

February 2023

Welcome to our Natural Hazards Inc. newsletter – February 2023 Issue.

The latest devastating major earthquakes in Turkey and Syria; November West Java earthquake; a year ago Tonga volcanic eruption and tsunami - plus in our backyard of New Zealand the recent Auckland and then Cyclone Gabrielle wide spread major flooding, landslips and other devastating storm damage - are all sharp reminders of how vulnerable we are to the impacts of natural hazards.

The scale of Cyclone Gabrielle impact and major recovery operations getting underway in New Zealand is clearly front of centre for us here at the moment – and will be some time ahead. This is a heart breaking disaster for many. Emergency management operations are still in progress, along with the early stages of what will be a very major recovery operation over an extended period of time. Many of our members are already or will be involved in one way or another.

Given the primary focus of Natural Hazards Inc being offshore, we wish to take this opportunity to share what some of our partners have been doing to tackle ongoing hazards around the globe, as well as benefits within New Zealand.

To start 2023 we held a planning workshop on 8 February hosted by the Joint Centre for Disaster Research at Massey University with our committee members and key partners. Identifying a number of refreshed new goals with new initiatives. Including noting that there are also great opportunities to participate in a range of short courses and webinars related to disaster management. We will share more about future initiatives with you in the next newsletter.

A Bit of recap of what is Natural Hazard Inc. and how it all started – Collaborating to Create a More Resilient Tomorrow

Our New Zealand based Natural Hazards Inc. Business Cluster arose from what started in November 1998 as the Earthquake Engineering NZ Business Cluster, as an initiative by Wellington City Council and its economic development agency, then known as the Capital Development Agency (CDA), and Trade New Zealand (now called New Zealand Trade & Enterprise).



Photo: Richard Sharpe - a collapsed building in the 1999 Turkey Kocaeli earthquake centred near Istanbul.

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With a focus on off shore, initial collaborative initiatives involved Turkey following the major magnitude 7.6 Kocaeli earthquake in 1999, with an epicentre just 100km east of Istanbul.

DomPost (Friday 10 Feb) had an informative Stuff opinion article by Richard Sharpe titled “Can we learn from Turkey quakes?”.

<https://www.stuff.co.nz/opinion/131184669/can-we-learn-from-the-earthquakes-in-turkey>

Follow up to the 1999 Turkey Kocaeli Earthquake

Richard Sharpe of Beca led the NZSEE Learning from Earthquakes Reconnaissance Team to Turkey following the 1999 Kocaeli earthquake, and the subsequent Beca with Turkish partner Prota major World Bank funded project in Istanbul that investigated the feasibility of seismically strengthening a large sample of typical, existing, five storey apartment buildings, of which there were more than 100,000 in Istanbul.

Earthquake Engineering NZ Co-Chair David Hopkins worked for Beca in Istanbul on this World Bank Istanbul Bakirkoy district project where apartment buildings had been badly damaged in the 1999 earthquake.

This was an internationally recognised World Bank project. Then NZ Prime Minister Helen Clark visited this project in Istanbul and retained an interest in the work and capabilities of what could be delivered by members of the NZ business cluster.

12 businesses and other organisations, with Beca as a lead, and including GNS Science and Robinson Seismic, were involved as part of this first major offshore cluster initiative that included assistance from the NZ Embassy MFAT and NZTE. The Earthquake Engineering NZ Business Cluster later merged with Natural Hazard NZ to become today’s Natural Hazards Inc Business Cluster.

NZ Base Isolation Technology introduced into Turkey



Photo: Base isolated Erdine Kesan Hospital in Turkey. Robinson Seismic website: www.robinsonseismic.com

Initiatives in Turkey have included the introduction of NZ developed base isolation technology, with today a range of hospitals, other buildings and motorways fitted with Robinson Seismic base isolation through working with Turkish partners.

This earthquake technology has not yet been used in the southern areas of Turkey that have been badly impacted by the latest major earthquakes.

For further information: www.robinsonseismic.com
Alan Park, CEO alanp@lowdamagedesign.co
Kate Canderle, Kate.Canderle@robinsonseismic.com

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Turkey Earthquakes Reminder of Value of Seismic Health Monitoring of Buildings

Dr Caroline Holden of [SeismoCity](https://www.seismocity.co.nz) and Steven McLauchlan of [Global Seismic Data \(GSD\)/Survive-it](https://www.gsdhq.io) gave presentations at the February 2022 virtual meeting hosted by Engineering NZ showing the value of their latest seismic health monitoring of buildings research and commercial systems. This included the use of Wellington buildings examples, including an office building owned by The Wellington Company that is installed with a Global Seismic Data system, and a VUW building Te Puni installed with a GNS Science GeoNet research sensor system, with both systems providing valuable data for tracking structural response to earthquakes.

www.seismocity.co.nz

www.gsdhq.io

AON Climate Change Impact Assessment Capabilities Highlighted

AON New Zealand, one of the founding members of the Natural Hazards Inc Business Cluster, hosted a meeting in November to showcase and discuss their impressive range of natural hazards and climate change impact assessment tools and capabilities that they have developed.



James Knight of AON Australia showed AON's proprietary combined hazard information platform (CHIP) that includes information on a range of natural hazards including earthquake, flooding and tsunami impacts with profiling down to individual buildings level. The flood hazards model uses the Ambiental probabilistic Flood Maps. The CHIP Climate Change model uses NIWA data projections.



Ben Lynch of AON NZ gave a presentation on AON's climate change impact assessment capabilities including sharing information on examples of a few recently completed assessments.

Particularly focused on assisting corporate companies prepare their disclosures of risks to climate change. Including transition risks, opportunities and financial impacts. NZ Post highlighted as a good example of a company that is providing transparent Climate Related Disclosure information.

AON Risk Engineering Manager Hayden Picard spoke about AON's risk engineering services that provide risk management assessment reports for clients such as local authorities to use in their insurance negotiations with overseas underwriters. These assessments often provide

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solutions to help clients reduce risks and thus also reduce their insurance costs. For example, with cyclone risks in the Pacific.

AON host Principal Risk Consultant Mostafa Nayerloo provided examples of overseas clients work done from NZ. These included material damage and business interruption loss assessments for a hydroelectricity power plant projects in Nepal and Georgia, both with assistance from NZ's Damwatch consultants.

Other examples included a project involving earthquake loss assessment for a light rail expansion project in the Middle East; and for offshore and onshore wind farms in Taiwan and Indonesia.

For further information:

Mostafa Nayerloo,
AON Principal Risk Consultant
Mostafa.Nayerloo@aon.com

Hundreds of volcanologists and earth scientists from around the world recently met in Rotorua for the IAVCEI Scientific Assembly.

Sponsored by GNS Science and Toka Tū Ake EQC, and hosted by the University of Waikato, the Assembly is the largest in-person conference to be held in Aotearoa since the Covid pandemic began with more than 900 scientists from 41 countries attending.

Attendees engaged in five days of seminars, workshops and field trips, with many additional

field trips happening over the weekends before and after the conference. The public was also catered for, with a day of demonstrations and meet the expert opportunities.



Pohutu Geyser playing, Whakarewarewa geothermal field, Rotorua

Aotearoa NZ is at the forefront of volcano research. Co-convenor and Principal Scientist at GNS Science | Te Pū Ao, Graham Leonard says the themes of IAVCEI 2023 encompass the broad disciplines that seek to understand volcanoes and magma, including natural processes, investigative techniques and the benefits and impacts to society.

The diverse context of the New Zealand volcanic environment, which were highlighted across the activities of the scientific assembly, complemented the scientific programme.

For further information:

Graham Leonard, Volcanic Geologist, GNS Science
G.Leonard@gns.cri.nz

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World Community of Geological Surveys | GNS SCIENCE | GEM GLOBAL EARTHQUAKE MODEL | Canada

Disaster Risk Reduction Forum
The role of geological survey organizations in understanding risk and informing risk reduction actions

Part I: The Enablers 06 February 2023 13.00 – 16.00 GMT
Part II: The Science and Technology 13 February 2023 16.00 – 19.00 GMT
Part III: The Risk Management Goal 20 February 2023 03.00 – 06.00 GMT

For more information, including registration details, please visit:
www.americangeosciences.org/webinars/disaster-risk-reduction-forum-2023

The World Community of Geological Surveys, the Global Earthquake Model Foundation, the Geological Survey of Canada, and GNS Science are hosting a three-part webinar series that brings together representatives from multiple geological surveys organizations and their stakeholders to provide an update on the latest information about the role of geological survey organizations in understanding geo-hazard risks and informing risk reduction actions.

The Disaster Risk Reduction Forum is being hosted as a set of three regional sessions with each regional forum having lectures from science policy experts and geoscientists and a moderated discussion session with attendees.

The Disaster Risk Reduction Forum sessions are as follows:

Part I: The Enablers: Mechanisms that facilitate Geological Survey Organisations (GSOs)' role in disaster and climate risk management

This first one held was highly successful with over 150 online attendees from around the world. Discussion was wide ranging and included contributions from the policy makers and

scientists in the US, Canada, Trinidad, Italy, UK and the Philippines. Of particular note was the partnership between the Geological Survey of Canada and Public Safety Canada as well as the shared experiences in the Philippines. The video of the session will be available online shortly.

Part II: The Science and Technology: Advancing methods, tools, and capabilities in hazard and risk assessment

A video of this session is also expected to be available online soon.

Part III: The Risk Management Goal: How GSOs can support awareness and advocacy, enhancing building codes, early warning systems, and local level resilience planning

20 February 2023 03.00 - 06.00 GMT A video of this session is also expected to be available online soon.

For more information, please visit:

www.americangeosciences.org/webinars/disaster-risk-reduction-forum-2023

The Disaster Risk Reduction Forum is organized by the World Community of Geological Surveys, the Global Earthquake Model Foundation, the Geological Survey of Canada, and GNS Science, is facilitated by Sage On Earth Consulting, and hosted by the American Geosciences Institute.

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This **Disaster Risk Reduction Forum** information has been supplied by Gill Jolly of GNS Science:

Gill Jolly | Ngā Matepā me ngā Tūraru ā Taiao /
Natural Hazards and Risks Theme Leader

GNS Science | Te Pū Ao

1 Fairway Drive, Avalon 5010, PO Box 30368,
Lower Hutt 5040, New Zealand

Ph 04-570 4869 | Mob 027-372 7823

<http://www.gns.cri.nz/> | Email:
g.jolly@gns.cri.nz

What's Coming Up?

JCDR Emergency Management Institute

Previously called the Summer Institute, this popular annual five-day programme is now open for registration! (Limited spots left)

Hosted at Massey University Wellington Campus on 6th-10th March 2023, this short course programme has been developed by **Joint Centre for Disaster Research** to provide a theoretical and practical introduction to selected topics relating to emergency management.



Topics will include:

- **Emergency management planning**
- **Tangata Whenua and disasters**
- **Developing effective all-hazard warning systems**
- **The wellbeing of our people**
- **Classroom in the coach field trip**

Designed for those involved in all aspects of emergency management: planners, educators, engineers, local and central government policymakers, insurance managers, researchers, emergency managers and utility and property owners.

Through the introductions and case studies, the course will also provide practical tools and guidance that will help you better understand how your organisation can prepare for, respond to, and recover from a disaster.

Check the link for details and registration:

[Emergency Management Institute \(massey.ac.nz\)](http://www.massey.ac.nz/emergency-management-institute)

There's also a series of short courses focusing on **Psychosocial Response and Recovery** following up for people who want to learn about how to provide psychosocial support to practitioners and communities.

More information and register here:

[Psychosocial Response and Recovery \(massey.ac.nz\)](http://www.massey.ac.nz/psychosocial-response-and-recovery)

For more information:

Jeff Lin (j.lin3@massey.ac.nz) or
[@JCDR Enquiries \(jcdrenquiry@massey.ac.nz\)](mailto:jcdr.enquiry@massey.ac.nz)

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Natural Hazards Inc. Members' Expertise

- Strategies for disaster risk reduction, readiness, response and recovery.
- Development of organisational frameworks for emergency management.
- Emergency management education.
- Community preparedness for natural disasters.
- Multi-hazard land use planning.
- Improvement of building controls, standards and codes.
- Seismic retrofit strengthening of buildings, including simple houses.
- Seismic isolation of important buildings such as hospitals, schools, emergency management centres, government buildings, apartment buildings and heritage buildings.
- Tsunami and flood risk assessment, modelling and mitigation strategies.
- Disaster risk insurance strategies and systems.

New Members Always Welcome!

www.naturalhazards.co.nz

Next Natural Hazards Inc Business Cluster Meeting:

Thursday 23 March 4.00pm to 6.00pm
Concrete Structural Investigations,
230 Cuba Street, Wellington



Natural Hazards Inc. Key Contacts:



Greg Szakats, Co-Chair

Senior Structural Engineer
Miyamoto International
Phone +64 27 589 1055
Email greg.szakats@miyamoto.nz



Jon (Mitch) Mitchell, Co-Chair

Capability Development Manager
Joint Centre Disaster Research
Massey University
Phone +64 27 208 0375
Email J.Mitchell@massey.ac.nz

Committee Members:

Neville Ching, NIWA (Treasurer);
Yogesh Kumar, Beca;
Helen Barnes, GNS Science;
David Johnston & Alicia Cui,
Joint Centre for Disaster Research, Massey University

Facilitator - Graeme Carroll, Global Reach Associates Ltd
Email Graeme.Carroll@globalreachassociates.com
Phone +64 21 435 401, +64 4 470 5554