



Water vapor trends from the NDACC-FTIR network

Ralf Sussmann (1), Tobias Borsdorff (1), Markus Rettinger (1), Claude Camy-Peyret (2), Philippe Demoulin (3), Pierre Duchatelet (3), Emmanuel Mahieu (3), Christian Servais (3), and the NDACC-FTIR Team

(1) Karlsruhe Institute of Technology, IMK-IFU Garmisch-Partenkirchen, Garmisch-Partenkirchen, Germany (ralf.sussmann@kit.edu, +49-(0)8821-73573), (2) Laboratoire de Physique Moléculaire et Applications (LPMA), CNRS, Paris (France), (3) Institute of Astrophysics and Geophysics of the University of Liège, Liège (Belgium)

The mid-infrared solar absorption FTIR instruments of the Network of the Detection of Atmospheric Composition Change (NDACC) provide the hitherto unused possibility to retrieve trends of atmospheric water vapor. Measurements at more than a dozen of NDACC FTIR sites around the globe cover meanwhile a time span of more than 1 decade. We have shown recently that trends in integrated water vapor can be retrieved from these existing long-time measurement series with unprecedented accuracy and precision (Sussmann et al., 2009).

The presentation details the strategy for harmonized retrieval of integrated water vapor from routine FTIR measurements at the different NDACC stations. The retrieved trends will be discussed in terms of statistical significance.

The paper gives also first results on the correlation of integrated water vapor trends with co-located surface temperature trends. The study shows an unexpected riddle of correlation versus non-correlation. Possible geophysical explanations will be discussed.

Reference

Sussmann, R., Borsdorff, T., Rettinger, M., Camy-Peyret, C., Demoulin, P., Duchatelet, P., Mahieu, E., and Servais, C.: Technical Note: Harmonized retrieval of column-integrated atmospheric water vapor from the FTIR network – first examples for long-term records and station trends, *Atmos. Chem. Phys.*, 9, 8987-8999, 2009.