

Call for 2 PhD students in Forest Ecology and Carbon Cycling

The **Department of Ecology** at the Institute of Botany, Polish Academy of Sciences (Kraków, Poland) seeks **two PhD students**, who will work on an international research project entitled *"Inside out: Linking intra-annual wood formation in mature trees to stand-level water and carbon cycling"*

This project is funded by the HOMING programme of the Foundation for Polish Science under the *European Union Smart Growth Programme*.

Duration: 23 months (initially)
Monthly stipend: 4000 PLN (net salary), a high standard compared to local life costs
Application deadline: February 5th, 2019
Start date: March 1st, 2019 or upon agreement
Project leader: Dr. Flurin Babst

Overview

This project aims to better understand and quantify carbon allocation in mature forest stands across Europe. We will measure and reconstruct tree growth within and between years, and link these measurements to existing observations of photosynthesis (i.e. from eddy-covariance data). We will also integrate our observations with a new mechanistic model of tree growth to be able to scale from individual trees to stands and across regions. This way, we will assess, how carbon allocation in trees varies with climate, competition, management, and other factors.

The project foresees a tight collaboration with the Swiss Federal Research Institute WSL, the Danish Technical University, and the University of Cambridge. Both positions offer possibilities for extended stays in partner laboratories and excellent opportunities for career development in leading research facilities.

Tasks

PhD 1 will develop and explore a new methodology that integrates terrestrial LiDAR and tree-ring data to quantify and reconstruct annual tree biomass changes with precision (quantitative structure modeling). You will use the resulting biomass time-series and auxiliary data to reconstruct stand productivity back in time, and link it to ecosystem carbon and water fluxes from eddy-covariance measurements. You will address research questions related to changes in forest growth and carbon allocation in response to i) climate variability and extremes, ii) site characteristics, and iii) forest management interventions.

PhD 2 will study intra-annual tree growth using methods of quantitative wood anatomy. You will measure individual cell parameters (e.g. cell size, lumen area, wall thickness) along radial files and develop high-resolution time series of wood formation and density. You will integrate these wood anatomical data with ecosystem carbon and water fluxes from eddy-covariance measurements, as well as with other *in-situ* data. You will address research questions related to i) the timing of photosynthetic carbon uptake and wood formation in mature trees, ii) tree growth and tree hydraulics, and iii) forest ecophysiology.

Requirements

1. Master's degree (or equivalent) in ecology, biology, geography, or a related field
2. Strong motivation and interest in scientific work, including fieldwork, lab work, data analysis, publication, and dissemination in an international setting
3. Excellent spoken and written English
4. Mobility and flexibility for extended research stays in partner laboratories

Good to have

1. Experience in statistical analysis of time series and/or spatial data.
2. Fundamental knowledge of forest ecosystem processes.
3. Basics in mechanistic vegetation modeling.

Application



Please send the following documents via email to Dr. Flurin Babst (flurin.babst@botany.pl)

1. Cover letter** (in English)
2. CV (max. 5 pages)
3. Master's diploma (or equivalent)
4. Contact information to at least one professional reference

Selected candidates will be invited to a personal or Skype interview shortly after the submission deadline. The interview will take place at the Institute of Botany, Polish Academy of Sciences, Lubicz 46, 31-512 Kraków, Poland.

Please include in your cover letter the following **personal data processing statement:

"I hereby give consent for my personal data included in my job application to be processed by the W. Szafer Institute of Botany, Polish Academy of Sciences for the purposes of the recruitment process under the Personal Data Protection Act as of 29 August 1997, consolidated text: Journal of Laws 2016, item 922 as amended."

Applicants will be selected solely based on their qualifications. No attention will be paid to race, color, religion, origin, age, gender, sexual orientation, disability or any other personal characteristics.

Contact

Questions about these two positions should be emailed to Dr. Flurin Babst, flurin.babst@botany.pl.