

# Destruction by waves: the tsunami



**ASSIGN  
BUSTER**

## Destruction by Waves: The Tsunami

### Tsunami Reasoning

Tsunami is one of the biggest natural disaster in the world. It is a cause of many catastrophically damaging events occurred in the past century.

Tsunami is an event that occurs in the ocean or other types of water bodies by a disturbance or tsunamigenic events that generates under the layers of water. Tsunami are the result of many damaging movement under the ocean. Tsunami are ocean waves which are caused by (1) earthquakes underwater, (2) landslides, (3) volcanic eruption.

- 1) Earthquake under water is one of the most common causes of Tsunami. When the tectonic plates interact, it generates energy. When one Tectonic plate slides under another tectonic plate it creates kinetic energy. This energy is than motioned outward from the point of origin creating ripples. This ripple then radiates from the origination transferring energy through the waves. When this wave interacts with shoreline, the shoreline compresses the velocity's which then increases the height of tsunami and travels through the shoreline to the cities/streets.
- 2) Submarine Landslides under the water is one of the causes of Tsunami. Landslides underwater is when large portion of rocks, sand, mud or even gravel suddenly move across each other causing the overlay of waters to move. Tsunami becomes the result of this movement.
- 3) Volcanic Eruptions is one of the well-known reasons of the Tsunami. Volcanic Eruptions also believe that maybe the kinetic that is emitted from a

volcanic eruption which causes massive landslides, which then causes mixtures of hot blocks under water which then plunges the volcanic slopes into the ocean. This then triggers water outwards which then becomes a tsunami.

Most likely occurrence:

Tsunamis are found to occur in the Pacific Ocean area because of the Pacific Rim that borders around these areas. The Pacific Rim contains a very large amount of active submarine landslides and earthquake areas. Countries that are most likely to be affected by these active landslides and earthquakes would include Alaska, Chile, Indonesia, Philippines and Japan. Scientists have recorded 75% of world's tsunamis have occurred in the Pacific Ocean because of the submarine landslides and earthquake. Occurrence of the earthquake, scientists use this information and other geographical reasonings for tsunami to understand the most likely occurrence of a tsunami and use this information to warn and alert the people that live in those danger countries.

The Scientific Theory

There have been many theories in the past couple of decades but the one that most scientists believe in would be the theory that any great movement radiates energy which then creates waves that then after hitting the shoreline transform into all waves causing a Tsunami. The reason why this theory is quite general because there are many reasons that are the causes of a Tsunami. The substantial movement of water is usually either, Earthquake, Landslides and Volcanic Eruption

<https://assignbuster.com/destruction-by-waves-the-tsunami/>

Most damaging Tsunami's ever recorded:

There are many examples of destructive tsunamis that have affected lives of many, many people. Some of the most famous are

1. North Pacific Coast, Japan (Earthquake Magnitude: 9. 0, Depth: 24. 4km, Casualties: 18, 000)
  2. Lisbon, Portugal (Earthquake Magnitude: 8. 5, Casualties: 60, 000).
- These are just a few example

But a very prime example of how dangerous and destructive a tsunami could possibly be, is the 2004 Sumatra Indonesia tsunami.

The 2004 Sumatra Indonesiatsunami is the most destructive and damaging tsunami to have ever occurred with a magnitude of 9. 1 earthquake near the coast lines of Sumatra, island in Indonesia, it had caused the most disastrous tsunami of all time, with 50 meters, in height, it took over 230, 000 lives over the 15 countries it affected. It was a very unfortunate event that had occurred and affected the lives of many, many people.

On 26<sup>th</sup> of December 2004, a very powerful and impactful earthquake had occurred under the sea, near the coast of the Sumatra island, Indonesia, which triggered the 2004 Indian Ocean Tsunami (Boxing day Tsunami). A magnitude of 9. 1 earthquake had been detected near the Indian – Australian tectonic plate. This earthquake had affected the ocean depth levels and in within 20 minutes, the risen waves hit the shoreline, which killed over 100, 000 people and causing the city to pound into rubble. Then progress of these tsunamis soon affected the coastlines of Thailand, India, Sri Lanka affecting

and/or killing thousands of people. Eight hours after the initiations of the Tsunami, the tsunami started to affect countries out of the Asian epicenter, i. e. South Africa. After the tsunami's progression throughout the countries. The tsunami claimed 230, 000 lives, making this tsunami one of the most deadliest and destructive natural disaster ever recorded.

### Social Implications on the Human Society

Ever since the 2004 tsunamis, government and administrations have prioritized natural disasters. Only a couple of weeks after the tsunami, many representatives of approximately 168 nations settled and agreed to the Hyogo Framework for Action (a policy that helps the world from natural hazards.) which helped create a pathway for global agreement that help disaster risk decrease. The disaster of the tsunami disrupted many people in their normal lives, their social lives, and this creates chaos in the social implications on someone's lives.

There are many people that this tsunami devastating even affected:

### The Help of Modern Research

The modern Researchers/Scientist have really helped the society, from using statistics from previous tsunami's, scientist and researchers have build infostructure for safety and well being. Scientist have worked very hard to put in measure in most vulnerable places on the world. Scientist over the world have attempted to understand where and how the tsunami might be triggered, so they use multiple different tools to detect any activity of

tsunami occurrence. Scientist over the countries have cooperated and created safety measures like:

1. Creating Tsunami proof buildings in most likely occurrence countries.
2. Organizations have been formed to inform endangered countries for procedures in an act of tsunami devastations.
3. Scientists have developed forecasting and prediction equipment to help indicate tsunamis.

Scientist have used tools like

Bibliography:

- Cwarn. org. (2019). *Tsunami Early Warning System – How do tsunamis occur*. [online] Available at: <https://cwarn.org/tsunami/how-tsunami-occur> [Accessed 15 Sep. 2019].
- Nctr. pmel. noaa. gov. (2019). NOAA Center for Tsunami Research – FAQ results. [online] Available at: [tps://nctr.pmel.noaa.gov/faq\\_display.php?kw=15%20March%202005%20Interview%20with%20Dr.%20Hal%20Mofjeld](https://nctr.pmel.noaa.gov/faq_display.php?kw=15%20March%202005%20Interview%20with%20Dr.%20Hal%20Mofjeld) [Accessed 19 Sep. 2019].
- YouTube. (2019). How Are Tsunamis Formed? [online] Available at: <https://www.youtube.com/watch?v=OQ3oXljPmaE> [Accessed 19 Sep. 2019].
- Tsunami | Geoscience Australia. 2019. Tsunami | Geoscience Australia. [ONLINE] Available at: <https://www.ga.gov.au/scientific-topics/community-safety/tsunami>. [Accessed 22 September 2019].

- Nctr. pmel. noaa. gov. (2019). NOAA Center for Tsunami Research – FAQ results. [online] Available at: [https://nctr.pmel.noaa.gov/faq\\_display.php?kw=15%20March%202005%20Interview%20with%20Dr.%20Hal%20Mofjeld](https://nctr.pmel.noaa.gov/faq_display.php?kw=15%20March%202005%20Interview%20with%20Dr.%20Hal%20Mofjeld) [Accessed 24 Sep. 2019].
- Australian Geographic. (2011). The 10 most destructive tsunamis in history. [online] Available at: <https://www.australiangeographic.com.au/topics/science-environment/2011/03/the-10-most-destructive-tsunamis-in-history/> [Accessed 3 Oct. 2019].
- Page, G. (2016). Top 10 Worst Tsunamis | Geology Page. [online] Geology Page. Available at: <http://www.geologypage.com/2016/09/top-10-worst-tsunamis.html> [Accessed 7 Oct. 2019].
- 2004 Indian Ocean tsunami: Facts, FAQs, and how to help | World Vision. (2018). World Vision. Retrieved 11 October 2019, from <https://www.worldvision.org/disaster-relief-news-stories/2004-indian-ocean-tsunami-facts>
- (2019). Cmsdata. iucn. org. Retrieved 11 October 2019, from [http://cmsdata.iucn.org/downloads/social\\_and\\_economic\\_impact\\_of\\_december\\_2004\\_tsunami\\_apdc.pdf](http://cmsdata.iucn.org/downloads/social_and_economic_impact_of_december_2004_tsunami_apdc.pdf)
- Tsunami / Science Topics / Learning / Home – GNS Science . (2019). Gns. cri. nz. Retrieved 11 October 2019, from <https://www.gns.cri.nz/Home/Learning/Science-Topics/Tsunami>