Hydrological Outlook UK

Period: From February 2019

Issued on 11.02.2019 using data to the end of January 2019

SUMMARY

The hydrological outlook for parts of central, southern and eastern England is for below normal river flows and groundwater levels over the next one to three months. River flows elsewhere across the UK are subject to some uncertainty due to the atypical meteorological patterns that are currently dominating the UK's precipitation, but are most likely to be within the normal range for February. Groundwater levels across the majority of the UK are likely to be normal to below normal for February-March-April.

Rainfall:

Precipitation across the UK in January was remarkably low. The vast majority of the UK saw no more than 50 percent of average, whilst parts of the north-east received less than 30 percent. As a result, twelve month averaged rainfall totals are now below average (mostly between 70 and 90 percent) across most of the UK.

For February and February-March-April as a whole, above-average precipitation is more probable than below-average precipitation. The probability that UK-average precipitation for February-March-April will fall into the driest of five equal categories is 15%, and the probability that it will fall into the wettest is around 25% (the 1981-2010 probability for each of these categories is 20%).

There is an increased likelihood of negative NAO patterns that are associated with drier than average weather, especially in the north-west, however long-range forecast systems show that depressions are likely to track close to the UK, increasing the likelihood of above-average precipitation for the south.

River flows:

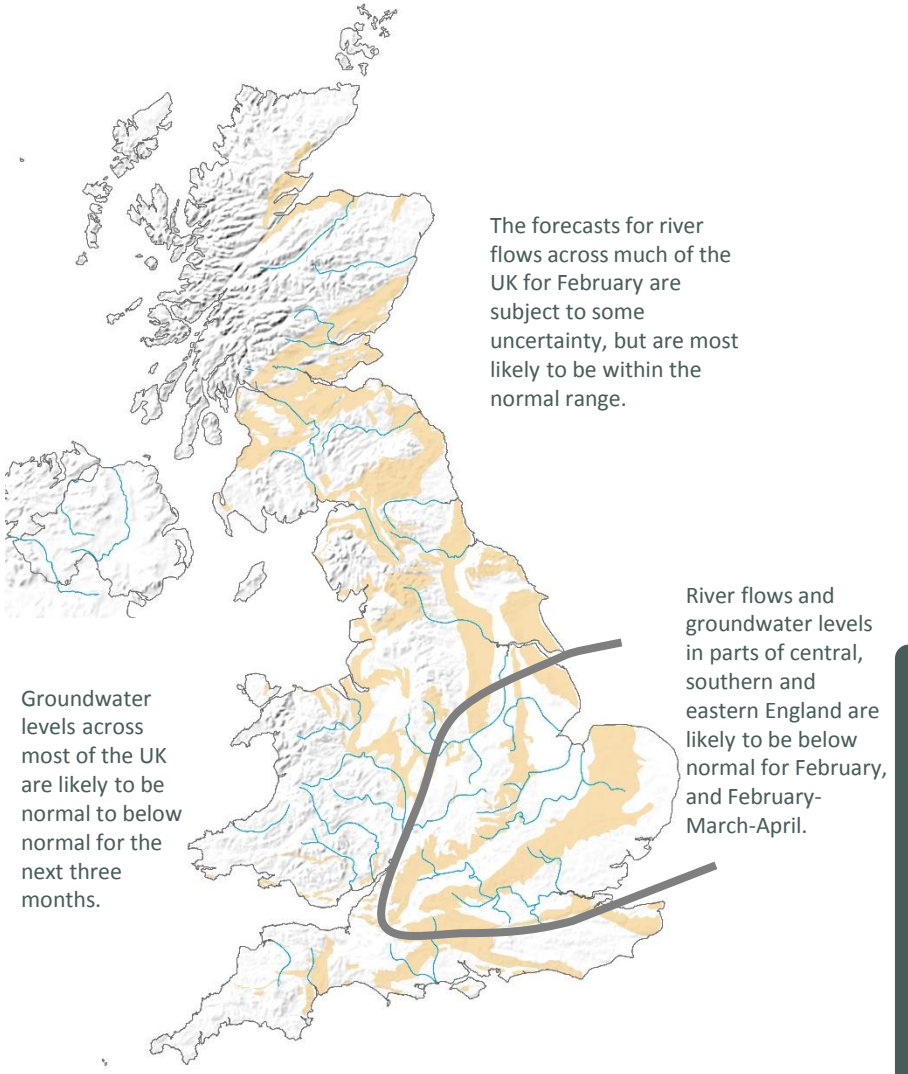
Reflecting the exceptionally low rainfall, river flows across the UK were predominantly either notably or exceptionally low for the time of year. Record breaking low flows for January were seen in several catchments, particularly in the north-east where precipitation deficits were the most extreme.

The hydrological forecasts indicate that below normal river flows are likely to persist in parts of central, southern and eastern England over February and February-March-April as a whole. River flows in the north and west respond rapidly to precipitation; and following a wet start to February, flows elsewhere across the UK are most likely to be within the normal range, though both below normal and above normal flows are possible.

Groundwater:

Groundwater levels for January were normal to below normal across the whole of the UK. Notably low levels were recorded in several boreholes of the southern chalk aquifer. January's dry weather paused, or even reversed, groundwater recovery, which has already been affected by a late start due to the drier than average autumn of 2018.

Groundwater levels for February-April are likely to be below normal in the southern chalk, except along the south coast. Elsewhere across the UK, groundwater levels are likely to be normal to below normal over the next three months.



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

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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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From April 2018 the Hydrological Outlook is supported by the Natural Environment Research Council funded UK-SCAPE and Hydro-JULES Programmes.

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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, 2019, February, 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

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