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A Probabilistic Tsunami Hazard Assessment Methodology and Its Application to Crescent City, CA (*Invited*)

Details

Meeting	2012 Fall Meeting
Section	Natural Hazards
Session	Probabilistic Approaches for Tsunami Hazard Assessment II
Identifier	NH24A-02
Authors	Gonzalez, F I* , Earth and Space Sciences, U. Washington, Seattle, WA, USA Leveque, R J , Applied Mathematics, U. Washington, Seattle, WA, USA Waagan, K , Applied Mathematics, U. Washington, Seattle, WA, USA Adams, L M , Applied Mathematics, U. Washington, Seattle, WA, USA Lin, G , Fundamental and Computational Sciences, Pacific Northwest National Laboratory, Richland, WA, USA
Index	Oceanic [4304]
Terms	Methods [4307] Mathematical and computer modeling [4314] Statistical analysis [4318]

Abstract

A PTHA methodology, based in large part on Probabilistic Seismic Hazard Assessment methods (e.g., Cornell, 1968; SSHAC, 1997; Geist and Parsons, 2005), was previously applied to Seaside, OR (Gonzalez, et al., 2009). This initial version of the method has been updated to include: a revised method to estimate tidal uncertainty; an improved method for generating stochastic realizations to estimate slip distribution uncertainty (Mai and Beroza, 2002; Blair, et al., 2011); additional near-field sources in the Cascadia Subduction Zone, based on the work of Goldfinger, et al. (2012); far-field sources in Japan, based on information updated since the 3 March 2011 Tohoku tsunami (Japan Earthquake Research Committee, 2011). The GeoClaw tsunami model (Berger, et. al, 2011) is used to simulate generation, propagation and inundation. We will discuss this revised PTHA methodology and the results of its application to Crescent City, CA. Berger, M.J., D. L. George, R. J. LeVeque, and K. T. Mandli, The GeoClaw software for depth-averaged flows with adaptive refinement, *Adv. Water Res.* 34 (2011), pp. 1195-1206. Blair, J.L., McCrory, P.A., Oppenheimer, D.H., and Waldhauser, F. (2011): A Geo-referenced 3D model of the Juan de Fuca Slab and associated seismicity: U.S. Geological Survey Data Series 633, v.1.0, available at <http://pubs.usgs.gov>

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