



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

**January to March 2017  
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# 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 20<sup>th</sup> 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](http://www.iah.org.au)) are:

▪ Member	\$140
▪ Online member	\$120
▪ Student	\$55 (full time students)
▪ Online Student Member	\$35
▪ Corporate member	\$790
▪ Partial sponsor	\$155
▪ Full sponsor	\$190
▪ Retired	\$75

We are pleased to announce that the student membership fees have been reduced by \$20 in 2015 as an added incentive for full-time students to become IAH members. In addition, we have maintained the Member and Online Member fees at their current

level, despite a rise in the IAH International fees for these membership categories for 2015.

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

Welcome to the second IAH Newsletter of 2017.

As I was considering various topics to address in this edition of the newsletter, I came across a headline in the news that hit me like a cold winter breeze: “Irreversible consequences’: Adani coalmine granted unlimited water access for 60 years”.

Unlimited water access for 60 years.

This is the latest, and highest profile, case study in the enduring debate of the roles of science vs governance in decisions affecting our groundwater resources. It is hard to imagine the justification for the granting of an unlimited water access licence for 60 years, to a mine with a peak annual extraction rate of 4.5 billion litres per year, located in close hydrological proximity to sensitive groundwater-dependent ecosystems. In the previous newsletter, Prof. Adrian Werner of Flinders University reflected on the failure of a Queensland Land Court judge to appreciate fundamental concepts of hydrogeology regarding the potential for mine dewatering to affect the groundwater-fed Doongmabulla Springs and the environmental values they support. The result was a decision that appeared to ignore science-based policy, that was not in keeping with the normal conventions of groundwater stewardship afforded other extractive projects. Case in point, the recommendation by the same Queensland Land Court in May to reject an expansion of another extractive project due to the risks to groundwater resources.

Most Australians are prepared to accept a reasonable compromise between economic, social and environmental objectives to realise the value of a major project. This is reflected in the regulators’ approval role and the industry’s commitment to adhere to strict regulatory requirements regarding maintenance of water resources and their environmental values. The Carmichael Mine is an anomalous case. This ambitious project with such an expansive footprint has been given a soft pass on groundwater stewardship.

The science vs governance debate in water resources is broader than extractive industry approvals. Decision makers for a certain water supply scheme proposal recently indicated a preference for investment in additional surface water infrastructure in an arid environment, in an area where detailed studies indicated the viability of a managed aquifer recharge scheme, at lower cost, to achieve the same water supply objectives.

As a learned society for the advancement of groundwater science in education, technical practice, policy and resource stewardship, it is incumbent on us all to advocate for sound, science-based decisions regarding our valuable groundwater resources. Let us consider what we can do collectively to elevate groundwater stewardship and responsible resource development as a national priority.

Lange Jorstad

President - Australian Chapter, IAH

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# Membership

Check your state chapter events page on the IAH Australia website ([www.iah.org.au](http://www.iah.org.au)) to keep up to date with events and meetings. Don't forget if you are an IAH member you will receive a significant discount off the 2017 Australasian Groundwater Conference in Sydney (in fact, enough to offset the cost of membership this year!). Early bird registrations for AGC2017 are now open, so now is the perfect time to renew your IAH membership to access the registration discount.

IAH membership spans a calendar year. The call for membership renewals for 2017 is now open; 2016 members should have received a renewal message by email. If you didn't receive a renewal email, the steps to renew your membership are outlined on the following page. If you know anyone who might be interested in signing up as a new member, you can refer them to the following link: <https://www.iah.org.au/membership/online-sign-up/>.

Any inquiries regarding the memberships can be emailed to the IAH membership team [membership@iah.org.au](mailto:membership@iah.org.au).

## Current/Lapsed Membership Renewal Process

As a repeat from a previous issue of the newsletter, here's how an inactive member can become active again.


Note that if you were a member in 2016, and **did not receive** a membership renewal email in January 2017, some common issues are listed below:

- The email was intercepted by your **spam filter**. Check your spam folder or quarantine archive for IAH emails, and consider adding the IAH sender details to your safe list.
- Your **email details changed** in the past year (for example, change of employment) and you have not yet updated your email address with IAH. You can update your details at any time through the [iah.org.au](http://iah.org.au) website, by selecting "My Account" under "Membership", and editing account details.
- **Corporate "firewalls"** at some companies block all suspected incoming spam emails (IAH emails may be classified as "marketing" emails by some systems). Speak with your IT administrator about adding IAH to your corporate safe list, or switch to a personal email account.
- Your membership has **lapsed for more than a year** without renewal, and your details have been removed from our database. You can still use the new membership system to renew your lapsed membership.

Contact [membership@iah.org.au](mailto:membership@iah.org.au) with any questions.

Log into [your account page](https://www.iah.org.au/membership/my-account/) on the IAH website (<https://www.iah.org.au/membership/my-account/>).

**Your username is the email address the email was sent to (which should be the email address you have registered with IAH).** If you have forgotten your password, you can reset it using the "**Lost Your Password**" link at the bottom of the page **using the email address the email was sent to.**



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Once logged in, you will see your account Dashboard.

Under the **My Memberships** section, click on the link to sign up for a new subscription. This will direct you to a new page where you can select your desired membership category from the options. Details of each membership type can be found at the bottom of the registration page. Once you have chosen your desired category, follow the prompts to finish your membership renewal.



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## My Account

Hello Kyle Horner. Not Kyle Homer? Please [logout](#).

### My Subscriptions

You do not have an active subscription at the moment. You can signup for a subscription here [signup for a subscription here](#).

### Billing Address

You have not set up this type of address yet.

If you have any questions, please do not hesitate to contact the membership team at [membership@iah.org.au](mailto:membership@iah.org.au).

# IAH National Committee

<b>President</b>	Dr Lange Jorstad	<a href="mailto:ljorstad@geosyntec.com">ljorstad@geosyntec.com</a>
<b>Vice-President</b>	Position vacant	
<b>Treasurer</b>	Ron Colman	<a href="mailto:Ron.Colman@royhill.com.au">Ron.Colman@royhill.com.au</a>
<b>Secretary</b>	Position vacant	
<b>Membership Secretary and Website</b>	Fiona Adamson	<a href="mailto:secretariat@iah.org.au">secretariat@iah.org.au</a>
<b>Newsletter Champion</b>	Dr Ben Rotter	<a href="mailto:Ben.Rotter@mottmac.com">Ben.Rotter@mottmac.com</a>

# Finance Update

Term Deposits as of 31/03/17	\$99,768.61
Cash Account as of 31/03/17	\$94,858.61
Total Cash Balance as of 31/03/17	<b>\$194,627.22</b>

**Outgoings** during the quarter included:

- Australia Post Mailbox \$296.00
- AGC Conference funding \$1,791.40

Signature:



*Ron Colman, IAH National Treasurer*

Date: 19/04/17

# National Conferences and Events



Join us for the 2017 biennial Australasian Groundwater Conference.

The theme for the conference program will be **Groundwater Futures: Science to Practice**.

An exciting three-day event has been planned that will enable delegates to examine the multi-dimensional challenges affecting the sustainable development of the regions groundwater resources.

Engaging panels, informative presentations, exhibitions and networking opportunities will engage the over 300 delegates from Australasia's groundwater research, industry, and management and policy organisations.

## **2017 AGC Abstract themes:**

- Emerging Groundwater Initiatives
- Groundwater Science and Future Innovations
- Interdisciplinary Groundwater Problems
- Groundwater Resources and Climate Change
- Energy and Groundwater
- Groundwater Quality and Human Health

Keynote, plenary presentations and panel sessions will include climate change and groundwater resource challenges, energy futures, social license to operate and future directions and innovation in groundwater.

For more information, visit <http://www.groundwater.com.au/australasian-groundwater-conference-2017>

# **Australian Geoscience Council Convention 2018**

## ***The development of big issues and ideas for AGCC 2018***

An outline of the technical program for our inaugural Australian Geoscience Council Convention (AGCC 2018) was provided in the last issue of *TAG* (March 2017), when geoscientists were invited to engage directly with planning the program. The technical program will provide the opportunity for all geoscientists to communicate their work to a wide audience, and to hear about relevant developments presented by other geoscientists in multiple fields. Essentially, this broad program will provide the 'bedrock' of AGCC 2018 in a format familiar to regular attendees of the AESC, IGC and other large events. As is always the case, these sessions will be predominantly self-organising mini-symposia, strongly influenced by the actual papers that you submit as speakers, with guidance from our member organisations (eg, the International Association of Hydrogeologists) and overall direction by the Scientific and Technical Committee.

## **A proposed new approach**

AGCC 2018 will provide opportunities to examine and consider some of the emerging issues that affect us all in geoscience. We anticipate these will be topics that attract attention from industry, government and academia, while also creating opportunities for non-geoscientists to engage and participate in our deliberations in Adelaide. This interaction will be a significant differentiator of this convention and will help us achieve our vision to 'raise the profile of geoscience to be pre-eminent in Australia'. We also hope to expose delegates to ideas they would not normally engage with in routine technical talks, and to attract those people who don't normally attend our various member organisation conferences. To do this, we plan to have several focused discussions that raise the Big Issues, explore the Big Ideas (hopefully some including new approaches and directions for some of the Big Issues!) and reach consensus about providing commitment and support for ways to take geoscience forward. We are aware of the value of strategic planning and believe that exciting times are ahead for geoscience. Some of these have become apparent to many of us during the current formulation of a new Decadal Plan for Earth Science, sponsored by the Australian Academy of Science.

An example of one topic we favour will be built around the early commitment to attend by Iain Stewart, Director of the Sustainable Earth Institute in Plymouth, UK. Iain is a riveting speaker who is passionate about geoscience communication and education. We will hold a plenary session on this topic with additional key thinkers, an interactive question and answer session, the opportunity during the day to formulate an agreed convention position and a summing up statement (press release) that will be issued. We look forward to your thoughts on the merits of this approach and your likely level of commitment and engagement.

## **What are the big issues and ideas in geoscience?**

We are seeking ideas about the Big Issues (and Big Ideas) that you want to explore, and about possible champions of these that will attract widespread community interest, support from major sponsors and the attention of policy makers.

At this stage, we have a think-tank subcommittee that has formulated the following possible topics from a much larger field of possible candidates:

1. The future of the nuclear cycle in Australia
2. Unconventional gas and energy security
3. Resource-driven development of regional and northern Australia
4. Reducing the impact of the boom-and-bust commodity cycle on Australian geoscience
5. Geoscience education and communication.

Other possibilities could be the ever-increasing role of automation (robotics), improved drilling technologies, innovative geological models and the search for novel or unusual commodities, although these might be addressed comprehensively in the broad technical program. We are seeking your input on:

- possible world-class thinkers to help us develop these or other topics
- your own possible contributions eg, five-minute spoken position statements framing the issues and ideas
- your interest in participation
- your thoughts on our proposed approach (eg, whether these should be spread across the four days of the convention or all addressed on a single day)
- whether these are the topics most important to you as geoscientists.

## **In conclusion**

To reiterate, the broad technical basis of AGCC 2018 will allow us all to present papers on our specific technical interests (subject to acceptance by the Scientific and Technical Committee), which are of course very wide ranging and inclusive. There will no doubt also be embedded mini-symposia sessions covering the collective interests of many diverse groups and of our member organisations (eg, UNCOVER, JORC, Valmin).

We are now seeking your thoughts on the BIG ISSUES and BIG IDEAS component of AGCC 2018. To let us know your views, 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 AGCC 2018 Organising Committee

# Feature News

## ***International Chapter Updates***

There are around 40 active chapters spread across the continents and six active commissions. IAH members are constantly travelling for work and sharing ideas and broad knowledge with other specialists.

We encourage Australian members to liaise with other chapters and explore their approaches to challenges experienced in Australia.

Visit the following links:

### **Vienna, Austria - Groundwater resources in a changing environment**

<https://iah.org/events/egu-2017>

### **The Hague, The Netherlands - International Conference on Land Use and Water Quality**

<http://www.luwig2017.nl/>

### **Chaves, Portugal - International Conference on Groundwater in Fractured Rocks**

<https://portugal.iah.org/gwfr2017>

### **Cieszyn, Poland - VIII International Field Workshop for Young Hydrogeologists**

<http://www.hydroworkshop.us.edu.pl/>

University of Cagliari, Italy - Flowpath 2017

<http://convegni.unica.it/flowpath2017/>

Calgary, Alberta, Canada - Characterizing regional groundwater flow systems: Insight from practical applications and theoretical development

<https://regionalgwflow.iah.org/activities/calgary-symposium-2017>

# From the Branches

## Australian Capital Territory

### IAH ACT BRANCH

#### 2017 Committee:

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

### *Local News*

#### **Vale D.C. “Bear” McPhail**

D. C. Bear McPhail, long-time member of IAHA,CT, passed away suddenly in Canada while on holiday with his beloved wife Maria in March 2017.

Bear graduated with a BSc from the University of British Columbia (UBC) in 1980, MSc from UBC in 1985 and PhD from Princeton in 1991 before moving to Melbourne to take up a position at Monash University.

Bear was an excellent teacher and strong supporter of groundwater and regolith geoscience specialising in hydrogeochemistry. His great expertise in the field saw he and his students defining new mineral stability fields, studying gold-fixing bacteria for biogeochemical applications to the minerals industry, defining low temperature mineralisation pathways in gold mineral systems, define mineralisation pathways in inland acid sulfate soil systems, and using hydrogeochemistry in the search for new mineral deposits, to name a few.

Bear was a great mentor and friend to many students and staff at the ANU, and before that Monash University. He had an unshakably sunny disposition and could always be relied on to see, and say, the good in anyone.

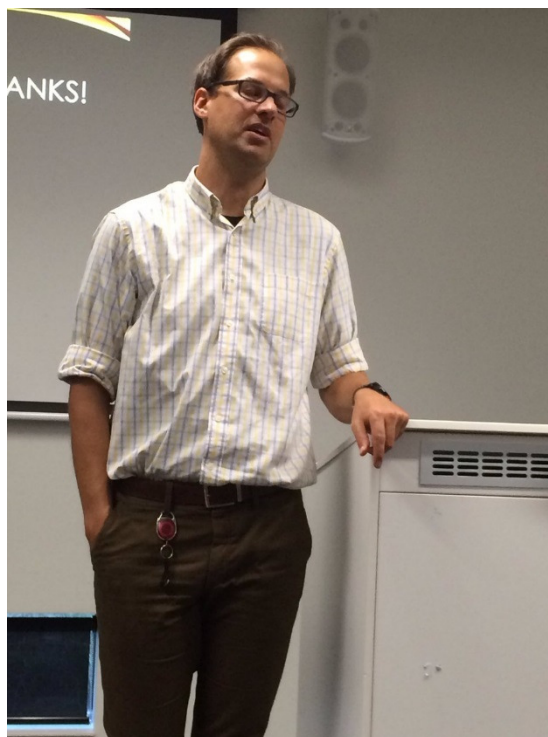
Our heartfelt condolences go to Bear's family.

## ***Recent Events***

### **22 March 2017 – World Water Day Event– PFAS, POPs, and Precursors in water and wastewater: Dr Kyle Horner**

Former IAHACTION member, Dr Kyle Horner returned home to deliver the World Water Day event hosted by IAHACTION and the Canberra Hydrological Society (CHS). As a former student, before the talk Kyle gave a heartfelt encomium of Bear McPhail, praising him as a teacher, mentor and friend.

PFAS (also known as PFCs) are a family of synthetic organic chemicals classified as persistent organic pollutants. The traits that make PFAS well-suited for a range of industrial applications also present challenges at contaminated sites and in the water treatment process. In this presentation,



Kyle gave a general introduction to PFAS (including PFOS and PFOA), from their properties to their current and historical uses in Australia. He discussed the state of the art around degradation and removal of PFAS in water, sludge, and sediments, and the difficulties in managing PFAS contamination. He also outlined how water treatment plants can increase constituent PFAS concentrations as a result of biodegradation of precursors during the activated sludge process.

There were 30 attendees from both CHS and IAHACTION and the talk generated a lot of questions.

# New South Wales

## IAH NEW SOUTH WALES BRANCH

### 2017 Committee:

<b>Chair</b>	Katarina David	(UNSW)
<b>Presentations Secretary and External Communications</b>	Graham Hawkes	(AECOM)
<b>Treasurer</b>	Tingting Liu	(HydroSimulations)
<b>Secretary</b>	Sean Cassidy	(EMM)
<b>Student and Young Professional Coordinator</b>	Dr Anna Greve	(Glencore)
<b>Meeting Facilitator</b>	Pepijn van Ravensteyn	(WSP Parsons Brinkerhoff)
<b>Internal Communications</b>	Angus McFarlane	(WSP Parsons Brinkerhoff)
<b>Newsletter Champion</b>	Cassie Turvey	(HydroSimulations)
<b>NSW Sponsorship Champion</b>	Jason Carr	(Arup)
<b>Web Champion</b>	Dr Doug Anderson	(Water Research Laboratory, UNSW)
<b>International Sponsorship Champion</b>	Dr Jay Punthakey	(Ecoseal)
<b>University Liason</b>	Dr Bill Milne-Home	(UTS)
<b>Membership Champion</b>	Ellen Kwantes	(WSP Parsons Brinkerhoff)
<b>National President</b>	Dr Lange Jorstad	(Geosyntec)
<b>National Newsletter Champion</b>	Dr Ben Rotter	(Mott MacDonald)
<b>International Vice President - Australasia</b>	Dr Wendy Timms	(UNSW)
<b>Committee Support</b>	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 are also holding a Women in Hydrogeology night, where a panel of esteemed female hydrogeologists will share 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, Coffey, Earth Science Information Systems, Eco Logical Australia, EMM Consulting Pty Limited, Geosyntec, Jacobs, NSW Department of

Primary Industries Water, NSW Environment Protection Authority, University of NSW Water Research Laboratory and WSP Parsons Brinckerhoff.

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

## ***Recent Events***

### **14 February 2017 - New Products and Data from the Geological Survey of NSW – Dr. Chris Yeats**

Dr Chris Yeats is the Executive Director of The Geological Survey of NSW (GSNSW). The Survey has over 100 staff and is the State's oldest continuously operating government agency, with a history dating back to 1875.

GSNSW collects, manages and delivers geological, geophysical, geochemical and geospatial data to inform the government, resource industry and the community about the state's geology and mineral, coal, petroleum and renewable energy resources. The Survey collaborates with other national and international government and scientific bodies to share skills and data, promote coherent information exchange and facilitate the safe and sustainable development of NSW mineral and energy resources for the benefit of all NSW citizens.

This presentation provided a snapshot of a selection of GSNSW's key projects, latest products and datasets, including new online delivery platforms, 3D basinal models and the recently released Quaternary Coastal Geology of NSW. A copy of the presentation is available at <https://www.iah.org.au/events/nsw/>.

### **14 March 2017 - Water, sanitation and hygiene - support for Syrian refugees – Dr. Paul Byleveld**

Dr Paul Byleveld is the Manager of the Water Unit at NSW Health, and recently spent six months in Lebanon's Bekaa Valley as part of the Australian Government response to the Syrian refugee crisis. Paul was engaged by the Department of Foreign Affairs and Trade through the Australian Civilian Corps, and assigned to work with the United Nations High Commissioner for Refugees (UNHCR) as a water sanitation and hygiene (WASH) officer. The Bekaa Valley borders Syria and had about 365,000 refugees. Very few were in organised refugee camps but many informal, tented settlements. Many of these settlements had access to boreholes, but in some places the quality was poor and affected by elevated nitrate, sewage contamination from latrines and/or from farmland pollution. The UN and other organisations worked with refugee communities to provide safer water supplies and improve the latrines, build septic tanks and pump out sewage. The nature of the karst geology and the soil meant that the groundwater could easily be contaminated. Paul supported the programs providing safe water and improved sanitation. Paul's presentation provided a humbling and heartfelt account of the difficult and dangerous

work that is undertaken by foreign aid workers to provide the basics of life to those in crises. Sarah Bish was also involved in the aid program working in Lebanon and provided valuable technical input on the night.

## **11 April 2017 - Application of environmental isotopes to understand the groundwater cycle – Dr Karina Meredith**

Karina's presentation was very well attended and discussed the use of environmental isotopes to provide a convenient means of tracing water flow through the hydrological cycle on timescales from recent to millennial. Their concentrations and distribution can also provide insight to processes acting at a wide range of spatial scales - from tracing monsoonal-rainfall recharge events, to understanding hydrochemical interactions and mechanisms at the atomic level. As such, naturally occurring stable, cosmogenic and radiogenic isotopes are proving to be valuable tools in many water resource investigations. The presentation outlined applications of isotopic tracers for investigations of the water-air-plant-soil continuum at a variety of sites across Australia and showcase the platform facilities that are unique to ANSTO and the Australian science community.

Karina is a senior research scientist within the Environmental research theme, Australian Nuclear Science and Technology Organisation, where she adopts a multidisciplinary approach to provide scientifically validated answers to some of our nation's most pressing water resource questions. Specifically, Karina's research interests lie in the application of various stable, radiogenic and cosmogenic isotopic tracing techniques to investigate the sustainability, quality and hydrochemical evolution of groundwater resources. You can see more information about Karina and her work here: <http://www.ansto.gov.au/ResearchHub/StaffProfiles/MEREDITH-KARINA>

## ***Upcoming Events***

### **9 May 2017 - Women in Hydrogeology**

For this year we will replace our Elders night with a Women in Hydrogeology evening. The objective is to celebrate the achievements and advancements women have made in NSW hydrogeology over the years. The format will be similar to the previous Elders Night meetings where we will have a panel of three successful and respected hydrogeologists who will answer questions posed by two moderators about their careers, experiences and hurdles overcome. Our panel members will be Dr. Wendy Timms (UNSW), Sue Hamilton (NSW Department of Primary Industry – Water) and Sarah Bish (formerly DPI – Water and international aid agencies).

## ***Other News***

### **Student Sponsorship Update**

IAH NSW is sponsoring two students that are studying for their MSc in Hydrogeology at Tribhuvan University in Kathmandu, Nepal. Rasila Koirala and Jinita Shakya are both in their final year and are currently working on their thesis projects.

Jinita's thesis project focusses on creating a hydrogeological map of a small part of the Kathmandu Valley, where no hydrogeological mapping has taken place to date as no data is available.

Rasila's thesis project is an assessment of rain water recharge potential in the northern part of the Kathmandu Valley. She hopes her research will help solve the problem of

water scarcity in Kathmandu. She also hopes her research will inspire the locals. The goal of the research work is to reduce the problem of water scarcity in the northern part of the Kathmandu Valley with the objective to identify potential avenues for recharging with rain water as water supply needs increase. Rainwater collected from rooftops can be stored in tanks and used directly for domestic purposes or to recharge groundwater. Rooftop water harvesting is widely recognized as an acceptable method of collecting water for use during dry periods. However, augmenting groundwater with rooftop water must be done with care because if the water collected is contaminated it could deteriorate the quality of the groundwater. Rasila is pictured below undertaking field investigations for her study.



In 2016, the IAH NSW Chapter undertook an initiative to provide funds for a refugee to study Hydrogeology at the University of Parma. The project was conceived with the desire to provide hope and opportunity to a refugee by providing them with an education in Hydrogeology at the University of Parma. The process involved the Alumni & Friends Association (University of Parma) as Lead Partner, in a wider Partnership involving, the International Association of Hydrogeologists (IAH NSW, Australia and IAH Italy) Chapters, Ecosel Developments Pty Ltd (Australia) and the Hydrogeocentre of the University of Parma (Italy). The CIAC Onlus (Parma), the Italian Ministry of Interior, as well as some Italian families living in Parma will also be involved in the project.

So why educate a refugee? Our collective vision was to:

- Help to improve the lives of two young people affected by conflict or other adverse circumstances which caused them to flee their country of origin
- Help them get a good education from the University in Parma's Interdisciplinary Centre for Studies on Water Resources, Department of Physics and Earth Sciences
- Contribute to their self-reliance by providing them with a professional qualification for future employment
- After their education they can make a useful contribution to the community and country in which they choose to stay

In order to be eligible, the candidates must select a course in Earth Sciences at the University of Parma, with a focus on Hydrogeology.

The selection process started through a national call. The winner was a young refugee from Pakistan, Mr Arif Khan. It took some time to organise the transfer of the student from Trieste to Parma. Mr Arif Khan started his first semester in Earth Sciences at the

University of Parma, under the tutorship of prof. Fulvio Celico. However, due to the problems mentioned above, the Student started his studies one month after the beginning of the first semester.

Taking into account his problems in fully understanding Italian language, the tutor organised a dedicated course of Italian, thanks to the work of a volunteer professional teacher. Therefore, from January 2017, the Refugee is also studying Italian language from 3 to 4 times a week.

The second semester began in March 2017, characterised by the following courses: (i) Introduction to Earth Sciences (annual course), (ii) Cartography and GIS, (iii) Mineralogy, (iv) Paleontology.

In a wider perspective, it is important to underline that the integration of the student is rapidly in progress and he is happy to live and study in Parma. He is also studying deeply and improving thanks to the help of some Italian students at University of Parma.

### **Australasian Groundwater Conference 2017 to be held in Sydney**

The NSW Branch is excited to welcome our national members to the Australasian Groundwater Conference in Sydney from July 11<sup>th</sup> to 13<sup>th</sup>. Our committee members are actively planning a conference field trip to the Blue Mountains to share some of our local hydrogeological wonders. Another field trip will also be available to visit the Orica Groundwater Remediation project at Botany, the largest of its type in Australia– stay tuned for more details!

### ***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

### 2017 Committee:

<b>Chair</b>	Peter Jolly	Jolly Consulting
<b>Treasurer</b>	Quinton Bruwer	DENR
<b>Secretary</b>	Steven Tickell	DENR
<b>Vice Chair</b>	Jo Ellis	Power and Water Corp

***No update available in this edition.***

# Queensland

## IAH QUEENSLAND BRANCH

### 2017 Committee:

President	Lucy Reading	(Queensland University of Technology (QUT))
Vice President	Paul Smith	(Pacific Environment)
Treasurer	Dawit Berhane	(Department of Science, Information Technology and Innovation (DSITI))
Technical Representative	Jim Underschultz	(University of Queensland, Centre for Coal Seam Gas)
Director of Communications	Adam King	(Pacific Environment)
Committee Member	Shaun Davidge	(BHP Billiton)
Committee Member	Lindsay Furness	(Freelance consulting)

***No update available in this edition.***

# South Australia

## IAH SOUTH AUSTRALIA BRANCH

### 2017 Committee:

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

***No update available in this edition.***

## Tasmania

***No update available in this edition.***

# Victoria

## IAH VICTORIA BRANCH

### 2017 Committee:

<b>Chair</b>	Alan Wade	(Aquade)
<b>Vice-Chair</b>	Ben Hall	(Eartheon)
<b>Secretary</b>	Tara Smith	(Jacobs)
<b>Treasurer</b>	Anne Northway	(EPA)
<b>Events Committee</b>	Katy Kijek	(Senversa)
<b>Communications Champion</b>	Heath Pawley	(Golder Associates)
<b>Membership Champion</b>	Alexis Valenza	(Valenza Engineering)
	Matt Currell	(RMIT)
	Ben Petrides	(Coffey)
	Rikito Gresswell	(GHD)
<b>General Committee</b>	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 and at Jacobs Melbourne Branch. Thank you to RMIT and Jacobs for supplying the convenient central venues and first class facilities.

Our last VIC Chapter IAH 2016 committee meeting was held on 30<sup>th</sup> March 2017 at the Melbourne RMIT City Campus. Our next committee meeting will be held on 25<sup>th</sup> May 2017 at RMIT.

### ***New committee members***

The Victorian IAH Branch Annual General Meeting took place at RMIT on the 7<sup>th</sup> March 2017. A number of committee positions were voted, including the Chair and Vice-Chairperson, Secretary, Treasurer and General Committee Member.

We welcome the new starters Chris Smitt, from EHS; Ben Petrides, from Coffey and Matt Hudson, from City West water. We thank the outgoing members Anthony Brinkley, (treasurer for 11 years), Lynton Bourne and Mike Hoban for their fantastic support.

### ***Certification***

The Victorian Certification Sub-Committee is looking into certification processes around the world. The Sub-Committee has made contact with the NGWA to get some understanding of the Certified Ground Water Professional (CGWP) scheme in place in the USA.

## ***Recent Events***

### **Tuesday 7th February – "What can the Bureau offer you?" Useful climate and water products for groundwater specialists – Dr Paul Feikema, Eloise Nation**



Dr Paul Feikema, Manager Seasonal Streamflow Forecasting in the Extended Hydrologic Prediction section, manages the seasonal streamflow forecasting service at the Bureau of Meteorology in Melbourne. He and his team are responsible for delivery and communication of the forecasts each month, and also work to further develop the service. Prior to joining the Bureau in 2013, Paul was a senior research fellow at The University of Melbourne. There he undertook research and lectured on topics of catchment and forest hydrology, including the effects of climate change and wildfire on the hydrology of forested catchments.

Eloise Nation is a Senior hydrogeologist and project lead on Groundwater Explorer, National Groundwater Information System and GDE Atlas.

Dr Paul Feikema will present an overview of recent conditions, the climate and water outlook for the season ahead, and the Bureau's Australian Water Resources Assessment (AWRA) Model.

Eloise Nation, Senior Hydrogeologist at the Groundwater Unit, will showcase the Bureau's suite of national groundwater products including the National Groundwater Information System, the Australian Groundwater Explorer and the Australian Groundwater Insight. These products are freely available from the Bureau website. Eloise will demonstrate how these products support a range of use cases, such as environmental impact assessments, water planning and management and research. Eloise will also present upcoming groundwater work at the Bureau, including an update to the GDE Atlas.

Presentations are available [here](#).

## **Tuesday 7th March – IAH Annual General Meeting including committee appointments followed by “Expert Witness Panel Discussion” – Presented by Louise Hicks, Dr John Webb & David Ife**

Our work as hydrogeologists is being contested more and more in various forums in Australia such as Victorian Civil and Administrative Tribunal, Land and Environment Court (NSW) or the Land Court (Queensland). And unlike the peer review process with which many of are more familiar, this process can be far more confrontational and not necessarily just about the scientific rigour of the argument -this can make it a daunting prospect. So join with us as we hear from three highly experienced practitioners in the field; Dr John Webb (La Trobe University), David Ife (Aecom) and Louise Hicks (Barrister, Owen Dixon Chambers West). Each presenter provided some of their experience acting on behalf of proponents or plaintiffs or actually running cases (10 minutes each). The presentation was followed by an open discussion with the audience.

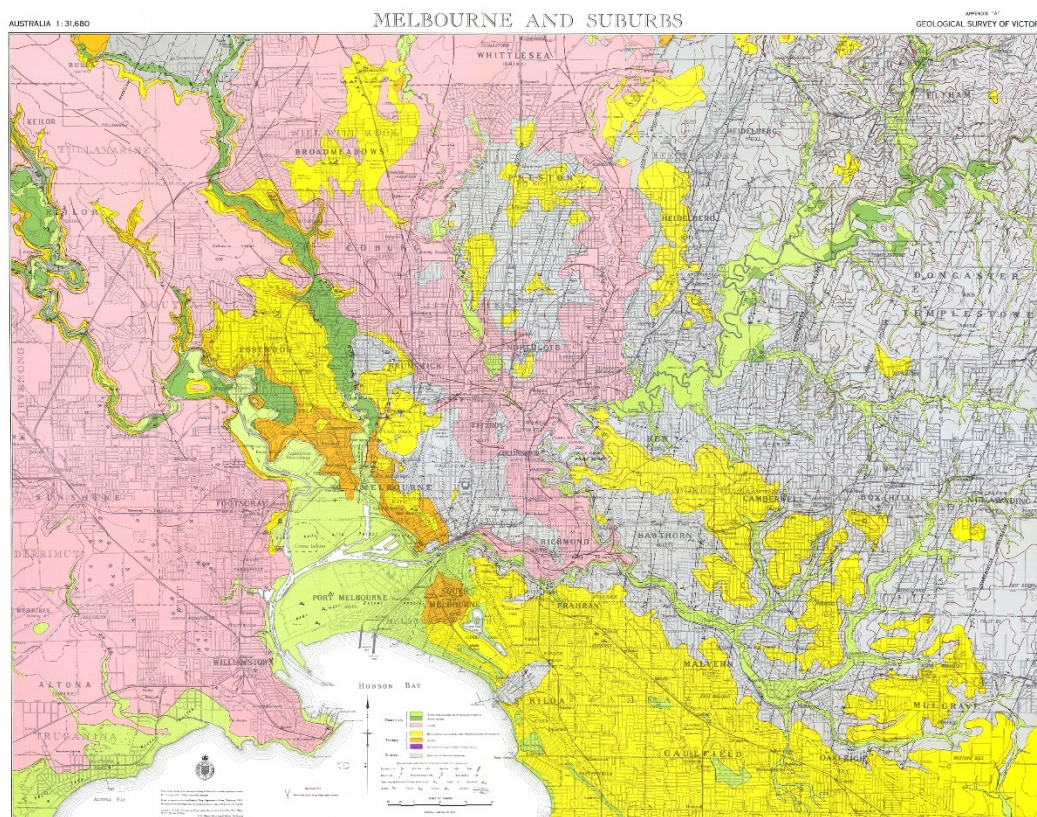
**Louise Hicks** has over twenty five years' experience in the law, including six as a partner at DLA Piper. For the past fifteen years she has been a solicitor advocate appearing at VCAT and before Ministerial Panels and Advisory Committees in planning and environment matters. Louise is experienced in preparing for and presenting merits review and enforcement cases for local government, developers and statutory authorities at VCAT. She has advised on and drawn papers for Supreme Court appeals from VCAT. She also has worked extensively with statutory authorities on major infrastructure projects and has experience in appeals relating to planning for major hazard facilities.

**Dr John Webb** is Associate Professor of Environmental Geoscience at La Trobe University. The bulk of his research and teaching is on groundwater, both in terms of resources and chemistry, with current research projects on the influence of climate and land-use change on groundwater funded through the Victorian Department of Primary Industries and the National Centre for Groundwater Research and Training. Other research projects focus on improving treatment procedures for acid mine drainage and understanding the formation of acid sulphate soils.

**David Ife** is a Technical Director at AECOM. He is a hydrogeologist who has been working as a groundwater professional for 43 years. He has worked in a range of areas including groundwater resource management, managed aquifer recharge, solid waste management, contaminant hydrogeology and mining resource development. His work experience includes 15 years with the Rural Water Corporation, 3 years in the Middle East and 25 years with the consulting industry (URS and AECOM). He has presented at VCAT, NSW Commission of Enquiry and the Supreme Court providing hydrogeological advice in relation to a number of groundwater and landfill issues.

As the panel discussion did not involve many visual aids, our communication champion Heath was able to record the audio (in slightly low quality) from the discussion. You can access the audio file [here](#). Thanks Heath!

## **Tuesday 4th April – "An Introduction to the Geology of Melbourne" – Presented by Michael Webster, from Golder Associates**



With several large-scale infrastructure projects underway across Melbourne, there is a great opportunity to improve on the current understanding of the geological evolution of our city. Michael did provide an overview into the various geological units that are found in an around Melbourne, highlighting their different geological histories and properties. He touched upon some of the geological considerations which may better inform hydrogeological interpretations within the Melbourne region, emphasising the profound effect geological history has on the region as we find it today.

Michael has been an engineering geologist with Golder Associates for five years. He has undergraduate degrees from Monash University in engineering and science, majoring in geotechnics and geology respectively. He also holds a masters degree from Imperial College London in engineering geology. Outside of work he enjoys reading, gardening and cooking.

### ***Upcoming Event***

## **Tuesday 9<sup>th</sup> May – " Planning for Mine Closure" – Presented by Geoff Byrne, Principal Consultant Niboi Consulting**

Geoff Byrne is the Principal Consultant at Niboi Consulting. Geoff has over 40 years' professional experience. He works in the fields of mine closure planning, risk assessment, environmental management, corporate reporting, and strategic advice.

# Western Australia

## IAH WA BRANCH

### 2017 Committee:

Chairperson	Ian Brandes de Roos
Vice Chairperson	Mal McGivern
Secretary	Sarah Bourke
Treasurer	Sandie McHugh
Events team	Rachel Hamilton Adriaan Haasbroek
Communications team	John Enkelmann Giovanni Firmani

## ***Local News***

The Department of Water has recently released the long-awaited North Perth Bulletin. This comprehensive document was showcased prior to the recent IAH technical talk and is now available to download via the Department of Water website.



## ***WA Sponsors***

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



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## ***Recent Events***

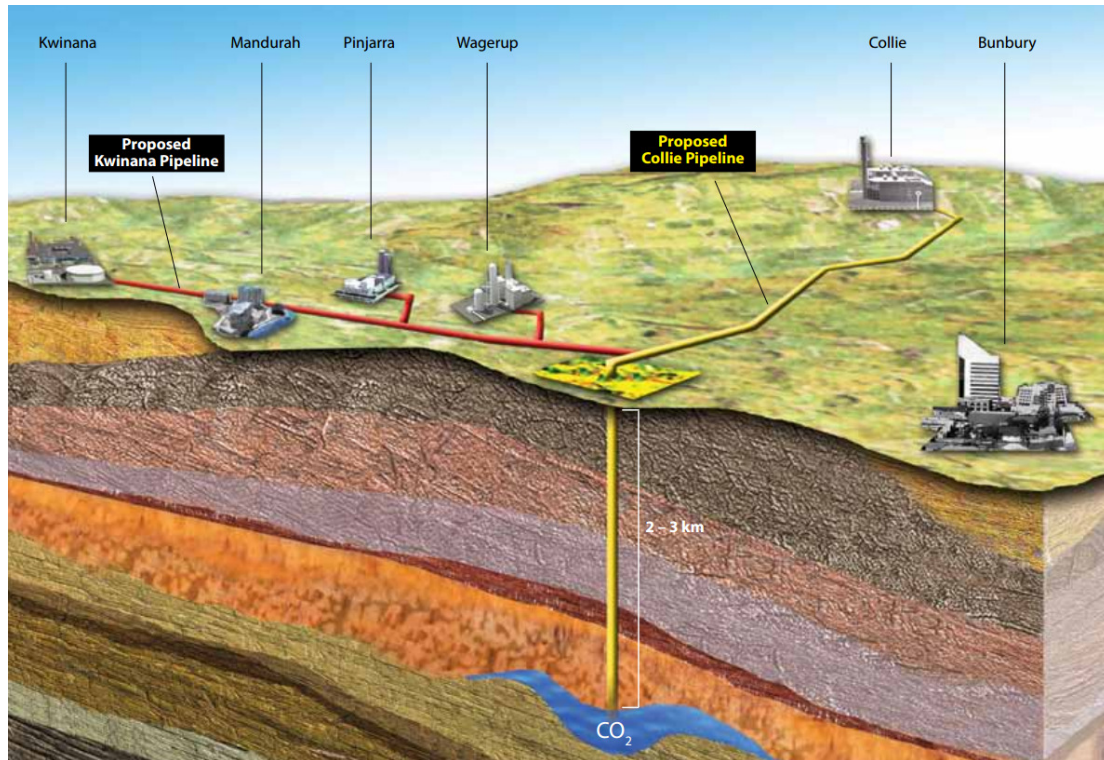
### **22 Feb 2017 – A hitchhiker's guide to modelling – Alex Renz**

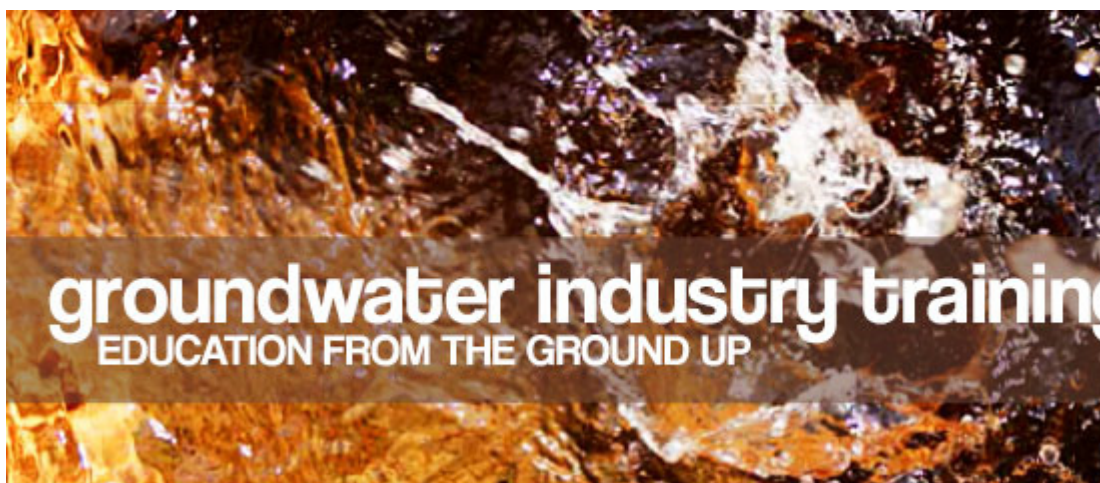
Alex has made a big contribution to hydrogeology since moving from Germany. In his last week before returning to Germany, Alex presented an extensive and thought-provoking tour of the world of modelling. Alex asked: why is groundwater modelling such a polarising topic – is it because of the Hydrogeologists or because of the models? Alex attempted to appease the factions, with examples including everything from weather forecasting to self-driving cars.



## 22 March 2017 – The Harvey Geosequestration Project – Louise Stelfox

Hydrogeologists are aware of the Perth Basin's groundwater, gas and geothermal energy resources, but Louise made us also aware of an emerging new resource: geosequestration reservoirs. In a well-received presentation, Louise outlined the \$25m drilling and test work program near the town of Harvey, 130 km south of Perth. The presentation outlined the project's objectives and the project's outcomes, including: updated hydrogeology information for the saline Lesueur Sandstone aquifer, drilling and testing challenges and opportunities for deep drilling projects; and future opportunities for CCS projects.





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# 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.

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