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Title

STANDARDIZED ASSESSMENT OF METEOROLOGICAL DATA FROM OFFSHORE PLATFORMS

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Introduction

In order to investigate conditions for offshore wind power generation in the German coastal areas, three research platforms were constructed in the North Sea (FINO1 and 3) and the Baltic Sea (FINO2). Measurement masts at each platform are equipped with a range of meteorological sensors at heights of 30 to 100 m above sea level. In order to compare the results of the different platforms standardized analysis and interpretation of the data is necessary. This is one major topic of the joint research project “FINO-Wind”.

Approach

The new approach to quality control of data is based on a flagging scheme followed by data correction for mast effects. The core procedure of the quality control process has been long term tested in the measurement network operated by Deutscher Wetterdienst. It was adapted to the specific requirements of the meteorological data measured at different heights in a marine environment. The quality control consists of formal checks, followed by climatological, temporal, repetition and consistency checks which are adapted from either meteorological standards or carefully chosen from several years of experience with the measurements and data from the three FINO platforms.

Main body of abstract

The first step is to evaluate the distribution of wind speed and wind direction at each platform in an identical scheme based on the checking routine described above. This also includes the analysis of other meteorological properties that are relevant for wind energy such as turbulence intensity, wind shear and high wind speed statistics.

In the second step the comparable data is used to assess offshore environmental properties. Site specific properties like distance to land and water temperature shall be related to differences found in wind conditions to improve the knowledge of the marine ambient conditions at the three locations.

Conclusion

Based on this work recommendations for measurement and data assessment on offshore platforms shall be provided and published.

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