CENTER FOR FLUID MECHANICS
AND
THE FLUIDS, THERMAL AND CHEMICAL PROCESSES GROUP
OF
THE DIVISION OF ENGINEERING
SEMINAR SERIES

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Amherst, MA

Dynamics of Turbulence Strongly Influenced by Buoyancy

Turbulent, stably-stratified flows occur in most of the ocean below the mixed layer, in the atmosphere above the tropopause, and in the stable atmospheric boundary layer. As a consequence, understanding the fluid dynamics in this flow regime is important for predicting environmental phenomena such as weather, climate, and the food chain in the ocean, and technological processes such as sensor performance in the ocean and atmosphere and turbulence signatures left by submerged vehicles or structures. In this seminar, results from very high resolution direct numerical simulations of strongly stratified decaying turbulence will be presented. The simulations span a wide range of Reynolds and Froude numbers, and are run on numerical grids having up to 500 million grid points. The computational results will be presented in the context of theoretical predictions and scaling arguments.

TUESDAY –SEPTEMBER 20, 2005
Barus & Holley, Room 190
4:00pm