



California
**Department of
Conservation**

California Geological Survey
Seismic Hazards | Tsunami Unit



2019 Mapping and Modeling Subcommittee Update on CA Tsunami Activities – Source DB and Maritime

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Tsunami Source Characterization



- **Accuracy and consistency...**
 - By each user at state and federal level
 - Between all NTHMP member states and federal program (“across state lines”)
- **Methods of characterizing/comparison of sources and individual parameters**
 - Database/spreadsheet
 - Source references and images/GIS/KMLs
 - Dynamic models (deformation and/or landslides)
- **Collection of existing sources for comparison (this presentation)**
 - Various source types: subduction zones, crustal faults, and landslides
 - Simple spreadsheet: magnitude, slip, location, sub-fault units/methods, reference(s)
 - Simple images/GIS

Subduction Zone - Source Name	Mw	L (km)	W (km)	Average Slip (m)	Maximum Slip (m)	Minimum Slip (m)	dip (deg)	rake (deg)	strike (deg)	depth(km)
Segment start pos (Lat/Long)		Segment end pos (Lat/Long)		Sub-Fault Segment Sources		Sub-Fault Segments	Max Pos IC (m)	Max Neg IC (m)		

Tsunami Source Database Definitions

Subduction Zone Sources

Term	Definition
USER	NTHMP partner which uses referenced tsunami source for modeling.
Source Name	Tsunami source name used by the NTHMP partner.
Mw	Moment magnitude of the tsunami source.
L (km)	Approximate length of the fault rupture area.
W (km)	Approximate width of the fault rupture area.
Average Slip (m)	Average slip along the fault during the scenario event.
Maximum Slip (m)	Maximum slip along the fault during the scenario event where the slip is variable.
Minimum Slip (m)	Minimum slip along the fault during the scenario event where the slip is variable.
Dip (deg)	The maximum angle the fault is inclined from the horizontal.
Rake (deg)	The angle of the line in the direction of movement along the fault and the horizontal.
Strike (deg)	The trend or bearing of the fault relative to north.
Depth (km)	The average depth of the fault rupture plane.
Segment Start Position (Lat/Long)	The positional starting location of the fault rupture plane.
Segment End Position (Lat/Long)	The positional end location of the fault rupture plane.
Sub-Fault Segment Sources	The name of the modeling system used to define the sub-faults in a model.
Sub-Fault Segments	The sub-fault segment names and numbers of the fault rupture area.
Maximum Positive Initial Conditions at Surface (m)	For water-surface model inputs, the maximum positive vertical displacement of the water surface interpolated from the fault rupture area.
Maximum Negative Initial Conditions at Surface (m)	For water-surface model inputs, the maximum negative vertical displacement of the water surface interpolated from the fault rupture area.
Reference	The professional paper or report where the tsunami source and its parameters are first discussed.
Source Fault Reference File	The name of the map-related file (GIS, KML, PDF, image) associated with the tsunami source showing the source location and characteristics.

Tsunami Source Database Definitions

See....

Powell/PTHA Tsunami Source Progress Table

See....

Draft Maritime Planning Guidance Website

<https://sites.google.com/view/tsunami-maritime-guidance/home>

See documents on....

Maritime Mitigation and Recovery Work Group
(part of overall MES M&R Work Group)

And

Lynett Tsunami Debris PPT for ASCE



THANK YOU

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