

Review

**Recent contributions to long-term atmospheric studies
at Koldewey-Station**

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Abstract: The Koldewey-Station at Ny-Ålesund/Spitsbergen is the German Arctic research station, which has two main tasks. It serves as a platform for research campaigns in many different scientific fields carried out by German scientists in the Kongsfjord area. It also serves as an observatory for long term measurements, mainly for atmospheric research. Herewith the station contributes to several global observing networks like NDSC, BSRN and GAW and others. Validation of the resulting data sets is a regular topic in order to achieve a constant high quality level. This in turn makes data from the Koldewey-Station attractive to others for the validation of remote sensing instrumentation e.g. on satellites or airborne platforms.

A brief overview is given on current atmospheric measurement capabilities at the station. Secondly recent crucial results of long-term measurements and campaigns are summarised, and their contributions to regional and bi-polar investigations are briefly discussed. Observations are focussed to measurements of aerosols and trace gases and the climate effect of their long-term development. Regional investigations are for example related to the stratospheric ozone loss, which is studied with a "Match" technique. The comparison with Antarctic observations reveals the different pattern in long-term development. Validation efforts and campaigns are summarised, which contribute to satellite experiments as well as to large international campaigns.