

# **Atmospheric composition measurements in northern Finland and comparison with space borne observations**

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IASI instrument on board Metop-A satellite provides frequent measurements of greenhouse gases over the Arctic region. Metop-A is the first of the polar orbiting satellites by EUMETSAT. Currently IASI Level 2 processing includes water vapor, carbon monoxide, methane and other gases. Confidence in these remote sensing observations is largely based on ground based validation. For validation purposes we have used both remote sensing and in situ techniques. Accurate water vapor profiles were measured by a research grade cryogenic frost point hygrometer (CFH). The sonde launches were timed to Metop-A overpasses to minimize the time gap between CFH and IASI measurements. The CFH data were collected during various measurement campaigns since 2008. The greenhouse gas column measurements were made by a Fourier Transform Infrared (FTIR) spectrometer. The FTIR instrument in Sodankylä, Northern Finland is based on the Bruker HR125 spectrometer and it has been optimized for greenhouse gas measurements. The greenhouse gas measurements started in February 2009, thus we have more than 3 years of near simultaneous observations. The data from Sodankylä were recently re-processed using an improved retrieval.