
# Tuesday, 23 March
## Pre-Symposium Offerings

| QUEENSTOWN | | |
|---|---|---|
| 12.30 | Arrival tea & coffee | Copthorne Hotel and Resort Queenstown Lakefront |
| 13.00 | **Workshop: Engineering value from the monitoring of slopes – current practice and the future**<br>Sponsored by GNS Science | |
| 17.40 | Workshop concludes | |

# Wednesday, 24 March

| QUEENSTOWN | | |
|---|---|---|
| 8.00 | **Field Study**<br>(2 options) between Queenstown & Dunedin<br>Sponsored by GNS Science<br>*Detailed itinerary provided by email.* | Departs by bus from Copthorne Hotel and Resort Queenstown |

| DUNEDIN | | |
|---|---|---|
| 14.45 - 18.15 | **Train: Dunedin Station to Hindon Station Return**<br>Join in the fun as the train goes to Hindon Station to pickup Field Study guests. Snacks, a drink and commentary provided. Train departs at 3pm and sign up is required. | |
| 18.30 - 20.30 | **Symposium Welcome Reception**<br>Sponsored by Terra MDC<br>*Join us for a fun and informal start to the Symposium!* | Toitū Otago Settlers Museum |


# Thursday, 25 March
## Symposium Day 1

| DUNEDIN CONFERENCE CENTRE | | | |
|---|---|---|---|
| 7.30 | Check in desk opens (Foyer)<br>Exhibition open w/ ENGEO Sponsored Coffee Cart (Town Hall) | | |
| 8.30 | **Opening Ceremony - Eleni Gkeli, 2021 Convenor & Ross Roberts, NZGS Chair**<br>(Glenroy Auditorium) | | |
| 9.00 | **Virtual Keynote: Dr Sissy Nikolaou**<br>Functional Recovery: Design Utopia or Elective Reality?<br>Chaired by Eleni Gkeli | | |
| 9.45 | **Address from MBIE Chief Engineer Mike Kerr**<br>The balance of regulation between community risk and community impact<br>Update on current and future MBIE projects<br>Sponsored by MBIE – Chaired by Eleni Gkeli | | |
| 10.15 | **MORNING TEA** (Town Hall) | | |
| 10.45 | **Misko Cubrinovski & Mike Stannard**<br>Update on Finalisation of the MBIE / NZGS Geotechnical Guidelines<br>Sponsored by MBIE – Chaired by Ross Roberts | | |
| 11.45 | Move to next session | | |
| Session | **1A - Analysis and Classification of Problematic Soils**<br>Conf Rm 1 | **1B - Liquefaction Assessment and Mapping**<br>Conf Rm 2 | **1C - NCTIR Special Session**<br>Glenroy Auditorium |
| Chair | *Rolando Orense* | *John Scott* | *Ioannis Antonopoulos* |
| 11.50 | Identifying and classifying expansive soils in New Zealand – time to find a better way?<br>**Joshua Teal** | Tauranga's Western Zone: A regional-scale liquefaction case study<br>**Miles Buob** | Kaikoura Earthquake Transport Infrastructure Recovery<br>**Greg Saul** |
| 12.02 | The identification and characterisation of collapsible soils: a brief review of current practice<br>**George Brink** | Liquefaction exposure and impacts across New Zealand State Highways<br>**Amelia Lin** | Kaikoura Earthquake Marina Recovery<br>**Tony Fairclough** |
| 12.14 | Settlement performance of dwellings constructed on Takanini peats<br>**James Beaumont** | Regional-scale liquefaction susceptibility assessment for the Otago region, New Zealand<br>**David Barrell** | |


# Thursday, 25 March continued

| | | | |
|---|---|---|---|
| 12.26 | **LUNCH & POSTER SESSION** (Town Hall)<br>Poster presenters (odd #'s to stand with posters 12.56-13.26) | | |
| 13.26 | **Virtual Keynote: Prof Ross Boulanger**<br>Modeling slope instability due to undrained creep in clays and plastic silts<br>Introduced by Major Sponsor Ground Investigation (Marco Holtrigter)<br>Chaired by Philip Robins | | |
| 14.08 | Move to next session | | |
| Session | **2A - Foundation Design and SSI**<br>Conf Rm 1 | **2B - Advances in Site Investigation Practices and Interpretation**<br>Conf Rm 2 | **2C - Kaikōura Earthquake Special**<br>Glenroy Auditorium |
| Chair | *Nathan Schumacher* | *Sally Hargraves* | *Tony Fairclough* |
| 14.12 | Direct design of driven timber piles using CPT: A case study<br>**Marco Holtrigter** | Standard penetration test and shear wave velocity correlation for Wellington, NZ<br>**Ayoub Riman** | The resilience context of transportation routes and recovery after the 2016 Kaikōura earthquake in New Zealand<br>**Doug Mason** |
| 14.24 | Design of pump station foundations by numerical modelling – Part I<br>**Ioannis Antonopoulos** | Applicability of empirical SPT-CPT correlations for New Zealand soils<br>**Hui Zhou** | Application of the New South Wales RMS "Guide to Slope Risk Analysis" for Waka Kotahi, the NZ Transport Agency, Projects<br>**Richard Phillips** |
| 14.36 | Case study: Seismic foundation design for the new Wellington Children's Hospital<br>**Nicholas Clendon** | DEM simulation of 1-D compression test on pumice sand<br>**Sayed Hessam Bahmani**<br>**Presenter Ronaldo Orense** | Kaikoura Earthquake 2016 – implementation of site-specific slope instability mitigation solutions<br>**James Byron** |
| 14.48 | Designing timber compaction piles to achieve a target soil density using $CPT_u$ data<br>**Nick Barounis** | Assessing the quality and uncertainty of in-situ seismic investigation methods<br>**Liam Wotherspoon** | Jacobs Ladder – A Case-History of Debris Flow in a Post-Seismic Environment<br>**Richard Justice** |
| 15.00 | **AFTERNOON TEA** (Town Hall) | | |


# Thursday, 25 March continued

| Session | 3A - Large Ground Deformations and Liquefaction<br>Conf Rm 1 | 3B - Site Characterisation for Natural Hazard Risk Reduction<br>Conf Rm 2 | 3C - Kaikōura Earthquake Special (cont'd)<br>Glenroy Auditorium |
|---|---|---|---|
| Chair | *Misko Cubrinovski* | *Pathmanathan Brabhaharan* | *Greg Saul* |
| 15.30 | Time-history validation of simplified design procedure for shear piles subject to liquefaction induced lateral spread with evacuation<br>**Tzin Lai** | Characterising subsurface South Dunedin to better define multiple natural hazards<br>**Phil Glassey** | An analysis of sacrificial anchor tests and geological conditions across the NCTIR project<br>**Andrew Hills** |
| 15.42 | Design of pile foundations at site prone to liquefaction and lateral spreading<br>**Alexei Murashev** | Case studies to support stability assessments for resilient development in Northland<br>**David Buxton** | A case study in earthquake recovery and resilient design, Slip NRP5, Kaikōura<br>**J.R. Grindley** |
| 15.54 | Lateral deformations of a pile group due to soft soil consolidation<br>**Adrian Short** | How much may the precision of site conditions modelling affect seismic risk assessment at large urban scale? The case of Thessaloniki, Greece.<br>**Kostas Lontzetidis** | Innovation under pressure - Ohau Point slope stabilisation<br>**Mat Avery** |
| 16.06 | System response liquefaction analysis – application of a "base Isolation" effect"<br>**Hayden Bowen** | Managing ground risk for Auckland's City Rail Link project: concept design to procurement<br>**Philip Kirk** | The thought process and reasoning for the seismic design of NCTIR structures<br>**Ioannis Antonopoulos** |
| 16.18 | Validation of performance of polymeric geogrid in reinforced wall application<br>**Gordon Stevens** | Shallow groundwater monitoring: exemplars from Christchurch and Dunedin<br>**Simon Cox** | NCTIR Project lessons learnt<br>**Greg Saul, Richard Justice & Tony Fairclough** |
| 16.35 | **Public Lecture: Hugh Cowan** (Fullwood Room)<br>Natural Hazard Risk - Treatment Options for Resilience<br>Sponsored by EQC– Chaired by Chris Sandoval | | |
| 18.15 | **Gala Dinner** (Glenroy Auditorium)<br>Sponsored by Geofabrics NZ Ltd. – MC: Eleni Gkeli<br>Dinner speaker **Vaughan Robertson** will speak on<br>*"Are robots really scary or the best friend we never had?"* | | |


# Friday, 26 March
## Symposium Day 2

| DUNEDIN CONFERENCE CENTRE | |
|---|---|
| 7.00 | Check in desk open |
| 7.15 | **Breakfast with Young Geotechnical Professionals** (Glenroy Auditorium)<br>Enjoy a networking breakfast followed by four presentations by the Best Paper winners of the NZGS YGP mini-Symposia |
| 7.50 | Tauranga Liquefaction Study – Geomorphological Mapping<br>**Jesse Beetham**<br>Designing a breakwater in Apia: results, challenges and recommendations<br>**Christoph Kraus**<br>Empathy in Design<br>**David Rowland**<br>Why Geotechnical Engineers need to understand perched groundwater<br>**Michelle Willis**<br>Chaired by Helen Hendrickson |
| 8.00 | Exhibition open |
| 8.30 | **Day 2 Welcome** |
| 8.35 | **Virtual Keynote: Dr George Gazetas**<br>Seismic Performance of Caisson & Multi-Block Gravity Quay-Walls<br>Introduced by Major Sponsor Stantec (Ioannis Antonopoulos)<br>– Chaired by Sally Dellow |
| 9.20 | MORNING TEA |


# Friday, 26 March continued

| Session | 4A - Slip Remediation<br>Conf Rm 1 | 4B - Remote Sensing and Monitoring<br>Conf Rm 2 | 4C - Designing for Resilience<br>Glenroy Auditorium |
|---|---|---|---|
| Chair | *Robert Haskell* | *Phil Glassey* | *Liam Wotherspoon* |
| 9.50 | Bulli Point SH1 Realignment - Stuck between a rock and a lake<br>**Jordan Craig (Presenter Jay Doddaballapur)** | Underground void detection by applying the electrical resistivity tomography (ERT) method for a limestone quarry in Northland, NZ<br>**Nick Barounis** | New resilient bridge on liquefiable ground over the Ōpaoa River, Blenheim<br>**Helen Hendrickson** |
| 10.02 | Design and construction of an MSE wall for the repair of a washout site at Taupō waterfront – case study<br>**Mladen Sigurnjak** | Responses to three 2017 landslide events affecting road networks in the lower North Island of New Zealand<br>**David Stewart** | Rebuilding with Resilience: The Story of the Fire Station Rebuilds in Christchurch<br>**James Muirson** |
| 10.16 | Landslide typology in the Eastern Bay of Plenty – implications for risk management of road infrastructure<br>**Pedro Martins** | Mapping and monitoring landslides in New Zealand using Sentinel-1 InSAR data: A case study from Gisborne<br>**Matthew Cook** | Resilience based design in geotechnical engineering<br>**Pathmanathan Brabhaharan** |
| 10.28 | Move to next session | | |
| 10.30 | **Panel Discussion: Soil / Structure Interaction & Collaboration between Geotechnical and Structural Engineers**<br>(Glenroy Auditorium)<br>Sponsored by EQC – Chaired by Ayoub Riman<br>Introduction by Jo Horrocks (EQC) | | |
| 11:40 | **LUNCH & POSTER SESSION**<br>Poster presenters (even #'s to stand with posters 12.10 - 12.40) | | |
| 12.40 | **Virtual Keynote: Dr Chris Haberfield**<br>Temporary Support of Deep Basement Excavations in Rock<br>(Glenroy Auditorium)<br>Chaired by Martin Larisch | | |
| 13.22 | Move to next session | | |


# Friday, 26 March continued

| Session | 5A - Ground Improvement<br>Conf Rm 1 | 5B - Slope Risk Mitigation<br>Conf Rm 2 | 5C - Sustainable Practice and Guidance<br>Glenroy Auditorium |
|---|---|---|---|
| Chair | *Nathan Schumacher* | *Elliot Duke* | *Kiran Saligame* |
| 13.25 | The use of hydrofraise cutter technology to construct diaphragm walls in Auckland<br>**Nick Wharmby** | Prototype Timber Catch Fence<br>**Alan Wightman** | Use of tremie concrete in New Zealand deep foundations<br>**Aiden Thorp & Alistair Briffett** |
| 13.37 | A Case Study: Trench Stabilization Using Cutter Soil Mixing<br>**Nicola Ridgley** | Diana Falls - Then and now, moving from innovation to improvement<br>**Robert Bond** | How to integrate sustainability into geotechnical practice<br>**Laura Villoria & Dan Sandilands** |
| 13.49 | Numerical simulation of the effect of laponite on saturated sandy ground in re-liquefaction events<br>**Gislaine Tobar** | The Sumner Road Reopening Project – rockfall mitigation and road repair of an important route between Lyttelton and Christchurch<br>**Matt Howard** | Temporary working platforms - technical guidance on New Zealand Good Practice<br>**Martin Larisch** |
| 14.01 | Response of gravel-rubber mixtures under direct shear testing: experimental and DEM numerical investigations<br>**Kevin Chew** | A mining approach to a civil engineering problem – Sumner Road Re-opening, Christchurch, New Zealand<br>**Dave Green** | CETANZ Best practice for CPT testing in NZ<br>**Marco Holtrigter** |
| 14.13 | Numerical simulation of inclined piles under liquefaction-induced lateral spreading<br>**Rolando Orense** | Kaikoura slope research<br>**Pathmanathan Brabhaharan** | Understanding soil-module system behaviour to provide sustainable solutions in pavement engineering<br>**Jessica Dalton** |


# Friday, 26 March continued

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|---|---|
| 14.25 | **AFTERNOON TEA** (Town Hall)<br>Last opportunity to connect with exhibitors! |
| 14.55 | **Chris Massey** (Glenroy Auditorium)<br>Geomechanical characterisation of greywacke rock masses for dynamic slope-stability analysis, Wellington<br>Chaired by Doug Mason |
| 15.15 | **Ross Roberts**<br>Workshop - revision of the NZGS soil and rock field description guidelines |
| 15.35 | **Closing Address by Tony Fairclough – concludes by 3.45pm**<br>Chaired by Eleni Gkeli |

**See check in desk regarding any bus to airport immediately after closing.*

## Thank you to our NZGS Members who reviewed the technical papers, including:

Clive Anderson
Kevin Anderson
David Anstiss
Dali Argyriadi
Pathmanathan Brabhaharan
Brendon Bradley
James Burr
Neil Charters
C Y Chin
Richard Cole
Katy Cottingham
Jim Dabkowski
Sally Dellow
Elliot Duke
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Geoffrey Farquhar
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Sally Hargraves
Bahareh Heidarzadeh
Bevan Hill
Paul Horrey
Mike Jacka
Richard Justice
Campbell Keepa
Jan Kupec
Andrew Langbein
Martin Larisch
Stu Mason
Trevor Matuschka
Nathan McKenzie
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Wataru Okada
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Ross Paterson
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Lars Schmidt
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Michael Sorenson
Gordon Stevens
David Teague
Mike Thorley
Susan Tilsley
Eric Torvelainen
Sjoerd Van Ballegooy
Harry Wahab
Nick Wharmby
Hadley Wick
Alan Wightman
Liam Wotherspoon
Richard Young


# Poster Presentations – located in Town Hall

Poster sessions: presenters are asked to stand with posters in the second half of lunch to be available for questions and discussion. Odd numbered posters on Thursday and even numbered posters on Friday.

| # | Paper title | Presenter |
|---|---|---|
| **Digital** | Improving the Behaviour of Expansive Soils Using Recycled Rubber | Abbas Taheri |
| **Digital** | Aznalcòllar Progressive Tailings Dam Failure: A Numerical Analysis | Adam Williamson |
| **1** | The use of SCPT and HVSR for site period and subsoil class estimation | Alan Thorp |
| **2** | The New Zealand Federation of Piling Specialists - An introduction | Alistair Briffett |
| **Digital** | Quantitative Assessment for Rock Mass Slope Stability in Padalarang Mining Area, Indonesia using RMR, SMR, and Kinematic Analysis | Arda Bagus Manggadyta |
| **3** | Managing ongoing debris flow risk in Roxburgh, Otago. | Ben Mackey |
| **4** | 3D ground modelling: Geotechnical Investigation for dolphin replacement and jetty strengthening at Cape Lambert A (CLA) | Benjamin Whiteman |
| **5** | Advancements in Soil Nails and Ground Anchors in New Zealand – Glass-fibre Reinforced Polymer (GRP) Tendons | David Sharp |
| **6** | Advancements in Removable Ground Anchor Technology in New Zealand – Removable, Compressive and load Distributive type Anchor (SW-RCD Anchor) | David Sharp |
| **7** | Slope failures, scour, and infrastructure damage: Tairawhiti roading network response to multiple severe weather events. | Debbie Fellows |
| **8** | Selection of Pump Station Foundations by Numerical Modelling | Ioannis Antonopoulos |
| **9** | The Importance of a Multi-faceted Approach to Desktop Studies | Jacob Cornall |
| **10** | Current and Future Geological Hazard Resilience in the Porirua City Council Region, New Zealand. | Karen Jones |


# Poster Presentations – located in Town Hall

| # | Paper title | Presenter |
|---|---|---|
| **11** | Cape Kidnappers / Clifton Beach - Coastal landslide monitoring with drone technology to inform hazard assessment | Lee Paterson |
| **12** | Representative Shear wave velocity profiles for prominent geological formations in the Nelson-Tasman region | Liam Wotherspoon |
| **13** | Findings from the Design and Construction Monitoring of an Earthworks Measure to Stabilise the Flagstaff Hill, Dunedin | Nima Taghipouran |
| **14** | A Comparison of the Observed Dewatering-Induced Settlement in a Complex Alluvial Soil against Industry Standard Models | Mladen Sigurnjak & Paul Clark |
| **15** | Ground damage caused by Typhoon "Hagibis" in Central and Eastern Japan | Rolando Orense |
| **16** | Correlation between Screw Driving Sounding (SDS) test and popular in-situ tests for soil characterisation in New Zealand | Rolando Orense |
| **Digital** | Cutter soil mixing used to facilitate pipeline construction, Wynyard Point, Auckland | Russell Denny |
| **17** | Simple buried pipeline fragility models based on data from the 2011 Canterbury earthquakes | Sally Dellow |
| **18** | The past is key to the future; Collating historical cases of liquefaction to supplement liquefaction hazard assessments | Sarah Barrett (formally Bastin) |
| **Digital** | Bushfires, landslides and geotechnical challenges in the Otway Ranges, Victoria | Stuart Colls |
| **Digital** | Simulation of piles subjected to excavation or embankment loading | Wei Dong Guo |
| **Digital** | Design Evolution of Two NDRRA Sites | Weiwei Li |

**Digital posters are displayed on a screen in the exhibition area (Town Hall).*