

National-scale modelling of lake warming and water-level dynamics under climate change

The French National Research Institute for Agriculture, Food, and the Environment (INRAE) is a public research establishment gathering a community of 12,000 people with more than 270 units including fundamental and experimental research, spread out throughout 18 regional centres in France. Internationally, INRAE is among the top research organisations in agricultural and food sciences, plant and animal sciences, as well as in ecology and environmental science. It is the world's leading research organisation specialising in agriculture, food and the environment. Faced with a growing world population, climate change, the depletion of resources and declining biodiversity, the Institute has a major role to play in providing the knowledge base supporting the necessary acceleration of agricultural, food and environmental transitions, to address the major global challenges.

Work environment, missions and activities

You will join the CARRTEL research unit (INRAE, Thonon-les-Bains), a leading French institute in freshwater ecology and limnology. Based at the Lake Geneva limnological station, you will become part of a dynamic, interdisciplinary research environment with regular seminars, scientific exchanges, and collaborations across INRAE, **Pôle ECLA**, EdF, etc.

The position is funded by the **Pôle ECLA** research cluster, bringing together INRAE, the French Biodiversity Agency (OFB), and Université Savoie Mont Blanc. You will interact with more than 70 researchers working on freshwater ecosystems, biodiversity, remote sensing, and ecological modelling, while benefiting from strong technical support and an extensive collaborative network.

Your mission will be to develop and apply large-scale one-dimensional lake models to improve predictions of the impacts of climate change on French lakes. Building on existing modelling frameworks and national datasets, you will refine thermal and water-level simulations for hundreds of lakes and reservoirs, contribute to high-impact scientific publications, and help deliver operational datasets for researchers and environmental managers.

You will be more specifically in charge of:

1. Developing, calibrating, and validating 1D hydrodynamic models (GLM) for French lakes and reservoirs by integrating thermal structure and water-level dynamics using in situ and satellite observations.
2. Analysing and interpreting model outputs, contributing to scientific publications, and collaborating with researchers in freshwater ecology, remote sensing, hydrodynamic modelling, and greenhouse gas research.
3. Producing large-scale datasets and modelling tools for the scientific community and environmental managers, while contributing to the further development and dissemination of Pôle ECLA resources (e.g., <https://geoecla.fr/>).

The project builds on a successful proof of concept by a postdoc who worked for 1 year on the project and will continue collaborating on the project. This experience provides a strong foundation for achieving publishable results while leaving room to explore complementary research questions and develop new collaborations. This makes it a strong opportunity for a postdoc interested in large-scale analysis and applied/operational research, who enjoys collaboration and wishes to add their own research interests to the project.

Training and skills sought

- PhD, preferably with training in aquatic modelling (applicants with no PhD but relevant experience will be considered);
- Knowledge of GLM (Hipsey et al, 2019, DOI: 10.5194/gmd-12-473-2019) is preferable (or willingness to learn);
- Programming skills in Python and/or R.
- Ability to work independently and take initiative;
- Curiosity and enjoys collaborative work;
- Motivated by applied and operational research;
- Enjoys scientific writing and manuscript preparation;
- Knowledge of French would be an advantage for integration within the team, as most of the laboratory is French-speaking, but it is not required.

INRAE's life quality

By joining our teams, you benefit from (depending on the type of contract and its duration):

- up to 30 days of annual leave + 15 days "Reduction of Working Time" (for a full time);
- parenting support: CESU childcare, leisure services;
- skills development systems: training, career advise;
- social support: advice and listening, social assistance and loans;
- holiday and leisure services: holiday vouchers, accommodation at preferential rates;
- sports and cultural activities;
- collective catering.

Contract details

- Hosting unit name: UMR CARRETEL
 - Postal code and city workplace: 74200 Thonon-les-bains
 - Type of contract: Fixed-term contract
 - Duration: 12 months, renewable
 - Starting date: as early as possible from 01/09/2026.
- Contracts at INRAE can only start on the 1st of the month.
- Remuneration: Salary follows a progressive pay-scale based on experience. Candidate with a PhD will be hired as a Research Engineer, and remuneration starts at 2815€/month gross salary for a candidate with no postdoc experience (<https://jobs.inrae.fr/en/news/remuneration-contractual-staff>).

How to apply

Please send your resume (CV) and a cover letter to the contact below. In your email, explain how your profile aligns with the research proposed in the offered position. Application can be written either in English or French.

Please name the file: "postdoc_2026_PREDILAC_NameFirstname.pdf"

By email: Rosalie.Bruel@ofb.gouv.fr

✗ **Deadline to apply: 20/08/2026.** Candidates may be selected early; applications will be reviewed in two rounds: applications received before 20/07/2026 and until 20/08/2026. Early submission will help speed up the hiring process. However, the application will remain open until the position is filled.

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