



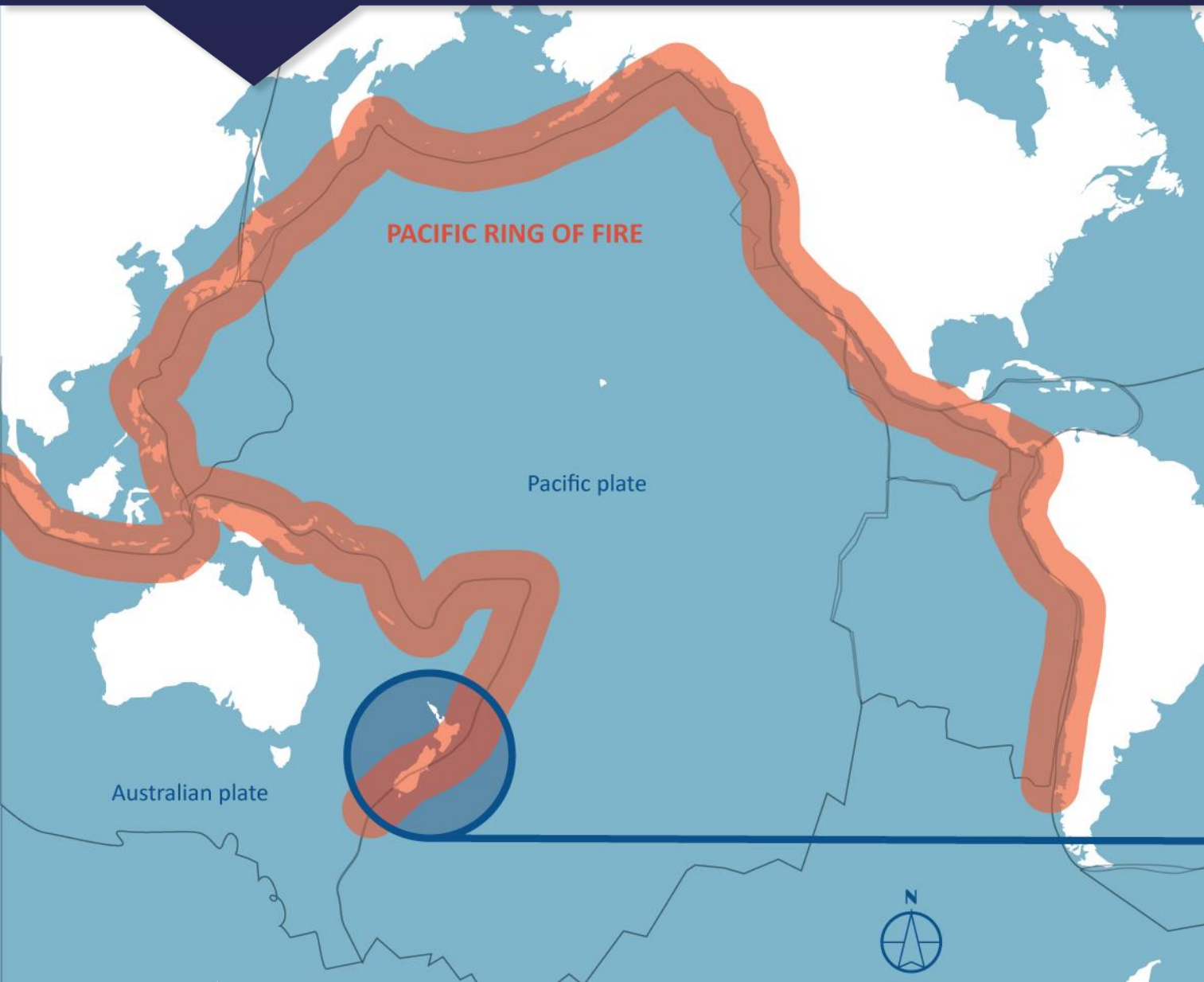
Alpine Fault hazard planning: Scenario development and how it's been used

Alice Lake-Hammond, AF8 Programme Manager

Caroline Orchiston, Research Professor University of Otago



NZ Tectonic setting



What is AF8?



The AF8 Programme is designed to build resilience to the next large Alpine Fault earthquake.

- ▶ Scientific research and modelling
- ▶ Coordinated planning
- ▶ Community engagement

Regionally-led and focused on impacts a rupture would have on people living in the South Island.

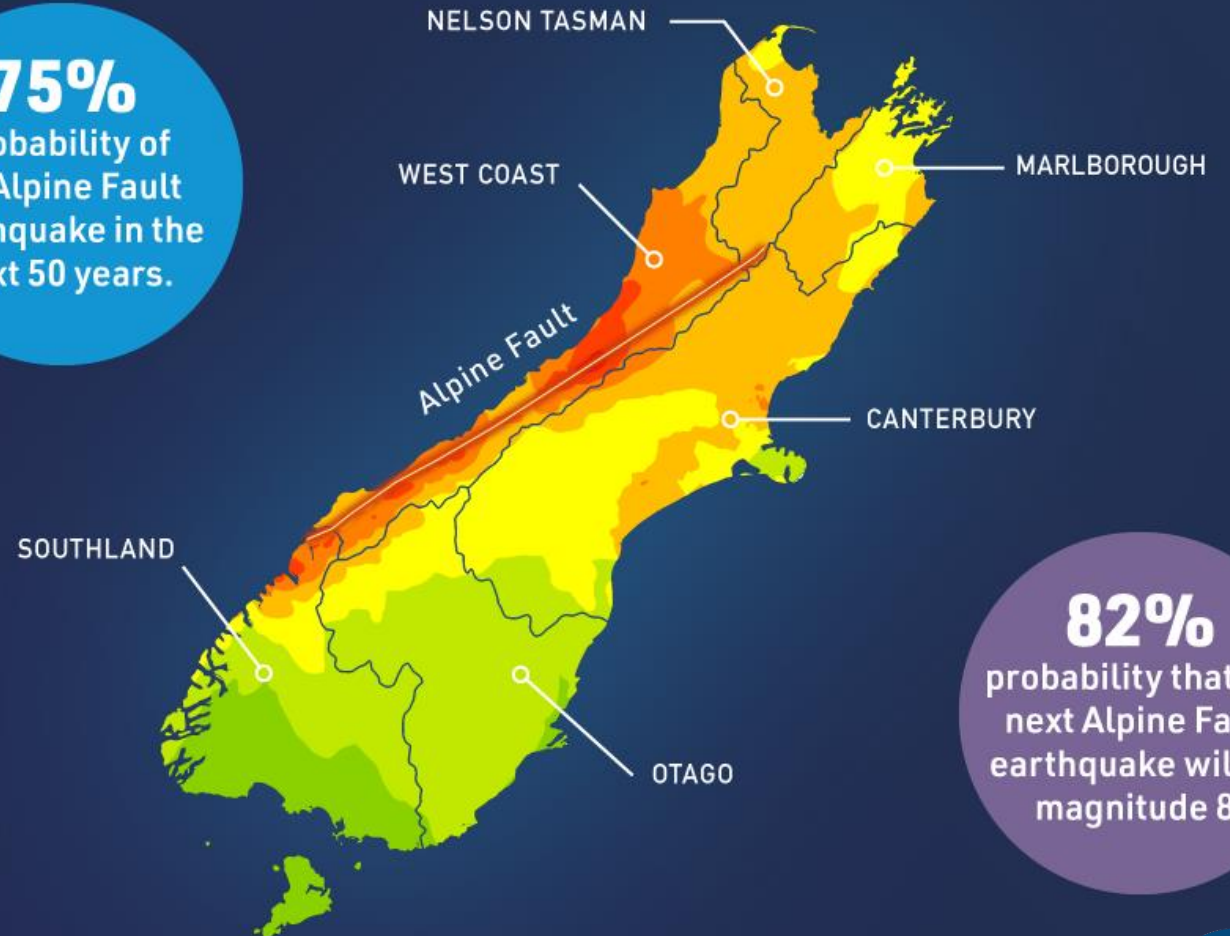


Why AF8?



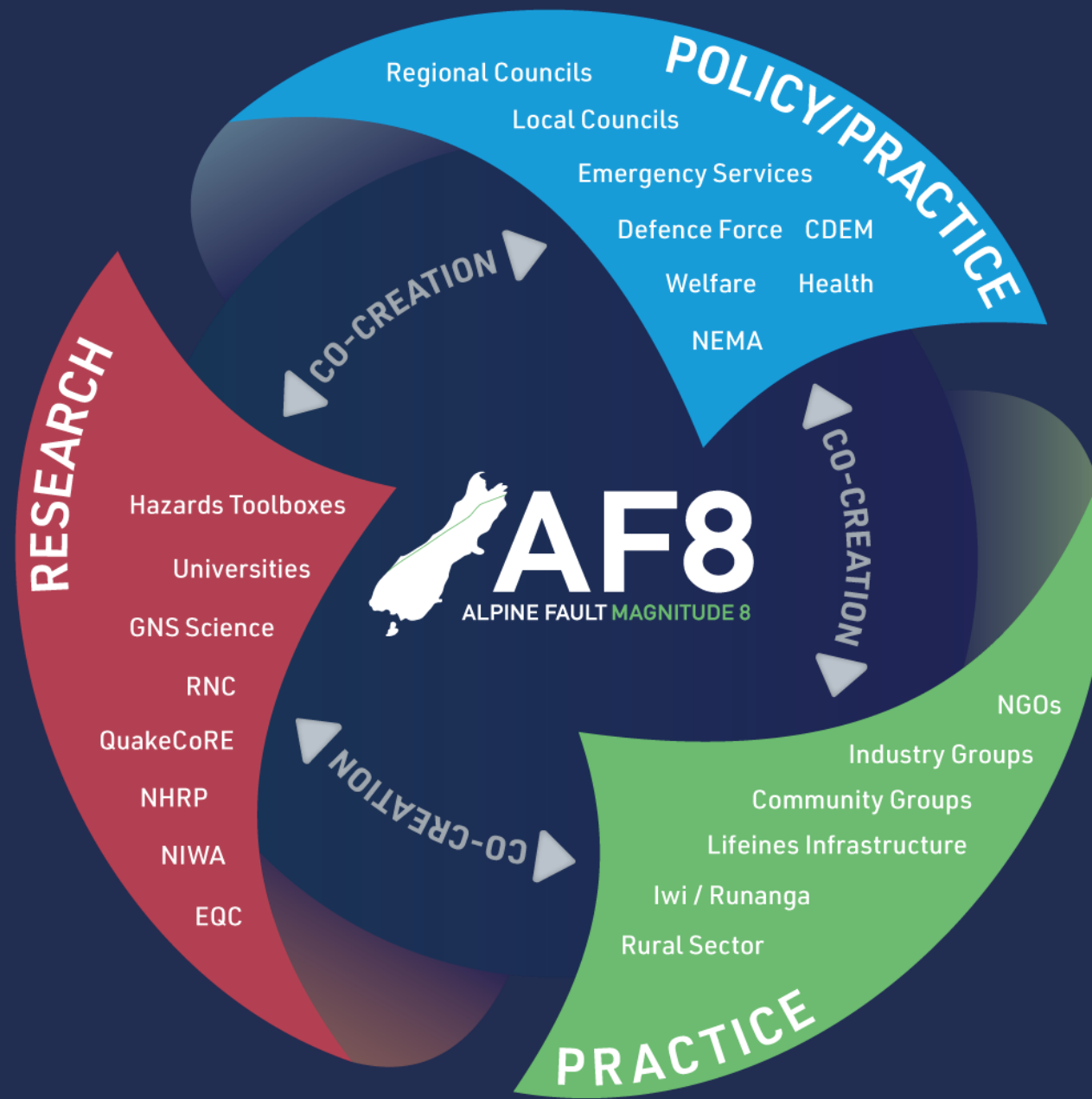
- The Alpine Fault has a long history of large earthquakes
- Remarkably regular and no reason they won't continue
- An average recurrence interval of ~300 years
- The last significant earthquake was 1717 AD

75%
probability of
an Alpine Fault
earthquake in the
next 50 years.



82%
probability that the
next Alpine Fault
earthquake will be
magnitude 8.





Scenario development



RISK TEAM

- ▶ 30+ Researchers
- ▶ 6 Universities
- ▶ 2 Consulting firms



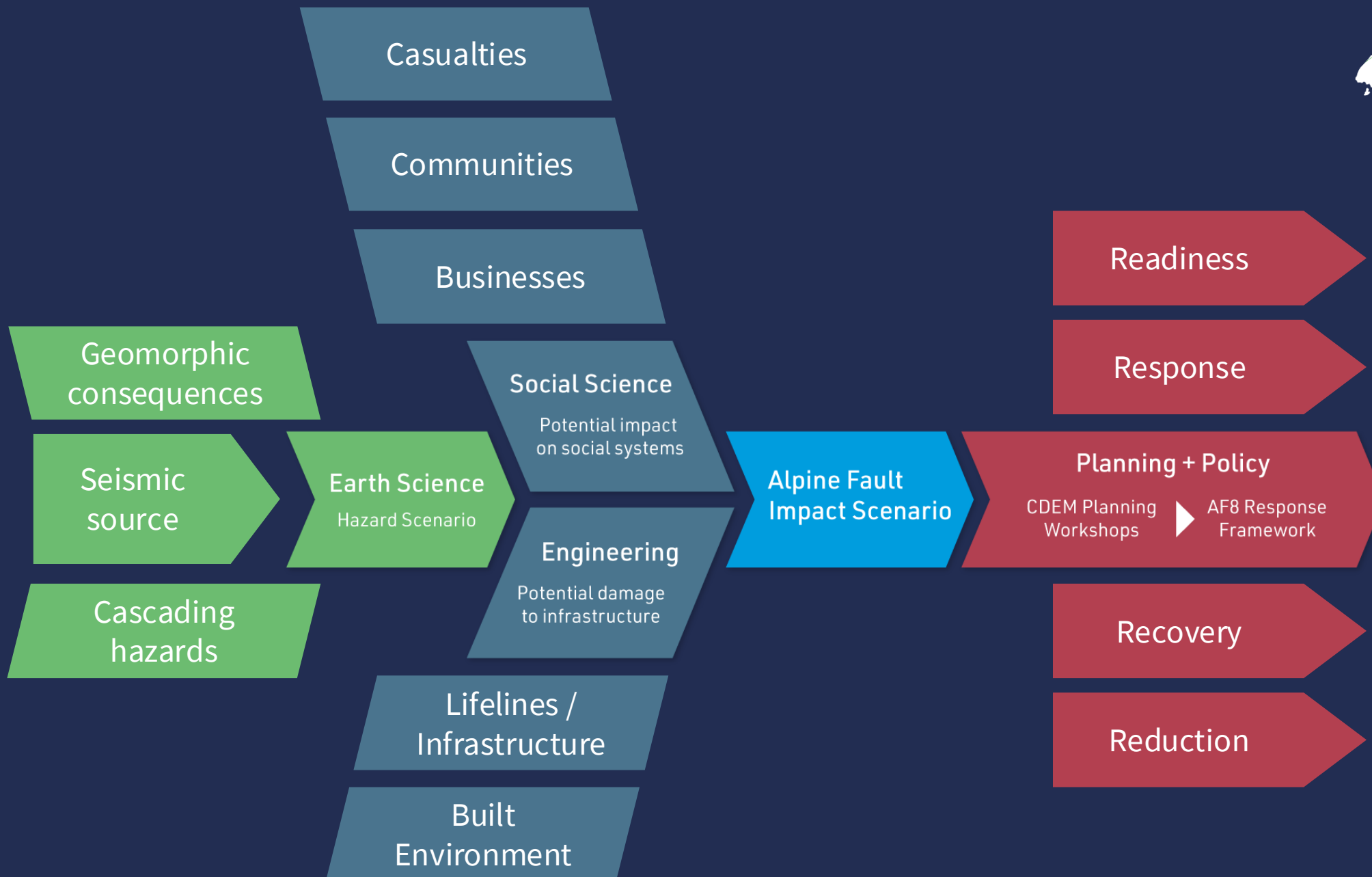
RESPONSE TEAM

- ▶ 6 CDEM groups
- ▶ AF8 Project Manager
- ▶ Ministry of Civil Defence
Emergency Management



AF8 Scenario Process Model

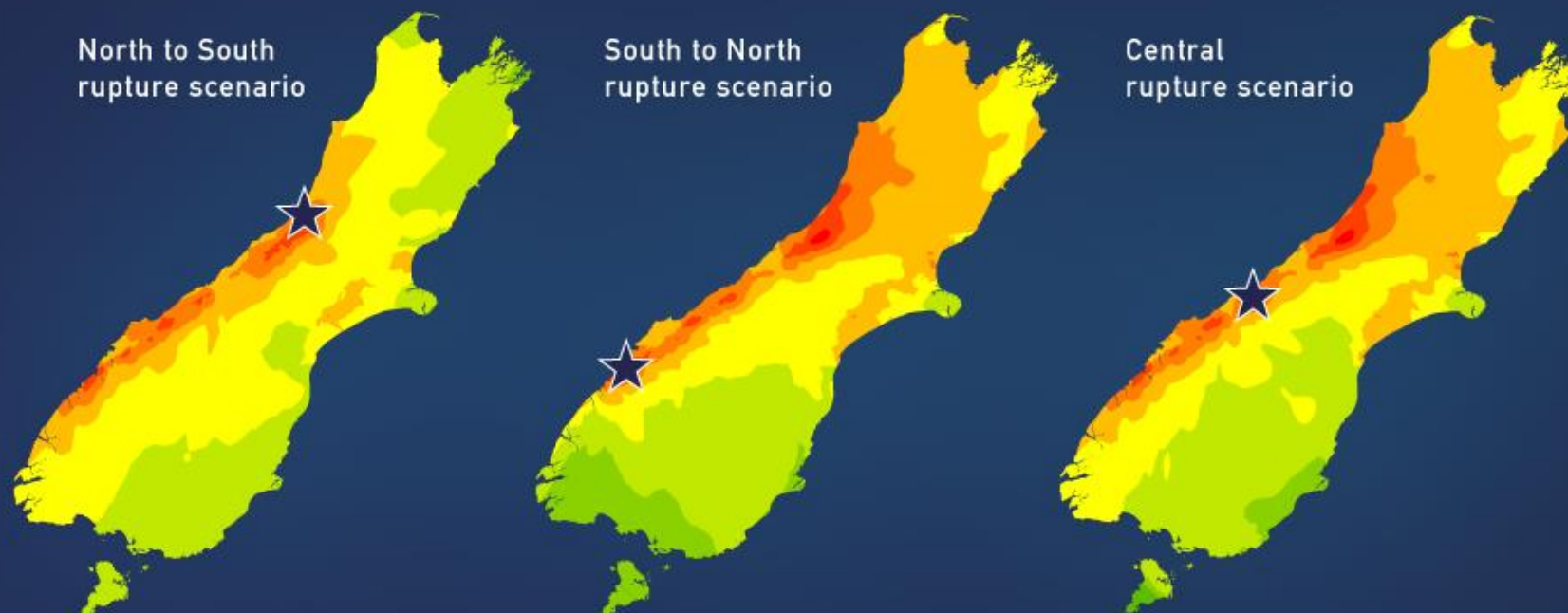




AF8 Scenarios

Science-based scenario development to inform planning and preparedness:

- ▶ Magnitude 8
- ▶ MM Intensity 4-10
- ▶ Major cascading consequences and secondary hazards
- ▶ Significant human, environmental, infrastructure and economic impact



Modified Mercalli Intensity Scale (GNS Science)



Response – SAFER Framework



South Island Alpine Fault Earthquake Response Framework

Available for download
from the AF8 website:

www.af8.org.nz

SAFER

SOUTH ISLAND/TE WAIPOUNAMU
ALPINE FAULT EARTHQUAKE RESPONSE

FRAMEWORK



MANA TANGATA: POWER OF LEADERSHIP THROUGH THE PEOPLE



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SHARED
SITUATIONAL
AWARENESS AND
OPERATIONAL
COORDINATION
IN THE EVENT
OF A MAJOR
ALPINE FAULT
EARTHQUAKE.

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The Alpine Fault
will generate a
large earthquake!

**START
OF
STORY**

**END
OF
STORY**

So, get prepared!!



AF8 Story Arc



Earthquakes on the Alpine Fault have lifted our beautiful South Island up out of the ocean, and given us our home.

The Alpine Fault has a long history of large earthquakes.

The next Alpine Fault quake is inevitable.

Confrontation / Disruption

It is likely to be a 'BIG' one and the shaking will last minutes.

Everyone will feel it.

Landslides, liquefaction and aftershocks will follow.

Many communities will be isolated, some for weeks+

It will change the way we operate in the South Island.

Kiwi's great at supporting each other in emergencies.

The better connected we are before, the easier it will be to help each other afterwards.

Talk to your neighbours. Let's get prepared together.

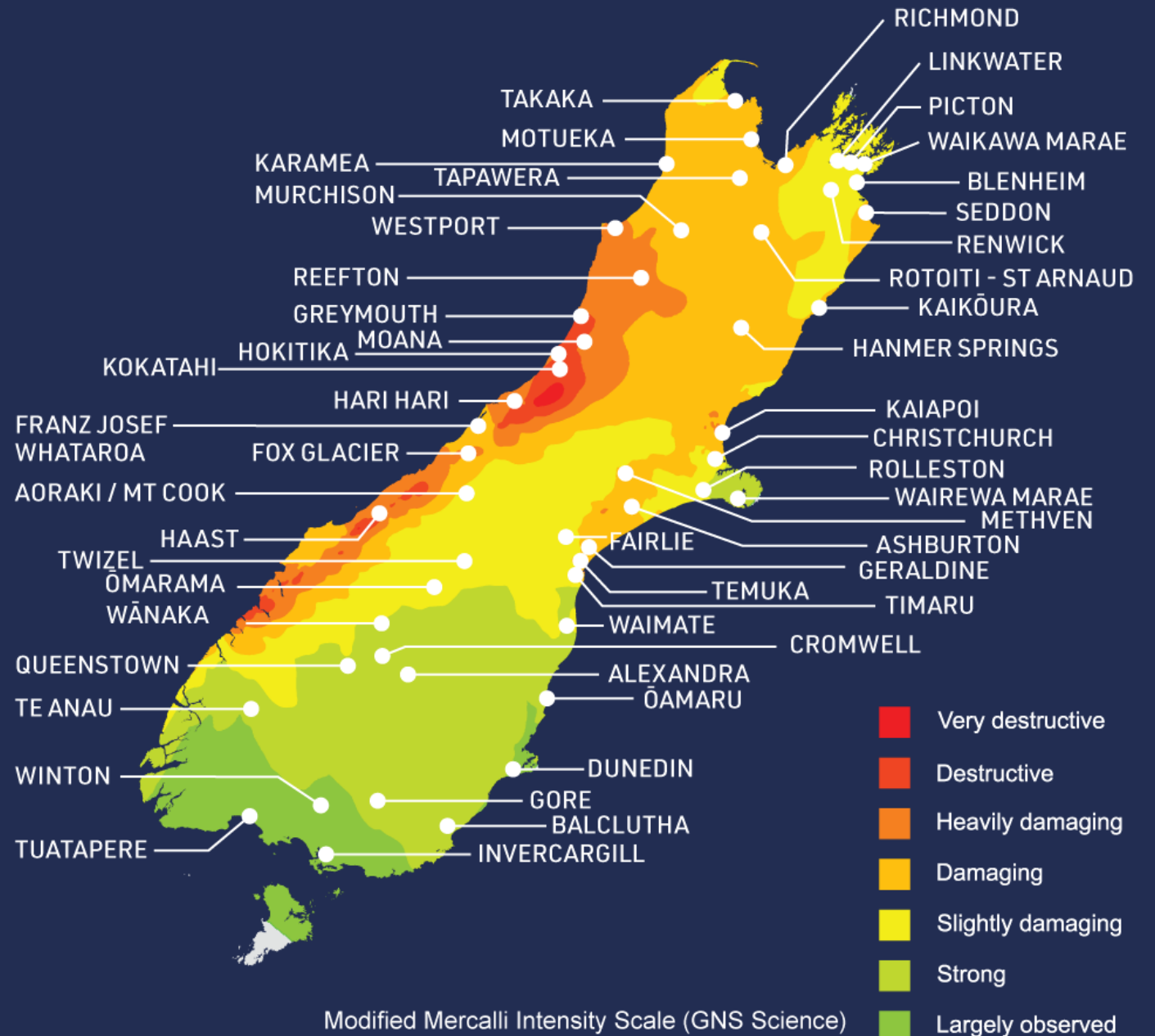
Setting the scene

Resolution / Result

AF8 Roadshow 2019-2025

Sharing the Alpine Fault knowledge in a local context where it is of most relevance to the community and enabling conversations on how to be better prepared.

- ▶ **Interactive school sessions with Y1-13 students**
- ▶ **Public Science Talks**





AF8 Roadshow 2019-2025



Fig 1: AF8 Roadshow audience numbers 2019-2025

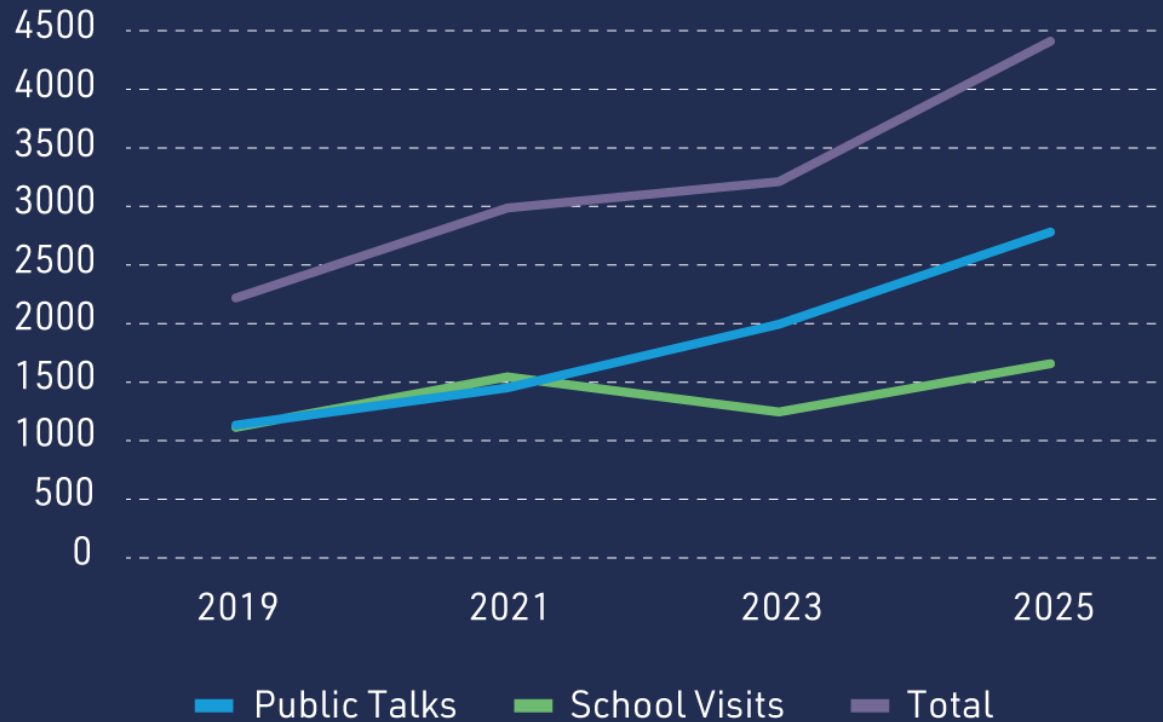
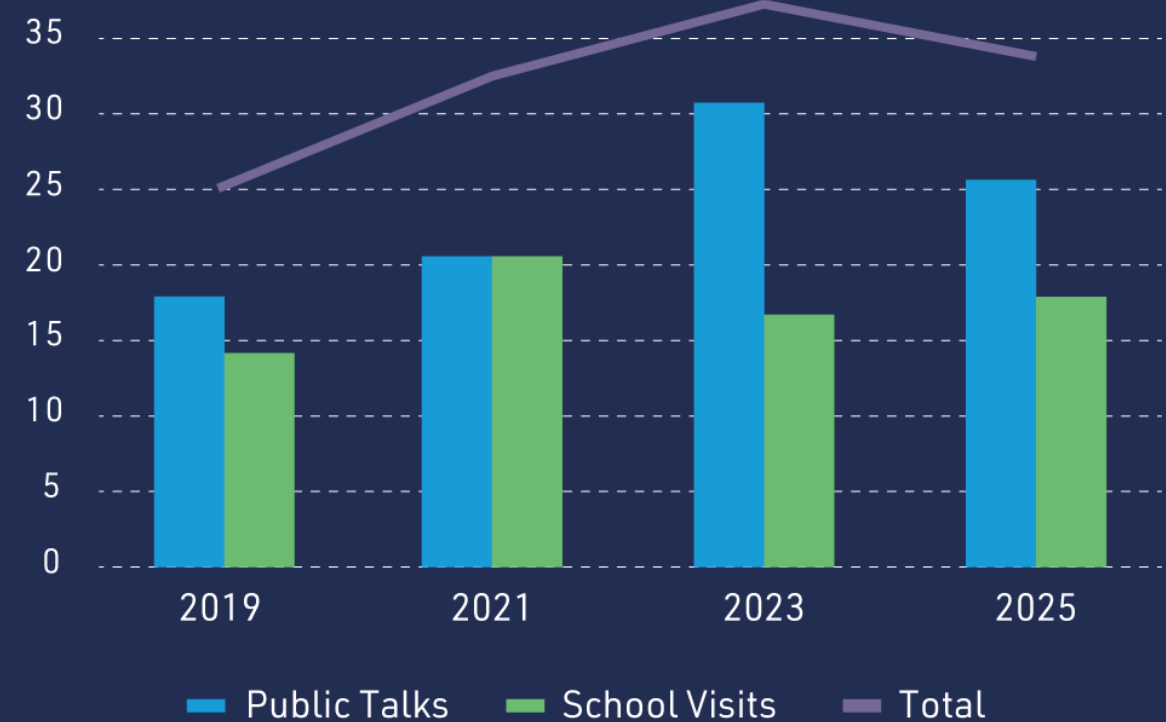
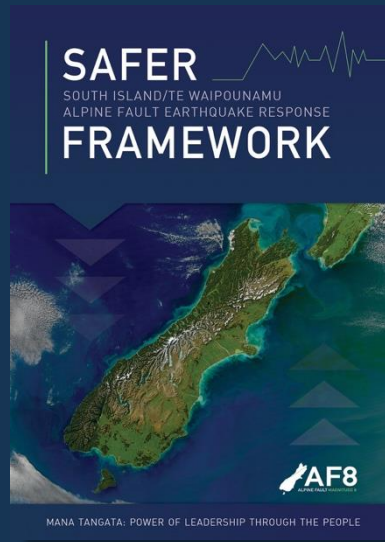
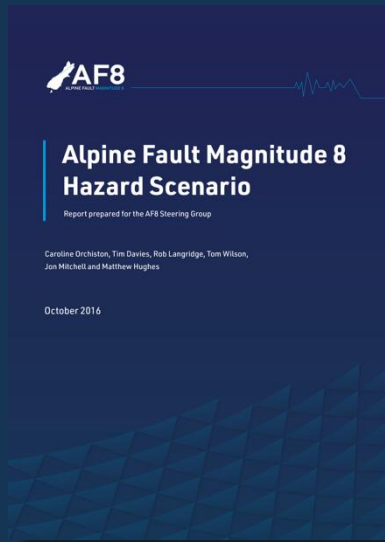


Fig 2: Number of public talks and school visits 2019-2025



Rū Whenua AF8 Scenario Development



AF8 Hazard Scenario and SAFER Framework

2016-18

Rū Whenua AF8 Macro Scenario T4EX Day 1

March 2024

Rū Whenua AF8 Scenario T4EX Day 2

May 2024

RW-AF8 Day 2 Winter Scenario

RW-AF8 Day 2 Summer Scenario

Summer – Amplifiers

- Franz Josef / Waiho Valley impacts
- People on the Great Walks
- People in the Back Country
- Music Festival
- Tranz Alpine and Coastal Pacific Trains
- Milford Sound tsunami

Season Independent – Amplifiers

- People trapped on roads by landslides
- Franz Josef / Waiho River impacts
- Ōkarito Lagoon tsunami inundation
- Queenstown Gondola impacts
- Landslide Dams
- Westland Milk, Hokitika impacts
- Benmore Dam impacts
- Arnold River Dam impacts

Winter – Amplifiers

- Winter weather
- Impact to Ski Fields
- Impacts to Rydges Hotel

ARE YOU PREPARED FOR A MAGNITUDE 8 ALPINE FAULT EARTHQUAKE?

Watch: <https://af8.org.nz/explore-the-science/kauraka-e-mataku-kia-takatu>

AF8.ORG.NZ



Te Rūnanga o NGĀI TAHU



Toka
Tū Ake **EQC**

Thank you!



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