

Water Challenges in a Changing World

MARCH NEWSLETTER

Welcome to the March 2025 edition of the Water Challenges theme newsletter!

NEW VISITOR – JILONG WANG



My name is Jilong Wang, and I am from Tianjin University, China. I am currently a visiting PhD researcher at the University of Birmingham, where I am conducting a six-month research placement funded by China Scholarship Council (CSC). During my study at UoB, I will investigate blue carbon dynamics in coastal wetlands. I specialize in quantifying carbon sequestration processes in coastal ecosystems, specifically examining vegetation-mediated carbon fixation mechanisms and soil carbon burial dynamics. My research explores patterns and identifies the drivers in plant carbon assimilation and soil organic carbon storage. By establishing quantitative frameworks linking wetland ecosystem functions with regional carbon cycling, this work aims to advance scientific understanding of coastal carbon sinks while providing empirical support for developing nature-based climate solutions.

NEW VISITOR – SHRAVANI YADAV

Hello everyone! I'm Shravani Yadav from India, a full-time Ph.D. research scholar at Indian Institute of Technology Roorkee, currently here on a short-term exchange at University of Birmingham. My research focuses on the contamination of micro- and nanoplastics in (sub)surface water resources and their transport in soil-water environments. During this visit, I aim to develop essential skills and gain hands-on experience in advanced techniques crucial to micro(nano)plastics research, particularly in aquatic and terrestrial environments. The accessibility of forefront lab



Water Challenges in a Changing World

equipment, such as fluorescence microscopy, Raman spectroscopy, micro-FTIR, etc., would improve my prior expertise in the high-resolution visualisation and identification of micro(nano) plastic particles in various environmental samples. I'm grateful to Prof. Stefan Krause for giving me this opportunity, and I am eager to work with, learn from, and support the research community here.

I believe by advancing research, fostering innovation, and promoting responsible consumption, we can drive meaningful change toward a cleaner, healthier planet. Together, let's turn awareness into action and work towards a sustainable, plastic-free future.

HYDRO TALKS PODCAST



Catch the first episode of the HydroTalk podcast, the new podcast series of the EGU HS division. Every month they interview experts about advancements, challenges, and opportunities in the field of hydrology. Their first guest was our very own, Prof Stefan Krause. [Listen here.](#)

Water Challenges in a Changing World

WORLD WATER DAY 2025



The Birmingham Institute for Sustainability and Climate Action (BISCA) and the Birmingham Water Research Centre commemorated World Water Day 2025 with a series of events centred around the theme **Glacier Preservation**. This focus highlighted the critical role glaciers play as long-term freshwater reserves and their influence on ecosystems and human communities.

Throughout the week leading up to World Water Day, we hosted four distinct talks addressing pivotal topics:

- **Monday, 17 March 2025:** Professor Alexander Milner from the School of Geography, Earth and Environmental Sciences presented "Climate Change and Glacier-fed Rivers," exploring the impacts of climate change on glacial rivers.
- **Tuesday, 18 March 2025:** Dr. Lauren Somers of Dalhousie University delivered "High-drogeology: Mountain Groundwater Under Climate Change," focusing on mountain groundwater systems amidst climate change
- **Wednesday, 19 March 2025:** Professor Wouter Buytaert from Imperial College London discussed "Co-producing Local Knowledge for Global Water Security," emphasizing collaborative approaches to water security.

Water Challenges in a Changing World

- **Thursday, 20 March 2025:** Dr. Jon Mackay of the British Geological Survey presented "Glacier Retreat and Water Resource Impact Modelling: Perspectives from a Hydrologist," examining the consequences of glacier retreat on water resources.

Recordings for these talks are available, please contact s.hira@bham.ac.uk to be sent the links.

The week culminated on **Friday, 21 March 2025** with a panel discussion. This session featured presentations and discourse on various topics, including:

- Downstream Thinking in the Peruvian Andes: Glaciers, Groundwater, and Community Adaptation
- Climate Warming, Glacial Lake Outbursts, and Downstream Impacts
- Glaciers and Water Security: Priorities and Future Directions
- Snow in a Changing Climate: Impacts on Glaciers and Water Resources
- From Measurements to Emotions: Contamination in Glacier-fed Catchments

The panel comprised a diverse range of speakers, from early career researchers to esteemed professors, including:

- Thomas Gribbin, Doctoral Researcher, British Geological Survey
- Professor Rachel Carr, Professor in Glaciology, Newcastle University
- Dr. Nick Barrand, Associate Professor of Glaciology, University of Birmingham
- Dr. Sihan Li, Senior Lecturer in Climate Science, University of Sheffield
- Dr. Caroline Clason, Associate Professor of Physical Geography, Durham University

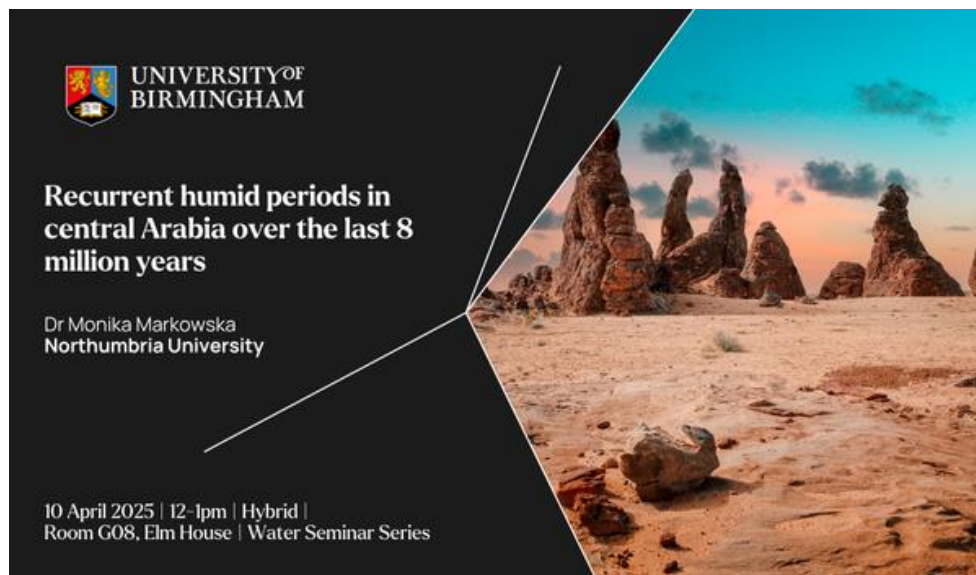
Chairs for the events included Professor David Hannah, Professor Stefan Krause, Professor Iseult Lynch and Dr. Shasha Han, who chaired a talk during the week.

These events attracted over 200 participants from 34 countries across multiple continents, including Australia, Europe, Asia, Africa, and the Americas, reflecting a broad cultural and geographical spectrum.

Water Challenges in a Changing World

The 2025 World Water Day events underscored the University's commitment to addressing global water challenges, fostering international collaboration, and promoting sustainable water resource management.

WATER SEMINAR SERIES – APRIL



You are warmly invited to join us for our Water Seminar Series talk by Monika Markowska on the **10th April at 12pm** in Room G08 at Elm House. This will be followed by a networking lunch at 1pm. The calendar invite for this seminar talk has been sent but if you haven't received this and would like to be added to the invite, please drop s.hira@bham.ac.uk an email.

Title: Recurrent humid periods in central Arabia over the last 8 million years

Abstract: The Saharo-Arabian Desert is the largest dryland barrier on Earth, stretching from western Sahara to the Thar Desert. The limited availability of water poses severe challenges to social stability and economic growth, endangering long-term sustainability and exacerbating the region's vulnerability to climate change. Recent research suggests this barrier is a long term feature and has been in place for at least 11 million years (Ma). However, within the Saharo-Arabian Desert interior, fossil evidence from the Late Miocene and Pleistocene suggests the episodic presence of water-dependent fauna (crocodiles, equids, hippopotamids), sustained by rivers and lakes that are

Water Challenges in a Changing World

absent from today's arid landscape. Here, we examine desert speleothems to identify recurrent humid phases over the past 8 million years. Further, the isotopic composition of both speleothem carbonate and fluid inclusion water suggests an aridification trend in Arabia from the Late Miocene to the Late Pleistocene. We suggest the long-term aridification trend resulted from a time-transgressive reduction in rainfall during humid intervals, coinciding with enhanced Northern Hemisphere polar ice cover during the Pleistocene. To identify external forcing driving humid phases and the resultant atmospheric dynamics, we compared used simulations from the HadCM3 isotope-enabled model during the mid-Piacenzian warm period (3.264 to 3.025 Ma). We examine model output from a series of sensitivity experiments with different orbital configurations allowing us to postulate the mechanisms responsible for the occurrence of humid episodes, with potential implications for other dryland regions at similar latitudes. Together, our approach unveils the long-term controls on Arabian hydroclimate and may provide crucial insights into the future climate variability.

Biography: Monika is a leading a Royal Society University Research Fellowship project investigating precipitation changes in global drylands. A particular focus is broadening our understanding of dryland hydroclimate by comparing and evaluating climate proxy and instrumental data, proxy-system modelling, developing novel techniques in quantitative temperature and rainfall reconstructions, and generating chronological methodologies across timescales from the modern to the Miocene. To do this, she and her team focus on investigating previous 'warmer worlds', like the Pliocene, to gain insights on the controlling mechanisms responsible for precipitation changes. Monika is particularly passionate about improving our understanding on how fragile and vulnerable dryland landscapes will respond to future climate change.



Water Challenges in a Changing World

ARTICLES OF INTEREST

Please click on the below articles to be redirected to the full article on the UoB website.

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River water temperatures swing hot to cold: discovery shows value of open-source environmental data

Open data from sources such as the US Geological Survey are an essential scientific resource for understanding our environment in a warming world.

20 March 2025

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University of Birmingham's pioneering role in tackling global water challenges

As we celebrate World Water Day 2025, we reaffirm our dedication to sustainability and the preservation of vital freshwater resources.

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Water Challenges in a Changing World

EVENTS OF INTEREST

MICROM 2025 - International Conference - [MICROM 2025 Conference](#).
[MICROplastics in Organic-rich Matrices. Novi Sad, Serbia](#) - **early registration deadline on April 20, 2025.**

Micro-Nano Plastics in Water: Characterization, Cure and Prevention - [Micro-Nano Plastics in Water: Characterization, Cure and Prevention](#) – **still accepting abstracts for poster presentations.**

ATCs 5 & 8 and PlasticUnderground Workshop (I.S.Rivers) – OPEN SCIENCE: Promoting transparency and accessibility of shared knowledge and Scientific Presentation Skills Université Claude Bernard - Lyon 1 & Polymateria Ltd. June 24th to 27th, 2025 - Lyon, France – **please register asap if you are interested, contact Suman to be sent on full programme details.**

CATCHMENT SCIENCE SUMMER SCHOOL



SOLD OUT

16th Annual Catchment Science Summer School
Sunday 31 August to Friday 5 September 2025
A 5-day short-course for post-graduate students and post-doctoral researchers
Delivered with the **Birmingham Water Centre** and hosted by the **Birmingham Institute for Sustainability and Climate Action (BISCA)**

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Water Challenges in a Changing World

WATER THEME PUBLICATIONS

Quick, S. E., Curioni, G., Harper, N. J., Krause, S., and MacKenzie, A. R. (2025) 'Water usage of old-growth oak at elevated CO₂ in the FACE (Free-Air CO₂ Enrichment) of climate change', *Biogeosciences*, **22**, pp. 1557–1575. Available at: <https://doi.org/10.5194/bg-22-1557-2025>.

Shan, X., Aerts, J. C. J. H., Wang, J., Yin, J., Lin, N., Wright, N., Li, M., Yang, Y., Wen, J., Qiu, F., & Scussolini, P. (2025). **Dynamic flood adaptation pathways for Shanghai under deep uncertainty**. *npj Natural Hazards*, 2, Article 21. <https://doi.org/10.1038/s44304-025-00072-9>

UPCOMING GRANTS

The University of Birmingham Brazil Institute (UBBI) and FAPESPA are pleased to announce Connect Amazonia 2025, a joint seed funding call to support collaborative research addressing critical challenges in the Amazon region.



**Engage Amazonia:
Information Webinar**

Our Engage Amazonia fellowships, funded by the British Council under the International Science Partnership Fund, are aimed at ECRs from the Amazonian region.

Monday 14 April 2025
13:00 - 14:00 GMT
Register at tinyurl.com/mvbf6yas

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The poster features a background image of a tropical river scene with a small yellow house on the bank, partially obscured by a large white 'X' graphic.

The scheme seeks to:

- Advance research addressing Amazonian environmental, social, and economic challenges.
- Strengthen partnerships between researchers at the University of Birmingham and institutions in the State of Pará, Brazil.
- Encourage interdisciplinary approaches and community engagement.
- Support capacity building and early-career researcher development.

Water Challenges in a Changing World

You can find out more about this seed funding call here including criteria, financial support, how to apply and the application timeline here: [Connect Amazonia: UBBI-FAPESPA Collaboration Fund](#)

[Blaustein Center for Scientific Cooperation Postdoctoral Fellowships](#)

Deadline to apply: 31/03/2025

Award amount: \$29k

Every year, the BCSC proudly awards 4-5 fellowships to exceptional postdoctoral scholars from all corners of the world. Our Blaustein Postdoctoral Fellows undertake fundamental and applied studies in various fields related to drylands, including desert ecology, solar energy, environmental physics, rainfed and irrigated agriculture, soil-plant-atmosphere interactions, hydrology, aquaculture, environmental microbiology, desalination and water treatment, and biotechnology.

[JSPS-UNU Postdoctoral Fellowship Programme](#)

Deadline to apply: 31/03/2025

Award amount: JPY 8.8M

Jointly organized by the UNU and the Japan Society for the Promotion of Science (JSPS), the JSPS–UNU Postdoctoral Fellowship Programme is designed to provide promising, highly qualified young researchers with the opportunity to conduct advanced research in sustainability under host researchers at domestic universities and research institutions across Japan in cooperation with UNU-IAS.

[Royal Society of Chemistry – Water Science Bursary](#)

Deadline to apply: 31/03/2025

Award Amount: £2k

The Royal Society of Chemistry's Water Science Forum invites applications for its water science bursary. This supports researchers engaged in projects that involve the application of chemical sciences in the management of the water cycle, and the impact these activities have on the environment.

[NERC - Opening up the Environment 2025](#)

Deadline to apply: 01/04/2025

Award amount: £62,500

Apply for funding to: 1) explore the potential your organisation or department has to increase diversity of representation attracting a wider talent pool into NERC science, 2) generate partnerships that identify, include and showcase a broad range of people and skillsets that contribute towards NERC science

[PartArt4OW - open call](#)

Deadline to apply: 03/04/2025

Award amount: €50k

Water Challenges in a Changing World

PartArt4OW is calling for Participatory Art Initiatives (PAIs) that creatively engage citizens in ocean literacy, environmental awareness, and active restoration efforts

[NERC – Independent Research Fellowship 2024](#)

Deadline to apply: 03/04/2025

Award amount: £600-800k

Apply for funding to further your career through an independent research fellowship

[CREW - Planning for water scarcity: building resilience and managing water for efficient irrigation](#)

Deadline to apply: 15/04/2025

Award Amount: £88k

The aim of this project is to produce practical guidance for Scottish farmers and growers on how to effectively plan for water scarcity and manage water efficiently for irrigation, to increase resilience to water scarcity.

[National Geographic - Request for Proposals: Freshwater Storytelling](#)

Deadline to apply: 22/04/2025

Award amount: \$20k, £100k

In partnership with the Conrad Hilton Foundation's Safe Water Initiative, The National Geographic Society seeks submissions from storytellers interested in creating and disseminating content that raises public awareness and engagement of important issues around the sustainable use of freshwater resources.

[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

Water Challenges in a Changing World

[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:

[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.

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.

Water Challenges in a Changing World

[UKRI – Knowledge Transfer Partnership](#)

Open for business and not-for-profit organisations. Partnerships can last between 12 and 36 months. 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