RETRIEVAL OF TROPOSPHERIC TRACE GAS AMOUNTS FROM COMBINED LIMB/NADIR ANALYSIS

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A unique feature of SCIAMACHY is the capability of sensing the atmosphere in various observation geometries. The combined analysis of spectra acquired in limb and nadir measurement mode allows the separation of tropospheric and stratospheric contributions to the absorption signal. In particular, the observations bear the potential for a global determination of tropospheric trace gas amounts. We discuss strategies, which take advantage of SCIAMACHY’s different viewing geometries to infer tropospheric abundances of O3 and NO2. Differences of total vertical columns from nadir measurements and stratospheric columns derived from limb profiles will be compared with ground observations and radiosonde data. In addition, we will discuss potential techniques to maximize the sensitivity to contributions of the lower atmosphere.