



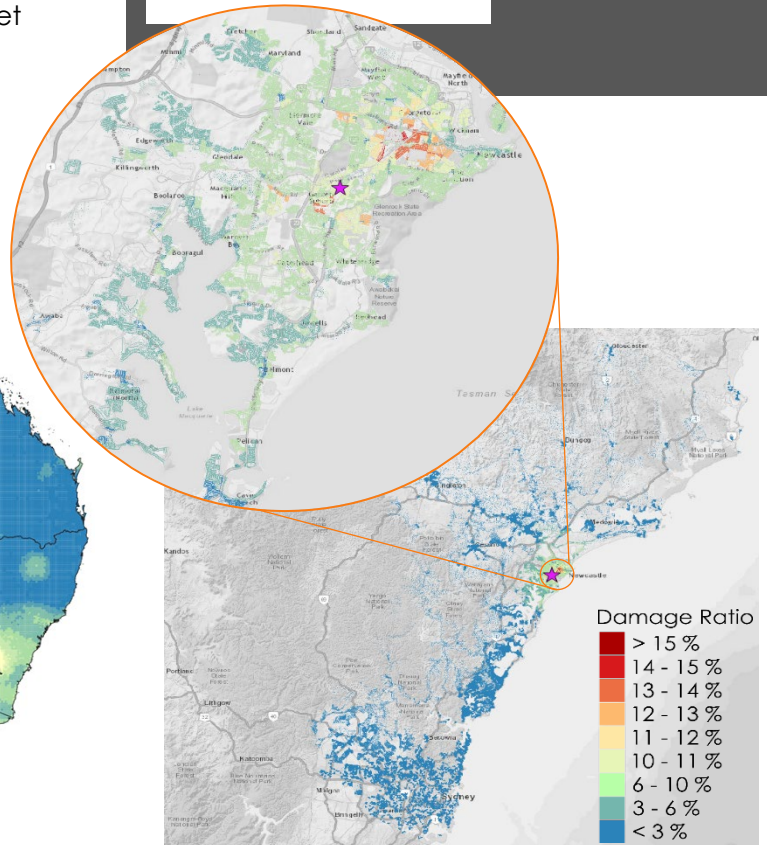
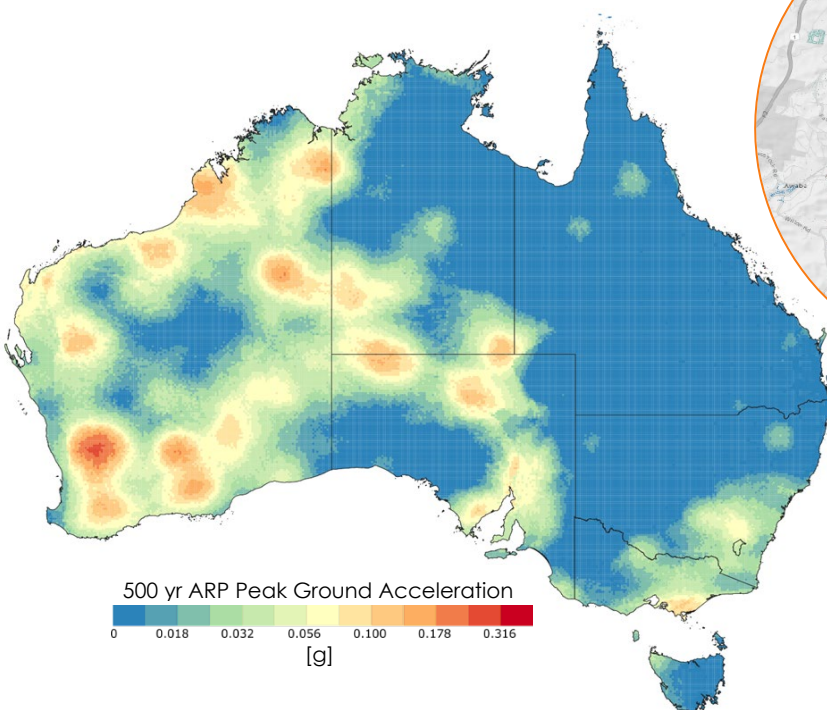
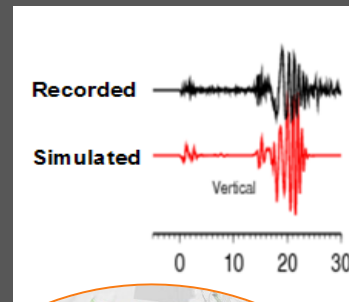
# QuakeAUS Earthquake Loss Model

## Local Expertise. Local Knowledge.

For 25 years, Risk Frontiers has been leading the development of natural catastrophe models for the Asia-Pacific region. QuakeAUS is built on Risk Frontiers extensive knowledge and expertise in Australian seismic hazards. We participated in the development of Geoscience Australia's 2018 National Seismic Hazard Model (NSHA18), which includes the Risk Frontiers earthquake source model. We use the ground motion predictions equations of Somerville et al. (2009) developed specifically for Australia.

## Validation of ground motion prediction model

The Somerville et al. (2009) ground motion prediction model is validated against strong ground motion recordings





## Model Overview

<b>Hazard Resolution</b>	Variable resolution, down to 1.6 km
<b>Exposure Resolution</b>	Location Address Level
<b>Event Catalogue</b>	50,000 years of stochastic earthquakes
<b>Ground Shaking and Exposure Parameters</b>	Location, full acceleration demand spectrum, soil type, building construction type, building age, building height.
<b>Line of Business</b>	Residential / Commercial / Industrial
<b>Business Interruption</b>	Commercial / Industrial
<b>Coverage</b>	All Properties on mainland Australia and Tasmania. 100% GNAF / Geoscape / Geovision

## A Better Understanding of the Hazard

Risk Frontiers has implemented Geoscience Australia (GA) updated the seismic hazard model for Australia through the National Seismic Hazard Assessment (NSHA18) project. The NSHA18 update includes corrections of measurements of local magnitude ML of historical earthquakes, and the conversion of the ML values to moment magnitude, Mw, more than halving the rate of earthquakes exceeding a given magnitude across Australia. NSHA18 also includes a National Fault-Source Model (NFSM) listing slip rates on faults, improving reliability in estimation of rare large events that are not represented by the historical earthquake catalogue. Dr Paul Somerville was a member of the Technical Advisory Panel that provided peer review throughout the development of NSHA18.

## One Click Portfolio Roll-up

### Average Annual Losses

Aggregate ID	Average Annual Loss
Portfolio 1	\$14,808
Portfolio 2	\$18,510
Aggregate	\$33,318

Base Currency 

### Exchange Rates Used

Currency	Rate
 AUD	1.00000

### Selected ARIs

#### Annual Occurrence

ARI	EP	Portfolio 1	Portfolio 2	Aggregate
500	0.002	714,486	614,532	1,231,532
200	0.005	498,536	417,092	874,906
100	0.010	347,988	287,522	626,872
50	0.020	213,482	177,696	388,710
20	0.050	82,678	70,338	155,484
10	0.100	30,850	25,914	57,998
6	0.167	12,340	9,872	23,446



## Location Level Intelligence

<b>Location</b>	Archer Street, Chatswood, NSW
Latitude	-33.8
Longitude	151.19

Property Replacement Value	AUD 630,000
Annual probability of experiencing a loss due to earthquake (Gross)	0.25% (AAL: 13 AUD)
Soil Type	Firm to hard rock

### Selected Vulnerability Parameters

Building Age	1903
Building Type	Un-reinforced Masonry
Number of Stories	1

## Contacts:



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