

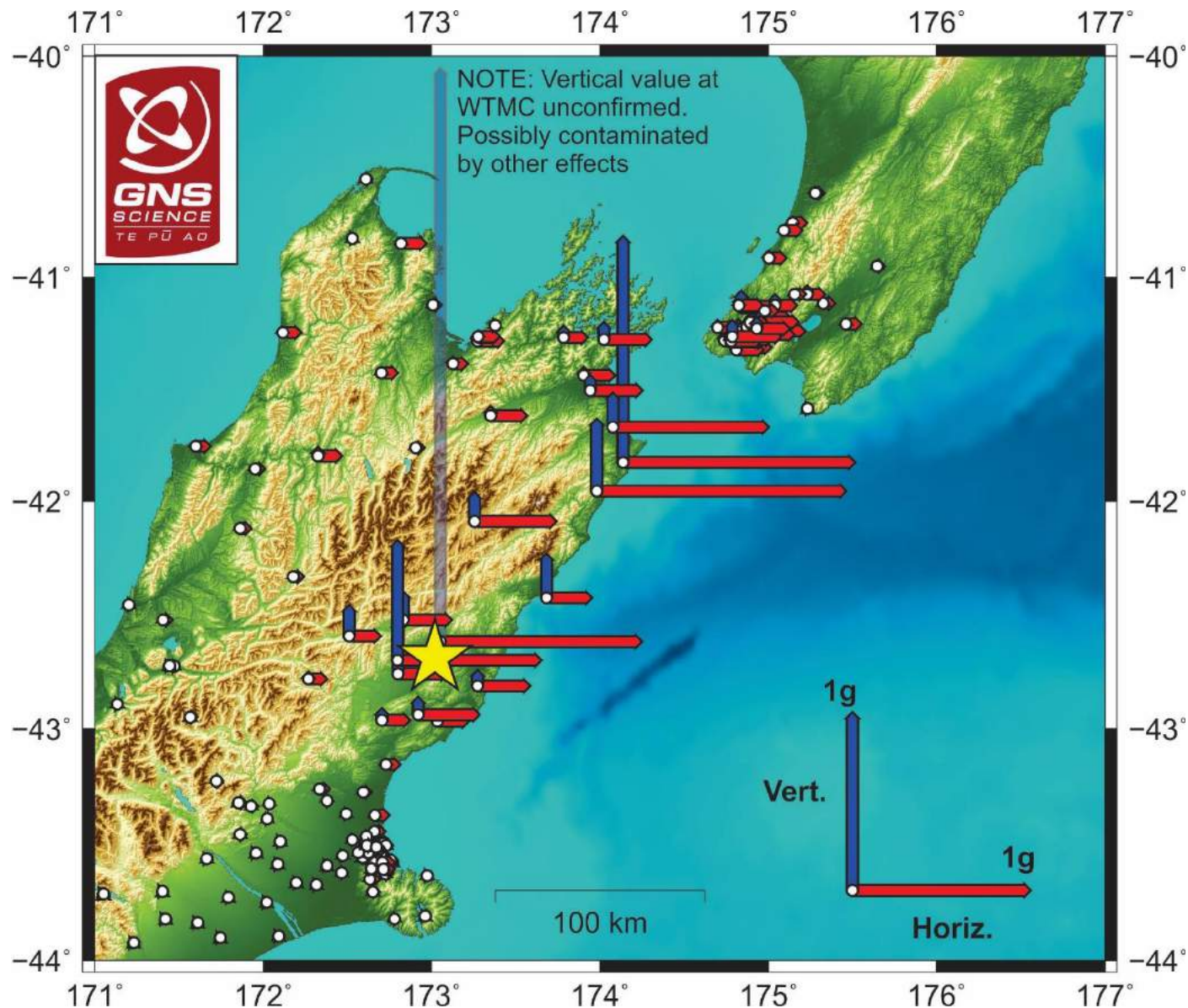
# $M_w$ 7.8 Kaikoura Earthquake

## South Island Built Environment Impacts

Liam Wotherspoon

# Ground Motions

# Overview

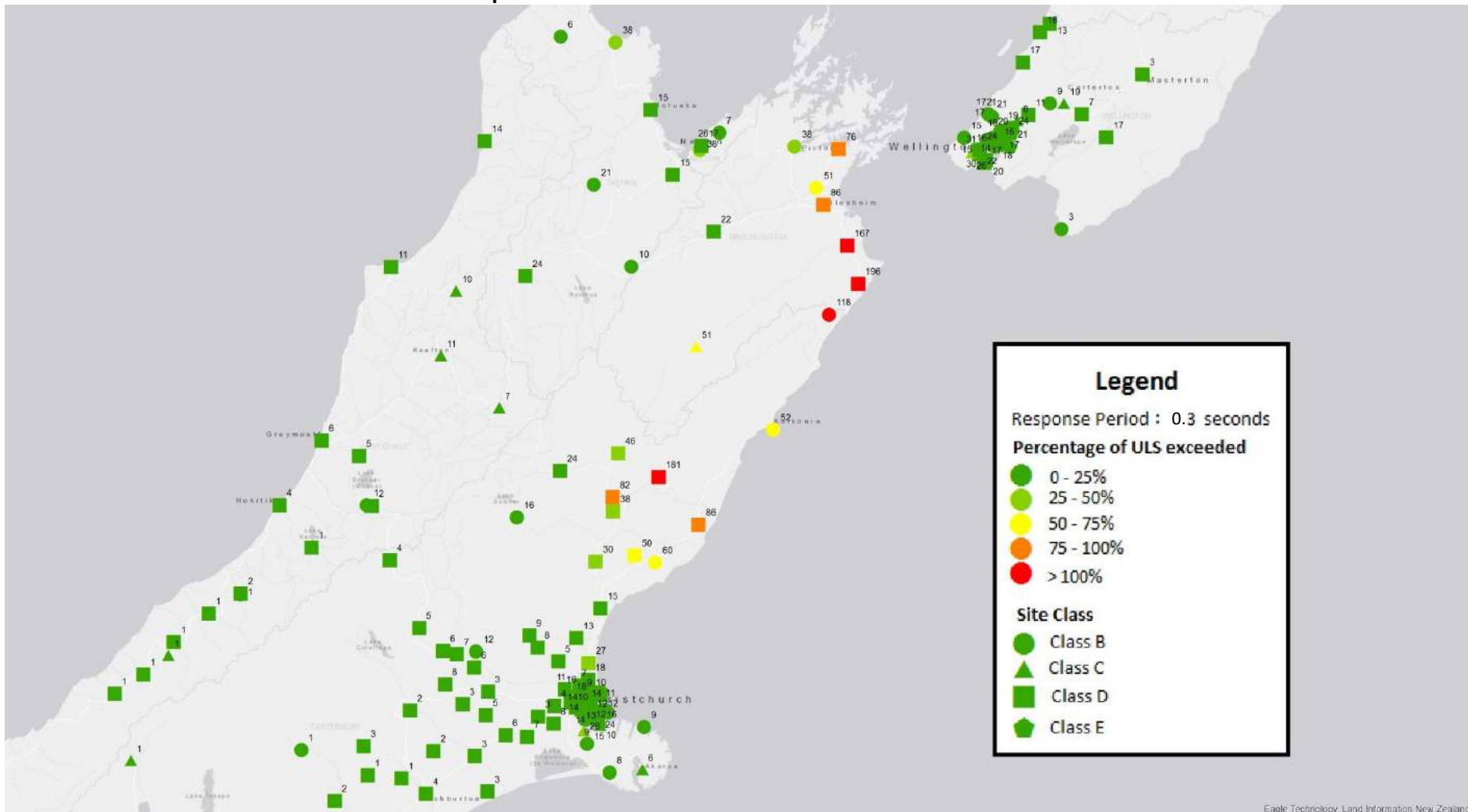


# Spectral Characteristics

% of ULS for 0.3 second period



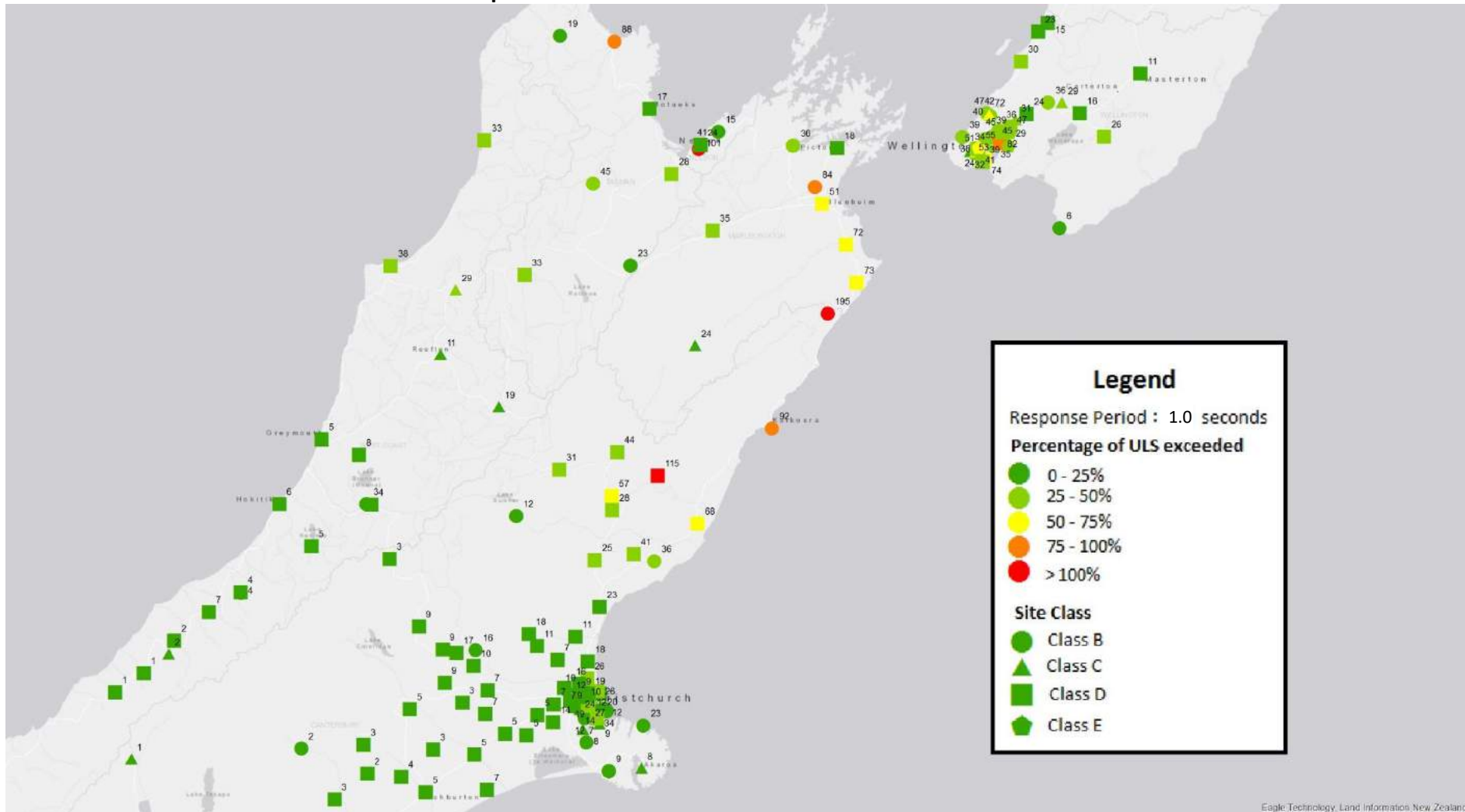
QuakeCoRE  
NZ Centre for Earthquake Resilience



Eagle Technology, Land Information New Zealand

# Spectral Characteristics

% of ULS for 1.0 second period

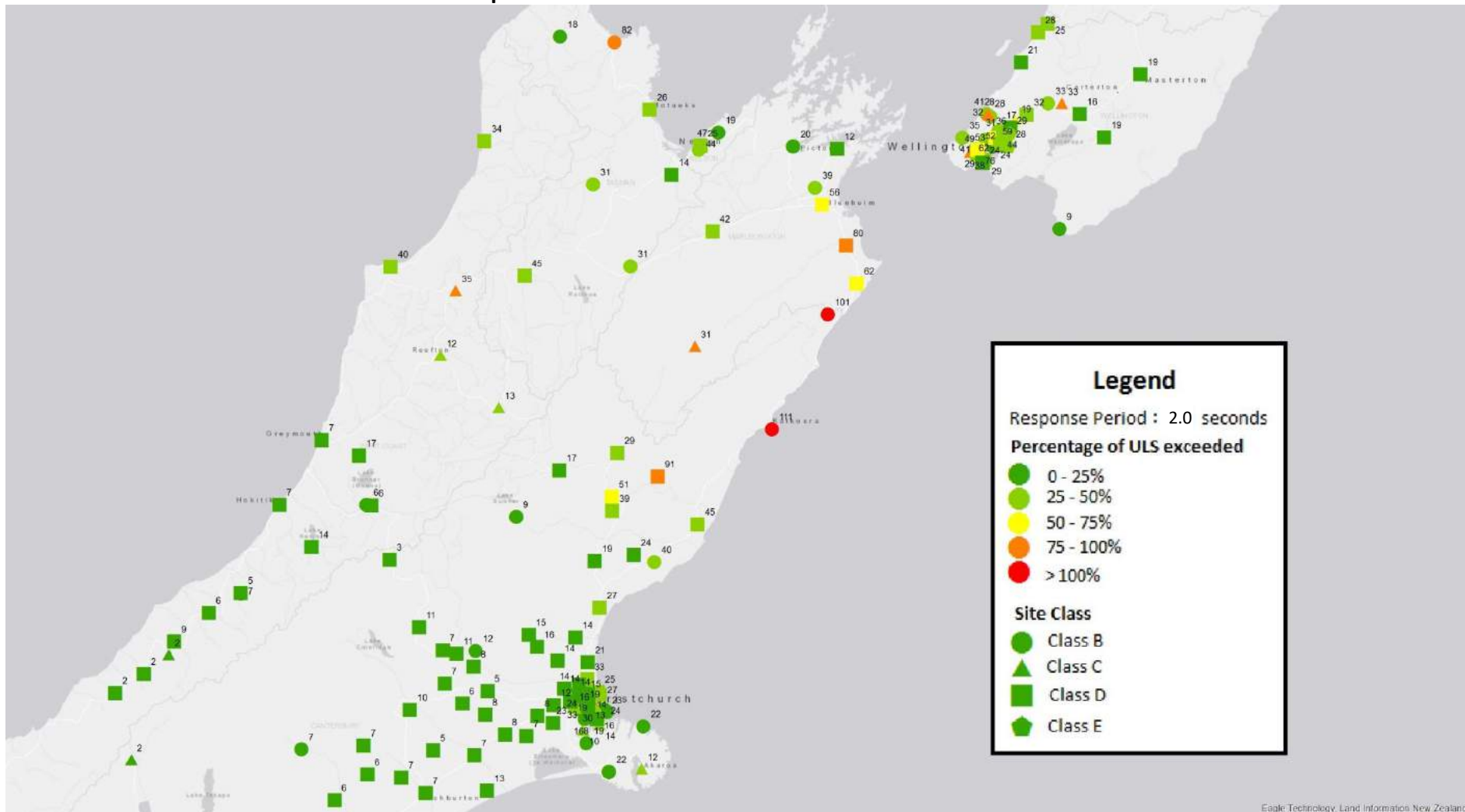


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# Spectral Characteristics

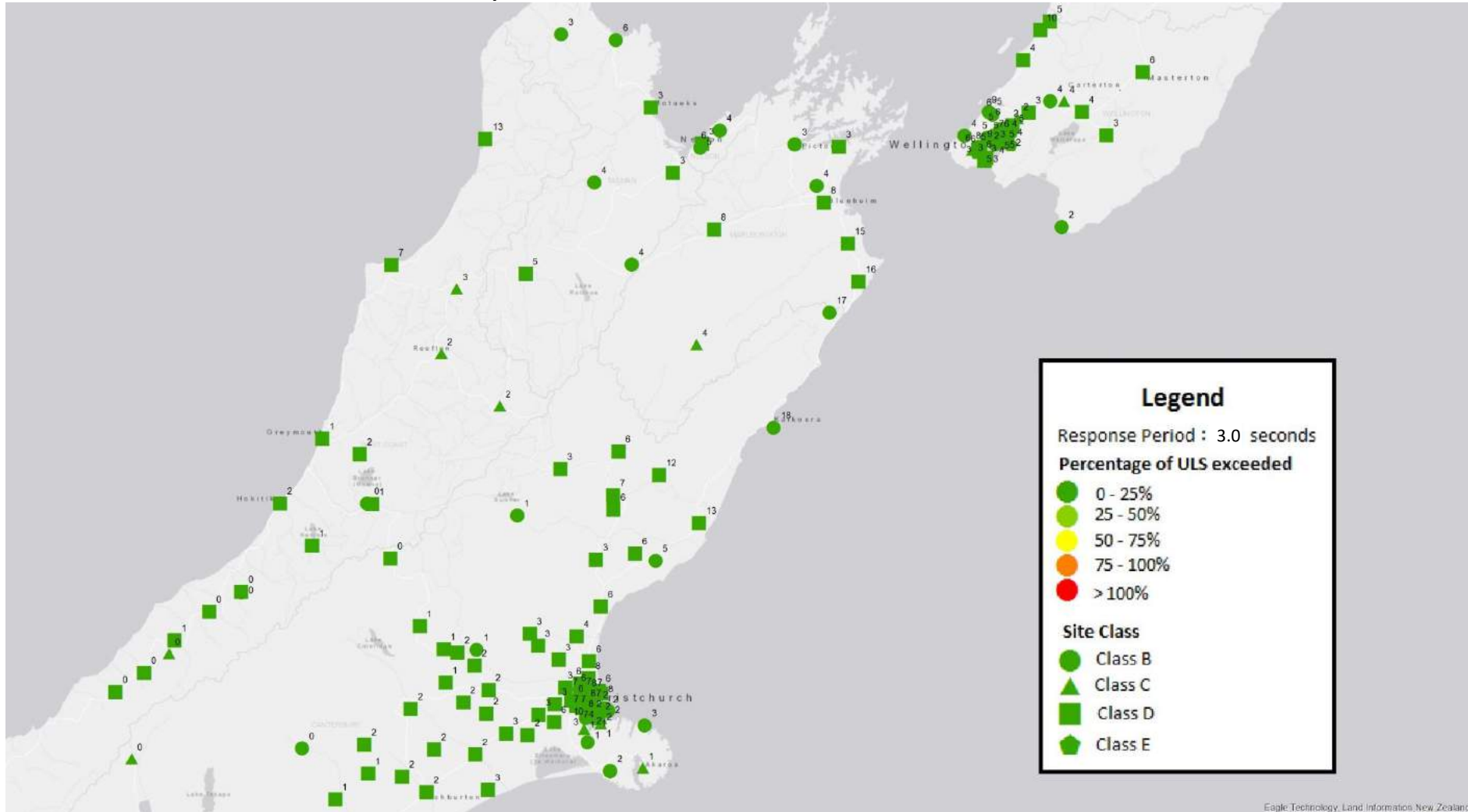
% of ULS for 2.0 second period



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# Spectral Characteristics

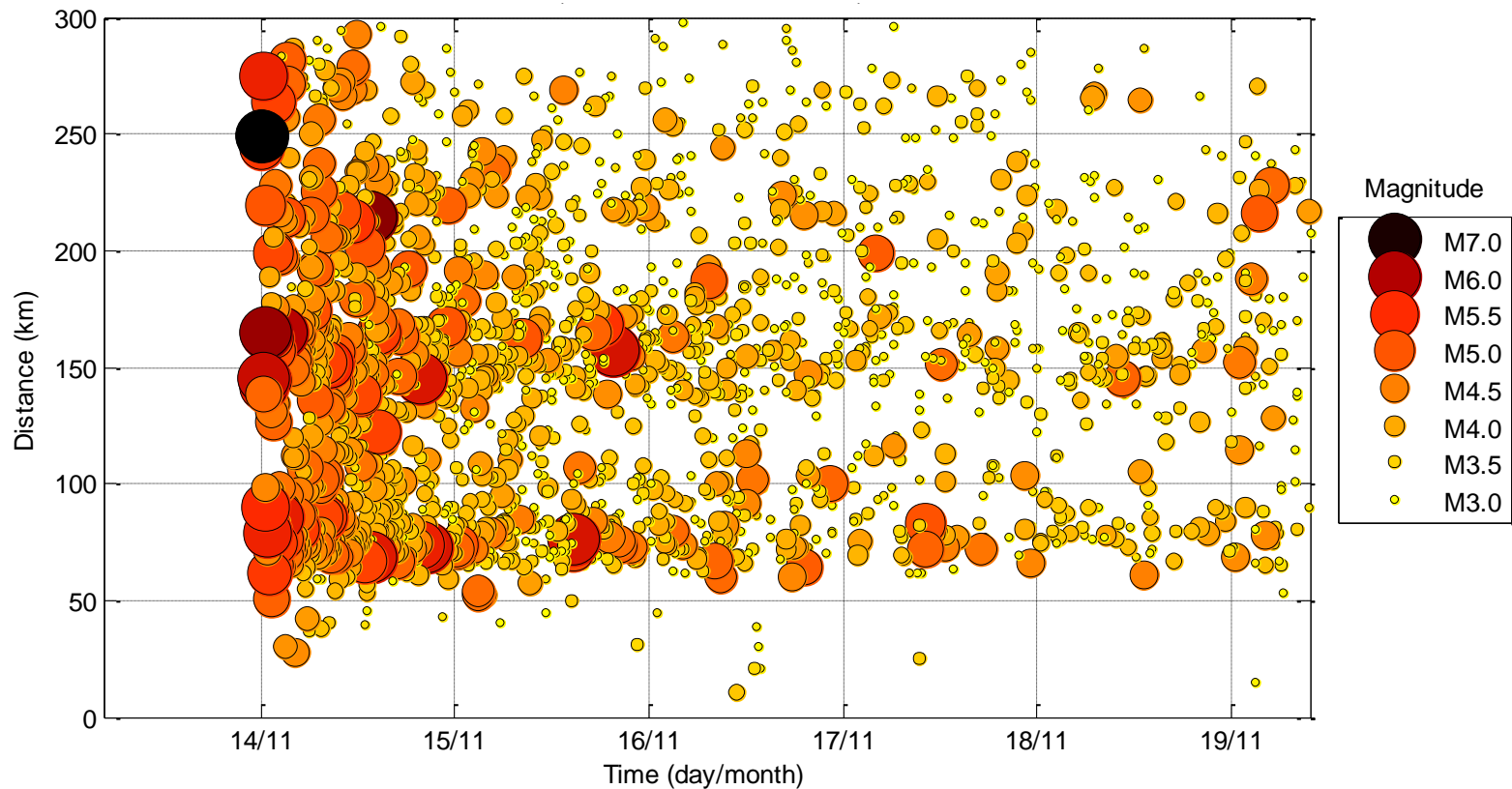
% of ULS for 3.0 second period



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# Aftershock Sequence

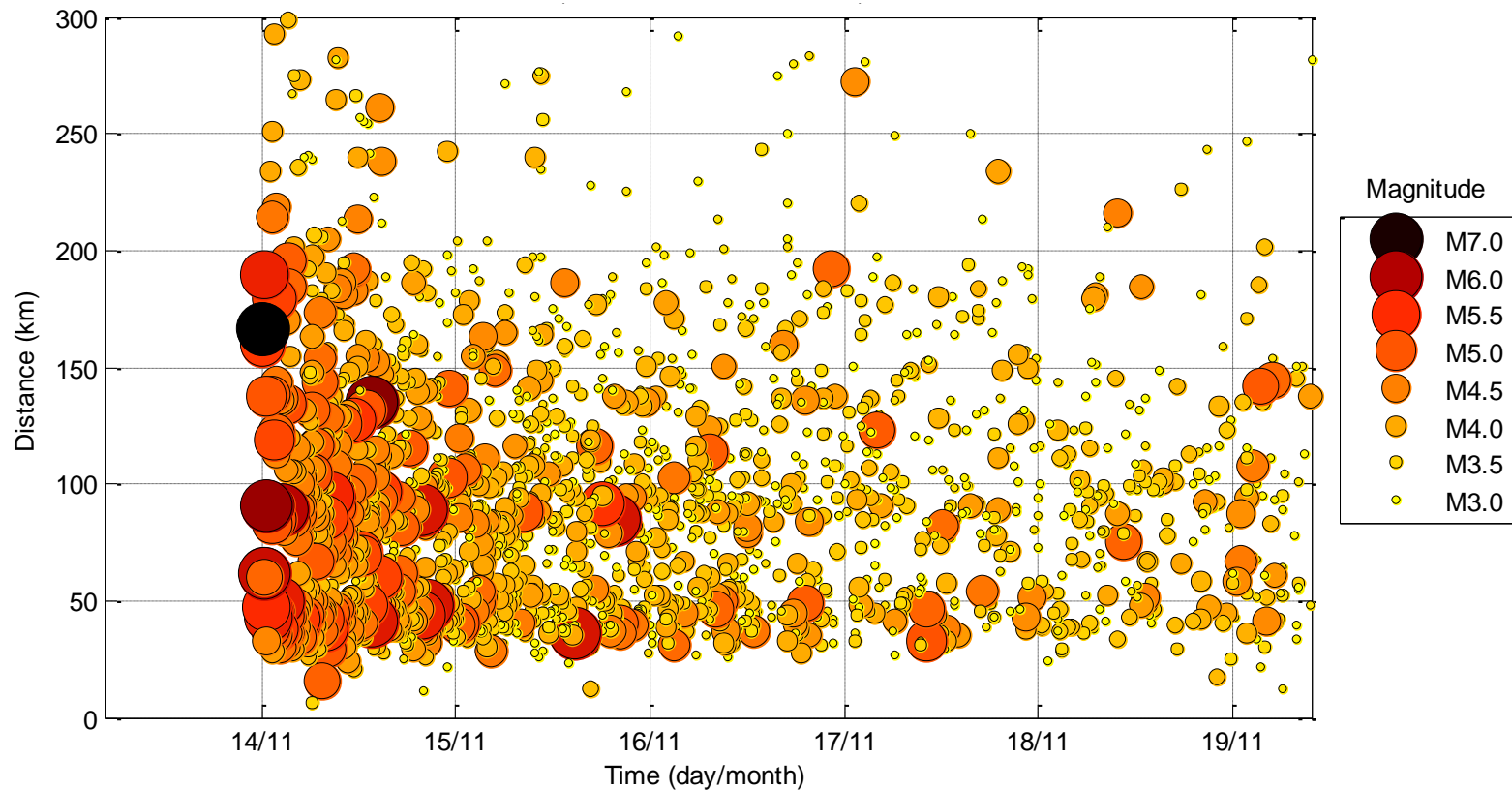
- Wellington
- Magnitude-Distance-Time





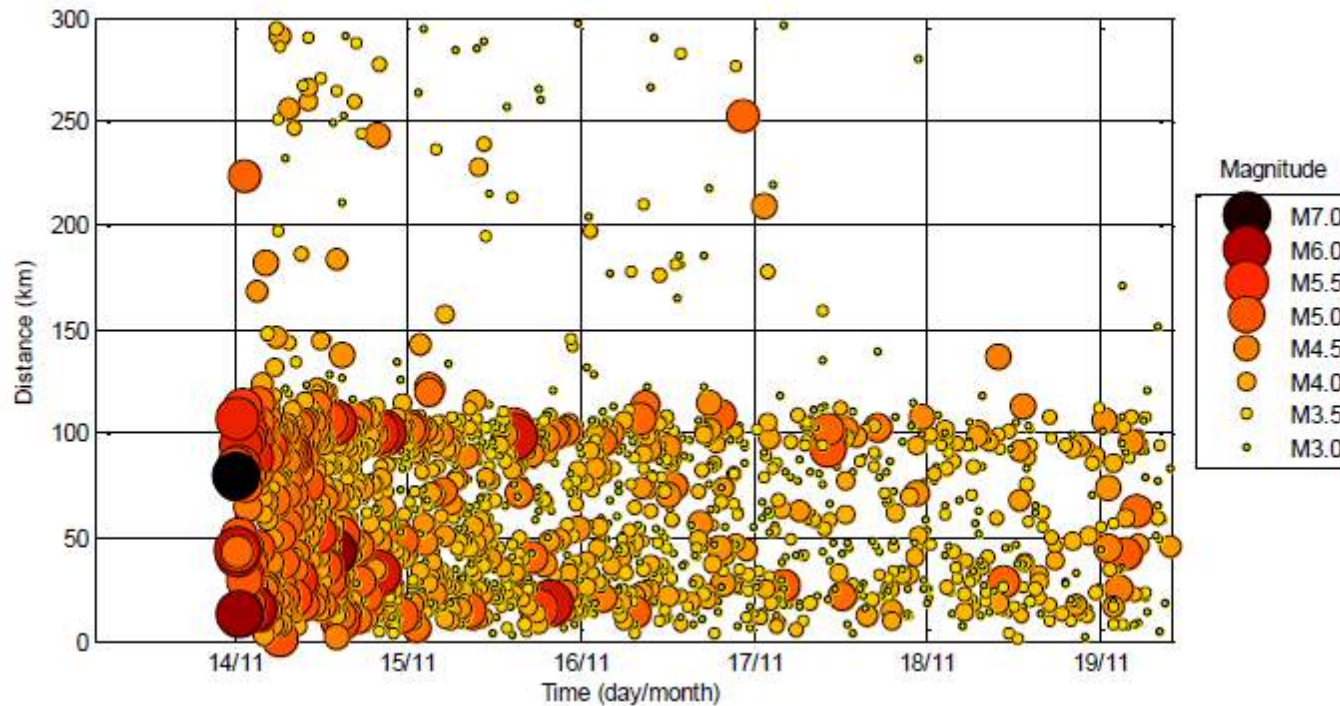
# Aftershock Sequence

- Blenheim
- Magnitude-Distance-Time



# Aftershock Sequence

- Kaikoura
- Magnitude-Distance-Time



# Infrastructure Impacts

# Road Instability





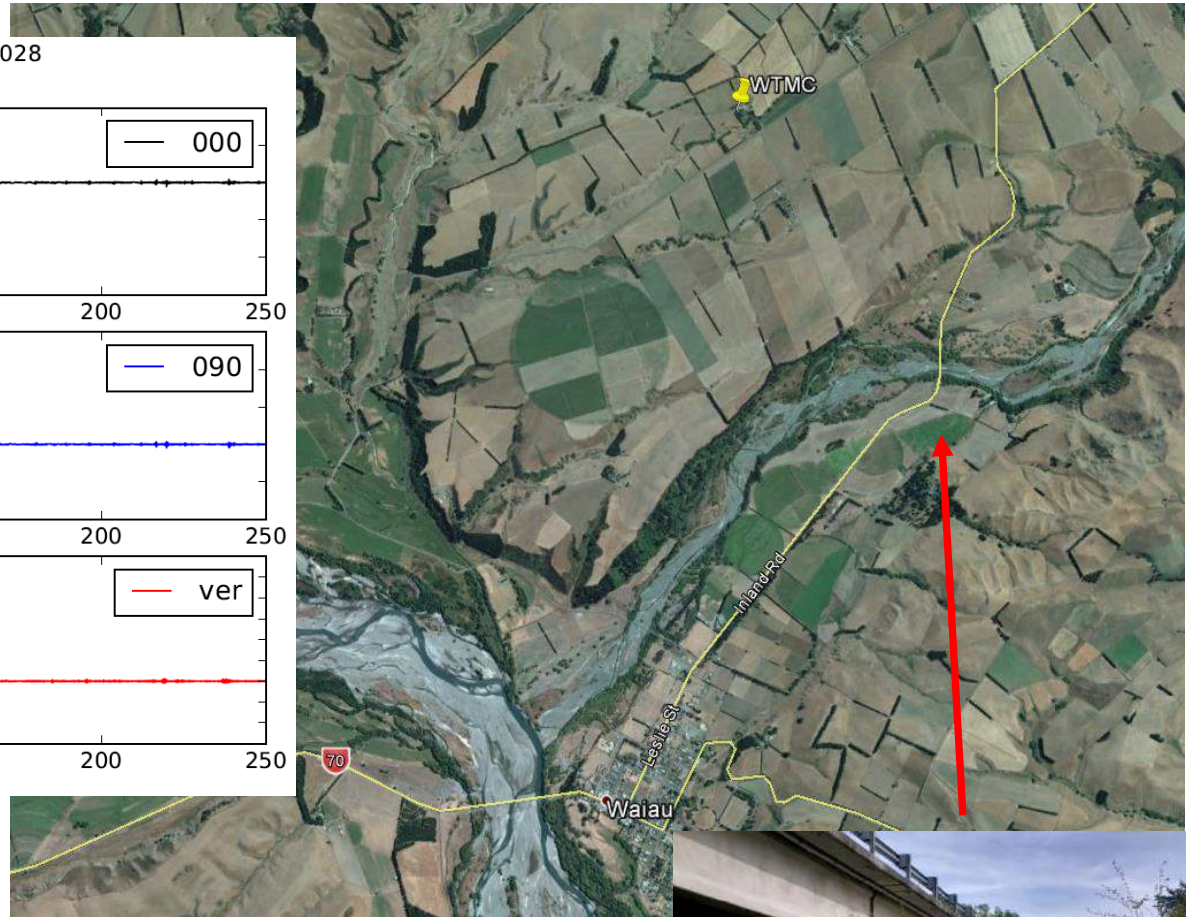
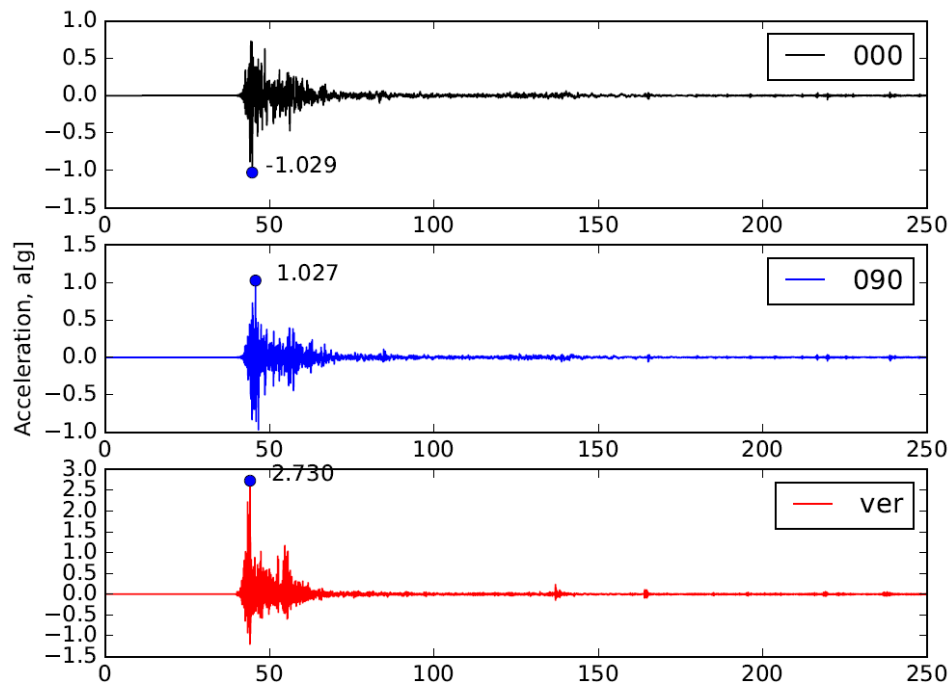
# Road Instability





# Bridges

WTMC, PGA geometric mean=1.028



























# Rail





# Rail





# Historic Buildings

- All Saints Church Waiau





# Historic Buildings



# Liquefaction

















# Flood Defence





# Flood Defence













