

NEWS

WINTER 2017

Also in this issue:

Member Matters
Media focus
From the President
Meeting reports
Commissions & Networks
Partners' initiatives
Chapter updates
Conference listing

and the usual IAH
announcements and news

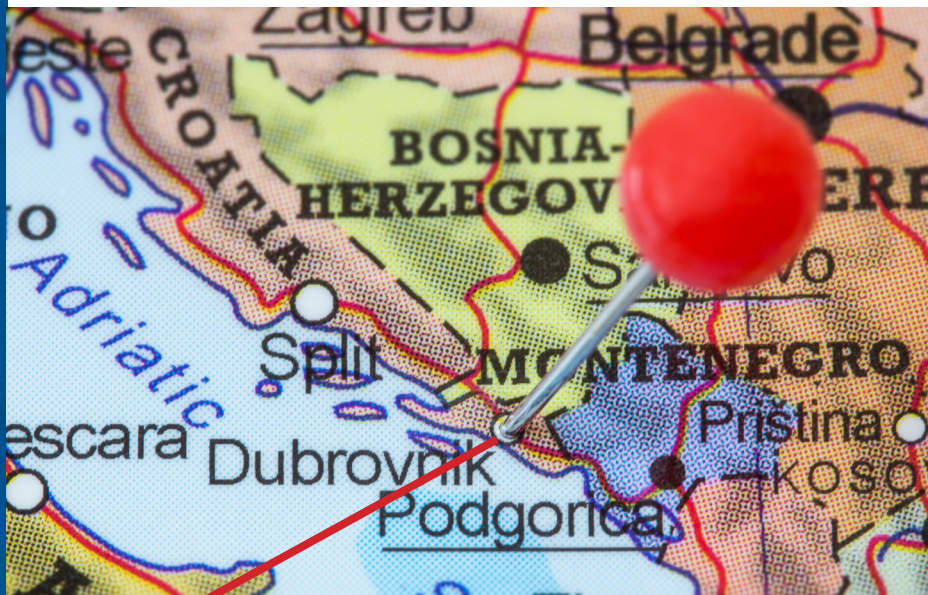


**INTERNATIONAL
ASSOCIATION OF
HYDROGEOLOGISTS**

&information

IAH - THE WORLD-WIDE GROUNDWATER ORGANISATION

Furthering the understanding, wise use and protection of groundwater resources throughout the world



57: The number of countries represented at the 44th IAH congress in Dubrovnik. Judging by feedback, 500+ participants truly valued the opportunity to network and share amidst this international arena. Read meeting reports for congress, and other IAH events and activities around the world, within.



AND THE WINNERS OF THE PHOTO COMPETITION ARE...

Earlier this year we ran a photo competition for IAH members. The winning pictures are revealed, ready to use in 2018 in IAH material. *Page 10*



CORPORATE SPONSORSHIP - YOUR WAY...

IAH wants to encourage more corporate members and sponsors; we are reviewing the benefits and services we provide. *Page 4*

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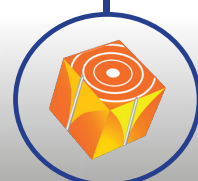
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*Seasonal greetings
to all IAH members
and their families*

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IAH wants to encourage more corporate members and sponsors to join us and we are reviewing the benefits and services we provide...

IAH has more than 60 years of history based on trust. This is thanks to its 4000+ members, and its supporters and collaborators, who share a mission to further the understanding, wise use and protection of groundwater resources throughout the world. It is truly a global organisation.

We want to know what more we could do for companies, organisations and institutes, to establish “win-win” relationships. This might be through offering better advertising opportunities, membership benefits and branding, but we are seeking more innovative ideas such as providing training/event support too.

Talk to us. What do you think?

 <http://bit.ly/IAHcorporatesurvey>
email: info@iah.org

Goodbye 2017...

As usual at this point in the year, it's time to take stock.

Perhaps the first thing to note is the success of the Congress in Dubrovnik and thank our Croatian colleagues. It was very enjoyable and informative – and for me it was a very intensive introduction to 'life on the other side', having attended IAH congresses solely as a delegate in the past. As well as the technical content, the social events and the opportunities to network were excellent. The venue was superb, with the sea still warm enough to swim in (and as someone from the 'Thames delta', if the water is above 12 C and you can see further than a few cm through the suspended matter, it gets my vote). And although my "early years" are a distant memory, I still attended the ECHN disco. But the "Dancing Queen" prize definitely goes to conference organiser Tamara Markovic.

It is gratifying that membership has held up. Although it didn't quite achieve the record 2016 total, as the final registrations continue to trickle in the number has turned out to be not so far behind. I'm pleased to report too that we have had some interesting discussions with other supporters and I hope that we can build on these in the very near future, to help boost IAH's income streams.

There are of course thanks to all our individual members for supporting IAH. I am grateful also for all the hard work done by Council, National Chapters, Commissions and Networks. It is clear that there is an enormous amount of good work being done by many. It would be good to better catalogue all that IAH contributes to groundwater science and sustainability, and present this in an easily accessible way.

A final word of encouragement goes to our colleagues in Korea, busy preparing for the next Congress in Daejeon and who have given us a tantalising glimpse of what is in store in September 2018. Best wishes to you, and to all!

IAN DAVEY



idavey@iah.org



The IAH Secretariat - Ian, Kellie, Sharon and Sue - thank you for all your support and encouragement through 2017 and wish you a happy holiday season and a peaceful and successful New Year.

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ADVERTISING AND COPY INFORMATION

IAH News and Information is published 3 times a year. It is distributed as an insert in Hydrogeology Journal and is also published via IAH's website and email alerts. It reaches all members and supporters of the International Association of Hydrogeologists – around 8000 people – and can also be freely downloaded by individuals worldwide for personal/not for profit use. We are happy to consider possible news articles from our members and others in groundwater-related professions.

We also accept commercial advertisements.

Advertising rates are €300 per full-page advert and €200 per half page. These rates apply for one issue. If you take an advert in two successive issues then the third is offered free of charge.

Corporate sponsors and corporate members of IAH are entitled to 50% off the above rates.

Copy dates are 1 March, 1 June and 1 October.

Email knicholson@iah.org for further details.

Ask a Member...

A new feature, for IAH members to share thoughts, experiences and suggestions...

Our huge thanks go to Jeremy Joseph for agreeing to be the first participating member. We asked Jeremy because as well as being a long-standing member and one of our kind and supportive Mentors on the IAH scheme, he represents well what so many IAH members do in their lives, which is to begin life in one place, but travel, often finding their workplaces and homes elsewhere in the world. Originally from the UK, Jeremy now lives in Thailand.



Tell us a little about yourself....

I joined the Water Resources Board – a government body – in the UK as soon as I left university. That was pure chance because a friend pointed the advertisement out to me. We both applied and, to my continuing slight embarrassment, I was offered a job and he wasn't. It's not a job offer or a career that I've ever felt any reason to regret, however. Having started in the UK Civil Service, I retired as a consultant nearly fifty years later, having worked variously in the public, private and academic sectors, across three continents, as well as for large and small corporations – apart from government – and on my own. Hydrogeology is a life, not just a career. It can give you all of the breadth that you want or allow you to stay with a single employer in just one place working on one particular aspect or issue.

My career has covered a variety of sub-disciplines within the generality of hydrogeology and, in fact, that's one of the subject's attractions for me. The major (hydrogeological) aspects that I've covered, in roughly the order in which they happened, included – saline intrusion, groundwater resource management, data storage and management, artificial groundwater storage and recovery (ASR) [also known as artificial recharge], groundwater pollution (both point source and disperse), conjunctive use (ie, combined use of ground- and surface- water resources), tracer studies, and, waste management, including landfill and landfill impact monitoring.

During my career I've had three major "breaks" from hydrogeology. All taught me many things that I suspect that

I wouldn't have learnt had I stayed glued to the hydrogeological wheel, and I'd recommend such breaks to anyone who doesn't wish to work solely in one specific technical area. In my case I trained, fairly early on, as a systems analyst and then pursued that aspect in terms of designing, developing and managing a data management system – they couldn't be bought "off the shelf" in the 1970s – for a few years. Later, I managed support areas of the research body that I'd been working with, again, for several years. Later still, I managed a small company in the water treatment sector. All of these outside jobs were in the private sector and water-flavoured, and all helped to extend my experience and my understanding very considerably.

The moves into and between the public and private sectors were also interesting, and turned out not to be something to fear. Certainly the sectors are rather different, but each has practices and modes that are worth learning and can be brought "back" to the others. That seems also to be true of academia, which differs significantly, in my experience, from both the public and private sectors, and the opportunity to work (and learn from working) there added a lot of interest to life.

Why did you join IAH?

I was persuaded by my then manager to join IAH. At the time I felt that he was pushing things a bit far by suggesting that I join such an organisation. I know now, and have done for many years, that he was absolutely right (even though being right wasn't usually one of his strong points). I've gained a lot – knowledge, understanding, confidence, friends, and so on – by



joining IAH and remaining a member for more than forty years.

What would you say have been your career highlights?

I think that the best, and most honest, thing to say in this respect, is that I've never regretted becoming a hydrogeologist for one moment. As a science and a way of life, it's excellent. There have been times when I've had disagreements or disliked particular things, but that's part of life.

What experiences you have learned from, that you are willing to share with others?

It took me some years to learn that it is always wise to explain what is needed – ie, to be done – in reasonable detail. If purposes and methods are not clearly, and fully, understood, there will always be room for mistakes and errors, and you will be the person at fault.

What have been the biggest changes over your career?

The introduction first of analogue modelling, in the late 1960s, and then mathematical modelling have been the biggest technical changes during my career. Analogue modelling, in its day, was a tremendous move forward. Mathematical modelling was an even bigger and potentially better step. The crucial thing that seems not to be recognised widely is that every such model must, by definition, be based on a range of assumptions and simplifications. There is no shame in that but it remains true nevertheless. It is very foolish, although it happens very often, either to accept too much detail in the results produced – eg, as recently seen, predicted water levels published to a precision of 0.1 mm (0.0001 m) – and/or to think that the modelling outcomes are anything more than likelihoods. They cannot and are never likely to be precisely correct, other than by chance.

What piece of equipment have you found the most useful throughout your career?

The true answer to this, for me, is also a very basic one. It is always wise to use a pencil when writing – partly because the writing doesn't then tend to wash off – and to take an eraser with you!

What are your concerns now or for the future, relating to groundwater/hydrogeology?

My main concern, really, is what seem to be increasing levels of over-confidence in the reality and/or quality of predictions provided by mathematical models. It is very important to look at any results with a critical eye and think about whether they make any sense in the real world. Reality checks are vitally important in all cases, and can only be carried out if all of the assumptions and simplifications – that means literally the whole lot – built into “the model” are reported fully and explicitly.

What tips might you give to someone just starting out on their study or career?

- Enjoy yourself, throughout your career.
- Be absolutely honest in detailing all of the assumptions and/or simplifications used in your work, whether that be modelling or anything else.
- Never expect “nature” to invent anything new, if a good model exists already elsewhere that will do the job, nature will use it.
- As an extra thought – nature doesn't recognise any difference between surface- and ground- waters; in the real world they are one and the same, and there are and can be no boundaries within or between them.

What do you think those starting out should do to gain good experience?

Get out into the field and work on some pumping tests or other hydrogeological data gathering exercises, in the sense of taking and recording measurements.

What has being a member of IAH brought to you?

Many things, by far the most important of which are friends, and valuable links to and sources of technical knowledge.

Any last comments?

In the late 1960s in the UK there was still some minor discussion as to whether our science should be called hydrogeology or geohydrology – the latter would have chimed well with geochemistry and geophysics, and other terms of that sort, but we went the other way. *[continued over...]*

2017 Photo Competition

We wanted to be able to add to our library of pictures, that together show the range of activities that IAH members get involved in and the conditions they work in – and which would stand out as good photos on our website and other materials. Thank you to everyone who submitted entries - from the quality and selection of photographs received we were able to award prizes in three of the five categories provided. As usual, trying to make our selections was not easy! Winners from each category will receive £100 (or euro/dollar equivalent)* and a free IAH book of his or her choice.

Category 1: Sharing Knowledge

The winner is Giorgia Lucianetti from Italy. In the picture she is teaching a masters student how to perform the measurement of physical-chemical parameters of the groundwater on site. We chose this photo because, as well as clearly showing “how things are done”, it is set on the most beautiful backdrop of a mountain spring.



Category 2: Working On-Site

The winner is Moipone Mokoena from South Africa. As you might predict, this was the category we received the most entries for - and therefore caused us much debate. We chose this photo because, as well as being a good quality image, it just typifies a fundamental part of our work.



Category 3: IAH “Family Album”

Unfortunately there were no winning photographs in this category.



Category 3: The Wonder of Groundwater

The winner is Jimmy Jiao from Hong Kong. The photograph depicts one of the many groundwater-fed lakes among the sand dunes in the Badain Jaran Desert, part of the only UNESCO Desert Geopark, located in Inner Mongolia, China. A prominent feature of the desert are the huge sand dunes, the world's highest, measuring up to 480m. There are over 100 lakes in the depressions among the sand dunes. These lakes maintain the vital oases and ecology in the desert. It is well known that the lakes are fed almost entirely by groundwater, but the source of groundwater in such an arid environment has been under extensive debate in the hydrogeological communities in both China and overseas. There are also concerns that some lakes could vanish in the near future due to global climate change. We chose this photograph because it is truly wondrous!

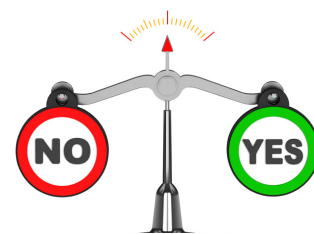
Category 5: IAH "Digital World"

Unfortunately there were no winning photographs in this category.

Thanks again to the IAH members who entered - keep your eyes open in 2018 for photo opportunities, ready for when we run the competition again. In the meantime, look out for the appearance of this year's photos soon.

[continued over...]

2017 Survey Results



Earlier in 2017 we undertook a survey to seek opinions, feedback and ideas for new benefits and services which IAH might provide to its members and supporters. Overall a total of 159 replies were received from around the world – slightly lower than our previous survey in 2015, despite a greater number of calls and reminders. Having said this, respondents represent a good span of ages, with almost one quarter being female - a higher percentage than previously - and the far greater majority being IAH members (almost 92% of replies). Geographical spread was also wide-reaching - replies from 45 countries, and all continents - but with notable exceptions of Japan and Russia.

The main results are given herewith. As always the results and comments have been disseminated and will be incorporated into IAH's future plans and priorities.

The positives

- 88% of respondents stated that “IAH gives good value for money”, up 8% from 2015
- 86% of respondents stated that “IAH fees are reasonable/ the right price”, up 3% from 2015
- 90.5% of respondents said they would recommend IAH to colleagues, up 8% from 2015

- such figures are reassuring, and we bore them in mind in September when we considered fee rates for 2018.

- 60.5% rated the educational material and resources IAH provides as “good”, with a further 13% rating it as “excellent” (question not included in 2015)

- efforts since the last survey have included the “Strategic Overview Series” and a “training courses” listing.

- 62% rated Hydrogeology Journal “Good”; 31% rated it as “Excellent” (question not included in 2015)

- we received a number of suggestions for the journal, which we have passed on to the editorial team.

80% of respondents stated that IAH's website is “good”, with a further 31% rating it is “excellent” (2015 figures: 55% and 13% respectively)

While we are pleased that the general feeling about our website is positive, we are aware that more work needs to be done, particularly in the area of “Education”, for our “Members' Area” and for some of the commission and networks and national chapter subsites.

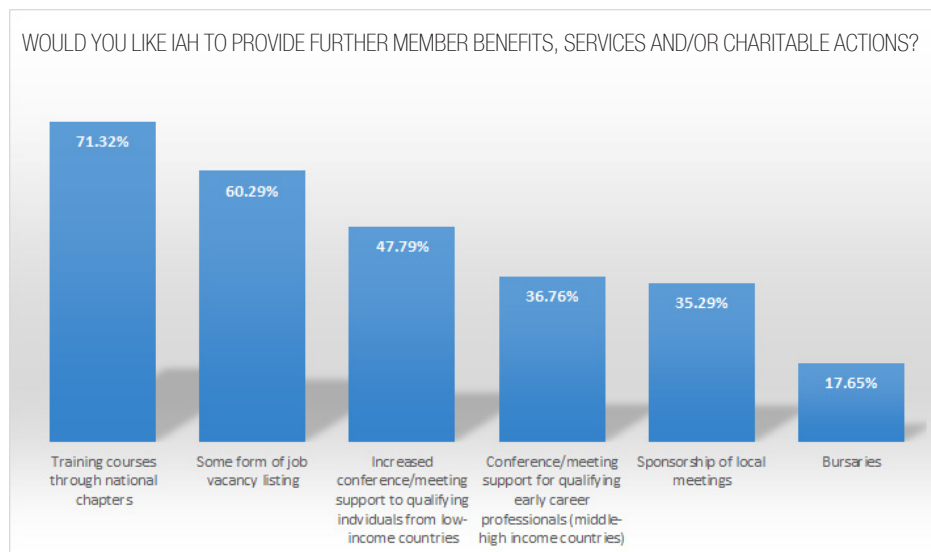
Recently, a call has been made to degree course organisers to submit course details, in order for us to compile a further listing (see <https://iah.org/news/organiseteach-degree-courses>). The Secretariat is also working alongside the Education working group with regard to organising the new “Education” area on the IAH website, improving upon the existing “Knowledge” area. This area will have resources and points of reference for groundwater-related professionals - in other words, our IAH members and supporters are a key part of our consideration. In line with our mission, we will also be giving thought to those considering hydrogeology or related fields as a possible career, and for those seeking more basic, general information about hydrogeology and groundwater such as the general public, younger students, or the media.

WHICH IAH SERVICES/MEMBER BENEFITS ARE IMPORTANT TO YOU?



Changes in responses to this question since 2015 include the journal being slightly (2%) higher, as well as international networking, by the same percentage. Local networking has actually reduced by 5% since 2015 - this is something we plan to explore further; it may be that national chapters could offer additional services, meetings, training sessions etc. that could be of value to members (see below, clear demand indicated). Mentoring has increased by 8% - next year we will undertake a review of the scheme's progress so far. Unsurprisingly, social media has increased also in value, up 8% - since 2015 we have increased our activity in this area, now using Twitter as well as Facebook and LinkedIn - noting that each serve specific purposes and have different global audiences. More of our groups - commissions, networks and national chapters - are also using social media. Furthermore we were pleased to learn that our commissions and networks are more greatly valued by our members - up 10% since 2015 to 35% - expanding efforts in this area are clearly having effect.

WOULD YOU LIKE IAH TO PROVIDE FURTHER MEMBER BENEFITS, SERVICES AND/OR CHARITABLE ACTIONS?



Comparing 2017 and 2015, it is clear that there remains a firm demand for IAH's national chapters to organise local training courses - we are pleased that this is now happening in a few regions but more could clearly be done, with costs being covered by appropriate charging and/or sponsorship (see elsewhere in newsletter). Despite there being other websites offering such a service, a facility for announcing job vacancies has been requested by more than 60% (up 10% from 2015) - we will investigate the feasibility of this once our current round of website developments have been completed. We are grateful to all those who completed the survey; it has certainly provided us with plenty of food for thought.

MEMBER MATTERS

[...continued from previous]



New Members

A warm welcome to the following new members who joined our Association in the period 22 June - 11 October 2017:

ARGENTINA

Mr Francisco ROMERO

AUSTRALIA

Mr Caleb PUSZKIEWICZ

Peter ADDISON

Sunail HASNAIN

Fiona MACDONALD

Jon MILLER

Leah MOORE

Dr Sanmugam PRATHAPAR

Mr Josh RADFORD

Mr Gray RALPH

Karen GILGALLON

Kelly WILLIAMS

Dave WINTERBOTHAM

Mr Nikroma ADAM

Mehdi KHAKI

Sam SHEPPARD

AZERBAIJAN

Mrs Ramila MAMMADOVA

Dr Yusif ISRAFILOV

BELGIUM

Mr Richard HOFFMANN

CANADA

Mallory GILLISS

Mr Dylan RILEY

Mr Gebeyehu AYELE

Ms Niloofar FIROOZY

Mr K Lee RINGHAM

Mr John FORTUNA

Ms Elizabeth WALSH

Ms Colleen STEELE

Mr Glenn HALL

Ms Laura MORGAN

CHILE

Daniela Abarca ARGOMEDO

Fabiola CORNEJO

Emiliano FRAMARINI

Piero JARPA

Mr Octavio LÓPEZ GALAYO

Mr Felip ORTUÑO

Edward GONZALEZ

Sr Eugenio CELEDON CARIOLA

Miss Rosa A TRONCOSO VASQUEZ

CHINA, PEOPLE'S REPUBLIC

Prof Cheng ZHANG

DENMARK

Dr Bianca PEDERSEN

Dr Theis Raaschou ANDERSEN

ETHIOPIA

Mr Fenta ABERA

FINLAND

Mr Jussi AHONEN

FRANCE

David DEQUIDT

Jean Luc DEVIDAL

Gilles MAILHOT

Mathieu TARDIVEL

Dr Aude VINCENT

Marion CAGNIMEL-FISCHER

François Marie PELLERIN

GERMANY

Mr Christoph PFLUG

Dr Andreas HARTMANN

Dr Brehm DIRK

Mr Sahand Farhang DAREHSHOURI

Mr Brian NDIRANGU

Mr Maximilian FRICK

GHANA

Mr Albert ACHEAMPONG

INDIA

Ajanta GOSWAMI

Mr Gourab BANERJEE

Mr Abhishek KUMAR

Dr Malabika Biswas ROY

INDONESIA

Mr Aris RINALDI

IRELAND

Mrs Melissa O KEEFFE

Miss Jenny FLINK

Mr John S DYAR

Mr Francis MACKIN

ISRAEL

Dr Ittai GAVRIELI

ITALY

Nicola DE MURTAS

Ms Giulia GIAMBELLI

Mr Alberto FRANCIOLI

CAP HOLDING SPA (c)

Maurizio GORLA

Chiara RIGHETTI

Dr Roberto SIMONETTI

Dr Manuela DEIANA

Mr Edoardo MATANI

JAPAN

Dr Koki KASHIWAYA

Ms Hikaru SATO

LATVIA

Ms Sandra KARUŠA

MADAGASCAR

Dr Charles SERELE

MALAYSIA

Dr Norhan Abd RAHMAN



NETHERLANDS

Mrs Stefanie BUS
Mr Coenraad VOORHUIS

NORWAY

Mr Patrich HOLMSTRÖM

PARAGUAY

Dr Fernando LARROZA

PERU

Pedro Pons MIR

POLAND

Karolina KUCHARCZYK

PORTUGAL

Ms Rita CARVALHO

RUSSIA

Dr Olesya NAZARENKO

SAMOA

Ms Elizabeth VANDERBURG

SAUDI ARABIA

Mr Georgios Zacharioudakis
Khaled AL-SHEDDI
Mohammed ALSHAREEF
Alaaaddin FAIRAH
Aadil NABI
SAUDI ARAMCO (c)

SOUTH AFRICA

Ms Louise SOLTAU
Ms Alice Lea PETRONIO
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Prof. Yung-Chia Chiu LIU

TURKEY

Mr Can ERTEKİN
Dr Sukran ACIKEL

UGANDA

Mr Martin Baryabanoha TWINE

UNITED ARAB EMIRATES

Dr Nico HAUWERT

UNITED KINGDOM

Miss Rhona Cartwright
Mr Liam Kelly
Mr Oliver Willis
Miss Katy James
Mr Matteo Francesconi
Mr Alasdair Pilmer
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CHECK YOUR DETAILS

Are you receiving your regular IAH messages and alerts with HJ link and latest news digests and initiatives?

Ensuring that our members receive their IAH entitlements such as the Hydrogeology Journal is important to us. Do you work for a large government/commercial/educational organisation? Many such employers have firewalls in place. You may have to provide an alternative email address to receive your member mailings, or speak to your IT department. IAH emails are always sent from an @iah.org address. Please check/edit your details regularly - we'd hate you to miss out.

SECRETARIAT

138:

The number of Hydrogeology Journal/Member News Alert bounces in the period December 2016 - September 2017. This is around 4% of our membership who have subscribed to receive them. Could this be you?



<http://iah.org/members/edit-details>

[continued over...]

NB: Those marked (c) are new IAH corporate members.

MEMBER MATTERS

[...continued from previous]

Small Rise for Membership Fees

At the Annual General Meeting in Dubrovnik, Council proposed that there should be a small rise in the IAH membership fees for 2018. This was accepted unopposed.

We aim to avoid large increases in membership fees, while keeping fees both in proportion to the benefits and maintaining the financial health of the Association. In recent years much of the activity for our charitable and educational objectives has been funded from our reserves, but clearly this cannot continue indefinitely. In 2018 we can expect further challenges to the budget. There are likely to be higher costs related to a new, 5th Editor for the Journal and to support the congress in Korea. Inflation is now rising in the UK and increases in operational costs are likely. As a result, it is expected that our expenditure for 2018 will be significantly higher than that budgeted for in 2017.

Council debated at length whether fees should be raised and how any rise might be distributed across the different membership types. The differential between fees for online membership and 'print copy' of the Hydrogeology Journal was again discussed. Council recognised the challenges to the budget but considered there should also be an emphasis on developing other sources of income through continued efforts to increase membership; a revised corporate sponsorship scheme; developing advertising revenue; support from congress income; potential for collaboration and income development with other agencies; and continued careful monitoring of the budget.

In conclusion, Council agreed that there should be a modest rise in fees, with a €3 rise for high income countries for both online and print versions of the Journal, and a €1 rise for other fees, except for retired members, whose fees will remain the same as currently. The current cost differential for the journal is maintained. In the case of retired members, it is recognised that the benefits are limited and that these should be reviewed. As well as keeping student fees low, Council discussed whether there should also be discounts to members in the first years of their careers, to help with the transition to the full membership fees. This will be given further consideration in the coming year.

We trust members will understand the need for this small fee rise and that there will continue to be support for the Association, with memberships renewed in 2018. For our part, we will be working hard to deliver improved benefits. If there are questions or concerns on this then please contact us at info@iah.org.

SECRETARIAT

Latest news on IAH Mentoring Scheme

We have completed tying up the suitable "matches" received in the most recent call. This process always takes time as we often have to wait for responses from individuals. Thanks to those mentors who are actively supporting members by providing advice and the benefit of their own experience. Your help is appreciated! At present the scheme is closed to new applications - look out for further calls next year.

SECRETARIAT



<http://iah.org/knowledge/mentoring>





MEDIA FOCUS

A selection of groundwater features from around the world

SOUTH AFRICA: CAPE TOWN NEEDS TO START DRILLING FOR GROUNDWATER NOW

The City of Cape Town is looking for alternative sources of water to get through the current drought. They're desperate to find as much as 500 megalitres of water per day from sources including groundwater, desalination and the use of waste water.

<https://www.dailymaverick.co.za/article/2017-10-19-capewatergate-we-need-to-start-drilling-for-groundwater-now/#.WfDZ-4iQyUI>

JAPAN: BOTCHED GAUGE SETTINGS MIGHT HAVE CONTAMINATED FUKUSHIMA GROUNDWATER

The discovery of falsely configured monitoring equipment at the stricken Fukushima No. 1 nuclear power plant means the groundwater flowing underneath it might have become contaminated from April 2017. Tokyo Electric (Tepco), has reported that incorrect gauge settings were used to measure groundwater levels in six of the wells near reactors 1 and 4, which has resulted in groundwater readings about 70 cm higher than actually occurred. The utility company had installed water gauges so it could keep the groundwater levels in the wells a meter higher than the contaminated water in the buildings.

<https://www.japantimes.co.jp/news/2017/09/29/national/radioactive-water-may-leaking-fukushima-reactor-buildings-since-april-tepco/#.WfDaU4iQyUI>

RESEARCH: PROBIOTICS HELP POPLAR TREES CLEAN UP CONTAMINATED GROUNDWATER

Researchers from the University of Washington and several small companies have conducted the first large-scale experiment on a Superfund site using poplar trees fortified with a probiotic -- or natural microbe -- to clean up groundwater contaminated with trichloroethylene (TCE), a common pollutant found in industrial areas that is harmful to humans when ingested through water or inhaled from the air. Their results were published in final version Aug. 11 in the journal Environmental Science & Technology. <https://www.sciencedaily.com/releases/2017/08/170814161955.htm>

PHILLIPINES: REGIONAL WATER CRISIS BY 2025 - PAMPANGA'S GROUNDWATER SOURCE IN DANGER

Pampanga's human population and its large number of industries are dangerously causing the over-extraction of the province's groundwater resource to dangerous levels and is now harming the environment. The Department of Environment and Natural Resources (DENR) and scientists from the University of the Philippines Los Baños (Laguna) have earlier warned that a water crisis would affect Pampanga and surrounding provinces by 2025.

<http://www.sunstar.com.ph/pampanga/local-news/2017/08/02/regional-water-crisis-2025-pampangas-groundwater-source-danger-556364>

FROM THE IAH BOOK SERIES...



Selected Papers on Hydrogeology (IAH-SP)

Series editor Nick Robins, formerly of British Geological Survey, Wallingford, UK

Groundwater Response to Changing Climate

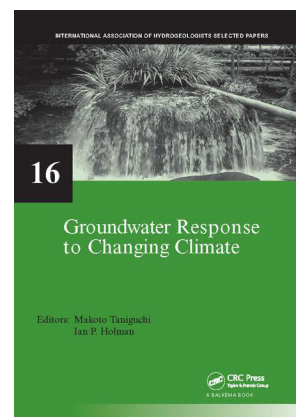
Edited by Makoto Taniguchi, Ian P. Holman

Groundwater systems are vital to both society and the environment, supporting food production and many other ecosystem services. Sustainable management of this vital resource for future generations requires a sound understanding of how groundwater might respond to the inevitable changes in future climate. In this volume, recent developments within the interlinked areas of the response of groundwater systems to climate variability and climate change are highlighted, using contemporary field investigations and monitoring of aquifers, numerical simulations of aquifer response to climate change predictions and paleohydrogeological studies of ancient groundwater systems. The book provides an up-to-date description of the relationship between groundwater behaviour and ancient, historical, current and future climates for a range of diverse aquifer systems around the world.

ISBN 9781138112599 - CAT# K35189

Available in various formats; paperback price £59.99 (60% discount for IAH members)

<https://www.crcpress.com/Groundwater-Response-to-Changing-Climate/Taniguchi-Holman/p/book/9781138112599>



International Contributions to Hydrogeology (IAH-ICH)

Series editor Nick Robins, formerly of British Geological Survey, Wallingford, UK

History of Hydrogeology

Edited by Nicholas Howden, John Mather

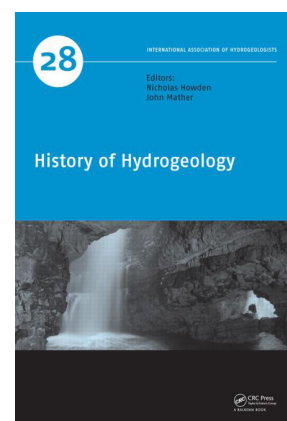
The History of Hydrogeology, is a first attempt to bring the story of the evolution of the science of hydrogeology together from a country- or region-specific viewpoint. It does not cover history to the present day, nor does it deal with all countries involved in groundwater studies, but rather takes the story for specific key countries up and until about the period 1975 to 1980. This is when hydrogeology was still evolving and developing, and in some areas doing so quite rapidly.

The book has been written not only for practitioners of hydrogeology and hydrology but also for teachers and students to see the context of the evolution of the science around the globe. The History of Hydrogeology will also be of interest to science historians and all those interested in the role that individuals, institutes and nations have played over the years in defining modern day studies of groundwater.

ISBN 9780415630627 - CAT# K15478

Available in various formats; ebook price £91.80 (60% discount for IAH members)

<https://www.crcpress.com/History-of-Hydrogeology/Howden-Mather/p/book/9780415630627>





Another year passes...

Dear IAH members, dear colleagues,

Another has passed, we are about to enter 2018 and, on behalf of the Executive and Council of IAH, and in the name of our Secretariat, I want to send you our best wishes for a great 2018.

IAH will continue to pursue its mission, to further the understanding, wise use and protection of groundwater resources throughout the world. As always, we will act to defend our profession and our professionals, and we will pursue our aims in continuing to bring groundwater matters before all the national, regional and international fora where water issues are debated and decided.

2018 will be the year of the World Water Forum in Brazil and IAH is preparing for this meeting carefully, working with other organisations, to bring groundwater not only to technical meetings, but also to the more specific political meetings. This will be done by joining forces with, amongst others, UNESCO, IGRAC, IWMI and GRIPP, and through direct contact with some of the major players.

Education continues to be a priority and IAH will maintain its efforts to produce new strategic papers and develop other methods for achieving our aims, for example using webinars and supporting younger people through other means.

I know that our Commissions and Networks will continue with their best efforts to improve knowledge on groundwater science. Special thanks must be addressed to the Early Career Hydrogeologists' Network (ECHN), which, supported by new IAH policy for our youngest members, can be credited with increasing the number of early career members in IAH.

I would like to thank all our members for the support you give to IAH – and especially for all those who dedicate time in coordinating commissions or networks, participating in working groups, writing books or papers or being members of the governing bodies of the association. Thanks go also to our secretariat, who are always ready to help and are extremely effective doing their daily tasks.

To all our members, wherever you are, I wish you all the best for a happy 2018 and for the success of our association.

ANTÓNIO CHAMBEL

MEETING REPORTS

IAH 44th Congress, Croatia

IAH's Croatian National Chapter welcomed us to the Dubrovnik Palace Hotel in Dubrovnik, for the 44th Annual Congress "Groundwater Heritage and Sustainability", which took place from 25th to 29th September 2017.

We had all seen the pictures of the Lapad peninsula, which overlooks the Elafite archipelago, but didn't believe they could be genuine till we arrived at this idyllic location. Added to this, the Palace Hotel was short bus ride from the historic centre of Dubrovnik, with its renaissance architecture and monuments, which was declared a World Heritage Site by UNESCO in 1979.

After warm greetings from the Mayor of Dubrovnik and an uplifting musical interlude, we were then on to the business of presenting, evaluating and debating all aspects of groundwater.

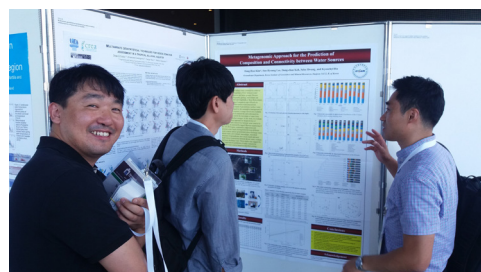
More than 500 delegates from 57 countries attended. This was quite remarkable considering that just a few weeks previously, the number of registrations had not reached 400, though this late success brought its own difficulties in making sure that everyone could be accommodated at the congress.

Eight scientific and technical topics were covered in 6 parallel sessions. In all, around 283 oral presentations and 155 posters were selected from the 556 abstracts received from more than 1200 authors representing 86 countries. A keynote presentation and thematic lecture, in many cases by experts drawn from the region, set the scene as a lead-in to each session. In feedback, some said that for them the keynote presentations were the most valuable parts of the congress.

Two members of the Early Career Hydrogeologists' Network, Viviana Re and Raquel Sousa, were invited to give one of the keynote presentations – a first for an IAH congress. Fittingly, they chose as their subject 'Responsible (ground)water scientists - a heritage for future generations', which considered the challenges and opportunities for a new generation of responsible water scientists in managing environmental impacts.

Several IAH Commissions and Networks held meetings, to discuss progress with reports and other initiatives, and which in some cases served as their annual general meeting. All, including those who are not currently IAH members, were welcome to attend these meetings. This policy of open participation can help ensure the vitality of the groups and will also hopefully encourage more people to join the IAH so that they can benefit more fully from all the Association's activities.

The Karst Commission highlighted the breadth of work and collaboration that commissions and networks take part in, for example with involvement in UNESCO projects such as DIKTAS (Dinaric Karst Aquifer System) and WOKAM (World Karst



Aquifer Mapping Project). They are involved in training programmes - MANKARST, HYDROKARST and CEKA - and support young researchers, for example by presenting awards.

Members of the Urban Groundwater Network were active, not only in holding their own group meeting, but also presenting papers highlighting how management of urban groundwater resources can help achieve the 2030 sustainable development goals. These highlighted how an integrated approach to managing urban groundwater resources can maintain supply in the face of challenges such as increasing demand, saline intrusion and potential sources of pollution.

There were also opportunities to hold meetings with our partner organisations, such as GRIPP (Groundwater Solutions Initiative for Policy and Practice). IAH joined forces with GRIPP in 2016 and the MAR (Managed Aquifer Recharge) Commission has been particularly supportive in contributing to the GRIPP agenda.

Congress provided a valuable opportunity for members of National Chapters to 'swap notes' and learn from each other. We heard how each year the Portuguese Chapter supports a lecture or case study which is presented to audiences at different venues across the country, in a similar way to the NGWA Darcy lectures. In a national poll, the Swedish Chapter found that members would particularly like training courses and legal advice. It was noted too that in Sweden, IAH is of less interest to those not in academia, though this does not appear to be the experience for all chapters, several which are actively supported by members from consultancies.

On the congress feedback sheets, many said 'Everything was perfect!' Much of this was down to the hard work of the organising and scientific committees, and the support they received from Martina Lovrec's team at ConTres, the hotel staff and to the various organisations that gave their support. But it was also because of the contributions from all delegates, from the papers and posters that were presented, to the discussions in the sessions and meetings. Many commented on the diversity of presentations and the networking opportunities. Making contacts was certainly helped by the mid-week excursions, aided by the superb and relaxed lunches, though some said they would have liked more science in support of the field trips. That said, there were excellent supporting materials provided for the trip I joined to Prud. Social events such as the gala dinner and the ECHN disco (which also included science in the form of a collaborative groundwater assessment) certainly helped break down inhibitions.

There were also suggestions about how to ensure we make future congresses 'even better'. These included requests for more scientific information on congress materials, more on applied hydrogeology, more time for discussion following presentations and more time to view posters. It wasn't always possible to keep sessions to time and in some cases changes to the programme could have been publicised more clearly. Ideally time should be allowed to move between sessions. But there was a lot to fit in of course. Some sessions were 'victims of their success', with rooms being too small for the most popular ones. The quality of the hotel was not in doubt, but many found the cost of drinks high and were disappointed that water was not more freely available.

On the whole Dubrovnik 2017 was very informative and highly enjoyable. As one delegate said, 'Thank you all, IAH family' It is our intention to share photos from the event in due course - thank you to all those who sent them to us; we've enjoyed looking at them all. In addition the keynote lectures were recorded, and other notes and materials noted; as much as possible will be made available to view. Look out for future announcements on the IAH website and on social media.

IAN DAVEY

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MEETING REPORTS

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2nd Water Security & Climate Change Conference, **Germany**

The 2nd Water Security and Climate Change Conference was held in Köln during 18-21 September 2017, under the organisation of three German EXCEED Networks – Sustainable Water, Natural Resources & Food Security coordinated respectively by the Technical Universities of Braunschweig, Köln & Hohenheim respectively.

The conference was attended by about 200 participants from 45 countries. Three opening presentations served to set the scene: Joyeeta Gupta of UNESCO-IHE in Delft; Ulrike Pokorski of GIZ in Berlin; and Upamanu Lall of the Columbia Water Center of New York.

Groundwater resources featured in a number of presentations including that of Stephen Foster (IAH Past President 2004-08) on 'Groundwater Use in Tropical African Cities – the Role of Groundwater in Enhancing Water Security'.

There was significant dialogue around a number of key questions :

- What constitutes 'policy-relevant science' and how can public and political confidence in hydrological science be improved?
- Should the term 'water security' be more tightly defined, especially so as to avoid sovereignty implications?
- Is water security adequately understood as regards implications for climate adaptation, food security, forced migration and conflict management?
- Given that 'hydrological stationarity is dead', what modeling and prediction processes can be used in the future?
- Have we got the balance right in hydrological monitoring between remote sensing and ground truth?
- And even, are capitalism and free trade compatible with sustainable water resources?

STEPHEN FOSTER

 <http://watersecurity.info/>



Contribute: info@iah.org

15th Biennial Groundwater Division GSA Conference, **South Africa**



At the recently held conference of the Ground Water Division held at the Spier Wine Estate in Stellenbosch South Africa, Mr Erick Dorfling won the lucky draw prize of attending the next International Association of Hydrogeologists conference in September 2018 in Daejeon, South Korea. The prize was sponsored by the IAH South Africa Chapter and the IAH-2000 Fund and presented to the winner during the closing ceremony of the conference by the Secretary General of IAH Professor Bruce Misstear.

Awarding of the prize brought the curtain down on a successful and enjoyable event. The conference was attended by more than 270 delegates who could listen to almost 100 oral papers and visit 40 poster papers. Three very enjoyable social events and the mid-conference tours provided meaningful opportunities for networking and scientific debate. The four international plenary papers – Prof. John Cherry of Canada, Prof. Bruce Misstear of Ireland, Prof. Keith Fifield of Australia and Prof. Randy Stotler of the USA – made significant contributions through both their papers and interaction with the delegates. The drought impacting the Cape Town area brought the role of groundwater in our society to the fore, with the conference theme of "Change. Challenge. Opportunity" being particularly apt.

ROGER PARSONS, CHAIR – GWD2017 ORGANISING COMMITTEE

And Bruce Misstear adds: it was a privilege to participate in the recent conference of the Ground Water Division of the Geological Society of South Africa. As the Chair of

the Organising Committee Roger Parsons says, the groundwater conference was timely, since the Western Cape is experiencing a very alarming drought – surface reservoirs were only at 37% capacity at the end of the winter rainy season. One consequence of this drought is that groundwater development options are receiving more attention than previously. It was a pleasure to meet so many colleagues from South Africa and neighbouring countries; I was particularly impressed by the large number of excellent talks at the conference given by students and early career hydrogeologists. Hopefully, many will be encouraged to join the Early Career Hydrogeologists Network of the IAH.

BRUCE MISSTEAR, IAH SECRETARY GENERAL

9th Jeju World Water Forum and International Symposium of Groundwater, **Korea**

The 9th Jeju World Water Forum “Sustainable Development and Value Creation of Water Resources in the Asia-Pacific Region” was held on 20-21 September, 2017. This forum was organized by JPDC and UNESCO-IHP in Jeju, Korea.

More than 300 people gathered to discuss the sustainable water issues including groundwater in the Asia-Pacific Region.

A further regional activity was the “2017 International Symposium of Groundwater” which was organized by Korean Society of Soil and Groundwater Environment, in October and held in Jeju, Korea. This symposium focused on sustainable groundwater and global cooperation under the environmental change, and also looked ahead to IAH’s congress next year. Prof. Seong-Taek Yun (Korea), Dr. Yongje Kim (Korea), Dr. Oranji Lorphensri (Thailand), Dr. Wendy Timm (Australia), Prof. Ken Haward (Canada) and myself attended the symposium.

MAKOTO TANIGUCHI, IAH VICE PRESIDENT FOR ASIA

Hydrovolcanic 2017, **Azores Islands, Portugal**



The Hydrovolcanic 2017 workshop ‘Study and Management of Water Resources in Volcanic Islands’ took place from 3-6 September 2017 in Angra do Heroísmo and Praia da Vitória on Terceira Island of the Azores, in Portugal.

The 62 participants - 45 from Portugal, 11 from Spain, 5 from USA and 1 from Cape Verde – came mainly from islands of the Azores, Madeira, Canaries, Cape Verde and Hawaii. The 8 invited speakers included IAH Past-President, Emilio Custodio, and current President, António Chambel.

The meeting was organized by the University of Azores, and had wide ranging support, including from the Municipalities of Angra do Heroísmo and Praia da Vitória, the Regional Government of Azores, the Gaspar Frutuoso Foundation, the IAH Portuguese Chapter, the Portuguese Association of Water Resources (APRH), the Institute of Research and Technology for Agronomy and Environment (IITAA), Praia Ambiente, EP and the Regional Institute of Agricultural Planning (IROA)

Most volcanic islands face problems from population growth, agricultural development and expansion of the tourist industry. The complex volcanic hydrogeological systems, characterized by perched and basal aquifers, are highly vulnerable to recharge variations and salt water intrusion. The difficulties in managing water resources

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MEETING REPORTS

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on small islands include scarcity of resources, isolation of sources, and increasing consumption and pollution risks. An integrated approach to water management, including use of technologies such as desalinisation, is needed.

Following the success of this meeting a further event will be arranged on one of the Atlantic islands in the future.

ANTÓNIO CHAMBEL, IAH PRESIDENT AND

FRANCISCO COTA RODRIGUES – UNIVERSITY OF AZORES

XI Mexican National Congress, Mexico

The XI Mexican National Congress, under the title “Groundwater in Mexico: Current status and future challenges”, took place from 11-13 October 2017 Puebla, Mexico. It was organised by the Mexican Association of Geohydrology (AGM) and was supported by IAH Executive and Mexico National Chapter, and the Latin American Association for Groundwater Development (ALHSUD), with presidents from each association present at the event.

More than 250 delegates were drawn from across the country from universities, research centres, government institutions and water, environment and energy companies. The wide-ranging topics covered quality, environment and management, water supply to large cities, transboundary aquifers and regional fluxes, hydrogeophysics and the importance of water in energy generation, mining industry and geotechnics. A total of 115 oral presentations and posters set out Mexico's most pressing water problems under six fora and eight main topics.

The meeting highlighted the growing interest in groundwater as an essential factor for the resilience of cities and a main consideration for socio-economic development - without water there are no investments. However, there is still much to be done and among the short-term actions in Mexico is the creation of a directory of specialists, involving more students at undergraduate and postgraduate level in groundwater issues, creating knowledge networks and establishing certified status for groundwater specialists.

Finally, it is noteworthy that groundwater is seen as a strategic resource on the national agenda for Mexico, with recognition of the urgent need for action on groundwater recharge and investigations of groundwater at greater depths, to cushion the impacts on aquifers in urban concentrations.

ANTÓNIO CHAMBEL – IAH PRESIDENT AND

MARTIN VIDAL – PRESIDENT OF AGM



SADC GROUNDWATER MANAGEMENT INSTITUTE (SADC-GMI) – PROMOTING THE GROUNDWATER AGENDA IN THE SADC REGION

The Southern African Development Community (SADC) is a regional economic community established in 1992, whose 15 Member States* are committed to regional integration and poverty eradication through economic development and ensuring peace and security. The region is subject to severe climatic variability which impacts on more than 70% of its population who are dependent on groundwater for their livelihood. With the challenges of climate change, pollution and rapidly growing water demand in the region, the need to strengthen the management and development of groundwater for social and economic development is vital.

In response, reports James Sauramba, SADC-GMI Executive Director, SADC launched the Groundwater Management Institute (SADC-GMI) in September 2016 as a regional Centre of Excellence and interlocutor with national, regional and international groundwater institutions and initiatives. It is hosted by the University of the Free State, Bloemfontein, South Africa, with strategic guidance by the SADC Secretariat in Gaborone, Botswana.

Currently SADC-GMI is implementing the project, World Bank funded “Sustainable Groundwater Management in SADC Member States”, which has four key components dealing with: SADC-GMI operational activities; strengthening the policy, legal and institutional capacity; research on national and transboundary groundwater management; enhancing access to groundwater through promoting groundwater infrastructure management and development. The project aims to catalyse multi-state cooperation in balancing conflicting water uses. Priority issues include climatic variability and change, and ecosystem-based management of transboundary water systems. Capacity building is also important, with training, advancing research, supporting infrastructure development, and dialogue and exchange of groundwater information prioritised.

Diagnostics analyses have been conducted on two of the estimated 30 Transboundary aquifers in the SADC region, namely the Ramotswa and Stampriet systems. SADC-GMI is driving research on conjunctive water resources management in the Shire river/aquifer system, where stakeholder involvement is supporting strategic planning and identifying priority issues for transboundary cooperation. SADC-GMI is actively pursuing opportunities to undertake further research on transboundary aquifers in partnerships with international organisations.

SADC-GMI engaged IGRAC (International Groundwater Resources Assessment) to revive the online regional, harmonized Hydrogeological Map, and provide associated borehole data and other information (www.gip.sadc-gmi.org). IGRAC was also recently contracted to implement a 16-month Capacity Building project which includes an internship programme for 30 young professionals on Data Collection and Management in all the 15 SADC Member States.

There has been collaboration with UNESCO-IHP, the University of the Free State and WaterNet to deliver cutting-edge training on International Water Law and Gender, Groundwater Modelling, Managed Aquifer Recharge and Windows Information System for Hydrogeologists (WISH). Training is currently underway in the Democratic Republic of Congo, Mozambique and Tanzania.

SADC-GMI is compiling a Directory of Borehole Drillers and collaborating with WaterNet and AGW-Net to develop a course on “Cost-effective Boreholes Drilling”. SADC-GMI’s work in creating an enabling environment, research and capacity building culminate in the need to enhance the sustainable access to the groundwater resource through infrastructure development. Focal groups for water sector stakeholders are now being established within each SADC Member State to help take forward these aims in each member state.

* SADC member states are: Angola, Botswana, Democratic Republic of Congo, Lesotho, Madagascar, Malawi, Mauritius, Mozambique, Namibia, Seychelles, South Africa, Swaziland, Tanzania, Zambia, Zimbabwe

IAH AWARDS ANNOUNCED IN DUBROVNIK

The IAH awards for 2017 were announced at the General Assembly (Annual General Meeting) of the Association, held on Tuesday 26 September during the Dubrovnik congress, and presented by Antonio Chambel, IAH President.

The Presidents' Award is determined by the current and past presidents. In 2017 the award was



given to Dr Petar Milanovic, who has been an excellent ambassador for IAH and for groundwater overall, and a worthy recipient. Petar is pictured (left) receiving his award from Antonio.

The title of Honorary Member is from time to time given to those who have given exceptional services to IAH over a long period. Following a recommendation by Council, the General Assembly voted to award Dr Wilhelm Struckmeier, affectionately known as Willi, who has been a member and long-standing servant of IAH since 1977.

IAH's Applied Hydrogeology Award, first given in 2016, is presented to "a groundwater professional who has made an outstanding contribution to the application of hydrogeology, preferably in developing countries or in support of international development". Nominations are invited in March of each year; we are grateful to the panel of Jane Dottridge, Callist Tindimugaya and Willi Struckmeier for their careful considerations. The Award was presented to Dr Han Zaisheng, whose geothermal energy estimates for China provide the foundation for current development of renewable power and energy usage. He continues to support both China and Asia in developing groundwater sciences.

Finally, the IAH Distinguished Associate Award is presented to a person who is not a groundwater professional but has made an outstanding contribution to the understanding, development, management and protection of groundwater resources internationally. The Award is made by the IAH Executive Committee following consultation. The Award for 2017 was presented to Dr Kerstin Danert, a Water Specialist at Skat, Swiss Resource Centre and Consultancies for Development. Dr Danert was unable to attend congress but sent a message of thanks to colleagues at the General Assembly who, after watching one of the Rural Water Supply Network (RWSN) videos, were delighted to acknowledge her personal contribution to the enhancement of wastewater management and groundwater protection worldwide.

The link to the video is given below.

We'd like to take the opportunity to congratulate again all the recipients. You can find out more about this year's awardees as well as general information concerning our awards scheme and process on our website.

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<https://iah.org/about/awards>

<https://vimeo.com/channels/drilling/185289895> (video link)



IAH BOOK SERIES

FOCUS ON IAH BLUE BOOK SERIES

At its meeting in Dubrovnik, Council agreed to close the Green Books Series (Selected Papers) and to focus entirely on production of its Blue Books (International Contributions to Hydrogeology). It was noted that the Green Books had served a valuable need to disseminate good science presented at conferences. However, it was also noted that this role has now been overtaken by rapid digital dissemination at conference level. The final Green Book is likely to be published in 2019.

The Blue Book Series continues to languish with few proposals in the pipeline and only one book currently in preparation. Various changes to IAH policy regarding the Blue Book Series, each aimed at improving the output of the Series, will be put to the Executive at its next meeting. In the meantime, the Editor-in-Chief would like to recruit three 'sub editors' who each bring at least one specialism to the table. Specialisms might be regional, for example North America, or they might be discipline-based, such as human hydrogeology, including governance and institutional issues. Such an active 'Editorial Board' would better help to stimulate the initiation of new ideas and invitations to

publish in the Series. Each Sub Editor would receive one free copy of all books published in the Series, by way of appreciation from the publisher. It is anticipated that one of the three Sub Editors would eventually succeed the current Editor-in-Chief.

It is envisaged that the role would occupy only a few hours each month, including a Skype meeting between the Editorial Board members. English language proficiency is not a prerequisite. If you are interested in the role of Sub Editor Books, or if you would like further information on this role, please contact Nick Robins at books@iah.org.

It is essential that we make this work in order that we, collectively as an Association, retain our remaining Blue Book Series. If you have a title that you would like to champion for the Blue Book Series, even an idea or a theme, then please share it so that it can be made to happen.

IAH Council agreed last year that, where appropriate, an honorarium can be paid to help allay costs. There can be no new books unless authors come forward to prepare them.

NICK ROBINS

 <https://iah.org/iah-book-series>

New Degree Course Area on IAH website

As previously reported, we are compiling a new "degree course" area on the IAH website. Thanks to all those who submitted responses to our earlier call using the Survey Monkey platform - we are currently working with our developers to best present this information on a listing. We are also developing a suitable submission form for future use by degree course providers.

Look out for future news concerning this on our website and social media - it is our intention to have the listing "live" by the early part of 2018.

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Questions/Comments: education@iah.org



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COUNCIL MEETING, SEPTEMBER 2017, DUBROVNIK

Antonio Chambel, IAH President, welcomed the Council to the annual meeting, which was held during the Congress in Dubrovnik. Much of the discussion centred on the ambition to do more, in line with our mission statement, and how this could be achieved.

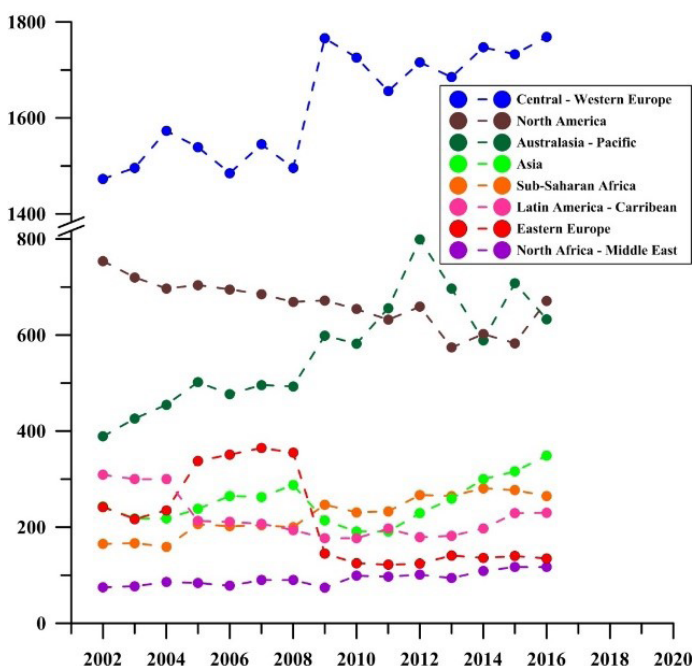
It was noted that in 2016 the operational deficit had lessened, after a number of years where activities have been supported by our financial reserves. However, with inflation beginning to rise in the UK, where much of our expenditure takes place, and the agreement to take on a 5th Editor for the Journal, it was clear that running costs would increase next year. In consequence, Council recommended that there should be a small increase to membership fees, but that this must be moderated by making progress in generating income from other sources. This will be a priority for the coming year. The IAH annual financial report can be found at <https://iah.org/about/reports/management>.

Teodora Szocs reported that in the past years there had been a gradual rise in membership in most Regions, though by contrast there has been a decline in North America. There were now members in 133 countries and 46 national chapters, including a new chapter in 2017 in Mongolia. Although the number of members was a little below the 4169 achieved in 2016, it was thought that there might still be further registrations before the end of the year.

Regional Vice Presidents Carlos Molana and Callist Tindimugaya reported that discussions had taken place for establishing further chapters in Latin America and Africa. Makoto Taniguchi and Wendy Timms highlighted the joint activity that had taken place between IAH Regions with conferences and, ahead of the Congress in Korea, such meetings taking place between Asia and Australasia and Pacific Regions. Joanne Thompson described schemes in North America for supporting student and early career hydrogeologists, through scholarships and other awards. Natalia Vinograd presented written proposals for increasing corporate membership in Eastern Europe and Central Asia, focusing on the medium and small research organizations and enterprises, and planned to contact National Chapters about this.

Bruce Misstear described the largely good progress achieved with Forward Look 2011-2020, but highlighted further activities for enhancing education and development of science, increasing alliances with other agencies and continuing growth in membership and corporate support. These will be priorities for the remaining 3 years of the Forward Look. As part of this, Kellie Nicholson described how the website is being developed to be a better source of information and an educational resource. It hosts an increasing list of training events, conferences and news items. A new working group will be established to develop further our educational resources and opportunities, which Marco Petitta will lead.

Dave Kreamer gave an update on Commissions and Networks and noted that generally they were making good progress. There had been proposals for new commissions, but it was not clear whether they might be accommodated within already existing groups. There was also discussion on succession planning to provide support for future management of these groups.





From left: Ken Howard (Canada, by window); Carlos Molano (Colombia); Bruce Misstear (Ireland); Makoto Taniguchi (Japan); Antonio Chambel (Portugal); Raquel Sousa (ECHO Special Advisor; Portugal); Marco Petitta (Italy); Joanne Thompson (Canada); Teodora Szocs (Hungary); Dave Kreamer (USA); Ian Davey (UK); Wendy Timms (Australia); Callist Tindimugaya (Uganda)

Council confirmed its continuing desire to develop further active links with a range of other organisations that share our aims in promoting sustainable groundwater management. Existing connections include UNESCO, GRIPP (Groundwater Solutions Initiative for Policy and Practice), IWMI (International Water Management Institute), IGRAC (International Groundwater Resources Assessment Centre) and INBO (International Network of Basin Organisations).

Ken Howard, who is liaising with the 2018 Congress organisers, introduced Dr Kim and Dr Lee from the Korea delegation. 'Groundwater and Life' will have 9 scientific topics, pre-Congress training courses, and mid- and post- Congress excursions. Plans are being made for up to 700 delegates to attend the next IAH Congress in Daejeon.

IAN DAVEY

Latest IAH Annual Report

As we were compiling this newsletter, we were also finalising the IAH annual report and summary of finances for 2016. In response to positive feedback we have again adopted a similar format to previous years, with the aim of producing a report which is readable and well-illustrated. We also endeavour to highlight all the activities of the Association and some of the ways in which we bring groundwater science to not only our membership but to broader audiences.

Much of our work is due to the efforts of the many volunteers who give up so much time to participate in and support IAH. Thank you! We do, of course, depend on you to provide us with updates and reports to keep IAH

members informed and to encourage them to participate, and from which we can select material for the overall IAH summary, so please keep sending them to us!

Links are also provided in the report to further information for those who are interested. We hope you like this approach, and we would be very happy to receive feedback.

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 <https://iah.org/about/reports/management>



COMMISSIONS & NETWORKS

Activities of IAH's commissions and networks include contributing to the science of groundwater and undertaking outreach, education and training. We encourage you to find out more and to make direct contact with them (you do not have to be an IAH member to participate). We also welcome suggestions for new topics or activities.

SECRETARIAT



<https://iah.org/groups/commissions-networks>

Questions, ideas or comments? email info@iah.org

KARST COMMISSION

Commission welcomes new team of Chairs

After eight years in office, the IAH Karst Commission (KC) has been handed over to a new team of Chairs.

As members will be aware, Nico Goldscheider (Germany) served as Chair of this Commission from 2009 to 2017, supported by two Co-Chairs, Neven Kresic (USA) and Jiang Guanghui (China). Over the course of this period KC members have met annually, at nine international conferences, during which the Commission also organised scientific sessions and field trips. Members of the commission have jointly published numerous books and special issues dedicated to karst hydrogeology, including a series of "Reviews in Karst Hydrogeology" consisting – to date – of eight papers. It has also established the "Young Karst Researcher Prize", with the total of 27 awardees since 2009. Several international training courses have been developed and offered on four continents.

Earlier in 2017 the former team of Chairs jointly decided to retire, to make room for new people and ideas, and organised transparent elections for a new team, with the input of IAH's Secretariat. This was the first time that an IAH commission had organised such an election process using an anonymous electronic voting system.

On 18 September 2017, Zoran Stevanovic (Serbia), Augusto Auler (Brazil) and Cheng Zhang (China) were elected for a period of 4 years as a team of three Chairs of equal standing, with rotating leadership. Zoran Stevanovic is currently serving as the first Principal Chair within this rotating system. The new team organised the annual Karst Commission meeting during the 44th IAH Congress in Dubrovnik, which was attended by more than 50 members and friends of the commission. At the meeting,

Nico Goldscheider was unanimously elected to the newly established position of Past Chair of the Karst Commission.

Activities during the 44th IAH Congress in Dubrovnik

The Karst Commission (KC) was extremely active during congress in September. At the first congress plenary session Past-Chair Nico Goldscheider presented a thematic lecture on the results of the recently completed WOKAM (World Karst Aquifer Map) project, which was implemented as part of WHYMAP (World Hydrogeological Map). The KC significantly contributed to this project; many members of the Scientific Advisory Board and regional experts being KC members. The printed map (1:25 and 1:40 million) was distributed at the congress through the desk of the UNESCO, which had supported many activities during the five years of work on the WOKAM project.

As per the expectations of the Scientific Committee, the old historical city of Dubrovnik - located in heart of classical Dinaric karst - was the right choice, prompting many colleagues to present their achievements and novelties under the congress' topic T.5 titled "Groundwater in Karst Systems". This topic comprised six sub-topics: Sustainability of Karst Aquifer Use – Global and Regional Outlooks; Functionality and Control of Groundwater Flow in Karst; Modelling of Flow and Contaminant Transport in Karst; Protection of Karst Sources and Environment; Karst Groundwater Quality and Contamination; and Novel Methods and Techniques for Karst Aquifer Characterisation. In addition, several of the keynote lectures were presented by KC members and/or others dealing with karst hydrogeology. Karst aquifers were also the subject of one of the pre-congress



workshops entitled “Water Resources Management and Engineering Challenges in Karst Aquifers” (conveners: Z. Stevanovic, P. Milanovic and S. Milanovic).

The “Young Karst Researcher Prize” was established by KC in 2009 and, including Dubrovnik, 27 young researchers have received the award. During congress the Prize Committee decided to award the three excellent studies presented by Jake Longenecker from USA, Giorgia Lucianetti from Italy and Chen Zhao from Germany.

As previously mentioned, the annual meeting of the Karst Commission took place on 26 September. The active and fruitful discussion raised many issues such as membership categories, website maintenance, sponsorship, publishing, mid-term meetings and field trips, as well as educational activities. The next annual meeting will take place in Besancon, France during the EUROKARST conference in July 2018.

Seven of the congress excursions included a visit to large springs and karst features in Croatia and the neighbouring countries Bosnia and Herzegovina and Slovenia. All were guided by KC members.

ZORAN STEVANOVIC AND NICO GOLDSCHIEDER



Members of Prize Committee and awardees (from the left: Nico Goldscheider, Jake Longenecker, Giorgia Lucianetti, Chen Zhao, Natasa Ravbar and Francesco Fiorillo)

Ed: Dave Kreamer, Vice President for Science and Programme, thanked Nico, Neven and Jiang and said, “I greatly appreciate their dedication and hard work in making the Karst Commission so successful over the past years and I wish the Commission well for its future”. He acknowledged, too, their support for the incoming team, assisting them as they start in their new roles.

REGIONAL GROUNDWATER FLOW COMMISSION (RGFC)

The Regional Groundwater Flow Commission co-organized a session at the 44th IAH Congress titled “Groundwater management and energy source development in a changing climate” (T 1.2). The oral and poster session attracted several contributions in wide range of topics including surface water–groundwater connection, managed aquifer recharge, groundwater management, numerical and geochemical analysis and predicted effects of climate change. The session was conveyed by Ádám Tóth (Eötvös Loránd University, Budapest, Hungary, RGFC Secretary) and Roland Barthel (University of Gothenburg, Sweden). Regional groundwater theory was also present at other topics and sessions such as karst hydrogeology, hydrochemistry of thermal and mineral waters and groundwater-dependent ecosystems.

During the social events and breaks, the Commission offered willingly its support to the organisers of the upcoming IAH Congress held in Daejeon, South Korea. The representatives proposed some topics and proposal of possible sessions to enrich the Korean Congress. The details of the planned IAH-CRC “blue book” was also discussed with Janjaap Blom from CRC Press. Thanks to networking opportunities, it was also realised that there is a need for greater cooperation between the Groundwater and Energy and Regional Groundwater Flow Commissions.

ÁDÁM TÓTH



RGFC Coffee break: fruitful discussion while enjoying the coffee with Carlos Molano

 <https://regionalgwflow.iah.org/>

[continued over...]

URBAN GROUNDWATER NETWORK

There was both an urban groundwater conference session and network meeting at the Dubrovnik Congress. Both were well attended with significant new members, and there were very constructive and productive discussions at the network meeting. These concerned how IAH urban network can work to help increase awareness of the importance of urban groundwater resources within urban planning, utility services, and the importance of urban groundwater resources in achieving the SDGs. Presentations within the conference session highlighted the importance of developing better understanding of integrated management of urban groundwater resources to maintain supply, and manage future demands – issues of saline intrusion, functionality of urban groundwater supplies, and integrated planning approaches all being presented.

The IAH Groundwater Network pages will be updated during the course of the next several months, with the aim of building links and resources to these discussion and science areas.

HELEN BONSER



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GROUNDWATER AND CLIMATE CHANGE COMMISSION (CGCC)

The IAH Commission on Groundwater and Climate Change (IAH-CGCC) held its annual meeting at congress in Dubrovnik on Tuesday 26 September. During the meeting it was announced that Tibor Stigter from IHE Delft (<https://www.un-ihe.org/tibor-stigter>) had agreed to take over the role from Richard Taylor as co-chair. In the same meeting Bridget Scanlon also asked if there were any volunteers to take over her role as co-chair, and following a few days of consideration, Jodie Miller (<https://www.sun.ac.za/english/faculty/science/earthsciences/staff-and-postgrads/academic-staff/dr-jodie-miller>) agreed to do so. Together with Jianyao Chen, Tibor and Jodie will continue to promote networking and dissemination around the topic of groundwater and climate change, ever growing in importance.

During the meeting in Dubrovnik, several key initiatives and ideas raised previously in Montpellier were followed up:

Networking and experience sharing: increasing awareness, among the commission members and beyond, of developments in the field of research and practice evaluating the relationships between groundwater and climate change including both impacts and adaptations. The commission agreed to utilise existing tools, such as social media, to promote CGCC and to network generally.

Access to literature: stimulate the access to both peer-reviewed publications behind firewalls and difficult-to-access grey literature reports in currently limited circulation, by expanding the list of accessible databases on the website and providing a service of posting literature provided by commission members. Also here the use of social media tools such as ResearchGate was considered as the most feasible. In addition, a possible link to the KINDRA project was discussed; it was agreed that it would be of interest to filter out the work specific to the area of groundwater and climate change.

Besides looking at climate change impacts on groundwater, the importance of drivers such as population growth, development and changing habits, all leading to increased (ground)water demand, will also merit attention within the activities of CGCC, as will the role of groundwater in adaptation. Greater contact will be established with the IAH Commission on Managing Aquifer Recharge. One of the members of the commission, Luís Ribeiro from the University of Lisbon, mentioned the importance of ongoing research on techniques used by our ancestors in recharging groundwater, thousands of years ago, for instance in Central and South America (e.g. Katharina and Rojas 2003, Yapa 2016). Understanding these techniques is extremely important to assess the feasibility of current practices of measures in adaptation to climate and global change.

Finally, to stimulate the network and disseminate CGCC activities, closer collaboration will also be sought with the Early Career Hydrogeologists' Network (ECHN).



<http://www.gwclim.org/>

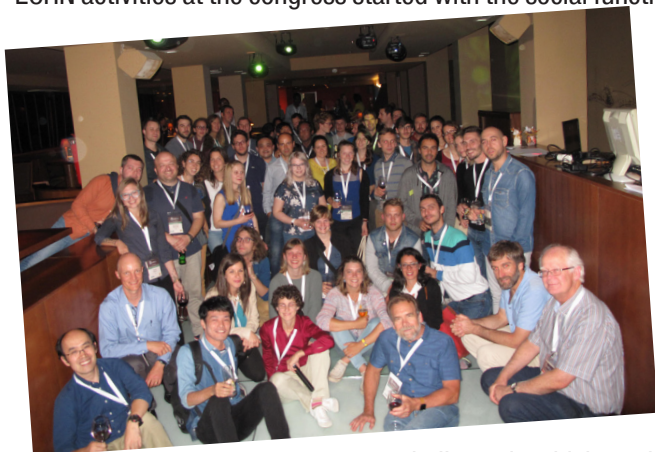


EARLY CAREER HYDROGEOLOGISTS' NETWORK (ECHN)

The IAH Early Career Hydrogeologists' Network (ECHN) was present at the 44th IAH Congress in Dubrovnik, Croatia, organising several events with the objective to improve networking among early career attendees and also to share tips for career development. We were delighted to see a great turnout in all our events, with such enthusiastic participation of hydrogeologists from all over the world!

Among all the excellent scientific contributions from early career hydrogeologists, we are pleased to congratulate Aleksandra Kiecak (Helmholtz Zentrum München, Neuherberg, Germany), as the winner of the ECHN best oral presentation, and David Walker (School of Civil Engineering and Geosciences, Newcastle University, UK) and Laura Scheiber (Institute of Environmental Assessment and Water Research, Barcelona, Spain) for the best poster presentations. The total number of participants in running for the awards were 20 for poster and 40 for oral.

ECHN activities at the congress started with the social function on Monday night held at the hotel's disco, creating a good



atmosphere of new encounters, conversations and dance. As one of the main aims of ECHN is to create links among hydrogeologists, beyond their own country border and/or present status, we invited all participants to show that we all share something in common. Question by question, we found hydrogeologists who work on karst aquifers, groundwater modellers, experts on field experiments, but also people who challenge themselves by moving abroad for their studies, and those that overcome shyness to present their research project for an audience. This continued with another

challenge in which participants were randomly distributed in groups to solve a tricky problem – they had to try to recreate and reorder a presentation based on hydrogeological case studies from Croatia. Six studies were mixed together as part of the accompanying information; it was only through collaboration, demonstrating expertise in hydrogeological field experiments and lab activities, etc. that the participants found it possible to find the right solution. Thanks to Tamara Marković and her colleagues at the Croatian Geological Survey and the University of Zagabria, for providing the case studies.

The special ECHN session this year was entitled “Successful projects: from application to management. - Tips from senior hydrogeologists in the government, industry and academia to early career hydrogeologists”. Again, this was a successful event with more than 30 early career participants, filling room capacity. We had the pleasure of three senior hydrogeologists as panelists: Rowena Hay, the director of the private consulting company Umvoto located in South Africa; Marco Petita, professor at the “La Sapienza” University of Rome, Italy; and Tibor Stigter, a senior lecture at IHE Delft, Netherlands. All shared their experiences of project management and career development. The attendees had opportunity to ask questions and interact with the panelists.

The Annual General Meeting (AGM) of the ECHN was held on Tuesday evening. Some 19 attendees were present, most of whom were keen to learn more about how the network operates and showing interest in future efforts, including participation in ECHN's steering committee.

[continued over...]

Commissions & Networks

[...continued from previous]

(...ECHN)

The first keynote lecture by early career hydrogeologists as invited speakers in an IAH congress was given by Viviana Re and Raquel Sousa. The title of the lecture was 'Responsible (ground) water Scientists- A heritage for future generations'. Viviana and Raquel talked about the challenges and opportunities for a new generation of responsible water scientists to reducing the impact on the environment by making conscious in our daily life, especially in respect to plastic based products. The lecture was well received by the congress participants and we certainly hope that ECHN can bring further topics for discussion in future IAH congresses.



We would like to acknowledge the ongoing support from IAH's Council, Executive and Secretariat. Thanks again also to Tamara Marković and the organising committee, for facilitating and supporting the ECHN events this year at congress. Furthermore, we truly appreciate the interest and presence of many early career hydrogeologists in our events. Such support from everyone encourages us to continue organising similar events in the future, such as at the 45th IAH Congress in Daejeon, South Korea, in 2018.

Before the next congress, we would like to focus on increasing the number of participants in the network and improving the connection with local national groups. We invite anyone interested to be part of the steering committee or to start a local ECHN branch to visit our website (www.echn.iah.org) and send us an email. To read latest news and developments, visit our social media sites on LinkedIn, Twitter and Facebook.

Thanks again!

CARLOS MALDANER AND ECHN STEERING COMMITTEE

 <http://echn.iah.org/>

 @iahgroundwater

GROUNDWATER AND ENERGY COMMISSION

The Groundwater and Energy Committee is slowly gaining momentum. We had a number of excellent talks in the energy related sessions in Dubrovnik, including one by co-chair Bridget Scanlon concerning co-produced water that generated a lengthy discussion that ran into our commission meeting on Thursday afternoon. Present during the commission meeting were 13 attendees from 11 countries, and discussion included issues around unconventional oil and gas, geothermal energy and carbon sequestration.

One of our current initiatives is a review of unconventional oil and gas impacts on groundwater. We have thus far been able to engage researchers from Australia (Wendy Timms), Canada (Grant Ferguson), the United Kingdom (Ian Davey and Rob Ward) and the United States (Bridget Scanlon). We are looking to broaden our coverage of this issue globally from areas where development has occurred or has been considered, including areas with moratoria. In a related effort, Scanlon and Ferguson are currently undertaking a broader review of co-produced fluids and disposal practices. Several attendees at Dubrovnik expressed interest in having the Groundwater and Energy Commission undertake work on geothermal energy. This certainly fits within the scope of the commission and we hope to pursue work in this area.

GRANT FERGUSON

 grant.ferguson@usask.ca

BURDON GROUNDWATER NETWORK FOR INTERNATIONAL DEVELOPMENT (IAH-BGID)

During IAH's congress in Dubrovnik IAH-BGID organised a two day of session on 'The role of groundwater in reducing poverty', chaired by Alan MacDonald and Viviana Re.

The session focused on groundwater supplies in developing countries and possible solutions to enhance the crucial role of groundwater in poverty reduction. On behalf of IAH-BGID we would like to thank the 13 speakers that contributed to making the session such a success, promoting fruitful and animated discussions.

As part of the network commitment to support sustainable groundwater development and management for poverty reduction, we will continue to try to make the IAH-BGID session a regular spot at IAH international congresses. This of course, dependent on the support of the local organising committees and all interested members.

On Monday 26 September IAH-BGID's Annual General Meeting was held at the congress venue, providing a precious moment to present our ongoing activities and discuss future actions. Anyone keen to be actively involved in the network is encouraged to visit our website (<https://burdon.iah.org/about-bgid>) or contact us at iah.bgid@gmail.com.

IAH Free Book Scheme

IAH-BGID, in collaboration with the IAH Secretariat, is again undertaking the highly appreciated free book scheme offer. The aim of the scheme is to give access to hydrogeological books for IAH members in Sub-Saharan Africa, where it is difficult to obtain reference books and/or reliably access the web. IAH-BGID has negotiated agreements with a number of publishers, resulting in a list of 29 text books and reference books from which Sub-Saharan IAH members can choose. At the time of writing this article it is intended that relevant members in sub-Saharan Africa will receive an email from IAH-BGID containing the list of available books by early December. Questions or comments regarding this scheme? Contact us at iah.bgid@gmail.com



ALAN MACDONALD AND VIVIANA RE



<https://burdon.iah.org/>



The KINDRA European Inventory on Groundwater Research (EIGR) is an inventory tool for data sources (metadata) related to hydrogeological research and knowledge, merging academic and practitioner communities.

Developed during the KINDRA project granted by EU, the EIGR aims to catalogue the groundwater knowledge scattered among Europe - and the entire world - for use in monitoring research trends and gaps and to support existing policies. EIGR is now available (with over 2000 records already) to all groundwater practitioners looking for information and wishing to share their research. View the website <http://kindraproject.eu/eigr/>

The inventory needs to be improved and further populated, for example with additional information on archives, monitoring databases, guidance and best practice documents, etc., at national and international levels. We urge everyone in the groundwater community to contribute to the project's success by providing information to improve representation. It is easy to become a contributor to EIGR - email reg@kindraproject.eu or coordinator@kindraproject.eu.

Thank you!

CONGRESS: CHAPTERS SHARE SUGGESTIONS

As always, congress provided a valuable opportunity for members of National Chapters to 'swap notes' and learn from each other. During the chapters meeting we heard how each year the Portuguese Chapter supports a lecture or case study which is presented to audiences at different venues across the country, in a similar way to the NGWA Darcy lectures. In a national poll, the Swedish Chapter found that members would particularly like training courses and legal advice. It was noted too that in Sweden, IAH is of less interest to those not in academia, though this does not appear to be the experience for all chapters, several which are actively supported by members from consultancies.

Later in the week a meeting of Asia Chapters was held to discuss regional collaboration on groundwater and hydrogeology, and to present progress reports and plans of working groups. Members from China, Korea, Japan, Thailand, Indonesia, Malaysia attended. Regional Vice President, Makoto Taniguchi, encouraged those present to be more involved in IAH's commissions and networks. Another important issue for the meeting was promotion of the 45th IAH Congress, which will be held in September 2018 at Daejeon in Korea.

IAN DAVEY



Australia

Highlights from Australasian Groundwater Conference

With over 340 people in attendance from across the globe, the 2017 Australasian Groundwater Conference was a great success!

Held at UNSW's John Niland Scientia Building, NCGRT and IAH delivered a conference complete with over 260 oral presentations, including plenary and keynote presentations, panel sessions, posters and exhibitions showcasing the latest research and innovation in groundwater in the region.

There was an array of interdisciplinary and specialist talks which spanned across the conference themes. The 6 panels including an interactive panel discussion provided a robust platform to address critical groundwater issues.

Delegates experienced great opportunities to network including a sumptuous dinner at the Coogee Rooftop Pavilion, networking drinks

and for some, a Trivia Night and field trip experiences to the Blue Mountains and Orica Botany Groundwater Cleanup Project.

We would like to thank our sponsors for their generous support. Without their involvement and generosity, we would not be able to achieve such a successful result.

FIONA ADAMSON



IAH Vice President for Australia & Pacific Dr. Wendy Timms moderating panel discussion on energy futures at 2017 Australian Groundwater Conference



Canada

Report from GeoOttawa

The 70th Canadian Geotechnical Conference and 12th Joint Canadian Geotechnical Society/IAH Canadian National Chapter Groundwater Conference, GeoOttawa 2017, was held from October 1-4. Over 900 delegates participated in four days of plenary and technical sessions, workshops, short courses, business meetings, social events and the 10th Annual Awards Gala. Just just under 400 plenary and technical session papers were presented during the conference, with approximately 25% of these in the groundwater sessions. Highlights of the conference included the Kamini Singha's Darcy Lecture, as well as lectures by the 2016 Farvolden Award recipient, Rene Lefebvre of the Institut national de la recherche scientifique, and the 2017 Farvolden Award Recipient, Mike Wei of the British Columbia Ministry of the Environment and Climate

Change Strategy. The Tóth Award for best student paper in Canadian hydrogeology was given to Samantha Morgan for her paper "Using Petrel to integrate geophysical datasets for investigating the three-dimensional hydrostratigraphic architecture of a buried valley network".

Former IAH CNC president and 2012 IAH Congress Steve Holysh received the IAH CNC Long Term Service Award. The conference was a great success due to the efforts of the organizing committee, which included IAH CNC members Nell van Walsum and Sean Sterling. Our 2018 conference will be held in Edmonton, Alberta from Sept 23-26.

GRANT FERGUSON



<http://www.iah.ca>



Belgium

Evening Classes - a formula for success?

IAH Belgium's committee commits itself to organize at least one series of evening classes per year, in Dutch as well as in French, to address the demand for continuing professional development within our community. These classes are open to all members and non-members, in hope of attracting more people towards IAH's activities. The courses are presented by IAH members, Belgium committee members and external people, according to topic and available expertise. The topics are chosen based on consultation with local members and from a periodic survey.

As we are mainly targeting professionals, the courses are taught in the evening, and generally three or four sessions (one per week) are required to discuss all aspects of the selected topic. Recent classes were entitled "Practical introduction to groundwater modelling". They consisted of three sessions, presented by IAH Belgium's president, Prof. Dr. Ir. Marijke Huysmans, followed by hands-on exercises provided by Dr. Bart Rogiers, member of the committee, which took around 1.5 hours. During the first session we

discussed the basics of groundwater flow modelling and the importance of boundary conditions. The second session dealt with calibration of groundwater flow models, while the third session looked at particle tracking and solute transport modelling. The exercises were performed with several open source USGS tools, which allowed the participants to use these tools at work, without additional costs, share their experiences with colleagues etc.

The courses were fully booked in no time. The audience represented a mix of hydrogeologists, soil scientists, geologists, and ecohydrologists, both from the private and the public sector. The funds obtained by these successful events are being invested now in new initiatives such as a "Young Hydrogeologists Day", where Masters students and recent graduates can win a cash prize and network with companies to discuss opportunities for starting their professional life.

TOM DIEZ



<https://belgium.iah.org/>

[continued over...]



Great Britain

Ineson Lecture, 25 October 2017: Africa, Groundwater and the Sustainable Development Goals

Dr Callist Tindimugaya, Commissioner for Water Resources Planning and Regulation in the Ministry of Water and Environment, Uganda, and IAH Vice President for Sub-Saharan Africa Region, gave the GB Chapter's prestigious Ineson Lecture to an audience of 115 at the Geological Society's Burlington House in London. The lecture is named after Dr Jack Ineson, whose career was spent mostly with the Geological Survey of Great Britain, and who used his knowledge of mathematics and statistics to help introduce quantitative methods to British hydrogeology.

Callist presented the challenges and opportunities for the hydrogeological community in Africa and considered the fundamental importance of groundwater to the sustainable development goals. He highlighted the lack of groundwater specialists supporting NGO work in water resources development and drinking water supply, and emphasised the need to improve contracts and data gathering. It was very apparent that IAH members and skill-sets could play a vital role in managing many of the issues that Callist raised, for example through training programmes and technical oversight.

Several supporting talks were given. Guy Howard of DFID stressed the need for synthesis of research outputs, rather than detailed results, and realism concerning the financial constraints and trade-offs inherent in developing and implementing policy. Brigid Ó Dochartaigh of the British Geological Survey (BGS) presented examples of good data management and noted the continued importance of field data for interpreting more recently developed techniques such as water level monitoring by satellite. Richard Taylor of University College London (UCL) demonstrated the importance of long term records for understanding groundwater recharge and the impacts of climate change. Dan Lapworth (BGS), highlighted the potential of groundwater for supporting urban development in Africa and the urgent need for groundwater protection and



regulation. The day included a lively debate on whether a levy should be paid towards groundwater monitoring every time an NGO or private institution drills a borehole.

Two awards were made. The Geological Society's Whittaker Medal went to IAH member Jane Dottridge of Mott MacDonald; and the John Day Bursary was awarded by the IAH British Chapter to Rachael Fletcher to support her MSc Hydrogeology project at the University of Birmingham.

Presentations and posters can be downloaded from the IAH British website at <http://www.iah-british.org/news-events/ineson-lecture/ineson-lecture-2017/>

IAN DAVEY



<http://www.iah-british.org/news-events/ineson-lecture/ineson-lecture-2017/>





Chile

New Committee Elected

The IAH National Chapter for Chile undertook a transparent election process for its key officers in October. The results are presented herewith:

President - Jorge Rodriguez jofarocasanova@gmail.com

Vice President - Wolf Von Igel wolf.vonigel@icass.cl

Secretary - José Yáñez jyanezl@gmail.com

Treasurer - Felipe Ortuño felipj.ortuno@gmail.com

Director 1 - Linda Daniele ldaniele@ing.uchile.cl

Director 2 - Iván Romero ivn.ro10@gmail.com

The chapter continues with the same commitment to promote the knowledge of water resources for the environment, the Chilean society, and industry, through the dissemination and promotion of learning and development of the technical aspects of hydrogeology.

We wish the new committee well and look forward to receiving further news from the chapter in 2018.

JOSE YÁÑEZ LÓPEZ AND IAH SECRETARIAT



<http://aih-cl.org>



ABOUT IAH'S NATIONAL CHAPTERS

IAH's National Chapters are a valuable means of bringing scientific, professional and social benefits to our members and community, and also enable the Association to promote sound and sustainable groundwater use at a country and regional level. Some even collect fees in local currency for the convenience of our members. National chapter committees are run on a voluntary basis by members and we are hugely grateful for their efforts.

We currently have over 40 national chapters - information regarding these, including contact details are provided on our website. Furthermore, conversations are taking place about setting up new IAH chapters in Malawi and Ecuador and enquiries have been received from colleagues in Panama, Lebanon and Nepal about the possibility of doing so.

Being a world-wide organisation, we are always keen to establish National Chapters in additional countries; this may only require a group of around 6 or so enthusiastic individuals to do so. If this is of interest to you do get in touch.

IAH SECRETARIAT



<https://iah.org/groups/national-chapters>
email: info@iah.org

The screenshot shows the IAH website with the following content:

- International Association of Hydrogeologists**
the World-wide Groundwater Organisation
- Navigation menu: HOME, ABOUT, GROUPS, KNOWLEDGE, PUBLICATIONS, EVENTS, NEWS, JOIN US, DONATE
- National Chapters** section:
 - About our chapters**: IAH's National Chapters are a valuable means of bringing scientific, professional and social benefits to our members and community, and also enable the Association to promote sound and sustainable groundwater use at a country and regional level. Some even collect fees in local currency for the convenience of our members. National chapter committees are run on a voluntary basis by members and we are very grateful for their efforts.
 - We currently have over 40 national chapters and are keen to establish more. Use the listings below to find and contact your local chapter.
 - Alphabetical index: A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | U | V | W | X | Y | Z
 - Argentina**:
 - President: Carlos Schulz (cschulz@exactas.unipam.edu.ar)
 - Treasurer: Daniel Martinez (demarti@mdp.edu.ar)
 - Australia**:
 - President: Lange Jorstad (LJorstad@ceosyntec.com)
 - Secretary: Kyle Horner (kyle.horner@epa.nsw.gov.au)
 - Website: <http://www.iah.org.au>
 - Belgium**:
 - President: Alan Dassargues (alan.dassargues@ulg.ac.be)
 - Secretary: Tom Dier (tdierbelgium@gmail.com)
 - Website: <https://belgium.iah.org/>
 - Brazil**:
 - President: Everton de Oliveira (everton@hidroplan.com.br)
 - Secretary: Luiz Amore (luiz.amore@gmail.com)
- Right sidebar:
 - National Chapters**
 - Commissions, Networks & Working Groups**
 - NO CHAPTER IN YOUR COUNTRY OR REGION?**: IAH is always keen to establish more chapters and it may be that we have other interested individuals in your country or region hoping to establish one. Find out more.
 - National Chapters** (with globe icon)
 - Commissions & Networks** (with network icon)
 - Publications** (with book icon)
 - Learning** (with graduation cap icon)

From our sponsors...

IN SEARCH OF NIRVANA: DATA LOGGER ACCURACY

For hydrogeologists onsite collecting groundwater data comes with the territory but how far do you go to ensure accuracy? When is good enough just that, good enough? And if it is good enough at the beginning of a project, is it still good enough at the middle or at the end of the project?



Take data loggers. They are ten-a-penny and not a month goes by without seeing another come to the increasingly congested market. They look more or less the same, within a category they do the same thing and even the manufacturers' specifications are matched. So, choice is made according to other criteria like the reliability of the supplier; the "typical" accuracy which is often so different from the published specifications; the weight; the track record; durability and so on.

Over the years Van Walt has sold thousands of loggers but we've only seen a few hundred come back (from a variety of brands), for a "performance check". Normally we only see these returned data loggers because the data has been queried or because there was a discrepancy between the logger and dip meter value and then the question always arises: when did the item start to drift or miss-record?

It is our job to review these things. When we talk about water quality instruments we talk about verification and calibration but this is rarely discussed in the context of groundwater level loggers. Is this because this is a non-issue? Not in our world. We believe it might be because of an implied sense of security and therefore to our review as to how we would like to improve accuracy.

All things considered, loggers for the determination of Level and Electrical Conductivity, (as opposed to other parameters such as pH, Redox, DO, Turbidity) are pretty stable and reliable but they should still be periodically checked. We would set the period at 6 or 12 months for those two parameters.

That's why we are launching our new concept: "Logger for Life". This service means our customer never has to purchase equipment as it works on the basis of an "exchange" at each verification frequency. For example, 12 months for a water level data logger, 6 months for a combined Level and EC logger and 6 weeks for a multiparameter water quality installation. Replacement units are sent to the customer who exchanges with his or her current units and returns the originals to us. We verify the accuracy and if necessary recalibrate so that unit then becomes the replacement for another occasion. Essentially this mirrors our current equipment rental service but is extended for longer terms, usually the length of a project, a minimum of 6 months to five years or more.

Our "Logger for Life" service is particularly useful for projects with a medium to short-term duration but in principle it can apply for much longer periods as well. At the heart of the concept is that hydrogeologists can be assured of better data accuracy throughout the duration of a project.

VINCENT VAN WALT



Van Walt Ltd, specialist supplier of environmental research & monitoring equipment for more than 35 years.

<https://www.vanwalt.com/>



2018 - SELECTION

25-27 February – Tehran, Iran

36th National and the 3rd International Geosciences Congress, Iran

Fundamental Geoscience; Mineral Exploration; Geohazards; Water, Ecosystem and Climate Change; Mineral Processing and Instrumental Analysis; Geoscience for Society. The congress covers all aspects of earth sciences regional to local studies, and deep process to surface features, as well as human and earth interaction through mining or dealing with natural hazards. Organised by Geological Survey of Iran.

Website: <http://36nigc.conference.gsi.ir/en>

4-8 June – Ustroń, Poland

New Approaches to Groundwater Vulnerability

Third edition of International Groundwater Vulnerability Conference which is focused on New Approaches to Groundwater Vulnerability. Organised by University of Silesia.

Website: <http://www.vulnerability.us.edu.pl>

6-31 August – Stockholm, Sweden

World Water Week

Water, ecosystems and human development. Organised by SIWI (Stockholm International Water Institute).

Website: <http://www.worldwaterweek.org/>



9-14 September – Daejeon, Korea

45th IAH Congress

Groundwater and Life : Moving Science and Technology into Action. The IAH Korean National Chapter, Korea Institute of Geoscience and Mineral Resources (KIGAM) and Korean Society of Soil and Groundwater Environment (KoSSGE) are honoured to host the 45th IAH Annual Congress in Daejeon. This will focus on how groundwater science, technology and policy can help ensure all have equal rights for sufficient, safe and affordable water regardless of where they are born and live, or who they are.

Website: <http://www.iah2018.org/>



14-18 October – Adelaide, Australia

AGCC 2918 – Big Issues & Ideas in Geoscience

AGCC 2018 will be the largest Geoscience event to be held in The Asia Pacific Region since 2012. It features a wide-ranging scientific program and will examine and address current and emerging issues that effect geoscientists and our society. Organised by Australian Geoscience Council, with partners including IAH's Australian National Chapter.

Website: <https://www.agcc.org.au>



<http://iah.org/events>

For a fuller list of conferences, events and meetings and to submit an event



**45th
IAH CONGRESS**
The International Association
of Hydrogeologists

GROUNDWATER AND LIFE : Moving Science and Technology into Action

DAEJEON, KOREA

[September 9-14, 2018]

The IAH Korean National Chapter, Korea Institute of Geoscience and Mineral Resources (KIGAM) and Korean Society of Soil and Groundwater Environment (KoSSGE) are honoured to host the 45th IAH Annual Congress in Daejeon. This will focus on how groundwater science, technology and policy can help ensure all have equal rights for sufficient, safe and affordable water regardless of where they are born and live, or who they are.

The 2018 congress will be held at the Daejeon Convention Centre (DCC). This has world-class facilities, with 24 meeting rooms of various sizes and a grand ballroom that can accommodate up to 1,000 people. Daejeon is located in the centre of Korea, surrounded by mountains. It is a modern administrative centre and science and technology hub, but has roots that go back to ancient times. It is a cultural centre too, with its own orchestra and world class sporting facilities.



The topics to be covered are:

1. Life with groundwater: the role of groundwater in human life
2. Environmental change and groundwater
3. Sustainable groundwater resource & management
4. Groundwater & surface water: an integrated view
5. Coastal aquifer management
6. Groundwater quality & contamination
7. Groundwater and energy
8. Challenges for the deep geo-environment
9. Advanced tools & techniques for hydrogeology
10. Groundwater, society & policy

Pre-congress training courses and excursions are currently being planned. Mid-congress excursions are proposed to limestone caves, a national geopark, curative springs, a wetland conservation area and the national groundwater information centre. There will also be several post congress tours for participants to enjoy Korea's cultural heritage.

Key Dates

- Call for abstracts: November 2017
- Registration open: December 2017
- Abstract submission deadline: March 2018

Find out more:

<http://www.iah2018.org/>

