

Interactive comment on “Stochastic fields method for sub-grid scale emission heterogeneity in mesoscale atmospheric dispersion models” by M. Cassiani et al.

Anonymous Referee #2

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General comment: the paper addresses an important problem in the actual modelling activity. I recommend the publication after some revision as follows.

Specific comments:

1) the stress on the absence of closure assumption (see for instance in the Abstract) may be misleading. Turbulent convection is parameterised in eq. 2 and the source distribution is parameterised via the assumption of a specified pdf, for instance. Closures are required for the micro-mixing models. Other closures are avoided, as those concerning chemistry. This aspect is worth to be best written.

2) looking at atmospheric applications, it is necessary to evaluate the impact of the
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subgrid variability of the sources changing the boundary layer stability and steadiness. Although this point is beyond the scope of the actual paper, it is necessary to make explicit mention to the atmospheric conditions simulated (a CBL, I guess) or to demonstrate that the results are independent on stability.

Interactive comment on Atmos. Chem. Phys. Discuss., 9, 15215, 2009.