

Master Thesis at ForWind in Wind Energy Meteorology

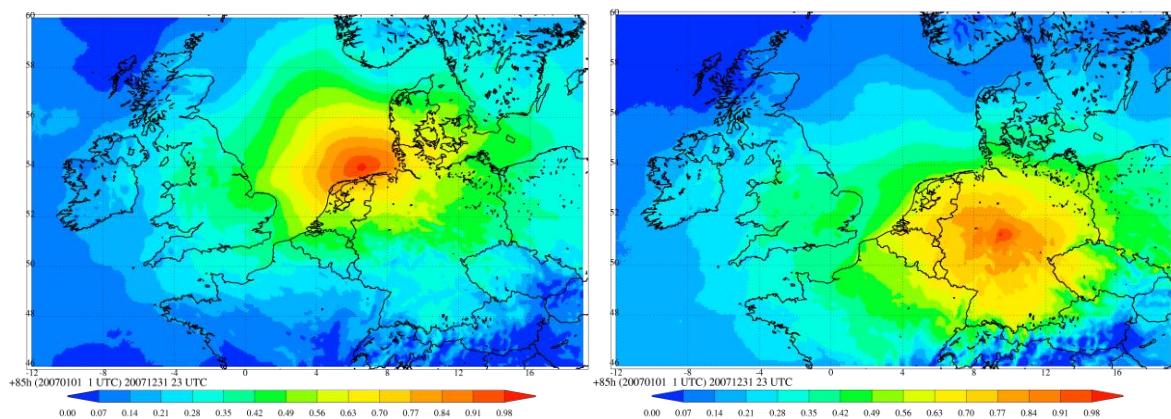
Topic

Development of a Methodology to characterize 2d Wind Power Correlations in Europe

Description

Decentralised generation of Renewable Energy reduces the variability of generated power to a large extent by spatial smoothing/aggregation. Spatial smoothing can be characterized by the cross correlation between different sites and different characteristics of these 2d power correlations are observed for onshore and offshore wind power (see Figure). In this Master Thesis a generic characterization of these 2d wind power correlations for a large number of different sites (>50000) shall be developed. It is the aim to describe the 2d power correlation function with only a few parameters. Emphasis is given to the difference between on&offshore sites and seasonal dependencies. The results are part of the group's key objective to develop models characterizing spatio-temporal effects of weather dependant Renewable Energies like wind and solar power. These models will be used to compute the optimal distribution of wind power employment to minimize transmission and storage capacities

The use of ForWind's new super-computer is envisaged for this master thesis.



Simulated wind power correlation for an offshore (left) and onshore (right) site. Is it possible to describe the different shapes in a mathematical model (parameterization)? The simulation of long time series of (potential) wind power is done with data from a weather model and exists already at ForWind.

Requirements

- enthusiasm for meteorology and/or wind energy; scientific and technical work and efficient handling of huge data volumes
- good knowledge in statistics, data analysis and programming (preferably Fortran/C and/or IDL) is essential

Contact

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