

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

Anonymous Referee #1

Received and published: 9 October 2012

The authors present a comprehensive and careful analysis of almost year-long measurements of mercury in the urban atmosphere of Nanjing. With the help of corollary measurements of CO, O₃, and meteorological parameters they explain quite convincingly the seasonal and diurnal variations. They also locate the probable source regions. The paper is generally well written but needs minor corrections detailed below.

Factual comments:

Section 2.2.1: Sampling of TGM: Why do the authors believe that they measure TGM? The current conventional wisdom is that in humid warm air RGM will not pass the inlet tubing and the particle filter. In addition, the TGM attribution is not consistently used: e.g. on page 25043, line 3, GEM is used instead. The frequently used argument that RGM usually represents a very small part of TGM and thus TGM is practically GEM

C7922

may not be applicable to urban atmosphere. More detailed information is needed. To which standard condition are the concentration units (ng m⁻³) referred to?

Section 2.2.2: The authors mean with “Thermo Model xxx” probably “Thermo Scientific Model xxx”.

Page 25047, line 6: What do the authors mean with the sentence “The large amount of the mercury in soil around Nanjing and the surrounding probably were reemitted from the terrestrial system.”?

Figure 3: Frequency distribution of all data does not say much. More important are the seasonal frequency distributions shown in Figure 5. Figure 3 can thus be omitted.

Figure 10: Either the diagram or the figure capture should provide information about the thick lines: running average over how many days?

Editorial comments:

Page 25038, line 15: why capital M in “. . . Modeling studies. . .”

Page 25038, line 19: “. . . that natural sources are important in Nanjing while most. . .”

Page 25038, line 26: “local” instead of “lacial”

Page 25039, line 18: “. . . soil surface. . .” instead of “. . . surficial soils. . .”

Page 25039, line 22: “. . . a large. . .” instead of “alarge”

Page 25040, line 1/2: “. . . help us to understand” better than “. . . enable. . .”

Page 25041, line 16: “. . . 2m above the floor of the site” – the authors probably mean “2m above the roof of the building”?

Page 25043, line 26: “campaign is” instead of “campaignis”

Page 25044, line 19: “the standard deviations were” instead of “was”

Page 25045, line 11: “The subtropical climate in Nanjing means that. . .”

C7923

Page 25045, line 15 and 2.2.2 title: "Analysis of potential controlling factors" is perhaps better than "Analysis of potential impacting factors". Dtto, e.g. "which controlled" instead "which impacted" in line 15.

Page 25046, line 7: "mediated" instead of "mediate"

Page 25047, line 14: "affected" perhaps better than "impacted"

Page 25047, line 16: The sentence starting with "Of course..." is not clear and needs rewording.

Page 25048, line 4: "pronounced" is probably better than "noticeable". Dtto page 25053, line 4.

Page 25048, line 14: "occurring at" instead of "occurringat"

Page 25048, last line: Why "revolatilization"? "emission" might be better.

Page 25049, line 25: "which was later than during other seasons"

Page 25051, last paragraph: Were the TGM pollution episodes accompanied by high CO?

Page 25053, line 26: "... for maintaining instruments and...!"

Page 25054, line 14: "...coastal/rural..."

Page 25057, line 5: "Atoms. Res."?

Page 25058, line 9: "temporal variations"

Interactive comment on Atmos. Chem. Phys. Discuss., 12, 25037, 2012.