

N/Ref: FEM-2019-015

Object: ***Postdoc position in hydrodynamic modelling of metal dispersal in the environment originating from galvanic anodes in the context of Marine Renewable Energies – 12-month contract***

Company Description

FRANCE ENERGIES MARINES (FEM), the national reference institute dedicated to research, development and innovation in the field of Marine Renewable Energies (MRE), supports the nascent MRE industrial sector with the means and skills that increase competitiveness by mutualizing research and development costs, reducing risks and accelerating the acquisition of data and knowledge. The principle of this structure is based on a broad public-private partnership involving industrial groups, SMEs, regional authorities, advanced research and training institutions and competitiveness clusters.

FEM is assigned a specific role of federating and unifying marine renewable energy industrial R&D, working within a model of projects co-financed by the national Investments in the Future program and by FEM members, while also participating in European research projects.

The headquarters of FEM are located in Plouzané, France.

Position Description

In the context of public concertation prior to the deployment of the first Marine Renewable Energy (MRE) farms in France, the potential impact of cathodic protections, and particularly of galvanic anodes, is highlighted by the public authorities, as well as by the civil society, as a real concern about their potential impact on the environment.

Gathering recognized French experts in the cathodic protections and their impacts, the ANODE project is seeking to produce a scientific review on the cathodic protections and their potential impacts on the environment in the MRE context.

The project aims at characterizing the metal discharges from the galvanic anodes of MRE structures and comparing the resulting concentration levels with the natural level and chemical forms of these metals in the environment. The project will study the rate of consumption of these anodes for typical MRE structures, the release of their different constituents (Aluminium, Zinc, Indium...) modelling their potential distribution in the marine environment.

Scientific supervision :

- Thierry Burgeot
Chief of the unit of research of Biogeochemistry and Ecotoxicology – Ifremer
- Rui Duarte
Research Engineer in the « Site Characterization » research program – FEM

Missions:

Within the FEM R&D team and under the responsibility of the "Site Characterization" and the "Environmental and socio-economical impacts" program managers, the research engineer will:

- Review the different proceedings of cathodic protection systems and their potential environmental impacts
- Overview of data availability for MRE sites as a basis for the numerical ocean circulation model
- Implement a configuration of the CROCO ocean model and coupled geochemical modules over the MRE areas of interest for the project
- Investigate the dispersal and chemical forms of the metals from the anodes into the environment based on the numerical simulations
- Propose and test improvements of the model configuration based on the results of the previous industrial or academic studies
- Produce a recommendations report based on the review and modelling work achieved regarding the potential effect and risks of cathodic protections on the environment

Candidate Profile

You have a PhD degree in physical oceanography or fluid mechanics with a strong accent on ocean currents physics and numerical modelling.

<p>➤ Degree:</p> <ul style="list-style-type: none"> ▪ PhD degree in physical oceanography, fluid mechanics 	<p>➤ Specific skills:</p> <ul style="list-style-type: none"> ▪ Physics of ocean currents ▪ Fluid mechanics, ▪ Numerical modelling, ▪ Programming languages, ▪ Good English skills.
	<p>➤ Personal qualities:</p> <ul style="list-style-type: none"> ▪ Strict scientific rigor, ▪ Initiative, scientific curiosity and multi-disciplinary spirit, ▪ Taste for research and teamwork, ▪ At ease in expressing oneself, at convincing others and in communicating in a collaborative context.

Practical Information

Starting date: March 1, 2019, for a temporary position of 12 months (French "CDD").

Final date for applications: February 4, 2019.

The position is located at the France Energies Marines headquarters:

Bâtiment Cap Océan
525, avenue Alexis de Rochon
29280 Plouzané – FRANCE

Please send your CV and cover letter to the following email address:

contact@ite-fem.org

For any additional information, please contact: georges.safi@ite-fem.org

In case of an expected secondment of the candidate by a member of France Energies Marines, the application should mention the agreement of the present employer.