

# California Tsunami Preparedness and Hazard Mitigation Program



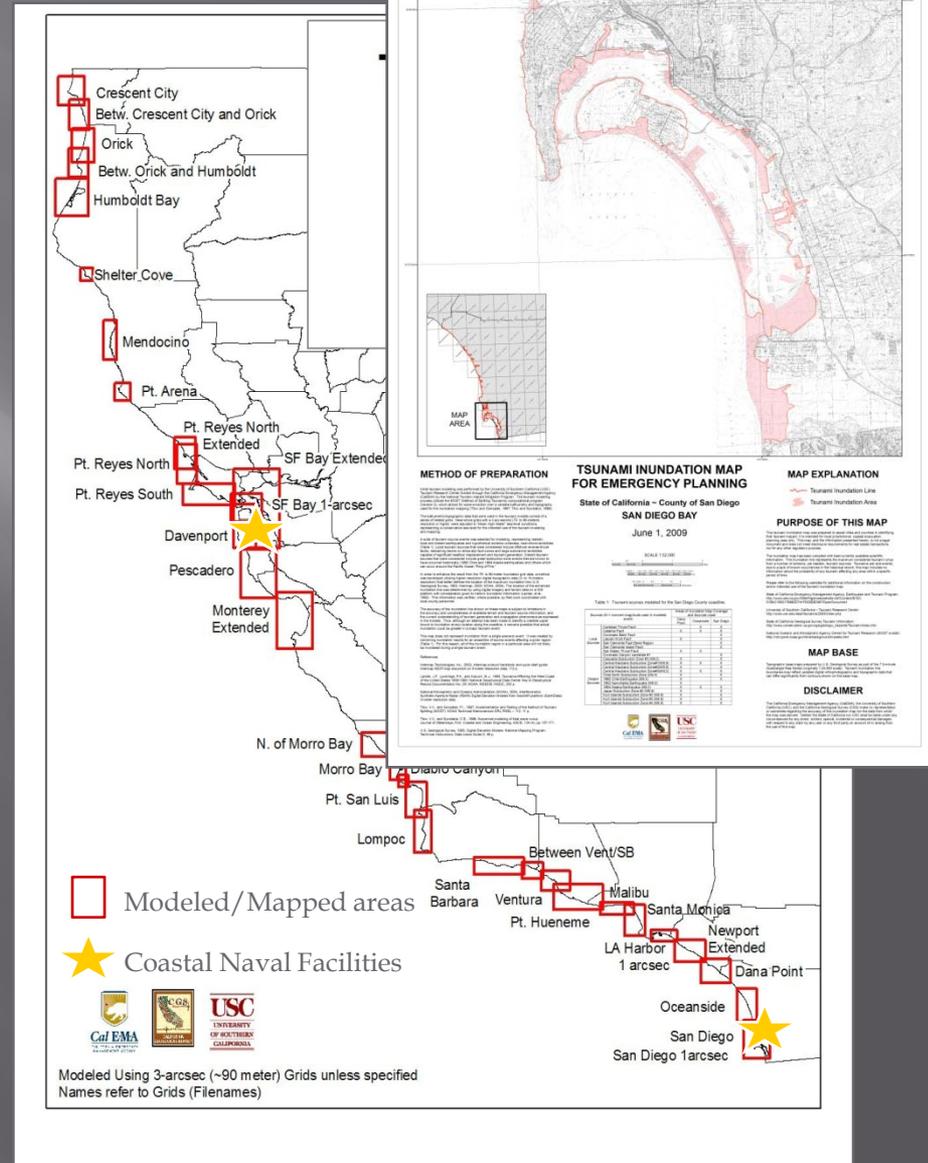
Inundation Mapping for:

- Land-use Planning & Development
- Evacuation & Preparedness Planning



# Tsunami Hazard Mapping Program

- ▣ **Evacuation/Emergency response planning**
  - *Tsunami Research Center USC*
  - *Statewide peak-inundation mapping*
  
- ▣ **Land-use & Construction**
  - *Probability-based mapping*
  - *Pilot Study Crescent City*
  - *Coordination Caltrans/PEER/URS & Baker-AEcom/FEMA*
  
- ▣ **Maritime planning**
  - *Offshore safety zones*
  - *In-harbor hazard maps (FEMA)*
  - *Guidance for harbor protection and evacuation*



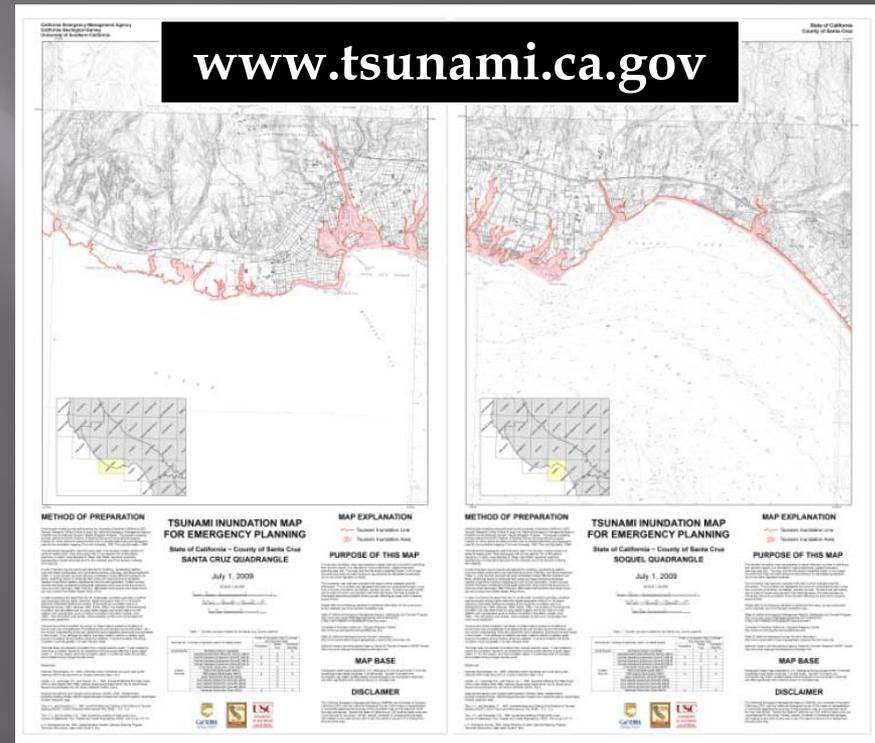
# Inundation Maps for Evacuation Planning

## ▣ Maps based on:

- *Largest realistic tsunami sources... both local and distant sources*
- *Numerical modeling by USC Tsunami Research Center*
- *Mean High Tide conditions... considered worst-case for inundation*

## ▣ Statewide maps released December 2009

## ▣ New maps have higher accuracy and much broader coverage than previous products



## State Tsunami Inundation Maps:

- For evacuation planning
- Ensemble of source zones – not a single scenario event.
- Largest event on each source.
- Likelihood not considered.
- Envelope of peak inundation.
- Coarse resolution (90m) ....does not recognize sea wall.

Nuclear Facilities Must  
have Site-Specific  
Studies

860 ft

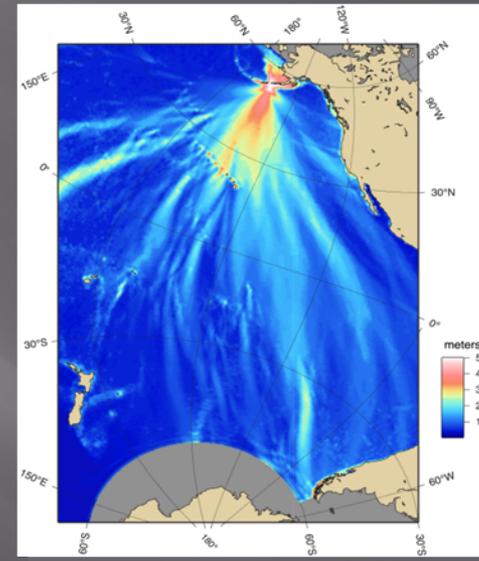
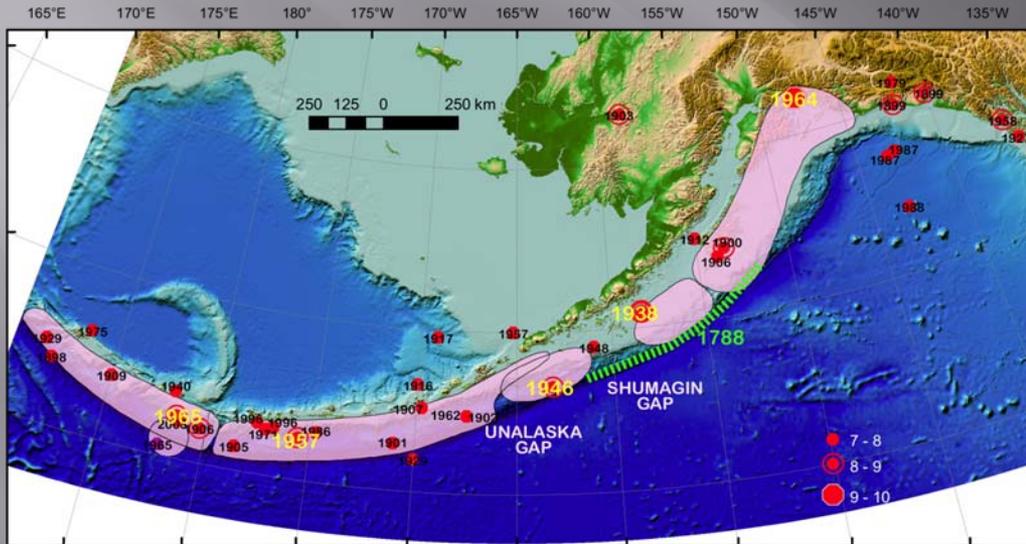
© 2011 Google

lat 33.367998° lon -117.554196° elev 86 ft

Eye alt 2951 ft

# NTHMP & Partners

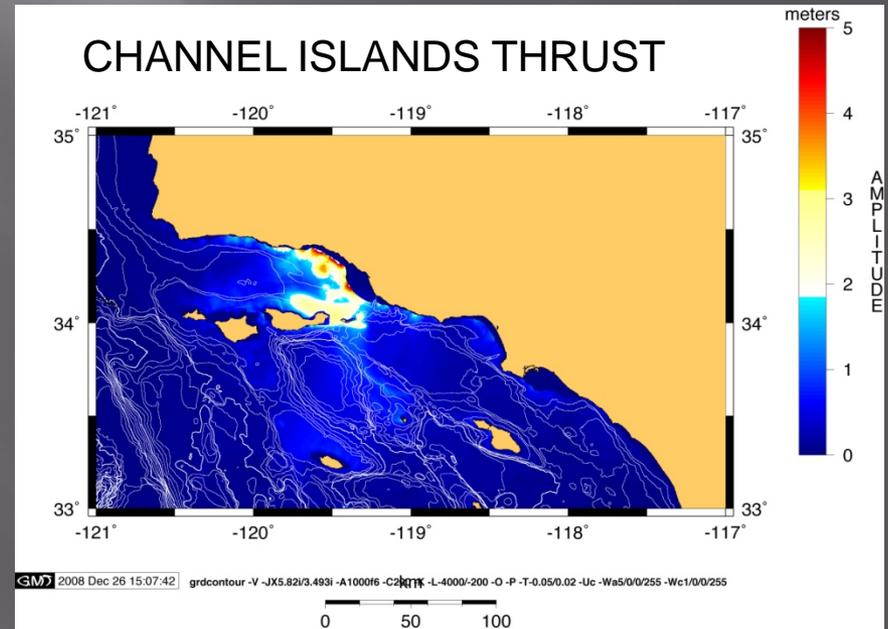
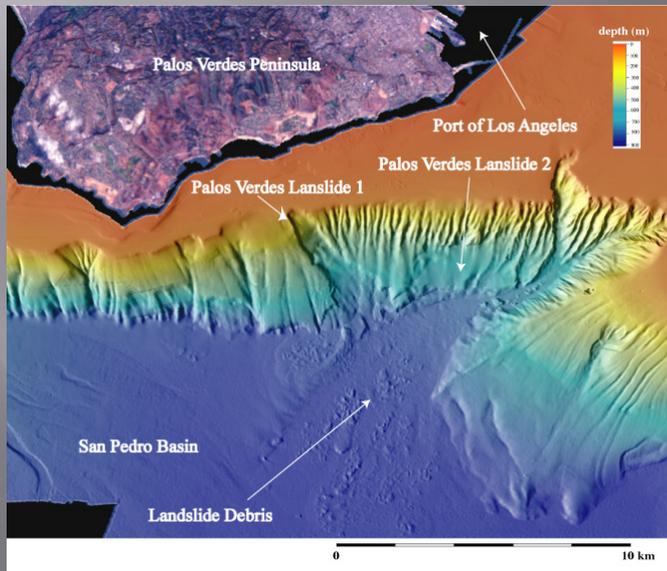
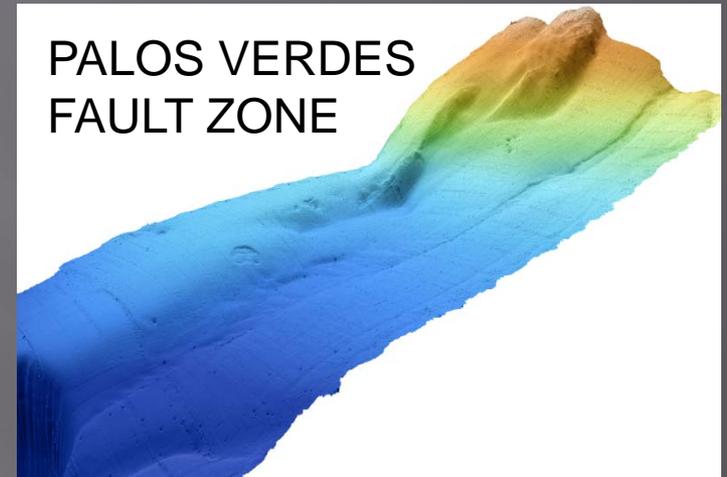
## Validation of tsunami models



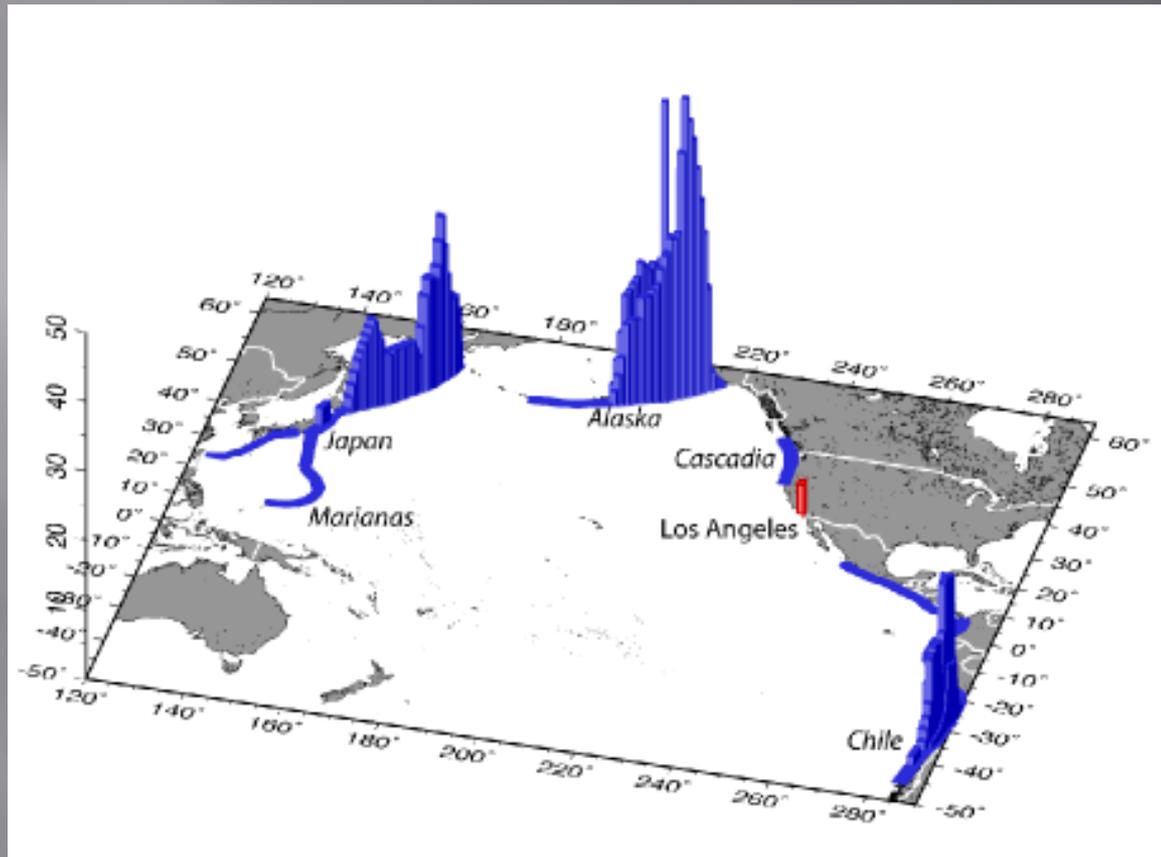
Consensus on tsunami sources

# LOCAL EARTHQUAKE AND LANDSLIDE TSUNAMI SOURCES:

- 1) Offshore faults: primarily strike-slip faults with low or unknown slip rates
- 2) Landslides: long recurrence intervals (dates of slides 1000's of yrs old)
- 3) Localized tsunami impact



Palos Verdes debris avalanche



Probability of a tsunami in Los Angeles from a source in the Pacific (a disaggregation plot indicates the predominant source area). The eastern Aleutians are the most important tsunami source for Los Angeles.

From Hong Kie Thio, URS Group, Pasadena