

Strategic Science Investment Fund (SSIF) Case Study 2018-19
Platform 2 – Geological Processes and Hazards

World-leading natural hazard risk modelling for New Zealand

New Zealand is vulnerable to many natural hazards including floods, tsunamis, volcanoes and earthquakes. Measures can be taken to reduce the risk to lives and livelihoods, but first we need to understand the likely location and intensity of these hazards' impacts and their risks.

RiskScape is risk modelling software developed jointly by NIWA and GNS Science since 2004. SSIF funding has contributed to its development.

It's a valuable tool for land-use planners, emergency managers, councils, engineers, scientists and the insurance sector. RiskScape is rapidly gaining a reputation as one of the best tools available globally for assessing the risks to communities from natural hazards.

How RiskScape works

The software enables users to quantitatively estimate the impacts of natural hazard events, identifying where the highest risks to people, buildings and infrastructure may occur.

RiskScape draws on decades of accumulated hazards knowledge to help users with decisions about planning and mitigation. It is designed to perform complex calculations simply and quickly without needing specialist modelling knowledge.

New collaboration with EQC

A new collaboration with the Earthquake Commission (EQC), announced in July 2019, will see RiskScape replace the Commission's current risk modelling software. It will be used to produce earthquake loss and impact estimates and inform EQC's annual reinsurance negotiations.

In partnership with NIWA and with users such as EQC, we will continue to invest in the development of RiskScape 2.0, including assessing other geological and weather-related hazards. By pooling resources into the same risk modelling tool, we are creating a centre of excellence for New Zealand. The development work on the next generation of EQC modelling using RiskScape is already underway and will go live in later in 2019.

Interest is not restricted to New Zealand shores with the World Bank Group and NASA also showing keen interest in RiskScape.

In 2018 the Samoa Disaster Management Office used RiskScape to quantify flooding risk in the catchment of the Vaisigano River – the main waterway which flows through Apia. The information is informing emergency evacuation planning and flood response procedures.

RiskScape was also used in Indonesia to assess building impacts from the September 2018 tsunami affecting coastal areas on the island of Sulawesi.

Redeveloping the tool

Since May 2018, RiskScape has been under redevelopment using open source technology to build a new modular adaptive platform. Starting, in late 2019, a customised user interface will be built using specific requirements from the vast array of users.

The future is looking very positive as the tool is taken up by agencies both in New Zealand and overseas. The next update of RiskScape is due for release in mid-2020.

For more information: <https://www.riskscape.org.nz/>