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Comment

Interactive comment on “Trace gas and particle emissions from domestic and industrial biofuel use and garbage burning in central Mexico” by T. J. Christian et al.

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With our thanks to Drs. Querol and Jimenez, and in response to their concerns, we compared trace metal data from MCMA (Querol et al., 2008) with those from traffic emissions inside tunnels in Milwaukee (Schauer et al., 2006), where the only significant trace metal sources are presumed to be vehicle emissions and re-suspended road dust. Briefly, barium and antimony are generally considered “brake lining” emissions (Amato et al., 2009; Querol et al., 2008; Sternbeck et al., 2002) and are present in both studies, which implicates vehicles in Mexico City as a source of these metals. However, the mass ratio of antimony to barium in PM_{2.5} is 11 times larger in MCMA

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than in the tunnels, which suggests large antimony sources in Mexico City other than vehicles. The partitioning of the antimony between PM_{2.5} and PM₁₀ in the MCMA also suggests a large additional source of fine particle antimony, while the MCMA barium distribution matches that in the tunnels. Our own data show that open garbage burning emits antimony but little or no barium. Therefore, our suggestion that garbage burning constitutes a potentially significant source of antimony in MCMA is valid. We have, however, also become aware of other possible antimony sources, including tin smelting and refining and recovery of lead from batteries, which we are currently investigating. Our revisions to the manuscript will include these new insights.

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