**The 2004 Indian Ocean Tsunami**

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The 2004 tsunami wave rolls in to a town, triggered by the Indonesian earthquake off-shore.

December 26, 2004 seemed like an ordinary Sunday. Fishermen, shopkeepers, Buddhist nuns, medical doctors, and mullahs - all around the Indian Ocean basin, people went about their morning routines. Western tourists on their Christmas holiday flocked to the beaches of [Thailand](http://asianhistory.about.com/od/thailand/p/ThailandProfile.htm), [Sri Lanka](http://asianhistory.about.com/od/Sri_Lanka/p/Sri-Lanka-Facts-and-History.htm), and [Indonesia](http://asianhistory.about.com/od/indonesia/p/indonesiaprof.htm), reveling in the warm tropical sun and the blue waters of the sea.

Without warning, at 7:58 am, a fault along the seafloor 250 kilometers (155 miles) southeast of Banda Aceh, in the state of Sumatra, Indonesia, suddenly gave way. A magnitude 9.1 underwater earthquake ripped along 1,200 kilometers (750 miles) of the fault, displacing parts of the seabed upward by 20 meters (66 feet), and opening a [new rift](http://archaeology.about.com/od/rterms/g/riftvalley.htm) 10 meters deep (33 feet).

This sudden movement released an unimaginable amount of energy - equivalent to approximately 550 million times the [atomic bomb](http://asianhistory.about.com/od/warsinasia/a/History-Of-Nuclear-Weapons-In-Asia.htm) dropped on Hiroshima in 1945. When the seafloor shot upward, it caused a series of [huge ripples](http://upload.wikimedia.org/wikipedia/commons/4/47/2004_Indonesia_Tsunami_Complete.gif) in the Indian Ocean - that is, a [tsunami](http://asianhistory.about.com/od/glossarytz/g/What-Is-A-Tsunami.htm).

The people closest to the epicenter had some warning about the unfolding catastrophe - after all, they felt the powerful earthquake. However, tsunamis are uncommon in the Indian Ocean, and people had only about 10 minutes to react. There were [no tsunami warnings](http://geography.about.com/od/physicalgeography/a/tsunami_2.htm).

Around 8:08 am, the sea suddenly drew back from the earthquake-devastated shores of northern Sumatra. Then, a series of four enormous waves crashed ashore, the highest recorded at 24 meters tall (80 feet). Once the waves hit the shallows, in some places the local geography channeled them into even larger monsters, as much as 30 meters (100 feet) tall.

The seawater roared inland, [scouring large areas](http://australianmuseum.net.au/image/Best-of-Eureka-Tsunami-Banda-Aceh) of the Indonesian coastline bare of human structures, and carrying away an estimated 168,000 people to their deaths. An hour later, the waves reached Thailand; still unwarned and unaware of the danger, approximately 8,200 people were caught by the tsunami waters, including 2,500 foreign tourists.

The waves overran the low-lying [Maldive Islands](http://asianhistory.about.com/od/Maldive_Islands/p/The-Maldives-Facts-And-History.htm), killing 108 people there, and then raced on to [India](http://asianhistory.about.com/od/india/p/indiaprof.htm) and [Sri Lanka](http://goasia.about.com/od/islandsandbeaches/f/Where-is-Sri-Lanka.htm), where an additional 53,000 perished about two hours after the earthquake. The waves were still 12 meters (40 feet) tall. Finally, the tsunami struck the coast of East Africa some seven hours later. Despite the lapse of time, authorities had no way to warn the people of Somalia, Madagascar, the Seychelles, Kenya, Tanzania and [South Africa](http://geography.about.com/od/findmaps/ig/Country-Maps/Map-of-South-Africa.htm). Energy from the quake in far-off Indonesia carried away approximately 300 to 400 people along Africa's Indian Ocean coast, the majority in Somalia's Puntland region.

Altogether, an estimated 230,000 to 260,000 people died in the 2004 Indian Ocean earthquake and tsunami. The quake itself was the third-most powerful since 1900, exceeded only by the Great Chilean Earthquake of 1960 (magnitude 9.5), and the 1964 Good Friday Earthquake in Prince William Sound, Alaska (magnitude 9.2); both of those quakes also produced killer tsunamis in the [Pacific Ocean](http://geography.about.com/od/specificplacesofinterest/a/geography-pacific-ocean.htm) basin. The Indian Ocean tsunami was the most deadly in recorded history.

Why did so many people die on December 26, 2004? Dense coastal populations combined with a lack of tsunami-warning infrastructure came together to produce this horrific result. Since tsunamis are much more common in the Pacific, that ocean is ringed with tsunami-warning sirens, ready to respond to information from the tsunami-detection buoys arrayed across the area. Although the Indian Ocean is seismically active, it was not wired for tsunami detection in the same way - despite its heavily-populated and low-lying coastal areas.

Perhaps the great majority of the 2004 tsunami's victims could not have been saved by buoys and sirens. After all, by far the largest death toll was in Indonesia, where people had just been shaken by the massive quake, and had only minutes to find high ground. Yet more than 60,000 people in other countries could have been saved; they would have had at least an hour to move away from the shoreline - if they had had some warning. In the years since 2004, officials have worked hard to install and improve an [Indian Ocean Tsunami Warning System](http://portal.unesco.org/en/ev.php-URL_ID%3D33442%26URL_DO%3DDO_TOPIC%26URL_SECTION%3D201.html). Hopefully, this will ensure that the people of the Indian Ocean basin will never again be caught unaware while 100-foot walls of water barrel toward their shores.

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