

# Hydrological Outlook UK

Period: From October 2020

Issued on 08.10.2020 using data to the end of September 2020

## SUMMARY

The outlook for October is for normal to above normal river flows and groundwater levels across most of the UK, but with below normal groundwater levels likely to persist in the far south of England. The three month outlook is for flows to be in the normal range, and for groundwater to follow a broadly similar pattern to October. Both the one and three month outlooks are sensitive to the exceptional rainfall received in early October that brings added complexity to a transitional time of year when uncertainty is already very high.

### Rainfall:

September was dry across most of the country, with 77% of the typical UK rainfall, and it was notably dry in parts of central and southern England and northeast Britain. Parts of western Scotland and east Anglia were wetter than average.

The rainfall outlook (issued by the Met Office on 25<sup>th</sup> September 2020) states that for October and October-November-December as a whole, above-average precipitation is slightly 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 around 15% and the probability that it will fall into the wettest of these categories is around 25% (the 1981-2010 probability for each of these categories is 20%).

Exceptional rainfall has been received in the first week of October, with the monthly average already exceeded in parts of southern England and eastern Scotland.

### River flows:

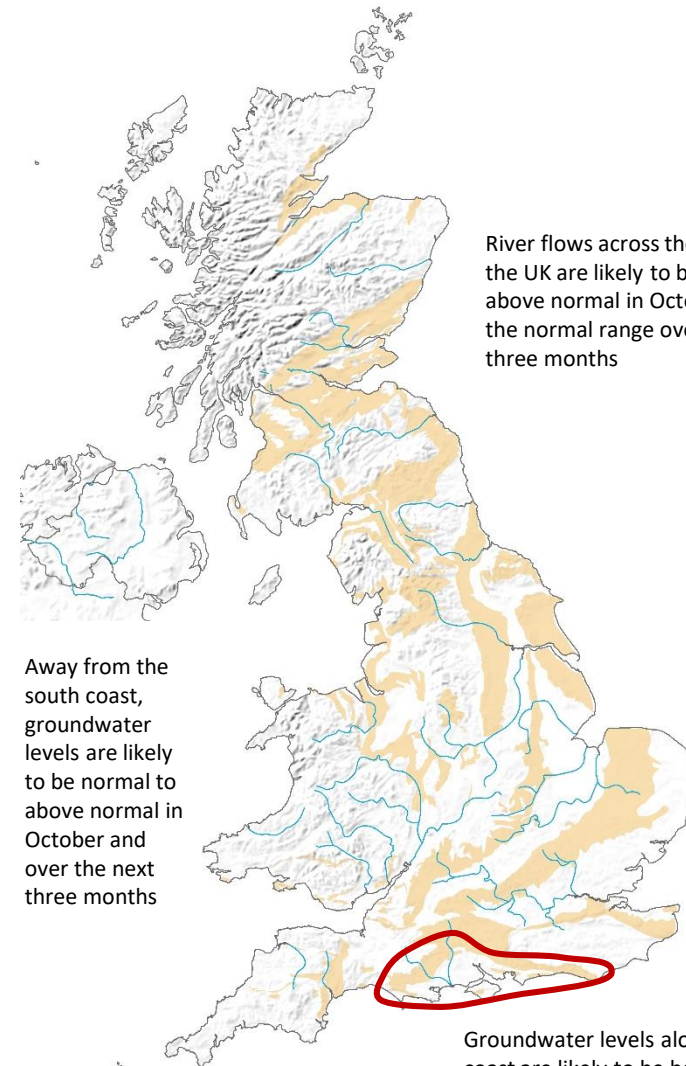
River flows in September were in the normal range across most of the UK, with below normal flows in northern Scotland and some catchments in central and southern England.

The October outlook is for normal to above normal flows across the UK. The forecasts based on data up to the end of September suggest predominantly normal flows, with above normal flows in some areas that were wetter in September (e.g. Norfolk). However, the exceptional rainfall received in early October has had a significant bearing on the Outlook, increasing the likelihood of above normal (or even notably or exceptionally high) flows elsewhere. However it is not possible to discern a detailed spatial picture as the rain fell after forecasts were produced. The three month outlook indicates flows are most likely to be in the normal range across the UK.

### Groundwater:

Groundwater levels in September were generally below normal in the southern Chalk and in a few Chalk boreholes elsewhere, and normal to above normal in the aquifers further north and west.

For October, groundwater levels are likely to remain below normal in the Chalk of the south coast, while elsewhere in the Chalk the outlook is for normal levels. For other aquifers the outlook is for levels to be normal to above normal, and locally notably high. Over three months, the outlook is broadly similar. As with the river flows, the early October rainfall (which was particularly exceptional over large parts of the Chalk aquifer) could be highly influential on the groundwater outlook.



Shaded areas show principal aquifers

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 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: <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.

## Contact:

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## Reference for the Hydrological Outlook:

Hydrological Outlook UK, 2020, October, UK 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.

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>

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

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)

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/>