



## **Aerosol parameters derived from SCIAMACHY observations**

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SCIAMACHY (SCanning ImAging spectroMeter for Atmospheric CHartographY) on ENVISAT provides a very wide spectral range from UV to NIR for a retrieval of aerosol parameters. Therefore, this instrument is able to provide data for tests with different retrieval approaches in different spectral bands and their combinations.

The present regular radiometric calibration of the SCIAMACHY L1 b product gives 10 - 20 % bias in the TOA reflectance (too small values). Therefore, accurate determination of aerosol parameters is not possible with current radiometric calibration data. We made attempts for the improvement of the radiometric calibration using comparison with MERIS. New radiometric key data, derived from recalculation of the Spectralon Calibration, improve the radiometric calibration of the SCIAMACHY L1b data to that radiometric range, which enables aerosol studies, e.g. the retrieval of the aerosol optical thickness and the absorbing aerosol index.

The estimation of the aerosol optical thickness is made by the BAER approach (BAER - **B**remen **A**erosol **R**etrieval), von Hoyningen-Huene et al., 2003 in a similar way as it is made with SeaWiFS and MERIS L1 data. Because of the coarse spatial resolution of SCIAMACHY, a rigorous cloud screening is required and disturbances by sub-pixel clouds cannot generally be excluded. Using the improved radiometric calibration, the aerosol optical thickness for cloud-free scenes could be retrieved in a range close to that measured by the ground-based spectrophotometers.

### References

von Hoyningen-Huene, W., Freitag, M., Burrows, J.P.: Retrieval of Aerosol Optical

Thickness over Land Surfaces from Top-of-Atmosphere Radiance, JGR 108 (2003)  
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