

# Earthquake Risk Transfer for New Zealand

## Overview

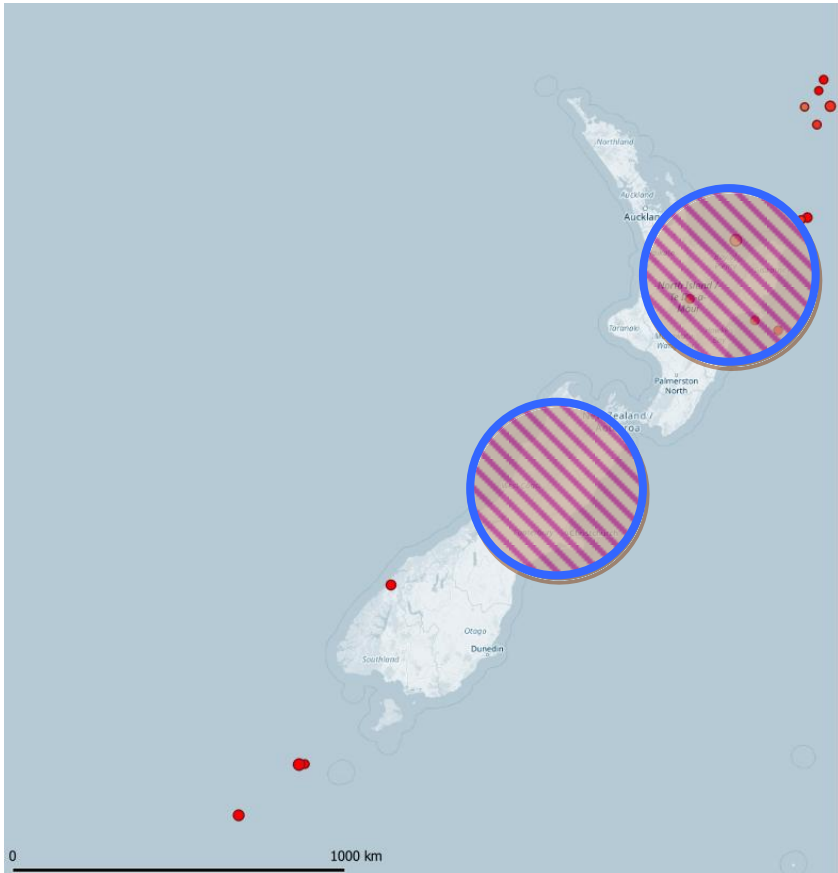


Figure 54. New Zealand undercover regions.

The goal of the covering Wellington by Earling preparedness alert network is to see Wellington positioned to become a more resilient region through a comprehensive study of the likelihood of large Wellington earthquakes, the effects of these earthquakes, and their impacts on humans by issuing



preparedness alert as soon as risk of a major event increased in the region.

Earthquakes occur frequently in New Zealand as the country is situated in the collision zone between the Indo-Australian and Pacific tectonic plates, part of the Pacific Basin Ring of Fire, where many earthquakes and volcanoes occur.

The largest city within the highest-risk zone is the nation's capital, Wellington, followed by Hastings then Napier. All these cities have experienced severe earthquakes since European settlement. About 14,000 earthquakes occur in and around the country each year, of which between 150 and 200 are big enough to be felt. But Earling was able to issue preparedness alert for some of the latest earthquakes  $\geq$  M4.0 Richter for the region. Despite the numerous numbers of earthquakes in the region, Earling algorithms that analyze billions of environmental regional data can distinguish earthquake patterns that can be followed by major events from everyday shakes. As a result, Earling issued several preparedness alert days before which some of them.



## EPA Effect on New Zealand Insured Maximum Loss

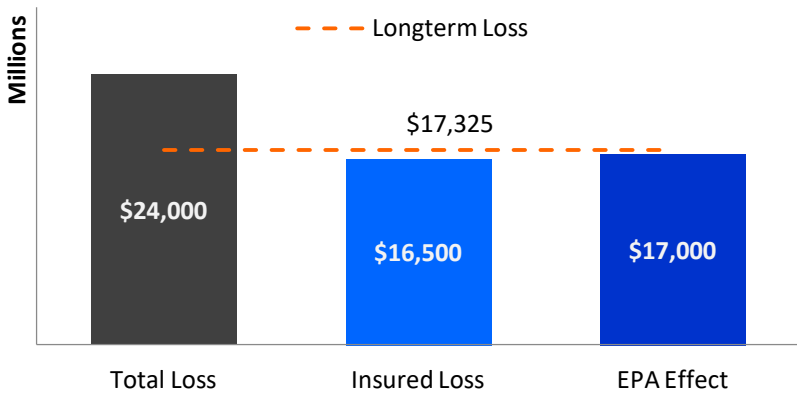


Figure 55. Mid-term EPA effect in New Zealand Feb 22, 2011 earthquake.

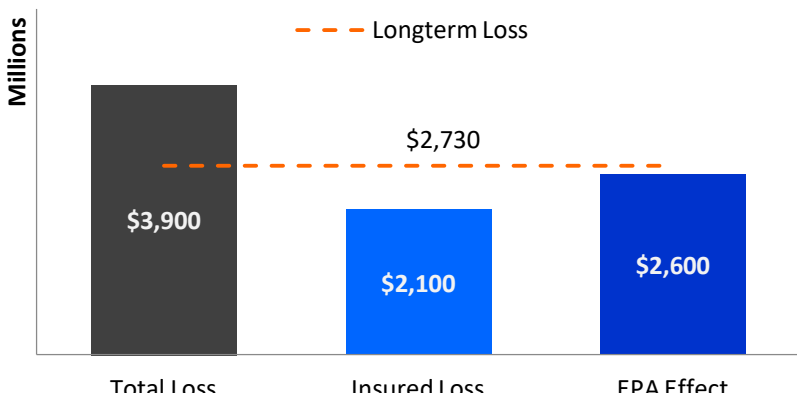


Figure 56. EPA effect on New Zealand Nov 14, 2016, insured losses (SwissRe, 2017).



## EPA Effect on New Zealand Earthquake Insurance Penetration Rate

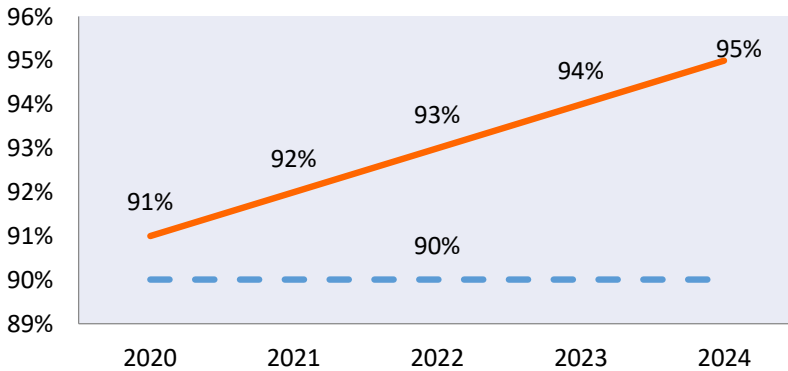


Figure 57. EPA effect on the New Zealand earthquake insurance penetration rate.

## EPA Effect on Probable Maximum Loss

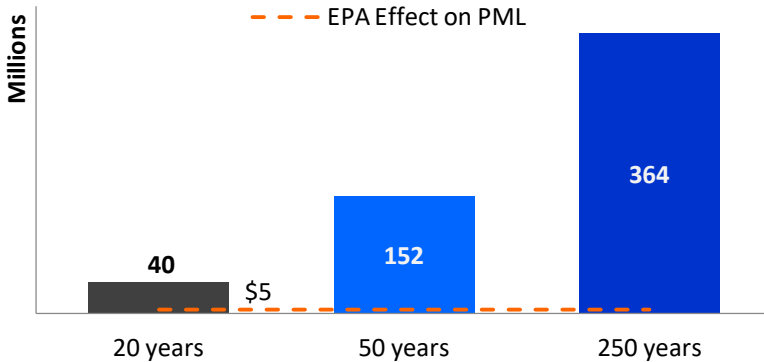


Figure 58. Probable Maximum Loss - Mean return period in years. New Zealand earthquake Average Annual Loss is \$22.81 million (New Zealand Disaster & Risk Profile, 2014).



## New Zealand Documented EPAs

EPA Issued Date	Earthquake	Mag	Status	Average Annual Loss
				AAL(Million)
01:40 Oct 30, 2018 <sup>28</sup>	02:13 Oct 30, 2018 <sup>29</sup>	6.4	Hit	\$22.8

Table 7. Documented EPAs issued for New Zealand.

## New Zealand recent major earthquakes

Place	Date	Mag
Culverden	14-Nov-16	7.8
NE of East Cape	02-Sep-16	7.1
Christchurch	14-Feb-16	5.7
E of Macauley Island	02-Feb-16	6.6
W of Wanaka	04-May-15	6.2
SE of St Arnaud	24-Apr-15	6.2
W of Arthur's Pass	06-Jan-15	6
NE of Gisborne	17-Nov-14	6.5
NE of Whakatane	14-Oct-14	6.5
Fiordland	13-Oct-14	6.2
Eketahuna	20-Jan-14	6.2

<sup>28</sup> [http://acircularworld.com/d/new-zealand/earthquake\\_prediction\\_2018-10-30-014000](http://acircularworld.com/d/new-zealand/earthquake_prediction_2018-10-30-014000)

<sup>29</sup> <https://www.emsc-csem.org/Earthquake/earthquake.php?id=721440>

