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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Integrated systems for forecasting urban meteorology, air pollution and population exposure" *by* A. Baklanov et al.

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Thank you, Ivan, for the comments. You are right, many different urban and other factors (including the stability, MO length, etc.) have impact on the plume dispersion, not only the mixing height (MH). Of course, they are considered in the urbanised version of the HIRLAM model (see details in other paper of the same ACPD issue: http://www.copernicus.org/EGU/acp/acpd/5/12119/acpd-5-12119_p.pdf). Here we just show, as an example, the sensitivity of the emergency dispersion simulation on the mixing height, as one of the urban depending factors. Additionally, we are currently working on further improvement of not only the HIRLAM model, but also the ARGOS system itself (e.g., meteo-preprocessor) for urban conditions. Yes, the scales are almost not readable in Figures 7 and 8, so we'll increase the size of the colour scales in the Figures in the revised version to make them more visible (your comment 'a').

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However, I am afraid, in the comment 'b' you are mistaken (probably due to the invisible scales). The urban effects, e.g. the anthropogenic heat flux, lead to redistribution of the stratification (less stable due to extra heat), increasing the turbulent mixing and correspondingly a higher MH over the urban area. So, the plume is mixed in the higher layer and more intensively, so the plume becomes more widely spread, but with a lower concentration into the plume. This is exactly, what we can see in the result fields of the considered simulation example of Figs. 7 and 8.

Interactive comment on Atmos. Chem. Phys. Discuss., 6, 1867, 2006.

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