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The RiskScape System - a tool for quantitative multi-risk analysis for natural hazards.

J. Schmidt (1), S. Reese (1), I. Matcham (2), A. King (2), and R. Bell (1)

(1) National Institute of Water & Atmospheric Research (NIWA), New Zealand (j.schmidt@niwa.co.nz), (2) GNS Science, Institute of Geological and Nuclear Sciences, New Zealand

This paper introduces a generic framework for multi-risk modelling developed in the project 'Regional RiskScape' at the Research Organization GNS Science and the National Institute of Water and Atmospheric Research Ltd. (NIWA) in New Zealand. Our goal was to develop a generic technology for modelling risks from multiple natural hazards and for multiple risk elements. The framework is independent on the specific nature of the individual hazard and individual risk element. A software prototype has been developed which is capable of 'plugging in' various natural hazards and risk elements without reconfiguring / adapting the generic software framework. To achieve that goal we developed a set of standards for treating the fundamental components of a risk model: hazards, assets (risk elements), and vulnerability models (or fragility functions). Thus, the developed prototype system is able to understand any hazard, asset, or fragility model which is provided to the system according to that standard. We tested the software prototype for modelling earthquake, volcanic, flood, wind, and tsunami risks for urban centres in New Zealand.