

Interactive comment on “Technical note: The Lagrangian particle dispersion model FLEXPART version 6.2” by A. Stohl et al.

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Received and published: 19 August 2005

First I want to congratulate the Authors on a comprehensive description of the FLEXPART model, which will be of great practical use to the user. However, I have a comment regarding the derivation of boundary layer heights, which I think need careful attention.

The atmospheric boundary layer (ABL) height controls mixing of surface influences (sources and sinks) in the lower atmosphere, and with that has a direct influence on the concentration caused by a given source strength. In other words, it strongly affects the source-receptor relationship. Uncertainties in mixed layer height should therefore be discussed very carefully.

In this context I have a comment regarding the formulation of boundary layer height (page 4748): Flexpart applies a modification to the ABL height as derived with the Richardson number concept, by adding the subgrid terrain variability or by adding twice the ratio of wind speed and Brunt-Vaisala frequency (if positive), whichever is smaller. It would be important to know the magnitude of this correction/modification term relative to the ABL height, may be also to better motivate this term. Do the authors have an estimate of potential uncertainties in the ABL height?

A technical comment: to my understanding the Froude number is not the ratio of wind speed and Brunt-Vaisala frequency as stated on page 4748, but rather the unitless number wind speed / object height x Brunt-Vaisalla frequency, where object height can for example the height of a mountain range.

Interactive comment on Atmos. Chem. Phys. Discuss., 5, 4739, 2005.

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