Fixed-term Postdoctoral Position in Microphytobenthos, Carbon Fluxes, and Carbon Burial Numerical Modeling (24 months) – La Rochelle University, France

The project
This project is part of the EU-funded REWRITE initiative (https://rewriteproject.eu), which explores “rewilding” as a nature-based solution to restore and enhance the ecological resilience of Europe’s intertidal ecosystems. In REWRITE, our goal is to assess the capacity of intertidal microphytobenthos (MPB)—microscopic algae inhabiting the boundary between land and sea—to store "blue carbon" in diverse European mudflat ecosystems. To achieve this, we will integrate cutting-edge sediment diagenetic and MPB models with both field observations and remote sensing data.

We are seeking a highly motivated early-career researcher to focus on quantifying carbon fluxes and burial capacity, if any, driven by MPB using advanced numerical modeling. The researcher will couple a diagenetic model to an existing MPB model and refine the physical, biogeochemical and biological processes represented in the diagenetic model, with particular attention to improving sediment–water interactions in a tidal context. Building on recent progress of the host team in MPB modeling (Savelli et al., 2024), diagenetic and carbon cycle modeling (van der Zant et al., 2026), and in situ-derived organic carbon accumulation (Amann et al., 2026), the researcher will play a key role in advancing understanding of coastal biogeochemical dynamics.

The position offers the opportunity to collaborate with a dynamic, interdisciplinary, and international team of researchers and to take part in both national and international research initiatives.

References

Savelli, R., Le Fouest, V., Becker, M. et al. Warming could shift the phenological responses of benthic microalgae in temperate intertidal zones. Commun Earth Environ 5, 606 (2024). https://doi-org.inee.bib.cnrs.fr/10.1038/s43247-024-01764-2

van der Zant, H. F., Sulpis, O., Middelburg, J. J., Humphreys, M. P., Savelli, R., Carroll, D., Menemenlis, D., Sušelj, K., and Le Fouest, V. RADIv2: an adaptable and versatile diagenetic model for coastal and open-ocean sediments, Geosci. Model Dev., 19, 1965–1989 (2026). https://doi.org/10.5194/gmd-19-1965-2026

Amann, B., Dubillot, B., Chaumillon, et al. Organic carbon composition and preservation in macrotidal coastal wetland sediment: Insights from biomarkers and isotopic signatures. Science of the Total Environment, 1020, 181542 (2026). https://doi.org/10.1016/j.scitotenv.2026.181542

The hosting laboratory
The researcher will be hosted at LIENSs, La Rochelle University, located in the coastal city of La Rochelle, France. LIENSs is an Interdisciplinary Joint Research Unit jointly operated by the French National Centre for Scientific Research (CNRS) and La Rochelle University. The laboratory focuses on the sustainability of coastal environments, which are increasingly vulnerable to the impacts of climate change and human activities. It brings together around 80 researchers, 29 permanent engineers and technicians, 24 postdoctoral and visiting researchers, and 40 doctoral students.

Skills and requirements
PhD in Biogeochemistry, Geosciences, Applied Mathematics, or Oceanography
- Strong expertise in numerical modeling, biogeochemistry, and land-sea interfaces
- Proficiency in Python programming; knowledge of Julia is a strong asset
- Excellent English skills, both written and verbal, with effective communication abilities

Employment
This is a full-time, fully funded position for a duration of 24 months, with an expected start date between July and September 2026.
If the candidate obtained his/her doctorate less than three years ago, a postdoctoral contract may be offered. After 3 years, an equivalent contract will be offered.
Please note: The post is located in a sector where scientific and technical potential is protected and therefore requires, in accordance with the regulations, that the arrival of the candidate recruited be authorised by the competent authority of the MESR

How to Apply
Interested candidates are invited to submit the following documents as a single file via the dedicated application available by clicking here (Job reference: RECH/LIENSs/26-05).
- A one-page cover letter detailing your motivation and qualifications
- A comprehensive curriculum vitae, including publications and educational background
- Contact information for two academic references

For inquiries about the position, please feel free to contact Vincent Le Fouest at vincent.le_fouest@univ-lr.fr.