



## **Simulating the energy cascade of stratified turbulence**

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Numerical simulations of stratified turbulence are sensitive to the relative sizes of the buoyancy and dissipation scales. When the buoyancy scale is inside the dissipation range, downscale fluxes of energy are suppressed and a steep spectrum develops. However, when the buoyancy scale is relatively free of dissipation (as it is in the atmosphere and ocean), a direct energy cascade develops with a  $-5/3$  spectrum. This regime has been proposed as a model for the turbulent cascade of the atmospheric mesoscale, yet large-scale atmospheric models are rarely able to fully capture inviscid dynamics on the buoyancy scale. New high-resolution numerical experiments of both regimes of stratified turbulence will be presented. The implications of using anisotropic numerical grids, which keep the buoyancy scale free of vertical dissipation but not horizontal, will be discussed. Finally, we will examine the extent to which stratified turbulence in these experiments resembles the dry dynamics in atmospheric mesoscale simulations.