

*Department of Mathematical Sciences and
Department of Civil, Environmental & Ocean Engineering*

**Joint Seminar in
Nonlinear Systems and Coastal Ocean Processes**

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Stevens Institute of Technology

Modeling of Coastal Ocean Processes

Tuesday, March 30, 2004

4:00 pm

Pierce 116

Abstract: Sustained accurate and efficient oceanic field estimates are now feasible because of the advent of ocean prediction systems. The systems are based on numerical solutions to the governing equations for geophysical flows (Reynolds equations plus mass conservation in three dimensions). Such systems produce nowcasts, forecasts and data-driven simulations by melding dynamics and observations via the assimilation of measurements into numerical models. The Stevens implementation of the Princeton Ocean Model (S-POM) is a flexible, portable and generic system for nowcasting, forecasting and simulations. In this presentation the mathematical framework and computational aspects of POM will be explored. Recent results from the application of S-POM in the waters of New York and New Jersey will serve as a point of reference for the validity of the system.

Dr. Alan F. Blumberg is George Meade Bond Professor of Ocean Engineering in the Schaefer School of Engineering and Deputy Director of The Center for Maritime Systems at Stevens Institute of Technology. The main focus of Dr. Blumberg's work is the application of oceanographic, hydraulic engineering and computer science research to understand and predict how water moves and mixes in rivers, lakes, estuaries and the coastal oceans. Blumberg is internationally renowned for his role in the development of the Princeton Ocean Model (POM), a comprehensive three-dimensional hydrodynamic model adopted by numerous research groups. Dr. Blumberg has held Visiting Scientist appointments with Princeton University and the Naval Meteorology and Oceanography Command, and served as Director of the Environmental Hydrodynamics and Sediment Transport Group and Executive Vice President at HydroQual, Inc. Dr. Blumberg is the recipient of the 2001 American Society of Civil Engineers Karl Emil Hilgard Hydraulic Prize and is an associate editor for two leading journals, *Journal of Hydraulic Engineering* and *Estuaries*.

Refreshments at 3:50pm

For additional information contact Patrick Miller (201-216-5452) or Marco Lenci (201-216-5453).