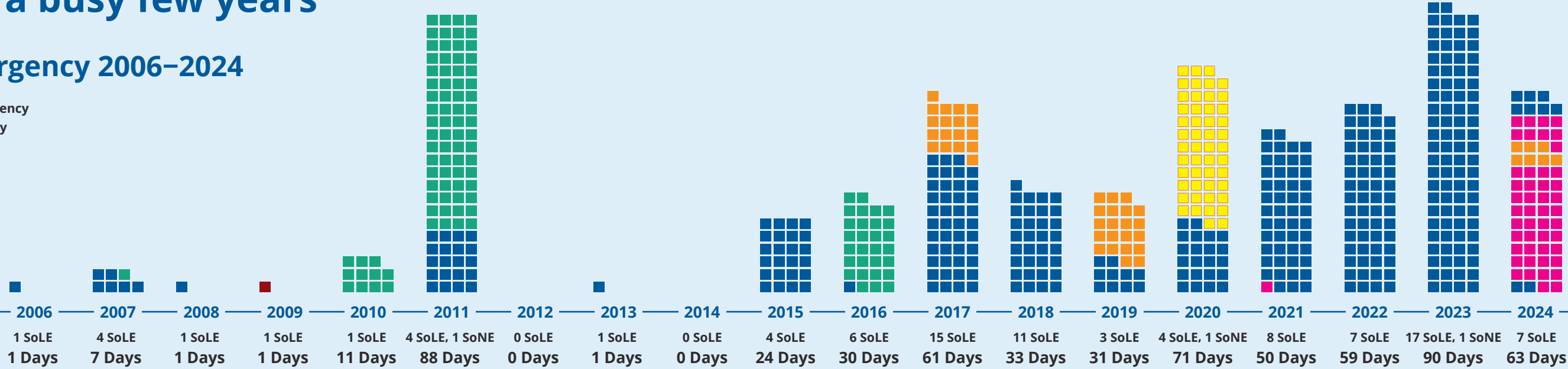


We've had a busy few years

States of Emergency 2006–2024

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



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

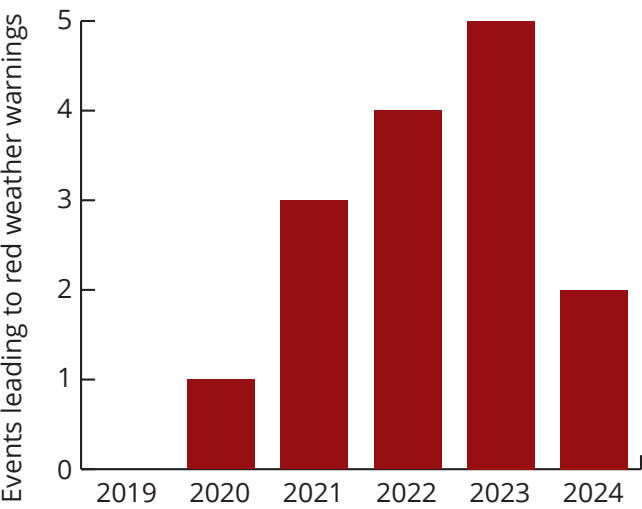
- more frequent
- more intense
- in locations not previously considered at risk.

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
- which broke the previous record of \$274m in 2020
- 2023 will be >\$3.5bn.

(Insurance Council of NZ)

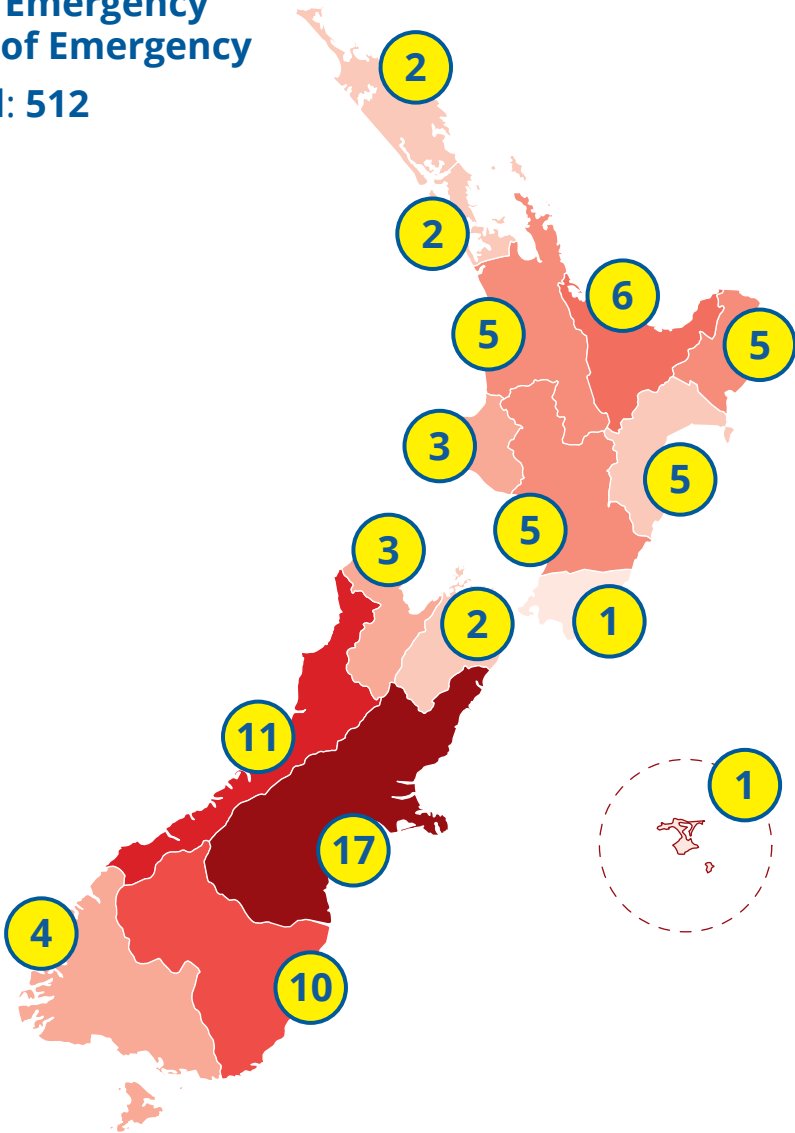
Red weather events annually since 2019



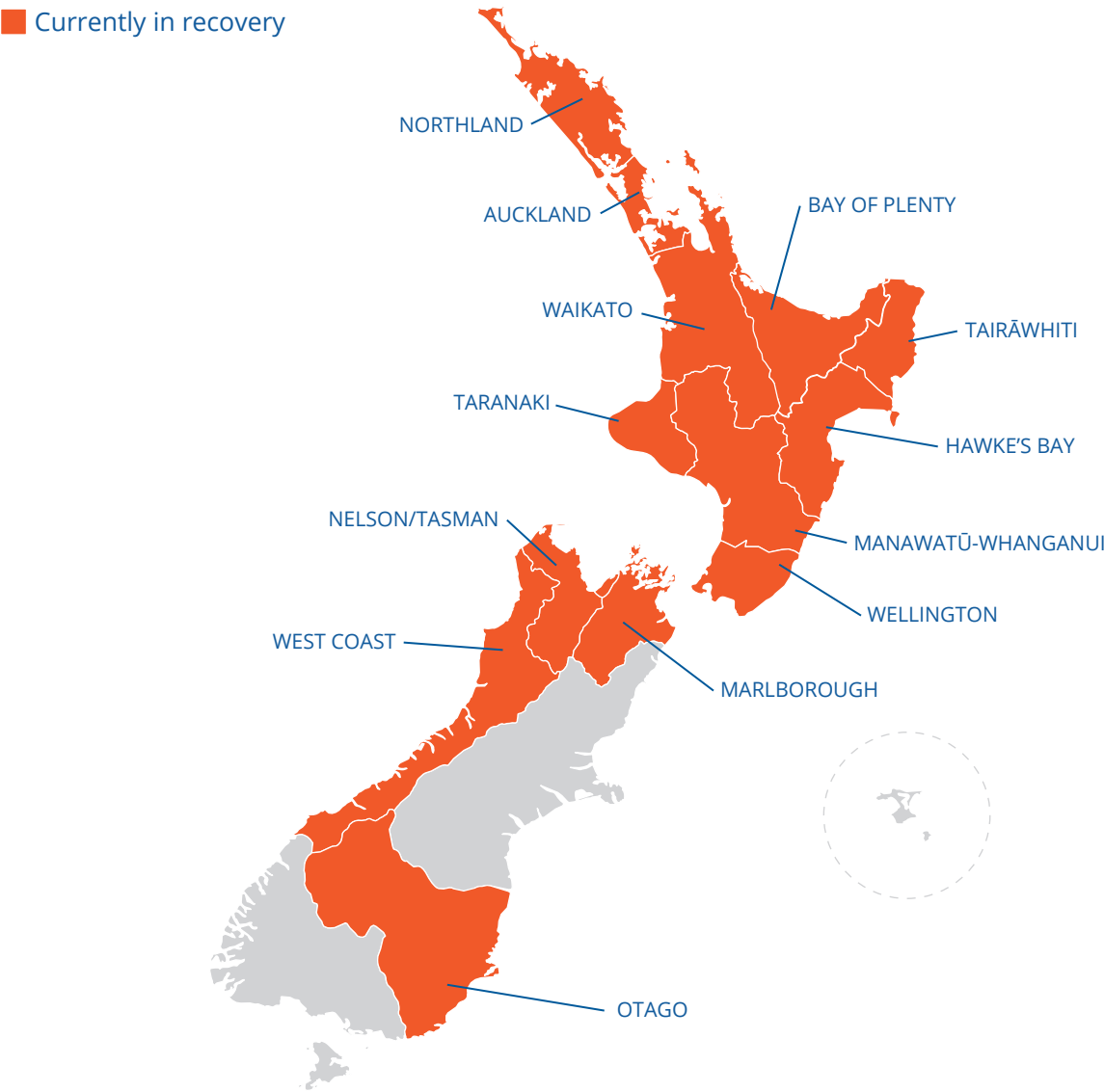
Multiple warnings for a single event (e.g. Cyclone Gabrielle) counted as one 'event'.

Spread of declared emergencies across New Zealand from 2014–2024

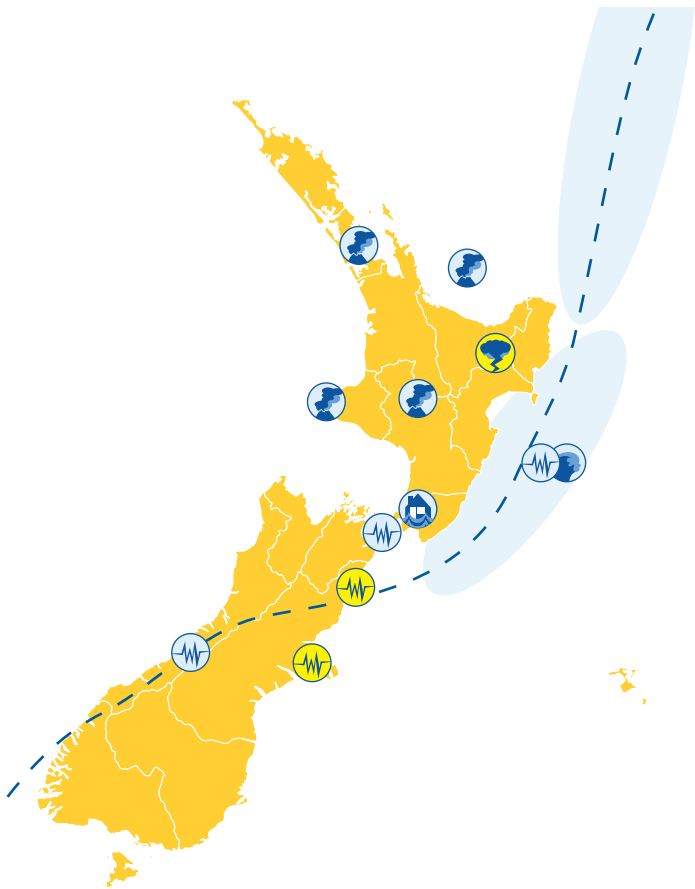
States of Emergency:
81 Local States of Emergency
2 National States of Emergency
Total days declared: **512**



Areas of New Zealand currently in recovery (March 2025)



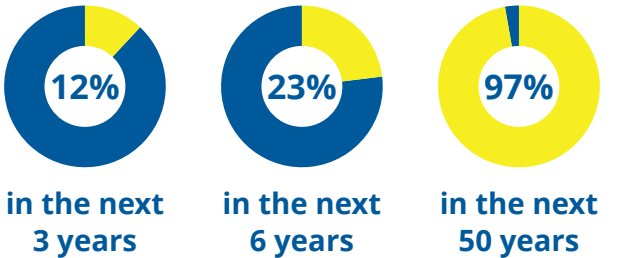
New Zealand’s riskscape
















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 GNS Science, NIWA, EQC, and Massey and Canterbury Universities

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
	Small eruption	30%	~\$1bn	Similar size to 1995-96 Ruapehu eruptions. Impacts dominated by ashfall and lahars; evacuations likely.
	Large eruption	1%	\$10bn-\$15bn	Similar size to 1886 Tarawera eruption. Likely severe impacts to oil/gas production and farming sector; mass evacuation probable.
	Space weather event - extreme	30%	~\$6.2bn (electricity 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.
	M8+	25%	~\$10bn-\$20bn	Strong and long ground shaking for east coast of North Island, and large tsunami produced.
	M9.1	1%	\$144bn (buildings only)	Est. Injuries requiring medical facility care: 25,960 Est. deaths: 22,180 (tsunami).
	South American M9+ earthquake & NZ tsunami	25%	~\$5bn (buildings only)	Large exposure for eastern coast of New Zealand, especially Christchurch City/Canterbury
	Auckland volcanic eruption	10%	\$5bn-\$65bn (buildings only)	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)
	Hutt River flood (over stopbank design event)	5%	\$5bn-\$10bn	Hutt City – greatest exposure for any flood plain in New Zealand.
	Wellington Fault M7.5 earthquake	5%	~\$16bn (buildings only)	Likely serious and prolonged damage and disruption to Wellington, including government.
Actual events				
	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)	Moderate-sized event, causing severe multi-hazard impacts across multiple regions.
	Kaikōura earthquake (2016)	1.7%	\$3.5bn (actual)	Moderate impacts to Wellington despite distance, severe critical infrastructure impacts.
	Canterbury Earthquake Sequence (2010-11)	<1%	\$54bn (actual)	Largest disaster in a generation. Major and long-lasting impacts to Christchurch city, complex recovery.

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.



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.

Alpine Fault earthquake
8.0 magnitude

Christchurch 2011
6.3 magnitude

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.