

Department of Ocean and Resources Engineering *Seminar*

THE COUPLED OCEANOGRAPHIC-TOMOGRAPHIC ANALYSIS AND PREDICTION SYSTEM: A PRACTICAL MEANS FOR UTILIZING HIGH FREQUENCY TOMOGRAPHY IN THE WORLD'S OCEANS

by

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Wednesday, September 26, 2007, Holmes Hall 242
3:00-3:30 pm Coffee Hour
3:30-4:30 pm Seminar

Please join us for the coffee hour near the seminar venue a half hour before the seminar, 3:00 – 3:30 pm

Abstract

The Coupled Oceanographic Tomographic Analysis and Prediction System (COTAPS) is a technology that utilizes ocean acoustic data in dynamic ocean circulation models. Research related to COTAPS involves signal processing, ocean tomography, and data assimilation technology for ocean circulation models. An overview of the technology and governing equations is presented. Details will be provided of the matched filtering of receiver acoustic data to best determine arrival times for various ray paths between a source and a receiver. Analyses using data from the Pacific Missile Range Facility indicate the possibility of errors in the stated positions of a given source-receiver pair. A formulation is presented for accounting for such errors. We present the data assimilation methodology that ingests ocean acoustic travel time variations from multiple source-receiver pairs into an ocean circulation model to constrain model solutions for salinity and temperature. Results will be presented for four source-receiver pairs from acoustic data collected off Kauai, Hawaii, in 2003.

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