

Hydrological Outlook UK

Period: From December 2013

Issued on 10.12.2013 using data to the end of November

SUMMARY

The outlook for December is for river flows to be in the normal to below normal range. Groundwater levels are likely to be normal in south-east England, but above normal in the north-west of England. The three month outlook is for this situation to persist. Winter is the critical time of year for groundwater recharge and reservoir replenishment. Whilst the current outlook suggests no immediate concern for water resources, this is dependent on meteorological forecasts which are highly uncertain. These currently suggest a slightly greater likelihood of colder, drier conditions this winter which would naturally increase the likelihood of lower flows and groundwater levels. Much of late-November and early-December has been dry and settled (with the notable exception of the very strong winds that caused major disruption and damage in early December); the persistence of such conditions further into winter could significantly alter the water resource outlook.

Rainfall:

Confidence in the forecast for precipitation across the UK over the next three months is relatively low. For the December-January-February period as a whole there is a slight signal for below average precipitation. The probability that UK precipitation for December-January-February will fall into the driest of our five categories is around 25% and the probability that it will fall into the wettest category is around 15% (the 1981-2010 probability for each of these categories is 20%).

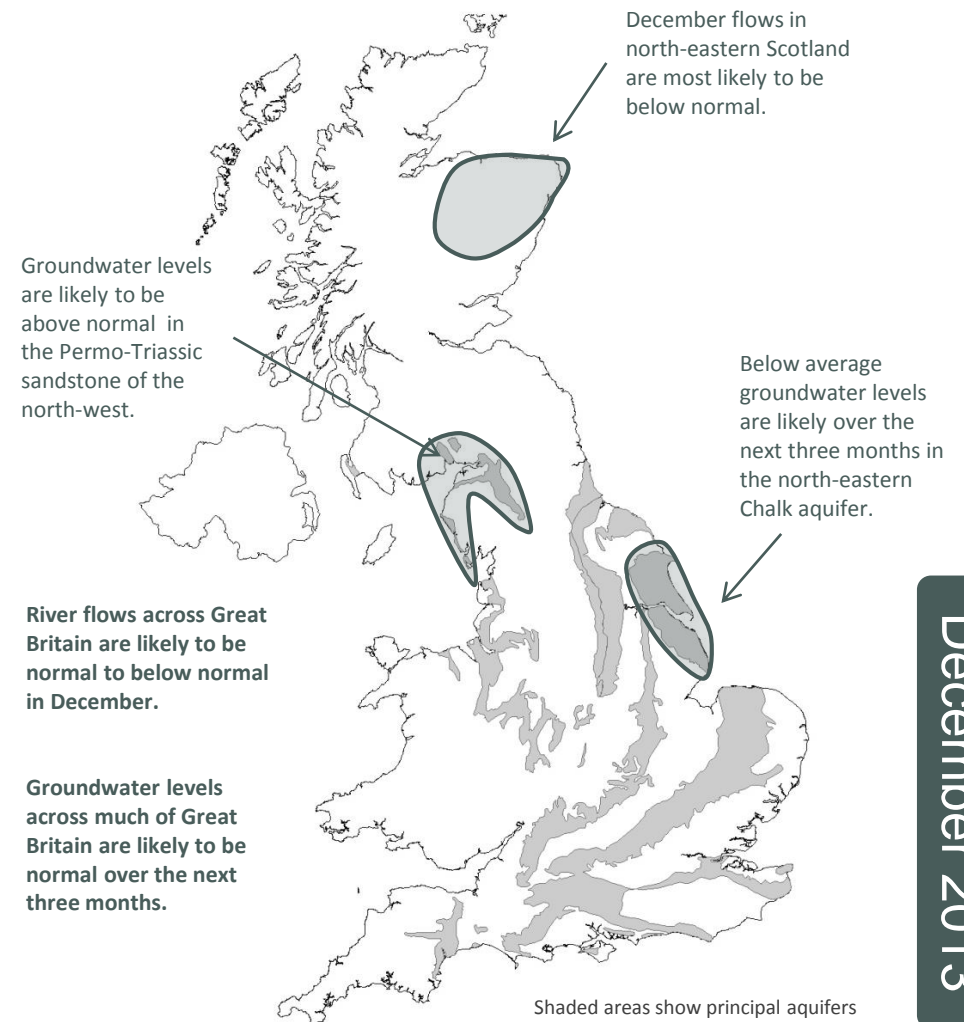
River flows:

River flows in early November were high in many catchments but declined steadily through what was largely a drier than average month, resulting in monthly flows for November that were in the normal range in a majority of UK catchments. Exceptions were the above normal flows in parts of the south-west, and below normal flows in a number of Scottish catchments. The outlook for December is suggestive of normal to below normal flows in most regions, with below normal flows being more likely in northern and western regions (particularly in north-eastern Scotland) than in the south-east. A similar pattern of normal to below normal flows extends to the three month forecast.

Groundwater:

The pattern of groundwater levels in December was similar to the previous month, with normal levels across most of the Chalk (with below normal levels in Yorkshire) and Jurassic limestone contrasting with above normal levels in the Permo-Triassic sandstone of the Midlands and north-west England. The one month outlook is suggestive of a continuation of this situation – normal levels are generally favoured across the Chalk, although below normal levels will probably occur in Yorkshire, Lincolnshire and in some boreholes in Wessex, and higher levels will probably persist in north-west England. The three month outlook is suggestive of similar patterns continuing through the winter. Groundwater recharge is at its most effective through the winter period so the long-term outlook is highly contingent on rainfall over the next three months.

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



About the Hydrological Outlook UK

About the 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 UK Met Office (UKMO), 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 UKMO. 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. More information is available from the Outlooks website:

<http://www.hydoutuk.net/methods>

Disclaimers:

This document aims to provide an indicative outlook for the water situation using the most comprehensive and up-to-date hydrological data, and modelling techniques. The Outlooks are intended to provide guidance on the likely water situation in the UK over the coming months, and should not be used in isolation, but alongside other sources of information such as flood warnings and meteorological forecasts (see links right).

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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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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:
http://www.ceh.ac.uk/data/nrfa/nhmp/monthly_hs.html

EA Water Situation Reports: provides summary of water resources status on a monthly and weekly basis for England and Wales:
<http://www.environment-agency.gov.uk/research/library/publications/33995.aspx>

Flood warnings are continually updated, and should be consulted for an up-to-date and localised assessment of flood risk:
Environment Agency: <http://www.environment-agency.gov.uk/homeandleisure/floods/31618.aspx>
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