

Geosci. Model Dev. Discuss., author comment AC3
<https://doi.org/10.5194/gmd-2021-428-AC3>, 2022
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Reply on RC3

Jérémy Bernard et al.

Author comment on "Estimation of missing building height in OpenStreetMap data: a French case study using GeoClimate 0.0.1" by Jérémy Bernard et al., Geosci. Model Dev. Discuss., <https://doi.org/10.5194/gmd-2021-428-AC3>, 2022

Thank you to *Anonymous Referee #2* for the time spent for the review. Below we have carefully answered each of the points raised. We have also extracted comments (which were not typo related) from the annotated pdf file in order to discuss more some of them.

1. We do not know any open source or closed data set having building height information at world scale. This problem is actually well described in Masson et al (2020) as we say line 31 in the article "*However, information concerning the vertical dimension is rarely available (Masson et al., 2020)*". But *Anonymous Referee #2* is right, the location of the sentence (between two paragraphs describing OSM data) is not perfect or the sentence not accurate enough (we might think this lack of vertical dimension is only an OSM issue while in Masson et al. (2020) it is described as a global issue for any data set). We have slightly modified the sentence in order to make it more understandable that it is a missing information in all datasets.

2. The study areas selected have been chosen according to the following criteria. The data sets (both training and validation) need to contain cities:

- relatively far from each other to have different history / cultural construction heritages,
- Having different geographical contexts (near mountain, near the sea or far from both)
- of different types (according to the INSEE definition – cf. Table 1)

We have described with more detail these informations in the manuscript. Answer concerning indicators comes below when answering to pdf annotations.

3. As already stated in the manuscript, there is no clear performance increase / decrease for a specific urban class. However, *Anonymous Referee 2* is not the only one to ask for clearer results since reviewer *Anonymous Referee 1* was also asking for a Table to better summarize the results. Thus we have added two tables (Please refer to Table 5 and Table 6) in this perspective and slightly modified the results description section (cf. supplement material enclosed to our 1st answer to *Anonymous Referee 1*).

4. Thank you for the English language modifications.

Concerning the other comments found in the pdf annotated by *Anonymous referee 2*:

"each building and its environment" (p.3): How is the environment of the

building defined? What is the size of it? Does it differ depending on building size?

Good catch. The building environment is actually defined by the limit of the Topological Spatial Unit it belongs to (cf. Figure 3). This information was missing at this stage, we have added it in the manuscript.

"Table 4" (p. 8): Why only these four out of 62 indicators? Please elaborate a bit.

Table 4 presents the main categories of spatial indicators, not each indicators. The table containing the list of the 62 indicators is in Annex A. We thought that Table 4 was a good summary of the types of indicators used as explaining variables and was better than the full list.

"reference height (actually if the user fills only the number of storey a simple rule is used to calculate the building height)" (p. 10): Specify the rule here

Good point. The rule is

Building height = number of storey * storey height

By default, storey height is set to 3 m. Even though this value may vary quite a lot between construction age and building type (see Biljecki et al. (2017) Figure 5), it seems a reasonable value according to the one observed in the literature (ranging from 2.8 and 3.5 m – Biljecki et al. (2017) section 2.2.1).

We have added these informations in the manuscript.

Please also note the supplement to this comment:

<https://gmd.copernicus.org/preprints/gmd-2021-428/gmd-2021-428-AC3-supplement.pdf>