

## ***Interactive comment on “Street-scale air quality modelling for Beijing during a winter 2016 measurement campaign” by Michael Biggart et al.***

**Anonymous Referee #2**

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In this paper, Biggart et al presented a street-level air quality simulation study for Beijing urban area using an urban air pollution dispersion and chemistry model ADMS-Urban. The predictions were evaluated against observations during winter campaign in 2016 in the same area. Several sensitivity tests were conducted to investigate possible reasons for the discrepancies between model and observations. Studies like this provide useful information on high-resolution air quality simulation in complex urban areas. The paper is generally well written. A few comments are provided below.

1. The model domain for ADMS-Urban is 75 km x 90 km. Author mentioned that the model has street-level resolution, what is exact resolution setting in the model in terms of meters? Does the resolution vary between different land uses, eg. Road and other areas? If they all use the same resolution as road, then it would require

C1

a very high computational demand. 2. Page 6 Line 225, Measured concentrations at 12 of the 35 monitoring stations in Beijing were used to produce the background concentration. Is that a specific reason to exclude the other 23 stations? 3. Page 7 Line 245, agricultural emission is not included in the model simulation? 4. Page 7 Line 250, emissions for the industrial and residential sectors were distributed based on Gross Domestic Product (GDP) and population density to grid-level resolutions? What's the resolution for this? Is information of GDP and population density available at your grid-level resolutions? 5. Table 3 provides the weighting factors for road emissions. Are the weighting factors the same for all pollutants that simulated in this study? 6. Page 8 Line 290, the urban areas are more congested than suburban. This study used the same weighting factors for urban and suburban, which may underestimate the urban emissions. It is recommended to try different weighting factors for urban and suburban and test the impacts on simulation results. 7. Figure 16: suggest to change the color scheme for “Grid & Roads” and “Grid only”. It is very hard to distinguish them on the map.

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C2