



PARIS
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Lecture Series Environment & Biodiversity

Climatic impacts of land cover change in Afromontane ecosystem of Taita Hills, Kenya

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University of Helsinki / University of Cambridge

Host: Dr. Beate Anna Apfelbeck



Friday, May 8, 2026, 2:00 PM

NLW-Faculty, Multiseminarraum B-2.001 B

2nd floor

Research focus:

LiDAR, Remote Sensing

Forest fragmentation and degradation





Abstract

The human population in sub-Saharan Africa is growing the fastest in the world, which causes pressure on land resources together with climate change. More cropland needs to be cleared to maintain food security, but decreasing woody vegetation causes climate change. Loss of forests and woody vegetation decreases carbon sequestration from the air, carbon stocks in the above ground vegetation, and releases greenhouse gas emissions from soil. Loss of woody vegetation and trees in general causes also increased land surface temperature, and air temperature consequently. Loss of the forests also leads to elevated cloud base height and decreased fog deposit in the mountainous areas as well as decreased infiltration of water leading to decreased water resources for ecosystems and people.

University of Helsinki has been studying this phenomenon in Africa using Taita Taveta County in Kenya as a test site and model for whole sub-Saharan Africa applying remote sensing data and environmental sensing network. Our remote sensing data includes repeat airborne laser scanning, hyperspectral and RGB imagery starting from early 2000s until 2024 and optical multitemporal satellite imagery, while the ground truth data is retrieved from our weather stations, Eddy Covariance flux towers, trail cameras and micrometeorology devices in the landscapes. We are also developing climate-smart agriculture and livestock management to mitigate climate change, but secure food.

