

## **AMICO-BIO: investigating the effects of forcing open boundaries in 3D regional biogeochemical models and the use of public data products for model validation**

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We present the current results from the Copernicus endorsed AMICO-BIO [1] project which aims to investigate the effects of different implementations of open boundary conditions (OBCs) on regional 3D biogeochemical ocean models, while making use of publicly available *in situ* and remote sensing data from databases such as MyOcean or Coriolis for purposes of model validation. The regional models we use, include IBI12-PISCES, MARS3D-ECOMARS3D, SYMPHONIE-ECO3M-S and MARS3D-ECO3M-MASILIA and are applied to the Gulf of Lion and Bay of Biscay areas. By choosing different forcing methods for the biogeochemistry at the open boundaries (while leaving the physics unchanged) we quantify the effect each method has on the model interior and how it causes the different models to perform more or less well in comparison to the *in situ* data. Some of the available *in situ* and remote sensing data includes observations from autonomous platforms such as gliders, floats, buoys and moorings, as well as observations from cruises and land-based high frequency radar. Model skill is evaluated using various statistical indices. This provides insights not only on how to manage and apply the biogeochemical forcing at the open boundaries in regional models if they originate from an external source (in particular a global scale model, a climatology, or *in situ*/spatial measurements) but also helps to obtain a better representation of the processes at the interfaces, in particular the cross-shelf exchange processes between the continental shelf and the abyssal plain.

[1] <http://oliver.ross.p.luminy.univ-amu.fr/amico/>