

Interactive comment on “Atmospheric mercury in the Southern Hemisphere – Part 2: Source apportionment analysis at Cape Point station, South Africa” by Johannes Bieser et al.

Anonymous Referee #1

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General comments

The manuscript reveals the source and sink of atmospheric gaseous elemental mercury (GEM) arriving at the Cape Point based on the in-depth back trajectory analysis. The results obtained by the authors have the interest and contribute for understanding of Hg behaviors in the global atmosphere and present a defensible dataset and interpretation, building on previous studies. The manuscript is well-organized, and the methods utilized are appropriate. Thus, this manuscript can be recommended for publication in the Atmospheric Chemistry and Physics. There are, however, several places in the manuscript might be corrected to provide better readability.

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Specific comments

Page 7 Line 194 I am wondering why the dry Hg deposition is increased in land areas? The authors should discuss more about it.

Page 15 Lines 400-403 The authors should disclose a data source or literatures to explain this part.

Page 15 Lines 410-412 The anomaly positive peaks were appeared in 2012 and 2014. Why does the volcanic emissions in 2011 might be responsible for higher GEM concentration in 2012? In addition, the authors should explain which volcanos were erupted in 2012 and 2014. Do these eruption or geothermal activities have impact on global GEM concentrations? I think more detailed discussion is needed in this part.

Technical corrections

Page 4 Figure 2 or Figure 3 The latitudinal and longitudinal values should be depicted in the Figure 2 or Figure 3 because the authors made the regionalization (Section 2.3) based on their values.

Page 5 Line 133 “However, he choose”, I think this part has a typing mistake.

Page 5 Table 1 What is the unit of these numbers?

Page 7 Line 206 What type of known major Hg emitters does exist? In the conclusions section, the authors described a significant point source in South Africa is mostly linked to coal combustion. But they should give the information on the type of point source in the Section 2 or Section 3.

Page 12 Section 3.3 The authors explained the regionalized trends for GEM and other pollutant such as ^{222}Rn and so on. I think a table or figure is needed in this part for better interpretation and understanding.

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