

About the job :

We are looking for an enthusiastic scientist sharing Mercator Ocean's ambition and objectives.

You will improve the representation of zooplankton in our biogeochemical models, to link them better to medium and high-trophic-level models (e.g. micronekton, fishes) and, ultimately, predict better marine ecosystem biodiversity and ocean food resources. The work is carried out in the framework of the new Horizon Europe NECCTON project and the Copernicus Marine Service.

More specifically, you will:

- Implement our coupled physical-biogeochemical model (NEMO-PISCES 4.2 version) within a programming framework that facilitates the interoperability of biogeochemical and high-trophic-level models, i.e. the Framework for Aquatic Biogeochemical Models (FABM; <https://github.com/fabm-model/fabm/wiki>)
- Implement and evaluate the numerical performance of the updated NEMO-FABM-PISCES system in pre-operational configurations of the global ocean and regional seas (Iberian-Biscay-Irish basin <https://doi.org/10.5194/os-15-1489-2019>) of the Copernicus Marine Service
- Improve the simulation of the plankton dynamics from regional to global scales, e.g., by tuning, run and evaluate the novel module of zooplankton vertical migration and related biogeochemical processes in PISCES. Evaluate and test additional opportunities to improve the low-trophic-level simulations, e.g. the addition of plankton functional types and a bio-optical module in PISCES.
- Run multidecadal hindcasts with the global system to evaluate skill and uncertainties of the model with the new parameterizations.
- Support interfacing the improved simulations of zooplankton biomass in PISCES with mid and high trophic level models (e.g., SEAPODYM; <https://doi.org/10.1016/j.pocean.2008.06.004>)
- Disseminate your work in peer-reviewed publications and international conferences. You will participate in NECCTON project meetings and present the progress in project reports.

Assets for success:

You have a PhD in oceanography (preferred) or a minimum of 5 years of working experience in three-dimensional ocean biogeochemistry modelling.

- You have experience in developing physical-biogeochemical ocean models and validating the outputs by using large datasets of ocean observations.
- You have advanced skills in scientific computing, programming languages (in particular Fortran and Python), version control software (git) and in the use of supercomputers.
- You are a good listener, rigorous, dynamic, reactive and a strong team player, autonomous, capable of managing your time and deadlines, and you are eager to bring your technical and scientific ideas to ambitious projects.
- You are fluent in written and spoken English

Who are we?

Mercator Ocean International has been developing operational oceanography activities for nearly 25 years, as part of its public interest mission to preserve the ocean.

Many scientific and societal challenges must be met to ensure a sustainable ocean, whether they concern the environment, biodiversity, climate change, the blue economy or education. To meet these challenges, Mercator Ocean designs, develops, operates and maintains state-of-the-art digital systems capable of describing, analysing and forecasting the state of the ocean in 3D, continuously and in real time. The scientific information is then translated to be accessible to all, whether they are public or commercial services, political decision makers, industrialists, associations, NGOs, teachers or citizens. Mercator Ocean International thus combines scientific excellence and social commitment on a daily basis.

As a non-profit company under multinational governance (ES, FR, GB, IT, NO), we work in a climate of trust with our ten shareholder partners, all key players in the development of European oceanography.

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