Job description

Job Title	Researcher in coupled physical-biogeochemical modelling maximum 150 characters
Contract Type	Post-doctorate research position
Department/Office Duty Station	IFREMER - Brest
Opening date of application	2026-03-20
Ref.	

The Institute and the recruiting department

Deadline for applications: 31/05/2026

- Presentation of the department, research unit or laboratory

The Pelagos laboratory (https://dyneco.ifremer.fr/en/Who-are-we/Pelagic-Ecology-PELAGOS) studies coastal pelagic ecosystems impacted by human activity, focusing on three main research areas:

- the analysis of the biogeochemical fluxes associated with planktonic activity
- the microbial community and population dynamics
- the theoretical analysis of ecosystems through modelling

Studies are conducted at various spatial (local to regional) and temporal scales (from daily to multi-decadal processes), and the biological models used range from prokaryotic to eukaryotic organisms, with a focus on toxic phytoplankton species.
The laboratory is located in the Ifremer Brittany Research Center (North-Western France). It belongs to the Coastal Ecosystem Dynamics Unit (DYNECO) of the Oceanography and Ecosystem Dynamics Department (ODE).

- Introduction of the position to be filled and its position in the organization chart

CodeBlue (https://www.smhi.se/codeblue) is a unique international research project (2025-2028, 13 countries bordering the Baltic Sea and the Northeast Atlantic participating), aimed at combating eutrophication, a major problem for the Baltic Sea and the Northeast Atlantic affecting numerous marine sectors such as fishing, tourism, and aquaculture. Eutrophication problems are primarily caused by excessive discharges of nutrients such as nitrogen and phosphorus into the oceans.

The project investigates how eutrophication problems in the Baltic Sea and the Northeast Atlantic are influenced by climate change. To this end, a series of advanced multi-model simulations will be produced based on "What if" scenarios (hindcast and forecast), with a focus on harmonizing the outputs of the various European models.

The postdoctoral researcher will conduct their research within the DYNECO-Pelagos laboratory and will be fully integrated into the CodeBlue consortium.

General areas of responsibility

The postdoctoral researcher will have as their main mission the management of the French CROCO-BLOOM coupled physical-biological model over the Bay of Biscay – English Channel – Celtic Sea regions. They will be in charge of preparing simulations on the various scenarios considered, carrying them out with the French model, and producing harmonized results in order to conduct an "ensemble modelling" exercise with other European models.

Principal activities

- Pre-processing: preparation of forcings (continental and atmospheric) and open boundary conditions for three hindcast scenarios (1960-2020): "baseline," "low nutrient," and "no climate change".

- Runs of the three hindcast simulations with the model coupling CROCO (physics), MUSTANG (sediments), and BLOOM (biogeochemistry) on the MANGAE2500 domain : English Channel - Bay of Biscay - Celtic Sea at a horizontal resolution of 2500 m.

- Post-processing of the simulation outputs on the CodeBlue variables of interest for inter-comparison with other European models (ensemble modelling). Analysis of the results.

- Preparation and testing of a forecast simulation for the SSP-RCP 3-7.0 scenario (2020-2050 or longer, depending on computational cost).

- Writing of scientific publications.

Collaborative work environment

- Internal collaborative relationship : Researchers and Modelling Engineers from the DYNECO Unit. Teams from the LOPS (Laboratory for Ocean Physics and Satellite remote sensing) Unit.

- External collaborative relationship : CROCO community – CodeBlue European Consortium – Mercator Ocean – Copernicus – OSPAR and HELCOM conventions.

Required education and experience

- Degree level and field : PhD in Oceanography, Marine Environment Modelling

- Required years of experience in the field and/or role: 0 to 2 years. The candidate must have defended their thesis within the last 3 years at the time of hiring.

Experience in coupled numerical modelling is highly desirable; experience with the CROCO community code would be an additional asset.

Required knowledge, skills and characteristics

- Knowledge, skills and abilities

- Proficiency in several programming languages, including Python, R, and Fortran.
- Knowledge of Git/GitLab version control systems.
- Knowledge and modelling of biogeochemical dynamics in coastal environments. Analysis and parameterization of models (calibration, validation, stability and sensitivity studies).
- Ability to integrate different scales of analysis and disciplinary approaches.

- Personal qualities

- Excellent written and verbal communication skills in English.
- Taste for teamworking in applied project research, and collaboration with European partners.

Specific working conditions

Contract duration: 2 years.
Activity rate: full-time job.
Travels for annual CodeBlue project meetings (Europe) and international conferences.

Partial teleworking allowed (maximum 8 days/month).

Contact

--
Martin PLUS
IFREMER, ODE-DYNECO-PELAGOS lab.
Brest, France
Tel. : +33 2 98 22 44 67
martin.plus@ifremer.fr