

Interactive comment on “Identifying (subsurface) anthropogenic heat sources that influence temperature in the drinking water distribution system” by Claudia M. Agudelo-Vera and Mirjam Blokker

Anonymous Referee #1

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General comments:

The manuscript introduces a method to identify heat sources above and below ground that influence temperatures within the drinking water distribution system at a small spatial scale. While the manuscript has the potential to be an important and very useful paper, quite a bit of the analysis mentioned is never actually shown. The objective of the manuscript is “. . .to localize potential underground hotspot at a small spatial scale”) (page 2, line 32), however, there is only one tiny map in the manuscript hinting at this small spatial scale. Overall the introduced method seems very interesting and

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promising, but the results given within this manuscript are too few to draw any conclusion on the significance, usefulness and actual potential of the method. Additionally the manuscript needs to be restructured, a lot of information within the results section should be part of the methods section (e.g. page 7 lines 17ff).

Specific comments:

- 1) Page 2 line 9: “Schwarz and Manceur (2015) concluded that mitigating the SUHI might lead to actually increasing mean temperatures” The explanation here needs to be extended; I assume this is either due to the wrong mitigation strategy or has to do with the seasonal variation of the SUHI?
- 2) Figure 1: what kind of meteorological data is used? Which possible heat sources are analysed and why?
- 3) Page3 Line 15: please indicate which of these parameters change with time.
- 4) Table1: where do these values come from? What is their uncertainty? Some of them are apparently fitted using existing measurements. Please extend on that.
- 5) Page 4 Line 14: please give more information on tap water measurements including time and location of these measurements, as well as actual temperatures (or at least a mean)
- 6) Page 5 line 5 “For the GIS analysed, the tap temperatures were plotted together with the spatial information from anthropogenic heat sources (from step 1).” Show this figure. Also, what spatial information from anthropogenic heat sources from step 1. So far (and in the results) nothing indicated that step one is done spatially resolved.
- 7) Page 5 line 12ff: soil temperature measurements: Please show a map of measurement locations. Also, how did you handle different land cover types? Where you able to measure soil temperatures under sealed areas (e.g. streets)? Please give values for these measured temperatures; they are not in the results.

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8) Page 7 “3.3 Identification of heat sources” move to methods

9) Page 7 line 20 “The simulated range shows a good agreement with the measured T_soil” please show me the numbers.

Technical corrections:

10) Page 4 line 5ff: wrong format.

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