

22. Januar 2015, 16 ct – 18 Uhr
Hörsaal Fahnenbergplatz (Rektoratsgebäude)

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Sediment tracking from soil sources to freshwater systems with isotope techniques

On site and off site damage of soil erosion can seriously impact soil fertility, ecosystem stability as well as human infrastructure. As soil erosion and sediment loads to rivers are predicted to increase in the near future, determination of sediment origin in multiuse landscape systems is of crucial importance for optimization of catchment management. The identification and quantification of soil erosion in uncultivated grassland soils of the Alps with stable and radiogenic isotope techniques will be discussed. The usefulness of radiogenic isotopes (^{137}Cs and **^{239}Pu + ^{240}Pu**) to quantify soil erosion will be set against the use of bulk stable isotopes to qualitatively track soil erosion source areas. Sediment source contribution to a river was assessed with compound specific stable isotopes analysis (CSIA). We achieved a clear separation of sediment sources from forest versus agricultural land use. Results showed that during base flow agricultural land contributed 65% of suspended sediments, while forest was the dominant sediment source during high flow, which indicates that during base and high flow conditions connectivity of sediment source areas with the river change.