

# Tsunami warnings improving but still not ideal, expert says

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(Phys.org) -- An Australian earthquake expert says it will be years before tsunami warnings can be made accurate enough to avoid unnecessary evacuations or alerts.

Dr Huilin Xing, who studies warnings systems at the University of Queensland says yesterday's 8.6 magnitude [earthquake](#) in Indonesia was a reminder of the system's limitations.

“While the tsunami system works well, it has its limitations and there can be many false alarms with large earthquakes. It's better than nothing but there's still a lot of work to do,” said Dr Xing.

“Australia is years away from perfecting the system and how quickly that is done depends on the level of investment in research and development.”

After yesterday's earthquake and aftershock hit, alarms sounded to warn that a tsunami may have been generated. Thousands of people in Thailand and Indonesia fled coastal and low-lying areas for higher ground.

“The problem is, there are a lot of false alarms because not all large earthquakes will generate a tsunami,” said Dr Xing.

"Research shows us that an earthquake larger than magnitude 6.5 may generate a tsunami, but this is not directly or linearly related to size.

"Currently no single model can model the whole process of an earthquake and its triggered tsunami generation. This means we really need to look deeper to work out what kind of earthquake can generate tsunamis and how big the tsunami might be."

Researchers needed to study the details of the earthquake, its "triggered sea floor motion" and interaction with water, he said.

Dr Xing there were fundamental differences in the types of earthquakes that suggested yesterday's Indonesian earthquake was not likely to cause a tsunami in the way the 2004 Boxing Day earthquake did.

Before yesterday's warning was cancelled, he noted that the earthquake (magnitude 8.6) and the following major aftershock (8.2) may have been located at a splitting boundary, indicating that the Indo-Australian Plate was splitting into two plates - the Indian plate and Australian plate.

"If so, the mechanism would be different from the previous major Sumatra earthquakes, such as the 9.1 magnitude in 2004, and the tsunami generated would not be so severe."

Dr Xing said while the existing alerts were an improvement on the past, where no alert was available, it could be years before tsunami warnings could be made accurate enough to avoid unnecessary [evacuations](#).

How long this will take depends on investment and 2004 Boxing Day [tsunami](#) was the unfortunate wake-up call the government needed to address the issue, Dr Xing said.

Provided by University of Queensland

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