

Workshop on Predictability, dynamics and applications research using the TIGGE and S2S ensembles



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Optimising the use of ensemble information in forecasts of wind power generation

Electricity generation output forecasts for wind farms across Europe use NWP model output, such as that from the ECMWF. These forecasts influence decisions in the energy market, such as those that determine daily energy prices or the usage of thermal power generation plants. The predictive skill of power generation forecasts therefore directly impacts on the profitability of energy trading strategies and the ability to decrease carbon emissions. Ensemble forecasts contain valuable information about the uncertainties in a forecast. The energy market typically takes basic approaches to using ensemble data to obtain a more skilful forecast compared to single high resolution forecasts. There is, however, evidence that more sophisticated approaches could yield significant further improvements in forecast skill. This project uses historical ensemble forecast data from the ECMWF to formulate a new approach that harnesses the uncertainty information in the ensemble data to improve the wind power generation forecasts.

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