



Seeking for the optimum retrieval strategy of methanol (CH_3OH) from ground-based high-resolution FTIR solar observations recorded at the high-altitude Jungfraujoch station (46.5°N)

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Methanol (CH_3OH) is a key organic compound in the Earth's troposphere, with reported concentrations of the order of a few ppbv. It is indeed the second most abundant organic atmospheric compound after methane (Jacob et al., 2005). The same authors have estimated its lifetime to a few days. Natural sources of CH_3OH include plant growth, oceans, decomposition of plant matter, oxidation of methane,... They are complemented by anthropogenic (from vehicles, industry) and biomass burning emissions. Oxidation by the hydroxyl radical is the main sink, leading to the formation of carbon monoxide (CO) and formaldehyde (H_2CO) (Rinsland et al., 2009; Stavrakou et al., 2011, and references therein).

The first retrievals of methanol from ground-based Fourier Transform Infrared (FTIR) spectra have been reported by Rinsland et al. (2009), using spectra recorded at Kitt Peak (31.9°N) and a microwindow extending from 992 to 999 cm^{-1} . Soon after, Stavrakou et al. (2011) used another spectral interval from 1029 to 1037 cm^{-1} , for methanol retrievals at Reunion Island (21°S). In both cases, lines of the strong ν_8 band of CH_3OH were adjusted, accounting for interferences by several isotopologues of ozone and by water vapor.

In this contribution, we will present first retrievals of CH_3OH from observations recorded at the high-altitude station of the Jungfraujoch (46.5°N , 8°E , 3580 m asl), with a Bruker 120HR spectrometer, in the framework of the Network for the Detection of Atmospheric Composition Change (NDACC, visit <http://www.ndacc.org>). We will implement existing retrieval approaches –and possibly additional one(s)– to determine which strategy is the most appropriate for our dry high-altitude site. If successful, a long-term CH_3OH total column time series will be produced using the Jungfraujoch observational database, and we will perform preliminary investigations to characterize the seasonal and inter-annual variations of this species at northern mid-latitudes.

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