

FUNCTION	Research engineer – post-doctoral fellow
PROFESSION (OR TYPE OF EMPLOYMENT*) <small>*REME, REFERENS, BIBLIOPHILE</small>	A1 A41 & A1 A42
TRADE OF BODY	Equivalent of research engineer
CATEGORY	A
AFFILIATION	CEFREM - UPVD

MISSION(S)

Deciphering marine forest dynamics through soundscape time series



BIOcean5D



Co-funded by
the European Union

Context

Are you passionate about using acoustic data to advance marine science and contribute to important European initiatives? Join our team specialized in marine soundscapes.

The position is centred on the [TREC \(Traversing European Coastlines\)](#) expedition, led by EMBL Heidelberg, which explores the biodiversity and molecular adaptability of microorganisms, model species and their habitats along land-sea transects. The eco-acoustics project in TREC is based at CEFREM and is also part of the HORIZON-CL6-2021-BIODIV-01-03 [BIOcean5D](#) program, which aims to holistically explore marine biodiversity from viruses to mammals across the 5 dimensions of space, time and human environmental pressures. Subtidal marine forests (kelp, eelgrass and seagrass meadows) have been sampled at various sites along Europe's coasts. Annual data are also being acquired in several of these habitats. In addition, environmental variables are sampled (T°, light) or collected from databases (satellite, multi-parameter buoys), providing a rich context for studying the soundscape dynamics of key habitats.

The overall aim of the post-doc is to link aspects of soundscapes to environmental processes in complex and dynamic coastal ecosystems, in order to better understand their responses to environmental change. This includes studying the variability of the biophony, i.e., acoustic communities or mass phenomena such as fish or invertebrate choruses by applying, and in part developing, machine learning methods (and/or equivalent) for processing long-term datasets.

The position is open for 18 to 24 months (depending on experience and salary).

ACTIVITIES

- Handle, manipulate and preview (large) datasets. Integrate pre-processed data for the application of AI models, or other, in the frame of long-term data processing.
- Define one or more specific research questions and perform data analysis to explore them.
- Write scientific papers and make scientific presentations at international conferences.
- Participate in project, team and CEFREM meetings.

COMPETENCES

Education

- PhD in acoustics or data engineering (AI, signal processing or related fields) or in eco/bioacoustics

Technical skills

- Ability to manage large data sets (several dozen TB) using a programming language, preferably Python, MATLAB and/or R.
- Competences in signal processing, preferentially of acoustic data
- Knowledge in bio/eco-acoustics, marine sciences, oceanography, and/or physical acoustics, is an asset

- Knowledge of certain statistical analyses, i.e., multivariate analyses, modelling is an asset (e.g., linear models, GAMs, time series)
- Good verbal/written communication skills in English

Personal skills

- A taste for teamwork in the context of a major international project and within multidisciplinary teams
- Ability to work independently, take initiative and be dynamic
- Versatility
- Adaptability and flexibility to changing plans

WORKING ENVIRONMENT AND CONTEXT

The CEFREM (new website coming soon) is a multidisciplinary joint research unit, [CNRS](#), (UMR 5110) & [University of Perpignan](#) (UPVD), bringing together oceanographers, geologists, geochemists, marine biologists and ecologists. oceanographers to study coastal environments with a focus on the impact of global changes from land to the ocean. Eco-acoustics was recently integrated into CEFREM thanks to the research chair SEAPHONY and the arrival of L. Di Iorio, professor (CPI) an researcher in this field for over 10 years. The person recruited for this position will work within the framework of the European BiOcean5D project, which brings together 30 partners from 11 countries, and will be expected to interact with a French and international community.



Specific constraints

No particular constraints, except the flexibility to leave for fieldwork.

RECRUITMENT CONDITIONS

Contract : 18-24 months (depending on experience and salary)

Startig date : First trimester of 2025

Workplaces : CEFREM, 52 Avenue Paul Alduy, Perpignan – France

Salary : Between 3000 et 3900 Eur gross/month depending on the contract concluded with regard to the profile and experience of the successful candidate. Salary also includes health insurance, unemployment insurance and 57 days of vacation/year.

Applications

Applicants are invited to submit their application in one pdf, including a cover/motivation letter (max. 2 pages) and CV (including a list of publications) and the names and contact details of two referees. Please send your applications to lucia.diiorio@univ-perp.fr.

Deadline: 13/12/2024 @ midnight

Lab director

Wolfgang LUDWIG : ludwig@univ-perp.fr

Scientific coordinator

Lucia DI IORIO (CEFREM, PI SEAPHony) : lucia.diiorio@univ-perp.fr