

14. Water Research Horizon Conference 2024

KUBUS (UFZ), Leipzig

Capitalizing on water research to overcome current and future water crises



Water is a key resource for the 21st century. Already now, and even more so in the medium to long term, a sustainable use of water resources and aquatic ecosystems is unattainable under current practices. On top of this, we are facing the now manifest effects of climate change on the water cycle, which will further intensify in the future. Overcoming the water crises is a systemic challenge that requires new ways of "valorizing" water research in order to bring the diverse and substantial innovations to the water sector, water users, and civil society more quickly, efficiently, and in a way that supports solutions.

The Water Research Horizon Conference 2024 marks a starting point for the "Water Science Community" to promote strategic thinking and to discuss potentials and obstacles with stakeholders from different sectors along the lines of key themes and to establish "valorization initiatives"



Leipziger KUBUS
Helmholtz-Zentrum für Umweltforschung – UFZ
Permoserstraße 15 | 04318 Leipzig



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Session 1: Is there enough water for humans and nature at the same time?

Climate change induced shifts in the hydrologic cycle and the associated increase in the frequency and severity of hydrologic extremes progressively challenge water security in terms of quantity and quality, even in countries with temperate, humid climates like Germany. During the recent summer droughts, low groundwater levels, drying rivers, lakes and reservoirs, leading to shortages in water supply, degradation of water quality and impairments in aquatic ecosystems, were common occurrences across Germany. To mitigate such conditions in the future will require new approaches to water management that account for the future spatio-temporal imbalance of water availability and water demand and better facilitate a conjunctive use of ground- and surface waters across regions. This session will identify the key challenges and discuss the scientific needs and knowledge that will be required to ultimately overcome them.

09:00-09:30 **Registration** Foyer

09:30-10:00 **Welcome & Introduction** Room 1A

Water Crisis

Room 1A

10:00-10:30 **Gesche Grützmacher** (Berliner Wasserbetriebe)
Water Crisis - Growth - Transformation: The Need for Evolution and Change in the Water Industry

10:30-11:00 **Georg Houben** (Bundesanstalt für Geologie und Rohstoffe)
Water supply for Germany in the 21st century – problems, challenges and solutions

11:00-11:30 **Julia Kleinteich** (Bundesanstalt für Gewässerkunde)
Challenging the water crisis in the federal waterways - applied science for policy and practitioners

11:30-12:00 **Ralf Schäfer** (Research Centre One Health Ruhr)
Is the solution to pollution only dilution?

12:00-13:30 **Lunch**

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Session 2: How to address the water quality crisis at ecosystem level?

Despite substantial efforts, the objective of the European Water Framework Directive of achieving an at least good status of water bodies is not met in major parts of Germany and Europe. In fact, new methods in environmental chemistry identify increasing pressures from novel pollutants that enter via point and diffuse sources. And analysis of biological quality elements suggests that even the improvements made so far have come to a halt. Thus, to ensure future improvements as well as the sustainable maintenance of high quality of water resources and aquatic ecosystems, new solutions outside classical “end-of-pipe” approaches are required. This session will identify current key pressures that threaten water quality at ecosystem level as well as solutions to overcome this crisis.

Water Quantity Crisis

Room 1A

13:30-14:00 **Jörg Neumann** (Bayerisches Landesamt für Umwelt): *Klimawandel und Grundwasser in Bayern - Konsequenzen für die Wasserwirtschaft*

14:00-14:30 **Frank Hermann** (Forschungszentrum Jülich): *Obstacles and challenges in deriving conclusions and measures from climate impact modelling for the water sector*

14:30-14:45 **Uwe Spank** (Technische Universität Dresden): *A critical review of our methods and approaches for measuring and modelling evaporation from inland waters*

14:45-15:00 **Jan Fleckenstein** (Helmholtz-Zentrum für Umweltforschung): *How does groundwater across Germany respond to climatic variability and droughts?*

Water Quality Crisis

Room 1B

13:30-14:00 **Jan Koschorreck** (Umweltbundesamt): *Biodiversity and chemical mixtures – time travelling with the German environmental specimen bank*

14:00-14:15 **Shixue Wu** (Helmholtz-Zentrum für Umweltforschung): *Spatially resolved projections of carbamazepine fates in Saxon rivers*

14:15-14:30 **Mohsen Dehghani Darmian** (Technische Universität Darmstadt): *Water quality planning in rivers considering failure probability: controllable and uncontrollable input pollutants*

14:30-14:45 **Maria Warter** (IGB Berlin): *BiNatUr: Bringing nature back - tracing water quality and biodiversity in urban streams and ponds in Berlin through integrated approaches*

14:45-15:00 **Carolin Winter** (Universität Freiburg): *The hidden threat of forest dieback for drinking water protection*

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15:00-16:00

Coffee Break & Poster Session

Foyer

Water Crisis | Dialogue, Exchange, Early Career Scientists

Room A1

16:00-16:15

Interdisciplinary Aquatic Ecosystem Research Awards 2024

16:15-17:30

**How should water research be valorized to overcome the water crisis?
A panel discussion between different generations of water researchers.**

The session aims to illuminate the water crisis as seen through the eyes of different generations of water researchers and should help to identify important gaps in the current research, which will ultimately help the next generation to identify solutions to our current and future water crises.

17:30-18:30

**Water Resources Prize 2024 Ceremony
(Rüdiger Kurt Bode Foundation)**

18:30-20:30

Get Together

Room A1

**Conference Programme
Friday, 27 September 2024**

**14. Water Research Horizon Conference 2024
KUBUS (UFZ), Leipzig**

08:30-09:00

Registration

Room A1

Session 3: How can society cope with the water crisis?

Human activities and the frequency of heavy rainfall, floods and droughts are increasing, with a corresponding impact on human and ecosystem health as well as the economy. An increasing number of authorities and industries are implementing precautionary measures going along with the Climate Adaptation Act and Strategy, the National Water Strategy, the Natural Climate Protection Action Programme and other funding programs. It is evident that further commitment is required to adapt to and mitigate the impacts of climate change on water resources. The objective of this session is to enhance our understanding of the fundamental processes underlying water-related crises and to design new strategies for further crisis prevention such as measures to optimize the use of existing water resources, increasing water supply, reducing water consumption, safeguarding water quality, as well as implementing adaptive measures to climate change.

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Overcoming the Water Crisis

Room 1A

09:00-09:30 **Anett Baum** (Bundesministerium für Umwelt, Naturschutz, nukleare Sicherheit und Verbraucherschutz)
tba

09:30-10:00 **Sabrina Kirschke** (Museum für Naturkunde Leibniz-Institut für Evolutions- und Biodiversitätsforschung)
Participation in water research - A driver for change?

10:00-10:30 Coffee Break Foyer

10:30-11:00 **Mark Oelmann** (Hochschule Ruhr West)
Demand side measures and their role to increase resilience in times of water scarcity

11:00-11:15 **Hannah Kosow** (Universität Stuttgart)
Uncharted water conflicts ahead: mapping the scenario space for Germany in the year 2050

11:15-11:30 **Jenny Tröltzsch** (Ecologic Institut)
Blue-green infrastructure solutions as a strategy for climate-resilient urban water management: A socio-economic evaluation

Valorizing Water Research

Room 1A

11:30-12:30 **From science to practice: successes and challenges**
Two 10-minute best practice pitches demonstrate successful and challenging applications of water science. Followed by a discussion about the significance of water research in addressing the global water crisis.
Featured projects: FLOW (Julia von Gönner, iDiv), Improving emergency flood management - how to learn from recent extreme events (Robert Jüpner, FgHW)



12:30-12:45 Conference Closing Room 1A

12:45-13:00 Group Picture Foyer

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14:00-15:00

WSA General Assembly

Room 1A

(guests and new members welcome)

Scientific Committee of the 14. Water Research Horizon Conference

Dietrich Borchardt (UFZ), **Christoph Donner** (Berliner Wasserwerke), **Frank Herrmann** (Forschungszentrum Jülich), **Jan Fleckenstein** (UFZ), **Martina Flörke** (RUB), **Robert Jüpner** (FgHW), **Lucie Koenig** (German Water Partnership), **Florian Leese** (UDE), **Ralf Merz** (UFZ), **Uwe Müller** (DWA), **Núria Perujo** (UFZ), **Mark Oelmann** (Hochschule Rhein-West), **Karsten Rinke** (UFZ), **Christoph Schulte** (Umweltbundesamt), **Susanne Schmeier** (IHE Delft), **Christian Siebert** (UFZ), **Kerstin Stahl** (Universität Freiburg), **Markus Weitere** (UFZ), **Hartmut Willmitzer** (Thüringer Fernwasserversorgung), **Ekkehard Christoffels** (FgHW/DWA)

About the Water Science Alliance

Members of the Water Science Alliance are driven by the wish to overcome disciplinary thinking and fragmentation to promote inter- and transdisciplinary water research. The scientific expertise of German water research is excellent in individual areas, but in particular, the national networking and international visibility of the entire field of research are inadequate. The Water Science Alliance establishes structures that help to better utilise the existing potential of German water research in the development and processing of complex and interdisciplinary research topics within thematic alliances. The complementarity of the research institutions (major research institutions and universities) results in synergies from the joint use of infrastructures, observatories, and large-scale equipment, as well as the promotion of young scientists, in addition to the sharing of expertise. To support early career scientists, a new programme, the “Career Navigator” was launched, which supports training & research exchange. We heartily invite you to become a member of the WSA to support inter- and transdisciplinary water research.



WSA Career Support



WSA Membership



Framework Paper

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