

Interactive comment on “Sensitivity of mesoscale model urban boundary layer meteorology to urban morphology” by D. D. Flagg and P. A. Taylor

Anonymous Referee #1

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In this manuscript, the sensitivity of model mesoscale meteorology to the scale of representation of the urban surface is explored with several summer cases in the Detroit-Windsor metropolitan area. Small changes in scale can affect the classification of the surface, affecting both the local and grid-average meteorology. The subject of the paper could well interest readers of the research community who have worked on the topic.

1. Do you have a recommendation of the scale of urban surface representation? Which resolution is better for NWP forecast? Which for air quality application? Could higher resolution data (e.g. 10 s) produce more precise simulation? 2. LeMone et al. (2010) did a number of idealized runs with grid spacing of 0.2, 0.333, 0.5, and up to 10 km and the simulated convective structures appear anomalous only using a grid-spacing of 333 m. Note that their study used YSU and simulated fair-weather convection. How about the simulated convective structures at daytime? Is the resolved-scale flow rea-

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sonable? 3. The differences in Fig. 12 are not clear. Could you please mark (circle) on the figure? How about the differences (Are they the same) at other times and for other cases? 4. Page 25910, L12: 30m → 300m. Reference: LeMone, M. A., et al., 2010, Mon. Wea. Rev., 138, 745–764.

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