

## **IAHS Bureau Meeting, 22 June 2015, Prague, Czech Republic**

### **Report by Vice-President Prof Thorsten Wagener**

#### *Hydrology Education Sessions at Conferences*

It remains difficult to have conference sessions with an educational focus that attract a lot of submissions. Different hydrology education sessions have been ran by us or supported by us at different venues. Attendances varied. One positive aspect is though that the people organizing such sessions varied and that an increasing number of academics are interested in organizing such events.

The most successful event I am aware of that happened over the last year or so was fully student organized though. The EGU Young Hydrologic Society organized an afternoon in which three hydrology educators shared their experience. The event was very well attended and a great success (<http://younghs.com/2015/04/22/introduction-to-teaching-hydrology/>). I think that such events, where the focus is on actually sharing practical experience, are likely to be the most successful ones.

2014 Emad Habib, Upmanu Lall, Thorsten Wagener and David Tarboton. *Unlocking the Educational Value of Hydrologic Research for Development of Student-Centered, Context-Rich, Active Hydrologic Learning experiences*. American Geophysical Union Fall Meeting, San Francisco, USA.

2015 The Young Hydrologic Society of EGU organized an afternoon of teaching talks where Allan Rodhe, Martine Rutten and myself gave talks to share our experience with teaching hydrology. This was a student organized that was very well attended.

2015 Thorsten Wagener (Bristol, U.K.), Denis Hughes (Grahamstown, South Africa), Stefan Uhlenbrook (Delft, The Netherlands), Dominic Mazimavi (Capetown, South Africa), Eric Servat (Montpellier, France), Valérie Borrell (Montpellier, France) *Hydrology Education in the Classroom*, 26th IUGG General Assembly, Prague, Czech Republic.

#### *Sustainable Home for Hydrology Education Material*

The Modular Curriculum for Hydrologic Advancement (MOCHA) requires a new home due to my move to the UK. Prof. Tom Meixner from the University of Arizona is leading the discussion with a much larger scale initiative for hosting educational material called SERC. The Science Education and Resource Center (SERC) at Carleton College is a National Science Foundation project that provides web access to educational material, including for geoscience (<http://serc.carleton.edu/index.html>). We think that a sustainable long term solution requires funding for hosting and maintaining a website, which SERC could provide.

#### *Hydrology Education Papers*

Additional effort has been put into further writing journal papers focused on hydrology education to spread the effort of bringing this discussion to the widest range of participants possible.

Ruddell and Wagener (2014) was published last year and discusses the specifics of hydrology education in engineering departments. Central themes of the challenges for hydrology education are the development of international hydrology education communities and networks, shared learning technologies—partially driven by the need for a more mechanistic approach to engineering hydrology, formalized and validated pedagogies,

and adaptations of international best educational practices to regionally specific hydrology and socioeconomic context.

We have been invited to submit a paper on the link between hydrology and meteorology education to the Bulletin of the American Meteorological Society (BAMS). This will be a great opportunity to highlight how these two communities have to come closer together (in education) to solve the problems we are facing, e.g. land use change impacts. The manuscript is currently in preparation.

We also added a preface to the HESS special issue on hydrology education to summarize the contributions of the papers submitted (Seibert et al., 2013). The special issue contains 28 peer-reviewed journal papers.

### *References*

Ruddell, B.L. and Wagener, T. (2014). Grand challenges for hydrology education in the 21<sup>st</sup> Century. *Journal of Hydrologic Engineering*, doi:10.1061/(ASCE)HE.1943-5584.0000956  
{**Abstract:** A thorough understanding of the hydrosphere is crucial for the sustainable evolution of human society and the ecosystem in a rapidly changing world. This understanding can only come from well-trained professionals in the field of hydrology working in research and practice. In civil and environmental engineering, this knowledge is the basis for the design of infrastructure and its management. This paper briefly reviews the historical development of engineering hydrology education from the middle of the twentieth century. The twentieth century was characterized by the establishment in the 1950s and 1960s of a clear, modern, and durable vision for hydrology education as a distinct formal program of study, and the consolidation in the 1990s of the original vision. In recent years, a series of publications has expanded the traditional vision of hydrology education. This recent literature emphasizes formalized approaches to hydrology education, including community-developed curricular resources, data-based and modeling-based curricula, formally assessed pedagogies, and formalization of nontraditional pedagogies. Based on these findings, the authors present several challenges for hydrology education in the 21<sup>st</sup> century. Central themes of the challenges for hydrology education are the development of international hydrology education communities and networks, shared learning technologies—partially driven by the need for a more mechanistic approach to engineering hydrology, formalized and validated pedagogies, and adaptations of international best educational practices to regionally specific hydrology and socioeconomic context.}

Seibert, J., Uhlenbrook, S. and Wagener, T. 2013. Preface: Hydrology education in a changing world. *Hydrology and Earth System Sciences*, 17, 1393-1399. doi:10.5194/hess-17-1393-2013