Statistical Post-Processing with Standardized Anomalies and Variable Selection for Wind Farm Forecasts

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Numerical weather predictions are often too coarse to represent single turbines in a wind park and post-processing of the individual turbines is necessary. However, individual post-processing can lead to inconsistencies in forecasts for a wind farm. Using standardized anomalies allows to forecast all turbines simultaneously. Therefore, a climatological mean is subtracted from observations/predictions and then divided by a climatological spread which eliminates any site-specific characteristics.

Additionally, different sources of input can be used, such as variables from a global model, a mesoscale model or observations to improve forecasts. However, to prevent overfitting a variable selection method is needed to determine the most important predictors. The combination of standardized anomalies and a variable selection method provides a convenient method for good forecasts of wind farms.