Atmospheric
Measurement
Techniques

Discussions

Interactive comment on "High-Resolution Urban Observation Network for a User-Specific Meteorological Information Service in the Seoul Metropolitan Area, Korea" *by* Moon-Soo Park et al.

Anonymous Referee #1

Received and published: 31 October 2016

This paper introduces an extensive meteorological measurement network to support urban climate studies in the Metropolitan area of Seoul, Korea. While observation networks that offer high spatial coverage of a variety of atmospheric variables are important for an improved understanding of urban climate conditions, the presented work is not suitable for publication in AMT. It does not present any advancement in atmospheric measurement techniques or methodology but rather lists the different types of sensors being deployed. Of course, monitoring a variety of atmospheric and surface conditions at high spatial and temporal resolution offers great potential for integrated analysis and model comparison. However, no analysis is presented that demonstrates a new approach. The paper does not fit the scope of the AMT journal, however, given

the measurement network is very impressive and addresses the great need for detailed observations in urban areas, I would encourage the authors to submit the paper elsewhere.

Further, they should take into account the following aspects:

Text, maps, pictures should include much more details on the observing systems. For example, for all sensors, manufacturer and model should be listed. How do sensors inter-compare? How do you ensure absolute calibration? What is the accuracy of different measurements. What is the temporal resolution of all data? For advanced techniques, software and processing details should be provided. For example, how are turbulent fluxes being computed? How is the mixing height derived? What are the scanning patterns for the lidar sensors? . . .

Some observations are shown, but it is not made very clear why the specific data are presented. A few interesting key results would be more useful to demonstrate the most important capabilities of the measurement network.

P2, l14: Why is solar radiation decreased? Check your argument: less solar radiation does not result in increased sensible heat flux and storage.

P2, l16: Check your argument: is there really more convection if synoptic winds are stronger?

P2, l20: Define what you mean by 'user-specific'

P2, l27: You are listing BUBBLE, TOMACS and SUIMON campaigns. State clearly why you are describing these three examples.

P3, l2: What is meant by 'cumulus'?

P3, l8: reword the sentence. Turbulent fluxes result from surface-atmosphere interactions. Not quite clear what is meant by '. . . fluxes alter boundary layer structure through boundary layer processes'.

P3, l14: use different word. Weather can not be 'unreasonable'

P4, l31: Was 'SKP' introduced?

P5, l30: reword. EB are not installed on the ground or rooftop but rather the towers.

P6, l5: How do you measure thermal conductivity and heat capacity? Are these estimates representative of later areas?

P6, l10: How are the turbulent fluxes calculated? What QAQC is applied?

P6, l34: Might be good to mention the need for mosquito monitoring earlier in introduction.

P6, l12: Define 'urban structure'. What are you referring to with 'communication'? Are do you determine urban structure, surface cover, metabolism, communication etc. Scales, methods, underlying data sources...?

P6, l13: More information is needed on sensor calibration and inter-comparison.

P7, l16: More details required on OSSE. What is being done and why.

C3