



Southern Ocean simulations in Coordinated Ocean-ice reference experiments phase II (CORE-II)

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The Coordinated Ocean-Ice Reference Experiment (CORE) phase II is an experimental protocol for ocean-ice coupled simulations forced with interannually varying atmospheric data sets for the period 1948-2007. This effort, involving several centers around the world, is coordinated by the CLIVAR Working Group on Ocean Model Development (WGOMD).

The hindcast simulations provide a framework for both model evaluation and studying variability and change at seasonal to decadal time scales.

Several regional studies are planned and currently underway.

We present an intercomparison that focuses on the recent evolution of the Southern Ocean as simulated by the different models.

We focus on the mean state and variability of the Antarctic circumpolar current (ACC), the meridional overturning circulation (MOC), as well as water masses and their ventilation. To do this, we consider the evolution of the drivers of these circulations, both wind stress and buoyancy forcing, and of the interior structure of the Southern Ocean.

Models of different resolutions are considered, from coarse to eddy-permitting/resolving, and an attempt is made to evaluate the role of mesoscale eddies and their parameterization.

Comparison with observational estimates is made when possible.

The identification of the strengths and weaknesses of ocean models with respect to the evolution of the Southern Ocean and its global consequences is also a key aim of the study.