Performance Based Tsunami Engineering Guidelines for Design of Coastal Structures

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3:00-3:30 pm Coffee Hour
3:30-4:30 pm Seminar

Abstract
From 2005 to 2010, the US National Science Foundation provided funding through the Network for Earthquake Engineering Simulation Research (NEESR) for a project to develop Performance Based Tsunami Engineering, PBTE. The project objectives were 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 focused on the following physical hazards as a result of tsunamis hitting a coastline: 1) bore formation, run-up and inundation, including 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 and Large Wave Flume at Oregon State University. Based on the results of this project, Performance Based Tsunami Engineering guidelines have been developed for design of coastal structures. These design guidelines will be presented along with supporting data from the experimental program.

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