

Considering the Coastal Ocean in Global Ocean Biogeochemical Models

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The coastal ocean covers about 10% of the total area of the world ocean. Yet in these regions take place one quarter of the oceanic primary production, half of the carbonate burial and most of the burial of organic carbon. Moreover, constant input by human activities occurs in these fragile areas. State-of-the-art Global Ocean Biogeochemical Models have coarse resolution of at the best 100 km, which is too coarse to reproduce processes occurring in the coastal regions.

Here we present a simplified approach to represent vertical processes occurring in the coastal ocean in the global biogeochemical models. We focused on sediment resuspension, upwelling, vertical mixing, river inputs, and atmospheric depositions. We evaluate the importance of these different processes using both data and model simulations. Each process is evaluated in term of carbon or nutrient source (input or recycling) in the coastal area.