Engineer R&D in computation and simulation of oceanic and atmospheric flows
ALBATROS Project

Location: LJK (Jean Kuntzmann Laboratory UMR5224), Grenoble University Campus – France
Starting date: October 2016 (the position will remain open until a suitable candidate is hired)
Contract Duration: 18 months initially (renewable for 6 additional months)
Gross Salary per month: starts at 2621€ (negotiable according to the diploma and the experience)

Team Presentation: the general scope of the AIRSEA project-team (http://team.inria.fr/airsea/) is to develop mathematical and computational methods for the modeling of oceanic and atmospheric flows. The used mathematical tools involve both deterministic and statistical approaches. The domains of applications range from climate modeling to the prediction of extreme events. The activity will be part of a project entitled “ALBATROS” (Ocean-Waves-Atmosphere interactions at high-resolution) funded by the Copernicus Marine Environment Monitoring service (http://www.copernicus.eu/main/marine-monitoring).

CONTEXT: The ALBATROS project focuses on the development of novel techniques to account for the 2-way interactions between ocean, waves and atmosphere within operational models. This project brings together geoscientists and applied mathematicians from several French institutes. The objective of this position is to contribute to the development of a standalone atmospheric boundary layer model and to work on its proper online coupling with an oceanic model. A particular emphasis will be on the transfer of the results toward Mercator-Ocean which operates the high-resolution global ocean forecasts within CMEMS. The project will involve collaborations with scientists and engineers from Mercator-Ocean (http://mercator-ocean.fr), Meteo France (Toulouse) and CNRS in Brest and Paris.

DESCRIPTION OF THE WORK: the derivation of a reduced (simplified) model as an alternative between a forced mode and the use of a full atmospheric model is undertaken within the ALBATROS project in order to represent important 3D turbulent features in the marine atmospheric boundary layer (MABL). The work will first consist in developing a fortran code resolving the dynamical equations and vertical mixing parameterization of the simplified MABL model as well as the proper interface to allow this model to be constrained by large-scale atmospheric data. Then, the model will be tested on a predefined suite of idealized testcases. Finally, more realistic simulations will be undertaken with the help of Mercator-Ocean.

SKILLS AND EXPERIENCE: required qualities
Essential:

• Fortran programming skills
• Good knowledge of structured-grid finite volume/difference discretizations

Desired:

• Experience with the NEMO modeling platform
• Experience in ocean-atmosphere coupling
• Basic knowledge of atmospheric or oceanic modeling (including physical parameterization schemes)

PhD diploma (or master’s degree with at least 2 years of experience in the field)

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