

Atmos. Chem. Phys. Discuss., referee comment RC1
<https://doi.org/10.5194/acp-2022-365-RC1>, 2022
© Author(s) 2022. This work is distributed under
the Creative Commons Attribution 4.0 License.

Comment on acp-2022-365

Anonymous Referee #1

Referee comment on "Modelling of street-scale pollutant dispersion by coupled simulation of chemical reaction, aerosol dynamics, and CFD" by Chao Lin et al., Atmos. Chem. Phys. Discuss., <https://doi.org/10.5194/acp-2022-365-RC1>, 2022

This paper used a coupled simulation system to study the NO₂ and aerosol distributions in a street canyon at Paris. which is of some interest and fits into the scope of ACP. However, there are still some deficiencies in the article, and a minor revision is needed before publication at ACPD:

- First of all, it is found that the simulation domain is rather small, i.e. only a street canyon. The chemical concentrations measured or simulated are significantly influenced by the outside conditions, either meteorological or chemical boundary conditions. Therefore, it is necessary to verify the conditions of simulation results outside the domain to make sure they are realistic and provide the real boundary conditions for the street simulations.
- The comparisons between model simulation and field measurements were largely done for NO₂ and aerosol species. It is suggested that the comparisons be done for wind velocities and directions between model simulation and observations. As many conclusions drawn from the paper were based on the flow field simulated, such as shown in Fig2. 12-13, it must make sure that the flows simulated were realistic.
- Since chemical reactions are the major concerns of this paper, the street level variations of temperature, flow patterns et al, should be discussed with respect to the formation of O₃ and aerosol dynamics.