

Puget Sound Tsunamis - A New Partnership to Model and Map the Hazard

Who Would be Impacted?

- Shore-side Homes, Schools and Businesses
- Port, Harbors, and Marinas
- Transportation/Utility Lifelines and Facilities
- Coastal Ecosystems
- Toxic Waste Sites

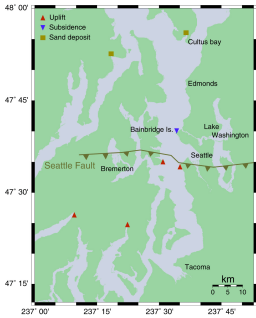
Puget Sound Tsunami Model

Developers:
Shun-ichi Koshimura* and Harold Mofjeld

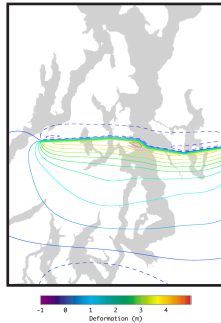
Center for Tsunami Inundation Modeling Efforts
(Frank González and Vasily Titov, Co-Directors)
NOAA/Pacific Marine Environmental Laboratory

* also, Japan/JSPS

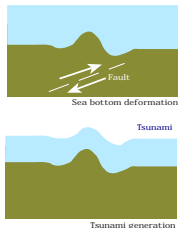
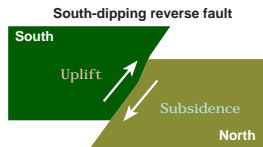
Seattle Fault Source



Seattle Fault during a reverse thrust earthquake. Uplift occurs south of the fault and subsidence north of the fault



Initial pattern of vertical displacement resulting from a Magnitude Mw 7.6 earthquake on the Seattle Fault. The assumed tidal stage is mean sea level.



Organizing Agencies

Washington State EMD and DNR
NOAA/PMEL
USGS
FEMA

Goals and Approach

Identify Vulnerable Areas Using Computer Models
Estimate Maximum Credible Event Scenarios
Develop GIS, HAZUS and Other Products

The Next Step...

Puget Sound Tsunami/Landslide Workshop

January 23 - 24, 2001
NOAA/Sand Point, Bldg. 9
Seattle, WA

Purposes:

Create additional partnerships to address tsunami and landslide hazards in the Puget Sound Region

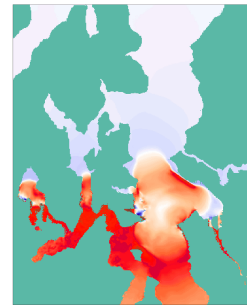
Develop an action plan to generate tsunami inundation maps and other mitigation products for Puget Sound communities

Organizing Committee:

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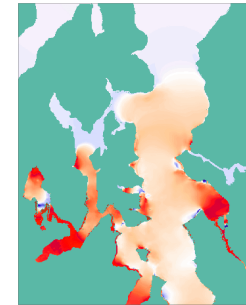
Craig Weaver (USGS/Project Impact)
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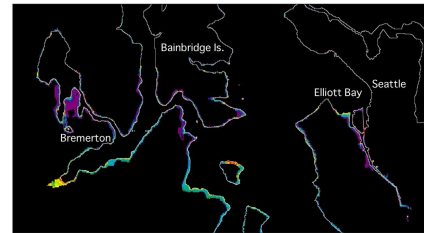
Wave pattern 2.5 minutes after the earthquake
Elevated water levels: Red
Lowered water levels: Blue



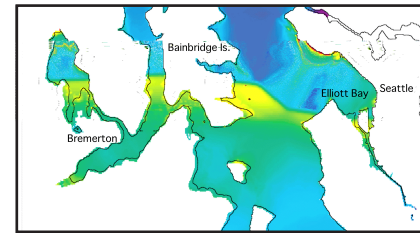
Wave pattern 5 minutes after the earthquake



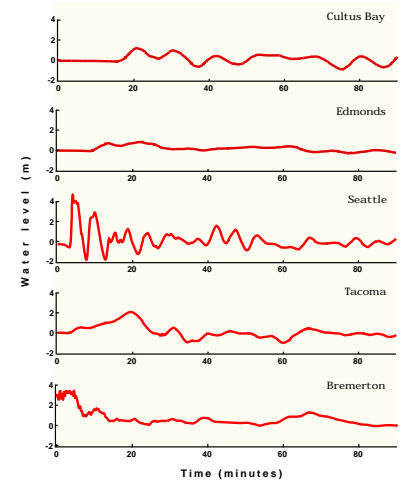
Wave pattern 7.5 minutes after the earthquake



Maximum inundation depths (meters) relative to the local land elevation



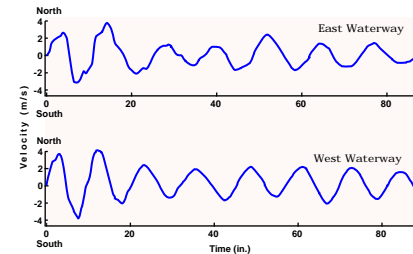
Maximum Wave Levels (meters) relative to mean sea level



Water levels at Selected Locations
(4 m = 13 ft.)

Model Extensions and Refinements

Fine-Resolution Sub-Models for Communities
Additional Tsunami Sources (Planned)
Landslide Sources of Tsunamis
Bluff
Submarine
Other Earthquake Faults



Tsunami currents in the Duwamish Waterway
(4 m/s = 8 knots)

