

Tsunami

Lessons Learned

Nature can cause our worst nightmare.

On Sunday, December 26, 2004 at 7:58 a.m., local time, the fourth largest earthquake in the world since 1900 struck the Indian Ocean off the west coast of Northern Sumatra. The 9.0 earthquake caused a tsunami that resulted in more casualties than any other in recorded history. In total, more than 153,200 people were killed, 27,000 are still listed as missing and 1,236,000 were displaced in South Asia and East Africa (last updated 01/13/05).



Beware during a tsunami

- Know that a small tsunami at one beach can be a larger wave a few miles away.
- A tsunami may generate more than one wave. Do not let the modest size of one wave allow you to forget how dangerous a tsunami is. The next wave may be bigger and more deadly.

Beware after a tsunami

- Stay away from flooded and damaged areas until officials say it is safe to return.
- Stay away from debris in the water. Floating debris (metal containers, glass, wood, and vehicles) pose an extreme safety hazard.

Nature sets the rules on tsunamis: Your best defenses are knowledge and preparation for unpredictable disasters!

If you feel an earthquake in a coastal area, leave the beach immediately and head inland or to higher ground.

- Prepare a disaster and evacuation plan for your home, work, school and for vehicles during travel. Prepare disaster supplies kits. (Visit www.emd.wa.gov)
- Buy an all-hazards weather radio and take it wherever you go. Listen to the radio or television for information and follow the instructions of your local authorities.
- Always be prepared for possible evacuation. Ask about local evacuation routes. Determine where you would go and how you would get there if you needed to evacuate. If you are evacuated, take your evacuation map, emergency plan and disaster supplies kit with you.



Nature's warning sign...

Immediate warning of tsunamis sometimes comes in the form of a noticeable recession in water away from the shoreline. This is nature's tsunami warning and it should be heeded by moving inland or to higher ground immediately. When you can see the wave, it is too late to escape.

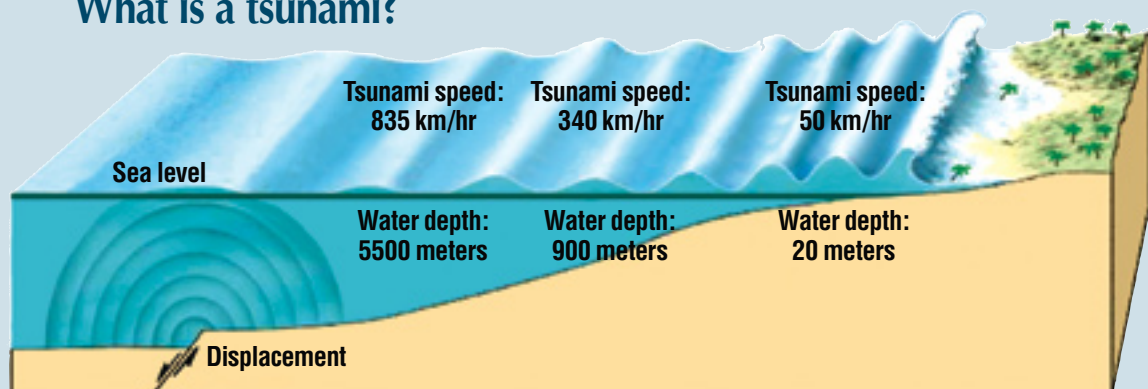
- Do not go to the shoreline to watch for a tsunami. Do not let the modest size of one wave allow you to forget how dangerous tsunamis are. The next wave may be much larger.
- If you are advised to evacuate, do so immediately.
- Stay away from the area until local authorities say it is safe. Do not be fooled into thinking that the danger is over after a single wave — a tsunami is not a single wave but a series of waves that can vary in size.

Tsunamis (pronounced soo-nah-mee) are dangerous waves generated by earthquakes, landslides or volcanic eruptions. A tsunami can move hundreds of miles per hour in the open ocean and smash into land with waves as high as 100 feet or more, although most waves are less than 18 feet high. A tsunami can strike anywhere along most of the U.S. coastline. The most destructive tsunamis have occurred along the coasts of California, Oregon, Washington, Alaska and Hawaii.

Know the terms used by Tsunami Warning Centers

- **ADVISORY:** An earthquake has occurred in the Pacific basin, which might generate a tsunami. Authorities will issue hourly bulletins advising of the situation.
- **WATCH:** An alert issued to areas outside the warned area. The area included in the watch is based on the magnitude of the earthquake. For AOR earthquakes over magnitude 7.0, the watch area is 1 hour tsunami travel time outside the warning zone. For all earthquakes over magnitude 7.5, the watch area is 3 hours tsunami travel time outside the warning zone. The watch will either be upgraded to a warning in subsequent bulletins or will be cancelled depending on the severity of the tsunami.
- **WARNING:** A tsunami was or may have been generated, which could cause damage; people in the Warned area are strongly advised to evacuate.
- Tsunamis are NOT tidal waves. Tidal waves are caused by the forces of the moon, sun, and planets upon the tides, as well as the wind as it moves over the water.

What is a tsunami?



Earthquakes are commonly associated with ground shaking that is a result of elastic waves traveling through the solid earth. However, near the source of submarine earthquakes, the seafloor is permanently uplifted and down-dropped, pushing the entire water column up and down. The potential energy that results from pushing water above mean sea level is then transferred to horizontal propagation of tsunami waves.

For information



Washington Military Department Emergency Management Division

Visit our Web site: www.emd.wa.gov or National Oceanic and Atmospheric Administration (NOAA) at www.noaa.gov