

# The Hydrological Outlook UK

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#### Introduction

The Hydrological Outlook provides an insight into the future hydrological conditions across the UK over the next three months and beyond. It is the result of collaboration between the Natural Environment Research Council's Pritich Coological Survey (PCS) and Contro for

British Geological Survey (BGS) and Centre for Ecology & Hydrology (CEH), the Environment Agency, Met Office, Natural Resources Wales, Rivers Agency Northern Ireland, and the Scottish Environment Protection Agency. Groundwater levels and river flows, forecasted by BGS and CEH respectively, are presented on a monthly basis with reference to normal conditions.





## **1** and **3**-month outlook

- The one and three-month groundwater level outlooks are produced by running an ensemble of the Met Office seasonal forecasting model (GloSea5) projections through 25 AquiMod groundwater models developed by the BGS, which cover many of the principal UK aquifers.
- Groundwater level forecast maps corresponding to the lowest, 25th percentile, median, 75th percentile, and maximum rainfall forecast are produced.
- The groundwater levels are presented with respect to the seven categories derived based on the distribution of the historical values in a given month.



Figure 1 The Hydrological Outlook UK website.

## **12-month outlook**

- The 12-month outlook is based on monthly ensembles of historical rainfall and potential evapotranspiration sequences.
- The historical climate sequences are run through AquiMod to provide ensembles of groundwater level simulations at the 25 sites over the next 3 to 12 months.
- The probabilistic 12-month groundwater level outlook is presented as graphs showing monthly variations in the number of the ensemble members falling in each of the seven categories. The monthly variations are compared to the long-term average distribution of the groundwater levels.



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 fur description of underpinning methods, please visit the website: <u>www.hydoutuk.net</u>

#### **Figure 2** One and three-month outlook based on GloSea5 climate forecast.

This outlook is based on monthly ensembles of historical sequences of observed climate (rainfall and potential evpotranspiration) that form input to hydrological models. The outputs are probabilistic simulations of the average groundwater level over the forecast horizon (3 to 12 months ahead), at each location.

The graphs show variation over time of the number of simulated groundwater levels in each monthly ensemble,

that fall within each the seven categories: exceptionally low, notably low, below normal, normal, above normal, notably high and exceptionally high. The monthly variations can be compared to the long-term average distribution of levels, which are shown as columns on the left and right of each graph.

This outlook is based entirely on historical sequences and

therefore, this is not a forecast. It does not contain any

hence possible that some of the historical sequences used might be inconsistent with current large-scale atmospheric conditions and would therefore be unlikely to occur in the next few months.

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#### **Figure 3** Twelve-month outlook based on historic climate.

**Contact information** 

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