

## Retrieval of methane columns and profiles from mid-infrared FTIR spectrometry and intercalibration to TCCON

R. Sussmann, A. Ostler, and P. Hausmann

Mid-infrared ground-based solar FTIR measurements performed within the Network for the Detection of Atmospheric Composition Change (NDACC) contain information on trace gas total columns which can be used for source-sink inversions or satellite validation. Additionally, mid-infrared (MIR) FTIR is one of the few ground-based techniques revealing information on the CH<sub>4</sub> vertical profile.

We show how MIR methane retrievals can be optimized for high-accuracy columns and eliminating water vapor interference and at the same time attain maximum profile information. Furthermore, we performed the first intercalibration of dry-air column-averaged mole fractions of methane ( $X_{CH_4}$ ) retrieved from NDACC-type MIR measurements versus near-infrared (NIR) soundings from the Total Carbon Column Observing Network (TCCON). An extension of this study investigated the impact of dynamical variability like deep stratospheric intrusions and stratospheric subsidence upon the MIR-NIR agreement.