

International Association of Hydrogeologists  
**COMMISSION ON GROUNDWATER & CLIMATE CHANGE**  
**IAH-CGCC**



**ANNUAL REPORT 2024**

**Chair**

Dr. Tibor Stigter, IHE Delft Institute for Water Education (Delft, the Netherlands)

**Co-Chairs**

Prof. Jianyao Chen, Sun-Yat Sen University (Guangzhou, China)

Dr. Jodie Miller, IAEA (Vienna, Austria) until 30/09/2024

Saulo Vieira MSc, Aquasoil (Berlin, Germany) from 01/10/2024

Contributors include Umut Taha, Fatima Monji, Phebe Olabode, Ayesha Zulfiqar, Keneth Kaunda, Lindsey Kenyon, Valentina Uribe, among others.

IAH-CGCC website: <https://gwclimate.iah.org/>

## **1. IAH-CGCC Aims**

The mission of the IAH Commission on Groundwater and Climate Change (IAH-CGCC) is: **to improve understanding of (1) the relationship between groundwater and climate change, and (2) the role of groundwater in adaptation to climate variability and change.**

The IAH-CGCC will seek to fulfil its mission by:

1. promoting related research and development to advance scientific and technical knowledge;
2. fostering inter-disciplinary, international collaborations among universities and research institutions, water resource managers, and water policy makers;
3. fostering linkages with related research and development activities in climate, hydrological, agricultural and health sciences;
4. engaging with key international organisations, agencies and programmes (e.g., UNESCO-IHP, WMO, FAO, UNICEF, WHO, IAEA-WRP, GEWEX, GWSP)
5. working with the International Groundwater Resources Assessment Centre (IGRAC) to promote the development of a programme and facility for the collection, evaluation, archiving and sharing of groundwater data including both ground-based observations and satellite measurements;
6. identifying and evaluating a series of representative case studies illustrating the relationship between groundwater and climate change and the role of groundwater in adaptation to climate variability and change;

7. disseminating research and development outcomes to the global research community including specifically the IPCC, and global development community including governmental and non-governmental organisations and those specifically concerned with enabling adaptation to climate change; and
8. creating awareness of the IAH-CGCC among IAH members, related professions and wider water resources and water supply communities.

## 2. IAH-CGCC activities during 2024

- The CGCC provided a substantial contribution to the IAH Congress in Davos, where we chaired a whole-day session on “Groundwater and Climate Change – Impacts and Opportunities”. We had contributions from 25 speakers (13 full presentations and 12 poster pitches) on diverse topics, from global modelling to field studies, from around the world. On the same day we held our annual meeting to discuss several initiatives aimed at: i) raising global awareness around groundwater and climate change; ii) promoting research and development and iii) supporting education and capacity strengthening. We discussed our role in the UN Summit of 2023, following up on the UN Water “Year of Groundwater” in 2022, for which we contributed to the UN WWDR and published an essay on “Groundwater and Climate Change – Threats and Opportunities” in the Hydrogeology Journal in 2023. More recently we supported a Collection in Theoretical and Applied Climatology.
- Editing a collection of 18 scientific papers and writing of editorial titled "Groundwater, Climate Change, Adaptation and Mitigation", published in Theoretical and Applied Climatology (<https://link.springer.com/article/10.1007/s00704-024-05171-7>), exploring the intricate connections between climate dynamics and groundwater resources and emphasizing the critical role of groundwater in addressing climate change challenges.
- Support of Joint International Master Programme on Groundwater and Global Change – Impacts and Adaptation. Its teaching philosophy, from multiple climatic perspectives (dry to wet), with an interdisciplinary and applied approach with strong industry links and inclusive access to groundwater education, was presented at the IAH Congress in Davos.
- The publication titled UN Water Analytical Brief on Water for Climate Mitigation, submitted by the UN-Water Expert Group on Water and Climate Change for review, feedback, suggestions and contributions, was reviewed by our commission members and contributions were made by providing feedback. The aforementioned publication was published in November 2024 with the contribution of a group of scientists including our commission members Tibor Stigter, Saulo Viera and Umut Taha Çapanoğlu.
- News in the written and visual media containing the relationship between Climate Change and Groundwater continued to be examined in 2024 and presentations were updated with this news. It seemed we found more news on this topic in 2024 compared to previous years, perhaps partly due to the fact that the effects of climate phenomena (such as El Niño) and climate change phenomena were more pronounced.

- It is also nice to note that more people are joining and actively engaging with the Commission (currently around 80 registered members), which will allow us to better support our mission and that of IAH. After many years serving on the Commission, Jodie Miller stepped down as co-chair. We thank Jodie for all her efforts and are counting on her continued involvement in the Commission. Meanwhile, Saulo Vieira has agreed to take up the role of co-chair. Saulo is a GroundwatCh alumnus currently working at Aquasoil GmbH. We look forward to working together on upcoming activities supporting the UN-Water Expert Groups and LUNA, as well as the IAH Education & Outreach Initiative and several other activities.
- We included a section on the history of the Commission to the web page.

#### ***2.4 Engagement with international programmes and scientific agenda:***

Besides looking at climate change impacts on groundwater, the importance of drivers such as population growth, development, urbanization, particularly in the coastal area and changing dietary preferences in large emerging countries, which all lead to increased (ground)water demand for supply and ecosystem maintenance, also merit attention within the activities of IAH-CGCC, as does the role of groundwater in adaptation. For this reason, contacts are sought with other relevant commissions within IAH, such as the Commission on Managing Aquifer Recharge, as well as with international programmes (e.g. UNESCO IHP), organizations (e.g. IGRAC) and networks (e.g. IWRA, ECHN). A few examples:

##### **(i) INQUA and IGCP**

- IAH-CGCC Co-chair Jianyao Chen serves also as INQUA IFG Palaeogroundwater leader, which enables the close communication between INQUA, IGCP and the IAH and contributes to the Commission with knowledge of global change from large aquifers.

##### **(ii) International Groundwater Resources Assessment Centre (IGRAC)**

- IAH-CGCC and IGRAC are involved in joint activities including awareness raising, knowledge dissemination and MSc supervision.

- Close collaboration within the GroundwatCh Joint MSc programme

##### **(iii) IAH Commission on Managed Aquifer Recharge**

- Close collaboration within the GroundwatCh Joint MSc programme

Tibor Stigter

*Chair*

Jianyao Chen and Saulo Vieira

*Co-Chairs*