Panta Rhei – Everything Flows
Change in Hydrology and Society
IAHS Scientific Decade 2013-2022
www.iahs.info/pantarhei

Details of the Proposal

Title of the Working Group

Transdisciplinarity

Abstract of the proposed research activity

A scientific decade on Change in Hydrology and Society requires the perspectives of those disciplines that have traditionally been concerned with society, the social sciences, as well as of society itself. Understanding how these perspectives can be combined with hydrological perspectives to create new ways of approaching socio-hydrological questions is the aim of the Working Group *Transdisciplinarity*. Specific research questions include:

- Scientists do not act in a disinterested and analytical way with respect to the things they study; science is practiced *within* socio-hydrological systems. We have very few studies of how those systems shape hydrological science as a discipline, and the opportunities and constraints that this creates for producing scientific knowledge. Thus, how is hydrological research practiced within socio-hydrological systems and can we account for, through the consideration of particular case studies, how science has co-evolved with society in a range of hydrological settings? How do political, social and cultural constraints and discourses mix with scientific knowledge in evolving socio-hydrological systems?
- Socio-hydrological systems have meaning to more than those who are scientists; the people and institutions that live within socio-hydrological systems have profound hydrological knowledge. What does this mean for how socio-hydrological systems should be researched and governed in a democratic world?
- The social sciences are often critical of the approaches traditional to scientific method. Thus, what are the ways of working that are required to allow natural scientists, social scientists and other stakeholders to develop meaningful collaborations around socio-hydrology?

Leading on from the last point, this Working Group will conduct, evaluate and record transdisciplinary experiments during the scientific decade 2013-2022, and make these experiences available in form of a community resource (e.g. website).

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

This Working Group addresses mainly target 1 ("understanding") and target 3 ("science in practice"). Science question 2 ("How do changes in hydrological systems interact with, and feedback on, natural and social systems driven by hydrological processes?"), among others, will be enriched through social science perspectives on coupled human-environment systems. Experiments with transdisciplinary methods, in turn, will provide evidence for science question 6 ("How can we support societies to adapt to changing conditions by considering the uncertainties and feedbacks between natural and human–induced hydrologic changes?").

Societal impact of the Working Group activity

Societal impact follows directly from the embeddedness of science in society within a transdisciplinary research programme. It is one aim of the Working Group to evaluate and help improve how knowledge, power and decisions interact in a socio-hydrological world.

List of Participants

Name of Participant	Affiliation (full address and email)	Role in Working Group (Chair or Member)	Main expertise
Tobias Krueger	IRI THESys, Humboldt-Universität zu Berlin, Unter den Linden 6, 10099 Berlin, Germany, tobias.krueger@hu-berlin.de	Chair	Uncertainty analysis; water resources management; participatory modelling
Antje Bruns	Geography Department, Humboldt-Universität zu Berlin, Unter den Linden 6, 10099 Berlin, Germany, antje.bruns@geo.hu-berlin.de	Member	Water governance and politics; transdisciplinary approaches and methods; nature-society interactions in the context of global change
Gemma Carr	Centre for Water Resource Systems, Vienna University of Technology, Karlsplatz 13/222, A-1040 Vienna, Austria,	Member	Stakeholder participation in water resources management; socio-hydrology

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Eva Paton	Ecohydrology, Department of Ecology, Technical University Berlin, Ernst-Reuter-Platz 1, 10587 Berlin, Germany, eva.paton@tu-berlin.de	Member	Ecohydrological modelling; complexity; environmental change
Carly Maynard	Department of Geography, Edge Hill University, St Helens Road, Ormskirk, Lancashire L39 4QP, UK, maynardc@edgehill.ac.uk	Member	Integration of scientific and experiential knowledge in river research and management; knowledge co-production; impact of anthropogenic controls on flow/habitat/morphology; hydraulic modelling
Stuart Lane	Institute of Earth Surface Dynamics, Université de Lausanne, Géopolis, CH1015 Lausanne, Switzerland, stuart.lane@unil.ch	Member	Co-production of socio-hydrological knowledge; science in policy- and decision-making; flood and river hydraulics
Kit Macleod	The James Hutton Institute, Craigiebuckler, Aberdeen, Ab15 8QH, Scotland, UK, Kit.Macleod@hutton.ac.uk	Member	Multiple functions, benefits and trade-offs of temperate catchment systems; integrating natural, social and computer science to improve understanding and managing of catchments; advancing the theory as well as the practice of integrative systems based approaches
Leon Hermans	Faculty of Technology, Policy and Management, Delft University of Technology, PO Box 5015, 2600 GA, Delft, the Netherlands, L.M.Hermans@tudelft.nl	Member	Water-society interactions; policy analysis; actor analysis; adaptive management; institutional transformation
Eric Lindquist	Director, Public Policy Research Center, Boise State University, 1900 University Dr., Boise ID 83725-1936, USA, ericlindquist@boisestate.edu	Member	Public policy and water management, mixed methods social science research, stakeholder engagement, water governance, vulnerability assessments, agenda setting and policy processes
Anne Leskens	Faculty of Engineering Technology, Water Engineering and Management, University of	Member	Interactive modelling; monitoring of collaborative knowledge construction in work sessions; social

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Roland Barthel	Department of Earth Sciences, University of Gothenburg, Box 460, SE-405 30 Göteborg, Sweden, roland.barthel@gvc.gu.se	Member	Hydrogeology; hydrology; regional water supply and water resources management; inter- and transdisciplinary research
Roman Seidl	Institute for Environmental Decisions, ETH Zurich, Universitaetstrasse 22, CH-8092 Zurich, Switzerland, roman.seidl@env.ethz.ch	Member	Social-psychology and environmental psychology; Multi-Agent System modeling; psychology of the long-term; tipping points and thresholds in society/social systems; socio-technical issues in societies; inter- and transdisciplinary processes
Mariele Evers	Geography Department, University of Bonn, Meckenheimer Allee 166, 53115 Bonn, Germany, mariele.evers@uni-bonn.de	Member	Water resources management; water related risks; human-water research; collaborative modelling; socio-technical instruments
Britta Hoellermann	Geography Department, University of Bonn, Meckenheimer Allee 166, 53115 Bonn, Germany, bhoellermann@uni-bonn.de	Member	Geography; human-environment/water interactions; hydrology and water resources management; uncertainties and the science/practice interface
Pete Loucks	Civil & Env. Engrg and Public Affairs Institute, Cornell University, Ithaca, NY 14853, USA, Loucks@cornell.edu	Member	Water/environmental systems; economics, ecology; public systems modeling; interactive decision support for collaborative stakeholder involvement