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Interactive comment on "Overview of receptor-based source apportionment studies for speciated atmospheric mercury" *by* I. Cheng et al.

Anonymous Referee #3

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General comments

The manuscript by Cheng et al. provides an overview of the source apportionment studies for speciated atmospheric mercury using a receptor-based approach. Related methodologies are described, study examples are given, and future research directions are recommended. In general the manuscript is well organized and clearly written, and its subject is relevant to the scope of ACP. Therefore, I recommend that the manuscript be accepted for publication if these following comments are sufficiently addressed. One general comment is to add a summarizing table for the comparison of different methodologies, including input and output parameters, advantages and disadvantages, etc. Such a table would facilitate the readers' understanding of the similarities and differences among receptor-based methodologies.

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Specific comments

P5499, L11: A reference for "the PMF model" is needed here.

P5500, L4: An explanation for "Delta-C" is needed when it is mentioned for the first time in the manuscript.

P5502, L6-7: I think the uncertainties of GOM and PBM concentration measurements are not only 40% and 70%. Gustin et al. (2013) suggested that GOM and PBM concentrations "could be 2-to-3 fold higher than that reported in the literature".

P5507, L12: A full name for "the FLEXPART model" and a related reference are needed here.

P5517, L12-14: What chemical species is(are) the marker(s) of sewage treatment?

P5518, L16-24: The authors may consider moving these several sentences about the goodness and evaluation of the PMF methodology to Section 2.

P5526, L18-26: "PSCF and GFD are also more likely to report high probability source areas near the receptor location because ..." It is not clear how this reason is different from the two uncertainty sources mentioned above: "the trailing effect and high distribution of trajectory endpoints near the receptor region".

Interactive comment on Atmos. Chem. Phys. Discuss., 15, 5493, 2015.

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