

EGU24-5096, updated on 20 May 2024

<https://doi.org/10.5194/egusphere-egu24-5096>

EGU General Assembly 2024

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Which dataset should be used to get building footprint and height worldwide ?

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The building size and distribution has a big impact on atmospheric properties such as wind speed, air temperature, air pollution, etc. This impact may be quite different depending on the latitude and the climate where a city is located. Nowadays, climate simulations performed over city territories consider average building properties (building height, distance between buildings, etc.) over one to several hundred meters grid cells. However, it is difficult to find a homogeneous building dataset that would be used over the world to observe the effect of a same building organisation between two regions of the world located at a different latitude or in a different climate zone.

This work is dedicated to the evaluation of several building datasets (OpenStreetMap, BING, Global Human Settlement, etc.) that are available over several continents. The building footprint and height of each dataset are compared to local reference data for different parts of the world. The objective is to identify which dataset would be preferable to use depending on its quality and availability.