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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Measurements of atmospheric mercury in Shanghai during September 2009" *by* H. R. Friedli et al.

Anonymous Referee #2

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General comments:

This paper presents a study on a short-term variation (about 20 days) of atmospheric TGM concentrations at an urban site in Shanghai, East China. I wonder why the authors measured TGM concentrations for a very short duration. Shanghai is located in one of the most serious polluted areas in China, and it is also a costal area. Therefore, it could be expected that this area is affected by large atmospheric emissions from inland and fresh air masses from ocean. As pointed out in the paper, levels of atmospheric TGM concentrations were largely depended on wind direction, and low atmospheric TGM concentrations during the study period were because that the most of the air masses during the whole study period were originated from ocean. Hence, this study may be insufficient to evaluate the overall level of atmospheric TGM in Shanghai,

and this might lead to many uncertainties if the value reported here is used for comparison in future studies. Could the authors make an attempt to estimate the annual level of TGM in Shanghai by using some empirical models? Are there strong correlations between TGM and CO, SO2, and NOx? Many previous studies suggest that GEM is generally linear correlated with CO. Could the authors use these relationship and levels of these criteria pollutants to predict the annual mean of TGM in Shanghai.

Specific comments In section 3.3, the authors speculated that CFPP were the major contributor to observed TGM during the plume events, which was mainly supported by the high NOx/SO2 ratio (2.78) for the major plume events. Since CFPP was the major contributor for plume events, why was the NOx/SO2 ratio for plume events higher than the emission ration for CFPP. Are the some other emission sources and atmospheric process evolved in these plume events? In section 3.4, measurements of atmospheric Hg in remote areas of China should be also included in the comparison. Table 3, the sampling periods of some studies in China were not presented correctly Figure 1, there is no map scale. Figure 2D, the wind dependence of TGM is not clearly shown.

Interactive comment on Atmos. Chem. Phys. Discuss., 10, 30279, 2010.