### NUMERICAL METHODS FOR OCEAN AND ATMOSPHERE MODELING

- Contract type : Fixed-term contract
- Duration of contract : 1 year
- Renewable contract : Yes
- Starting date : Fall 2021
- Level of qualifications required : PhD or equivalent
- Function : Post-Doctoral Research Visit

#### 1 Job environments

The Inria AIRSEA project-team (http://team.inria.fr/airsea/) carries out research work in applied mathematics for the modeling of oceanic and atmospheric flows. The team is particularly active on four areas of research : 1) modeling oceanic and atmospheric flows 2) model / dimension reduction 3) managing uncertainties 4) designing numerical algorithms suitable for high performance computing. The team works in close collaboration with geophysicists, e.g. from CERFACS, ECMWF, Mercator-Océan, Météo-France and numerous laboratories attached to the National Institute of Sciences of the Universe (INSU), and also contributes strongly to the development of realistic modeling systems such as the NEMO and CROCO ocean models.

The proposed work will be part of an EU H2020 Innovation action entitled "IMMERSE" (Improved Models for Marine EnviRonment SErvices, https://immerse-ocean.eu/). The aim of this project is to contribute to the improvement of oceanic numerical forecasting systems.

# 2 Assignments

We invite applications for a postdoctoral research position. The appointment is initially for one year (but renewable subject to satisfactory performance), starting any time between September and November 2021. The position requires a strong background in numerical modeling and fluid dynamics. Knowledge of atmospheric or oceanic science will be advantageous.

# 3 Main activities

The general scope of the Airsea research team is to develop mathematical and computational methods for the modeling of oceanic and atmospheric flows. The areas of application range from climate modeling to the local prediction of extreme events. The team has strong interactions with oceanic and atmospheric numerical models developers as well as geophysicists.

Within this environment, the successful candidate is expected to conduct research in one of the following topics : advanced methods for modeling 3D rotating and stratified flows, multi-physics coupling algorithms, or physics/dynamics coupling (i.e. the coupling between the resolved and parameterized sub-grid scale processes). A great deal of latitude is left to the candidate to define his subject.

#### 4 Skills

Essential

- Good knowledge of discretisation techniques and in numerical analysis

— Good programming in languages like Python, C/C++, or Fortran

### Desired

— Experience with a numerical oceanic or atmospheric dynamical kernel

Applicants must have a PhD in Applied mathematics, or, if not, in atmospheric/oceanic sciences with good background in numerical analysis.

## 5 Instruction to apply

Please send your detailed Resume, a covering letter showing your interest and letters of recommendation by email to : Florian Lemarié - Inria researcher - florian.lemarie@inria.fr and Laurent Debreu - Inria researcher - laurent.debreu@inria.fr Consideration of applications will begin immediately.