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Measurements of the tropospheric and stratospheric trace gases by FTIR emission spectroscopy above the Arctic during polar winter

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At the AWIPEV research base in Ny Ålesund, Spitsbergen, an extensive set of atmospheric experiments is conducted. Among the instruments on the research base, a high resolution FTIR instrument is used for measuring atmospheric properties using solar and lunar absorption spectroscopy.

This spectrometer has been used to measure atmospheric thermal emission during the winter 2008/09. This offers the opportunity to observe several tropospheric and stratospheric species throughout the polar winter and to complete the series measured by solar and lunar absorption measurements.

The methodology used in Ny Ålesund is explained and first results are presented from measurements during the winter 2008/09. O_3 and H_2O are compared to measurements of the microwave instruments, measurements of sondes at the same place and to the ECMWF ERA 40 product.