Project Database of ICP Forests

PROJECT DESCRIPTION

PROJECT INFORMATION

Project title: **Retention processes in litter and deadwood across the Alps**

Project ID: 289

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PROJECT DESCRIPTION

Litter and deadwood play an essential role in the water cycle of forests by retaining precipitation and releasing it in small amounts. These regular retention and evaporation processes in the forest-floor litter layer contribute to the accumulation of natural and anthropogenic inputs (i.e., ions, PFAS) in the litter layer and in the soil below.

In the research project "Alpine Litter (AlpLit)" we are investigating, among other things in two master's theses (Meier, Truniger), how thick the litter layer is over different altitude classes and forest types in the Alpine region and in which magnitude precipitation is stored and at which concentrations different contaminants are stored in the litter layer. To do this, we collect data from various studies in the Alpine region and plan our own field campaigns and measurements. We will analyze the thickness of different litter types across the Alps (samples from ~ 500 plots) by collecting samples and assessing the dry weight and assess the amount of deadwood in different forest types. The analysis of stable water isotopes at different depths will allow us to estimate the evaporation signal in the litter layer and the underlying soil. The analysis of PFAS and ion concentrations in the litter layer will allow us to assess deposition.

These data will allow us to answer the following research questions:

- How much of annual precipitation is retained in the forest-floor litter layer across different regions of the Alps and how does this modulate the water balance of Alpine catchments?
- To which extent does the forest-floor litter layer accumulate natural and anthropogenic contaminants (i.e., major ions and PFAS)?