

NEWS

& information

IAH - THE WORLD-WIDE GROUNDWATER ORGANISATION

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

MAY 2020

Also in this issue:

- President & Secretary
- General Message
- World Water Day
- Member news and initiatives
- Competitions and calls
- Chapter updates
- Commissions & Networks
- Events listing

and the regular IAH announcements and news

A WORLD TURNED UPSIDE-DOWN...



The photo is from the Italian Early Career Hydrogeologists' Network (ECHN-Italy): #distantimauniti - distant, but united. A perfect statement for the IAH family.

Like everyone, we're adapting to the extraordinary circumstances of the Covid-19 pandemic. Given its significance we'd like to know how you're "doing hydrogeology" differently from normal practices via the return of our photo competition. See page 22 for details; please stay safe.

FUTURE AND FRONTIERS OF HYDROGEOLOGY

Dave Kreamer, IAH's Vice President for Science and Education, provides an update from the working group established in 2019, including present areas of focus.

Page 14

PAN-AFRICAN GROUNDWATER PROGRAM (APAGroP)

Further to APAGroP launch in late 2019 we have an update and insights from Dr Kevin Pietersen and James Sauramba.

Page 8



INTERNATIONAL
ASSOCIATION OF
HYDROGEOLOGISTS

Find us at <https://iah.org>. Connect by email info@iah.org and on social media:



MAY 2020

Can't get to site but still need to see what's going on?



Van Walt's remote monitoring systems deliver on performance & savings with data collected onsite delivered directly to your desktop, tablet or mobile

Contact us:



+44 (0) 1428 661 660
sales@vanwalt.com



+ 34 93 590 00 07
ventas@vanwalt.com



+64 (0) 3443 5326
salesnz@vanwalt.com

www.vanwalt.com

Multiple sensors can simultaneously connect via SDI-12, Modbus, Analog, Pulse

End to end encryption with plug & play visualisation through secure cloud server

Sophisticated independent power management for long term deployment

Data transferred via GPRS, Satellite & Radio for installation in even the most remote of locations

Economical for large networks

Ideal for Water Level, Temperature, Quality, Flow, Soil Moisture & many other parameters

Extraordinary times...

This newsletter has been produced during the extraordinary circumstances of the Covid-19 pandemic. The IAH Secretariat hopes that you, your families, friends and colleagues stay well during these uncertain times. We encourage you to take all the necessary precautions to keep yourselves safe but we are also very aware that many across the world may not have the availability of clean water for effective healthcare. The work of members in pursuing IAH's aims of raising awareness of groundwater issues and promoting the use of groundwater to ensure ready access to safe water takes on heightened significance.

We hope that, even under lockdown, you are able to continue your hydrogeological endeavours. We are interested to know more about how you have adapted your routine to cope with the restrictions so that you can remain productive. As can be seen on social media, many people have discovered a creative – and often light-hearted – way to add interest to their days and keep the rest of us distracted from the current difficulties. In our photo competition we invite you to show us how you are managing and perhaps finding new and sustainable approaches for the future.

2020 is IAH election year and the arrangements remain on course for a new Council to be in place in September. There are nominations for all the positions and, with matters of diversity and equality in mind, it is pleasing to see that there is a good representation of women amongst the candidates. Continuing to attract more women to hydrogeology and IAH membership remains critical to this for the future. Having accurate statistics on our members also helps, so please do think about providing your information on gender when you renew your membership for 2020!

Also remaining on course are the preparations for the IAH Congress in Sao Paulo, being run jointly with ABAS and AHLSUD, and scheduled for the end of September. We support the organising committee during these most challenging times for preparing an international conference, as do members of IAH who have said that hopefully the Congress can be the 'light at the end of the tunnel' that we can all look forward to. The organisers continue to look at how the pandemic is developing and are taking account of the various advice and guidance on health protection in their preparations. They have also

IN THIS ISSUE

Brazil congress update.....	4
Media Focus	5
From Our President & Secretary General.....	6
Applied Hydrogeology Award - Call.....	7
Pan-African Groundwater Program.....	8
World Water Day.....	10
Book Draw (1).....	11
IAH News	12
Future and Frontiers of Hydrogeology.....	14
Current Considerations.....	16
Ask a Member.....	16
Member competitions etc.....	20
New Members and updates.....	24
Chapter News.....	28
Commissions & Networks.....	30
Diary Dates & Events.....	32

removed the deadline for abstract submission and are planning "a range of technological innovations to bring groundwater and the 2020 Congress to all corners of the world". We wish them all the best in these most difficult of circumstances and hope that it is possible to see many of you in Sao Paulo later this year!

IAN DAVEY, IAH EXECUTIVE MANAGER





47th IAH Congress, São Paulo

LET'S LOOK FORWARD FOR A MOMENT, SHALL WE?

The Brazilian community of hydrogeologists, proudly represented by the Brazilian National Chapter of IAH, welcome you to the city of São Paulo for the 47th IAH congress, the first of its kind in Brazil!

Due to take place on 20-25 September 2020 under the theme 'GROUNDWATER 4.0: CONNECTED, VISIBLE AND ETHICAL', there will be sessions on hydrogeological science and technologies, as well as groundwater in the wider environmental and societal context. Register now or send your abstract: abas.iah2020.org/en/#meeting

ABOUT COVID-19: the organisers are keeping a close eye on how the situation is developing, in Brazil and across the world. They have already taken the decision to suspend indefinitely the deadline for abstract submission, so you have more time to prepare and submit your proposals. They have other back-up plans in preparation too. Hopefully this can be the 'light at the end of the tunnel' that we can all look forward to.

The CALL FOR PAPERS will be kept open indefinitely. Please, send your contribution! The list of themes is available at www.iah2020.org and complete information for abstract preparation can be found at <https://abas.iah2020.org/en/abstracts/>.

THE LARGEST GROUNDWATER COMMUNITY OF THE WORLD IS ALREADY ACTIVE! The themes of the IAH2020 are currently under discussion by the most eminent experts across the world. Get to know the active groups at: <https://abas.iah2020.org/en/find-out-more/> and how to access: https://abas.iah2020.org/wp-content/uploads/2020/03/IAH-2020_QR.pdf

FENAGUA 2020 (NATIONAL WATER TRADE SHOW) – This year will see the first game-designed groundwater trade show. The event app will be released shortly, with awards for the most interactive participants by message exchange, content access, timely posts, use of augmented reality, answers to your questions and much more. 93% of the Trade Show is already sold. You can check out the companies that are participating at <https://abas.iah2020.org/en/sponsorship/>. On this same link you can find the 3D video showing how the event will take place as well as the trade show map.

AIR FARE DISCOUNT WITH LATAM – LATAM is the official airline of the IAH2020 and offers a 10% discount on the best price at the company's website. Access www.latam.com.

OFFICIAL TRAVEL AGENCY – LEVITATUR is the official travel agency of the IAH2020, book your hotel with special prices at <https://abas.iah2020.org/en/official-travel-agency/>

 Congress website - <http://www.iah2020.org/>



Share knowledge and memories... @iahgroundwater #iahgroundwater



MEDIA FOCUS

A selection of groundwater features from around the world

NEPAL: GROUNDWATER FOR FOOD SECURITY

A recent study reveals that there is huge potential for using groundwater to irrigate the 600,000 ha of presently rainfed land in Nepal's Tarai. If agricultural land in the Tarai plains—known popularly as the granary of Nepal—is optimally utilized, the country's agricultural production can increase manifold to offset the current trade deficit.

<https://myrepublica.nagariknetwork.com/news/groundwater-for-food-security/>

CENOTES OF YUCATÁN JEOPARDIZED BY PORK INDUSTRY, CLAIMS NGO

The non-governmental organization Indignación told a press conference on Tuesday that the pig farming industry in Yucatán has put the region's groundwater at risk. Residents, too, allege that the industry pollutes the sinkholes, called cenotes, that have become a source of tourism revenue.

<https://mexiconewsdaily.com/news/cenotes-of-yucatan-jeopardized-by-pork-industry/>

HUGE AQUIFER DISCOVERED OFF CANTERBURY COAST COULD PROVIDE REGION WITH FRESH WATER

A huge undersea aquifer – with enough water to fill 800 million Olympic swimming pools – has been discovered off the Canterbury coast and could become a vital new source of freshwater for the region.

<https://www.stuff.co.nz/environment/120181588/huge-aquifer-discovered-off-canterbury-coast-could-provide-region-with-fresh-water>

PFAS CHEMICALS ARE CREEPING THROUGH SOIL TO GROUNDWATER

Levels of per- and polyfluoroalkyl substances, or PFAS, found in groundwater could be “just the tip of the iceberg” as the chemicals don't break down in the environment and are migrating down slowly through the soil, researchers say.

<https://www.futurity.org/pfas-chemicals-groundwater-soil-2279562-2/>

RESEARCHERS DISCOVER BUBBLING CO2 HOTSPOT IN PHILIPPINES

Groundwater flow from land to sea could have important coastal impacts but it is usually unrecognized. An investigation into acidic submarine groundwaters and carbon dioxide emitted from a volcano in the Verde Island Passage, make these 'Soda Springs' an ideal spot for studying how coral reefs may cope with climate change.

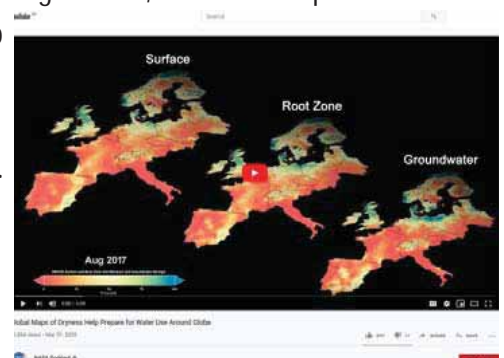
<http://www.sci-news.com/othersciences/geophysics/soda-springs-08047.html>

NASA'S FIRST GLOBAL GROUNDWATER MAPS REVEAL DROUGHT IN REMOTE AREAS

While a drought may quickly become evident in inhabited regions that depend on regular rain, when remote parts of the world undergo a dry spell it might not become obvious for a long time, if ever. To build a more complete picture of drought-stricken areas, NASA has developed its first global groundwater map, which it hopes will become a useful way of monitoring water supplies as the world contends with ever-hotter temperatures.

<https://www.nasa.gov/feature/goddard/2020/nasa-university-of-nebraska-release-new-global-groundwater-maps-and-us-drought-forecasts/>

also: <https://youtu.be/3IJOYhYibeQ>



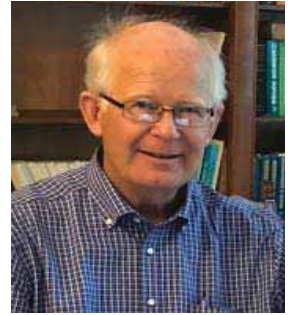


Dear members, dear colleagues...

We have a slightly different approach to this message, as it comes from Bruce Misstear, IAH's Secretary General, as well as myself.

"Keep washing your hands" is the instruction we get, to help reduce the risk of spreading the

coronavirus. Yet millions of people across the globe do not have an adequate water supply, and proper hand washing hygiene can be difficult, if not impossible, to achieve. As hydrogeologists, we are keenly aware of the important role that a safely-managed groundwater supply can play in maintaining human health and well-being.



In the current extraordinary circumstances, in which half the world's population is living in some kind of "lockdown" because of the coronavirus, we want to stress our solidarity with all of our members, hoping that every one of you, together with your families, stay healthy. These are anxious times, but there is also hope for the future and we can look to the resilience and resourcefulness of our members and of people more widely to get through this. We may even learn positive lessons that will help us tackle other problems, such as minimizing our carbon footprint and tackling climate change.

IAH is following world events closely, including WHO recommendations on safe-distancing, in order to plan future activities. Scientific meetings are, for the moment, cancelled, postponed or transformed into on-line events, and we are monitoring the situation regarding future IAH events later in the year. We want to express our support for the organisers of the congress in Brazil in late September. We very much hope that restrictions on travel will have eased significantly by then, and that the congress will proceed as planned. Nevertheless, the local organisers are aware of the potential problems, and so some contingency plans are being prepared.

In these challenging times, IAH will continue to support our many activities that do not involve face-to-face meetings, including publications – notably Hydrogeology Journal – and contributions to international engagement, including the World Water Quality Assessment and planning for the 2022 World Water Day and Report on the theme of groundwater.

It is also time for Council elections, which are held every 4 years. We would ask all of you to participate in the election process by using your vote. Don't forget that, as well as electing members of the Executive, there will be elections for all the regional Vice-Presidents, who will represent your region in the IAH Council, the governing body of the Association.

Many of you are probably working at home at this time. It is an opportunity to redefine priorities, and reflect on our current lifestyle. For academics, this is a good time to prepare those publications that you have been too busy to finish, as well as developing your on-line teaching skills. We also recognize that many of our members are working hard to keep essential water services going during this period. Our best wishes to all of you.

ANTÓNIO CHAMBEL & BRUCE MISSTEAR



APPLIED HYDROGEOLOGY AWARD: CALL FOR NOMINATIONS

Who has made an outstanding contribution to the application of hydrogeology, supporting international development efforts?

We are pleased to call for nominations for the 2020 'Applied Hydrogeology Award'. The aim of this award is to recognise those who have made an outstanding contribution to the application of hydrogeology. This work will ideally have led to an improvement in living standards, particularly in developing countries. We would especially like to receive nominations for our many colleagues who have less opportunity to publish papers in scientific journals and whose work is perhaps less well-publicised but nonetheless as important as the work of academic hydrogeologists.

It was originally proposed that the award would be made to a hydrogeologist meeting the above criteria, who has for example:

- worked in hydrogeological projects which contributed to the sustainable management and protection of groundwater resources with focus on applied solutions, including capacity development and awareness raising for groundwater in developing countries;
- established procedures and networks of relevance to hydrogeological applications including teamwork approaches for groundwater development, management and protection;
- established institutional or administrative procedures that enhance hydrogeological work;
- made an invention to simplify the application of hydrogeological methods in the field or developed a method with the same purpose.

A panel appointed by IAH Council will review the nominations and it is intended that the award will be presented in September at the 47th IAH Congress in Sao Paulo, Brazil.

Any IAH member may nominate a candidate, but self-nominations will not be accepted. Candidates do not need to be members of IAH. Nominations should include:

- An explanatory statement by the person submitting the proposal;
- A letter of recommendation by any other supporter;
- A brief career history of the candidate;
- A list of projects the candidate has carried out, including aims, region and period of time;
- A list of projects (planned or accepted), patents, publications or equivalent information.

Your proposal must be no longer than 5 pages of text in a single pdf-file. This should preferably in English, though the panel are also happy to review nominations in other languages such as Spanish, French and German. It should reach the IAH Secretariat by e-mail (info@iah.org) before July 1st 2020. We look forward to receiving nominations from all our IAH Regions, to reflect the work of applied hydrogeologists across the world.

SECRETARIAT



Submissions and queries to info@iah.org

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

The Pan-African Groundwater Program (APAGroP) gains momentum towards realisation

After the launch of the AMCOW Pan-African Groundwater Program (APAGroP) in Nairobi, Kenya, on 1 and 2 October 2019, follow-up Working Group meetings took place on 22 and 23 February 2020 in Kampala, Uganda. This was followed by groundwater sessions at the African Water Association Congress and Exhibition (AfWA 2020). The meeting was attended by representatives from Resilient Waters and the Southern African Development Community Groundwater Management Institute (SADC-GMI).



Globally there have been many cases of groundwater depletion, largely driven by irrigated agriculture, resulting in a statement by a global group of scientists, practitioners, and experts to use groundwater in a sustainable manner to arrest the decline. However, in sub-Saharan Africa the current groundwater use of most countries remains under 5% of the national sustainable yield, suggesting that groundwater has the potential to be an appropriate resource to further support irrigated agriculture, ensure urban and rural water security, and to provide drought resilience across the region.

With this in mind, the APAGroP Working Group meetings established several Action Groups to develop a White Paper for the African Ministers of Water; develop in-country support tools; strengthen groundwater capacity and knowledge management and information sharing; carry out resource assessment; and provide support in the fields of drilling, financing and governance. The African Water Association, which is a professional association of establishments, enterprises and utilities operating in the areas of drinking water, sanitation and environment in Africa, provided an opening to showcase the utility of groundwater at AfWA 2020. Sessions with presentations and panel discussions were held on a wide range of topics:

- Groundwater Governance: AMCOW APAGroP as a catalyst for intra- and cross-country groundwater 'resource-to-tap' management
- Insights in the adaptation of transition management in order to increase sustainable urban groundwater management
- Off grid: the opportunities and challenges of safe and sustainable water points
- Manage, recharge, and protect groundwater for resilient urban water supply
- Drilling dialogues: a conversation about professionalism, groundwater mapping and off-grid cities
- Unlocking groundwater: from data to knowledge. What's needed to manage groundwater for society, economy and environment

Based on our participation and our experience in the SADC-region we recommend the following areas where the APAGroP could focus on:

- At Pan-African level there is a need to develop addendums to existing transboundary water agreements and Memorandums of Understanding (MoUs) to strengthen groundwater management and conjunctive water use. Draft articles, model provisions and bilateral and multilateral agreements have been developed which can guide APAGroP in developing the norms and standards for such addendums. MoUs on specific issues, could include agreements on data sharing, joint monitoring and standards, or



other specific and priority mechanisms for shared groundwater governance that should be implemented on a short-term basis and could then be included in a larger package of legal reforms over time towards amending transboundary water agreements.

- The latent groundwater potential in most parts of Africa provides an opportunity for groundwater expansion. However, the international discourse on water which has shifted towards conservation and remediation may present a barrier denying large-scale groundwater use and the associated social and economic benefits derived from groundwater development in Africa.
- State-centred groundwater governance systems in isolation are inadequate and multi-level (or polycentric) groundwater governance is needed, where centralized rules are standardized broadly, and subsidiarity is adhered to where decisions are delegated to the lowest possible level of governance as groundwater management requires local decision-making, e.g. wellfield operating rules. The APAGroP needs to facilitate institutional arrangements that are problem-solving towards the development of coping strategies and technical measures.
- Cities in Africa face unplanned urban growth outpacing economic, social and institutional interventions, and pose many challenges to water planners in ensuring water security and resilience. The role of groundwater in water security is inferred but still poorly recognized in urban areas as illustrated by mixed messages about groundwater storage, contemporary rates of resource renewability and the wider impacts of uncontrolled aquifer depletion and pollution. The transition to water sensitive cities will require adoption of various groundwater management options such as managed aquifer recharge (MAR) to build resilient cities.
- The inability of Water Utilities to provide water services has resulted in communities relying on groundwater through self-supply. Self-supply is perhaps conveniently overlooked in policy and legislation.
- The assessment of transboundary aquifer systems will require transition from a lithostratigraphic delineation to the use of groundwater-flow systems for the evaluation of the degree of transboundariness.

Water security is fundamental to the sustainable development of each society. This is particularly true for Africa, which faces challenges of widespread poverty, food insecurity, and inadequate and unreliable domestic water supply in both rural and informal urban areas. Increasing aridity and rapid urbanisation further threatens water security, especially in semi-arid and arid regions. Groundwater provides an excellent opportunity to mitigate against dwindling surface water supplies. We believe that the above recommendations will significantly contribute to drought security as part of all water provisions, and resilience to environmental shocks and stresses caused by climate variability and change.

KEVIN PIETERSEN AND MR JAMES SAURAMBA

Dr Kevin Pieteresen is an associate at the Institute of Water Studies at the University of the Western Cape; his participation in the workshops was funded by Resilient Waters. Mr James Sauramba is the SADC-GMI Executive Director. Both write in their personal capacity. The article benefitted from contributions from Dr Hans Beekman and Dr Jude Cobbing.

WORLD WATER DAY

Usually, World Water Day on 22 March is a time to meet face-to-face and discuss how to tackle the global crisis in water and sanitation. With the new coronavirus outbreak many needed to change plans for World Water Day events. UN-Water prepared advice and online information, and in line with World Health Organisation recommendations; they and partners including ourselves pledged to continue to encourage good hand hygiene practices as part of this year's event.

The original theme for World Water Day 2020 was water and climate change – and how the two are inextricably linked. UNESCO's new World Water Development Report on "Water and Climate Change" was launched, which points out that adaptation and mitigation strategies should be considered in conjunction to address the increasing use of the world's water resources - see <https://en.unesco.org/themes/water-security/wwap/wwdr/2020> for this and a selection of infographics and other useful material.

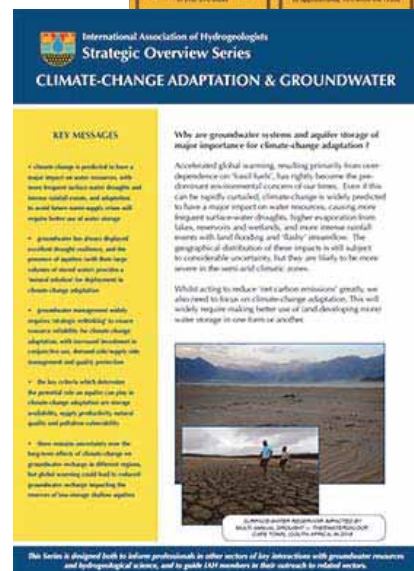
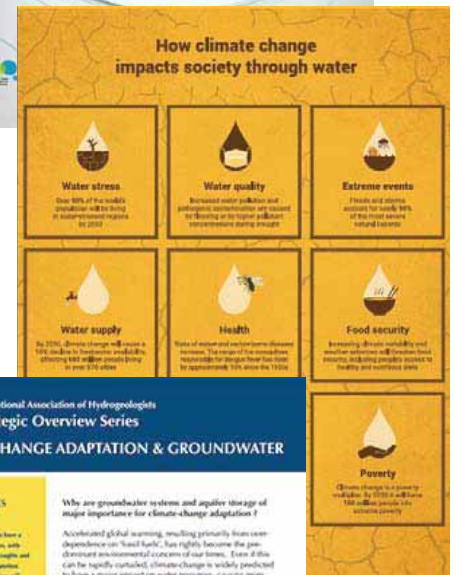
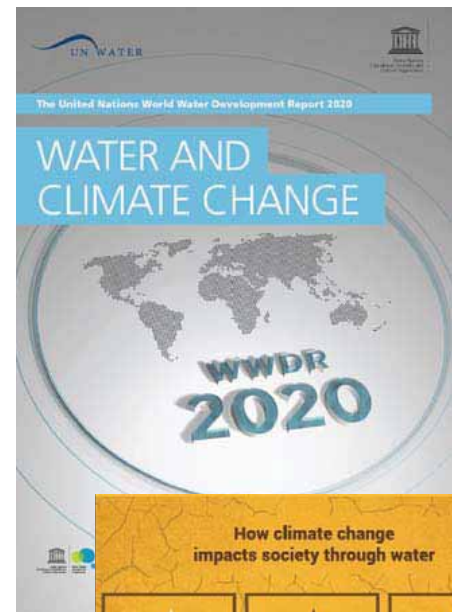
We'd also like to remind you that we published a related paper in our Strategic Overview Series last year, namely "Climate Change Adaptation and Groundwater", which summarises why groundwater systems and aquifer storage are of major importance for climate-change adaptation - see the link below for this and all our Strategic Overview Papers.

IAH Member Richard Taylor was commissioned by Nature Research Sustainability to mark World Water Day and he looked back at a strategic review paper he published in 2013 with 25 co-authors. Richard considered the natural resilience of groundwater to climate change, especially in the tropics, and the urgent need to sustain groundwater as an essential resource in low-income tropical countries. This will help support their future adaptation to climate change and support human development. For more on this, see the link below.

Colleagues at IWRA held a webinar on 'Water & Climate Change' in which the panel shared, "outside-the-box" thinking, including showcasing the use and need for unconventional water resources, undersea aquifers and the importance of managing these sustainably.

SECRETARIAT

- <http://www.worldwaterday.org/>
- <https://en.unesco.org/themes/water-security/wwap/wwdr/2020>
- https://iah.org/knowledge/strategic_overview_series
- <https://sustainabilitycommunity.springernature.com/users/367124-richard-taylor/posts/63670-groundwater-and-climate-change-revisited-informing-adaptation-in-a-warming-world>



WIN A COPY OF “INTRODUCING HYDROGEOLOGY” BY NICHOLAS ROBINS

Thanks to Nick Robins and Dunedin Academic Press, we’ve a copy of “Introducing Hydrogeology” to give away in a prize draw. The draw is open to everyone interested in learning about hydrogeology/groundwater, including those wishing to pass on this knowledge such as educators and IAH members.

Introducing Hydrogeology

Hydrogeology is an important and vibrant sub-set of geology. It deals with the distribution and movement of water, groundwater, in the rocks of the Earth. Groundwater transport is one part of the overall hydrological cycle; water is transferred by evaporation from the oceans into the atmosphere. Some falls to land as precipitation, some percolates underground, much of it to become groundwater. Groundwater travels from areas of high elevation to discharge points such as springs or to lower elevation surface waters. On its way, it acquires its own distinct chemical signature, while its period underground can vary between only a few weeks to tens of thousands of years.

Hydrogeology interacts with a variety of diverse disciplines beyond geology, not least hydrology, climatology and socioeconomics. Nick Robins describes the basic concepts of groundwater flow analysis in simple language and avoids burdening the reader with overmuch analytical detail. All facets of hydrogeology, physical and chemical, are described, so the book places hydrogeology in its pivotal position: underpinning our increasing demands on the environment. A variety of topical issues are considered, including climate change impact, water scarcity, nuclear waste repositories and oil shale fracking.

In common with the other titles in the series, Introducing Hydrogeology is written to inform the non-scientist interested in learning more about this important topic; as an introduction to the science for those starting on or contemplating a career in hydrogeology; and to those studying related topics, such as civil engineering, who require a sound overview of this branch of earth science.

Dr Nicholas Robins worked for much of his career as a hydrogeologist with the British Geological Survey. He worked both at home and overseas with extensive periods in Africa and the Middle East as well as in Asia and Central America. He was also at one time based at Harwell in Oxfordshire involved with research into radioactive waste disposal. Robins is author or editor of a number of books and is currently Editor-in-Chief for International Association of Hydrogeologists.

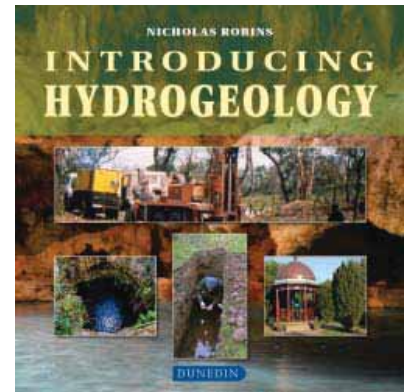
ISBN: 9781780460789 - Information about the book can be found on the Dunedin Academic Press website: <https://www.dunedinacademicpress.co.uk/page/detail/Introducing-Hydrogeology/?K=9781780460789>

To enter to win, complete your details here: <https://www.surveymonkey.co.uk/r/3V7P2DX>

Terms and conditions:

Prize draw closes 11.45pm GMT+1 on Tuesday 30 June 2020. Entry is open to all including current IAH members. *One entry per individual (additional entries will be discarded)*. One copy of the book is on offer for this draw. The winner will be picked by random draw and will be contacted by email soon after the closing date. The winner will be also be announced in the December 2020 edition of “News and Information”.

SECRETARIAT



COUNCIL ELECTION UPDATE

The next IAH Council elections will take place this year and all members who have paid their IAH membership fees are entitled to vote. The deadline for nominations was 31 March and I am pleased to report that nominations were received for all the Council positions. Details about the nominees will be available on the IAH website at the end of May and voting will be open from July onwards.

There are 12 positions available for election:

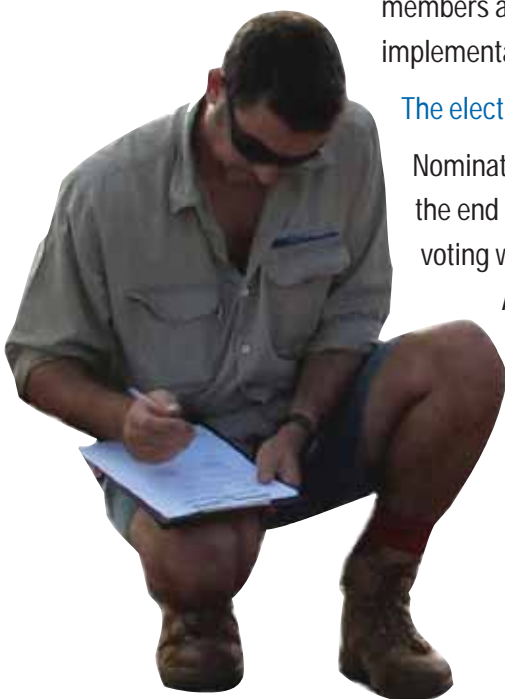
- President, who represents IAH with other organisations and chairs the Board of Directors of the Charity, the General Meeting of the Association and the Executive Committee
- Secretary General, who has responsibilities particularly for external relationships and also for some internal groups
- Vice President, Finance & Membership, with responsibility for corporate finances (income stream, planned budget and actual expenditure) and developing membership
- Vice President, Programme and Science Coordination, with responsibilities for commissions, networks and promotion of science, internally and externally
- Regional Vice Presidents, who provide stewardship of IAH interests and coordination of national chapters in a particular region: Asia; Australasia and the Pacific; Eastern Europe and Central Asia, Europe (West and Central); Latin America and the Caribbean; Middle East and North Africa; North America; Sub Saharan Africa.

Council is the IAH's governing body and its members play a critical role in overseeing the running of the Association. IAH is a registered charity and a limited company and Council members are both trustees of the charity and directors of the company. They have the legal responsibilities that go with these roles, particularly in terms of ensuring the Association's financial probity. Council members also have a vital role in developing IAH's policies and plans, and in overseeing their implementation on behalf of all our members.

The election process

Nominations will be scrutinised and confirmed, and will be published on the IAH website at the end of May. Election papers will be distributed by email and by mail on 1 July. Postal voting will close on 1 September and electronic voting will be open until just before the Annual General Meeting, which is scheduled for the 47th Congress, between 20 to 25 September. Precise timing will be advised in due course, as will any alternative arrangements that need to be made because of the coronavirus pandemic.

IAN DAVEY, RETURNING OFFICER



EXECUTIVE MEETS IN READING, UK

The Executive met at the end of February in Reading, UK. This was before COVID-19 had developed into a global pandemic, with the potential for considerable impacts on the worldwide economy and, indeed, our own funds.

The team heard that the Association's finances had held up well during 2019, with the increase in membership, including corporate members, being an important factor. All were grateful to the Organising Committee of the Congress in Daejeon, South Korea, who had contributed to central funds and the continuing success of Hydrogeology Journal meant that royalties from our publisher had increased. Surprisingly, there was a significant negative impact from exchange rates despite sterling being weak for part of the year, which would normally be beneficial for IAH. This will be investigated to see if it is possible to minimise the issue, but given the continuing instability of the financial markets, it will remain an ongoing challenge.

The relatively good financial position was reassuring for 2020 and, at the time, allowed for more flexibility in the new budget, particularly for initiatives on education and members' support. This of course will now need to be viewed in a new light, depending on how income develops, particularly from membership fees. The revised corporate support scheme seems to have encouraged an increase in the number of corporate members – several also took advantage of the 25% discount for additional staff members. The Secretariat had recently contacted UK water companies to encourage their involvement with IAH but none had responded. In contrast, several water companies in other countries are corporate members and it was thought at the time that chapters might be able to encourage support from others.

Arrangements for congresses were progressing well, though the Executive were concerned about whether Sao Paulo could be affected by the spread of COVID-19. The website for the 2021 Brussels Congress had recently been put online: <https://iah2021belgium.org/>

As concerns increase on climate change, the Exec discussed how IAH and its members might help to mitigate the effects of their own global travel. They asked the Secretariat to prepare a paper for Council to consider in September.

The priority for our Strategic Overview Series (SOS) was considered to be translation of the existing papers. The Spanish translation of our paper on the Strategic Development Goals (SDGs) had been launched ahead of the Malaga Congress and the Chinese version was ready for publishing. Priorities for 2020 would be completion of translations for SDGs, Climate Change and Food Security into Spanish, Portuguese, French and Chinese. Other languages would also be considered in due course. The Hungarian National Chapter had already translated all the papers but were looking for support for publishing these in the correct format.

With Forward look ending its 10-year period, the Executive discussed suggestions that the new Council might want to consider for the next plan. They gave their best wishes to those standing for election to Council in 2020.

IAN DAVEY



[continued over...]



FUTURE AND FRONTIERS OF HYDROGEOLOGY

At the beginning of the 20th Century, mathematician David Hilbert set out 23 unsolved mathematical problems which have greatly stimulated focused research in mathematics. In 2018, colleagues in the International Association of Hydrological Scientists also set up the initiative to find the '23 unresolved problems in hydrology that would revolutionise research in the 21st century', which IAH has contributed to and includes some groundwater issues. In a similar vein, IAH's 'Forward Look' 2010-2020 strategic plan proposed that a working group should be established to examine the 'Future and Frontiers of Hydrogeology'.

Dave Kreamer, IAH Vice President for Science and Programme, has now established this working group, which covers a range of hydrogeological sub-disciplines. Members range from students to senior and retired professionals from across the world, working in government, academia and industry. Our commissions and networks are involved and non-hydrogeologists with interesting perspectives are contributing. Although it may not be possible to find the precise solutions that the mathematical world might seek, this group will undoubtedly be able to help focus attention on "what's next for groundwater studies, research, and needs".

Goals include the articulation of a vision for the future of groundwater-related endeavors worldwide and, within the next year, to submit co-authored refereed journal articles on the overall subject and on more specific topics. If you would like to participate in any of these publications please contact Dave Kreamer at: dave.kreamer@unlv.edu

The working group identified several topical areas of work, which are now being developed:

- The future of groundwater monitoring, tracking, tracing, dating for average residence time, remote sensing, drones, chemistry advances.
- The big picture future: extra-terrestrial hydro, seafloor hydrogeology, applications to geothermal development, climate change.
- The political future of groundwater: international and regional conflicts, transboundary issues.
- The future of socio hydrogeology - groundwater and indigenous peoples, social equity and poverty questions, gender bias in developing countries, and polluting the poor.
- Emerging contaminants in groundwater.
- The future of energy, irrigation, industry, and municipal use of groundwater.

- The future of managing aquifer recharge
- Deep hydrogeology

In addition to the Futures and Frontiers Working Group members, several people have expressed interest in contributing, including: Magali Moreau from GNS Science New Zealand (Program Oversight, and Advances in Monitoring), Hanneke Verweij from TNO Geosciences in the Netherlands (Deep Hydrogeology), Viviana Re (The future of Socio hydrogeology), Enrique Fernández and the IAH MAR Commission (The Future of Managing Aquifer Recharge), Karen Villholth and the IAH Transboundary Commission (the present state and emerging issues in transboundary groundwater), Craig Simmons (coordination with the Hydrogeology Journal), and Thomas Bothwell (The future of energy, irrigation, industry, and municipal use of groundwater).

Dave has commented, "I believe this is a very exciting endeavour"; several journals have already expressed an interest in either individual articles, or theme issues on the futures and frontiers of hydrogeology. I think we can all share our excitement and ongoing enthusiasm for this initiative. If you would like to contribute contact Dave Kreamer: dave.kreamer@unlv.edu.

[DAVE KREAMER AND IAN DAVEY](#)

HYDROGEOLOGY JOURNAL (HJ) UPDATE

The HJ team continue to review papers submitted by authors from across the world – and perhaps authors are able to focus even more on their papers at this time. The HJ team already work remotely for most of the year and are continuing with this under the current conditions. The yearly HJ business meeting with colleagues from the HJ publisher, SpringerNature, was to have taken place in Heidelberg, Germany, in April, but was cancelled the last minute due to virus closures. Instead, this meeting and others among staff and editors are being held remotely via video conferences. One part of this meeting is shown in the image.

As always, HJ welcomes and supports submissions of papers from across the globe and the HJ team are particularly pleased to note that the number of papers submitted by Chinese authors is increasing and becoming a significant portion of total submittals. HJ authors are always encouraged to join IAH (the benefits include discounts on the fee for open access publishing and supportive interactions among IAH members) and we look forward to more authors across the world becoming members.

An important part of the team's work at the moment is preparing to transfer, in the next few months, to a new online manuscript management system for submittals and the scientific review process, 'Editorial Manager', which is now used by our publisher, Springer, for nearly all their journals. Benefits are expected for reviewers and data management, and overall, processing should be easier. There are also preparations underway for the next HJ special issue on karst hydrogeology, being organized by leaders of the IAH Karst Commission. The more than 30 articles in this special issue are aiming for early 2021 publication.



Clockwise from top: Ian Davey (IAH Exec Manager); Cliff Voss (HJ Executive Editor), and Fritz Schmuhl (SpringerNature) discussing HJ matters

CLIFF VOSS AND IAN DAVEY

地下水资源如何支撑联合国2030年可持续发展议程？

2030年联合国可持续发展目标的地下水基本指标

For those with colleagues based in China, please help us disseminate this translation of our strategic overview paper on groundwater and SDGs. Thank you.

SECRETARIAT

 https://iah.org/wp-content/uploads/2020/03/IAH_SDGsfor-2030-Chinese_Final.pdf?

<https://iah.org/education/professionals/strategic-overview-series>



Current Considerations...

RENEWALS 2020

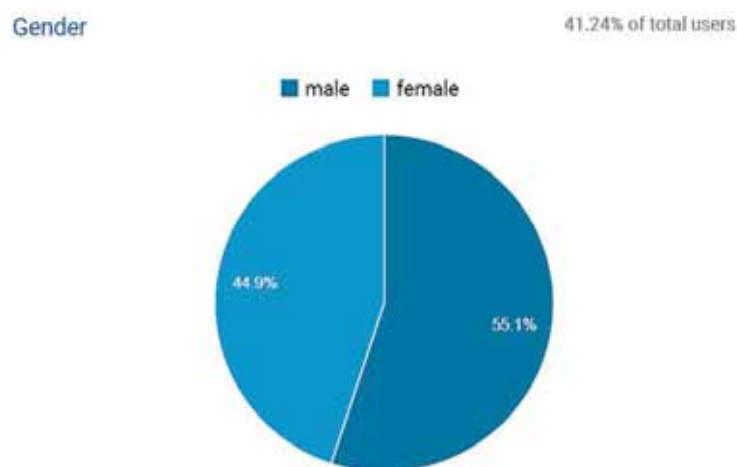
Thank you to those who have renewed their membership for 2020; your support is hugely appreciated and we will be working hard to ensure that you continue to receive your benefits as far as practicably possible given the year's extraordinary circumstances.

With the challenges brought about by COVID-19 we do understand that some of our members may find it more difficult to renew their subscriptions. Normally, in March-April, Sharon Warden our membership secretary would contact chapters and individuals who have not renewed with a view to suspend membership ahead of the third Hydrogeology Journal release (May 2020 cover). However, given the situation this year IAH's Executive has agreed to extend this period by a few weeks, ahead of the fourth journal (June 2020 cover). We are sensitive to concerns regarding renewals at this time so let us know in confidence if you have concerns and we can deal with these on a case by case basis. You can contact us via info@iah.org with any queries. Thank you and stay safe.

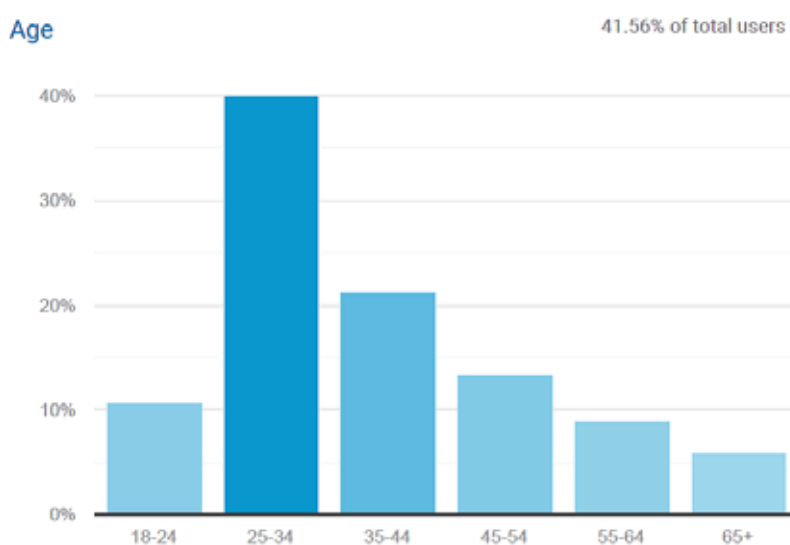
EQUALITY, DIVERSITY, INCLUSION - AND PROFESSIONAL DEVELOPMENT

There are often concerns, as with other scientific and technical organisations, that IAH has a poor gender balance in its membership and that the number of women actively involved in IAH groups and governance is relatively low. Our data indicate that women make up around 25% of the membership – we ask about gender when members pay their subscription fees but in fact 45% don't provide this data. Four out of 13 IAH Council members currently are women. As we regularly mention, please check your records - it will help enormously!

Interestingly, data of our digital media give a different slant. For our Facebook audience, the ratio for men to women is 2 to 1 - and for our website the ratio, given below, is looking more positive (data summary 1 January - 31 December 2019).



It's good to see too that the 'younger generation' take an interest in the website (we have similar data for our social media), which helps give some reassurance for the future!



Other data provide puzzles. Most of our website visitors are from the USA and India. Membership in the USA is quite high and is growing in India, but neither are our biggest chapters. (India is also our biggest 'Facebook fanbase'). It does look, though, that we have something that people are interested in and that we could also gain more members with a little effort.

It has been proposed that equality, and more generally diversity and inclusion, should receive more attention in IAH. Equality means ensuring individuals and groups are treated fairly and equally. This involves taking into account the different experiences and needs of all. Diversity is recognised by understanding that each individual is different; supporting diversity can be seen to produce fairer and better outcomes. Inclusion means including or being included within a group or structure. Promoting an inclusive culture is about recognising the value of diversity and providing support that might help all to realise their potential.

The United Nations considers that, "The principles of equality and non-discrimination are part of the foundations of the rule of law. The international human rights legal framework contains international instruments to combat specific forms of discrimination, including discrimination against indigenous peoples, migrants, minorities, people with disabilities, discrimination against women, racial and religious discrimination, or discrimination based on sexual orientation and gender identity".

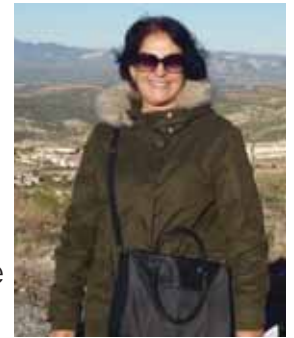
Other matters actively being considered are how to provide more support for members' continuing professional development, including educational initiatives and finding ways of bringing job opportunities worldwide to the attention of members.

IAN DAVEY

Ask a Member...

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

We are happy to feature Faten Jarraya Horriche this issue. Faten is a researcher at the Centre for Water Research and Technologies in Tunisa (CERTe - Tunisia) and also president of our Tunisian National Chapter.



Tell us about yourself....

My interest in Hydrogeology and Modelling began in 1987 with my senior engineering project on the salt reserve of Sebkhath El Melah in Zarzis (South Tunisia) at the National School for Engineers of Tunis (ENIT - Tunisia). My knowledge on groundwater was reinforced when I integrated the General Direction of Water Resources (DGRE - Tunisia). I was in charge of hydrogeological and modelling studies, groundwater management and national strategies. My professional activities encouraged me to pursue further university degrees in parallel with my professional career which was a challenging task. In 1995, I got the Diploma of Deep Studies on applied mechanics of fluids and thermal transfers from the Faculty of Sciences of Tunis (FST - Tunisia); I developed a solute transport model using the particle trajectory method. In 2004, I got my Ph.D. from ENIT which dealt with the analysis and rationalisation of the national groundwater level network. Since 2005, I have had the status of researcher at the Centre for Water Research and Technologies (CERTe - Tunisia). I am in charge of research activities and student supervision dealing with hydrogeology and groundwater modelling for the research laboratory of Georesources (LGR). I conducted and was involved in several national and international projects related to groundwater.

Why did you join IAH?

I first heard about IAH in 2012 from a Moroccan colleague, Mr Mohamed Aboufiras, who was the IAH Vice President for the MENA region. He encouraged me to create the Tunisian IAH chapter as I was a member of the Tunisian NGO (Association Eau

et Développement AED). During the AQUA2015 congress organized in Rome and I had the opportunity to discuss even further with Mr. Aboufiras and Mr. John Chilton, the IAH executive manager about the procedures to establish a Tunisian chapter. With the support of my colleagues, I have taken in charge this challenging yet promising mission. In June 2016, the Tunisian chapter was officially approved in the AED and the news was announced in the summer of 2016 newsletter of IAH. Thereafter, I was elected as the president of the AED and the IAH Tunisian chapter (Tunisian Committee of Hydrogeology TCH/CTH) <https://aed.org.tn/cth/>. In 2017, Tunisian membership was increased to 32 whereas it was only 13 in 2016!

What would you say have been your career highlights so far?

My career was marked by many key events and successes, the result of tremendous efforts. I am particularly proud of my managerial experience as a co-chair of the international congress AGIC2019 "Applied Geosciences for Groundwater" which was organized in March 2019 by my laboratory (LGR) and the IAH Tunisian chapter (TCH) <https://aed.org.tn/agic-2019-28-30-mars-2019/>. With the organizing committee, we ensured a good organisation and a fairly high scientific level with the participation of more than one hundred participants from 15 countries.

In 2000, as an engineer in DGRE, I managed a



“Groundwater is a precious resource in Tunisia. Its use, transfer and management dates since many decades. Let’s work together to take care of these resources for the future generation!”

multi-disciplinary project on the multi-layered aquifers of Sfax (Tunisia) for a 3 year period. This was the opportunity to tackle project management and I was proud of its successful outcome.

What piece of equipment/software/item have you found the most useful/you could have managed without throughout your career?

I can’t imagine myself without my computer/laptop which I carry everywhere. My first computer in 1988 was without a hard disk and we used an external disk to boot the MS-DOS system! Ever since, I’m addicted to numerical tools as my work is related to groundwater modelling. The most useful modelling software for me is MODFLOW despite using other software. For database, I constantly use Microsoft Excel, Esri ArcView (in the past) and ArcGIS since my early career. With these tools, I feel that I have knowledge of groundwater in spatiotemporal scale.

Future plans, aspirations?

I always wanted to set up a laboratory to experiment groundwater processes such as aquifer recharge, seawater intrusion, groundwater flow, interaction between layers, groundwater pollution, etc. It can be used as pilot laboratory for teaching, research and dissemination actions for stakeholders. It should be able to represent the complexity of geology and groundwater flow according to several situations and should be equipped by monitoring sensors to be used for smart management. I am keen to establish this idea one day!

Is there anything IAH should be doing? Could do better?

The IAH Tunisian chapter (TCH) is recent, and we are still trying to convince Tunisians to join. This task is not so easy because of membership cost. In order to disseminate our objectives and enlarge our activities we tried to use our network by organizing local events. However, this is not enough and we need to persuade Tunisians of the benefits

of IAH membership. I think that IAH should support us more especially during these first years through training and joint events for the Ph.D. students to future IAH members and instil the attitude of membership to the international scientific community.

Any additional comments?

Groundwater is a precious resource in Tunisia. Its use, transfer and management dates since many decades. Let’s work together to take care of these resources for the future generation!

FATEN JARRAYA HORRICHE



[ed: Faten’s interview will be featured alongside those from earlier contributors on our website as “Sources of Experience”. You can read them all here: <https://iah.org/education/professionals/sources-of-experience>

Our aim is to include a broad range of backgrounds and experiences, from all around the globe. If you have any suggestions, do get in touch - email info@iah.org.

We’d also like to remind everyone that we introduced a 25% discount for those in transition from student membership to early career, as a means of support to them.]

Over to You...

Book prizes, competitions and member discounts

Judging by participation, we think that many have appreciated our introduction of book prize draws to our range of discounts, competitions and perks (even if not yet winners...). We are keen to continue this into 2020 and beyond, so if you are an author or know someone who has published a groundwater/hydrogeology related book that might be of interest, and can provide copies to offer in a draw in return for appropriate publicity, please do get in touch. We are also keen to receive other member perk suggestions and offers – this could be, for example, equipment or software discounts.

Even with COVID-19, it is our intention to continue to offer a range of competitions and draws - at the moment, as you'll see in this newsletter, we have two book draws open (including one for non members) and a photography competition with a twist. We hope to see plenty of participation, and for latest updates see the IAH "Members' Area" https://iah.org/members/discount_perks.

Thank you!

SECRETARIAT

2019 feature writing competition - the winners

In our competition last year we wanted to hear what you thought were the challenges for IAH – and especially about possible solutions. We also wanted you to tell us your thoughts on how to improve groundwater awareness and about what might encourage more local students and professions to join IAH and participate in its activities.

We weren't disappointed and the high-quality entries we received gave us some thought-provoking ways of looking at these issues, with interesting ideas for safeguarding groundwater. Unfortunately, we couldn't give the prize to all our authors and the review panel decided to award this to Jeroen November at the Department of Environment and Spatial Development in Brussels, with his article on raising groundwater awareness and the benefits this can bring to those who manage or rely on groundwater in their different ways.

We also gave a special runners up award to Valerie Wendo, from Kenya, who has been studying at the University of Miskolc in Hungary, who posed questions that she asks herself each day: *Where are we doing right, where are we going wrong and what is my role?* Quoting Benjamin Franklin, *"When the well's dry, we know the worth of water,* she turned her questions to the reader. *"As you read this and go about your activities, what is your role in making an impact in the groundwater sector?"*

We aim to include some of the points raised by other authors in future issues of the News and Information Magazine.

IAN DAVEY



Raising groundwater awareness: 'Why did the chicken cross the road?'

Jeroen November (Belgium)



As obvious as the answer is to the above riddle 'To get to the other side', it's obvious for geo-scientists and policy makers that groundwater awareness needs to be raised. The best and safest path to that other side may in fact be different, ranging from 'crossing with eyes closed and hoping for the best' to 'studying traffic patterns and building a risk based approach including sequential tunneling or fly-over options'. Neither of these however will get said chicken safely to the other side of the road within the required timeframe. That timeframe being a changing climate, increasing demand on groundwater, higher risks of prolonged droughts and flooding, ...

As a geo-scientist working in the field of environmental enforcement for a regional government, I get a good end-of-pipe view of the compliance regarding groundwater-related legislation. As well-intended groundwater legislation is put in place by different entities, a compliance check in the field remains necessary to obtain the environmental goals laid out by this legislation. Therefore, special attention should be paid to enforceability of imposed requirements as well as an effective field presence. In my specialized field of enforcing groundwater drilling and abstractions, geo-scientists play an important role - not only as a feedback to authorities on the success and suggestions for science-based improvement of legislation, but also as an advocate raising groundwater awareness. Whereas illegal groundwater drilling and abstraction should be tackled by proper means when necessary, a significant amount of compliance promotion in the field is obtained by raising awareness with stakeholders (e.g. operators, drilling companies, ...).

It's remarkable to notice how often operators think that imposed groundwater measures (e.g. monitoring of groundwater levels and -quality, well maintenance, adequate sampling during drilling, ...) are solely for the benefit of the government who in turn will have to report this to some higher authority. Simply explaining how these same data, when looked at properly, can improve their own operation and at the same time reduce costs and help the environment, can do wonders. Changes in management over time within these same companies does however mean that a single quick visit and explanation will not suffice. Raising groundwater awareness is a constant job, especially when it concerns one of the most invisible aspects of business operations all happening in the mysterious dark space under their feet.

Having science in the field within a government organization that policy-makers tend to listen to is surely a significant advantage and would be my most important take-home message to remember of this article. But the same can be obtained in other situations. Networks like IAH, IMPEL & other international cooperation between science- and policy-based organizations can result in useful exchanges and ways to learn from each other's successes and failures in getting the message (and the chicken) across in due time.

JEROEN NOVEMBER



MAY 2020

Picture Our IAH

It's back! Win 100€ – and we'll also pay your 2021 subscription fee!

We continually need to add to our library of photos. Over the years we have found that the best way of picturing our Association at work is by asking our members. Our Association reaches out world-wide across different languages and, as Frederick R. Barnard of the USA said in 1927, 'A picture paints a thousand words'.*

This year the competition takes on a special significance, as so many of you will be working away from your natural habitats in the field, the research lab, the lecture theatre or office. We would like to know, in pictures, how you are 'doing hydrogeology' while exiled from your normal workplace. An IAH review panel will be appointed to select 5 winners. They will be particularly interested to see how you have used your resourcefulness to create solutions for continuing your work – especially where these are sustainable and are ones that you will want to maintain in the future, even when you can get back to the workplace!

ENTRY INFORMATION

Winners will receive 100€ (or dollar/sterling equivalent) and we will also pay your next subscription fee in 2021. This competition is open to all IAH subscribed members (2020 dues paid), with the exception of the current IAH Council and the IAH Secretariat. Entrants may submit up to 5 images.

High (print) quality images, in colour, should be zipped and sent to info@iah.org. Please give your full contact details and membership number and provide a brief explanation about your photo(s).

The winning photographs will be used for IAH-related publications and its website. IAH will therefore take it in good faith that entrants have considered copyright and privacy issues prior to submitting photographs.

The closing date for entries is Monday 31st August 2020. Winners will be notified by the end of October and will be announced on the IAH website and in the December edition of News and Information Magazine.

IAH SECRETARIAT

Entries or questions? Email info@iah.org



* Barnard was apparently referring to the Chinese proverb, attributed to Confucius, 'Seeing for oneself is a hundred times better than hearing from others': 百闻不如一见, though some consider this to be conjecture. Others who made similar observations include Leonardo da Vinci, Napoleon Bonaparte and Ivan Turgenev.



Members' Book Draw

Win a copy of Groundwater Vulnerability and Pollution Risk Assessment

Thanks to our book publisher CRC Press/Taylor and Francis, we've two copies of "Groundwater Vulnerability and Pollution Risk Assessment" edited by Andrzej J. Witkowski, Sabina Jakóbczyk-Karpierz, Joanna Czekaj and Dorota Grabala to give away to IAH members in a prize draw.

The book is valuable for those interested in groundwater vulnerability, in risk assessment, and in environmental issues. It is aimed at land use planners, water managers, the environmental industry, regional and local environmental protection councils and students studying hydrogeology and environmental sciences. It offers detailed comparisons and validations of different methods of assessing groundwater vulnerability (DRASTIC, GOD, PI, RTt, AVI, SINTACS, COP). The volume contains new aspects of vulnerability assessment for the evaluation of coastal aquifer vulnerability and aquifer vulnerability to methane gas leakage from shale gas wells. It also contains the results of studies on intrinsic and specific vulnerability assessment (migration of antibiotics and nitrate, groundwater-surface water interaction), with examples of the different national approaches to groundwater vulnerability mapping in Poland, Ireland, Italy and elsewhere. There are 15 chapters derived from two IAH conferences held in Ustron', Poland in 2015 and 2018.

[Available in hardback \(IAH members receive a 30% discount\); ebook and ebook rental](#)

Information about the book can be found on the CRC/T&F website <https://www.routledge.com/Groundwater-Vulnerability-and-Pollution-Risk-Assessment/Witkowski-Jakobczyk-Karpierz-Czekaj-Grabala/p/book/9780367422370>; and for the member discount code on the IAH website https://iah.org/members/discount_perks

To enter to win, complete your details including membership number here:

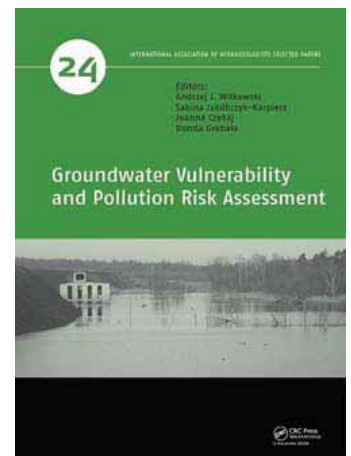
https://www.surveymonkey.co.uk/r/IAH_SP24

Terms and conditions:

Prize draw closes 11.45am GMT+1 on Monday 31 August 2020. Entries are open to current IAH members only (2019 dues paid). One entry per individual (additional entries will be discarded). Two copies of the book are on offer for this draw. The winners will be picked by random draw and will be contacted by email soon after the closing date. The winner will be also be announced in the December 2020 edition of "News and Information".

SECRETARIAT

 https://www.surveymonkey.co.uk/r/IAH_SP24





New Members

A warm welcome to the following new members, who joined our Association in the period 24 October 2019 - 9 March 2020

AUSTRALIA

Emily BARBER
Catriona BISITS
Stephanie BRIGHT
Stephanie CHAN
Riley DE JONG
Dariarne EDWARDS
Melanie FRANKLIN
Chris GIMBER
Kaitlin GREAVES
Stuart HUGHES
Sharon HULBERT
Matthew HUNT
James JORDAN
Adele LOR
William McCANCE
Milos PAVLOVIC
Clair RAPER
Thomas REESE
Claire ROBERTSON
Julien THOMAS
Anthony TRAVERS

AUSTRIA

Katarina MIHAJLOVIC

BELGIUM

Robin THIBAUT

CANADA

Connor ACTON
Hussein AWAD
Lubna Mohamed Idris BADRI
Eri BOYE
Jennifer BROWN
Andrew DREVININKAS
Brandon DROST
Neil FLEMING
Corinne HANLON
Eric HODGINS
Celia KENNEDY
Wendy KLINE

Annie LARRIVEE
Brendan MULLIGAN
Timothy NISKALA
Kent NOVAKOWSKI
Carmen Ricard
Mary SAMOLCZYK
David THOMSON
Nickie UNONIUS
Jessica VU
Aida ZEIGHAMI

CHINA, PEOPLE'S REPUBLIC

Wei LIU
Zheming SHI
Zhang WEN
Yingying YAO

COLOMBIA

Carolina Ortiz PIMENTA

CROATIA

Perica VUKOJEVIĆ

CZECH REPUBLIC

Zbynek VENCELIDES

ECUADOR

Xavier COELLO

ERITREA

Semere Berhe BERHE
Daniel IYASSU
Tedros TESFAGABIR
Teclé YEMANE
Ermias YOHANNES
Thomas YOHNNES

ETHIOPIA

Sileshi FANTAYE

FRANCE

Florent BODDAERT

Hedrain BOMA-LI-POATHY

GEORGIA

Levan BAGDAVADZE
Merab CHALATASHVILI
Teimuraz KOROSHINADZE

GERMANY

Peter SCHAETZL
Rafael SCHAFFER
Mattis SCHMIDT

GHANA

Bismark Awinbire AKURUGU
Yvonne Sena Akosua LOH

GREECE

Maria NTOUMANI

HUNGARY

Hana Ben MAHREZ
Endre CSISZÁR
Arif Rahmansyah DARANA
Ildikó ERHARDT

INDIA

Rajesh Kumar GARG
Sumi HANDIQUE
V K HARITHA
Mahendra MEHTA
Vishnuvardan NARAYANAMURTHI
Om PRAKASH
HEROJEET RAJKUMAR
RAMBABU SINGH
Brajesh Kumar YADAV

IRAN

Arezoo MIRZAEI
S.Massoud Zia DEZFOULI

IRELAND

Ellen CARVILL
Riccardo ENA

Martin GARDINER

Julie HAYES
Tiernan HENRY
Paul JOHNSTON
Emma MCNULTY
Michael OWENS
Maeve ROCHFORD
Jeromine SCHMIDT

ITALY

Alessio BARBAGLI
Giacomo BONOMETTI
Fabio CANZIANI
Elena DEL GAUDIO
Luca DI CARLANTONIO
Marianna MAZZEI

JAMAICA

Natalie FERGUSON

KENYA

Thomas M. KAVOO
Dan Kibet KISO
Vincent Okello SHYATIALA

MALAYSIA

Xian Ting KOID
Ummi Qiyaadah OSTADI

MALTA

Michael SCHEMBRI

MEXICO

David SANCHEZ

MOROCCO

TAHA ATTOU

NEPAL

Moti Lal RIJAL



NEW ZEALAND

Kenneth B. ALEXANDER

NIGERIA

Jamiu Abimbola ALADEJANA
Esther Udo EDIT
Ebitimi TAWARI
Aminu TUKUR

NORWAY

Peder HELGASON
Ingvild SCHMIDT
Anja SUNDAL

PAKISTAN

MUHAMMAD SAEED

PERU

Ruth ALBINO
Milagros Lizet Ascurra ORTIZ
Homero BARDALES
Miguel Heredia SANCHEZ
Lizardo Guillermo HUAMANI HUAYHUA

POLAND

Marek SOLTYSIAK
Malgorzata WOŹNICKA

PORTUGAL

Albino Luiz de Carvalho MEDEIROS

RUSSIA

Vladimir ABRAMOV
Vadim ALTAEV
Boris BOREVSKIY
Serafim GOLUBEV
Artem KONKIN
Aleksandra MIKHAILENKO
Alexander NIKOLAEV
Svetlana PEREVERZEVA
Ivan PETROV
Alexander POTAPOV
Alexander SEMENCHUK
Stanislav SHCHERBININ
Konstantin Pavlovich SUSHKOV
Pavel KONOSAVSKY

SOUTH AFRICA

Clinton ANDRIES
Matthew DAMHUIS
Stefanus DENYSSCHEN
Zaheed GAFFOOR
Angelo JOHNSON
Jan-Michael LOMBARD
Fundokuhle MLAMBO

SPAIN

Noelia CORRAL RUBIO
María Feliciano FERNÁNDEZ GARCÍA
Norely Mary MONTEAUDO GARCÍA
Laura Movilla PATEIRO
Salud ORDEN CARRASCO
Marta RIBES BARGUES
Román TEJERO GIL

SWITZERLAND

Maria KLEPIKOVA

TUNISIA

Manel ENNAHEDH

UNITED ARAB EMIRATES

Uche Anthony ABOR

UNITED KINGDOM

Fenella BROWN
Sarah COLLINS
Penny JENKINSON
Cerith MORGAN

UNITED STATES OF AMERICA

Mehrdad Bastani
Fern Beetle-Moorcroft
Kevin Befus
Megan Brown
Claudia Corona
Dominic Eslamian
Graham Fogg
Michael GRATZER
Alyssa Graveline
Edward Harris
J. Scott Kindred
Susan LEDERER

Connor MEOLI
Andrew OBERHELMAN
Todd RASMUSSEN
Mark ROCKHOLD
Rosario SANCHEZ
Steve SCHNEIDER
Bradley SIMMS
Katharine SINK
Ryan SMITH
Donald SWEETKIND
Paul TRUDELL
James WHITLEY
Stephanie WONG
Yong ZHANG
Catherine ZIDAR
Alyson ZOELLIN

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

Reminder: Check your records

Are you receiving your regular IAH messages and alerts with HJ link, latest news digests, competitions 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 your details and IAH settings regularly - we'd hate you to miss out.

SECRETARIAT

MAY 2020

MEMBER MATTERS

[...continued from previous]

In Memorium

We are sad to report that our colleague and friend Luís Ribeiro passed away day 3 April 2020. He was 64 years old. Luís was a beautiful, brilliant and inspiring person, and his sudden loss comes as a huge shock to his family and friends, as well as the academic, groundwater and other communities worldwide who knew him very well.

Luís was Associate Professor at the Instituto Superior Técnico, in Lisbon, and had an intense activity in the field of hydrogeology, forming new generations of Portuguese and international hydrogeologists. He also upheld strong international engagement, particularly in several Latin American countries, where he dedicated himself to social aspects of water management and use. The co-ordinator of many projects at national and international level, Luís left an extensive collection of scientific publications published in the most prominent international and national scientific journals.

An IAH member for more than 20 years, Luís was President of the IAH Portuguese Chapter (AIH-GP) from 2008 to 2015 and Chair of the Scientific Committee of the XXXV IAH Congress in Lisbon 2007.

ANTÓNIO CHAMBEL



Mentoring Scheme - latest news

The Secretariat team has carefully reviewed and prioritised all the applications received during 2019 and is at the tail end of contacting respondents in order to address queries, establish suitable next steps and assign mentors where appropriate. We would like to thank everyone involved in the scheme for their support and patience – we have just a last few ends to tie up. So far we have added 33 to our list of ‘mentees’ (those being mentored) and we have been able to match many of these up with mentors. For others, their needs have been resolved through other suggestions, such as getting more involved in their national chapters, which, you can be sure, are always ready to help.

Once again it is clear from last year’s process that the scheme is of value to some in our membership – and not just those early in their careers. The process has also helped inform us more generally of members’ interests and needs – and where IAH might consider developing additional resources in the future. We anticipate the scheme will reopen for applicants in May 2020 – although we may delay this slightly owing to the COVID-19 situation, to ease workloads for everyone.

SECRETARIAT

 <https://iah.org/education/professionals/mentoring>



John Cherry wins Stockholm Water Prize

Dr John Cherry receives the world's most prestigious water award, the Stockholm Water Prize, in 2020. He is awarded for discoveries that have revolutionized our understanding of groundwater vulnerability. Dr Cherry's work has raised awareness of how groundwater contamination is growing across the world and has led to new, more efficient methods to tackle the problem. John is a long-standing member of IAH and in 2019 he was awarded the IAH Presidents' Award, given by the current and immediate past presidents. IAH is delighted to join in the congratulations to John!

SECRETARIAT

 <https://www.siwi.org/latest/groundwater-expert-dr-john-cherry-wins-2020-stockholm-water-prize>
<https://vimeo.com/399805003>

IN THE IAH BOOK SERIES



International Contributions to Hydrogeology (IAH-ICH)

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

Investigating Groundwater

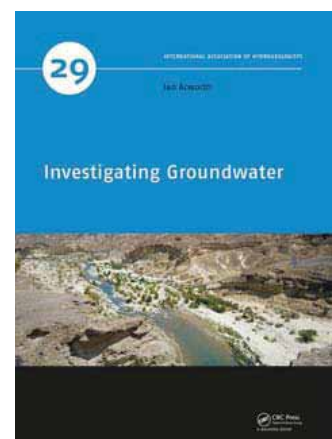
Ian Acworth

Investigating Groundwater provides an integrated approach to the challenges associated with locating groundwater. It provides a review of the wide range of techniques that can be deployed to investigate this important resource. Many of the practical examples given are based upon Australian experience but the methods have worldwide applicability. The book is published in colour and includes many original diagrams and photographs. Particular effort has been made to provide consistent terminology and SI units are used throughout the text.

Written for a worldwide audience of degree level geology/engineering practitioners, academics and students involved in groundwater resource investigation methods, Investigating Groundwater is essential reading for those working in groundwater research.

586 pp; ISBN 9781138542495 Published price £148.99

[\(30% discount for IAH members\)](#)



Information about the book can be found on the CRC/T&F website <https://www.crcpress.com/Investigating-Groundwater/Acworth/p/book/9781138542495>; and for the member discount code on the IAH website https://iah.org/members/discount_perks

Efforts continue...

We welcome enquiries about potential new chapters, from all regions. Wherever you are, your new chapter could be a new and independent organisation in your country or could be hosted by an existing organisation. Existing associations within countries and regions, with common goals to those of IAH, can also be recognised as Associated Organisations with which IAH agrees to co-operate.

Also, don't forget that we operate a "sponsored membership" scheme for hydrogeologists and those working in groundwater-related fields would like to join IAH and would benefit from membership but are prevented by economic or practical reasons. For some, this might be because our membership fee is high in relation to their income; others encounter problems of access to convertible currency or payment facilities - if this might help make a difference to a group of individuals coming together to form a chapter, do get in touch. For this or other enquiries email info@iah.org.

Afghanistan is one country where our colleagues have looked for the support of a national chapter and for help with participation in global groundwater affairs. M. Hasan Saffi Senior Hydrogeologist at DACAAR (Danish Committee for Aid to Afghan Refugees) wrote to us about the importance of groundwater for Kabul, as river flows decline. Yet, groundwater levels in the shallow aquifer are declining and the deeper aquifer contains fossil water, making sustainable management problematic. Groundwater quality in the near-surface aquifer is also seeing increases in salinity, water hardness, fecal coliform bacteria, nitrate and boron concentrations, all of which could present threats to health when used as a drinking water supply.

SECRETARIAT



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



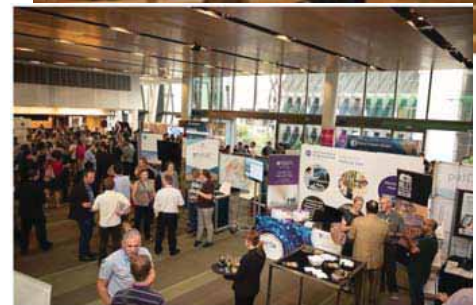
www.facebook.com/iah.org



Australia

2019 Australasian Groundwater Conference

The 2019 Australian conference took place in Brisbane at the end of November and was a great success - thanks to the support of the speakers, sponsors, exhibitors and delegates. The conference highlighted that there is an extraordinary community of professionals interested in groundwater as evidenced by the engagement during the conference and the record number of attendees. Some key conference highlights included a high-quality technical program; engaging plenary and panel speakers; social networking functions; a dedicated technical session on Indigenous Groundwater Connections. Photographs from the conference can be found at <http://www.slrms.com.au/GroundwaterConference/>. The next national groundwater conference will be taking place in Perth in 2021.



AUSTRALIAN NATIONAL COMMITTEE

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



Belgium

Young hydrogeologist prize - and a new committee

In November 2019 six young hydrogeologists were shortlisted and invited to present their thesis in front of a panel for consideration. After a healthy debate, Agathe Defourny was awarded the prize of 500€ for her Masters thesis entitled "Push-pull test for the characterization of heterogeneity in alluvial aquifers". We congratulate Agathe and all those who took part - well done!



In January 2020 during the General Assembly of the chapter members elected a new board. After four years as president, Marijke Huysmans has passed the responsibility to Olivier Lagneau. We wish Oliver well, and thank Marijke for her efforts. This is not goodbye - she is President of the Scientific Committee for IAH's congress in 2021!

SECRETARIAT

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

COMMISSIONS & NETWORKS

Our commissions and networks focus on specific topic areas and provide advice to IAH Council. Commissions have several aims: to organise technical sessions at conferences, exchange and disseminate knowledge, maintain a website and contribute to the Association's educational objectives. Networks often do similar activities, but they are not obliged to do this. They aim mainly to stimulate interaction between groundwater scientists, and sometimes the broader community, in areas of common interest.

There are eight commissions and seven networks, all of which are currently continuing with their work but understandably some of their planned activities are being rescheduled. All are 'licensed' for a set period and they provide periodic reports to highlight their activities and show the progress they have been able to make. Below is a snapshot of reports from some of them from the last 12 months:

- The **Network for Coastal Aquifer Dynamics and Coastal Zone Management (CAD-CZM)** renewed its licence for a further four-year period and also had a change in personnel. Giuseppe Sappa stepped down as Director lead and Yoseph (Yossi) Yechiel from Israel took over. The group is now considering proposals for hydrogeological maps of areas affected by sea water intrusion and submarine groundwater discharge.
- The **Commission on Transboundary Aquifers** decided at the IAH Congress in Malaga to update its operations, aiming to attract young professionals engaged in research and practice to take lead positions in the Commission. At the same time Shabby Puri stepped down as the lead and was succeeded by Alfonso Rivera from Canada.
- Two new leaders were recruited in 2019 for the **Network on Groundwater and Ecosystems** though their work has been put on hold for the time-being following changes in their work responsibilities. The licence is due for review in 2021.
- The new **Commission on Groundwater Quality** – led by Dan Lapworth of the British Geological Survey – met at UNESCO in Paris at the beginning of its four-year licence period and identified several projects, including a groundwater salinity map for Africa.
- The **Socio-hydrogeology Network**, led by Viviana Re, Assistant Prof. at the University of Pisa, held its first activity at the Congress in Malaga, with a showing of the documentary, "Pani Check – Join the Sisterhood of Water". The film shows IAH member Theresa Frommen, now at Humboldt-Universität, Berlin, working within the social structures of Indian communities and what happens when an innovative and well-intentioned research idea meets the realities of a poor community asking for quick visible result. This case study on participatory groundwater management in Jaipur, India shows how illiterate women from poor urban areas, who have never seen even a thermometer in their lives, learn how to check water for pH, fluoride and nitrate to help their community.
- During 2019 the **Regional Groundwater Flow Commission** launched a ResearchGate project: "Selection of papers related to regional groundwater flow" with papers related to the research and practical application of regional groundwater flow theory. The project was created and is managed by the Commission in cooperation with the József & Erzsébet Tóth Endowed Hydrogeology Chair.



- The **Karst Commission** celebrates its 50th anniversary in 2020 and to commemorate this a Hydrogeology Journal Special Issue is being planned. The Commission has decided to extend support for young scientists to attend Karst Commission conferences to those who need financial support, including partial funding. Karst also now has an International Standards Organisation Technical Committee – TC 319 – which held its first meeting in Guilin, China, in September 2019. Two projects were approved: “Monitoring methods on Karst Critical Zones” and “Karst and Cave Terminologies”.
- Peter Dillon stepped down as Chair of the **Managed Aquifer Recharge Commission** and was succeeded by Enrique Fernández Escalante, Catalin Stefan and Yan Zheng, who have been maintaining the group’s productivity. The paper on 60 years of global progress in managed aquifer recharge was rated the most popular article in Hydrogeology Journal - see <https://bit.ly/2VK748i>. There was further publishing success with the MDPI Water Journal Special Issue “Managed Aquifer Recharge for Water Resilience”, with 16 ISMAR 10 papers already published - https://www.mdpi.com/journal/water/special_issues/ISMAR10_2019. A new MAR working group has been set up to assist conference organizers worldwide with the integration of MAR into conference programmes - MARCO. A particular aim for MARCO in 2020 is to promote and share knowledge and best practices on managed aquifer recharge technology with groundwater experts and governmental authorities in Brazil – and across Latin America – at the IAH Congress in Sao Paulo.
- The **Commission on Groundwater and Climate Change** submitted its final report of the six-year licence period and its licence was renewed for six years. Tibor Stigter (Netherlands) has taken over from Richard Taylor as Chair of the Commission.
- The licence for the **Burdon Groundwater Network for International Development** has also been renewed for a further six years.

You can find out much more about IAH commissions and networks on their websites. For more information go to <https://iah.org/groups/commissions-networks>. We also welcome suggestions for new topics or activities – email ideas and comments to info@iah.org.

SECRETARIAT

 <https://iah.org/groups/commissions-networks>
Questions, ideas or comments? email info@iah.org

2020 - SELECTION

18-22 May – ONLINE EVENT

Geoethics & Groundwater Management: theory and practice for a sustainable development

This joint international congress, alongside the International Association of Promoting Geoethics (IAPG), is the first global event to tackle the many wide-reaching subjects of Geoethics in Groundwater management. Organised by IAH Portugal Chapter / ISEP - School of Engineering, Polytechnic of Porto / IAH Spain Chapter.

<https://geoeth-gwm2019.wixsite.com/porto>

17-21 August – ONLINE EVENT

UNESCO Karst 2020

The purpose of this meeting is to enhance communication and the sharing of ideas and resources between major international conservation and science programs that protect, study, or manage cave and karst resources. The meeting will bring together a diverse group of managers, scientists, educators, and community partners to share successes and challenges in promoting sustainability and community involvement while protecting fragile karst ecosystems. Organised by Western Kentucky University, George Wright Society, Mammoth Cave Area Biosphere Reserve, with collaboration from IAH's Karst Commission and many others.

<https://unesckarst2020.com/>

20 - 25 September – São Paulo, Brazil

IAH 47th Congress

Under the theme, 'GROUNDWATER 4.0: CONNECTED, VISIBLE AND ETHICAL', there will be sessions on hydrogeological science and technologies, as well as groundwater in the wider environmental and societal context. Register now or send your abstract: abas.iah2020.org/en/#meeting. Organised by the Brazilian National Chapter of IAH/Brazilian Groundwater Association (ABAS) and the Latin-American Groundwater Association for Development (ALHSUD). See page 4 for further info, including Covid-19 update.

<http://www.iah2020.org/>



<http://iah.org/events>

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

ADVERTISING 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 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 members, supporters and sponsors are offered special rates. Contact us for more details.

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

Email knicholson@iah.org for further details.

