



Tsunami on Waikato's west coast

STUDY CARRIED OUT TO UNDERSTAND TSUNAMI RISK

A study to identify the risk of tsunami affecting Port Waikato, Raglan Harbour and Aotea Harbour has found wave heights will be relatively small, but inundation (flooding) may affect low-lying areas.

Despite the low likelihood of a tsunami event in these areas, tsunami may produce strong surges and currents, particularly at the entrance to the harbours, making it dangerous to be on or in the water.

The study, funded by Waikato District Council, Waikato Regional Council and WEL Networks, has been carried out by Jose Borrero of Raglan-based international marine and freshwater experts, eCoast.

The study focused primarily on marine 'near source' tsunami generated by very large (Magnitude 9) earthquakes on known fault systems in and around the Tasman Sea and South West Pacific. This included tsunami generated by earthquakes in the Solomon Islands, along the New Hebrides trench directly north of New Zealand, along the Tonga-Kermadec trench to the east of the North Island and along the Puysegur Trench south and west of the South Island.

The study has also considered 'distant source' tsunami generated along the west coast of South America, focusing on the largest known historical events of 1868 and 1960 – each with earthquake magnitudes greater than 9 – in northern and southern Chile respectively.

THE STUDY'S FINDINGS

The tsunami study has found that for Waikato's west coast:

- tsunami wave heights from all sources modelled are relatively small
- flooding of low lying areas may occur if the tsunami occurs during a high tide
- tsunami arrival times for 'regional' sources are between three and six hours, but with the peak tsunami activity occurring several hours after the first arrival
- tsunami arrival times for 'distant' sources are between 15 and 17 hours.

Despite the relatively small tsunami heights, all of the scenarios produced potentially dangerous currents particularly at the entrance to each harbour. In each case, these dangerous currents continued for many hours.

waikatoregion.govt.nz/tsunami
0800 800 401

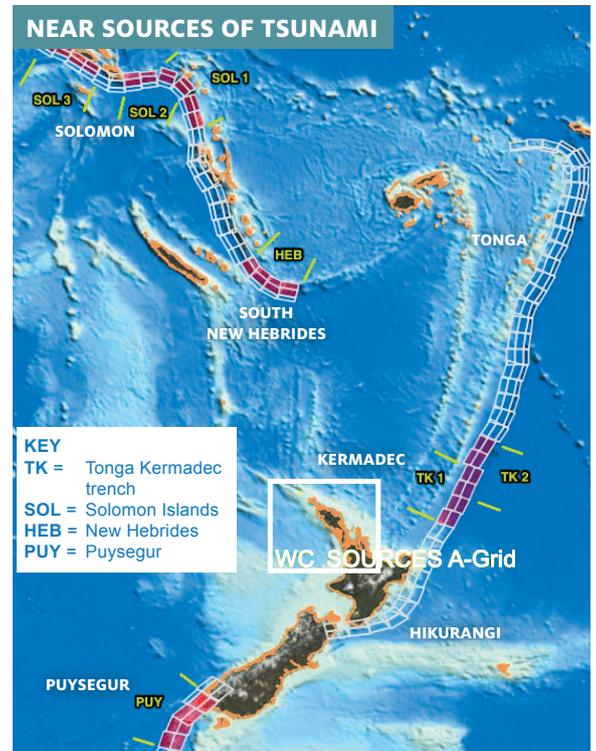
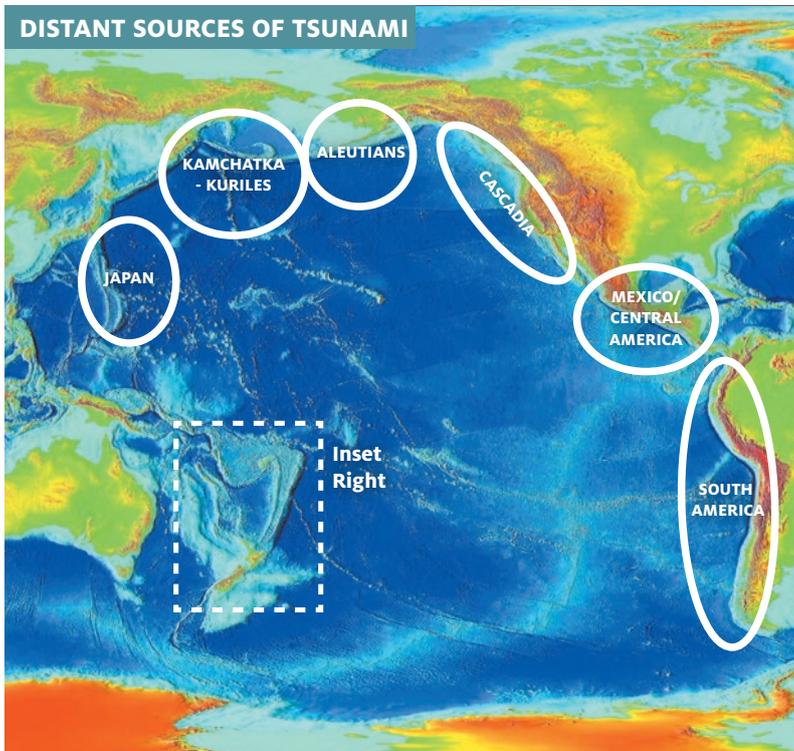


About tsunami

WHAT IS A 'NEAR SOURCE' TSUNAMI?

Near source tsunami have travel times generally less than three hours (although the Solomon Islands area is regarded as a near source).

- **Local:** Travel time between the source – such as an earthquake on a fault line just offshore – and impact is one hour or less.
- **Regional:** Travel time between the source – such as an earthquake in the Tonga-Kermadec Trench – and impact is between one and three hours.



Near source tsunami can be set off by:

- earthquakes occurring close to the coastline
- deep sea landslides just off the New Zealand continental shelf
- volcanic eruptions.

What is a 'distant source' tsunami?

These are tsunami with more than three hours of travel time from the source – such as South America – to the nearest New Zealand coastline.

What you should do if there's a tsunami

The Ministry of Civil Defence and Emergency Management (MCDEM) and local authorities – such as local and regional council – will provide advice if there's a tsunami. This advice will include information on the nature of the tsunami, such as whether it is a marine or terrestrial threat.

A marine threat means the tsunami waves are more likely to be confined to the sea (including river mouths, harbours and estuaries). The waves are therefore not large enough to impact land.

A terrestrial threat means the tsunami waves are larger and more likely to inundate or flood land. They are therefore potentially more destructive and life-threatening.

How do you know there could be a tsunami?

Primary natural warnings for a local or regional source tsunami may come from:

- a strong earthquake (i.e. it is hard to stand up)
- a weak, rolling earthquake of unusually long duration (i.e. a minute or more)
- out of the ordinary sea behaviour, such as unusual and sudden sea level fall or rise
- the sea making loud and unusual noises, especially roaring like a jet engine.

When experiencing any of the above in low-lying coastal areas, go immediately to higher ground.

MORE INFORMATION

Waikato District Council
waidc.govt.nz
0800 492 452

Waikato Regional Council
waikatoregion.govt.nz/tsunami
0800 800 401

Waikato Civil Defence Emergency Management Group
waikatocivildefence.govt.nz/tsunami