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SCIAMACHY limb water vapour results from SHARP

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As part of the water vapour project of SHARP (Stratospheric Change and its Role for Climate Prediction) several versions of water vapour profile product from SCIAMACHY (SCanning Imaging Absorption spectroMeter for Atmospheric CHartograpY) limb measurements were developed, analysed, and compared to other data sets.

For the water vapour profile retrieval SCIAMACHY limb spectra of scattered sunlight in the near infrared are used. The evaluable altitude for water vapour is about 10 to 25 km, covering the UTLS (upper troposphere and lower stratosphere), a region of special interest for a variety of dynamical and chemical processes in the atmosphere.

SCIAMACHY, an instrument on Envisat, measured with near global coverage for almost one decade between August 2002 and April 2012. Therefore, a long data series and a dense coverage within the UTLS can be provided. Data versions developed during SHARP are part of SPARC-DI (Stratosphere--troposphere Processes And their Role in Climate - Data Initiative) and WAVAS (Water Vapor Assessment).

For the latest data version the aerosol correction and the regularization were improved. Due to the time-consuming retrieval process, the programs were adapted to use a Message Passing Interface (MPI) on the massively parallel supercomputing system. Here, we present an overview of the results for SCIAMACHY limb water vapour within the SHARP project.