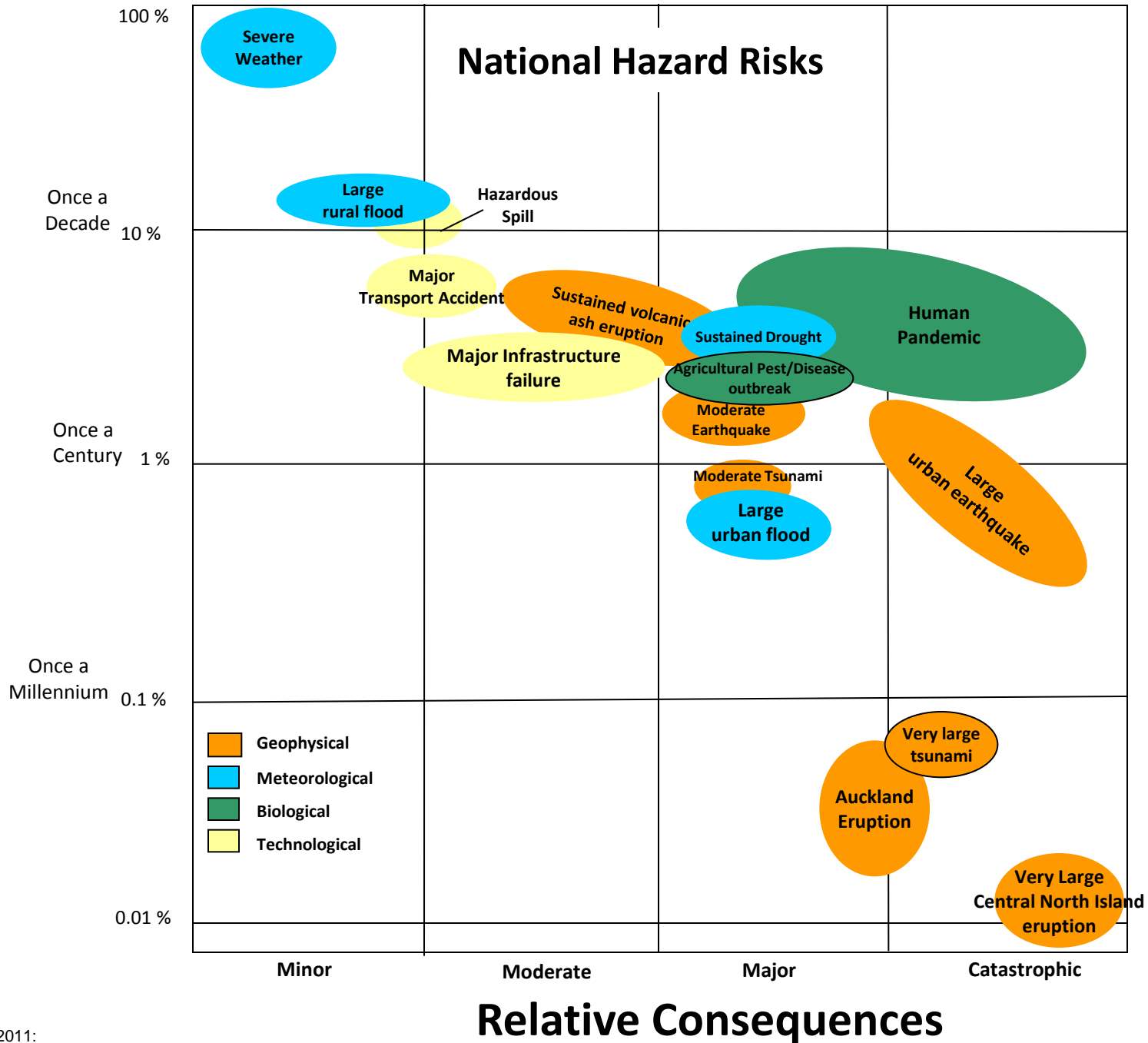


# Government Support for Tsunami Research



# Annual Likelihood



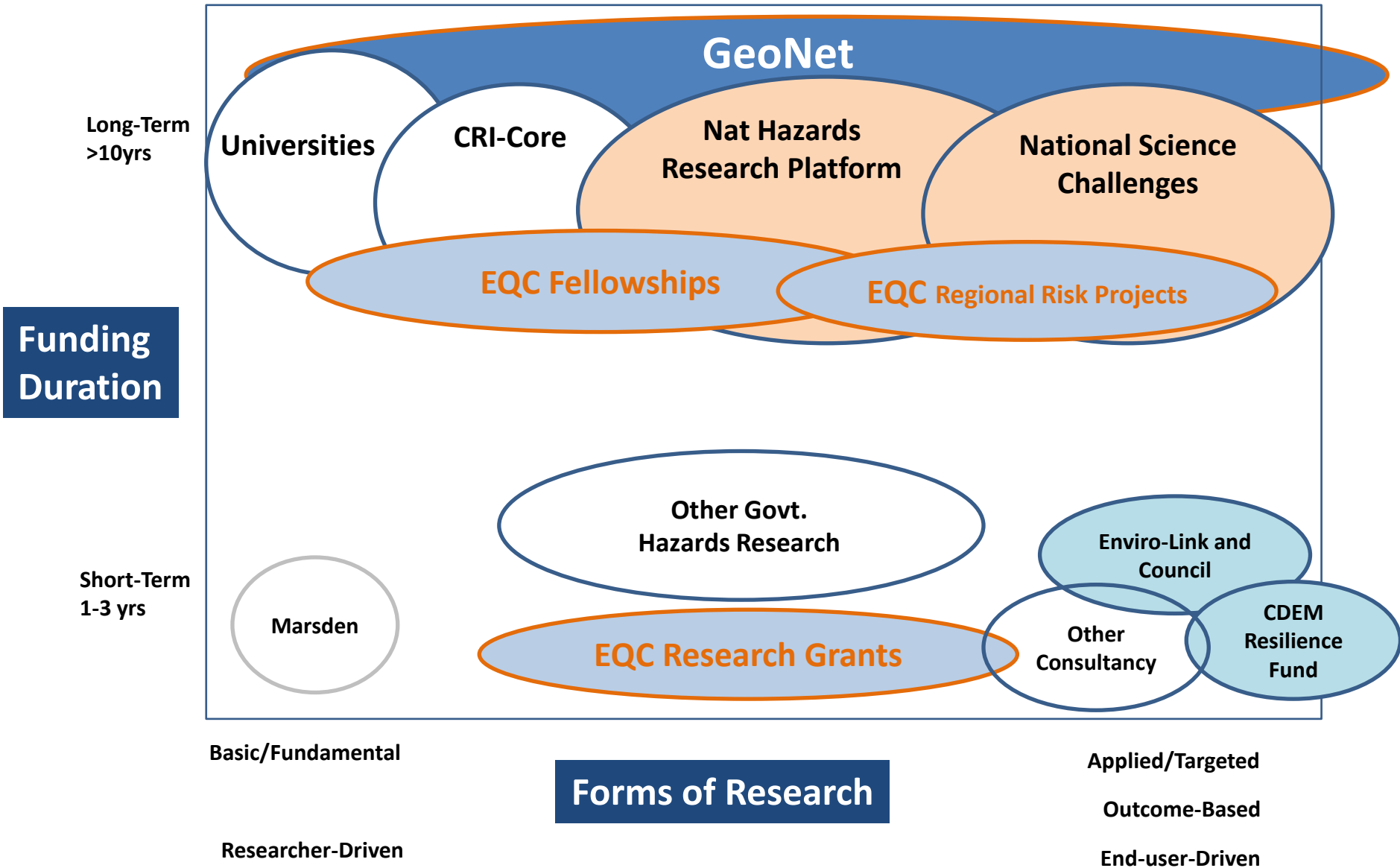
# What should we be preparing for ?

In next 50 years (2012 estimates)

Natural Hazard Event	Likelihood	Potential Losses
Alpine fault - M8 earthquake	30%	>\$10bn?
Central North Island major eruption	almost certain	>\$1bn?
Taranaki eruption	20%	~\$1bn?
<b>Hikurangi subduction M8+ EQ and tsunami</b>	<b>10%</b>	<b>&gt;\$10bn</b>
Hope fault M7.2 earthquake	50%	~\$1bn?
<b>South America - M9+ EQ &amp; NZ tsunami</b>	<b>50%</b>	<b>&gt;\$1bn?</b>
Taupo region major eruption	10%	>\$10bn
Auckland volcanic eruption	5%	>>\$10bn
NZ equake sequence like 1929-1942	50%	>\$10bn

*Source: Natural Hazards Research Platform*

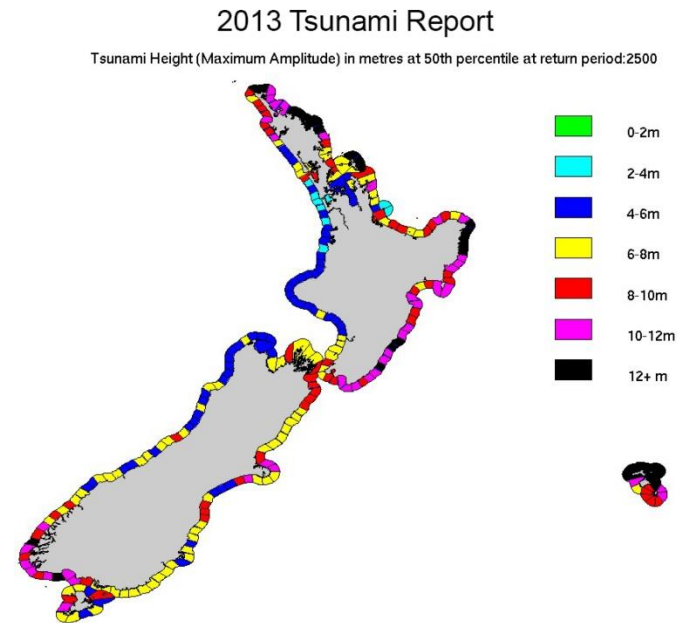
# Hazards Research Funding Landscape



# Current Investment in Tsunami Knowledge?

## Understanding Hazard

- National Tsunami Hazard
- Regional/Mechanism Focus
  - Kaikoura Canyon
  - Cook Strait
  - Hikurangi Margin
- Paleo-tsunami record



Tsunami heights calculated within each 20km zone

# Current Investment in Tsunami Knowledge?

## Understanding Risk

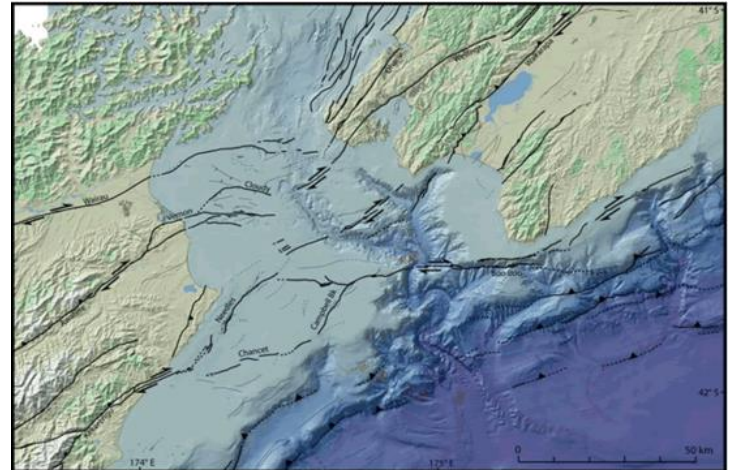
- Impacts on the built environment (buildings and ports)
- Inundation modelling
- Evacuation planning scenarios
- Implications for land use planning
- Cross-over work with other hazards

# Knowledge Needs?

## Hazard

On-going updates to National Tsunami Hazard Model

- Magnitude and frequency
- Local-source tsunami generation mechanisms
  - Subduction interface potential
  - ‘Tsunami earthquakes’
  - Submarine landslides
- Other regional gaps?



# Knowledge Needs?

## Risk and Resilience

- Risk treatments and trade-offs
- Performance of urban systems
- Risk interpretation and action
- Tsunami recovery planning



**Cross-over issues with other hazards**



# Role of GeoNet



- **Understanding Hazard**
  - Plate boundary conditions and processes
  - Leveraging international science collaborations
    - Offshore NI East Coast (Japan, US \$\$\$)
  - International seismic and tsunami data networks
- **National Science Response**
  - Earthquake science response
  - Tsunami assessment process
  - Coastal tsunami monitoring
  - Future? National warning capability
    - 24/7 operations
    - Offshore sensors?

