

Within a joint research project of the Norwegian Center for Offshore Wind Energy (NORCOWE) and the Center for Wind Energy Research (ForWind) the institutions are looking for a motivated masters student for a thesis project entitled:

Case study of a low-level-jet event within the Southern North Sea

Background:

Low-level jets (LLJ) are vertically limited areas of high wind speed which are a common feature in the Southern North Sea region particular during south-easterly to south-westerly winds when warm air (inland air) is advected over the cold sea and fetches are short. These jets do occur at heights relevant for offshore wind energy utilisation and can impose strong loads on offshore wind turbines. Within the offshore measurement campaign OBLEX-F1 (Offshore Boundary Layer Experiment at FINO1) an intensive measurement campaign within the German Bight is carried out by NORCOWE and several partner institutions. The data from the experiment allows for an intensive and detailed study of the marine atmospheric boundary layer.

Objectives:

Within this master project, the wind data from remote sensing (LiDAR) and met mast will be analysed to determine periods during which LLJ occurred. Afterwards a detailed study of the meteorological conditions favourable for offshore LLJ generation will be conducted based on in-situ and remote sensing data from the OBLEX-F1 campaign.

Requirements:

A bachelor's degree in meteorology, physics, engineering or related fields and a keen interest in offshore meteorology and wind energy are required. The candidate should have a good knowledge in programming and data visualisation languages (Matlab, NCL, R or python).

Framework Conditions:

The student will mainly be supervised by his/her home institution. The length of the project and other boundary conditions will be defined according to the examination regulations of the home institution. A short (1-2 month) stay (financial support possible) at the respective partner institution is desirable.

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Within a joint research project of the Norwegian Center for Offshore Wind Energy (NORCOWE) and the Center for Wind Energy Research (ForWind) the institutions are looking for a motivated masters student for a thesis project entitled:

Case study of mesoscale wind fluctuations during cold-air outbreaks

Background:

Above the North Sea, mesoscale wind fluctuations often occur during cold air outbreaks. For the development of new prediction models, the atmospheric processes and conditions which lead to strong wind fluctuations need to be understood. Within the offshore measurement campaign OBLEX-F1 (Offshore Boundary Layer Experiment at FINO1) an intensive measurement campaign within the German Bight is carried out by NORCOWE and several partner institutions. The data from the experiment allows for an intensive and detailed study of wind fluctuations within the marine atmospheric boundary layer.

Objectives:

Within this master project, the campaign data (remote sensing (LiDAR and microwave radiometer), buoy and met mast data) and additional satellite imagery will be analysed to determine periods during which cold air outbreaks occurred. Afterwards, a detailed study of the meteorological conditions and spectral wind characteristics will be conducted.

Requirements:

A bachelor's degree in meteorology, physics, engineering or related fields and a keen interest in offshore meteorology and wind energy are required. The candidate should have a good knowledge in programming and data visualisation languages (Matlab, NCL, R or python).

Framework Conditions:

The student will mainly be supervised by his/her home institution. The length of the project and other boundary conditions will be defined according to the examination regulations of the home institution. A short (1-2 month) stay (financial support possible) at the respective partner institution is desirable.

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Within a joint research project of the Norwegian Center for Offshore Wind Energy (NORCOWE) and the Center for Wind Energy Research (ForWind) the institutions are looking for a motivated masters student for a thesis project entitled:

Validation of remotely sensed wind, temperature and humidity profiles against radiosoundings

Background:

The marine atmospheric boundary layer is in the altitudes relevant for state-of-the-art and future expected wind turbines (0-300 m) not yet well understood. To improve our understanding of the complex interaction between wind shear, atmospheric stability and turbulence characteristics offshore, the offshore measurement campaign OBLEX-F1 (Offshore Boundary Layer Experiment at FINO1) has been initiated. It is an intensive observational campaign within the German Bight and is carried out by NORCOWE and several international partner institutions. The data from the experiment allows for an intensive and detailed study of the marine atmospheric boundary layer under various synoptic conditions.

Objectives:

Within this master project, wind profiles from a scanning lidar system (Leosphere WindCube 100S) and temperature and humidity profiles from a passive microwave radiometer (HATPRO-RG3 from Radiometer Physics) should be validated against radiosoundings from two sites in the vicinity, Schleswig and Norderney. It will include a statistical analysis of the observed differences as function of the synoptic situation, in particular wind speed, wind direction, and atmospheric stability.

Requirements:

A bachelor's degree in meteorology, physics, engineering or related fields and a keen interest in offshore meteorology and wind energy are required. The candidate should have a good knowledge in programming and data visualisation languages (Matlab, NCL, R or python).

Framework Conditions:

The student will mainly be supervised by his/her home institution. The length of the project and other boundary conditions will be defined according to the examination regulations of the home institution. A short (1-2 month) stay (financial support possible) at the respective partner institution is desirable.

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