

Hydrological Outlook UK

Period: From January 2021

Issued on 13.01.2021 using data to the end of December 2020

SUMMARY

River flows in January are likely to be normal to above normal in southern, central and eastern England and are most likely to be within the normal range elsewhere. River flows over the three-month timeframe are most likely to be within the normal range throughout the UK, though above normal flows are most likely in some catchments in the south-east (predominantly in East Anglia). The outlook for groundwater is for normal to above normal levels in all aquifers, both in January and for the January-March timeframe.

Rainfall:

Rainfall in December was above average across the majority of the UK, notably so across East Anglia, central England, Cornwall, north-east Scotland, and parts of Wales and north-east England.

The rainfall outlook for January (issued by the Met Office on 21.12.2020) is that the chance of above-average precipitation is higher than normal. For January-February-March as a whole, above-average precipitation is more likely than below-average precipitation. The probability that UK-average precipitation for January-February-March will fall into the driest of five categories is around 15% and the probability that it will fall into the wettest of five categories is around 25% (the 1981-2010 probability for each of these categories is 20%).

River flows:

River flows in December were above normal or notably high for the majority of England and Wales. Flows were at least twice the average and exceptionally high in East Anglia and parts of central and south-west England.

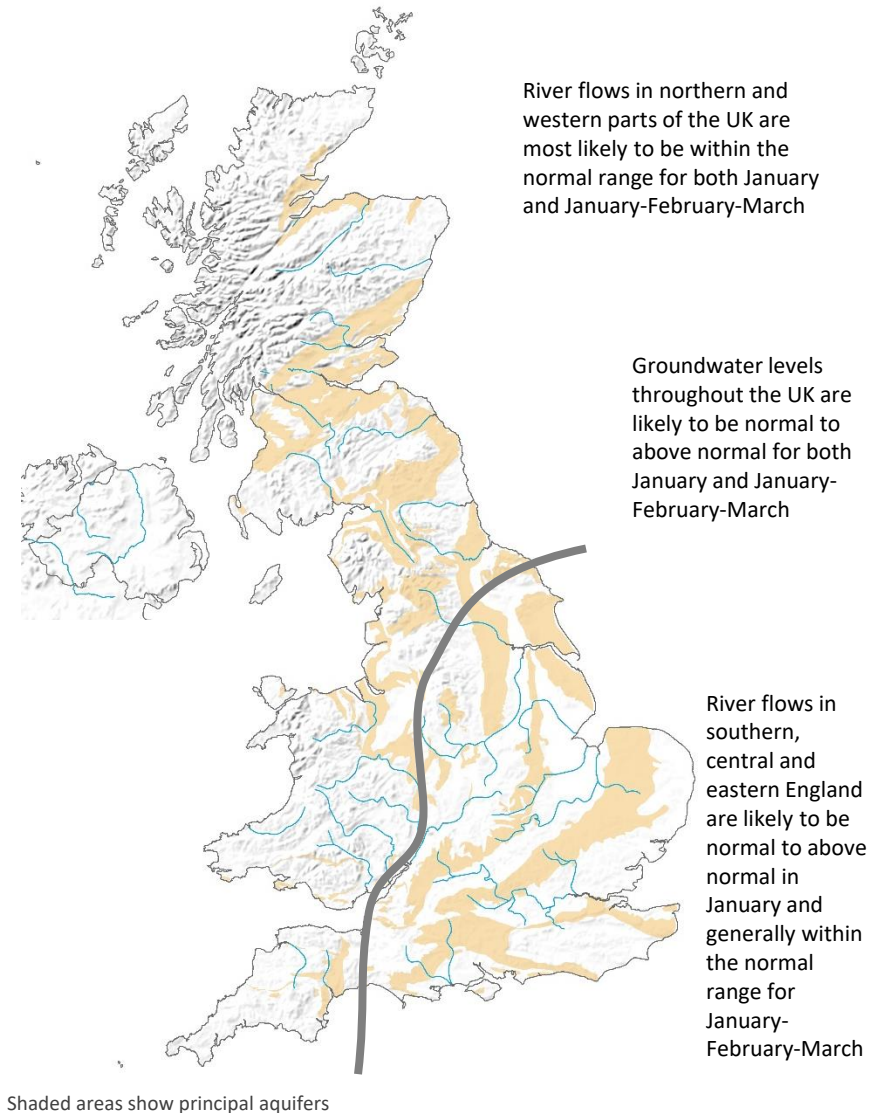
The one-month outlook is for normal to above normal flows in the south-east of the UK, with above normal flows very likely in many catchments of East Anglia. Elsewhere, flows are generally most likely to be within the normal range, with some localised above normal exceptions in north-east Scotland and south-west England. The three-month outlook suggests flows are most likely to be within the normal range in the majority of UK catchments. Flows in some catchments in East Anglia and parts of southern England are likely to be above normal over the January-March timeframe.

Groundwater:

Groundwater levels in December were normal to above normal across the Chalk aquifers of southern and eastern England. Elsewhere, levels were above normal to exceptionally high in the limestone and sandstone aquifers of Wales and northern and central England.

The one-month outlook is for normal to above normal groundwater levels in all UK aquifers. Notably to exceptionally high levels in aquifers around the Scottish borders are very likely in January, regardless of rainfall scenario. The three-month outlook is very similar to the one-month outlook, with levels generally remaining normal to above normal.

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 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, 2021, January, 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://nrfa.ceh.ac.uk/monthly-hydrological-summary-uk>

UK Met Office forecasts for the UK: 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/>