Circulation

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The newsletter of the British Hydrological Society



BHS membership

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Cover photo: Flow measurement, River Ems at Westbourne (Clare Marshall)

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Circulation

Contents

President's perspective, Joe Pearce

Call for BHS Trustees

The Sperrin Mountain flood, David Archer

NRFA Review of the Year, Gayatri Suman

Floodplain flow measurement workshop summary, Andrew Black

Flood and Drought Research Infrastructure update, Anna Rose Klaptocz

BHS professional development month, Emma Cross

Scottish Hydrological Group meeting, Tim Jolley

BHS' new website, Liv Burns

Forthcoming events

UK Hydrological Bulletin, February-April 2026

In between issues of Circulation, you can keep up with the **British Hydrological Society** on social media:

LinkedIn—search for British Hydrological Society

Bluesky @britishhydrosoc.bsky.social

President's perspective

Joe Pearce

As a young boy in the summer of 1976, I remember well the focus on water supply and water saving, of streams near my home drying up and news of crops failing. I'm sure this has influenced my interest ever since in hydrology science and practice.

In our upcoming national events, we have great opportunities for hydrologists from different backgrounds to come together, learn from one-another, renew acquaintances and make new connections. We've got much to look forward to this year!

Our national meeting on 17 June is focused on the 50th anniversary of the drought experienced in 1976. It will bring together our community to learn, discuss and reflect on the resilience of UK water resources in a changing world. Phillip Duffy, Chief Executive of the Environment Agency will give the keynote speech and we look forward to presentations from speakers from academia, regulators and water supply.

We also look forward to the Peter Wolf Symposium for early careers hydrologists on 29-30 June at Imperial College London. We are grateful to Ben Howard for organising and hosting the symposium which this year has the theme of Hydrology in Service to Society. The excellent and ambitious aims are to exchange knowledge, spark collaborations and reimagine hydrology not only as a science of water, but as a service to people, places and the planet.

water@leeds at the University of Leeds are hosting our National Hydrology Symposium on 2-4 September. It will offer a valuable opportunity for our whole community of hydrologists to meet up, exchange ideas, build networks and share their work in a supportive forum. I am eagerly anticipating the event having recently seen a small number of

the submitted abstract proposals which have completely sparked my interest. In just the small sample I have seen, papers are proposed covering issues across the UK and internationally, focused on floods, droughts and hydro-ecology, and water measurement, modelling and management.

We look forward to the occasion and setting for the symposium dinner which will be on 2 September at the Royal Armouries, Leeds Dock. We also look forward to the symposium's opening Penman Lecture from Jan Seibert, Professor of Hydrology and Climate at the University of Zurich.

Alongside all our national events, the Society's regional groups are now active and thriving, with events organised across England, Wales and Scotland, and with further plans currently underway. The groups give opportunities to make contact and discuss issues of local importance, including meeting in person and allowing visits to sites of interest.

During February, Emma Cross led the organisation of the Society's Professional Development Month, presenting a series of webinars with organisations offering charterships relevant for hydrologists. Representatives from CIWEM, Royal Meteorological Society, the Institution of Civil Engineers and the Royal Geographical Society each organisation explained the requirements and procedures to achieve their recognised professional status.

Emma and the Education, Careers and Early Careers sub-committee want to build on this work by making materials available more widely and seeking ways to support and encourage members' development. Over the coming months, we will seek entries from institutions for our annual final year dissertation awards and together with JBA Trust we will look to make awards supporting MSc studentships.

As this edition of Circulation is compiled, I am really pleased to see the renewed BHS website which we welcome as enabling a significant step in improving how the Society can communicate with our members and the wider community. We hope you will find the new platform clearer and easier to navigate and it allows us more flexibility to make any changes needed.

The Society depends on the time and commitment of its Trustees, and we are keen to encourage members' interest and participation.

Several positions will become available this year. In particular, Victoria Coates is reaching the end of her four-year term as Honorary Secretary and we will also be seeking a new President-Elect, as Duncan Faulkner completes his term in the Society's President roles.



Further details can be found on page seven. In the meantime, I would encourage members to consider these opportunities, and I would be happy to discuss what is involved with anyone who may be interested.

River gauge on the River Swale, Yorkshire, below Wainwath Force

Call for BHS Trustees

Victoria Coates (BHS Honorary Secretary) and Joe Pearce (BHS President)

Five Main Committee members will finish terms as Trustees in September 2026 and we are seeking replacements.

Our Society is almost entirely run by volunteers who give their time to serve the hydrological community. BHS is a registered charity (No.1208263), so is required by the UK Charity Commission to be governed by Statutes and Trustees.

The Trustees are a specific and important group of volunteers who take on a legal role to provide governance, accountability, and leadership to the Society; they form our Main Committee, providing leadership and direction.

Key responsibilities of a Trustee are to:

- Ensure the charity is carrying out its purposes for the public benefit
- Comply with the governing document and the law;
- Act in the charity's best interest;
- Manage resources responsibly;
- Act with reasonable care and skill;
- Ensure your charity is accountable.

All Trustees attend Main Committee meetings quarterly, and contribute to one or more of our sub-committees: Education, Careers and Members; Communications and Publications; Meeting and Events; Finance. They may also get involved in working groups which deal with matters such as audit or equality, diversity and inclusion.

Eligibility. You must be a member of the Society, be over 18, have never been declared bankrupt and have no unspent convictions. Your application to stand for election must be supported by two nominators from the BHS membership.

Vacancies. We have the following fixed term vacancies:

President-Elect (4 year term - one as President-Elect, two as President, one as Past-President). Leads the board of Trustees, sets the strategic direction of the charity and represents BHS.

Honorary Secretary (2 years). Has an overview of the legal requirements of governing documents and BHS's compliance with charity law. Leads and works closely with the regional groups and contributes to the Charity Commission report.

Honorary Treasurer (2 years). Responsible for budgets, accounts and financial statements and financial reporting to the Charity Commission. Some work is delegated to ICE staff.

Ordinary elected member (2 or 3 roles, each for 3 years) Provide advice and support to the Main Committee and Society as is appropriate for their skills, experience and interests. Contribute through membership of one or more sub -committees, which may include acting as chair or secretary.

We already have a nomination for the role of Honorary Treasurer, but that does not preclude other nominations.

You can find terms of reference for all these roles on the BHS Website https://hydrology.org.uk/about-us/trustees/

Why apply? As a great way to demonstrate responsibility and practise and build leadership and numerous other skills, give back to the hydrological community and enhance your CV. It will give you opportunities to meet and work with many people and help shape the future of BHS.

How to apply: We encourage applications from all backgrounds and experiences. The Trustees represent the Society's Members and it is important that representative voices are as diverse as possible. To apply, please complete the form available on the BHS website.

The disastrous Sperrin Mountain flash flood of 1680

David Archer, Newcastle University and JBA Trust

With its position on the Atlantic fringe, Ireland has much less convective activity, thunderstorms and flash floods than neighbouring England and the continent. Nevertheless, in my search for the construction of an Irish Flash Flood Chronology, I have found a few events which match the severity of the Lynmouth and Boscastle floods of Southwest England. The most disastrous of these with respect to flood deaths was in the Sperrin mountains in June 1680, with an estimated 50 deaths from drowning.

The Sperrin flood is related by four letters from local observers to authorities in Dublin which were said to be preserved in the British Museum. The text of these was printed in full in the Northern Whig Newspaper in July 1911.

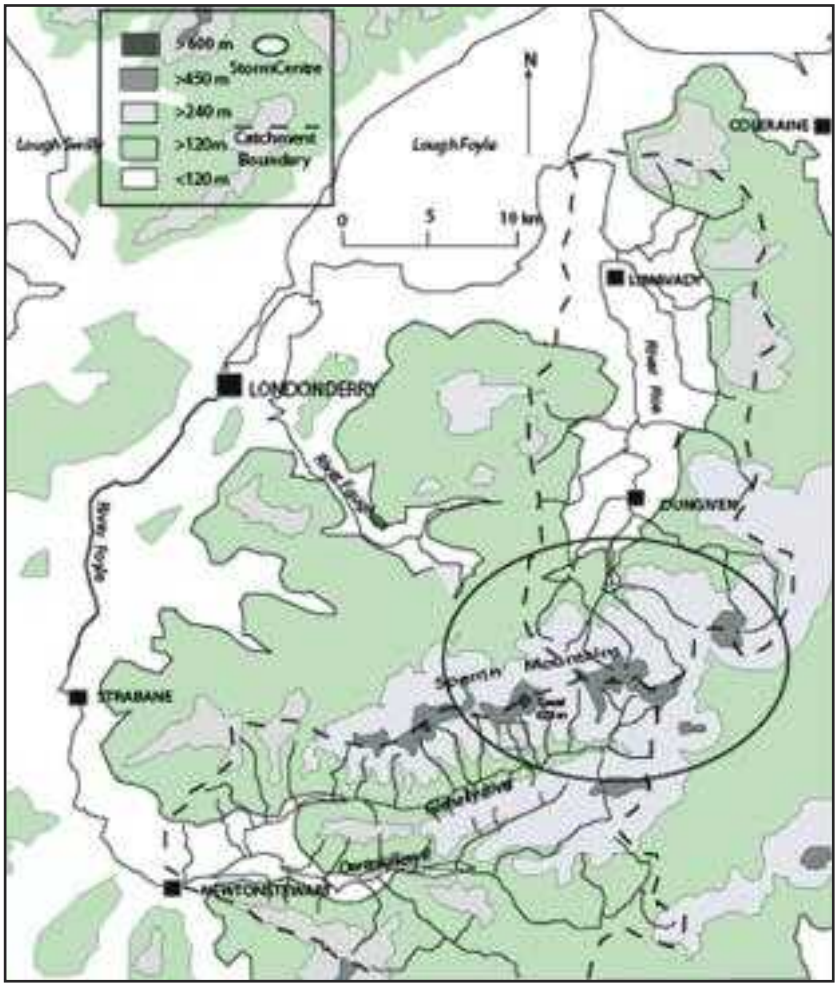
The storm and flood occurred on both flanks of the central ridge of the Sperrin Mountains with flow into the Glenelly River, a west flowing tributary of the River Foyle, on the south side of the ridge, and to the River Roe on the north side (Figure 1).

One letter gives a graphic description:

"There occurred a very great thunder here with hail and rain but especially about 16 or 20 miles from here [from Newtonstewart] where it tore up a mountain of near 200 acres breaking thereon that hath carried all the surface of that said earth into all the rivers but withal hath carried away several houses and families insomuch that of men women and chlldren already above 30 corps are found and many more is believed to have been lost. Of a sudden the waters rise betwixt the mountain, only one woman left alone that by a wonderful providence could escape in that place to give account of the dreadfulness thereof. Hailstones were of an incredible bigness.

All fish for several miles up the river are destroyed by the blackness and muddiness of the water which the surface of the mountain made of salmon above 700 or 800 found dead on the shore of eels and other small freshwater fish infinite numbers destroyed that it is to be believed that not one fish remains alive in those rivers."

Figure 1: Location map, Sperrin Mountains and rivers



A resident of Newtonstewart went to the source of the flood and said:

"Yesterday I went to the place where this new kind of deluge occurred and was amazed to see a mountain torn in ten several places and all the low ground by the river for ten miles covered with the ruins of crops and people groping in the mud for the bodies of their friends and of their cattle. I don't know yet how many have perished but from various accounts there are lost in several places fifty souls and an abundance of cattle."

A second description is as follows:

"A prodigious accident fell on Monterloney {not located] where a deluge that part which fell into Glenally Water that runs toward Newtonstewart drowned 19 persons in their houses, turned the whole valley for eight or nine miles that were meadow and corn into a Desart of Durt a foot thick and hath killed all the fish in the river for 20 miles in length. The other half of this deluge fell into the Row (Roe) Water that runs through the county of Londonderry has drowned 31 persons and forced away the stone bridge of Limavady."

A letter writer from Limavady confirmed the previous description on the River Roe side of the Sperrin ridge:

"I understand since that the thunder began above Dungiven and the rain that fell like a great spout, it came upon a house of Chan O Cahan, and in a moment overthrew it and carried all away with it and the man and his wife and five children and four friends were drowned with all their cattle sheep and horses and among them a child in a cradle."

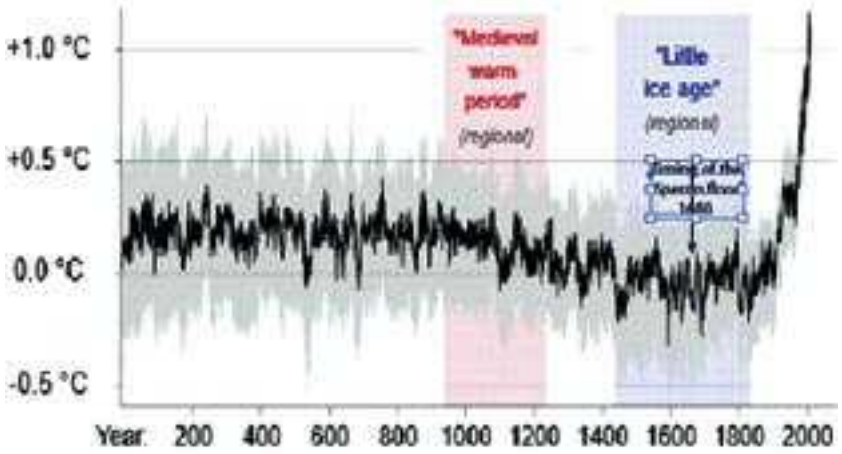
At Limavady, more than 25 km from the source, the flood approached with an abrupt wave front rising suddenly over the banks blocking the bridge with floating debris including the timber of houses, so that the bridge gave way and: 'overthrew it and there is not one stick left and so the prettiest bridge in Ireland is lost'. A three-hour thunder and rainstorm was reported to have extended to Limavady but at Derry and

Coleraine, '*nothing but an ordinary shower*'.

From the description of the source as 16 to 20 miles from Newtonstewart, the centre of the storm has been located in Figure 1 just east of Sawel, the highest point on the ridge, giving it access to both the Glenelly and Roe Rivers. The settlement of Munterloney was presumably destroyed and there is now no evidence of its existence. There is no mention of flooding in the neighbouring Rivers Faughan and Ownkillew.

One can hardly imagine the meteorological circumstances of the storm and flood which exceeds in its death toll all river floods in the British Isles, including Lynmouth, in the last 500 years. It is the more remarkable in occurring at the lowest level of the Little Ice Age (Figure 2) (the longest frost fair on the River Thames, in 1683-84, occurred three years after the Sperrin flood with the Thames at London frozen for two months). It gives a new perspective on what we perceive in our own limited experience as an unprecedented flood in a stationary climate, and what might be enhanced in severity and frequency in a warming world.

Figure 2: Global average temperature change (R.Craig 09, CC BY-SA 4.0)



NRFA Review of the year

Gayatri Suman, UKCEH

The UK Surface and Groundwater Archives (SAGA) Committee convened for its 43rd Annual meeting on the 4th March 2026.

The SAGA Committee meeting provides a forum for discussion between stakeholders in UK hydrometric monitoring, and helps impart a strategic overview of the activities of the National River Flow Archive (NRFA) and the National Groundwater Level Archive. The Committee comprises representatives of organisations from across the UK involved in the measurement, management or use of hydrometric data. This year's meeting was attended by members of the UK Centre for Ecology & Hydrology (UKCEH), the British Geological Survey (BGS), Environment Agency (EA), Scottish Environment Protection Agency, Natural Resources Wales, Department for Infrastructure – Rivers Directorate, the Met Office, Canal & River Trust, British Hydrological Society, Chartered Institution of Water and Environmental Management and representatives from the UK water industry (Thames Water). Amongst the items discussed at this year's meeting was a review of the activities of the NRFA over the last 12 months.

As custodians of the nation's central database for hydrometric data, the NRFA's activities have included updating and ongoing maintenance of its holdings. Ensuring that the Archive is up to date involves an intensive programme of year-round work to quality control new data before it is added to the Archive, as well as reviewing existing data.

The annual update to the Archive this year contained data for the water year 2023/2024. This water year was marked by 12 named storms – the highest number since the naming system began in 2015.



Station: 50003 Taw at Sticklepath. Looking upstream at weir from left bank with data of 0.1m in June 2025. Photograph taken by Gayatri Suman

Notably, Storm Babet in October 2023 brought widespread disruption, with strong winds and intense rainfall across northeast England and much of Scotland, prompting two red weather warnings for rain. The winter half-year from October 2023 to March 2024 was the wettest on record for England, and caused many prolonged high flows across large parts of England, including on some of our larger rivers (e.g. Trent, Warwickshire Avon and Tywi).

Alongside the routine update to daily mean flow data, version 14 of the national Peak Flow Dataset was published on the 21st August 2025, which included an annual update to peak flow data as well as a period of record review of a subset of peak flow stations. Version 14 of the dataset provided flood data for 926 river flow gauging stations across the UK

and during the review almost 3371 years of station data were evaluated. At the same time the Flood Estimation Handbook (FEH) statistical method was updated to enhance the accuracy of flood frequency estimates. The method incorporates four new catchment descriptors, so these were also added to the Peak Flow Dataset. In September, WINFAP5.3, the industry standard software for estimating peak flows and flood frequency curves for gauged and ungauged catchments, was released, enabling users to implement the new method and use the associated catchment descriptors.

During 2025/2026, NRFA staff carried out two liaison visits, to the Devon and Cornwall areas within the EA. In both cases, the visits provided an opportunity to meet with the Hydrometry & Telemetry and Hydrology staff and discuss the EA's flow gauging network in the area. Updates to the supporting information were identified which resulted in improvements to the data holdings of the NRFA. The trips included visits to gauging stations covering a range of different catchment types and sizes, as well as monitoring technology, including the Dart at Austin's Bridge (46003), the Exe at Thorverton (45001) and the Taw at Umberleigh (50001) in Devon. In Cornwall visits included the Gannel at Gwills (49004), the Fowey at Restormel (48011) and the Wolf at Germansweek (47025).

Over 2025/2026, both the NRFA and National Hydrological Monitoring Programme (NHMP) engaged with key stakeholders and the user community. Activities included: data provision for the WMO Global State of Global Water Resources Report for 2024; journal papers on the attribution of the winter 2023/2024 floods and reviewing UK drought trends; presentations at two British Hydrological Society events, the National Environmental Monitoring Conference and the Floods and Drought Research Infrastructure (FDRI) Uncertainty Workshop; hosting a Workshop on peak flow;

and a key contribution to the House of Lords inquiry on drought preparedness.

The NRFA website remained very popular in 2025/2026. There were around 31,000 total downloads across river flow, spatial and metadata and about 676,000 page views by 64,800 users across all pages on the NRFA website. The most popular pages were the search and home pages, which both received nearly 53,000 views.

The NHMP team responded to more than 70 media requests in collaboration with the UK Hydrological Outlook team, in relation to the 2025 drought conditions which affected much of the country. The UK Water Resources Portal, a unique web -based system for tracking the hydrological situation in near-real-time, continued to be maintained with updates to river flows, rainfall, soil moisture and groundwater level data. In 2025 it received over 11,500 views, up 18% on 2024 from across all continents.

Steve Turner, Scientific Lead for the National River Flow Archive, commented that "2025/2026 was a successful year for the NRFA, as it was rewarding to see how effectively the data, methods and software teams worked together to produce the version 14 Peak Flows Dataset for the benefit of the users. At the SAGA Committee meeting our plans for the next 12 months were discussed. They comprise continued improvement to our data, website and tools, as well as plans to work with the FDRI Programme on digital systems."

UK Centre for Ecology & Hydrology



Floodplain flow measurement, report of a BHS-FDRI technical workshop

Andrew Black

On 11-12 February 2026 BHS and FDRI held an in-person (in Edinburgh) and online workshop on floodplain flow measurement.

The quantification of extreme flood flows is essential to underpin design and research applications hydrology. In practice, the data available to users for 'observed' floods mostly reflects a mix of rating curve extrapolation and modelling studies, while direct measurements of water velocities in extreme floods are very rare. Considerable uncertainty therefore pertains to some of the most conspicuous peaks in the UK floods database, with periodic reviews sometimes leading to changes in excess of 50% increase or decrease.

While much of this has been true for decades, innovation in environmental monitoring and the impetus provided by the Floods & Droughts Research Infrastructure (FDRI) programme meant that it was timely to convene a meeting to review the state of knowledge among researchers and practitioners, and discuss prospects for future progress. An audience of 45 in person plus 75 online joined together, from all career stages, bringing together hydrologists and others from universities, environment agencies, research institutes and consultancies to share experiences and contribute towards solutions. Some participants were specialists in data capture, while others had little prior involvement in flow data collection but were keen to find out more.

The first session comprised oral presentations and discussions, commencing with three presentations from the Environment Agency (EA). **Olly Baldwyn** presented an overview of EA work assessing surface alpha values from

camera and acoustic doppler (ADCP) sources: the depth-averaging correction factors needed for application to surface velocity measurements. Values are found to be site specific, difficult to predict, but during floods often differing between main channels and floodplains, with values of 1-1.4 typical in main channels but 0.8-0.85 more typical of floodplains.

Jackie Spencer provided a customer-facing perspective, illustrating how flow measurement accuracy feeds through into model performance and quality of service, noting that with climate change, the need to accurately quantify flood flows is only going to increase. **Richard Maxted** extended the focus by looking specifically at washlands, where flood storage volume assessment is of equal or perhaps greater importance than the oft-found focus on peak flows. The hazard to communities persists after the time of peak occurrence; teams often face the challenge of issuing warnings to locations at a distance from the nearest monitoring site, but ultimately the authority and reputation of agencies rests on the service that is experienced by users, irrespective of where they are.

Steve Turner (UKCEH) provided an overview of the processes underpinning the peak flows dataset of the National River Flow Archive (NRFA), covering the use of consistency checks, analogue catchments, rainfall data and ISO standards via automated and manual processes, involving close collaboration with all the measuring authorities and a group of regional NRFA representatives. The current dataset comprises 279,082 flood peaks and, given >15k downloads since 2015, meets a high level of demand from the research and practitioner communities.

Presentations by **Nick Everard** (UKCEH) and **Peter Chinkin** (Thurn Group) both focused on technical innovations. Nick rapidly summarised a huge volume of work involving imaging from drones and satellites with LIDAR, optical and

thermal sensors and velocimetry methods. Peter explained the growing range of applications of drones for carrying sensors across flooding rivers, spanning velocity radar and laser doppler systems, as well as the novel technique of dipping a drone-carried ADCP into the water, e.g. to obtain a transect of depth-profiled velocity measurements. Together these presentations demonstrated the rapid evolution of methods to obtain velocity data like we've never had before.



Delegates on the first site visit, at the Tweed foot-bridge in Peebles

The presentation by **David Cameron** (JBA Consulting) returned to more established approaches, illustrating the application of 1D/2D modelling of flood flows for the Tweed at Peebles. David emphasised the importance of using all available sources of observations, and the application of sound hydrological judgement, to support the creation and development of homogenous long-term records.

Finally, **Rod Wilkinson** (representing British Standards Institute) challenged the audience to think about the role of technical standards in an area experiencing such a volume of current and likely future innovation.

Site visits (hosted by SEPA's **Euan Cameron** and **Jack Gillespie**), and two parallel workshops on Day 2 (led by **David Cameron** and by **Steve Turner**, **Antonia McDonald** (EA) and **Katie Muchan** (EA)) facilitated discussion of the practicalities of velocity/flow measurement in the field, and the challenges of extending ratings beyond the limits of observational data. These activities, and the social time afforded by the 1.5-day format, allowed delegates to explore and reflect on the limits of what we think we know, and discuss potential for observational and analytical advances.

The organisers are grateful for all the contributions of presenters, chairs, participants, BHS and FDRI, alongside Edinburgh University for generously providing their venue, the Edinburgh Climate Change Institute. See fdri.org.uk for video recordings and more, including updates as we continue to address this important topic.

Contributors:

Andrew Black (University of Dundee)

Ali Rudd, Nick Everard and Anna Rose Klaptocz (UKCEH)

Simon Moulds (University of Edinburgh)

Kirstie Murphy (JBA Consulting on behalf of BHS)

Louise Ander (BGS)

NRFA can be viewed at https://nrfa.ceh.ac.uk/data/peak-flow-dataset

FDRI at: https://fdri.org.uk

Floods and Droughts Research Infrastructure update

Anna Rose Klaptocz, UKCEH

Successful feedback session on FDRI gridded data

The FDRI data team are grateful for fantastic engagement with the hydrological community in this interactive session. During the workshop we introduced FDRI's work on improving access to large gridded datasets using notebooks. We used interactive polling and discussion to learn about your experiences, needs, and preferences, and explored key themes such as cloud-based vs local execution of notebooks, persistence of work, and the types of content and examples that are most valuable to you. Lastly we demonstrated notebook-based access approaches aimed at reducing the need to download and manage very large datasets.

Reach out to FDRI@ceh.ac.uk if you would like to contribute to our gridded data work, from suggestions to help shape our work to testing notebooks.



Appointment of Andrew Longley as Principal Hydrogeologist. We're delighted to welcome Andrew Longley, as FDRI's Principal Hydrogeologist. Hear more about Andrew's experience here: https://fdri.org.uk/news/principal-hydrogeologist-appointed.

Floodplain Flow Measurement Workshop In February BHS and FDRI brought together hydrological researchers and practitioners in a hybrid workshop to explore measuring floodplain flows. Read the report and catch the recording here: https://fdri.org.uk/resources/floodplain-flow-measurement-workshop, or scan the QR code.

Scan Me

BHS professional development month, a review

Emma Cross, Environment Agency and Chair of BHS Education and Careers Sub-Committee

In February 2026, the BHS Education and Careers sub-committee delivered its first Professional Development Month, to help hydrologists better understand and navigate professional chartership routes. Delivered in partnership with the Chartered Institution of Water and Environmental Management (CIWEM), the Royal Meteorological Society (RMetS), the Institution of Civil Engineers (ICE) and the Royal Geographical Society (RGS), it created a forum for exchanging information, experience and practical guidance.

The free webinars ran every Wednesday lunchtime and around 200 people attended. Each week focused on a different chartership from CIWEM , RMetS, ICE and RGS. We hope that this first-hand insight helped attendees to in some way demystify chartership, and what might be best for them given their background and experience.

This team effort demonstrates what can be achieved by bringing people together with a shared purpose. It was made possible through partnership working with CIWEM, RMetS, ICE and RGS; the generosity of hydrologists who shared their experiences; the support of JBA Group; and the commitment of the BHS communications team, including our webmaster. We have laid strong foundations for future professional development activities within BHS.

The speakers were **Sophie Dunajko, Louise Young** (both CIWEM), **Angela Barber, Emma Cross, Clare Waller** (all EA), **Sharon Stephens** (RMets), **Kate Harrison, Piran Armes** (both ICE), **Laura Davey** (WSP), **Alice Wilson** and **Liz Fox-Tucker (both RGS)** —thankyou all, and also to **Alex Scott** (JBA Trust) and JBA's **Jack Cooper** and **Amber Humphries** for webinar support.

A new website for the British Hydrological Society

Liv Burns, Jacobs (Communications committee chair)

As you may have heard, BHS has a new website! For those who have not seen it yet, head on over to www.hydrology.org and take a look.

I think it is fair to say our old website was not easy to navigate, maintain, update or re-arrange. Plans to update it had been an aspiration for a few years, and in April 2025 BHS started work with visual designer Ruth Cameron of Armadillojam to undertake an independent review and then guide us through building a new website. Ruth also updated the BHS logo (see Circulation 166), to make our brand bolder and brighter. This design set the tone for our new website.

While Ruth worked on the design, BHS volunteers reviewed and updated the old webpages then transferred the data to our new website. We had fantastic support from the whole BHS Committee and Presidents (first Duncan Faulkner, now Joe Pearce), who provided a sounding board for the design ideas, helped check all our new text and kept us motivated throughout the whole team effort!



The new website uses analytics , which will help us better understand how it's viewed and used, and help us keep it up-to-date and relevant for all our visitors and members. Please share your feedback and ideas for future changes via our new Contacts page: https://hydrology.org.uk/contact. All feedback is gratefully received.

Scottish Hydrological Group meeting report

Tim Jolley, SHG committee

On May 6th the Scottish Hydrological Group (SHG) held a well attended event at the Quaker Meeting House, Edinburgh. In her introduction **Claire Robertson** (Scottish Water) explained that after a few years of inactivity, a new committee has now established a programme of events with the support of BHS. The SHG welcomes ideas for potential talks - contact a committee member for more information.

Claire then introduced the speakers for the night's talk on Scotland's National Flood Risk Assessment (NFRA) v3.0: **Fiona Drummond**, Lead Scientist – Flood Risk Assessment, SEPA and **Eilidh Ronald**, Senior Specialist Scientist, SEPA.

Fiona set out how flood risk is defined by what might be impacted (e.g, properties, transport infrastructure, agricultural land) and the combination of the probability (likelihood) of a flood and the consequences. She summarised the statutory driver for the NFRA (Section 9 of the Flood Risk Management (Scotland) Act 2009) and its objective: to inform decision making and Scottish Government and Local Authority funding on managing and reducing flood risk.

Recent changes in data have allowed SEPA to make improvements since NRFA2.0. Changes in flood maps (particularly surface water and small watercourse mapping), availability of the Ordnance Survey National Geographic Database, updates to the Flood Hazard Research Centre Multi -Coloured Manual (MCM) and Handbook (MCH) and the publication of Flood and Coastal Erosion Management Research and Development Programme research on a method for monetising the mental health costs of flooding have all enabled SEPA to develop the method for NRFA v3.0.

Improved ways of identifying properties at risk and

determining the average flood depth allow greater confidence in direct and indirect damage calculations. The Annual Average Damage calculation was explained based on the MCM and MCH method; this covers fluvial and salt-water damage, but SEPA had to assume that damage from surface water flooding was equivalent to short duration fluvial.

Some 320,000 residential and 80,000 non-residential properties are reported to be at risk from rivers, sea and surface water and small watercourse flooding in 2025, which will increase due to climate change by the end of the century. Damages are calculated at close to £500 million (20% attributed to residential, 80% to non-residential).

A significant finding of NFRA3.0 is that the majority of risk to Scottish properties is from surface water and small water courses. Many are in areas of shallow (<30cm) flooding.

Fiona concluded the talk with next steps for SEPA's flood risk assessment work. See their website for further material on the NFRA, including links to download the data and the December 2025 published report: https://beta.sepa.scot/flooding/flood-risk-management-planning/national-flood-risk-assessment/. For other enquiries, contact SEPA on FRAM@sepa.org.uk.

Several audience questions focused on how NFRA 3.0 could be further improved. Fiona highlighted the need to update the MCM and MCH to better cover surface water and small watercourses and to consider receptors beyond properties (e.g. transport and agriculture). There was discussion about how NRFA v3.0 could be used to shape policy to reduce the number of properties at risk, including its potential to inform legislation and links to the National Flood Resilience Strategy.

Claire closed the session by thanking the speakers and everyone who attended. **The next SHG event is on 10th June in Stirling, The Peak Flow Dataset from Scotland (see p27).**

Forthcoming events

Drought hydrology: 50 years since 1976, Wednesday 17th June 2026, Institute of Civil Engineers, One Great George Street, London.



Reduced rate for BHS members—to book go to https://www.ice.org.uk/events/upcoming-events/drought-hydrology-50-years-since-1976-bhs-jun-2026.

"Head of Upper Neuadd Reservoir. July 1976 drought" by Dr Mary Gillham Archive Project, CC BY 2.0

16th National Hydrology Symposium (BHS 2026)

Reimagining Hydrology for a Changing World

Our 2026 Symposium (in association with water@leeds) is 2nd-4th September 2026 at the University of Leeds.

The Symposium will showcase a broad range of hydrological work—changing climate, international hydrology, observations, ecohydrology, collaboration, water resources, groundwater, digital tools.

Registration has now closed. Specific queries can be sent to the BHS events team at bhs_events@outlook.com

Peak flow data from Scotland, an in-person Scottish Hydrological Group evening meeting. At The Stirling Smith Art Gallery & Museum, **10th June**, 6-8pm. Register: https://hydrology.org.uk/event/peak-flow-data-from-scotland

Flood & Coast 2026, Liverpool Exhibition Centre **9-11th June 2026**, 9am-5pm. The UK's leading annual event for professionals working to manage flood risk, build climate resilience, and protect society and the environment. Registration at https://www.ciwemevents.com/event/floodandcoast/summary

11th National Climate Dynamics Workshop, organized by RMetS and held in-person at the University of Reading, **22-24th June**. All aspects of climate dynamics. Register at https://www.rmets.org/event/11th-national-climate-dynamics-workshop

Peter Wolf Early Careers Symposium, Imperial College, London, **29-30th June 2026**. A partnership between FDRI and BHS—to register go to https://fdri.org.uk/events/peter_wolf_seminar

16th National Hydrology Symposium: Re-imagining hydrology for a changing world. To be held at University of Leeds, **2-4th September**. Registration closed on 22nd May.

British Dam Society, 23rd biennial conference. To be held at Keele University, 9-12th September. More details to follow.

UK Hydrological Bulletin, February-April 2026

Compiled from UKCEH summaries

February was another notably wet month, with rain-bearing systems often stalling over the UK during the first half of the month, enhancing rainfall totals across many regions. In the latter half, the UK experienced more typical westerlies, maintaining the unsettled weather. Rainfall for the UK was above average, but with pronounced regional contrasts. Much of England, Wales and Northern Ireland recorded above average totals, while Scotland, particularly the north and west, was notably dry (Figure 1).

Figure 1: February 2026 rainfall as % of 1991-2020 average



River flows were predominantly in the normal range to above, with several responsive catchments in eastern Scotland and south-west England registering record February flows. In contrast, some catchments in north-west Scotland registered notably low flows. Groundwater levels rose across much of the UK, reflecting the wet conditions, with exceptionally high levels widespread across southern England, although some Chalk and Jurassic Oolite boreholes began to show the first signs of recession.

The UK Hydrological Outlook indicated an increased likelihood of above normal flows across southern and central England through the spring, with normal flows favoured elsewhere.

March was mild overall with changeable conditions, alternating between unsettled spells and drier interludes in early and mid-month. The start of March saw rainfall and some hill snow over northwest England and western Scotland with drier, settled weather elsewhere. As a whole, UK rainfall was average with a strong regional contrast marking a return to the usual rainfall gradient of the UK: northwest Britain recorded above average totals while eastern Scotland and central southern England saw below average rainfall.

River flows were in the normal range to above in northwestern areas, with some groundwater-dominated catchments in central southern England remaining notably high. Elsewhere, flows were generally in the normal range, with some rivers above normal in south Wales and southwest England. Groundwater levels generally decreased or remained stable during March, reflecting relatively drier conditions, but high to exceptionally high levels dominated across England.

Soils remained wet in northwestern areas but began to dry across central and southern England. In the Chalk of southern England, groundwater levels generally began to decrease, although many sites were still in the high or exceptionally high range. Only levels at Little Bucket Farm were continuing to rise. In East Anglia and southeast England, levels increased and were typically within the normal range, whereas in east Yorkshire and Lincolnshire, levels decreased to the above normal to normal range.

Reservoir stocks were stable and above average at the national scale, although a few impoundments showed residual deficits (e.g. levels rose at Grafham but remained 7% below average). The UK Hydrological Outlook indicated normal to above normal flows in western Scotland and southern England over the next three months.

With above average reservoir stocks due to a notably wet winter half-year, the water resources situation was healthy entering the summer half-year.

April was dry and warm overall, although with rain in some western parts. It was the third warmest April for the UK in a series from 1884, with particularly high temperatures in England and Wales towards the end of the month (e.g. 26.9°C on the 30th April, recorded at Treknow, Cornwall). Rainfall was just over half of the April average for the UK, with some places receiving less than a fifth of average.

River flows began April below average, except in the south-east where they continued to be sustained by groundwater, and receded, with responses to rainfall mid-month in the west. Many rivers registered notably or exceptionally low monthly mean flows, several with minima for April (e.g. the Spey, Tweed, and Yorkshire Ouse in series of 60 years or more). the south-east remained in the normal range or above. The spatial extent of low flows is reflected in the average April outflow series from Great Britain, which were the third lowest on record (after 1974 and 2003, in a series from 1961). For spring so far, many more catchments across Scotland and northern England registered exceptionally low and record low average March-April f lows (e.g. Scottish Dee, English Tyne and Welsh Dee, all in series of at least 55 years), with many a third or less of the average for this period. Flow deficits in Scotland and the north of England can be traced back at least to the autumn.


Spring flows in the N. Pennines (V.Shackle)

In most regions of the UK, soils at the end of April were drier than at the end of March, and many COSMOS-UK sites registered drier than normal to exceptionally dry soils. There were wildfires in south-west Scotland, Northern Ireland and Wales, and increased concerns about the impacts on agriculture, with an early start to the irrigation season.

Groundwater levels generally continued to decline, with most levels in the normal range to below normal. Reservoir stocks for England and Wales were below average at 85% of capacity. Away from Northern Ireland and south-west England, some impoundments were considerably below average at month-end (e.g. Northern Command Zone, Celyn & Brenig and Daer).

Without appreciable late spring rainfall, summer will most likely commence with widely depressed river flows, with potential for environmental impacts and pressure on water resources (some water companies are already starting to ask customers to use water wisely). The start of May has been extremely dry across the UK, and the current Hydrological Outlook suggests that below normal or lower flows will persist into the summer in many areas.

The Hydrological Bulletins draw primarily on data and information from the UK Met Office and the CEH/BGS National Hydrological Monitoring Programme—the latter comprising data supplied by the Environment Agency, SEPA, NRW and Northern Ireland Environment Agency, as well as the UK water companies.



British Hydrological Society