



Integration of biogeochemistry and ecology model to Mercator ocean systems

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The integration of marine biogeochemistry to operational systems is a timely development within the context of international initiatives focused on carbon monitoring and accounting, as well as science-based management of marine ecosystems and resources. The objective of this work is to implement a marine biogeochemical and ecosystem component at the global scale into MERCATOR operational systems, based first on the PSY3 analysis at $1/4^\circ$ and at a later stage on PSY4 at $1/12^\circ$ resolution.

The global configuration of the state-of-the-art multi-nutrient and multi-plankton biogeochemical model PISCES has been successfully integrated to operational Mercator Ocean systems. In order to evaluate the impacts of physical data assimilation on modeled biogeochemical tracer distributions, two simulations were carried out: (i) a free run BIOMER_ORCA025 (without physical data assimilation) and (ii) a reanalysis run BIOMER_GLORYS1V1 (with physical data assimilation). The comparison of simulated biogeochemical fields provides a first assessment of impacts of physical data assimilation on modeled biogeochemical tracer distributions. Furthermore, a near real time demonstrator has been tested at the global scale. Results will be presented to illustrate recent advances on biogeochemical model integration into operational Mercator Ocean Systems.