

Tsunami warning

The Asian tsunami tragedy killed about 200 000 people. We can't prevent tsunamis.

But can scientists help to warn people about them?



About 35 years ago 24 countries around the Pacific Ocean set up the Pacific Tsunami Warning System. But there isn't one for the Indian Ocean.

Is it worth setting one up?

Could we warn people in time?

Scientists know instantly that a tsunami might happen. They can send messages to the countries round the ocean within 5 minutes.

Estimate

- how long it takes for people on the coast to get the message
- how long it takes for those people to then move to higher ground.

Tsunami warning

Tsunamis happen because of earthquakes or volcanoes under the sea. Let me explain.



1

Earthquakes usually happen on these lines. They show the edges of the huge rock plates that make the Earth's surface.

2



Under the sea, rock plate 2 moves left and hits plate 1. It tries to slide up but friction stops it. A huge force builds up.

3



Suddenly the two plates slip.

So thousands of square kilometres of sea floor move very quickly.

This pushes up huge volumes of water.

4

The water – above its normal height – stores vast amounts of energy. Far out at sea, it makes a low wave with a long wavelength. This is a tsunami.

5

The tsunami arrives at the shore. It is like a rapidly rising tide that keeps rising.

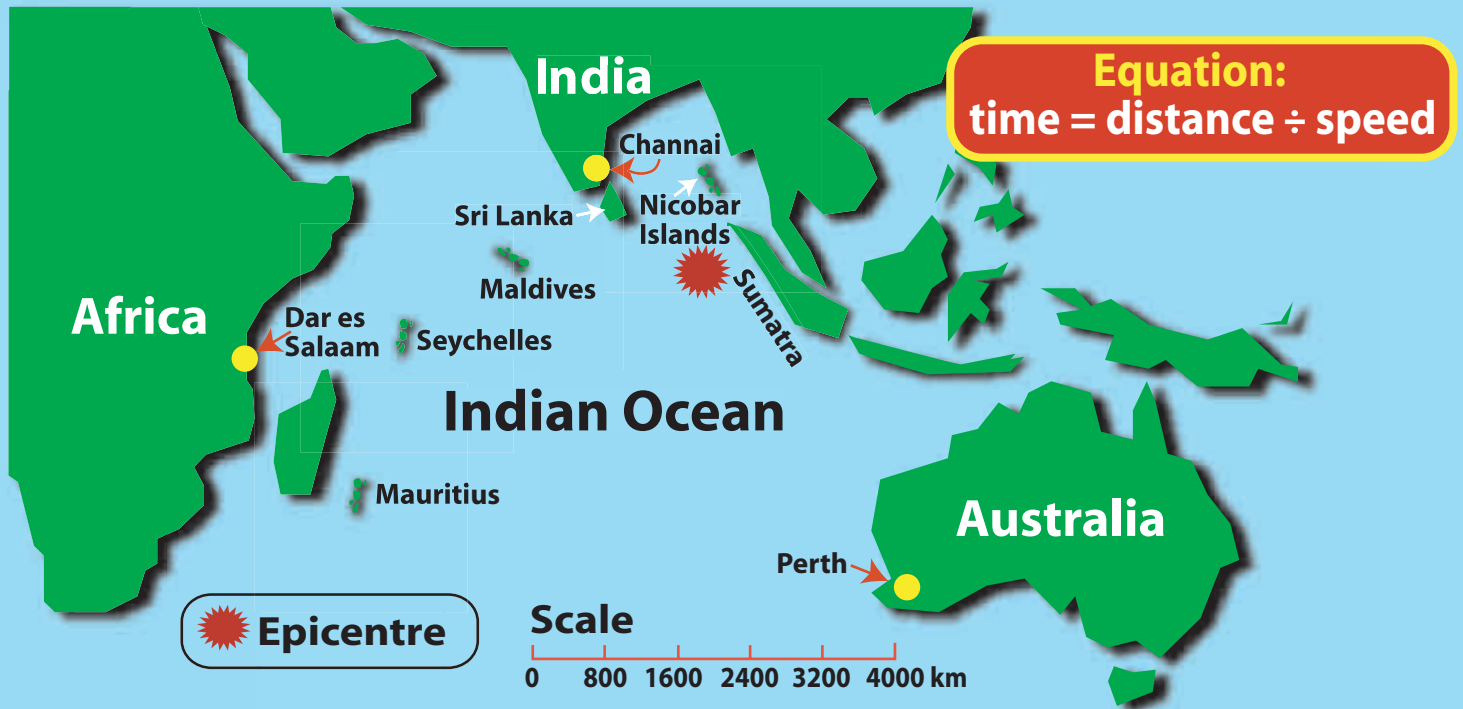
It transfers its energy to everything in its path causing death and destruction.



Tsunami warning

how long have we got?

	Tsunami wave height (m)	Tsunami wave speed(km/hour)
Open sea	1	800
At the beach	30	70



Use the map, the equation and the Tsunami speeds to fill in the table

Place	Distances from earthquake (km)	Time to clear beaches and warn people (min)	Time for tsunami to arrive (hrs)	Could they be warned in time?
Mauritius				
Seychelles				
Sri Lanka				
Dar es Salaam, Tanzania				
Chennai, India				
Nicobar Islands				
Sumatra				
Perth, Australia				

- In which countries would there be enough time to warn people about the tsunami?
- Is an Indian Ocean tsunami warning system worth its huge cost?

