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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Effects of temperature and other atmospheric conditions on long-term gaseous mercury observations in the Arctic" *by* A. S. Cole and A. Steffen

Anonymous Referee #3

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Having had the benefit of reading the first two reviewers comments I can only endorse them. In my opinion, this paper is an excellent and interesting addition to the scientific body of knowledge of atmospheric mercury in te Arctic and must be published after minor revision, especially those mentioned by reviewer #2's excellent, careful and very complete review.

As a side bar, I have one comment which I submit would add value to the paper and community - though certainly not a necessity, since I agree with the author's statement in the abstract that: "The data presented here – both the change in timing of depletion events and their relationship with temperature – can be used as additional constraints

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to improve the ability of global models to predict the cycling and deposition of mercury in the Arctic." Although I have the impression that their data may also improve depositional and transport models at other than global scale.

It would be nice feature for experimental or theoretical data for an appendix or "fact box" for modellers, with the new data presented in such a way that modellers can readily find the data. Given that field studies and models are necessarily becoming more integrated, it would be nice that when authors who appropriate claim that their data may be used to help improve the models, point out exactly what data and how. This is by no means necessary, but I believe that it would be a great service as an appendix to those involved in modelling. For example: it could be as a table showing: current rate used in NN Global models. Proposed change to: (result from our study).

The above aside, I look forward to seeing the authors respones to improvements suggested by the other reviewers and to seeing this study published.

Interactive comment on Atmos. Chem. Phys. Discuss., 9, 27167, 2009.