

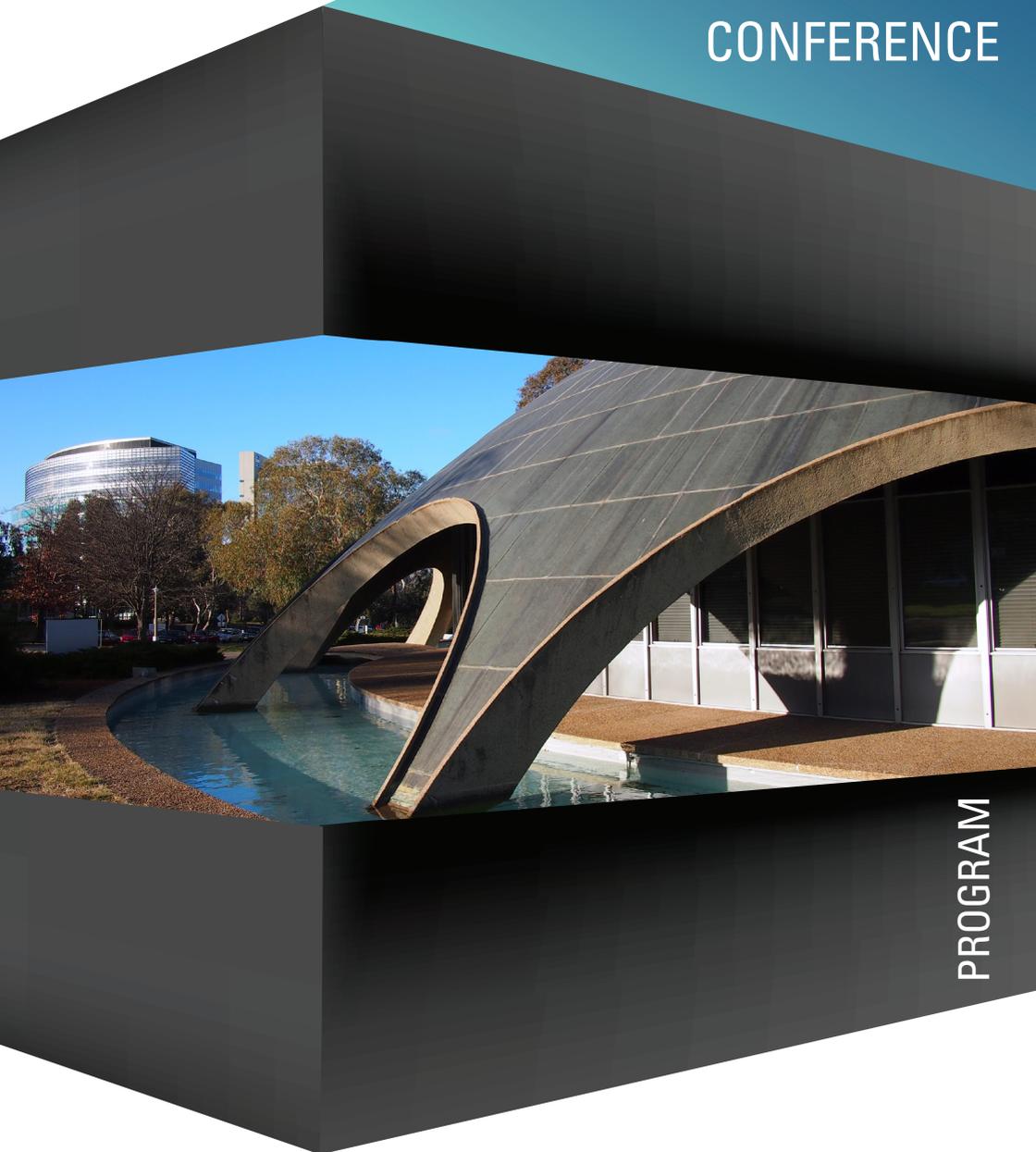


NATIONAL CENTRE FOR
GROUNDWATER
RESEARCH AND TRAINING

THE SHINE DOME

3-5 NOVEMBER 2015

AUSTRALIAN GROUNDWATER CONFERENCE



PROGRAM

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Welcome

On behalf of the Organising Committee, we would like to welcome you to the Australian Groundwater Conference 2015. We are delighted that IAH and NCGRT have formed a partnership to bring you this event.

We are proud to present to you a fantastic line up of over 240 oral presentations, plenary and keynote presentations, panel sessions and posters showcasing the latest research and innovations in groundwater in Australia.

The Australian Groundwater Conference is a critical part of ensuring that our profession and industry continually learn from the experience of others to advance our capacity as professionals to solve many current groundwater challenges. We believe that industry, scientists, policy makers and managers must work together as a community to address current and future issues.

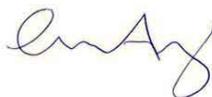
This conference is a great opportunity to network with colleagues and peers and to share your experiences and knowledge. We hope you seize the opportunity to be a part of the conference activities including welcome drinks, BBQ dinner at the National Botanic Gardens and the Early Career Hydrology Network Trivia Night.

We would like to extend a special welcome and thank you to our two major sponsors, the Murray-Darling Basin Authority and CSIRO. Thank you also for the generous support of BHP Billiton, Santos, Geoscience Australia, Bureau of Meteorology, DHI, the SA Department of Environment, Water and Natural Resources and the Goyder Institute for Water Research SA.

We thank you for being part of the Australian Groundwater Conference and sincerely hope that you enjoy the event.



Prof Craig T Simmons
Director
National Centre for Groundwater
Research and Training (NCGRT)



Chris McAuley
President
International Association of
Hydrogeologists (IAH)

Australian Groundwater Conference Committee 2015

Craig Simmons
Chair of the Organising Committee

Peter Hyde **ACT IAH Chapter**

Fiona Adamson **NCGRT**

Katarina David **National IAH Chapter**

Andrea McCarthy **NCGRT**

Gabrielle Yates **ACT IAH Chapter**

Scott Lawson **ACT IAH Chapter**



**NATIONAL CENTRE FOR
GROUNDWATER
RESEARCH AND TRAINING**



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The Murray–Darling Basin Authority is an independent expertise-based Australian government agency. We are responsible for achieving the equitable and sustainable use of the water resources of the Murray–Darling Basin by governments and the community. This is achieved through the development and implementation of a Basin Plan, operation of the River Murray system, shared natural resource management programs, research, information and advice.

We lead the planning and management of the Basin’s water resources through collaborative relationships with partner governments, regional bodies, industry groups, landholders, environmental organisations, scientists, research organisations, and Basin communities, including Aboriginal communities.



CSIRO delivers science and technology solutions for sustainable development and stewardship of land, water, ecosystems and communities.

We address the challenges posed by human interactions with the environment to help build resilient, productive and healthy cities, industries and ecosystems. Our integrated water assessments and expertise are directly supporting Australia’s implementation of water reform. CSIRO has Australia’s largest research capability in land, water and ecosystems research. Our scientists form interdisciplinary teams to solve complex land and water resource challenges against a changing climate, increasing population and landscape intensification.

Our water research experience is increasingly being recognised and sought out by other nations to better manage river basins and groundwater resources, and improve the social, economic and environmental benefits from water. Our international research is positioning Australia as a global leader in delivering the science and technology for intelligent and sustainable water management in the context of increasing demand due to population growth and a highly variable and changing climate.



Conference Dinner

Sponsored by BHP Billiton
Australian National Botanic Gardens

Date: Tuesday, 3 November 2015

Time: 6.00pm - 8.00pm

Buses depart the Shine Dome from 5.45pm

Address: Clunies Ross St, Acton ACT 2601

GETTING TO THE VENUE: Two buses will depart from the front of the Shine Dome at 5.45pm and 6.00pm.

GETTING BACK: You are welcome to catch one of two return buses from the Botanic Gardens departing at 8.00pm and 8.15pm.



Networking Drinks

Sponsored by Santos
The Australian Academy of Science's
Shine Dome

Date: Wednesday, 4 November 2015

Time: 5.45pm - 6.30pm

Location: Jaegar Room (Shine Dome)



Early Career Hydrology Network Trivia Night

Sponsored by BHP Billiton
University House | Fellows Bar & Café

Date: Wednesday, 4 November 2015

Time: 7.30pm - late

Address: Liversidge St, Acton ACT 2601

Conference Information

ATM

The nearest ATM is located at the corner of Marcus Clarke and Edinburgh Avenue in Café 21.

ABSTRACTS

A copy of all abstracts included in the Australian Groundwater Conference is found in the USB component of your lanyards.

AWARDS

At the conclusion of the Conference, awards will be given to best oral presentation and poster presentation in two categories: early career research scientist and career scientist.

CATERING

Catering is served in the Jaegar Room, Shine Dome. Please note that no food or drink apart from bottled water is allowed in the lecture theatres.

For those with nominated dietary requirements (other than vegetarian), you may find catering provided to you on the catering table closest to the kitchen door in the Jaegar room.

CONFERENCE DINNER

The Conference dinner will be held on Tuesday evening, 3 November, at the National Botanic Gardens. Two bus shuttles depart outside the entrance to the Shine Dome at 5.45pm and 6.00pm. Only two buses depart from the Botanic Gardens at 8.00pm and 8.15pm back to the Shine Dome. If you don't get onto the buses during these times you will need to arrange your own transport.

DISABLED ACCESS

Two disabled parking spaces are available within the Academy car park. The Shine Dome is also equipped with wheelchair access and disabled facilities.

HEARING LOOP

The Ian Wark Theatre is equipped with a hearing loop. Please look for seats in the lower area of the theatre with a gold plaque indicating a hearing loop is available.

LUGGAGE

A large luggage cabinet is located in the entrance foyer of the Shine Dome.

PARKING

Public parking areas are situated close to the Shine Dome off Gordon Street and McCoy Crescent. A fee is payable during business hours – there is no charge in the evenings or at weekends.

REGISTRATION

The conference registration desk is in the foyer of the Shine Dome and is open from 8am daily.

TAXI TO AIRPORT

A sign-up sheet is located at the registration desk if you would like us to arrange a taxi to take you back to the airport, add your name to the sign up sheet. This will be available at the Shine Dome reception until 3.00pm on day three. Alternatively, use the phone located in the Shine Dome foyer to book a taxi: Canberra Elite 13 22 27.

TOILETS

The men's toilets are located on the left as you enter the main entrance of the building, ladies toilets are also located on the left both under the stairs and upstairs. The disabled toilet is located adjacent to the ladies toilets.

TRIVIA NIGHT

The Trivia Night will take place at the Fellows Bar & Café. Please refer to the map opposite for location. Walking time from the Shine Dome to the Trivia Night location is approximately 7 minutes.

TWITTER

Join in the bigger conversation and tweet your good experiences from the Conference. Use the hash tag #AGC2015 when you tweet about this event.

VENUE

All conference sessions will be held at the Shine Dome, Australian Academy of Science, or at the Sir Roland Wilson Building, Building 120, Australian National University (both marked on map). Venues are open throughout the conference so please be sure to keep your valuable items with you.

WI-FI

Wireless internet access is available throughout the Shine Dome.

Username : SHINEDOME

Password : 5hinedome

There is no WIFI for the Sir Roland Wilson lecture theatres.

QUESTIONS?

For any questions or administrative issues, please contact the Conference staff who are wearing red lanyards.

Plenary Speakers



Dr. Wendy Timms

Dr. Wendy Timms has over 20 years of professional experience, mainly in Australia and Canada, on water and waste issues in both mining and agriculture. She has experience across consulting engineering, government, research and education. She is Director of Postgraduate Studies (Coursework) at the UNSW School of Mining Engineering, promoting high quality education that helps solve real world challenges.



Mr. Graham Hawke

Graham Hawke leads the Environment and Research Division at the Australian Bureau of Meteorology, with responsibilities for Climate, Research, Environment and Water. He is also a non-executive director on the Boards of the National Computational Infrastructure and Antarctic Climate and Ecosystems Cooperative Research Centre.

Graham is a Graduate of the Australian Institute of Company Directors, a Chartered Professional Engineer and holds post graduate business and engineering degrees.



Dr. Chris Pigram

Dr. Pigram currently holds the position of Chief Executive Officer in Geoscience Australia. He has and has over 40 years' experience in a wide range of geological research and mapping. Dr. Pigram has worked in Southeast Asia and the West Pacific as well as extensively in Australia. He has wide experience in geoscience covering minerals, petroleum, basin analysis and marine geoscience with over 100 publications and is member of several professional geological societies.



Dr. John Doherty

Dr. John Doherty is the author of PEST. John has worked for over 35 years in the water industry, first as a groundwater exploration geophysicist, then as a modeler. He has worked in the public, private and education sectors. He now directs his own company, Watermark Numerical Computing, which undertakes software development and advanced modeling for mining, environmental, agricultural, water supply, remediation and geothermal applications. He also works as an adjunct professor with the NCGRT.



Dr. Kelly Fielding

Kelly Fielding is an Associate Professor at The University of Queensland. Her research focuses on the psychology of environmental sustainability with a particular interest in the social and psychological dimensions of urban water management. She has led multidisciplinary projects investigating household water demand management, public perceptions of alternative water sources, and risk communication in relation to recycled water. She currently leads a project on societal innovations and behaviour change in the Cooperative Research Centre for Water Sensitive Cities.

Time		Shine Dome	
7.30	Registrations open		
8.20	Conference Opening: Craig Simmons, (Director, NCGRT) and Chris McAuley (President, IAH Australia)		
8.35	Welcome to Country		
8.45	Opening Guest Speaker		
9.00	Plenary Speaker: Graham Hawke, Bureau of Meteorology <i>Community confidence demands groundwater information.</i>		
9.30	Peter Dillon Status of managed aquifer recharge in Australia and issues perceived by proponents and regulators in each state.		
9.42	Peter Hyde, Murray-Darling Basin Authority Implementation of the MDB Basin Plan for the management of groundwater resources in the MDB: future issues and challenges.		
9.54	Peter Baker, Office of Water Science National overview of the Office of Water Science.		
10.06	Eloise Nation, Bureau of Meteorology The Australian Groundwater Explorer.		
10.18	Margaret Shanfield, Flinders University/NCGRT Putting numbers to myths: a review of the impacts of unconventional gas on water resources.		
10.30	Morning Tea - Sponsored by the Bureau of Meteorology		
	Shine Dome	Sir Roland Wilson Building: Theatre 1	Sir Roland Wilson Building: Theatre 2
	Murray-Darling Basin (MDB) Authority Plan	State of the Art Modelling & Data Management	Groundwater Energy & Resources
10.50	Tariq Rana Approaches to achieve sustainable use and management of groundwater resources in the MDB: using rules and resource condition limits.	Baskaran Sundaram Groundwater Hydrochemistry Portal: a spatial database for Australian groundwater hydrochemistry and isotopes data.	Sanjeev Pandey Assessment of hydrogeological connectivity between the Condamine alluvium and the underlying Walloon Coal Measures for predicting cumulative CSG impacts in QLD.
11.02	Tariq Rana Research and knowledge needs for improving groundwater management in the MDB.	Kimberley Saflian Improving groundwater numerical modelling efficiency through use of geospatial information systems tools and processes.	Josh Moncrieff (presented by Sanjeev Pandey) Influence of mechanical loading and unloading in interpreting vertical connectivity between two aquifers: an example from Condamine alluvium and Walloon Coal Measures connectivity study.
11.14	Peter Hyde Data and information needs for the MDB Plan monitoring, evaluation and reporting requirements.	Tim Lawton Use of integrated hydrological databases as a tool to manage regional scale data sets and support operational, environmental and regulatory outcomes.	Gerhard Schoning Permeability variations associated with geological structures in the Walloon Coal Measures, Surat Basin, QLD.
11.26	Brendan Cossens Creating a demand for groundwater to develop a healthy trading market.	Ian Hunt VlexDB: the description of a modern and secure online geoscience data management system.	Daan Herckenrath Stochastic lithofacie permeability modelling using borehole geophysics, DST, core and pumping test data.
11.38	Edwina Carter Complexities in applying trade principles to groundwater trade in the MDB.	Alexandra Wolhuter The 3D Water Atlas: enhanced scientific analysis for groundwater understanding and governance.	Mark Hocking Quantifying the impact of leaky wells using AEM in the Condamine Catchment.

DAY 1

Tuesday 3 November 2015

Time	Shine Dome	Sir Roland Wilson Building: Theatre 1	Sir Roland Wilson Building: Theatre 2
11.50	Bruce Gill Groundwater trading: slow to start, or just too hard? Research findings from Victoria.	Baihua Fu Using scenario analysis to investigate uncertainty in water resource trade-offs.	Scott Lawson Commonwealth government research on groundwater hydrology.
12.02	Kimberley Patrick New water from old rocks: the case for conjunctive water management and use of unallocated groundwater from the crystalline rock formation MDB.	Weibe Borren Interactive MODelling (iMOD) to facilitate stakeholder engagement in model building with fast and flexible sub-domain modeling techniques.	Richard Cresswell Isotopes: the keys to understanding connectivity above CSG operations.
12.14	Faye Williamson Benefiting in-stream salinity: the Upper Darling Salt Interception Scheme, Glen Villa, NSW.	Dhananjay Singh A new and innovative approach to the estimation of stock and domestic groundwater use in the Surat Cumulative Management Area, QLD.	Chris Turnadge A heuristic for assessing the effects of leaky bores and faults on the propagation of CSG-related depressurisation.
12.26	Janifer Ticehurst Can irrigators adapt their water use to meet the requirements of the MDB Plan? A case study for the Namoi catchment, NSW.	Greg Keir Estimating unmetered groundwater abstraction in Queensland's CSG basins.	Matthias Raiber Multi-tracer approach to investigate groundwater recharge and aquifer connectivity in the Clarence-Moreton and eastern Surat Basins in southeast QLD.
12.38	Walk back to the Shine Dome		
12.40	<i>Networking Luncheon</i>		
13.15	Plenary Speaker: Kelly Fielding, Queensland University <i>What social and psychological factors predict acceptance of water management approaches and how can acceptance be increased?</i>		
13.45	Anthony Jakeman, Australian National University Thinking beyond the aquifer: a synthesis of integrated groundwater management and its challenges.		
13.57	Cameron Holley, University of New South Wales Groundwater and planning: sustainable allocation, monitoring and community engagement.		
14.15	Panel Discussion – Exploring Social Intersections Between Farming, Land Use & Energy Chair: Ken Matthews . Panel: Peter Cook, Andrew Moser, Jim McDonald, Brad Moggridge		
15.00	<i>Afternoon Tea - Melbourne Cup (3pm Race 7)</i>		
	Shine Dome	Sir Roland Wilson Building: Theatre 1	Sir Roland Wilson Building: Theatre 2
	Groundwater Management / Science-Policy	Recharge	Groundwater Energy and Resource (CSG / Mining)
15.20	Martin O'Rourke Border Rivers groundwater model – an inter-state initiative for groundwater management without borders.	Grzegorz Skrzypek Water stable hydrogen and oxygen isotopes in a hydrogeologist toolbox – hydrocalculator software.	Martin Krogh Hydrology of coastal upland swamps on the Woronora Plateau.
15.32	Darren Sinclair Reports from the front line: compliance and enforcement of non-urban water extractions in NSW.	Tim Robson The use of environmental tracers to determine focused recharge from a saline disposal basin and irrigation channels in the MDB.	Mitchell Bouma Assessment and management of longwall mining impacts to groundwater and EPBC listed peat swamps - a Commonwealth perspective.

Time	Shine Dome	Sir Roland Wilson Building: Theatre 1	Sir Roland Wilson Building: Theatre 2
15.44	Craig Mackay Simulating flood behaviour in the Lower Murrumbidgee River, Australia using an integrated surface water-groundwater model.	Cameron Wood (<i>presented by Peter Cook</i>) Constraining spatial variability in groundwater recharge in an arid environment with carbon 14.	Stuart Brown Field investigations into hydrogeological effects of longwall mining in the Southern Coalfield, NSW.
15.56	Brendan Cossens Groundwater interference assessment: a tool to improve confidence and certainty in groundwater investment decisions.	Rebecca Doble Emulation of recharge and evapotranspiration processes in shallow groundwater environments.	Claire Stephenson Hydrogeological variability across the Sydney-Bowen Basin.
16.08	Terry Flynn A groundwater hub for Southern VIC.	Dawit Berhane Estimation of recharge at different spatial and time scales: Border Rivers.	Tim Armstrong Tertiary basalt aquifers and coal mining: a unique and challenging interaction.
16.20	Mal McGivern A potable groundwater source for Port Hedland, WA.	Dioni Cendón Shallow groundwater recharge and residence time in two separate flood plains along an aridity gradient in South QLD.	Anna Greve Mitigating high pressure water inflows at the Ernest Henry underground mine.
16.32	Andrew Taylor A multi-disciplinary approach to characterising groundwater flow systems in the Cleve Hills: Eyre Peninsula, SA.	Calvin Li Aquifer recovery during the transition from drought to a wet period: the mechanisms and pathways to recovery.	James Tomlin Final voids lakes at open cut coal mines: a perspective on the challenges and opportunities.
16.44	Simone Stewart Adaptive management of the groundwater resources on Eyre Peninsula.	Mark Hocking Proportioning groundwater hydrograph fluctuations to rainfall recharge and quantifying recharge lag-time using impulse response function modelling.	Arash Mohajeri Comparison of different techniques for simulating post-mining voids in groundwater recovery models.
16.56	Roger Cranswick Dealing with uncertainty when estimating groundwater resource capacity: a case study from SA.	Karina Meredith Solute and evaporation gradients formed by episodic river recharge over-time in a dryland aquifer.	Carolina Sardella Hydrochemical classification of groundwater in the Gloucester Basin, NSW.
17.08	Mardi Miles Using groundwater modelling for water resource management: Berry Springs, NT.	Ecohydrology	Becky Rollins Assessing groundwater impacts due to fracture stimulation and pilot testing programs for CSG exploration: Waukivory Pilot Project in the Gloucester Basin, NSW.
17.20	James Hill How key findings and uncertainty delivered under the Bioregional Assessment (BA) programme may inform consideration of coal resource development in the Gloucester subregion.	David Toop Application of hydrogeology for the conservation of <i>Cypripedium candidum</i> orchid, Manitoba, Canada.	Angela Bush Standardised scientific approach to measurement of hydrogeological impacts from underground coal gasification.
17.32	Leon Leach The strengths and benefits of using Modflow-USG for the development of the Central Condamine groundwater flow model.	Andrew Telfer Preliminary assessment of groundwater manipulation as a management tool for black box vegetation.	Greg Hoxley Assessing the potential impact on water resources from future onshore natural gas development in southern Victoria.
17.45	Buses depart from the Shine Dome to the National Botanic Gardens		
18.00	BBQ Dinner, Floresco Café, National Botanic Gardens - Sponsored by the BHP Billiton		
Day 1 Concludes			

DAY 2

Wednesday 4 November 2015

Time		Shine Dome		
7.00	IAH AGM Breakfast			
8.00	Delegates arrive			
8.25	Housekeeping			
8.30	Plenary Speaker: Wendy Timms, UNSW Barriers to flow: advancing aquitard assessments for energy and mineral resource projects.			
9.00	Tim Munday, CSIRO Working with the minerals industry in facilitating outback water solutions for remote parts of South Australia: the SA Goyder Long-Term Outback Water Solutions (GFLAWS) Projects.			
9.12	Jim Underschultz, UQ Applying hydrocarbon systems analysis to assess aquitard hydraulic performance.			
9.24	Vincent Post, Flinders University/NCGR Strategies for measuring and interpreting hydraulic heads in coastal aquifers.			
9.36	Shawan Dogramaci, Rio Tinto Effect of flooding on the evolution of groundwater chemistry; northwest Australia.			
9.48	Denis O'Carroll, Western University Fate of engineered nanoparticles: challenges in informing human and ecological health risk assessments.			
10.00	Ian Acworth, UNSW Groundwater recharge investigation at the NCRIS Fowlers Gap Site in semi-arid western NSW.			
10.12	Ian Cartwright, Monash University Making use of new opportunities and technologies for the measurement of environmental tracers.			
10.25	<i>Morning Tea</i>			
		Shine Dome	Sir Roland Wilson Building: Theatre 1	Sir Roland Wilson Building: Theatre 2
		Surface Water - Groundwater Interactions / Floodplains & GDE's	Coastal	Hydrogeological Mapping
10.45	Chris Turnadge Through the eyes of the Boinkas: characterisation of wetland-groundwater interactions in the southeast region of SA.	Peter Sinclair Sustainable yield concepts in atoll islands.	Farzina Akter Towards a numerical approach to identify hydrogeological landscape units.	
10.57	Ian Cartwright The transit time of water in headwater catchments.	Amandine Bosserelle Impact assessment of a freshwater lens on atoll islands using numerical modelling.	Andrew Jackson Reinterpretation of the stratigraphy of Murray-Peel area of the southern Perth Basin.	
11.09	Bill Meynink Baseflow and regional groundwater model calibration.	Amini Loco Assessment of water resources in atoll islands.	John Webb Hydrogeological evidence for covered karst in southwestern Victoria, southeast.	
11.21	Grant Jones Victorian alpine bogs and groundwater relationships - a progress report of technical studies at Mount Buller.	Amit Singh Electromagnetic mapping of freshwater lens thickness in Outer Atoll Islands, Bikaati, Kiribati.	Chris Dickinson Geochronology of the Condamine Alluvium.	
11.33	Chris Nicol Baseflow characterisation and stream depletion risks.	Eddie Banks Recharge dynamics to a freshwater lens on a tropical island.	Stuart Wright Interactive hydro-stratigraphic 3D PDF Models.	
11.45	Stephen Parsons Identifying the water source of terrestrial vegetation by combining remote sensing and field based measurements: a case study from Barwon Downs.	Harald Hofmann Understanding groundwater dynamics on barrier islands using geochronological data: an example from North Stradbroke Island, southeast QLD.	Kevin Hayley Quantitative assessment of the value added to regional groundwater model predictions by airborne geophysical surveys.	

Time	Shine Dome	Sir Roland Wilson Building: Theatre 1	Sir Roland Wilson Building: Theatre 2
11.57	Chris Li Assessing management options for improving floodplain vegetation health with models of unsaturated zone water and salt fluxes.	Ying Zhang Effects of alongshore morphological variations on nearshore groundwater flow and solute transport: field observations and 3D numerical simulations.	Scott Macaulay Regional-scale mapping on a local-scale budget, a case-study from the Murchison region of WA.
12.09	Virginia Riches Modelling salt dynamics on the River Murray in SA - floodplain modelling.	Anli Bourhane Discrimination between anthropogenic and seawater contamination in the coastal groundwater of Hermitage (Reunion Island) from geochemical investigations.	Yusen Ley Facies prediction for locating groundwater supplies in Timor-Leste using airborne electromagnetic data.
12.21	Carl Purczel Groundwater model for managing a saline floodplain at Pike, SA.	Eliza Wells Hydrochemical assessment of a freshwater resource on Rottnest Island, WA.	Aaron Davis Combining geophysical datasets for determining groundwater resource potential linked to remote communities in the APY lands, SA.
12.38	Walking time to the Shine Dome		
12.35	Networking Luncheon		
13.15	Plenary Speaker: John Doherty, Watermark Numerical Computing Modelling: where it is now, where it should be, and why it may not get there.		
13.45	Richard Evans, Jacobs Australia Determining realistic specific storage input values for groundwater flow models: a case study from the Surat Basin, QLD.		
13.57	Noel Merrick, HydroAlgorithmics Does modflow-usg/algomesh give the same results as modflow-surfact?		
14.15	Panel Discussion - The Hydrogeologist Toolbox: State-of-the art tools for 21st Century problems Chair: Craig Simmons . Panel: Peter Cook, Tim Munday, Andrew Bolton, Jane Coram, Tony Jakeman Sponsored by Goyder Institute		
15.00	Afternoon Tea		
	Shine Dome	Sir Roland Wilson Building: Theatre 1	Sir Roland Wilson Building: Theatre 2
	State of the Art Modelling and Data Management	Water Quality	Groundwater Energy & Resources (overlap with Groundwater Management / Science-Policy)
15.20	Leanne Morgan A regional water balance model for the southeast of SA: addressing challenges associated with shallow water table simulation.	Danielle Griffani Can flows through a fracture network clean contaminated aquifers?	Fabienne d'Hautefeuille Hydrogeological regulatory conditions setting and implementation, an effort to move towards best practices.
15.32	Doug Mzila Optimising regional groundwater monitoring networks: 'data worth' and 'correlation' methods.	Sarah Taylor A statistical analysis of groundwater geochemistry in Western Sydney.	Anthony Smith Challenges for water sharing in the context of large-scale and long-term impacts on regional groundwater systems.
15.44	Sreekanth Janardhanan Going beyond interpolation for the parameter estimation and uncertainty analysis of groundwater models by using copulas for constrained spatial field generation.	Catherine Hughes Isotopic & hydrogeochemical study of radionuclide & landfill leachate migration in a contaminant disposal precinct in Sydney's southwest.	Neil Manewell Estimating water exchanges between bedrock and alluvial aquifers - implications for mining projects in NSW.

DAY 2

Wednesday 4 November 2015

Time	Shine Dome	Sir Roland Wilson Building: Theatre 1	Sir Roland Wilson Building: Theatre 2
15.56	Wesley Burrows Gradient-based calibration and uncertainty analysis using a simplified surrogate model conjunctively with a complex groundwater model.	Nur Syahiza Zainuddin The role of groundwater dissolved organic matter on arsenic mobilisation in a shallow alluvial aquifer in the Namoi Valley, NSW.	Daniel Barclay Application of trigger levels for groundwater resource development.
16.08	Rachel Blakers Modelling surface water - groundwater interactions for conjunctive water management using eWater Source.	Martin Otz How background fluorescence analysis (BFA) revolutionises commercial water and compounds of concern tracing in Australia.	Blair Douglas Adopting catchment scale outcome based thresholds to manage mining related groundwater impacts, BHP Billiton Iron Ore, Pilbara WA.
16.20	Luciano Dorigo Comparison of zonation and pilot points approaches in regional groundwater flow models: implications for prediction accuracy and uncertainty quantification.	Chris McAuley Mapping salinity distribution within aquifers at a statewide scale - pitfalls and opportunities. A case study from Victoria.	Ross Carruthers Empowering landholders to monitor groundwater in areas adjacent to mining or gas developments.
16.32	Alexander Renz Accurate modelling of horizontal wells and tunnels through upscaling of screen-scale flow processes.	Groundwater and Urbanisation Sian France Managing and communicating groundwater risk associated with excavations in urban areas.	Michael Jamieson A review of groundwater management arrangements in western QLD.
16.44	Will Minchin Methods for simulating subsidence-induced deformation above longwalls in groundwater models.	Eric van Nieuwerkerk Searching for Water on the Kāpiti Coast: the challenges of finding water in an area that is soaking wet.	Gabor Bekesi Defining the quantitative uncertainty in drawdown compliance, groundwater supply for the Olympic Dam Mine, SA.
16.56	Damian Merrick Fast GPU-parallelised solvers for MODFLOW-USG.	Tony Cauchi Groundwater dependent ecosystems management in urban settings.	Olga Barron Environmental significance of the groundwater resource in Pilbara.
17.08	Kiran Bajracharya Performance of locally refined lower burdekin unstructured grid groundwater flow model.	Okke Batelaan A multi-methodology for improving Adelaide's groundwater management.	Jon Fawcett Development of a spring typology to inform the assessment of risks and to guide management arrangements in the Surat Cumulative Management Area, QLD.
17.20	Alice Drummond Latrobe Valley coal mine groundwater modelling using MODFLOW unstructured grid.	Etienne Bresciani Coupled flow and transport model-based chloride mass balance for groundwater recharge estimation for the Adelaide Plains, SA.	Steven Flook Evaluating predicted impacts to the Lucky Last spring complex through enhanced local scale hydrogeological conceptualisation.
17.32	Tim Peterson (presented by Elisabetta Carrara) Cautionary tales, tribulations and new approaches for geostatistical water table mapping.	Daniel Partington (presented by Etienne Bresciani) Modelling of a heavily pumped regional groundwater system: Adelaide Plains, SA.	Phil Hayes Preferential pathways, diffuse discharge and recharge to Dalhousie Spring: learnings from a new groundwater model for the Western Eromanga part of the GAB.
17.45	Networking Drinks - Sponsored by Santos		
18.30	Networking Drinks conclude		
19.30	Early Career Hydrology Network Trivia Night (University House) - Sponsored by BHP Billiton		
Day 2 Concludes			

Time		Shine Dome	
8.00	Delegates arrive		
8.25	Housekeeping		
8.30	Plenary Speaker: Chris Pigram, Geoscience Australia Geoscientific contributions to groundwater resources decision making		
9.00	Allan Curtis, CSU (Charles Sturt University) What lies beneath: rural landholder interpretation of the risks of aquifer exploitation in Australia		
9:12	Rebecca Nelson, Stanford University The Western Water Dashboard: A View of Groundwater Licensing in the Western US		
9.24	Steve Barnett, DEWNR Evolution of Water Allocation Plans in South Australia		
9.36	Karina Joy, Goulburn-Murray Water Building a bridge with effective consultation: bringing together science, policy and the community to improve groundwater management		
9.48	Bradley Moggridge, Department of Primary Industries Aboriginal People and Groundwater Planning in NSW		
10.00	John Sharples Groundwater Insight: Presenting a national picture of groundwater		
10.12	Neil McIntyre, UQ Groundwater and the changing water cycle		
10.25	<i>Morning Tea</i>		
	Shine Dome	Sir Roland Wilson Building: Theatre 1	Sir Roland Wilson Building: Theatre 2
	More on Surface Water – Groundwater Interactions	Community Engagement & Decision Making	Caves – Groundwater Recharge & Climate
10.45	Martin Andersen Mapping groundwater discharge and water chemistry in a perennial stream in northern NSW.	Madeleine Hartley Legal implications arising from the development of an irrigation district in the West Canning Basin, WA.	Kashif Mahmud Characterising groundwater recharge from cave terrestrial lidar and drip water analysis.
10.57	Helen Rutledge Organic matter content and redox chemistry in upwelling and downwelling hyporheic zones of a groundwater fed stream.	Juan Carlos Castilla-Rho The groundwater games: modelling cooperation in groundwater basins using agent-based models.	Monika Markowska Cave stalagmites as records of past recharge frequency in semi-arid Australia.
11.09	Yueqing Xie On the limits of heat as a tracer to estimate reach-scale river-aquifer exchange flux.	Josephine Searle Investigating groundwater in northwest Australia - balancing the needs of management, traditional owners and pastoralists.	Gabriel Rau What controls the cave drip water temperature? Analysis and implications for paleoclimate reconstruction from speleothems.
11.21	Abigail Lovett Validation of novel temperature sensing techniques for identifying groundwater – surface water interaction in Lake Taupo, New Zealand.	Leila Macadam Intensifying smallholder agriculture in Cambodia through groundwater irrigation: balancing opportunities and risks.	Stefan Eberhard Impacts of climate change and land use on threatened ecological communities of stygofauna in southwest WA.
11.33	Walking time to the Shine Dome		
11.40	Panel Discussion - Science Policy Nexus Chair: Rick Evans . Panel: Scott Keyworth, Tony Slatyer, Sue Hamilton, Tony McLeod . Sponsored by Geoscience Australia		
12.30	<i>Networking Luncheon</i>		

DAY 3

Thursday 5 November 2015

	Shine Dome	Sir Roland Wilson Building: Theatre 1	Sir Roland Wilson Building: Theatre 2
	Managed Aquifer Recharge (MAR)	Climate Change & Landuse Change	Inter-aquifer Leakage & Connectivity/ Isotopes
13.10	Andrew Moser Australia Pacific LNG aquifer injection trials – proving technical feasibility of large scale MAR to the GAB.	Prachi Dixon-Jain Is groundwater in the South Pacific islands vulnerable to future climates?	Dylan Irvine Requirements and opportunities for the use of high resolution geothermal profiles to determine vertical groundwater flow in aquifers.
13.22	Ryan Morris The Reedy Creek aquifer injection scheme – design and operation.	Bruce Gill Have our catchments reached hydrological and salt equilibrium after large scale land clearing?	Katarina David Important role of porewater stable isotope analysis in investigations of low permeability strata, Sydney Basin.
13.34	David Ife MAR in Canberra - capturing and using urban drainage.	Matthew Currell A framework and graphical tools to assess transience in groundwater systems in response to land use and climate.	Doug Anderson The vertical permeability of the Leederville Formation and South Perth Shale - new insights from centrifuge testing in Perth, WA.
13.46	Michael Goff Successful approaches to MAR - goal setting, planning, design and execution.	Simon Cowan A new plan for a changing climate: developing a flexible and adaptive approach to shallow groundwater management in the Shepparton Irrigation Region, northern Victoria.	Arne Kersting Argon-39: new possibilities for groundwater dating up to 1000 years from ATTA.
13.58	Neil McIntyre A multi-scale experimental and modelling program for estimating groundwater recharge in the Surat Basin.	Julia Imrie Changing land use in an uncertain climate: impacts on surface groundwater flows and water quality in the Goulburn River, Hunter Valley NSW.	Stacey Priestley Inter-aquifer leakage and groundwater flow inferred from environmental tracers especially noble gases.
14.10	Takuya Iwanaga Analysing adaptation options to increase water use efficiency for cotton production in the lower Namoi.	Cuan Petheram Modelling water balances at tropical savanna and pasture sites in northern Australia.	Axel Suckow New stable and radioactive noble gas tracers at CSIRO.
14.22	Robert Bower Groundwater replenishment schemes for the sustainable management of catchment-scale water quantity and quality challenges: a New Zealand perspective.	P. Evan Dresel Impact of land use and climate change on surface and groundwater resources in southeast Australian upland catchments.	Charlotte Iverach Assessing connectivity between an aquifer and CSG production using water geochemistry and methane isotopes.
14.34	Kate Dowsley Updating Australia's approach to groundwater quality protection: groundwater quality protection guidelines.	Kate Reardon-Smith Give and take: response in shallow groundwater systems to rainfall and extraction pressure on the Condamine floodplain.	Simon Fulton A field based investigation of aquifer connection between the Pedirka Basin and the Great Artesian Basin, NT.
14.46	Joanne Vanderzalm (presented by Peter Dillon) Understanding clogging and groundwater quality impacts of recycled water MAR.	David Allen Unstable fresh groundwater plumes of the western slopes of the Great Dividing Range.	Tavis Kleinig Arckaringa Basin aquifer connectivity: application of multiple approaches.

Shine Dome

15.00

Afternoon Tea

Bioregional Assessments (CSIRO)

15.20

David A Post

Bioregional Assessments: Evaluating the impacts of coal mining and CSG extraction on water-dependent assets.

15.32

Matthias Raiber

Hydrodynamics in the Clarence-Moreton bioregion: why we need integration of 3D geology, hydrochemistry and groundwater flow paths.

15.44

Tao Cui

Clarence-Moreton groundwater model for bioregional assessment: trade-off between complexity and simplicity.

15.56

Luk Peeters

Analytic element models as fast screening tools in coal resource development impact assessments.

16.08

Kate Holland

Modelling responses to changed surface water and groundwater conditions associated with coal resource development at a regional scale.

16.20

Russell Crosbie

Groundwater recharge to coal basins in eastern Australia.

16.32

Conference close and presentation of awards

Conference concludes

Sponsored by

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17.00



Poster Presentations

Day one (Career Posters)

Tim Anderson: An 8-step process to understanding water requirements of remnant vegetation in urban areas.

Tim Anderson: Surviving the millennium drought and beyond: securing potable supplies in Victoria's Central Highlands region.

Theodora Avanidou: A statistical approach to establishing appropriate a level triggers in sensitive wetlands.

Andy Baker: Caves: observatories of Australia's diffuse groundwater recharge history.

Cate Barrett: Gunnedah coal basin groundwater monitoring.

Aaron Davis: SNMR soundings in the Baucau region of Timor-Leste for groundwater management.

Chris Hambling: When is a groundwater dependent ecosystem not a groundwater dependent ecosystem? A critical review of identification methodologies.

Megan Hancock: Characterising ephemeral river recharge in arid Australia.

James Hill: How key findings and uncertainty delivered under the Bioregional Assessment programme may inform consideration of coal resource developments - Hunter subregion.

Mick Hoban: NUDLC minimum construction requirements for water bores in Australia, 3rd Edition.

Yogendrasinh Jadeja: Participatory groundwater management at village level in India: Empowering communities with science for effective decision making.

Mark Keppel: A hydrogeological characterisation of the Arckaringa Basin, SA.

Jeffrey Morgan: Groundwater management: Anglesea Borefield: trigger levels used for ecological protection.

Mark Mitchell: Broken Hill emergency drought water supply: Renmark Group aquifer investigations.

Anjan Parajuli: Surface-stabilised nanoscale iron for the remediation of subsurface contaminants.

Tim Ransley: Great Artesian Basin hydrogeological atlas – maps and datasets for regional geology, hydrogeology and hydrochemistry.

Theo Sarris: Application of Monte Carlo analysis in a groundwater flow model of mine pit dewatering.

Roald Strand: Development of a water production simulation tool for CSG in QLD.

Tikiri Tennakoon: SAR Alkalinity ratio as a potential indicator of CSG induced methane migration to aquifers in Surat Basin.

Day two (Early Career Posters)

Michael Asher: Multi-fidelity uncertainty estimation of groundwater flow models.

Etienne Bresciani: On the influence of grid resolution in regional groundwater models.

Kitty Bushaway: A Model Warehouse: best practices for data management.

Scott Cook: Statistical assessment of chemical and hydraulic trends in groundwater of the Mooki River alluvium.

Pablo Gamazo: Viral and bacterial contamination in a sedimentary aquifer in Uruguay: evaluation of coliforms as regional indicators of viral contamination.

Peter Graham: Fluorescence spectroscopy as an emerging measurement technology for groundwater OM.

Landon JS Halloran: Natural temperature variations and soil moisture content in the vadose zone.

Daan Herckenrath: Modelling Regional CSG groundwater impacts: upscaling a CSG reservoir model.

Lauren Houthuysen: Analysis of groundwater salinity trends in SA.

Tajudeen Iwalewa: Coupled process modelling and performance of repository components.

Moji Karbasi: Analysis of groundwater level trends in SA.

Mohammadreza Keshavarzi: Mapping karst features and recharge pathways using resistivity imaging: a case study Wellington Caves, NSW.

Sanjit Kumar Rout: Participatory groundwater management: possible options for up / out scaling.

Kate Reardon-Smith: Groundwater salinity intensifies drought impacts, reducing refuge capacity in forests in the Campaspe catchment.

Emma White: Can we manage groundwater?

Day three (Career Posters)

Laure Abiodun

Estimating the Uncertainty in Remotely Sensed Evapotranspiration on a Catchment Scale: A Comparison Between SWAT Simulations And The MOD16 Datasets.

Richard Green: Groundwater monitoring bore drilling project: Broke, Merriwa and Gunnedah–Spring Ridge Deep Monitoring Bore Drilling 2013-2014.

Neil McIntyre: Recharge estimation across the headwaters of the Condamine Basin using storage-discharge relationships.

Ryan Morris: Design and operation of the 40ML/day Reedy Creek aquifer injection scheme.

Rakhshan Roohi: Use of remote sensing to determine the impact of landuse on evapotranspiration and groundwater in Western Victoria, southeast Australia.

Jing Yang: Understanding the interaction between surface water and groundwater in New Zealand – an integrated modelling approach.

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