Reply on RC2

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-AC2, 2022

Thank you again for the time spent by #Anonymous reviewer 1 to have read again our manuscript and to have commented our answers. Some more modifications have been performed in the enclosed manuscript. The reason of these modifications is discussed below.

1. The third point was related to the spatial indicators calculated at 100m grid cell (average building height, sky view factor, etc.) using the building height. This information is important for the urban climate community since most of the regional scale atmospheric models consider average building values at grid scale. The accuracy of the averaged building height is slightly improved when compare to the accuracy at building scale (even though the accuracy gain is lower than what we expected).

2. We are not sure to understand this point. We have designed a method to estimate building height using OSM data. If the users want to apply this method to a specific area where the amount of data available is limited or absent (few or no buildings, few or no road, few or no vegetation patches, etc.), we first recommend the users to contribute to the OSM project (for example using the open and collaborative project "Missing Map"). If they want to train the algorithm using his own reference data, they should also contribute to OSM first since otherwise the model created will probably have low quality. We have added a short comment about this point in the conclusion of the manuscript.

3. We cannot include the cities we have tested before because some of the explaining variables have been modified since this date (it was a previous version of the model). But we have added the sentence in section 3.2 of the article as recommended by #Anonymous referee 1. Concerning the argument about [NMD20] result, right we would not have drawn any conclusion solely from this result (since we did not know about this study when we first designed our work). However, we thought it was an additional argument to think that proximity is not necessarily equal to spatial similarity.

5. Thank you for this really interesting comment which clearer some of the previous #Anonymous referee 1 comments. The results we show in this manuscript actually considers that the OSM data coverage is homogeneous within the French territory while missing informations (buildings, vegetation, roads, etc.) may indeed cause estimation bias. We have calculated simple metrics to illustrate the good correspondance between
OSM and BDTopo: for all studied cities, the building fraction is higher in OSM than in BDTopo (even if this difference do not indicate a degree of completeness since both data set contain their own limitations). We have added a short paragraph to address the missing data sensitivity analysis as potential future work.

Answer to the PS: Good catch. We have tried not to use any pronoun in this new answer.

Please also note the supplement to this comment: https://gmd.copernicus.org/preprints/gmd-2021-428/gmd-2021-428-AC2-supplement.pdf