

Winter 2021-2022 Outlook

for the U.K. & Ireland

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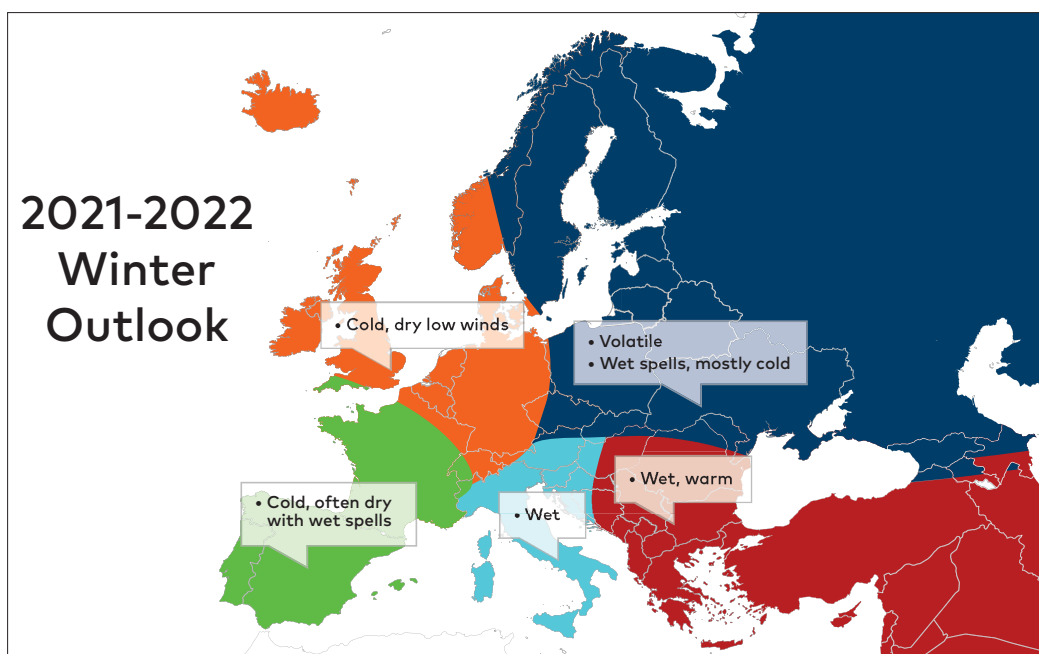
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Winter forecast summary

With winter nearly upon us, there are a few things to note about how the upcoming season is shaping up for the U.K., Ireland, and the rest of Europe, along with a few key business implications.

In short, the forecast calls for a cold, dry, and calm winter. Across Europe, the biggest chance for below-average temperatures will be in the west — specifically North-western Europe.

Precipitation and winds will likely be below average due to more persistent blocking in Northern Europe. However, because it will be cold, there will be more wintry precipitation days than usual. The wettest weather will be across Southern Europe and the Mediterranean region — specifically the southeast, whereas the southwest will vary more. North-eastern Europe is likely to be a little more volatile, often wet and cold, but more changeable month to month.



Detailed winter forecast

The anticipated cold, dry, and calm conditions we expect this winter are somewhat atypical for a La Niña year. The signal from the negative North Atlantic Oscillation (NAO) is rather compelling, so the seasonal forecast is leaning on the strength of that — more so than in a standard La Niña year, which is very similar to what happened last year, as well. The NAO is a fluctuation in pressures between the central Atlantic Ocean and Greenland, and when there's a negative NAO, the westerly winds are weaker, resulting in limited upper airflow over the entire North Atlantic.

This winter's negative NAO will likely lead to some persistent blocking across Northern Europe, resulting in below-average wind and precipitation.

The unusual warmth in the North Atlantic may bring some sub-seasonal disruption to the pattern, resulting in brief periods of wet, mild conditions. However, if there is some precipitation, it will tend to be more wintry given the anticipated colder-than-average temperatures. That means that snowy or icy days could be more frequent than in a typical winter season, despite being a bit drier than normal overall.

This winter is likely to feature a weak polar vortex, bringing increased cold risks from arctic air masses later in the season. January and February could feature frigid air, similar to last year.

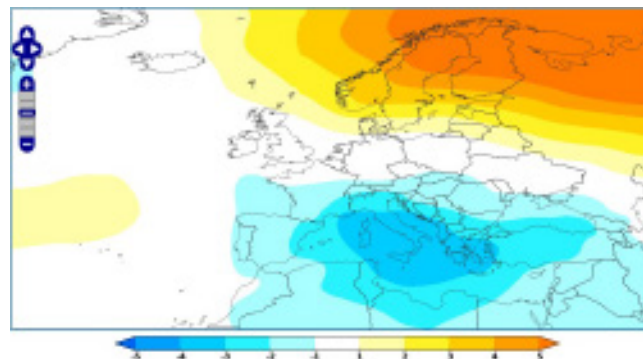


The odds are higher than average that this winter's weak polar vortex will be prone to significant disruptions, breaking it into several smaller features, each with a pocket of extremely-cold air. The blocking ridge patterns will determine which areas will be affected by these pools of cold. They may stay north in Russia or move into Canada as the polar vortex often migrates when displaced. Europe and the U.K. are likely to be impacted at some point this season.

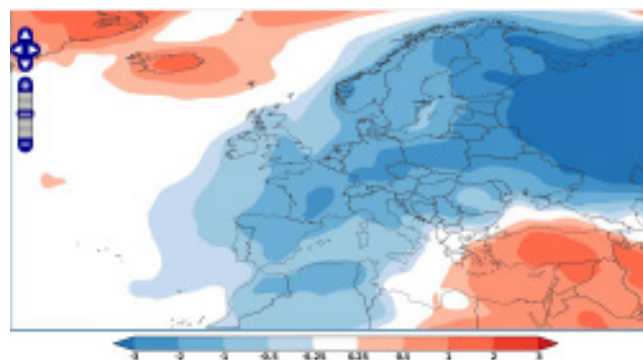
The current forecast into February shows cold air across the entire continent with a strong signal for blocking high in Scandinavia extending into central Russia. This is not unusual for late winter as Russia begins to cool significantly, with high pressure favoured there. That will drive easterly winds for Europe, which will be the source of all of the cold air — keeping conditions cold, dry, and calm with occasional deviations.

It is important to note that polar vortex events are hard to forecast beyond two weeks in advance, so keep an eye on your local forecasts through late winter.

Preliminary February outlook



Pressure anomaly analogues for February 2022 based on the preceding November-January La Niña with negative NAO.
Source: World Climate Service



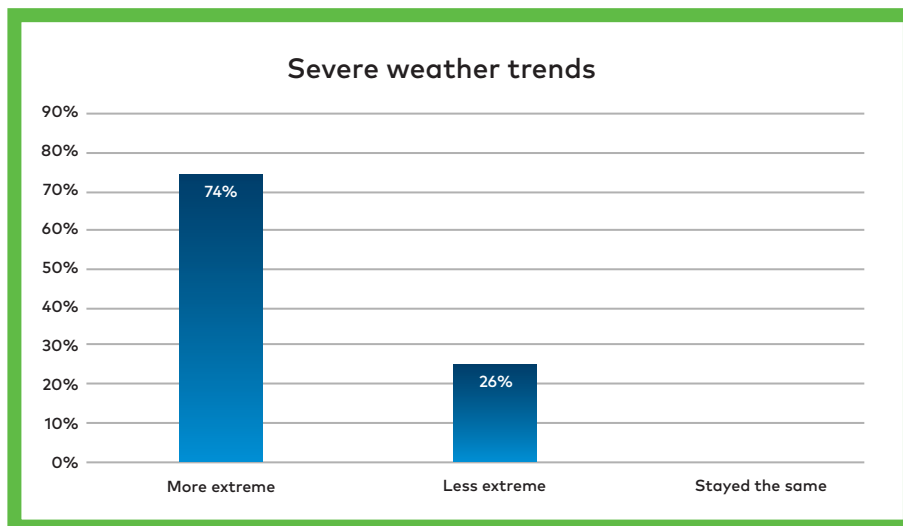
Temperature anomaly analogues for February 2022 based on the preceding November-January La Niña with negative NAO.
Source: World Climate Service

Industry thoughts on severe weather trends

In our winter weather outlook webinar, we asked attendees to share their perspectives. Across all industries, 44 people chose to respond to our poll questions.

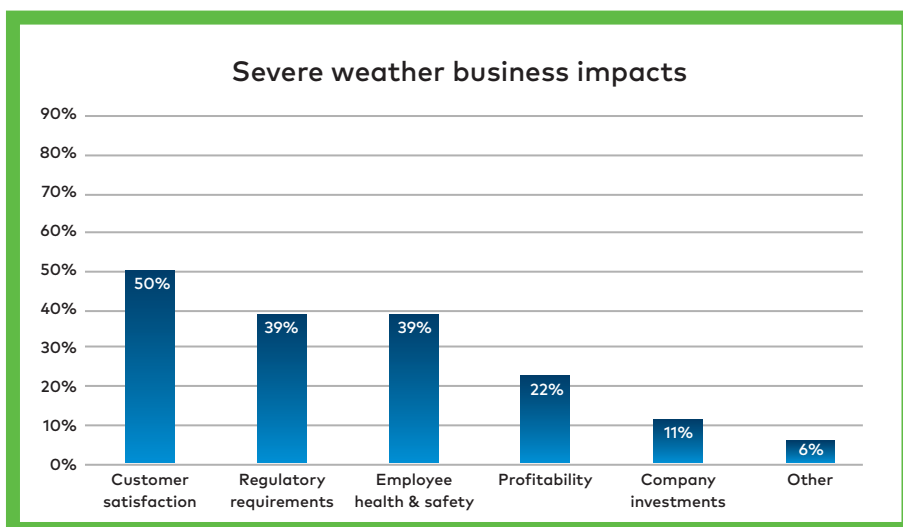
Question 1: How has severe weather developed in the past years?

Nearly three-quarters of those responding (74%) feel that the weather has become more extreme, and 26% believe the weather has stayed about the same over the past years. Whilst last winter was, on average, warmer than normal, this season is more favourable to be colder overall.



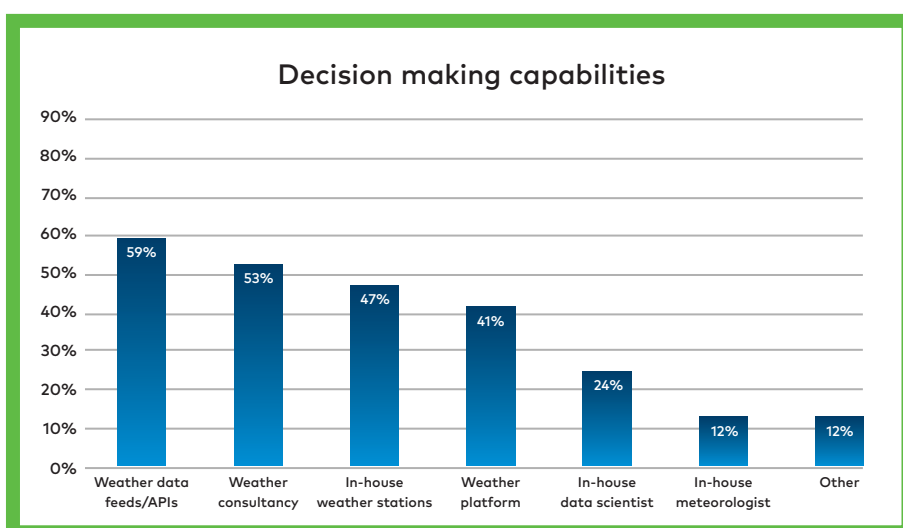
Question 2: Which areas of your business have been impacted by weather over the years?

Here, respondents selected all that applied from multiple answers. Half (50%) chose customer satisfaction. Regulatory requirements and employee health and safety tied for second with 39% each. The least impacted defined area was company investments with 11%.



Question 3: What capabilities does your business have in place to address weather impacts?

Respondents choose all that applied from multiple options. Most use an external weather decision-making capability like data feeds (59%) or weather consultancy (53%). However, 47% also collect their own data using an in-house weather station. Just 12% have a meteorologist on staff.



Utilities forecast summary

All eyes are on the forecast in anticipation of the added strain conditions could inflict upon the already-challenged fuel, energy, and labour markets.

With the forecast calling for predominately high pressure, promoting an easterly flow, we expect below-average temperatures throughout the season. A high frost count is also likely, and although we foresee a drier-than-average season, the colder temperatures will moderately elevate snow and ice risks.

How may these expected conditions impact the already-stressed energy and utility industries? First, there is the potential for higher-than-average to high household heating demand. Given the current situation and elevated wholesale energy prices, accurately predicting weather-driven consumer behaviour is critical.

Second, this winter's conditions can have a more significant physical impact on assets and related support. In colder weather, active freeze-thaw processes are typical above and below the surface, requiring more resources to maintain the network's integrity. Additionally, the lower temperatures can increase chances for line icing, boosting maintenance demands.



WeatherSentry allows you to see the big picture with layered maps featuring your chosen data, such as substations, transmissions lines, and other operational assets, along with critical weather conditions. Add custom layers and locations to sharpen your view of affected infrastructure.

By focusing on your weather preparedness, you'll not only better protect your people and assets but also your bottom line. Ensure reliable service, even in times of peak demand, and you'll keep your customers and stakeholders happier.

Learn more about WeatherSentry and our long-range forecast services at www.dtn.com/nov_utility_lp.

The screenshot shows the Weather-Online.com website interface. The top navigation bar includes links for Home, Forecast, Weather, and About Us. The main content area displays a weather map of Europe with various weather conditions indicated by colors and symbols. A circular area is highlighted on the map, and a legend on the right side lists weather symbols and their corresponding colors. The legend includes symbols for Clouds, Rain, Snow, Wind, and Temperature, along with a color scale for temperature ranging from -10 to 10 degrees Celsius.

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Transport forecast summary

In winter, keeping roads safe and traffic flowing smoothly requires advance planning and a targeted response to developing conditions. Knowing what to expect is critical, especially this winter.

As we look ahead to the season, it shares some strong similarities to several recent winters, which helps set the benchmark for what we can expect. Many industry professionals may recall the winter of 2010 and its sudden late-season turn of events. Despite a warm start, sharp, cold spells began erupting in January. The frigid temperatures put operations under immense strain as the industry scrambled to procure and restock salt supplies. Despite greater resiliency today, transport professionals could still face salt restocking challenges this season if there is prolonged gritting due to cold and snow.



When combined with other concerns, such as the reported lack of drivers in the national labour market, the season's expected challenges may be magnified. Aside from the impact on road maintenance crews, the driver shortage will likely also affect the delivery of salt and fuel, making it even more difficult to balance road safety and operational efficiencies.

This season, snow could result from cold snaps coming out of the polar vortex, particularly later in winter. Respite may come from warmer, windier weather in between these events. However, that also brings road safety challenges as any snow melts, increasing flood risks.

Cold spells and prolonged low temperatures may spawn drive-hour challenges, which will be exceptionally difficult given the labour shortages and increased risk of snow and ice events. Advance planning will be vital to supporting front-line needs with resources like additional drivers, blowers, and ploughs during winter weather events.

Better manage your resources this winter with our RoadMaster platform. It can help enhance the timing of your operations so you can avoid treating roadways too late, which can lead to accidents and traffic jams. It also supports your bottom line by allowing you to avoid unnecessary treatments, saving labour and resource costs, as well as reducing environmental impacts. This will be especially key with the potential salt and fuel restocking issues this winter.

This versatile tool helps you find the correct balance with detailed local data, forecasts, and graphs, along with real-time observations and radar. Stay informed with its interactive, customisable road hazards dashboard, which displays the potential for conditions like black ice, snow, and freezing rain for your service territory.

Our solutions include 24/7 online meteorological support to help you confidently make better-informed decisions about when and where gritting and ploughing will be necessary. Historical data, like archived RWIS measurements, action logs, and weather forecasts, can provide added validation.

RoadMaster from DTN



Get actionable weather insights

Learn more about our innovative RoadMaster solution today at www.dtn.com/nov_rm_lp.



Aviation forecast summary

As air travel continues to rise above 2020-levels, and as demand for air cargo skyrockets, winter conditions will create added challenges for this increased volume. Whilst the start of the season should be relatively benign, more extreme events will occur toward its end. The primary focus will be on blocking, which will result in periods of cold with significant fog and low stratus clouds, creating air traffic issues at airports.

Flight planning and routing will likely be impacted by these low-visibility events, with restrictions limiting aircraft movement, contributing to capacity constraints, and delaying departures and arrivals.

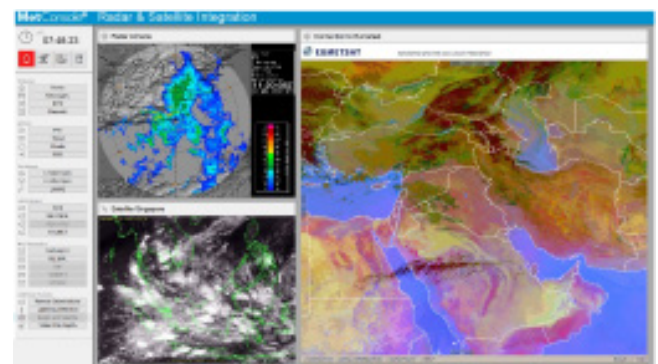
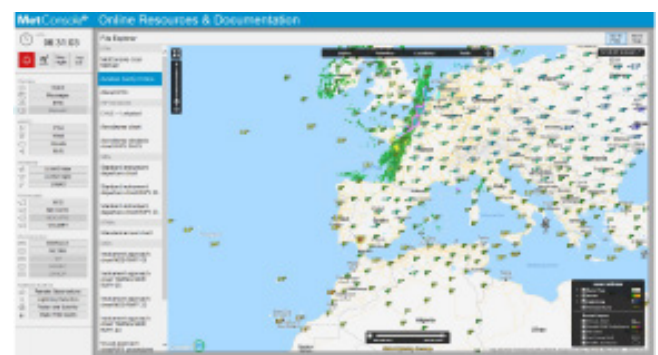
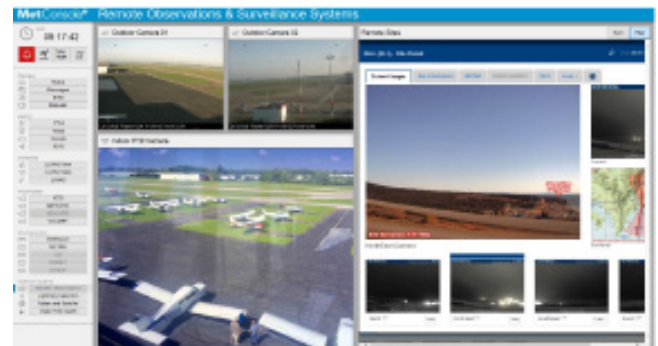
Our AviationSentry® solution delivers ceiling and visibility forecasts, updated hourly, showing expected flight category restrictions for the next 18 hours. With ceilings of around 1,000 feet being a regular possibility this winter, you must prepare for more frequent instrument flight rules (IFR) operations and the need for planes to carry extra fuel to support routing to alternate airports.



The weak polar vortex will provide additional challenges through colder-than-average temperatures and late-winter storms. Looking at February 2020 for guidance, Storms Ciara and Dennis created widespread aviation disruptions across Europe. Each produced extreme winds at many airports. Dennis, in particular, fuelled heavy rains and hundred of warnings, whilst Ciara cancelled hundreds of flights in the U.K. and parts of Europe. One commercial airliner reported making the fastest New York to London flight — arriving 80 minutes ahead of schedule due to the jet stream. Whilst such strong winds are not expected, this winter could feature some similar late-season storms with the potential for strong wind shear and disruptions at major hubs.

Resources like our state-of-the-art MetConsole suite can help keep you up and running. A powerful, customisable data integration engine, MetConsole helps ensure safe, efficient operations with real-time weather insights to support confident, targeted decisions. Tailor its key functions and graphics to your unique requirements. You can even integrate your internal data and sensors into the system.

The MetConsole suite



Get actionable weather insights

Learn more about our innovative aviation solutions, including the MetConsole suite, at www.dtn.com/nov_avi_lp.

