ICTS Seminar

Title : Turbulence and convection in the ocean circulation

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Date : Monday, June 26, 2017

Time : 11:30 AM

Venue : Emmy Noether Seminar Room, ICTS Campus, Bangalore

Abstract : Ocean circulation is of crucial importance to the global climate. It involves fluid motion on scales ranging from turbulence, internal waves, eddies and fronts, Rossby waves and basinscale gyre recirculation. Equilibrium in ocean circulation is maintained between continuous large-scale forcing and energy dissipation. Understanding the physics of various dissipation mechanisms, which are not well presented in ocean models, is important for improving the dynamical description of large-scale circulation. In this presentation, my primary focus will be on two mechanisms: internal waves and convection. Direct Numerical Simulation and Large Eddy Simulation are used to investigate the turbulent processes underlying turbulence during the generation of internal tides at topography, which shows remarkable similarity with many ocean observations. In order to examine the effect of convection in ocean circulation, we have developed an idealized model of circulation driven by surface buoyancy in a closed basin using both laboratory experiments and numerical simulations.