Atmos. Chem. Phys. Discuss.,
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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Emissions databases for polycyclic aromatic compounds in the Canadian Athabasca Oil Sands Region – development using current knowledge and evaluation with passive sampling and air dispersion modelling data" *by* Xin Qiu et al.

Anonymous Referee #2

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Within the article, two speciated and spatially-resolved emissions databases for PACs in AOSR were developed. Further, the PAC concentrations in AOSR were simulated using the CALPUFF atmospheric dispersion model for both scenarios (both databases) and compared with passive monitoring data to assess which emissions input can achieve better agreement with measurements. According to my opinion, the manuscript represent a significant scientific contribution in studying PACs (PAHs, alkylated PAHS and DBTs) in oil sends regions where uncertainties in the PACs emissions

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Discussion paper

are still significant. I recommend the manuscript for publication with minor revision: 1. Although if deposition had been considered in the CALPUFF model, the modeled values would be even lower then the measured, I would ask the authors to explain why they have excluded the loss by wet and dry deposition in the modeling process. Were there any other reasons? 2. The authors should also take into consideration the fact that values of PAC concentrations obtained using the passive samplers refer only to the gaseous phase of pollutant and reflect a more accurate concentration for the low molecular weight PACs compering to high molecular weight compounds.

Interactive comment on Atmos. Chem. Phys. Discuss., https://doi.org/10.5194/acp-2017-1091, 2017.

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