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Multiyear SCIAMACHY CO total column observations: applications, recent improvements and developments.

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The SCIAMACHY instrument onboard ENVISAT has been successful in providing carbon monoxide total column measurements. The SCIAMACHY near-infrared satellite instrument currently provides 4 years of global carbon monoxide (CO) data. These observations are very helpful for a better understanding of sources of CO (especially biomass burning) and their long term changes, but also for long range transport. This talk will highlight a number of the achievements so far and recent developments and improvements regarding the SRON IMLM algorithm. Some of the problems encountered in retrieving CO total columns from SCIAMACHY will be explained, as well as how to use the SRON SCIAMACHY CO total columns, and the results of the extensive statistical analysis - using chemistry-transport model calculations of CO - which has been used to evaluate the quality of the observations. The latter also shows the potential of using actual measurements to evaluate CTMs, both with regard to CO sources and long-range transport. Current status and future outlook will be presented, including comparisons of SCIAMACHY CO observations over oceanic low clouds, evaluation of data quality for an extended period from September 2003 to December 2005 and comparison of SCIAMACHY CO total columns with MOPITT observations.