



## **First results from two MAX-DOAS instruments in Vienna, Austria**

Stefan Schreier (1), Philipp Weihs (1), Andreas Richter (2), Enno Peters (2), John Burrows (2), and Alois Schmalwieser (3)

(1) Institute of Meteorology, University of Natural Resources and Life Sciences, Vienna, Austria, (2) Institute of Environmental Physics, University of Bremen, Bremen, Germany, (3) Unit of Molecular Physiology and Biophysics, University of Veterinary Medicine, Vienna, Austria

Two MAX-DOAS instruments have been installed at two different locations in the northeast and northwest of Vienna as part of the VINDOBONA (VIenna horizontal aNd vertical Distribution OBServations Of Nitrogen dioxide and Aerosols) project. Since December 2016 and May 2017, measurements are obtained from the two instruments in the visible and UV part of the electromagnetic spectrum, respectively. The subsequent DOAS analysis delivers O<sub>3</sub>, O<sub>4</sub>, NO<sub>2</sub>, CHOCHO, and HCHO differential slant column densities (DSCDs).

Initial analyses of the data are focused on diurnal and seasonal variability, correlation of trace gas amounts between the different azimuthal viewing directions and comparison of DSCDs with in-situ NO<sub>2</sub> concentrations. For example, measurements of both instruments show a distinct diurnal cycle of NO<sub>2</sub> DSCDs with highest amounts in the morning, in particular for the summer period. As expected, the highest correlation for the diurnal variation of NO<sub>2</sub> DSCDs is obtained between the two viewing directions that are pointing in the direction of the other instrument. Lastly, NO<sub>2</sub> DSCDs of selected azimuthal directions are found to be in good agreement with NO<sub>2</sub> concentrations from nearby in-situ stations.

In the near future, small campaigns including car DOAS zenith-sky and tower DOAS off-axis measurements are planned. With this additional data, we will gain more insights into the horizontal variability of NO<sub>2</sub> and other trace gases in Vienna and moreover will provide data for satellite validation.