RiskScape

NIWA Taihoro Nukurangi

GNS SCIENCE TE PŪ AO

Smarter management of natural hazard risks

New Zealand is vulnerable to a wide variety of natural hazards, from floods and tsunamis to volcanoes and earthquakes. Steps can be taken to reduce the risk to lives and livelihoods, but first it is necessary to understand where and how such hazards are likely to impact.

RiskScape is a software solution developed by NIWA and GNS Science that estimates the impacts of a range natural hazard events on your community. With **RiskScape** you can identify where the highest risk of human casualties, building and infrastructure damage and economic disruption lies, and plan accordingly.

If you're a land-use planner, emergency manager, engineer or insurer, **RiskScape** is an essential part of your risk management toolkit.

Tapping into national and local data and expertise

RiskScape is an easy-to-use tool for analysing the impacts associated with multiple natural hazards. It is suitable for Mac or PC (see system requirements overleaf).

RiskScape works by incorporating existing data and knowledge about your community, such as topography, road networks, utilities infrastructure, building designs, land uses and social characteristics, into its sophisticated impact-modelling programmes. Hazards of differing magnitudes and return periods can then be superimposed onto this geographical snapshot of your area.

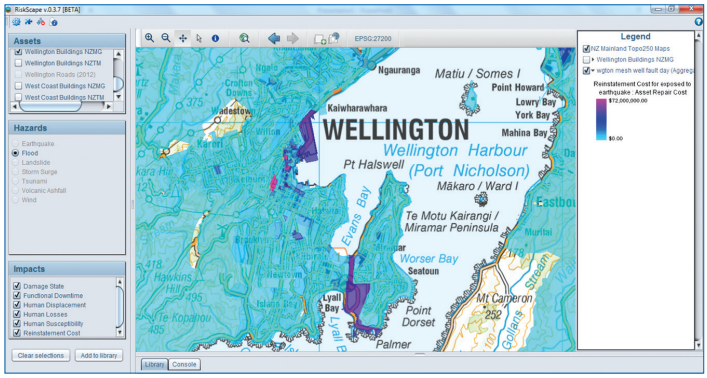
RiskScape estimates damage and replacement costs, casualties, economic losses, infrastructure disruption and the total number of people affected – information vital for planning and response preparation.

A distinctive feature of the tool is that you can easily use your own data and hazard models to create a specific disaster scenario. You can also identify risk-reduction strategies such as hazard zoning, evacuation planning or adjustments to infrastructure.

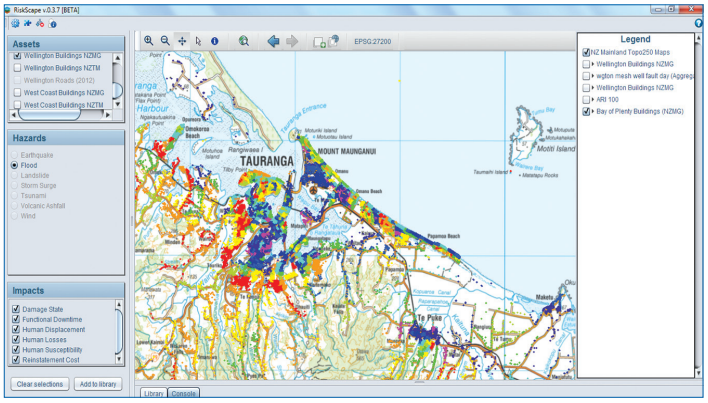
RiskScape calculates risk by combining exposure (for example, a one-metre flood through your community) with vulnerability (for example, damage likely to a house with floor level 40cm above ground, during such a flood). The result is a fine-scale assessment of the likely local impacts.

RiskScape currently models impacts for river floods, earthquakes, volcanoes (ash), tsunamis and windstorms. Work is under way to extend its modelling capabilities to include landslides, coastal storm tide inundation, volcanic lahars and pyroclastic flows, snowstorms and climate change effects.

The software comes complete with national earthquake and volcanic hazard models, in addition to a selection of tsunami, climate and weather models. And it is quick and easy to load your own hazard models using the **RiskScape** builder tools.



RiskScape's outputs can be customised to your unique requirements.



Clear, meaningful outputs

RiskScape outputs risk estimations in a variety of formats, suited to a wide range of analytical and reporting requirements.

Options include:

- hazard maps: showing calculated flood depth, wind fields etc.
- impact maps: showing calculated dollar losses, injuries, casualties, displacement, business disruption etc.
- GIS-compatible shape files
- Excel format CSV files providing detailed results spreadsheets
- KML files that can be displayed in Google Earth.

Filling the data gaps

Plentiful and accurate data about the area you're interested in are essential to **RiskScape**'s success. In particular, detailed information about the assets at risk is needed. This might include the construction characteristics of buildings, routes for utilities such as water supply, sewerage, road, and power, and demographic and business information.

You can easily upload your own asset data into **RiskScape**. However, the tool already contains New Zealand's most comprehensive building asset inventory. The RiskScape team is constantly improving and expanding data resources through our own targeted field surveys and explored new techniques, such as satellite imagery and laser-scanning (LiDAR), to help fill some of the gaps.

User guidance

RiskScape is supported online by a comprehensive user guide, tutorials and detailed documentation, located at https://wiki-riskscape.niwa.co.nz.

In addition, a dedicated website (riskscape.org.nz) provides a forum for support, important system information and updates.

System requirements

Operating system

Windows (XP/7/8), Mac OS X (1.8 and above), any flavour of Linux/Unix.'
https://riskscape.niwa.co.nz/get-started/system-requirements

Hardware

A dual-core, high-spec CPU is recommended, such as: Intel Core2 Duo/Quad/Extreme, Intel Core i5, Intel Core i7, Intel Xeon, AMD Athlon II, AMD AthlonX2, or AMD Phenom.

Not recommended: Intel Celeron, or AMD Sempron.

2Gb of RAM is required for RiskScape, but 4Gb is recommended.

Find out more

Visit the RiskScape website at:
riskscape.org.nz

RiskScape is FREE to all New Zealand Local Government users, and a demo version is available to all users via a 12 month trial.

Please contact the RiskScape team or website for more information.

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