

NORCOWE

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Data collection initiated in the OBLEX-F1 campaign

Late June NORCOWE's new partner, [AXYS Technologies](#), completed the equipment deployment for the measurement campaign. The WindSentinel, that is pictured below, was installed as the last step. As all the equipment now is installed and operational, the measurement data is now being received. We expect the first analysis will be published soon. A detailed description of the setup and the equipment is available [here](#).



OBLEX-F1 Oceanographic Cruise

Air-sea interaction processes in the presence of offshore platforms: German Fino1 platform and Alpha Ventus offshore wind farm



AS a part of the OBLEX-F1 campaign (Offshore Boundary Layer Experiment at Fino1), scientists from Geophysical Institute, University of Bergen, conducted the cruise in early June. The deployed instruments will measure the currents, temperature, salinity, surface gravity waves, and turbulence. The recovery of all deployed systems is planned to be completed within late October 2015.



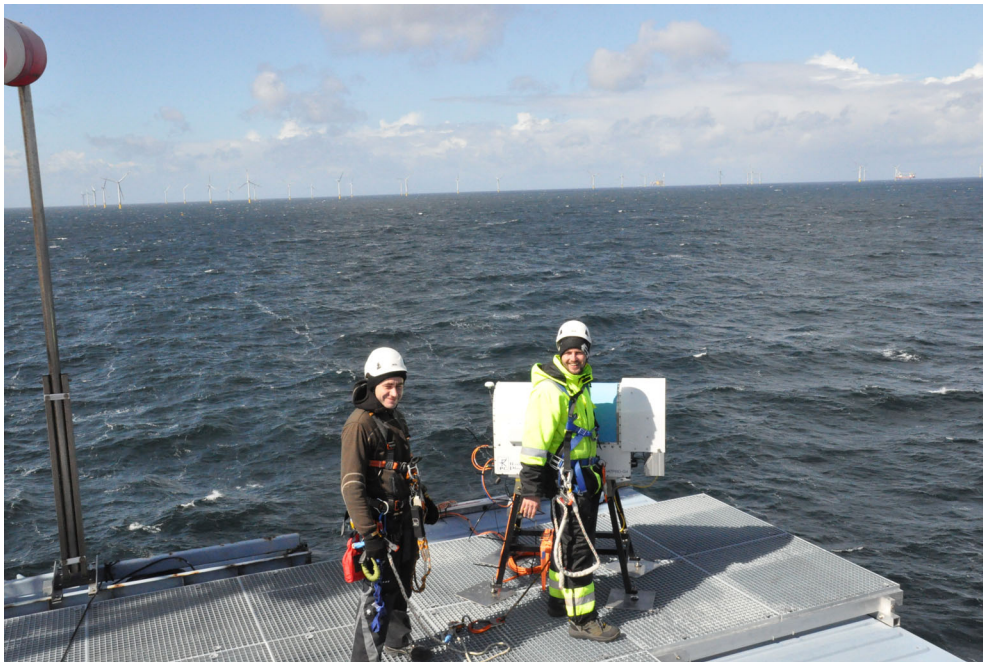
For more information about the equipment and the cruise objectives, please read the cruise report by chief scientist Mostafa Bakhoday Paskyabi [here](#).

First installation phase completed for OBLEX-F1, the Norcove measurement campaign at FINO1.



Scanning lidars mounted at FINO1

With good support from FINO operator FuE FH Kiel, scientists from CMR this week successfully completed the first installation phase for the offshore boundary layer experiment at FINO1, OBLEX-F1. Two Windcube 100s scanning wind lidars from LeoSphere and a RPG HATPRO microwave temperature profiler are now operational and connected to the FINO1 network, providing online data access, remote monitoring and control of the instruments.



Andreas Gudi (FuE) and Stian Stavland (CMR) mounting the microwave radiometer

Deployment of the oceanographic instrumentation is planned for the first week of June with the research vessel Håkon Mosby from IMR. In the same timeframe, we will proceed with the second installation phase at FINO1 for the DCF sonic turbulence meters and breaking wave camera system. The meteorological and oceanographic measurements will run in parallel until the fall, when the oceanographic measurement buoys will be recovered. The meteorological measurements for OBLEX-F1 at FINO1 will continue until June 2016.

More information about the FINO1 platform and pictures from the installation are available [here](#).

The FINO1 Measurement campaign, OBLEX-F1



NORCOWE is starting up an extensive offshore measurement campaign at the German research platform FINO1 close to Alpha Ventus wind farm. The campaign will take place from May 2015 to June 2016, and is carried out by CMR and UIB in close cooperation with the other Norcove partners, FuE-Zentrum FH Kiel, Fraunhofer IWES, RAVE and ForWind. Benny Svardal at Christian Michelsen Research is responsible for the project management.

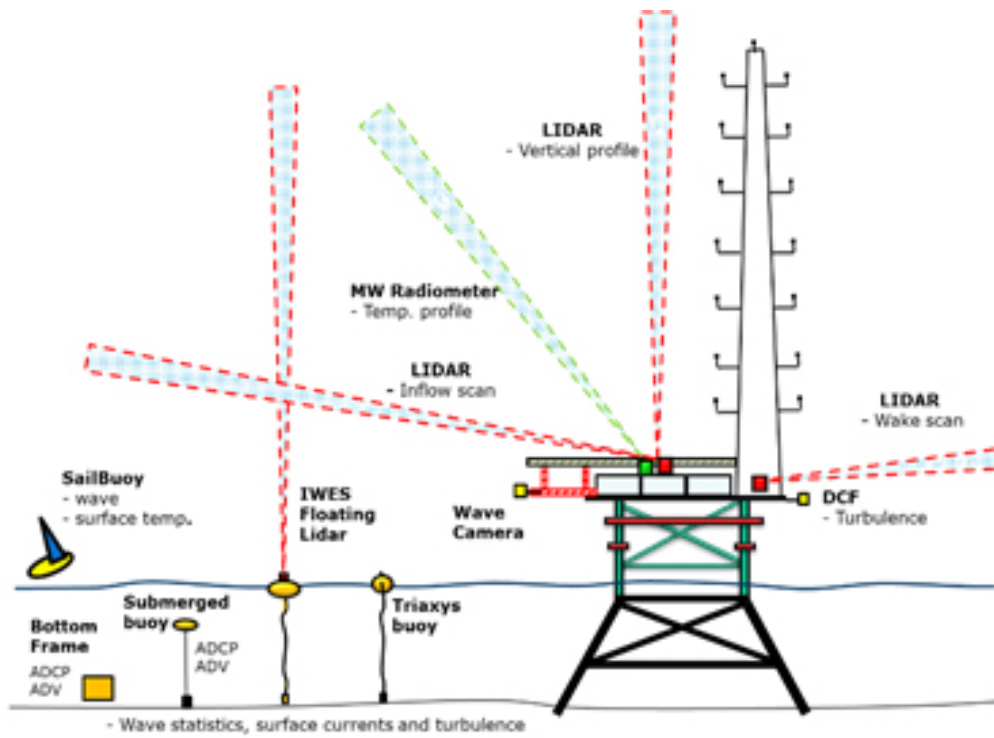
The key purpose of the campaign is to improve our knowledge of the marine boundary layer stability, air-sea interaction and offshore wake propagation effects. The collected observational data will be used to validate and improve numerical models and tools for i.e. weather forecasting, marine operations, power performance and wind farm layout. Additionally the campaign scope will cover research on motion correction techniques for floating sensor platforms.



In order to provide unique datasets for the study of boundary layer stability in undisturbed offshore conditions, we will perform simultaneous measurements of wind, temperature and humidity profiles in the MABL. By employing microwave radiometer and lidar remote sensing technology, we are able to map the boundary layer conditions continuously up to an altitude of 1000m. To investigate the atmospheric stability around the wind farm, as well as the interaction of the Alpha Ventus wind turbines with the atmosphere and each other, NORCOWE plan to install two scanning lidar systems and a microwave-radiometer on the research platform. This is the first time that such an instrument is installed at an offshore location. Both the Lidar systems and the radiometer are able to perform continuous measurements up to an altitude of 1000 m.

In addition to the meteorological measurements from the FINO 1 platform, and the floating lidar buoy measurements provided by IWES, oceanographic instruments will be deployed near FINO1 for a shorter period. This instrumentation, mounted on bottom frames, submerged buoys, and the autonomous SailBuoy, will monitor wave statistics, surface currents and turbulence in the upper oceanic mixed layer. The collection of these data is crucial for studying air-sea exchange processes, which are known to influence the structure of the vertical wind profile and the atmospheric stability.

The deployed [instrumentation](#) will provide a highly versatile data set for investigation of the offshore wind profiles, wind shear and turbulence intensity as a function of atmospheric stability in and around the wind farm. The gathered data opens for the investigation of the structure, extension, dynamics and persistence of single turbine wakes and the near farm wake of Alpha Ventus.



Benny Svoldal (Christian Michelsen Research AS) is in charge of the OBLEX-F1. If you have a question, please address it directly to: [benny.svoldal\(at\)cmr.no](mailto:benny.svoldal@cmr.no)