

**International Association of Hydrogeologists
Irish Group**



IAH (Irish Group) 2022 Annual Report

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IAH (Irish Group) – Annual Secretary’s Report 2022

	Irish National Chapter www.iah-ireland.org
<p>Names of 2022 office holders (Date in brackets is when term of office expires)</p>	<p>President Gerry Baker (2024) Secretary Niamh Rogan (2022) Treasurer Janka Nitsche (2023) Conference Secretary Tiernan Henry (2024) Fieldtrip Secretary Robbie Meehan (2022) Education Secretary Rashaqat Ali Siddiqui (2023) Publicity Secretary Damien Doherty (2023) Burdon Secretary Morgan Burke (2023) Northern Ireland Region Secretary Paul Wilson <i>Conference sub-committee</i> Lindsay Connolly, Eoin McAleer, Alasdair Pilmer, Laura McGrath, John Weatherill, Orlaith Tyrrell, Michelle Wong</p>
<p>Changes to office holders</p>	<p>Secretary Niamh Rogan has completed her term and will be stepping down. Fieldtrip Secretary Robbie Meehan has completed his term and will be stepping down. Subcommittee positions: Eoin McAleer, Alasdair Pilmer, Laura McGrath, John Weatherill, Orlaith Tyrrell, Michelle Wong have agreed to continue. Burdon Secretary: Morgan Burke has agreed to continue for one more year. Northern Region Secretary Paul Wilson has agreed to continue</p>
<p>Membership information (as of October 2022)</p>	<p>Total IAH (Irish Group) Members: 129 (139 members last year).</p>
<p>Activities during the year</p> <p>Technical Discussion Meetings (TDMs) are organised by Taly Hunter-Williams (GSI), Alasdair Pilmer (Gavin & Doherty Geosolutions) and John Weatherill (UCC)</p>	<p>1st February 2022 Annual David Burdon Memorial Lecture <i>Stopping the rot: Taking action to ensure handpump and borehole quality</i> Dr. Kerstin Danert – Water Specialist, Researcher and Facilitator and Director of Ask for Water NGO</p> <p>1st March 2022 IAH TDM - Early Career Hydrogeologists <i>Impact of dike intrusion on wells productivity: A case study in the Ponta Grossa dike swarm, Brazil</i> Felipe Lisboa Cavalcante, PhD Candidate, University of São Paulo (USP) – Brazil</p> <p>26th and 27th April 2022 Annual Conference <i>Groundwater: Making the Invisible Visible</i></p> <p>1st June 2022 IAH Ireland and Trinity College Dublin</p>

	<p><i>Open-Source Groundwater Modelling training for hydrogeologists</i></p> <p>5th October 2021 IAH TDM <i>Monitoring the impact of climate change on groundwater quantity across Europe</i> Conor Quinlan (EPA)</p> <p>22nd and 23rd October 2022 Annual IAH (Irish Group) Fieldtrip <i>The Hydrogeology of East Central Ireland.</i></p>
Burdon Update	No update.
Other initiatives and achievements during the year	<p>Following the 2020 AGM, the committee discussed the possible format for a competition sponsored by the IAH (Irish Group). We agreed to the following format. It was advertised on 25th October. The deadline for abstracts is 25th November.</p> <p><u>Eligibility</u></p> <ul style="list-style-type: none"> ○ Less than 5 years professional experience. <p><u>Format</u></p> <ul style="list-style-type: none"> ○ Candidates submit an abstract (<250 words) in relation to the research or project they wish to be considered. ○ The candidates must have permission to present the work at the IAH conference should they be successful. ○ Abstracts to be sent to secretary@iah-ireland.org ○ The IAH will review the abstracts and invite suitable candidates to submit a paper for consideration. ○ The prize-winning papers will be announced at the IAH January Technical Discussion Meeting (TDM) on 09/01/2023. <p><u>Prizes</u></p> <ul style="list-style-type: none"> ○ 1st – €500 cash prize, attendance at the IAH Annual Conference (18-19th April 2023) at the Tullamore Court Hotel (including conference accommodation) and the opportunity to present the paper at the conference. ○ 2nd – €300 cash prize, free conference attendance and poster presentation ○ 3rd – €150 cash prize, free conference attendance and poster presentation.

Niamh Rogan
Secretary IAH (Irish Group)
15th October 2022



IAH (Irish Group) Annual General Meeting

Tuesday 8th November 2022

Education Secretary Report

Student Bursaries

The email for the 2022 bursary scheme applications went out again in April of this year. We had five applicants, four of whom were deemed suitable for the bursary:

- Conor Smith (PhD/TCD) – Support to undertake training course.
- Eimear Prendergast (PhD/TCD) – Support to undertake training course.
- Elizabeth Andreas (Research Masters/South-East Technological University-Carlow Campus) – Support the tuition fees and cost associated with research project.
- Robert Watson (PhD/UCD) – Support costs associated with Fieldwork.

I'd like to thank the 2022 Student Bursary sponsors:

- Arup
- IE Consulting
- David Ball
- Parkmore Environmental Services
- OCM
- Envirologic
- Talamh Ireland

Outreach

There has been no schools related outreach completed in the past year.

Training Course

A 1-day training course was organised on 1st June 2022 and was hosted by TCD in the Museum Building.

The course focused on “Open Source Groundwater Modelling” and included a review of the iMod groundwater modelling suite and using Python to develop verifiable model inputs and outputs. The training course was delivered by Mr. Frans Roelofsen and Mr. Joeri van Engelen of Deltares (Netherlands).

The training course was attended by 18 delegates.

The feedback Deltares received from the training was very positive.

We would like to thank the course speakers and all the attendees who attended the course.

Rashaqat Ali Siddiqui
Education Secretary IAH (Irish Group)

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YouTube [IAH Ireland](https://www.youtube.com/IAH_Ireland)
Membership [Become an IAH member](#)



IAH (Irish Group) Annual General Meeting

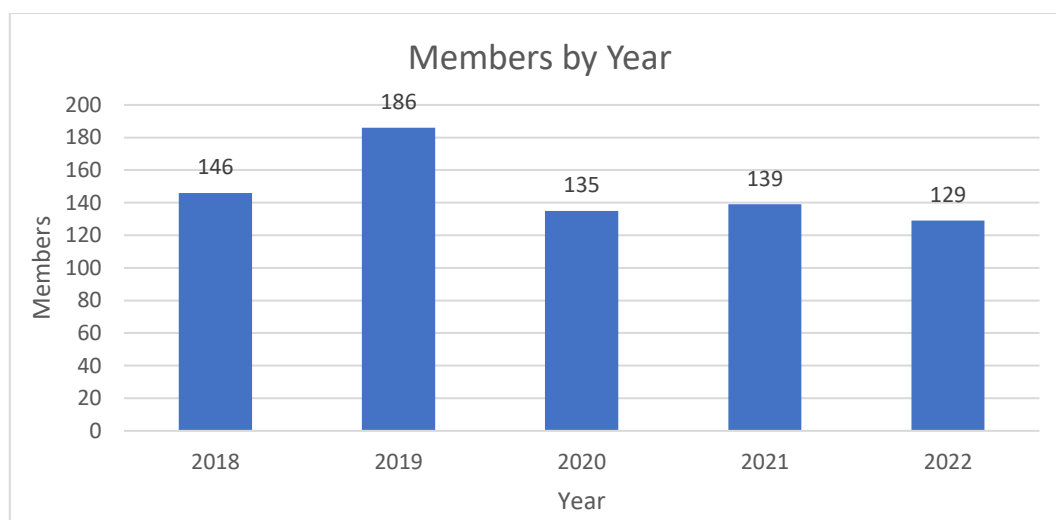
Tuesday 8th November 2022

Publicity Secretary Report

Membership

As of the 5th of October 2022, we had 129 members in the IAH (Irish Group) which is slightly lower than the previous year.

Membership details are sent from IAH International head office monthly and new members are updated on our 'Members' emailing list accordingly. Members also receive 'Members' Alert' emails once a month from IAH International.



Email Circulars

IAH (Irish Group) events, general hydrogeology notices, job adverts and other relevant seminars/events are circulated to members (membership emailing list) and other interested parties who have subscribed (TDM's emailing list). These emails are generally sent on a fortnightly basis.

If you have any notices which you think is of benefit to the IAH membership, please email publicity@iah-ireland.org.

Website, Twitter & LinkedIn

The IAH (Irish Group) website (www.iah-ireland.org), Twitter account (twitter.com/IAH_Ireland) and LinkedIn account (<https://www.linkedin.com/company/iah-ireland/>) are updated with the latest details of IAH (Irish Group) events (i.e. Annual Conference, Annual Fieldtrip and TDM's) throughout the year. If you haven't already done so, please subscribe to our social channels for the latest information on events.

Note: All previous Annual Conference proceedings since 1982 and Fieldtrip Guides since 2010 are available to view and download on the IAH Website.

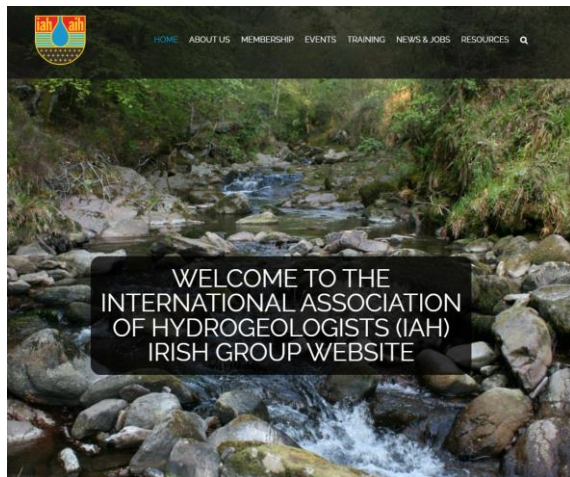


Figure 1: IAH Website



Figure 2: Twitter Account

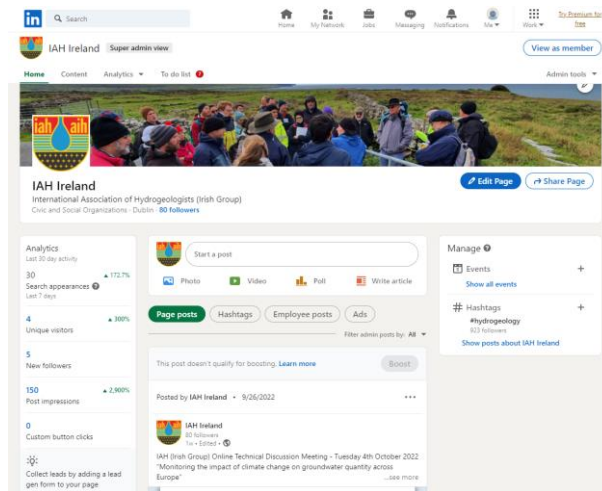


Figure 3: LinkedIn Account



YouTube

The IAH (Irish Group) YouTube account

(<https://www.youtube.com/channel/UCOOcNPRLJsof6RqzLZxepOw/videos>) contains videos of our most recent online events. In total, 38 videos from five different events are available to view online.

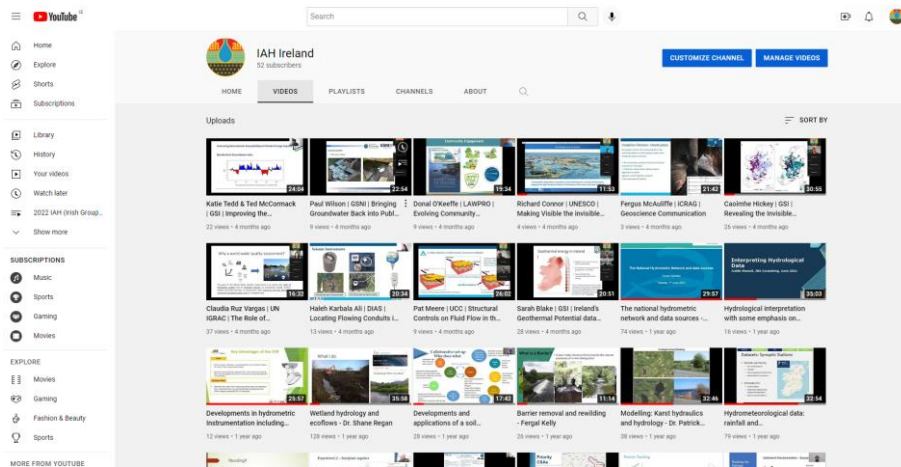


Figure 4: YouTube

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Damien Doherty
Publicity Secretary IAH (Irish Group)

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LinkedIn linkedin.com/company/IAH-Ireland
YouTube [IAH Ireland](https://www.youtube.com/channel/UCOOcNPRLJsof6RqzLZxepOw)
Membership [Become an IAH member](#)

The 2022 Annual Fieldtrip of the International Association of Hydrogeologists (Irish Group) to East Central Ireland

'The Hydrogeology of East Central Ireland'

This year the Irish Group of the International Association of Hydrogeologists (IAH) held their fieldtrip on the weekend of 22nd and 23rd October, when thirty-eight intrepid hydrogeologists headed west, northwest and north from Dublin City Centre to meet researchers working in Counties Dublin, Meath and Monaghan. The hydrogeology of the region has been long-studied, but the trip focussed on recent and novel work in the region, and several new approaches to examining issues regarding geothermal energy and associated hydrogeology, catchment science and the protection of surface water quality, water supply, some novel and unusual karst, and various facets of inter-catchment hydrogeology. The idea of the field trip was to examine this rich library of new work, by visiting a wide variety of sites with very different hydrogeological influences.

Different to last year, there were no restrictions whatsoever on outdoor gathering and social distancing, and it was refreshing to see everyone's faces again throughout the time of the trip, with no requirement for face masks. The bus set off from Beggars Bush, Dublin, on Saturday, just after a mild and dry dawn.

On the outward journey from Beggars Bush, the weather was still clement, and actually improving, which was different to many trips of the recent past. When the bus reached Grangegorman, Sarah Blake of Geological Survey Ireland (GSI) gave an overview of the geology and hydrogeology of Irish Warm Springs, the Dublin Basin, and specifically the potential geothermal resource beneath this part of the city. Technological University Dublin (TUD) at Grangegorman is currently heated by gas boilers housed in the Energy Centre compound, where we stopped to hear Sarah and view results from deep drilling. Core from a borehole drilled to 998 m, with a local average geothermal gradient of 28 °C/km, was scrutinised, and features such as faults, intensely fractured horizons and zebra dolomite were assessed. John Walsh had deep insights into the fault and fracture network across this part of Ireland, and how the Grangegorman locality fits into that scheme. Both aspects led to brief but focussed discussion, before the group were led into the boiler house itself. By this time all were well ready for the journey to the second stop, at St. Gorman's Spring near Enfield in County Meath.

At St. Gorman's Spring, Sarah outlined the geothermal 'wonder' of the spring, and its associated oddities and annual flow mechanisms. Bruce Misstear, who had used the spot as one of the Holy Wells studied in detail for his recent PhD Research, also gave a fascinating account of allied aspects of the history of the feature, and other outlooks on previous research work carried out at the site. Oisín Ó'Briain of GSI had a down-the-hole camera there, present, and participants were able to view on-screen the large cavity in the bedrock at 91 m below ground level. Some participants' last action at the well were to have a go on the 'kneeling stone', in order to cure any non-hunger ailments before leaving for lunch, to then cure the hunger ailment in Brogan's Bar in Trim.

After lunch, the bus journeyed just out the road and into the Boycetown sub-catchment, with the first stop the point where the river empties into the Boyne itself. Paddy Morrissey of Trinity College Dublin, and formerly of Catchment Units in EPA, discussed work that EPA Catchments Unit had completed in the area, as well as in the wider area of all of the Republic, on aspects of excessive sediment and the recently-derived sediment risk assessment tools. At this point, as well as within the ground of the Teagasc Research Farm at Grange, Dunsany, Paddy outlined the results of field validation in the Boycetown sub-catchment, and the focus on in-channel sediment risk and

Catchment Sediment Risk Maps. A novel study into sediment fingerprinting was also sketched out, which led to long and dedicated discussion on the application of measures and the issues of sediment in rivers into the future. Donal Daly (retired, ex-EPA Catchments) and Margaret Keegan of LAWPRO fed much insight into this section of the trip, and the discussion was intense from many quarters.

By this time the weather had brightened up fully, as (being in Meath) the sun was shining and the sky was blue. The group were ready for warmth and succour, so they embarked on the journey to their overnight pit stop, at the Darnley Lodge Hotel in Athboy. Here, the colloquial dinner was attended by the majority of participants.

On the Sunday, the weather was initially quite wet, and all journeyed northwards to the town of Kingscourt. Here, Peter Conroy, Independent Hydrogeologist, gave an excellent and detailed outline of the complex geology and hydrogeology of the area, and illustrated historical issues with the determination of groundwater resources, trial well drilling, the selection of production wells, and issues since, including determining source protection zones to the boreholes supplying Kingscourt and its surrounding area, at Mullantra and Descart. Following this all were well ready for a lunch stop with great food and service, at Donegan's Monasterboice Inn in County Louth, by the time the discussion finished up.

Following lunch the weather just about segued into dry and bright phases as the afternoon progressed. and on the return journey to Dublin, a visit was made to Stalleen Water Treatment Plant on the catchment divide between the Rivers Boyne and Nanny, in northeast County Meath. While the participants basked in the sun and marvelled at Newgrange in the distance, Katie Tedd, Sara Raymond and Natalie Duncan of GSI's 'GW3D' project discussed the large-scale extractions of water at nearby Kiltrough and Platin, and outlined how these could be picked up even at catchment scale by examining water balances and using focussed data. At this stage, most were ready for the journey back to Dublin.

Before leaving, Gerry Baker, President of the IAH ((Irish Group), made a not-required but warmly-received presentation of a beautiful (and treasured) book to the author of this piece, following six years as IAH Field Trip Secretary. On a personal level, I would like to thank all of the contributors to the various field trips, from 2017 through until now. As well as all the landowners who allowed us access to the lands. And to all of the participants, just over 200 of them ! And a very special thank you to Janka Nitsche, IAH's current treasurer, who could not be more helpful in organising payments and communicating regarding all aspects of each trip's finances. John Dillon, our previous Treasurer from the start of my tenure, is also thanked sincerely.

The IAH (Irish Group) itself would collectively like to thank all the contributors to this year's field trip. Thanks also to Irish Water, especially Gary Boyd, for the help in arranging access to the borehole compounds at Mullantra and Descart, and for coming out in the rain on a Sunday morning to make sure all went well at the stops. Also, Nick Wilkinson of Hotwell House in Enfield is thanked, as Nick both allowed us access to the lands as well as joined us and participated in the discussion. Thanks also to McCaffrey coaches, and the bus driver Hassan, for getting us there, around and back safely. Hassan, like Noel last year's driver, has now been on more IAH (Irish Group) field trips in the last few years than a number of active IAH (Irish Group) members !

Despite rising prices and general cost-of-living increases, the net outlay on the trip was less than standard, as there was collectively a large turnout. We had slightly more than the average of the last few years over the two days, even pre-Covid, and being close to Dublin allowed many to travel out

for one day, though they couldn't make the entire weekend. As an aside, we are always usually down the money for the bus each year, owing to the fact that we pay hotel, dinner and lunches for the contributors and the bus driver. This year, the fees from participants covered not only attendance, provision of a PDF field guide, and all of the lunches, we were also able to recover over half the costs of the bus hire outlay as well.

The move to online booking and payment of the trip again worked excellently, and is something that we will continue for good.

Dr. Robbie Meehan, IAH Fieldtrip Secretary



Examining core and discussing the discussion at the Energy Centre at Grangeegorman.



Among the holy shade at St. Gorman's Spring.



This years photograph of a linear descent towards a watercourse ...



Paddy Morrissey discussing sediment in catchments, and bank and in-channel erosion.



Peter Conroy outlines the detail of Mullantra's hydrogeology.



Katie Tedd fields catchment-oriented questions at Stalleen Water Treatment Plant.

IAH (Irish Group) 2022 AGM - Conference Secretary's Report

42nd Annual IAH Conference: "Groundwater: Making the Invisible, Visible"

The 2022 IAH (Irish Group) Conference was held online, due to the ongoing pandemic restrictions. There were 14 presentations over two half days, from consultants, academics, international and state agencies, as well as an Early Careers Session of short presentations by five hydrogeologists. Overall, the conference was very well attended – there were 103 paid attendees with good feedback on the content and operation.

There was good online discussion after each session, with attendees submitting questions via Zoom. The talks are available to view online on the IAH Irish Group's YouTube channel.

There were two sessions on each day.

Day one, Session one, *Exploring Groundwater*, took a broader perspective and included talks on the role of groundwater in the 2022 UN World Water Development Report (Michaela Miletto, UNESOC WWAP), on Ireland's geothermal potential (Sarah Blake, GSI), and how structure influences groundwater movement and storage (Pat Meere, UCC).

Session two, *Groundwater Resource Resilience*, got underway with an overview of groundwater in the World Water Quality Alliance (Claudia Ruz Vargas, UN IGRAC), updates to the Irish National Karst database (Caoimhe Hickey, GSI), how groundwater is being incorporated into public supplies in Northern Ireland (Paul Wilson, GSNI), and updates on two GSI programmes that focus on groundwater (Katie Tedd, GSI).

The second day started with a session on *Communication*, with talks on the broader experiences of communicating geoscience to the public (Fergus McAuliffe, iCRAG), and how to foster and support community engagement (Donal O'Keefe, LAWPRO).

The final session considered *Emerging Issues in Groundwater*, and the speakers talked about their research on using passive seismic methods to *listen* to water flowing in conduits (Haleh Karbala Ali, DIAS), groundwater contaminants of emerging concern (Dan Lapworth, BGS), and a linked presentation on the global and Irish perspective on PFAS in groundwater (Olivia Hall & Ian Ross, TetraTech). The final presentation considered Irish Holy Wells (Bruce Misstear, TCD).

The opening address was given by the IAH Conference Secretary (Tiernan Henry, University of Galway), and the closing address by the IAH President (Gerry Baker, ARUP). The organising committee wishes to express their gratitude to all of those who attended this year's and previous year's conferences, particularly the speakers. We hope you found the 2022 conference interesting, educational and thought provoking, and we look forward to returning to an in-person meeting on the 18th & 19th of April 2023 in Tullamore.

Tiernan Henry

Technical Discussion Meetings (TDMs) Report

Due a combination of the Omicron Covid-19 variant and the closure of Beggar's Bush for renovations, all IAH (Irish Group) TDMs in 2022 have been online via Zoom.

In total we have hosted three TDMs so far this year, with a further two scheduled for November and December. The reduction in number of TDMs was due to there being no joint-TDM with the Geotechnical Society of Ireland, and the unfortunate cancellation of the joint-TDM with the Geothermal Association of Ireland in May - due to speaker withdrawals.

Topics for TDMs have included:

- 'Impact of dike intrusion on wells productivity' by Felipe Lisboa Cavalcante (University of São Paulo) - *Early Careers Hydrogeologists' talk*
- 'Stopping the rot: Taking action to ensure handpump and borehole quality' by Dr. Kerstin Danert (Ask for Water NGO) - *Annual David Burdon memorial lecture*
- 'Monitoring the impact of climate change on groundwater quantity across Europe' by Conor Quinlan (EPA)

In total, over 120 people attended TDMs this year.

Moving forward, our aim is to provide a mixture of online and in-person TDMs so that we may continue to engage with the hydrogeological cohort throughout Ireland. Arrangements are being made to host in-person TDMs at DCU, starting with the AGM. A hybrid setup will be available for those attending online. Furthermore, discussions have been held with IAH members from UCC and UoG with regards to hosting TDMs on their campuses in the future.