Geophysical Research Abstracts
Vol. 12, EGU2010-13701, 2010
EGU General Assembly 2010

Polar stratospheric cloud, water vapor and ozone observations at Sodankylä

Rigel Kivi (1), Esko Kyrö (1), Holger Vömel (2), Franz Immler (2), Niklaus Kämpfer (3), Corinne Straub (3), Vladimir Yushkov (4), Sergey Khaykin (4), Tina Christensen (5), and Frank G. Wienhold (6)

(1) Arctic Research, Finnish Meteorological Institute, Sodankylä, Finland, (2) Meteorological Observatory Lindenberg / Richard Aßmann Observatory, German Meteorological Service (DWD), Lindenberg, Germany, (3) Institute of Applied Physics, University of Bern, Bern, Switzerland, (4) Central Aerological Observatory, Russian Federal Service for Hydrometeorology and Monitoring of the Environment (Roshydromet), Dolgoprudny, Russian Federation, (5) Danish Climate Centre, Danish Meteorological Institute, Copenhagen, Denmark, (6) Institute for Atmospheric and Climate Science, Swiss Federal Institute of Technology, Zürich, Switzerland

The observatory at Sodankylä at 67.4ºN, 26.6ºE is well located to sample stratospheric air inside the Arctic Vortex. Here we focus on the recent observations of polar stratospheric clouds (PSCs), water vapor and ozone. Within the Lapland Atmosphere-Biosphere Facility (LAPBIAT) atmospheric sounding project in early 2010 a measurement campaign took place at Sodankylä involving several recently developed in situ and remote sensing instruments to measure water vapor, stratospheric aerosols and ozone. The campaign was especially targeting the needs of the GCOS Reference Upper Air Network GRUAN. Sodankylä is currently the northernmost GRUAN station in the European sector of the Arctic. The in situ water vapor instruments of the campaign included the Cryogenic Frostpoint Hygrometer (CFH) and the Fluorescent Advanced Stratospheric Hygrometer for balloon measurements (FLASH-B). PSC measurements were made by two types of aerosol backscatter sondes including the new light-weight aerosol backscatter sonde COBALD. The remote sensing instruments included the new microwave radiometer developed by the University of Bern. Here we present an overview of the campaign measurements and instrument comparisons and secondly results of PSC type II measurements in the Arctic lower stratosphere in January 2010 by combining data from different instruments. Finally, we present the recent polar ozone measurements by ground-based spectrophotometers and balloon borne ozonesondes at Sodankylä.