

In Situ Atmospheric Measurements of Speciated Reactive Mercury and Gaseous Elemental Mercury in Mexico City

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Abstract.

Real time measurements of particulate mercury (PHg), reactive gaseous mercury (RGM) and gaseous elemental mercury (GEM) were made in Mexico City. Large, short-lived nocturnal increases in reactive mercury (sum of PHg and RGM) concentrations were observed during most of the nights in the two-week study. The wind directions during these episodes were consistent with transport of the reactive mercury from the industrial region to the north of Mexico City¹. Episodic increases in GEM concentrations were also measured but less often. The absence of elevated GEM concentrations in many of the RM episodes implies that at least two types of source emissions are impacting the site. The GEM urban background showed strong diurnal variation that was driven by nocturnal influxes of pollutants from the north followed by daytime flushing of the basin. Concentrations of levoglucosan, a source tracer for biomass burning, did not correlate with any of the mercury species suggesting that biomass burning in the Mexico City region was not a significant source of mercury at the measurement site.

1. de Foy, B.; Caetano, E.; Magana, V.; Zitacuaro, A.; Cardenas, B.; Retama, A.; Ramos, R.; Molina, L. T.; Molina, M. J., Mexico City basin wind circulation during the MCMA-2003 field campaign. *Atmospheric Chemistry and Physics* **2005**, 5, 2267-2288.