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Geoscientific Model Development Discussions

Interactive comment on "Implementation of the sectional aerosol module SALSA into the PALM model system 6.0: Model development and first evaluation" *by* Mona Kurppa et al.

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The simulation is very impressive. I have few comments and suggestions the authors may consider.

Page 2, Line 20 to 21.\ We also have few CTAG papers considering the NO-O3-NO2 chemistry. More information could be found from:

Yang, B., Zhang, K.M., Xu, W.D., Zhang, S., Batterman, S., Baldauf, R.W., Deshmukh, P., Snow, R., Wu, Y., Zhang, Q. and Li, Z., 2018. On-Road Chemical Transformation as an Important Mechanism of NO2 Formation. Environmental science & technology,

52(8), pp.4574-4582.

Yang, B. and Zhang, K.M., 2017. CFD-based turbulent reactive flow simulations of power plant plumes. Atmospheric Environment, 150, pp.77-86.

Page 10, line 7-9.\ References needed to show the aerosol dynamic processes are longer than the dispersion process.

Page 13, line 3-5.\ How to estimate LAD = 0.6 mˆ2 mˆ-3?

Page 11, Line 1 and Table 4 caption.\ A quantified wind direction in degrees would be better than the word "northwest". Is that a typo in Table 4 caption, "northeast" ?

Page 14, Line 10 – 11.\ "Horizontal mean U = 40 m" The gradient profile is important to the simulation, so it will be better to provide the velocity profile.

Page 14, Line 16.\ References needed for the roughness height and drag coefficient of trees.

Figure 5.\ Scatter points would be more appropriate for showing the measurement data because they were at four different heights above the ground level. In addition, a local plot from the ground level to 10 m would be good enough for this plot. The x-axis can also be enlarged because of the log scale.

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