

SUMMARY ASSESSMENT OF SEASONAL FORECASTS FOR EUROPE

JANUARY, FEBRUARY, AND MARCH 2025



Executive Summary

There are indications, particularly from seasonal forecast models, of an enhanced likelihood of dry and calm conditions across southern Europe and wet and windy conditions across Scandinavia over the period January to March 2025. Although the majority of the available forecast models suggest an enhanced likelihood of above average westerly winds across northern Europe, there is no dominant signal for precipitation for the region.

Storm Events

In terms of numbers of notable European weather events¹, there were an around or above average number in previous years in which the climate set-up was similar to this year.

Westerly Winds

There is general agreement between the seasonal forecast models and climate signals for an enhanced likelihood of below normal westerly winds across southern Europe and above normal westerly winds across Scandinavia. The majority of seasonal forecast models suggest an increased likelihood of above normal westerly winds across northern Europe; however, around a third are without a dominant signal.

Precipitation

Seasonal forecast models and climate signals are consistent in suggesting an enhanced likelihood of below normal precipitation across southern Europe and above normal precipitation across Scandinavia. There is no dominant signal for precipitation for northern Europe.

Temperature

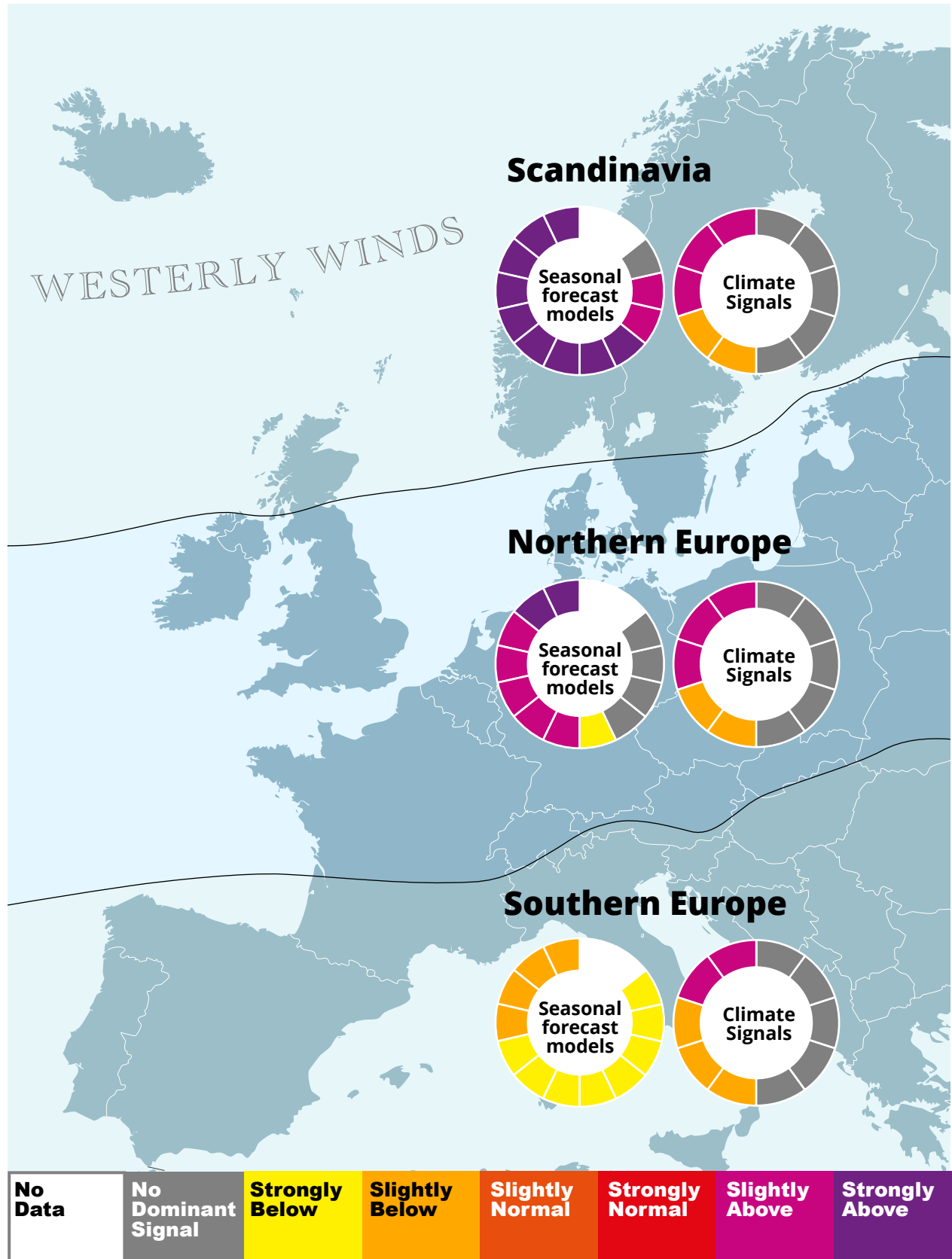
Temperatures are most likely to be warmer than the long-term climatological norm across Europe.

This report is an assessment of the potential weather conditions across Europe during January – March 2025. This is the last issue of the EuroTempest Seasonal Forecast Assessment for the 2024-2025 season.

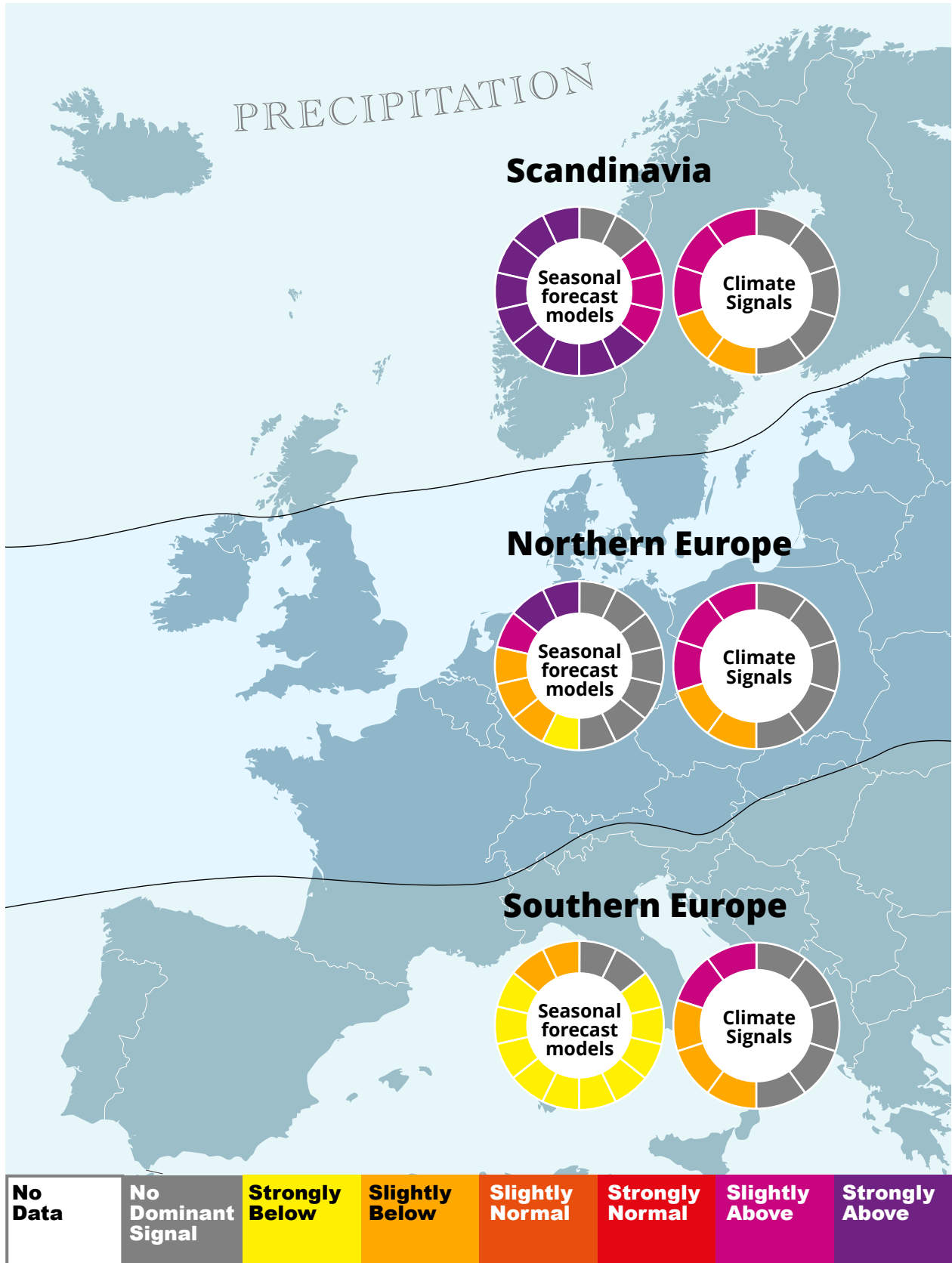
For more information about how this report is compiled, please see the EuroTempest [Seasonal Forecast Assessment Supplementary Information](#).

¹ a “notable” European weather event is defined as one that appears in the XWS European Windstorm Catalogue (XWS Datasets: © Copyright Met Office, University of Reading and University of Exeter) and/or is identified by PERILS AG as a qualifying event.

Assessment Summary – Westerly Winds
January, February, and March 2025



**Assessment Summary – Precipitation
January, February, and March 2025**



Extended Outlook

The following forecast is based on both the output of numerical weather prediction models and climate signals with a shorter-term influence.

Rest of This Month

Cold conditions are expected across northern Europe and Scandinavia through this week, as a ridge of high pressure develops across western Europe, leading to more settled conditions and a northerly flow bringing colder temperatures and wintry showers. However, it is still possible for some wet and windy spells to be interspersed with the cold conditions. In southern Europe, a westerly flow is expected to bring milder temperatures and wet conditions through this week.

There are no strong signals that any particular weather pattern will dominate from the middle of January. There are some indications that high pressure is likely to develop over northern Europe during this period, which may bring more settled conditions to northern Europe and Scandinavia. However, there is significant uncertainty in the position of this high pressure and some wet and windy interludes remain likely across these regions. Southern Europe may also see drier and calmer conditions in the second half of January, again depending on the position and strength of this high pressure, and with some wet and windy interludes likely at times. Milder temperatures are likely to develop from mid-January across much of Europe, with temperatures generally above average for the time of year across the continent. Nevertheless, some colder interludes and wintry showers are likely at times, particularly in northern regions.

Into Next Month

There are few dominant signals that suggest any particular outcome into February, although there are some indications from long range forecast models of wetter and windier conditions across Scandinavia, northern Europe, and south-west Europe and drier calmer conditions in south-east Europe. There are also indications of warmer than average temperatures across the continent.

Seasonal Forecast Assessment

Seasonal Forecast Models Summary

While there are some differences between the seasonal forecast models, they are generally consistent in suggesting an enhanced likelihood of drier and calmer than normal conditions across southern Europe and wetter and windier than normal conditions across Scandinavia for January to March 2025 (JFM). There are, however, differences between the models in the region in-between, which depends on where they resolve the dividing line between these two regimes.

Although the majority of models suggest enhanced probabilities of stronger than usual westerly winds across northern Europe, around a third of models show no dominant signal for the region. In terms of precipitation across northern Europe, about half the models show no dominant signal. Of the rest, there is a split between models with an enhanced probability of below average precipitation suggested by some and others of above average precipitation by others.

The seasonal forecast models suggest that a warmer than normal three months is more likely than a normal or cold period across Europe. It should be noted that seasonal forecast models determine "normal" conditions using historical observations, generally from over the last 30 years or so. The generally increasing trend of warmer conditions associated with climate change makes it more likely that temperatures now will exceed these historical norms. Temperatures this JFM period that are colder than those that Europe has experienced within the last few years could still be above normal by this definition.

Climate Signals

In terms of its influence on European weather for the next three months (JFM) the current westerly phase of the QBO tends to increase the likelihood of wet and stormy weather across northern Europe and Scandinavia (and the opposite across southern Europe). The current state of ENSO is cold-neutral. A weak La Niña phase could potentially develop at some time through the next three months, but currently cold-neutral conditions are most likely through JFM. Under La Niña conditions, there is an increased likelihood of warm, wet, and windy conditions across northern Europe and Scandinavia; however, as it is only likely to be a weak La Niña if it develops at all, it is likely that the signal will be weak through the next three months.

When Eurasian snow cover through November is above average this increases the likelihood of blocking conditions and calm, cold, and dry conditions across Europe. This signal is further enhanced when Arctic sea ice extent is below average. Both the Eurasian snow cover and Arctic sea ice extent for November this year were slightly below average, which suggests that there is no increased likelihood of blocking events and cold conditions across Europe through JFM.

Looking at the shorter-term climate signals for January, both the North Atlantic Oscillation (NAO) and Arctic Oscillation (AO) are initially aligned in a negative phase which increases the likelihood of cold, calm, and dry conditions for northern Europe and Scandinavia and the opposite for southern Europe. Later on, towards the middle of January, the AO is likely to enter a positive phase which would increase the likelihood of wet, warm, and windy conditions across northern Europe and Scandinavia and the opposite for southern Europe. These two signals would then be in competing phases, making the outcomes for Europe difficult to predict. The Madden-Julian Oscillation (MJO) is not likely to be in a phase that affects European weather over the next month or so.



Historical Analogues

Possible characteristics of upcoming months can be investigated by looking at previous years in which there was a similar climatic set up.

There are two years in the last 30 in which the broader climate at the end of December matches the conditions at the end of this last December, that is, was in a cold-neutral ENSO state and had a westerly QBO (2013 and 2016). There is one year in which the QBO state matches this year but the ENSO state is moderate La Niña rather than neutral (2008). The ENSO forecast now suggests that while it is possible that La Niña conditions may develop over the next three months, cold-neutral conditions are most likely. None of the three analogue years match this trend particularly closely, but arguably the closest is 2013 as it was neutral through December and January.

Although there were broad similarities between these years in terms of climatic set up, the outcomes across the years are not consistent. In terms of “notable” weather events during the subsequent JFM following the December of the three analogue years: although 2014 was very active during JFM (e.g., there were eleven events during that time that were investigated by PERILS) there was only one storm that met the threshold for a notable weather event. In 2017 three events met the threshold to be classed as notable (out of five events investigated by PERILS) and in 2009 one met this threshold out of only two events investigated. In summary, we have the following outcomes: one year in which there were a large number of events, but a low number of which were notable, another year in which there were fewer events overall but a greater number of notable events, and finally one year in which the number of events was around average.

The strength of the westerly winds across the analogue years was also not consistent: JFM 2014 had above average winds offshore in the Atlantic, which then extended into Iberia and parts of the UK, Ireland and France, with below average winds across Scandinavia. In contrast JFM 2017 had above average wind across the north of Scandinavia and below average winds across parts of the UK, Ireland, and southern Europe. In JFM 2009 there were below average westerly winds across Norway and Sweden, but above average across parts of the UK and the far south of Europe. The area in which there were above average winds in 2014 (the Atlantic offshore from Iberia and France) had below average westerly winds in 2009.

The patterns of precipitation and temperature were, nevertheless, similar to each other in each year. Precipitation and temperature in JFM 2014 and 2017 were both above normal across much of Europe, but in 2014 this was particularly the case in the south-east, and in 2017 in the north-west. In 2009 there was an east/west split, with below normal precipitation and temperature across western Europe and above normal across the far east of Europe.

Summary

Overall, the main conclusions that can be drawn from the seasonal forecast models, climate signals, and historical analogue years, is that there is an enhanced likelihood of warm, wet, and windy conditions over Scandinavia and an enhanced likelihood of cold, dry, and calm conditions across southern Europe. There is more evidence for an enhanced likelihood of westerly winds across Europe than any other outcome, but there is no dominant signal for precipitation for this region. The analogue years (years in which the climate set-up was similar to this year) had either around or above average numbers of notable weather events.

Longer range climate signals influential up to 3 months ahead

Signal	Current State	Projected State	Implications for European Weather
ENSO: El Nino Southern Oscillation	Neutral	Weak La Niña possibly developing sometime through JFM	Increased potential for warm, wet, and windy periods across northern Europe and Scandinavia.
IOD: Indian Ocean Dipole	Neutral	Neutral	No increased potential for any particular type of weather.
QBO: Quasi-Biennial Oscillation	Westerly	Westerly	Increased potential for warm, wet, and windy periods across northern Europe and Scandinavia.
North Atlantic SST	Neutral	Neutral	No increased potential for any particular type of weather.
Eurasian Snow Cover	Below normal	Below normal	No increased potential for any particular type of weather.
Arctic Sea Ice Extent	Below normal	Below normal	No increased potential for any particular type of weather.
PV: Polar Vortex	Above normal	Above normal	Increased potential for warm, wet, and windy periods across northern Europe and Scandinavia.

Shorter range climate signals influential up to 1 month ahead

Signal	Current State	Projected State	Implications for European Weather
MJO: Madden Julian Oscillation	No signal	Phase 1/2	Increased potential for warm, wet, and windy periods across northern Europe and Scandinavia.
NAO: North Atlantic Oscillation	Negative	Negative	Increased potential for cold, dry, and calm periods across northern Europe and Scandinavia
AO: Arctic Oscillation	Negative	Positive	Increased potential for cold, dry, and calm periods across northern Europe and Scandinavia.