

Home

Online Library ACP

- ▣ Recent Final Revised Papers
- ▣ [Volumes and Issues](#)
- ▣ Special Issues
- ▣ Library Search
- ▣ Title and Author Search

Online Library ACPD

Alerts & RSS Feeds

General Information

Submission

Review

Production

Subscription

Comment on a Paper

Impact  
Factor  
4.865

ISI  
indexed



▣ [Volumes and Issues](#) ▣ [Contents of Issue 8](#) ▣ [Special Issue](#)

Atmos. Chem. Phys., 7, 1915-1923, 2007

[www.atmos-chem-phys.net/7/1915/2007/](http://www.atmos-chem-phys.net/7/1915/2007/)

© Author(s) 2007. This work is licensed under a Creative Commons License.

## Precision validation of MIPAS-Envisat products

C. Piccolo and A. Dudhia

Atmospheric, Oceanic and Planetary Physics, University of Oxford, Oxford, UK

**Abstract.** This paper discusses the variation and validation of the precision, or estimated random error, associated with the ESA Level 2 products from the Michelson Interferometer for Passive Atmospheric Sounding (MIPAS).

This quantity represents the propagation of the radiometric noise from the spectra through the retrieval process into the Level 2 profile values. The noise itself varies with time, steadily rising between ice decontamination events, but the Level 2 precision has a greater variation due to the atmospheric temperature which controls the total radiance received. Hence, for all species, the precision varies latitudinally/seasonally with temperature, with a small superimposed temporal structure determined by the degree of ice contamination on the detectors.

The precision validation involves comparing two MIPAS retrievals at the intersections of ascending/descending orbits. For 5 days per month of full resolution MIPAS operation, the standard deviation of the matching profile pairs is computed and compared with the precision given in the MIPAS Level 2 data, except for NO<sub>2</sub> since it has a large diurnal variation between ascending/descending intersections. Even taking into account the propagation of the pressure-temperature retrieval errors into the VMR retrieval, the standard deviation of the matching pairs is usually a factor 1–2 larger than the precision. This is thought to be due to effects such as horizontal inhomogeneity of the atmosphere and instability of the retrieval.

▣ [Final Revised Paper](#) (PDF, 512 KB) ▣ [Discussion Paper](#) (ACPD)

Citation: Piccolo, C. and Dudhia, A.: Precision validation of MIPAS-Envisat products, Atmos. Chem. Phys., 7, 1915-1923, 2007. ▣ [Bibtex](#) ▣ [EndNote](#) ▣ [Reference Manager](#)



Search ACP

Library Search

Author Search

News

- ▣ [Sister Journals AMT & GMD](#)
- ▣ [Financial Support for Authors](#)
- ▣ [Journal Impact Factor](#)
- ▣ [Public Relations & Background Information](#)

Recent Papers

01 | ACP, 08 Dec 2008: Climate forcing and air quality change due to regional emissions reductions by economic sector

02 | ACPD, 08 Dec 2008: Source apportionment of PM<sub>2.5</sub> in Seoul, Korea

03 | ACPD, 08 Dec 2008: Effects of model resolution on entrainment (inversion heights), cloud-radiation interactions, and cloud radiative forcing