



## **RiskScape Volcano: Development of a risk assessment tool for volcanic hazards**

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RiskScape is a multi-hazard risk assessment tool developed by GNS Science and the National Institute of Water and Atmospheric Research Ltd. (NIWA) in New Zealand that models the risk and impact of various natural hazards on a given built environment. RiskScape has a modular structure: the hazard module models hazard exposure (e.g., ash thickness at a given location), the asset module catalogues assets (built environment, infrastructure, and people) and their attributes exposed to the hazard, and the vulnerability module models the consequences of asset exposure to the hazard. Hazards presently included in RiskScape are earthquakes, river floods, tsunamis, windstorms, and ash from volcanic eruptions (specifically from Ruapehu). Here we present our framework for incorporating other volcanic hazards (e.g., pyroclastic density currents, lava flows, lahars, ground deformation) into RiskScape along with our approach for assessing asset vulnerability. We also will discuss the challenges of evaluating risk for 'point source' (e.g., stratovolcanoes) vs 'diffuse' (e.g., volcanic fields) volcanism using Ruapehu and the Auckland volcanic field as examples. Once operational, RiskScape Volcano will be a valuable resource both in New Zealand and internationally as a practical tool for evaluating risk and also as an example for how to predict the consequences of volcanic eruptions on both rural and urban environments.