

**P48 Evaluation of wind prediction for wind farms in Northwestern China with WRF Ensemble-RTFDDA**

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WRF-based multi-physics, multi-land surface perturbation and multi-scale (nested-grid) ensemble real-time four-dimensional data assimilation (E-RTFDDA) and forecasting system was set up for wind prediction to support wind power integration of the State Grid Corporation of China in Northwestern China. The region is characterized by large terrain gradients from the Tibetan Plateau and strong land surface property contrast. By focusing on perturbations in the land surface and boundary layer processes, a 20 member WRF E-RTFDDA system can achieve more accurate wind turbine hub-height wind speed forecast than the commercially produced realtime wind prediction. A 20-member WRF E-RTFDDA system was set up to produce reforecasts for the entire year of 2012. An analog-based bias correction scheme was applied to the wind reforecast for each member. Next, the bias-corrected member reforecasts calibrated with the aforementioned 2012 reforecasts were utilized to produce a probabilistic wind prediction. As a result, the bias correction and probability calibration of the ensemble wind reforecasts resulted in marked improvement of the forecast accuracy.