

**Chengdu Forum on UN-GGIM
Global Map for Sustainable Development:
Development and Applications in Urban Hazard Mapping
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Session 1: Understanding Urban Hazard and Risk Processes

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**Natural Hazard Risk Assessments: Using Geoinformation &
Quantitative Analysis to Improve Natural Disaster Planning and Preparation**

Abstract

Over the last 15 years Risk Frontiers have developed a suite of probabilistic catastrophe loss models for estimating the risk of financial losses due to disasters in Australia, New Zealand, Japan and a number of other countries throughout Asia. While these models were initially developed to assist with the pricing of insurance risk and risk transfer through reinsurance, increasingly the models are being adapted for use in the government, emergency management and the corporate sectors. These modifications allow both vulnerability and exposure to be mapped in a GIS environment across a range of perils including flood, cyclone, severe storm, wildfire, volcanic eruption, tsunami and earthquake. Outputs from these probabilistic models can be combined with historical and contemporary loss of life and property loss data and post-event reconnaissance knowledge.

We will demonstrate how the theoretical and technological underpinnings of our mixed method approach for risk rating metrics for a range of perils better informs natural disaster planning and preparation. A selection of practical case will demonstrate multi-scale (local, regional and national) visualizations and tabulations of risk for infrastructure and people for both frequently occurring meteorological events and longer scale geological events.