MARI & CCPO
Old Dominion University
Fall 2014 Seminar Series

OLD DOMINION UNIVERSITY
Center for Coastal Physical Oceanography
I D E A **FUSION**

"CHALLENGES OF FORECASTING COASTAL FLOODING"

RICHARD LUETTICH
Institute of Marine Sciences, University of North Carolina at Chapel Hill

Monday, October 27, 2014
3:30 PM
Conference Center, Innovation Research Park Building II
4211 Monarch Way, Norfolk, VA 23508

Abstract

The use of coupled, multi-physics, high-resolution computer models to predict storm surge and flooding for research (e.g., process-based modeling studies) and for operational use in risk assessment (e.g., to delineate coastal flood hazard zones) and the design of risk reduction strategies (e.g., New Orleans, New York City) has become more common place during the past 10 years. However, operational use of the same models for event-based forecasting involves additional challenges including addressing uncertainty in meteorological forcing, marshalling necessary computational resources and making results available to a spectrum of end users. I will present an overview of the ADCIRC coastal hazards modeling system and the progress we've made using this system for event-based forecasting.

Biography

Dr. Rick Luettich is a Professor of Marine Sciences and Environmental Sciences and Engineering at the University of North Carolina at Chapel Hill. He is also the Director of the Institute of Marine Sciences and the Director of the Department of Homeland Security Coastal Hazards Center of Excellence. Dr. Luettich's research addresses modeling and measurement of circulation and transport in coastal waters. Dr. Luettich has pioneered the development and application of models that are optimized for geometrically complex coastal systems and for high performance computing architectures, particularly the ADCIRC circulation and storm surge model that is widely used by the academic, government and private sectors and has become a cornerstone of coastal hazard modeling following Hurricane Katrina in 2005. He has developed an autonomous vertical profiling system that has provided novel data on high frequency anoxic water upwelling, diel vertical plankton migration, sediment resuspension and wind-driven mixing in North Carolina sounds. He is an active participant in the coastal modeling and natural hazards communities, leading the Dept. of Homeland Security Coastal Hazards Center of Excellence and the multi-institutional, Coastal and Ocean Modeling Testbed for the US Integrated Ocean Observing System program to facilitate the transition of advancements in coastal modeling from research to operations.

Reception before seminar at 3:00 PM