

Interactive comment on “Characteristics of atmospheric total gaseous mercury (TGM) observed in urban Nanjing, China” by J. Zhu et al.

Anonymous Referee #3

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The paper is well written – there are a few typos I assume will get caught in final editing. The data set is valuable and the author's assertion that the natural/reemission source of Hg is large, is an important one and adds to the knowledge of biogeochemical cycling of Hg. The paper could basically stand as-is, except for the comments below. The paper is a bit long and 18 Figures is perhaps too many. I think the discussion on wind directions and trajectories, while interesting, could be relegated to supplemental information. It seems to dilute the analysis of the balance of anthropogenic vs. natural emissions which I think is the most important part of the paper. What evidence is there for positive TGM vs. solar radiation relationships in other studies in China? On p. 25052, line 25, the authors state that Nanjing is the largest emission region in China. Is this because of the high concentration of emitting facilities in the region or is it because of the natural sources? Without measurements of other copollutants besides CO and

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O₃ (like SO₂ and NO_y and particulates) it is hard to infer sources of TGM from wind data and correlations with meteorological variables. Figure 1: is that a wind rose? Cannot decipher the scale.. no mention of it in text. Page 25047 Line 18: The TGM/CO slope, how did you get that from the graph? The slope shown on Fig. 11 is 2.59. The number report 0.00719 ng m⁻³ ppb⁻¹ is that for the whole season or one plume? Can it fairly be compared to Friedli et al from one plume? Page 25048, line 1-2: Is this annual anthropogenic mercury emission of 4.26 t calculated based on the data in this work or from Huang et al., 2011.

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