UK Hydrological Outlook

Delivered in partnership by: UK Centre for Ecology & Hydrology

Period: From April 2023

Issued on 12.04.2023 using data to the end of March 2023

SUMMARY

The outlook for April and for the April–June period is for normal to above normal river flows in southern England and southern Wales, and normal for the rest of the country. Groundwater levels are expected to be mostly normal, except in the eastern South Downs Chalk and the Devonian and Northern Fell Sandstone of Scotland and NE England where they are likely to be above normal.

Rainfall:

Most of the UK received above average rainfall amounts in March, with exceptionally high precipitation in southern and central England. However, rainfall was below average in northwestern Scotland.

The precipitation outlook (issued by the Met Office on 27.03.2023) for April shows a slight shift towards an increased likelihood of drier than usual conditions for the April-June period.

River flows:

River flows in March were above normal in most of England and Northern Ireland, whereas they were mostly normal to below normal in Scotland (no data for Wales).

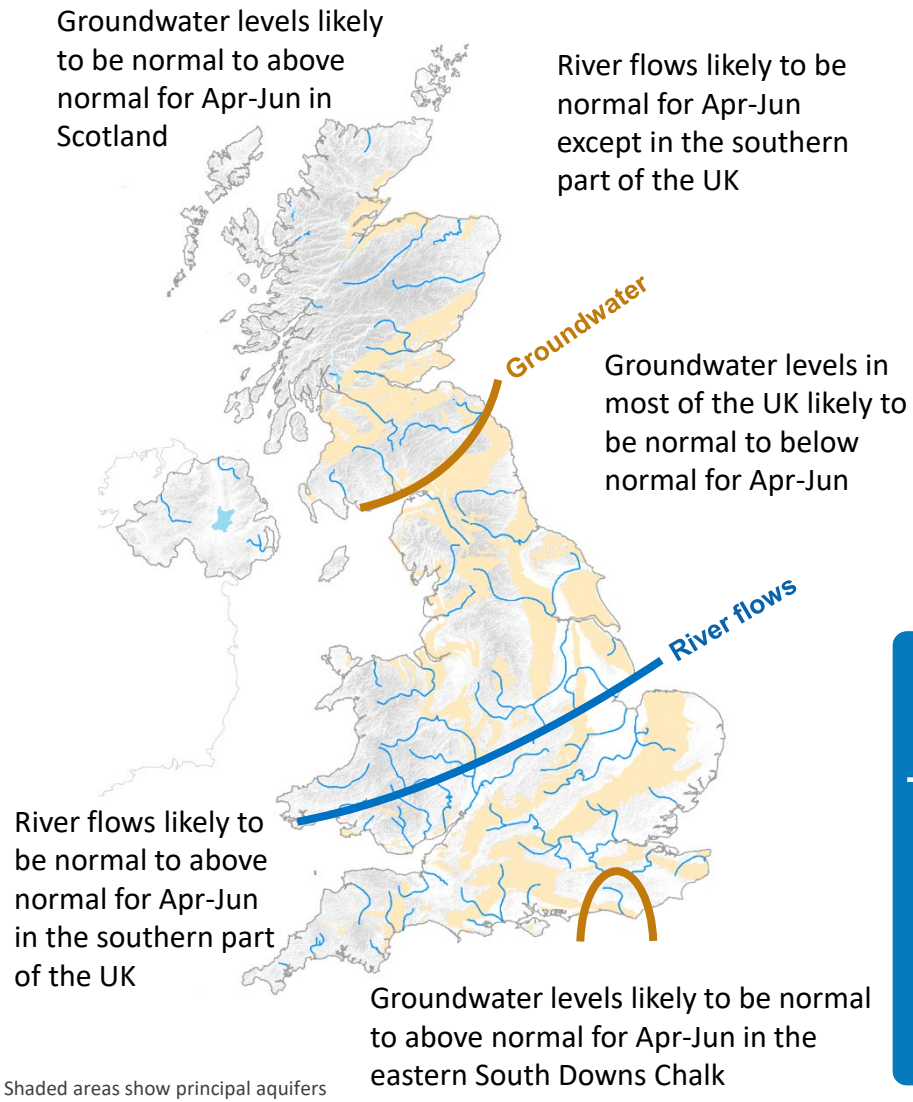
River flows in April are likely to be normal to above normal in southern England and southern Wales. In the rest of the country, they are likely to be mostly normal. This pattern is expected to persist over the Apr-June period, albeit with a higher likelihood of having normal flows across the UK.

Groundwater:

Groundwater levels in March were mostly normal with a few exceptions, including some boreholes in southern Wales, Northern Ireland and Gloucestershire (Jurassic limestone) showing exceptionally high levels, whereas levels in some boreholes in the Chalk in southeastern and eastern England remained below normal.

Over the next month and three-month period, normal to below normal groundwater levels are expected at most sites, with the exception of the eastern South Downs Chalk and the Devonian and Northern Fell Sandstone of Scotland and northeastern England where the levels are likely to be above normal. However, groundwater levels are still responding to high March rainfall over much of the UK meaning that there is more uncertainty in the forecasts than usual.

The Hydrological Outlook UK provides an outlook for the water situation for the UK over the next three months and beyond. For guidance on how to interpret the outlook, a wider range of information, and a full description of underpinning methods, please visit the website: www.hydoutuk.net



HYDROLOGICAL OUTLOOK UK

April 2023

UK Centre for Ecology & Hydrology · BGS British Geological Survey · Department for Infrastructure An Roinn Bonneagair www.infrastructure-ni.gov.uk · Environment Agency · Met Office · Cyfoeth Naturiol Cymru Natural Resources Wales · SEPA Scottish Environment Protection Agency

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About the Hydrological Outlook:

This document presents an outlook for the UK water situation for the next 1 – 3 months and beyond, using observational datasets, meteorological forecasts and a suite of hydrological modelling tools. The outlook is produced in a collaboration between the UK Centre for Ecology and Hydrology (UKCEH), British Geological Survey (BGS), the Met Office, the Environment Agency (EA), Natural Resources Wales (NRW), the Scottish Environment Protection Agency (SEPA), and for Northern Ireland, the Department for Infrastructure – Rivers (DfIR).

Data and Models:

The Hydrological Outlook depends on the active cooperation of many data suppliers. This cooperation is gratefully acknowledged. Historic river flow and groundwater data are sourced from the UK National River Flow Archive and the National Groundwater Level Archive. Contemporary data are provided by the EA, SEPA, NRW and DfIR. These data are used to initialise hydrological models, and to provide outlook information based on statistical analysis of historical analogues.

Climate forecasts are produced by the Met Office. Hydrological modelling is undertaken by UKCEH using the Grid-to-Grid, PDM and CLASSIC hydrological models and by the EA using CATCHMOD. Hydrogeological modelling uses the R-groundwater model run by BGS and CATCHMOD run by the EA. Supporting documentation is available from the Outlooks website:
https://www.hydoutuk.net/about/methods

Presentation:

The language used in the summary presented overleaf generally places flows and groundwater levels into just three classes, i.e. below normal, normal, and above normal. However, the underpinning methods use as many as seven classes as defined in the graphic to the right, i.e. the summary uses a simpler classification than some of the methods. On those occasions when it is appropriate to provide greater discrimination at the extremes the terminology and definitions of the seven class scheme will be adopted.

	Percentile range of historic values for relevant month
Exceptionally high flow	> 95
Notably high flow	87-95
Above normal	72-87
Normal range	28-72
Below normal	13-28
Notably low flow	5-13
Exceptionally low flow	< 5

Disclaimer and liability:

The Hydrological Outlook partnership aims to ensure that all Content provided is accurate and consistent with its current scientific understanding. However, the science which underlies hydrological and hydrogeological forecasts and climate projections is constantly evolving. Therefore any element of the Content which involves a forecast or a prediction should not be relied upon as though it were a statement of fact. To the fullest extent permitted by applicable law, the Hydrological Outlook Partnership excludes all warranties or representations (express or implied) in respect of the Content.

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Further information:

For more detailed information about the Hydrological Outlook, and the derivation of the maps, plots and interpretation provided in this outlook, please visit the Hydrological Outlook UK website.

The website features a host of other background information, including a wider range of sources of information which are used in the preparation of this Outlook.

Contact:

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Reference for the Hydrological Outlook:

Hydrological Outlook UK, 2023, April, UK Centre for Ecology and Hydrology, Oxfordshire UK, Online,
https://www.hydoutuk.net/latest-outlook/

Other Sources of Information:

The Hydrological Outlook should be used alongside other sources of up-to-date information on the current water resources status and flood risk.

Environment Agency Water Situation Reports: provides summary of water resources status on a monthly and weekly basis for England:
https://www.gov.uk/government/collections/water-situation-reports-for-england

Flood warnings are continually updated, and should be consulted for an up-to-date and localised assessment of flood risk:
Environment Agency: https://flood-warning-information.service.gov.uk/map
Natural Resources Wales: https://flood-warning.naturalresources.wales/
Scottish Environment Protection Agency: https://www.sepa.org.uk/flooding.aspx

Hydrological Summary for the UK: provides summary of current water resources status for the UK:
https://nrfa.ceh.ac.uk/monthly-hydrological-summary-uk

UK Met Office forecasts for the UK: https://www.metoffice.gov.uk/#?tab=regionalForecast

UK Water Resources Portal: monitor the UK hydrological situation in near real-time including rainfall, river flow, groundwater and soil moisture from COSMOS-UK:
https://eip.ceh.ac.uk/hydrology/water-resources/

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