Project AF8: A multi-agency response planning and community resilience initiative

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Tuesday, June 26 – Friday, June 29
NZ has an active geological environment

Slide courtesy of GNS Science
The Alpine Fault near the mouth of Milford Sound

Lloyd Homer, GNS Science
Alpine Fault history

Long history of large earthquakes

Remarkable regularity

Over 8,000 years on record – no reason for earthquakes to stop happening

Next event is inevitable
Project AF8 Team

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CDEM Group Managers
Brian Paton (Marlborough)
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Mark Crowe (West Coast)

Science Team
Tom Wilson (U. Canterbury)
Brendon Bradley (U. Canterbury)
Rob Langridge (GNS Science)
David Johnston (Massey/GNS Science)
Amongst many others ...
A multi-agency scenario-based approach to response planning for a future magnitude 8 Alpine Fault earthquake

To outreach and engage widely to improve societal resilience
Project AF8: planning for a future Alpine Fault earthquake

Funded by:
- 3-year Ministry for Civil Defence Resilience Fund project ($680,000)

Co-funding, aligned science effort:
- QuakeCoRE (Alpine Fault Cross-Flagship Case Study)
- Resilience to Nature’s Challenges (Rural Lab)

Y2 GOAL: the South Island Alpine Fault Earthquake Response plan (SAFER Plan)

Y3 GOAL: Engagement, outreach, science coordination
Project AF8 – collaboration dynamic

**INFORMS RESEARCH**
- NHRP
- QuakeCoRE
- GNS Science
- NIWA
- Consulting firms

**INFORMS PRACTICE**
- MCDEM
- DOC
- CDEM
- REGIONAL COUNCILS
- LOCAL COUNCILS
- HEALTH
- EMERGENCY SERVICES
- WELFARE
- DEFENCE FORCE

**INFORMS PRACTICE**
- INDUSTRY GROUPS
- COMMUNITY GROUPS
- RURAL SECTOR
- LIFELINES INFRASTRUCTURE
- NGOs

**INFORMS PRACTICE**
- IWI/RUNANGA

**Resilience to Nature’s Challenges**
- EQC

**Resilience to Nature’s Challenges**
- NIWA
Alpine Fault Scenario workshop – August 2016
**RISK TEAM**
- 30+ researchers
- 6 Universities
- 2 CRIs
- 2 consulting firms

**Scenario**

**AF8 workshops**
- Civil Defence EM
- Infrastructure Lifelines
- Local/Central Govt
- Industry Groups
- Community Groups
- Rural sector
- Iwi/Runanga
- NGOs

**RESPONSE TEAM**
- South Island
- Alpine Fault
- Earthquake Response Plan

**Compiled by:**
- 6 CDEM Groups
- Project AF8
- Programme Manager
- MCDEM
Project AF8: Holistic Project Process Model

- **Earth Science**
  - Hazards

- **Social Science**
  - Potential impact on social systems

- **Engineering**
  - Assessing potential damage

- **Alpine Fault Scenario**

- **Planning & Policy**
  - Project AF8 response plan
Alpine Fault hazard-risk-impact

**Frequency** – when is the next event likely to occur? (probability)

**Magnitude** – how big?

**Intensity** – how strong/long will the effects be?

**Hazard footprint** – what area will be affected?

**Impacts and Consequences**

**Risk reduction**
QC Alpine Fault Case Study: Cross-flagships

Hazard-to-impact assessment

FP1: Ground Motion Simulation
Earthquake scenarios
Ground motion

FP2: Liquefaction and Impacts on Land and Infrastructure
Soil structure interactions

FP3: Earthquake-vulnerable Buildings
Multidisciplinary
- Engineering
- Architecture
- Fatalities

FP4: Next-generation Infrastructure
Interdependencies, functionality
Simulations of post disaster behaviour
- e.g. productivity

FP5: Pathways to Societal Resilience

Integration
Credible workflow outputs
End user feedback
- What do they want?
- How should it look?

Case study: Alpine Fault earthquake

Slide courtesy of Jason Ingham
Communicating the scenario
workshops, outreach, engagement

To an audience of 4200+
Outreach and engagement

Video production – tools for outreach
- Stories of community resilience (x 5, 2-3min each)
- Science talks (x 4, 20mins each)
- Available now on YouTube at http://bit.ly/ProjectAF8videos
- Evaluation of videos completed

A National AF Exercise in 2020
Y3 and beyond...

1. Science coordination – e.g. tailoring impact/consequence research to meet regional demand
2. Community outreach and engagement
3. Nurturing our network and stakeholder relationships
4. Develop a business case for ‘Programme AF8’ – a long term proposition
Thank you

www.projectaf8.co.nz