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Discussions

Interactive comment on "Assessing heat exposure to extreme temperatures in urban areas using the Local Climate Zones classification" *by* Joan Gilabert et al.

Anonymous Referee #2

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This paper presents a methodology to evaluate the exposure to extreme temperatures using the Local Climate Zones framework, which allows a direct comparison between different cities of the world. The proposed methodology is applied and demonstrated for the case of Barcelona. Overall, the manuscript is well written and of interest for the NHESS audience, and the methodology seems to be scientifically sound. However, some portions of the methods and discussion are not very clear and should be improved.

- Line 18: "proposal" could be replaced by methodology or framework?

-Line 23,255 and Figure 7: It is not clear what is the purpose of including the maximum

temperature for this manuscript. It is barely discussed.

- Lines 31 and 421 "about 3-4°C compared" should be "about +3-4°C compared"?

- Line 186-198 and 423-429: It is claimed that the WUDAPT map suffers from a lack of characterization of different types of urban areas compared to the LCLU method. This might be true, but the results and discussion presented here are not very clear on why the additional types of urban areas in LCLU are an improvement. Potentially, one may add more but unrealistic types.

- Line 273: What is CI?

- Lines 273-280: It is not evident to me what is the advantage of using a new index HEI instead of using RR at 0.2 steps? Why introduce HEI? The explanation of HEI should be improved.

- Lines 316-322: This description of the LCZ-T model is rather obscure. Given the relevance of this model in the present manuscript, I would suggest improving the clarity of this description. What are "anisotropy levels" in this context? Built what curves for the LCZs? How did you define the scenario for the percentiles (what percentiles)? etc.

- Line 374 Please re-phrase

- Line 387 Replace "quite a few" (for example by "multiple") to avoid repetition and confusion.

- Line 393 "LCZ A and C that belong to the most prevalent categories" maybe specify the meaning of the LCZ A and C to avoid that the reader has to go and check the Supplementary Table. This applies to the remainder of the discussion

- Line 424 LCZ has been already introduced

- Line 432 Why was "However" used here?

- Lines 438-441: As pointed above, the description of LCZ-T is rather obscure but

it seems that it was derived from a relatively long high-resolution model simulation (UrbClim). Can the required temperature distribution be obtained from other sources? It will still likely require relative long and high-resolution datasets which might not be easily available. So, this advantage of LCZ-T might be limited to data availability. This should be made clearer.

- The manuscript has a very large number of acronyms, and it is very difficult for the reader to keep track of all of them. I suggest a reduction where possible.