



Sensitivity of the Denmark Strait Overflow to various parameterizations in a z-coordinate numerical model

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Overflows play a key role in the climate system by ventilating deep waters, feeding boundary currents and determining the stratification of the deep ocean. Their correct representation is still an open issue in geopotential-coordinate global ocean models, and leads to misrepresentations of deep and bottom water masses. In this work we quantify the sensitivity of a realistic Denmark Strait regional configuration of the NEMO OGCM at $1/12^\circ$ horizontal resolution to various parameters: partial vs full cells, use of a bottom boundary layer parameterization, and vertical resolution. We also provide a quantification of the spurious diapycnal mixing present in the overflow through a passive tracer online release experiment.