

Project AF8 SOLGM Awards Entry

The BERL Award for Collaborative Government Action

Project summary

The South Island's 600km long Alpine Fault is highly likely to generate a magnitude 8 earthquake in the lifetime of today's population. AF8 was started in 2016 and brings science and Civil Defence Emergency Management (CDEM) planning together to:

1. Build awareness of the Alpine Fault hazard,
2. Produce a maximum credible event scenario including the impacts of a large Alpine Fault earthquake, and
3. Plan for a coordinated initial response across New Zealand.

CDEM legislation requires planning at a national and regional level, and has traditionally been for all hazards rather than a specific scenario. AF8 was designed to bridge the gap between regional and national planning and support a national coordinated response.

A major success for the project has been the involvement and enthusiasm of the science community in producing a scientifically robust scenario, describing the likely impacts and carrying out extensive community outreach for the project.

Strategic Context

There is strong evidence that the Alpine Fault has regularly occurring large magnitude 8 earthquakes, and research indicates that there is a 30-50% chance of an event occurring within the next 50 years.

While there has been considerable scientific investigation into the Alpine Fault, there has been a lack of understanding of the consequences to CDEM groups collectively, and therefore the impacts nationally. Groups have traditionally prepared for an Alpine Fault earthquake response within their own regions, whereas nationally there is one plan covering all hazards. The need for a South Island approach was identified by the Group Managers at the 2015 South Island CDEM conference and a MCDEM Resilience Fund project was initiated. It proposed a 2-year workplan designed to:

- Develop a maximum credible event scenario using the best science available.
- Socialise the Alpine Fault hazard and the need for coordinated planning.
- Identify and engage with vulnerable communities.
- Produce a response plan for the first seven days.

The National CDEM Strategy has a vision, 'Resilient New Zealand: communities understanding and managing their hazards'. At all levels across CDEM this idea of 'Community Resilience' forms part of the Group Plans for each region. If we fail to plan for a risk that is clearly identified and that will happen in our lifetimes, then we are negligent in our approach to Emergency Management.

Project risks and mitigations were identified as:

Risk	Mitigation
Timeframes	Governance structure to oversee work and receive monthly updates
Alpine Fault ruptures before plan is complete	Any preparation will be of benefit
Programme Manager becomes unavailable / unsuitable	PM's work reviewed monthly, contract reviewed annually
Groups do not have the capacity to contribute fully	By clearly communicating the risk and minimum standards required to mitigate an Alpine Fault event, we will be able to advocate for more resources

Project Management

Chaired by Emergency Management Southland (EMS), the AF8 Steering Group comprises all six South Island CDEM Group managers, a senior manager from Ministry of Civil Defence Emergency Management (MCDEM), the deputy director of the Centre of Sustainability, University of Otago and the AF8 Programme Manager. This body meets every 3 months and provides direction, agrees work programmes and authorises expenditure within the agreed project plan.

The project's scope is defined by two workstreams, Risk (science) and Response:

Risk:

- Inventory of existing science.
- Defining maximum credible event hazard scenario.
- Identifying cascading hazards/risks following a rupture.
- Defining long-term, multi stakeholder approach to future research.

Response:

- Assessing impacts on key lifeline utilities.
- Writing a coordinated response framework for the first 7 days of response.
- Producing a 'gap analysis' of response capabilities across the regions.
- Defining strategic priorities for ongoing research work and planning.

Initially AF8 was a 2-year project awarded \$490,000 from MCDEM's Resilience Fund. An extra \$170,000 for a third year was awarded to help transition the project to a longer-term model. This money allowed an experienced CDEM professional to be recruited as Programme Manager and writer for the response framework, and we now employ a Programme Coordinator with risk communication and community engagement skills.

The response framework was developed through a series of regional workshops held across the South Island, enabling input from a wide range of stakeholders to inform the final document and, in doing so, feedback into the AF8 project overall.

Quality assurance was carried out in two ways, firstly by 3 monthly reporting to MCDEM, assuring them that project milestones were being completed in a timely and effective way before funds were released. Secondly by releasing our science work as peer reviewed papers (Orchiston et al. 2018), which included an overview of the project and the scenario document.

Relationship Management

The cornerstone of AF8 has been our ability to engage with anybody and everybody to discuss the Alpine Fault. We have developed a communications plan and a library of presentations and engagement tools:

- Regional workshops to educate about the risk, discuss local impacts and begin response planning, involving a wide range of community members, emergency services, council staff, iwi, lifeline utilities.
- National agencies workshop, Wellington.
- AF8 Facebook page [@AlpineFault8](#).
- AF8 website projectaf8.co.nz.
- AF8 e-newsletter, sent out monthly.
- Science community outreach.
- Community CDEM presentations.
- Conference presentations and displays.
- Governance level presentations (e.g. DOC, Insurance Council, University boards)
- Short video series explaining the Alpine Fault and how to prepare, launched in conjunction with RadioNZ
- Longer video series of detailed science talks
- *Science Beneath Our Feet* roadshow combining classroom presentations with community science talks (March/April 2019)

The project plan recognised the importance of face-to-face contact and included a significant budget to enable this.

AF8's scope is to work with CDEM Groups, let them organise any local events and use their existing networks to engage with vulnerable communities. The outreach collateral we developed gives local staff access to a wide range of presentations to deliver to smaller groups. However, the popularity of AF8 talks continues to grow and where possible we accommodate all these requests. Follow-up talks by our science partners to 80+ meetings with over 5800 participants have been hugely popular.

Production of the SAFER (South Island Alpine Fault Earthquake Response) Framework required extensive consultation and management of different agency expectations. Key contributors included all emergency services, MPI, Ministry of Health, DOC, CDEM Groups, MCDEM as well as the inclusion of feedback from the regional workshops.

The success of this collaboration is evident from the number of our partners who are now producing their own Alpine Fault plans based on the SAFER Framework.

Continuous improvement

Initially we thought SAFER would be adopted by MCDEM and sit under the National Plan as one of their documents. As the writing process began, we had to accept that the broad multi-disciplinary plan we envisaged would not meet MCDEM's strict legal protocol and so a less formal framework was developed. In hindsight, this has given us a much more useful discussion document that has provoked many agencies to use it and produce their own plans.

We commissioned GNS Science's RiskScape model to predict impacts from the AF8 scenario. This was a complicated process and has identified many improvements that the model would benefit from in the future. However, again with the help of our science partners, we were able to produce a useful document that will guide the development of a scenario for the next national exercise in 2020.

We commissioned a production company to produce several short videos for use in community presentations and digital media. These were well received (runner up in the EMPA community awards 2018) and we filmed longer in-depth science talks to provide more detailed context as a result of feedback from the community.

The SAFER Framework, Implementation Plan and preparation for the MCDEM National Exercise are all now part of each CDEM Group's business as usual. SAFER is available online and has been widely circulated across all our partner agencies. We will soon launch an online feedback form to ensure it is reviewed as a living document.

We are developing a survey tool to measure the impact and outcomes of our outreach activities, by asking for feedback and information about the steps our audiences have taken to get better prepared for a future Alpine Fault earthquake. The results of this work will help us understand and improve the effectiveness of our engagement work.

Project success

Since we began in 2016, AF8 has gained a reputation as an example of best practice in both science research and emergency management. We have developed strong interdisciplinary networks, which enable us to share and grow our knowledge between our project partners, wider audiences and

colleagues. Including our project template, which is now being used to develop a Hikurangi Subduction Zone response plan by Hawkes Bay Regional Council.

In identifying and addressing the need for a coordinated, South Island-wide response plan to the Alpine Fault hazard, the AF8 project demonstrates the value of an innovative, interdisciplinary and multi-agency approach to response planning. Bridging the gap between regional and national planning, supporting a national coordinated response, and building resilience at all levels, from local communities to national agencies.

The launch of the SAFER Framework at the 2018 Lifelines Forum at Te Papa, Wellington, was a major highlight. AF8 team members presented on our work early in the conference and nearly every presentation that followed over the 2-day programme referenced AF8, including our scenario, the RiskScape model or other products in their research. It is a great compliment to our endeavours and shows the impact and success the AF8 project has had across New Zealand.

Project successes include:

- The launch of the SAFER Framework document.
- The development of a maximum credible event hazard scenario
- The publication of scientific papers:
 - The Alpine Fault Magnitude 8 Hazard Scenario.
 - Project AF8: developing a coordinated, multi-agency response plan for a future great Alpine Fault earthquake.
- The delivery of 80+ presentations to more than 5800 people.
- The projectaf8.co.nz website, hosting key information, resources and the SAFER Framework.
- Our active and growing social media following (750+) and a monthly e-newsletter (300+), which enable our audiences to engage with and share knowledge about the Alpine Fault hazard and preparedness information.
- Our short video series explaining the Alpine Fault and how to prepare.
- Our longer format video series of more detailed science talks.
- Hosting regional and national workshops
- The production of impact modelling from RiskScape.
- Linking with other national projects such as It's Our Fault, DEVORA and East Coast LAB to share learnings and develop consistent national messaging on risk and hazards.
- The production of an Implementation Plan for the SAFER Framework, which includes a gap analysis of current CDEM capability.
- Engagement with national agencies and government departments producing their own Alpine Fault plans, e.g. Police, St John, Ministry of Health, MPI, Ministry of Justice.
- Our working relationship with Ngāi Tahu emergency management based in Christchurch.
- The development of an online feedback form and review process to facilitate multi-agency input, improve collaboration and ensure SAFER remains a living document.

- In response to the projects popularity, this year we will hold our first AF8 Forum and will continue to present to Joint Committees at every opportunity.
- The buy-in and support from all six regional CDEM Groups.
- Securing additional ongoing funding for the project.

From my Group manager's perspective, I now have a much closer relationship with my peers around the South Island and we work more closely together and collaboratively than ever before. The role of a successful CDEM Group is to coordinate any large-scale response in its area. To do this effectively strong relationships have to be in place before the event. AF8 has grown existing relationships and helped to build new ones.

In addition to the emergency management work, we have had the pleasure of working alongside some of the brightest science minds from across New Zealand. We had never anticipated the willingness of the science community to participate and lead aspects of the work programme. Including, over 30 senior scientists from across New Zealand who gave us their time for free, attending a 2-day workshop to produce the AF8 scenario.

In particular, Dr. Caroline Orchiston from the University of Otago and Associate Professor Tom Wilson from the University of Canterbury. Their work on AF8 has, in part, led to them being chosen to lead one of the workstreams in the next phase of Resilience to Nature's Challenges (National Science Challenge) and QuakeCoRE (NZ Centre for Earthquake Resilience). This support has allowed us to reach a much wider audience and plan for a long-term future for AF8.

The opportunity to coordinate both the CDEM planning and the science around the Alpine Fault under one steering group has been of huge benefit. AF8's interdisciplinary approach has become an exemplar of scientific co-creation and multi-agency planning in New Zealand.

The employment of a Programme Manager (and now Coordinator) who work remotely from EMS and utilise our flexible working practices has been essential to the project. Networking, travel around New Zealand and always being willing to meet in person have been essential to their roles, which support the project's collaborative approach, facilitate stakeholder feedback and grow an active audience engagement with the Alpine Fault hazard and response planning.

From July 2019, AF8 has secured alternative sources of funding having received the maximum three years support for MCDEM Resilience fund projects. This takes the form of \$100,000 from the six South Island groups to continue to employ the Coordinator, and contributions from other science funding bodies for project work.

What began as a short-term project to produce a response plan, is now moving into a long-term structure for science and emergency management cooperation. We are developing a new governance model for AF8 and anticipate using Joint Committee chairs to have oversight.

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