JOHNS HOPKINS
Center for Environmental & Applied Fluid Mechanics

# Weekly CEAFM Seminar: Spring 2012

**Friday, April 6, 2012**
**11:00 a.m. – 12:00 p.m.**
**Gilman 50 (Marjorie M. Fisher Hall)**

## *"THE EMERGENCE OF PATTERN IN STABLY-STRATIFIED TURBULENCE"*

**Presented by**

**Dr. Geoffrey Spedding**

(University of Southern California)

**Abstract**: Intermittent or episodic turbulence in the atmosphere and ocean decays in kinetic energy until its motion becomes significantly constrained by the ambient stratification. Then, the velocity field can conveniently be described in two modes: the first is a slowly-varying, residual, vortex mode, which occurs on surfaces of constant density. The other is a wave mode where energy and momentum are propagated away from the source as internal waves. Both of these types of motion have surprising degrees of pattern and regularity, with broad consequences for specific detection problems and also for the way in which we view the ocean and atmosphere we inhabit. In this talk, we will review selected results and predictions from laboratory experiments in strongly stratified turbulent flows that are extended in parameter space by complementary theoretical and numerical work. The implications for turbulence dynamics in real atmospheres and oceans will be considered.