Remote sensing measurements at AWIPEV for an aerosol closure experiment

Christoph Ritter[(1)], Roland Neuber[(1)], Andreas Herber[(2)]

[(1)]Alfred-Wegener-Institut für Polar- und Meeresforschung, Telegrafenberg A45, 14473 Potsdam, Deutschland

[(2)]Alfred-Wegener-Institut für Polar- und Meeresforschung, Bussestr. 24, 27550 Bremerhaven, Deutschland

Session: Atmospheric Flagship Programme

Presentation: oral

Lidar measurements of aerosol and trace gases both in the troposphere and the stratosphere as well as photometer measurements during summer and winter have been performed by AWI in Ny-Ålesund for many years. In this presentation latest measurements of AWI's KARL lidar and sun photometers are presented. For the lidar the ability and constrains of measurements below 1km altitude due to overlap effects are discussed and an error analysis is performed. Sun photometer measurements both in Ny-Ålesund and at the Zeppelin station as well as Ceilometer (Vaisala CL51) profiles have been employed to improve the evaluation of KARL data for aerosol retrievals within the boundary layer.

The precision of the remote sensing data of the KARL lidar and the sun photometers located in the village and on the Zeppelin station will be investigated. This is an important prerequisite for aerosol closure experiments, which are requested by the Ny-Ålesund Atmosphere Flagship Programme.

Finally aerosol optical depths (AOD) from the photometers are used to estimate the percentage of aerosol located within the boundary layer as well as possible fluctuations on a minute to minute scale. Such information is important for comparison of the different aerosol in situ measurements around Ny-Ålesund.

Ny-Ålesund Science Managers Committee 11th Seminar, October 9-11, 2013
National Research Council Rome - Italy
http://issuu.com/cnr-dta/docs/nysmac_11abstracts