

# **Tsunami**

## **Overview**

In this unit, find out what a tsunami is, what causes a tsunami, and signs and forewarnings of an impending tsunami.

Knowledge of tsunamis can be shared at school, through legends, stories, and experiences. When the experience of past tsunamis is remembered, loss of life and property can be prevented.

## **What is a Tsunami?**

A tsunami is a series of waves caused by a massive displacement of water most often caused by an undersea disturbance, such as an earthquake, landslide or volcanic eruption. Tsunami education will increase understanding of Earth's geologic processes and help prevent loss of life and property.

### **Why Talk About Tsunamis?**

- The Tsunami last year on 26<sup>th</sup> December devastated lives around the Indian Ocean claiming thousands of lives, millions as injured, numerous as unsheltered and uncountless lost their family and loved ones.
- Twenty-four tsunamis have caused damage in the United States and its territories during the last 204 years.
- Just since 1946, six tsunamis have killed more than 350 people in the U.S. alone.
- Tsunamis can travel upstream with damaging waves extending farther inland than the immediate coast.
- A tsunami can occur during any season of the year and at any time, day or night.

### Causes of a tsunami:

Causes of a tsunami are explained neatly with the help of a diagram:

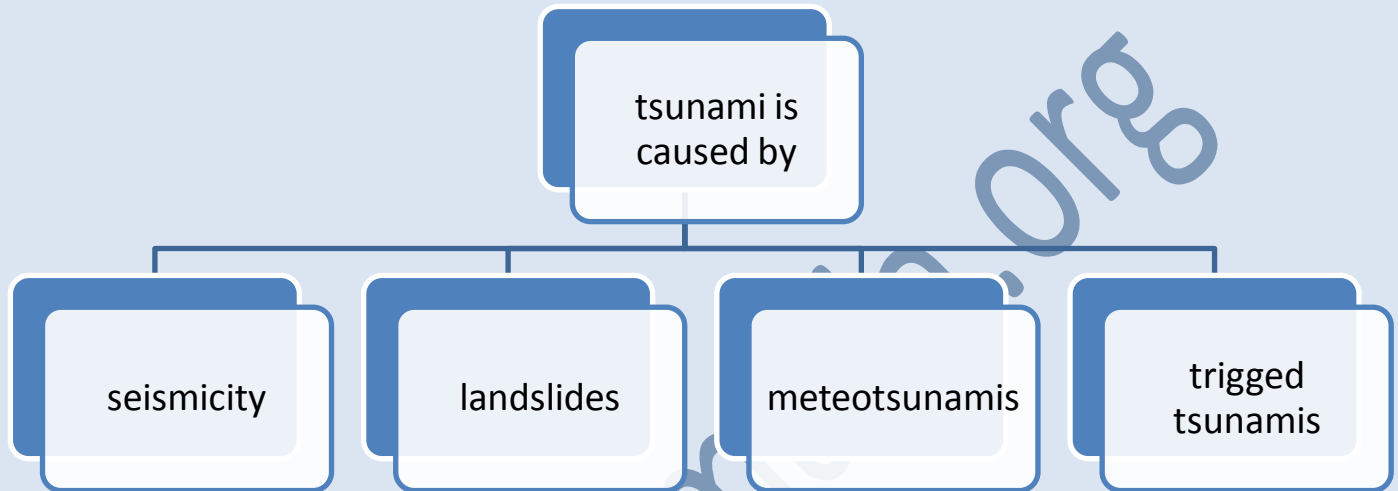


Fig1: causes of tsunami

1. **Seismicity:** Tsunami will be generated once the ocean floor suddenly deforms and vertically displaces the superimposed water. Tectonic earthquakes are a selected quite earthquake that is related to the Earth's crustal deformation; once these earthquakes occur below the ocean, the water on top of the distorted space is displaced from its equilibrium position. A lot of, specifically a tidal wave will be generated once thrust faults related to focused or harmful plate boundaries move dead, leading to water displacement, due to the vertical element of movement concerned. Movement on traditional (extensional) faults can even cause displacement of the ocean bottom, however solely the most important of such events (typically associated with flexure within the outer trench swell) cause enough displacement to offer rise to a big tidal wave, like the 1977 Sumba and 1933 Sanriku events.
2. **Landslides:** In the Fifties, it absolutely was discovered that larger tsunamis than had antecedently been believed potential may be caused by large submarine landslides. These quickly displace massive water volumes, as energy transfers to the water at a rate quicker than the water will absorb. Their existence was confirmed in 1958, once an enormous landslide in Lituya Bay, Alaska, caused the highest wave ever recorded, that had a height of 524 meters (over 1700 feet). The wave failed to travel so much because it affected land shortly. 2 individuals fishing within the bay were killed, however, another boat managed to ride the wave.

3. **Meteotsunamis:** Meteotsunamis shouldn't be confused with storm surges, that are native will increase in water level related to the low air pressure of passing tropical cyclones, nor ought to they be confused with setup, the temporary native raising of water level caused by sturdy on-shore winds. Storm surges and setup are dangerous causes of coastal flooding in severe weather, however, their dynamics are utterly unrelated to wave waves. They are unable to propagate on the far side their sources, as waves do.
4. **Man-made tsunamis:** There are studies of the potential of the induction of and a minimum of one actual conceive to produce moving ridge waves as a tectonic weapon. In World War II, the New Zealand Military Forces initiated Project Seal that tried to make tiny tsunamis with explosives within the space of today's Shakespeare Regional Park; the try was unsuccessful.

#### **Human loss in tsunamis:**

The moving ridge caused by this earthquake in all probability the foremost unfortunate to date and killed additional than 200,000 individuals in a very region from the island as so much on South Africa. About 170,000 individuals of Aceh province were killed by this tidal wave. In step with the world, the organization estimates 655,000 individuals are homeless and sheltering in scattered expatriate camps across the province. Although the moving ridge caused the great harm and therefore the great loss of lives in countries neighboring the Indian Ocean, the foremost severely hit region was the west and north coast of Aceh province. Out of 10,000 original population of Leupung town, the calculable variety of survivors was solely many hundreds. In step with official estimates, 8,000 of the 18,000 population of town Teunom were dead. 40,000 individuals of Meulaboh city with a population of 120,000 were killed by the moving ridge.

## Tsunamis Facts

- A tsunami can reach speeds of 500 miles per hour, which is almost the speed of a jet airplane.
- Because of their speed, a tsunami could cross the Pacific Ocean in only one day.
- The first wave to hit shore is not usually the strongest wave. The waves that follow grow progressively larger and gain more strength. The long wave-length of a tsunami allows it to maintain its strength as it moves toward shore.
- As a tsunami nears the shore, it slows down, but it gains more height and energy.
- The top of a tsunami wave actually moves faster than the bottom. This is what causes them to rise so high.
- Right before a tsunami hits shore, the coastal water is sucked away from the shore, which exposes the sea floor. This is a warning that the tsunami will hit within the next five minutes.
- If a person is swept up in a tsunami, the best thing they can do is grab onto something that floats, not to try to swim.

## Positive effects?

- Over time, properties that have been destroyed will be fully replaced, and probably by better and newer substitutes, so at the end of the reconstruction process, the countries will probably be wealthier.
- Measuring small earthquakes and tsunamis allows geologists to study areas underground. Geologists can measure the way that the vibrations of earthquakes travel and make inferences about the type of material that vibrations pass through. Geologists can also measure the size and extent of these resources to better understand exactly how large the deposits are.
- As plate tectonics move, it naturally cycles materials from the mantle of the earth. Without movement that allows earthquakes and tsunamis, we wouldn't have certain plants or animals that hold an important role in our ecosystem.

## Reference

- [www.google.com](http://www.google.com)
- [www.wikipedia.com](http://www.wikipedia.com)
- [www.studymafia.org](http://www.studymafia.org)