



Hawaii Hazards Awareness & Resilience Program

Produced by
Hawaii State Civil Defense



HAWAII HAZARDS AWARENESS & RESILIENCE PROGRAM:

GOAL: To enhance community resilience to multiple hazards through a facilitated education and outreach program that promotes hazard understanding and awareness, and offers tools and information resources to guide mitigation, preparedness, response and recovery.



TSUNAMI DETECTION, WARNING AND RESPONSE


Module 2: Detection, Warning & Response

Contents

- Tsunami Detection and Warning
- Tsunami Response Actions


Module 2: Detection, Warning & Response

TSUNAMI DETECTION AND WARNING



Methods of Detection

1. Observation of the Natural Warning Signs
 - FEELING the ground shake
 - SEEING water recede; or an oncoming wall of water.
 - HEARING a loud “roar”
 - TAKE IMMEDIATE ACTION: RUN to High Ground!
2. Instrumentation
 - Sensors
 - Models



Tsunami Detection – Sensors

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Tsunami Models

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Tsunami Warning in Hawaii

- The Pacific Tsunami Warning Center (PTWC) is the science authority on tsunamis and has responsibility to issue bulletins, watch and warning information.
- Civil Defense receives official tsunami bulletins from PTWC and makes decisions regarding safety and evacuation.
- Emergency response personnel provide guidance to the public and manage evacuation activities.
- YOUR ROLE: Heed official guidance. Activate your personal disaster plan. Understand the different levels of warning information.

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PTWC Tsunami Messages

Understand the difference between an Advisory, Watch and Warning

- Tsunami Advisory
 - A tsunami advisory is issued due to the threat of a potential tsunami which may produce strong currents or waves dangerous to those in or near the water. Coastal regions historically prone to damage due to strong currents induced by tsunamis are at the greatest risk. The threat may continue for several hours after the arrival of the initial wave, but significant widespread inundation is not expected for areas under an advisory. Appropriate actions to be taken by local officials may include closing beaches, evacuating harbors and marinas, and the repositioning of ships to deep waters when there is time to safely do so. Advisories are normally updated to continue the advisory, expand/contract affected areas, upgrade to a warning, or cancel the advisory. (PTWC)

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PTWC Tsunami Messages

Understand the difference between a Watch and a Warning

- Tsunami Watch
 - A tsunami watch is issued to alert emergency management officials and the public of an event which may later impact the watch area. The watch area may be upgraded to a warning or advisory - or canceled - based on updated information and analysis. Therefore, emergency management officials and the public should prepare to take action. Watches are normally issued based on seismic information without confirmation that a destructive tsunami is underway. (PTWC)

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PTWC Tsunami Messages

Understand the difference between a Watch and a Warning

- Tsunami Warning
 - A tsunami warning is issued when a potential tsunami with significant widespread inundation is imminent or expected. Warnings alert the public that widespread, dangerous coastal flooding accompanied by powerful currents is possible and may continue for several hours after arrival of the initial wave. Warnings also alert emergency management officials to take action for the entire tsunami hazard zone. Appropriate actions to be taken by local officials may include the evacuation of low-lying coastal areas, and the repositioning of ships to deep waters when there is time to safely do so. Warnings may be updated, adjusted geographically, downgraded, or canceled. To provide the earliest possible alert, initial warnings are normally based only on seismic information. (PTWC)

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Tsunami Warning in Hawaii

Is the tsunami Distant or Local? It makes a difference!

Approximate Travel Times to Hawaii for Distant Tsunami Events:		Local Tsunami Travel Times (due to earthquake near Big Island) to:	
Japan	7 hours	Hawaii Island	Imminent
Alaska	5 hours	Maui County	~15 minutes
S. Pacific	7 hours	Oahu	~27 minutes
Chile	14 hours	Kauai	~45 minutes
U.S. West Coast	5 hours		

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Learning Check

1. Which agency is responsible for issuing tsunami bulletins, watches and warnings for the Pacific Ocean?
2. What is the difference between a tsunami Advisory, Watch and Warning?

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Module 2: Detection, Warning & Response

TSUNAMI RESPONSE ACTIONS



Response to a Distant Tsunami Warning

Waves arrive within hours...

- Civil Defense Sirens will sound 3 hours, 2-hours, 1-hour, and 30-minutes prior to first wave arrival.
- Sirens are notices to turn on your NOAA Weather Radio, commercial radio, or television for information.
- Evacuate if you are in a tsunami evacuation zone or low-lying coastal area. Walking may be faster than driving.
- Vertically evacuate if you are in a concrete-reinforced high rise building, condominium or hotel (4th floor or higher).
- Stay off the roads if you do not have to evacuate.
- Do not return to coastal areas until advised by government officials in your area.

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Response to a Local Tsunami Warning

Waves arrive within minutes...

- If you are at the beach or in a low lying area, and you feel the ground shake – **evacuate to high ground immediately!**
- A tsunami generated by an earthquake off the Island of Hawaii may reach Oahu in **less than 27 minutes!**
- **Vertically evacuate** if you are in a concrete-reinforced high rise building, condominium or hotel (4th floor or higher).
- **Stay off the roads** if you do not have to evacuate.
- Do not return to coastal areas until advised by government officials in your area.

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Learning Check

1. If you hear a tsunami siren, what should you do?
2. If you are near the coast and feel the ground shake, hear a loud roar, or see the water recede, what should you do?
3. If you have evacuated due to a tsunami, how long should you wait before returning to the coast?

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