Interactive comment on "Efficient urban canopy parametrization for atmospheric modelling: description and application with the COSMO-CLM model (version 5.0_clm6) for a Belgian Summer" by Hendrik Wouters et al.

Anonymous Referee #2

Received and published: 25 May 2016

The paper by Wouters et al. presents the semi-emipirical urban canopy parametrization SURY and the urban bulk scheme TERRA-URB 2. SURY is used to derive bulk parameters from urban canopy parameters, which are used in more physically-explicit urban parametrization schemes. In this paper, TERRA-URB 2 with SURY parameters and coupled with the regional climate and weather model COSMO-CLM is evaluated with station and remote sensing data. Furthermore, a sensitivity analysis to SURY input parameters is conducted.

While the usage of SURY-derived parameters in conjunction with an urban bulk scheme

does not account for every detail represented by more explicit schemes, SURY greatly extends the applicability and transparency of bulk schemes.

The paper is well written and concise. The topic is highly relevant, thus I recommend publication after the following minor issues are addressed.

Page 12 line 4: The authors state that the range of the substrate albedo is derived from the range of the bulk albedo. From the description of SURY, I would expect exactly the opposite way of derivation: bulk albedo derived from the substrate albedo. Please clarify.

Page 24 line 13: The authors state that a lower roughness length resulted in lower wind speeds. I would expect higher wind speeds. This would be also in agreement with the reduced accumulation of excess heat in the urban centres.

I find Figure 6 quite confusing. For example, bulk parameters a given twice and the usage of space is not optimal. Maybe the authors can find a better representation of their work-flow.

Page 27 line 15: I suppose it should be "To this end" instead of "Therefore".

Throughout this paper, some citations miss parentheses, for example P2L5 and L23, P10L9 and L17.