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Influence of geometric, geologic, geomorphic and subsurface ground conditions on the accuracy of empirical models for prediction of lateral spreading

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Exceptional thinking together
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2010-2011 Canterbury Earthquake Sequence

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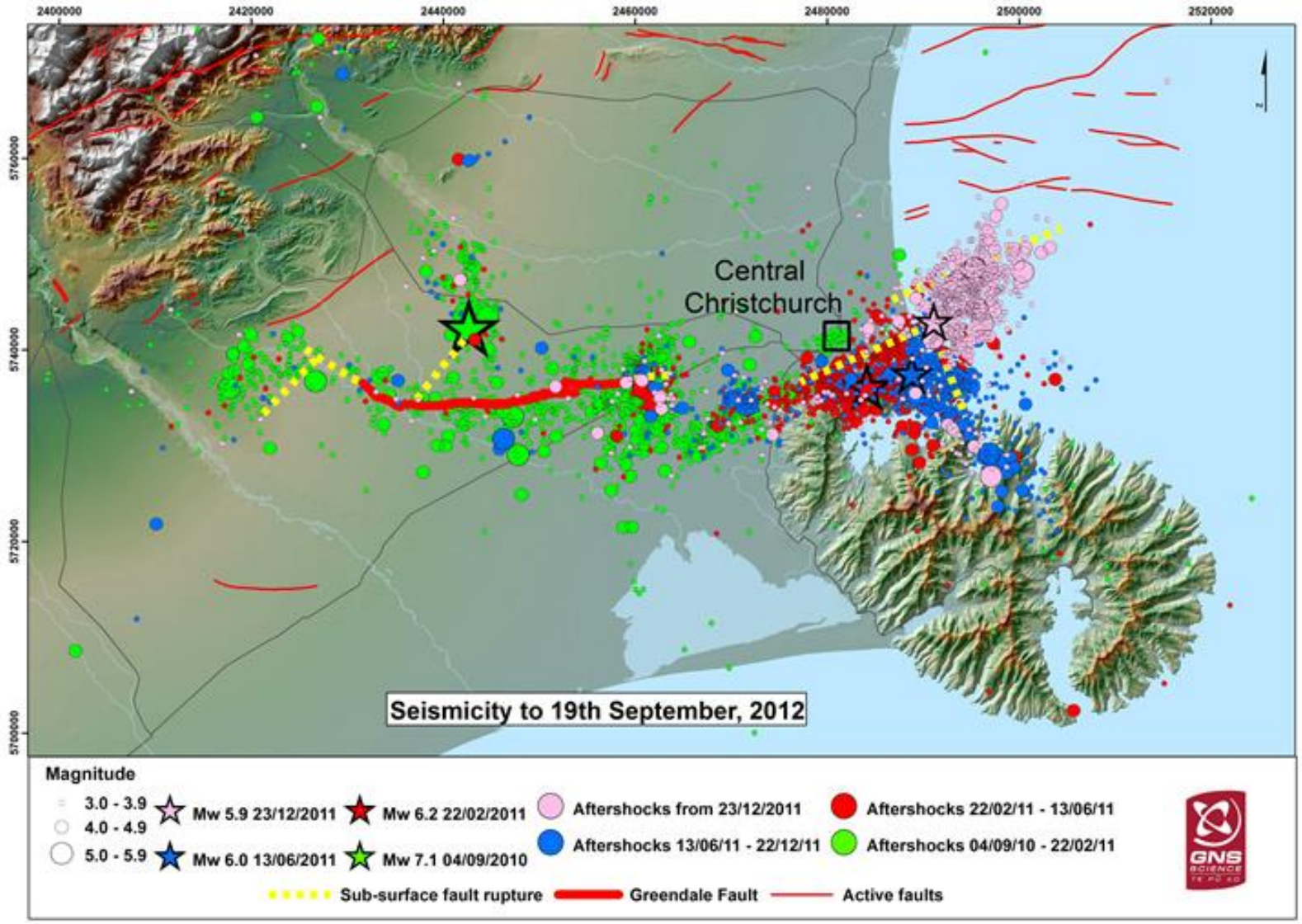
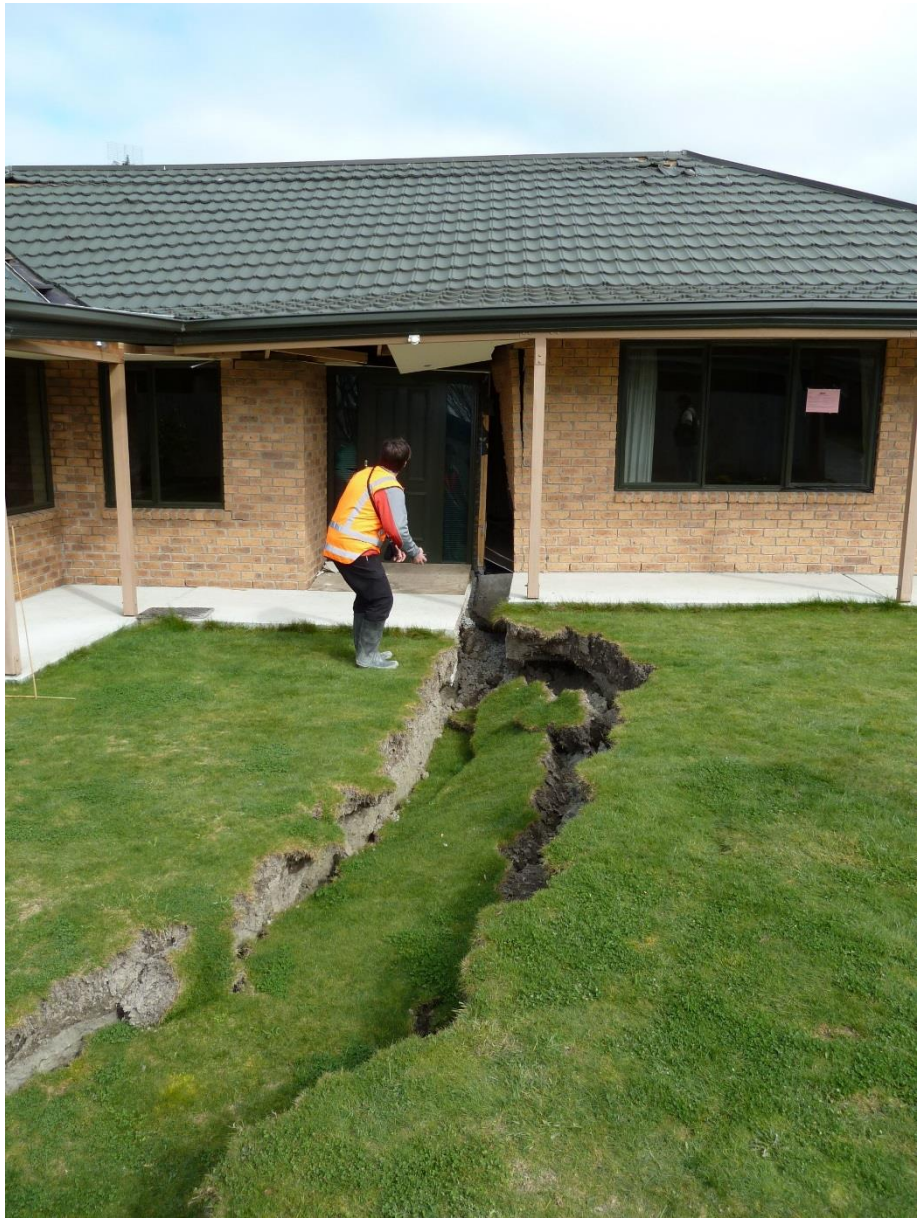
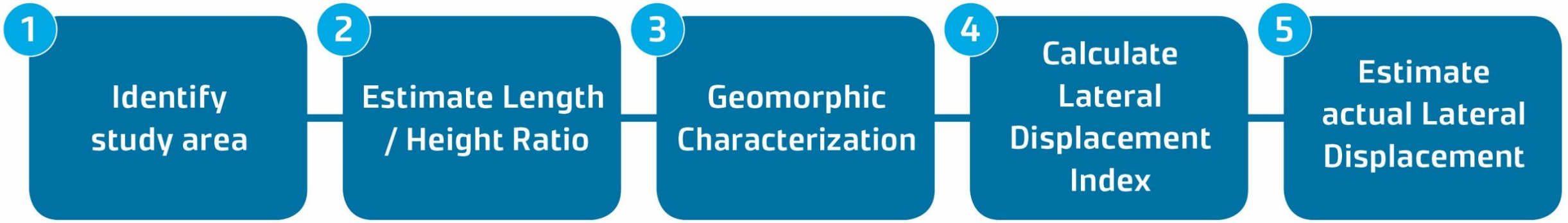
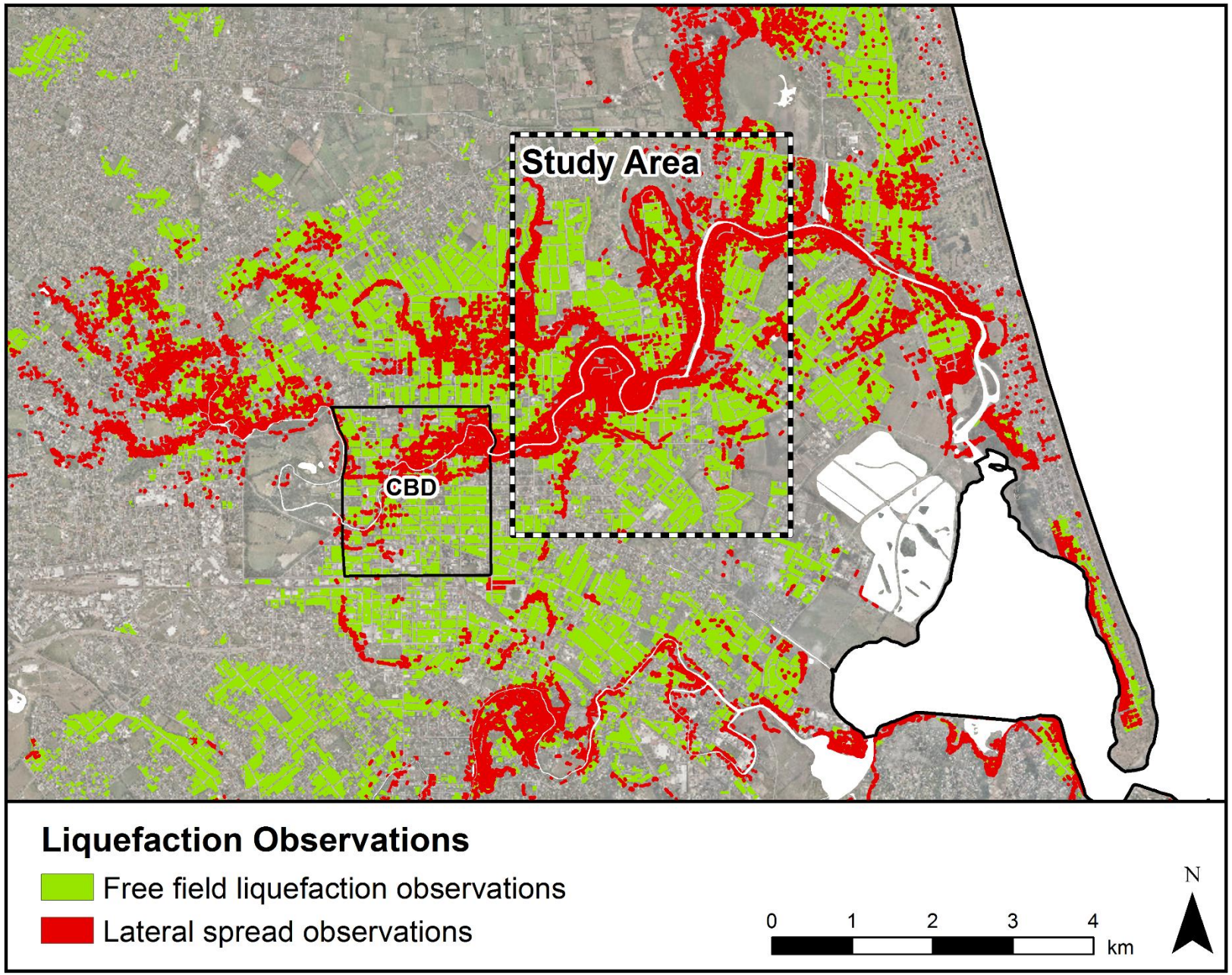




$$LD = 6\left(\frac{L}{H}\right)^{-0.8}.LDI$$

Methodology





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1. Identify study area
2. Estimate Length / Height Ratio
3. Geomorphic Characterization
4. Calculate Lateral Displacement Index
5. Estimate actual Lateral Displacement

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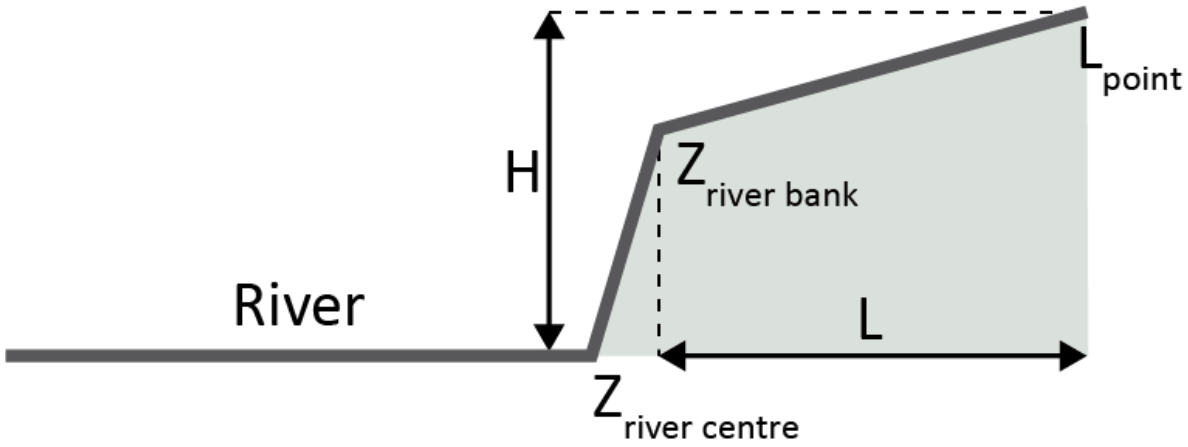
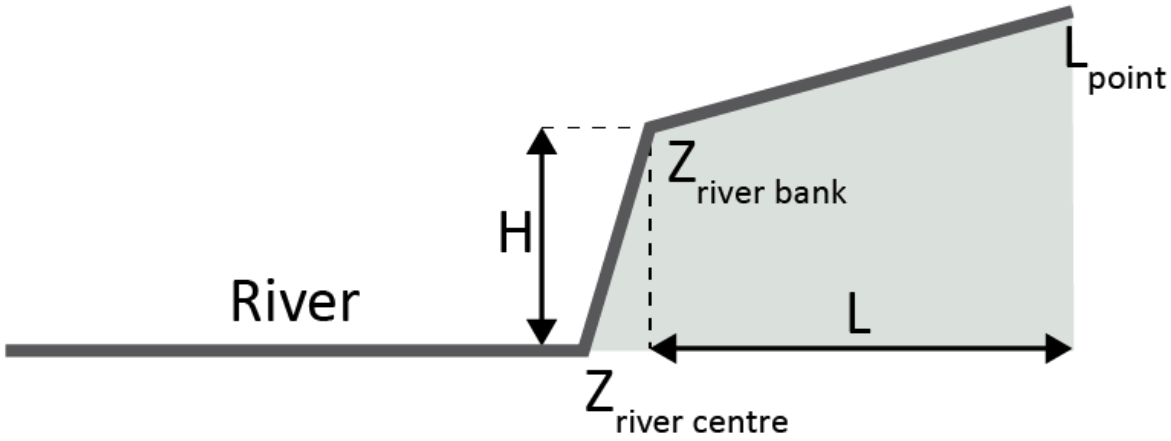
Case I



Case II



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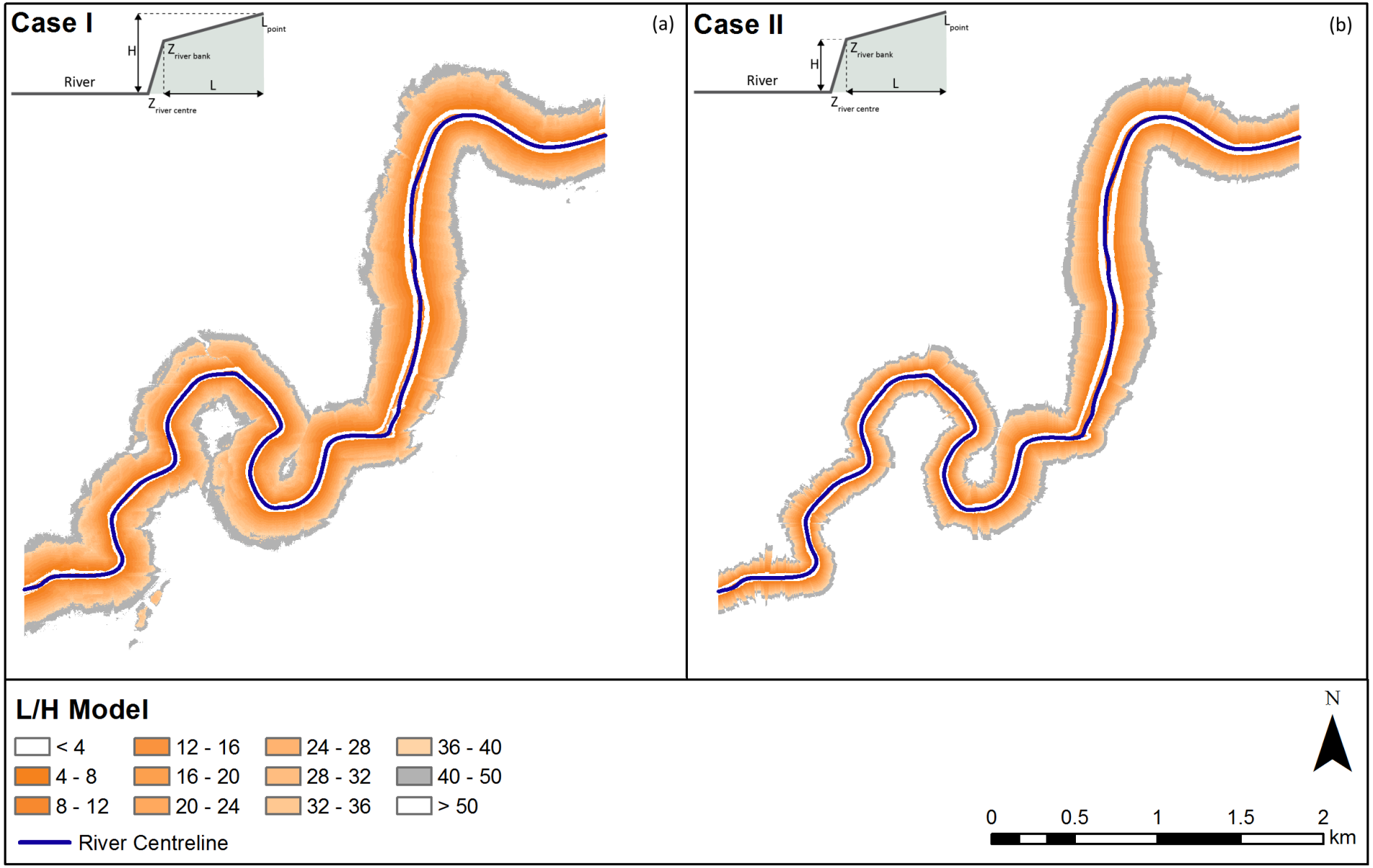

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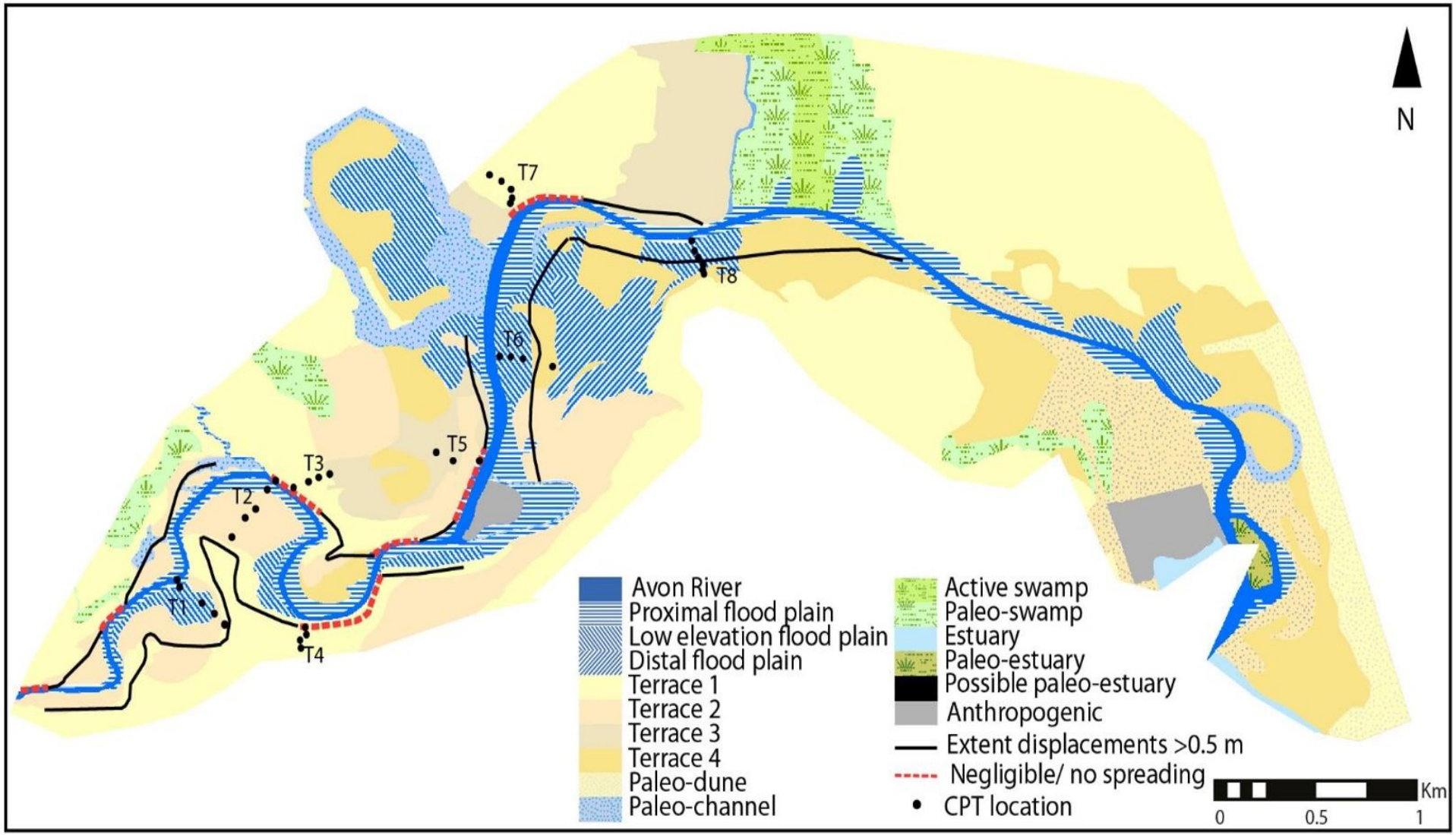

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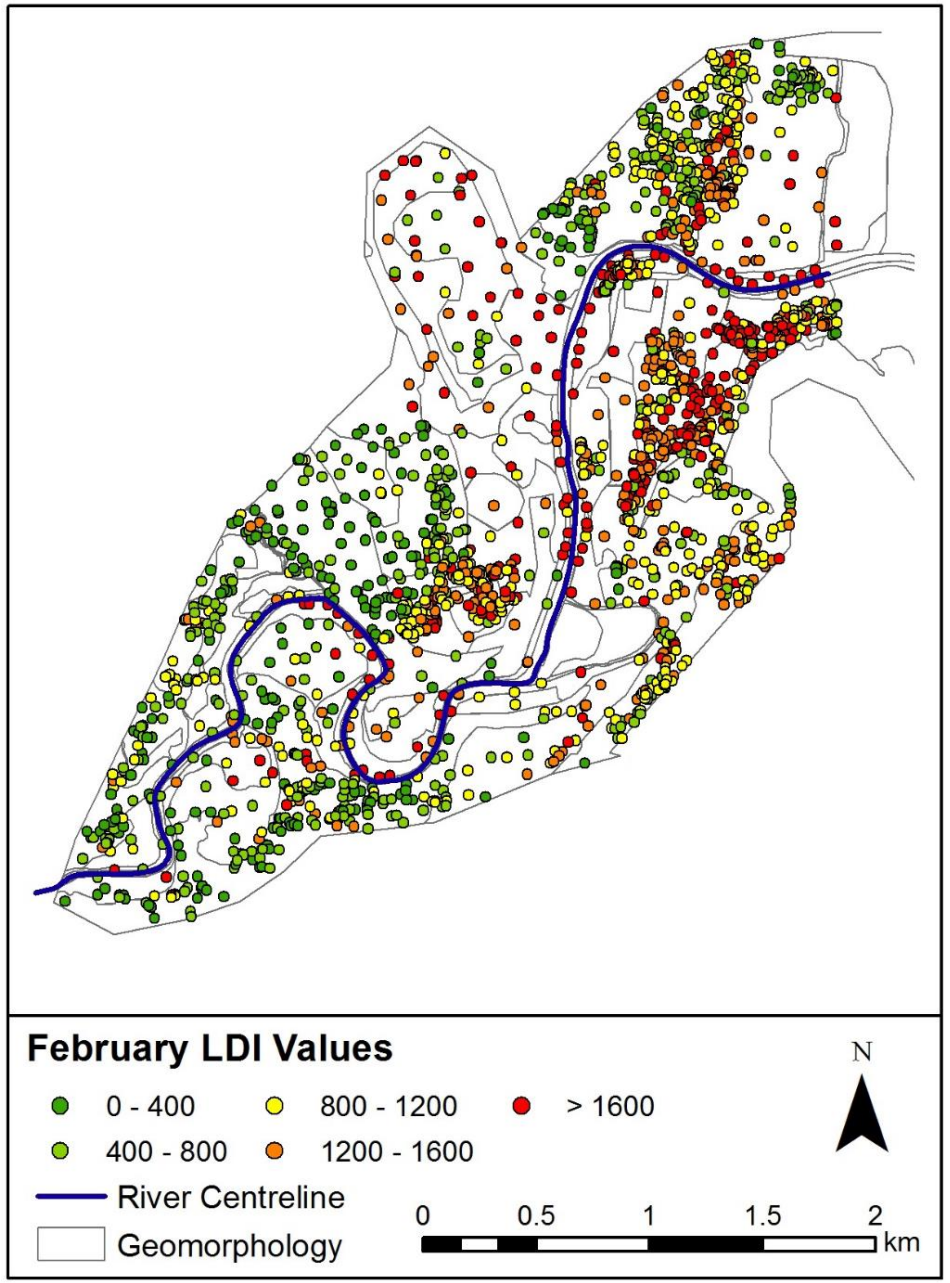

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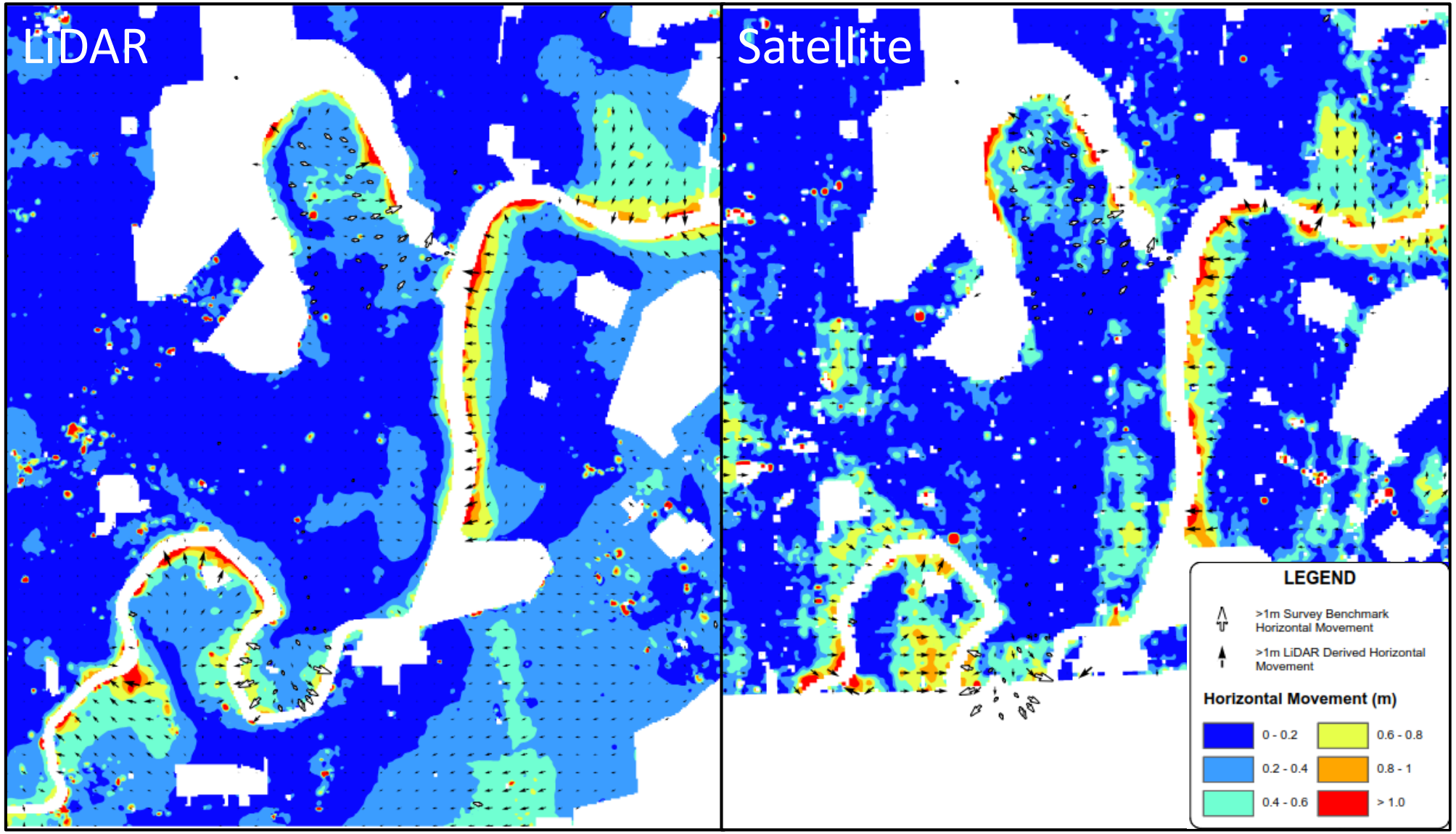

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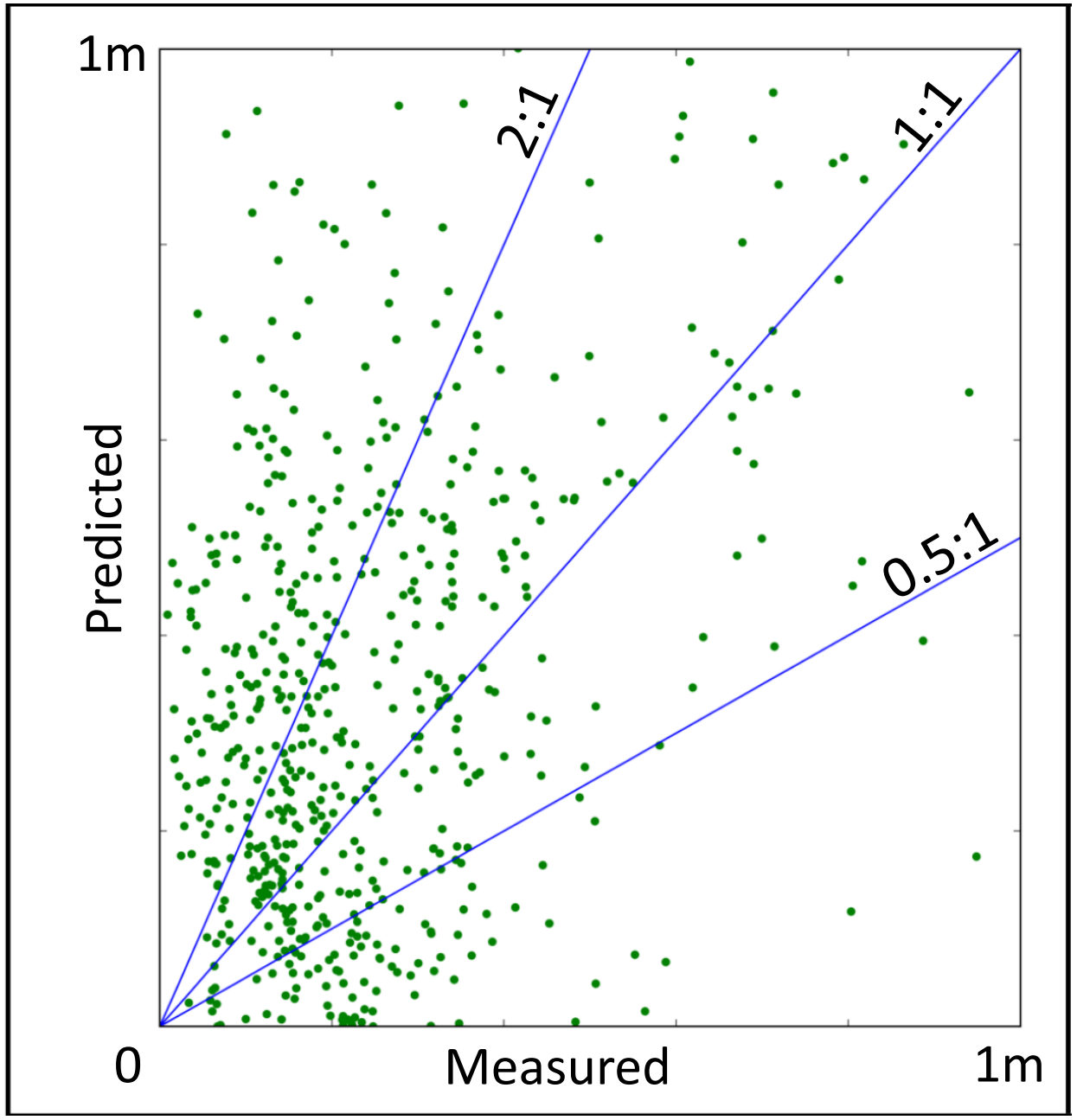

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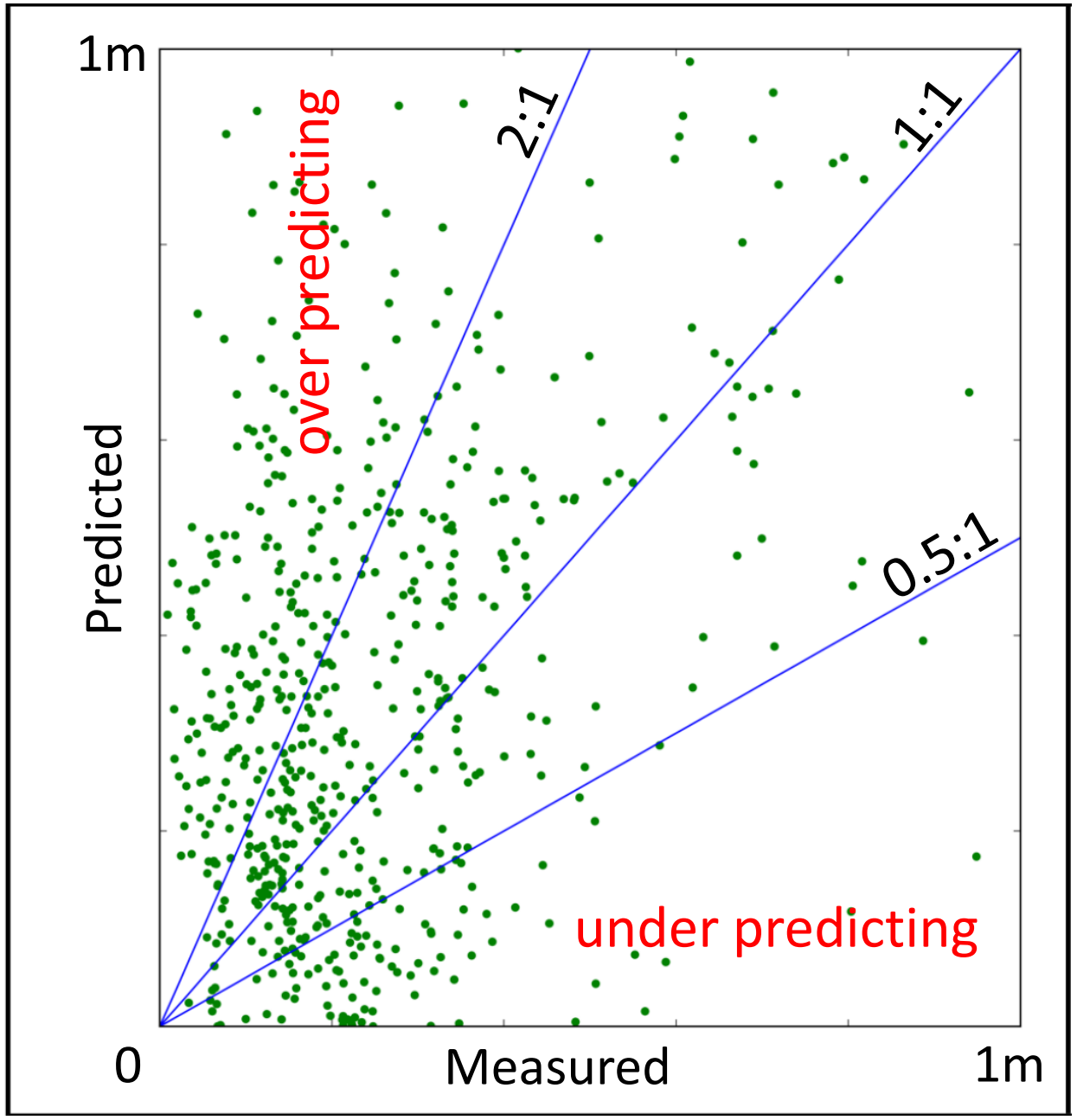

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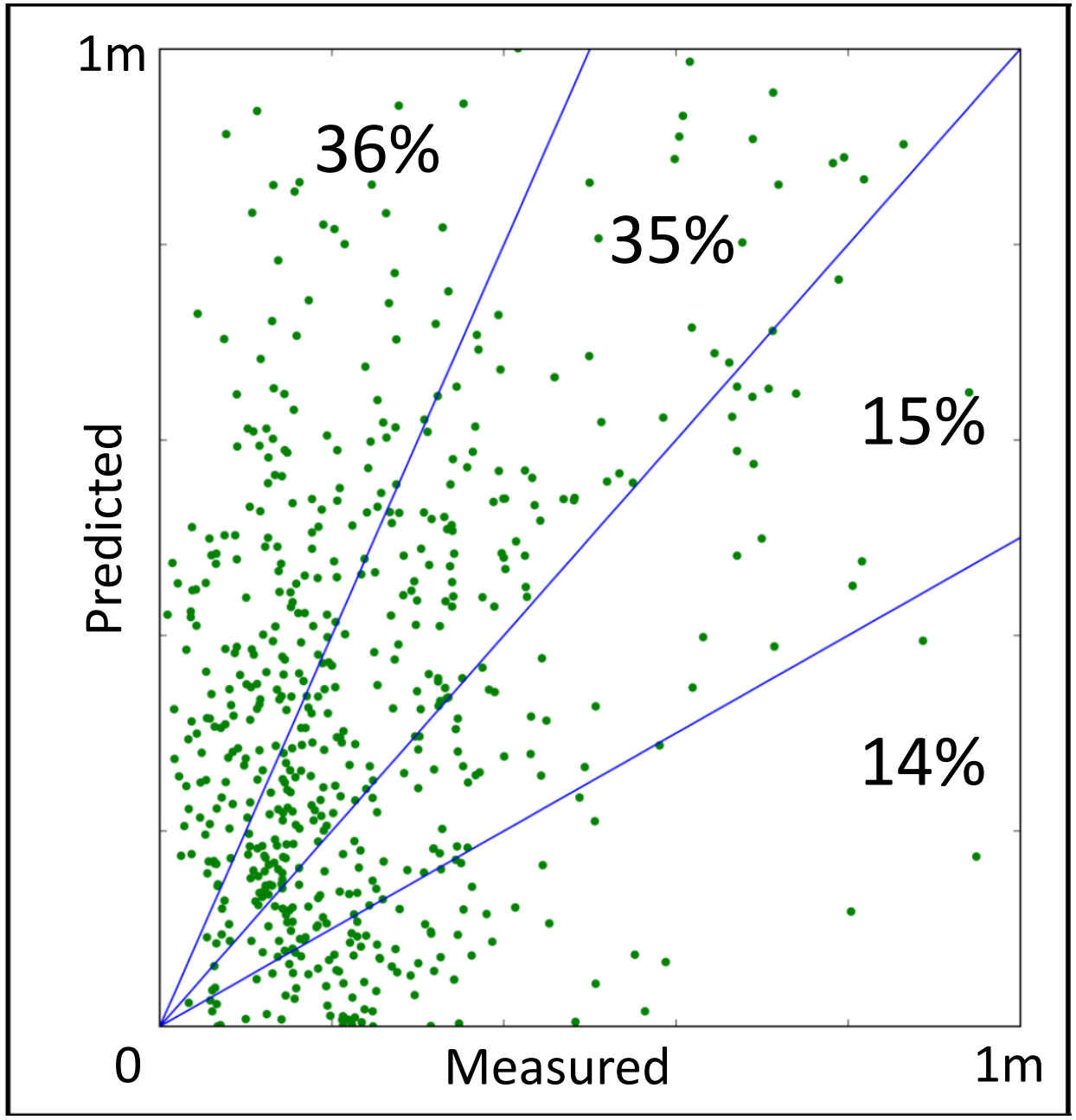

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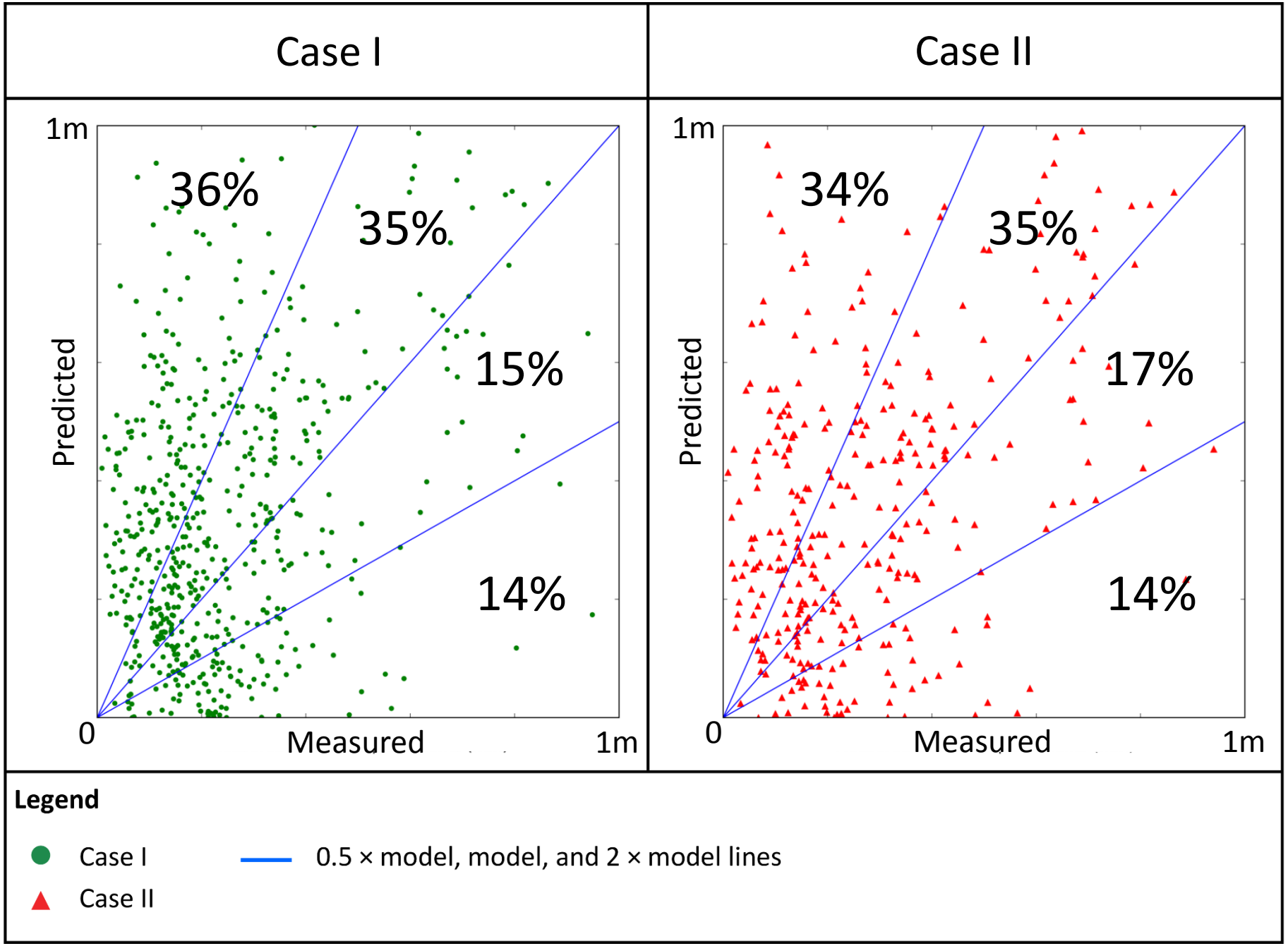

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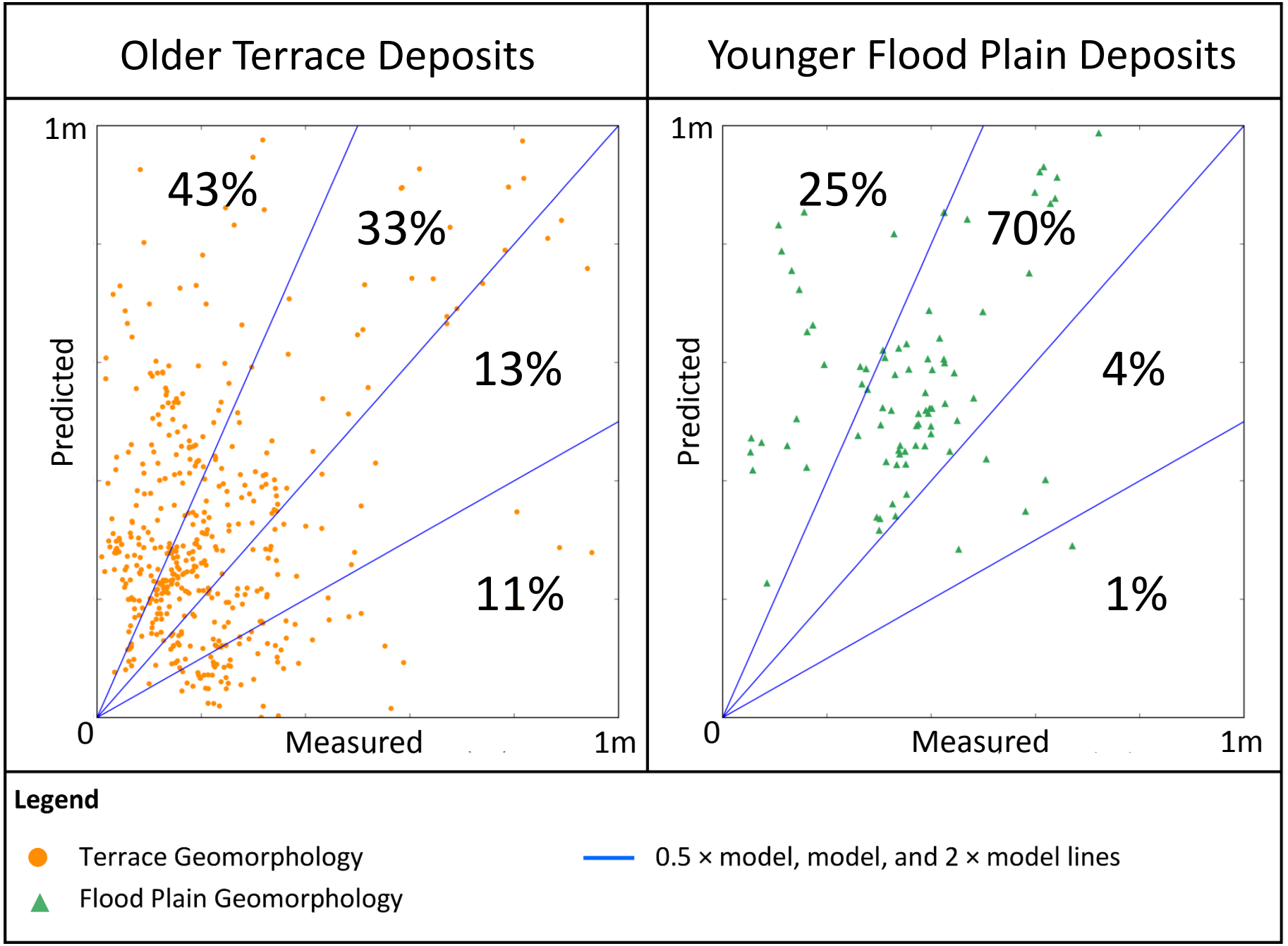

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Conclusions

- Considerable scatter in the results with a tendency towards over prediction
- Length / Height assumptions did not appear significant at larger distances from the free face
- Zhang et al. (2004) model shows improved correlation with younger floodplain deposits vs. older terrace deposits

Acknowledgements

QuakeCoRE
NZ Centre for Earthquake Resilience

EQC
EARTHQUAKE COMMISSION
Kōmihana Rūwhenua

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