

Hydrological Outlook UK

Period: From January 2020

Issued on 09.01.2020 using data to the end of December 2019

SUMMARY

The outlook for January is for river flows to be within the normal range across the majority of northern and western parts of the UK, as well as in the groundwater fed catchments of East Anglia and the Chilterns. River flows in the East Midlands, central-southern and south-eastern England are likely to be normal to above normal for January. Over the next three months, river flows in northern and western parts of the UK are likely to be normal to above normal. Groundwater levels are expected to follow a similar pattern with normal levels being likely in East Anglia and the Chilterns over the next one to three months. Normal to exceptionally high groundwater levels, with a variable spatial pattern, are likely to extend across the remainder of the UK for the next three months.

Rainfall:

Rainfall in December was above average in south-eastern England and western Scotland. Particularly high volumes of rain fell around the Thames estuary. North-eastern parts of the UK and northern Wales saw below average rainfall.

The rainfall outlook (issued by the Met Office on 12th December 2019) is that for January and 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 equal categories is between 15% and 20%, and the probability that it will fall into the wettest of the five categories is around 30% (the 1981-2010 probability for each of the categories is 20%).

River flows:

River flows in December remained above normal to exceptionally high across the majority of England and Wales, though average flows for the month were generally lower than they were in November. Flows in northern England, Scotland and Northern Ireland were mostly within the normal range.

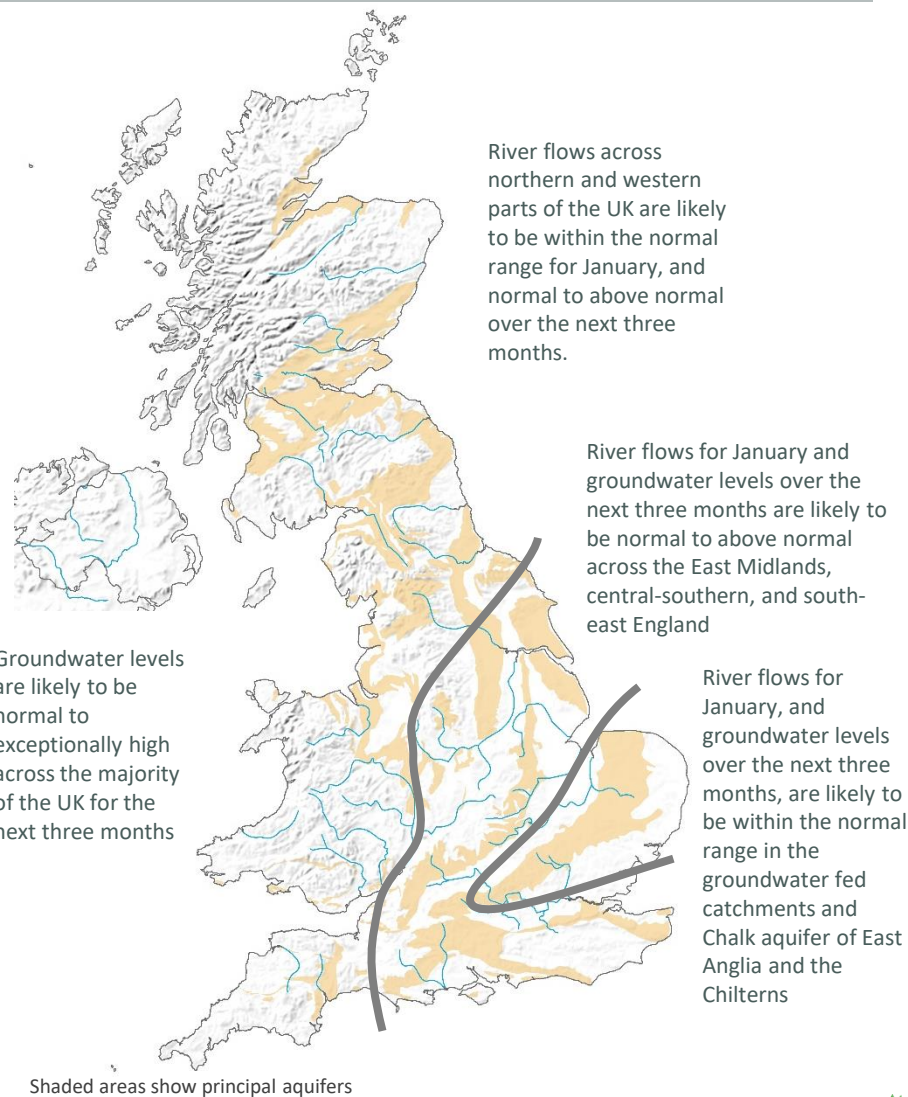
Following a dry end to December and start of January, the outlook for January is for flows to be within the normal range across the majority of the UK. The exception is across the East Midlands, central southern England and south-east England where river flows are likely to continue to be above normal, though some catchments may return to being within the normal range. River flows over the next three months are less certain at this time of year, though the influence of a positive North Atlantic Oscillation may bring some above normal flows to north-western parts of the UK.

Groundwater:

Groundwater levels were exceptionally high across large parts of the UK in December, particularly in the East Midlands and central southern England where several boreholes saw record breaking high figures. Elsewhere, levels were generally above normal, with the exception of the Chalk aquifer of East Anglia and the Chilterns where they were below normal.

Groundwater levels across the majority of the UK over the next three months are expected to start falling from their current high levels, but are likely to remain above normal to exceptionally high with a variable spatial pattern. Some localised areas are expected to return to being within their normal range. The previously below normal groundwater levels in the Chalk of East Anglia and the Chilterns have begun to rise, and are expected to be within the normal range for the three month period January to March.

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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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.

Contact:

Hydrological Outlooks UK, UK Centre for Ecology & Hydrology, Wallingford, Oxfordshire, OX10 8BB
t: 01491 692371 e: enquiries@hydoutuk.net

Reference for the Hydrological Outlook:

Hydrological Outlook UK, 2020, 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://nfa.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/>