# Japan's latest tsunami reaction shows lessons learned from previous disasters

November 22 2016, by James Goff

Parts of Japan were on tsunami alert today following a magnitude 6.9 earthquake off the east coast of the country.

This was the first real test for Japan since the 2011 earthquake which led to a deadly tsunami. The destruction led to a meltdown at the Fukushima nuclear power plant.

Paul Somerville, from Risk Frontiers at Macquarie University, said this latest earthquake was caused by a normal fault associated with faults in and around the Japan trench subduction zone.

The seafloor moved and a small tsunami was generated, largely because this was a much smaller earthquake than 2011, about 40 times smaller, and it released about 250 times less energy.

Having said that, the type of tsunami it produced was pretty much the same, but with wave heights certainly not expected to exceed 3.0 metres and actually appearing to not exceed about 1.5 m in the end.

## Be prepared

This was the kind of tsunami that Japan is used to and is prepared for, but with the earthquake occurring close to the Fukushima nuclear power plant and with the world watching to see how they responded, this was to a certain extent a trial by media.

The lessons learned from 2011 saw higher seawalls, more effective public education and evacuation protocols, a beefed-up response from the nuclear industry and so on, but would it pass the test?

In a sense, this was the perfect tsunami to test everybody – the expected wave heights were on the cusp of being potentially catastrophic if a seawall failed or people did not heed the warnings.

The good news is that Japan came through this with flying colours. It wasn't long after the earthquake hit that the tsunami warnings were later downgraded.

Undoubtedly there will have been one or two glitches, but the tsunami was managed well by a country that has experienced more of these events that any of us would ever like to contemplate. Japan accounts for about 20% of the world's earthquakes of magnitude 6 or greater, and many of these generate tsunamis.

## Waiting for the next one

We were all right to be nervous, there has been a lot happening in and around the Pacific Ring of Fire lately. But it's comforting to know Japan can at least cope with these smaller incidents. As can probably most of the other countries sitting on the edge of the Ring of Fire. After all, Chile had a big one in 2010 and Samoa in 2009.

But a question mark must remain over countries such as Australia. Tsunamis are not really something we worry about too much, but they do affect us from time to time.

If we judge our response by what happened following the tsunami warning for the 2010 Chilean event, then quite frankly we fail dismally. Hundreds of people rushed down to areas like Bondi Beach to see any

waves.

It is not the fault of the warning system, but rather our ability (the public) to treat these warnings with respect.

We can undoubtedly expect more quakes around Japan and all parts of the Pacific Ring of Fire. The enduring question is always, where will it happen and how big will it be?

## Another quake hits New Zealand

As I write we have just had another reasonably large earthquake off the SE corner of the North Island of New Zealand.

Yes, this is probably associated with all of the activity that has happened around Kaikoura since last week's earthquake.

Is this building up to something? Possibly. On the other hand, it is winding down a bit for now? Possibly too.

What we can be sure of is that there will most definitely be more large devastating earthquakes and tsunamis. Many of these will be associated with the Pacific Ring of Fire, but not all of them.

How we manage, prepare and adapt for such events will show whether we have learned from the previous disasters experienced by other countries or whether we see them as some type of reality TV show that could never happen here.

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