

Interactive comment on “Depletion of atmospheric gaseous elemental mercury by plant uptake at Mt. Changbai, Northeast China” by Xuewu Fu et al.

Anonymous Referee #1

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Summary: The study by Fu et al. reports on depletion events of measurements of gaseous elemental mercury (GEM), particulate bound mercury (PBM) and gaseous oxidized mercury (GOM), in a temperate mixed forest at Mt Changbai, Northeast China. Mercury depletion events are a very interesting as well as complicated phenomena and this study help to share light on the mechanism associated with these rapid depletion events occurring in forest in the absence of GOM enrichments. I recommend that this manuscript be published in ACP GMOS Special Issue after the authors address these minor comments.

Specific comments: P3, I35; There are three operationally defined Hg Forms. The word operationally is so unnecessary in this context please remove P3, I37; instead of starting the sentence with because rather use Due to its mild reactivity. P3, I39 the reference Gustin and Jaffe, 2010; Holmes et al. A space is needed between the text.

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This is a problem throughout the whole manuscript. The authors should have a close look of all the references in text and apply correct format. There is either no space between different references or there is no space after a semi colon or comma. P3, I42 GEM residence time in atmosphere is 0.5 – 2 years. Please check this statement as most literature state the GEM residence time as 0.5 – 1 year. P3, I44 see comments made at I39 P3, I57; change small to slow you are referring to cm s-1 which is speed P4, I63 be consistent when writing chemical names or formulas “CO₂, Ozone, sulfur dioxide..” Choose one format and keep with this throughout. P4, I84; leaf growing season. When is this and how long was the leaf growing season, 1 month, 7 months. Please be specific with this time period. P5, I108; above ground level should be (a.g.l) please correct this throughout the manuscript. I would advise the authors to keep the Supplement information to a minimum. Certain aspect mentioned in the paper can be left out. It's very confusing and time wasting that such a big portion of the text is spent on explaining an aspect but yet the graph containing the information is in the S1 section. It would also be useful to mention how long (min, hours or days) a DE occurred. Did the authors investigate this. What was the time criteria for a DE. Also, where there any DE outside of May – Sep and if so, how did these DE differ from the May – Sep DE. Where they shorter or longer events. Were there any significant differences in the GEM concentration levels/time if a DE took place outside of the May – Sep window. Was the only criteria for a May – Sep DE that the GEM concentration should be below 0.5 ng/m³. What if the GEM concentration recovered after 10 min was this also classified as a DE. See Brunke et al. and how they classified a DE at Cape Point with time and Hg concentration

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