CALL FOR APPLICATION
18-MONTH RESEARCH ASSOCIATE FELLOWSHIP AT CNRM-GAME
(TOULOUSE, FRANCE)

Applications are invited for a 18-month research engineer position starting around January 2014, at the National Meteorological Research Center (CNRM-GAME, UMR3589) in Toulouse, France (http://www.cnrm.meteo.fr/) to work on the following subject:

Development and validation of the NEMO-MED/AROME coupled system - Application to the HyMeX field campaign SOP2.

The deadline for receipt of applications is **FRIDAY SEPTEMBER 20, 2013**.

Context:
The work will contribute to the ASICS-MED project which is a 4-year ANR funding project started in January 2013. The ASICS-MED project is part of the international HyMeX program (see www.hymex.org). The main objective of ASICS-MED is to deeply investigate the ocean-atmosphere processes that contribute to dense water formation in the Northwestern Mediterranean (Gulf of Lion) and to improve their representation in ocean models. The process studies focus on the mesoscale and sub-mesoscale. The methodology of the project consists in: (i) simultaneously collecting observations in the ocean and the marine atmospheric boundary layer (MABL) focusing on strong wind and ocean convective events over the Gulf of Lion during the HyMeX SOP2 field campaign that took place from 1st February to 15 March 2013, (ii) making use of several high- resolution limited-area ocean models over the North-Western Mediterranean together with a dedicated version of the AROME atmospheric model to simulate the evolution of both the upper ocean and MABL during the preconditioning phase and the dense water formation; (iii) developing a mass-flux parameterization scheme for ocean convection and improving air-sea fluxes parameterizations; and (iv) identifying (sub)mesoscale ocean/atmosphere processes implied in the upper ocean and MABL evolution and leading to dense water formation. The research associate will contribute more specifically to workpackage (ii).

Description of work:
The research associate will participate to the development and validation of the coupled kilometric-resolution ocean-atmosphere system. This latter consists in the AROME atmospheric model from Météo-France and the NEMO ocean model, that will be coupled using the OASIS3-MCT coupler software from CERFACS. Although the coupling system will be developed to be transposable to other areas, the version used in the framework of the project will be based on dedicated versions of the AROME atmospheric model (AROME_WMED) and of the NEMO ocean model (NEMO-MED36) both covering the whole western Mediterranean Sea. The design of the coupling and its implementation will start at CNRM-GAME in September 2013 based on an already existing O/A coupling code using OASIS. Depending on the progress of this work, the applicant could contribute to the code development. It is however expected that most of his/her work will be devoted to the validation of the coupled system that will consist in setting and running ocean-alone simulations and coupled ocean-atmosphere simulations of the entire SOP2, to compare them to the ocean and atmospheric observations collected during the field campaign (gliders, argo floats, CTD, aircraft measurements,..) and to analyze the benefit of the coupling on the simulation of the dense water formation.

Qualifications:
- Applicants should have a doctorate in ocean or atmospheric sciences or more generally in environmental sciences.
- It will be an advantage to have expertise in coupling of numerical modeling codes or in modeling of ocean or atmosphere dynamics.
- Good programming skills (Fortran, Unix/linux shell scripts) are required.
- Knowledge of English language, and possibly French.

Supervision team : The work will be conducted under the main supervision of C. Lebeaupin-Brossier, H. Giordani and V. Ducrocq.

Salary: The research associate will be recruited for 18 months with a net monthly salary between 1800 and 2200 €, commensurate with experience. This includes social services and health insurance. The employer will be CNRS.

Applications: Interested applicants should submit as one pdf file a covering letter, a brief statement of research interests, a Curriculum Vitae, possible started date and details of two referees. The applications should be sent by email to: cindy.lebeaupin-brossier@meteo.fr, with copy to herve.giordani@meteo.fr, veronique.ducrocq@meteo.fr