

Met Office 3-month Outlook

Period: October - December 2015 Issue date: 24.09.15

The forecast presented here is for October and the average of the October-November-December period for the United Kingdom as a whole. The forecast for October will be superseded by the long-range information on the public weather forecast web page (www.metoffice.gov.uk/public/weather/forecast/#?tab=regionalForecast), starting from 2 October 2015.

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

SUMMARY - TEMPERATURE:

For October uncertainty is large, with both below-average and above-average temperatures equally probable. For October-November-December as a whole above-average temperatures are slightly more probable than below-average.

Overall, the probability that the UK-mean temperature for October-November-December will fall into the coldest of our five categories is between 15% and 20% and the probability that it will fall into the warmest of our five categories is around 25% (the 1981-2010 probability for each of these categories is 20%).

CONTEXT:

El Niño continues to strengthen with sea surface temperatures in the tropical Pacific Ocean (east of the International Date Line) rising further in the past month. Seasonal prediction systems suggest that sea surface temperatures will continue to slowly rise and remain well above El Niño thresholds for the rest of the year. This event is already stronger than any since 1997-98 and is very likely to rank amongst the strongest events in the historical record. In terms of influence on the weather across the UK, such an event slightly increases the probability of the positive phase of the North Atlantic Oscillation (NAO) in late autumn and early winter. The positive phase of NAO, at this time of year, is associated with milder- and wetter-than-average weather.

The Quasi-Biennial Oscillation (QBO), an oscillation of the equatorial winds in the stratosphere, has recently changed to a strong westerly phase. The QBO has a link to conditions over Western Europe during late autumn and early winter by influencing the strength of the stratospheric polar vortex and thereby the phase of the NAO at the surface. A westerly phase of the QBO tends to favour a stronger stratospheric polar vortex, leading to a higher likelihood of a positive phase of the NAO.

North Atlantic sea-surface temperatures continue to show a strong pattern of cooler-than-average conditions in mid-latitudes (north of approximately 40°N) and warmer-than-average conditions further south. While the presence of relatively cool ocean conditions near the UK is expected to moderate temperatures a certain amount, the pattern of North Atlantic temperatures has

some similarity to the so-called ‘Atlantic Tripole’ pattern associated with an increased chance of positive NAO.

The Met Office seasonal prediction system shows reasonably good agreement with systems from other global forecast centres in favouring higher-than-average pressure near or just to the south of the UK during October. However, these signals, whilst similar, are weak. This uncertainty in the atmospheric circulation pattern leads to a temperature forecast where there is a broad range of possible outcomes, with probabilities of above- and below-average almost equal – see left hand graph in figure T2.

For October–November–December, the factors described above suggesting an increased likelihood of positive NAO, are reflected in the predictions of the Met Office seasonal prediction system. Predictions from other forecast centres almost all show a similar tendency. This suggests above-average temperatures are more likely than below-average, although the coolness in the North Atlantic tempers this prediction to some extent. As a result, the increase in the likelihood of milder-than-average conditions, and decrease in the likelihood of cooler-than-average conditions, is moderate. This does not preclude occasional spells of colder weather, but these are less probable than is typical at this time of year. The right-hand graph of Figure T2 shows a shift towards milder conditions, with a reduced probability of below-average temperatures and an increased probability of above-average temperatures.

Fig T1

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

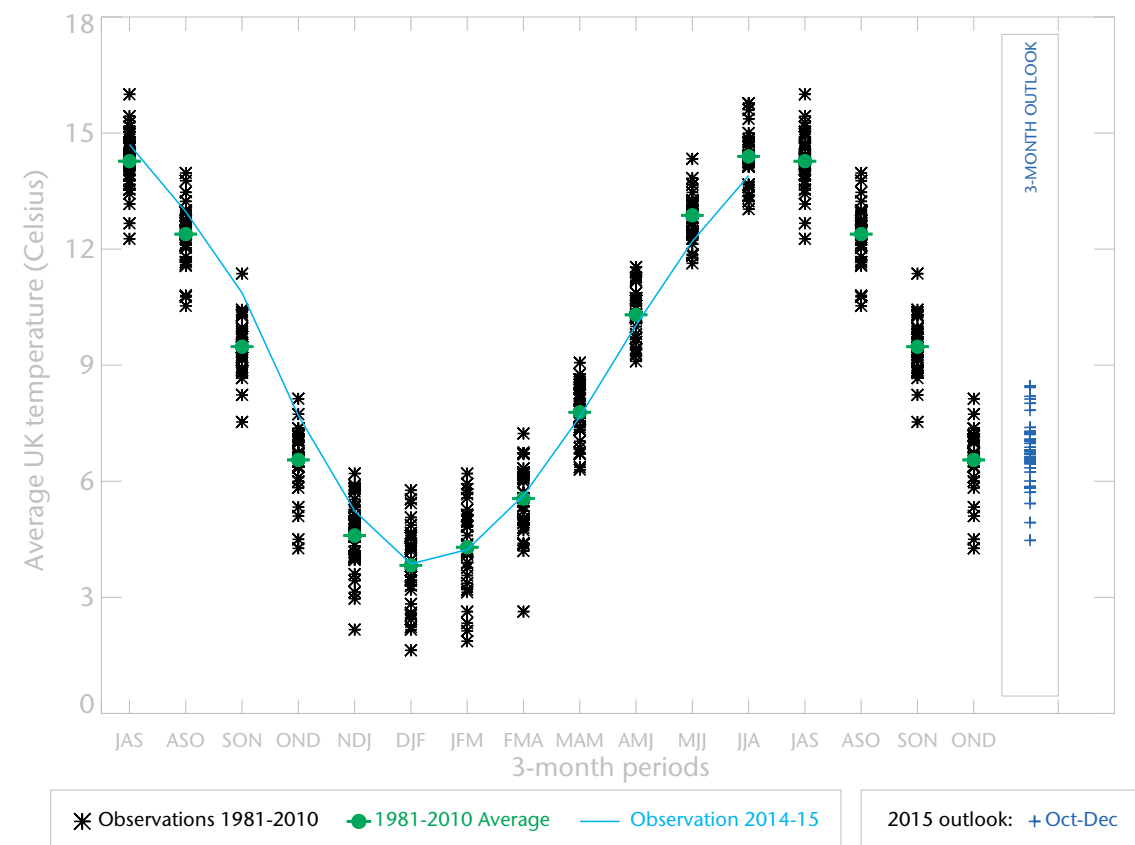


Fig T2

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

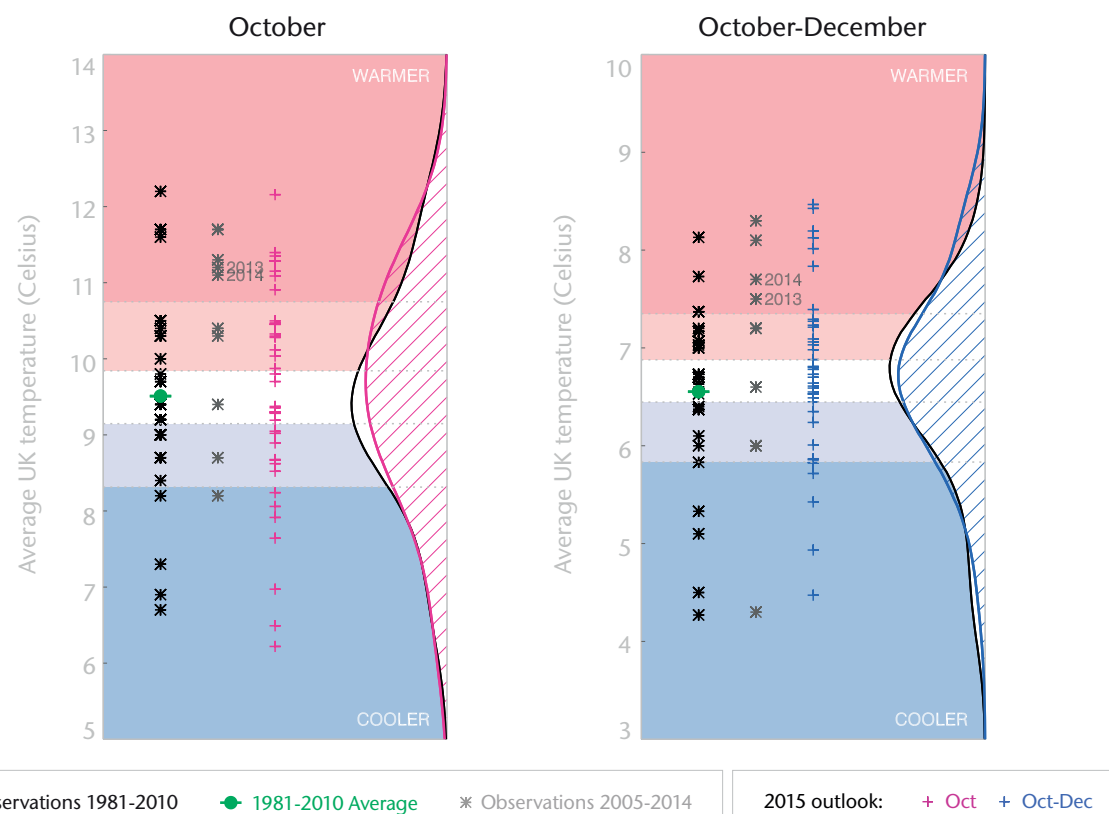
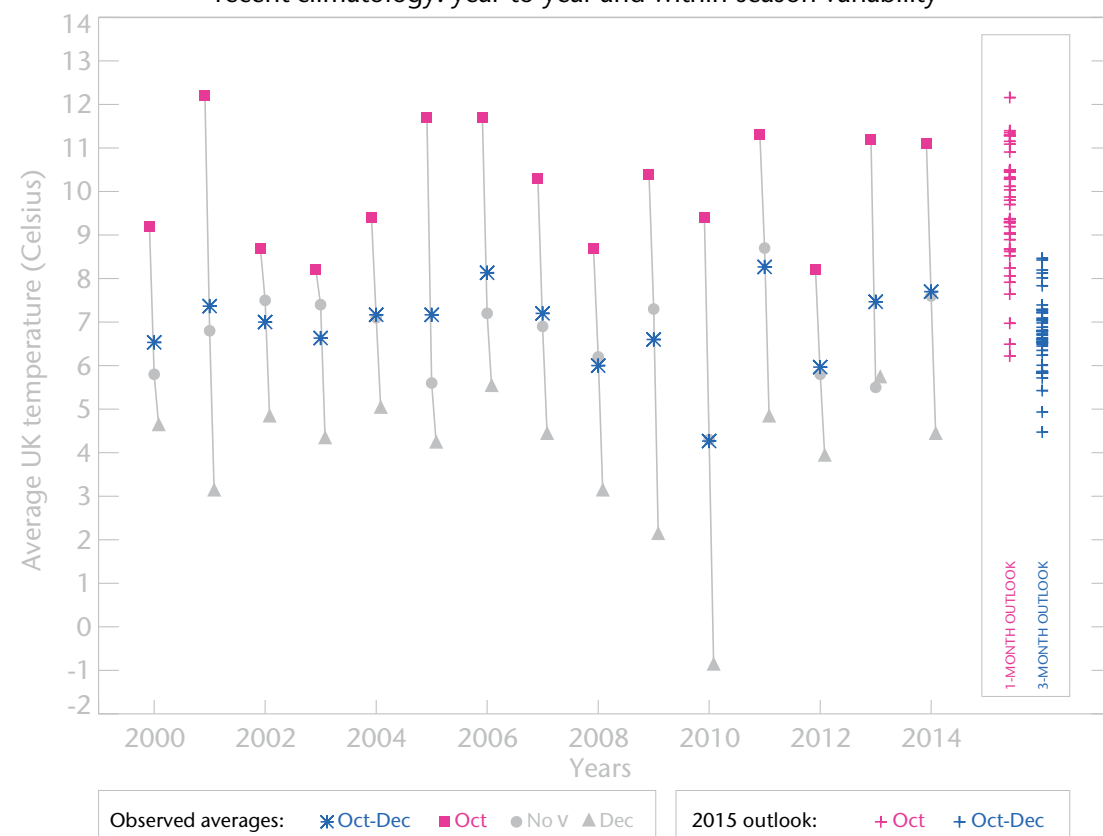


Fig T3

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.