Université de Bretagne Occidentale

Post-doctoral fellow F/H

Physical-biogeochemical 3D modelling

Recrute

The Université de Bretagne Occidentale is a public scientific, cultural and professional institution (EPSCP), with a rich diversity of training and research fields.
It strives to produce, transmit and promote knowledge. Committed to the heart of the city, it contributes to the training of free and responsible citizens, in keeping with humanist values: responsibility, respect, integrity, inclusion and solidarity.
With its 23,000 students, 1,300 lecturers and researchers and 900 administrative and technical staff, the UBO is a local university with a national and international reputation.
The UBO concentrates a large part of its activities on the Brest site, but it is also present in the north (Morlaix) and south (Quimper) of Finistère, and extends to the whole of Brittany with the sites of the Institut National Supérieur du Professorat et de l'Éducation in Rennes, Vannes and St Brieuc.
UBO is also a member of the SEA-EU European University, which brings together nine partner universities: the University of Cadiz (Spain), the University of Kiel (Germany), the University of Gdansk (Poland), the University of Split (Croatia), the University of Malta, the University of Bodo (Norway), the University of Faro (Portugal) and the University of Naples (Italy). This alliance aims to enhance the mobility of students and university staff, and improve the quality, inclusiveness and competitiveness of European higher education.
The UBO is looking for talented men and women to carry out its public service mission and contribute to its reputation.

SERVICE AND TEAM

As an internal school of the Université de Bretagne Occidentale (UBO), the mission of the Institut Universitaire Européen de la Mer (IUEM) is to study the ocean and coastline, as well as related human activities. Its activities focus on research, training and observation.

IUEM hosts and coordinates the ISblue (Interdisciplinary graduate School for the blue planet) research school. ISblue is the only university research school (E.U.R) in France dedicated to marine science and technology. Founded on a prestigious partnership (CNRS, Ifremer, IRD, UBS, IMT-Atlantique, ENSTA Bretagne, ENIB, l'École navale) ISblue is building emblematic research projects which, through their content and their scientific and technical results, illustrate what Isblue is all about.

As part of the emblematic PACTE research project (https://isblue.fr/pacte/), you will work within the "Marine chemistry, biogeochemical cycles and ocean dynamics" (CHIBIDO) scientific team at UMR LEMAR (https://www-iuem.univ-brest.fr/lemar/), and more specifically within Research Axis 4 "Land-sea continuum and human-environment interactions", as well as the DISCOVERY team "Marine ecology: diversity, structure, dynamics and functioning of populations and communities". You will also work closely with the DYNECO-IFREMER Unit (https://dyneco.ifremer.fr/), as well as with the UMR Geo-Ocean (https://www.geo-ocean.fr/).

POSITION AND MISSIONS

Your main mission ?

You will conduct a retrospective study of the trajectory of the Bay of Brest using a 3D physical-biogeochemical modeling approach. The Bay of Brest (48°20'N; 4°24'W) is a bay with an estimated surface area of around 180 km², which communicates with the Iroise Sea (Atlantic Ocean) via a narrow gully. With an average depth of 8m (maximum 50m, and 50% of its surface area <5m), the Bay of Brest is a temperate coastal macro-tidal lagoon (semi-diurnal tides with amplitudes ranging from 1.2 to 7.3m) whose large oscillating volume is responsible for strong currents that prevent stratification except very locally and temporarily, in the immediate vicinity of the two main coastal Aulne and Elorn rivers that flow into it. Its topographical complexity and geographical features make it highly heterogeneous in terms of hydrodynamics, biogeochemistry and ecology.

Your missions will be to:

i) couple the biogeochemical model BLOOM under development (Nutriment-Phytoplankton-Zooplankton-Detritus model) with the hydrodynamic model CROCO (https://www.croco-ocean.org/) implemented in the Bay of Brest area. The coupled model will be developed and validated over the recent period (2010-2023), using modern environmental data. Several long-term low- and high-frequency monitoring stations (SOMLIT-Portzic station at the outlet of the bay, Baie of Daoulas stations far down in the bay, and REPHY and R2 stations at Lanvéoc in the middle of the bay), will provide us with a substantial dataset for forcing and validating the model,

ii) simulate the past and future trajectory of the various physical and biogeochemical variables, using existing data sets to force the model,
and (iii) jointly analyze the model outputs thus obtained and paleoenvironmental data from sedimentary archives as part of C. Valero's thesis. The joint analysis and possible intercomparison between paleoconstructions and modeling data is new to this project.

Your tasks?

- Selection and preparation of the datasets required for forcing the CROCO-BLOOM model over recent and historical periods

- Application of the CROCO-BLOOM model to the Bay of Brest site: choice of the most appropriate spatial resolution for simulating fine-scale spatial variability of physical and biogeochemical processes in the Bay.

- Validation of the model over the recent period and simulations of historical periods (several snapshots of ten or twenty years, depending on possible forcings and calculation time, over the period 1850-2023).

- Paralleling of data from the model with paleo-environmental data obtained as part of the PACTE project.

- Contribute to scientific development in the form of publications and presentations at national and/or international conferences.

YOUR PROFILE

You ideally hold a PhD in environmental sciences, biogeochemistry, hydro-ecology, etc. or an engineering degree with initial experience.

You have environmental knowledge, programming skills and programming language skills under Linux environment (especially Fortran, R, python), as well as data processing skills.

Ideally, you have experience in coupled physical-biological modeling.

You have good writing skills and a good level of English.

Autonomous and organized, you enjoy working in a team. You are recognized for your interpersonal and writing skills.

WHY JOIN US ?

- Join an innovative, international university offering cutting-edge, multidisciplinary research.
- Share the strong values of public service: continuity, commitment, integrity, loyalty, neutrality and respect.
- Join a handi-accommodating establishment, committed to diversity and promoting professional equality between men and women.
- Move to the West and benefit from an exceptional living environment: to find out more about Brest, ranked 9th best city to live in France, visit www.brest-life.fr

Our strengths:

- Training, support for your career path, preparation for civil service entrance examinations
- Signatory of the parenthood charter
- Possibility of working 4.5 days a week
- Possibility of partial teleworking after 6 months' seniority (subject to conditions)
- 45 days annual leave
- Access to university restaurant
- Interministerial social benefits: CESU childcare vouchers, vacation vouchers, transport assistance, health insurance assistance
- Social life: renowned university orchestra, bricothèque, shared garden, conversation, sewing and theater workshops, readers' circle
- Leisure and Culture: over 200 sports activities to choose from, UBO exhibitions, Cezam card...

Find out more about us:
Watch our UBO presentation video: https://www.youtube.com/watch?v=Lp7zykYx65c
Visit our website: https://www.univ-brest.fr/ and follow our Linkedin page: www.linkedin.com/school/ubo/mycompany/

COMPLEMENTARY INFORMATIONS

Type of recruitment: contract
Type of contract: fixed-term
Working hours: 100%

Number of positions to be filled: 1
Contract duration: 24 months
Weekly working time: 35h00
Contract start date: as soon as possible
Contract end date: 24 months
Work address: UMR 6539 LEMAR IUEM rue Dumont d'Urville Technopole Brest-Iroise 29280 PLOUZANE
Job title UBO: post-doctoral fellow
Category: A
Gross monthly remuneration: 2665 euros gross per month (may be upgraded depending on experience)
Special working conditions: supervision of Msc students possible, travel possible.

TO APPLY

Please send your application (CV + covering letter) by e-mail to martin.plus@ifremer.fr, sebastien.petton@ifremer.fr and melanie.raimonet@univ-brest.fr.
How applications are considered: on an ad hoc basis
Recruitment procedure: selection on the basis of applications, face-to-face or distance interviews.