

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.

### **Contact:**

Prof. Dr. Joachim Reuder  
Experimental Meteorology Group  
Geophysical Institute, University of Bergen  
[joachim.reuder@uib.no](mailto:joachim.reuder@uib.no)

Martin Dörenkämper  
Energy Meteorology Group  
Institute of Physics, University of Oldenburg  
[martin.doerkenkaemper@uni-oldenburg.de](mailto:martin.doerkenkaemper@uni-oldenburg.de)