



Retrieval of Stratospheric CH₄ Profiles from SCIAMACHY Solar Occultation Measurements using a DOAS approach

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Stratospheric methane (CH₄) profiles have been derived from solar occultation measurements of the SCanning Imaging Absorption spectroMeter for Atmospheric CHartographY (SCIAMACHY) on ENVISAT. The SCIAMACHY solar occultation measurements cover the latitudinal range between about 50°N and 70°N. The retrieval method is based on a combination of an onion peeling approach with a weighting function DOAS (Differential Optical Absorption Spectroscopy) fit. This is an extension of the "Onion Peeling DOAS" method which has already been successfully applied to e.g. water vapour.

Here, we will present first retrieval results for methane using the optimised method and compare them with correlative data (e.g. ACE-FTS measurements). Furthermore, time series of stratospheric methane profiles (based on about 8 years of SCIAMACHY solar occultation data) will be presented, showing the capability of SCIAMACHY solar occultation measurements in the context of greenhouse gas monitoring.