Atmos. Chem. Phys. Discuss.,
doi:10.5194/acp-2016-446-RC2, 2016

Atmospheric Chemistry and Physics Discussions

Interactive comment on "In-situ and Denuder Based Measurements of Elemental and Reactive Gaseous Mercury with Analysis by Laser-Induced Fluorescence. Results from the Reno Atmospheric Mercury Intercomparison Experiment" *by* Anthony J. Hynes et al.

Anonymous Referee #2

Received and published: 21 September 2016

Review of Manuscript

In-situ and Denuder Based Measurements of Elemental and Reactive Gaseous Mercury with Analysis by Laser-Induced Fluorescence. Results from the Reno Atmospheric Mercury Intercomparison Experiment (acp-2016-446)

This manuscript describes the work of Hynes et al., to quantify elemental gaseous mercury (Hg0) and total gaseous mercury (TGM) concentrations using a sequential

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Discussion paper

two photon laser-induced fluorescence (2P-LIF) instrument off a manifold as part of the RAMIX method inter-comparison study conducted in Reno, NV. As the authors point out, there is currently a debate in the literature concerning the efficacy of various ambient mercury measurement methods under different conditions of ambient relevance. As such the RAMIX study endeavored to provide a platform for a definitive methods comparison. Unfortunately, based on Hynes et al work (and references within) the RAMIX study and the manifold delivery system designed and implemented for this study fell short of this goal in several important aspects that limits the utility of the study's findings. As a result, I believe this paper is an important contribution to the state-of-science. I also have some technical concerns/questions with the implementation of some of the experiments described in the paper enumerated in the comments below, therefore I feel this manuscript will require substantive revision before it is acceptable for publication in ACP.

See enumerated general and specific comments in attachment.

Please also note the supplement to this comment:
http://www.atmos-chem-phys-discuss.net/acp-2016-446/acp-2016-446-RC2-supplement.pdf

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