Seminar Jeudi AMAP

Fabian Fischer has recently completed his PhD at Laboratoire EDB, Toulouse, France. Working on tropical forests, he is interested in inferring forest structure and forest dynamics using individual-and trait-based modelling approaches in combination with remote-sensing tools.

Email: fabian.j.d.fischer@gmx.de

22 JAN 2020
11h00 – 12h00

Salle 201, Bâtiment PS2, CIRAD-UMR AMAP, Boulevard de la Lironde

Inferring forest structure and forest dynamics with individual-and trait-based modelling approaches

presented by

Dr. Fabian Fischer

UMR EDB, Toulouse, France

ABSTRACT

The presentation will provide an overview over the results from my recently completed PhD on forest structure and dynamics, centred around the individual- and trait-based forest growth model TROLL. It will include insights into evolutionary and ecological patterns of wood density based on an update of a global wood density database as well as the presentation of a TROLL-derived modelling approach, called the Canopy Constructor. The latter uses a combination of field inventory data and Airborne Lidar scans to create individual-based 3D-representations of forest stands. An application to two tropical rain forests will be presented, one in French Guiana and one in Gabon, where we used the Canopy Constructor to infer forest structure, created high resolution maps of above-ground biomass, and validated both steps against ground data. Furthermore, it will be shown how these 3D-reconstructions have been passed on to the dynamic forest growth model TROLL for calibration, initialisation and predictive purposes. In particular, making use of the newly calibrated TROLL model, we will examine how intra-specific variation in plant functional traits and plasticity in carbon allocation impacts on forest structure and ecosystem functioning.

KEY WORDS

Individual-based model, tropical forests, LiDAR, wood density

Invited and animated by: Isabelle Maréchaux (UMR AMAP)
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