

## COLUMNS

# Wanted: Tsunami alerts

## Killer-wave warnings are needed in Atlantic

The tragic tsunami in the Indian Ocean that has killed more than 155,000 people could happen in the Atlantic.

Resemblance to the great Lisbon earthquake and tsunami of 1755 is sobering:

A strong submarine seismic event in the eastern Atlantic Ocean; less than an hour later tsunami waves sweep into Portugal; many deaths occur in Europe and North Africa.

In 5½ hours the waves reach North America; after seven hours the waves arrive at the Caribbean, where they are 16 feet high; more deaths are reported in the Lesser Antilles.

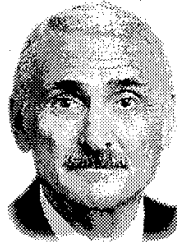
Just interchange some geographic names — Indonesia for Portugal, Sri Lanka for England, India for Morocco, Somalia for the United States — and the seriousness of the Dec. 26 Asian tsunami is brought home.

A 1998 tsunami in Papua New Guinea had an eerie similarity to the 1867 earthquake and tsunami that struck the Virgin Islands and Puerto Rico in just a few minutes, killing 25 people.

Now consider this scenario:

A near-shore undersea earthquake; several minutes later 20-foot waves rush into Charlotte Amalie harbor in St. Thomas; coastal infrastructure inundated; dozens of deaths reported.

Imagine that event repeating today:



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A tenfold increase in coastal population; numerous cruise ships and cargo vessels in port; tourists enjoying the beaches; coastal power plants and other infrastructure operating at full capacity; a waterfront elementary school fenced off for protection from a close-by highway with no means of escape.

The effort to engage governments, which began in 1993, led to a project proposal for an Intra-Americas Sea Tsunami Warning System, which integrates the Caribbean Sea, Gulf of Mexico, Bermuda, Barbados, Bahamas and the Straits of Florida.

The project was formally approved by an arm of UNESCO in June 2002.

The tsunami program in the Pacific, which coordinates the warning network in that ocean, was part of the IAS proposal development process. Now, with the imprimatur of UNESCO, international funding could be sought.

The time-scale for tsunami warnings has to be on the order of minutes — about the same as tornado warnings or severe lightning storm warnings.

Any new tsunami warning system must include education, warning, management, and research, and should be an integral part of the developing Coastal Ocean Observing System.

The very best warnings are of little value if the population isn't educated in proper response.

NOAA weather radio for the U.S. is an obvious means of getting out information — every FEMA and Homeland Security office, school, lifeguard stand, fire station, police headquarters and home should have one.

Cell phones could be equipped with an emergency channel, with which would be of benefit well beyond this discussion.

Many of the experts who concluded that the Indian Ocean didn't need a tsunami warning system have said the same thing about the Atlantic.

The fact remains that one-fourth of Earth's tsunamis occur in the Atlantic Ocean or the Caribbean and Mediterranean seas.

Do we have to have an Atlantic Ocean version of the 1998 Papua New Guinea event or the 2004 Indian Ocean tragedy before we decisively act?

God, we should pray not. ■

**Maul is a professor of oceanography and head of the Department of Marine and Environmental Systems at Florida Institute of Technology. He serves as chairman of the Tsunami Steering Group of Experts for the Caribbean and adjacent regions of UNESCO.**