

Interactive comment on “Combining homogeneous and heterogeneous chemistry to model inorganic compounds concentrations in indoor environments: the H²I model (v1.0)” by Eve-Agnès Fiorentino et al.

Anonymous Referee #2

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Review

Interactive comment on Geosci. Model Dev. Discuss., <https://doi.org/10.5194/gmd-2020-300>, 2020.

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Discussion paper



Interesting paper that presents a model that considers homogeneous and heterogeneous chemistry,

Some remarks and suggestions,

- The English must be improved in all parts of the paper,
- page 1, line 8, "The model succeeds in simulating correctly", what you mean by correctly, please to precise, e.g., give error values comparing simulations and experiments
- page 4, line 107 suggestion to replace "master equation" mass balance equation "
- page 4, line 110, I suggest presenting a simple schema that clearly shows the domains of L, S, the boundary of domains, and all flows and mass fluxes, this consideration will help to understand more the model
- page 5, line 121/Eq2, could you explain why you multiply $m_i S$ by V_{boxL}/V_{boxS} / same question for line 123/Eq3
- page 5, line 133, ... in these experiments..., which experiments? please precise
- Page 5, ... emission of the building itself... not clear which emission? indoor emissions due to activities/appliances/furnitures?
- page 6, line 149-line 156, must present a schema that shows an example of surface projections, surface boundaries, beams with window the window position considered
- page 6, line 153, line 155, are these equations valid for each season? each window position, surface and characteristics? please to highlight the limit of these equations,
- page 12, line 339, what parameters are assigned for VOCs, not clear, VOCs concentrations?
- page 12, line 341, is slower? it seems it is lower, not clear
- page 14, line 388, how the other uptake values can be adjusted by a user? from values in the literature?
- page 25, line 534, suggestion to replace "replicate" by "to predict"
- page 25, line 735, please to review this phrase "For the first time, O₃, HONO and NO_x species are simulated all at once and compared to experimental records acquired in a real room". is it the first study that estimates experimentally O₃, HONO and NO_x concentrations in a real environment?
- page 25, line 737 and line 738, please review this phrase "It is also the first two-box model allowing to consider the variations of direct and indirect light throughout the day". please to more explicit about this consideration by making the link with the study

Fig. 1.