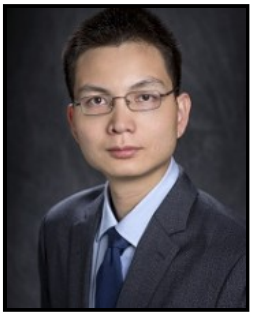

Coast to Cosmos Lecture Series

Parameterizing Air-sea Gas Transfer and Particle Sinking in Ocean Models

Junhong Liang, Louisiana State University

Digital Media Center 1034
February 04, 2015 - 12:30 pm

Abstract:

With the advances in computer technology, current ocean circulation models for operational forecasting and climatic research have a resolution of kilometers and capture very well the processes at scales larger than the grid scale. There are, however, a variety of important yet unresolved processes and the parameterizations for those processes can have critical impact on the accuracy of ocean circulation models. In this talk, I will first present a parameterization for air-sea gas transfer derived from a series of turbulence-resolving bubbly flow simulations and show that the parameterization is important for simulating inert gas concentrations in an ocean circulation model. I will also briefly discuss an analytic solution for the sinking of particulate organic matters and show that it improves the simulation of nutrient concentrations in a coupled physical-biogeochemical ocean model.

Speaker's Bio:

Junhong Liang received a B.Sc. in Engineering Mechanics from Sun Yat-sen University in 2004, an M.Phil. in Civil Engineering from the Hong Kong University of Science and Technology in 2006, and a Ph.D. in Atmospheric and Oceanic Sciences from the University of California, Los Angeles in 2011. Prior to joining LSU, he was a postdoctoral research associate at the University of Washington. Dr. Liang studies oceanic physical and biogeochemical processes by combining numerical simulations and observations. He has active research efforts in air-sea gas exchange, boundary layer turbulence, marine particles, and eastern boundary upwelling systems. The objective of his research is to better predict future changes in marine environment under a changing climate.

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