Date: October 12th

Time: 11:00 AM

Location: Maryland Hall 110

Speaker: Dr. David Straub

McGill University

Title: *"Effect of near-inertial oscillations on the ocean mid-latitude double-gyre problem"*

Abstract

The classic wind-driven double gyre problem is revisited to examine how inertial oscillations affect the dynamics. We focus on the unstratified case and assume the fluid to be hydrostatic, but do not assume the horizontal velocity to be independent of depth. This depth dependence introduces inertial oscillations. A classic double gyre forcing is applied to the depth-averaged mode and a large scale stochastic forcing excites near-inertial oscillations. We focus on the energetics. When external forcing maintains significant background levels of near-inertial motion, these play an important role in the gyre energetics. Specifically, energy transfers from the depth-averaged (essentially geostrophic) modes to the inertial modes, and a subsequent forward energy cascade, become comparable to bottom friction as an energy sink for the gyres. Implications of this for the more realistic case where stratification effects are retained are also discussed.