Development of an Ocean Forecast System for the Western South Atlantic Ocean

This work presents an ocean forecast system (hereafter LSE36-LOF/COPPE) developed for the western South Atlantic ocean, located between latitudes 6°S and 30°S and from the Brazilian coast to longitude 30°W. This region is highly dynamic, with several western boundary currents (WBC): the North Brazil Current, the Brazil Current, the Intermediate Western Boundary Current, and the Deep Western Boundary Current, flowing in different directions at different levels of the water column. Significant mesoscale variability is observed to occur associated with these WBC, with recurring meandering, eddy formation and eventual ring detachment, but also with the arrival of westward propagating eddies from remote origin. Local bathymetry is relatively complex due to the presence of the Vitoria-Trindade Ridge, posing a barrier for the main currents, and giving rise to internal tides that propagate all over the domain. A continental shelf of varying width (from ~20 to ~250 km) is subjected to the propagation of coastal trappe

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