

Interactive comment on “A multi-model assessment of pollution transport to the Arctic” by et al.

et al.

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The original ACPD paper included results from passive tracer experiments using a 25-day lifetime tracer with CO emissions. This lifetime was shorter than realistic CO, and these simulations had no spin-up (equilibration) before they were run for 1 year, creating low biases during the first months. While the paper was in review, a revised set of passive tracer experiments was completed by many of the HTAP models. This set included a spin-up time prior to the run, and changed the lifetime of the CO-like tracer to a more realistic 50 days. It also added a soluble tracer (using the solubility of sulfate, otherwise identical to the 50 day CO-like tracer), and three volatile organic compound (VOC) like tracers, with identical anthropogenic VOC emissions for all three and 5.6, 13 and 64 day lifetimes.

In the revised manuscript, we have replaced all discussion (and figures) using results

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from the 25 day lifetime CO-like tracer with those from the 50 day lifetime CO-like tracer. We also include some discussion of the VOC-like tracers with 5.6 and 13 day lifetimes, as these are much closer to the lifetimes of the aerosols discussed in the paper. Results for the various tracers are summarized in Table 6 and discussed in sections 5.1 (the 50 day CO-like tracer) and especially in section 5.2 (the other prescribed lifetime tracers). For simplicity, we include prescribed lifetime tracer results only from those models that also performed the CO simulations (hence the same models are now shown in Figures 2 and 8).

Interactive comment on Atmos. Chem. Phys. Discuss., 8, 8385, 2008.

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