

Hydrological Outlook UK

Period: From December 2017

Issued on 12.12.2017 using data to the end of November 2017

SUMMARY

In south-east England groundwater levels are likely to be below normal, and potentially exceptionally low in places, during December and for the next three months. In south-central and south-eastern parts of the UK river flows are likely to be normal to below normal during December and for the next three months. Elsewhere in the UK river flows and groundwater levels are likely to be normal to above normal in the same period.

Rainfall:

For the UK as a whole, rainfall during November was slightly below the long-term average, but as so often there were marked variations. Areas with below average rainfall included central and southern England, and in particular coastal areas of south-east England, and also south Wales, the Pennines, and the catchments of the Forth and Tay in Scotland.

The Met Office 3-month Outlook issued on 24th November indicated that for December, below-average precipitation is slightly more likely than above-average precipitation. For December-January-February as a whole, above-average precipitation is more likely than below-average precipitation.

The probability that UK-average precipitation for December-January-February will fall into the driest of our five categories is between 10% and 15% and the probability that it will fall into the wettest of our five categories is between 30% and 35% (the 1981-2010 probability for each of these categories is 20%).

River flows:

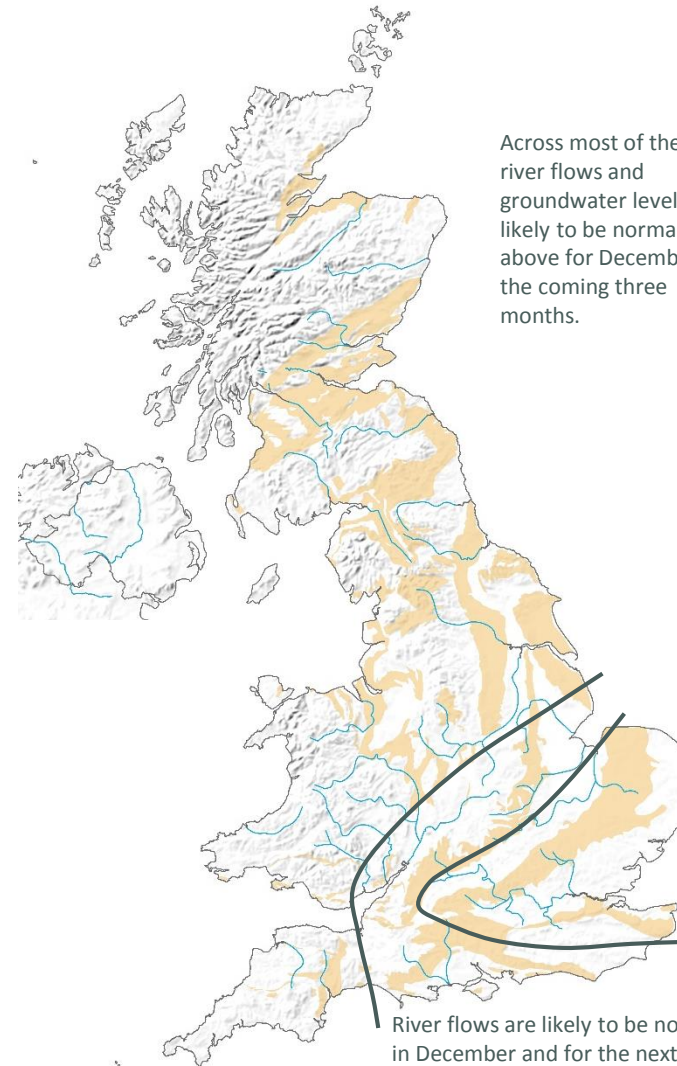
In large areas of south-east England river flows were below normal during November, with some exceptionally low flows. Elsewhere flows were generally normal to below normal, with only a few rivers in Northern Ireland and northern Scotland recording above average flows.

A marked contrast is likely in river flows for December, and beyond, with northern and western parts of the UK experiencing normal to above normal flows, while elsewhere flows are most likely to be normal to below normal.

Groundwater:

Groundwater levels in November remained below normal to notably low across the majority of the southern Chalk aquifer. Elsewhere, groundwater levels were within the normal range, with the exception of south-western Scotland where levels remained above normal.

Although water levels in many aquifers are currently within their seasonal range, and likely to remain normal over one month, there is a notable exception in the Chalk, where Kent, areas north of London and East Anglia will almost inevitably remain below normal, and potentially exceptionally low through December and over the next 3 months, even if rainfall is significantly above normal.



Across most of the UK, river flows and groundwater levels are likely to be normal to above for December and the coming three months.

In south-east England, groundwater levels in the Chalk aquifer are likely to be below normal in December and for the next three months.

River flows are likely to be normal to below normal in December and for the next three months, in south-central and south-eastern parts of the UK..

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

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