Geoscientific
Model Development
Discussions

Interactive comment on "Advantages of using a fast urban canopy model as compared to a full mesoscale model to simulate the urban heat island of Barcelona" *by* M. García-Díez et al.

Anonymous Referee #1

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"general comments"

This paper adresses interesting results on the scope of the presented topic. The methodology is clearly described and the results support the reached conclusions.

From my point of view, the manuscript has the quality required to be published after some minor technical corrections. However, I missed some more details on the analysis of results showed in figure 6 (see "specific comments").

"specific comments"

Line 97-98: I disagree with this argument: "the surrounding topography is flat, which does not favour temperature inversions during night time hours". In fact, flat terrain

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favours the development of a nocturnal stable layer. However, since inversions are more related on atmospheric stability, I suggest to change this argument. Perhaps you just can comment that there are no significant orographic objects between the two stations.

Line 239-240: Do you think that the LST overestimation of both UrbClim and WRF can be related to the fact that the cloudy nights are not considered after filtering the satellite images as it is described in chapter 2.2? In other words, to compare both models against satellite, the same days have been considered to compute the LST averaged during nightime hours for the warm season (figure 6)?

Line 287: I think it is important to emphasize that the first conclusion is obtained after analysing observational data and valid only for the warm season.

"technical corrections"

Line 93: style. Substitute "...at the city centre of the city..." for "...at the city center of Barcelona..."

Line 146: typing error. Substitute "...important give the..." for "...important given the..."

Line 154: typing error. Substitute "...nested domains 1b..." for "...nested domains (figure 1b)..."

Line 242: typing error. Remove "advectionAs"