

Alpine Fault Earthquake Case Study

This page is a draft in progress

Background and aim:

The aim of the QuakeCoRE (QC) Alpine Fault (AF) strategic project is to use a future earthquake scenario to demonstrate the connectivity between QC research activities along the earthquake resilience pipeline; use tools and methods for hazard-to-impact assessments to translate research excellence occurring 'within' disciplines to the implications on overall resilience; and via CDEM and other outreach activities (in strong partnership with Project AF8) to ensure that research outcomes result in tangible increases in preparedness.

The QC AF project is based on seven thrust areas: One nominally associated with each disciplinary domain of the six QC flagship programmes, and an over-arching project which ensures connection, collaboration, and translation.

Over-arching thrust

The over-arching thrust is tasked with performing the hazard-to-impact assessment, using both conventional knowledge and methods, and then also using the 'revised' knowledge that will result from each of the remaining flagship-oriented thrust areas. The idea being that each discipline-specific outcome from the six thrusts is then 'plugged' into the hazard-to-impact assessment in order to understand the implications of discipline-specific research at the high-level.

Through several efforts aligned with Project AF8, there is already on-going work to perform hazard-to-risk impact assessments for great Alpine Fault efforts. This over-arching thrust aims to align with this work, and importantly ensure that there is consistency between the modelling inputs and outputs in each 'box' of the assessment pipeline. Some of the financial resources in this thrust can contribute to ensuring consistency, as well as extension to other impact types where achievable.

This thrust is also intended to work seamlessly with Project AF8 via personnel who are integral to both efforts.

Individual 'flagship-oriented' thrusts

The remaining six thrust areas are flagship oriented. Initial plans for each flagship have been proposed. The only constraint is that each of these thrusts must: (A) examine some relevant research within their disciplinary domain in the context of AF earthquakes; and (B) have a means to 'deliver' the implications of the results from (A) in a form which can be used within the 'regional' hazard-to-impact calculations that are performed in the over-arching thrust. Examples below illustrate this concept.

Collaboration activities

Monthly video calls to provide updates and ensure interaction. Every three months an in-person meeting (aligned with some other event to minimize the amount of travel required). Every second one of these meetings (i.e. six monthly) could be with a wider audience.

Milestones:

- 1 November 2016: Thrust leaders to provide summary update of plans
- 24 November 2016: Cross-FP case study kick-off meeting: Thrust leads to discuss currently envisaged objectives
- 4 April 2017: Second meeting: Discussion of progress to date. Open up meeting to wider group (i.e. try to get alignment with AF8 project, other tri-centenary projects)
- 2 May 2017: In Person Meeting - Discussion of: Thrust Area Plans, Integration between Thrust Areas, Research Excellence and Research Gaps
 - [Thrust 1 Ground Motion Simulation Presentation](#)
 - [Thrust 2 Liquefaction Assessment Presentation](#)
 - [Thrust 3 Heritage Precincts Presentation](#)
 - [Thrust 4 Commercial Buildings Presentation](#)
 - [Thrust 5 Socio-economic impacts Presentation](#)
 - [Thrust 6 Lifelines Presentation](#)
 - [Thrust 7 Integration Presentation](#)
- 2 June 2017: Zoom monthly meeting
- 4 July 2017: Zoom monthly meeting
- 1 August 2017: Zoom monthly meeting