Abstract View

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On the Effects of a Midocean Ridge on the General Circulation: Numerical Simulations with an Eddy-Resolved Ocean Model

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ABSTRACT

High resolution ocean general circulation model experiments were carried out to investigate the effects of a midocean ridge on the eddy field and the mean circulation on the basin scale. A quasigeostrphic two-layer model was used. Long term statistics were computed for a detailed comparison with the flat bottom case. An eddy-driven anticyclonic gyre, locked over the topography, appears as a new feature of the deep circulation pattern. The eddy energy radiation in both layers is strongly constrained by the topography. Insofar as surface currents are concerned, the ridge acts, to a limited extent, as a new western boundary for the eastern basin.