

Interactive comment on “Factors influencing the large-scale distribution of Hg⁰ in the Mexico City area and over the North Pacific” by R. Talbot et al.

Anonymous Referee #1

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R. Talbot et al.: Factors influencing the large-scale distribution of Hg⁰ in the Mexico City area and over the North Pacific, acpd-2007-0418 I consider this MS an important contribution to the understanding of the complexity of atmospheric mercury. The MS is well written and carefully edited. It makes clear that much more work is needed to understand and model the atmosphere from the MBL to the LST. In particular, the understanding and analysis and the relationship and inter conversion among mercury species is still lacking. The MS demonstrates the value of extended flights from the MBL to the LST, and the correlations of mercury with concurrent chemical measurements. The authors have made excellent use of the data available. The observations described are not novel but their interpretation with the help of auxiliary data is convincing and useful. Here are two concerns: The operation of the 8220;modified

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Tekran8221; is not sufficiently documented for this reviewer. In my opinion it is unacceptable to ask a reviewer to evaluate a set of data, when the authors state that: 8221;note that significant details have not been included in this conceptual layout, Fig.28221;. What 8220;significant8221; was left out? In view of the fact that the instrument is operated at the edge of its sensitivity, I would like to know what pressures were controlled, adsorption or detection? A useful piece of information would be a record of sample flow at different altitudes. On a more positive note: the demonstration of in-flight calibration with the perm cell is very valuable. The argument for assuming that RGM is included in the TGM measurement is probably sound. pHg is only mentioned as a potential partner in the RGM-pHg conversion . Not detecting sulfur compounds (SO₂ or sulfate) in Asian out flow is surprising to me in view of the fact that you measured SO₂ in Mexico City and quote a short 2-3 day age for your Asian plume. Editing comments: 1. Figure 1: would be helpful to have long/lat axes labeled. (used in text) 2. Figure 2: see text 3. Figure 4: as Figure 1 4. Figure 13: would be helpful to have locations 1,2,3 from Figure 12 indicated in this graph 5. Line 82: unclear statement

Interactive comment on Atmos. Chem. Phys. Discuss., 7, 15533, 2007.

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