



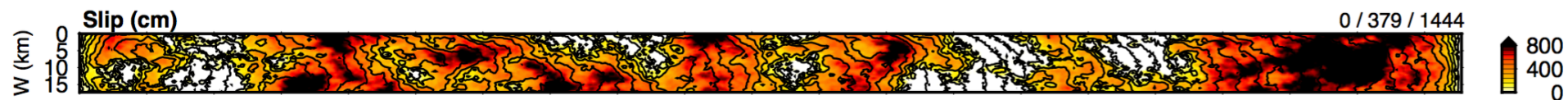
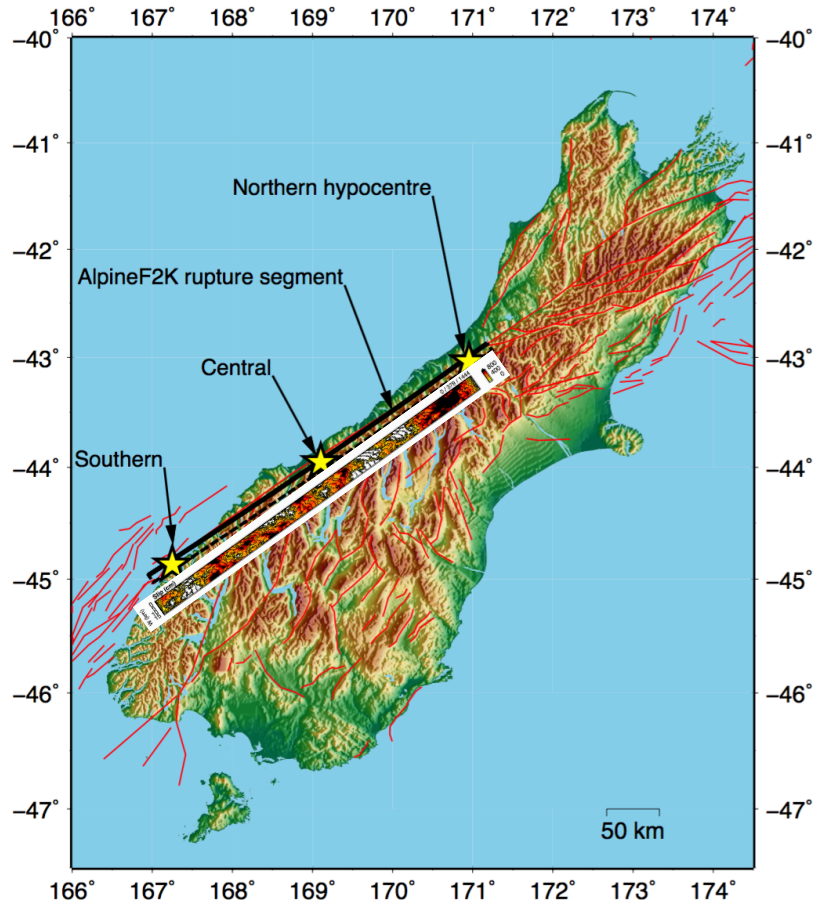
GM Sim activities for QC AF 2017

Summary

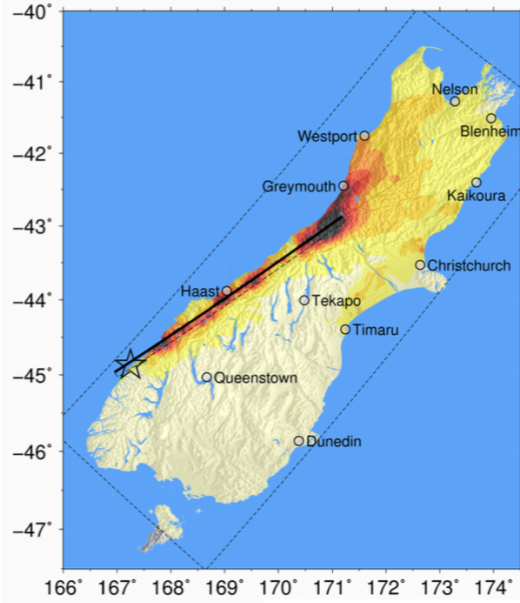
- Ground motion simulation to estimate shaking over South and lower North Islands
- Compare: (conventional) empirical and also simulation-based methods.
- Multiple potential rupture geometries of the Alpine Fault
- Ground motions will be provided Island-wide via both intensity measures (PGA, PGV, spectra), and also acceleration time series for use in simplified and detailed seismic response analysis and impact models.

Prior work

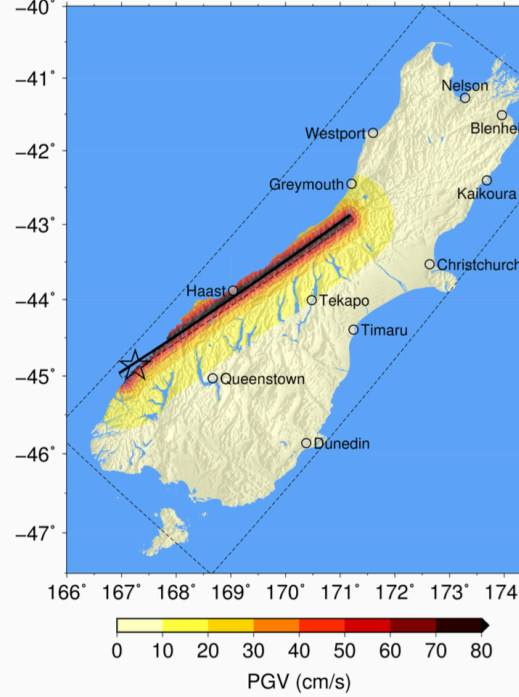
- (Bradley et al. 2017, NZJ Geology and Geophysics)



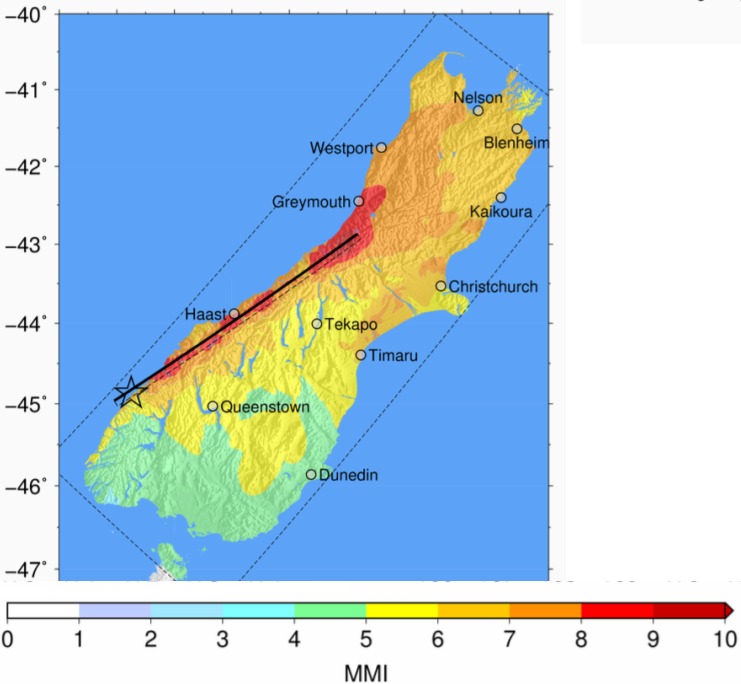
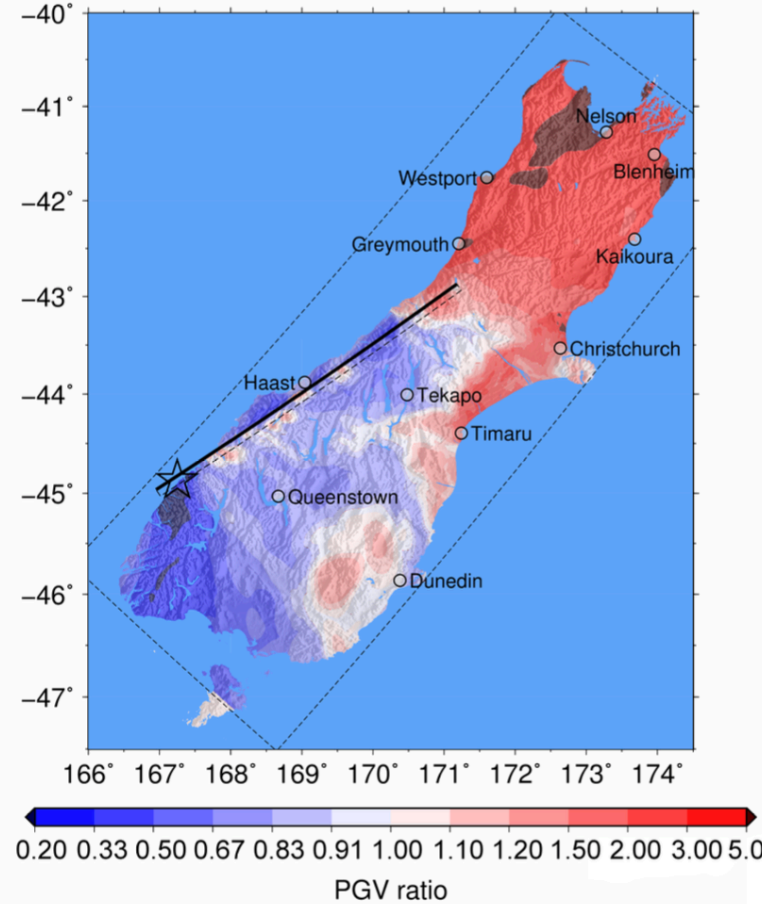
Southern Hypocentre



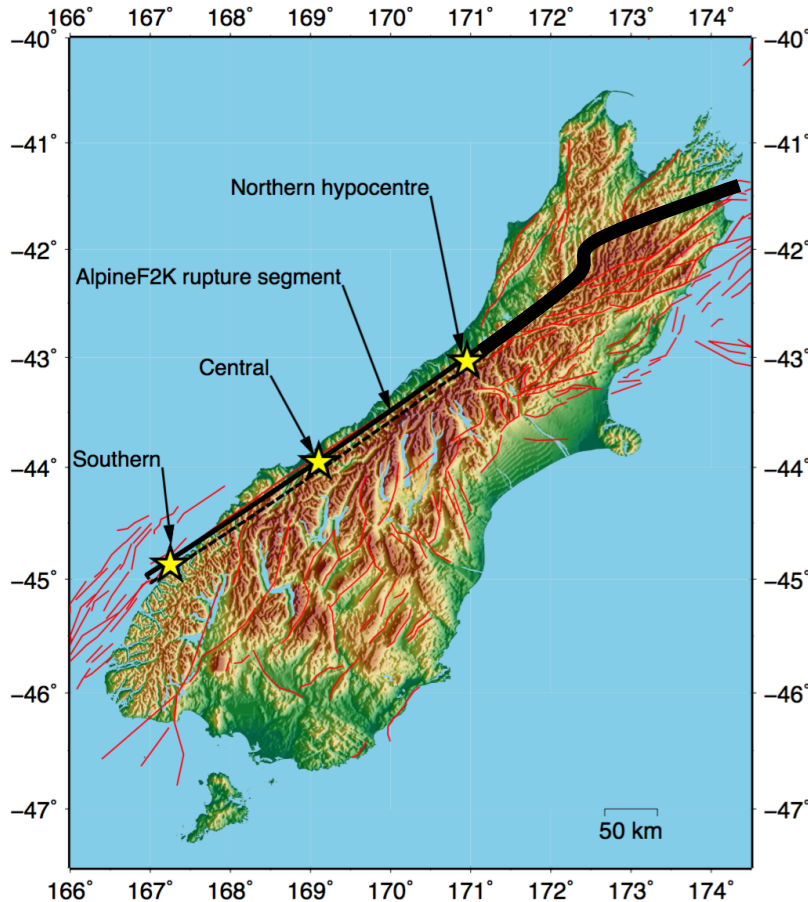
Empirical



Simulation / Empirical



Extensions



- Alternative geometry which poses greater hazard to Wellington
- Improved crustal model (currently only Canterbury in high-res)
- High-frequency ground motion (previously only LF)
- Maps of PGA, PGV etc
- Acc vs time downloadable for use in dynamic analyses

Work to date

- SeisFinder – application to enable download of simulation time series

<http://gram5p7.canterbury.ac.nz/seisfinder/>

SeisFinder

Model:

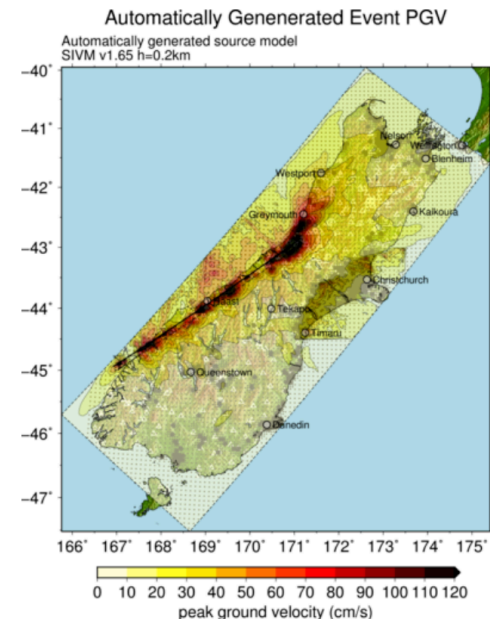
AlpineFault7.9 3333-01-01 00:00

Location:

Single Multiple

Latitude

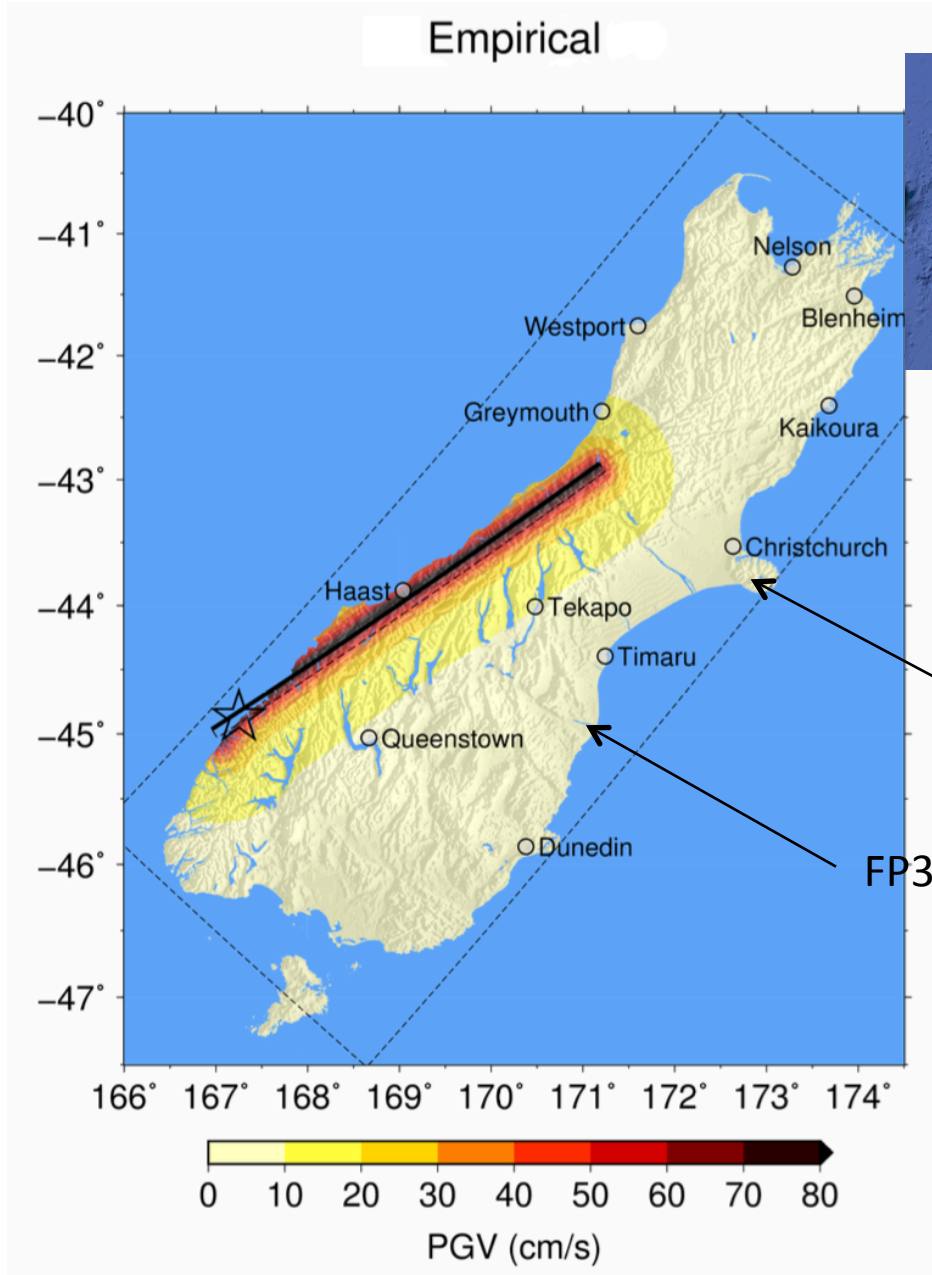
Longitude



[Download documentation](#)

Identified linkages

FP6: Island-wide
PGA/PGV ?



FP4: Commercial
buildings: Spectra + time
series

FP2: Liquefaction: PGA +
time series (+ PGA island-
wide)

FP3: Oamaru – Spectra (?)

FP5: ??