

***Interactive comment on* “The impact of multi-species surface chemical observations assimilation on the air quality forecasts in China” by Zhen Peng et al.**

Anonymous Referee #2

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There is not much to criticize about the manuscripts as it relies on the assimilation methodology previously described by Peng et al. (2017). Since the assimilation experiment was conducted over a ten-day period it is uncertain if the conclusions about different performance of forecasts for various species would hold in a general.

The most interesting are results on emission factors. Did you encounter negative lambdas and if so what did you do about them? An ultimate test of the optimized emissions would compare a simulation using the optimized emissions with a control. Would an ENKF run with concentrations as state vectors using optimized emissions be identical to the EnKF run with concentrations and emission factors as the state vectors?

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Link <http://113.108.142.147:20035/emcpublish> (p. 3) would be a valuable data source on pollution over China for many users but the access requires installation of Microsoft Silverlight a software for watching videos. That seems odd and is not be allowed on government computers. Could that be ameliorated?

Interactive comment on Atmos. Chem. Phys. Discuss., <https://doi.org/10.5194/acp-2018-768>, 2018.

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