

## Mixing Efficiency in the Ocean

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Mixing efficiency is the ratio of the net change in potential energy to the energy expended in producing the mixing. Parameterizations of efficiency and of related mixing coefficients are needed to estimate diapycnal diffusivity from measurements of the turbulent dissipation rate. Comparing diffusivities from microstructure profiling with four simultaneous tracer releases has verified, within observational accuracy, 0.2 as the mixing coefficient over a 30-fold range of diapycnal diffusivities. Although some mixing coefficients can be estimated from pycnocline measurements, at present mixing efficiency must be obtained from channel flows, laboratory experiments and numerical simulations. Reviewing the different approaches demonstrates that estimates and parameterizations for mixing efficiency and coefficients are not converging beyond the at-sea comparisons with tracer releases, leading to recommendations for a community approach to address this important issue.