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- Recent Final Revised Papers
- Volumes and Issues**
- Special Issues
- Library Search
- Title and Author Search

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Review

Production

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Comment on a Paper

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[Volumes and Issues](#) [Contents of Issue 7](#) [Special Issue](#)

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## Validation of SCIAMACHY AMC-DOAS water vapour columns

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**Abstract.** A first validation of water vapour total column amounts derived from measurements of the SCanning Imaging Absorption spectroMeter for Atmospheric CHartography (SCIAMACHY) in the visible spectral region has been performed. For this purpose, SCIAMACHY water vapour data have been determined for the year 2003 using an extended version of the Differential Optical Absorption Spectroscopy (DOAS) method, called Air Mass Corrected (AMC-DOAS). The SCIAMACHY results are compared with corresponding water vapour measurements by the Special Sensor Microwave Imager (SSM/I) and with model data from the European Centre for Medium-Range Weather Forecasts (ECMWF).

In confirmation of previous results it could be shown that SCIAMACHY derived water vapour columns are typically slightly lower than both SSM/I and ECMWF data, especially over ocean areas. However, these deviations are much smaller than the observed scatter of the data which is caused by the different temporal and spatial sampling and resolution of the data sets. For example, the overall difference with ECMWF data is only  $-0.05 \text{ g/cm}^2$  whereas the typical scatter is in the order of  $0.5 \text{ g/cm}^2$ . Both values show almost no variation over the year.

In addition, first monthly means of SCIAMACHY water vapour data have been computed. The quality of these monthly means is currently limited by the availability of calibrated SCIAMACHY spectra. Nevertheless, first comparisons with ECMWF data show that SCIAMACHY (and similar instruments) are able to provide a new independent global water vapour data set.

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