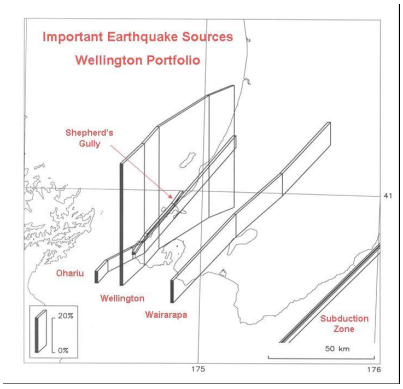
natural hazards inc.

Project Sheet:

Earthquake Risk Modelling



Study of earthquake risk, Wellington Region, New Zealand

Earthquake risk modelling incorporates the most recent information about earthquake sources, attenuation of strong ground motion and building vulnerability. The techniques can be applied to specific building portfolios, giving realistic estimates of damage and loss for planning or insurance purposes.

Earthquake sources are modelled using a database of >300 active faults, with characteristic magnitude, mechanism and mean recurrence intervals. A background seismicity model covers other sources throughout New Zealand, representing the rate of earthquake occurrence as smoothly varying across the whole country.

The likely ground motion at locations of interest is modelled, and is dependent on earthquake magnitude, mechanism, focal depth, fault orientation and regional attenuation characteristics. The probabilities of loss to a portfolio are then estimated according to the combined exposure to all the active faults and the background seismicity.

Project Description

Project: Earthquake Risk Modelling

Location: New Zealand

Client: A number of insurance companies and property owners

Total Project Value: Confidential

Start Date: July 2000

End Date: Ongoing

Lead Company: GNS Science

Associated Consultants: None

Key Features:

- Knowledge of earthquake sources that are likely to affect the assets
- Likely severity of ground motion that will occur in these earthquakes
- Knowledge of the type of building and its vulnerability to strong shaking
- Knowledge applicable to risk management and mitigation