

FOREMA StatisticsLab Colloquium

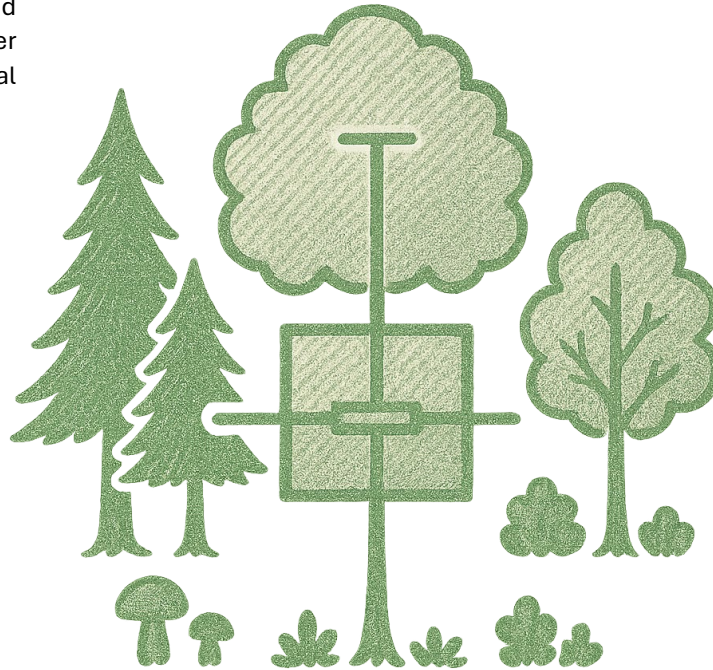
“Recent Advances in Forest Modelling”

The FOREMA StatisticsLab Colloquium on “Recent Advances in Forest Modelling” will explore latest developments in simulating and modelling of forested ecosystems. The program will feature presentations on both established techniques and innovative, emerging approaches. The seminar will highlight recent developments in empirical, inventory-based forest growth models as well as in dynamic forest gap models. In addition, machine-learning driven forest models – an area that is rapidly evolving thanks to augmented computational capabilities and data availability - will be discussed. The colloquium will provide an overview of current modelling tools and techniques and highlight their applications and limitations. It will offer a space for researchers to exchange ideas and discuss practical challenges in forest modelling.

August 20th 2025, 14.00 – 16.30,
in the Englersaal, at WSL Birmensdorf.

Register via: <https://tinyurl.com/yy5r9yca>

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FOREMA StatisticsLab

Program:

- **Marco Ferretti** *Opening*
- **Brigitte Rohner** *From data to dynamics: Insights from the empirical forest model MASSIMO*
- **Ulrike Hiltner** *ForClim on the Frontier: Advances in Modeling Forest Dynamics and Decision Support*
- **Mart-Jan Schelhaas** *EFISCEN-Space – empirical forest modelling at European scale*
- **Yannek Käber** *Inference of Functional Relationships in Dynamic Models*
- **Panel Discussion** *including speakers and additional experts: Heike Lischke & Andreas Rigling - Moderated by Peter Stoll*
- **Apero**

Zoom Link: ID 643 2199 9394 / Code **425816**

<https://wsl.zoom.us/j/64321999394?pwd=UGhjemNRWHUwQVZvN0RWK0VKL1hLUT09>

Abstracts

From data to dynamics: Insights from the empirical forest model MASSIMO

Brigitte Rohner, Forest Resources and Management, Swiss Federal Institute for Forest, Snow and Landscape Research, WSL, Switzerland.

The empirical forest development model MASSIMO relies on statistical models for ingrowth, increment, and mortality, which were fitted to data from the Swiss National Forest Inventory. We discuss how these statistical models have recently been extended to incorporate climatic and environmental change effects, and highlight both the opportunities and challenges of using National Forest Inventory data for such purposes.

ForClim on the Frontier: Advances in Modeling Forest Dynamics and Decision Support

Ulrike Hiltner, Forest Ecology, Institute of Terrestrial Ecosystems, Department Environmental Systems Science, ETH Zurich, Switzerland.

This presentation will showcase recent advancements in the ForClim model aimed at improving predictions of forest responses to extreme events like drought. It will highlight how a new, ecologically-grounded mortality framework—integrating predisposing, inciting, and contributing factors—enhances our ability to simulate real-world disturbances. Furthermore, the talk will explore new approaches for decision support, including optimizing adaptive management and innovative, data-driven methods to make dynamic models more accessible for practitioners.

EFISCEN-Space – empirical forest modelling at European scale

Mart-Jan Schelhaas, Wageningen Environmental Research (WENR), Wageningen University and Research, the Netherlands.

EFISCEN-Space is a plot-scale empirical forest model, fitted on a collection of European-wide National Forest Inventory datasets. The aim of the model is to provide consistent European-wide forest resource projections. We will present the model approach, discuss the challenges and opportunities to work with the diverse set of NFIs and present the first results.

Inference of Functional Relationships in Dynamic Models

Yannek Käber, Biometry & Environmental System Analysis, Faculty of Environment and Natural Resources, University of Freiburg, Germany.

Traditional forest models often rely on predefined assumptions about the functional relationships between variables, making it challenging to determine the true process structure or functional form. In this talk, we present a hybrid forest model that seamlessly integrates basic forest succession theory with empirical models and Deep Learning. Our findings demonstrate how hybrid modeling can effectively uncover the true functional relationship of ecological processes without prior assumptions. Additionally, we will discuss the potential for future developments and applications of hybrid modeling in forest dynamics.