



## **Modeling biogeochemical cycles in the Southwestern tropical Atlantic**

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At the Southwestern tropical Atlantic (30°S-0°N / 30°W-47°W) oceanic processes contribute to balance and time evolution of nutrient cycles inside euphotic zone. This region is known poor at primary productivity as well as fisheries resources. However this region plays an important role on over the Northeast Brazil. The Regional Ocean Model System (ROMS) coupled with Pelagic Interaction Scheme for Carbon and Ecosystem Studies (PISCES) was applied at South tropical Atlantic (30°S-20°N / 15°E-47°W) using climatological data with an isotropic horizontal grid resolution of 1/12° and 40 terrain-following layers to simulate seasonal cycle of circulation/biogeochemistry. Model results show good agreement with the observational Brazilian REVIZEE program. The horizontal and vertical comparisons at different seasons inside REVIZEE region (0°30'N-14°00'S; 31°24'-41°48' W) show that coupled model can represent seasonal nutrients cycles along water depth, even this region be considered as oligotrophic zone. These climatological results point to a future ROMS-PISCES application using interannual forcings to estimate time evolution of nutrients cycles at upper layer of Southwestern Tropical Atlantic inside a scenario of possible climate changes. The authors thank the Brazilian National Council of Scientific and Technological Development - CNPq under the scope of the Project BIO-NE (Grant 558143/2009-1).