The National Seismic Hazard Model (NSHM) combines the best available scientific knowledge to estimate future earthquake shaking in Aotearoa New Zealand.

The NSHM considers possible earthquakes that could affect a location and then estimates the severity of the related shaking that might occur.

Knowing the likely impact of future earthquakes on New Zealand's land, structures, and people is essential to help us be as safe and prepared as we can be.

### Manawatū-Whanganui regional information

The NSHM calculates multiple levels of potential shaking forecast to occur across the region.

In Manawatū-Whanganui, earthquake shaking is forecast to be more severe in east and south.

#### Notable earthquakes

- **Magnitude 7.6 - 1843**
- **Magnitude 7.3 - 1934**
- **Magnitude 7.1 - 1904**

Source: Rollins et al (2022)

Don’t just think about your local or known faults. Damaging shaking can occur from earthquakes outside of the region.

#### Significant past earthquakes which have affected the Manawatū-Whanganui region

Earthquakes shown: Mw >= 5.8 and since 1840 in upper 250 km

Source: Rollins et al. (2022)

For detailed results, go to: www.gns.cri.nz/nshm

For more information visit Manawatū-Whanganui CDEM Group's Facebook page: facebook.com/civildefencemanawatuwhanganui

National Emergency Management Agency: civildefence.govt.nz

Toka Tū Ake EQC: eqc.govt.nz

Be prepared

Need to know

The Manawatū-Whanganui region lies upon several faults, such as the Rauoterangi that passes below Feilding, the Komako and Ruahine Faults to the east, and some faults in the central volcanic region.

The shaking is forecast to be greater in the eastern half of the region, and towards the south.

Anywhere in New Zealand can experience earthquakes and regions can be affected by earthquakes from far away.
Earthquakes generate waves in the earth which cause the ground beneath our feet to shake. These waves can be short and fast (like shaking a rattle) or long and slow (like fly fishing), depending on many factors.

Earthquakes mostly occur on faults. A fault is a rupture in the Earth’s crust that enables the land to move independently on either side. When pressure builds up in a fault, it can cause an earthquake and ground shaking.

Faults can be as short as a few metres or up to 1000 kms long and they can cause a variety of different land movements. Many faults can rupture together affecting multiple regions.

Peak ground acceleration (PGA) is a measure of earthquake shaking. It measures the maximum acceleration of the ground that occurred during shaking at a particular location.

Acceleration describes how the ground moves from slower to faster shaking speeds, much like accelerating in your car.

There are around 1000 faults that we know of in Aotearoa New Zealand, and these are found both on and offshore.

If an earthquake causes strong ground shaking our built infrastructure (like buildings and dams) and lifelines (like our power and water networks) can be affected.

Ground shaking will vary due to:
- the ground conditions
- the land deep beneath our feet
- earthquake location and magnitude
- the direction the earthquake fault ruptures

These all affect the way the seismic waves travel through the ground and how the ground will shake. So, for the same earthquake affecting one region, an area of reclaimed land will shake very differently to an area of more solid rock.

It is common to see a range of hazard results, even within one region.

There are around 1000 faults that we know of in Aotearoa New Zealand, and these are found both on and offshore.

That’s 1000 faults we know about – there will be others that we haven’t discovered yet. The potential for unknown faults is accounted for in the model.

If you would like more support or advice, have feelings of heightened or prolonged anxiety, stress, fear, hopelessness, or anger, or if you just need to talk with someone, please text or free phone 1737 to speak to a trained counsellor in the National Telehealth Service.