



Gravity-wave emission and the mesoscale atmospheric spectrum of kinetic energy

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Despite decades of investigation, the mechanisms underlying the observed kinetic energy spectrum in the atmospheric mesoscale remain unclear. We present a body of evidence from idealized simulations that a likely contributor is gravity-wave emission by large-scale balanced flows and the subsequent straining and distortion of the waves as they propagate through a complex three-dimensional environment. An important element is the apparently enhanced generation of gravity waves by the balanced flow in the presence of moisture and moist convection.