

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

J. Zhu et al.

We thank the referee for the positive comments and suggestion. In our response, we have addressed all of the concerns of the reviewer and revised the paper accordingly.

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 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?

Re: We believe that we are measuring TGM in Nanjing. Tests that our group has done recently are in contrast to what's in the literature. RGM is not sticky and is not lost on tubing etc. As a matter of fact, it's very difficult to remove from an air stream. We think the literature is wrong in this regard. We have changed “GEM” in page 25043, line 3 to “TGM”. We also went through our manuscript and didn't find other “GEM” used except some references. The flow meters are calibrated to standard atmospheric conditions of 0°C and 1 atm. pressure.

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

Re: Our instruments are “Thermo Model”, not “Thermo Scientific Model”.

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.”?

Re: We have changed this sentence to “Large amount of the mercury in soil around Nanjing and nearby regions probably originated from deposition of anthropogenic TGM”

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.

Re: Figure3 shows the frequency characteristic during the whole year. We think it has different sense with figure 5. So we hope to retain it.

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

Re: We have added those information in the figure.

Editorial comments:

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

Re: We have changed it to lowercase.

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

Re: We have changed it.

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

Re: We have changed it.

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

Re: We have changed it.

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

Re: We have changed it.

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

Re: We have changed it.

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

Re: That means 2m above the roof of the house in our site. Our site is on the roof of the building.

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

Re: We have changed it.

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

Re: We have changed it.

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

Re: We have changed it.

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.

Re: We have changed it.

Page 25046, line 7: “mediated” instead of “mediate”

Re: We have changed it.

Page 25047, line 14: “affected” perhaps better than “impacted”

Re: We have changed it.

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

Re: We changed “Of course, the re-volatilized mercury could be deposited anthropogenic mercury as well as natural emissions.” to “Of course, the re-volatilized mercury which could be deposited anthropogenic mercury is also regard as natural emission.”

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

Re: We have changed them.

Page 25048, line 14: “occurring at” instead of “occurringat”

Re: We have changed it.

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

Re: We have changed it.

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

Re: We have changed it.

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

Re: We have changed it.

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

Re: We have changed it.

Page 25054, line 14: “. . .coastal/rural. . .”

Re: We have changed it

Page 25057, line 5: “Atoms. Res.”?

Re: We have changed it.

Page 25058, line 9: “temporal variations”

Re: Sorry, we didn't find this mistake in *Page 25058, line 9*