

## **Sediment Apportionment**

Accelerated soil erosion is a worldwide threat to soil health. Understanding soil and sediment behaviour through sediment source apportionment allows for monitoring and detection of high sediment delivery locations. The Bayesian mixing model MixSIAR with compound-specific stable isotope tracers is increasingly being used to estimate land-use specific sediment source apportionment.

The aim of this topic is to examine compound specific isotopic tracer selection in sediment source apportionment using innovative methodologies and determine which tracers improve model performance. Furthermore, this study investigates the influence of past agriculture on sediment deposit rates using new compound specific isotopic tracers and sediment cores.

Understanding and exploring sediment dynamics through the application of mixing models and compound specific isotope biomarkers. Specific interests include: Tracer selection and validation in Bayesian mixing models, the degradation and conservatives of isotopic biomarkers, and the historic impact of agriculture on soil erosion in flood plains



Photo: Sampling site - Thur catchment, 2022