Analysis of SCIAMACHY nadir measurements over major CO source regions

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The measurements of reflected and back scattered sun light in the UV, visible, and near-IR spectral regions by SCIAMACHY on board ENVISAT contain information about carbon monoxide (CO) and other important trace gases, which influence the quality of our air, like formaldehyde (HCHO) and nitrogen dioxide (NO2). Using scientific retrieval algorithms developed at the University of Bremen we have generated multi-year data sets of vertical columns of CO and HCHO and tropospheric columns of NO2 from the SCIAMACHY nadir measurements. Here we focus on a discussion of the CO data set over major CO source regions, including extended regions emitting huge amounts of CO due to biomass burning and relatively small localized polluted areas such as individual cities. An important source of CO are fires. The relative amounts of CO, HCHO und NO2 as emitted from fires depend on the type of the combustion process (e.g., smoldering versus flaming fire phase). The simultaneous measurement of all three gases yields information on the type of the fires. We analyse the simultaneous SCIAMACHY measurements of CO, HCHO und NO2 in order to get information about the sources of CO. In addition, we use external data which provide additional information, for example about fires (AATSR fire counts) and the meteorology. We give an overview about the current status of this research activity.