

Interactive comment on “First eddy covariance flux measurements of gaseous elemental mercury (Hg⁰) over a grassland” by Stefan Osterwalder et al.

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Comment 1 from the Referee: The paper “First eddy covariance flux measurement of gaseous elemental mercury over a grassland” should be accepted for publication in AMT. The paper title should be modified to be something like: An improved method for eddy..... The word first should be deleted.

Author’s response: We deleted “Hg(0)” from the title: “First eddy covariance flux measurements of gaseous elemental mercury over a grassland”. However, we suggest to keep “first” in the title in order to emphasize that we indeed conducted the first eddy covariance measurements of the Hg(0) flux over a low-Hg level soil (< 100 ng Hg g⁻¹

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topsoil [0-10 cm]).

Comment 2: Line 9 change “crucial to improve” to “important to for understanding”

Response: We changed this accordingly: “. . .are important to improve our understanding of global Hg cycling und ultimately. . .”

Comment 3: Line 16 remove “the first successful”

Response: We removed “successful”: “we present the first eddy covariance NEE measurements of Hg(0). . .”

Comment 4: Line 21 and 22 which should be that...please fix this throughout your document.

Response: We replaced “which” by “that” wherever necessary throughout the manuscript.

Comment 5: Line 27 should start as “This system has the potential”

Response: Done.

Comment 6: Line 33 about is not very scientific change to approximately orâLij

Response: We now use “approximately”.

Comment 7: The authors should mention the fact that Hg(II) dry deposition is important to consider and the limitations associated with only measuring GOM (should most likely be GEM).

Response: We now address Hg(II) dry deposition in the introduction by adding the following statement: " Dry deposition of Hg(II) is difficult to measure and its contribution to total Hg deposition remains uncertain (Gustin et al., 2013; Jaffe et al., 2014; Miller et al., 2018, Lyman et al., 2019). Hg stable isotope fingerprints identified Hg(0) as the dominant deposition pathway to terrestrial surfaces.”

Comment 8 - 13: Orthography.

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Response: We changed the manuscript according to the Referee's suggestions.

Comment 14: Line 258 which is a further should be that is an improvement

Response: Done.

Comment 15: Line 262 get rid of however.

Response: Done.

Comment 16: Page 10 has a number of which that should be that

Response: We changed which to that where suitable.

Comment 17: Line 367 comma needed after directions

Response: We added the comma after "detections".

Comment 18: Line 467 comma before but

Response: We added the comma before but.

Comment 19: Line 472 this sentence is really awkward I suggest you delete it

Response: We followed the Referee's suggestion and deleted the sentence.

Comment 20: Line 502 would be better if it was "This study demonstrated an application of"

Response: We changed the sentence as suggested.

Interactive comment on Atmos. Meas. Tech. Discuss., doi:10.5194/amt-2019-278, 2019.

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