

Scientists release tsunami effect data

By ARTHUR MAX, ASSOCIATED PRESS WRITER

COLOMBO, Sri Lanka (AP) - Boats at sea felt only a gentle swell as the Asian tsunami passed under their hulls - but by the time the first giant wave slammed into Sri Lanka's coast it was a monstrous 15 feet high, scientists say.

A 15-member tsunami research team found that the wave struck with crushing force in some places, yet washed almost gently over the coast just a few hundred yards away, affected by shoreline and seabed features, the scientists said Saturday, releasing preliminary data at a seminar.

The tsunami took an hour and 50 minutes to reach Sri Lanka after being triggered by an underwater earthquake off Indonesia's Sumatra island, said Philip Liu of Cornell University in the United States.

It took another 30 minutes to whiplash around the island to the southwestern coast, where it devastated Galle, the country's second-largest city.

"If we had an adequate warning system, there would have been enough time to evacuate the coastal region," Liu said. "It was a hard lesson to learn."

Nearly 31,000 people were confirmed dead and another 6,000 were missing, putting Sri Lanka second only to Indonesia in casualties from the Dec. 26 disaster. In all, more than 157,000 people died across 11 countries.

Costas Synolakis, of the University of Southern California, said scientists need more information about underwater topography to map out vulnerable spots.

Liu, a professor of civil and environmental engineering who helped develop the Pacific Ocean tsunami warning system, led the team, which included members of the U.S. National Science Foundation and the U.S. Geological Survey.

The researchers have been chasing tsunamis for 12 years to study how to predict them, calculate their force and mitigate their effects.

One lesson learned, said Synolakis, is that tsunamis can hammer a coast for hours. If you escape to high ground, "never go back for at least six hours. This is no joke. It may be a difficult decision if you see people stranded," he said, but he warned that more waves come with surprising speed.

The Asian tsunami traveled across deep ocean at 500 mph, the speed of an airplane, Liu said. It was more than 180 miles wide and had a mild slope virtually undetectable in satellite photographs.

It was only when the tsunami neared shallow coastal waters that the waves grew steeper until the leading one became a wall of water, its energy lethally compressed.

Not every underwater earthquake sets off a tsunami, Liu said. In last month's disaster, one tectonic plate slipped under another, causing a vertical displacement of the sea floor.