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Water vapor time series in the UTLS from SCIAMACHY limb measurements

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The SCanning Imaging Absorption spectroMeter for Atmospheric CHartograpY (SCIAMACHY) onboard Envisat observed the Earths atmosphere from 2002 to 2012.
SCIAMACHY has different observation geometries, we use limb measurements of the scattered sunlight in the near infrared spectral range to retrieve water vapor in an altitude range of about 11 to 23 km. This provides a long and consistent time series of water vapor in the upper troposphere and lower stratosphere (UTLS). The time series were created, analyzed, and compared to other data sets within the DFG research unit SHARP (Stratospheric Change and its Role for Climate Prediction). SHARP brings together observations and climate models aiming on the detection, attribution and prediction of changes in stratospheric dynamics. Our results provide information on the value of the existing data set, indicate possible improvements of the retrieval algorithm, and show the changes and variability of the UTLS for the observed time period.