**Opening of a postdoctoral position within the research project MORHOC'H 2**

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| Duration: | 36 months |
| Start Date: | 03/05/2021 |
| Application deadline: | 02/04/2021 |
| Location : | M.I.O. Toulon (Campus de La Garde) |
| Collaborations : | M2C, SHOM, LEGOS, Océanide |
| Gross monthly salary: | 2500€ |
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Context:

The MORHOC'H 2 research project is a follow-up to the ANR ASTRID MORHOC'H project, which focused on studying processes that have a significant impact on wave propagation in the presence of a vertically sheared current. Indeed, it is not uncommon to encounter such currents in coastal areas, since the combined effects of wind and bathymetry can profoundly modify their vertical profile. However, the modelling, both physical and numerical, of such areas is a strategic challenge, both in the civilian field (coastal security, renewable marine energy, etc.) and in the military field (landing, rescue, naval applications).

Two outcomes, resulting from the project, are the focus of our attention here. Thus, the MORHOC'H project lead us developing a particularly robust experimental device aimed at experimentally controlling the vertical structure of a hydrodynamic channel current. In addition, a new model has been developed, named CMS, to extend the scope of wave propagation models with resolved phase to take into consideration configurations involving high current vorticity.

The MORHOC'H 2 project therefore aims to increase the degree of maturity of these two results, bringing them closer to use in real conditions. First, the current profile control device will be extended to larger configurations and will become applicable in three-dimensional basins. Many industrial actors, operators of hydrodynamic test tanks, will then have access to it. In addition, the CMS propagation model will be coupled with the Community coastal hydrodynamic circulation code CROCO, developed by SHOM, IRD, CNRS, IFREMER, and INRIA, in order to make it usable under realistic conditions. Thus, the improvements resulting from the initial project will become accessible to realistic environments. The two approaches in coastal modelling, physical and numerical, will thus become more efficient and will be able to describe more realistic situations.

Activities:

The successful candidate will oversee the development of the numerical model, implementing a robust coupling between the CMS propagation model and the circulation model CROCO. Of course, an important part of the activities will consist in programming. Also, the successful candidate will participate in the project follow-up, and have strong interactions with the other teams involved in the project.

Requirements for application:

Applicants should have a strong background in marine and coastal hydrodynamics, with a special interest in theoretical and numerical modelling. Strong skills in high performance and parallel computing will also be necessary.

The position is opened at a postdoctoral level, and the applicants should own a PhD in any related field. Besides, the project is funded by the French “innovation and defense agency” (AID – DGA). Thus, applications will be restricted to candidates owning the citizenship of a European Union country only.