

Interactive comment on “Measurement and interpretation of gas phase formaldehyde concentrations obtained during the CHABLIS campaign in coastal Antarctica” by R. A. Salmon et al.

R. A. Salmon et al.

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We thank the referee for his/her comments.

In response to specific points,

1. "...My only caution would be in the wording of the final sentence of the second paragraph of the intro. "the snowpack in polar regions is a major source of formaldehyde to the troposphere". It is true that the LOCAL concentration of HCHO can often only be explained with a significant snowpack source, but the wording of this sentence might be interpreted as the snow being a significant source of HCHO to the regional/global

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troposphere, which is not the case. This is however, a minor point and likely not at all what the authors intended, but it might be interpreted as such if the point is not clarified."

We agree with the referee and appreciate the ambiguity, the text has now been modified to say, "...the snowpack in polar regions is a major source of formaldehyde to the polar boundary layer."

2. "In terms of the differences between the Halley and Neumayer data - I am not familiar enough with the meteorology of the two sites; but could a possible additional explanation include varying boundary layer heights? Also, is there a difference in the delivery of aerosol/sea-salt to each site? i.e. could there be greater halogen activity at one site v. another (and thus differing relative source/sink strength?). Is there a closer vicinity of open/refrozen leads to one site v another? Perhaps the formation of frost flowers could give a large difference in halogen chemistry between sites?"

We have expanded on the boundary layer height definition in the manuscript, and added a line in the Results and Discussion section explaining that because both sites are on relatively narrow coastal ice shelves, we have no reason to expect the boundary layer height and other factors (such as open water leads) to differ.

3. "For equation 1, the horizontal line (separating numerator from denominator) should not extend to the left of the ="

This has been amended.

4. "The authors have summarized their data in relatively few figures/tables. I would suggest adding a table that includes some key measurements (as reading exact concentrations from a log scale figure (Fig 2) is often difficult). I would suggest adding a table to include some values such as monthly (or seasonal?) average, min/max, standard deviation to indicate variability, etc. This would help summarize the data without making the reader try to interpret Figure 2 data points quantitatively. Some of these

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measurements are in the text, but it would be valuable to summarize it in one table for the reader."

An excellent suggestion, an additional table has now been added, summarising mean monthly HCHO concentrations, min/max values, standard deviation, and limit of detection.

Interactive comment on Atmos. Chem. Phys. Discuss., 8, 2337, 2008.

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