

Interactive comment on “Concatenated non-stationary dispersive scenarios on complex terrain under summer conditions” by J. L. Palau et al.

Anonymous Referee #1

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Main comment

This paper gives very interesting experimental and modelling results, addressing relevant scientific questions on the dispersion of air pollutants emitted from tall stacks in strong convective conditions and transitory periods driven by diurnal cycle mesoscale flows. The authors follow a consistent and reproducible methodological approach in the data analysis supporting substantial conclusions.

It would be very interesting to show also some results from modelling in the vertical.

Specific comments.

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- The title can be somewhat more precise, including some keywords "strong convective"; (instead of summer), "mesoscale flows"; "tall stack" ...
- The abstract may become more clear reversing the order: begin with the second paragraph: "By experimentation and modelling ..."; and finish with the first one, after some rewording. Also, the paragraph beginning in line 8 on page 12844 ("This paper analyses ...") must be part of the abstract.
- Chimney = Stack ?
- The vertical configuration of the model nested grids is not given in the paper
- Why release particles randomly from a 0.1 x 0.1 x 0.01 km volume ?
- Figure 1 and 2 can be combined in a bigger one.
- The qualitative description in section 3.1 has to be somewhat simplified and re-ordered, in particular for day 2. May be using some synoptic weather chart in figure 3 ?.
- Figures 4 to 8 may be more clear changing the colours for 4 and 6 hours particle releases (to look more different)
- The delay and biases in the ground concentrations modelled and measured (second day) deserve more analysis and discussion (vertical resolution of the model grids ..., available experimental data to give a significant statistical comparison, ...)
- The procedure followed to estimate dispersion dimensions must be referenced or explained in the paper.
- There are any differences between data shown in tables 1 and 2 and the figure 9 ?. This figure may be redundant. The heading of table 2 requires also some edition.
- Reference to M Uliasz (p 10855 last line, and 10856 first four lines, is repeated ?

Interactive comment on Atmos. Chem. Phys. Discuss., 8, 10841, 2008.

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