

Interactive comment on “Investigation of CO, C₂H₆ and aerosols in a boreal fire plume over eastern Canada during BORTAS 2011 using ground- and satellite-based observations, and model simulations” by D. Griffin et al.

D. Griffin et al.

kwalker@atmosp.physics.utoronto.ca

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We would like to thank reviewer #2 for his/her corrections and recommendations. We have indicated our corrections based on reviewer #2's comments in blue in the annotated manuscript.

1. ‘... we will focus in our study on carbon monoxide (CO) and ethane (C₂H₆) as well as fine mode aerosols.’ Why don't you include additional biomass

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burning products such as HCN or C₂H₂ in your study, as done for example in Vigouroux et al., ACP, 2012?

Unfortunately, due to the high water vapour contributions to the spectra from Halifax we found it difficult to retrieve HCN and C₂H₂. Therefore, these species are not included in our analysis.

2. Is the detector response linear although no optical filters are used? Or do you correct the spectra for non-linearity?

The non-linearity correction is included in the conversion of the interferograms to the spectra. This process is described in more detail in Fu et al. (2007), which has been cited in the instrument description.

3. How does the CO results compare with studies of previous biomass burning events as investigated for example in Yurganov et al., JGR 2004 and Yurganov et al., ACP 2005?

Yurganov et al. (2004, 2005) describe monthly means and the total CO emission in the Northern Hemisphere due to biomass burning. Our results focus on the total column enhancement of CO from one specific biomass burning event (sampled over two days) and the related enhancement ratio of C₂H₆. Because these studies focus on different quantities and time periods, we have not compared them.

4. P. 11092, line 4: and are = are

We have corrected the grammatical mistake as suggested.

“The measured C₂H₆ total columns from the DAO-DA8 and simulated total columns of C₂H₆ from GEOS-Chem [are shown in Fig. 8 b.](#)”

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5. Figs. 2, 7 & 8: Axis title and tick labels are a bit small.

We have changed the font size of the right y-axis label on Figure 7 panel a, to make it consistent with the rest of the labels. In addition, Figures 7 and 8 will be larger when published in the final ACP format. We also changed the font sizes of Figures 1, 2 and 6 that each figure within the paper has approximately the same font size.

Interactive comment on Atmos. Chem. Phys. Discuss., 13, 11071, 2013.