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Dissipation in an energetically consistent ocean model

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In this study, we investigate parameterizations for energy dissipation in the setting of an energetically consistent ocean model.
Special features of such a consistent model are a prognostic equation for the internal wave energy, and the turbulent kinetic energy.
This treatment of the unresolved energy compartments allows a consistent connection between the important energy reservoirs where
parameterizations can only redistribute energy between the compartments but cannot artificially create or dissipate it.
The focus will be on parameterizations for eddy dissipation that either transfer eddy energy into the mean flow (inverse cascade), into the internal wave field (loss of balance) or into the turbulent kinetic energy compartment (boundary layer turbulence).
By testing different parameterizations for these energy transfers, we want to investigate the sensitivity of the ocean circulation with regard to the different energy dissipation mechanisms.