Hydrological Outlook UK

Period: From February 2021

Issued on 09.02.2021 using data to the end of January 2021

SUMMARY

Above normal to exceptionally high river flows are expected to persist in eastern and southern parts of the UK over the next three months. Elsewhere, river flows are likely to be within the normal range for February. Groundwater levels in northern aquifers are likely to be exceptionally high over the next three months, whilst levels in southern aquifers are likely to be normal to exceptionally high in February, and normal to notably high over the three month period February-April.

Rainfall:

Rainfall in January was slightly above average UK-wide, but fell with a very uneven distribution. The majority of England and Wales saw significantly above average rainfall, as high as 170% of average across large areas of north-eastern England, central England and East Anglia. Meanwhile, the majority of Scotland, and western parts of Northern Ireland received below average rainfall.

The rainfall outlook for February (issued by the Met Office on 25.01.21) shows the chance of wet conditions is slightly higher than the chance of dry conditions, and there is an increased likelihood of impacts from heavy rainfall. For February-March-April as a whole, there is a slightly higher-than-normal chance of dry conditions. The probability that UK-average precipitation for February-March-April will fall into the driest of five categories is around 25% and the probability that it will fall into the wettest of five categories is 15% (the 1981-2010 probability for each of these categories is 20%).

River flows:

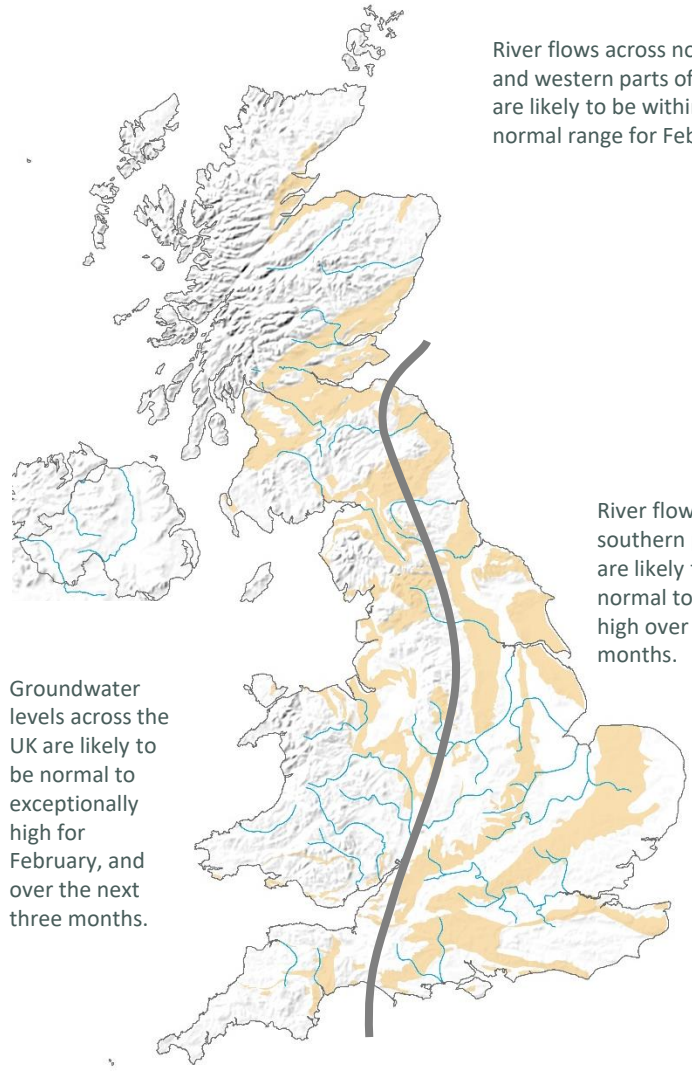
River flows in January were exceptionally high across the majority of England and Wales, with record breaking high flows seen in a large number of catchments in central England, including the Derwent and the Trent. Some river flows in parts of western England, South Wales and southern England remained within the normal range. Six month averaged flows have been above normal to notably high across the majority of England and Wales.

River flows in eastern and southern parts of the UK are expected to remain above normal to exceptionally high for February, and over the next three months, with some localised catchments expected to be within the normal range. River flows in northern and western parts of the UK are likely to be within the normal range for February.

Groundwater:

Groundwater levels in January were exceptionally high in many aquifers across England and Wales, particularly in the northern Permo-Triassic sandstone and Jurassic limestones where several boreholes reported record high groundwater levels. Levels in the southern Chalk were normal to notably high for January.

The outlook is for exceptionally high groundwater levels to persist in the Permo-Triassic sandstones, and the Devonian/Carboniferous aquifers of northern England over the next three months. Groundwater levels further south are likely to be normal to exceptionally high in February, and normal to notably high for the three month period February-April.



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

UK Centre for Ecology & Hydrology | British Geological Survey | Department for Infrastructure An Roinn Bonneagair www.infrastructure-ni.gov.uk | Environment Agency | Met Office | Cyfoeth Naturiol Cymru Natural Resources Wales | SEPA Scottish Environment Protection Agency

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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 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

Disclaimer and liability:

The Hydrological Outlook partnership aims to ensure that all Content provided is accurate and consistent with its current scientific understanding. However, the science which underlies hydrological and hydrogeological forecasts and climate projections is constantly evolving. Therefore any element of the Content which involves a forecast or a prediction should not be relied upon as though it were a statement of fact. To the fullest extent permitted by applicable law, the Hydrological Outlook Partnership excludes all warranties or representations (express or implied) in respect of the Content.

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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, February, 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/

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