



Comparisons of the error budgets associated with ground-based FTIR measurements of atmospheric CH₄ profiles at Île de la Réunion and Jungfraujoch.

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The Fourier Transform Infra Red (FTIR) remote measurements of atmospheric constituents at the observatories at Saint-Denis (20.90°S, 55.48°E, 50 m a.s.l., Île de la Réunion) and Jungfraujoch (46.55°N, 7.98°E, 3580 m a.s.l., Switzerland) are affiliated to the Network for the Detection of Atmospheric Composition Change (NDACC). The European NDACC FTIR data for CH₄ were improved and homogenized among the stations in the EU project HYMN. One important application of these data is their use for the validation of satellite products, like the validation of SCIAMACHY or IASI CH₄ columns. Therefore, it is very important that errors and uncertainties associated to the ground-based FTIR CH₄ data are well characterized.

In this poster we present a comparison of errors on retrieved vertical concentration profiles of CH₄ between Saint-Denis and Jungfraujoch.

At both stations, we have used the same retrieval algorithm, namely SFIT2 v3.92 developed jointly at the NASA Langley Research Center, the National Center for Atmospheric Research (NCAR) and the National Institute of Water and Atmosphere Research (NIWA) at Lauder, New Zealand, and error evaluation tools developed at the Belgian Institute for Space Aeronomy (BIRA-IASB). The error components investigated in this study are: smoothing, noise, temperature, instrumental line shape (ILS) (in particular the modulation amplitude and phase), spectroscopy (in particular the pressure broadening and intensity), interfering species and solar zenith angle (SZA) error. We will determine if the characteristics of the sites in terms of altitude, geographic locations and atmospheric conditions produce significant differences in the error budgets for the retrieved CH₄ vertical profiles