

Point-by-point response for short Comment SC1

Issue 1

This study depends mainly on the Stepwise parameterization Method (SPM), which is a bottom-up approach to compose a Radiative Transfer Model (RTM) out of the sub radiative transfer processes. Although this method is very interesting, authors need to justify the logic behind the order of adding the sub radiative transfer processes. For me, the current order is somehow random. They should comment on how the results may vary if this order is changed.

Response: *The Stepwise Parametrization Method (SPM) is designed based on two criteria: The first is the degree of complexity needed to consider the radiative transfer process. The second is the expected effect of this process on the radiation budget. Also, we took into account how modelers may design the radiative transfer model within urban climate models based on the available computational resources. From this perspective, we do not think that the order of adding the sub-radiative transfer processes to build up the radiative transfer models is random.*

We added a sentence to the manuscript in order to solve this concern:

“The order of adding the sub-RTPs to build up these RTMs depends on the degree of complexity needed to consider the RTPs and the expected effect of this process on the radiation budget”

Issue 2

Authors compared each step with the case RTM_08 and claimed that this case is a reference case. Since this case is not a physical measurement nor it a validation data, it can not be reference case. This may confuse readers. So I suggest that authors rename it and explain explicitly that this is the expected high accurate model (best available solution in the model PALM).

Response: *We explicitly state that the objective of this paper is not to validate the radiative transfer model and that the radiative transfer model RTM_08 is not a physical measurement but a model which contains all the processes available in RTM version 3.0. Based on your valuable comment and a comment from Reviewer 1# we removed the word “reference”, which may confuse the readers.*