



Panta Rhei – Everything Flows  
Change in Hydrology and Society  
IAHS Scientific Decade 2013-2022  
[www.iahs.info/pantarhei](http://www.iahs.info/pantarhei)

## Proposal for a Working Group

### Title of the Working Group

#### Socio-hydrologic Modeling and Synthesis

#### Abstract of the proposed research activity (150 words)

The proposed working group will bring together researchers from different parts of the world working on coupled human-water systems. The research goal is to advance the community's ability to understand and model these interlinked systems through increased collaboration, sharing of data and models, and comparative analysis of human-water systems across diverse sites.

The working group will organize workshops for model development and inter-comparisons, convene conferences, workshops and special sessions at international conferences, and put together journal special issues and edited books. These activities will promote synthesis in socio-hydrologic research by answering science questions 1, 2 and 3 of Panta Rhei.

Several members of this working group are already working together via a US NSF funded grant on socio-hydrologic modelling, a special issue in Hydrology and Earth Systems Science (HESS) and an edited book. The Working Group will allow us to open these activities to a wider range of participants globally.

#### Panta Rhei Research Themes, Targets and Science Questions addressed by the Working Group

This working group will mainly focus on Target 1: Improving Understanding of the Panta Rhei Science plan outlined in <http://distart119.ing.unibo.it/iahs/> The Science Questions outlined in the plan that will be addressed by the proposed working group are:

SQ1: What are the key gaps in our understanding of hydrologic change:

SQ2: How do changes in hydrologic systems interact with and feedback on natural and social systems driven by hydrologic changes?

SQ3: What are the boundaries of coupled hydrologic and societal systems? What are the external drivers and internal properties of change? How can boundary conditions be defined for the future?

### **Societal impact of the Working Group activity (150 words)**

Freshwater security poses one of the largest challenges of the 21<sup>st</sup> century. The concept of freshwater security is inherently linked with and reliant upon human use and appropriation of freshwater resources. So it is essential to consider human, water and ecological systems to describe, model, and formulate policy responses to the grand challenge of water security.

Freshwater research has fallen short of addressing this grand challenge in two ways: 1) research is highly site-specific and fragmented, preventing accumulation of knowledge, and 2) current approaches do not fully account for the fact that the human and natural components of freshwater systems interact and co-evolve.

By bringing together researchers working on coupled human-water systems at many sites, the working group will generate insights that allow policy makers to learn from other study sites as well as historical experience, thus enhancing freshwater security globally.

## List of Participants

Please include at least 6 members from 3 different countries. Make an effort to ensure interdisciplinarity. Add rows at the Table if necessary.

Name (Alphabetical Order)	Affiliation and Address	Area of Expertise	Email	Role
Veena Srinivasan	Ashoka Trust for Research in Ecology and the Environment Royal Enclave Srirampura, Jakkur Post, Bangalore 560 064 Karnataka, INDIA	Water Resource Systems, Management and Policy	veena.srinivasan@atree.org, veena.srinivasan@gmail.com	Chair
Alberto Viglione	Institute of Hydraulic Engineering and Water Resources Management Vienna University of Technology (TU Wien) Karlsplatz 13/222 A-1040, Vienna, Austria Web: <a href="http://www.idrologia.polito.it/~alviglio">www.idrologia.polito.it/~alviglio</a> Phone: +43-1-58801-22317	Civil Engineering/ Hydrology/Water Resource Systems	viglione@hydro.tuwien.ac.at	Member
Amber Wutich	Amber Wutich Associate Professor of Anthropology School of Human Evolution and Social Change Arizona State University	Anthropology/Water and Food Insecurity	Amber.Wutich@asu.edu	Member
Chris Scott	Associate Professor, University of Arizona Udall Center for Studies in Public Policy / School of Geography & Development 803 E. First St., Tucson, AZ 85719 410 Harvill Bldg., Tucson, AZ 85721	Geography/Water Resource Management	cascott@email.arizona.edu	Member

Dingbao Wang	University of Central Florida Department of Civil, Environmental & Construction Engineering ENGINEERING II 4000 Central Florida Blvd. Orlando Florida 32816 Phone: 407-823-1449	Civil Engineering/ Hydrology/Water Resource Systems	dingbao.wang@ucf.edu	Member
Fuqiang Tian	Department of Hydraulic Engineering, Tsinghua University, China	Civil Engineering/ Hydrology/Ecohydrology	tianfq@tsinghua.edu.cn	Member
Guenter Bloeschl	Centre for Water Resource Systems, Vienna University of Technology, Karlsplatz 13/222, A-1040 Vienna, Austria Tel.: +43-1-58801-22315	Civil Engineering/ Hydrology/Water Resource Systems	bloeschl@hydro.tuwien.ac.at	Member
Guiliano Di Baldassarre	Senior Lecturer Hydroinformatics Systems UNESCO-IHE, Delft Phone +31152151846	Civil Engineering/Hydrology	G.DiBaldassarre@unesco-ihe.org	Member
Jaya Kandasamy	School of Civil and Environmental Engineering University of Technology Sydney, Australia PO Box 123, Broadway NSW 2007, Australia Phone: +61 2 9514 2558	Civil Engineering/Hydraulics and Hydrology	Jaya.Kandasamy@uts.edu.au	Member
Jim Wescoat	Aga Khan Program for Islamic Architecture MIT, Room 10-390, 77 Massachusetts Ave. Cambridge, MA 02139 617.253.0567	History, Archaeology	wescoat@mit.edu	Member

Matthew Hipsey	School of Earth and Environment The University of Western Australia (M004) 35 Stirling Highway, CRAWLEY WA 6009 Australia Ph: 6488 3186	Environmental Science/Hydrology/ Limnology/Ecology	matt.hipsey@uwa.edu.au	Member
Maurits Ertsen	Water Resources / Water Management group Department of Civil Engineering and Geosciences Delft University of Technology PO Box 5048, 2600 GA Delft, the Netherlands tel + 31 (0) 15 27 87423	Irrigation Engineering/Water History/Archaeology	M.W.Ertsen@tudelft.nl	Member
Megan Konar	Civil and Environmental Engineering, University of Illinois 2525 Hydrosystems Laboratory 205 N. Mathews Ave. Urbana, IL 61801	Virtual Water, Ecohydrology, Water for Food	mkonar@illinois.edu	Member
Mitch Pavao- Zuckerman	Biosphere 2 Department of Ecology and Evolutionary Biology P. O. Box 210088 University of Arizona Tucson, AZ 85721 phone: (520) 621-8220	Geography/Ecology	mzucker@email.arizona.edu	Member
Murugesu Sivapalan	Civil and Environmental Engineering, University of Illinois 2524 Hydrosystems Laboratory 301 N. Mathews Ave., Urbana, IL 61801 Phone: (217) 333-2675	Civil Engineering/ Geography/ Hydrology	sivapala@illinois.edu	Member

Saket Pande	Civil Engineering, 4.81 Delft University of Technology +31 15 2784809	Civil Engineering/Hydrology/ Economics	S.Pande@tudelft.nl	Member
Sally Thompson	University of California, Berkeley 661 Davis Hall, Berkeley, CA, 94720 (510) 642 1980	Civil Engineering/Hydrology/ Ecohydrology	sally.thompson@berkeley.edu	Member
Saravanamuthu Vigneswaran	School of Civil and Environmental Engineering University of Technology Sydney, Australia Phone: +61 2 9514 2641	Environmental Engineering/Urban Hydrology	Saravanamuth.Vigneswaran@uts.edu .au	Member
Tara Troy	9A STEPS, Civil & Environmental Engineering Lehigh University, Bethlehem, PA 18015 (610) 758 2595	Civil Engineering/ Hydrology	tarajtroy@gmail.com	Member
Timothy Foster	Department of Civil and Environmental Engineering/Grantham Institute for Climate Change, Imperial College, London, SW7 2AZ, UK Ph: +44 (0)20 7594 6115	Hydrology/Irrigation/ Economics	timothy.foster10@imperial.ac.uk	Member
Prabhu Sivabalan	University of Technology Sydney, Australia	Economics/Environment/ Water systems	Prabhu.Sivabalan@uts.edu.au	Member
Tom Evans	Department of Geography Indiana University Bloomington, IN 47401 United States	Geography, GIS, Environmental Social Science	evans@indiana.edu	Member