

Postdoctoral Position in Ocean Biogeochemical Modelling LEGOS/CNRS – Toulouse and LPO/IRD – Brest, France

The European FP7 MEECE (**Marine Ecosystem Evolution in a Changing Environment**) project will address global change, the result of natural and anthropogenically induced climate change impacts upon the structure and functioning of marine ecosystems *via* a number of abiotic and biotic drivers.

The specific goals of MEECE are :

- To improve the knowledge base on marine ecosystems and their response to climate and anthropogenic driving forces,
- To develop innovative predictive management tools and strategies to resolve the dynamic interactions of the global change driver, *i.e.* changes in ocean circulation, climate, ocean acidification, pollution, overfishing and alien invasive species on the structure and functioning of marine ecosystems.

To achieve these goals, MEECE will employ a combination of data synthesis, numerical simulations and targeted experimentation. An increase in the knowledge base and predictive capacities regarding the influence of the drivers is central to the successful fulfillment of the goals of the European Marine Strategy.

The offered post-doctoral position is part of this **MEECE** project led by Dr Icarus Allen at Plymouth Marine Laboratory, United Kingdom, which will extend from 2008 till 2012.

Within the “**Ecosystem response to climate scale drivers**” Work Package, the candidate will have to perform **regional coupled physical and biogeochemical simulations in the Benguela upwelling region**. The ROMS physical model (<http://roms.mpl.ird.fr/>) will be used to simulate the hydrodynamics and thermal structure. The SAFE (South African Experiment) configuration (1/4°) in which is embedded a refined zoom (1/12°) of the Benguela upwelling system will be run in an hindcast mode. Either conceptual projections or scenarios could be achieved depending on time availability. It will be coupled with an existing biogeochemical model derived from Kone *et al.* (GBC, 2005). It incorporates additional key compartments and processes for fully encompassing the biogeochemical status of the Benguela, namely oxygen, sulphur cycle, denitrification and the anammox reaction.

Some questions to be addressed:

- What is the origin of the low oxygen waters offshore the west coast of South Africa?
- Which coupled physical/biogeochemical mechanisms drive the seasonal and interannual variability of hypoxia?
- What is the impact of physical changes on the marine N cycle and marine nitrogen loss, on the joint venture (if any) between denitrification and anammox?
- What is the influence of physical changes on the greenhouse gas N₂O air-sea flux in the region?

This work will be conducted in an **integrative approach conducted within the “Benguela team”** of the MEECE project in order to apprehend the role of climate change and fishing on the Benguela ecosystem.

A recent PhD in oceanic biogeochemistry and/or physical oceanography or a related field is required. The applicant should have a strong background in geophysical fluid dynamics and numerical modelling.

Letters of **application**, a C.V., a short statement of research interests and the name of two referees **should be sent by May 15th, 2009** to veronique.garcon@legos.obs-mip.fr (V. Garçon, LEGOS/CNRS, 18 Ave. E. Belin, 31401 Toulouse Cedex, France), to Eric.Machu@ird.fr (E. Machu, LPO/IRD, IFREMER, BP 70, 29280 Plouzané, France) and Pierrick.Penven@ifremer.fr (P. Penven, LPO/IRD, IFREMER, BP 70, 29280 Plouzané, France). Appointment will be for a minimum of **21-month duration** and **should preferentially start on June 1st, 2009**. Net annual income will be 24,000 Euros.