

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 19](#)
- ▣ [Special Issue](#)

Atmos. Chem. Phys., 7, 5147-5158, 2007

[www.atmos-chem-phys.net/7/5147/2007/](http://www.atmos-chem-phys.net/7/5147/2007/)

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

## Behaviour of tracer diffusion in simple atmospheric boundary layer models

P. S. Anderson and S. J.-B. Bauguitte

British Antarctic Survey, Madingley Road, Cambridge, CB3 0ET, UK

**Abstract.** 1-D profiles and time series from an idealised atmospheric boundary layer model are presented, which show agreement with boundary layer measurements of polar NO<sub>x</sub>. Diffusion models are increasingly being used as the framework for studying tropospheric air chemistry dynamics. Models based on standard boundary layer diffusivity profiles have an intrinsic behaviour that is not necessarily intuitive, due to the variation of turbulent diffusivity with height. The simple model presented captures the essence of the evolution of a trace gas released at the surface, and thereby provides both a programming and a conceptual tool in the analysis of observed trace gas evolution. A time scale inherent in the model can be tuned by fitting model time series to observations. This scale is then applicable to the more physically simple but chemically complex zeroth order or box models of chemical interactions.

- ▣ [Final Revised Paper](#) (PDF, 706 KB)
- ▣ [Discussion Paper](#) (ACPD)

Citation: Anderson, P. S. and Bauguitte, S. J.-B.: Behaviour of tracer diffusion in simple atmospheric boundary layer models, Atmos. Chem. Phys., 7, 5147-5158, 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, 22 Dec 2008: Summertime elemental mercury exchange of temperate grasslands on an ecosystem-scale

02 | ACPD, 19 Dec 2008: Quantifying transport into the lowermost stratosphere using simultaneous in-situ measurements of SF<sub>6</sub> and CO<sub>2</sub>

03 | ACP, 19 Dec 2008: Aerosol model selection and uncertainty modelling by adaptive MCMC technique