



## **Intercomparison of atmospheric water vapour satellite measurements made over the Canadian High Arctic**

Dan Weaver (1), Kimberely Strong (1), Matthias Schneider (2), Chris Sioris (3), Kaley Walker (1), Holger Vömel (4), Michael Sommer (5), and C. Thomas McElroy (3)

(1) University of Toronto, Department of Physics, Toronto, Canada (dweaver@atmosph.physics.utoronto.ca), (2) Institute of Meteorology and Climate Research (IMK-ASF), Karlsruhe Institute of Technology, Karlsruhe, Germany, (3) Department of Earth and Space Science and Engineering, Lassonde School of Engineering, York University, Toronto, Canada, (4) Earth Observing Laboratory, NCAR, Boulder, Colorado, USA, (5) GRUAN Lead Centre, Deutscher Wetterdienst, Lindenberg, Germany

Improving measurements of water vapour in the lower stratosphere and upper troposphere (UTLS) is a priority for the atmospheric science community. In this work, we assess UTLS water vapour profiles produced by Atmospheric Chemistry Experiment (ACE) satellite measurements are assessed by comparison with coincident ground-based measurements taken at a high Arctic observatory at Eureka, Nunavut, Canada. Additional comparisons to satellite measurements taken by AIRS, MIPAS, MLS, SCIAMACHY, and TES are included for context.

Measurements of water vapour profiles at Eureka are made using a Bruker 125HR solar absorption Fourier transform spectrometer (125HR) at the Polar Environment Atmospheric Research Laboratory (PEARL) and radiosondes launched from the Eureka Weather Station. Radiosonde measurements used in this study have been processed by the Global Climate Observing System (GCOS) Reference Upper Air Network (GRUAN).