1 How do we know our islands are sinking?

We know they are sinking because BEACHES are slowly moving onto land and TREES that grew on land are now dead in the water off shore. In many places CORALS contain information about how fast the islands have been sinking.

Modern instruments show the islands are also moving northeast toward Sumatra.

Scientific instruments also tell us.

The GPS (Global Positioning System) instruments deployed on the islands measure island movements very accurately.

The instruments show us that the islands are slowly moving northeast toward Sumatra about 40 mm per year.

2 Coral on the reefs tell us.

Coral growth patterns tell us how fast an island is sinking.

Coral on the reefs tell us.

3 Are sinking islands and earthquakes related?

Yes! The Indian Ocean plate pushes into and curves under western Sumatra. Most of the time the plates are stuck together, so while the plates slowly move during decades and centuries, pressure builds up as the islands get squeezed toward Sumatra and dragged down into the ocean.

But the land under western Sumatra is like a spring; when the plates break apart, pressure is released and the land suddenly springs back, creating a great earthquake.

4 What happens to the ocean if the islands suddenly move?

When the rocks beneath the islands spring back during an earthquake the sudden movement causes waves called TSUNAMIS.

When they hit land, tsunami waves can be very small (centimeters) to very large (tens of meters).

From the historic record: 17.07 February 10, about 10 pm, West coast of Sumatra. The first shake lasted for a few seconds, then the earth was raised for about 1 meter. Many people were killed by falling debris and small building fell. A few buildings were tilted and others were cracked open. During the whole day, the ground was in a continual state of movement. Every 15-20 minutes a hard shaking took place. Some buildings rose cracks. During the whole night, as the ground was still in a raised position, many cottages were washed away.

5 How can we prepare for earthquakes and tsunamis?

Earthquakes may strike without warning. However, we can make preparations to avoid many earthquake dangers. For example...

Buildings made from wood or other light materials are safer than those made from heavy materials, because if they fall during an earthquake they are less likely to hurt us.

Stay prepared by developing and practicing family and community plans to deal with earthquakes, tsunamis and their aftermath.

Puslit Geoteknologi, Komplek LIPI Gd. 7D, Jl. Sanggarputih, Bandung
Ph: 022-25003654, Fax: 022-2500469
Kontak: Jr. Rambang W. Siuwanadi, M.Sc.

Poster Design: Catharine Sedjan, Cobalt. Dr. Muniahi, LIPI Puslit Mihaya
Graphics: Tarmid Mihaya, Catharine Sedjan, Cobalt.
Advisers and Translators: Prof. Dr. Kurni Saha, Cobalt, Dr. Muniahi, Dr. Denisy Hadiawati, LIPI.
Advisor: Caltech, Ph.D Candidate: Jason Liow, Dr. Myrna Ethrobine, Uni. of Amsterdam.
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