

# Hydrological Outlook UK

Period: From October 2018

Issued on 09.10.2018 using data to the end of September 2018

## SUMMARY

The outlook in north-eastern Scotland, and southern, southwestern, and eastern parts of England, is for river flows to be normal to below normal for the next one to three months. In Northern Ireland, flows are expected to be normal to below normal for October. In northern and western parts of England, Wales and the majority of Scotland river flows are likely to be within the normal range for October, and normal to above normal over October-November-December as a whole. Groundwater levels are likely to be normal to below normal over the next one to three months, with some local variability.

### Rainfall:

September's rainfall was close to average, but unequally distributed across the UK. North-western Scotland received significant rainfall volumes with up to 170% of average falling in places. Wales and north-western England saw 110-150% of average in most areas. The remainder of the UK saw below average rainfall, with as little as 30% falling in areas around Norfolk, Bedford and Cambridge. Northern Ireland also saw just 55% of average rainfall.

The rainfall outlook for October indicates the chances of above- or below-average precipitation are similar. For October-November-December as a whole, above-average precipitation is more likely than below-average precipitation. The probability that UK-average precipitation for October-November-December will fall into the driest of five equal categories is between 10% and 15%, and the probability that it will fall into the wettest of between 30% and 35% (the 1981-2010 probability for each of these categories is 20%).

### River flows:

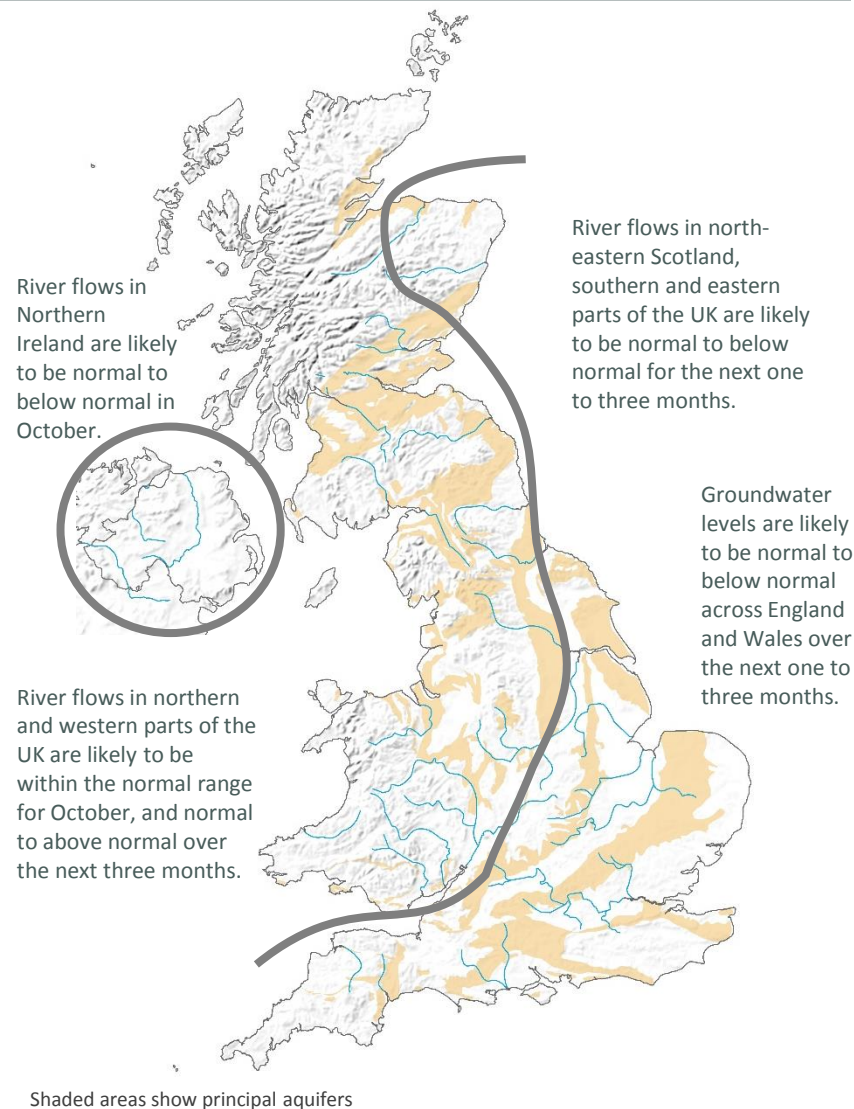
September river flows were largely within the normal range, but with several below normal, or notably low levels in catchments of the south and east and north-eastern Scotland. River levels in north Wales and northern Scotland were above normal, with record high flows for September recorded in the River Nevis.

River flows over October and October-November-December are likely to be divided on a gradient that closely follows the pattern of September's rainfall. Catchments in the western parts of the UK, including Wales, north and western England and the majority of Scotland are likely to be within the normal range for October; whilst flows over the next three months in these parts of the UK are likely to be normal to above normal given the likelihood of above normal precipitation. Flows in south and eastern parts of England and north-eastern Scotland are likely to be normal to below normal both for October and the next three months. River flows in Northern Ireland are likely to be normal to below normal for October.

### Groundwater:

Groundwater levels for September were normal to below normal across the main aquifers, except for northern England and southern Scotland which saw above normal levels in some boreholes. Below normal levels were primarily seen in the Chalk aquifers of southern England and East Anglia.

Normal groundwater levels are likely to continue in the majority of boreholes for October, with a few exceptions of above normal levels in the Scottish borders and below normal levels, particularly in the far south and parts of northwest England. The three month groundwater outlook indicates that levels are most likely to be normal to below normal across England and Wales, though with significant sensitivity to the amount of rainfall that occurs.



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](http://www.hydoutuk.net)

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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 Centre for Ecology and Hydrology (CEH), 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 CEH 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: <http://www.hydoutuk.net/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

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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.

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## Reference for the Hydrological Outlook:

Hydrological Outlook UK, 2018, October, Centre for Ecology and Hydrology, Oxfordshire UK, Online, <http://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.

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

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>  
Scottish Environment Protection Agency: <http://www.sepa.org.uk/flooding.aspx>

UK Met Office forecasts for the UK:

[www.metoffice.gov.uk/public/weather/forecast/#?tab=regionalForecast](http://www.metoffice.gov.uk/public/weather/forecast/#?tab=regionalForecast)