**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 connected 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.