Atmospheric
Chemistry
and Physics
Discussions

Interactive comment on "Atmospheric speciated mercury concentrations on an island between China and Korea: sources and transport pathways" *by* G.-S. Lee et al.

Anonymous Referee #1

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Atmospheric spciated mercury concentrations on an island between China and Korea: sources and transport pathways By Lee et al., 2015

Page 32932 Line 25, suggest to discuss vegetation uptake, e.g. rice (Zhang et al., 2010, EHP)

Page 32933 Line 5, this might not be true in various regions especially at coastal sites due to the Br reactions

Line 15, suggest to read and cite Gustin et al., 2015 ACP overview paper

Line 21, there are some preliminary conclusions in Subir et al., 2011 AE

Line 25, Rutter and Schuaer,. 2007 AE and ES&T

Page 32924 Line 2, reference needed.

Line 5, west of China?

Line 6-11, please reword, Hg blood concentrations are mainly from fish consumption, and where the fish was caught in Korea? Sea of Japan? East China Sea? If so, why we concern the ambient air Hg concentrations in Seoul area?

Section 2.1, what is the major wind direction at this site?

Page 32925, how that is possible using Tekran 2537B to measure TGM? GOM will loss in the line upstream of the gold traps.

Line 20-29, this is not a way to write scientific article, the authors cited Edgerton 2015 conference presentation. I cannot find this manuscript or any detail information of this study online. Therefore, I do not think this study can support the statement here. I understand the uncertainties of GOM and PBM measurements using KCl denuder and filter are huge; however, the core of this study is to discuss the species measured by this high uncertain technology. The authors should discuss these uncertainties in detail and investigate or explain how these uncertainties will impact their results and conclusions. I do not see anything like this in the entire manuscript.

Page 32937 Line 15 can 200/500 m height separate regional and local transport? How? Any references to support this hypothesis? What is average PBL at this site?

PSCF section, how did you select weighted number? Did you evaluate these numbers in Asia?

Page 32939 line 15, you only have couple weeks data for a month or even less, how can they represent seasonal variation?

Page 32941 line 13 Eq 5, instead of using GOM/PBM ratio, why not using Kp to do the linear regression? In this way, I cannot compare with previous studies and PM2.5

impacts are ignored. In some places the authors use R, and in other places they use R2, in some places they only show P without R, why?

Page 32942 Line 17-24, CPF can only explain local sources not regional transport. Be care here ! I understand that the authors use back trajectories to support their conclusions based on CPF, but I suggest to delete these regional transport statements in this section.

Page 32944 line 5, again CPF has its limitation

Page 20, I do not think using GOM/PBM ratio to check long range transport is a good method. If wet deposition occurs during transport, the ratio will be dramatically changed.

Interactive comment on Atmos. Chem. Phys. Discuss., 15, 32931, 2015.

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