



**American Red Cross**

Hawaii State Chapter

## TSUNAMIS

### What are Tsunamis?

Tsunami, a Japanese word meaning harbor wave, is a series of waves that can travel at speeds 400 to 500 mph in the open ocean. They are unnoticeable in the open ocean and by air. As these waves approach the coast, the speed of the wave will decrease and the height will increase. A tsunami's landfall can last as long as 8 hours. Tsunamis are most usually caused by earthquakes, but can also be generated by landslides, volcanic eruptions and meteorites.

### History in Hawaii

Hawaii has been affected by local and distant tsunamis. Destructive tsunamis have affected Hawaii 8 times in the last century and resulted in 222 deaths statewide. These tsunamis have been generated from various places (Aleutian Islands, Chile, Japan, Russian Kamchatka Peninsula and Hawaii County). The volcanoes in Hawaii County can produce a local tsunami with a 20-60 minute wave arrival time for neighboring islands.

### Hawaii's Preparedness

If the Pacific Tsunami Warning Center forecasts that a destructive tsunami (minimum of 3 feet) will affect the Hawaiian Islands, the sirens will sound statewide to give the public as much time as possible to prepare. For a distant tsunami, three hours warning time will be issued to the public. The Emergency Alert System will be activated to inform the public of what danger is imminent. Located in the disaster preparedness pages in the beginning of each county telephone book are maps that designate tsunami evacuation areas. Some roads will be closed during the Tsunami Warning time period to eliminate traffic congestion and insure emergency vehicles have access to all areas.

### Your Tsunami Preparedness Plan

- Look in the Disaster Preparedness pages of your county phone book and know if your home, work, school or recreation areas are in a tsunami evacuation area.
- If you do work or live in a tsunami evacuation area, take proper measures to protect your property (i.e. elevate the valuable contents in your home) and check if you are a member of the National Flood Insurance Program.
- Have a family disaster plan and know how to safely reconnect with family **after** the "all clear" is communicated by county civil defense agencies. Pre-designate a meeting place or check-in person out of state and reconnect after the disaster. The telephone lines will most likely be overloaded. Only use the telephone for emergencies.
- Do not drive on the roads if you are inland of the tsunami evacuation area. People in evacuation areas will be directed to leave and individuals, businesses and schools will activate their disaster plans. It is critical that the roads stay clear for emergency vehicles.

- Designate an evacuation route that could bring you to a safe area in 15 minutes. In many areas, the quickest route may be by foot. Remember to seek higher ground or travel inland up to a 1/2 mile.
- Create a disaster supplies kit that can easily be taken with you at a moment's notice that contains food, water, blankets, medical supplies, toiletries, radio and flash light. Remember to accommodate any members of your family who may have special needs.
- Stay tuned to NOAA weather radio to monitor the situation.

*You are in immediate danger when....*

You feel the ground shaking violently below your feet

You see the ocean receding for miles

You hear an incredibly loud roar like a freight train coming from the oceans waves

If you find yourself in this situation, seek higher ground or travel inland 1/2 mile immediately. If you are trapped in a low lying area and do not have enough time to leave the area, evacuate vertically by climbing to the 3<sup>rd</sup> floor or higher of a 6-story steel structured or reinforced building.

### Recovery Information

- Continue monitoring the radio to find out what areas are safe
- Assist others according to your level of ability
- Use the telephone only for emergencies
- If a building is surrounded by water, do not enter, the foundation may be unstable
- Drink tap water only if deemed safe by authorities
- Discard any food that has been in contact with flood waters
- When re-entering tsunami damaged building ,exercise extreme caution –
  - ✓ Wear sturdy, covered shoes
  - ✓ Use battery powered lanterns and flashlights
  - ✓ Examine walls, floors, doors to make sure the building is not in danger of collapsing
  - ✓ Inspect foundation for cracks
  - ✓ Look for fire hazards (i.e. leaking gas lines, flooded electrical circuits or submerged electrical appliances. Fire is the most frequent hazard following floods.
  - ✓ Look for electrical system failure (frayed wires, sparks). Electrical equipment should be checked and dried before being returned to service.
  - ✓ Check for sewage and water line damage.
  - ✓ Watch for animals that may be trapped in your home.
  - ✓ Watch for loose drywall and ceilings that may cave in and fall
  - ✓ Take pictures of the damage - structural and content for insurance claims.
  - ✓ Open the windows and doors to help dry out the building
  - ✓ Shovel mud away from walls and floors to give them an opportunity to dry

### Other resources of tsunami information

NOAA

FEMA

State Civil Defense and County Civil Defense Agencies

Pacific Tsunami Warning Center

Hilo Tsunami Museum

University of Hawaii, School of Ocean & Earth Science & Technology