

## SCIAMACHY OPTICAL PERFORMANCE CHARACTERISTICS

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**ABSTRACT**

The Scanning Imaging Absorption spectroMeter for Atmospheric CHartographY (SCIAMACHY) is a contribution to the ENVISAT-1 satellite, which will be launched in mid 2001. The SCIAMACHY instrument is designed to measure sunlight transmitted, reflected and scattered by the Earth's atmosphere or surface simultaneously from the UV to the NIR spectral region (240 - 2380 nm) in various viewing geometries, namely nadir, limb, and both solar and lunar occultation.

From these measurements atmospheric concentration distributions of O<sub>3</sub>, NO, NO<sub>2</sub>, NO<sub>3</sub>, BrO, OCIO, SO<sub>2</sub>, H<sub>2</sub>CO, H<sub>2</sub>O, CO, CO<sub>2</sub>, N<sub>2</sub>O, and CH<sub>4</sub> will be deduced globally. SCIAMACHY is the only instrument on ENVISAT, which is able to detect the concentrations of O<sub>3</sub>, NO<sub>2</sub>, BrO, SO<sub>2</sub>, H<sub>2</sub>CO, H<sub>2</sub>O, CO, CO<sub>2</sub>, N<sub>2</sub>O, and CH<sub>4</sub> down the boundary layer or the cloud top.

The accuracy of the envisaged data products depends on a) the instrument performance and characterisation, b) the algorithms used for inversion of the data (data processing), c) the validation of the data products. Instrument performance is now well characterised and the calibrated instrument was delivered to ESA-ENVISAT in early 2000. The development of scientific and operational algorithms is progressing. The SCIAMACHY validation campaign embedded in the ENVISAT validation campaign is also under preparation.

In this contribution the as-built status of the optical performance of SCIAMACHY is presented and compared with the required performance.

Special emphasis will be placed on performance aspects relevant for data processing and validation.