

# Would seasonal forecasting enable us to cope with our changing weather?

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We've experienced an exceptionally wet and windy winter, and while our weather forecasters are far better at telling us what to expect in the next two or three days, they still struggle with long range seasonal forecasting.

Work conducted since the 1970's at Bangor University has contributed significantly to the models used by climate forecasters and others. The work has focused on understanding marine turbulence in the last two decades. The Ocean Physics group at the School of Ocean Sciences have won over £6 million in research funding to further their work since 2007.

Weather patterns are strongly influenced by the [sea surface temperatures](#) - so understanding how waters circulate and mix heat within the oceans is crucial to understanding how the sea drives weather and climate patterns.

That's how the team of [ocean](#) physicists at the University's School of Ocean Sciences are contributing valuable basic work to improving the models that the forecasters use.

The ocean physicists work with the Met Office and other leading centres on major collaborative projects looking at the sea ice in the Arctic and what is causing the record breaking retreat of seasonal sea ice cover seen in recent years, and what impact this may be having on the weather across the US and Europe as well as how it may be impacting on currents in the Atlantic Ocean.

Prof Tom Rippeth at Bangor University's School of Ocean Science explains:

"Our work includes identifying what factors determine the distribution of heat in the ocean and ultimately atmospheric temperature- as the oceans are a huge source of heat, and it's this heat which influences weather and [climate patterns](#). Whilst the sun's rays are able to travel through the atmosphere without causing it to warm, they are absorbed by the ocean, warming it. The warmer ocean then transfers heat to the atmosphere, consequently warming it. In fact 90% of the heat in the atmosphere is derived from the oceans. It is this heat which powers storms, hurricanes and typhoons as well as determining the position of jet stream, the high altitude wind which steers storms across the Atlantic. Determining the processes responsible for setting the supply of oceanic heat to the atmosphere are therefore key to producing accurate [weather forecasts](#) on timescales of more than a week.

"Our research work on areas such as the processes determining the sea surface temperatures and Arctic ice cover has the specific aim of contributing to improving seasonal weather forecasting work at the Met Office. I'd go as far as to say that understanding marine turbulence is fundamental to improving the skill of weather forecasting."

The UK is particularly susceptible to ocean driven [weather patterns](#), due to our location. Prof Rippeth believes that the fact that we're experiencing more frequent severe weather events highlights the pressing need to improve our ability to forecast these events and to learn as a society to live with the new weather conditions.

"I'd argue that the UK needs to take a lead in making the changes necessary in order to adapt better to changing weather patterns. I think the key is to be able to predict these severe weather conditions on seasonal time-scales.

"Getting the long range forecast correct is the challenge for weather forecasters. Being able to tell with greater certainty, what next summer or next winter will be like will offer greater benefits to the economy. The agricultural industry will be able to plan their activities with greater certainty, as will a range of other industries. It will also enable us to better protect people and property from the severe conditions."

Provided by Bangor University

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