Met Office 3-month Outlook

Period: January - March 2015 Issue date: 18.12.14

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 The forecast for January will be superseded by the long-range information on the public weather forecast web page (www.metoffice.gov.uk/public/weather/forecast/#?tab=regionalForecast), starting from 29 December 2014.

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

SUMMARY - TEMPERATURE:

For January near- to below-average temperatures are more probable than above-average, although there is a large degree of uncertainty.
For January-February-March, predictability is low and the forecast does not differ significantly from climatology, with above-average and below-average temperatures equally probable.

Overall, the probability that the UK-mean temperature for January-February-March will fall into either of the warmest or coldest of our five categories is between 15% and 20% (the 1981-2010 probability for each of these categories is 20%).

CONTEXT:

The tropical Pacific Ocean remains warmer than average, with sea surface temperatures exceeding El Niño thresholds for several weeks and the Southern Oscillation index (SOI), a measure of the pressure difference between Darwin and Tahiti, is negative. These two factors point towards El Niño conditions being already established. However other atmospheric indicators, such as trade winds, cloudiness and tropical rainfall, have yet to show sustained and widespread patterns consistent with El Niño. Additionally sea surface temperatures in the western Pacific remain warmer than usual, with the west to east temperature gradient normally associated with El Niño not yet established. Latest forecasts suggest little change to the current situation in the coming months, with the influence on weather patterns in Europe unlikely to be significant.

In the Arctic, sea ice extent is close to average across the basin and is larger, at this point in time, than in the last few years. This factor is not expected to offer any useful predictability for Europe in the next three months.

The Quasi-Biennial Oscillation (QBO), an oscillation of the equatorial zonal wind in the stratosphere, is now firmly in an easterly phase. Typically, at this time of year, an easterly phase is associated with a weaker polar vortex. A weaker polar vortex can lead to a greater incidence of blocking patterns over the northern hemisphere, which would increase the probability of cold weather across northern Europe.

For January, there is a reasonably strong signal, from several models, for the strong positive North Atlantic Oscillation (NAO) phase, which has dominated the winter so far, to wane. This weakening of the westerly winds across the Atlantic leads to an increased chance of cold, blocking patterns developing across northwestern Europe, compared to earlier in the winter. However, this does not mean that a prolonged spell of cold weather is necessarily expected in the UK; indeed looking at the left hand curve in figure T2, there is only a slight shift to colder than average conditions and the chance of a severe spell of cold weather is similar to climatology.

For January-February-March as a whole, computer models begin to diverge; consequently no clear signals emerge and predictability is considered low. Additionally, apart from the QBO, most external forcing factors are weak. Overall, while there is no strong signal for cold weather, there is also little evidence to suggest a very mild season, as experienced last year. The right hand curve in figure T2 reflects this, being similar to climatology. Nevertheless, short spells of cold weather are still possible, with current predictions suggesting these are more likely to occur than last year.

Fig T1

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

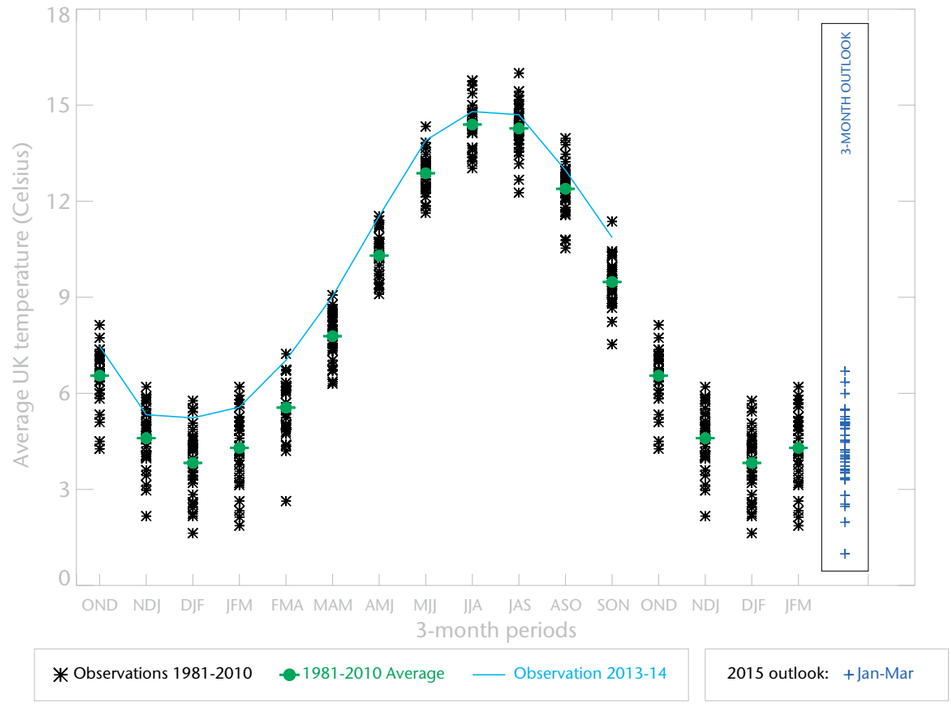


Fig T2

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

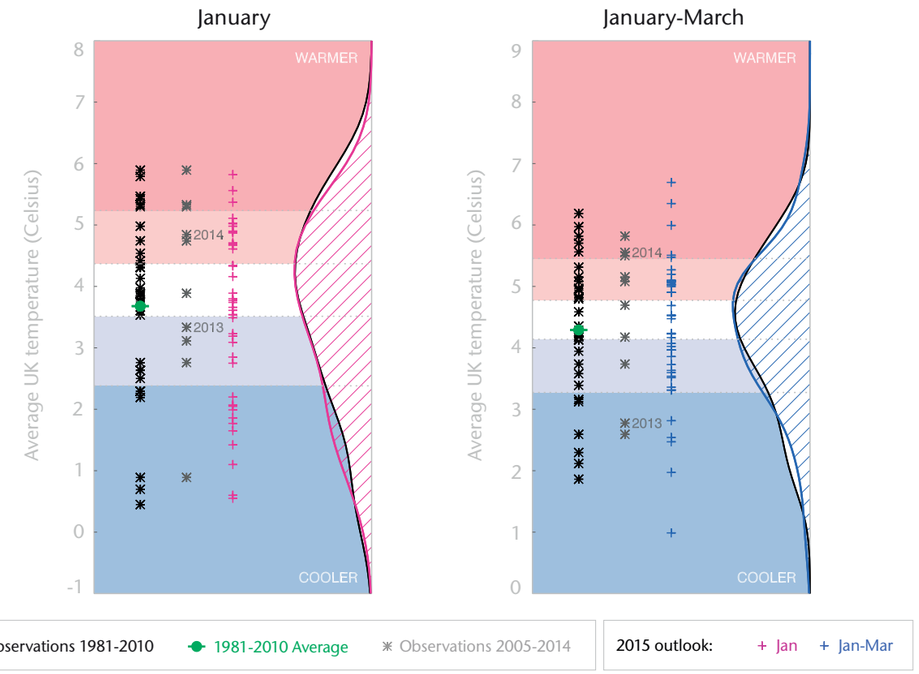
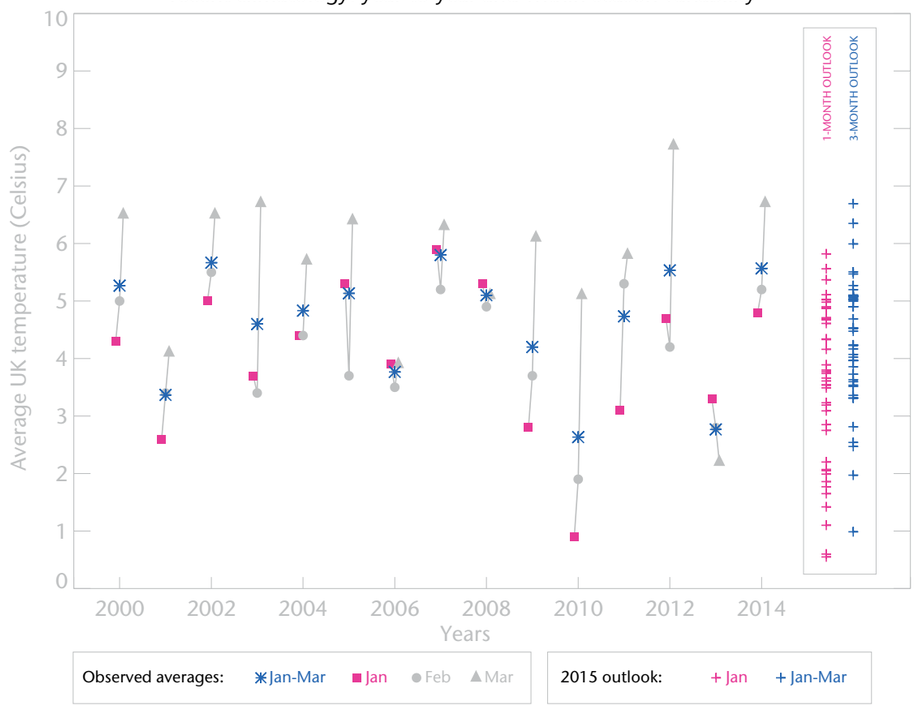


Fig T3

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.