

Interactive comment on “The MOPITT Version 6 product: algorithm enhancements and validation” by M. N. Deeter et al.

Anonymous Referee #1

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This manuscript describes the MOPITT V6 updates and detailed validation against NOAA/ESRL/GMD and HIPPO CO in situ profiles. It is important for MOPITT users to understand the necessary changes made to the current MOPITT CO products, and the weaknesses possibly linked to the previous studies. The manuscript is well written and I suggest publishing after necessary discussion and elaboration in the following areas.

General Comments: 1. The MOPITT team chose to use CAM-Chem simulations to derive dynamic and seasonally varying a priori information in the same period as MOPITT mission (2000-2009). Was the CAM-Chem CO output involved data assimilation using MOPITT data, or were CAM-Chem parameters adjusted by data assimilation using MOPITT observations? If yes, how would this affect the retrieval results in MOPITT V6 products? Would this be considered using the observed information twice?

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2. Although the validation results are compared between V5 and V6 in details, it does not provide a picture how the CO values differ between the two versions, at various altitudes, in a straightforward way. It would help the readers to know in what vertical regions V6 CO values are higher (or lower) if there is a figure, and relevant discussions, to show the scatter and correlation between V5 and V6 CO values.

3. It was pointed out that the drift over time happens at different directions (increasing vs. decreasing) between 200 and 800 hPa. Could you elaborate as to the reasons? Did this affect the conclusions of previous trend studies? How should the users consider this drift in their trend studies?

Technical Comments: 4. The color of the symbols should be stated in either the figure captions or the legends for easier reading.

Interactive comment on Atmos. Meas. Tech. Discuss., 7, 6113, 2014.