Research Project Highlight

Performance Based Tsunami Engineering II – Data Set

Project #NCTRKI

Principal Investigator
Hong Kie Thio, Principal Seismologist, AECOM, Los Angeles

Research Team
Wenwen Li, Coastal Engineer, AECOM, Los Angeles

Start-End Dates:
03/01/16 - 06/30/16

Abstract
The PBTE Data Explorer is a web-based, user-friendly portal that runs on a GIS platform and allows us to retrieve high-resolution tsunami data at any grid point in the inundation zone (with data produced from numerical tsunami simulations). The portal provides the inundation zone and maximum depths, time series data on flow depth, velocity, specific force, and moment at a user-specified location. Those data can serve as the basis for estimating hydrodynamic forces, impulse forces, debris impact forces, and moments, as well as tsunami-induced soil instabilities and buoyancy forces (note that buoyancy force depends on the pore-water pressure underneath the structure). Presently, the coastal area of Port Hueneme, California is implemented as a test case, but the portal contains only a few tsunami inundation scenarios. AECOM has expanded current portal functionality to handle the probabilistic tsunami analysis by running 25 simulations and providing series data of inundation depths and velocities to the platform.

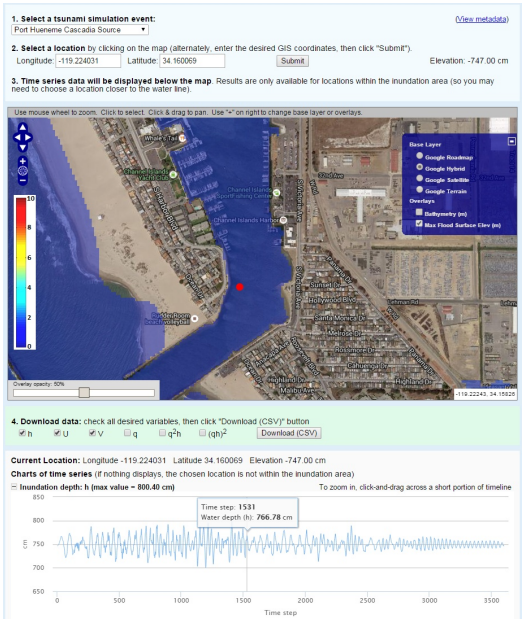
Deliverables
AECOM has delivered time series data of inundation depths and velocities from 25 circum-Pacific events to the platform.

Research Impact
The scenarios account for a wide range of return times in terms of tsunami amplitudes. This dataset will allow us to build a probabilistic interface to the platform, which will be consistent with the ASCE 7-16 tsunami design maps, and could potentially be used in the application of ASCE 7-16 for engineering purposes.

Research Project Highlight

Performance Based Tsunami Engineering II – Data Set

Project Image



The Data Explorer interface.

PEER Center – 325 Davis Hall, UC Berkeley, CA 94720 | peer_center@berkeley.edu