

*Department of Ocean and Resources Engineering
Seminar*

**Development of Performance Based Tsunami
Engineering, PBTE**

By

Ian N. Robertson

Professor, Dept. of Civil and Environmental Engineering, UH Manoa

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MSB 114

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

In 2005, the US National Science Foundation provided funding through the Network for Earthquake Engineering Simulation Research (NEESR) for a four-year project to develop Performance Based Tsunami Engineering, PBTE. This project is a collaborative effort involving faculty and students from the departments of Civil and Environmental Engineering and Ocean and Resource Engineering at UH, Princeton University and Oregon State University. The project objectives are to develop the methodology and validated simulation tools for implementation of site specific PBTE for use in the analysis, evaluation, design and retrofit of coastal structures and facilities, as well as the development of code-compatible provisions for tsunami resistant structural design. The project focuses on the following physical hazards as a result of tsunamis hitting a coastline: 1) bore formation, run-up and inundation, including flow depth, fluid velocities and energy dissipation; 2) fluid loading on structural elements; and 3) sediment transport and scour as a result of inundation and drawdown.

The project has both experimental and numerical components. The experiments were performed using the NEES Tsunami Wave Basin at Oregon State University. Numerical simulations are currently being developed using the data from these experiments. This presentation will give an overview of the PBTE project, and highlight some of the results achieved thus far. It will also discuss the effect that tsunami design may have on the cost of coastal building construction.