An energetically consistent description of oceanic turbulent mixing: the internal wave model IDEMIX and how it compares to observations

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Nonlinear wave-wave interactions transfer energy in the internal wave field from the large generation to the small dissipation scales and thereby link internal wave energetics to turbulent mixing. This mixing is considered an essential contributor to driving the large-scale overturning circulation, but is too small to be resolved in ocean general circulation models. An energetically consistent mixing parameterization is provided by the model IDEMIX (“Internal Wave Dissipation, Energy and Mixing”), which predicts the propagation and dissipation of oceanic internal gravity wave energy as well as the corresponding diapycnal diffusivities. In this talk I will introduce IDEMIX and show how it compares to observations from the global network of Argo floats.