

Abstract Submitted
for the DFD15 Meeting of
The American Physical Society

Eddy Sensitivity to Resolution and Viscosity in Density Driven Ocean Currents SHANON RECKINGER, Montana State University, MARK PETERSEN, Los Alamos National Laboratory, SCOTT RECKINGER, Montana State University — Density driven currents (in the ocean, known as oceanic overflows) impact global ocean circulation and affect intermediate and deep-water properties in numerous regions in the ocean. General circulation models currently rely on parameterizations for representing dense overflows due to resolution restrictions. These parameterizations rely on a detailed understanding of the mixing properties, which is enhanced by studying idealized overflows. This work looks at how numerical parameters like viscosity and resolution affect the eddying behavior of the dense plume inside an idealized domain. The simulations encompass a large numerical parameter study using MPAS-Ocean, which is the ocean component of an unstructured grid climate model framework called the Model for Prediction Across Scales (MPAS). Results show that eddies respond to changes in viscosity and resolution through a complicated and interrelated set of dynamical processes.

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Date submitted: 29 Jul 2015

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