



Newsletter of the Australian Chapter of the *International Association of Hydrogeologists*

October to December 2017
Volume 33, No. 4

In this issue

IAH Membership

News from the President

National Corporate Sponsors

Membership Update

IAH Australia Executive

Finance Update

National Conferences and Events

Feature News

State Branch Activity

IAH Publications

International Association of Hydrogeologists Australian National Chapter

The International Association of Hydrogeologists is a professional association for those within disciplines related to groundwater, its occurrence, utilisation, testing and management. IAH is a scientific and educational organisation that is truly international, and was established to foster closer ties, cooperation and information exchange related to the study of groundwater. IAH is non-government and non-profit and has over 4000 members internationally from around 120 countries. The Association is affiliated with the International Union of Geological Sciences (IUGS), and was founded during the 20th International Geological Congress in 1956. By its statutes the IAH is an association of individuals and corporate members, and not a federation of national committees. National groups do, however, organise local meetings and other activities. A proportion of the national committee membership goes to the local organisation to support these activities, the remainder to the international body. The country of the international secretariat is changed every several years. The IAH publishes Hydrogeology Journal, various workshop and conference proceedings and an international newsletter.

The main objectives of the IAH are to promote international and national cooperation between involved scientists and engineers; sponsor international and national technical/management meetings and symposia on hydrogeology; publish hydrogeological reports, papers and maps; establish investigation commissions and working groups to report on special topics; encourage the international application of relevant approaches and techniques for the benefit of the hydrological and human environment.

Our national chapter was founded in 1983 and is one of the most active. Activities tend to be organised locally within each state and territory, but national activities also occur. Each state body has its own meetings, usually monthly. Conferences are held in Australia around every two to three years, and seminars on a more frequent basis.

Membership Requirements: IAH will accept as individual members anyone directly or indirectly engaged in study or research on, or management of water in its various forms related to hydrogeology, if sponsored by two members in good standing. Companies and research organisations can apply for corporate membership. The current membership categories and annual subscriptions for 2015 (see www.iah.org.au) are:

▪ Member	\$150
▪ Online member	\$130
▪ Student	\$55 (full time students)
▪ Online Student Member	\$35
▪ Corporate member	\$830
▪ Partial sponsor	\$165
▪ Full sponsor	\$200
▪ Retired	\$75

The membership rates reflect a minor increase for 2018, which applies to the print and online membership categories (including sponsor versions), and the Corporate member rate. The student and retired member rates remain unchanged in 2018.

Membership of this professional association is tax deductible in Australia, and individual members are entitled to use 'MIAH' (Member of the International Association of Hydrogeologists) after their name.

From the President

In the world of “groundwater news” these days, which often focuses on the viability of groundwater resources from a supply and demand perspective, the bandwidth has recently been dominated by a groundwater quality issue: the emergence of poly- and perfluoroalkyl substances (PFAS) as a contaminant of concern. Every so often, scientists become aware of a new chemical or class of chemicals that pose a threat to water quality (among other things). Often the chemicals serve a valuable industrial purpose; PFAS-based firefighting foams do a very good job of putting out fuel fires, and were key components of waterproofing agents, stain-resistant furniture treatments, fast food packaging, non-stick pans, ski wax, the list goes on. The chemicals have also typically been used in blissful ignorance of the threat they may pose to public health and the environment, and therefore had little or no operational safeguards to prevent their release.

Because the implications for public health and the environment were poorly understood when the chemicals were originally introduced to the market, they have now permeated the environment in a complicated web of primary and secondary sources, the nature and extent of which are still being unravelled. The aqueous film forming foams used for firefighting, particularly at military and domestic airfields, were an obvious PFAS source and have been the early focus of investigation and management efforts. However, all those retail products with PFAS-based treatments are broadly distributed in our society; they are slowly leaching from the waste in our landfills, they pass through typical municipal water treatment systems unscathed, and now wherever you look for them, you generally find them.

Hand in hand with the complexities of the environmental fate and transport of PFAS, is the evolving understanding of the toxicology of the chemicals that fall under this umbrella (there are thousands, but the immediate focus is on a shortlist of less than 30). Many people have heard of PFOS and PFOA as these have had the lion's share of toxicology research to date, but dozens of others are now being scrutinized for potential regulation. And just to place the cherry on the cake, these chemicals are unusually stable in the environment, some bioaccumulate in the food chain, and they are resistant to most of the conventional treatment technologies used to treat other types of industrial groundwater contaminants. Quite the vexing problem for those of us involved with the “dirty water” side of the groundwater industry.

Despite our great advances in the past 50 years in understanding, identifying and (to a degree) treating the industrial sins of our past, we are occasionally still caught unaware and unprepared to deal with a contaminant that is already ubiquitous in our environment. Many millions of dollars have already been invested in assessing the PFAS risk to groundwater resources in Australia (and internationally), and it feels like it's just the tip of the iceberg.

In 2018, Dr Jenny Stauber, Chief Research Scientist from CSIRO Land and Water will present the 2018 NCGRT/IAH Distinguished Lecture Series with a

lecture entitled Groundwater Quality: An Ecotoxicology Perspective. While not strictly focused on PFAS, the threats to aquatic and terrestrial ecosystems posed by groundwater contamination are often the primary risk drivers, and that is shaping up to be right on the money for PFAS. Dr Stauber's lecture promises to make for an excellent series, make sure it is on your calendar when the dates are released!

Lange Jorstad

President - Australian Chapter, IAH

National Corporate Sponsors

We gratefully acknowledge the support of our national corporate sponsors.



listen. think. deliver.

cdmsmith.com



www.coffey.com



www.arcadis.com



www.jbsg.com.au



www.rockwater.com.au

Membership



IAH Australia is pleased to announce that membership registration for the 2018 calendar year is now open using our brand-new membership system.

<https://registration.iah.org.au/>

Note: All users will be required to register a new account during the membership registration process.

Membership enables groundwater professionals to support IAH initiatives in Australia and overseas, including various commissions, networks and working groups such as the Early Career Hydrogeologists Network.

In exchange, IAH members receive a great range of benefits, including a Hydrogeology Journal subscription and discounts on IAH publications and conferences. You will also be able to participate in IAH special interest groups, sharing knowledge and experience with others.

IAH memberships run from January 1 to December 31. All memberships will be back-dated to January 1 to ensure you receive the full benefits of your IAH membership.

Membership Registration Process

Memberships can be purchased via <https://registration.iah.org.au/>.

1. To select a membership, click on your desired membership category name (e.g. **Normal Membership**).

Full Sponsoring Membership

Annual membership including contribution to IAH International central sponsorship fund managed by our UK branch

\$200.00

Full Sponsoring Online Membership

Annual membership including contribution to IAH International central sponsorship fund managed by our UK branch

\$180.00

Normal Membership

Annual membership, including hard copy and digital access to Hydrogeology Journal

\$150.00

Online Membership

Annual membership, including digital access to Hydrogeology Journal

2. Select “**add to cart**” on the next screen.


Full Sponsoring Membership

\$200.00

Annual membership including contribution to IAH International central sponsorship fund managed by our UK branch

Add to cart

3. Select “**proceed to checkout**” on the next screen.

Product	Price	Quantity	Total
 Full Sponsoring Membership	\$200.00	1	\$200.00

[Update cart](#)

Cart totals

Subtotal	\$200.00
Total	\$200.00 (Includes \$0.00 Tax)

Proceed to checkout →

4. Set up an account by clicking the “**Register**” link on the next screen.

Log In

Please log in to continue.

Username or E-mail

Password

☐ Remember Me

Log In

[Register](#) [Lost Password](#)

5. Enter your name and select a User ID and Password (anything you'd like) on the next screen, then select "**Register**" when finished.

Register

Register For This Site

First name

Last name

Username

E-mail

Password

Confirm Password

Register

[Log In](#) | [Lost Password](#)

6. Select “log in” on next screen.

Log In

Registration complete. You may now log in.

Username or E-mail

membership@iah.org.au

Password

••••••••

☐ Remember Me

Log In

[Register](#) | [Lost Password](#)

7. Once logged in, click on the **shopping cart** to finish purchasing your membership.





[Online Signup](#) [Become A Member](#) [Membership Options](#) [What Does It Cost](#) [My account](#) ▾

\$200.00 1 item



8. Click “**proceed to checkout**” to finalise your membership purchase

Cart

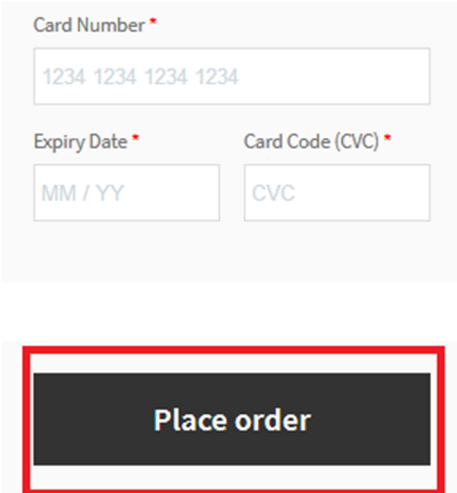

	Product	Price	Quantity	Total
	 Full Sponsoring Membership	\$200.00	1	\$200.00
Update cart				

Cart totals

Subtotal	\$200.00
Total	\$200.00 <small>(includes \$0.00 Tax)</small>

Proceed to checkout →

9. Complete billing and postal details, then click “**Place Order**” to purchase 2018 membership.



Card Number *

1234 1234 1234 1234

Expiry Date * Card Code (CVC) *

MM / YY CVC

Place order

10. Thank you for supporting IAH in 2018! Any questions, please contact membership@iah.org.au.

IAH National Committee

President	Dr Lange Jorstad	ljorstad@geosyntec.com
Vice-President	Ian Brandes	ibrandes@rockwater.com.au
Treasurer	Ron Colman	Ron.Colman@royhill.com.au
Secretary	Dr Anna Greve	annakgreve@outlook.com
Past President	Chris McAuley	chris.mcAuley@delwp.vic.gov.au
Membership Secretary and Website	Kyle Horner & Fiona Adamson	secretariat@iah.org.au
Newsletter Champion	Dr Ben Rotter	Ben.Rotter@mottmac.com

Finance Update

No update available this edition.

National Conferences and Events



AGCC Australian Geoscience
Council **Convention**

BIG ISSUES AND IDEAS IN GEOSCIENCE

14–18 OCTOBER 2018 | Earth Science Week

Adelaide Convention Centre www.agcc.org.au

Progress Towards AGCC 2018

By Bill Shaw, President Australian Geoscience Council

Introduction

This note updates previous advice on how the Australian Geoscience Council's Convention (AGCC 2018) is shaping up, with more information about the program, the next steps by each of the Subcommittees and plenty of suggestions about how you can start to get involved.

Scientific and Technical Program

Chris Yeats has now developed the Program Committee with *convenors* for each of the five scientific themes as follows:

Theme 1: Understanding the Earth - *Professor Dietmar Muller (University of Sydney)*

Theme 2: Life on Earth – origins and diversity - *Professor Simon George (Macquarie University)*

Theme 3: Resources – discovery, development and sustainability - *Dr Jon Hronsky (Consultant, Western Mining Services)*

Theme 4: Applied Geosciences in the 21st Century – innovation, technology and the future - *Chris Woodfull (Consultant, SRK Consulting)*

Theme 5: Beyond the rocks – geoscience in our society: current application and future trends – *Dr Anna Littleboy (CSIRO)*

Each of the Themes has between 4 and 7 nominated Symposia. There are already constraints on the total number of oral presentations that can be accommodated during the four days of the Convention. In addition to the technical sessions, five one-hour plenary sessions are planned, to cover the following topics:

- Earth Climate – Past and Future

- Life Origins and Evolution
- Resource Security into the Future
- The Future of Geoscience in Our Society
- Applied Geoscience – Geohazards, Risks and Society

There will also be an entire day during the Convention set aside for discussion of the following **Big Issues and Ideas**:

- Our Energy Security Options – Dirty Words in a Clean World (Coal, Nuclear, Fracking and Alternatives)
- Resource-Driven Development of Northern Australia
- Geoscience Education and New Modes of Communication and
- Smoothing the Impact of Boom and Bust Commodity Cycles.

The current plan for the technical sessions is to run 10 concurrent sessions (nominally 2 at a time per Theme) with 15 minute talks. This equates to 560 speaking slots, or nominally 56 per Theme. Theme Convenors will also have the flexibility to assign longer timeslots for session keynotes should they wish.

We expect that there will be an extensive poster presentation component of this Convention, given the expected number of high-quality abstracts that will be submitted and consequent competition to present at this prestigious event.

Sponsorship

The partnership prospectus is being finalised by Mike Smith's team and discussions are already underway with a number of parties that have expressed interest in supporting our big event. The preliminary program has already generated excitement and interest as a way of blending the important traditional role of broad-themed geoscience conferences with a new approach to focusing on issues that are important to all geoscientists and to the general public.

If your company or organisation is interested in being aligned with the Convention, please consider getting in early while the choice packages and exhibition sites are still available. The new look of the \$400 million Adelaide Convention Centre East Building redevelopment is being celebrated with a gala opening at the end of August. AGCC 2018 will be one of the first events to take full advantage of the flexibility this provides.

Field Trips and Workshops

Dale Sims is developing a list of the potential field trips and workshops that we are currently considering. If you are interested in running field trips additional to those already on the following list please let us know:

- Gawler Craton
- Great Ocean Road – volcanics of eastern Victoria
- Flinders Ranges – Fossil Ediacaran Flora
- McLaren Vale – terroir for wine making

- Self-guided Geotourism –the Brachina Gorge trail.

There will be opportunities for our Member Organisations (MOs) to host workshops in their specialist disciplines. A package is being put together to seek expressions of interest so that these can all be fairly evaluated.

Early Career Geoscientists and Volunteers

Genna McDonagh is developing contacts across our eight MOs to provide volunteer coordination and opportunities for innovative ways to connect with the Convention. She is looking for support and engagement, especially in ensuring that we address broad social themes that are important now to all professionals in academia, industry, consulting and government. If you are passionate about diversity, representation, networking, STEM or making a difference, please get in touch through our website.

Education

The AGC Education Subcommittee has been very successful in building support and connections across the full spectrum of geoscience education from Primary School to Professional Development programs. At the recent Australian University Geoscience Educators Network (AUGEN) meeting in Sydney there was strong interest in using our Convention during Earth Science week next year to host their AGM and to champion one or more sessions. This will be an opportunity to see some of the amazing resources that are being developed, such as the work of Michael Roach (University of Tasmania) on precision outcrop photography and 360° imaging for “virtual field trips”. There will lots of other interesting technologies and applications being presented.

Advocacy and Media

We are making progress in developing the media strategy and have been recently advised that there will soon be significant further support forthcoming. As we move towards being only a year out, Angela Riganti’s team has preparations underway for a media launch and mail-out of our First Circular by all the Member Organisations during September. We are looking to maximise the impact of our event through innovative use of social media, forums, poster sessions and other approaches that Angela’s and Genna’s teams will develop.

Engagement with Stakeholders

Steve Mackie has developed a fortnightly dot-point summary of progress that goes out to all our stakeholders. You can get on the list by contacting him to see how the Convention is developing at a very granular level. Of course that level of interest means you are so motivated that you are probably already on one of our Subcommittees ...

Venue and other practicalities

Our Professional Conference Organiser, Carillon is on top of all our contractual requirements and we now have the Adelaide Convention and Exhibition Centre, and appropriate accommodation, booked up sufficiently to enable us to develop all the various scenarios that we can envisage. A visit to the venue is planned for the end of August. Work on the social program that underpins the networking aspects of the Convention is also getting going.

Conclusion

I am still seeking your thoughts on how you would like to get involved. Many years of volunteer work in the AIG, AusIMM, JORC and now the AGC has taught me the huge personal value of commitment and engagement with like-minded professionals.

To let us know your views, what you want out of this Convention, and how you can help make it a success, please get in touch with any member of the Organising Committee at our website: <https://www.agcc.org.au/committee>

Bill Shaw, on behalf of the Organising Committee.



AGC2017 Book of Abstracts now available

The complete list of oral and poster abstracts for the

2017 Australasian Groundwater Conference, Sydney, 11-13 July 2017

<http://nationalcentreforgroundwaterresearchtraining.cmail19.com/t/j-l-uuhuhtd-vliiklidl-f/>

From the Branches

Australian Capital Territory

IAH ACT BRANCH

2017 Committee:

Chair	Lucy Lytton	Geoscience Australia
Vice Chair/Secretary	Scott Lawson	Office of Water Science
Treasurer	Tim Evans	Geoscience Australia
Student Coordinator	Sharon Gray	Research School of Earth Sciences, ANU
Communications Champion	Stephen Hostetler	Hostetler Hydrogeology
Membership Champion	Laura Gow	Geoscience Australia
Events Coordinating Committee	Tim Evans	Geoscience Australia
	Chris Harris-Pascal	Geoscience Australia
	Peter Hyde	Murray-Darling Basin Authority

No update available this edition.

New South Wales

IAH NEW SOUTH WALES BRANCH

2017 Committee:

Chair	Katarina David	(UNSW)
Presentations Secretary and External Communications	Graham Hawkes	(AECOM)
Treasurer	Tingting Liu	(HydroSimulations)
Secretary	Sean Cassidy	(EMM)
Student and Young Professional Coordinator	Dr Anna Greve	(Glencore)
Meeting Facilitator	Pepijn van Ravensteyn	(WSP Parsons Brinkerhoff)
Internal Communications	Angus McFarlane	(AECOM)
Newsletter Champion	Cassie Turvey	(HydroSimulations)
NSW Sponsorship Champion	Jason Carr	(Arup)
Web Champion	Dr Doug Anderson	(Water Research Laboratory, UNSW)
International Sponsorship Champion	Dr Jay Punthakey	(Ecoseal)
University Liason	Dr Bill Milne-Home	(UTS)
Membership Champion	Ellen Kwantes	(WSP Parsons Brinkerhoff)
National President	Dr Lange Jorstad	(Geosyntec)
National Newsletter Champion	Dr Ben Rotter	(Mott MacDonald)
International Vice President - Australasia	Dr Wendy Timms	(UNSW)
Committee Support	Dr Mark Peterson	(ANSTO)

Local News

Our regular branch meetings continue to be held at the office of WSP Parsons Brinckerhoff (WSP) located in the Sydney CBD on the second Tuesday of each month. Thank you to WSP for supplying the convenient central venue, first class facilities, and food and drinks. IAH NSW branch provides events that span all stages of a career in hydrogeology. Our Student Night event provides a platform for students, and our Young Professional Award that recognises young professionals. For mid to late career hydrogeologists, a forum is provided for technical presentations. This year we also held a Women in Hydrogeology night, where a panel of esteemed female hydrogeologists shared their career stories and experiences.

NSW Sponsors

IAH NSW gratefully acknowledges the contributions of its 2016/17 sponsors. Details of sponsors can be found on the website at <http://www.iah.org.au/about/new-south-wales/nsw/-branch-sponsors>.

Our Gold Sponsors are AECOM, Earth Science Information Systems, Eco Logical Australia, EMM Consulting Pty Limited, Jacobs, NSW Environment Protection Authority, University of NSW Water Research Laboratory, Water NSW and WSP.

Our Silver Sponsors are C. M. Jewell & Associates, Ecoseal and HydroSimulations.

Recent Events

31st October 2017 – Climate Change and Australian Groundwater: Current State of Knowledge and Future Responses – Dr Glen Walker

This year's NCGRT Distinguished lecture was presented by Dr Glen Walker who spent over 30 years of his career undertaking groundwater and salinity research with CSIRO Adelaide, and now runs his own an independent consultancy, Grounded in Water. Glen is also a member of the Independent Scientific Expert Committee for Coal Seam Gas and Large Coal Mining Development. Glen's presentation focused on the need to better understand how water resources will be affected by changing climate across Australia, with an emphasis on key lessons learnt from the climate shift and Millennium Drought in WA. Australia has long experience with managing water resources in a variable climate, and, together with the Water Reform, means that Australia is well placed to meet the challenges to groundwater management. While the uncertainties associated with the predictions of global climate models can be large, there can be significant risks to groundwater users, groundwater-dependent ecosystems, coastal aquifers and baseflow, without adaptation to changing climate. These risks are higher for systems that are already stressed from consumptive use and management options are being 'hedged' while the timing and magnitude of climate shifts become clearer. This talk provided an overview of results from recent projects around Australia with learnings about recharge and discharge processes and associated management and recommendations made with respect to knowledge gaps and approaches to addressing climate change. For those who missed the presentation or would like to watch again the link to the lecture video can be found here: <https://www.iah.org.au/2017-iah-ncgrt-distinguished-lecture-video/>. An enthusiastic panel discussion was also held after the lecture focusing on NSW specific issues with panel members including Glen, Sue Hamilton and Mark Littleboy.



NSW panel discussion on the future of groundwater and climate change

Upcoming Events

13th February 2018 – Hydrogeology of Myanmar – Dr Len Drury

Our next meeting is scheduled for second Tuesday in February and will be presented by Dr Len Drury (Aqua Rock Konsultants) who will be speaking about his latest book on the hydrogeology of Myanmar, developed in conjunction with the Australian Water partnership and the Australian Department of Foreign affairs and Trade.

13th February 2018 – NSW Branch Annual General Meeting

The IAH NSW Annual General Meeting will be held before the February presentation to discuss general matters and elect the 2018 committee. All members are welcome to participate and be nominated for a position in the committee. Please arrive in time for the meeting start at 4:30pm.

Other News

IAH NSW is exceedingly grateful to WSP for their ongoing support of our monthly meetings. WSP generously provides the fantastic venue, delicious snacks and a large selection of beverages at their central CBD office, making the meetings a convenient and enjoyable experience for members to network and share their knowledge. At the October presentation, a plaque was presented in recognition of 10 years support from WSP.



Graham Hawkes presenting a plaque to Ray Hatley of behalf of WSP in recognition of 10 years of support to the IAH NSW branch.

IAH NSW on LinkedIn

IAH NSW has gained a presence on professional social media site, LinkedIn. The page provides events newsletters and advertisements for hydrogeology positions in the industry.

Northern Territory

IAH NORTHERN TERRITORY BRANCH

2018 Committee:

Chair	John Wischusen
Vice Chair	Tim Murphy
Treasurer	TBC
Secretary	Brayden Briggs
Public Officer	Steven Tickell

Recent Events

AGM

The NT branch AGM was held on 30 November 2017. We welcome the new committee to their appointments.

23 August 2017 - Darcy Lecture - The Critical Role of Trees in Critical Zone Science: An Exploration of Water Fluxes in the Earth's Permeable Skin, Dr Kamini Singha

NT Branch members joined Dr Singha for a post lecture dinner and organised a field trip to the Berry Springs area the following day.

26 October 2017 - NCGRT Lecture - Climate Change and Australian Groundwater: Current State of Knowledge and Future Responses - Dr Glenn Walker

The NCGRT / IAH Distinguished Lecture Series by Dr. Glen Walker

Other News

The IAH NT branch sponsor an award of \$500 to the top year 12 geography student in the NT. This year I will present the top year 12 geography student the \$500 award at a NT board of studies ceremony on the First of February at the Double tree Hilton hotel in Alice Springs.

Queensland

2017 Committee:

President	Lucy Reading (QUT)
Vice President	Paul Smith (Pacific Environment Ltd)
Treasurer	Zach Van Haaften (QUT)
Secretary	Thomas Neame (Eco Logical Australia)
Communications Manager	Jim Stanley (QUT)
Technical Consultant	Jim Undershultz (UQ)
North Qld Representative	Angela Bush (AGE Consultants)
Other Committee Member	Lindsay Furness (Freelance)
Other Committee Member	Freternity Rusinga (Aurecon)
Other Committee Member	Kelly Jane Wallis (WSP)

Local News

2017 saw the election of a new Qld Branch executive committee and a series of interesting presentations hosted at Queensland University of Technology (QUT), Brisbane where branch meetings were also held. A new IAH Qld Branch LinkedIn profile has been created to promote IAH events (<https://www.linkedin.com/company/iahqld>). IAH Qld Branch continues to promote the organisation to students and we hope to see more engagement in activities in 2018.

Qld Branch Sponsors

Pacific Environment
Limited



Recent Events

Wednesday 1st November

2017

IAH/NCGR

Distinguished Lecturer Series, QUT Gardens Point Campus.

Dr Glen Walker presented: “Climate Change and Australian Groundwater: Current State of Knowledge and Future Responses”.

The climate shift in south-western Western Australia and the Millennium Drought has highlighted the need to better understand how water resources will be affected by changing climate across Australia. Australia has long experience with managing water resources in a variable climate. This, together with the Water Reform has meant that Australia is well placed, compared to other countries, to meet the challenges to groundwater management. While the uncertainties associated with the predictions of global climate models can be large, there can be significant risks to groundwater users, groundwater-dependent ecosystems, coastal aquifers and baseflow, without adaptation to changing climate. These risks are higher for systems that are already stressed from consumptive use and management options are being ‘hedged’ while the timing and magnitude of climate shifts become clearer. This talk will provide an overview of the results from recent projects around Australia with learnings about recharge and discharge processes and associated management and recommendations

made with respect to knowledge gaps and approaches to addressing climate change.

Wednesday, 29th November

We finished the year with a **networking breakfast** in Brisbane city.

It was a **free event**, thanks to **sponsorship from WSP!**

Where: WSP, Level 3 Northbank Plaza, 69 Ann Street, Brisbane

South Australia

IAH SOUTH AUSTRALIA BRANCH

2017 Committee:

President	Steve Barnett
Vice President	Neil Power
Membership champion	Tavis Kleinig
Committee member	Russel Martin
Web master/mistress	Fiona Adamson
Modelling Forum	Juliet Wood

No news this edition.

Tasmania

No update available this edition.

Victoria

IAH VICTORIA BRANCH

IAH VICTORIAN BRANCH

2018 Committee:

Chair	Alan Wade	(Aquade)
Vice-Chair	Ben Hall	(Eartheon)
Secretary	Tara Smith	(Jacobs)
Treasurer	Anne Northway	EPA
Events Committee	Katy Kijek	(Senversa)
Communications Champion	Heath Pawley	(Golder Associates)
Membership Champion	Alexis Valenza	(Valenza Engineering)
General Committee	Matt Currell	RMIT
	Ben Petrides	Coffey
	Rikito Gresswell	GHD
	Ben Moore	CFA
	Chris Smitt	EHS
	Matthew Hudson	City West Water

Local News

Our regular branch meetings continue to be held alternatively at the Melbourne RMIT City Campus, Senversa , Golder, Aurecon and Jacobs Melbourne Branches. Thank you for supplying the convenient central venues and first class facilities.

Our last VIC Chapter IAH 2017 committee meeting was held on 28th November 2017, at Senversa. The first meeting of 2018 will be hold on the 22nd of February 2018 at Senversa.

Recent Events

17 October 2017 - Dr. Glen Walker, Dr. Rick Evans, Mr Chris McAuley – NCGRT/IAH Distinguished Lecture Series - Climate Change and Australian Groundwater: Current State of Knowledge and Future Responses

Dr Glen Walker

Glen Walker has conducted groundwater and salinity research for over 30 years with CSIRO in Adelaide. Specific research interests included recharge and discharge, vegetation and salinity, catchment modelling for salinity management, groundwater-

surface water interactions and climate impacts on groundwater. He also led the groundwater component of the Murray-Darling Basin Sustainable Yields project and is a recipient of WE Woods Award for National Excellence in Salinity Research. Since his retirement from CSIRO in 2014, Glen has been consulting with his company, Grounded in Water, and is a member of the Independent Scientific Expert Committee for Coal Seam Gas and Large Coal Mining Development.

Dr Richard Evans

Dr Richard Evans is Principal Hydrogeologist with Jacobs. Rick has 40 years experience in all aspects of hydrogeology, groundwater resource management and groundwater policy development. He has worked on numerous water resource projects throughout Australia and Asia. He undertook a major study for the World Bank on adaptation measures to counter the groundwater related impacts of climate change.

Mr Chris McAuley

Chris McAuley has over 25 years' experience in hydrogeology in government and the private sector. He is the immediate past president of Australian Chapter of the International Association of Hydrogeologists. Chris's key area of interest is the effective and sustainable management of groundwater resources.

The climate shift in south-western Western Australia and the Millennium Drought has highlighted the need to better understand how water resources will be affected by changing climate across Australia. Australia has long experience with managing water resources in a variable climate. This, together with the Water Reform has meant that Australia is well placed, compared to other countries, to meet the challenges to groundwater management. While the uncertainties associated with the predictions of global climate models can be large, there can be significant risks to groundwater users, groundwater-dependent ecosystems, coastal aquifers and baseflow, without adaptation to changing climate.

These risks are higher for systems that are already stressed from consumptive use and management options are being 'hedged' while the timing and magnitude of climate shifts become clearer. This talk will provide an overview of the results from recent projects around Australia with learnings about recharge and discharge processes and associated management and recommendations made with respect to knowledge gaps and approaches to addressing climate change.

A very interesting talk by Glen, followed by a Victorian viewpoint on the issue by Rick and Chris.

Recording of the talk is available on the IAH website ([here](#)).

1st November 2017 - IAH Site visit to the Werribee ASR Scheme.

City West Water is developing an Aquifer Storage and Recovery Scheme to store excess recycled water for non-potable supply in Melbourne's western growth area. Operational injection trials are underway to assess key risk factors such as clogging, water chemistry changes and recovery efficiency. IAH is coordinating a site visit to see the site and learn about the scheme and the injection trial.

Thanks again to all those who attended and expressed interest in the IAH Victoria field trip to the City West Water ASR Trial, special thanks to Matt Hudson for arranging the induction and presentation before the site walkover to communicate the most recent findings from the trial.

Depending on demand and availability a second field trip may be organised in the next few months as a follow-up, but also for those that couldn't make it along this time.

For those who were unable to attend, link from the presentation available [here](#).

5th December 2017 - Phil McCumber – Groundwater and surface water resource in ancient civilisations. Example of the Middle East. The roles of groundwater and landscape in the occupation of Arabia, against a backdrop of fluctuating climatic and eustatics changes

Dr Phil Macumber is a foundation member and past president of IAH Victorian Branch. He has worked since 1964 on the hydrogeology and geomorphology of northern Victoria, where he did his PhD. He is a graduate of Melbourne University with BSc majors in Geology and Advanced Geomorphology, and has a BA in Philosophy of Science and Middle Eastern Studies including Mediaeval Islamic Studies. He has worked in the Middle East since 1980, in Jordan, Oman and Qatar. Between 2009 and 2015, he worked with the Department of Archaeology of Copenhagen University on the roles of water and landscape in the occupation of Qatar, concentrating on the impacts of eustatic and climatic change over time.

The climate of Arabia is largely arid to hyper-arid, but in the southeast it is impacted by the Indian Ocean Monsoon. Apart from two major river system, the Tigris-Euphrates and the Jordan, there is little permanent surface water, with perennial flow largely restricted to baseflow streams within or emerging from mountain areas. However, in most cases potable water was dependent on groundwater and came from shallow hand-dug wells or the aflaj systems. Yet throughout the Quaternary, Arabia has been subject to cycles of climatic change which have seen monsoonal conditions spread westward across Arabia during interglacial periods of high sea levels, the last occurring in the early-mid Holocene. The filling of the Persian Gulf between 18-7000 yr BP, is often seen as the origins of the Mesopotamian (Gilgamesh) and Biblical (Noah) Flood Myths. The early-mid Holocene combination of higher sea levels (shallower water tables) and wetter conditions produced a Hydrological Optimum providing the best conditions in some area for 120,000 years, when similar condition last existed. Occupation occurred, then as now, when and wherever there is permanent fresh water, the one element essential for life. During the early-mid Holocene Neolithic archaeological sites occurred throughout what are now hyper-arid regions such as the A'Rub al Khali (Empty Quarter), southern Qatar, eastern Jordan and central-southern Oman. The retreat of the monsoon and the onset of aridity/hyper-aridity at ca 6000 BP saw the end of the Neolithic, and led to 2500 years of massive seawater intrusion into coastal aquifers, the combination forcing abandonment of many regions. Between ca 4000 to 1100 BP sea levels fell to those at present, the regression leading to the development of iconic Persian Gulf coastal sabkha. Despite severe climatic cycles, large permanent springs systems such as those along the Jordanian Rift Valley provided hydraulic buffering against aridity, producing long occupied sites such as Jericho. The Pella (Tabaqat Fahl) region in Jordan which has seen occupation for at least the last half million years, provides perhaps the longest recorded occupation, dating from Lower Palaeolithic times; it is an actual site befitting that described in James A. Michener's *The Source*. Pella also became the second city of

Christendom following the sacking of Jerusalem by the future Emperor Titus in A.D. 70. It is my view that the physical setting along the Rift Valley contributed significantly to the origins of the concept of Good and Evil in biblical literature, normally attributed to the Jewish exile in Babylon and exposure to Zoroastrianism.

Upcoming Event

6th February 2018 IAH - Natalie Akers, Dairy Farmer in Tallygaroopna; Karina Joy, Goulburn Murray Water; Damien Finlayson, AECOM - Groundwater Management in Northern Victoria

Natalie Akers

Natalie is a dairy farmer in Tallygaroopna. She has held roles as a Director on the Board at Murray Goulburn, CEO at Murray Dairy and as a Water Policy Advisor for the Victorian Farmers Federation. She is the current District Council Secretary of the United Dairy Farmers of Victoria.

Damien Finlayson

Damien has 30 years of experience in hydrogeology, fifteen of which has been based out of Tatura. Damien has acted as the AECOM Agreement representative under consecutive Engineering and Scientific Services consultant panels with GMW.

Karina Joy

Karina is a hydrogeologist who has worked with GMW since 2009, focussing on groundwater resource management and licensing. Prior to this she spent a few years working in consulting in QLD, gaining experience in mining, construction and urban development projects.

Abstract:

The Katunga Water Supply Protection Area (WSPA) is located in the floodplain in northern Victoria extending from Yarrawonga in the east to Barmah in the west. GMW recently coordinated the amendment of the Katunga WSPA Groundwater Management Plan. The plan was implemented in 2006 and was one of the first groundwater management plans developed in Victoria.

GMW engaged URS (now AECOM) to fill information gaps in the understanding of surface water and groundwater interactions along the Murray River as well as looking at possible impacts of increasing groundwater use above 70% of entitlement. The Minister for Water appointed a consultative committee to provide advice, chaired by Natalie Akers.

Natalie, Karina and Damien will provide an overview of the stakeholder aspects, technical issues and plan changes in the WSPA.

Western Australia

IAH WA BRANCH

2018 Committee:

Chairperson	Ian Brandes de Roos
Vice Chairperson	Mal McGivern
Secretary	Sarah Bourke
Treasurer	Sandie McHugh
Events team	Cassie Turvey Josephine Searle
Communications team	Rachel Hamilton Giovanni Firmani
ECHN	Margaret McCormack

Local News

WA Sponsors

IAH WA is proud to be supported by Tech-Source Solutions, Gold sponsors for the 2017 series of technical presentations.



TECH-SOURCE
SOLUTIONS PTY LTD

Connecting highly experienced technical service providers to natural resources & mining industry clients

13 October 2017, IAH WA social night

On Friday night 74 hydrogeologists embraced Perth's 'small bar' culture and crammed into the Cheeky Sparrow bar in the CBD. Thanks for making it a great night and for raising \$735 for WaterAid. The event and prizes were kindly sponsored by Acqua Drill Resources.



9 November 2017, Distinguished lecture (Glen Walker)

Glen Walker showed his adaptability when faced with a power blackout for the first 30 minutes of his talk. We used that time for catching up with our peers before the lights eventually returned. There were 55 attendees.



22 November 2017, Student night and AGM

Our last event for the year was the IAH WA and IAH Australia AGMs. We also had student presentations and awarded the Simon Neild cash prize to the best presentation on the night. It was a tough decision, they were all great talks, but we went with:

First prize, \$300	Olga Filitspova
Second prize, \$150	Caroline Mather
Third prize, \$75	David Schafer

Congratulations Olga, Caroline and David and thanks for showcasing your research.



National Centre for
Groundwater
Research and Training

For upcoming courses, see <http://www.groundwater.com.au/events/training>

IAH Publications

Discounted IAH publications in the 'International Contributions to Hydrogeology' and the 'Selected Papers' series can be ordered by Australian IAH members directly from Macmillan Publishers Australia in Victoria.

customer.service@macmillan.com.au or orders@macmillan.com.au

Remember to quote your IAH Membership Number, which entitles you to a substantial discount. If you don't know your IAH membership number contact the Secretariat at: secretariat@iah.org.au