**Atmospheric
Chemistry
and Physics
Discussions**

Interactive comment on "Hydrochlorofluorocarbon and hydrofluorocarbon emissions in East Asia determined by inverse modeling" *by* A. Stohl et al.

Anonymous Referee #2

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This is a well written and interesting inversion paper, retrieving HCFC and HFC emission over large part of Asia. It merits publication in ACP, with minor modifications.

I have limited remarks, mainly about providing some more details in some of the sections, and probably due that I did not read preceding publications on the technique. My remarks may partly overlap with the remarks of the other reviewer.

- Given the long life times and the global nature of most of the emissions, I wonder how 1) background concentrations have been taken into account, and 2) what the associated errors are. On page 2094 it is mentioned that results are only marginally sensitive to 'including' data from Mace Head and Trinidad Head, but indeed a large part of the measured concentration must derive from Asian emissions.

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- p. 2126 and section 2.1 what exactly is given in the foot-print sensitivity in Figure 1. Is this the average of the footprint for 4 stations?

- p. 2096 the authors loosely mention 'excellent' agreement among various measurements techniques, but can they explain what that means, and how much the impact on the inversion would be.

-p. 2096 Explain better the methodology of removing negative emissions.

-p. 2096 information on meteorological dataset and resolution should be given here (now in 3.1). Do the 1377 'boxes' correspond to 1x1 degree?

p. 2097 Explain why a distribution of emission by population is a good proxy, especially in the context that there are limited production facilities. In fact it is mentioned on p. 2102 that this is unrealistic. Is there any temporal variation assumed? What are the a-priori errors of the emissions: gridbox errors, I didn't understand 'at least 100 % of global emissions'

-p. 2100 correlations are determined for 3 hourly data? I would call the correlations great.

-Section 3.2 There are various pieces of information in the results section that I think would better fit in the introduction or emission sections. E.g. what the use of the various emission is.

-Conclusions section: To me the errors on the inverted emissions (in the order of 10 %) seem rather small. Can the authors comment on how/whether model errors are included as well?