



Controls and variability of solute and sedimentary fluxes in Alpine / Mountain Environments

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The effects of projected climate change will change surface environments in Alpine / Mountain environments and will alter the fluxes of sediments, nutrients and solutes, but the absence of quantitative data and coordinated geomorphic process monitoring and analysis to understand the sensitivity of these Earth surface environments is acute.

This existing key knowledge gap is addressed for the global cold climate environments in the SEDIBUD book, and in this presentation an overview of findings from several selected SEDIBUD key test sites in Alpine / Mountain environments is provided. The applied approach of integrating comparable and longer-term field datasets on contemporary solute and sedimentary fluxes from selected Alpine / Mountain catchment geosystems for better understanding (i) the environmental drivers and rates of contemporary denudational surface processes and (ii) possible effects of projected climate change has proven to be successful and provides new key findings.

Special attention is given to the direct comparison of drainage basin systems showing current differences in (i) hydro-climate, (ii) glacier coverage, (iii) lithology, (iv) relief and landscape morphometry, (v) vegetation cover, (vi) sediment production, storage and availability, (vi) hillslope-channel coupling, and (vii) landscape connectivity.

Largely undisturbed Alpine / Mountain environments can provide baseline data for modeling the effects of environmental change.