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## ***Interactive comment on “Impact of an improved WRF-urban canopy model on diurnal air temperature simulation over northern Taiwan” by C.-Y. Lin et al.***

### **Anonymous Referee #2**

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General The authors propose an extension of the WRF Urban Canopy Model (UCM) in order to improve urban heat islands simulation. A detailed data set of urban and non-urban meteorological stations were used to compare simulated and observed air temperature. Improvements with respect to WRF-UCM were obtained. In my opinion, the paper is well-written and can be of interest for the scientific community. I recommend its publication subject to minor revision based on the following comments:

1) the first point regards the simulated temperature the authors used for comparison. The authors did not mention in any part of the paper how they calculated T(2m) and T(10m). What is the elevation of the first grid level? and, what is the average building

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height in each grid cell in correspondence of the urban canopy? As the authors well know, one of the main problems in testing urban canopies simulations is the choice of the height used for the comparison. Since the first grid node of WRF is, I presume, well above the canopy, the authors would have used some similarity laws to calculate the simulated temperatures at 2m and 10m. Please clarify. 2) Over the last few years, approaches alternative to the UCM scheme have been developed to simulate urban heat island effect. In spite of this, the authors did not mention any other urban canopy layer scheme. I suggest to add in the Introduction a brief discussion on that issue.

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Interactive comment on Atmos. Chem. Phys. Discuss., 15, 28483, 2015.

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