## MARC - Modeling and Analysis for Coastal Research

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## Abstract

The MARC (Modeling and Analysis for Coastal Research - https://marc.ifremer.fr/en) project is a collaborative endeavor that aims to run numerical models and process satellite products for the benefit of the research community, encompassing a broad spectrum of applications. The models currently employed include Ifremer MARS3D model (circulation, biogeochemistry and sediment dynamics) and the WAVEWATCH III wave model.

The main objective of the MARC project is to provide realistic simulations of the coastal ocean and to demonstrate the capabilities of the numerical models. To this end, several configurations have been implemented. These are dedicated to French metropolitan coasts and to the global ocean for surface waves, with the aim of including overseas French regions. For the surface temperature, chlorophyll concentration and the suspended particulate matters, satellite high level products are distributed.

Model and observation products are prevalent across a diverse array of scientific projects but also for coastal applications. These products find application in a variety of fields, such as the management of marine environments (including Marine Protected Areas, Water Agencies and the French Office for Biodiversity), maritime safety and marine renewable energies. Furthermore, different hindcasts have also been processed for surface waves and regional circulation.

We will provide a comprehensive overview of the MARC project, with particular emphasis on the most recent applications of MARC products.