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RiskScape: a software programme for multi-hazard risk assessment

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We present how RiskScape, a free multi-hazard risk assessment software programme jointly developed by GNS Science and the National Institute of Water and Atmospheric Research (NIWA) in New Zealand, has recently been improved and expanded to provide more comprehensive evaluation of volcanic impacts. RiskScape has a modular structure, with hazard layers, assets, and fragility/vulnerability functions prepared separately; in the past year, the hazard and vulnerability modules have been greatly expanded for volcanic hazards. Specifically, RiskScape has increased the number of available volcanic hazards from one – ashfall – to five, adding pyroclastic density currents, lava flows, lahars, and edifice construction/excavation, and the vulnerability module has been updated accordingly. We will discuss how hazard intensity metrics were selected for the added hazards, and demonstrate how RiskScape can be used to compare the relative consequences of a suite of volcanic hazards resulting from a single eruption. RiskScape supports numerous natural hazards, including earthquakes, flooding, tsunami, wind storms (e.g., tornadoes), and volcanic hazards. As such, the consequences of a variety of hazards can be compared in a single platform. We show how RiskScape can be used to compare the impacts of similar return period volcanic eruptions and earthquakes. While RiskScape was originally developed for New Zealand, given suitable hazard and exposed asset information, RiskScape can be run anywhere in the world.