Weekly Seminar: Spring 2009

Date: Friday February 6

Time: 11:00 AM

Location: Maryland Hall 110

Speaker: Mohamed Iskandarani, University of Miami

Title: *"Simulating Oceanic Flows with Hydrostatic and Non-Hydrostatic Spectral Element Models"*

Abstract

Oceanic flows are characterized by a multitude of time and spatial scales that are difficult to represent realistically in ocean models. These computational challenges are compounded for high-order models where fidelity to the mathematical formulations, and the absence of numerical dissipation, forces modelers to deals with sub-grid scales features directly. Here we visit two such computational challenges. The first arises in hydrostatic models where it is shown that viscosity is critical to enforcing the normal flow boundary conditions. The second arises in the high Reynolds number simulations of stratified mixing. The non-hydrostatic models relies on the Discontinuous Galerkin Method to stabilize Gibbs oscillations in gravity current simulations. A first attempt at quantifying the implicit mixing in these simulations will be presented.