

Interactive comment on “Trans-Pacific transport of Asian dust and CO: accumulation of biomass burning CO in the subtropics and dipole structure of transport” by J. Nam et al.

Anonymous Referee #1

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The authors examine three trans-Pacific transport events in May 2003. The transport pathways and emissions for these events are investigated using satellite observation of AOD and CO columns together with a global model. Based on satellite and ground-based CO, the authors find that the model's biomass burning inventory underestimates southeast Asian emissions for April-May 2003. They also find model bias in the transport of dust over the Pacific for one of the events, which they link to either transport biases in the model or to the location of dust sources.

This is an interesting study with detailed analysis of transport pathways and potential biases in model simulations. The issue of transpacific transport is relevant and fits

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within the scope of ACP. The detailed analysis of model biases is new and interesting. I only have two minor comments.

Minor comments:

1. Figure 4 and Figure 5. In these figures and the discussion of model bias for AOD it is not clear what simulations the authors use. Do they use the 'standard simulation' or the simulation with SE asian BBx8? Please clarify in the text.

2. I am not sure that I follow the reasoning concerning a potential bias in the dust source location. It seems that the dust bias exists for only 1 of the 3 events examined. Aren't the dust sources the same for all 3 events? Why would the dust source location be wrong for one event and not for the others? The meteorological argument makes more sense to me, as variations could occur among the 3 events.

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