Met Office 3-month Outlook

Period: January – March 2019   Issue date: 14.12.18

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 The forecast for January will be superseded by the long-range information on the public weather forecast web page (www.metoffice.gov.uk/ public/weather/ forecast/#?tab=regionalForecast), starting from 2nd January 2018.

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

SUMMARY – TEMPERATURE:

For January and January-February-March as a whole, below-average temperatures are more likely than above-average temperatures. The likelihood of impacts from cold weather is greater than normal.

Overall, the probability that the UK-average temperature for January-February-March will fall into the coldest of our five categories is between 30% and 35%, and the probability that it will fall into the warmest of our five categories is between 10% and 15% (the 1981-2010 probability for each of these categories is 20%).

CONTEXT:

A moderate El Niño event is likely over the coming months. This increases the likelihood of the negative phase of the North Atlantic Oscillation (NAO), implying an increased chance of colder-than-average conditions.

The Madden-Julian Oscillation (MJO) is an area of enhanced thundery activity that moves eastwards through the tropics over a period of several weeks. It has recently been active and is forecast to enter a phase that often leads to negative NAO. This implies an increased chance of lower-than-average temperatures in early- to mid-January.

The stratospheric polar vortex (SPV) has recently weakened. It is influenced by various factors, including the sun, which is approaching a minimum in its 11-year cycle of activity. This increases the likelihood of a weak stratospheric circulation in late winter. On the other hand, the westerly phase of the Quasi-Biennial Oscillation (QBO) of the equatorial winds in the stratosphere tends to favour a stronger SPV. In spite of this, long-range forecasting systems are confidently predicting further weakening of the SPV over the coming weeks, possibly cumulating in a sudden stratospheric warming event (SSW) in late December or early January. These events disrupt the SPV and substantially increase the chances of a negative phase of the NAO, implying colder-than-normal conditions during the outlook period.

For both January and January-February-March overall, the Met Office long-range prediction system, alongside systems from other prediction centres, shows an increase in the likelihood of negative NAO consistent with these global influences. Consequently, the probability of below-normal temperatures is increased compared to normal (see figure T2). The chances of disruptive cold weather, such as snow, are also higher than usual.
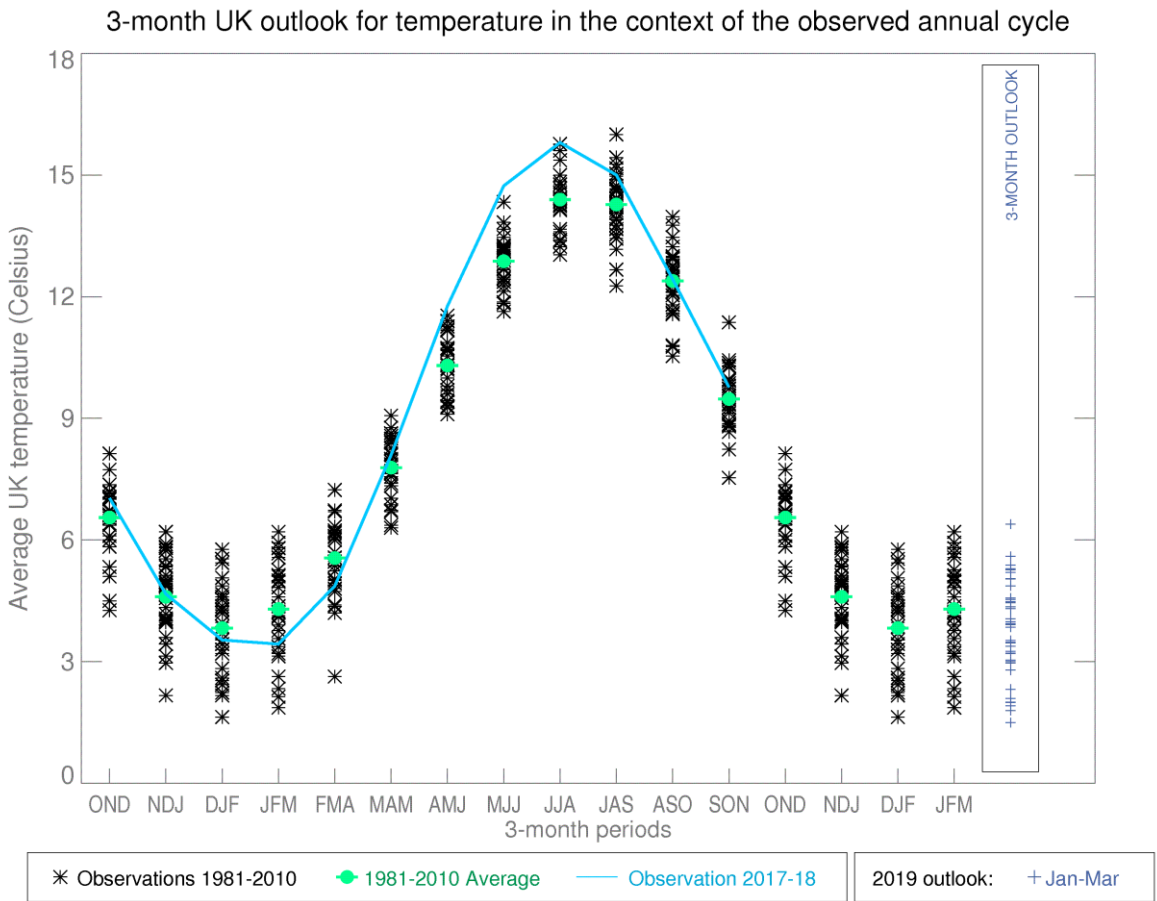
Fig T1

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

Observations 1981-2010   1981-2010 Average   Observation 2017-18   2019 outlook: + Jan-Mar

Fig T2

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

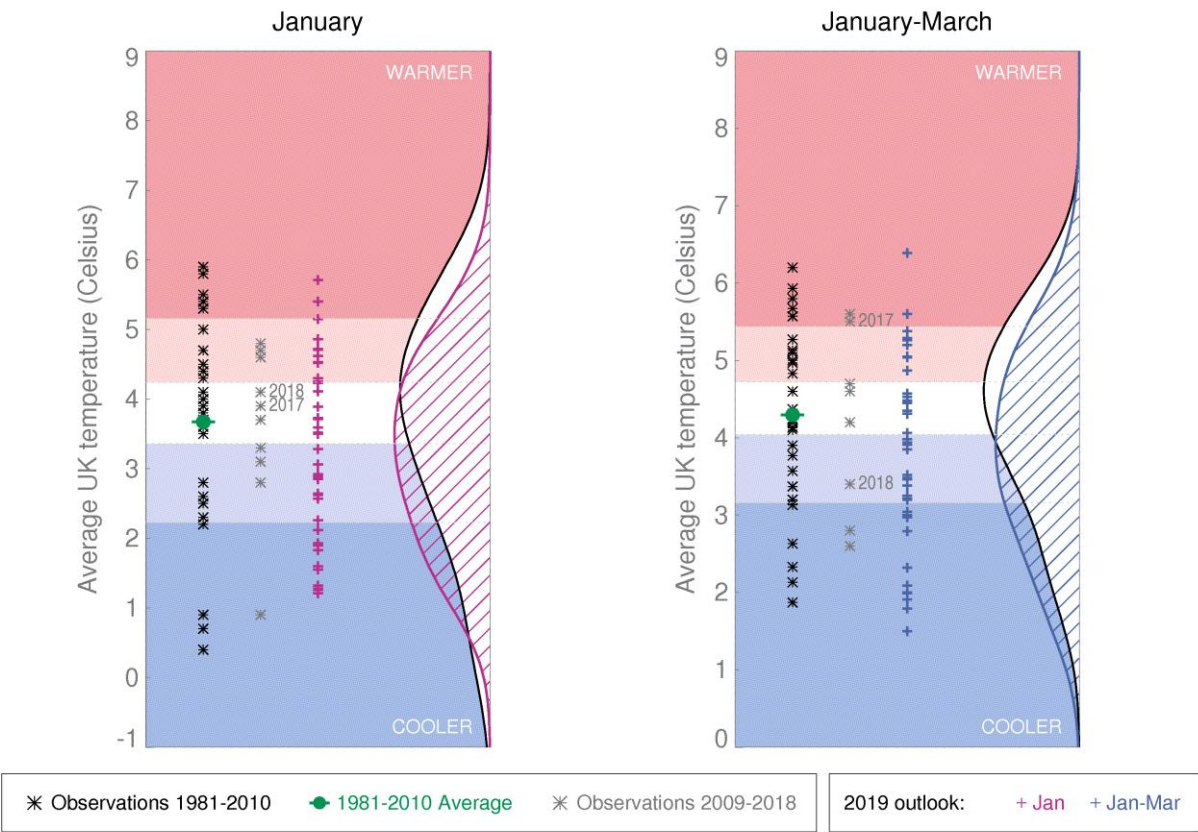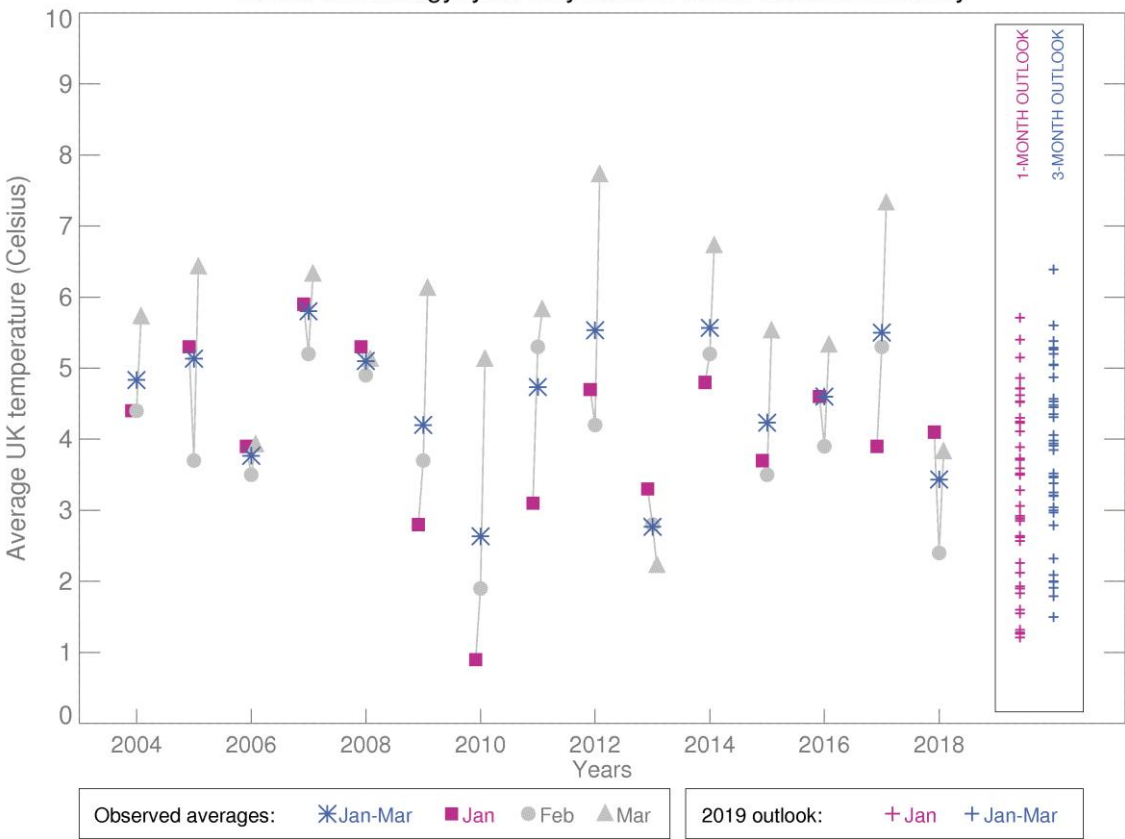Observations 1981-2010   1981-2010 Average   Observations 2009-2018   2019 outlook: + Jan   + Jan-Mar

Fig T3

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

Observed averages: Jan-Mar   Jan   Feb   Mar   2019 outlook: + Jan   + Jan-Mar

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-7-day) forecasts and warnings available to the contingency planning community from the Met Office.