

## **$\delta^{13}\text{C}$ investigations on alpine soils affected by erosion**

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The stable carbon isotope signature of soil is controlled by the plant cover, metabolism and age of the soil. Therefore, differences between the  $\delta^{13}\text{C}$  of upland soils (aerobic metabolism) and wetland soils (anaerobic metabolism) are expected. Transects from uplands (erosion source) to wetlands (erosion sink) were sampled for sites with differences regarding the intensity of soil erosion. Detachment and transport of soil particles in the catchment is mainly caused by water. Small particles and organic matter are the first components to be detached, transported downhill and deposited in the wetland. Thus, the influence of upland material in a wetland should be detectable by stable carbon isotope investigations. Our hypothesis is that the influence of eroded upland soil material in a wetland (erosion sink) alters the  $\delta^{13}\text{C}$  leading to a mixed signal between upland and wetland soil.

The study area is located in the southern part of Central Switzerland (Canton Uri) in the Ursern valley. Samples were collected at four sites on a south exposed hillslope. The sites correspond in altitude, exposition and land use but they differ in the intensity of visible soil erosion.

This poster presents the differences between  $\delta^{13}\text{C}$  depth profiles of upland and wetland soils. By comparing the isotopic signature of wetlands affected by erosion (erosion sink) with a reference wetland, the influence of erosional material on  $\delta^{13}\text{C}$  could be detected. As expected the uppermost soil horizon of the affected wetland has an intermediate mean  $\delta^{13}\text{C}$  value (27.51‰) which differs significantly from the mean  $\delta^{13}\text{C}$  values of the reference wetland (-28.58‰) and the upland (-26.62‰).