

# Laboratoire d'Océanographie Physique et Biogéochimique

UNITÉ MIXTE RECHERCHE 6535 – C.N.R.S.

Post-doc position for 10 months (from February/March 2009) at LOPB (Marseille)

**Subject : Coupled physical-biogeochemical modelling of NW Mediterranean sea with the Mars3D and Eco3M numerical tools**

Collaboration: M. Baklouti (LOPB), Pierre Garreau (Ifremer), F. Carlotti (LOPB)

The main objective of the post-doctoral activity will consist in the simulation of the first levels of the trophic web of the pelagic ecosystem in the NW Mediterranean sea with the numerical tools Mars3D and Eco3M. This should allow to (i) improve our understanding of the functioning of this ecosystem, (ii) verify model's ability in representing phytoplankton seasonal successions and to (iii) answer some scientific questions specific to the NW Med Sea ecosystem.

A preliminary post-doctoral job has been dedicated to the technical aspects relative to the coupling of the two numerical tools. The coupling can also work in parallel mode via MPI (Message Passing Interface). First coupled simulations with a simple biogeochemical model have already been undertaken.

The present job will first consist in the construction of the biogeochemical model (in terms of state variables and processes), using the already existing model versions and the biogeochemical processes implemented in Eco3M. He will also benefit from the experimental and modelling work in process in the LOPB on the phytoplankton and zooplankton compartments.

In practice, the post-doctoral fellowship will join a research team in which his work will be at the interface of several PhD thesis in process on connex subjects, in order to address some of the remaining issues. For example, a particular attention will be given to the coupling between the zooplankton compartment with hydrodynamics to include an integrated parametrization of organisms individual behaviour (scale transfer from the individual level to the functional group).

The second part will focus on the simulation of the NW Med Sea functioning with the coupled model. First, it will focus on the simulation configuration (choice of simulation period, initial and boundary conditions, spin up,...). Once the tool will be ready, a one year simulation will be undertaken, followed by simulation outputs analysis and comparison with available data.

The candidate must hold a PhD degree. Solid knowledge in physical oceanography as well as an experience in ecosystem modelling are also required. The net salary will be around 1900 € per month.

Contact :

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