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Atmospheric Chemistry and Physics Discussions

Interactive comment on "HFC-23 (CHF_3) emission trend response to HCFC-22 ($CHClF_2$) production and recent HFC-23 emission abatement measures" *by* B. R. Miller et al.

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We thank Referee #2 for positive remarks regarding our analysis and noting the relevance of this manuscript for interpreting emission reductions through the CDM projects. We also thank the Referee #2 for the constructive criticisms, which we address here.

First, Referee #2 points us to a better estimate of Venezuelan production than the value we originally used. We had originally chosen 10,000 tonnes as a 'middle ground' estimate, given the capacity range of the CDMs (representing the developing world) is about 1,000 to 25,000 tonnes. Using the suggested lower Venezuelan production of order 2,000 tonnes has the effect in our calculations of slightly decreasing the per-

centage of HCFC-22 production in non-Chinese facilities in the developing world that were not incinerating their HFC-23 in 2005. Thus that percentage drops from ∼11% to ∼10%, resulting in 90% of our bottom-up developing countries' emissions coming from China alone, and still about 8.3 Gg/yr. This recalculation insignificantly lessens the gap, which was already insignificant within stated uncertainties, between our estimate and that of Yokouchi et al. (2006).

Regarding the formulation of our Discussion/Conclusions, Referee #2 contends that we have not presented adequate analysis to justify our assertion that the balance of incineration capacity and HCFC-22 production for feedstock use may determine the course of HFC-23 emissions in the near future. Note that we make no prediction as to whether incineration will, or will not, be able to keep pace with HFC-23 production resulting this source. Rather, in view of ultimate cessation of HCFC-22 production for dispersive uses under the 2007 revisions of the Montreal Protocol, we make the point that feedstock production and incineration capacity are the two remaining variables that will govern HFC-23 emissions within that timeframe (process optimization is not currently adequate to eliminate emissions, but it does help). Taken in the context of the Montreal Protocol phase out of HCFCs, "in the near future" refers to the next decade or two. For clarity sake, we have reworded this particular conclusion to read:

"Within the Montreal Protocol HCFC phase-out timeframe of the next two decades, the controlling factor determining whether there is resurgence or continued decline in HFC-23 emissions may be the extent to which incineration can keep pace to counteract potential growth in feedstock production."

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