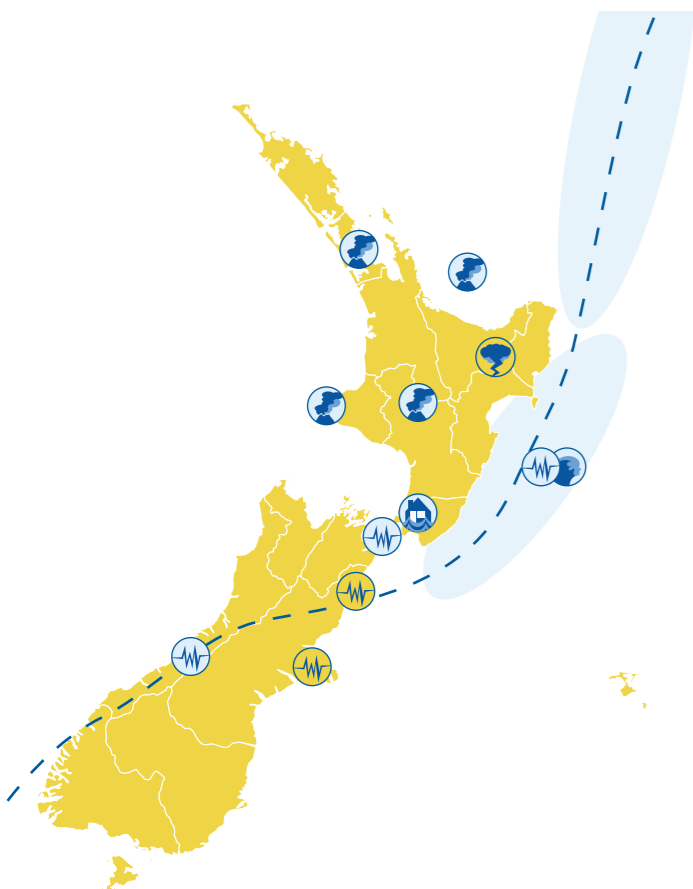


New Zealand's riskscape



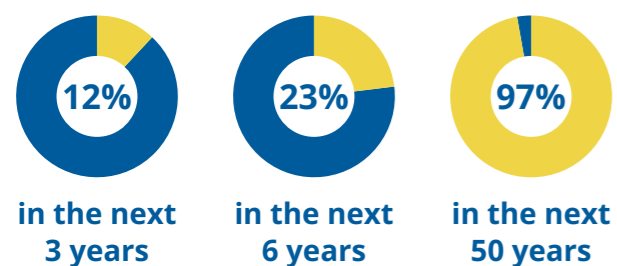
Modelled scenarios	Likelihood in next 50 years	Modelled building/ infrastructure losses	Likely consequences
Ruapehu / Tongariro / Ngauruhoe / Whakaari ash producing eruption	Almost certain	~\$1bn	Disruption mostly from ashfall to aviation, electricity transmission, and tourism and primary industry sectors.
Alpine fault – M8 earthquake	75%	~\$10bn	High-probability event, extensive co-seismic landslides will compound impacts. Est. Injuries requiring medical facility care: 9,693 Est. deaths: 326
Taranaki eruption	Small eruption	30%	~\$1bn
	Large eruption	1%	\$10bn-\$15bn
Space weather event - extreme	30%	~\$6.2bn (electricity only)	Similar size to 1995-96 Ruapehu eruptions. Impacts dominated by ashfall and lahars; evacuations likely.
Hikurangi subduction zone earthquake and tsunami	M8+	25%	~\$10bn-\$20bn
	M9.1	1%	\$144bn (buildings only)
South American M9+ earthquake & NZ tsunami	25%	~\$5bn (buildings only)	Global event. Disruption or failure of the national electricity grid with cascading disruptions across interdependent infrastructure (banking, water, health, transport). 15,000 medically dependent consumers vulnerable.
Auckland volcanic eruption	10%	\$5bn-\$65bn (buildings only)	Strong and long ground shaking for east coast of North Island, and large tsunami produced. Est. Injuries requiring medical facility care: 25,960 Est. deaths: 22,180 (tsunami).
Hutt River flood (over stopbank design event)	5%	\$5bn-\$10bn	Potential full evacuation of Auckland City, with only days to week's warning. Est. Injuries requiring medical facility care: 40,817 (0% evacuation) Est. deaths: 40,820 (0% evacuation)
Wellington Fault M7.5 earthquake	5%	~\$16bn (buildings only)	Large exposure for eastern coast of New Zealand, especially Christchurch City/Canterbury

Actual events	Likelihood	Modelled building/ infrastructure losses	Likely consequences
Space weather event (May 2024) equivalent event	Almost certain		Moderate sized event causing disruptions to flight operations and damage to satellites.
Cyclone Gabrielle equivalent event	80%	\$9bn-\$14bn (est. actual)	Hutt City – greatest exposure for any flood plain in New Zealand.
Kaikōura earthquake (2016)	1.7%	\$3.5bn (actual)	Likely serious and prolonged damage and disruption to Wellington, including government.
Canterbury Earthquake Sequence (2010-11)	<1%	\$54bn (actual)	Moderate-sized event, causing severe multi-hazard impacts across multiple regions.

What might the next 50 years look like for the emergency management system?

This page shows a summary of well-understood natural hazard risk scenarios, which helps to give some sense what we face as a nation. While this is not in any way an exhaustive list and is subject to many uncertainties, it provides some insights as to the relative likelihoods and consequences.

When we consider all of the modelled scenarios with >\$10bn expected damage costs, the estimated probability of any one of these events occurring is:



Note – this is not an exhaustive list of possible scenarios. Modified from LGNZ 2014; updated and new data from Earth Sciences NZ, Natural Hazards Commission, and Massey and Canterbury Universities

The shaking in Christchurch on 22 February 2011 lasted for around 10 seconds. An Alpine Fault earthquake could cause shaking for two to four minutes, and a Hikurangi subduction zone earthquake could cause shaking for four to eight minutes.



Challenges

It is very likely we will experience two or more concurrent major events. This will lead to long and overlapping recoveries.

The relative vulnerability of people, property and infrastructure is growing. Climate change may also lead to a greater frequency of events in short succession and compounding socio-economic pressures.

It's critical we have a deep understanding of our risks in all their complexity.

Understanding how to reduce our risks is essential. We need to engage with and influence the right people and organisations. Communication and education with communities is at the heart of this.

We need to understand and work within the complexities of communities. We need to understand how they change over time and with different experiences and how this might impact their awareness of hazard risks.

The human cost of emergencies

In addition to economic costs, large scale emergency events have significant wider impacts on people, such as death, injury, psychosocial and other social impacts. For example, a Hikurangi M9.1 event would potentially result in tens of thousands of fatalities, injuries, and massive displacement of communities.

Get Ready

Emergencies can happen anytime, anywhere. You can take steps to be prepared. Find out how to get prepared at getready.govt.nz

Alpine Fault

New Zealand remains exposed to costly earthquake events: researchers estimate a 75% probability of an Alpine Fault earthquake in the next 50 years, with a 4 out of 5 chance that it will be a magnitude 8+ event with potential to cause significant damage.

An Alpine Fault magnitude 8 rupture will release 350 times more energy than the 2011 Christchurch earthquake.

350 times the energy released

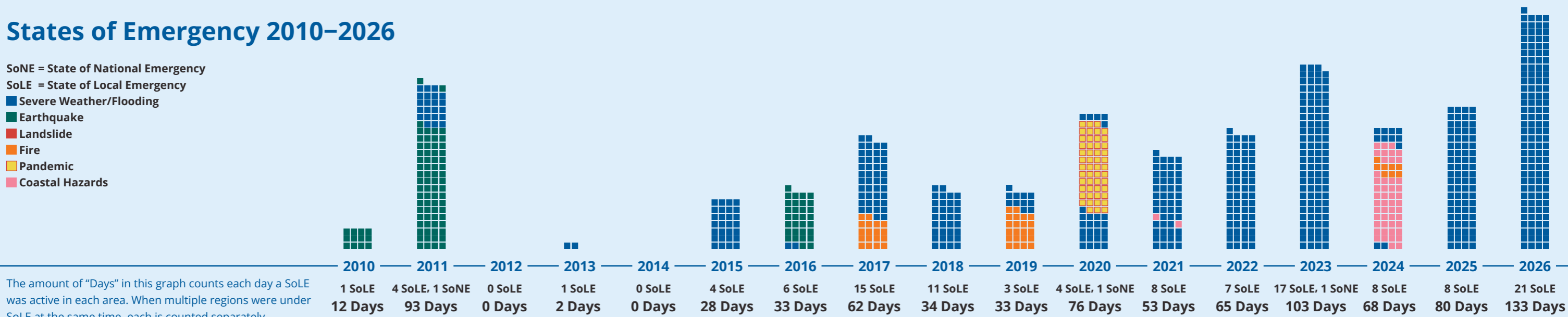
Alpine Fault earthquake 8.0 magnitude

Christchurch 2011 6.3 magnitude

We've had a busy few years

States of Emergency 2010–2026

SoNE = State of National Emergency
SoLE = State of Local Emergency
■ Severe Weather/Flooding
■ Earthquake
■ Landslide
■ Fire
■ Pandemic
■ Coastal Hazards



The amount of "Days" in this graph counts each day a SoLE was active in each area. When multiple regions were under SoLE at the same time, each is counted separately.

Extreme weather events (floods, droughts, storms, etc) will be:

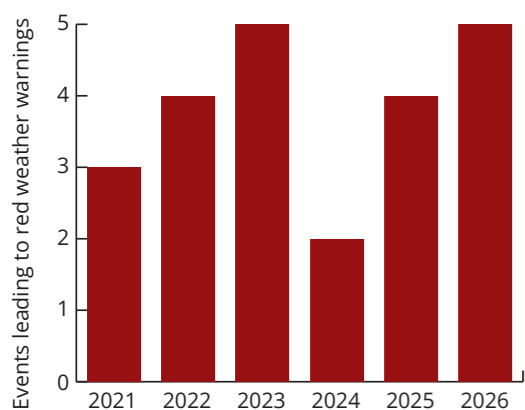
- more frequent
- more intense
- in locations not previously considered at risk.

Evidence suggests the projections appear to be (uncomfortably) accurate

- 2022 weather-related insurance costs were at an unprecedented \$335m
- breaking the previous record of \$305m in 2021
- 2023 cost about \$3.5bn, whereas 2024 was significantly less as there were no significant events.
- During 2025 the Government released the National Adaptation Framework which sets out the approach to the growing risks from climate change in a way that minimises the overall long-term cost to society

(Insurance Council of NZ)

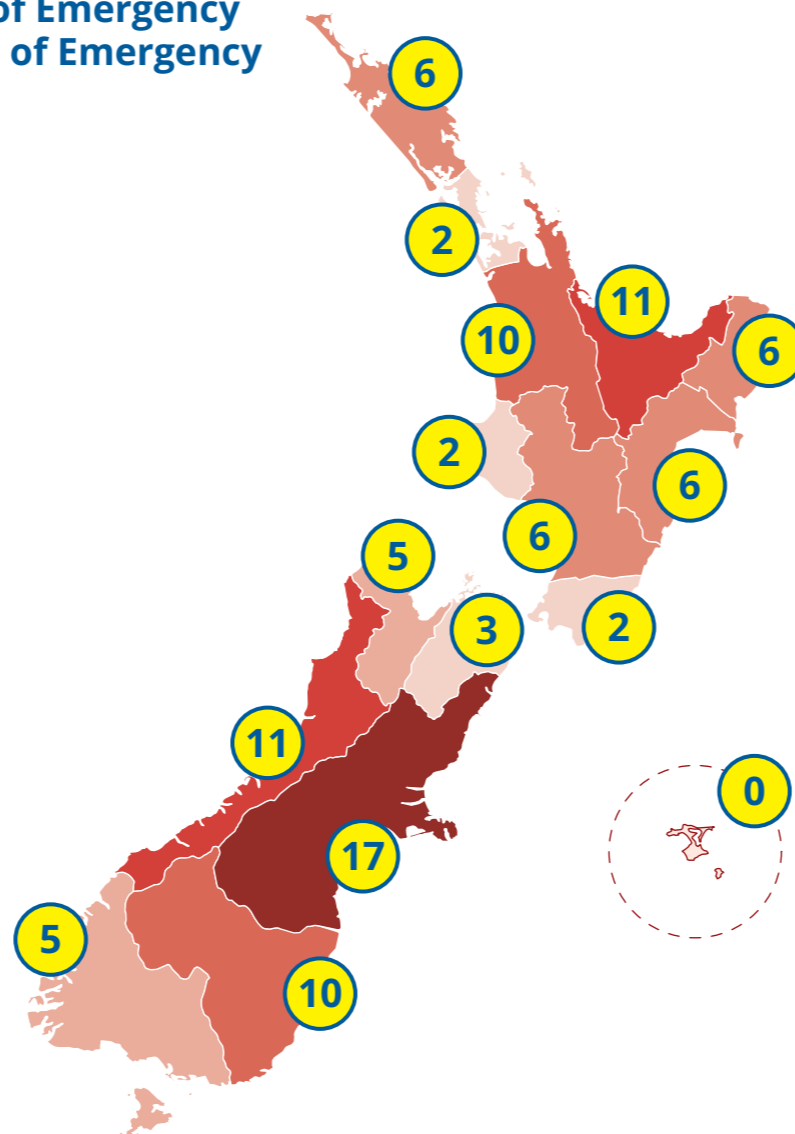
Red weather events annually since 2021



Multiple warnings for a single event (e.g. Cyclone Gabrielle) counted as one 'event'.

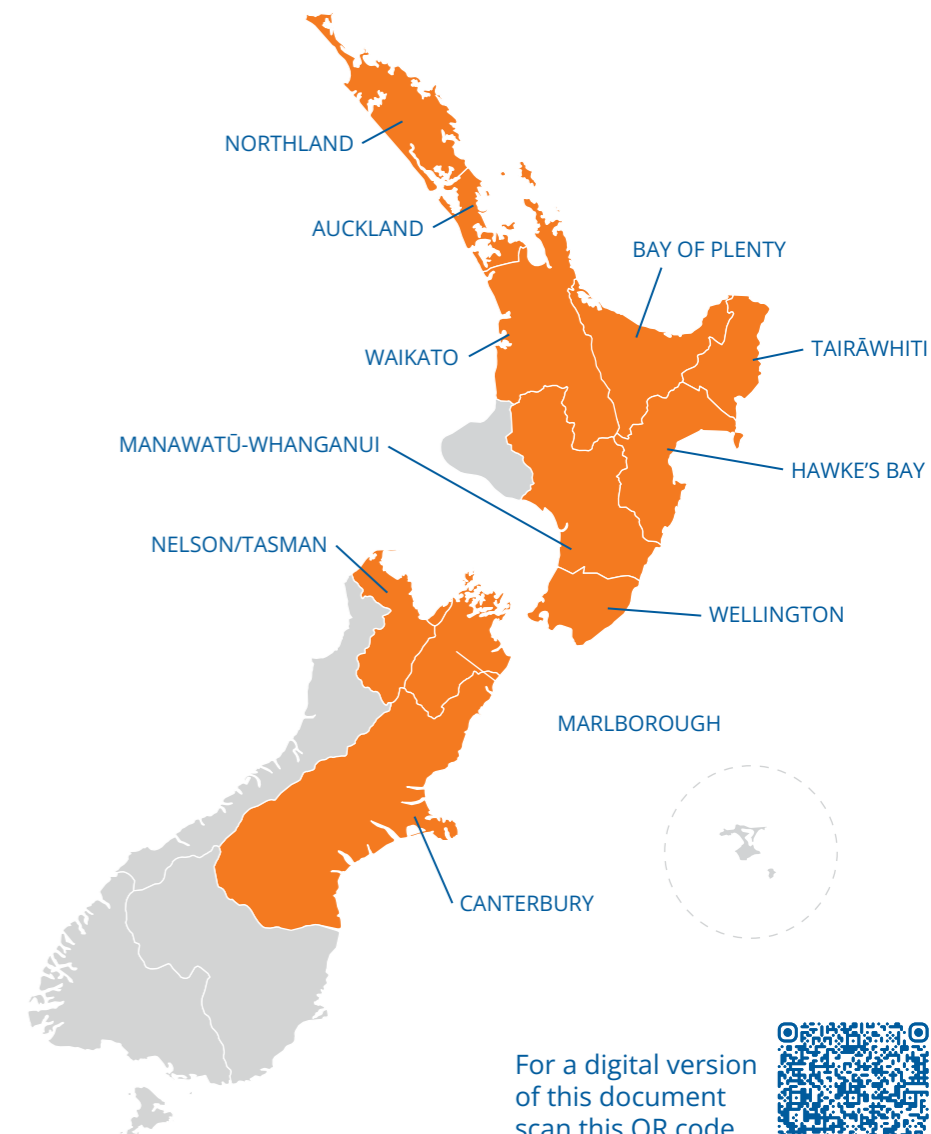
Spread of declared emergencies across New Zealand from 2017–2026

States of Emergency:
102 Local States of Emergency
2 National States of Emergency



Areas of New Zealand currently in recovery (May 2026)

■ Currently in active recovery



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