

Interactive comment on “Urban source term estimation for mercury using a boundary-layer budget method” by Basil Denzler et al.

Anonymous Referee #2

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General comments:

The topic of the manuscript is relevant to this journal. The discussion and conclusions are based on the results obtained. There are some points to be revised before the acceptance of the manuscript. They are:

- 1) Discussion on Hg(II)
- 2) Quantitative measures to evaluate the model fit
- 3) Typos

Specific comments:

#1 Discussion on Hg(II)

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3.3 Implications on emission reporting, Table 2

Please clarify whether the Swiss national CL RTP inventories for mercury emissions include only Hg(0) emissions or they include both Hg(0) and Hg(II) emissions. In the latter case, omission of Hg(II) in the boundary layer budget model needs to be discussed.

#2 Quantitative measures to evaluate the model fit

Figure 3 C, Figure S6-S17

As to the comparison between the measured concentrations and the modelled concentrations, visual comparison of the graphs are used in figure 3C and figure S6-S17. However, it is not so easy to evaluate the goodness of the fit in a quantitative manner thorough the visual inspection.

The reviewer recommends the authors to present some quantitative indicators that can be used to judge the goodness of the fit. For example, the RMSE used for the optimization might be presented along with the RMSE calculated for models with fixed BLH at 1500m (no inversion). The RMSE might be also useful for comparing basic scenarios and advanced scenarios.

#3 Typos

#3-1: Table 1 and Table S1

The lower bound emission for 11/07/2015 is “38” g/hour, which seems too large and is not consistent with the mean lower bound emission of 2.8 g/hour.

#3-2: Page 4, line 16

“and validated model model” -> “and validated model”

#3-3: Page 7, line 32

“the BLH ist the most sensitive” -> “the BLH is the most sensitive”

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Interactive comment on Atmos. Chem. Phys. Discuss., <https://doi.org/10.5194/acp-2018-402>, 2018.

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