Project Database of ICP Forests
PROJECT DESCRIPTION

PROJECT INFORMATION

Project title:	ReCLEAN - Reactive nitrogen at the CLimate, Energy, Agriculture, water, and health Nexus
Project ID:	302
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PROJECT DESCRIPTION

Nitrogen (N) is a critical element for life that occurs in all of Earth's compartments. However, several N species, referred to as reactive nitrogen (N), cause major environmental issues impacting climate, air quality, ecosystems, and human health. Fossil fuel combustion for energy production leads to nitrogen oxides (NOx) emissions into the atmosphere. Together with ammonia (NH3) emitted from agricultural activities and volatile organic carbon species (VOCs), they are involved in forming ozone (O3) and particulate matter. Dry and wet depositions lead to a flux of N and acidity to the ground on top of that resulting from agricultural practices. Altogether, these N inputs exert multiple interconnected adverse effects in all compartments. For instance, natural ecosystems, especially forests, suffer from loss of biodiversity and soil quality and increased vulnerability to extreme events.
Motivated by these needs, and in recognition of the pressing issue to address the nitrogen problem above, we propose to determine how recent changes in N deposition affect the vulnerability of forest ecosystems. We plan to compile long-term changes in forest biomass production, shifts in soil N cycling, and forest growth sensitivity to recent N depositions. More specifically, our objective is to link changes in N deposition with leaf nutrition and tree growth trends during and following extreme events over the last 20 years in Level I and II ICP Forests plots.
The work will be only used for scientific purposes following the guidelines regarding data usage of ICP Forests.