

Postdoctoral Position - Climate change and offshore wind: Non-stationary multivariate extreme value analysis (F/M/X)

Want to join a human-scale organisation with a dynamic, committed and caring team focused on innovation for the energy transition? France Energies Marines offers you the opportunity of a high-level scientific career in which you will be recognised by your peers in your field of expertise. You'll be able to carry out applied research for a booming industry. So, let's create tomorrow's world together!

The Institute France Energies Marines

France Energies Marines is the French offshore wind energy research and innovation centre.

Its mission is to remove the obstacles facing the offshore wind energy sector. Backed by the French government and supported by a multidisciplinary team of more than 90 staff, a network of international experts and unique infrastructures, the Institute conducts multi-partner research projects guided by excellence. These activities are structured around four complementary thematic departments: Wind & Ocean Dynamics, Systems &

Performance, Wildlife & Interactions, Ecosystem & Society.

The results are transferred to the industry in the form of research and expertise services, operating licences, know-how transfer and participation in expert committees and networks.

The candidate will work within the Wind and Ocean Dynamics department, in the [2C MORE](#) project which aims to assess the impacts of climate change on offshore wind power.

Context

The offshore wind industry is expanding rapidly, with 120 GW expected to be installed in Europe by 2035. In this fast-growing and competitive context, the long-term reliability of offshore wind farms critically depends on their ability to withstand evolving marine conditions over operational lifetimes exceeding two decades. Climate change is already modifying wind regimes, wave climates, and the frequency and intensity of extreme events (Amlashi, 2024), introducing significant uncertainties into the design criteria of offshore structures (Barkanov *et al.*, 2024). These uncertainties are particularly important in energetic regions that also offer the greatest potential for offshore wind development (Susini *et al.*, 2022).

Metocean analyses therefore play a central role in characterizing the environmental loads that offshore assets will face throughout their life cycle. Extreme values of design parameters such as significant wave height, wind speed, and total water level directly influence structural safety, fatigue life, and operability (Slater *et al.*, 2021). Significant wave height, for example, governs wave loading and is a key design and certification parameter (Zhang *et al.*, 2019).

Recent studies highlight the need to revisit traditional, stationary extreme value approaches by integrating climate-driven trends using nonstationary statistical models or multimodel climate ensembles (Morim *et al.*, 2019; Lobeto *et al.*, 2023). Developing such methods is essential for improving the robustness of offshore wind design in a changing climate. This postdoctoral project will contribute to that effort by advancing the analysis and characterization of future metocean extremes relevant to offshore wind engineering.

Job Description

The successful candidate will analyse main metocean design variables (wind speed, wave height and period, etc...) from climate models and assess the impacts of climate change on the extreme part of these variables and associated uncertainties. The following tasks will be covered:

- Statistical downscaling and bias correction of the General Circulation Models (GCMs) using hindcast data, preserving the extremal behavior;
- Comparison of the classical Block-maxima and Peaks-Over-Threshold approaches in a non-stationary context, especially in terms of uncertainties;
- Multivariate modeling of extremes, e.g. via copula, to derive environmental contours;

The successful candidate will be supervised by engineers and researchers from Ifremer, IPSL, BRGM, and France Energies Marines.

Profile and skills

Initial training

PhD in mathematics/statistics, machine learning, climate sciences, meteorology, oceanography

Work experience

A first experience in statistical modeling of extremes is required

Specific knowledge

- Strong background in mathematics/statistics and/or machine learning
- Mastery of programming languages (Python or R)

Professional qualities

- Rigor and scientific curiosity
- Autonomy, organization, and proactive
- Ease of expression, argumentation, and communication in a partnership context
- Ability to work in a group in a multidisciplinary approach
- Good writing skills, in French and in English (scientific papers and thesis)

Would be a +:

- Wind energy sector
- Climate database management

Practical Information

Type of contract	Fixed-term contract (CDD) - Executive Status
Duration of the contract	12 months
Workplace	France Energies Marines et Ifremer, 29280 Plouzané, France
Starting date	1 st September 2026
Deadline for application	30 th June 2026

In accordance with the regulations, priority will be given to people with disabilities who are equally qualified.

How to Apply

- Applications must consist of a **CV** and a **cover letter**.
- In the case of a candidate being seconded by a member of France Energies Marines, the application must mention the agreement of the current employer.
- To apply, please go to the France Energies Marines [website](#) under the [Join Us](#) section.

N/Ref: FEM-SAS-2026-163

Date: 06/05/2026