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Global distribution of CH_4 and CO as retrieved by SCIAMACHY: Identification of source regions and comparison with a TM3 model

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The spectrometer SCIAMACHY aboard ENVISAT provides two near infrared channels with moderate spectral resolution. Through an new iterative DOAS technique the vertical column amounts of CH_4, CO_2 and CO can be retrieved. Using CO_2 as proxy for the mass of the probed column, we can derive column-averaged mixing ratios of CH_4. We thereby derived global maps of the CH_4 distribution where several sources of methane in the atmosphere can be identified. Among these are rice cultivation, coal-mining, fossil fuel production and wetlands. The global maps are in good agreement with a TM3 model that takes current emission inventories into account. Furthermore, we derived global maps of CO, identifying seasonal patterns of biomass burning as well as constant pollutions due to industrial activities.