

FP2 – INTRODUCTION

(Misko & Sjoerd; 15 min)

1) Overview of QuakeCoRE & FP2 activities

- QuakeCoRE Awarded (May 2015)
- Leadership Team activities (retreat, weekly/fortnightly meetings, ...)
- 6 Flagship Projects; 4 Technology Platforms (FIG 1)
- FP2: Liquefaction Impacts on Infrastructure
- QuakeCoRE Workshops – FP2 Workshop (FIG 2; FIG 3)
- Contestable funding, Round 2015-2016 (RfP, September 2015)
- Awarded Research Projects 2016 (December – January)
- FP2 Monthly meetings
 - o Discussion on ongoing research projects (research: details, issues, progress, outputs, ...)
 - o Development of ideas/proposals for next RfPs (coordination)
 - o FP2 research team (NZ capability development; inter-institutional, inter-disciplinary collaboration, academia-industry-authorities- ...)

FP2: Research Projects 2016

- “Whakatane liquefaction case history from the 1987 Edgecumbe Earthquake: examination of an extensive CPT dataset supplemented by paleo-liquefaction investigations” (Sjoerd)
- “Evaluation of undisturbed sampling techniques for pumiceous soils” (Mark)
- “Numerical modelling of recorded pore pressure response during the Canterbury Earthquake Sequence” (Mick)
- “Characterisation of cyclic behaviour and liquefaction resistance of gravelly soils” (Gabriele)
- “Evaluation of liquefaction potential of pumiceous deposits through field testing” (Rolly)
- “Comparison between deterministic and probabilistic liquefaction triggering assessment approaches over the Christchurch area” (Virginie)
- “Effects of Partial Saturation on Liquefaction Triggering” (Misko)

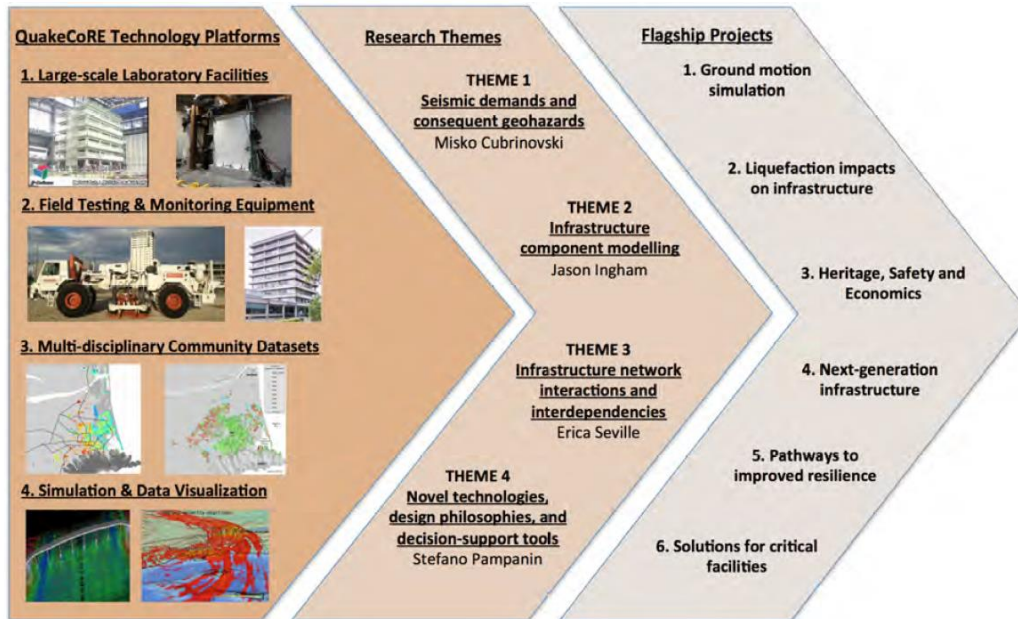


Figure 2: QuakeCoRE structure, illustrating the relationship between the Technology Platforms, Research Themes

Three Thrust Areas (with strategic impacts)

- (1) Liquefaction Evaluation: Beyond Current State-of-Practice – Make best use of exceptional databases compiled during CES, and develop improved liquefaction evaluation procedures (field, laboratory, analytical tools and methodologies) that will adequately address current and future society needs for performance of land and infrastructure during earthquakes.
- (2) Liquefaction Vulnerability of NZ Infrastructure: Critical or Not? – Liquefaction characterization of specific NZ soils of high impacts either in terms of potential damage or cost in engineering projects; identification of critical issues, mechanisms and conditions related to liquefaction impacts on NZ infrastructure, development of assessment procedures and cost-effective mitigation measures.
- (3) Liquefaction Assessment and Mitigation: Systems Approach – Development of performance based criteria for micro and macro urban systems (soil-foundation-building; soil-pile-abutment/pier-bridge; CBD; residential suburb) and lifeline networks (PW; WW; road; power; etc.) integrating various disciplines (viewpoints/requirements).

Flagship 2: Liquefaction Impacts on Infrastructure

Thrust 1: **Methodology**

- Liquefaction triggering
- Settlement, ground displacements
- Lateral spreading ...

Thrust 2: **NZ Specific Soils and Infrastructure**

- Alluvial sandy and silty soils
- Pumiceous soils
- NZ buildings and infrastructure ...

Thrust 3: **Systems and Networks**

