

## **Effects of slope aspect and site elevation on seasonal soil carbon dynamics in a forest catchment in the Austrian Limestone Alps**

Johannes Kobler (1), Bernhard Zehetgruber (1), Robert Jandl (2), Thomas Dirnböck (1), and Andreas Schindlbacher (2)

(1) Environment Agency Austria, Ecosystem Research & Environmental Information Management, Vienna, Austria, (2) Federal Research and Training Centre for Forests, Natural Hazards and Landscape, Department of Forest Ecology, Vienna, Austria

Own to the complexity of landscape morphology, mountainous landscapes are characterized by substantial changes of site parameters (i.e. elevation, slope, aspect) within short distances. As these site parameters affect the spatial-temporal dynamics of landscape climate and therefore the spatial patterns of forest carbon (C) distribution, they pose a substantial impact on landscape-related soil C dynamics. Aspect and elevation form natural temperature gradients and thereby can be used as a surrogate to infer to potential climate change effects on forest C. We aimed at studying how slope aspect affected soil respiration, soil C stocks, tree increment and litter production along two elevation gradients in the Zöbelboden catchment, northern limestone Alps, Austria during 2015 and 2016. A preliminary assessment showed that soil respiration was significantly higher at the west facing slope across all elevations. Soil temperature was only slightly higher at the west facing slope, and warmer soil only partly explained the large difference in soil respiration between east and west facing slopes. Aspect had no clear effect on soil moisture, which seemed to be strongly affected by stocking density at the different forest sites. The dense grassy ground vegetation at some of the sites further seems to play a key role in determining soil respiration rates and litter input. A detailed analysis and C-budgets along the elevation gradients will be presented at the conference.