« CALL FOR A POSTDOC POSITION ON MICROCLIMATE MODELLING »

1. Where?

Institution: **UMR CNRS 7058 « Ecologie et Dynamique des Systèmes Anthropisés » (EDYSAN)**

Geographic location: **UFR de Pharmacie, 1 rue des Louvels, 80039 AMIENS Cedex 1, France**

Contact person: **jonathan.lenoir@u-picardie.fr**

2. Title of the position

2-yr Postdoc Position on Modelling the Impacts of Landscape Features on Forest Microclimates

3. Description of the position

Aims & main tasks

Background:

This call for a 2-yr postdoc position is funded by the French National Research Agency, the *Agence nationale de la recherche* (ANR), within the framework of the research project entitled "Impact of forest Management and Climate Change on understory Microclimate (**MaCCMic**; https://anr.fr/Project-ANR-21-CE32-0012).

In short, the main objective of **MaCCMic** is to develop observation-based tools to identify the main factors influencing forest understory microclimate, as well as biophysical and ecological models to anticipate the impact of forest management (density, fragmentation, thinning, choice of species, understory removal, etc.) on forest microclimate and understory vegetation, notably in terms of climate extremes (drought, heat wave, late frost, flooding, etc.) under future climate change scenarios.

The **MaCCMic** project is coordinated by Jérôme Ogée (ISPA, INRAE) and involves a large consortium of French scientists from Amiens, Bordeaux, Montpellier and Toulouse. Within the **MaCCMic** research consortium, the EDYSAN lab, who will host the successful candidate, is involved in Work Package 2 (WP2) entitled "Impact of landscape features on understory microclimate".

Through past and ongoing projects, the EDYSAN team has already gathered a large amount of temperature time series recorded within the understory of several French forests, covering all forest stand succession stages to investigate the influence of stand structure and forest canopy dynamics on microclimate dynamics bellow trees. Similarly, through close collaborations with a research group led by Pieter De Frenne, from Ghent University in Belgium, the EDYSAN team has also accumulated a lot of data and knowledge on the influence of forest edges on woodland understory microclimates, both within rural and urban contexts of forest fragmentation. However, air temperature at the interface between forests and water bodies, such as along riparian forests, remains poorly studied in comparison with existing research on the influence of canopy structure and forest edges on air temperature beneath trees. If the cooling influence of riparian forests on water temperatures is a well known fact used in conservation biology, the cooling effect of distance to water bodies on air temperature beneath trees has been less investigated.

Aims:

The main mission of the successful candidate will be to assess the respective impacts of landscape features, including not only the already well-studied distance to forest edges within landscapes where forest fragmentation is highly pronounced but also the less-studied distance to water bodies in the context of riparian habitats such as river canyons and the associated effect of topographic convergence, to model air temperature beneath trees. Potential interaction effects between distance to forest edges and distance to water bodies, in the context of riparian corridors of varying width as well as isolated riparian woodlands of varying sizes, will be investigated too.

To achieve this aim, the successful candidate will benefit from existing time series of air temperature beneath trees collected by the EDYSAN team across varying landscape contexts (urban, rural and managed forests) as well as from other members of the **MaCCMic** consortium with whom the successful candidate will closely interact throughout the postdoc duration (Jérôme Chave, Sylvain Delzon, Jérôme Ogée, Frédéric Revers), including data from riparian habitats in the Ciron valley near Bordeaux (cf. Frédéric Revers). The successful candidate will also benefit from potential collaborations with research groups from outside the **MaCCMic** consortium to collect more data on air temperature beneath trees and possibly close to water bodies. Potential researchers to contact and who are already interacting with the EDYSAN team are Juha Aalto, Romain Bertrand, Pieter De Frenne, Caroline Greiser, Kristoffer Hylander, Jonas Lembrechts, Rob Lewis, Eric Meineri, Sylvain Pincebourde, Pep Serra-Diaz and Koenraad Van Meerbeek.

Main tasks:

The main tasks that are expected from the successful candidate are:

- Gathering existing data in France on air temperatures beneath trees to build a French database;
- Collecting more time series of air temperatures beneath trees and close to water bodies;
- Analysing the effects of distance to forest edges and water bodies on forest microclimates;
- Writing a scientific article on the impact of landscape features in mapping forest microclimates.

Duration and starting period:

The postdoctoral position will last 24 months and should start during fall 2023, preferably in the beginning of October 2023 or later in 2023 but no later than January 8th 2024.

Gross salary:

About 2 600 EUR per month.

Expected qualifications

Technical skills:

The candidate is expected to have the following qualifications:

- A Ph.D degree in ecology, forest sciences, vegetation sciences or any related fields;
- Good programming skills, especially in using the R statistical software;
- Cutting-edge expertise in modeling and advanced statistical analyses, including spatial analyses;
- Proven abilities to publish at a high international level;
- Good oral and written communication skills in English;
- Basic knowledge in microclimate ecology.

NB: Potential interactions and collaborations with other postdocs and PhD students working on forest microclimates or related fields within the EDYSAN team as well as within the **MaCCMic** consortium will be highly welcome and enhanced.

Human skills:

Rigor, curiosity, autonomy, abilities to work in group.

Other skills:

A driving licence is necessary in case the successful candidate would like to set up new study sites or collect new microclimate data from existing study sites located within the Hauts-de-France region or elsewhere in France.

Application instructions

Please send your CV, including a list of recent publications, together with a cover letter and the contact information of 2 references to Jonathan Lenoir (**jonathan.lenoir@u-picardie.fr**).