

HAZUS-MH Tsunami Model Update

Mitigation & Education Subcommittee Summer Meeting
National Tsunami Hazard Mitigation Program

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Overview

- HAZUS is a FEMA loss estimation tool used for hazard mitigation, preparedness, response, and recovery.
- Released in March 2017 as part of the HAZUS 4.0 release
- 72 Counties in the 5 Very High Risk States (AK, CA, HI, OR and WA)
- Territory Analysis - Guam, American Samoa, Commonwealth of Northern Mariana Islands, and U.S. Virgin Islands
- New Point Format - National Structure Inventory

Overview

- Case Studies – User-provided data from authoritative sources. Five case study datasets available for download: Homer, AK; Westport, WA; Garibaldi, OR; Crescent City, CA; and Kahului, HI.
- Two Types of Damage Analysis – Near source: combined earthquake and near source tsunami; distant source tsunami



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Overview

Hazus Tsunami Model Output

Maps of Tsunami Inundation

- Median Inundation Depth (ft)
- Median Momentum Flux (ft³/sec²)
- Inundation/Hazard Boundary (depth ≥ 0)
- Fatality Boundary (depth ≥ 2 m)

General Building Stock

- Damage probabilities by occupancy
- Damage probabilities by building type
- Cost of building repair or replacement
- Loss of contents
- Business inventory loss
- Loss of rental income
- Relocation costs
- Business income loss
- Employee wage loss

User Defined Facilities

- Damage probabilities by occupancy
- Damage probabilities by building type
- Cost of building repair or replacement
- Loss of content
- Business inventory loss
- Loss of rental income
- Relocation costs
- Business income loss
- Employee wage loss

Casualties

- Evacuation Travel Time (Under 65, 65 and Over)
- Day and Night Population Exposure
- Day and Night Probability of Casualties
- Casualties Based on Community Preparedness Levels



Overview

- Hazard Type:
 - Near Source – combined earthquake and tsunami impacts
 - Distant tsunami – tsunami impacts only

Input Layers

- Runup elevation limit
- Max Inundation depth throughout zone
- Max Inundation elevation throughout zone
- Max Velocity throughout zone
- Max Momentum Flux throughout zone
- Topography
- Deformed Topography
- Land Use



Required for Analysis

- Maximum Inundation Depth (ft)
- Maximum Momentum Flux (ft^3/sec^2)

Updates

- HAZUS-MH Tsunami User and technical manual under review
- Strategic plan identifies development of training. No funding support at this time.
- New Hazus Help Desk can be reached at hazus-support@riskmapcdfs.com
- Hazus 4.1 (September 2017) – ArcGIS 10.4 Compatible



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Implementation in Region X

- Focus on update of past RiskMap risk assessments
- Coordinating with state partners to conduct data gap analysis of data and determine risk assessment priorities
- Coordinating with NTWC to fill gaps using SIFT model outputs



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Implementation in Region X

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