



CO profile information from SCIAMACHY observations using 'cloud-slicing'

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From SCIAMACHY near IR observations the total atmospheric column density of CO can be retrieved including also the surface-near layers. The information content of the SCIAMACHY measurements is, however, not high enough to derive profile information (e.g. discriminate partial columns at different height layers) for individual observations.

In this study we apply the so called cloud slicing technique, which was originally developed for TOMS Ozone observations, to SCIAMACHY CO observations. Compared to the UV spectral range, the radiance contrast difference between the clear and cloudy part of the satellite pixel is usually high in the near IR; thus even for rather small cloud fraction (about >10%) the observed CO column density mainly represents the partial column above the cloud top. Although it is not possible to retrieve CO profiles from individual measurements (only one cloud top height for individual pixels), averaged CO profiles for monthly means or longer periods can be derived from this strategy. We present averaged CO profiles from SCIAMACHY observations (seasonal and global variation) and compare them to corresponding CO profiles from atmospheric models.