Water Challenges in a Changing World

APRIL NEWSLETTER

CONGRATS ON SUCCESSFUL VIVA

After eight years as a part-time doctoral student, Susan Quick passed her viva in April 2025. The topic of her thesis was ***"Tree-soil-water relations under elevated CO2 – following the flow."*** The tree-centred research focused on monitoring stem sap flow, leaf stomatal conductance, alongside soil and environmental conditions. Key results for mature oak trees included the finding of 4 %–16 % leaf-on season reduction in daylight water usage for ~35% increase in atmospheric CO_2. Subdominant species sycamore and hawthorn were monitored concurrently. Examiners were Martin De Kauwe, University of Bristol, and Chris Bradley, University of Birmingham, with chair Rebecca Bartlett.

NEW VISITOR – SANSAN FENG

My name is Sansan Feng, and I am affiliated with the Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences. Currently, I am a visiting scholar at the University of Birmingham undertaking a 12-month research placement funded by the China Scholarship Council (CSC).

My research at UoB focuses on environmental processes associated with microplastics in river systems. My expertise includes sampling techniques, quantitative analysis, source identification, and environmental modelling of microplastics, particularly within watersheds of the Tibetan Plateau. I aim to elucidate the distribution patterns, sources, influencing factors, and degradation mechanisms of microplastics across water bodies, sediments, and soils in plateau environments.

In my future research, I will further develop numerical simulations to understand and predict the transport and spatial distribution of microplastics within rivers and lakes. Ultimately, my goal is to contribute to reducing

environmental pollution caused by microplastics and to offer evidence-based solutions to address related environmental challenges.

NEW VISITOR – WEIJIA WEN

Hello everyone! I'm Weijia Wen, a Ph.D. candidate from the University of Chinese Academy of Sciences, currently visiting the University of Birmingham for one year under the China Scholarship Council (CSC) program. My research focuses on watershed hydrological process simulation and diffuse pollution mitigation. During my visit, I aim to investigate how landscape patterns influence hydro-transportation and cause a "lag effect" of water pollution under complex agricultural activities. This work seeks to enhance our understanding of long-term water management strategies. I am very grateful for the opportunity to visit, study, and collaborate with researchers here under the supervision of Prof. Hannah. Looking forward to learning, collaborating, and advancing water research together!

JAMES WHITE ON MIDLANDS TODAY

We are excited to share Dr James White’s appearance on Midlands today, showcasing the Birmingham River Champions project.

James' volunteers in Birmingham have spent the last year tracking the health of the city's rivers. They're looking at the state of the wildlife, but they've also discovered local pollution problems affecting the water. So far, they've collected more samples in twelve months than were officially collected in the last ten years by the authorities. Watch the full YouTube clip here and read the full article here.

DR. MONIKA MARKOWSKA PRESENTS GROUNDBREAKING RESEARCH AT WATER SEMINAR SERIES

We were thrilled to welcome Dr. Monika Markowska as a guest speaker for our latest session of the Water Seminar Series. Her talk, titled *"Recurrent humid periods in central Arabia over the last 8 million years,"* offered fascinating insights into the climatic history of the Arabian Peninsula and how it challenges prevailing assumptions about long-term aridification in the region.

Dr. Markowska's research highlights multiple episodes of increased humidity in central Arabia, shedding new light on the potential for human migration and habitation in what is often considered a persistently arid landscape. The talk drew an excellent turnout, with attendees from across departments and disciplines. The lively Q&A session that followed reflected the high level of interest and sparked valuable interdisciplinary discussion.

For those interested in learning more, Dr. Markowska's latest article is now available in *Nature*: Recurrent humid periods in central Arabia over the last 8 million years.

We extend our sincere thanks to Dr. Markowska for sharing her work with us, and to all who participated in making this seminar such a success.

2025 EURO-FRIEND ONLINE SEMINAR & TRAINING SERIES

We are pleased to share the full schedule for the **2025 EURO-FRIEND Online Seminar & Training Series** – a series of engaging talks and hands-on sessions exploring the latest in hydrology, climate science, and water modelling.

The series is **free and open to all**, and we warmly encourage you to share this invitation with students, colleagues, and your wider network.

Each session includes a live Q&A and will be held via Zoom.

See below for full details and registration links:

🔷 **Session 1 – April 23rd, 3:00 PM (UK time) – already taken place**
Title: *Connecting Global Water Agendas: From Wicked Problematization to Opportunities for Action*
Speaker: Ben Howard (Imperial College London)
📎 Register here

🔷 **Session 2 – May 7th, 3:00 PM (UK time)**
Title: *Recent Developments in Terrestrial Systems Modelling Platform*
Speaker: Stefan Kollet (Jülich Forschungszentrum)
📎 Register here

🔷 **Session 3 – June 18th, 1:00 PM (UK time)**
Title: *FRIEND-Water Networking Event*
Speakers: FRIEND-Water Regional Coordinators
📎 Register here

🔹 **Session 4 – July 9th, 3:00 PM (UK time)**
Title: *Using R for Hydrological Analysis: Some Useful Examples*
Speaker: Nejc Bezak (University of Ljubljana & UNESCO Chair)
📎 Register here

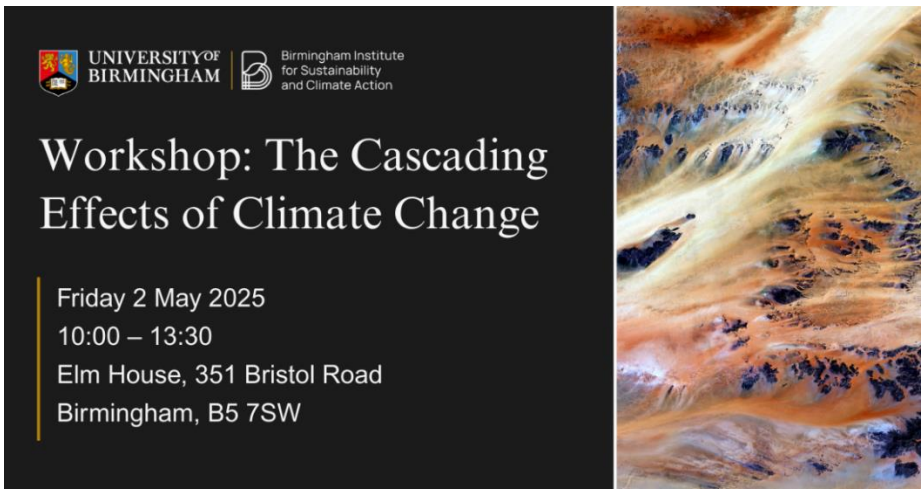
🔹 **Session 5 – September 5th, 3:00 PM (UK time)**
Title: *Recent Developments in Integrated Water Quality Modelling from Catchment to Global Scales*
Speaker: Albert Nkwasa (IIASA)
📎 Register here

🔹 **Session 6 – October 8th, 3:00 PM (UK time)**
Title: *Convection Permitting Models and Their Applications for Climate Change Impact Assessment*
Speaker: Elizabeth Kendon (University of Bristol & UK Met Office)
📎 Register here

🔹 **Session 7 – November 12th, 3:00 PM (UK time)**
Title: *From Climate Change Storylines to Hydrological Impact Assessment*
Speaker: Wilson Chan (UK Centre for Ecology & Hydrology)
📎 Register here

🔹 **Session 8 – December 3rd, 3:00 PM (UK time)**
Title: *High-Impact Compound Climate Events Under Global Warming*
Speaker: Emmanuel Bevacqua (Helmholtz Centre for Environmental Research – UFZ)
📎 Register here

THE CASCADING EFFECTS OF CLIMATE CHANGE



Organiser: Allan Beltran: a.i.beltranhernandez@bham.ac.uk

BISCA is delighted to host this Adaptation & Resilience Theme Pump Priming workshop, which will facilitate discussions on challenges, opportunities, and interdisciplinary approaches to modelling cascading impacts.

Climate change is intensifying extreme weather events, causing significant economic, social, and environmental costs. Events such as floods, storms, and hurricanes not only cause direct damage but also trigger cascading effects across multiple sectors. System modelling offers a structured way to understand these complex interdependencies, providing policymakers with valuable insights for targeted climate adaptation and enhanced urban resilience. We are seeking to explore opportunities for collaboration in lieu of preparing a grant application to some upcoming calls in this topic. Our goal is for a highly interdisciplinary perspective targeting challenges created by a particular disaster (i.e., flooding, volcanic eruptions, earthquakes or wildfire) or within a particular sector that may be overly impacted by such events.

Please sign up here. If you are unable to attend the workshop but are interested in the topic and would like to join a future event, you can also use the form to register your interest.

Agenda

10:30 – 10:50	Session 1: *Cascading Impacts of Natural Disasters: Systemic Disruption* **Room G08**
10:50 – 11:00	Coffee break **Room G05**
11:00 – 12:15	Session 2: *Topics for Collaboration and Grant Application* **Room G08**
12:15 – 12:30	Session 3: *Wrap-up* **Room G08**
12:30 – 13:30	Networking and lunch **Room G05**

IAHS NEWS

Panta Rhei: a decade of progress in research on change in hydrology and society

We are delighted to share the publication of a major milestone in the scientific community: “Panta Rhei: a decade of progress in research on change in hydrology and society” is now an Open Access paper published in the Hydrological Sciences Journal.

This paper marks the culmination of the Panta Rhei Scientific Decade (2013–2022), a transformative initiative that brought together hydrologists across the globe to explore the dynamic interplay between water and society.

"Inspired by the IAHS scientific decade “Panta Rhei – Everything Flows: Change in hydrology and society” a vibrant, diverse community of hydrologists, social scientists, and practitioners formed, driven by the aim to better understand changes in hydrology and society. More than 100 people from around the world worked together on this community paper that provides a review of the related progress. A key finding is the need to use integrated approaches to assess the co-evolution of human–water systems in order to avoid unintended consequences of human interventions over long periods of time." said Heidi Kreibich.

Read the full article here.

Water Challenges in a Changing World

GOODBYE TO REZA DEHBANDI

Written by Reza Dehbandi

It's been a pleasure being part of the University of Birmingham community over the past two years as a Marie Skłodowska-Curie Postdoctoral Fellow in the School of Geography, Earth and Environmental Sciences (GEES).

My research here has focused on identifying the risks of micro- and nanoplastics (MnPs) from agricultural mulching to groundwater, carried out through small-scale soil column experiments. Although the work was initially challenging, with the collaboration and support of my colleagues, we succeeded in generating meaningful and exciting results. I'm especially grateful for the opportunity to work with outstanding researchers, including my supervisor Professor Stefan Krause, who provided a friendly and dynamic scientific environment throughout my time here.

My time at UoB has been incredibly enriching both professionally and personally. I've enjoyed memorable weekly meetings, learned a great deal, and had the chance to publish papers and attend several major conferences. These experiences have been truly formative for my academic journey.

I sincerely thank everyone in our group and people in the lab and the School who supported me during this time. I will truly miss you all and look forward to returning soon. I hope we can continue building on our fruitful and lasting collaborations.

WATER THEME PUBLICATIONS

Zhai, X., Zhang, Y., Zhang, Y., Liu, R., Liu, C., Zhang, X., et al. (2025). Classifying flash flood disasters from disaster-prone environments to support mitigation measures. Water Resources Research, 61, e2024WR037389. https://doi.org/10.1029/2024WR037389

Singh, A., Sreeparvathy, V., Sengupta, D., Pregnolato, M., & Wright, N. (2025). A critical review of flood risk assessment in Kerala post-2018: Methodological approaches, gaps, and future directions. *Journal of Hydrology: Regional Studies, 58*, 102262. https://doi.org/10.1016/j.ejrh.2025.102262

S. Sarwar, G. Akiki, S. Balachandar, P. A. Sleigh, N. G. Wright; Direct numerical simulation of open-channel flow over a heterogeneous particle bed at low relative submergence. *Physics of Fluids* 1 August 2024; 36 (8): 086605. https://doi.org/10.1063/5.0215760

UPCOMING GRANTS

UKRI - Access to high performance computing facilities: spring 2025
Deadline to apply: 22/05/2025
Award amount: other
This opportunity provides an open and flexible route to computational support for high quality projects across the entire UK Research and Innovation (UKRI) remit.

UKRI – Proof of Concept
Deadline to apply: 29/05/2025
Award amount: £100-250k
Apply for proof of concept funding to support the commercialisation of research and the development of new products, processes or services.

UKRI – Proof of Concept
Deadline to apply: 29/05/2025
Award amount: £100-250k
Apply for proof of concept to support the commercialisation of research to enable spinouts or social ventures, licencing or other commercialisation pathways. Applications from any disciplines are welcomed. No pre-existing UK Research and Innovation (UKRI) funding is required. The programme will not support discovery-driven research. You must be based at a UK research organisation

NIHR Climate Change and Health: Adapting Health and Social Care Systems - Development Awards
Deadline to apply: 17/06/2025
Award amount: £100k
NIHR invites applications for research that addresses the challenges of climate change by building resilience into the delivery of health and social care services during severe weather events. Smaller development awards will be offered initially. Their purpose is to enable research teams to come together to develop ideas with potential to help UK health and social care services to operate efficiently during extreme weather events.

HORIZON-EIT-2025-KIC-WATER — call for proposals
Deadline to apply: 17/06/2025
Award amount: €5M
The new "Water" EIT KIC (Knowledge and Innovation Community) will address critical challenges related to the relevant fields of the water, marine and maritime sectors and ecosystems, and demonstrate excellence in each activity area (innovation, entrepreneurship and skills education and business creation / acceleration) to build on and upscale innovative solutions developed under existing programmes and initiatives such as Horizon Europe and EU Missions. The EIT KIC will develop an integrated approach across water, marine and maritime sectors and ecosystems and will address the following challenges and opportunities through the EIT's innovation model.

UKRI – Interdisciplinary research to tackle epidemic treats
Deadline to apply: 19/06/2025
Award amount: £3.75M
Apply for funding to undertake ambitious interdisciplinary research to tackle epidemic diseases of animals, humans or plants for a duration of up to five years.

NERC - Pushing the frontiers of environmental research: July 2025
Deadline to apply: 16/07/2025
Award amount: £950k
Apply for funding to pursue an ambitious, high risk and high reward curiosity-driven project in environmental research.

NERC – Opening up the environment
Deadline to apply: 21/01/2026
Award amount: £708k
Apply for funding to deliver activities to increase the diversity of the UK environmental science community.

Open Calls with no closing date:

IGB: Leibniz Institute of Freshwater Ecology and Inland Fisheries – Senior Fellows
We invite excellent established scientists to apply for a research visit at IGB. We offer stays for 3 to 12 months to enable senior scientists to contemplate and pursue new inspiring research ideas in collaboration with scientific staff at IGB. At the time of application, successful candidates can be based at institutions in any country worldwide except Germany. Scientists residing in Germany are not eligible to apply, independent of their nationality.

NERC Urgency Fund (£100k)
Apply for funding to respond quickly to transient and unexpected scientific opportunities.

UKRI – Knowledge Transfer Partnership
Open for business and not-for-profit organisations. Partnerships can last between 12 and 36 mounts. Business provide one-third to half the project cost depending on their size.

NERC - Work with US-based researchers on environmental science research
Award amount: £300k Apply for funding to work with US-based researchers on an environmental science application. Collaborative work is governed by an agreement between NERC and NSF.

Work with Brazilian researchers: NERC FAPESP lead agency
This opportunity allows UK-based researchers and researchers in the State of São Paulo, Brazil to submit a collaborative proposal under existing NERC funding opportunities. This will go through a single review process.

UKRI - Collaborate with researchers in Norway
UK Research and Innovation (UKRI) and Research Council of Norway (RCN) have signed a Money Follows Cooperation agreement to reduce barriers to cross-border collaboration.

UKRI - Collaborate with researchers in Luxembourg
UK Research and Innovation (UKRI) and FNR have signed a memorandum of understanding (MoU) to welcome and support collaborative applications. The MoU provides for a lead agency agreement whereby UKRI will receive and assess joint applications from eligible UK and Luxembourg applicants on behalf of both organisations