

**Review of acp-2016-526 "Airborne mercury species at the Råö background monitoring site in Sweden: Distribution of mercury as an effect of long range transport » by I. Wängberg, M. G. Nerentorp Mastromonaco, J. Munthe, and K. Gårdfeldt**

**Excellent paper. Could be published with minor corrections suggested below.**

**A: -requests for improvements:**

Draw a figure (simple box model) to illustrate your argument that the free tropospheric GOM is a likely source of “excess” GOM observed at Rao. (line 10-15, p7)

Attempt to compare with the La Seyne sur Mer data presented in Maruszczak et al. (2014)

**B: - suggestions for improvement**

Page 1

Title :

Airborne mercury species at the Swedish Rao monitoring site : their distributions are affected by long-range transport.

Abstract :

Within the EU-funded GMOS project, ...

mid-May

line 11 : remote location

south-east

background, free tropospheric air

Introduction

Line 26 : particulate-bound mercury

Page2

Line1 : chain, which occurs frequently in marine and freshwater ecosystems

Line 10: bedrock, and their contributions to... are estimated...

Line 15: Tekran speciation unit was used...

Line 24: the detail and amount of comparison given in the text does not warrant the amount of “teasing” performed in the introduction.

Line 30 GMOS master

Line 31: considered a real background site: please provide references or additional information.

Page 3

Line 1: give percentiles/extrema/ standard deviations associated with average meteorological parameters.

Line 15: were obtained

Line 17: every four hours, three-hour average PBM and GOM values are obtained, together....

Line 27: to ensure that all oxidized

Line 30: quantified by the ...

Page 4

Line 1: laboratory-built

Line 6: Once the blanks are at the appropriate level, PBM and GOM were always detected...

Line 11: do reference the GMOS SOP or link to the web-site.

Page 5

Line 5: could be associated with each.

Line 24: probably because the Waldhof

Line 30 : or GOM. Close to...

Page 6

Line 4: simplify sentence

Line 11: mercury sources in Poland, Romania, ..

Line 12: electricity and domestic heating, but also

Line 25: and  $5.71 \text{ ng m}^{-3}$

Line 31: influenced by ...

Page 7

Line 7: bromine-driven photolytic oxidation (Donohue et al., 2006)

Line 8: formed at a slow rate

Line 17: south-east... the air sampled at Rao has ...

Line 19: domestic heating

Line 24 At Rao, the airborne...

Line 29: normally short atmospheric... of GOM, one ...

Line 31, GOM are not likely...

Page 11:

Table 1: do separate better the upper table (Median) and lower part (Average)

Page 14

Fig 4: use segmented line plots rather than bars. It would allow to plot means and medians on the same figure. If bars MUST be used, avoid gradient fills. January and February are misspelled.