

AGC NZHS 2023 Conference Programme

Monday 27 November 2023					
Workshops + Special Interest Groups					
4.00 - 5.00pm Pre-conference Registration - AUT foyer					
Tuesday 28 November 2023					
7.30-8.30am Registration - AUT foyer					
8.30 - 9.00am OPENING CEREMONY					
Mihi Whakatau - Ngāti Whatua Orākei Society Welcomes - IAH and NZHS					
9.00am - 9.30am Kai Whakanoa - Morning Tea - kindly supported by GHD					
9.30 - 10.15 Keynote speaker - Gary Brierley: Auckland University Working with River Recovery. What is Possible Where, Over What Timeframe? Chair: Sam Trowsdale					
Theme	1) Groundwater modelling, history matching and uncertainty analysis	2) Groundwater Ecosystems	3) Modelling and prediction	4) Rivers: flow and management	5) Mātauranga Māori / Indigenous Knowledge
Room	WG 403	WG 404	WG 308	WA 224A	WA 224B
Chair	Catherine Moore	Jeremy Bennett	Harald Hofman	Sam Trowsdale	Magali Moreau
10.20am-10.35am	Numerical delineation of source protection zones in heterogeneous alluvial aquifers: guidelines and recommendations <i>Allanah Kenny ESR</i>	THE DETECTION OF PLANT DNA IN ALLUVIAL AQUIFERS <i>*Loren Pollitt Macquarie University</i>	A SEMI-AUTOMATIC WORKFLOW FOR THE NATIONAL FLOOD ASSESSMENT <i>Alice Harang NIWA</i>	AN ALGORITHMIC APPROACH FOR TAILORING SPATIAL DETAIL OF NATIONAL-SCALE RIVER NETWORKS FOR SPECIFIC APPLICATIONS <i>Rose Pearson NIWA</i>	What will be the legacy for our mokopuna? Case study from Rotorua's water supply springs <i>Clare Maginness Pattle Delamore Partners (PDP)</i>
10.35am-10.50am	NUMERICAL ANALYSIS OF THE WATER TABLE RESPONSE TO SEA-LEVEL RISE <i>Amandine Bosserelle University of Canterbury</i>	Into the Groundwater Wonderland: Understanding Free-Living Protozoa Diversity in Canterbury Groundwater <i>Sujani Ariyadasa ESR</i>	Flood forecasting Cyclone Gabrielle through Paeroa <i>Steven Cornelius Waikato Regional Council</i>	AUTOMATED GENERATION OF ROUGHNESS LENGTHS FROM LIDAR FOR NATIONAL-SCALE HYDRODYNAMIC MODELLING <i>Rose Pearson NIWA</i>	THIS IS ONLY THE BEGINNING - AUSTRALIA'S INDIGENOUS GROUNDWATER DECLARATION <i>Kelly-Jane Wallis SLR Consulting</i>
10.50am-11.05am	IS THERE A PLACE FOR GENERATIVE AI IN PROBABILISTIC SIMULATION OF CONTAMINANT TRANSPORT IN GROUNDWATER? <i>*Loc K. Nguyen Victoria University Of Wellington</i>	METABARCODING OR METAGENOMICS? COMPARING APPROACHES TO MONITORING GROUNDWATERS USING eDNA <i>Grant Hose Macquarie University</i>	Numerical simulation of flood and seepage through stopbanks <i>Alex Park Stantec New Zealand</i>	COMPETING SCALES IN GRAVEL RIVER MANAGEMENT HIGHLIGHT IRRELEVANCE OF THE STABILITY CONCEPT <i>Will Conley WSP-NZ</i>	Incorporating kaupapa Māori into our understanding of catchment health <i>Juliet Clague Lincoln Agritech</i>
11.05am-11.20am	UTILISING STOCHASTIC METHODS IN NUMERICAL SIMULATION MODELS FOR MANAGING GROUNDWATER SALINITY AND DECISION-MAKING <i>*Ashneel Sharan James Cook University</i>	PRACTICAL EXAMPLE OF THE POWER OF MICROBES UNDERGROUND - SAMPLING IN TAKAKA OVER 5 YEARS <i>Louise Weaver ESR</i>	HYDROLOGIC PROCESSES IN FOREST CATCHMENTS: AN INTEGRATED MODELLING APPROACH IN NEW ZEALAND <i>ling Yang NIWA</i>	REACH-SCALE MORPHOLOGICAL IMPACTS OF LANDSLIDING INTO ALPINE RIVERS DRAINING THE SOUTHERN ALPS <i>*Kate Hodgson University Of Otago</i>	Powering safe drinking water for Australian First Nations remote communities <i>Kelly Strike DCCIEW</i>
11.20am-11.35am	RIVERLINK GROUNDWATER CHALLENGES <i>Dora Avaniidou GHD</i>	EXPLORING THE USE OF REMOTE SENSING TO ENHANCE MONITORING OF GROUNDWATER DEPENDENT VEGETATION CONDITION <i>Jodie Dabovic NSW Department Of Planning And Environment</i>	ASSESSMENT OF A CATCHMENT'S FLOW CHARACTERISTICS USING READILY AVAILABLE GIS DATA ACROSS NEW ZEALAND <i>Jungho Park Lincoln Agritech</i>	Strategies for water allocation; how can we set limits to achieve environmental outcomes? <i>Doug Booker NIWA</i>	THERE IS A PLACE FOR TRADITIONAL OWNER WATER MANAGEMENT IN THE PILBARA <i>Ron Colman Pentium Water</i>
11.35am-11.50am	GUIDANCE ON MINIMUM GROUNDWATER MODELLING REQUIREMENTS IN NSW: PROMOTING CONSISTENCY IN IMPACTS ASSESSMENT THROUGH MODELLING <i>Walter Weinig Stantec</i>	CHARACTERISING GROUNDWATER DEPENDENT ECOSYSTEMS OF THE UPPER DARLING FLOODPLAIN USING OPTICAL AND RADAR REMOTE SENSING <i>Sarah Buckerfield Geoscience Australia</i>	ENHANCING RUNOFF PREDICTION: EXPLORING ATTENUATION-RUNOFF AS AN ALTERNATIVE TO RAINFALL-RUNOFF MODELS <i>*Saeid Esmail Nia The University Of Waikato</i>	Strategies for water allocation; can we reduce flow alteration whilst maintaining irrigation supply? <i>Rachel Smith NIWA</i>	
11.50am-1.25pm Lunch + Poster Session					
1.25pm - 2.10pm Keynote speaker - Wendy Timms: Deakin University Dancing in the Rain - Evaluating Hydraulic Connectivity from Surface to Underground Kindly Sponsored by Deakin University Chair Kelly-Jane Wallis					
Theme	6) Groundwater and surface water interaction	7) Surface water quality	8) Groundwater in Mining	9) Groundwater modelling, history matching and uncertainty analysis	10) Groundwater Quality
Room	WG 403	WG 404	WG 308	WA 224A	WA 224B
Chair	Lucy Reading	Andrew Dark	Graham Hawkes	Gillian Holmes	Dora Avaniidou
2.15pm-2.30pm	Groundwater Recharge Response From Braided Rivers <i>Scott Wilson Lincoln Agritech</i>	Characterisation of sub-catchment contaminant loads using low-cost IoT technology <i>James Dare Bay Of Plenty Regional Council</i>	UNDERSTANDING IMPACTS OF MINING ON GROUNDWATER USING EXPLORATORY DATA ANALYSIS (EDA) <i>Manuel Diaz WSP</i>	GROUNDWATER MODELLING TO TEST REVERSAL OF RIVER DRYING - WAIMEA PLAINS, NELSON <i>Julian Weir Aqualinc Research Ltd</i>	2022 National survey of pesticides, PFAS and EOCs in groundwater <i>Murray Close ESR</i>
2.30pm-2.45pm	Assessing temporal variation in groundwater recharge to a braided plain aquifer using Active-Distributed Temperature Sensing <i>*Alice Sai Louie University of Canterbury</i>	LOOKING PAST NITRATE - ASSESSING THE EFFICACY OF A WOODCHIP DENITRIFYING BIOREACTOR AT MICROBIAL REMOVAL <i>Lee Burbery DairyNZ</i>	INCLUDING UNCERTAINTY IN GEOLOGICAL CONCEPTUAL MODELS IN NUMERICAL GROUNDWATER MODEL PREDICTIONS THROUGH MULTI-POINT GEOSTATISTICAL SIMULATIONS. <i>Kevin Hayley Groundwater Solutions</i>	UNCERTAINTY ANALYSIS OF A GALLERY FLOW FORECAST IN THE NORTH OF BUCARAMANGA, COLOMBIA <i>Oscar Fabian Sanchez Ortiz INTERA</i>	Prevalence of PFAS in shallow groundwater: a view from the U.S. <i>Matthew Silver Environment Canterbury</i>
2.45pm-3.00pm	MODEL SIMPLIFICATION TO SIMULATE GROUNDWATER RECHARGE FROM BRAIDED RIVERS <i>Antoine Di Ciacca Lincoln Agritech</i>	Mines to moana: hydrochemical legacies in a historically mined watershed <i>Adam Hartland Lincoln Agritech</i>	Challenges and Opportunities at Legacy Uranium Mine and Mill Sites in Western United States <i>Cynthia Ardito INTERA</i>	UNCERTAIN PRIORS AND THE NON-CENTERED PARAMETERIZATION APPROACH FOR HISTORY-MATCHING AND PREDICTIVE UNCERTAINTY QUANTIFICATION <i>* Tomas Opazo Flinders University</i>	PROTECTING OUR FRESHWATERS FROM WATERBORNE DISEASES USING NOVEL PATHOGEN SURROGATE TECHNOLOGY <i>Liping Pang ESR</i>

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3.00pm - 3.15pm	THE IMPACT OF BRAIDED RIVER MORPHOLOGY ON RIVER – GROUNDWATER EXCHANGE – A MODEL-BASED ANALYSIS <i>Thomas Wöhling Tu Dresden / Lincoln Agritech</i>	Groundwater and Western Australia's energy transformation <i>Ian Brandes de Roos EMM</i>	SIMULATION OF DRAINAGE FLOW IN UNSATURATED FRACTURED ROCKS <i>Xuyan Wang KCB</i>	INVESTIGATING PATHOGEN SURVIVAL IN GROUNDWATER <i>Louise Weaver / Erin McGill ESR</i>	
3.15pm - 3.45pm	Afternoon Tea				
Theme	11) Groundwater modelling, history matching and uncertainty analysis	12) Surface water quantity	13) Translation of science to policy, planning and management	14) Groundwater processes and management	15) Data: monitoring, visualisation and management
Room	WG 403	WG 404	WG 308	WA 224A	WA 224B
Chair	Amandine Bosserelle	Ian Cartwright	Robert Bower	Mauricio Taulis	Bruce Dudley
3.45pm-4.00pm	IF THE PRIOR IS UNCERTAIN, IS A COMPLEX SIMULATOR WORTH IT? <i>Catherine Moore GNS Science</i>	Quantifying the effect of abstraction on rivers <i>Ben Higgs / Lucy Just Environment Canterbury</i>	University led groundwater monitoring to inform communities and water policy <i>Lucy Reading QUT</i>	Evolution of the understanding of potential impact pathways between CSG developments and the Precipice Sandstone <i>Steven Flook Office of Groundwater Impact Assessment</i>	REMOTE SENSING. A TOUR OF THE PRACTICAL, THE IMPRACTICAL AND OUR EXPECTATIONS ON TODAY'S TECHNOLOGY <i>Dirk van Walt van Walt Ltd</i>
4.00pm-4.15pm	WHEN NUMERICAL GROUNDWATER MODELS SHOULD TAKE THE BACK SEAT... <i>Isabelle Dionne Rio Tinto Iron Ore</i>	FLOOD FREQUENCY UPDATING AT ENVIRONMENT CANTERBURY <i>Adam Martin Environment Canterbury</i>	LINKING CSG INDUCED GROUNDWATER IMPACTS TO SUBSIDENCE – A JOURNEY IN THE SURAT BASIN <i>Gerhard Schoning OGIA</i>	Feasibility of Underground Technologies in Queensland, Australia <i>Maria Prskalo GHD Pty Ltd</i>	CAPABILITY UPGRADES TO THE AUCKLAND-BASED HIGH RESOLUTION MOBILE WEATHER RADAR <i>Luke Sutherland-Stacey Weather Radar New Zealand Limited</i>
4.15pm-4.30pm	Data Space Inversion: Reaping the Benefits of Model Complexity <i>John Doherty Watermark Numerical Computing</i>	HYDROLOGICAL IMPACT OF CYCLONE GABRIELLE IN WAIROA <i>Deborah Maxwell SLR Consulting</i>	STRENGTHENING THE ROLE OF INDEPENDENT EXPERT ADVICE IN ASSESSING IMPACTS ON GROUNDWATER AND CONNECTED ECOSYSTEMS <i>Matthew Currell RMIT University</i>	A collaborative approach to policy, planning and management is improving outcomes the Great Artesian Basin <i>Rebecca Nixon DCEEW</i>	RAIN RAIN EVERYWHERE – THE FUTURE OF RAINFALL DATA <i>Kris Fordham Auckland Council</i>
4.30pm-4.45pm	Making the most of it: prior building with imprecise data and imperfect models <i>Jeremy White Intera</i>	Flood warning system implementation and performance - Arnold Dam Construction <i>Thomas Jamieson-Lucy Riley Consultants</i>	CHALLENGES FOR MANAGING EFFECTS FROM BELOW GROUND LEVEL CONSTRUCTION PROJECTS IN AUCKLAND. <i>Greg Murphy Pattle Delamore Partners (PDP)</i>	TOWARDS PRIORITISING REGIONAL GROUNDWATER ASSESSMENTS USING THE NATIONAL HYDROGEOLOGICAL INVENTORY OF <i>Steven Lewis Geoscience Australia</i>	Automating the quality assurance process for continuous environmental data <i>Preston Ferreira Northland Regional Council</i>
4.45pm-5.00pm	USING TRANSFER FUNCTION NOISE MODELLING TO INFORM GROUNDWATER RESOURCE MANAGEMENT <i>Brittany Smyth GHD</i>		The Muriwai Golf Project – Ancient Undersea Volcanoes, A Perched Dune Lake, and Natural Wetlands <i>Jon Williamson Williamson Water & Land Advisory</i>	TOWARDS DEVELOPING A 3D HYDROGEOLOGICAL FRAMEWORK FOR AUSTRALIA <i>Zoe Thiele Geoscience Australia</i>	The Mouse that Roared Part 2. How a farmer led co-operative is spearheading water monitoring <i>Justin Legg MHV Water</i>
5.00pm-7.00pm	Welcome Function - AUT Foyer				
	Wednesday 29 November 2023				
8.40am - 9.25am	Keynote Speaker: Craig Simmons - Newcastle University - <i>Groundwater: Why Science Alone is Not Enough</i> Chair: Theo Sarris				
Theme	16) Groundwater modelling, history matching and uncertainty analysis	17) Groundwater in Mining	18) Groundwater processes and management	19) Catchments, communities and integrated management	20) Groundwater Ecosystems
Location	WG 403	WG 404	WG 308	WA 224A	WA 224B
Chair	Matthew Currell	Greg Hoxley	Jacob Scherberg	Steven Lewis	Lee Burbery
9.30am - 9.45am	Combining weather forecast and groundwater modelling ensembles to quantify predictive uncertainty under climate change <i>Johanna Zwinger Intera Geosciences</i>	ASSESSING SUBSIDENCE IMPACTS FROM CSG GROUNDWATER EXTRACTION: LEVERAGING LIDAR TO ESTABLISH BACKGROUND LANDFORM CONDITIONS <i>Dean Erasmus Office Of Groundwater Impact Assessment</i>	ASSESSMENT OF CUMULATIVE GROUNDWATER IMPACTS – WHERE OUR PAST, PRESENT, AND FUTURE CONVERGE <i>Rachael Peavler STANTEC</i>	Climate Change Adaption in the Peruvian Andes: An integration of Pre-Hispanic and Modern Water Management <i>Harvey Rodda Hydro-gis Ltd</i>	STYGOFAUNA RESEARCH: IS AUSTRALASIA PUNCHING ABOVE ITS WEIGHT OR DOES MORE NEED TO BE DONE? <i>Kathryn Korbel Macquarie University</i>
9.45am-10.00am	Best of both worlds: Combining detailed hydrogeological characterization and fast numerical models using bulk parameterization <i>Eduardo De Sousa INTERA</i>	Nyrrimpa Spring – restoring water flow after 20 years. Collaboration between Yinhawangka Traditional Owners and Rio Tinto for sustainable water stewardship <i>Eva Pellegrini Rio Tinto</i>	LEARNING MORE ABOUT RUAMAHANGA VALLEY AQUIFERS – AERIAL ELECTROMAGNETIC PROJECT (SKYTEM): OVERVIEW AND UPDATE <i>Rebecca Morris/Richard Kellett Greater Wellington</i>	ADDRESSING WATER SECURITY CHALLENGES IN NIUE <i>Tomy Cauchi GHD</i>	The Treatment of Nitrate Polluted Groundwater Using Bio-Electrochemical Systems Inoculated with Local Groundwater Sediments <i>*Ahmad Danish Laidin University of Canterbury</i>
10.00am-10.15am	Closed-loop decision-support modelling <i>Rui Hugman INTERA</i>	Mitigating Impacts to the Weelumurra Creek Through Construction of a Deep Hydraulic Barrier <i>Vafa Rombough WSP</i>	REGIONAL SYNTHESIS OF OTAGO GROUNDWATER AGE, DYNAMICS AND HYDROCHEMICAL EVOLUTION <i>Matthew Coble GNS Science</i>	Developing Village Groundwater Cooperatives for Sustainable Groundwater Management and Collective Action in Dharta Watershed, India <i>Susmina Gajurel Western Sydney University</i>	Connectivity of alluvial aquifer groundwater to deeper Great Artesian Basin Aquifers in the Yelarbon Desert <i>Harald Hofmann School Of The Environment, The University Of Queensland</i>
10.15am-10.30am	Groundwater Hindcasting: What Is It, How Do We Do It, And Why Is It Important? <i>*Tara Forstner University Of Canterbury</i>	LARGE-SCALE, MANAGED AQUIFER RECHARGE FOR MINE CLOSURE IN THE PILBARA, WESTERN AUSTRALIA <i>Meegan Smith Rio Tinto</i>	Poverty Bay Flats Groundwater System - Numerical Modelling Climate Change and Community-Based Resource Management Scenarios <i>Robert Bower WGA NZ</i>	TOWARD SUSTAINABLE WATER ALLOCATION: AN INTEGRATED SOCIOECONOMIC-HYDROLOGICAL MODEL FOR ADAPTIVE CATCHMENT-SCALE MANAGEMENT <i>Channa Rajanayaka NIWA</i>	Subterranean Ecosystem Ecohydrological Response to Induced Groundwater Drawdown in an Alluvial Aquifer. <i>*Tess Nelson Macquarie University</i>

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Morning Tea					
Theme	21) Groundwater processes and management	22) Translation of science to policy, planning and management	23) Irrigation, drainage and recharge	24) Groundwater modelling, history matching and uncertainty analysis	25) Water Systems and Processes
Room	WG 403	WG 404	WG 308	WA 224A	WA 224B
Chair	Sarah Buckerfield	Maria Prskalo	Frederika Mourot	Matthias Raiber	Angela Bush
11.00am-11.15am	Nitrate Time Lags in Waitaha/Canterbury Groundwater <i>Lisa Scott Environment Canterbury</i>	ANALYSING STAKEHOLDER NARRATIVES TO SUPPORT DECISIONS RELATED TO WATER AND ENVIRONMENTAL ISSUES <i>Maria Estefania Santamaria Cerrutti GNS Science</i>	COMPARISON OF RECHARGE ESTIMATION METHODS IN THE SOUTH EAST OF SOUTH AUSTRALIA <i>Okke Bataleaa Flinders University</i>	GROUNDWATER MODELLING TO SUPPORT FRESHWATER ALLOCATION IN A GEOTHERMAL-RICH CATCHMENT, ROTORUA WATER MANAGEMENT AREA <i>Brian Barnett Jacobs</i>	Where's the Source? <i>Richard Cresswell Eco Logical Australia</i>
11.15am-11.30am	Rates of seawater intrusion in the presence of offshore fresh groundwater <i>*Connor Cleary University Of Canterbury</i>	A RADICAL REFRAMING OF WATER MODELLING? <i>Sam Trowsdale University of Auckland</i>	GROUNDWATER REPLENISHMENT FROM CARTERTON WATER RACE SCHEMES SEEPAGE <i>Louise Soltau WSP</i>	A 3D NUMERICAL DENSITY-DEPENDENT FEFLOW MODEL TO QUANTIFY ROTTNEST ISLAND FRESHWATER LENS RESPONSE TO RECHARGE <i>*Salman Sharifazari UNSW</i>	Relating tidal wetland soil condition to plant zonation: a combined field and numerical modelling study <i>Yue Liu Age Consultants</i>
11.30am-11.45am	NEGATIVE INDIAN OCEAN DIPOLE DRIVES GROUNDWATER RECHARGE IN SOUTHEAST AUSTRALIA <i>Helen Rutledge UNSW Sydney</i>	Coastal systems facies mapped in the national Hydrogeological-Unit Map <i>Magali Moreau GNS Science</i>	LONG-TERM FIELD MONITORING OF MOISTURE MIGRATION IN A CAPPING LAYER AND EXPANSIVE SOIL SUBGRADE <i>*Ximing Lei The University Of Queensland</i>	How certain are we of the parameters obtained from an aquifer test? <i>Kurt Van Ness Environment Canterbury</i>	SOURCES OF METHANE AND GROUNDWATER IN AQUIFERS OVER A COAL SEAM GAS RESERVOIR <i>Harald Hofmann University of Queensland</i>
11.45am-12.00pm	A 3D radiocarbon isoscape of groundwater ages across New South Wales, Australia <i>Liza McDonough ANSTO</i>	SEEKING THE BALANCE OF POLICY AND PROGRESS: THE CASE OF PROPOSED RESTORATION OF LAKE OMĀPERE <i>Jacob Scherberg Williamson Water & Land Advisory</i>	Are we underestimating the nitrogen contribution from groundwater-derived irrigation? <i>William Dench Wallbridge Gilbert Aztec</i>	Assessment of Shallow Groundwater Conditions Using Data-Driven Modelling <i>Britt Albers Tonkin and Taylor</i>	Groundwater contributions to streamflow in New Zealand: A BACH method study <i>Paul Oluwunmi GNS Science</i>
12.00pm-12.15pm	RADIOKRYPTON CAPABILITY AT THE ADELAIDE ATOM TRAP TRACE ANALYSIS FACILITY <i>Rohan Glover University of Adelaide</i>	DOES NEW ZEALAND NEED A COLLABORATIVE GROUNDWATER/FRESHWATER CENTRE? <i>Conny Tschirter GNS Science</i>	Recharge patterns in the Gngangara groundwater system exhibit nonstationary behaviors in response to drying climate <i>Simone Gelsinari The University of Western Australia</i>	There's something funky going on below Lake Hawea: Deterministic groundwater modelling, glacial geomorphology, and hair-loss. <i>Matt Hanson Dumont Komanawa Solutions</i>	UNRAVELLING THE PATHWAYS RESPONSIBLE FOR LAND-TO-WATER NITROGEN TRANSFERS IN DIFFERENT TYPES OF CATCHMENTS <i>Roland Stenger Lincoln Agritech</i>
12.15 - 2.00pm	Lunch + Poster Session - lunch kindly supported by Pattle Delamore Partners (PDP)				
Theme	26) Groundwater modelling, history matching and uncertainty analysis	27) Data monitoring, visualisation and management	28) Catchments, communities and integrated management	29) Groundwater and surface water interaction	30) Large-scale Climate Variability: extremes, hazards, impacts of climate change
Room	WG 403	WG 404	WG 308	WA 224A	WA 224B
Chair	Sally Lochhead	Yue Wendy Zhang	Louise Weaver	Ron Colman	Jason Alexander
2.00pm-2.15pm	Hydraulic performance of denitrifying permeable reactive barriers using electrical resistivity imaging and transport modelling <i>Theo Sarris ESR</i>	Unraveling nitrate and flow dynamics in agricultural streams using high-frequency monitoring <i>Roland Stenger Lincoln Agritech</i>	Citizen science in the dark: can volunteers be utilised to fill groundwater knowledge gaps? <i>Kathryn Korbel Macquarie University</i>	GROUNDWATER-RIVER INTERACTION IN THE UPPER TAIERI SCROLL PLAIN, OTAGO <i>Amir Levy Otago Regional Council</i>	A Review of the European Flood Catastrophe of July 2021 <i>Harvey Rodda Hydro-GIS Ltd</i>
2.15pm-2.30pm	ARE GROUND SOURCE ENERGY SYSTEMS CAUSING RISING GROUNDWATER TEMPERATURES IN CENTRAL LONDON? <i>Evelyn Charlesworth Komanawa Solutions</i>	Leveraging Data Analytics for Groundwater Monitoring Optimization <i>Tony Cauchi GHD</i>	Developing a Community Managed Aquifer Recharge (MAR) Trial Site in the Ruataniwha Basin <i>Robert Bower WGA NZ</i>	SUBSIDENCE IN LELOCLE (SWITZERLAND): GEOLOGIC CHARACTERIZATION AND IMPACT OF URETEK RESIN INJECTION ON GROUNDWATER FLOW <i>Giulio Taietti BECA</i>	Estimating recurrence intervals for the 2023 Auckland rainfall events – embracing the uncertainty <i>Gus Rongen Pattle Delamore Partners (PDP)</i>
2.30pm-2.45pm	A model ensemble approach for assessing the future of Wellington's groundwater supply <i>Jeremy Bennett Tonkin & Taylor</i>	CRC's Bore Installer Programme: reflections over the last eight years <i>Kate Ballue Environment Canterbury</i>	EARLY UNDERSTANDING AND DESIGN COLLABORATION IS THE KEY TO ENSURING WETLAND PROTECTION DURING DEVELOPMENT <i>Katy Grant Pattle Delamore Partners (PDP)</i>	Exchange of surface water and groundwater during the 2022-2023 River Murray flood in SA <i>*Yuanchi Xiao The University Of Queensland</i>	OUR RECENT FLOODING – CLIMATE CONTEXT AND CONSEQUENCES <i>Graeme Smart NIWA</i>
2.45pm-3.00pm	Improvements in Groundwater Model Calibration with Dynamic Time Warping (DTW) <i>Darriane Edwards SLR Consulting Australia</i>	Nitrates in drinking water: blending of science with community initiatives <i>Karyne Rogers GNS Science</i>	Re-imagining the lowland waterway network in the Ararira (LIH) catchment, Canterbury <i>Andrew Dark Aqualinc Research Ltd</i>	GROUNDWATER RECHARGE FROM THE UPPER SELWYN RIVER OVER THE LAST DECADE DERIVED USING SATELLITE IMAGES <i>Antoine Di Ciaccia Lincoln Agritech</i>	HUNUA WATER SUPPLY CATCHMENTS 2023 FLOOD FLOWS <i>Tom Bassett Tonkin + Taylor</i>
3.00pm-3.15pm	Rethinking pumping test interpretation: How to apply estimated hydraulic parameters to a regional groundwater model <i>Neil Manewell University Of Queensland Manewell Groundwater</i>	The importance of establishing baseline groundwater quality for regulatory compliance monitoring <i>Taryn Collaton Environment Protection Authority South Australia</i>	CATCHMENT-WIDE MEASURES TO MITIGATE DROUGHT EFFECTS ON AGRICULTURAL PRODUCTION, NATURE DEVELOPMENT, AND STREAMFLOW: A MODELLING-APPROACH <i>Wilco Terink Q-hydrology</i>	Spatial-temporal dependent inundation recharge in groundwater models: a case study on the Pike Floodplain, SA <i>*Yuyang Zhu University Of Queensland</i>	GROUNDWATER PUMPING IN A CHANGING CLIMATE – LESSONS LEARNT AND FUTURE CONSIDERATIONS <i>Will McCance Barwon Water</i>

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Afternoon Tea					
3.15pm-3.45pm					
Theme	31) Catchments, communities and integrated management	32) Large-scale Climate Variability: extremes, hazards, impacts of climate change	33) Groundwater Quality	34) Groundwater modelling, history matching and uncertainty analysis	35) Groundwater and surface water interaction
Room	WG 403	WG 404	WG 308	WA 224A	WA224B
Chair	Sujani Ariyadasa	Martin Andersen	Helen Rutter	Gerhard Schöning	Simone Gelsinari
3.45pm-4.00pm	THE INTENSITY-DURATION-FREQUENCY (IDF) CURVE: A REVIEW	UPDATE ON CLIMATE CHANGE PROJECTIONS FOR NEW ZEALAND	On-site wastewater systems - insights into their function, location and risks to groundwater	MODELLING WAIRAU PLAINS GROUNDWATER RESOURCES – A DETAILED ANALYSIS OF THE WAIRAU AQUIFER WATER BALANCE	UNINTENDED CONSEQUENCES OF A PREDATOR FENCE: NUTRIENT LOADS TO LAKE ROTOPIKO FROM EXOTIC ROOSTING BIRDS
4.00pm-4.15pm	Shailish Singh <i>NIWA</i> What do we know about WNOs?	Christian Zammit <i>NIWA</i> Do flash droughts occur in New Zealand and what weather and climate patterns drive them?	Bronwyn Humphries <i>ESR</i> Groundwater Effects of Effluent Disposal	Thomas Wöhling <i>Tu Dresden / Lincoln Agritech</i> HISTORY-MATCHING TO TRITIUM IN THE WAIRAU AQUIFER: SEQUENTIAL CONDITIONING OF PRIORS	Nicola Wilson <i>Waikato Regional Council</i> Management and modelling of artificially recharged aquifers: Alexandra Basin, Otago, New Zealand
4.15pm - 4.30pm	Jessica Grinter <i>Stantec New Zealand</i> HOW LONG IS LONG ENOUGH: LONG DURATION RAINFALL EVENTS	*Ben Lissaman <i>University of Otago</i> ANALYSIS OF NEW ZEALAND DAILY WEATHER PATTERNS AND LARGE SCALE CLIMATIC PATTERNS AS HEAVY RAINFALL DRIVERS	Greg Hoxley <i>Jacobs</i> Analyzing Water Quality Variation within Farm Drains in Canterbury, New Zealand	Wes Kitlsten <i>GNS Science</i> Structurally simple and parametrically complex integrated modelling for detailed design of hydraulic barrier remediation system	Tom Garden <i>Pattie Delamore Partners (PDP)</i> STREAMLINING MINING APPROVALS – HOW TO MAKE 100+ UNIQUE MANAGEMENT PLANS IN 12 HOURS
4.30pm - 4.45pm	Lennie Palmer <i>Riley Consultants</i> EXPLORING MANAGED AQUIFER RECHARGE FOR AUGMENTING WELLINGTON'S WATER SUPPLY IN AN UNCERTAIN FUTURE	*Andrea Pozo <i>Estivariz University Of Canterbury</i> Approaches for peak flow estimation in Hastings District following Cyclone Gabrielle	*Louis Martin <i>University of Otago</i> MANGANESE CONTAMINATION INCIDENT AT TIMARU WATER SUPPLY	Rikito Gresswell <i>GHD</i> A methodical guessing game: Finding deep groundwater resource in an unexplored part of the Rangitikei.	Elizabeth Stanmore <i>WSP</i> EXAMINING GROUNDWATER DYNAMICS AND RAINFALL RECHARGE PATTERNS IN KAITUNA FRESHWATER MANAGEMENT UNIT, BAY OF PLENTY
5.00pm-6.00pm	Eric van Nieuwerkerk <i>WSP</i> NZHS AGM	Isabelle Farley <i>WSP</i>	Neil Thomas <i>Pattie Delamore Partners (PDP)</i> IAH AU/NZ meeting	Mark Scaife <i>STANTEC</i> Student Function	Sajeewa Ranmadugala <i>Bay of Plenty Regional Council</i>
from 7.00pm	ENVCO Social Function - The Glass Goose				
Thursday 30 November 2023					
8.40am - 9.25am	Keynote Speaker: Chris Daughney - NIWA - <i>Observations of a Science Advisor: It ain't (just) what you do, it's the way that you do it</i> Chair: Conny Tschritter				
Theme	36) Groundwater modelling, history matching and uncertainty analysis	37) Groundwater and surface water interaction	38) Groundwater Quality	39) NZ Water Model (NZWaM) - Hydrology	
Room	WG 403	WG 404	WG 308	WA 224A	
Chair	Hangjian Zhao	Paul White	Karina Meredith	John Bright	
9.30am-9.45am	WHEN AND HOW TO USE GROUNDWATER TRACERS TO INFORM REGIONAL-SCALE NUMERICAL MODEL PREDICTIONS?	IMPACTS OF CUMULATIVE RAINFALL EVENTS ON SURFACE AND GROUNDWATER SYSTEMS	MULTISCALE APPLICATIONS OF CONTINUOUS NITRATE SENSOR DATA: A CASE STUDY OF BALMORAL NITRATE DYNAMICS	2023 UPDATE ON THE NEW ZEALAND WATER MODEL (NZWAM)	
9.45am-10.00am	Brioch Hemmings <i>GNS Science</i> DEVELOPING NOVEL APPROACHES TO SIMULATE CSG-INDUCED SUBSIDENCE	Helen Rutter <i>Aqualinc Research</i> Groundwater Surface Water Interaction in a coastal lowland stream: Ōtūkaikino Creek, Ōtautahi/Christchurch	Ben Wilkins <i>Environment Canterbury</i> Low-tech monitoring and treatment of nitrate in drinking water	Christian Zammit <i>NIWA</i> NEW CUMULATIVE HYDROLOGICAL ESTIMATION SOFTWARE	
10.00am-10.15am	Tao Cui <i>OGIA</i> Dewatering Optimization for Open-Pit Iron Ore Mines based on a combined flow simulation-optimization framework	James Manning <i>Waterways Centre, University of Canterbury</i> UNDERSTANDING GROUNDWATER-SURFACE WATER INTERACTION AND POTENTIAL PATHWAYS THROUGH A HYDROGEOLOGICAL CONCEPTUAL MODEL AT COASTAL WETLAND	Sarah Bourke <i>University Of Western Australia</i> AN OPPORTUNITY TO IMPROVE HYDRAULIC CHARACTERISATION FOR CONTAMINATED SITE INVESTIGATIONS	James Griffiths <i>NIWA</i> LAG TIMES AND FLOW PATHWAYS FOR RIVERS: DEVELOPING ROBUST NATIONAL SCALE METRICS USING STABLE ISOTOPES	
10.15am-10.30am	Saeed Torzaban <i>Rio Tinto</i> PROCEDURE AND TOOL TO STREAMLINE GROUNDWATER MODEL ASSESSMENTS TO ENSURE FAIR AND SUSTAINABLE MANAGEMENT	Dan Irwin <i>WSP</i> Water Monitoring for Climate Resiliency	Stefan Charteris <i>GHD</i> CAN AQUIFER MICROBIAL COMMUNITIES PREDICT CHANGES IN THE HEALTH OF GROUNDWATER?	Bruce Dudley <i>NIWA</i> GROUNDWATER EXTENT DELINEATION THROUGH INTEGRATING HYDROLOGICAL MODELLING AND GEOSPATIAL INFORMATION SYSTEM (GIS)	
	Hisham Zarour <i>STANTEC</i>	Adam Hobson <i>In-Situ</i>	Judith Webber <i>ESR</i>	Rasool Porhemmat <i>NIWA</i>	
10.30am-11.00am	Morning Tea				
Theme	40) Large-scale Climate Variability: extremes, hazards, impacts of climate change	41) Modelling and prediction	42) Groundwater in Infrastructure	43) Groundwater and surface water interaction	
Room	WG 403	WG 404	WG 308	WA 224A	
Chair	Ian Brandes de Roos	Sarah Bourke	Dan Irwin	Roland Stenger	
11.00am-11.15am	CLIMATE CHANGE, GLOBAL WATER CYCLE SHIFTS, AND LOCAL GROUNDWATER PROJECTIONS IN AOTEAROA NEW ZEALAND	Using synthetic DNA tracers in a heterogeneous alluvial aquifer to quantify advective and dispersive transport	ASSESSMENT OF EMPIRO-ANALYTICAL DRAWDOWN ESTIMATION METHODS IN THE AUCKLAND REGION	INFILTRATION AND GROUNDWATER RECHARGE: A MISSING LINK TO HYDROLOGICAL CHARACTERISATION OF THE SNOWY MOUNTAINS, AUSTRALIA?	
11.15am-11.30am	Frederika Mourot <i>GNS Science</i> Warming increases dissolved organic carbon export from pristine alpine soils	Theo Sarris / Sujani Ariyadasa <i>ESR</i> Effect of Water Table Depth on Salt Precipitation at The Surface of Adjacent Dissimilar Soil Types	Mauricio Taulis <i>BECA</i> GROUNDWATER CONCEPTUALISATION EAST OF LEVIN, LOWER NORTH ISLAND-ŌTAKI TO NORTH OF LEVIN ROADING PROJECT	*Celine Anderson <i>Australian National University</i> RECHARGE PROCESSES AT A SITE WITH EPISODIC CREEK LOSSES & MINEWATER RELEASES, PILBARA PROVINCE, WA	
	Andrew Pearson <i>ESR</i>	Xiaocheng Liu <i>Australasian Groundwater and Environmental Consultants</i>	Ken Clappcott <i>STANTEC</i>	Alan Puhlovich <i>Fortescue Metals Group</i>	

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11.30am-11.45am	COASTAL GROUNDWATER SYSTEM CHARACTERISATION AND CLIMATE CHANGE IMPACTS, WITH THE EXAMPLE OF THE WAIRAU PLAINS <i>Paul White GNS Science</i>	UTILIZING MACHINE LEARNING MODELS FOR ONE-STEP AND MULTI-STEP'S PREDICTION OF GROUNDWATER LEVELS <i>*Milad Barzegar Deakin University</i>	HOW WELL IS THE WELL? <i>Matt Dodson GHD</i>	Inter-aquifer connectivity and sensitive spring GDEs - Galilee Basin Australia <i>*Angus Campbell RMIT University</i>
11.45am-12.00pm	CLIMATE CHANGE-INDUCED SEAWATER INTRUSION RISK ASSESSMENT FOR THE LAURA LENS, REPUBLIC OF THE MARSHALL ISLANDS <i>Alex Whittaker BECA</i>	Robust Source Water Risk Management Area Modelling <i>Catherine Moore GNS Science</i>	Strategic Investigation Methods: Tailored Approaches to Groundwater Assessment for Sustainable Resource Management <i>Rob MacCracken BECA</i>	TRACING GROUNDWATER INPUTS TO LAKES ACROSS MACQUARIE ISLAND <i>Karina Meredith ANSTO</i>
12.00pm-12.15pm	What Lies Beneath: Shallow Groundwater, A(nother) Hazard Beneath Our Feet <i>Nicole Calder-Steele Aqualinc</i>	HAWKE'S BAY 3D AQUIFER MAPPING PROJECT USING AIRBORNE TIME-DOMAIN ELECTROMAGNETICS (SKYTEM): 2023 UPDATE <i>Zara Rawlinson GNS Science</i>	Aquifer Thermal Energy Storage (ATES) for district cooling in a new urban development in Denmark <i>Jes Michaelsen Ramboll Denmark</i>	Sources of water and mean transit times in Australian intermittent streams; implications for vulnerability <i>Ian Cartwright Monash University</i>
12.15pm-12.30pm	Cyclone Gabrielle 2023 event-response groundwater sampling in Hawke's Bay flooded areas <i>Magali Moreau GNS Science</i>	A HYBRID DATA-DRIVEN MODELLING FRAMEWORK TO LEVERAGE INSAR IN SUBSIDENCE AND GROUNDWATER ASSESSMENTS <i>Gerhard Schöning Office Of Groundwater Impact Assessment</i>	Comparative dewatering modelling and lesson learnt using SEEPW and Groundwater Vistas <i>Hangjian Zhao BECA</i>	Coupling of groundwater and surface water models in NZWAM <i>Mike Taves GNS Science</i>
12.30-1.30pm	Lunch			
Theme	44) Groundwater Quality	45) Data: monitoring, visualisation and management	46) Modelling and prediction	47) Groundwater and surface water interaction
Room	WG 403	WG 404	WG 308	WA 224A
Chair	Hisham Zarour	Matt Dodson	Christian Zammit	Richard Cresswell
1.30pm-1.45pm	New Zealand's ability to detect reductions in agricultural Nitrogen contamination in groundwater <i>Matt Hanson Dumont Komanawa Solutions</i>	GROUNDWATER STABLE ISOTOPES 3-D ISOSCAPE OF NEW SOUTH WALES, AUSTRALIA <i>Dioni Cendón ANSTO</i>	EXPLORING THE INFLUENCE OF BIOPHYSICAL AND SOIL PARAMETERS IN FORESTED CATCHMENT MODELLING USING SWAT+ <i>*Ehsan Qasempour: University Of Canterbury</i>	CONSTRAINING THE PARAMETERS OF GROUNDWATER INFLOW ESTIMATION BASED ON RADON CONCENTRATIONS AND BASEFLOW INDEX <i>Lisa Gurieff SLR consulting</i>
1.45pm-2.00pm	OPTIMISING WAIKATO GROUNDWATER QUALITY MONITORING <i>John Hadfield Waikato Regional Council</i>	DIFFICULTIES OF PREDICTING CONSTRUCTION DEWATERING EFFECTS VS ACTUAL MEASURED EFFECTS NEAR CRITICAL INFRASTRUCTURE <i>Georgia Swan Pattle Delamore Partners (PDP)</i>	Ruahuwai Decision Support Tool <i>Jon Williamson Williamson Water & Land Advisory Ltd</i>	USING STRONTIUM ISOTOPES AND END-MEMBER MIXING ANALYSIS TO DISCRIMINATE FLUX MIXING IN COMPLEX THERMO-MINERAL HYDROSYSTEMS <i>Margaux Dupuy CSIRO</i>
2.00-2.15pm	ON THE ORIGIN OF GROUNDWATER AT THE WAIPUNAMU EROSION SURFACE IN SOUTH CANTERBURY <i>Leeza Becroft BECA</i>	ENVIRONMENTAL MODELLING OF A MAJOR INLAND FLOOD DIVERSION SCHEME ON THE RIVER THAMES, UK <i>Mike Cope DHI</i>	PROBABLE MAXIMUM FLOOD ASSESSMENTS <i>Oscar Barrett-Garnier RILEY</i>	GROUNDWATER AND SURFACE WATER CONCEPTUAL FLOW FROM ENVIRONMENTAL TRACER SIGNATURES IN THE PUKEKOHE & BOMBAY AREA, AUCKLAND <i>Uwe Morgenstern GNS Science</i>
2.15pm-2.30pm	REACTIVE NITROGEN DEPOSITION ON NEW ZEALAND: PAST AND FUTURE <i>Michael Stewart Aquifer Dynamics & GNS Science</i>	Water and salt balance during environmental watering of the lower River Murray floodplain <i>Yuanchi Xiao The University Of Queensland</i>	EMPLOYING DENOISING METHODS FOR DEFINING BASE POWER OF MICROWAVE LINK FOR ENHANCING RAINFALL ESTIMATION <i>*Saeid Esmaili Nia The University Of Waikato</i>	Biogeochemical Cycling of Iron and Associated Diagenesis in an Intertidal Beach Aquifer <i>*Zicheng Zhao The University Of Queensland</i>
2.30-2.45pm	Mechanisms of groundwater recharge and salinisation in the Georgina Basin explored through tracers and isotopes <i>Angela Bush Australasian Groundwater And Environmental Consultants</i>	A SPATIAL MACHINE LEARNING METHOD WITH COORDINATE FEATURING FOR INSAR INTERPOLATION <i>Yue Zhang Office Of Groundwater Impact Assessment: Dept of Regional Development, Manufacturing and Water</i>	Uncertainty in predictions of flood inundation caused by bathymetry estimation <i>*Martin Nguyen University Of Canterbury</i>	CHARACTERISATION OF EARTH EMBANKMENT SEEPAGE USING STABLE ISOTOPE ANALYSIS AT TEKAPO CANAL, NEW ZEALAND <i>Nick Jowsey BECA</i>
2.45pm-3.00pm	HYDROCHEMICAL ASSESSMENT OF GROUNDWATERS IN THE GREAT ARTESIAN BASIN: IMPLICATIONS FOR RECHARGE AND CONNECTIVITY PROCESSES <i>Matthias Raiber CSIRO</i>	IMPACTS OF CLIMATE CHANGE FROM BEDROCK TO CANOPY <i>Martin Andersen UNSW</i>	IDENTIFYING GROUNDWATER RISK TO DRINKING WATER WHEN DATA IS MISSING – THE DATA SCIENCE APPROACH <i>Elizabeth Stanmore WSP</i>	
3.00 - 3.30pm	Afternoon Tea			
3.30pm-4.00pm	Conference Closing - Karakia Whakamutunga			
6.30pm	Conference Dinner - Auckland Town Hall			

*denotes student presenters