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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Atmospheric mercury in the southern hemisphere tropics: seasonal and diurnal variations and influence of inter-hemispheric transport" *by* Dean Howard et al.

Anonymous Referee #2

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Howard et al. present two years of GEM measurements at a tropical station. Very few mercury measurements have been made in this region and this study partly fills the data gaps. This paper is well written and is within the scope of this journal. I have several minor comments: (1) Introduction, first paragraph: it should be made clear that the mercury emissions here refer to those emitted into the atmosphere; (2) Introduction: Soerensen et al. 2014 ES&T Elemental Mercury Concentrations and Fluxes in the Tropical Atmosphere and Ocean analyzed GEM fluxes in the tropical ocean and is a relevant reference for the third paragraph; (3) Page 4, line 10: "relative" humidity; (4) Page 6, Section 3.1: Slemr et al. 2015 ACP Comparison of mercury concentrations measured at several sites in the Southern Hemisphere suggested that

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Discussion paper

the systematic uncertainty among the GEM measurements at different stations is about 0.1 ng/m3. I am not sure whether the 9% difference between the ATARS station and Cape Grim really indicates a latitudinal gradient. (5) Page 8, lines 22-24: The Ocean is commonly a sink of total atmospheric mercury, but is commonly a net source of GEM (the measured mercury specie). (6) Page 9, line 23, “Howard et al.” typo; (7) As this station also has data of other chemical species such as aerosol and ozone, including these data would highly facilitate the data analysis (for example on the effect of biomass burning on GEM).

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