

International Association of Hydrogeologists
COMMISSION ON GROUNDWATER & CLIMATE CHANGE
ANNUAL REPORT 2013

Chairs

Professor Richard Taylor, University College London (UK)

Professor Bridget Scanlon, University of Texas (USA)

Professor Jianyao Chen, Sun-Yat Sen University (China)

IAH-CGCC website: <http://www.gwclim.org>

1. IAH-CGCC Aims (2012-2015)

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 with 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. Progress on IAH-CGCC objectives during 2013 through:

Educational Initiatives (e.g. Training Workshops)

The IAH-CGCC conducted training workshops in Tanzania and Uganda to improve understanding and the technical capacity to engage in research and monitoring of the relationship between groundwater and climate change. Priority was placed on the analysis of observational records of long-term (multi-decadal) groundwater-level time series. These preliminary workshops provide a base upon which efforts to collate long-term, observational records of groundwater storage changes more widely across Africa in 2014.

2013, 2-4 February **Ministry of Water, Tanzania** (Dar es Salaam, Dodoma)

Groundwater resilience to climate Change in Africa

- The two workshops involved a total of 30 government and academic staff from Sokoine University of Agriculture and University of Dodoma.

2013, 29-31 January **Ministry of Water and Environment, Uganda** (Kampala, Entebbe)

Groundwater resilience to climate Change in Africa

- The two workshops involved a total of 35 government and academic staff and students from Makerere University.

Website development

The IAH-CGCC's stand-alone website at www.gwclim.org currently features details of the IAH-CGCC aims, focal areas, and notices of meetings. Discussions are underway with the University of Texas at Austin to further develop the website to include a moderated blog, a searchable database of relevant literature listings; and a metadata database, linked to the WMO-sanctioned global repository of groundwater data, IGRAC (www.irgac.org).

Liaison with other organisations and future IAH-CGCC activities

The IAH-CGCC held a strategy meeting with the UNESCO-IHP GRAPHIC programme and International Groundwater Resources Assessment Centre (IGRAC) at the headquarters of the World Water Assessment Programme in Perugia (Italy) from the 15th to 18th of May (2013). This meeting sought to establish closer links between the IAH-CGCC and UNESCO-IHP GRAPHIC programme and to establish ways of linking data generated under both programmes to the global groundwater data centre at IGRAC.

Discussion focused on the future direction of the IAH-CGCC and GRAPHIC and three suggestions were tabled for action: (1) a dedicated groundwater and climate change session at the IAH Congress in Marrakech (Morocco) in 2014; (2) a stand-alone Groundwater and Climate Change Conference in Coastal Environments to be held in Bangladesh in 2014 or 2015; (3) a small, focused Groundwater & Economics workshop to be held in 2014 to consider issues such as the 'valuing of groundwater'; and operation of a joint website (www.gwclim.org) for the IAH-CGCC and UNESCO-IHP GRAPHIC.

Contributions to special sessions at international conferences

The IAH-CGCC contributed to special sessions at international conferences in 2013:

2013, 5-9 Dec

AGU Fall Meeting (San Francisco, USA)

Remote sensing and Modeling of Groundwater Variability (H073)

- The IAH-CGCC contributed papers including an invited presentation to a special session on the relationship between satellite and ground-based observations of changes in groundwater storage.
- The IAH-CGCC also participated in a workshop reviewing groundwater recharge processes and rates in Africa under the UK government's UPGro programme led Prof. Alan MacDonald.

Engagement with international programmes and scientific agenda:

In 2013, the IAH-CGCC was actively involved in the peer review process of the 5th Assessment Report (AR5) of the Inter-governmental Panel on Climate Change (IPCC) that was strongly enabled by the IAH-CGCC initiated, led and coordinated critical review of the relationship between groundwater and climate change published in 2013: Taylor, R.G., Scanlon, B.R., Doell, P., Rodell, M., van Beek, L., Wada, Y., Longuevergne, L., LeBlanc, M., Famiglietti, J.S., Edmunds, M., Konikow, L., Green, T., Chen, J., Taniguchi, M., Bierkens, M.F.P., MacDonald, A., Fan Y., Maxwell, R., Yechieli, Y., Gurdak, J., Allen, D., Shamsudduha, M., Hiscock, K., Yeh, P., Holman, I. and Treidel, H., 2013. Groundwater and climate change. *Nature Climate Change*, Vol. 3, 322-329.

3. Future Plans and Meetings

2014, 16 Sept **IAH 41st Congress in Marrakech (Morocco)**

A joint meeting of UNESCO-IHP GRAPHIC and the IAH-CGCC will be held at the IAH Congress in Marrakech. The IAH-CGCC has also been actively involved in the development of a session on Groundwater and Climate Change as members of the congress's International Scientific Committee.

Richard Taylor, Bridget Scanlon & Jianyao Chen
IAH-CGCC Co-Chairs