

Interactive comment on “Global mercury emissions to the atmosphere from anthropogenic and natural sources” by N. Pirrone et al.

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article

1 Comments to Reviewer 2

In Italic the Reviewer's comments.

The manuscript reported an update of global mercury emissions from both anthropogenic and natural sources. The topic is important and the information is useful for

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the simulation of mercury transport in the atmosphere and development of mercury control policies.

We thank the reviewer for his positive comment.

However, there are still some shortcomings that shall be revised before it's finally published. (1) It is necessary to provide the emission factors and related data used for mercury emission estimates. For example, the contents of mercury in coal combusted in different countries, the contents of mercury in the copper, zinc, lead, nickel and gold ores, mercury emission factors of cement and steel production, the Hg removal efficiencies and application rates of air pollution control technologies applied in different sectors, the amount of coal consumption in different countries, the production of non-ferrous metals, cement, steel, and so on.

The manuscript will be revised according to the reviewer's comments by including a table of the emission factors used, mercury content in coal and ores, and removal efficiencies for different technologies.

(2) Some statements are not correct. For example, at P 4729 the authors write “In China, for example, around 90% of the cement kilns are vertical shaft types”. Actually in China, about 50% of cement was produced by vertical shaft kilns in 2005, which decreased to 25% in 2009.

Will be revised accordingly.

(3) Some recent, important references were omitted. For example, “Hylander, L.D. and

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R.B. Herbert, 2008. Global emission and production of mercury during the pyrometallurgical extraction of nonferrous sulfide ores. Environmental Science Technology 42(16), 5971-5977." It is necessary to do more data mining for such a comprehensive study.

Will be revised accordingly and missing references as well as key information therein reported will taken into account in the revised manuscript.

(4) Uncertainty analysis is also important. Uncertainty levels of Hg emissions from different countries and sectors shall be addressed.

Uncertainties for different sectors and countries will be reported and discussed.