



**Annual Conference and AGM 2023**  
Meteorological Society of New Zealand

# PROGRAMME

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Victoria University of Wellington Te Herenga Waka  
**21-23 November 2023**



**Venue**

Cotton Lecture Theatre (COLT122)  
 Victoria University of Wellington  
 Te Herenga Waka, Kelburn,  
 Wellington

**Public transport**

The bus stop is [Victoria University - Stop B](#)

[Metlink bus #22](#) runs from Wellington Railway Station

[Metlink bus #18](#) runs from the southern part of the CBD

[Metlink bus #21](#) also runs from the southern part of the CBD

**Parking**

[Parking for visitors](#)

There are 126 Pay and Display parks available for visitors (as well as staff and students) located along Waiteata Road (indicated on map).

Prices range from \$3.00 an hour to \$11.00 a day (7 am-7 pm).

Mobility parking is between the Alan MacDiarmid Building and Cotton Building.

**Accommodation**

The society has made a group booking at the university halls. It will be possible to access this accommodation from Monday to Thursday nights and we will include this as an option to be booked with registration.

COTTON LECTURE THEATRES

PAY AND DISPLAY PARKING

**MORE INFORMATION AND REGISTRATION**

See the [Society website](#)  
[conference@metsoc.org.nz](mailto:conference@metsoc.org.nz)

With sincere thanks to our sponsors:



0830 – 0840	<b>Stephen Hunt</b>	Welcome from MetService
0840 - 0855	<b>Nava Fedaeff</b>	Welcome from the Meteorological Society
0855 - 0935	<b>Session: Responding to storms in summer 2022-23</b>	
0855 - 0915	<b>Kris Fordham</b>	Auckland Anniversary Weekend storm
0915 - 0935	<b>Kathleen Kozyniak</b>	Cyclone Gabrielle
0935 - 1025	<b>Session: Hazard modelling</b>	
0935 - 0940	<b>Stuart Moore</b>	Putting New Zealand in harm's way
0940 - 0955	<b>Mike Trought</b>	Short- and long-term effects of temperature on Sauvignon Blanc production in Marlborough
0955 - 1010	<b>Abha Sood</b>	Transition from climate data to adaptation relevant climate information
1010 - 1025	<b>Matt Pearce</b>	How knowledge of past weather events can reduce insurance losses
1025 - 1050	<b>Morning tea and posters (foyer)</b>	
1050 - 1215	<b>Session: Summer 2022-23</b>	
1050 - 1105	<b>Nathanael Melia</b>	Our "perfect storm": charting Cyclone Gabrielle, from forecasting to devastation
1105 - 1120	<b>Mark Schwarz</b>	Diagnostic analysis of the Auckland Anniversary flood of January 2023, with a view to its predictability
1120 - 1125	<b>Trevor Carey-Smith</b>	Estimating TC-Gabrielle rainfall using citizen science measurements and convective scale modelling
1125 - 1140	<b>Beatriz Reboredo</b>	Performance of the Auckland Council Rainfall Analysis System during the Anniversary storms
1140 - 1155	<b>Fulong Lu</b>	Forecasting Cyclone Gabrielle from a New Zealand severe weather perspective and beyond
1155 - 1210	<b>Neal Osborne</b>	Severe weather warning performance for the Auckland Anniversary storm and Cyclone Gabrielle
1210 - 1215	<b>Sam Dean</b>	An international rapid attribution study of extreme rainfall in Cyclone Gabrielle: lessons learned
1215 - 1315	<b>LUNCH, posters (foyer) and 50<sup>th</sup> anniversary planning</b>	
1215 - 1315	<b>Katrina Richards</b>	Breakout for 50 <sup>th</sup> anniversary planning (CO216)
1315 - 1445	<b>Session: Wind modelling</b>	
1315 - 1330	<b>Stuart Moore</b>	Climate change impacts on extreme wind gusts in Aotearoa New Zealand
1330 - 1345	<b>Annick Terpstra</b>	Improving gust forecasting through gust event classification
1345 - 1400	<b>Rochelle Fleming</b>	Machine learning in extreme wind gust forecasting
1400 - 1405	<b>Richard Turner</b>	NAME-III simulations of trans-Tasman and within New Zealand dispersal of Fall Army Worm
1405 - 1425	<b>Molly Leitch</b>	Evolution of foredune notch morphology
1425 - 1440	<b>Phil Andrews</b>	The NZENS-DA: NIWA's future NWP forecasting system
1440 - 1445	<b>Stuart Moore</b>	The New Zealand Reanalysis Project – an update
1445 - 1510	<b>Afternoon tea and posters (foyer)</b>	
1510 - 1600	<b>Session: Forecasting</b>	
1510 - 1525	<b>Emily O'Riordan</b>	Deep Weather: using deep learning to produce high-resolution forecasts over New Zealand
1525 - 1530	<b>Luke Sutherland-Stacey</b>	Estimating the Auckland radar tilt
1530 - 1535	<b>Luke Sutherland-Stacey</b>	Assessment of the suitability of New Zealand's NWP products for Early Warning Systems in Auckland
1535 - 1540	<b>John Nicol</b>	Evaluating convective rainfall processes in high-resolution Numerical Weather Prediction
1540 - 1555	<b>Neil Gordon</b>	Automated text weather forecasts and large language models
1555 - 1600	<b>Lauren Vargo</b>	The World Climate Research Programme
1600 - 1730	<b>Workshop: Project Hau Nuku (CO214)</b>	
1600 - 1730	<b>Angus White</b>	Workshop on the needs of New Zealand's future weather forecasting system
1730 -	<b>Welcome function, The Hunter Lounge, Victoria University of Wellington Kelburn campus</b>	

0900 - 0945	<b>Geoffroy Lamarche</b>	Keynote: Bridging the gap – navigating the environmental science-policy interface
0945 - 1015	<b>Session: Ice</b>	
0945 - 0950	<b>Nicolas Cullen</b>	What have two decades of continuous meteorological observations from Brewster Glacier revealed about glacier-climate interactions in the Southern Alps?
0950 - 0955	<b>Jono Conway</b>	Modelling the effect of seasonal snow on streamflow: model sensitivity and rain-on-snow events
0955 - 1015	<b>Hamish Prince</b>	Polar thermal emission - emerging trends, spectral breakdown and the NASA PREFIRE mission
1015 - 1040	<b>Morning tea and posters (foyer)</b>	
1040 - 1120	<b>Session: South Pacific climate</b>	
1040 - 1055	<b>Kunal Dayal</b>	Mesoscale atmospheric modelling of the wind climate for mesoscale wind resource assessment of the Small Island State of Fiji
1055 - 1115	<b>Arti Devi</b>	Mesoscale and microscale analysis for a wind park development in the northeast of Viti Levu
1115 - 1120	<b>Jonny Williams</b>	Coupled atmosphere-ocean simulations of contemporary and future South Pacific tropical cyclones
1120 - 1220	<b>Session: New Zealand climate change</b>	
1120 - 1125	<b>James Renwick</b>	Is there a climate change signal in Antarctic sea ice yet?
1125 - 1130	<b>Bryce Chen</b>	Time series sensor anomaly detection at NIWA
1130 - 1145	<b>Isaac Campbell</b>	Comparison of reanalysis-driven regional climate models over New Zealand: climatology and extreme events
1145 - 1200	<b>Peter Gibson</b>	Storylines for future projections of precipitation over New Zealand in CMIP6 models
1200 - 1215	<b>Neelesh Rampal</b>	A deep-learning strategy to reliably downscale present-day relationships to future climates
1215 - 1220	<b>Suzanne Rosier</b>	A new higher-resolution climate modelling capability for New Zealand: providing very large ensembles to further understanding of climate and weather extremes
1220 - 1335	<b>LUNCH AND ANNUAL GENERAL MEETING</b>	
1335 - 1510	<b>Session: Chemistry</b>	
1335 - 1355	<b>Daemon Kennett</b>	CarbonWatch-NZ: Atmospheric inverse modelling of terrestrial carbon exchange in New Zealand's forests and grasslands
1355 - 1410	<b>Beata Bukosa</b>	How well can MethaneSAT detect and quantify pastoral agricultural emissions?
1410 - 1425	<b>Jocelyn Turnbull</b>	Radiocarbon as a tracer for Southern Ocean carbon exchange
1425 - 1445	<b>Yusuf Bhatti</b>	The sensitivity of Southern Ocean atmospheric dimethyl sulfide to modelled oceanic DMS concentrations and emissions
1445 - 1450	<b>Guang Zeng</b>	Impact of climate change on southern midlatitudes ozone changes detected in the long-term Lauder ozonesonde record
1450 - 1505	<b>David Pollard</b>	Measurements of tropospheric column average methane from a portable remote sensing instrument
1505 - 1510	<b>Catherine Hardacre</b>	Impact of cloud water pH on atmospheric composition over the Southern Ocean in UKESM1.1
1510 - 1535	<b>Afternoon tea and posters (foyer)</b>	
1535 - 1600	<b>Session: Regional circulation</b>	
1535 - 1540	<b>Tom Marsh</b>	A quantitative overview of El Niño in New Zealand
1540 - 1600	<b>Prasad Shelke</b>	Representation of atmospheric blocking in Community Earth System Model Large Ensemble 2
1600 - 1700	<b>Climate communication address and panel discussion</b>	
1600 - 1700	<b>Jess Berentson-Shaw</b> <b>Panellists:</b> <b>Eloise Gibson</b> <b>Sam Dean</b> <b>Lisa Murray</b> <b>Chair: Colin Barkus</b>	Narratives for Change: Communicating for effective climate action
1800 - 2100	<b>DINNER AND KIDSON MEDAL ANNOUNCEMENT</b> Huxley's Restaurant, 34 Bowen Street, Pipitea, Wellington	

0900 - 0920	<b>Session: History</b>	
0900 - 0920	<b>Ciaran Doolin</b>	Exploring meteorological thought in 19th century New Zealand through transactions and proceedings of the New Zealand Institute
0920 - 1030	<b>Session: Auckland chemistry</b>	
0920 - 0935	<b>Timothy Hilton</b>	Constraining Auckland's urban biogenic CO <sub>2</sub> fluxes using atmospheric flask observations
0935 - 0955	<b>Vanessa Monteiro</b>	Informing Auckland's greenhouse gas emissions through in-situ atmospheric measurements of CO <sub>2</sub> , CO, and CH <sub>4</sub> mole fractions
0955 - 1010	<b>Stijn Naus</b>	Using high-resolution meteorological modelling to estimate Auckland's carbon emissions
1010 - 1030	<b>Hamesh Patel</b>	Determining the chemical and elemental composition of ambient particulate in Auckland
1030 - 1055	<b>Morning tea and posters (foyer)</b>	
1055 - 1235	<b>Session: Climate change</b>	
1055 - 1115	<b>Hamish Lewis</b>	Upstream large-scale control of subtropical low clouds
1115 - 1130	<b>Tony Bromley</b>	Climate trends at Campbell Island
1130 - 1145	<b>Olaf Morgenstern</b>	Potholes, tugs-of-war, and mad drivers: What can be learned from simulations of historical global-mean temperature?
1145 - 1200	<b>Kevin Trenberth</b>	A more strategic approach to climate change issues in New Zealand
1200 - 1215	<b>Michael James Salinger</b>	Recent extreme warm seasons in the New Zealand Region (cor. version)
1215 - 1235	<b>Harris (Deng) Liu</b>	Direct numerical simulation in turbulent radiation fog
1235 - 1335	<b>LUNCH, posters (foyer) and World Climate Research Programme breakout</b> (Lauren Vargo) (CO126)	
1335 - 1440	<b>Session: Extreme water</b>	
1335 - 1355	<b>Kim De Vantier</b>	Using crowdsourced weather data to analyse hot temperature extremes in Dunedin, New Zealand
1355 - 1415	<b>Gokul Vishwanathan</b>	Characteristics of regional extreme precipitation events over Aotearoa New Zealand
1415 - 1420	<b>Raghav Srinivasan</b>	Machine learning-based approach to explore extreme temporal rainfall patterns in New Zealand
1420 - 1435	<b>Greg Bodeker</b>	Inferring the sensitivity of extreme precipitation to climate change using artificial intelligence
1435 - 1440	<b>Yang Yang</b>	The role of jet-streak induced circulations on the heavy rainfall over New Zealand
1440 - 1445	<b>Anjali Thomas</b>	Anthropogenic influence on extreme precipitation over New Zealand under differing circulation types
1445 - 1500	<b>Rasool Porhemmat</b>	Hydrometeorological characteristics of flooding events in Westport, New Zealand
1500 - 1525	<b>Afternoon tea and posters (foyer)</b>	
1525 - 1655	<b>Session: Water</b>	
1525 - 1545	<b>Luke Harrington</b>	Maximising the value of observations to understand future drought risk: evidence from Aotearoa New Zealand
1545 - 1600	<b>Geoff Austin</b>	Upgrades to the high resolution "Trailer Radar" platform
1600 - 1620	<b>Felix Goddard</b>	Future projections of atmospheric rivers for New Zealand
1620 - 1635	<b>Stephen Stuart</b>	Precipitation over the Southern Alps of New Zealand in a convection-permitting regional climate model
1635 - 1655	<b>Laura Queen</b>	Climate change detection and attribution of Aotearoa New Zealand hydrometeorology
1655 - 1700	<b>Nava Fedaeff</b>	Closing remarks