



Met Office 3-month Outlook

Period: January – March 2017 Issue date: 15.12.16

The forecast presented here is for January and the average of the January-February-March period for the United Kingdom as a whole. The forecast for January will be superseded by the long-range information on the public weather forecast web page (www.metoffice.gov.uk/public/weather/forecast/#?tab=regionalForecast), starting from 2 January 2016.

This forecast is based on information from observations, several numerical prediction systems and expert judgement.

SUMMARY – TEMPERATURE:

During January, signals are for only a slight shift from the normal range of expected conditions, with above-average temperatures slightly more likely than below-average temperatures. Predictions for UK-average temperature for the whole of the 3-month period (January-February-March) show above-average temperatures are more likely than below-average temperatures.

Overall, the probability that the UK-average temperature for January-February-March will fall into the coldest of our five categories is around 10% and the probability that it will fall into the warmest of our five categories is around 30% (the 1981-2010 probability for each of these categories is 20%).

CONTEXT:

Sea surface temperatures in the tropical Pacific Ocean remain below average but do not meet the threshold for La Niña conditions. This corresponds to a neutral phase of the El Niño–Southern Oscillation (ENSO) which is forecast to persist throughout the coming months. Currently, ENSO conditions imply only a very weak influence on UK weather during the outlook period.

The Quasi-Biennial Oscillation (QBO), an oscillation of the equatorial winds in the stratosphere, remains in a westerly phase. The westerly phase of the QBO tends to favour a stronger stratospheric polar vortex (SPV), leading to a higher likelihood of a positive phase of the North Atlantic Oscillation (NAO) and an increased likelihood of mild conditions across northern Europe. Latest forecasts suggest that following a very weak start to the winter the SPV will become stronger than average by the start of the outlook period.

Arctic sea ice extent remains at a record low level for the time of year, with the largest sea ice deficits in the Barents and Kara Seas. Recent research suggests that lack of sea ice, especially in the Eurasian sector, may favour a weaker polar vortex through the winter. This increases the likelihood of blocking patterns and a negative phase of the NAO.

Much of the North Atlantic continues to show above-average sea surface temperatures (SSTs). Waters near Newfoundland are warmer than average, while SSTs south east of Greenland are slightly below average. This pattern

is thought to moderately increase the probability of above-average pressure in the central North Atlantic, leading to an increased frequency of northerly or northwesterly winds over the UK. At this time of year such a pressure pattern is often associated with slightly below-average temperatures.

Overall, the factors discussed above favour a positive phase of the NAO in the 3-month period of the outlook. During January, predictions from the Met Office seasonal prediction system suggest an increased chance of a more blocked pattern over the Atlantic Ocean. This would moderate the westerly winds associated with positive NAO to a degree and create more balanced chances of above- and below-average temperatures. The left-hand graph in figure T2 shows only a slight shift, therefore, from the normal range of expected conditions.

On average over the January-February-March period, predictions show that the increased likelihood of positive NAO is expected to be accompanied by an increased chance of a high-pressure ridge to the south of the UK. The right-hand graph of figure T2 highlights an increased chance of above-normal temperatures and a decreased chance of below-normal temperatures. This outlook does not rule out the risk of cold spells and impacts from winter weather, although the chances of experiencing these are slightly less than usual.

Fig T1

3-month UK outlook for temperature in the context of the observed annual cycle

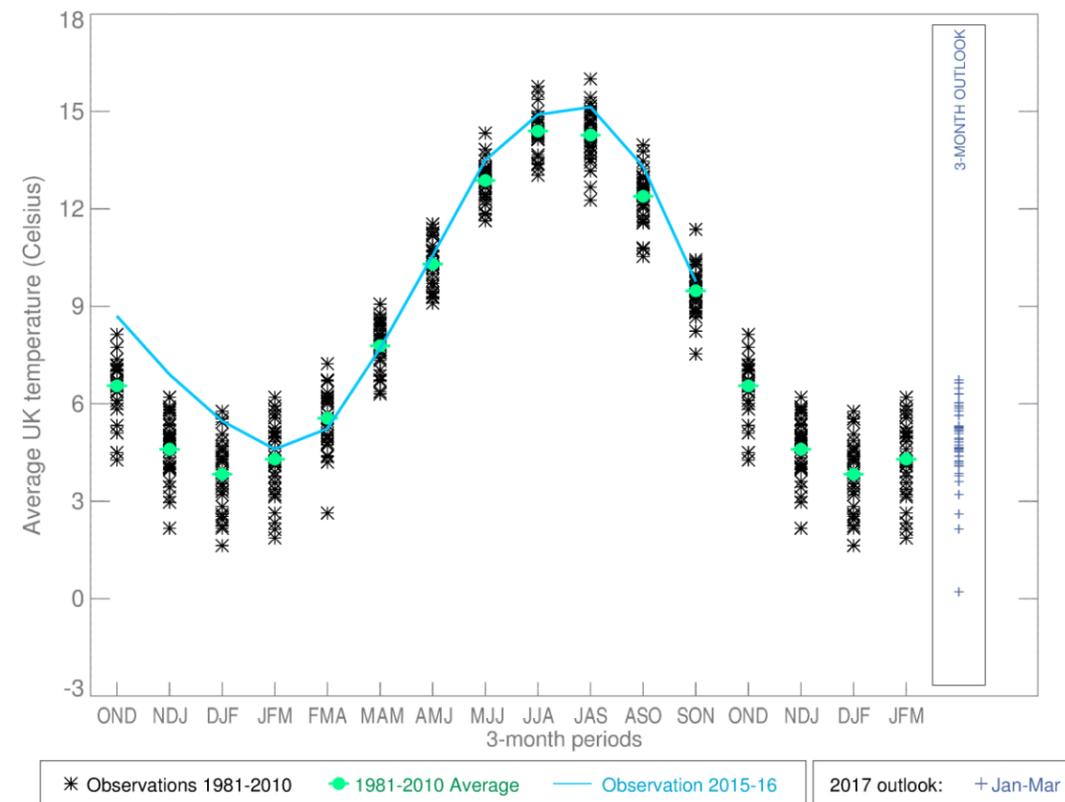


Fig T2

1-month and 3-month UK outlook for temperature in the context of observed climatology

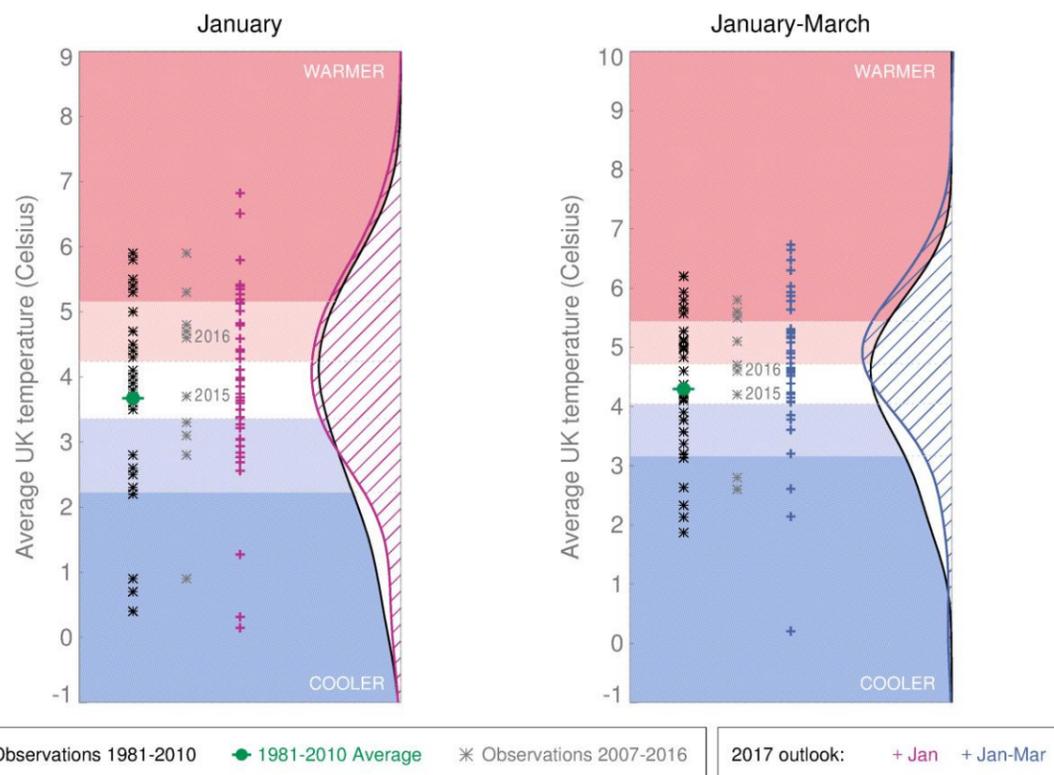
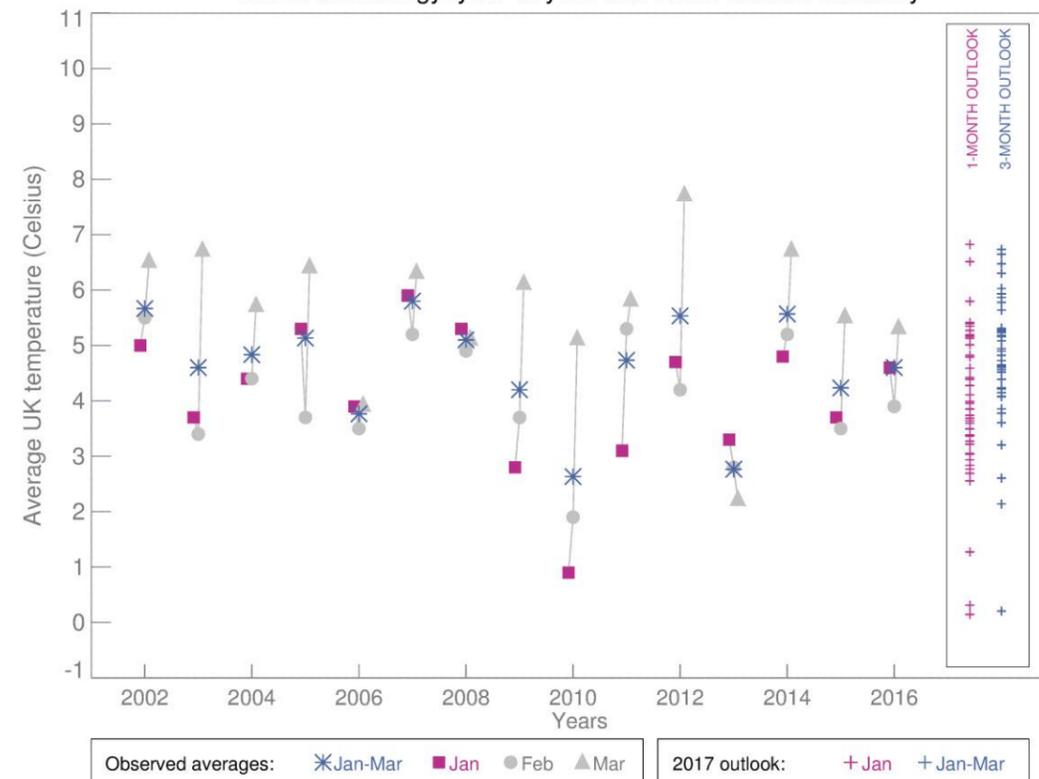


Fig T3

1-month and 3-month UK outlook for temperature in the context of recent climatology: year-to-year and within-season variability



This Outlook provides an indication of possible temperature and rainfall conditions over the next 3 months. It is part of a suite of forecasts designed for contingency planners.

The Outlook should not be used in isolation but should be used with shorter-range and more detailed (30-day, 15-day and 1-to-5-day) forecasts and warnings available to the contingency planning community from the Met Office.