Geoscience Society of New Zealand

Annual Conference 2024

25–29 November

University of Otago – Ōtepoti Dunedin

Mountains to Sea

Conference Handbook

Tēnā tātou katoa,

We welcome you all to University of Otago Ōtākou Whakaihu Waka in beautiful Ōtepoti Dunedin for the 2024 Geoscience Society of New Zealand conference. The 2024 conference is packed with nearly 300 oral and poster sessions, pre-conference workshops, local tours, SIG lunchtime meetings, public events, science media training, field trips and a plenary talk by Christina Hulbe. Social functions include an icebreaker event, early career social function, museum scavenger hunt, and awards dinner. We are also excited that the second ever EarthFest is being held in conjunction with this conference.

With our 'Mountains to Sea' conference theme, we look forward to a wide range of abstract submissions that celebrate the diversity of the geosciences and of the landscapes in Aotearoa New Zealand.

On behalf of the wonderful conference local organising committee, we are delighted to see you all in Ōtepoti Dunedin.

Jack Williams and Greer Gilmer
Conference Co-Convenors

Sam McColl
President, Geoscience Society of New Zealand

Conference Organisers

conferences & events

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Sponsors and Exhibitors

The conference organising committee acknowledges and thanks the following sponsors and exhibitors for their generous support and involvement in this conference. Their support has contributed towards our being able to provide a comprehensive programme of quality content and excellent value for all participants.

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EXHIBITOR

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Opening Speaker

Grant Robertson became the University of Otago Vice Chancellor on 1 July 2024 and comes to the University after fifteen years as an MP.

Grant was Minister of Finance from 2017 until 2023 and Deputy Prime Minister from 2020 to 2023. In addition, he has held Ministerial portfolios as Leader of the House, Infrastructure, Sport and Recreation, Racing, Earthquake Commission, Cyclone Recovery and an Associate Ministerial role in Arts, Culture and Heritage.

As Minister of Finance, Grant led the economic response to the COVID pandemic. As Minister of Sport and Recreation Grant led New Zealand's first strategy for Women and Girls in Sport and Recreation.

Grant is a former diplomat, having worked for the New Zealand Ministry of Foreign Affairs and Trade managing the Overseas Development Assistance Programme in Samoa and representing New Zealand at the United Nations in New York on development and environmental issues. He also worked as an Advisor to former Prime Minister Helen Clark and for the University of Otago as a Business Development Manager in the Research and Enterprise Office.

Grant met his partner, Alf, through playing rugby and their family now includes four grandchildren. Grant is interested in sport, alternative music, New Zealand art and literature. He is a former trustee of the New Zealand Aids Foundation (now the Burnett Foundation) and is a supporter of a number of charitable organisations, particularly through his work as the MP for Wellington Central.

Plenary Speakers

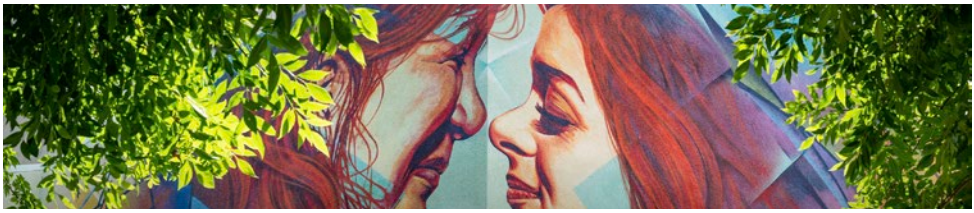
Christina Hulbe

How I stopped catastrophising and learned to think differently about climate tipping points: Dynamics of the marine ice sheet instability on Thwaites Glacier, West Antarctica

Rapid change in the Amundsen Sea sector of West Antarctica raises concern that a threshold for unstoppable grounding line retreat has been or is about to be crossed. The grounding line is a transition between ice that is resting on the sea floor and ice that is floating in the ocean. As ice flows across this boundary, water that had been stored away in the ice sheet returns to the global ocean. In its simplest form, the threshold for unstoppable retreat is due to the inland-deepening bed of the glacier together with the power-law relationship between ice thickness and ice flux across the boundary. More completely, stability of the grounding line position depends on the three-dimensional shape of the landscape through which the glacier flows and processes acting at its boundaries. The focus here is the shape of, and spatial variation in, the subglacial bed. Using a dynamical model of ice sheet flow, we show that as the grounding line retreats, the threshold for runaway retreat does not occur a place but through a set of processes and that small differences in forcing lead to large differences in retreat rate and ice discharge across the grounding line. Put another way, there is neither reason to panic when particular geographic waypoints are passed, nor reason to be relieved that they have not. Retreat may be inevitable past a certain dynamical threshold, but the rate at which the retreat proceeds remains in our control.

Biography

Dr Christina Hulbe is Professor in Te Kura Kairūri the National School of Surveying at Ōtākou Whakaihu Waka. She is a geophysicist who specializes in glaciology, using empirical data and computational models to study how and why Antarctic glacier ice changes over time. Since moving to Otago in 2013, Christina has participated in NZARI- and MBIE-funded interdisciplinary programmes investigating rate-determining processes associated with deglaciation in the Ross Sea, working across scales in space and time and visiting sites where critical observations can be made. She is engaged in a wide range of service activities, including leadership roles in the International Glaciological Society, supporting the Waitaki Whitestone Geopark, and meme development for the annual Tawaki piki toka campaign in Forest & Bird's Bird of the Year.



Cultural Guidance for Geosciences 2024

Aotearoa New Zealand is a land of many different people and cultures. Out of respect for those who came before us, the GSNZ is making an effort to conduct our conference in a culturally inclusive and respectful manner. We request that all conference participants conduct themselves in culturally sensitive ways throughout the conference.

Tikanga Tips - Tikanga loosely translates to "the way of doing things" in te reo Māori. In our ongoing efforts to make the GSNZ annual conference a more welcoming and inclusive space, we invite all conference participants and delegates to be 'good guests' and show respect for our hosts by minding the following advice:

- **Heads -** Avoid touching another person's head, unless invited. Māori people regard the head as very tapu (sacred).
- **Hats -** Avoid putting hats on food tables. Why? This is linked to the idea that heads are tapu so anything that relates to heads, like pillows or hats, should also be treated carefully. (see 'Food' below).
- **Food -** Avoid passing food over anybody's head. Why? There are many Māori rituals and practices relating to food. In a teaching and learning context, it is common for Māori to share food as a means of welcoming people, celebrating success, or building rapport. However, another important function of food is to remove tapu so it needs to be handled carefully around things that are considered to be tapu.
- **Tables and bags -** Avoid sitting on tables, particularly tables with food on them or those likely to have food on them at any point. Avoid putting bags on tables. Instead place them on the floor or a chair. Why? Putting your bottom or carry bag on the table is perceived to be unhygienic. Not sitting on tables is also linked to Māori beliefs about the tapu nature of bodily wastes and the need to keep them separate from food.
- **Speaking -** Avoid entering and crossing a room while someone in authority is addressing an audience. To avoid offence, either wait quietly by the door until there is a break in the dialogue or, when that is not appropriate, enter as discretely as possible. Try not to walk directly in front of the speaker or, if you cannot avoid it, crouch down as you pass as a sign of respect. Why? Traditionally Māori society is very hierarchical and crossing in front of a more 'senior' person is considered rude.
- **Stepping -** Avoid stepping over people, even in crowded teaching spaces when you are over people trying to find a suitable seat. Ask the person to draw their legs in first or find another route. Why? From a Māori cultural perspective, it is considered offensive for a woman to step over a man.
- **Cushions -** Avoid sitting directly on pillows or cushions. They can however be used to prop up your back.

General Information

Campus Security

If you need security help whilst on campus, please call Campus watch 0800 479 5000 (toll free) or 03 479 5000 or 03 479 5001.

Code of Conduct and Social Responsibility

GSNZ is committed to providing an environment of safety, respect and dignity. Any insulting language, gestures or harassment towards any delegates, staff, students or other campus users will not be tolerated.

Exhibition and Sponsors

The conference would not be possible without the support of the sponsors and exhibitors. Please show your support by visiting their stands.

The exhibition is open at the following times:

Mon 25th: 16.00 – 19.00
Tues 26th: 08.00 – 17.30
Wed 27th: 08.00 – 17.00
Thur 28th: 08.30 – 14.00

University of Otago Emergency Procedure

- In the event of an emergency occurring a siren will be activated. Stop whatever you are doing, leave the building immediately and do not re-enter until the all clear is given. There are emergency broadcast stations around the Campus and if you hear a message please follow the instructions.
- Fire Evacuation notices and Emergency Flip Charts are displayed in all areas. Please note your nearest evacuation route.
- If you have to call the emergency services, name the room number & building.

Incident Reporting

If you have an incident, near miss or sustain property damage you must report it to the Registration desk and the University of Otago as soon as possible: University Health & Safety Office: Andrea McMillan (Director of Health and Safety) 027 227 7796 and Nevan Trotter (H & S Manager) 027 489 1051

Medical Assistance

Dunedin Urgent Doctors and Accident Centre, 18 Filleul Street, Central Dunedin, +64 3 479 2900. Open 08.00 – 22.00

Name Badges

Badge security is in place throughout the conference. Please always wear your badge to avoid being asked for identification.

Oral Presenters

All oral presentations must keep to 15 minutes (unless indicated longer in the programme) which includes any time for Q & A plus transition to next presenter. To ensure smooth running of your presentation please check your slides with the technician or student volunteer in the room that you will be presenting in, at least two breaks before you are due to present and please be in the room at least 15 minutes before your presentation starts.

Parking

On-street parking and car parks are available near the University campus. One of the nearest is Wilsons 24 hour public car park at 141 Albany Street.

Photography, recordings, and social media

Still photography is permitted for personal and social media use unless indicated by the presenter. Try not to obscure anyone's view and do not use flash when taking photographs. Video and/or audio recordings are not permitted. Explicit permission of a parent or guardian is required for photography that include individuals under the age of 18. Open discussion about presentations given at GSNZ 2024 on social media is allowed unless indicated by the presenter. Include the name of the presenter so they get credit for their work if you share photographs of them or their slides/poster.

General Information (continued)

Poster Presenters

Please check the allocated day of your poster, either Tuesday or Wednesday.

Poster should be put up by 9am on the day of your presentation and removed by 5pm after the afternoon Poster Session. Please stand with your poster for the Poster Session so that people may converse with you about your work.

Public Transport

Download the free Transit App or see the Otago Regional Council website: www.orc.govt.nz/orbus/dunedin-bus-timetables/.

Quiet Room and Meeting Room

- Burns 4 room is available as a quiet room for work, study or time-out. Please do not use this room for meetings.
- Castle A has been set aside as a room for meetings.

Registration and Information Desk

The registration desk is open at the following times for any enquiries, accounts payment and messages:

Mon 25th: 16.00 - 19.00
Tues 26th: 08.00 - 17.30
Wed 27th: 08.00 - 17.00
Thur 28th: 08.30 - 15.00

Smoking and Vaping

The University of Otago is a totally smoke free zone including vaping.

Social Functions and Poster Sessions

If you have registered for social function tickets these are shown with an icon on your name badge. Each function has one complimentary drink included with your ticket and a cashless/Eftpos bar will also be available.

Special Dietary Requirements

If you indicated your dietary requirement during the online registration, this has been forwarded to the caterers. Depending on your requirement, the main food may be suitable for you, or a labelled plate will be available. Please make yourself known to the catering staff who will assist or see the Registration Desk for assistance.

Wifi

- Select the **UO_Guest** network from the list of available networks on your device.
- Follow the prompts to create one. When you create an account the login details are displayed on screen. We recommend you jot these down or take a snapshot for your reference.
- An email with your login details will be sent to the email address you supply.

2025 GSNZ CONFERENCE
24 -27 November 2025

We look forward to seeing you at the University of Auckland for the next GSNZ Conference. Tell your colleagues and put the date in your diaries.

UNIVERSITY OF AUCKLAND
Waipapa Taumata Rau
NEW ZEALAND

Sessions and Themes

Thank you to the session convenors for their time and involvement in helping to prepare the programme.

Changing Landscapes; Surface Process Dynamics, Evolution, and Impacts

If you research any aspect of landscape dynamics or landscape evolution, or the impacts of Earth surface processes, then this session will be a great place to present your work. The session aims to showcase measurements and observations of the changing surface of Earth or beyond, over contemporary to geological timescales, and contribute new understanding to what drives these changes, and the environmental and hazard impacts that they impart.

Session Convenors: Sam McColl, GNS Science; Katie Jones, GNS Science; Kevin Norton, Victoria University of Wellington; Sean Fitzsimons, University of Otago; David Barrell, GNS Science

Earthquake Science from Intraplate to Interplate

This session will showcase the new and innovative earthquake science research that is taking place across Aotearoa. There have been many recent developments in understanding the seismotectonics of low seismicity areas, major plate boundary features, and everything in between. These developments have been multidisciplinary, from the fundamental findings of field studies (on and offshore), through to the statistical analysis and physical modelling of earthquake occurrence in space and time. We invite contributions across the spectrum of earthquake science and will combine these all into an exciting session that will provide the options of both oral and poster presentation.

Session Convenors: Mark Stirling, University of Otago; Ting Wang, University of Otago; Genevieve Coffey, GNS Science

Ensuring Invaluable Scientific Observations are Obtained Pre- and During the Next Alpine Fault Earthquake

The conditional likelihood of a large Alpine fault earthquake in the coming 50 years is about 75%. Knowing this, what scientific data should we be collecting now? Can we quantify the pre-seismic 3D stress state, geodetic strain, sediment flux, and many other parameters so that post-seismic change can be easily identified. We welcome presentations on recent Alpine fault research (seismology, geodesy, paleoseismology, structural geology, landscape evolution and interdisciplinary studies) as well as discussions of what and how Aotearoa's geosciences community can do now to ensure invaluable scientific observations are obtained pre- and during the next Alpine fault earthquake.

Session Convenors: Phaedra Upton, GNS Science; Kate Clark, GNS Science; Sigrún Hreinsdóttir, GNS Science; Emily Warren-Smith, GNS Science

Evolution of the New Zealand Biota: In Honour of R. Ewan Fordyce

This session will explore recent contributions to

Sessions and Themes (continued)

our knowledge of ancient life and environments gained by studying the fossil record of New Zealand. Contributions are invited across every branch of the tree of life and across all timescales, in honour of the wide contributions to natural history made by Ewan Fordyce.

Session Convenors: Daphne E Lee, University of Otago (Honorary Professor); Daniel B Thomas, University of Auckland (Honorary Academic)

Future-Proofing Energy and Minerals: Geoscience in the Low-Emissions Era

As we work toward a sustainable future, our primary industries must balance growing energy and mineral demands with reducing environmental impact. This session unites experts from renewables, hydrocarbons, and minerals sectors to discuss emerging technologies like offshore wind, geothermal minerals, carbon sequestration, gas hydrates, and natural hydrogen. Expect engaging discussions on new discoveries, regional case studies, innovative technologies, and the critical intersection of geoscience and energy policy. Join us to explore how geoscientific data informs sustainable energy decisions and helps shape a low-emissions future.

Session Convenors: David Dempsey, University of Canterbury; Ludmila Adam, University of Auckland; Jess Hillman, NIWA

Geoscience Education, Outreach and Communication

In a world increasingly reliant on geoscience, how can we effectively educate the next generation and foster public engagement to enable informed decision-making? This session provides a platform for participants from any background to share experiences, best practices, and innovative approaches geoscience education, outreach and communication.

Welcome contributions in two areas: 1) sharing results of work in education research, outreach and engagement initiatives, or citizen science projects; and 2) offering practical tips and tools, from specific teaching methods to resources for curriculum design, recruitment strategies, industry training or public engagement activities. Examples from all education levels and audiences are welcome.

Session Convenors: Sophie Briggs, University of Otago; Kate Pedley, University of Canterbury, Faye Nelson, University of Otago

Great Southern Land (and Ocean): Research from Antarctica and the Southern Ocean

This session will celebrate the breadth of Antarctic and Southern Ocean research. We invite contributions from across the spread of research that takes place in the deep south. Including geophysics, ocean and terrestrial drilling, sea ice, surveying, geochemistry, mapping, glaciers and ice mechanics, modelling, and paleoclimate.

Session Convenors: Greer Gilmer, GNS Science; Meghan Duffy, University of Otago

Magmas and Volcanoes of Zealandia and Beyond

This session invites presentations on igneous rocks, volcanic deposits, volcanic hazards, volcanoes and society, and any other aspect of igneous petrogenesis or volcanism. Work on Zealandia will underpin the session, but we also invite contributions on aspects of magmatism from further afield that address broadly relevant aspects of volcanism and other magmatism.

Session Convenors: Marco Brenna, University of Otago; James White, University of Otago; Jie Wu, University of Otago

Mountains to Sea Research in Fiordland

This session will bring together researchers who work in all disciplines in New Zealand's unique southern fjord region. We invite contributions from across the spread of research that takes place in Te Rua-o-te-moko/Fiordland. Including geophysics, ocean circulation, geochemistry, paleoclimate, mapping, land dynamics, hazards, basement geology, and seismicity. If you work in Fiordland, then this session is for you!

Session Convenors: Greer Gilmer, GNS Science; Rebecca McLeod, University of Otago; Ellen Unland, University of Otago

Preparation for the Next Big Quake Rapid Response Science, Cascading Hazard & Scenario Development

This session is intended to highlight multi-disciplinary science that enhances our ability to respond to the next large earthquake in Aotearoa. We seek contributions on the development of rapid response science tools, operational systems, rapid hazard and impact assessments, end-user uptake, and/or catastrophic scenario development and preparedness. We also encourage submissions exploring novel machine learning techniques and data science, dynamic forecasting, as well as cascading hazard approaches that bridge earthquake, risk, landslide, liquefaction, tsunami, groundwater, coastal and social science.

Session Convenors: Anna Kaiser, GNS Science; Caroline Orchiston, University of Otago; Elena Manea, GNS Science

Regional and General Geology: In Honour of Jane Forsyth

A session of eclectic and wide-ranging topics to acknowledge and honour the broad interests of the recently deceased Jane Forsyth. Jane was a highly regarded field geologist, popular book author, and science communicator at GNS Science Dunedin. She retired in 2013. Jane was senior author of the 1:250 000-scale Waitaki geological map which takes in 300 million years of igneous, metamorphic and sedimentary geology and regional tectonics. We hope to attract a broad selection of geoscience papers to this session including from those who knew Jane.

Session Convenor: Nick Mortimer, GNS Science

Tsunamis in the Southwest Pacific – Monitoring, Evaluation, Response and Mitigation

This session will provide an opportunity for wide-ranging discussions both on the scientific interpretation of recent and historical tsunamis, the processes that caused them and how to reduce their future impact. It will gather together participants interested in the end-to-end processes that lead to better mitigation of the tsunami risk to New Zealand and neighbouring Southwest Pacific countries, through hazard and risk assessment, land-use and evacuation planning, monitoring and forecasting.

Session Convenors: William Power, GNS Science; Craig Miller, GNS Science; Jonathan Hanson, GNS Science; Jean Roger, GNS Science

Sessions and Themes (continued)

Understanding Diverse Volcanic Processes

A session covering the volcanoes and magmatic systems in Aotearoa, the wider Zealandia continent, and across the South Pacific. Understanding these volcanoes is crucial for enhancing the resilience of communities and the country as a whole to volcanic risk. Our session aims to explore the diverse range of volcanic processes, from magmatic behaviour to volcanic hazards, and their impact on local communities and landscapes. Intended to be multidisciplinary, we invite contributions to the session including geochemistry, physical volcanology, geophysics, remote sensing, and scenario modelling.

Session Convenors: Eleanor Mestel, Te Herenga Waka Victoria University of Wellington; Finnigan Illsley-Kemp, Te Herenga Waka Victoria University of Wellington; Simon Barker, Te Herenga Waka Victoria University of Wellington; Stephen Piva, Te Herenga Waka Victoria University of Wellington; Sigrún Hreinsdóttir, GNS Science Te Pū Ao

Underwater Geosciences

Underwater geosciences captures physical, chemical, and biological processes, including social and cultural values and environmental management. This interdisciplinary session aims to examine processes that influence cycles, structure and composition of aquatic environments. We invite presentations on rivers, lakes, estuaries, coastlines and oceans, and those processes that affect the distribution of habitats. In concert with the conference theme, we also encourage studies exploring source-to-sink processes and drivers that modulate contributions to underwater environments (e.g., habitats, land-use, climate change, human connections, and seismicity).

Session Convenors: Dr Alan Orpin, NIWA; Dr Sally Watson, NIWA/University of Auckland

Urban Geosciences

Present and future urban areas need various types of geoscientific information to aid resilience to natural hazards and maintain and grow economic health. This session will explore the nature and breadth of geoscientific enquiry, geotechnical or engineering geological applications and achievements being carried out to help support the communities in the towns and cities of Aotearoa New Zealand, and beyond.

Session Convenors: David Barrell, GNS Science

Pre-Conference Workshops

MONDAY 25 NOVEMBER 2024

Room: Otago Business School G17

Additional Information: please note lunch is not included. Cafes are available within the University. Please bring your laptop or notebook for note taking.

Building a Framework for Earthquake Catalogues in Aotearoa New Zealand

Time: 12.00 – 14:15

Leaders: Kenny Graham, Jonathan Hanson, GNS Science and Calum Chamberlain, Victoria University of Wellington

Join us at the "Next Steps in Building a Framework for Earthquake Catalogues in Aotearoa New Zealand" workshop to assist with our earthquake cataloguing efforts. We will summarise progress since the working group's initial meeting, and efforts to improve FAIRness (Findability, Accessibility, Interoperability, and Reusability) of earthquake catalogue data. The workshop will discuss standardised processes, methodologies and metadata for earthquake cataloguing, canvas opportunities for applying new or advanced methodologies, and foster collaborative development of a robust, adaptable framework for effective earthquake catalogue management in NZ.

Don't miss this chance to help shape the future of NZ earthquake research and safety.

New Zealand Community Velocity Model

Time: 14:30 – 16.45

Leaders: Sanjay Bora, Donna Eberhart-Phillips, Russ Van Dissen, GNS Science and Brendon Bradley, University of Canterbury

Join us at the "Community Velocity Model (CVM)" workshop to learn more about a community-driven effort to develop a nationwide velocity model for New Zealand (NZ). A CVM is a 3D representation of multiple seismic velocities in a broad region of interest along with considerations of anelastic attenuations (Qp and Qs). A CVM has many applications in the broader domain of earthquake research. We will review and explain progress so far and seek engagement from the wider NZ geoscience community.

Don't miss the chance to participate in the collective effort to develop a community velocity model for NZ.

Science Media Training

WEDNESDAY 27 NOVEMBER

Time: 8 am and finish at 5 pm

Room: Castle D

Sign-up website: smc.nz/savvy-express

Contact: smc@sciencemedia.nz or 027 3333 000

If you have already signed up for the Science Media Centre training, please check your emails and reply ASAP to confirm your assigned time slot, if not already done so.

If you haven't yet signed up there may still be last minute spaces and please sign up via the online form smc.nz/savvy-express

Karawhiūa! Free give-it-a-go media training for researchers at GSNZ

Science Media Savvy Express offers one-on-one training sessions for researchers to improve the way they communicate key ideas from their work with the wider public. Individual sessions run for just 15 minutes and are free of charge. They're great as a quick refresher for experienced communicators, and offer a supportive, confidence-building environment for first-timers.

The Science Media Centre's popular programme offers scientists and researchers a chance to practice speaking about their work on-camera, with helpful advice and feedback from experienced media professionals. Participants will learn practical tips for communicating their work to a wider audience and -- as an added bonus -- can receive the video clip of them explaining their research that they are free to reuse as they choose.

Science Media Savvy Express is a project of the NZ Science Media Centre, funded by the Ministry of Business Innovation & Employment (MBIE).

Special Interest Groups Lunch Meetings

TUESDAY 26 NOVEMBER 12.30-13.25

Lunch and SIG breaks are 1.5 hours. The first 30 minutes are for delegates to have lunch before moving to 45-minute SIG lunchtime meetings.

GeoNet Programme Update

Room: Castle 2 Lecture Theatre

Led by: Elizabeth Abbott, Jonathan Hanson, Elisabetta D'Anastasio and the GeoNet Team, GNS Science

Come kōrero with GeoNet! Learn about GeoNet's medium-term plans and how they work toward GeoNet's 10-year strategic vision and join us to talk about ways we can work together. How do we better align research and GeoNet operations? We want to kōrero about ways we can best work together and hear from you about what's on your horizon in the coming years.

GSNZ Proposed Awards Portfolio – Feedback Session

Room: Castle 1 Lecture Theatre

Led by: Sam McColl, GSNZ President

Summary: Earlier in the year the GSNZ Executive Committee presented and sought feedback on a revised portfolio of its annual awards. The purpose of this session is to present and explain the proposed portfolio, share how the committee is considering and responding to the feedback received so far, and to invite further feedback and comment from the audience. All GSNZ members are encouraged to participate.

Geoethics Special Interest Group

Room: Burns 1 Lecture Theatre

Led by: Matthew Hughes, University of Canterbury

This is the inaugural in-person meeting for the Aotearoa New Zealand Geoethics Special Interest group. Geoethics consists of research and reflection on values underpinning behaviours and practices wherever human activities interact with the Earth system. This is especially pertinent in geological resource use, post-disaster response, geoheritage issues, and engaging with communities including Indigenous peoples. This session will allow Geoethics SIG members to build a sense of community and develop a programme of Aotearoa New Zealand Geoethics initiatives.

Natural Hazards and Resilience Platform establishment – information session

Room: Burns 5 Seminar Room

Led by: Dr Graham Leonard, Natural Hazard and Risk Theme Leader, GNS Science

The Natural Hazards and Resilience Platform is a new collaborative natural hazards resilience research programme, funded by the Government for seven years and to be hosted by GNS Science. The Platform will build on a substantial history of mission-led, multi-organisational and multi-disciplinary research undertaken as part of the Resilience to Nature's Challenges NSC and the earlier Natural Hazards Research Platform. The first phase of the Platform is establishment, which will run through to April 2025. More information is available at https://www.gns.cri.nz/research-projects/natural-hazards-and-resilience-platform/. This information session is an opportunity to hear more about the Platform, ways to engage, and ask questions.

Special Interest Groups Lunch Meetings

WEDNESDAY 27 NOVEMBER 13.00-13.55

Kickstarting a Seismology Special Interest Group

Room: Castle 2 Lecture Theatre

Led by: Matt Gerstenberger, Kiran Kumar Thingbaijam, GNS Science, Jack Williams, University of Otago

The newly formed Seismology Special Interest Group members will discuss and outline plans and activities for the group, finalize Terms of Reference, and identify roles and scope thereof.

GeOID Special Interest Group Lunchtime Meeting

Room: Castle 1 Lecture Theatre

Led by: Jenny Stein, Massey University

Annual in-person meeting of the Geoeducation, Outreach and International Development (GeOID) Special Interest Group. Come along to network with members, brainstorm activity ideas for the coming year, and to discuss the issues of the day. All welcome!

Friends of Pleistocene Special Interest Group

Room: Burns 1 Lecture Theatre

Led by: David Barrell, GNS Science Te Pū Ao

Friends of the Pleistocene SIG brings together people with various interests in the Quaternary Period, including geomorphology, palaeoenvironmental and palaeoclimatic proxies, dating techniques, ocean-atmosphere-cryosphere processes and modelling. Typical FoP activities include hosting conference sessions and meetings, seminar series, and occasional field trips. However, activity has lessened activity over recent years.

Please come and join in a discussion of the FoP SIG's future. Some questions to consider:

- Is there interest in continuing the FoP?
- Would a three-person convenor panel (rather than the usual single convenor) spread the leadership burden?
- Explicitly broaden the SIG's scope by renaming as Friends of the Quaternary?

Social Events

If you have registered for social function tickets these are shown with an icon on your name badge. Each function has one complimentary drink included with your ticket and a cashless/Eftpos bar will also be available.

If you are no longer able to attend the functions, please advise the registration desk in case there is a waitlist.

Icebreaker Reception

Date: Monday 25th November 2024
Time: 5.30pm - 7.00pm
Location: ISB Link (Information Services Building)
Ticket Price: The Icebreaker reception is included in a full registration fee.

The Icebreaker function will follow directly after the Mihi Whakatau and will be your first opportunity to meet and network with other delegates and we encourage everyone to come along.

Early Career Catch-up

Date: Monday 25th November 2024
Time: 7.30pm - Late
Location: Moons Restaurant and Bar, 286 Princes Street, Dunedin
Ticket Price: $15 per person, includes arrival drink and snacks

After the conference Icebreaker, mingle with your fellow early career researchers at Moons, the home of DogStar Brew Lab where great pints, great food and a warm welcome await. The event aims to be an opportunity for people, undergraduate to post-doc, to network and socialise. The entry fee includes an arrival drink and snacks. Further food and drinks can be purchased.

Night at The Museum

Date: Tuesday 26th November 2024
Time: 6.30pm - 9.00pm
Location: Toitu Otago Settlers Museum, 31 Queens Gardens, Dunedin
Ticket Price: Full Price $85, Student Price $45, includes an arrival drink and supper.

Join us for a scavenger hunt adventure through Toitu Museum halls, deciphering riddles and puzzles. A supper and local craft beers will be supplied.

'It's Always Sunny in Dunedin' Dinner & Awards

Date: Wednesday 27th November 2024
Location: Otago Business School
Time: 7.00pm - Late
Ticket Price: Full Price $140, Student Price $70

Gala Dinner Theme: It's Always Sunny in Dunedin

An evening of recognition, connection, prize-giving and silly costumes. Don't miss out on this opportunity to unwind, network and enjoy a buffet dinner and drinks in the company of your fellow colleagues. Dress up is encouraged!

Local Tours

Otago Repository for Core Analysis Tour

Leader: Bob Dagg, University of Otago, bob.dagg@otago.ac.nz

Level of Fitness Required: Appropriate for all levels of fitness

Date: Monday 25th at 4pm and Tuesday 26th November at lunchtime.

Cost: Free for conference attendees (lunch NOT included)

Starts: Otago Repository for Core Analysis, 51 Clyde St, Dunedin

Ends: Otago Repository for Core Analysis, 51 Clyde St, Dunedin

A 45-minute-long tour to demonstrate the analytical capabilities, including the Cox Systems Itrax XRF and new Geotek Boxscan Multi Sensor Core Logger, and facilities available at the Otago Repository for Core Analysis.

Additional Information:

- Booking required on the registration form.
- Bring your own lunch and drink to consume on the tour.
- Minimum number required to run each trip is 5, maximum number of participants is 25.
- If you have any questions about this Tour, please contact Bob Dagg, University of Otago.

University of Otago Building Stones Tour

Leader: Nick Mortimer, GNS Science, N.Mortimer@gns.cri.nz

Level of Fitness Required: Light walking fitness, 2 km walk, mainly flat ground.

Date: Tuesday 26th, Wednesday 27th, Thursday 28th November.

Cost: Free for conference attendees (lunch NOT included - please ensure to BYO or grab a conference lunch)

Starts: Outside Information Services Building, 10 mins after lunch break begins.

Ends: Outside Information Services Building, at least 5 min before sessions begin.

A 30-to-45-minute lunchtime walk around the central University of Otago Campus. A variety of local and non-local igneous, metamorphic and sedimentary rocks will be viewed, along with the oldest surviving building on campus (1862). This sandwich-friendly, speed-dating-style trip will be offered on each of the three main days of the conference.

Additional Information:

- No booking required - first in, first served on the day.
- Bring your own lunch and drink to consume on the walk.
- A hand lens may be useful. No hammers!
- Minimum number required to run each trip is one-person, maximum number of participants is 30.

Local Tours (continued)

Hocken Collections Lunchtime Chats

Leaders: Kirstie Ross, Head Curator – Published & Special Collections, kirstie.ross@otago.ac.nz & Andrew Lorey, Project Curator / Collections Assistant, Hocken Collections, andrew.lorey@otago.ac.nz

Level of Fitness Required: Walking distance is approximately 10-15 minutes from University of Otago Clocktower building

Date: Tuesday 26th, Wednesday 27th, Thursday 28th November.

Cost: Free for conference attendees (lunch NOT included - please grab a conference lunch prior to the chats)

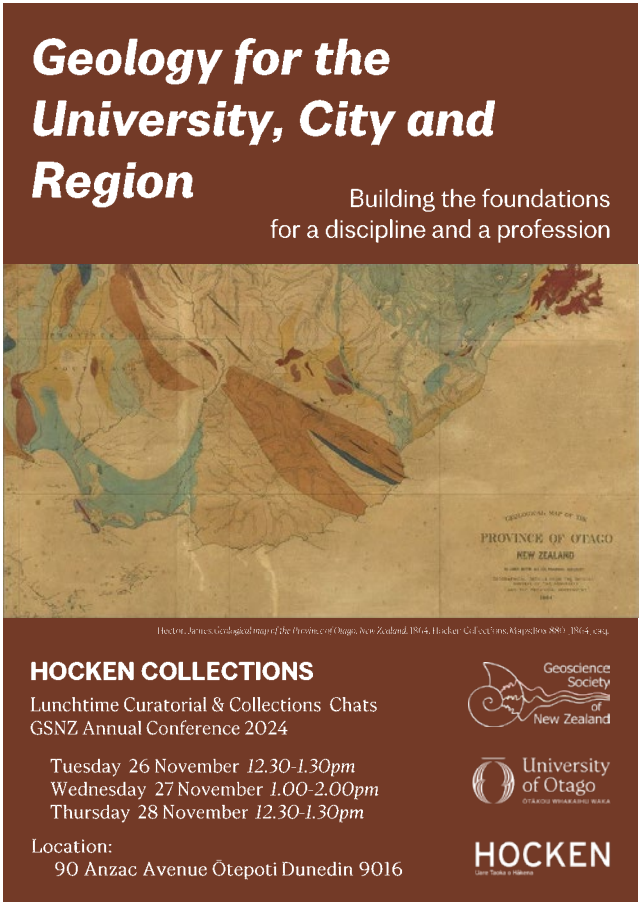
Lunchtime chats will take place at Hocken Collections (across from Emerson's Brewery), 90 Anzac Avenue, Dunedin 9016, during the following dates and times:

- **Tues. 26 November 2024, 12.15 – 13.15**
- **Weds. 27 November 2024, 12.45 – 13.45**
- **Thurs. 28 November 2024, 12.45 – 13.15**

Daily lunchtime chats will enable curatorial and collections staff to introduce conference delegates to Hocken's rich geological collections, including James Hector's influential 1864 Geological map of the Province of Otago and other treasures not regularly on display.

Additional Information:

- Booking is advised through the registration form for logistics purposes.
- Food and drink is not permitted in close proximity to Hocken Collections research items, but complimentary locker storage is available for food, drink and other personal belongings on-site at Hocken.
- Minimum number required to run each trip is one person, maximum number of participants is 25.



Public Events

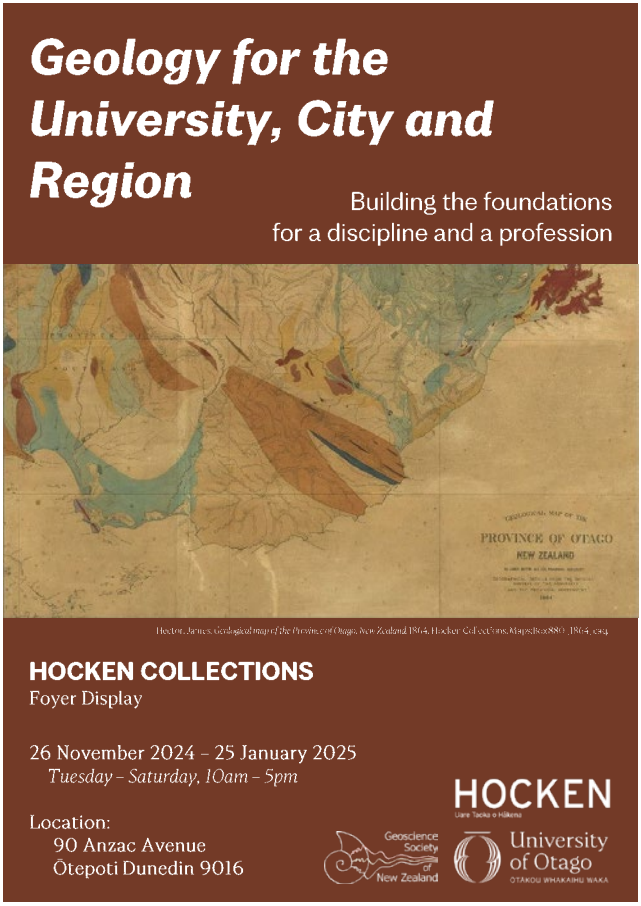
Hocken Library Collections Display

Date: Tuesday, 26 November 2024 – Saturday, 25 January 2025

Location: Hocken Library, 90 Anzac Avenue, North Dunedin

Tickets: No ticket necessary, admission free, just turn up

In coordination with the GSNZ Annual Conference 2024, the University of Otago Library's Hocken Collections will be curating a foyer display of some of its archived geological material. These include New Zealand geological maps, notebooks and memorabilia of James Hector, Patrick Marshall and Noel Benson.



Conference delegates are invited to view the display whenever they have free time. The Hocken Library is a 10-minute walk from the conference venue and is across the road from Emerson's Brewery Bar.

Geology for the University, City and Region – a limited-time Hocken Collections foyer display – showcases scholarship undertaken by geologists in the Otago region, illustrating how these achievements shaped the development of the discipline in Aotearoa.

Hand-coloured geological cross-sections bearing James Hector's signature, nineteenth-century student notebooks, historical departmental photographs and original Otago School of Mines architectural drawings represent a small assortment of items on display.

Field Trips

Please liaise with your respective field trip leaders before departure to confirm arrangements.

Explore the Stories of New Zealand's First UNESCO Global Geopark

Date: Thursday 28th and Friday 29th November 2024

Leader: Sasha Morriss, Waitaki Whitestone Geopark

Level of Fitness Required: Basic fitness for light walking on mainly flat ground. Up to 0.5 km at each stop

Cost: $200 (covers transportation ONLY - accommodation and meals are NOT included)

Pick up: Thursday 28th November at University of Otago InterCity bus stop, cnr Cumberland and St David Sts, 3.30 pm.

Drop off: Friday 29th November at University of Otago InterCity bus stop, cnr Cumberland and St David Sts, 3.15 pm. Bus then travels on to Dunedin airport for 4 pm drop-off if needed, for late afternoon/evening flights.

This trip celebrates the Waitaki Whitestone Geopark's 2023 UNESCO accreditation. Comprising the entire Waitaki District and including the Waitaki River's western catchment from mountains to sea, the Geopark embraces heritage, from deep-time geology to the modern landscape, people and culture. The late R. Ewan Fordyce championed the community-developed Vanished World Trail and Vanished World Centre, now integral to the Geopark. Dinner and overnight stay in Oamaru complement the interweaving of stories of geology, the land and the people. Highlights include Moeraki Boulders, optional penguin viewing, Oamaru Victorian heritage tour, Duntroon's Vanished World Centre and Elephant Rocks, and Māori rock art.

Additional Information:

- Accommodation options in central Oamaru range from ~$100 (campground cabin) to $250 (various hotels, motels). **Coordinate with trip leader for advice on bookings and payment.**
- Meals self-pay. Group evening dinner option at Scotts Brewery, Oamaru Harbour. Arrange own breakfast. Pre-ordered lunch at Duntroon.
- Bring firm footwear, suitable clothing for hot, cold, wet or changeable weather, and sunblock.
- Minimum number required to run the trip is 20, maximum number of participants is 36.

If you have any questions about this Field Trip, please contact Sasha Morriss, geoscientist@whitestonegeopark.nz.

Field Trips (continued)

A Geological Tour through Dunedin's Landscape and Scenery

Leaders: David Barrell & Nick Mortimer, GNS Science

Level of Fitness Required: Half the stops will involve just getting off and on the bus. Other stops involve optional light walks on mainly flat ground of up to 1.5 km per stop.

Date: Friday 29th November

Cost: $80 (lunch NOT included)

Pick up: From University of Otago InterCity bus stop, cnr Cumberland and St David Sts, 9.00 am.

Drop off: At University of Otago InterCity bus stop, cnr Cumberland and St David Sts, 4.40 pm (with airport drop-off enroute at 4.00 pm, for late afternoon/evening flights).

This user-friendly tasting of Dunedin's geology, geomorphology and tectonics will outline Dunedin's geoheritage, including its deeply eroded and partly deformed Miocene volcano, along with glimpses of the pre-volcanic Zealandia sedimentary sequence and underlying schist basement. We will illustrate interplays between terrestrial and marine processes that have influenced Quaternary erosion and deposition.

Brief stops by the active Akatore and Titri faults will highlight their contrasting late Quaternary surface deformation (the Akatore Fault excursion gives more detail). The trip's overview of the local geological hazardscape will allow participants to contemplate opportunities for forging better relationships between people and a changing landscape.

Additional Information:

- Arrange your own food and drink. There are two cafes close to the starting bus stop where you can purchase your lunch.
- Bring sturdy footwear, suitable clothing for hot, cold, wet or changeable weather, and sunblock.
- The bus will have a luggage trailer for participants wanting an airport drop-off.
- Minimum number required to run the trip is 10, maximum number of participants is 20 (limited by bus capacity).

If you have any questions about this Field Trip, contact David Barrell, D.Barrell@gns.cri.nz or Nick Mortimer N.Mortimer@gns.cri.nz, GNS Science.

Field Trips (continued)

Akatore Fault Earthquake Geology: Otago's Most Active Fault

Leader: Mark Stirling, University of Otago

Level of Fitness Required: Basic fitness for light walking on mainly flat ground. Less than 1 km distance per stop.

Date: Friday 29th November

Cost: $80 (lunch NOT included)

Pick up: From University of Otago InterCity bus stop, cnr Cumberland and St David Sts, 9.30 am.

Drop off: At University of Otago InterCity bus stop, cnr Cumberland and St David Sts, 4.30 pm. Bus will do airport drop-off enroute at ~3.50 pm, for late afternoon/evening flights.

This trip will visit three sites on the Akatore Fault, including an uplifted Holocene beach, and one site on the neighbouring Titri Fault. The Akatore Fault is Otago's most active fault, with three Holocene earthquakes having been determined from paleoseismic investigations, and the last two having occurred less than 1000 years ago. The fault is very sharply defined, and the last earthquake disrupted the local hydrology so much that the effects can still be seen in the landscape. The proximity of this spectacular fault to Dunedin makes the fieldtrip suitable for folks interested in earthquakes, hazards, and town planning issues.

Additional Information:

- Lunch is NOT included. Arrange your own food and drink. There are two cafes close to the starting bus stop where you can purchase your lunch. There are no shops enroute.
- Bring firm footwear, suitable clothing for hot, cold, wet or changeable weather, and sunblock.
- The bus will have a luggage trailer for participants wanting an airport drop-off.
- Minimum number required to run the trip is 10, maximum number of participants is 20 (limited by bus capacity).

If you have any questions about this Field Trip, please contact Mark Stirling, mark.stirling@otago.ac.nz

Field Trips (continued)

Dunedin's Volcanic Geology

Leaders: Ayla Stenning, Marco Brenna, Rachael Baxter, Dante Frean, James White, University of Otago

Level of Fitness Required: Moderate fitness for walking on potentially slippery terrain. Participants will be on their feet for much of the trip.

Date: Friday 29th November

Cost: $100 (lunch NOT included)

Pick up: From University of Otago InterCity bus stop, cnr Cumberland and St David Sts, 8.00 am.

Drop off: At University of Otago InterCity bus stop, cnr Cumberland and St David Sts, 3.00 pm. Trip end coincides with options to connect with transport to Dunedin airport for late afternoon/evening flights.

We will explore a set of localities displaying different stages in the evolution of Dunedin Volcano. The main feature of the excursion is a ferry trip to Quarantine Island / Kamau Taurua, to examine exposures of phreatomagmatic tuff intersected by dykes of a number of different lithologies. Back on the mainland we will visit exposures that include the Port Chalmers Breccia and the products of dominantly effusive volcanism.

Additional Information:

- Lunch is NOT included. Bring your own food and drink sufficient for the day. There are two cafes close to the starting bus stop where you can purchase your lunch.
- Bring sturdy footwear, suitable clothing for hot, cold, wet or changeable weather, and sunblock.
- Luggage storage will be available for participants heading on to the airport at the end of the trip.
- Minimum number required to run the trip is 10, maximum number of participants is 13 (limited by ferry capacity).

If you have any questions about this Field Trip, please contact Ayla Stenning, ayla.stenning@postgrad.otago.ac.nz or Marco Brenna, marco.brenna@otago.ac.nz

Field Trips (continued)

Geology Along Te Aka Ōtakou/ Otago Harbour Cycleway

Leaders: Greer Gilmer, GNS Science & Sophie Briggs, University of Otago.

Level of Fitness Required: Good biking fitness. About 32 km of cycling on mainly flat ground.

Date: Friday 29th November

Cost: $35 (lunch and bike hire NOT included)

Pick up: From Dunedin Railway Station, 9.00 am.

Drop off: At Dunedin Railway Station, 3.00 pm. Trip end coincides with options to connect with transport to Dunedin airport for late afternoon/ evening flights.

Explore the geology of the Otago Harbour by bike. This is a full day field trip where we will cycle the entire loop around the harbour and cross on the Portobello - Port Chalmers ferry. This will provide participants an opportunity to view features of Dunedin geology, discuss land reclamation and sea level rise, and maybe see some wildlife.

Additional Information:

- Lunch is NOT included. Arrange own lunch, drinks and snacks. There are a few shops/ cafes along the way.
- Bring your own bike or hire one. Estimated bike day hire: standard bike $40; E-bike $95. Hire includes helmet and bike lock.
- Bring firm footwear, suitable clothing for hot, cold, wet or changeable weather, and sunblock.
- Luggage storage will be available for participants heading on to the airport at the end of the trip.
- Minimum number required to run the trip is 1, maximum number of participants is 13 (limited by ferry capacity).

If you have any questions about this Field Trip, please contact Greer Gilmer, g.gilmer@gns.cri.nz or Sophie Briggs, sophie.briggs@otago.ac.nz

Conference Programme

MONDAY, 25 NOVEMBER 2024	
(Pre-conference Workshops)	
12.00 – 14:15	*Otago Business School G17* **Building a Framework for Earthquake Catalogues in Aotearoa New Zealand** University of Otago Ōtākou Whakaihu Waka **Leaders:** Kenny Graham, Jonathan Hanson (GNS Science) and Calum Chamberlain (VUW)
14:30 – 16.45	*Otago Business School G17* **New Zealand Community Velocity Model** University of Otago Ōtākou Whakaihu Waka **Leaders:** Sanjay Bora, Donna Eberhart-Phillips, Russ Van Dissen (GNS Science) and Brendon Bradley (University of Canterbury)
16.00 - 19.00	*ISB Link Foyer (Information Services Building)* **Registration Desk Open**
17.15 - 17.30	*Castle 2 Lecture Theatre* **Mihi Whakatau**
17:30 – 19:00	*ISB Link Foyer* **Icebreaker Reception**
19:30 - Late	*Moons Restaurant and Bar* **Early Career Catch-up**

TUESDAY, 26 NOVEMBER 2024			
08:00 – 17.30	*ISB Link Foyer* **Registration Desk Open**		
08.45 - 09.30	*Castle 2 Lecture Theatre* **Opening Ceremony**		
09.30 - 10.00	*Castle 2 Lecture Theatre* **Plenary Speaker, Christina Hulbe, University of Otago** How I stopped catastrophising and learned to think differently about climate tipping points: Dynamics of the marine ice sheet instability on Thwaites Glacier, West Antarctica ***Kindly sponsored by GNS Science Te Pū Ao***		
10.00 - 10.30	**Morning Tea** - *ISB Link Foyer*		
	Castle 2 Lecture Theatre	*Castle 1 Lecture Theatre*	*Burns 1 Lecture Theatre*
10.30 – 12.00	**1.A Ensuring Invaluable Scientific Observations are Obtained Pre- and During the Next Alpine Fault Earthquake** *Session Convenors: Phaedra Upton, Kate Clark, Sigrún Hreinsdóttir, Emily Warren-Smith, GNS Science*	**1.B Geoscience Education, Outreach and Communication** *Session Convenors: Sophie Briggs, University of Otago; Kate Pedley, University of Canterbury, Faye Nelson, University of Otago*	**1.C Underwater Geosciences** *Session Convenors: Dr Alan Orpin, NIWA; Dr Sally Watson, NIWA/University of Auckland*

Conference Programme (Tuesday continued)

10.30 - 10.45	Keynote Past, present, and future earthquakes on the Alpine Fault: what lies beneath and what lies ahead? - **John Townend, Victoria University of Wellington**	A Geoethical Vision for Aotearoa New Zealand - **Matthew William Hughes, University of Canterbury**	Cyclic Erosion and Infill of the Waitaki Canyon, Offshore Otago **- Glenn Thrasher, GNS Science**
10.45 - 11.00	Exploring Future Alpine Fault Earthquakes Using Ambient Seismic Noise Analysis - **John Townend, Victoria University of Wellington**	Redefining Geoscience through Photovoice - **Emily Pasek, Michigan State University** *(student)*	Near-bed sediment and organic carbon transport in Kaikōura Canyon and Hikurangi Channel - **Scott Nodder, NIWA Taihoro Nukurangi**
11.00 - 11.15	Enriching the Alpine Fault paleoseismic record using curved slickenlines to constrain paleo-epicenters - **Nicolas Barth, University of California, Riverside**	Maximising geoscience for societal benefit through evaluation of impact - **Victoria Miller, GNS Science**	Multi-proxy Provenance Analysis of the Pleistocene-Recent Giant Foresets Formation, Taranaki Basin, Aotearoa New Zealand - **Glenn Sharman, University of Arkansas**
11.15 - 11.30	Southern Alpine Fault segmentation and potential earthquake ruptures - **Philip Barnes, NIWA**	Advancing uncertainty communication of the scientific model- Using 'Uncertainty Doughnut' - **Annal Dhungana, Massey University** *(student)*	Overcoming the challenges in marine pollen records to create long records of past vegetation and climate - **Laura McDonald, The University of Auckland** *(student)*
11.30 - 11.45	Opportunities for integrated multi-discipline monitoring of New Zealand's Southern Alps - **Calum Chamberlain, Victoria University of Wellington**	Interactive tools for the communication of the temporal and spatial distribution of disaster literature in British Columbia, Canada - **Charlotte Milne, Institute for Resources, Environment, and Sustainability (UBC)** *(student)*	Decoding the Deep: Automated Signal Classification in OBS Data – The RUMBLE Project - **Christof Mueller, GNS Science**
11.45 - 12.00	Keynote Modelling the next Alpine Fault earthquake: Why measurements matter - **Carolyn Boulton, Te Herenga Waka Victoria University of Wellington**	Discovering 'The Secrets of Rocks' and lessons from other outreach projects in Chile - **Javiera Ruz-Ginouves, University of Otago** *(student)*	Unravelling the sediment signature of the lake tsunami: the potential of lake sediment records to reconstruct magnitude and frequency - **Katie Hughes, Victoria University of Wellington** *(student)*

Conference Programme (Tuesday continued)

12.00 - 13.30	**Lunch and SIG Meetings-** *ISB Link Foyer*			
	Castle 2 Lecture Theatre	*Castle 1 Lecture Theatre*	*Burns 1 Lecture Theatre*	*Burns 5 Seminar Room*
12.30 - 13.25	***GeoNet Programme Update*** *Led by: Elizabeth Abbott, Jonathan Hanson, Elisabetta D'Anastasio and the GeoNet Team, GNS Science*	***GSNZ Proposed Awards Portfolio - Feedback Session*** *Led by: Sam McColl, GSNZ President*	***Geoethics Special Interest Group*** *Led by: Matthew Hughes, University of Canterbury*	***Natural Hazards and Resilience Platform establishment – information session*** *Led by: Dr Graham Leonard, Natural Hazard and Risk Theme Leader, GNS Science*
	Castle 2 Lecture Theatre	*Castle 1 Lecture Theatre*	*Burns 1 Lecture Theatre*	
13.30 - 14.45	**2.A Ensuring Invaluable Scientific Observations are Obtained Pre- and During the Next Alpine Fault Earthquake** *Session Convenors: Phaedra Upton, Kate Clark, Sigrún Hreinsdóttir, Emily Warren-Smith, GNS Science*	**2.B Geoscience Education, Outreach and Communication** *Session Convenors: Sophie Briggs, University of Otago; Kate Pedley, University of Canterbury, Faye Nelson, University of Otago*	**2.C Changing Landscapes; Surface Process Dynamics, Evolution, and Impacts** *Session Convenors: Sam McColl, GNS Science; Katie Jones, GNS Science; Kevin Norton, Victoria University of Wellington; Sean Fitzsimons, University of Otago; David Barrell, GNS Science*	
13.30 - 13.45	Complex fault traces on the northern Alpine Fault, Aotearoa New Zealand: roles of fault interactions and structural maturity in influencing earthquake ground surface rupture patterns - **James La Greca, The University of Melbourne** *(student)*	5 Minute: Volcano - Designing Educational Games about Geological Disaster Risks with and for New Zealand Classroom - **Kieron Wall, University of Canterbury** *(student)*	Scratching the surface: A catalogue of recognised human impacts across New Zealand's nearshore marine/freshwater environments - **Sam Davidson, NIWA**	
13.45 - 14.00	Determining the best core location to develop long lacustrine paleoseismic records - **Adelaine Moody, Victoria University of Wellington** *(student)*	Digital technologies coupled with practical and field experiences can enhance the ability of Geology students to practice 3D spatial skills - **Kate Pedley, University of Canterbury**	Impact of landscape evolution on the ocean circulation and glaciation: A forward modelling of basin and landscape dynamics, northern Barents Sea, Norwegian Arctic - **Amando Lasabuda, The University of Sydney**	
14.00 - 14.15	Did the most recent surface-rupturing earthquake on the Alpine Fault occur in 1717 AD? - **Sophie Newsham, University of Canterbury** *(student)*	Integrating real and virtual field experiences for geoscience education - **Alex Clarke, Johannes Gutenberg-universität Mainz**	How accurate are benthic foraminifera as a proxy for estimating coseismic subsidence? - **Bella Partington, University of Canterbury** *(student)*	

Conference Programme (Tuesday continued)

14.15 - 14.30	Surface rupture, displacement, and river avulsion impacts during the next large alpine fault earthquake - **Rob Langridge, GNS Science**	Mine geology experiential learning as we charge towards Net Zero: fieldtrip to 2 operating open-cast mines - **Martin Brook, University of Auckland**	Unravelling the Vertical Land Motion and Relative Sea Level Rise in Sumatra, Indonesia - **Maritsa Faridatun Nisa - University of Otago** *(student)*
14.30 - 14.45		Education of the next generation of geotechnical engineering and engineering geology professionals in New Zealand - **Christoph Kraus, NZGS and Beca Ltd**	Climate of the tropical South Pacific during the Last Glacial Period: Insights from the speleothem archives - **Gavin Holden, Victoria University of Wellington** *(student)*
14.45 - 15.00	**(Short Break)**		
	Castle 2 Lecture Theatre	*Castle 1 Lecture Theatre*	*Burns 1 Lecture Theatre*
15.00 – 16.00	**3.A Applied Geosciences: Geotechnical, Resources and Technologies** Session Convenors: Nick Mortimer, Donna Eberhart-Phillips, GNS Science	**3.B Urban Geosciences** *Session Convenor: David Barrell, GNS Science* ***Kindly sponsored by Natural Hazards Commission Toka Tū Ake*** Natural Hazards Commission Toka Tū Ake	**3.C Changing Landscapes; Surface Process Dynamics, Evolution, and Impacts** *Session Convenors: Sam McColl, GNS Science; Katie Jones, GNS Science; Kevin Norton, Victoria University of Wellington; Sean Fitzsimons, University of Otago; David Barrell, GNS Science*
15.00 - 15.15	Mineral Resource Estimation for gold mining at Macraes Mining Area, Hyde-Macraes Shear Zone, Otago, New Zealand - **Matthew Grant, OceanaGold**	Rediscovering the Past: Unveiling the Geological Legacy of the Albert Park Volcano, Auckland City - **Steven Price, Riley Consultants Ltd**	Detecting mass movements in alpine regions using infrasound - **Leighton Watson, University of Canterbury**
15.15 - 15.30	Call me a magnetician: digitising New Zealand's historical magnetic field data – **Luke Easterbrook-Clarke, GNS Science**	Identifying concealed structures in urban areas: Insights from Tāmaki Makaurau-Auckland, Aotearoa-New Zealand - **Jan Lindsay, University of Auckland**	Mapping the contemporary active channel evolution of braided rivers in New Zealand - **Rodrigo Gomez Fell, University of Canterbury**
15.30 - 15.45	Carbon dioxide removal potential of New Zealand river catchments under enhanced rock weathering applications - **Sourajit Sahoo, University of Waikato** *(student)*	Avoiding fault: Two decades of surface fault rupture hazard management on the Ostler Fault, Twizel, South Canterbury - **Helen Jack, Environment Canterbury**	Evolution of the Leader River in Response to a Landslide Dam, Triggered by the 2016 Mw 7.8 Kaikōura Earthquake - **Anna McCarthy, University of Canterbury** *(student)*
15.45 - 16.00	Improving Eruption Forecasting Through Transfer Machine Learning: A Global Approach Utilizing Models Trained on 24 Volcanoes - **Alberto Ardid, University of Canterbury**	Dunedin City's Shallow Groundwater and Multi-Hazard Flood Forecasts as Sea-Levels Rise - **Simon Cox, GNS Science**	A Sand Balance Model of the Lower Rangitata River - **Justin Rogers, University of Canterbury** *(student)*

Conference Programme (Tuesday continued)

16.00 - 17.30	*ISB Link Foyer* **Poster Session and Afternoon Tea**
18.30 – 21.00	*Toitu Otago Settlers Museum* **Night at the Museum**

WEDNESDAY, 27 NOVEMBER 2024			
08.00 – 17.00	*ISB Link Foyer* **Registration Open**		
08.00- 17.00	*Castle D Seminar Room* **Science Media Savvy Express Training**		
	Castle 2 Lecture Theatre	*Castle 1 Lecture Theatre*	*Burns 1 Lecture Theatre*
09.00 – 10.30	**4.A Earthquake Science from Intraplate to Interplate** *Session Convenors: Mark Stirling, University of Otago; Ting Wang, University of Otago; Genevieve Coffey, GNS Science*	**4.B Evolution of the New Zealand Biota: In Honour of R. Ewan Fordyce** *Session Convenors: Daphne Lee, University of Otago; Daniel Thomas, University of Auckland*	**4.C Magmas and Volcanoes of Zealandia and Beyond** *Session Convenors: Marco Brenna, James White, Jie Wu, University of Otago*
09.00 - 09.15	Keynote Enhanced earthquake detection enables advancements in our understanding of earthquake physics - **Calum Chamberlain, Victoria University of Wellington**	Keynote Chimaeroids to Carcharodon: Ewan Fordyce's Contributions to Expanding the New Zealand Fossil Record of Chondrichthyans and Bony Fishes - **Michael Gottfried, Michigan State University**	Keynote The skirmish between arc and intraplate magma below Karioi – a stratigraphic perspective - **Oliver Emerson McLeod, Waikato Regional Council**
09.15 - 09.30	The southern extent of active Hikurangi subduction: insights from seismicity catalogues - **Daria Batteux, University of Canterbury** *(student)*		
09.30 - 09.45	Seismicity and moment tensors from a dense deployment spanning slow slip earthquakes near Pōrongahau, central Hikurangi margin - **Martha Savage, Victoria University of Wellington**	Landon Series Biostratigraphy - Developments over the last few decades and Ewan Fordyce's role in shaping our understanding of Zealandia's Oligocene Epoch - **Marcus Richards, Stay at Home Parent**	What happened here? Mapping and re-interpreting the volcanic rocks underlying Dunedin - **Graham Leonard, GNS Science**
09.45 - 10.00	Keynote Statistical insights regarding the relationship between seismicity and slow slip events in the Hikurangi Subduction Zone - **Jessica Allen, University of Otago** *(student)*	Winners and losers in the New Zealand flora since the Miocene: the effects of changing climate on vegetation in southern Zealandia - **Tammo Reichgelt, University of Connecticut**	Hot and cold storage within a long-lived crystal mush beneath the Dunedin Volcano - **Ayla Stenning, University of Otago** *(student)*

Conference Programme (Wednesday continued)

10.00 - 10.15	Recurrence Patterns of Shallow Hikurangi SSEs Change Along the Strike of the Margin and after 2016 Mw7.8 Kaikoura Earthquake - **Andrea Carolina Perez Silva, University of Otago**	Cenozoic fossil wood records of extinct and extant angiosperm tree lineages from southern Zealandia - **Mathew Vanner, University of Otago**	Conduit establishment and evolution at Taranaki Mounga - **Henry Hoult, University of Canterbury** *(student)*
10.15 - 10.30	Deep and clustered microseismicity at the peripheral edge of southern New Zealand's plate boundary: results from the Southland Otago Seismic Array (SOSA) - **Jack Williams, University of Otago**	Eocene spiny fruits and seeds from the Waihao Greensand, New Zealand - **John Conran, The University of Adelaide**	Unravelling the story of Kuwae, Vanuatu, in Stratigraphy, Bathymetry, and Geochemistry - **Sönke Stern, University of Auckland** *(student)*
10.30 - 11.00	**Morning Tea -** *ISB Link Foyer*		
	Castle 2 Lecture Theatre	*Castle 1 Lecture Theatre*	*Burns 1 Lecture Theatre*
11.00 – 12.30	**5.A Earthquake Science from Intraplate to Interplate** *Session Convenors: Mark Stirling, University of Otago; Ting Wang, University of Otago; Genevieve Coffey, GNS Science*	**5.B Evolution of the New Zealand Biota: In Honour of R. Ewan Fordyce** *Session Convenors: Daphne Lee, University of Otago; Daniel Thomas, University of Auckland*	**5.C (part 1) Magmas and Volcanoes of Zealandia and Beyond** *Session Convenors: Marco Brenna, James White, Jie Wu, University of Otago*
11.00 - 11.15	One tune, many tempos: Faults trade off slip in time and space to accommodate relative plate motions - **Russ Van Dissen, GNS Science**	100 years of spore-pollen biostratigraphy in New Zealand: progress and possibilities - **Ian Raine, GNS Science**	Measuring a volcano's breath: Young volcanic plume emissions reveal elevated magmatic degassing amidst a long heating cycle of a hyper-acidic volcanic crater lake (Mt. Ruapehu) - **Marco Rebecchi, Te Herenga Waka-Victoria University of Wellington** *(student)*
11.15 - 11.30	Progress towards untangling earthquake sources in the Central Hikurangi Subduction Zone: Holocene marine terraces between Clifton and Waimārama - **Nicola Litchfield, GNS Science**	New insights into the fossil record of sea pens (Octocorallia) based on a new find from the mid-Cretaceous of New Zealand - **Alexey Ippolitov, Victoria University of Wellington** *(student)*	Linking hydrothermal alteration to rock mechanics: comparative analysis of andesitic volcanoes in Aotearoa - New Zealand - **Maia Kidd, Massey University** *(student)*

Conference Programme (Wednesday continued)

11.30 - 11.45	Late Quaternary activity of the Pisa Fault, Otago - **Mark Stirling, University of Otago**	Size trends in Zealandian Mesozoic Brachiopods - **Donald MacFarlan, Independent**	The Volcanic Lakes of Te Ahi Tupua (Central Taupō Volcanic Zone, Aotearoa New Zealand) - **AJ Marshall, Te Herenga Waka-Victoria University of Wellington** *(student)*
			5.C (part 2) Understanding Diverse Volcanic Processes *Session Convenors: Eleanor Mestel, Finnigan Illsley-Kemp, Simon Barker, Stephen Piva, Te Herenga Waka Victoria University of Wellington; Sigrún Hreinsdóttir, GNS Science Te Pū Ao*
11.45 - 12.00	Structural controls on the geometries and displacements of Kaikōura Earthquake fault ruptures - **Andy Nicol, University of Canterbury**	Fossil arthropods from Zealandia reveal a complex ecological and biogeographic history - **Daphne Lee, University of Otago**	Recent inflation episodes beneath Taupō Volcano - **Sigrún Hreinsdóttir, GNS Science**
12.00 - 12.15	How greywacke faults heal: Results from hydrothermal friction experiments - **Carolyn Boulton, Te Herenga Waka Victoria University of Wellington**	Potential new turtle species from the Neogene of North Canterbury, New Zealand - **Morne Wium, Canterbury University** *(student)*	Fibre optic sensing of earthquakes at Ruapehu - **Leighton Watson, University of Canterbury**
12.15 - 12.30	Geometries and slip rates of recently discovered active faults in Taranaki - **Matt Parker, University of Canterbury**	The University of Otago Geology Museum fossil database - **Jeffrey Robinson, University of Otago**	Monitoring Volcanic Degassing at Ruapehu - **Agnes Mazot, GNS Science**
12.30 - 14.00	**Lunch and SIG Meetings -** *ISB Link Foyer*		
	Castle 2 Lecture Theatre	*Castle 1 Lecture Theatre*	*Burns 1 Lecture Theatre*
13.00 - 13.55	***Kickstarting a Seismology Special Interest Group*** *Led by: Matt Gerstenberger, Kiran Kumar Thingbaijam, GNS Science, Jack Williams University of Otago*	***GeOID SIG Meeting*** *Led by: Jenny Stein, Massey University*	***Friends of Pleistocene Special Interest Group*** *Led by: David Barrell, GNS Science*
	Castle 2 Lecture Theatre	*Castle 1 Lecture Theatre*	*Burns 1 Lecture Theatre*

Conference Programme (Wednesday continued)

14.00 – 15.30	**6.A Earthquake Science from Intraplate to Interplate** *Session Convenors: Mark Stirling, University of Otago; Ting Wang, University of Otago; Genevieve Coffey, GNS Science*	**6.B Evolution of the New Zealand Biota: In Honour of R. Ewan Fordyce** *Session Convenors: Daphne Lee, University of Otago; Daniel Thomas, University of Auckland*	**6.C Understanding Diverse Volcanic Processes** *Session Convenors: Eleanor Mestel, Finnigan Illsley-Kemp, Simon Barker, Stephen Piva, Te Herenga Waka Victoria University of Wellington; Sigrún Hreinsdóttir, GNS Science Te Pū Ao*
14.00 - 14.15	An integrated 3D "interseismic" GNSS velocity field, updated strain-rate maps, and geodetic slip-deficit-rate models for Aotearoa New Zealand, plus some questions - **Chris Rollins, GNS Science**	A bite of evolution: elucidating cetacean evolutionary history through their teeth - **Carolina Loch, University of Otago**	Cracks and Thermal Flow: Thermo-structural Analysis at Maunga Kakaramea, Waiotapu Geothermal Field - **Gerd Sielfeld, University of Auckland**
14.15 - 14.30	Cataloguing and promoting the use of paper records in the national earthquake information database - **Paul Viskovic, GNS Science**	The oldest New Zealand sea lion - **Felix Georg Marx, Museum of New Zealand Te Papa Tongarewa**	A Summary and Interpretation of The Recent Potential Field and Carbon Dioxide Gas Flux Data of Rangitoto Volcano, Auckland Volcanic Field - **Alutsyah Luthfian, The University of Auckland** *(student)*
14.30 - 14.45	New Zealand National Seismic Hazard Model Revision 2022: Hazard changes with respect to NZ NSHM 2010 - **Sanjay Bora, GNS Science**	A New Diving Pliocene Ardenna Shearwater (Aves: Procellariidae) from New Zealand - **Alan Tennyson, Museum of New Zealand Te Papa Tongarewa**	Investigating conditions for phreatic volcanic eruptions with comparison to Whakaari volcano, New Zealand - **Sophie Pearson-Grant, GNS Science**
14.45 - 15.00	The 2022 New Zealand National Seismic Hazard Model applied in the Wellington Basin - **Anna Kaiser, GNS Science**	Ancient mitogenomes and morphometrics reveal a new species of extinct large insular shelduck from Rēkohu Chatham Islands - **Nic Rawlence, University of Otago**	Better shape up! The impact of irregular shape in numerical modelling of volcanic bombs - **Amilea Sork, University of Canterbury** *(student)*
15.00 - 15.15	Empirical validation of physics-based ground motion modelling in Wellington Basin: Insights on Basin Amplification - **Duo Li, GNS Science**	Kyeburn Moa Footprints and the Maniototo Conglomerate - **Kane Fleury, Tūhura Otago Museum**	Insights into rapidly transitioning eruptions at Ambrym volcano (Vanuatu, SW Pacific) through melt inclusions from the 1913 Hospital Tuff - **Kristen Lewis, University of Canterbury** *(student)*
15.15 - 15.30		Fossil footprints from the rohe of Ngāti Whātua o Kaipara are educational assets - **Daniel Thomas, University of Auckland**	Magmatic processes and the obsidians of Tūhua (Mayor Island) - **Frankie Haywood, University of Bristol** *(student)*

Conference Programme (Wednesday continued)

15.30 - 17.00	**Poster Session and Afternoon Tea -** *ISB Link Foyer*
17.00 - 18.00	**GSNZ AGM -** *Castle 2 Lecture Theatre*
19.00 - late	*Business School Atrium, University of Otago Ōtākou Whakaihu Waka* **"It's Always Sunny in Dunedin" Awards Dinner**

THURSDAY, 28 NOVEMBER 2024			
08.00 – 15.00	*ISB Link Foyer* **Registration Desk Open**		
	Castle 2 Lecture Theatre	*Castle 1 Lecture Theatre*	*Burns 1 Lecture Theatre*
09.00 – 10.30	**7.A Preparation for the Next Big Quake Rapid Response Science, Cascading Hazard & Scenario Development** *Session Convenors: Anna Kaiser, GNS Science; Caroline Orchiston, University of Otago; Elena Manea, GNS Science* ***Kindly sponsored by GNS Science Te Pū Ao*** GNS SCIENCE TE PŪ AO	**7.B Future-Proofing Energy and Minerals: Geoscience in the Low-Emissions Era** *Session Convenors: David Dempsey, University of Canterbury; Ludmila Adam, University of Auckland; Jess Hillman, NIWA*	**7.C Great Southern Land (and Ocean): Research from Antarctica and the Southern Ocean** *Session Convenors: Greer Gilmer, GNS Science; Meghan Duffy, University of Otago*
09.00 - 09.15	Exercise Rū Whenua: Building an Alpine Fault earthquake scenario for a national-scale emergency management exercise - **Tom Robinson, University of Canterbury**	Keynote A minerals strategy for New Zealand - **Richard Garlick, MBIE**	Keynote Structure and mechanics of the McMurdo Ice Shelf: news from the K062 field camp - **David Prior, University of Otago**
09.15 - 09.30	Developing The GNS Incident Management System in Preparation for Rū Whenua and The Next Large Earthquake - **Gerry Blair, GNS Science**	New Zealand's mineral resources for the low carbon emissions future - **Tony Christie, GNS Science**	

Conference Programme (Thursday continued)

09.30 - 09.45	Spatio-Temporal Variability in Disaster Exposure: Insights from the Alpine Fault Earthquake Scenario (Rū Whenua) - **Mat Darling, University of Canterbury** *(student)*	Keynote Resourcing the future: changing the concept of ore - **Julie Rowland, University of Auckland**	Estimating Marine Ice Thickness Beneath the Amery Ice Shelf from Airborne Radio-Echo Sounding - **Lijuan Wang, Tongji University** *(student)*
09.45 - 10.00	From Science to Operation within the Rapid Characterisation of Earthquake and Tsunami (RCET) Program - **Jen Andrews, GNS Science**		Comparing 2D and 3D models of Antarctic ice shelf rift fronts - **Martin Forbes, Otago Polytechnic**
10.00 - 10.15	Improving Earthquake Forecasting in New Zealand: The Development and Implementation of the Hybrid Forecast Tool (HFT) - **Kenny Graham, GNS Science**	Brine-reactivity for studies of injecting CO2 and H2 in New Zealand Rocks – **Ludmila Adam, University of Auckland**	Glacial-interglacial uranium isotope systematics of coccolithophore from the Southern Ocean: New insights for ocean temperature, pH, carbonate ion concentration and redox reconstructions - **Marie Hennequin, The University of Otago** *(student)*
10.15 - 10.30	Operational Template-Matching for Rapid Aftershock Analysis and Source Characterisation - **Emily Warren-Smith, GNS Science**	Understanding geophysical properties of fluids for monitoring a CCS project at the Kapuni field - **Steve Morice, Todd Energy**	Pleistocene paleoenvironmental reconstructions from the Pacific Sector of the Antarctic Circumpolar Current: Diatom and sediment geochemistry proxies from IODP 383 Site U1539 - **Meghan Duffy, University of Otago** *(student)*
10.30 - 11.00	**Morning Tea -** *ISB Link Foyer*		
	Castle 2 Lecture Theatre	*Castle 1 Lecture Theatre*	*Burns 1 Lecture Theatre*
11.00 – 12.30	**8.A Preparation for the Next Big Quake Rapid Response Science, Cascading Hazard & Scenario Development** *Session Convenors: Anna Kaiser, GNS Science; Caroline Orchiston, University of Otago; Elena Manea, GNS Science*	**8.B Future-Proofing Energy and Minerals: Geoscience in the Low-Emissions Era** *Session Convenors: David Dempsey, University of Canterbury; Ludmila Adam, University of Auckland; Jess Hillman, NIWA*	**8.C Great Southern Land (and Ocean): Research from Antarctica and the Southern Ocean** *Session Convenors: Greer Gilmer, GNS Science; Meghan Duffy, University of Otago*
11.00 - 11.15	Waikato Region Hikurangi Subduction Zone Consequence Planning - **Whitney Mills, Waikato Regional Council**	Geological assessment of underground hydrogen storage prospectivity, Taranaki Basin: a multi-criteria decision-making approach - **Dominic Paul Strogen, GNS Science**	Magnetic fabric analysis of laboratory deposited sediments to investigate paleo Antarctic Bottom Water velocity - **Natalie-Jane Reid, University of Otago** *(student)*

Conference Programme (Thursday continued)

11.15 - 11.30	Comprehensive physics-based multi-hazard and multi-risk modelling for Aotearoa New Zealand: a progress report - **Bill Fry, Te Pū Ao**	Correlation or causation? Influences of topography, heat sources, and geology on regional-scale geothermal fluid flow in the Taupō Volcanic Zone, New Zealand - **Sophie Pearson-Grant & Lucy Carson, GNS Science**	Linking oceanographic-driven sediment and organic carbon flux to geologic records in Antarctic submarine canyons - **Jess Hillman, NIWA**
11.30 - 11.45	A National Probabilistic Coseismic Displacement Model for Aotearoa New Zealand - **Andy Howell & Jack McGrath, University of Canterbury**	Achieving Carbon Neutrality in Geothermal Energy: A Model for High-Emission Industries - **Eylem Kaya, University of Auckland**	**9.C Mountains to Sea Research in Fiordland** *Session Convenor: Greer Gilmer, GNS Science* Over the misty mountains – Fiordland's climatic development during the Holocene - **Julian Eschenroeder, University of Otago** (student)
	9.A Tsunamis in the Southwest Pacific – Monitoring, Evaluation, Response and Mitigation *Session Convenors: William Power, Craig Miller, Jonathan Hanson, Jean Roger, GNS Science*	**9.B Regional and General Geology: In Honour of Jane Forsyth** *Session Convenor: Nick Mortimer, GNS Science*	
11.45 - 12.00	24/7 Monitoring and Rapid Response to Tsunamigenic events in Aotearoa - **Heather J Rawcliffe, GNS Science**	Keynote A sub-Quaternary geological map, Te Waipounamu South Island and Rakiura Stewart Island **- Mark Rattenbury, GNS Science**	Carbon Loss from Earthquake-Induced Landslides in Fiordland **- Charles Cox, University of Otago** (student)
12.00 - 12.15	Constraining Tsunamigenic Earthquake Sources: Integrating Array Seismological Methods with the W-Phase Solution for Improved Far-Field Tsunami Warning - **Bill Fry, GNS Science**	On the origin of tremolite in New Zealand nephrite (including Pounamu)- **Mike Palin, University of Otago**	Assessing Carbon Storage Capacities in Fiordland Fjords: Insights from high-resolution seismic imaging - **Ellen Unland, University of Otago** *(student)*
12.15 - 12.30	Earthquake cycle models of the Hikurangi-Kermadec and Tonga-Vanuatu subduction zones - **Yi-wun Mika Liao, GNS Science/University of Canterbury** *(student)*	The sedimentology, stratigraphy and geochemistry of the Waipara Greensand- **Ted Spinks, University of Canterbury** *(student)*	The secrets of sequestration: Assessing the modern carbon stocks in Tamatea / Dusky Sound - **Luke Whibley, University of Otago** (student)
12.30-13.30	**Lunch -** *ISB Link Foyer*		

Conference Programme (Thursday continued)

	Castle 2 Lecture Theatre	*Castle 1 Lecture Theatre*	*Burns 1 Lecture Theatre*
13.30 - 14.30	**10.A Tsunamis in the Southwest Pacific – Monitoring, Evaluation, Response and Mitigation** *Session Convenors: William Power, Craig Miller, Jonathan Hanson, Jean Roger, GNS Science*	**10.B Regional and General Geology: In Honour of Jane Forsyth** *Session Convenor: Nick Mortimer, GNS Science*	**10.C Mountains to Sea Research in Fiordland** *Session Convenor: Greer Gilmer, GNS Science*
13.30 - 13.45	Five years of tsunami monitoring with the New Zealand DART network: detections, issues & perspectives - **Jean Roger, GNS Science**	New Zealand's earliest geological maps and the argument they generated between Hochstetter and Heaphy - **Bruce W. Hayward, Geomarine Research**	Mountains to sea in 3D: Fiordland plutonic block is key to the southern South Island New Zealand Plate Boundary - **Donna Eberhart-Phillips, GNS Science**
13.45 - 14.00	Database Development for Volcanic Tsunami Threat Levels **- Aditya Gusman, GNS Science**	Deformation history of the Waimea-Flaxmore Fault System in Nelson-Tasman Bay (New Zealand): implications of alternative restorations - **Francesca Ghisetti, Terrageologica**	Fiordland saltmarshes: sediments, salinity, and vegetation - **Peter Johnson, Manaaki Whenua Landcare Research**
14.00 - 14.15	The National Tsunami Hazard Model - 2021 Update and Example Applications – **William Power, GNS Science**	Structural reinterpretation of the McKee field using a thrust-fault growth and linkage model – **Lawrence Grant-Woolley, Todd Energy**	The impact of land dynamics on the terrestrial carbon cycle in Fiordland - **Elizabeth Keller, GNS Science**
14.15 - 14.30	Tsunami Hazard from Afar: Implications for Aotearoa New Zealand - **Aisling O'Kane, University of Canterbury**	Geology and origins of Te Riu-a-Māui / Zealandia – **Nick Mortimer, GNS Science**	Where does the carbon go? Reconciling atmospheric observations, surface observations, and lateral transport of carbon in Fiordland - **Jocelyn Turnbull, GNS Science**
14.30 - 15.00	*Castle 2 Lecture Theatre* **Closing Ceremony** **Student Presentation Awards** **NZJGG Journal Update by Fei He at the Royal Society** **Photo Competition Awards presented by Tourism New Zealand**		

Conference Programme

FRIDAY, 29 NOVEMBER 2024 (Field Trips)	
Starts: **Thursday at 15.30** **Ends:** **Friday at 16.00**	**Explore the Stories of New Zealand's First UNESCO Global Geopark – Two Day Field Trip** Thursday 28th and Friday 29th November **Leader**: Sasha Morriss (Waitaki Whitestone Geopark)
09.00 – 16.30	**A Geological Tour through Dunedin's Landscape and Scenery** Friday 29th November **Leaders:** David Barrell & Nick Mortimer (GNS Science)
09.30 – 16.30	**Akatore Fault Earthquake Geology: Otago's Most Active Fault** Friday 29th November **Leader:** Mark Stirling (University of Otago)
08.00 – 15.00	**Dunedin's Volcanic Geology** Friday 29th November **Leaders:** Ayla Stenning, Marco Brenna, Rachael Baxter, Dante Frean, James White (University of Otago)
09.00 – 15.00	**Geology Along Te Aka Ōtakou/Otago Harbour Cycleway** Friday 29th November **Leaders:** Greer Gilmer (GNS Science) & Sophie Briggs (University of Otago)

Posters

TUESDAY 26 NOVEMBER

SESSION: Changing Landscapes; Surface Process Dynamics, Evolution, and Impacts

P1.01	Mr Florent Aden-Antoniow	Advancing peril-specific deep learning applications within the Interferometric Synthetic Aperture Radar (InSAR) processing chain.
P1.02	Mr Gavin Anderson (Student)	National Fault Induced River Avulsion Hazard Model
P1.03	Dr Sam Davidson	I raro i ngā ngaru: Beneath the waves of Lake Wānaka using multibeam echosounders
P1.04	Miss Georgina Dempster (Student)	Seismic Stratigraphy of Lake Whakatipu
P1.05	Dr Rodrigo Gomez Fell	Mapping the contemporary active channel evolution of braided rivers in New Zealand
P1.06	Dr Katherine Holt	Its not just paleovegetation: sporomorph chemistry-based insights into UV-B radiation and solar activity from lake sediment records from Aotearoa and Türkiye
P1.07	Dr Marine Le Minor	A new multi-grain size sediment transport model for rivers to help quantify landslide signals in stratigraphy
P1.08	Abigail Underwood (Student)	Exploring and quantifying factors controlling landslide deposit surface roughness using coseismic landslides from the 2016 Mw 7.8 Kaikōura earthquake

SESSION: Ensuring Invaluable Scientific Observations are Obtained Pre- and During the Next Alpine Fault Earthquake

P1.09	Ms Selina Fenske (Student)	Do active faults' clay mineral compositions affect whether earthquake ruptures they host will displace the surface?
P1.10	Mr Lars Hansen (Student)	Investigating greywacke fault zone architecture of the Central Southern Alps of New Zealand.
P1.11	Dr Sigrún Hreinsdóttir	GNSS geodetic measurements along the Alpine Fault, then and now
P1.12	Konstantinos Michailos	Drivers of seasonal seismicity in the central Southern Alps, New Zealand
P1.13	Professor Meghan Miller	The South Island Seismology at the Speed of Light Experiment (SISSLE): Distributed Acoustic Sensing Across and Along the Alpine Fault, South Westland, New Zealand
P1.14	Isabella Michelle Sulvarán-Aguilar (Student)	Characterizing Microseismicity on the Alpine Fault with Distributed Acoustic Sensing
P1.15	Dr Phaedra Upton	Ensuring Invaluable Scientific Observations are Obtained Pre- and During the Next Alpine Fault Earthquake
P1.16	Dr Emily Warren-Smith	Dynamic Rupture Simulations on the Alpine Fault: Investigating the Role of Fault Geometry on Rupture Size and Behaviour Over Multiple Earthquake Cycles

Posters

TUESDAY 26 NOVEMBER

SESSION: Geoscience Education, Outreach and Communication

P1.17	Dr Alberto Ardid	Integrating Machine Learning in Geoscience and Engineering Education: A Multihazard Approach
P1.18	Dr Danielle Charlton	Illustrating uncertainty in natural hazard science advice: Evidence informed guidance for Aotearoa New Zealand
P1.19	Dr Elisabetta D'Anastasio	Geodesy, a fundamental but often invisible tool for geoscience
P1.20	Ms Michele D'Ath-Woodd	Breaking the Outreach Barrier
P1.21	Giuseppe Di Capua	The Global Geoethics Infrastructure
P1.22	Mr Dean Jackson	24/7 Monitoring and Rapid Response to Landslides in Aotearoa – New Zealand
P1.23	Mr Alfredo Jaramillo (Student)	An evaluation of Citizen Science approaches to monitor landslides and reduce the associated community risk in coastal cliff environments.
P1.24	Professor David Johnston	The Tūeke 35 (Tsunami Care Bags) initiative in Tairāwhiti/Waiāriki Kura Kaupapa Māori/ Schools
P1.25	Mrs Sasha Morriss	Waitaki Whitestone UNESCO Global Geopark
P1.26	Dr Faye Nelson	Magnetic monitoring of particulate matter on leaves in Ōtepoti Dunedin: participatory science with preschool and primary students
P1.27	Mrs Karen Pratt	Celebrating Collaboration: Multibeam mapping an extensive mosaic of South Taranaki's Sub-Tidal Rocky Reefs through Community and Scientific Outreach
P1.28	Jenny Stein (Student)	Pathways to Preparedness: Which components of natural hazard public education initiatives get people to take preparedness actions?
P1.29	Miss Lottie Stevenson (Student)	Breaking the Ice on Frozen Narratives: Decolonising Antarctic Research
P1.30	Mr Julian Thomson	Communicating science to the public: Why you should, how you can

SESSION: Magmas and Volcanoes of Zealandia and Beyond

P1.31	Miss Rachael Baxter (Student)	Cracking the code: Empirical analysis of damage fracture occurrence, abundance and morphological complexity for natural and experimental volcanic ash particles.
P1.32	Miss Kylie Beck (Student)	Lithic clasts show conduit structure during explosive eruptions of the basaltic-andesite Panitahi/Fanthams Peak at Taranaki Mounga
P1.33	Ted Bertrand	A marine MT array for imaging the magmatic systems beneath near-shore volcanoes (Whakaari and Tūhua) in New Zealand
P1.34	Mr Wendel Broek (Student)	Sill emplacement of the Waiareka-Deborah Volcanic Field and the oddity Mt Charles Bow-Alley Creek
P1.35	Prof Martha Savage	Next generation tools for volcanotectonic numerical modelling in the TVZ
P1.36	Mr Dante Frean (Student)	A study of the transition in eruptive styles at a scoria cone in the Hopi Buttes Volcanic Field, Arizona.
P1.37	Dr Wiebke Heise	3-D Inversion of Long Period Magnetotelluric Measurements in Northland and Southland, New Zealand

Posters

TUESDAY 26 NOVEMBER

P1.38	Dr Paul Jarvis	A new magmatic phase of eruptive activity at Whakaari/White Island
P1.39	Gabor Kereszturi	A fossil hydrothermal system within the Wahianoa Formation, Mt Ruapehu, New Zealand
P1.40	Miss Brianna Kirkham (Student)	Estimating shallow magma body depths from volatiles dissolved in glass recovered during drilling at the Puna Geothermal Venture wellfield, Hawaii
P1.41	Dr Oliver Emerson McLeod	Geology of Karioi Volcano - 1:25,000 map
P1.42	Miss Briar Pawson (Student)	Experimentally Investigating the Geochemical Reactivity of Volcanic Ash | Implications for the Environment and Human Health
P1.43	Miss Javiera Ruz-Ginouves (Student)	Magma flow in feeder dikes: chaotic or organized?
P1.44	Ayla Stenning (Student)	A series of magma recharge and mixing events at Mt Charles, Otago Peninsula: reconstructing the Dunedin Volcano.
P1.45	Dr Cynthia Werner	New insights from hydrothermal spring monitoring on Taranaki Volcano, New Zealand
SESSION: Understanding Diverse Volcanic Processes		
P1.46	Dr Finnigan Illsley-Kemp	A new consistent and high-precision earthquake catalogue for the Taupō Volcanic Zone
P1.47	Ms Kristen Lewis (Student)	Investigating magmatic processes recorded in melt inclusions from a steady-state volcano, Yasur (Tanna, Vanuatu)
P1.48	Mr Alutsyah Luthfian (Student)	Basement Heterogeneity and Structural Influence on the Auckland Volcanic Field Magma Ascent Inferred from Gravity and Magnetic Anomaly Modelling
P1.49	Miss Danielle Meek (Student)	The Effect of Hydrothermal Alteration on the Geomechanical Behaviour of Whakaari Volcanic Rocks
P1.50	Dr Eleanor R. H. Mestel	Characterisation of the 2022–23 unrest episode at Taupō volcano
P1.51	Dr Joali Paredes-Mariño	The Chronology of the 15 January 2022 Hunga Eruption revealed through eye-witness descriptions, tephra and tsunami deposition
P1.52	Professor Colin Wilson	Mixed glass compositions in the c. 230 AD Taupō Tephra: Multiple magma types or particle recycling from earlier deposits?
SESSION: Applied Geosciences: Geotechnical, Resources and Technologies		
P1.53	Mr Jacob Leath	Improvement of small sample capability at Rafter Radiocarbon Laboratory
P1.54	Aleksandr Spesivtsev	Migrating GNSS Data Processing to the Cloud-Based Environment: Experiences, Lessons Learned, and Improvements
P1.55	Mr Julian I Swandi	Epithermal Au Ag Cu mineralization of the bonanza Rek Rinti vein system, Woyla gold copper district, Pidie, Aceh, Indonesia
P1.56	Mr Sam Taylor-Offord	GeoNet Sensor Network Development 2023-25
P1.57	Dr Jonathan Hanson	Scoring the FAIRness of GeoNets Data in 2024: Lessons Learnt and Progress Made Since 2021, and How to Cite GeoNet Data
P1.58	Mr Joe Heng (Student)	Enhancing Geophysical Monitoring through Low-Cost Ground-Based GNSS-Reflectometry Technology

Posters
TUESDAY 26 NOVEMBER

P1.59	Mr Dominicus Charel Jodinata (Student)	Geomechanical properties of zeolitized East Coast Bays Formation, Waitematā Basin, and implications for tunnelling
P1.60	Dr Andrew La Croix	New Insights into the Mount Messenger Formation in Taranaki Basin from Seismic and Outcrop: Implications for Environments of Deposition and Palaeogeography
SESSION: Underwater Geosciences		
P1.61	Ms Charlotte Blackler (Student)	Assessing Dredge Spoil Dispersion on the Inner Shelf off the Coast of Tauranga Harbour, Aotearoa New Zealand
P1.62	Ms Grace Frontin-rollet (Student)	Utilising machine learning methods to enhance grainsize distribution maps of Aotearoa's surficial marine sediments.
P1.63	Mx Aj Marshall (Student)	From Taupō–nui–a–Tia to Te Moana-nui-a-Kiwa: Transforming how we monitor our Volcanoes below the water.
P1.64	Dr Alan Orpin	Preservation trajectory of the 2016 Kaikōura co-seismic turbidite and implications for turbidite paleoseismology
P1.65	Dr Lorna Strachan	Unexpected alongslope and downslope interactions of the Taranaki submarine slope; Late Pleistocene-Holocene
P1.66	Fynn Warnke (Student)	Hidden Patterns: Spatio-temporal evolution of Chatham Rise pockmarks
P1.67	Dr Sally Watson	Measuring the impacts of ship anchoring
P1.68	Dr Susi Woelz	Reassessing Tsunami Risks: High-Resolution Mapping of Submarine Landslides in Pegasus Canyon, Aotearoa New Zealand
SESSION: Urban Geosciences		
P1.69	Mr David Barrell	Geology of the Dunedin urban area, coastal Otago: a map-based resource of geoscientific information to assist habitation, economic activities and informed development
P1.70	Ms Megha Devakumar (Student)	Lead Isotope Tracing of Heavy Metal Contaminants in The Environment
P1.71	Mr Harry Gawne (Student)	Modelling Building Amplification of Earthquake Ground Motion, Wellington, New Zealand
P1.72	Mr Phil Glassey	Geological model of South Dunedin, New Zealand: understanding local coastal change
P1.73	Mr Gabriel King (Student)	Building a high-resolution model of the Wellington Basin; A seismic and gravity survey of Wellington CBD

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SESSION: Evolution of the New Zealand Biota: In Honour of R. Ewan Fordyce		
P2.01	Professor Michael Gottfried	A Pliocene Boxfish (Tetraodontiformes, Ostraciidae) from New Zealand -- a harbinger of near-future environmental change?
P2.02	Jennifer Bannister	Scraps from a paleobotanist's bench: novel Cenozoic fossil plant treasures from Zealandia
P2.03	Dr Nicholas Powell	New Zealand's multi-taxon deep-time cold-climate legacy, Zealandia's Late Cretaceous cryosphere, and the Plenus Cold Event's evolutionary bottleneck
P2.04	Mr Thomas Stolberger (Student)	Pliocene Fossil Faunas and Paleoenvironments of the Manukau Lowlands, South Auckland
P2.05	Mr Yutong Wu (Student)	A Late Oligocene Chiton Fauna (Polyplacophora) from a Rocky Shore Ecosystem, Cosy Dell, Southland, New Zealand
P2.06	Mr Yutong Wu (Student)	Unlocking the secrets of ancient predation: A study of fossil drill holes and crustacean damage in invertebrates from a rocky shore ecosystem, Cosy Dell, Southland
SESSION: Future-Proofing Energy and Minerals: Geoscience in the Low-Emissions Era		
P2.07	Mr Jinjiang Liu (Student)	Impact of operational parameters on gas-water contact and water coning in Underground hydrogen storage: A numerical investigation
P2.08	Mr Rafael Pinto Cherene Viana (Student)	Predicted margin stratigraphy and hydrogen storage potential using Landscape Evolution Models
P2.09	Professor Virginia Toy	What is the relationship between green hydrogen, carbon sequestration, (ultra)mafics, and fault creep?
SESSION: Great Southern Land (and Ocean): Research from Antarctica and the Southern Ocean		
P2.10	Dr Simon Cox	A water cycle diagram to highlight the importance of liquid water, hydrological and hydrogeological processes on, in and around Antarctica
P2.11	Ms Madi Fleming (Student)	Recrystallized grain-size and subgrain-size piezometer for ice with application to natural ice in Antarctica
P2.12	Ms Clare Gorman (Student)	Exploring Pleistocene warm periods through carbonate-rich continental margin sediment in offshore Patagonia
P2.13	Professor Andrew Gorman	Geophysical constraints on the seafloor geology of KIS3 drill site oceanward of the Kamb Ice Stream grounding line, Ross Ice Shelf, Antarctica
P2.14	Professor Andrew Gorman (Student)	High-Resolution Seismic Imaging and Stratigraphic Analysis of the Discovery Deep Basin: Implications for Climate Records and Basin Geodynamics beneath the Ross Ice Shelf, Antarctica
P2.15	Matthew R P Harris	Accumulation at Patriot Hills, West Antarctica, over the last half century
P2.16	Ms Marie Hennequin (Student)	Linking the biological pump and CO2 drawdown in the Southern Ocean: Diatoms as a recorder of surface ocean trace metal micronutrients
P2.17	Miss Hana Ishii (Student)	Millennial-scale instability of the Antarctic Ice Sheet and impacts on New Zealand climate in the mid-Pliocene Warm Period

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P2.18	Mr Frank Mackenzie (Student)	Modelled Earth system feedbacks associated with the West Antarctic ice sheet during the last interglacial period
P2.19	Miss Amelia Morris (Student)	A comprehensive atlas of Late Miocene to Early Pliocene diatoms from the Pacific Sector of the Southern Ocean.
P2.20	Miss Lottie Stevenson (Student)	Reconstructing the deglacial thinning history at Byrd Glacier, East Antarctica using cosmogenic surface exposure dating
P2.21	Holly Still (Student)	Monitoring ice dynamics with low-cost GNSS positioning in Antarctica
P2.22	Professor Claudine Stirling	Micronutrient-driven regulation of the Southern Ocean's carbon sink: Reconstructions for the last glacial-interglacial cycle
P2.23	Fynn Warnke (Student)	The International Bathymetric Chart of the Southern Ocean (IBCSO) – Version 2
SESSION: Mountains to Sea Research in Fiordland		
P2.24	Mr Yu-Zhen (Richard) Cai (Student)	Late Holocene Sedimentary Processes of Doubtful, Dagg, and Dusky Sounds, Fiordland, New Zealand
P2.25	Miss Lucy Davidson (Student)	Radiocarbon analysis of rapidly deposited layers within fjord sediments
P2.26	Mr Cedric De Meyer (Student)	The structure of the Puysegur Subduction Zone: a study using detailed multi-year earthquake catalogues.
P2.27	Greer Gilmer	Investigating late Holocene climate change and carbon sequestration in Fiordland
P2.28	Dr Cathy Ginnane	Correlating sequestered organic carbon provenance and age in the southern NZ fjords using geochemical and radiocarbon methods
P2.29	Dr Rebecca McLeod	Research-informed management of the Fiordland Marine Area
P2.30	Dr Faye Nelson	Assessing Holocene secular variation and relative paleointensity from Tamatea Dusky Sound and Rakituma Preservation Inlet, Te Rua-o-te-moko Fiordland: implications for paleomagnetism in carbon sink basins
P2.31	Miss Jorgee Robb (Student)	Modern Sedimentary Spatial Redox Variations in New Zealand's Fjords
SESSION: Earthquake Science from Intraplate to Interplate		
P2.32	Dr Sandra Bourguignon	Where in Fiordland does subduction terminate?
P2.33	Miss Solen Chanony (Student)	Estimating radiated seismic-energy of Aotearoa
P2.34	Dr Kate Clark	Refining the subduction earthquake record of the southern Hikurangi subduction zone: overview of preliminary results from recent studies
P2.35	Dr Genevieve Coffey	At a crossroads: a paleoseismic investigation into intersecting faults in the Te Mihi area, Wairakei Geothermal Field
P2.36	Mr James Gurney (Student)	Rediscovering and cataloguing previously undocumented Otago and Southland earthquakes, 1855-1929
P2.37	Mr Matt Hill	Detailed mapping of the structure and topology of a brittle-ductile fault swarm near Franz Josef, New Zealand

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P2.38	Miss Bethany Hughes (Student)	The Wairakei Earthquake and Tomography Array (WĒTĀ): a nodal seismic array for investigating seismicity at Wairakei Geothermal Field, New Zealand.
P2.39	Dr Finnigan Illsley-Kemp	Using citizen science Raspberry Shake seismometers to enhance earthquake location and characterization: a case study from Wellington, New Zealand
P2.40	Nicola Litchfield	The New Zealand Active Faults Database: recent updates and future plans
P2.41	Dr Yiming Ma	Application of Change-Point Detection to Identify Short-Term SSEs in Southwest Japan Using GNSS Data
P2.42	Dr Robert Pickle	Seismicity and Swarms of the Northern North Island, NZ, 2012-2024
P2.43	Aleksandr Spesivtsev	Generation of Synthetic Ground Displacements for Training Deep Learning Models: A New Zealand Perspective
P2.44	Dr Kiran Kumar Thingbaijam	Characteristics of Earthquake Slip
P2.45	Dr Kasper van Wijk	Seismic imaging of the Auckland crust towards understanding the origins of the Auckland Volcanic Field
P2.46	Miss Codee-Leigh Williams (Student)	Building an enhanced earthquake catalogue for Aotearoa: applying an automated workflow with cutting-edge machine learning methods to mine New Zealand's seismic data.
P2.47	Dr Florent Aden-Antoniow	Towards an Automated Detection and Characterization of Slow Slip Events Along the Hikurangi Subduction Zone Using Graph Neural Networks

See also P2.65

SESSION: Preparation for the Next Big Quake Rapid Response Science, Cascading Hazard & Scenario Development

P2.48	Dr Florent Aden-Antoniow	Rapid Aftershock Cataloguing: a Kafka Story
P2.49	Mr Dan Bain (Student)	A catchment-scale risk analysis of coseismic landslide dams in Aotearoa New Zealand.
P2.50	Dr Emmanuel Caballero Leyva	Preparing New Zealand to natural hazards: Implementation of real-time GNSS and G-FAST for a fast earthquake characterization.
P2.51	Mr Chanthujan Chandrakumar (Student)	Early Warnings on a Budget: Harnessing Community Power and Low-Cost Tech to Detect Earthquakes
P2.52	Miss Julia Harvey (Student)	Modelling coseismic landslide impacts on infrastructure systems in Wellington
P2.53	Dr Anna Kaiser	Enhancing rapid earthquake response with new RCET products: examples for the Ru Whenua Exercise M8+ Alpine Fault earthquake scenario
P2.54	Dr Elena Manea	Regionally adaptable Ground Motion Models for subduction seismicity in New Zealand
P2.55	Mr Rasika Nandana (Student)	Testing the PLUM Earthquake Early Warning Algorithm for Aotearoa New Zealand

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P2.56	Dr Camilla Penney	Earthquake scenario development from physics-based simulators: progress and problematisation
P2.57	Dr Jerome Salichon	GeoNet Operational Earthquake Monitoring System improved information and modernization targets
SESSION: Regional and General Geology: In Honour of Jane Forsyth		
P2.58	Mr Hassan Aleem (Student)	STRUCTURAL ANALYSIS IN THE ACTIVELY DEFORMING WESTERN FOOTHILLS IN SOUTHWESTERN TAIWAN: FAULT-RELATED FOLDS VERSUS MOBILE SHALE PROCESSES.
P2.59	Mr Shao-Jinn Chin (Student)	Seismic Structures Beneath an Ophiolite Nappe in New Caledonia: Implications for Eocene Tectonics in Zealandia
P2.60	Benjamin R. Hines	PLIO-PLEISTOCENE PALEOCEANOGRAPHIC CHANGES IN THE SOUTHERN NORTH ISLAND: IMPLICATIONS FROM STRONTIUM ISOTOPE (87Sr/86Sr) STRATIGRAPHY
P2.61	Ms Natalia Seliutina (Student)	Evaluating the physical and mechanical properties of pounamu through ultrasonic P-wave velocity measurements and nanoindentation.
SESSION: Tsunamis in the Southwest Pacific – Monitoring, Evaluation, Response and Mitigation		
P2.62	Professor David Johnston	The history of earthquake and tsunami monitoring on Rēkohu-Wharekauri-Chatham Islands from 1932 to 2024
P2.63	Miss Luce Lacoua (Student)	Regional W-phase inversion for rapid earthquake characterization as a first step of Tsunami Early Warning for New Zealand
P2.64	Miss Emeline Wavelet (Student)	Exploration of a Time-dependent Forecast for Tsunami in New Zealand
Continued.. SESSION: Earthquake Science from Intraplate to Interplate		
P2.65	Dr Pasan Herath	The GeoNet Benchmark Seismic Dataset for AI

Location Map
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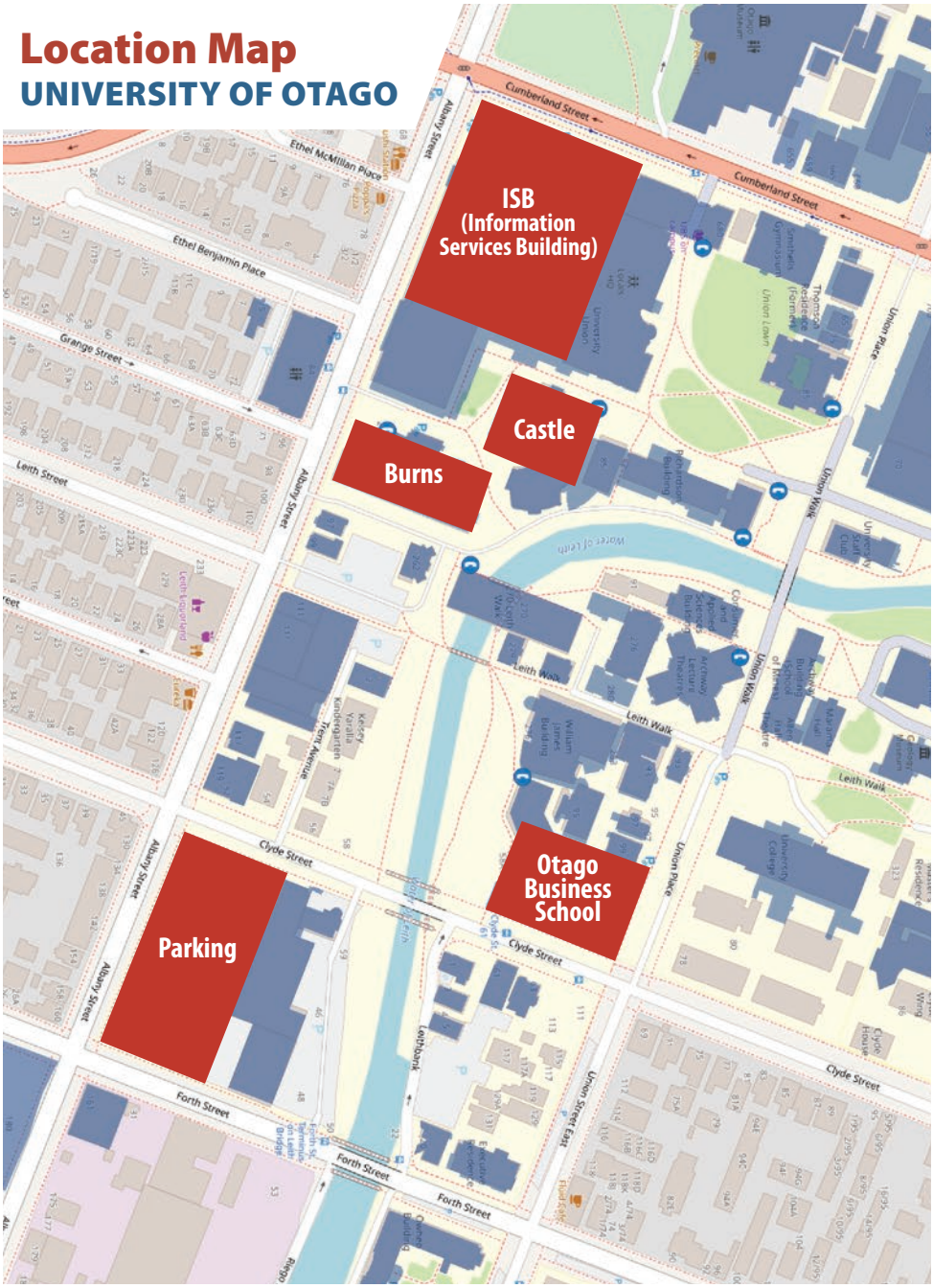

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