

Water Challenges in a Changing World

FEBRUARY NEWSLETTER

Welcome to our February newsletter! We're looking forward to celebrating [World Water Day](#) on 16 March, with this year's theme, "Water and Gender – Where water flows, equality grows." [Join us](#) for what promises to be an engaging and thought-provoking panel discussion exploring the vital connections between water, equity, and inclusive water management. The event will bring together expert voices to reflect on how advancing water security can help drive gender equality worldwide.

We're also delighted to welcome Prof Thom Bogaard from 16 March. Prof Bogaard is Professor of Hydrology and Water Resources at TU Delft, with internationally recognised expertise in hydrology, urban water management, and nature-based solutions. During his visit, he will be available for meetings – a fantastic opportunity to connect, exchange ideas, and explore potential collaborations.

NEW STARTERS

Andreas Wagner



Hello everyone, I'm Andreas Wagner. I have joined as a visiting research scholar, working under the supervision of Prof. David Hannah. I am a full-time PhD researcher at Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU) in Germany. My PhD is in the interdisciplinary field of digital humanities and focuses on 'future narratives of water'. During my visit, I will be hosting children's writing competitions on this topic, as well as conducting research on media narratives of water extremes. These insights will help us to understand how society responds to water extremes at temporal, regional and overall perceptual levels. The stories from the writing competitions will play a central role in my PhD research, offering valuable insights into how young people view the future of water. I look forward to sharing more information and getting to know you all.

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Luis Mendez

Dear all, my name is Luis Mendez, originally from Mexico. I am currently a visiting PhD researcher for the second semester of the academic year supervised by Prof Nigel Wright and Dr Xilin Xia. I am a PhD candidate at Instituto Superior Técnico (IST) of Universidade de Lisboa, Portugal. My research focuses on flood risk through the prediction of inundation using hybrid models that combine numerical modeling and deep learning aiming for faster results and with less computational burden. Specifically, I study river floods involving both dam breaks and river overflows. During my time at the University of Birmingham, I will gain insights to further develop fast flood prediction models with the goal of enabling real-time predictions. If you are interested in these topics, do get in touch - lxm1101@student.bham.ac.uk



WORLD WATER DAY 2026 – 16 MARCH



UNIVERSITY OF BIRMINGHAM | Birmingham Institute for Sustainability and Climate Action

World Water Day 2026

Water and Gender - Where water flows, equality grows

Join us for an exciting panellist discussion

16 March 2026 | 2 - 3:30pm | Zoom Webinar

We are delighted to invite you to join us for UN World Water Day 2026 at the University of Birmingham:

[Water and Gender: Where Water Flows, Equality Grows](#)

 **16 March 2026**

 **2:00–3:30 PM (UK time)**

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 [Register](#) to join online  Elm House, Room G08, University of Birmingham

Delivered in partnership with the Birmingham Institute for Sustainability and Climate Action and the Birmingham Water Centre, this special event explores the profound and urgent connections between water injustice and gender inequality.

The global water crisis affects everyone — but its impacts are deeply uneven. Around the world, women and girls bear the greatest burden where safe drinking water and sanitation are not guaranteed. Yet they are also powerful agents of change, leading transformative efforts in water stewardship and community resilience.

This session brings together three distinguished speakers who will share research, insights, and practical pathways toward a more just water future:

Tanvi Deshpande – University of Birmingham

Thom Bogaard – Delft University of Technology (TU Delft)

Michaela Mahlberg – Friedrich–Alexander University

Together, we will examine how gender-shaped inequalities influence water access, highlight the critical leadership roles women play in water governance, and discuss why progress on water security must move hand-in-hand with gender equality.

The session will include engaging presentations followed by an open discussion. We warmly welcome academics, practitioners, students, policymakers, and community members interested in sustainability, climate action, gender justice, and global development.

**Where water flows,
equality grows —
be part of the
conversation.**

We encourage you to [register](#) and share this invitation.



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WINTER WORKSHOP OVERVIEW

Written by Liam Kelleher

We recently completed our 3rd Micro- & Nanoplastic Workshop, welcoming 10 participants from across the globe. The course focused on developing skills in identification and characterisation, covering a range of sample collection and preparation protocols, followed by data use and analysis from various spectroscopy and spectrometry methods.

While we follow a structured programme refined over the years, a key part of our success is tailoring the course to participants' interests and providing detailed, individual project feedback wherever possible. This personalised approach continues to be highly valued in participant feedback and remains a particularly rewarding aspect of supporting the wider research community.

This year, we were pleased to base most of our activities in the Molecular Science Building, as the majority of our instruments are now housed there. In previous years, sessions required moving between locations across campus—sometimes less enjoyable in poor weather! The course will continue to run yearly, in the meantime consider joining us at the [MNP26 conference](#) later this year.



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SMARTWATER IN THE RIVER GREAT OUSE

Written by Liam Kelleher

As part of the SMARTWATER project, we have expanded our activities to support monitoring of the River Great Ouse in Bedfordshire in collaboration with BedsGOVET (<https://begovet.org/>), a charity dedicated to water pollution testing and community action.

Over the past few weeks, we have held planning meetings, developed a structured support plan, and tested and calibrated their existing sensors. Redeployment activities have now been completed, with sondes returned to the water and data transmission brought back online.

We are also preparing to deploy WaterBuoys, low-cost, online proxy sensors developed by collaborators at Imperial College London (ICL). To support this, a LoRaWAN data transfer network has been installed on the Bedfordshire Council building (similar to the system in place at Molecular Sciences). This infrastructure will enable real-time transmission of WaterBuoy data once the units are installed over the coming weeks.



Left: Installation of site 2 (l-r: Liam from UoB, Mike & Alan from BedsGOVET). Right: downstream installation site, a standalone communication station and sonde stilling well.

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PUBLICATIONS

Yang, D., Xiong, D., Han, S., Zhang, B., Liao, Q. and Wu, L. (2026) **'Runoff hydrodynamic variations on terraced slopes with different soil types in the dry-hot valley region, Southwest China'**, *Catena*, 264, 109854. Available at: <https://doi.org/10.1016/j.catena.2026.109854>

Gigl, F., Abdullahi, M., Benkwitz-Bedford, S., Eastwood, N., Zhou, J., Hollert, H. & Orsini, L. (2026) **'Challenging evolutionary paradigms: Daphnia populations resurrected from unpolluted environments show enhanced detoxification ability to aromatic pollutants'**, *Molecular Ecology*, 35(4), e70272. Available at: <https://doi.org/10.1111/mec.70272>

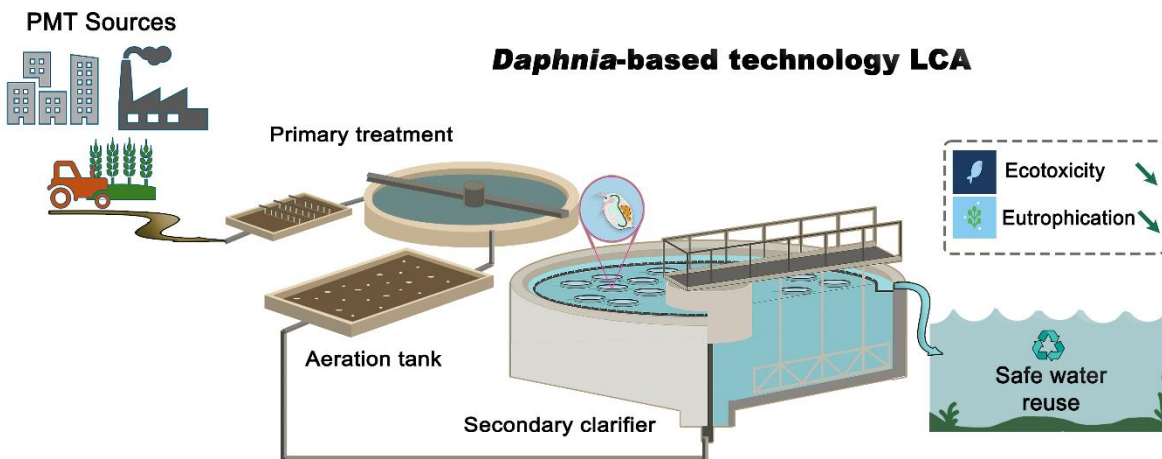
Barzegar Marvasti, N., Stead, I. M. N., Betteridge, C., Herbert, B., Fantke, P., Stubbings, W. A., Abdallah, M. A.-E. & Orsini, L. (2026) **'Integrating persistent mobile toxic chemicals and micropollutants into life cycle assessment: a cradle-to-grave evaluation of a low-carbon, nature-based wastewater treatment technology'**, *Water Research*, 293, 125430. Available at: <https://doi.org/10.1016/j.watres.2026.125430>

Our paper, "Integrating persistent mobile toxic chemicals and micropollutants into life cycle assessment: a cradle-to-grave evaluation of a low-carbon, nature-based wastewater treatment technology" has now been published online in Water Research journal.

In this study, we explicitly and systematically integrate persistent, mobile, and toxic chemicals (PMTs) and micropollutants (MPs) into the first cradle-to-grave life cycle assessment (LCA) of a novel nature-based wastewater treatment technology. This system leverages the filter-feeding capabilities of *Daphnia* (water fleas) to capture and bioaccumulate a broad range of PMTs and MPs, alongside excess nutrients and suspended solids. Our results demonstrate the strong potential of *Daphnia*-based technology as

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a environmentally friendly and scalable option for tertiary wastewater treatment and water reuse, while also underlining the importance of incorporating PMTs and MPs into WWTP LCA analysis to accurately assess the net environmental benefits of treatment technologies.



<https://www.birmingham.ac.uk/news/2026/nature-based-wastewater-technology-can-cut-carbon-emissions-by-almost-100>

Dr. Zhi-Yun (Jayson) Jiang has recently published two papers in the field of canopy hydrology.

1. **Jiang Zhi-Yun ***, He Wei, Chen Zhi-Ang, Van Stan John, Guo Li, Yuan Chuan, Ma Yu-Jun, Zhang Si-Yi, Li Xiao-Yan, Zhang Yu, Wang Da-Gang, Liu Jin-Zhao, Jing Ye, Sun Ge, Hu Zhong-Min*. Substantial contribution of woody components to rainfall interception in Chinese Forests: Insights from a refined analytical model. *Water Resources Research*, 2025, 61, e2025WR041189. <https://doi.org/10.1019/2025WR041189>

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Water Resources Research

RESEARCH ARTICLE

10.1029/2025WR041189

Special Collection:

Key Hydrological Processes and Its Controlling Factors in Terrestrial Ecosystems

Key Points:

- Woody interception was quantitatively distinguished from leaf interception in regional scale based on the refined Gash model
- Woody interception averagely accounts for 22.1% of rainfall interception in China's forests
- Needle-leaf forests displayed higher woody interception, and was enhanced in non-growing season than that in growing season

Supporting Information:

Supporting Information may be found in the online version of this article.

Correspondence to:

Z.-Y. Jiang and Z.-M. Hu,

Substantial Contribution of Woody Components to Rainfall Interception in Chinese Forests: Insights From a Refined Analytical Model

Zhi-Yun Jiang¹, Wei He², Zhi-Ang Chen¹, John T. Van Stan³, Li Guo⁴, Chuan Yuan⁵, Yu-Jun Ma², Si-Yi Zhang⁶, Xiao-Yan Li^{7,8}, Yu Zhang⁹, Da-Gang Wang², Jin-Zhao Liu¹⁰, Ye Jing¹¹, Ge Sun¹², and Zhong-Min Hu¹³

¹School of Geography, South China Normal University, Guangzhou, China, ²School of Geography and Planning, Sun Yat-sen University, Guangzhou, China, ³Department of Biological, Geological, and Environmental Sciences, Cleveland State University, Cleveland, OH, USA, ⁴State Key Laboratory of Hydraulics and Mountain River Engineering, College of Water Resource and Hydropower, Sichuan University, Chengdu, China, ⁵Chongqing Jinfo Mountain Karst Ecosystem National Observation and Research Station, School of Geographical Sciences, Southwest University, Chongqing, China, ⁶National-Regional Joint Engineering Research Center for Soil Pollution Control and Remediation in South China, Guangdong Key Laboratory of Integrated Agro-environmental Pollution Control and Management, Institute of Eco-environmental and Soil Sciences, Guangdong Academy of Sciences, Guangzhou, China, ⁷State Key Laboratory of Earth Surface Processes and Resource Ecology, Beijing Normal University, Beijing, China, ⁸School of Natural Resources, Faculty of Geographical Science, Beijing Normal University, Beijing, China, ⁹School of Geographical Sciences, Hebei Normal University, Shijiazhuang, China, ¹⁰State Key Laboratory of Loess Science, Chinese Academy of Sciences, Institute of Earth Environment, Xi'an, China, ¹¹Key Laboratory of Water Cycle and Related Land Surface Process, Chinese Academy of Sciences, Institute of Geographic Sciences and Natural Resources Research, Beijing, China, ¹²Eastern Forest Environmental Threat Assessment Center, Southern Research Station, USDA Forest Service, Research Triangle Park, NC, USA, ¹³Hainan Baoting Tropical Rainforest Ecosystem Observation and Research Station, School of Ecology, Hainan University, Haikou, China

Assessing rainfall interception (IR) is a critical yet uncertain aspect in hydrological cycle, particularly the quantification of relative contributions from leaves and woody components (e.g., branches, stems, and trunks) to IR. Nevertheless, the role of woody components in IR estimation remains largely unexplored and thereby has been constantly overlooked. This study addressed this challenge and refined the widely-used Gash model to distinguish woody interception (IW) from leaf interception (IL). We incorporated the spatial variability of vegetation traits alongside satellite data in 2019 into the refined model, and spanned China's major forest types. We found IW averagely accounts for more than 22% of rainfall interception in China's forests, and there were significant differences among different forest types. Higher contribution of woody interception to rainfall interception was generally exhibited in needle-leaf forests than that in broad-leaf forests. A nearly equal contribution of woody interception to rainfall interception has been noted with that of leaf in the deciduous needle-leaf forest. Our study underscores the substantial role of woody components in IR, particularly in needle-leaf forests, that are prevalent globally, a finding that can provide novel methods and valuable parameters for global hydrological models to improve the accuracy of model predictions.

2. Wu Meng-Di, **Jiang Zhi-Yun ***, Zhang Si-Yi, Ma Yu-Jun, Li Shui-Xia, Han Shu-

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Qin, Liu Jin-Zhao. Global patterns and drivers of canopy storage capacity in different biomes. *Agricultural and Forest Meteorology*, 2026, 376, 110918. <https://doi.org/10.1016/j.agrformet.2025.110918>

Agricultural and Forest Meteorology 376 (2026) 110918



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Agricultural and Forest Meteorology

journal homepage: www.elsevier.com/locate/agrformet



Global patterns and drivers of canopy storage capacity in different biomes

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ARTICLE INFO

Keywords:

Canopy interception
Canopy storage capacity
Leaf storage capacity
Woody storage capacity
Vegetation structure

ABSTRACT

The storage capacity of the vegetation canopy to intercept rainfall (S) has a significant influence on how water and consequently dissolved nutrients are distributed across a landscape, particularly in forests. However, the global patterns and drivers for S in different vegetation biomes are still poorly understood. Here, we compiled 475 observations of S value from 162 peer-reviewed publications and used a boosted regression tree (BRT) model to quantify the relative importance and the interactions scores of biotic and climatic factors on S across a variety of global landscape. Results showed that the global S ranged from 0.08 mm to 8.9 mm in different vegetation biomes, with the median value of 0.93 mm (generally most canopies intercept ~1 mm of rainfall). Tropical seasonal forests, tropical rain forests, temperate seasonal forests, and temperate rain forests had the greater storage capacity than other less wooded biomes, with the median S value of 0.91 mm, 1.18 mm, 1.28 mm, and 1.26 mm. Woody components had the similar storage capacity compared to leaf at the scale of per unit projected canopy area, with the woody storage capacity (S_w) ranging from 0.004 mm to 5.65 mm (median: 0.15 mm) and leaf storage capacity (S_l) ranging from 0.01 mm to 4.9 mm (median: 0.18 mm). The BRT model showed that leaf area index (LAI) (11.98 %), wind speed (11.59 %), and diameter at breast height (DBH) (9.46 %) were the variables which could best predict S , with biotic factors accounting for 50.5 % of all variation in S values. S is also influenced by other biotic variables, such as leaf phenology, which exhibits significant spatial heterogeneity across global and regional scales. Our findings identify the global patterns of S in different biomes and highlight the essential role of woody components in S , providing an essential dataset of canopy traits for global land surface models.

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diameter at breast height (9.46%) were the variables which could best predict S . Our findings identify the global patterns of S in different biomes and highlight the essential role of woody components in S , providing an essential dataset of canopy traits for global land surface models.

HYDRO – ECO 2026



Abstract Submission

Abstract submissions for oral and poster presentations are now open.

We invite the submission of abstracts for oral and poster presentations that address the conference theme “*HydroEcology Meets One Health*”. Contributions are welcomed from across disciplines, including hydrology, ecohydrology, environmental and public health, social sciences, policy, and practice.

We encourage submissions presenting original research, applied case studies, methodological innovations, and interdisciplinary perspectives that explore the links between water systems, ecosystem processes, and human and animal health.

Submit your abstract: [HydroEco26 Abstract Submission](#)

Submission Deadline: Friday 27 March 2026 (11:59 PM Local UK Time)

Submission guidelines and the submission portal are available on the conference [webpage](#).

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CATCHMENT SCIENCE SUMMER SCHOOL



Course Overview

The Catchment Science Summer School is a 5-day short course that is intended for post-graduate students and post-docs interested in a hands-on catchment science curriculum, focusing on northern catchments, runoff processes and combined hydrometric, isotope/chemical tracer and modeling techniques in catchment hydrology. The learning objectives for this short course are to understand:

- Rainfall-runoff processes
- Rainfall-runoff model development, use, and testing
- Hydrochemical and isotopic measurement and analyses
- Linking field experiments with modeling approaches
- Evolution of empirical and theoretical understanding of runoff processes
- Landscape analysis, land-use and climate change impacts on streamflow

Please note, demand is high for positions on this course, so please secure your spot - [buy a ticket here](#).

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UPCOMING GRANTS

[NERC - Pre-announcement: Pushing the frontiers of environmental science 2026](#)

Deadline to apply – tbc

Award amount: £950k

Apply for funding to pursue an ambitious, high-reward curiosity-driven project in environmental research.

[NERC - Pre-announcement: Biological influence on ocean carbon: novel modelling approaches](#)

Deadline to apply: TBC

Award amount: £312k

Apply for funding for a UK-US project to develop new representations of key processes regulating ocean carbon storage for use in global models.

[RGS – Fieldwork Apprenticeships](#)

Deadline to apply: 01/03/2026

Award amount: £1,500

The Fieldwork Apprenticeships aim to give students the opportunity during the summer to work as a Fieldwork Apprentice for a number of weeks on a research project either in the UK or overseas, led by an academic member of staff at their university.

[AGU – Horton Research Grant](#)

Deadline to apply: 27/03/2026

Award amount: \$10k

The Horton Research Grant is awarded to up to three Ph.D. students studying hydrology, water resources, or a closely related field each year and is made possible through the generosity of the Robert E. Horton Fund for Hydrologic Research. The purpose of the award is to promote excellence by encouraging the next generation of professionals in the hydrological sciences.

[AGU – Cryosphere Early Career Award](#)

Deadline to apply: 27/03/2026

Award amount: £700

The Cryosphere Early Career Award is presented annually and recognizes significant early career contributions to cryospheric sciences and technology from honorees within 10 years of receiving their Ph.D.

[Horizon -HORIZON-JU-GH-EDCTP3-2026-02-CH-01-two-stage: Global collaboration action on climate and health in sub-Saharan Africa](#)

Deadline to apply: 04/03/2026

Award amount: €5m

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Proposals submitted under this topic should aim to deliver results that are contributing to improved health outcomes related to climate sensitive vector- and water-borne pathogens in the scope of the Global Health EDCTP3 SRIA in SSA

[NERC - Independent Research Fellowship 2026](#)

Deadline to apply: 16/06/2026

Award amount: no set limit

Apply for funding to further your career through an independent research fellowship, 5-year fellowships covering fellow's salary, research expenses, and travel costs.

[UKRI - Future Leaders Fellowships: round 11](#)

Deadline to apply: 16/06/2026

Award amount: £300k to 2M

Apply for funding to support ambitious research and innovation across UK Research and Innovation (UKRI)'s remit. You must be a researcher or innovator who is either looking to establish or transition to independence.

[Horizon - CL6-2026-01-ZEROPOLLUTION - Clean environment and zero pollution: Call 01 - single stage \(2026\)](#)

Deadline to apply: 17/09/2026

Award amount: €10m

Research funded under this destination will support the EU Commission priorities 'Sustaining our quality of life: food security, water and nature' and 'A new plan for Europe's sustainable prosperity and competitiveness'. Proposals for topics under this destination should set out a credible pathway to achieve a clean environment, ensure water resilience, and enable the transformative change necessary to reduce air, water and soil pollution to levels no longer considered harmful to health and natural ecosystems, while respecting planetary boundaries.

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, unexpected environmental research opportunities created by sporadic natural occurrences such as earthquakes, droughts, floods, or ephemeral events in ecosystems.

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[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

[EPSRC - overseas travel grant: Nov 2023: responsive mode](#)

You can apply for an overseas travel grant in any area within the remit of Engineering and Physical Sciences Research Council (EPSRC). We will award 80% of the full economic cost (FEC) of the project.