

Abstract Submitted
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Dynamics of a Stratified Layer with Horizontal Shear ERIC AROBONE, Main Author, APS Member, SUTANU SARKAR, Academic Adviser, APS Fellow, ALDEN KING, Research Collaborator, Computer Science PhD student, SCOTT BADEN, Research Collaborator, Computer Science Faculty — Direct Numerical Simulations of a temporally evolving uniformly stratified layer with horizontal shear provide insight into the dynamics of common oceanographic and atmospheric flows. The evolution of the stratified horizontal shear layer is investigated along with the importance of coherent vortical structures to Reynolds stresses, dissipation, correlations, spectra, and energy budgets. Novel vortex eduction techniques are employed to isolate coherent structures from the incoherent background flow. Additionally, the effect of rotation is examined with Rossby numbers appropriate for sub-mesoscale flows.

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