



CLIMPEAT



European Research Council
Established by the European Commission

Post-doctoral research fellow on modeling the response of northern peatlands to warming

The Laboratoire des Sciences du Climat et de l'Environnement (LSCE) is part of the CLIMPEAT ERC Synergy project funded by the European Commission. We are looking for a post-doctoral fellow for modelling the response of northern peatlands to climate change, including abrupt changes

Laboratoire des Sciences du Climat et de l'Environnement (LSCE)

Is a world-class research laboratory established and a collaboration between CEA, CNRS and the University of Versailles Saint-Quentin (UVSQ) <https://www.lsce.ipsl.fr>. It is part of the Institute Pierre Simon Laplace (IPSL). LSCE hosts approximately 300 researchers, engineers and administrative staff including many PhD and master's students. This project will provide the employee with the opportunity to work directly on advanced methods with researchers from the LSCE and other institutions. We offer a stimulating and friendly environment in a diverse and international institution with research and education at a very high level.

Project description

Northern peatlands store large amounts of carbon and have been projected to shift from a net sink of greenhouse gases to a net source under global warming. As a Postdoctoral Fellow in this project you will work with the ORCHIDEE PEAT land surface model to predict the response of northern peat to climate change including abrupt changes and thermokarst disturbances. The research contributes to the *Northern Peatlands in the face of climate warming and abrupt changes* (CLIMPEAT) ERC Synergy project funded by the European Research Council. You will work in a dynamic international research environment with many possibilities for international collaboration and exchange. The work may include fieldwork in remote permafrost regions.

Main responsibilities

Develop and improve the ORCHIDEE PEAT¹² model version dedicated to the biogeochemistry of peatlands, including their area change and CO₂ fluxes and carbon storage in response to historical and future climate change and permafrost thaw. The goal is to make a significant step forward in simulation of the past and future changes of northern wetlands, accounting for leaching of dissolved organic carbon, changes in water table, peat fire, and ground ice collapse leading to thermokarst and ecosystem shifts. Calibration of abrupt change peatland processes will be performed at multiple measurement sites with new data collected by the CLIMPEAT project partners. The candidate(s) will participate in the development, calibration and validation of peat processes currently missing in ORCHIDEE PEAT, part of the IPSL Earth System model, including future scenarios and sensitivity experiments.

Qualification Requirements

In order to qualify for a Postdoctoral position, applicants are required to hold a doctoral degree. The degree must have been completed no later than when the employment decision is made.

Assessment criteria

- Programming skills, preferably in Python, Fortran
- Understanding and experience of ecosystem models and earth system models
- Development of scripts for processing of large amounts of geographical data
- Autonomy, ability to work in a team and time management skills.
- Experienced in multidisciplinary team-based activities with the ability to effectively communicate

Contract duration:

24 months with a possible extension

Starting date:

The position is available until July 10 2026 and will remain open until filled. The expected start of the position is October 2026.

Salary:

Competitive salary, full social & health benefits, commensurate with work experience.

How to apply:

Applicants should submit a complete application package by email to the contacts below. The application package should include (1) a curriculum vitae including e.g. important recent publications / projects, (2) statement of motivation (3) answers to the selection criteria above (4) names, addresses, phone numbers, and email addresses of at least two references.

Contacts

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1. Qiu, C., Zhu, D., Ciais, P., Guenet, B., Krinner, G., Peng, S., Aurela, M., Bernhofer, C., Brümmner, C., Bret-Harte, S., et al. (2018). ORCHIDEE-PEAT (revision 4596), a model for northern peatland CO₂, water, and energy fluxes on daily to annual scales. *Geosci. Model Dev.* *11*, 497–519.
2. Qiu, C., Zhu, D., Ciais, P., Guenet, B., Peng, S., Krinner, G., Tootchi, A., Ducharne, A., and Hastie, A. (2019). Modelling northern peatland area and carbon dynamics since the Holocene with the ORCHIDEE-PEAT land surface model (SVN r5488). *Geosci. Model Dev.* *12*, 2961–2982.
3. Qiu, C., Ciais, P., Zhu, D., Guenet, B., Peng, S., Petrescu, A.M.R., Lauerwald, R., Makowski, D., Gallego-Sala, A. V., Charman, D.J., et al. (2021). Large historical carbon emissions from cultivated northern peatlands. *Sci. Adv.* *7*, eabf1332.