

# Tsunami – waves of destruction

Tidal waves, more properly known as *tsunamis* – Japanese for ‘harbour wave’ – occur when a body of water is violently jolted by coastal or undersea seismic activity such as earthquakes, volcanoes or deep ocean avalanches

## Killer tsunamis

**1703: Awa, Japan**

Over 100,000 dead

**1896: Sanriku, Japan**

27,000 dead

**1993: Western Japan**

100ft waves kill 200

**1976:**

**Philippines**

5,000 dead

**1883: Java**

**and Sumatra**

Krakatoa erupts.

115ft waves kill

36,000 people

**July 17, 1998:**

**Papua New Guinea**

Undersea earthquakes

(Richter scale 7.0) create

30ft waves – up to 6,000

**feared dead.** Tsunami Warning System – based in Hawaii –

unable to react in time due to proximity of earthquake to shore

**Volcanic  
‘ring of fire’**

**1946: Aleutian Islands**

Magnitude 7.2 earthquake.

Wave kills five in Alaska –

hours later tsunami

hits Hawaii,

killing 159

**Hawaii**

*Pacific  
Plate*

**1960:**

**Chile**

Mag. 8.6

earthquake.

500mph wave

crosses Pacific to

Hawaii and Japan –

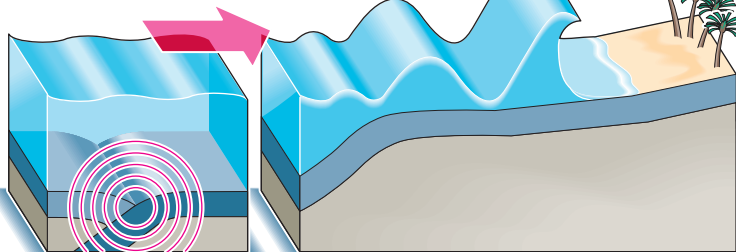
5,000 killed

## From sea to shore – the massive power of a tsunami

Quake on sea floor displaces water that reaches surface as 1-2ft high waves

Decreasing depth has braking effect on base of wave column

Wave tops pile up before crashing on shore



**Deep water:** wave length up to 100 miles, speed up to 500mph

**Shallow water:** wave speed around 30mph, height can reach 100ft or more