



## **Wind-Farm Forecasting Using the HARMONIE Weather Forecast Model and Bayes Model Averaging for Bias Removal.**

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Building on previous work presented at EGU 2013 (<http://www.sciencedirect.com/science/article/pii/S1876610213016068>), more results are available now from a different wind-farm in complex terrain in southwest Ireland. The basic approach is to interpolate wind-speed forecasts from an operational weather forecast model (i.e. HARMONIE in the case of Ireland) to the precise location of each wind-turbine, and then use Bayes Model Averaging (BMA; with statistical information collected from a prior training-period of e.g., 25 days) to remove systematic biases. Bias-corrected wind-speed forecasts (and associated power-generation forecasts) are then provided twice daily (at 5am and 5pm) out to 30 hours, with each forecast validation fed back to BMA for future learning.

30-hr forecasts from the operational Met Éireann HARMONIE model at 2.5km resolution have been validated against turbine SCADA observations since Jan. 2014. An extra high-resolution (0.5km grid-spacing) HARMONIE configuration has been run since Nov. 2014 as an extra member of the forecast "ensemble". A new version of HARMONIE with extra filters designed to stabilize high-resolution configurations has been run since Jan. 2015.

Measures of forecast skill and forecast errors will be provided, and the contributions made by the various physical and computational enhancements to HARMONIE will be quantified.