



## **Ship-borne wind LIDAR measurements in the Arctic and Antarctic**

Rolf Zentek, Günther Heinemann, and Svenja Kohnemann

University of Trier, Environmental Meteorology, Germany (zentek@uni-trier.de)

During the two cruises of RV Polarstern (Alfred Wegener Institute, Germany) a wind LIDAR was installed on the upper deck of the ship. The measurements in the Arctic were taken over two weeks (June 2014) in the Fram Strait and in the Antarctic over six weeks (December/January 2015/2016) in the Weddell Sea. Measurements included horizontal and vertical scan programs that allow for the computation of different wind profiles. Since the LIDAR was not motion-stabilized, motion correction was done during post processing. Depending on weather condition data up to 1 km (and in single cases up to 2 km) height was collected. An evaluation of the derived vertical wind profiles was done by comparing them to on board surface measurements and radio soundings.

The RMSD of wind speed between the LIDAR and the radiosonde measurements was found as 0.7 – 1.2 m/s depending on data selection and height. Overall, the wind LIDAR is an excellent tool for the measurement of wind profiles with high spatial (10m) and temporal resolution (15min).