

## INTERNATIONAL COMMISSION ON WATER RESOURCE SYSTEMS (ICWRS)

### Status Report April 2018

#### *Commission membership*

Andreas Schumann - President  
Alberto Montanari - Past-President  
Barry Croke - Vice-President  
Zongxue Xu - Vice-President  
Jean-Marie Kileshye Onema - interim Vice-President  
Alberto Viglione - Secretary

#### Associated members:

Alla Kolechkina, Dan Rosbjerg, Gil Mahé, Ian Littlewood, John Ndiritu, Jose Luis Salinas, Junguo Liu, Kate Heal, Kim Young-Oh, Magdalena Rogger, Mike Simpson, Murugesu Sivapalan, Ronald van Nooyen, Ross Woods, S.K. Jain, Saket Pande, Stephen Mallory, Taha Ouarda

### Description of activity June 2017 – April 2018

#### *ICWRS activities during the IAHS Scientific Assembly in Port Elizabeth*

In July 2017, the Commission has actively participated in several Symposia and Workshops of the IAHS Scientific Assembly in Port Elizabeth. Specifically, ICWRS had the lead in:

- ~ **Symposium S1** “Water security and the food-water-energy nexus: drivers, responses and feedbacks at local to global scales” Conveners: Graham Jewitt, *Barry Croke*  
A total of 36 papers were submitted, with 21 verbal and 12 poster presentations listed in the programme (though there were a few of both types of presentations for which the authors were not able to attend). The symposium was an interesting cross disciplinary meeting, with the presentations covered a wide range of topics, presented by authors from diverse backgrounds. Full papers were invited for submission after the conference, with 14 papers appearing in PIAHS 376.
- ~ **W4 (co-organised with ICWQ)** “Long-term evolution in catchment water quality” Conveners: Per Stålnacke, *Barry Croke*, Elango Lakshmanan, Xiaohong Chen  
There were 10 oral presentations, many of them from China, indicating the importance China is placing on water quality at this time.
- ~ **W12** “Water resources management and the competition/balance between humans and ecosystems (eco-hydrology)”, Conveners: *Zongxue Xu, Alberto Montanari*

- ~ There were 10 oral presentations and 7 posters.
- ~ **W15** “Land use change impacts on water resources”, Conveners: *Magdalena Rogger*, Graham Jewitt, *Alberto Viglione*, Michele Toucher  
There were 12 oral presentations (almost all of them took place) and 2 posters.
- ~ **W19** “Probabilistic forecasts and land-atmosphere interactions to advance hydrological predictions” Conveners: Christopher White, Maria-Helena Ramos, Aaron Boone, Eva Boegh, Harald Kunstmann, Koray Kamil Yilmaz, Richard Petrone, Kaniska Mallick, Frédérique Seyler, Thomas Skaugen, *Alberto Viglione*  
There were 4 oral presentations and 3 posters (1 of them then withdrawn).

The high number of workshops and the relatively low number of speakers and participants in Port Elizabeth requires from our point of view a focusing of activities in future.

### ***ICWRS Meetings***

Every other year, there is either an IAHS Scientific Assembly or an IUGG General Assembly. In the years between assemblies, ICWRS organizes the International Water Resources Management Conference (IWRM). The 8<sup>th</sup> of these meetings will take place in June 2018 in Beijing, organized by the Vice-President of ICWRS, Prof. Xu from the College of Water Sciences at Beijing Normal University. The topic of this symposium will be “Innovative Water Resources Management under Changing Environment - Understanding Interactions and Making Balance between Humankind and Nature”. The organizers received 142 contributions (83 from China and 59 from abroad) in total, where 65 were accepted (China: 39; Abroad: 26) for oral presentation and publishing in the Proceedings of the International Association of Hydrological Sciences (PIAHS).

### ***ICWRS planned activity during the IUGG Assembly in Montreal (2019)***

With regard to the experience in South Africa, ICWRS suggests only one symposium and one workshop as separate activities of the commission. The proposed ICWRS-symposium has the title: “Comparative Inventories of water resources systems and their functioning - methodology and tools for their assessment, protection and efficient use”. An outline is given in the attachment. The proposed workshop has the title “Should multi-purpose reservoir systems still be operated with fixed operation rules?” and is dedicated to a basic problem of modern reservoir management. The outline is given also in the attachment. In addition, a workshop, dedicated to applications time series from remote sensing in water management is planned jointly with ICRS. ICWRS supports the proposal from the Panta Rhei working group on Modeling hydrological processes and changes (MHPC) (Yangbo Chen): “Modeling hydrological processes and changes under a changing environment”, where ICWRS will be represented by Alberto Viglione.

### ***ICWRS and the “Unsolved Problems in Hydrology” Initiative***

Commission members contributed to the discussion at with several questions.

- ~ Andreas Schumann: Sudden and abrupt changes of water management conditions?

- ~ Alberto Montanari: Why do we see long term cycles in temperature, rainfall and river flows?
- ~ Alberto Viglione: Do flood rich-poor periods exist? If so why?
- ~ Barry Croke: How do we improve our understanding of tipping points?
- ~ Barry Croke: How do we better capture and use the uncertainty in the outputs of hydrological models?

The most of these contributions are less specific for the topics of ICWRS, which are more located at the application of hydrology. In order to improve the design and operation of WRS e.g., we need good predictions of the volume of water available, it's temporal and spatial distribution, how susceptible these are to change (e.g. land use and climate change), as well as how far the system can be pushed before it collapses. Some of these problems are very basic and several relationships to other UPH exists. Thus, we see some problems to specify UPH for water resources systems

### ***Website***

The website has been updated at the address:  
<http://iahs.info/Commissions--W-Groups/ICWRS-Water-Resources-Systems.do>

Alberto Viglione, Secretary ICWRS