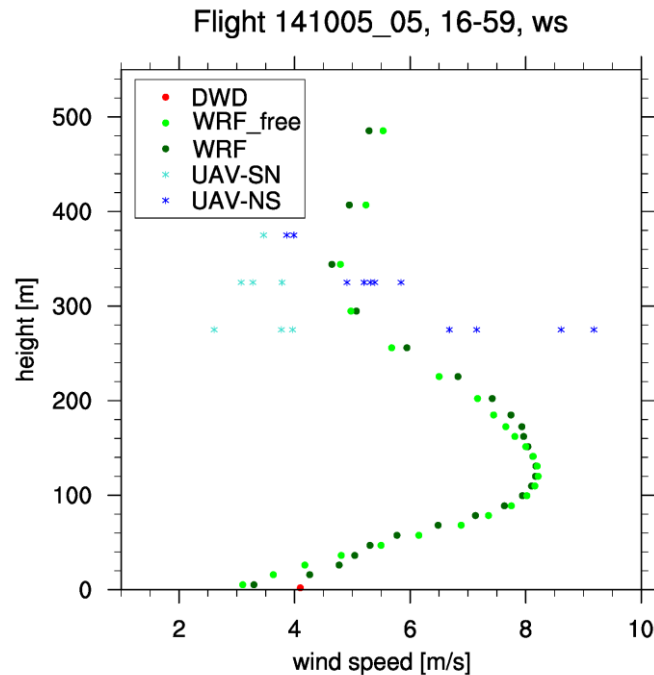


Master thesis

## Simulations of low-level jets with the mesoscale model WRF



A low-level jet is a streak of air in the atmosphere that moves faster than the air below and above it. Over land it can often be found at night during stable conditions, while over the sea it is expected to occur in cases when the sea surface temperature is considerably larger than the air aloft.

Since low-level jets occur at heights in which wind turbines typically operate, low-level jets are expected to influence the energy-earning and loads of wind turbines.

The mesoscale model WRF shall be used to examine the formation or persistence of low-level jets in simulations using simplified ideal conditions. The results will be compared to observed low-level jets using mast, LIDAR data and data from measurements with an unmanned aerial vehicle.

Finally, long-term simulations with WRF with real atmospheric initial and boundary conditions shall be carried out in order to get an estimate how often wind turbines that are situated in the German North Sea are affected by low-level jet events.

<p><b>Requirements:</b></p> <ul style="list-style-type: none"> <li>- Bachelor's degree in meteorology, physics, engineering or related fields</li> <li>- Interest in offshore meteorology and wind energy</li> <li>- Good knowledge in programming and data visualization languages (e.g. Matlab, NCL, R or python)</li> </ul>	<p><b>Begin:</b> as soon as possible</p> <p><b>Duration:</b> 6-8 months</p> <p><b>Contact:</b> Dipl. Phys. Hauke Wurps ForWind – University of Oldenburg +49 (0) 441 798 5079 <a href="mailto:hauke.wurps@forwind.de">hauke.wurps@forwind.de</a></p>
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