

# Hydrological Outlook UK

Period: From January 2018

Issued on 09.01.2018 using data to the end of December 2017

## SUMMARY

The one-month and three-month outlooks for parts of south-east England are for below normal groundwater levels and normal to below normal river flows. Elsewhere in the UK, river flows and groundwater levels are most likely to be within the normal range in January and normal to above normal for the January to March period. Whilst below normal river flows are likely in some localised areas, the rainfall over the last fortnight coupled with a forecast for above-average rainfall ensures that, in general for the UK, above normal flows are more likely than below normal flows.

### Rainfall:

Whilst the UK registered near average rainfall overall in December, there were substantial regional differences. Rainfall in most of Scotland, Northern Ireland and northern England was below average. Further south, much of Wales and central, southern and eastern England was wetter than average.

The Met Office 3-month Outlook issued on 15th December indicated that for January, and January-February-March as a whole, above-average precipitation is more likely than below-average precipitation. The likelihood of impacts from heavy rainfall and high winds is greater than usual. The probability that UK-average precipitation for January-February-March will fall into the driest of five equal categories is 15% and the probability that it will fall into the wettest of five equal categories is 30% (the 1981-2010 probability for each of these categories is 20%).

### River flows:

River flows for December were within the normal range across most of the UK. Above normal flows were registered in parts of northern Scotland and below normal flows characterised parts of eastern Scotland and central southern England.

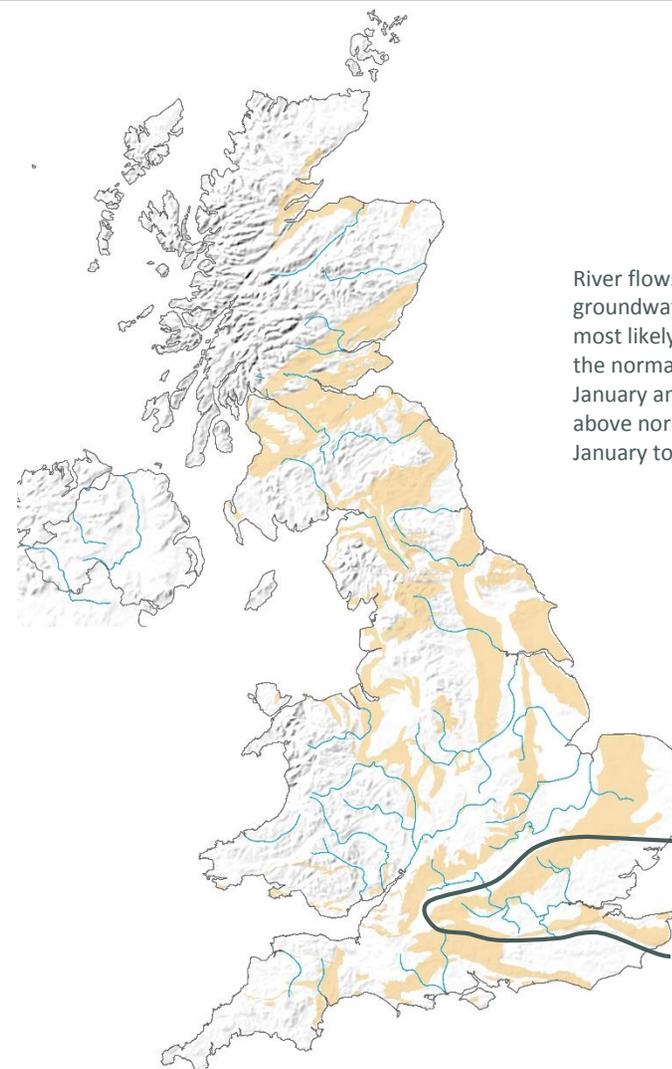
River flows are likely to be below normal for both January and the January-March period in parts of south-east England and where groundwater is influential on river flows, including streams draining the Chilterns and the headwaters of the Thames. Elsewhere, normal flows are most likely in January and the three-month outlook is for normal to above normal flows. However, there is likely to be considerable localised variations within this general pattern with both above or below normal flows resulting from catchment characteristics, such as the contribution of groundwater to river flows, and recent rainfall variability.

### Groundwater:

Although groundwater levels increased following wet weather, December levels remained below normal across most of the Chalk aquifer away from the south coast. Elsewhere, levels were mostly in the normal range but notably high in parts of the Limestone towards the headwaters of the Thames.

For the Chalk of the North Downs and through the Chilterns across to Suffolk, below normal levels are likely to persist through January and over the January to March period for all but the wettest of the rainfall forecasts. North of London, notably low levels are very likely in January and more likely than not over the three-month timeframe. Away from this area, levels are most likely to be normal in January and normal to above normal for the January to March period.

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



River flows and groundwater levels are most likely to be within the normal range for January and normal to above normal for the January to March period

For both January and the January to March period, in parts of south-east England river flows are likely to be normal to below normal and groundwater levels are likely to be below normal

Shaded areas show principal aquifers

# Hydrological Outlook UK

## 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 the Northern Ireland Rivers Agency (RA).

## 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 RA. 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, 2017, December, 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)