

Interactive comment on “OLYMPUS v1.0: Development of an integrated air pollutant and GHG urban emissions model – Methodology and calibration over the greater Paris” by Arthur Elessa Etuman and Isabelle Coll

Anonymous Referee #2

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The paper addresses a relevant scientific modelling question, that of the estimation of atmospheric emissions in a urban area. The model is correctly developed and seems to present novelty; however the authors should more clearly identify what distinguishes OLYMPUS from other similar models. The manuscript should be reconsidered after revisions. It needs to be revised for its English since the language is sometimes incorrect and not always clear. Besides the English revision, my major reason of concern is as follows. In section 8, page 17 lines 53-55 is stated "The OLYMPUS modeling platform has been developed to meet the need for the development of a tool that links the urban

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diagnostics provided by the different disciplinary models, in order to produce analyses of the effects of urban policies on pollutant emissions, air quality and population exposure." The issues of exposure, air quality and urban policies are mentioned often in the literature review, yet OLYMPUS does not address these issues. In fact as stated in the beginning of section 2 "The objective of this model is to estimate the pollutant emissions linked with energy-consuming urban activities", and that is factual and correct. Exposure estimation requires combining pollutants concentrations (air quality) with time. In turn, to have pollutant concentrations some kind of an air quality model is required. Also the pollutants covered in a emission model are not necessarily the same as the ones covered in exposure assessments, where secondary, short-lived, pollutants are highly relevant. Going back to the statement, more specifically the part where the authors mention that OLYMPUS can be used "to produce analyses of the effects of urban policies on pollutant emissions", the work presented does not allow verifying the ability of the model to do that, in fact it doesn't even address urban policies. How will the model "react" to a change in urban policies? how will the authors change the inputs to reflect different urban policies? how will the authors address urban configuration? what exactly is urban configuration? These are all questions that remain unanswered, since the model was not applied to alternative urban policies. The authors should be very clear in the manuscript about the scope of the tool and the case-study presented. Any further considerations must be either accompanied by further modelling applications or removed.

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