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Comparison of sediment delivery ratio concepts for medium-sized catchments in the Bolivian Andes

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A comparison of spatial sediment delivery ratio approaches applied to a 59 km^2 mountainous catchment in the semiarid Central Bolivian Andes is presented. All four benchmarked methods presented new developments using a spatially variable SDR concept. Gross catchment erosion estimates in combination with reservoir sedimentation records were used to validate the performance of the sediment delivery models. Although the model performances were not optimal, which suggest that modeled catchment erosion estimates linked to a spatial sediment delivery ratio cannot give sufficient description of the spatial and temporal variability of sediment fluxes in mountain environments, results are nevertheless encouraging. Moreover a spatially distributed SDR approach allows simulation of the effect of different land use scenarios, soil conservation and sediment control techniques.