

Interactive comment on “Validation of MOPITT Carbon Monoxide (CO) retrievals over urban regions” by W. Tang et al.

Anonymous Referee #2

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This manuscript by Wenfu Tang et al presented a comparison of the latest MOPITT CO V8 retrievals with aircraft measurements from DISCOVER-AQ, SEAC4RS, ARIAs, A-FORCE, and KORUS-AQ campaigns conducted over the US or East Asia. In addition, the sensitivities of validation results to assumptions and data filters applied during the comparisons of MOPITT retrievals and in-situ profiles were also performed and analyzed. The comparison between the MOPITT CO product with various version and the coincident observations has been previously performed by many scientists in many groups around the world. This study is an extension of previous study and the strategy for comparison has been used extensively in previous MOPITT evaluation and validation studies. However, this study is one of few studies that focus on comparison over around urban regions, this is interesting. Overall, this paper is well written and fits well

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within the scope of AMT. I recommend for publication though I rate the novelty of this paper as moderate. Since referee # 1 has listed numerous technical comments which are mostly overlapped with my comments. Here I don't present the repeated correction request. Extra minor revisions or comments are: 1. The Base map and color bar in Fig. 1 can be improved. It is hard to distinguish one from another. In latitude and longitude axis, the number like 30 should be 30° . 2. What does the dashed line in Figs. 4 and 5 mean? The one to one line should be stated in the caption. 3. If you only compare the results at surface, 800 hPa, and 600 hPa. Then the expression should be the concentrations at surface, 800 hPa, and 600 hPa rather than the profiles at surface, 800 hPa, and 600 hPa. Another confusing thing is that the MOPITT could have a very low DOFS at a given level with a limited range (Fig. 3). Thus, the retrieval should come more from a priori information rather than the measurement. In other words, I guess, the good agreement between the MOPITT and aircraft at a given level is largely attributed to the a priori information and the smoothing effect in equation 2.

[Interactive comment on Atmos. Meas. Tech. Discuss., doi:10.5194/amt-2019-419, 2019.](#)

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