clastic sediment fluxes in alpine environments.