## Seismic Driven Landslides – Student Activity



The most common natural causes for landslides in Australia are heavy rainfall, earthquakes and erosion. However seismic activity also causes unconsolidated undersea sediments on the edge of the Australian Continental Shelf to collapse changing the level of the sea floor and causing localised tsunami. Our continent extends quite a distance under the sea before rapidly dropping down into deep water.



## Materials

- A tray or piece of thick cardboard
- Damp sand
- A deep mould for the sandcastle.

## Method

- 1. Fill the mould with damp sand and invert it onto the tray.
- 2. Place the tray on a long desk or on the cement pavement outside.
- 3. Hit the tray with your hand or foot to cause a sharp movement.
- 4. Observe.

## Observation

Recent tsunami devastation of Japan in March 2011 was caused by a combination of earthquakes and subsea landslides. Earthquake faulting alone would have only caused a 16 to 18m rise in sea level, not the 40m inundation experienced. Researchers studied images of the sea bottom and discovered a portion of seabed 20km by 40km had collapsed displacing seawater.

On Dirk Hartog Island off the Gascoyne coast of Western Australia Dr P Playford, a famous WA geologist, found large boulders which appear to have been swept up inland over a 5m cliff by wave action. Some boulders weighed over 700 tonnes. Dr Playford suggested that an undersea landslide occurring less than 2,000 years ago might have caused this localised tsunami. This coast is an area not known for tectonic movement.

For more information visit: <u>https://au.news.yahoo.com/thewest/a/17798666/tsunami-finding-rocks-research/</u>

Elsewhere in the world, tsunamis are also created when soil or a glacier ice collapses into the sea. <u>http://www.livescience.com/22133-greenland-iceberg-tsunami-video.html</u>

Vocabulary Sediment, landslide and tsunami