

Developing better weather forecasts

November 1 2013

By being more precise in what is uncertain, the weather forecasts will become more reliable. A new method for forecasting the weather is now being developed at Uni Research.

"The forecasts can be used for offshore wind energy, marine operations and in several other areas," explains PhD candidate Torge Lorenz.

Covering the uncertainties

Together with Met.no and Statoil among others, he is developing the new weather forecasting method. He is doing this by working on a method that is under development at the ECMWF (European Centre for Medium-Range Weather Forecasts) and transferring this to short-term forecasts, i.e. weather forecasts up to two days..

"We use a collection of model runs instead of just one and by doing so we better cover the uncertainties in the forecast," explains Torge Lorenz.

His mentor, research leader Idar Barstad at Uni Research, elaborates:

"This will be a more physically consistent way of forecasting the weather. Previously the estimate for [uncertainty](#) in the weather was based on a less physical method but now ECMWF has switched to a new method which provides a more precise method for uncertainty," says Barstad.

Offshore wind

At present the method has been developed for the North Sea and the Norwegian Sea, first and foremost with the idea of deploying and maintaining offshore wind installations. But Barstad believes industry, tourism, agriculture and several other businesses will benefit from the improved method of forecasting the weather.

"It will be beneficial in a cost-benefit perspective. For example, Statoil will know there is a 95 per cent probability that the weather will be good enough to go out with equipment and crew and won't have to remain quayside due to poor [weather forecasts](#)," he says.

He thinks the uncertainty prevalent in the forecasts is an untapped possibility.

"We won't have an exact prediction but will show which area the probability for temperature, wind and rain lies within. The new forecast will be more accurate because a greater degree of precision can be associated with the correct level of uncertainty in the forecasts," he explains.

Easier to make decisions

A similar method for forecasting the weather is used today but it has a less precise estimate of the uncertainty and a poorer physical basis, according to Barstad. Therefore there is a greater chance that the realities lie outside the sample space forecast, something which again means that you make important decision on an incorrect basis.

The project commenced before the summer and the two hope that even in a year they will have more information to share.

Lorenz and Barstad believe that in the long-term the method could be

used everywhere, regardless of geographic area.

The new [forecast](#) will give a more precise estimate of the uncertainty.

"This will make it easier for people who have to make decisions based on [weather](#) forecasts. They know the actual chance of the wind exceeding a certain value," says Torge Lorenz.

Provided by Uni Research

Citation: Developing better weather forecasts (2013, November 1) retrieved 4 May 2024 from <https://phys.org/news/2013-11-weather.html>

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