

Interactive comment on “A Python-enhanced urban land surface model SuPy (SUEWS in Python, v2019.2): development, deployment and demonstration” by Ting Sun and Sue Grimmond

Anonymous Referee #1

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The paper presents a Python-enhanced version of SUEWS model; the original SUEWS model being one of the commonly used urban land surface model in the urban climate research community. The enhanced version SuPy contains quite substantial technical improvement of the original model, including interfacing and pre- and post-processing. The interaction with external models, in particular the incorporation of anthropogenic heat, is also a plus. Overall, the paper is well presented with adequately detailed model structure, documentation, and tutorial demonstration. Minor revisions are needed for some clarification as well as correction of typos and some wordings (listed below). The English writing still need a bit more polish; I leave it for the authors and editor to decide.

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Specific comments:

1. p5, line 16, “From similarity theory (Monin and Obukhov, 1954) we estimate”, it should be clarified that Eqs. (1)-(3) follows Monin-Obukhov Similarity theory that represents one specific class of similarity theory. The phrase here sounds like MOST is the only similarity theory.
2. p13, section 4.2, “Impacts of the urban area on urban climate”, the wording is awkward. Consider revision.
3. p15, Figure 5, why the changes of temperature and albedo follow a linear (bi-linear in the case of maximum temperature) manner?
4. p16, line 15, “high dependent” should be “highly dependent”.
5. p17, Figure 7, the notations of threshold temperature T_H and T_C should be made consistent with those in Eq. (6): both in either capital H & C or lower case h & c.
6. p18, Figure 8, the legend “season” is redundant; “summer” and “winter” alone should suffice.

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