



Met Office

Met Office 3-month Outlook

Period: January 2016 - March 2016 Issue date: 17.12.15

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 The forecast for January will be superseded by the long-range information on the public weather forecast web page (www.metoffice.gov.uk/public/weather/forecast/#?tab=regionalForecast), starting from 29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 2015.

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

SUMMARY - TEMPERATURE:

During January above-average temperatures are considered more likely than below-average temperatures. The likelihood of a prolonged spell of cold weather is relatively low compared to normal.

Predictions for UK-mean temperature for the whole of the period (January-February-March) are generally within the normal range of expected conditions. However in this instance, there are reasons to believe that this unexceptional outlook conceals an increased risk of a change from a milder start to colder conditions later on. These different phases tend to balance the probability of above- and below-average conditions in the overall 3-month average but there is a greater risk of a transition to cold weather impacts later in the period.

Overall, the probability that the UK-average temperature for January-February-March will fall into the coldest of our five categories is between 20 and 25% and the probability that it will fall into the warmest of our five categories is around 20% (the 1981-2010 probability for each of these categories is 20%). As stated above, the January-February-March statistics disguise a shift in probabilities as winter progresses.

CONTEXT:

A strong, mature El Niño event continues in the tropical Pacific Ocean and is currently at its peak. This El Niño is comparable in strength to the 1997-98 and 1982-83 events and is highly likely to rank among the strongest on record.

El Niño is already creating wide-ranging weather impacts across the globe. The influence on UK weather, however, is more subtle. El Niño moderately increases the probability of the positive phase of the North Atlantic Oscillation (NAO) in early winter. At this time of year, the positive phase of the NAO is associated with milder- and wetter-than-average conditions, whilst the negative phase is associated with colder- and drier-than-average conditions. In late winter El Niño increases the probability of sudden stratospheric warming events occurring. These events disrupt the stratospheric polar vortex and, more often than not, bring cold weather to the UK.

The Quasi-Biennial Oscillation (QBO), an oscillation of the equatorial winds in the stratosphere, remains in a strong westerly phase. The QBO influences winter conditions over Western Europe by modulating the strength of the stratospheric polar vortex and thereby the phase of the NAO at the surface. The 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. This effect is primarily seen in the early winter but its influence will gradually diminish during this outlook period.

During January, the factors described above suggest a continuing likelihood of positive NAO. This has consistent support from predictions by the Met Office seasonal prediction system along with systems from other global forecast centres. The left-hand graph in figure T2 shows a clear shift towards milder conditions. Although milder than average conditions are expected overall, this does not preclude temporary incursions of colder weather.

At the start of the 3-month period, milder-than-average conditions are more likely than colder-than-average. However later in the period, particularly from February onwards several seasonal forecasting systems, including the Met Office system, are in good agreement in suggesting a shift towards more blocked weather patterns; these patterns increase the chance of cold northerly or easterly winds affecting the UK.

The right-hand graph of figure T2 shows little change in the probability of warm and cold outcomes relative to normal. However this does not tell the whole story and later in the period the probability of colder-than-average conditions is higher. The greatest risk of cold weather impacts, such as snow, is therefore in February and March.

Fig T1

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

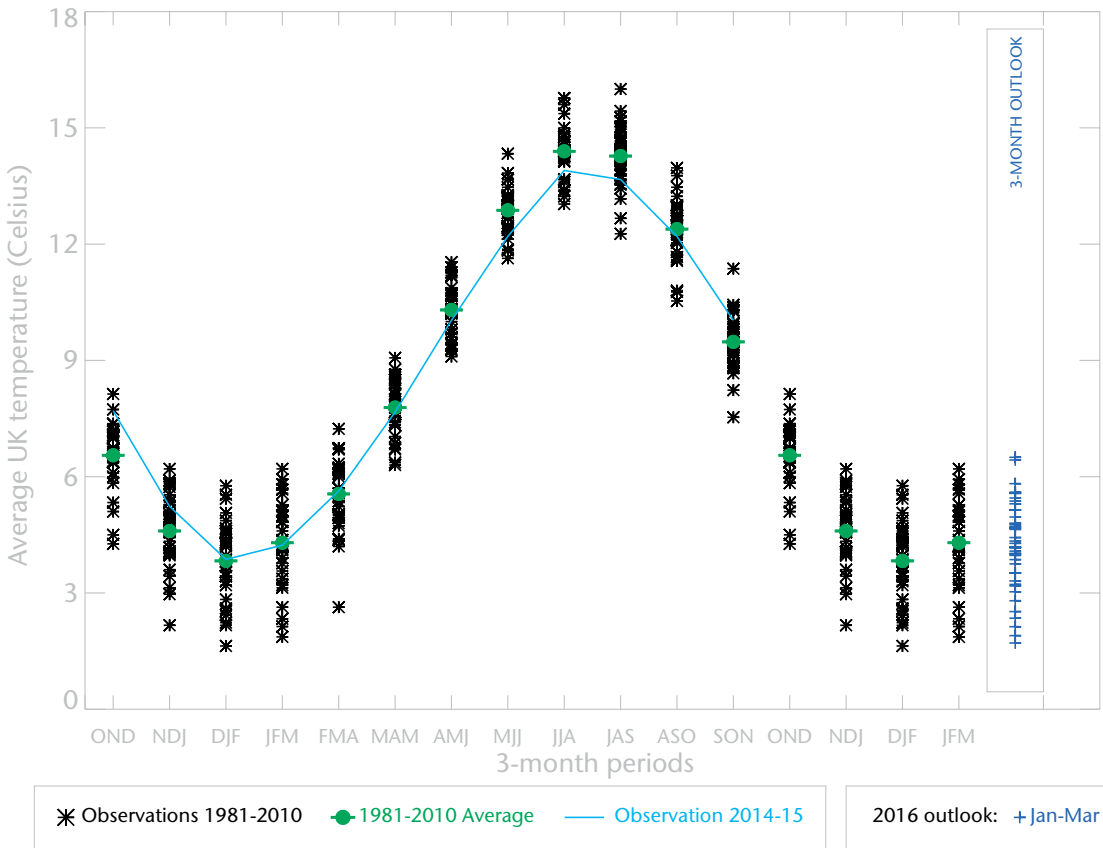


Fig T2

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

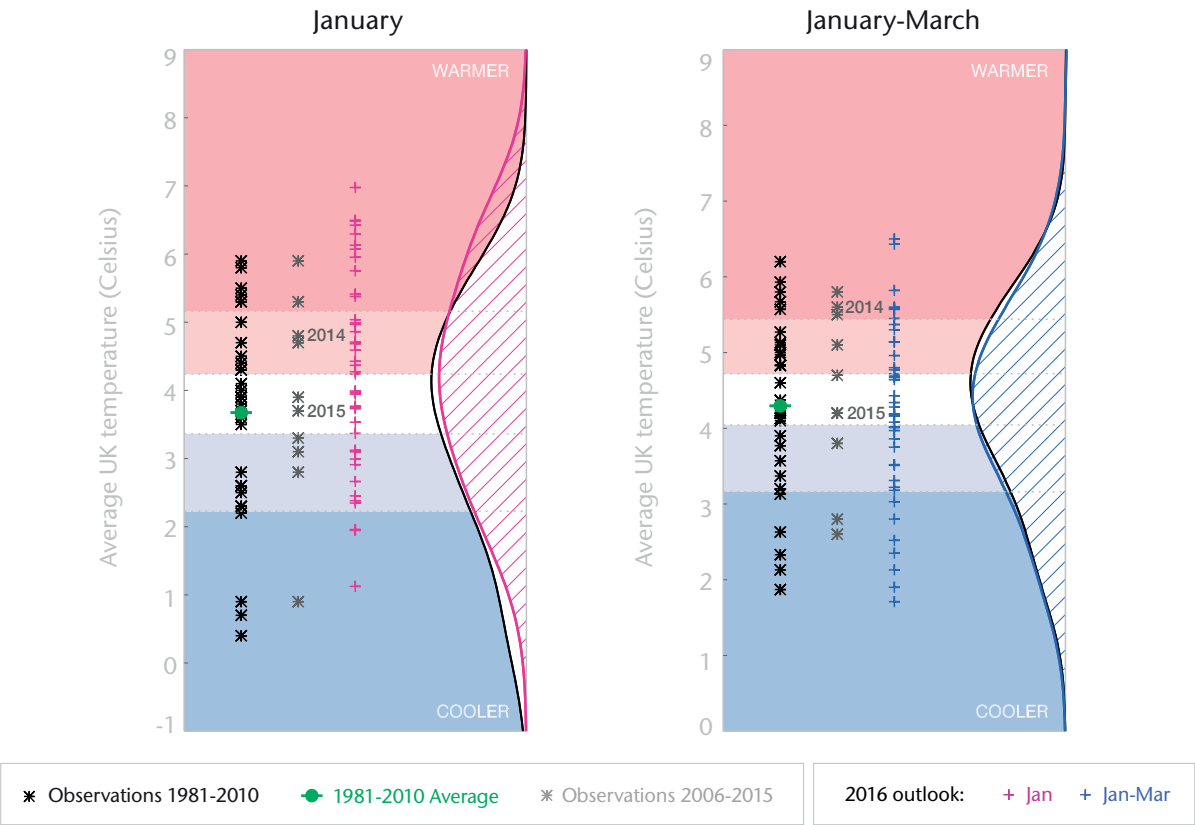
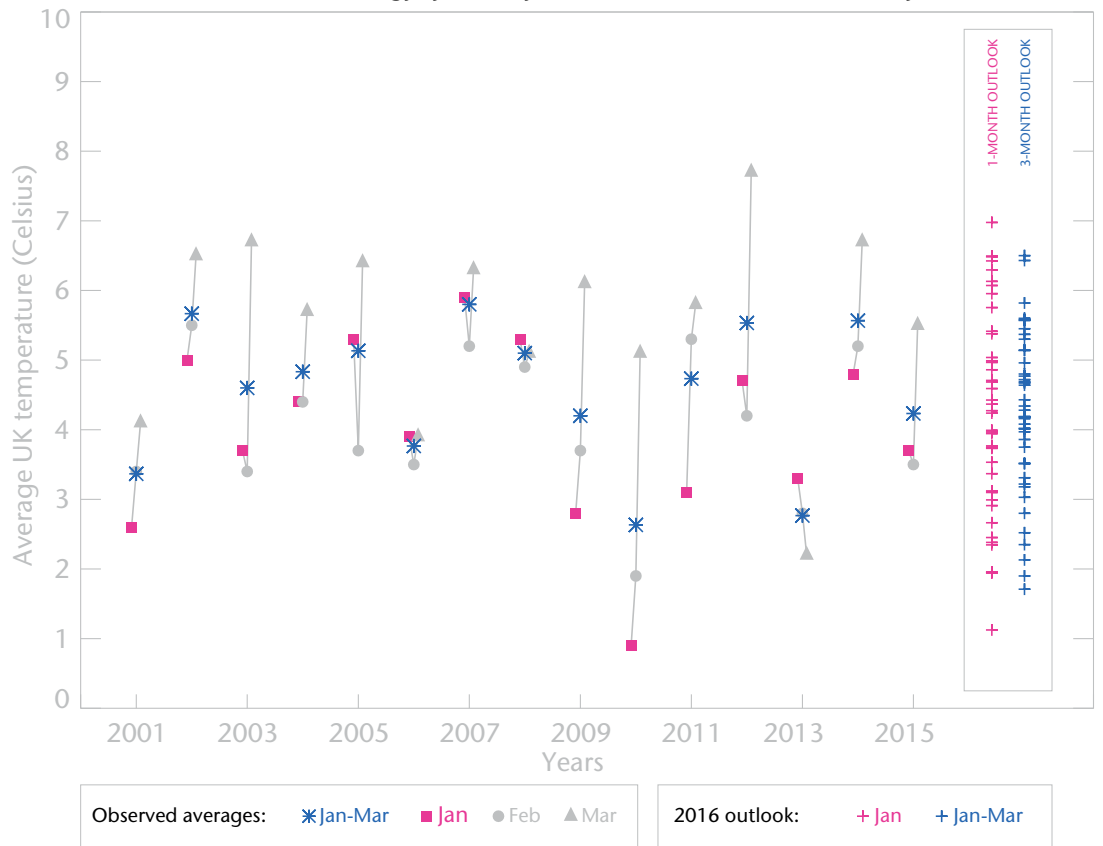


Fig T3

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.