

NEPII_10 A Detailed Study about Wind Power Probabilistic Forecasts

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摘要

在過去的 10 至 20 年間，機率預測已經變為更普及。機率預測考慮不確定度並可預測機率分布函數。本研究匯集相關風力機率預測的最新技術，且清楚地描述這些機率預測方法基本的概念。此外本論文亦彙整各種評估機率預測模型優劣的指標。最後，本研究利用一個實際的案例分析進行機率預測，該模型採用集合預測模型，且風速的資料由台灣中央氣象局的數值天氣預測系統計算出。

關鍵詞：機率預測、風力、數值天氣預測、集合預測模型。

Abstract

Over the past one to two decades, probabilistic forecasts have become more popular. Probabilistic forecasts take uncertainty into account and predict a probability distribution function (pdf). This study provides an overview of state-of-the-art technologies on wind-power probabilistic forecasts, and describes the fundamental concepts on those forecasting methods. Additionally, this study also summarizes various methods to evaluate the performance of a probabilistic forecast model. Finally, this study presents a case study using the ensemble prediction model, in which the wind-speed data were provided by the numerical weather prediction system (NWP) of the Central Weather Bureau (CWB) of Taiwan.

Keywords: Probabilistic forecast, Numerical Weather Prediction, Ensemble Prediction Model.