The [International Association of Hydrogeologists]() (IAH) recently held their 50th Worldwide Congress in Cape Town, South Africa. The IAH is a scientific and educational charitable organisation that aims to further the understanding, wise use and protection of groundwater resources worldwide. From small beginnings, IAH has grown into a truly global organisation with over 4,000 members in more than 130 countries.

Congresses have taken place worldwide, upholding IAH's commitment to reach as broad a geographical spread as possible. The IAH South Africa National Chapter and [Ground Water Division of South Africa]() (GWD-SA) arranged the 50th congress.

The Congress theme for IAH 50 was Groundwater: A Matter of Scale, exploring the connectedness of groundwater to the earth and human system. The participants discussed groundwater issues, techniques and solutions to improve access to safe and sufficient water and sustainably manage groundwater. In addition to plenary and invited speaker presentations, there were poster presentations, exhibition booths, special sessions including a session for young professionals, and scientific presentations covering every aspect of hydrogeological sciences. We had various Commission and Networking meetings taking place. The participants benefitted from interacting with colleagues from around the world. There were 500 delegates from 53 counties. IAH 50 was an incredible event, and we were proud as South Africans hosting the 50th IAH Worldwide Congress.

The congress started with field excursions to sites contributing to Cape Town's [water resilience](). The excursions included a trip to Steenbras Wellfield, which targets the surface Nardouw Aquifer and deep Peninsula Aquifer of the Table Mountain Group. The Atlantis Water Resource Management Scheme (AWRMS) excursion showcased managed aquifer recharge (MAR) using treated domestic wastewater and stormwater as the source.
The MAR source then infiltrates the aquifer and is abstracted ~750 metres downgradient at the Witzands Wellfield. The Cape Flats Aquifer (CFA) is under investigation as the City of Cape Town aims to abstract up to 76 megaliters per day (Ml/day) from the CFA while adding 64 Ml/day back into the aquifer via an active (i.e. injection-based) MAR scheme.

The delegates were shown features of the proposed Cape Flats Aquifer Management Scheme. The fitter delegates went on the Table Mountain Dams Hike to visit the reservoirs that initially supplied water to the city and environs. The Wetlands, Winelands, and Isotopes field excursion entailed a visit to the Eerste River Catchment, where hydrochemistry and different complementary isotopic tracers and dissolved gases were used in determining the reason and extent of the wetlands' water balance deficiency and lack of recovery.

We were grateful to have our political decision-makers at the opening session of the congress. The Deputy Minister of Sanitation, David Mahlobo, challenged the congress to reflect on "What differences are you making for a better world?". He stated, "Any country that does not value science and expertise will perish". Zahid Badroodien, the Mayoral Committee Member: Water and Sanitation for the City of Cape Town, welcomed congress participants to Cape Town. He noted, "Preserving our groundwater is not just about securing water for our present needs but also about ensuring the well-being of future generations".

A highlight of the congress was the keynote presentations. Wendy Timms emphasised the principles for data prioritisation, whilst Seifu Kebede Gurmessa highlighted Pan-African Hydrogeology characteristics. Five parallel sessions followed the opening, grouped into the conference's subthemes. The closing session focused on a young professional providing a keynote address on "Research and implementation of MAR in a changing climate". Awodwa Magingi presented case studies on MAR and future research activities. Harrison Pienaar followed her presentation on Circular Economy and Water - A South African Outlook: Implications and Opportunities for Groundwater". He noted that to achieve meaningful impact; the public and private sectors require investing in replicating current successful groundwater initiatives, localising international best practice examples to local settings, and the identification of new opportunities for groundwater through ongoing RDI.

The participants found the congress inspiring as a young professional reflected, "Meeting delegates from 53 countries broadened my professional and cultural horizons. Winning first prize for my poster presentation was a moment I'll always cherish, fueling my passion for pushing the boundaries of knowledge in my field. The insightful talks have left a lasting impact on my early career approach. I am grateful for these opportunities as I move forward, carrying the lessons and memories from Cape Town, ready to make a meaningful impact". Another delegate stated, "A truly enlightening experience in Cape Town for the International Association of Hydrogeologists 50th Conference.

New ideas for responsibly utilising groundwater to build our city's water resilience". "The scientific programme was excellent, with exciting and relevant research and plenary sessions. It is noticeable and apparent that groundwater continues to play a critical role in supplying water to the global community; therefore, we all need to be custodians to safeguard this valuable resource". "IAH and GWD have truly exceeded expectations with their panels, presentations, and posters".

The predictions are that climate change significantly impacts water resources globally, especially in Africa, with more frequent surface-water droughts and extreme rainfall events. Understanding how climate change affects groundwater resources, identifying potential risk areas, determining the implications for these vulnerable areas, and developing mitigation and adaptation strategies are complex. The IAH congress presented an opportunity to showcase capacities and skills to address our profound global challenges as we accelerate towards crossing critical environmental thresholds.

The International Symposium on Managed Aquifer Recharge (ISMAR) is the premier international event on MAR research and practice, held every three years under the auspices of the International Association of Hydrogeologists (IAH), the American Society of Civil Engineers (ASCE), and the United Nations Educational, Scientific and Cultural Organization (UNESCO). This series of conferences advances the goals of IAH's Commission on MAR "to expand water resources and improve water quality in ways that are appropriate, environmentally sustainable, technically viable, economical and socially desirable". It's a great privilege for Cape Town, South Africa, to host the next ISMAR Conference from 28th April to 2nd May 2025. Planning for the event has commenced, and more information will soon be available about ISMAR12. Hope to see you there.

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