

How to apply:

Send your cover letter and detailed resume with the following reference 2023-05/oo/CDDPObs to recruitment@mercator-ocean.fr

Date of publication : 12/05/2023

About the job :

Within the Operational Oceanography department, you will prepare the integration of the SWOT altimetry data and assess the impact of their assimilation into the Mercator Ocean global monitoring and forecasting system. The SWOT satellite successfully launched on December 16, 2022 will extend the capability of existing nadir altimeters to two-dimensional mapping at a much higher resolution. This will allow observing mesoscale and submesoscale signals for wavelengths between 20 and 200 km.

The main objective of this thesis will be to work with the first SWOT data and to demonstrate how SWOT will improve the Mercator Ocean prediction capabilities, in particular of the global system operated in the context of the Copernicus Marine Service.

The following activities are planned:

- You will analyze the first SWOT data during its fast-sampling phase (1 day repeat) and compare them to their model counterparts to characterize the scale of variability of the modeled and observed sea level.
- You will analyze the representation of the high frequency processes when fast sampling phase SWOT observations are assimilated in the global 1/12° system.
- When moving to the 21-day phase, you will evaluate the capacity of the model dynamic to dynamically propagate the "instantaneous" SSH information to the next revisiting time.
- You will develop diagnostics to assess the impact of SWOT for ocean analyses and forecasts at different space and time scales
- You will evaluate the quality of the global 1/12° analysis and forecasts assimilating SWOT observations, based on the configuration operated in the Copernicus Marine Service, running in a demonstration mode
- Using newly developed ensemble approaches, you will assess, in particular, the predictability of mesoscale/submesoscale signals by analyzing the spread of the ensemble at different spatial scales
- You will disseminate your work in peer-reviewed publications and international conferences.

Assets for success:

You have a Master in oceanography, meteorology, applied mathematics or equivalent

You are a rigorous, curious with the ability to analyze and synthesize numerical simulation results and observational data sets

You have skills in scientific computing and programming languages (in particular Fortran and Python)

You are willing to be proactive and conduct a 3-year research project

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.

MERCATOR OCEAN

INTERNATIONAL

2 avenue de l'aérodrome de Montaudran, 31400 Toulouse, FRANCE

Tél : +33 5 61 39 38 02 - Fax : +33 5 61 39 38 99

Société civile de droit français au capital de

2 000 000 € - 522 911 577 RCS Toulouse - SIRET 522 911 577 00024

mercator-ocean.eu