Interactive comment on “A novel model evaluation approach focusing on local and advected contributions to urban PM$_{2.5}$ levels – application to Paris, France” by H. Petetin et al.

Anonymous Referee #1

Received and published: 29 January 2014

In fact, the following comments/remarks are just suggestions:

General comments
This is a very well written, and impressive paper. A very nice balance between observations and modelling, and a novel approach for model evaluation based on the distinction between advected and local contributions. The reference list is impressive.

Specific comments.

- The comparison with observations is/seems to be based on the model results as a mean value over the lowest layer of 40 m. In principle, it would be possible to consider a vertical gradient due to dry deposition in the lowest layer. Would such an approach have any impact on the results? -Page 6405, line 14-20. It is clear that going from daily values to monthly mean will reduce the uncertainty. But, is there any indication of the cause of this. Is this due to (local) emission variability or meteo-variability? -Page 6407 Chosen is a minimum BL height of 150 m over urban areas. Is there any basis for this estimate, might its be related to an average effective building height and building density. As an example: would it be 150 m over Hong Kong also?

Technical comments:
Page 6394, line 9 Leave out etc. as is sufficient, or replace etc with text to state what you mean Page 6394 line 29 writes: regional background adds to the urban increment. I fail to understand this, the urban increment is due only to local phenomena, isn’t it?

Interactive comment on Geosci. Model Dev. Discuss., 6, 6391, 2013.