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Interactive comment on "Model analyses of atmospheric mercury: present air quality and effects of transpacific transport on the United States" *by* H. Lei et al.

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Lei et al. present CAM-Chem model simulations of global atmospheric mercury cycle. The resulting modeled distribution of atmospheric mercury concentrations is compared in Table 2 with measurements at 19 stations around the world, one of them being Cape Point in South Africa. In the abstract the authors state that "The results also indicate

that mercury pollution in East Asia and Southern Africa is very significant with TGM concentrations above 3.0 ng m-3." and they discuss this point in detail in Section 3.1. We would like to point out that the discussion concerning southern Africa is flawed for two reasons:

1. The authors use the global emission inventory for 2000 by Pacyna et al. (2005) which contains grossly overestimated mercury emissions in South Africa (Brunke et al., 2012, and references therein). The overestimation is based on the assumption that amalgamation is the dominant technology used in gold mining in South Africa whereas, in reality, the cyanide extraction technology is used which emits hardly any mercury.

2. In Table 2 the modeled concentrations are compared with the measurements in 1998 – 2002 at Cape Point on the basis of two references: Baker et al. (2002) and Witt et al. (2010). The data presented in Baker et al. (2002) contain measurements only until June 1999 and Witt et al. (2010) made measurements onboard ship east of Madagascar in November 2007 which fits neither the stated interval nor the site. More suitable data for comparison are listed in Table 1 of Slemr et al. (2008) with annual median mercury (Hg0) concentrations varying between 1.19 and 1.25 ng m-3 for the years 1999 – 2004.

Thus mercury pollution in South Africa is substantially smaller than claimed by the authors.

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