

Riskscape New Zealand a multihazard loss modelling tool

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Abstract

New Zealand has long been recognized as having a high exposure to earthquake related hazards. In fact New Zealand has the dubious privilege of being exposed to nearly all natural hazards and in many cases this exposure is recognized as being “high” to “severe” by international standards. While considerable advances have been made over the past few decades in understanding the mechanics that underpin these phenomena, only recently has sufficient knowledge been acquired to enable some rational probabilistic models to be developed to quantify the intensity/recurrence relationships of these hazards. By establishing fragility functions for all items of community inventory to the actions resulting from each of these natural phenomena, community risk and thence probable losses can now be ascertained, albeit with varying degrees of reliability.

This paper discusses the development of RiskScape New Zealand, a national multi-hazard impact model that will be able to ascertain relative risks and community exposure to a range of natural hazards. The prototype currently under development and will include earthquake, tsunami and volcanic exposure together with flood and storm impact. Three representative New Zealand communities will be used in the pilot with the default inventory database including buildings, infrastructure, public utility and transportation networks.

The challenge of presenting data derived using either the probabilistic or scenario approach proposed to an essentially non-technical user group and getting their uptake remains before us but will be discussed in the paper along with progress to date.

Keywords: Earthquake hazard, Tsunami hazard, Loss modeling, Societal impact, Disaster planning, Post Disaster recovery.

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