NCAR | EARTH OBSERVING LABORATORY

2019 Seminar Series

DATE: September 10, 2019

TIME: 3:30 - 4:30 pm

LOCATION: NCAR Foothills Laboratory
3450 Mitchell Lane, Building 2
Large Auditorium FL2-1022

The New European Wind Atlas

Professor Jakob Mann
Technical University of Denmark

Abstract

This 4-year-long research program has focused on three objectives:

1. Conducting large-scale experimental campaigns covering a wide range of topographic and European climatic conditions with intensive use of scanning lidar technology;
2. Developing new reference methodologies for wind resource assessment and wind turbine site suitability based on mesoscale-to-microscale modeling and validation with high-fidelity experiments;
3. Producing a high-resolution New European Wind Atlas database and web interface.

The talk will give an overview of these activities with examples from all three objectives. While the mesoscale model predicts the mean wind speed extremely well offshore, comparison with 300 Vestas meteorological masts over land shows a standard deviation of 0.8 m/s. Surprisingly, the downscaling of the mesoscale model data to take into account the local terrain does not decrease this deviation significantly using the currently available methods. Possible explanations include inadequate description of the surface, but the downscaling methods may also need an overhaul.

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