

What is tsunami? How the tsunamis generated and what are their characteristics?

Definition of Tsunami

Tsunami is a Japanese word which is a combination of 'tsu' and 'nami'. Tsu means harbour and 'nami' means ^Nwaves. Tsunami are giant waves which are produced in the ocean due to earthquake, volcanic eruption, etc. Tsunami are worst type of sea or ocean waves which can create a huge disaster. Tsunamis are disastrous waves, but they are different from tidal waves.

Example of Tsunami

Tsunami was produced in the ocean of Sumatra, Indonesia. It was produced due to earthquake of magnitude 9.1 on Ritch scale. These tsunami waves ^{we} are 15m high and they created a very dangerous situation. About 230000 people died due to tsunamis at Sumatra, Indonesia.

Process of generation of Tsunami

Tsunamis are produced due to some natural phenomena like earthquake, landslides, terrestrial collision, volcanic eruption etc. The process of generation of tsunami are described as below:

1 Earthquake

Earthquake can generate tsunami. When earthquake come, it have seismic waves and these seismic waves have ability to disturb the water in the ocean

and generate tsunami. Not all the earthquakes produce tsunami, instead earthquake has some specific properties to produce tsunami, which are;

- i The magnitude of earthquake is greater than 6.5 on the Richter scale.
- ii It must be shallow focus earthquake with depth less than 70m.
- iii Earthquake must be produced near or beneath the ocean.

2 Landslide

Landslide is a natural process which can contribute to generate tsunami. It is a process in which large amount of land is moved on earth or in ocean e.g. movement of rocks from mountain. When such a large amount or weight falls into ocean, it becomes a reason to generate tsunami.

3 Volcanic eruption

Volcanic ^{eruption} is a phenomenon in which lava, gases, ash or other material come out to surface of earth from ground level. Volcanic eruption occurs on the surface of earth or in the ocean and in this way, it can lead to produce tsunami because water waves in the ocean are also affected with the volcanic eruption.

4 Terrestrial collision

A meteor falls on the earth is called terrestrial collision. When a meteor falls into ocean, it can generate tsunami

because large amount of debris fall into ocean and this debris disturb the water movement in the ocean. As no such tsunami are known but scientists are of the view that terrestrial collision can have a potential to produce tsunami.

Characteristics of Tsunami

Tsunamies have distinct characteristics which are defined as;

- 1 Tsunamies are produced in the deep water of ocean or sea.
- 2 At the time of creation the steepness i.e. length-to-height ratio of tsunami is very low.
- 3 Tsunami ~~can~~ moves towards the coast of sea or ocean.
- 4 Tsunami has height of 30m and its speed is 100 km/h. In rare cases, the speed of tsunami may be from 300 km/h to 900 km/h.
- 5 No confirm how the tsunami dangerous are. It can be varried from place-to-place and time-to-time. For example, a tsunami is not very disastrous at one end of ocean but it may be dangerous at another end.
- 6 When tsunami move from deep water to shallow water, its energy remains same, so it has more height and less speed at the surface of ocean i.e. shallow water as compared to the depth of ocean i.e. deep water.
- 7 Tsunami can change its speed and height during movement because of 'shoaling effects'.
- 8 Tsunamies are different from tidal waves because they are disastrous and from minutes to hours. On the contrary, ~~tsu~~ tidal

waves are not dangerous and they are produced due to gravitational attraction between sun, moon and earth. Tidal waves are produced just for seconds.