

# Department of Ocean & Resources Engineering

*Seminar*

## THE THEORY AND APPLICATION OF BOUSSINESQ-TYPE EQUATIONS FOR NEARSHORE HYDRODYNAMICS

by

**Andrew Kennedy**

Post-Doctoral Fellow  
Center for Applied Coastal Research  
University of Delaware

Friday, October 20, 2000	1:30 PM	Holmes 243
--------------------------	---------	------------

### **Abstract**

In the last decade, Boussinesq-type equations have become widely adopted by both academia and industry for computing nearshore wave transformation. In large part this is due to significant advances in Boussinesq theory combined with extensions that allow wave and current properties to be computed through the surf zone to the shoreline. This talk will present some recently-derived theoretical advances and give examples of applications.

Applications presented will include wave and current development over a barred rip current topography, wave transformation in the surf zone, and inference of nearshore bathymetry using Boussinesq models. Future directions will be discussed. Recent theoretical advances include Boussinesq equations with high accuracy in both dispersion, shoaling and nonlinearity, as well as simplified higher order equations. Both sets of equations have a significantly increased range of application when compared to equations of similar type, with little increase in complexity or computational expense.